BP OIL

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

LOP 3878

February 26, 1992

Mr. Rafat Shahid
Alameda County Department of Health Services
80 Swan Way, #200
Oakland, CA 94621

RE: BP FACILITY #11132
3201 35th AVENUE
OAKLAND, CALIFORNIA 94619

Dear Mr. Shahid,

Attached please find the results of the Quarterly Ground Watering and Sampling 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
Environmental Resources Management

PJD:lk

Attachment

cc: CONSULTANT
Mr. Tom Callaghan-Regional Water Quality Control Board
Dave Baker-Mobil Oil Corporation
Site file

QUARTERLY GROUND WATER MONITORING AND SAMPLING REPORT

BP Oil Service Station No. 11132
3201 35th Avenue
Oakland, California

Project No. 30-0081-01

Prepared for:

BP Oil Company
Aetna Building, Suite 360
Rancho Cordova, California 95670-6020

Prepared by:

Alton Geoscience
5870 Stoneridge Drive, Suite 6
Pleasanton, Califronia 94588

February 21, 1992

QUARTERLY GROUND WATER
MONITORING AND SAMPLING REPORT

BP Oil Service Station No. 11132
3201 35th Avenue
Oakland, California

February 21, 1992

INTRODUCTION

This report presents the results of the December 1991 quarterly ground water monitoring and sampling performed by Alton Geoscience at BP Oil Service Station No. 11132, 3201 35th Avenue, Oakland, California. A site vicinity map is presented in Figure 1.

PROJECT BACKGROUND

On July 30, 1986, Kaprealian Engineering, Inc. (KEI) was retained by Mobil Oil Corporation to install three 2-inch-diameter monitoring wells (MW-2 and MW-3) at this former Mobil Oil service station (well locations are shown in Figure 2). Monitoring and sampling of the wells indicated detectable levels of total petroleum hydrocarbons (TPH) in MW-1 and MW-2 at concentrations of up to 210 parts per million (ppm).

In May 1990, BP Oil Company retained Alton Geoscience to conduct a supplemental site investigation. Between May and June 1990, Alton Geoscience supervised the installation of ground water Monitoring Wells MW-4 through MW-7 and Recovery Well RW-1. Free-floating product was observed in MW-1 and MW-2, while dissolved-phase petroleum hydrocarbon constituents were detected in ground water samples collected from MW-3 and MW-5.

On February 25 and 26, 1991, Alton Geoscience supervised the installation of ground water Monitoring Wells MW-8, MW-9, and MW-10. Free-floating product was detected in MW-1, MW-2, and RW-1. Dissolved-phase petroleum hydrocarbon constituents were detected in ground water samples collected from MW-3, MW-10, MW-8, and MW-9.

In March 1991, quarterly ground water monitoring and sampling was implemented along with manual free product pumpout.

FIELD PROCEDURES

RW-1 and MW-1 through MW-10 were monitored and MW-3 and MW-10 were sampled in accordance with Alton Geoscience's procedures and the requirements and guidelines of the Regional Water Quality Control Board, San Francisco Bay Region (RWQCB) and Alameda County Department of Health Services (ACDHS). Monitoring Wells MW-1 and MW-2 and Recovery Well RW-1 were not sampled due to the presence of free-floating product. Ground water field procedures are presented

in Appendix A. Ground water samples were analyzed for total petroleum hydrocarbons as gasoline (TPH-G), and benzene, toluene, ethylbenzene, and total xylenes (BTEX) constituents. The official laboratory reports and chain of custody records are presented in Appendix B.

DISCUSSION OF RESULTS

The laboratory results for this and previous quarterly ground water monitoring and sampling events are summarized in Tables 1 and 2. A ground water elevation contour map based on the depth to ground water measurements collected on December 10, 1991, is shown in Figure 3. The equivalent ground water surface elevation for MW-1, MW-2, and RW-1 was calculated assuming a specific gravity of 0.75 for free product. Concentrations of petroleum hydrocarbon constituents detected in the ground water samples are presented in Figure 4.

Results of this ground water monitoring and laboratory analysis indicate the following:

- Based on the water level measurements recorded on December 18, 1991, ground water gradient and direction was estimated to be approximately 0.01 foot/foot to the southwest.
- Free-floating product was detected in MW-1 (0.28 foot), MW-2 (0.36 foot), and RW-1 (0.02 foot), and was pumped out to trace concentrations following monitoring.
- TPH-G was not detected in the ground water samples collected from MW-4, MW-5, MW-6, MW-7, and MW-9.
- The highest dissolved-phase hydrocarbon concentrations were detected in ground water samples collected from Monitoring Wells MW-10 and MW-8, offsite and downgradient from the site, at levels of 5,300 ppb TPH-G and 2,500 ppb benzene, and 3,200 ppb TPH-G and 990 ppb benzene, respectively.

ALTON GEOSCIENCE

Mamdouh Awwad
Project Civil Engineer

Robert E. Logan, R.G. 5088
Manager Northern California Operations

FIGURES

Source: U.S.G.S. Map, East Oakland, California Quadrangle
7.5 minute series. 1959. Photorvised 1980.

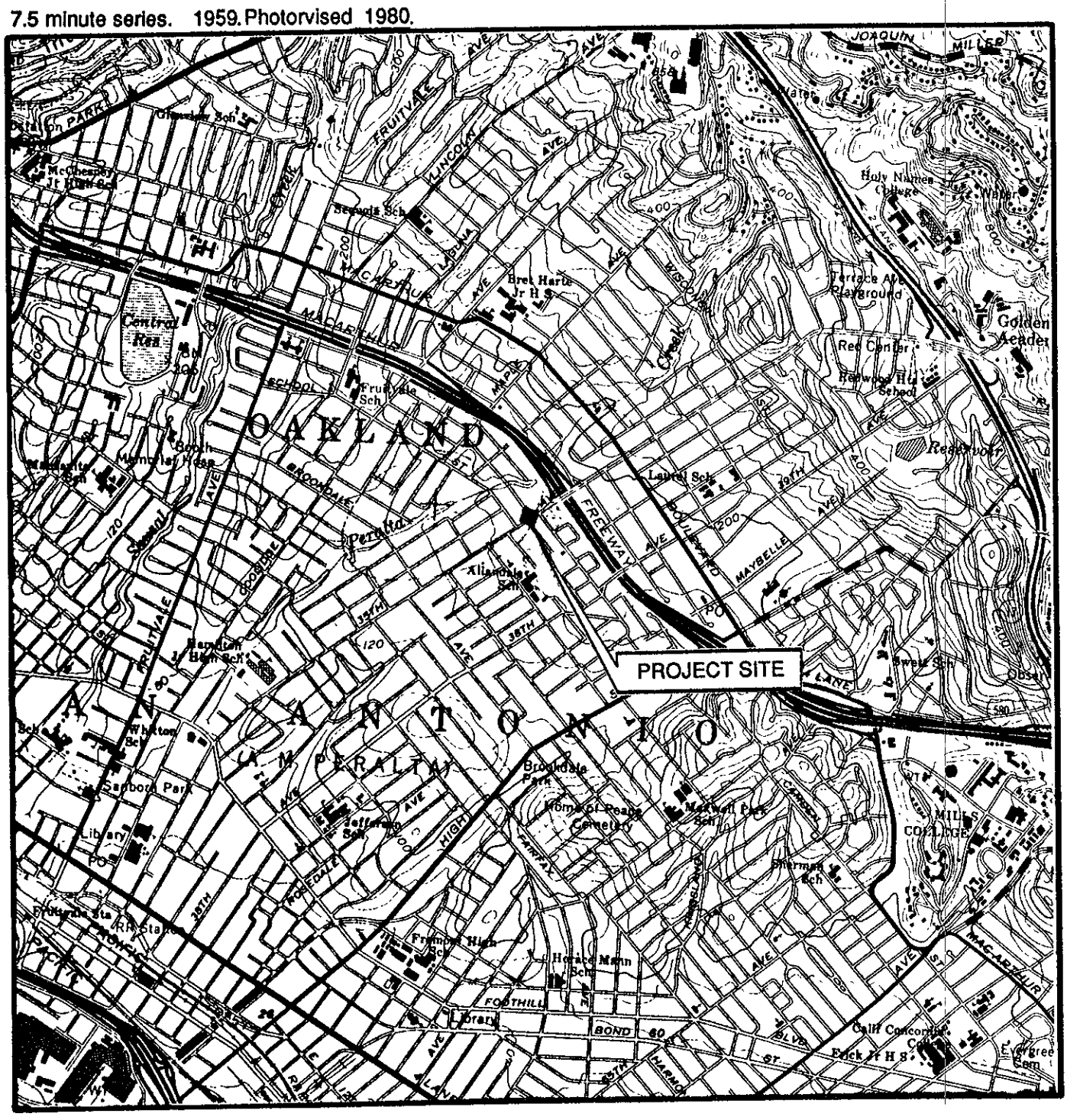


FIGURE 1

SITE VICINITY MAP

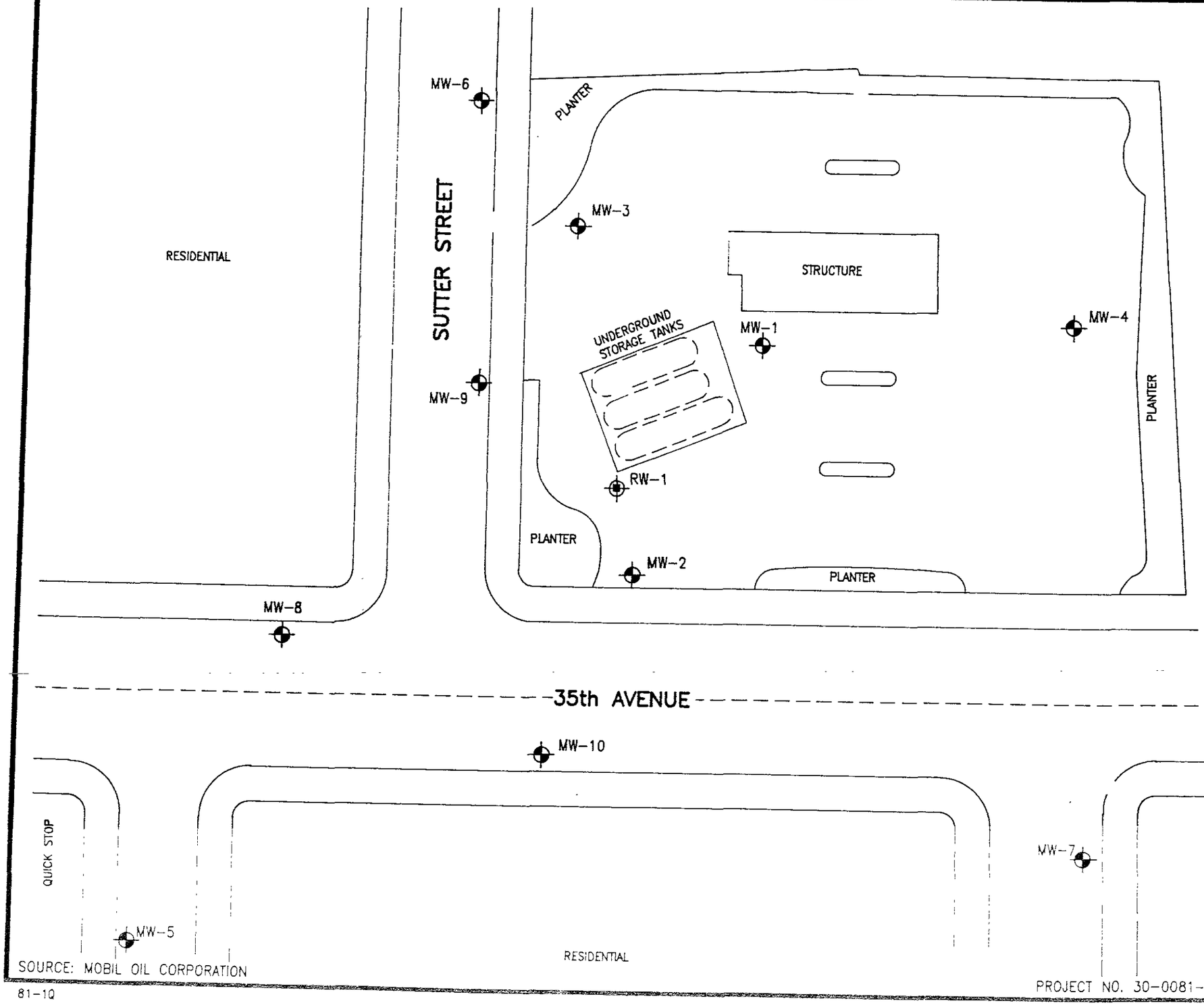
0 1000 2000

SCALE IN FEET

B P SERVICE STATION NO. 11132
3201 35TH AVENUE
OAKLAND, CALIFORNIA

PROJECT NO. 30-081-01

ALTON GEOSCIENCE
1000 Burnett Ave., Ste 140
Concord, CA 94520



N

0 15 30

APPROXIMATE SCALE IN FEET

LEGEND:

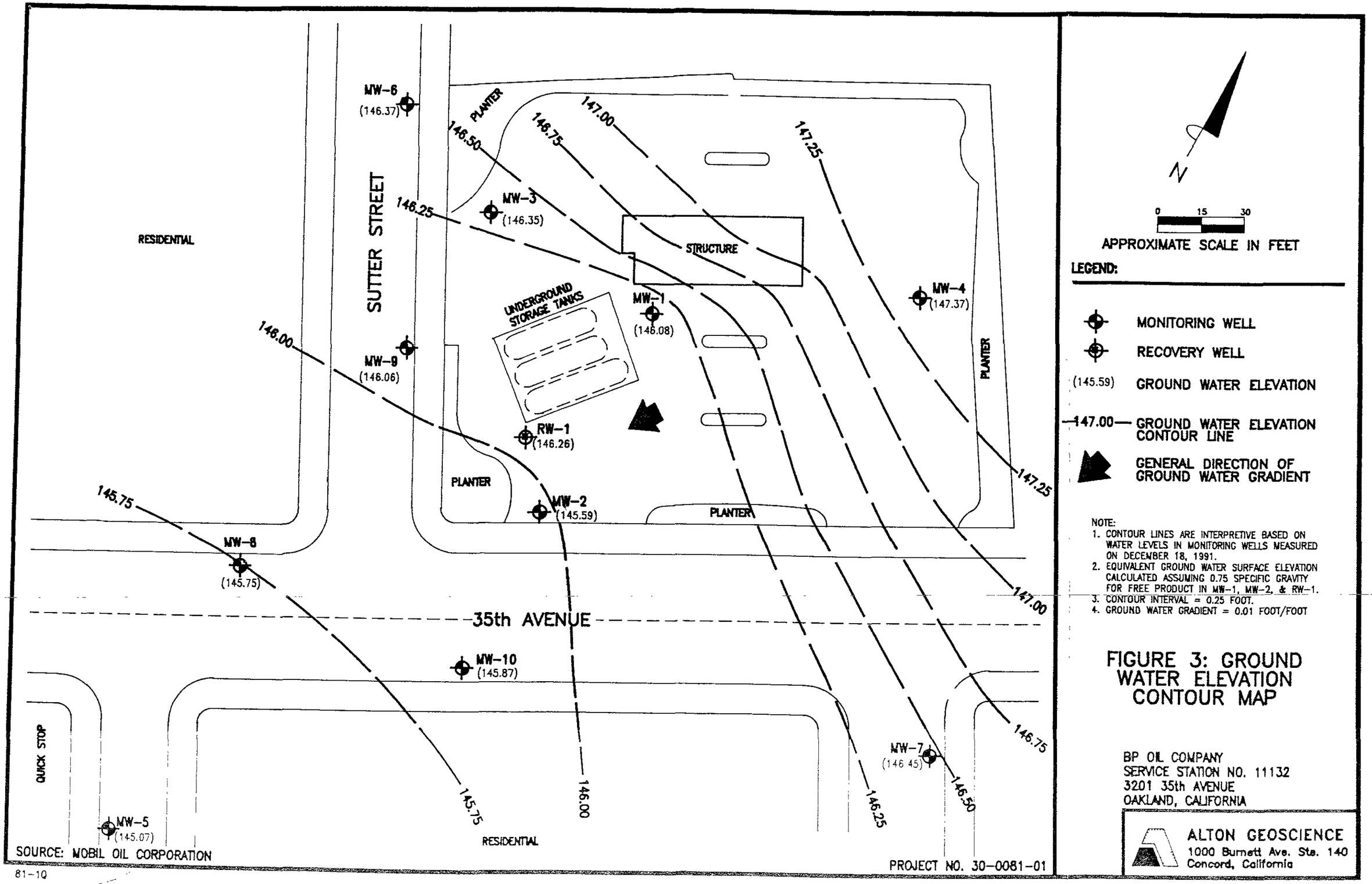
- MONITORING WELL
- RECOVERY WELL

FIGURE 2: SITE PLAN

BP OIL COMPANY
SERVICE STATION NO. 11132
3201 35th AVENUE
OAKLAND, CALIFORNIA

ALTON GEOSCIENCE
1000 Burnett Ave. Ste. 140
Concord, California

2/92



NOTE:
1. CONTOUR LINES ARE INTERPRETIVE BASED ON WATER LEVELS IN MONITORING WELLS MEASURED ON DECEMBER 18, 1991.
2. EQUIVALENT GROUND WATER SURFACE ELEVATION CALCULATED ASSUMING 0.75 SPECIFIC GRAVITY FOR FREE PRODUCT IN MW-1, MW-2, & RW-1.
3. CONTOUR INTERVAL = 0.25 FOOT.
4. GROUND WATER GRADIENT = 0.01 FOOT/FOOT

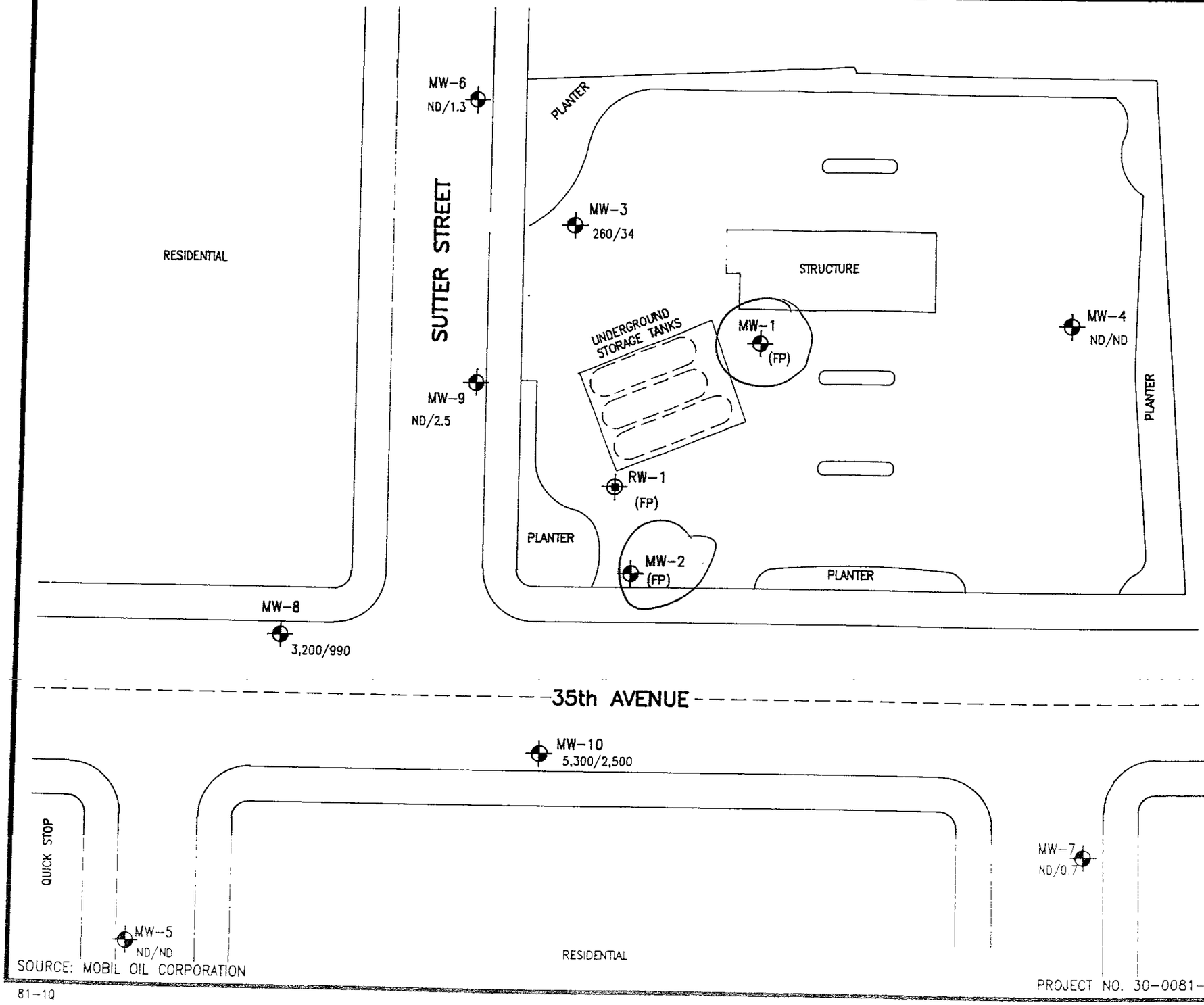
FIGURE 3: GROUND WATER ELEVATION CONTOUR MAP

BP OIL COMPANY
SERVICE STATION NO. 11132
3201 35th AVENUE
OAKLAND, CALIFORNIA

ALTON GEOSCIENCE
1000 Burnett Ave. Ste. 140
Concord, California

81-10

2/92



SOURCE: MOBIL OIL CORPORATION

81-10

PROJECT NO. 30-0081-01

0 15 30

APPROXIMATE SCALE IN FEET

LEGEND:

⊕	MONITORING WELL
⊕	RECOVERY WELL
ND	NOT DETECTED AT OR ABOVE METHOD DETECTION LIMITS
FP	FREE PRODUCT
TPH-G	TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
ND/0.7	TPH-G/BENZENE CONCENTRATIONS IN PARTS PER BILLION (ppb)

FIGURE 4: ANALYTICAL RESULTS OF GROUND WATER SAMPLES

BP OIL COMPANY
SERVICE STATION NO. 11132
3201 35th AVENUE
OAKLAND, CALIFORNIA

ALTON GEOSCIENCE
1000 Burnett Ave. Ste. 140
Concord, California

2/92

TABLES

TABLE 1

SURVEY AND WATER LEVEL MONITORING DATA
December 1991

Well ID	Well Elevation (Feet)*	Date	Depth to Water (Feet)	Free Product Thickness (Feet)	Ground Water Elevation (Feet)*
MW-1	169.75	01-90	N.M.	N.M.	N.C.
MW-1	169.75	07-90	21.46	0.22	148.29**
MW-1	169.75	03-91	17.18	N.M.	152.57
MW-1	169.75	06-91	22.70	0.18	147.18**
MW-1	169.75	09-91	23.69	0.27	146.26**
MW-1	169.75	12-91	23.88	0.28	146.08**
MW-2	168.14	01-90	N.M.	N.M.	N.C.
MW-2	168.14	07-90	20.24	0.10	147.90**
MW-2	168.14	03-91	15.64	N.M.	152.50
MW-2	168.14	06-91	21.50	0.19	146.78**
MW-2	168.14	09-91	22.52	0.15	145.73**
MW-2	168.14	12-91	22.82	0.36	145.59**
MW-3	167.17	01-90	N.M.	N.M.	N.C.
MW-3	167.17	07-90	18.96	----	148.21
MW-3	167.17	03-91	14.06	----	153.11
MW-3	167.17	06-91	19.92	----	147.25
MW-3	167.17	09-91	20.95	----	146.22
MW-3	167.17	12-91	20.82	----	146.35
MW-4	170.36	01-90	N.M.	N.M.	N.C.
MW-4	170.36	07-90	21.30	----	149.06
MW-4	170.36	03-91	18.28	----	152.08
MW-4	170.36	06-91	22.34	----	148.02
MW-4	170.36	09-91	23.19	----	147.17
MW-4	170.36	12-91	22.99	----	147.37

Note:

* Elevation in feet relative to a common datum (MW-2) with an elevation of 168.14 feet above mean sea level, as measured on July 5, 1990 by Alton Geoscience.

** Equivalent ground water surface elevation for MW-1, and MW-2 were calculated assuming a specific gravity of 0.75 for free product.

N.M. Not Measured

N.C. Not Calculated

---- No Free Product Encountered

TABLE 1
(cont'd)

SURVEY AND WATER LEVEL MONITORING DATA
December 1991

Well ID	Well Elevation (Feet)*	Date	Depth to Water (Feet)	Free Product Thickness (Feet)	Ground Water Elevation (Feet)*
MW-5	165.14	01-90	N.M.	N.M.	N.C.
MW-5	165.14	07-90	17.97	----	147.17
MW-5	165.14	03-91	12.62	----	152.52
MW-5	165.14	06-91	18.94	----	146.20
MW-5	165.14	09-91	20.07	----	145.07
MW-5	165.14	12-91	19.91	----	145.23
MW-6	165.40	01-90	N.M.	N.M.	N.C.
MW-6	165.40	07-90	17.20	----	148.20
MW-6	165.40	03-91	N.A.	N.M.	N.C.
MW-6	165.40	06-91	18.10	----	147.30
MW-6	165.40	10-91	19.15	----	146.25
MW-6	165.40	12-91	19.03	----	146.37
MW-7	167.61	01-90	N.M.	N.M.	N.C.
MW-7	167.61	07-90	19.70	----	147.91
MW-7	167.61	03-91	17.82	----	149.79
MW-7	167.61	06-91	20.48	----	147.13
MW-7	167.61	09-91	21.40	----	146.21
MW-7	167.61	12-91	21.16	----	146.45
MW-8	165.74	03-91	12.98	----	152.76
MW-8	165.74	06-91	19.10	----	146.64
MW-8	165.74	09-91	20.17	----	145.57
MW-8	165.74	12-91	19.99	----	145.75

Note:

* Elevation in feet relative to a common datum (MW-2) with an elevation of 168.14 feet above mean sea level, as measured on July 5, 1990 by Alton Geoscience.

** Equivalent ground water surface elevation for MW-1, MW-2, and RW-1 were calculated assuming a specific gravity of 0.75 for free product.

N.M. Monitoring Well was not accessible

N.M. Not Measured

N.C. Not Calculated

---- No Free Prouduct Encountered

TABLE 1
(cont'd)

SURVEY AND WATER LEVEL MONITORING DATA
December 1991

Well ID	Free Well Elevation (Feet)*	Date	Depth to Water (Feet)	Product Thickness (Feet)	Ground Water Elevation (Feet)*
MW-9	166.20	03-91	13.42	----	152.78
MW-9	166.20	06-91	19.22	----	146.98
MW-9	166.20	09-91	20.25	----	145.95
MW-9	166.20	12-91	20.14	----	146.06
MW-10	167.01	03-91	14.32	----	152.69
MW-10	167.01	06-91	20.21	----	146.80
MW-10	167.01	09-91	21.22	----	145.79
MW-10	167.01	12-91	21.14	----	145.87
RW-1	168.01	07-90	27.93	1.21	140.08**
RW-1	168.01	03-91	N.M.	N.M.	N.C.
RW-1	168.01	06-91	20.90	0.04	147.14**
RW-1	168.01	09-91	21.92	0.01	146.10**
RW-1	168.01	12-91	21.77	0.02	146.26**

Note:

* Elevation in feet relative to a common datum (MW-2) with an elevation of 168.14 feet above mean sea level, as measured on July 5, 1990 by Alton Geoscience.

** Equivalent ground water surface elevation for MW-1, MW-2, and RW-1 were calculated assuming a specific gravity of 0.75 for free product.

N.M. Not Measured

N.C. Not Calculated

---- No Free Product Encountered

TABLE 2

RESULTS OF
LABORATORY ANALYSIS OF GROUND WATER SAMPLES
December 1991

Well ID	Date	TPH-G	B	T	E	X
		(Concentrations in Parts per Billion)				
MW-1	1-29-90	---	---	---	---	---
MW-1	7-09-90	---	---	---	---	---
MW-1	3-07-91	---	---	---	---	---
MW-1	6-27-91	---	---	---	---	---
MW-1	9-27-91	---	---	---	---	---
MW-1	12-18-91	---	---	---	---	---
MW-2	1-29-90	14	580	1,300	460	2,300
MW-2	7-09-90	---	---	---	---	---
MW-2	3-07-91	---	---	---	---	---
MW-2	6-27-91	---	---	---	---	---
MW-2	9-27-91	---	---	---	---	---
MW-2	12-18-91	---	---	---	---	---
MW-3	1-29-90	0.5	20	30	24	35
MW-3	7-09-90	140	5.3	4.6	2.0	3.8
MW-3	3-07-91	400	69	22	6.1	57
MW-3	6-27-91	380	28	26	13	46
MW-3	9-27-91	70	7.9	ND<0.3	0.4	1.1
MW-3	12-18-91	260	34	24	0.8	28
MW-4	7-09-90	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.3
MW-4	3-07-91	ND<50	2.2	3.8	1.5	2.8
MW-4	6-27-91	ND<50	6.3	1.8	0.4	1.0
MW-4	9-27-91	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.3
MW-4	12-18-91	ND<50	ND<0.3	ND<0.3	ND<0.3	0.5

Notes:

TPH-G = Total Petroleum Hydrocarbons as Gasoline
B = Benzene
T = Toluene
E = Ethylbenzene
X = Total Xylenes
ND = Not Detected at Method Detection Limit
--- = No sample collected from MW-1 and MW-2 due to the presence of free product

TABLE 2
(cont'd)

RESULTS OF
LABORATORY ANALYSIS OF GROUND WATER SAMPLES
December 1991

Well ID	Date	TPH-G	B	T	E	X
		(Concentrations in Parts per Billion)				
MW-5	7-09-90	280	200	210	46	290
MW-5	3-07-91	ND<50	17	0.9	0.7	1.6
MW-5	6-27-91	330	120	10	12	8
MW-5	9-27-91	730	230	16	20	22
MW-5	12-18-91	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.3
MW-6	7-09-90	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.3
MW-6	3-07-91	N.A.	N.A.	N.A.	N.A.	N.A.
MW-6	6-27-91	N.A.	N.A.	N.A.	N.A.	N.A.
MW-6	9-27-91	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.3
MW-6	12-18-91	ND<50	1.3	2.2	ND<0.3	2.7
MW-7	7-09-90	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.3
MW-7	3-07-91	ND<50	ND<0.3	0.4	0.3	2.4
MW-7	6-27-91	70	17	4	0.8	2.2
MW-7	9-27-91	ND<50	0.4	ND<0.3	ND<0.3	0.4
MW-7	12-18-91	ND<50	0.7	2.9	0.8	3.3
MW-8	3-07-91	2,700	780	450	64	310
MW-8	6-27-91	12,000	3,400	1,100	240	750
MW-8	9-27-91	41,000	5,700	5,200	1,100	4,300
MW-8	12-18-91	3,200	990	150	120	250

Notes:

TPH-G = Total Petroleum Hydrocarbons as Gasoline
B = Benzene
T = Toluene
E = Ethylbenzene
X = Total Xylenes
ND = Not Detected at Method Detection Limit
N.A. = Monitoring well was not accessible.

TABLE 2
(cont'd)

RESULTS OF
LABORATORY ANALYSIS OF GROUND WATER SAMPLES
December 1991

Well ID	Date	TPH-G	B	T	E	X
		(Concentrations in Parts per Billion)				
MW-9	3-07-91	7,100	220	4	2.4	2,400
MW-9	6-27-91	3,600	520	400	85	310
MW-9	9-27-91	3,200	720	150	50	180
MW-9	12-18-91	ND<50	2.5	1.1	0.3	5.8
MW-10	3-07-91	1,600	120	190	32	230
MW-10	6-27-91	12,000	7,300	500	150	300
MW-10	9-27-91	57,000	12,000	7,200	1,400	4,600
MW-10	12-18-91	5,300	2,500	120	36	79
RW-1	3-07-91	---	---	---	---	---
RW-1	6-27-91	---	---	---	---	---
RW-1	9-27-91	---	---	---	---	---
RW-1	12-18-91	---	---	---	---	---

Notes:

TPH-G = Total Petroleum Hydrocarbons as Gasoline
B = Benzene
T = Toluene
E = Ethylbenzene
X = Total Xylenes
ND = Not Detected at Method Detection Limit
--- = No sample collected from RW-1 due to the presence of free product

APPENDIX A

GROUND WATER SAMPLING FIELD PROCEDURES
AND
GROUND WATER SAMPLING FIELD SURVEY FORMS

APPENDIX A

GROUND WATER SAMPLING FIELD PROCEDURES

Prior to purging and sampling, total well depth and depth to ground water were measured from a reference mark at the top of each well casing to the nearest 0.01 foot using an electronic sounder. Ground water was examined, using a hand bailer, for the presence of free-floating product or sheen. Prior to sample collection, each well was purged of the required well casing volumes and until stabilization of pH, temperature, and conductivity was achieved. Each sample was collected using a clean bailer and transferred to the appropriate clean sample containers for delivery to a California certified laboratory following proper preservation and chain of custody procedures. Purged ground water was stored onsite in DOT-approved, 55-gallon drums pending analytical results and proper offsite disposal.

ALTON GEOSCIENCE

Ground Water Monitoring Well Development or Sampling Field Survey Forms

---

Well # MW-3 Project # 30-0081-01 Location Cabland Date 12/18/91

Sampling Team LM Sampling Method: Bailer X Pump ___

Type of Pump or Bailer Used Diaphragm pump, disposable bailer

Decon Method: Alconox
Triple rinsed w/~~TSP~~ LCB and Deionized Water X or Steam Cleaned ___

Well Data:
Depth to Water 20.82 ft
Total Well Depth 34.60 ft
Water Col. Height 13.79 ft

Conversion diam.	gal/ft
2 in.	x 0.16
3 in.	x 0.36
4 in.	x 0.65
6 in.	x 1.44

Vol. of Water Column 2.20
Purge Factor 3
Total Vol. to Purge 6.60

Began 1419

Chemical Data:

T (F)	SC/umhos X1000	pH	Time	Comments	Volume (gal)
46.3	.49	8.29	1410	Lt. Brown	1
47.9	.48	8.16	1413		2
49.1	.45	8.13	1415		3
50.2	.45	8.11	1417		4
50.1	.44	8.09	1419		5

Sampled 1429 Actual Volume Purged 6.75

Comments:

ALTON GEOSCIENCE

Ground Water Monitoring Well Development
or Sampling Field Survey Forms

Well # MW-4 Project # 30-0081-01 Location Cakland Date 12/18/91

Sampling Team Lay Sampling Method: Bailer X Pump ___

Type of Pump or Bailer Used Diaphram pump, disposable bailer

Decon Method: Alconox
Triple rinsed w/~~TSP~~ H2O and Deionized Water X or Steam Cleaned ___

Well Data:
Depth to Water 22.99 ft
Total Well Depth 38.74 ft
Water Col. Height 15.75 ft

Conversion diam.	gal/ft
2 in.	x 0.16
3 in.	x 0.36
4 in.	x 0.65
6 in.	x 1.44

Vol. of Water Column 2.52
Purge Factor 3
Total Vol. to Purge 7.56

Sampled 1408

Chemical Data:

T (F)	SC/umhos X1000	pH	Time	Comments	Volume (gal)
48.9	.58	7.91	1410	Clear	1.50
49.2	.56	8.02	1412		3.00
50.1	.53	8.05	1414		4.50
50.3	.51	7.99	1417		6.00
49.9	.49	8.01	1417	↓	7.50

Sampled 1419 Actual Volume Purged 7.75

Comments:

ALTON GEOSCIENCE

Ground Water Monitoring Well Development or Sampling Field Survey Forms

---

Well # MW-5 Project # 30-0081-01 Location Oakland Date 12/12/91

Sampling Team Lang Sampling Method: Bailer X Pump ___

Type of Pump or Bailer Used ___ Diaphram pump, disposable bailer

Decon Method: Alconox

Triple rinsed w/~~TSP~~ LIO and Deionized Water X or Steam Cleaned ___

Well Data:

Depth to Water 19.91 ft

Total Well Depth 32.24 ft

Water Col. Height 12.33 ft

Conversion diam.	gal/ft
2 in.	x 0.16
3 in.	x 0.36
4 in.	x 0.65
6 in.	x 1.44

Vol. of Water Column 1.97

Purge Factor 3

Total Vol. to Purge 5.91

Begun 1235

Chemical Data:

T (F)	SC/umhos X1000	pH	Time	Comments	Volume (gal)
46.9	.71	8.23	1238	Lt Brown	1
49.7	.67	8.26	1240		2
50.2	.69	8.23	1242		3
49.2	.67	8.17	1245		4
49.4	.65	8.14	1248		5

Sampled 1251 Actual Volume Purged 6

Comments:

ALTON GEOSCIENCE

Ground Water Monitoring Well Development
or Sampling Field Survey Forms

Well # MW-6 Project # 30-0081-01 Location Oakland Date 12/18/91

Sampling Team Lay Sampling Method: Bailer X Pump ____

Type of Pump or Bailer Used Diaphram pump, disposable bailer

Decon Method: Alconox
Triple rinsed w/~~TSP~~ H2O and Deionized Water X or Steam Cleaned ____

Well Data:
Depth to Water 19.03 ft
Total Well Depth ~~34.61~~ 34.61 ft
Water Col. Height ~~10.76~~ 15.58 ft

Conversion diam.	gal/ft
(2 in.)	x 0.16
3 in.	x 0.36
4 in.	x 0.65
6 in.	x 1.44

Vol. of Water Column 2.49
Purge Factor 3
Total Vol. to Purge 7.47

Begin 1340

Chemical Data:

T (F)	SC/umhos X1000	pH	Time	Comments	Volume (gal)
46.0	.37	8.37	1244	Clear	1.50
47.5	.35	8.32	1247	↓	3.00
48.1	.38	8.32	1249	↓	4.50
48.1	.39	8.30	1251	Lt. Brown	6.00
47.9	.38	8.27	1253	↓	7.50

Completed 1436 Actual Volume Purged 7.50

Comments:

ALTON GEOSCIENCE

Ground Water Monitoring Well Development
or Sampling Field Survey Forms

Well # MW-7 Project # 30-0081-01 Location Oakland Date 12/12/91

Sampling Team Lang Sampling Method: Bailer X Pump ___
Type of Pump or Bailer Used Diaphram pump, disposable bailer

Decon Method: Alconox
Triple rinsed w/~~TSP~~ LG and Deionized Water X or Steam Cleaned ___

Well Data:
Depth to Water 21.16 ft
Total Well Depth 34.66 ft
Water Col. Height 13.50 ft

Conversion diam.	gal/ft
2 in.	x 0.16
3 in.	x 0.36
4 in.	x 0.65
6 in.	x 1.44

Vol. of Water Column 2.16
Purge Factor 3
Total Vol. to Purge 6.48

Bag'm 1150

Chemical Data:

T (F)	SC/umhos X1000	pH	Time	Comments	Volume (gal)
53.4	.80	8.23	1154	Clear	1
52.0	.71	8.46	1156		2
51.1	.79	8.33	1158		3
49.6	.81	8.24	1200		4
49.4	.79	8.20	1202	↓	5

Sampled 1210 Actual Volume Purged 6.50

Comments:

ALTON GEOSCIENCE

Ground Water Monitoring Well Development
or Sampling Field Survey Forms

Well # MW-8 Project # 30-0081-01 Location Oakland Date 12/18/91

Sampling Team LM Sampling Method: Bailer X Pump ____
Type of Pump or Bailer Used Diaphram pump, disposable bailer

Decon Method: Alconox
Triple rinsed w/~~TSP~~ H2O and Deionized Water X or Steam Cleaned ____

Well Data:
Depth to Water 19.99 ft
Total Well Depth 39.18 ft
Water Col. Height 19.19 ft

Conversion diam.	gal/ft
2 in.	x 0.16
3 in.	x 0.36
4 in.	x 0.65
6 in.	x 1.44

Vol. of Water Column 3.07
Purge Factor 3
Total Vol. to Purge 9.21

Begin 1251

Chemical Data:

T (F)	SC/umhos X 1000	pH	Time	Comments	Volume (gal)
46.2	1.20	7.78	1253	Brown	1.75
48.6	1.19	7.74	1255	Lt Brown	3.50
48.4	1.14	7.64	1258		5.25
48.6	1.18	7.58	1300		7.00
48.5	1.16	7.53	1302		8.75

Sampled 1306 Actual Volume Purged 9.25

Comments:

ALTON GEOSCIENCE

Ground Water Monitoring Well Development
or Sampling Field Survey Forms

Well # MW-9 Project # 30-0081-01 Location Oakland Date 12/12/91

Sampling Team L Sampling Method: Bailer X Pump ___
Type of Pump or Bailer Used Diaphram pump, disposable bailer

Decon Method: Alconox
Triple rinsed w/~~TSP~~ LIQ and Deionized Water X or Steam Cleaned ___

Well Data:
Depth to Water 20.14 ft
Total Well Depth 30.30 ft
Water Col. Height 10.16 ft

Conversion diam.	gal/ft
2 in.	x 0.16
3 in.	x 0.36
4 in.	x 0.65
6 in.	x 1.44

Vol. of Water Column 1.63
Purge Factor 3
Total Vol. to Purge 4.89

Begin 1306

Chemical Data:

T (F)	SC/umhos X1000	pH	Time	Comments	Volume (gal)
49.2	.87	8.02	1309	Lt Brown	1
51.1	.84	7.98	1312		2
52.3	.74	7.88	1314		3
52.1	.68	7.96	1316		4
52.3	.70	7.89	1318	↓	5
		Sampled	1321	Actual Volume Purged	5

Comments:

ALTON GEOSCIENCE

Ground Water Monitoring Well Development
or Sampling Field Survey Forms

Well # MW-10 Project # 30-0081-01 Location Oakland Date 12/18/91

Sampling Team Lang Sampling Method: Bailer X Pump ___
Type of Pump or Bailer Used Diaphram pump, disposable bailer

Decon Method: Alconox
Triple rinsed w/~~TSP~~ H2O and Deionized Water X or Steam Cleaned ___

Well Data:
Depth to Water 21.14 ft
Total Well Depth 34.28 ft
Water Col. Height 13.14 ft

Conversion diam.	gal/ft
2 in.	x 0.16
3 in.	x 0.36
4 in.	x 0.65
6 in.	x 1.44

Vol. of Water Column 2.10
Purge Factor 3
Total Vol. to Purge 6.30

Begin 1210

Chemical Data:

T (F)	SC/umhos X1000	pH	Time	Comments	Volume (gal)
49.0	1.15	8.24	1215	Grey	1
49.1	1.10	8.11	1219	↓	2
49.1	1.07	8.00	1221	↓	3
47.5	1.04	7.88	1223	Lt Brown	4
46.9	1.01	7.80	1226	↓	5

Sampled 1235 Actual Volume Purged 6.50

Comments:

APPENDIX B

OFFICIAL LABORATORY REPORTS
AND
CHAIN OF CUSTODY RECORD

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

JAN 3 1992

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 84679
CLIENT: Alton Geoscience
CLIENT JOB NO.: 30-0081-01

DATE RECEIVED: 12/19/91
DATE REPORTED: 12/31/91
DATE SAMPLED : 12/18/91

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	MW-8	990	150	120	250
2	MW-5	ND<0.3	ND<0.3	ND<0.3	ND<0.3
3	MW-10	2500	120	36	79
4	MW-7	0.7	2.9	0.8	3.3
5	MW-9	2.5	1.1	0.3	5.8
6	MW-6	1.3	2.2	ND<0.3	2.7
7	MW-3	34	24	0.8	28
8	MW-4	ND<0.3	ND<0.3	ND<0.3	0.5

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 = 80%: Duplicate RPD = < 12

Richard Srna, Ph.D.

for
Laboratory Director

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

JAN 3 1992

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 84679
CLIENT: Alton Geoscience
CLIENT JOB NO.: 30-0081-01

DATE RECEIVED: 12/19/91
DATE REPORTED: 12/31/91
DATE SAMPLED : 12/18/91

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

LAB #	Sample Identification	Concentration (mg/L) Gasoline Range
1	MW-8	3.2
2	MW-5	ND<0.05
3	MW-10	5.3
4	MW-7	ND<0.05
5	MW-9	ND<0.05
6	MW-6	ND<0.05
7	MW-3	0.26
8	MW-4	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 = 85%; Duplicate RPD = 4

Richard Srna, Ph.D.

(for)
Laboratory Director

ALTON GEOSCIENCE
1000 BURNETT ST., #140
CONCORD, CA 94520 (415) 682-1582

CHAIN of CUSTODY RECORD

PAGE 1 of 1

DATE: 12/18/91

RESULTS DUE BY: 5 day

PROJECT NUMBER: 30-0081-01

PROJECT NAME AND ADDRESS: BP. 3201 35th st. Oakland

PROJECT MANAGER: Matt Taylor

SAMPLER'S SIGNATURE: Tony Bruno

LABORATORY: SAL

REMARKS OR SPECIAL INSTRUCTIONS:
Please Run TPH-G/BTXE in Series!

P.O. # 413379

NOTE: PLEASE INDICATE VERBAL REQUESTS FOR ADDITIONAL ANALYSES IN THIS BOX.

	SAMPLE NUMBER	SAMPLE DATE/TIME	LOCATION/ DESCRIPTION	SAMPLE MATERIAL	SAMPLE TYPE: GRAB	SAMPLE TYPE: COMP.	NUMBER OF CONTAINERS	SAMPLE PREP. 3510: SOLV. EXTR.	SAMPLE PREP. 3810: HEAD SPACE	SAMPLE PREP. 5030: PURGE & TRAP	SOIL ANALYSIS 418.1: TPHC (IR)	SOIL ANALYSIS 8010: HALOCARBONS	SOIL ANALYSIS 8020: BTXE	SOIL ANALYSIS DHS METHOD: TPHC (GC)	SOIL ANALYSIS 7420: TOTAL Pb	WATER ANALYSIS 418.1: TPHC (IR)	WATER ANALYSIS 601: HALOCARBONS	WATER ANALYSIS 602: BTXE + TPH-G 8015	WATER ANALYSIS DHS METHOD: TPHC (GC)	WATER ANALYSIS 7421: TOTAL Pb
1	MW-8	12/18/91 / 1306		HCL VOAO (2)	X		2											X		
2	MW-5	12/18/91 / 1251																		
3	MW-10	12/18/91 / 1235																		
4	MW-7	12/18/91 / 1210																		
5	MW-9	12/18/91 / 1321																		
6	MW-6	12/18/91 / 1436																		
7	MW-3	12/18/91 / 1429																		
8	MW-4	12/18/91 / 1419																		
						TOTAL NO. OF CONTAINERS:														

Please initial:
- Samples Stored in ice. BW
- Appropriate containers
- Samples preserved
- VOA's without headspace ✓
- Courier list

RELINQUISHED BY: Tony Bruno	RECEIVED BY:	DATE/TIME: 12/19/91 / 0920	METHOD OF SHIPMENT:
RELINQUISHED BY:	RECEIVED BY:	DATE/TIME:	SHIPPED BY:
RELINQUISHED BY:	RECEIVED BY:	DATE/TIME: 12/19/91 / 0920	COURIER: