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MARKETING DEPARTMENT • ENVIRONMENTAL ENGINEERING

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May 30, 1996

Mr. Scott Seery
Alameda County Environmental Health Department
1131 Harbor Bay Parkway
Alameda, California 94501-6577

RE: EXXON RAS #7-3399/2991 HOPYARD ROAD, PLEASANTON, CA

Dear Mr. Seery:

Attached for your review and comment is a report entitled ***Problem Assessment Report/Remedial Action Plan*** for the above referenced site. This report, prepared by Delta Environmental Consultants, Inc., (Delta) of Rancho Cordova, California, is submitted in response to a letter request from your office dated March 14, 1996.

If after your review of the report you feel the site needs to be discussed further, Exxon would be agreeable to meeting with you in person. Please contact me at (510) 246-8776 if you have any questions or comments.

Sincerely,

Marla D. Guensler
Senior Engineer

MDG/mdg

attachment: Delta Problem Assessment Report dated May 30, 1996

cc: w/attachment:
Mr. Sum Arigalia - San Francisco Bay RWQCB
Mr. Jerry Killingstad - Alameda Co. Flood Control (Zone-7)
Mr. Steve Cusenza - City of Pleasanton Public Works Dept.

w/o attachment:
Mr. Keoni Almeida - Delta, Rancho Cordova, CA

5/30/96

PROBLEM ASSESSMENT REPORT /REMEDIAL ACTION PLAN

EXXON SERVICE STATION NO. 7-3399
2991 HOPYARD ROAD
PLEASANTON, CALIFORNIA
DELTA PROJECT NO. D094-836

May 30, 1996

Prepared By

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2991 HOPYARD ROAD
PLEASANTON, CALIFORNIA

1.0 INTRODUCTION

Delta Environmental Consultants, Inc. (Delta) has been authorized by Exxon Company, U.S.A. (Exxon), to conduct environmental assessment work at Exxon Service Station No. 7-3399 located at 2991 Hopyard Road, Pleasanton, Alameda County, California. As part of the environmental assessment, Delta has completed a review of existing project information to summarize hydrogeologic and remediation activities conducted at the site since March 1988. A summarization and discussion of the environmental site status is presented in the following report, in addition to Delta's conclusions and recommendations.

1.1 Purpose

This report presents a summary of data and results performed to date assessing hydrogeologic conditions, remedial action, and the inferred distribution of petroleum constituents in soil and ground water beneath the site. The purpose of this report is to achieve the following objectives:

- Summarize existing hydrogeologic information at the site.
- Assess the existing distribution of petroleum constituents in soil and ground water beneath the site.
- Recommend additional hydrogeologic assessment and/or additional remedial action for the site.
- Propose a course of action for conditional closure and site monitoring.

1.2 Summary of Previous Work

Environmental investigation activities at the site were initiated on March 31, 1988, by Applied GeoSystems. Resna Industries, Inc. (RESNA) performed assessment and remedial activities at the site between 1991 to July 1994. Since August 1994, environmental consulting for the site has been conducted by Delta.

1.2.1 Work Conducted by Previous Consultants

Environmental consulting work performed by Applied GeoSystems included the following activities:

- Phase I hydrogeologic assessment (soil borings and ground water monitoring well installation and a soil vapor survey) performed in April 1988.
- Assisting in soil management and soil sampling during underground fuel storage tank replacement activities in July 1988.
- Phase II hydrogeologic assessment (additional soil borings and ground water monitoring well installation) performed in July 1988.
- Implementation of initial remedial action (installation of a temporary recovery well) performed in August 1988.
- Implementation of soil vapor recovery system and ground water pump and treat system. Operation and maintenance of systems occurred between 1988 to 1990.
- Implementation of quarterly ground water monitoring in February 1990.

Environmental consulting work performed by RESNA included the following activities:

- Continuing quarterly ground water monitoring through the second quarter 1994.
- Preparation and submittal of a *Subsurface Investigation and Interim Remediation System Evaluation*, dated May 16, 1994, to assess remediation status of site.

1.2.2 Work Conducted by Delta

Delta began environmental consulting at the site after July 1994. Since July 1994, Delta performed the following activities at the site:

- Continued quarterly ground water monitoring; third quarter 1994 through first quarter 1996.

2.0 PROJECT BACKGROUND INFORMATION

2.1 Site Location and Description

Exxon Service Station No. 7-3399 is located at 2991 Hopyard Road, Pleasanton, Alameda County, California, Township 3 South, Range 1 East, Section 31, Mount Diablo Baseline and Meridian. The location of the site is shown in Figure 1, Site Location Map.

The site is currently operating as a retail gasoline station. The site is bounded on the northwest by Valley Avenue, on the southwest by Hopyard Road, on the northeast by a grocery store/shopping center parking lot, and on the southeast by an access drive and Straw Hat Pizza restaurant. The locations of the former and existing underground storage tanks (USTs), service islands, and other pertinent features are depicted in Figures 2, Site Map, and 3, Former Site Layout.

Topography at the site gently slopes to the east at an elevation of approximately 321 feet above mean sea level. Asphalt and concrete predominantly cover the site. The site currently has six product distribution islands, two 10,000-gallon and one 12,000-gallon USTs containing unleaded gasoline. One 500 gallon underground used oil tank is also present at the site.

2.2 Site History

Prior to site renovation in 1988, the site included a station building with an auto maintenance bay, two product distribution islands, three gasoline USTs, and a used oil UST. The former USTs were originally installed in 1971. The USTs were 6,000, 8,000, and 10,000-gallon capacity containing premium unleaded, regular leaded, and regular unleaded gasoline, respectively. The former gasoline tanks were

located on the south side of the property (Figure 3) and the 500-gallon used oil tank was located south of the former station building. Former tank locations are shown in Figure 3.

Previous assessment and remedial action work was performed by RESNA and Applied GeoSystems prior to Delta's involvement at the site. Work conducted consisted of the removal and replacement of three gasoline USTs and one used oil UST, installation of monitoring and soil vapor extraction (SVE) wells, and the installation and operation of SVE and ground water treatment systems. Quarterly ground water monitoring began in April 1988. Results of the previous assessment work are presented in detail in the reports referenced in this report. The environmental work history is summarized in the following subsections.

2.2.1 Well Installation and Initial Assessment

Exxon initiated an environmental assessment at the site in April 1988 as part of anticipated station remodeling. The assessment was conducted as a result of a suspected release of regular leaded gasoline in March 1988.

Applied GeoSystems performed an initial assessment that included performing a soil vapor survey, installing ground water monitoring wells MW-1 through MW-4, drilling boring B-4, removing liquid-phase petroleum hydrocarbons (LPH), and sampling ground water (Applied Geosystems, Soil Vapor Investigation, Drilling of Soil Borings, and Installation of Ground Water Monitoring Wells, April 22, 1988). Ground water was encountered at approximately 36 feet below surface grade (bsg). Approximately 0.25 feet of LPH was present in well MW-2 immediately following installation on April 2, 1988. A product skimmer-pump was installed in MW-2 between April 7 and June 1, 1988 and removed approximately 55 gallons of LPH during this time. Minor amounts of LPH continued to be removed with a bailer from MW-2 between June 1 and June 17, 1988. An additional boring (B-4) was drilled to 40 feet adjacent to the tank where the suspected release occurred to assess hydrocarbons in soil. Soil samples were submitted for laboratory analysis of total petroleum hydrocarbons (TPH) as gasoline. Soil samples submitted for laboratory analysis indicated TPH as gasoline concentrations to be as high as

965 milligrams per kilogram (mg/kg). Cumulative soil sample analytical results are presented in Table 1 of this report.

A soil vapor survey was performed on April 7 and 14, 1988. This test evaluated soil vapor concentrations at 17 points on site at depths of 10, 20, and 33 feet bsg. Soil vapor concentrations exceeding 1,000 parts per million by volume (ppmv) benzene and 1,000 ppmv toluene were detected at depths of 10 feet bsg near the former tank basin. Soil vapor concentrations between 242 and 614 ppmv were found at 10 feet bsg near the former product lines.

Additional ground water monitoring wells MW-5s (shallow), MW-5d (deep), and MW-6, were installed in May 1988 (Applied Geosystems, Phase II Drilling of Soil Borings, Installation of Ground Water Monitoring Wells and Aquifer Testing, July 15, 1988). Soil samples were collected for laboratory analysis from the borings for ground water monitoring wells MW-5s, MW-5d, and MW-6. One soil sample from each boring was collected at depth intervals between 34.5 and 40 feet and submitted for laboratory analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX), and TPH as gasoline.

Monitoring well MW-7 was installed on July 11 and 12, 1988, to a total depth of 56.5 feet bsg. Soil samples were screened in the field, but no samples were submitted for chemical analysis. Concurrent with the installation at MW-7, monitoring well MW-2 was destroyed in preparation for over-excavation of the former tank basin area (Applied Geosystems, Installation of Temporary Recovery Well, Periodic Monitoring, and Remediation of Ground Water, August 17, 1988).

2.2.2 Ground Water Pumping Tests

Two pumping tests were performed in June 1988. The first test involved pumping water from well MW-2 for over 21 hours and monitoring the water levels in wells MW-1, MW-3 through MW-6, and Municipal Well No. 7. Municipal Well No. 7 is located approximately 275 feet northwest of the subject site. On the first day of the test, LPH were measured in MW-2 at a thickness of 0.13 feet. No LPH were observed in any other wells. The drawdown in Municipal Well No. 7 during the pumping test did not appear to correspond to the drawdown in the shallow monitoring wells. The difference in drawdown

was attributed to the isolation of the shallower perched water bearing zone at the site from deeper aquifer(s) in which the City of Pleasanton draws its water. The radius of influence of pumping from well MW-2 was approximately 680 feet. Approximately 2 weeks after the pumping test, a slight sheen on the water in well MW-2 was noted (Applied GeoSystems, Phase II Drilling of Soil Borings, Installation of Ground Water for Monitoring Wells Aquifer Testing, July 15, 1988).

The second pumping test involved pumping from Municipal Well No. 7 for slightly more than 29 hours while monitoring the water levels in wells MW-1 through MW-6. The resulting water level fluctuations in the six wells were minimal and attributed to changes in the barometric pressure during the day and night and not related to pumping from Municipal Well No. 7 (Applied Geosystems, Phase II Drilling of Soil Borings, Installation of Ground Water for Monitoring Wells Aquifer Testing, July 15, 1988). This information supported data from the initial pumping test indicating that the uppermost water bearing zone was not hydraulically connected to the deeper aquifers screened by Municipal Well No. 7.

2.2.3 Ground Water Treatment System

A ground water treatment system was installed in June 1988 to treat ground water pumped from well MW-2. Approximately 25,550 gallons of ground water were pumped, treated, and discharged to the sanitary sewer between June 1988 and July 1988. The initial treatment system included an oil/water separator followed by two 1,000-pound granular activated carbon (GAC) columns in series. Following the destruction of monitoring well MW-2, monitoring well MW-7, was utilized for ground water extraction and treatment.

Pumping from well MW-7 began on July 14, 1988, and continued until September 1, 1988. Ground water was pumped at approximately 20 gallons per minute (gpm) during operation. A total of approximately 975,000 gallons of ground water was removed and treated. Ground water was discharged to the sewer under Wastewater Discharge Permit No. 5541-001 issued by the Dublin-San Ramon Services District (DSRSD). The DSRSD extended the term of the permit through September 30, 1989, with revised conditions, allowing the carbon filtration system to be removed and a maximum discharge effluent TPH as gasoline concentration of 1,500 micrograms per liter (μg/L).

The ground water treatment system was shut down on September 1, 1988, and disassembled on October 17, 1988, due to station construction activities. The system was reinstalled and resumed operation on February 9, 1989 through January 22, 1990; approximately 7.3 million gallons was treated.

Based on flow meter readings and periodic pumping, the cumulative gallons discharged were as follows:

Operating Period	Average Pumping Rate (gpm)	Discharged Amount (gallons)	Cumulative Discharge Amount (gallons)
Pumping Test (June 1988)	19.8	25,000	25,000
June-July 1988	0.6	25,550	50,550
July 14-September 1, 1988	20.0	975,000	1,025,550
February 9-June 3, 1989	24.4	4,120,000	5,145,550
June 30-August 31, 1989	24.0	2,210,000	7,355,550
October 30 1989-January 22, 1990	0.25	31,950	7,387,500

The initial ground water recovery system was comprised of a 5-horsepower, 3.5-inch diameter submersible pump (capacity rating of approximately 60 gpm), placed in recovery well MW-7. Ground water was directed through a 2-inch diameter polyvinyl chloride (PVC) line into a 250 gallon oil/water separator tank and then drained into the sewer system by gravity feed. An in-line orifice, a flow meter, and an influent sampling valve were installed prior to the separator tank. The electric pump was operated by a control panel that included a low water level shut-off sensor and a high water level shut-off sensor to the separator tank.

During August 1989, Applied GeoSystems reported that hydrocarbon concentrations in the extracted ground water decreased to near or within drinking water standards and a reduced power (1/2 horsepower) pump was installed in well MW-7 on October 30, 1989. Operation of the ground water remediation system was discontinued on June 11, 1990, due to declining ground water levels as a result of a regional drought. In July 1993, since ground water levels had remained low, a temporary cap was installed at the discharge point of the inoperating treatment system at the request of DSRSD.

2.2.4 Underground Storage Tank Removal and Backfilling

Between July 15 and 29, 1988, three gasoline USTs and one used-oil UST were removed. Soil was overexcavated to remove soil impacted by petroleum hydrocarbons. Approximately 1,900 cubic yards of soil were excavated. The work was performed as part of Exxon's remodeling of station facilities. Well MW-2 was destroyed on July 12, 1988, due to the well's location in the former tank basin area (Applied Geosystems, Removal of Underground Gasoline Storage Tanks and Excavation of Hydrocarbon-Contaminated Soil, August 22, 1988).

The tanks were inspected upon removal. No signs of leaks or completely penetrating holes were observed although evidence of spillage around each fill port was reported. Soil samples were collected from beneath the ends of each gasoline tank and submitted for laboratory analysis of BTEX and TPH as gasoline. A sample collected from beneath the used oil tank was analyzed for total oil and grease (TOG) and halogenated and aromatic organics. Soil sample locations are shown in Figure 3. Soil sample analytical results from the samples collected from beneath the tanks are summarized in Table 2.

The gasoline UST tank basin was excavated to a depth of approximately 31 feet bsg. The excavation was deepened to 39 feet bsg in an 8-foot by 8-foot section in the western part (beneath the regular leaded UST). The limits of the excavations are shown in Figure 3. An organic vapor meter (OVM) was used during excavation to monitor relative hydrocarbon vapor concentrations. The OVM readings of soil were several hundred ppmv to a depth of approximately 18 feet, greater than 1,000 ppmv between 18 and 21 feet, 100 to 1,000 ppmv between 21 and 27 feet, and 10 to 20 ppmv from 27 feet to the bottom of the excavation (Applied Geosystems, Removal of Underground Gasoline Storage Tanks and Excavation of Hydrocarbon-Contaminated Soil, August 22, 1988).

The soil from depths between 18 and 21 feet bsg was observed to be discolored. This zone of impacted soil coincides with the soil sampled from 19.5 feet in boring B-4 (drilled adjacent to the point of the LPH release) that reported a concentration of 965 mg/kg of TPH as gasoline. No discolored soil was observed below a depth of 21 feet. Laboratory analyses of soil sample collected from the bottom of the excavation were below the laboratory's detection limits (Applied Geosystems, Removal of Underground Gasoline

Storage Tanks and Excavation of Hydrocarbon-Contaminated Soil, August 22, 1988). Soil sample locations are shown in Figure 3 and a tabulation of the analytical results are presented in Table 3. Soil samples were not collected from beneath the product lines or pump islands.

The soil generated from the excavation activities was stockpiled then aerated in compliance with the Bay Area Air Quality Management District (BAAQMD). The soil was then hauled and disposed of at a permitted facility.

In August 1988, the former gasoline UST tank basin was backfilled with pea gravel. The pea gravel was placed from total depth to approximately 12 feet bsg. The new tank pit was excavated near the western corner of the station property. Soil excavated from the new tank basin was used to backfill the upper 12 feet of the former tank pit. Vapor recovery well VR-1 was installed to 30 feet bsg in the former tank pit to recover residual gasoline hydrocarbons that may have remained in the soil.

Monitoring well MW-3 was destroyed on August 29, 1988, due to its location near the new UST tank basin. In addition, monitoring well MW-6 was also destroyed on October 24, 1988 due to it proximity to the new dispenser island canopy footing.

2.2.5 Additional Assessment

In September and October 1989, five additional soil borings (B-8 through B-12), four of which were converted to monitoring wells (MW-8 through MW-11), were installed by Applied GeoSystems. Well MW-8 was installed to monitor possible hydrocarbon concentrations in ground water within the aquifer at the top of the slotted casing (approximately 120 feet bsg) in the City of Pleasanton Municipal Well No. 7. The boring for this double-cased well was drilled to a depth of approximately 140 feet bsg. The well was constructed using 8-inch diameter steel conductor casing from 2 to 93 feet bsg, and 4-inch diameter slotted PVC casing from the total depth of the well at 133 feet to 118 feet. From 140 to 133 feet, the boring was backfilled with native material. On October 11, 1989, recovery well MW-7 was drilled out and replaced with a 5-inch diameter well to accommodate remediation equipment.

On November 28, 1989, approximately 0.08 feet of LPH was detected in monitoring well MW-9. Weekly site visits were conducted during December 1989 and early January 1990 to bail or pump monitoring well MW-9 to remove the LPH. Approximately 200 gallons of ground water and LPH were removed from the well during four purging events. An estimated one to two gallons of LPH was removed. The LPH in monitoring well MW-9 was reduced to a slight sheen following the second purging event.

2.2.6 Soil Vapor Extraction Tests

Three additional vapor recovery wells (VR-2 through VR-4) were installed in November 1989. Vapor recovery well VR-2 was used for two vapor extraction tests on December 14 and 15, 1989. A 100 cubic feet per minute (cfm), 7.5 horsepower vacuum pump capable of developing 12 inches of mercury vacuum was used to evaluate the well for approximately 9 hours each day. The extracted vapors were treated by GAC before being vented to the atmosphere. The laboratory analyses of the influent vapor samples indicated concentrations of TPH as gasoline ranging from 1,880 ppmv to 4,600 ppmv. Neither a downward nor upward trend in TPH as gasoline concentrations was recorded during the tests.

2.2.7 Soil Vapor Extraction System

The BAAQMD in their letter dated July 20, 1989, issued an Authority to Construct (Application No. 2821) a SVE system by letter on July 20, 1989. The vapor extraction system consisted of a 4-inch diameter vapor recovery well VR-1; 4-inch diameter PVC discharge piping from the well to the remediation equipment pad; a liquid-ring vacuum pump with an air-liquid separator; a flame ionization hydrocarbon analyzer; and two 200-pound GAC columns in series. The liquid-ring vacuum pump was 5 horsepower and capable of generating a vacuum of up to 28 inches of mercury at 75 cfm. Water was cycled from the oil/water separator tank (ground water remediation system) to provide the sealing action between the pump rotor and housing. The extracted vapor was passed through an air/water separator that removed moisture from the soil and liquid-ring pump. The dry vapor then was passed through the GAC, and was discharged to the atmosphere. Three vapor sample valves were installed in the system; one effluent valve, one influent valve, and one valve at the outlet of the first GAC column.

The flame ionization hydrocarbon analyzer continuously monitored vapor influent and effluent in the GAC. The analyzer was designed to shut down the vacuum pump when hydrocarbon vapors exiting the first carbon unit exceeded 6 ppmv.

The SVE system started on August 7, 1989, and on August 22, 1989, hydrocarbon breakthrough was observed. Between August 7 and 22, 1989, influent hydrocarbon concentrations decreased from 2,275 ppmv to 293 ppmv. Concentrations of TPH as gasoline decreased approximately 87 percent between August 7 and 15, 1989, and no observable decrease was noted between August 15 and 22, 1989. Soil vapor extraction resumed on September 11, 1989, following the installation of new GAC. The system operated until September 15, 1989, when hydrocarbon breakthrough occurred again, and the system was again shut down. On September 25, 1989, the system was modified so the vacuum pump was downstream of the carbon and an alternate cooling water source was installed. Operation of the SVE system resumed on January 11, 1990.

A 100 cfm vacuum pump and catalytic oxidizer were installed at the site in November 1990. The vacuum system was connected to six wells (VR-1 installed in the former UST backfill, wells VR-2, MW-1, and MW-9 installed in the uppermost aquifer, and wells VR-3 and VR-4 installed in the silty clay overlying the uppermost aquifer). The SVE system was permitted by the BAAQMD under Authority to Construct No. 5125, dated August 2, 1990, and Permit to Operate, dated January 4, 1991.

Between November 30 and December 28, 1990, the six SVE wells were set in an open mode for venting during an initial period of system adjustment and influent vapor sampling. The laboratory results of the influent soil vapor samples show decreasing concentrations of BTEX and TPH as gasoline. On January 4, 1991, laboratory results of influent vapor samples indicated TPH as gasoline concentrations of 0.94 ppmv and BTEX concentrations ranging from 0.0005 to 0.013 ppmv. On January 14, 1991, laboratory results of influent vapor samples indicated a TPH as gasoline concentration of 1.2 ppmv and BTEX concentrations ranging from 0.0009 to 0.0039 ppmv.

The catalytic oxidizer unit was shut down on July 24, 1991, and the system was again modified to an GAC abatement system on March 10, 1992. The system utilized two 200-pound vapor phase GAC columns, and an additional 200-pound vapor phase GAC column installed as a buffer, requested by BAAQMD. The GAC system was started on October 12, 1992, and monitored with a photoionization detector on a daily basis. The monitoring frequency changed to weekly on December 1, 1992, biweekly on March 4, 1993, and monthly on October 13, 1993. On December 29, 1993, the SVE system was shutdown due to low (non-detect) influent concentrations.

2.2.8 Soil Vapor Extraction Confirmation Borings

Soil borings B-16 through B-19 were drilled in December 1993 at selected locations to evaluate the effectiveness of the vapor extraction system in removing petroleum hydrocarbons from the soil and to evaluate the presence or absence of petroleum hydrocarbons in areas where soil samples from previous borings were not submitted for laboratory analysis. Soil sample analytical results are discussed in Sections 3.2 and 4.1 of this report. Tabulated results of the borings are presented in Table 1.

2.3 Water Well Survey

Delta conducted a review of California Department of Water Resources (DWR) records on April 16, 1996. Based on the available records, seventeen wells were reported to exist within a 2000 foot radius of the site. The information provided to Delta by the DWR (if provided to DWR by the installer) included: well owner, well owner's address, well location, year well was drilled, and well use. This information is summarized in Table 3. The approximate locations of the wells are plotted on Figure 4. The location of the wells are based on the descriptions recorded on the well driller logs.

The well closest to the site that has been of concern is the City of Pleasanton Municipal Well No. 7, which is identified in Figure 4 as location 9. The municipal well is located approximately 225 feet northwest of the site. Municipal well No. 7 is screened from 120 to 440 feet bsg.

2.4 Regional Geology

The site is located in the north-central portion of the Livermore Valley, within the Coast Range Geomorphic Province. The Livermore Valley slopes gently towards the west.

Livermore Valley is underlain by non-water bearing rocks and water bearing rocks and sediments (DWR, Department of Water Resources Bulletin No. 118-2, 1966, 1974). The non-water bearing rocks are marine sandstone, shale, and conglomerate, shale, and sandstone of Eocene to Miocene age. These rocks are exposed in the mountains surrounding Livermore Valley and are found at depths greater than 1,000 feet beneath the valley floor.

The Plio-Pleistocene age Livermore Formation overlaps the Tassajara Formation beneath the north portion of the valley and is exposed over broad regions south of the valley. Sediments of this formation consist primarily of clayey gravel in a sandy clay matrix. Sedimentary units south of the valley dip gently north, and are nearly level beneath the valley floor, and dip gently south beneath the north edge of the valley. Depth to the top of the Livermore Formation beneath the valley range from a few tens of feet to greater than 40 feet (DWR, Department of Water Resources Bulletin No. 118-2, 1966).

Surficial valley-fill material overlie both the Tassajara Formation and the Livermore Formation and range in thickness from a few feet to approximately 400 feet. The Pleistocene to Holocene age sediments include unconsolidated sand, gravel, and clay which occur as either terrace deposits, alluvial fan deposits with gravelly clayey facies, alluvium, basin deposits, and channel deposits of active streams (DWR, Department of Water Resources Bulletin No. 118-2, 1966, 1974).

2.5 Regional Hydrogeology

Ground water beneath the area of investigation is located within the Livermore ground water basin. The sediments and water bearing units comprising the Livermore Valley ground water basin include valley-fill materials, the Tassajara Formation, and the Livermore Formation (DWR, Department of Water Resources Bulletin No. 118-2, 1966, 1974). The Livermore Valley ground water basin is characterized by hydrologic discontinuities, and is segregated into sub-basins on the basis of localized faults. The

Livermore Valley ground water system is a multi-layered system with an unconfined aquifer overlying sequential partially confined aquifers. Ground water in the basin generally flows to the west (DWR, Department of Water Resources Bulletin No. 118-2, 1966, 1974). The principal streams in the area are Arroyo Valley Creek and Arroyo Mocho Creek, which flow toward the western end of the valley. Both creeks are greater than one half mile from the site.

3.0 INVESTIGATIVE RESULTS

3.1 Site Soils and Geology

Data from the soil borings drilled at, and adjacent to the site, indicate the soil predominantly consists of unsaturated silty clay to clayey silt with some sands extending from the surface to depths of approximately 35 to 40 feet bsg. **Between 37 and 40 feet bsg, a saturated clayey sand to gravel unit extends to depths of approximately 55 feet bsg. First water was observed in this zone.** Between 53.5 and 59.5 feet bsg a silty clay unit was encountered. **From approximately 67 to 82 feet bsg saturated sandy material is present.** Beneath the saturated unit, silty clay and clay units are present that extend to a depth of approximately 120 feet bsg. **From a depth of approximately 120 to the total depth explored beneath the site, another saturated unit which gradually changes from a silty sand to gravel is present.**

The water well drillers report from DWR for City of Pleasanton Municipal Well No. 7 indicates that clayey soils extend to a depth of approximately 59 feet bsg, followed by gravel to 81 feet bsg. From 81 to 116 feet clay material is reported with gravel, and gravel from 59 to 81 feet bsg. Clay and gravel units were reported between 81 and 116 feet, and gravel was reported to the total depth of the boring (440 feet) with clay layers present at depth of 134 to 140, 192 to 204, 229 to 256, 318 to 330 feet bsg.

Soil boring logs for each of the borings advanced at the site are included in Appendix A. The trace of two cross-sections illustrating the inferred subsurface relationships is presented in Figure 5 (Geologic Cross-section Location Map) and the cross-sections A-A' and B-B' are presented in Figure 6 and 7, respectively.

3.2 Soil Sample Analytical Results

During the tank excavation activities in July 1988, soil samples were collected from beneath each end of the gasoline USTs. The samples were submitted for laboratory analysis of BTEX and TPH as gasoline. A sample collected from beneath the used oil tank was also analyzed for TOG, halogenated and aromatic organics. Soil sample locations are shown in Figure 3. Soil sample analytical results from the samples collected from beneath the tanks are summarized in Table 2.

Soil samples collected from the drilling activities of MW-1, MW-2, MW-3, B-4, and the 35 foot soil sample from MW-5d were submitted for laboratory analysis of TPH as gasoline. Soil samples collected from the drilling of MW-5d (the 40 foot sample only), MW-6, MW-8 through MW-11, SB-12, SB-16 through SB-19, V-2 and V-4 were submitted for laboratory analysis of BTEX and TPH as gasoline. Cumulative soil sample analytical results from samples collected from the drilling activities are summarized in Table 1. A discussion of the distribution of petroleum hydrocarbons in soil is included in Section 4.1 of this report.

3.3 Site Hydrogeology

3.3.1 Monitoring Well Construction

Twelve ground water monitoring wells (MW-1 through MW-4, MW-5s, MW-5d, and MW-6 through MW-11) have been installed at or in the vicinity of the site. Three of these wells (MW-2, MW-3, and MW-6) have been properly destroyed due to station reconstruction activities. Four SVE wells (V-1 through V-4) have also been installed at the site. The locations of the wells are shown on Figure 2. Well construction details are included in Appendix A, and a summary of each well's construction is included in Table 4.

Monitoring wells MW-1 through MW-11 (excluding MW-5d and MW-8) were installed to monitor ground water levels and collect ground water samples from the upper water bearing zone which extends from 36 to 41 feet bsg. Monitoring well MW-5d is screened in what appears to be a "second" water bearing zone (67.5 to 77.5 feet bsg). This "second" water bearing zone appears to be connected to the first water bearing zone and is discussed in Section 4.3. Monitoring well MW-8 was installed and

screened from 118 to 133 feet bsg to monitor the aquifer in which Municipal Well No. 7 is installed. Monitoring well MW-5d was not installed to monitor the aquifer which Municipal Well No. 7 draws water from.

3.3.2 Ground Water Depths, Flow Direction, and Hydraulic Gradient

Ground water level data recorded at the site since April 1988 are presented in Table 5. Depth to ground water in the monitoring wells screened in the upper water bearing zone (excluding MW-5d and MW-8) have ranged from 36.13 feet below the top of the well casing (March 28, 1996 in MW-9) to 59.8 feet below the top of the well casing (July 15, 1993 in MW-1). The water level in monitoring well MW-5d (lower water bearing zone) has ranged from 37.12 (March 28, 1996) to 76.47 (February 16, 1993). This well has also been dry below this depth. The highest and lowest ground water table elevations are shown in Figures 6 and 7.

Based on historical ground water elevation data, the shallow ground water generally flows in a northeastern direction beneath the site. A ground water table contour map constructed using the most recent ground water level data (March 28, 1996) is included as Figure 8. The water table contours illustrated in Figure 8 indicate that ground water in the upper water bearing zone flowed toward the northeast and southeast across the site. Based on the water table contour map, the estimated hydraulic gradient is approximately 0.01.

3.3.3 Ground Water Analytical Results and Liquid Phase Hydrocarbons

Ground water samples have been collected at the site on a quarterly basis since April 1988. Ground water samples have been submitted for laboratory analysis of BTEX and TPH as gasoline. Recently ground water samples have also been submitted for analysis of methyl tertiary butyl ether. Cumulative ground water sample analytical results since April 1988 are summarized in Table 6.

Ground water analytical results for samples collected from monitoring well MW-1 report that concentrations of BTEX and TPH as gasoline have been below the laboratory's detection limits since May 1990, except for toluene, which was reported in August 1995 (0.83 μg/L). Ground water samples

collected from monitoring well MW-3 between April and August 1988 prior to its destruction, did not contain detectable concentrations of BTEX and TPH as gasoline with the exception of TPH as gasoline on April 6, 1988 (20 µg/L). Ground water analytical results indicate that concentrations of BTEX and TPH as gasoline have been below the laboratory's detection limits for samples collected from MW-4 since September 1989, with the exception of February and April 1993, when benzene was detected at 57 and 20 µg/L, respectively. Ground water samples collected from MW-10 have not contained detectable concentrations of BTEX and TPH as gasoline since installed in October 1989 with the exception of April 1993.

Monitoring well MW-2 contained thicknesses of LPH ranging from 0.25 to 3.2 feet between April and June 1988. Following this period and the pumping of 25,000 gallons of ground water, the LPH were reduced to a sheen prior to its destruction in July 1988. Monitoring well MW-9 contained LPH in November and December 1989 with thicknesses recorded at 0.02 to 0.16 feet. The most recent ground water analytical results (March 1996) indicate benzene to be 72 µg/L.

Ground water monitoring well MW-5s has not contained detectable concentrations of any analyte since it was installed in May 1988, with the exception of April 1993, when benzene concentrations were reported at 11 µg/L. Ground water samples collected from MW-5d have not contained BTEX and TPH as gasoline since the well was installed in May 1988 with the exception of April 1993 and November 1995 when benzene was reported to be 1.0 and 5.4 µg/L, respectively.

Monitoring well MW-6 contained benzene concentrations as high as 474 µg/L (September 1988) prior to it being destroyed in October 1988. Ground water samples collected from monitoring well MW-7 have not reported detectable concentrations of BTEX or TPH as gasoline since November 1993. Ground water samples collected from monitoring well MW-8 have generally reported concentrations below the laboratory's detection limits for BTEX and TPH as gasoline since 1989 with some exceptions. In April 1993 benzene was reported at 26 µg/L and in May 1995 benzene was reported at 2.3 µg/L. The last three sampling events in August and November 1995 and March 28, 1996, reported benzene below the laboratory's detection limits.

A ground water sample collected from vapor extraction well VR-1 in March 1992 contained benzene only at a concentration of 1.7 μg/L.

4.0 DISCUSSION OF INVESTIGATIVE RESULTS

4.1 Distribution of Petroleum Hydrocarbons in Soil

The inferred lateral and vertical extent of petroleum hydrocarbons in soil beneath the site is shown in Figures 6, 7, and 9. The TPH as gasoline and benzene analytical results shown on Figures 6 and 7 are concentrations in soil prior to the operation of the SVE system, therefore does not depict what is presently in the soil. Based on the limits of the excavation in the area of the former tank basin, soil sample analytical results, and observations made by Applied GeoSystems (August 22, 1988) during the tank removal, **only residual concentrations of petroleum hydrocarbons remained in soil in the area of the former UST's.** Soil sample analytical results from the limits of the excavation did not contain detectable concentrations of TPH as gasoline, however, OVM readings indicated concentrations from 10 to 20 ppmv in soil. Nearly all the soil impacted by petroleum hydrocarbons had been excavated in the area of the former tanks (Figure 6). The residual petroleum hydrocarbons in the area of the former tank basin is likely to have been reduced by the SVE system, based on the decreasing analytical results of the soil vapor samples (RESNA, Subsurface Investigation and Interim Remediation System Evaluation, May 16, 1994).

Soil sample analytical results of samples collected from the borings for wells MW-8 (located five feet northwest of the former pump islands), MW-10 (located 45 feet southwest of the former tank basin), MW-11/B-12 (located 45 feet southwest of the former tank basin), and VR-2 and VR-4 (located beneath the former product lines) indicated TPH as gasoline concentrations to be below the laboratory's detection limits. Benzene was either below the laboratory's detection limit or no greater than the maximum concentration of 0.16 mg/kg.

Soil borings B-16 and B-17 were drilled in the area of monitoring well MW-9 (located in the area of the former distribution lines). **Soil sample analytical results from samples collected during the installation of MW-9 in September 1989, reported the presence of TPH as gasoline at concentrations ranging from**

9.3 to 6,200 ppm between the depths of 5 and 40 feet bsg. Soil samples from the confirmation borings drilled in December 1993, following SVE, reported concentrations of TPH as gasoline in soil at a maximum concentration of 1,100 mg/kg in boring B-17 at 45 feet bsg (Table 1).

Soil boring B-18 was drilled in the area of monitoring well MW-4 since soil samples were not submitted for laboratory analysis from the boring of MW-4. Soil sample analytical results reported concentrations of TPH as gasoline to be below the laboratory's detection limits for the samples collected from B-18.

Soil boring B-19 was drilled in the area of destroyed monitoring well MW-2 (located within the former tank basin). Only one soil sample from the boring of MW-2 (at 34.5 feet bsg) was submitted for laboratory analysis. This sample reported concentrations of TPH as gasoline below the laboratory's detection limits. Soil sample analytical results from B-19 reported TPH as gasoline concentrations to be below the laboratory's detection limits for nine soil samples submitted for analysis. Two of the samples contained 0.094 and 0.057 mg/kg or benzene at 30 and 35 feet bsg.

Based on cumulative soil sample analytical results and the results of the SVE system, elevated concentrations of residual petroleum hydrocarbons beneath the site which possess the ability to affect ground water are present in an isolated location from 10 to 45 feet bsg in the area of the former product distribution lines (Figures 8 and 9, and Table 1). near B-17 / MW-9

4.2 Distribution of Petroleum Hydrocarbons in Ground Water

Ground water analytical results report that benzene concentrations have been present in monitoring well MW-9 between May 1995 and March 1996, ranging from below the laboratory's detection limits to 920 µg/L. Monitoring well MW-9 is located in the area of the former product distribution lines (Figure 3). Ground water samples collected from the surrounding wells (MW-1, MW-4, MW-5s, MW-7, and MW-10) have reported benzene concentrations below the laboratory's detection limit for the last four sampling events. Monitoring well MW-5d and MW-8 have reported concentrations of benzene within the last four sampling events (5.4 and 2.3 µg/L, respectively). The ground water sample from monitoring well MW-5d was collected at relatively the same ground water elevation as the sample from

MW-5s (approximately 284.7 feet above man sea level), which has not contained detectable concentrations of benzene since April 1993. The ground water sample from monitoring well MW-8 was collected at a ground water elevation of 278 feet above man sea level.

Based on cumulative ground water analytical results, it is likely that the concentrations of petroleum hydrocarbons detected in MW-4, MW-5s, MW-5d, MW-8, and MW-10 on April 12, 1993, is a result of cross contamination as these wells have generally reported concentrations below the laboratory's detection limit.

how? possible boring used

The recent concentrations detected in MW-5d may be the result of cross contamination as this well has not had detectable concentrations of petroleum hydrocarbons since it was installed in May 1980, with the exception of April 12, 1993. It is not understood why concentrations have recently been detected in MW-8.

'88?

wrong!
5/25/88
7/13/88
4/12/93
11/30/95

4.3 Site Hydrogeology Discussion

The upper silty clay to clay units that extend to 35 and 40 feet bsg, the clayey sand to gravel unit ("first aquifer") from approximately 35 to approximately 55 feet, the silty clay unit making an "aquitard" from approximately 53 to 67 feet bsg, and the "second aquifer" extending from 67 to 82 feet bsg appears to be laterally extensive beneath the site. **However, similar water levels may indicate that the second silty clay unit (the "aquitard") may not be laterally extensive beyond the investigated area. The first and second aquifers encountered in monitoring well MW-5d are probably hydraulically connected within the immediate regional ground water area.** This is shown by the similar water table elevations measured in MW-5s and MW-5d. In addition, the thickness of the "aquitard" narrows to approximately six feet in the area of MW-8. **However, the downward vertical transport of petroleum hydrocarbons through this aquitard or other clayey units at deeper depths (especially the depth of Municipal Well No. 7) is considered unlikely due to the lighter density of petroleum hydrocarbons.**

vertical transport likely due to:
① high pumping rate in muni well,
② drop in shallow aquifer levels
③ drought

Based on the two ground water pumping tests performed by Applied GeoSystems in June 1988 it has been interpreted that the uppermost two aquifers are isolated from the aquifer from which water is drawn by

Municipal Well No. 7. However, depth to water level measurements observed in MW-8 (screened within the aquifer that Municipal Well No. 7 is located) have shown a consistent variation (up to 12 feet in ground water elevations differences) with the depth to water level measurements in the upper aquifers indicating at a minimum some separation between the upper two and lower most aquifer.

5.0 REMEDIAL ACTION ALTERNATIVES/ADDITIONAL WORK

Based on the concentrations of petroleum hydrocarbons detected in ground water samples collected within the last four quarterly sampling events from monitoring wells MW-5d and MW-8, it is proposed that more quarters of sampling be conducted. This is intended to assess if concentrations of benzene observed in the wells were the result of either field or laboratory contamination. If concentrations of benzene are detected in monitoring well MW-8 or MW-5d above the laboratory's detection limits it is proposed that an additional deep well be installed between the site and Municipal Well No. 7.

1

Concentrations of petroleum hydrocarbons remain in soil and ground water in the area of monitoring well MW-9. Delta proposes that additional remedial actions be conducted. Due to the localized nature of impacted soil and ground water and the fact that the site is an operating facility, Delta suggests an in-situ remediation technique which would consist of a combination of bio-venting/air sparging and SVE. Other remedial options such as excavation, ground water pump and treat, and SVE (by itself) have been conducted previously at the site and have reduced the concentrations in soil and ground water, however, continuation of these methods would have limited affect and would not be cost effective, as petroleum concentrations have reached asymptotic levels in samples collected from the ground water treatment system (following the treatment of over 7.3 million gallons). Continuation of SVE alone would also not be effective, as concentrations of soil vapor samples from the remediation system have also approached asymptotic levels.

2

Bio-venting/air sparging in combination with SVE are remedial technologies which have been proven effective in removing and enhancing natural biodegradation of volatile petroleum hydrocarbons in soil and ground water. Bio-venting/air sparging in combination with SVE involves applying a vacuum to the unsaturated zone in one area of the site and delivering air/oxygen to the soil and beneath the water table

in other areas of the site. The in-situ injection of air strips the petroleum hydrocarbons from the ground water and soil which is subsequently removed by the SVE system. The supplied air also serves as a source of oxygen to indigenous aerobic bacteria present in the soil and ground water. The bacteria utilize the oxygen to metabolize petroleum hydrocarbons and degrade them into carbon dioxide and water.

MW-9 ? confirmed 6/24/97

Delta proposes that air be injected beneath the ground water in monitoring well ~~MW-7~~ and in the unsaturated zone in well VR-3. The existing below grade piping manifolded to VR-3 used for the previous SVE system will be used to inject air. A vacuum would be applied to well VR-4 located on the opposite side of the area containing petroleum hydrocarbons and the air stream will be routed through a permitted emissions abatement device.

A regenerative vacuum blower and two 200-pound vapor phase GAC columns in series will be used for the SVE portion of the remediation system. The bio-venting/air sparging portion of the remediation system will consist of an oilless air compressor manifolded to air lines leading to MW-9 and VR-3. A permit to operate will be obtained from the BAAQMD upon approval of this plan by Alameda County and the Regional Water Quality Control Board.

Remediation system monitoring will consist of collecting soil vapor samples from the air stream being removed from well VR-4 and submitting the samples for analysis of BTEX and TPH as gasoline on a monthly basis. Ground water samples will also be collected from monitoring well MW-9 and submitted for BTEX and TPH as gasoline on a monthly basis until a quarterly sampling schedule can be established. In addition, field readings of dissolved oxygen will be collected from each of the monitoring wells located at the site, to monitor the conditions for bioremediation.

6.0 REMARKS/SIGNATURES

The interpretations contained in this report represent our professional opinions, and are based in part, on information supplied by the client. These opinions are based on currently available information and are arrived at in the accordance with currently accepted hydrogeological and engineering practices at this time and location. Other than this, no warranty is implied or intended.

Delta recommends that copies of this report be forwarded to:

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TABLE 1

SOIL SAMPLE ANALYTICAL RESULTS FROM DRILLING ACTIVITIES

Concentrations in milligrams per kilogram (mg/kg)

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

Monitoring Well	Date	Depth (feet)	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH[a] as gasoline
S-B1 (MW-1)	04/01/88	34.5	NA	NA	NA	NA	<2.0
S-B2 (MW-2)	04/02/88	34.5	NA	NA	NA	NA	<2.0
S-B3 (MW-3)	04/04/88	35	NA	NA	NA	NA	<2.0
S-B4	04/01/88	19.5	NA	NA	NA	NA	965
S-B4	04/01/88	29.5	NA	NA	NA	NA	3
S-B4	04/01/88	34.5	NA	NA	NA	NA	<2.0
S-B5 (MW-5s)	04/06/88	35	NA	NA	NA	NA	<2.0
S-B5 (MW-5d)	05/03/88	40	<0.005	<0.005	<0.005	<0.005	<2.0
S-B6 (MW-6)	05/11/88	36	<0.005	<0.005	<0.005	<0.005	<2.0
S-MW8	09/28/89	38.5	<0.005	<0.005	<0.005	<0.005	<2.0
S-MW8	09/30/89	74	<0.005	<0.005	<0.005	<0.005	<2.0
S-MW9	10/04/89	6	4.9	40	26	150	1,500
S-MW9	10/04/89	21	23	1,230	51	240	3,000
S-MW9	10/04/89	36	0.89	0.37	0.16	0.40	9.3
S-MW9	10/04/89	38	100	560	150	720	6,200
S-MW9	10/04/89	41	3.6	424	18	90	900
S-MW10	10/06/88	20	<0.005	<0.005	<0.005	<0.005	<2.0
S-MW10	10/06/88	35	<0.005	<0.005	<0.005	<0.005	<2.0
S-MW11	11/02/88	20	<0.050	<0.050	<0.050	0.087	<2.0
S-MW11	11/02/88	40	<0.050	<0.050	<0.050	<0.050	<2.0
S-MW11	11/02/88	45	<0.050	0.059	<0.050	<0.050	<2.0
S-B12	11/03/89	55	<0.050	<0.050	<0.050	0.060	<2.0
S-B12	11/03/89	70	<0.050	<0.050	<0.050	<0.050	<2.0
S-B12	11/03/89	84	<0.050	<0.050	<0.050	0.051	<2.0
S-V2	11/20/89	10	0.13	0.059	<0.050	<0.050	<2.0
S-V2	11/20/89	20	0.061	<0.050	<0.050	<0.050	<2.0
S-V2	11/20/89	45	<0.050	0.091	<0.050	0.086	<2.0
S-V4	11/21/89	10	0.16	<0.050	0.093	0.082	<2.0
S-V4	11/21/89	20	<0.050	0.079	<0.050	<0.050	<2.0

TABLE 1-Continued

SOIL SAMPLE ANALYTICAL RESULTS FROM DRILLING ACTIVITIES
Concentrations in milligrams per kilogram (mg/kg)

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

Monitoring Well	Date	Depth (feet)	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH[a] as gasoline
S-B16	12/02/93	4.5	<0.0050	<0.0050	<0.0050	<0.0050	<1.000
S-B16	12/02/93	10	<0.0050	<0.0050	<0.0050	<0.0050	<1.000
S-B16	12/02/93	15	<0.0050	<0.0050	<0.0050	<0.0050	<1.000
S-B16	12/02/93	20	0.031	<0.0050	0.038	0.011	<1.000
S-B16	12/02/93	24.5	0.0095	<0.0050	0.044	<0.0050	<1.000
S-B16	12/02/93	30	<0.0050	<0.0050	<0.0050	<0.0050	<1.000
S-B16	12/02/93	35	<0.0050	<0.0050	<0.0050	<0.0050	<1.000
S-B16	12/02/93	39.5	<0.0050	<0.0050	<0.0050	<0.0050	<1.000
S-B16	12/02/93	45	<0.0050	<0.0050	<0.0050	<0.0050	<1.000
S-B16	12/02/93	50	<0.0050	<0.0050	<0.0050	<0.0050	<1.000
S-B16	12/02/93	54	<0.0050	<0.0050	<0.0050	<0.0050	<1.000
S-B17	12/02/93	4.5	<0.0050	<0.0050	<0.0050	<0.0050	<1.000
S-B17	12/02/93	10	0.210	5.100	7.000	63.000	590.000
S-B17	12/02/93	15	14.000	<0.0050	19.000	80.000	590.000
S-B17	12/02/93	19.5	5.100	0.038	16.000	70.000	560.000
S-B17	12/02/93	24.5	2.300	0.044	5.400	26.000	170.000
S-B17	12/02/93	30	1.400	<0.0050	0.530	2.800	19.000
S-B17	12/02/93	34.5	1.500	<0.0050	0.650	2.000	8.700
S-B17	12/02/93	39.5	2.700	<0.0050	11.000	71.000	650.000
S-B17	12/02/93	45	<0.050	<0.0050	0.530	6.700	1,100
S-B17	12/02/93	49.5	<0.0050	<0.0050	0.0066	0.036	1.700
S-B17	12/02/93	54.5	<0.0050	<0.0050	<0.0050	<0.0050	<1.000
S-B18	12/04/93	5	<0.0050	<0.0050	<0.0050	<0.0050	<1.000
S-B18	12/01/93	10	<0.0050	<0.0050	<0.0050	<0.0050	<1.000
S-B18	12/01/93	15	<0.0050	<0.0050	<0.0050	<0.0050	<1.000
S-B18	12/01/93	20	<0.0050	<0.0050	<0.0050	<0.0050	<1.000
S-B18	12/01/93	25	<0.0050	<0.0050	<0.0050	<0.0050	<1.000
S-B18	12/01/93	30	<0.0050	<0.0050	<0.0050	<0.0050	<1.000
S-B18	12/01/93	35	<0.0050	<0.0050	<0.0050	<0.0050	<1.000
S-B18	12/01/93	39.5	0.094	0.027	0.038	0.072	<1.000
S-B18	12/01/93	45	0.057	<0.0050	0.044	0.0066	<1.000
S-B18	12/01/93	49.5	<0.0050	<0.0050	<0.0050	<0.0050	<1.000
S-B18	12/01/93	54.5	<0.0050	<0.0050	<0.0050	<0.0050	<1.000

TABLE 1-Continued

SOIL SAMPLE ANALYTICAL RESULTS FROM DRILLING ACTIVITIES
Concentrations in milligrams per kilogram (mg/kg)

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

Monitoring Well	Date	Depth (feet)	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH[a] as gasoline
S-B19	12/01/93	5	<0.0050	<0.0050	<0.0050	<0.0050	<1.000
S-B19	12/01/93	15	<0.0050	<0.0050	<0.0050	<0.0050	<1.000
S-B19	12/01/93	25.5	<0.0050	<0.0050	<0.0050	<0.0050	<1.000
S-B19	12/01/93	30	0.094	0.027	0.038	0.072	<1.000
S-B19	12/01/93	35	0.057	<0.0050	0.044	0.0066	<1.000
S-B19	12/01/93	40	<0.0050	<0.0050	<0.0050	<0.0050	<1.000
S-B19	12/01/93	44.5	<0.0050	<0.0050	<0.0050	<0.0050	<1.000
S-B19	12/01/93	49.5	<0.0050	<0.0050	<0.0050	<0.0050	<1.000
S-B19	12/01/93	53	<0.0050	<0.0050	<0.0050	<0.0050	<1.000

[a] Total petroleum hydrocarbons.

TABLE 2

SOIL SAMPLE ANALYTICAL RESULTS FROM TANK EXCAVATION ACTIVITIES

Concentrations in milligrams per kilogram (mg/kg)

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

Soil Sample ID	Date	Depth (feet)	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH[a] as gasoline	TPH as diesel	EPA Method 8240	Total oil and grease
S-14-T1E	07/15/88	14	0.41	<0.05	<0.05	<0.05	2	NA[b]	NA	NA
S-16-T1W	07/15/88	16	1.91	5.69	1.29	7.53	35	NA	NA	NA
S-15-T2E	07/15/88	15	3.81	0.62	1.60	6.66	23	NA	NA	NA
S-17-T2W	07/15/88	17	1.58	8.04	1.27	7.32	37	NA	NA	NA
S-15-T3E	07/15/88	15	2.41	5.93	6.85	38.70	125	NA	NA	NA
S-16-T3W	07/15/88	16	0.11	<0.05	<0.05	<0.05	<2	NA	NA	NA
S-14-MT2	07/15/88	14	1.29	0.17	1.17	3.71	22	NA	NA	NA
S-8-WO	07/15/88	8	NA	NA	NA	NA	NA	<2	ND[c]	690
S-31-T1N	07/29/88	31	NA	NA	NA	NA	<2	NA	NA	NA
S-31-T1S	07/29/88	31	NA	NA	NA	NA	<2	NA	NA	NA
S-31-T2H	07/29/88	31	NA	NA	NA	NA	<2	NA	NA	NA
S-39-T2L	07/29/88	39	NA	NA	NA	NA	<2	NA	NA	NA
S-31-T3N	07/29/88	31	NA	NA	NA	NA	<2	NA	NA	NA
S-31-T3S	07/29/88	31	NA	NA	NA	NA	<2	NA	NA	NA

[a] Total petroleum hydrocarbons.
[b] Not analyzed.
[c] Not detected at or above laboratory detection limits.

TABLE 3

WATER WELL SURVEY

Exxon Service Station No. 7-3399
2991 Hopyard Road/Alameda County
Pleasanton, California

Site Map ID	Owner	Owner's Address	Well Location	Year Drilled	Use
1	City of Pleasanton		3S1E17D1	Destroyed 7/19/83	
2	Zone 7 Water Agency	5997 Parkside Drive	3S1E17D2	1949	M[a]
3	Hans Hansen & Orloff	Unknown	3S1E17F1	1937	
4	Zone 7 Water Agency	5997 Parside Drive	3S1E7R2	Unknown	
5	Zone 7 Water Agency	5997 Parkside Drive	3S1E18A01	1943	M
6	City of Pleasanton		3S1E18A2	Destroyed 7/19/83	
7	City of Pleasanton		3S1E18A3	Destroyed 10/20/78	
8	Zone 7 Water Agency	5997 Parkside Drive	3S1E18A4	1967	T[b]
9	City of Pleasanton		3S1E18A5	1967	
10	Spring Valley Water Company	Unknown	3S1E18A80	1926	M
11	Pleasanton Township County Water District	5997 Parkside Drive	3S1E18A8	1967	
12	Barratt Homes	3150 Alameda	3S1E18J1	Destroyed 11/11/83	
13	Ponderosa Homes	3 Crow Canyon Court	3S1E18H3	Destroyed 10/09/81	
14	Ponderosa Homes	3 Crow Canyon Court	3S1E18H1	Destroyed 10/09/81	
15	Barratt Homes	3150 Alameda	3S1E18G4	Destroyed 01/05/84	
16	Howard Hansen	Unknown	3S1E18G2	1949	
17	Howard Hansen	Unknown	3S1E18G3	1945	

[a] Municipal Well.
[b] Test well. Backfilled with pea gravel.

TABLE 4

SUMMARY OF MONITORING WELL CONSTRUCTION DETAILS

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

Well ID	Date Installed	Diameter (inches)	Total Depth	Slotted Interval (feet)	Slot Size (inches)	Sand Interval (feet)	Bentonite Interval (feet)	Grout Interval (feet)	Status
MW-1	04/01/88	4	57	57-32	0.020	57-30	30-28	28-0.5	Active
MW-2[a]	04/02/88	4	57	57-37	0.020	57-34	34-32	32-0.5	Destroyed
MW-3[b]	04/04/88	4	56	56-36	0.020	56-35	35-34	34-0.5	Destroyed
MW-4	04/06/88	4	57	57-37	0.020	57-36	36-35	35-0.5	Active
MW-5d	05/10/88	4	77.5	77.5-67.5	0.020	77.5-64	64-61	61-0.5	Active
MW-5s	05/11/88	4	55	55-40	0.020	55-37.5	37.5-34	34-0.5	Active
MW-6[c]	05/11/88	4	55	55-40	0.020	55-36	36-35	35-0.5	Destroyed
MW-7	07/12/88	4	56.5	56.5-28	0.020	56.5-25	25-24	24-0.5	Active
MW-8	09/30/89	4	133	133-118	0.020	133-114	114-111.5	111.5-0.5	Active
MW-9	10/04/89	4	54.5	54.5-34.5	0.020	54.5-34	34-33	33-0.5	Active
MW-10	10/06/89	4	60	60-40	0.020	60-38	38-37	37-0.5	Active
MW-11	11/02/89	4	55	55-35	0.020	55-33	33-31	31-0.5	Active
VR-1	10/24/88	4	30	30-10	0.020	30-10	10-9	9-0.5	Not in use
VR-2	11/20/89	2	45	45-35	0.020	45-33	33-32	32-0.5	Not in use
VR-3	11/20/89	2	35	35-5	0.020	35-4	4-3	3-0.5	Not in use
VR-4	11/24/89	2	32.5	32.5-12.5	0.020	32.5-4	4-3.5	3.5-0.5	Not in use

[a] Destroyed July 12, 1988.
[b] Destroyed August 29, 1988.
[c] Destroyed October 24, 1988.

TABLE 5

GROUND WATER ELEVATION MEASUREMENTS

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

Monitoring Well	Date	Top of Riser Elevation (ft)[a]	Depth to Water (ft)	Ground Water Elevation (ft)	Liquid-Phase Hydrocarbon Thickness (feet)
MW-1	04/06/88	321.44	36.34	285.10	No LPH
	04/08/88		36.29	285.15	No LPH
	04/19/88		36.36	285.08	No LPH
	06/06/88		38.16	283.28	No LPH
	06/23/88		38.71	282.73	No LPH
	06/28/88		39.16	282.28	No LPH
	07/06/88		39.73	281.71	No LPH
	07/13/88		40.22	281.22	No LPH
	08/12/88		NA[b]	NA	No observation
	08/26/88		41.90	279.54	No LPH
	09/07/88		42.27	279.17	No LPH
	12/07/88		43.94	277.50	No LPH
	12/19/88		43.70	277.74	No LPH
	02/09/89		42.53	278.91	No LPH
	03/08/89		41.96	279.48	No LPH
	04/03/89		41.59	279.85	No LPH
	04/26/89		41.67	279.77	No LPH
	06/30/89		43.79	277.65	No LPH
	07/17/89		44.74	276.70	No LPH
	07/18/89		44.76	276.68	No LPH
	07/19/89		44.82	276.62	No LPH
	07/20/89		44.85	276.59	No LPH
	07/21/89		44.95	276.49	No LPH
	07/26/89		45.42	276.02	No LPH
	08/02/89		NA	NA	No observation
	08/03/89		46.18	275.26	No LPH
	08/17/89		47.12	274.32	No LPH
	09/13/89		49.08	272.36	No LPH
	11/28/89		50.21	271.23	No LPH
	01/09/90		49.31	272.13	No LPH
	01/26/90		49.29	272.15	No LPH
	02/23/90		49.02[g]	272.42	No LPH
	02/23/90		49.02	272.42	No LPH
	03/26/90		48.71[g]	272.73	No LPH
	03/26/90		48.70	272.74	No LPH
	04/18/90		48.79	272.65	No LPH

TABLE 5-Continued

GROUND WATER ELEVATION MEASUREMENTS

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

Monitoring Well	Date	Top of Riser Elevation (ft)[a]	Depth to Water (ft)	Ground Water Elevation (ft)	Liquid-Phase Hydrocarbon Thickness (feet)
MW-1 (Cont.)	05/17/90	321.44	49.40	272.04	No LPH
	06/11/90		50.83	270.61	No LPH
	07/30/90		52.17	269.27	No LPH
	08/27/90		53.44	268.00	No LPH
	09/28/90		53.40	268.04	No LPH
	12/27/90		NA	NA	No observation
	03/20/91		53.35	268.09	No LPH
	06/20/91		53.55	267.89	No LPH
	09/12/91		NA	NA	No observation
	12/30/91		NA	NA	No observation
	01/30/92		NA	NA	No observation
	03/02/92		NA	NA	No observation
	03/24/92		NA	NA	No observation
	04/14/92		NA	NA	No observation
	05/21/92		NA	NA	No observation
	06/08/92		NA	NA	No observation
	07/14/92		NA	NA	No observation
	08/10/92		NA	NA	No observation
	09/16/92		NA	NA	No observation
	10/07/92		NA	NA	No observation
	11/09/92		DRY	DRY	No observation
	12/10/92		NA	NA	No observation
	01/26/93		NA	NA	No observation
	02/16/93		NA	NA	No observation
	03/11/93		53.09	268.35	No LPH
	04/12/93		53.32	268.12	No LPH
	06/01/93		53.40	268.04	No LPH
	07/15/93		59.80	261.64	No LPH
	08/15/93		53.45	267.99	No LPH
	09/29/93		53.43	268.01	No LPH
	10/28/93		53.38	268.06	No LPH
	11/23/93		53.46	267.98	No LPH
	03/11/93		53.09	268.35	No LPH
	04/12/93		53.32	268.12	No LPH
	06/01/93		53.40	268.04	No LPH
	07/15/93		59.80	261.64	No LPH
	08/15/93		53.45	267.99	No LPH
	09/29/93		53.43	268.01	No LPH
	10/28/93		53.38	268.06	No LPH
	11/23/93		53.46	267.98	No LPH
	11/16/94		52.09	269.35	No LPH, or sheen
	02/15/95		49.41	272.03	No LPH, or sheen

~24' max between 1993-1996

TABLE 5-Continued

GROUND WATER ELEVATION MEASUREMENTS

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

Monitoring Well	Date	Top of Riser Elevation (ft)[a]	Depth to Water (ft)	Ground Water Elevation (ft)	Liquid-Phase Hydrocarbon Thickness (feet)
MW-1 (Cont.)	05/09/95	321.44	39.97	281.47	No LPH, or sheen
	08/21/95		40.68	280.76	No LPH, or sheen
	11/30/95		38.99	282.45	No LPH, or sheen
	03/28/96		35.70	285.74	No LPH, or sheen
MW-2	04/02/88	NA	NA	NA	0.25
	04/04/88		NA	NA	1.50
	04/05/88		NA	NA	1.50
	04/06/88		39.31	NA	3.20
	04/08/88		NM[c]	NM	No observation
	04/19/88		38.90	NA	2.48
	06/06/88		38.78	NA	0.26
	06/23/88		39.23	NA	0.13
	06/28/88		39.72	NA	No observation
	07/06/88		40.31	NA	Slight sheen
	07/12/88		Well Destroyed		
MW-3	04/06/88		37.19	NA	No LPH
	04/08/88		37.14	NA	No LPH
	04/19/88		37.22	NA	No LPH
	06/06/88		39.02	NA	No LPH
	06/23/88		39.58	NA	No LPH
	06/28/88		40.04	NA	No LPH
	07/06/88		40.60	NA	No LPH
	07/13/88		41.09	NA	No LPH
	08/12/88		NA	NA	No LPH
	08/26/88		42.77	NA	No observation
	08/29/88		Well Destroyed		No LPH

TABLE 5-Continued

GROUND WATER ELEVATION MEASUREMENTS

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

Monitoring Well	Date	Top of Riser Elevation (ft)[a]	Depth to Water (ft)	Ground Water Elevation (ft)	Liquid-Phase Hydrocarbon Thickness (feet)
MW-4	04/08/88	321.56	36.41	285.15	No LPH
	04/19/88		36.51	285.05	No LPH
	06/06/88		38.26	283.30	No LPH
	06/23/88		38.83	282.73	No LPH
	06/28/88		39.28	282.28	No LPH
	07/06/88		39.85	281.71	No LPH
	07/13/88		40.31	281.25	No LPH
	08/12/88		NA	NA	No observation
	08/26/88		42.01	279.55	No LPH
	09/07/88		NA	NA	No observation
	12/07/88		NA	NA	No observation
	12/19/88		43.83	277.73	No LPH
	02/09/88		42.67	278.89	No LPH
	03/08/88		42.11	279.45	No LPH
	04/03/89		41.73	279.83	No LPH
	04/26/89		41.79	279.77	No LPH
	06/30/89		43.88	277.68	No LPH
	07/17/89		44.85	276.71	No LPH
	07/18/89		44.88	276.68	No LPH
	07/19/89		44.92	276.64	No LPH
	07/20/89		44.98	276.58	No LPH
	07/21/89		45.04	276.52	No LPH
	07/26/89		45.50	276.06	No LPH
	08/02/89		NA	NA	No observation
	08/03/89		46.28	275.28	No LPH
	08/17/89		47.22	274.34	No LPH
	09/13/89		49.19	272.37	No LPH
	11/28/89		50.34	271.22	No LPH
	01/09/90		49.47	272.09	No LPH
	01/26/90		49.36	272.20	No LPH
	02/23/90		49.18[g]	272.38	No LPH
	02/23/90		49.15	272.41	No LPH
	03/26/90		48.84[g]	272.72	No LPH
	03/26/90		48.83	272.73	No LPH
	04/18/90		48.90	272.66	No LPH
	05/17/90		50.03	271.53	No LPH
	06/11/90		50.98	270.58	No LPH
	07/30/90		53.57	267.99	No LPH
	08/27/90		53.61	267.95	No LPH
	09/28/90		53.57	267.99	No LPH
	12/27/90		53.68	267.88	No LPH
	03/20/91		53.56	268.00	No LPH

~18' misc between 1982-1986

TABLE 5-Continued

GROUND WATER ELEVATION MEASUREMENTS

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

Monitoring Well	Date	Top of Riser Elevation (ft)[a]	Depth to Water (ft)	Ground Water Elevation (ft)	Liquid-Phase Hydrocarbon Thickness (feet)
MW-4 (Cont.)	06/20/91	321.56	53.75	267.81	No LPH
	09/12/91		53.70	267.86	No LPH
	12/30/91		DRY	DRY	No observation
	01/30/92		DRY	DRY	No observation
	03/02/92		53.83	267.73	No LPH
	03/24/92		53.73	267.83	No LPH
	04/14/92		53.76	267.80	No LPH
	05/21/92		54.73	266.83	No LPH
	06/08/92		53.80	267.76	No LPH
	07/14/92		53.60	267.96	No LPH
	08/10/92		53.71	267.85	No LPH
	09/16/92		53.89	267.67	No LPH
	10/07/92		DRY	DRY	No observation
	11/09/92		DRY	DRY	No observation
	12/10/92		53.83	267.73	No LPH
	01/26/93		DRY	DRY	No observation
	02/16/93		53.64	267.92	No LPH
	03/11/93		53.54	268.02	No LPH
	04/12/93		53.62	267.94	No LPH
	06/01/93		53.52	268.04	No LPH
	07/15/93		53.80	267.76	No LPH
	08/15/93		53.65	267.91	No LPH
	09/29/93		54.23	267.33	No LPH
	10/28/93		53.54	268.25	No LPH
	11/23/93		53.57	268.22	No LPH
	11/16/94		52.96	268.60	No LPH, or sheen
	02/15/95		50.37	271.19	No LPH
	05/09/95		44.86	276.70	No LPH
	08/21/95		41.71	279.85	No LPH
	11/30/95		39.95	281.61	No LPH
	03/28/96		36.76	284.80	No LPH

TABLE 5-Continued

GROUND WATER ELEVATION MEASUREMENTS

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

Monitoring Well	Date	Top of Riser Elevation (ft)[a]	Depth to Water (ft)	Ground Water Elevation (ft)	Liquid-Phase Hydrocarbon Thickness (feet)
MW-5s	05/25/88	321.64	38.46	283.18	No LPH
	06/06/88		38.86	282.78	No LPH
	06/23/88		39.52	282.12	No LPH
	06/28/88		39.84	281.80	No LPH
	07/06/88		40.45	281.19	No LPH
	07/13/88		40.90	280.74	No LPH
	07/22/88		41.30	280.34	No LPH
	08/05/88		23.84[f]	297.80	No LPH
	08/12/88		42.21	279.43	No LPH
	08/26/88		42.55	279.09	No LPH
	09/07/88		42.94	278.70	No LPH
	12/07/88		44.67	276.97	No LPH
	02/09/89		43.19	278.45	No LPH
	03/08/89[e]		42.11	279.53	No LPH
	04/26/89		41.84	279.80	No LPH
	06/30/89		43.95	277.69	No LPH
	07/17/89		44.91	276.73	No LPH
	07/18/89		44.93	276.71	No LPH
	07/19/89		44.98	276.66	No LPH
	07/20/89		45.02	276.62	No LPH
	07/21/89		45.10	276.54	No LPH
	07/26/89		45.57	276.07	No LPH
	08/02/89		NA	NA	No observation
	08/03/89		46.31	275.33	No LPH
	08/17/89		47.25	274.39	No LPH
	09/13/89		49.22	272.42	No LPH
	11/28/89		50.39	271.25	No LPH
	01/09/90		49.51	272.13	No LPH
	01/26/90		49.40	272.24	No LPH
	02/23/90		49.20[g]	272.44	No LPH
	02/23/90		49.20	272.44	No LPH
	03/26/90		48.89[g]	272.75	No LPH
	03/26/90		48.88	272.76	No LPH
	04/18/90		48.95	272.69	No LPH
	05/17/90		50.06	271.58	No LPH
	06/11/90		50.98	270.66	No LPH

~17' wide between 1992-1996

TABLE 5-Continued

GROUND WATER ELEVATION MEASUREMENTS

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

Monitoring Well	Date	Top of Riser Elevation (ft)[a]	Depth to Water (ft)	Ground Water Elevation (ft)	Liquid-Phase Hydrocarbon Thickness (feet)
MW-5s (Cont.)	07/30/90	321.64	53.40	268.24	No LPH
	08/27/90		53.60	268.04	No LPH
	09/28/90		53.55	268.09	No LPH
	12/27/90		53.61	268.03	No LPH
	03/20/91		53.56	268.08	No LPH
	06/20/91		53.73	267.91	No LPH
	09/12/91		53.78	267.86	No LPH
	12/30/91		53.80	267.84	No LPH
	01/30/92		53.82	267.82	No LPH
	03/02/92		53.82	267.82	No LPH
	04/14/92		53.74	267.90	No LPH
	05/21/92		53.77	267.87	No LPH
	06/08/92		53.81	267.83	No LPH
	07/14/92		53.74	267.90	No LPH
	08/10/92		53.78	267.86	No LPH
	09/16/92		53.90	267.74	No LPH
	10/07/92		DRY	DRY	No observation
	11/09/92		53.87	267.77	No LPH
	12/10/92		53.78	267.86	No LPH
	01/26/93		53.38	268.26	No LPH
	02/16/93		53.44	268.20	No LPH
	03/11/93		53.28	268.36	No LPH
	04/12/93		53.42	268.22	No LPH
	06/01/93		53.56	268.08	No LPH
	07/15/93		53.00	268.64	No LPH
	08/15/93		53.60	268.04	No LPH
	09/29/93		53.62	268.02	No LPH
	10/28/93		54.62	267.02	No LPH
	11/23/93		53.62	268.02	No LPH
	11/16/94		53.05	268.59	No LPH, or sheen
	02/15/95		50.55	271.09	No LPH
	05/09/95		44.96	276.68	No LPH
	08/21/95		41.77	279.87	No LPH
	11/30/95		39.95	281.69	No LPH
	03/28/96		36.80	284.84	No LPH

TABLE 5-Continued

GROUND WATER ELEVATION MEASUREMENTS

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

Monitoring Well	Date	Top of Riser Elevation (ft)[a]	Depth to Water (ft)	Ground Water Elevation (ft)	Liquid-Phase Hydrocarbon Thickness (feet)
MW-5d	05/25/88	321.79	38.55	283.24	No LPH
	06/06/88		38.90	282.89	No LPH
	06/23/88		39.56	282.23	No LPH
	06/28/88		40.23	281.56	No LPH
	07/06/88		40.69	281.10	No LPH
	07/13/88		41.22	280.57	No LPH
	08/12/88		42.34	279.45	No LPH
	08/26/88		42.60	279.19	No LPH
	09/07/88		42.99	278.80	No LPH
	12/07/88		44.58	277.21	No LPH
	02/09/89[d]		NM	NM	No observation
	03/08/89[e]		NM	NM	No observation
	03/08/93		42.49	279.30	No LPH
	04/03/89		42.21	279.58	No LPH
	04/26/89		42.36	279.43	No LPH
	06/30/89		44.79	277.00	No LPH
	07/17/89		45.73	276.06	No LPH
	07/18/89		45.75	276.04	No LPH
	07/19/89		44.89	276.90	No LPH
	07/20/89		46.02	275.77	No LPH
	07/21/89		46.18	275.61	No LPH
	07/26/89		46.83	274.96	No LPH
	08/02/89		NA	NA	No observation
	08/03/89		47.67	274.12	No LPH
	08/17/89		48.27	273.52	No LPH
	09/13/89		50.60	271.19	No LPH
	11/28/89		51.16	270.63	No LPH
	01/09/90		50.42	271.37	No LPH
	01/26/90		50.10	271.69	No LPH
	02/23/90		50.08	271.71	No LPH
	03/26/90		49.80[c]	271.99	No LPH
	03/26/90		49.77	272.02	No LPH
	04/18/90		49.80	271.99	No LPH
	05/17/90		51.32	270.47	No LPH
	06/11/90		52.10	269.69	No LPH
	07/30/90		53.47	268.32	No LPH

TABLE 5-Continued

GROUND WATER ELEVATION MEASUREMENTS

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

Monitoring Well	Date	Top of Riser Elevation (ft)[a]	Depth to Water (ft)	Ground Water Elevation (ft)	Liquid-Phase Hydrocarbon Thickness (feet)
MW-5d (Cont.)	08/27/90	321.79	58.24	263.55	No LPH
	09/29/90		60.70	261.09	No LPH
	12/27/90		62.52	259.27	No LPH
	03/20/91		59.18	262.61	No LPH
	06/20/91		65.02	256.77	No LPH
	09/12/91		DRY	DRY	No observation
	12/30/91		DRY	DRY	No observation
	01/30/92		DRY	DRY	No observation
	03/02/92		DRY	DRY	No observation
	03/24/92		74.98	246.81	No LPH
	04/14/92		74.42	247.37	No LPH
	05/21/92		75.67	246.12	No LPH
	06/08/92		DRY	DRY	No observation
	07/14/92		DRY	DRY	No observation
	08/10/92		DRY	DRY	No observation
	09/16/92		DRY	DRY	No observation
	10/07/92		DRY	DRY	No observation
	11/09/92		DRY	DRY	No observation
	12/10/92		DRY	DRY	No observation
	01/26/93		DRY	DRY	No observation
	02/16/93		76.47	245.32	No LPH
	03/11/93		74.03	247.76	No LPH
	04/12/93		70.96	250.83	No LPH
	06/01/93		67.64	254.15	No LPH
	07/15/93		54.40	267.39	No LPH
	08/15/93		67.85	253.94	No LPH
	09/29/93		67.62	254.17	No LPH
	10/28/93		66.15	255.49	No LPH
	11/23/93		64.80	256.84	No LPH
	11/16/94		54.36	268.74	No LPH, or sheen
	02/15/95		51.20	270.59	No LPH
	05/09/95		45.49	276.30	No LPH
	08/21/95		42.35	279.44	No LPH
	11/30/95		43.60	278.19	No LPH
	03/28/96		37.12	284.67	No LPH

Not measured between 1992-1996

TABLE 5-Continued

GROUND WATER ELEVATION MEASUREMENTS

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

Monitoring Well	Date	Top of Riser Elevation (ft)[a]	Depth to Water (ft)	Ground Water Elevation (ft)	Liquid-Phase Hydrocarbon Thickness (feet)
MW-6	05/11/88	NA	37.31	NA	No LPH
	06/06/88		38.70	NA	No LPH
	06/23/88		39.23	NA	No LPH
	06/28/88		39.74	NA	No LPH
	07/13/88		40.78	NA	No LPH
	08/05/88		41.72	NA	No LPH
	08/12/88		42.14	NA	No LPH
	08/17/88		NA	NA	No observation
	08/26/88		42.51	NA	No LPH
	09/07/88		42.85	NA	No LPH
	10/24/88		Well Destroyed		
MW-7	07/13/88	321.27	40.50	280.77	No LPH
	07/22/88		41.85[g]	279.42	No LPH
	08/05/88		41.45[g]	279.82	No LPH
	08/12/88		42.69	278.58	No observation
	09/07/88		42.60	278.67	No observation
	12/07/88		NA	NA	No observation
	01/17/89		43.20	278.07	No observation
	02/09/89		NA	NA	No observation
	10/12/89		49.93	271.34	No LPH
	11/28/89		57.61[g]	263.66	No LPH
	01/09/90		57.57[g]	263.70	No LPH
	01/26/90		57.54[g]	263.73	No LPH
	01/26/90		49.08	272.19	No LPH
	02/23/90		55.26[g]	266.01	No LPH
	02/23/90		48.93	272.34	No LPH
	03/26/90		57.52[g]	263.75	No LPH
	03/26/90		48.60	272.67	No LPH
	04/18/90		57.55[g]	263.72	No LPH
	05/17/90		57.40[g]	263.87	No LPH
	06/11/90		50.68	270.59	No LPH
	07/30/90		NA	NA	No observation
	08/27/90		53.05	268.22	No LPH
	09/28/90		NA	NA	No observation
	12/27/90		NA	NA	No observation
	03/20/91		54.11	2.67.16	No LPH
	06/20/91		55.14	266.13	No LPH
	09/12/91		55.84	265.43	No LPH
	12/30/91		55.21	266.06	No LPH
	01/30/92		54.88	266.39	No LPH

TABLE 5-Continued

GROUND WATER ELEVATION MEASUREMENTS

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

Monitoring Well	Date	Top of Riser Elevation (ft)[a]	Depth to Water (ft)	Ground Water Elevation (ft)	Liquid-Phase Hydrocarbon Thickness (feet)
MW-7	03/02/92	321.27	NA	NA	No observation
(Cont.)	03/24/92		NA	NA	No observation
	04/14/92		NA	NA	No observation
	05/21/92		53.36	267.91	No LPH
	06/08/92		54.20	267.07	No LPH
	07/14/92		53.31	267.96	No LPH
	08/10/92		54.01	267.26	No LPH
	09/16/92		55.97	265.30	No LPH
	10/07/92		56.09	265.18	No LPH
	11/09/92		54.16	267.11	No LPH
	12/10/92		56.02	265.25	No LPH
	01/26/93		56.15	265.12	No LPH
	02/16/93		56.23	265.04	No LPH
	03/11/93		55.82	265.45	No LPH
	04/12/93		55.45	265.82	No LPH
	06/01/93		54.90	266.37	No LPH
	07/15/93		54.50	266.77	No LPH
	08/15/93		54.25	267.02	No LPH
	09/29/93		54.55	266.72	No LPH
	10/28/93		54.94	266.92	No LPH
	11/23/93		54.73	267.13	No LPH
	11/16/94		52.74	268.53	No LPH, or sheen
	02/15/95		50.05	271.22	No LPH, or sheen
	05/09/95		44.61	276.66	No LPH, or sheen
	08/21/95		41.40	279.87	No LPH, or sheen
	11/30/95		39.64	281.63	No LPH, or sheen
	03/28/96		36.42	284.85	No LPH, or sheen

TABLE 5-Continued

GROUND WATER ELEVATION MEASUREMENTS

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

Monitoring Well	Date	Top of Riser Elevation (ft)[a]	Depth to Water (ft)	Ground Water Elevation (ft)	Liquid-Phase Hydrocarbon Thickness (feet)
MW-8	10/01/89	321.86	53.88	267.98	No LPH
	11/28/89		53.74	268.12	No LPH
	01/09/90		57.90	263.96	No LPH
	01/26/90		53.57	268.29	No LPH
	02/23/90		52.16	269.70	No LPH
	03/26/90		52.80[g]	269.06	No LPH
	04/18/90		51.60	270.26	No LPH
	05/17/90		58.21	263.65	No LPH
	06/11/90		58.65	263.21	No LPH
	07/30/90		64.33	257.53	No LPH
	08/27/90		70.41	251.45	No LPH
	09/28/90		71.93	249.93	No LPH
	12/27/90		66.60	255.26	No LPH
	03/20/91		60.75	261.11	No LPH
	06/20/91		88.77	233.09	No LPH
	09/12/91		103.17	218.69	No LPH
	12/30/91		81.15	240.71	No LPH
	01/30/92		81.69	240.17	No LPH
	03/02/92		78.45	243.41	No LPH
	03/24/92		76.55	245.31	No LPH
	04/14/92		75.56	246.30	No LPH
	05/21/92		86.99	234.87	No LPH
	06/08/92		91.69	230.17	No LPH
	07/14/92		94.65	227.21	No LPH
	08/10/92		95.02	226.84	No LPH
	09/16/92		91.90	229.96	No LPH
	10/07/92		DRY	DRY	No observation
	11/09/92		84.35	237.51	No LPH
	12/10/92		82.20	239.66	No LPH
	01/26/93		78.63	243.23	No LPH
	02/16/93		76.90	244.96	No LPH
	03/11/93		74.39	247.47	No LPH
	04/12/93		71.20	250.66	No LPH
	06/01/93		68.04	253.82	No LPH
	07/15/93		78.05	243.81	No LPH
	08/15/93		78.45	243.41	No LPH
	09/29/93		73.64	248.22	No LPH
	10/28/93		67.53	253.91	No LPH
	11/23/93		64.68	256.76	No LPH

2.76' max between 1991-1996

TABLE 5-Continued

GROUND WATER ELEVATION MEASUREMENTS

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

Monitoring Well	Date	Top of Riser Elevation (ft)[a]	Depth to Water (ft)	Ground Water Elevation (ft)	Liquid-Phase Hydrocarbon Thickness (feet)
MW-8 (Cont.)	11/16/94	321.86	55.47	266.39	No LPH, or sheen
	02/15/95		52.00	269.86	No LPH, or sheen
	05/09/95		46.60	275.26	No LPH, or sheen
	08/21/95		43.86	278.00	No LPH, or sheen
	11/30/95		41.25	280.61	No LPH, or sheen
	03/28/96		37.71	284.15	No LPH, or sheen
MW-9	10/12/89	321.44	50.24	271.20	No LPH
	11/28/89		50.59	270.85	0.1
	12/01/89		50.32	271.12	0.02
	12/07/89		50.13	271.31	0.16
	12/13/89		49.91	271.53	Slight Sheen
	12/20/89		49.78	271.66	Slight Sheen
	01/02/80		NA	NA	No observation
	01/09/90		49.39	272.05	Slight Sheen
	01/26/90		49.30	272.14	No LPH
	02/23/90		49.06[g]	272.38	No LPH
	02/23/90		49.05	272.39	No LPH
	03/26/90		48.75[g]	272.69	No LPH
	03/26/90		48.73	272.71	Slight sheen
	04/18/90		48.81	272.63	No LPH
	05/17/90		49.96	271.48	No LPH
	06/11/90		51.58	269.86	No LPH
	07/30/90		DRY	DRY	No observation
	08/27/90		DRY	DRY	No observation
	09/28/90		DRY	DRY	No observation
	12/27/90		NA	NA	No observation
	03/20/91		DRY	DRY	No observation
	06/20/91		49.63	271.81	No LPH
	09/12/91		NA	NA	No Observation
	12/30/91		NA	NA	No observation
	01/30/92		NA	NA	No observation
	03/02/92		NA	NA	No observation
	03/24/92		NA	NA	No observation
	04/14/92		NA	NA	No observation
	05/21/92		NA	NA	No observation
	06/08/92		NA	NA	No observation

why?

TABLE 5-Continued

GROUND WATER ELEVATION MEASUREMENTS

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

Monitoring Well	Date	Top of Riser Elevation (ft)[a]	Depth to Water (ft)	Ground Water Elevation (ft)	Liquid-Phase Hydrocarbon Thickness (feet)
MW-9 (Cont.)	07/14/92	321.44	NA	NA	No observation
	08/10/92		NA	NA	No observation
	09/16/92		NA	NA	No observation
	10/07/92		DRY	DRY	No observation
	11/09/92		DRY	DRY	No observation
	12/10/92		NA	NA	No observation
	01/26/93		DRY	DRY	No Observation
	02/16/93		DRY	DRY	No observation
	03/11/93		DRY	DRY	No observation
	04/12/93		DRY	DRY	No observation
	06/01/93		DRY	DRY	No observation
	07/15/93		DRY	DRY	No observation
	08/15/93		DRY	DRY	No observation
	09/29/93		DRY	DRY	No observation
	10/28/93		DRY	DRY	No observation
	11/23/93		DRY	DRY	No observation
	11/16/94		52.62	268.82	No LPH, or sheen
	02/15/95		49.76	271.68	No LPH, or sheen
	05/09/95		44.30	277.14	No LPH, or sheen
	08/21/95		41.11	280.33	No LPH, or sheen
	11/30/95		39.40	282.04	No LPH, or sheen
	03/28/96		36.13	285.31	No LPH, or sheen

TABLE 5-Continued

GROUND WATER ELEVATION MEASUREMENTS

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

Monitoring Well	Date	Top of Riser Elevation (ft)[a]	Depth to Water (ft)	Ground Water Elevation (ft)	Liquid-Phase Hydrocarbon Thickness (feet)
MW-10	10/12/89	322.99	51.93	271.06	No LPH
	11/28/89		51.88	271.11	No LPH
	12/20/89		51.47	271.52	No LPH
	01/09/90		50.98	272.01	No LPH
	01/26/90		50.87	272.12	No LPH
	02/23/90		50.67[g]	272.32	No LPH
	02/23/90		50.65	272.34	No LPH
	03/26/90		50.36[g]	272.63	No LPH
	03/26/90		50.35	272.64	No LPH
	04/18/90		50.45	272.54	No LPH
	06/11/90		51.16	271.83	No LPH
	07/30/90		55.72	267.27	No LPH
	08/27/90		57.75	265.24	No LPH
	09/28/90		NA	NA	No observation
	12/27/90		58.08	264.91	No LPH
	03/20/91		57.80	265.19	No LPH
	06/20/91		58.00	264.99	No LPH
	09/12/91		DRY	DRY	No observation
	12/30/91		NA	NA	No observation
	01/30/92		DRY	DRY	No observation
	03/02/92		DRY	DRY	No observation
	03/24/92		58.53	264.46	No LPH
	04/14/92		DRY	DRY	No observation
	05/21/92		DRY	DRY	No observation
	06/08/92		DRY	DRY	No observation
	07/14/92		DRY	DRY	No observation
	08/10/92		DRY	DRY	No observation
	09/16/92		DRY	DRY	No observation
	10/07/92		DRY	DRY	No observation
	11/09/92		DRY	DRY	No observation
	12/10/92		DRY	DRY	No observation
	01/26/93		DRY	DRY	No observation
	02/16/93		58.23	264.76	No LPH
	03/11/93		57.81	265.18	No LPH
	04/12/93		57.84	265.15	No LPH
	06/01/93		57.88	DRY	No observation
	07/15/93		DRY	DRY	No observation
	08/15/93		DRY	DRY	No observation
	09/29/93		DRY	DRY	No observation
	10/28/93		DRY	DRY	No observation
	11/23/93		DRY	DRY	No observation

TABLE 5-Continued

GROUND WATER ELEVATION MEASUREMENTS

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

Monitoring Well	Date	Top of Riser Elevation (ft)[a]	Depth to Water (ft)	Ground Water Elevation (ft)	Liquid-Phase Hydrocarbon Thickness (feet)
MW-10 (Cont.)	11/16/94	322.99	54.82	268.17	No LPH, or sheen
	02/15/95		51.90	271.09	No LPH, or sheen
	05/09/95		46.32	276.67	No LPH, or sheen
	08/21/95		43.06	279.93	No LPH, or sheen
	11/30/95		41.34	281.65	No LPH, or sheen
	03/28/96		38.15	284.84	No LPH, or sheen
MW-11	11/10/89	321.77	50.64	272.13	No LPH
	11/28/89		50.51	272.26	No LPH
	12/20/89		51.47	271.30	No LPH
	01/09/90		49.68	273.09	No LPH
	01/26/90		49.55	273.22	No LPH
	02/23/90		49.37[g]	273.40	No LPH
	02/23/90		49.35	273.42	No LPH
	03/26/90		49.03[g]	273.74	No LPH
	04/18/90		49.12	273.65	No LPH
	05/17/90		50.30	272.47	No LPH
	06/11/90		51.16	271.61	No LPH
	07/30/90		53.50	269.27	No LPH
	08/27/90		53.65	269.12	No LPH
	09/28/90		53.62	269.15	No LPH
	12/27/90		53.63	269.14	No LPH
	03/20/91		53.26	269.51	No LPH
	06/20/91		53.60	269.17	No LPH
	09/12/91		53.60	269.17	No LPH
	12/30/91		53.95	268.82	No LPH
	01/30/92		53.65	269.12	No LPH
	03/02/92		53.68	269.09	No LPH
	03/24/92		53.70	269.07	No LPH
	04/14/92		53.66	269.11	No LPH
	05/21/92		53.62	269.15	No LPH
	06/08/92		53.61	269.16	No LPH
	07/14/92		53.53	269.24	No LPH
	08/10/92		53.58	269.19	No LPH
	09/16/92		53.60	269.17	No LPH
	10/07/92		DRY	DRY	No observation
	11/09/92		DRY	DRY	No observation
	12/10/92		53.59	269.18	No LPH
	01/26/93		53.67	269.10	No LPH
	02/16/93		53.60	269.17	No LPH
	03/11/93		53.58	269.19	No LPH

TABLE 6

GROUND WATER ANALYTICAL RESULTS

Concentrations in micrograms per liter (μg/L)

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

Monitoring Well	Date	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH[a] as gasoline	MTBE[b]
MW-1	04/02/88	<0.5	1.7	<0.5	<0.5	<20	NA[c]
	07/06/88	<0.5	<0.5	<0.5	<0.5	<20	NA
	07/13/88	<0.5	<0.5	<0.5	<0.5	<20	NA
	09/07/88	<0.5	<0.5	<0.5	<0.5	<20	NA
	03/03/89	1.6	<0.5	<0.5	<0.5	<20	NA
	06/30/89	<0.5	<0.5	<0.5	<0.5	<20	NA
	07/17/89	<0.5	<0.5	<0.5	<0.5	23	NA
	07/20/89	<0.5	<0.5	<0.5	<0.5	<20	NA
	07/26/89	<0.5	<0.5	<0.5	<0.5	<20	NA
	08/02/89	<0.5	<0.5	<0.5	<0.5	<20	NA
	09/13/89	39	0.6	<0.5	5.1	220	NA
	12/20/89	56	0.72	<0.5	0.71	220	NA
	01/25/90	18	1.6	<0.5	1.8	57	NA
	02/27/90	3.2	2.3	<0.5	3.2	55	NA
	03/26/90	<0.5	<0.5	<0.5	<0.5	<20	NA
	04/18/90	1.1	1.6	<0.5	3.1	25	NA
	05/17/90	<0.5	<0.5	<0.5	<0.5	<20	NA
	06/11/90	<0.5	<0.5	<0.5	<0.5	<20	NA
	07/30/90	<0.5	<0.5	<0.5	<0.5	<20	NA
	08/27/90	<0.5	<0.5	<0.5	<0.5	<20	NA
	09/28/90	<0.5	<0.5	<0.5	<0.5	<50	NA
	12/10/92	Not Accessible					
	02/16/93	Not Accessible					
	04/12/93	Not Accessible					
	09/30/93	<0.5	<0.5	<0.5	<0.5	<50	NA
	11/24/93	<0.5	<0.5	<0.5	<0.5	<50	N
	11/16/94	<0.5	<0.5	<0.5	<0.5	<50	NA
	02/15/95	<0.5	<0.5	<0.5	<0.5	<50	NA
	05/09/95	<0.5	<0.5	<0.5	<0.5	<50	NA
	08/21/95	<0.5	0.83	<0.5	<0.5	<50	<2.5
	11/30/95	<0.5	<0.5	<0.5	<0.5	<50	<5.0
	03/28/96	<0.5	<0.5	<0.5	<0.5	<50	<5.0
MW-2	07/06/88	25,700	18,500	2,900	21,400	62,000	NA
	07/12/88	Well Destroyed					
MW-3	04/06/88	<0.5	<0.5	<0.5	<0.5	20	NA
	07/06/88	<0.5	<0.5	<0.5	<0.5	<20	NA
	07/13/88	<0.5	<0.5	<0.5	<0.5	<20	NA
	08/26/88	<0.5	<0.5	<0.5	<0.5	<20	NA
	08/29/88	Well Destroyed					

'94? date.

TABLE 6-Continued

GROUND WATER ANALYTICAL RESULTS
Concentrations in micrograms per liter (μg/L)

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

Monitoring Well	Date	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH[a] as gasoline	MTBE[b]
MW-4	04/11/88	1.8	16.3	0.6	7.1	80	NA
	07/06/88	<0.5	<0.5	<0.5	<0.5	<20	NA
	07/13/88	<0.5	0.9	<0.5	<0.5	<20	NA
	03/08/89	3.8	1.0	<0.5	<0.5	440	NA
	06/30/89	<0.5	<0.5	<0.5	<0.5	100	NA
	07/17/89	<0.5	<0.5	<0.5	<0.5	390	NA
	07/20/89	<0.5	<0.5	<0.5	<0.5	200	NA
	07/26/89	<0.5	<0.5	<0.5	<0.5	66	NA
	08/02/89	NA	NA	NA	NA	NA	NA
	09/13/89	<0.5	<0.5	<0.5	<0.5	<20	NA
	12/20/89	<0.5	<0.5	<0.5	<0.5	<20	NA
	03/26/90	<0.5	<0.5	<0.5	<0.5	<20	NA
	08/01/90	<0.5	<0.5	<0.5	<0.5	<20	NA
	12/27/90	<0.5	<0.5	<0.5	<0.5	<50	NA
	03/20/91	<0.5	<0.5	<0.5	<0.5	<50	NA
	03/24/92	<0.5	<0.5	<0.5	<0.5	<50	NA
	12/10/92	Not Accessible					
	02/16/93	57	34	11	200	600	NA
	04/12/93	20	10	22	80	360	NA
	09/30/93	<0.5	<0.5	<0.5	<0.5	<50	NA
	11/24/93	<0.5	<0.5	<0.5	<0.5	<50	NA
'94 data?	11/16/94	<0.5	<0.5	<0.5	<0.5	<50	NA
	02/15/95	<0.5	<0.5	<0.5	<0.5	<50	NA
	05/09/95	<0.5	<0.5	<0.5	<0.5	<50	NA
	08/21/95	<0.5	<0.5	<0.5	<0.5	<50	2.6
	11/30/95	<0.5	<0.5	<0.5	<0.5	<50	<5.0
	03/28/96	<0.5	<0.5	<0.5	<0.5	<50	<5.0

TABLE 6-Continued

GROUND WATER ANALYTICAL RESULTS
Concentrations in micrograms per liter (μg/L)

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

Monitoring Well	Date	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH[a] as gasoline	MTBE[b]
MW-5s	05/25/88	<0.5	0.9	<0.5	<0.5	<20	NA
	07/06/88	<0.5	<0.5	<0.5	<0.5	<20	NA
	07/13/88	<0.5	<0.5	<0.5	<0.5	<20	NA
	07/22/88	0.9	4.1	1.3	8.7	50	NA
	08/05/88	<0.5	<0.5	<0.5	<0.5	<20	NA
	09/07/88	<0.5	<0.5	<0.5	<0.5	<20	NA
	03/08/89	<0.5	<0.5	<0.5	<1.0	<20	NA
	06/30/89	<0.5	<0.5	<0.5	<0.5	<20	NA
	07/17/89	<0.5	<0.5	<0.5	<0.5	<20	NA
	07/20/89	<0.5	<0.5	<0.5	<0.5	<20	NA
	07/26/89	<0.5	<0.5	<0.5	<0.5	<20	NA
	08/02/89	<0.5	<0.5	<0.5	<0.5	<20	NA
	09/13/89	<0.5	<0.5	<0.5	<0.5	<20	NA
	12/20/89	<0.5	<0.5	<0.5	<0.5	<20	NA
	03/26/90	<0.5	<0.5	<0.5	<0.5	<20	NA
	08/01/90	<0.5	<0.5	<0.5	<0.5	<50	NA
	12/27/90	<0.5	<0.5	<0.5	<0.5	<50	NA
	12/10/92	NS[d]	NS	NS	NS	NS	NS
	02/16/93	NS	NS	NS	NS	NS	NS
	04/12/93	11	5.9	13	48	220	NA
	09/30/93	<0.5	<0.5	<0.5	<0.5	<50	NA
	11/24/93	<0.5	<0.5	<0.5	<0.5	<50	NA
	11/16/94	<0.5	<0.5	<0.5	<0.5	<50	NA
	02/15/95	<0.5	<0.5	<0.5	<0.5	<50	NA
	05/09/95	<0.5	<0.5	<0.5	<0.5	<50	NA
	08/21/95	<0.5	<0.5	<0.5	<0.5	<50	<2.5
	11/30/95	<0.5	<0.5	<0.5	<0.5	<50	<5.0
	03/28/96	<0.5	<0.5	<0.5	<0.5	<50	<5.0

'94 date?

TABLE 6-Continued

GROUND WATER ANALYTICAL RESULTS
Concentrations in micrograms per liter (µg/L)

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

Monitoring Well	Date	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH[a] as gasoline	MTBE[b]
MW-5d	05/25/88	<0.5	3.1	<0.5	<0.5	<20	NA
	07/06/88	<0.5	<0.5	<0.5	<0.5	<20	NA
	07/13/88	<0.5	<0.5	<0.5	<0.5	40	NA
	03/08/89	<0.5	<0.5	<0.5	<0.5	<20	NA
	06/30/89	<0.5	<0.5	<0.5	<0.5	<20	NA
	07/17/89	<0.5	<0.5	<0.5	<0.5	<20	NA
	07/20/89	<0.5	<0.5	<0.5	<0.5	<20	NA
	07/26/89	<0.5	<0.5	<0.5	<0.5	<20	NA
	08/02/89	<0.5	<0.5	<0.5	<0.5	<20	NA
	09/13/89	<0.5	<0.5	<0.5	<0.5	<20	NA
	12/20/89	<0.5	<0.5	<0.5	<0.5	<20	NA
	03/26/90	<0.5	<0.5	<0.5	<0.5	<20	NA
	08/01/90	<0.5	<0.5	<0.5	<0.5	<20	NA
	12/27/90	<0.5	<0.5	<0.5	<0.5	<50	NA
	03/20/91	<0.5	<0.5	<0.5	<0.5	<50	NA
	06/20/91	<0.5	<0.5	<0.5	<0.5	<50	NA
	12/10/92	NS	NS	NS	NS	NS	NS
	02/16/93	NS	NS	NS	NS	NS	NS
	04/12/93	1.0	1.0	2.5	7.4	<50	NA
	09/30/93	<0.5	<0.5	<0.5	<0.5	<50	NA
	11/24/93	<0.5	<0.5	<0.5	<0.5	<50	NA
'94 data?	11/16/94	<0.5	<0.5	<0.5	<0.5	<50	NA
	02/15/95	NS	NS	NS	NS	NS	NS
	05/12/95	<0.5	<0.5	<0.5	<0.5	<50	NA
	08/21/95	<0.5	<0.5	<0.5	<0.5	<50	<2.5
	11/30/95	5.4	10	1.4	12	77	<5.0
	03/28/96	<0.5	<0.5	<0.5	<0.5	<50	<5.0
MW-6	05/17/88	<0.5	<0.5	<0.5	<0.5	<20	NA
	06/28/88	31.8	7.5	5.4	6.7	440	NA
	07/13/88	162.3	7.7	22.5	14.1	290	NA
	08/05/88	245	5.2	47.1	23.7	1,180	NA
	09/07/88	474	16	262	136	2,920	NA
	10/24/88	Well Destroyed					

TABLE 6-Continued

GROUND WATER ANALYTICAL RESULTS
Concentrations in micrograms per liter (μg/L)

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

Monitoring Well	Date	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH[a] as gasoline	MTBE[b]
MW-7	07/13/88	860	1,910	710	4,420	16,700	NA
	07/22/88	136	85	5	58	460	NA
	08/05/88	73.3	52.8	2.3	28.1	270	NA
	02/09/89	600	688	10	448	6,700	NA
	06/30/89	180	50	13	40	1,100	NA
	08/02/89	1.6	<0.5	<0.5	0.6	31	NA
	09/15/89	<0.5	2.6	<0.5	12	87	NA
	12/20/89	<0.5	<0.5	<0.5	<0.5	<20	NA
	06/20/91	<0.5	1.8	0.6	4.1	74	NA
	09/12/91	3.5	<0.5	1.7	6.8	<50	NA
	12/30/91	<0.5	<0.5	<0.5	<0.5	<50	NA
	06/08/92	<0.5	<0.5	<0.5	<0.5	<50	NA
	12/10/92	NS	NS	NS	NS	NS	NS
	02/16/93	28	30	17	200	600	NA
	04/12/93	NS	NS	NS	NS	NS	NS
	09/30/93	NS	NS	NS	NS	NS	NS
'94 data? →	11/24/93	<0.5	<0.5	<0.5	<0.5	<50	NA
	11/16/94	<0.5	<0.5	<0.5	<0.5	<50	NA
	02/15/95	<0.5	<0.5	<0.5	<0.5	<50	NA
	05/09/95	<0.5	<0.5	<0.5	<0.5	<50	NA
	08/21/95	<0.5	<0.5	<0.5	<0.5	<50	4.1
	11/30/95	<0.5	<0.5	<0.5	<0.5	<50	<5.0
	03/28/96	<0.5	<0.5	<0.5	<0.5	<50	<5.0

TABLE 6-Continued

GROUND WATER ANALYTICAL RESULTS
Concentrations in micrograms per liter (μg/L)

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

Monitoring Well	Date	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH[a] as gasoline	MTBE[b]
MW-8	10/03/89	<0.5	<0.5	<0.5	<0.5	<20	NA
	12/20/89	<0.5	<0.5	<0.5	0.61	<20	NA
	01/31/90	<0.5	<0.5	<0.5	0.87	<20	NA
	02/09/90	<0.5	<0.5	<0.5	1.1	<20	NA
	(Blank)	<0.5	<0.5	<0.5	<0.5	<20	NA
	03/26/90	<0.5	<0.5	<0.5	<0.5	<20	NA
	(Blank)	<0.5	<0.5	<0.5	<0.5	<20	NA
	04/18/90	<0.5	0.58	<0.5	1.1	<20	NA
	05/17/90	<0.5	<0.5	<0.5	<0.5	<20	NA
	06/11/90	<0.5	<0.5	<0.5	<0.5	<20	NA
	08/01/90	<0.5	<0.5	<0.5	<0.5	<20	NA
	08/27/90	<0.5	<0.5	<0.5	0.5	<20	NA
	09/28/90	<0.5	<0.5	<0.5	0.5	<50	NA
	12/27/90	<0.5	<0.5	<0.5	0.6	<50	NA
	03/20/91	<0.5	<0.5	<0.5	<0.5	<50	NA
	06/20/91	<0.5	<0.5	<0.5	0.6	<50	NA
	10/14/91	<0.5	<0.5	<0.5	<0.5	<50	NA
	12/30/91	<0.5	<0.5	<0.5	<0.5	<50	NA
	03/24/92	<0.5	<0.5	<0.5	<0.5	<50	NA
	06/08/92	<0.5	<0.5	<0.5	<0.5	<50	NA
	09/16/92	<0.5	0.9	<0.5	<0.5	<50	NA
	12/10/92	<0.5	0.6	<0.5	<0.5	<50	NA
	02/10/93	0.7	0.6	<0.5	[illegible]	<50	NA
	[illegible]	26	7.3	11	[illegible]	230	NA
	09/30/93	<0.5	<0.5	<0.5	<0.5	<50	NA
	11/24/93	<0.5	<0.5	<0.5	<0.5	<50	NA
	11/16/94	<0.5	<0.5	<0.5	<0.5	<50	NA
	02/15/95	NS	NS	NS	NS	NS	NS
	05/12/95	2.3	1.2	2.0	7.4	<50	NA
	08/21/95	<0.5	<0.5	<0.5	<0.5	<50	<2.5
	11/30/95	<0.5	<0.5	0.69	2.7	<50	<5.0
	03/28/96	<0.5	<0.5	<0.5	<0.5	<50	<5.0

qc data?

TABLE 6-Continued

GROUND WATER ANALYTICAL RESULTS
Concentrations in micrograms per liter (μg/L)

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

Monitoring Well	Date	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH[a] as gasoline	MTBE[b]
MW-9	10/03/89	1,000	9,200	3,000	13,000	89,000	NA
	12/20/89	6,300	31,000	9,500	55,000	190,000	NA
	01/25/90	2,400	9,400	2,700	15,000	77,000	NA
	02/27/90	1,200	7,100	2,300	14,000	97,000	NA
	03/26/90	1,800	7,700	2,000	11,000	89,000	NA
	04/18/90	2,000	7,500	2,500	16,000	110,000	NA
	05/17/90	1,500	5,700	2,300	14,000	81,000	NA
	06/20/90	<0.5	<0.5	<0.5	<0.5	430	NA
	12/10/92			Not Accessible			NA
	11/16/94	NS	NS	NS	NS	NS	NS
	02/15/95	<0.5	<0.5	<0.5	<0.5	<50	NA
	05/09/95	<0.5	<0.5	<0.5	<0.5	<50	NA
	08/21/95	270	51	5.2	140	1,100	<25
	11/30/95	920	680	120	870	6,600	<100
	03/28/96	72	28	1.8	49	360	<10
MW-10	10/12/89	<0.5	<0.5	<0.5	1.5	20	NA
	12/20/89	<0.5	<0.5	<0.5	1.8	<20	NA
	03/26/90	<0.5	<0.5	<0.5	<0.5	<20	NA
	08/01/90	<0.5	<0.5	<0.5	<0.5	<20	NA
	12/10/92	NS	NS	NS	NS	NS	NS
	02/16/93	NS	NS	NS	NS	NS	NS
	04/12/93	21	11	21	75	350	NA
	11/16/94	<0.5	<0.5	<0.5	<0.5	<50	NA
	02/15/95	<0.5	<0.5	<0.5	<0.5	<50	NA
	05/09/95	<0.5	<0.5	<0.5	<0.5	<50	NA
	08/21/95	<0.5	<0.5	<0.5	<0.5	<50	<2.5
	11/30/95	<0.5	<0.5	<0.5	<0.5	<50	<5.0
	03/28/96	<0.5	<0.5	<0.5	<0.5	<50	<5.0

TABLE 6-Continued

GROUND WATER ANALYTICAL RESULTS
Concentrations in micrograms per liter (μg/L)

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

Monitoring Well	Date	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPH[a] as gasoline	MTBE[b]
MW-11	11/16/89	4.1	9.4	0.74	20	150	NA
	12/20/89	7.2	7.5	2.9	13	150	NA
	03/26/90	<0.5	<0.5	<0.5	2.7	32	NA
	07/30/90	<0.5	<0.5	<0.5	3.8	26	NA
	12/10/92	NS	NS	NS	NS	NS	NS
	02/16/93	NS	NS	NS	NS	NS	NS
	04/12/93	<0.5	<0.5	<0.5	<0.5	<50	NA
	09/30/93	NS	NS	NS	NS	NS	NS
	11/24/93	<0.5	<0.5	<0.5	<0.5	<50	NA
	11/16/94	NS	NS	NS	NS	NS	NS
	02/15/95	<0.5	<0.5	<0.5	<0.5	<50	NA
	05/09/95	<0.5	<0.5	<0.5	<0.5	<50	NA
	08/21/95	<0.5	<0.5	<0.5	<0.5	<50	2.8
	11/30/95	<0.5	<0.5	<0.5	<0.5	<50	<5.0
	03/28/96	<0.5	<0.5	<0.5	<0.5	<50	<5.0
VR-1	03/24/92	1.7	<0.5	<0.5	<0.5	<50	NA

[a] Total petroleum hydrocarbons by EPA Method 8015 Modified.
[b] Methyl tertiary butyl ether by EPA Method 8020.
[c] Not analyzed.
[d] Not sampled.

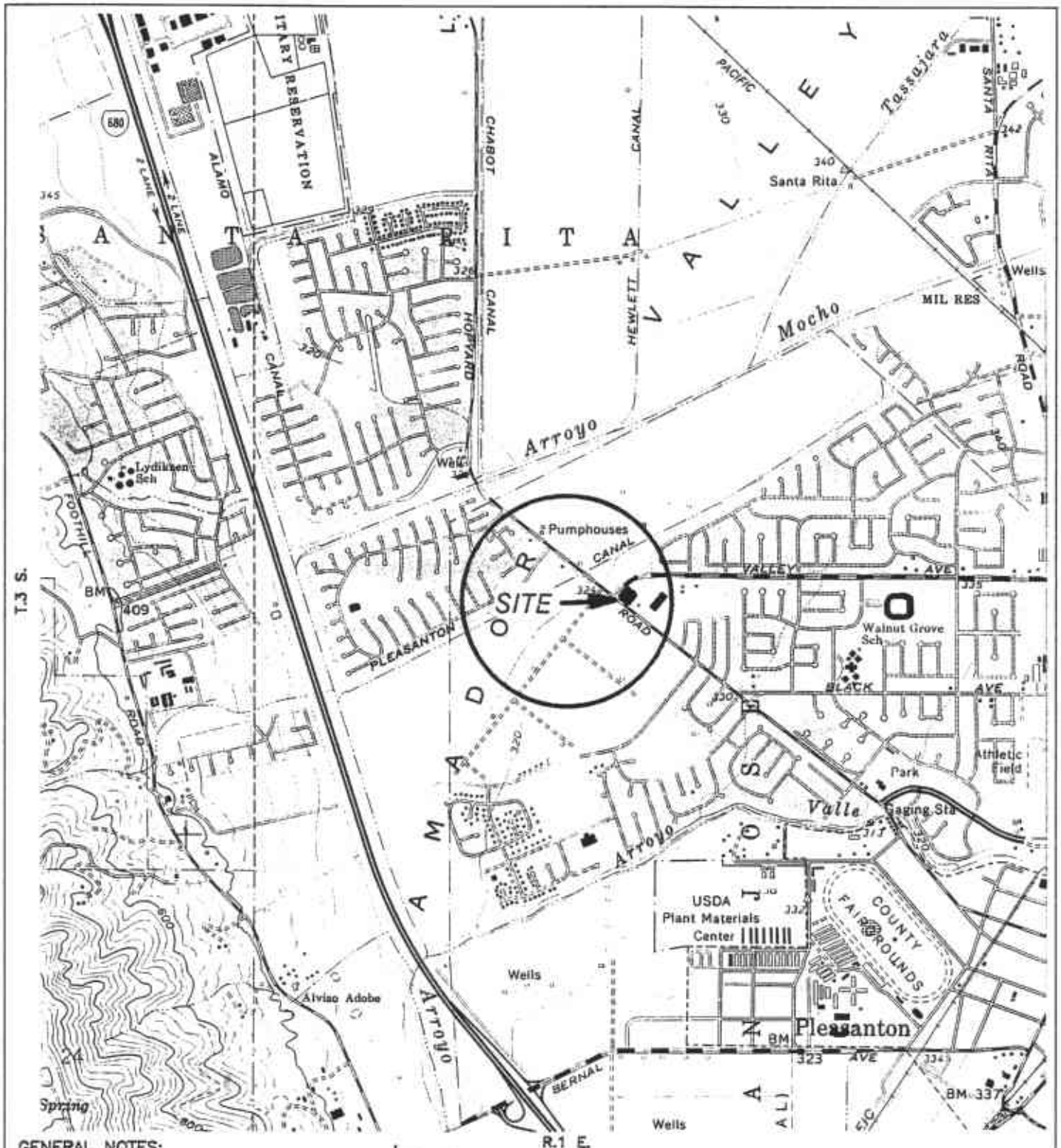
TABLE 5-Continued

GROUND WATER ELEVATION MEASUREMENTS

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

Monitoring Well	Date	Top of Riser Elevation (ft)[a]	Depth to Water (ft)	Ground Water Elevation (ft)	Liquid-Phase Hydrocarbon Thickness (feet)
MW-11 (Cont.)	04/12/93	321.77	53.54	269.23	No LPH
	06/01/93		53.52	269.25	No LPH
	07/15/93		53.60	269.17	No LPH
	08/15/93		53.55	269.22	No LPH
	09/29/93		53.62	269.15	No LPH
	10/28/93		53.63	269.14	No LPH
	11/23/93		53.58	269.19	No LPH
	11/16/94		53.46	268.31	No LPH, or sheen
	02/15/95		50.57	271.20	No LPH, or sheen
	05/09/95		45.05	276.72	No LPH, or sheen
	08/21/95		41.88	279.89	No LPH, or sheen
	11/30/95		40.04	281.73	No LPH, or sheen
	03/28/96		36.90	284.87	No LPH, or sheen

[a] The tops of the well risers were surveyed relative to mean sea level.
[b] Not accessible.
[c] Not measured because of installed product-skimmer pump.
[d] Casing head damaged by construction.
[e] Casing head cut to lower elevation.
[f] Anomalous water level possibly due to recharge from a perched water zone.
[g] Water level during pumping of MW-7.



GENERAL NOTES:
BASE MAP FROM U.S.G.S.
DUBLIN, CA.
7.5 MINUTE TOPOGRAPHIC
PHOTOREVISED 1980

North

CALIF

QUADRANGLE LOCATION

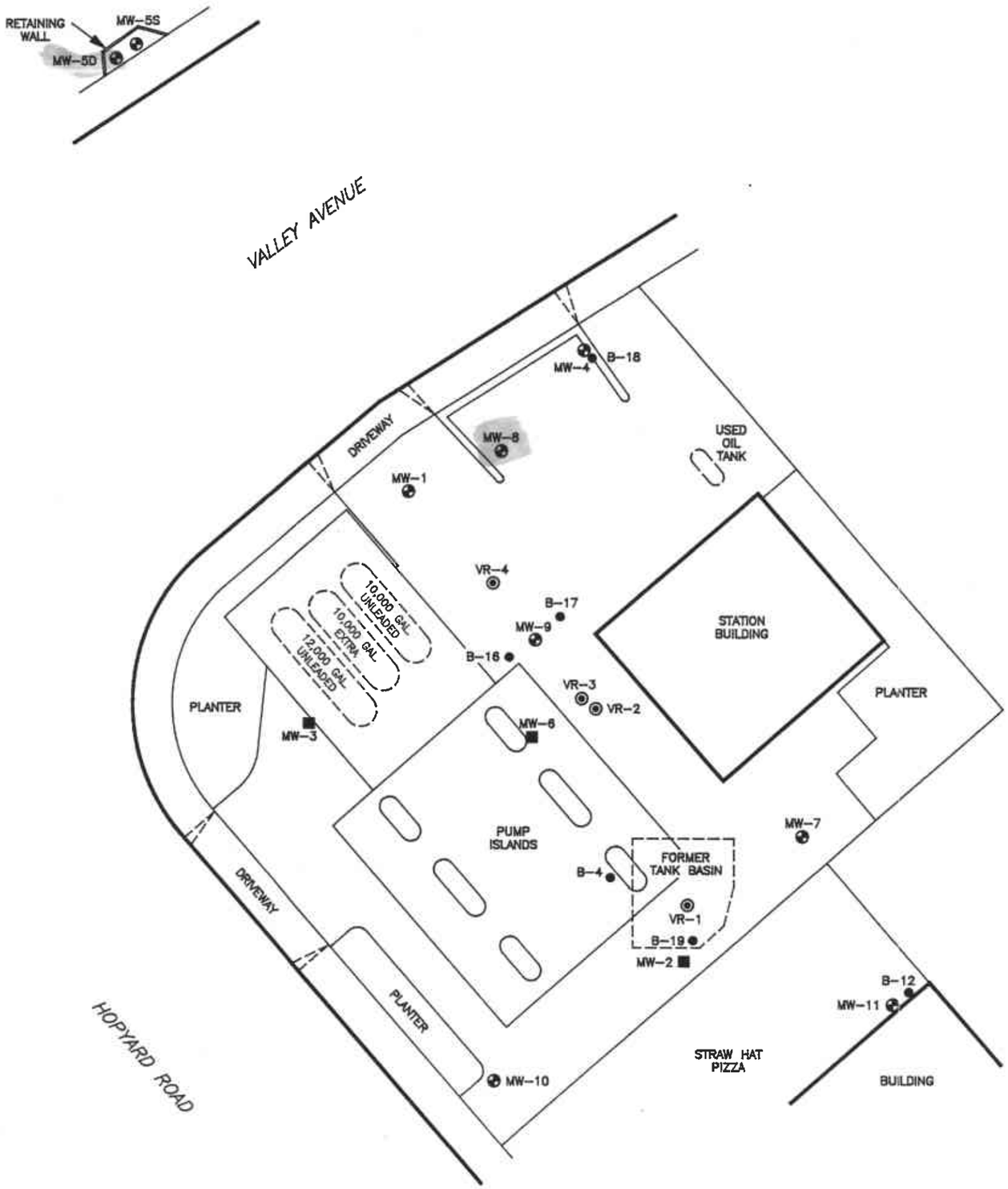
0 2000 FT

SCALE 1 : 24,000

FIGURE 1
SITE LOCATION MAP
EXXON STATION NO 7-3399
2991 HOPYARD ROAD
PLEASANTON, CA.

PROJECT NO. D094-836	DRAWN BY I.H. 9/22/94
FILE NO. —	PREPARED BY TMG
REVISION NO. 1	REVIEWED BY

Delta Environmental Consultants, Inc.



North

LEGEND:

● B-12	SOIL BORING LOCATION
◉ VR-1	VAPOR EXTRACTION WELL LOCATION
■ MW-2	DESTROYED MONITORING WELL
◕ MW-1	MONITORING WELL LOCATION

"deep" wells

vapor recovery wells

0 30 FT

SCALE

NOTE:

BASE MAP ADAPTED FROM RESNA FIGURE.SITE DIMENSIONS AND FACILITY LOCATIONS NOT VERIFIED.

FIGURE 2

SITE MAP

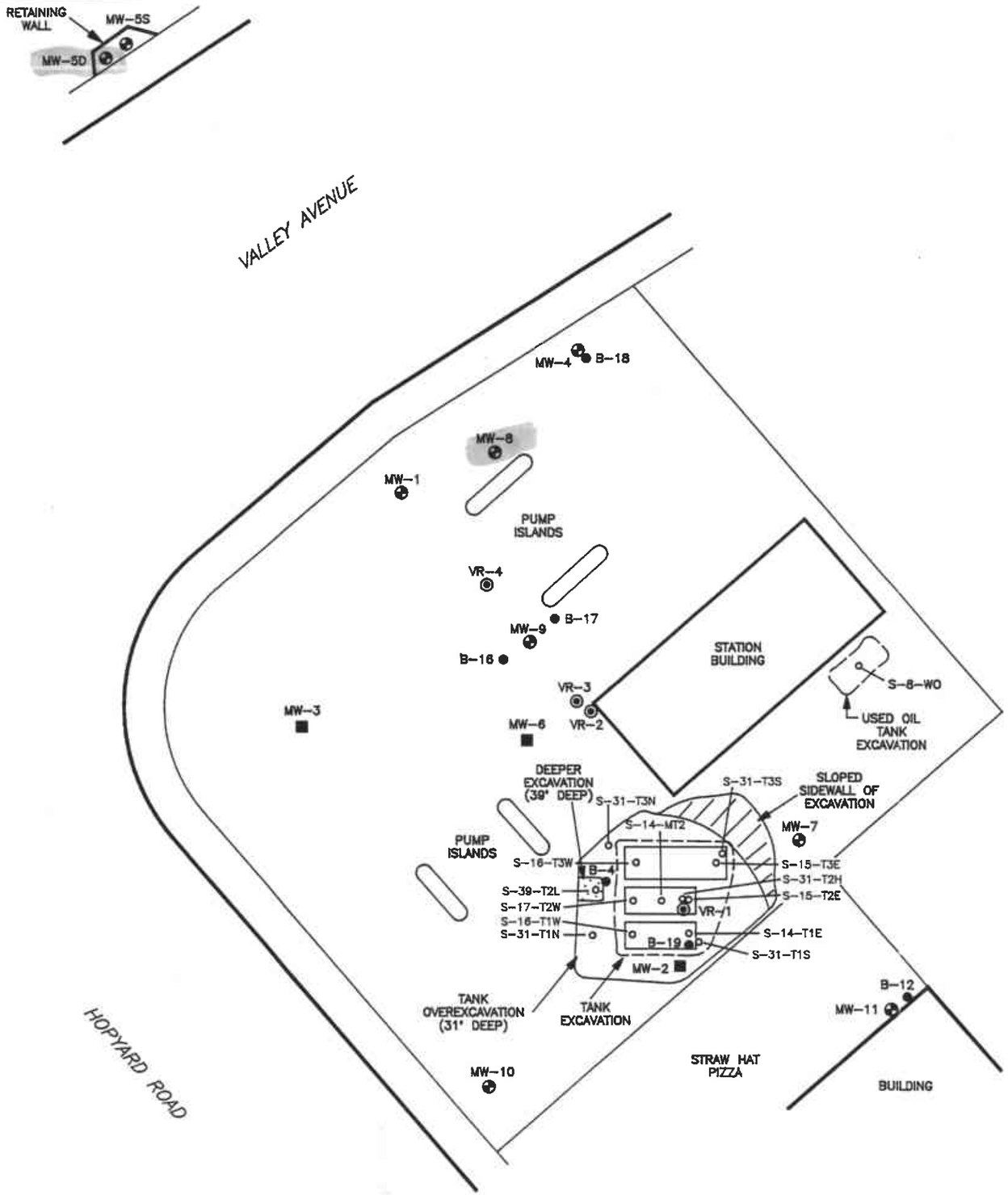
EXXON STATION NO 7-3399

2991 HOPYARD ROAD

PLEASANTON, CA.

PROJECT NO. 0094-836	DRAWN BY I.H. 5/20/96
FILE NO. 94-836-1	PREPARED BY CKA
REVISION NO. 2	REVIEWED BY CKA

Delta Environmental Consultants, Inc.



North

LEGEND:

●	B-12	SOIL BORING LOCATION
◉	VR-1	VAPOR EXTRACTION WELL LOCATION
■	MW-2	DESTROYED MONITORING WELL
⊕	MW-1	MONITORING WELL LOCATION
○	S-8-WO	SOIL SAMPLE LOCATION

"deep" wells

vapor recovery wells

0 30 FT

SCALE

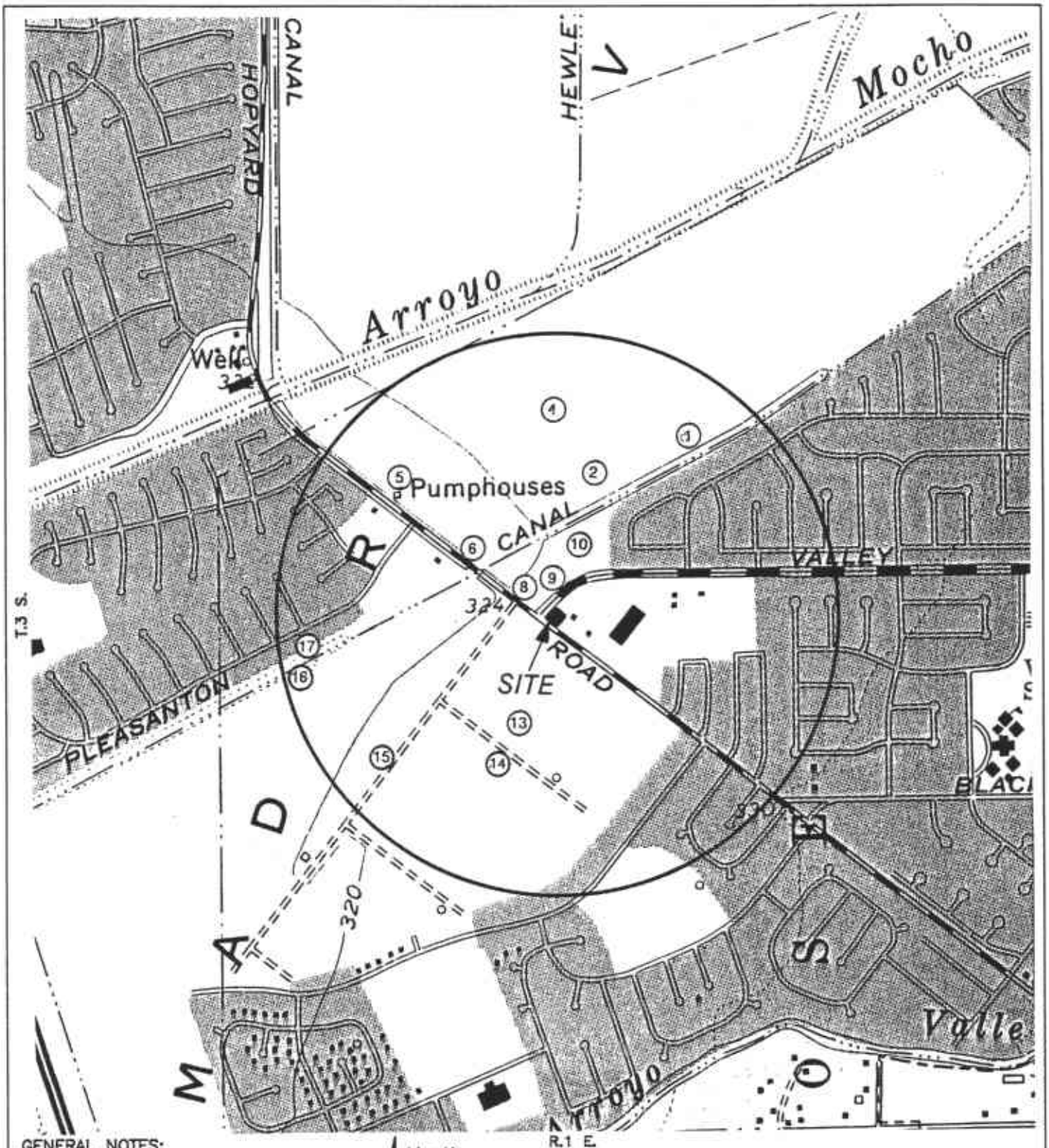
NOTE:

BASE MAP ADAPTED FROM RESNA FIGURE.SITE DIMENSIONS AND FACILITY LOCATIONS NOT VERIFIED.

FIGURE 3
FORMER SITE LAYOUT AND SOIL SAMPLE LOCATION MAP
EXXON STATION NO 7-3399
2991 HOPYARD ROAD
PLEASANTON, CA.

PROJECT NO. D094-836	DRAWN BY I.H. 5/21/96
FILE NO. 94-836-4	PREPARED BY CKA
REVISION NO. 1	REVIEWED BY CKA

Delta Environmental Consultants, Inc.

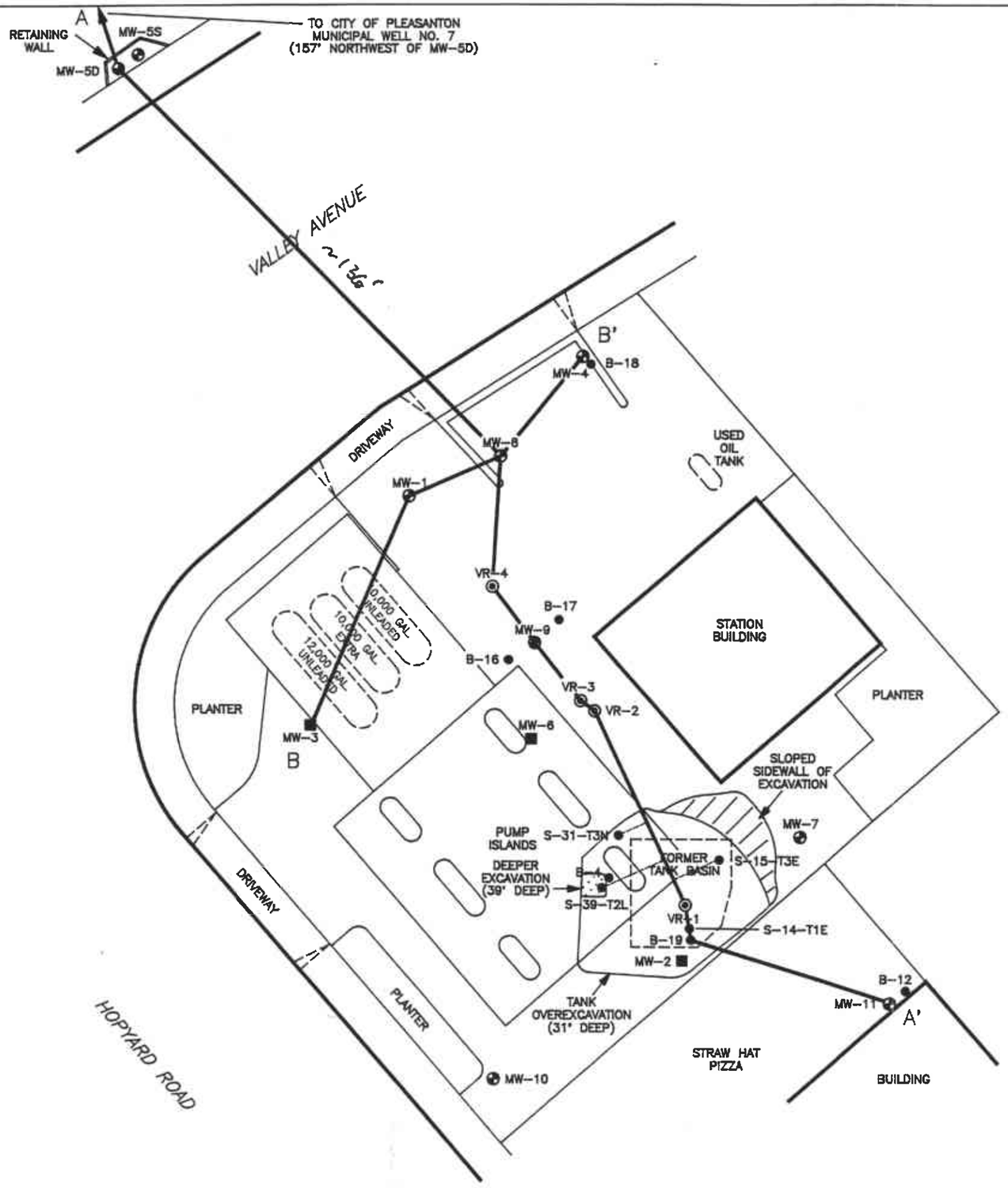


GENERAL NOTES:
BASE MAP FROM U.S.G.S.
DUBLIN, CA.
7.5 MINUTE TOPOGRAPHIC
PHOTOREVISED 1980

FIGURE 4
WATER WELLS LOCATED WITHIN 2000 FT RADIUS
EXXON STATION NO. 7-3399
2991 HOPYARD ROAD
PLEASANTON, CA.

PROJECT NO. 0094-838	DRAWN BY LH. 5/1/96
FILE NO. —	PREPARED BY JWS
REVISION NO. 1	REVIEWED BY CLA

Delta Environmental Consultants, Inc.



North

LEGEND:

● B-12	SOIL BORING LOCATION
◉ VR-1	VAPOR EXTRACTION WELL LOCATION
■ MW-2	DESTROYED MONITORING WELL
◒ MW-1	MONITORING WELL LOCATION
● S-15-T3E	SOIL SAMPLE LOCATION

0 30 FT
SCALE

NOTE:
BASE MAP ADAPTED FROM RESNA FIGURE.SITE DIMENSIONS AND FACILITY LOCATIONS NOT VERIFIED.

FIGURE 5
GEOLOGIC CROSS SECTION LOCATION MAP
EXXON STATION NO 7-3399
2991 HOPYARD ROAD
PLEASANTON, CA.

PROJECT NO. 2094-836	DRAWN BY I.H. 5/20/96
FILE NO. 94-836-1	PREPARED BY CKA
REVISION NO. 1	REVIEWED BY

Delta Environmental Consultants, Inc.

A

NORTH

CITY OF PLEASANTON MUNICIPAL WELL NO. 7 (157' FROM MW-5D)

A'

SOUTH

MW-5D

SIDEWALK

VALLEY AVENUE

PROPERTY LINE

DRIVEWAY

MW-8

VR-4

MW-9

EXXON STATION

VR-3

VR-2

LIMITS OF OVEREXCAVATION

VR-1

B-19

PROPERTY LINE

STRAW HAT PIZZA

MW-11 / B-12

ELEVATION IN FEET ABOVE MEAN SEA LEVEL

320

300

280

260

240

220

200

180

160

CLAYEY SOILS

GRAVEL SOILS

CLAYEY GRAVEL SOILS

GRAVEL

CLAY

GRAVEL

GRAVEL

TOTAL DEPTH 440'

SILTY CLAY

SILTY SAND

SILTY CLAY

CLAYEY SAND TO GRAVEL

SILTY CLAY

SAND

SILTY SAND

SILTY CLAY/ CLAYEY SILT

SILTY CLAY TO CLAYEY SILT

CLAYEY SAND TO SAND

SILTY CLAY

SILTY SAND TO GRAVELLY SAND

SILTY CLAY/CLAY

GRAVEL/ COARSE SAND

SILTY CLAY

SILTY SAND

CLAYEY SILT TO SILTY CLAY

FORMER TANK BASIN

SILTY CLAY TO SANDY SILT

SILTY SAND

GRAVEL FILL

SILTY CLAY

SAND AND SANDY GRAVEL

SAND AND SANDY GRAVEL

SILTY CLAY/ CLAYEY SILT

SAND

3/28/96 NA <2.0

<0.05 <2.0

12/27/96

3/28/96 <0.05 <2.0

3/28/96 4.9 1500. 23 3000 0.89 9.3 100 6200 3.6 900

11/16/94

9/12/91

S-15-T3E 2.41 125

S-31-T3N NA <2.0

S-39-T2L NA <2.0

S-14-T2L 0.41 2.0

<0.005 <1.0

0.094 <1.0

0.057 <1.0

3/28/96

10/28/93

<0.05 <2.0

GC = clayey gravels; clayey sandy gravels

GW = well graded gravels or gravel sand mixtures

SC = clayey sand

SP = poorly graded sand

CL = inorganic clays; gravelly, sandy, silty, or lean clays

CH = fat clays (plastic clays)

ML = inorganic silts; very fine sands; silty or clayey fine sands; clayey silts w/ slight plasticity

SM = silty sands

SP = poorly graded sands, gravelly sands, little or no fines

LEGEND:

- ASPHALT AND AGGREGATE BASE
- CONCRETE AND AGGREGATE BASE
- CL USCS SYMBOL
- APPROXIMATE CONTACT BETWEEN SOIL TYPES
- SOIL SAMPLE LOCATION
- <0.05 <2.0 BENZENE CONCENTRATION IN PARTS PER MILLION (PPM) TOTAL PETROLEUM HYDROCARBONS (TPH) AS GASOLINE IN PPM
- SCREENED INTERVAL
- 3/28/96 SHALLOW GROUND WATER LEVEL AND DATE MEASURED
- 12/27/96 DEEP GROUND WATER LEVEL AND DATE MEASURED
- INFERRED DISTRIBUTION OF TPH AS GASOLINE IN SOIL >100 ppm AFTER REMEDIATION WAS SHUT OFF ON 12/29/93

20 FT

0

VERTICAL SCALE

0 30 FT

HORIZONTAL SCALE

FIGURE 6

GEOLOGIC CROSS SECTION A – A'

EXXON STATION NO. 7-3399

2991 HOPYARD ROAD

PLEASANTON, CA.

PROJECT NO. D094-836	DRAWN BY I.H. 5/30/96
FILE NO. 94-836-2	PREPARED BY CKA
REVISION NO. 2	REVIEWED BY CKA

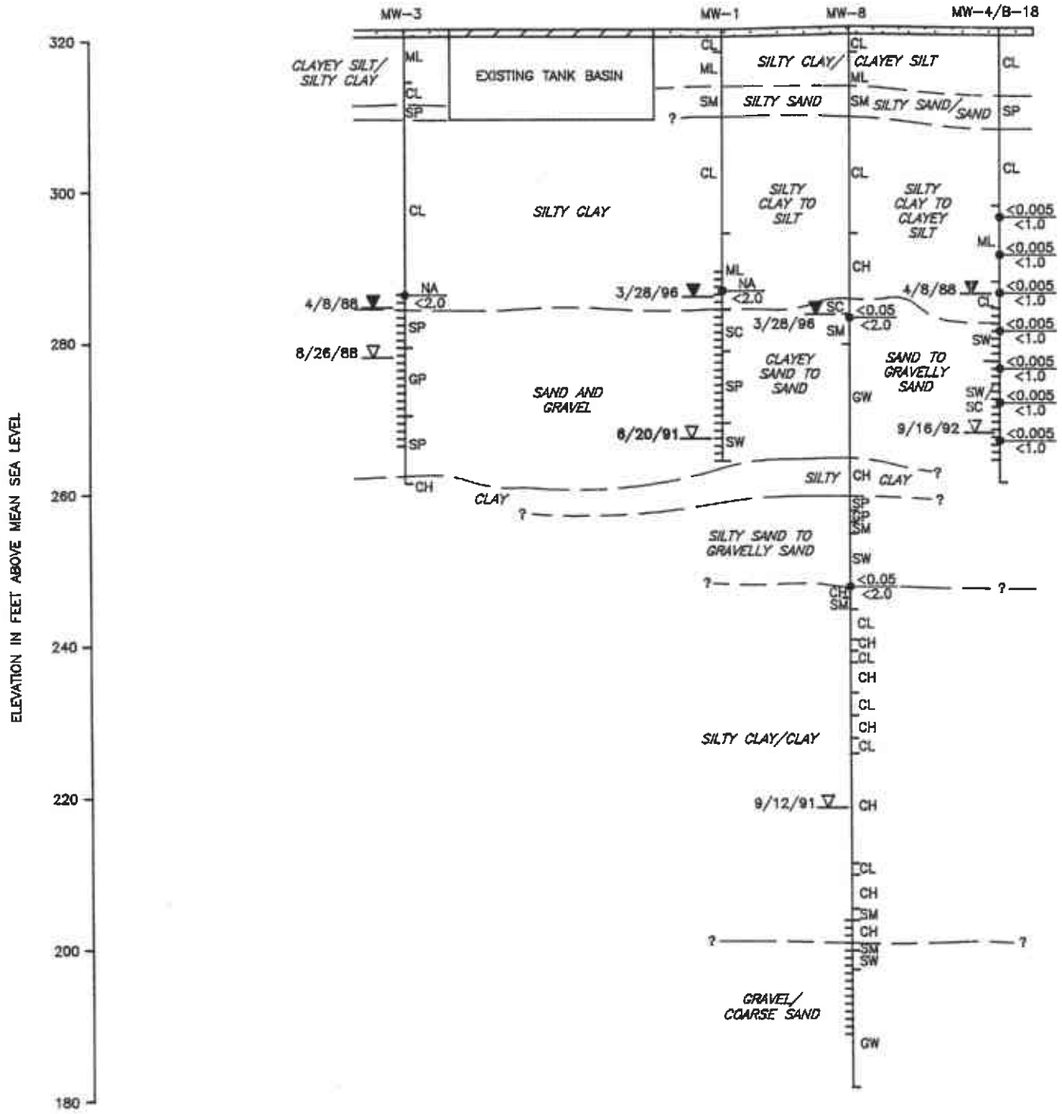
Delta Environmental Consultants, Inc.

B

WEST

B'

EAST



LEGEND:

- ASPHALT AND AGGREGATE BASE
- CONCRETE AND AGGREGATE BASE
- CL — USCS SYMBOL
- APPROXIMATE CONTACT BETWEEN SOIL TYPES
- SOIL SAMPLE LOCATION
- <0.05 / <2.0 — BENZENE CONCENTRATION IN PARTS PER MILLION (PPM) / TOTAL PETROLEUM HYDROCARBONS AS GASOLINE IN PPM
- SCREENED INTERVAL
- 4/8/88 — SHALLOW GROUND WATER LEVEL AND DATE MEASURED
- 8/26/88 — DEEP GROUND WATER LEVEL AND DATE MEASURED

20 FT

0

VERTICAL SCALE

0 30 FT

HORIZONTAL SCALE

FIGURE 7

GEOLOGIC CROSS SECTION B – B'

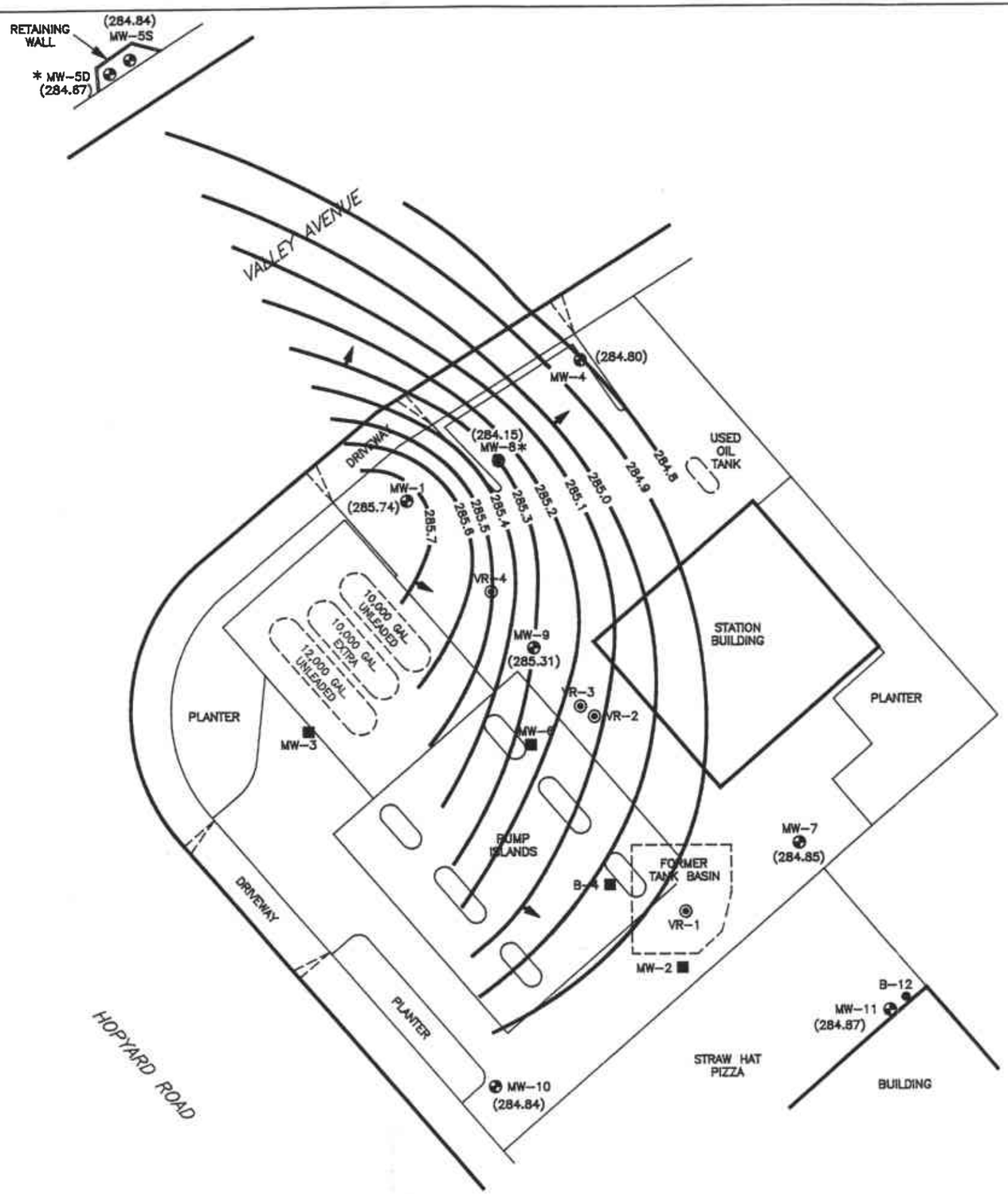
EXXON STATION NO. 7-3399

2991 HOPYARD ROAD

PLEASANTON, CA.

PROJECT NO. D094-836	DRAWN BY I.H. 5/20/96
FILE NO. 94-836-3	PREPARED BY CKA
REVISION NO. 1	REVIEWED BY

Delta Environmental Consultants, Inc.



North

LEGEND:

● B-12	SOIL BORING LOCATION
◉ VR-1	VAPOR EXTRACTION WELL LOCATION
■ MW-2	DESTROYED MONITORING WELL
◓ MW-1	MONITORING WELL LOCATION
(285.74)	GROUND WATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
—285.0—	WATER TABLE CONTOUR IN FEET ABOVE MEAN SEA LEVEL
→	GROUND WATER FLOW DIRECTION

NOTE:

* MONITORING WELLS MW-5D AND MW-8 WERE NOT USED IN THE CALCULATION OF THE WATER TABLE CONTOURS BECAUSE THEY ARE SCREENED IN A DEEPER AQUIFER.

0 30 FT

SCALE

NOTE:

BASE MAP ADAPTED FROM RESNA FIGURE.SITE DIMENSIONS AND FACILITY LOCATIONS NOT VERIFIED.

FIGURE 8

WATER TABLE CONTOUR MAP - 3/28/96

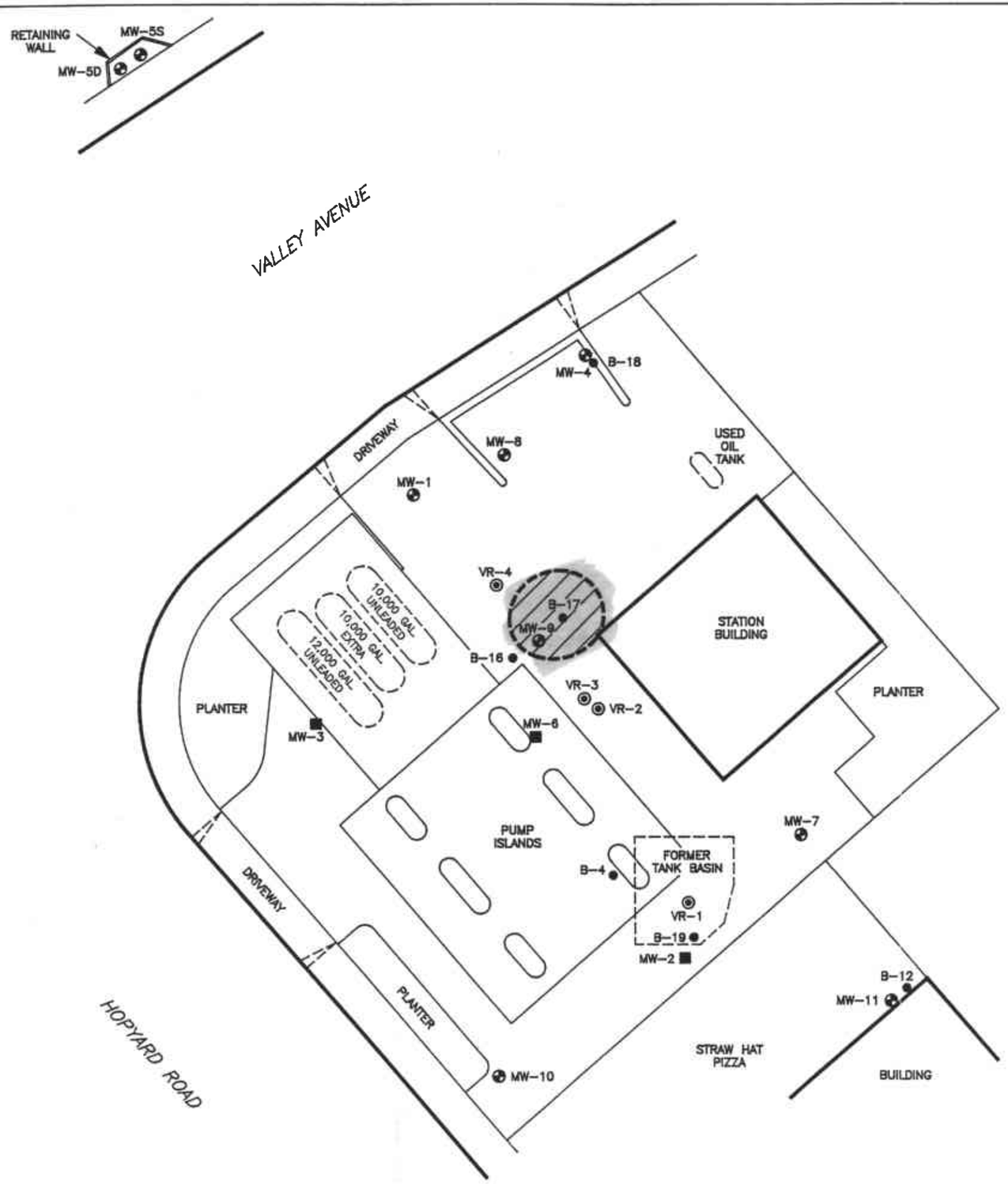
EXXON STATION NO 7-3399

2991 HOPYARD ROAD

PLEASANTON, CA.

PROJECT NO. 0094-836	DRAWN BY I.H. 4/16/96
FILE NO. 94-836-1	PREPARED BY LJM
REVISION NO. 1	REVIEWED BY

Delta Environmental Consultants, Inc.



North

LEGEND:

- B-12 SOIL BORING LOCATION
- VR-1 VAPOR EXTRACTION WELL LOCATION
- MW-2 DESTROYED MONITORING WELL
- MW-1 MONITORING WELL LOCATION
- INFERRED DISTRIBUTION OF TOTAL PETROLEUM HYDROCARBONS AS GASOLINE IN SOIL ~~UP TO~~ ≥ 100 PARTS PER MILLION AFTER REMEDIATION

0 30 FT
SCALE

NOTE:

BASE MAP ADAPTED FROM RESNA FIGURE.SITE DIMENSIONS AND FACILITY LOCATIONS NOT VERIFIED.

FIGURE 9

LATERAL DISTRIBUTION OF TOTAL PETROLEUM HYDROCARBONS AS GASOLINE REMAINING IN SOIL

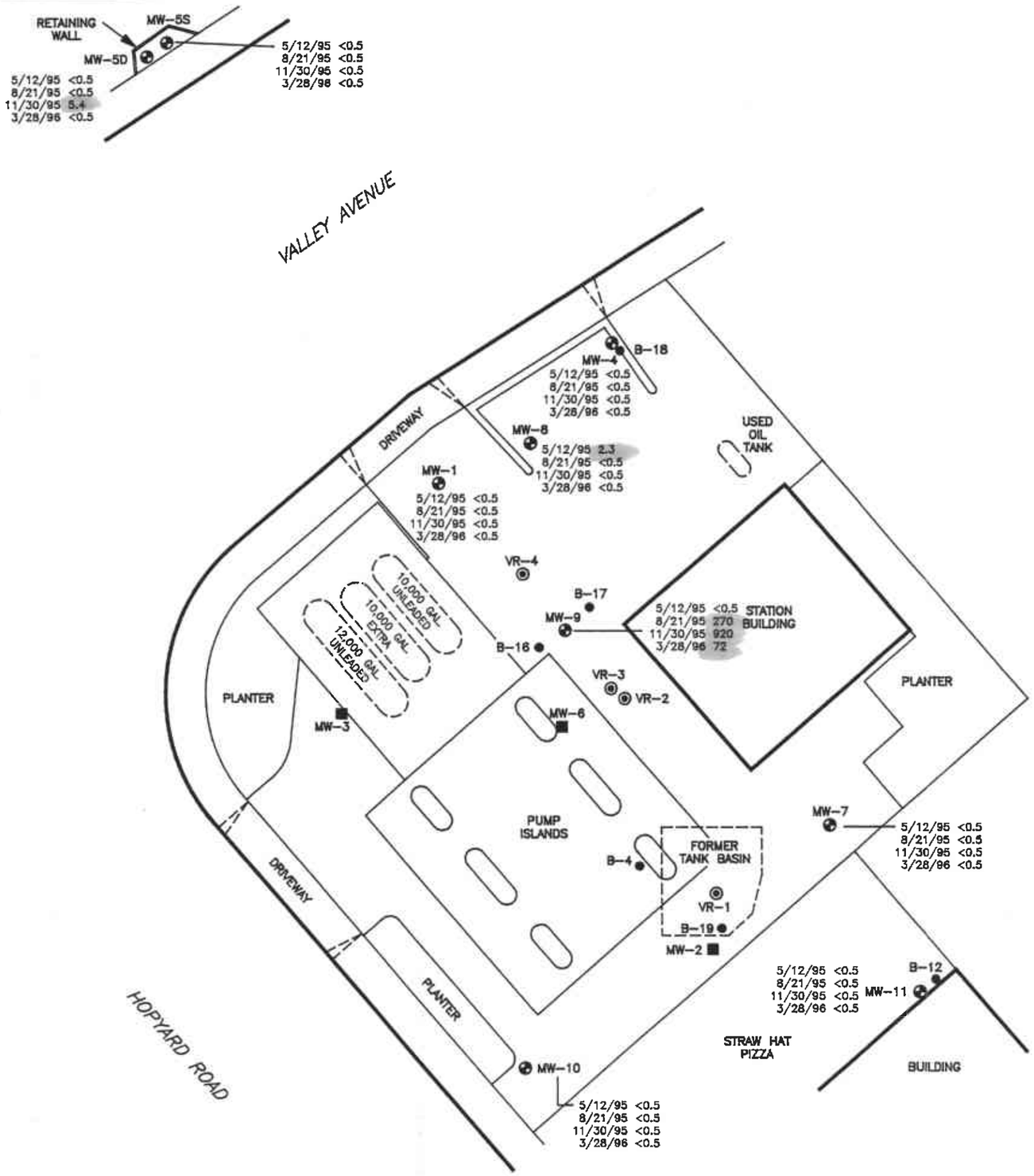
EXXON STATION NO 7-3399

2991 HOPYARD ROAD

PLEASANTON, CA.

PROJECT NO. D094-836	DRAWN BY I.H. 5/30/96
FILE NO. 94-836-1	PREPARED BY CKA
REVISION NO. 2	REVIEWED BY CKA

Delta Environmental Consultants, Inc.



NOTE:

BASE MAP ADAPTED FROM RESNA FIGURE.SITE DIMENSIONS AND FACILITY LOCATIONS NOT VERIFIED.

FIGURE 10

DISSOLVED BENZENE CONCENTRATIONS FOR LAST FOUR QUARTERS (MAY 1995 – MARCH 1996)

EXXON STATION NO 7-3399

2991 HOPYARD ROAD

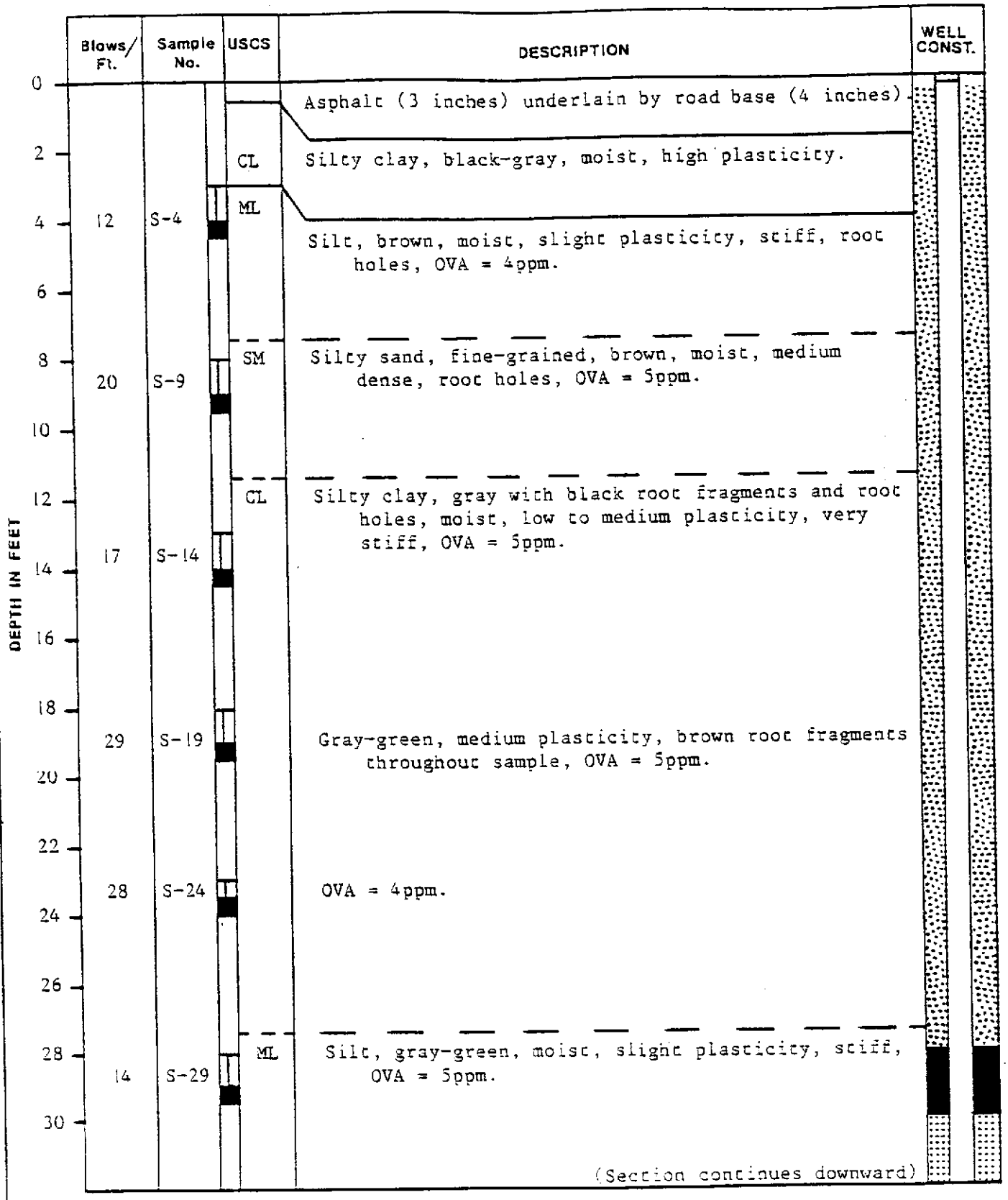
PLEASANTON, CA.

PROJECT NO. D094-836	DRAWN BY I.H. 5/21/96
FILE NO. 94-836-1	PREPARED BY CKA
REVISION NO. 1	REVIEWED BY CKA

Delta Environmental Consultants, Inc.

APPENDIX A

Soil Boring Logs and Well Construction Details from Applied GeoSystems and RESNA Industries (see referenced reports section)



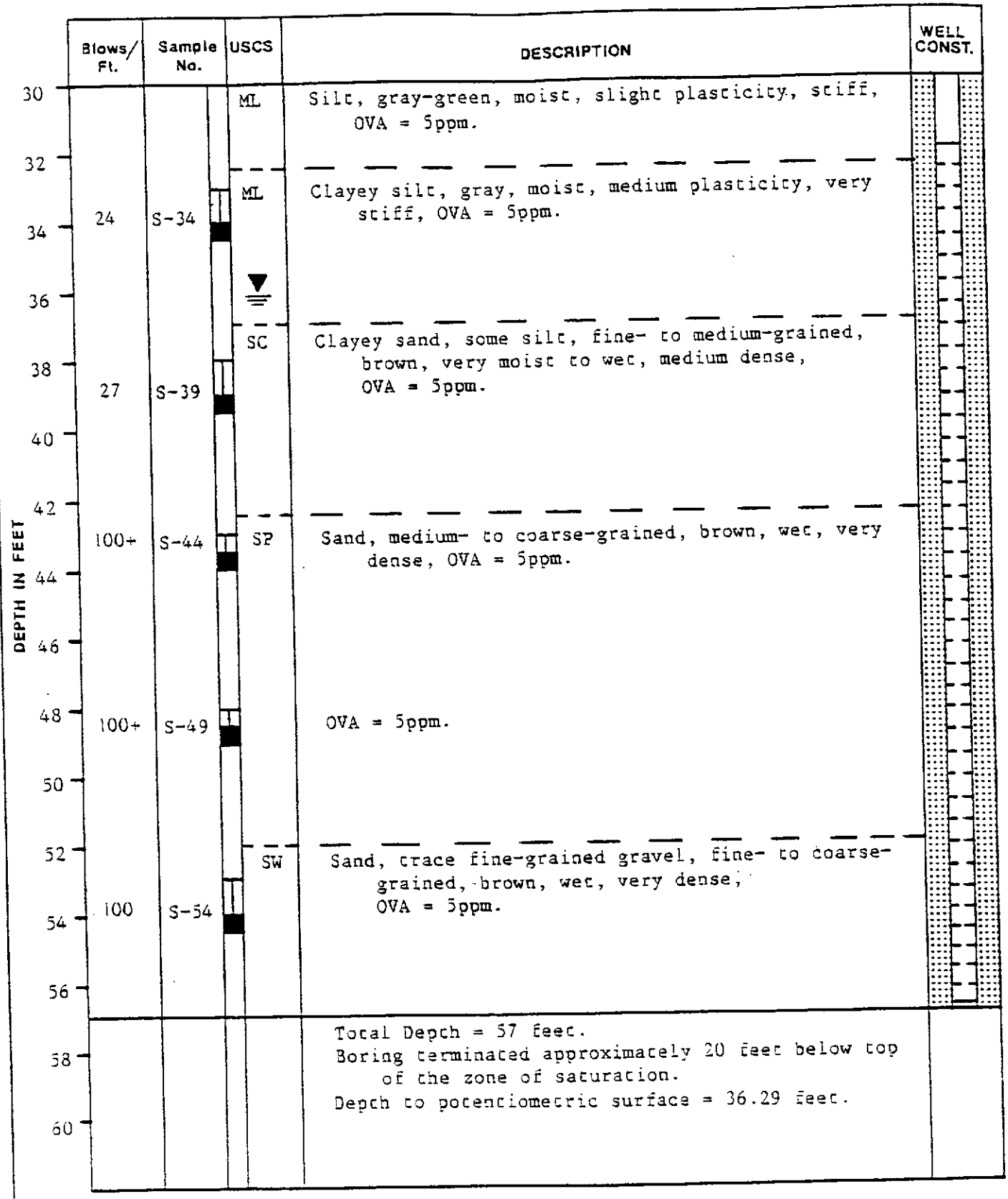
Applied GeoSystems

LOG OF BORING MW - 1

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

PLATE
P - 4

PROJECT NO. AGS 018034-1



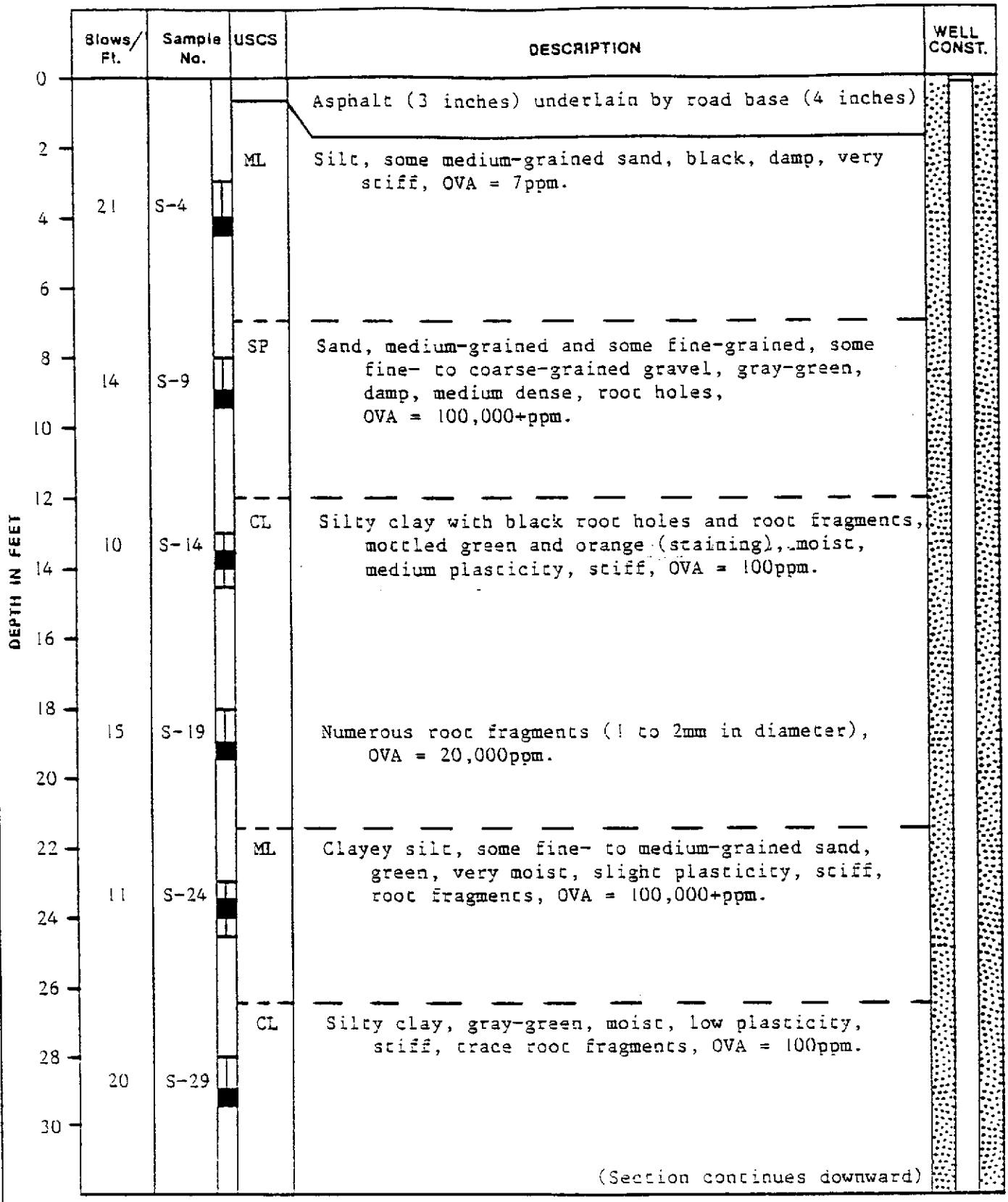
Applied GeoSystems

PROJECT NO. AGS 018034-1

LOG OF BORING MW - 1

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

PLATE
P - 5



Applied GeoSystems

PROJECT NO. AGS 018034-1

LOG OF BORING MW - 2

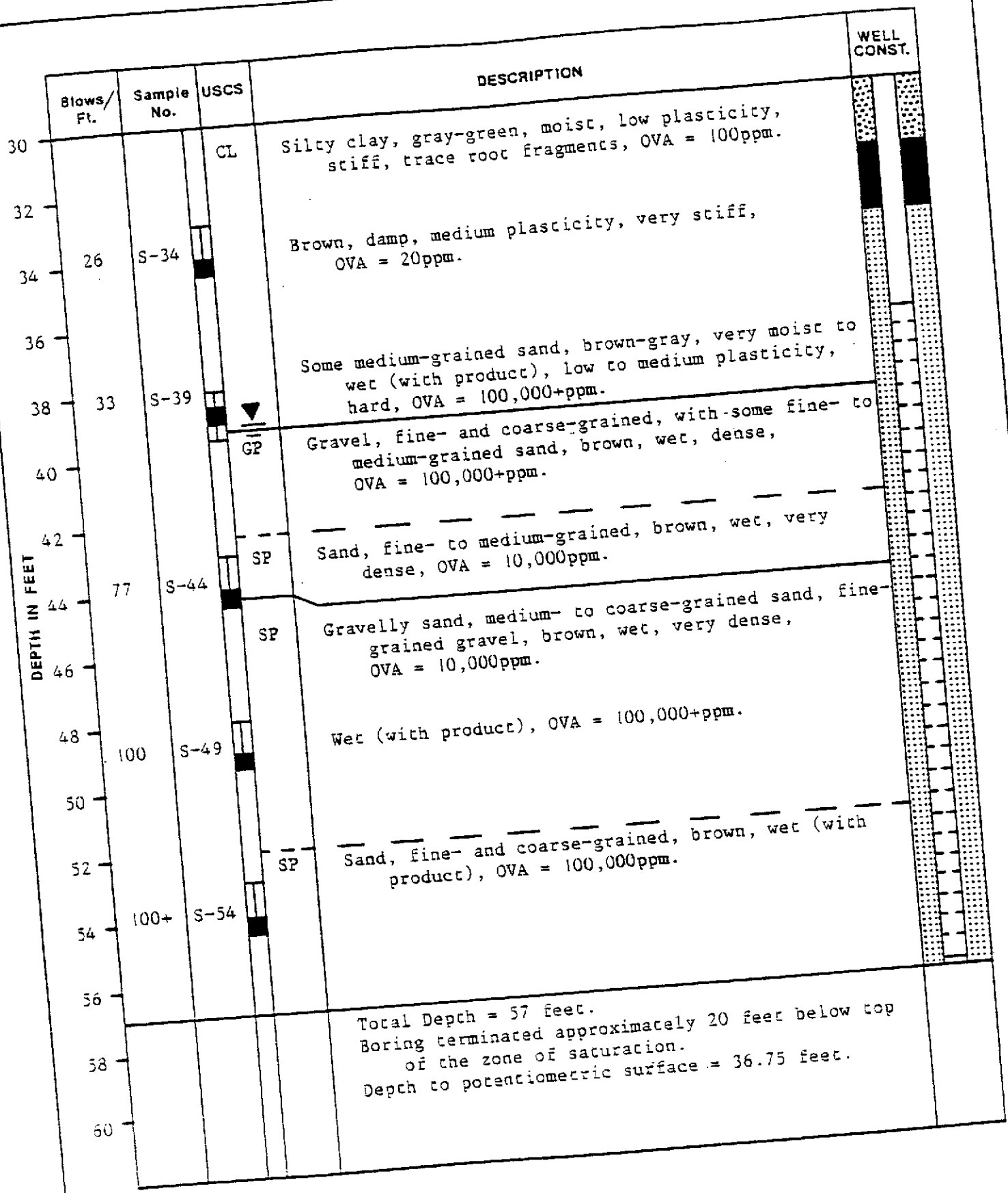
Exxon Station No. 7-3399

2991 Hopyard Road

Pleasanton, California

PLATE

P - 6



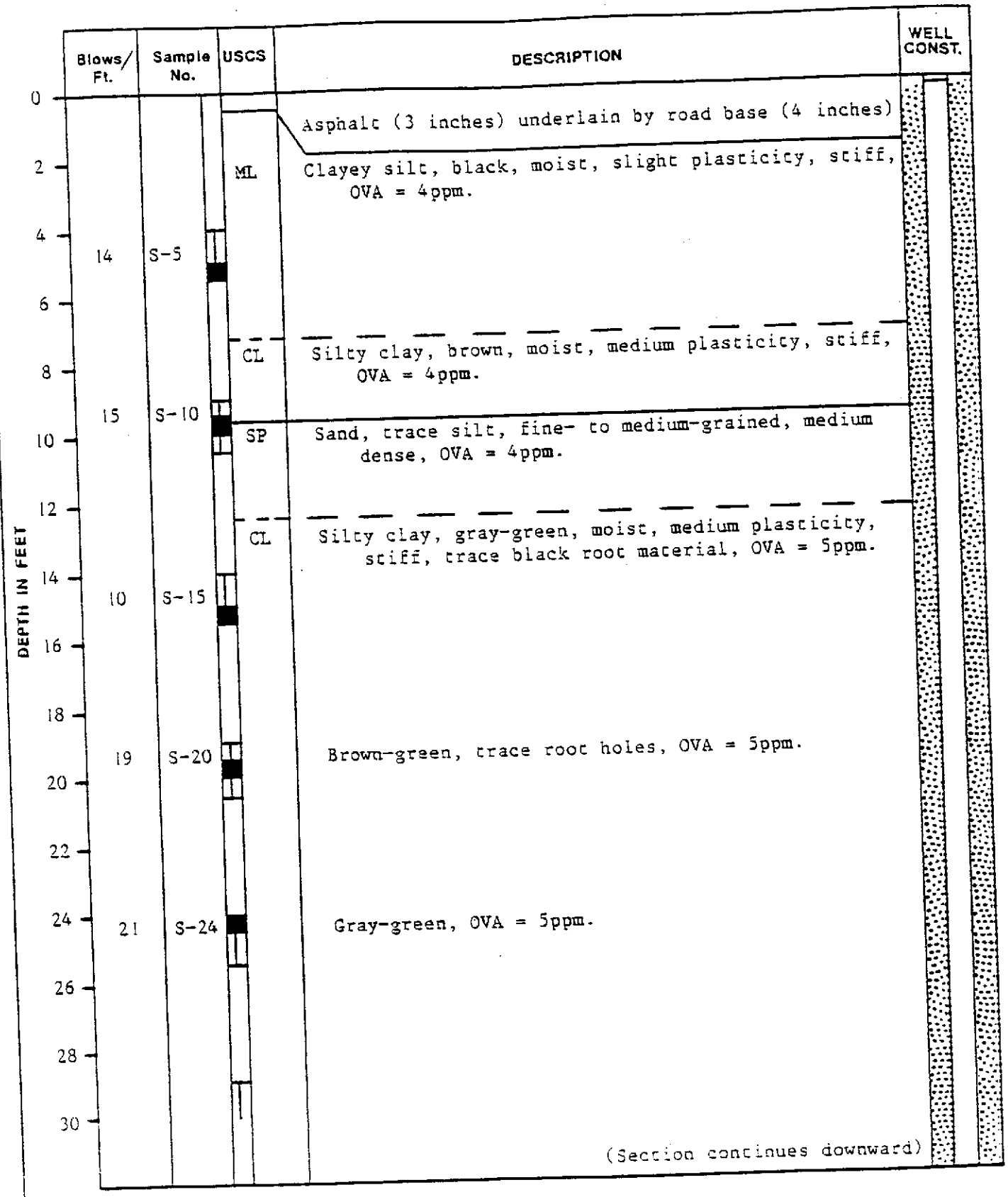
Applied GeoSystems

LOG OF BORING MW - 2

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

PROJECT NO. AGS 018034-1

PLAT
P -



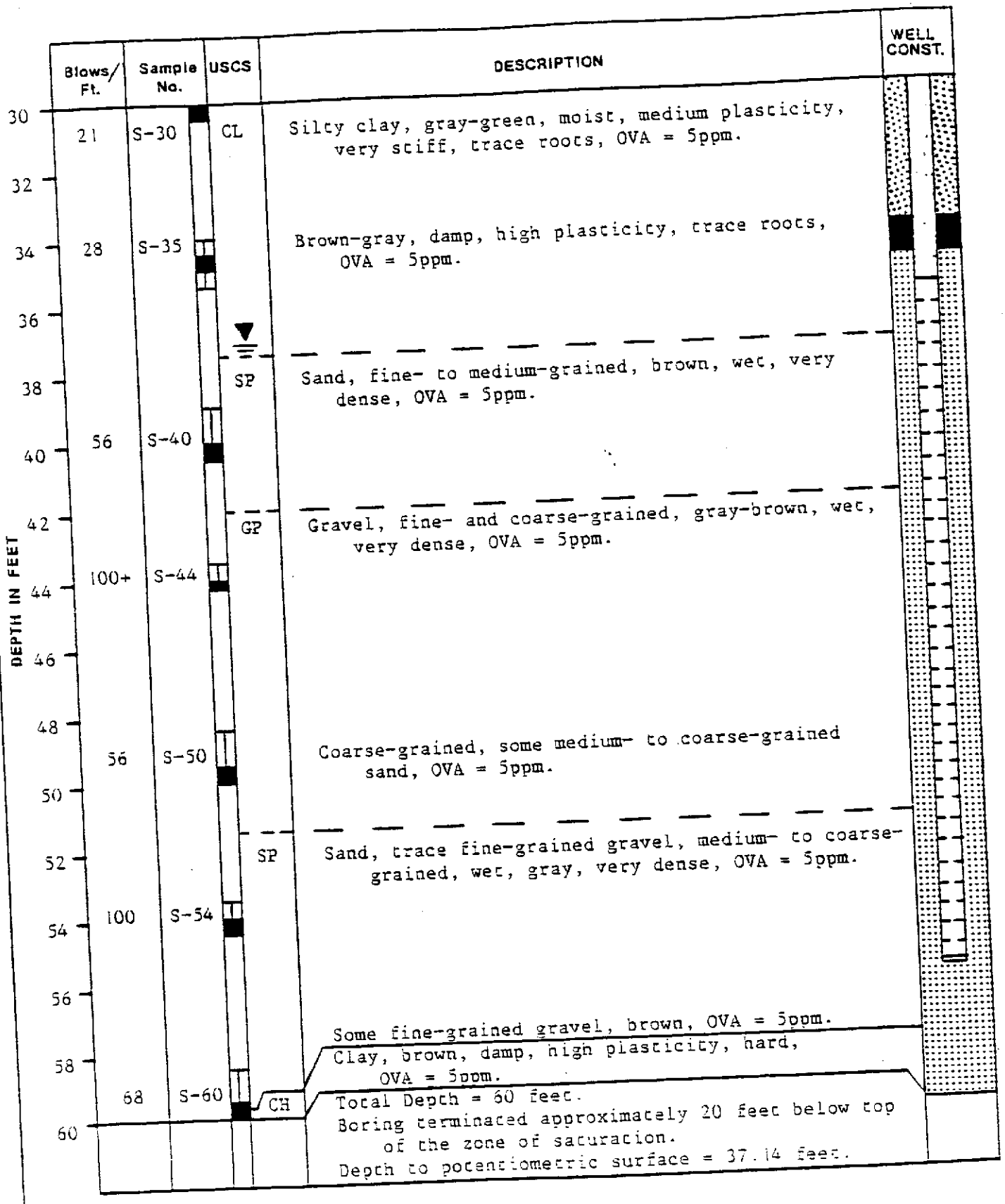
Applied GeoSystems

LOG OF BORING MW - 3

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

PLATE
P - 8

PROJECT NO. AGS 018034-1



Applied GeoSystems

LOG OF BORING MW - 3

Exxon Station No. 7-3399

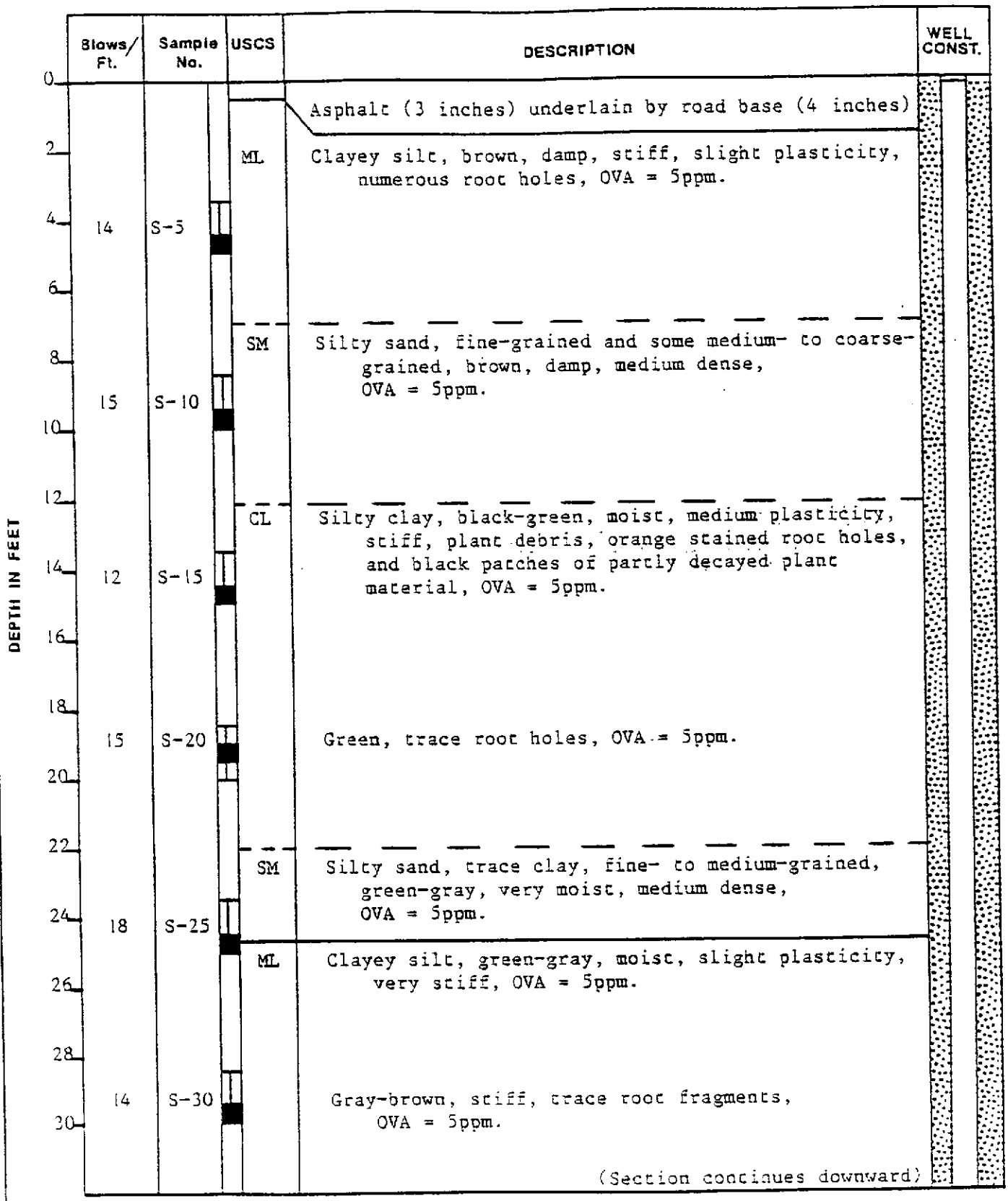
2991 Hopyard Road

Pleasanton, California

PLATE

P - 9

PROJECT NO. AGS 018034-1



Applied GeoSystems

PROJECT NO. AGS 018034-1

LOG OF BORING MW - 4

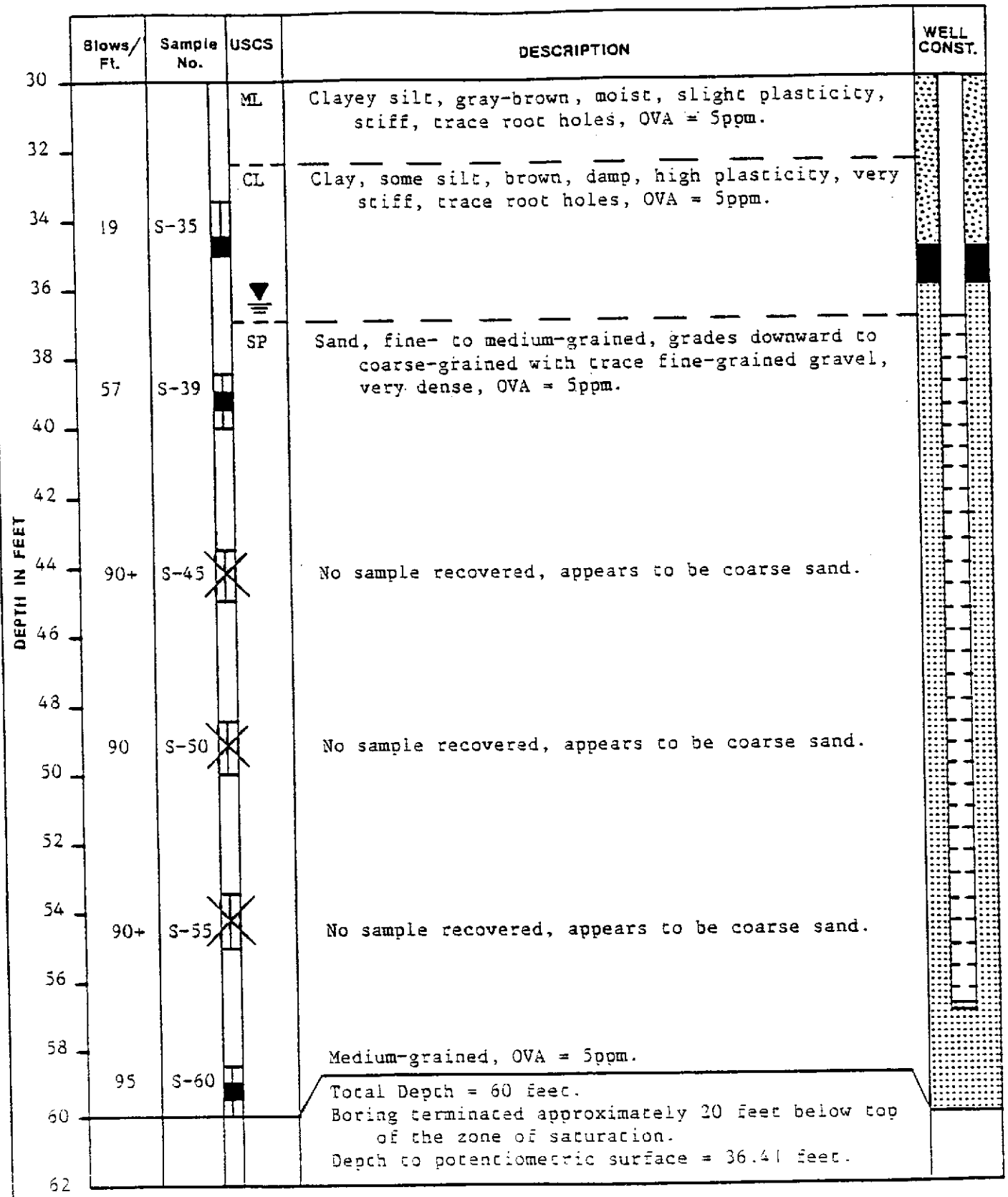
Exxon Station No. 7-3399

2991 Hopyard Road

Pleasanton, California

PLATE

P - 10



Applied GeoSystems

PROJECT NO. AGS 018034-1

LOG OF BORING MW - 4

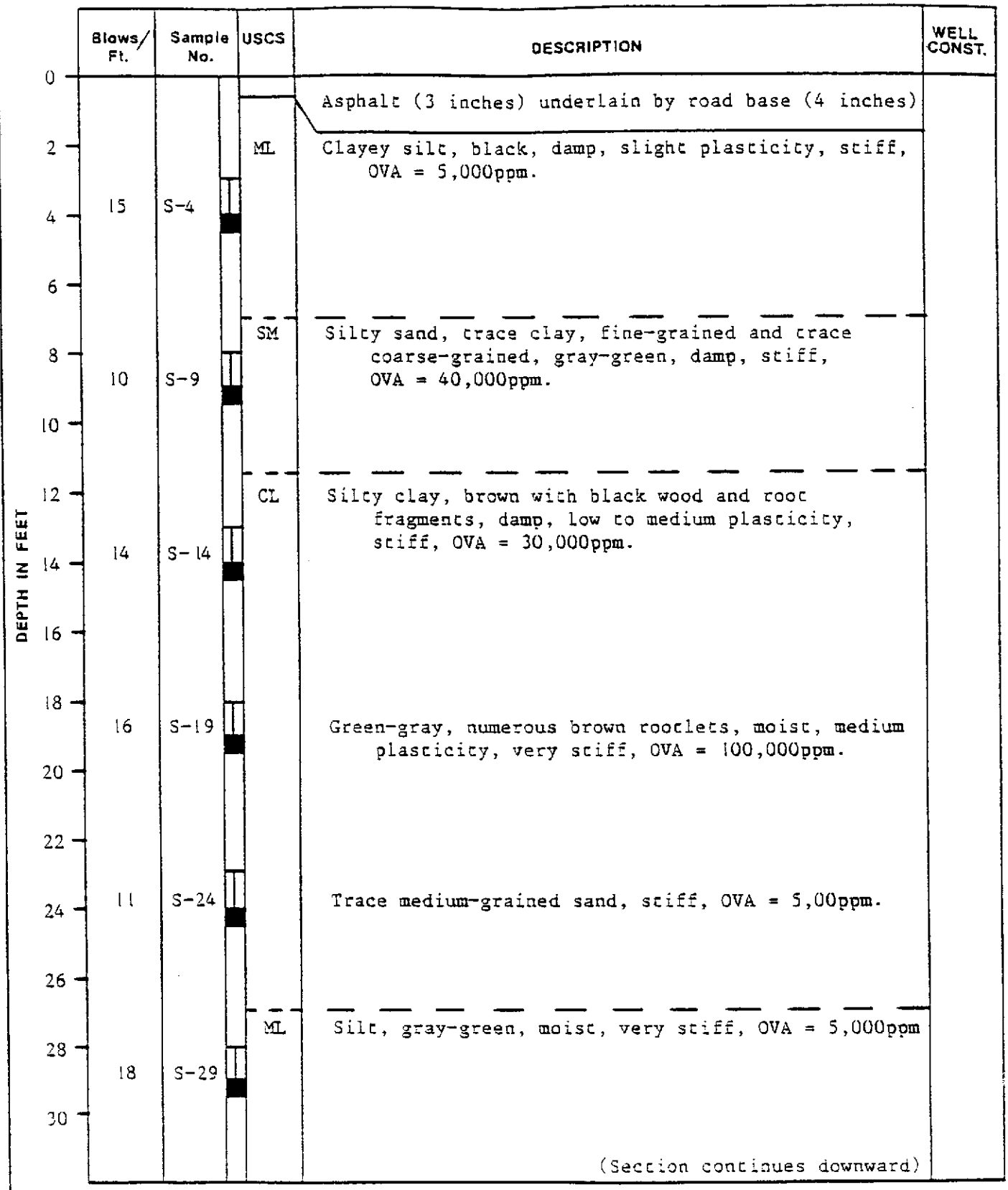
Exxon Station No. 7-3399

2991 Hopyard Road

Pleasanton, California

PLATE

P - 11



Applied GeoSystems

PROJECT NO. AGS 018034-1

LOG OF BORING B - 4

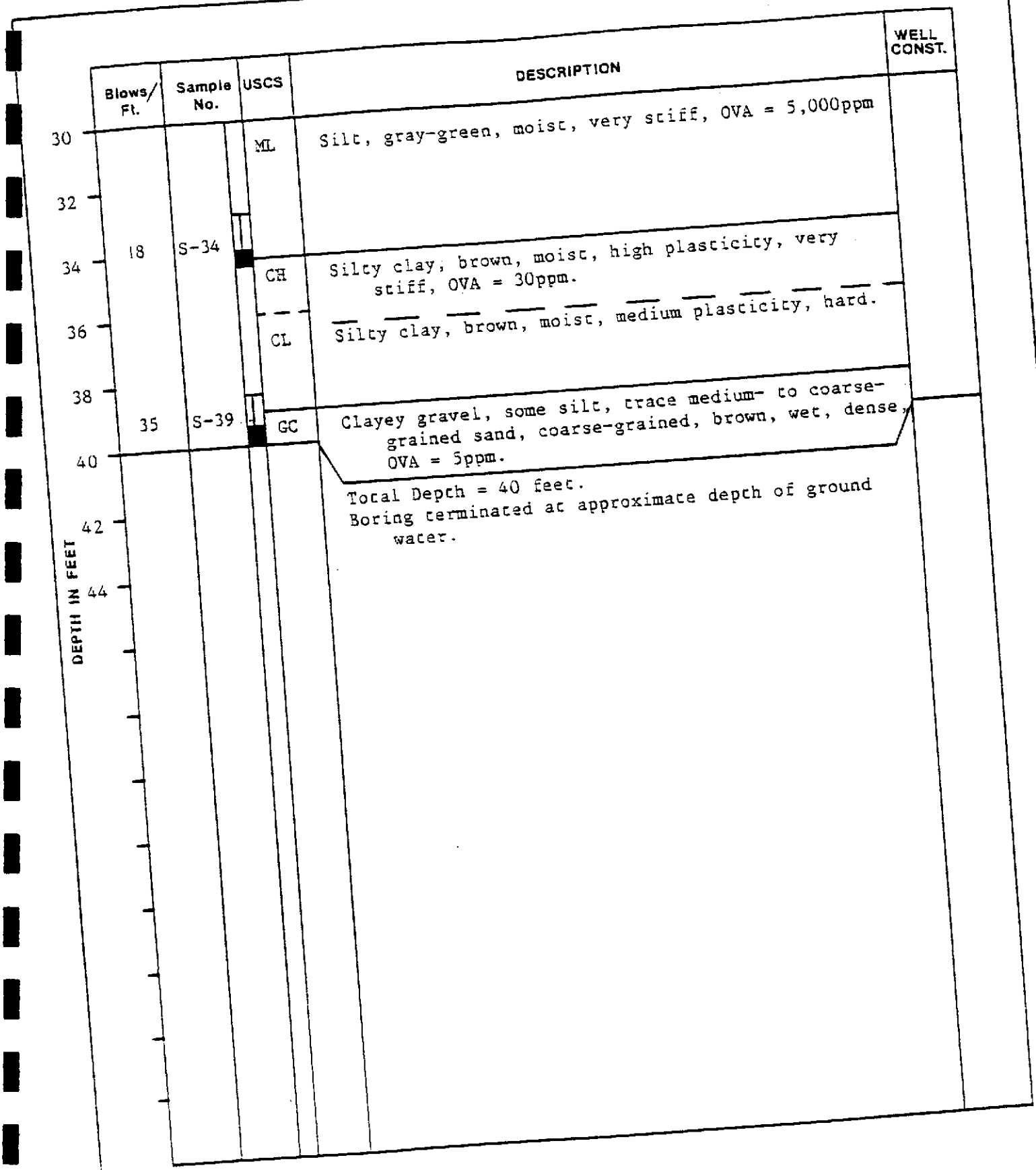
Exxon Station No. 7-3399

2991 Hopyard Road

Pleasanton, California

PLATE

P - 12



Applied GeoSystems

LOG OF BORING B - 4

Exxon Station No. 7-3399

2991 Hopyard Road

Pleasanton, California

PROJECT NO. AGS 018034-1

PLAT

P -

Blows/ Ft.	Sample No.	USCS	DESCRIPTION	WELL CONST.
			Not logged due to proximity to boring B-5d. See lithologic description of boring B-5d.	

DEPTH IN FEET

0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30

Applied GeoSystems

PROJECT NO. 18034-2

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

Exxon Station No. 7-3399

2991 Hopyard Road

Pleasanton, California

PLATE

P - 7

Blows/ Ft.	Sample No.	USCS	DESCRIPTION	WELL CONST.
			Not logged due to proximity to boring B-5d. See lithologic description of boring B-5d.	
			Total Depth = 58 feet. Boring terminated approximately 20 feet below top of the zone of saturation. Depth to potentiometric surface = 38.86 feet.	

DEPTH IN FEET: 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60

Applied GeoSystems

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

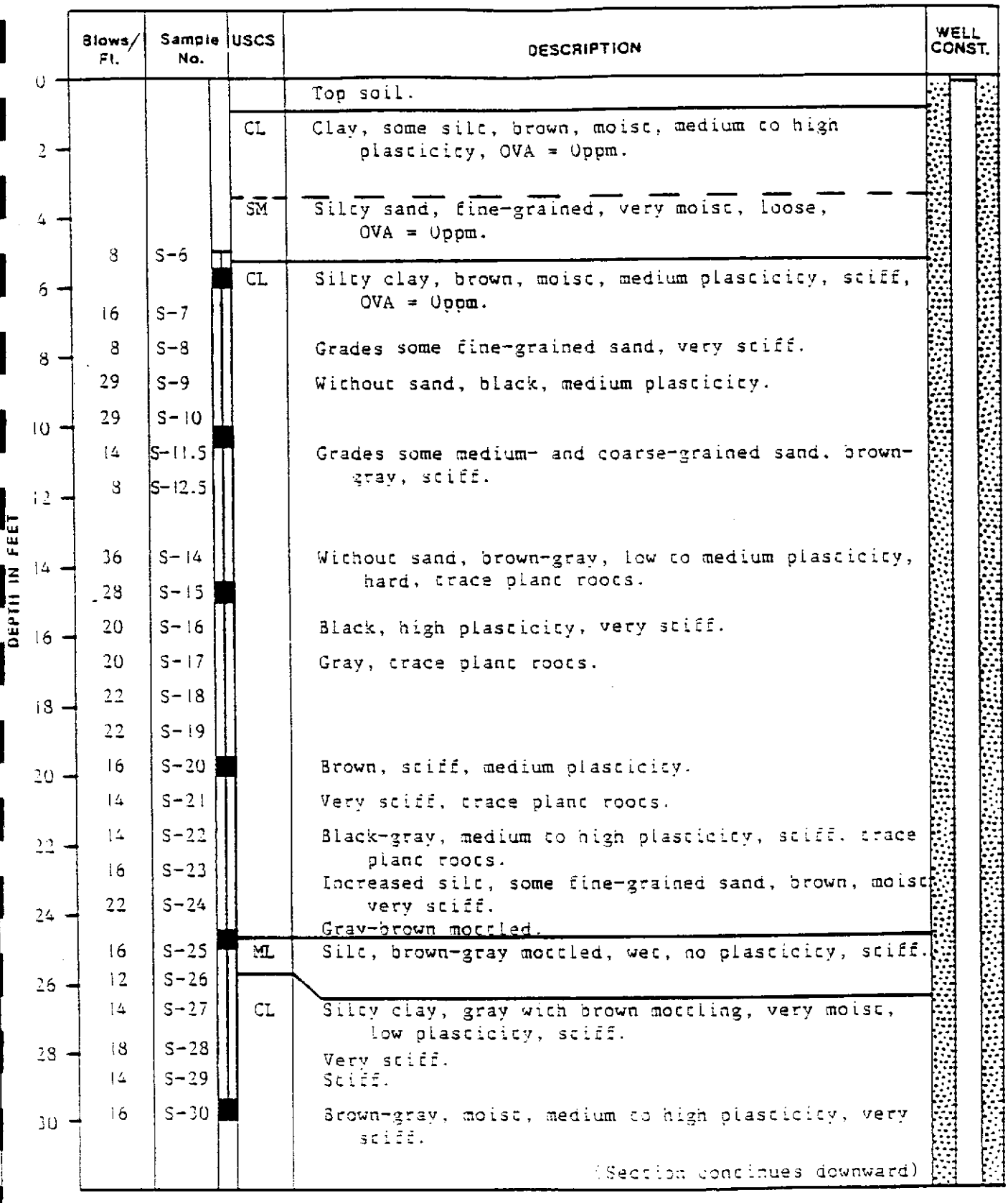
Exxon Station No. 7-3399

2991 Hopyard Road

Pleasanton, California

PLATE P - 8

PROJECT NO. 18034-2



Applied GeoSystems

PROJECT NO. 18034-2

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

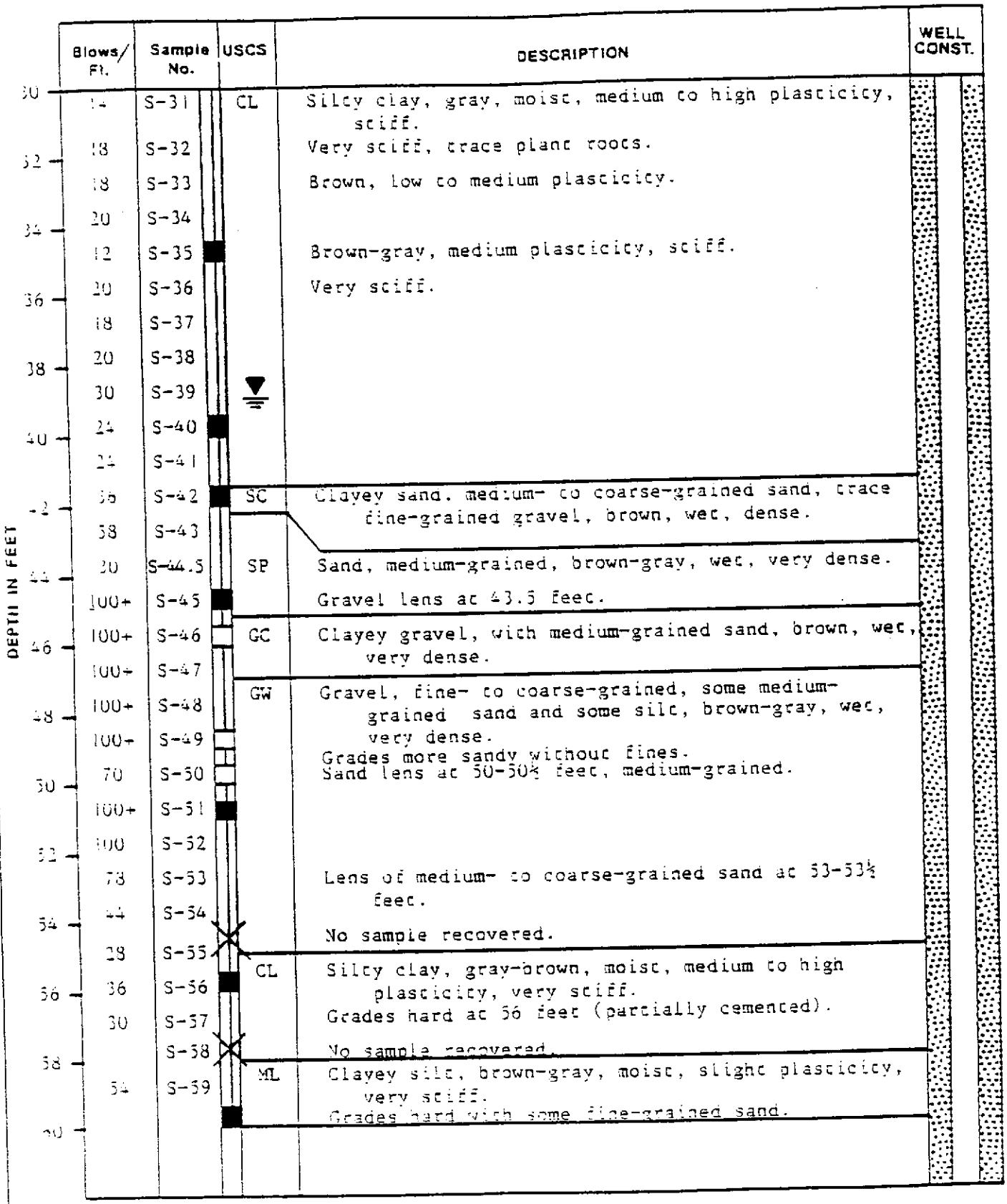
Exxon Station No. 7-3399

2991 Hopyard Road

Pleasanton, California

PLATE

P - 4



Applied GeoSystems

PROJECT NO. 18034-2

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

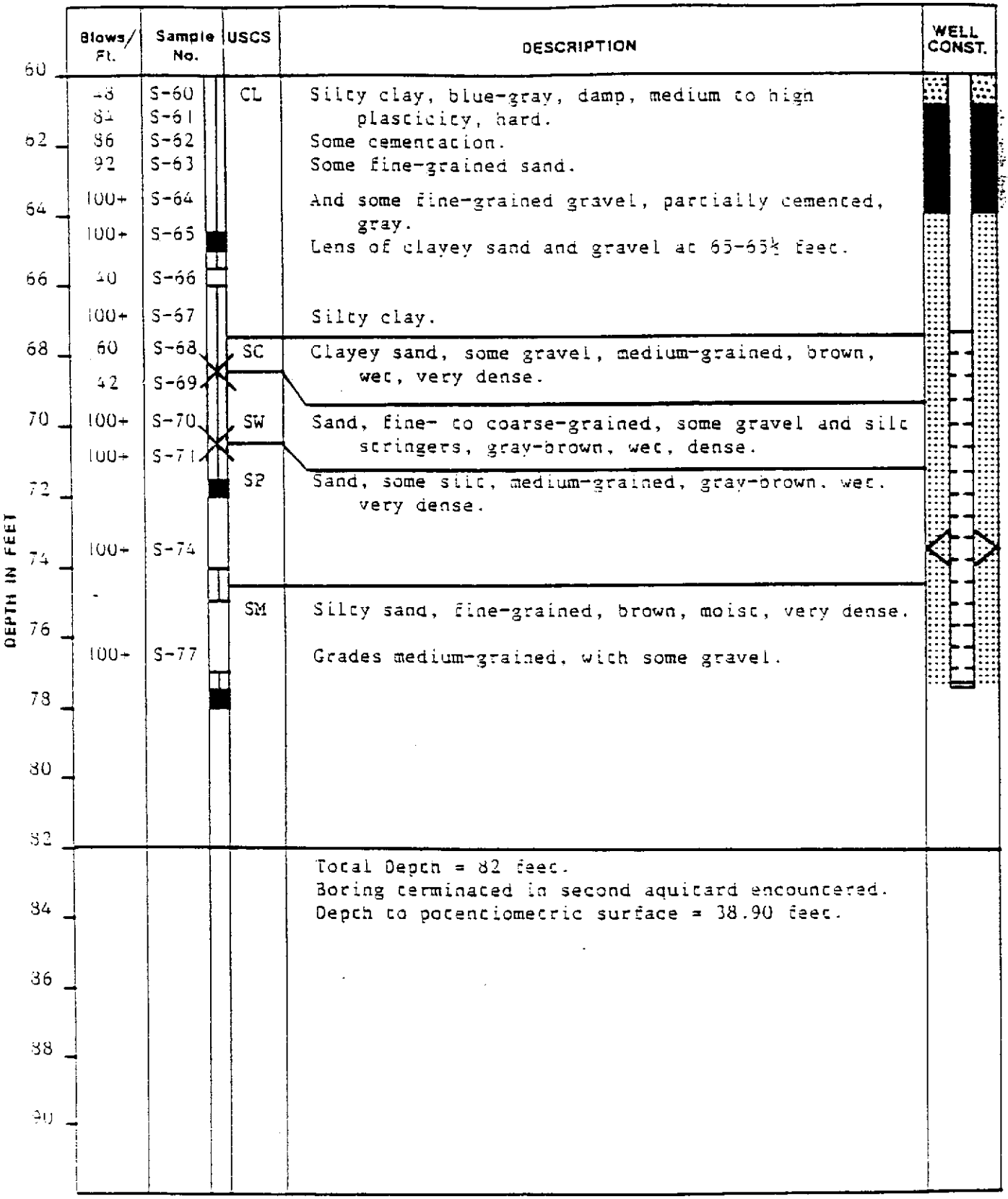
Exxon Station No. 7-3399

2991 Hopyard Road

Pleasanton, California

PLATE

P - 5



Applied GeoSystems

PROJECT NO. 18034-2

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

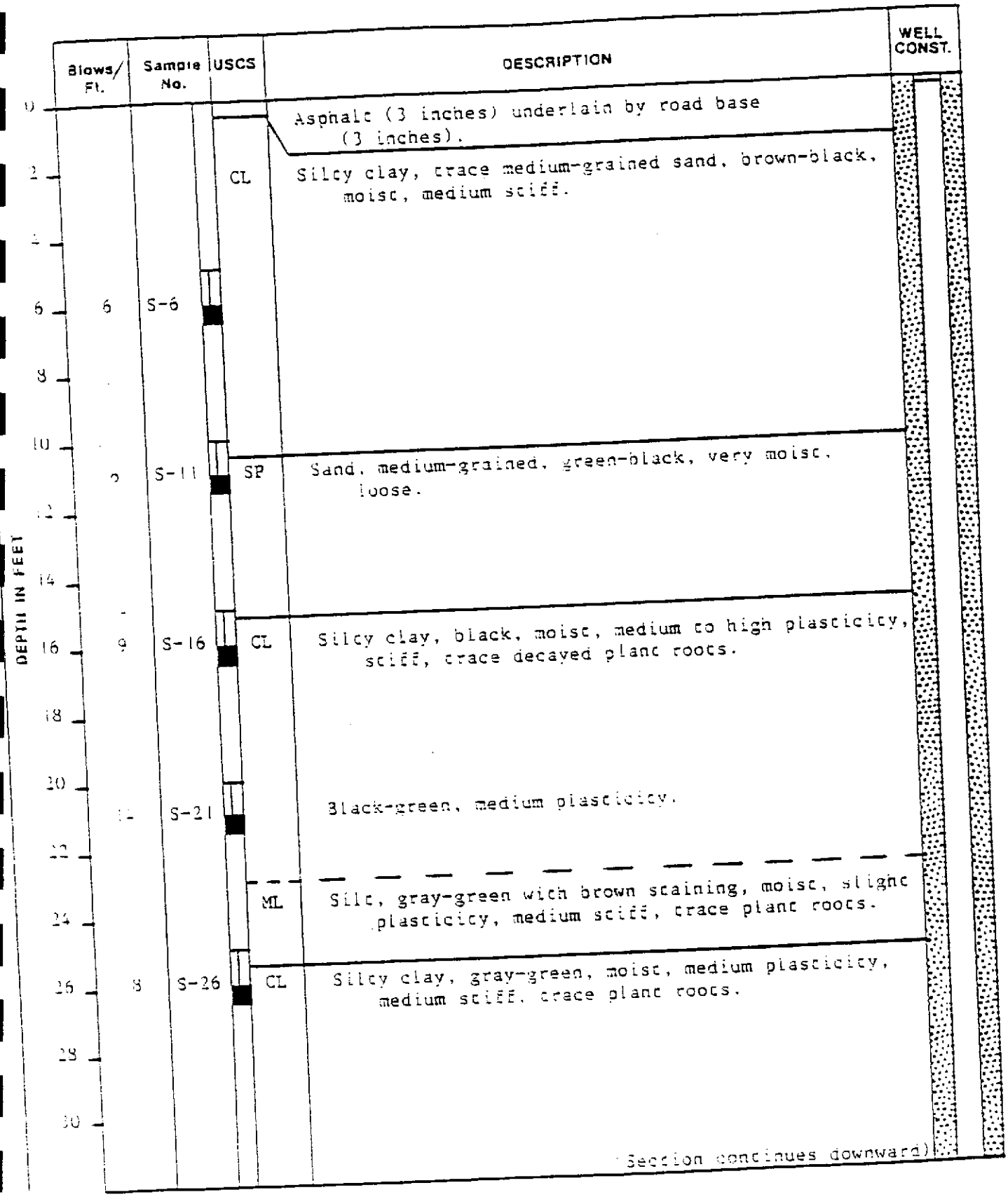
Exxon Station No. 7-3399

2991 Hopyard Road

Pleasanton, California

PLATE

P - 6



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PROJECT NO. 18034-2

LOG OF BORING B-6/MW-6

Exxon Station No. 7-3399

2991 Hopyard Road

Pleasanton, California

PLATE

P - 9

Blows/ Ft.	Sample No.	USCS	DESCRIPTION	WELL CONST.
17	S-31	CL	Silty clay, brown-gray with brown patches, damp, medium plasticity, very stiff, trace plant roots.	Caved
14	S-36		Brown, slight plasticity, stiff.	Caved
55	S-41	GW	Gravel with occasional 2- to 4-inch-thick lenses of fine-grained sand, fine- to coarse-grained, gray-brown, wet, very dense.	Caved
	S-46		No sample recovered.	
	S-51		No sample recovered.	
	S-56		No sample recovered.	Caved
26	S-59	CL	Silty clay, green-brown, moist, low to medium plasticity, very stiff.	
			Total Depth = 59 feet. Boring terminated approximately 20 feet below top of the zone of saturation. Depth to potentiometric surface = 38.70 feet.	

Applied GeoSystems

LOG OF BORING B-6/MW-6

Exxon Station No. 7-3399

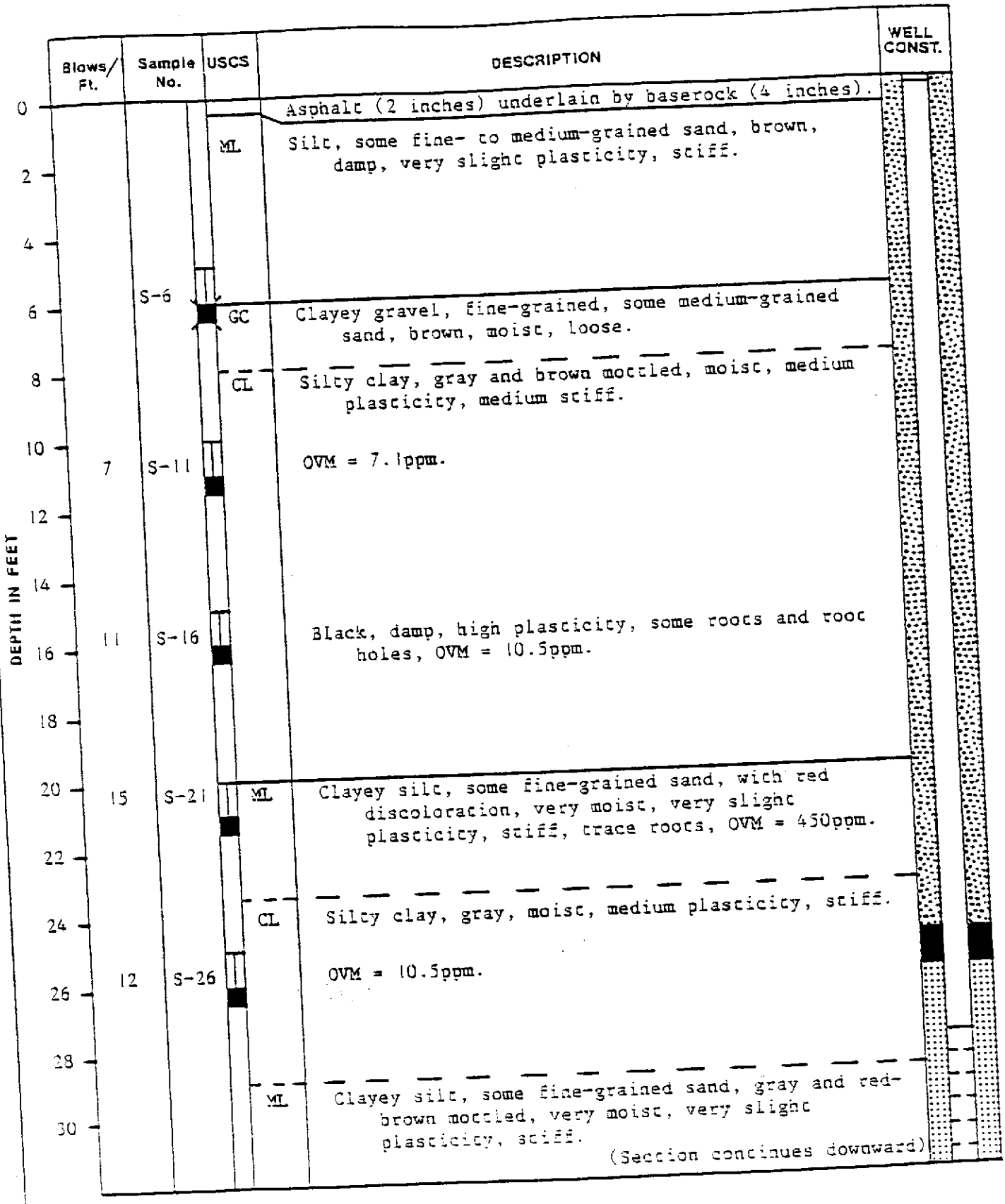
2991 Hopyard Road

Pleasanton, California

PLATE

P - 10

PROJECT NO. 18034-2



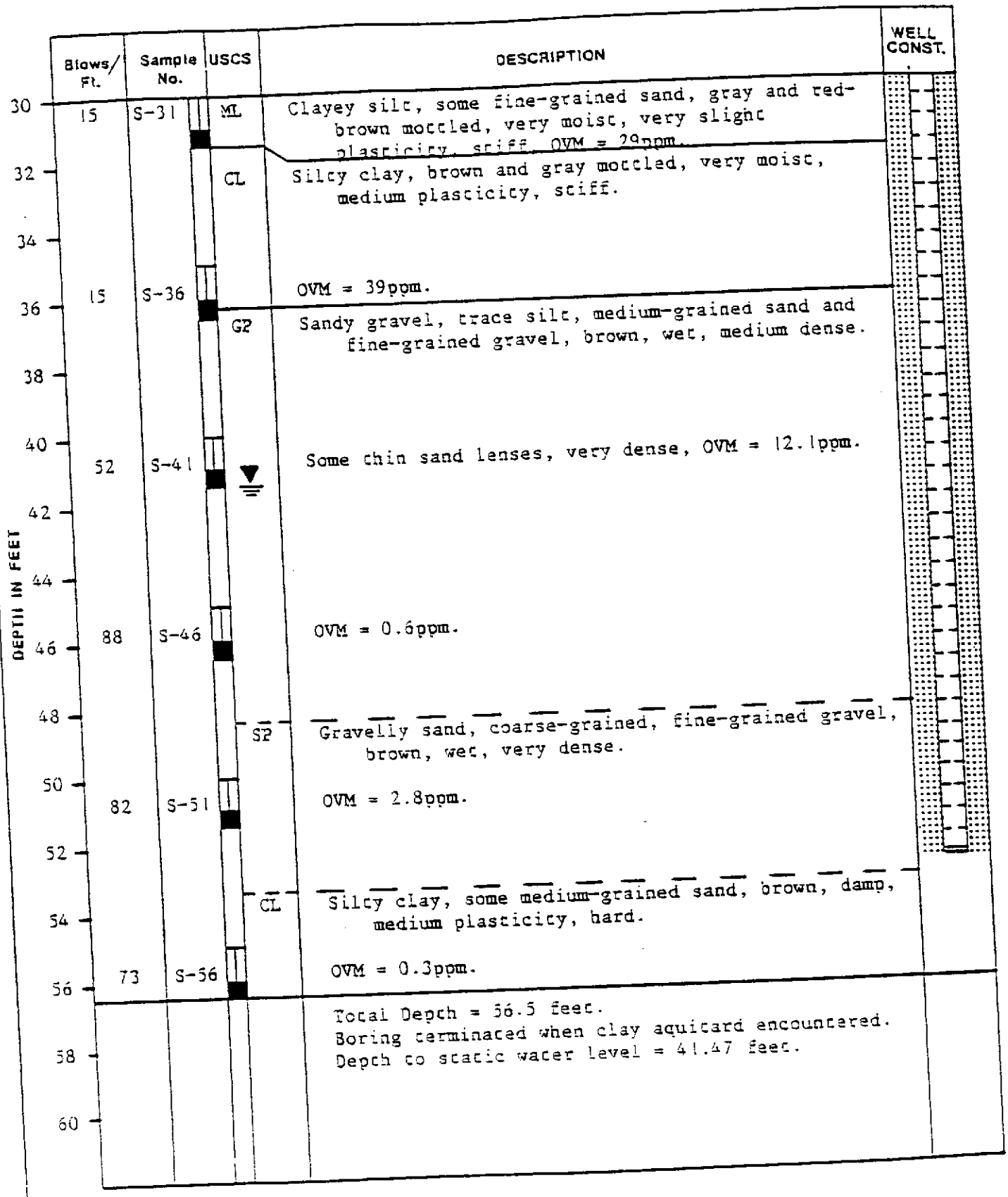
Applied GeoSystems

PROJECT NO. 18034-2A

LOG OF BORING B-7/MW-7

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

PLATE
P -



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LOG OF BORING B-7/MW-7

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

PLATE
P -

PROJECT NO. 18034-2A

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					14-inch-diameter borehole to 91 feet below ground surface	
16						
18						
20						

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 -

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					Decreasing caliche, trace minute streaks of black carbonaceous material.	
62				SP	Fine sand, brown, wet.	
64				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.	
68				SW	Gravelly fine to coarse sand, with silt, gray—brown, wet.	
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.	
76				SM	Silty very fine sand, brown, wet.	
78				CL	Silty clay, trace fine to medium sand, light brown with red—brown staining, streaks and specks of black carbonaceous material, damp, medium plasticity. 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 -

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					10–inch–diameter borehole from 91 to 140 feet	
104						
106					Gray–green with red–brown and white (caliche) mottling.	
108					Lens of very fine sand at 107 1/2 feet.	
110						

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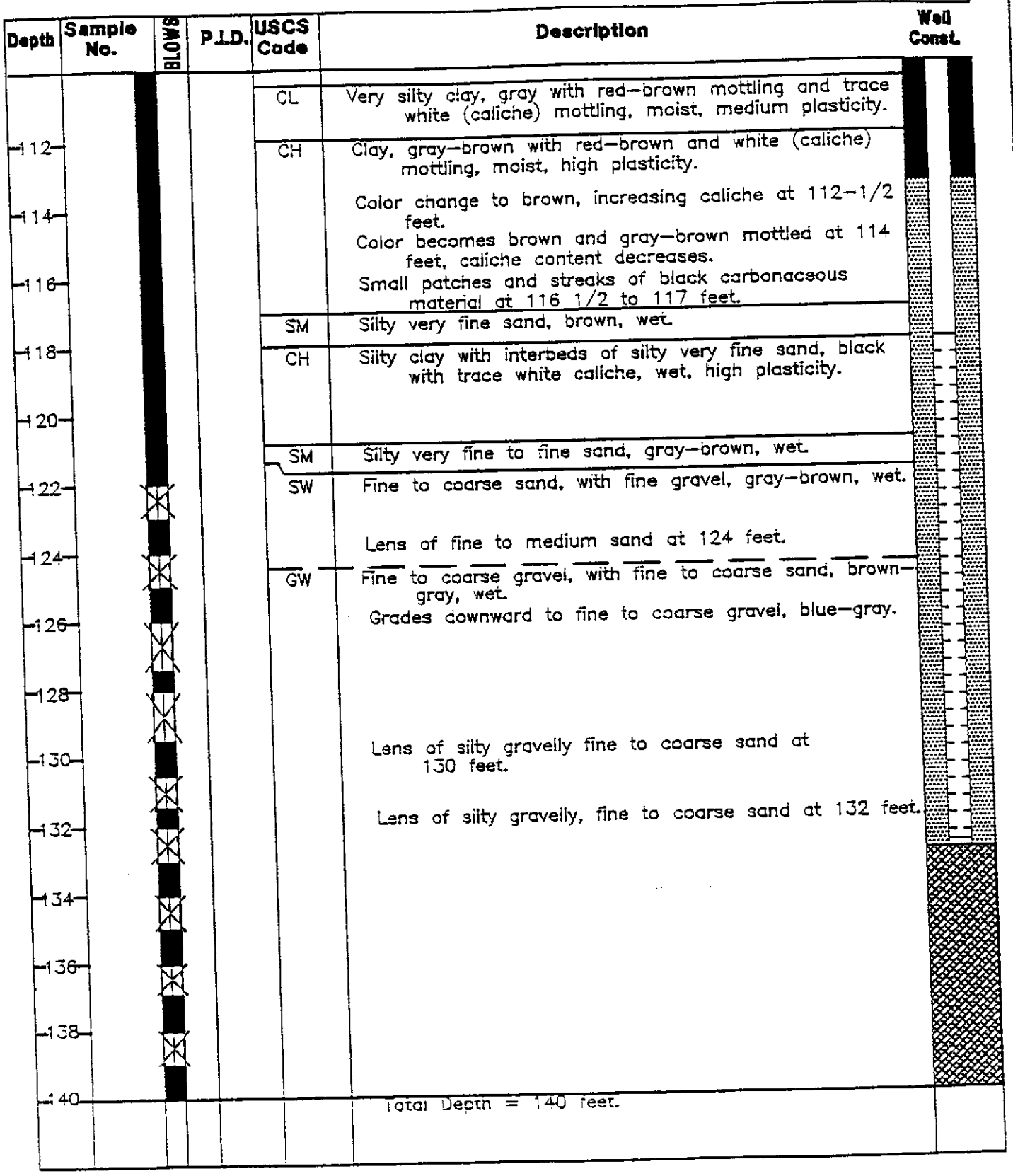
PROJECT NO. 18034-7

LOG OF BORING B-8/MW-8

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

PLATE

P - 7



Applied GeoSystems

LOG OF BORING B-8/MW-8

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

PLATE

P - 8

PROJECT NO. 18034-7

Total depth of boring: 57-1/2 feet **Diameter of boring:** 10 inches **Date drilled:** 10-4-89

Casing diameter: 4 inches **Length:** 54-1/2 feet **Slot size:** 0.020-inch

Screen diameter: 4 inches **Length:** 20 feet **Material type:** Sch 40 PVC

Drilling Company: Kvilhaug Well Drilling, Inc. **Driller:** Criss and Paul

Method Used: Hollow-Stem Auger **Field Geologist:** Mark Armstrong

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Concrete (6 inches) underlain by sand (2 inches).	
				SC	Fine to medium sandy clay, dark brown, damp, medium plasticity, very stiff.	
2						
4						
6	S-6	6 7 14	270			
				SP	Medium to coarse sand, gray-white and black, damp, loose.	
8						
				CL	Very silty clay, gray and red-brown mottled, damp, medium plasticity, stiff.	
10		4				
	S-11	6 4	201	CH	Silty clay, blue-gray and red-brown mottled, trace specks and thin streaks of black carbonaceous material, moist, high plasticity, stiff, trace filamentous rootlets.	
12						
14						
		7				
16	S-16	10 12	124		Downward alternating blue-gray, green-gray, brown, and brown-black bands (1-inch-thick or greater) at 16 feet, reflecting downward increase in organic content, partially decayed rootlets, very stiff.	
18				ML	Clayey silt, gray to dark gray, damp, medium plasticity, very stiff, trace roots.	
20		6				
		9				
	S-21	13	250		(Section continues downward)	

Applied GeoSystems

PROJECT NO. 18034-7

LOG OF BORING B-9/MW-9

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

PLATE

P -

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
				ML	Clayey silt, gray to dark gray, damp, medium plasticity, very stiff, trace rootlets.	
22						
				CH	Silty clay, green–gray with red–brown mottling, grades downward to dark gray, trace partially decayed rootlets and specks and thin streaks of black carbonaceous material, damp, high plasticity, very stiff.	
24		6				
		8				
26	S–26	11	130			
				CL	Silty clay, green–gray with trace red–brown staining, damp, medium plasticity, very stiff.	
28				CH	Silty clay, dark gray with red–brown mottling, trace specks of organic material and partially decayed rootlets, damp, high plasticity, very stiff.	
30		10				
		10				
	S–31	13	22			
32						
34						
		6				
		12			Trace medium sand and gravel, hard.	
36	S–36	20	11		hard.	
		20		SM	Silty fine to medium sand (coarsens downward), gray–brown, damp, dense.	
		20				
38	S–38	25	340		Lens of silty sandy fine gravel at 38–1/2 feet.	
				SP	Fine to medium sand, gray–brown, damp, dense.	
40		20				
		25				
	S–41	25	110		Lens of silty sand at 41–1/2 feet.	
42						
				GW	Fine to coarse gravel, gray–brown, moist.	
44						
46						
48						
50						

(Section continues downward)

Applied GeoSystems

PROJECT NO. 18034-7

LOG OF BORING B-9/MW-9

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

PLATE

P - 1(

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
52				GW	Fine to coarse gravel, gray–brown, moist.	
54				CH	Silty clay, green–brown, moist, high plasticity.	
56						
58					Total Depth = 57–1/2 feet.	
60						
62						
64						
66						
68						
70						
72						
74						
76						
78						
80						

Applied GeoSystems

PROJECT NO. 18034-7

LOG OF BORING B-9/MW-9

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

PLAT

P -

Total depth of boring: 60–1/2 feet **Diameter of boring:** 10 inches **Date drilled:** 10–6–89

Casing diameter: 4 inches **Length:** 60 feet **Slot size:** 0.020–inch

Screen diameter: 4 inches **Length:** 20 feet **Material type:** Sch 40 PVC

Drilling Company: Kvilhaug Well Drilling, Inc. **Driller:** Criss and Paul

Method Used: Hollow–Stem Auger **Field Geologist:** Mark Armstrong

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Concrete (6 inches) underlain by sand (2 inches).	
				CL	Silty clay, with fine to coarse sand and fine gravel, dark brown with trace red–brown staining, damp, medium plasticity, hard.	
2						
4						
		12				
6	S–6	16 18	0.6			
				ML	Clayey silt, gray–brown with red–brown staining, moist, low plasticity, stiff, trace partially decayed plant roots.	
8						
10		5				
	S–11	6 9	0.6		Lens of silty very fine to fine sand at 10 feet, gray–brown and red–brown mottled, wet, medium dense.	
12				CH	Silty clay, dark gray with abundant patches, specks and thin streaks of black carbonaceous material, moist, high plasticity, very stiff.	
14						
		4				
16	S–16	8 9	0.6			
18						
20		4				
		6				
	S–21	7	0		Green–gray with red brown staining, stiff. (Section continues downward)	

Applied GeoSystems

PROJECT NO. 18034-7

LOG OF BORING B-10/MW-10

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

PLATE

P - 1

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
22				CH	Silty clay, green–gray with red–brown staining, moist, high plasticity, stiff.	
24		7 7				
	S–25	16	0.2		Very stiff, trace rootlets.	
26						
28						
		6 10				
30	S–30	17	0.2		Trace scattered specks and thin streaks of black carbonaceous material, trace rootlets.	
32				CL	Silty clay, trace medium to coarse sand, green–gray, moist, medium plasticity, very stiff.	
34		7 8			Silt grades to trace medium to coarse sand.	
	S–35	22	2.2			
36		7 8		CH	Silty clay, trace fine gravel, light green–brown with red–brown staining, damp, high plasticity, very stiff.	
38	S–37.5	14	0.2			
		16 25		ML	Clayey very fine sandy silt, brown with red–brown staining, wet, low plasticity, hard.	
40	S–40	30		SW	Gravelly fine to coarse sand, with clay, brown, wet, very dense.	
		30		GW		
42	S–42	50+	8.1		Fine to coarse sandy gravel, gray–brown, wet, very dense.	
44						
	S–45	50	0.2		Increase in gravel size and content, trace clay.	
46						
48						
50	S–50	50	0.2		Decrease in gravel size.	

(Section continues downward)

Applied GeoSystems

PROJECT NO. 18034-7

LOG OF BORING B-10/MW-10

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

PLATE

P - 1

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
52				GW	Fine to coarse sandy gravel, gray–brown, wet, very dense.	
54		16				
		32			Lens of light brown, high plasticity, silty clay underlain by lens of dark blue–gray, low plasticity, clayey silt with very fine sand at 55 feet.	
	S–55	50	0.2			
56				SW	Fine gravelly sand, trace silt, dark brown, wet, very dense.	
		32				
58	S–57.5	50	1.2			
		20		CH	Silty clay, trace coarse sand, light brown with white (caliche) and red–brown mottling, damp, high plasticity, hard.	
60		20				
	S–60	25			Total Depth = 60–1/2 feet.	
62						
64						
66						
68						
70						
72						
74						
76						
78						
80						

Applied GeoSystems

PROJECT NO. 18034-7

LOG OF BORING B-10/MW-10

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

PLATE

P - 1

Total depth of boring: 55-1/2 feet **Diameter of boring:** 10 inches **Date drilled:** 11-2-89

Casing diameter: 4 inches **Length:** 55 feet **Slot size:** 0.020-inch

Screen diameter: 4 inches **Length:** 20 feet **Material type:** Sch 40 PVC

Drilling Company: Jcon Exploration **Driller:** Jim Condrey and Greg Taylor

Method Used: Hollow-Stem Auger **Field Geologist:** Russell Bak

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt (3 inches) over gravel base (2 inches).	
				ML	Fine to medium sandy silt, green-brown and black, slightly damp, low plasticity, very stiff.	
4		7				
		8				
	S-5	12	1.6	SM	Silty fine sand, trace medium and coarse sand, trace fine gravel, brown, slightly damp, medium dense.	
6						
				CL	Silty clay, gray-brown with abundant red-brown and trace brown mottling, damp, medium plasticity, very stiff.	
8						
		6				
		8				
10	S-10	10	0.1	CH	Silty clay, gray-brown with abundant red-brown and trace brown mottling, damp, high plasticity, very stiff.	
12						
14		6				
		7				
	S-15	14	0.9		Blue-gray and black mottled, grades downward at 15 feet to black reflecting increasing organic content, partially decayed rootlets.	
16						
18						
		10				
		12				
20	S-20	16	2.6		Green-gray with red-brown mottling.	
					(Section continues downward)	

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PROJECT NO. 18034-7

LOG OF BORING B-11/MW-11

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

PLATE

P - 15

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
22				CH	Silty clay, green–gray with red–brown mottling, damp, high plasticity, very stiff.	
24		9				
		10		ML	Clayey silt, green–gray with red–brown mottling, damp, low plasticity, very stiff.	
	S–25	10	0.9			
26				CH	Silty clay, green–gray with red–brown mottling, damp, high plasticity, very stiff.	
28						
		6				
30		12				
	S–30	22	0.1		Gray–brown with red–brown mottling, trace partially decayed rootlets, hard.	
32						
34		7				
		15			Trace coarse sand and fine gravel, green–brown with red–brown mottling and trace black mottling, (carbonaceous material), trace partially decayed rootlets.	
	S–35	18	0.1			
36		10				
		15		SC	Clayey gravelly fine to coarse sand, fine to coarse gravel, brown, very moist, dense.	
	S–37	24	1.6			
38						
		13		GW	Fine to coarse sandy gravel, trace silt and clay, brown–gray, moist, dense, trace carbonaceous material.	
40		15				
	S–40	30	16.7			
		10				
42		16				
	S–42	32	1.3			
44	S–44	120	1.3			
46						
48						
	S–49	55	0.1			
50					Medium to coarse sandy, slight increase in silt and clay, wet, very dense.	
					(Section continues downward)	

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PROJECT NO. 18034-7

LOG OF BORING B-11/MW-11

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

PLATE

P - 16

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
				GW	Medium to coarse sandy, slight micaceous silt and clay brown—gray, wet, very dense.	
52				GC	Clayey gravel with some medium to coarse sand, brown, wet, medium dense.	
54		9			Silty clay, brown with white—gray mottling, trace red—brown stains and trace specks and thin streaks of black caboncaeous material, damp, high plasticity, very stiff.	
	S-55	10 16	0.1	CH		
56					Total Depth = 55—1/2 feet.	
58						
60						
62						
64						
66						
68						
70						
72						
74						
76						
78						
80						

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PROJECT NO. 18034-7

LOG OF BORING B-11/MW-11

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

PLATE

P - -

Total depth of boring: 84 feet **Diameter of boring:** 10 inches **Date drilled:** 11-3-89

Casing diameter: N/A **Length:** N/A **Slot size:** N/A

Screen diameter: N/A **Length:** N/A **Material type:** N/A

Drilling Company: Jcon Exploration **Driller:** Jim Condrey and Greg Taylor

Method Used: Hollow-Stem Auger **Field Geologist:** Russell Bak

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					See lithologic description from the surface to 55 feet of Log of Boring B-11/MW-11.	
2						
4						
6						
8						
10						
12						
14						
16						
18						
20						

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PROJECT NO. 18034-7

LOG OF BORING B - 12

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

PLATE

P - 1

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
					See lithologic description from the surface to 55 feet of Log of Boring B-11/MW-11.	

22
24
26
28
30
32
34
36
38
40
42
44
46
48
50

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PROJECT NO. 18034-7

LOG OF BORING B - 12

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

PLATE

P - 1

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
52						
				▽		
54		8 12		GC	Clayey gravel, with some medium to coarse sand, brown, wet, medium dense, trace organic material.	
	S-55	13	0.1			
		9		CH	Silty clay, trace gravel, brown, wet, high plasticity, very stiff.	
56		18				
		24				
		8				
58		9			Fine to coarse sandy, with trace gravel at 59 feet, damp, trace carbonaceous material.	
	S-58.5	17				
		10				
		16				
60	S-60	23	0.1		No sand or gravel, blue-gray with red-brown mottling, zones of increased silt content of medium plasticity, hard.	
62						
64		9 12				
	S-65	16	0.1		Green-gray with gray-white (caliche) mottling, very stiff.	
66		9 23			Gray and red-brown mottled, with trace gray-white mottling, trace partially decomposed rootlets, hard.	
	S-67	31		ML	Clayey silt, gray and red-brown mottled, damp, medium plasticity, hard.	
68						
		9 23				
70	S-70	32	0.1	SP	Fine to medium sand, brown, damp, very dense.	
		31		CH	Silty clay, trace coarse sand, gray-brown, damp, high plasticity, hard.	
	S-71.5	100	0			
72						
74		9 20				
	S-75	22	0		No sand, gray-brown with gray-white (caliche) mottling.	
76		9 23				
	S-77	32	0		Trace fine and coarse sand.	
78						
		9 23				
80	S-80	30				

(Section continues downward)

Applied GeoSystems

LOG OF BORING B - 12

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

PLATE

P - 2

PROJECT NO. 18034-7

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
				CH	Silty clay, trace fine and coarse sand, gray–brown with gray–white (caliche) mottling, damp, high plasticity, hard.	
82		9				
		18				
	S–83.5	20	0		Very fine to fine sand in occasional small lenses.	
84					Total Depth = 84 feet.	
86						
88						
90						

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LOG OF BORING B - 12

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

PLATE

P - 2

PROJECT NO. 18034-7

Total depth of boring:	54-1/2 feet	Casing diameter:	NA
Diameter of boring:	6 inches	Casing material:	NA
Date drilled:	12-2-93	Slot size:	NA
Drilling Company:	Exploration Geoservices, Inc.	Sand size:	NA
Driller:	John Collins	Screen Interval:	NA
Drilling method:	Hollow-Stem Auger	Field Geologist:	Jeanne Buckthal

Signature of Registered Professional: _____

Registration No.: CEG 1463 State: CA

SEE PLATE D1 FOR SYMBOL KEY

P.I.D.	Sample No.	Blows	Depth	USCS Code	Description	Well Const.
			0		Concrete (6 inches).	
			2	ML	Clayey silt, dark brown, damp, low plasticity, hard.	
0	S-4.5	39 40	4			
			6			
			8	SP	Sand, fine-grained, brown, damp, dense.	
		13 18				
0	S-10	29	10	CL	Silty clay, brown, damp, low plasticity, hard.	
			12			
		13 17	14			
0	S-15	25	16		Greenish-gray; slight hydrocarbon odor, some charcoal, few roots.	
			18			
		10 12				
213.1	S-20	24	20		Dark greenish-gray; strong hydrocarbon odor, few vertical roots.	
			22			
		15 18	24			
OR	S-24.5	26			With brown mottling; vertical fine-grained sand stringer, strong hydrocarbon/diesel (?) odor.	
			26			
			28			
		17 28				
OR	S-30	32	30		Strong hydrocarbon odor.	
			32			
		17 22	34			
OR	S-35	40	36			
			38	SP	Sand, fine- to medium-grained, brown, damp, very dense; unidentified odor.	
		28				
244	S-39.5	50/4"	40			

(Section continues downward)

RESNA
Working to Restore Nature

PROJECT: 130009.04

LOG OF BORING B-16
Exxon Station 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE D2

SEE PLATE D1 FOR SYMBOL KEY

P.I.D.	Sample No.	Blows	Depth	USCS Code	Description	Well Const.
			42	SP	Sand, fine– to medium–grained, brown, damp, very dense; unidentified odor.	
			44	GW	Sandy gravel, trace clay, fine to coarse gravel (up to 2–1/4" in diameter), fine– to coarse–grained sand, brown, moist, very dense.	
61.2	S–45	50/6"	46			
			48			
			50	SW	Gravelly sand, fine– to coarse–grained sand, fine to coarse gravel (up to 1" in diameter), brown, moist, very dense.	
OR	S–50	50/6"	52			
234.25	S–54	50/6"	54			
			56		Total Depth = 54–1/2 feet.	
			58			
			60			
			62			
			64			
			66			
			68			
			70			
			72			
			74			
			76			
			78			
			80			
			82			
			84			
			86			
			88			
			90			

RESNA
Working to Restore Nature

PROJECT: 130009.04

LOG OF BORING B-16
Exxon Station 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE
D3

Total depth of boring:	55-1/2 feet	Casing diameter:	NA
Diameter of boring:	6 inches	Casing material:	NA
Date drilled:	12-2-93	Slot size:	NA
Drilling Company:	Exploration Geoservices, Inc.	Sand size:	NA
Driller:	John Collins	Screen Interval:	NA
Drilling method:	Hollow-Stem Auger	Field Geologist:	Jeanne Buckthal

Signature of Registered Professional: _____

Registration No.: CEG 1463 State: CA

SEE PLATE D1 FOR SYMBOL KEY

P.I.D.	Sample No.	Blows	Depth	USCS Code	Description	Well Const.
					Concrete (6 inches).	
			2	ML	Clayey silt, dark brown, damp, low plasticity, hard.	
			4			
OR	S-4.5	8 32	6			
			8	SP	Sand, fine-grained, brown, damp, medium dense; hydrocarbon odor.	
		12	10			
OR	S-10	13 12		CL	Silty clay, dark brown, damp, low plasticity, hard; sewage odor, some rootlets and minor charcoal.	
			12			
		9	14			
OR	S-15	12 20	16			
			18			
		12	20			
OR	S-20	20 21			Dark blue-gray; strong hydrocarbon odor, many vertical roots.	
			22			
		12	24			
OR	S-24.5	16 26	26		Gray with brown mottling; strong hydrocarbon odor, some vertical roots.	
			28			
		12	30			
OR	S-30	13 21			Few vertical roots.	
			32			
		28	34			
OR	S-34.5	37 24			Brown with gray mottling; hydrocarbon odor.	
			36			
			38			
		21	40	SP-SM	Sand with silt, fine-grained sand, olive-brown, damp, very dense; strong hydrocarbon odor.	
OR	S-39.5	50/6"			(Section continues downward)	

RESNA
Working to Restore Nature

PROJECT: 130009.04

LOG OF BORING B-17

Exxon Station 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE D4

SEE PLATE D1 FOR SYMBOL KEY

P.I.D.	Sample No.	Blows	Depth	USCS Code	Description	Well Const.
			42	SP-SM	Sand with silt, fine-grained sand, olive-brown, damp, very dense; strong hydrocarbon odor.	
			44	SW	Gravelly sand, trace clay, fine- to coarse-grained sand, fine to coarse gravel (up to 2-1/2" in diameter), brown, damp to wet, very dense; strong hydrocarbon odor.	
OR	S-45	50/6"	46			
			48			
OR	S-49.5	50/6"	50		Gravels fining downward (up to 1-1/2" in diameter); slight hydrocarbon odor.	
			52			
OR	S-54.5	50/6"	54	CL	Silty clay, brown, damp, low plasticity, hard; slight hydrocarbon odor.	
			56		Total Depth = 55-1/2 feet.	
			58			
			60			
			62			
			64			
			66			
			68			
			70			
			72			
			74			
			76			
			78			
			80			
			82			
			84			
			86			
			88			
			90			

RESNA
Working to Restore Nature

PROJECT: 130009.04

LOG OF BORING B-17
Exxon Station 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE
D5

Total depth of boring: 55 feet
Diameter of boring: 6 inches
Date drilled: 12-1-93
Drilling Company: Exploration Geoservices, Inc.
Driller: John Collins
Drilling method: Hollow-Stem Auger

Casing diameter: NA
Casing material: NA
Slot size: NA
Sand size: NA
Screen interval: NA
Field Geologist: Jeanne Buckthal

Signature of Registered Professional: _____
Registration No.: CEG 1463 State: CA

SEE PLATE D1 FOR SYMBOL KEY

P.I.D.	Sample No.	Blows	Depth	USCS Code	Description	Well Const.
					Concrete (6 inches).	
			2	CL	Silty clay, trace sand, light brown, damp, low plasticity, very stiff; fine-grained sand, abundant rootlets and root holes.	
			4			
0	S-5	11 12 16	6			
			8			
0	S-10	18 24 25	10	SP	Sand, fine-grained, reddish-brown, damp, very dense.	
			12			
			14	CL	Clay with silt, blue-gray, moist, low plasticity, hard; some rootlets and charcoal lamina.	
0	S-15	13 17 18	16			
			18			
0	S-20	7 10 15	20		Increasing silt, blue-gray with olive mottling, damp, very stiff; vertical roots.	
			22			
			24	ML	Clayey silt, gray with light brown mottling, damp, low plasticity, hard.	
0	S-25	10 16 30	26			
			28			
0	S-30	14 20 25	30		Olive-gray with light brown mottling.	
			32			
			34	CL	Silty clay, brown, damp, low plasticity, hard.	
0	S-35	18 23 30	36			
			38			
	S-39.5	50/4"	40	SW	Gravelly sand, fine- to coarse-grained sand, fine to coarse gravel (up to 1" in diamter), damp, very dense.	

(Section continues downward)

RESNA
Working to Restore Nature

PROJECT: 130009.04

LOG OF BORING B-18
Exxon Station 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE
D6

SEE PLATE D1 FOR SYMBOL KEY

P.I.D.	Sample No.	Blows	Depth	USCS Code	Description	Well Const.
			42	SW	Gravelly sand, fine- to coarse-grained sand, fine to coarse gravel (up to 1" in diameter), brown, damp, very dense.	
			44			
0	S-45	13 50/6"	46	SW-SC	Gravelly sand with clay, fine- to coarse-grained sand, fine to coarse gravel (up to 2" in diameter), brown, moist to wet, very dense.	
			48			
NS	S-49.5	50/6"	50			
			52			
			54			
0	S-54.5	50/6"	56		Total Depth = 55 feet.	
			58			
			60			
			62			
			64			
			66			
			68			
			70			
			72			
			74			
			76			
			78			
			80			
			82			
			84			
			86			
			88			
			90			

RESNA
Working to Restore Nature

LOG OF BORING B-18
Exxon Station 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE
D7

PROJECT: 130009.04

Total depth of boring: 54 feet
Diameter of boring: 6 inches
Date drilled: 12-1-93
Drilling Company: Exploration Geoservices, Inc.
Driller: John Collins
Drilling method: Hollow-Stem Auger

Casing diameter: NA
Casing material: NA
Slot size: NA
Sand size: NA
Screen interval: NA
Field Geologist: Jeanne Buckthal

Signature of Registered Professional: _____
Registration No.: CEG 1463 State: CA

SEE PLATE D1 FOR SYMBOL KEY

P.I.D.	Sample No.	Blows	Depth	USCS Code	Description	Well Const.
					Concrete (6 inches).	
				CL	Silty clay, grayish-brown, damp, low plasticity, very stiff; tank backfill.	
0	S-5	11 27	6			
NS		11 22 18	10	GP-GC	Gravel with sand and clay, fine gravel (up to 3/4" in diameter), dark brown, moist, dense; tank backfill.	
			12	GP	Gravel with sand, fine gravel (up to 3/4" in diameter), medium- to coarse-grained sand, light brown, moist, medium dense; tank backfill.	
0	S-15	11 12 16	16			
NS		14 26 21	20			
			24			
0	S-25.5	13 13 14	26	CL	Clay with silt, bluish-gray, damp, low plasticity, very stiff; slight hydrocarbon odor; tank backfill to 31'?	
20.8	S-30	11 13 25	30		Light brown with orange mottling, hard.	
0	S-35	13 25 30	36		Brown.	
0	S-40	25 50/4"	40	CL	Silty clay with sand, trace gravel, light brown, damp to moist, low plasticity, hard; fine- to medium-grained sand, coarse gravel (up to 2" in diameter). (Section continues downward)	

RESNA
Working to Restore Nature

PROJECT: 130009.04

LOG OF BORING B-19
Exxon Station 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE
D8

SEE PLATE D1 FOR SYMBOL KEY

P.I.D.	Sample No.	Blows	Depth	USCS Code	Description	Well Const.
			42	CL	Silty clay with sand, trace gravel, light brown, damp to moist, low plasticity, hard; fine- to medium-grained sand, coarse gravel (up to 2" in diameter).	
0	S-44.5	50/6"	44	SP	Sand with gravel, medium-grained sand, fine to coarse gravel (up to 2" in diameter), brown, moist, very dense.	
			46			
			48			
0	S-49.5	50/6"	50	SW	Gravelly sand, fine- to medium-grained sand, fine to coarse gravel (up to 1" in diameter), brown, moist to wet, very dense.	
			52			
0	S-53	50/6"	54		Total Depth = 54 feet.	
			56			
			58			
			60			
			62			
			64			
			66			
			68			
			70			
			72			
			74			
			76			
			78			
			80			
			82			
			84			
			86			
			88			
			90			

RESNA
Working to Restore Nature

PROJECT: 130009.04

LOG OF BORING B-19
Exxon Station 7-3399
2991 Hopyard Road
Pleasanton, California

PLATE
D9

Total depth of boring: 30 feet **Diameter of boring:** 10 inches **Date drilled:** 10-24-88

Casing diameter: 4 inches **Length:** 30 feet **Slot size:** 0.020-inch

Screen diameter: 4 inches **Length:** 20 feet **Material type:** Sch 40 PVC

Drilling Company: Datum Exploration **Driller:**

Method Used: Hollow-Stem Auger **Field Geologist:** Jim Cline

Signature of Registered Professional:

Registration No.: R.G. 730 **State:** CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Concrete.	
				Fill	Silty clay.	
2						
4						
6						
8						
10						
12				Fill	Pea gravel.	
14						
16						
18						
20					(Section continues downward)	

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PROJECT NO. 18034-4

LOG OF BORING VR - 1

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

PLATE

P - 8

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
				Fill	Pea gravel.	
22						
24						
26						
28						
30					Total Depth = 30 feet.	
32						
34						
36						
38						
40						
42						
44						
46						
48						
50						

Applied GeoSystems

PROJECT NO. 18034-4

LOG OF BORING VR - 1

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

PLATE

P - 9

Total depth of boring: 45-1/2 feet **Diameter of boring:** 8 inches **Date drilled:** 11-20-89

Casing diameter: 2 inches **Length:** 45 feet **Slot size:** 0.020-inch

Screen diameter: 2 inches **Length:** 10 feet **Material type:** Sch 40 PVC

Drilling Company: Gregg Drilling and Testing, Inc. **Driller:** Jim and Richard

Method Used: Hollow-Stem Auger **Field Geologist:** Russell Bak

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Concrete (6 inches) underlain by sand (3 inches).	
				CL	Silty clay, trace stringers of medium to coarse sand, trace fine gravel, gray-brown to dark brown, damp, medium plasticity, stiff, trace rootlets and root holes.	
4		2 3				
	S-5	10	1.0			
8				SM	Silty fine to medium sand, dark brown, damp, loose.	
		2 4		ML	Clayey silt, blue-gray and gray-brown mottled, very moist, medium plasticity, medium stiff.	
10	S-10	4	2.8	CH	Silty clay, green-gray with yellow-brown staining, damp, high plasticity, medium stiff.	
14		2 4				
	S-15	8	1.2		Trace black carbonaceous material and partially decomposed plant material. Zone of more abundant organic material at 15 feet.	
18						
20		3 5				
	S-20	7	1.4		Trace stringers of medium sand, dark black to gray-black, some partially decomposed plant material.	

(Section continues downward)

Applied GeoSystems

PROJECT NO. 18034-7

LOG OF BORING VR-2

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

PLATE

P - 2

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
				CH	Silty clay, trace stringers of medium sand, dark gray to gray–black, damp, high plasticity, medium stiff, some partially decomposed plant material.	
22				ML	Clayey silt, gray with yellow–brown mottling, very moist, medium plasticity, medium stiff, trace rootlets partially decomposed.	
24		3 4				
	S–24.5	4	1.0	CL	Silty clay, gray with red–brown staining, moist, medium plasticity, medium stiff.	
26						
28						
		3		CH	Silty clay, brown with red–brown mottling and trace specks and thin streaks of black carbonaceous material, damp, high plasticity, stiff.	
30	S–30	5 10	1.6			
32						
34		5				
		7				
	S–35	17	.4		Gray–brown with red–brown mottling, trace specks and small patches of black carbonaceous material, including decomposed seeds, medium plasticity, very stiff.	
36						
38				GC	Clayey fine sandy gravel, trace medium and coarse sand, gray–brown, moist, dense.	
		10		SP	Very fine to fine sand, trace medium sand, brown, moist, dense.	
40		24				
	S–40	25	0.6			
42						
				GW	Coarse sandy gravel, gray–brown with red–brown staining, damp, very dense.	
44		34				
	S–45	62	6.4			
46					Total Depth = 45–1/2 feet.	
48						
50						

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PROJECT NO. 18034-7

LOG OF BORING VR-2

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

PLATE

P - 2

Total depth of boring: 35-1/2 feet. **Diameter of boring:** 8 inches **Date drilled:** 11-20-89

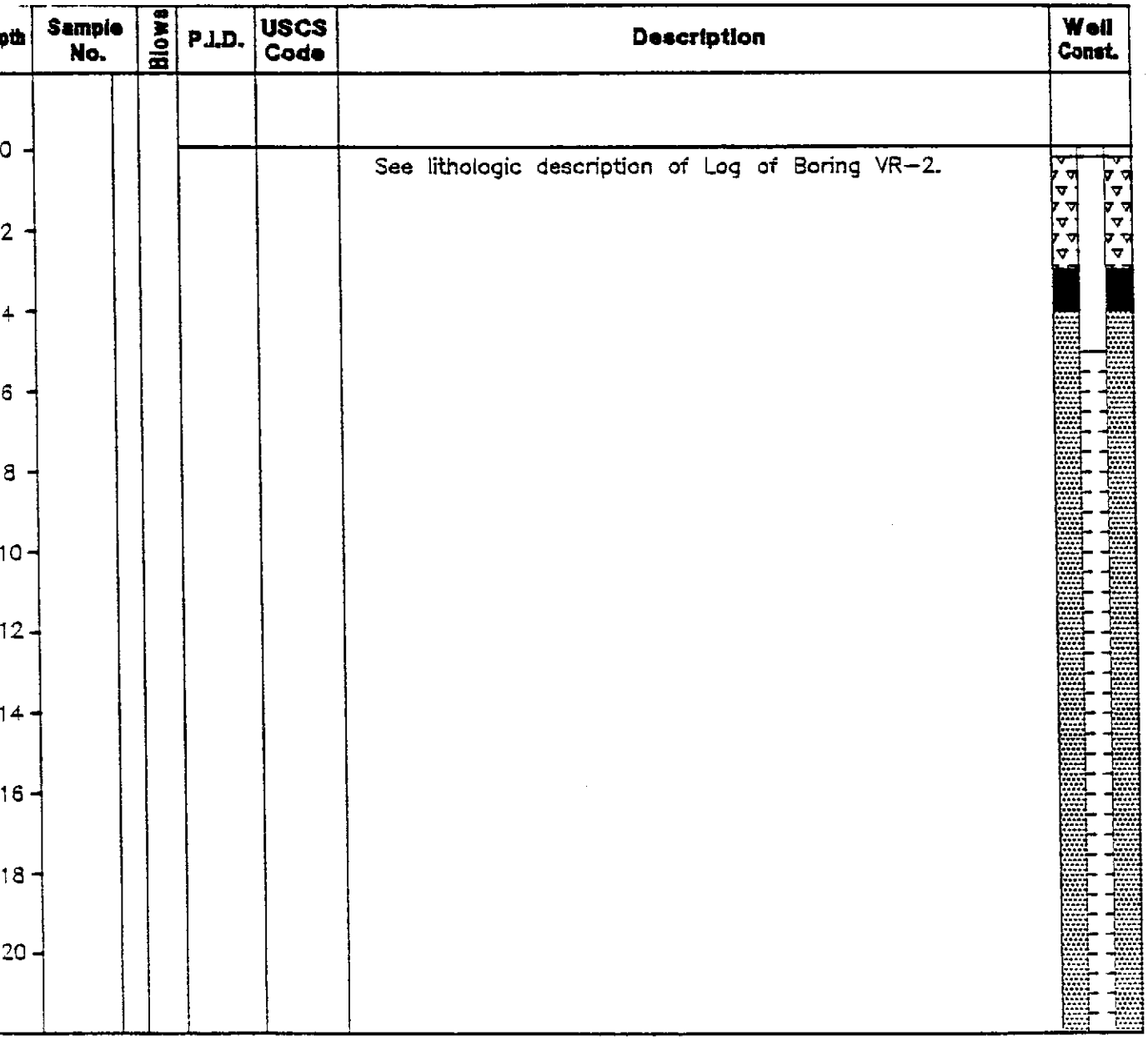
Casing diameter: 2 inches **Length:** 35 feet **Slot size:** 0.020-inch

Screen diameter: 2 inches **Length:** 30 feet **Material type:** Sch 40 PVC

Drilling Company: Gregg Drilling and Testing, Inc. **Driller:** Jim and Richard

Method Used: Hollow-Stem Auger **Field Geologist:** Russell Bak

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					See lithologic description of Log of Boring VR-2.	
2						
4						
6						
8						
10						
12						
14						
16						
18						
20						



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PROJECT NO. 18034-7

LOG OF BORING VR-3

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

PLATE

P - 24

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
22					See lithologic description of Log of Boring VR-3.	
24						
26						
28						
30						
32						
34						
36					Total Depth = 35-1/2 feet.	
38						
40						
42						
44						
46						
48						
50						

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PROJECT NO. 18034-7

LOG OF BORING VR-3

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

PLATE

P - 2

Total depth of boring: 35-1/2 feet **Diameter of boring:** 8 inches **Date drilled:** 11-24-89

Casing diameter: 2 inches **Length:** 32-1/2 feet **Slot size:** 0.020-inch

Screen diameter: 2 inches **Length:** 20 feet **Material type:** Sch 40 PVC

Drilling Company: Gregg Drilling and Testing, Inc. **Driller:** Jim and Richard

Method Used: Hollow-Stem Auger **Field Geologist:** Russell Bak

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Concrete (6 inches) underlain by sand (3 inches).	
				CL	Silty clay, trace medium to coarse sand, dark gray with red-brown and light gray mottling, damp, medium plasticity, stiff.	
2						
4		3				
	S-5	5	5.4			
		7				
6						
8					Silty very fine to medium sand, brown to gray, damp, loose.	
				SM		
		3				
10	S-10	2	1	ML	Clayey silt, blue-gray and gray-brown mottled, damp, medium plasticity, medium stiff.	
		6				
12						
				CH	Silty clay, green-gray to gray-black, damp, high plasticity, medium stiff, some partially decomposed rootlets and other plant material.	
14		3				
		3				
	S-15	5	1			
16						
18						
		11				
		5				
20	S-20	6	1.4			

(Section continues downward)

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PROJECT NO. 18034-7

LOG OF BORING VR-4

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

PLATE

P - 2

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
22				CH	Silty clay, dark gray, moist, high plasticity, stiff, some partially decomposed rootlets and other plant material.	
24		3 4			Green–gray with minute specks and thin streaks of carbonaceous material, trace plant fragments.	
26	S–25	5	0.6	CL	Silty clay, blue–gray with red–brown mottling, damp, medium plasticity, stiff.	
28				CH	Silty clay, gray–brown with red–brown mottling, damp, high plasticity, stiff.	
30	S–30	3 4 7	0.6			
32					Brown with red–brown staining and specks, streaks, and small patches of black carbonaceous material including decomposed seeds, trace rootlets.	
34		5 7				
	S–35	15	1.2		Brown with black and red–brown streaks.	
36					Total Depth = 35–1/2 feet.	
38						
40						
42						
44						
46						
48						
50						

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PROJECT NO. 18034-7

LOG OF BORING VR-4

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

PLATE

P - 2