

PACIFIC
ENVIRONMENTAL
GROUP, INC.

December 20, 1994
Project 305-094.6A

Mr. Lynn Walker
Shell Oil Company
P.O. Box 4023
Concord, California 94524

Re: Case Closure Request
Former Shell Service Station
2724 Castro Valley Boulevard at Lake Chabot Road
Castro Valley, California
WIC No 204-1381-0407

Dear Mr. Walker:

This letter was prepared by Pacific Environmental Group, Inc. (PACIFIC) at the request of Shell Oil Company (Shell) regarding the site referenced above (Figure 1). This letter presents a site description, and a description of previous work performed including investigative procedures for determining the extent of hydrocarbons in soil and groundwater. Hydrology, beneficial use of groundwater, and effective remedial measures completed are discussed. Also included is a complete summary and conclusions, and justifications for request of case closure.

SITE DESCRIPTION

The site is a former Shell service station. All underground storage tanks (USTs) and associated piping have been removed from the site. Figure 2 presents the former service station layout, including the former UST complex and product island locations.

PREVIOUS WORK

November 1986: Blaine Tech Services, Inc. (Blaine) collected samples during a replacement of one 550-gallon waste oil tank with a double-walled tank and conducted field sampling. Analysis of the soil sample (collected at a depth of 7 feet from the excavation) reported 69 parts per million (ppm) and oil and grease.

10/21/94
11:38:05

April 1988: Woodward-Clyde Consultants (WCC) drilled and sampled three soil borings around the then existing UST complex (Figure 2). Samples collected from the bottom of the two borings placed in the UST complex reported a maximum concentration of 0.10 ppm benzene; no low boiling point hydrocarbons calculated as gasoline were detected.

*Tanks
Removal*

February 1989: Crosby and Overton, Inc. (Crosby) conducted field sampling during removal of two 5,000- and two 8,000-gallon USTs (Tank Complex-1 [TC-1]) (Figure 2). Eight soil samples were collected directly below the tanks at a depth of approximately 12.5 feet. These samples reported between non-detectable and 620 ppm total petroleum hydrocarbons calculated as gasoline (TPH-g) and between non-detectable and 1.4 ppm benzene.

March 1989: The excavation was widened to the south. Four sidewall samples were collected at the groundwater interface in the existing excavation and one water sample from the bottom of additional excavation to the south. These soil samples reported 18 to 1,300 ppm TPH-g and 4.6 to 72 ppm benzene.

June and July 1989: Converse Environmental West, Inc. (CEW) collected soil Samples SW-1 through SW-7 from the existing excavation (TC-2) in the vicinity of the old USTs (TC-1). These samples reported maximum concentrations of 2,300 and 29 ppm TPH-g and benzene, respectively. After further excavation, Samples SW-8 through SW-11 were collected and reported maximum concentrations of 71 and 2.6 ppm TPH-g and benzene, respectively.

*SW-3
4/80/110/1.3
SW-1
8.10/2.7
left next to
the excavation
Removal later*

August 1989: CEW conducted sampling and excavation around the pump islands. Samples reported up to 3,300 ppm TPH-g and up to 3.6 ppm benzene.

October 1989: CEW removed the hydrocarbon-affected soil in the vicinity of the old pump islands to a depth of approximately 7.5 feet. Closure samples collected at the bottom and in the sidewalls of the excavation reported a maximum of 13 ppm TPH-g and 0.096 ppm benzene.

January 1990: CEW installed and sampled Wells MW-1 through MW-3 and MW-5, and drilled soil Boring SB-1. No TPH-g was detected in any soil samples analyzed. Benzene was detected at 3.0 ppm at 20 feet in the boring for Well MW-5; a maximum concentration of 23 ppm benzene at 25 feet in the boring for Well MW-2 was reported. Soil samples collected at 5 feet from the boring for Well MW-1 reported maximum concentrations of 5.8 and 73 ppm TPH calculated as diesel (TPH-d) and TPH calculated as motor oil (TPH-mo), respectively. Soil from the boring for Well MW-2 (located near the waste oil tank) reported a maximum concentration of 370 ppm oil and grease.

5' bgs

May 1990: CEW drilled and sampled hand Boring SB-2 (located near the station building). The boring was angled beneath the building foundation and located approxi-

mately 20 feet west of Well MW-2. Soil samples at 4.5 feet reported 1.0 and 73 ppm TPH-g and TPH-mo, respectively; no benzene was detected.

July, August, and September 1991: CEW drilled and sampled Borings SB-4 and SB-5, and completed Wells OMW-6, MW-7, and OMW-8. Maximum concentrations were reported at a depth of 11 feet in Well MW-7 at 260 and 1.3 ppm TPH-g and benzene, respectively.

August 1991: Three unused USTs (TC-2) and one waste oil tank were excavated and removed from the site. CEW collected soil samples in the excavations for the removal of the new waste oil and fuel tanks. Soil samples collected below the three new USTs revealed no detected concentrations of petroleum hydrocarbons. Five soil samples were collected from the waste oil tank excavation. These samples reported concentrations up to 7.8 ppm TPH-g, 1,100 ppm TPH-motor oil and 1,400 ppm oil and grease in the sample closest to the southeast corner of the station building; no benzene was detected.

September 1991: CEW drilled Borings SB-6 through SB-9 through the floor of the station building. Borings SB-6 and SB-9 were drilled into the southeast corner of the station building nearest the location of the removed waste oil tank. Samples were collected from this location and analyzed. Soil samples from Boring SB-9 (collected at a depth of 5 feet) reported maximum concentrations of 1,800 and 1,800 ppm TPH-g and oil and grease, respectively; benzene was not detected. Soil samples from Boring SB-6 (collected at a depth of 5 feet) reported concentrations of 770 and 740 ppm TPH-g and oil and grease, respectively; benzene was not detected. Gettler-Ryan Inc. (Gettler) and Geostrategies, Inc. (GSI) subsequently collected soil samples below the hydraulic lifts inside the station building. Two samples collected below the hydraulic lifts reported 38 and 98 ppm TPH-mo.

April 24, 1992: CEW installed four temporary groundwater monitoring sampling points on the south side of Castro Valley Boulevard.

RECENT EXCAVATION ACTIVITIES

Approximately 1,200 cubic yards of soil were excavated and removed from the site during the overexcavation of the former waste oil tank area conducted by PACIFIC. Excavation occurred in several stages. The excavated soil was disposed of at a Class II waste disposal site.

- **Stage 1 - December 12, 1992:** PACIFIC supervised the removal of clean backfill from the excavation of the former waste oil tank along with additional hydrocarbon-impacted soil immediately to the west of the former waste oil tank location. Maximum depth of excavation was approximately 6 feet. Due to heavy rainfall, additional excavation was postponed.

- **Stage 2 - June 18, 1993:** Excavation was enlarged to a maximum depth of approximately 9 feet (Figure 3).
- **Stage 3 - June 30 to July 2, 1993:** Excavation was performed to attain the final lateral dimensions and maximum depth of 14 feet. Excavation was performed below groundwater to remove soil impacted with oil and grease below the water table.
- **Stage 4 - July 12, 1993:** The deepest portion of the excavation was widened (Figure 4).

Soil samples were collected from the excavation and analyzed for the TPH-g, benzene, toluene, ethylbenzene, and xylenes (BTEX compounds), TPH-d, and oil and grease. Selected soil samples were analyzed additionally for volatile and semi-volatile organic compounds, and metals. Soil sampling field and laboratory procedures are presented as Attachment A. Excavation sample designations, sample collection dates and depths, and the results of laboratory analyses of these samples are presented in Tables 1 through 4. Concentrations of TPH-g, benzene, TPH-d, and oil and grease are shown on Figures 3 and 4. Figure 3 shows soil sample locations and depths during the initial sampling stages. Additional excavation was performed and soil removed from the excavation as indicated on Figure 4 which shows final soil sample locations and concentrations remaining in soil (PACIFIC, March 2, 1994).

The final dimensions of the waste oil tank overexcavation were approximately 60 by 35 feet to a depth of 5 feet with a deeper portion of the excavation nearest to the former waste oil tank approximately 25 by 30 feet to a total depth of 14 feet (Figure 4). Closure Sample LEW1, collected at the maximum extent of excavation (10 feet) located immediately west of the former location of the waste oil tank in the east wall of the deeper portion of the excavation, reported 1,500 ppm TPH-g, 3.3 ppm benzene, 190 ppm TPH-d, and 89 ppm oil and grease. Closure Sample EW2 (collected at a depth of 4-feet in the northeastern corner of the excavation) contained the maximum concentration of 130 ppm oil and grease.

Upon completion of excavation, clean imported Class II baserock was placed and compacted to at least 90 percent relative compaction between September 2 and 10, 1993. The compaction of the backfill material was certified by Seidelman Associates Incorporated.

INVESTIGATIVE PROCEDURES

Information regarding drilling, soil/groundwater sampling and analytical methods, construction of monitoring wells, and well development performed at this site by WCC, CEW, and Crosby is presented as Attachment A. Groundwater sampling and analytical

procedures performed by PACIFIC and Blaine are presented as Attachment B. Boring logs are presented as Attachment C.

Hydrocarbons in Soil

The highest concentrations of petroleum hydrocarbons detected in soil were from soil samples collected from Boring SB-9 (drilled inside the station building at a depth of 5 feet) which reported maximum concentrations of 1,800 and 1,800 ppm TPH-g and oil and grease, respectively. Soil samples from Boring SB-6 at 5 feet reported 770 and 740 ppm TPH-g and oil and grease, respectively. Benzene was not detected in samples from Boring SB-9; however, 110 ppm benzene was reported from the 10-foot sample in Boring SB-6. Gettler and GSI subsequently collected soil samples below the hydraulic lifts inside the station building. Two samples were collected below the hydraulic lifts and reported 38 and 98 ppm TPH-mo. Historical soil analytical data are presented as Attachment D.

The highest concentrations of petroleum hydrocarbons detected in soil from closure samples after overexcavation of the former waste oil tank area were from Sample LEW1 which was collected immediately west of the former location of the waste oil tank in the east wall of the deeper portion of the excavation. Sample LEW1 (collected at 10 feet after excavation of the former UST complex) reported 1,500, 3.3, and 89 ppm TPH-g, benzene, and oil and grease, respectively. Closure Sample EW2 (which was collected at a depth of 4 feet in the northeastern corner of the excavation) contained the maximum concentration of 130 ppm oil and grease.

Hydrocarbons in Groundwater

With the exception of Wells MW-2 and MW-7, concentrations of TPH-g and BTEX compounds have been below, at, or near non-detectable limits since the wells were installed. Since excavation completion, TPH-g and BTEX concentrations in Wells MW-2 and MW-7 have significantly been reduced to method detection limits, reflecting source area removal. Well MW-7 has consistently reported non-detectable concentrations of petroleum hydrocarbons since February 1994. During third quarter groundwater monitoring, Well MW-2 reported non-detectable concentrations of petroleum hydrocarbons with the exception of the duplicate sample reporting 70 ppb TPH-g. The laboratory noted Wells MW-1, MW-2, MW-3, MW-5, MW-7, and MW-8 contained positive results of TPH-d ranging from 50 to 110 ppb. The laboratory noted these results to be an unknown hydrocarbon consisting of several peaks. Groundwater elevation data are presented in Table 5. Tables 6 and 7 present groundwater analytical data.

HYDROLOGY

The site is located on the western edge of a gentler valley (Castro Valley) on a recent alluvial fill. The terrain rises northward into the San Leandro Hills and approximately 50 feet above the valley floor. An isolated hillside knob with 60 to 100 feet of relief exists approximately 600 feet south of the site. An intermittent stream is located approximately 300 feet west on the 7-1/2 minute Hayward, California USGS topographic map. This stream enters San Lorenzo Creek approximately 1 mile south of the site. Depth to groundwater in the vicinity is approximately 10 feet. Groundwater flow at the site is to the south.

Groundwater at the site has historically ranged between approximately 3 and 10.6 feet below ground surface. Groundwater elevation data are presented in Table 5. Regionally, groundwater flow gradient has historically been toward the south.

No aquifer tests have been conducted at this site.

BENEFICIAL USES OF GROUNDWATER

A survey of the wells within a 1/2-mile radius of the site was completed by CEW during 1990, based on Alameda County Water District files, covering municipal, agricultural, domestic, industrial, monitoring, and test wells. Ten wells were located within approximately 1/4 mile of the site. Seven of these wells are monitoring wells; one is used for irrigation, one is used for industrial purposes. Usage for the last well was not identified. Results of the well survey performed by CEW is presented as Attachment E.

REMEDIAL ACTIVITIES AND EFFECTIVENESS

The objective of the excavation was to remove oil and grease-impacted soil in the vicinity of the former waste oil tank to levels that would not pose a threat to groundwater or require additional investigation or remediation.

The maximum concentration of oil and grease remaining in soil, based on the confirmation samples collected, was 130 ppm.

Soluble toxicity limit concentration (STLC) and toxicity characteristic leaching procedure (TCLP) tests are designed to simulate natural conditions and to examine the potential for a substance to leach from soil into groundwater. The TCLP test is more conservative and therefore more likely to leach hydrocarbons than the STLC test.

The oil and grease concentrations in the samples submitted for STLC and TCLP analyses ranged between 130 and 940 ppm. The STLC and TCLP tests indicate that oil and grease will not leach out of the soil into groundwater at concentrations up to 940 ppm. Therefore, the oil and grease remaining in soil (maximum 130 ppm) is not likely to leach into groundwater at the site. Based on soil results, the goal of remediation by excavation

was achieved. Non-detectable concentrations of TPH-g and BTEX compounds in groundwater in all site wells confirm the effectiveness of remediation by excavation.

SUMMARY AND CONCLUSIONS

PACIFIC recommends that the site be closed based on the following:

1. All USTs and associated piping have been removed from the site.
 - In February 1989, Crosby conducted field sampling during removal of two 5,000- and two 8,000-gallon USTs.
 - In August 1991, CEW conducted field sampling during removal of the three USTs and one waste oil tank.
2. During the tank removals and overexcavation phases, a total of approximately 2,800 cubic yards of soil were excavated and removed from the site.
3. Soil concentrations remaining after overexcavation are such that there is little potential for future impact on groundwater.
 - In June and July 1989, CEW collected soil samples from the existing excavation in the vicinity of the four former USTs. Samples reported maximum concentrations of TPH-g and benzene at 2,300 and 29 ppm, respectively. After further excavation, five samples were collected and reported maximum concentrations of TPH-g and benzene at 71 and 2.6 ppm, respectively.
 - No petroleum hydrocarbons were detected in samples collected during removal of the three unused USTs (TC-2) by CEW.
 - During waste oil tank overexcavation, 1,200 yards of soil were removed. One sample reported 1,500 ppm TPH-g at 10 feet bgs. Several samples in the vicinity reported non detectable concentrations of TPH-g. Therefore, Sample LEW-1 represents an isolated pocket which does not impact groundwater as evidenced by low to non-detectable concentrations of TPH-g and BTEX compounds in downgradient Monitoring Well MW-2.
 - Samples collected after overexcavation in the area of the former waste oil tank by PACIFIC returned a maximum concentration of 130 ppm TPH-oil and grease. STLC and TCLP tests indicate that TPH-oil and grease will not leach out of soil into groundwater at concentrations up to 940 ppm TPH-oil and grease. Therefore it is

1,200

unlikely that (maximum 130 ppm) TPH-oil and grease will leach out of soil into groundwater.

4. Impact of petroleum hydrocarbons on groundwater has been effectively remediated by excavation as evidenced by non-detectable levels of petroleum hydrocarbons.
 - With the exception of Wells MW-2 and MW-7, concentrations of TPH-g and BTEX compounds have been below, at, or near non-detectable limits since the wells were installed. Since excavation completion, TPH-g and BTEX concentrations in Wells MW-2 and MW-7 have significantly been reduced to method detection limits, reflecting source area removal. Well MW-7 has consistently reported non-detectable concentrations of petroleum hydrocarbons since February 1994. During third quarter groundwater monitoring, Well MW-2 reported non-detectable concentrations of petroleum hydrocarbons with the exception of the duplicate sample reporting 70 ppb TPH-g. The laboratory noted Wells MW-1, MW-2, MW-3, MW-5, MW-7, and MW-8 contained positive results of TPH-d ranging from 50 to 110 ppb. The laboratory noted these results to be an unknown hydrocarbon consisting of several peaks.
5. There are no drinking water supply wells within a 1/2-mile radius of the site.

In summary, the site poses no significant threat to groundwater quality; therefore, PACIFIC recommends site closure.

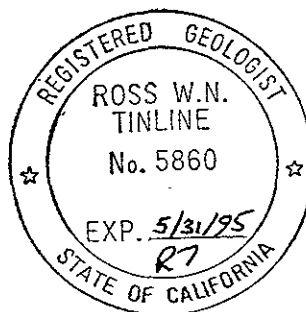
If you have any questions regarding the contents of this letter, please call.

Sincerely,

Pacific Environmental Group, Inc.



Ross W.N. Tinline
Project Geologist
RG 5860



- Attachments:
- Table 1 - Soil Analytical Data - Total Petroleum Hydrocarbons (TPH as Gasoline, BTEX Compounds, TPH as Diesel, and Total Oil and Grease)
 - Table 2 - Soil Analytical Data - Volatile Organic Compounds
 - Table 3 - Soil Analytical Data - Semi-Volatile Organic Compounds
 - Table 4 - Soil Analytical Data - Metals
 - Table 5 - Groundwater Elevation Data
 - Table 6 - Groundwater Analytical Data - Total Petroleum Hydrocarbons (TPH as Gasoline and BTEX Compounds)
 - Table 7 - Groundwater Analytical Data - Total Petroleum Hydrocarbons (TPH as Diesel and Motor Oil)
 - Figure 1 - Site Location Map
 - Figure 2 - Site Map
 - Figure 3 - Excavated Soil Sample Concentration Map
 - Figure 4 - Closure Soil Sample Concentration Map
 - Attachment A - Soil Sampling Field and Laboratory Procedures
 - Attachment B - Groundwater Sampling Field and Laboratory Procedures
 - Attachment C - Boring Logs
 - Attachment D - Historical Soil Analytical Data
 - Attachment E - Well Survey Data

cc: Mr. Scott Seery, Alameda County Department of Environmental Health
Mr. Richard Hiatt, Regional Water Quality Control Board
Dr. Mohsen Mehran, Owner Consultant
Mr. Richard Finn, Larson and Burnham
Mr. Matthew Righetti, Righetti Law Firm
Mr. Richard A. Schoenberger, Esq., Walkup, Shelby, Bastian, Melodia, Kelly,
Echeverria and Link
Mr. Jim Matthews, Shell Oil Company
Ms. Anne Singley, Shell Oil Company

Table 1
Soil Analytical Data
Total Petroleum Hydrocarbons
 (TPH as Gasoline, BTEX Compounds, TPH as Diesel, and Total Oil and Grease)

Former Shell Service Station
 2724 Castro Valley Boulevard at Lake Chabot Road
 Castro Valley, California

Sample ID	Sample Depth (feet)	Date Sampled	TPH as Gasoline (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Xylenes (ppm)	TPH as Diesel (ppm)	Total Oil and Grease (ppm)
NW-1	4	12/17/92	ND	ND	ND	ND	ND	ND	ND
NW-1A	5	12/17/92	ND	ND	ND	ND	ND	ND	ND
NW-3	4	12/17/92	ND	ND	ND	ND	ND	ND	60
NW-4	4	12/17/92	27 a	ND	ND	ND	ND	27 b	100
NW-5	4	06/18/93	ND	ND	ND	ND	ND	ND	ND
NW-6	4	06/18/93	ND	ND	ND	ND	ND	ND	ND
NW-7	4	06/18/93	ND	ND	ND	ND	ND	ND	ND
NW-8	3	06/30/93	ND	ND	ND	ND	ND	ND	ND
NW-9	4	06/30/93	ND	ND	ND	ND	ND	ND	ND
LNW-1	10	07/01/93	ND	ND	ND	ND	ND	ND	ND
SW-1	4	12/17/92	ND	ND	ND	ND	ND	ND	ND
SW-2	4	12/17/92	ND	ND	ND	ND	ND	ND	ND
SW-3	9	12/17/92	120 a	ND	ND	ND	ND	340 b	97
SW-4	3	06/18/93	ND	ND	ND	ND	ND	ND	250
SW-5	3	06/30/93	ND	ND	ND	ND	ND	ND	ND
SW-6	4	06/30/93	ND	ND	ND	ND	ND	ND	ND
SW-7	4	06/30/93	ND	ND	ND	ND	ND	1.9 b	ND
LSW-1	10	07/01/93	9.2 c	0.048	0.022	0.074	0.12	2.4 b	ND
EW-1	4	12/17/92	ND	ND	ND	ND	ND	ND	ND
EW-2	4	06/18/93	ND	ND	ND	ND	ND	ND	130
LEW-1	10	07/01/93	1,500 c	3.3	9.5	14	86	190 b	89
LEW-2	10	07/01/93	1.3 a	ND	ND	0.022	0.025	71 b	54
WW-1	4	12/17/92	1.1 a	ND	ND	ND	ND	ND	78
WW-2	3	06/18/93	ND	ND	ND	ND	ND	ND	ND
WW-3	3	06/18/93	7.3 a	ND	ND	ND	ND	1.9 b	ND
WW-4	3	06/18/93	18 a	ND	ND	ND	ND	95 b	ND
WW-5	4	06/30/93	ND	ND	ND	ND	ND	ND	ND
WW-6	4	06/30/93	ND	ND	ND	ND	ND	ND	ND
LWW-1	10	07/01/93	1,300 c	5.8	ND	13	43	810 b	870
LWW-2	10	07/01/93	560 c	2.7	1.2	6.9	45	95 b	200
LWW-3	12	07/12/93	190	0.72	4.6	4.3	26	53 b	ND
LWW-4	12	07/12/93	ND	0.014	0.073	ND	0.011	ND	ND
EF-1	4	12/17/93	480 a	ND	ND	0.35	0.75	320 b	71
EF-2	9	06/18/93	43 a	0.019	ND	ND	0.35	29 b	190
EF-3	8	06/18/93	ND	ND	ND	ND	ND	ND	130
EF-4	9	06/18/93	66 a	ND	ND	0.27	0.83	41 b	370
EF-5	9	06/18/93	ND	ND	ND	ND	ND	ND	ND
EF-6	8	06/18/93	ND	ND	ND	ND	ND	ND	ND
EF-7	8	06/18/93	ND	ND	ND	ND	ND	ND	76
EF-8	5	06/30/93	ND	ND	ND	ND	ND	ND	ND
EF-9	5	06/30/93	ND	ND	ND	ND	ND	ND	ND
EF-10	5	06/30/93	ND	ND	ND	ND	ND	5.0 b	79
EF-11	5	06/30/93	ND	ND	ND	ND	ND	ND	99
EF-12	14	07/01/93	ND	ND	ND	ND	0.011	ND	ND
EF-13	14	07/01/93	ND	ND	ND	ND	0.021	2.1 b	ND
EF-14	6	07/02/93	ND	ND	ND	ND	ND	ND	ND
EF-15	6	07/02/93	ND	ND	ND	ND	ND	ND	ND
EF-17	15	07/12/93	ND	0.015	0.1	0.008	0.028	ND	ND
EF-18	15	07/12/93	ND	0.006	0.083	0.006	0.03	ND	ND
T1	3	06/18/93	330 a	ND	ND	ND	0.65	2,900 b	940
T2	3	06/18/93	1.2 a	ND	ND	ND	ND	75 b	85
T3	4	06/18/93	ND	ND	ND	ND	ND	ND	91
T4	3	06/30/93	ND	ND	ND	ND	ND	ND	ND

ppm = Parts per million

ND = Not detected

a. Laboratory notes as non-gasoline mix.

b. Laboratory notes as non-diesel mix.

c. Laboratory notes as gasoline plus non-gasoline mix.

Detection limits are indicated in certified analytical reports.

Table 2
Soil Analytical Data
 Volatile Organic Compounds
 (ppm)

Former Shell Service Station
 2724 Castro Valley Boulevard at Lake Chabot Road
 Castro Valley, California

Sample ID	SW-2	NW-3	EW-1
Sample Date	12/17/92	12/17/93	12/17/93
Chloromethane	ND	ND	ND
Vinyl chloride	ND	ND	ND
Bromomethane	ND	ND	ND
Chloroethane	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND
Trichlorotrifluoroethane	ND	ND	ND
Acetone	ND	ND	ND
Carbon disulfide	ND	ND	ND
Methylene chloride	ND	ND	ND
Trans-1,2-dichloroethene	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND
Cis-1,2-dichloroethene	ND	ND	ND
2-Butanone	ND	ND	ND
Chloroform	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND
Carbon tetrachloride	ND	ND	ND
Vinyl acetate	ND	ND	ND
Benzene	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND
Trichloroethene	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND
Bromodichloromethane	ND	ND	ND
Cis-1,3-dichloropropene	ND	ND	ND
4-Methyl-2-pentanone	ND	ND	ND
Toluene	ND	ND	ND
Trans-1,3-dichloropropene	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND
Tetrachloroethene	ND	ND	ND
2-Hexanone	ND	ND	ND
Dibromochloromethane	ND	ND	ND
Chlorobenzene	ND	ND	ND
Ethylbenzene	ND	ND	ND
Xylene (Total)	ND	ND	ND
Styrene	ND	ND	ND
Bromoform	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND

ppm = Parts per million
 ND = Not detected
 Detection limits are indicated in certified analytical reports.

Table 3
Soil Analytical Data
Semi-Volatile Organic Compounds
(ppm)

Former Shell Service Station
2724 Castro Valley Boulevard at Lake Chabot Road
Castro Valley, California

Sample ID	NW-1A	NW-3	NW-5	NW-6	NW-7
Sample Depth (feet)	5		4	4	4
Sample Date	06/18/93	12/17/92	06/18/93	06/18/93	06/18/93
Phenol	ND	ND	ND	ND	ND
Bis(2-chloroethyl)ether	ND	ND	ND	ND	ND
2-Chlorophenol	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	ND	ND
Benzyl alcohol	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND	ND	ND
2-Methylphenol	ND	ND	ND	ND	ND
2,2'-Oxybis(1-chloropropane)	ND	ND	ND	ND	ND
4-Methylphenol	ND	ND	ND	ND	ND
N-nitroso-di-n-propylamine	ND	ND	ND	ND	ND
Hexachloroethane	ND	ND	ND	ND	ND
Nitrobenzene	ND	ND	ND	ND	ND
Isophrone	ND	ND	ND	ND	ND
2-Nitrophenol	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND
Benzoic acid	ND	ND	ND	ND	ND
Bis(2-chloroethoxy)methane	ND	ND	ND	ND	ND
2,4-Dichlorophenol	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND
Naphthalene	ND	ND	ND	ND	ND
4-Chloroaniline	ND	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND	ND
4-Chloro-3-methylphenol	ND	ND	ND	ND	ND
2-Methylnaphthalene	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	ND	ND	ND	ND	ND
2-Chloronaphthalene	ND	ND	ND	ND	ND
2-Nitroaniline	ND	ND	ND	ND	ND
Dimethylphthalate	ND	ND	ND	ND	ND
Acenaphthylene	ND	ND	ND	ND	ND
3-Nitroaniline	ND	ND	ND	ND	ND
Acenaphthene	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ND	ND	ND	ND	ND
4-Nitrophenol	ND	ND	ND	ND	ND
Dibenzofuran	ND	ND	ND	ND	ND
2,4-Dinitrotoluene	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ND	ND	ND	ND	ND
Diethylphthalate	ND	ND	ND	ND	ND
4-Chlorophenyl-phenylether	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND
4-Nitroaniline	ND	ND	ND	ND	ND
4,6-Dinitro-2-methylphenol	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine (t)	ND	ND	ND	ND	ND
4-Bromophenyl-phenylether	ND	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND	ND
Di-n-Butylphthalate	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND	ND
Butylbenzylphthalate	ND	ND	ND	ND	ND
3,3'-Dichlorobenzidine	ND	ND	ND	ND	ND
Benzo(a)anthracene	ND	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND	ND
Bis(2-ethylhexyl)phthalate	ND	ND	ND	ND	ND
Di-n-octylphthalate	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ND	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	ND	ND	ND	ND	ND
Dibenz(a,h)anthracene	ND	ND	ND	ND	ND
Benzo(g,h,i)perylene	ND	ND	ND	ND	ND
N-Nitrosodimethylamine	ND	ND	ND	ND	ND
Aniline	ND	ND	ND	ND	ND
Azobenzene	ND	ND	ND	ND	ND
Benzidine	ND	ND	ND	ND	ND

ppm = Parts per million
ND = Not detected
Detection limits are indicated in certified analytical reports

Table 3 (continued)
Soil Analytical Data
Semi-Volatile Organic Compounds
(ppm)

Former Shell Service Station
2724 Castro Valley Boulevard at Lake Chabot Road
Castro Valley, California

Sample ID	SW-4	EW-1	EW-2	WW-2	WW-3
Sample Depth (feet)	3		4	3	3
Sample Date	06/18/93	12/17/92	06/18/93	06/18/93	06/18/93
Phenol	ND	ND	ND	ND	ND
Bis(2-chloroethyl) ether	ND	ND	ND	ND	ND
2-Chlorophenol	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	ND	ND
Benzyl alcohol	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND	ND	ND
2-Methylphenol	ND	ND	ND	ND	ND
2,2'-Dxybis(1-chloropropane)	ND	ND	ND	ND	ND
4-Methylphenol	ND	ND	ND	ND	ND
N-nitroso-di-n-propylamine	ND	ND	ND	ND	ND
Hexachloroethene	ND	ND	ND	ND	ND
Nitrobenzene	ND	ND	ND	ND	ND
Isophrone	ND	ND	ND	ND	ND
2-Nitrophenol	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND
Benzoic acid	ND	ND	ND	ND	ND
Bis(2-chloroethoxy)methane	ND	ND	ND	ND	ND
2,4-Dichlorophenol	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND
Naphthalene	ND	ND	ND	ND	ND
4-Chloroaniline	ND	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND	ND
4-Chloro-3-methylphenol	ND	ND	ND	ND	ND
2-Methylnaphthalene	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	ND	ND	ND	ND	ND
2-Chloronaphthalene	ND	ND	ND	ND	ND
2-Nitroaniline	ND	ND	ND	ND	ND
Dimethylphthalate	ND	ND	ND	ND	ND
Acenaphthylene	ND	ND	ND	ND	ND
3-Nitroaniline	ND	ND	ND	ND	ND
Acenaphthene	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ND	ND	ND	ND	ND
4-Nitrophenol	ND	ND	ND	ND	ND
Dibenzofuran	ND	ND	ND	ND	ND
2,4-Dinitrotoluene	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ND	ND	ND	ND	ND
Diethylphthalate	ND	ND	ND	ND	ND
4-Chlorophenyl-phenylether	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND
4-Nitroaniline	ND	ND	ND	ND	ND
4,6-Dinitro-2-methylphenol	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine (t)	ND	ND	ND	ND	ND
4-Bromophenyl-phenylether	ND	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND	ND
Di-n-Butylphthalate	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND	ND
Butylbenzylphthalate	ND	ND	ND	ND	ND
3,3'-Dichlorobenzidine	ND	ND	ND	ND	ND
Benzo(a)anthracene	ND	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND	ND
Bis(2-ethylhexyl)phthalate	ND	ND	ND	ND	ND
Di-n-octylphthalate	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ND	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	ND	ND	ND	ND	ND
Dibenz(a,h)anthracene	ND	ND	ND	ND	ND
Benzo(g,h,i)perylene	ND	ND	ND	ND	ND
N-Nitrosodimethylamine	ND	ND	ND	ND	ND
Aniline	ND	ND	ND	ND	ND
Azobenzene	ND	ND	ND	ND	ND
Benzidine	ND	ND	ND	ND	ND

ppm = Parts per million
ND = Not detected
Detection limits are indicated in certified analytical reports.

Table 3 (continued)
Soil Analytical Data
Semi-Volatile Organic Compounds
(ppm)

Former Shell Service Station
2724 Castro Valley Boulevard at Lake Chabot Road
Castro Valley, California

Sample ID	WW-4	EF-2	EF-3	EF-4	EF-5
Sample Depth (feet)	3	9	8	9	9
Sample Date	06/18/93	06/18/93	06/18/93	06/18/93	06/18/93
Phenol	ND	ND	ND	ND	ND
Bis(2-chloroethyl)ether	ND	ND	ND	ND	ND
2-Chlorophenol	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	ND	ND
Benzyl alcohol	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND	ND	ND
2-Methylphenol	ND	ND	ND	ND	ND
2,2'-Oxybis(1-chloropropane)	ND	ND	ND	ND	ND
4-Methylphenol	ND	ND	ND	ND	ND
N-nitroso-di-n-propylamine	ND	ND	ND	ND	ND
Hexachloroethane	ND	ND	ND	ND	ND
Nitrobenzene	ND	ND	ND	ND	ND
Isophrone	ND	ND	ND	ND	ND
2-Nitrophenol	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND
Benzoic acid	ND	ND	ND	ND	ND
Bis(2-chloroethoxy)methane	ND	ND	ND	ND	ND
2,4-Dichlorophenol	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND
Naphthalene	ND	ND	ND	ND	ND
4-Chloroaniline	ND	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND	ND
4-Chloro-3-methylphenol	ND	ND	ND	ND	ND
2-Methylnaphthalene	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	ND	ND	ND	ND	ND
2-Chloronaphthalene	ND	ND	ND	ND	ND
2-Nitroaniline	ND	ND	ND	ND	ND
Dimethylphthalate	ND	ND	ND	ND	ND
Acenaphthylene	ND	ND	ND	ND	ND
3-Nitroaniline	ND	ND	ND	ND	ND
Acenaphthene	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ND	ND	ND	ND	ND
4-Nitrophenol	ND	ND	ND	ND	ND
Dibenzofuran	ND	ND	ND	ND	ND
2,4-Dinitrotoluene	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ND	ND	ND	ND	ND
Diethylphthalate	ND	ND	ND	ND	ND
4-Chlorophenyl-phenylether	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND
4-Nitroaniline	ND	ND	ND	ND	ND
4,6-Dinitro-2-methylphenol	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine (1)	ND	ND	ND	ND	ND
4-Bromophenyl-phenylether	ND	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND	ND
Di-n-Butylphthalate	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND	ND
Butylbenzylphthalate	ND	ND	ND	ND	ND
3,3'-Dichlorobenzidine	ND	ND	ND	ND	ND
Benzo(a)anthracene	ND	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND	ND
Bis(2-ethylhexyl)phthalate	ND	ND	ND	ND	ND
Di-n-octylphthalate	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ND	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	ND	ND	ND	ND	ND
Dibenz(a,h)anthracene	ND	ND	ND	ND	ND
Benzo(g,h,i)perylene	ND	ND	ND	ND	ND
N-Nitrosodimethylamine	ND	ND	ND	ND	ND
Aniline	ND	ND	ND	ND	ND
Azobenzene	ND	ND	ND	ND	ND
Benzdine	ND	ND	ND	ND	ND

ppm = Parts per million
ND = Not detected
Detection limits are indicated in certified analytical reports.

Table 3 (continued)
Soil Analytical Data
Semi-Volatile Organic Compounds
(ppm)

Former Shell Service Station
2724 Castro Valley Boulevard at Lake Chabot Road
Castro Valley, California

Sample ID	EF-6	EF-7	T1	T2	T-3	SW-2
Sample Depth (feet)	8	6	3	3	4	
Sample Date	06/18/93	06/18/93	06/18/93	06/18/93	06/18/93	12/17/92
Phenol	ND	ND	ND	ND	ND	ND
Bis(2-chloroethyl)ether	ND	ND	ND	ND	ND	ND
2-Chlorophenol	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND
Benzyl alcohol	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	ND
2-Methylphenol	ND	ND	ND	ND	ND	ND
2,2'-Oxybis(1-chloropropane)	ND	ND	ND	ND	ND	ND
4-Methylphenol	ND	ND	ND	ND	ND	ND
N-nitroso-di-n-propylamine	ND	ND	ND	ND	ND	ND
Hexachloroethane	ND	ND	ND	ND	ND	ND
Nitrobenzene	ND	ND	ND	ND	ND	ND
Isophrone	ND	ND	ND	ND	ND	ND
2-Nitrophenol	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND
Benzoic acid	ND	ND	ND	ND	ND	ND
Bis(2-chloroethoxy)methane	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND
Naphthalene	ND	ND	ND	ND	ND	ND
4-Chloroaniline	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	ND	ND	ND	ND	ND	ND
4-Chloro-3-methylphenol	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	ND	ND	ND	ND	ND	ND
2-Nitroaniline	ND	ND	ND	ND	ND	ND
Dimethylphthalate	ND	ND	ND	ND	ND	ND
Acenaphthylene	ND	ND	ND	ND	ND	ND
3-Nitroaniline	ND	ND	ND	ND	ND	ND
Acenaphthene	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	ND	ND	ND	ND	ND	ND
4-Nitrophenol	ND	ND	ND	ND	ND	ND
Dibenzofuran	ND	ND	ND	ND	ND	ND
2,4-Dinitrotoluene	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ND	ND	ND	ND	ND	ND
Diethylphthalate	ND	ND	ND	ND	ND	ND
4-Chlorophenyl-phenylether	ND	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND	ND
4-Nitroaniline	ND	ND	ND	ND	ND	ND
4,6-Dinitro-2-methylphenol	ND	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine (1)	ND	ND	ND	ND	ND	ND
4-Bromophenyl-phenylether	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND	ND	ND
Di-n-Butylphthalate	ND	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND	ND	ND
Butylbenzylphthalate	ND	ND	ND	ND	ND	ND
3,3'-Dichlorobenzidine	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	ND	ND	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND	ND	ND
Bis(2-ethylhexyl)phthalate	ND	ND	ND	ND	ND	ND
Di-n-octylphthalate	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND
Benzo(e)pyrene	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	ND	ND	ND	ND	ND	ND
Dibenz(a,h)anthracene	ND	ND	ND	ND	ND	ND
Benzo(g,h,i)perylene	ND	ND	ND	ND	ND	ND
N-Nitrosodimethylamine	ND	ND	ND	ND	ND	ND
Aniline	ND	ND	ND	ND	ND	ND
Azobenzene	ND	ND	ND	ND	ND	ND
Benzidine	ND	ND	ND	ND	ND	ND

ppm = Parts per million
ND = Not detected
Detection limits are indicated in certified analytical reports.

Table 4
Soil Analytical Data
Metals
(ppm)

Former Shell Service Station
2724 Castro Valley Boulevard at Lake Chabot Road
Castro Valley, California

Sample ID	NW-3	SW-2	EW-1
Sample Date	12/17/92	12/17/92	12/17/92
Cadmium	ND	ND	ND
Chromium, total	40	29	28
Lead	ND	5.1	12
Nickel	28	30	29
Zinc	43	39	49
ppm = Parts per million			
ND = Not detected			
Detection limits are indicated in certified analytical reports.			

**Table 5
Groundwater Elevation Data**

Former Shell Service Station
2724 Castro Valley Boulevard at Lake Chabot Road
Castro Valley, California

Well Number	Date Gauged	Well Elevation (feet, MSL)	Depth to Water (feet, TOC)	Groundwater Elevation (feet, MSL)	
<i>Screens 6-10'</i>	MW-1	99.78	02/08/90	8.39	91.39
	04/20/90		9.21	90.57	
	07/30/90		9.21	90.57	
	10/25/90		9.44	90.34	
	01/15/91		9.11	90.67	
	04/19/91		5.58	94.20	
	07/16/91		7.58	92.20	
	10/08/91		8.25	91.53	
	02/04/92		8.52	91.26	
	04/06/92		6.75	93.03	
	08/26/92		9.89	89.89	
	11/06/92		9.01	90.77	
	02/18/93	160.54	4.33	156.21	
	06/04/93		8.26	152.28	
	09/10/93		9.04	151.50	
	11/17/93		9.15	151.39	
	02/28/94		4.28	156.26	
	05/26/94		7.56	152.98	
08/04/94	8.74	151.80			
<i>Screens 6'-15'</i>	MW-2	100.83	02/08/90	7.33	93.50
	04/20/90		8.63	92.20	
	07/30/90		8.78	92.05	
	10/25/90		9.50	91.33	
	01/15/91		8.52	92.31	
	04/19/91		6.90	93.93	
	07/16/91		9.01	91.82	
	10/08/91		8.82	92.01	
	02/04/92		7.46	93.37	
	04/06/92		6.91	93.92	
	08/26/92		9.28	91.55	
	11/06/92		8.59	92.24	
	02/18/93		-----	Well Inaccessible	-----
	06/04/93		-----	Well Inaccessible	-----
	09/10/93		-----	Well Inaccessible	-----
11/17/93	-----	Well Inaccessible	-----		
02/28/94	-----	Well Inaccessible	-----		
05/26/94		8.40	NA		
08/04/94		9.38	NA		
<i>Screens 6'-25'</i>	MW-3	101.48	02/08/90	8.91	92.57
	04/20/90		10.20	91.28	
	07/30/90		10.61	90.87	
	10/25/90		10.00	91.48	
	01/15/91		9.74	91.74	

Table 5 (continued)
Groundwater Elevation Data

Former Shell Service Station
2724 Castro Valley Boulevard at Lake Chabot Road
Castro Valley, California

Well Number	Date Gauged	Well Elevation (feet, MSL)	Depth to Water (feet, TOC)	Groundwater Elevation (feet, MSL)
MW-3 (cont.)	04/19/91		7.92	93.56
	07/16/91		9.40	92.08
	10/08/91		9.62	91.86
	02/04/92		8.74	92.74
	04/06/92		7.12	94.36
	08/26/92		9.58	91.90
	11/06/92		8.95	92.53
	02/18/93	162.24	6.79	155.45
	06/04/93		8.48	153.76
	09/10/93		9.84	152.40
	11/17/93		9.78	152.46
	02/28/94		8.44	153.80
	05/26/94		8.74	153.50
	08/04/94		9.62	152.62
MW-5 <i>Abandoned 0-93'</i>	02/08/90	99.90	8.80	91.10
	04/20/90		9.35	90.55
	07/30/90		9.49	90.41
	10/25/90		10.12	89.78
	01/15/91		9.26	90.64
	04/19/91		6.52	93.38
	07/16/91		9.12	90.78
	10/08/91		9.22	90.68
	02/04/92		8.13	91.77
	04/06/92		5.53	94.37
	08/26/92		9.25	90.65
	11/06/92		9.02	90.88
	02/18/93	160.68	3.60	157.08
	06/04/93		7.08	153.60
	09/10/93		9.92	150.76
	11/17/93		9.86	150.82
	02/28/94		7.56	153.12
	05/26/94		8.38	152.30
08/04/94		9.22	151.46	
OMW-6	07/16/91	101.48	8.60	92.88
	10/08/91		8.82	92.66
	02/04/92		7.47	94.01
	04/06/92		5.80	95.68
	08/26/92		9.18	92.30
	11/06/92		8.29	93.19
	02/18/93	162.22	5.83	156.39
	06/04/93		7.14	155.08
09/10/93		8.78	153.44	

Table 5 (continued)
Groundwater Elevation Data

Former Shell Service Station
2724 Castro Valley Boulevard at Lake Chabot Road
Castro Valley, California

Well Number	Date Gauged	Well Elevation (feet, MSL)	Depth to Water (feet, TOC)	Groundwater Elevation (feet, MSL)
OMW-6 (cont.)	11/17/93		8.74	153.48
	02/28/94		5.16	157.06
	05/26/94		6.89	155.33
	08/04/94		8.56	153.66
MW-7	07/16/91	99.54	8.70	90.84
	10/08/91		8.74	90.80
	02/04/92		7.78	91.76
	04/06/92		5.87	93.67
	08/26/92		8.93	90.61
	11/06/92		8.51	91.03
	02/18/93		----- Well Inaccessible -----	
	06/04/93		----- Well Inaccessible -----	
	09/10/93		----- Well Inaccessible -----	
	11/17/93		----- Well Inaccessible -----	
	02/28/94		2.99	NA
	05/26/94		6.05	NA
	08/04/94		8.68	NA
	OMW-8.	07/16/91	100.18	8.40
10/08/91			8.74	91.44
02/04/92			8.22	91.96
04/06/92			6.82	93.36
08/26/92			9.15	91.03
11/06/92			8.69	91.49
02/18/93		160.92	7.59	153.33
06/04/93			7.88	153.04
09/10/93			8.58	152.34
11/17/93			8.72	152.20
02/28/94			7.64	153.28
05/26/94			7.77	153.15
08/04/94			8.72	152.20
OMW-9 <i>4-14</i>		03/03/93	158.81	9.16
	06/04/93		9.52	149.29
	09/10/93		9.23	149.58
	11/17/93		----- Well Paved Over -----	
	02/28/94		9.24	149.57
	05/26/94		9.68	149.13
	08/04/94		9.92	148.89
	MSL = Mean sea level TOC = Top of casing NA Not available, survey required. Elevations prior to February 18, 1993 are to a temporary bench mark. Elevations after February 18, 1993 are to MSL.			

Table 6
Groundwater Analytical Data
Total Petroleum Hydrocarbons
(TPH as Gasoline and BTEX Compounds)

Former Shell Service Station
2724 Castro Valley Boulevard at Lake Chabot Road
Castro Valley, California

Well Number	Date Sampled	TPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)	
MW-1	02/09/90	<1,000	0.58	0.63	<0.5	<0.5	
	04/20/90	<50	<0.5	<0.5	<0.5	<0.5	
	07/31/90	<50	<0.5	<0.5	<0.5	<0.5	
	10/25/90	100	<0.5	<0.5	<0.5	<0.6	
	01/15/91	60	<0.5	<0.5	<0.5	<0.5	
	01/15/91	<50	<0.5	<0.5	<0.5	<0.5	
	04/19/91	<50	7.7	<0.5	<0.5	<0.5	
	04/19/91	<50	7.4	<0.5	<0.5	<0.5	
	07/16/91	<50	<0.5	<0.5	<0.5	<0.5	
	10/08/91	<50	<0.5	<0.5	<0.5	<0.5	
	02/04/92	<50	<0.5	<0.5	<0.5	<0.5	
	04/06/92	50	<0.5	<0.5	<0.5	<0.5	
	08/26/92	<50	<0.5	<0.5	<0.5	<0.5	
	11/12/92	<50	<0.5	<0.5	<0.5	<0.5	
	02/18/93	<50	<0.5	<0.5	<0.5	<0.5	
	06/04/93	<50	<0.5	<0.5	<0.5	<0.5	
	09/10/93	<50	<0.5	<0.5	<0.5	<0.5	
	11/17/93	<50	<0.5	<0.5	<0.5	<0.5	
	02/28/94	<50	<0.5	<0.5	<0.5	<0.5	
	05/26/94	<50	<0.5	<0.5	<0.5	<0.5	
08/04/94	<50	<0.5	<0.5	<0.5	<0.5		
MW-2	02/09/90	8,600	360	410	6.5	670	
	04/20/90	9,100	500	330	110	900	
	07/31/90	5,300	550	38	<0.5	280	
	10/25/90	4,800	490	22	21	156	
	01/15/91	5,700	320	29	120	530	
	04/19/91	3,900	100	77	100	93	
	07/16/91	1,800	100	5.8	41	31	
	07/16/91	2,700	130	7.6	62	45	
	10/08/91	1,000	17	<0.5	25	25	
	02/04/92	1,700	190	5.8	18	110	
	04/06/92	3,800	930	50	110	190	
	05/03/92	2,400	610	8.8	90	<0.5	
	08/26/92	520	36	2.0	12	7.9	
	08/26/92(D)	450	33	1.7	11	3.4	
	11/12/92	310	30	6.2	5.1	4.3	
	11/12/92(D)	360	31	6.5	5.1	4.4	
	02/18/93	-----	-----	-----	-----	-----	-----
	06/04/93	-----	-----	-----	-----	-----	-----
	09/10/93	-----	-----	-----	-----	-----	-----
	11/17/93	-----	-----	-----	-----	-----	-----
02/28/94	-----	-----	-----	-----	-----	-----	

Table 6 (continued)
Groundwater Analytical Data
 Total Petroleum Hydrocarbons
 (TPH as Gasoline and BTEX Compounds)

Former Shell Service Station
 2724 Castro Valley Boulevard at Lake Chabot Road
 Castro Valley, California

Well Number	Date Sampled	TPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)
MW-2 (cont.)	05/26/94	480	14	<0.5	2.1	3.4
	05/26/94(D)	460	14	<0.5	2.1	3.3
	08/04/94	<50	<0.5	<0.5	<0.5	<0.5
	08/04/94(D)	70	<0.5	<0.5	<0.5	<0.5
MW-3	02/09/90	<1,000	<0.5	<0.5	<0.5	<0.5
	04/20/90	<50	<0.5	<0.5	<0.5	<0.5
	07/31/90	<50	<0.5	<0.5	<0.5	<0.5
	10/25/90	<50	<0.5	<0.5	<0.6	<0.6
	01/15/91	<50	<0.5	<0.5	<0.5	<0.5
	04/19/91	<50	<0.5	<0.5	<0.5	<0.5
	07/16/91	<50	<0.5	<0.5	<0.5	<0.5
	10/08/91	<50	<0.5	<0.5	<0.5	<0.5
	02/04/92	<50	4	2	7	3.2
	04/06/92	<50	<0.5	<0.5	<0.5	<0.5
	08/26/82	<50	<0.5	<0.5	<0.5	<0.5
	11/12/92	<50	<0.5	<0.5	<0.5	<0.5
	02/18/93	<50	<0.5	<0.5	<0.5	<0.5
	06/04/93	<50	<0.5	<0.5	<0.5	<0.5
	06/04/93(D)	<50	<0.5	<0.5	<0.5	<0.5
	09/10/93	<50	<0.5	<0.5	<0.5	<0.5
	09/10/93(D)	<50	<0.5	<0.5	<0.5	<0.5
	11/17/93	<50	<0.5	<0.5	<0.5	<0.5
	11/17/93(D)	<50	<0.5	<0.5	<0.5	<0.5
	02/28/94	<50	<0.5	<0.5	<0.5	<0.5
05/26/94	<50	<0.5	<0.5	<0.5	<0.5	
08/04/94	<50	<0.5	<0.5	<0.5	<0.5	
MW-5	02/09/90	<1,000	<0.5	<0.5	<0.5	<0.5
	04/20/90	<50	<0.5	<0.5	<0.5	<0.5
	07/31/90	<50	<0.5	<0.5	<0.5	<0.5
	10/25/90	<50	<0.5	<0.7	<0.6	<0.6
	01/15/91	<50	<0.5	<0.5	<0.5	<0.5
	04/19/91	<50	<0.5	<0.5	<0.5	<0.5
	07/16/91	<50	<0.5	<0.5	<0.5	<0.5
	10/08/91	<50	<0.5	<0.5	<0.5	<0.5
	02/04/92	<50	<0.5	<0.5	<0.5	<0.5
	04/06/92	<50	<0.5	<0.5	<0.5	<0.5
	08/26/92	<50	<0.5	<0.5	<0.5	<0.5
	11/12/92	<50	<0.5	<0.5	<0.5	<0.5
	02/18/93	<50	<0.5	<0.5	<0.5	<0.5
	06/04/93	<50	<0.5	<0.5	<0.5	<0.5
	09/10/93	<50	<0.5	<0.5	<0.5	<0.5
	11/17/93	<50	<0.5	<0.5	<0.5	<0.5

Table 6 (continued)
Groundwater Analytical Data
Total Petroleum Hydrocarbons
 (TPH as Gasoline and BTEX Compounds)

Former Shell Service Station
 2724 Castro Valley Boulevard at Lake Chabot Road
 Castro Valley, California

Well Number	Date Sampled	TPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)	
MW-5 (cont.)	02/28/94	<50	<0.5	<0.5	<0.5	<0.5	
	02/28/94(D)	<50	<0.5	<0.5	<0.5	<0.5	
	05/26/94	<50	<0.5	<0.5	<0.5	<0.5	
	08/04/94	<50	<0.5	<0.5	<0.5	<0.5	
OMW-6	07/16/91	<50	<0.5	<0.5	<0.5	<0.5	
	10/08/91	<50	<0.5	<0.5	<0.5	<0.5	
	02/04/92	<50	<0.5	<0.5	<0.5	<0.5	
	04/06/92	<50	<0.5	<0.5	<0.5	<0.5	
	08/26/92	<50	<0.5	<0.5	<0.5	<0.5	
	11/12/92	<50	<0.5	<0.5	<0.5	<0.5	
	02/18/93	<50	<0.5	<0.5	<0.5	<0.5	
	02/18/93(D)	<50	<0.5	<0.5	<0.5	<0.5	
	06/04/93	<50	<0.5	<0.5	<0.5	<0.5	
	09/10/93	50**	<0.5	<0.5	<0.5	<0.5	
	11/17/93	<50	<0.5	<0.5	<0.5	<0.5	
	02/28/94	<50	<0.5	<0.5	<0.5	<0.5	
	05/26/94	<50	<0.5	<0.5	<0.5	<0.5	
	08/04/94	<50	<0.5	<0.5	<0.5	<0.5	
MW-7	07/16/91	1,300	440	140	6.9	160	
	10/08/91	520	230	36	26	54	
	02/04/92	640	130	51	26	79	
	04/06/92	80	32	1.7	2.3	4.4	
	05/13/92	<50	3.1	1.7	0.9	3.8	
	08/26/92	63	1.0	<0.5	2.6	<0.5	
	11/12/92	73	11	<0.5	3.7	<0.5	
	02/18/93	----- Well Inaccessible -----					
	06/04/93	----- Well Inaccessible -----					
	09/10/93	----- Well Inaccessible -----					
	11/17/93	----- Well Inaccessible -----					
	02/28/94	<50	<0.5	<0.5	<0.5	<0.5	
	05/26/94	<50	<0.5	<0.5	<0.5	<0.5	
	08/04/94	<50	<0.5	<0.5	<0.5	<0.5	
OMW-8	07/16/91	<50	<0.5	0.8	<0.5	<0.5	
	10/08/91	<50	<0.5	<0.5	<0.5	<0.5	
	02/04/92	<50	0.9	1.9	0.6	3.6	
	04/06/92	<50	<0.5	<0.5	<0.5	<0.5	
	08/26/92	<50	<0.5	<0.5	<0.5	<0.5	
	11/12/92	<50	<0.5	<0.5	<0.5	<0.5	
	02/18/93	180*	<0.5	<0.5	<0.5	<0.5	
	06/04/93	<50	<0.5	<0.5	<0.5	<0.5	
	09/10/93	<50	<0.5	<0.5	<0.5	<0.5	

Table 6 (continued)
Groundwater Analytical Data
Total Petroleum Hydrocarbons
 (TPH as Gasoline and BTEX Compounds)

Former Shell Service Station
 2724 Castro Valley Boulevard at Lake Chabot Road
 Castro Valley, California

Well Number	Date Sampled	TPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)	
OMW-8 (cont.)	11/17/93	<50	<0.5	<0.5	<0.5	<0.5	
	02/28/94	<50	<0.5	<0.5	<0.5	<0.5	
	05/26/94	<50	<0.5	<0.5	<0.5	<0.5	
	08/04/94	<50	<0.5	<0.5	<0.5	<0.5	
OMW-9	03/03/93	<50	<0.5	<0.5	<0.5	<0.5	
	06/04/93	<50	<0.5	<0.5	<0.5	<0.5	
	09/10/93	<50	<0.5	<0.5	<0.5	<0.5	
	11/17/93	----- Well Paved Over -----					
	02/28/94	<50	<0.5	<0.5	<0.5	<0.5	
	05/26/94	<50	<0.5	<0.5	<0.5	<0.5	
	08/04/94	<50	<0.5	<0.5	<0.5	<0.5	

ppb = Parts per billion
 < = Denotes minimum laboratory detection limits.
 (D) = Duplicate sample
 * = Concentration due to the presence of a heavier petroleum hydrocarbon range.
 ** = Concentration due to the presence of a discrete peak not indicative of gasoline.

Table 7
Groundwater Analytical Data
 Total Petroleum Hydrocarbons
 (TPH as Diesel and Motor Oil)

Former Shell Service Station
 2724 Castro Valley Boulevard at Lake Chabot Road
 Castro Valley, California

Well Number	Date Sampled	TPH as Diesel (ppb)	Motor Oil (ppb)
MW-1	02/09/90	NA	NA
	04/20/90	NA	NA
	07/31/90	NA	NA
	10/25/90	<50	NA
	01/15/91	<50	NA
	01/15/91	<50	NA
	04/19/91	<50	NA
	04/19/91	<50	NA
	07/16/91	<50	<50
	10/08/91	<50	<50
	02/04/92	<50	NA
	04/06/92	<50	NA
	08/26/92	51	NA
	11/12/92	<50	NA
	02/18/93	57 ^a	NA
	06/04/93	85	NA
	09/10/93	<50	NA
	11/17/93	<50	NA
	02/28/94	<50	NA
	05/26/94	<50	NA
08/04/94	80 ^c	NA	
MW-2	02/09/90	4,100	NA
	04/20/90	1,800	NA
	07/31/90	60	NA
	10/25/90	300	NA
	01/15/91	680	NA
	04/19/91	306	NA
	07/16/91	430	<50
	07/16/91	540	<50
	10/08/91	110	<50
	02/04/92	870	NA
	04/06/92	1,000	NA
	05/13/92	570	NA
	08/26/92	63	NA
	08/26/92(D)	63	NA
	11/12/92	160	NA
	11/12/92(D)	180	NA
	02/18/93	----- Well Inaccessible -----	
	06/04/93	----- Well Inaccessible -----	
	09/10/93	----- Well Inaccessible -----	
	11/17/93	----- Well Inaccessible -----	
11/17/93	----- Well Inaccessible -----		

Table 7 (continued)
Groundwater Analytical Data
 Total Petroleum Hydrocarbons
 (TPH as Diesel and Motor Oil)

Former Shell Service Station
 2724 Castro Valley Boulevard at Lake Chabot Road
 Castro Valley, California

Well Number	Date Sampled	TPH as Diesel (ppb)	Motor Oil (ppb)
MW-2 (cont.)	05/26/94	<50	NA
	05/26/94(D)	60	NA
	08/04/94	110 ^c	NA
	08/04/94(D)	110 ^c	NA
MW-3	02/09/90	NA	NA
	04/20/90	NA	NA
	07/31/90	NA	NA
	10/25/90	<50	NA
	01/15/91	<50	NA
	04/19/91	<50	NA
	07/16/91	<50	1,400
	10/08/91	<50	<50
	02/04/92	<50	NA
	04/06/92	<50	NA
	08/24/92	<50	NA
	11/12/92	<50	NA
	02/18/93	<50	NA
	06/04/93	200	NA
	06/04/93(D)	<50	NA
	09/10/93	<50	NA
	09/10/93(D)	<50	NA
	11/17/93	<50	NA
	11/17/93(D)	<50	NA
	02/28/94	<50	NA
05/26/94	<50	NA	
08/04/94	80 ^c	NA	
MW-5	02/09/90	NA	NA
	04/20/90	NA	NA
	07/31/90	NA	NA
	10/25/90	<50	NA
	01/15/91	<50	NA
	04/19/91	<50	NA
	07/16/91	<50	<50
	10/08/91	<50	<50
	02/04/92	<50	NA
	04/06/92	<50	NA
	08/26/92	<50	NA
	11/12/92	<50	NA
	02/18/93	80 ^a	NA
	06/04/93	170	NA
	09/10/93	<50	NA
11/17/93	<50	NA	

Table 7 (continued)
Groundwater Analytical Data
 Total Petroleum Hydrocarbons
 (TPH as Diesel and Motor Oil)

Former Shell Service Station
 2724 Castro Valley Boulevard at Lake Chabot Road
 Castro Valley, California

Well Number	Date Sampled	TPH as	
		Diesel (ppb)	Motor Oil (ppb)
MW-5 (cont.)	02/28/94	<50	NA
	02/28/94(D)	<50	NA
	05/26/94	<50	NA
	08/04/94	80 ^c	NA
OMW-6	07/16/91	<50	<50
	10/08/91	<50	<50
	02/04/92	<50	NA
	04/06/92	<50	NA
	08/26/92	<50	NA
	11/12/92	<50	NA
	02/18/93	<50	NA
	02/18/93(D)	84 ^a	NA
	06/04/93	<50	NA
	09/10/93	<50	NA
	11/17/93	<50	NA
	02/28/94	<50	NA
	05/26/94	<50	NA
	08/04/94	<50	NA
MW-7	07/16/92	270	1,100
	10/08/92	<50	<50
	02/04/92	140 ^b	NA
	04/06/92	<50	NA
	05/13/92	<50	NA
	08/26/92	<50	NA
	11/12/92	<50	NA
	02/18/93	----- Well Inaccessible -----	
	06/04/93	----- Well Inaccessible -----	
	09/10/93	----- Well Inaccessible -----	
	11/17/93	----- Well Inaccessible -----	
	02/28/94	64	NA
	05/26/94	<50	NA
	08/04/94	90 ^c	NA
OMW-8	07/16/91	<50	<50
	10/08/91	<50	<50
	02/04/92	<50	NA
	04/06/92	<50	NA
	08/26/92	<50	NA
	11/12/92	<50	NA
	02/18/93	<50	NA
	06/04/93	53	NA
	09/10/93	<50	NA

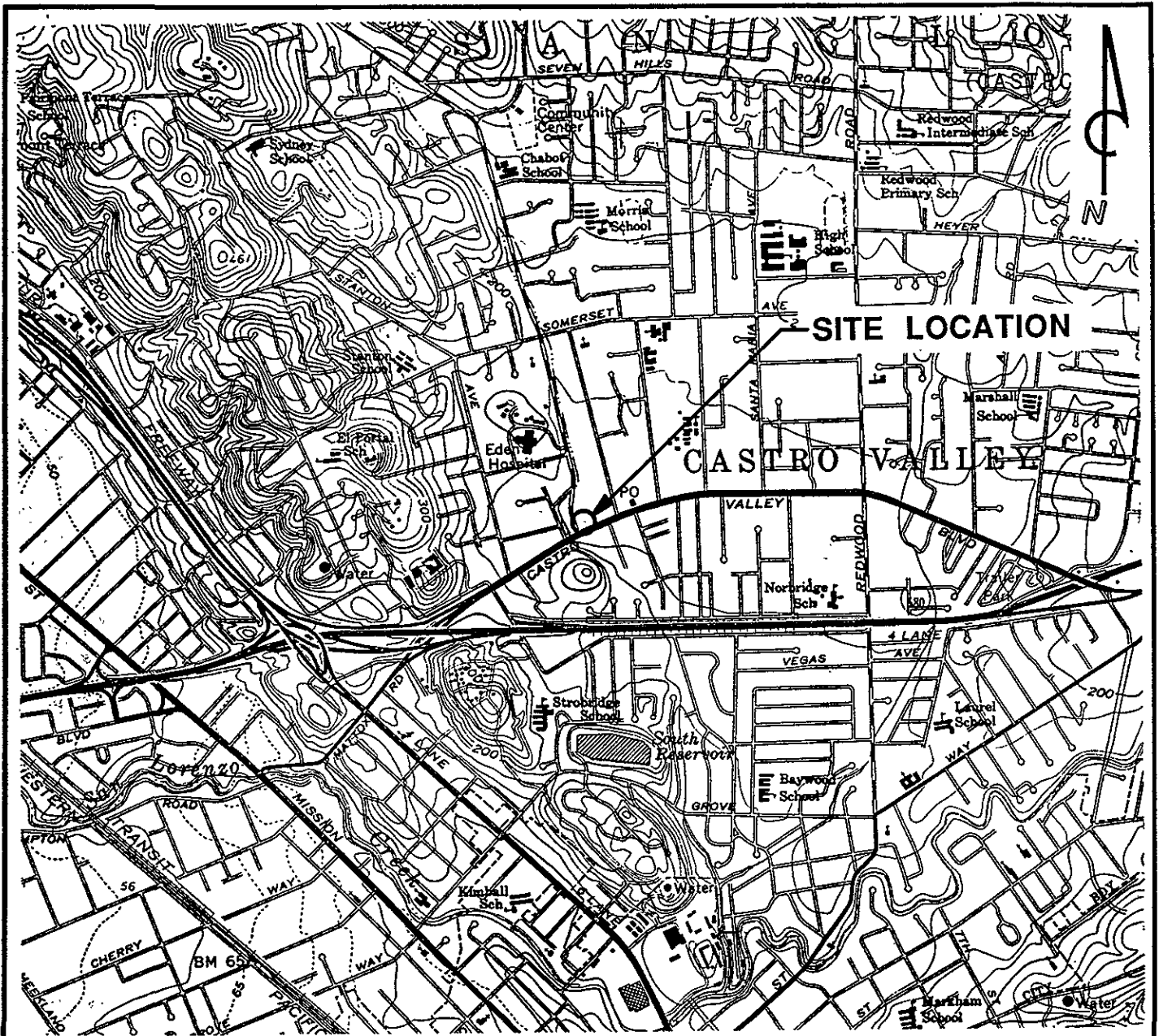
Table 7 (continued)
Groundwater Analytical Data
 Total Petroleum Hydrocarbons
 (TPH as Diesel and Motor Oil)

Former Shell Service Station
 2724 Castro Valley Boulevard at Lake Chabot Road
 Castro Valley, California

Well Number	Date Sampled	TPH as Diesel (ppb)	Motor Oil (ppb)
OMW-8 (cont.)	11/17/93	<50	NA
	02/28/94	<50	NA
	05/26/94	<50	NA
	08/04/94	50 ^c	NA
OMW-9	03/03/93	71 ^a	NA
	06/04/93	<50	NA
	09/10/93	<50	NA
	11/17/93	----- Well Paved Over -----	
	02/28/94	<50	NA
	05/26/94	<50	NA
	08/26/94	<50	NA

ppb = Parts per billion
 NA= Not analyzed
 < = Denotes minimum laboratory detection limits.
 (D)= Duplicate sample

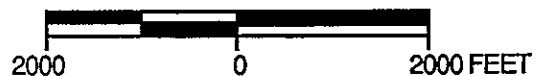
- a. Concentration primarily due to the presence of a heavier petroleum hydrocarbon product.
- b. The positive result for TPH-d analysis on this sample appears to be lighter hydrocarbon than diesel.
- c. An unknown hydrocarbon consisting of several peaks .



QUADRANGLE
LOCATION

REFERENCES:
USGS 7.5 MIN. TOPOGRAPHIC MAP
TITLED: HAYWARD, CALIFORNIA
DATED: 1959 REVISED: 1980

SCALE



PACIFIC
ENVIRONMENTAL
GROUP, INC.

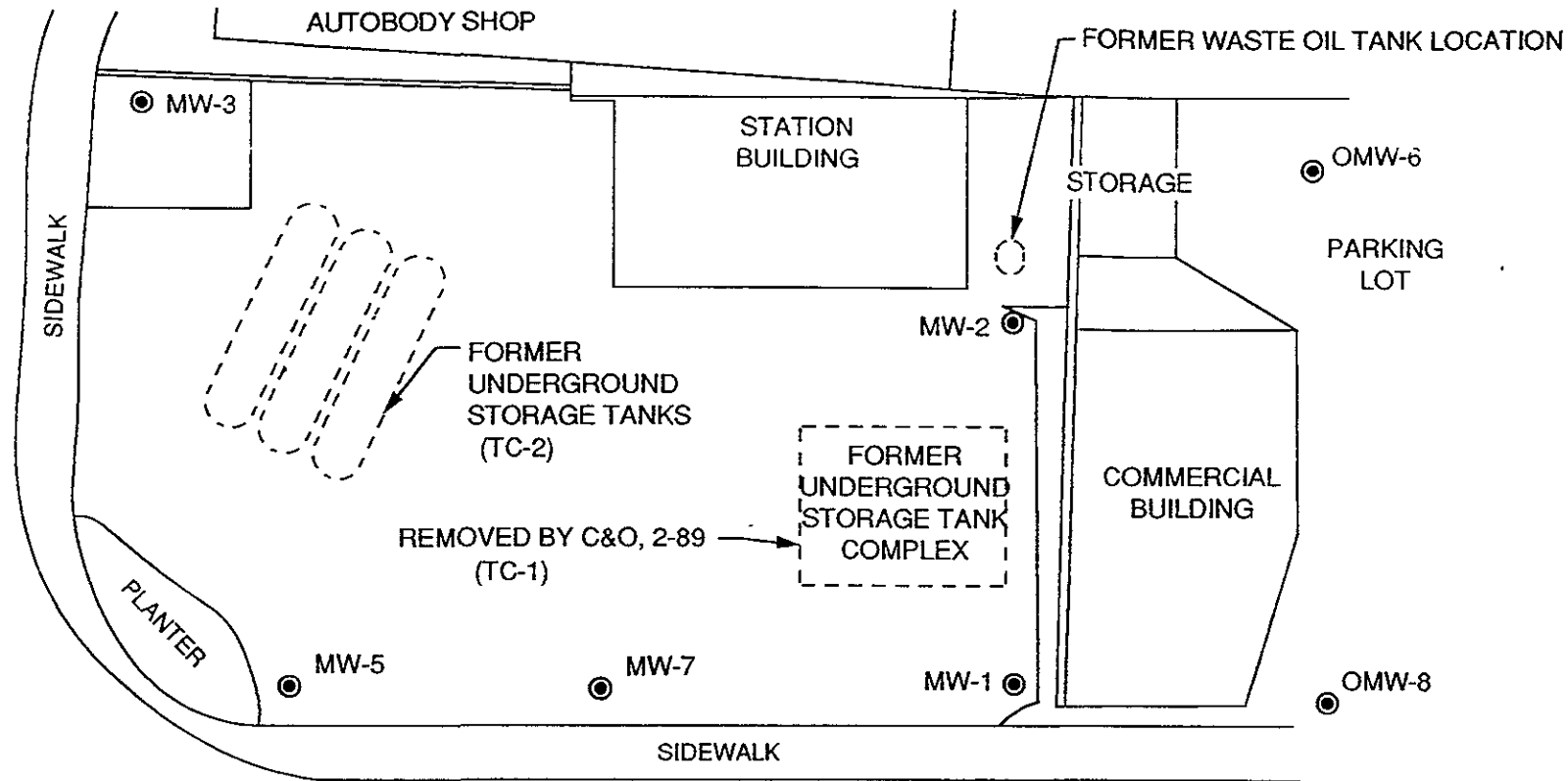
FORMER SHELL SERVICE STATION
2724 Castro Valley Boulevard at Lake Chabot Road
Castro Valley, California

SITE LOCATION MAP

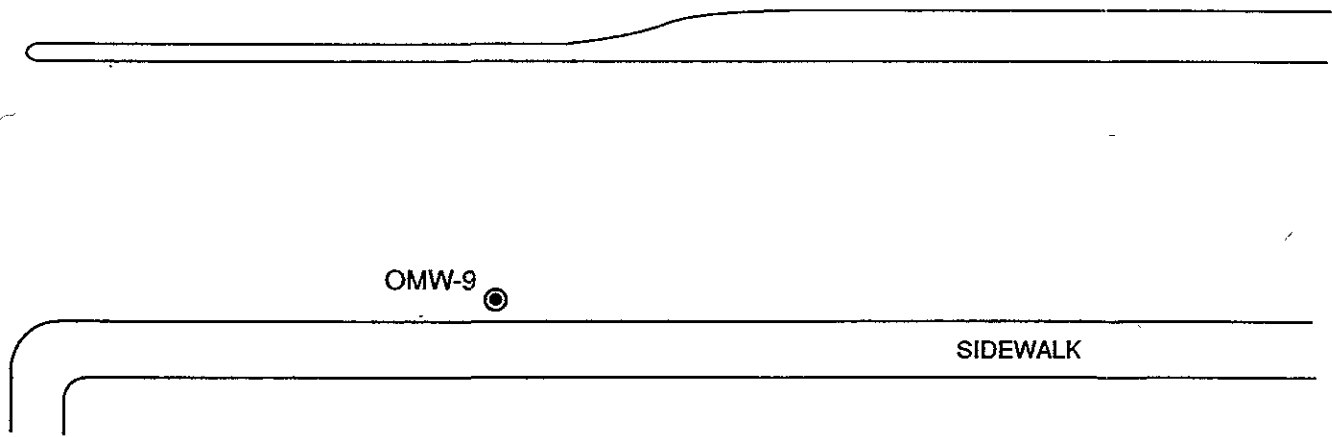
FIGURE:
1
PROJECT:
305-94.01



LAKE CHABOT ROAD



CASTRO VALLEY BOULEVARD

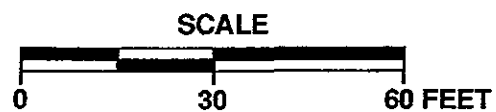


LEGEND

MW-1 ● GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION



PACIFIC ENVIRONMENTAL GROUP, INC.

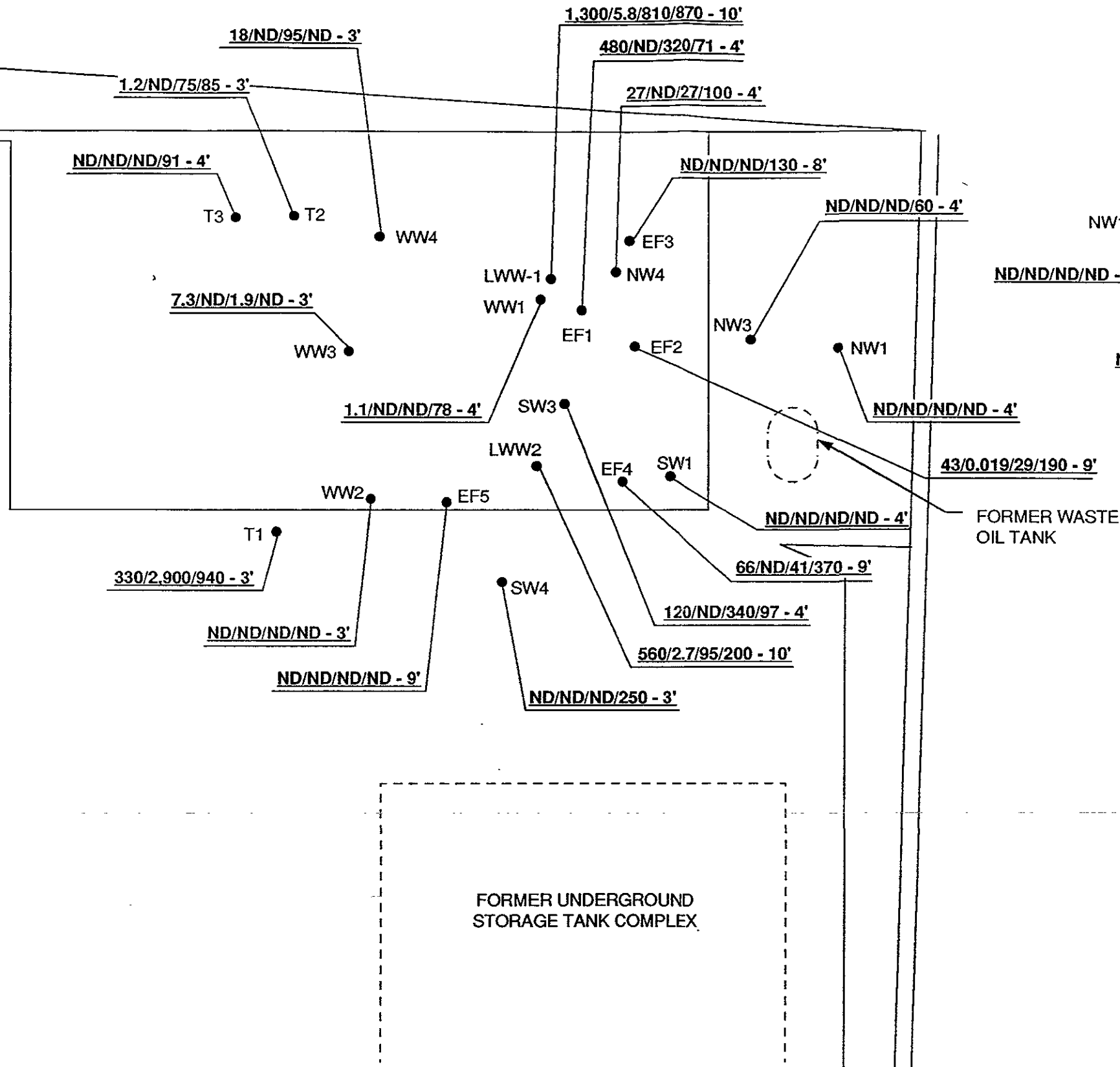


FORMER SHELL SERVICE STATION
2724 Castro Valley Boulevard at Lake Chabot Road,
Castro Valley, California

SITE MAP SHOWING FORMER WASTE OIL TANK LOCATION

FIGURE:
2
PROJECT:
305-094.6A

LAKE CHABOT ROAD



LEGEND

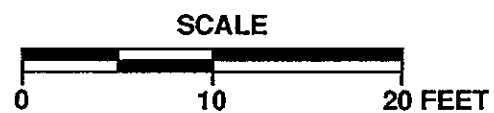
NW1 ● SOIL SAMPLE LOCATION AND DESIGNATION

ND/ND/ND/ND - 4' TPH-g/BENZENE/TPH-d/OIL and GREASE CONCENTRATION IN SOIL, IN PARTS PER MILLION, AT DEPTH INDICATED IN FEET

ND NOT DETECTED



PACIFIC ENVIRONMENTAL GROUP, INC.



FORMER SHELL SERVICE STATION
 2724 Castro Valley Boulevard at Lake Chabot Road,
 Castro Valley, California

EXCAVATED SOIL SAMPLE CONCENTRATION MAP

FIGURE:
3
 PROJECT:
 305-094.01

ATTACHMENT A
SOIL SAMPLING
FIELD AND LABORATORY PROCEDURES

ATTACHMENT A

SOIL SAMPLING FIELD AND LABORATORY PROCEDURES

Soil Sampling

Soil samples were collected by advancing 2-inch diameter brass sample liners into undisturbed soil, or soil removed from an excavation by a backhoe bucket. Soil samples for chemical analysis were retained in the brass liners, labeled, and capped with Teflon sheets, plastic end caps, and Teflon tape. The samples were then sealed in zip-lock bags, placed on ice, and transported to the laboratory accompanied by the appropriate chain-of-custody documentation.

Organic Vapor Procedures

Selected soil samples were analyzed in the field for ionizable organic compounds using a photo-ionization detector with a 10.2 eV lamp. The test procedure involves measuring approximately 30 grams from an undisturbed soil sample, placing this subsample in a clean glass jar, and sealing the jar with aluminum foil secured under a ring-type threaded lid. The jar is warmed for approximately 20 minutes, then the foil is pierced and the head-space within the jar is tested for total organic vapor, measured in parts per million as benzene (ppm; volume/volume). The instrument was previously calibrated using a 100-ppm isobutylene standard (in air) and a sensitivity factor of 0.55, which relates the photo-ionization sensitivity of benzene (10.0 ppm) to the ionization potential of isobutylene (5.5 ppm). Results of these tests were used to assist in selection of samples for laboratory analysis.

Laboratory Procedures

Analyses for total petroleum hydrocarbons calculated as gasoline (TPH-g), TPH calculated as diesel (TPH-d), and TPH calculated as oil (TPH-o) were performed by the DHS LUFT method. Analysis for benzene, toluene, ethylbenzene, and xylenes was performed by modified EPA Method 8020. These analytical methods utilize gas chromatography and flame- or photo-ionization detection.

Analysis for total oil and grease was by the gravimetric method, EPA Method 5520 B and F. This analysis is also performed by gas chromatography and flame- or photo-ionization detection.

Analysis for volatile organics was by EPA Method 624/8240. Analysis for semi-volatile organics was by EPA Method 627/8270. These analytical methods utilize gas chromatography and mass spectrometry.

Analyses for metals were by California Assessment Manual techniques. The samples were extracted by chemical wet-lab techniques which vary by metal analyte. Detection was by atomic absorption, mass spectrometry, flame spectrometry, or photo-spectrometry, depending on the metal analyte. All analyses were performed by California state-certified analytical laboratories.

ATTACHMENT B

GROUNDWATER SAMPLING
FIELD AND LABORATORY PROCEDURES

ATTACHMENT B
GROUNDWATER SAMPLING
FIELD AND LABORATORY PROCEDURES

Groundwater Sampling Procedures

The sampling procedure consisted of first measuring the water level in the wells with an electronic water level indicator, and checking the wells for the presence of separate-phase hydrocarbons using a clear Teflon bailer. If no separate-phase hydrocarbons were detected, the wells were then purged of approximately four casing volumes of water (or to dryness) using a centrifugal pump or a bailer. Extraction wells were sampled through a sampling port in the conveyance piping. During purging, temperature, pH, and electrical conductivity were monitored in order to document that these parameters were stable prior to collecting the sample. After purging the water level was allowed to partially stabilize. The groundwater samples were collected using a Teflon bailer, placed into appropriate EPA-approved containers, labeled, logged onto chain-of-custody documents, and transported on ice to a state-certified laboratory. Chain-of-custody documentation is attached. Groundwater purged from site wells was disposed through the groundwater treatment system on the sampling date.

Laboratory Procedures

The groundwater samples were analyzed for the presence of low- and high-boiling hydrocarbons (calculated as gasoline and diesel) including benzene, toluene, ethylbenzene, and xylene isomers (BTEX compounds). The analyses for gasoline and BTEX compounds were performed according to EPA Methods 8015 and 8020 utilizing a purge-and-trap extraction technique. Final detection was by gas chromatography using flame- and photo-ionization detectors.

ATTACHMENT C

BORING LOGS

BORING LOCATION <u>2724 Castro Valley Blvd., Castro Valley</u>		ELEVATION AND DATUM	
DRILLING AGENCY <u>Bay Land Drilling Company</u>	DRILLER <u>Joe</u>	DATE STARTED <u>4/4/88</u>	DATE FINISHED <u>4/4/88</u>
DRILLING EQUIPMENT <u>CME-55</u>		COMPLETION DEPTH <u>13.5'</u>	SAMPLER <u>Modified California Sampler</u>
DRILLING METHOD <u>8" Hollowstem Augers</u>	DRILL BIT	NO. OF SAMPLES	DIST.
LOGGED BY: <u>M. Fulford</u>		WATER LEVEL	FIRST <u>11'</u>
CHECKED BY: <u>M. Bonkowski</u>		COMPL.	<u>24 HRS.</u>

Depth (feet)	Samples	Blows	MATERIAL DESCRIPTION	USCS	Moisture Content	Dry Density
0-5	1	10-15	CLAYEY SILT dark brown with orange mottling, trace gravel to 2mm, little fine to medium grained sand, moist, firm, moderate to high plasticity, little organics and wood HNU=0 ppm No HCO	ML		
5-10	2	12-14	GRAVELLY CLAY orange brown and gray mottled, some silt and fine to medium grained sand, gravel to 4 mm, moist, loose, moderate plasticity, roots along gray (clay) mottling HNU=0 No HCO	CL	ATD	
10-15	3	5-6	SANDY GRAVEL tan, little silt, sand fine to coarse grained, gravel to 4 mm, subrounded, wet, very loose to dense HNU=0.5 ppm No HCO	GP		
BOTTOM OF HOLE: 13.5'						

Note: ATD = Water level at time of drilling
 HCO = hydrocarbon odor
 Bottom of hole sealed with bentonite pellets to approximately 10 feet

BORING LOCATION: <u>Castro Valley Blvd., Castro Valley, CA</u>		ELEVATION AND DATUM	
DRILLING AGENCY: <u>Bay Land Drilling Co</u>		DRILLER: <u>Kurt</u>	
DRILLING EQUIPMENT: <u>CME-75</u>		DATE STARTED	
DRILLING METHOD: <u>8" Hollowstem Auger</u>		DATE FINISHED	
LOGGED BY: <u>H. Nuckolls</u>		COMPLETION DEPTH: <u>16'</u>	
CHECKED BY: <u>Mike Bonkowski</u>		SAMPLER: <u>California Modified Sampler</u>	
		NO. OF SAMPLES: _____	
		DIST. _____	
		WATER LEVEL: _____	
		FIRST ENCOUNTERED: _____	
		COMPL. _____	
		24 HRS. _____	

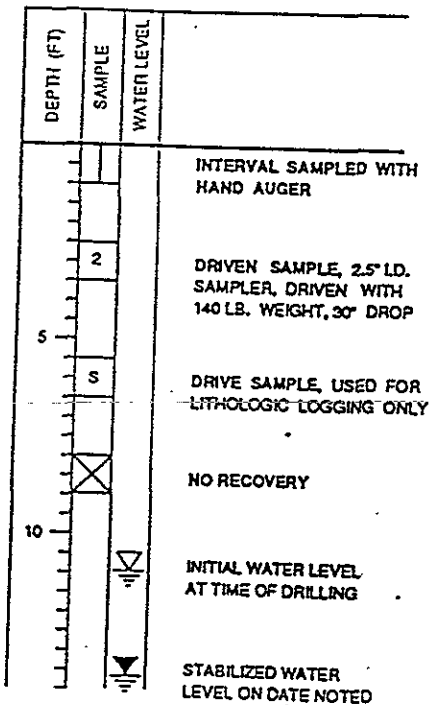
Depth (feet)	Sample	Bin	Unit	MATERIAL DESCRIPTION	USCS	Moisture Content	Dry Density
0-5				SAND olive grey-green, fine to medium-grained, little to some coarse grained to gravel (to 1/2"), subangular to subrounded dry Slight HCO HNU = 50ppm	SU		
5-10				trace to little clay HCO HNU = 50ppm			
10-15				SANDY CLAY mottled yellow brown to grey, fine to medium grained, trace coarse grained to gravel, moist slight HCO HNU = 80ppm	CL		
15-16				CLAY medium brown, dry, 1/2" thick calcite vein Strong HCO NO HCO HNU = 0ppm			
16				Bottom of Hole: 16'			
16-35				HCO = hydrocarbon odor			

BORING LOCATION ²⁷⁴ <u>Castro Valley Blvd., Castro Valley</u>		ELEVATION AND DATUM	
DRILLING AGENCY <u>Bay Land Drilling Co</u>	DRILLER <u>Kurt</u>	DATE STARTED	DATE FINISHED
DRILLING EQUIPMENT <u>CME-75</u>		COMPLETION DEPTH <u>16'</u>	SAMPLER <u>California Modified Sampler</u>
DRILLING METHOD <u>8" Hollowstem Auger</u>	DRILL BIT	NO. OF SAMPLES	BNDIST.
LOGGED BY: <u>H. Nuckolls</u>		WATER LEVEL	FIRST <u>not encountered</u>
CHECKED BY: <u>Mike Bonkowski</u>		COMPL.	24 HRS.

Depth (feet)	Sample	Notes	MATERIAL DESCRIPTION	BSCS	Moisture Content	Dry Density	pcf
0-5							
5-10		pushed back	SAND olive grey-green fine to medium grained, little to some coarse grained to gravel (to 1/2" diameter), sub angular to sub rounded. dry → trace to little clay, very soft		Slight HCO HNU = 50ppm		SW
10-15			CLAY brown, some gravel, sub angular to sub rounded, high plasticity, moist, very soft to soft		HCO HNU = 130ppm		CH
15-16			trace to little gravel sub angular to 1/2" diam., low plasticity, dry, medium (firm)		no HCO HNU = 20ppm		CL
16-20			Bottom of Hole = 16' HCO = hydrocarbon odor				
20-25							
25-30							
30-35							

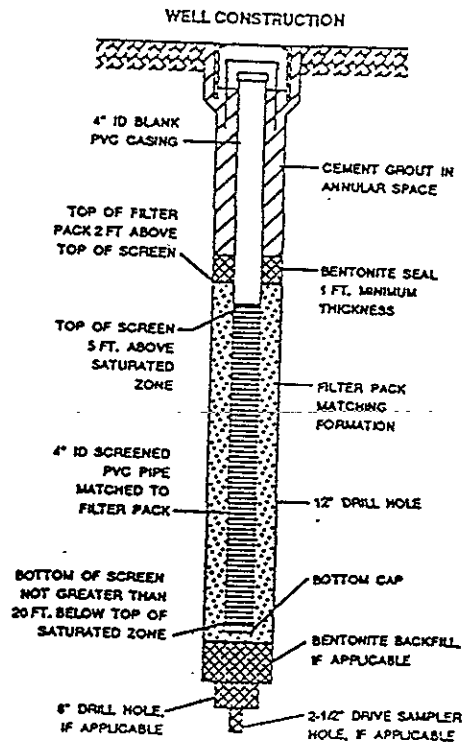
MAJOR DIVISIONS			SYMBOLS	TYPICAL NAMES
COARSE GRAINED SOILS MORE THAN HALF IS LARGER THAN NO. 200 SIEVE	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW	WELL GRADED GRAVELS, GRAVEL-SAND MIXTURES
			GP	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES
		GRAVELS WITH OVER 12% FINE	GM	SILTY GRAVELS, POORLY GRADED GRAVEL-SAND-SILT MIXTURES
			GC	CLAYEY GRAVELS, POORLY GRADED GRAVEL-SAND-CLAY MIXTURES
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS WITH LITTLE OR NO FINES	SW	WELL GRADED SANDS, GRAVELLY SANDS
			SP	POORLY GRADED SANDS, GRAVELLY SANDS
		SANDS WITH OVER 12% FINE	SM	SILTY SANDS, POORLY GRADED SAND-SILT MIXTURES
			SC	CLAYEY SANDS, POORLY GRADED SAND-CLAY MIXTURES
FINE GRAINED SOILS MORE THAN HALF IS SMALLER THAN NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT LESS THAN 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 CLAY	
		OL	ORGANIC CLAYS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50	MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE, SANDY OR SILTY SOILS, ELASTIC SILTS	
		CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS	
		OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	
		Highly Organic Soils	PI	PEAT AND OTHER HIGHLY ORGANIC SOILS

SAMPLE TYPE



NOTE:

SOIL CONDITIONS INDICATED BY BORING LOGS APPLY ONLY AT THE LOCATION OF THE PARTICULAR BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THE BORING LOCATION WITH THE PASSAGE OF TIME. DATA PRESENTED IN THE LOGS REPRESENT A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED.



UNIFIED SOIL CLASSIFICATION, BORING LOG, AND WELL CONSTRUCTION SYMBOLS

SHELL OIL COMPANY
2724 Castro Valley Boulevard
Castro Valley, California

Project No.

88-44-380-01

Converse Environmental West

Drawing No.

A-1

LOG OF BORING NO. MW-1

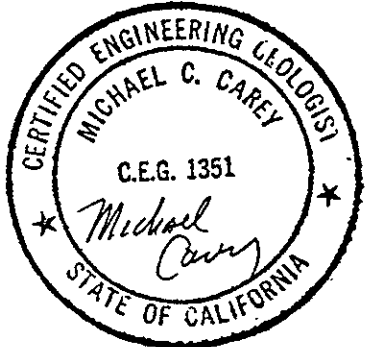
DATE DRILLED: 1/18/90

EL:

WL TAKEN: n/a

EQUIPMENT: 3 3/4" x 8" / 8" x 12" H.S.A.

DEPTH (ft)	SAMPLE	WATER LEVEL	SYMBOL	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	WELL CONSTRUCTION	BLOWS/6 IN.	O.V.M. (ppm)	T.P.H. (ppm)
			○	moist	medium	dark brown	0.2' GRAVEL BASEROCK. (Fill) Silty CLAY and GRAVEL.				
1			○	moist	medium dense	light brown	Silty CLAY, some Gravel. CL		4		
5			○						5		
10			○	wet		light brown			2		
10			○	wet		dark gray	Silty CLAY, trace coarse Sand. CL		2		
10			○	wet		light brown	Fn to med SAND, tr CLAY.SP/SC -- grading into --		5		
10			○	wet			Coarse SAND, trace fines. SP		10		
10			○	wet					16		
10			○	wet					23		
10			○	s moist	dense	lt brn	Silty CLAY, tr coarse Sand. CL		18		
10			○	dry	dense	dark gray	Fractured SHALE, little fines. (Top of bedrock.) SH		19		
15			○	dry	dense				23		
15			○	dry	dense		Silty CLAY, trace Gravel. CL		30		
15			○	dry	dense	drk gry	Fract. SHALE, little fns. SH		50		
15			○	dry	dense	dark gray	Silty CLAY, trace gravel. CL		42		
15			○				Fractured SHALE, trace fines. SH		50/4"		
15			○				Increasing fines. SH		32		
15			○						32		
15			○						45		
15			○	dry	m dense	drk gry	Silty CLAY, with Shale fragments. CL		50/5"		
20			○						20		
20			○						26		



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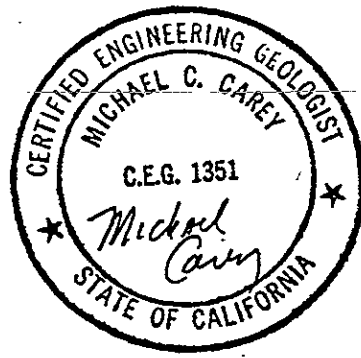
Drawing No.

A-2

LOG OF BORING NO. MW-1


continued - page 2

DEPTH (ft)	SAMPLE	WATER LEVEL	SYMBOL	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	WELL CONSTRUCTION	BLOWS/6IN.	O.V.H. (ppm)	T.P.H. (ppm)
S S				dry	dense	dark gray	Silty CLAY, with minor Shaley fragments. CL Increasing Shale fragments.		22		
	31										
	38										
	40										
	23										
	28										
								39			
									42		
25							Total Depth of Boring: 24 ft Below Ground Surface. Screen Slot Size: 0.020 in. Filter Pack: 2/12 sand.				
30											
35											
40											



SHELL OIL COMPANY
2724 Castro Valley Boulevard
Castro Valley, California

Project No.
88-44-380-01

 Converse Environmental West

Drawing No.
A-3

LOG OF BORING NO. MW-2

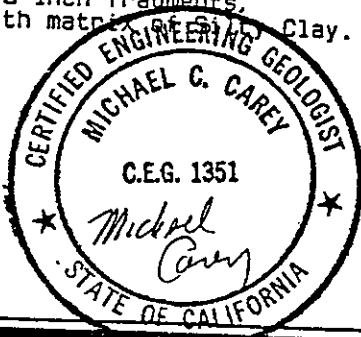
DATE DRILLED: 1/19/90

EL:

ML TAKEN: n/a

EQUIPMENT: 3 3/4" x 8" / 8" x 12" H.S.A.

DEPTH (ft)	SAMPLE	WATER LEVEL	SYMBOL	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	WELL CONSTRUCTION	BLOKS/6IN.	C.V.M. (ppm)	T.P.H. (ppm)
			/ / / / /	moist	stiff	rust brown	Silty CLAY, little medium to coarse Sand.	CL			
			o o o o o				Coarse SAND and GRAVEL. (Fill)	GP			
1			/ / / / /	moist	stiff	light brown	Silty CLAY, little coarse Sand.	CL			
5			/ / / / /	moist		light brown	Silty CLAY, little coarse Sand.	CL	18		
			/ / / / /						19		
2			/ / / / /	very moist	medium	light brown	Silty CLAY, trace coarse Sand.	CL	2		
			/ / / / /						3		
10			/ / / / /								
			/ / / / /								
3			/ / / / /	dry			Blocky SHALE, 2-3 inch fragments. (Top of Bedrock)	SH			
15			/ / / / /	moist	hard	lt brn	4" lens Silty CLAY, trace Gravel.	CL	26		
			/ / / / /				Blocky SHALE, 2-3 inch fragments, with matrix of Silty Clay.	SH	50/3"		
20			/ / / / /	dry	very stiff	dark brown			13		
			/ / / / /						33		



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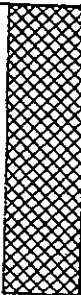


Project No.
 88-44-380-01

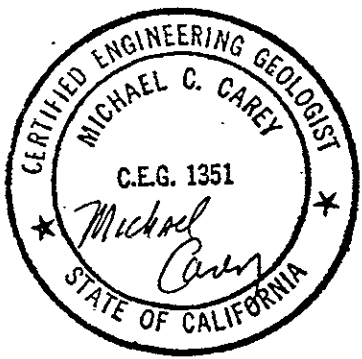
Converse Environmental West

Drawing No.
 A-4

LOG OF BORING NO. MW-2

continued - page 2

SAMPLE	WATER LEVEL	SYMBOL	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	WELL CONSTRUCTION	BLDG/6IN.	O.V.H. (ppm)	T.P.H. (ppm)
			dry	dark gray	dark gray	Blocky SHALE, with matrix of Silty Clay. SH				
5			dry	dark gray	dark gray	Fractured SHALE, 1/2-1 inch fragments. SH		50/5"		
<p>Total Depth of Boring: 25 ft Below Ground Surface.</p> <p>Screen Slot Size: 0.020 in.</p> <p>Filter Pack: 2/12 sand.</p>										



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 Castro Valley, California

Project No.
 88-44-380-01

Converse Environmental West

Drawing No.
 A-5

LOG OF BORING NO. MW-3

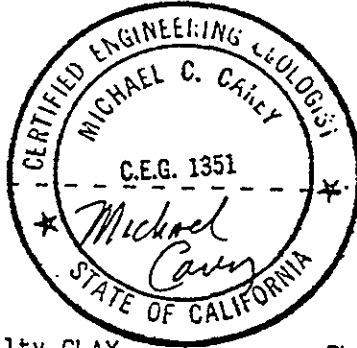
DATE DRILLED: 1/19/90

EL:

ML TAKEN: n/a

EQUIPMENT: 3 3/4" x 8" / 8" x 12" H.S.A.

DEPTH (ft)	SAMPLE	WATER LEVEL	SYMBOL	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	WELL CONSTRUCTION	BLOWS/6IN.	O.V.H. (ppm)	T.P.H. (ppm)
			1.0' EXCAVATION								
			moist	medium	black	Silty CLAY.	CL				
1			moist	medium	black, mottled rust	Silty CLAY.	CL		4		
5									5		
			moist	medium	dark gray, rust mottled	Silty CLAY, some Shale fragments.	CL/SH		2		
2									8		
10						(Top of Bedrock)					
			dry	dense to hard	dark gray, stained	Fractured SHALE, trace Silty CLAY.	SH		26		
3									50/4"		
15											
5									9		
20							Highly fractured SHALE, CL/SH with Silty Clay matrix.		16		



SHELL OIL COMPANY
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Converse Environmental West

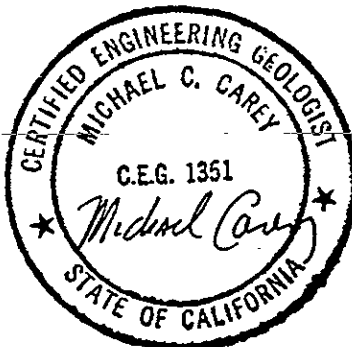
Drawing No.

A-6

LOG OF BORING NO. MW-3

continued - page 2

DEPTH (ft)	SAMPLE	WATER LEVEL	SYMBOL	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	WELL CONSTRUCTION	BLOCKS/FT	O.V.H. (ppm)	T.P.H. (ppm)
							Highly fractured SHALE, CL/SH with Silty Clay matrix.				
25	S			dry	very hard	dark gray	Blocky Shale, 2-3" pieces. SH		40/1"		
30							Total Depth of Boring: 25 ft Below Ground Surface. Screen Slot Size: 0.020 in. Filter Pack: 2/12 sand.				
35											
40											



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Project No.
88-44-380-01



Converse Environmental West

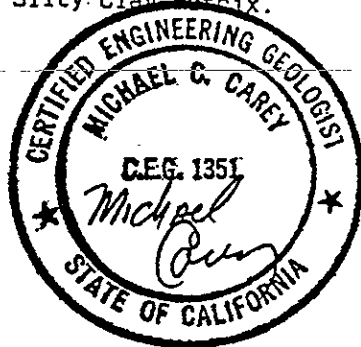
Drawing No.

A-7

LOG OF BORING NO. MW-4 (SB-1)

DATE DRILLED: 1/18/90 EL: WL TAKEN: n/a EQUIPMENT: 3 3/4" x 8" / 8" x 12" H.S.A.

DEPTH (ft)	SAMPLE	WATER LEVEL	SYMBOL	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	BLOWS/6IN.	O.V.H. (ppm)	DRY DENSITY lb/ft ³	TESTS
				moist	medium	dark brown	Silty CLAY. (Topsoil) CL				
1				moist	medium	light brown, stained rust	Clayey SAND. SC	4			
5								7			
2				moist	medium dense	mottled olive and gray	Silty CLAY, trace fine to medium Sand. CL	5			
3								12			
10				dry		dark gray	Fractured SHALE, trace fines. (Top of Bedrock) SH	5			
S							3" lens Silty CLAY, little Shale. —	36			
				dry	dense	dark gray, mottled rust	Fractured SHALE, little fines. SH	37			
S								38			
				dry	dense		Fractured SHALE with Silty Clay matrix. CL/SH	39			
								50/6"			
				dry	dense			30			
								50/4"			
15											
				dry	dense	dark gray, stained rust	Blocky SHALE, 4-5 inch fragments. SH	22			
20								50/4"			



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Castro Valley, California

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88-44-380-01

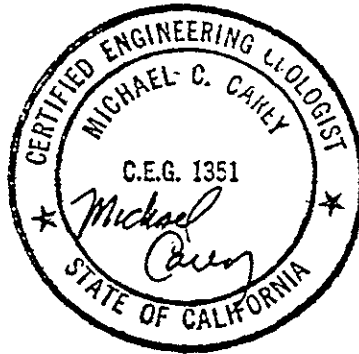
Converse Environmental West

Drawing No.
A-8

LOG OF BORING NO. MW-4 (SB-1)

continued - page 2


DEPTH (ft)	SAMPLE WATER LEVEL	SYMBOL	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	BLOCKS/6IN.	O.V.M. (ppm)	DRY DENSITY lb/ft ³	TESTS
			dry	dense	dark gray	Blocky SHALE, 4-5 inch fragments. SH				
25							50/4"			
						Total Depth of Boring: 25 ft Below Ground Surface.				
30										
35										
40										



SHELL OIL COMPANY
 2724 Castro Valley Boulevard
 Castro Valley, California

Project No.

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 Converse Environmental West

Drawing No.

A-9

LOG OF BORING NO. MW-5

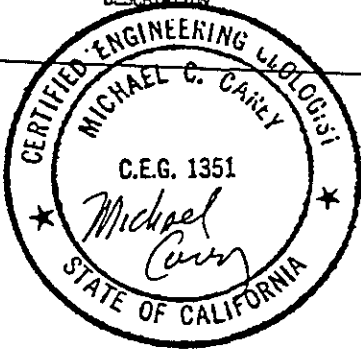
DATE DRILLED: 1/22/90

EL:

ML TAKEN: n/a

EQUIPMENT: 3.3/4"x 8" / 8"x 12" H.S.A.

DEPTH (ft)	SAMPLE	WATER LEVEL	SYMBOL	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	WELL CONSTRUCTION	BLOWS/FT.	O.V.H. (ppm)	T.P.H. (ppm)
1				moist	soft	black	Silty CLAY.		4		
5									5		
2				moist	stiff	mottled olive and gray	Silty CLAY, little Shaley Gravel.		8		
10									17		
							Increase in Gravel. Gravel pieces 1/2-1" dia.				
3				moist	stiff	light brown	Silty CLAY and Shaley GRAVEL.		12		
15									15		
							Approximate top of bedrock.				
4				slightly moist	stiff	dark gray	Silty CLAY and Shaley GRAVEL.		12		
20									15		



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 2724 Castro Valley Boulevard
 Castro Valley, California

Project No.

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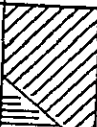
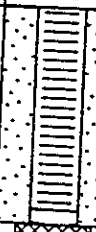


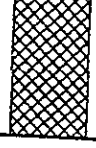
Converse Environmental West

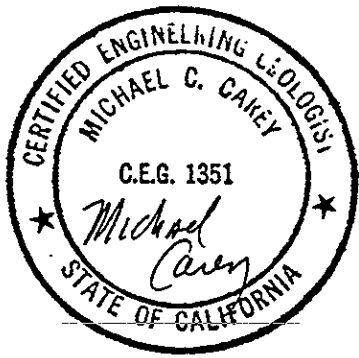
Drawing No.

A-10

LOG OF BORING NO. MW-5

continued - page 2

DEPTH (ft)	SAMPLE	WATER LEVEL	SYMBOL	MOISTURE	CONSISTENCY	COLOR	DESCRIPTION	WELL CONSTRUCTION	BLOMS/GIN.	O.V.H. (ppm)	T.P.H. (ppm)	
				slightly moist	very stiff	dark gray	Silty CLAY and Shaley GRAVEL. CL					
							Increasing Shale.					
25	5			dry	hard	dark gray	Fractured SHALE, trace Silty Clay. SH		50/4"			
							Total Depth of Boring: 25 ft Below Ground Surface.					
							Screen Slot Size: 0.020 in.					
							Filter Pack: 2/12 sand.					
30												
35												
0												



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 Castro Valley, California

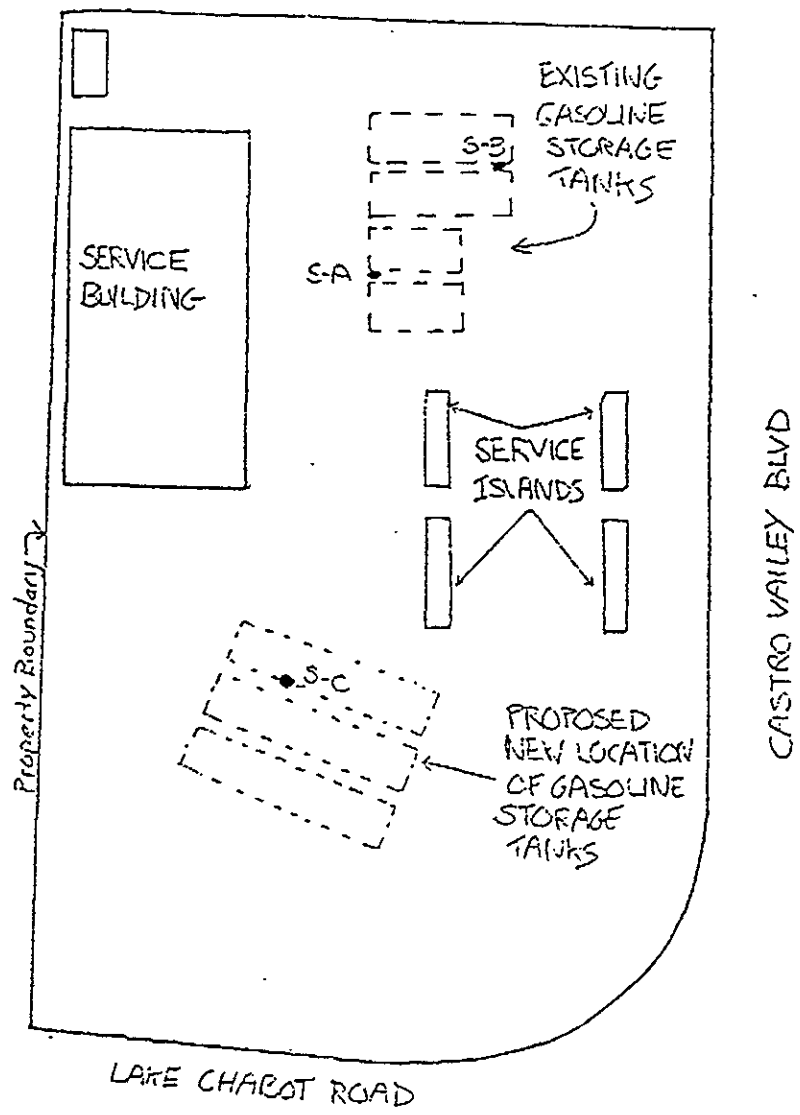
Project No.
 88-44-380-01

Converse Environmental West

Drawing No.
 A-11

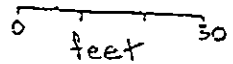
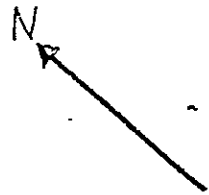
Summary
Soil Results

ATTACHMENT D
HISTORICAL SOIL ANALYTICAL DATA

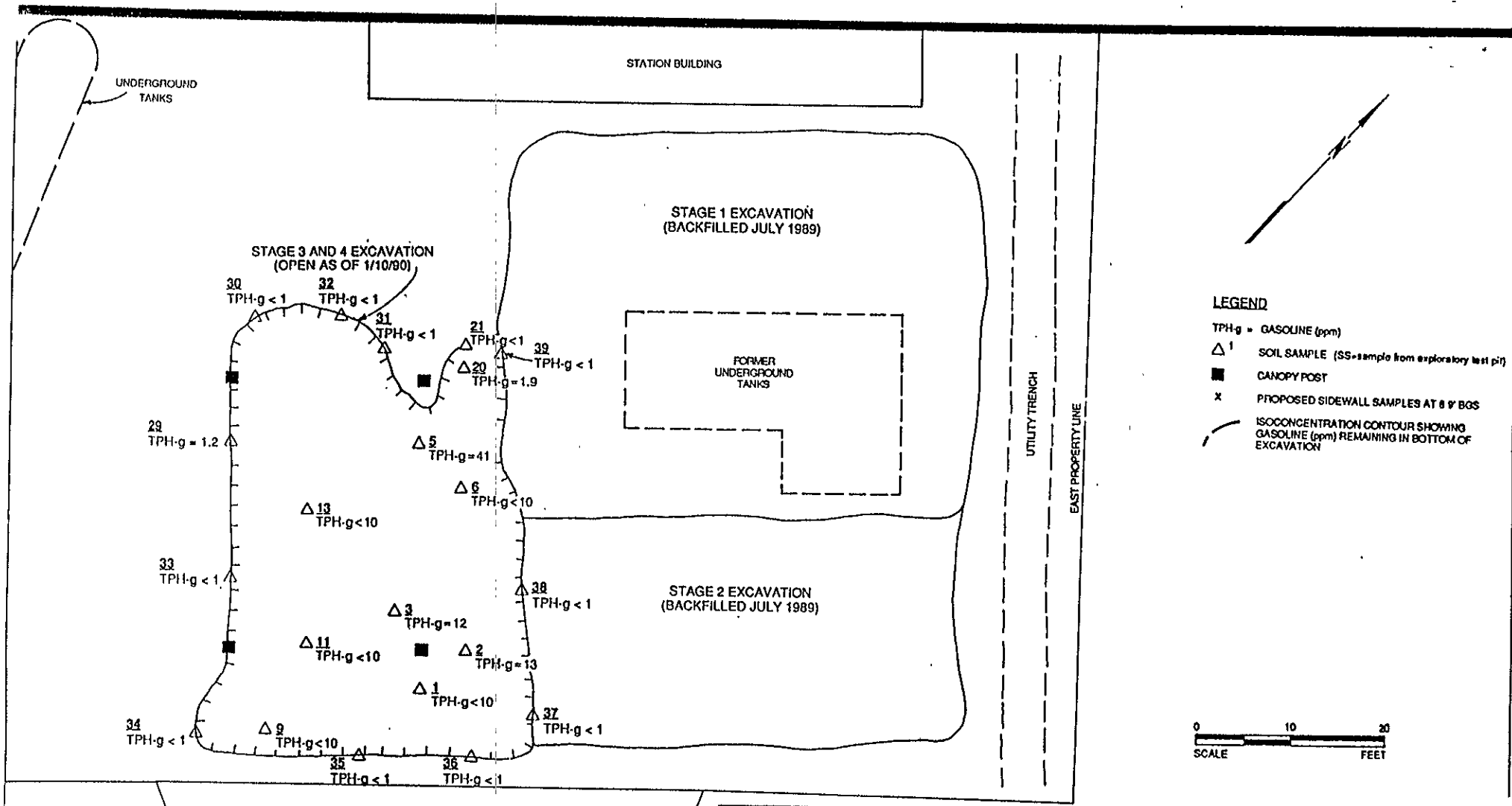


LEGEND

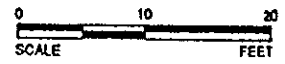
S-A • Soil Boring Location and Designation



Project No. 882001A	Gettler-Ryan	SHELL OIL COMPANY SERVICE STATION — SOIL INVESTIGATION	Figure 1
Woodward-Clyde Consultants		2724 CASTRO VALLEY BLVD, CASTRO VALLEY, CA.	




- LEGEND**
- TPH-g = GASOLINE (ppm)
 - △ SOIL SAMPLE (SS-sample from exploratory test pit)
 - CANOPY POST
 - x PROPOSED SIDEWALL SAMPLES AT 6' BGS
 - ISOCENTRATION CONTOUR SHOWING GASOLINE (ppm) REMAINING IN BOTTOM OF EXCAVATION

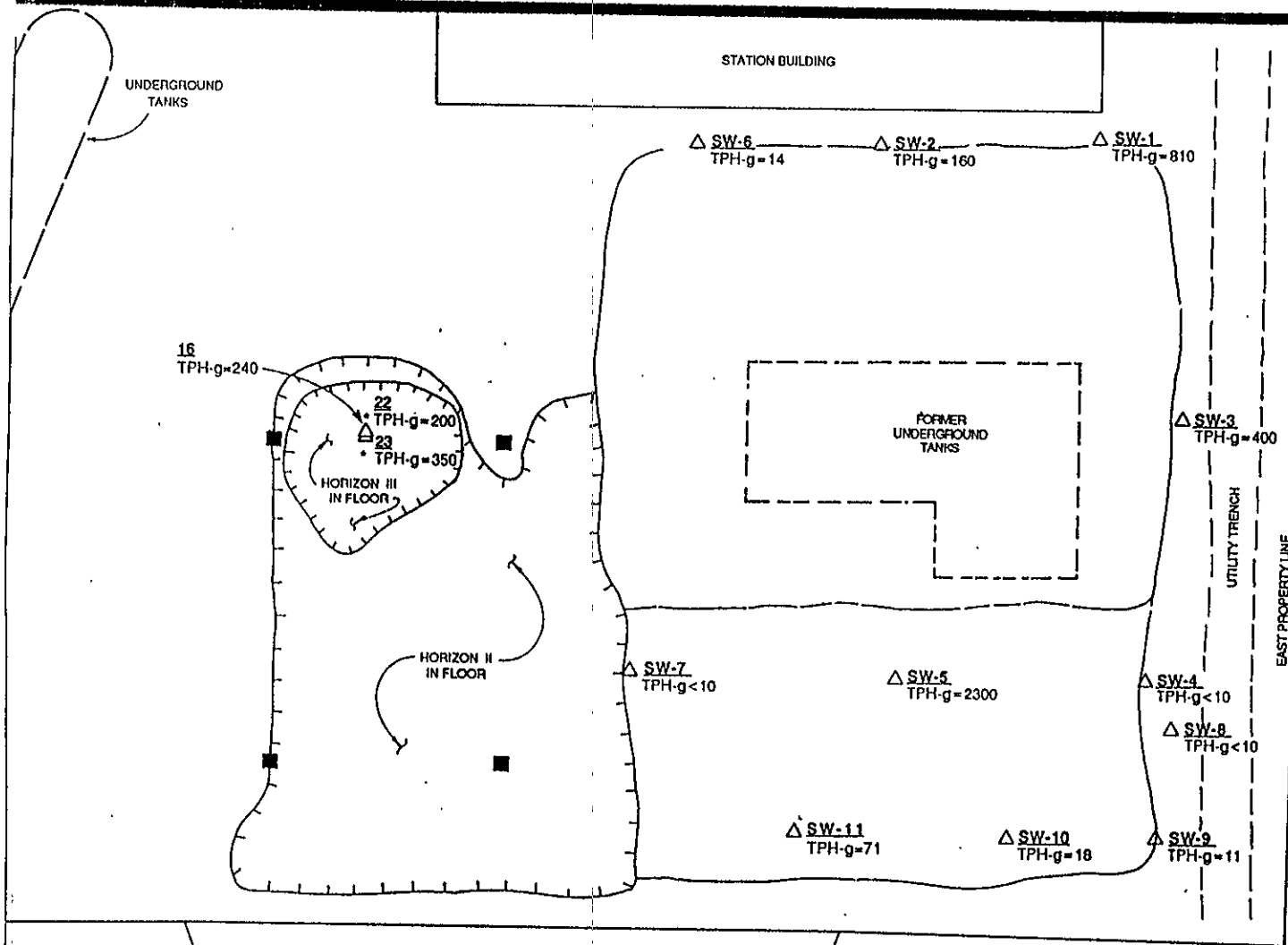


PLAN: SOIL TPH-g AT 6' to 11' BGS (SOIL HORIZON II)

SHELL OIL COMPANY
2724 Castro Valley Boulevard
Castro Valley, California

Scale	AS SHOWN	Project No	
Date	11/28/90		88-44-380-01
Prepared By	CRB		Drawing No
Checked By	RKM		
Approved By			

 **Converse Environmental Consultants California**



LEGEND

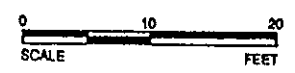
TPH-g = GASOLINE (ppm)

△¹ SOIL SAMPLE

■ CANOPY POST

— ISOCENTRATION CONTOUR SHOWING GASOLINE (ppm) (INFERRED)

• SATURATED OR CAPILLARY



PLAN: SOIL TPH-g AT 11' BGS AND BELOW (SOIL HORIZON III)

SHELL OIL COMPANY
2724 Castro Valley Boulevard
Castro Valley, California

Scale	AS SHOWN	Project No.	
Date	11/28/89	Drawing No.	88-44-380-01
Prepared By	CRB		
Checked By	PKM		
Approved By			



Converse Environmental Consultants California

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TABLE 4. SOIL REMEDIATION VERIFICATION

Shell Oil Company Facility
2724 Castro Valley Road
Castro Valley, California

Loc/Depth	Date Collected	TPH-g	Benzene	Ethyl-Benzene	Toluene	Xylenes
Sidewall Samples						
SW-1 @ 13'	6/12/89	810	2.700	5.000	15.00	31.00
SW-2 @ 13'		160	0.470	1.400	4.600	10.00
SW-3 @ 13'		400	1.300	2.600	6.800	17.00
SW-4 @ 15'		<10	<.025	<.075	<.025	<.075
SW-5 @ 13'		2300	29.00	32.00	160.0	200.0
SW-6 @ 11.5'		14	0.055	0.110	0.090	0.0460
SW-6A @ 4'		<10	0.029	<.075	0.120	<.075
SW-7 @ 5.5'		<10	0.061	0.190	0.140	<.075
SW-8 @ 12'	7/5/89	<10	<.025	<.075	<.025	<.075
SW-9 @ 12'		11	<.025	0.060	0.660	1.400
SW-10 @ 12'		18	1.000	0.570	2.900	1.700
SW-11 @ 12'		71	2.600	2.500	7.000	5.400
EX PIT (H2O)	7/6/89	<0.05	<.0005	<.0015	<.0005	<.0015
Test Pit Samples - around former West Island						
SS-1 @ 4'	8/30/89	<10	<.025	<.075	<.025	<.075
SS-2 @ 4.5'		130	0.330	2.900	1.300	14.00
SS-3 @ 5'		<10	0.180	<.075	<.025	<.075
SS-3-2 @ 5'		<10	<.025	<.075	<.025	<.075
SS-4 @ 4'		17	0.100	0.240	<.025	<0.025
SS-5 @ 5'		630	0.028	0.810	0.240	1.100
SS-6 @ 5'		1300	0.061	3.300	<.025	7.600
SS-7 @ 5.5'		3300	3.600	51.00	4.200	8.100
Sidewall Samples <i>Confirmatory after 65 periods of surface filling of pit</i>						
1 @ 7'	10/2/89	<10	<.025	<.075	<.025	<.075
2 @ 7'		13	<.025	<.075	<.025	<.075
3 @ 8'		12	0.096	0.098	0.180	0.560
4 @ 3'						
S-1	10/3/89	<10	<.025	<.075	<.025	<.075
S-2		28	<.025	0.012	0.038	0.660
S-3		14	<.025	<.075	<.025	0.190
S-4		11	<.025	<.075	<.025	0.230
S-5		81	<.025	0.200	<.025	0.510
S-5*		<10	<.025	<.075	<.025	<.075
S-6*						
S-6	10/4/89	<10	<.025	<.075	<.025	<.075
S-7		<10	<.025	<.075	<.025	<.075

NOTES:
 All results in mg/Kg(ppm)
 TPH-g measured at parts per million
 BTEX measured at parts per billion
 1 Verification samples adjacent to 29
 2 Verification samples adjacent to 35
 * Indicates sample collected in surface stockpile for disposal analysis

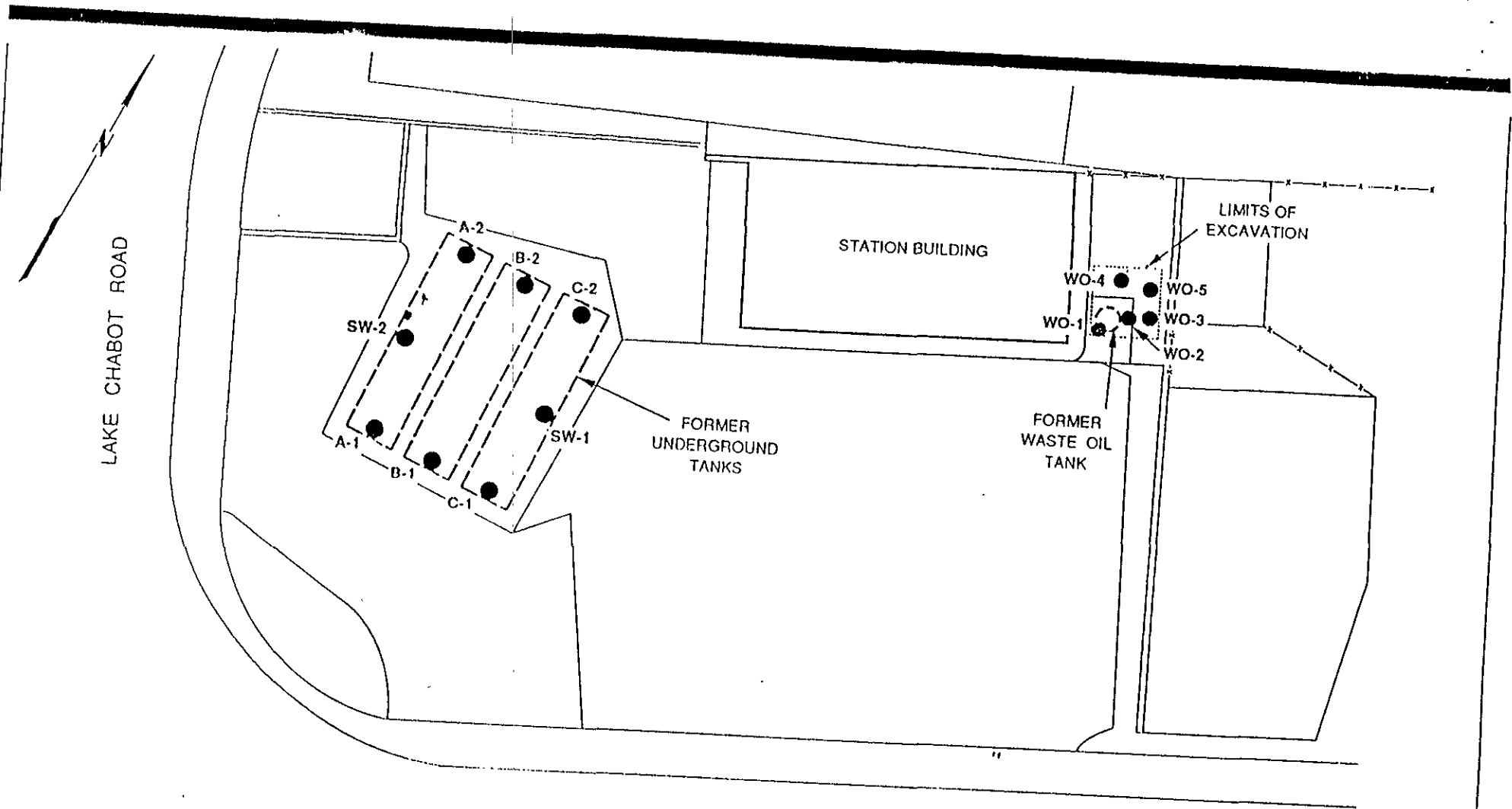
TABLE 1. RESULTS OF SOIL CHEMICAL ANALYSES (mg/kg)

Shell Oil Company Facility
 2724 Castro Valley Road
 Castro Valley, California

Sample Location	Sample Depth (ft bgs)	Date Sampled	TPH-g (mg/kg)	TPH-d (mg/kg)	TPH-mo (mg/kg)	Total Oil and Grease (mg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Ethylbenzene (µg/kg)	Xylenes (µg/kg)	Total Lead (mg/kg)
A-1	8'	08/22/91	<1.0	NA	NA	NA	<2.5	<2.5	<2.5	<2.5	NA
A-2	8'	08/22/91	<1.0	NA	NA	NA	<2.5	<2.5	<2.5	<2.5	NA
B-1	8'	08/22/91	<1.0	NA	NA	NA	<2.5	<2.5	<2.5	<2.5	NA
B-2	8'	08/22/91	<1.0	NA	NA	NA	<2.5	<2.5	<2.5	<2.5	NA
C-1	8'	08/22/91	<1.0	NA	NA	NA	<2.5	<2.5	<2.5	<2.5	NA
C-2	8'	08/22/91	<1.0	NA	NA	NA	<2.5	<2.5	<2.5	<2.5	NA
SW-1	8'	08/22/91	<1.0	NA	NA	NA	<2.5	<2.5	<2.5	<2.5	NA
SW-2	8'	08/22/91	<1.0	NA	NA	NA	<2.5	<2.5	<2.5	<2.5	NA
WO-1	7'	08/22/91	7.8	<1.0	1,100	1,400	<2.5	<2.5	13	30	11
WO-2	4'	08/22/91	<1.0	<1.0	<1.0	<1.0	<2.5	<2.5	<2.5	<2.5	NA
WO-3	7'	08/22/91	<1.0	<1.0	<1.0	<1.0	<2.5	<2.5	<2.5	<2.5	NA
WO-4	6'	08/22/91	<1.0	1.6	<1.0	<1.0	<2.5	<2.5	<2.5	<2.5	NA
WO-5	5.5'	08/22/91	<1.0	<1.0	<1.0	<1.0	<2.5	<2.5	<2.5	<2.5	NA

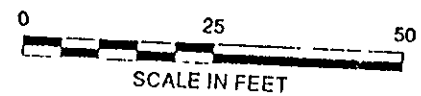
NOTES:

NA Not Analyzed
 mg/kg Milligrams per Kilogram
 µg/kg Micrograms per Kilogram



LEGEND

● SOIL SAMPLE



Base Map: Surveyed with electronic distance meter by CEW, 1990.

EXCAVATION SAMPLE LOCATIONS MAP

SHELL OIL COMPANY
2724 Castro Valley Boulevard
Castro Valley, California



Converse Environmental West

Scale	AS SHOWN	Project No.	88-44-380-40
Prepared by	LQL	Date	10/17/91
Checked by	DS	Drawing No	2
W/C Number	204-1381-0407		

TABLE 3 (cont'd). RESULTS OF SOIL CHEMICAL ANALYSES - FORMER SHELL SITE (mg/kg)

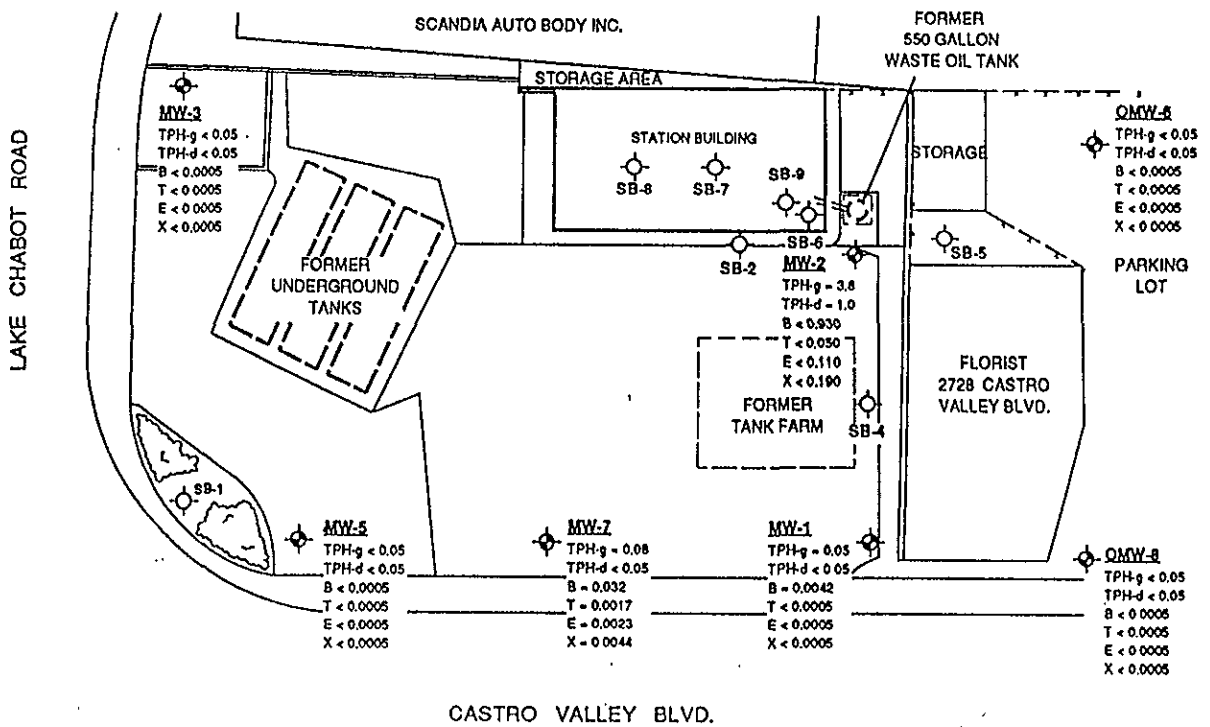
Former Shell Oil Company Site
2724 Castro Valley Boulevard
Castro Valley, California

Boring No.	Sample Depth (ft bgs)	Date Sampled	TPH-g	TPH-d	TPH-mo	Oil and Grease	Benzene	Toluene	Ethyl-Benzene	Xylenes	Total Lead
SB-1	5	01/18/90	<1.0	<1.0	<10		<0.0025	6.7	<0.0025	4.6	4.7
SB-1	9	01/18/90	<1.0	<1.0	<10		<0.0025	7.7	<0.0025	3.4	6.5
SB-1	10	01/18/90	<1.0	<1.0	<10		<0.0025	18	<0.0025	6.8	NR
SB-2-2A ⁶	4.5	05/09/90	1.0	14	73		<0.0025	<0.0025	3.9	16	9.1
SB-2-3A ⁷	6.5	05/09/90	<1	18	26		<0.0025	<0.0025	<0.0025	<0.0025	7.0
SB-4	6	07/08/91	<1	<1	<10		<0.0025	<0.0025	<0.0025	<0.0025	NR
SB-4	11	07/08/91	<1	<1	<10		<0.0025	<0.0025	<0.0025	<0.0025	NR
SB-4	15	07/08/91	<1	<1	<10		<0.0025	<0.0025	<0.0025	<0.0025	NR
SB-6	5	09/18/91	770	280	160	740	<0.0025	3,600	5,400	22,000	NR
SB-6	10	09/18/91	1.7	5.0	13	<50	110	32	2.8	33	NR
SB-7	5	09/18/91	NR	NR	NR	880	NR	NR	NR	NR	NR
SB-7	10	09/18/91	NR	NR	NR	160	NR	NR	NR	NR	NR
SB-8	5	09/18/91	NR	NR	NR	<50	NR	NR	NR	NR	NR
SB-8	10	09/18/91	NR	NR	NR	<50	NR	NR	NR	NR	NR
SB-9	5	09/18/91	1,800	380	470	1,800	<0.0025	<0.0025	<0.0025	30,000	NR
SB-9	10	09/18/91	240	190	190	460	<0.0025	<0.0025	<0.0025	3,700	NR

TABLE 3. RESULTS OF SOIL CHEMICAL ANALYSES - FORMER SHELL SITE (mg/kg)

Former Shell Oil Company Site
2724 Castro Valley Boulevard
Castro Valley, California

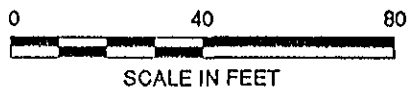
Boring No.	Sample Depth (ft bgs)	Date Sampled	TPH-g	TPH-d	TPH-mo	Benzene	Toluene	Ethyl-Benzene	Xylenes	Total Lead
MW-1	5	01/18/90	<1.0	5.8	73	<0.0025	<0.0025	<0.0025	<0.0025	4.4
MW-1	10	01/18/90	<1.0	4.4	39	<0.0025	<0.0025	<0.0025	<0.0025	4.3
MW-2 ¹	5	01/19/90	<1.0	14	90	<0.0025	<0.0025	<0.0025	<0.0025	4.6
MW-2 ²	9	01/19/90	<1.0	<1.0	23	<0.0025	<0.0025	<0.0025	<0.0025	5.3
MW-2 ³	15	01/19/90	<1.0	3.1	<10	3.2	2.9	<0.0025	54	6.3
MW-2 ⁴	20	01/19/90	<1.0	3.2	<10	8.4	21	<0.0025	16	7.9
MW-2 ⁵	25	01/19/90	<1.0	8.2	19	23	34	3.6	23	8.0
MW-3	5	01/19/90	<1.0	<1.0	<1.0	<0.0025	5.9	<0.0025	<0.0025	6.2
MW-3	10	01/19/90	<1.0	<1.0	<1.0	<0.0025	11	<0.0025	<0.0025	5.8
MW-3	15	01/19/90	<1.0	2.4	<1.0	<0.0025	23	<0.0025	7.4	6.5
MW-5	5	01/22/90	<1.0	<1.0	<10	<0.0025	6.5	<0.0025	2.6	5.5
MW-5	9	01/22/90	<1.0	<1.0	<10	<0.0025	3.1	<0.0025	<0.0025	6.4
MW-5	15	01/22/90	<1.0	<1.0	<10	<0.0025	4.4	<0.0025	2.7	8.0
MW-5	20	01/22/90	<1.0	1.6	<10	3.0	11	<0.0025	6.1	35
MW-5	25	01/22/90	<1.0	<1.0	<10	<0.0025	6.0	<0.0025	4.9	3.9
MW-7	11	07/08/91	260	50	<10	1.3	5.6	5.3	13	NR



LEGEND

- SB-1 SOIL BORING (locations approximate)
- MW-1 GROUNDWATER MONITORING WELL
- TPH-g = TOTAL PETROLEUM HYDROCARBONS AS GASOLINE (In milligrams per liter)
- TPH-d = TOTAL PETROLEUM HYDROCARBONS AS DIESEL (In milligrams per liter)
- B = BENZENE (In milligrams per liter)
- T = TOLUENE (In milligrams per liter)
- E = ETHYLBENZENE (In milligrams per liter)
- X = XYLENES (In milligrams per liter)
- NA= NOT ANALYZED

P1 TPH-g < 0.05 TPH-d < 0.05 B < 0.0005 T = 0.0008 E < 0.0005 X = 0.0009	P2 TPH-g = 5.8 TPH-d = 3.9 B < 0.0005 T = 0.0005 E = 0.11 X = 0.11	P3 TPH-g = 13 TPH-d = 3.7 B < 0.0005 T = 0.01 E = 0.42 X = 0.73	P4 TPH-g < 0.05 TPH-d = NA B < 0.0005 T < 0.0005 E < 0.0005 X < 0.0005
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Base Map: Surveyed with electronic distance meter by CEW, 1990.

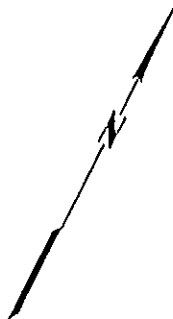
PLAN: TPH-g, TPH-d AND BTEX Q2/92

SHELL OIL COMPANY
2724 Castro Valley Boulevard
Castro Valley, California

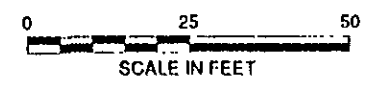
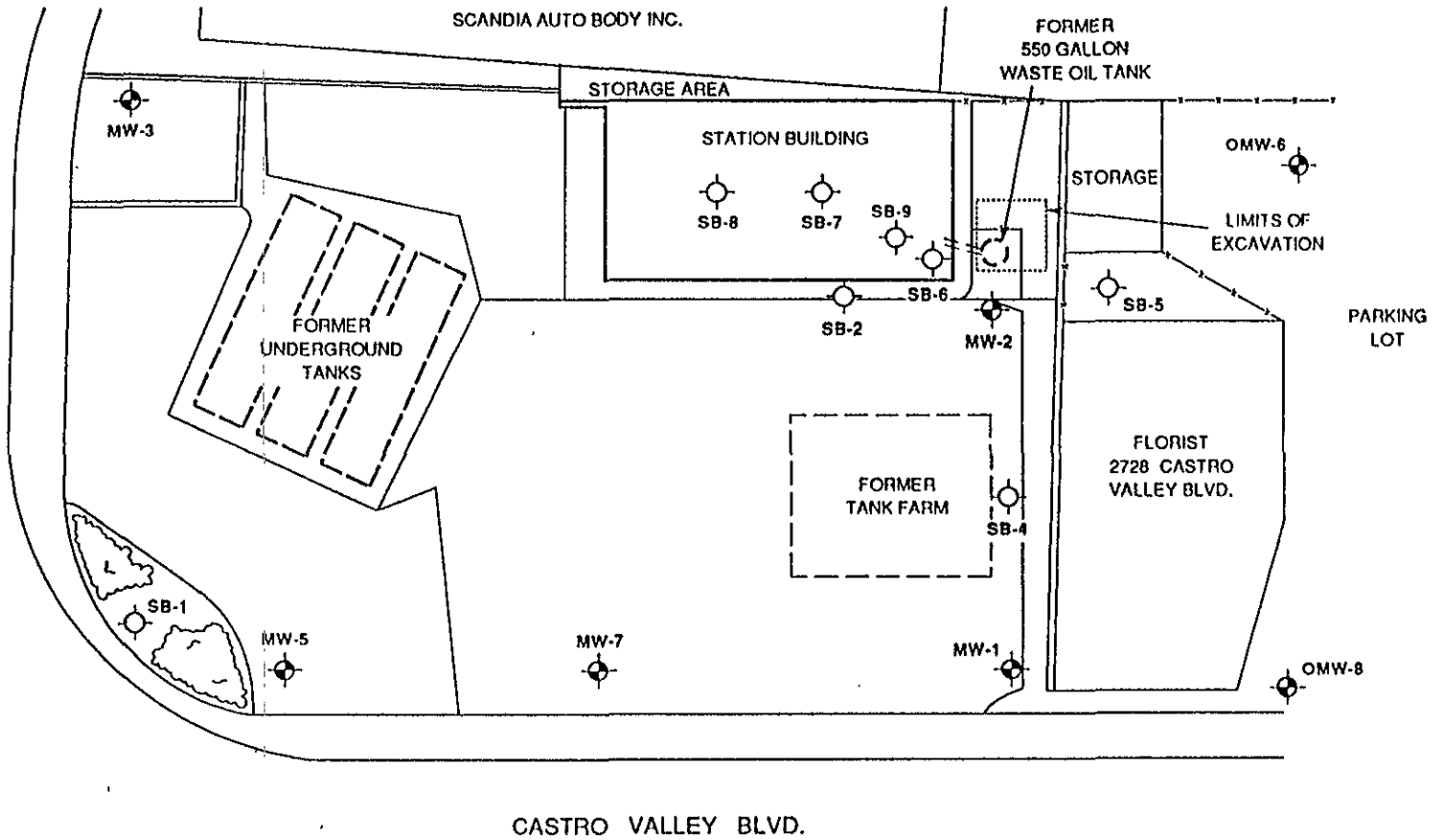
Scale	AS SHOWN	Project No.	88-44-380-20
Prepared by	TM	Date	5/6/91
Checked by	DS	Drawing No.	4
WIC Number	204-1381-0407		



Converse Environmental West



LAKE CHABOT ROAD



LEGEND

- SB-1 SOIL BORING (locations approximate)
- MW-1 GROUNDWATER MONITORING WELL
- OMW-9 PROPOSED OFFSITE GROUNDWATER MONITORING WELL.

OMW-9

CONCRETE DIVIDER

Base Map: Surveyed with electronic distance meter by CEW, 1990.

PLOT PLAN

SHELL OIL COMPANY
 2724 Castro Valley Boulevard
 Castro Valley, California

Scale	AS SHOWN	Project No.	88-44-380-20
Prepared by	LQL	Date	10/24/91
Checked by	DS	Drawing No.	2
WIC Number	204 1381-0407		



Converse Environmental West

TABLE 4. RESULTS OF SOIL CHEMICAL ANALYSES - CASTRO VALLEY FLORIST (mg/kg)

Castro Valley Florist
2728 Castro Valley Boulevard
Castro Valley, California

Boring No.	Sample Depth (ft bgs)	Date Sampled	TPH-g	TPH-d	TPH-mo	Benzene	Toluene	Ethyl-Benzene	Xylenes	Total Lead
OMW-6	5	07/08/91	<1.0	<1.0	15	<0.0025	<0.0025	<0.0025	<0.0025	NR
OMW-6	10	07/08/91	<1.0	<1.0	<10	<0.0025	<0.0025	<0.0025	<0.0025	NR
OMW-8	5	07/08/91	<1	<1	<10	<0.0025	<0.0025	<0.0025	<0.0025	NR
	10	07/08/91	<1	<1	<10	<0.0025	<0.0025	<0.0025	<0.0025	NR
	14.5	07/08/91	<1	1.8	<10	<0.0025	<0.0025	<0.0025	<0.0025	NR
SB-5	5	07/09/91	<1	<1	<10		<0.0025	<0.0025	<0.0025	NR
SB-5	10	07/09/91	<1	<1	<10	<0.0025	<0.0025	<0.0025	<0.0025	NR
SB-5	15	07/09/91	<1	<1	<10	<0.0025	<0.0025	<0.0025	<0.0025	NR

NOTES:

- 1 Sample contained 370 ppm total oil grease, 350 ppm non-polar oil and grease, 18 ppm chromium, and 67 ppm zinc
- 2 Sample contained 45 ppm chromium and 56 ppm zinc
- 3 Sample contained 40 ppm chromium, 60 ppm zinc, 240 ppb total xylenes, and 380 ppb bis (2-ethylhexyl) phthalate
- 4 Sample contained 53 ppm chromium, 99 ppm zinc, and 550 ppb bis (2-ethylhexyl) phthalate
- 5 Sample contained 48 ppm chromium and 110 ppm zinc
- 6 Sample contained 33 ppm chromium and 46 ppm zinc
- 7 Sample contained 32 ppm chromium and 46 ppm zinc
- NA Not analyzed
- NR Not requested
- ft bgs Feet below ground surface
- mg/Kg Milligrams per kilograms

TABLE 3 (cont'd). RESULTS OF SOIL CHEMICAL ANALYSES - FORMER SHELL SITE (mg/kg)

Former Shell Oil Company Site
 2724 Castro Valley Boulevard
 Castro Valley, California

Sample Number	Sample Depth (ft bgs)	Date Sampled	TPH-g	TPH-d	TPH-mo	Oil and Grease	Benzene	Toluene	Ethyl-Benzene	Xylenes	Total Lead
A-1	8	08/22/91	<1.0	NA	NA	NA	<2.5	<2.5	<2.5	<2.5	NA
A-2	8	08/22/91	<1.0	NA	NA	NA	<2.5	<2.5	<2.5	<2.5	NA
B-1	8	08/22/91	<1.0	NA	NA	NA	<2.5	<2.5	<2.5	<2.5	NA
B-2	8	08/22/91	<1.0	NA	NA	NA	<2.5	<2.5	<2.5	<2.5	NA
C-1	8	08/22/91	<1.0	NA	NA	NA	<2.5	<2.5	<2.5	<2.5	NA
C-2	8	08/22/91	<1.0	NA	NA	NA	<2.5	<2.5	<2.5	<2.5	NA
SW-1	8	08/22/91	<1.0	NA	NA	NA	<2.5	<2.5	<2.5	<2.5	NA
SW-2	8	08/22/91	<1.0	NA	NA	NA	<2.5	<2.5	<2.5	<2.5	NA
WO-1	7	08/22/91	7.8	<1.0	1,100	1,400	<2.5	<2.5	13	30	11
WO-2	4	08/22/91	<1.0	<1.0	<1.0	<1.0	<2.5	<2.5	<2.5	<2.5	NA
WO-3	7	08/22/91	<1.0	<1.0	<1.0	<1.0	<2.5	<2.5	<2.5	<2.5	NA
WO-4	6	08/22/91	<1.0	1.6	<1.0	<1.0	<2.5	<2.5	<2.5	<2.5	NA
WO-5	5.5	08/22/91	<1.0	<1.0	<1.0	<1.0	<2.5	<2.5	<2.5	<2.5	NA

NOTES:

- 1 Sample contained 370 ppm total oil grease, 350 ppm non-polar oil and grease, 18 ppm chromium, and 67 ppm zinc
- 2 Sample contained 45 ppm chromium and 56 ppm zinc
- 3 Sample contained 40 ppm chromium, 60 ppm zinc, 240 ppb total xylenes, and 380 ppb bis (2-ethylhexyl) phthalate
- 4 Sample contained 53 ppm chromium, 99 ppm zinc, and 550 ppb bis (2-ethylhexyl) phthalate
- 5 Sample contained 48 ppm chromium and 110 ppm zinc
- 6 Sample contained 33 ppm chromium and 46 ppm zinc
- 7 Sample contained 32 ppm chromium and 46 ppm zinc
- NA Not analyzed
- NR Not requested
- ft bgs Feet below ground surface
- mg/Kg Milligrams per kilograms

TABLE 11. RESULTS OF GROUNDWATER CHEMICAL ANALYSES -
SOUTH SIDE OF CASTRO VALLEY BOULEVARD (mg/L)

Castro Valley Florist
2728 Castro Valley Boulevard
Castro Valley, California

Sample Number	Date Sampled	TPH-g	TPH-d	TPH-mo	Benzene	Toluene	Ethyl-Benzene	Xylenes
P1	04/24/92	<0.05	<0.05	NA	<0.0005	0.0008	<0.0005	0.0009
P2	04/24/92	13	3.7	NA	<0.0005	0.01	0.42	0.73
P3	04/24/92	<0.05	NA	NA	<0.0005	<0.0005	<0.0005	<0.0005
P4	04/24/92	5.8	3.9	NA	<0.0005	<0.0005	0.11	0.11

NOTES:

- * Duplicate sample
- TPH-g Total petroleum hydrocarbons as gasoline (GCFID)
- TPH-d Total petroleum hydrocarbons as diesel (GCFID)
- TPH-mo Total petroleum hydrocarbons as motor oil (GCFID)
- NA Not analyzed for this parameter
- Bold Items indicate the results of chemical analyses conducted during Quarter 2, 1992

ATTACHMENT E
WELL SURVEY DATA

SECTION II

AGENCY RESEARCH

Following, are individual summaries of each agency that was contacted by CEW, including copies of pertinent documents and information found at these agencies.

A. RWQCB & ALAMEDA COUNTY FLOOD CONTROL DISTRICT

Existing and Potential Beneficial Uses of Water

The site is located approximately 1/2 mile from San Lorenzo Creek. Existing beneficial uses of San Lorenzo Creek include municipal and domestic supply, groundwater recharge, freshwater replenishment, contact and non-contact water recreation, warm and cold fresh water habitat, wildlife habitat, fish migration and fish spawning. San Lorenzo Creek flows into San Francisco Bay approximately 2 miles west of Castro Valley Boulevard. Existing beneficial uses of Lower San Francisco Bay include industrial service supply, navigation, contact and non-contact water recreation, commercial and sport fishing, wildlife habitat, preservation of rare and endangered species, fish migration, shellfish harvesting, and estuarine habitat. The Lower Bay also has potential beneficial uses for fish spawning. The Lower Bay also provides water to Hayward marsh, beneficial uses of which include contact and non-contact water recreation, wildlife habitat, estuarine habitat and fish spawning (RWQCB, 1986).

Well Survey

The site lies within the East Bay Plain area of Alameda County and is underlain by deposits mapped as Quaternary Older Alluvium in Hickenbottom and Muir (1988). Bedrock has not been encountered at the site, but was encountered at approximately 15

feet below ground surface at a nearby site (see below). The Hayward Fault Zone, which trends northwest-southeast, passes within approximately 1 mile of the site to the west.

Records reviewed at the Alameda County Flood Control District indicate the presence of 10 active wells within approximately 1/4 mile of the site. Seven of these wells are monitoring wells, one is used for irrigation, one is used for industrial purposes. Usage for the last well was not specified. Well logs for the irrigation and industrial wells (State Wells 3S2W4J1 and 3S2W4K1, were examined. Well 3S2W4J1 was constructed in 1953 to a depth of 51 feet. The perforated interval is 31-51 feet. Initial depth to water was not specified. Well 3S2W4K1 was also constructed in 1953. Total depth of the well is 150 feet and groundwater was first encountered at 102 feet. Perforations are at 100-110 feet and 132-140 feet (Table 1, Drawing 1). Well hydrograph data for these wells are not maintained by the Alameda County Flood Control District.

Two wells located 1 to 1-1/2 miles west-southwest of the site, within the Hayward Fault Zone, are monitored twice a year by the Alameda County Flood Control District. Well 3S2W8L3 was constructed in 1942 to a depth of 211 feet. Reference elevation for this well is 50 feet above MSL. Records do not indicate perforated intervals. Water from this well is used for irrigation. Well 3S2W8R5 was constructed at an unknown date to a depth of 85 feet. Reference elevation for this well is 64 feet above MSL. Records do not indicate perforated intervals. Well hydrographs for wells 3S2W8L3 and 3S2W8L5 indicate a seasonal fluctuation of up to 10 feet.

Given the depths to which these two wells are completed, it is likely that the groundwater levels observed are for a deeper aquifer than the aquifer at the Shell site. The large fluctuations observed probably do not reflect the magnitude of seasonal fluctuations to be expected at the Shell site, where groundwater has been encountered at approximately 12.5 feet below ground surface. Water from middle to deep level aquifers within the Quaternary Older Alluvium is often used for irrigation during the summer months, which may accentuate seasonally fluctuations, as observed in 3S2W8L3 and 3S2W8R5.

TABLE 1. PRODUCTION WELL' STATISTICS

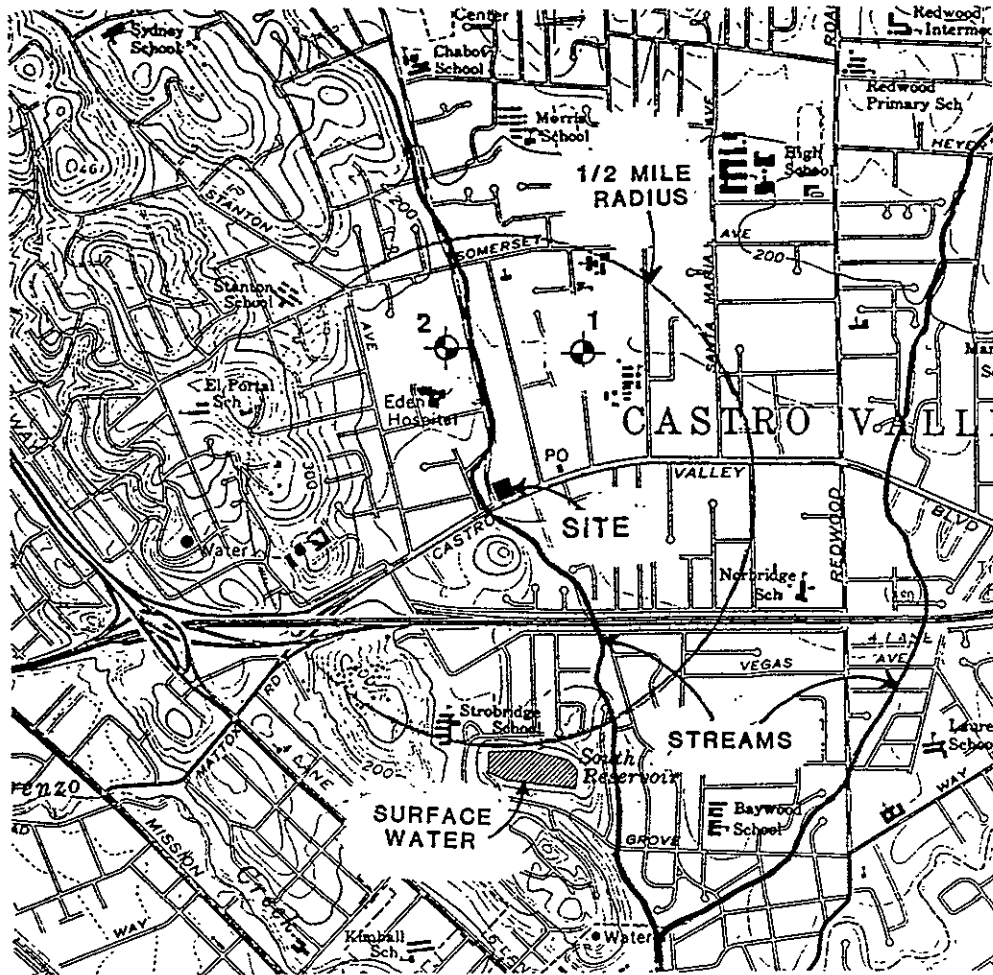
**Shell Oil Company
2724 Castro Valley Boulevard
Castro Valley, California**

Reference Number	State Well Number	Usage	Total Depth (feet)	Depth to Water (feet)	Screened Interval (feet)	Monitored on ACFCWCD ²
1	3S2W4J1	Irrigation	51	—	31 - 51	No
2	3S2W4K1	Industrial	150	110	110 - 110, 132 - 140	No


NOTES:

—
1
2

Indicates information that was unavailable
Source: Alameda County Flood Control and Water Conservation District and Hickenbottom and Muir (1988)
Alameda County Flood Control and Water Conservation District (ACFCWCD) maintains a network of approximately 50 wells. This columns indicates whether a well is included in the network.



LEGEND

 WELL LOCATION



Source: USGS Topographic Map of the Hayward Quadrangle, 1959 (Photorevised 1980)

SITE LOCATION MAP

SHELL OIL COMPANY
 2724 Castro Valley Boulevard
 Castro Valley, California

Scale	AS SHOWN	Project No.	88-44-387-20
Prepared by	KGC	Date	05/31/90
Checked by	ABC	Drawing No.	
Approved by	DWC		1



Converse Environmental West



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APR 13 1988

GETTLER-RYAN INC.

ANALYTICAL CONTRACTOR April 13, 1988

Gettler-Ryan
1992 National Avenue
Hayward, CA 94545

ATTN: Christa Lopez

Following is the result of analysis on the sample described below.

Project : G-R #9749/WCC #8820011A, Shell, Castro Valley Blvd., and Lake Chabot Rd., Castro Valley
Lab Number: S8-04-045-01
Sample Type: soil
Date Received: 4/6/88
Analysis Requested: Low Boiling Hydrocarbons


The method of analysis for low boiling hydrocarbons is taken from E.P.A. Methods 8015, 8020 and 5030. The sample is examined using the purge and trap technique. Final detection is by gas chromatography using a flame ionization detector as well as a photo-ionization detector.

The result for total low boiling hydrocarbons is calculated as gasoline and includes benzene, toluene, ethyl benzene and xylenes.

Summary of Results

nd = none detected

Lab Number	Sample Identification	Parts per Million - (Dry Soil Basis)			
		Low Boiling Hydrocarbons (Gasoline)	Benzene	Toluene	Ethyl benzene and xylenes
S8-04-045-01	S-C 13-13.5A	nd	nd	nd	nd
Detection Limit		5.	0.05	0.1	0.4


Fred Rouse

FR/ksr

Regional Office
397 Mathew Street • Santa Clara, California 95050 • 408-727-4277



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Gettler-Ryan
1992 National Avenue
Hayward, CA 94545

ATTN: Christa Lopez

RECEIVED

March 31, 1988
APR 01 1988

SETTLER-RYAN INC.
GENERAL CONTRACTOR

Following are the results of analyses on the samples described below.

Project: G-R #9749/WCC #8820011A, Shell,
Castro Valley Blvd., Castro Valley
Lab Numbers: S8-03-232-01 and S8-03-232-02
Number of Samples: 2
Sample Type: Soil
Date Received: 3/25/88
Analyses Requested: Low Boiling Hydrocarbons

The method of analysis for low boiling hydrocarbons is taken from EPA Methods 8015, 8020 and 5030. The sample is examined using the purge and trap technique. Final detection is by gas chromatography using a flame ionization detector as well as a photoionization detector.

The result for total low boiling hydrocarbons is calculated as gasoline and includes benzene, toluene, ethyl benzene and xylenes.

ND = None Detected

Summary of Results
Parts per Million - dry soil basis

Lab Number	Sample Identification	Low Boiling Hydrocarbons (Gasoline)			
		Benzene	Toluene	Ethyl benzene and xylenes	
S8-03-232-01	*S-F/GR 9749 14.5-16A	ND	ND	ND	
S8-03-232-02	*S-G/GR 9749 14.5-16A	ND	0.10	ND	
Detection Limit		5.	0.05	0.1	

* Sample S-F corresponds to Boring S-A
* Sample S-G corresponds to Boring S-B

Fred Rouse

FR/gg

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TABLE 4 (cont'd). SOIL REMEDIATION VERIFICATION

Shell Oil Company Facility
2724 Castro Valley Road
Castro Valley, California

Loc/Depth	Date Collected	TPH-g	Benzene	Ethyl-Benzene	Toluene	Xylenes	
5 @ 10.5'	10/4/89	41	0.082	2.100	5.000	12.00	
6 @ 7'		<10	0.029	<.075	0.071	0.170	
7 @ 3'		<10	<.025	<.075	<.025	<.075	
8 @ 3'		<10	<.025	<.075	<.025	<.075	
9 @ 6'		<10	<.025	<.075	<.025	<.075	
10 @ 3'		<10	<.025	<.075	<.025	<.075	
11 @ 7.5'		<10	<.025	<.075	<.025	<.075	
12 @ 4'		<10	<.025	<.075	<.025	<.075	
13 @ 8'		<10	<.025	<.075	<.025	<.075	
14 @ 3'		<10	<.025	0.280	<.025	<.025	0.240
			<10	<.025	<.075	<.025	<.075
15 @ 3'		10/11/89	<10	<.025	<.075	<.025	<.075
16 @ 9'			240	0.150	1.800	1.500	11.00
17 @ 4'			<10	<.025	<.075	<.025	<.075
18 @ 4'	<10		<.025	<.075	<.025	<.075	
19 @ 3'	470		<.025	1.000	<.025	10.00	
SW-20 @ 6'	10/26/89	1.9	<.0025	<0.0025	0.0064	0.0078	
SW-21 @ 7'		<1	<.0025	<0.0025	<.0025	<.0025	
SW-22 @ 12'		200	0.5200	1.50005	1.8000	5.3000	
SW-23 @ 12'		350	0.9500	3.1000	4.7000	13.000	
SP 10:26*		1.8	4.500	20.00	40.00	120.00	

NOTES:

All results in mg/Kg (ppm)

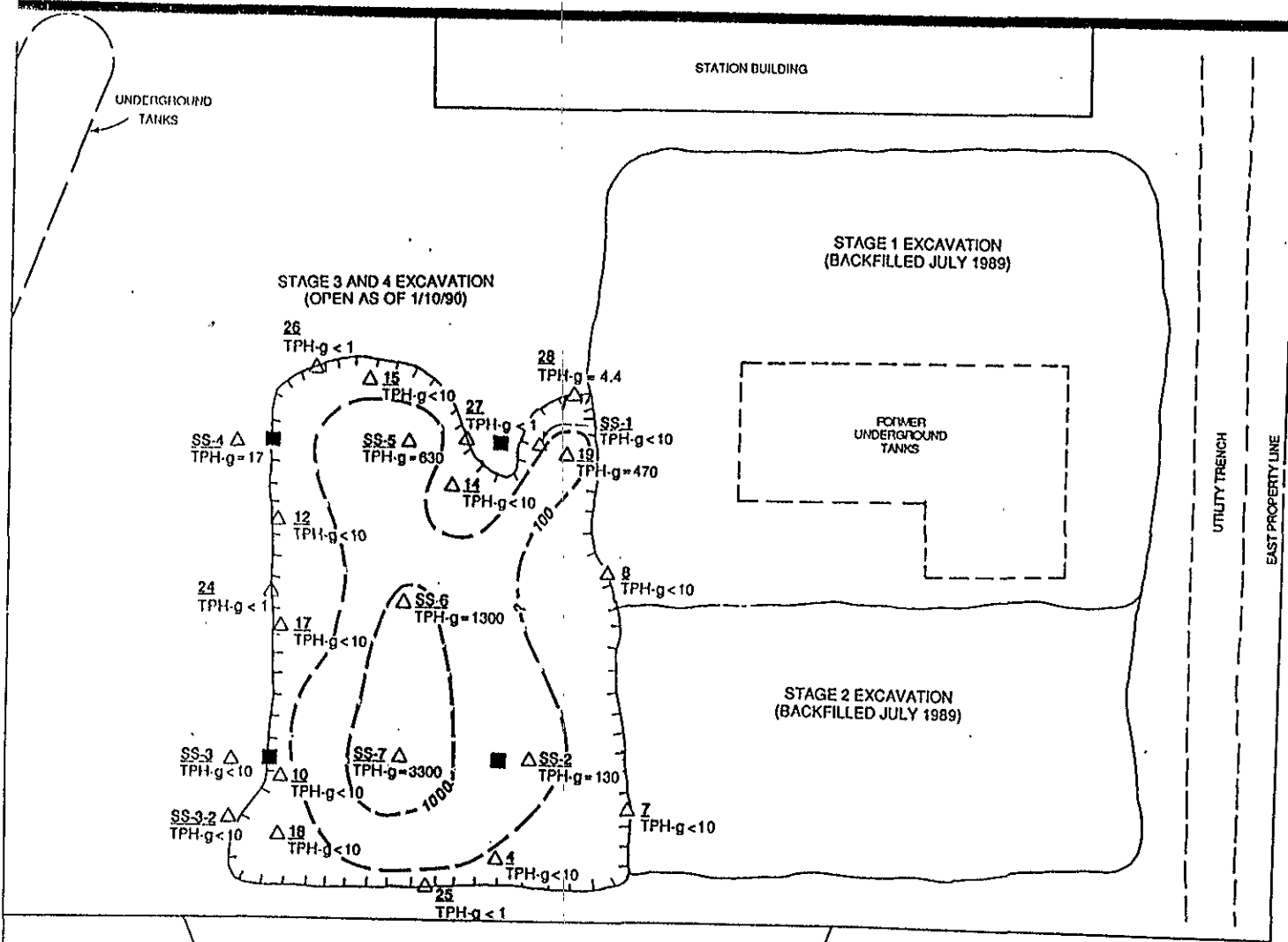
TPH-g measured at parts per million

BTEX measured at parts per billion

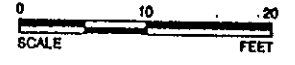
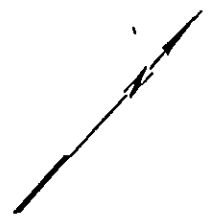
¹ Verification samples adjacent to 29

² Verification samples adjacent to 35

* Indicates sample collected in surface stockpile for disposal analysis



- LEGEND**
- TPH-g = GASOLINE (ppm)
 - △ SOIL SAMPLE (SS-sample from exploratory test pit)
 - CANOPY POST
 - ISOCENTRATION CONTOUR SHOWING GASOLINE (ppm)



PLAN: SOIL TPH-g AT 0' to 6' BGS (SOIL HORIZON I)

SHELL OIL COMPANY
 2724 Castro Valley Boulevard
 Castro Valley, California

Scale	AS SHOWN	Project No	
Date	11/28/89	Drawing No	88-44-380-01
Prepared By	CRB		
Checked By	RKM		
Approved By			

Converse Environmental Consultants California

