

20 251
HWAUG

Alameda County

NOV 05 2002

GETTLER-RYAN INC.

Environmental Health
Phone (707) 789-3255, Fax (707) 789-3218
1364 North McDowell Blvd. Suite B2
Petaluma, CA 94954

TRANSMITTAL

TO: Susan Hugo
Alameda County Health Care
1131 Harbor Bay Parkway
Alameda, CA 94502

DATE: 11/1/02
PROJECT NO. 140166.04
SUBJECT: Tosco Station No. 3538,
Oakland, California

FROM: Jed Douglas

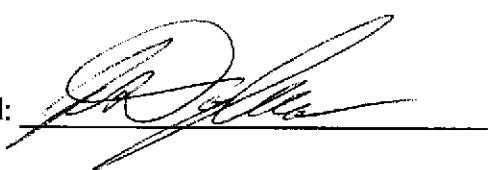
WE ARE SENDING YOU:

COPIES	DATED	DESCRIPTION
1	10/30/02	Request for Closure

THESE ARE TRANSMITTED as checked below:

- For review and comment
- As Requested
- For Approval
- Approved as submitted
- Approved as noted
- Returned for corrections
- For your files
- For your use
- As noted below

COMMENTS:

Signed: 

COPIES TO: David De Witt - Tosco Corporation, San Ramon, California



GETTLER-RYAN INC.

REQUEST FOR CLOSURE

at

Former Tosco (76) Service Station No. 3538
411 West MacArthur Blvd.
Oakland, California

Report No. 140166.04

Alameda County
NOV 05 2002
Environmental Health

Prepared for:

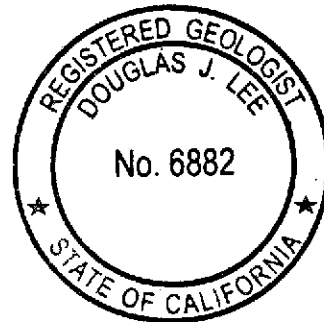
Mr. David B. De Witt
ConocoPhillips
2000 Crow Canyon Place, Suite 400
San Ramon, California 94583

Prepared by:

Gettler-Ryan Inc.
1364 N. McDowell Blvd., Suite B2
Petaluma, California 94954

Jed A. Douglas
Senior Geologist

FOR David W. Herzog
Senior Geologist
R.G. 7211



October 30, 2002

TABLE OF CONTENTS

INTRODUCTION.....	1
SITE DESCRIPTION.....	1
PREVIOUS ENVIRONMENTAL WORK	1
GEOLOGY AND HYDROLOGY	2
SENSITIVE RECEPTOR SURVEY.....	3
SITE INFORMATION SUMMARY	3
RATIONALE FOR NO FURTHER ACTION	3

FIGURES

- Figure 1. Vicinity Map
- Figure 2. Site Plan
- Figure 3. Groundwater Concentrations versus Time (MW-2)
- Figure 4. Groundwater Concentrations versus Time (MW-3)

APPENDICES

- Appendix A. Site Information Summary

REQUEST FOR CLOSURE

at

Former Tosco (76) Service Station No. 3538
411 West MacArthur Blvd.
Oakland, California

Report No. 140166.04

INTRODUCTION

At the request of Tosco Corporation (Tosco), a subsidiary of ConocoPhillips, Gettler-Ryan Inc. (GR) has prepared this report requesting regulatory closure for Former Tosco (76) service station No. 3538, located at 411 West MacArthur Boulevard in Oakland, California. This closure report presents a chronology of the investigations performed at the site to date, including a completed Site Information Summary (SIS), followed by a rationale for why closure should be granted.

SITE DESCRIPTION

The subject site was a former Tosco (76) service station, and is located on the southwest corner of MacArthur Boulevard and Webster Street in Oakland, California (Figure 1). The site is currently a used car sales lot and is entirely fenced. All petroleum storage and dispensing equipment were removed in September of 1998 during station demolition activities. Six groundwater monitoring wells are present at and in the site vicinity. Locations of the former pertinent site features are shown on Figure 2.

PREVIOUS ENVIRONMENTAL WORK

In July of 1989, Kaprealian Engineering Inc. (KEI) removed one 10,000-gallon and one 12,000-gallon gasoline underground storage tanks (USTs). At the same time, KEI also removed one 550-gallon waste oil UST and associated piping for all three tanks. No holes or cracks were observed in the gasoline USTs, however, four small holes were observed in the waste oil UST. Groundwater was encountered in the former UST pit at a depth of approximately 10.5 feet below ground surface (bgs), which prohibited the collection of soil samples below the former gasoline tanks. Confirmation soil samples from the sidewalls of the gasoline UST pit were reported to contain concentrations of Total Petroleum Hydrocarbons as gasoline (TPHg) up to 3,100 parts per million (ppm) and benzene up to 12 ppm. These sample areas were subsequently removed during

overexcavation. Soil samples from the base of the waste oil UST pit were non-detect for TPHg and BTEX. Two new 12,000-gallon USTs were installed to replace the ones removed.

In September of 1989, KEI installed four 2-inch diameter groundwater monitoring wells (MW-1 through MW-4) at the site. The four wells were installed to approximately 30 feet bgs. The wells were initially sampled on September 15, 1989, and quarterly monitoring and sampling commenced at that time.

In November of 1992, two additional 2-inch diameter groundwater monitoring wells (MW-5 and MW-6) were installed offsite. The two new wells were installed to a depth of 30 feet bgs. The two new wells were added to the quarterly monitoring and sampling program.

In September of 1998, GR removed two 12,000-gallon gasoline USTs and associated product piping and dispensers from the site. No holes or cracks were observed in the tanks. Confirmation soil samples were reported to contain concentrations of TPHg up to 360 ppm and benzene up to 1.5 ppm. Methyl tertiary butyl ether (MtBE) was not detected in the soil samples. A total of 516.44 tons (approximately 380 cubic yards) of soil was transported from the site to Forward Landfill in Manteca, California, in October of 1998 for disposal.

GEOLOGY AND HYDROLOGY

Based on review of regional geologic maps (U. S. Geological Survey Professional Paper 943 "Flatland Deposits of the San Francisco Bay Region, California – Their Geology and Engineering Properties, and Their Importance to Comprehensive Planning" by E. J. Helley and K. R. Lajoie, 1979), the site is underlain by Late Pleistocene Alluvium. This Alluvium is considered to be alluvial fan deposits, and is described as consisting of weakly consolidated, slightly weathered, irregularly interbedded clay, silt, sand and gravel. The maximum thickness of these deposits is unknown, but is considered to be at least 150 feet thick.

Based on subsurface investigations performed at the site, the first 1.5 feet of the subsurface is composed of artificial fill. The fill is underlain by an unsaturated zone consisting of clay with minor amounts of sand and gravel, to a depth of approximately 18 feet bgs. The saturated zone, extending from approximately 18 to 30 feet bgs (limit of exploration), is composed of gravel with silt and sand, interbedded with clayey sand and clayey silt.

Monitoring and sampling of the six wells was performed on a quarterly basis until July of 1998, when the schedule was changed to semi-annual sampling. From September 1989 through January 2002, depth to groundwater has varied from 11.30 to 18.67 feet below top of casing (toc). Groundwater flow direction has been consistently toward the south and southwest. On January 28, 2002, depth to groundwater ranged from 14.58 to 17.84 feet below toc, and was reported to flow toward the southwest at a calculated gradient of 0.03 ft/ft.

SENSITIVE RECEPTOR SURVEY

GR requested that the California Department of Water Resources (DWR) perform a record search of their files for the presence of water supply wells within a 2,000-foot radius of the site. The DWR file search revealed that there are no water supply wells located within 2,000 feet of the site. The nearest well identified is a private water well located approximately 2,500 feet east-southeast of the site, in the cross-gradient groundwater flow direction.

SITE INFORMATION SUMMARY

GR prepared a SIS for the site. The SIS contains current and historical information about the site. The SIS with its figures, tables and historical documentation is included in Appendix A.

RATIONALE FOR NO FURTHER ACTION

Residual soil impact by petroleum hydrocarbons detected in 1989 and 1998 has been delineated and is limited to the immediate vicinity of the former UST complex. Groundwater impacted by petroleum hydrocarbons is also delineated, and is confined to the area of MW-3, adjacent to the former dispenser islands along MacArthur Boulevard. No sensitive receptors have been identified within a 2,000-foot radius of the site. The City of Oakland receives its drinking water from outside sources, and does not utilize local groundwater for drinking water supply.

The recent monitoring and sampling data for the site indicate that dissolved concentrations of benzene have been below the California Regional Water Quality Control Board's Primary Maximum Contaminant Level (MCL) of 1.0 ppb for at least two years. Although concentrations of MtBE in the groundwater have been reported above the primary MCL (13 ppb), there are no drinking water wells located within 2,000 feet of the site. Additionally, GR compared the residual concentrations of hydrocarbons in groundwater to the Tier 1 Lookup Tables in the San Francisco Bay Regional Water Quality Control Board (RWQCB) *Application of Risk-Based Screening Levels and Decision Making to Sites with Impacted Soil and Groundwater* (Tables B and D, Interim

Final, December 2001). All concentrations of dissolved hydrocarbons at the site are below the listed Tier 1 RBSLs. Figures 3 and 4 present charts of recent trends in dissolved hydrocarbon concentrations in wells MW-2 and MW-3, respectively. Charts were not prepared for the other wells (MW-1 and MW-4 through MW-6) since dissolved hydrocarbons have not been detected in these wells since 1994.

All petroleum storage and dispensing equipment were removed from the site in 1998. It is expected that the low concentrations of MtBE detected in well MW-3 will continue to naturally degrade.

Based on the information and data presented in this report, additional investigation or remediation of soil and/or groundwater is not warranted. GR and Tosco are of the opinion that the site should be closed.



Source: Street Atlas USA, Delorme (1995).



Gettler - Ryan Inc.

6747 Sierra Ct., Suite J (925) 551-7555
 Dublin, CA 94568

VICINITY MAP

Former Tosco 76 Branded Facility No. 3538
 411 West Mac Arthur Boulevard
 Oakland, California

FIGURE

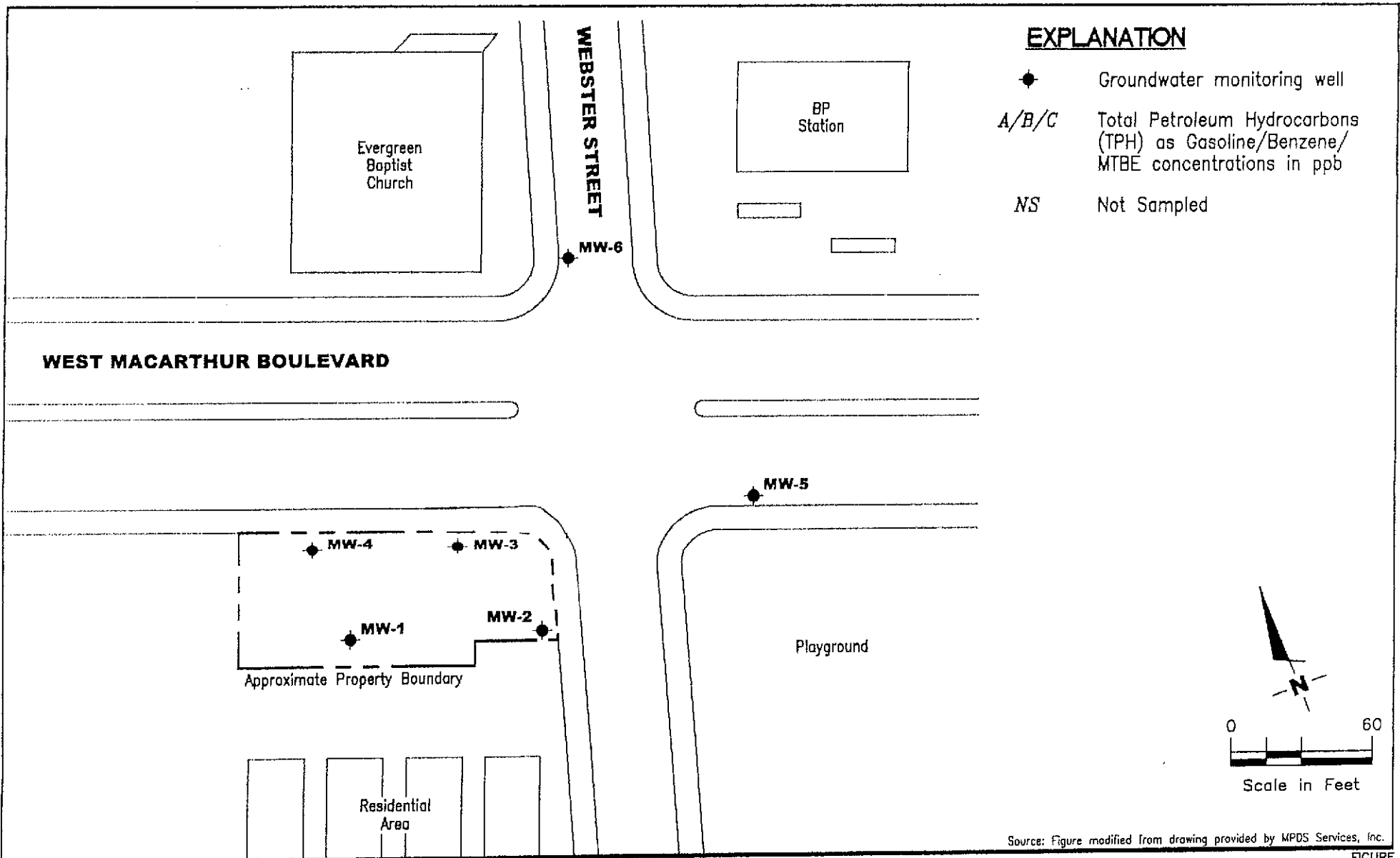
1

JOB NUMBER
 140166

REVIEWED BY

DATE
 10/98

REVISED DATE



GETTLER - RYAN INC.
 6747 Sierra Ct., Suite J
 Dublin, CA 94568 (925) 551-7555

SITE PLAN
 Tosco (Unocal) Service Station #3538
 411 West MacArthur Boulevard
 Oakland, California

FIGURE
2

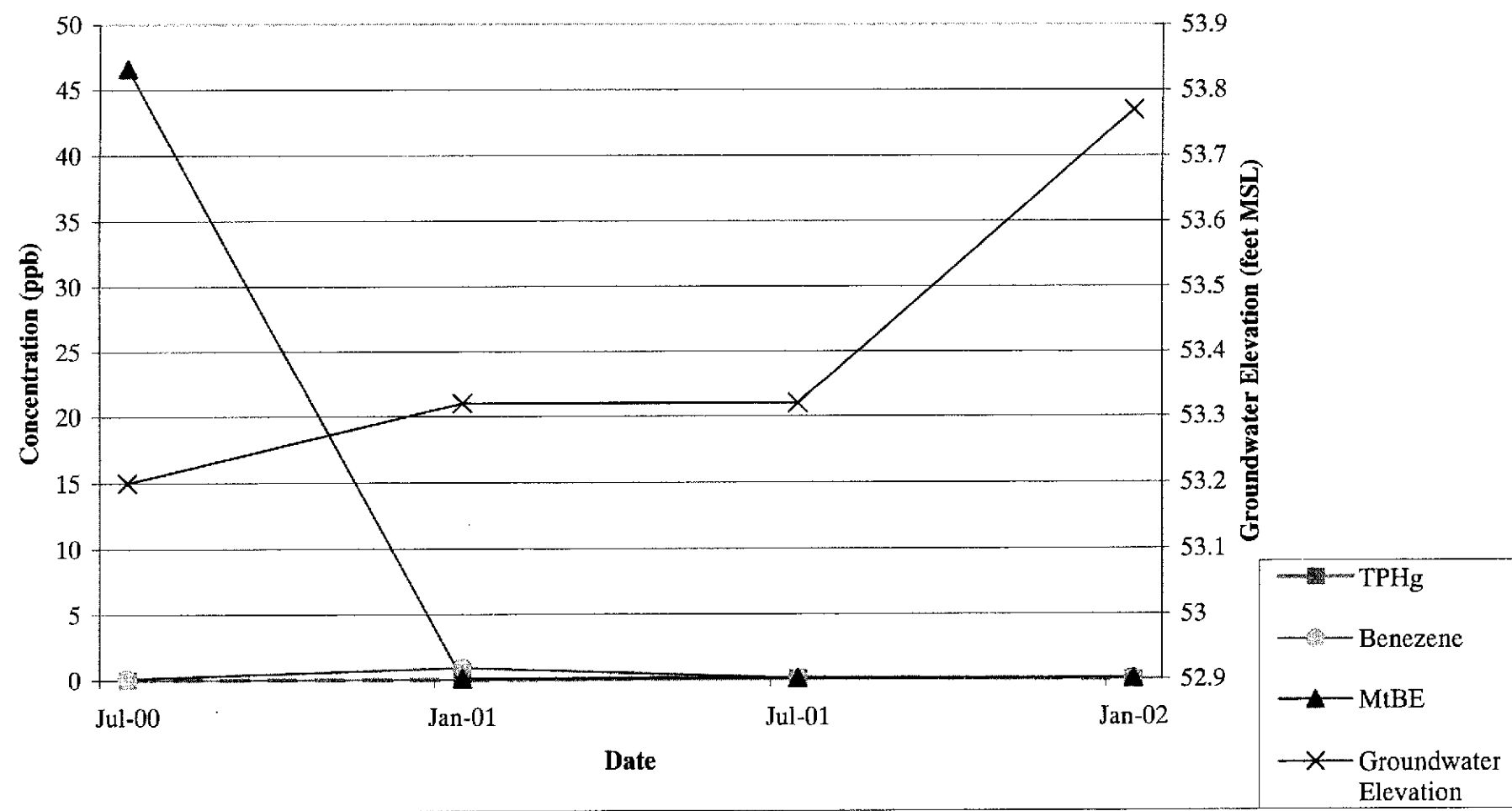
PROJECT NUMBER
 180064

REVIEWED BY

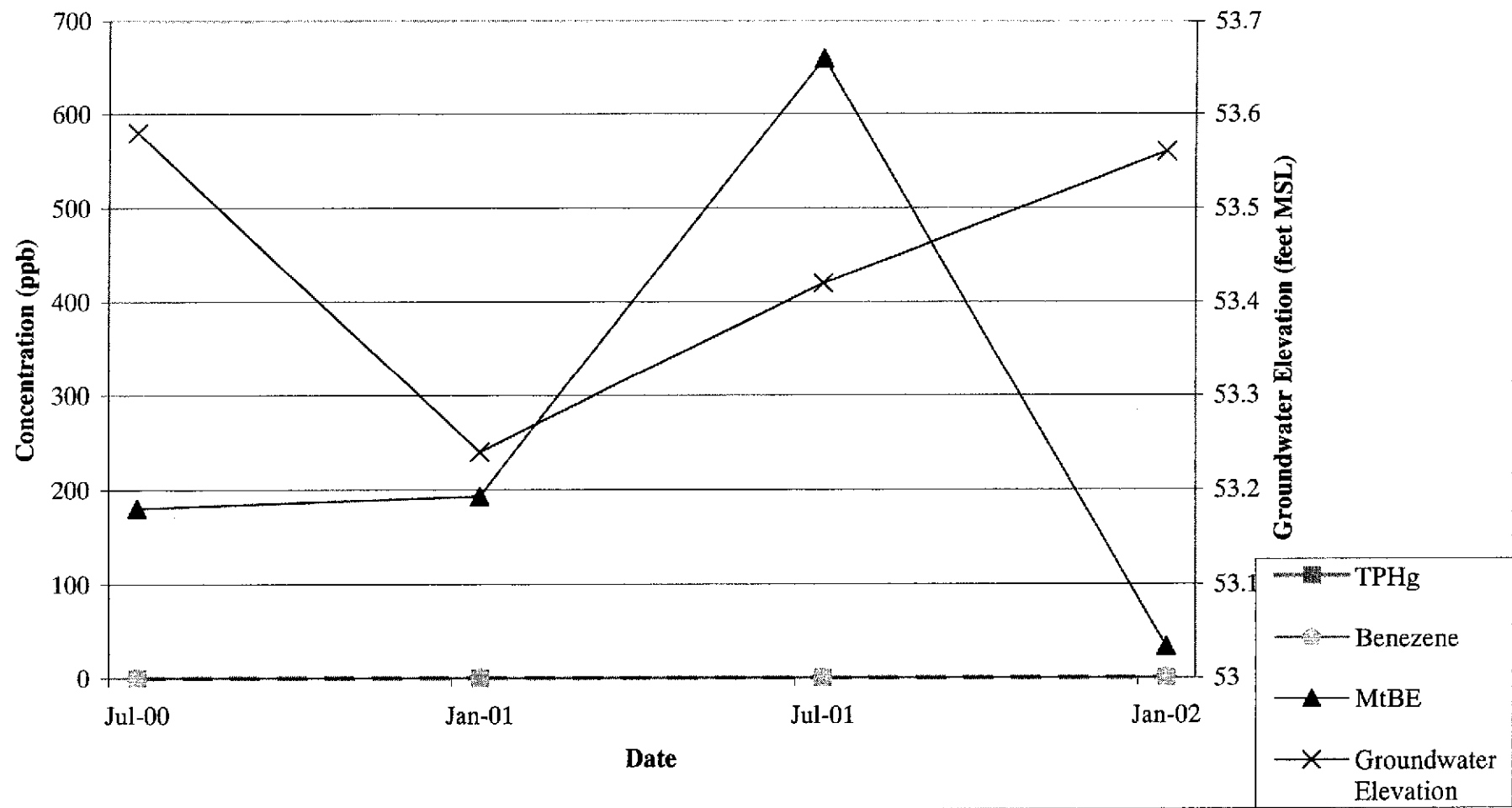
DATE
 January 28, 2002

REVISED DATE

**Figure 3 - Former Tosco (76) Service Station No. 3538
Groundwater Concentrations vs. Time
MW-2**



**Figure 4 - Former Tosco (76) Service Station No. 3538
Groundwater Concentrations vs. Time
MW-3**



APPENDIX A
SITE INFORMATION SUMMARY

SITE INFORMATION SUMMARY

I. SITE INFORMATION

Site Facility Name:		Former Tosco (76) Service Station No. 3538		
Site Facility Address:		411 West MacArthur Boulevard Oakland, California		
RWQCB LUST Case No.: NA		URF Filing Date: 1989		
Responsible Parties (include address and phone numbers)		David DeWitt 925-277-2384 Tosco Corporation 2000 Crow Canyon Place, Suite 400 San Ramon, CA 94583		
Tank No.	Size in Gallons	Contents	Closed In -- Place/Removed?	Date
1	10,000	gasoline	removed	Jul-89
2	12,000	gasoline	removed	Jul-89
3	550	waste oil	removed	Jul-89
4	12,000	gasoline	removed	9/14/98
5	12,000	gasoline	removed	9/14/98

II. INITIAL SITE ASSESSMENT (Information from previous investigations at nearby sites and other available sources may be used for applicable items if necessary)

Cause and Estimated Quantity of Release:		unknown	
Nearest Surface Water Bodies (including any unnamed creeks, tributaries, canals, etc.): Glen Echo Creek Lake Merritt		Their Geographical Distances From the Site: 1,800 feet southeast 5,300 feet south	
Nearest Domestic Water Wells (both public and private) within 2,000 feet: None		Their Geographical Distances From the Site: NA	
Minimum Groundwater Depth: 11.30 feet		Max. Depth: 18.67 feet	Flow Direction: S-SW
Site Ground Surface Elevation and Geology: The site is situated at an elevation of approximately 72 feet MSL. The site is underlain by approximately 1.5 feet of artificial fill. The fill is underlain by sandy clay, clayey sand, clayey silt, and gravel with sand and silt to the total explored depth of 30.5 feet. The unsaturated zone is primarily composed of clay to a depth of approximately 18 feet. The saturated zone is composed of gravel with silt and sand.			
Current Site and Surrounding land Use: The site is currently utilized as a used car sales storage lot, and is entirely fenced. The surrounding area is a mixture of retail/commercial and residential, with a park located across Webster Street from the site.			
Preferential Pathways Such as Subsurface Utilities? No If Yes, Describe Based on the average historical depth to water of approximately 16 to 18 feet, it is unlikely that subsurface utilities are acting as preferential pathways.			
Number of Soil Borings: 6		Number of Monitoring Wells: 6	

III. REMEDIATION

Material	Amount (Include Units)	Action (Treatment or Disposal w/Destination)	Date						
Free Product	NA								
Soil	380 cubic yards	disposal at Forward Landfill in Manteca, California	10/30/98						
Groundwater	NA								
Vapor	NA								
COMMENTS									
MAXIMUM DOCUMENTED SOIL POLLUTANT CONCENTRATIONS									
Pollutant	Location		Soil (ppm)		Pollutant	Location		Soil (ppm)	
	Date(s)		Initial	Residual		Date(s)		Initial	Residual
TPH (Gas)	Jul-89	Sep-98	3100	360	Xylene	Jul-89	Sep-98	730	44
TPH (Diesel)	Jul-89	NA	ND	NA	Ethylbenzene	Jul-89	Sep-98	110	7
Benzene	Jul-89	Sep-98	12	1.5	Oil & Grease	NA	NA	NA	NA
Toluene	Jul-89	Sep-98	300	15	Lead	NA	Sep-98	NA	26
MTBE	Jul-89	Sep-98	NA	ND	Motor Oil	NA	NA	NA	NA
Chlorinated Solvents					Other				

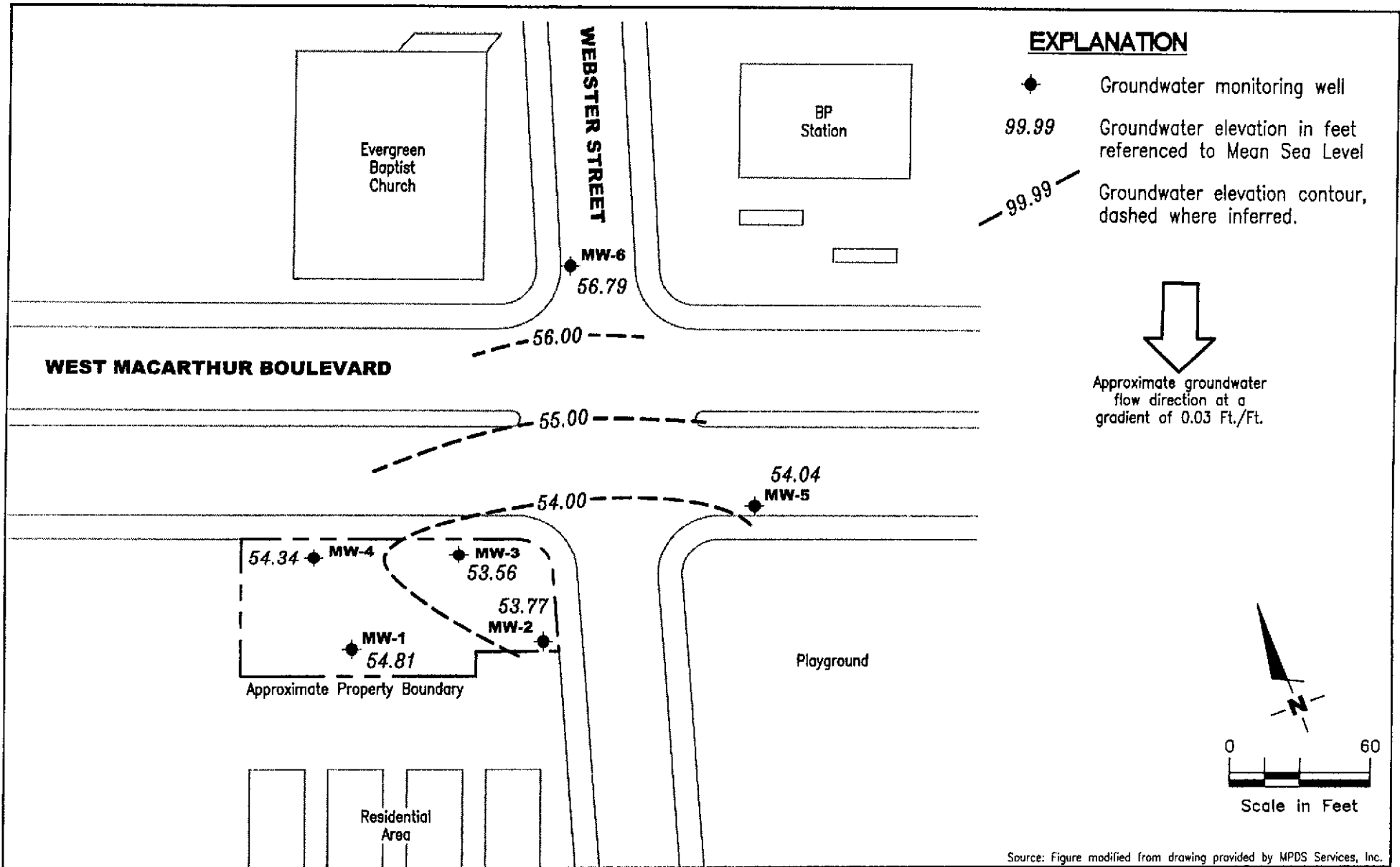
GROUNDWATER CONCENTRATIONS (ppb) TRENDS AT SOURCE AREAS & PLUME/SITE BOUNDARIES											
Date	Location	TPH-d	TPH-g	Benzene	Toluene	Ethylbenz	Xylene	MTBE	Chlor. vocs	Other	DTW
Jul-95	MW-1	NA	ND	ND	ND	ND	ND	NA	NA	NA	18.03
Jul-98	MW-1	NA	ND	ND	ND	ND	ND	NA	NA	NA	16.46
Jul-01	MW-1	NA	ND	ND	ND	ND	ND	ND	NA	NA	18.03
Oct-95	MW-2	NA	54	13	ND	ND	0.72	220	NA	NA	18.21
Jan-99	MW-2	NA	53	24	ND	0.52	0.98	120	NA	NA	17.88
Jan-02	MW-2	NA	<50	<0.50	<0.50	<0.50	<0.50	<2.5	NA	NA	17.57
Oct-95	MW-3	NA	14,000	420	180	750	1,600	4,800	NA	NA	18.32
Jan-99	MW-3	NA	1,800	9.4	ND	58	36	180	NA	NA	18.00
Jan-02	MW-3	NA	<50	<0.50	<0.50	<0.50	<0.50	34	NA	NA	17.84
Jul-95	MW-4	NA	ND	ND	ND	ND	ND	NA	NA	NA	17.82
Jul-98	MW-4	NA	ND	ND	ND	ND	ND	ND	NA	NA	16.49
Jul-01	MW-4	NA	ND	ND	ND	ND	ND	ND	NA	NA	17.76
Jul-95	MW-5	NA	ND	ND	ND	ND	ND	NA	NA	NA	17.59
Jul-98	MW-5	NA	ND	ND	ND	ND	ND	ND	NA	NA	16.52
Jul-01	MW-5	NA	ND	ND	ND	ND	ND	ND	NA	NA	17.32
Jul-95	MW-6	NA	ND	ND	ND	ND	ND	NA	NA	NA	12.32
Jul-98	MW-6	NA	ND	ND	ND	ND	ND	ND	NA	NA	13.90
Jul-01	MW-6	NA	ND	ND	ND	ND	ND	ND	NA	NA	16.83

IV. LIST TECHNICAL REPORTS, CORRESPONDENCE ETC. IN CHRONOLOGICAL ORDER

TITLE/SUBJECT	DATE
Groundwater Monitoring and Sampling Report, First Semi-Annual - Event of January 28, 2002 Gettler-Ryan Inc.	3/8/02
Underground Storage Tanks and Product Piping Removal Report Gettler-Ryan Inc.	1/11/99
Continuing Groundwater Investigation Kaprealian Engineering Inc.	1/18/93
U.S.G.S. Topographic Map, Oakland West Quadrangle, 1:24,002	1959, p.r. 1980

V. ENCLOSE FOLLOWING FIGURES AND TABLES

1. Site maps showing locations of existing buildings, former/current UST areas, subsurface utilities, and other pathways, groundwater flow direction, etc.
 2. Summary tables of all soil sampling results available, including any tank/excavation pit samples and confirmation samples, with sampling dates, location-identifications and depths (if applicable).
 3. Summary tables of all groundwater sampling results available, including depth to water/product measurements, with sampling dates and location-identifications.
 4. Figures showing all soil and groundwater sampling locations and monitoring well locations.
- Additional Comments:**



GETTLER - RYAN INC.
 6747 Sierra Ct., Suite J
 Dublin, CA 94568 (925) 551-7555

POTENTIOMETRIC MAP
 Tosco (Unocal) Service Station #3538
 411 West MacArthur Boulevard
 Oakland, California

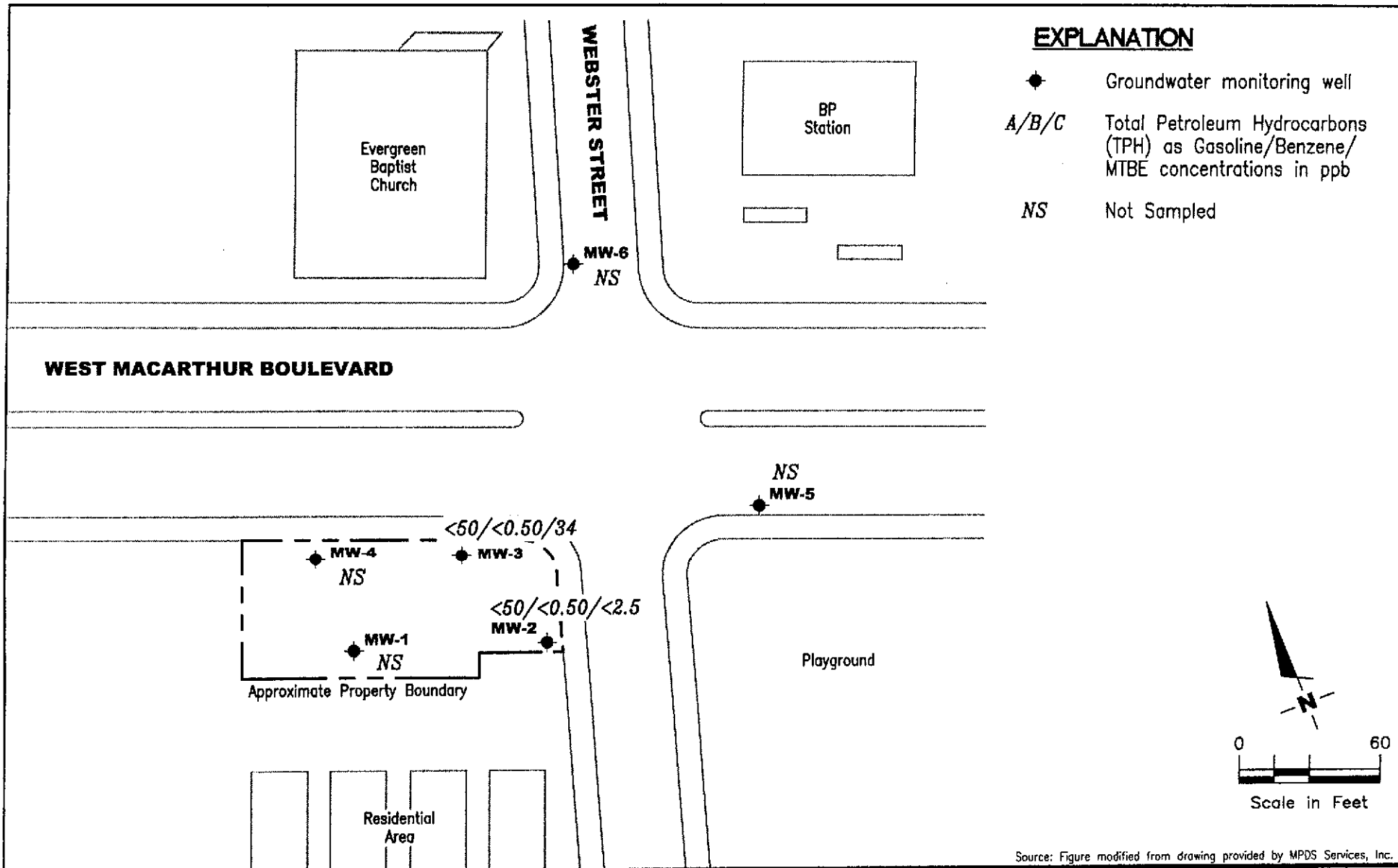
FIGURE
1

PROJECT NUMBER
 180064

REVIEWED BY

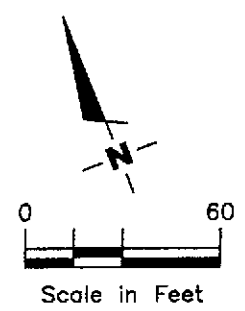
DATE
 January 28, 2002

REVISED DATE



EXPLANATION

- ◆ Groundwater monitoring well
- A/B/C Total Petroleum Hydrocarbons (TPH) as Gasoline/Benzene/MTBE concentrations in ppb
- NS Not Sampled



Source: Figure modified from drawing provided by MPDS Services, Inc.

GETTLER - RYAN INC.
 6747 Sierra Ct., Suite J
 Dublin, CA 94568 (925) 551-7555

CONCENTRATION MAP
 Tosco (Unocal) Service Station #3538
 411 West MacArthur Boulevard
 Oakland, California

FIGURE
2

PROJECT NUMBER 180064	REVIEWED BY	DATE January 28, 2002	REVISED DATE
--------------------------	-------------	--------------------------	--------------

Table 1
Groundwater Monitoring Data and Analytical Results
 Tosco (Unocal) Service Station #3538
 411 West MacArthur Boulevard
 Oakland, California

WELL ID/ TOC* (ft.)	DATE	DTW (ft.)	S.L. (ft. bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)	
MW-1	09/15/89	--	5.0-29.0	--	ND	ND	0.61	ND	ND	--	
	01/23/90	--		--	ND	1.5	2.3	ND	4.3	--	
	04/19/90	--		--	ND	ND	ND	ND	ND	--	
	07/17/90	--		--	ND	ND	ND	ND	ND	--	
	10/16/90	--		--	ND	ND	ND	ND	ND	--	
	01/15/91	--		--	ND	ND	ND	ND	ND	--	
	04/12/91	--		--	ND	ND	ND	ND	ND	--	
	07/15/91	--		--	ND	ND	ND	ND	ND	--	
	07/14/92	--		--	ND	ND	ND	ND	ND	--	
72.43	04/13/93	17.70		54.73	SAMPLED ANNUALLY		--	--	--	--	
	07/14/93	18.49		53.94	ND	2.2	2.1	1.1	6.2	--	
72.10	10/14/93	18.32		53.78	--	--	--	--	--	--	
	01/12/94	18.18		53.92	--	--	--	--	--	--	
	04/11/94	17.80		54.30	--	--	--	--	--	--	
	07/07/94	18.28		53.82	ND	ND	ND	ND	ND	--	
	10/05/94	18.55		53.55	--	--	--	--	--	--	
	01/09/95	17.90		54.20	--	--	--	--	--	--	
	04/17/95	17.22		54.88	--	--	--	--	--	--	
	07/19/95	18.03		54.07	ND	ND	ND	ND	ND	--	
	10/26/95	18.67		53.43	--	--	--	--	--	--	
	01/16/95	17.20		54.90	--	--	--	--	--	--	
	04/15/96	17.40		54.70	--	--	--	--	--	--	
	07/11/96	18.03		54.07	ND	ND	ND	ND	ND	ND	
	01/17/97	16.54		55.56	--	--	--	--	--	--	
	07/21/97	18.16		53.94	ND	ND	ND	ND	ND	ND	
	01/14/98	16.05		56.05	--	--	--	--	--	--	
	07/06/98 ³	16.46		55.64	ND	ND	ND	ND	ND	ND	
	01/13/99	17.37		54.73	--	--	--	--	--	--	
	72.12	08/31/99	17.00		55.12	ND	ND	ND	ND	ND	ND
		01/21/00	17.04		55.08	--	--	--	--	--	--
07/10/00 ⁵		18.10		54.02	ND	ND	ND	ND	ND	ND	
01/04/01		17.95		54.17	--	--	--	--	--	--	
07/16/01		18.03		54.09	ND	ND	ND	ND	ND	ND	
	01/28/02	17.31		54.81	SAMPLED ANNUALLY		--	--	--	--	

Table 1
Groundwater Monitoring Data and Analytical Results
Tosco (Unocal) Service Station #3538
411 West MacArthur Boulevard
Oakland, California

WELL ID/ TOC* (ft.)	DATE	DTW (ft.)	S.I. (ft. bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-2	09/15/89	--	3.5-28.5	--	290	ND	12	ND	ND	--
	01/23/90	--		--	400	73	36	10	40	--
	04/19/90	--		--	3,900	550	5.1	91	390	--
	07/17/90	--		--	490	76	0.59	11	46	--
	10/16/90	--		--	1,400	430	2.0	48	240	--
	01/15/91	--		--	680	170	0.7	19	81	--
	04/12/91	--		--	2,200	160	4.3	23	62	--
	07/15/91	--		--	2,200	770	12	72	370	--
	10/15/91	--		--	140	44	0.56	1.5	12	--
	01/15/92	--		--	220	37	0.52	1.1	7	--
	04/14/92	--		--	150	6.2	ND	ND	1.4	--
	07/14/92	--		--	130	3.7	ND	ND	ND	--
	10/12/92	--		--	370	3.4	0.56	ND	11	--
	01/08/93	--		--	510 ¹	ND	ND	ND	ND	--
71.63	04/13/93	17.86		53.77	410 ²	42	7.7	6.4	28	200
	07/14/93	18.38		53.25	110 ¹	6.5	ND	ND	1.1	250
71.38	10/14/93	18.20		53.18	230 ¹	5.3	ND	ND	2.1	--
	01/12/94	18.08		53.30	300	7.8	3.8	1.8	10	--
	04/09/94	17.97		53.41	120	10	0.88	1.1	4.9	--
	04/11/94	17.88		53.50	--	--	--	--	--	--
	07/07/94	17.81		53.57	110 ¹	4.4	ND	ND	ND	--
	10/05/94	18.33		53.05	720 ¹	20	ND	ND	3.1	--
	01/09/95	17.40		53.98	ND	ND	ND	ND	ND	--
	04/17/95	17.50		53.88	93	5.6	0.62	1.7	5.5	--
	07/19/95	18.01		53.37	77	32	0.58	1.7	4.1	--
	10/26/95	18.21		53.17	54 ²	13	ND	ND	0.72	220
	01/16/96 ³	16.58		54.80	120	23	ND	ND	0.99	--
	04/15/96	17.61		53.77	340	21	ND	2.2	3.7	45
	07/11/96	17.98		53.40	540	34	ND	4.3	12	150
	01/17/97	17.08		54.30	320	63	2.4	9.4	26	260
	07/21/97	18.06		53.32	160	13	ND	1.3	1.6	180
	01/14/98	16.52		54.86	66	6.3	ND	ND	0.98	100

Table 1
Groundwater Monitoring Data and Analytical Results
Tosco (Unocal) Service Station #3538
411 West MacArthur Boulevard
Oakland, California

WELL ID/ TOC*(ft.)	DATE	DTW (ft.)	S.I. (ft. bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-2	07/06/98	16.87	3.5-28.5	54.51	ND	2.3	ND	ND	ND	11
(cont)	01/13/99	17.88		53.50	53	24	ND	0.52	0.98	120
71.34	08/31/99	18.45		52.89	86 ¹⁰	14	ND	0.63	ND	21
	01/21/00	17.73		53.61	ND	1.94	ND	ND	ND	10.1
	07/10/00	18.14		53.20	ND	ND	ND	ND	ND	46.6
	01/04/01	18.02		53.32	ND	0.925	ND	ND	ND	ND
	07/16/01	18.02		53.32	ND	ND	ND	ND	ND	ND
	01/28/02	17.57		53.77	<50	<0.50	<0.50	<0.50	<0.50	<2.5
MW-3	09/15/89	--	5.0-29.0	--	32	ND	ND	ND	ND	--
	01/23/90	--		--	450	110	1.2	4.4	11	--
	04/19/90	--		--	3,100	600	27	54	220	--
	07/17/90	--		--	4,000	270	48	130	250	--
	10/16/90	--		--	740	210	1.4	2.5	82	--
	01/15/91	--		--	3,200	460	1.5	120	270	--
	04/12/91	--		--	880	170	1.1	34	110	--
	07/15/91	--		--	9,200	1,300	230	490	1,900	--
	10/15/91	--		--	3,100	390	34	150	390	--
	01/15/92	--		--	3,000	590	14	310	750	--
	04/14/92	--		--	14,000	660	48	560	2,000	--
	07/14/92	--		--	21,000	890	200	1,200	4,300	--
	10/12/92	--		--	3,200	160	10	230	540	--
	01/08/93	--		--	1,100 ²	48	0.99	0.9	93	--
72.06	04/13/93	17.96		54.10	12,000 ²	290	38	760	2,300	1,400
	07/14/93	18.54		53.52	6,300	190	ND	430	1,000	860
71.86	10/14/93	18.45		53.41	2,500	52	ND	110	250	--
	01/12/94	18.34		53.52	3,800	78	ND	180	390	--
	04/09/94	18.19		53.67	1,800	22	ND	140	280	--
	04/11/94	18.12		53.74	--	--	--	--	--	--
	07/07/94	18.21		53.65	110 ¹	4.5	ND	ND	ND	--
	10/05/94	18.58		53.28	ND	ND	ND	ND	ND	--
	01/09/95	17.69		54.17	ND	0.68	ND	ND	ND	--
	04/17/95	17.68		54.18	3,700	80	10	270	510	--

Table 1
Groundwater Monitoring Data and Analytical Results
 Tosco (Unocal) Service Station #3538
 411 West MacArthur Boulevard
 Oakland, California

WELL ID/ TOC*(ft.)	DATE	DTW (ft.)	S.I. (ft. bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-3	07/19/95	18.20	5.0-29.0	53.66	15,000	330	27	990	2,400	--
(cont)	10/26/95	18.32		53.54	14,000	420	180	750	1,600	4,800
	01/16/96 ³	17.95		53.91	920	38	ND	30	57	--
	04/15/96	17.78		54.08	9,700	240	ND	570	860	3,200
	07/11/96	18.19		53.67	13,000	69	5.5	430	900	740
	01/17/97	17.23		54.63	4,400	25	ND	270	580	1,600
	07/21/97	18.29		53.57	9,000	36	ND	450	800	950
	01/14/98	16.71		55.15	7,100	40	ND ⁴	380	360	930
	07/06/98	17.03		54.83	6,800 ⁶	39	ND ⁴	320	360	370
	01/13/99 ⁷	18.00		53.86	1,800	9.4	ND ⁴	58	36	180
71.40	08/31/99	-- ⁸		--	--	--	--	--	--	--
	01/21/00	17.58		53.82	ND	ND	ND	ND	ND	21.4
	07/10/00	18.05		53.35	ND	ND	ND	ND	ND	162
	08/25/00	17.82		53.58	--	--	--	--	--	180 ¹¹
	01/04/01	18.16		53.24	ND	ND	ND	ND	ND	193
	07/16/01	17.98		53.42	ND	ND	ND	ND	ND	660
	01/28/02	17.84		53.56	<50	<0.50	<0.50	<0.50	<0.50	34
MW-4	09/15/89	--	5.0-29.0	--	ND	ND	ND	ND	ND	--
	01/23/90	--		--	ND	ND	0.4	ND	ND	--
	04/19/90	--		--	ND	ND	0.48	ND	ND	--
	07/17/90	--		--	ND	ND	ND	ND	ND	--
	10/16/90	--		--	ND	ND	ND	ND	ND	--
	01/15/91	--		--	ND	ND	ND	--	ND	--
	04/12/91	--		--	ND	ND	ND	ND	ND	--
	07/15/91	--		--	ND	ND	ND	ND	ND	--
	07/14/92	--		--	ND	1.3	2.5	ND	1.0	--
71.98	04/13/93	17.67		54.31	SAMPLED ANNUALLY		--	--	--	--
	07/14/93	18.31		53.67	ND	ND	ND	ND	ND	--
71.64	10/14/93	18.08		53.56	--	--	--	--	--	--
	01/12/94	17.97		53.67	--	--	--	--	--	--
	04/11/94	17.70		53.94	--	--	--	--	--	--
	07/07/94	17.80		53.84	ND	ND	ND	ND	ND	--

Table 1
Groundwater Monitoring Data and Analytical Results
 Tosco (Unocal) Service Station #3538
 411 West MacArthur Boulevard
 Oakland, California

WELL ID/ TOC*(ft.)	DATE	DTW (ft.)	S.I. (ft. hgs)	GWE (inl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-4	10/05/94	18.28	5.0-29.0	53.36	--	--	--	--	--	--
(cont)	01/09/95	17.38		54.26	--	--	--	--	--	--
	04/17/95	17.21		54.43	SAMPLED ANNUALLY		--	--	--	--
	07/19/95	17.82		53.82	ND	ND	ND	ND	ND	--
	10/26/95	18.17		53.47	--	--	--	--	--	--
	01/16/96	16.45		55.19	--	--	--	--	--	--
	04/15/96	17.35		54.29	--	--	--	--	--	--
	07/11/96	17.81		53.83	ND	ND	ND	ND	ND	ND
	01/17/97	16.73		54.91	--	--	--	--	--	--
	07/21/97	17.91		53.73	ND	ND	ND	ND	ND	ND
	01/14/98	16.18		55.46	--	--	--	--	--	--
	07/06/98	16.49		55.15	ND	ND	ND	ND	ND	ND
	01/13/99	17.29		54.35	--	--	--	--	--	--
71.54	08/31/99	-- ⁹		--	--	--	--	--	--	--
	01/21/00	17.51		54.03	--	--	--	--	--	--
	07/10/00	17.93		53.61	ND	ND	ND	ND	ND	ND
	01/04/01	18.10		53.44	--	--	--	--	--	--
	07/16/01	17.76		53.78	ND	ND	ND	ND	ND	ND
	01/28/02	17.20		54.34	SAMPLED ANNUALLY		--	--	--	--
MW-5	11/30/92	--	13.0-30.0	--	ND	ND	ND	ND	ND	--
	01/08/93	--		--	ND	ND	ND	ND	ND	--
71.51	04/13/93	17.49		54.02	ND	ND	ND	ND	ND	--
	07/14/93	18.02		53.49	ND	ND	0.57	ND	ND	--
71.23	10/14/93	17.82		53.41	ND	ND	ND	ND	ND	--
	01/12/94	17.74		53.49	ND	ND	0.84	ND	1.6	--
	04/11/94	17.56		53.67	SAMPLED ANNUALLY		--	--	--	--
	07/07/94	17.50		53.73	ND	ND	ND	ND	ND	--
	10/05/94	17.98		53.25	--	--	--	--	--	--
	01/09/95	17.13		54.10	--	--	--	--	--	--
	04/17/95	17.05		54.18	--	--	--	--	--	--
	07/19/95	17.59		53.64	ND	ND	ND	ND	ND	--
	10/26/95	18.10		53.13	--	--	--	--	--	--

Table 1
Groundwater Monitoring Data and Analytical Results
Tosco (Unocal) Service Station #3538
411 West MacArthur Boulevard
Oakland, California

WELL ID/ TOC*(ft.)	DATE	DTW (ft.)	S.I. (ft. bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-5	01/16/96	17.11	13.0-30.0	54.12	--	--	--	--	--	--
(cont)	04/15/96	17.22		54.01	--	--	--	--	--	--
	07/11/96	17.59		53.64	ND	ND	ND	ND	ND	ND
	01/17/97	16.75		54.48	SAMPLED ANNUALLY		--	--	--	--
	07/21/97	17.59		53.64	ND	ND	ND	ND	ND	ND
	01/14/98	16.16		55.07	--	--	--	--	--	--
	07/06/98	16.52		54.71	ND	ND	ND	ND	ND	ND
	01/13/99	17.62		53.61	--	--	--	--	--	--
71.16	08/31/99	17.76		53.40	ND	ND	ND	ND	ND	ND
	01/21/00	16.83		54.33	--	--	--	--	--	--
	07/10/00	17.46		53.70	ND	ND	ND	ND	ND	ND
	01/04/01	17.51		53.65	--	--	--	--	--	--
	07/16/01	17.32		53.84	ND	ND	ND	ND	ND	ND
	01/28/02	17.12		54.04	SAMPLED ANNUALLY		--	--	--	--
MW-6	11/30/92	--	13.0-30.0	--	ND	ND	ND	ND	ND	--
	01/08/93	--		--	ND	ND	ND	ND	ND	--
71.79	04/13/93	11.94		59.85	ND	ND	ND	ND	ND	--
	07/14/93	17.20		54.59	ND	0.99	2.4	ND	1.9	--
71.44	10/14/93	17.21		54.23	ND	ND	0.64	ND	ND	--
	01/12/94	17.44		54.00	ND	ND	1.2	ND	2.9	--
	04/11/94	13.66		57.78	SAMPLED ANNUALLY		--	--	--	--
	07/07/94	14.05		57.39	ND	ND	ND	ND	ND	--
	10/05/94	14.16		57.28	--	--	--	--	--	--
	01/09/95	13.73		57.71	--	--	--	--	--	--
	04/17/95	11.30		60.14	--	--	--	--	--	--
	07/19/95	12.32		59.12	ND	ND	ND	ND	ND	--
	10/26/95	17.88		53.56	--	--	--	--	--	--
	01/16/96	16.38		55.06	--	--	--	--	--	--
	04/15/96	14.00		57.44	--	--	--	--	--	--
	07/11/96	13.58		57.86	ND	ND	ND	ND	ND	ND
	01/17/97	15.42		56.02	--	--	--	--	--	--
	07/21/97	13.78		57.66	ND	ND	ND	ND	ND	ND

Table 1
Groundwater Monitoring Data and Analytical Results
 Tosco (Unocal) Service Station #3538
 411 West MacArthur Boulevard
 Oakland, California

WELL ID/ TOC*(ft.)	DATE	DTW (ft.)	S.L. (ft. bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-6	01/14/98	13.65	13.0-30.0	57.79	--	--	--	--	--	--
(cont)	07/06/98	13.90		57.54	ND	ND	ND	ND	ND	ND
	01/13/99	14.93		56.51	--	--	--	--	--	--
71.37	08/31/99	15.81		55.56	ND	ND	ND	ND	ND	ND
	01/21/00	16.13		55.24	SAMPLED ANNUALLY		--	--	--	--
	07/10/00	16.95		54.42	ND	ND	ND	ND	ND	ND
	01/04/01	17.09		54.28	--	--	--	--	--	--
	07/16/01	16.83		54.54	ND	ND	ND	ND	ND	ND
	01/28/02	14.58		56.79	SAMPLED ANNUALLY		--	--	--	--
Trip Blank										
TB-LB	01/14/98	--	--	--	ND	ND	ND	ND	ND	ND
	07/06/98	--	--	--	ND	ND	ND	ND	ND	ND
	01/13/99	--	--	--	ND	ND	ND	ND	ND	ND
	08/31/99	--	--	--	ND	ND	1.5	ND	2.3	39
	01/21/00	--	--	--	ND	ND	ND	ND	ND	ND
	07/10/00	--	--	--	ND	ND	ND	ND	ND	ND
	01/04/01	--	--	--	ND	ND	ND	ND	ND	ND
	07/16/01	--	--	--	ND	ND	ND	ND	ND	ND
	01/28/02	--	--	--	<50	<0.50	<0.50	<0.50	<0.50	<2.5

Table 1
Groundwater Monitoring Data and Analytical Results
 Tosco (Unocal) Service Station #3538
 411 West MacArthur Boulevard
 Oakland, California

EXPLANATIONS:

Groundwater monitoring data and laboratory analytical results prior to January 14, 1998, were compiled from reports prepared by MPDS Services, Inc.

TOC = Top of Casing	TPH-G = Total Petroleum Hydrocarbons as Gasoline	(ppb) = Parts per billion
DTW = Depth to Water	B = Benzene	ND = Not Detected
(ft.) = Feet	T = Toluene	-- = Not Measured/Not Analyzed
S.I. = Screen Interval	E = Ethylbenzene	
(ft. bgs) = Feet Below Ground Surface	X = Xylenes	
GWE = Groundwater Elevation	MTBE = Methyl tertiary butyl ether	
(msl) = Mean sea level		

* TOC elevations are relative to msl, per the City of Oakland Benchmark #9NW10. (Elevation = 75.50 feet msl). Prior to October 14, 1994, the DTW measurements were taken from the top of well covers. On September 15, 1999, TOC elevations were resurveyed City of Oakland Benchmark being a square brass pin in the concrete gutter at the southwest corner of Webster & MacArthur. The stationing data is with reference to the back of sidewalk on MacArthur in front of the site. Benchmark (Elevation = 71.055 feet, msl)

- 1 Laboratory report indicates the hydrocarbons detected did not appear to be gasoline.
- 2 Laboratory report indicates the hydrocarbons detected appeared to be a gasoline and a non-gasoline mixture.
- 3 Laboratory report indicates the presence of MTBE at a level above or equal to the taste and odor threshold of 40 ppb.
- 4 Detection limit raised. Refer to analytical reports.
- 5 All EPA Method 8010 constituents were ND.
- 6 Laboratory report indicates gasoline and unidentified hydrocarbons <C7.
- 7 TOC measurement may have been altered due to damaged casing.
- 8 Well was obstructed by a solid at 0.5 feet.
- 9 Well was obstructed by a solid (concrete or soil) at 10.4 feet.
- 10 Laboratory report indicates gasoline C6-C12.
- 11 MTBE by EPA Method 8260.

Table 2
Groundwater Analytical Results
 Tosco (Unocal) Service Station #3538
 411 West MacArthur Boulevard
 Oakland, California

WELL ID	DATE	TPH-D (ppb)	TOG (ppb)	Tetrachloroethene ¹ (ppb)
MW-1	09/15/89	ND	ND	2.7
	01/23/90	ND	1.5	2.1
	04/19/90	ND	ND	2.2
	07/17/90	ND	ND	1.7
	10/16/90	ND	ND	2.0
	01/15/91	ND	ND	2.1
	04/12/91	ND	ND	2.0
	07/15/91	ND	ND	1.8
	07/14/92	--	--	1.4
	07/14/93	--	--	0.95
	07/07/94	--	--	0.83
	07/19/95	--	--	0.52
	07/11/96 ²	--	--	0.73
	07/21/97 ³	--	--	0.70
	08/31/99	--	--	ND
	07/16/01 ⁴	--	--	ND

EXPLANATIONS:

Groundwater laboratory analytical results prior to August 31, 2001, were compiled from reports prepared by MPDS Services, Inc.

TPH-D = Total Petroleum Hydrocarbons as Diesel

TOG = Total Oil and Grease

(ppb) = Parts per billion

ND = Not Detected

-- = Not Analyzed

¹ All other EPA Method 8010 constituents were ND.

² Chloroform was detected at a concentration of 0.96 ppb.

³ Chloroform was detected at a concentration of 1.0 ppb.

⁴ All EPA Method 8021B constituents were ND with a raised detection limit, except Chloroform was detected at a concentration of 45 ppb and Bromodichloromethane at 1.7 ppb.

Table 3
Groundwater Analytical Results - Oxygenate Compounds
 Tosco (Unocal) Service Station #3538
 411 West MacArthur Boulevard
 Oakland, California

WELL ID	DATE	TBA (ppb)	MTBE (ppb)	DIPE (ppb)	ETBE (ppb)	TAME (ppb)	1,2-DCA (ppb)	EDB (ppb)
MW-3	08/25/00	ND ¹	180	ND ¹	ND ¹	ND ¹	ND ¹	ND ¹

EXPLANATIONS:

TBA = Tertiary butyl alcohol
 MTBE = Methyl tertiary butyl ether
 DIPE = Di-isopropyl ether
 ETBE = Ethyl tertiary butyl ether
 TAME = Tertiary amyl methyl ether
 1,2-DCA = 1,2-Dichloroethane
 EDB = 1,2-Dibromoethane
 (ppb) = Parts per billion
 ND = Not Detected

ANALYTICAL METHOD:

EPA Method 8260 for Oxygenate Compounds

¹ Detection limit raised. Refer to analytical reports.

KEI-P89-0703.R6
 January 18, 1993

TABLE 3

SUMMARY OF LABORATORY ANALYSES
 SOIL

<u>Sample</u>	<u>Depth (feet)</u>	<u>TPH as Diesel</u>	<u>TPH as Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Xylenes</u>	<u>Ethyl- benzene</u>
(Collected on July 12 & 17, 1989)							
SW1	10.0	--	3,100	12	300	730	110
SW1(4)	10.0	--	ND	ND	ND	ND	ND
SW2	10.0	--	1.1	0.10	ND	0.18	ND
SW3	10.0	--	5.7	0.26	ND	0.45	0.23
SW4	10.0	--	2.5	ND	ND	0.24	ND
SW4(2)	10.0	--	11	0.61	0.51	1.3	0.44
P1	6.5	--	ND	ND	ND	ND	ND
P2	6.5	--	ND	ND	ND	ND	ND
P3	5.5	--	ND	ND	ND	ND	ND
P4	10.0	--	170	0.71	12	47	6.8
WO1*	8.5	ND	ND	ND	ND	ND	ND
(Collected on September 6 & 7, 1989)							
MW1(5)**	5.0	ND	3.4	ND	ND	ND	ND
MW1(10)**	10.0	ND	5.0	ND	ND	ND	ND
MW1(15)**	15.0	ND	2.2	ND	ND	ND	ND
MW1(19)**	19.0	ND	ND	ND	ND	ND	ND
MW2(5)	5.0	--	1.4	ND	ND	ND	ND
MW2(10)	10.0	--	ND	ND	ND	ND	ND
MW2(15)	15.0	--	1.8	ND	ND	ND	ND
MW2(19)	19.0	--	13	1.5	2.1	1.8	0.34
MW3(5)	5.0	--	1.3	ND	ND	ND	ND
MW3(10)	10.0	--	1.8	0.29	ND	ND	ND
MW3(15)	15.0	--	3.3	ND	ND	ND	ND
MW3(18.5)	18.5	--	ND	ND	ND	ND	ND
MW4(5)	5.0	--	3.1	ND	ND	ND	ND
MW4(10)	10.0	--	17	ND	ND	0.10	ND
MW4(15)	15.0	--	20	ND	ND	0.27	ND
MW4(18.5)	18.5	--	2.1	ND	ND	ND	ND

KEI-P89-0703.R6
January 18, 1993

TABLE 3 (Continued)

SUMMARY OF LABORATORY ANALYSES
SOIL

<u>Sample</u>	<u>Depth</u> <u>(feet)</u>	<u>TPH as</u> <u>Diesel</u>	<u>TPH as</u> <u>Gasoline</u>	<u>Benzene</u>	<u>Toluene</u>	<u>Xylenes</u>	<u>Ethyl-</u> <u>benzene</u>
(Collected on November 18, 1992)							
MW5(5)	5.0	--	ND	ND	ND	ND	ND
MW5(10)	10.0	--	ND	ND	ND	ND	ND
MW5(15)	15.0	--	ND	ND	ND	ND	ND
MW5(21)	21.0	--	ND	ND	ND	ND	ND
MW6(5)	5.0	--	ND	ND	ND	ND	ND
MW6(10)	10.0	--	ND	ND	ND	ND	ND
MW6(15)	15.0	--	ND	ND	ND	ND	ND
MW6(19.5)	19.5	--	ND	ND	ND	ND	ND

* TOG was 36 ppm, and EPA method 8010 and 8270 constituents were non-detectable.

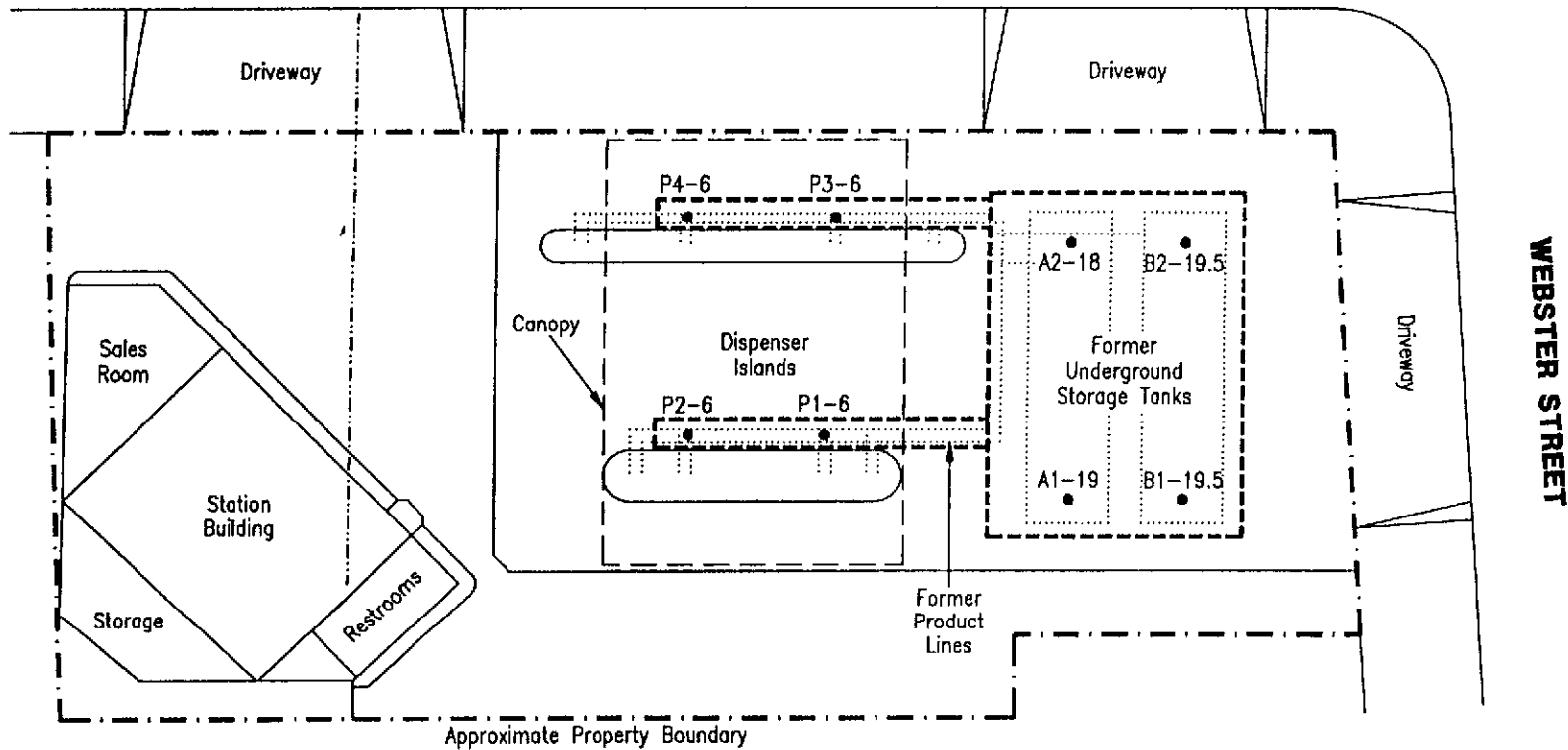
** TOG was <50 ppm for these samples. EPA method 8010 compounds were non-detectable for these samples.

ND = Non-detectable.

-- Indicates analysis was not performed.

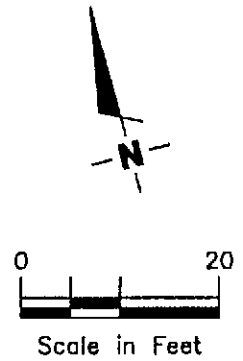
Results in parts per million (ppm), unless otherwise indicated.

MAC ARTHUR BOULEVARD



EXPLANATION:

- Soil Sample Location



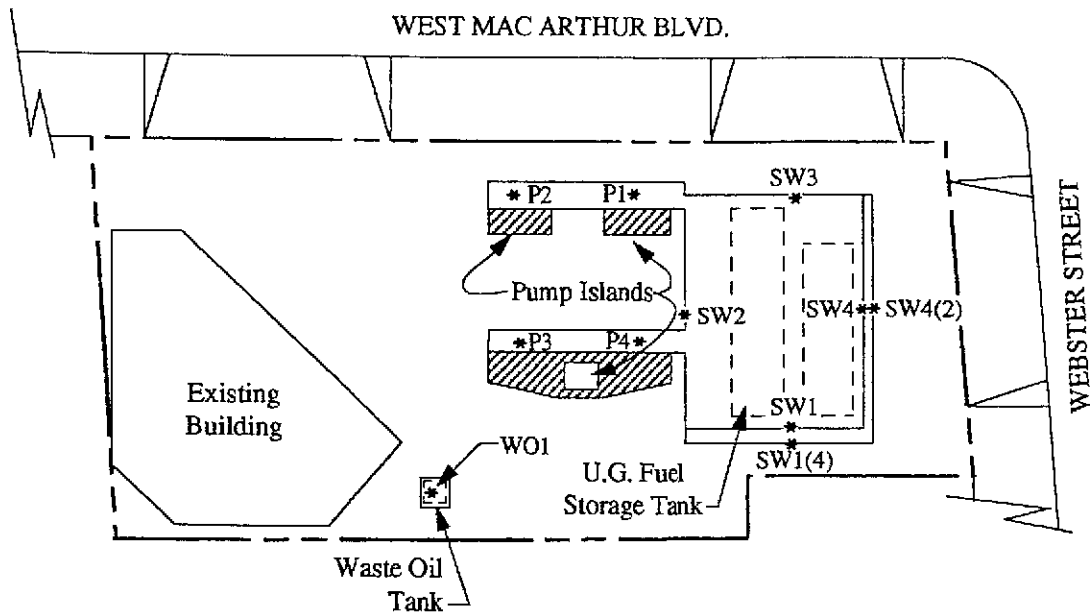
Source: Figure Modified From Drawing Provided By Unocal.

Gettler - Ryan Inc.
 6747 Sierra Ct., Suite J (510) 551-7555
 Dublin, CA 94568

SITE PLAN/SOIL SAMPLE LOCATION MAP
 Former Tosco 76 Branded Facility No. 3538
 411 West Mac Arthur Boulevard
 Oakland, California

FIGURE
2

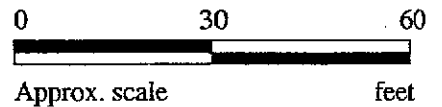
JOB NUMBER 140166	REVIEWED BY	DATE 10/98	REVISED DATE
----------------------	-------------	---------------	--------------



LEGEND

* Sample point location

Samples collected on 7/12 & 7/17/89



SAMPLE POINT LOCATION MAP



UNOCAL SERVICE STATION # 3538
411 W. MACARTHUR BOULEVARD
OAKLAND, CA

FIGURE
3

Table 1 - Soil Chemical Analytical Data

Former Tosco 76 Branded Facility No. 3538

411 West Mac Arthur Boulevard

Oakland, California

Sample ID	Date Collected	Sample Depth (feet)	TPHg (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-Benzene (ppm)	Xylenes (ppm)	MTBE (ppm)	Lead (ppm)
<u>GASOLINE UST PIT</u>									
A1(19)	9/14/98	19.0	3.5	0.53	0.36	0.069	0.40	ND	26
A2(18)	9/14/98	18.0	12	0.050	0.075	ND	0.026	ND	ND
B1(19.5)	9/14/98	19.5	360	1.5	15	7.0	44	ND	1.7
B2(19.5)	9/14/98	19.5	6.7	0.017	1.8	0.24	1.4	ND	2.7
<u>PRODUCT LINES</u>									
P1(6)	9/14/98	6.0	ND	ND	ND	ND	ND	ND	11
P2(6)	9/14/98	6.0	ND	ND	ND	ND	ND	ND	1.3
P3(6)	9/14/98	6.0	ND	ND	ND	ND	ND	ND	ND
P4(6)	9/14/98	6.0	ND	ND	ND	ND	ND	ND	ND
<u>GASOLINE TANK PIT STOCKPILE</u>									
Comp A	9/14/98	NA	ND	ND	ND	ND	ND	ND	9.5
Comp B	9/14/98	NA	3.7	ND	0.014	0.013	0.040	ND	6.8
Comp C	9/14/98	NA	ND	ND	0.0052	ND	0.011	ND	2.5
Comp D	9/14/98	NA	26	0.13	0.12	0.28	1.1	0.29	3.7

EXPLANATION:

ND = none detected

NA = not applicable

ppm = parts per million

ANALYTICAL LABORATORY:

Sequoia Analytical (ELAP # 1271)

ANALYTICAL METHODS:

TPHg = Total Petroleum Hydrocarbons as gasoline according to EPA Method 8015 Modified.

BTEX = Benzene, Toluene, Ethylbenzene, and Xylenes according to EPA Method 8020.

MTBE = Methyl Tert-Butyl Ether according to EPA Method 8020.