PACIFIC ENVIRONMENTAL GROUP, INC.

October 7, 1988
Project 330-06.03

Alameda County Health Agency
Division of Hazardous Materials
Department of Environmental Health
80 Swan Way Room 200
Oakland, California 94621

Attn: Mr. Larry Seto

Re: ARCO Station No. 608
17601 Hesperian Boulevard
San Lorenzo, California

Dear Mr. Seto:

Pacific Environmental Group, Inc. (PACIFIC) on behalf of ARCO Petroleum Products is pleased to submit this report which describes the work performed for the removal of fuel and waste oil tanks at ARCO Station No. 608 located at 17601 Hesperian Boulevard, San Lorenzo, California. The work involved soil and groundwater sampling and analysis during the removal of existing tanks; aeration of gasoline-contaminated soil; disposal of nonhazardous soil; and disposal of waste-oil contaminated soil as a hazardous waste.

BACKGROUND

ARCO Station No. 608 is an operating service station located at 17601 Hesperian Boulevard, San Lorenzo, California (see Figure 1). The fueling facility included three 6000-gallon tanks located in one pit (east pit) and one 6000-gallon tank in another pit (west pit). A 550-gallon tank located southwest of the station building was used to store waste oil (see Figure 2).

Previous investigations performed by EMCON Associates and Applied Geosystems included soil and groundwater characterization. Sampling and analysis indicated hydrocarbon contamination in both soil and groundwater. PACIFIC prepared a work plan, dated May 27, 1988, which described activities for the excavation and replacement of the fuel and waste oil tanks.

SUMMARY OF WORK

Golden West Builders was contracted by ARCO to perform the construction activities associated with removal and

disposal of the existing fuel and waste oil tanks. PACIFIC performed soil and groundwater sampling. Tank removal was performed on June 14, 1988 and was witnessed by James Ferdinand of the Eden Consolidated Fire Protection District Fire Prevention Bureau and Mary Jo Myers of the Alameda County Department of Health Services.

Removal of Existing Fuel Tanks

During the excavation of the fuel tanks, a PACIFIC geologist used a HNU portable organic vapor analyzed to separate the soils into two piles. Soil with HNU readings below 10 ppm was designated nonhazardous fill and soil with readings above 10 ppm was designated contaminated fill. The fill designated as contaminated was stockpiled on-site for subsequent aeration, as described later in this report.

A PACIFIC sampling technician collected two samples from beneath each tank, as required by the Regional Board Staff Recommendations for Initial Evaluation and Investigation of Underground Tanks, June 2, 1988 and as directed by Alameda County Department of Health Services. One sample was taken from directly beneath the fill pipe and the other from a similar location at the opposite end of the tank. Immediately following removal of each tank, a backhoe bucket of native soil was taken and brought to the surface. Approximately three inches of soil was scraped away from the surface, then a clean brass ring was driven into the soil. The ends of the tube were covered with aluminum foil, capped with plastic end caps and placed in a sealed glass jar. The samples were immediately placed on ice for transport to a certified laboratory. Chain-of-custody records were maintained for each sample and are enclosed with this report. Each sample was analyzed for total low boiling hydrocarbons calculated as gasoline, including benzene, toluene, xylenes and ethylbenzene (BTXE). Analytical procedures were in accordance with EPA methods 8015, 8020, and 5030. The soil samples were taken from the saturated zone. Floating product was observed on the groundwater surface. In response to a request from the Alameda County Health Department, three groundwater samples, two from the east pit and one from the west pit, were taken and analyzed for the same parameters as the soil samples. A summary of the soil and groundwater analytical results is presented on Table 1. Certified Analytical Reports (CARs) are enclosed.

Additional soil was excavated in order to accommodate three new 12,000-gallon tanks in the east pit. The soils were stockpiled as nonhazardous, subject to confirmation as

described later in this report, and gasoline-contaminated fill using the above-described screening procedures. Soil samples were taken from the excavation side walls at a depth of approximately 8 feet to define the limit of the lateral extent of contamination. A summary of the analytical results are presented on Table 2. CARs are enclosed.

Removal of Existing Waste Oil Tank and Disposal of Contaminated Soil

Immediately following removal of the tank, a PACIFIC sampling technician collected two samples from beneath the tank. The soil samples were collected from the backhoe bucket using the same sampling, chain-of-custody, and transporting procedures used for the fuel tank soil samples. As required under the June 2, 1988 revision of the Leaking Underground Fuel Tank Guidelines, the soil samples were analyzed for high boiling hydrocarbons calculated as oil, total oil and grease, and polychlorinated byphenyls (PCBs) according to EPA Method 3550. A summary of the analytical results are presented on Table 3. CARs are enclosed.

The PACIFIC sampling technician directed the contractor to excavate additional waste-oil-contaminated soil, evident by the dark, oily appearance, from the excavation. The waste-oil-contaminated soil was stockpiled on-site in a separate stockpile for subsequent disposal as a hazardous waste. PACIFIC collected four additional soil samples from the sidewalls of the excavation to define lateral extent of contamination. The soil samples were analyzed for high boiling hydrocarbons calculated as oil and total oil and grease. A summary of the analytical results are presented on Table 4. CARs are enclosed.

Approximately 98 cubic yards of waste-oil-contaminated soil was excavated. This soil was manifested and disposed, in accordance with EPA procedures, at Chemical Waste Management's Kettleman Hills Disposal Site as a hazardous waste on July 18 and 19, 1988. Copies of the manifest forms are enclosed.

Aeration of Gasoline-Contaminated Soil

Prior to aerating the gasoline-contaminated soil, PACIFIC collected three samples, A-1, -6, and -9, from the soil stockpile for analysis for total gasoline and BTXE. Analysis showed total gasoline concentrations of 630, 180, and 800 ppm. Golden West Builders began aeration of the gasoline-contaminated fill on June 25, 1988. Soil aeration was performed in accordance with the Bay Area Air Quality Management District Regulation 8, Rule 40. The soil was spread to a depth of approximately 6 inches in the existing

planter area east of the building and in the area south of the building. The soil was turned approximately 4 times per day for a period of 6 weeks. Confirmation sampling and analysis was performed on the soil prior to its disposal as nonhazardous, as described later in this report.

Characterization and Disposal of Non-Hazardous Soil

Soils with total gasoline concentration below 100 ppm were designated nonhazardous, as defined by the criteria established by the RWQCB. Nonhazardous soil was disposed at the Berkeley Municipal Disposal Site.

Ten soil samples were taken from the nonhazardous spoils pile consisting of soils excavated from the northernmost portion of the east pit. These samples were composited into two samples in the laboratory and analyzed for gasoline and BTXE. The analytical results showed total gasoline concentrations of 5 and 19 ppm.

Five soil samples were collected for every 100 cubic yards of aerated soil. The five samples were composited in the laboratory and analyzed for total low boiling hydrocarbons calculated as gasoline, and BTXE. All analyses showed gasoline concentrations below 100 ppm. A summary of the analytical results is presented on Table 5. CARs are enclosed.

All activities associated with the removal and disposal of the underground tanks was completed on August 3, 1988. A separate work plan is being prepared for the groundwater investigation. If you have any questions or require additional information, please do not hesitate to call Mr. Kyle Christie of ARCO at (415) 571-2434.

Sincerely,

PACIFIC ENVIRONMENTAL GROUP, INC.

Robert K. Wenzlau
Senior Engineer

REGISTERED PROFESSIONAL ENGINEER
ROBERT K. WENZLAU
No. 37395
EXP. 6-30-92
CIVIL
STATE OF CALIFORNIA

RKW/dl

enclosures

cc: Mr. Kyle Christie, ARCO
Mr. Chris Winsor, ARCO

TABLE 1

Summary of Analytical Results
Soil and Groundwater Samples from beneath Fuel Tanks
Results in Parts per Million*

Soil Sample Identification	Depth	Gasoline	Benzene	Toluene	Xylenes and Ethylbenzene
E1-N	12.5′	60.	0.2	<0.3	2.
E1-S	NR	2,300.	3.	5.	20.
E2-N	12′	330.	1.6	6.	48.
E2-S	12′	370.	1.3	11.	45.
E3-N	NR	7.	1.0	0.1	0.6
E3-S	12′	2,800.	6.	23.	120.
W4-NE	NR	260.	1.2	2.	13.
W4-SW	15′	500.	3.5	6.	87.
Groundwater Sample Identification					
E1-S	NA	15.	1.4	2.3	4.7
E2-S	NA	22.	1.9	3.9	4.9
E3-N	NA	8.	0.44	1.1	2.3

* Soils report in parts per million on dry soil basis
Water reported in parts per million or milligrams per liter

NR - not recorded NA - not applicable

TABLE 2

Summary of Analytical Results
Soil Samples from Fuel Tank Excavation Side Walls
Results in Parts per Million - Dry Soil Basis

Sample Identification	Depth	Gasoline	Benzene	Toluene	Ethylbenzene and Xylenes
ESW-W	8'	9.	0.12	<0.1	0.4
ESW-N	8'	60.	0.10	<0.6	1.3
CESW-N	NR	<5.	0.06	<0.1	<0.4
ESW-E	8'	<5.	<0.05	<0.1	<0.4
ESW-S	8'	350.	1.2	5.	50.
W4SW-NW	8'	<5.	<0.05	<0.1	<0.4
W4SW-NW2	12.5'	730.	<3.	<6.	100.
W4SW-NW3	16.5'	<5.	<0.05	<0.1	<0.4

TABLE 3

Summary of Analytical Results
Soil Samples from Beneath Waste Oil Tank
Results in Parts per Million - Dry Soil Basis

Sample Identification	Depth	Polycholornated Biphenyls Aroclor Mixtures	Polycholornated Biphenyls Total	Total Oil and Grease
OS-SW	9′	None	<0.1	6,100.
WOS-SW	9′	None	<0.1	13,000.

TABLE 4

Summary of Analytical Results
Soil Sample from Waste Oil Tank Side Walls
Results in Parts per Million - Dry Soil Basis

Sample Identification	Depth	High Boiling Hydrocarbons	Oil and Grease
WOSW-NE	8'	<10	10.
WOSW-NW	9'	<10.	10.
WOSW-SE	8'	10.	60.
WOSW-SW	9'	30.	200.
WOSW-SW2	NR*	10.	20.
WO-BOH	13'	10.	20.

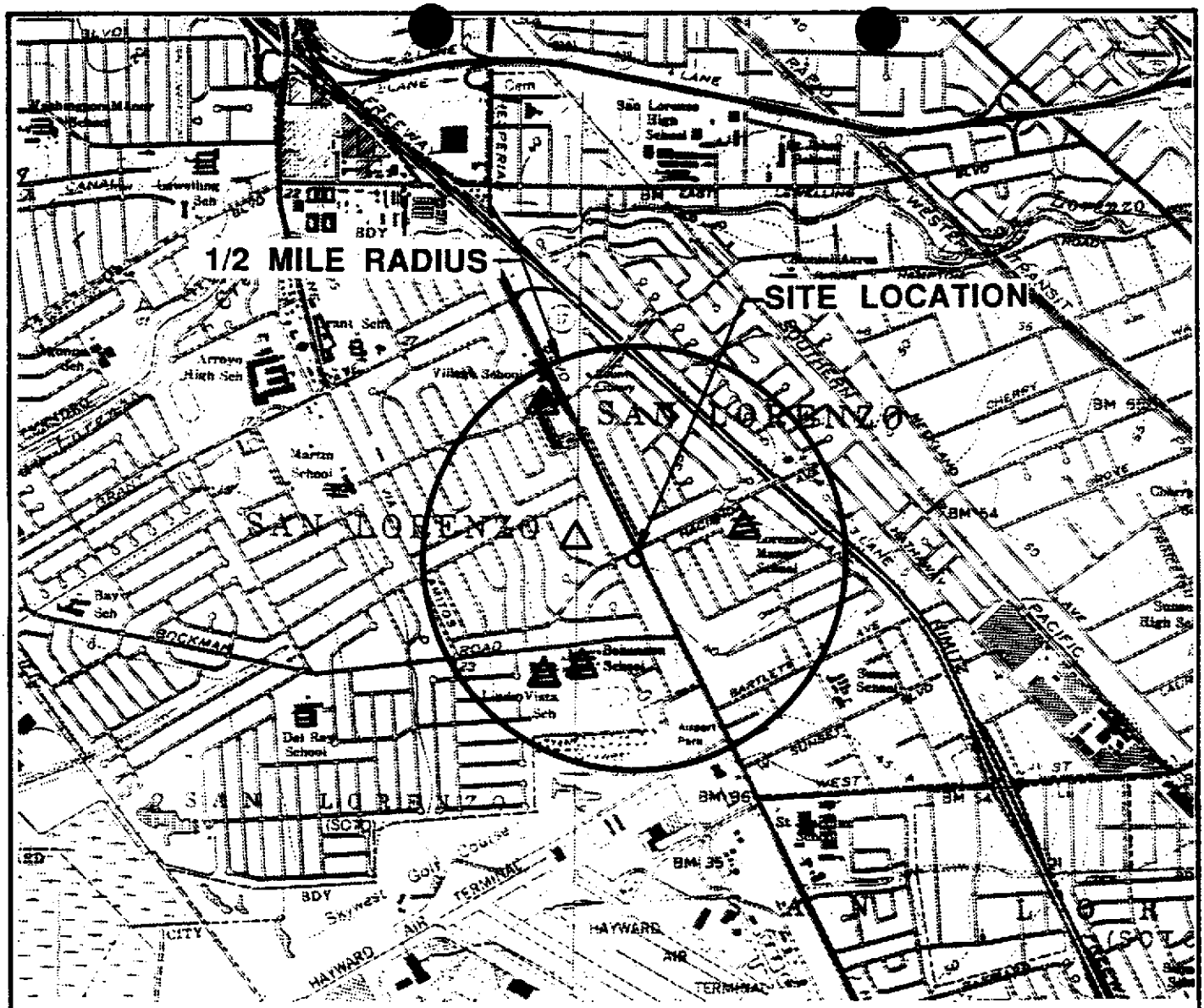
* NR - not reported

TABLE 5

Summary of Analytical Results
Confirmation Samples Following Soil Aeration
Results in Parts per Million - Dry Soil Basis

Sample Identification	Gasoline	Benzene	Toluene	Ethylbenzene	Xylenes
Composite A-13	8.	<0.05	<0.1	0.4*	----
Composite A-15	7.0	<0.05	<0.1	<0.4*	----
Composite A-16	7.8	<0.05	<0.1	<0.4*	----
Composite A-17	84.	0.1	<0.3	3.7	0.5
Composite A-18	23.	<0.05	<0.1	0.4	<0.1
Composite A-19	16.	<0.05	<0.1	0.4	<0.1
Composite A-20	21.	<0.05	<0.1	0.4	<0.1
Composite A-21	8.	<0.05	<0.1	<0.3	<0.1
Composite A-22	29.	<0.05	<0.1	1.3	<0.1

* Calculated as xylenes and ethylbenzene



QUADRANGLE LOCATIONS

△ SCHOOL

REFERENCE:
USGS 7.5 MIN. TOPOGRAPHIC MAP
TITLED: HAYWARD, CALIFORNIA
DATED: 1959 REVISED: 1980
TITLED: SAN LEANDRO, CALIFORNIA
DATED: 1959 REVISED: 1980

SCALE

2000 0 2000 FEET

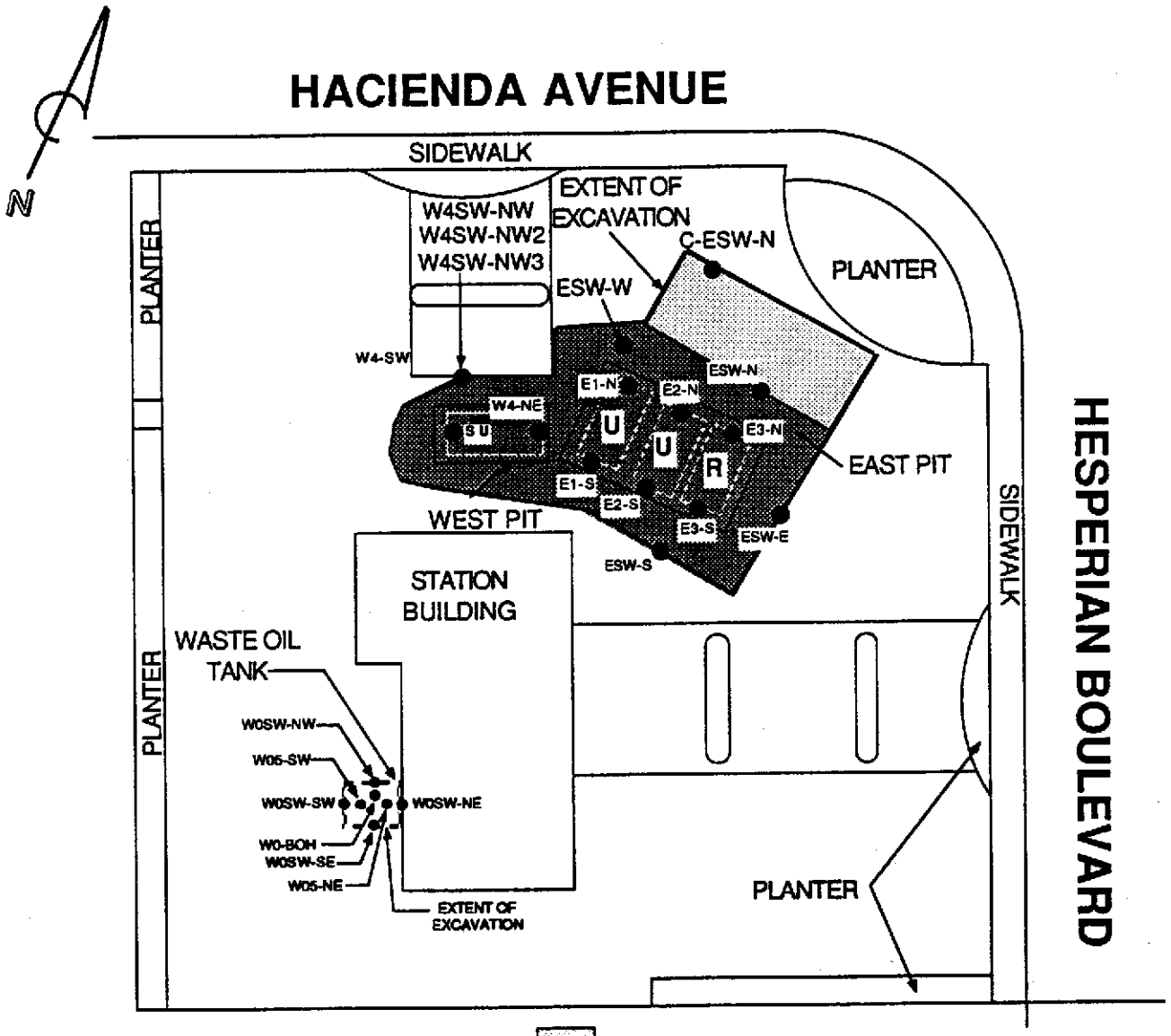
PACIFIC ENVIRONMENTAL GROUP INC.

ARCO STATION #608
17601 Hesperian Boulevard
San Lorenzo, California

SITE LOCATION MAP

FIGURE: 1

PROJECT: 330-06.03



NON HAZARDOUS FILL

GASOLINE CONTAMINATED FILL SUBJECT TO AERATION

WASTE OIL CONTAMINATED FILL

LEGEND

- ● SOIL SAMPLE LOCATION JUNE 1988
- R REGULAR GASOLINE
- U UNLEADED GASOLINE
- SU SUPER UNLEADED GASOLINE

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SAMPLE LOCATION MAP

FIGURE: 2
PROJECT: 330-06.03