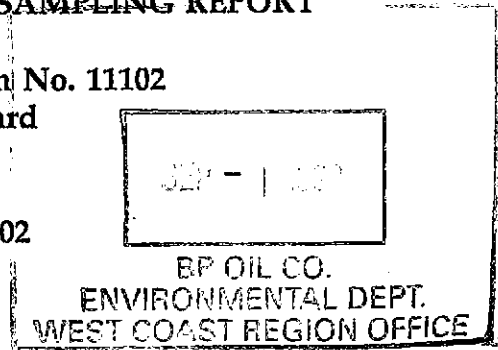


GROUNDWATER MONITORING AND SAMPLING REPORT

**BP Oil Company Service Station No. 11102
100 MacArthur Boulevard
Oakland, California**

Project No. 10-076-07-002



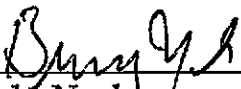
Prepared for:

**BP Oil Company
Environmental Resources Management
295 S.W. 41st Street
Building 13, Suite N
Renton, Washington**

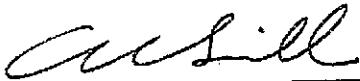
Prepared by:

**Alisto Engineering Group
1575 Treat Boulevard, Suite 201
Walnut Creek, California**

August 28, 1998



**Brady Nagle
Project Manager**



**Al Sevilla, P.E.
Principal**



GROUNDWATER MONITORING AND SAMPLING REPORT

BP Oil Company Service Station No. 11102
100 MacArthur Boulevard
Oakland, California

Project No. 10-076-07-002

August 28, 1998

INTRODUCTION

This report presents the results and findings of the June 18, 1998 groundwater monitoring and sampling conducted by Alisto Engineering Group at BP Oil Company Service Station No. 11102, 100 MacArthur Boulevard, Oakland, California. A site vicinity map is shown on Figure 1.

FIELD PROCEDURES

Field activities were performed in accordance with the procedures and guidelines of the Alameda County Health Care Services Agency and the California Regional Water Quality Control Board, San Francisco Bay Region.

Before purging and sampling, the groundwater level in each well was measured from a permanent mark on top of the casing to the nearest 0.01 foot using an electronic sounder. The depth to groundwater and top of casing elevation data were used to calculate the groundwater elevation in each well in reference to mean sea level. The survey data and groundwater elevation measurements collected to date are presented in Table 1.

Before sample collection, each well was purged of 3 casing volumes, while recording field readings of pH, temperature, electrical conductivity, and dissolved oxygen. Groundwater samples were collected for laboratory analysis by lowering a bottom-fill, disposable bailer to just below the water level in the well. The samples were transferred from the bailer into laboratory-supplied containers. The water sampling field survey forms are presented in Appendix A.

SAMPLING AND ANALYTICAL RESULTS

The results of monitoring and laboratory analysis of the groundwater samples for this and previous quarters are summarized in Table 1. The potentiometric groundwater elevations as interpreted from the results of this monitoring event are shown on Figure 2. The results of groundwater analysis are shown on Figure 3. The laboratory report and chain of custody record are presented in Appendix B.



TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING
 BP OIL COMPANY SERVICE STATION NO. 11102
 100 MACARTHUR BOULEVARD, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-078

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	TPH-D (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	TOG (ug/l)	1,1-DCA (ug/l)	1,2-DCA (ug/l)	HVOC's (ug/l)	CO (ppm)	LAB
MW-1	11/04/89	90.20	13.21	78.99	ND-500	ND-50	3.4	0.8	ND-0.3	ND-0.3	--	ND-5000	--	0.8	--	--	SAL
MW-1	11/11/89	90.20	13.32	78.88	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-1	04/03/90	90.20	12.46	77.74	820	--	84	1.9	23	34	--	--	--	--	--	--	--
MW-1	07/30/90	90.20	12.92	77.28	190	ND-50	11	ND-5.0	ND-5.0	ND-5.0	--	--	--	--	--	--	ANA
MW-1	11/20/90	90.20	14.08	78.12	50	78	2.4	ND-0.3	ND-0.3	ND-0.3	--	ND-5000	--	ND	--	--	ANA
MW-1	03/01/91	90.20	13.61	78.59	ND-100	ND-1000	0.9	ND-0.3	ND-0.3	0.3	--	14000	--	ND	--	--	SAL
MW-1	08/18/91	90.20	15.74	74.46	970	ND-50	35	0.73	6.4	5.8	--	ND-5000	--	1.4	--	--	SEQ
MW-1	11/13/91	90.20	14.08	78.12	60	ND-50	0.68	ND-0.3	ND-0.3	ND-0.3	--	ND-5000	--	1.0	--	--	SEQ
MW-1	02/24/92	90.20	12.62	77.68	140	100	3.9	0.68	1.2	3.8	--	ND-5000	--	1.7	--	--	SEQ
MW-1	05/19/92	90.20	11.80	78.40	4800	910	440	21	250	37	--	ND-5000	--	ND	--	--	SEQ
MW-1	08/17/92	90.20	12.01	78.19	4000	560	350	14	150	17	--	ND-5000	--	ND	--	--	SEQ
MW-1	07/29/92	90.20	12.42	77.78	4000	--	ND-5.0	19	210	61	--	--	--	--	--	--	SEQ
MW-1	08/14/92	90.20	12.75	77.45	2400	1700	330	20	150	47	--	ND-5000	--	--	--	--	ANA
MW-1	11/11/92	90.20	13.69	78.51	250	92	30	3.4	7.8	6.8	--	ND-5000	--	ND-2.5	--	--	SEQ
MW-1	06/07/93	90.20	10.93	79.27	3400	440	98	11	21	7.8	--	--	--	0.2	0.9	--	ANA
QC-1 (c)	06/07/93	--	--	--	3700	--	120	12	28	8.5	--	--	--	--	--	--	SEQ
MW-1	12/02/93	90.20	12.72	77.48	1100	120	8.3	3.8	0.8	1.5	--	ND-5000	2.8	1.8	--	--	PACE
MW-1	06/22/94	90.20	11.81	78.39	2100	ND-50	32	3.8	2.2	17	4000 (d)	ND-5000	2.3	3.3	--	--	PACE
QC-1 (e)	08/22/94	--	--	--	2100	--	30	3.2	2.0	15	2000 (d)	--	--	--	--	--	PACE
MW-1	01/10/95	90.20	10.97	79.23	ND-500	480	120	ND-5	ND-5	ND-5	--	--	--	--	--	--	ANA
QC-1 (e)	01/10/95	--	--	--	ND-500	--	120	ND-5	5	ND-10	--	--	ND-1	1	--	--	ATI
MW-1	06/21/95	90.20	9.38	80.82	4700	1300	18	ND-5.0	ND-5.0	ND-10	--	--	--	--	--	--	ATI
QC-1 (e)	06/21/95	--	--	--	3900	--	ND-13	ND-5.0	ND-5.0	ND-10	--	2800	2.0	0.38	0.60 (e)	--	ATI
MW-1	12/27/95	90.20	11.65	78.65	430	2100	ND-2.5	ND-2.5	ND-5.0	ND-5.0	1200	840	0.87	ND-0.20	--	--	ATI
MW-1	09/13/98	90.20	9.28	80.92	3800	820	51	ND-12	ND-12	ND-12	4000	2000	--	--	--	--	ATI
MW-1	12/04/98	90.20	11.81	78.29	1400	290	6.2	ND-5	ND-5	ND-5	2800	2000	ND-5.0	ND-5.0	6.0 (f)	--	SPL
MW-1	08/10/97	90.20	8.97	81.23	7900	1700	12	ND-10	ND-10	ND-10	15000	ND-5	ND-250	ND-250	ND	--	SPL
QC-1 (c)	09/10/97	--	--	--	7700	--	14	ND-25	ND-25	ND-25	13000	--	--	--	--	--	SPL
MW-1	12/12/97	90.20	11.37	78.83	440	760	8.8	ND-1.0	2.6	9.4	6700	1200	ND-1.0	ND-1.0	ND	--	SPL
MW-1	09/18/98	90.20	9.02	82.18	7500	2900	ND-2.5	ND-5.0	ND-5.0	ND-5.0	5600	ND-5	ND-5.0	ND-5.0	ND	--	SPL
MW-2	11/04/89	87.91	15.84	72.07	ND-500	--	8.5	ND-0.3	ND-0.3	ND-0.3	--	--	--	--	--	--	SAL
MW-2	11/11/89	87.91	14.76	73.16	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-2	04/03/90	87.91	15.25	72.68	ND-500	--	ND-0.5	ND-0.5	ND-0.5	ND-0.5	--	--	--	--	--	--	ANA
MW-2	07/30/90	87.91	15.59	72.32	81	--	8.5	ND-0.5	ND-0.5	ND-0.5	--	--	--	--	--	--	ANA
MW-2	11/20/90	87.91	17.51	70.10	ND-50	--	0.3	ND-0.3	ND-0.3	ND-0.3	--	--	--	--	--	--	SAL
MW-2	03/01/91	87.91	17.11	70.80	ND-100	--	0.4	ND-0.3	ND-0.3	ND-0.3	--	--	--	4.0	--	--	SAL
MW-2	08/18/91	87.91	17.97	69.94	ND-30	--	ND-0.3	ND-0.3	ND-0.3	ND-0.3	--	--	--	--	--	--	SEQ
MW-2	11/13/91	87.91	18.78	71.15	38	--	0.32	ND-0.3	ND-0.3	ND-0.3	--	--	--	--	--	--	SEQ
MW-2	02/24/92	87.91	15.07	72.84	ND-50	--	ND-0.5	ND-0.5	ND-0.5	0.68	--	--	--	18	--	--	SEQ
MW-2	05/19/92	87.91	14.70	73.21	ND-50	--	0.55	ND-0.5	ND-0.5	ND-0.5	--	--	--	--	--	--	SEQ
MW-2	07/22/92	87.91	15.60	72.31	90	--	1.3	0.9	0.8	1.9	--	--	--	--	--	--	ANA
MW-2	08/14/92	87.91	15.89	72.03	--	--	--	--	--	--	--	--	--	--	--	--	ANA
MW-2	11/11/92	87.91	16.19	71.72	52	--	2.8	ND-0.5	ND-0.5	0.9	--	--	--	--	--	--	ANA
QC-1 (e)	11/11/92	--	--	--	66	--	3.2	ND-0.5	ND-0.5	1.0	--	--	--	--	--	--	ANA
MW-2	06/07/93	87.91	14.42	73.49	1200	--	14	2.8	1.9	1.7	--	--	--	--	--	--	ANA
MW-2	12/02/93	87.91	14.94	72.97	790	--	3.4	0.5	10	ND-0.5	--	--	--	--	--	--	PACE
QC-1 (e)	12/02/93	--	--	--	2100	--	32	3.8	2.2	17.00	3700 (d)	--	--	--	--	--	PACE
MW-2	06/22/94	87.91	14.25	73.68	110	--	ND-0.5	ND-0.5	ND-0.5	ND-0.5	120 (d)	--	2.3	--	--	--	PACE
MW-2	01/10/95	87.91	13.84	74.27	ND-50	--	ND-0.5	ND-0.5	0.6	1	--	--	--	--	--	--	ATI
MW-2	06/21/95	87.91	11.68	78.25	4700	--	ND-10	ND-10	ND-10	ND-20	--	--	--	--	--	--	ATI
MW-2	12/27/95	87.91	13.11	74.60	6100	--	ND-25	ND-25	ND-25	ND-50	--	--	--	--	--	--	ATI
QC-1 (e)	12/27/95	--	--	--	6300	--	ND-25	ND-25	ND-25	ND-50	20000	--	--	--	--	--	ATI
MW-2	09/13/98	87.91	10.88	77.05	8300	--	ND-2.5	ND-2.5	ND-2.5	ND-2.5	13000	--	--	--	--	--	SPL
QC-1 (e)	09/13/98	--	--	--	8700	--	ND-5	ND-5	ND-5	ND-5	13000	--	--	--	--	--	SPL
MW-2	12/04/98	87.91	13.03	74.88	5900	--	ND-2.5	ND-5	ND-5	ND-5	11000	--	--	--	--	--	SPL
QC-1 (e)	12/04/98	--	--	--	5900	--	ND-2.5	ND-5	ND-5	ND-5	11000	--	--	--	--	--	SPL
MW-2	08/10/97	87.91	10.04	77.87	ND-50	--	ND-0.5	ND-1.0	ND-1.0	ND-1.0	--	--	--	--	--	--	SPL
MW-2	12/12/97	87.91	12.44	75.47	ND-50	--	ND-0.5	ND-1.0	ND-1.0	ND-1.0	--	--	--	--	--	--	SPL
MW-2	09/18/98	87.91	8.89	79.02	50	--	ND-0.5	ND-1.0	ND-1.0	ND-1.0	--	--	--	--	--	--	SPL
QC-1 (e)	09/18/98	--	--	--	ND-50	--	ND-0.5	ND-1.0	ND-1.0	ND-1.0	ND-10	--	--	--	--	--	SPL

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING
 BP OIL COMPANY SERVICE STATION NO. 11102
 100 MACARTHUR BOULEVARD, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-076

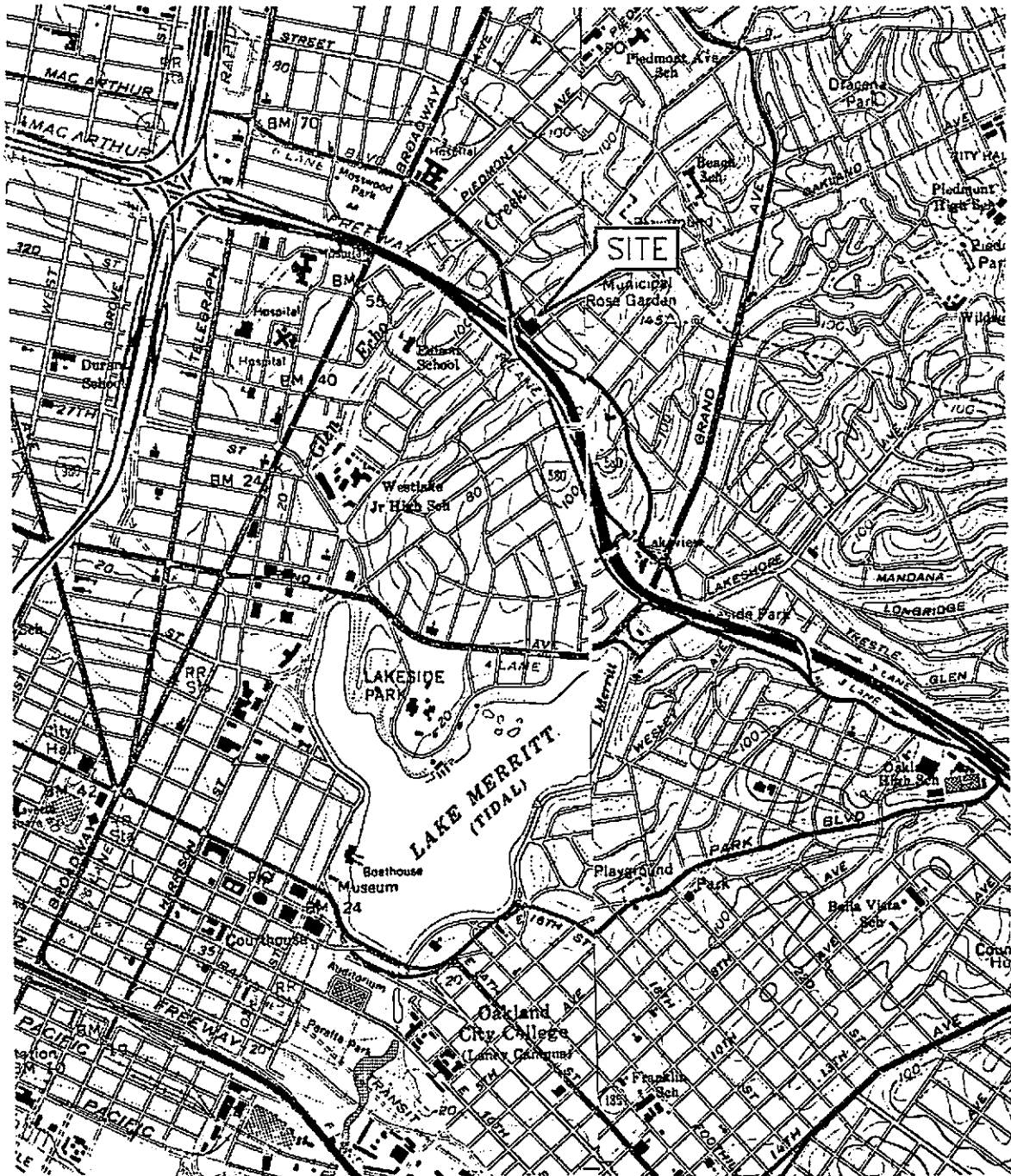
WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	TPH-D (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	TOG (ug/l)	1,1-DCA (ug/l)	1,2-DCA (ug/l)	HVOC's (ug/l)	DO (ppm)	LAB
MW-3	11/04/89	87.02	16.40	71.62	ND<500	---	ND<0.3	ND<0.3	ND<0.3	ND<0.3	---	---	---	---	---	---	SAL
MW-3	11/11/89	87.02	14.10	72.92	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-3	04/03/90	87.02	13.90	73.12	ND<100	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	---	---	ANA
MW-3	07/30/90	87.02	13.77	73.25	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	---	---	ANA
MW-3	11/20/90	87.02	14.67	72.35	ND<50	---	0.3	0.8	0.4	1.5	---	ND<5000	---	---	---	---	SAL
MW-3	03/01/91	87.02	16.22	71.80	ND<100	---	0.4	ND<0.3	ND<0.3	ND<0.3	---	---	---	---	---	---	SAL
MW-3	08/19/91	87.02	13.15	73.87	ND<30	---	ND<0.3	ND<0.3	ND<0.3	ND<0.3	---	---	---	ND	---	---	SEQ
MW-3	11/13/91	87.02	15.68	71.36	ND<30	---	ND<0.3	ND<0.3	ND<0.3	ND<0.3	---	---	---	---	---	---	SEQ
MW-3	02/24/92	87.02	15.01	72.01	ND<50	---	0.65	1.4	0.68	4.4	---	---	---	---	---	---	SEQ
MW-3	06/19/92	87.02	15.52	71.50	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	---	---	SEQ
MW-3	07/22/92	87.02	15.63	71.39	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	ND<5000	---	ND<0.50	---	---	ANA
MW-3	08/14/92	87.02	13.57	73.45	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-3	11/11/92	87.02	14.13	72.89	ND<50	---	ND<0.5	0.7	ND<0.5	1.3	---	---	---	---	---	---	ANA
MW-3	06/07/93	87.02	12.13	74.89	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	---	---	PACE
MW-3	12/02/93	87.02	13.29	73.73	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	---	---	PACE
MW-3	09/22/94	87.02	12.78	74.24	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	---	---	PACE
MW-3	01/10/95	87.02	12.01	75.01	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<1	---	---	---	1	---	3.8	ATI
MW-3	09/21/95	87.02	11.57	76.45	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	---	---	---	7.4	ATI
MW-3	12/27/95	87.02	13.47	73.55	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	5.7	---	---	---	---	7.3	ATI
MW-3	09/13/96	87.02	11.22	76.80	50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<1.0	---	---	---	---	8.8	SPL
MW-3	12/04/96	87.02	13.29	73.74	ND<50	---	ND<0.5	ND<1	ND<1	ND<1	---	---	---	---	---	8.7	SPL
MW-3	08/10/97	87.02	10.22	76.80	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	---	---	---	---	---	8.1	SPL
MW-3	12/12/97	87.02	12.61	74.41	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	---	---	---	---	---	5.6	SPL
QC-1 (c)	12/12/97	---	---	---	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	---	---	---	---	---	---	SPL
MW-3	08/19/98	87.02	9.07	77.95	50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<1.0	---	---	---	---	5.3	SPL
QC-2 (d)	11/11/92	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	---	---	ANA
QC-2 (d)	06/07/93	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	---	---	PACE
QC-2 (d)	12/02/93	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	---	---	PACE
QC-2 (d)	09/22/94	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---	---	---	PACE
QC-2 (d)	01/10/95	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<1	---	---	---	---	---	---	ATI
QC-2 (d)	09/21/95	---	---	---	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	---	---	---	---	ATI
QC-2 (d)	12/27/95	---	---	---	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	---	---	---	---	---	ATI
QC-2 (d)	09/13/96	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<1.0	---	---	---	---	---	SPL

ABBREVIATIONS:

TPH-G	Total petroleum hydrocarbons as gasoline
TPH-D	Total petroleum hydrocarbons as diesel
B	Benzene
T	Toluene
E	Ethylbenzene
X	Total xylenes
TOG	Total oil and grease
1,1-DCA	1,1-Dichloroethane
1,2-DCA	1,2-Dichloroethane
HVOC's	Halogenated volatile organic compounds
MTBE	Methyl tert butyl ether
DO	Dissolved oxygen
ug/l	Micrograms per liter
ppm	Parts per million
ND	Not detected above reported detection limit
---	Not analyzed/measured/applicable
SAL	Superior Analytical Laboratory
ANA	Anamatrix, Inc.
SEQ	Sequon Analytical Laboratory
PACE	Paco, Inc.
ATI	Analytical Technologies, Inc.
SPL	Southern Petroleum Laboratories

NOTES:

- (a) Top of casing elevations surveyed to the nearest 0.01 foot above mean sea level.
- (b) Groundwater elevations in feet above mean sea level.
- (c) Blind duplicate.
- (d) A copy of the documentation for this data is included in Appendix C of Alisto report 10-076-06-002.
- (e) Tetrachloroethene.
- (f) Trans-1,2-Dichloroethene
- (g) Travel blank.



SOURCE:
 USGS MAP, OAKLAND EAST & WEST QUADRANGLES,
 CALIFORNIA, 7.5 MINUTE SERIES, 1959.
 PHOTOREVISED 1980.



QUADRANGLE LOCATION

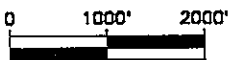


FIGURE 1

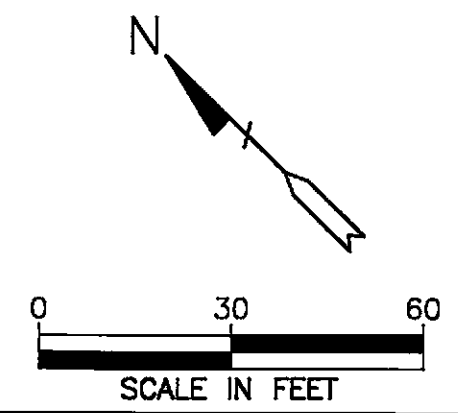
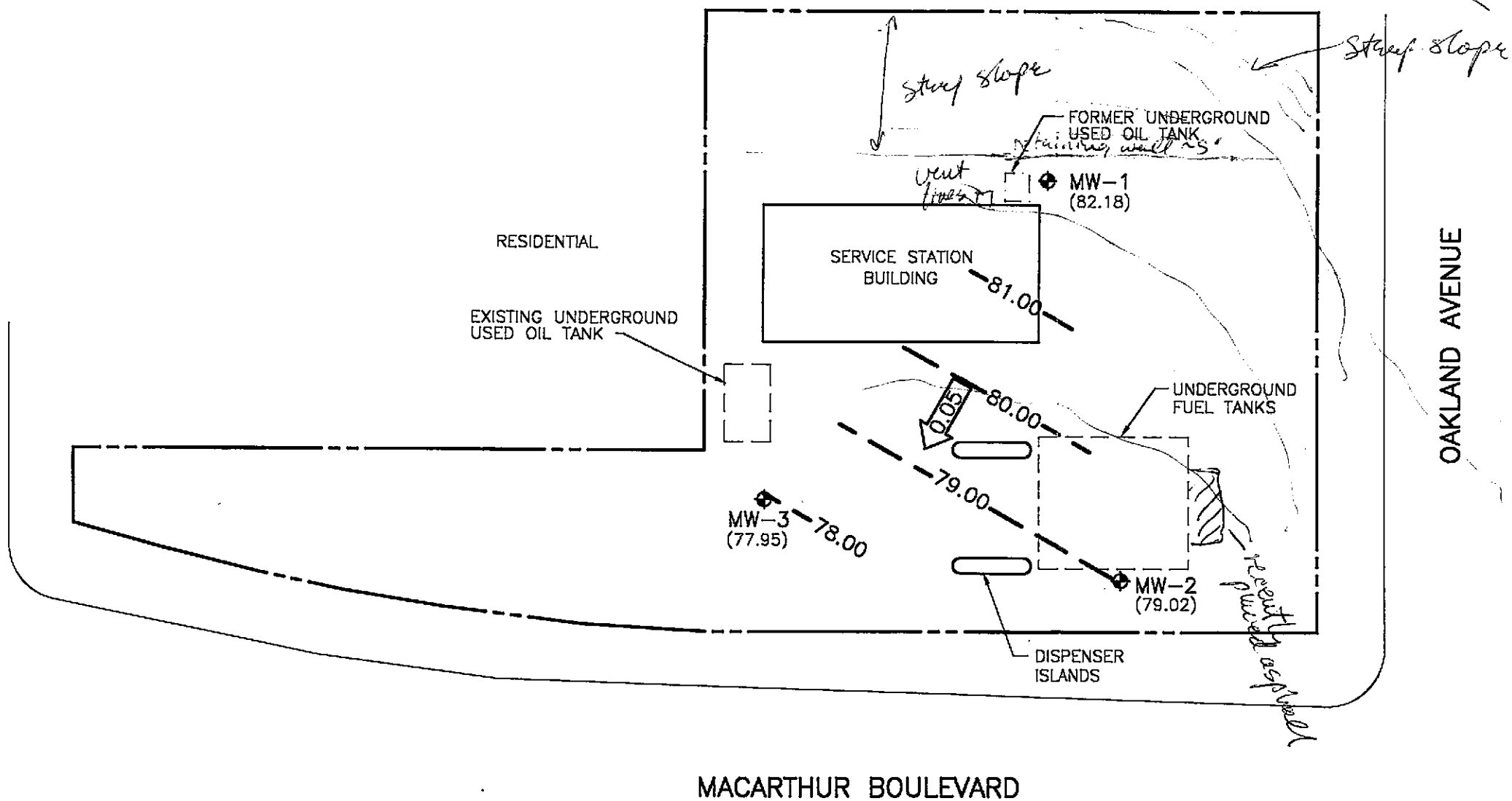
SITE VICINITY MAP

**BP OIL SERVICE STATION NO. 11102
 100 MACARTHUR BOULEVARD
 OAKLAND, CALIFORNIA**

PROJECT NO. 10-076



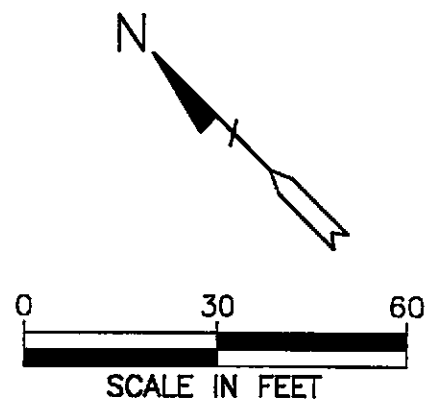
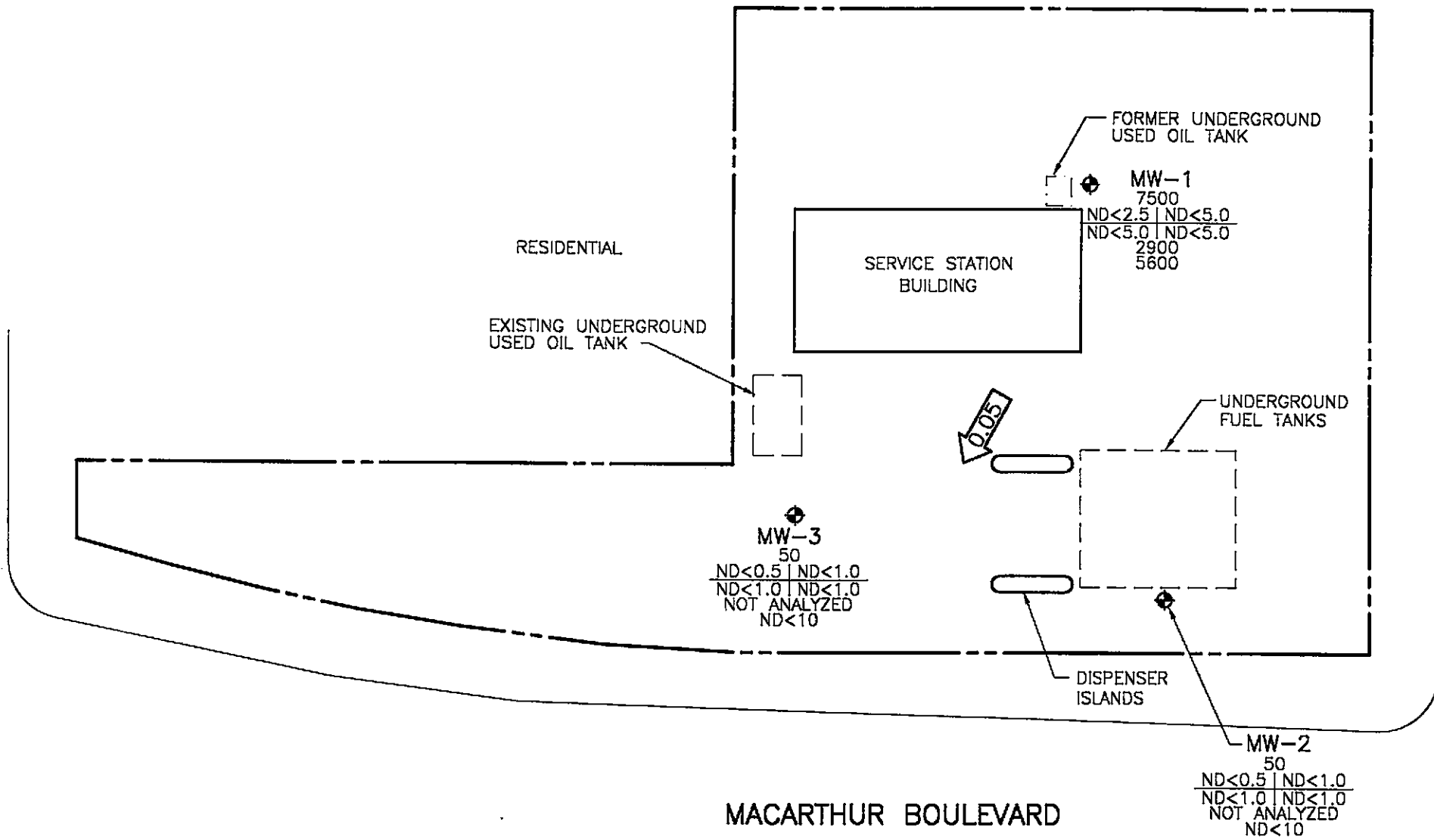
ALISTO ENGINEERING GROUP
 WALNUT CREEK, CALIFORNIA



- LEGEND**
- ⊕ GROUNDWATER MONITORING WELL
 - (77.95) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
 - 78.00 - GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL - 1.00 FOOT)
 - ← 0.05 → CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

NOTE:
 Potentiometric groundwater elevation contours were generated with Quicksurf using the standard triangulation method with a continuous curvature on a square grid surface.

FIGURE 2
POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP
JUNE 18, 1998
 BP OIL SERVICE STATION NO. 11102
 100 MACARTHUR BOULEVARD
 OAKLAND, CALIFORNIA
 PROJECT NO. 10-076



LEGEND

⊕	GROUNDWATER MONITORING WELL
TPH-G B I T E X TPH-D MTBE	CONCENTRATION OF CONSTITUENTS IN MICROGRAMS PER LITER
TPH-G	TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
B	BENZENE
T	TOLUENE
E	ETHYLBENZENE
X	TOTAL XYLENES
TPH-D	TOTAL PETROLEUM HYDROCARBONS AS DIESEL
MTBE	METHYL TERT BUTYL ETHER
ND	NOT DETECTED ABOVE REPORTED DETECTION LIMIT
← 0.05	CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 3
CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER
JUNE 18, 1998
 BP OIL SERVICE STATION NO. 11102
 100 MACARTHUR BOULEVARD
 OAKLAND, CALIFORNIA
 PROJECT NO. 10-076

10076E-2.DWG 7-31-98 BCK 1-30

APPENDIX A
WATER SAMPLING FIELD SURVEY FORMS

ALISTO

Field Report / Sampling Data Sheet

ENGINEERING

GROUP

1575 TREAT BOULEVARD, SUITE 201

WALNUT CREEK CA 94598 (510) 295-1650 FAX 295-1823

Project No. 10-076-07-002

Address 100 MacArthur Blvd

Contract No. H176916

Station No. BP 11102

Date: 6/18/98

Day: M T W T F

City: Oakland

Sampler: LB

DEPTH TO GROUNDWATER SUMMARY

WELL ID	SAMPLE ID	WELL DIAM	TOTAL DEPTH	DEPTH TO WATER	PRODUCT THICKNESS	TIME MONITORED	COMMENTS:
MW-1	S-3	4"	23.20	8.02	0	1107	ANALYSIS / TPH-D, TOG, HVOC
MW-2	S-2	4"	24.80	8.89	↓	1100	Ac-1 (S-4) From this well
MW-3	S-1	4"	23.60	9.07	↓	1050	

FIELD INSTRUMENT CALIBRATION DATA

pH METER Imm 4.00 4 7.00 7 10.00 10 TEMPERATURE COMPENSATED (Y) N TIME 0845 WEATHER Clear
 D.O. METER Imm ZERO d.O. SOLUTION _____ BAROMETRIC PRESSURE _____ TEMP 66
 CONDUCTIVITY METER Imm 10,000 _____ TURBIDITY METER _____ 5.0 NTU _____ OTHER X
 LEAK DETECTOR: _____ ALARM MODE X NON ALARM MODE _____

Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.	
MW-3	9.07	4"	OK	0	Y (N)	9	1140	71.9	7.49	1.10ms	5.1	<input type="checkbox"/> EPA 601 _____
Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge PurgeVol.						19		70.2	7.55	1.19ms		<input checked="" type="checkbox"/> TPH-G/BTEX _____
23.60 - 9.07 = 14.53 x .65 = 9.44 x 3 = 2832						29	1200	69.8	7.55	1.21ms	5.3	<input type="checkbox"/> TPH Diesel _____
Purge Method: <input checked="" type="checkbox"/> Surface Pump <input type="checkbox"/> Disp. Tube <input type="checkbox"/> Winch <input checked="" type="checkbox"/> Disp. Bailor(s) <input type="checkbox"/> Sys Port												<input type="checkbox"/> TOG 5520 _____
Comments:												TIME/SAMPLE ID
												1210
MW-2	8.89	4"	OK	0	Y (N)	11	1230	69.8	7.42	1.26ms	4.9	<input type="checkbox"/> EPA 601 _____
Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge PurgeVol.						21		68.9	7.31	1.36ms		<input checked="" type="checkbox"/> TPH-G/BTEX _____
24.80 - 8.89 = 15.91 x .65 = 10.34 x 3 = 3102						32	1257	68.6	7.19	1.33ms	5.3	<input type="checkbox"/> TPH Diesel _____
Purge Method: <input type="checkbox"/> Surface Pump <input type="checkbox"/> Disp. Tube <input checked="" type="checkbox"/> Winch <input checked="" type="checkbox"/> Disp. Bailor(s) <input type="checkbox"/> Sys Port												<input type="checkbox"/> TOG 5520 _____
Comments:												TIME/SAMPLE ID
												1310

ALISTO

Field Report / Sampling Data Sheet

ENGINEERING

GROUP

1575 TREAT BOULEVARD, SUITE 201

WALNUT CREEK CA 94598 (510) 295-1650 FAX 295-1823

Project No.

10-076-07-002

Date:

6/18/98

Address

100 MacArthur Blvd

Day:

MTWTF

Contract No.

H176916

City:

Oakland

Station No.

BP 11102

Sampler:

LR

Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.	
MW-1	8.02	4"	OK		Y <input checked="" type="checkbox"/> N	10	1331	66.9	7.66	1.47ms	4.7	<input type="checkbox"/> EPA 601
Total Depth - Water Level=						20		67.3	7.46	1.56ms		<input checked="" type="checkbox"/> TPH-G/BTEX
x Well Vol. Factor=						30	1356	67.7	7.43	1.53ms	4.9	<input type="checkbox"/> TPH Diesel
x#vol. to Purge PurgeVol.												<input type="checkbox"/> TOG 5520
Purge Method: <input type="checkbox"/> Surface Pump <input type="checkbox"/> Disp. Tube <input type="checkbox"/> Winch <input checked="" type="checkbox"/> Disp. Baller(s) <input checked="" type="checkbox"/> Sys Port												TIME/SAMPLE ID
Comments:												14.00

APPENDIX B

LABORATORY REPORT AND CHAIN OF CUSTODY RECORD



HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

July 2, 1998

Scott Hooton
BP OIL COMPANY
295 SW 41st St., Bldg 13, Suite N
Renton, WA 98055

The following report contains analytical results for the sample(s) received at Southern Petroleum Laboratories (SPL) on June 23, 1998. The sample(s) was assigned to Certificate of Analysis No.(s) 9806A57 and analyzed for all parameters as listed on the chain of custody.

Any data flag or quality control exception associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s).

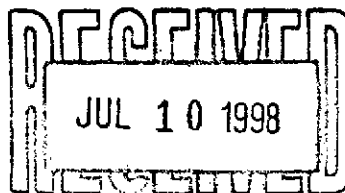
If you have any questions or comments pertaining to this data report, please do not hesitate to contact me. Please reference the above Certificate of Analysis No. during any inquiries.

Again, SPL is pleased to be of service to you. We anticipate working with you in fulfilling all your current and future analytical needs.

Southern Petroleum Laboratories



Joel Grice
Senior Organic Project Manager






HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

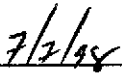
Southern Petroleum Laboratories, Inc.

Certificate of Analysis Number: 98-06-A57

Approved for Release by:



Joel Grice, Senior Organic Project Manager



Date:

Greg Grandits
Laboratory Director

Cynthia Schreiner
Quality Assurance Officer

The attached analytical data package may not be reproduced except in full without the express written approval of this laboratory.



Certificate of Analysis No. H9-9806A57-01

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

BP Oil Company
295 SW 41st St, Bldg 13, Ste N
Renton, WA 98055
ATTN: Scott Hooton

P.O.#
H176916, COC#098671
DATE: 07/02/98

PROJECT: #11102, N/A
SITE: Oakland, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-1

PROJECT NO: 10-076-7-2
MATRIX: WATER
DATE SAMPLED: 06/18/98
DATE RECEIVED: 06/23/98

ANALYTICAL DATA				
PARAMETER	RESULTS	DETECTION LIMIT	UNITS	
MTBE	ND	10 P		ug/L
Benzene	ND	0.5 P		ug/L
Toluene	ND	1.0 P		ug/L
Ethylbenzene	ND	1.0 P		ug/L
Total Xylene	ND	1.0 P		ug/L
Surrogate % Recovery				
1,4-Difluorobenzene				97
4-Bromofluorobenzene				103
Method 8020A*** Analyzed by: fab Date: 07/01/98				
Gasoline Range Organics	0.050	0.05 P		mg/L
Surrogate % Recovery				
1,4-Difluorobenzene				97
4-Bromofluorobenzene				107
California LUFT Manual for Gasoline Analyzed by: fab Date: 07/01/98 03:00:00				

ND - Not detected. (P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance
with EPA guidelines for quality assurance.
SPL California License # 1903



HOUSTON LABORATORY
 8880 INTERCHANGE DRIVE
 HOUSTON, TEXAS 77054
 PHONE (713) 660-0901

Certificate of Analysis No. H9-9806A57-02

BP Oil Company
 295 SW 41st St, Bldg 13, Ste N
 Renton, WA 98055
 ATTN: Scott Hooton

P.O.#
 H176916, COC#098671
 DATE: 07/02/98

PROJECT: #11102, N/A
 SITE: Oakland, CA
 SAMPLED BY: Alisto Engineering
 SAMPLE ID: S-2

PROJECT NO: 10-076-7-2
 MATRIX: WATER
 DATE SAMPLED: 06/18/98
 DATE RECEIVED: 06/23/98

PARAMETER	ANALYTICAL DATA		DETECTION LIMIT	UNITS
	RESULTS			
MTBE	ND		10 P	ug/L
Benzene	ND		0.5 P	ug/L
Toluene	ND		1.0 P	ug/L
Ethylbenzene	ND		1.0 P	ug/L
Total Xylene	ND		1.0 P	ug/L
Surrogate	% Recovery			
1,4-Difluorobenzene	93			
4-Bromofluorobenzene	100			
Method 8020A***				
Analyzed by: fab				
Date: 07/02/98				
Gasoline Range Organics	0.050		0.05 P	mg/L
Surrogate	% Recovery			
1,4-Difluorobenzene	97			
4-Bromofluorobenzene	107			
California LUFT Manual for Gasoline				
Analyzed by: fab				
Date: 07/01/98 05:09:00				

ND - Not detected.

(P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
 **Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
 ***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.
 SPL California License # 1903



Certificate of Analysis No. H9-9806A57-03

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

BP Oil Company
295 SW 41st St, Bldg 13, Ste N
Renton, WA 98055
ATTN: Scott Hooton

P.O.#
H176916, COC#098671
DATE: 07/02/98

PROJECT: #11102, N/A
SITE: Oakland, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-3

PROJECT NO: 10-076-7-2
MATRIX: WATER
DATE SAMPLED: 06/18/98
DATE RECEIVED: 06/23/98

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	5600	200 P	ug/L
Benzene	ND	2.5 P	ug/L
Toluene	ND	5.0 P	ug/L
Ethylbenzene	ND	5.0 P	ug/L
Total Xylene	ND	5.0 P	ug/L

need to run by GC/MS

Surrogate

% Recovery

1,4-Difluorobenzene
4-Bromofluorobenzene

100
100

Method 8020A***

Analyzed by: fab

Date: 07/02/98

Gasoline Range Organics

7.5 0.25 P

mg/L

Surrogate

% Recovery

1,4-Difluorobenzene
4-Bromofluorobenzene

93
100

California LUFT Manual for Gasoline

Analyzed by: fab

Date: 07/01/98 04:43:00

Diesel Range Organics

2.9 0.05 P

mg/L

Surrogate

% Recovery

(P) - Practical Quantitation Limit ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

COMMENTS: Sample contains petroleum hydrocarbons from C14-C24 that do not resemble a diesel pattern. (C10-C24) RR

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.
SPL California License # 1903



Certificate of Analysis No. H9-9806A57-03

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

BP Oil Company
295 SW 41st St, Bldg 13, Ste N
Renton, WA 98055
ATTN: Scott Hooton

P.O.#
H176916, COC#098671
DATE: 07/02/98

PROJECT: #11102, N/A
SITE: Oakland, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-3

PROJECT NO: 10-076-7-2
MATRIX: WATER
DATE SAMPLED: 06/18/98
DATE RECEIVED: 06/23/98

PARAMETER	ANALYTICAL DATA	RESULTS	DETECTION LIMIT	UNITS
n-Pentacosane California LUFT Manual for Diesel Analyzed by: APR Date: 07/02/98 01:51:00		124		
California TPH-D Extraction Method 3510C *** Analyzed by: KL Date: 06/25/98 10:00:00		06/25/98		
Hydrocarbons by Gravimetry Method 5520 B & F ** Analyzed by: DR Date: 06/30/98 09:00:00		ND	5	mg/L

ND - Not detected.

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

COMMENTS: Sample contains petroleum hydrocarbons from C14-C24 that do not resemble a diesel pattern. (C10-C24) RR

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.
SPL California License # 1903



Certificate of Analysis No. H9-9806A57-03

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

BP Oil Company
295 SW 41st St., Bldg 13, Ste N
Renton, WA 98055
ATTN: Scott Hooton

P.O.#
H176916, COC#098671
07/02/98

PROJECT: #11102, N/A
SITE: Oakland, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-3

PROJECT NO: 10-076-7-2
MATRIX: WATER
DATE SAMPLED: 06/18/98
DATE RECEIVED: 06/23/98

ANALYTICAL DATA

PARAMETER	RESULTS	PQL*	UNITS
Dichlorodifluoromethane	ND	5.0	µg/L
Chloromethane	ND	5.0	µg/L
Vinyl chloride	ND	5.0	µg/L
Bromomethane	ND	5.0	µg/L
Chloroethane	ND	5.0	µg/L
Trichlorofluoromethane	ND	5.0	µg/L
1,1-Dichloroethene	ND	5.0	µg/L
Methylene chloride	ND	5.0	µg/L
Trans-1,2-Dichloroethene	ND	5.0	µg/L
1,1-Dichloroethane	ND	5.0	µg/L
Chloroform	ND	5.0	µg/L
1,1,1-Trichloroethane	ND	5.0	µg/L
Carbon tetrachloride	ND	5.0	µg/L
1,2-Dichloroethane	ND	5.0	µg/L
2-Chloroethylvinyl ether	ND	5.0	µg/L
Trichloroethene	ND	5.0	µg/L
1,2-Dichloropropane	ND	5.0	µg/L
Bromodichloromethane	ND	5.0	µg/L
cis-1,3-Dichloropropene	ND	5.0	µg/L
trans-1,3-Dichloropropene	ND	5.0	µg/L
1,1,2-Trichloroethane	ND	5.0	µg/L
Tetrachloroethene	ND	5.0	µg/L
Dibromochloromethane	ND	5.0	µg/L
Chlorobenzene	ND	5.0	µg/L
Bromoform	ND	5.0	µg/L
1,1,2,2-Tetrachloroethane	ND	5.0	µg/L
1,3-Dichlorobenzene	ND	5.0	µg/L
1,4-Dichlorobenzene	ND	5.0	µg/L
1,2-Dichlorobenzene	ND	5.0	µg/L

METHOD: 8010, Halogenated Volatile Organics
(continued on next page)



HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9806A57-03

BP Oil Company

SAMPLE ID: S-3

SURROGATES
Fluorobenzene

% RECOVERY
93

ANALYZED BY: WK

DATE/TIME: 06/30/98 08:46:00

METHOD: 8010, Halogenated Volatile Organics

NOTES: * - Practical Quantitation Limit

ND - Not Detected

NA - Not Analyzed

COMMENTS:

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.
SPL California License # 1903



HOUSTON LABORATORY
 8880 INTERCHANGE DRIVE
 HOUSTON, TEXAS 77054
 PHONE (713) 660-0901

Certificate of Analysis No. H9-9806A57-04

BP Oil Company
 295 SW 41st St, Bldg 13, Ste N
 Renton, WA 98055
 ATTN: Scott Hooton

P.O.#
 H176916, COC#098671
 DATE: 07/02/98

PROJECT: #11102, N/A
 SITE: Oakland, CA
 SAMPLED BY: Alisto Engineering
 SAMPLE ID: S-4

PROJECT NO: 10-076-7-2
 MATRIX: WATER
 DATE SAMPLED: 06/18/98
 DATE RECEIVED: 06/23/98

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	10 P	ug/L
Benzene	ND	0.5 P	ug/L
Toluene	ND	1.0 P	ug/L
Ethylbenzene	ND	1.0 P	ug/L
Total Xylene	ND	1.0 P	ug/L

Surrogate

% Recovery

1,4-Difluorobenzene 97
 4-Bromofluorobenzene 100
 Method 8020A***
 Analyzed by: fab
 Date: 07/01/98

Gasoline Range Organics

ND 0.05 P mg/L

Surrogate

% Recovery

1,4-Difluorobenzene 97
 4-Bromofluorobenzene 103
 California LUFT Manual for Gasoline
 Analyzed by: fab
 Date: 07/01/98 05:34:00

ND - Not detected.

(P) - Practical Quantitation Limit

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
 **Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
 ***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.
 SPL California License # 1903

QUALITY CONTROL

DOCUMENTATION



Matrix: Aqueous
Units: ug/L

Batch Id: VARE980701095100

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike		QC Limits(**) (Mandatory) % Recovery Range
			Result <1>	Recovery %	
MTBE	ND	50	45	90.0	72 - 128
Benzene	ND	50	52	104	61 - 119
Toluene	ND	50	52	104	65 - 125
EthylBenzene	ND	50	53	106	70 - 118
O Xylene	ND	50	53	106	72 - 117
M & P Xylene	ND	100	110	110	72 - 116

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike		Matrix Spike Duplicate		MS/MSD Relative % Difference	QC Limits(***) (Advisory)	
			Result <1>	Recovery <4>	Result <1>	Recovery <5>		RPD Max.	Recovery Range
			MTBE	34	20	55	105	50	80.0
BENZENE	ND	20	23	115	19	95.0	19.0	21	32 - 164
TOLUENE	ND	20	23	115	19	95.0	19.0	20	38 - 159
ETHYLBENZENE	ND	20	23	115	19	95.0	19.0	19	52 - 142
O XYLENE	ND	20	23	115	19	95.0	19.0 *	18	53 - 143
M & P XYLENE	ND	40	47	118	39	97.5	19.0 *	17	53 - 144

* = Values outside QC Range due to Matrix Interference (except RPD)

« = Data outside Method Specification limits.

NC = Not Calculated (Sample exceeds spike by factor of 4 or more)

ND = Not Detected/Below Detection Limit

% Recovery = [(<1> - <2>) / <3>] x 100

LCS % Recovery = (<1> / <3>) x 100

Relative Percent Difference = | (<4> - <5>) | / [(<4> + <5>) x 0.5] x 100

(**) = Source: SPL-Houston Historical Data (1st Q '97)

(***) = Source: SPL-Houston Historical Data (1st Q '97)

Analyst: fab

Sequence Date: 07/01/98

SPL ID of sample spiked: 9806A25-08A

Sample File ID: E_F5110.TX0

Method Blank File ID:

Blank Spike File ID: E_F5104.TX0

Matrix Spike File ID: E_F5106.TX0

Matrix Spike Duplicate File ID: E_F5107.TX0

SAMPLES IN BATCH(SPL ID):

9806A25-09A 9806A25-10A 9806A57-03A 9806A57-04A
 9806A25-11A 9806A25-12A 9806A25-13A 9806A25-14A
 9806A65-01A 9806A65-02A 9806A65-03A 9806A37-01A
 9806A37-02A 9806A37-03A 9806A29-01A 9806A29-02A
 9806A25-08A 9806A57-01A 9806A25-07A



** SPL BATCH QUALITY CONTROL REPORT **
METHOD 8020

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Units: ug/L

Batch Id: VARE980702005200

LABORATORY CONTROL SAMPLE

S P I K E C O M P O U N D S	Method Blank Result <2>	Spike Added <3>	Blank Spike		QC Limits(**) (Mandatory) % Recovery Range
			Result	Recovery	
			<1>	%	
MTBE	ND	50	43	86.0	72 - 128
Benzene	ND	50	52	104	61 - 119
Toluene	ND	50	52	104	65 - 125
EthylBenzene	ND	50	51	102	70 - 118
O Xylene	ND	50	52	104	72 - 117
M & P Xylene	ND	100	100	100	72 - 116

M A T R I X S P I K E S

S P I K E C O M P O U N D S	Sample Results <2>	Spike Added <3>	Matrix Spike		Matrix Spike Duplicate		MS/MSD Relative % Difference	QC Limits(***) (Advisory)	
			Result	Recovery	Result	Recovery		RPD Max.	Recovery Range
			<1>	<4>	<1>	<5>			
MTBE	ND	20	19	95.0	18	90.0	5.41	20	39 - 150
BENZENE	ND	20	20	100	17	85.0	16.2	21	32 - 164
TOLUENE	ND	20	19	95.0	17	85.0	11.1	20	38 - 159
ETHYLBENZENE	ND	20	19	95.0	17	85.0	11.1	19	52 - 142
O XYLENE	ND	20	20	100	18	90.0	10.5	18	53 - 143
M & P XYLENE	ND	40	37	92.5	34	85.0	8.45	17	53 - 144

Analyst: fab
Sequence Date: 07/02/98
SPL ID of sample spiked: 9806A29-04A
Sample File ID: E_F5143.TX0
Method Blank File ID:
Blank Spike File ID: E_F5137.TX0
Matrix Spike File ID: E_F5139.TX0
Matrix Spike Duplicate File ID: E_F5140.TX0

* = Values outside QC Range due to Matrix Interference (except RPD)
* = Data outside Method Specification limits.
NC = Not Calculated (Sample exceeds spike by factor of 4 or more)
ND = Not Detected/Below Detection Limit
% Recovery = [(<1> - <2>) / <3>] x 100
LCS % Recovery = (<1> / <3>) x 100
Relative Percent Difference = | (<4> - <5>) / [(<4> + <5>) x 0.5] x 100
(**) = Source: SPL-Houston Historical Data (1st Q '97)
(***) = Source: SPL-Houston Historical Data (1st Q '97)

SAMPLES IN BATCH(SPL ID):

9806A29-06A	9806A29-07A	9806A29-08A	9806A29-09A
9806A28-01A	9806A28-02A	9806A57-02A	9806A57-03A
9806A29-04A	9806A29-05A	9806A29-03A	



MATRIX: Aqueous
Units: mg/L

Batch Id: VARE980701101710

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike		QC Limits(**) (Mandatory) % Recovery Range
			Result <1>	Recovery %	
Gasoline Range Organics	ND	1.0	1.13	113	64 - 131

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike		Matrix Spike Duplicate		MS/MSD Relative % Difference	QC Limits(***) (Advisory)	
			Result <1>	Recovery <4>	Result <1>	Recovery <5>		RPD Max.	Recovery Range
GASOLINE RANGE ORGANICS	0.05	0.90	1.05	111	0.96	101	9.43	36	36 - 160

* = Values outside QC Range due to Matrix Interference (except RPD)
 * = Data outside Method Specification limits.
 NC = Not Calculated (Sample exceeds spike by factor of 4 or more)
 ND = Not Detected/Below Detection Limit
 $\% \text{ Recovery} = [(<1> - <2>) / <3>] \times 100$
 $\text{LCS } \% \text{ Recovery} = (<1> / <3>) \times 100$
 $\text{Relative Percent Difference} = | (<4> - <5>) | / [(<4> + <5>) \times 0.5] \times 100$
 (**) = Source: SPL-Houston Historical data (1st Q '97)
 (***) = Source: SPL-Houston Historical Data (1st Q '97)

Analyst: fab
 Sequence Date: 07/01/98
 SPL ID of sample spiked: 9806A57-01A
 Sample File ID: EEF5111.TX0
 Method Blank File ID:
 Blank Spike File ID: EEF5105.TX0
 Matrix Spike File ID: EEF5108.TX0
 Matrix Spike Duplicate File ID: EEF5109.TX0

SAMPLES IN BATCH(SPL ID):
 9806A57-03A 9806A57-02A 9806A57-04A 9806A25-11A
 9806A25-12A 9806A25-13A 9806A25-14A 9806A57-01A



Matrix: Aqueous
Units: mg/L

Batch Id: HP_T980701115500

B L A N K S P I K E S

S P I K E C O M P O U N D S	Sample Results <2>	Spike Added <3>	Matrix Spike		Matrix Spike Duplicate		MS/MSD Relative % Difference	QC Limits(**) (Advisory)	
			Result <1>	Recovery <4>	Result <1>	Recovery <5>		RPD Max.	Recovery Range
			DIESEL	ND	5.0	3.6		72.0	4.0

Analyst: APR

Sequence Date: 07/02/98

Method Blank File ID:

Sample File ID:

Blank Spike File ID: T_F4196.TX0

Matrix Spike File ID:

Matrix Spike Duplicate File ID:

* = Values Outside QC Range. * = Data outside Method Specification limits.

NC = Not Calculated (Sample exceeds spike by factor of 4 or more)

ND = Not Detected/Below Detection Limit

% Recovery = $[(<1> - <2>) / <3>] \times 100$

Relative Percent Difference = $[(<4> - <5>) / [(<4> + <5>) \times 0.5]] \times 100$

(**) = Source: SPL Historical limits 4th Qtr. '97

SAMPLES IN BATCH(SPL ID):

9806A57-03B



Batch Id: HP_F980630071900

Units: µg/L

LABORATORY CONTROL SAMPLE

S P I K E C O M P O U N D S	Method Blank Result <2>	Spike Added <3>	Blank Spike		QC Limits(**) (Mandatory) % Recovery Range
			Result <1>	Recovery %	
Dichlorodifluoromethane	ND	20	23	115	9 - 168
Chloromethane	ND	20	25	125	11 - 139
Vinyl chloride	ND	20	23	115	51 - 126
Bromomethane	ND	20	18	90.0	34 - 141
Chloroethane	ND	20	23	115	27 - 174
Trichlorofluoromethane	ND	20	20	100	60 - 140
1,1-Dichloroethene	ND	20	20	100	51 - 132
Methylene chloride	ND	20	21	105	44 - 151
Trans-1,2-Dichloroethene	ND	20	21	105	50 - 155
1,1-Dichloroethane	ND	20	21	105	52 - 132
Chloroform	ND	20	20	100	75 - 124
1,1,1-Trichloroethane	ND	20	20	100	41 - 138
Carbon tetrachloride	ND	20	21	105	61 - 124
1,2-Dichloroethane	ND	20	20	100	79 - 121
2-Chloroethylvinyl ether	ND	20	20	100	38 - 122
Trichloroethene	ND	20	20	100	36 - 146
1,2-Dichloropropane	ND	20	20	100	44 - 151
Bromodichloromethane	ND	20	20	100	65 - 135
cis-1,3-Dichloropropene	ND	20	22	110	59 - 149
trans-1,3-Dichloropropene	ND	20	21	105	79 - 121
1,1,2-Trichloroethane	ND	20	21	105	66 - 129
Tetrachloroethene	ND	20	21	105	79 - 121
Dibromochloromethane	ND	20	20	100	52 - 148
Chlorobenzene	ND	20	22	110	84 - 126
Bromoform	ND	20	19	95.0	48 - 132
1,1,2,2-Tetrachloroethane	ND	20	21	105	51 - 151
1,3-Dichlorobenzene	ND	20	21	105	75 - 124
1,4-Dichlorobenzene	ND	20	22	110	72 - 125
1,2-Dichlorobenzene	ND	20	21	105	20 - 190

MATRIX SPIKES

S P I K E C O M P O U N D S	Sample Results <2>	Spike Added <3>	Matrix Spike		Matrix Spike Duplicate		MS/MSD Relative % Difference	QC Limits(***) (Advisory)	
			Result <1>	Recovery <4>	Result <1>	Recovery <5>		RPD Max.	Recovery Range
			DICHLORODIFLUOROMETHANE	ND	20	8.6	43.0	10	50.0
CHLOROMETHANE	ND	20	13	65.0	15	75.0	14.3	29	39 - 175
VINYL CHLORIDE	ND	20	11	55.0	14	70.0	24.0	44	32 - 156
BROMOMETHANE	ND	20	10	50.0	12	60.0	18.2	52	26 - 180
CHLOROETHANE	2.9	20	15	60.5	17	70.5	15.3	42	27 - 174



* SPL BATCH QUALITY CONTROL REPORT **
METHOD 8010***

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Matrix: Aqueous
Units: µg/L

Batch Id: HP_F980630071900

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike		Matrix Spike Duplicate		MS/MSD Relative % Difference	QC Limits (***) (Advisory)	
			Result <1>	Recovery <4>	Result <1>	Recovery <5>		RPD Max.	Recovery Range
			TRICHLOROFLUOROMETHANE	ND	20	10		50.0	12
1,1-DICHLOROETHENE	ND	20	12	60.0	13	65.0	8.00	42	57 - 140
METHYLENE CHLORIDE	ND	20	15	75.0	16	80.0	6.45	32	67 - 137
TRANS-1,2-DICHLOROETHENE	ND	20	14	70.0	15	75.0	6.90	31	58 - 154
1,1-DICHLOROETHANE	3.4	20	17	68.0	18	73.0	7.09	50	47 - 132
CHLOROFORM	ND	20	16	80.0	17	85.0	6.06	40	53 - 132
1,1,1-TRICHLOROETHANE	ND	20	13	65.0	15	75.0	14.3	27	34 - 135
CARBON TETRACHLORIDE	ND	20	13	65.0	14	70.0	7.41	32	54 - 111
1,2-DICHLOROETHANE	ND	20	17	85.0	18	90.0	5.71	50	49 - 155
2-CHLOROETHYL VINYL ETHER	ND	20	0	0 *	0	0 *	0	20	38 - 152
TRICHLOROETHENE	ND	20	13	65.0	15	75.0	14.3	29	30 - 146
1,2-DICHLOROPROPANE	ND	20	16	80.0	18	90.0	11.8	41	44 - 123
BROMODICHLOROMETHANE	ND	20	17	85.0	18	90.0	5.71	38	49 - 179
CIS-1,3-DICHLOROPROPENE	ND	20	16	80.0	18	90.0	11.8	34	38 - 137
TRANS-1,3-DICHLOROPROPENE	ND	20	16	80.0	17	85.0	6.06	47	38 - 164
1,1,2-TRICHLOROETHANE	ND	20	17	85.0	18	90.0	5.71	43	45 - 128
TETRACHLOROETHENE	ND	20	12	60.0	14	70.0	15.4	38	17 - 138
DIBROMOCHLOROMETHANE	ND	20	17	85.0	18	90.0	5.71	41	38 - 162
CHLOROBENZENE	48	20	48	0 *	53	25.0 *	200 *	50	58 - 122
BROMOFORM	ND	20	16	80.0	17	85.0	6.06	49	31 - 174
1,1,2,2-TETRACHLOROETHANE	ND	20	17	85.0	19	95.0	11.1	50	21 - 181
1,3-DICHLOROBENZENE	ND	20	16	80.0	17	85.0	6.06	36	24 - 151
1,4-DICHLOROBENZENE	2.7	20	17	71.5	20	86.5	19.0 *	12	46 - 150
1,2-DICHLOROBENZENE	1.3	20	17	78.5	18	83.5	6.17	12	44 - 153

Analyst: WK
Sequence Date: 06/30/98
SPL ID of sample spiked: 9806C65-10A
Sample File ID: FFF5038.TX0
Method Blank File ID:
Blank Spike File ID: FFF5035.TX0
Matrix Spike File ID: FFF5032.TX0
Matrix Spike Duplicate File ID: FFF5033.TX0

* = Values outside QC Range due to Matrix Interference (except RPD)
* = Data outside Method Specification limits.
NC = Not Calculated (Sample exceeds spike by factor of 4 or more)
ND = Not Detected/Below Detection Limit
% Recovery = [(<1> - <2>) / <3>] x 100
LCS % Recovery = (<1> / <3>) x 100
Relative Percent Difference = | (<4> - <5>) | / [(<4> + <5>) x 0.5] x 100
(**) = Source: SPL-Houston Historical Limits (1st Q '97)
(***) = Source: SPL-Houston Historicals 1st Quarter '97

SAMPLES IN BATCH (SPL ID):
9806D05-04A 9806B95-01A 9806B95-02A 9806C07-02D
9806C10-06A 9806B21-01A 9806A57-03D 9806D05-02A
9806D05-01A 9806D05-03A



** SPL QUALITY CONTROL REPORT **

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Matrix: Aqueous

Reported on: 06/30/98
Analyzed on: 06/30/98
Analyst: DR

This sample was randomly selected for use in the SPL quality control program. Samples chosen are fortified with a known concentration in duplicate. The results are as follows:

Hydrocarbons by Gravimetry
Method 5520 B & F **

SPL Sample ID Number	Method Blank mg/L	Sample Result mg/L	Spike Added mg/L	Matrix Spike		Matrix Spike Duplicate		RPD (%)	QC LIMITS (Advisory)	
				Result mg/L	Recovery %	Result mg/L	Recovery %		RPD Max	% REC
BLANK	ND	ND	40	43	108	41	102	5.7	7.9	84 -108

980630DR

-9807014

Samples in batch:

9806A53-02B 9806A53-06B 9806A57-03C

COMMENTS:

CHAIN OF CUSTODY
AND
SAMPLE RECEIPT CHECKLIST

SPL Houston Environmental Laboratory

Sample Login Checklist

Date: 6/23/98	Time: 1000
---------------	------------

SPL Sample ID:

Q806A57

		Yes	No
1	Chain-of-Custody (COC) form is present.	✓	
2	COC is properly completed.	✓	
3	If no, Non-Conformance Worksheet has been completed.		
4	Custody seals are present on the shipping container.	✓	
5	If yes, custody seals are intact.	✓	
6	All samples are tagged or labeled.	✓	
7	If no, Non-Conformance Worksheet has been completed.		
8	Sample containers arrived intact	✓	
9	Temperature of samples upon arrival:		4 C
10	Method of sample delivery to SPL:	SPL Delivery	
		Client Delivery	
		FedEx Delivery (airbill #)	80518847500
		Other:	
11	Method of sample disposal:	SPL Disposal	✓
		HOLD	
		Return to Client	

Name: <i>Aulen STA</i>	Date: 6/23/98
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9806A57

CHAIN OF CUSTODY

No. 098671

Page 1 of 1

CONSULTANT'S NAME Alisto Engineering		CONSULTANT'S ADDRESS 1575 Treat Blvd #201 W.C., CA 94598	
BP SITE NUMBER 11102	BP SITE / FACILITY ADDRESS Oakland, CA		CONSULTANT PROJECT NUMBER 10-076-7-2
CONSULTANT PROJECT MANGER Brady Nagle		PHONE NUMBER (510) 295-1650	FAX NUMBER 295-1823
BP CONTACT Scott Hooton	BP ADDRESS Kenton, WA	PHONE NUMBER	CONSULTANT CONTRACT NUMBER H176916
LAB CONTACT SPR	LABORATORY ADDRESS Texas	PHONE NUMBER	FAX NO.
BP CONTACT REQUESTING RUSH TAT (Print BP Contact Name)		RUSH REQUESTED OF (Print Consultant Contact Name)	DATE/TIME 6/22/98
			SHIPMENT DATE 6/22/98
			SHIPMENT METHOD Fed Ex

TAT: 24 Hours 48 Hours 72 Hours Standard 7 or 14 Days

ANALYSIS REQUIRED

AIRBILL NUMBER **805188475200**

SAMPLE DESCRIPTION	COLLECTION DATE	COLLECTION TIME	MATRIX SOIL/WATER	CONTAINERS		PRESERVATIVE	ANALYSIS REQUIRED						COMMENTS	
				NO.	TYPE (VOL.)		LAB SAMPLE #	TPH-S	TPH-XF	TPH-6	TPH-19	TPH-25		TPH-100
S-1	6/18/98		W	3	Hel		X	X	X	X	X	X		
S-2	↓		↓	3	↓		X	X	X	X	X	X		
S-3	↓		↓	8	↓		X	X	X	X	X	X		
S-4	↓		↓	3	↓		X	X	X	X	X	X		

SAMPLED BY (Please Print Name)			SAMPLED BY (Signature)			ADDITIONAL COMMENTS			
RELINQUISHED BY / AFFILIATION (Print Name / Signature)			DATE	TIME	ACCEPTED BY / AFFILIATION (Print Name / Signature)			DATE	TIME
<i>[Signature]</i>			6/23/98		<i>P. Gjelton</i>			6/22/98	0830
<i>P. Gjelton</i>			6/22/98	1600	<i>M. Ben...</i>			6/23/98	1000

**BP EXPLORATION & OIL, INC.
ENVIRONMENTAL RESOURCE MANAGEMENT
DATA REVIEW CHECKLIST**

BP Site Number: 11102
ERM Contact: H176916
Sampling Date: 6/18/98
Matrix Description: Water
Date Final Report Received: 7/10/98
Laboratory & Location: SPL, Houston, Texas

	Yes	No	N/A
1. Is BP contract release number consistent with analytical report?	<u> X </u>	<u> </u>	<u> </u>
2. Was report submitted within the specified time frame?	<u> X </u>	<u> </u>	<u> </u>
3. Does report agree with the COC?	<u> X </u>	<u> </u>	<u> </u>
4. Are units consistent with the given matrix?	<u> X </u>	<u> </u>	<u> </u>
5. Were any target analytes/compounds detected in blanks (i.e., trip or equipment)?	<u> </u>	<u> </u>	<u> X </u>
6. Are duplicate water samples within 30%?	<u> X </u>	<u> </u>	<u> </u>
7. Are holding times met?	<u> X </u>	<u> </u>	<u> </u>
8. Are surrogates within limits using laboratory criteria?	<u> X </u>	<u> </u>	<u> </u>
9. Are MS/MSD acceptable using laboratory criteria?	See Below	<u> </u>	<u> </u>
10. Are LCS results acceptable using laboratory criteria?	<u> X </u>	<u> </u>	<u> </u>

MS/MSD relative % difference for MTBE and xylenes values were outside QC range due to matrix interference. MS/MSD limits are advisory only; as stated in SW-846, Section 8.7 to 8.8, if the MS/MSD results fall outside the advisable ranges, a laboratory control samples (LCS) must be analyzed and fall within those ranges. LCS results are within quality control limits.

Data Validation Completed by: Brady Nagle

(signature): *Brady Nagle*

Date: 8/26/98