BP OIL

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

STID 3105

June 26, 1992

Mr. Rafat Shahid
Alameda County Health Agency
80 Swan Way, Room 200
Oakland, CA 94621

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

94609

Dear Mr. Shahid,

Attached please find results of the quarterly sampling and analysis performed at the above referenced facility.

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

Respectfully,

Peter J. DeSantis
Environmental Resources management

PJD:lk

cc: Richard Hiett - RWQCB, San Francisco Bay Area
Dave Baker - Mobil Oil Corporation
Site file

Weiss Associates Environmental and Geologic Services

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

June 16, 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 February 28, 1992, as part of the quarterly ground water monitoring program at BP Service Station #11127 in Oakland, California (Figure 1). The ground water sample from monitoring well MW-2 (Figure 2) contained total petroleum hydrocarbons as gasoline (TPH-G) at 2,300 parts per billion (ppb). Benzene was detected in well MW-1 at 6.7 ppb, and in well MW-2 at 4.2 ppb, which were both above the 1-ppb California maximum contaminant level (MCL) for drinking water. The ground water sampling is discussed below.

GROUND WATER SAMPLING

Sampling Personnel: WA Environmental Technician Anni Kreml

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

Method of Purging Wells:

- Stainless steel submersible pump

Volume of Water Purged Prior to Sampling:

- Three well volumes, about 35 gal

Method of Ground Water Sample Collection:

- Decanted from steam-cleaned Teflon 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 Martinez, California. The samples were received on November 21, 1991

Quality Assurance/Quality Control:

- A travel blank was submitted for analysis.

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 three wells on February 28, 1992. Ground water elevations increased about 2 ft since November 27, 1991.

The water level in well CHMW-5 could not be measured during the sampling or either time WA visited the site in March, since a car was parked above the well each time.

Depth to water measurements and historical ground water elevations are presented in Table 1, and ground water elevation are also shown on Figure 2. No ground water gradient could be determined since the elevation in CHMW-5 was not available. Past water level measurements suggest ground water flowed northwestward to southwestward. 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 Method 6010

The laboratory analyzed the samples between March 2 and March 13, 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-trichloroethane was detected in the sample from well MW-2 at a higher concentration than last quarter. However, no 1,2-dichloroethane was detected this quarter in the MW-2 sample.
- TPH-G and benzene were detected in the sample from well MW-1 at higher concentrations than were previously detected, and ethylbenzene, toluene and xylenes were detected for the first time.

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

John W. Duey
Senior Staff Geologist

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

C:\JWD\BP\QM\499QMJE2.WP

Attachments: Figure 1. Site Location Map
Figure 2. Ground Water Elevations and Hydrocarbon Concentrations
Table 1. Ground Water Elevation Data
Table 2. Analytic Results for Ground Water
A - Water Sample Collection Records
B - Analytic Reports and Chain-of-Custody Form
C - Previous Ground Water Contour Maps

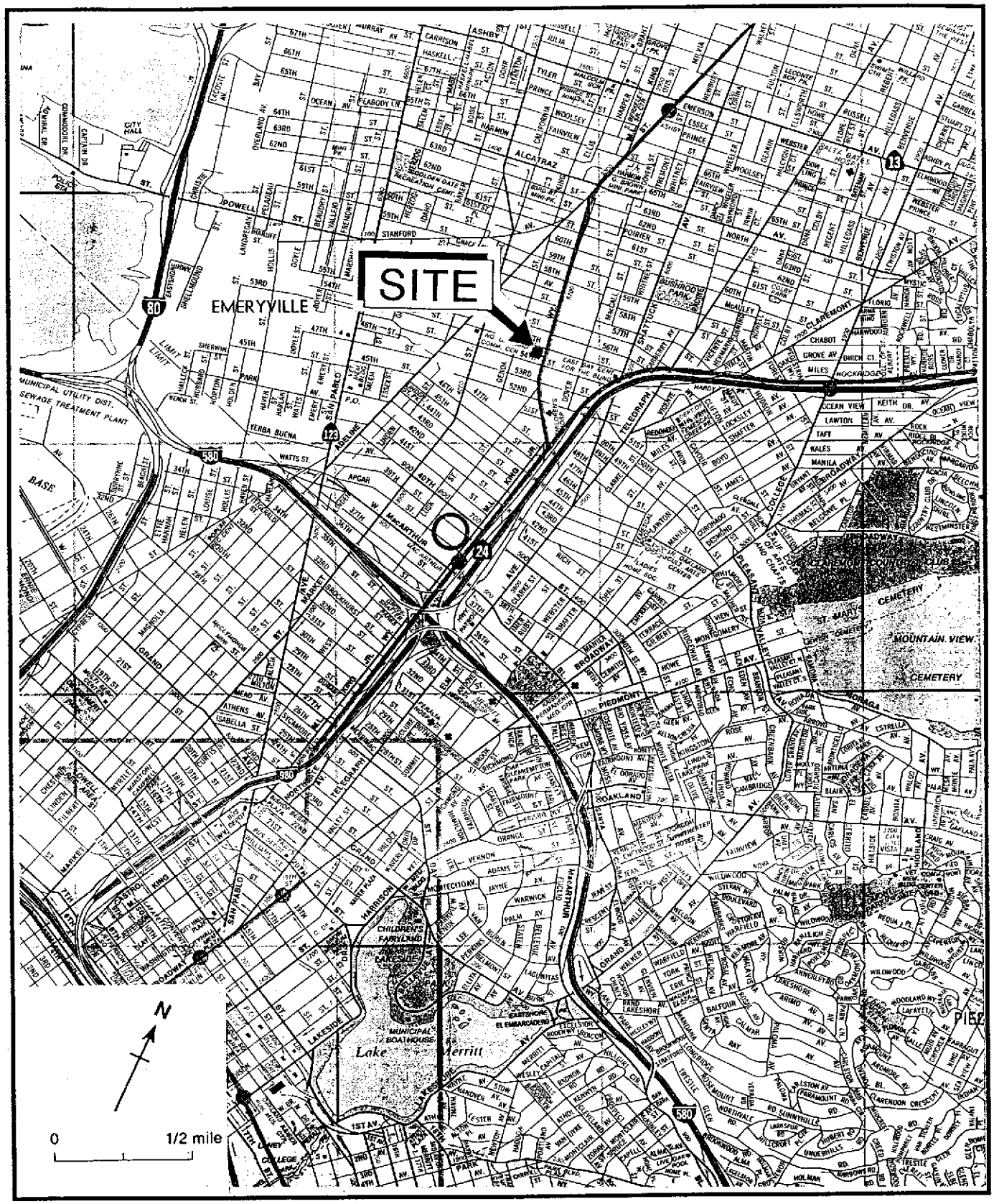

Figure 1. Site Location Map, BP Service Station #11127, 5425 Martin Luther King, Jr. Way, Oakland, California

12/13/90

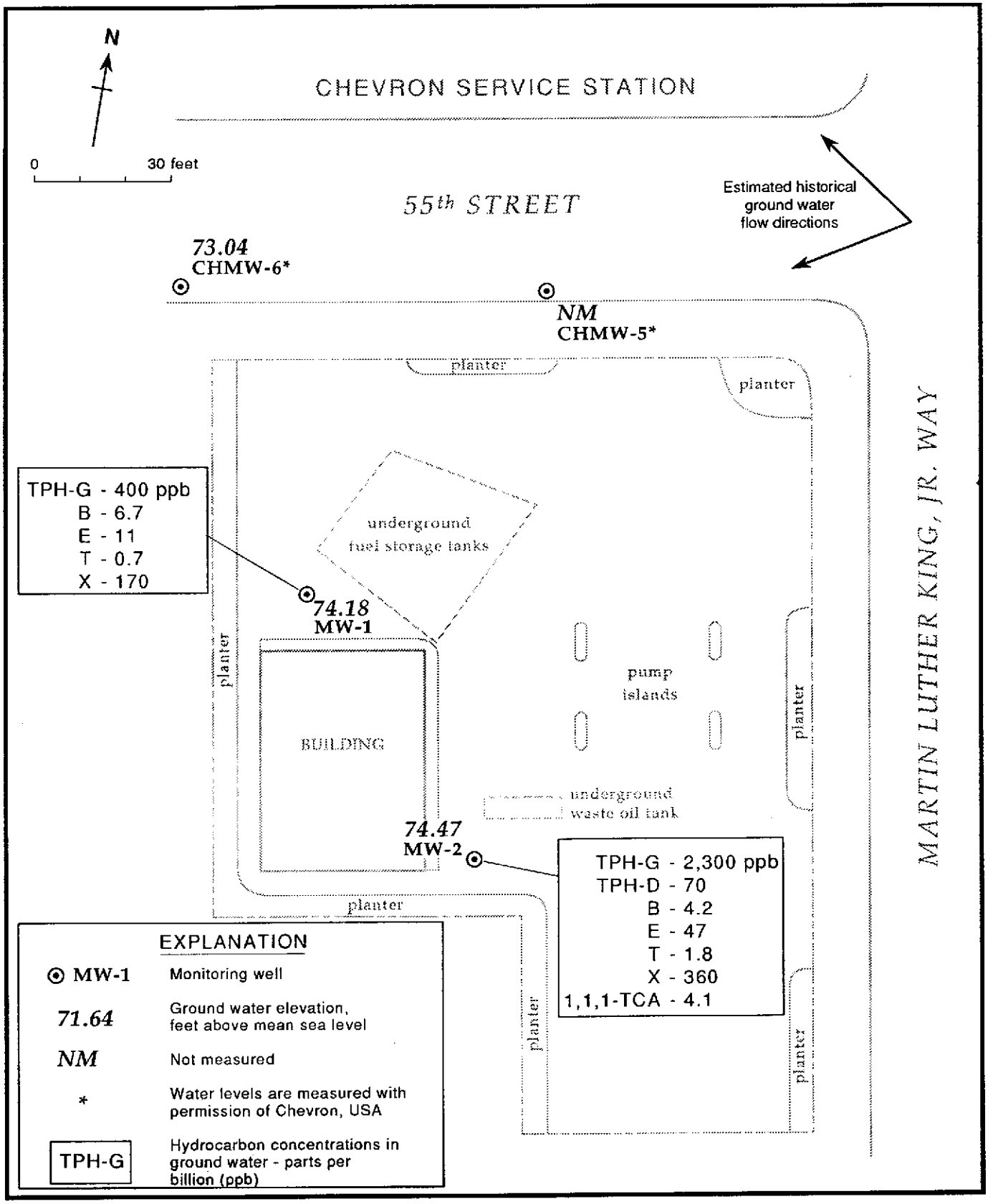

Figure 2. Ground Water Elevations and Hydrocarbon Concentrations - February 28, 1992 - BP Service Station #11127, 5425 Martin Luther King, Jr. Way, Oakland, California

6/18/92

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
	2/28/92		**8.17**	**74.18**
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
	2/28/92		**9.02**	**74.47**
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
	2/28/92		**NA**	**NA**
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
	2/28/92		**7.55**	**73.04**

*Water level measured with permission of Chevron USA

NA = data not available (car was parked above the well)

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[a]	---	<0.3	<0.3	<0.3	<0.3	---	---	---
	[redacted]											
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 90 Zn
	11/20/91	SPA	11.25	1,400	<50	0.3	32	<0.3	90	0.8[c] 0.7[d]	---	<50 Cd <50 Cr <100 Ni <100 Pb <50 Zn
	[redacted]											
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	---	---
	2/28/92	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	---	
DTSC MCL				NE	NE	1	620	100[e]	1,750	0.5[c] 200.0[d]	NE	10 Cd 50 Cr NE Ni 50 Pb 5,000 Zn[f]

-- 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
DTSC MCL = Department of Toxic Substances Control's 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-dichloroethane (1,2-DCA)
d = 1,1,1-Trichloroethane (1,1,1-TCA)
e = DTSC Recommended Action Level for Drinking Water (no MCL established)
f = Secondary MCL for zinc (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 4/28/92 Time of Sampling 1359

Job Name BP OAKLAND Job Number 22-499-01 Initials AK

Sample Point Description M (M = Monitoring Well)

Location W. EDGE OF SITE

WELL DATA: Depth to Water 8.17 ft (static, pumping) 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 19.38 ft. = volume 12.66 gal.

3 Casing Volumes to be Evacuated. Total to be evacuated 37.96 gal.

EVACUATION METHOD: Pump # and type GRUNFOS Hose # and type NALGENE

Bailer# and type ~~PVC~~ HDPE Dedicated Y N (Y/N)

Other —

Evacuation Time:			
Stop	1246	1310	1336
Start	1239	1259	1331
Total Evacation Time	23		

Total Evacuated Prior to Sampling 38 gal.

Evacuation Rate 1.65 gal. per minute

Depth to Water during Evacuation — ft. — time

Depth to Water at Sampling 19.72 ft. 1400 time

Evacuated Dry? Y After 20 gal. Time 1246

80% Recovery = 12.05

% Recovery at Sample Time 40% Time 1400

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 SLIGHT

Description of matter in sample: NONE

Sampling Method: POUR FROM DISP. TEF. BLR.

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	022-1	W/CV	40ml	N	Y	HCl	EPA 8015/8020	N	SPA

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 2/28/92 Time of Sampling 1508

Job Name BP OAKLAND Job Number 22-499-01 Initials AEK

Sample Point Description M (M = Monitoring Well)

Location SE CORNER of BLDG.

WELL DATA: Depth to Water 9.02 ft (~~static~~ pumping) Depth to Product — ft.

Product Thickness — Well Depth 26.81 ft (spec) Well Depth — ft(sounded) Well Diameter 4 in

Initial Height of Water in Casing 17.79 ft. = volume 11.62 gal.

3 Casing Volumes to be Evacuated. Total to be evacuated 34.85 gal.

EVACUATION METHOD: Pump # and type GRUNDFOS Hose # and type NALGENE

Bailer# and type ~~PVC~~ Teflon Dedicated ~~Y~~ N (Y/N)

Other —

Evacuation Time: Stop 1446

Start 1432

Total Evacation Time 14

Total Evacuated Prior to Sampling 35 gal.

Evacuation Rate 2.5 gal. per minute

Depth to Water during Evacuation — ft. — time

Depth to Water at Sampling 9.78 ft. 1509 time

Evacuated Dry? N 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.)
		N/A			

SAMPLE: Color CLEAR Odor MODERATE

Description of matter in sample: NONE

Sampling Method: POUR FROM DISP. TEF. BLR.

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	022-2a	W/CV	40ml	N	Y	HCl	EPA 8015/8020	N	SPA
↓	-2b	↓	↓	↓	↓	NONE	~~EPA 8010~~	↓	↓
↓	-2c	W/BG-Py	1L	↓	↓	↓	~~EPA 8010~~ 8015 (50 ppb)	↓	↓
1	-2d	W/PL	500ml	↓	↓	HNO_3	~~EPA 8015 (50 ppb)~~ & 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 2/28/92 Time of Sampling 1100

Job Name BP OAKLAND Job Number 22-499-01 Initials AER

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: POUR FROM DI WATER ARROWHEAD MIC. EXP. 01/08/94 1A 07:35

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	-21a	W/CV	40ml	N	Y	HCl	EPA 8015/8020	N	SPA
↓	-21b	↓	↓	↓	↓	NONE	↓ 8010	↓	↓

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.
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.: 85147
CLIENT: Weiss Associates
CLIENT JOB NO.: 22-499-01

DATE RECEIVED: 03/02/92
DATE REPORTED: 03/10/92
DATE SAMPLED : 02/28/92

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS
by MODIFIED EPA SW-846 METHOD 5030 and 8015

LAB #	Sample Identification	Concentration (mg/L) Gasoline Range
1	022-1	0.40
2	022-2A	2.3
6	022-2 1A	ND<0.05

mg/L - parts per million (ppm)

Method Detection Limit for Gasoline in Water: 0.05 mg/L

QAQC Summary:

Daily Standard run at 2mg/L: RPD Gasoline = <15
MS/MSD Average Recovery = 100%: Duplicate RPD = 2

Richard Srna, Ph.D.

Jelomina Vanguilz (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.: 85147
CLIENT: Weiss Associates
CLIENT JOB NO.: 22-499-01

DATE RECEIVED: 03/02/92
DATE REPORTED: 03/10/92
DATE SAMPLED : 02/28/92

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

LAB #	Sample Identification	Concentration (mg/L) Diesel Range
4	022-2C	*0.07

mg/L - parts per million (ppm)

Method Detection Limit for Diesel in Water: 0.05 mg/L

QAQC Summary:

Daily Standard run at 200mg/L: RPD Gasoline = n/a
RPD Diesel = 1
MS/MSD Average Recovery = 120%: Duplicate RPD = 9

* Diesel range concentration reported. A non-standard diesel pattern was observed in the chromatogram.

Richard Srna, Ph.D.

Deloniva V Jamguis (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.: 85147
CLIENT: Weiss Associates
CLIENT JOB NO.: 22-499-01

DATE RECEIVED: 03/02/92
DATE REPORTED: 03/10/92
DATE SAMPLED : 02/28/92

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	022-1	6.7	0.7	11	170
2	022-2A	4.2	1.8	47	360
6	022-2 1A	ND<0.3	ND<0.3	ND<0.3	ND<0.3

ug/L - parts per billion (ppb)

Method Detection Limit in Water: 0.3 ug/L

QAQC Summary:

Daily Standard run at 20ug/L: RPD = <15%
MS/MSD Average Recovery = 104%: Duplicate RPD = < 5

Richard Srna, Ph.D.

Ilonina Vanguilez (for)
Laboratory Director

Superior Precision Analytical, Inc.
835 Arnold Drive, Suite 106 • Martinez, California 94553 • (510) 229-0166 / fax (510) 229-0916

CERTIFICATE OF ANALYSIS

LABORATORY NO: 85147
CLIENT: Weiss Associates
PROJECT NO: 22-499-01

DATE SAMPLED :02/28/92
DATE RECEIVED:03/02/92
DATE REPORTED:03/07/92

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS

LAB#: 85147-3 (Analyzed:03/03/92)
SAMPLE: 022-2B (Water)

ANALYTE	MDL(ug/L)	RESULT(ug/L)
Chloromethane/Vinyl Chloride	1.0	ND
Bromomethane/Chloroethane	1.0	ND
Trichlorofluoromethane	0.5	ND
1,1-Dichloroethene/Freon 113	0.5	ND
Dichloromethane	0.5	ND
trans-1,2-Dichloroethene	0.5	ND
1,1-Dichloroethane	0.5	ND
cis-1,2-Dichloroethene	0.5	ND
Chloroform	0.5	ND
1,1,1-Trichloroethane	0.5	4.1
Carbon Tetrachloride	0.5	ND
1,2-Dichloroethane	0.5	ND
Trichloroethene (TCE)	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 (PCE)	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
1,4-Dichlorobenzene	0.5	ND
1,2-Dichlorobenzene	0.5	ND

Surrogate (4-CT) Recovery: 62%

MDL: Method Detection Limit

QA/QC Summary: For Water Matrix (03/03/92)
MS/MSD Average Recovery: 91 %
MS/MSD %RPD:12%

Charles Green
Senior Analyst

Superior Precision Analytical, Inc.
835 Arnold Drive, Suite 106 • Martinez, California 94553 • (510) 229-0166 / fax (510) 229-0916

CERTIFICATE OF ANALYSIS

LABORATORY NO: 85147
CLIENT: Weiss Associates
PROJECT NO: 22-499-01

DATE SAMPLED :02/28/92
DATE RECEIVED:03/02/92
DATE REPORTED:03/13/92

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS

LAB#: 85147-7 (Analyzed:03/12/92)
SAMPLE: 022-~~1B~~ 21B and 3/15 (Water)

ANALYTE	MDL(ug/L)	RESULT(ug/L)
Chloromethane/Vinyl Chloride	1.0	ND
Bromomethane/Chloroethane	1.0	ND
Trichlorofluoromethane	0.5	ND
1,1-Dichloroethene/Freon 113	0.5	ND
Dichloromethane	0.5	ND
trans-1,2-Dichloroethene	0.5	ND
1,1-Dichloroethane	0.5	ND
cis-1,2-Dichloroethene	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
Trichloroethene (TCE)	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 (PCE)	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
1,4-Dichlorobenzene	0.5	ND
1,2-Dichlorobenzene	0.5	ND

Surrogate (4-CT) Recovery:130%

MDL: Method Detection Limit

QA/QC Summary: For Water Matrix (03/11/92)
MS/MSD Average Recovery: 84 %
MS/MSD %RPD: 11%

Nancy A. Nelson
Senior Analyst

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.: 85147
CLIENT: Weiss Associates
CLIENT JOB NO.: 22-499-01

DATE RECEIVED: 03/02/92
DATE REPORTED: 03/11/92
DATE SAMPLED : 02/28/92

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

LAB #	Sample Identification	Concentration (mg/L) Cadmium	Chromium	Lead	Zinc
5	022-2D	ND<0.05	ND<0.05	ND<0.1	0.10

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 : 98%
Duplicate RPD : 1

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

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

LABORATORY NO.: 85147
CLIENT: Weiss Associates
CLIENT JOB NO.: 22-499-01

DATE RECEIVED: 03/02/92
DATE REPORTED: 03/10/92
DATE SAMPLED :02/28/92

ANALYSIS FOR TOTAL NICKEL
by SW-846 METHOD 6010

LAB #	Sample Identification	Concentration (mg/L) Total Nickel
5	022-2D	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 : 94%
Duplicate RPD : 3

Richard Srna, Ph.D.

Ildonina Vasquez (for)
Laboratory Manager

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:
JOE THEISEN

Project ID: 22-499-01

85147

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: ANNI KREML

Laboratory Name: SUPERIOR

No. of Containers	Sample ID	Container Type	Sample Date	Vol[2]	Fil[3]	Ref[4]	Preservative (specify)	Analyze for	Analytic Method	Turn[5]	COMMENTS
2	022-1	W/CV	2/28/92	40ml	N	Y	HCl	~~EPA~~ TPH-G/BTEX	EPA 8015/8020	N	1
	022-2a	↓		↓			↓	↓	↓		2
	022-2b	↓		↓			NONE	HVOC's	8010		3
2	022-2c	W/BG-PP		1l			↓	TPH-D	8015		4 ~~500~~ (50 ppb)
1	022-2d	W/PL		500ml			HNO_3	Cd, Cr, Ni, Pb, Zn	7000 Series		5
2	022-21a	W/CV		40ml			HCl	TPH-G/BTEX	8015/8020		6 ANALYZE ONLY IF TPH-G OR BTEX IN 022-1, 022-2
2	022-21b	↓	↓	↓	↓	↓	NONE	HVOC's	8010	↓	7 ANALYZE ONLY IF HVOC's DETECTED IN 022-21

Please initial: AK
Samples Stored in ice. Yes
Appropriate containers. Yes
Samples preserved. Yes
VOA's without headspace? Yes
Comments: Small bubble in vial of 21-a

1 Anni Kreml 2/28/92 16 20
Released by (Signature), Date

Affiliation: WEISS ASSOCIATES

2 Ronald C. Jensen 3/3/92 08:30
Received by (Signature), Date

Affiliation: weiss associates

3 Ronald C. Jensen 3/3/92 09:50
Released by (Signature), Date

3 weiss associates
Affiliation

4 [illegible] 3/2/92 9:50
Shipping Carrier, Method, Date

4 EXPRESS-IT 1000
Affiliation

5 [signature] 3/2/92 1000
Released by (Signature), Date

5 EXPRESS-IT 1021
Affiliation

6 Celilia Joaquin 3/2/92
Received by Lab Personnel, Date

6 Superior Lab 4158472081
Affiliation, Telephone

Seal intact? x Yes

Shaunel Lalimpe 3/2/92 3:00pm

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)
Turnaround: N = Normal, W = 1 Week, R = 24 Hour, HOLD (write out)]

ADDITIONAL COMMENTS, CONDITIONS, PROBLEMS:
STORED IN A SAFE PLACE OVER THE WEEKEND

[signature] 3/2/92 3:00 PM

Page 1 of 1

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

RECEIVED FROM SECURE AREA

ATTACHMENT C

PREVIOUS GROUND WATER CONTOUR MAPS

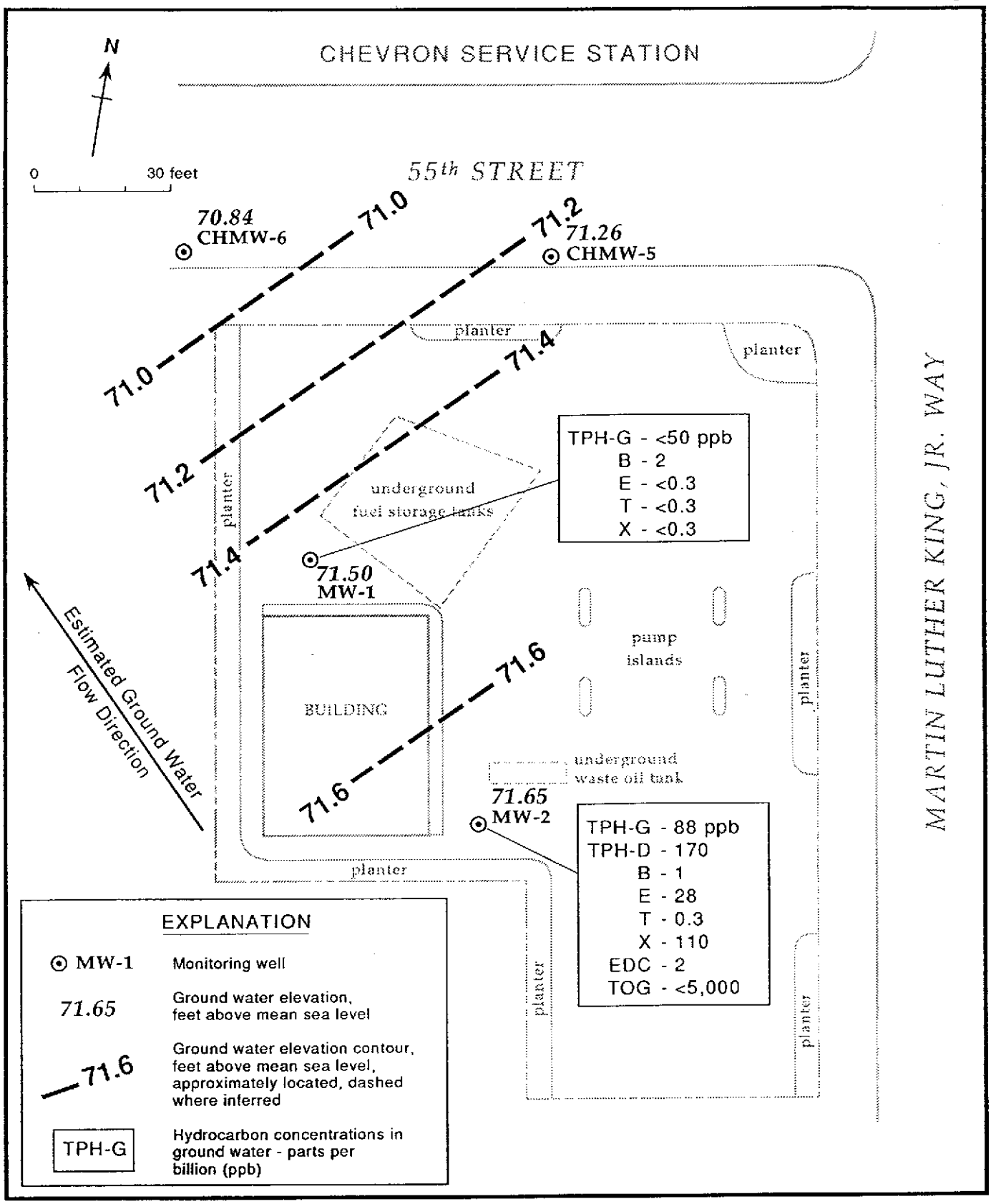

Figure 4. Ground Water Elevation Contours (November 19, 1990) and Hydrocarbon Concentrations (October 24, 1990) - BP Service Station #11127, 5425 Martin Luther King, Jr. Way, Oakland, California

12/13/90

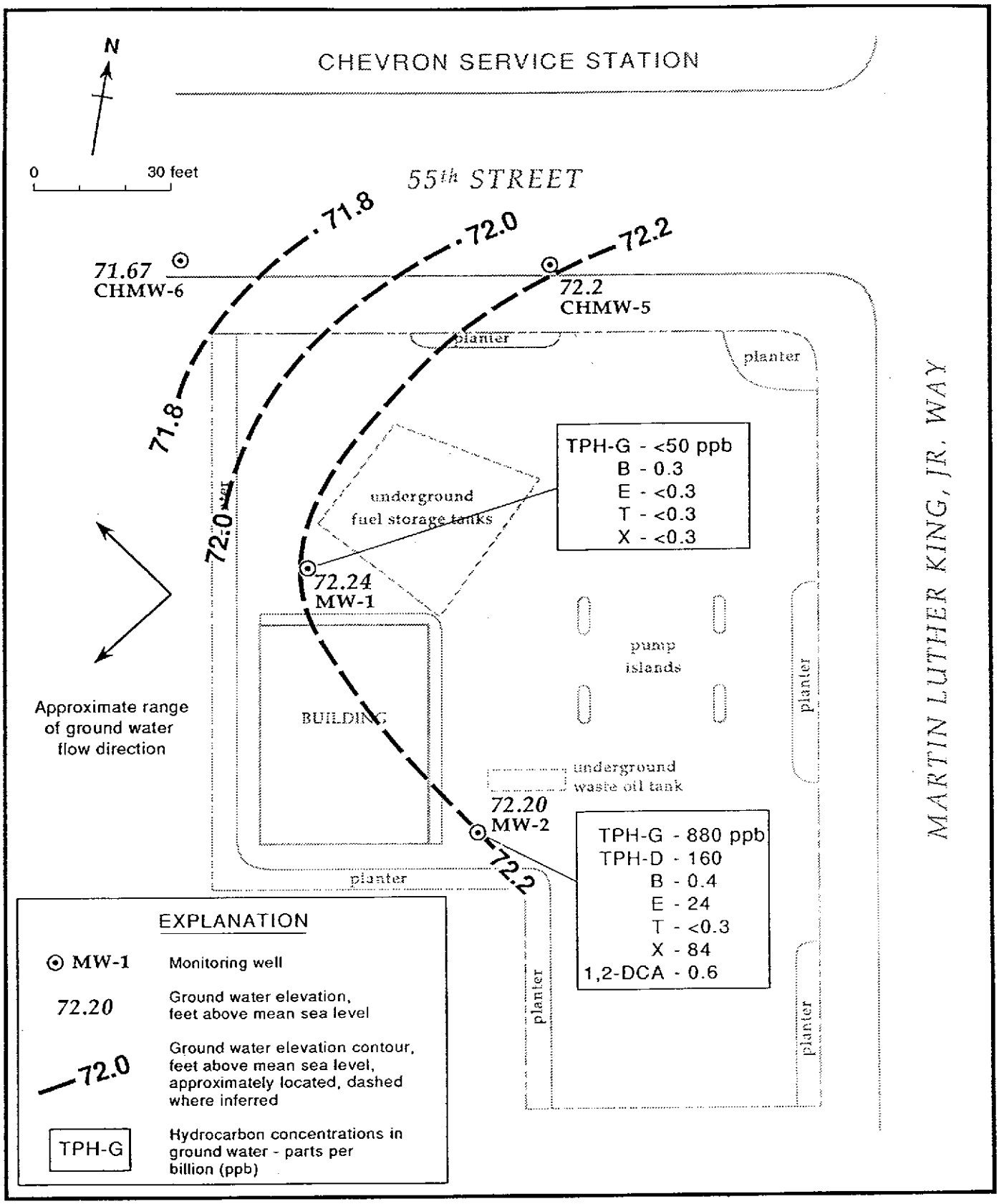

Figure 2. Ground Water Elevation Contours and Hydrocarbon Concentrations - May 24, 1991 - BP Service Station #11127, 5425 Martin Luther King, Jr. Way, Oakland, California

7/31/91

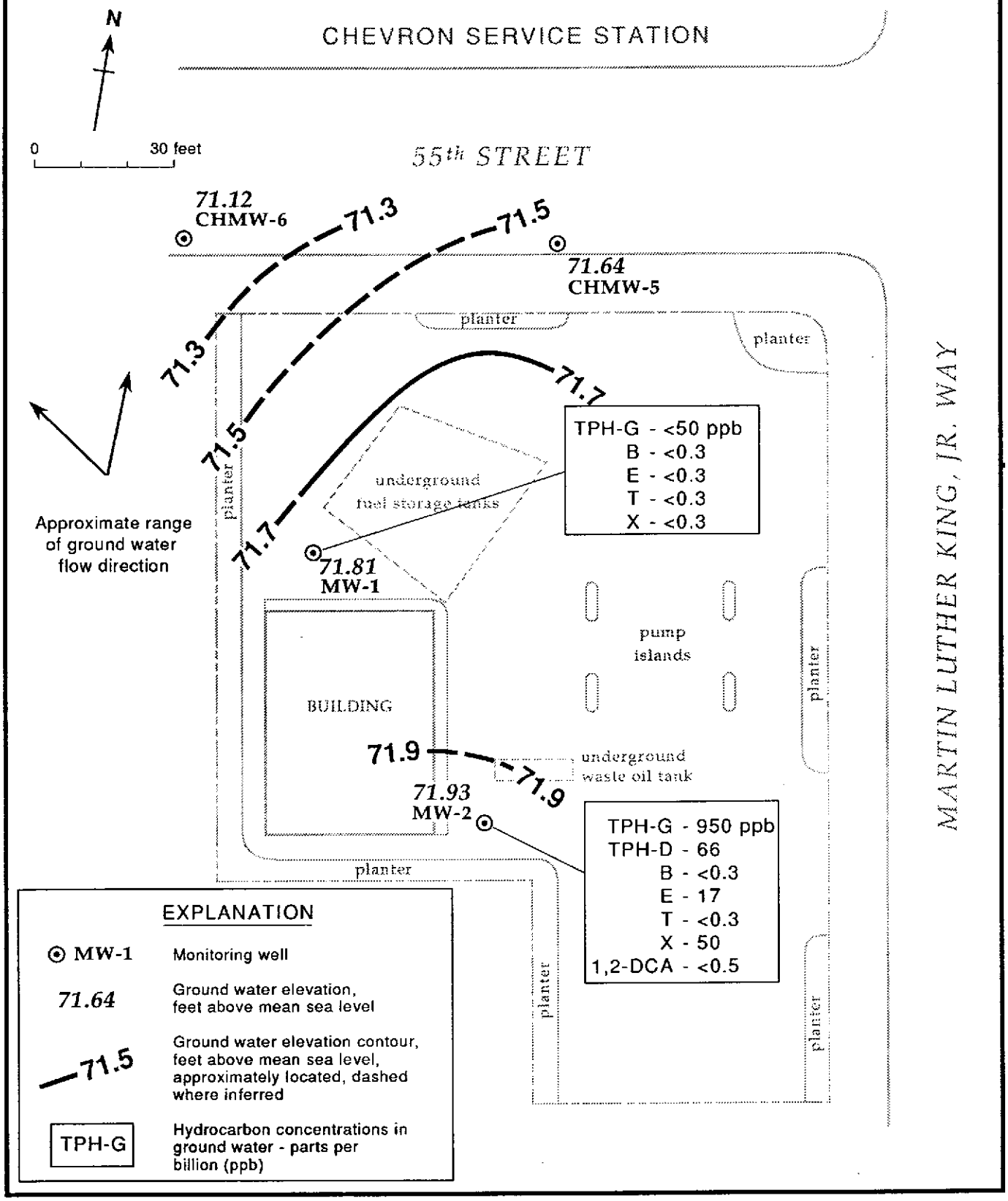

Figure 2. Ground Water Elevation Contours and Hydrocarbon Concentrations - August 28, 1991 - BP Service Station #11127, 5425 Martin Luther King, Jr. Way, Oakland, California

11/13/91

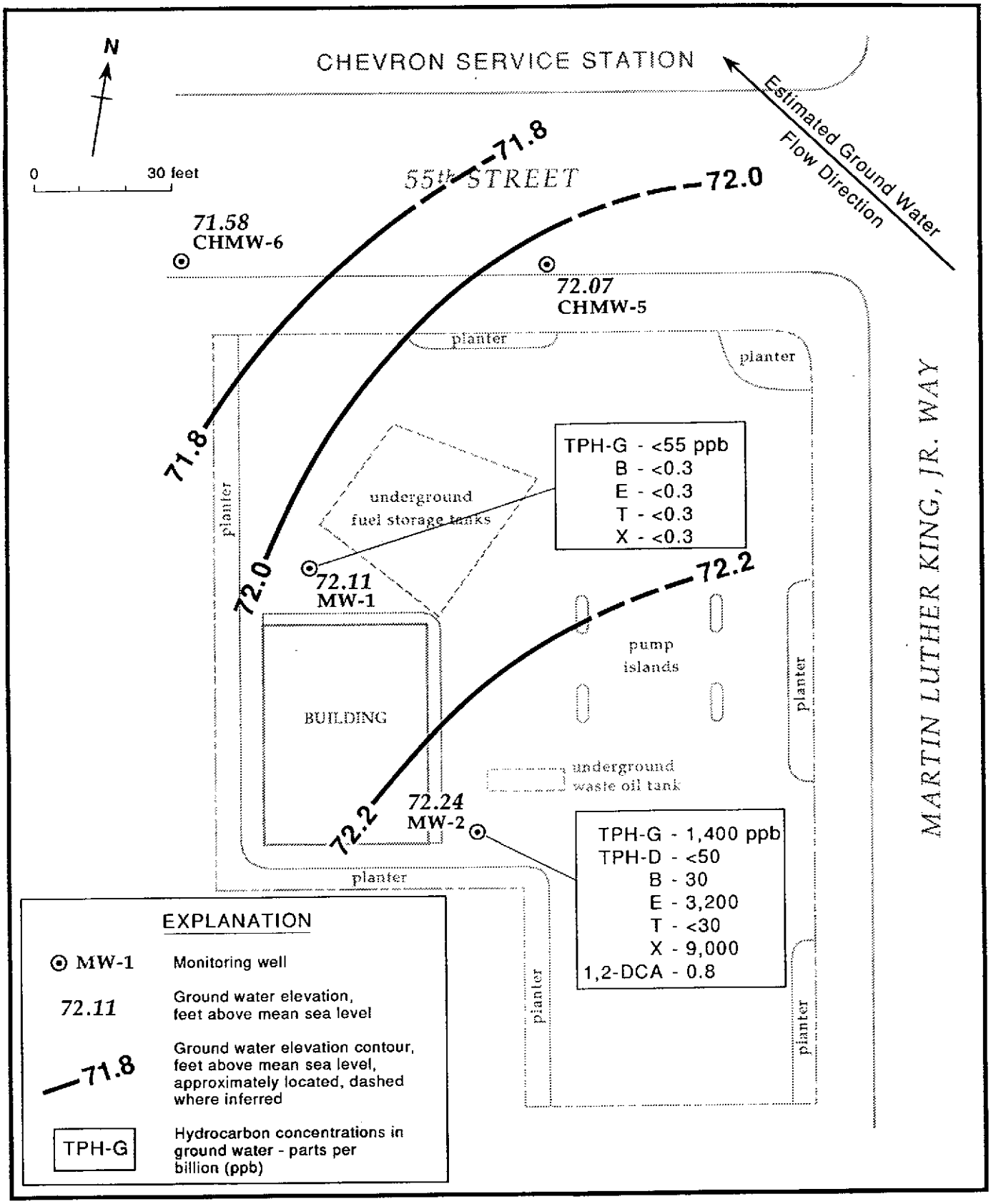

Figure 2. Ground Water Elevation Contours and Hydrocarbon Concentrations - November 27, 1991 - BP Service Station #11127, 5425 Martin Luther King, Jr. Way, Oakland, California