LOWNEY ASSOCIATES
Environmental/Geotechnical/Engineering Services

Soil and Ground Water Quality Evaluation

7/31/97

Former Shell Station
726 Harrison Street
Oakland, California

This report has been prepared for:

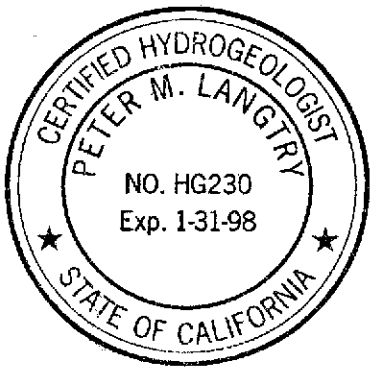
Mr. Kin Chan

726 Harrison Street, Oakland, California 94607

July 31, 1997

for Brock A. Foster
Environmental Engineer

Peter M. Langtry, R.G., C.HG.
Associate
Environmental Geologist



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SOIL AND GROUND WATER QUALITY EVALUATION

FORMER SHELL STATION

726 HARRISON STREET

OAKLAND, CALIFORNIA

1.0 INTRODUCTION

1.1 Purpose

In this report, we present the results of the soil and ground water quality evaluation at 726 Harrison Street in Oakland, California (Figure 1). This work was performed for Mr. Kin Chan, who is the current owner of the property. We understand that the site was formerly occupied by a Shell service station.

1.2 Scope of Work

The scope of work performed was outlined in our agreement dated May 22, 1997 and included:

- Review of readily available information on-file at the Alameda County Environmental Health Services Agency (ACEHSA) for two neighboring fuel leak incidents.
- Drilling and logging of one exploratory boring.
- Conversion of the boring into a ground water monitoring well.
- Collection of selected soil and ground water samples for laboratory analysis.

2.0 REVIEW OF ACEHSA FILES FOR NEIGHBORING FUEL LEAK INCIDENTS

Information on-file at the ACEHSA for 706 Harrison Street (immediately down-gradient and adjacent to the project site [726 Harrison Street]) and 800 Harrison Street (across 8th Street and up-gradient of the project site [726 Harrison Street]) was reviewed to obtain information on ground water flow direction and ground water quality. The 800 Harrison Street parcel is currently occupied by a Unocal gasoline station and is located approximately 50 feet northeast, directly across 8th Street, from the site. The 706 Harrison Street parcel, which is adjacent to the southwest property boundary, is currently a vacant lot that was formerly an Arco service station. Selected information obtained from the ACEHSA is presented in Appendix A and summarized below.

As part of the ground water quality investigation for 800 Harrison Street, seven ground water monitoring wells were installed. The ground water flow direction beneath 800 Harrison Street was measured to the southwest (Figure 2). Two ground water monitoring wells (MW-7 and MW-8) were installed on the south side of 8th Street, approximately 5 feet from the northeast boundary of 726 Harrison Street. Laboratory analytical results of ground water samples collected from wells MW-7 and MW-8 from July 1996 are shown on Figure 2. Based on the analytical results, ground water sampled from these wells was impacted with low levels (up to 72 parts per billion [ppb]) of gasoline range total petroleum hydrocarbons (TPHg) a[redacted]

Four ground water monitoring wells were installed at the 706 Harrison Street parcel, including one well (MW-4) installed approximately 5 feet from the southwest boundary of 726 Harrison Street and approximately 30 feet down-gradient of the former on-site underground storage tanks (USTs) (Figure 2). The ground water flow direction has been measured to the southwest. In July 1996, 3,300 ppb TPHg and 520 ppb benzene were detected in well MW-4. The highest concentrations detected were in ground water samples collected from a well (MW-2) located down-gradient of the former UST excavation, including 90,000 ppb TPHg and 7,300 ppb benzene (Cambria Environmental 1996).

3.0 SOIL AND GROUND WATER QUALITY EVALUATION

3.1 Subsurface Investigation

On July 3, 1997, environmental engineer Brock Foster directed a subsurface exploration program and logged one boring to an approximate depth of 28 feet. The boring was drilled within approximately 10 feet down-gradient (southwest) of the former on-site UST excavation, based on the ground water flow direction obtained for 706 and 800 Harrison Street. Soil samples were obtained from the borings at 5-foot depth intervals. Ground water was encountered at an approximate depth of 20 feet. Soil sampling protocol, boring logs, and permits are presented in Appendix B.

The exploratory boring was converted to a permanent ground water monitoring well. Well installation protocol is discussed in Appendix B.

3.2 Soil Quality

Soil samples collected a depth of approximately 14 feet and 19 feet were selected for submittal to a state-

certified analytical laboratory. The sample collected from a depth of approximately 14 feet was selected for analysis based on the presence of petroleum odors. The sample collected from a depth of approximately 19 feet was selected for analysis to evaluate soil quality near the soil and ground water interface.

3.2.1 Laboratory Analyses and Results

Two soil samples were analyzed for TPHg and benzene, toluene, ethylbenzene, xylene (BTEX) compounds, and MTBE (EPA Test Method 8015/8020). Analytical results are presented in Table 1 and on Figure 2. Copies of the analytical reports and chain of custody documentation are presented in Appendix D.

TABLE 1. Analytical Results of Selected Soil Samples
(concentrations in parts per million)

Boring Number	Depth (feet)	MTBE	TPHg	Benzene	Toluene	Ethyl-benzene	Xylenes
MW-1	14 - 14 1/2	<0.05	<1.0	0.011	<0.005	<0.005	<0.005
MW-1	19 - 19 1/2	<0.05	650	1.2	<0.05	2.2	2.8

< Indicates that the compound was not detected at or above the stated laboratory reporting limit
NE Not Established

1200 ppb deeper.

3.3 Ground Water Quality

To evaluate ground water quality at the site, ground water samples were collected from monitoring well MW-1. Copies of the well sampling logs and a discussion of sampling protocol are included in Appendix C.

3.3.1 Laboratory Analyses and Results

The ground water samples were analyzed for TPHg, BTEX, and MTBE (EPA Test Method 8015/8020). Analytical results are shown in Table 2 and on Figure 2. Copies of the laboratory reports are attached in Appendix D.

TABLE 2. Analytical Results of Selected Ground Water Samples
(concentrations in parts per billion)

Well Number	Date	MTBE	TPHg	Benzene	Toluene	Ethyl-benzene	Xylenes
MW-1	7/3/97	7,400	18,000	2,700	350	450	900
MCL		NE	NE	1.0	1,000	680	1,750

< Indicates that the compound was not detected at or above the stated laboratory reporting limit
MCL Drinking water Maximum Contaminant Levels - EPA Region 9, August 1991.
NE Not Established

4.0 CONCLUSIONS AND RECOMMENDATIONS

The ground water flow direction beneath the site is anticipated to be toward the southwest, based on information obtained for 706 and 800 Harrison Street. This corresponds with the regional ground water flow direction toward the Oakland Inner Harbor.

Laboratory analysis of soil samples collected from the exploratory boring detected gasoline-range petroleum hydrocarbons, with the highest levels detected in soil collected near the soil and ground water interface.

Laboratory analysis of ground water samples collected from the on-site monitoring well (MW-1) detected TPHg (18,000 ppb), including MTBE (7,400 ppb) benzene and (2,700 ppb). The petroleum fuels detected in the on-site monitoring well ground water appear to be from the former on-site USTs. Quarterly monitoring by others of two off-site monitoring wells installed within approximately 5 feet of the up-gradient site boundary (MW-7 and MW-8) has generally detected levels of TPHg and benzene significantly below the concentrations detected in the on-site monitoring well. However,

13,000 ppb MTBE (October 1995) and 3,400 ppb MTBE (July 1996) have been detected in the up-gradient monitoring well MW-7 (Figure 2).

Ground water beneath the adjacent down-gradient parcel (706 Harrison Street), which was also formerly occupied by a gasoline station, has also been impacted by a petroleum fuel release. Gasoline impacted ground water originating from the project site (726 Harrison Street) appears to be migrating beneath 706 Harrison Street, based on analytical results from on-site well MW-1 and monitoring well MW-4 on the neighboring parcel. The down-gradient extent of the impacted ground water originating from both the 706 and 726 Harrison Street parcels has been characterized as evidenced by the non-detect levels of petroleum fuels reported for the two wells installed in 7th Street (MW-5 and MW-6) (Cambria Environmental 1996).

Based on our experience, the overseeing regulatory agency will likely require quarterly monitoring to document ground water quality.

We recommend that a copy of this report be sent to the California Regional Water Quality Control Board for their review.

not needed

5.0 LIMITATIONS

This report was prepared for the use of Mr. Kin Chan in evaluating soil and ground water quality at the referenced site at the time of this study. We make no warranty, expressed or implied, except that our services have been performed in accordance with environmental principles generally accepted at this time

and location. The chemical and other data presented in this report can change over time and are applicable only to the time this study was performed. We are not responsible for the data presented by others.

The accuracy and reliability of geo- or hydrochemical studies are a reflection of the number and type of samples taken and extent of the analyses conducted, and are thus inherently limited and dependent upon the resources expended. Chemical analyses were performed for specific parameters during this investigation, as detailed in the scope of services. Please note that additional constituents not analyzed for during this investigation may be present in soil and ground water at the site. Our sampling and analytical plan was designed using accepted environmental principles and our judgment for the performance of a reconnaissance soil and ground water quality investigation, and was based on the degree of investigation desired by you. It is possible to obtain a greater degree of certainty, if desired, by implementing a more rigorous soil and ground water sampling program or evaluating the risk posed by the contaminants detected, if any.

6.0 REFERENCES

Cambria Environmental Technology, Inc. July 1996, "Second Quarter 1996 Monitoring, Former Arco Station, 706 Harrison Street, Oakland, California."

MPDS Services, Inc., August 1, 1996, "Semi-Annual Data Report, Unocal Service Station #0752, 800 Harrison Street, Oakland California."

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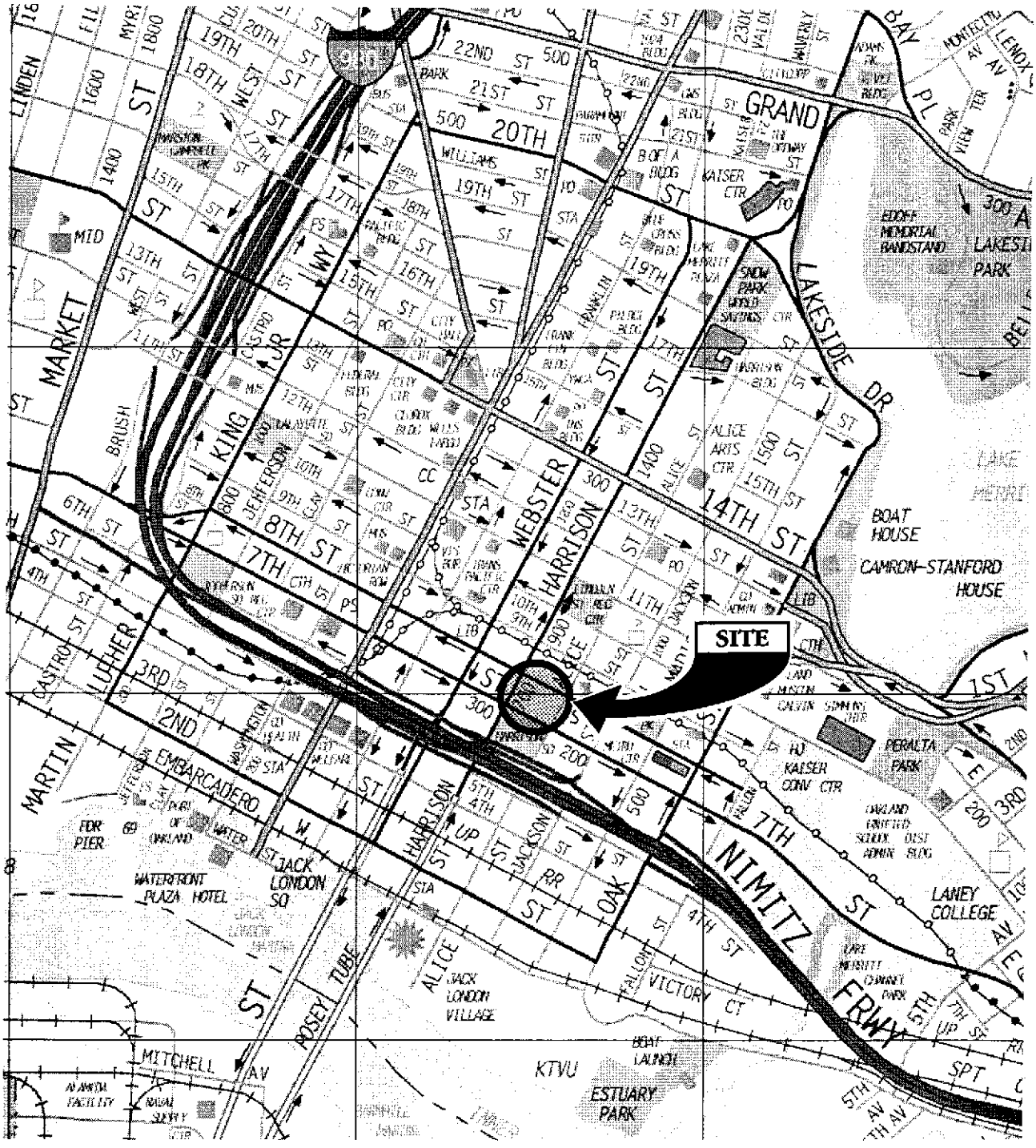
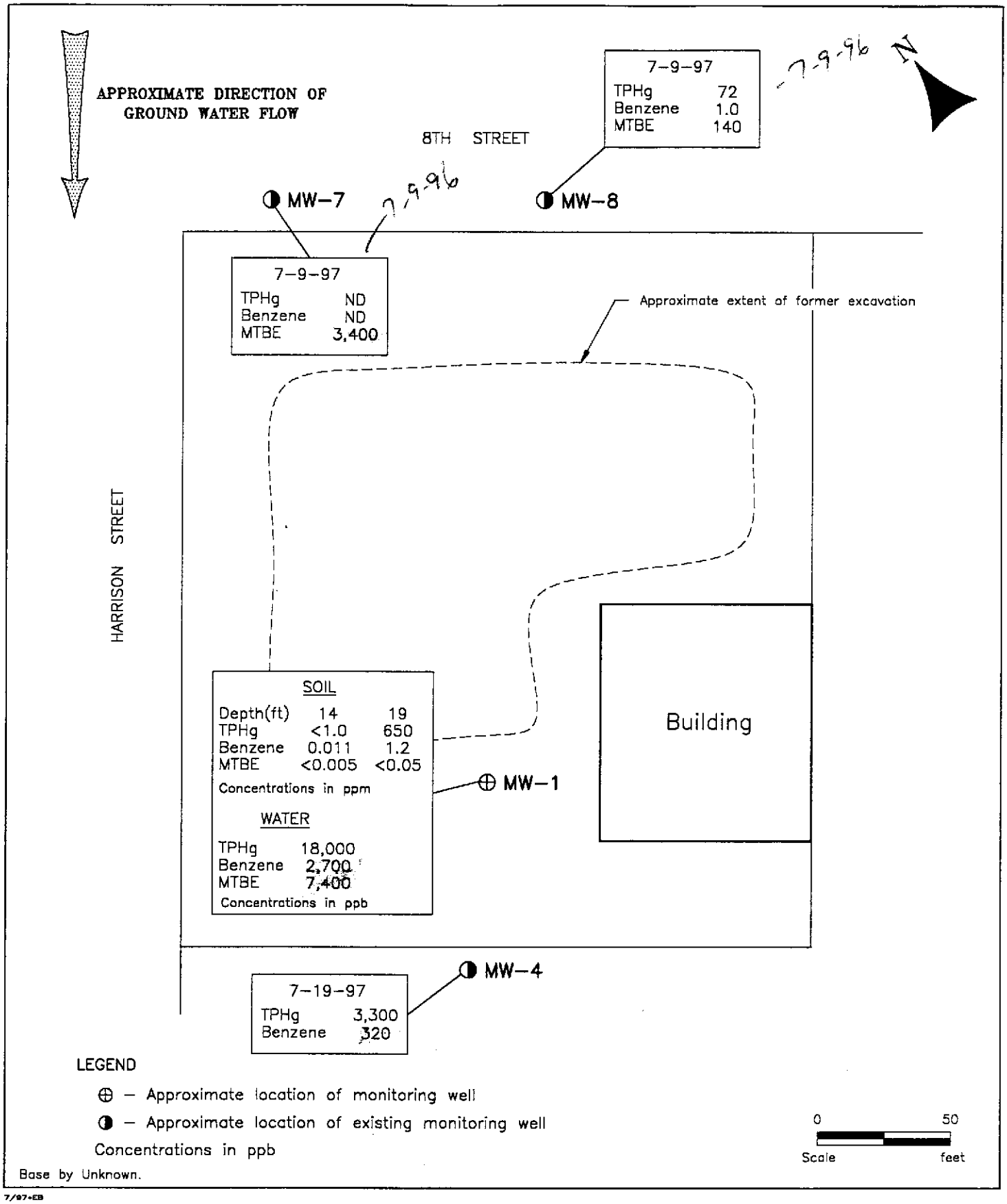


"Reproduced with permission granted by THOMAS BROS. MAP."

VICINITY MAP
726 HARRISON STREET
Oakland, California

LOVNEY ASSOCIATES
Environmental/Geotechnical/Engineering Services

FIGURE 1
1260-1



SITE PLAN

726 HARRISON STREET
Oakland, California

LOVNEY ASSOCIATES
Environmental/Geotechnical/Engineering Services

FIGURE 2
1260-1

APPENDIX A

INFORMATION OBTAINED FROM THE ACEHSA

MONITORING
PURGING
DISPOSING
SAMPLING
mpds SERVICES, INCORPORATED

MPDS-UN0752-11
August 1, 1996

Unocal Corporation
2000 Crow Canyon Place, Suite 400
P.O. Box 5155
San Ramon, California 94583

Attention: Ms. Tina R. Berry

RE: Semi-Annual Data Report
Unocal Service Station #0752
800 Harrison Street
Oakland, California

Dear Ms. Berry:

This data report presents the results of the most recent semi-annual monitoring and sampling of the monitoring wells at the referenced site by MPDS Services, Inc.

RECENT FIELD ACTIVITIES

The monitoring wells that were monitored and sampled during this semi-annual period are indicated in Table 1. Oxygen Release Compound (ORC®) filter socks were present in all the monitoring wells. Prior to sampling, the wells were checked for depth to water and the presence of free product or sheen. The monitoring data and the ground water elevations are summarized in Table 1. The ground water flow direction during this semi-annual period is shown on the attached Figure 1.

Ground water samples were collected on July 9, 1996. Prior to sampling, the wells were each purged of between 7.5 and 10.5 gallons of water. In addition, dissolved oxygen concentrations were measured and are presented in Table 7. Samples were then collected using a clean Teflon bailer. The samples were decanted into clean VOA vials and/or one-liter amber bottles, as appropriate, which were then sealed with Teflon-lined screw caps, labeled, and stored in a cooler, on ice, until delivery to a state-certified laboratory. Trip blank, Equipment blank and Field blank samples (denoted as ES1, ES2 and ES3, respectively) were also collected for quality assurance and control. MPDS Services, Inc. transported the purged ground water to the Unocal Refinery located in Rodeo, California, for treatment and discharge to San Pablo Bay under NPDES permit.

ANALYTICAL RESULTS

The ground water samples were analyzed at Sequoia Analytical Laboratory and were accompanied by properly executed Chain of Custody documentation. The analytical results of the ground water samples collected to date are summarized in Tables 2 through 6. The concentrations of Total Petroleum Hydrocarbons (TPH) as gasoline and benzene detected in the ground water samples collected this semi-annual period are shown on the attached Figure 2. Copies of the laboratory analytical results and the Chain of Custody documentation are attached to this report.

LIMITATIONS

Environmental changes, either naturally-occurring or artificially-induced, may cause changes in ground water levels and flow paths, thereby changing the extent and concentration of any contaminants.

DISTRIBUTION

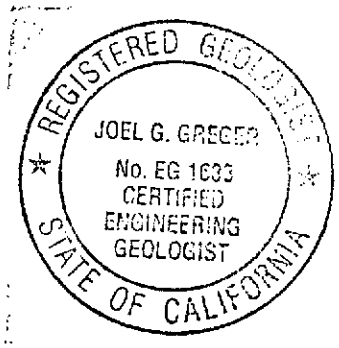
A copy of this report should be sent to Ms. Jennifer Eberle of the Alameda County Health Care Services Agency.

If you have any questions regarding this report, please do not hesitate to call Mr. Joel G. Greger at (510) 602-5120.

Sincerely,

MPDS Services, Inc.

Haig (Gary) Tejirian
Senior Staff Geologist



Joel G. Greger, C.E.G.
Senior Engineering Geologist

License No. EG 1633
Exp. Date 8/31/98

/bp

Attachments: Tables 1 through 7
Location Map
Figures 1 & 2
Laboratory Analyses
Chain of Custody documentation

cc: Mr. Robert H. Kezerian, Kaprealian Engineering, Inc.

Table 1

Summary of Monitoring Data

Well #	Ground Water Elevation (feet)	Depth to Water (feet)*	Total Well Depth (feet)*	Product Thickness (feet)	Sheen	Water Purged (gallons)
(Monitored and Sampled on July 9, 1996)						
MW1	16.17	18.52	33.70	0	No	10.5
MW2	16.50	18.22	30.33	0	No	8.5
MW3	15.71	17.43	30.57	0	No	9
MW4	15.75	16.96	32.35	0	No	10.5
MW5	15.84	17.11	31.80	0	No	10
MW6	15.57	16.59	30.94	0	No	10
MW7	15.21	16.99	31.60	0	No	10
MW8	15.22	16.78	27.75	0	No	7.5
(Monitored and Sampled on April 10, 1996)						
MW1	17.04	17.65	33.90	0	No	11.5
MW2	17.37	17.35	30.45	0	No	9
MW3	16.74	16.40	31.80	0	No	10.5
MW4	16.71	16.00	32.51	0	No	11.5
MW5	16.90	16.05	31.95	0	No	11
MW6	16.60	15.56	31.03	0	No	11
MW7	16.39	15.81	31.95	0	No	11
MW8	16.30	15.70	27.60	0	No	8.5
(Monitored and Sampled on January 3, 1996)						
MW1	15.00	19.69	33.88	0	No	10
MW2	15.32	19.40	30.59	0	No	8
MW3	14.60	18.54	30.74	0	No	8.5
MW4	14.66	18.05	32.50	0	No	10
MW5	14.75	18.20	31.80	0	No	9.5
MW6	14.50	17.66	30.97	0	No	9.5
MW7	14.18	18.02	31.93	0	No	9.5
MW8	14.18	17.82	27.61	0	No	7
(Monitored and Sampled on October 10, 1995)						
MW1	15.09	19.60	33.96	0	No	10
MW2	15.47	19.25	30.75	0	No	8
MW3	14.64	18.50	30.81	0	No	8.5
MW4	14.68	18.03	32.61	0	No	10
MW5	14.80	18.15	32.00	0	No	10.5
MW6	14.48	17.68	31.25	0	No	10
MW7	14.12	18.08	32.16	0	No	10
MW8	14.15	17.85	27.15	0	No	6.5

Table 2

Summary of Laboratory Analyses
Water

Well #	Date	TPH as Gasoline	Benzene	Toluene	Ethyl-Benzene	Xylenes
MW1	6/5/91	47	ND	ND	ND	ND
	9/30/91	ND	ND	ND	ND	ND
	12/30/91	ND	ND	ND	ND	ND
	4/2/92	ND	ND	ND	ND	ND
	6/30/92	ND	ND	ND	ND	ND
	9/15/92	76	1.0	ND	ND	ND
	12/21/92	95	0.69	ND	ND	1.0
	4/28/93	920	3.1	2.3	1.2	9.7
	7/23/93	ND	0.5	0.66	ND	ND
	10/5/93	92**	1.5	ND	ND	0.72
	1/3/94	ND	ND	ND	ND	ND
	4/2/94	ND	ND	ND	ND	ND
	7/5/94	250	4.8	13	1.2	7.3
	10/6/94	540	1.4	ND	0.66	11
	1/2/95	140	ND	ND	ND	ND
	4/3/95	580	3.6	0.75	ND	4.0
	7/14/95	260	2.1	ND	ND	1.2
	10/10/95	220	2.0	ND	25	5.6
	1/3/96	190	2.4	ND	0.71	1.2
	4/10/96	540	8.9	1.7	1.5	7.4
	7/9/96	490	3.0	1.4	1.3	2.5
MW2	6/5/91	49	ND	ND	ND	ND
	9/30/91	130	18	0.53	14	9.6
	12/30/91	91	16	0.89	11	1.9
	4/2/92	88	12	0.32	6.3	7.2
	6/30/92	76	9.3	0.76	4.8	6.9
	9/15/92	1,300	91	5.7	80	110
	12/21/92	960	97	3.2	74	96
	4/28/93	1,300	76	1.9	130	87
	7/23/93	66	1.8	ND	2.5	2.0
	10/5/93	120	12	ND	2.1	12
	1/3/94	260	25	ND	5.5	26
	4/2/94	ND	0.65	ND	ND	0.99
	7/5/94	160	16	ND	0.73	10
	10/6/94	170	15	ND	1.4	11
	1/2/95	190	27	ND	0.95	11
	4/3/95	2,400	65	6.6	19	63
	7/14/95	750	270	ND	ND	13
	10/10/95	50	1.6	ND	ND	ND
	1/3/96	ND	ND	ND	ND	ND
	4/10/96	300	42	ND	2.4	9.0
	7/9/96	760	230	ND	1.3	2.4

Table 2

Summary of Laboratory Analyses
Water

Well #	Date	TPH as Gasoline	Benzene	Toluene	Ethyl-Benzene	Xylenes
MW3	6/5/91	5,800	1,200	40	140	97
	9/30/91	6,800	1,400	130	290	240
	12/30/91	7,200	2,100	690	410	550
	4/2/92	8,000	1,400	200	300	310
	6/30/92	8,900	1,900	210	430	550
	9/15/92	10,000	1,900	330	400	580
	12/21/92	8,500	1,500	150	310	330
	4/28/93	2,600	220	7.6	41	27
	7/23/93	4,400	660	26	160	82
	10/5/93	9,200	720	88	140	140
	1/3/94	4,900	830	100	170	150
	4/2/94	6,000	800	30	140	110
	7/5/94	25,000**	ND	ND	ND	ND
	10/6/94	49,000*	1,300	200	280	300
	1/2/95	480	1.6	ND	1.4	ND
	4/3/95	8,100**	65	ND	ND	ND
	7/14/95	ND	1,300	ND	ND	ND
	10/10/95	3,100	1,400	36	50	53
	1/03/96	ND	2,300	110	150	140
	4/10/96	940	38	33	39	47
	7/9/96	ND	2,000	ND	150	160
MW4	10/19/92	480	0.51	2.1	2.8	6.8
	12/21/92	220*	ND	ND	0.97	0.74
	4/28/93	ND	ND	ND	ND	ND
	7/23/93	85*	ND	ND	ND	ND
	10/5/93	130**	ND	ND	ND	ND
	1/3/94	210	ND	ND	0.76	1.6
	4/2/94	89	ND	ND	ND	ND
	7/5/94	190**	ND	ND	ND	ND
	10/6/94	170	0.85	ND	ND	0.74
	1/2/95	ND	ND	ND	ND	ND
	4/3/95	98**	ND	ND	ND	ND
	7/14/95	ND	ND	ND	ND	ND
	10/10/95	ND	ND	ND	ND	ND
	1/03/96	ND	ND	ND	ND	ND
	4/10/96	ND	ND	ND	ND	ND
	7/9/96	ND	ND	ND	ND	ND

Table 2

Summary of Laboratory Analyses
Water

Well #	Date	TPH as Gasoline	Benzene	Toluene	Ethyl-Benzene	Xylenes
MW7	4/28/93	110	2.8	1.3	1.4	1.7
	7/23/93	790	23	3.3	28	5.4
	10/5/93	360	10	1.2	0.91	0.99
	1/3/94	ND	0.93	ND	0.75	1.9
	4/2/94	360	2.0	ND	ND	0.8
	7/5/94	ND	ND	ND	ND	ND
	10/6/94	340	5.6	0.85	ND	1.2
	1/2/95	ND	ND	ND	ND	ND
	4/3/95	570	24	ND	3.4	5.8
	7/14/95	ND	14	ND	ND	ND
	10/10/95	740	170	ND	ND	ND
	1/03/96⩛	360	16	1.3	2.7	1.4
	4/10/96	120	4.1	1.5	ND	0.88
	7/9/96	ND	ND	ND	ND	ND
MW8	4/28/93	450	18	1.8	1.8	1.4
	7/23/93	260	5.1	ND	0.6	ND
	10/5/93	120**	1.7	ND	ND	ND
	1/3/94	ND	ND	ND	ND	ND
	4/2/94	150	1.2	ND	ND	ND
	7/5/94	730	17	ND	1.6	ND
	10/6/94	140**	ND	ND	ND	ND
	1/2/95	440	18	0.72	2.0	1.8
	4/3/95	960	11	ND	ND	ND
	7/14/95	280	4.2	2.6	1.1	3.3
	10/10/95	110	1.3	0.62	0.67	ND
	1/03/96⩛	63	ND	0.51	ND	1.8
	4/10/96	ND	1.1	0.61	ND	ND
	7/9/96	72	1.0	ND	ND	ND

⩛ Sequoia Analytical Laboratory has identified the presence of MTBE at a level above or equal to the taste and odor threshold of 40 µg/L in the sample collected from this well.

* Sequoia Analytical Laboratory reported that the hydrocarbons detected appeared to be a gasoline and non-gasoline mixture.

** Sequoia Analytical Laboratory reported that the hydrocarbons detected did not appear to be gasoline.

ND = Non-detectable

-- Indicates analysis was not performed.

Table 2

Summary of Laboratory Analyses
Water

Well #	Date	TPH as Gasoline	Benzene	Toluene	Ethyl-Benzene	Xylenes
MW7	4/28/93	110	2.8	1.3	1.4	1.7
	7/23/93	790	23	3.3	28	5.4
	10/5/93	360	10	1.2	0.91	0.99
	1/3/94	ND	0.93	ND	0.75	1.9
	4/2/94	360	2.0	ND	ND	0.8
	7/5/94	ND	ND	ND	ND	ND
	10/6/94	340	5.6	0.85	ND	1.2
	1/2/95	ND	ND	ND	ND	ND
	4/3/95	570	24	ND	3.4	5.8
	7/14/95	ND	14	ND	ND	ND
	10/10/95	740	170	ND	ND	ND
	1/03/96⩛	360	16	1.3	2.7	1.4
	4/10/96	120	4.1	1.5	ND	0.88
	7/9/96	ND	ND	ND	ND	ND
MW8	4/28/93	450	18	1.8	1.8	1.4
	7/23/93	260	5.1	ND	0.6	ND
	10/5/93	120**	1.7	ND	ND	ND
	1/3/94	ND	ND	ND	ND	ND
	4/2/94	150	1.2	ND	ND	ND
	7/5/94	730	17	ND	1.6	ND
	10/6/94	140**	ND	ND	ND	ND
	1/2/95	440	18	0.72	2.0	1.8
	4/3/95	960	11	ND	ND	ND
	7/14/95	280	4.2	2.6	1.1	3.3
	10/10/95	110	1.3	0.62	0.67	ND
	1/03/96⩛	63	ND	0.51	ND	1.8
	4/10/96	ND	1.1	0.61	ND	ND
	7/9/96	72	1.0	ND	ND	ND

⩛ Sequoia Analytical Laboratory has identified the presence of MTBE at a level above or equal to the taste and odor threshold of 40 µg/L in the sample collected from this well.

* Sequoia Analytical Laboratory reported that the hydrocarbons detected appeared to be a gasoline and non-gasoline mixture.

** Sequoia Analytical Laboratory reported that the hydrocarbons detected did not appear to be gasoline.

ND = Non-detectable

-- Indicates analysis was not performed.

Table 3

Summary of Laboratory Analyses
Water

Well #	Date	TPH as Diesel	Chloroform	Tetrachloro-ethene	Trichloro-ethene	MTBE
MW1	6/5/91	ND	7.8	2.9	1.3	--
	9/30/91	ND	--	--	--	--
	12/30/91	ND	6.4	2.1	0.9	--
	4/2/92	94	7.1	2.6	1.4	--
	6/30/92	120	9.5	2.2	1.3	--
	9/15/92	ND	12	2.2	1.3	--
	12/21/92	ND	12	1.4	0.83	--
	4/28/93♦	470AA	12	0.89	0.85	--
	7/23/93	ND	16	1.3	0.91	--
	10/5/93	57A	13	1.3	0.66	--
	1/3/94*	ND	18	1.4	0.93	--
	4/2/94	ND	15	1.1	0.68	--
	10/10/95	--	--	--	--	29
	4/10/96	--	--	--	--	50
	7/9/96	--	--	--	--	150
MW2	10/10/95	--	--	--	--	200
	4/10/96	--	--	--	--	620
	7/9/96	--	--	--	--	1,500
MW3	10/10/95	--	--	--	--	190,000
	4/10/96	--	--	--	--	69,000
	7/9/96	--	--	--	--	140,000
MW4	1/3/94	--	9.0	1.0	ND	240
	10/10/95	--	--	--	--	120
	4/10/96	--	--	---	--	240
	7/9/96	--	--	--	--	480
MW5	10/10/95	--	--	--	--	1,100
	4/10/96	--	--	--	--	640
	7/9/96	--	--	--	--	150
MW6	10/10/95	--	--	--	--	75,000
	4/10/96	--	--	--	--	53,000
	7/9/96	--	--	--	--	76,000
MW7	10/10/95	--	--	--	--	13,000
	4/10/96	--	--	--	--	3,200
	7/9/96	--	--	--	--	3,400

Table 3

Summary of Laboratory Analyses
Water

	Date	TPH as Diesel	Chloroform	Tetrachloro-ethene	Trichloro-ethene	MTBE
MW8	1/3/94♦	--	1.5	1.2	ND	51
	10/10/95	--	--	--	--	170
	4/10/96	--	--	--	--	60
	7/9/96	--	--	--	--	140

* A fuel fingerprint analysis was conducted on this sample. Sequoia Analytical Laboratory reported that total extractable petroleum hydrocarbons in this sample were not detected in high enough concentrations to compare with known standards and approximate their makeup.

♦ 1,2-dichloroethane was detected in MW8 at a concentration of 4.0 µg/L on 1/03/94, and 1.1 µg/L in MW1 on 4/28/93.

A Sequoia Analytical Laboratory reported that the hydrocarbons detected did not appear to be diesel.

AA Sequoia Analytical Laboratory reported that the hydrocarbons detected appeared to be a diesel and non-diesel mixture.

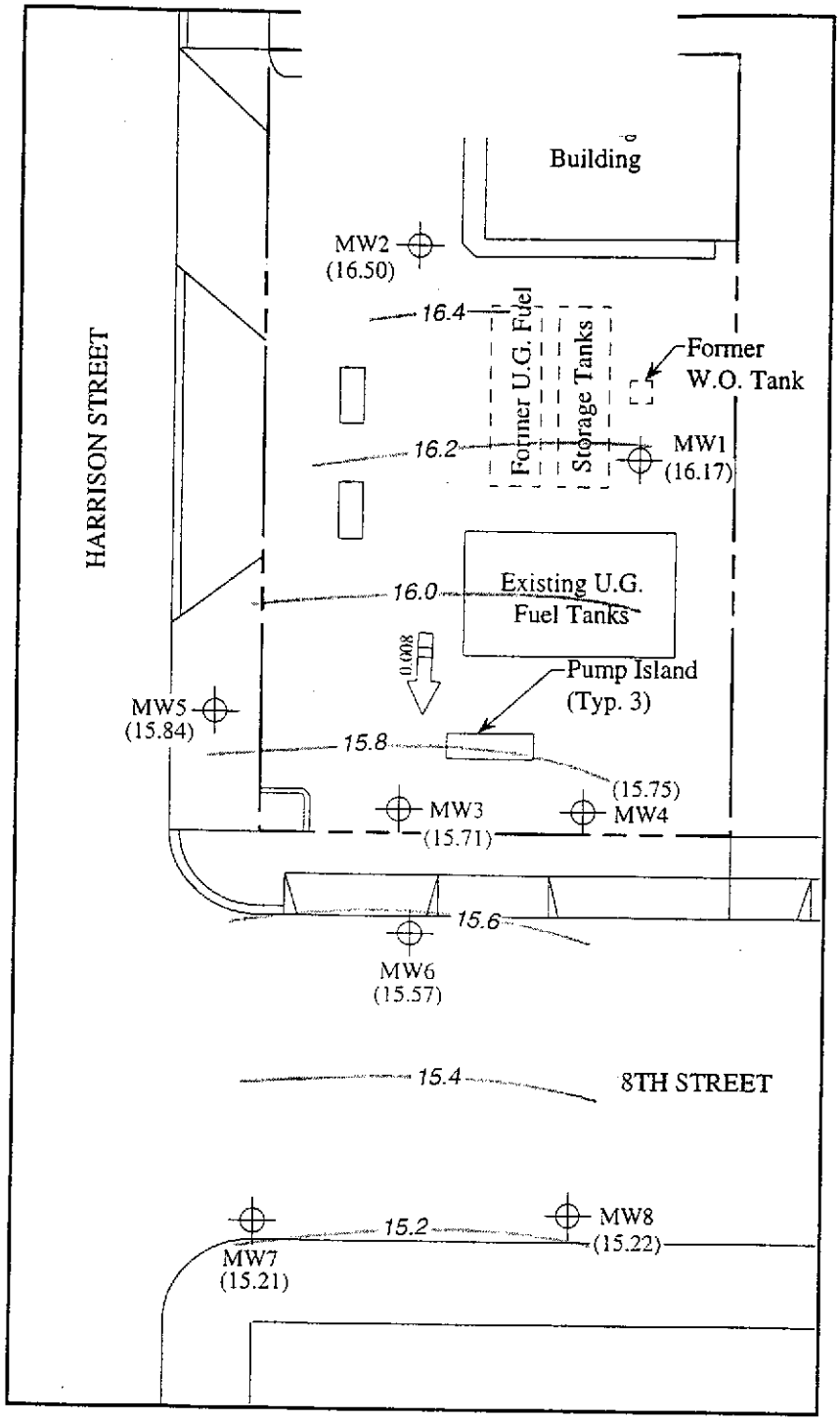
ND = Non-detectable.

-- Indicates analysis was not performed.

Results are in micrograms per liter (µg/L), unless otherwise indicated.

Note: - All EPA method 8010 constituents were non-detectable, except as indicated above.

- Laboratory analyses data prior to January 3, 1994, were provided by Kaprealian Engineering, Inc.



LEGEND

- Monitoring well
- ( ) Ground water elevation in feet above Mean Sea Level
- #.## Direction of ground water flow with approximate hydraulic gradient
- Contours of ground water elevation

0 30 60

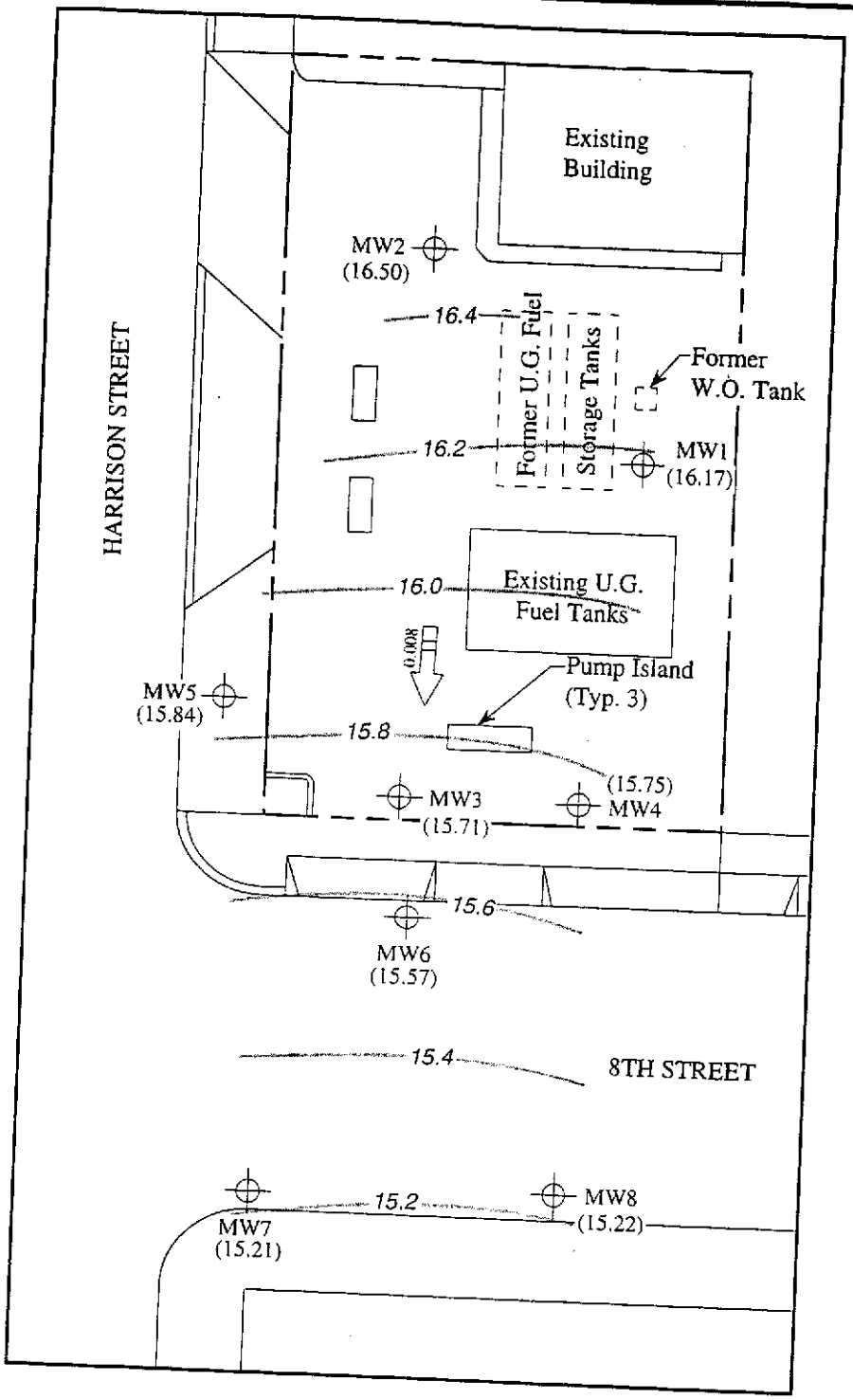
Approx. scale feet

POTENTIOMETRIC SURFACE MAP FOR THE JULY 9, 1996 MONITORING EVENT

mpds SERVICES, INCORPORATED

UNOCAL SERVICE STATION #0752
800 HARRISON STREET
OAKLAND, CALIFORNIA

FIGURE
1



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- Monitoring well
- ( ) Ground water elevation in feet above Mean Sea Level
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0 30 60

Approx. scale feet

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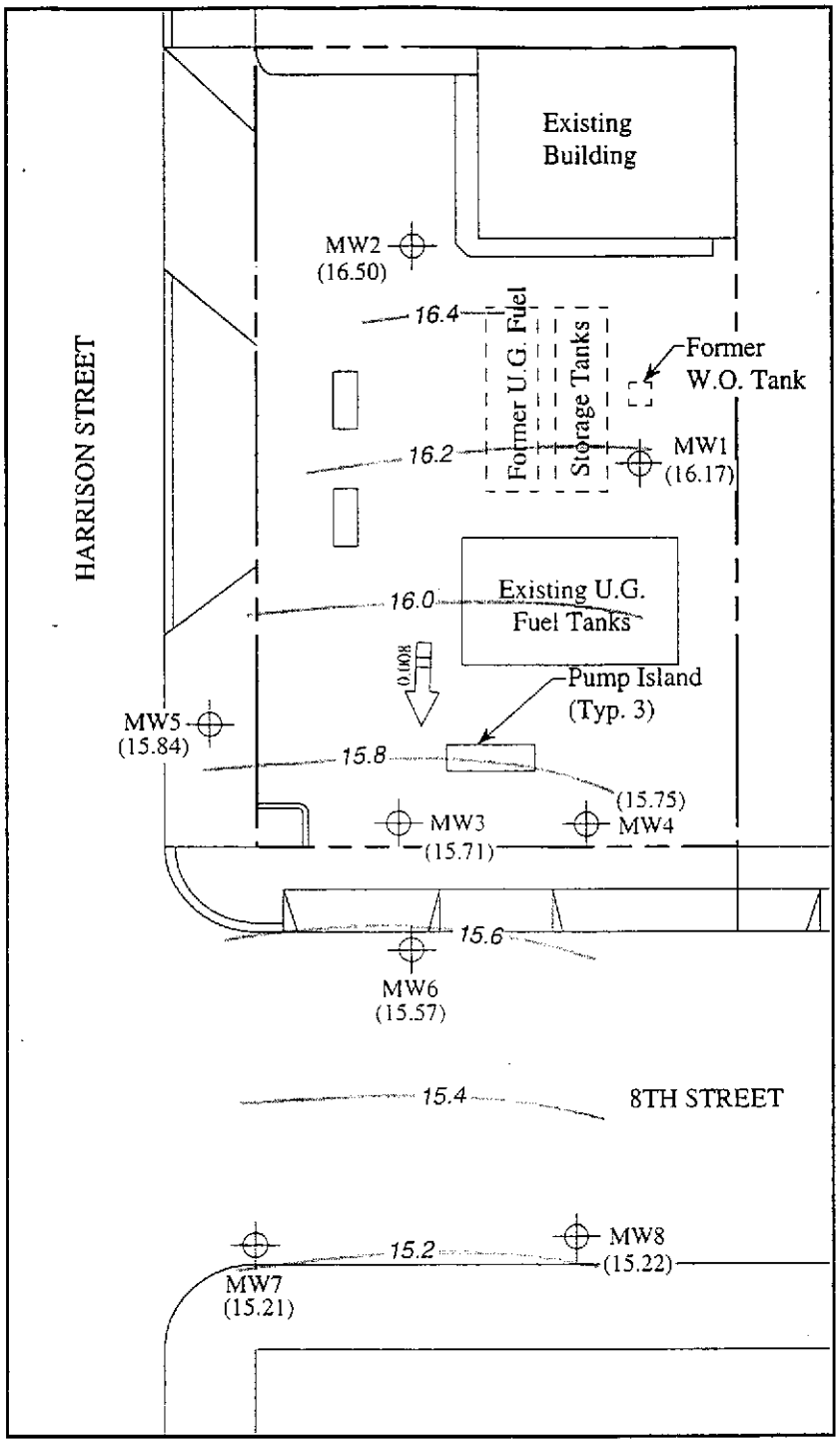
FIGURE
1



LEGEND

- Monitoring well
- ( ) Ground water elevation in feet above Mean Sea Level
- ## Direction of ground water flow with approximate hydraulic gradient
- Contours of ground water elevation

0 30 60

Approx. scale feet

POTENTIOMETRIC SURFACE MAP FOR THE JULY 9, 1996 MONITORING EVENT

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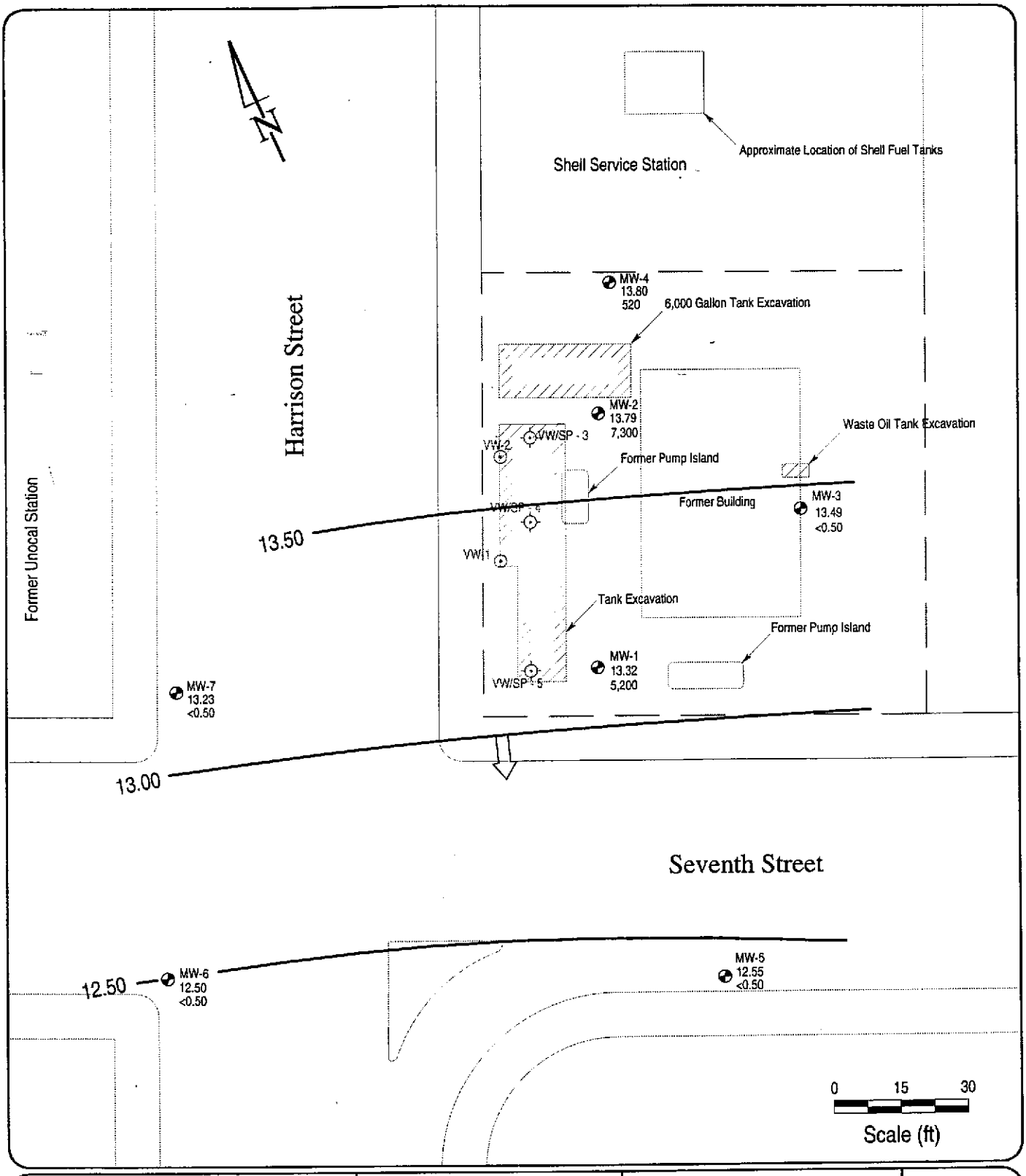
FIGURE
1



CAMBRIA
Environmental Technology, Inc.

EXPLANATION
- Dual Well, SVE/Sparging Well
- SVE Well
- Ground Water Elevation Contour
- XX.XX Potentiometric Surface Elevation
- Ground Water Flow Direction
- Monitoring Well
  Ground Water Elevation
  Benzene Concentration (ppb)

Ground Water Elevation and Benzene Concentrations
Former Arco Station
706 Harrison Street
Oakland, California
F:\PROJECT\SB-2004\OAK-116\QM\2Q96.DWG

FIGURE
1

Table 1. Ground Water Analytic Data - Former Arco Station - 706 Harrison Street Oakland, California

Well ID (TOC)	Date Sampled	Depth to Water (ft)	Ground Water Elevation (ft)	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	Notes
				Concentrations in parts per billion					
MW-1	8/13/93	17.40	11.75	20,000	8,500	640	280	440	
(29.15)	12/14/93	17.27	11.88	17,000	9,200	1,200	4,400	540	
	4/15/94	17.00	12.15	9,500	3,600	530	160	280	
	12/29/94	16.40	12.75	-	-	-	-	-	
	7/19/96	15.83	13.32	17,000	5,200	1,100	330	530	sheen/odor
MW-2	8/13/93	17.05	13.46	34,000	6,800	10,000	740	3,900	
(30.51)	12/14/93	18.28	12.23	16,000	3,200	4,200	500	1,700	
	4/15/94	18.10	12.41	23,000	2,500	4,200	470	1,800	
	12/29/94	17.40	13.11	-	-	-	-	-	
	7/19/96	16.72	13.79	90,000	7,300	14,000	1,600	7,300	odor
MW-3	8/13/93	17.05	12.72	<50	<0.50	<0.50	<0.50	<1.5	
(29.77)	12/14/93	17.70	12.07	<50	<0.50	<0.50	<0.50	<1.5	
	4/15/94	17.40	12.37	<50	<0.5	<0.5	<0.5	<0.5	
	12/29/94	16.80	12.97	-	-	-	-	-	
	7/19/96	16.28	13.49	<50	<0.5	<0.5	<0.5	<0.5	
MW-4	12/16/94	18.10	13.08	2,500	32	6.5	4.5	17	
(31.18)	12.29/94	17.95	13.23	-	-	-	-	-	
	7/19/96	17.38	13.80	3,300	520	39	67	60	
MW-5	12/16/94	16.07	11.97	<50	1.1	<0.5	<0.5	2.4	
(28.04)	12/29/94	16.10	11.94	-	-	-	-	-	
	7/19/96	15.49	12.55	<50	<0.5	<0.5	<0.5	<0.5	

Table continued on next page

Table 1. Ground Water Analytic Data - Former Arco Station - 706 Harrison Street Oakland, California

Well ID (TOC)	Date Sampled	Depth to Water (ft)	Ground Water Elevation (ft)	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	Notes
				Concentrations in parts per billion					
MW-6	12/16/94	17.74	11.36	<50	<0.5	<0.5	<0.5	<0.5	
(29.10)	12/29/94	17.40	11.70	-	-	-	-	-	
	7/19/96	16.60	12.50	<50	<0.5	<0.5	<0.5	<0.5	
MW-7	12/16/94	17.07	12.60	<50	<0.5	<0.5	<0.5	<0.5	
(29.67)	12/29/94	17.65	12.02	-	-	-	-	-	
	7/19/96	16.44	13.23	<50	<0.5	<0.5	<0.5	<0.5	

Abbreviations

TPHg = Total petroleum hydrocarbons as gasoline
parts per billion which is equivalent to ug/l in water
TOC = Top of casing elevation with respect to mean sea level

Notes

TPHg analyzed by modified EPA Method 8015.
Benzene, ethylbenzene, toluene and xylenes analyzed by EPA Method 8020.
Data prior to 12/16/94 provided by previous consultant.

APPENDIX B

SUBSURFACE INVESTIGATION, SOIL SAMPLING, AND MONITORING WELL INSTALLATION PROTOCOL

Drilling

The subsurface investigation was performed on July 3, 1997 using a truck-mounted drill rig equipped with an 8-inch O.D. hollow-stem auger. One soil borings was drilled to a depth of approximately 25 feet. The standard penetration resistance blow counts were obtained by dropping a 140-pound hammer through a 30-inch free fall. The blows per foot recorded on the boring logs represent the accumulated number of blows required to drive the sampler the last 12 inches of the interval indicated. Soil samples were collected at approximately 5-foot depth intervals using a 2.5-inch diameter modified California split-spoon sampler.

Soil encountered in the boring was logged using the Unified Soil Classification System (ASTM D-2487). The log of the boring, as well as a key to the classification of soil (Figure A-1), are included as part of this appendix. The permit obtained for the well is also included.

Sampling Protocol

Soil samples for laboratory analysis were collected in brass liners, the ends covered in aluminum foil, taped, then labeled with a unique identification number, placed in an ice-chilled cooler, and transported to a state-certified analytical laboratory with chain of custody documentation. Soil vapors from each sample were also monitored with an OVM by first placing the soil in a Ziplock™ bag for several minutes. The OVM probe was then used to pierce the bag and record the organic vapor levels present.

Monitoring Well Installation

The exploratory boring was converted into a "permanent" ground water monitoring wells with the installation of 2-inch I.D. flush-threaded, Schedule 40 PVC casing. The casing in the lower portion of the well had 0.02-inch factory machined slots. After the casing was installed, a filter pack composed of Number 3 sand was placed in the 3- to 4-inch annular space to approximately 1 to 2 feet above the slotted casing. The remaining annual seal consisted of an approximately 1-foot thick seal of bentonite pellets or chips, followed by a 11-sack Portland cement and sand slurry to the surface. The well was completed with a flush-mounted wellhead box. In addition, the PVC well casing was fitted with a watertight, locking well cap at the surface. Well construction details are shown on the boring logs.

Equipment Decontamination

All drilling and sampling equipment was cleaned in a solution of laboratory grade detergent and distilled water or steam cleaned before use at each sampling point.

ZONE 7 WATER AGENCY

5997 PARKSIDE DRIVE PLEASANTON, CALIFORNIA 94588 VOICE (510) 484-2600
FAX (510) 462-3914

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT
726 Harrison Street
Oakland, CA

CLIENT
Name Mr. Kin Chan
Address 726 Harrison St. Voice 510-444-6583
City Oakland CA Zip 94607

APPLICANT
Name Peter Longtry
Lowney Associate Fax 510-267-1972
Address 129 Filbert St. Voice 510-267-1970
City Oakland CA Zip 94607

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection		General	
Water Supply		Contamination	
Monitoring	X	Well Destruction	

PROPOSED WATER SUPPLY WELL USE
Domestic ___ Industrial ___ Other ___
Municipal ___ Irrigation ___

DRILLING METHOD:
Mud Rotary ___ Air Rotary ___ Auger X
Cable ___ Other ___

DRILLER'S LICENSE NO. C57 484288

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum
Casing Diameter 2 in. Depth 30 ft.
Surface Seal Depth 15 ft. Number 1

GEOTECHNICAL PROJECTS
Number of Borings ___ Maximum
Hole Diameter ___ in. Depth ___ ft.

ESTIMATED STARTING DATE 7-3-97
ESTIMATED COMPLETION DATE 7-3-97

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE [signature] Date 6-23-97

FOR OFFICE USE

PERMIT NUMBER 97401
LOCATION NUMBER

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well Projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

(B.) WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

C. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

E. WELL DESTRUCTION. See attached.

Approved Wyman Hong Date 26 Jun 97
Wyman Hong

91992

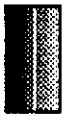
PRIMARY DIVISIONS			SOIL TYPE	LEGEND	SECONDARY DIVISIONS
COARSE GRAINED SOILS (MORE THAN HALF OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE)	GRAVELS (MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE)	CLEAN GRAVELS (LESS THAN 5% FINES)	GW		Well graded gravels, gravel-sand mixtures, little or no fines.
			GP		Poorly graded gravels or gravel-sand mixtures, little or no fines.
		GRAVEL WITH FINES	GM		Silty gravels, gravel-sand-silt mixtures, non-plastic fines.
			GC		Clayey gravels, gravel-sand-clay mixtures, plastic fines.
	SANDS (MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE)	CLEAN SANDS (LESS THAN 5% FINES)	SW		Well graded sands, gravelly sands, little or no fines.
			SP		Poorly graded sands or gravelly sands, little or no fines.
		SANDS WITH FINES	SM		Silty sands, sand-silt mixtures, non-plastic fines.
			SC		Clayey sands, sand-clay mixtures, plastic fines.
FINE GRAINED SOILS (MORE THAN HALF OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE)	SILTS AND CLAYS (LIQUID LIMIT IS LESS THAN 50%)		ML		Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.
			CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
			OL		Organic silts and organic silty clays of low plasticity.
	SILTS AND CLAYS (LIQUID LIMIT IS GREATER THAN 50%)		MH		Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
			CH		Inorganic clays of high plasticity, fat clays.
			OH		Organic clays of medium to high plasticity, organic silts.
HIGHLY ORGANIC SOILS			Pt		Peat and other highly organic soils.

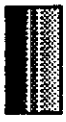
DEFINITION OF TERMS

U.S. STANDARD SERIES SIEVE				CLEAR SQUARE SIEVE OPENINGS				
200	40	10	4	3/4"	3"	12"		
SILTS AND CLAY	SAND			GRAVEL		COBBLES	BOULDERS	
	FINE	MEDIUM	COARSE	FINE	COARSE			

GRAIN SIZES


TERZAGHI
SPLIT SPOON
STANDARD PENETRATION


MODIFIED CALIFORNIA


SHELBY TUBE
PITCHER TUBE

SAMPLERS

SAND AND GRAVEL	BLOWS/FOOT*
VERY LOOSE	0 - 4
LOOSE	4 - 10
MEDIUM DENSE	10 - 30
DENSE	30 - 50
VERY DENSE	OVER 50

RELATIVE DENSITY

SILTS AND CLAYS	STRENGTH ‡	BLOWS/FOOT*
VERY SOFT	0 - 1/4	0 - 2
SOFT	1/4 - 1/2	2 - 4
MEDIUM STIFF	1/2 - 1	4 - 8
STIFF	1 - 2	8 - 16
VERY STIFF	2 - 4	16 - 32
HARD	OVER 4	OVER 32

CONSISTENCY

* Number of blows of 140 pound hammer falling 30 inches to drive a 2 inch O.D. (1-3/8 inch I.D.) split spoon (ASTM D-1586).

‡ Unconfined compressive strength in tons/sq. ft. as determined by laboratory testing or approximated by the standard penetration test (ASTM D-1586), pocket penetrometer, torvane, or visual observation.

KEY TO EXPLORATORY BORING LOGS
Unified Soil Classification System (ASTM D - 2487)

LOVNEY ASSOCIATES
Environmental/Geotechnical/Engineering Services

FIGURE A - 1

DRILL RIG:

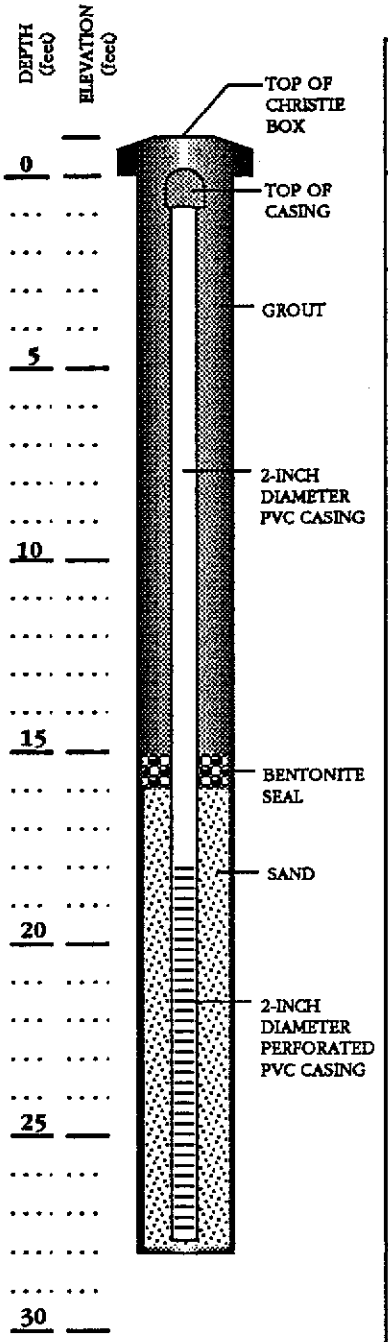
SURFACE ELEVATION: –

LOGGED BY: BAF

DEPTH TO GROUND WATER: 20 ft.
(From Surface Elevation)

BORING DIAMETER: 8 inches

DATE DRILLED: 7/3/97



DESCRIPTION	SYMBOL	CONSISTENCY	SOIL TYPE	LEGEND	DEPTH (feet)	SAMPLER	WATER CONTENT (%)	PENETRATION RESISTANCE (BLOWS/FT.)	ORGANIC VAPORS (ppm)
Asphalt/Baserock	Af								
SAND, Brown, moist, fine to medium grained	A	Loose	SP		5			7	
Brown and gray mottled, trace silt, moderate petroleum odor		Dense			10			54	
Trace silt and clay, strong petroleum odor		Medium dense			15			21	
Gray, wet, no silt and clay, very strong petroleum odor		Very dense			20		▼	60	
Saturated, petroleum odor		Medium dense			25			37	
Brown, saturated, no odor		Dense						44	
Bottom of Well = 28.0 feet NOTE: The stratification lines represent the approximate boundary between the soil types. The transition may be gradual.					30				

812-3, 11/15 TJR*EB

MONITORING WELL LOG - MW-1

726 HARRISON STREET
Oakland, California

LOVNEY ASSOCIATES
Environmental/Geotechnical/Engineering Services

MW-1
1260-1

LOWNEYASSOCIATES
Environmental/Geotechnical/Engineering Services

Mountain View
Oakland
Pleasanton

July 31, 1997
1260-1

Mr. Kin Chan
726 Harrison Street
Oakland, California 94607

RE: SOIL AND GROUND WATER QUALITY EVALUATION FORMER SHELL STATION 726 HARRISON STREET OAKLAND, CALIFORNIA

Dear Mr. Chan:

The attached report summarizes the results of our soil and ground water quality evaluation performed at 726 Harrison Street in Oakland, California. This work was performed per our agreement with you dated May 22, 1997.

We refer you to the text of the report for details regarding our findings. If you have any questions, please call and we shall be glad to discuss them with you.

Very truly yours,

LOWNEY ASSOCIATES

Jerri Cochran for

Brock A. Foster
Environmental Engineer

for

Peter M. Langtry, R.G., C.HG.
Associate
Environmental Geologist

RLH:PML:BAF:tjc

Copies: Addressee (2)
Alameda County Environmental Health Services (1)
Attn: Mr. Kevin Tinsley

CERTIFIED HYDROGEOLOGIST
PETER M. LANGTRY
NO. HG230
Exp. 1-31-98
STATE OF CALIFORNIA

405 Clyde Avenue Mountain View, CA 94043-2209 Tel: 650.967.2365 Fax: 650.967.2785
P.O. Box 1388 Mountain View, CA 94042-1388 E-mail: lowney@ix.netcom.com

APPENDIX C

MONITORING WELL SURVEYING,

DEVELOPMENT, AND GROUND WATER SAMPLING

Development

Approximately 72 hours after well installation, the static water level was measured to the nearest 0.01 foot using an electronic depth sounder. The well was then developed by purging several well volumes of water to remove fine-grained material from the well and surrounding soil disturbed during well installation and improve the yield of the well.

Ground Water Sampling

Approximately 72 hours after development, ground water from the monitoring well was sampled. A Teflon bailer or submersible pump was used to purge a minimum of four well casing volumes of water from the well. After purging each well volume, pH, temperature, and conductivity measurements were recorded. In general, these measurements stabilize (consecutive readings within 10 percent) after three to four well volumes. If, after the third well volume the pH and conductivity did not stabilize, additional well volumes were removed until these measurements did stabilize. If the yield was low and the well was pumped dry, the well was allowed to recharge to the 80 percent level before sampling. Samples were collected in appropriate sample bottles, labeled, and immediately placed into an ice-chilled chest for delivery to a state-certified analytical laboratory for analysis.

Equipment Decontamination

All well development and sampling equipment was cleaned in a solution of laboratory grade detergent and distilled water or steam cleaned before use at each sampling point.

Well development and sampling records are attached as part of this appendix.

LOWNEY ASSOCIATES Environmental / Geotechnical / Engineering Services

RECORD OF WELL DEVELOPMENT/SAMPLING

Project Number 1260-1

Project Name 8TH / HARRISON

Field Geologist/Engineer BAF

Well Number MW-1 **Total Well Depth** (completed) 27.17 (Feet)

Casing Diameter 2 (Inches) **Development Date** 7/7/97

Volume Produced 10 (liter/gal) **Development Method** PUMP

WELL VOLUME CONVERSION FACTORS

2-INCH CASING DIAMETER;
VOL (GALLONS) = FEET OF WATER X 0.17
VOL (LITERS) = FEET OF WATER X 0.62

4-INCH CASING DIAMETER;
VOL (GALLONS) = FEET OF WATER X 0.66
VOL (LITERS) = FEET OF WATER X 2.5

Sampling Date 7/10/97 **Time** 12:00 **Method** Disp. Bailer

Static Water Level Prior to Purging 18.13 (ft)
(Measured from top of casing)
Feet of Water 9.04 (ft)

Well Volume 5.6 (liter/gal)

Three Well Volumes 16.8 (liter/gal)

Total Produced 18 (liter/gal)

Number of Well Volumes 3+

Production Time — (min)

Production Rate — (/min)

Well Volumes	pH	Cond µsx1000	Temp °F
1	8.1	1.5	69
2	7.5	.7	69
3	7.5	.6	69
4			
5			
6			
7			
8			
9			
10			

Water Characteristics: While purging

Color; Brown — **Clear** ☐ **Cloudy** ☑ **Very Silty** ☐

Odor; **None** ☐ **Slight** ☐ **Moderate** ☑ **Strong** ☐

Sheen; **Yes** ☐ **No** ☑ **Other** _____

Water Level After Recovery 19.5 (ft) **80% Recharged** **Yes** ☑ **No** ☐

Sample I.D. MW-1 **Laboratory** ENTECH

Comments: No floating product, Laboratory sample clear.

Entech Analytical Labs, Inc.

CA ELAP# 2224

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

Attn: Peter Langtry
Lowney Associates
129 Filbert Street
Oakland, CA 94607

RECEIVED
JUL 16 1997
LOWNEY OK

Date:	7/11/97
Date Received:	7/3/97
Date Analyzed:	7/7/97
Project Name:	Harrison
Job No.:	1260-1
Sampled By:	Client

Certified Analytical Report

Soil Sample Analysis:

Test	*MW-1 14-14½*	*MW-1 19-19½*	*Units*	*PQL*	*EPA Method #*
Sample Matrix	Soil	Soil			
Sample Date	7/3/97	7/3/97			
Sample Time	8:00	8:00			
Lab #	D10820	D10821			
DF-Gas/BTEX	1	125			
TPH-Gas	**ND**	**650**	mg/kg	1.0 mg/kg	8015M
MTBE	**ND**	**ND**	mg/kg	0.05 mg/kg	8020
Benzene	**0.011**	**1.2**	mg/kg	0.005 mg/kg	8020
Toluene	**ND**	**ND**	mg/kg	0.005 mg/kg	8020
Ethyl Benzene	**ND**	**2.2**	mg/kg	0.005 mg/kg	8020
Xylenes	**ND**	**2.8**	mg/kg	0.005 mg/kg	8020

1. DLR=DF x PQL
2. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #2224)

Michael N. Golden, Lab Director

DF=Dilution Factor
DLR=Detection Reporting Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above DLR

Environmental Analysis Since 1983

Entech Analytical Labs, Inc.

525 Del Rey Avenue, Suite E
Sunnyvale, CA 94086

QUALITY CONTROL RESULTS SUMMARY

METHOD: Gas Chromatography

QC Batch #: GBG4970707
Matrix: Soil
Units: ug/kg

Date Analyzed: 07/07/97
Quality Control Sample: D10839

PARAMETER	Method #	MB ug/kg	SA ug/kg	SR ug/kg	SP ug/kg	**SP % R**	SPD ug/kg	**SPD %R**	RPD	QC LIMITS (ADVISORY) RPD	QC LIMITS (ADVISORY) %R
Benzene	8020	<5.0	80	ND	106	**132**	103	**129**	2.1	25	50-150
Toluene	8020	<5.0	80	ND	105	**132**	104	**130**	1.5	25	50-150
Ethyl Benzene	8020	<5.0	80	ND	104	**131**	103	**129**	1.6	25	50-150
Xylenes	8020	<5.0	240	ND	318	**133**	315	**131**	1.1	25	50-150
Gasoline	8015	<1000.00	1000	ND	920	**92**	910	**91**	1.1	25	50-150

Note: LCS and LCSD results reported for the following Parameters:
None

Acceptable LCS and LCSD results are reported when matrix interferences cause MS and MSD results to fall outside established QC limits.

Definition of Terms:

na: Not Analyzed in QC batch
MB: Method Blank
SA: Spike Added
SR: Sample Result
RPD(%): Duplicate Analysis - Relative Percent Difference
SP: Spike Result
SP (%R): Spike % Recovery
SPD: Spike Duplicate Result
SPD (%R): Spike % Recovery
NC: Not Calculated

LOWNEYASSOCIATES
CHAIN OF CUSTODY RECORD

Send Results To: ☐ Mountain View Office, 405 Clyde Avenue, Mountain View, CA 94043, 415-967-2365 ■ Oakland Office, 129 Filbert Street, Oakland, CA 94607, 510-267-1970

Fax Copy To: ☐ 415-967-2785 (fax) ■ 510-267-1972 (fax)

Project Name: I-Harrison

Job Number: 1260-1

Report To: Peter Langtry

Sampler (print): Brock Foster

Sampler (signature): [signature]

QC Requirements: ■ Level A (standard) ☐ Level B ☐ Level C ☐ Level D

Turnaround Requirements
☐ 10 working days
■ 5 working days
☐ 3 working days
☐ 48 hours
☐ 24 hours
☐ 2-3 hours (RUSH)

ANALYSES REQUESTED

Sample I.D.	Date	Time	Sample Matrix	# of Cont.	Laboratory I.D.	TPH gas / BTEX / MTBE												Remarks
MW-1 14-14½	7/3/97	8:00	Soil	1	D10820	✓												
MW-1 19-19½	7/3/97	8:00	Soil	1	D10821	✓												

Relinquished By: [signature]	Date: 7/3/97	Time: 125 R.	Received By: Kelly Hekser World Courier #905	Date: 7/3/97	Time: 127	PM initials
Relinquished By: Kelly Hekser World Courier	Date: 7/3/97	Time: 218pm	Received By: [signature]	Date: 7/3/97	Time: 2:18p	
Relinquished By:	Date:	Time:	Lab of Record:			Temperature
			Received by Lab: Entech	Date: ↓	Time: ↓	

Entech Analytical Labs, Inc.

CA ELAP# 2224

525 Del Rey Avenue, Suite E • Sunnyvale, CA 94086 • (408) 735-1550 • Fax (408) 735-1554

RECEIVED

JUL 23 1997

LOWNEY OK

Attn: Peter Langtry
Lowney Associates
129 Filbert Street
Oakland, CA 94607

Date:	7/17/97
Date Received:	7/10/97
Date Analyzed:	7/15/97
Project Name:	8th/Harrison St.
Job No.:	1260-1
Sampled By:	Client

Certified Analytical Report

Water Sample Analysis:

Test	*MW-1*	*Units*	*PQL*	*EPA Method #*
Sample Matrix	Water			
Sample Date	7/10/97			
Sample Time	12:00			
Lab #	D11116			
DF-Gas/BTEX	100			
TPH-Gas	**18,000**	µg/liter	50.0 µg/l	8015M
MTBE	**7,400**	µg/liter	5.0 µg/l	8020
Benzene	**2,700**	µg/liter	0.5 µg/l	8020
Toluene	**350**	µg/liter	0.5 µg/l	8020
Ethyl Benzene	**450**	µg/liter	0.5 µg/l	8020
Xylenes	**900**	µg/liter	0.5 µg/l	8020

1. DLR=DF x PQL
2. Analysis performed by Entech Analytical Labs, Inc. (CAELAP #2224)

Michael N. Golden, Lab Director

DF=Dilution Factor
DLR=Detection Reporting Limit

PQL=Practical Quantitation Limit
ND=None Detected at or above DLR

Environmental Analysis Since 1983

Entech Analytical Labs, Inc.

525 Del Rey Avenue, Suite E
Sunnyvale, CA 94086

QUALITY CONTROL RESULTS SUMMARY

METHOD: Gas Chromatography

QC Batch #: GBG5970714
Matrix: Water
Units: µg/L

Date Analyzed: 07/15/97
Quality Control Sample: Blank Spike

PARAMETER	Method #	MB µg/L	SA µg/L	SR µg/L	SP µg/L	**SP % R**	SPD µg/L	**SPD %R**	RPD	QC LIMITS (ADVISORY) RPD	QC LIMITS (ADVISORY) %R
Benzene	8020	<0.5	10	ND	14.2	**142**	13.0	**130**	9.0	25	50-150
Toluene	8020	<0.5	10	ND	9.6	**96**	10.4	**104**	8.2	25	50-150
Ethyl Benzene	8020	<0.5	10	ND	9.2	**92**	10.7	**107**	15.0	25	50-150
Xylenes	8020	<0.5	30	ND	29	**97**	32	**107**	9.8	25	50-150
Gasoline	8015	<50.0	625	ND	532	**85**	514	**82**	3.4	25	50-150

Definition of Terms:

- na: Not Analyzed in QC batch
- MB: Method Blank
- SA: Spike Added
- SR: Sample Result
- RPD(%): Duplicate Analysis - Relative Percent Difference
- SP: Spike Result
- SP (%R): Spike % Recovery
- SPD: Spike Duplicate Result
- SPD (%R): Spike % Recovery
- NC: Not Calculated

LOWNEY ASSOCIATES

CHAIN OF CUSTODY RECORD

Send Results To:
- ☐ **Mountain View Office**
  405 Clyde Avenue
  Mountain View, CA 94043
  415-967-2365
- ■ **Oakland Office**
  129 Filbert Street
  Oakland, CA 94607
  510-267-1970

Fax Copy To:
- ☐ 415-967-2785 (fax)
- ■ 510-267-1972 (fax)

Project Name: 8TH / HARRISON ST.

Job Number: 260-1

Report To: PETER LANGTRY

Sampler (print): BROCK FOSTER

Sampler (signature): [signature]

QC Requirements:

■ Level A (standard) ☐ Level B ☐ Level C ☐ Level D

Turnaround Requirements

- ☐ 10 working days
- ■ 5 working days
- ☐ 3 working days
- ☐ 48 hours
- ☐ 24 hours
- ☐ 2-3 hours (RUSH)

ANALYSES REQUESTED

Sample I.D.	Date	Time	Sample Matrix	# of Cont.	Laboratory I.D.	TPH gas / BTEX / MTBE	Remarks
MW-1	7/10/97	12:00	H_2O	3	011116	✓	

Relinquished By: [signature]	Date: 7/10/97	Time: 12:40	Received By: Robert Pamela	Date: 7/10/97	Time: 1 00	PM initials
Relinquished By: Robert Pamela	Date: 7/11/97	Time: 1 40	Received By: [signature]	Date: 7/10/97	Time: 13:40	
Relinquished By:	Date:	Time:	Lab of Record:			Temperature
			Received by Lab:	Date:	Time:	