BP OIL

BP Oil Company
Aetna Bldg., Suite 360
2868 Prospect Park Drive
Rancho Cordova, California 95670-6020
(916) 631-0733

92 APR 13 PM 12

April 10, 1992

Mr. Rafat Shahid
Alameda County Environmental
Health Department
80 Swan WAy, Suite 200
Oakland, CA 94612

RE: **BP FACILITY #11127**
5425 MARTIN LUTHER KING, JR. WAY
OAKLAND, CA

Dear Mr. Shahid,

Enclosed please find the results of the **Quarterly Ground** Water Monitoring Report for the above referenced facility.

Please call me at (916) 631-6919 with any questions regarding this submission.

Respectfully,

Peter J. DeSantis

Peter J. DeSantis sml
Environmental Resources Management

PJD:sml

Attachment

cc: Joseph Theisen, Weiss Associates
Richard Hyatt, RWQCB San Francisco Bay Region
David Baker, Mobil Oil Co.
Site file

Weiss Associates *Environmental and Geologic Services*

5500 Shellmound Street, Emeryville, CA 94608-2411 *Fax: 510-547-5043 Phone: **510-547-5420***

STID 3105

TRANSMITTAL LETTER

FROM: Mariette Shin **DATE:** February 10, 1992

TO: Peter DeSantis
BP Oil Company
2868 Prospect Park Drive
Rancho Cordova, CA 95670-6020

VIA:
- X First Class Mail
- ___ Fax ___ pages
- ___ UPS (Surface)
- ___ Federal Express
- ___ Courier

SUBJECT: BP Service Station #11127
5425 Martin Luther King, Jr. Way
Oakland, California 94609

JOB: 4-499-91

AS:
- ___ We discussed on the telephone today
- ___ ~~You requested~~ _____
- ___ We believe you may be interested
- X Is required

WE ARE SENDING:
- X Enclosed
- ___ Under Separate Cover Via _____

1. Quarterly ground water monitoring report for the subject site

2. A copy of this report will be submitted to:

Mr. Richard Hyatt, California Regional Water Quality Control Board - San Francisco Bay Region, 1800 Harrison Street, #700, Oakland, CA 94612

Mr. Rafat Shahid, Alameda County Environmental Health Department, 80 Swan Way, Suite 200, Oakland, CA 94612

FOR:
- ___ Your information
- X Your use
- ___ Your review & comments
- ___ Return to you

PLEASE:
- X Keep this material
- ___ Return within 2 weeks
- ___ Acknowledge receipt

MESSAGE:

Please call if you have any questions.

Weiss Associates *Environmental and Geologic Services*

5500 Shellmound Street, Emeryville, CA 94608-2411 *Fax: 510-547-5043* *Phone: **510-547-5420***

February 7, 1992

Mr. Peter DeSantis
BP Oil Company
2868 Prospect Park Drive, Suite 360
Rancho Cordova, CA 95670-6020

Re: BP Service Station #11127
5425 Martin Luther King, Jr. Way
Oakland, California
WA Job #22-499-01

Dear Mr. DeSantis:

Weiss Associates (WA) collected ground water samples from two monitoring wells on November 20, 1991, as part of the quarterly ground water monitoring program at BP Service Station #11127 in Oakland, California (Figure 1). Depth to water measurements were taken on November 27, 1991. The ground water sample from monitoring well MW-2 (Figure 2) contained total petroleum hydrocarbons as gasoline (TPH-G) at 1,400 parts per billion (ppb). The sampling and anticipated future work are discussed below.

GROUND WATER SAMPLING

Sampling Personnel: WA Environmental Technician Brian Busch

Monitoring/Other Wells Sampled: MW-1, MW-2

Method of Purging Wells:

- Dedicated PVC bailers

Volume of Water Purged Prior to Sampling:

- Monitoring well MW-2 was purged of about four well-casing volumes (40.5 gallons).
- Monitoring well MW-1 was purged dry after evacuating 20 gallons, and allowed to recover for two hours before sampling.

Method of Ground Water Sample Collection:

- Drawn through sampling port on side of dedicated PVC bailer

Method of Containing Ground Water Samples:

- 40 ml glass volatile organic analysis (VOA) vials preserved with hydrochloric acid for TPH-G and benzene, ethylbenzene, toluene and xylene (BETX) analysis;
- 40 ml glass VOA vials without preservative for halogenated volatile organic compound (HVOC) analysis,
- 1 liter glass bottle with no preservative for TPH as diesel (TPH-D) analysis, and
- 500 ml plastic bottle with nitric acid preservative for metals analysis.

All samples were refrigerated and transported under chain-of-custody to the analytical laboratory.

Water Samples Transported to:

- Superior Precision Analytical of San Francisco and Martinez, California the samples were received on November 21, 1991

Quality Assurance/Quality Control:

- A travel blank was submitted for analysis.
- Bailer blanks were not necessary because all bailers are dedicated to specific wells.

Water sample collection records and chain-of-custody forms are included as Attachments A and B, respectively.

GROUND WATER ELEVATIONS

- Water levels were measured in all wells on November 27, 1991. Ground water elevations have increased about 0.4 ft since August 28, 1991.

- Ground water beneath the site flows northwestward.

Depth to water measurements and historical ground water elevations are presented in Table 1, and ground water elevation contours are plotted on Figure 2. Previous ground water contour maps are included in Attachment C.

CHEMICAL ANALYSES

The Ground Water Samples Were Analyzed for:

- TPH-G by modified EPA Method 8015
- BETX by EPA Method 8020

In addition, ground water samples from well MW-2, near the underground waste oil tank, were analyzed for:

- TPH-D by EPA Method 8015
- HVOCs by EPA Method 8010
- Cadmium, chromium, nickel, lead and zinc by EPA 7000 Series methods

The laboratory analyzed the samples between November 21 and December 3, 1991. The results are presented in Table 2 and the analytic reports are included in Attachment B.

Discussion of Ground Water Analytic Results for this Quarter:

- 1,1,1-TCA and 1,2-DCA were detected in the sample from well MW-2
- Concentrations of all other constituents are within the range of previous analytic results.

FUTURE WORK

WA will measure water levels and collect ground water samples from all monitoring wells in February 1992, as part of the continuing ground water monitoring program at the site. Because metals concentrations are below state maximum contaminant levels (MCLs), WA recommends eliminating metals analyses for future samplings. Unless we hear from you to the contrary, we will eliminate the metals analyses for the first quarter 1992 sampling.

We appreciate the opportunity to provide hydrogeologic consulting services to BP Oil Company and trust this report meets your needs. Please call if you have any questions.

Sincerely,
Weiss Associates

Mariette Shin
Staff Geologist

Joseph P. Theisen, C.E.G.
Senior Project Hydrogeologist

MMS/JPT:fcr

D:\ALL\BP\499QMJA2.WP

Attachments: A - Water Sample Collection Records
B - Analytic Reports and Chain-of-Custody Form
C - Previous Ground Water Contour Maps

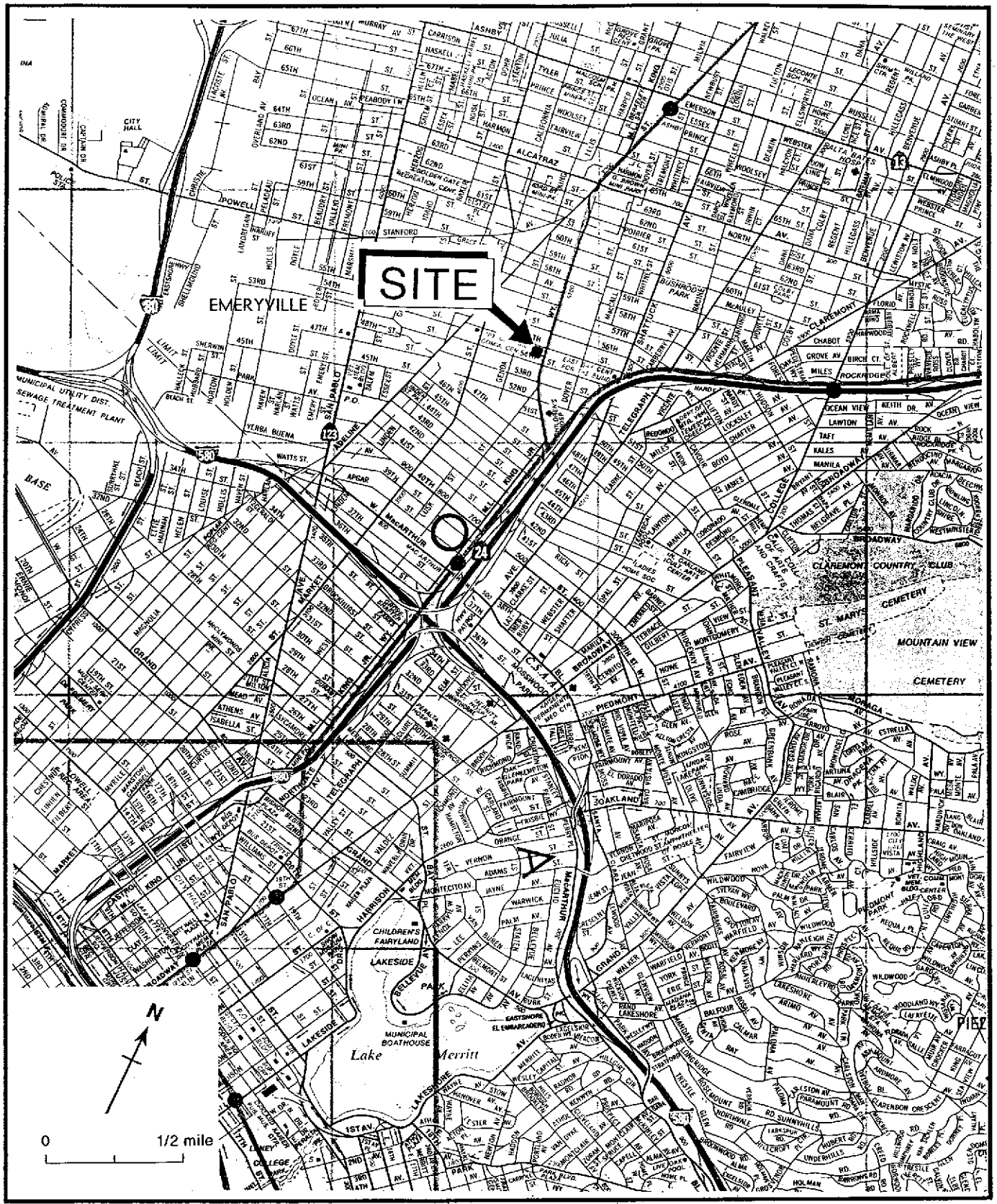

Figure 1. Site Location Map, BP Service Station #11127, 5425 Martin Luther King, Jr. Way, Oakland, California

12/13/90

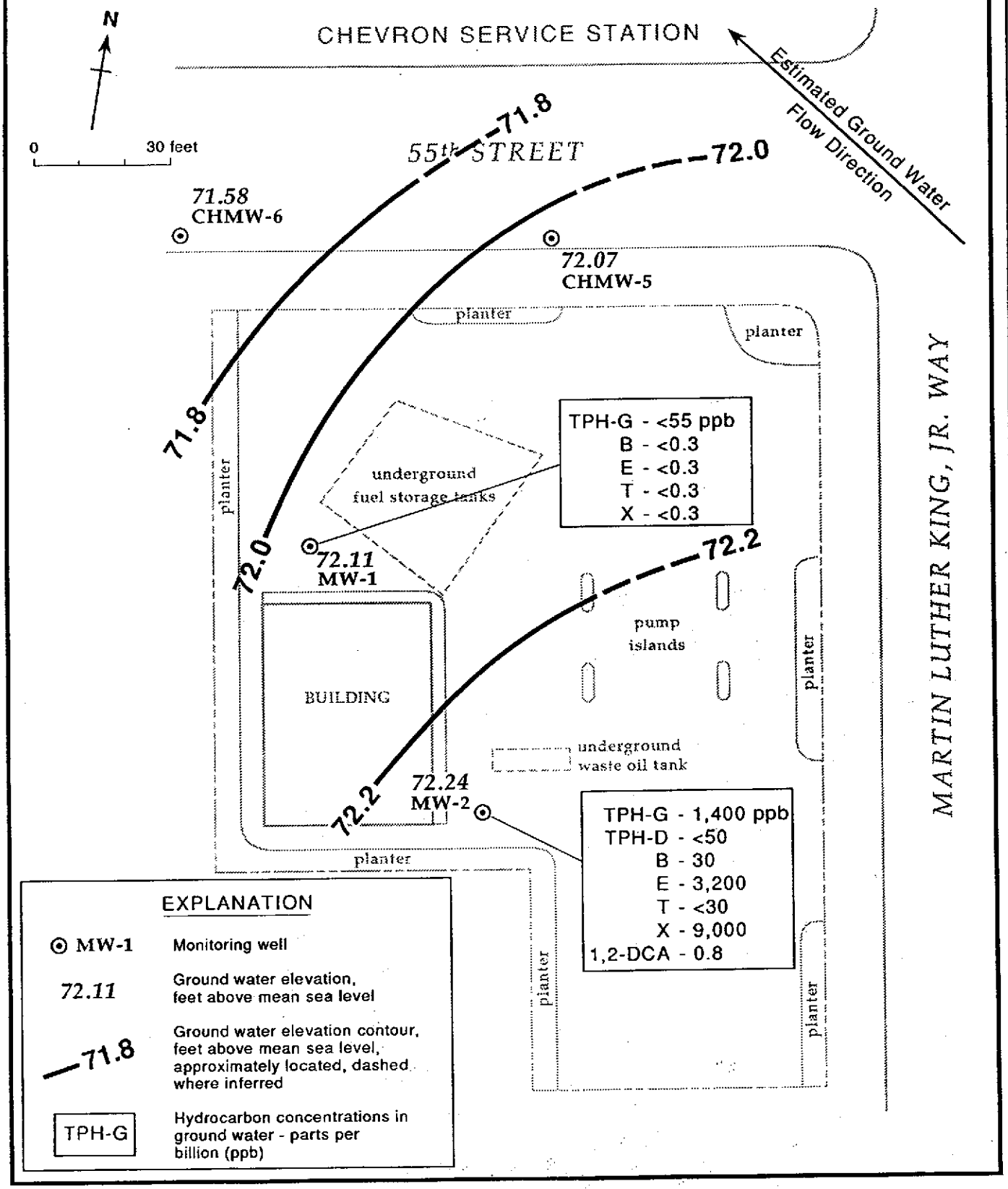

Figure 2. Ground Water Elevation Contours and Hydrocarbon Concentrations - November 27, 1991 - BP Service Station #11127, 5425 Martin Luther King, Jr. Way, Oakland, California

2/5/92

Table 1. Ground Water Elevation Data, BP Service Station #11127, 5425 Martin Luther King, Jr. Way, Oakland, California

Well ID	Date	Top-of-Casing Elevation (ft above msl)	Depth to Water (ft)	Ground Water Elevation (ft above msl)
MW-1	11/19/90	82.35	10.85	71.50
	05/24/91		10.11	72.24
	08/28/91		10.54	71.81
	11/27/91		10.24	72.11
MW-2	11/19/90	83.49	11.84	71.65
	05/24/91		11.29	72.20
	08/28/91		11.56	71.93
	11/27/91		11.25	72.24
CHMW-5*	11/19/90	81.94	10.68	71.26
	05/24/91		9.75	72.19
	08/28/91		10.30	71.64
	11/27/91		9.87	72.07
CHMW-6*	11/19/90	80.59	9.75	70.84
	05/24/91		8.92	71.67
	08/28/91		9.47	71.12
	11/27/91		9.01	71.58

*Water level measured with permission of Chevron USA

TABLE 2. Analytic Results for Ground Water - BP Service Station #11127, 5425 Martin Luther King, Jr. Way, Oakland, California

Sample ID	Date Sampled	Analytic Laboratory	Depth To Water (ft)	TPH-G	TPH-D	B	E	T	X	HVOC's	TOG	Metals
				<----------parts per billion (µg/ℓ)---------->								
MW-1	10/24/90	SPA	---	<50	---	2	<0.3	<0.3	<0.3	---	---	---
	05/24/91	SPA	10.11	<50	---	0.3	<0.3	<0.3	<0.3	---	---	---
	08/28/91	SPA	10.54	<50	---	<0.3	<0.3	<0.3	<0.3	---	---	---
	11/20/91	**SPA**	**10.24**	55[d]		**<0.3**	**<0.3**	**<0.3**	**<0.3**			
MW-2	10/24/90	SPA	---	88	170[b]	1	28	0.3	110	2[c]	<5,000	--
	05/24/91	SPA	11.29	880	160[b]	0.4	24	<0.3	84	0.6[c]	---	<5 Cd <50 Cr 60 Ni <50 Pb 70 Zn
	08/29/91	SPA	11.56	950	66[b]	<0.3	17	<0.3	50	ND	---	<30 Cd <300 Cr 240 Ni <500 Pb 290 Zn
	11/20/91	**SPA**	**11.25**	**1,400**	**<50**	**0.3**	**32**	**<0.3**	**90**	d	**---**	**<30 Cd** **<50 Cd** **<50 Cr** **<100 Ni** **<100 Pb** **<50 Zn**
Travel Blank	10/24/90	SPA		<50	---	<0.3	<0.3	<0.3	<0.3	---	---	
	05/24/91	SPA		<50	---	<0.3	<0.3	<0.3	<0.3	ND	---	
	08/28/91	SPA		<50	---	<0.3	<0.3	<0.3	<0.3	---	---	
	11/20/91	**SPA**		**<50**	**---**	**<0.3**	**<0.3**	**<0.3**	**<0.3**	**ND**		
Bailer Blank	10/24/90	SPA		<50	---	<0.3	<0.3	<0.3	<0.3	---	---	
	05/24/91	SPA		<50	---	<0.3	<0.3	<0.3	<0.3	ND	---	
DHS MCL				NE	NE	1	620	100[e]	1,750	0.5[f]	NE	10 Cd 50 Cr NE Ni 50 Pb 5,000 Zn[g]

-- Table 2 continues on next page --

TABLE 2. Analytic Results for Ground Water - BP Service Station #11127, 5425 Martin Luther King, Jr. Way, Oakland, California (continued)

Abbreviations:

TPH-G = Total Petroleum Hydrocarbons as Gasoline by Modified EPA Method 8015
TPH-D = Total Petroleum Hydrocarbons as Diesel by Modified EPA Method 8015
B = Benzene by EPA Method 8020
E = Ethylbenzene by EPA Method 8020
T = Toluene by EPA Method 8020
X = Xylenes by EPA Method 8020
HVOC's = Halogenated Volatile Organic Compounds by EPA Method 8010
TOG = Total Oil and Grease by APHA Standard Method 503E
Metals = Cadmium (Cd), Chromium (Cr), Nickel (Ni), Lead (Pb) and Zinc (Zn) by EPA Method 6010 or 7000 Series
<n = Not detected at detection limit of n ppb
--- = Not analyzed
ND = Not detected at various detection limits for individual compounds
DHS MCL = Department of Health Services Maximum Contaminant Level for Drinking Water
NE = Not established

Notes:

[a] = Gasoline-range hydrocarbon chromatography not typical of gasoline fuel
[b] = Diesel-range hydrocarbon chromatography not typical of diesel fuel
[c] = (1,2-DCA) detected; no other HVOC's detected
[d] = 1,1,1-Trichloroethane (1,1,1-TCA) detected at 0.7 ppb and 1,2-Dichloroethane (1,2-DCA) detected at 0.8 ppb
[e] = DHS Recommended Action Level for Drinking Water (no MCL established)
[f] = MCL for 1,2-DCA
[g] = The Secondary MCL for Zn no primary MCL established

Analytic Laboratory:

SPA = Superior Precision Analytical, Inc. of San Francisco and Martinez, California

ATTACHMENT A
WATER SAMPLE COLLECTION RECORDS

WEISS ASSOCIATES

WATER SAMPLING DATA

Well Name MW-1 Date 11-20-91 Time of Sampling 12:54

Job Name BP OAKLAND - MLK Way Job Number 22-499-01 Initials BB

Sample Point Description M (M = Monitoring Well)

Location On north side of building, near restroom

WELL DATA: Depth to Water 10.25 ft (static) pumping @ 0955 Depth to Product — ft.

Product Thickness — Well Depth 27.55 ft (spec) Well Depth — ft(sounded) Well Diameter 4 in

Initial Height of Water in Casing 17.3 ft. = volume 11.3 gal.

4 Casing Volumes to be Evacuated. Total to be evacuated 45.2 gal.

EVACUATION METHOD: Pump # and type — Hose # and type —

Bailer# and type 3"x3' PVC Dedicated Yes (Y/N)

Other —

Evacuation Time: Stop 10:52

Start 10:38

Total Evacation Time 14 min

Total Evacuated Prior to Sampling 20 gal.

Evacuation Rate 1.42 gal. per minute

Depth to Water during Evacuation — ft. — time

Depth to Water at Sampling 18.69 ft. 12:55 time

Evacuated Dry? Yes After ~20 gal. Time 10:52

80% Recovery = 13.71

% Recovery at Sample Time 51% Time 12:54

Formulas/Conversions

r = well radius in ft.

h = ht of water col in ft.

vol. in cyl. = $\pi r^2 h$

7.48 gal/ft^3

V_2" casing = 0.163 gal/ft

V_3" casing = 0.367 gal/ft

V_4" casing = 0.653 gal/ft

$V_{4.5}$" casing = 0.826 gal/ft

V_6" casing = 1.47 gal/ft

V8 casing = 2.61 gal/ft

CHEMICAL DATA: Meter Brand/Number —

Calibration: — 4.0 — 7.0 — 10.0

Measured:	SC/µmhos	pH	T°C	Time	Volume Evacuated ~~(gal.)~~
			N/A		

SAMPLE: Color Clear Odor None at Sampling

Description of matter in sample: none

Sampling Method: sampled from port on ded. PVC bailer.

Sample Port: Rate — gpm Totalizer — gal.

Time —

# of Cont.	Sample ID	Cont. Type[1]	Vol[2]	Fil[3]	Ref[4]	Preservative (specify)	Analytic Method	Turn[5]	LAB
2	MW-1	W/cV	40ml	No	Yes	HCl	EPA 8015/8020	N	SAL

1 Sample Type Codes: W = Water, S = Soil, Describe Other
Container Type Codes: V = VOA/Teflon Septa, P = Plastic, C or B = Clear/Brown Glass, Describe Other
Cap Codes: PT = Plastic, Teflon lined;
2 = Volume per container; 3 = Filtered (Y/N); 4 = Refrigerated (Y/N)
5 Turnaround [N = Normal, W = 1 week, R = 24 hour, HOLD (spell)]

ADDITIONAL COMMENTS, CONDITIONS, PROBLEMS:

WEISS ASSOCIATES

WATER SAMPLING DATA

Well Name MW-2 Date 11-20-91 Time of Sampling 11:35

Job Name BP Oakland-MLK Way Job Number 22-499-01 Initials BB

Sample Point Description M (M = Monitoring Well)

Location SE corner of bldg., near entrance to garage

WELL DATA: Depth to Water 11.31 ft (static) pumping @ 10:05 Depth to Product — ft.

Product Thickness — Well Depth 26.8 ft (spec) Well Depth — ft(sounded) Well Diameter 4 in

Initial Height of Water in Casing 15.5 ft. = volume 10.1 gal.

4 Casing Volumes to be Evacuated. Total to be evacuated 40.4 gal.

EVACUATION METHOD: Pump # and type — Hose # and type —

Bailer# and type 3"x3' PVC Dedicated Yes (Y/N)

Other —

Evacuation Time: Stop 11:28

Start 11:08

Total Evacation Time 20 min

Total Evacuated Prior to Sampling 40.5 gal.

Evacuation Rate 2.02 gal. per minute

Depth to Water during Evacuation — ft. — time

Depth to Water at Sampling 12.16 ft. 11:38 time

Evacuated Dry? No After — gal. Time —

80% Recovery = —

% Recovery at Sample Time — Time —

Formulas/Conversions

r = well radius in ft.

h = ht of water col in ft.

vol. in cyl. = $\pi r^2 h$

7.48 gal/ft^3

V_2" casing = 0.163 gal/ft

V_3" casing = 0.367 gal/ft

V_4" casing = 0.653 gal/ft

$V_{4.5}$" casing = 0.826 gal/ft

V_6" casing = 1.47 gal/ft

V8 casing = 2.61 gal/ft

CHEMICAL DATA: Meter Brand/Number

Calibration: 4.0 7.0 10.0

Measured:	SC/µmhos	pH	T°C	Time	Volume Evacuated (gal.)

SAMPLE: Color Clear Odor Slight when purging

Description of matter in sample: none

Sampling Method: Sampled from port on ded. PVC bailer

Sample Port: Rate — gpm Totalizer — gal.

Time —

# of Cont.	Sample ID	Cont. Type[1]	Vol[2]	Fil[3]	Ref[4]	Preservative (specify)	Analytic Method	Turn[5]	LAB
2	111-2a	W/W	40ml	No	Yes	HCl	EPA 8015/8020	N	SAL
2	111-2b	W/W	40ml	↓	↓	NONE	EPA 8010	↓	↓
2	111-2c	W/BG-PT	1L	↓	↓	NONE	EPA 8015	↓	↓
1	111-2d	W/PL	500ml	↓	↓	HNO_3	EPA 7000 series	↓	↓

1 Sample Type Codes: W = Water, S = Soil, Describe Other
Container Type Codes: V = VOA/Teflon Septa, P = Plastic, C or B = Clear/Brown Glass, Describe Other
Cap Codes: PT = Plastic, Teflon lined;
2 = Volume per container; 3 = Filtered (Y/N); 4 = Refrigerated (Y/N)
5 Turnaround [N = Normal, W = 1 week, R = 24 hour, HOLD (spell)]

ADDITIONAL COMMENTS, CONDITIONS, PROBLEMS:

WEISS ASSOCIATES

WATER SAMPLING DATA

Well Name TRAVEL BLANKS Date 11-20-91 Time of Sampling 07:45

Job Name BP Oakland - MLK Way Job Number 22-499-01 Initials BB

Sample Point Description _____ (M = Monitoring Well)

Location _____

WELL DATA: Depth to Water _____ ft (static, pumping) Depth to Product _____ ft.

Product Thickness _____ Well Depth _____ ft (spec) Well Depth _____ ft(sounded) Well Diameter _____ in

Initial Height of Water in Casing _____ ft. = volume _____ gal.

_____ Casing Volumes to be Evacuated. Total to be evacuated _____ gal.

EVACUATION METHOD: Pump # and type _____ Hose # and type _____

Bailer# and type _____ Dedicated _____ (Y/N)

Other _____

Evacuation Time: Stop _____ _____ _____

Start _____ _____ _____

Total Evacation Time _____

Total Evacuated Prior to Sampling _____ gal.

Evacuation Rate _____ gal. per minute

Depth to Water during Evacuation _____ ft _____ time

Depth to Water at Sampling _____ ft. _____ time

Evacuated Dry? _____ After _____ gal. Time _____

80% Recovery = _____

% Recovery at Sample Time _____ Time _____

Formulas/Conversions

r = well radius in ft.

h = ht of water col in ft.

vol. in cyl. = $\pi r^2 h$

7.48 gal/ft^3

V_2" casing = 0.163 gal/ft

V_3" casing = 0.367 gal/ft

V_4" casing = 0.653 gal/ft

$V_{4.5}$" casing = 0.826 gal/ft

V_6" casing = 1.47 gal/ft

V8 casing = 2.61 gal/ft

CHEMICAL DATA: Meter Brand/Number _____

Calibration: _____ 4.0 _____ 7.0 _____ 10.0

Measured:	SC/μmhos	pH	T°C	Time	Volume Evacuated (gal.)

SAMPLE: Color Clear Odor None

Description of matter in sample: none

Sampling Method: prepared by SAL personnel / Made in shop (Non-pres) w/ Arrowhead DI water. Exp 10-16-93

Sample Port: Rate ___ gpm Totalizer _____ gal. Time 1A 09:34

# of Cont.	Sample ID	Cont. Type[1]	Vol[2]	Fil[3]	Ref[4]	Preservative (specify)	Analytic Method	Turn[5]	LAB
2	111-2la	w/w	40ml	NO	Yes	HCl	EPA 8015/8020	*	SAL
2	111-21b	w/w	40ml	NO	Yes	NONE	EPA 8010	*	SAL

* = ANALYZE ONLY IF TPH-G/BETX & HVOC'S ARE DETECTED IN 111-1, 111-2a, & 111-2b

1 Sample Type Codes: W = Water, S = Soil, Describe Other
Container Type Codes: V = VOA/Teflon Septa, P = Plastic, C or B = Clear/Brown Glass, Describe Other
Cap Codes: PT = Plastic, Teflon lined;
2 = Volume per container; 3 = Filtered (Y/N); 4 = Refrigerated (Y/N)
5 Turnaround [N = Normal, W = 1 week, R = 24 hour, HOLD (spell)]

ADDITIONAL COMMENTS, CONDITIONS, PROBLEMS:

ATTACHMENT B
ANALYTIC REPORTS AND CHAIN-OF-CUSTODY FORM

Superior Precision Analytical, Inc.
1555 Burke, Unit I ▪ San Francisco, California 94124 ▪ (415) 647-2081 / fax (415) 821-7123

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 54321
CLIENT: Weiss Associates
CLIENT JOB NO.: 22-499-01

DATE RECEIVED: 11/21/91
DATE REPORTED: 11/29/91

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS
by Modified EPA SW-846 Method 5030 and 8015

LAB #	Sample Identification	Concentration (ug/L) Gasoline Range
1	111-1	55*
2	111-2	1400
3	111-21	ND<50

* Gasoline range concentration reported. A non-standard gasoline pattern was observed in the chromatogram.

ug/L - parts per billion (ppb)
Minimum Detection Limit for Gasoline in Water: 50ug/L

QAQC Summary:
Daily Standard run at 2mg/L: %DIFF Gasoline = <15%
MS/MSD Average Recovery = 91%: Duplicate RPD = 0.6%

Richard Srna, Ph.D.
Laboratory Director

Superior Precision Analytical, Inc.
1555 Burke, Unit I • San Francisco, California 94124 • (415) 647-2081 / fax (415) 821-7123

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 54321
CLIENT: Weiss Associates
CLIENT JOB NO.: 22-499-01

DATE RECEIVED: 11/21/91
DATE REPORTED: 11/29/91

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS
by Modified EPA SW-846 Method 8015

LAB #	Sample Identification	Concentration (ug/L) Diesel Range
2	111-2	ND<50

ug/L - parts per billion (ppb)

Minimum Detection Limit for Diesel in Water: 50ug/L

QAQC Summary:

Daily Standard run at 200mg/L: %DIFF Diesel = <15%
MS/MSD Average Recovery = 98%: Duplicate RPD = 3.6%

Richard Srna, Ph.D.

Laboratory Director

Superior Precision Analytical, Inc.
1555 Burke, Unit I • San Francisco, California 94124 • (415) 647-2081 / fax (415) 821-7123

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 54321
CLIENT: Weiss Associates
CLIENT JOB NO.: 22-499-01

DATE RECEIVED: 11/21/91
DATE REPORTED: 11/29/91

ANALYSIS FOR BENZENE, TOLUENE, ETHYL BENZENE & XYLENES
by EPA SW-846 Methods 5030 and 8020

LAB #	Sample Identification	Concentration(ug/L) Benzene	Toluene	Ethyl Benzene	Xylenes
1	111-1	ND<0.3	ND<0.3	ND<0.3	ND<0.3
2	111-2	0.3	ND<0.3	32	90
3	111-21	ND<0.3	ND<0.3	ND<0.3	ND<0.3

ug/L - parts per billion (ppb)

Minimum Detection Limit in Water:0.3ug/L

QAQC Summary:
Daily Standard run at 20ug/L: %DIFF 8020 = <15%
MS/MSD Average Recovery = 89% : Duplicate RPD = 3.3%

Richard Srna, Ph.D.
Laboratory Director

Superior Precision Analytical, Inc.
1555 Burke, Unit I • San Francisco, California 94124 • (415) 647-2081 / fax (415) 821-7123

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 54321-2
CLIENT: WEISS ASSOCIATES
JOB NO.: 22-499-01

DATE SAMPLED: 11/20/91
DATE RECEIVED: 11/21/91
DATE ANALYZED: 11/21/91

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE: 111-2

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	0.5	ND
trans-1,2-Dichloroethene	0.5	ND
1,1-Dichloroethane	0.5	ND
Chloroform	0.5	ND
1,1,1-Trichloroethane	0.5	0.7
Carbon tetrachloride	0.5	ND
1,2-Dichloroethane	0.5	0.8
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
Cis-1,2-Dichloroethene	0.5	ND
2-Chloroethyl vinyl ether	0.5	ND

MDL = Method Detection Limit
ug/l = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD = <15
MS/MSD average recovery = 95 % :MS/MSD RPD =< 1 %

Richard Srna, Ph.D.

Laboratory Director

Superior Precision Analytical, Inc.
1555 Burke, Unit I • San Francisco, California 94124 • (415) 647-2081 / fax (415) 821-7123

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 54321-3
CLIENT: WEISS ASSOCIATES
JOB NO.: 22-499-01

DATE SAMPLED: 11/20/91
DATE RECEIVED: 11/21/91
DATE ANALYZED: 12/03/91

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE: 111-21

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	0.5	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	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
Cis-1,2-Dichloroethene	0.5	ND
2-Chloroethyl vinyl ether	0.5	ND

MDL = Method Detection Limit
ug/l = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD = <15
MS/MSD average recovery = 68 % :MS/MSD RPD =< 26%

Richard Srna, Ph.D.

Cecilia Joaquin (for)
Laboratory Director

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 84464
CLIENT: Weiss Associates
CLIENT JOB NO.: 22-499-01

DATE RECEIVED:11/21/91
DATE REPORTED:12/02/91

ANALYSIS FOR CADMIUM, CHROMIUM, LEAD & ZINC
by EPA SW-846 Method 6010

LAB #	Sample Identification	Concentration(mg/L) Cadmium	Chromium	Lead	Zinc
1	111-2D	ND<0.05	ND<0.05	ND<0.1	ND<0.05

mg/L - parts per million (ppm)

Method Detection Limit for Cadmium in Water: 0.05 mg/L
Method Detection Limit for Chromium in Water: 0.05 mg/L
Method Detection Limit for Lead in Water: 0.1 mg/L
Method Detection Limit for Zinc in Water: 0.05 mg/L

QAQC Summary: MS/MSD Average Recovery : 104%
Duplicate RPD : 5

Richard Srna, Ph.D.

Laboratory Manager

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 84464
CLIENT: Weiss Associates
CLIENT JOB NO.: 22-499-01

DATE RECEIVED: 11/21/91
DATE REPORTED: 12/02/91
DATE SAMPLED : 11/20/91

ANALYSIS FOR TOTAL NICKEL
by SW-846 METHOD 6010

LAB #	Sample Identification	Concentration(mg/L) Total Nickel
1	111-2D	ND<0.1

mg/L - parts per million (ppm)

Method Detection Limit for Nickel in Water: 0.1 mg/L

QAQC Summary: MS/MSD Average Recovery : 98%
Duplicate RPD : 7

Richard Srna, Ph.D.

Laboratory Manager

54321

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

Please send analytic results and a copy of the signed chain of custody form to: JOHN DVEY

Project ID: 22-499-01

Lab Personnel:

☐ PLEASE INCLUDE QA/QC DATA IF BOX IS CHECKED.

1) Specify analytic method and detection limit in report.
2) Notify us if there are any anomalous peaks in GC or other scans.
3) ANY QUESTIONS/CLARIFICATIONS: CALL US.

CHAIN-OF-CUSTODY RECORD AND ANALYTIC INSTRUCTIONS

Sampled by: BRIAN BUSCH

Laboratory Name: SUPERIOR ANALYTICAL

No. of Containers	Sample ID	Container Type[1]	Sample Date	Vol[2]	Fil[3]	Ref[4]	Preservative (specify)	Analyze for	Analytic Method	Turn[5]	COMMENTS
2	111-1	w/w	11-20-91	40ml	No	Yes	HCl	TPH-G / BETX	EPA 8015/8020	N	
2	111-2a	w/w	↓	40ml	↓	↓	HCl	TPH-G / BETX	EPA 8015/8020	↓	
2	111-2b	w/w	↓	40ml	↓	↓	NONE	HVOC's	EPA 8010	↓	
2	111-2c	W/BG-PY	↓	1l	↓	↓	NONE	TPH-D	EPA 8015 (50 ppb)	↓	
1	111-2d	w/Pl	↓	500ml	↓	↓	HNO_3	Cd, Cr, Ni, Pb, Zn	EPA 7000 Series	(↓)	
2	111-21a	w/w	↓	40ml	↓	↓	HCl	TPH-G / BETX	EPA 8015/8020	*	→ * Analyze only if TPH-G and/or BETX detected in samples 111-1 or 111-2a
2	111-21b	w/w	↓	40ml	↓	↓	NONE	HVOC's	EPA 8010	*	* Analyze only if HVOC's detected in sample 111-2b.

1 Brian Busch 11/20/91
Released by (Signature), Date

1 WEISS ASSOCIATES
Affiliation

2 Ronald C. Jensen 11/21/91 10:00
Received by (Signature), Date

2 Weiss associates
Affiliation

3 Ronald C. Jensen 11/21/91 10:50
Released by (Signature), Date

3 Weiss associates
Affiliation

4 [signature] 11/21/91 10:50
Shipping Carrier, Method, Date

4 Express-ITX519
Affiliation

5 [signature] 11/21/91 ...
Released by (Signature), Date

5 Express-ITX519
Affiliation

6 [signature] 11/21/91
Received by Lab Personnel, Date

6 Superior S.F.
Affiliation, Telephone

Please initial: OAN
Samples stored in ice. yes
Appropriate containers. yes
Samples preserved. yes
VOA's without headspace. yes
Comments: Seal intact? N/C

1 Sample Type Codes: W = Water, S = Soil, Describe Other; Container Type Codes: V = VOA/Teflon Septa, P = Plastic, C or B = Clear/Brown Glass, Describe Other; Cap Codes: PT = Plastic, Teflon Lined 2 = Volume per container; 3 = Filtered (Y/N); 4 = Refrigerated (Y/N).
5 Turnaround [N = Normal, W = 1 Week, R = 24 Hour, HOLD (write out)]

ADDITIONAL COMMENTS, CONDITIONS, PROBLEMS:
→ RECEIVED FROM REFRIGERATED, SECURE AREA

Page ___ of ___

D:\ALL\ADMIN\FORMS\COC.WP2

ATTACHMENT C

PREVIOUS GROUND WATER ELEVATION CONTOUR MAPS

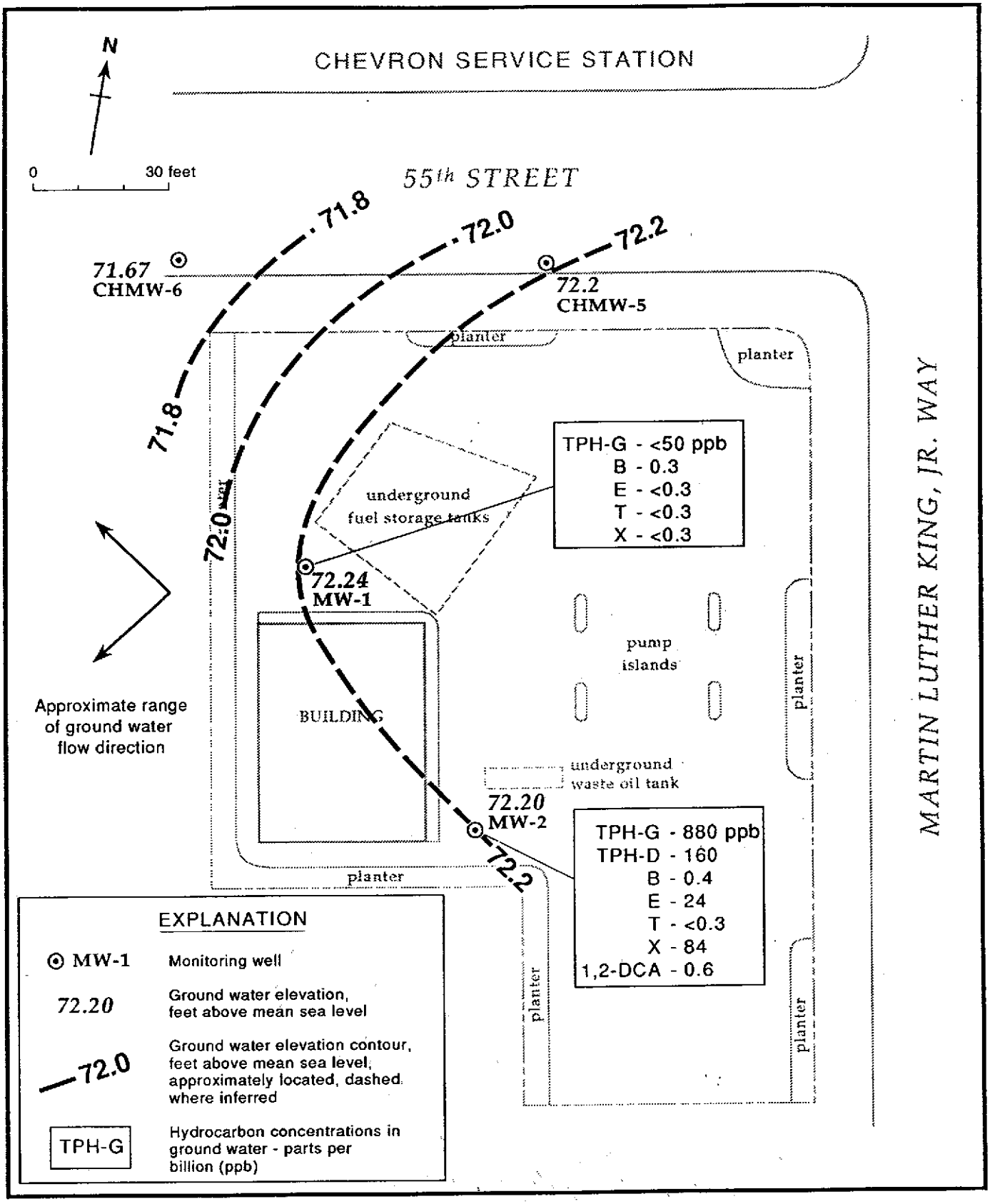

Figure 2. Ground Water Elevation Contours and Hydrocarbon Concentrations - May 24, 1991 - BP Service Station #11127, 5425 Martin Luther King, Jr. Way, Oakland, California

7/31/91

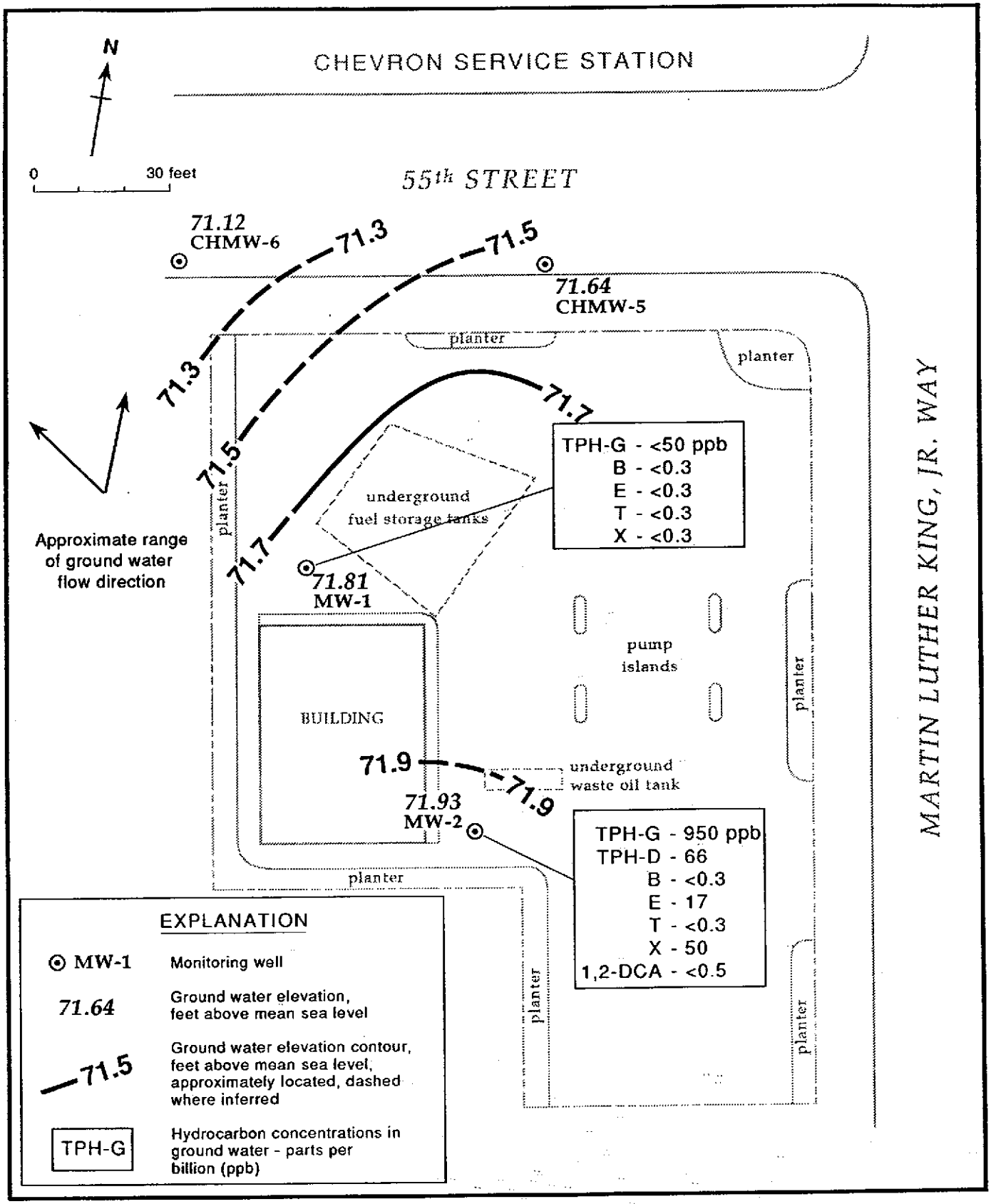

Figure 2. Ground Water Elevation Contours and Hydrocarbon Concentrations - August 28, 1991 - BP Service Station #11127, 5425 Martin Luther King, Jr. Way, Oakland, California