Mobil Oil Corporation

3800 WEST ALAMEDA AVENUE, SUITE 700
BURBANK, CALIFORNIA 91505-4331

February 12, 1991

Mr. Rick Mueller
Pleasanton Fire Department
P. O. Box 520
Pleasanton, CA 94566-0802

MOBIL OIL CORPORATION
FORMER S/S 10-H6J
1024 MAIN STREET
PLEASANTON, CALIFORNIA

Dear Mr. Mueller:

Enclosed for your information is the Supplemental Site Investigation Report, dated January 15, 1991, for subject location. Additional investigation is required to define the extent of the ground water contamination and some soil contamination remains; a work plan outlining the proposed activities will follow shortly under separate cover.

If you have any questions, please feel free to contact me at (818) 953-2519.

Sincerely,

David Noe

David M. Noe, P.E.
GW Projects Engineer

DMN/st
enclosure

cc: Mr. Mun J. Mar (w/o enclosure)
Alameda County FC & WCD, Zone 7
5997 Parkside Drive
Pleasanton, CA 91466

Mr. Rico Duazo (w/ enclosure)
[redacted] Region
1800 Harrison Street, Room 700
Oakland, CA 94612

Mr. Barton and Mrs. Bonnie Yates (w/ enclosure)
Route 4, Box 320
Bonne Terre, MO 63628

W. P. Barry - 1W301 (w/o)
K. T Obymako - Burbank (w/o)
E. M. Hoepker - Benicia (w/o)

rec. 2-10-95

SUPPLEMENTAL SITE INVESTIGATION REPORT

Mobil Oil Corporation
Service Station 10-H6J
1024 Main Street
Pleasanton, California

Project No. 30-065

Prepared for:

Mobil Oil Corporation
3800 West Alameda Avenue, Suite 2000
Burbank, California

Prepared by:

Alton Geoscience, Inc.
1000 Burnett Avenue, Suite 140
Concord, California 94520

January 15, 1991

ALTON GEOSCIENCE
THE RESULTS TEAM

February 8, 1991

Mr. David Noe
Mobil Oil Corporation
3800 W. Alameda Avenue, Suite 700
Burbank, California 91505-4331

04-91-026/
30-0065

Subject: Supplemental Site Investigation Report
Former Mobil Oil Service Station 10-H6J
1024 Main Street, Pleasanton, California

Dear Mr. Noe:

In accordance with our agreement dated August 13, 1990, Alton Geoscience, Inc. is pleased to submit this report on the site characterization study performed at former Mobil Oil Service Station 10-H6J, located at 1024 Main Street, Pleasanton, California. This report was prepared in response to the concerns of Mobil Oil and the applicable regulatory agencies regarding the presence of hydrocarbon constituents in the soil and/or ground water onsite, and in the vicinity of the site.

A copy of the report should be submitted to the following agencies for their review and approval:

1. Mr. Rick Mueller
City of Pleasanton Fire Department
4444 Railroad Street
Pleasanton, California 94566-0802

2. California Regional Water Quality Control Board
San Francisco Bay Region (RWQCB)
1800 Harrison Street, Room 700
Oakland, California 94612

We would be pleased to discuss the results and findings of the supplemental study. Please call if you have any questions or comments regarding this report.

Sincerely,

ALTON GEOSCIENCE, INC.

Cherie D'Andrea
Senior Geologist

Al Sevilla, R.C.E. 26392
Regional Manager

1000 Burnett Avenue, Suite 140
Concord, California 94520
(415) 682-1582 • FAX (415) 682-8921

SUPPLEMENTAL SITE INVESTIGATION REPORT
for
Mobil Oil Corporation
Former Mobil Oil Service Station 10-H6J
1024 Main Street
Pleasanton, California

Project No. 30-065

January 15, 1990 1

This report was based on currently available data and was developed in accordance with current hydrogeologic and engineering practices.

This report was prepared by:

Mamdouh Awwad
Civil Engineer

2/7/91
Date

Cherie D'Andrea
Senior Geologist

2/7/91
Date

This report was reviewed by:

Al Sevilla
Division General Manager
R.C.E. No. 26392

2/7/91
Date

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1.0 INTRODUCTION AND BACKGROUND

Alton Geoscience, Inc. was retained by Mobil Oil Corporation to conduct a supplemental site investigation at former Mobil Service Station 10-H6J, located at 1024 Main Street, Pleasanton, California. This supplemental investigation was conducted to assess the impact of hydrocarbon constituents on the subsurface soil and/or ground water as a result of past operations at the site, and to comply with applicable laws and regulations. The site vicinity map is shown in Figure 1, and the site plan is shown in Figure 2.

1.1 Purpose and Scope

The primary purpose of this supplemental site investigation was to: (1) address the concerns of the regulatory agencies, (2) define the lateral and vertical extent of petroleum hydrocarbons detected in the subsurface soil and ground water, and (3) develop an appropriate course of action for further site characterization and/or remediation, if warranted. The tasks performed during this investigation included the following:

- Drilling of five additional soil borings for conversion into monitoring wells
- Analysis of the shallow aquifer/water-bearing zone
- Collection and analysis of soil and ground water samples
- Assessment of the extent of hydrocarbon constituents in the soil and/or ground water
- Supervision of the backfilling of the former tank cavity
- Preparation of a technical report presenting the results, findings, and recommendations of the investigation.

The above tasks and related field and sampling activities were performed in accordance with the requirements and guidelines of the Alameda County Flood Control and Water Conservation District, Zone 7 (Zone 7), the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB), and the City of Pleasanton Fire Department (PFD).

1.2 Site Description

The former Mobil Oil service station is located on the northeast corner of Stanley Boulevard and Main Street, Pleasanton, California. The site was formally closed and abandoned in October 1989, when four underground storage tanks were removed (Alton, 1989a).

The properties surrounding the site are primarily residential and retail commercial developments. An operating Unocal service station is located across Stanley Boulevard to the south, while residential neighborhoods are located to the north and east, and retail businesses to the west of the site.

Amador Valley High School, Pleasanton City Hall, Alameda County Fairgrounds, and an elementary school are located within a half-mile radius of the site. Shadow Cliffs, a recreational lake which was once a gravel pit, is located approximately 2 miles east of the site. The Arroyo del Valle Canal, located about 500 feet south of the site, flows from the lake in a westerly direction. A stream gauging station is located less than 1 mile west of the site, along the canal.

1.3 Summary of Past Activities and Studies

Information pertaining to past site activities was obtained from reports prepared by Alton Geoscience, Inc. and Target Environmental Services, Inc. (TES), as well as from available geologic and hydrogeologic reports.

In March 1989, a soil gas survey was conducted by TES at the site, as part of Mobil Oil's property transfer program in Northern California, Oregon, and Washington. The results of this survey indicated the presence of detectable levels of hydrocarbons vapors in the soil, primarily in the southwest corner of the pump islands (TES, 1989).

In October 1989, Mobil Oil retained Balch Petroleum, Inc. to remove the four underground storage tanks; three of which were used for gasoline fuel storage, and one for waste oil. It was reported that no diesel fuel was stored at the site. Visual observation revealed that the tanks were in relatively good condition, with no visible holes. Following the tank removal activities, Mobil Oil retained Alton Geoscience to collect soil samples from the tank cavity. The samples were collected at depths ranging from 12 to 22 feet below grade from the gasoline tank cavity area, and at 8 feet below grade from the waste oil tank area (Alton, 1989a).

Laboratory analysis indicated the presence of total petroleum hydrocarbons as gasoline (TPH-G) in the soil samples collected from the western boundary of the former gasoline tank cavity at concentrations ranging from 890 parts per million (ppm) to 2,400 ppm. Diesel-range TPH (TPH-D) was not detected in any of the soil samples. A soil sample collected from the former waste oil tank cavity had no detectable concentrations of TPH-G or TPH-D above reported detection limits (Alton, 1989a).

Following removal of the tanks, an additional 260 cubic yards of hydrocarbon-contaminated soil were excavated from the two tank pits. To obtain approval from the PFD to transport the soil offsite for disposal at a Class III landfill, the soil was aerated, sampled, and analyzed in accordance with the requirements of the Bay Area Air Quality Management District (BAAQMD). In January 1990, the PFD approved the transportation of approximately 150 cubic yards of aerated soil to the Durham Road Landfill for disposal (Alton, 1989b).

To assess the extent of hydrocarbon constituents in the soil and/or ground water onsite, Alton Geoscience conducted a Phase I - Site Investigation between January and April 1990. Three ground water monitoring wells and five soil borings were installed as part of the investigation. Results of the investigation revealed that there may be two separate water-bearing zones at the site, with a difference in water elevation of about 20 feet.

Laboratory analysis of soil samples collected during drilling indicated that the highest concentrations of TPH-G and benzene, toluene, ethylbenzene, and xylenes (BTEX) constituents were in the soil samples from Soil Borings SB-5, SB-6, and SB-7 at depths between 25 and 45 feet below grade. Analysis of the ground water samples collected from the three wells onsite revealed the presence of 1,2-dichloroethane up to 200 parts per billion (ppb), benzene ranging from 32 to 5,500 ppb, and TPH-G ranging from 2,100 to 64,000 ppb. The report presenting the results and findings of the Phase I - Site Investigation was completed and submitted to the appropriate regulatory agencies in June 1990.

1.4 Regional Geology and Hydrogeology

The site is located at an elevation of approximately 350 feet above mean sea level, in the Amador Subbasin of the Livermore Valley Basin physiographic region. The uppermost lithologic members of the Livermore Valley Basin primarily consist of Quaternary sediments including gravel deposits, valley fill materials, stream channel deposits, alluvial fan deposits, and basin deposits.

These units are generally loose deposits of sand, gravel, and boulders (stream channel deposits), unconsolidated deposits of clay, silt, sand, and gravel (alluvium deposits), and semiconsolidated deposits of sand and gravel in a matrix of clayey sand (alluvial fan deposits). The thickness of these units ranges from 0 to 200 feet. Stream channel deposits are highly permeable, but are limited in extent and thickness. Basin deposits generally have low permeabilities, while alluvium and alluvial fan deposits are more permeable and represent the major water-bearing zone.

The Amador Subbasin is surrounded by the middle zone of the Livermore Fault to the east, and to the west by the Pleasanton Fault. Ground water occurs in the Amador Subbasin in unconfined to confined conditions. Unconfined ground water occurs in the near-surface zones; however, in the deeper zones ground water is to some extent confined. The ground water in the Amador Subbasin is considered to be of good to excellent quality. Production rates of existing water supply wells in the subbasin range from 42 to 2,820 gallons per minute (Department of Water Resources, 1974).

The subbasin is drained by Arroyo del Valle Canal and Arroyo Mocho Canal, the two principal streams of the Livermore Valley. Both of these streams flow to the west and the south, emptying into Alameda Creek.

Review of the ground water elevation contour map prepared by Zone 7 for the major water-bearing zone shows that the regional ground water in the vicinity of the site flows in a westerly to northerly direction. The major ground water producing zone is estimated to be at approximately 90 feet below grade.

There are about 25 wells within a half-mile radius of the site, identified from available records, of which 13 are no longer in use, and three are owned by the City of Pleasanton to supply both municipal and irrigation water. The three public water supply wells in use are located approximately 2,000 feet north of the site. The total depths of these wells range from 151 to 647 feet below grade, with depth to water of about 90 feet below grade in each well (Zone 7, 1990). The deepest of the three City of Pleasanton water supply wells was constructed from the ground surface to 130 feet below grade, with 36-inch steel casing, and from 130 to 647 feet below grade, with 28-inch steel casing. The surface seal extends from the ground surface to 130 feet below grade, while the screened portion extends from 165 to 647 feet below grade.

The City of Pleasanton also owns a ground water monitoring well, located approximately 200 feet south of the site. This monitoring well was constructed to a total depth of 70 feet below grade. Since May 1980, the water level in this well has fluctuated between 29.7 and 38.9 feet below grade.

According to Zone 7, Kaiser Sand and Gravel discharges water generated from their operations to the Arroyo del Valle Canal. As a result, the water level in the canal has varied by as much as 10 feet depending on the amount of water discharged to the canal. This variation in water discharge could have an effect on the shallow ground water in the immediate vicinity of the canal. The potential effect of the water discharges to the canal on the hydrogeology at the site is discussed in Section 5.0.

1.5 Literature Review and Sensitive Receptors Survey

As part of the investigation, Alton Geoscience, Inc. reviewed available literature, aerial photographs, and regulatory documents, and conducted a sensitive receptors survey for the site. The information obtained from this research and the sensitive receptors survey is presented in Appendix A.

Review of aerial photographs on file at the RWQCB dated 1957, 1978, and 1980 revealed that a gasoline service station existed at the former Mobil Oil site prior to 1957, along with another service station across Stanley Boulevard (currently a Union 76 service station). A building located on Main Street which appeared to be a warehouse was apparently demolished prior to 1978. Commercial retail shops presently occupy the site on Main Street.

Review of the RWQCB Unauthorized Tank Release List revealed a total of five sites within a mile radius of the former Mobil Oil service station, two of which are within a half-mile of the sites:

- Shell Service Station - 4226 First Street, Pleasanton; about 1,500 feet southeast of the site.
- Exxon Service Station - 349 Main Street, Pleasanton; about 2,000 feet south of the site.
- Whalen Construction - 4227 Pleasanton Avenue; about 2,800 feet southwest of the site.
- Alameda County Fairgrounds - 4501 Pleasanton Avenue; about 3,000 feet southwest of the site.

- Reeve Trucking - End of Valley Avenue; about 5,000 feet northeast of the site.

Based on a review of the case files for each of these sites, it does not appear that any offsite migration of petroleum hydrocarbon constituents from these sites has impacted or could impact the subsurface soil and ground water at the former Mobil Oil service station. The existing Unocal service station located across the site on Stanley Boulevard is not on the RWQCB List of Unauthorized Tank Releases.

2.0 FIELD METHODS

The procedures and methods used during field activities were in accordance with the applicable regulatory requirements of the RWQCB, PFD, and Zone 7. Field activities performed as part of this supplemental investigation included installing additional ground water monitoring wells, supervising the backfilling of tank cavities, and collecting soil and ground water samples.

2.1 Stockpiled Soil Sampling and Backfilling Operation

On September 26, 1990, Alton Geoscience collected six soil samples from approximately 110 cubic yards of the remaining stockpiled onsite soil, that had been aerated since February 1990. The soil aeration activities were performed by Balch Petroleum (Balch) of Milpitas, California, in accordance with the requirements of the BAAQMD. Analysis of the soil samples did not detect concentrations of TPH-G or BTEX above reported detection limits. The sampling locations are shown in Figure 3.

Based on the results of stockpiled soil sampling and analysis, and with approval from the appropriate regulatory agencies the aerated stockpiled soil was used to backfill former underground gasoline storage tank cavities. The backfilling operation was performed from October 2 to 5, 1990 by Balch, under the supervision of Alton Geoscience Inc. All the backfill material was compacted to 90 percent relative compaction in accordance with the requirements of Section 70 of the Uniform Building Code.

Beginning at the bottom of the excavation, the stockpiled soil was compacted in 2-foot lifts up to approximately 11 feet below grade, using a vibrating plate attached to the arm of the compactor. Thereafter, engineered fill material was used (rod mill), and compacted in 2-foot lifts to approximately 9 feet below grade. Stockpiled soil was then used to backfill up to 5 feet below grade. Aggregate subbase

(ASB) was used to complete the backfilling of the tank cavity to grade. The results of the laboratory and field density tests are presented in Appendix B.

2.2 Soil Borings and Sampling

Prior to commencement of drilling activities, permits for the proposed ground water monitoring wells were obtained from Zone 7. An additional permit was also obtained from the City of Pleasanton Engineering Department to install two monitoring wells along Main Street, within the City of Pleasanton right-of-way. Copies of the well permits are presented in Appendix C.

Between October 8 and 10, 1990, Alton Geoscience supervised the drilling of five additional soil borings (SB-9 through SB-13) at the locations shown in Figure 2. The drilling activities were performed by Aqua Science Engineering Inc. of San Ramon, California, using a truck mounted B-61 mobile drilling rig equipped with 8 and 10-inch-diameter, hollow-stem augers.

During drilling, discrete soil samples were collected at 5-foot intervals to the total depth of the boring using a modified California split-spoon sampler lined with clean brass tubes. Selected samples from the saturated zone were retained for analysis of physical properties, however, no soil samples collected from the saturated zone were submitted for chemical analysis. The soil sample tubes were sealed using aluminum foil, plastic caps, and duct tape and then properly labeled. Samples were immediately placed in an iced cooler for transport to a California-certified laboratory for analysis, following proper chain of custody documentation.

Based on visual observations during drilling, the soil borings were logged using the Unified Soil Classification System. Soil characteristics such as density, moisture content, color, organic matter, and combustible gas readings were also noted on the boring logs. A description of drilling procedures and soil sampling protocol is presented in Appendix D, along with the boring logs.

2.3 Ground Water Monitoring Well Installation

Soil Borings SB-9 through SB-13 were converted into Ground Water Monitoring Wells MW-4 through MW-8, respectively. Monitoring Wells MW-4, MW-5, and MW-6 located onsite, were all completed as 4-inch-diameter wells, to total depths of approximately 55 feet below grade. Monitoring Wells MW-7 and MW-8, installed offsite, were completed as 2-inch-diameter wells, to total depths of approximately 25 feet below grade.

All wells were constructed of flush-threaded, Schedule 40, polyvinyl chloride (PVC) blank casing, and 0.020-inch slotted PVC casing. Ground water in the soil borings was first encountered during drilling at depths ranging from 8 to 42 feet below grade. The wells were completed to depths of at least 15 feet below the highest anticipated water level, with the exception of MW-5.

During the drilling of SB-10 (Monitoring Well MW-5), ground water was first encountered inside the augers at a depth of 15 feet below grade. Based on this ground water level, the boring was completed to a depth of 35 feet below grade, and converted to Monitoring Well MW-5, with the screened interval between 14 to 34 feet below grade. However, on October 17, 1990, prior to well development, no water was encountered in the well.

Monitoring well installation procedures are included in Appendix E, while the well construction details are shown on the boring logs (Appendix D).

2.4 Monitoring Well Development and Sampling

Well development and sampling procedures were conducted in accordance with the guidelines and requirements of the RWQCB, Zone 7, and the PFD. A description of the general field procedures for well development and sampling are presented in Appendix E.

Monitoring Wells MW-4 through MW-8 (except MW-5, which was dry) were developed on October 16, 1990. Prior to development, a water sample was collected from each well using a clear PVC bailer to inspect for the presence or absence of floating product. No free product or sheen was observed in any of the wells. The wells were then developed by purging approximately 10 casing volumes of water from each well, using a diaphragm pump.

On October 17, 1990, Monitoring Wells MW-1 through MW-8 were purged of three to five well casing volumes of water. During purging and prior to sampling, pH, specific conductivity, and temperature measurements were recorded and allowed to stabilize, indicating that the formation water had entered the well. The well development and water sampling survey forms are included in Appendix E.

The ground water samples from each well (except MW-5) were collected using a PVC bailer, decanted into clean containers, and transported in an iced cooler to a California-certified laboratory for analysis following proper chain-of-custody procedures.

2.5 Ground Water Monitoring and Surveying

On October 24, 1990, all ground water monitoring wells onsite (MW-1 through MW-6) and offsite (MW-7 and MW-8) were surveyed to the top of the PVC casing by Ron Archer and Associates (a California licensed surveyor) of Pleasanton, California, to establish horizontal and vertical control for each well, in reference to a City of Pleasanton benchmark (brass disk, stamped P-1257, with an elevation of 351.991 feet above mean sea level). The reference mark at the top of the PVC casing in each well was surveyed to the nearest 0.01 foot in reference to the established benchmark.

On October 17, November 8, and December 6, 1990, the ground water level in each well was measured to the nearest 0.01 foot to the top of the PVC well casing, using an electronic sounder. The survey data and relative water level measurements and ground water elevations are presented in Table 1. Graphical interpretations of the ground water elevation contours for the October and December 1990 monitoring events are shown in Figures 4 and 5.

2.6 Soil Sampling Near Pump Islands

Between October 28 and 31, 1990, Balch Petroleum excavated the remaining product lines, vent lines and pump islands onsite. During this time, Alton Geoscience collected six soil samples from the excavation trenches for laboratory analysis. Approximately 10 cubic yards of soil were excavated and stockpiled onsite. The sampling locations are shown in Figure 3, while the analytical results are presented in Table 2.

2.7 Aquifer Analysis

Aquifer testing and analysis and permeability tests were conducted to assess the hydrogeologic characteristics of the two water-bearing zones at the site. A technical explanation of the aquifer analysis and definition of terms is presented in Appendix F. The field test procedures used for the aquifer analysis are discussed below.

The slug test method was selected, based on available hydrogeologic data, to estimate the hydraulic conductivity (K) of the aquifer material beneath the site. Prior to conducting the aquifer test, depth to water was measured in the wells. Slug tests were performed on Monitoring Wells MW-2, MW-4, MW-7, and MW-8 on September 4, 1990 using a slug of water with an equivalent displacement of approximately 2 gallons of water and a data logger with a

pressure sensitive transducer. The transducer detects slight pressure changes as a "slug" displaces the ground water in the well and causes a rise in water level within the well.

The pressure change measured by the transducer is converted into head (elevation of water above the transducer) as the water level rises and then flows into the surrounding aquifer. A computer program was used to statistically analyze the field data and calculate hydraulic conductivity based on a shape factor coefficient corresponding to the diameter of the well screen and filter pack surrounding the screen.

3.0 ANALYTICAL METHODS AND RESULTS

All laboratory analysis of soil and ground water samples was performed by Superior Analytical Laboratory, Inc. of San Francisco, California (a California-certified laboratory), using standard test methods of the United States Environmental Protection Agency (EPA) and the California Department of Health Services (DHS). Selected soil and ground water samples were analyzed for the following petroleum hydrocarbon constituents:

- TPH-G by EPA Method 8015/5030
- TPH-D by EPA Method 8015/5030
- BTEX by EPA Methods 5030 and 8020/602
- Halogenated volatile organic compounds (HVOC) by EPA Method 8010/601
- Total oil and grease (TOG) by EPA Methods 503D and 503E

3.1 Analysis of Soil Samples

The following soil samples collected from various locations were analyzed for specific hydrocarbon constituents:

- Six samples from the stockpiled soil were analyzed for TPH-G and BTEX (SP-1 through SP-6).
- Sixteen samples from Soil Borings SB-8 through SB-13 were analyzed for TPH-G, BTEX, and HVOC. Selected samples were also analyzed for TOG.

- Six samples (PS-1 through PS-6) collected from the excavation trenches of the abandoned product lines, vent lines, and pump islands were analyzed for TPH-G and BTEX.

Results of the analysis of all soil samples collected from the stockpiled soils, soil borings, and in the vicinity of the pump islands are presented in Table 2. The official laboratory reports and chain of custody records for soil samples analyzed during this investigation are included in Appendix G.

3.2 Analysis of Ground Water Samples

Ground water samples collected from Monitoring Wells MW-1 through MW-8 (except MW-5, in which no ground water was encountered at the time of sampling) were all analyzed for TPH-G, TPH-D, BTEX, and HVOC. A summary of the analytical results of the ground water sampling is presented in Table 3, for ground water samples analyzed during this investigation. The official laboratory reports and chain of custody records are included in Appendix H.

4.0 SITE GEOLOGY AND HYDROGEOLOGY

This section presents a brief description of the site geology and hydrogeology based on the results of field activities as well as the aquifer analysis and testing.

4.1 Site Geology

Review of the soil boring logs indicates that the predominant soil types at the site are interbedded silt and silty clay layers, with occasional interbedded thin layers of silty sand. The silty clay layer was first encountered at the following depths from each soil boring: 10 feet in SB-9, SB-10, and SB-12; 15 feet in SB-11; and 5 feet in SB-13.

This clay layer appears to be continuous to a depth of about 30 to 35 feet below grade, and is underlain by silty sand, gravelly sand, or sandy gravel units, at or near the deeper water-bearing zone, extending to the total depths of the borings at about 55 to 60 feet below grade.

As discussed previously, the stratigraphy of the site is comprised of alluvium, where flowing rivers have deposited sediment in channels and floodplains during flooding. Coarse gravel has been deposited in the stream channel with sand and fine gravel forming natural levees along the banks, and silt

and clay resting in the floodplain. Downcutting by a river through previously deposited sediment can form terraces on the sides of the lower stage floodplain (Fetter, 1980).

A fence diagram showing a graphical interpretation of the stratigraphy of the subsurface soil at the site is shown in Figure 6, while hydrogeologic cross sections are shown in Figures 7 and 8. The findings of this phase of the investigation are consistent with the findings of previous investigations, which revealed a general continuity in the geologic units in a north/south trending direction, and a general geologic discontinuity in an east/west trending direction (Alton, 1990).

4.2 Site Hydrogeology

From review of the water level measurements, it appears that ground water levels in MW-3, MW-7, and MW-8 (located at the western boundary of the project site) stabilized at 6 feet higher than the levels first encountered during drilling. Conversely, the ground water levels in MW-4 and MW-5, located in the central portion of the site, dropped by 13 feet and 15 feet, respectively, after drilling.

Based on the ground water monitoring and survey data (refer to Table 1), it is apparent that there are two discontinuous, water-bearing zones within 50 feet of the surface, with differences in elevation of about 20 feet. The ground water level in the upper water-bearing zone, in the vicinity of MW-3, MW-7, and MW-8 on the western edge of the site, is estimated to be between 9 and 24 feet below grade. The deeper water-bearing zone, in the vicinity of MW-1, MW-2, MW-4, MW-5, MW-6, SB-1, and SB-2, towards the center of the property, is estimated to be at about 36 to 44 feet below grade. The deeper saturated zone appears to extend in the north and south directions, but may be limited in the west by a less permeable clay unit, as can be noted in Cross Section A-A' shown in Figure 7.

During the drilling of SB-3 and SB-4 to total depths of 56.5 and 51.5 feet below grade, respectively, ground water was not encountered. The deeper water-bearing zone may be present in this area at deeper than 50 feet below grade.

finer - grained Sediments encountered

Between October and December 1990, the water levels in the three wells installed within the shallower aquifer have risen by approximately 1 foot, while the water levels in the wells installed within the deeper water-bearing zone have risen by approximately 7 feet. These fluctuations may be due to water discharges into the Arroyo Del Valle Canal from the Kaiser Sand and Gravel operation. The difference in water level

fluctuations between the wells installed in the two water-bearing zones at the site also indicate that there may be no hydraulic connection between the two saturated zones.

From review of the geologic cross sections and hydrogeologic data, a thick clay layer appears to be serving as an impermeable barrier or zone between the shallower saturated zone and the deeper saturated zone. During slug testing of selected wells at the site, a slower recovery rate was observed in the shallower wells compared to the recovery rates in the wells installed in the deeper water-bearing zone or near an impermeable barrier.

The ground water elevations for the upper water-bearing zone as measured in October and December 1990 indicate that the ground water flow direction at the site is to the northeast, with an estimated hydraulic gradient of 0.15 foot per foot. For the deeper water-bearing zone, however, the ground water conditions changed between the two monitoring events. In October, the ground water flow direction was calculated to be west/northwest, with an estimated hydraulic gradient of 0.025 foot per foot. In December, however, ground water flow shifted to an easterly direction, with an estimated hydraulic gradient of 0.045 foot per foot (refer to Figures 4 and 5).

As discussed in Section 1.3, changes in the water level elevations of as much as 10 feet at the Arroyo del Valle Canal could likely affect the ground water condition at the site. Pumping of the municipal wells in the vicinity of the site could also affect the ground water conditions at the site. These periodic changes in the water levels in the canal, or in the pumping of the major water-bearing zone could result in a change in the local ground water flow direction and gradient at or in the vicinity of the site.

4.3 Analysis of Aquifer Parameters

Graphical results showing the plot of the relative recovery (Y/Yo) versus time (t) for each ground water monitoring well are included in Appendix I. The Y/Yo term is obtained by dividing each measured recovery by the maximum recovery. Y is the recovery at time t, and Yo is the maximum recovery immediately following addition of the "slug" of water.

The hydraulic conductivity (K) values calculated for each well tested are:

Well ID	K, ft/day	Aquifer Zone
MW-2	0.316	Deeper
MW-4	0.023	Deeper
MW-7	0.006	Shallow
MW-8	0.006	Shallow

The variation in K values is due to the difference in the characteristics of the water-bearing zones and the permeabilities of the saturated formations in the immediate vicinity of the wells. Based on the results of the slug test, the average hydraulic conductivity of the shallow aquifer material is 0.006 foot/day, while the average hydraulic conductivity of the deeper aquifer is 0.17 foot/day.

Both of the calculated average values of hydraulic conductivities of the two water-bearing zones are consistent with typical values reported for silty sand and silty clay soils that were encountered at the site (U.S.G.S., 1984).

Hydraulic conductivity can also be used to calculate the average linear velocity at which a subsurface fluid moves using Darcy's Law.

Darcy's Law can be stated as follows:

$$v = Ki$$

where: v = Darcy velocity of water
k = Hydraulic conductivity of the aquifer material
i = Slope of the water table (gradient)

The result of the calculation yields a value representing the horizontal velocity at which a fluid moves through the pore spaces between specified points within the more permeable zone.

Assuming an average hydraulic conductivity of 0.006 foot/day for the shallow water-bearing zone, and an estimated hydraulic gradient of 0.15 foot/foot, the calculation yields an average linear velocity of 0.0009 foot/day or 0.3384 foot/year.

For the deeper water-bearing zone, assuming an average hydraulic conductivity of 0.17 foot/day, and an estimated

hydraulic gradient of 0.025 foot/foot towards the northeast in October, the calculation yields an average linear velocity of 0.0043 foot/day or 1.57 foot/year.

Using the December ground water data for the same deeper saturated zone, the calculation yields an average linear velocity of 0.0077 foot/day or 2.90 foot/year, assuming an average hydraulic gradient of 0.045 foot/foot towards the east.

The transmissivity of an aquifer is the product of the hydraulic conductivity and the saturated thickness (b), or:

$$T = Kb$$

where: T = Transmissivity in $feet^2/day$
K = Hydraulic conductivity in feet/day
b = Approximate aquifer thickness in feet

Assuming an average thickness of the saturated zone of about 15 feet, and an average K value of 0.006 foot/day for the shallow aquifer, the average calculated transmissivity of the aquifer material is 0.09 $feet^2/day$. For the deeper water-bearing zone, the average calculated transmissivity of the aquifer material is 1.7 $feet^2/day$, assuming an average thickness of the saturated zone of about 10 feet, and an average K value of 0.17 foot/day.

The aquifer analysis and calculations in this report are based on the assumption that the porous media is isotropic and homogeneous. These conditions, however, seldom exist in the natural subsurface environment. The aquifer located beneath the site is neither isotropic nor homogeneous; it exhibits variations in physical properties both vertically and horizontally. Therefore, the hydraulic conductivity determined by the slug test data should only be considered accurate within an order of magnitude of actual values at the specific point within the porous media.

It should be noted that chemical plume migration does not necessarily occur at the same rate as ground water movement. Darcy's Law does not consider the hydrodynamic processes of adsorption and dispersion that are involved in the transport of contaminants in ground water.

4.4 Permeability Analysis

As part of the aquifer analysis, Alton Geoscience performed two laboratory permeability tests on the aquifer materials collected from the site. One test was conducted on a silty sand sample collected from SB-9 (MW-4) at 36.5 feet below

grade (lower zone), while the other test was performed on a silty clay sample collected from SB-12 (MW-7) at a depth of 16.5 feet below grade (upper zone). The results of the tests indicated nearly equal hydraulic conductivities for both sample aquifer materials. At 20 degrees Celcius, the K value of the silty sand sample (SB-9) is 0.043 foot/day, compared to the K value of 0.040 foot/day for the silty clay sample (SB-12). The K values from the permeability tests are consistent with the results of the slug test. The results of the permeability test are shown in Appendix F.

5.0 DISCUSSION OF LABORATORY RESULTS

The findings from the field activities and laboratory analysis of soil and ground water samples as it relates to the site, as well as potential environmental impacts, are discussed below.

5.1 Soil Sample Analysis

Laboratory results of selected soil samples from Soil Borings SB-9 through SB-13, drilled as part of this investigation, indicated low (<10 ppm) to nondetectable levels of TPH-G, BTEX and HVOCs. The highest levels of TPH-G and benzene detected were in the 26-foot soil sample from SB-9.

Analytical results of the six soil samples collected from the excavation trenches at 3 feet below grade near the pump islands, indicate TPH-G levels ranging from nondetectable to 9,700 ppm. The highest levels of TPH-G were detected in Samples PS-5 and PS-6, with corresponding benzene levels of 2.9 ppm and 0.1 ppm.

From these results it appears that the hydrocarbons detected in the unsaturated zone are limited to the area immediately north and northeast of the former underground gasoline storage tanks and the former pump islands. It does not appear that the absorbed-phase hydrocarbons in the soil extend offsite beyond the property or to a depth greater than 30 to 35 feet below grade onsite.

5.2 Ground Water Sample Analysis

Laboratory analysis of the ground water samples revealed detectable levels of dissolved-phase petroleum hydrocarbons in the ground water samples from both the shallow and deeper water-bearing zones. TPH-G, BTEX, and HVOC were detected in the water samples from Wells MW-1 through MW-6 (except MW-5, which was dry at the time of sampling). TPH-D was detected

only in MW-2 and MW-4, while only low levels (<1.0 ppb) of benzene, toluene, and xylenes were detected in MW-7. Free-floating product was not observed in any of the wells, however, sheen was observed in the water sample from MW-2. The California Department of Health Services (DHS) recently adopted primary maximum contaminant levels (MCLs) for drinking water (Marshack, 1989). The MCLs for specific compounds of interest in this investigation are presented below:

DHS Primary Maximum Contaminant Levels (MCLs) for Drinking Water Standards

Benzene	1 ppb
Ethylbenzene	680 ppb
Toluene	2,000 ppb
Xylenes	1,750 ppb
1,2 Dichloroethane	0.5 ppb

The levels of several of the hydrocarbon constituents detected in the ground water samples exceeded the corresponding state primary maximum contaminant level (MCL) for drinking water. Benzene levels in six of the water samples exceeded the primary MCL, while 1,2-dichloroethane was exceeded in the samples from five wells. The MCLs for toluene, ethylbenzene, and xylenes were exceeded only in the sample from MW-2.

Isoconcentration maps, showing TPH-G and benzene concentrations in the ground water in the deeper saturated zone, were developed from the analytical results and are shown in Figures 9 and 10, respectively.

6.0 FINDINGS AND CONCLUSIONS

The findings and conclusions of this supplemental site investigation, based on the results of laboratory analysis and field activities, and review of available geologic and hydrogeologic data, are summarized below:

1. The predominant soil types at the site are interbedded silt and silty clay layers, with occasional interbedded thin layers of silty sand. A silty clay layer appears to be continuous from about 5 to 10 feet below grade to a depth of about 30 to 35 feet below grade throughout the site, and is underlain by sandy and/or gravelly units to the total depth of the borings.

2. There appears to be two discrete water-bearing zones at the site. The two water-bearing zones, encountered within 50 feet below grade, appear to be separated vertically and laterally by a less permeable clay unit. The horizontal and vertical extent of both saturated zones, however, cannot be defined at this time.

3. Ground water flow direction calculated for the upper water-bearing zone appears to be consistently to the northeast, with an average hydraulic gradient of 0.133 foot per foot. However, the ground water flow direction in the deeper water-bearing zone had changed between two monitoring events. In October, the ground water flow direction at the site for the deeper zone was generally west/northwest, with an estimated hydraulic gradient of 0.025 foot per foot. In December, the ground water flow direction shifted towards the east, with an estimated hydraulic gradient of 0.042 foot per foot. This change in ground water flow direction and gradient in the deeper water-bearing zone between October and December 1990 is most likely the result of discharges to the Arroyo del Valle Canal.

4. Based on the differences in ground water elevation and flow direction between the shallow and deeper water-bearing zones, it appears that there may be no hydraulic connection between the two water-bearing zones.

5. Based on the slug test results, the average hydraulic conductivity, transmissivity, and linear velocity of the aquifer materials in the shallow water-bearing zone were calculated to be 0.006 foot/day, 0.09 $foot^2$/day, and 0.0009 foot/day, respectively. The corresponding K, T, and V values for the deeper aquifer materials were calculated to be 0.17 foot/day, 1.7 $feet^2$/day, and 0.0043 to 0.0077 foot/day, respectively. All of these values are consistent with typical reported values for the types of aquifer material encountered at the site.

6. Laboratory analysis of the soil samples collected from the soil borings during this investigative study revealed low to nondetectable concentrations of petroleum hydrocarbon constituents and HVOC.

7. Soil samples collected from a depth of 3 feet below grade along the pipeline excavation trench near the pump dispensing islands had concentrations of TPH-G ranging from nondetectable to 9,700 ppm.

8. The residual adsorbed-phase petroleum hydrocarbon constituents detected in the soil onsite appear to be limited to the central portion of the property, in the vicinity of the pump islands, and north/northeast of the former underground gasoline tanks.

9. Ground water samples from the five onsite monitoring wells had detectable levels of TPH-G ranging from 110 to 83,000 ppb, benzene ranging from 3 to 6,800 ppb, and 1,2-dichloroethane ranging from 2 to 460 ppb. The levels of benzene and 1,2-dichloroethane detected in all of the ground water samples exceeded the corresponding state primary MCLs for drinking water. Additionally, the levels of toluene, ethylbenzene, and xylenes detected in MW-2 exceeded the corresponding primary MCLs.

10. The ground water sample from MW-2, which is located at the southwest corner of the service building and adjacent to the former product lines, vent lines, and underground gasoline storage tank area had the highest detectable levels of hydrocarbon constituents. At this time, however, dissolved-phase hydrocarbons do not appear to have migrated towards MW-7, where no levels or only trace amounts of TPH-G, BTEX, and HVOC were detected.

* 11. The ground water sample from MW-8, located offsite and about 60 feet crossgradient of the site in the shallow saturated zone, had a TPH-G concentration of 900 ppb, and low levels of BTEX constituents.

12. Petroleum hydrocarbon constituents have impacted the ground water in both the shallow and deeper water-bearing zones beneath the site. The extent of dissolved-phase petroleum hydrocarbon constituents in both water-bearing zones at the former Mobil Oil site, however, cannot be defined at this time.

13. Based on the monitoring well locations and the concentrations of petroleum hydrocarbon constituents detected, it appears that the dissolved-phase hydrocarbons detected in the shallow and deeper water-bearing zones have migrated in several directions. In the shallow aquifer, the dissolved-phase hydrocarbon plume appears to have

migrated to the west towards MW-8, located offsite on Main Street. The dissolved-phase hydrocarbon plume in the deeper saturated zone appears to have migrated to the northeast towards MW-6, located north of the service building at the eastern edge of the property line, and to the south towards MW-4, located at the southern edge of the property line. The migration pattern of dissolved-phase hydrocarbons in the deeper saturated zone may be a result of changing ground water flow direction and gradient in this zone.

14. Since all the underground storage tanks and associated pipelines have been removed and most of the soil containing petroleum hydrocarbons has been excavated, the only potential source(s) remaining onsite may be the residual hydrocarbons in the soil capillary fringe. Based on analytical results of the soil samples collected in the excavation trench near the pump dispenser islands, however, additional soil excavation may be required in this area of the project site.

15. There are five sites on the Unauthorized Fuel Release List of the RWQCB located within a 1-mile radius of the former Mobil Oil service station. It does not appear that any hydrocarbon contamination at these sites is likely to impact the subsurface soil and/or ground water at the former Mobil Oil site. Conversely, the hydrocarbon constituents detected in the ground water beneath the former Mobil site are not likely to impact the subsurface soil and/or ground water at any of these five listed sites.

16. From the results of this supplemental investigation, further characterization of the dissolved-phase petroleum hydrocarbons detected onsite and offsite is necessary at this time to: (1) define the extent of dissolved-phase hydrocarbon plumes in both water-bearing zones; (2) assess potential environmental impact; and (3) develop appropriate remedial measures.

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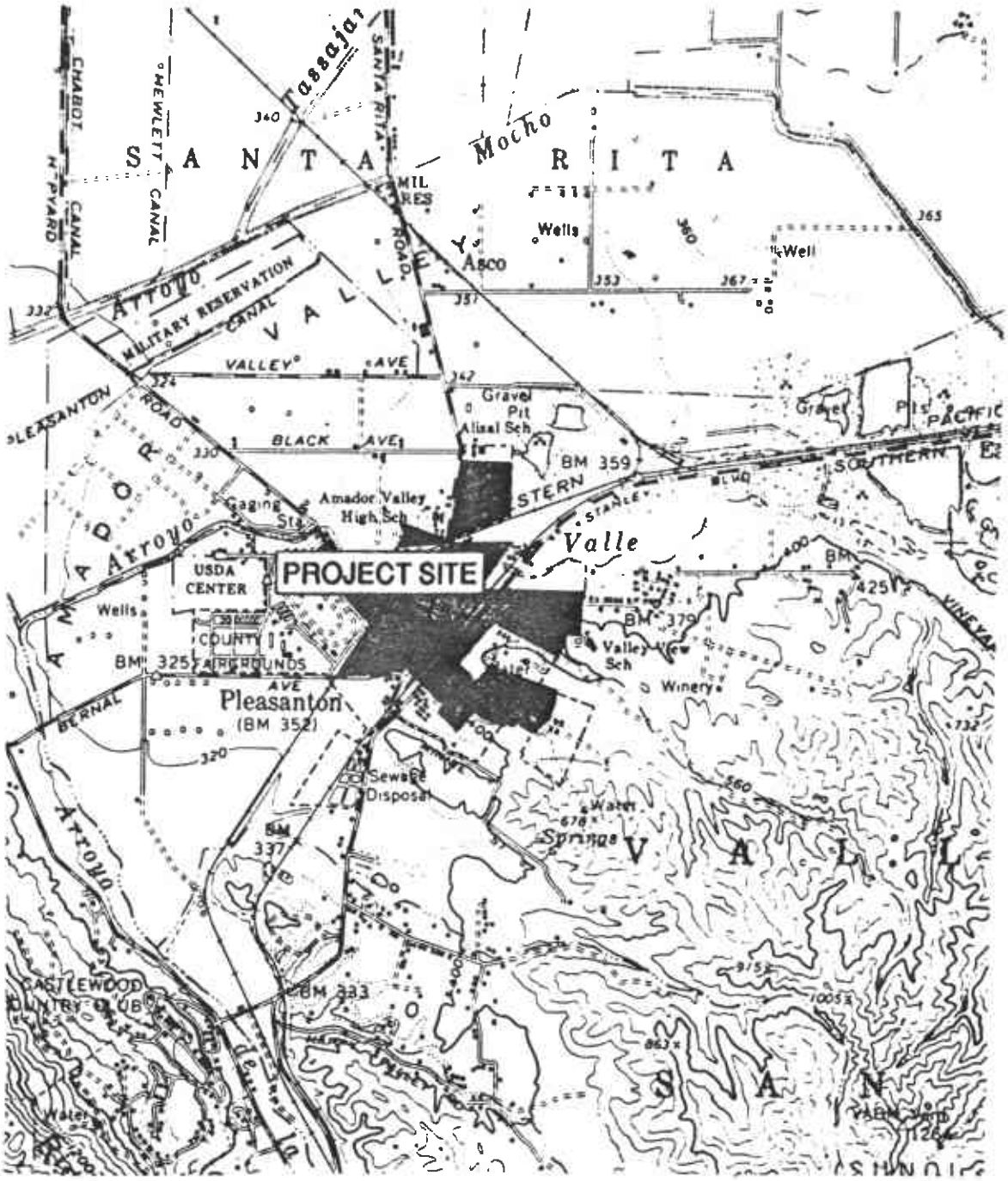


FIGURE 1. SITE VICINITY MAP

0 3000 6000

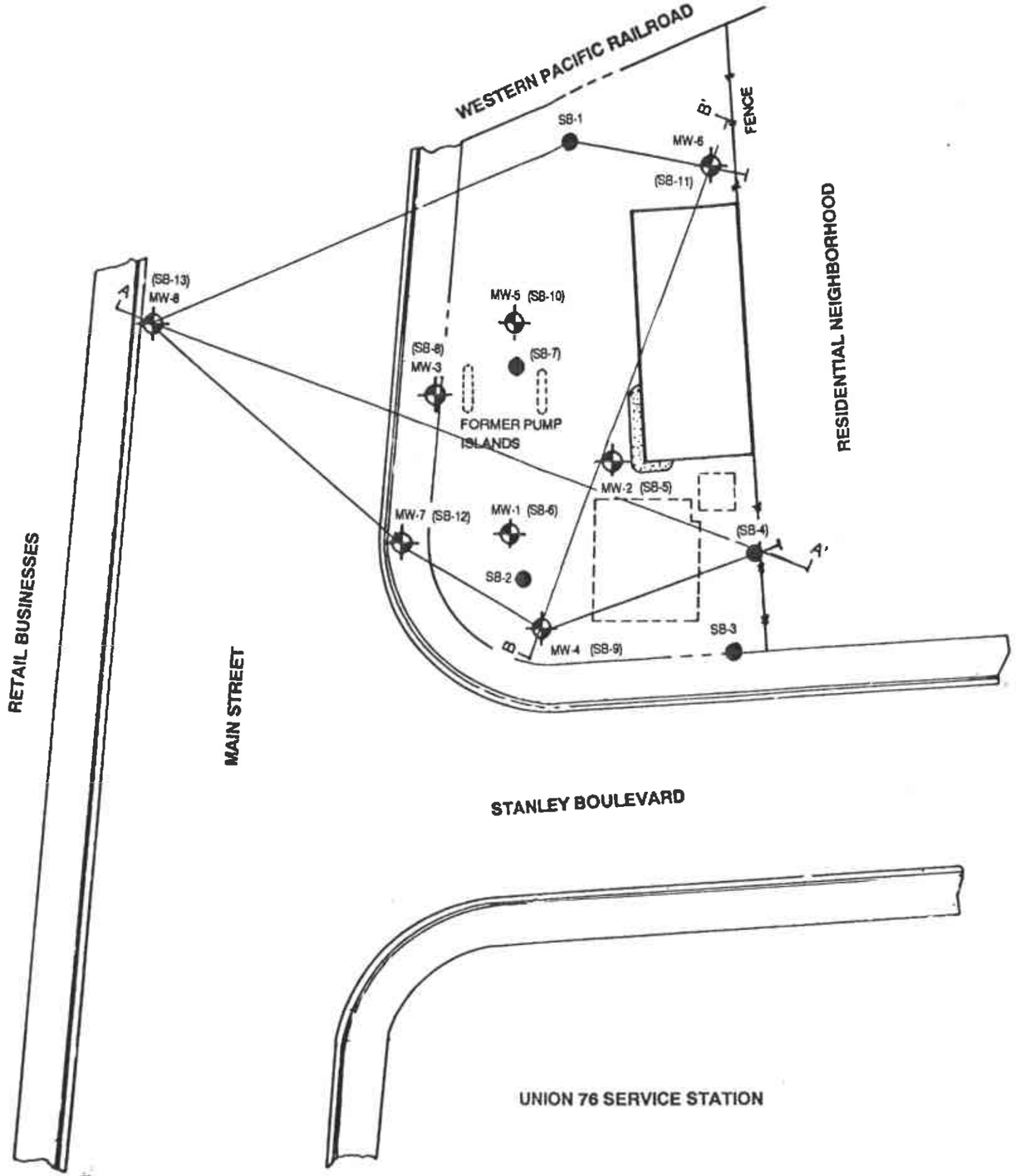
SCALE IN FEET

MOBIL OIL CORPORATION
FORMER MOBIL OIL SERVICE STATION 10-H6J
PLEASANTON, CALIFORNIA

ALTON GEOSCIENCE PROJECT NO. 30-065

LIVERMORE QUADRANGLE
CALIFORNIA
15 MINUTE SERIES (TOPOGRAPHIC)

ALTON GEOSCIENCE
1000 Burnett Ave., Ste. 140
Concord, CA 94520



BENCHMARK:

A BRASS DISC STAMPED P - 1257 ABOUT 0.15 MILE SOUTH ALONG SANTA RITA ROAD FROM THE CROSSING OF THE WESTERN PACIFIC RAILROAD, AT THE SOUTHWEST CORNER AND IN THE DECK OF BRIDGE ACROSS ARROYO DEL VALLE CANAL, 27.5 FEET WEST OF THE CENTER LINE OF ROAD, 6.7 FEET NORTH OF THE SOUTH END OF THE WEST CONCRETE BASE FOR GUARDRAIL, 0.8 FEET EAST OF GUARDRAIL BASE, LEVEL WITH THE DECK OF THE BRIDGE AND 6 FEET EAST OF THE WEST END OF SOUTH CONCRETE BRIDGE ABUTMENT. ELEVATION TAKEN AS 351.991

SOURCE: Ronald R. Archer Engineering, Inc.

N

0 15 30

SCALE IN FEET

LEGEND:

- MW-1 — GROUND WATER MONITORING WELL
- SB-1 — SOIL BORING
- MW-6 / SB-4 — LINE OF CROSS SECTION FOR FENCE DIAGRAM (see Figure 6)
- A — A' — LINE OF CROSS SECTION A-A' (see Figure 7)
- B — B' — LINE OF CROSS SECTION B-B' (see Figure 8)
- FORMER UNDERGROUND GASOLINE TANKS CAVITY
- PROPERTY LINE
- FORMER UNDERGROUND WASTE OIL TANK CAVITY

FIGURE 2. SITE PLAN

MOBIL OIL CORPORATION
FORMER MOBIL OIL SERVICE
STATION 10-H6J
PLEASANTON, CALIFORNIA

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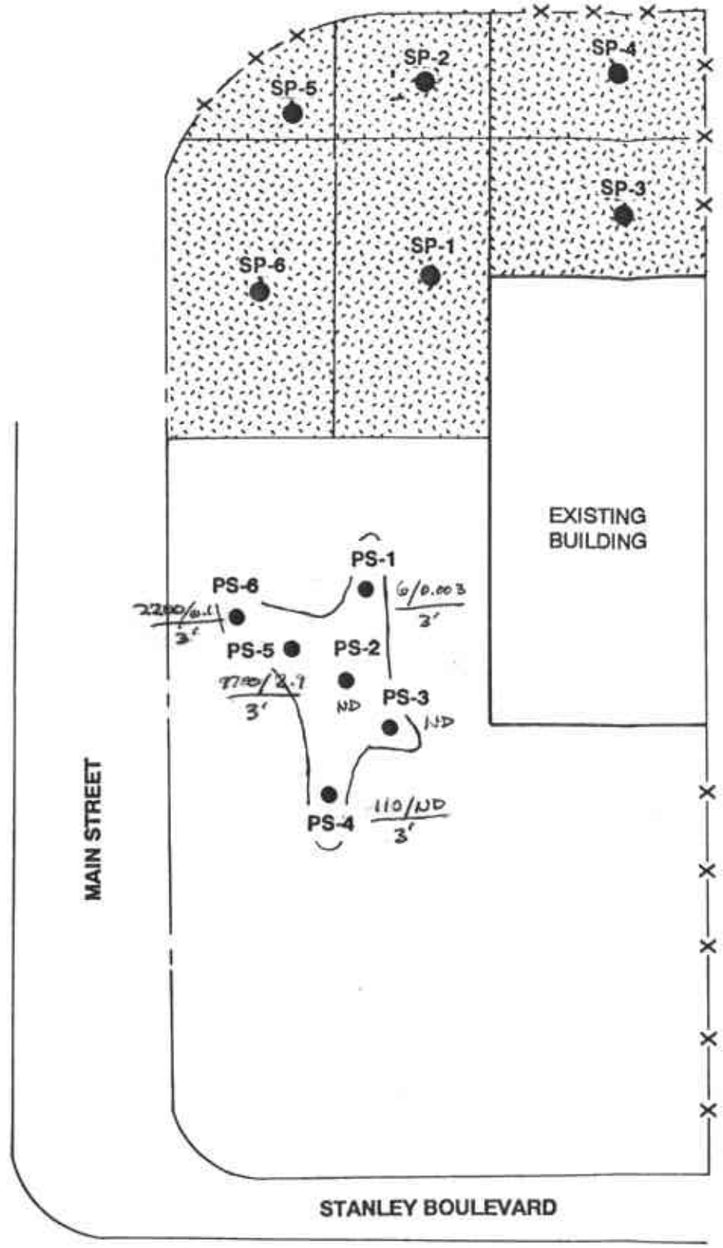
Concord, CA 94520



LEGEND:

SP-1 PUMP ISLAND SOIL SAMPLING LOCATION

PS-1 SOIL STOCKPILE SAMPLING LOCATION

FENCE LINES

PROPERTY LINE

APPROXIMATE LIMIT OF PUMP ISLAND EXCAVATION

FORMER SOIL STOCKPILE

TPH-G/benzene
depth

FIGURE 3.

SOIL SAMPLING MAP SHOWING LOCATIONS OF SAMPLING POINTS IN SOIL STOCKPILE AND PUMP ISLAND EXCAVATION

SOURCE: ALTON GEOSCIENCE,INC.

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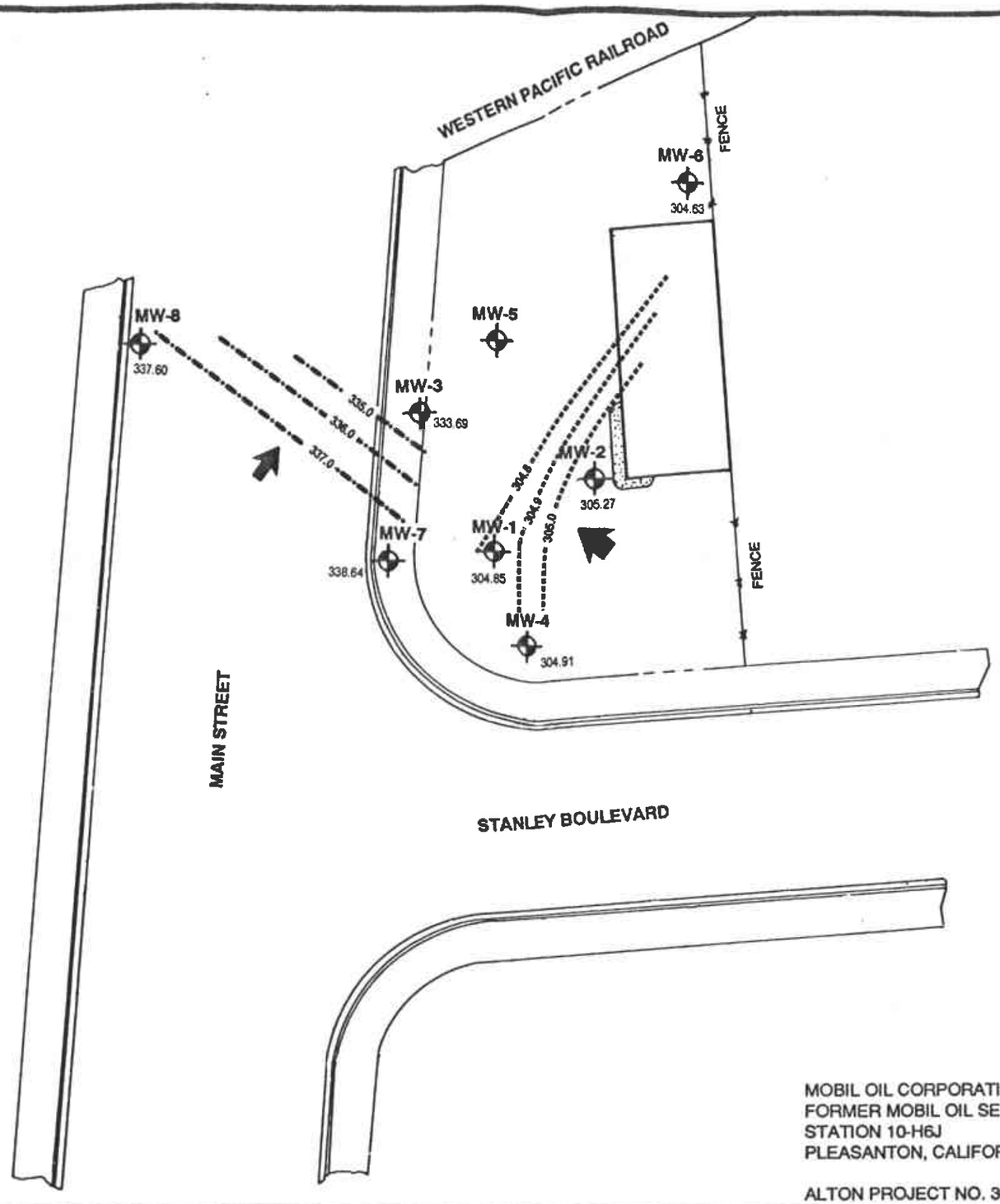

LEGEND:

- MW-1 — GROUND WATER MONITORING WELL
- 304.63 — GROUND WATER ELEVATION
- GENERAL DIRECTION OF GROUND WATER FLOW - UPPER WATER-BEARING ZONE (hydraulic gradient = 0.15 ft/ft)
- GROUND CONTOUR LINE - UPPER ZONE (contour interval = 1.0 ft)
- GENERAL DIRECTION OF GROUND WATER FLOW - DEEPER WATER-BEARING ZONE (hydraulic gradient = 0.025 ft/ft)
- GROUND CONTOUR LINE - DEEPER ZONE (contour interval = 0.10 ft)

FIGURE 4.

GROUND WATER ELEVATION CONTOUR MAP

Note:
Contour lines are interpretive, based on water level readings measured on October 19, 1990.

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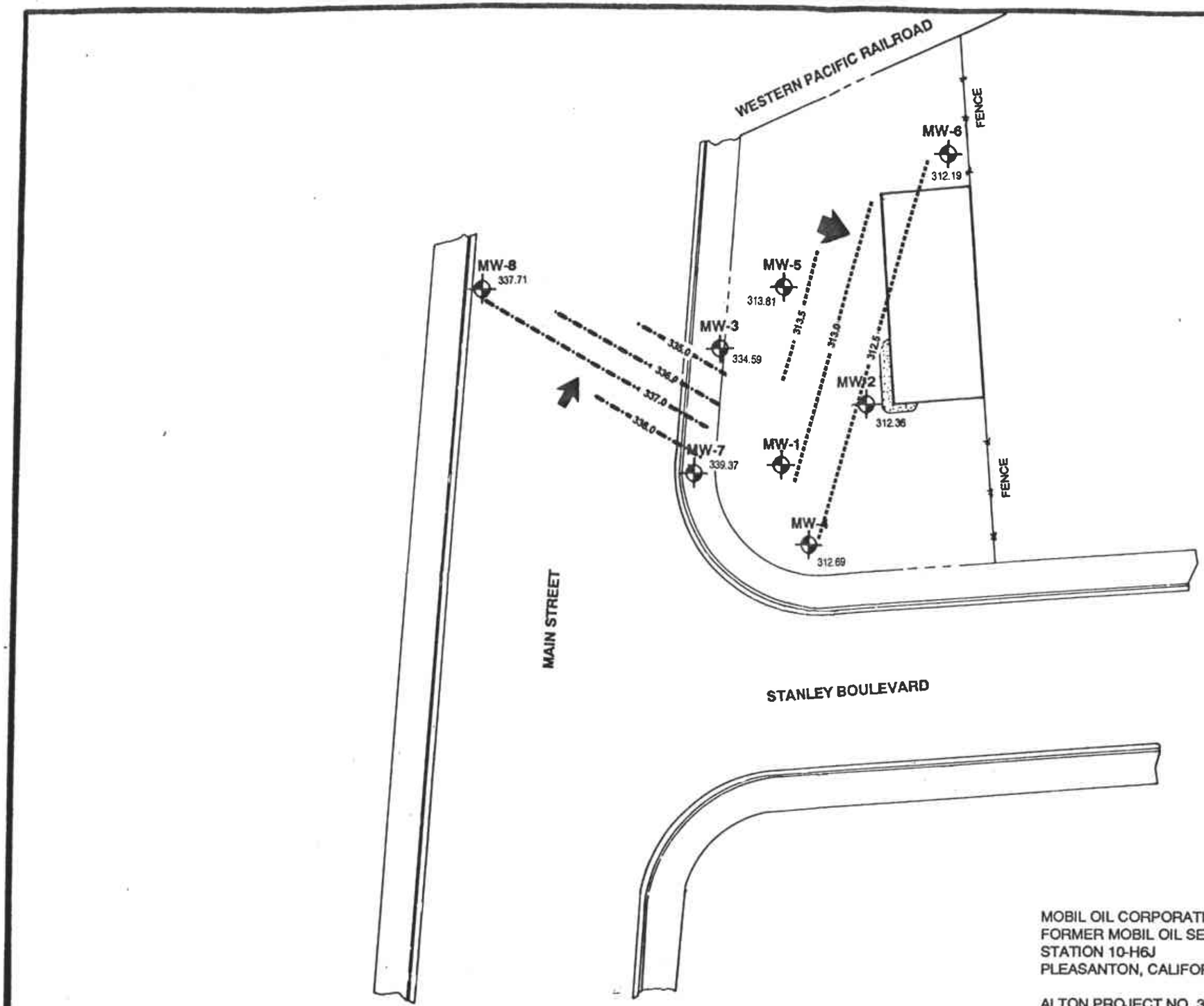

N

0 15 30

SCALE IN FEET

LEGEND:

- GROUND WATER MONITORING WELL
- 337.71 GROUND WATER ELEVATION
- GENERAL DIRECTION OF GROUND WATER FLOW - UPPER WATER-BEARING ZONE (hydraulic gradient = 0.14 ft/ft)
- 335.0 GROUND CONTOUR LINE - UPPER ZONE (contour interval = 1.0 ft)
- GENERAL DIRECTION OF GROUND WATER FLOW - DEEPER WATER-BEARING ZONE (hydraulic gradient = 0.045 ft/ft)
- 336.0 GROUND CONTOUR LINE - DEEPER ZONE (contour interval = 0.50 ft)

FIGURE 5.

GROUND WATER ELEVATION CONTOUR MAP

Note:
Contour lines are interpretive, based on water level readings measured on December 6, 1990. Monitoring Well MW-1 was not assessible.

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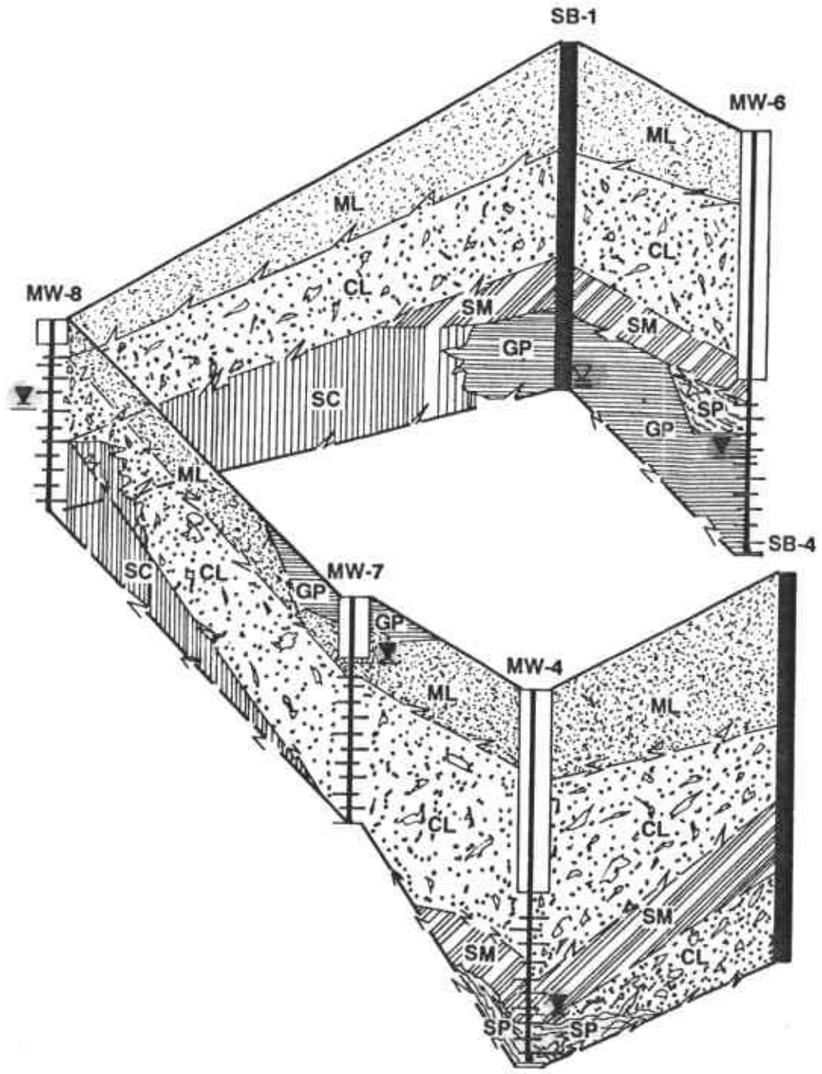


EXPLANATION

GP - Poorly graded gravels, gravel-sand mixtures.

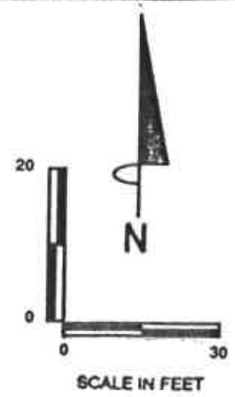
SP - Poorly graded sands, gravelly sands.

SM - Silty sands, sand-silt mixtures.

SC - Clayey sands, sand-clay mixtures.

ML - Inorganic silts and very fine sands.

CL - Inorganic clays of low to medium placticity.



SCALE IN FEET

LEGEND:

SOIL BORING

MONITORING WELL WITH SEAL AND PERFORATION

LITHOLOGIC CONTACT (based on interpretation of boring logs).

INITIAL GROUND WATER LEVEL DURING DRILLING

STABILIZED GROUND WATER LEVEL (based on water level readings measured on October 19, 1990).

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FIGURE 6.

FENCE DIAGRAM

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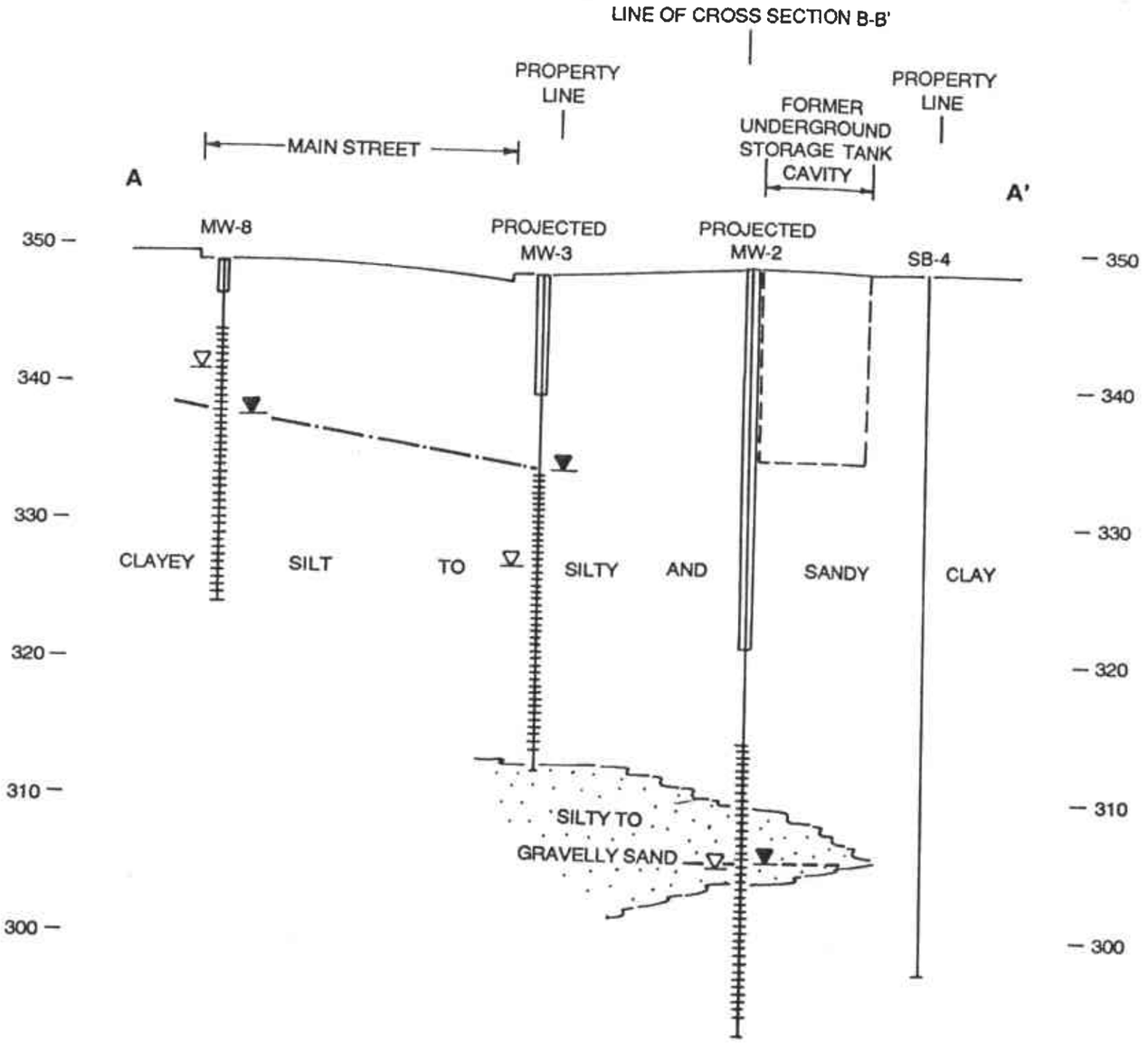

SCALE: 1" = 30' HORIZONTAL
1" = 10' VERTICAL

DISTANCES AND ELEVATIONS IN FEET

ELEVATIONS RELATIVE TO MEAN SEA LEVEL

LEGEND

- GROUND WATER MONITORING WELL SHOWING SEAL AND SLOTTING
- GEOLOGIC CONTACT
- PERMEABLE MATERIAL
- GROUND WATER ELEVATION AT TIME OF DRILLING
- GROUND WATER ELEVATION ON OCTOBER 19, 1990
- INTERPOLATED PIEZOMETRIC SURFACE ON OCTOBER 19, 1990 - SHALLOW WATER BEARING ZONE
- INTERPOLATED PIEZOMETRIC SURFACE ON OCTOBER 19, 1990 - DEEPER WATER BEARING ZONE

FIGURE 7.

HYDROGEOLOGIC CROSS SECTION A-A'

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FORMER MOBIL OIL SERVICE
STATION 10-H6J
PLEASANTON, CALIFORNIA

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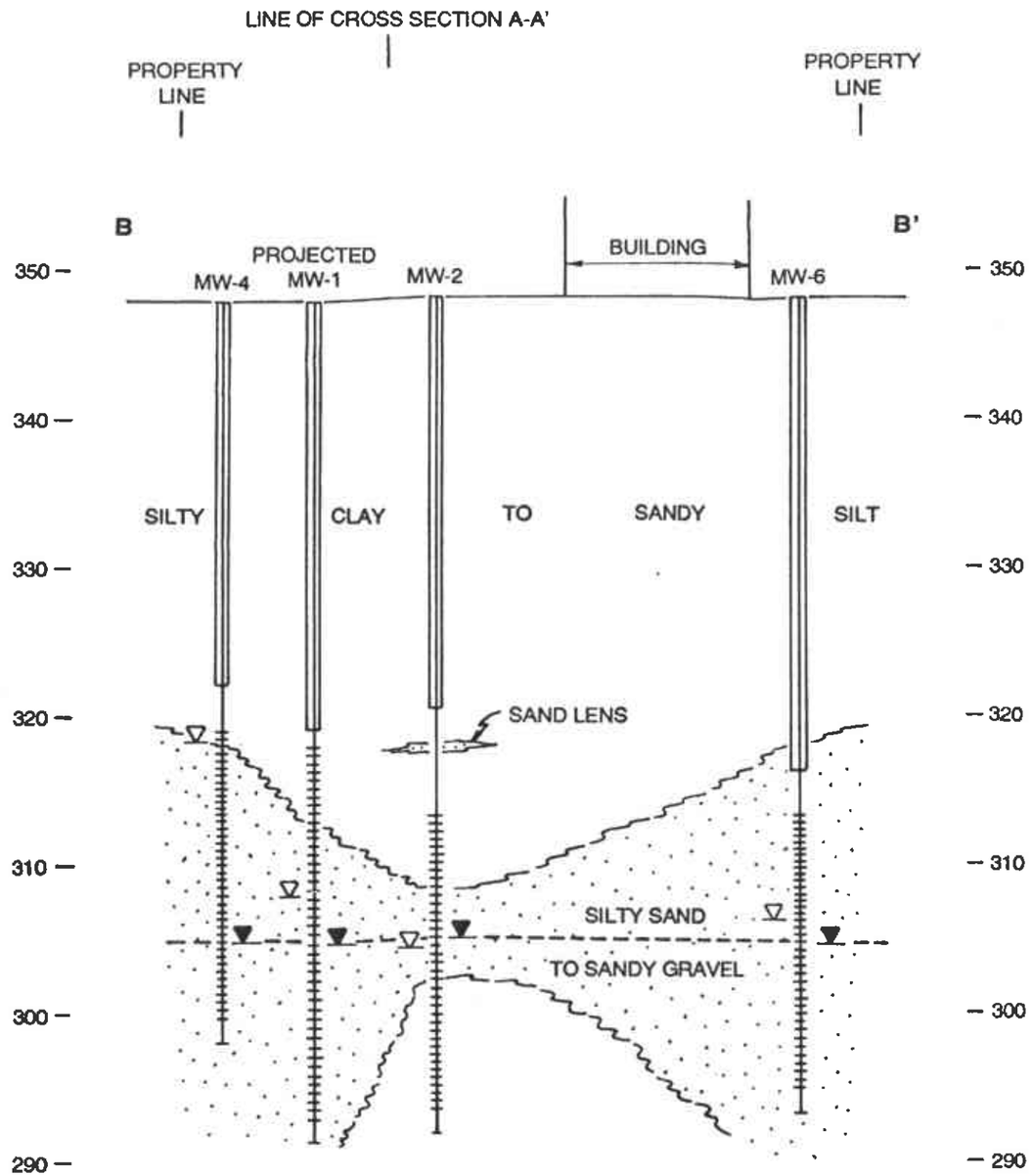
Concord, CA 94520



SCALE: 1" = 30' HORIZONTAL
1" = 10' VERTICAL

DISTANCES AND ELEVATIONS IN FEET

ELEVATIONS RELATIVE TO MEAN SEA LEVEL

LEGEND

- GROUND WATER MONITORING WELL SHOWING SEAL AND SLOTTING
- GEOLOGIC CONTACT
- PERMEABLE MATERIAL
- GROUND WATER ELEVATION AT TIME OF DRILLING
- GROUND WATER ELEVATION ON OCTOBER 19, 1990
- INTERPOLATED PIEZOMETRIC SURFACE ON OCTOBER 19, 1990 - DEEPER WATER BEARING ZONE

FIGURE 8.

HYDROGEOLOGIC CROSS SECTION B-B'

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FORMER MOBIL OIL SERVICE
STATION 10-H6J
PLEASANTON, CALIFORNIA

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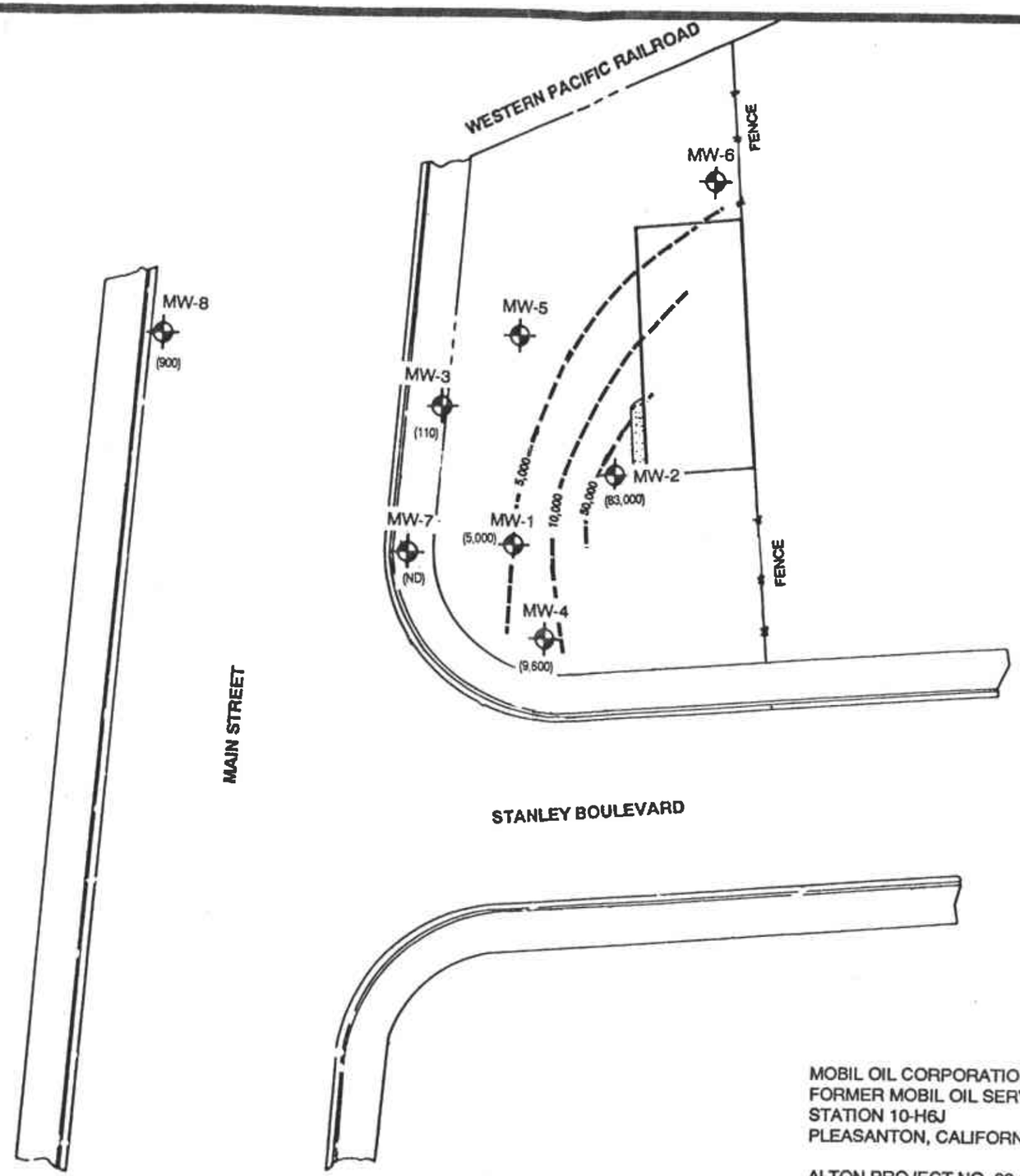

N

0 15 30

SCALE IN FEET

LEGEND:

- GROUND WATER MONITORING WELL
- (5,000) TPH AS GASOLINE CONCENTRATION (parts per billion, ppb)
- 5,000 LINE OF EQUAL TPH AS GASOLINE CONCENTRATION (ppb)
- (ND) CONSTITUENT NOT DETECTED ABOVE THE REPORTING LIMIT

FIGURE 9.

CONCENTRATION OF TOTAL PETROLEUM HYDROCARBONS AS GASOLINE IN GROUND WATER

Note:
Contour lines are interpretive, based on analytical results from sampling on October 19, 1990. MW-5 was not sampled.

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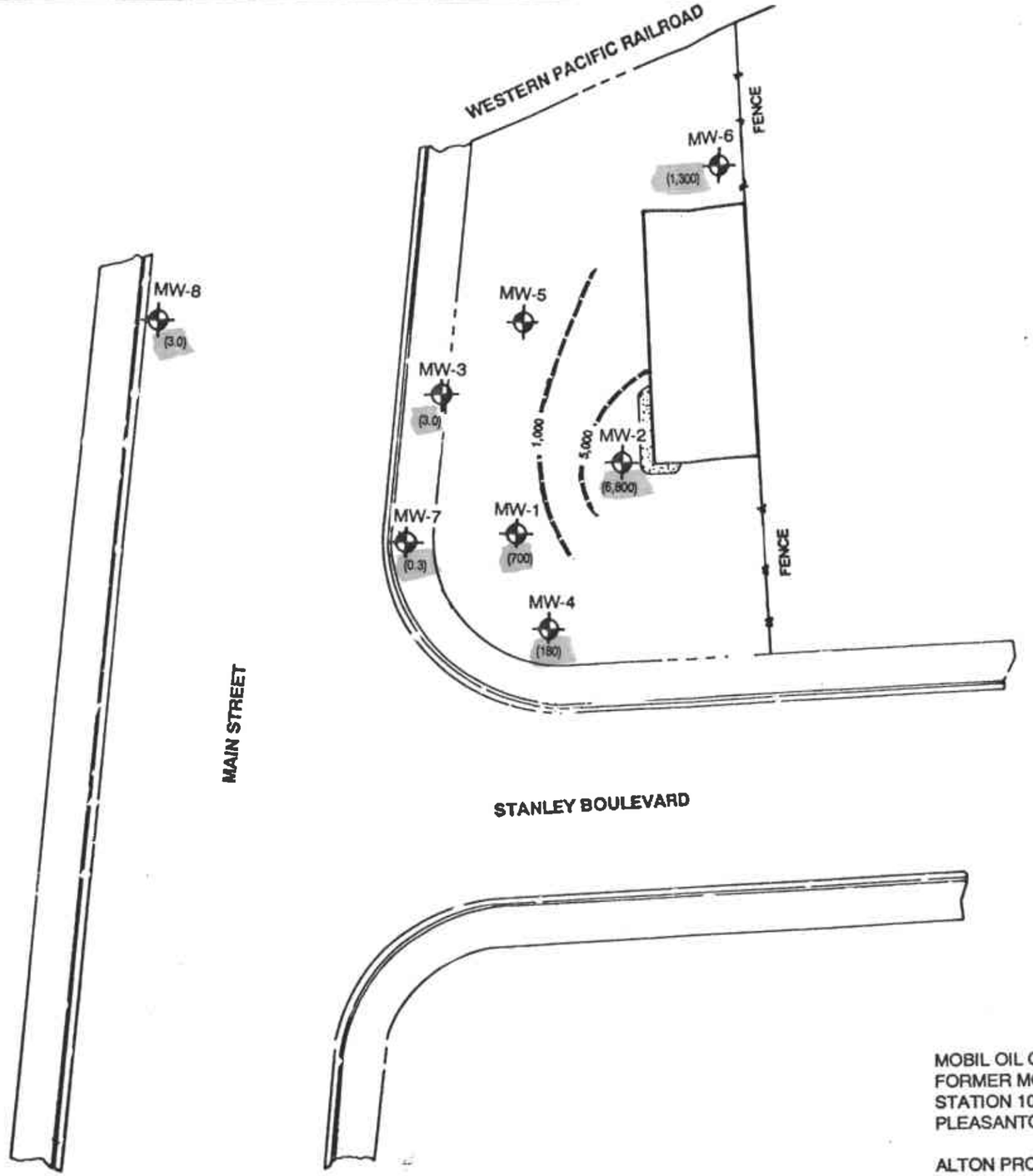

N

0 15 30

SCALE IN FEET

LEGEND:

⊕	GROUND WATER MONITORING WELL
(6,800)	TPH AS BENZENE CONCENTRATION (parts per billion, ppb)
1,000	LINE OF EQUAL BENZENE CONCENTRATION (ppb)
(ND)	CONSTITUENT NOT DETECTED ABOVE THE REPORTING LIMIT

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FORMER MOBIL OIL SERVICE
STATION 10-H6J
PLEASANTON, CALIFORNIA

ALTON PROJECT NO. 30-065

FIGURE 10.

CONCENTRATION OF BENZENE IN GROUND WATER

Note:
Contour lines are interpretive, based on analytical results from sampling on October 19, 1990. MW-5 was not sampled.

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Concord, CA 94520

TABLE 1

SURVEY AND WATER LEVEL MONITORING DATA

Former Mobil Oil Service Station 10-H6J
1024 Main Street
Pleasanton, California

Elevations and Depth Measurements in Feet

Well Number	Date of Measurement	Top of Casing Elevation[a]	Depth to Water Level	Water Level Elevation[b]
MW-1 (SB-6)	04/12/90	348.03	43.57	304.46
	04/16/90		44.76	303.27
	10/19/90		43.18	304.85
MW-2 (SB-5)	04/12/90	348.45	44.14	304.31
	04/16/90		45.27	303.18
	10/19/90		43.18	305.27
	11/08/90		40.70	307.75
	12/06/90		36.09	312.36
MW-3 (SB-8)	04/12/90	347.97	23.18	324.79
	04/16/90		21.60	326.37
	10/19/90		14.28	333.69
	12/06/90		13.38	334.59
MW-4 (SB-9)	10/19/90	348.07	43.16	304.91
	11/08/90		40.97	307.10
	12/06/90		35.38	312.69
MW-5 (SB-10)	11/08/90	347.97	34.18	313.79
	12/06/90		34.16	313.81
MW-6 (SB-11)	10/19/90	348.23	43.60	304.63
	11/08/90		41.69	306.54
	12/06/90		36.04	312.19
MW-7 (SB-12)	10/19/90	347.90	9.26	338.64
	11/08/90		8.90	339.00
	12/06/90		8.53	339.37
MW-8 (SB-13)	10/19/90	348.90	11.30	337.60
	11/08/90		11.16	337.74
	12/06/90		11.19	337.71

[a]Top of casing elevations for all wells were surveyed relative to the City of Pleasanton Brass Disc P-1257, with an elevation of 351.991 feet above mean sea level (NGVD-1929).

[b]Water level elevation in feet above mean sea level.

TABLE 2

SUMMARY OF ANALYTICAL RESULTS FOR SOIL SAMPLES

Former Mobil Oil Service Station 10-H6J
1024 Main Street
Pleasanton, California

Concentrations in Parts per Million

Sample Number	Depth	TPH-G	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	HVOC	TOG
Date of Sampling - October 8, 1990								
SB-9	6-6.5'	ND	ND	ND	ND	ND	ND	NA
SB-9	16-16.5'	1	0.30	0.074	0.010	0.190	0.015*	30
SB-9	21-21.5'	4	1.50	0.200	0.140	0.27	0.066*	NA
SB-9	26-26.5'	9	2.60	0.044	0.840	0.069	0.130*	ND
SB-10	6-6.5'	ND	ND	0.008	ND	0.015	ND	NA
SB-10	11-11.5'	ND	0.019	0.006	0.011	0.061	ND	NA
Date of Sampling - October 9, 1990								
SB-11	6-6.5'	ND	ND	ND	ND	ND	ND	NA
SB-11	11-11.5'	ND	ND	0.005	ND	ND	ND	ND
SB-11	16-16.5'	ND	ND	0.004	ND	ND	ND	NA
SB-11	21-21.5'	ND	ND	ND	ND	ND	ND	30
SB-11	26-26.5'	ND	ND	ND	ND	ND	ND	NA
SB-11	31-31.5'	ND	ND	ND	ND	ND	ND	ND
SB-11	36-36.5'	ND	0.008	ND	ND	ND	ND	NA
Date of Sampling - October 10, 1990								
SB-12	6-6.5'	ND	ND	ND	ND	ND	ND	NA
SB-12	~~6-6.5'~~ 11.5	ND	ND	ND	ND	ND	ND	NA
Date of Sampling - October 10, 1990								
SB-13	6-6.5'	ND	0.007	ND	ND	ND	ND	NA
Date of Sampling - October 31, 1990								
PS-1	3'	6	0.003	0.007	0.020	0.270	NA	NA
PS-2	3'	ND	ND	ND	ND	ND	NA	NA
PS-3	3'	ND	ND	ND	ND	ND	NA	NA
PS-4	3'	110	ND	0.100	0.430	5.6	NA	NA
PS-5	3'	9700	2.9	180	180	1200	NA	NA
PS-6	3'	2200	0.10	6	15	80	NA	NA
Date of Sampling - September 26, 1990								
SP-1	1'	ND	ND	ND	ND	ND	NA	NA
SP-2	1'	ND	ND	ND	ND	ND	NA	NA
SP-3	1'	ND	ND	ND	ND	ND	NA	NA
SP-4	1'	ND	ND	ND	ND	ND	NA	NA
SP-5	1'	ND	ND	ND	ND	ND	NA	NA
SP-6	1'	ND	ND	ND	ND	ND	NA	NA

Disposed

EXPLANATION TO ABBREVIATIONS:

TPH-G: Total petroleum hydrocarbons as gasoline (EPA modified method 8015).
HVOC: Halogenated volatile organic compounds (EPA method 8010).
TOG: Total oil and grease ((EPA method 503D & 503E).
NA: Sample not analyzed.
ND: Compound not detected above reporting limit.
SB: Soil sample collected from soil boring.
PS: Soil sample collected beneath former pump islands.
SP: Soil sample collected from aerated soil stockpile.
* 1,2-Dichloroethane

TABLE 3

SUMMARY OF ANALYTICAL RESULTS FOR WATER SAMPLES

Former Mobil Oil Service Station 10-H6J
1024 Main Street
Pleasanton, California

Concentrations in Parts per Million

Well Number	Date of Measurement	TPH-G	TPH-D	B	T	E	X	HVOC	Lead
MW-1	04/16/90	3,600	NA	73	3	3	180	45*	ND
	10/19/90	5,000	ND	700	360	170	480	54*	NA
MW-2	04/16/90	64,000	NA	5,500	7,600	1,900	7,800	200*	ND
	10/19/90	83,000	10	6,800	9,100	2,400	11,000	460*	NA
MW-3	04/16/90	2,100	NA	32	56	31	170	117*	ND
	10/19/90	110	ND	3	3	1	5	2*	NA
MW-4	10/19/90	9,600	2	180	500	200	1,200	9*	NA
MW-5	10/19/90	DW	DW	DW	DW	DW	DW	DW	DW
MW-6	10/19/90	3,000	ND	1,300	150	120	85	140*	NA
MW-7	10/19/90	ND	ND	0.3	0.5	ND	0.8	ND	NA
MW-8	10/19/90	900	ND	3	5	7	62	ND	NA

EXPLANATION TO ABBREVIATIONS:

* 1,2-Dichlorethane
NA: Sample not analyzed.
ND: Compound not detected above reporting limit.
DW: Dry well during sampling. Ground water samples not collected.

APPENDIX A

SENSITIVE RECEPTORS SURVEY

SENSITIVE RECEPTORS SURVEY
SITE SURVEY AND LITERATURE SEARCH

Client: Mobil Oil Corporation Project No.: 30-065

Station No.: 10-H6J

Location: 1024 Main Street

City/State: Pleasanton, California

I. Provide answers to the following questions:

A. Is there a public water supply well within 2500 feet? Y/N Y
If Yes, Distance ____ ft.

B. Is there a private water supply well within 1000 feet? Y/N Y
If Yes, Distance ____ ft.

C. Is there a subway within 1000 feet? Y/N N
If Yes, Distance ____ ft.

D. Is there a basement within 1000 feet? Y/N Y
If Yes, Distance 500 ft.

E. Is there a school within 1000 feet? Y/N Y
If Yes, Distance 1000 ft.

F. Is there a surface body of water within 1000 feet? Y/N Y
If Yes, Distance 500 ft.
Name Arroyo del Valle Canal

II. Describe type of local water supply.

Public: City of Pleasanton (local) & Zone 7 (Regional)

- Suppliers Name: Zone 7 + Cof P
- Suppliers Source: See Below - Zone 7 Blend
- Distance to Site: 1/2 mile to 3 miles

Private: ____

Zone 7 Blend
So. Bay Acqueduct
DSRSD (Dublin San Ramon Services District)
COF P (City of Pleasanton)
COF L (City of Livermore)
CDH WATER

SENSITIVE RECEPTORS SURVEY
SITE SURVEY AND LITERATURE SEARCH

III. Distance to Nearest Adjacent Properties:

Residential	50 ft.
Commercial	60 ft.
Industrial	10,100 ft.
Hospital	3 ~~ft.~~ miles
School (Amador High School) Name	1000 ft.

IV. Aquifer Classification, if available.

Class I - Special Ground Waters
- Irreplaceable Drinking Water Source
- Ecologically Vital

Class II - Current and Potential Drinking Water Sources

Class III - Not Potential Source of Drinking Water

within ½ mile radius

V. Describe observation wells, if any.

Number ~25

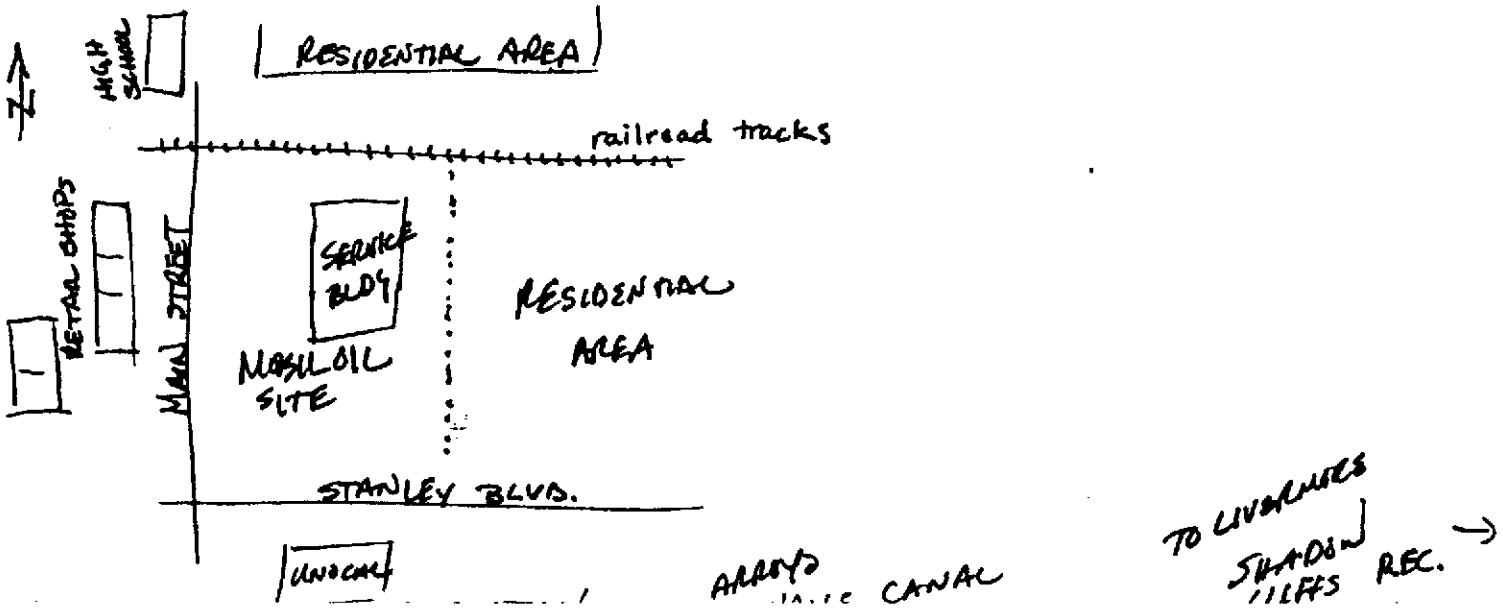
Free Product? Y/N N

WITHIN 500' OF SITE < As of 1/11/91 7 gw wells onsite, 1 offsite @ Mobil, 3 vadose well ellmscal, 2 gw mon. wells, City of Pleasanton

VI. Signature of Preparer: Cheri D'Andrea

Date: 10/02/90

VII. Sketch of Site



APPENDIX B

FIELD DENSITY TESTS

LABORATORY MAXIMUM DENSITY (ASTM 1557-78)

Soil Description	Optimum Moisture	Maximum Density (pcf)
Silty Gravel with some Sand	5.7%	143.8

Compaction Test Details:

IN PLACE DENSITY TEST RESULTS (ASTM 1556-82)

Test Number	Moisture Content (%)	Density (Pcf)	Relative Density (%)
1	4.4	138.4	96.3
2	5.5	136.3	94.8
3	2.6	131.8	91.7
4	4.2	137.4	95.6

All engineered fill was tested utilizing ASTM test methods and found to conform to the standards established in section 70 of the Uniform Building Code.
All test locations were taken in the center of pit .

ALTON GEOSCIENCE
FIELD DENSITY TESTING (ASTM 1556-82)

DATE: 10-4-90
JOB NUMBER: 30-065

A. Mass of sand in cone: 3.67
B. Density of sand: 91.4

C. Soil Types: silty gravel (ASB)
143.8 @ 5.7%

Field Tech: M.A
Contractor: Balch Petroleum

TEST NUMBER	X	1	2	3	4			
D. Mass of bottle + sand		14.59	14.96	15.14	15.13			
E. Mass of bottle + residue		6.65	7.94	8.01	8.11			
F. Mass of sand in cone		3.67	3.67	3.67	3.67			
G. Mass of sand in hole	(D-E)-F	4.27	3.35	3.46	3.35			
H. Mass of soil from hole		6.75	5.27	5.12	5.25			
I. Mass of soil wet	use 200 g.	200	200	200	200			
J. Mass of soil dry		191.5	189.5	195	192			
K. Moist loss	I - J	8.5	10.5	5.0	8.0			
L. % moist	K/J	4.4%	5.5%	2.6%	4.2%			
M. Wet density	(H X B)/G	144.5	143.8	135.3	143.2			
N. Dry density	$\frac{M}{1+L}$	138.4	136.3	131.8	137.4			
O. Maximum Density	C	143.8	143.8	143.8	143.8			
P. % compaction	N/O	96.3%	94.8%	91.7%	95.6%			
Q. Pass/Fail		Pass	Pass	Pass	Pass			
R. Retest Number		Ø	Ø	Ø	Ø			

Test Location: ① center of Pit 1st LIFT 4' below grade ③ center of Pit 1.5' below grade 2nd LIFT

APPENDIX C

CITY OF PLEASANTON ENCROACHMENT PERMIT AND ZONE 7 WELL PERMITS

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
5997 PARKSIDE DRIVE ♦ PLEASANTON, CALIFORNIA 94566 ♦ (415) 484-2600

19 September 1990

Alton Geoscience
1000 Burnett Avenue, Suite 140
Concord, CA 94520

Gentlemen:

Enclosed is Groundwater Protection Ordinance permit 90568 for a monitoring well construction project at 1024 Main Street in Pleasanton for Mobil Oil.

Please note that permit condition A-2 requires that a well construction report be submitted after completion of the work. The report should include drilling and completion logs, location sketch, and permit number.

If you have any questions, please contact Todd Wendler or Craig Mayfield at 484-2600.

Very truly yours,

Jim Dixon
General Manager

By J. Killingstad, Chief
Water Resources Engineering

TW:mm
Enc.

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

5997 PARKSIDE DRIVE ♦ PLEASANTON, CALIFORNIA 94566 ♦ (415) 484-2600

GROUNDWATER PROTECTION ORDINANCE PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

(1) LOCATION OF PROJECT 1024 MAIN STREET, PLEASANTON, CA., FORMER MOBIL OIL SERVICE STATION 10-H6J

(2) CLIENT
Name MOBIL OIL CORPORATION
Address 3800 W. ALAMEDA AVE Phone (818) 953-2519
City BURBANK, CA Zip 91505-4331

(3) APPLICANT
Name ALTON GEOSCIENCE, INC.
Address 1000 BURNETT AVE. STE #140 Phone (415) 682-1582
City CONCORD, CA Zip 94520

(4) DESCRIPTION OF PROJECT
Water Well Construction ___ Geotechnical Investigation
Cathodic Protection ___ General ___
Well Destruction ___ Contamination X

(5) PROPOSED WATER WELL USE
Domestic ___ Industrial ___ Irrigation ___
Municipal ___ Monitoring X Other ___

(6) PROPOSED CONSTRUCTION
Drilling Method:
Mud Rotary ___ Air Rotary ___ Auger X
Cable ___ Other ___

DRILLER'S LICENSE NO. C57-528696
SOILS EXPLORATION SERVICES

WELL PROJECTS
Drill Hole Diameter 10 in. Maximum
Casing Diameter 2 in. Depth 65 ft.
Surface Seal Depth ~30 ft. Number *

GEOTECHNICAL PROJECTS
Number of Borings ___ Maximum
Hole Diameter ___ in. Depth ___ ft.

(7) ESTIMATED STARTING DATE OCTOBER 1, 1990
ESTIMATED COMPLETION DATE OF DRILLING OCTOBER 5, 1990
COMPLETION DATE OF REPORT NOV 5, 1990

(8) I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Cherie D'Andrea Date 9/14/90

FOR OFFICE USE

PERMIT NUMBER 90568
LOCATION NUMBER ___

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as t arrive at the Zone 7 office five days prior t proposed starting date.
2. Submit to Zone 7 within 60 days after completic of permitted work the original Department c Water Resources Water Well Drillers Report c equivalent for well projects, or drilling log and location sketch for geotechnical projects.
3. Permit is void if project not begun within 9 days of approval date.

(B.) WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches c cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal ar industrial wells or 20 feet for domestic, irrig tion, and monitoring wells unless a lesser dep is specially approved.

C. GEOTECHNICAL. Backfill bore hole with compacted cut tings or heavy bentonite and upper two feet with com pacted material. In areas of known or suspecte contamination, tremied cement grout shall be used i place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concret placed by tremie.

E. WELL DESTRUCTION. See attached.

* Supplemental project proposal indicates that five monitoring wells are to be installed.

Approved Todd N. Wendler Date 17 Sep 90

Todd N. Wendler

219

LICENSED CONTRACTOR'S DECLARATION

OWNER-BUILDER DECLARATION

WORKER'S COMPENSATION DECLARATION

CONSTRUCTION LENDING AGENCY

— IMPORTANT —

CITY OF PLEASANTON

PLANNING 484-8023 | STREETS 484-8098 | ENGINEERING 484-8041 | WATER 484-8071

P.O. BOX 520 • PLEASANTON, CALIFORNIA 94566-0802

PUBLIC WORKS 484-8186 | FIRE 484-8114

BUILDING INSPECTION (415) 484-8015 • (415) 484-814 (Office) (Recorder)

STREET ADDRESS 1825 SANTA RITA		SUITE	RECEIPT NO.	DATE	PROJECT
CITY PLEASANTON	STATE CA		TRACT NAME		
USE OF PERMIT/APPLICATION ENCROACHMENT MONITORING WELLS			APN 094- 019-00010	BLDGS-UNITS	STORIES
OCCUPANT NAME VALLEY TIRE			MAP #	BLOCK-LOT	MOD #
APPLICANT NAME ALTON GEOSCIENCE		APPLICANT PHONE 415-833-1589			
CONTRACTOR ALTON GEOSCIENCE		STATE LICENSE	ENCROACHMENT Fee		
STREET ADDRESS 1000 BURNETT	SUITE 01 140	CITY LICENSE			
CITY CONCORD	STATE CA ZIP 945200000	CONTRACTOR PHONE 415-833-1589			
BLDG OWNER					
STREET ADDRESS		SUITE			
CITY	STATE ZIP	OWNER PHONE			
ZONING	GEN PLAN	TRS	PUD		
LOT SIZE	F/A	CENS TRACT 4502.03	SIC	CFRS	GEO REF
FSB	LSB	RSB	BSB	PLANNING INT	ENGINEERING INT	PLANS RECEIVED INT	PAID BY CK 533	FEES

ENCROACHMENT PERMIT

PROJECT COMMENTS

Date	Department	Comment
09/13/00	ENGINEERING	PERMISSION IS HEREBY GRANTED TO OPERATION KNOW AS CITY OF
09/13/00	ENGINEERING	AND EASEMENTS SUBJECT TO THE FOLLOWING: WORK CONSISTS
09/13/00	ENGINEERING	INSTALLING MONITORING WELLS PER SKETCH SUBMITTED TO CITY
09/13/00	ENGINEERING	WELLS SHALL BE LOCATED IN SIDEWALK AREA. NOTIFY USA
09/13/00	ENGINEERING	(800-642-2444) PRIOR TO DRILLING. WELLS SHALL BE INSTA
09/13/00	ENGINEERING	FLUSH WITH SURROUNDINGS AND HAVE LOCKING COVERS
09/13/00	ENGINEERING	ENCROACHMENT LOCATIONS SHALL BE MARKED
09/13/00	ENGINEERING	TRAFFIC ROUTED AS NEEDED TO SUNOL BLVD TO FIRST ST TO STANLEY
09/13/00	ENGINEERING	BLVD TO SITE

ALL WORK TO BE PERFORMED TO CITY OF PLEASANTON STANDARD DETAILS AND SPECIFICATIONS. NOTIFY PUBLIC WORKS INSPECTION DEPT 24 HRS PRIOR TO STARTING ANY WORK AT (925) 484-8186

ENCROACHMENT

TOTAL FEE

Encl Permit Fee

THIS PERMIT IS ISSUED PURSUANT TO ALL PROVISIONS OF PLEASANTON MUNICIPAL CODE CHAPTER 12.8 ENCROACHMENTS

OTHER FEE

This permit is issued under the applicable provisions of the City of Pleasanton Code and/or resolution to do work indicated hereon for which fees have been paid. This Permit expires 180 days from last inspection or per chapter 3 of the U.B.C. or on _____.

APPENDIX D

GENERAL FIELD PROCEDURES FOR SOIL BOREHOLE DRILLING AND SAMPLING, SOIL BORING LOGS, AND WELL CONSTRUCTION DETAILS

ALTON GEOSCIENCE, INC.
GENERAL FIELD PROCEDURES
FOR
SOIL BOREHOLE DRILLING AND SAMPLING

Drilling Procedures

Exploratory borings were drilled using 8 and 10-inch-diameter, continuous-flight, hollow-stem augers. To avoid cross-contamination, the augers were steam cleaned prior to drilling each borehole. The soil borings were located both onsite and offsite to assess the extent of potential petroleum hydrocarbons in the soil and ground water, if any.

Soil Sampling Protocol

During drilling, samples were collected at 5-foot intervals, beginning at 5 feet below grade and terminating at least 15 feet into the first saturated zone or in a competent clay layer. The samples were retrieved ahead of the lead auger using an 18-inch-long by 2-inch-diameter split-spoon sampler lined with steam clean brass tubes. The sampler was driven by a 30-inch free fall of a 140-pound hammer. Blow counts were recorded for three successive 6-inch intervals. Before each sampling event, the sampler and sample tubes were washed using a TriSodium Phosphate and water solution, one two tap water rinses.

Upon retrieval, the bottom sample tube was be immediately removed from the sampler and securely sealed with Teflon sheeting and polyurethane caps and wrapped with duct tape. The sample was labeled with the identification, sample depth, sampler's initials, and date of collection. The soil sample was kept on dry or blue ice prior to and during transport to a California-certified laboratory.

One sample from each sampling interval was retained for laboratory analysis and analyzed for the substances that have been historically stored in the underground tanks, as well as constituents formed by the possible degradation or transformation of the primary tank contents. The samples were transported following the proper chain of custody procedures.

ALTON GEOSCIENCE, INC.
GENERAL FIELD PROCEDURES
FOR
SOIL BOREHOLE DRILLING AND SAMPLING
(cont'd)

Grab samples were collected periodically to identify any contacts between different formation types. Soil samples were also screened for the presence of hydrocarbon volatiles using a combustible gas indicator (CGI).

A staff or project level geologist described the soil samples using the Unified Soil Classification System, and included field estimates of density/consistency, moisture, color, grading, and soil type on the boring logs. The boring logs were reviewed by a geologist or civil engineer who is registered and/or certified in the State of California.

Borings that were not converted into ground water monitoring wells were sealed from the bottom of the boring to the ground surface using neat cement or other appropriate grouting material.

Chain of Custody Protocol

All samples collected were properly handled in accordance with the California DOHS guidelines. Each sample was properly labeled in the field and immediately stored in laboratory supplied coolers and preserved with blue or dry ice for transport to a California-certified laboratory for analysis.

The official chain of custody record accompanied the samples and included the site and sample identification, date and time of sample collection, analysis requested, and the name and signature of sampler. When transferring the possession of the samples, the transferee signed and dated the time on the chain of custody record. The field sampler properly packaged and dispatched the samples to the appropriate laboratory for analysis, and ensured that the sample was properly preserved.

ALTON GEOSCIENCE, Inc.
LOG OF EXPLORATORY BORING

PROJECT NO. 30-065 DATE DRILLED 10-8-90
CLIENT Mobil Oil Corporation
LOCATION 1024 Main St., Pleasanton, Ca.
LOGGED BY M.A. APPROVED BY

BORING NO. SB-9
WELL NO. MW-4

FIELD SKETCH OF BORING LOCATION

TOP OF CASING ELEVATION 348.07'

DRILLING METHOD Hollow stem auger HOLE DIAM. 10"
SAMPLER TYPE Modified split spoon
CASING DATA 4" Sch. 40 PVC with 0.020" slots
DRILLER Aqua Science Engineering, Inc.

WATER LEVEL	-30'		
DATE	10-8-90		
TIME	10:05		

BLOWS PER FOOT(ft)	CGI (PPM)	SAMPLE	DEPTH	WELL CONSTRUCTION OR BORING CLOSURE	USCS	PROFILE	DESCRIPTION
			0	Christy Box			4" Asphalt and Basecourse
			2		SM		SILTY SAND; dark brown, loose, dry, low plasticity, with 5% gravels approx. 1/4" diameter.
			4	4" sch. 40 PVC Casing			
2,3,3			6				
			8				
4,4,6			10				No recovery
			12		CL		SILTY CLAY; light brown, stiff, moist, low plasticity.
			14				
5,5,6			16				
			18		ML		SANDY SILT; light brown, stiff, moist, low plasticity.
			20		CL		SILTY CLAY; light brown, stiff, moist, low plasticity.
3,5,7			22				
			24				
4,3,5			26				
			28				
			30				
9,10, 13			32	4" sch. 40 PVC .020 Slot	SM		SILTY SAND, light brown, medium dense, wet, no plasticity.
			34				

ALTON GEOSCIENCE, Inc.
LOG OF EXPLORATORY BORING

PROJECT NO. 30-065 DATE DRILLED 10/8/90
CLIENT MOBIL OIL CORPORATION.
LOCATION 1024 Main St., Pleasanton, Ca.
LOGGED BY M. A. APPROVED BY

BORING NO. SB-9
WELL NO. MW-4

FIELD SKETCH OF BORING LOCATION

TOP OF CASING ELEVATION 348.07'

DRILLING METHOD Hollow stem auger HOLE DIAM. 10"
SAMPLER TYPE Modified split spoon
CASING DATA 4" Sch. 40 PVC with 0.020" slots
DRILLER Aqua Science Engineers, Inc.

WATER LEVEL	-30'		
DATE	10-8-90		
TIME	10:05		

BLOWS PER FOOT(ft)	OVA (PPM)	SAMPLE	DEPTH	WELL CONSTRUCTION OR BORING CLOSURE	USCS	PROFILE	DESCRIPTION
8,7,16			36				SILTY SAND; light brown, medium dense, wet, no plasticity.
			38				
8,15,13			40		SM		SILTY SAND; light brown, medium dense, wet, no plasticity.
			42				
			44				
3,25, 27			46	End Cap	SP		GRAVELLY SAND; light brown, very dense, wet.
			48	Wooden plug			
			50				BORING TERMINATED AT 50 FEET BELOW GRADE
			52				
			54				
			56				
			58				
			60				

Bentonite Pellets
Portland Cement
Sand #3 Lonestar
Driven interval
Sample
Water level encountered during drilling

ALTON GEOSCIENCE, Inc.
LOG OF EXPLORATORY BORING

PROJECT NO. 30-065 DATE DRILLED 10-8-90
CLIENT Mobil Oil Corporation
LOCATION 1024 Main St., Pleasanton, Ca.
LOGGED BY M.A. APPROVED BY

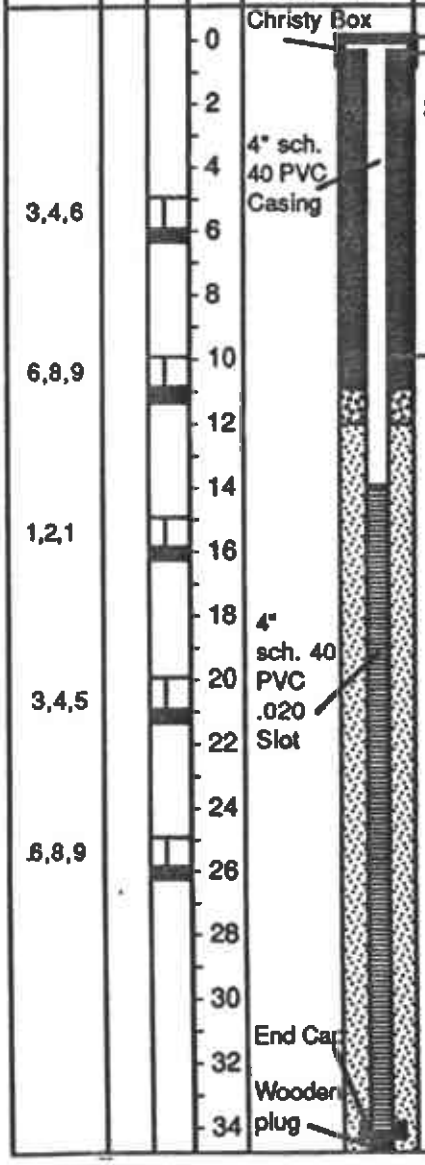
BORING NO. SB-10
WELL NO. MW-5

FIELD SKETCH OF BORING LOCATION

TOP OF CASING ELEVATION 347.97'

DRILLING METHOD Hollow stem auger HOLE DIAM. 10"
SAMPLER TYPE Modified split spoon
CASING DATA 4" Sch. 40 PVC with 0.020" slots
DRILLER Aqua Science Engineering, Inc.

WATER LEVEL	-15'		
DATE	10-8-90		
TIME	4:05		



DESCRIPTION
4" Asphalt and Basecourse
SILTY SAND; dark brown, loose, dry, low plasticity.
SILTY CLAY; light brown, very stiff, moist, low plasticity.
SILTY CLAY; light brown, soft, wet, low plasticity.
SILTY CLAY; light brown, stiff, wet, low plasticity.
SILTY CLAY; light brown, very stiff, wet, low plasticity.
BORING TERMINATED AT 35 FEET BELOW GRADE

ALTON GEOSCIENCE, Inc.
LOG OF EXPLORATORY BORING

PROJECT NO. 30-065 DATE DRILLED 10-9-90
CLIENT Mobil Oil Corporation
LOCATION 1024 Main St., Pleasanton, Ca.
LOGGED BY M.A. APPROVED BY

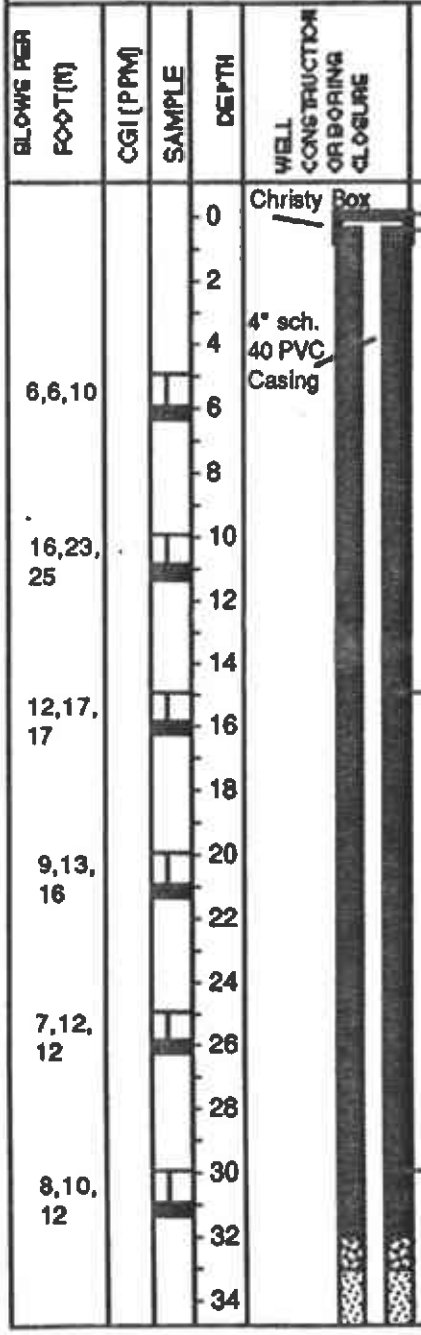
BORING NO. SB-11
WELL NO. MW-6

FIELD SKETCH OF BORING LOCATION

TOP OF CASING ELEVATION 348.23'

DRILLING METHOD Hollow stem auger HOLE DIAM. 10"
SAMPLER TYPE Modified split spoon
CASING DATA 4" Sch. 40 PVC with 0.020" slots
DRILLER Aqua Science Engineering, Inc.

WATER LEVEL	-42'		
DATE	10-9-90		
TIME	9:50		



DESCRIPTION

4" Asphalt and Basecourse

CLAYEY SILT; some gravel, light brown, stiff, dry, low plasticity.

CLAYEY SILT; light brown, hard, dry, low plasticity.

SILTY CLAY; light brown, hard, dry, low plasticity.

SILTY CLAY; light brown, very stiff, dry, low plasticity.

SILTY SAND; fine grained, tan, medium dense, moist.

ALTON GEOSCIENCE, Inc.
LOG OF EXPLORATORY BORING

PROJECT NO. 30-065 DATE DRILLED 10/9/90
CLIENT MOBIL OIL CORPORATION.
LOCATION 1024 Main St., Pleasanton, Ca.
LOGGED BY M. A. APPROVED BY

BORING NO. SB-11
WELL NO. MW-6

FIELD SKETCH OF BORING LOCATION

TOP OF CASING ELEVATION 348.23'

DRILLING METHOD Hollow stem auger HOLE DIAM. 10"
SAMPLER TYPE Modified split spoon
CASING DATA 4" Sch. 40 PVC with 0.020" slots
DRILLER Aqua Science Engineers, Inc.

WATER LEVEL	-42'		
DATE	10-9-90		
TIME	9:50		

BLOWS PER FOOT(ft)	CGI (PPM)	SAMPLE	DEPTH	WELL CONSTRUCTION OR BORING CLOSURE	USCS	PROFILE	DESCRIPTION
9,23, 35			36	4" sch. 40 PVC .020 Slot	SM		GRAVELLY SAND; tan/gray, very dense, moist.
			38				
28,40, 44			40				SANDY GRAVEL; gray, very dense, moist.
			42				
			44				
3,10, 24			46		GP		SANDY GRAVEL; gray, poorly graded, dense, wet.
			48				
			50	End Cap			
			52				
			54	Wooden Plug			
			56				BORING TERMINATED AT 55 FEET BELOW GRADE
			58				
			60				

ALTON GEOSCIENCE, Inc.
LOG OF EXPLORATORY BORING

PROJECT NO. 30-065 DATE DRILLED 10-10-90
CLIENT Mobil Oil Corporation
LOCATION 1024 Main St., Pleasanton, Ca.
LOGGED BY M.A. APPROVED BY

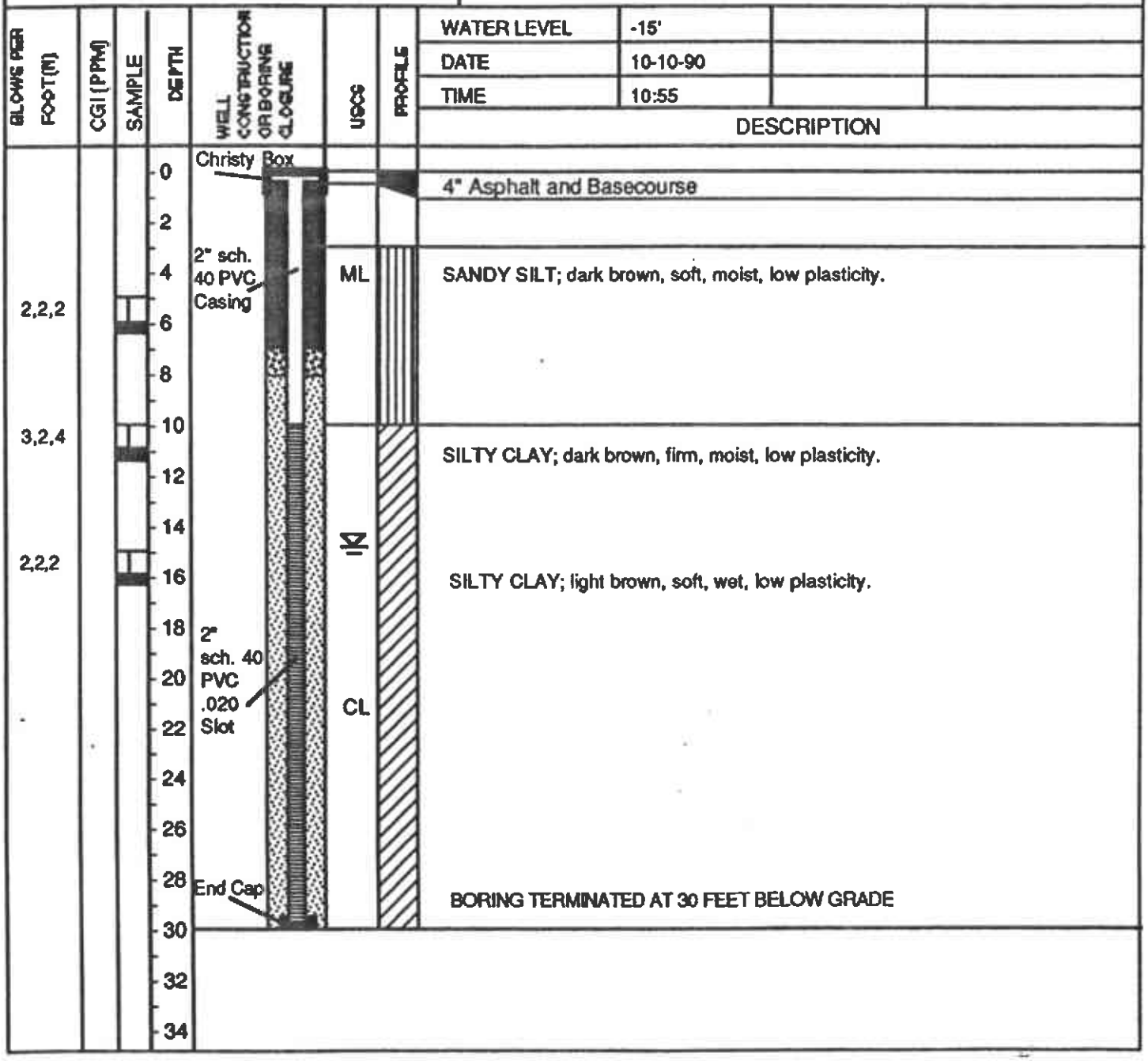
BORING NO. SB-12
WELL NO. MW-7

FIELD SKETCH OF BORING LOCATION

TOP OF CASING ELEVATION 347.90'

DRILLING METHOD Hollow stem auger HOLE DIAM. 8"
SAMPLER TYPE Modified split spoon
CASING DATA 2" Sch. 40 PVC with 0.020" slots
DRILLER Aqua Science Engineering, Inc.

WATER LEVEL	-15'		
DATE	10-10-90		
TIME	10:55		



ALTON GEOSCIENCE, Inc.
LOG OF EXPLORATORY BORING

PROJECT NO. 30-065 DATE DRILLED 10-9-90
CLIENT Mobil Oil Corporation
LOCATION 1024 Main St., Pleasanton, Ca.
LOGGED BY M.A. APPROVED BY

BORING NO. SB-13
WELL NO. MW-8
Page 1 of 1

FIELD SKETCH OF BORING LOCATION

TOP OF CASING ELEVATION 348.90'

DRILLING METHOD Hollow stem auger HOLE DIAM. 8"
SAMPLER TYPE Modified split spoon
CASING DATA 2" Sch. 40 PVC with 0.020" slots
DRILLER Aqua Science Engineering, Inc.

WATER LEVEL	-8'		
DATE	10-9-90		
TIME	4:40		

BLOWS PER FOOT(M)	OVA (PPM)	SAMPLE	DEPTH	WELL CONSTRUCTION OR BORING CLOSURE	USCS	PROFILE	DESCRIPTION
			0	Christy Box			
			2				4" Asphalt and Basecourse
			4	2" sch. 40 PVC Casing	ML		CLAYEY SILT; light brown, stiff, moist, low plasticity.
3,3,5			6				SILTY CLAY; light brown, stiff, moist, low plasticity.
			8		CL		
3,4,4			10				SILTY CLAY; light brown, stiff, wet, low plasticity.
			12	2" sch. 40 PVC .020 Slot			
3,3,5			14				
			16		SC		SANDY CLAY; gray, stiff, wet, low plasticity.
			18				
			20				
			22				
			24	End Cap			
			26				BORING TERMINATED AT 25 FEET BELOW GRADE
			28				
			30				
			32				
			34				

APPENDIX E

GENERAL FIELD PROCEDURES FOR GROUND WATER DEVELOPMENT, SAMPLING AND WATER SAMPLING FIELD SURVEY FORMS

ALTON GEOSCIENCE, INC.
GENERAL FIELD PROCEDURES
FOR
GROUND WATER MONITORING WELL CONSTRUCTION

Ground Water Well Construction

The number, location, and depths of the ground water monitoring wells were selected prior to commencement of work, and may have required relocation or modification as the work proceeded. The ground water wells were constructed of clea,. 4-inch-diameter, flush-threaded, Schedule 40 PVC blank casing which extends from grade level to a depth estimated at the highest anticipated water level, and 4-inch-diameter screened casing with 0.020-inch perforations, extending to a depth of at least 10 feet into the water table. The casings, fittings, screens, and other components of the well construction were thoroughly steam cleaned before installing the well.

The annular space surrounding the screened portion was backfilled with No. 3 Monterey sand (filter pack) to approximately 2 feet above the top of the screened section. A bentonite annular seal (approximately 0.5-foot thick) was placed above the filter pack. The remaining annulus was grouted with neat cement to the surface. Monument well boxes were installed slightly above grade to minimize infiltration of surface waters. Locking, water-tight well caps were installed to ensure the integrity of the well.

Ground Water Monitoring Well Development

New ground water monitoring wells were developed to clean the well and stabilize the sand, gravel, and aquifer materials around the perforated section of the well. Well development was conducted using one of several acceptable methods, such as bailing, mechanical or air lift pumping, surging, or swabbing. Well development continued until the well was thoroughly developed and if possible, free of sand, silt, and turbidity.

ALTON GEOSCIENCE, INC.
GENERAL FIELD PROCEDURES
FOR
GROUND WATER MONITORING WELL DEVELOPMENT AND SAMPLING
(cont'd)

The water generated from the development process was placed into labeled 55-gallon drums, pending laboratory results of the ground water samples, to determine the appropriate disposal method. Disposal of the water will conform to applicable hazardous waste requirements.

Ground Water Monitoring Well Sampling

Prior to well sampling, the ground water level was measured from the north rim of the top of the PVC well casing, using an electric water level sensor. The well was monitored for the presence/absence of floating product, using a clear bailer.

To ensure that the ground water sample is representative of the aquifer, the well was purged of 4 to 10 well casing volumes before sample collection. The purging was accomplished using a bailer or pump. During purging, the sampler noted the following: (1) a description of the initial discharge of the ground water; (2) pH, temperature, and conductivity readings at 5 or 10 gallon intervals; (3) volume of water purged; and (4) recharge rates.

The ground water samples were collected using a steam cleaned Teflon bailer, and then decanted into the appropriate laboratory supplied containers. The sampler wore nitril gloves at all times during purging and well sampling.

The water samples were handled and preserved in accordance with Regional Water Quality Control Board (RWQCB) guidelines. The samples were clearly labeled with the well number, site identification, date and time of sample collection, and sampler's initials, and were transported to a California-certified laboratory following proper chain of custody protocol.

ALTON GEOSCIENCE, INC.
Well Development and
Water Sampling Field Survey Form

Project No. 30-065 Site: Main St., Pleasanton Date: 10/17/90
Well: MW-1 Sampling Team: L. Buenvenida
Well Development Method: 4" Bailer (PVC)
Sampling Method: 2" Bailer (PVC)
Describe Equipment Decontamination Method: Triple rinsed with TSP, tap water, and deionized water

---

Well Development/Well Sampling Data

Total Well Depth: 50.96 feet Time: 12:10 Water Level Before Pumping: 41.92

Water Column	Casing Diameter 2-inch	4-inch	Volume	Factor	Volume to Purge
9.04 ft.	x 0.16 or	x 0.65	5.88	x 3	= 17.64

Depth Purging From: 45 feet. Time Purging Begins: 12:35

Notes on Initial Discharge: _____

Time	Volume	pH	Conductivity	Temp.	Comments
12:38	3	7.77	4.50	75.6	Cloudy
12:45	6	7.57	1.29	73.5	Cloudy
12:50	9	7.55	1.10	30.6	Cloudy
12:56	12	7.57	1.24	69.4	Cloudy
13:03	15	7.56	1.23	68.7	Cloudy

Time Field Parameter Begins: _____

	Rep #1	Rep #2	Rep #3	Rep #4
pH				
Conductivity				
Temperature (F)				

Time Sample Collection Begins: 14:25
Time Sample Collection Ends: 14:27
Total Gallons Purged: 18
Recharge Rate: _____ gal/min or gal/hr
Comments: Meter x 1000

ALTON GEOSCIENCE, INC.
Well Development and
Water Sampling Field Survey Form

Project No. 30-065 Site: Main St., Pleasanton Date: 10/17/90
Well: MW-2 Sampling Team: L. Buenvenida
Well Development Method: 2" Bailer (PVC)
Sampling Method: 2" Bailer (PVC)
Describe Equipment Decontamination Method: Triple rinsed with TSP, tap water, and deionized water

Well Development/Well Sampling Data

Total Well Depth: 50.14 feet Time: 12:15 Water Level Before Pumping: 42.46

Water Column	Casing Diameter 2-inch	4-inch	Volume	Factor	Volume to Purge
7.68 ft. x	0.16 or	x 0.65	1.23	x 3	= 3.69

Depth Purging From: 45 feet. Time Purging Begins: 13:15

Notes on Initial Discharge: _____

Time	Volume	pH	Conductivity	Temp.	Comments
13:18	.75	7.59	2.40	78.2	Light grey
13:23	1.50	7.00	1.64	71.3	Light grey
13:28	2.25	6.53	1.59	70.4	Light grey
13:31	3	6.39	1.58	70.2	Cloudy
13:36	3.75	6.38	1.58	69.8	Cloudy

Time Field Parameter Begins: _____

	Rep #1	Rep #2	Rep #3	Rep #4
pH				
Conductivity				
Temperature (F)				

Time Sample Collection Begins: 14:45
Time Sample Collection Ends: 14:47
Total Gallons Purged: 4
Recharge Rate: _____ gal/min or gal/hr
Comments: _____

ALTON GEOSCIENCE, INC.
Well Development and
Water Sampling Field Survey Form

Project No. 30-065 Site: Main St., Pleasanton Date: 10/17/90
Well: MW-3 Sampling Team: L. Buenvenida
Well Development Method: 2" Bailer (PVC)
Sampling Method: 2" Bailer (PVC)
Describe Equipment Decontamination Method: Triple rinsed with TSP, tap water, and deionized water

---

Well Development/Well Sampling Data

Total Well Depth: 33.01 feet Time: 12:20 Water Level Before Pumping: 15.18

Water Column	Casing Diameter 2-inch	4-inch	Volume	Factor		Volume to Purge
14.83 ft.	x 0.16	or x 0.65	2.37	x 3	=	7.11

Depth Purging From: 19 feet. Time Purging Begins: 13:36

Notes on Initial Discharge:

Time	Volume	pH	Conductivity	Temp.	Comments
13:43	1.5	7.82	1.16	75.3	Cloudy
13.47	3	7.74	1.03	75.1	Cloudy
13:50	4.5	7.56	.97	72.9	Cloudy
13.53	6	7.58	.96	70.9	Cloudy
13:57	7.5	7.57	.96	70.2	Cloudy

Time Field Parameter Begins:

	Rep #1	Rep #2	Rep #3	Rep #4
pH				
Conductivity				
Temperature (F)				

Time Sample Collection Begins: 15:07
Time Sample Collection Ends: 15:09
Total Gallons Purged: 8
Recharge Rate: _____ gal/min or gal/hr
Comments: Meter x 1000

ALTON GEOSCIENCE, INC.
Well Development and
Water Sampling Field Survey Form

Project No. 30-065 Site: Main St., Pleasanton Date: 10/16/90
Well: MW-4 Sampling Team: L. Buenvenida
Well Development Method: Pump
Sampling Method: 2" Bailer
Describe Equipment Decontamination Method: Triple rinsed with TSP, tap water, and deionized water

Well Development/Well Sampling Data

Total Well Depth: 49.66 feet Time: 12:55 Water Level Before Pumping: 41.65

Water Column	Casing Diameter 2-inch	4-inch	Volume	Factor		Volume to Purge
8.01 ft. x	0.16 or	x 0.65	5.21	x 10	=	52.10

Depth Purging From: 47 feet. Time Purging Begins: 13:05

Notes on Initial Discharge: _____

Time	Volume	pH	Conductivity	Temp.	Comments
13:07	10	7.24	2.31	75.1	Cloudy
13:10	20	7.28	1.38	72.6	Cloudy
13:20	30	7.28	1.29	70.6	Cloudy
13:25	40	7.27	1.27	69.2	Cloudy
13:35	50	7.27	1.27	69.0	Cloudy

Time Field Parameter Begins: _____

	Rep #1	Rep #2	Rep #3	Rep #4
pH				
Conductivity				
Temperature (F)				

Time Sample Collection Begins: 14:25
Time Sample Collection Ends: 14:27
Total Gallons Purged: 55
Recharge Rate: _____ gal/min or gal/hr
Comments: Meter x 1000

ALTON GEOSCIENCE, INC.
Well Development and
Water Sampling Field Survey Form

Project No. 30-065 Site: Main St., Pleasanton Date: 10/15/90
Well: MW-5 Sampling Team: L. Buenvenida
Well Development Method: Pump
Sampling Method: 2" Bailer (PVC)
Describe Equipment Decontamination Method: Triple rinsed with TSP, tap water, and deionized water

---

Well Development/Well Sampling Data

Total Well Depth: _____ feet Time: _____ Water Level Before Pumping: _____

Water Column	Casing Diameter 2-inch	4-inch	Volume	Factor	Volume to Purge
_____ ft. x	0.16 or	0.65	13.01	x _____	= _____

Depth Purging From: _____feet. Time Purging Begins: _____

Notes on Initial Discharge: Not sampled - dry well

Time	Volume	pH	Conductivity	Temp.	Comments

Time Field Parameter Begins: _____

	Rep #1	Rep #2	Rep #3	Rep #4
pH				
Conductivity				
Temperature (F)				

Time Sample Collection Begins: _____
Time Sample Collection Ends: _____
Total Gallons Purged: _____
Recharge Rate: _____ gal/min or gal/hr
Comments: Dry well

ALTON GEOSCIENCE, INC.
Well Development and
Water Sampling Field Survey Form

Project No. 30-065 Site: Main St., Pleasanton Date: 10/16/90
Well: MW-6 Sampling Team: L. Buenvenida
Well Development Method: Pump
Sampling Method: 2" Bailer (PVC)
Describe Equipment Decontamination Method: Triple rinsed with TSP, tap water, and deionized water

Well Development/Well Sampling Data

Total Well Depth: 53.99 feet Time: 13:09 Water Level Before Pumping: 42.11

Water Column	Casing Diameter 2-inch	4-inch	Volume	Factor	Volume to Purge
11.88 ft. x	0.16 or	x 0.65	7.72	x 10	= 77.20

Depth Purging From: 45 feet. Time Purging Begins: 13:20

Notes on Initial Discharge:

Time	Volume	pH	Conductivity	Temp.	Comments
13:25	15	7.84	2.67	75.1	Clear
13:27	30	7.10	1.33	70.5	Clear
13:34	45	6.65	1.12	67.5	Clear
13:45	60	6.49	1.11	66.1	Clear
13:52	75	6.48	1.10	66.0	Clear

Time Field Parameter Begins:

	Rep #1	Rep #2	Rep #3	Rep #4
pH				
Conductivity				
Temperature (F)				

Time Sample Collection Begins: 15:15
Time Sample Collection Ends: 15:17
Total Gallons Purged: 78
Recharge Rate: gal/min or gal/hr
Comments: Meter x 1000

ALTON GEOSCIENCE, INC.
Well Development and
Water Sampling Field Survey Form

Project No. 30-065 Site: Main St., Pleasanton Date: 10/16/90
Well: MW-7 Sampling Team: L. Buenvenida
Well Development Method: Pump
Sampling Method: 2" Bailer (PVC)
Describe Equipment Decontamination Method: Triple rinsed with TSP, tap water, and deionized water

---

Well Development/Well Sampling Data

Total Well Depth: 23.87 feet Time: 13:15 Water Level Before Pumping: 9.19

Water Column	Casing Diameter 2-inch	4-inch	Volume	Factor	Volume to Purge
14.68 ft. x	0.16 or	x 0.65	2.35	x 10	= 23.5

Depth Purging From: 12 feet. Time Purging Begins: 13:45

Notes on Initial Discharge: _____

Time	Volume	pH	Conductivity	Temp.	Comments
13:48	1.5	8.30	1.40	79.6	Brown, cloudy
13:64	3	7.90	.96	75.6	Brown, cloudy
13:59	4.5	7.97	.85	73.6	Brown, cloudy
14:04	6	8.01	.83	72.1	Brown, cloudy
14:10	7.5	8.02	.82	71.6	Brown, cloudy

Time Field Parameter Begins: _____

	Rep #1	Rep #2	Rep #3	Rep #4
pH				
Conductivity				
Temperature (F)				

Time Sample Collection Begins: 15:40
Time Sample Collection Ends: 15:42
Total Gallons Purged: 10
Recharge Rate: _____ gal/min or gal/hr
Comments: Meter x 1000

ALTON GEOSCIENCE, INC.
Well Development and
Water Sampling Field Survey Form

Project No. 30-065 Site: Main St., Pleasanton Date: 10/16/90
Well: MW-8 Sampling Team: L. Buenvenida
Well Development Method: Pump
Sampling Method: 2" Bailer (PVC)
Describe Equipment Decontamination Method: Triple rinsed with TSP, water, and deionized water

---

Well Development/Well Sampling Data

Total Well Depth: 28.66 feet Time: 13:22 Water Level Before Pumping: 11.22

Water Column	Casing Diameter 2-inch	4-inch	Volume	Factor		Volume to Purge
17.44 ft. x	0.16 or	x 0.65	2.79	x 10	=	27.9

Depth Purging From: _____ feet. Time Purging Begins: 14:00

Notes on Initial Discharge: _____

Time	Volume	pH	Conductivity	Temp.	Comments
14:03	2	8.14	1.38	76.3	Clear
14:08	4	7.82	.99	74.5	Clear
14:12	6	7.68	.91	73.1	Clear
14:16	8	7.65	.92	71.6	Clear
14:19	10	7.64	.92	70.3	Clear

Time Field Parameter Begins: _____

	Rep #1	Rep #2	Rep #3	Rep #4
pH				
Conductivity				
Temperature (F)				

Time Sample Collection Begins: 16:00
Time Sample Collection Ends: _____
Total Gallons Purged: 12
Recharge Rate: _____ gal/min or gal/hr
Comments: Meter x 1000

APPENDIX F

TECHNICAL EXPLANATION OF AQUIFER ANALYSIS, SLUG TEST DATA AND GRAPHS, AND PERMEABILITY TESTS

A TECHNICAL EXPLANATION TO AQUIFER TESTING AND ANALYSIS

Analysis of aquifer characteristics to assess the fate and transport of contaminants in ground water involves several stages. The first is the exploratory stage, in which surface and subsurface geological and geophysical techniques are used to define the water-bearing formation. Next is the evaluation stage, to define the hydrogeologic parameters and physical characteristics of the aquifer, which are needed to properly design and construct recovery or extraction wells and control contaminant migration. The last is the confirmation stage, in which the design and operation of the wells are optimized for the management and remediation of ground water.

Basis of Analysis

The hydraulic properties of aquifers and soil materials that define the rate of water movement into, through, and out of subsurface material, and the water movement's effect on the piezometric surfaces of water tables, are hydraulic conductivity (K), storage coefficient (S), and transmissivity (T).

Hydraulic conductivity is defined as a coefficient of proportion describing the rate at which water can move through a permeable medium. It is primarily dependent upon the porosity and permeability of the soil and the density and viscosity of the water (Fetter, 1980).

The storage coefficient of an aquifer is defined as the volume of water yielded per unit horizontal area and per unit drop in the water table level (unconfined aquifers) or the piezometric surface (confined aquifers). Another term indicative of the water-yielding capacity of an aquifer is its transmissivity or transmissibility (Bouwer, 1978). Transmissivity can be defined as the rate at which water of a prevailing density and viscosity is transmitted through a unit width of an aquifer under a unit hydraulic gradient. It is a function of the properties of the liquid, the porous media, and the thickness of the porous media (Fetter, 1980).

Of interest in understanding aquifer characteristics is the movement or yielding capabilities of the water-bearing formation. To estimate these parameters, values for one or more of the aquifer properties must be obtained. Various techniques have been developed for obtaining values for these

properties or parameters. Rate-of-rise or rate-of-fall techniques, such as the auger-hole and slug test methods, are used to measure the hydraulic conductivity (K) of the soil profile in shallow ground water (Bouwer 1978). These techniques, however, only measure the K value from a relatively small portion of the aquifer, and cannot measure the storage coefficient (S).

Rate-of-Rise or Rate-of-Fall Techniques

Site-specific hydraulic conductivity values can be determined from results of slug tests performed in a single well or piezometer. The test is initiated by causing an instantaneous change in the water level in a well through sudden introduction of a volume of water. The recovery of the water level over time is then observed. The procedure requires the use of a pressure sensitive transducer with the probe placed below the surface of the water. Water is then immediately introduced to the well, causing an immediate rise in the water level.

Pressure readings are recorded over time as the water level returns to the initial level. The hydraulic conductivity is then calculated using the Bouwer and Rice (1976) equation.

FALLING HEAD PERMEABILITY TEST

Soil description: Silty Clay (CL).

Sample No: MW-7 @16.5 Location: Former Mobil,Pleasanton.

Length of Sample.L: 12.5 cm Area of Specimen: 20.3 cm2

Dry Weight: N/A Gs: N/A Void Ratio: N/A

Test No.	H1 (cm)	H2 (cm)	Time (sec)	Temp. (c)	Volume (cm3)	K
1	90.0	89.2	418	23.9	0.8	1.6EE-5
2	89.2	88.5	324	=	0.7	1.83EE-5
3	84.5	83.8	346	=	0.5	1.29EE-5
4	83.8	83.1	348	=	0.5	1.3EE-5

K20c= 1.47E-5 cm/sec Avg K= 1.5 EE-5 cm/sec

FALLING HEAD PERMEABILITY TEST

Soil description: Silty Sand (SM).

Sample No: MW-4 @36.5 Location: Former Mobil,Pleasanton.

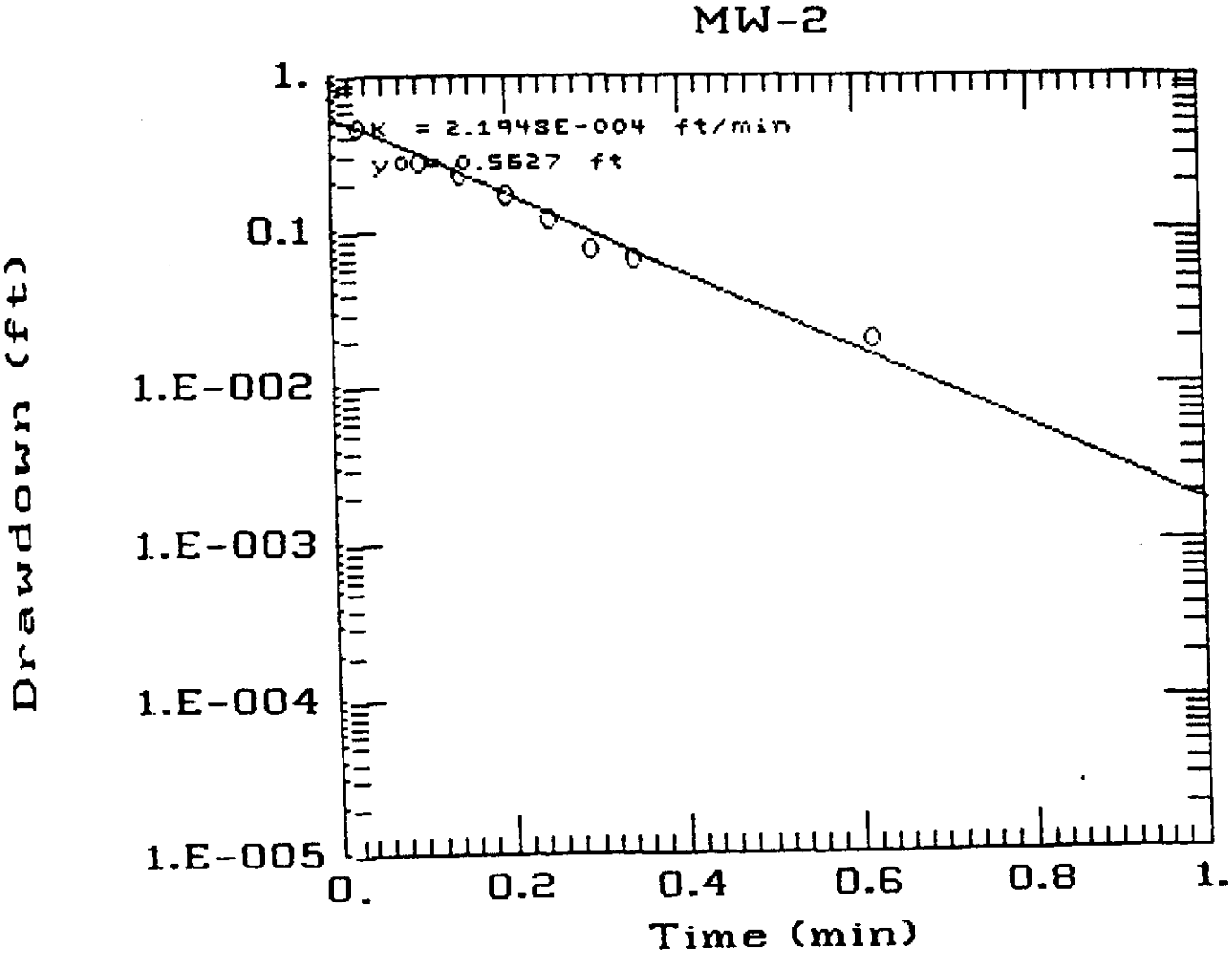
Length of Sample.L: 12.5 cm Area of Specimen: 20.3 cm2

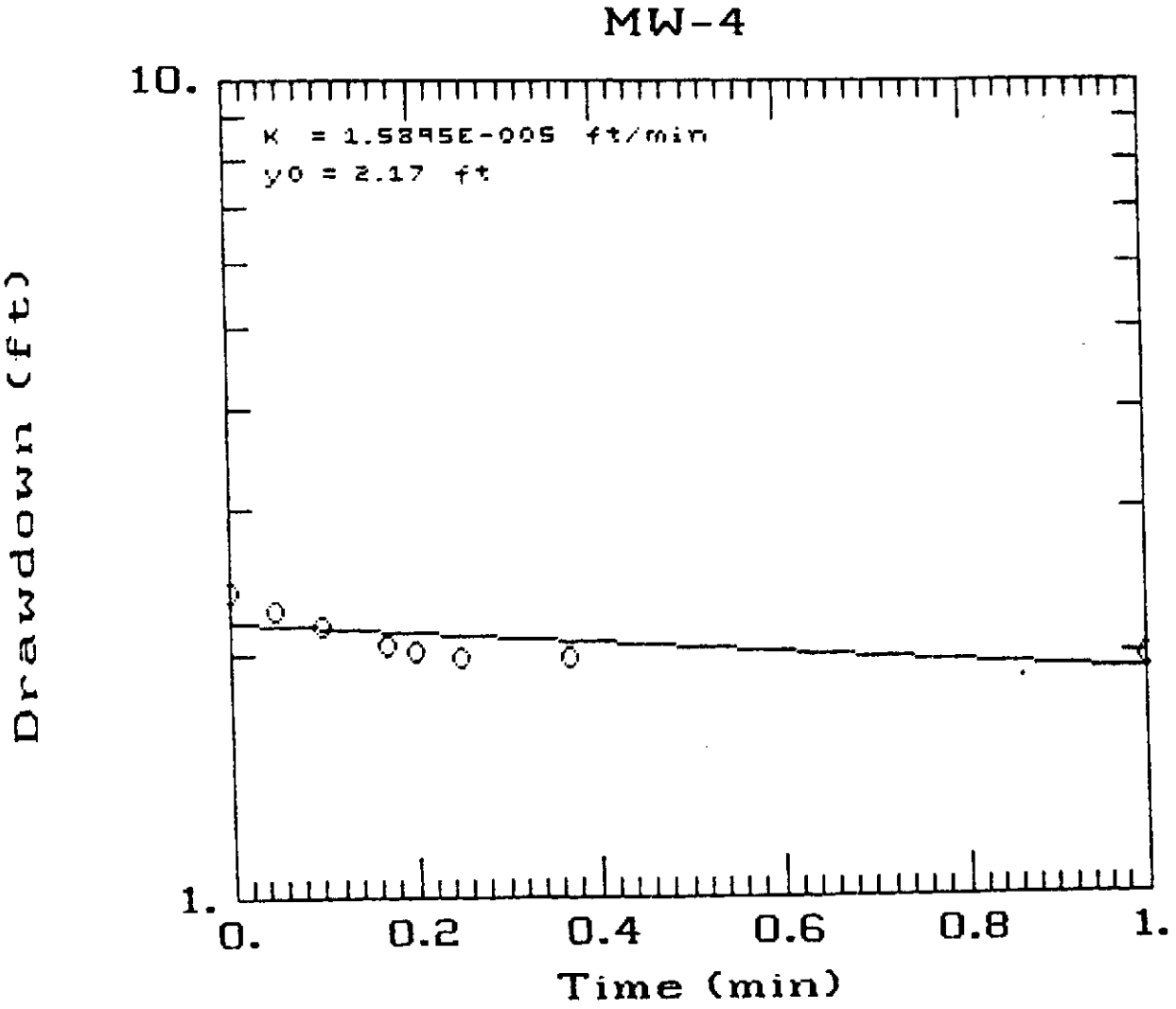
Dry Weight: N/A Gs: N/A Void Ratio: N/A

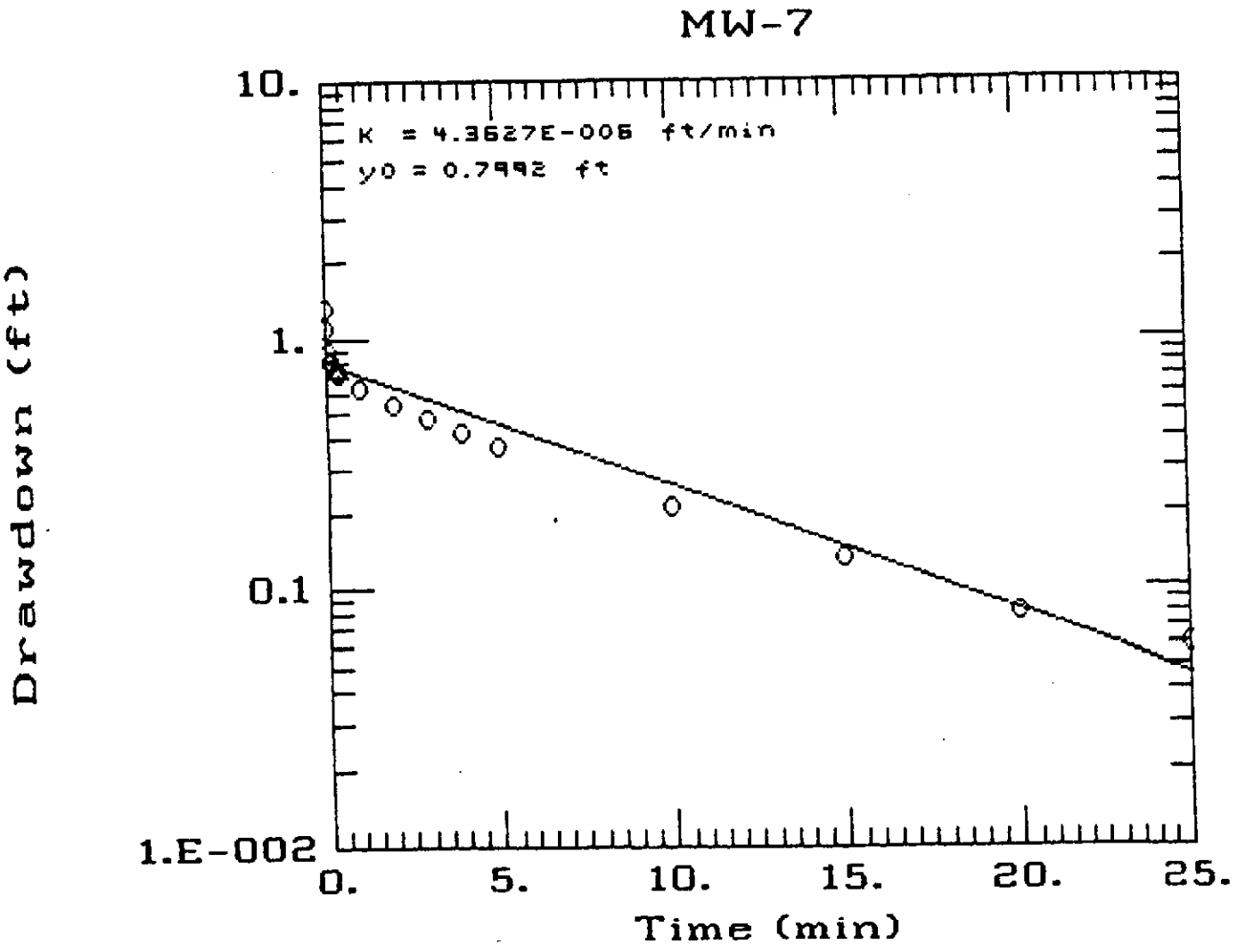
Test No.	H1 (cm)	H2 (cm)	Time (sec)	Temp. (c)	Volume (cm3)	K
1	88.0	85.5	942	23.9	2.3	2.1EE-5
2	85.5	84.5	355	=	0.8	1.99EE-5
3	84.5	83.5	334	=	0.7	1.87EE-5
4	83.5	82.5	487	=	1.1	2.1EE-5

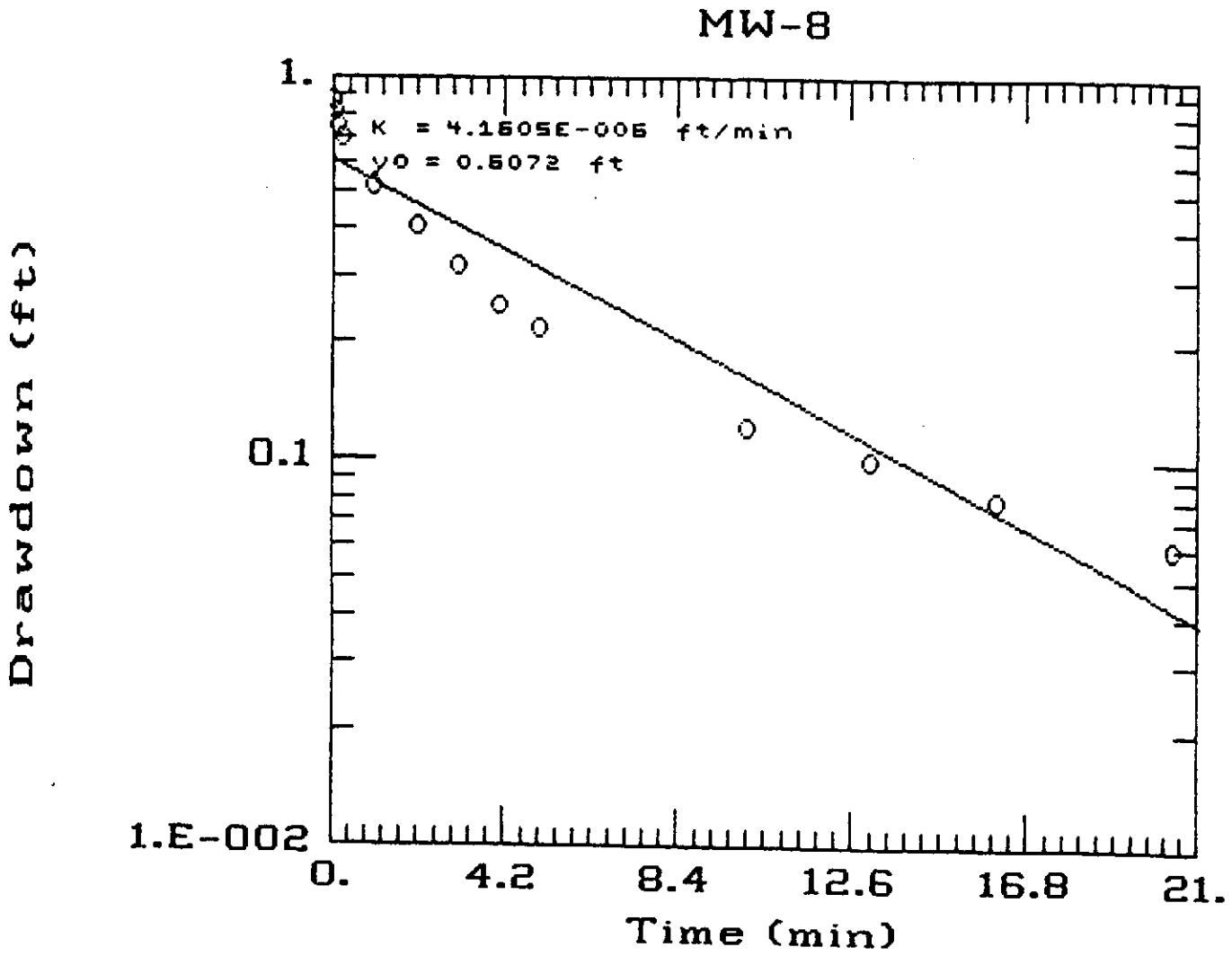
K20c= 1.95E-5 cm/sec

Avg K= 1.99 E-5 cm/sec


MW-2
K = 2.1948E-004 ft/min
y00= 0.5627 ft
1.
0.1
1.E-002
1.E-003
1.E-004
1.E-005
Drawdown (ft)
0.
0.2
0.4
0.6
0.8
1.
Time (min)


MW-4
K = 1.5895E-005 ft/min
y0 = 2.17 ft
10.
1.
0.
0.2
0.4
0.6
0.8
1.
Drawdown (ft)
Time (min)


MW-7
K = 4.3627E-005 ft/min
y0 = 0.7992 ft
10.
1.
0.1
1.E-002
0.
5.
10.
15.
20.
25.
Drawdown (ft)
Time (min)


MW-8
K = 4.1605E-005 ft/min
y0 = 0.5072 ft
1.
0.1
1.E-002
Drawdown (ft)
0.
4.2
8.4
12.6
16.8
21.
Time (min)

SLUG TEST DATA

MW-2

NOVEMBER, 1990

TIME (min)	DRAWDOWN (ft)
0.00	0.82
0.033	0.46
0.10	0.28
0.15	0.23
0.20	0.17
0.25	0.12
0.30	0.08
0.35	0.07
0.62	0.02

SLUG TEST DATA

MW-4

NOVEMBER, 1990

TIME (min)	DRAWDOWN (ft)
0.00	2.37
0.05	2.26
0.10	2.16
0.17	2.04
0.20	2.01
0.25	1.98
0.37	1.98
1.00	1.98

SLUG TEST DATA

MW-7

NOVEMBER, 1990

TIME (min)	DRAWDOWN (ft)
0.00	1.31
0.033	1.10
0.10	0.90
0.15	0.83
0.20	0.80
0.25	0.77
0.30	0.75
0.35	0.74
0.40	0.73
1.02	0.63
2.00	0.54
2.95	0.48
3.95	0.42
4.95	0.37
9.95	0.21
14.95	0.13
19.95	0.08
24.95	0.06

SLUG TEST DATA

MW-8

NOVEMBER, 1990

TIME (min)	DRAWDOWN (ft)
0.00	0.87
0.07	0.81
0.15	0.75
0.25	0.70
1.05	0.52
2.05	0.41
3.05	0.32
4.05	0.25
5.05	0.22
10.05	0.12
13.05	0.10
16.05	0.08
20.38	0.06

APPENDIX G

OFFICIAL LABORATORY REPORTS FOR SOIL SAMPLING AND CHAIN OF CUSTODY DOCUMENTATION

SUPERIOR ANALYTICAL LABORATORIES, INC.

825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

DOHS #319
DOHS #220

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 81601
CLIENT: Alton Geoscience
CLIENT JOB NO.: 30-065

DATE RECEIVED: 09/26/90
DATE REPORTED: 10/01/90

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS
by Modified EPA SW-846 Method 5030 and 8015

LAB #	Sample Identification	Concentration (mg/Kg) Gasoline Range
1	S.P#1	ND<1
2	S.P#2	ND<1
3	S.P#3	ND<1
4	S.P#4	ND<1
5	S.P#5	ND<1
6	S.P#6	ND<1

mg/kg - parts per million (ppm)

Method Detection Limit for Gasoline in Soil: 1 mg/Kg

QAQC Summary:

Daily Standard run at 2mg/L: RPD Gasoline = 11
MS/MSD Average Recovery = 96%: Duplicate RPD = 10.7

Richard Srna, Ph.D.

Dorena Srna for

Laboratory Manager

SUPERIOR ANALYTICAL LABORATORIES, INC.
825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512
DOHS #319
DOHS #220

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 81601
CLIENT: Alton Geoscience
CLIENT JOB NO.: 30-065

DATE RECEIVED: 09/26/90
DATE REPORTED: 10/01/90

ANALYSIS FOR BENZENE, TOLUENE, ETHYL BENZENE & XYLENES
by EPA SW-846 Methods 5030 and 8020

LAB #	Sample Identification	Concentration(ug/Kg) Benzene	Toluene	Ethyl Benzene	Xylenes
1	S.P#1	ND<3	ND<3	ND<3	ND<3
2	S.P#2	ND<3	ND<3	ND<3	ND<3
3	S.P#3	ND<3	ND<3	ND<3	ND<3
4	S.P#4	ND<3	ND<3	ND<3	ND<3
5	S.P#5	ND<3	ND<3	ND<3	ND<3
6	S.P#6	ND<3	ND<3	ND<3	ND<3

ug/Kg - parts per billion (ppb)

Method Detection Limit in Soil: 3 ug/Kg

QAQC Summary:

Daily Standard run at 20ug/L: RPD = <15%
MS/MSD Average Recovery = 98 %: Duplicate RPD = <4

Richard Srna, Ph.D.

Dorena Srna

Laboratory Manager

81601

Project No. 30-065
Project Name Former Mobil Station
Samplers M.A (ALTON Geoscience)
P.O. No. 30-065

Superior Analytical Laboratory
825 Arnold Dr. Bay 2
Martinez, CA 94553
(415) 229-1512

Sample Number	Date	Time	Location	Matrix	Number of Containers	Sample Preservation	TPH as Gasoline	BTXE	TPH as Diesel	Oil & Grease	8010	8240			
S-P#1	9-26-90	9:30	Stock Pile	Soil	1		✓	✓							
S-P#2	〃	〃	〃	〃	1		✓	✓							
S-P#3	〃	〃	〃	〃	1		✓	✓							
S-P#4	〃	〃	〃	〃	1		✓	✓							
S-P#5	〃	〃	〃	〃	1		✓	✓							
S-P#6	〃	〃	〃	〃	1		✓	✓							

Relinquished By (Signature)	Date/Time	Received By (Signature)	Date/Time
1. Mandach Allied	9-26-90 1018	1.	
2.		2.	
3.		3.	
4.		4. [signature]	9-26-90 1918

REMARKS:
72 hr Turnaround
due Monday.

NOV 8 1990

SUPERIOR ANALYTICAL LABORATORIES, INC.

825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

DOHS #319
DOHS #220

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 81807
CLIENT: Alton Geoscience
CLIENT JOB NO.: 30-065

DATE RECEIVED: 10/31/90
DATE REPORTED: 11/06/90

ANALYSIS FOR BENZENE, TOLUENE, ETHYL BENZENE & XYLENES
by EPA SW-846 Methods 5030 and 8020

LAB #	Sample Identification	Concentration(ug/Kg) Benzene	Toluene	Ethyl Benzene	Xylenes
1	PS-1 @ 3'	3	7	20	270
2	PS-2 @ 3'	ND<3	ND<3	ND<3	ND<3
3	PS-3 @ 3'	ND<3	ND<3	ND<3	ND<3
4	PS-4 @ 3'	ND<8	100	430	5600
5	PS-5 @ 3'	2900	180000	180000	1200000
6	PS-6 @ 3'	100	6000	15000	80000

ug/Kg - parts per billion (ppb)

Method Detection Limit in Soil: 3 ug/Kg

QAQC Summary:

Daily Standard run at 20ug/L: RPD = <15%
MS/MSD Average Recovery = 84 %: Duplicate RPD = 4

Richard Srna, Ph.D.

Laboratory Manager

SUPERIOR ANALYTICAL LABORATORIES, INC.
825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512
DOHS #319
DOHS #220

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 81807
CLIENT: Alton Geoscience
CLIENT JOB NO.: 30-065

DATE RECEIVED: 10/31/90
DATE REPORTED: 11/06/90

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS
by Modified EPA SW-846 Method 5030 and 8015

LAB #	Sample Identification	Concentration (mg/Kg) Gasoline Range
1	PS-1 @ 3'	6
2	PS-2 @ 3'	ND<1
3	PS-3 @ 3'	ND<1
4	PS-4 @ 3'	110
5	PS-5 @ 3'	9700
6	PS-6 @ 3'	2200

mg/kg - parts per million (ppm)

Method Detection Limit for Gasoline in Soil: 1 mg/Kg

QAQC Summary:

Daily Standard run at 2mg/L: RPD Gasoline = 2
MS/MSD Average Recovery = 108%: Duplicate RPD = 6

Richard Srna, Ph.D.

Laboratory Manager

SHELL 81807

ALTON GEOSCIENCE
1000 BURNETT ST., #140
CONCORD, CA 94520 (415) 682-1582

CHAIN of CUSTODY RECORD

PAGE 1 of 1

DATE: 10/31/90

RESULTS DUE BY: 11/7/90

PROJECT NUMBER: 30-065

PROJECT NAME AND ADDRESS: 1024 Main St - Pleasanton.

PROJECT MANAGER: CHERIE D'ANDREA

SAMPLER'S SIGNATURE: [signature]

LABORATORY: Superior

REMARKS OR SPECIAL INSTRUCTIONS:

NOTE: PLEASE INDICATE VERBAL REQUESTS FOR ADDITIONAL ANALYSES IN THIS BOX.

SAMPLE NUMBER	SAMPLE DATE/TIME	LOCATION/ DESCRIPTION	SAMPLE MATERIAL	SAMPLE TYPE: GRAB	SAMPLE TYPE: COMP.	NUMBER OF CONTAINERS	SAMPLE PREP. 3510: SOLV. EXTR.	SAMPLE PREP. 3810: HEAD SPACE	SAMPLE PREP. 5030: PURGE & TRAP	SOIL ANALYSIS 418.1: TPHC (IR)	SOIL ANALYSIS 8010: HALOCARBONS	SOIL ANALYSIS 8020: BTXE/TPH-G	SOIL ANALYSIS DHS METHOD: TPHC (GC)	SOIL ANALYSIS 7420: TOTAL Pb	WATER ANALYSIS 418.1: TPHC (IR)	WATER ANALYSIS 601: HALOCARBONS	WATER ANALYSIS 602: BTXE	WATER ANALYSIS DHS METHOD: TPHC (GC)	WATER ANALYSIS 7421: TOTAL Pb
	10/31/90 8130	PS-1 @ 3'	Soil									X							
		PS-2 @ 3'																	
		PS-3 @ 3'																	
		PS-4 @ 3'																	
		PS-5 @ 3'																	
		PS-6 @ 3'																	

TOTAL NO. OF CONTAINERS:

RELINQUISHED BY:	RECEIVED BY:	DATE/TIME:	METHOD OF SHIPMENT:
[signature]	Don Johnston	10/31/90 1000	
RELINQUISHED BY: Don Johnston EXPRESS IT	RECEIVED BY:	DATE/TIME: 10/31/90 10:35	SHIPPED BY:
RELINQUISHED BY:	RECEIVED BY:		

OCT 23 1990

SUPERIOR ANALYTICAL LABORATORIES, INC.

825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

DOHS #319
DOHS #220

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 81667
CLIENT: Alton Geoscience
CLIENT JOB NO.: 30-065

DATE RECEIVED:10/11/90
DATE REPORTED:10/18/90

ANALYSIS FOR TOTAL OIL AND GREASE
by Method 503E

LAB #	Sample Identification	Concentration(mg/Kg) Oil & Grease
2	SB-9 16-161/2	30
4	SB-9 26-261/2	ND<20
8	SB-11 11-111/2	ND<20
10	SB-11 21-211/2	30
12	SB-11 31-311/2	ND<20

mg/kg - parts per million (ppm)

Method Detection Limit for Oil and Grease in Soil: 20mg/Kg

QAQC Summary: Duplicate RPD : 13%

Richard Srna, Ph.D.

Dorena Srna for

Laboratory Manager

OCT 23 '90

SUPERIOR ANALYTICAL LABORATORIES, INC.

825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

DOHS #319
DOHS #220

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 81667
CLIENT: Alton Geoscience
CLIENT JOB NO.: 30-065

DATE RECEIVED: 10/11/90
DATE REPORTED: 10/18/90

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS
by Modified EPA SW-846 Method 5030 and 8015

LAB #	Sample Identification	Concentration (mg/Kg) Gasoline Range
1	SB-9 6-61/2	ND<1
2	SB-9 16-161/2	1
3	SB-9 21-211/2	4
4	SB-9 26-261/2	9
5	SB-10 6-61/2	ND<1
6	SB-10 11-111/2	ND<1
7	SB-11 6-61/2	ND<1
8	SB-11 11-111/2	ND<1
9	SB-11 16-161/2	ND<1
10	SB-11 21-211/2	ND<1
11	SB-11 26-261/2	ND<1
12	SB-11 31-311/2	ND<1
13	SB-11 36-361/2	ND<1
14	SB-12 6-61/2	ND<1
15	SB-12 11-111/2	ND<1
16	SB-13 6-61/2	ND<1

mg/kg - parts per million (ppm)

Method Detection Limit for Gasoline in Soil: 1 mg/Kg

QAQC Summary:

Daily Standard run at 2mg/L: RPD Gasoline = 14%
MS/MSD Average Recovery = 108%: Duplicate RPD = 3%

Richard Srna, Ph.D.

Laboratory Manager

OCT 2 3 1990

SUPERIOR ANALYTICAL LABORATORIES, INC.

825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

DOHS #319
DOHS #220

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 81667
CLIENT: Alton Geoscience
CLIENT JOB NO.: 30-065

DATE RECEIVED: 10/11/90
DATE REPORTED: 10/18/90

ANALYSIS FOR BENZENE, TOLUENE, ETHYL BENZENE & XYLENES
by EPA SW-846 Methods 5030 and 8020

LAB #	Sample Identification	Concentration(ug/Kg) Benzene	Toluene	Ethyl Benzene	Xylenes
1	SB-9 6-61/2	ND<3	ND<3	ND<3	ND<3
2	SB-9 16-161/2	330	74	10	190
3	SB-9 21-211/2	1500	200	140	270
4	SB-9 26-261/2	2600	44	840	69
5	SB-10 6-61/2	ND<3	8	ND<3	15
6	SB-10 11-111/2	19	6	11	61
7	SB-11 6-61/2	ND<3	ND<3	ND<3	ND<3
8	SB-11 11-111/2	ND<3	5	ND<3	ND<3
9	SB-11 16-161/2	ND<3	4	ND<3	ND<3
10	SB-11 21-211/2	ND<3	ND<3	ND<3	ND<3
11	SB-11 26-261/2	ND<3	ND<3	ND<3	ND<3
12	SB-11 31-311/2	ND<3	ND<3	ND<3	ND<3
13	SB-11 36-361/2	8	ND<3	ND<3	ND<3
14	SB-12 6-61/2	ND<3	ND<3	ND<3	ND<3
15	SB-12 11-111/2	ND<3	ND<3	ND<3	ND<3
16	SB-13 6-61/2	ND<3	7	ND<3	ND<3

ug/Kg - parts per billion (ppb)

Method Detection Limit in Soil: 3 ug/Kg

QAQC Summary:
Daily Standard run at 20ug/L: RPD = <15%
MS/MSD Average Recovery = 104 %: Duplicate RPD = <8%

Richard Srna, Ph.D.

Dorena Srna fo
Laboratory Manager

ALTON GEOSCIENCE
1000 BURNETT AVE., STE. 140
CONCORD, CA 94520 (415) 682-1582

CHAIN of CUSTODY RECORD

PAGE 1 of 2

DATE: 10/11/90 DUE BY:

LABORATORY: Superior

PROJECT NUMBER / MANAGER: 30-065 C. D'Andrea

SAMPLERS SIGNATURE: [signature]

PROJECT NAME / ADDRESS: Mobil Oil Site 10-H6J, 1024 Main St, Pleasanton

REMARKS OR SPECIAL INSTRUCTIONS:

5 DAY T.A.T.

SAMPLE NUMBER	SAMPLE DATE/TIME	LOCATION/ DESCRIPTION	SAMPLE MATRIX	SAMPLE TYPE: GRAB	SAMPLE TYPE: COMP.	TYPE & NUMBER OF CONTAINERS	ANALYSIS: 8015/8020 TPH-G BTEX	ANALYSIS: HVOC 8010	ANALYSIS: Oil + grease	ANALYSIS	ANALYSIS
1	10-8-90	SB-9 @ 6-6½'	Soil	X			X	X			
2		SB-9 @ 16-16½'							X		
3		SB-9 @ 21-21½'									
4		SB-9 @ 26-26½'							X		
5		SB-10 @ 6-6½'									
6		SB-10 @ 11-11½'									
7		SB-11 @ 6-6½'									
8	10-9-90	SB-11 @ 11-11½'							X		
9		SB-11 @ 16-16½'									
10		SB-11 @ 21-21½'							X		
11		SB-11 @ 26-26½'									
12		SB-11 @ 31-31½'							X		

CHAIN OF CUSTODY

	SIGNATURE	INCLUSIVE DATES/TIMES		SIGNATURE	INCLUSIVE DATES/TIMES
1.	[signature]	10/11/90 9:40	4.		
2.			5.		
3.					

ALTON GEOSCIENCE
1989 BURNETT AVE., STE. 140
CONCORD, CA 94520 (415) 682-1582

CHAIN of CUSTODY RECORD

PAGE 2 of 2

DATE: 10/11/90 DUE BY:

LABORATORY: Superior

PROJECT NUMBER / MANAGER: 30-065 C. D'Andrea

SAMPLERS SIGNATURE: [signature]

PROJECT NAME / ADDRESS: Mobil Oil Site 10-AGJ, 1024 Main St., Pleasanton

REMARKS OR SPECIAL INSTRUCTIONS:

5 DAY T.A.T

SAMPLE NUMBER	SAMPLE DATE/TIME	LOCATION/ DESCRIPTION	SAMPLE MATRIX	SAMPLE TYPE: GRAB	SAMPLE TYPE: COMP.	TYPE & NUMBER OF CONTAINERS	ANALYSIS: 8015/8020 TPH-g/BTEX	ANALYSIS: 8010 HVOC	ANALYSIS	ANALYSIS
13	10-9-90	SB-11 @ 36-36½'	Soil	X			X	X		
14	10-10-90	SB-12 @ 6-6½'	"	"			"	"		
15	"	SB-12 @ 11-11½'	"	"			"	"		
16	"	SB-13 @ 6-6½'	"	"			"	"		

CHAIN OF CUSTODY

	SIGNATURE	INCLUSIVE DATES/TIMES		SIGNATURE	INCLUSIVE DATES/TIMES	
1.	[signature]	10/11/90	9:40	4.		
2.				5.		

OCT 12 '90 15:48 ALTON GEOSCIENCE 4156828521 P.5

OCT 22 1990

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 52627-1
CLIENT: Alton Geoscience
JOB NO.: 30-065

DATE SAMPLED: 10/11/90
DATE RECEIVED: 10/11/90
DATE ANALYZED: 10/15/90

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE:SB-9 6-6.5

Compound	MDL (ug/kg)	RESULTS (ug/kg)
Chloromethane/Vinyl Chloride	10	ND
Bromomethane/Chloroethane	10	ND
Trichlorofluoromethane	5	ND
1,1-Dichloroethene	5	ND
Methylene Chloride	5	ND
trans-1,2-Dichloroethene	5	ND
1,1-Dichloroethane	5	ND
Chloroform	5	ND
1,1,1-Trichloroethane	5	ND
Carbon tetrachloride	5	ND
1,2-Dichloroethane	5	ND
Trichloroethylene	5	ND
1,2-Dichloropropane	5	ND
Bromodichloromethane	5	ND
Cis-1,3-Dichloropropene	5	ND
trans-1,3-Dichloropropene	5	ND
1,1,2-Trichloroethane	5	ND
Tetrachloroethene	5	ND
Dibromochloromethane	5	ND
Chlorobenzene	5	ND
Bromoform	5	ND
1,1,2,2-Tetrachloroethane	5	ND
1,3-Dichlorobenzene	5	ND
1,2-Dichlorobenzene	5	ND
1,4-Dichlorobenzene	5	ND

MDL = Method Detection Limit
ug/l = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD = <15
MS/MSD average recovery = 84 % :MS/MSD RPD =< 2 %

Richard Srna, Ph.D.

Laboratory Director

OCT 2 2 1990

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 52627-2
CLIENT: Alton Geoscience
JOB NO.: 30-065

DATE SAMPLED: 10/11/90
DATE RECEIVED: 10/11/90
DATE ANALYZED: 10/15/90

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE:SB-9 16-16.5

Compound	MDL (ug/kg)	RESULTS (ug/kg)
Chloromethane/Vinyl Chloride	10	ND
Bromomethane/Chloroethane	10	ND
Trichlorofluoromethane	5	ND
1,1-Dichloroethene	5	ND
Methylene Chloride	5	ND
trans-1,2-Dichloroethene	5	ND
1,1-Dichloroethane	5	ND
Chloroform	5	ND
1,1,1-Trichloroethane	5	ND
Carbon tetrachloride	5	ND
1,2-Dichloroethane	5	15
Trichloroethylene	5	ND
1,2-Dichloropropane	5	ND
Bromodichloromethane	5	ND
Cis-1,3-Dichloropropene	5	ND
trans-1,3-Dichloropropene	5	ND
1,1,2-Trichloroethane	5	ND
Tetrachloroethene	5	ND
Dibromochloromethane	5	ND
Chlorobenzene	5	ND
Bromoform	5	ND
1,1,2,2-Tetrachloroethane	5	ND
1,3-Dichlorobenzene	5	ND
1,2-Dichlorobenzene	5	ND
1,4-Dichlorobenzene	5	ND

MDL = Method Detection Limit
ug/l = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD = <15
MS/MSD average recovery = 84 % :MS/MSD RPD =< 2 %

Richard Srna, Ph.D.

Laboratory Director

OCT 22 1990

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I · SAN FRANCISCO, CA 94124 · PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 52627-3
CLIENT: Alton Geoscience
JOB NO.: 30-065

DATE SAMPLED: 10/11/90
DATE RECEIVED: 10/11/90
DATE ANALYZED: 10/15/90

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE:SB-9 21-21.5

Compound	MDL (ug/kg)	RESULTS (ug/kg)
Chloromethane/Vinyl Chloride	10	ND
Bromomethane/Chloroethane	10	ND
Trichlorofluoromethane	5	ND
1,1-Dichloroethene	5	ND
Methylene Chloride	5	ND
trans-1,2-Dichloroethene	5	ND
1,1-Dichloroethane	5	ND
Chloroform	5	ND
1,1,1-Trichloroethane	5	ND
Carbon tetrachloride	5	ND
1,2-Dichloroethane	5	66
Trichloroethylene	5	ND
1,2-Dichloropropane	5	ND
Bromodichloromethane	5	ND
Cis-1,3-Dichloropropene	5	ND
trans-1,3-Dichloropropene	5	ND
1,1,2-Trichloroethane	5	ND
Tetrachloroethene	5	ND
Dibromochloromethane	5	ND
Chlorobenzene	5	ND
Bromoform	5	ND
1,1,2,2-Tetrachloroethane	5	ND
1,3-Dichlorobenzene	5	ND
1,2-Dichlorobenzene	5	ND
1,4-Dichlorobenzene	5	ND

MDL = Method Detection Limit
ug/l = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD = <15
MS/MSD average recovery = 84 % :MS/MSD RPD =< 2 %

Richard Srna, Ph.D.
Laboratory Director

OCT 22 1990

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 52627-4
CLIENT: Alton Geoscience
JOB NO.: 30-065

DATE SAMPLED: 10/11/90
DATE RECEIVED: 10/11/90
DATE ANALYZED: 10/15/90

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE:SB-9 26-26.5

Compound	MDL (ug/kg)	RESULTS (ug/kg)
Chloromethane/Vinyl Chloride	10	ND
Bromomethane/Chloroethane	10	ND
Trichlorofluoromethane	5	ND
1,1-Dichloroethene	5	ND
Methylene Chloride	5	ND
trans-1,2-Dichloroethene	5	ND
1,1-Dichloroethane	5	ND
Chloroform	5	ND
1,1,1-Trichloroethane	5	ND
Carbon tetrachloride	5	ND
1,2-Dichloroethane	5	130
Trichloroethylene	5	ND
1,2-Dichloropropane	5	ND
Bromodichloromethane	5	ND
Cis-1,3-Dichloropropene	5	ND
trans-1,3-Dichloropropene	5	ND
1,1,2-Trichloroethane	5	ND
Tetrachloroethene	5	ND
Dibromochloromethane	5	ND
Chlorobenzene	5	ND
Bromoform	5	ND
1,1,2,2-Tetrachloroethane	5	ND
1,3-Dichlorobenzene	5	ND
1,2-Dichlorobenzene	5	ND
1,4-Dichlorobenzene	5	ND

MDL = Method Detection Limit
ug/l = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD = <15
MS/MSD average recovery = 84 % :MS/MSD RPD =< 2 %

Richard Srna, Ph.D.

Laboratory Director

OCT 2 2 1990

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 52627-5
CLIENT: Alton Geoscience
JOB NO.: 30-065

DATE SAMPLED: 10/11/90
DATE RECEIVED: 10/11/90
DATE ANALYZED: 10/15/90

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE:SB-10 6-6.5

Compound	MDL (ug/kg)	RESULTS (ug/kg)
Chloromethane/Vinyl Chloride	10	ND
Bromomethane/Chloroethane	10	ND
Trichlorofluoromethane	5	ND
1,1-Dichloroethene	5	ND
Methylene Chloride	5	ND
trans-1,2-Dichloroethene	5	ND
1,1-Dichloroethane	5	ND
Chloroform	5	ND
1,1,1-Trichloroethane	5	ND
Carbon tetrachloride	5	ND
1,2-Dichloroethane	5	ND
Trichloroethylene	5	ND
1,2-Dichloropropane	5	ND
Bromodichloromethane	5	ND
Cis-1,3-Dichloropropene	5	ND
trans-1,3-Dichloropropene	5	ND
1,1,2-Trichloroethane	5	ND
Tetrachloroethene	5	ND
Dibromochloromethane	5	ND
Chlorobenzene	5	ND
Bromoform	5	ND
1,1,2,2-Tetrachloroethane	5	ND
1,3-Dichlorobenzene	5	ND
1,2-Dichlorobenzene	5	ND
1,4-Dichlorobenzene	5	ND

MDL = Method Detection Limit
ug/l = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD = <15
MS/MSD average recovery = 84 % :MS/MSD RPD =< 2 %

Richard Srna, Ph.D.
Laboratory Director

OCT 2 2 1990

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 52627-6
CLIENT: Alton Geoscience
JOB NO.: 30-065

DATE SAMPLED: 10/11/90
DATE RECEIVED: 10/11/90
DATE ANALYZED: 10/15/90

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE: SB-10 11-11.5

Compound	MDL (ug/kg)	RESULTS (ug/kg)
Chloromethane/Vinyl Chloride	10	ND
Bromomethane/Chloroethane	10	ND
Trichlorofluoromethane	5	ND
1,1-Dichloroethene	5	ND
Methylene Chloride	5	ND
trans-1,2-Dichloroethene	5	ND
1,1-Dichloroethane	5	ND
Chloroform	5	ND
1,1,1-Trichloroethane	5	ND
Carbon tetrachloride	5	ND
1,2-Dichloroethane	5	ND
Trichloroethylene	5	ND
1,2-Dichloropropane	5	ND
Bromodichloromethane	5	ND
Cis-1,3-Dichloropropene	5	ND
trans-1,3-Dichloropropene	5	ND
1,1,2-Trichloroethane	5	ND
Tetrachloroethene	5	ND
Dibromochloromethane	5	ND
Chlorobenzene	5	ND
Bromoform	5	ND
1,1,2,2-Tetrachloroethane	5	ND
1,3-Dichlorobenzene	5	ND
1,2-Dichlorobenzene	5	ND
1,4-Dichlorobenzene	5	ND

MDL = Method Detection Limit
ug/l = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD = <15
MS/MSD average recovery = 84 % :MS/MSD RPD =< 2 %

Richard Srna, Ph.D.
Laboratory Director

OCT 2 2 1990

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE. UNIT I · SAN FRANCISCO, CA 94124 · PHONE (415) 647-2081

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 52627-7
CLIENT: Alton Geoscience
JOB NO.: 30-065

DATE SAMPLED: 10/11/90
DATE RECEIVED: 10/11/90
DATE ANALYZED: 10/15/90

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE:SB-11 6-6.5

Compound	MDL (ug/kg)	RESULTS (ug/kg)
Chloromethane/Vinyl Chloride	10	ND
Bromomethane/Chloroethane	10	ND
Trichlorofluoromethane	5	ND
1,1-Dichloroethene	5	ND
Methylene Chloride	5	ND
trans-1,2-Dichloroethene	5	ND
1,1-Dichloroethane	5	ND
Chloroform	5	ND
1,1,1-Trichloroethane	5	ND
Carbon tetrachloride	5	ND
1,2-Dichloroethane	5	ND
Trichloroethylene	5	ND
1,2-Dichloropropane	5	ND
Bromodichloromethane	5	ND
Cis-1,3-Dichloropropene	5	ND
trans-1,3-Dichloropropene	5	ND
1,1,2-Trichloroethane	5	ND
Tetrachloroethene	5	ND
Dibromochloromethane	5	ND
Chlorobenzene	5	ND
Bromoform	5	ND
1,1,2,2-Tetrachloroethane	5	ND
1,3-Dichlorobenzene	5	ND
1,2-Dichlorobenzene	5	ND
1,4-Dichlorobenzene	5	ND

MDL = Method Detection Limit
ug/l = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD = <15
MS/MSD average recovery = 84 % :MS/MSD RPD =< 2 %

Richard Srna, Ph.D.
Laboratory Director

OCT 22 1990

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 52627-8
CLIENT: Alton Geoscience
JOB NO.: 30-065

DATE SAMPLED: 10/11/90
DATE RECEIVED: 10/11/90
DATE ANALYZED: 10/15/90

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE:SB-11 11-11.5

Compound	MDL (ug/kg)	RESULTS (ug/kg)
Chloromethane/Vinyl Chloride	10	ND
Bromomethane/Chloroethane	10	ND
Trichlorofluoromethane	5	ND
1,1-Dichloroethene	5	ND
Methylene Chloride	5	ND
trans-1,2-Dichloroethene	5	ND
1,1-Dichloroethane	5	ND
Chloroform	5	ND
1,1,1-Trichloroethane	5	ND
Carbon tetrachloride	5	ND
1,2-Dichloroethane	5	ND
Trichloroethylene	5	ND
1,2-Dichloropropane	5	ND
Bromodichloromethane	5	ND
Cis-1,3-Dichloropropene	5	ND
trans-1,3-Dichloropropene	5	ND
1,1,2-Trichloroethane	5	ND
Tetrachloroethene	5	ND
Dibromochloromethane	5	ND
Chlorobenzene	5	ND
Bromoform	5	ND
1,1,2,2-Tetrachloroethane	5	ND
1,3-Dichlorobenzene	5	ND
1,2-Dichlorobenzene	5	ND
1,4-Dichlorobenzene	5	ND

MDL = Method Detection Limit
ug/l = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD = <15
MS/MSD average recovery = 84 % :MS/MSD RPD =< 2 %

Richard Srna, Ph.D.
Laboratory Director

OCT 22 1990

SUPERIOR ANALYTICAL LABORATORY, INC.

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CERTIFICATE OF ANALYSIS

LABORATORY NO.: 52627-9
CLIENT: Alton Geoscience
JOB NO.: 30-065

DATE SAMPLED: 10/11/90
DATE RECEIVED: 10/11/90
DATE ANALYZED: 10/15/90

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE:SB-11 16-16.5

Compound	MDL (ug/kg)	RESULTS (ug/kg)
Chloromethane/Vinyl Chloride	10	ND
Bromomethane/Chloroethane	10	ND
Trichlorofluoromethane	5	ND
1,1-Dichloroethene	5	ND
Methylene Chloride	5	ND
trans-1,2-Dichloroethene	5	ND
1,1-Dichloroethane	5	ND
Chloroform	5	ND
1,1,1-Trichloroethane	5	ND
Carbon tetrachloride	5	ND
1,2-Dichloroethane	5	ND
Trichloroethylene	5	ND
1,2-Dichloropropane	5	ND
Bromodichloromethane	5	ND
Cis-1,3-Dichloropropene	5	ND
trans-1,3-Dichloropropene	5	ND
1,1,2-Trichloroethane	5	ND
Tetrachloroethene	5	ND
Dibromochloromethane	5	ND
Chlorobenzene	5	ND
Bromoform	5	ND
1,1,2,2-Tetrachloroethane	5	ND
1,3-Dichlorobenzene	5	ND
1,2-Dichlorobenzene	5	ND
1,4-Dichlorobenzene	5	ND

MDL = Method Detection Limit
ug/l = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD = <15
MS/MSD average recovery = 84 % :MS/MSD RPD =< 2 %

Richard Srna, Ph.D.

Laboratory Director

OCT 22 1990

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 52627-10
CLIENT: Alton Geoscience
JOB NO.: 30-065

DATE SAMPLED: 10/11/90
DATE RECEIVED: 10/11/90
DATE ANALYZED: 10/15/90

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE:SB-11 21-21.5

Compound	MDL (ug/kg)	RESULTS (ug/kg)
Chloromethane/Vinyl Chloride	10	ND
Bromomethane/Chloroethane	10	ND
Trichlorofluoromethane	5	ND
1,1-Dichloroethene	5	ND
Methylene Chloride	5	ND
trans-1,2-Dichloroethene	5	ND
1,1-Dichloroethane	5	ND
Chloroform	5	ND
1,1,1-Trichloroethane	5	ND
Carbon tetrachloride	5	ND
1,2-Dichloroethane	5	ND
Trichloroethylene	5	ND
1,2-Dichloropropane	5	ND
Bromodichloromethane	5	ND
Cis-1,3-Dichloropropene	5	ND
trans-1,3-Dichloropropene	5	ND
1,1,2-Trichloroethane	5	ND
Tetrachloroethene	5	ND
Dibromochloromethane	5	ND
Chlorobenzene	5	ND
Bromoform	5	ND
1,1,2,2-Tetrachloroethane	5	ND
1,3-Dichlorobenzene	5	ND
1,2-Dichlorobenzene	5	ND
1,4-Dichlorobenzene	5	ND

MDL = Method Detection Limit
ug/l = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD = <15 :MS/MSD RPD =< 2 %
MS/MSD average recovery = 84 %

Richard Srna, Ph.D.
Laboratory Director

OCT 22 1990

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 52627-11
CLIENT: Alton Geoscience
JOB NO.: 30-065

DATE SAMPLED: 10/11/90
DATE RECEIVED: 10/11/90
DATE ANALYZED: 10/15/90

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE:SB-9 26-26.5

Compound	MDL (ug/kg)	RESULTS (ug/kg)
Chloromethane/Vinyl Chloride	10	ND
Bromomethane/Chloroethane	10	ND
Trichlorofluoromethane	5	ND
1,1-Dichloroethene	5	ND
Methylene Chloride	5	ND
trans-1,2-Dichloroethene	5	ND
1,1-Dichloroethane	5	ND
Chloroform	5	ND
1,1,1-Trichloroethane	5	ND
Carbon tetrachloride	5	ND
1,2-Dichloroethane	5	ND
Trichloroethylene	5	ND
1,2-Dichloropropane	5	ND
Bromodichloromethane	5	ND
Cis-1,3-Dichloropropene	5	ND
trans-1,3-Dichloropropene	5	ND
1,1,2-Trichloroethane	5	ND
Tetrachloroethene	5	ND
Dibromochloromethane	5	ND
Chlorobenzene	5	ND
Bromoform	5	ND
1,1,2,2-Tetrachloroethane	5	ND
1,3-Dichlorobenzene	5	ND
1,2-Dichlorobenzene	5	ND
1,4-Dichlorobenzene	5	ND

MDL = Method Detection Limit
ug/l = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD = <15
MS/MSD average recovery = 84 % :MS/MSD RPD =< 2 %

Richard Srna, Ph.D.

Laboratory Director

OCT 22 1990

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 52627-12
CLIENT: Alton Geoscience
JOB NO.: 30-065

DATE SAMPLED: 10/11/90
DATE RECEIVED: 10/11/90
DATE ANALYZED: 10/15/90

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE:SB-11 31-31.5

Compound	MDL (ug/kg)	RESULTS (ug/kg)
Chloromethane/Vinyl Chloride	10	ND
Bromomethane/Chloroethane	10	ND
Trichlorofluoromethane	5	ND
1,1-Dichloroethene	5	ND
Methylene Chloride	5	ND
trans-1,2-Dichloroethene	5	ND
1,1-Dichloroethane	5	ND
Chloroform	5	ND
1,1,1-Trichloroethane	5	ND
Carbon tetrachloride	5	ND
1,2-Dichloroethane	5	ND
Trichloroethylene	5	ND
1,2-Dichloropropane	5	ND
Bromodichloromethane	5	ND
Cis-1,3-Dichloropropene	5	ND
trans-1,3-Dichloropropene	5	ND
1,1,2-Trichloroethane	5	ND
Tetrachloroethene	5	ND
Dibromochloromethane	5	ND
Chlorobenzene	5	ND
Bromoform	5	ND
1,1,2,2-Tetrachloroethane	5	ND
1,3-Dichlorobenzene	5	ND
1,2-Dichlorobenzene	5	ND
1,4-Dichlorobenzene	5	ND

MDL = Method Detection Limit
ug/l = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD = <15
MS/MSD average recovery = 84 % :MS/MSD RPD =< 2 %

Richard Srna, Ph.D.
Laboratory Director

OCT 22 1990

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 52627-13
CLIENT: Alton Geoscience
JOB NO.: 30-065

DATE SAMPLED: 10/11/90
DATE RECEIVED: 10/11/90
DATE ANALYZED: 10/15/90

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE:SB-11 36-36.5

Compound	MDL (ug/kg)	RESULTS (ug/kg)
Chloromethane/Vinyl Chloride	10	ND
Bromomethane/Chloroethane	10	ND
Trichlorofluoromethane	5	ND
1,1-Dichloroethene	5	ND
Methylene Chloride	5	ND
trans-1,2-Dichloroethene	5	ND
1,1-Dichloroethane	5	ND
Chloroform	5	ND
1,1,1-Trichloroethane	5	ND
Carbon tetrachloride	5	ND
1,2-Dichloroethane	5	ND
Trichloroethylene	5	ND
1,2-Dichloropropane	5	ND
Bromodichloromethane	5	ND
Cis-1,3-Dichloropropene	5	ND
trans-1,3-Dichloropropene	5	ND
1,1,2-Trichloroethane	5	ND
Tetrachloroethene	5	ND
Dibromochloromethane	5	ND
Chlorobenzene	5	ND
Bromoform	5	ND
1,1,2,2-Tetrachloroethane	5	ND
1,3-Dichlorobenzene	5	ND
1,2-Dichlorobenzene	5	ND
1,4-Dichlorobenzene	5	ND

MDL = Method Detection Limit
ug/l = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD = <15
MS/MSD average recovery = 84 % :MS/MSD RPD =< 2 %

Richard Srna, Ph.D.

Laboratory Director

OCT 22 1990

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I · SAN FRANCISCO, CA 94124 · PHONE (415) 647-2081

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 52627-14
CLIENT: Alton Geoscience
JOB NO.: 30-065

DATE SAMPLED: 10/11/90
DATE RECEIVED: 10/11/90
DATE ANALYZED: 10/15/90

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE:SB-12 6-6.5

Compound	MDL (ug/kg)	RESULTS (ug/kg)
Chloromethane/Vinyl Chloride	10	ND
Bromomethane/Chloroethane	10	ND
Trichlorofluoromethane	5	ND
1,1-Dichloroethene	5	ND
Methylene Chloride	5	ND
trans-1,2-Dichloroethene	5	ND
1,1-Dichloroethane	5	ND
Chloroform	5	ND
1,1,1-Trichloroethane	5	ND
Carbon tetrachloride	5	ND
1,2-Dichloroethane	5	ND
Trichloroethylene	5	ND
1,2-Dichloropropane	5	ND
Bromodichloromethane	5	ND
Cis-1,3-Dichloropropene	5	ND
trans-1,3-Dichloropropene	5	ND
1,1,2-Trichloroethane	5	ND
Tetrachloroethene	5	ND
Dibromochloromethane	5	ND
Chlorobenzene	5	ND
Bromoform	5	ND
1,1,2,2-Tetrachloroethane	5	ND
1,3-Dichlorobenzene	5	ND
1,2-Dichlorobenzene	5	ND
1,4-Dichlorobenzene	5	ND

MDL = Method Detection Limit
ug/l = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD = <15 :MS/MSD RPD =< 2 %
MS/MSD average recovery = 84 %

Richard Srna, Ph.D.
Laboratory Director

OCT 22 1990

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I · SAN FRANCISCO, CA 94124 · PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 52627-15
CLIENT: Alton Geoscience
JOB NO.: 30-065

DATE SAMPLED: 10/11/90
DATE RECEIVED: 10/11/90
DATE ANALYZED: 10/15/90

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE:SB-12 11-11.5

Compound	MDL (ug/kg)	RESULTS (ug/kg)
Chloromethane/Vinyl Chloride	10	ND
Bromomethane/Chloroethane	10	ND
Trichlorofluoromethane	5	ND
1,1-Dichloroethene	5	ND
Methylene Chloride	5	ND
trans-1,2-Dichloroethene	5	ND
1,1-Dichloroethane	5	ND
Chloroform	5	ND
1,1,1-Trichloroethane	5	ND
Carbon tetrachloride	5	ND
1,2-Dichloroethane	5	ND
Trichloroethylene	5	ND
1,2-Dichloropropane	5	ND
Bromodichloromethane	5	ND
Cis-1,3-Dichloropropene	5	ND
trans-1,3-Dichloropropene	5	ND
1,1,2-Trichloroethane	5	ND
Tetrachloroethene	5	ND
Dibromochloromethane	5	ND
Chlorobenzene	5	ND
Bromoform	5	ND
1,1,2,2-Tetrachloroethane	5	ND
1,3-Dichlorobenzene	5	ND
1,2-Dichlorobenzene	5	ND
1,4-Dichlorobenzene	5	ND

MDL = Method Detection Limit
ug/l = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD = <15
MS/MSD average recovery = 84 % :MS/MSD RPD =< 2 %

Richard Srna, Ph.D.
Laboratory Director

OCT 22 1990

SUPERIOR ANALYTICAL LABORATORY, INC.
1555 BURKE, UNIT I · SAN FRANCISCO, CA 94124 · PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 52627-16
CLIENT: Alton Geoscience
JOB NO.: 30-065

DATE SAMPLED: 10/11/90
DATE RECEIVED: 10/11/90
DATE ANALYZED: 10/15/90

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE:SB-13 6-6.5

Compound	MDL (ug/kg)	RESULTS (ug/kg)
Chloromethane/Vinyl Chloride	10	ND
Bromomethane/Chloroethane	10	ND
Trichlorofluoromethane	5	ND
1,1-Dichloroethene	5	ND
Methylene Chloride	5	ND
trans-1,2-Dichloroethene	5	ND
1,1-Dichloroethane	5	ND
Chloroform	5	ND
1,1,1-Trichloroethane	5	ND
Carbon tetrachloride	5	ND
1,2-Dichloroethane	5	ND
Trichloroethylene	5	ND
1,2-Dichloropropane	5	ND
Bromodichloromethane	5	ND
Cis-1,3-Dichloropropene	5	ND
trans-1,3-Dichloropropene	5	ND
1,1,2-Trichloroethane	5	ND
Tetrachloroethene	5	ND
Dibromochloromethane	5	ND
Chlorobenzene	5	ND
Bromoform	5	ND
1,1,2,2-Tetrachloroethane	5	ND
1,3-Dichlorobenzene	5	ND
1,2-Dichlorobenzene	5	ND
1,4-Dichlorobenzene	5	ND

MDL = Method Detection Limit
ug/l = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD = <15
MS/MSD average recovery = 84 % :MS/MSD RPD =< 2 %

Richard Srna, Ph.D.

Laboratory Director

ALTON GEOSCIENCE
1000 BURNETT AVE., STE. 340
CONCORD, CA 94520 (415) 682-1582

CHAIN of CUSTODY RECORD

PAGE 1 of 2

DATE: 10/11/90 DUE BY:

LABORATORY: Superior

PROJECT NUMBER / MANAGER: 30-065 L. D'Andrea

SAMPLERS SIGNATURE: [signature]

PROJECT NAME / ADDRESS: Mobil Oil Site 10-H6J, 1024 Main St Pleasanton

REMARKS OR SPECIAL INSTRUCTIONS:

5 DAY T.A.T.

SAMPLE NUMBER	SAMPLE DATE/TIME	STATION DESCRIPTION	SAMPLE MATRIX	SAMPLE TYPE: GRAB	SAMPLE TYPE: COMP.	TYPE & NUMBER OF CONTAINERS	ANALYSIS: 8015 / 8020 TPH-G / BTEX	ANALYSIS: 8010 HVOC	ANALYSIS: 8010 + 9 reqm.	ANALYSIS	ANALYSIS	ANALYSIS	ANALYSIS
1	10-8-90	SB-9 @ 6-6½'	Soil	X			X	X					
2		SB-9 @ 16-16½'							X				
3		SB-9 @ 21-21½'											
4		SB-9 @ 26-26½'							X				
5		SB-10 @ 6-6½'											
6		SB-10 @ 11-11½'											
7		SB-11 @ 6-6½'											
8	10-9-90	SB-11 @ 11-11½'							X				
9		SB-11 @ 16-16½'											
10		SB-11 @ 21-21½'							X				
11		SB-11 @ 26-26½'											
12		SB-11 @ 31-31½'							X				

CHAIN OF CUSTODY

	SIGNATURE	INCLUSIVE DATES/TIMES	SIGNATURE	INCLUSIVE DATES/TIMES
1.	[signature]	10/11/90 9:40	4.	
2.			5.	
3.			6.	

Copy(s) to be released from our C.O.C to MTZ Lab

DMM 10/15

ALTON GEOSCIENCE
1000 BURNETT AVE, STE. 140
CONCORD, CA 94520 (415) 682-1582

CHAIN of CUSTODY RECORD

PAGE 2 of 2

DATE: 10/11/90 DUE BY:
LABORATORY: Superior

PROJECT NUMBER/ MANAGER: 30-065 C. Dandrea
SAMPLERS SIGNATURE: [signature]
PROJECT NAME / ADDRESS: Mobil Oil Site 10-AEJ, 1024 Main St., Pleasanton

REMARKS OR SPECIAL INSTRUCTIONS:
5 DAY T.A.T

SAMPLE NUMBER	SAMPLE DATE/TIME	LOCATION DESCRIPTION	SAMPLE MATRIX	SAMPLE TYPE: GRAB	SAMPLE TYPE: COMP.	TYPE & NUMBER OF CONTAINERS	ANALYSIS: TPH-G/BTEX 8015	ANALYSIS: HVOC 8010
13	10-9-90	SB-11 @ 36-36½'	Soil	X			X	X
14	10-10-90	SB-12 @ 6-6½'	"	"			"	"
15	"	SB-12 @ 11-11½'	"	"			"	"
16	"	SB-13 @ 6-6½'	"	"			"	"

CHAIN OF CUSTODY

	SIGNATURE	INCLUSIVE DATES/TIMES		SIGNATURE	INCLUSIVE DATES/TIMES	
1.	[signature]	10/11/90	9:40	4.		
2.				5.		
3.				6.		

APPENDIX H

OFFICIAL LABORATORY REPORTS FOR GROUND WATER SAMPLING AND CHAIN OF CUSTODY DOCUMENTATION

OCT 30 1990

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 52654-1
CLIENT: Alton Geoscience
JOB NO.: 30-065

DATE SAMPLED: 10/18/90
DATE RECEIVED: 10/19/90
DATE ANALYZED: 10/24/90

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE:MW-1

Compound	MDL (ug/L)	RESULTS (ug/l)
Chloromethane/Vinyl Chloride	1.0	ND
Bromomethane/Chloroethane	1.0	ND
Trichlorofluoromethane	0.5	ND
1,1-Dichloroethene	0.5	ND
Methylene Chloride	4.0	ND
trans-1,2-Dichloroethene	0.5	ND
1,1-Dichloroethane	0.5	ND
Chloroform	0.5	ND
1,1,1-Trichloroethane	0.5	ND
Carbon tetrachloride	0.5	ND
1,2-Dichloroethane	0.5	54
Trichloroethylene	0.5	ND
1,2-Dichloropropane	0.5	ND
Bromodichloromethane	0.5	ND
Cis-1,3-Dichloropropene	0.5	ND
trans-1,3-Dichloropropene	0.5	ND
1,1,2-Trichloroethane	0.5	ND
Tetrachloroethene	0.5	ND
Dibromochloromethane	0.5	ND
Chlorobenzene	0.5	ND
Bromoform	0.5	ND
1,1,2,2-Tetrachloroethane	0.5	ND
1,3-Dichlorobenzene	0.5	ND
1,2-Dichlorobenzene	0.5	ND
1,4-Dichlorobenzene	0.5	ND

MDL = Method Detection Limit
ug/l = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD = <15
MS/MSD average recovery = 101 % :MS/MSD RPD =< 3 %

Richard Srna, Ph.D.
Laboratory Director

OCT 3 0 1990

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I · SAN FRANCISCO, CA 94124 · PHONE (415) 647-2081

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 52654-2
CLIENT: Alton Geoscience
JOB NO.: 30-065

DATE SAMPLED: 10/18/90
DATE RECEIVED: 10/19/90
DATE ANALYZED: 10/24/90

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE:MW-2

Compound	MDL (ug/L)	RESULTS (ug/l)
Chloromethane/Vinyl Chloride	10	ND
Bromomethane/Chloroethane	10	ND
Trichlorofluoromethane	5	ND
1,1-Dichloroethene	5	ND
Methylene Chloride	40	ND
trans-1,2-Dichloroethene	5	ND
1,1-Dichloroethane	5	ND
Chloroform	5	ND
1,1,1-Trichloroethane	5	ND
Carbon tetrachloride	5	ND
1,2-Dichloroethane	5	460
Trichloroethylene	5	ND
1,2-Dichloropropane	5	ND
Bromodichloromethane	5	ND
Cis-1,3-Dichloropropene	5	ND
trans-1,3-Dichloropropene	5	ND
1,1,2-Trichloroethane	5	ND
Tetrachloroethene	5	ND
Dibromochloromethane	5	ND
Chlorobenzene	5	ND
Bromoform	5	ND
1,1,2,2-Tetrachloroethane	5	ND
1,3-Dichlorobenzene	5	ND
1,2-Dichlorobenzene	5	ND
1,4-Dichlorobenzene	5	ND

MDL = Method Detection Limit
ug/l = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD = <15
MS/MSD average recovery = 101 % :MS/MSD RPD =< 3 %

Richard Srna, Ph.D.
Laboratory Director

OCT 30 199

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I · SAN FRANCISCO, CA 94124 · PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 52654-3
CLIENT: Alton Geoscience
JOB NO.: 30-065

DATE SAMPLED: 10/18/90
DATE RECEIVED: 10/19/90
DATE ANALYZED: 10/24/90

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE:MW-3

Compound	MDL (ug/L)	RESULTS (ug/l)
Chloromethane/Vinyl Chloride	1.0	ND
Bromomethane/Chloroethane	1.0	ND
Trichlorofluoromethane	0.5	ND
1,1-Dichloroethene	0.5	ND
Methylene Chloride	4.0	ND
trans-1,2-Dichloroethene	0.5	ND
1,1-Dichloroethane	0.5	ND
Chloroform	0.5	ND
1,1,1-Trichloroethane	0.5	ND
Carbon tetrachloride	0.5	ND
1,2-Dichloroethane	0.5	2
Trichloroethylene	0.5	ND
1,2-Dichloropropane	0.5	ND
Bromodichloromethane	0.5	ND
Cis-1,3-Dichloropropene	0.5	ND
trans-1,3-Dichloropropene	0.5	ND
1,1,2-Trichloroethane	0.5	ND
Tetrachloroethene	0.5	ND
Dibromochloromethane	0.5	ND
Chlorobenzene	0.5	ND
Bromoform	0.5	ND
1,1,2,2-Tetrachloroethane	0.5	ND
1,3-Dichlorobenzene	0.5	ND
1,2-Dichlorobenzene	0.5	ND
1,4-Dichlorobenzene	0.5	ND

MDL = Method Detection Limit
ug/l = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD = <15
MS/MSD average recovery = 101 % :MS/MSD RPD =< 3 %

Richard Srna, Ph.D.
Laboratory Director

OCT 30 199(

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CERTIFICATE OF ANALYSIS

LABORATORY NO.: 52654-6
CLIENT: Alton Geoscience
JOB NO.: 30-065

DATE SAMPLED: 10/18/90
DATE RECEIVED: 10/19/90
DATE ANALYZED: 10/24/90

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE:MW-4

Compound	MDL (ug/L)	RESULTS (ug/l)
Chloromethane/Vinyl Chloride	1.0	ND
Bromomethane/Chloroethane	1.0	ND
Trichlorofluoromethane	0.5	ND
1,1-Dichloroethene	0.5	ND
Methylene Chloride	4.0	ND
trans-1,2-Dichloroethene	0.5	ND
1,1-Dichloroethane	0.5	ND
Chloroform	0.5	ND
1,1,1-Trichloroethane	0.5	ND
Carbon tetrachloride	0.5	ND
1,2-Dichloroethane	0.5	9
Trichloroethylene	0.5	ND
1,2-Dichloropropane	0.5	ND
Bromodichloromethane	0.5	ND
Cis-1,3-Dichloropropene	0.5	ND
trans-1,3-Dichloropropene	0.5	ND
1,1,2-Trichloroethane	0.5	ND
Tetrachloroethene	0.5	ND
Dibromochloromethane	0.5	ND
Chlorobenzene	0.5	ND
Bromoform	0.5	ND
1,1,2,2-Tetrachloroethane	0.5	ND
1,3-Dichlorobenzene	0.5	ND
1,2-Dichlorobenzene	0.5	ND
1,4-Dichlorobenzene	0.5	ND

MDL = Method Detection Limit
ug/l = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD = <15
MS/MSD average recovery = 93 % :MS/MSD RPD =< 2 %

Richard Srna, Ph.D.

Laboratory Director

OCT 30 1990

SUPERIOR ANALYTICAL LABORATORY, INC.

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CERTIFICATE OF ANALYSIS

LABORATORY NO.: 52654-7
CLIENT: Alton Geosciencee
JOB NO.: 30-065

DATE SAMPLED: 10/18/90
DATE RECEIVED: 10/19/90
DATE ANALYZED: 10/24/90

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE:MW-6

Compound	MDL (ug/L)	RESULTS (ug/l)
Chloromethane/Vinyl Chloride	10	ND
Bromomethane/Chloroethane	10	ND
Trichlorofluoromethane	5	ND
1,1-Dichloroethene	5	ND
Methylene Chloride	40	ND
trans-1,2-Dichloroethene	5	ND
1,1-Dichloroethane	5	ND
Chloroform	5	ND
1,1,1-Trichloroethane	5	ND
Carbon tetrachloride	5	ND
1,2-Dichloroethane	5	140
Trichloroethylene	5	ND
1,2-Dichloropropane	5	ND
Bromodichloromethane	5	ND
Cis-1,3-Dichloropropene	5	ND
trans-1,3-Dichloropropene	5	ND
1,1,2-Trichloroethane	5	ND
Tetrachloroethene	5	ND
Dibromochloromethane	5	ND
Chlorobenzene	5	ND
Bromoform	5	ND
1,1,2,2-Tetrachloroethane	5	ND
1,3-Dichlorobenzene	5	ND
1,2-Dichlorobenzene	5	ND
1,4-Dichlorobenzene	5	ND

MDL = Method Detection Limit
ug/l = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD = <15
MS/MSD average recovery = 93 % :MS/MSD RPD =< 2 %

Richard Srna, Ph.D.

Laboratory Director

OCT 30 1990

SUPERIOR ANALYTICAL LABORATORY, INC.

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CERTIFICATE OF ANALYSIS

LABORATORY NO.: 52654-5
CLIENT: Alton Geoscience
JOB NO.: 30-065

DATE SAMPLED: 10/18/90
DATE RECEIVED: 10/19/90
DATE ANALYZED: 10/24/90

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE:MW-7

Compound	MDL (ug/L)	RESULTS (ug/l)
Chloromethane/Vinyl Chloride	1.0	ND
Bromomethane/Chloroethane	1.0	ND
Trichlorofluoromethane	0.5	ND
1,1-Dichloroethene	0.5	ND
Methylene Chloride	4.0	ND
trans-1,2-Dichloroethene	0.5	ND
1,1-Dichloroethane	0.5	ND
Chloroform	0.5	ND
1,1,1-Trichloroethane	0.5	ND
Carbon tetrachloride	0.5	ND
1,2-Dichloroethane	0.5	ND
Trichloroethylene	0.5	ND
1,2-Dichloropropane	0.5	ND
Bromodichloromethane	0.5	ND
Cis-1,3-Dichloropropene	0.5	ND
trans-1,3-Dichloropropene	0.5	ND
1,1,2-Trichloroethane	0.5	ND
Tetrachloroethene	0.5	ND
Dibromochloromethane	0.5	ND
Chlorobenzene	0.5	ND
Bromoform	0.5	ND
1,1,2,2-Tetrachloroethane	0.5	ND
1,3-Dichlorobenzene	0.5	ND
1,2-Dichlorobenzene	0.5	ND
1,4-Dichlorobenzene	0.5	ND

MDL = Method Detection Limit
ug/l = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD = <15
MS/MSD average recovery = 93 % :MS/MSD RPD =< 2 %

Richard Srna, Ph.D.

Laboratory Director

OCT 3 0 1990

SUPERIOR ANALYTICAL LABORATORY, INC.

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CERTIFICATE OF ANALYSIS

LABORATORY NO.: 52654-4
CLIENT: Alton Geoscience
JOB NO.: 30-065

DATE SAMPLED: 10/18/90
DATE RECEIVED: 10/19/90
DATE ANALYZED: 10/24/90

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE:MW-8

Compound	MDL (ug/L)	RESULTS (ug/l)
Chloromethane/Vinyl Chloride	1.0	ND
Bromomethane/Chloroethane	1.0	ND
Trichlorofluoromethane	0.5	ND
1,1-Dichloroethene	0.5	ND
Methylene Chloride	4.0	ND
trans-1,2-Dichloroethene	0.5	ND
1,1-Dichloroethane	0.5	ND
Chloroform	0.5	ND
1,1,1-Trichloroethane	0.5	ND
Carbon tetrachloride	0.5	ND
1,2-Dichloroethane	0.5	ND
Trichloroethylene	0.5	ND
1,2-Dichloropropane	0.5	ND
Bromodichloromethane	0.5	ND
Cis-1,3-Dichloropropene	0.5	ND
trans-1,3-Dichloropropene	0.5	ND
1,1,2-Trichloroethane	0.5	ND
Tetrachloroethene	0.5	ND
Dibromochloromethane	0.5	ND
Chlorobenzene	0.5	ND
Bromoform	0.5	ND
1,1,2,2-Tetrachloroethane	0.5	ND
1,3-Dichlorobenzene	0.5	ND
1,2-Dichlorobenzene	0.5	ND
1,4-Dichlorobenzene	0.5	ND

MDL = Method Detection Limit
ug/l = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD = <15
MS/MSD average recovery = 101 % :MS/MSD RPD =< 3 %

Richard Srna, Ph.D.
Laboratory Director

OCT 30 1990

SUPERIOR ANALYTICAL LABORATORY, INC.

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CERTIFICATE OF ANALYSIS

LABORATORY NO.: 52654
CLIENT: Alton Geoscience
CLIENT JOB NO.: 30-065

DATE RECEIVED: 10/19/90
DATE REPORTED: 10/26/90

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS
by Modified EPA SW-846 Method 5030 and 8015

LAB #	Sample Identification	Concentration (ug/L) Gasoline Range
1	MW-1	5000
2	MW-2	83000
3	MW-3	110
4	MW-8	900
5	MW-7	ND<50
6	MW-4	9600
7	MW-6	3000

ug/L - parts per billion (ppb)
Minimum Detection Limit for Gasoline in Soil: 1mg/kg

QAQC Summary:
Daily Standard run at 2mg/L: %Diff Gasoline = <15%
MS/MSD Average Recovery = 88%: Duplicate RPD = <1%

Richard Srna, Ph.D.

Laboratory Director

OCT 3 0 1990

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 52654
CLIENT: Alton Geoscience
CLIENT JOB NO.: 30-065

DATE RECEIVED: 10/19/90
DATE REPORTED: 10/26/90

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS
by Modified EPA SW-846 Method 8015

LAB #	Sample Identification	Concentration (mg/L) Diesel Range
1	MW-1	ND<1
2	MW-2	10
3	MW-3	ND<1
4	MW-8	ND<1
5	MW-7	ND<1
6	MW-4	2
7	MW-6	ND<1

Minimum Detection Limit for Diesel in Water: 1mg/L

QAQC Summary:

Daily Standard run at 200mg/L: RPD Diesel= 13 %
MS/MSD Average Recovery = 113%: Duplicate RPD = 2 %

Richard Srna, Ph.D.

Laboratory Director

OCT 30 1990

SUPERIOR ANALYTICAL LABORATORY, INC.
1555 BURKE, UNIT I · SAN FRANCISCO, CA 94124 · PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 52654
CLIENT: Alton Geoscience
CLIENT JOB NO.: 30-065

DATE RECEIVED: 10/19/90
DATE REPORTED: 10/26/90

ANALYSIS FOR BENZENE, TOLUENE, ETHYL BENZENE & XYLENES
by EPA SW-846 Methods 5030 and 8020

LAB #	Sample Identification	Concentration(ug/L) Benzene	Toluene	Ethyl Benzene	Xylenes
1	MW-1	700	360	170	480
2	MW-2	6800	9100	2400	11000
3	MW-3	3	3	1	5
4	MW-8	3	5	7	62
5	MW-7	0.3	0.5	ND<0.3	0.8
6	MW-4	180	500	200	1200
7	MW-6	1300	150	120	85

ug/L - parts per billion (ppb)

Minimum Detection Limit in Water:0.3ug/L

QAQC Summary:
Daily Standard run at 20ug/L: %Diff 8020 = <15%
MS/MSD Average Recovery = 96% : Duplicate RPD = <2%

Richard Srna, Ph.D.
Laboratory Director

ALTON GEOSCIENCE
1000 BURNETT ST., #140
CONCORD, CA 94520 (415) 682-1582

CHAIN of CUSTODY RECORD

PAGE 1 of 3

DATE: 10/18/90

RESULTS DUE BY:

PROJECT NUMBER: 30-065

PROJECT NAME AND ADDRESS: Mobil 10,7-1024 Main St., Pleasanton

PROJECT MANAGER: C. D'Andrea

SAMPLER'S SIGNATURE: Tony Bruzzendy

LABORATORY: Superior

REMARKS OR SPECIAL INSTRUCTIONS:

S# #52654

Please initial:
Samples Stored in ice. CDJ
Appropriate containers. CDJ
Samples preserved.
VOA's without headspace. CDJ
Comments:

NOTE: PLEASE INDICATE VERBAL REQUESTS FOR ADDITIONAL ANALYSES IN THIS BOX.

SAMPLE NUMBER	SAMPLE DATE/TIME	LOCATION/ DESCRIPTION	SAMPLE MATERIAL	SAMPLE TYPE: GRAB	SAMPLE TYPE: COMP.	NUMBER OF CONTAINERS	SAMPLE PREP. 3510: SOLV. EXTR.	SAMPLE PREP. 3810: HEAD SPACE	SAMPLE PREP. 5030: PURGE & TRAP	SOIL ANALYSIS 418.1: TPHC (IR)	SOIL ANALYSIS 8010: HALOCARBONS	SOIL ANALYSIS 8020: BTXE	SOIL ANALYSIS DHS METHOD: TPHC (GC)	SOIL ANALYSIS 7420: TOTAL Pb	WATER ANALYSIS 418.1: TPHC (IR)	WATER ANALYSIS 601: HALOCARBONS	WATER ANALYSIS 602: BTXE/TPH-Gas	WATER ANALYSIS DHS METHOD: TPHC (GC)	WATER ANALYSIS 7421: TOTAL Pb	WATER ANALYSIS TPH-Diesel SM5
	10/17/90 1425	MW-1	Water			2x40ml											X			
	↓	↓	↓			2x40ml										X				
	↓	↓	↓			2x40ml														X
	10/17/90 1445	MW-2	WATER			2x40ml											X			
	↓	↓	↓			2x40ml										X				
	↓	↓	↓			2x40ml														X
	10/17/90 1507	MW-3	WATER			2x40ml											X			
		↓	↓			2x40ml										X				
		↓	↓			2x40ml														X
					TOTAL NO. OF CONTAINERS:															

RELINQUISHED BY: Tony Bruzzendy	RECEIVED BY: Kent B Hunt	DATE/TIME: 10-18-90 12:40	METHOD OF SHIPMENT:
RELINQUISHED BY: Express It	RECEIVED BY: Cecilia G Joaquin	DATE/TIME: 10-19-90 8am	SHIPPED BY:
RELINQUISHED BY:	RECEIVED BY:	DATE/TIME:	COURIER:

ALTON GEOSCIENCE
1000 BURNETT ST., #140
CONCORD, CA 94520 (415) 682-1582

CHAIN of CUSTODY RECORD

PAGE 2 of 3

DATE: 10/18/90

RESULTS DUE BY:

PROJECT NUMBER: 30-065

PROJECT NAME AND ADDRESS: Mobil Oil-1024 Main St. Pleasanton

PROJECT MANAGER: L. D'Andrea

SAMPLER'S SIGNATURE: Tony Buenrostro

LABORATORY:

REMARKS OR SPECIAL INSTRUCTIONS:

NOTE: PLEASE INDICATE VERBAL REQUESTS FOR ADDITIONAL ANALYSES IN THIS BOX.

SAMPLE NUMBER	SAMPLE DATE/TIME	LOCATION/ DESCRIPTION	SAMPLE MATERIAL	SAMPLE TYPE: GRAB	SAMPLE TYPE: COMP.	NUMBER OF CONTAINERS	SAMPLE PREP. 3510: SOLV. EXTR.	SAMPLE PREP. 3810: HEAD SPACE	SAMPLE PREP. 5030: PURGE & TRAP	SOIL ANALYSIS 418.1: TPHC (IR)	SOIL ANALYSIS 8010: HALOCARBONS	SOIL ANALYSIS 8020: BTXE	SOIL ANALYSIS DHS METHOD: TPHC (GC)	SOIL ANALYSIS 7420: TOTAL Pb	WATER ANALYSIS 418.1: TPHC (IR)	WATER ANALYSIS 601: HALOCARBONS	WATER ANALYSIS 602: BTXE TPH-Gas	WATER ANALYSIS DHS METHOD: TPHC (GC)	WATER ANALYSIS 7421: TOTAL Pb	WATER ANALYSIS TPH-diesel
	10/16/90 15:10	MW-8	Water		2x40ml											X				
	↓	↓	↓		2x40ml												X			
	↓	↓	↓		2x40ml															X
	10/16/90 16:00	MW-7	Water		2x40ml											X				
		↓	↓		2x40ml												X			
		↓	↓		2x40ml															X
	10/16/90 14:25	MW-4	Water		2x40ml											X				
			↓		2x40ml												X			
			↓		2x40ml															X
					TOTAL NO. OF CONTAINERS:															

RELINQUISHED BY: Tony Buenrostro	RECEIVED BY: Kent B Gross	DATE/TIME: 10-18-90 12:40	METHOD OF SHIPMENT:
RELINQUISHED BY: Express 1+	RECEIVED BY: Claudia G. Joaquin	DATE/TIME: 10-19-90 8am	SHIPPED BY:
RELINQUISHED BY:	RECEIVED BY:	DATE/TIME:	COURIER:

ALTON GEOSCIENCE
1000 BURNETT ST., #140
CONCORD, CA 94520 (415) 682-1582

CHAIN of CUSTODY RECORD

PAGE 3 of 3

DATE: 10/18/90

RESULTS DUE BY:

PROJECT NUMBER: 30-065

PROJECT NAME AND ADDRESS: Mobil 07-1024 Main St., Pleasanton

PROJECT MANAGER: C D'Andrea

SAMPLER'S SIGNATURE: Tony Buenrostro

LABORATORY:

Please initial:
Samples received on ice: CBJ
Appropriate containers: CBJ
Samples preserved: CBJ
VOA's without headspace: CBJ
Comments:

REMARKS OR SPECIAL INSTRUCTIONS:

NOTE: PLEASE INDICATE VERBAL REQUESTS FOR ADDITIONAL ANALYSES IN THIS BOX.

SAMPLE NUMBER	SAMPLE DATE/TIME	LOCATION/ DESCRIPTION	SAMPLE MATERIAL	SAMPLE TYPE: GRAB	SAMPLE TYPE: COMP.	NUMBER OF CONTAINERS	SAMPLE PREP. 3510: SOLV. EXTR.	SAMPLE PREP. 3810: HEAD SPACE	SAMPLE PREP. 5030: PURGE & TRAP	SOIL ANALYSIS 418.1: TPHC (IR)	SOIL ANALYSIS 8010: HALOCARBONS	SOIL ANALYSIS 8020: BTXE	SOIL ANALYSIS DHS METHOD: TPHC (GC)	SOIL ANALYSIS 7420: TOTAL Pb	WATER ANALYSIS 418.1: TPHC (IR)	WATER ANALYSIS 601: HALOCARBONS	WATER ANALYSIS 602: BTXE / TPH-Gas	WATER ANALYSIS DHS METHOD: TPHC (GC)	WATER ANALYSIS 7421: TOTAL Pb	WATER ANALYSIS TPH-diesel
	10/16/90	MW-6	Water			2x40ml											X			
	↓	↓	↓			2x40ml										X				
	↓	↓	↓			2x40ml														X

TOTAL NO. OF CONTAINERS:

RELINQUISHED BY:	RECEIVED BY:	DATE/TIME:	METHOD OF SHIPMENT:
Tony Buenrostro	Kurt B Amin	10-18-90 12:45	
RELINQUISHED BY: Express H	RECEIVED BY: Cecilia G Joaquin	DATE/TIME: 10/19/90 8am	SHIPPED BY:
RELINQUISHED BY:	RECEIVED BY:	DATE/TIME:	COURIER: