



April 11, 2000

TRC Alton Project No. 41-0123

Alameda County Health Care Services
1131 Harbor Bay Parkway
Alameda, California 94502-6700

Handwritten initials
1683

ATTN: MR. BARNEY CHAN

SITE: FORMER MOBIL STATION 99-105
6301 SAN PABLO AVENUE
OAKLAND, CALIFORNIA

RE: SUPPLEMENTAL SITE ASSESSMENT REPORT

Dear Mr. Chan :

On behalf of ExxonMobil Remediation Services, please find enclosed a copy of our Supplementary Site Assessment Report for former Mobil Station 99-105, located at 6301 San Pablo Avenue in Oakland, California. If you have any questions, please call me at (818) 772-0965 or Mr. Brad Ledesma, ExxonMobil Remediation Engineer, at (310) 212-1814.

Sincerely,

Sarah A. Larese
Project Scientist

Enclosures

cc: Mr. Brad Ledesma, ExxonMobil Remediation Services
Mr. Chuck Headlee, San Francisco Bay Regional Water Quality Control Board
Ms. Connie Lam, property owner

00 APR 17 AM 09:47
ENVIRONMENTAL PROTECTION
7/1/2000

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Customer-Focused Solutions



SUPPLEMENTAL SITE ASSESSMENT REPORT
April 11, 2000

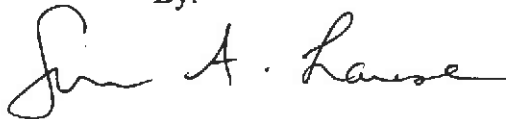
FORMER MOBIL STATION 99-105
6301 San Pablo Avenue
Oakland, California

TRC Alton Project No. 41-0123

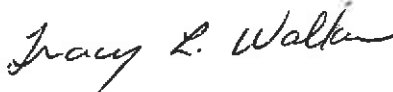
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1.0 INTRODUCTION

This summary report presents the findings of subsurface investigation activities conducted onsite at the former Mobil Service Station 99-105 (site) located at 6301 San Pablo Avenue, Oakland, California (Figure 1). This work was conducted pursuant to the *Progress Report and Workplan for the Installation of One Soil Boring* (TRC Alton, 1999) and a letter from the Alameda County Health Care Services Agency (ACHCSA) dated November 8, 1999 (Appendix A). The ACHCSA required a grab-groundwater sample and a soil sample to be collected and analyzed from the area to the east of MW-4 (Figure 2).

The objective of this subsurface investigation was to determine the presence or absence of free product in the groundwater and to determine if any active remediation would be necessary at the site.

2.0 SITE DESCRIPTION

Present Site Use: The property is currently being re-developed into a Minute-Lube automobile oil change facility.

Past Site Use: The site was a Mobil service station from 1951 to 1980 before being used as a car rental lot. The former underground storage tanks (USTs) were not in use after 1980.

Adjacent Property: The site is located on the northwest corner of San Pablo Avenue and 63rd Street in Oakland, California (Figure 1). Commercial properties are to the north along San Pablo Avenue. To the east, across San Pablo Avenue, is an elementary school, and to the west and south are residential properties.

Geography: San Francisco Bay is located approximately 5,000 feet to the west of the site. Topography in the vicinity of the site is relatively flat but slopes gently west towards the bay. The site has an elevation of approximately 22 feet above mean sea level (USGS, 1959).

Soil Lithology: Soils encountered in MW-2 and MW-3 generally consisted of silty and gravelly sands interbedded with sandy silts and silty clays from grade to the total depth of the boring. Sandy silts and silty sands were encountered in Boring MW-1 and clays and clayey and silty sands in Boring MW-4 from grade to the total depth of the borings (Alisto, 1996).

**Regional
Geology**

The site is underlain by the Quaternary Temescal Formation, which consists of interfingering layers of clayey gravel, sandy silty clay, and various clay-silt-sand mixtures. The formation varies in thickness to a maximum of approximately 60 feet. Underlying the Temescal Formation is the Quaternary Alameda Formation, which consists of unconsolidated continental and marine gravels, sands, silts, and clays, with some shells and organic material in places. The formation has a maximum known thickness of 1,050 feet (Radbruck, 1957).

**Regional
Hydrogeology:**

The site is located in the East Bay Plain Groundwater Basin. Generally groundwater flows westward toward the San Francisco Bay (RWQCB, 1995).

**Sensitive
Receptors:**

A sensitive receptor survey conducted in May 1998 indicated that no supply wells were located within a 1/2-mile radius of the site. San Francisco Bay is located approximately 5,000 feet to the west of the site. To the east, across San Pablo Avenue, is an elementary school.

3.0 BACKGROUND SITE CONDITIONS

- Four gasoline and one waste oil USTs were excavated and removed in 1994 (Figure 2). Holes were noted in two of the gasoline USTs. The product piping was removed from the site in February 1996. An estimated total of 367 cubic yards of soil was excavated and removed from the site during the UST and piping removals (Alisto, 1996).
- Four groundwater monitoring wells (MW-1 through MW-4) were installed in March 1996 (Figure 2) (Alisto, 1996).
- Thirteen soil borings (AB-1 through AB-13) were drilled at the site in March 1998 (Figure 3) (Alton, 1998).
- In November 1998, six temporary monitoring points (MP-1 through MP-6) were advanced to further characterize the extent of hydrocarbon-affected vadose zone soil and to obtain vacuum readings and groundwater depths during a dual-phase vacuum extraction (DPVE) event (Figure 3). On November 19, 1998, a DPVE event was conducted to reduce the level of dissolved-phase hydrocarbons at the site. Groundwater and vapors were extracted from wells MW-3 and MW-4. Vacuum response and groundwater depths were measured in the temporary monitoring points and monitoring wells during the DPVE event. Approximately 21 pounds of vapor-phase hydrocarbons

and 75 gallons of hydrocarbon-affected groundwater were recovered during the event (Alton, 1999b). Following the extraction event, monitoring points MP-1 through MP-6 were destroyed.

- Monitoring well MW-4 was inadvertently destroyed prior to April 1999 during construction activities conducted by the current property owner. Soil in the vicinity of MW-4 was excavated to a depth of 6 feet during redevelopment activities in 1998. MW-1 was properly destroyed during July 1999 in preparation of proposed construction activities (TRC Alton, 1999).

4.0 CURRENT SITE CONDITIONS

- Monitoring wells MW-2 and MW-3 were destroyed during construction activities conducted by the current property owner between December 8, 1999 and January 21, 2000. The property owner is currently in the process of properly abandoning MW-2 and MW-3 and installing three new monitoring wells to replace MW-2, MW-3, and MW-4 (Figure 2).
- Fifteen quarters of groundwater monitoring and sampling have been conducted at the site since the installation of MW-1 through MW-4. Elevated levels of hydrocarbons were present in monitoring well MW-3. Liquid-phase hydrocarbons were periodically detected in MW-4 since the third quarter of 1996. On January 27, 1999, 0.07 foot of liquid-phase hydrocarbons was measured in MW-4 (Alton, 1999a), prior to the monitoring well being destroyed during construction activities at the site. Methyl tert-butyl ether (MtBE) has not been detected by Environmental Protection Agency (EPA) Methods 8240 or 8260 at the site.
- The average groundwater depth at the site was approximately 10.31 feet below grade (fbg), based on fluid level measurements collected from MW-2 and MW-3 on December 8, 1999 (TRC Alton, 2000). Historical groundwater depths have ranged from 3.83 fbg (MW-1) measured on January 31, 1997 to 11.57 fbg (MW-3) measured on October 20, 1998. The groundwater gradient was calculated to be 0.06 foot per foot (ft/ft) in January 1999 and groundwater flow direction has varied from the northwest (April, 1997) to southwest (January, 1999) (Alton, 1997 and Alton, 1999a).

5.0 FIELD ACTIVITIES

5.1 SOIL BORING AND SAMPLE COLLECTION

On January 25, 2000, one soil boring (HA-1) was advanced at the location shown on Figure 2. A soil sample was collected from approximately 5 fbg. The total depth of the boring was 6.5 fbg. Descriptions of the soil types were made using the Unified Soil Classification System (USCS) and recorded on the boring log (Appendix B).

Once total depth was achieved, HA-1 was allowed to remain open until a groundwater sample could be collected. Using a ¾-inch teflon bailer through a temporary one-inch diameter slotted polyvinyl chloride (PVC) casing, a "grab-type" groundwater sample was collected from the boring. Following completion of the sampling activities, the boring was sealed from total depth to surface grade using neat cement. Refer to Appendix B for a description of the general field procedures, and a copy of the soil boring log.

5.2 LABORATORY ANALYSES

The soil and grab-groundwater samples collected from HA-1 were preserved onsite and submitted to a state-certified laboratory for analysis. The soil and groundwater samples were analyzed for total petroleum hydrocarbons as gasoline (TPH-G), benzene, toluene, ethylbenzene, and total xylenes (BTEX) and MtBE. Results of the laboratory analyses of soil and groundwater are summarized in Tables 1 and 2, respectively. Soil and groundwater analytical results are also shown on Figure 2. Refer to Appendix C for the analytical methods used, copies of the certified laboratory reports including quality assurance/quality control (QA/QC) reports, and the chain of custody records.

6.0 FINDINGS

The results of this subsurface investigation are summarized as follows:

Soil Results

- Soil types encountered in boring HA-1 from 0 to 6.5 fbg consisted of a silty sand with gravel fill material.
- TPH-G, BTEX, and MtBE were not detected in soil boring HA-1.

Groundwater Results

- Groundwater was encountered at a depth of 5 fbg in boring HA-1.
- The grab-groundwater sample from HA-1 contained no detectable TPH-G, BTEX, or MtBE concentrations.

7.0 CONCLUSIONS

The work presented in this report meets the requirements of the ACHCSA letter (Appendix C) which requested a soil and grab-groundwater sample to be collected from the location east of MW-4. The location of the boring was chosen because of the proximity to a potential fuel source, the former fuel lines. The boring was requested by the ACHCSA to determine the presence or absence of free product in the groundwater. Based on the results from this investigation, the soil and groundwater beneath the site has been adequately assessed to the east, upgradient from the former USTs and former fuel lines.

Previous assessment activities conducted at the site from 1994 to present have adequately defined soil impacted by petroleum hydrocarbons. Concentrations of TPH-G in excess of 100 parts per million (ppm) were confined to the central portion of the site (Figure 3). Benzene concentrations in excess of 1 ppm within the vadose zone were only detected in MW-4 (1.2 ppm) at a depth of 5.5 fbg and no liquid- or dissolved-phase hydrocarbons were detected in boring HA-1 in either soil or groundwater. Also, soil in the vicinity of MW-4 was excavated to a depth of 6 feet during redevelopment activities in 1998 (Figure 4). Therefore, since the majority of the hydrocarbon-impacted soil was presumably removed during redevelopment activities, it follows to conclude that the soil at the site has been remediated and does not require further active remediation.

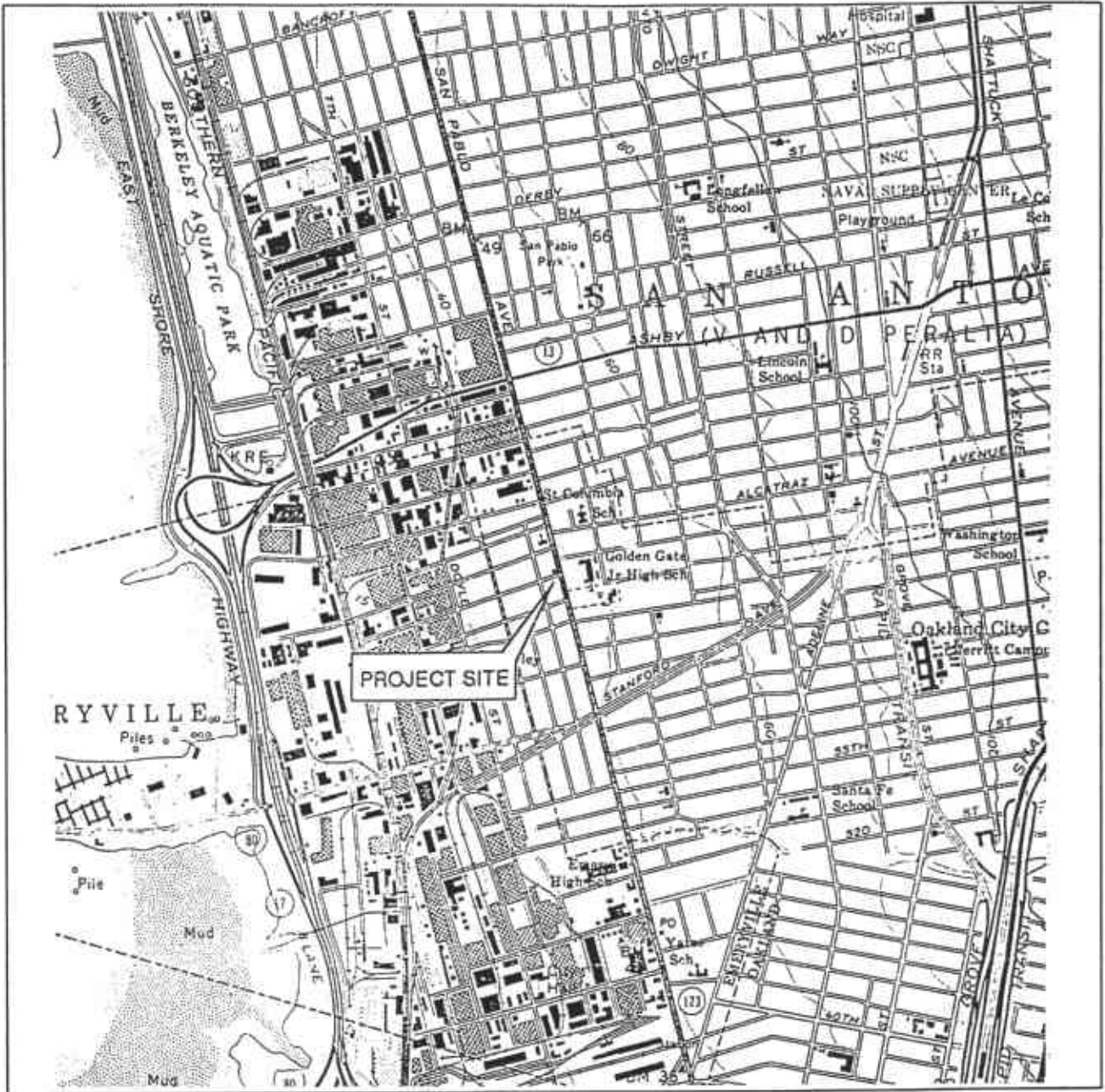
8.0 RECOMMENDATIONS

The remaining hydrocarbons in the groundwater will presumably biodegrade and decrease over time. TRC Alton Geoscience recommends the continuation of passive remediation, following the re-installation of all three monitoring wells at the site. The impact of hydrocarbons in the groundwater will then be re-assessed utilizing information obtained from the quarterly groundwater monitoring and sampling events.

Supplemental Site Assessment Report
Former Mobil Station 99-105
April 11, 2000

9.0 REFERENCES

- Alisto Engineering Group, 1996, Additional Tank Closure and Preliminary Site Investigation Report, Former Mobil Oil Corporation, Station 99-105, 6301 San Pablo Avenue, Oakland, California, April 15.
- Alton Geoscience, 1997, Quarterly Progress Report, Former Mobil Station 99-105, 6301 San Pablo Avenue, Oakland, California, July 15.
- Alton Geoscience, 1998, Supplemental Site Assessment Report, Former Mobil Station 99-105, 6301 San Pablo Avenue, Oakland, California, July 15.
- Alton Geoscience, 1999a, Quarterly Progress Report, Former Mobil Station 99-105, 6301 San Pablo Avenue, Oakland, California, April 15.
- Alton Geoscience, 1999b, Interim Remedial Action Report, Former Mobil Station 99-105, 6301 San Pablo Avenue, Oakland, California, May 18.
- Radbruck, Dorothy H. 1957. Areal and Engineering Geology of the Oakland West Quadrangle, California, United States Geologic Survey Miscellaneous Geologic Investigations Map I-239.
- Regional Water Quality Control Board (RWQCB), 1995, Water Quality Control Plan, San Francisco Bay Basin (Region 2), June 21.
- TRC Alton Geoscience, 1999, Progress Report and Workplan for the Installation of One Soil Boring, Former Mobil Station 99-105, 6301 San Pablo Avenue, Oakland, California, November 3.
- TRC Alton Geoscience, 2000, Quarterly Progress Report, Former Mobil Station 99-105, 6301 San Pablo Avenue, Oakland, California, January 15.
- United States Geological Survey (USGS), 1959 (Photorevised 1980), Oakland West Quadrangle, California, 7.5 Minute Series, USGS, Denver, Colorado.



SCALE 1 : 24,000



SOURCE:

United States Geological Survey
7.5 Minute Topographic Maps:
Oakland West Quadrangle

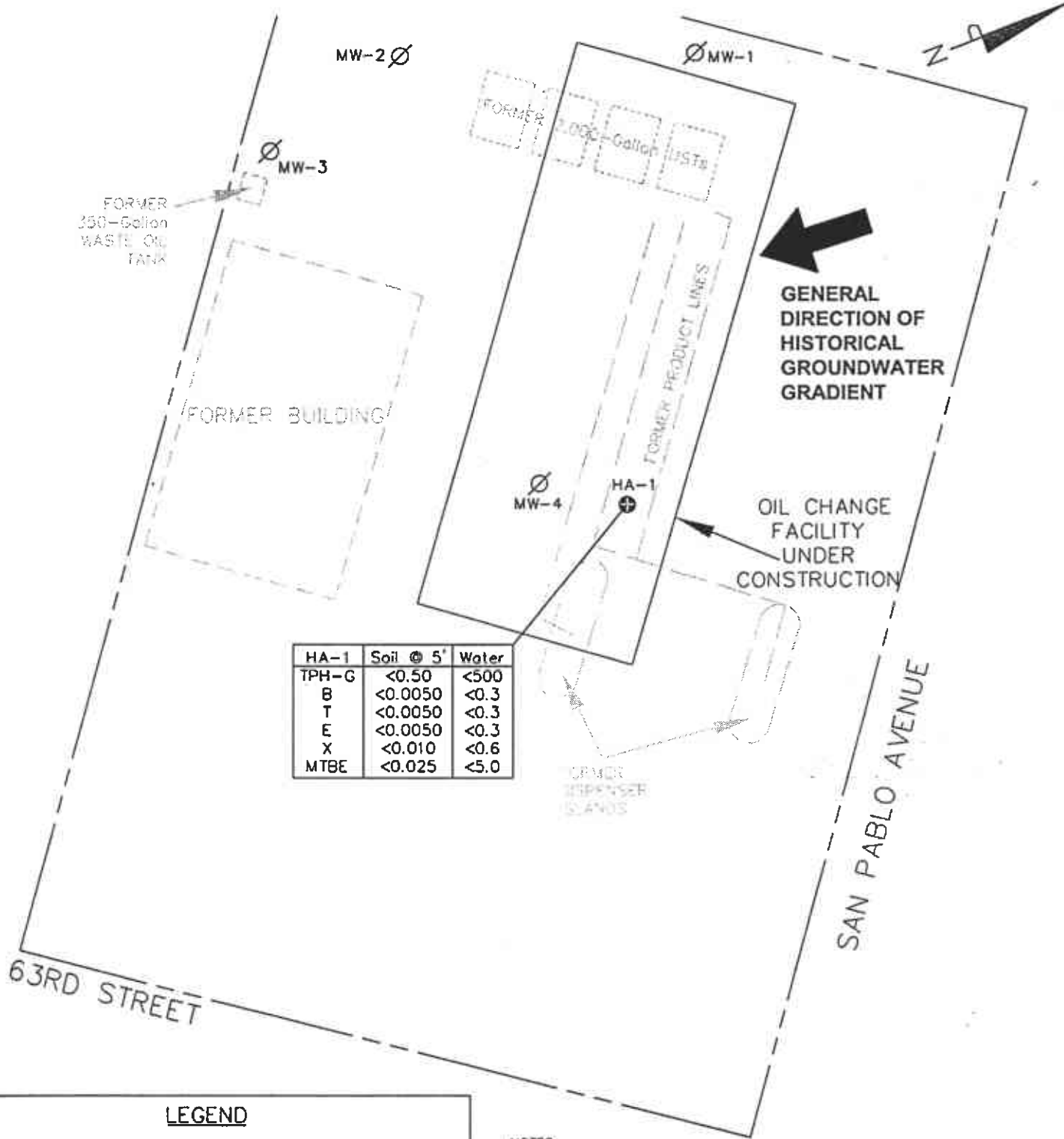


VICINITY MAP

Former Mobil Station 99-105
6301 San Pablo Avenue
Oakland, California

FIGURE 1





HA-1	Soil @ 5'	Water
TPH-G	<0.50	<500
B	<0.0050	<0.3
T	<0.0050	<0.3
E	<0.0050	<0.3
X	<0.010	<0.6
MTBE	<0.025	<5.0

LEGEND

MW-1 ∅ Abandoned Well

----- Property Line

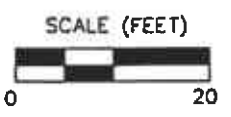
HA-1 ⊕ Boring Showing Petroleum Hydrocarbons in mg/kg (soil) and µg/l (water)

HA-1	⊕
TPH-G	
B	
T	
E	
X	
MTBE	

NOTES:
 Results are based on laboratory analysis of soil and groundwater samples collected on January 25, 2000. TPH-G = total petroleum hydrocarbons as gasoline; B = benzene; T = toluene; E = ethylbenzene; MTBE = methyl tert butyl ether; mg/kg = milligrams per kilogram; µg/l = micrograms per liter.

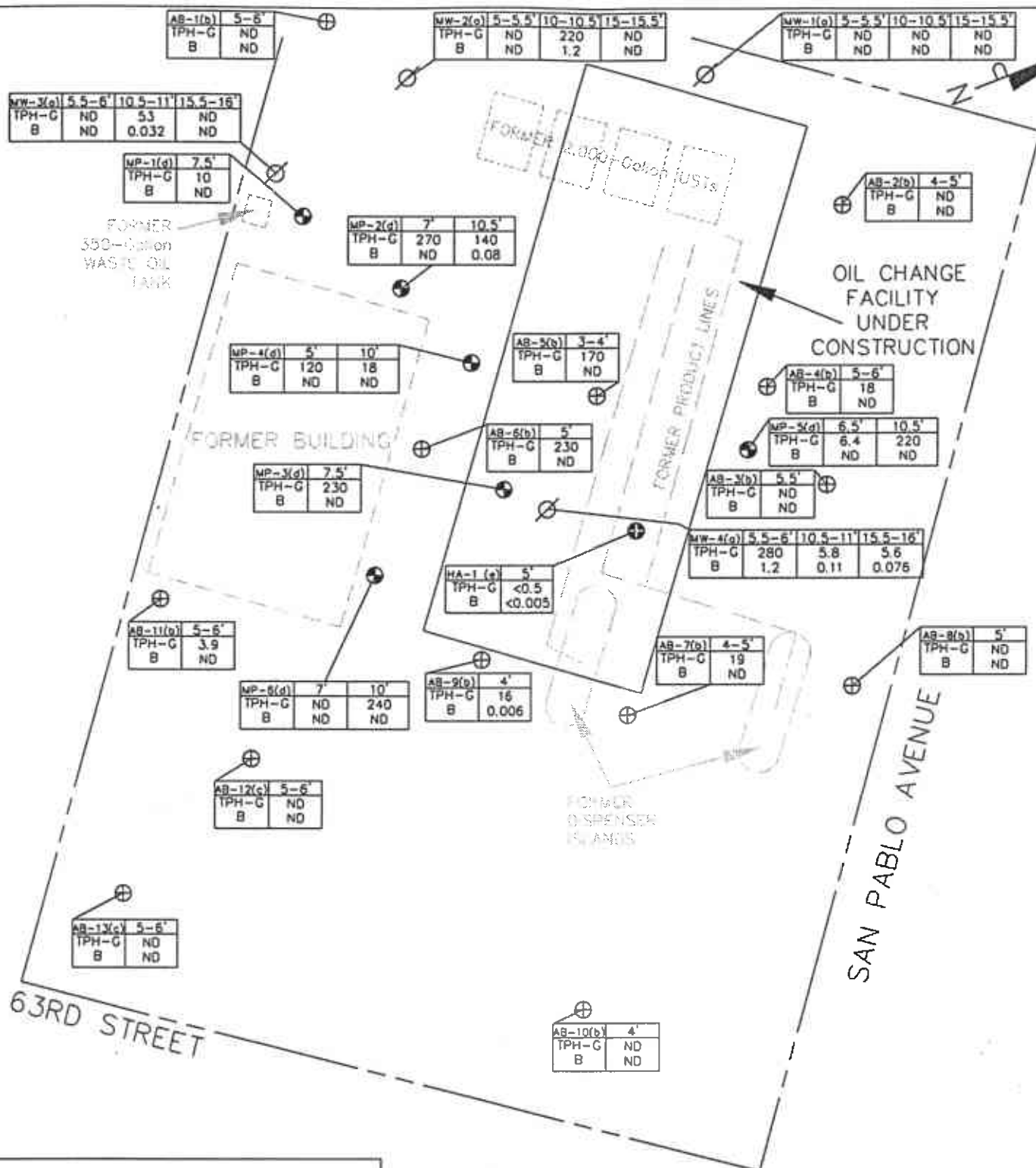
**HYDROCARBON CONCENTRATIONS
 IN SOIL AND GROUNDWATER
 January 25, 2000**

Former Mobil Station 99-105
 6301 San Pablo Avenue
 Oakland, California



Source: ALISTO Engineering

FIGURE 2



AB-1(b)	5-6'
TPH-G	ND
B	ND

MW-2(a)	5-5.5'	10-10.5'	15-15.5'
TPH-G	ND	220	ND
B	ND	1.2	ND

MW-1(a)	5-5.5'	10-10.5'	15-15.5'
TPH-G	ND	ND	ND
B	ND	ND	ND

MW-3(a)	5.5-6'	10.5-11'	15.5-16'
TPH-G	ND	53	ND
B	ND	0.032	ND

MP-1(d)	7.5'
TPH-G	10
B	ND

MP-2(d)	7'	10.5'
TPH-G	270	140
B	ND	0.08

AB-2(b)	4-5'
TPH-G	ND
B	ND

MP-4(d)	5'	10'
TPH-G	120	18
B	ND	ND

AB-5(b)	3-4'
TPH-G	170
B	ND

AB-4(b)	5-6'
TPH-G	18
B	ND

MP-3(d)	7.5'
TPH-G	230
B	ND

AB-6(b)	5'
TPH-G	230
B	ND

MP-5(d)	6.5'	10.5'
TPH-G	6.4	220
B	ND	ND

AB-3(b)	5.5'
TPH-G	ND
B	ND

HA-1 (a)	5'
TPH-G	<0.5
B	<0.005

MW-4(a)	5.5-6'	10.5-11'	15.5-16'
TPH-G	280	5.8	5.6
B	1.2	0.11	0.075

AB-11(a)	5-6'
TPH-G	3.9
B	ND

AB-7(b)	4-5'
TPH-G	19
B	ND

AB-8(b)	5'
TPH-G	ND
B	ND

MP-8(d)	7'	10'
TPH-G	ND	240
B	ND	ND

AB-9(b)	4'
TPH-G	16
B	0.006

AB-12(c)	5-6'
TPH-G	ND
B	ND

AB-13(c)	5-6'
TPH-G	ND
B	ND

AB-10(b)	4'
TPH-G	ND
B	ND

LEGEND

- ⊕ Monitoring Point
- ⊕ Soil Boring
- ⊕ Hand Auger Boring
- ⊕ Abandoned Well

MP-#	Depth
TPH-G	
B	

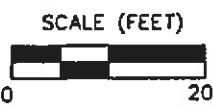
Hydrocarbon Concentrations in Soil (ppm)

NOTES:
Hydrocarbon concentrations are based on results of laboratory analysis of soil samples collected on: (a) March 1, 1996; (b) March 5, 1998; (c) March 16, 1998; (d) November 16, 1998; and (e) January 25, 2000. Depths are in feet below grade. TPH-G = total petroleum hydrocarbons as gasoline; B = benzene; ppm = parts per million; ND = not detected at or above method detection limit.

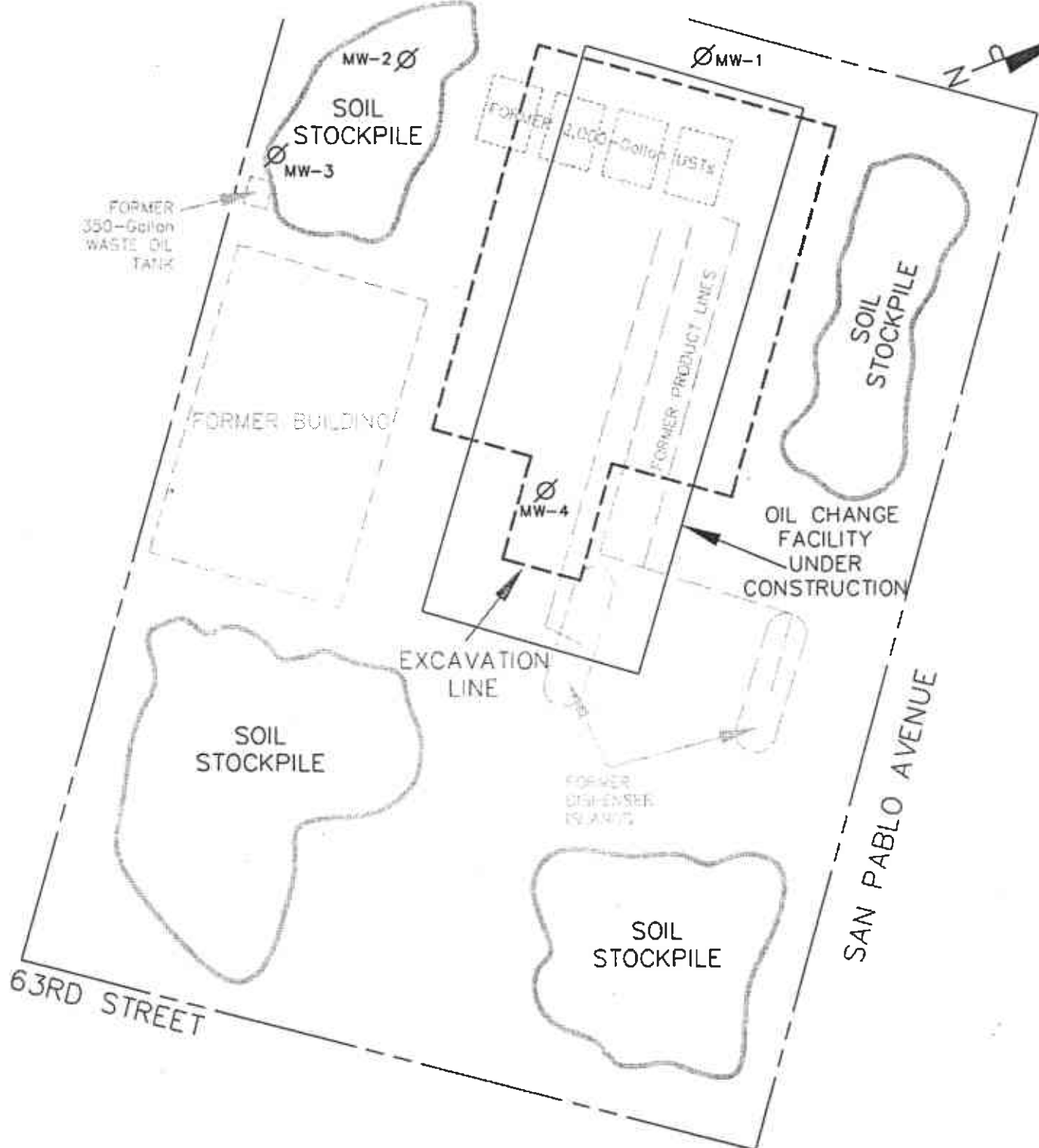
HISTORICAL HYDROCARBON CONCENTRATIONS IN SOIL

Former Mobil Station 99-105
6301 San Pablo Avenue
Oakland, California

FIGURE 3



Source: ALISTO Engineering



LEGEND

MW-4 ∅ Abandoned Well

----- Property Line

APPROXIMATE EXTENT OF EXCAVATION
April 20, 1999

Former Mobil Station 99-105
 6301 San Pablo Avenue
 Oakland, California



Source: ALISTO Engineering

FIGURE 4

Table 1
Summary of Soil Sample Analysis
Former Mobil Station 99-105

Sample ID	Depth (feet)	Date	TPH-G (ppm)	TPH-D (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Total Xylenes (ppm)	TOG (ppm)	Lead (ppm)	MTBE (ppm)	MTBE 8260 (ppm)
MW-1	5-5.5'	03/01/96	ND<1.0	3.4	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	—	ND<2.5	—	—
MW-1	10-10.5'	03/01/96	ND<1.0	ND<1.0	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	—	ND<2.5	—	—
MW-1	15-15.5'	03/01/96	ND<1.0	4.2	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	—	ND<2.5	—	—
MW-2	5-5.5'	03/01/96	ND<1.0	2.4	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	—	ND<2.5	—	—
MW-2	10-10.5'	03/01/96	220	57	1.2	1.4	2.7	14	—	ND<2.5	—	—
MW-2	15-15.5'	03/01/96	ND<1.0	ND<1.0	ND<0.0050	ND<0.0050	0.0063	0.035	—	ND<2.5	—	—
MW-3	5.5-6'	03/01/96	ND<1.0	1.1	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	9.0	ND<2.5	—	—
MW-3	10.5-11'	03/01/96	53	72	0.032	0.43	0.65	0.93	290	ND<2.5	—	—
MW-3	15.5-16'	03/01/96	ND<1.0	ND<1.0	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.0050	10	ND<2.5	—	—
MW-4	5.5-6'	03/01/96	280	34	1.2	1.0	4.1	19	—	ND<2.5	—	—
MW-4	10.5-11'	03/01/96	5.8	7.7	0.11	ND<0.0050	0.11	0.093	—	ND<2.5	—	—
MW-4	15.5-16'	03/01/96	5.6	2.1	0.076	0.023	0.083	0.070	—	ND<2.5	—	—
AB-1	5-6'	03/05/98	ND	—	ND	ND	ND	ND	—	—	ND	—
AB-2	4-5'	03/05/98	ND	—	ND	ND	ND	ND	—	—	ND	—
AB-3	5.5'	03/05/98	ND	—	ND	ND	ND	ND	—	—	ND	—
AB-4	5-6'	03/05/98	18	—	ND	ND	ND	ND	—	—	ND	—
AB-5	3-4'	03/05/98	170	—	ND	ND	0.65	ND	—	—	ND	—
AB-6	5'	03/05/98	230	—	ND	ND	ND	ND	—	—	ND	—
AB-7	4-5'	03/05/98	19	—	ND	ND	0.032	ND	—	—	ND	—
AB-8	5'	03/05/98	ND	—	ND	ND	ND	ND	—	—	ND	—
AB-9	4'	03/05/98	16	—	0.006	ND	0.028	ND	—	—	ND	—

Table 1
Summary of Soil Sample Analysis

Former Mobil Station 99-105

Sample ID	Depth (feet)	Date	TPH-G (ppm)	TPH-D (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Total Xylenes (ppm)	TOG (ppm)	Lead (ppm)	MTBE (ppm)	MTBE 8260 (ppm)
AB-10	4'	03/05/98	ND	—	ND	ND	ND	ND	—	—	ND	—
AB-11	5-6'	03/05/98	3.9	—	ND	ND	ND	ND	—	—	ND	—
AB-12	5-6'	03/16/98	ND	—	ND	ND	ND	ND	—	—	ND	—
AB-13	5-6'	03/16/98	ND	—	ND	ND	ND	ND	—	—	ND	—
MP-1	7.5'	11/16/98	10	—	ND	0.007	0.013	ND	—	—	ND	—
MP-2	7'	11/16/98	270	—	ND	0.03	0.29	2.1	—	—	ND	—
MP-2	10.5'	11/16/98	140	—	0.08	ND	0.31	ND	—	—	0.15	—
MP-3	7.5'	11/16/98	230	—	ND	0.10	1.6	ND	—	—	0.28	—
MP-4	5'	11/16/98	120	—	ND	ND	0.35	ND	—	—	0.19	—
MP-4	10'	11/16/98	18	—	ND	0.013	0.070	0.086	—	—	ND	—
MP-5	6.5'	11/16/98	6.4	—	ND	ND	0.015	0.022	—	—	ND	—
MP-5	10.5'	11/16/98	220	—	ND	ND	1.4	3.0	—	—	0.52	—
MP-6	7'	11/16/98	ND	—	ND	ND	ND	ND	—	—	ND	—
MP-6	10'	11/16/98	240	—	ND	ND	1.6	4.2	—	—	0.92	ND
HA-1	5'	01/25/00	ND<0.50	—	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.010	—	—	ND<0.025	—
Comp-1	Composite	01/25/00	ND<0.50	—	ND<0.0050	ND<0.0050	ND<0.0050	ND<0.010	—	8.04	ND<0.025	—

NOTES: ppm = parts per million
 TPH-G = total petroleum hydrocarbons as gasoline
 TPH-D = total petroleum hydrocarbons as diesel
 TOG = total oil and grease
 MTBE = methyl tert butyl ether

— = not measured/not analyzed
 ND = not detected at or above method detection limit

Table 2
Summary of Groundwater Levels and Chemical Analysis

Former Mobil Station 99-105

Well ID	Date	Top of Casing	Depth to	Groundwater	Product	TPH-G (ppb)	TPH-D (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl- benzene (ppb)	Total Xylenes (ppb)	MTBE 8020 (ppb)	MTBE 8240 or 8260 (ppb)	TOG (ppb)	Lead (ppb)	Dissolved Oxygen (mg/L)
		Elevation (feet)	Water (feet)	Elevation (feet)	Thickness (feet)											
TW-1	01/04/96	—	6.00	—	0.00	ND	700	ND	ND	ND	ND	—	—	—	—	—
VW-1	01/04/96	—	3.00	—	0.00	ND	—	ND	ND	ND	ND	—	—	ND	—	—
MW-1	03/14/96	32.79	4.50	28.29	0.00	610	450	0.75	0.54	1.5	59	—	—	—	ND	—
MW-1	05/21/96	32.79	5.64	27.15	0.00	ND	ND	ND	ND	ND	ND	—	—	—	—	—
MW-1	08/13/96	32.79	9.76	23.03	0.00	ND	ND	ND	ND	ND	ND	—	—	—	—	—
MW-1	11/08/96	32.79	10.24	22.55	0.00	ND	ND	ND	0.92	ND	2.1	ND	—	—	—	—
MW-1	01/31/97	32.79	3.83	28.96	0.00	ND	ND	ND	0.85	ND	ND	2.6	ND	—	—	—
MW-1	04/22/97	32.79	9.14	23.65	0.00	ND	ND	ND	ND	ND	ND	ND	—	—	—	—
MW-1†	07/29/97	32.79	10.18	22.61	0.00	ND	60****	0.84	0.95	ND	1.6	36	—	—	—	—
MW-1†	10/09/97	32.79	10.46	22.33	0.00	ND	56****	ND	ND	ND	ND	ND	—	—	—	—
MW-1†	01/23/98	32.79	3.95	28.84	0.00	ND	33	ND	ND	ND	ND	ND	—	—	—	—
MW-1	04/22/98	32.79	5.33	27.46	0.00	ND	ND	ND	ND	ND	ND	ND	—	—	—	1.25
MW-1	07/21/98	32.79	9.17	23.62	0.00	ND	—	ND	ND	ND	ND	ND	—	—	—	4.34
MW-1	10/20/98	32.79	10.41	22.38	0.00	ND	—	ND	ND	ND	ND	ND	—	—	—	2.49
MW-1	01/27/99	32.79	5.51	27.28	0.00	ND	—	ND	ND	ND	ND	ND	—	—	—	5.25
MW-1	Destroyed during construction activities in April 1999															
MW-2	03/14/96	32.80	4.51	28.29	0.00	560	250	2.0	0.96	4.3	11	—	—	—	ND	—
MW-2	05/21/96	32.80	5.65	27.15	0.00	730	560	5.1	1.4	6.7	5.9	—	—	—	—	—
MW-2	08/13/96	32.80	10.14	22.66	0.00	490	380*	25	3.5	7.2	13	—	—	—	—	—
MW-2	11/08/96	32.80	10.70	22.10	0.00	520	160***	80	2.7	14	66	6.1	—	—	—	—
MW-2	01/31/97	32.80	3.84	28.96	0.00	74	130*	ND	ND	ND	ND	ND	—	—	—	—
MW-2	04/22/97	32.80	9.61	23.19	0.00	260	430	2.7	ND	2.5	ND	ND	—	—	—	—
MW-2†	07/29/97	32.80	10.53	22.27	0.00	320	150***	28	1.2	10	ND	ND	—	—	—	—
MW-2†	10/09/97	32.80	10.87	21.93	0.00	460	160*	43	2.8	2.0	2.6	2.6	—	—	—	—
MW-2†	01/23/98	32.80	3.75	29.05	0.00	ND	54	ND	ND	ND	ND	ND	—	—	—	—
MW-2	04/22/98	32.80	5.36	27.44	0.00	180	540	1.2	0.3	0.4	ND	ND	—	—	—	0.85
MW-2	07/21/98	32.80	9.55	23.25	0.00	80	—	8.9	2.1	0.6	2.5	ND	—	—	—	1.04
MW-2	10/20/98	32.80	10.75	22.05	0.00	50	—	0.8	0.7	ND	0.8	ND	—	—	—	1.12
MW-2	01/27/99	32.80	5.53	27.27	0.00	ND	—	0.6	ND	ND	ND	ND	—	—	—	0.99
MW-2	07/27/99	32.80	6.20	26.60	0.00	ND	—	ND	0.6	ND	ND	ND	—	—	—	0.30
MW-2	12/08/99	32.80	9.98	22.82	0.00	ND	—	1.2	0.43	ND	ND	ND	—	—	—	1.83
MW-3	03/14/96	32.80	9.55	23.25	0.00	4,200	1,200	220	30	140	520	—	—	ND	ND	—
MW-3	05/21/96	32.80	10.16	22.64	0.00	8,500	2,800	710	110	440	1,700	—	—	—	—	—
MW-3	08/13/96	32.80	11.18	21.62	0.00	5,000	2,300**	430	ND	200	360	—	—	—	—	—
MW-3	11/08/96	32.80	11.51	21.29	0.00	8,400	2,900*	890	82	790	1,700	73	ND	—	—	—
MW-3	01/31/97	32.80	7.90	24.90	0.00	16,000	7,500*	660	85	960	1,800	ND	—	—	—	—

Table 2
Summary of Groundwater Levels and Chemical Analysis
Former Mobil Station 99-105

Well ID	Date	Top of Casing	Depth to	Groundwater	Product	TPH-G (ppb)	TPH-D (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl- benzene (ppb)	Total Xylenes (ppb)	MTBE 8020 (ppb)	MTBE 8240 or 8260 (ppb)	TOG (ppb)	Lead (ppb)	Dissolved Oxygen (mg/L)
		Elevation (feet)	Water Water (feet)	Elevation (feet)	Thickness (feet)											
MW-3	04/22/97	32.80	10.64	22.16	0.00	8,000	2,700	340	33	400	490	200	ND	—	—	—
MW-3†	07/29/97	32.80	11.36	21.44	0.00	9,800	2,300*	330	ND	530	530	ND	—	—	—	—
MW-3†	10/09/97	32.80	11.52	21.28	0.00	7,300	2,600*	300	ND	430	460	270	ND	—	—	—
MW-3†	01/23/98	32.80	7.50	25.30	0.00	6,100	2,300	190	23	330	320	ND	—	—	—	—
MW-3	04/22/98	32.80	6.81	25.99	0.00	4,900	2,600	140	12	250	230	ND	ND	—	—	0.45
MW-3	07/21/98	32.80	10.65	22.15	0.00	7,400	—	250	16	400	370	74	ND	—	—	0.78
MW-3	10/20/98	32.80	11.57	21.23	0.00	6,700	—	200	18	350	350	ND	ND	—	—	0.69
MW-3	01/27/99	32.80	9.11	23.69	0.00	3,100	—	74	4	94	39	13	—	—	—	1.20
MW-3	07/27/99	32.80	7.27	25.53	0.00	8,900	—	170	21	360	440	ND	—	—	—	0.33
MW-3	12/08/99	32.80	10.63	22.17	0.00	4,800	—	94	13	170	210	ND	—	—	—	1.12
MW-4	03/14/96	31.50	4.92	26.58	0.00	12,000	3,500	2,200	140	880	2,000	—	—	—	ND	—
MW-4	05/21/96	31.50	8.60	22.90	0.00	11,000	4,200	1,700	ND	930	470	—	—	—	—	—
MW-4	08/13/96	31.50	10.02	21.50	0.02	—	—	—	—	—	—	—	—	—	—	—
MW-4	11/08/96	31.50	10.28	21.33	0.15	—	—	—	—	—	—	—	—	—	—	—
MW-4	01/31/97	31.50	7.88	23.62	0.00	23,000	8,200*	980	68	1,100	1,400	ND	—	—	—	—
MW-4	04/22/97	31.50	7.40	24.10	0.00	8,800	4,500	950	ND	610	130	ND	—	—	—	—
MW-4	07/29/97	31.50	9.85	21.74	0.12	—	—	—	—	—	—	—	—	—	—	—
MW-4	10/09/97	31.50	10.35	21.38	0.30	—	—	—	—	—	—	—	—	—	—	—
MW-4	01/23/98	31.50	4.68	27.51	0.92	—	—	—	—	—	—	—	—	—	—	—
MW-4	04/22/98	31.50	6.39	25.22	0.14	—	—	—	—	—	—	—	—	—	—	—
MW-4	07/21/98	31.50	7.10	24.55	0.20	—	—	—	—	—	—	—	—	—	—	—
MW-4	10/20/98	31.50	9.03	22.60	0.17	—	—	—	—	—	—	—	—	—	—	—
MW-4	01/27/99	31.50	5.37	26.18	0.07	—	—	—	—	—	—	—	—	—	—	—
MW-4	Destroyed during construction activities in April 1999															
AB-1	03/05/98	—	—	—	—	1,600	—	31	5.3	79	130	ND	—	—	—	—
AB-2	03/05/98	—	—	—	—	ND	—	ND	2.9	0.9	5.7	ND	—	—	—	—
AB-3	03/05/98	—	—	—	—	6,800	—	680	100	1,500	2,300	230	—	—	—	—
AB-4	03/05/98	—	—	—	—	8,500	—	240	ND	260	720	ND	—	—	—	—
AB-6	03/05/98	—	—	—	—	12,000	—	350	ND	310	100	ND	—	—	—	—
AB-9	03/05/98	—	—	—	—	1,000	—	57	12	44	93	ND	—	—	—	—
AB-10	03/05/98	—	—	—	—	200	—	3.0	1.2	3.2	2.8	ND	—	—	—	—
AB-11	03/05/98	—	—	—	—	ND	—	ND	ND	ND	ND	ND	—	—	—	—

Table 2
Summary of Groundwater Levels and Chemical Analysis
Former Mobil Station 99-105

Well ID	Date	Top of Casing Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet)	Product Thickness (feet)	TPH-G (ppb)	TPH-D (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl- benzene (ppb)	Total Xylenes (ppb)	MTBE 8020 (ppb)	MTBE 8240 or 8260 (ppb)	TOG (ppb)	Lead (ppb)	Dissolved Oxygen (mg/L)
AB-12	03/05/98	—	—	—	—	8,800	—	660	50	630	940	37	—	—	—	—
AB-13	03/05/98	—	—	—	—	210	—	11	0.8	10	15	ND	—	—	—	—
HA-1	01/25/00	—	—	—	—	ND<500	—	ND<0.3	ND<0.3	ND<0.3	ND<0.6	ND<5.0	—	—	—	—

NOTES:

ppb = parts per billion
mg/L = milligrams per liter
TPH-G = total petroleum hydrocarbons as gasoline
TPH-D = total petroleum hydrocarbons as diesel
TOG = total oil and grease
MTBE = methyl tert-butyl ether

— = not measured/not analyzed
ND = not detected at or above method detection limit
* = diesel and unidentified hydrocarbons <C15
** = diesel and unidentified hydrocarbons <C15>C25
*** = diesel and unidentified hydrocarbons >C20
**** = unidentified hydrocarbons >C18

† = well sampled using no-purge method

APPENDIX A

**ALAMEDA COUNTY HEALTH CARE SERVICES LETTER
DATED NOVEMBER 8, 1999 REQUIRING ADDITIONAL SUBSURFACE
INVESTIGATION**

ALAMEDA COUNTY
HEALTH CARE SERVICES



AGENCY

DAVID J. KEARS, Agency Director

November 8, 1999
StID # 1683

ENVIRONMENTAL HEALTH SERVICES

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

Ms. Cherine Foutch
Mobil Oil Co.
2063 Main St.
Oakley, CA 95641

Ms. Connie Lamb
200 Dorado Terrace
San Francisco, CA 94112

Re: Work Plan for Soil Boring at 6301 San Pablo Ave., Oakland CA 94608

Dear Ms. Foutch and Ms. Lamb:

Our office has received and reviewed the November 3, 1999 Progress Report and Work Plan for the Installation of One Soil Boring for the above site as prepared by TRC Alton Geoscience. This report responds in part to items in my July 16, 1999 letter. This work plan addresses my request for a grab groundwater sample to the east of former monitoring well MW-4. As you may recall, MW-4 had detected free product off and on, therefore, our office requested the determination of the extent of free product. In addition, during the installation of MW-4, a soil sample from this boring exhibited 1.2 ppm benzene. Because of the presence of the newly constructed building above this area, data regarding the presence of free product and benzene contamination in this area is needed to evaluate human health risk.

This work plan proposes the advancement of one boring just to the east of the location of MW-4. This location was chosen since it is near a potential source, the former fuel lines. The boring will be advanced using a direct-push rig to a depth of approximately 2' below groundwater. A groundwater sample will be analyzed for TPH-G, BTEX and MTBE. Our office approves this work plan with the following conditions:

- Please install a slotted casing in the bore hole and allow adequate time prior to sampling the groundwater.
- Please verify any detectable MTBE using EPA Method 8260.
- Please screen the soil boring and analyze the soil interval exhibiting the highest PID reading. If no sample exhibits PID levels, please analyze a soil sample just above groundwater. This change is requested since soil data exists down-gradient but not up-gradient of MW-4.

You are reminded that our office still requires a replacement well for MW-4 and is waiting for a work plan for its installation. You may contact me at (510) 567-6765 if you have any questions.

Sincerely,

Barney M. Chan
Hazardous Materials Specialist

C: B. Chan, files

Mr. T. Seeliger, Alton Geoscience, 5052 Commercial Circle, Concord, CA 94520
Mr. B. Nagle, Alisto Engineering, 1575 Treat Blvd., Suite 201, Walnut Creek, CA 94598
Wpap6301

APPENDIX B

GENERAL FIELD PROCEDURES, PERMIT AND BORING LOGS

GENERAL FIELD PROCEDURES

A description of the general field procedures used during the site investigation is presented below. For an overview of protocol, refer to the appropriate section(s).

DRILLING AND SOIL SAMPLING

The soil boring was advanced using a hand auger. The boring was grouted to the ground surface with a cement slurry, which was placed in the boring using a tremie pipe.

A soil sample was obtained for soil description, field hydrocarbon vapor screening, and laboratory analysis. The soil sample was retrieved from the boring at the specific interval utilizing a 1-inch diameter 6-inch-long, slide-hammer sampler, lined with a brass tube lining, advanced into the soil with a weighted hammer.

During hand auguring activities, soil adjacent to the laboratory sample was screened for combustible vapors using a Flame Ionization Detector (FID) or equivalent field instrument. For each hydrocarbon vapor-screening event, a 6-inch-long by 2.5-inch-diameter sample insert was filled approximately 1/3 full with the soil sample, capped at both ends, and shaken. The probe was then inserted through a small opening in the cap, and a reading was taken after approximately 15 seconds and recorded on the boring log. The remaining soil recovered was removed from the sample insert or sampler, and described in accordance with the Unified Soil Classification System. For each sampling interval, field estimates of soil type, density/consistency, moisture, color, and grading were recorded on the boring logs.

SOIL SAMPLE HANDLING

Upon retrieval, the soil sample was immediately removed from the sampler, sealed with Teflon sheeting and polyurethane caps, and wrapped with tape. The sample was labeled with the project number, boring number, sample depth, geologist's initials, and date of collection. After the sample had been labeled and documented in the chain of custody record, it was placed in a cooler with ice at approximately 4 degrees Celsius (°C) prior to and during transport to a state-certified laboratory for analysis.

GROUNDWATER SAMPLING

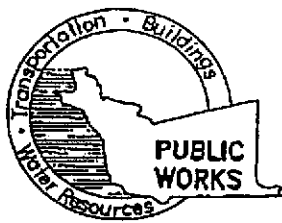
Once total depth was reached with the hand auger, a grab-type groundwater sample was collected by lowering a 5-foot section of 0.020 slotted 1-inch PVC into the boring. A 3/4-inch Teflon bailer with a stainless steel check ball attached at the bottom was lowered below the static water level and filled. The tubing was retrieved and the sample was properly decanted to 40-milliliter glass containers. The sample containers were filled to zero headspace and fitted with Teflon-sealed caps. Each sample container was labeled with the project number, well number, sample date, and sampler's initials. After the sample had been labeled and documented in the chain of custody record, it was placed in a cooler with ice at approximately 4 degrees Celsius (°C) prior to and during transport to a state-certified laboratory for analysis.

CHAIN OF CUSTODY PROTOCOL

Chain of custody protocol is followed for all soil and groundwater samples selected for laboratory analysis. The chain of custody form(s) accompanied the samples from the sampling locality to the laboratory, providing a continuous record of possession prior to analysis.

DECONTAMINATION

Prior to use, the hand auger, slide-hammer sampler and sampling tubes were brush-scrubbed in a Liqui-nox and potable water solution and rinsed twice in clean potable water.



ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION

951 TURNER COURT, SUITE 300, HAYWARD, CA 94545-2651
PHONE (510) 670-5248 MARLON MAGALLANES/CINDY HUTCHINSON
FAX (510) 670-5262

WATER RESOURCES SECTION GROUNDWATER PROTECTION ORDINANCE For Monitoring Well at Clean or Contaminated Site

Destruction Requirements:

1. Drill out the well so that the casing, seal, and gravel pack are removed to the bottom of the well.
2. Sound the well as deeply as practicable and record for your report.
3. Using a tremie pipe, fill the hole to 2 feet below the lower of finished grade or original ground with neat cement.
4. After the seal has set, backfill the remaining hole with compacted material.

PROJECT NO.: 41-0123

LOCATION: Former Mobil Station 99-105

6301 San Pablo Avenue

Oakland, California

DATE DRILLED: 1/25/00

LOGGED BY: S. Pasek

APPROVED BY: T. Walker, RG

DRILLING CO.: N/A

BLOWS PER 6 INCHES	PID / FID (ppm)	TPH (ppm)	SAMPLE	DEPTH (feet below grade)	DRILLING METHOD: Hand Auger	USCS	LITHOLOGY	BORING BACKFILL DETAIL	
					SAMPLER TYPE: Slide Hammer			TOTAL DEPTH: 6.5 feet	DEPTH TO WATER: 5.0 feet
				0	6 inches concrete. Hand-augered to 6.5 feet.	Concrete		0	Concrete Cap
	0				FILL: Silty sand with gravel, light brown, loose, dry.	Fill			
	0			5	- @ 5': becomes wet.			5	Neat Cement
	0	ND	X						
				10				10	
				15				15	
				20		CL		20	
				25		ML		25	
				30				30	
				35				35	
				40				40	

APPENDIX C

**ANALYTICAL METHODS, OFFICIAL LABORATORY REPORTS,
AND
CHAIN OF CUSTODY RECORDS**

ANALYTICAL METHODS

All analyses were performed by a state-certified laboratory in accordance with the following methods:

<u>Sample Analysis</u>	<u>Soil and Groundwater</u>
Total Petroleum Hydrocarbons as Gasoline (TPH-G)	EPA Method 8015M
Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX)	EPA Method 8021B
Methyl tert-Butyl Ether	EPA Method 8021B
Lead	EPA Method 6010

OFFICIAL LABORATORY REPORTS AND QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) REPORTS

Official laboratory and QA/QC reports are provided by the state-certified laboratory performing the analyses. The QA/QC reports for samples from each group of analyses completed for a single gas chromatograph calibration are provided.

CHAIN OF CUSTODY PROTOCOL

Chain of Custody protocol was followed for all samples selected for laboratory analysis. The Chain of Custody form(s) accompanies the samples from the sampling locality to the laboratory, providing a continuous record of possession prior to analysis.

Calscience
Environmental
Laboratories, Inc.

February 01, 2000

Sarah Larese
TRC-Alton Geoscience
5052 Commercial Circle
Concord, CA 94520

Subject: **Calscience Work Order Number: 00-01-0685**
Client Reference: Exxon Mobil 99-105

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 01/26/00, and analyzed as requested on the attached chain-of-custody record.

The results in this analytical report are limited to the sample tested, and any reproduction of this report must be made in its entirety.

Note that the Sample Receipt Form and Chain of Custody Record are integral parts of this report.

If you have any questions regarding this report, require sampling supplies or field services, or information about our analytical services, please feel free to call me at (714) 895-5494.

Sincerely,



Calscience Environmental
Laboratories, Inc.
Michael J. Crisostomo
Project Manager



William H. Christensen
Quality Assurance Manager

TRC-Alton Geoscience
5052 Commercial Circle
Concord, CA 94520

Date Sampled: 01/25/00
Date Received: 01/26/00
Date Extracted: P/T
Date Analyzed: 01/26/00
Work Order No.: 00-01-0685
Method: EPA 8015M
Page 1 of 1

Attn: Sarah Larese
RE: Exxon Mobil 99-105

All total petroleum hydrocarbon concentrations are reported in mg/kg (ppm) using gasoline as a standard.

<u>Sample Number</u>	<u>Concentration</u>	<u>Reporting Limit</u>
HA-1-5'	ND	0.50
Comp 1	ND	0.50
Method Blank	ND	0.50

ND denotes not detected at indicated reportable limit.

Each sample was received by CEL chilled, intact, and with chain-of-custody attached.

TRC-Alton Geoscience
5052 Commercial Circle
Concord, CA 94520

Date Sampled: 01/25/00
Date Received: 01/26/00
Date Extracted: P/T
Date Analyzed: 01/26-27/00
Work Order No.: 00-01-0685
Method: EPA 8015M
Page 1 of 1

Attn: Sarah Larese
RE: Exxon Mobil 99-105

All total petroleum hydrocarbon concentrations are reported in $\mu\text{g/L}$ (ppb) using gasoline as a standard.

<u>Sample Number</u>	<u>Concentration</u>	<u>Reporting Limit</u>
99-105 HA-1	ND	500
Method Blank	ND	500

ND denotes not detected at indicated reportable limit.

Each sample was received by CEL chilled, intact, and with chain-of-custody attached.

TRC-Alton Geoscience
 5052 Commercial Circle
 Concord, CA 94520

Date Sampled: 01/25/00
 Date Received: 01/26/00
 Date Extracted: P/T
 Date Analyzed: 01/26-27/00
 Work Order No.: 00-01-0685
 Method: EPA 8021B
 Page 1 of 1

Attn: Sarah Larese
 RE: Exxon Mobil 99-105

All concentrations are reported in $\mu\text{g/L}$ (ppb).

<u>Analyte</u>	<u>Concentration</u>	<u>Reporting Limit</u>
Sample Number: 99-105 HA-1		
Benzene	ND	0.3
Toluene	ND	0.3
Ethylbenzene	ND	0.3
Total Xylenes	ND	0.6
Methyl-tert-Butyl Ether	ND	5.0
Sample Number: Method Blank		
Benzene	ND	0.3
Toluene	ND	0.3
Ethylbenzene	ND	0.3
Total Xylenes	ND	0.6
Methyl-tert-Butyl Ether	ND	5.0

ND denotes not detected at indicated reportable limit.

Each sample was received by CEL chilled, intact, and with chain-of-custody attached.

TRC-Alton Geoscience
5052 Commercial Circle
Concord, CA 94520

Date Sampled: 01/25/00
Date Received: 01/26/00
Date Extracted: P/T
Date Analyzed: 01/26/00
Work Order No.: 00-01-0685
Method: EPA 8021B
Page 1 of 1

Attn: Sarah Larese
RE: Exxon Mobil 99-105

All concentrations are reported in mg/kg (ppm).

<u>Analyte</u>	<u>Concentration</u>	<u>Reporting Limit</u>
Sample Number: HA-1-5'		
Benzene	ND	0.0050
Toluene	ND	0.0050
Ethylbenzene	ND	0.0050
Total Xylenes	ND	0.010
Methyl-tert-Butyl Ether	ND	0.025
Sample Number: Comp 1		
Benzene	ND	0.0050
Toluene	ND	0.0050
Ethylbenzene	ND	0.0050
Total Xylenes	ND	0.010
Methyl-tert-Butyl Ether	ND	0.025
Sample Number: Method Blank		
Benzene	ND	0.0050
Toluene	ND	0.0050
Ethylbenzene	ND	0.0050
Total Xylenes	ND	0.010
Methyl-tert-Butyl Ether	ND	0.025

ND denotes not detected at indicated reportable limit.

Each sample was received by CEL chilled, intact, and with chain-of-custody attached.

TRC-Alton Geoscience
5052 Commercial Circle
Concord, CA 94520

Date Sampled: 01/25/00
Date Received: 01/26/00
Date Digested: 01/28/00
Date Analyzed: 01/28/00
Work Order No.: 00-01-0685
Method: EPA 6010B
Page 1 of 1

Attn: Sarah Larese
RE: Exxon Mobil 99-105

All concentrations are reported in mg/kg (ppm). Analyses for lead were conducted on a total digestion.

<u>Sample Number</u>	<u>Lead Concentration</u>	<u>Reporting Limit</u>
Comp 1	8.04	0.500
Method Blank	ND	0.500

ND denotes not detected at indicated reportable limit.

Each sample was received by CEL chilled, intact, and with chain-of-custody attached.

QUALITY ASSURANCE SUMMARY
 Method EPA 8015M/8021B (Aqueous)

TRC-Alton Geoscience
 Page 1 of 1

Work Order No.: 00-01-0685
 Date Analyzed: 01/26-27/00

Matrix Spike/Matrix Spike Duplicate

Sample Spiked: 00-01-0637-2

Analyte	MS%REC	MSD%REC	Control Limits	%RPD	Control Limits
Benzene	93	92	75 - 111	1	0 - 16
Toluene	92	91	74 - 111	2	0 - 15
Ethylbenzene	92	90	76 - 109	2	0 - 14
m,p-Xylenes	92	91	75 - 111	2	0 - 14
o-Xylene	92	90	76 - 108	2	0 - 14
MTBE	97	96	67 - 119	0	0 - 13
TPH for Gasoline	96	96	68 - 122	1	0 - 14

Laboratory Control Sample

Analyte	Conc. Added	Conc. Rec.	%REC	Control Limits
Benzene	100	96.3	96	79 - 109
Toluene	100	94.6	95	79 - 109
Ethylbenzene	100	93.6	94	79 - 109
m,p-Xylenes	200	190	95	80 - 110
o-Xylene	100	94.5	94	80 - 108
MTBE	100	95.8	96	77 - 110
TPH for Gasoline	2000	2170	108	79 - 115

Surrogate Recoveries (in %)

Sample Number	S1	S2
99-105 HA-1	95	88
Method Blank	97	91

Surrogate Compound	%REC Acceptable Limits
S1 > 1,4-Bromofluorobenzene	81 - 116
S2 > 1,4-Bromofluorobenzene - FID	57 - 128

QUALITY ASSURANCE SUMMARY
 Method EPA 8015M/8021B (Solid)

TRC-Alton Geoscience
 Page 1 of 1

Work Order No.: 00-01-0685
 Date Analyzed: 01/26/00

Matrix Spike/Matrix Spike Duplicate

Sample Spiked: Comp 1

Analyte	MS%REC	MSD%REC	Control Limits	%RPD	Control Limits
Benzene	94	98	46 - 136	4	0 - 15
Toluene	92	98	45 - 138	6	0 - 18
Ethylbenzene	92	99	62 - 121	8	0 - 17
m,p-Xylenes	92	99	53 - 130	8	0 - 17
o-Xylene	91	98	64 - 120	8	0 - 13
MTBE	84	86	24 - 144	2	0 - 23
TPH for Gasoline	92	91	44 - 122	1	0 - 30

Laboratory Control Sample

Analyte	Conc. Added	Conc. Rec.	%REC	Control Limits
Benzene	0.100	0.0983	98	81 - 111
Toluene	0.100	0.0971	97	81 - 111
Ethylbenzene	0.100	0.0987	99	78 - 113
m,p-Xylenes	0.200	0.198	99	70 - 118
o-Xylene	0.100	0.0971	97	77 - 114
MTBE	0.100	0.104	104	65 - 126
TPH for Gasoline	2.00	1.66	83	57 - 132

Surrogate Recoveries (in %)

Sample Number	S1	S2
HA-1-5'	81	83
Comp 1	93	95
Method Blank	109	99

Surrogate Compound	%REC	Acceptable Limits
S1 > 1,4-Bromofluorobenzene	81	81 - 116
S2 > 1,4-Bromofluorobenzene - FID	99	57 - 128

QUALITY ASSURANCE SUMMARY
ICP / GF Metals (Solids)

TRC-Alton Geoscience
Page 1 of 1

Work Order No.: 00-01-0685
Date Analyzed: 01/28-31/00

Matrix Spike/Matrix Spike Duplicate

Sample Spiked: 00-01-0764-1

<u>Analyte</u>	<u>Method</u>	<u>MS%REC</u>	<u>MSD%REC</u>	<u>Control Limits</u>	<u>%RPD</u>	<u>Control Limits</u>
Lead	EPA 6010B	87	84	75 - 125	4	0 - 20

Laboratory Control Sample

<u>Analyte</u>	<u>Method</u>	<u>Conc. Added</u>	<u>Conc. Rec.</u>	<u>%REC</u>	<u>Control Limits</u>
Lead	EPA 6010B	50.0	52.2	104	80 - 120

**CALSCIENCE ENVIRONMENTAL
LABORATORIES, INC.**

7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1432
TEL: (714) 895-5494 • FAX: (714) 894-7501

CHAIN OF CUSTODY RECORD

Date 1-25-00
Page 1 of 1

LABORATORY CLIENT: <u>TRC/Altam Bioscience</u>				CLIENT PROJECT NAME / NUMBER: <u>Mobi 99-105</u>				P.O. NO.: <u>41-423</u>																											
ADDRESS: <u>3050 Loma Vista Circle</u>				PROJECT CONTACT: <u>Sarah Larese</u>				QUOTE NO.:																											
CITY: <u>Longwood</u>		STATE: <u>CA</u>		ZIP: <u>94520</u>		SAMPLER(S): (SIGNATURE) <u>Shyn R. Pate</u>																													
TEL: <u>(925) 688-1200</u>		FAX: <u>(925) 688-0388</u>		E-MAIL:		LAB USE ONLY <u>67-0687</u>																													
TURNAROUND TIME (RUSH SURCHARGES MAY APPLY) <input type="checkbox"/> SAME DAY <input type="checkbox"/> 24 HR <input type="checkbox"/> 48 HR <input type="checkbox"/> 72 HRS <input checked="" type="checkbox"/> <u>Standard</u> 5 DAYS <input type="checkbox"/> 10 DAYS				REQUESTED ANALYSES																															
SPECIAL INSTRUCTIONS <u>Call Sarah Larese prior to analyzing samples at 925-688-1200.</u>				<table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <tr> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">TPH (8010)</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">BTEX / MTBE (8021B)</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">HALOCARBONS (8021B)</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">VOCs (8260B)</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">SVOCs (8270C)</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">PEST / PCBs (8081A)</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">EDB / DBCP (504.1 or 8011)</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">CAC, T22 METALS (6010A)</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">ICP/MS METALS (6020)</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">PVAAs (8310)</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">VOCs (10-14)</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">CH₄ / TGNMO (25.1)</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">FIXED GASES (25.1 or D1946)</td> </tr> <tr> <td>X</td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> </tr> </table>						TPH (8010)	BTEX / MTBE (8021B)	HALOCARBONS (8021B)	VOCs (8260B)	SVOCs (8270C)	PEST / PCBs (8081A)	EDB / DBCP (504.1 or 8011)	CAC, T22 METALS (6010A)	ICP/MS METALS (6020)	PVAAs (8310)	VOCs (10-14)	CH ₄ / TGNMO (25.1)	FIXED GASES (25.1 or D1946)	X	X											X
TPH (8010)	BTEX / MTBE (8021B)	HALOCARBONS (8021B)	VOCs (8260B)							SVOCs (8270C)	PEST / PCBs (8081A)	EDB / DBCP (504.1 or 8011)	CAC, T22 METALS (6010A)	ICP/MS METALS (6020)	PVAAs (8310)	VOCs (10-14)	CH ₄ / TGNMO (25.1)	FIXED GASES (25.1 or D1946)																	
X	X											X																							
LAB USE ONLY	SAMPLE ID	LOCATION/DESCRIPTION	SAMPLING		MATRIX	NO. OF CONT.																													
	<u>Comp 1</u>	<u>99-105</u>	DATE	TIME																															
			<u>1-25-00</u>	<u>1515</u>	<u>S</u>	<u>1</u>																													
Relinquished by: (Signature) <u>Shyn R. Pate</u>				Received by: (Signature)				Date:	Time:																										
Relinquished by: (Signature)				Received by: (Signature)				Date:	Time:																										
Relinquished by: (Signature) <u>FedEx</u>				Received for Laboratory by: (Signature) <u>[Signature]</u>				Date:	Time:																										
								<u>1-25-00</u>	<u>1830</u>																										
								<u>1-26-00</u>	<u>1030</u>																										

ROI 4/2

**CALSCIENCE ENVIRONMENTAL
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7440 LINCOLN WAY
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TEL: (714) 895-5494 • FAX: (714) 894-7501

CHAIN OF CUSTODY RECORD

Date 1-25-00

Page _____ of _____

LABORATORY CLIENT: <u>TLC/Altamira Bioscience</u>				CLIENT PROJECT NAME / NUMBER: <u>99-105 Green Point</u>				P.O. NO.: <u>41-0103</u>											
ADDRESS: <u>5052 Commercial Circle</u>				PROJECT CONTACT: <u>Sarah Larose</u>				QUOTE NO.:											
CITY: <u>Compton</u>		STATE: <u>CA</u>		ZIP: <u>91720</u>		LAB USE ONLY <input type="checkbox"/> 01 - <input type="checkbox"/> 06 8 <input checked="" type="checkbox"/> 5													
TEL: <u>(925) 688-1200</u>		FAX: <u>(925) 688-0388</u>		E-MAIL: <u>[Signature]</u>															
TURNAROUND TIME (RUSH SURCHARGES MAY APPLY) <input type="checkbox"/> SAME DAY <input checked="" type="checkbox"/> 24 HR <input type="checkbox"/> 48 HR <input type="checkbox"/> 72 HRS <input checked="" type="checkbox"/> 5 DAYS <input type="checkbox"/> 10 DAYS				REQUESTED ANALYSES															
SPECIAL INSTRUCTIONS: <u>Call Sarah Larose prior to analyzing samples at (925) 688-1200. Confirm MTBE by 8200</u>																			
LAB USE ONLY	SAMPLE ID	LOCATION/DESCRIPTION	SAMPLING		MATRIX	NO. OF CONT.	TPH (01)(0)	BTX / MTBE (8021B)	HALOCARBONS (8021B)	VOCs (8260B)	SVOcs (8270C)	PEST / PCBs (8081A)	EDB / DBCP (504.1 or 8011)	CAC, T22 METALS (6010A)	ICP/MS METALS (6020)	PNAs (8310)	VOCs (10-14)	CH ₄ / TGNMO (25.1)	FIXED GASES (25.1 or D1946)
			DATE	TIME															
	<u>99-105 HA-1</u>		<u>1-25-00</u>	<u>1300</u>	<u>W</u>	<u>4</u>	<u>X</u>	<u>X</u>											
	<u>HA-2-5'</u>		<u>1-25-00</u>	<u>1100</u>	<u>S</u>	<u>1</u>	<u>X</u>	<u>X</u>											
Relinquished by: (Signature) <u>[Signature]</u>				Received by: (Signature)				Date: <u>1-25-00</u>		Time: <u>1830</u>									
Relinquished by: (Signature)				Received by: (Signature)				Date:		Time:									
Relinquished by: (Signature) <u>FedEx</u>				Received for Laboratory by: (Signature) <u>[Signature]</u>				Date: <u>1-26-00</u>		Time: <u>1030</u>									

All turnaround times are based on working hours of 8:30 a.m. - 5:30 p.m. M - F. Unless otherwise requested, all samples will be disposed of 30 days after receipt.

DISTRIBUTION: White with final report, Yellow to File, Pink to Client

7/15/98 Revision

Q&Q Graphic (714) 896-9702

SAMPLE RECEIPT FORM

Work Order Number: 00-01-0685
Delivery Container Type: Cooler
Client Project ID: Mobil 99-105

Date Received: 01/26/00
Date Opened: 01/26/00
Opened By: NC

Section A: Pass/Fail

- | | <u>Comments</u> |
|---|-----------------|
| 1. Chain of custody document(s) received with samples. | Yes |
| 2. Sample container label(s) consistent with custody papers. | Yes |
| 3. Sample container label(s) complete (ID, date, time, taken by). | Yes |
| 4. Sample container(s) intact and in good condition. | Yes |
| 5. If applicable, proper preservation noted on sample label(s). | Yes |
| 6. Sufficient sample volume received for analyses requested. | Yes |
| 7. Correct containers used for analyses requested. | Yes |
| 8. If applicable, VOA vials free of headspace. | Yes |

Section B: Additional Observations

- | | |
|--|--------|
| 1. Describe packing materials used in container. | NA |
| 2. Was sample container(s) sealed with custody | No |
| 3. Were all samples sealed in separate plastic bags? | No |
| 4. Measured temperature inside delivery container when opened. | 4.0 °C |
| 5. If delivery container shipped by third-party carrier, did container come with shipping slip, airbill, etc.? | Yes |
| If YES, attach copy of shipping slip/airbill to the back of this | |
| 6. Do tedlar bags show condensation? Describe below if yes. | NA |
| 7. Are 25.1 condensate traps immersed in dry ice? | NA |
| 8. Are 25.1 sampling trains intact? | NA |
| 9. Are 25.3 condensate vials still attached to the sampling train? | NA |
| 10. Are 25.3 condensate vials on wet ice? | NA |

Section C: Additional Comments
