ALISTO ENGINEERING GROUP

ALCO
HAZMAT
94 APR 20 PM 12: 34

April 18, 1994

Mr. Scott Seery
Alameda County Health Care Services Agency
80 Swan Way, Room 200
Oakland, California 94621

10-190-01-001

Subject: Preliminary Site Investigation Report
Former Mobil Oil Corporation Station 04-FGN
14994 East 14th Street
San Leandro, California

Dear Mr. Seery:

On behalf of Mobil Oil Corporation, Alisto Engineering Group is pleased to submit this preliminary site investigation report for the former Mobil Oil Corporation Station 04-FGN, 14994 East 14th Street, San Leandro, California.

Please call Mr. Steve Pao if you have questions or need additional information.

Sincerely,

ALISTO ENGINEERING GROUP

William G. Shipp
Project Geologist

Enclosures

cc: Mr. Steve Pao, Mobil Oil Corporation (w/o enclosure)
Mr. Steven Ritchie, California Regional Water Quality Control Board (w/o enclosure)

1777 OAKLAND BOULEVARD, SUITE 200 • WALNUT CREEK, CA 94596 • (510) 295-1650 • FAX (510) 295-1823
CONTRACTORS LICENSE NO. A-652544

ALISTO ENGINEERING GROUP

April 18, 1994

Mr. Steven Ritchie
California Regional Water Quality Control Board
San Francisco Bay Region
2101 Webster Street, Suite 500
Oakland, California 94612

10-190-01-001

Subject: Preliminary Site Investigation Report
Former Mobil Oil Corporation Station 04-FGN
14994 East 14th Street
San Leandro, California

Dear Mr. Ritchie:

On behalf of Mobil Oil Corporation, Alisto Engineering Group is pleased to submit this preliminary site investigation report for the former Mobil Oil Corporation Station 04-FGN, 14994 East 14th Street, San Leandro, California.

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PRELIMINARY SITE INVESTIGATION REPORT

Former Mobil Oil Corporation
Station 04-FGN
14994 East 14th Street
San Leandro, California

Project No. 10-190

April 1994

ALISTO ENGINEERING GROUP

PRELIMINARY SITE INVESTIGATION REPORT

Former Mobil Oil Corporation Station 04-FGN
14994 East 14th Street
San Leandro, California

Project No. 10-190-01-001

Prepared for:

Mobil Oil Corporation
3800 West Alameda Avenue, Suite 200
Burbank, California

Prepared by:

Alisto Engineering Group
1777 Oakland Boulevard, Suite 200
Walnut Creek, California

April 15, 1994

William G. Shipp
Project Manager

Al Sevilla, P.E.
Principal

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(continued)

APPENDICES

1.0 INTRODUCTION

Mobil Oil Corporation retained Alisto Engineering Group to conduct a preliminary site investigation at former Mobil Oil Station 04-FGN, 14994 East 14th Street, San Leandro, California. A site vicinity map is shown in Figure 1.

1.1 Purpose and Scope of Work

This work was performed to assess the nature and extent of petroleum hydrocarbons in the subsurface soil and groundwater at the site and to determine the appropriate courses of action to comply with applicable laws and regulations.

The tasks performed during the investigation included the following:

- Drilled and logged four exploratory soil borings and collected soil samples.
- Installed two groundwater monitoring wells, MW-2 and MW-3.
- Developed and surveyed the monitoring wells and collected groundwater samples.
- Analyzed the soil and groundwater samples for specific hydrocarbon constituents.
- Evaluated the data and analytical results.
- Prepared this report presenting the results and findings.

The above tasks and related field and sampling activities were performed in accordance with the requirements of the Alameda County Health Care Services Agency (ACHCSA) and the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB).

1.2 Site Location and Description

The former Mobil Oil service station, which is currently a shopping center, is on the northwest corner of East 14th Street and 150th Avenue, in San Leandro, California. Figure 2 shows the layout of the site and the former locations of the underground waste oil tank, fuel tanks, and dispenser islands.

Properties neighboring the site are predominantly commercial developments. Adjacent to the site is an automotive service shop to the northeast and a restaurant to the northwest. West of the site across 150th Avenue is a Unocal Corporation service station. Monitoring wells were installed at the Unocal station as part of an ongoing environmental assessment at the site. Southeast of the site, across the intersection of East 14th Street and 150th Avenue, is a restaurant and a Chevron Company service station. Southwest of the site, across East 14th Street, is Quality Tune-up, formerly a Phillips Petroleum service station. A map of adjacent properties is shown in Figure 3.

1.3 Project Background

In September 1987, Alameda County Environmental Health Department collected and analyzed soil samples from a Pacific Gas and Electric Company (PG&E) excavation in the sidewalk southeast of the site. Laboratory analysis detected 45,000 parts per million (ppm) total oil and grease (TOG) (Subsurface 1987).

On September 29, 1987, six soil borings were drilled to depths ranging from 9.5 to 13.5 feet below grade (fbg) in the area near the PG&E excavation, as shown in Figure 2. A soil sample was also collected at 3 fbg from the PG&E excavation. Up to 320 ppm total petroleum hydrocarbons as gasoline (TPH-G) and 8,000 ppm TOG were detected in the samples. Tetrachloroethylene at 6.6 ppm, trichloroethylene at 15 ppm, and trans-1,2-dichloroethylene at 8 ppm were detected in the sample collected at 5 fbg in Boring 6 (Subsurface 1987).

On March 31, 1988, a soil boring was drilled to 24 fbg and converted into groundwater Monitoring Well MW-1. Groundwater was encountered during drilling at 12 fbg. The soil samples collected from the boring were not analyzed for hydrocarbon constituents. Up to 29,000 parts per billion (ppb) dissolved-phase TPH-G, ethylbenzene, and total xylenes were detected in the water samples collected from the well. An analytical search of 70,000 compounds in the Wiley/NBS spectral data library detected up to 240 ppb propylbenzene, ethylcyclobutane, 2-methylpentane, 2-methylbutane, 2,3-dimethylpentene, 2-methylhexane, 3-methylhexane, and 2,5,6-trimethyloctane. The report indicated that the area around the PG&E excavation was subsequently overexcavated, as shown in Figure 2. The depth of the overexcavation and laboratory results of soil sampling however were not provided in the report (Subsurface 1988).

On January 31, 1989, the monitoring well at the site was sampled. Dissolved-phase TPH-G, benzene, ethylbenzene, and total xylenes were detected in the samples collected from the well. No purgeable halocarbons were detected (Subsurface 1989). The results of soil and groundwater analysis from previous activities are included in Tables 1 and 3.

1.4 Regional Geology

The site is in the Coast Range Geomorphic Province, on the eastern side of San Francisco Bay, approximately 1 mile west of the Hayward Fault. The uppermost geologic member consists primarily of Quaternary alluvial deposits. The Quaternary alluvium, composed of unconsolidated to semi-consolidated bay mud, silt, sand, and gravel, may be up to 200 feet thick. The units generally overlie Franciscan bedrock in the upland coastal area and Tertiary sediments of the bay basin.

The elevation of the site is approximately 40 feet above mean sea level, as shown in Figure 1. The topography of the area slopes gently to the southwest, toward San Francisco Bay.

2.0 FIELD METHODS

Before drilling, a site inspection and geophysical survey were performed at the site. An underground, metallic pipe and a well were located at the site. Groundwater was not observed in the well which appeared to have no sanitary seal. The well was assigned as MW-A and is shown in Figure 2.

The procedures and methods used during field activities are described in the following sections:

2.1 Drilling and Sampling

A well installation permit was obtained from the Alameda County Flood Control and Water Conservation District (Zone 7) and is presented in Appendix A. On February 10, 1994, Borings B-1 through B-4 were drilled to depths ranging from 11.5 to 25 fbg. Drilling was performed by Soils Exploration Services, Inc., Benicia, California, using a CME 75 drilling rig equipped with 8-inch-diameter, continuous-flight, hollow-stem augers. During drilling, samples were collected beginning at 3 to 4 feet below grade and terminating at the total depth of each boring. Drilling and soil sampling procedures are presented in Appendix B.

Boring logs prepared using the Unified Soils Classification System are presented in Appendix C. They include a description of soil characteristics such as color, moisture, and consistency.

2.2 Monitoring Well Installation and Construction

On February 10, 1994, Borings B-2 and B-3 were converted into groundwater Monitoring Wells MW-2 and MW-3 in accordance with the field procedures for monitoring well installation presented in Appendix B. The monitoring wells were constructed using 2-inch-diameter, flush-threaded, Schedule 40, polyvinyl chloride (PVC) blank casing and 0.010-inch slotted casing. The slotted casing was installed from approximately 7.5 to 24 fbg. Well construction details are included on the boring logs presented in Appendix C.

2.3 Monitoring Well Development and Sampling

Well development and sampling procedures were in accordance with the guidelines of the ACHCSA and RWQCB. Field procedures for monitoring well development and sampling are presented in Appendix D. The wells were developed on February 16, 1994, by removing at least 10 casing volumes, and until groundwater was relatively free of sediment, by alternately using a surge block and bailer.

Monitoring Wells MW-1, MW-2, and MW-3 were sampled on February 24, 1994. To obtain groundwater samples that were representative of the aquifer, the wells were purged of at least 3 casing volumes before sample collection and while monitoring pH, specific conductivity, and temperature. The samples were then transported in an iced cooler to a state-certified laboratory following proper chain of custody procedures. Field observations during well development and sampling are presented in the sampling forms in Appendix E.

2.4 Groundwater Level Monitoring and Well Surveying

The wells were surveyed to a marked point on top of each well casing in reference to mean sea level. On February 24, 1994, the depth to groundwater in the wells was measured from the top of the well casing to the nearest 0.01 foot, using an electronic sounder. The survey data and groundwater elevation measurements are presented in Table 1. The well elevation survey map is included in Appendix D.

Groundwater monitoring at the former Mobil Oil site was performed concurrently at the adjacent Unocal service station. The results of groundwater monitoring at this site are presented in Table 2.

3.0 SITE GEOLOGY AND HYDROGEOLOGY

Soils encountered during this investigation generally consisted of clayey silt to silty clay from immediately below ground surface to approximately 15 fbg. Clayey to silty sands were encountered from 15 to 18.5 fbg which appear to be contiguous across the site. This unit is underlain by clayey silt to silty clay to the total depth of the borings. Occasional lenses of sand and silty sand were encountered in Borings B-2, B-3, and B-4. A hydrogeologic cross section prepared using boring logs generated during this investigation is shown in Figure 4. The lines of hydrogeologic cross section is shown in Figure 2.

Saturated soil conditions were encountered at approximately 15 fbg during drilling. The depth to groundwater measured in the monitoring wells during sampling was approximately 10 fbg. Groundwater elevations in the wells, measured on February 24, 1994, were used to prepare the groundwater potentiometric surface map shown in Figure 5. The groundwater gradients as interpreted from these measurements are 0.003 foot per foot in a general north-northeasterly direction across the site and 0.004 foot per foot in a general south-southwesterly direction at the neighboring properties southeast of 150th Avenue and East 14th Street.

4.0 ANALYTICAL METHODS

Sequoia Analytical, a state-certified analytical laboratory, analyzed the soil and groundwater samples using standard test methods of the U.S. Environmental Protection Agency (EPA) and the California Department of Health Services.

The samples were analyzed for the following:

- TPH-G using EPA Methods 5030/8015 (modified)
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX) using EPA Method 8020
- TOG using EPA Method 5520 DF

- Total petroleum hydrocarbons as diesel (TPH-D) using EPA Methods 5030/8015 (modified)

Additionally, groundwater sample collected from Monitoring Well MW-1 was analyzed for the following:

- Halogenated volatile organic compounds (HVOCs) using EPA Method 8010
- Volatile organic compounds (VOCs) using EPA Method 8240

The laboratory results for the groundwater and soil samples are summarized in Tables 1 and 3, and the official laboratory reports and chain of custody records are included in Appendix F. The results of groundwater analysis are shown in Figure 6.

5.0 DISCUSSION OF RESULTS

The following are the results of field activities and laboratory analysis of soil and groundwater samples collected during this preliminary site investigation:

- Saturated soil conditions were encountered at approximately 15 fbg during drilling, with the depth to groundwater measured in the monitoring wells during sampling at approximately 10 fbg.
- Soils encountered while drilling consisted primarily of silty clay to clayey silt interbedded with a water bearing clayey to silty sand unit. Occasional lenses of sand and silty sand were encountered in borings B-2, B-3, and B-4.
- Analysis of soil samples collected from Borings B-1 through B-4 detected concentrations of up to 4,100 ppm TPH-G and 650 ppm TPH-D. Up to 160 ppm TOG was detected in the soil samples collected from B-1, B-3, and B-4.
- Groundwater elevation data measured on February 24, 1994 indicate gradients of approximately 0.003 foot per foot in a general north-northeasterly direction across the site and 0.004 foot per foot in a general south-southwesterly direction at the neighboring properties southeast of 150th Avenue and East 14th Street.
- Free product or sheen was not observed in any of the monitoring wells.
- Analysis of the groundwater samples detected up to 19,000 ppb TPH-G, 10,000 ppb TPH-D, and 70 ppb benzene. TOG was not detected in any of the groundwater samples.
- No HVOCs and VOCs were detected in the groundwater sample collected from MW-1, except for ethylbenzene and total xylenes.

REFERENCES

Subsurface 1987. Preliminary Geotechnical Services Re. Soil Contamination, 150th Avenue and East 14th Street, San Leandro, California. Subsurface Consultants, Inc. October 26.

Subsurface 1988. Groundwater Monitoring Well Installation and Sample Analysis. 150th Avenue and East 14th Street Project, San Leandro, California. Subsurface Consultants, Inc. April 27.

Subsurface 1989. Groundwater Monitoring Well Sampling and Analysis, Sampling No. 2. 150th Avenue and East 14th Street Project, San Leandro, California. Subsurface Consultants, Inc. February 13.

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING
FORMER MOBIL OIL STATION 04-FGN
14994 EAST 14TH STREET, SAN LEANDRO, CALIFORNIA

ALISTO PROJECT NO. 10-190

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ppb)	TPH-D (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	TOG (ppb)	KEROSENE (ppb)	VOC (ppb)	PURGEABLE HALOCARBONS	LAB
MW-1 (c)	03/31/88	---	---	---	29000	ND<10000	ND<5.0	ND<5.0	550	640	ND<20000	ND<10000	ND (d)	---	CTL
MW-1	01/31/89	---	---	---	11200	---	260	ND<20	500	500	---	---	---	ND<1.0	CTL
MW-1	02/24/94	36.35	9.42	26.93	11000	[redacted]	70	ND<0.5	260	[redacted]	ND<5.0	---	ND (d)	ND	SAL
QC-1 (e)	02/24/94	---	---	---	11000	---	88	ND<0.5	230	190	---	---	---	---	SAL
MW-2	02/24/94	36.61	9.52	27.09	6400	4500	31	ND<0.5	58	[redacted]	ND<5.0	---	---	---	SAL
MW-3	02/24/94	36.92	9.85	27.07	19000	10000	52	[redacted]	690	[redacted]	ND<5.0	---	---	---	SAL
QC-2 (f)	02/24/94	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	SAL

ABBREVIATIONS:

TPH-G	Total petroleum hydrocarbons as gasoline
TPH-D	Total petroleum hydrocarbons as diesel
B	Benzene
T	Toluene
E	Ethylbenzene
X	Total xylenes
TOG	Total oil and grease
VOC	Volatile organic compounds
ppb	Parts per billion
---	Not analyzed/measured
ND	Not detected above reported detection limits
CTL	Curtis & Tompkins, Ltd.
SAL	Sequoia Analytical Laboratory

NOTES:

(a) Top of casing elevations surveyed in reference to Unocal datum, MW-7. Elevation, 36.09 feet, located on the southeast corner at the intersection of East 14th Street and 150th Avenue.

(b) Groundwater elevations in feet above mean sea level.

(c) A search of 70,000 compounds within the Wiley/NBS spectral data library also detected the following: propylbenzene at 240 ppb, ethylcyclobutane at 98 ppb, 2-methylpentane at 94 ppb, 2-methylbutane at 88 ppb, 2,3-dimethylpentane at 73 ppb, 2-methylhexane at 58 ppb, 3-methylhexane at 57 ppb, and 2,5,6-trimethyloctane at 57 ppb.

(d) Various detection limits, see laboratory report.

(e) Blind duplicate.

(f) Travel blank.

TABLE 2 - SUMMARY OF RESULTS OF GROUNDWATER MONITORING
UNOCAL CORPORATION SERVICE STATION
15008 EAST 14TH STREET, SAN LEANDRO, CALIFORNIA

ALISTO PROJECT NO. 10-190

WELL ID	DATE OF MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (b) (Feet)
MW-1	02/24/94	36.37	9.45	26.92
MW-2	02/24/94	36.34	9.27	27.07
MW-3	02/24/94	36.42	9.21	27.21
MW-4	02/24/94	37.04	9.89	27.15
MW-5	02/24/94	35.94	9.02	26.92
MW-6	02/24/94	35.67	8.39	27.28
MW-7	02/24/94	36.09	8.95	27.14
MW-8	02/24/94	36.89	10.44	26.45
MW-9	02/24/94	36.29	9.74	26.55
MW-10	02/24/94	36.04	9.57	26.47
MW-11	02/24/94	35.50	9.20	26.30

NOTES:

(a) Top of casing elevations surveyed to the nearest 0.01 foot above mean sea level, relative to benchmark (elevation = 36.88) at the northwest corner of East 14th Street and 150th Avenue.

(b) Groundwater elevations in feet above mean sea level.

TABLE 3 - SUMMARY OF RESULTS OF SOIL SAMPLING
FORMER MOBIL OIL STATION 04-FGN
14994 EAST 14TH STREET, SAN LEANDRO, CALIFORNIA

ALISTO PROJECT NO. 10-100

WELL ID	SAMPLE DEPTH (Feet)	DATE OF SAMPLING	TPH-G (ppm)	TPH-D (ppm)	B (ppm)	T (ppm)	E (ppm)	X (ppm)	TOG (ppm)	PCE (ppm)	TCE (ppm)	TRANS-1, 2-DCE (ppm)	LAB
SCB-1	4.0	09/29/87	72	—	—	—	—	200	—	—	—	—	BCL
SCB-1	8.6	09/29/87	ND<10	—	—	—	—	ND<50	—	—	—	—	BCL
SCB-2	2.6	09/29/87	ND<10	—	—	—	—	ND<50	—	—	—	—	BCL
SCB-2	7.1	09/29/87	ND<10	—	—	—	—	ND<50	—	—	—	—	BCL
SCB-3	5.0	09/29/87	ND<10	—	—	—	—	ND<50	—	—	—	—	BCL
SCB-3	8.5	09/29/87	320	—	—	—	—	ND<50	—	—	—	—	BCL
SCB-4	4.5	09/29/87	ND<10	—	—	—	—	ND<50	—	—	—	—	BCL
SCB-4	10.5	09/29/87	ND<10	—	—	—	—	ND<50	—	—	—	—	BCL
SCB-5	4.0	09/29/87	ND<10	—	—	—	—	ND<50	—	—	—	—	BCL
SCB-5	8.0	09/29/87	ND<10	—	—	—	—	ND<50	—	—	—	—	BCL
SCB-6	5.0	09/29/87	ND<10	—	—	—	—	ND<50	—	6.6	15.0	8.0	BCL
SCB-6	9.1	09/29/87	ND<10	—	—	—	—	ND<50	—	—	—	—	BCL
PG&E Excavation	3.0	09/29/87	—	—	—	—	—	6000	—	—	—	—	BCL
B-1	[illegible]	02/10/94	[illegible]	[illegible]	ND<0.005	2.9	18	85	[illegible]	—	—	—	SAL
B-1	11.5	02/10/94	[illegible]	[illegible]	1.2	1.1	5.5	18	ND<30	—	—	—	SAL
MW-2 B-2	7.5	02/10/94	1.4	1.6	ND<0.005	0.0065	ND<0.005	ND<0.005	ND<30	—	—	—	SAL
B-2	11.5	02/10/94	49	12	0.094	ND<0.005	0.18	0.33	ND<30	—	—	—	SAL
MW-3 B-3	6.5	02/10/94	10	2.4	ND<0.005	0.028	0.027	0.049	[illegible]	—	—	—	SAL
B-3	11.5	02/10/94	[illegible]	[illegible]	0.70	0.11	2.5	0.52	ND<30	—	—	—	SAL
B-4	[illegible]	02/10/94	[illegible]	[illegible]	ND<0.005	15	67	390	[illegible]	—	—	—	SAL
B-4	11.5	02/10/94	[illegible]	[illegible]	ND<0.005	1.0	4.7	23	ND<30	—	—	—	SAL

ABBREVIATIONS:

TPH-G	Total petroleum hydrocarbons as gasoline
TPH-D	Total petroleum hydrocarbons as diesel
B	Benzene
T	Toluene
E	Ethylbenzene
X	Total xylenes
TOG	Total oil and grease
PCE	Tetrachloroethylene
TCE	Trichloroethylene
Trans-1,2-DCE	Trans-1,2-dichloroethylene
ppm	Parts per million
—	Not analyzed
ND	Not detected above reported detection limit
BCL	Brown and Caldwell Laboratories
SAL	Sequoia Analytical Laboratory

NOTES:

1. SCB-1 through SCB-6, soil borings drilled by Subsurface Consultants, Inc..

SOURCE:
USGS MAP, HAYWARD AND SAN LEANDRO QUADRANGLE,
7.5 MINUTE SERIES. 1959.
PHOTOREVISED 1980.

N

0 1000' 2000'

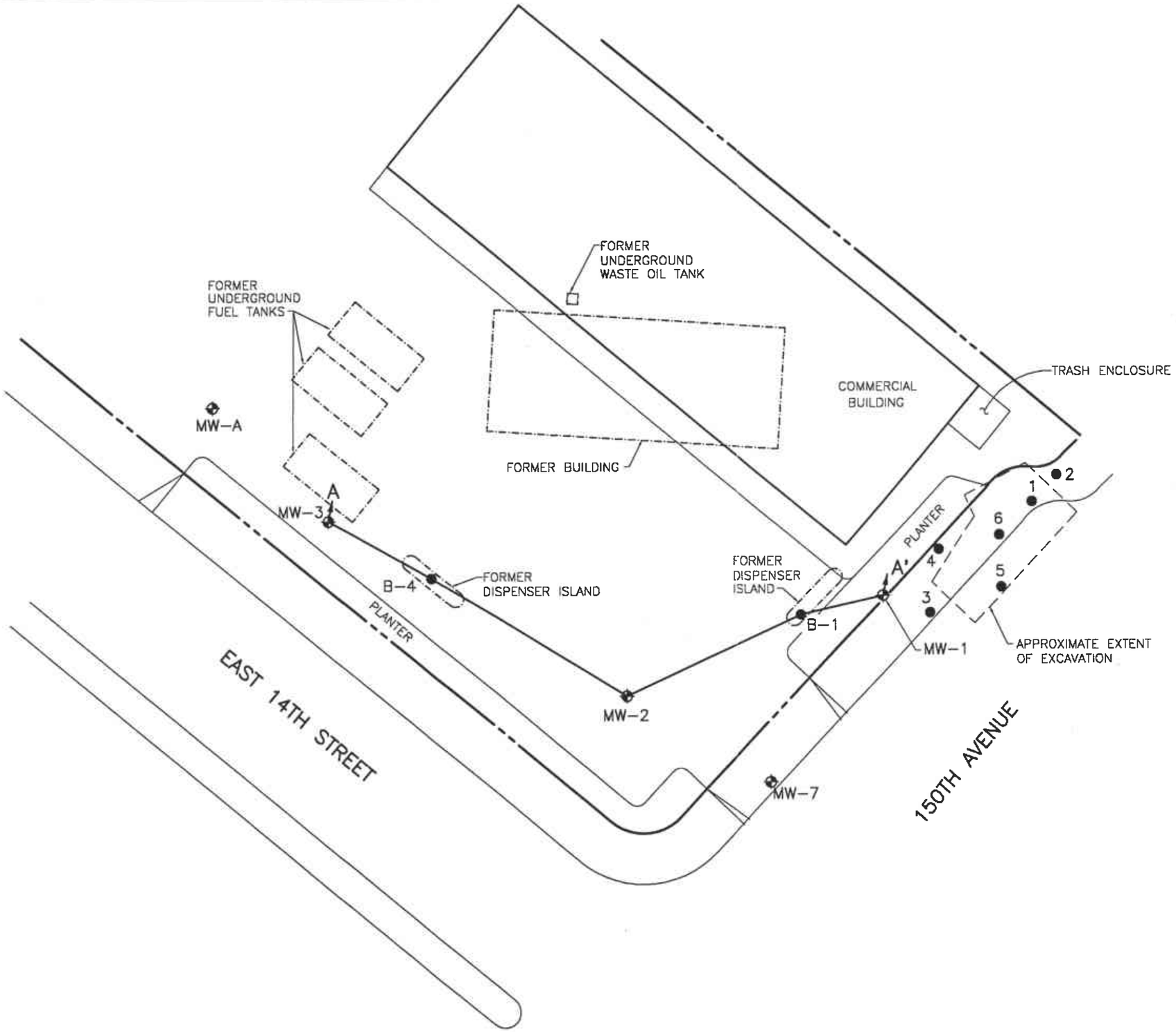
FIGURE 1

VICINITY MAP

FORMER MOBIL OIL CORPORATION
STATION 04–FGN
14994 EAST 14TH STREET
SAN LEANDRO, CALIFORNIA

PROJECT NO. 10–190

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA



N

0 20 40

SCALE IN FEET

LEGEND

- ◆ GROUNDWATER MONITORING WELL
- ● SOIL BORING
- A—A' LINE OF HYDROGEOLOGIC CROSS SECTION

FIGURE 2

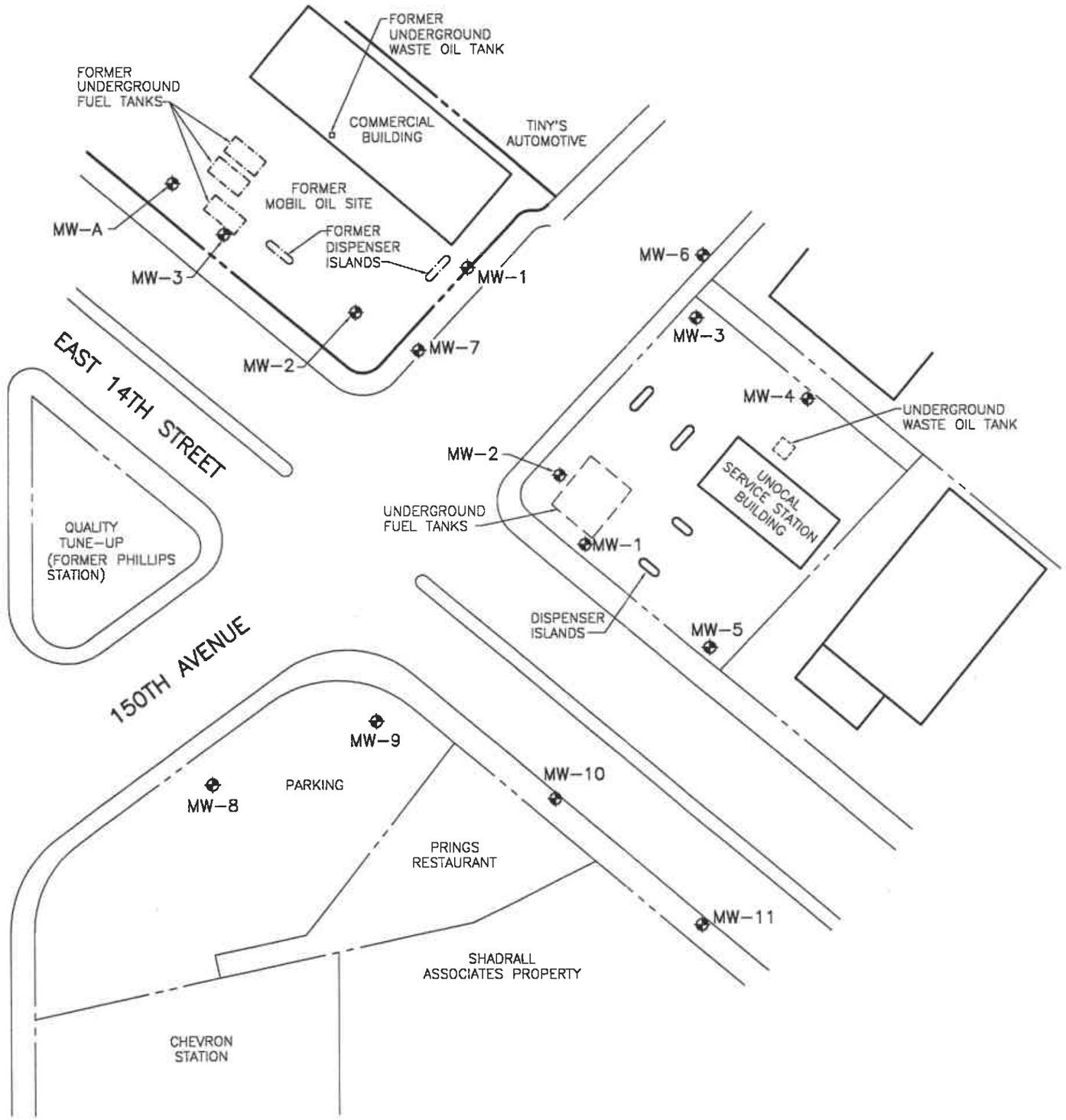
SITE PLAN

FORMER MOBIL OIL CORPORATION
STATION 04-FGN
14994 EAST 14TH STREET
SAN LEANDRO, CALIFORNIA

PROJECT NO. 10-190

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

10190CB-DWG 4-15-94 RSM 1=20



N

0 50 100

SCALE IN FEET

LEGEND

◆ GROUNDWATER MONITORING WELL

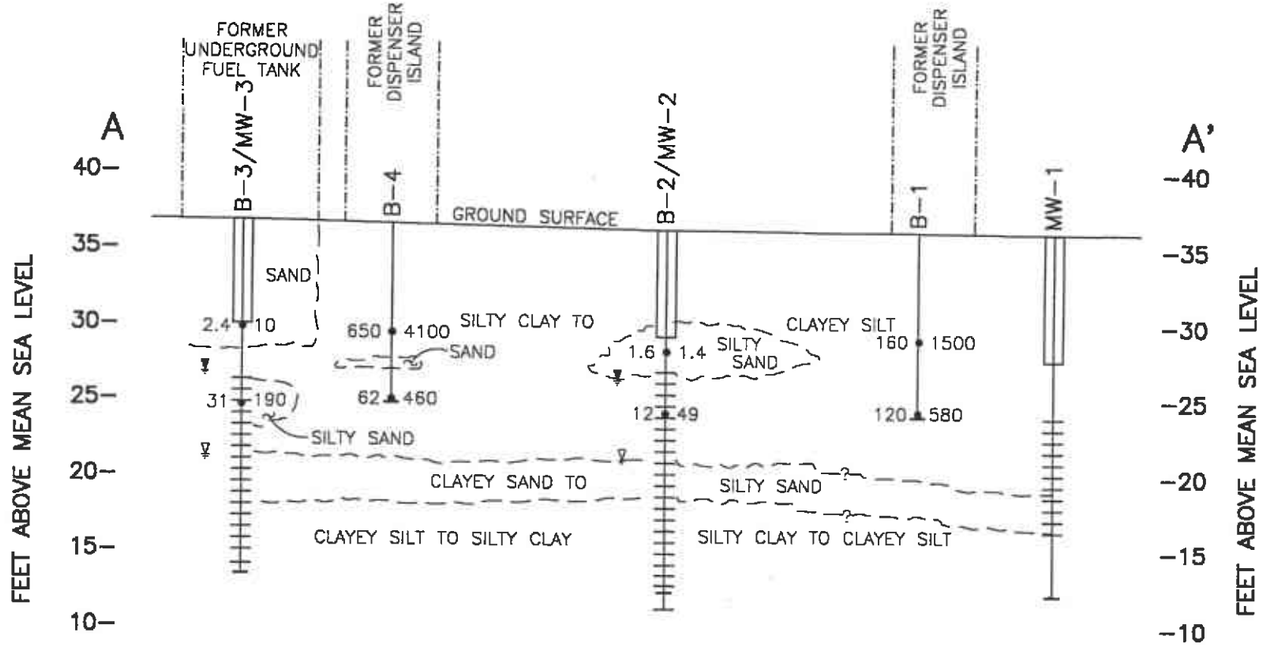
FIGURE 3

ADJACENT PROPERTIES MAP

FORMER MOBIL OIL CORPORATION
STATION 04-FGN
14994 EAST 14TH STREET
SAN LEANDRO, CALIFORNIA

PROJECT NO. 10-190

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA



10
0
0 20
SCALE IN FEET

LEGEND

- GROUNDWATER MONITORING WELL SHOWING SEAL AND SCREENED INTERVAL
- SOIL BORING
- GEOLOGIC CONTACT
- • 10 SOIL SAMPLE AND TOTAL PETROLEUM HYDROCARBONS AS GASOLINE CONCENTRATION IN PARTS PER MILLION
- 2.4 • SOIL SAMPLE AND TOTAL PETROLEUM HYDROCARBONS AS DIESEL CONCENTRATION IN PARTS PER MILLION
- ▽ GROUNDWATER ELEVATION DURING DRILLING
- ▼ STABILIZED GROUNDWATER ELEVATION AS MEASURED ON FEBRUARY 24, 1994

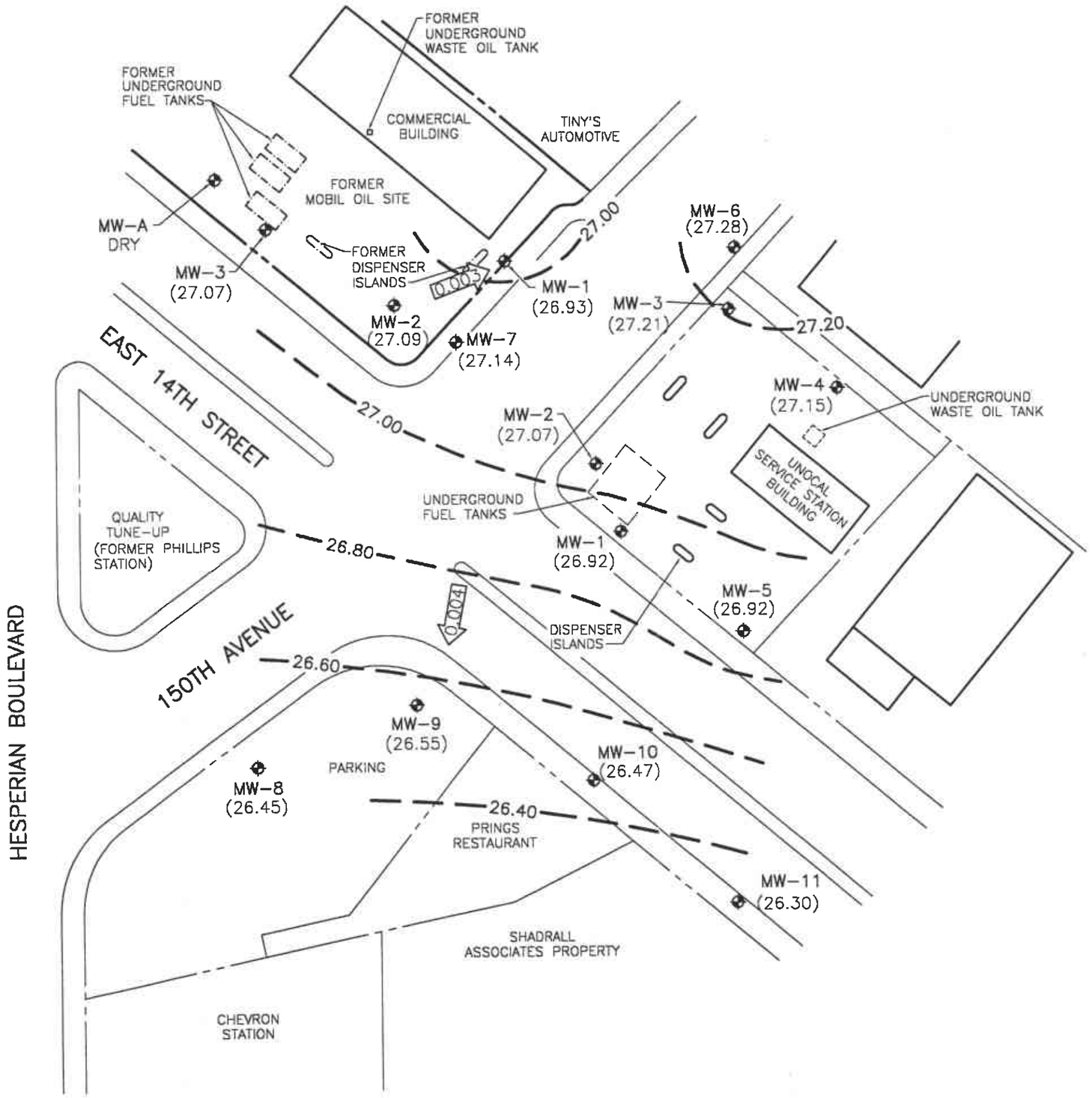
FIGURE 4

HYDROGEOLOGIC CROSS SECTION
A–A'

FORMER MOBIL OIL CORPORATION
STATION 04–FGN
14994 EAST 14TH STREET
SAN LEANDRO, CALIFORNIA

PROJECT NO. 10–190

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA



LEGEND

- ◆ GROUNDWATER MONITORING WELL
- (27.07) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- 27.00 GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL–0.20 FOOT)
- 0.004 CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 5

POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP

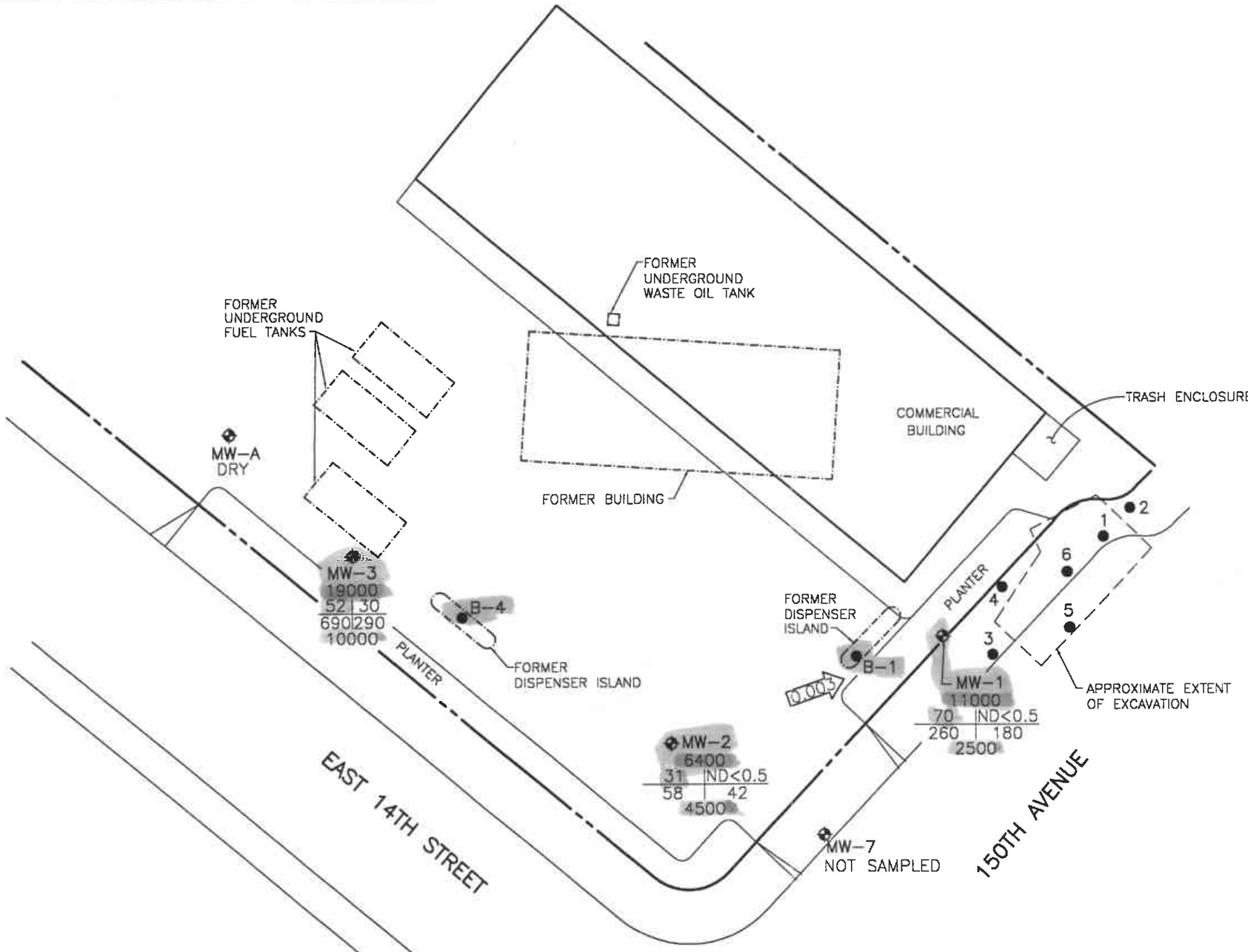
FEBRUARY 24, 1994

FORMER MOBIL OIL CORPORATION
STATION 04–FGN
14994 EAST 14TH STREET
SAN LEANDRO, CALIFORNIA

PROJECT NO. 10–190

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

10190-LDWG 4-4-94 RKR 1=30



N

0 20 40

SCALE IN FEET

LEGEND

- GROUNDWATER MONITORING WELL
- SOIL BORING
- TPH-G / B | T / E | X / TPH-D — CONCENTRATION OF CONSTITUENTS IN PARTS PER BILLION
- TPH-G — TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
- TPH-D — TOTAL PETROLEUM HYDROCARBONS AS DIESEL
- B — BENZENE
- T — TOLUENE
- E — ETHYLBENZENE
- X — TOTAL XYLENES
- ND — NOT DETECTED ABOVE REPORTED DETECTION LIMIT
- 0.003 — CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 6

CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER

FEBRUARY 24, 1994

FORMER MOBIL OIL CORPORATION
STATION 04-FGN
14994 EAST 14TH STREET
SAN LEANDRO, CALIFORNIA

PROJECT NO. 10-190

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

ZONE 7 WATER AGENCY

5997 PARKSIDE DRIVE PLEASANTON, CALIFORNIA 94588 VOICE (510) 484-2600
FAX (510) 462-3914

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 14994 E. 14th St.
San Leandro, Calif.

CLIENT
Name Mobil Oil Corp.
Address 3800 W. Alameda Ave, Ste 2000 Voice 818 — 953 - 2626
City Burbank Zip 91505 - 4331

APPLICANT
Name Alisto Engineering Group Fax (510) 295-1823
Address 1777 Oakland Blvd. Ste 200 Voice (510) 295-1650
City Walnut Creek Zip 94596

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	___	General	___
Water Supply	___	Contamination	___
Monitoring	X	Well Destruction	___

PROPOSED WATER SUPPLY WELL USE
Domestic — Industrial — Other ___
Municipal — N/A Irrigation —

DRILLING METHOD:
Mud Rotary ___ Air Rotary ___ Auger X
Cable ___ Other ___

DRILLER'S LICENSE NO. C57 582 696

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum
Casing Diameter 2 in. Depth 25 ft.
Surface Seal Depth 10 ft. Number 2

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

ESTIMATED STARTING DATE Jan. 31, 1994
ESTIMATED COMPLETION DATE Feb. 4, 1994

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

APPLICANT'S SIGNATURE W.H. A M Date 1-27-1994

FOR OFFICE USE

PERMIT NUMBER 94050
LOCATION NUMBER ___

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well Projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

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

C. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

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

E. WELL DESTRUCTION. See attached.

Approved Wyman Hong Date 26 Jan 94
Wyman Hong

91992

APPENDIX B

FIELD PROCEDURES FOR DRILLING, SAMPLING, AND GROUNDWATER MONITORING WELL INSTALLATION

FIELD PROCEDURES
FOR
DRILLING, SAMPLING, AND
GROUNDWATER MONITORING WELL INSTALLATION

Drilling Procedures

The soil borings were drilled using 8-inch-diameter, continuous-flight, hollow-stem augers. To avoid cross-contamination, drilling equipment in contact with potentially contaminated material was decontaminated by steam cleaning before and after each use. Decontamination fluids were placed into Department of Transportation approved drums for disposal.

Soil Sampling Procedures

During drilling, samples were collected beginning at 3 to 4 feet below grade and terminating at the total depth of each boring. Borings B-1 through B-4 were continuously sampled where practicable, using a 5-foot, split barrel, core sampler. Before and after each use, the sampler was washed using a phosphate-free detergent followed by tap water and deionized water rinses.

After retrieval from the augers, the sampler was split and a soil sample was collected in a stainless-steel sample tube for possible chemical analysis. Each sample was field screened using a photo-ionization detector to assist in selecting the samples for laboratory analysis. The sample was retained within the brass tube, and both ends were immediately covered with Teflon sheeting and polyurethane caps. The caps were sealed with tape and labeled with the following information: Alisto Engineering project number, boring number, sample depth interval, sampler's initials, and date of collection. The soil sample was immediately placed in a waterproof plastic bag and stored in a cooler containing blue or dry ice. Possession of the soil samples was documented from the field to the state-certified analytical laboratory by using a chain of custody form.

Soil samples and drill cuttings, when appropriate, were described by Alisto Engineering personnel using the Unified Soils Classification System, and field estimates of soil type, color, moisture, density, and consistency were noted on the boring logs. The logs were reviewed by a civil engineer registered in the state of California.

Groundwater Monitoring Well Installation

Construction of the groundwater monitoring wells was based on the stratigraphy in the soil borings. The well construction materials were introduced into the boring through the hollow-stem augers to centralize the well casing and minimize the possibility of native material entering the annular space of the well.

The 2-inch-diameter, schedule 40, polyvinyl chloride well casing consisted of 0.010-inch slotted casing from the bottom of the boring to a depth interval above the highest anticipated water level, and solid casing was installed from the top of the slotted casing to approximately 1 foot above grade. The casings, fittings, screens, and other well construction components were steam cleaned before installation.

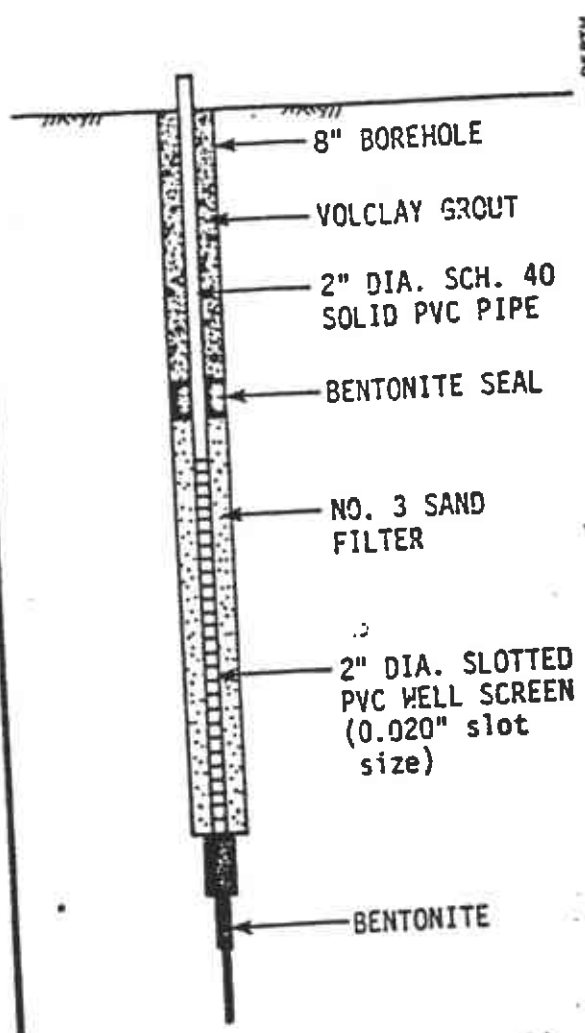
The annular space surrounding the screened portion was backfilled with No. 2/12 Lonestar sand (filter pack) to approximately 1 foot above the top of the screened section. An approximately 1-foot-thick interval of bentonite pellets was added to the annulus above the filter pack and hydrated with approximately 5 gallons of deionized water to minimize intrusion of well seal into the filter pack. The remaining annulus was sealed with a neat cement grout to the surface. A traffic-rated utility box was installed around the top of the well casing and set in concrete. An expanding, watertight well cap and lock were installed on top of the well casing to secure the well from surface fluid and tampering.

APPENDIX C

BORING LOGS AND WELL CONSTRUCTION DETAILS

LOG OF TEST BORING 1

EQUIPMENT 8" Hollow Stem Auger
DATE DRILLED 3/31/88
ELEVATION --



DEPTH (FT)	SAMPLE	BLOWS PER FOOT	
0		18	BROWN SILTY CLAY (CL) stiff, moist, contains numerous rock fragments
			BLACK SILTY CLAY (CL) stiff, moist
5		18	OLIVE-BROWN SANDY CLAYEY SILT(ML) stiff, moist, contains occasional rock fragments
			MOTTLED OLIVE-BROWN SILTY CLAY (CL) medium stiff, moist
10		13	GROUNDWATER LEVEL 1 HOUR AFTER DRILLING
		10	OLIVE-GREEN SILTY CLAY (CL) medium stiff, [redacted]
15			increase in sand content
20		*15	DARK BROWN SILTY CLAY (CL) stiff, [redacted]
		19	
		**13	
25			
30			
35			
40			

SAMPLER TYPES:
CALIFORNIA DRIVE
*MODIFIED CALIFORNIA DRIVE
**STANDARD PENETRATION TEST
(see text for sampler descriptions)

HAMMER WEIGHT: 140 pounds
HAMMER DROP: 30 inches

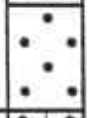
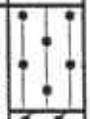
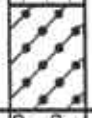
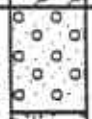
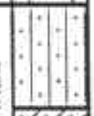
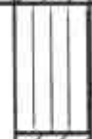
Subsurface Consultants

150th AVE. & E.14th ST.- SAN LEANDRO, CA

JOB NUMBER 209.006 | DATE 4/21/88 | APPROVED

PLATE 2

GEOLOGIC LEGEND

COARSE-GRAINED SOILS	GRAVELS more than 1/2 of coarse fraction > No. 4 Sieve	LITTLE OR NO FINES		GW	Well-graded gravels, gravel-sand mixtures, little or no fines
				GP	Poorly-graded gravels, gravel-sand mixtures
		APPRECIABLE NO FINES		GM	Silty gravels, gravel-sand-silt mixtures
				GC	Clayey gravels, gravel-sand-clay mixtures
	SANDS more than 1/2 of coarse fraction < No. 4 Sieve	LITTLE OR NO FINES		SW	Well-graded sands, gravelly sands, little or no fines
				SP	Poorly-graded sands, gravelly sands, little or no fines
		APPRECIABLE NO FINES		SM	Silty sands, sand-silt mixtures
				SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS	SILTS AND CLAYS Liquid limit < 50			ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
				CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays

SYMBOL LEGEND:

 Cement

 Sand

 Bentonite Pellets

 Driven Interval of Soil Sample

 Sample preserved for possible analysis

 Stabilized water level

 Groundwater level encountered during drilling

LEGEND TO BORING LOGS

FORMER MOBIL OIL CORPORATION
STATION 04-FGN
14994 EAST 14TH STREET
SAN LEANDRO, CALIFORNIA

PROJECT NO. 10-190

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

GEO-LEG.DWG 8-30-93 REV 1=1

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

LOG OF BORING B-1

SEE SITE PLAN

ALISTO PROJECT NO: 10-190-01 DATE DRILLED: 02/10/94

CLIENT: Mobil Oil Corporation

LOCATION: 14994 E. 14th Street, San Leandro, California

DRILLING METHOD: Hollow-Stem Auger (8") continuous sampling

DRILLING COMPANY: Soils Exploration Service CASING ELEVATION: N/A

LOGGED BY: Chris Reinhelmer APPROVED BY: Al Sevilla

BLOWS/6 IN.	PID VALUES	WELL DIAGRAN	DEPTH feet	SAMPLES	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
		Neat Cement	0				8" Asphalt; Roadbase: gravelly sand.
						ML	[redacted] medium tan, damp, stiff; organics to 5%.
	88		5			CL	[redacted] damp to moist, stiff; [redacted]
						ML	[redacted] mottled tan and [redacted]; organics and roots to 2%; gravel to 1 cm to approximately [redacted]
	130		10			CL	[redacted] tan, moist to wet, rootlets and root traces to 2%.
			15				
			20				
			25				
			30				

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

LOG OF BORING B-2/MW-2

SEE SITE PLAN

ALISTO PROJECT NO: 10-190-01 DATE DRILLED: 02/10/94

CLIENT: Mobil Oil Corportaion

LOCATION: 14994 E. 14th Street, San Leandro, California

DRILLING METHOD: Hollow-Stem Auger (8") continuous sampling

DRILLING COMPANY: Soils Exploration Service CASING ELEVATION: 36.61 'MSL

LOGGED BY: Chris Reinheimer APPROVED BY: Al Sevilla

BLOWS/6 IN.	PID VALUES	WELL DIAGRAN	DEPTH feet	SAMPLES	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
							8" Asphalt; Roadbase.
						ML	clayey SILT: dark brown; gravel present; rootlets and organics to approximately 5%.
	1.5		5			SM	silty SAND: medium gray/green, damp; gravel to 15 cm to approximately 5%; possible fill.
	8.8		10			CL	silty CLAY: mottled gray and tan, damp to moist, stiff; organics to 5%; fine gravel to 1 cm to approximately 2%.
			15			SM	silty SAND: medium gray/green, fine-grained; bedded organics present to 2%.
						CL	silty CLAY: medium brown with green/gray mottles; organics to 10%; caliche on root traces to 2%; rare gravel to 1 cm < 2%.
			20			ML	clayey SILT: medium brown with some gray mottles, damp, stiff; caliche in fractures; root traces and organics to 5%.
			25				▼ Stabilized water level measured on February 24, 1994.
			30				

WELL DIAGRAN: 2" Sch.40 PVC; Neat Cement; Bentonite Seal; 2" 0.010" Slotted PVC Screen; #2/12 Lonestar Sand

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

LOG OF BORING B-3/MW-3

SEE SITE PLAN

ALISTO PROJECT NO: 10-190-01 DATE DRILLED: 02/10/94

CLIENT: Mobil Oil Corportaion

LOCATION: 14994 E. 14th Street, San Leandro, California

DRILLING METHOD: Hollow-Stem Auger (8") continuous sampling

DRILLING COMPANY: Soils Exploration Service CASING ELEVATION: 38.92 'MSL

LOGGED BY: Chris Reinheimer APPROVED BY: Al Sevilla

BLOWS/6 IN.	PID VALUES	WELL DIAGRAN	DEPTH feet	SAMPLES	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
							8" Asphalt; Roadbase.
						SP	SAND: medium tan, damp; gravel to 1 cm to approximately 10%.
	1.2		5				Same: medium gray/green, damp; organics present to 10%; rare gravel to 1 cm to approximately 2%; some silt.
						CL	silty CLAY: medium gray/green; rare gravel to 1.5 cm present.
	81.2		10			SW	silty SAND: medium gray/green, damp to wet.
						CL	silty CLAY: medium brown with tan mottles, wet to saturated.
			15			SC	clayey SAND: caliche on root traces and fractures; rare gravel to 1 cm to approximately 1%.
						ML	clayey SILT: medium brown, wet; rare gravel to approximately 1%; sheen on fractures.
			20			CL	silty CLAY: dark brown, organics to 5%; rare gravel to 1 cm to approximately 5%; caliche on root traces to approximately 5%.
			25				▼ Stabilized water level measured on February 24, 1994.
			30				

WELL DIAGRAM: 2" Sch.40 PVC; Neat Cement; Bentonite Seal; 2" 0.010" Slotted PVC Screen; #2/12 Lonestar Sand

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

LOG OF BORING B-4

SEE SITE PLAN

ALISTO PROJECT NO: 10-190-01 DATE DRILLED: 02/10/94
CLIENT: Mobil Oil Corporation
LOCATION: 14994 E. 14th Street, San Leandro, California
DRILLING METHOD: Hollow-Stem Auger (8") continuous sampling
DRILLING COMPANY: Soils Exploration Service CASING ELEVATION: N/A
LOGGED BY: Chris Reinhelmer APPROVED BY: Al Sevilla

BLOWS/6 IN.	PID VALUES	WELL DIAGRAN	DEPTH feet	SAMPLES	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
	1.2	Neat Cement	5			CL	8" Asphalt; Roadbase: gravelly sand, medium brown, damp. silty CLAY: dark green/black, damp, stiff; organics > 25%; rare gravel to 1 cm < 2%.
	81.8					ML	clayey SILT [illegible] damp to moist; gravel to 1 cm to approximately 5%; roots common.
			10			SP	[illegible] damp to moist; fine- to medium-grained sand.
	22.0					CL	silty CLAY to clayey SILT: mottled tan and [illegible] damp, very stiff; caliche on root traces to 5%; organics to 5%.
			15				
			20				
			25				
			30				

APPENDIX D

FIELD PROCEDURES FOR GROUNDWATER MONITORING WELL DEVELOPMENT AND SAMPLING, AND ELEVATION SURVEY MAP

FIELD PROCEDURES
FOR
GROUNDWATER MONITORING WELL DEVELOPMENT AND SAMPLING

Groundwater Monitoring Well Development

The groundwater monitoring wells were developed to consolidate and stabilize the filter pack to optimize well production and reduce the turbidity of subsequent groundwater samples. Well development was accomplished by alternately using a surge block and pump to evacuate the water and sediments a minimum of 72 hours after installation of the cement seal. Development continued until the groundwater was relatively free of sediments and/or stabilization of pH, electrical conductivity, and temperature parameters was achieved. Well development fluids were placed into properly-labeled Department of Transportation approved drums for disposal.

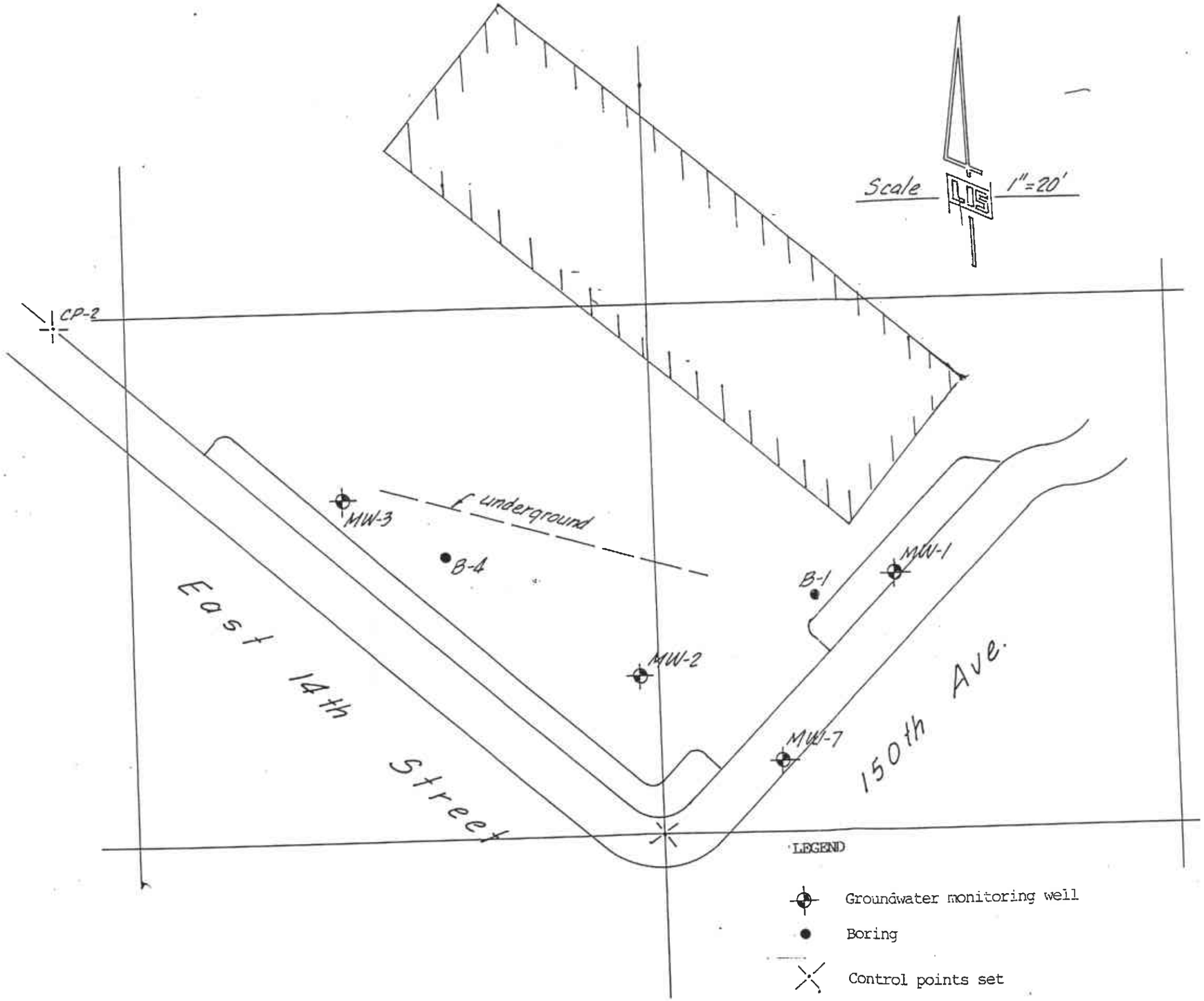
Groundwater Level Measurement

Before groundwater sampling activities, the groundwater level in each well was measured from the permanent survey reference point on top of the well casing. Groundwater in each well was monitored for free-floating product or sheen. The depth to groundwater was measured to an accuracy of 0.01 foot from the top of the polyvinyl chloride well casing using an electronic sounder.

Groundwater Monitoring Well Sampling

To ensure that the groundwater sample was representative of the aquifer, the wells were purged of 3 casing volumes and the above parameters stabilized before sample collection. Purging was accomplished using a pump.

The groundwater samples were collected using a disposable bailer, and transferred into laboratory-supplied containers. The sampling technician wore nitrile gloves at all times during purging and well sampling. The samples were clearly labeled with well number, site identification, date and time of collection, and sampler's initials, and transported in an iced cooler to a state-certified laboratory following proper preservation and chain of custody protocol.



WELL	N	E	ELEV.
CP-1	2000.00	2000.00	
CP-2	2095.41	1884.26	
MW-7	2013.14	2024.16	36.09
MW-1	2048.43	2045.63	36.65
MW-2	2029.39	1996.62	36.61
MW-3	2062.94	1939.79	36.92
B-1	2044.82	2030.05	
B-4	2051.93	1959.33	
C-1	2130.14	1951.15	
C-2	2058.08	2038.73	

BENCHMARK

Top of MW-7 casing.
Unocal datum. Elevation 36.09.

The information shown hereon this plat was done by me from a field survey for Alisto Engineering Group during the month of Febuary, 1994.

WES CARPENTER
No. 4135
STATE OF CALIFORNIA
LAND SURVEYOR

FORMER MOBILE SITE NO. 04-FGN
14994 East 14th Street
San Leandro, California

Project no. 10-190

APPENDIX E

WELL DEVELOPMENT AND WATER SAMPLING FIELD SURVEY FORMS

ALISTO ENGINEERING GROUP
Groundwater Development and Sampling Form

Client: Mobil
Alisto Project No: 10-190-01
Service Station No: _____

Date: 2-16-94
Field Personnel: C. Rinheimer
Address: 14994 E 14th St San Leandro

Well ID: MW-2 Field Activity: ✓ Well Development ___ Well Sampling ___ Product Bailing

Casing Diameter:

✓ 2 Inch (0.16 Gal/foot)
___ 3 Inch (0.37 Gal/foot)
___ 4 Inch (0.65 Gal/Foot)
___ 4.5 Inch (0.83 Gal/foot)
___ 6 Inch (1.47 Gal/foot)

Purge Method:

✓ Pump (dispos. Poly Tubing)
___ Disposable Bailers
___ Other
___ 1.66 PVC Standard Bailer
___ 3.50 PVC Standard Bailer

Well Data:

___ Depth to Product
___ Product Thickness
10.52 Depth to Water

Sampling Method:

___ Disposable Bailer
___ Pump

Decontamination Method:

X Triple Rinse (Liquinox)
___ Steam Cleaned

Calculated Purge Volume

24.21 (Total Depth of Well) - 10.52 (Depth to Water) = 13.69 ft (Water Column) X .16 (Conversion Factor) Gal/Ft = 2.19 Gal (Casing Vol) X 10 (Vols to Purge) = 21.9 (Total Volume)

Well Development/Sampling Parameters

Time	Temp °F	pH	Cond. (umhos/cm)	Purge Vol (Gal)	Comments/ Turbidity
3:34	65.1	8.66	1.41	12	cloudy brn
3:38	68.7	8.41	1.35	14	
3:43	68.1	7.74	1.31	15	clearing
3:44	68.3	7.89	1.35	18	
3:50	68.6	7.34	1.29	22	clear
3:54	68.3	7.38	1.31	28	↓

Analysis Required	Container Type	Preserv
TPH-G/BTEX	VOA	HCL
TPH-Diesel	Amber Liter	Solvent Rinsed
EPA 601	VOA	
TOG 5520BF	Amber Liter	H_2SO_4

FORM: FS3/121592

ALISTO ENGINEERING GROUP
Groundwater Development and Sampling Form

Client: Mobil
Alisto Project No: 10-190-01
Service Station No: _____

Date: 2/16-94
Field Personnel: C. Reinhemer
Address: 14994 E 14th St San Leandro

Well ID: MW-3 Field Activity: ✓ Well Development ___ Well Sampling ___ Product Bailing

Casing Diameter:

- X 2 Inch (0.16 Gal/foot)
- ___ 3 Inch (0.37 Gal/foot)
- ___ 4 Inch (0.65 Gal/Foot)
- ___ 4.5 Inch (0.83 Gal/foot)
- ___ 6 Inch (1.47 Gal/foot)

Purge Method:

- X Pump (dispos. Poly Tubing)
- ___ Disposable Bailers
- ___ Other
- ___ 1.66 PVC Standard Bailer
- ___ 3.50 PVC Standard Bailer

Well Data:

- ___ Depth to Product
- ___ Product Thickness
- 10.84 Depth to Water

Sampling Method:

- ___ Disposable Bailer
- ___ Pump

Decontamination Method:

- ___ Triple Rinse (Liquinox)
- ___ Steam Cleaned

Calculated Purge Volume

23.51 (Total Depth of Well) - 10.84 (Depth to Water) = 12.67 ft (Water Column) X 0.16 Gal/Ft (Conversion Factor) = 2.02 Gal (Casing Vol) X 10³ (Vols to Purge) = 20.2 (Total Volume)

Well Development/Sampling Parameters

Time	Temp °F	pH	Cond. (umhos/cm)	Purge Vol (Gal)	Comments/ Turbidity
2:30	64.3	7.64	1.88	14	cloudy dk brn
2:33	69.4	8.21	1.81	16	↓
2:40	69.7	7.33	1.68	18	↓
2:43	69.2	7.18	1.71	20	clearing
2:51	69.8	7.16	1.65	22	↓
2:09	69.3	7.13	1.68	26	clear

Analysis Required	Container Type	Preserv
TPH-G/BTEX	VOA	HCL
TPH-Diesel	Amber Liter	Solvent Rinsed
EPA 601	VOA	
TOG 5520BF	Amber Liter	H_2SO_4

FORM: FS3/121592

ALISTO ENGINEERING GROUP
GROUNDWATER MONITORING

Client: Mobil
Alisto Project No: 10-190-01
Service Station No: 04-FCN

Date: 2-24-94
Field Personnel: C. Reinheimer
Site Address: 14994 E. 14th St San Leandro CA

FIELD ACTIVITY:

___ Groundwater Monitoring
X Groundwater Sampling
___ Well Development

QUALITY CONTROL SAMPLES:

MW-1 ___ QC-1 Sample Duplicate (Well ID)
X QC-2 Trip Blank
___ QC-3 Rinsate Blank

Well ID	Well Diam	Order Measured/ Sampled	Total Depth	Depth to Water	Depth to Product	Product Thick-ness	Comments
MW-1	2"	1	18.50	9.42			
MW-2	"	2	24.46	9.52			
MW-3	"	3	23.60	9.85			

Notes:

FORM: FS2/121592

ALISTO ENGINEERING GROUP
GROUNDWATER MONITORING

Client: Unocal/(KEI) Station
Alisto Project No: 10-190
Service Station No: _____

Date: 2-24-94
Field Personnel: C. Reitan
Site Address: E 14th St & 150th St. San Leandro, CA

FIELD ACTIVITY:

X Groundwater Monitoring
___ Groundwater Sampling
___ Well Development

QUALITY CONTROL SAMPLES:

___ QC-1 Sample Duplicate (Well ID)
___ QC-2 Trip Blank
___ QC-3 Rinsate Blank

Well ID	Well Diam	Order Measured/ Sampled	Total Depth	Depth to Water	Depth to Product	Product Thick-ness	Comments
MW-1				9.45			DTW collected by KEI personnel
MW-2				9.27			
MW-3				9.21			
MW-4				9.89			
MW-5				9.02			
MW-6				8.39			
MW-7				8.95			
MW-8				10.44			
MW-9				9.74			
MW-10				9.57			
MW-11				9.20			

Notes:
Transcribed by Alisto Engineering field personnel

FORM: FS2/121592

ALISTO ENGINEERING GROUP
Groundwater Development and Sampling Form

Client: Mobil
Alisto Project No: 10-190-01
Service Station No: _____

Date: 2-24-94
Field Personnel: CESE
Address: 14994 E. 14th St San Leandro

Well ID: MW-1 Field Activity: ___Well Development ✓Well Sampling ___Product Bailing

Casing Diameter:

✓2 Inch (0.16 Gal/foot)
___3 Inch (0.37 Gal/foot)
___4 Inch (0.65 Gal/Foot)
___4.5 Inch (0.83 Gal/foot)
___6 Inch (1.47 Gal/foot)

Purge Method:

___Pump (dispos. Poly Tubing)
✓Disposable Bailers
___Other
___1.66 PVC Standard Bailer
___3.50 PVC Standard Bailer

Well Data:

___Depth to Product
___Product Thickness
9.42 Depth to Water

Sampling Method:

✓Disposable Bailer
___Pump

Decontamination Method:

___ Triple Rinse (Liquinox)
___ Steam Cleaned

Calculated Purge Volume

18.50 (Total Depth of Well) - 9.42 (Depth to Water) = 9.08 ft (Water Column) X .16 Gal/Ft (Conversion Factor) = 1.45 Gal (Casing Vol) X 3 (Vols to Purge) = 4.35 (Total Volume)

Well Development/Sampling Parameters

Time	Temp °F	pH	Cond. (umhos/cm)	Purge Vol (Gal)	Comments/ Turbidity
9:58	67.3	7.49	1.36	1	clear
10:06	67.1	7.36	1.42	2	cloudy red brn
10:16	67.3	7.41	1.44	3	↓
10:23	67.4	7.44	1.16	4	

Analysis Required	Container Type	Preserv
TPH-G/BTEX	VOA	HCL
TPH-Diesel	Amber Liter	Solvent Rinsed
EPA 601	VOA	
TOG 5520BF	Amber Liter	H_2SO_4

FORM: FS3/121592

ALISTO ENGINEERING GROUP
Groundwater Development and Sampling Form

Client: Mobil
Alisto Project No: 10-190-01
Service Station No: _____

Date: 2-24-94
Field Personnel: C Reinheimer
Address: 14994 E 14th St San Leandro

Well ID: MW-2 Field Activity: ___Well Development ✓Well Sampling ___Product Bailing

Casing Diameter:

✓ 2 Inch (0.16 Gal/foot)
___3 Inch (0.37 Gal/foot)
___4 Inch (0.65 Gal/Foot)
___4.5 Inch (0.83 Gal/foot)
___6 Inch (1.47 Gal/foot)

Purge Method:

___Pump (dispos. Poly Tubing)
✓ Disposable Bailers
___Other
___1.66 PVC Standard Bailer
___3.50 PVC Standard Bailer

Well Data:

___Depth to Product
___Product Thickness
9.52 Depth to Water

Sampling Method:

✓ Disposable Bailer
___Pump

Decontamination Method:

___ Triple Rinse (Liquinox)
___ Steam Cleaned

Calculated Purge Volume

24.46 (Total Depth of Well) - 9.52 (Depth to Water) = 14.94 ft (Water Column) X .16 Gal/Ft (Conversion Factor) = 2.39 Gal (Casing Vol) X 3 (Vols to Purge) = 7.17 (Total Volume)

Well Development/Sampling Parameters

Time	Temp °F	pH	Cond. (umhos/cm)	Purge Vol (Gal)	Comments/ Turbidity
10:40	67.8	7.41	1.41	2	clear
10:42	67.9	7.39	1.35	4	cldy clear
10:48	67.5	7.41	1.31	6	cldy
10:59	67.4	7.38	1.35	8	✓

Analysis Required	Container Type	Preserv
TPH-G/BTEX	VOA	HCL
TPH-Diesel	Amber Liter	Solvent Rinsed
EPA 601	VOA	
TOG 5520BF	Amber Liter	H_2SO_4

FORM: FS3/121592

ALISTO ENGINEERING GROUP
Groundwater Development and Sampling Form

Client: Mobil
Alisto Project No: 10-190-a
Service Station No: _____

Date: 2-24-94
Field Personnel: A. Reinstein
Address: 14994 E 14th St. San Leandro

Well ID: MW-3 Field Activity: ___Well Development ✓Well Sampling ___Product Bailing

Casing Diameter:

✓ 2 Inch (0.16 Gal/foot)
___3 Inch (0.37 Gal/foot)
___4 Inch (0.65 Gal/Foot)
___4.5 Inch (0.83 Gal/foot)
___6 Inch (1.47 Gal/foot)

Purge Method:

___Pump (dispos. Poly Tubing)
✓ Disposable Bailers
___Other
___1.66 PVC Standard Bailer
___3.50 PVC Standard Bailer

Well Data:

___Depth to Product
___Product Thickness
9.85 Depth to Water

Sampling Method:

✓ Disposable Bailer
___Pump

Decontamination Method:

___ Triple Rinse (Liquinox)
___ Steam Cleaned

Calculated Purge Volume

23.60 (Total Depth of Well) - 9.85 (Depth to Water) = 13.75 ft (Water Column) X .16 (Conversion Factor) Gal/Ft = 2.2 Gal (Casing Vol) X 3 (Vols to Purge) = 6.6 (Total Volume)

Well Development/Sampling Parameters

Time	Temp °F	pH	Cond. (umhos/cm)	Purge Vol (Gal)	Comments/ Turbidity
11:12	68.7	7.48	1.82	2	clear
11:14	68.4	7.56	1.78	4	cloudy brn
11:18	68.6	7.49	1.74	6	↓
11:24	68.4	7.52	1.71	8	

Analysis Required	Container Type	Preserv
TPH-G/BTEX	VOA	HCL
TPH-Diesel	Amber Liter	Solvent Rinsed
EPA 601	VOA	
TOG 5520BF	Amber Liter	H_2SO_4

FORM: FS3/121592

APPENDIX F

FIELD PROCEDURES FOR CHAIN OF CUSTODY DOCUMENTATION, OFFICIAL LABORATORY REPORTS, AND CHAIN OF CUSTODY RECORDS

FIELD PROCEDURES
FOR
CHAIN OF CUSTODY DOCUMENTATION

Samples collected were properly handled in accordance with the California Department of Health Services guidelines. Each sample was properly labeled in the field, and immediately stored in a cooler and preserved with blue ice for transport to a state-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 the sampling technician. When transferring possession of the samples, the transferee signed and dated the chain of custody record.

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

Alisto Engineering Group	Client Project ID:	Mobil 04-FGN / 10-190	Sampled:	Feb 10, 1994
1777 Oakland Blvd., Ste. 200	Sample Matrix:	Soil	Received:	Feb 14, 1994
Walnut Creek, CA 94596	Analysis Method:	EPA 5030/8015/8020	Reported:	Feb 23, 1994
Attention: Will Shipp	First Sample #:	402-0776		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit mg/kg	Sample I.D. 402-0776 B-1 6.5	Sample I.D. 402-0777 B-1 11.5	Sample I.D. 402-0778 [illegible]	Sample I.D. 402-0779 [illegible]	Sample I.D. 402-0780 B-8 6.5	Sample I.D. 402-0781 B-8 11.5
Purgeable Hydrocarbons	1.0	1,500	580	1.4	49	10	190
Benzene	0.005	N.D.	1.2	N.D.	0.094	N.D.	0.70
Toluene	0.005	2.9	1.1	0.0065	N.D.	0.028	0.11
Ethyl Benzene	0.005	18	5.5	N.D.	0.18	0.027	2.5
Total Xylenes	0.005	85	18	N.D.	0.33	0.049	0.52
Chromatogram Pattern:		Gasoline	Gasoline	Unidentified Hydrocarbons >C10	Gasoline and Unidentified Hydrocarbons >C10	Gasoline	Gasoline and Unidentified Hydrocarbons >C10

Quality Control Data

Report Limit Multiplication Factor:	250	100	1.0	10	1.0	10
Date Analyzed:	2/20/94	2/20/94	2/20/94	2/18/94	2/20/94	2/18/94
Instrument Identification:	HP-2	HP-2	HP-2	HP-2	HP-4	HP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	97	106	97	101	92	157*

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

Karen L. Enstrom
Project Manager

Please Note:

* High surrogate recovery was due to matrix interference caused by multiple peak coelution.

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
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Alisto Engineering Group	Client Project ID:	Mobil 04-FGN / 10-190	Sampled:	Feb 10, 1994
1777 Oakland Blvd., Ste. 200	Sample Matrix:	Soil	Received:	Feb 14, 1994
Walnut Creek, CA 94596	Analysis Method:	EPA 5030/8015/8020	Reported:	Feb 23, 1994
Attention: Will Shipp	First Sample #:	402-0782		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit mg/kg	Sample I.D. 402-0782 B-4 6.5	Sample I.D. 402-0783 B-4 11.5
Purgeable Hydrocarbons	1.0	4,100	460
Benzene	0.005	N.D.	N.D.
Toluene	0.005	15	1.0
Ethyl Benzene	0.005	57	4.7
Total Xylenes	0.005	390	23
Chromatogram Pattern:		Gasoline	Gasoline

Quality Control Data

Report Limit Multiplication Factor:	250	50
Date Analyzed:	2/20/94	2/20/94
Instrument Identification:	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	81	87

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

Karen L. Enstrom
Project Manager

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
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Alisto Engineering Group	Client Project ID:	Mobil 04-FGN / 10-190	Sampled:	Feb 10, 1994
1777 Oakland Blvd., Ste. 200	Sample Matrix:	Soil	Received:	Feb 14, 1994
Walnut Creek, CA 94596	Analysis Method:	EPA 3550/8015	Reported:	Feb 23, 1994
Attention: Will Shipp	First Sample #:	402-0776		

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit mg/kg	Sample I.D. 402-0776 B-1 6.5	Sample I.D. 402-0777 B-1 11.5	Sample I.D. 402-0778 B-2 7.5	Sample I.D. 402-0779 B-2 11.5	Sample I.D. 402-0780 B-3 6.5	Sample I.D. 402-0781 B-3 11.5
Extractable Hydrocarbons	1.0	160	120	1.6	12	2.4	31
Chromatogram Pattern:		Diesel and Unidentified Hydrocarbons <C14	Diesel and Unidentified Hydrocarbons <C14	Discrete Peaks and Unidentified Hydrocarbons <C14	Diesel and Unidentified Hydrocarbons <C14	Diesel and Unidentified Hydrocarbons >C20	Diesel and Unidentified Hydrocarbons <C14

Quality Control Data

Report Limit Multiplication Factor:	10	10	1.0	1.0	1.0	1.0
Date Extracted:	2/16/94	2/16/94	2/16/94	2/16/94	2/16/94	2/16/94
Date Analyzed:	2/18/94	2/18/94	2/17/94	2/17/94	2/18/94	2/18/94
Instrument Identification:	HP-3A	HP-3A	HP-3A	HP-3A	HP-3B	HP-3A

Extractable Hydrocarbons are quantitated against a fresh diesel standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

Karen L. Enstrom
Project Manager

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

Alisto Engineering Group	Client Project ID:	Mobil 04-FGN / 10-190	Sampled:	Feb 10, 1994
1777 Oakland Blvd., Ste. 200	Sample Matrix:	Soil	Received:	Feb 14, 1994
Walnut Creek, CA 94596	Analysis Method:	EPA 3550/8015	Reported:	Feb 23, 1994
Attention: Will Shipp	First Sample #:	402-0782		

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit mg/kg	Sample I.D. 402-0782 B-4 6.5	Sample I.D. 402-0783 B-4 11.5
Extractable Hydrocarbons	1.0	650	62
Chromatogram Pattern:		Diesel and Unidentified Hydrocarbons <C14	Diesel and Unidentified Hydrocarbons <C14

Quality Control Data

Report Limit Multiplication Factor:	20	1.0
Date Extracted:	2/16/94	2/16/94
Date Analyzed:	2/18/94	2/17/94
Instrument Identification:	HP-3A	HP-3A

Extractable Hydrocarbons are quantitated against a fresh diesel standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

Karen L. Enstrom
Project Manager

SEQUOIA ANALYTICAL

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Alisto Engineering Group	Client Project ID:	Mobil 04-FGN / 10-190	Sampled:	Feb 10, 1994
1777 Oakland Blvd., Ste. 200	Matrix Descript:	Soil	Received:	Feb 14, 1994
Walnut Creek, CA 94596	Analysis Method:	SM 5520 EF (Gravimetric)	Extracted:	Feb 19, 1994
Attention: Will Shipp	First Sample #:	402-0776	Analyzed:	Feb 23, 1994
			Reported:	Feb 23, 1994

TOTAL RECOVERABLE OIL & GREASE

Sample Number	Sample Description	Oil & Grease mg/kg (ppm)
402-0776	B-1 6.5	160
402-0777	B-1 11.5	N.D.
402-0778	B-2 7.5	N.D.
402-0779	B-2 11.5	N.D.
402-0780	B-3 6.5	100
402-0781	B-3 11.5	N.D.
402-0782	B-4 6.5	130
402-0783	B-4 11.5	N.D.

Detection Limits:	**30**

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Karen L. Enstrom
Project Manager

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

Alisto Engineering Group
1777 Oakland Blvd., Ste. 200
Walnut Creek, CA 94596
Attention: Will Shipp

Client Project ID: Mobil 04-FGN / 10-190
Matrix: Solid
QC Sample Group: 4020776-83

Reported: Feb 23, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes	Diesel	Oil & Grease
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015	SM 5520 EF
Analyst:	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha	K. Wimer	K. Wimer
MS/MSD Batch#:	4020605	4020605	4020605	4020605	4020615	BLK021994
Date Prepared:	2/18/94	2/18/94	2/18/94	2/18/94	2/18/94	2/19/94
Date Analyzed:	2/18/94	2/18/94	2/18/94	2/18/94	2/18/94	2/22/94
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2	HP-3A	N.A.
Conc. Spiked:	0.40 mg/kg	0.40 mg/kg	0.40 mg/kg	1.2 mg/kg	10 mg/kg	5,000 mg/kg
Matrix Spike % Recovery:	120	123	123	96	100	92
Matrix Spike Duplicate % Recovery:	117	113	117	88	102	91
Relative % Difference:	2.5	8.5	5.0	8.7	2.0	1.2
LCS Batch#:	1LCS021894	1LCS021894	1LCS021894	1LCS021894	BLK021694	BLK021994
Date Prepared:	2/18/94	2/18/94	2/18/94	2/18/94	2/18/94	2/19/94
Date Analyzed:	2/18/94	2/18/94	2/18/94	2/18/94	2/18/94	2/22/94
Instrument I.D.#:	HP-2	HP-2	HP-2	HP-2	HP-3A	N.A.
LCS % Recovery:	97	96	96	98	98	92
% Recovery Control Limits:	55-145	47-149	47-155	56-140	38-122	75-125

SEQUOIA ANALYTICAL

Karen L. Enstrom
Project Manager

Please Note:
The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

Mobil Chain of Custody

SEQUOIA ANALYTICAL

Redwood City: (415) 364-9600
Concord: (510) 686-9600
Sacramento: (916) 921-9600

Consulting Firm Name: AGTO ENGINEERING	Site SS #: 04-FGN	Phase of Work:
Address: 1777 Oakland Blvd #200	Mobil Site Address: 14954 E. 14th St, San Leandro	☐ A. Emrg. Response
City: Walnut Creek State: CA Zip Code: 94596	Mobil Engineer: Steve Pao	☒ B. Site Assessment
Telephone: 510 295 1650 FAX #: 295 1823	Consultant Project #: 10-190	☐ C. Remediation
Project Contact: Will Shipp Sampled by: Chris Reinhem	Sequoia's Work Order Release #:	☐ D. Monitoring
		☐ E. OGC/Claims

Turnaround Time: ☒ Standard TAT (5 - 10 Working Days)
☐ Other _____

Analyses Requested

	Client Sample I.D.	Date/Time Sampled	Matrix Description	# of Containers	Sequoia's Sample #	TPH Gas/BTEX	TPH Diesel	TRPH by I.R. EPA 418.1	Oil & Grease EPA 413.2	0-T (Trevel 5520 2F			Comments
✓	1. B-1 6.5	2-10-94	Soil	1		X	X			X			4020776
✓	2. B-1 11.5												0777
✓	3. B-2 7.5												0778
✓	4. B-2 11.5												0779
✓	5. B-3 6.5												0780
✓	6. B-3 11.5												0781
✓	7. B-4 6.5												0782
✓	8. B-4 11.5					X	X			X			0783
	9.												
	10.												

Relinquished By:	Date: 2-14-94	Time: 1645	Received By:	Date: 2-14-94	Time: 1645
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

Method of Shipment _____

Page __ of __

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

Alisto Engineering Group	Client Project ID:	Mobil # 04-FGN / 10-190-01	Sampled: Feb 24, 1994
1777 Oakland Blvd., Ste. 200	Sample Matrix:	Water	Received: Feb 28, 1994
Walnut Creek, CA 94596	Analysis Method:	EPA 5030/8015/8020	Reported: Mar 7, 1994
Attention: Will Shipp	First Sample #:	402-1708	

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 402-1708 MW-1	Sample I.D. 402-1709 MW-2	Sample I.D. 402-1710 MW-3	Sample I.D. 402-1711 QC-1	Sample I.D. 402-1712 QC-2
Purgeable Hydrocarbons	50	11,000	6,400	19,000	11,000	N.D.
Benzene	0.5	70	31	52	88	N.D.
Toluene	0.5	N.D.	N.D.	30	N.D.	N.D.
Ethyl Benzene	0.5	210	58	690	230	N.D.
Total Xylenes	0.5	150	42	290	190	N.D.
Chromatogram Pattern:		Gasoline	Gasoline	Gasoline	Gasoline	--

Quality Control Data

Report Limit Multiplication Factor:	50	20	50	50	1.0
Date Analyzed:	3/3/94	3/4/94	3/4/94	3/4/94	3/4/94
Instrument Identification:	HP-4	HP2	HP2	HP2	HP2
Surrogate Recovery, %: (QC Limits = 70-130%)	93	130	99	95	105

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

Karen L. Enstrom
Project Manager

SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

Alisto Engineering Group	Client Project ID:	Mobil # 04-FGN / 10-190-01	Sampled:	Feb 24, 1994
1777 Oakland Blvd., Ste. 200	Sample Matrix:	Water	Received:	Feb 28, 1994
Walnut Creek, CA 94596	Analysis Method:	EPA 3510/3520/8015	Reported:	Mar 4, 1994
Attention: Will Shipp	First Sample #:	402-1708		

TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

Analyte	Reporting Limit µg/L	Sample I.D. 402-1708 MW-1	Sample I.D. 402-1709 MW-2	Sample I.D. 402-1710 MW-3
Extractable Hydrocarbons	50	2,500	4,500	10,000
Chromatogram Pattern:		Diesel and Unidentified Hydrocarbons <C14	Unidentified Hydrocarbons <C14	Unidentified Hydrocarbons <C14

Quality Control Data

Report Limit Multiplication Factor:	1.0	10	10
Date Extracted:	3/3/94	3/3/94	3/3/94
Date Analyzed:	3/4/94	3/7/94	3/7/94
Instrument Identification:	HP-3A	HP-3A	HP-3A

Extractable Hydrocarbons are quantitated against a fresh diesel standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

Karen L. Enstrom
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
1900 Bates Avenue, Suite L, Concord, CA 94520, (510) 686-9600, FAX (510) 686-9689
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Alisto Engineering Group	Client Project ID:	Mobil # 04-FGN / 10-190-01	Sampled: Feb 24, 1994
1777 Oakland Blvd., Ste. 200	Matrix Descript:	Water	Received: Feb 28, 1994
Walnut Creek, CA 94596	Analysis Method:	SM 5520 B&F (Gravimetric)	Extracted: Mar 10, 1994
Attention: Will Shipp	First Sample #:	402-1708	Analyzed: Mar 15, 1994
			Reported: Mar 18, 1994

TOTAL RECOVERABLE PETROLEUM OIL

Sample Number	Sample Description	Oil & Grease mg/L (ppm)
402-1708	MW-1	N.D.
402-1709	MW-2	N.D.
402-1710	MW-3	N.D.

Detection Limits:	**5.0**

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL #1271

Karen L. Enstrom
Project Manager

4021708.ALS <3>

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
1900 Bates Avenue, Suite L, Concord, CA 94520, (510) 686-9600, FAX (510) 686-9689
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Alisto Engineering Group	Client Project ID:	Mobil # 04-FGN / 10-190-01	Sampled:	Feb 24, 1994
1777 Oakland Blvd., Ste. 200	Sample Descript:	Water, MW-1	Received:	Feb 28, 1994
Walnut Creek, CA 94596	Analysis Method:	EPA 5030/8010	Analyzed:	Mar 2, 1994
Attention: Will Shipp	Lab Number:	402-1708	Reported:	Mar 18, 1994

HALOGENATED VOLATILE ORGANICS (EPA 8010)

Analyte	Detection Limit µg/L	Sample Results µg/L
Bromodichloromethane	0.50	N.D.
Bromoform	0.50	N.D.
Bromomethane	1.0	N.D.
Carbon tetrachloride	0.50	N.D.
Chlorobenzene	0.50	N.D.
Chloroethane	1.0	N.D.
2-Chloroethylvinyl ether	1.0	N.D.
Chloroform	0.50	N.D.
Chloromethane	1.0	N.D.
Dibromochloromethane	0.50	N.D.
1,3-Dichlorobenzene	0.50	N.D.
1,4-Dichlorobenzene	0.50	N.D.
1,2-Dichlorobenzene	0.50	N.D.
1,1-Dichloroethane	0.50	N.D.
1,2-Dichloroethane	0.50	N.D.
1,1-Dichloroethene	0.50	N.D.
cis-1,2-Dichloroethene	0.50	N.D.
trans-1,2-Dichloroethene	0.50	N.D.
1,2-Dichloropropane	0.50	N.D.
cis-1,3-Dichloropropene	0.50	N.D.
trans-1,3-Dichloropropene	0.50	N.D.
Methylene chloride	5.0	N.D.
1,1,2,2-Tetrachloroethane	0.50	N.D.
Tetrachloroethene	0.50	N.D.
1,1,1-Trichloroethane	0.50	N.D.
1,1,2-Trichloroethane	0.50	N.D.
Trichloroethene	0.50	N.D.
Trichlorofluoromethane	0.50	N.D.
Vinyl chloride	1.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL #1271

Karen L. Enstrom
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Alisto Engineering Group	Client Project ID:	Mobil # 04-FGN / 10-190-01	Sampled:	Feb 24, 1994
1777 Oakland Blvd., Ste. 200	Sample Descript:	Water, MW-1	Received:	Feb 28, 1994
Walnut Creek, CA 94596	Analysis Method:	EPA 8240	Analyzed:	Mar 7, 1994
Attention: Will Shipp	Lab Number:	402-1708	Reported:	Mar 18, 1994

VOLATILE ORGANICS by GC/MS (EPA 8240)

Analyte	Detection Limit µg/L	Sample Results µg/L
Acetone	100	N.D.
Benzene	20	N.D.
Bromodichloromethane	20	N.D.
Bromoform	20	N.D.
Bromomethane	20	N.D.
2-Butanone	100	N.D.
Carbon disulfide	20	N.D.
Carbon tetrachloride	20	N.D.
Chlorobenzene	20	N.D.
Chloroethane	20	N.D.
2-Chloroethyl vinyl ether	100	N.D.
Chloroform	20	N.D.
Chloromethane	20	N.D.
Dibromochloromethane	20	N.D.
1,1-Dichloroethane	20	N.D.
1,2-Dichloroethane	20	N.D.
1,1-Dichloroethene	20	N.D.
cis-1,2-Dichloroethene	20	N.D.
trans-1,2-Dichloroethene	20	N.D.
1,2-Dichloropropane	20	N.D.
cis-1,3-Dichloropropene	20	N.D.
trans-1,3-Dichloropropene	20	N.D.
Ethylbenzene	**20**	**260**
2-Hexanone	100	N.D.
Methylene chloride	50	N.D.
4-Methyl-2-pentanone	100	N.D.
Styrene	20	N.D.
1,1,2,2-Tetrachloroethane	20	N.D.
Tetrachloroethene	20	N.D.
Toluene	20	N.D.
1,1,1-Trichloroethane	20	N.D.
1,1,2-Trichloroethane	20	N.D.
Trichloroethene	20	N.D.
Trichlorofluoromethane	20	N.D.
Vinyl acetate	20	N.D.
Vinyl chloride	20	N.D.
Total Xylenes	**20**	**150**

Analytes reported as N.D. were not present above the stated limit of detection. Because matrix effects and/or other factors required additional sample dilution, detection limits for this sample have been raised.

SEQUOIA ANALYTICAL #1271

Karen L. Enstrom
Project Manager

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Sequoia Analytical

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Alisto Engineering Group
1777 Oakland Blvd., Ste. 200
Walnut Creek, CA 94596
Attention: Will Shipp

Client Project ID: Mobil # 04-FGN / 10-190-01
Matrix: Liquid
QC Sample Group: 4021708-12

Reported: Mar 7, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes	Diesel
Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020	EPA 8015
Analyst:	J. Fontecha	J. Fontecha	J. Fontecha	J. Fontecha	K. Wimer
MS/MSD Batch#:	4021601	4021601	4021601	4021601	BLK030394
Date Prepared:	3/3/94	3/3/94	3/3/94	3/3/94	3/3/94
Date Analyzed:	3/3/94	3/3/94	3/3/94	3/3/94	3/5/94
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4	HP-3A
Conc. Spiked:	20 µg/L	20 µg/L	20 µg/L	60 µg/L	300 µg/L
Matrix Spike % Recovery:	110	105	105	105	84
Matrix Spike Duplicate % Recovery:	110	105	100	102	82
Relative % Difference:	0.0	0.0	4.9	2.9	2.0
LCS Batch#:	2LCS030394	2LCS030394	2LCS030394	2LCS030394	BLK030394
Date Prepared:	3/3/94	3/3/94	3/3/94	3/3/94	3/3/94
Date Analyzed:	3/3/94	3/3/94	3/3/94	3/3/94	3/5/94
Instrument I.D.#:	HP-4	HP-4	HP-4	HP-4	HP-3A
LCS % Recovery:	105	103	103	103	84
% Recovery Control Limits:	71-133	72-128	72-130	71-120	28-122

SEQUOIA ANALYTICAL #1271

Karen L. Enstrom
Project Manager

Please Note:
The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

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Alisto Engineering Group
1777 Oakland Blvd., Ste. 200
Walnut Creek, CA 94596
Attention: Will Shipp

Client Project ID: Mobil # 04-FGN / 10-190-01
Matrix: Liquid
QC Sample Group: 402-1708

Reported: Mar 18, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	1,1-Dichloro-ethene	Trichloro-ethene	Chloro-benzene
Method:	EPA 8010	EPA 8010	EPA 8010
Analyst:	K.N.	K.N.	K.N.
MS/MSD Batch#:	4021613	4021613	4021613
Date Prepared:	3/2/94	3/2/94	3/2/94
Date Analyzed:	3/2/94	3/2/94	3/2/94
Instrument I.D.#:	HP-5890/1	HP-5890/1	HP-5890/1
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L
Matrix Spike % Recovery:	86	110	110
Matrix Spike Duplicate % Recovery:	88	110	100
Relative % Difference:	2.3	0.0	9.5
LCS Batch#:	LCS030294	LCS030294	LCS030294
Date Prepared:	3/2/94	3/2/94	3/2/94
Date Analyzed:	3/2/94	3/2/94	3/2/94
Instrument I.D.#:	HP-5890/1	HP-5890/1	HP-5890/1
LCS % Recovery:	110	120	110
% Recovery Control Limits:	28-167	35-146	38-150

SEQUOIA ANALYTICAL #1271

Karen L. Enstrom
Project Manager

Please Note:
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Alisto Engineering Group
1777 Oakland Blvd., Ste. 200
Walnut Creek, CA 94596
Attention: Will Shipp

Client Project ID: Mobil # 04-FGN / 10-190-01
Matrix: Water
QC Sample Group: 4021708-1710

Reported: Mar 18, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Oil & Grease
Method:	SM 5520
Analyst:	K.W.
MS/MSD Batch#:	BLK031094
Date Prepared:	3/10/94
Date Analyzed:	3/14/94
Instrument I.D.#:	N/A
Conc. Spiked:	5000 mg/Kg
Matrix Spike % Recovery:	91
Matrix Spike Duplicate % Recovery:	92
Relative % Difference:	1.1
LCS Batch#:	BLK031094
Date Prepared:	3/10/94
Date Analyzed:	3/14/94
Instrument I.D.#:	N/A
LCS % Recovery:	91
% Recovery Control Limits:	80-120

SEQUOIA ANALYTICAL #1271

Karen L. Enstrom
Project Manager

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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Alisto Engineering Group
1777 Oakland Blvd., Ste. 200
Walnut Creek, CA 94596
Attention: Will Shipp

Client Project ID: Mobil # 04-FGN / 10-190-01
Matrix: Liquid
QC Sample Group: 402-1708

Reported: Mar 18, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	1,1-Dichloroethene	Trichloroethene	Benzene	Toluene	Chloro-benzene
Method:	EPA 8240	EPA 8240	EPA 8240	EPA 8240	EPA 8240
Analyst:	M.N.	M.N.	M.N.	M.N.	M.N.
MS/MSD Batch#:	4030048	4030048	4030048	4030048	4030048
Date Prepared:	3/7/94	3/7/94	3/7/94	3/7/94	3/7/94
Date Analyzed:	3/7/94	3/7/94	3/7/94	3/7/94	3/7/94
Instrument I.D.#:	GC/MS-2	GC/MS-2	GC/MS-2	GC/MS-2	GC/MS-2
Conc. Spiked:	50 µg/L	50 µg/L	50 µg/L	50 µg/L	50 µg/L
Matrix Spike % Recovery:	120	104	107	110	106
Matrix Spike Duplicate % Recovery:	128	114	115	117	113
Relative % Difference:	6.1	8.8	6.9	5.6	6.2
LCS Batch#:	4030048	4030048	4030048	4030048	4030048
Date Prepared:	3/7/94	3/7/94	3/7/94	3/7/94	3/7/94
Date Analyzed:	3/7/94	3/7/94	3/7/94	3/7/94	3/7/94
Instrument I.D.#:	GC/MS-2	GC/MS-2	GC/MS-2	GC/MS-2	GC/MS-2
LCS % Recovery:	97	103	103	101	102
% Recovery Control Limits:	DL-234	71-157	37-151	47-150	37-160

SEQUOIA ANALYTICAL #1271

Karen L. Enstrom
Project Manager

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Mobil Chain of Custody

SEQUOIA ANALYTICAL

Redwood City: (415) 364-9600
Concord: (510) 686-9600
Sacramento: (916) 921-9600

Consulting Firm Name: ACLSTO ENGINEERING	Site SS #: 04-FGN	Phase of Work:
Address: 1777 Oakland Blvd #200	Mobil Site Address: 14994 E 14th. San Leandro	☐ A. Emrg. Response
City: Walnut Creek State: CA Zip Code: 94596	Mobil Engineer: Steve Pao	☒ B. Site Assessment
Telephone: 90 295 1650 FAX #: 295 1823	Consultant Project #: 10-190-01	☐ C. Remediation
Project Contact: Will Shipp Sampled by: Chris Reinheimer	Sequoia's Work Order Release #:	☐ D. Monitoring
		☐ E. OGC/Claims

Turnaround Time: ☒ Standard TAT (5 - 10 Working Days)
☐ Other _____

Analyses Requested

Client Sample I.D.	Date/Time Sampled	Matrix Description	# of Containers	Sequoia's Sample #	TPH Gas/BTEX	TPH Diesel	TRPH by I.R. EPA 418.1	Oil & Grease EPA 5520 O&G	EPA 8010 HOC	VOC 8240			Comments
1. MW-1	2-24-94	water	9		X	X		X	X	X			4021708 A-I
2. MW-2	↓	↓	6		X	X		X					1709 A-F
3. MW-3	2-24-94	↓	6		X	X		X					1710 ↓
4. QC-1	↓	↓	2		↓	↓							1711 A-B
5. QC-2	↓	↓	2		↓	↓							1712 ↓
6.													
7.													
8.													
9.													
10.													

Relinquished By:	Date: 2-25-94	Time: 3:25	Received By:	Date: 2-28-94	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

Method of Shipment SA

Page ___ of ___