



Chevron U.S.A. Inc.

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HAYWARD FIRE DEPARTMENT

D. Moller
Manager, Operations
S. L. Patterson
Area Manager, Operations
C. G. Trimbach
Manager, Engineering

Ms. Dyan Whyte
Regional Water Quality Control Board
San Francisco Bay Region
1111 Jackson St., Rm. 6040
Oakland, California 93401

Re: Chevron Service Station #9-0260
21995 Foothill Blvd.
Hayward, California

Dear Ms. Whyte,


Enclosed is the proposed workplan prepared by Weiss Associates, dated April 25, 1990, for a subsurface investigation at the above referenced site. The objective of the investigation is to assess the extent of hydrocarbons in soil and groundwater down-gradient of the site.

I declare under penalty of perjury that the information contained in the attached proposal is true and correct, and that any recommended actions are appropriate under the current circumstances, to the best of my knowledge.

If you have any questions regarding this report, please feel free to call Walt Posluszny at (415) 842-9040.

Very Truly Yours,

D. Moller

By: 
Walter F. Posluszny Jr.
Environmental Engineer
Chevron U.S.A.

cc: Ms. Linda Spencer, ACWD
Mr. Rafat Shahid, Alameda County
Ms. Suzanne Larson, City of Hayward
Mr. Hugh Murphy
Hayward Fire Department
22300 Foothill Boulevard
Hayward CA 94541
File(CPVMC-90260R4 LISTING)

April 25, 1990

Walter Posluszny
Chevron USA, Inc.
2410 Camino Ramon
P.O. Box 5004
San Ramon, California 94583

Re: Chevron Service Station #90260
21995 Foothill Boulevard
Hayward, California
WA Job #4-310-04

Dear Mr. Posluszny:

This letter summarizes Weiss Associates' (WA) previous investigations, and presents a workplan for additional work at the site referenced above (Figure 1). The objective of this investigation is to assess the horizontal extent of hydrocarbons in soil and ground water downgradient of the site.

BACKGROUND

In December 1987, EA Engineering of Lafayette, California conducted a soil vapor survey at the site. Based on the results of that survey, Chevron retained WA to conduct a subsurface investigation at the site. WA subsequently installed 10 ground water monitoring wells, MW-4 through MW-13, and drilled 2 additional soil borings in three field phases. Existing wells MW-1, MW-2 and MW-3, installed in the tank backfill area, are shallow wells and are not screened in the upper water-bearing zone. WA reported the results of the Phase I, II and III investigations to Chevron on March 31, 1988,¹ December 14, 1988² and August 3, 1989,³ respectively. WA has monitored ground water and prepared quarterly ground water monitoring reports since June 1988.

¹Weiss Associates, 1988a, Subsurface Investigation at Chevron Service Station #90260, 21995 Foothill Boulevard, Hayward, Ca., consultant's letter report to Chevron USA, Inc., March 31, 1988, 9 pp. with 3 attachments.

²Weiss Associates, 1988b, Subsurface Investigation - Phase II - at Chevron Service Station #90260, 21995 Foothill Boulevard, Hayward, California, consultant's report prepared for Chevron USA, Inc., December 14, 1988, 18 pp. with 4 attachments

³Weiss Associates, 1989, Subsurface Investigation - Phase III - at Operating Chevron Station #90260, 21995 Foothill Boulevard, Hayward, California, consultant's report prepared for Chevron USA, Inc., August 3, 1989, 14 pp. with 3 attachments.

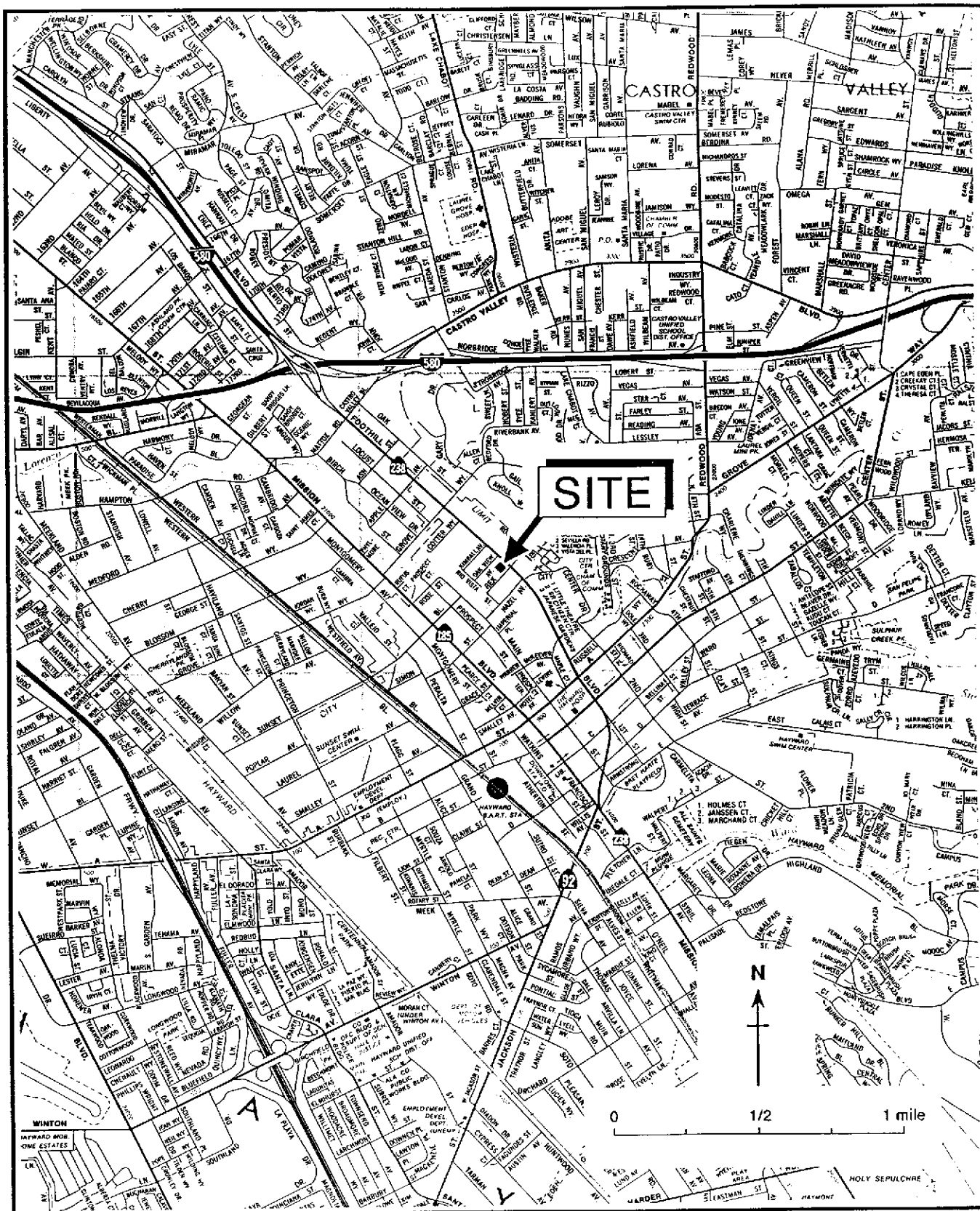


Figure 1. Site Location Map - Chevron Service Station #90260, 21995 Foothill Blvd., Hayward, California

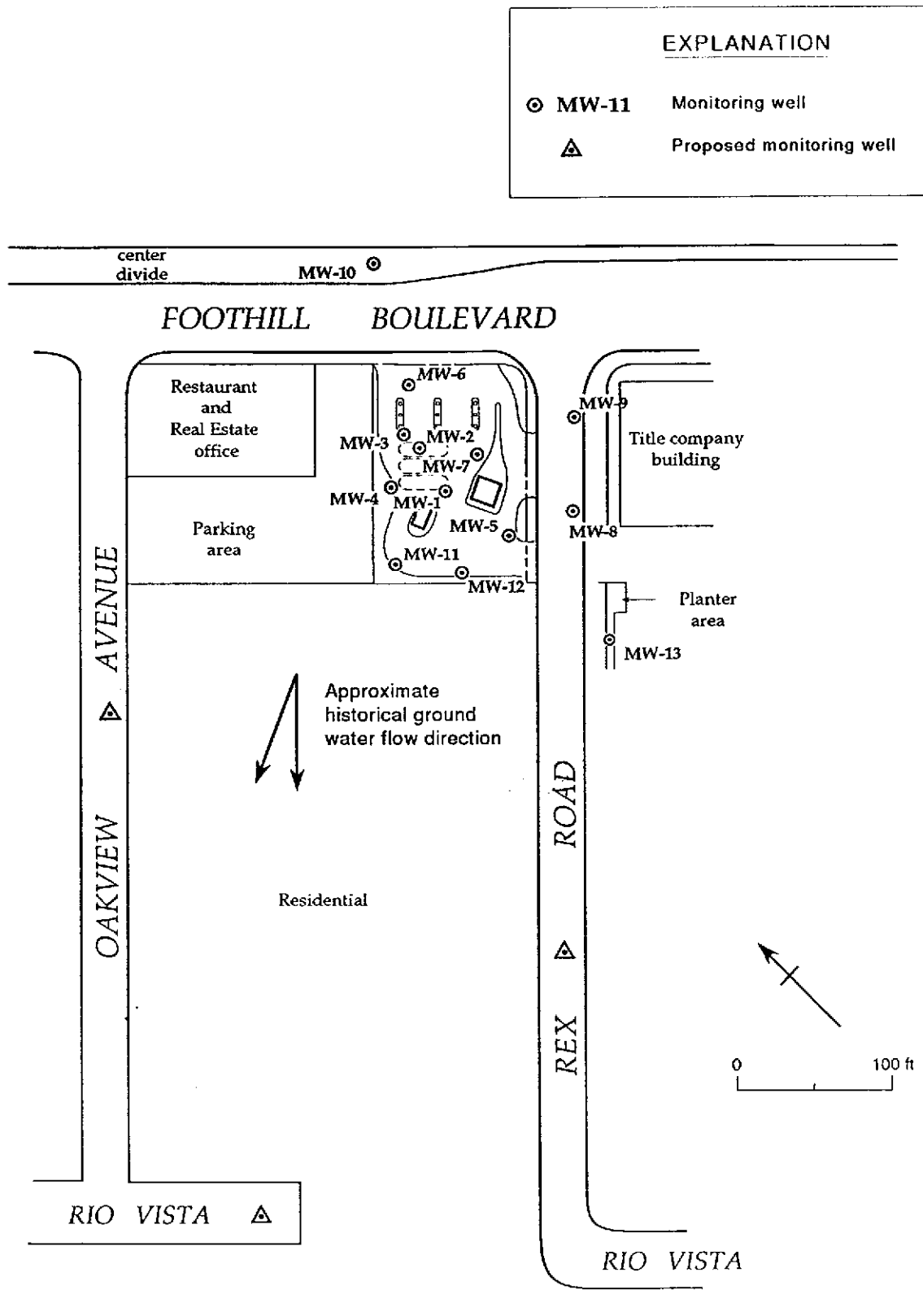


Figure 2. Monitoring Well Locations - Chevron Service Station #90260, 21995 Foothill Boulevard, Hayward, California

Total petroleum hydrocarbons as gasoline (TPH-G) concentrations ranging between 14,000 and 500,000 ppb have been consistently detected in ground water from all monitoring wells except upgradient well MW-10 (Figure 2). Free-floating hydrocarbons have been in well MW-8 since October 1989. Ground water historically flows southwestward to westward. Historical analytic results for ground water are presented in Table 1. Based on these results, WA proposes the following scope of work to assess the horizontal extent of hydrocarbons in ground water downgradient of the site.

SCOPE OF WORK

WA will install three ground water monitoring wells downgradient of the site as shown on Figure 2. The proposed wells are located to define the leading edge of the hydrocarbon plume in ground water.

The specific scope of work for this project is:

- 1) Research the site history and prepare a site safety plan;
- 2) Conduct a site reconnaissance;
- 3) Obtain necessary easement agreements and permits for the soil borings and well installations;
- 4) Drill three soil borings and collect soil samples for subsurface hydrogeologic description and possible chemical analysis. Survey the soil samples in the field with a portable photoionization detector (PID) to determine whether volatile hydrocarbons are present;
- 5) Based on field observations and PID measurements, analyze selected soil samples for TPH-G, benzene, ethylbenzene, toluene and xylenes (BETX) at a State-certified laboratory;
- 6) Complete the borings as 2-in. diameter ground water monitoring wells, develop the wells and collect ground water samples for TPH-G, BETX and halogenated volatile organic compound (HVOC) analysis;
- 7) Survey the top-of-casing elevations referenced to mean sea level to determine the ground water gradient;
- 8) Arrange for the disposal of soil cuttings and well purge water;
- 9) Report the results.

Each of these tasks is described below.

Table 1. Analytic Results for Ground Water, Chevron Service Station #90260, 21995 Foothill Boulevard, Hayward, California

Sample ID	Sample Date	Analytic Method	Analytical Lab	TPH-G	B	E	T	X	EDC	EDB	Other VOCs
-----parts per billion (µg/L)-----											
MW-4	2/05/88	8015/602	B&C	88,000	24,000	1,700	19,000	10,000	---	---	---
	6/15/88	8015/602	B&C	95,000	45,000	2,100	30,000	17,000	---	---	---
	9/27/88	524.2/8240	CCAS	500,000	41,000	<5,000	27,000	16,000	<5,000	<5,000	---
	9/27/88 ^a	524.2/8240	CCAS	88,000	1,200	1,600	4,100	12,000	270	230	---
	1/05/89	8015/8020	SAL	64,000	41,000	2,700	29,000	14,000	---	---	---
	6/28/89	8015/8020	SAL	110,000	34,000	2,400	24,000	13,000	---	---	---
	10/03/89	8015/8020	SAL	240,000	36,000	3,200	31,000	19,000	---	---	---
	1/04/90	8015/8020	SAL	130,000	33,000	2,400	28,000	14,000	---	---	---
MW-5	2/05/88	8015/602	B&C	80,000	16,000	2,600	15,000	17,000	---	---	---
	6/15/88	8015/602	B&C	77,000	42,000	2,500	38,000	16,000	---	---	---
	9/27/88	524.2/8240	CCAS	470,000	39,000	<5,000	32,000	16,000	<5,000	<5,000	---
	9/27/88 ^a	524.2/8240	CCAS	48,000	1,800	1,600	3,500	10,000	410	420	---
	1/05/89	8015/8020	SAL	82,000	44,000	2,400	37,000	14,000	---	---	---
	6/28/89	8015/8020	SAL	80,000	36,000	2,400	24,000	13,000	---	---	---
	10/03/89	8015/8020	SAL	240,000	40,000	2,600	35,000	15,000	---	---	---
	1/04/90	8015/8020	SAL	130,000	37,000	2,400	31,000	13,000	---	---	---
MW-6	2/05/88	8015/602	B&C	53,000	5,100	2,100	4,400	14,000	---	---	---
	6/15/88	8015/602	B&C	33,000	9,200	520	5,500	20,000	---	---	---
	9/27/88	524.2/8240	CCAS	17,000	2,200	1,700	2,800	5,100	130	<10	---
	1/05/89	8015/8020	SAL	37,000	5,000	2,200	3,400	10,000	---	---	---
	6/28/89	8015/8020	SAL	80,000	7,000	2,000	4,100	9,700	---	---	---
	10/03/89	8015/8020	SAL	110,000	8,500	2,600	5,100	14,000	---	---	---
	1/04/90	8015/8020	SAL	59,000	5,200	2,000	2,600	11,000	---	---	---
MW-7	2/05/88	8015/602	B&C	81,000	34,000	2,400	36,000	16,000	---	---	---
	6/15/88	8015/602	B&C	77,000	40,000	1,400	41,000	24,000	---	---	---
	9/27/88	524.2/8240	CCAS	30,000	9,700	400	8,900	4,100	2,600	<10	---
	1/05/89	8015/8020	SAL	96,000	36,000	2,800	38,000	16,000	---	---	---
	6/28/89	8015/8020	SAL	110,000	31,000	2,600	30,000	16,000	---	---	---
	10/03/89	8015/8020	SAL	230,000	34,000	2,400	34,000	15,000	---	---	---
	1/04/90	8015/8020	SAL	150,000	41,000	2,400	40,000	15,000	---	---	---
MW-8	10/27/88	524.2/8240	CCAS	190,000	27,000	2,200	43,000	15,000	<500	<500	---
	1/05/89	8015/8020	SAL	87,000	24,000	3,000	39,000	15,000	---	---	---
	6/28/89	8015/8020	SAL	120,000	22,000	2,900	35,000	16,000	---	---	---
	10/03/89 ^b	---	---	---	---	---	---	---	---	---	---
	1/04/89 ^b	---	---	---	---	---	---	---	---	---	---

--Table 1 continues on next page--

Table 1. Analytic Results for Ground Water, Chevron Service Station #90260, 21995 Foothill Boulevard, Hayward, California (continued)

Sample ID	Sample Date	Analytic Method	Analytical Lab	TPH-G	B	E	T	X	EDC	EDB	VOCs
-----parts per billion (µg/L)-----											
MW-9	10/27/88	524.2/8240	CCAS	50,000	2,000	2,000	9,900	14,000	<500	<500	---
	1/05/89	8015/8020	SAL	55,000	670	3,400	8,900	16,000	---	---	---
	6/28/90	8015/8020	SAL	100,000	510	2,600	4,500	13,000	---	---	---
	10/03/89	8015/8020	SAL	130,000	540	3,200	8,000	17,000	---	---	---
	1/04/90	8015/8020	SAL	83,000	600	2,600	4,600	14,000	---	---	---
MW-10	10/27/88	524.2/8240	CCAS	<500	26	<5	13	<5	<5	<5	---
	1/05/89	8015/8020	SAL	<1,000	<0.3	<0.3	<0.3	<0.3	---	---	---
	6/28/89	8015/8020	SAL	<500	<0.5	<0.5	<0.5	<0.5	---	---	---
	10/03/89	8015/8020	SAL	<500	<0.5	<0.5	<0.5	<0.5	---	---	---
	1/04/90	8015/8020	SAL	<50	0.5	<0.5	1.1	1.7	---	---	---
MW-11	6/28/89	8015/8240	SAL	60,000	36,000	2,500	13,000	12,000	---	---	ND
	10/03/89	8015/8020	SAL	14,000	4,200	240	1,400	1,300	---	---	---
	1/04/90	8015/8020	SAL	82,000	33,000	2,000	11,000	10,000	---	---	---
MW-12	6/28/89	8015/8240	SAL	55,000	30,000	2,900	21,000	19,000	---	---	ND
	10/03/89	8015/8020	SAL	170,000	30,000	2,700	23,000	15,000	---	---	---
	1/04/90	8015/8020	SAL	110,000	24,000	2,300	19,000	12,000	---	---	---
MW-13	6/28/89	8015/8240	SAL	54,000	12,000	1,900	10,000	15,000	---	---	ND
	10/03/89	8015/8020	SAL	120,000	10,000	2,300	10,000	15,000	---	---	---
	1/04/90	8015/8020	SAL	87,000	6,800	2,000	10,000	12,000	---	---	---
Bailer Blank	1/05/89	8015/8020	SAL	<1,000	<0.3	<0.3	<0.3	<0.3	---	---	---
Trip Blank	1/05/89	8015/8020	SAL	<1,000	<0.3	<0.3	<0.3	<0.3	---	---	---
	10/03/89	8015/8020	SAL	<500	<0.5	<0.5	<0.5	<0.5	---	---	---
	1/04/89	8015/8020	SAL	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
DHS MCL	-	-	-	NE	1	680	100 ^c	1,750	0.5	0.02	V

--Table 1 continues on next page--

Table 1. Analytic Results for Ground Water, Chevron Service Station #90260, 21995 Foothill Boulevard, Hayward, California (continued)

Abbreviations:

TPH-G = Total Petroleum Hydrocarbons as Gasoline
B = Benzene
E = Ethylbenzene
T = Toluene
X = Xylenes
EDC = Ethylene Dichloride (1,2-dichloroethane)
EDB = Ethylene Dibromide (1,2-dibromoethane)
VOCs = Volatile Organic Compounds
--- = Not analyzed
DHS MCL = Department of Health Services Maximum Contaminant Level
NE = Not established
V = Various
ND = Not detected at detection limits of 500 to 2,000 ppb

^a = Samples from MW-4 and MW-5 were re-analyzed to confirm the anomalously high initial TPH-G report. The second analysis was conducted 52 days after sample collection. The samples were preserved with NaHSO₄ and refrigerated.
^b = Not sampled due to free-floating product in the well
^c = DHS Recommended Action Level for Drinking Water (no MCL established)

Analytical Laboratory:

B&C = Brown and Caldwell Laboratories of Emeryville, California
CCAS = Central Coast Analytical Services of San Luis Obispo, California
SAL = Superior Analytical Laboratory of San Francisco and Martinez, California

Analytic Method:

524.2/8240 = Fuel Fingerprint Analysis - EPA Method 524.2/8240, Total Petroleum and Aromatic Volatile Hydrocarbons (GC/MS)
602 = EPA Method 602, Aromatic Volatile Hydrocarbons (GC/PID)
8015 = Modified EPA Method 8015, Total Petroleum Hydrocarbons (GC/FID)
8020 = EPA Method 8020, Volatile Aromatics (GC/PID)

TASK 1 - SITE SAFETY PLAN

WA will review the results of previous subsurface investigations and prepare a site safety plan. The site safety plan will identify potential site hazards and specify procedures to protect site workers. Since the proposed wells are in roadways, the plan will include traffic safety procedures.

TASK 2 - SITE RECONNAISSANCE

WA will contact Underground Service Alert, examine drawings of underground utilities and visit the site and adjacent areas to identify potential subsurface conduits and underground utilities.

TASK 3 - EASEMENT AGREEMENTS and PERMITS

WA will obtain an easement agreement from the City of Hayward Public Works Department to install wells in the public right-of-ways. We will obtain well permits from the Alameda County Flood Control and Water Conservation District - Zone 7.

TASK 4 - SOIL BORINGS

WA will drill three soil borings at the approximate locations shown on Figure 2, to determine whether hydrocarbons are in subsurface materials at these locations. Actual boring locations will depend on field conditions such as the location of nearby utilities, specifications of the easement agreements, access and traffic conditions. Based on present ground water conditions at the site, we anticipate that the soil borings will penetrate about 20 ft below grade.

WA will collect soil samples at least every 5 ft, and at anticipated sediment and ground water contacts, for hydrogeologic description and possible chemical analysis. We will survey the samples with a PID to qualitatively determine whether hydrocarbons are present. Samples for possible chemical analysis will be immediately sealed and refrigerated for transport under chain of custody to the analytical laboratory.

TASK 5 - SOIL ANALYSIS

WA will select soil samples for analysis based on PID measurements and field observations. The samples will be analyzed for TPH-G by Modified EPA Method 8015, gas chromatography (GC) with flame ionization detection, and for BETX by EPA Method 8020, GC/PID.

TASK 6 - WELL INSTALLATION, DEVELOPMENT, and GROUND WATER SAMPLING

WA will construct the wells with 2-in. diameter, 0.02-in. slotted PVC well screen and blank casing. We will place No. 3 Monterey sand into the annular space to about 1 or 2 ft above the screened interval. Approximately 1 ft of bentonite pellets will separate the sand from the sanitary surface seal. We will use grout consisting of Portland cement with 3-5 percent bentonite to form the sanitary surface seal, which prevents infiltration of surface water to the ground water.

WA will develop the monitoring wells using surge block agitation, and airlift evacuation or bailing, and we will estimate the flow rate for each well.

WA will install a new dedicated PVC bailer in each well for water sampling. Prior to sampling, we will purge at least 3 well-volumes of ground water from each well. If a well is evacuated dry, we will allow it to recover to 80 percent of its static level, or for at least 2 hours before sampling. We will decant water samples into 40-ml glass vials with Teflon sceptors, place the vials in plastic guard bottles with activated carbon pellets, and refrigerate them for transport under chain-of-custody to the analytic laboratory. A travel blank will accompany the samples to check for possible contamination during transport or storage.

All water samples will be analyzed for TPH-G by Modified EPA Method 8015, and for BETX by EPA Method 8020. Since 1,2-dichloroethane has been detected in samples from several wells on-site, the ground water samples will also be analyzed for HVOCs by EPA Method 8010, GC with halide-specific detector.



TASK 7 - ELEVATION SURVEY

A State-licensed land surveyor will survey the top-of-casing elevations of the wells, referenced to mean sea level. WA will tabulate ground water elevation data and determine the ground water gradient.

TASK 8 - SOIL AND WATER DISPOSAL

WA will temporarily store all soil cuttings and ground water generated during the investigation at the service station in Department of Transportation-approved steel drums. We will collect composite samples of the soil cuttings as necessary to determine the appropriate method of disposal. All ground water will be transported to Gibson Oil Refinery in Bakersfield for recycling.

TASK 9 - REPORT

WA will prepare a report presenting the results of the investigation. However, if the new wells do not adequately define the horizontal extent of hydrocarbons in ground water, we will proceed with additional field work to achieve full plume definition before preparing the final report. This report will include:

- A summary of the results,
- Site background and history,
- Site location map,
- Rationale for well placement and design, and descriptions of the soil borings, well construction, development and sampling,
- A hydrogeologic cross-section, if appropriate,
- Tabulated soil and ground water analytic results,
- Tabulated ground water elevation data and a groundwater elevation contour map,
- TPH-G, BETX and HVOC isoconcentration maps, as appropriate,
- Conclusions,

Mr. Walter Posluszny
April 25, 1990

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WEISS ASSOCIATES



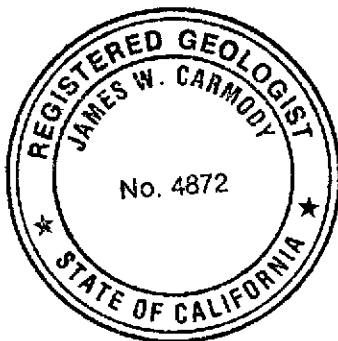
- Attachments including boring logs, analytic reports and chain-of-custody documents.

SCHEDULE

Conditional upon your approval and obtaining easement agreements with the City of Hayward, we will install the wells by May 25, 1990. If the proposed wells adequately define the horizontal extent of hydrocarbons, we will submit the report to Chevron by July 27, 1990.

We appreciate the opportunity to provide hydrogeologic consulting services to Chevron and trust that this workplan meets your needs. Please call Jim Carmody if you have any questions.

Sincerely,
Weiss Associates



John W. Duey
John W. Duey
Staff Geologist

James W. Carmody
James W. Carmody
Project Geologist

JWD/JWC:kw

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