BP OIL

STID 3105

S.H.

94609

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

October 24, 1991

Mr. Rafat Shahid
Alameda County Environmental Health Dept.
80 Swan Way, Suite 200
Oakland, CA 94621

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

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 Region
J.R. Rocco - BP Oil, Cleveland
Site file

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

August 5, 1991

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 May 24, 1991, 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 880 parts per billion (ppb). This sample also contained 1,2-Dichlorethane (1,2-DCA) at 0.6 ppb, slightly above the California Department of Health Services maximum contaminant level for drinking water (DHS MCL). The sampling and anticipated future work are discussed below.

GROUND WATER SAMPLING

Sampling personnel: WA Environmental Technician Paul Cardoza

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 (41 gallons).

- Monitoring well MW-1 was purged dry after evacuating 21 gallons, and allowed to recover for more than 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 Analytical Laboratory, Inc., San Francisco, California and received on May 24, 1991

Quality assurance/quality control:

- A travel blank was submitted for analysis.
- A bailer 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 all wells on May 24, 1991. Ground water elevations have risen more than 0.5 ft since November 19, 1990.
- Ground water beneath the site flows southwestward to 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 Method 6010

The laboratory analyzed the samples between May 29 and June 10, 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:

- The TPH-G concentration in the sample from monitoring well MW-2 increased to 880 ppb.
- The sample from well MW-2 contained 1,2-DCA at 0.6 ppb, slightly above the 0.5 ppb DHS MCL.

FUTURE WORK

WA will measure water levels and collect ground water samples from all monitoring wells on August 20, 1991, as part of the continuing ground water monitoring program at the site. We will present a report to BP Oil Company for this work.

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 Manager

MMS/JPT:jg

D:\ALL\BP\499QMJY1.WP

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

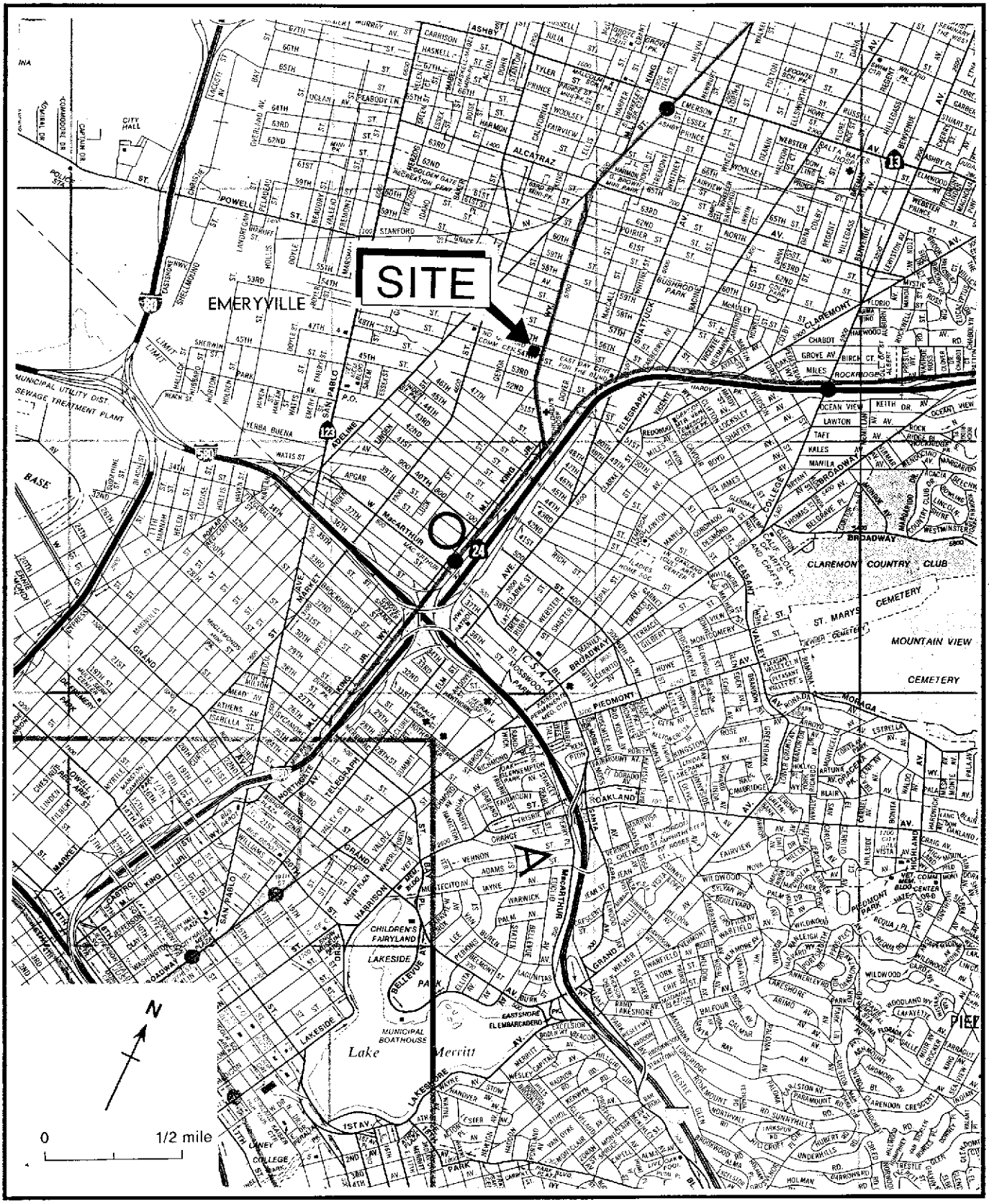

Figure 1. Site Location Map, BP Service Station #11127, 5425 Martin Luther King, Jr. Way, Oakland, California

12/13/90

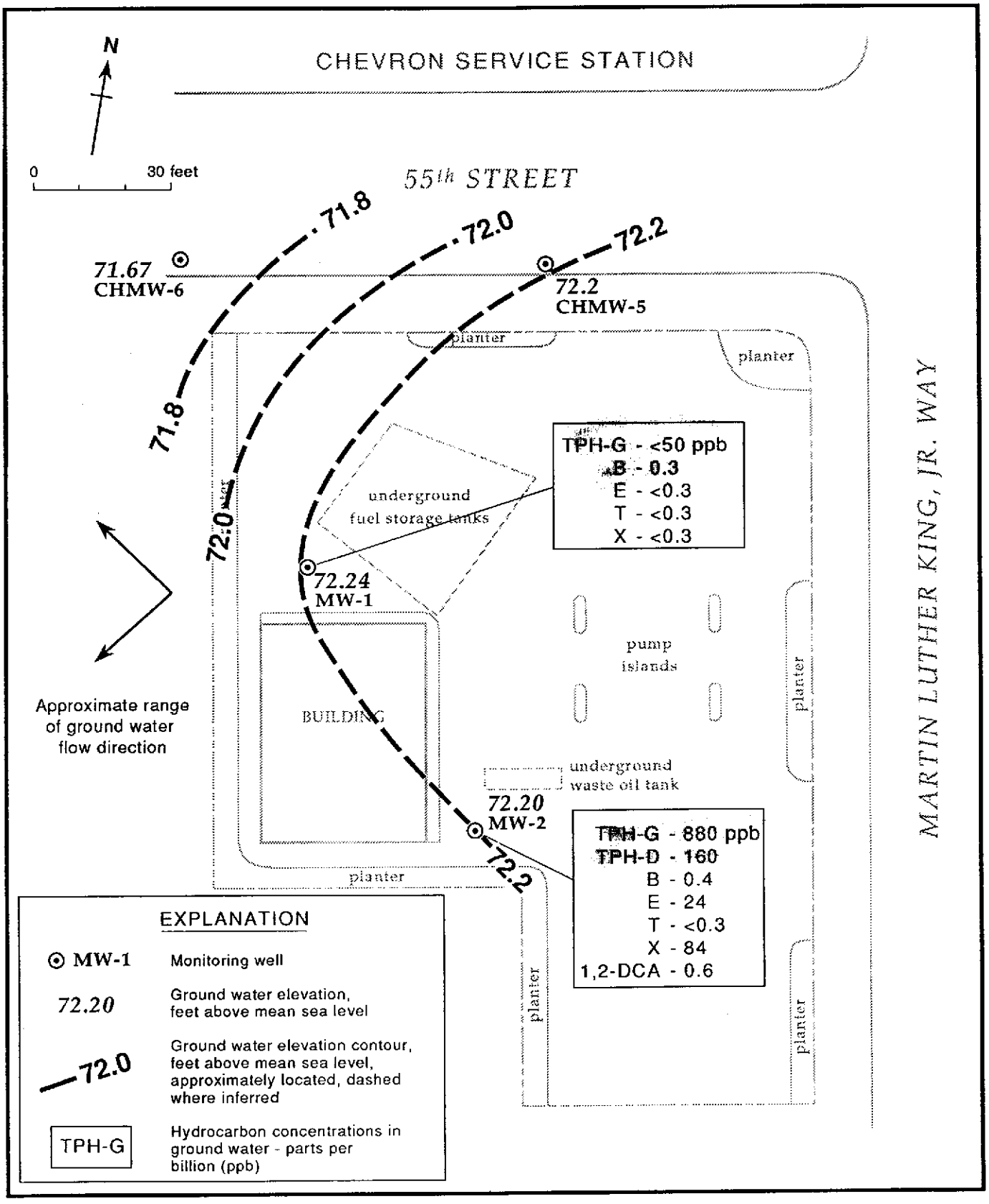

Figure 2. Ground Water Elevation Contours and Hydrocarbon Concentrations - May 24, 1991 - BP Service Station #11127, 5425 Martin Luther King, Jr. Way, Oakland, California

Table 3. 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
MW-2	11/19/90	83.49	11.84	71.65
	05/24/91		11.29	72.20
CHMW-5*	11/19/90	81.94	10.68	71.26
	05/24/91		9.75	72.19
CHMW-6*	11/19/90	80.59	9.75	70.84
	05/24/91		8.92	71.67

*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	SAL	---	<50	---	2	<0.3	<0.3	<0.3	---	---	---
	05/24/91	SAL	10.11	<50	---	0.3	<0.3	<0.3	<0.3	---	---	---
MW-2	10/24/90	SAL	---	88	170[a]	1	28	0.3	110	2[b]	<5,000	--
	05/24/91	SAL	11.29	880	160[a]	0.4	24	<0.3	84	0.6[b]	---	<5 Cd <50 Cr 60 Ni <50 Pb 70 Zn
Travel Blank	10/24/90	SAL		<50	---	<0.3	<0.3	<0.3	<0.3	---	---	
	05/24/91	SAL		<50	---	<0.3	<0.3	<0.3	<0.3	ND	---	
Bailer Blank	10/24/90	SAL		<50	---	<0.3	<0.3	<0.3	<0.3	---	---	
	05/24/91	SAL		<50	---	<0.3	<0.3	<0.3	<0.3	ND	---	
DHS MCL				NE	NE	1	620	100[c]	1,750	0.5d	NE	[e]

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
<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]Diesel-range hydrocarbon chromatography not typical of diesel fuel
[b]1,2-Dichloroethane (1,2-DCA) detected; no other HVOC's detected
[c]DHS Recommended Action Level for Drinking Water (no MCL established)
[d]MCL for 1,2-DCA
[e]Souble Threshold Limit Concentration (STLC) per Title 22, California Code of Regulations for Ni is 20,000 ppb, the Secondary MCL for Zn is 50[illegible]

Analytic Laboratory:

SAL = Superior Analytical Laboratory, Inc., San Francisco, California

ATTACHMENT A

WATER SAMPLE COLLECTION RECORDS

WEISS ASSOCIATES

WATER SAMPLING DATA

Well Name MW-1 Date 5/24/91 Time of Sampling 12:13

Job Name BP-Oakland-Mile Way Job Number 22-499-01 Initials PC

Sample Point Description M (M = Monitoring Well)

Location In parking area next to restrooms

WELL DATA: Depth to Water 10.11 ft (static, pumping) Depth to Product — ft.

Product Thickness — Well Depth 22.55 ft (spec) Well Depth 27.50 ft (sounded) Well Diameter 4 in

Initial Height of Water in Casing 17.39 ft. = volume 11.36 gal.

4 Casing Volumes to be Evacuated. Total to be evacuated 45.42 gal.

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

Bailer# and type 2" x 36" Dedicated Y (on 5/24/91) (Y/N)

Other —

Evacuation Time: Stop 10:07

Start 09:55

Total Evacation Time 12 min

Total Evacuated Prior to Sampling 21 gal.

Evacuation Rate 1.75 gal. per minute

Depth to Water during Evacuation — ft. — time

Depth to Water at Sampling 17.16 ft. 12:15 time

Evacuated Dry? Yes After 21 gal. Time 10:07

80% Recovery = 13.58

% Recovery at Sample Time 59 Time 12:15

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 Light tan Odor None

Description of matter in sample: Small amount - very fine silt

Sampling Method: from sample port on side of dedicated 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	05-1	w/cv	40ml	N	Y	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 5/24/91 Time of Sampling 11:30
Job Name BP-Oakland-MLK Way Job Number 22-499-01 Initials PC
Sample Point Description M (M = Monitoring Well)
Location In front of service bays.

WELL DATA: Depth to Water 11.29 ft (static, pumping) Depth to Product — ft.
Product Thickness — Well Depth 26.81 ft (spec) Well Depth 26.80 ft (sounded) Well Diameter 4 in
Initial Height of Water in Casing 15.51 ft. = volume 10.13 gal.
4 Casing Volumes to be Evacuated. Total to be evacuated 40.51 gal.

EVACUATION METHOD: Pump # and type — Hose # and type —
Bailer# and type 3"x36" PVC Dedicated Y (on 5/24/91) (Y/N)
Other —

Evacuation Time: Stop 11:08
Start 10:48
Total Evacation Time 20 min
Total Evacuated Prior to Sampling 41 gal.
Evacuation Rate 2.05 gal. per minute
Depth to Water during Evacuation — ft. — time
Depth to Water at Sampling 11.48 ft. 11:43 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 Light tan Odor None
Description of matter in sample: Small amount - very fine silt
Sampling Method: Sample port on side of dedicated 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	051-2a	w/cap	40ml	N	Y	HCl	EPA 8015/8020	N	SAL
	051-2b	w/cap	40ml			None	EPA 8010		
	051-2c	w/Silicon	1 liter			None	EPA 8015 (50 ppb)		
1	051-2d	w/pl	500ml			HNO_3	EPA 7000		

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:

Trip Blanks

WEISS ASSOCIATES

WATER SAMPLING DATA

Well Name — Date 5/24/91 Time of Sampling 07:45
Job Name BP Oakland - MLK Job Number 22-499-01 Initials PC
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: Decanted from Arrowhead Distilled Water 1gal. plastic container
Sample Port: Rate — gpm Totalizer — gal. MIL EAP 04/10/91
Time — 1A 16:44

# of Cont.	Sample ID	Cont. Type[1]	Vol[2]	Fil[3]	Ref[4]	Preservative (specify)	Analytic Method	Turn[5]	LAB
2	031-21b	w/cu	40A1	N	Y	None	EPA 8015/8020	Hold	SAC

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:

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Bailer Blanks

WEISS ASSOCIATES

WATER SAMPLING DATA

Well Name *MW-2* Date *5/24/91* Time of Sampling *10:21*

Job Name *BP-Oakland-MLK Way* Job Number *4-499-01* Initials *PC*

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 *3" x 36"* Dedicated *Y (on 5/24/91)* (Y/N)

Other *—*

Evacuation Time: Stop *—*

Start *—*

Total Evacuation 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.)
		NA			

SAMPLE: Color *Clear* Odor *None*

Description of matter in sample: *None*

Sampling Method: *from sample port using Arrowhead Distilled 1 gal. plastic contained water.*

Sample Port: Rate *—* gpm Totalizer *—* gal. *MTL EKA 05/01/93*

Time *—* *IA 11:08*

# of Cont.	Sample ID	Cont. Type[1]	Vol[2]	Fil[3]	Ref[4]	Preservative (specify)	Analytic Method	Turn[5]	LAB
2	*051-22a*	*w/cv*	*40ml*	*N*	*Y*	*HCL*	*EPA 8015/8020*	*N*	*SAL*
2	*051-22b*	*w/cv*	*40ml*	*N*	*Y*	*None*	*EPA 8010*	*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:

F:\ALL\ADMIN\FORMS\WATSAMP.WP

ATTACHMENT B

ANALYTIC REPORTS AND CHAIN-OF-CUSTODY FORM

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I · SAN FRANCISCO, CA 94124 · PHONE (415) 647-2081 DOHS #1332

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

LABORATORY NO.: 53665
CLIENT: Weiss Associates
CLIENT JOB NO.: 22-499.01

DATE RECEIVED: 05/24/91
DATE REPORTED: 06/06/91

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

LAB #	Sample Identification	Concentration (ug/L) Gasoline Range
1	051-1	ND<50
2	051-2a,b,c,d	880
3	051-21a,b	ND<50
4	051-22a,b	ND<50

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 = 1.7%

Richard Srna, Ph.D.

Cecilia G. Joaquin (for)
Laboratory Director

SUPERIOR ANALYTICAL LABORATORY, INC.
1555 BURKE, UNIT I · SAN FRANCISCO, CA 94124 · PHONE (415) 647-2081 DOHS #1332

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 53665
CLIENT: Weiss Associates
CLIENT JOB NO.: 22-499-01

DATE RECEIVED: 05/24/91
DATE REPORTED: 06/06/91

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

LAB #	Sample Identification	Concentration (ug/L) Diesel Range
2	051-2a,b,c,d	160

* - Does not match typical Diesel pattern.
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 = 120%: Duplicate RPD = 3.3%

Richard Srna, Ph.D.

Cecilia G. Joaquin (for)
Laboratory Director

SUPERIOR ANALYTICAL LABORATORY, INC.
1555 BURKE, UNIT I · SAN FRANCISCO, CA 94124 · PHONE (415) 647-2081 DOHS #1332

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 53665
CLIENT: Weiss Associates
CLIENT JOB NO.: 22-499.01

DATE RECEIVED: 05/24/91
DATE REPORTED: 06/06/91

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	051-1	0.3	ND<0.3	ND<0.3	ND<0.3
2	051-2a,b,c,d	0.4	ND<0.3	24	84
3	051-21a,b	ND<0.3	ND<0.3	ND<0.3	ND<0.3
4	051-22a,b	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 = 93% : Duplicate RPD = 2%

Richard Srna, Ph.D.

Cecilia G. Joaquin (for)
Laboratory Director

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I · SAN FRANCISCO, CA 94124 · PHONE (415) 647-2081 DOHS #1332

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 53665-2
CLIENT: WEISS ASSOCIATES
JOB NO.: 22-449-01

DATE SAMPLED: 05/24/91
DATE RECEIVED: 05/24/91
DATE ANALYZED: 06/01/91

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE: 051-2a,b,c,d

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	0.6
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

MDL = Method Detection Limit
ug/l = parts per billion (ppb)
QA/QC Summary: Daily Standard %DIFF = <15%
MS/MSD average recovery = 84 % :MS/MSD RPD =< 1 %

Richard Srna, Ph.D.

Cecilia G. Joaquin (for)
Laboratory Director

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE. UNIT I · SAN FRANCISCO. CA 94124 · PHONE (415) 647-2081 DOHS #1332

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 53665-3
CLIENT: WEISS ASSOCIATES
JOB NO.: 22-449-01

DATE SAMPLED: 05/24/91
DATE RECEIVED: 05/24/91
DATE ANALYZED: 06/01/91

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE: 051-21a,b

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

MDL = Method Detection Limit
ug/l = parts per billion (ppb)
QA/QC Summary: Daily Standard %DIFF = <15%
MS/MSD average recovery = 84 % :MS/MSD RPD =< 1 %

Richard Srna, Ph.D.

Cecilia G. Joaquin (for)
Laboratory Director

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I · SAN FRANCISCO, CA 94124 · PHONE (415) 647-2081 DOHS #1332

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 53665-4
CLIENT: WEISS ASSOCIATES
JOB NO.: 22-449-01

DATE SAMPLED: 05/24/91
DATE RECEIVED: 05/24/91
DATE ANALYZED: 06/01/91

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE: 051-22a,b

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

MDL = Method Detection Limit
ug/l = parts per billion (ppb)
QA/QC Summary: Daily Standard %DIFF = <15%
MS/MSD average recovery = 84 % :MS/MSD RPD =< 1 %

Richard Srna, Ph.D.

Cecilia G Gonzalez (for)
Laboratory Director

SUPERIOR ANALYTICAL LABORATORY, INC.
1555 BURKE, UNIT I · SAN FRANCISCO, CA 94124 · PHONE (415) 647-2081 DOHS #1332

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 53665
CLIENT: Weiss Associates
CLIENT JOB NO.: 22-499.01

DATE RECEIVED: 05/24/91
DATE REPORTED: 06/13/91

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

LAB #	Sample Identification	Concentration(mg/L) Cadmium	Chromium	Lead	Zinc	Nickel
2	051-2a,b,c,d	ND<.005	ND<.05	ND<.05	0.07	0.06

mg/L - parts per million (ppm)

Minimum Dectecion Limit for Cadmium in water = 0.005mg/l
Minimum Detection Limit for Chromium in water = 0.05mg/l
Minimum Detection Limit for Lead in water = 0.05mg/l
Minimum Detection Limit for Zinc in water = 0.05mg/l
Minimum Detection Limit for Nickel in water = 0.05mg/l

Analysis subcontracted to Clayton Environmental Consultants DOHS#1196

Richard Srna, Ph.D.

Cecilia J Jorgensen (for)
Laboratory Director

-1)1603

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/John Duey

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: Paul Cardoza Laboratory Name: Superior Analytical

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	051-1	w/cv	5/24/91	40ml	N	Y	HCl	TPH-G & BETX	EPA 8015&8020	N	
	051-2a										
	051-2b						None	HVOC's	EPA 8010		
	051-2c	w/BETX		1 Ltr.			None	TPH-D	EPA 8015 (50ppb)		
1	051-2d	w/Pl		500ml			HNO_3	Cd, Cr, Ni, Pb, Zn	EPA 7000 series		
2	051-21a	w/cv		40ml			HCl	TPH-G & BETX	EPA 8015&8020	X	Analize only if TPH-G or BETX detected in sample 051-1 or 051-2a
2	051-21b	w/cv	5/24/91	40ml	N	Y	None	HVOC's	EPA 8010	N	Analize only if HVOC's detected in sample 051-2b
2	051-22a	w/cv	5/24/91	40ml	N	Y	HCl	TPH-G/BETX	EPA 8015/8020	N	
↓	051-22b	↓	↓	↓	↓	↓	None	HVOC's	EPA 8010	↓	

1 Paul Cardy 5/24/91 17:34
Released by (Signature), Date

1 Weiss Associates
Affiliation

2 _____
Received by (Signature), Date

2 _____
Affiliation

3 _____
Released by (Signature), Date

3 _____
Affiliation

4 _____
Shipping Carrier, Method, Date

4 _____
Affiliation

5 _____
Released by (Signature), Date

5 _____
Affiliation

6 _____ 5/24 1735
Received by Lab Personnel, Date

x _____ yes
Seal intact?

6 _____
Affiliation, Telephone

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:

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

ATTACHMENT C

PREVIOUS GROUND WATER ELEVATION CONTOUR MAPS

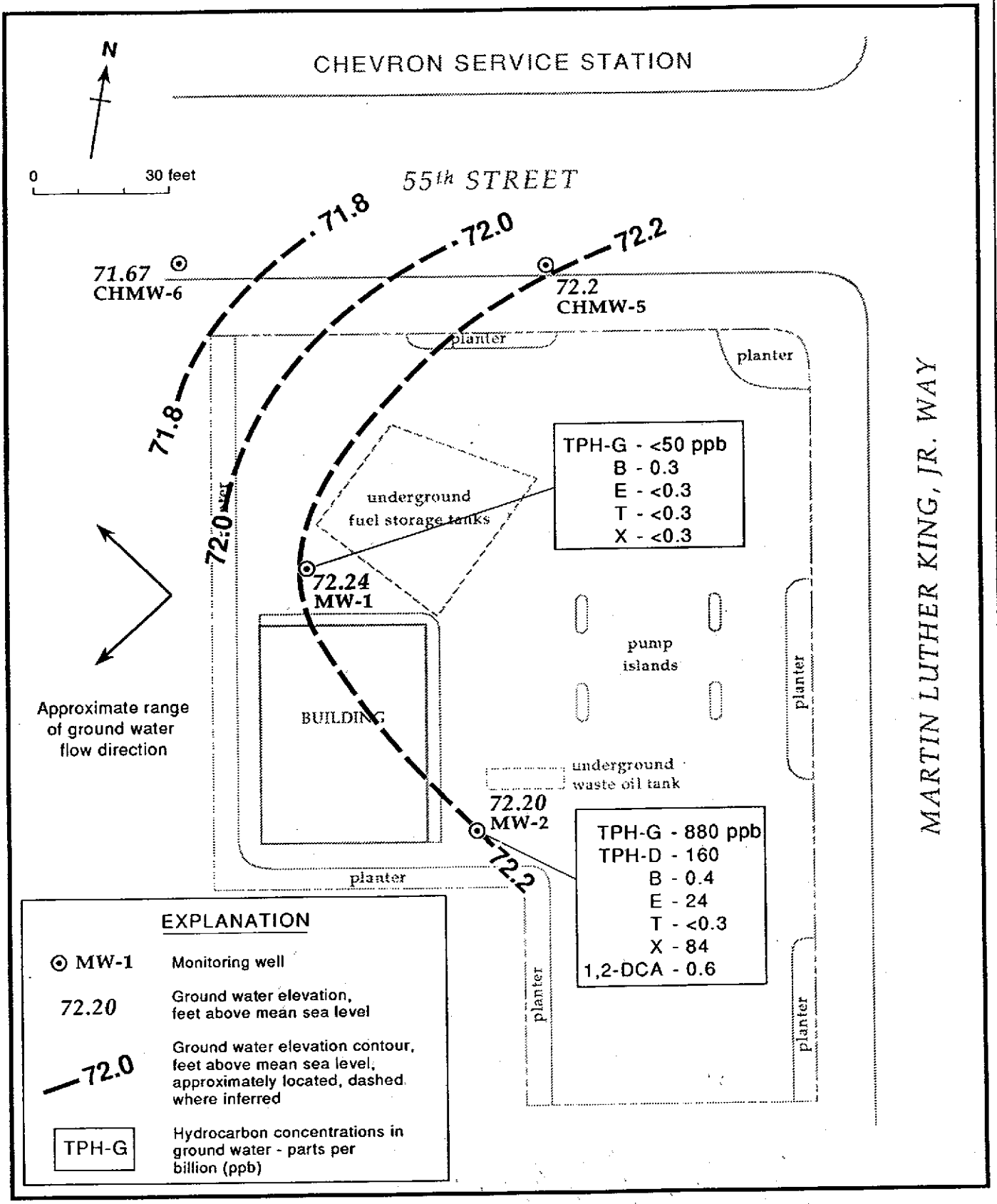

Figure 2. Ground Water Elevation Contours and Hydrocarbon Concentrations - May 24, 1991 - BP Service Station #11127, 5425 Martin Luther King, Jr. Way, Oakland, California

7/31/91

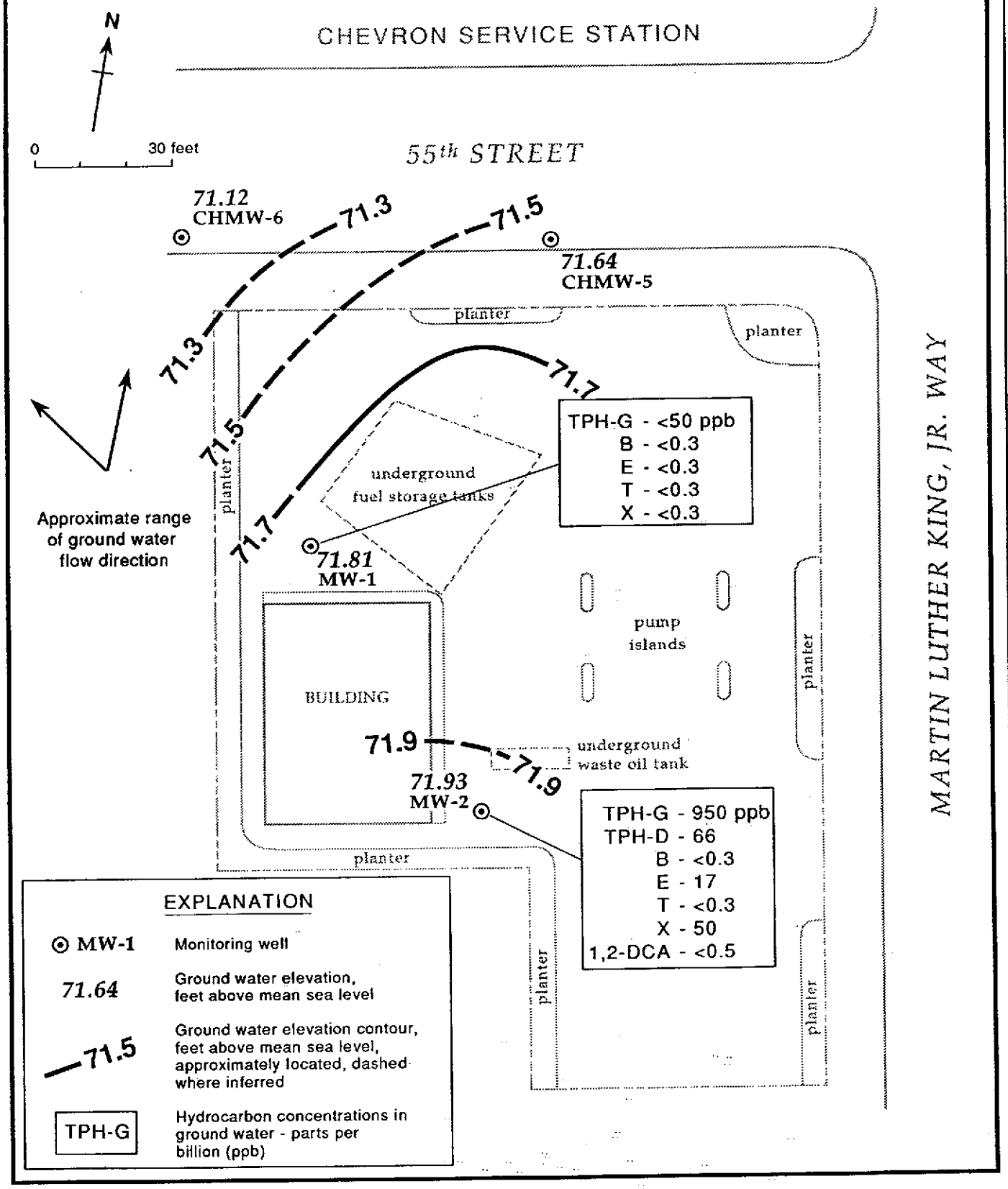

Figure 2. Ground Water Elevation Contours and Hydrocarbon Concentrations - August 28, 1991 - BP Service Station #11127, 5425 Martin Luther King, Jr. Way, Oakland, California