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February 15, 1991

Ms. Penny Silzer
San Francisco Bay Region
Regional Water Quality Control Board
1800 Harrison Street
Suite #700
Oakland, California 94612

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

Dear Ms. Silzer,

Please find attached a copy of the most recent subsurface investigation and quarterly monitoring reports for the above referenced site. Chevron is currently monitoring a total of fifteen groundwater wells with eight being onsite and seven being offsite. Groundwater is at approximately 15 feet below grade and is moving to the southwest. Phase separated hydrocarbons are now showing up in four monitoring wells. All but one well contains some level of dissolved hydrocarbons.

Within 30 days we should have a 'Solarchem' test unit on site for a short test, after Solarchem; Wastewater Treatment Systems will perform a one month long test. We will be pumping from the four most downgradient onsite wells that we have. After this test, we will evaluate the data and purchase and install the most cost-effective, efficient system possible. Our remediation system 'pad'
is set-up to handle either of the these two 'UV-OX' systems or a GAC based system. We will keep your office apprised of the results of our test and our final decision.

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

Should you have any questions regarding the attached reports, please feel free to call either Ms. Fatima Lelic (Weiss Associates) at (415) 547-5420 or myself at (415) 842-9040.

Very Truly Yours,

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

cc: Mr. Rafat Shahid, Alameda County
Ms. Suzanne Larson, City of Hayward
Mr. Hugh Murphy, Hayward Fire Dept.
File(MAC 9-0260R5)

WEISS ASSOCIATES
Geologic and Environmental Services
Fax: 415-547-5043 Phone: 415-547-5420
5500 Shellmound Street, Emeryville, CA 94608

SUBSURFACE INVESTIGATION

- Phase IV -

at

Chevron Service Station #9-0260
21995 Foothill Boulevard
Hayward, California

prepared for

Chevron USA, Incorporated
2410 Camino Ramon
P.O. Box 5004
San Ramon, CA 94583-0804
WA Job #4-310-04

October 24, 1990

WEISS ASSOCIATES

SUBSURFACE INVESTIGATION

- Phase IV -

at

Chevron Service Station #9-0260
21995 Foothill Boulevard
Hayward, California

prepared by

Weiss Associates
5500 Shellmound Street
Emeryville, California 94608

John W. Ducy
Staff Geologist

James W. Carmody, R. G. Date
Senior Project Hydrogeologist

Weiss Associates' work at Chevron Service Station #9-0260, 21995 Foothill Boulevard, Hayward, California was conducted under my supervision. To the best of my knowledge, the data contained herein are true and accurate and satisfy the specified scope of work for this project.

REGISTERED GEOLOGIST
MICHAEL D. DRESEN
No. EG 1246
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

Michael D. Dresen 10-24-90
Michael D. Dresen Date
Certified Engineering Geologist
No. EG1246

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SUMMARY

Weiss Associates drilled soil borings BH-H, BH-J and BH-K to depths between 25 and 45 ft below grade near Chevron Service Station #9-0260 in Hayward, California. The borings were completed as offsite ground water monitoring wells MW-14, MW-15 and MW-16, respectively.

Up to 110 parts per million total petroleum hydrocarbons as gasoline (TPH-G) were detected in 5 of 12 soil samples from the borings, located about 270 to 430 ft southwest of the Chevron site.

Ground water from monitoring wells MW-14, MW-15 and MW-16 contain 970, 2,000 and 11,000 parts per billion (ppb) TPH-G, respectively. Benzene was above the California Department of Health Services (DHS) Maximum Contaminant Level (MCL) in all three wells and ethyl benzene was above the DHS MCL in well MW-16.

Depth to ground water is about 14 to 21 ft below grade and flows to the southwest.

1. INTRODUCTION

This report presents the results of the subsurface investigation conducted by Weiss Associates (WA) at former Chevron USA Inc. (Chevron) Service Station #9-0260, located at 21995 Foothill Boulevard, Hayward, California (Figure 1). The objective of the WA investigation was to further assess the extent of hydrocarbons in soil and ground water downgradient of the site vicinity.

1.1 SCOPE OF WORK

The scope of work for the investigation was limited to:

- Reviewing the site history and prepare a site safety plan;
- Obtaining the necessary well construction permit from Alameda County and an encroachment permit from the City of Hayward;
- Drilling three soil borings and collecting soil samples for hydrogeologic description and possible chemical analysis;
- Surveying the soil samples in the field with a portable photoionization detector (PID) to determine whether volatile hydrocarbons were in the samples;
- Analyzing selected soil samples for total petroleum hydrocarbons as gasoline (TPH-G), and for benzene, ethylbenzene, toluene and xylenes (BETX);
- Completing the borings as 2-inch diameter ground water monitoring wells;
- Developing the wells, collecting ground water samples and analyzing the samples for TPH-G, BETX and halogenated volatile organic compounds (HVOCs);
- Surveying the top-of-casing elevations of the new wells referenced to a City of Hayward benchmark to calculate the ground water elevation, gradient and flow direction, and performing a horizontal survey to record the well locations;
- Arranging for disposal of drill cuttings and ground water from the investigation; and,

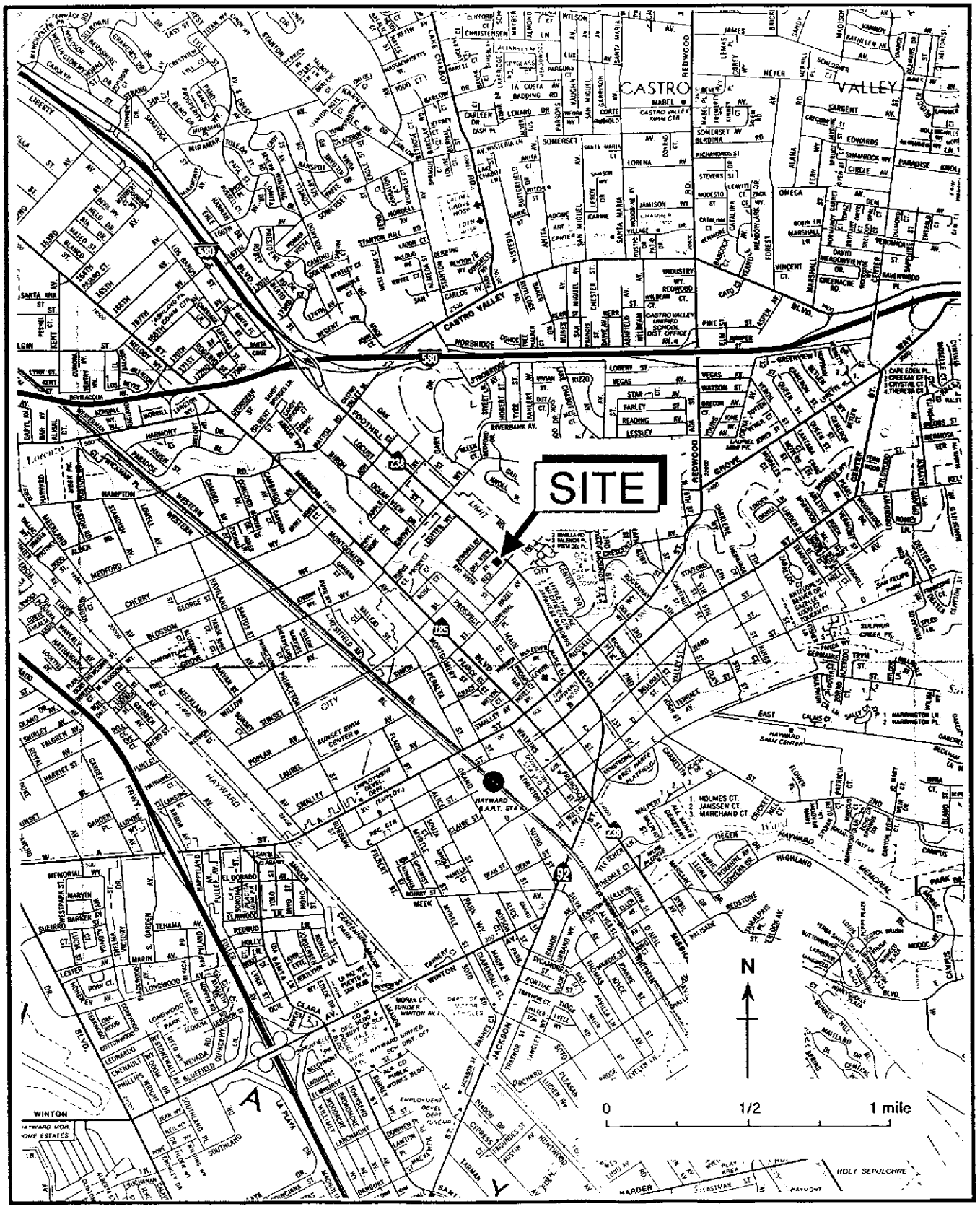


Figure 1. Site Location Map - Chevron Service Station #90260, 21995 Foothill Blvd., Hayward, California

6/12/90

- Reporting the results.

This report describes each task and presents the results of the investigation.

1.2 BACKGROUND

Chevron Service Station #9-0260 is located in a mixed commercial and residential area at the northwest corner of Foothill Boulevard and Rex Road in Hayward, California (Figure 1). In December 1987, EA Engineering, Science and Technology, Inc. (EA) of Lafayette, California conducted a Soil Vapor Survey (SVS) at the station. EA measured volatile hydrocarbon soil vapor concentrations up to 4,300 parts per million by volume (ppmv) southeast of the underground fuel tanks (EA, 1987).

Between January 1988 and June 1989, WA installed monitoring wells MW-4 through MW-13 on- and offsite, and drilled five additional soil borings in three phases of subsurface investigation (WA, 1988a, 1988b, 1989). Pre-existing wells MW-1, MW-2 and MW-3 are tank backfill wells.

Ground water wells MW-4 through MW-13 are monitored quarterly. Ground water is historically about 12 to 14 ft below grade, and flows westward to southwestward. Since October 1989, WA has measured 0.04 to 0.3 ft of floating hydrocarbons in offsite well MW-8, southeast of the site (WA, 1990). A former Standard Oil service station site at the southeast corner of Foothill Boulevard and Rex Road near well MW-8 is a possible source of hydrocarbons in ground water. However, there is no record of any confirmed leak at that site, which was closed as a gas station and the underground fuel tanks removed in 1974 (WA, 1989).

TPH-G and BETX are consistently detected in ground water samples from all monitoring wells except upgradient well MW-10. TPH-G concentrations range from 66,000 to 200,000 parts per billion (ppb), and total BETX concentrations range from 20,500 to 79,600 ppb in samples from the most recent sampling on July 3, 1990. All BETX concentrations were above the DHS MCLs or recommended action level for drinking water (WA, 1990).

WA is presently assisting Chevron with designing a ground water extraction and treatment system for the site. WA regularly removes floating hydrocarbons from well MW-8 by bailing as an interim remedial measure.

2. SUBSURFACE INVESTIGATION

Prior to drilling, WA obtained ground water protection ordinance permit #90491 from the Alameda County Flood Control and Water Conservation District - Zone 7. The City of Hayward issued a street and public right-of-way encroachment permit, #PW10461, to drill and construct the ground water monitoring wells.

On August 15 and 16, 1990, Soils Exploration Services, Inc., of Vacaville, California, drilled soil borings BH-H, BH-J and BH-K, subsequently completed as monitoring wells MW-14, MW-15 and MW-16 (Figure 2), respectively, using a CME 55 hollow-stem auger drill rig. The drilling was directed by WA geologist John Duey, working under the supervision of James W. Carmody, Registered Geologist.

2.1 SOIL BORING AND SAMPLING

Soil borings BH-H, BH-J and BH-K were drilled in City of Hayward rights-of-way on Rex Road, Oak View Avenue, and Rio Vista Street, respectively, west of the Chevron service station. Soil samples were collected at least every 5 ft for hydrogeologic description and possible chemical analysis. Samples were collected with a split-barrel sampler lined with clean brass tubes. Drilling equipment was steam-cleaned prior to use and sampling equipment was washed with Alconox detergent and rinsed between samples to prevent cross-contamination. Upon removal from the sampler, one sample tube was immediately trimmed, sealed with aluminum foil, plastic caps, and duct tape, and labeled and refrigerated for delivery under chain of custody to a State-certified laboratory.

Soil samples were surveyed in the field with a PID to qualitatively determine the presence or absence of volatile hydrocarbons. The PID measures volatile hydrocarbon vapor concentrations in ppmv and is used for qualitative, as opposed to quantitative, assessment. This is because the correlation between the volume measurement of the PID and the mass measurement of the laboratory analyses are not well defined, and because field measurement

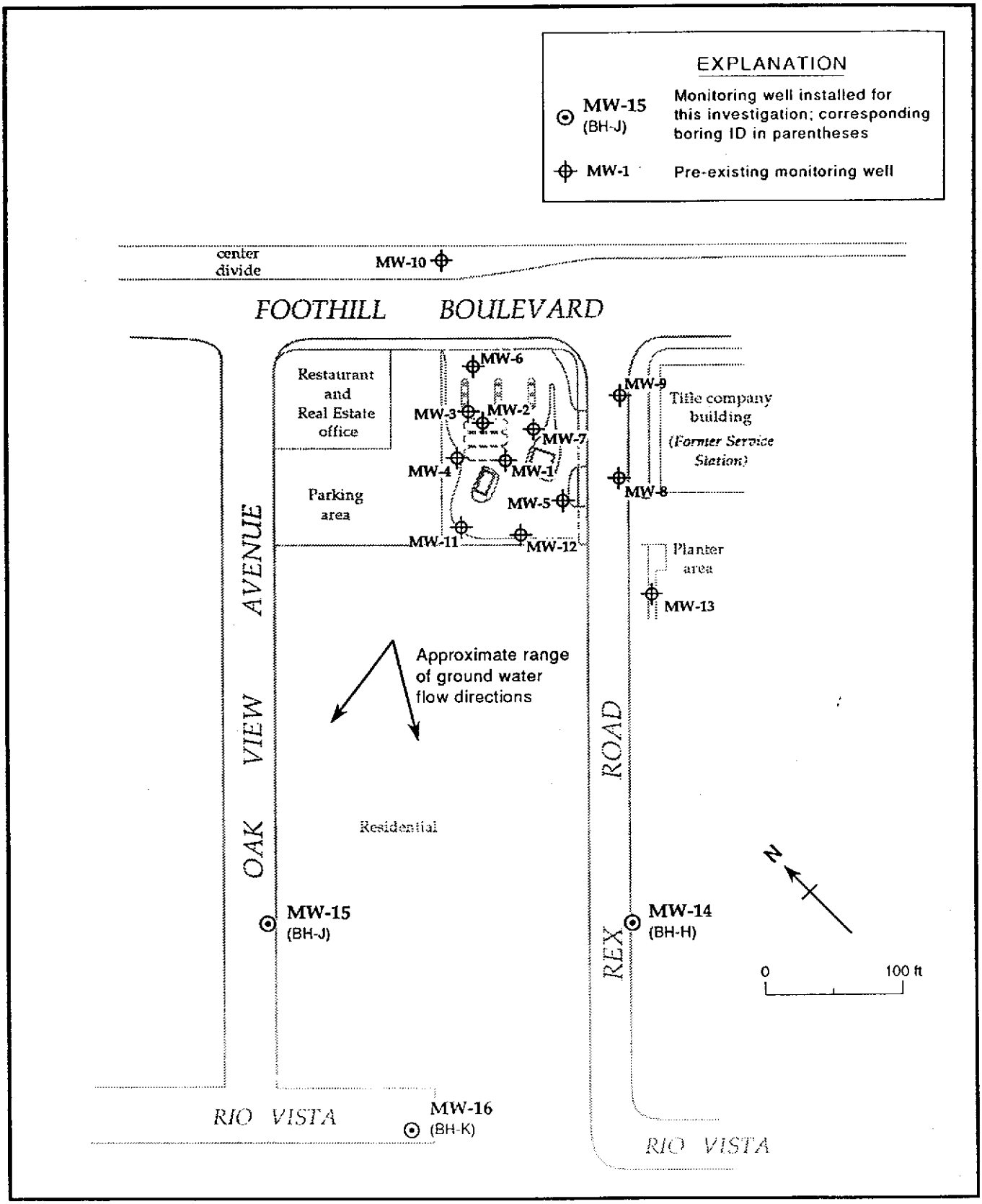


Figure 2. Monitoring Well and Soil Boring Locations - Chevron Service Station #9-0260, 21995 Foothill Boulevard, Hayward, California

procedures are not as rigorous as laboratory procedures. PID readings are shown on the boring logs presented in Appendix A.

Soil borings BH-H, BH-J and BH-K were drilled to about 45, 25 and 40 ft below grade, respectively. The subsurface sediments consist primarily of sandy silt, silty clay and silty sands. Ground water was first encountered in a sandy silt about 20 ft below grade in boring BH-J. Ground water was encountered in silty sands about 25 ft below grade in borings BH-H and BH-K.

2.2 ANALYTIC RESULTS FOR SOIL

Based on field observations and PID measurements, 12 soil samples were analyzed for TPH-G by Modified EPA Method 8015, gas chromatography with flame ionization detection (GC/FID), and for BETX by EPA Method 8020, GC with photoionization detection (PID). Analytic results for soil are presented in Table 1 and the laboratory analytic reports and chain-of-custody documents are included as Appendix B.

Hydrocarbons were detected in five of 12 soil samples, with TPH-G ranging from 3 to 110 ppm. The highest TPH-G concentration was in a saturated sample from a sandy silt layer at 22.8 ft in boring BH-H. The only unsaturated sample containing hydrocarbons was from 18.2 ft in boring BH-K, which contained 97 ppm TPH-G. Total BETX concentrations in the five samples ranged from 0.09 ppm to 5.95 ppm, with the highest concentration in the sample from 21.3 ft in a clayey silt layer at the water table in boring BH-K.

2.3 WELL INSTALLATION AND DEVELOPMENT

Borings BH-H, BH-J and BH-K were completed as ground water monitoring wells MW-14, MW-15 and MW-16, respectively. Ground water was encountered in the borings for these wells between 20 and 26 ft below grade. Water levels subsequently stabilized in the completed wells between about 17 and 21 ft below grade.

The monitoring wells are constructed of 2-inch diameter, 0.020-inch slotted, flush-threaded PVC well screen and blank casing. Number 3 Monterey sand was placed between the

TABLE 1. Analytic Results for Soil - Chevron Service Station #9-0260, 21995 Foothill Boulevard, Hayward, California

Sample ID	Sample Depth	Date Sampled	Analytical Laboratory	Analytic Method	Sat/ Unsat	TPH-G	B	E	T	X
						<---------parts per million (mg/kg)--------->				
BH-H	14.3	8/15/90	SAL	8015/8020	Unsat	<1	<0.05	<0.05	<0.05	<0.05
(MW-14)	17.3	8/15/90	SAL	8015/8020	Unsat	<1	<0.05	<0.05	<0.05	<0.05
	19.8	8/15/90	SAL	8015/8020	Unsat	<1	<0.05	<0.05	<0.05	<0.05
	22.8	8/15/90	SAL	8015/8020	Sat	110	<0.05	<0.05	0.15	0.12
BH-J	10.3	8/16/90	SAL	8015/8020	Unsat	<1	<0.05	<0.05	<0.05	<0.05
(MW-15)	17.8	8/16/90	SAL	8015/8020	Sat	3	<0.05	<0.05	<0.05	0.09
	20.3	8/16/90	SAL	8015/8020	Sat	<1	<0.05	<0.05	<0.05	<0.05
BH-K	9.4	8/16/90	SAL	8015/8020	Unsat	<1	<0.05	<0.05	<0.05	<0.05
(MW-16)	14.8	8/16/90	SAL	8015/8020	Unsat	<1	<0.05	<0.05	<0.05	<0.05
	18.2	8/16/90	SAL	8015/8020	Unsat	97	0.11	0.46	0.22	3.0
	21.3	8/16/90	SAL	8015/8020	Sat	30	0.96	0.39	2.1	2.5
	24.3	8/16/90	SAL	8015/8020	Sat	3	0.17	<0.05	<0.05	<0.05

Abbreviations:

Sat/Unsat = Saturated or unsaturated soil sample
TPH-G = Total Petroleum Hydrocarbons as Gasoline
B = Benzene
E = Ethylbenzene
T = Toluene
X = Xylenes
<n = Not detected at detection limit of n ppb

Analytic Laboratory:

SAL = Superior Analytical Laboratory, San Francisco, California

Analytic Method:

8015 = Modified EPA Method 8015 for TPH-G
8020 = EPA Method 8020 for BETX

casing and borehole wall, to about 1 ft above the well screen. About 1 ft of bentonite pellets were used to separate the sand pack from the sanitary surface seal of Portland type I and II cement mixed with 3-5 percent by volume bentonite powder. The well heads are secured with locking well plugs and are protected by flush-mounted watertight vaults.

On August 23, 1990, WA Environmental Technician David Charles developed the wells by surge block agitation and airlift evacuation. About 10 to 75 gallons of water was removed from each well during development. The estimated yield during airlift evacuation was 0.5 to 1.0 gallon per minute from each well. New dedicated PVC bailers were installed in the wells for future ground water purging and sampling.

2.4 GROUND WATER SAMPLING

Ground water samples were collected from wells MW-14, MW-15 and MW-16 on August 29, 1990. Prior to sampling, at least three well volumes of ground water were evacuated from each well with the dedicated PVC bailers. No floating hydrocarbons were detected in the wells. Samples were decanted from the bailers into 40 ml glass vials, preserved with hydrochloric acid for TPH-G and BETX analysis, and in vials without preservatives for HVOC analysis, according to EPA protocol. All samples were immediately labeled and refrigerated for transport under chain-of-custody to a State-certified laboratory for analysis. A travel blank accompanied the samples and was analyzed for quality control. No bailer blank was collected since all bailers are dedicated to each well.

2.5 ANALYTIC RESULTS FOR GROUND WATER

The ground water samples were analyzed for TPH-G by Modified EPA Method 8015 (GC/FID), for BETX by EPA Method 8020 (GC/PID), and for HVOCs by EPA Method 8010, GC with halide-specific detector (GC/HSD). Analytic results for ground water are presented in Table 2, and the analytic reports and chain-of-custody documents are included in Appendix C.

Ground water samples from wells MW-14, MW-15 and MW-16 contained TPH-G at 970, 2,000 and 11,000 ppb, respectively. Benzene was above the DHS MCL in all wells, with up to 6,000 ppb detected in the sample from MW-16. Ethylbenzene was above the DHS MCL in the MW-16 sample, and 1,2-Dichloroethane (EDC) was slightly above the DHS MCL in well MW-14. Except for 0.6 ppb chloroform in ground water from well MW-15, no other HVOCs were detected in samples from any wells. An isoconcentration contour map for benzene in ground water is shown in Figure 3.

2.6 GROUND WATER GRADIENT

On September 19 and 20, 1990, John E. Koch, land surveyor of Oakland, California (California State License No. LS4811) completed a top-of-casing and horizontal

TABLE 2. Analytic Results for Ground Water, Chevron Service Station #9-0260, 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	02/05/88	8015/602	B&C	88,000	24,000	1,700	19,000	10,000	---	---	---
	06/15/88	8015/602	B&C	95,000	45,000	2,100	30,000	17,000	---	---	---
	09/27/88	524.2-8240	CCAS	500,000	41,000	<5,000	27,000	16,000	<5,000	<5,000	---
	09/27/88*	524.2-8240	CCAS	88,000	1,200	1,600	4,100	12,000	270	230	---
	01/05/89	8015/8020	SAL	64,000	41,000	2,700	29,000	14,000	---	---	---
	06/28/89	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	---	---	---
	01/04/90	8015/8020	SAL	130,000	33,000	2,400	28,000	14,000	---	---	---
	04/03/90	8015/8020	SAL	110,000	41,000	2,900	32,000	17,000	---	---	---
	07/03/90	8015/8020	SAL	180,000	32,000	2,600	30,000	15,000	---	---	---
MW-5	02/05/88	8015/602	B&C	80,000	16,000	2,600	15,000	17,000	---	---	---
	06/15/88	8015/602	B&C	77,000	42,000	2,500	38,000	16,000	---	---	---
	09/27/88	524.2-8240	CCAS	470,000	39,000	<5,000	32,000	16,000	<5,000	<5,000	---
	09/27/88*	524.2-8240	CCAS	48,000	1,800	1,600	3,500	10,000	410	420	---
	01/05/89	8015/8020	SAL	82,000	44,000	2,400	37,000	14,000	---	---	---
	06/28/89	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	---	---	---
	01/04/90	8015/8020	SAL	130,000	37,000	2,400	31,000	13,000	---	---	---
	04/03/90	8015/8020	SAL	120,000	41,000	2,500	33,000	14,000	---	---	---
	07/03/90	8015/8020	SAL	200,000	28,000	1,800	25,000	10,000	---	---	---
MW-6	02/05/88	8015/602	B&C	53,000	5,100	2,100	4,400	14,000	---	---	---
	06/15/88	8015/602	B&C	33,000	9,200	520	5,500	20,000	---	---	---
	09/27/88	524.2-8240	CCAS	17,000	2,200	1,700	2,800	5,100	130	<10	---
	01/05/89	8015/8020	SAL	37,000	5,000	2,200	3.400	10,000	---	---	---
	06/28/89	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	---	---	---
	01/04/90	8015/8020	SAL	59,000	5,200	2,000	2,600	11,000	---	---	---
	04/03/90	8015/8020	SAL	31,000	6,600	2,200	2,600	12,000	---	---	---
	07/03/90	8015/8020	SAL	66,000	5,800	2,000	2,900	9,800	---	---	---
MW-7	02/05/88	8015/602	B&C	81,000	34,000	2,400	36,000	16,000	---	---	---
	06/15/88	8015/602	B&C	77,000	40,000	1,400	41,000	24,000	---	---	---
	09/27/88	524.2-8240	CCAS	30,000	9,700	400	8,900	4,100	2,600	<10	---
	01/05/89	8015/8020	SAL	96,000	36,000	2,800	38,000	16,000	---	---	---
	06/28/89	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	---	---	---
	01/04/90	8015/8020	SAL	150,000	41,000	2,400	40,000	15,000	---	---	---
	04/03/90	8015/8020	SAL	100,000	31,000	2,100	28,000	16,000	---	---	---
	07/03/90	8015/8020	SAL	190,000	30,000	1,800	27,000	13,000	---	---	---
MW-8	10/27/88	524.2-8240	CCAS	190,000	27,000	2,200	43,000	15,000	<500	<500	---
	01/05/89	8015/8020	SAL	87,000	24,000	3,000	39,000	15,000	---	---	---
	06/28/89	8015/8020	SAL	120,000	22,000	2,900	35,000	16,000	---	---	---
	10/03/89[b]	---	---	---	---	---	---	---	---	---	---
	01/04/89[b]	---	---	---	---	---	---	---	---	---	---
	04/03/90[b]	---	---	---	---	---	---	---	---	---	---
	07/03/90[b]	---	---	---	---	---	---	---	---	---	---

--Table 2 continues on next page--

TABLE 2. Analytic Results for Ground Water, Chevron Service Station #9-0260, 21995 Foothill Boulevard, Hayward, California

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	---
	01/05/89	8015/8020	SAL	55,000	670	3,400	8,900	16,000	---	---	---
	06/28/90	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	---	---	---
	01/04/90	8015/8020	SAL	83,000	600	2,600	4,600	14,000	---	---	---
	04/03/90	8015/8020	SAL	52,000	1,600	3,100	5,400	16,000	---	---	---
	07/03/90	8015/8020	SAL	100,000	520	3,200	5,400	16,000	---	---	---
MW-10	10/27/88	524.2-8240	CCAS	<500	26	<5	13	<5	<5	<5	---
	01/05/89	8015/8020	SAL	<1,000	<0.3	<0.3	<0.3	<0.3	---	---	---
	06/28/89	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	---	---	---
	01/04/90	8015/8020	SAL	<50	0.5	<0.5	1.1	1.7	---	---	---
	04/03/90	8015/8020	SAL	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	07/03/90[c]	---	---	---	---	---	---	---	---	---	---
MW-11	06/28/89	8015/8240	SAL	60,000	36,000	2,500	13,000	12,000	---	---	ND[d]
	10/03/89	8015/8020	SAL	14,000	4,200	240	1,400	1,300	---	---	---
	01/04/90	8015/8020	SAL	82,000	33,000	2,000	11,000	10,000	---	---	---
	04/03/90	8015/8020	SAL	78,000	35,000	2,300	12,000	12,000	---	---	---
	07/03/90	8015/8020	SAL	140,000	32,000	2,100	12,000	10,000	---	---	---
MW-12	06/28/89	8015/8240	SAL	55,000	30,000	2,900	21,000	19,000	---	---	ND[d]
	10/03/89	8015/8020	SAL	170,000	30,000	2,700	23,000	15,000	---	---	---
	01/04/90	8015/8020	SAL	110,000	24,000	2,300	19,000	12,000	---	---	---
	04/03/90	8015/8020	SAL	89,000	41,000	3,300	28,000	17,000	---	---	---
	07/03/90	8015/8020	SAL	170,000	27,000	2,200	20,000	12,000	---	---	---
MW-13	06/28/89	8015/8240	SAL	54,000	12,000	1,900	10,000	15,000	---	---	ND[d]
	10/03/89	8015/8020	SAL	120,000	10,000	2,300	10,000	15,000	---	---	---
	01/04/90	8015/8020	SAL	87,000	6,800	2,000	10,000	12,000	---	---	---
	04/03/90	8015/8020	SAL	53,000	12,000	2,900	14,000	17,000	---	---	---
	07/03/90	8015/8020	SAL	90,000	8,400	2,000	11,000	11,000	---	---	---
MW-14 (BH-H)	08/29/90	8015/8020/8010	SAL	970	4	0.7	2	2	1	---	ND[e]
MW-15 (BH-J)	08/29/90	8015/8020/8010	SAL	2,000	26	72	2	110	<0.5	---	0.6[f]
MW-16 (BH-K)	08/29/90	8015/8020/8010	SAL	11,000	6,000	1,100	51	20	<0.5	---	ND[g]

--Table 2 continues on next page--

TABLE 2. Analytic Results for Ground Water, Chevron Service Station #9-0260, 21995 Foothill Boulevard, Hayward, California

Sample ID	Sample Date	Analytic Method	Analytical Lab	TPH-G	B	E	T	X	EDC	EDB	VOCs
				<----------parts per billion (µg/L)---------->							
Bailer Blank	01/05/89	8015/8020	SAL	<1,000	<0.3	<0.3	<0.3	<0.3	---	---	---
Trip Blank	01/05/89	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	---	---	---
	01/04/89	8015/8020	SAL	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	04/03/90	8015/8020	SAL	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
	07/03/90	8015/8020	SAL	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
DHS MCL	-	-	-	NE	1	680	100[h]	1,750	0.5	0.02	100[i]

Abbreviations:

TPH-G = Total Petroleum Hydrocarbons as Gasoline
B = Benzene
E = Ethylbenzene
T = Toluene
X = Xylenes
EDC = 1,2-dichloroethane (Ethylene Dichloride)
EDB = Ethylene dibromide
VOCs = Volatile Organic Compounds
--- = Not analyzed
DHS MCL = Department of Health Services Maximum Contaminant Level

NE = DHS action level not established
V = DHS action levels vary, depends on compound

Notes:

[a] = Samples from MW-4 and MW-5 were analyzed a second time after the holding time expired to confirm the anomalously high TPH-G reported in the original analysis. Although the samples were preserved with $NaHSO_4$ and refrigerated, the second analysis was not conducted until 52 days after sample collection.

[b] = Not sampled due to the presence of floating hydrocarbons in the well
[c] = Well not sampled this quarter, in accordance with the modified sampling frequency program.
[d] = Not detected at detection limits ranging from 500 to 2,000 ppb
[e] = Not detected at detection limits ranging from 0.5 to 4.0 ppb
[f] = 0.6 ppb of Chloroform was detected. No other VOCs were detected in the sample.
[g] = Not detected at detection limits ranging from 25 to 500 ppb
[h] = DHS Recommended Action Level for Drinking Water
[i] = EPA MCL for Chloroform = 100 ppb - MCLs vary for other compounds

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 Fuel and Aromatic Volatile Hydrocarbons
602 = EPA Method 602, BETX
8015 = Modified EPA Method 8015, TPH-G
8020 = EPA Method 8020, BETX
8010 = EPA Method 8010, Halogenated VOCs
8240 = EPA Method 8240, VOCs

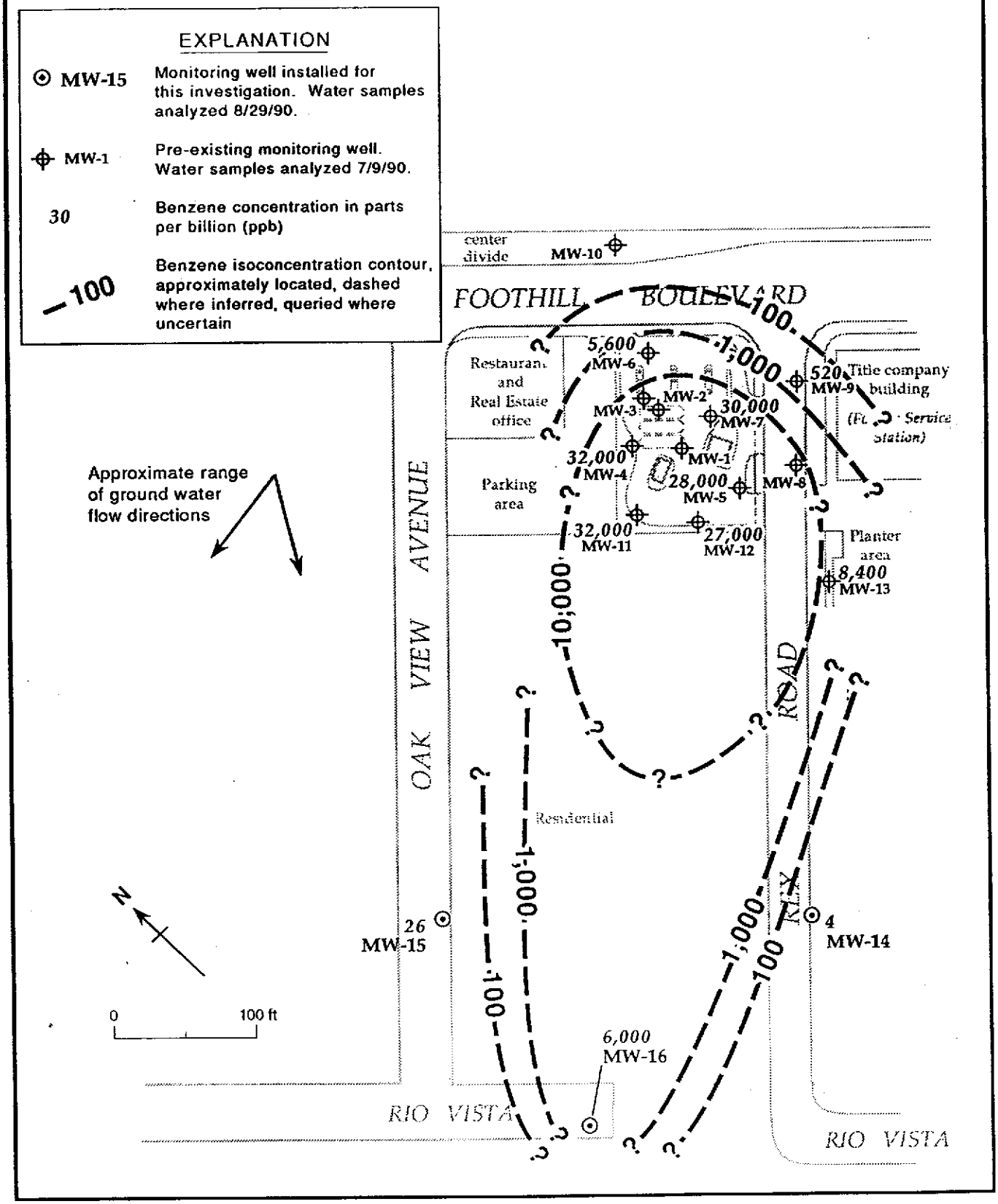


Figure 3. Benzene Isoconcentration Contours - Chevron Service Station #9-0260, 21995 Foothill Boulevard, Hayward, California

location survey for wells MW-14, MW-15 and MW-16. The datum elevation for the survey is a benchmark at the northern corner of Foothill Boulevard and Rex Road that Mr. Koch established during earlier site work. The relative datum for the horizontal survey is a found nail at the centerline intersection of Foothill Boulevard and Rex Road.

Table 3 shows the top-of-casing elevations, depths to water and the ground water elevations on August 29, 1990, for monitoring wells MW-4 through MW-16. A ground water elevation contour map for these wells (Figure 4) indicates that ground water flows toward the southwest with an average gradient of about 0.019 ft/ft, consistent with previous measurements.

The area well survey WA conducted for an earlier investigation indicates that the closest downgradient irrigation or domestic wells are about 2,200 ft or more from the site.

2.7 SOIL AND GROUND WATER DISPOSAL

Soil cuttings were temporarily stored onsite in Department of Transportation (DOT)-approved 55-gallon steel drums pending laboratory analysis of composite soil samples. No hydrocarbons were detected in the composite sample, therefore the soil is acceptable for a DHS Class III landfill.

All ground water and steam-cleaning rinseate generated during the investigation was temporarily stored on site in DOT-approved drums, pending transportation by Erickson Engineering, Inc., of Richmond, California to Gibson Oil Refinery in Bakersfield, California, for recycling.

TABLE 3. Ground Water Elevation Data, Chevron Service Station #9-0260, 21995 Foothill Boulevard, Hayward, California

Well ID	Date	Top-of-Casing Elevation (ft above msl)	Depth to Water (ft)	Thickness of Floating Hydrocarbons (ft)	Water Elevation (ft above msl)
MW-4	8/29/90	100.75	15.10	—	85.65
MW-5	8/29/90	99.97	14.54	—	85.43
MW-6	8/29/90	101.43	15.38	—	86.05
MW-7	8/29/90	100.91	14.88	—	86.03
MW-8	8/29/90	99.67	14.06	0.14	85.72*
MW-9	8/29/90	101.15	14.78	—	86.37
MW-10	8/29/90	102.36	14.31	—	88.05
MW-11	8/29/90	99.97	14.98	—	84.99
MW-12	8/29/90	99.64	14.65	—	84.99
MW-13	8/29/90	98.47	13.68	—	84.79
MW-14	8/29/90	99.68	21.39	—	78.29
MW-15	8/29/90	96.06	16.58	—	79.48
MW-16	8/29/90	98.15	20.89	—	72.26

* = Ground water elevation corrected for free-floating hydrocarbons by the formula: Ground Water Elevation = Top-of-casing elevation - Depth to ground water + (0.8 x hydrocarbon thickness)

Note: Historical ground water elevation data is presented in WA Quarterly Monitoring Reports prepared for this site (WA, 1990).

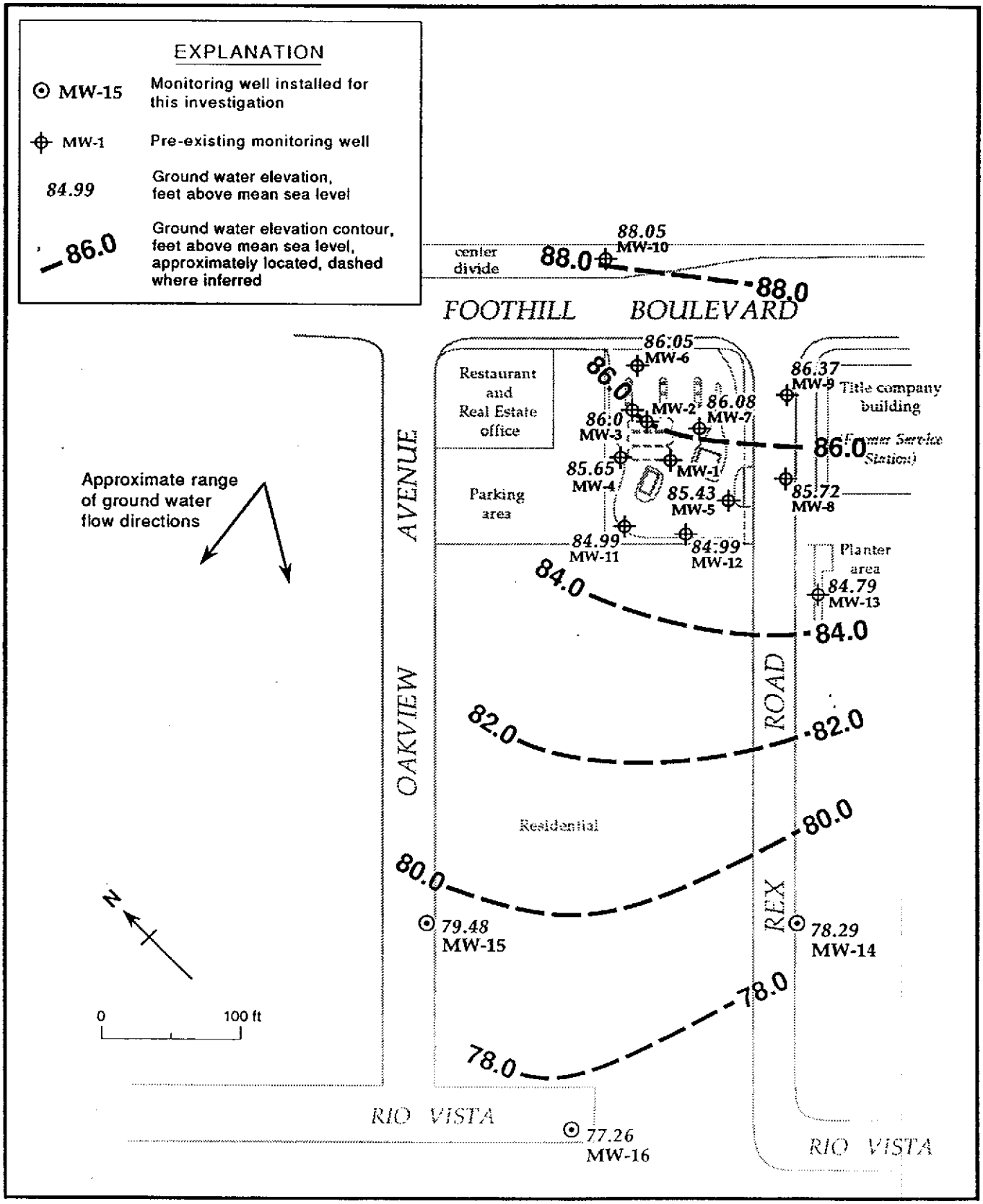


Figure 4. Ground Water Elevation Contours - August 29, 1990 - Chevron Service Station #9-0260, 21995 Foothill Boulevard, Hayward, California

10/19/90

3. CONCLUSIONS

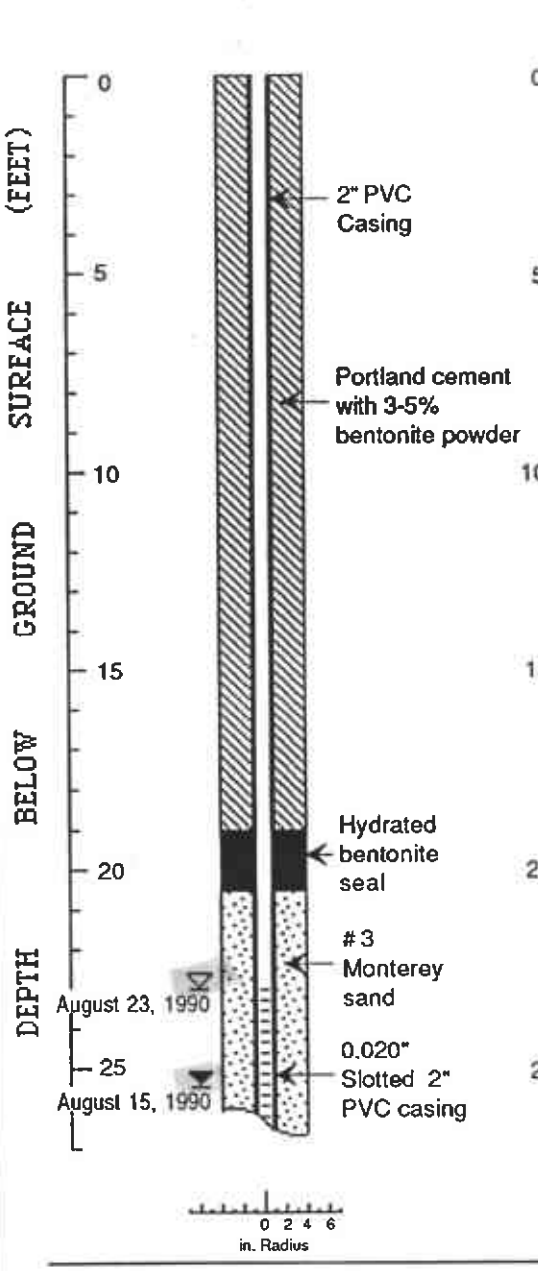
WA drilled three new borings and installed ground water monitoring wells in each boring to assess the extent of hydrocarbons in soil and ground water downgradient of the site.

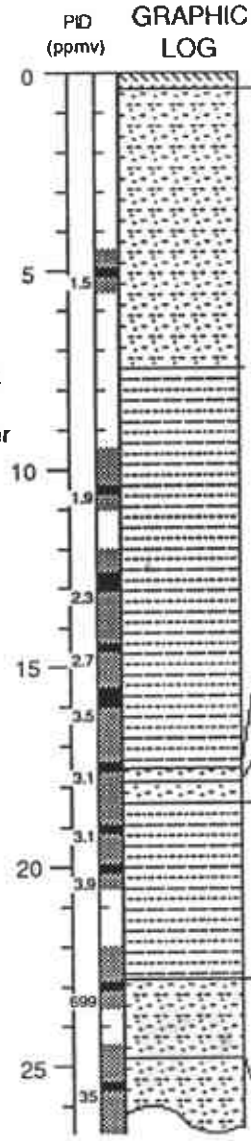
Hydrocarbons were detected from 3 ppm to 110 ppm in five soil samples from about 18 to 24 ft below grade in the new soil borings. No hydrocarbons were detected in seven other soil samples from the same borings.

Ground water samples from new wells MW-14, MW-15 and MW-16 contained TPH-G at 970, 2,000 and 11,000 ppb, respectively. Benzene was detected above the DHS MCL in ground water samples from these wells and ethylbenzene was above the DHS MCL in samples from well MW-16. The benzene isoconcentration contour map indicates that benzene in ground water extends about 450 ft downgradient of the site.

Ground water in the new wells is about 16.5 to 21.5 ft below grade. Ground water elevation contours near the new wells indicate that ground water flows to the southwest, which is consistent with the data from site vicinity wells.

WELL MW-14 (BH-H)





DESCRIPTION

Asphalt and Gravelly SILT baserock

Sandy SILT (ML); dark brown; medium stiff; damp; ~35% very fine to fine sand; no to very low plasticity; moderate K; no odor

Silty CLAY (CL); dark gray-brown; stiff; damp; <10% very fine sand; medium plasticity; very low K; no odor
Light gray from 10.5'
Caliche horizon from 10.5 to 17'
Low plasticity; increasing caliche content at 12'

Yellow-brown mottled white and blue-gray from 15'

4" Sandy SILT (ML) layer; 30-40% sand; low to moderate K

6" Silty SAND (SM) layer; blue-gray; medium dense; ~35% silt; moderate K; no odor

Silty CLAY / Clayey SILT (CL/ML); blue-gray mottled orange-brown; very stiff; moist; ~15% very fine to fine sand; low plasticity; very low to low K; no odor
Moderate hydrocarbon odor at 22'

Sandy SILT (ML); blue-gray; mottled orange-brown; medium stiff to stiff; moist; ~30% very fine to fine sand; very low plasticity; low K; moderate hydrocarbon odor

Silty SAND (SM); dark gray; medium dense; wet; very fine to medium sand; variably 20-45% silt; moderate to high K; weak hydrocarbon odor

EXPLANATION

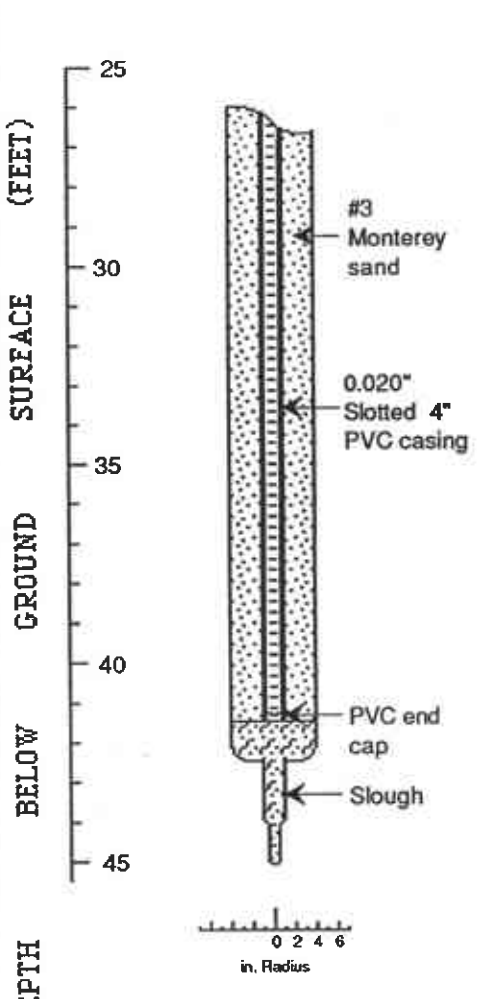
- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Uncertain contact
- Gradational contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Cutting sample
- K = Estimated hydraulic conductivity

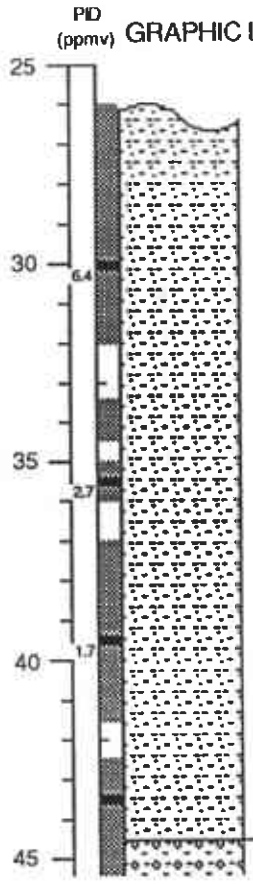
Logged by:	John Duey
Supervisor:	James Carmody; RG 4872
Drilling Company:	Soils Exploration Services
Driller:	Rick Carr
Drilling Method:	Hollow stem auger
Date Drilled:	August 15, 1990
Well Head Completion:	locking watertight well-cap with traffic-rated vault
Type of sampler:	Split barrel (1.5", 2.5" ID)

Boring Log and Well Construction Details - Well MW-14 (BH-H)

Chevron SS #9-0260
Hayward, California

WELL MW-14 (BH-H) (cont.)





DESCRIPTION

1' Sandy SILT (ML) lens; blue-gray and orange-brown; stiff; ~30% very fine sand; non plastic; moderate K at 28'

Orange-brown at 29'

Blue-gray at 31.5'

Orange-brown; ~30% gravel to 2" diameter at 34'

Minor gravel; very fine to very coarse sand from 35'

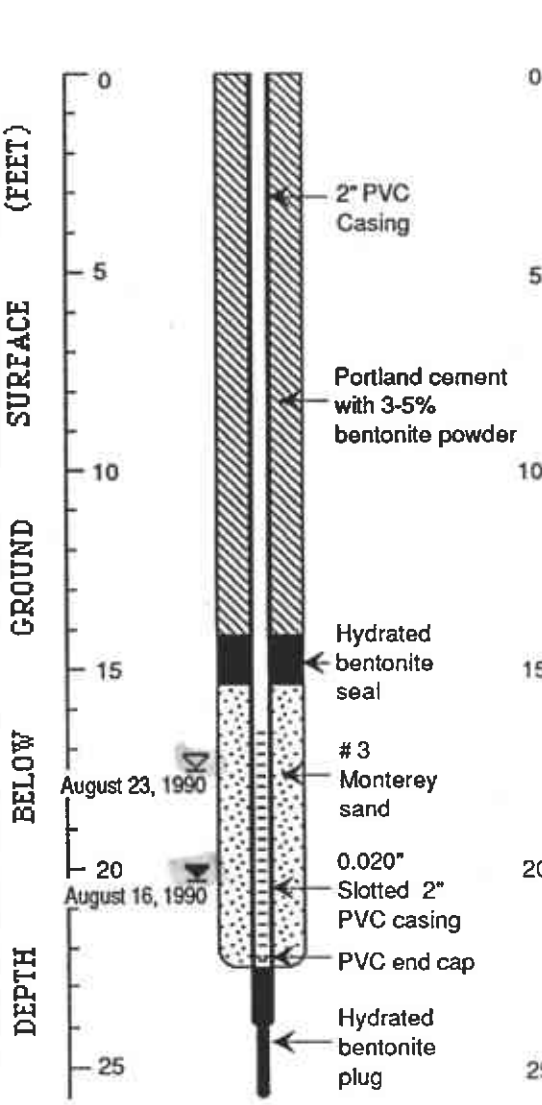
~30% gravel to 1" diameter from 38'

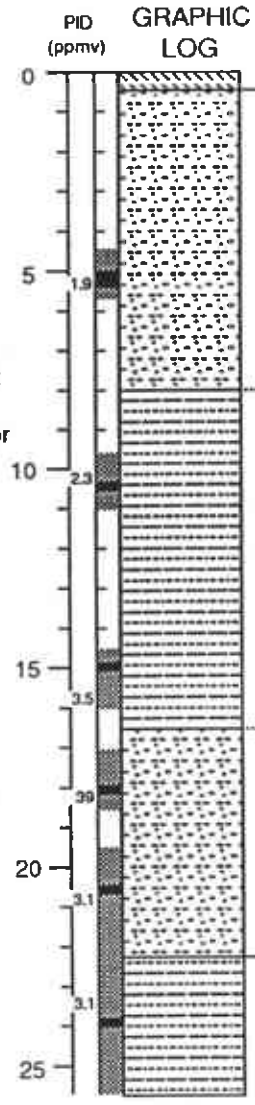
Silty GRAVEL (GM); gray; medium dense; gravel to 1" diameter; ~30% very fine to very coarse sand; ~30% silt; moderate to high K

Boring Log and Well Construction Details - Well MW-14 (BH-H)

Chevron SS #9-0260
Hayward, California

WELL MW-15 (BH-J)





DESCRIPTION

Asphalt and baserock (Gravelly SILT) 6"

Sandy SILT (ML); dark brown; medium stiff; damp; ~40% very fine to fine sand; non plastic; moderate K; no odor

Light olive-brown at 4.5'
Very low to low plasticity; low K at 5'

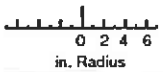
(Contact-driller)

Silty CLAY (CL); dark brown; stiff; damp; ~10% very fine to fine sand; low to medium plasticity; very low K; no odor
Olive-green mottled white; caliche horizon at 9.5'

Mottled light blue and white; weak hydrocarbon odor; higher caliche content at 15'

Sandy SILT (ML); olive-brown mottled orange-brown and blue-gray; stiff; moist; ~40% very fine to medium sand; very low plasticity; low to moderate K; weak hydocarbon odor
~35% sand at 20'
~20% very fine sand; low K; no odor at 21.5'

Silty CLAY (CL); olive-brown mottled orange-brown; stiff; ~10% very fine sand; non plastic; very low K; no odor
6" Clayey SILT (ML) lens at 24'



EXPLANATION

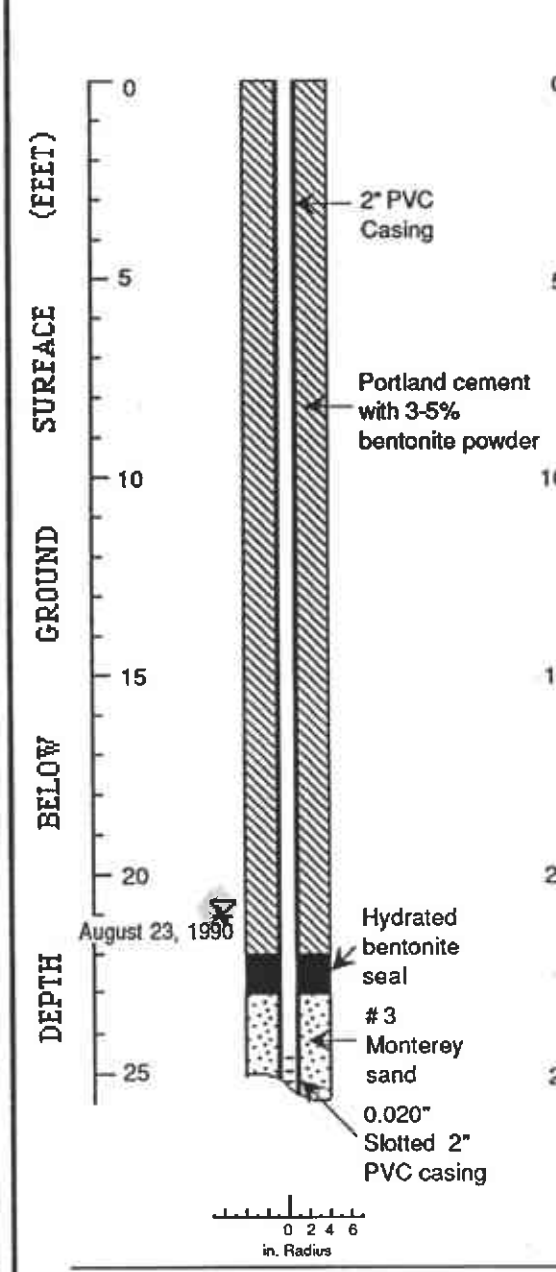
- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Uncertain contact
- Gradational contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Cutting sample
- K = Estimated hydraulic conductivity

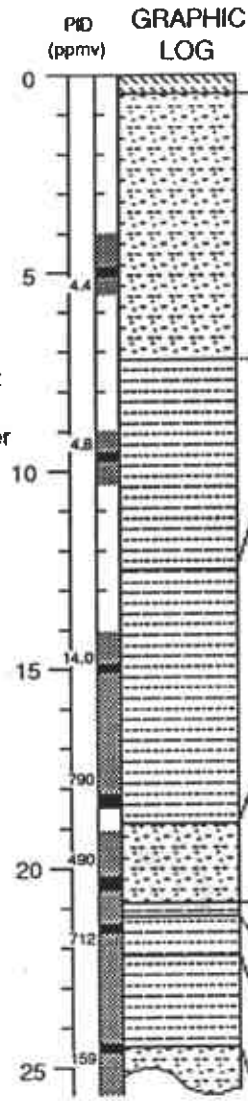
Logged by:	John Duey
Supervisor:	James Carmody; RG 4872
Drilling Company:	Soils Exploration Services
Driller:	Rick Carr
Drilling Method:	Hollow stem auger
Date Drilled:	August 16, 1990
Well Head Completion:	Locking watertigh well plug with traffic-rated vault
Type of sampler:	Split barrel (1.5", 2", 2.5" ID)

Boring Log and Well Construction Details - Well MW-15 (BH-J)

Chevron SS #9-0260
Hayward, California

WELL MW-16 (BH-K)





DESCRIPTION

Asphalt and baserock (Gravelly SILT) 6"

Sandy SILT (ML); olive-brown; stiff; dry; ~35% very fine to fine sand; non plastic; moderate K; no odor

~40 % sand at 4'

Silty CLAY (CL); dark brown mottled white; very stiff; damp; ~20% very fine to fine sand; low plasticity; very low K; no odor; caliche horizon

(Contact-driller)

Sandy CLAY (CL); light blue-gray; very stiff; damp; ~35% very fine to fine sand; low plasticity; very low K; slight hydrocarbon odor

6" Sandy SILT (ML) layer; light blue-gray; ~40%very fine to fine sand; low to moderate K; root pores at 15.5'

Mottled yellow-brown; stiff; weak hydrocarbon odor at16'

Sandy SILT (ML); blue-gray; firm; moist; ~40% very fine to fine sand; non to low plasticity; low to moderate K; weak hydocarbon odor

4" Silty Clay (CL) layer; very low K; weak hydrocarbon odor

1" Clayey SILT (ML) layer; low plasticity; low K

Silty CLAY (CL); blue-gray mottled olive-gray; firm; moist; ~10% very fine sand; low plasticity; very low K; slight hydrocarbon odor

Sandy SILT (ML); blue-gray mottled olive-gray; firm; moist; ~20% very fine to fine sand; very low to low plasticity; low K; slight hydrocarbon odor

EXPLANATION

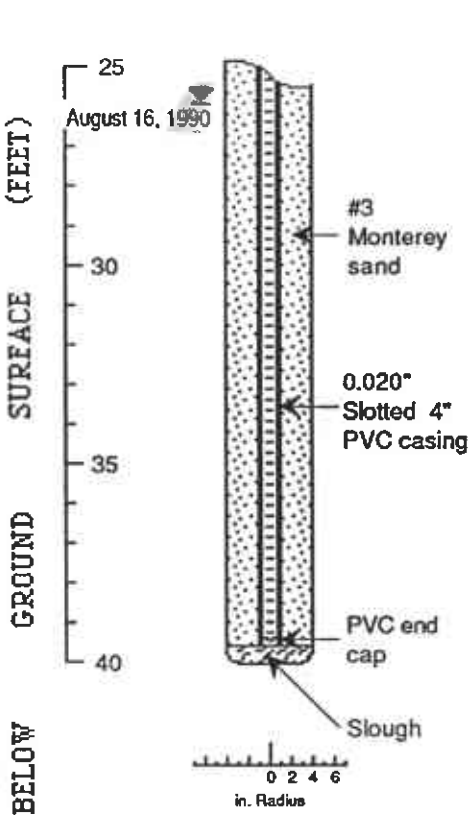
- Water level during drilling (date)
- Water level (date)
- Contact (dotted where approx.)
- Uncertain contact
- Gradational contact
- Location of recovered drive sample
- Location of drive sample sealed for chemical analysis
- Cutting sample
- K = Estimated hydraulic conductivity

Logged by:	John Duey
Supervisor:	James Carmody; RG 48722
Drilling Company:	Soils Exploration Services
Driller:	Rick Carr
Drilling Method:	Hollow stem auger
Date Drilled:	August 16, 1990
Well Head Completion:	Locking watertight well-plug with traffic-rated vault
Type of sampler:	Split barrel (1.5" ID)

Boring Log and Well Construction Details - Well MW-16 (BH-K)

Chevron SS #9-0260
Hayward, California

WELL MW-16 (BH-K) (cont.)



PID (ppmv)	GRAPHIC LOG	DESCRIPTION
25		Silty SAND (SM); brown; medium dense; wet; very fine to fine sand; ~35% silt; no clay; moderate K
30		
35		Organic Sandy SILT (OL); black; firm; ~40% very fine to fine sand; very low plasticity; moderate K
40		Silty SAND (SM); gray; medium dense to dense; ~20% gravel to 0.5" diameter; very fine to very coarse sand; ~25% silt; moderate K Gravel to 1" diameter at 39'

Boring Log and Well Construction Details - Well MW-16 (BH-K)

Chevron SS #9-0260
Hayward, California

APPENDIX B

ANALYTIC REPORTS FOR SOIL

and

CHAIN OF CUSTODY DOCUMENTS

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I · SAN FRANCISCO, CA 94124 · PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 10929
CLIENT: Weiss Associates
CLIENT JOB NO.: 4-310-04

DATE RECEIVED: 08/20/90
DATE REPORTED: 08/27/90

Lab Number	Customer Sample Identification	Date Sampled	Date Analyzed
10929- 1	BH-H-4.8	08/19/90	/ /
10929- 2	BH-H-10.3	08/19/90	/ /
10929- 3	BH-H-12.5	08/19/90	/ /
10929- 4	BH-H-14.3	08/19/90	08/23/90
10929- 5	BH-H-15.5	08/19/90	/ /
10929- 6	BH-H-17.3	08/19/90	08/23/90
10929- 7	BH-H-18.8	08/19/90	/ /
10929- 8	BH-H-19.8	08/19/90	08/23/90
10929- 9	BH-H-22.8	08/19/90	08/24/90
10929-10	BH-H-25.3	08/19/90	/ /

Laboratory Number:	10929 1	10929 2	10929 3	10929 4	10929 5
ANALYTE LIST	Amounts/Quantitation Limits (mg/kg)				
OIL AND GREASE:	NA	NA	NA	NA	NA
TPH/GASOLINE RANGE:	NA	NA	NA	ND<1	NA
TPH/DIESEL RANGE:	NA	NA	NA	NA	NA
BENZENE:	NA	NA	NA	ND<0.05	NA
TOLUENE:	NA	NA	NA	ND<0.05	NA
ETHYL BENZENE:	NA	NA	NA	ND<0.05	NA
XYLENES:	NA	NA	NA	ND<0.05	NA

Laboratory Number:	10929 6	10929 7	10929 8	10929 9	10929 10
ANALYTE LIST	Amounts/Quantitation Limits (mg/kg)				
OIL AND GREASE:	NA	NA	NA	NA	NA
TPH/GASOLINE RANGE:	ND<1	NA	ND<1	110	NA
TPH/DIESEL RANGE:	NA	NA	NA	NA	NA
BENZENE:	ND<0.05	NA	ND<0.05	ND<0.05	NA
TOLUENE:	ND<0.05	NA	ND<0.05	0.15	NA
ETHYL BENZENE:	ND<0.05	NA	ND<0.05	ND<0.05	NA
XYLENES:	ND<0.05	NA	ND<0.05	0.12	NA

SUPERIOR ANALYTICAL LABORATORY, INC.
1555 BURKE, UNIT I · SAN FRANCISCO, CA 94124 · PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 10929
CLIENT: Weiss Associates
CLIENT JOB NO.: 4-310-04

DATE RECEIVED: 08/20/90
DATE REPORTED: 08/27/90

Lab Number	Customer Sample Identification	Date Sampled	Date Analyzed
10929-11	BH-H-29.8	08/19/90	/ /
10929-12	BH-H-35.3	08/19/90	/ /
10929-13	BH-H-39.3	08/19/90	/ /
10929-14	BH-H-43.3	08/19/90	/ /
10929-15	BH-K-4.8	08/19/90	/ /
10929-16	BH-K-9.4	08/19/90	08/23/90
10929-17	BH-K-14.8	08/19/90	08/23/90
10929-18	BH-K-18.2	08/19/90	08/23/90
10929-19	BH-K-20.2	08/19/90	/ /
10929-20	BH-K-21.3	08/19/90	08/23/90

Laboratory Number:	10929 11	10929 12	10929 13	10929 14	10929 15
ANALYTE LIST	Amounts/Quantitation Limits (mg/kg)				
OIL AND GREASE:	NA	NA	NA	NA	NA
TPH/GASOLINE RANGE:	NA	NA	NA	NA	NA
TPH/DIESEL RANGE:	NA	NA	NA	NA	NA
BENZENE:	NA	NA	NA	NA	NA
TOLUENE:	NA	NA	NA	NA	NA
ETHYL BENZENE:	NA	NA	NA	NA	NA
XYLENES:	NA	NA	NA	NA	NA

Laboratory Number:	10929 16	10929 17	10929 18	10929 19	10929 20
ANALYTE LIST	Amounts/Quantitation Limits (mg/kg)				
OIL AND GREASE:	NA	NA	NA	NA	NA
TPH/GASOLINE RANGE:	ND<1	ND<1	97	NA	30
TPH/DIESEL RANGE:	NA	NA	NA	NA	NA
BENZENE:	ND<0.05	ND<0.05	0.11	NA	0.96
TOLUENE:	ND<0.05	ND<0.05	0.22	NA	2.1
ETHYL BENZENE:	ND<0.05	ND<0.05	0.46	NA	0.39
XYLENES:	ND<0.05	ND<0.05	3.0	NA	2.5

SUPERIOR ANALYTICAL LABORATORY, INC.
1555 BURKE, UNIT I · SAN FRANCISCO, CA 94124 · PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 10929
CLIENT: Weiss Associates
CLIENT JOB NO.: 4-310-04

DATE RECEIVED: 08/20/90
DATE REPORTED: 08/27/90

Lab Number	Customer Sample Identification	Date Sampled	Date Analyzed
10929-21	BH-K-24.3	08/19/90	08/24/90
10929-22	BH-K-29.8	08/19/90	/ /
10929-23	BH-K-34.8	08/19/90	/ /
10929-24	BH-K-39.3	08/19/90	/ /
10929-25	BH-J-5.1	08/19/90	/ /
10929-26	BH-J-10.3	08/19/90	08/23/90
10929-27	BH-J-15.3	08/19/90	/ /
10929-28	BH-J-17.8	08/19/90	08/23/90
10929-29	BH-J-20.3	08/19/90	08/23/90
10929-30	BH-J-23.7	08/19/90	/ /

Laboratory Number:	10929 21	10929 22	10929 23	10929 24	10929 25
ANALYTE LIST	Amounts/Quantitation Limits (mg/kg)				
OIL AND GREASE:	NA	NA	NA	NA	NA
TPH/GASOLINE RANGE:	3	NA	NA	NA	NA
TPH/DIESEL RANGE:	NA	NA	NA	NA	NA
BENZENE:	0.17	NA	NA	NA	NA
TOLUENE:	ND<0.05	NA	NA	NA	NA
ETHYL BENZENE:	ND<0.05	NA	NA	NA	NA
XYLENES:	ND<0.05	NA	NA	NA	NA

Laboratory Number:	10929 26	10929 27	10929 28	10929 29	10929 30
ANALYTE LIST	Amounts/Quantitation Limits (mg/kg)				
OIL AND GREASE:	NA	NA	NA	NA	NA
TPH/GASOLINE RANGE:	ND<1	NA	3	ND<1	NA
TPH/DIESEL RANGE:	NA	NA	NA	NA	NA
BENZENE:	ND<0.05	NA	ND<0.05	ND<0.05	NA
TOLUENE:	ND<0.05	NA	ND<0.05	ND<0.05	NA
ETHYL BENZENE:	ND<0.05	NA	ND<0.05	ND<0.05	NA
XYLENES:	ND<0.05	NA	0.09	ND<0.05	NA

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS
Diesel by Modified EPA SW-846 Method 8015
Gasoline by Purge and Trap: EPA MEthod 8015/5030
ANALYSIS FOR BENZENE, TOLUENE, ETHYL BENZENE & XYLENES
by EPA SW-846 Methods 5030 and 8020

QA/QC INFORMATION
SET: 10929

NA = ANALYSIS NOT REQUESTED
ND = ANALYSIS NOT DETECTED ABOVE QUANTITATION LIMIT

Mg/Kg = part per million (ppm)

OIL AND GREASE ANALYSIS By Standard Methods Method 503E:
Duplicate RPD NA
Minimum Detection Limit in Soil: 20mg/kg

Modified EPA Method 8015 for Extractable Hydrocarbons:
Minimum Quantitation Limit for Diesel in Soil: 10mg/kg
Daily Standard run at 200mg/L; %Diff Diesel = NA
MS/MSD Average Recovery = NA: Duplicate RPD = NA

8015/5030 Total Purgable Petroleum Hydrocarbons:
Minimum Quantitation Limit for Gasoline in Soil: 1mg/kg
Daily Standard run at 2mg/L; %Diff Gasoline = <15%
MS/MSD Average Recovery = 94%: Duplicate RPD = <2%

8020/BTXE
Minimum Quantitation Limit in Soil: 0.05mg/kg
Daily Standard run at 20ug/L; %Diff = <15%
MS/MSD Average Recovery = 93%: Duplicate RPD = <4%

Richard Srna, Ph.D.
Laboratory Director

10929

Chain-of-Custody Record

Chevron U.S.A. Inc.
P.O. Box 5004
San Ramon, CA 94583
FAX (415) 842-9591

Chevron Facility Number 90260
Laboratory Release Number 3996631
Consultant Project Number 4-310-04
Consultant Name WEISS ASSOCIATES
Address 5500 SHELLMOUND ST., EMERYVILLE, CA 94608
Fax Number 415-547-5043
Project Contact (Name) JOHN DUEY
(Phone) 415-547-5420

Chevron Contact (Name) WALT POSLUSZNY
(Phone) 415-842-9040
Laboratory Name SUPERIOR ANALYTICAL
Laboratory Contract Number
Samples Collected by (Name) JOHN W. DUEY
Collection Date 8/15/90
Signature John W. Duey

Sample Number	Lab Number	Number of Containers	Matrix S = Soil W = Water A = Air C = Charcoal	Type G = Grab C = Composite	Time	Sample Preservation	Iced	Modified EPA 8015 Total Petro. Hydrocarb. as Gasoline	Modified EPA 8015 Total Petro. Hydrocarb. as Gasoline + Diesel	503 Oil and Grease	Arom. Volatiles - BTXE Soil: 8020/Wtr.: 602	Volatile Organics Soil: 8240/Wtr.: 624	Total Organic Lead DHS-Luft	EDB DHS-AB 1803				Remarks
								Analyses To Be Performed										
BH-H-4.8	1	1	S		9:55	N/A	YES											HOLD
-10.3	2				10:05													HOLD
-12.5	3				10:15													HOLD
-14.3	4				10:20			✓			✓							
-15.5	5				10:30													HOLD
-17.3	6				10:35			✓			✓							
-18.8	7				10:50													HOLD
-19.8	8				11:30			✓			✓							
-22.8	9				11:35			✓			✓							
-25.3	10				11:50													HOLD
-29.8	11				12:25													HOLD
-35.3	12				13:05													HOLD
-39.3	13				13:45													HOLD
-43.3	14	↓	↓		14:00	↓	↓											HOLD

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	Turn Around Time (Circle Choice)
John W. Duey	WEISS ASSOCIATES	8/20/90 8:38	A.T. Funkhouser	WEISS ASSOC	8-20-90 838	24 Hrs
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	48 Hrs
A.T. Funkhouser	WEISS ASSOC	8-20-90 838	Frank S Cevaric	EXPRESS-IT	8/20 09:15	5 Days
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time	10 Days
Ken Davidson	EXPRESS-IT	8-20 '30	Onyx A Nwoga		8/20/90 10:30am	

MS-5135-16-891

10929

Chain-of-Custody Record

Chevron U.S.A. Inc.
P.O. Box 5004
San Ramon, CA 94583
FAX (415) 842-9591

Chevron Facility Number 90260
Laboratory Release Number 3996631
Consultant Project Number 4-310-04
Consultant Name WEISS ASSOCIATES
Address 5500 SHELLMOUND ST., EMERYVILLE, CA 94608
Fax Number 415-547-5043
Project Contact (Name) JOHN DUEY
(Phone) 415-547-5420

Chevron Contact (Name) WALT POSLUSZNY
(Phone) 415-842-9040
Laboratory Name SUPERIOR ANALYTICAL
Laboratory Contract Number
Samples Collected by (Name) JOHN W. DUEY
Collection Date 8/16/90
Signature John W Duey

Sample Number	Lab Number	Number of Containers	Matrix S = Soil W = Water A = Air C = Charcoal	Type G = Grab C = Composite	Time	Sample Preservation	Iced	Modified EPA 8015 Total Petro. Hydrocarb. as Gasoline	Modified EPA 8015 Total Petro. Hydrocarb. as Gasoline + Diesel	503 Oil and Grease	Arom. Volatiles - BTXE Soil: 8020/Wtr.: 602	Volatile Organics Soil: 8240/Wtr.: 624	Total Organic Lead DHS-Luft	EDB DHS-AB 1803				Remarks
BH-K-4.8	15	1	S		12:25	N/A	YES											HOLD
-9.4	16				12:35			✓			✓							
-14.8	17				12:45			✓			✓							
-18.2	18				13:05			✓			✓							
-20.2	19				13:15													HOLD
-21.3	20				13:40			✓			✓							
-24.3	21				13:50			✓			✓							
-29.8	22				15:10													HOLD
-34.8	23				15:40													HOLD
-39.3	24				16:00													HOLD

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	Turn Around Time (Circle Choice)
John W Duey	WEISS ASSOCIATES	8/20/90 8:30	[signature]	WEISS ASSOC.	8/20/90 8:37	24 Hrs
[signature]	WEISS ASSOC	8/20/90 8:37	[signature]	EXPRESS-IT	8/20 0??	48 Hrs
[signature]	EXPRESS-IT	8-20 1030	Onyx A Nwoga		8/20/90 1030 am	5 Days
						10 Days

MS-5135 (6-89)

10929

Chain-of-Custody Record

Chevron U.S.A. Inc.
P.O. Box 5004
San Ramon, CA 94583
FAX (415) 842-9591

Chevron Facility Number: 90260
Laboratory Release Number: 3996631
Consultant Project Number: 4-310-04
Consultant Name: WEISS ASSOCIATES
Address: 5500 SHELLMOUND ST, EMERYVILLE, CA 94608
Fax Number: 415-547-5043
Project Contact (Name): JOHN DUEY
(Phone): 415-547-5420

Chevron Contact (Name): WALT POSZUSZNY
(Phone): 415-842-9040
Laboratory Name: SUPERIOR ANALYTICAL
Laboratory Contract Number:
Samples Collected by (Name): JOHN W. DUEY
Collection Date: 8/16/90
Signature: John W Duey

Sample Number	Lab Number	Number of Containers	Matrix S = Soil W = Water A = Air C = Charcoal	Type G = Grab C = Composite	Time	Sample Preservation	Iced	Analyses To Be Performed: Modified EPA 8015 Total Petro. Hydrocarb. as Gasoline	Modified EPA 8015 Total Petro. Hydrocarb. as Gasoline + Diesel	503 Oil and Grease	Arom. Volatiles - BTXE Soil: 8020/Wtr.: 602	Volatile Organics Soil: 8240/Wtr.: 624	Total Organic Lead DHS-Luft	EDB DHS-AB 1803				Remarks
BH-J-5.1	25	1	S		9:30	N/A	YES											HOLD
-10.3	26				9:40			✓			✓							
-15.3	27				9:50													HOLD
-17.8	28				9:55			✓			✓							
-20.3	29				10:05			✓			✓							
-23.7	30	↓	↓		10:35	↓	↓											HOLD

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	Turn Around Time (Circle Choice)
John W Duey	Weiss Associates	8/20/90 8:38	A J Pinard	Weiss Assoc.	8-20-90 8:38	24 Hrs
A J Pinard	Weiss Assoc.	8-20-90 838	Frank Stevens	Express-it	8/20 9:25	48 Hrs
[illegible]	Express-it	8-20 10/30	Received For Laboratory By (Signature): Onyx A Nwogu		Date/Time: 8/20/90 10:30am	5 Days / 10 Days

MS-5135 16-89i

APPENDIX C

ANALYTIC REPORTS FOR GROUND WATER

and

CHAIN OF CUSTODY DOCUMENTS

SUPERIOR ANALYTICAL LABORATORY, INC.
1555 BURKE, UNIT I · SAN FRANCISCO, CA 94124 · PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 10946
CLIENT: Weiss Associates
CLIENT JOB NO.: 4-310-04

DATE RECEIVED: 08/28/90
DATE REPORTED: 09/12/90

Lab Number	Customer Sample Identification	Date Sampled	Date Analyzed
10946- 1	080-14	08/27/90	08/29/90
10946- 2	080-15	08/27/90	08/29/90
10946- 3	080-16	08/27/90	08/29/90
10946- 4	080-21	08/27/90	08/29/90

Laboratory Number:	10946 1	10946 2	10946 3	10946 4
ANALYTE LIST	Amounts/Quantitation Limits (ug/L)			
OIL AND GREASE:	NA	NA	NA	NA
TPH/GASOLINE RANGE:	970	2000	11000	ND<50
TPH/DIESEL RANGE:	NA	NA	NA	NA
BENZENE:	4	26	6000	ND<0.5
TOLUENE:	2	2	51	ND<0.5
ETHYL BENZENE:	0.7	72	1100	ND<0.5
XYLENES:	2	110	20	ND<0.5

SUPERIOR ANALYTICAL LABORATORY, INC.
1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS
Diesel by Modified EPA SW-846 Method 8015
Gasoline by Purge and Trap: EPA MEthod 8015/5030
ANALYSIS FOR BENZENE, TOLUENE, ETHYL BENZENE & XYLENES
by EPA SW-846 Methods 5030 and 8020

QA/QC INFORMATION
SET: 10946

NA = ANALYSIS NOT REQUESTED
ND = ANALYSIS NOT DETECTED ABOVE QUANTITATION LIMIT

ug/L = part per billion (ppb)

OIL AND GREASE ANALYSIS By Standard Methods Method 503E:
Duplicate RPD NA
Minimum Detection Limit in Water: 5000ug/L

Modified EPA Method 8015 for Extractable Hydrocarbons:
Minimum Quantitation Limit for Diesel in Water: 1000ug/L
Daily Standard run at 200mg/L; %Diff Diesel = NA
MS/MSD Average Recovery = NA: Duplicate RPD = NA

8015/5030 Total Purgable Petroleum Hydrocarbons:
Minimum Quantitation Limit for Gasoline in Water: 50ug/L
Daily Standard run at 2mg/L; %Diff Gasoline = <15%
MS/MSD Average Recovery = 97%: Duplicate RPD = <1%

8020/BTXE
Minimum Quantitation Limit in Water: 0.50ug/L
Daily Standard run at 20ug/L; %Diff = <15%
MS/MSD Average Recovery = 97%: Duplicate RPD = <2%

Richard Srna, Ph.D.
Cecilia A. Joaquin (for)
Laboratory Director

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I · SAN FRANCISCO, CA 94124 · PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 10946-1
CLIENT: Weiss Associates
JOB NO.: 4-310-04

DATE SAMPLED: 08/26/90
DATE RECEIVED: 08/28/90
DATE ANALYZED: 09/05/90

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE:080-14

Compound	MDL (ug/L)	RESULTS (ug/l)
Chloromethane/Vinyl Chloride	1.0	ND
Bromomethane/Chloroethane	1.0	ND
Trichlorofluoromethane	0.5	ND
1,1-Dichloroethene	0.5	ND
Methylene Chloride	4.0	ND
trans-1,2-Dichloroethene	0.5	ND
1,1-Dichloroethane	0.5	ND
Chloroform	0.5	ND
1,1,1-Trichloroethane	0.5	ND
Carbon tetrachloride	0.5	ND
1,2-Dichloroethane	0.5	1
Trichloroethylene	0.5	ND
1,2-Dichloropropane	0.5	ND
Bromodichloromethane	0.5	ND
Cis-1,3-Dichloropropene	0.5	ND
trans-1,3-Dichloropropene	0.5	ND
1,1,2-Trichloroethane	0.5	ND
Tetrachloroethene	0.5	ND
Dibromochloromethane	0.5	ND
Chlorobenzene	0.5	ND
Bromoform	0.5	ND
1,1,2,2-Tetrachloroethane	0.5	ND
1,3-Dichlorobenzene	0.5	ND
1,2-Dichlorobenzene	0.5	ND
1,4-Dichlorobenzene	0.5	ND

MDL = Method Detection Limit
ug/l = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD = <15
MS/MSD average recovery = 113 % :MS/MSD RPD =< 2 %

Richard Srna, Ph.D.

Laboratory Director

SUPERIOR ANALYTICAL LABORATORY, INC.
1555 BURKE, UNIT I · SAN FRANCISCO, CA 94124 · PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 10946-2
CLIENT: Weiss Associates
JOB NO.: 4-310-04

DATE SAMPLED: 08/26/90
DATE RECEIVED: 08/28/90
DATE ANALYZED: 09/05/90

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE:080-15

Compound	MDL (ug/L)	RESULTS (ug/l)
Chloromethane/Vinyl Chloride	1.0	ND
Bromomethane/Chloroethane	1.0	ND
Trichlorofluoromethane	0.5	ND
1,1-Dichloroethene	0.5	ND
Methylene Chloride	4.0	ND
trans-1,2-Dichloroethene	0.5	ND
1,1-Dichloroethane	0.5	ND
Chloroform	0.5	0.6
1,1,1-Trichloroethane	0.5	ND
Carbon tetrachloride	0.5	ND
1,2-Dichloroethane	0.5	ND
Trichloroethylene	0.5	ND
1,2-Dichloropropane	0.5	ND
Bromodichloromethane	0.5	ND
Cis-1,3-Dichloropropene	0.5	ND
trans-1,3-Dichloropropene	0.5	ND
1,1,2-Trichloroethane	0.5	ND
Tetrachloroethene	0.5	ND
Dibromochloromethane	0.5	ND
Chlorobenzene	0.5	ND
Bromoform	0.5	ND
1,1,2,2-Tetrachloroethane	0.5	ND
1,3-Dichlorobenzene	0.5	ND
1,2-Dichlorobenzene	0.5	ND
1,4-Dichlorobenzene	0.5	ND

MDL = Method Detection Limit
ug/l = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD = <15
MS/MSD average recovery = 113 % :MS/MSD RPD =< 2 %

Richard Srna, Ph.D.

Laboratory Director

SUPERIOR ANALYTICAL LABORATORY, INC.
1555 BURKE, UNIT I · SAN FRANCISCO, CA 94124 · PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 10946-3
CLIENT: Weiss Associates
JOB NO.: 4-310-04

DATE SAMPLED: 08/26/90
DATE RECEIVED: 08/28/90
DATE ANALYZED: 09/05/90

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE:080-16

Compound	MDL (ug/L)	RESULTS (ug/l)
Chloromethane/Vinyl Chloride	500	ND
Bromomethane/Chloroethane	500	ND
Trichlorofluoromethane	25	ND
1,1-Dichloroethene	25	ND
Methylene Chloride	200	ND
trans-1,2-Dichloroethene	25	ND
1,1-Dichloroethane	25	ND
Chloroform	25	ND
1,1,1-Trichloroethane	25	ND
Carbon tetrachloride	25	ND
1,2-Dichloroethane	25	ND
Trichloroethylene	25	ND
1,2-Dichloropropane	25	ND
Bromodichloromethane	25	ND
Cis-1,3-Dichloropropene	25	ND
trans-1,3-Dichloropropene	25	ND
1,1,2-Trichloroethane	25	ND
Tetrachloroethene	25	ND
Dibromochloromethane	25	ND
Chlorobenzene	25	ND
Bromoform	25	ND
1,1,2,2-Tetrachloroethane	25	ND
1,3-Dichlorobenzene	25	ND
1,2-Dichlorobenzene	25	ND
1,4-Dichlorobenzene	25	ND

** Detection Limit raised due to matrix interference
MDL = Method Detection Limit
ug/l = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD = <15
MS/MSD average recovery = 113 % :MS/MSD RPD =< 2 %

Richard Srna, Ph.D.

Laboratory Director

SA # 10946

Chain-of-Custody Record

Chevron U.S.A. Inc.
P.O. Box 5004
San Ramon, CA 94583
FAX (415) 842-9591

Chevron Facility Number (HAYWARD) # 90260
Laboratory Release Number 2564320
Consultant Project Number 4-310-04
Consultant Name WEISS ASSOCIATES
Address 5500 SHELLMOUND, EMERYVILLE, CA 94608
Fax Number (415) 547-5043
Project Contact (Name) MARRIETTE SHIN
(Phone) 415 547-5420

Chevron Contact (Name) WALTER F. POLUSZNEY
(Phone) 415-842 9040
Laboratory Name SUPERIOR ANALYTICAL LAB.
Laboratory Contract Number N 26 CWC 0240-9-X
Samples Collected by (Name) D. CHARLES
Collection Date 8/26/90
Signature David Charles

Sample Number	Lab Number	Number of Containers	Matrix S = Soil W = Water A = Air C = Charcoal	Type G = Grab C = Composite	Time	Sample Preservation	Iced	Analyses To Be Performed: Modified EPA 8015 Total Petro. Hydrocarb. as Gasoline	Modified EPA 8015 Total Petro. Hydrocarb. as Gasoline + Diesel	503 Oil and Grease	Arom. Volatiles - BTXE Soil: 8020/Wtr.: 602	Volatile Organics Soil: 8240/Wtr.: 624	Total Organic Lead DHS-Luft	EDB DHS-AB 1803	HVOC's EPA 601			Remarks
080-14		2	W	G	1625	HCL	Y	X			X							
080-15		↓	↓	↓	1536	↓	↓	↓			↓							
080-16					1521			↓			↓							
080-21					1815	↓												
080-14					1625	NONE									X			
080-15					1536	↓									X			
080-16		↓	↓	↓	1521	↓	↓								X			

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	Turn Around Time (Circle Choice)
David Charles	Weiss Assoc.	8/26/1816	A.J. Fontana	Weiss Assoc	8-28-90	24 Hrs
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	48 Hrs
A.J. Fontana	Weiss Assoc	8-28-90	Dave Rutt	EXPRESS IT	8-28-90	(5 Days)
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time	10 Days
Don Gallegos	EXPRESS-IT	8/28/1137	Onyx A Nwuyn		8/28/90	11:40 am