ALCO HAZMAT
94 APR -7 PM 1:13

RESNA
Working to Restore Nature

1500 So. Union Avenue
Bakersfield, California 93307
Phone: (805) 835-7700
FAX: (805) 835-7717

2813

LETTER OF TRANSMITTAL

TO: Mr. Barney Chan
Alameda County Department
of Environmental Health
80 Swan Way, Room 200
Oakland, California 94621

DATE: April 4, 1994

RE: Groundwater Monitoring Report-4th Qtr
Malibu Grand Prix
8000 South Coliseum Way
Oakland, California

WE ARE SENDING YOU ☒ Enclosed ☐ Under separate cover via _____ the following:

- ☐ Site Assessment Report
- ☐ Closure Report
- ☐ Workplan for Site Assessment
- ☐ Proposal
- ☐ Preacquisition Site Assessment
- ☒ As above.

THESE ARE TRANSMITTED as checked below:

- ☒ For approval
- ☐ As requested
- ☐ For your use
- ☐ For review and comment
- ☐ FOR BIDS DUE_____19__
- ☐ _____

REMARKS Still localized g + B contamination around former tank pit areas. - Ok to monitor but should verify a "plan" for closure.

COPY TO: Mr. Bill Patterson, Malibu Grand Prix

SIGNED: Timothy C. Reed

Timothy C. Reed, Project Manager

RESNA
Working to Restore Nature

1500 South Union Avenue
Bakersfield , Ca. 93307
Phone: (805) 835-7700
Fax: (805) 835-7717

GROUND WATER MONITORING REPORT
FOURTH QUARTER 1993

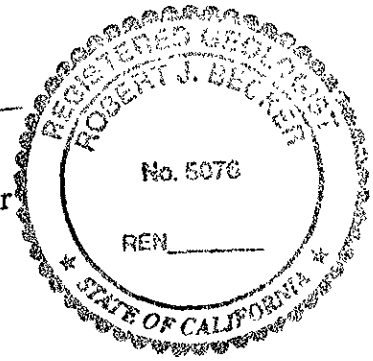
MALIBU GRAND PRIX
800 South Coliseum Way
Oakland, California

Prepared for

Malibu Grand Prix

Timothy C. Reed
Project Manager

Robert J. Becker, R. G. 5076
So. Field Professional Services Manager



March 24, 1994
RESNA Report 0B2481.41

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RESNA
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GROUND WATER MONITORING REPORT
FOURTH QUARTER 1993

MALIBU GRAND PRIX
8000 South Coliseum Way
Oakland, California

Report prepared for Malibu Grand Prix

1.0 INTRODUCTION

RESNA has performed Fourth Quarter, 1993, monitoring of the ground water at the Malibu Grand Prix Race Track and Castle areas, 8000 South Coliseum Way, Oakland, California (Plate 1). This report reviews the past history of the site, gives the results of the analysis of ground water samples, and interpretation of findings. Ground water monitoring wells at the Race Track and at the Castle sites were sounded for depth to water and sampled on December 9, 1993. Water table elevations in monitoring wells MW-1 and MW-8, the wells farthest east in the two parking lots, remain higher than elevations in the rest of the well array and continue to define a gradient toward the west. The plume of benzene-impacted ground water at the site is considerably smaller that last quarters analysis with only two wells having any detectable amounts. The ground water plume containing total petroleum hydrocarbons (TPH) is also smaller in extent than last quarter. Only one well, MW-8, has detectable amounts of TPH in the Race Track lot while several of the wells in the Castle lot are now reported to have concentrations below detection.

2.0 BACKGROUND

Malibu Grand Prix (MGP) operates two adjacent amusement park facilities, a Racetrack for midget cars and a Fun Center with miniature golf and batting cages on leased property at 8000 South Coliseum Way, Oakland, California (Plates 1 & 2). Prior to 1989 the MGP facility

maintained two 6,000 gallon underground storage tanks containing marine mix gasoline. The tanks were located in the parking lots adjacent to the MGP Castle and Race Track. The tanks were removed on March 29, 1989 and February 1, 1990, respectively. Closure reports were submitted to the Alameda County Department of Environmental Health with all relevant waste manifests and analysis results. On June 29, 1989 a letter from Alameda County was sent to Malibu Grand Prix Corporation requiring an initial site investigation to determine the extent of soil and contamination present at the MGP Castle while a verbal request was issued for an assessment at the Race Track at the time of the removal. The site assessment at the Castle began on September 21, 1989 and a report was issued on November 15, 1989 recommending further assessment work. The assessment work at the Race Track, and the continued assessment at the Castle began on June 12, 1990. Monitoring Wells 1 through 10 were sampled July 17, 1991. Four additional monitoring wells (MWs) at the Castle and four additional MWs at the Race Track were constructed on August 27-30, 1991. All monitoring wells, MW-1 through -18, were sampled October 9, 10, 11, 1991 for water analyses and pump tests and slug tests were performed on selected wells. Ground water table measurement-data are interpreted to reflect tidal effects and inhomogeneity of the backfill material underlying this site. The analyses of water and sludge samples collected December 2, 1992 from the drainage ditches on the north and west sides of the site indicate that the ditches are not impacted adversely by effluent ground water from the MGP site. A total of twenty borings were made February 9, 10, 11, and August 19, 20, 1993 in the areas of the former USTs to further define the extent of soil impaction and facilitate remediation plans for the soil.

3.0 GROUND WATER MONITORING PROCEDURES

The stabilized water depth was measured in each well with an electrical measuring tape and the depths were recorded on site prior to sampling. During sampling, which followed depth measurement, the wells were purged of three well volumes of water, or until dry, with a bailer and submergible electric pump. A split sample (two simultaneous samples) was taken with a disposable bailer following purging of each well. Samples were labeled and chilled for transporting to a State certified laboratory under chain of custody. Purged water was stored on site in marked containers. Sampling procedures are described in Appendix B.

4.0 FINDINGS

4.1 Water Samples Analyses

Water samples collected from the ground water monitoring wells were analyzed for benzene, toluene, ethylbenzene and xylenes plus total petroleum hydrocarbons as gasoline (BTEX-TPHg). Analyses were performed by Sequoia Analytical of Sacramento, California. Lines of equal concentrations of TPHg are shown on Plate 2; benzene concentrations are contoured on Plate 3.

Some of the monitoring wells down gradient from the former tank locations, e.g. MW-3, -7, -9, and -13, show impaction by gasoline at much different levels of concentration each time they are sampled, sometimes decreasing to Not Detected (ND). Tidal influences from the ditches adjacent to the site and inhomogeneities in the underlying fill material are possible reasons for the variations in the hydrocarbon concentration levels and the lateral extent of the ground water plumes. Analyses results are presented in Table 1. Laboratory reports are in Appendix A.

TABLE 1

MALIBU GRAND PRIX – OAKLAND, CALIFORNIA
WATER SAMPLE ANALYSIS RESULTS, ppb

Well #	Date	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPHg
MW-1	09/22/89	410	1800	1100	7100	35000
	06/14/90	.66	<.05	1.3	2.3	210
	07/17/91	<.05	.06	<.05	<.05	270
	10/09/91	<.05	<.05	<.05	<.05	370
	08/05/92	<0.5	<0.5	<0.5	<0.5	600
	12/02/92	<0.5	<0.5	<0.5	<0.5	190
	02/11/93	<0.5	<0.5	<0.5	<0.5	75
	05/26/93	<0.5	<0.5	<0.5	<1.0	110
	08/20/93	<0.5	<0.5	<0.5	<1.0	70
	12/09/93	<0.5	<0.5	<0.5	<0.5	310
MW-2	09/22/89	<.05	<.05	<.05	<.05	<50
	06/14/90	<.05	<.05	<.05	<.05	<50
	07/17/91	<.05	<.05	<.05	<.05	<50
	10/09/91	<.05	<.05	<.05	<.05	<50

TABLE 1 - Continued

MALIBU GRAND PRIX – OAKLAND, CALIFORNIA
WATER SAMPLE ANALYSIS RESULTS, ppb

Well #	Date	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPHg
	08/05/92	<0.5	<0.5	<0.5	<0.5	<50
	12/01/92	<0.5	<0.5	<0.5	<0.5	<50
	02/11/93	<0.5	0.8	<0.5	0.6	<50
	05/26/93	<0.5	<0.5	<0.5	<1.0	<50
	08/20/93	<0.5	<0.5	1.5	<1.0	<50
	12/09/93	<0.5	<0.5	<0.5	<0.5	<50
MW-3	09/22/89	1.2	<.05	<.05	<.05	<50
	06/14/90	0.90	4	<.05	<.05	<50
	07/17/91	3.8	<.05	<.05	<.05	<50
	10/10/91	<.05	<.05	<.05	<.05	<50
	08/05/92	9.7	1.4	1.0	0.9	110
	12/02/92	1.3	ND	ND	0.84	<50
	02/11/93	<0.5	<0.5	<0.5	<0.5	<50
	05/26/93	2.6	<0.5	<0.5	<1.0	<50
	08/20/93	0.7	0.5	<0.5	1.6	<50
	12/09/93	0.87	<0.5	<0.5	<0.5	<50
MW-4	09/22/89	410	430	78	324	4000
	06/14/90	200	3.7	1.2	9.5	660
	07/17/91	49	4.3	1.5	38	1100
duplicate	07/17/91	45	2.7	1.0	33	1000
	10/09/91	0.8	<.05	<.05	<.05	88
	08/05/92	11	8.9	2.4	4.7	5800
	12/02/92	6.5	4.3	0.6	1.4	1500
	02/11/93	6.6	1.1	0.8	2.4	2000
	05/26/93	<0.5	<0.5	13	49	1500
	08/20/93	1.8	<0.5	<0.5	1.4	1100
	12/09/93	<0.5	<0.5	0.61	<0.5	1400
MW-5	06/14/90	<.05	<.05	<.05	<.05	<50
	07/17/91	<.05	<.05	<.05	<.05	<50
	10/09/91	<.05	<.05	<.05	<.05	110
	08/05/92	<0.5	<0.5	2.0	0.9	210
	12/02/92	<0.5	<0.5	<0.5	<0.5	<50
	02/11/93	<0.5	<0.5	<0.5	<0.5	<50
	05/26/93	<0.5	<0.5	<0.5	<1.0	72
	08/20/93	<0.5	<0.5	<0.5	1.0	61
	12/09/93	<0.5	<0.5	<0.5	<0.5	<50
MW-6	06/14/90	73	<.05	17	29.7	1800
	07/17/91	7.4	<.05	<.05	5.6	1200
	10/09/91	<.05	<.05	<.05	<.05	<50

TABLE 1 - Continued

MALIBU GRAND PRIX – OAKLAND, CALIFORNIA
WATER SAMPLE ANALYSIS RESULTS, ppb

Well #	Date	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPHg
	08/05/92	1.4	<0.5	12	4.1	1900
	12/01/92	<0.5	<0.5	2.5	1.3	140
	02/11/93	1.1	<0.5	<0.5	1.9	970
	05/26/93	0.6	<0.5	1.9	10.0	230
	08/20/93	<0.5	<0.5	0.91	4.9	140
	12/09/93	4.7	<0.5	<0.5	<0.5	270
MW-7	06/14/90	0.84	<.05	1.2	1.8	58
	07/17/91	12	1.7	4.7	3.8	120
	10/09/91	<.05	<.05	<.05	<.05	<50
	08/05/92	<0.5	<0.5	0.6	<0.5	<50
	12/01/92	0.9	<0.5	<0.5	<0.5	<50
	02/11/93	<0.5	<0.5	3.6	<0.5	200
	05/26/93	<0.5	0.7	<0.5	3.5	78
	08/20/93	7.2	1.2	<0.5	2.1	63
	12/09/93	<0.5	<0.5	<0.5	<0.5	<50
MW-8	06/14/90	680	36	150	1060	13000
	07/17/91	330	1.8	1.7	3.6	1300
	10/10/91	3.1	0.6	0.7	<.05	76
duplicate	10/10/91	3.2	0.6	0.7	<.05	72
	08/05/92	35	1.2	0.6	2.4	1700
	12/02/92	5.5	0.9	<0.5	1.8	450
	02/11/93	77	<0.5	11	11	2000
	05/26/93	130	4.8	1.9	<1.0	670
	08/20/93	0.71	<0.5	<0.5	<0.5	230
	12/09/93	<0.5	<0.5	<0.5	0.55	210
MW-9	06/14/90	12	0.78	4.5	2.54	3200
	07/17/91	3.4	<.05	<.05	<.05	87
	10/10/91	1.8	<.05	<.05	<.05	100
	08/05/92	1.7	<0.5	<0.5	1.3	150
	12/02/92	1.3	<0.5	<0.5	<0.5	62
	02/11/93	0.7	ND	ND	ND	55
	05/26/93	0.6	<0.5	<0.5	<1.0	<50
	08/20/93	<0.5	<0.5	<0.5	<1.0	<50
	12/09/93	<0.5	<0.5	<0.5	<0.5	<50
MW-10	06/14/90	20	.69	4.3	7.7	400
	07/17/91	4.2	<.05	<.05	<.05	290
	10/10/91	<.05	<.05	<.05	<.05	90
	08/05/92	<0.5	<0.5	<0.5	<0.5	790
	12/02/92	<0.5	<0.5	<0.5	<0.5	85

TABLE 1 - Continued

MALIBU GRAND PRIX – OAKLAND, CALIFORNIA
WATER SAMPLE ANALYSIS RESULTS, ppb

Well #	Date	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPHg
	02/11/93	23	ND	14	11	1000
	05/26/93	<0.5	<0.5	<0.5	<1.0	130
	08/20/93	<0.5	0.5	<0.5	<1.0	180
	12/09/93	<0.5	<0.5	<0.5	<0.5	<50
MW-11	10/09/91	<.05	1.2	1.0	6.4	430
	08/05/92	<0.5	<0.5	3.2	3.2	580
	12/01/92	<0.5	<0.5	2.2	1.5	140
	02/11/93	1.2	<0.5	3.0	1.8	340
	05/26/93	<0.5	<0.5	<0.5	<1.0	<50
	08/20/93	<0.5	<0.5	<0.5	<1.0	<50
	12/09/93	<0.5	<0.5	<0.5	<0.5	<50
MW-12	10/09/91	<.05	2.6	0.8	5.1	1500
	08/05/92	<0.5	<0.5	9.1	1.1	53
	12/01/92	<0.5	<0.5	<0.5	<0.5	<50
	05/26/93	<0.5	<0.5	<0.5	<1.0	210
	08/20/93	<0.5	<0.5	<0.5	1.7	540
	12/09/93	<0.5	<0.5	<0.5	<0.5	<50
MW-13	10/09/91	<.05	0.9	0.6	3.0	720
	08/05/92	<0.5	2.7	<0.5	0.69	1400
duplicate	08/05/92	<0.5	3.0	<0.5	0.7	1100
	12/01/92	<0.5	2.9	<0.5	0.9	670
	02/11/93	4.1	0.9	<0.5	<0.5	600
	05/26/93	<0.5	<0.5	<0.5	<1.0	220
	08/20/93	0.6	0.5	<0.5	<1.0	230
	12/09/93	<0.5	<0.5	<0.5	<0.5	160
MW-14	08/27/91	<.05	<.05	<.05	<.05	<50
hydropunch	10/09/91	<.05	<.05	<.05	0.9	<50
	08/05/92	<0.5	<0.5	<0.5	<0.5	<50
	12/01/92	<0.5	<0.5	<0.5	<0.5	<50
	02/11/93	<0.5	<0.5	<0.5	<0.5	<50
	05/26/93	<0.5	<0.5	<0.5	<1.0	<50
	08/20/93	<0.5	0.5	<0.5	<1.0	<50
	12/09/93	<0.5	<0.5	<0.5	<0.5	<50
MW-15	10/10/91	<.05	<.05	<.05	<.05	<50
	08/05/92	0.8	<0.5	<0.5	<0.5	<50
	12/02/92	<0.5	<0.5	<0.5	<0.5	<50
	02/11/93	<0.5	<0.5	<0.5	<0.5	<50
	05/26/93	<0.5	<0.5	<0.5	<1.0	77

TABLE 1 - Continued

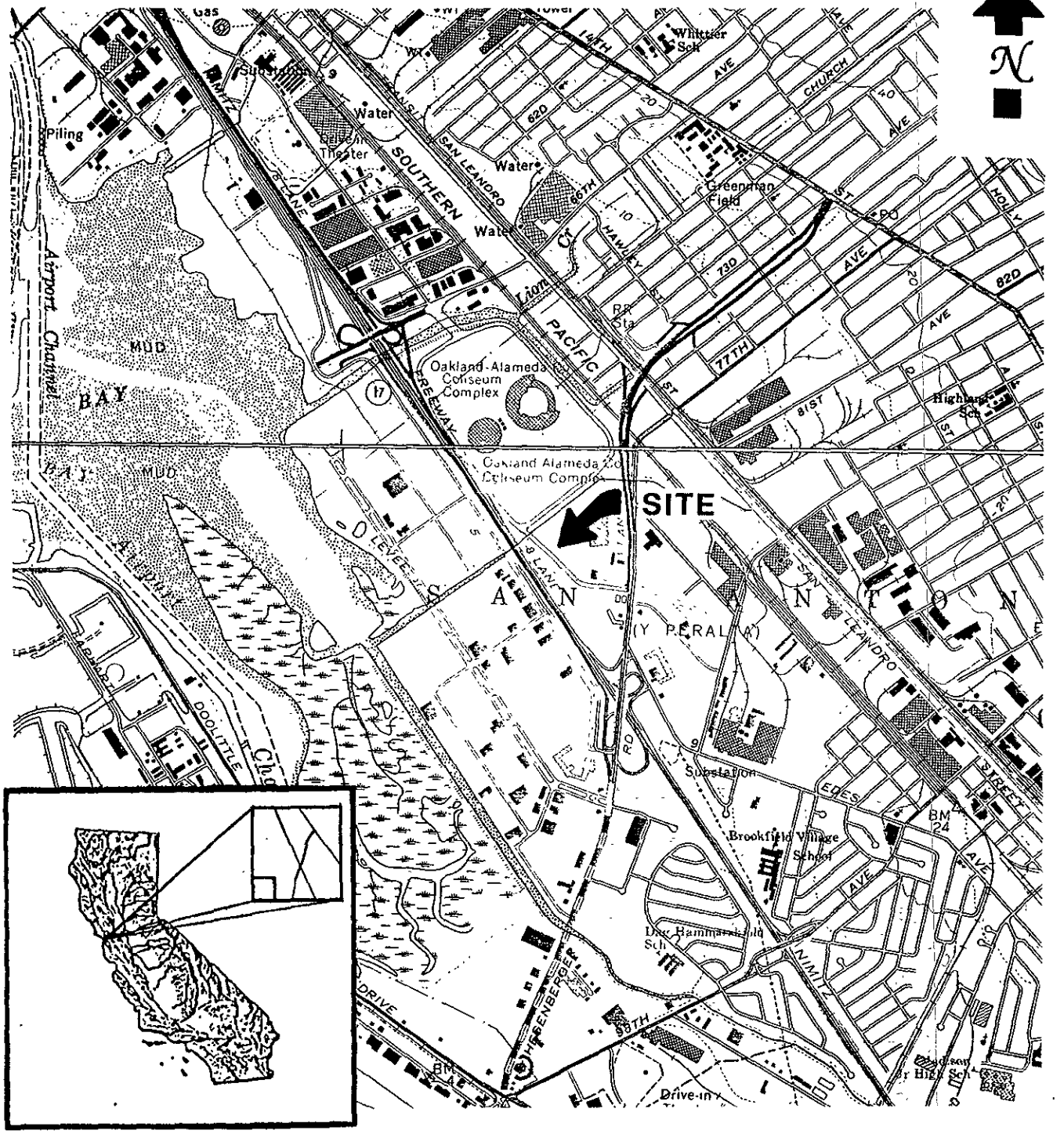
MALIBU GRAND PRIX – OAKLAND, CALIFORNIA
WATER SAMPLE ANALYSIS RESULTS, ppb

Well #	Date	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPHg
	08/20/93	<0.5	<0.5	<0.5	<1.0	56
	12/09/93	<0.5	<0.5	<0.5	<0.5	<50
MW-16	10/09/91	<.05	<.05	<.05	<.05	78
	08/05/92	<0.5	<0.5	<0.5	<0.5	<50
	12/02/92	<0.5	<0.5	<0.5	<0.5	<50
	02/11/93	<0.5	<0.5	<0.5	<0.5	<50
	05/26/93	<0.5	<0.5	<0.5	<1.0	<50
	08/20/93	<0.5	<0.5	<0.5	<1.0	<50
	12/09/93	<0.5	<0.5	<0.5	<0.5	<50
MW-17	10/09/91	<.05	<.05	<.05	<.05	<50
	08/05/92	<0.5	<0.5	<0.5	<0.5	<50
	12/02/92	<0.5	<0.5	<0.5	<0.5	<50
	02/11/93	<0.5	<0.5	<0.5	<0.5	<50
MW-17	05/26/93	<0.5	<0.5	<0.5	<1.0	<50
	08/20/93	<0.5	<0.5	<0.5	<1.0	<50
	12/09/93	<0.5	<0.5	<0.5	<0.5	<50
MW-18	10/09/91	<.05	<.05	<.05	<.05	<50
	08/05/92	<0.5	<0.5	<0.5	<0.5	<50
	12/02/92	<0.5	<0.5	<0.5	<0.5	<50
	02/11/93	<0.5	<0.5	<0.5	<0.5	<50
	05/26/93	<0.5	<0.5	<0.5	<1.0	<50
	08/20/93	<0.5	<0.5	<0.5	<1.0	<50
	12/09/93	<0.5	<0.5	<0.5	<0.5	<50

4.2 Water Table Elevation Measurements

Tables of elevation and depth to water in the wells at the Race Track and Castle areas, measured December 9, 1993 are tabulated in Plate 4 with the Water Table Contours. The depth to water in the MWs is affected by daily tides but the phase of the tide in the ground water below the parking lots was not determined. Relative to the daily, six-hour period between high and low tides, the data were collected from all of the Race Track MWs within a brief time interval, 20 minutes. The Castle MWs were measured and recorded in 25 minutes.

The water level in MW-1 in the Castle parking lot remains consistently high, suggesting there is still a nearby source of recharge to the water table, such as a possible leaking underground water pipe.



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DATE: 3/12/93
PROJECT NUMBER: B4281.42

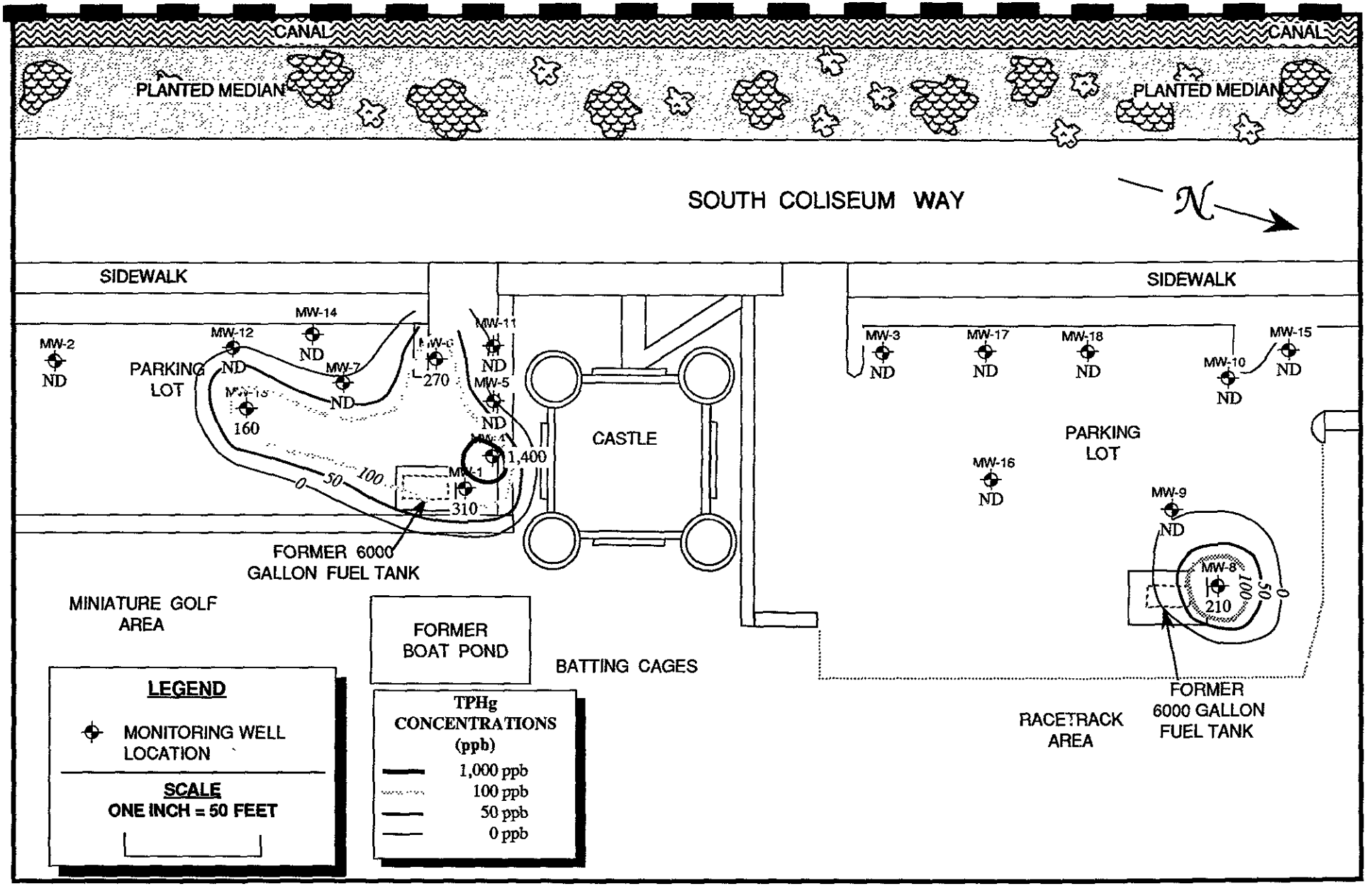
MALIBU GRAND PRIX

8000 SOUTH COLISEUM WAY
OAKLAND, CALIFORNIA

LOCATION MAP

PLATE

1



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DATE: 10/6/93
PROJECT NUMBER: B 2481-41

MALIBU GRAND PRIX

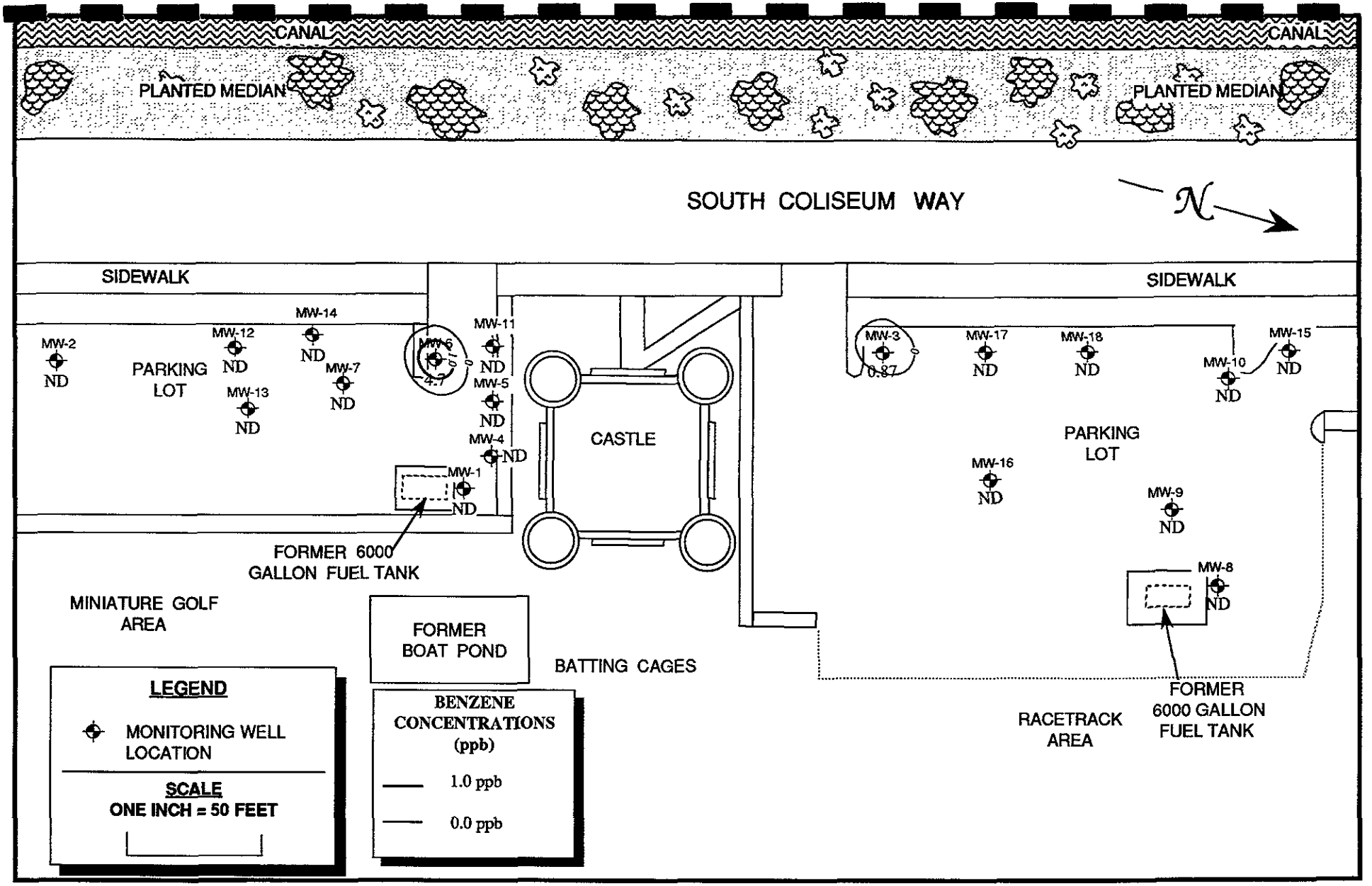
8000 SOUTH COLISEUM WAY
OAKLAND, CALIFORNIA

TPHg GROUNDWATER CONCENTRATIONS (ppm)

December 1993

PLATE

2



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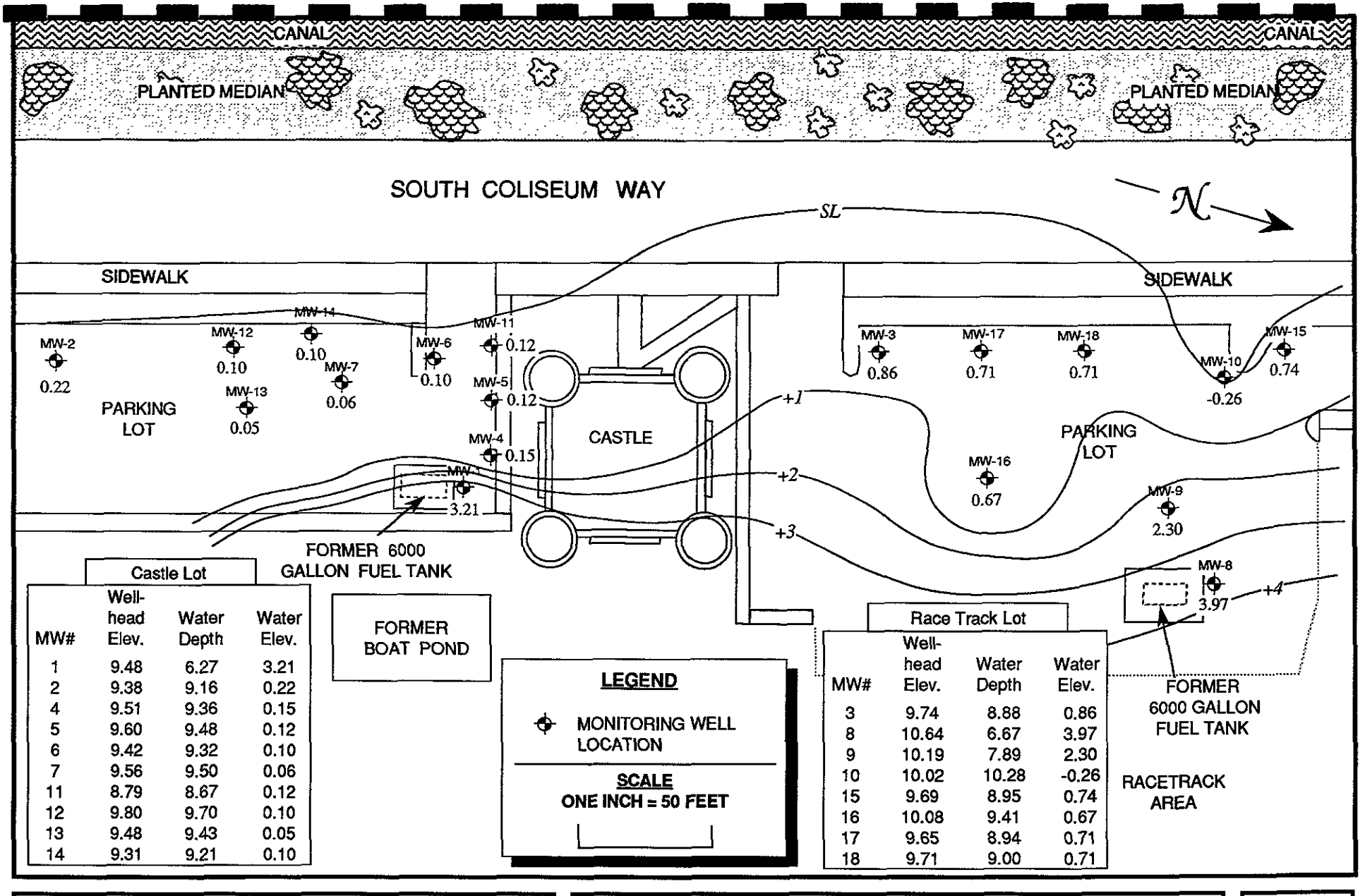
DATE: 10/6/93
PROJECT NUMBER: B 2481-41

MALIBU GRAND PRIX

8000 SOUTH COLISEUM WAY
OAKLAND, CALIFORNIA

BENZENE GROUNDWATER CONCENTRATIONS (ppb)
December 1993

PLATE
3



Castle Lot

MW#	Well-head Elev.	Water Depth	Water Elev.
1	9.48	6.27	3.21
2	9.38	9.16	0.22
4	9.51	9.36	0.15
5	9.60	9.48	0.12
6	9.42	9.32	0.10
7	9.56	9.50	0.06
11	8.79	8.67	0.12
12	9.80	9.70	0.10
13	9.48	9.43	0.05
14	9.31	9.21	0.10

LEGEND

MONITORING WELL LOCATION

SCALE

ONE INCH = 50 FEET

Race Track Lot

MW#	Well-head Elev.	Water Depth	Water Elev.
3	9.74	8.88	0.86
8	10.64	6.67	3.97
9	10.19	7.89	2.30
10	10.02	10.28	-0.26
15	9.69	8.95	0.74
16	10.08	9.41	0.67
17	9.65	8.94	0.71
18	9.71	9.00	0.71

RESNA
Working to Restore Nature

DATE: 10/6/93
PROJECT NUMBER: B 2481-41

MALIBU GRAND PRIX

8000 SOUTH COLISEUM WAY
OAKLAND, CALIFORNIA

GROUNDWATER ELEVATION CONTOUR MAP
December 1993

PLATE
4

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APPENDIX A

Laboratory Analysis Reports

SEQUOIA ANALYTICAL
819 Striker Avenue, Suite 8 • Sacramento, CA 95834
(916) 921-9600 • FAX (916) 921-0100

MAR 3 0 1994

RESNA Industries	Client Project ID:	B2481-41/Malibu Grand Prix, Oakland	Sampled: 12/8-9/93
1500 So. Union Rd.	Sample Matrix:	Water	Received: Dec 10, 1993
Bakersfield, CA 93307	Analysis Method:	EPA 5030/8015/602	Reported: Dec 23, 1993
Attention: Tim Reed	First Sample #:	312-0445	

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 312-0445 TBLB	Sample I.D. 312-0446 W-8-MW3	Sample I.D. 312-0447 W-8-MW17	Sample I.D. 312-0448 W-9-MW18	Sample I.D. 312-0449 W-9-MW16	Sample I.D. 312-0450 W-8-MW10
Purgeable Hydrocarbons	50	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Benzene	0.5	N.D.	0.87	N.D.	N.D.	N.D.	N.D.
Toluene	0.5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Ethyl Benzene	0.5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Total Xylenes	0.5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Chromatogram Pattern:		--	--	--	--	--	--

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0	1.0
Date Analyzed:	12/17/93	12/17/93	12/17/93	12/17/93	12/17/93	12/17/93
Instrument Identification:	HP2	HP2	HP2	HP2	HP2	HP2
Surrogate Recovery, %: (QC Limits = 70-130%)	95	98	99	104	97	102

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

Linda C. Schneider
Project Manager

SEQUOIA ANALYTICAL
819 Striker Avenue, Suite 8 • Sacramento, CA 95834
(916) 921-9600 • FAX (916) 921-0100

RESNA Industries	Client Project ID:	B2481-41/Malibu Grand Prix, Oakland	Sampled: 12/8-9/93
1500 So. Union Rd.	Sample Matrix:	Water	Received: Dec 10, 1993
Bakersfield, CA 93307	Analysis Method:	EPA 5030/8015/602	Reported: Dec 23, 1993
Attention: Tim Reed	First Sample #:	312-0451	

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 312-0451 W-8-MW15	Sample I.D. 312-0452 W-9-MW2	Sample I.D. 312-0453 W-9-MW12	Sample I.D. 312-0454 W-9-MW13	Sample I.D. 312-0455 W-9-MW14	Sample I.D. 312-0456 W-9-MW7
Purgeable Hydrocarbons	50	N.D.	N.D.	N.D.	160	N.D.	N.D.
Benzene	0.5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Toluene	0.5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Ethyl Benzene	0.5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Total Xylenes	0.5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Chromatogram Pattern:		--	--	--	Weathered Gasoline	--	--

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0	1.0
Date Analyzed:	12/17/93	12/17/93	12/17/93	12/17/93	12/17/93	12/17/93
Instrument Identification:	HP2	HP2	HP2	HP2	HP2	HP2
Surrogate Recovery, %: (QC Limits = 70-130%)	97	97	101	116	101	97

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

Linda C. Schneider
Project Manager

SEQUOIA ANALYTICAL

819 Striker Avenue, Suite 8 • Sacramento, CA 95834
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RESNA Industries	Client Project ID:	B2481-41/Malibu Grand Prix, Oakland	Sampled: 12/8-9/93
1500 So. Union Rd.	Sample Matrix:	Water	Received: Dec 10, 1993
Bakersfield, CA 93307	Analysis Method:	EPA 5030/8015/602	Reported: Dec 23, 1993
Attention: Tim Reed	First Sample #:	312-0457	

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 312-0457 W-8-MW11	Sample I.D. 312-0458 W-9-MW5	Sample I.D. 312-0459 W-6-MW1	Sample I.D. 312-0460 W-9-MW4	Sample I.D. 312-0461 W-7-MW9	Sample I.D. 312-0462 W-6-MW8
Purgeable Hydrocarbons	50	N.D.	N.D.	310	1,400	N.D.	210
Benzene	0.5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Toluene	0.5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Ethyl Benzene	0.5	N.D.	N.D.	N.D.	0.61	N.D.	N.D.
Total Xylenes	0.5	N.D.	N.D.	N.D.	N.D.	N.D.	0.55
Chromatogram Pattern:		--	--	Weathered Gasoline	Weathered Gasoline	--	Weathered Gasoline

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0	1.0
Date Analyzed:	12/17/93	12/17/93	12/17/93	12/17/93	12/21/93	12/21/93
Instrument Identification:	HP2	HP2	HP2	HP2	HP2	HP2
Surrogate Recovery, %: (QC Limits = 70-130%)	100	107	107	124	96	92

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

Linda C. Schneider
Project Manager

SEQUOIA ANALYTICAL

819 Striker Avenue, Suite 8 • Sacramento, CA 95834
(916) 921-9600 • FAX (916) 921-0100

RESNA Industries	Client Project ID:	B2481-41/Malibu Grand Prix, Oakland	Sampled:	12/8-9/93
1500 So. Union Rd.	Sample Matrix:	Water	Received:	Dec 10, 1993
Bakersfield, CA 93307	Analysis Method:	EPA 5030/8015/602	Reported:	Dec 23, 1993
Attention: Tim Reed	First Sample #:	312-0463		

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 312-0463 W-9-MW6
Purgeable Hydrocarbons	50	270
Benzene	0.5	4.7
Toluene	0.5	N.D.
Ethyl Benzene	0.5	N.D.
Total Xylenes	0.5	N.D.
Chromatogram Pattern:		Weathered Gasoline

Quality Control Data

Report Limit Multiplication Factor:	1.0
Date Analyzed:	12/21/93
Instrument Identification:	HP2
Surrogate Recovery, %: (QC Limits = 70-130%)	100

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

Linda C. Schneider
Project Manager

SEQUOIA ANALYTICAL
819 Striker Avenue, Suite 8 • Sacramento, CA 95834
(916) 921-9600 • FAX (916) 921-0100

RESNA Industries
1500 So. Union Rd.
Bakersfield, CA 93307
Attention: Tim Reed

Client Project ID: B2481-41/Malibu Grand Prix, Oakland
Matrix: Water

QC Sample Group 3120445-463

Reported: Dec 23, 1993

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
Method:	EPA 602	EPA 602	EPA 602	EPA 602
Analyst:	Chiaravalloti	Chiaravalloti	Chiaravalloti	Chiaravalloti
Concentration Spiked:	10 ug/L	10 ug/L	10 ug/L	30 ug/L
LCS Batch#:	LCS121793	LCS121793	LCS121793	LCS121793
Date Prepared:	12/17/93	12/17/93	12/17/93	12/17/93
Date Analyzed:	12/17/93	12/17/93	12/17/93	12/17/93
Instrument I.D.#:	HP2	HP2	HP2	HP2
LCS % Recovery:	104	106	108	105
Control Limits:	80-120	80-120	80-120	80-120
MS/MSD Batch #:	3120455	3120455	3120455	3120455
Date Prepared:	12/17/93	12/17/93	12/17/93	12/17/93
Date Analyzed:	12/17/93	12/17/93	12/17/93	12/17/93
Instrument I.D.#:	HP2	HP2	HP2	HP2
Matrix Spike % Recovery:	96	96	99	100
Matrix Spike Duplicate % Recovery:	100	100	100	107
Relative % Difference:	4.1	4.1	1.0	6.8

SEQUOIA ANALYTICAL

Linda C. Schneider
Project Manager

Please Note:
The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation and analytical methods employed for the samples. The LCS % recovery data is used for validation of sample batch results. Due to matrix effects, the QC limits for MS/MSD's are advisory only and are not used to accept or reject batch results.

RESNA 1 of 2

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

PROJECT NO	PROJECT NAME/SITE	P.O. #
B2481-41	MALIBU GRAND PRIX : OAKLAND, CA.	

SAMPLERS (SIGN) / (PRINT) JEFF ANDREWS

SAMPLE IDENTIFICATION	DATE	TIME	COMP	GRAB	PRES. USED	(ICED)	NO. CONTAINERS	SAMPLE TYPE	BTEX (602/8020)	TPHg (8015)	TPHd (8015)	TOG 418.1/5520	601/8010	624/8240	625/8270	REMARKS
TBLB	12-08-93				HCL		1		✓	✓						53120445 AC
W-8-MW3		13:10					3		✓	✓						446
W-8-MW17		13:25					3		✓	✓						447
W-9-MW18		14:15					3		✓	✓						448
W-9-MW16		15:00					3		✓	✓						449
W-8-MW10		15:40					3		✓	✓						450
W-8-MW15		16:20					3		✓	✓						451
W-9-MW2	12-08-93	16:50					3		✓	✓						452
																~~453~~
W-9-MW12	12-09-93	08:00					3		✓	✓						453 ~~454~~
W-9-MW13		08:40					3		✓	✓						454 ~~455~~
W-9-MW14		09:20					3		✓	✓						455
W-9-MW7		10:00					3		✓	✓						456
W-8-MW11		10:45					3		✓	✓						457
W-9-MW5	12-09-93	11:25			HCL		3		✓	✓						458

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
JCA	12-10-93 ~~12-09-93~~	11:55 ~~15:30~~ JCA	
RELINQUISHED BY	DATE	TIME	RECEIVED BY:
	12/10/93	1:45	
RELINQUISHED BY	DATE	TIME	RECEIVED BY:
	12/10/93	2:36	C. Wiot 12/10/93 @ 14:30
RELINQUISHED BY	DATE	TIME	RECEIVED BY LABORATORY:

LABORATORY: Sequoia

REQUESTED TURNAROUND TIME: 2wks

RECEIPT CONDITION:

PLEASE SEND RESULTS TO
RESNA 2ND
73 DIGITAL DR.
NOVATO, CA. 94949
ATT: MARK FRYE

1500 South Union St
Bakersfield, CA
93307
Tim Reed

per Phil Mark 12/14/93
JCA

PROJECT MANAGER

RESNA 2 of 2

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

PROJECT NO	PROJECT NAME/SITE	SAMPLERS (SIGN)	(PRINT)
B2481.41	8000 S. Coliseum WAY MALIBU GRAND PRIX OAKLAND, CA	[signature]	Jeff ANDREWS

SAMPLE IDENTIFICATION	DATE	TIME	COMP	GRAB	PRES. USED	ICED	NO. CONTAINERS	SAMPLE TYPE	BTEX (602/8020)	TPHg (8015)	TPHd (8015)	TOG 418.1/5520	601/8010	624/8240	625/8270	REMARKS
W-6-MW 1	12-09-93	11:50			HCL		3		/	/						53120459 AC
W-9-MW 4	"	12:20			"		3		/	/						4100
W-7-MW 9	"	13:30			"		3		/	/						4101
W-6-MW 8	"	13:45			"		3		/	/						4102
W-9-MW 6	12-09-93	14:30			HCL		3		/	/						4103

ANALYSIS REQUESTED

PO #

RELINQUISHED BY	DATE	TIME	RECEIVED BY
[signature] JLA	12-10-93 / 12-09-93	11:55 / 15:30	[signature]
[signature]	12/10/93	1:45	[signature]
[signature]	12/09/93	2:36	C. West 12/10/93 @ 1430
RELINQUISHED BY	DATE	TIME	RECEIVED BY LABORATORY

LABORATORY: Sequoia

REQUESTED TURNAROUND TIME: 2 wks.

RECEIPT CONDITION:

PLEASE SEND RESULTS TO
RESNA IND
73 DIGITAL DR
NOVATO CA 94949
ATT: MARK FRYE

PROJECT MANAGER

APPENDIX B

Quality Assurance and Quality Control Program - Sampling Protocol

RESNA
Working to Restore Nature

1500 South Union Avenue
Bakersfield , Ca. 93307
Phone: (805) 835-7700
Fax: (805) 835-7717

RESNA INDUSTRIES INC.
1500 SOUTH UNION AVENUE
BAKERSFIELD, CALIFORNIA 93307

SAMPLING PROTOCOL
QUALITY ASSURANCE & QUALITY CONTROL

(QAQC)

Revised April 1991

SAMPLING PROTOCOL - QUALITY ASSURANCE AND QUALITY CONTROL

TABLE OF CONTENTS

TABLES

RESNA Industries Inc. (RESNA) has adopted the following Site Investigation Quality Assurance/ Quality Control (QA/QC) program intended to facilitate the acquisition of accurate and reliable data. Environmental data gathered during the investigation shall be collected and analyzed following procedures prescribed in the Quality Control Program. A Quality Assurance Program has been established to assure that the Quality Control Program is effective. Both programs are necessary to provide accurate data and documentation for investigations and laboratory analyses. The following field and laboratory procedures shall be implemented to ensure that QA/QC objectives are met.

1.0 RECORDING OF FIELD DATA

All information pertinent to the field investigation shall be kept in a field log book. In addition, boring log and chain-of-custody comprise the field documents in which all of the pertinent information about bore hole soil samples are recorded. Information to be documented includes at least the following:

- Sample number.
- Locations of sample collection.
- Soil boring or well numbers, as applicable.
- Depths at which samples were obtained.
- Names of collectors.
- Dates and times of collection.
- Purpose of sample.
- Sample distribution (e.g., laboratory, archive, etc.).
- Field observations.
- Field measurements (e.g., PID readings, pH, conductivity, water levels).
- Other data records (e.g., development log, soil sampling report, well log, etc.).

2.0 SAMPLE CONTAINERS

Groundwater samples shall be placed in containers supplied by RESNA or an analytical laboratory. Table 1 summarizes the required sample containers.

Soil samples shall be collected in either 8-once widemouth glass jars with screw-on caps lined with teflon or in brass or stainless steel tubes (Table 1). Screw-on caps for the tubes shall be fitted with teflon liners. Tubes shall be tightly capped and sealed with integrity tape.

3.0 QUALITY CONTROL OF WATER SAMPLES

A QC program independent from the laboratory's program shall be maintained. The program entails submittals of travel blanks, duplicates, and field blanks to a certified laboratory. No spiked samples shall be supplied from the field; the laboratory in-house QC program shall include analysis of spiked samples. Field blanks shall be assigned independent sample numbers and made indistinguishable from non quality control samples.

3.1 Travel Blanks

When sampling groundwater, travel blanks shall be used to detect the introduction of contaminants during transportation from the field to the laboratory. The travel blanks shall be provided by RESNA or the analytical laboratory. They shall be taken to the field and accompany the collected groundwater samples to the laboratory for analysis. The blanks shall consist of deionized water or analytically confirmed organic-free water. The blank is numbered, packaged, and sealed in the same manner as the other samples.

3.2 Duplicates

Five percent (1 in 20) or one (1) per sampling set, whichever is more, shall be submitted to the laboratory for analysis as duplicates. Therefore, if a job site has one (1) and up to twenty (20) wells to be sampled, one (1) duplicate shall be analyzed. If twenty-one (21) wells are to be sampled then two (2) duplicates shall be analyzed. The duplicate is acquired by filling two sample bottles from the same well bailer. If more than one bailer volume is required, each bailer volume shall be split between containers. The duplicates shall be labeled as duplicate without identifying the actual well location either on the chain-of-custody or on the actual sample. The actual well location of the duplicate shall be noted in the field log book.

3.3 Field Blanks

Field blanks shall be prepared and submitted to the analytical laboratory for analysis on the same frequency stated for duplicates. A field blank shall be acquired by sampling the deionized water used to rinse the sampling bailer in between sample points.

3.4 Sample Preservation

Sample containers shall be pre-cooled and transported to the site in coolers. All samples shall be preserved as indicated on Table 1 and placed in coolers immediately after collection. Sealed chemical ice shall be used in the coolers to maintain samples at a temperature of 4 degrees celsius. A high level recording thermometer shall accompany the samples during transport conditions.

4.0 GROUNDWATER SAMPLING PROTOCOL

Immediately prior to sampling, the depth to water (DTW) in the well shall be recorded. If there is free product in the well, the thickness of product on top of the groundwater shall be measured using an interface probe.

If free product is detected, analysis of groundwater at the interface for dissolved product shall not be conducted. A product sample shall be collected for source identification. If all free product cannot be removed, an interval-specific sampling device may be utilized to collect a sample from below the

zone of free product. The well shall be purged until indicator parameters (temperature, conductivity and pH) are stabilized. This shall entail the removal of at least four well-casing volumes by bailing or pumping. The criteria for determining well-casing volumes and temporary storage of purged water is outlined in Section 9.0, (Well Development Protocol). The indicator parameter measurements shall be taken both before and after purging of each well-casing volume. Once the well is purged and indicator parameters have stabilized, a sample may be collected after the water level has reached 80 percent of its initial elevation. Where water level recovery is slow, the sample may be collected after stabilization is achieved and enough water is present to fill sample containers.

Cross contamination from transferring pumps (or bailers) from well to well shall be avoided by utilizing dedicated equipment. Where this is not feasible, thorough cleaning of equipment shall be performed between sampling rounds. Sampling shall proceed from the least contaminated to the most contaminated well, if that information is available before sample collection, or if it is indicated by field evidence. Where several types of analysis shall be performed for a given well, individual samples shall be collected in the following order:

1. Volatile organics
2. Purgeable organics
3. Purgeable organic halogens
4. Total organics
5. Total organic halogens
6. Extractable organics
7. Total metals
8. Dissolved metals
9. Phenols
10. Cyanide

The specific analytical methods to be utilized for the common volatile/semi-volatile analyses are shown on Table 2.

Duplicate samples shall be transferred to vials or containers that meet Regional Board specifications (Table 1). Groundwater from the bailer shall be transferred to the sample container by allowing the fluid to flow slowly along the sides of the vessel. All containers shall be filled above the top of the opening to form a positive meniscus. No head space should be present in the sample container once it is sealed. After the vial is capped it should be inverted to check for air bubbles. If bubbles are present the sample should be discarded and replaced. If it is not possible to collect a sample without air bubbles, the problem shall be noted in the field log book.

5.0 CHAIN-OF-CUSTODY PROCEDURES

5.1 Sample Labels

Each sample container shall be labeled prior to filling to prevent misidentification. The label shall contain at least the following information:

- Sample number which uniquely identifies the sample
- Project title or number
- Location of sample collection
- Soil boring or well number, as applicable
- Name of collector
- Date and time of collection

5.2 Chain-of-Custody Record and Sample Analysis Request Form

A chain-of-custody record for each container or sample shall be used to track possession of the samples from the time they were collected in the field until the time they are analyzed in the laboratory.

The chain-of-custody record shall contain the following information:

1. Site name or project number
2. Signature of collector
3. Date and time of collection
4. Sample identification number(s)
5. Number of containers in sample set
6. Description of sample and container(s)
7. Name and signature of persons, and the companies or agencies they represent, who are involved in the chain-of-custody
8. Inclusive dates and times of possession
9. Type of analysis requested

5.3 Delivery of Samples to Laboratory

Samples shall be delivered to the laboratory on a daily basis. Samples shall be maintained at approximately 4 degrees celsius for shipping. Shipping containers shall be sealed with security tape to assure sample integrity during shipping. Delivered samples shall be accompanied by a chain-of-custody record. The laboratory shall note on the chain-of-custody that samples were properly preserved and security tape was intact upon arrival.

6.0 SAMPLING AND DRILLING EQUIPMENT DECONTAMINATION

Prior to arriving at the sampling site, all sampling equipment shall be cleaned with laboratory grade detergent (Alconox or equivalent) and rinsed twice with tap water. This procedure shall also be carried out on-site before sampling of any additional monitoring wells.

All decontamination shall be conducted on an impermeable surface and all decontamination effluent shall be contained. All surfaces of the equipment shall be thoroughly decontaminated using a steam cleaner. The equipment shall be placed on a drying rack for air drying. The water used for decontamination shall be stored in containers certified for hazardous materials storage and disposed of in an approved manner.

7.0 FIELD EQUIPMENT CALIBRATION AND MAINTENANCE

The following measuring equipment may be used during the Site Investigation and/or sample collection. Calibration procedures and frequency are listed for each piece.

Soil Borings and Well Dimensions - Steel and coated cloth tape. Calibration: none.

Water Level Measurements in Wells - Water Sensing tape. Calibration: Manufacturer supplied temperature correction shall be applied as applicable for field conditions. Electrical well sounders.

Total Organic Vapors - Foxboro OVA, flame ionization detector (FID). Calibration: Daily field calibration using manufacturer recommended procedures.

Organic Vapors - Photovac, photoionization detector (PID). Calibration: Daily field calibration using an isobutylene standard as per manufacturer instructions.

Groundwater pH Measurement - Digital pH meter. Calibration: Standard pH solutions of 4, 7, and 10 shall be utilized for daily field calibration according to manufacturer instructions.

Electrical Conductivity - Electrical conductivity meter. Calibration: Factory-calibrated annually and periodically calibrated against laboratory prepared standard calibration solution.

Water Temperature - Alcohol or digital thermometers. Calibration: Factory-calibrated once.

Combustible Gas/Oxygen - Gastech LEL, combustible gas/oxygen meter calibration: Factory calibrated, field calibrated monthly, zeroed daily according to manufacturer's instructions.

Miscellaneous Measuring Devices - Calibration procedures for any other measuring device used shall be documented at the request of the regulatory authority.

All equipment shall be checked before use and replaced as necessary. Instrument manuals and an instrument log book shall accompany equipment into the field. Any calibrations, repairs or related information shall be recorded in the log book.

8.0 GROUNDWATER MONITORING PROTOCOL

Monitoring of depth to water and free product thickness within wells at the site shall be conducted using an interface probe or conductivity meter. For consistency, all measurements shall be taken from

the north side of the wellhead at the survey mark. To assess potential infiltration of fine-grained sediments, total well depth shall also be sounded.

Newly installed wells shall be allowed to stabilize for 24 hours after development prior to free product inspection. A clean bailer or sampler shall be used for visual inspection of the groundwater in order to note sheens (difficult to detect with the interface probe), odors, microbial action and sediments.

To reduce the potential for cross contamination between wells, the monitoring shall take place in order from the least to the most contaminated, if known. Wells containing free product shall be monitored last. Between each well monitoring, the equipment shall be decontaminated.

Water level data collected from the wells shall be used to develop a groundwater contour map for the project site. Groundwater flow shall be estimated to be perpendicular to equipotential lines drawn on the map.

9.0 WELL DEVELOPMENT PROTOCOL

Groundwater monitoring wells shall be surged and developed prior to setting the surface seal. Approximately 3 to 5 times the volume of water in the casing shall be withdrawn if possible. Casing volumes shall be calculated in the following manner:

Volume of Schedule 40 PVC Pipe

Diameter (inches)	I.D. (inches)	Volume (gal/linear ft.)
2	2.067	0.17
4	4.026	0.66

If the aquifer is slow to recharge, development shall continue until recharge is too slow to practically continue. The volume of water produced, versus time, shall be recorded.

All withdrawn groundwater shall be stored on-site in 55-gallon waste drums unless permission is granted by the appropriate regulatory agency to discharge the water to the ground surface or sanitary sewer. Drummed water shall be labeled with the source of the water to help ensure appropriate disposal based on contamination levels.

10.0 QUALITY CONTROL OF SOIL SAMPLES

10.1 Travel Blanks

Travel blanks shall not be used for soil sample transportation due to problems associated with obtaining a blank material.

10.2 Duplicates

The effort to collect duplicate soil samples from a bore hole may be compromised by variations of soil texture. This shall be minimized by selecting a duplicate sample location as near as possible to the actual sample. In a split-spoon sampler the lowest tube shall be a duplicate when needed. The middle tube shall be the actual sample. All soil sample tubes shall be marked to show from which end the tube is to be sampled. The ends, where the two sample tubes joined shall be marked. The laboratory shall be instructed to sample the marked end. The upper tube shall be used for soil characterization.

The frequency with which soil duplicates are taken shall be at a minimum five (5) percent (1 in 20). In bore-holes the samples are best collected below the five foot depth in zones of either low or no transition.

When sampling soil piles or tank pits the top inch or two shall be remove before sampling. Efforts shall be made to avoid areas where soil texture changes. Fill the sample jar completely full avoiding any unnecessary head space in the sample jar.

Duplicate soil samples shall be labeled as duplicate without any other identification. A record of its actual sampling point shall be kept in the field log book.

10.3 Field Blanks

A soil field-blank from a bore hole would be best sampled from the top of the bore hole i.e. the first sample depth (not to be greater than five feet) and only if there is no indication of contaminates. The blank should be labeled as to the boring number, depth, and B for blank. For example, a blank obtained from soil boring number two (2), at a depth of five feet would be labeled as SB2-5B. The frequency of blanks may different than that of duplicates, but when possible they shall be of the same frequency, five (5) percent (1 in 20).

A blank from a soil pile or tank pit shall be taken from the surface material only. It shall be taken in a zone where no contamination is indicated.

11.0 SOIL SAMPLING PROTOCOL

11.1 Sample Collection During Drilling Activities

A proposal shall be submitted to the lead Regulatory Authority with proposed boring/sampling locations. The exact location and number of borings at each site shall be determined in the field by the Project Geologist/Engineer.

Prior to arriving at the sample site, the drill rig/augers shall be steam cleaned and all sample equipment shall be cleaned. Cleaning between samples shall be conducted on-site on all sampling equipment.

Soil samples shall be obtained using a California modified split-spoon sampler containing three, six inch long, two inch diameter brass tubes. The sampler shall be driven 18 inches ahead of the hollow stem auger by a 140-pound hammer with a 30-inch drop in accordance with American Society for Testing and Materials (ASTM Method D 1586-84) for split-barrel sampling of soil and (ASTM Method D 1587-83) for thin-walled tube sampling of soils. The blows required to drive the sampler each six-inch interval shall be recorded on the boring log. The sampler shall be removed from the boring and opened to reveal the brass tubes. The middle tube shall be covered with teflon and plastic end caps, taped, labeled, and placed into a cooler containing frozen chemical. A high level temperature recording thermometer shall accompany sample shipments to ensure proper temperature maintenance. The samples shall be delivered to a state certified laboratory, with a chain-of-custody, following all protocols, within 48 hours of sampling.

Soil in the uppermost brass tube shall be described according to ASTM standard practice for physical description and identification of soils (ASTM Method D 2488-84). Stratigraphic, genetic and other data/interpretations shall also be recorded on a log prepared for each boring/well. The second sample tube may be used with the lowermost tube for preparation of duplicates.

Soil samples shall be collected at five foot intervals, at significant changes in lithology and intervals of obvious contamination in order to develop a complete profile of soil contamination.

11.2 Sample Collection During Tank Removal

Soil samples shall be collected as soon as possible after removal of the tank. Where feasible, all preparations for soil sampling shall be made prior to tank removal. Soil samples collected from a backhoe bucket or directly from the excavation floor shall be collected in glass sampling jar with a Teflon lined screw cap. When sampling, the jar should be filled with soil as completely as possible.

11.3 Sampling from Soil Piles or Shallow Soil Pits

Soil samples shall be collected and transported from excavated material in the manner described in the previous section, however, a backhoe shall not be utilized. If composite samples are collected, four sample jars shall be collected for every 50 cubic yards of material to be sampled unless otherwise specified by the lead regulatory agency. The samples shall be composited by the state certified analytical laboratory personnel prior to testing.

TABLE 1

Sample Containers, Holding Times and Preservation

Parameter	Matrix	Container	Holding Time	Preservation
Total Petroleum Hydrocarbons	Soil	3" stainless steel or brass cylinder	14 days[1] 40 days[3]	4°C
	Water	(2) 40ml glass vial teflon-faced silicon septum	7 days[1] 14 days[2]	4°C, HCl to pH 2
Benzene Toluene Xylene Ethylbenzene	Soil	3" stainless steel or brass cylinder	14 days[1]	4°C
	Water	(2) 40ml glass vial teflon-faced silicon septum	7 days[1] 14 days[2]	4°C, HCl to pH 2
Purgeable Hydrocarbon	Soil	3" stainless steel or brass cylinder	14 days[1]	4°C
	Water	(2) 40ml glass vial teflon-faced silicon septum	7 days[1] 14 days[2]	4°C, HCl to pH 2
Organiclead	Soil	3" stainless steel or brass cylinder	14 days[1]	4°C
	Water	(2) 40ml glass vial teflon-faced silicon septum	14 days[1]	4°C
Ethylene Dibromide	Soil	3" stainless steel or brass cylinder	14 days[3]	4°C
	Water	(2) 40ml glass vial teflon-faced silicon septum	14 days[1]	4°C
Polynuclear Aromatic Hydrocarbons	Soil	8 oz. wide mouth glass with teflon seal	14 days[2] 40 days[3]	4°C
	Water	1000 ml amber glass with teflon seal	7 days[1] 40 days[3]	4°C

Notes:

[1] Maximum holding time for sample (sample must be extracted within this time or analyze if extraction is not required).

[2] Maximum holding time for sample if preserved with HCl,
Caution: HCl is a strong acid, avoid eye and skin contract

[3] Maximum holding time for extract (sample must be analyzed within this time)

TABLE 1

Sample Containers, Holding Times and Preservation

Parameter	Matrix	Container	Holding Time	Preservation
Poly-Chlorinated Biphenyls	Soil	8 oz. wide mouth glass with teflon seal	7 days[1] 40 days[3]	4°C
	Water	1000 ml amber glass with teflon seal	7 days[1] 40 days[3]	4°C
Total Metals	Soil	3" stainless steel or brass cylinder	6 months	
	Water	1000 ml plastic	6 months	pH < 2 HNO_3
Dissolved Metals	Water	1000 ml plastic .45 Micron Filtration	6 months	pH < 2 HNO_3
Pesticides	Soil	3" stainless steel or brass cylinder	14 days[3]	4°C
	Water	1000 ml amber glass	7 days[1] 40 days[3]	4°C

Notes:

[1] Maximum holding time for sample (sample must be extracted within this time or analyze if extraction is not required).

[2] Maximum holding time for sample if preserved with HCl,
Caution: HCl is a strong acid, avoid eye and skin contract

[3] Maximum holding time for extract (sample must be analyzed within this time)

TABLE 2

Laboratory Test Methodology
Underground Tank Sites

Type Hydrocarbon	Soil Analysis		Water Analysis	
Unknown Fuel	TPH-G	GCFID(5030)	TPH-G	GCFID(5030)
	TPH-D	GCFID(3550)	TPH-D	GCFID(3510)
	BTX&E	8020 or 8240	BTX&E	602 or 624
Leaded Gas	TPH-G	GCFID(5030)	TPH-G	GCFID(5030)
	BTX&E	8020 or 8240	BTX&E	602 or 624
		——Optional——		
	TEL	DHS-LUFT	TEL	DHS-LUFT
	EDB	DHS-AB1803	EDB	DHS-AB1803
Unleaded Gas	TPH-G	GCFID(5030)	TPH-G	GCFID(5030)
	BTX&E	8020 or 8240	BTX&E	602 or 624
Diesel	TPH-D	GCFID(3550)	TPH-D	GCFID(3510)
	BTX&E	8020 or 8240	BTX&E	602 or 624
Jet Fuel	TPH-D	GCFID(3550)	TPH-D	GCFID(3510)
	BTX&E	8020 or 8240	BTX&E	602 or 624
Kerosene	TPH-D	GCFID(3550)	TPH-D	GCFID(3510)
	BTX&E	8020 or 8240	BTX&E	602 or 624
Fuel Oil	TPH-D	GCFID(3550)	TPH-D	GCFID(3510)
	BTX&E	8020 or 8240	BTX&E	602 or 624
Chlorinated Solvents	Cl HC	8010 or 8240	Cl HC	601 or 624
	BTX&E	8020 or 8240	BTX&E	602 or 624
Non Chlorinated Solvents	TPH-D	GCFID(3550)	TPH-D	GCFID(3510)
	BTX&E	8020 or 8240	TX&E	602 or 624
Waste Oil or Unknown	TPH-G	GCFID(5030)	TPH-G	GCFID(5030)
	TPH-D	GCFID(3550)	TPH-D	GCFID(3510)
	BTX&E	8020 or 8240	BTX&E	602 or 624
	O & G	418.1	O & G	418.1
	Cl HC	8010 or 8240	Cl HC	601 or 624
Metals: Cadium (Cd) **Cromimum (Cr)** **Lead (Pb)** **Zinc (Zn)**	ICAP or AA		ICAP or AA	
Polychlorinated Biphenyls (PCB)	8270		8270	
Poly Nuclear Aromatic (PNA)				
(PCP)				

TABLE 3

ABBREVIATIONS

TPH-G	=	Total Petroleum Hydrocarbon as Gasoline
TPH-D	=	Total Petroleum Hydrocarbon as Diesel
BTX&E	=	Benzene, Toluene, Xylenes, & Ethylbenzene
GCFID	=	Gas Chromatograph with a Flame Ionization Detector
Cl HC	=	Chlorinated Hydrocarbons
ICAP	=	Inductively Coupled Argon Plasma
AA	=	Atomic Absorption
O&G	=	Oil & Grease
DHS	=	Department of Health Services
AB1803	=	Assembly Bill 1803
418.1	=	EPA Method for Total Recoverable Petroleum Hydrocarbons
601	=	EPA Method for Volatile Halogenated Ogranics
602	=	EPA Method for Volatile Aromatics
624	=	EPA Method for Purgeables Halogenated & Aromatics
3510	=	EPA Method Extraction by Liquid-Liquid Separatory Funnel
3550	=	EPA Method Extraction by Sonication
5030	=	EPA Method Extraction by Purge and Trap
8010	=	EPA Method for Halogenated Volatile Organics
8015	=	EPA Method for Nonhalogenated Volatile Organics
8020	=	EPA Method for Aromatic Volatile Organics
8240	=	EPA Method for Volatile Organics/Mass Spectrometry
8270	=	EPA Method for Semivolatile Organic/Capillary Column