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November 7, 1996

Mr. Scott Seery
Alameda County Hazardous Materials
1131 Harbor Bay Parkway, Room 250
Alameda, CA 94502-6577

Dear Scott:

Enclosed is the Semi-Annual Groundwater Monitoring Report, dated October 1996, for the Unocal 76 Service Station on Redwood Road in Castro Valley.

Sincerely,


Randall E. Nahas

hrs

Enclosure

**Semi-Annual
Groundwater Monitoring Report
October 1996
Unocal 76 Service Station
20405 and 20629 Redwood Road
Castro Valley, California**

11/5/96

**BSK & ASSOCIATES
Geotechnical Consultants, Inc.**

**BSK JOB NO. P92057.3
November 5, 1996**



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November 5 , 1996

BSK JOB NO. P92057.3

R. T. Nahas Company/Eden Managements
20630 Patio Drive
Castro Valley, CA 94546

Attention: Mr. Randy T. Nahas

Subject: Semi-Annual
Groundwater Monitoring Report
Unocal 76 Service Station
20405 and 20629 Redwood Road
Castro Valley, California

Gentlemen:

As requested and authorized, we have performed groundwater monitoring well sampling at the above-referenced facility. This report presents the groundwater data obtained during this sampling event, conclusions based on this event's data, and recommendations for further action. The site location is shown on Figure 1, Vicinity Map.

GROUNDWATER MONITORING ACTIVITIES - OCTOBER 1996

General

Semi-annual monitoring of groundwater Monitoring Wells MW-2, MW-3, MW-4, MW-5, and MW-6 (Figure 2, Site Plan) was performed on October 8, 1996. The groundwater monitoring well MW-7 was not sampled during this event, due to the presence of chlorinated hydrocarbons in the water purged from the well, which are at levels that are considered hazardous waste. The semi-annual sampling schedule was approved by Mr. Scott Seery, case officer for the ACDEH. Further, per letter dated April 13, 1995 from Mr. Seery to R.T. Nahas, sampling and monitoring may follow a semi-annual schedule. Field procedures and observations are provided in the following text and Tables.

Field Work

Wells MW-2 through MW-6 were purged by an electric submersible pump. Three to four well casing volumes were removed from each well. Purge effluent was field monitored for pH, temperature and conductivity during purging to assess the influx of fresh formation water into the well. Purged water was transferred to 55-gallon DOT-approved steel drums for holding. Each drum was labeled according to its contents, content source, and date of accumulation.

Prior to purging, the depth to water in each well was measured using a Solinst electric sounder, marked in twentieths of a foot. The water depth was then interpolated to the 0.01 foot increment from the tape. Each well was subsequently examined for floating and sinking

immiscible product layers and sheen, using a clear bailer having dual check valves for point-source sampling. The piezometric contour and elevation, and well water elevations, are presented in Figure 3, Potentiometric Surface Map.

Upon purge completion, each well was again measured to confirm a minimum of 80% well recovery prior to sampling. Water sampling was then performed with a Teflon® point-source bailer. Sampling for contaminants was performed in the order of decreasing contaminant volatility. Each water sample was decanted into the appropriate container with preservative (as necessary), sealed, labeled and refrigerated for delivery to our State-certified laboratory.

A Well Field Log was prepared for each well sampled, recording the water depth, well volume, pH, water temperature, conductivity and other data. The Well Field Logs are presented as Figures 4.1 through 4.6.

Site Hydrology

Groundwater measurements were made of the six wells on October 8, 1996 in order to assess the flow direction and gradient. On that date, groundwater flow was generally to the south, similar to the previous event. The gradient was generally flat at 0.8 percent. Groundwater flow direction and gradient are shown on Figure 3, Potentiometric Surface Map.

Chemical Analyses

Water samples obtained from Wells MW-2, MW-3, MW-5 and MW-6 were analyzed for constituents related to gasoline, Total Petroleum Hydrocarbons as Gasoline (TPHg), Benzene, Toluene, Ethylbenzene and Xylene (BTEX) and Methyl-t-Butyl Ether (MTBE). Well MW-4 was tested for waste-oil related contaminants: TPHg, BTEX, MTBE, TPH as Diesel (TPHd).

The contaminants tested for are those specified by the Tri-Regional Water Quality Control Board Recommendations of August 10, 1990, and listed in the ACDEH letter, dated April 26, 1990 and April 13, 1995 to R.T. Nahas Co. MTBE was added to the testing program to satisfy a July 30, 1996 memorandum by the CalEPA requesting that MTBE be added to the testing program at all LUFT sites. Current and former analysis results are presented for comparison in Table 1. The Chemical Test Data Sheets are presented in Appendix A, Figures A-1 through A-6. The Project Chain-of-Custody record is presented in Figures A-7.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Trace contaminant concentrations associated with gasoline (BTEX compounds) are generally at similar concentrations as the previous results from the April 1996 sampling event in Wells MW-2 and MW-3. Total Petroleum Hydrocarbons as Diesel was not detected in Well MW-4. Total

Petroleum Hydrocarbons as Gasoline was not detected in Wells MW-4, MW-5 and MW-6. BTEX was not detected in Wells MW-4, MW-5, and MW-6.

MTBE was detected in Wells MW-2, MW-3 and MW-6. Contaminant concentrations detected this event at well locations are depicted in Figure 5, Contaminant Concentrations - 10/8/96.

As shown graphically on Figures 6 and 7, the BTEX concentrations in the groundwater samples from Wells MW-2 and MW-3 have demonstrated a slight decrease in concentration since the previous sampling event.

Recommendations

Pending completion and implementation of a corrective action plan, the six groundwater monitoring wells located at the Site should be sampled on a semi-annual basis as approved by ACDEH (letter dated April 13, 1995). The next semi-annual sampling event is scheduled for April 1997.

REPORT DISTRIBUTION

Copies of this report should be submitted to the Alameda County Department of Environmental Health for their review. We are providing you with extra copies for this purpose. We understand that copies of the report may be forwarded by ACDEH to the Regional Water Quality Control Board in Oakland for their review.

Alameda County Department of Environmental Health
1181 Harbor Bay Parkway
Alameda, CA 94502

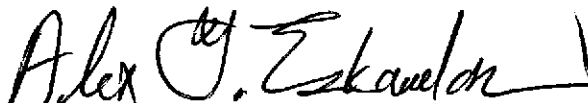
LIMITATIONS

The findings and conclusions presented in this report are based on field review and observations, and from the limited testing program described in this report. This report has been prepared in accordance with generally accepted methodologies and standards of practice in the area. No other warranties, expressed or implied, are made as to the findings, conclusions and recommendations included in the report.

The findings of this report are valid as of the present. The passage of time, natural processes or human intervention on the property or adjacent property can cause changed conditions which can invalidate the findings and conclusions presented in this report.

BSK is pleased to continue to be of service to you during this project. If you have questions concerning the contents of the report, please do not hesitate to contact us.

Respectfully submitted,
BSK & Associates



Alex Y. Eskandari, P.E.
Project Manager
C.E. No. 038101, R.E.A. No. 01528



Martin B. Cline, R.G.
Geologist
R.G. No. 6244

AYE/MC:mc
(RPTS\ENV\AP92057.296)

Distribution:
R.T. Nahas Co. (4 copies)

The following are attached and complete this report:

TABLE	1	Summary of Groundwater Analysis
FIGURE	1	Vicinity Map
FIGURE	2	Site Plan
FIGURE	3	Potentiometric Surface Map
FIGURES	4.1	Well Field Logs
through	4.6	
FIGURE	5	Contaminant Concentrations - 10/8/96
FIGURE	6	BTEX Concentrations in Groundwater - MW-2
FIGURE	7	BTEX Concentrations in Groundwater - MW-3

APPENDIX A

FIGURES	A-1	Laboratory Chemical Test Data Sheets
through	A-6	
FIGURE	A-7	Project Chain-of-Custody Record

TABLE 1, SUMMARY OF GROUNDWATER ANALYSIS, Results in ug/L

Sample Date	Well Number	Benzene	Toluene	Ethyl-Benzene	Xylenes	Methyl-t-Butyl Ether	TPH Gasoline	TPH Diesel	Total Oil & Grease	EPA 601
October 1996	MW-2	9.4	0.5	7.2	9.4	1400	180	--	--	--
	MW-3	3.8	1.5	2.1	6.8	55	79	--	--	--
	MW-4	ND	ND	ND	ND	ND	ND	ND	--	--
	MW-5	ND	ND	ND	ND	ND	ND	--	--	--
	MW-6	ND	ND	ND	ND	17	ND	--	--	--
	MW-7	--	--	--	--	--	--	--	--	--
	April 1996	MW-2	41	2.8	27	50	--	690	--	--
MW-3		8.4	1.6	4.7	14	--	170	--	--	--
MW-4		ND	ND	ND	ND	--	ND	ND	--	--
MW-5		ND	ND	ND	ND	--	ND	--	--	--
MW-6		2.9	2.9	ND	ND	--	ND	--	--	--
MW-7		ND	ND	ND	ND	--	--	--	--	--
October 1995		MW-2	7.4	ND	5.1	5.5	--	450	--	--
	MW-3	9	3.9	8.5	34	--	340	--	--	--
	MW-4	ND	ND	ND	ND	--	ND	ND	--	--
	MW-5	ND	ND	ND	ND	--	ND	--	--	--
	MW-6	ND	ND	ND	ND	--	ND	--	--	--
	MW-7	ND	ND	ND	ND	--	--	--	--	--
	April 1995	MW-2	72	2.8	47	22	--	480	--	--
MW-3		26	0.6	40	19	--	450	--	--	--
MW-4		ND	ND	ND	ND	--	ND	ND	ND	--
MW-5		ND	ND	ND	ND	--	ND	--	--	--
MW-6		ND	ND	ND	ND	--	ND	--	--	--
MW-7		ND	ND	ND	ND	--	--	--	--	--

TABLE 1, SUMMARY OF GROUNDWATER ANALYSIS, Results in ug/L

Sample Date	Well Number	Benzene	Toluene	Ethyl-Benzene	Xylenes	Methyl-t-Butyl Ether	TPH Gasoline	TPH Diesel	Total Oil & Grease	EPA 601
January 1995	MW-2	48	2.8	15	27	--	440	--	--	--
	MW-3	26	0.6	14	45	--	250	--	--	--
	MW-4	ND	ND	ND	ND	--	ND	ND	2000	--
October 1994	MW-2	2.8	ND	2.9	1.8	--	97	--	--	--
	MW-3	0.9	ND	ND	ND	--	ND	--	--	--
	MW-4	ND	36	ND	1.3	--	70	ND	ND	--
	MW-5	ND	71	0.4	1.7	--	87	--	--	--
	MW-6	0.4	140	0.5	2.3	--	160	--	--	--
July 1994	MW-2	14	0.7	5.8	12	--	180	--	--	--
	MW-3	7.2	0.4	1.6	4.6	--	52	--	--	--
	MW-4	ND	0.6	ND	ND	--	ND	86	ND	--
April 1994	MW-2	23	1.1	8.2	17	--	270	--	--	--
	MW-3	17	1	4.9	24	--	62	--	--	--
	MW-4	ND	ND	ND	0.4	--	ND	ND	ND	--
	MW-5	ND	0.4	ND	1	--	ND	--	--	--
	MW-6	ND	0.3	ND	0.4	--	ND	--	--	--
	MW-7	ND	ND	ND	ND	--	360 (1)	--	--	--
January 1994	MW-2	13	3.4	4.9	9.2	--	130	--	--	--
	MW-3	5.5	2.1	2.6	14	--	69	--	--	--
	MW-7	ND	ND	ND	ND	--	330 (1)	--	--	--
October 1993	MW-2	4	ND	2.3	3.1	--	98	--	--	--
	MW-3	5	ND	0.6	1.2	--	ND	--	--	--
	MW-4	0.4	ND	ND	0.4	--	ND	ND	ND	Tetrachloroethene 0.7 Trichloroethene 0.9
	MW-5	ND	ND	ND	ND	--	ND	--	--	--
	MW-6	ND	ND	ND	ND	--	ND	--	--	--
	MW-7	ND	ND	ND	0.7	--	360 (1)	--	--	--

TABLE 1, SUMMARY OF GROUNDWATER ANALYSIS, Results in ug/L

Sample Date	Well Number	Benzene	Toluene	Ethyl-Benzene	Xylenes	Methyl-t-Butyl Ether	TPH Gasoline	TPH Diesel	Total Oil & Grease	EPA 601
July 1993	MW-2	17	1.1	6	12	--	220	--	--	--
	MW-3	24	11	14	82	--	330	--	--	--
	MW-4	ND	ND	ND	ND	--	ND	ND	1000	--
	MW-5	ND	ND	ND	ND	--	ND	--	--	--
	MW-6	ND	ND	ND	ND	--	ND	--	--	--
	MW-7	ND	ND	ND	ND	--	680 (1)	--	--	--
	March 1993	MW-2	110	32	67	28	--	720	--	--
MW-3		32	0.9	64	13	--	330	--	--	--
MW-4		ND	ND	ND	ND	--	ND	ND	ND	ND
MW-5		ND	ND	ND	ND	--	ND	--	--	Tetrachloroethane 0.8
MW-6		ND	ND	ND	ND	--	ND	--	--	Tetrachloroethane 3.5
MW-7		ND	ND	ND	ND	--	830 (1)	--	--	Tetrachloroethane 3,700
January 1993	MW-2	11	5.1	1.4	6.3	--	170	--	--	--
	MW-3	1.2	1	0.6	4.1	--	ND	--	--	--
	MW-4	ND	ND	ND	ND	--	ND	ND	ND	--
	MW-5	ND	ND	ND	ND	--	ND	--	--	--
	MW-6	ND	ND	ND	ND	--	ND	--	--	--
	MW-7	ND	ND	ND	ND	--	1900 (1)	--	--	--
November 1992	MW-7	--	--	--	--	--	2700 (1)	ND	--	Chlorobenzene 2.0 Chloroform 2.0 cis-1,2-Dichloroethene 180 trans-1,2-Dichloroethene 1.5 Tetrachloroethene 14,000 Trichloroethene 660

TABLE 1, SUMMARY OF GROUNDWATER ANALYSIS, Results in ug/L

Sample Date	Well Number	Benzene	Toluene	Ethyl-Benzene	Xylenes	Methyl-t-Butyl Ether	TPH Gasoline	TPH Diesel	Total Oil & Grease	EPA 601
October 1992	MW-2	2.3	ND	2.3	3	--	ND	--	--	--
	MW-3	2.1	ND	ND	0.3	--	ND	--	--	--
	MW-4	ND	ND	ND	ND	--	ND	120	ND	--
	MW-5	ND	0.4	ND	ND	--	ND	--	--	--
	MW-6	ND	ND	ND	ND	--	ND	--	--	--
	MW-7	ND	ND	ND	ND	--	3900 (1)	--	--	--
	July 1992	MW-2	10	ND	0.6	2.3	--	84	--	--
MW-3		1.3	0.4	ND	1.3	--	ND	--	--	--
MW-5		ND	ND	ND	ND	--	ND	--	--	--
MW-6		ND	ND	ND	ND	--	ND	--	--	--
MW-7		ND	ND	ND	ND	--	830 (1)	--	--	--
April 1992	MW-2	70	0.3	15	7	--	300	--	--	--
	MW-3	1	0.4	ND	0.9	--	ND	--	--	--
	MW-4	ND	ND	ND	ND	--	ND	ND	ND	--
	MW-5	ND	ND	ND	ND	--	ND	--	--	--
	MW-6	ND	0.3	ND	ND	--	ND	--	--	--
	MW-7	0.4	0.3	0.3	0.9	--	1300 (1)	--	--	--
January 1992	MW-2	480	870	160	860	--	5200	--	--	--
	MW-3	4	10	2	8	--	60	--	--	--
October 1991	MW-2	2.9	ND	2.5	6	--	170	--	--	--
	MW-3	ND	ND	ND	ND	--	ND	ND	ND	--
	MW-4	ND	ND	ND	ND	--	ND	ND	ND	--
July 1991	MW-2	14	1	17	8	--	220	--	--	--
	MW-3	14	14	33	8	--	220	--	--	--
April 1991	MW-2	640	520	170	790	--	4800	--	--	--
	MW-3	450	270	150	760	--	3600	--	--	--
	MW-4	ND	ND	ND	ND	--	ND	ND	ND	--

TABLE 1, SUMMARY OF GROUNDWATER ANALYSIS, Results in ug/L

Sample Date	Well Number	Benzene	Toluene	Ethyl-Benzene	Xylenes	Methyl-t-Butyl Ether	TPH Gasoline	TPH Diesel	Total Oil & Grease	EPA 601
January 1991	MW-2	50	33	22	110	--	430	--	--	--
	MW-3	29	3.3	9.7	34	--	110	--	--	--
August 1990	MW-2	21	3.9	7.2	28	--	180	--	--	--
	MW-3	55	3.8	20	59	--	290	--	--	--
	MW-4	ND	ND	ND	ND	--	ND	ND	ND	--
Maximum Contaminant Level (MCL)		1	150	700	1750	NA	NA	NA	NA	Chlorobenzene - NA Chloroform - NA cis-1,2-Dichloroethene 6.0 trans-1,2-Dichloroethene 10.0 1,2-Dichloroethane 0.5 Tetrachloroethene 5.0 Trichloroethene 5.0

ND = None Detected

-- = Not Analyzed

NA = Not Available

1 = TPHg values have demonstrated to represent Perchloroethane presence

MCLs from California Code of Regulations Title 22, Article 5.5



Source: Thomas Guide, 1992, Alameda and Contra Costa Counties

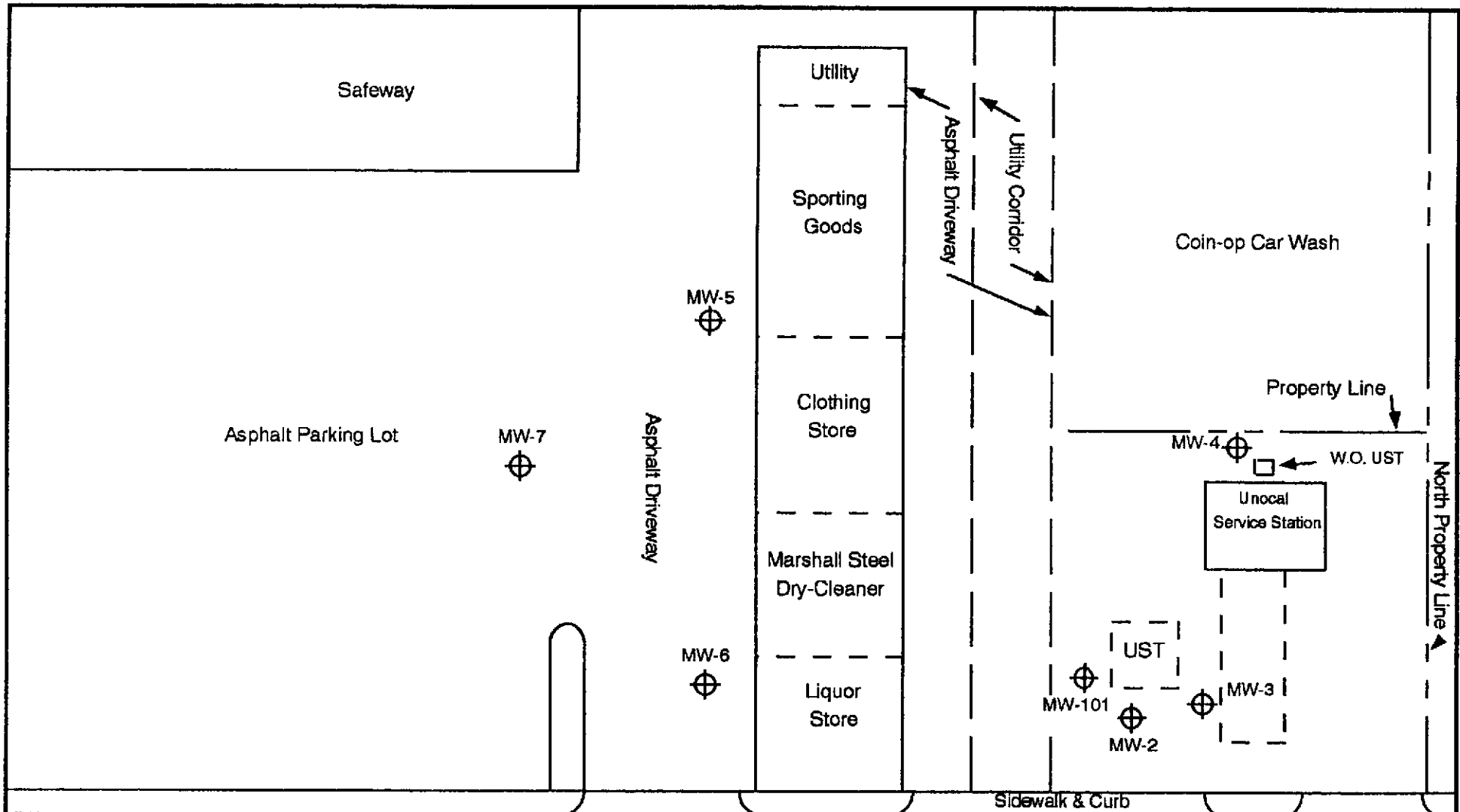
**SEMI-ANNUAL GROUNDWATER
MONITORING REPORT
UNOCAL 76 SERVICE STATION
20405 AND 20629 REDWOOD ROAD
CASTRO VALLEY, CALIFORNIA**

VICINITY MAP

BSK Job P92057.3

FIGURE: 1

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REDWOOD ROAD

LEGEND:

⊕ - Groundwater Monitoring Well Location & Designation
 MW-1



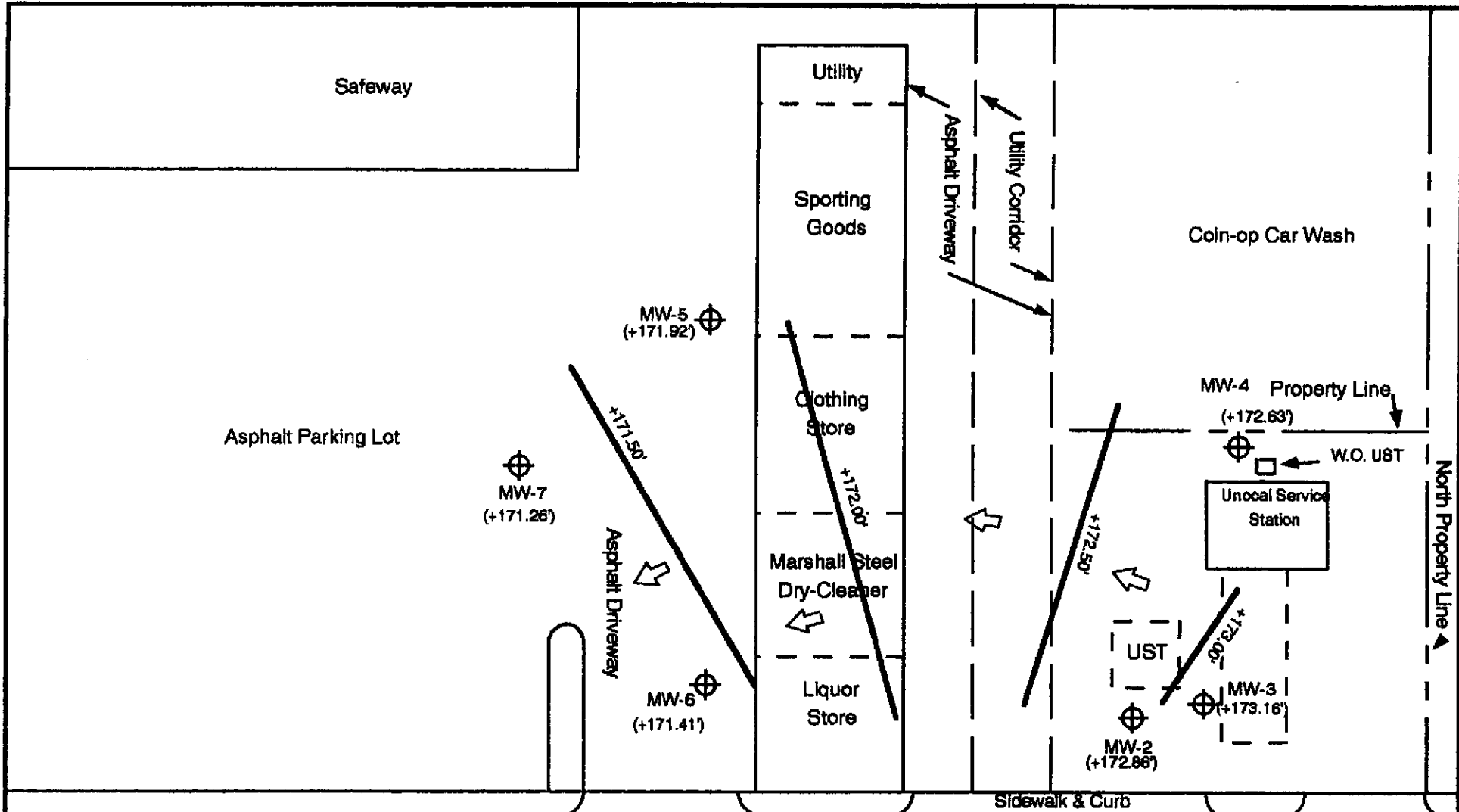
SCALE: 1" = 50'

SITE PLAN

Job No. P92057.3

FIGURE: 2

BSK
 & ASSOCIATES



REDWOOD ROAD

LEGEND:

- MW-1 ⊕ - Groundwater Monitoring Well Location & Designation
- ← - Groundwater Flow Direction (10/8/96)
- - Line of Equal Groundwater Elevation (10/8/96)
- (+172.00) - Groundwater Elevation (10/8/96)



SCALE: 1" = 50'
GRADIENT: 0.8 %

**POTENTIOMETRIC
 SURFACE MAP**

Job No. P92057.3
 October 1996
 FIGURE: 3

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 & ASSOCIATES

WELL FIELD LOG

Well Observation: x Date: 10/8/96
 Sample Collection: x Date: 10/8/96

Project Name: Groundwater Monitoring
 Location: Nahas/Union 76
 Personnel: MBC
 Weather: Clear, Hot

WELL INFORMATION:

Well Number	MW-2	Date Purged	10/8/96
Depth to Water - feet (TOC)	10.61	Purge Method	Submersible Pump
Well Depth (feet)	28.85		
Water Volume (gallons)	3.1	Purge Begin	13:00
Reference Elevation - feet(TOC)	+183.47	Purge End	13:10
Groundwater Elevation (feet)	+172.86	Purge Rate	1.4 gal/min.
Measurement Technique	Solinst Electric Well Sounder		

IMMISCIBLE LAYERS:

Top: None Observed, No Odor
 Bottom: None Observed, No Odor
 Detection Method: Visual
 Collection Method: Clear Point-Source Bailer

WELL DEVELOPMENT/PURGE DATA:

TIME	VOLUME REMOVED (gallons)	ELECTRICAL CONDUCTIVITY (Micromhos)	pH	TEMP. (°F)	COLOR/COMMENTS
13:02	3.5	634	6.70	79	
13:06	7.0	617	6.06	76	
13:08	10.5	585	6.10	74	
13:10	14.0	572	6.14	74	

SAMPLE COLLECTION DATA

Sampling Equipment: Teflon Bailer

TIME	ANALYSIS	AMOUNT/CONTAINER USED	SAMPLE INTERVAL
13:15	BTEX & TPHg	2-40ml glass VOC with HCl	±13'

Field Observations: None

WELL FIELD LOG

Well Observation: x Date: 10/8/96
 Sample Collection: x Date: 10/8/96

Project Name: Groundwater Monitoring
 Location: Nahas/Union 76
 Personnel: MBC
 Weather: Clear, Hot

WELL INFORMATION:

Well Number	MW-3	Date Purged	10/8/96
Depth to Water - feet(TOC)	10.87	Purge Method	Submersible Pump
Well Depth (feet)	28.85		
Water Volume (gallons)	3.2	Purge Begin	13:49
Reference Elevation - feet(TOC)	+184.03	Purge End	13:55
Groundwater Elevation (feet)	+173.16	Purge Rate	2.3 gal/min.
Measurement Technique	Solinst Electric Well Sounder		

IMMISCIBLE LAYERS:

Top: None Observed, No Odor
 Bottom: None Observed, No Odor
 Detection Method: Visual
 Collection Method: Clear Point-Source Bailer

WELL DEVELOPMENT/PURGE DATA:

TIME	VOLUME REMOVED (gallons)	ELECTRICAL CONDUCTIVITY (Micromhos)	pH	TEMP. (°F)	COLOR/COMMENTS
13:51	3.5	642	6.85	85	
13:52	7.0	575	6.65	79	
13:54	10.5	555	6.69	77	
13:55	14.0	546	6.74	76	

SAMPLE COLLECTION DATA

Sampling Equipment: Teflon Bailer

TIME	ANALYSIS	AMOUNT/CONTAINER USED	SAMPLE INTERVAL
14:05	BTEX & TPHg	2-40ml glass VOC with HCl	±13'

Field Observations:

WELL FIELD LOG

Well Observation: x Date: 10/8/96
 Sample Collection: x Date: 10/8/96

Project Name: Groundwater Monitoring
 Location: Nahas/Union 76
 Personnel: MBC
 Weather: Clear, Hot

WELL INFORMATION:

Well Number	MW-4	Date Purged	10/8/96
Depth to Water - feet(TOC)	11.65	Purge Method	Submersible Pump
Well Depth (feet)	24.55		
Water Volume (gallons)	2.2	Purge Begin	12:13
Reference Elevation - feet(TOC)	+184.61	Purge End	12:20
Groundwater Elevation (feet)	+172.63	Purge Rate	1.4 gal/min.
Measurement Technique	Solinst Electric Well Sounder		

IMMISCIBLE LAYERS:

Top: None Observed, No Odor
 Bottom: None Observed, No Odor
 Detection Method: Visual
 Collection Method: Clear Point-Source Bailer

WELL DEVELOPMENT/PURGE DATA:

TIME	VOLUME REMOVED (gallons)	ELECTRICAL CONDUCTIVITY (Micromhos)	pH	TEMP. (°F)	COLOR/COMMENTS
12:15	2.5	392	6.51	81	
12:17	5.0	334	6.54	76	
12:19	7.5	325	7.34	75	
12:20	10.0	324	7.42	74	

SAMPLE COLLECTION DATA

Sampling Equipment: Teflon Bailer

TIME	ANALYSIS	AMOUNT/CONTAINER USED	SAMPLE INTERVAL
12:30	BTEX & TPHg	2-40ml glass VOC with HCl	±13'
12:30	TPHd	1-250 ml Amber Glass, w/H ₂ SO ₄	"

Field Observations:

WELL FIELD LOG

Well Observation: x **Date:** 10/8/96
Sample Collection: x **Date:** 10/8/96

Project Name: Groundwater Monitoring
Location: Nahas/Union 76
Personnel: MBC
Weather: Clear, Hot

WELL INFORMATION:

Well Number	MW-5	Date Purged	10/8/96
Depth to Water - feet(TOC)	12.00	Purge Method	Submersible Pump
Well Depth (feet)	34.5		
Water Volume (gallons)	3.8	Purge Begin	10:50
Reference Elevation - feet(TOC)	+183.92	Purge End	10:59
Groundwater Elevation (feet)	+171.92	Purge Rate	1.8 gal/min.
Measurement Technique	Solinst Electric Well Sounder		

IMMISCIBLE LAYERS:

Top: None Observed, No Odor
Bottom: None Observed, No Odor
Detection Method: Visual
Collection Method: Clear Point-Source Bailer

WELL DEVELOPMENT/PURGE DATA:

TIME	VOLUME REMOVED (gallons)	ELECTRICAL CONDUCTIVITY (Micromhos)	pH	TEMP. (°E)	COLOR/COMMENTS
10:53	4.0	529	7.60	78	
10:55	8.0	494	6.51	75	
10:57	12.0	479	6.68	73	
10:59	16.0	479	6.71	74	

SAMPLE COLLECTION DATA

Sampling Equipment: Teflon Bailer

TIME	ANALYSIS	AMOUNT/CONTAINER USED	SAMPLE INTERVAL
11:05	BTEX & TPHg	2-40ml glass VOC with HCl	±14'

Field Observations: Well in busy parking lot.

WELL FIELD LOG

Well Observation: x Date: 10/8/96
 Sample Collection: x Date: 10/8/96

Project Name: Groundwater Monitoring
 Location: Nahas/Union 76
 Personnel: MBC
 Weather: Clear, Hot

WELL INFORMATION:

Well Number	MW-6	Date Purged	10/8/96
Depth to Water - feet(TOC)	12.19	Purge Method	Submersible Pump
Well Depth (feet)	26.78		
Water Volume (gallons)	2.6	Purge Begin	10:02
Reference Elevation - feet(TOC)	+183.60	Purge End	10:07
Groundwater Elevation (feet)	+171.41	Purge Rate	2.0 gal/min.
Measurement Technique	Solinst Electric Well Sounder		

IMMISCIBLE LAYERS:

Top: None Observed, No Odor
 Bottom: None Observed, No Odor
 Detection Method: Visual
 Collection Method: Clear Point-Source Bailer

WELL DEVELOPMENT/PURGE DATA:

TIME	VOLUME REMOVED (gallons)	ELECTRICAL CONDUCTIVITY (Micromhos)	pH	TEMP (°F)	COLOR/COMMENTS
10:04	2.5	524	7.08	76	
10:05	5.0	521	6.71	75	
10:06	7.5	519	6.59	73	
10:07	10.0	517	6.49	73	

SAMPLE COLLECTION DATA

Sampling Equipment: Teflon Bailer

TIME	ANALYSIS	AMOUNT/CONTAINER USED	SAMPLE INTERVAL
10:10	BTEX & TPHg	2-40ml glass VOC with HCl	±14'

Field Observations: Well in busy parking lot.

WELL FIELD LOG

Well Observation: x Date: 10/8/96
 Sample Collection: Date:

Project Name: Groundwater Monitoring
 Location: Nahas/Union 76
 Personnel: MBC
 Weather: Clear, Hot

WELL INFORMATION:

Well Number	MW-7	Date Purged	--
Depth to Water - feet(TOC)	11.16	Purge Method	--
Well Depth (feet)	28.0		
Water Volume (gallons)		Purge Begin	--
Reference Elevation - feet(TOC)	+182.42	Purge End	--
Groundwater Elevation (feet)	+171.26	Purge Rate	--
Measurement Technique	Solinst Electric Well Sounder		

IMMISCIBLE LAYERS:

Top: --
 Bottom: --
 Detection Method: Inaccessible due to dedicated pump assembly
 Collection Method: --

WELL DEVELOPMENT/PURGE DATA:

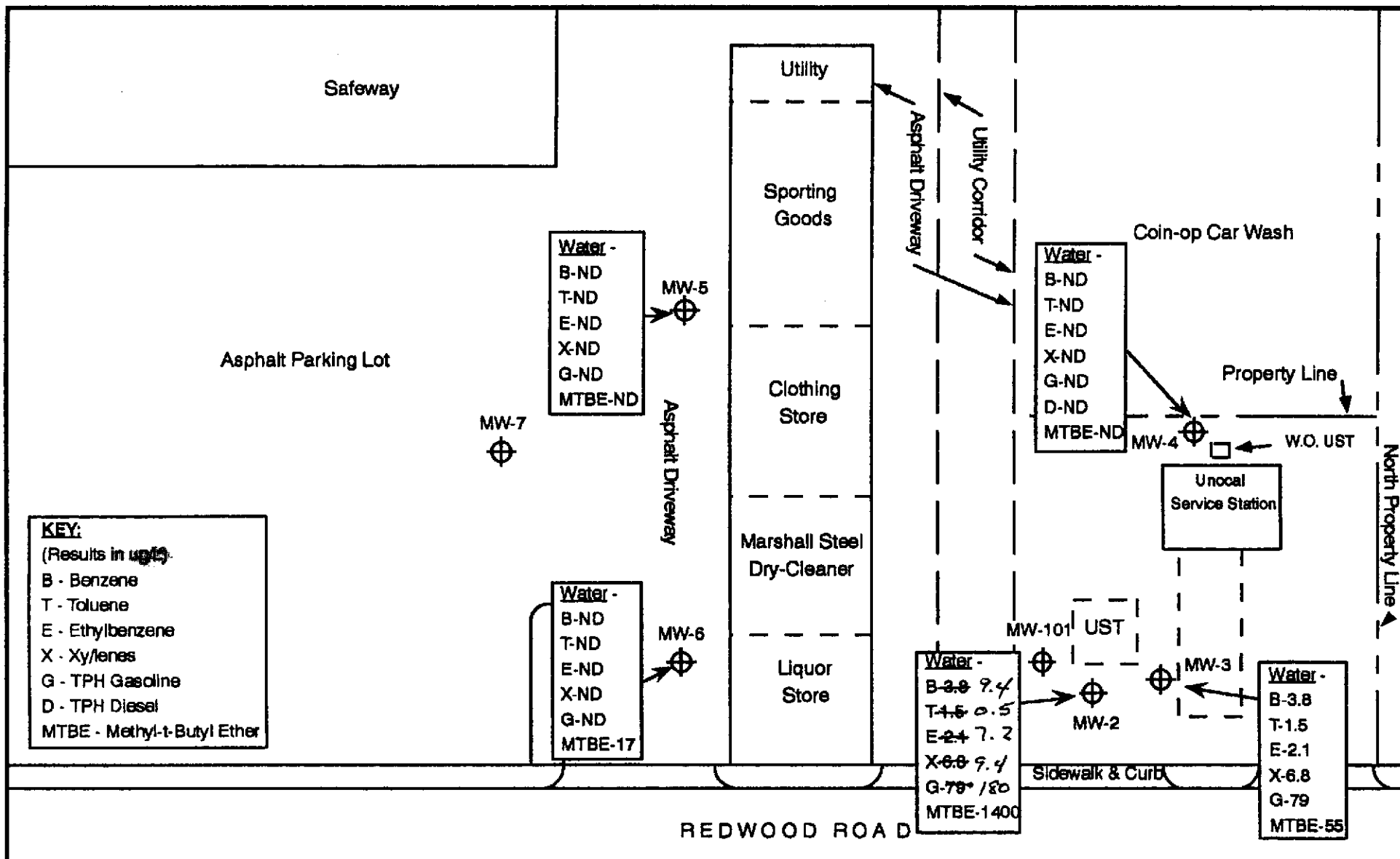
TIME	VOLUME REMOVED (gallons)	ELECTRICAL CONDUCTIVITY (Ec/Range)	pH	TEMP. (°F)	COLOR/COMMENTS

SAMPLE COLLECTION DATA

Sampling Equipment:

TIME	ANALYSIS	AMOUNT/CONTAINER USED	SAMPLE INTERVAL
		2-40ml glass VOC with HCl	

Field Observations: Well located in busy parking lot.



LEGEND:

⊕ - Groundwater Monitoring Well Location & Designation
 MW-1

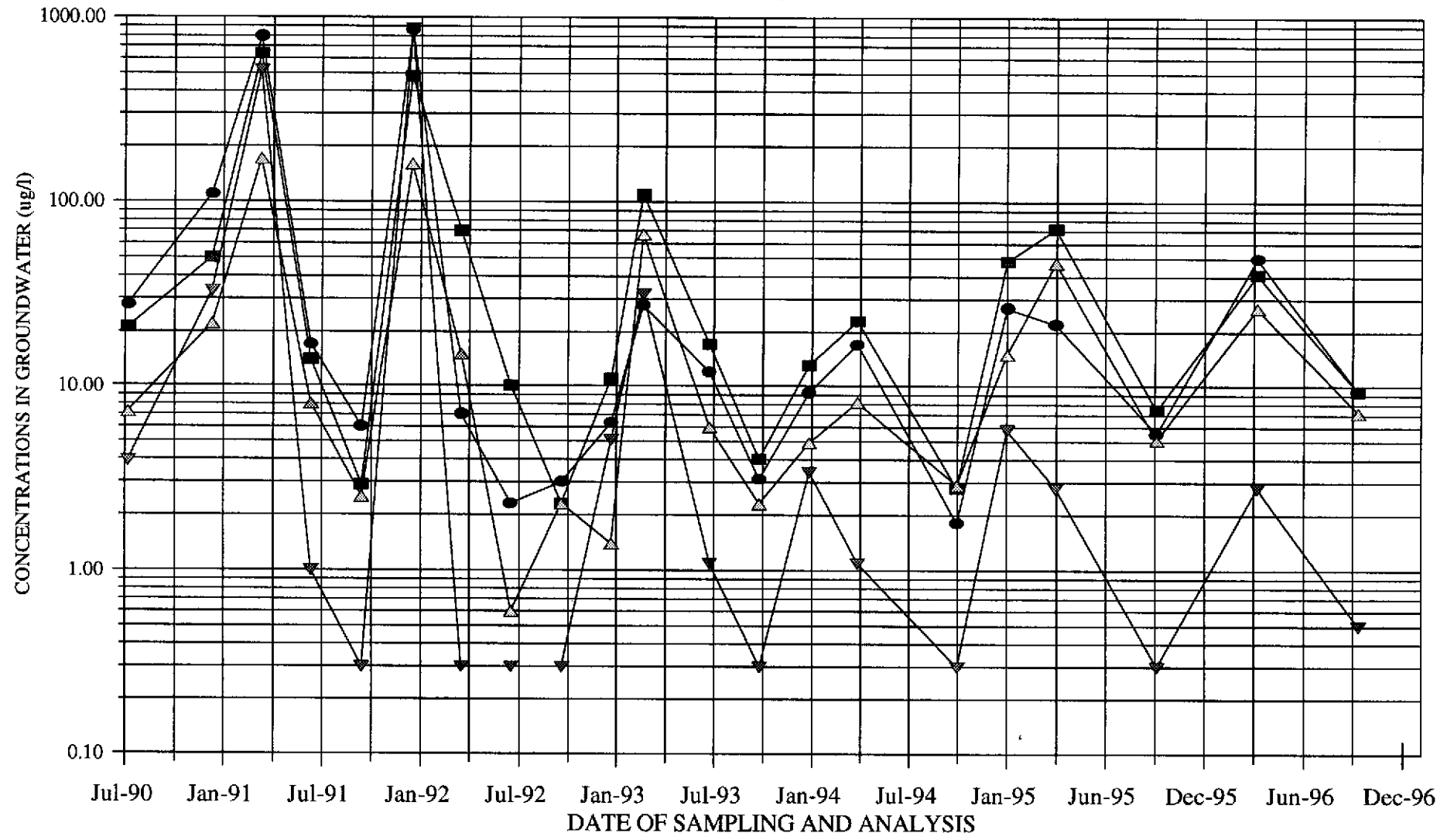
NORTH →
 SCALE: 1" = 50'

CONTAMINANT CONCENTRATIONS - 10/8/96

Job No. P92057.3
 October 1996
 FIGURE: 5

BSK
 & ASSOCIATES

BTEX CONCENTRATIONS IN GROUNDWATER (MW-2)



BENZENE

 TOLUENE

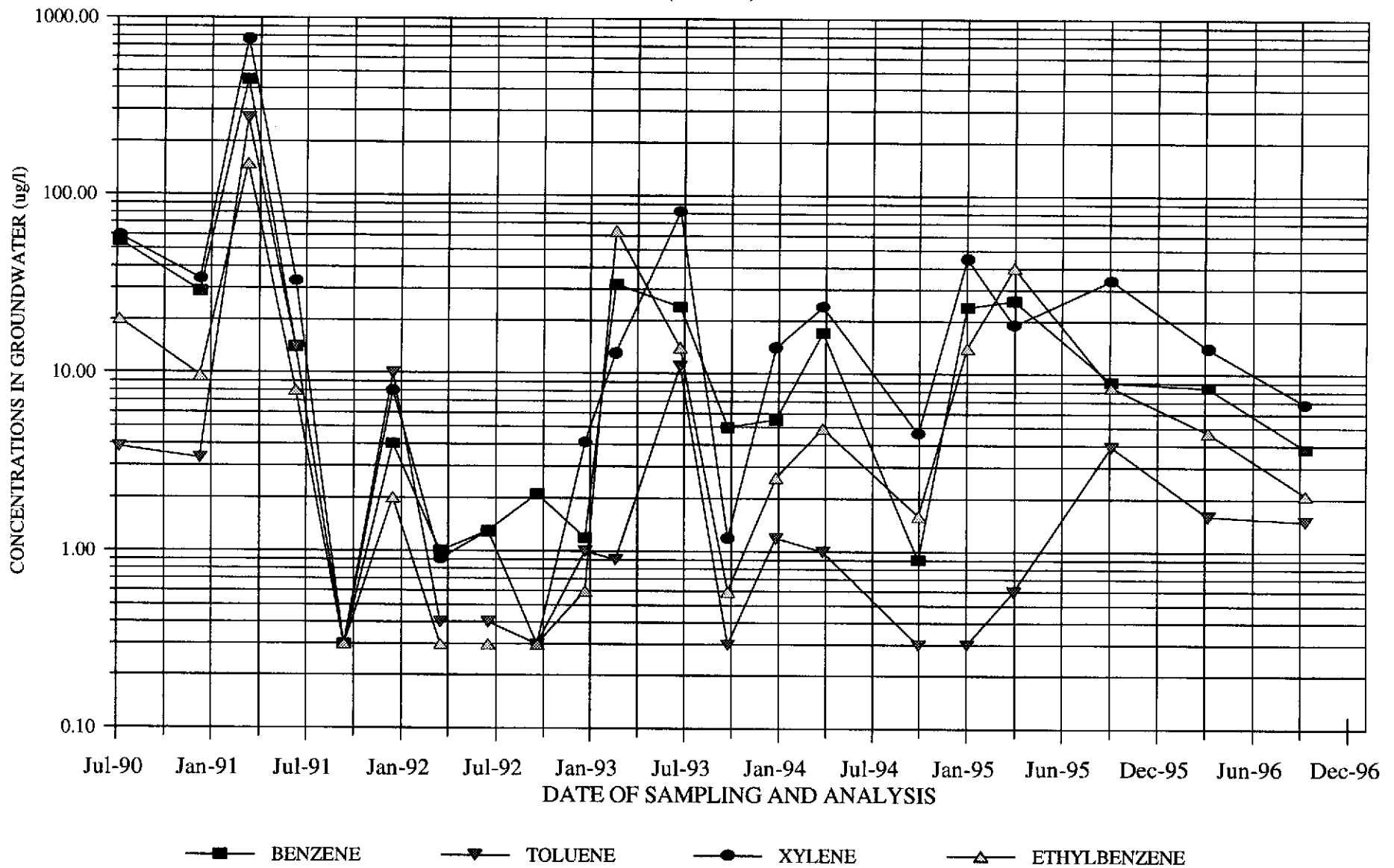
 XYLENE

 ETHYLBENZENE

BSK Job No. P90258.
 OCTOBER 1996
 FIGURE 6

BSK

BTEX CONCENTRATIONS IN GROUNDWATER (MW-3)



BSK Job No. P90258.
OCTOBER 1996
FIGURE 7

BSK

APPENDIX A

CHEMICAL TEST DATA SHEETS

AND

PROJECT-CHAIN-OF-CUSTODY RECORD

APPENDIX A

CHEMICAL TEST DATA SHEETS

AND

PROJECT-CHAIN-OF-CUSTODY RECORD

BSK ANALYTICAL
LABORATORIES

CERTIFICATE OF ANALYSIS
Cover Letter

October 29, 1996

Martin Cline
BSK & Associates, Pleasanton
1181 Quarry Lane Suite 300
Pleasanton, CA 94566

BSK Submission Number : 9610000153
Date Received : 10/10/96


Dear Martin Cline,

BSK adheres to a quality assurance plan that has been approved by the State of California, Department of Health Services. Our ELAP certificate number is 1180.

This Certificate of Analysis has been prepared in response to your request for analytical services. Information was taken from your Chain-of-Custody or related correspondence. All sample handling and analytical procedures were completed within BSK Laboratories' standard acceptability criteria with any exceptions noted below.

If additional clarification of information contained within this certificate is needed, please contact our Client Service Department at 1-800-877-8310 or 209-497-2888.

Sincerely,


Jeffrey Koelewyn
Laboratory Operations Supervisor

BSK ANALYTICAL LABORATORIES

Certificate of Analysis

Martin Cline
 BSK & Associates, Pleasanton
 1181 Quarry Lane Suite 300
 Pleasanton, CA 94566

Report Issue Date : 10/29/96

Submission Number : 9610000153
 Lab Number : 5588
 Project Number : P90257.3
 Project Desc. : Nahas
 Sample Description : MW-2

Sample Date : 10/08/96
 Sample Time : 13:15
 Sample Type : LIQUID

BSK LABORATORIES LUFT ANALYSIS

Method	Analyte	Date Prep.	Date Anal.	Result	Units	DLR	Dil
EPA 8015 / EPA 8020	Benzene	10/16/96	10/16/96	9.4	µg/L	0.3	1
EPA 8015 / EPA 8020	Ethylbenzene	10/16/96	10/16/96	7.2	µg/L	0.3	1
EPA 8015 / EPA 8020	Toluene	10/16/96	10/16/96	0.50	µg/L	0.3	1
EPA 8015 / EPA 8020	p-Xylene	10/16/96	10/16/96	3.8	µg/L	0.3	1
EPA 8015 / EPA 8020	m-Xylene	10/16/96	10/16/96	3.9	µg/L	0.3	1
EPA 8015 / EPA 8020	o-Xylene	10/16/96	10/16/96	1.7	µg/L	0.3	1
EPA 8015 / EPA 8020	Gasoline	10/16/96	10/16/96	670	µg/L	50	1
	Higher boiling-point hydrocarbons decreased relative to standard.						
EPA 8015/8020	Methyl-t-Butyl Ether	10/16/96	10/16/96	1400	µg/L	5	1

ND : None Detected
 mg/L : Milligrams/Liter
 µg/L : Micrograms/Liter
 mg/kg : Milligrams/Kilogram
 µg/kg : Micrograms/Kilogram

DLR : Detection Limit for the Purposes of Reporting
 Exceptional sample matrices or interferences
 may result in higher detection limits

DLR = DLR x Dilution Factor

BSK ANALYTICAL LABORATORIES

Certificate of Analysis

Martin Cline
 BSK & Associates, Pleasanton
 1181 Quarry Lane Suite 300
 Pleasanton, CA 94566

Report Issue Date : 10/29/96

Submission Number : 9610000153
 Lab Number : 5589
 Project Number : P90257.3
 Project Desc. : Nahas
 Sample Description : MW-3

Sample Date : 10/08/96
 Sample Time : 14:05
 Sample Type : LIQUID

BSK LABORATORIES LUFT ANALYSIS

Method	Analyte	Date Prep.	Date Anal.	Result	Units	DLR	Dil
EPA 8015 / EPA 8020	Benzene	10/16/96	10/16/96	3.8	µg/L	0.3	1
EPA 8015 / EPA 8020	Ethylbenzene	10/16/96	10/16/96	2.1	µg/L	0.3	1
EPA 8015 / EPA 8020	Toluene	10/16/96	10/16/96	1.5	µg/L	0.3	1
EPA 8015 / EPA 8020	p-Xylene	10/16/96	10/16/96	1.7	µg/L	0.3	1
EPA 8015 / EPA 8020	m-Xylene	10/16/96	10/16/96	3.5	µg/L	0.3	1
EPA 8015 / EPA 8020	o-Xylene	10/16/96	10/16/96	1.6	µg/L	0.3	1
EPA 8015 / EPA 8020	Gasoline Higher boiling-point hydrocarbons decreased relative to standard.	10/16/96	10/16/96	79	µg/L	50	1
EPA 8015/8020	Methyl-t-Butyl Ether	10/16/96	10/16/96	55	µg/L	5	1

ND : None Detected
 mg/L : Milligrams/Liter
 µg/L : Micrograms/Liter
 mg/kg : Milligrams/Kilogram
 µg/kg : Micrograms/Kilogram

DLR : Detection Limit for the Purposes of Reporting
 Exceptional sample matrices or interferences
 may result in higher detection limits

DLR = DLR x Dilution Factor

BSK ANALYTICAL LABORATORIES

Certificate of Analysis

Martin Cline
 BSK & Associates, Pleasanton
 1181 Quarry Lane Suite 300
 Pleasanton, CA 94566

Report Issue Date : 10/29/96

Submission Number : 9610000153
 Lab Number : 5587
 Project Number : P90257.3
 Project Desc. : Nahas
 Sample Description : MW-4

Sample Date : 10/08/96
 Sample Time : 12:30
 Sample Type : LIQUID

BSK LABORATORIES LUFT ANALYSIS

Method	Analyte	Date Prep.	Date Anal.	Result	Units	DLR	Dil
EPA 8015 / EPA 8020	Benzene	10/16/96	10/16/96	ND	µg/L	0.3	1
EPA 8015 / EPA 8020	Ethylbenzene	10/16/96	10/16/96	ND	µg/L	0.3	1
EPA 8015 / EPA 8020	Toluene	10/16/96	10/16/96	ND	µg/L	0.3	1
EPA 8015 / EPA 8020	p-Xylene	10/16/96	10/16/96	ND	µg/L	0.3	1
EPA 8015 / EPA 8020	m-Xylene	10/16/96	10/16/96	ND	µg/L	0.3	1
EPA 8015 / EPA 8020	o-Xylene	10/16/96	10/16/96	ND	µg/L	0.3	1
EPA 8015 / EPA 8020	Gasoline	10/16/96	10/16/96	ND	µg/L	50	1
EPA 15/8020	Methyl-t-Butyl Ether	10/16/96	10/16/96	ND	µg/L	5	1
EPA 8015/DHS LUFT	Total Petroleum Hydrocarbons as Diesel	10/15/96	10/15/96	ND	µg/L	50	1

ND : None Detected
 mg/L : Milligrams/Liter
 µg/L : Micrograms/Liter
 mg/kg : Milligrams/Kilogram
 µg/kg : Micrograms/Kilogram

DLR : Detection Limit for the Purposes of Reporting
 Exceptional sample matrices or interferences
 may result in higher detection limits

DLR - DLR x Dilution Factor

BSK ANALYTICAL LABORATORIES

Certificate of Analysis

Martin Cline
 BSK & Associates, Pleasanton
 1181 Quarry Lane Suite 300
 Pleasanton, CA 94566

Report Issue Date : 10/29/96

Submission Number : 9610000153
 Lab Number : 5586
 Project Number : P90257.3
 Project Desc. : Nahas
 Sample Description : MW-5

Sample Date : 10/08/96
 Sample Time : 11:05
 Sample Type : LIQUID

BSK LABORATORIES LUFT ANALYSIS

Method	Analyte	Date Prep.	Date Anal.	Result	Units	DLR	Dil
EPA 8015 / EPA 8020	Benzene	10/16/96	10/16/96	ND	µg/L	0.3	1
EPA 8015 / EPA 8020	Ethylbenzene	10/16/96	10/16/96	ND	µg/L	0.3	1
EPA 8015 / EPA 8020	Toluene	10/16/96	10/16/96	ND	µg/L	0.3	1
EPA 8015 / EPA 8020	p-Xylene	10/16/96	10/16/96	ND	µg/L	0.3	1
EPA 8015 / EPA 8020	m-Xylene	10/16/96	10/16/96	ND	µg/L	0.3	1
EPA 8015 / EPA 8020	o-Xylene	10/16/96	10/16/96	ND	µg/L	0.3	1
EPA 8015 / EPA 8020	Gasoline	10/16/96	10/16/96	ND	µg/L	50	1
EPA 8015/8020	Methyl-t-Butyl Ether	10/16/96	10/16/96	ND	µg/L	5	1

ND : None Detected
 mg/L : Milligrams/Liter
 µg/L : Micrograms/Liter
 mg/kg : Milligrams/Kilogram
 µg/kg : Micrograms/Kilogram

DLR : Detection Limit for the Purposes of Reporting
 Exceptional sample matrices or interferences
 may result in higher detection limits

DLR = DLR x Dilution Factor

BSK ANALYTICAL LABORATORIES

Certificate of Analysis

Martin Cline
 BSK & Associates, Pleasanton
 1181 Quarry Lane Suite 300
 Pleasanton, CA 94566

Report Issue Date : 10/29/96

Submission Number : 9610000153
 Lab Number : 5585
 Project Number : P90257.3
 Project Desc. : Nahas
 Sample Description : MW-6

Sample Date : 10/08/96
 Sample Time : 10:10
 Sample Type : LIQUID

BSK LABORATORIES LUFT ANALYSIS

Method	Analyte	Date Prep.	Date Anal.	Result	Units	DLR	Dil
EPA 8015 / EPA 8020	Benzene	10/16/96	10/16/96	ND	µg/L	0.3	1
EPA 8015 / EPA 8020	Ethylbenzene	10/16/96	10/16/96	ND	µg/L	0.3	1
EPA 8015 / EPA 8020	Toluene	10/16/96	10/16/96	ND	µg/L	0.3	1
EPA 8015 / EPA 8020	p-Xylene	10/16/96	10/16/96	ND	µg/L	0.3	1
EPA 8015 / EPA 8020	m-Xylene	10/16/96	10/16/96	ND	µg/L	0.3	1
EPA 8015 / EPA 8020	o-Xylene	10/16/96	10/16/96	ND	µg/L	0.3	1
EPA 8015 / EPA 8020	Gasoline	10/16/96	10/16/96	ND	µg/L	50	1
EPA 8015/8020	Methyl-t-Butyl Ether	10/16/96	10/16/96	17	µg/L	5	1

ND : None Detected
 mg/L : Milligrams/Liter
 µg/L : Micrograms/Liter
 mg/kg : Milligrams/Kilogram
 µg/kg : Micrograms/Kilogram

DLR : Detection Limit for the Purposes of Reporting
 Exceptional sample matrices or interferences
 may result in higher detection limits

DLR = DLR x Dilution Factor

