GROUNDWATER MONITORING AND SAMPLING REPORT

BP Oil Company Service Station No. 11270
3255 Mecartney Road
Alameda, California

Project No. 10-206-04-001

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

November 4, 1997

Brady Nagle
Project Manager

Al Sevilla, P.E.
Principal

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INTRODUCTION

This report presents the results and findings of the September 11, 1997 groundwater monitoring and sampling conducted by Alisto Engineering Group at BP Oil Company Service Station No. 11270, 3255 Mecartney Road, Alameda, 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. Historical methyl tert butyl ether (MTBE) laboratory analysis data not previously tabulated are now included in Table 1. Copies of the MTBE documentation are included in Appendix C of this report only.

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING
BP OIL COMPANY SERVICE STATION NO. 11270
3255 MECARTNEY ROAD, ALAMEDA, CALIFORNIA

ALISTO PROJECT NO. 10-206

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)	TDS (mg/l)	DO (ppm)	LAB
MW-1 (c)	10/29/92	7.49	7.28	0.21	---	---	---	---	---	---	---	---	---	---
MW-1 (c)	06/21/93	7.49	5.40	2.09	---	---	---	---	---	---	---	---	---	---
MW-1	04/05/94	7.49	5.64	1.85	1700	---	20	1.1	3.9	7.6	---	---	---	PACE
MW-1	07/28/94	7.49	6.22	1.27	---	---	---	---	---	---	---	---	---	PACE
MW-1	10/26/94	7.49	6.40	1.09	---	---	---	---	---	---	---	---	---	---
MW-1 (d)	02/05/95	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-2	10/29/92	7.07	6.84	0.23	2500	3900	140	ND<10	65	22	---	---	---	---
MW-2	06/21/93	7.07	5.49	1.58	720	770	12	1.5	11	12	---	---	---	---
MW-2	04/05/94	7.07	5.40	1.67	420	1300	ND<0.5	ND<0.5	ND<0.5	4.0	4500 (e)	---	1.8	PACE
MW-2	07/28/94	7.07	5.97	1.10	---	---	---	---	---	---	---	---	---	PACE
MW-2	10/26/94	7.07	6.10	0.97	---	---	---	---	---	---	---	---	---	---
MW-2 (d)	02/05/95	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-3 (c)	10/29/92	7.08	7.14	-0.06	---	---	---	---	---	---	---	---	---	---
MW-3 (c)	06/21/93	7.08	5.84	1.24	---	---	---	---	---	---	---	---	---	---
MW-3	04/05/94	7.08	5.83	1.25	990	4300	3.2	ND<0.5	ND<0.5	1.3	790 (e)	---	---	PACE
MW-3	07/28/94	7.08	6.32	0.76	---	---	---	---	---	---	---	---	---	PACE
MW-3	10/26/94	7.08	6.42	0.66	---	---	---	---	---	---	---	---	---	---
MW-3 (d)	02/05/95	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-4	10/29/92	7.13	6.90	0.23	2600	---	250	2.5	74	6.6	---	---	---	---
MW-4	06/21/93	7.13	5.54	1.59	1400	1100	24	2.9	2.6	7.9	---	---	---	---
MW-4	04/05/94	7.13	5.46	1.67	930	940	33	0.8	ND<0.5	2.8	8700 (e)	---	2.7	PACE
MW-4	07/28/94	7.13	6.02	1.11	2400	1400	19	1.8	0.5	8.0	---	---	6.7	PACE
QC-1 (f)	07/28/94	---	---	---	2300	---	19	1.7	0.5	7.4	---	---	---	PACE
MW-4	10/26/94	7.13	6.13	1.00	---	---	---	---	---	---	---	---	---	---
MW-4 (d)	02/05/95	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-5	06/21/93	8.36	7.44	0.92	ND<50	100	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	---
MW-5	04/05/94	8.36	7.42	0.94	ND<50	100	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	2.5	PACE
QC-1 (f)	04/05/94	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	PACE
MW-5	07/28/94	8.36	7.88	0.48	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	7.4	PACE
MW-5	10/26/94	8.36	7.92	0.44	ND<50	160	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	5.5	PACE
QC-1 (f)	10/26/94	---	---	---	ND<50	---	ND<0.5	0.5	ND<0.5	ND<0.5	---	---	---	PACE
MW-5	02/05/95	8.36	7.83	0.53	ND<50	ND<500	ND<0.25	ND<0.25	ND<0.25	ND<0.50	---	---	---	ATI
QC-1 (f)	02/05/95	---	---	---	ND<50	---	ND<0.25	ND<0.25	ND<0.25	ND<0.50	---	---	---	ATI
MW-5	05/05/95	8.36	9.00	-0.64	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	3.1	ATI
MW-5	07/19/95	8.36	9.03	-0.67	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	14700	4.6	ATI
MW-5	10/12/95	8.36	9.15	-0.79	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	8490	4.3	ATI
MW-5	01/08/96	8.36	9.04	-0.68	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	10000	4.9	ATI
MW-5	09/11/97	8.36	8.90	-0.54	ND<50	---	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	4.0	SPL

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING
BP OIL COMPANY SERVICE STATION NO. 11270
3255 MECARTNEY ROAD, ALAMEDA, CALIFORNIA

ALISTO PROJECT NO. 10-206

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)	TDS (mg/l)	DO (ppm)	LAB
MW-6		02/05/95	6.88	6.39	0.49	1000	1000	(g)	7.6	19	9.1	96	---	---	5.0	ATI
MW-6		05/05/95	6.88	6.85	0.03	2300	---		49	9.0	130	46	---	---	3.3	ATI
QC-1	(f)	05/05/95	---	---	---	2400	---		49	9.2	140	48	---	---	---	ATI
MW-6		07/19/95	6.88	7.13	-0.25	1500	---	(g)	84	3.3	28	24	---	818	3.7	ATI
QC-1	(f)	07/19/95	---	---	---	1500	---	(g)	89	3.8	30	26	---	---	---	ATI
MW-6		10/12/95	6.88	7.35	-0.47	1800	---		38	13	38	86	2500	868	4.1	ATI
QC-1	(f)	10/12/95	---	---	---	1100	---		33	7.0	18	44	2200	---	---	ATI
MW-6		01/08/96	6.88	7.04	-0.16	1300	---		31	4.7	60	53	170	474	4.2	ATI
QC-1	(f)	01/08/96	---	---	---	1000	---		27	4.0	49	44	150	---	---	ATI
MW-6		09/11/97	6.88	7.29	-0.41	ND<250	---		8.5	ND<5.0	11	6	1400	---	3.5	SPL
QC-1	(f)	09/11/97	---	---	---	210	---		8.7	ND<5.0	14	8.0	1400	---	---	SPL
MW-7		02/05/95	6.62	7.62	-1.00	280	ND<500	(g)	ND<0.25	ND<0.25	ND<0.25	ND<0.50	---	---	5.1	ATI
MW-7		05/05/95	6.62	7.64	-1.02	290	---		ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	3.6	ATI
MW-7		07/19/95	6.62	7.70	-1.08	150	---	(g)	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	12100	4.6	ATI
MW-7		10/12/95	6.62	7.88	-1.26	110	---		ND<0.50	ND<0.50	ND<0.50	ND<1.0	390	14000	4.7	ATI
MW-7		01/08/96	6.62	7.66	-1.04	90	---		ND<0.50	ND<0.50	ND<0.50	ND<1.0	300	12060	4.9	ATI
MW-7		09/11/97	6.62	7.78	-1.16	ND<50	---		ND<2.5	ND<5.0	ND<5.0	ND<5.0	63	---	3.8	SPL
XW-1		06/21/93	---	---	---	---	---		---	---	---	---	---	---	---	---
XW-1		04/05/94	---	5.36	---	ND<50	70		ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	3.0	PACE
XW-1		07/28/94	---	5.92	---	---	---		---	---	---	---	---	---	---	PACE
XW-1		10/26/94	---	6.05	---	---	---		---	---	---	---	---	---	---	---
XW-1		02/05/95	7.49	5.82	1.67	ND<50	ND<500		ND<0.25	ND<0.25	ND<0.25	ND<0.50	---	---	4.9	ATI
XW-1		05/05/95	7.49	5.57	1.92	---	---		---	---	---	---	---	---	---	---
XW-1		07/19/95	7.49	6.12	1.37	ND<50	---		ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	1680	4.3	ATI
XW-1		10/12/95	7.49	6.82	0.67	ND<50	---		ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	1150	3.8	ATI
XW-1		01/08/96	7.49	6.11	1.38	ND<50	---		ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	1300	4.7	ATI
XW-1		09/11/97	7.49	6.57	0.92	ND<50	---		ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	3.3	SPL
XW-2		06/21/93	7.48	5.89	1.59	---	---		---	---	---	---	---	---	---	---
XW-2		04/05/94	7.48	5.77	1.71	ND<50	160		ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	3.0	PACE
XW-2		07/28/94	7.48	6.25	1.23	---	---		---	---	---	---	---	---	---	PACE
XW-2		10/26/94	7.48	6.39	1.09	---	---		---	---	---	---	---	---	---	---
XW-2		02/05/95	7.48	5.62	1.86	ND<50	ND<500		ND<0.25	0.38	ND<0.25	ND<0.50	---	---	5.2	ATI
XW-2		05/05/95	7.48	5.66	1.82	---	---		---	---	---	---	---	---	---	---
XW-2		07/19/95	7.48	6.80	0.68	ND<50	---		ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	4750	3.9	ATI
XW-2		10/12/95	7.48	7.21	0.27	ND<50	---		ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	3630	4.3	ATI
XW-2		01/08/96	7.48	6.79	0.69	ND<50	---		ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	3440	4.2	ATI
XW-2		09/11/97	7.48	6.86	0.62	ND<50	---		ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	3.6	SPL

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3255 MECARTNEY ROAD, ALAMEDA, CALIFORNIA

ALISTO PROJECT NO. 10-206

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)	TDS (mg/l)	DO (ppm)	LAB
XW-3	06/21/93	6.84	5.85	0.99	---	---		---	---	---	---	---	---	---	---
XW-3	04/05/94	6.84	5.85	0.99	ND<50	150		ND<0.5	0.7	ND<0.5	ND<0.5	---	---	3.1	PACE
XW-3	07/28/94	6.84	6.28	0.56	---	---		---	---	---	---	---	---	---	PACE
XW-3	10/26/94	6.84	6.40	0.44	---	---		---	---	---	---	---	---	---	---
XW-3	02/05/95	6.84	7.23	-0.39	280	ND<500	(g)	ND<0.50	ND<0.50	0.63	ND<1.0	---	---	4.9	ATI
XW-3	05/05/95	6.84	7.43	-0.59	---	---		---	---	---	---	---	---	---	---
XW-3	07/19/95	6.84	7.60	-0.76	400	---		ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	10400	4.3	ATI
XW-3	10/12/95	6.84	7.74	-0.90	130	---	(g)	ND<0.50	ND<0.50	ND<0.50	ND<1.0	480	8430	4.7	ATI
XW-3	01/08/96	6.84	7.58	-0.74	320	---		ND<2.5	ND<2.5	ND<2.5	ND<5.0	1100	10000	4.4	ATI
XW-3	09/11/97	6.84	7.68	-0.84	ND<250	---		ND<2.5	ND<5.0	ND<5.0	ND<5.0	60	---	3.2	SPL
QC-2 (h)	04/05/94	---	---	---	ND<50	---		ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	PACE
QC-2 (h)	07/28/94	---	---	---	ND<50	---		ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	PACE
QC-2 (h)	10/26/94	---	---	---	ND<50	---		ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	PACE
QC-2 (h)	02/05/95	---	---	---	ND<50	---		ND<0.25	ND<0.25	ND<0.25	ND<0.50	---	---	---	ATI
QC-2 (h)	05/05/95	---	---	---	ND<50	---		ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	---	ATI
QC-2 (h)	07/19/95	---	---	---	ND<50	---		ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	---	ATI
QC-2 (h)	10/12/95	---	---	---	ND<50	---		ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	---	ATI
QC-2 (h)	01/08/96	---	---	---	ND<50	---		ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	---	---	ATI

ABBREVIATIONS:

TPH-G	Total petroleum hydrocarbons as gasoline
TPH-D	Total petroleum hydrocarbons as diesel
B	Benzene
T	Toluene
E	Ethylbenzene
X	Total xylenes
MTBE	Methyl tert butyl ether
TDS	Total dissolved solids
DO	Dissolved oxygen
ug/l	Micrograms per liter
mg/l	Milligrams per liter
ppm	Parts per million
---	Not analyzed/measured/applicable
ND	Not detected above reported detection limit
PACE	Pace, Inc.
ATI	Analytical Technologies, Inc.
SPL	Southern Petroleum Laboratories

NOTES:

(a) Casing elevations surveyed to nearest 0.01 foot relative to an arbitrary datum.

(b) Groundwater elevations in feet above an arbitrary datum.

(c) Not sampled due to inadequate recharge.

(d) Wells destroyed by HETI on January 18 and 19, 1995.

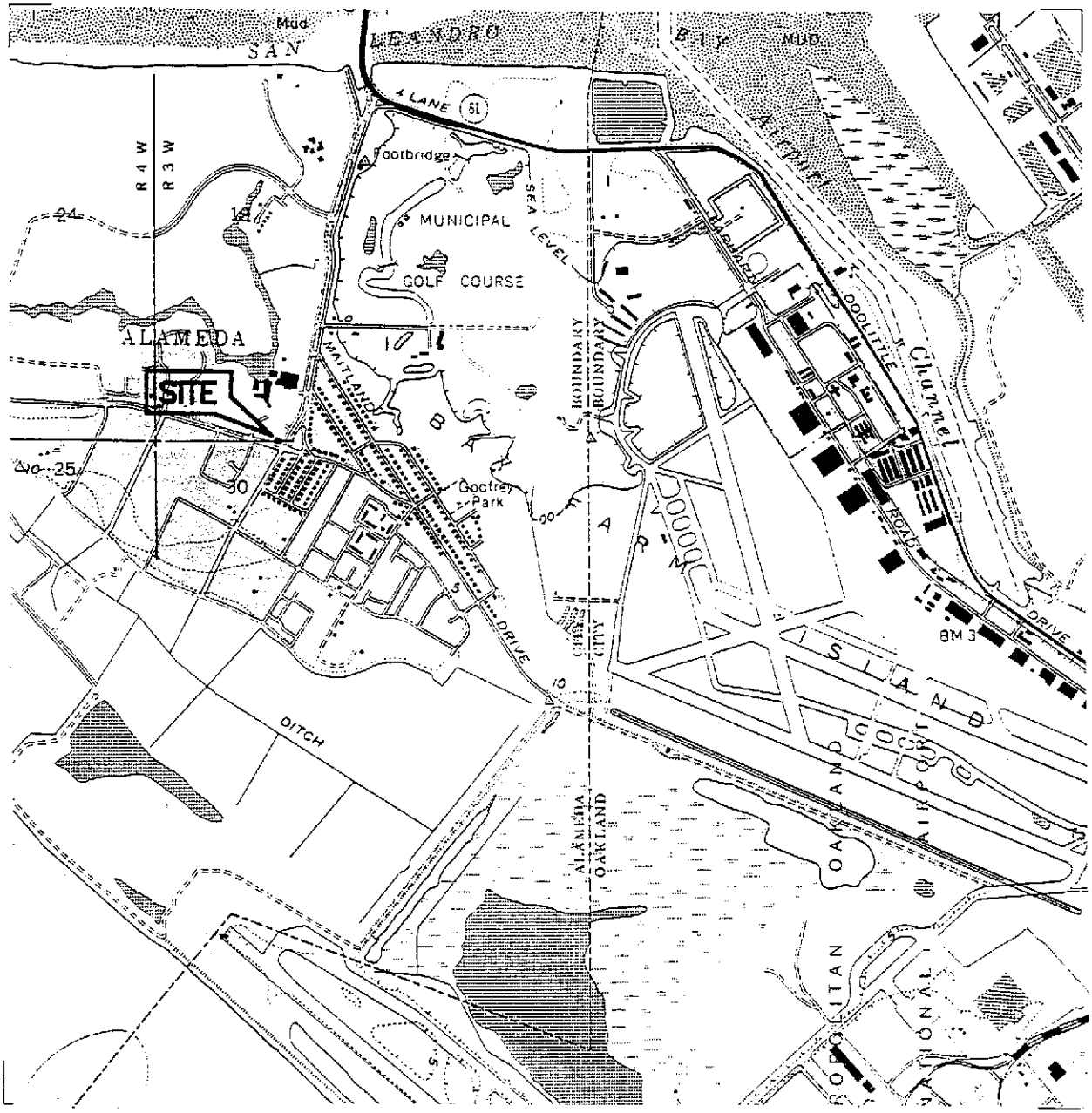
(e) A copy of the documentation for this data is included in Appendix C of Alisto report 10-206-04-001.

(f) Blind duplicate.

(g) MTBE peak present. See documentation for this data included in Appendix C of Alisto report 10-206-04-001.

(h) Travel blank.

F:\02\10-206\206-4-1.WQ2



SOURCE:
USGS MAP, SAN LEANDRO QUADRANGLE,
7.5 MINUTE SERIES. 1959.
PHOTOREVISED 1980.

N

0 1000' 2000'

FIGURE 1

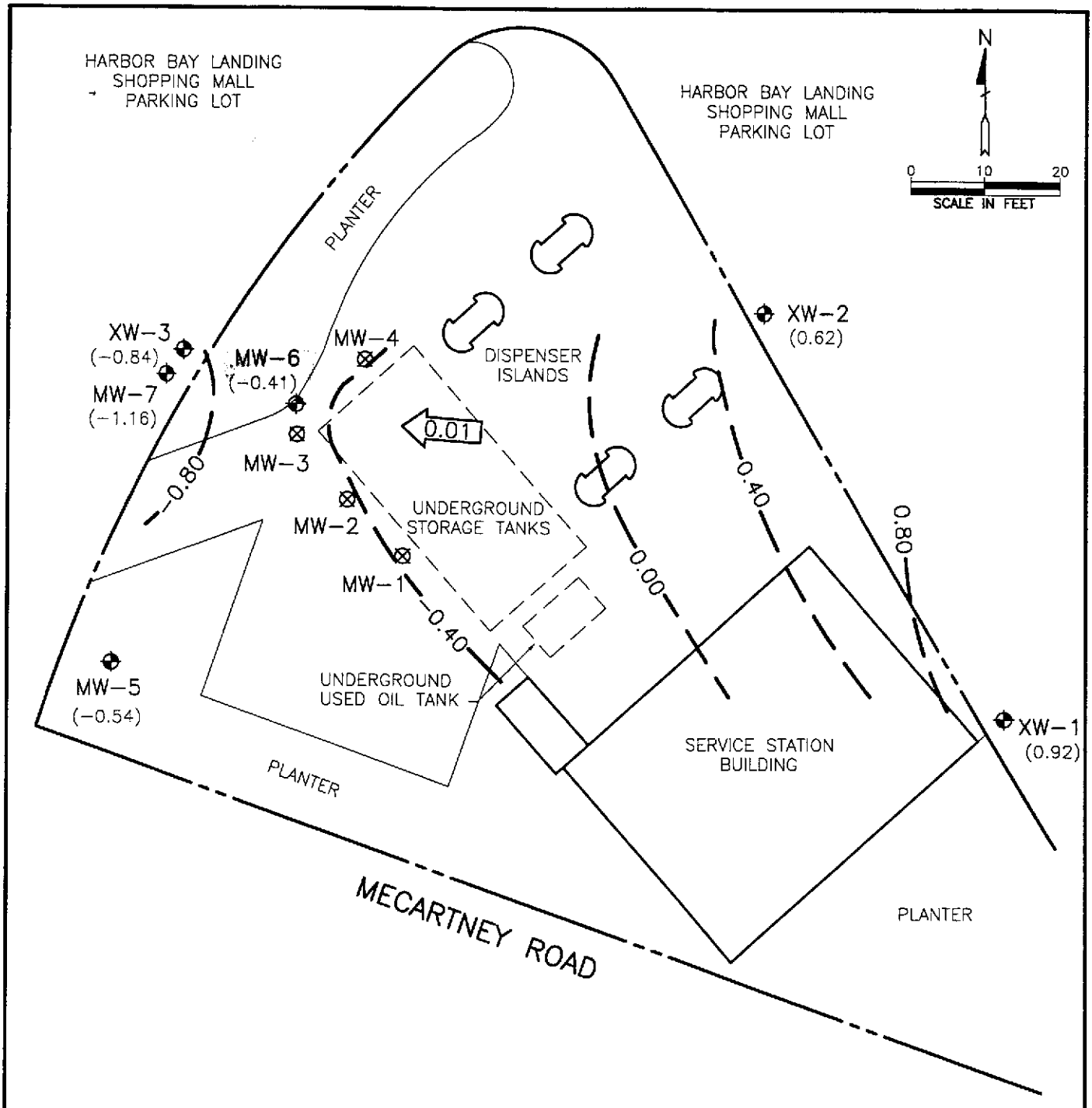
VICINITY MAP

BP OIL SERVICE STATION NO. 11270
3255 MECARTNEY ROAD
ALAMEDA, CALIFORNIA

PROJECT NO. 10-206

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

10206B--.DWG 5-2-95 RKW 1-1



LEGEND

- ⊕ GROUNDWATER MONITORING WELL
- ⊠ DESTROYED WELL
- (-1.16) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- -0.80 GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL-0.40 FOOT)
- 0.01 CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 2

POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP

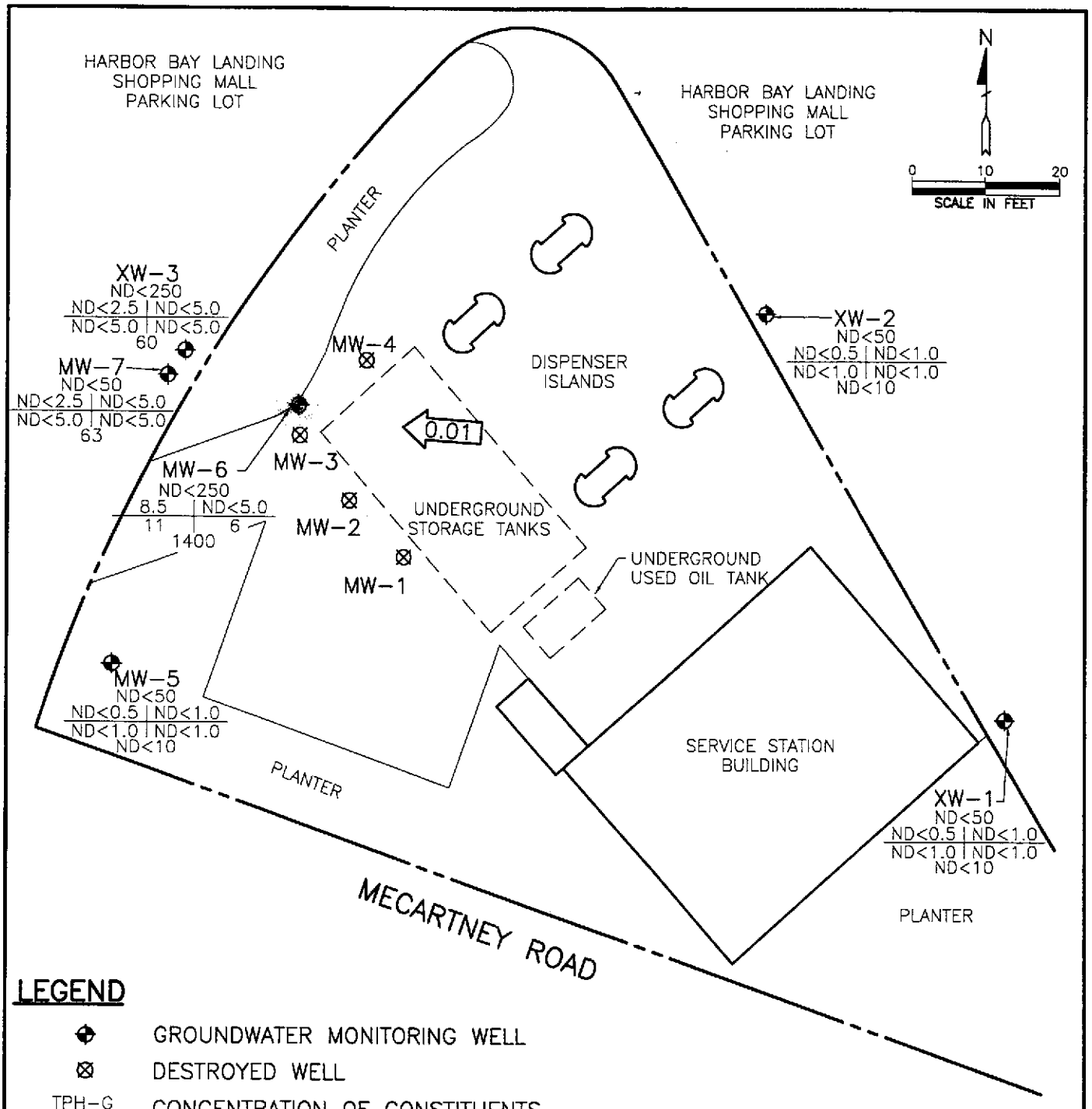
SEPTEMBER 11, 1997

BP OIL SERVICE STATION NO. 11270
3255 MECARTNEY ROAD
ALAMEDA, CALIFORNIA

PROJECT NO. 10-206

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

10206D-W.DWG 10-26-97 RKW 1=20



LEGEND

◆	GROUNDWATER MONITORING WELL
⊗	DESTROYED WELL
TPH-G / B | T / E | X / MTBE	CONCENTRATION OF CONSTITUENTS IN MICROGRAMS PER LITER
TPH-G	TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
B	BENZENE
T	TOLUENE
E	ETHYLBENZENE
X	TOTAL XYLENES
MTBE	METHYL TERT BUTYL ETHER
ND	NOT DETECTED ABOVE REPORTED DETECTION LIMIT
← 0.01	CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 3

CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER

SEPTEMBER 11, 1997

BP OIL SERVICE STATION NO. 11270
3255 MECARTNEY ROAD
ALAMEDA, CALIFORNIA

PROJECT NO. 10-206

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

10206E-W.DWG 10-27-97 RKW 1=20

APPENDIX A

WATER SAMPLING FIELD SURVEY FORMS

ALISTO

ENGINEERING
GROUP
1575 TREAT BOULEVARD, SUITE 201
WALNUT CREEK CA 94598 (510) 295-1650 FAX 295-1823

Field Report / Sampling Data Sheet

Project No. 10-206-~~07-004~~ 04-001 Date: 9/11/97
Address 3255 McCartney Rd. Day: M T W T (F)
Contract No. H180266 City: Alameda
Station No. BP 11270 Sampler: LC

DEPTH TO GROUNDWATER SUMMARY

WELL ID	SAMPLE ID	WELL DIAM	TOTAL DEPTH	DEPTH TO WATER	PRODUCT THICKNESS	TIME ~~SAMPLED~~ Monitored	COMMENTS:
MW-5	S-3	4"	14.51	8.90	Ø	1020	
MW-6	S-6	4"	20.00	7.29		1030	QC-1 ~~S-6~~ (S-7) From this well
MW-7	S-4	2"	20.00	7.78		1022	
XW-1	S-2	2"	15.35	6.57		1017	
XW-2	S-1	2"	13.62	6.86		1010	
XW-3	S-5	2"	13.53	7.68	↓	1024	

FIELD INSTRUMENT CALIBRATION DATA

pH METER Ion 4.00 4 7.00 7 10.00 10 TEMPERATURE COMPENSATED (Y) N TIME 1045 WEATHER Clear

D.O. METER Ion ZERO d.O. SOLUTION _____ BAROMETRIC PRESSURE 760 TEMP 67

CONDUCTIVITY METER Ion 10,000 _____ TURBIDITY METER _____ 5.0 NTU _____ OTHER X

Well ID	Depth to Wate	Diam	Cap	Lock	Product Dept	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.
XW-2	6.86	2"	D	C	Ø	Y (N)	1	1101	74.2	7.57	2.71ms	3.2
Total Depth - Water Level=	x Well Vol. Factor=	x#Vol. to Purge	PurgeVol.				2		72.6	7.40	2.89ms	
13.62-6.86=6.76X.16=1.08X3=3.24							4	1110	72.0	7.27	3.01ms	3.6

Purge Method: (S)urface Pump ODisp.Tube OWInch ODisp. Bailer(s)___ OSys Port
Comments: Needs Hex bolts + Lock

- O EPA 601 _____
- (X) TPH-G/BTEX ___
- O TPH Diesel ___
- O TOG 5520 ___

TIME/SAMPLE ID: 1112

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. 10-206-04-001 Date: 9/11/97
Address 3255 McCartney Rd. Day: M T W TH F
Contract No. H180266 City: Alameda
Station No. BP 11270 Sampler: CB

Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Iridescence	Gal.	Time	Temp °F	pH	E.C.	D.O.	TIME/SAMPLE ID
MW-1	6.57	2"	OK	Ø	Y (N)	1	1122	73.2	7.97	1.37ms	3.0	
Total Depth - Water Level=	x Well Vol. Factor=	x#vol. to Purge	PurgeVol.			2		71.7	7.82	1.42ms		
15.35-6.57=8.78X.16=1.40X3=			4.20			5	1130	71.3	7.77	1.47ms	3.3	
Purge Method: ØSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port												1133
Comments: Needs Hex Bolts & Lock												
Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Iridescence	Gal.	Time	Temp °F	pH	E.C.	D.O.	TIME/SAMPLE ID
MW-5	8.90	4"	OK	Ø	Y (N)	3	1140	72.6	7.80	8.07ms	4.0	
Total Depth - Water Level=	x Well Vol. Factor=	x#vol. to Purge	PurgeVol.			6		71.7	7.49	7.97ms		
14.51-8.90=5.61X.65=3.65X3=			10.95			9	1149	70.7	7.42	7.99ms	4.0	
Purge Method: ØSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port												1152
Comments:												
Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Iridescence	Gal.	Time	Temp °F	pH	E.C.	D.O.	TIME/SAMPLE ID
MW-7	7.78	2"	Replaced	Ø	Y (N)	2	1201	73.0	7.37	7.72ms	3.6	
Total Depth - Water Level=	x Well Vol. Factor=	x#vol. to Purge	PurgeVol.			4		72.2	7.21	8.14ms		
20.00-7.78=12.22X.16=1.96X3=			5.88			6	1207	71.4	7.11	8.24ms	3.8	
Purge Method: ØSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port												1215
Comments: Needs Monument Raised												
Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Iridescence	Gal.	Time	Temp °F	pH	E.C.	D.O.	TIME/SAMPLE ID
MW-3	7.68	2"	OK	Ø	Y (N)	1	1228	71.8	7.24	8.74ms	3.2	
Total Depth - Water Level=	x Well Vol. Factor=	x#vol. to Purge	PurgeVol.			2		70.7	7.19	9.07ms		
13.53-7.68=5.85X.16=.94X3=			2.82			3	1231	70.3	7.04	9.19ms	3.2	
Purge Method: ØSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port												1237
Comments: needs Hex Bolts & Lock												
Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Iridescence	Gal.	Time	Temp °F	pH	E.C. *1000	D.O.	TIME/SAMPLE ID
MW-6	7.29	4"	Replaced	Ø	Y (N)	8	1242	76.9	7.49	1.43µS	3.7	
Total Depth - Water Level=	x Well Vol. Factor=	x#vol. to Purge	PurgeVol.			16		76.3	7.20	1.47µS		
20.00-7.29=12.71X.65=8.26X3=			24.78			25	1256	75.7	7.16	1.51µS/cm	3.5	
Purge Method: ØSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port												1307
Comments: Needs monument Raised & Concrete Repaired												

O EPA 601 ___
Ø TPH-G/BTEX ___
O TPH Diesel ___
O TOG 5520 ___

APPENDIX B

LABORATORY REPORT AND CHAIN OF CUSTODY RECORD

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

September 25, 1997

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

The following report contains analytical results for samples received at Southern Petroleum Laboratories (SPL) on September 17, 1997. The samples were assigned to Certificate of Analysis No.(s) 9709791 and analyzed for all parameters as listed on the chain of custody.

There were no analytical problems encountered with this group of samples and all quality control data was within acceptance limits.

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

Brett VanDelinder
Project Manager

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

Southern Petroleum Laboratories, Inc.

Certificate of Analysis Number 97-09-791

Approved for Release by:

Brett VanDelinder, Project Manager

Date: 9-25-97

Greg Grandits
Laboratory Director

Idelis Williams
Quality Assurance Officer

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

Certificate of Analysis No. H9-9709791-01

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

P.O.# H180266, COC#086645
DATE: 09/25/97

PROJECT: #11270, NA
SITE: Alameda, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-1

PROJECT NO: 10-206-4-1
MATRIX: WATER
DATE SAMPLED: 09/11/97
DATE RECEIVED: 09/17/97

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	10 P	µg/L
Benzene	ND	0.5 P	µg/L
Toluene	ND	1.0 P	µg/L
Ethylbenzene	ND	1.0 P	µg/L
Total Xylene	ND	1.0 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	93		
4-Bromofluorobenzene	97		
Method 8020A***			
Analyzed by: LJ			
Date: 09/20/97			
Total Petroleum Hydrocarbons-Gasoline	ND	0.05 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	97		
4-Bromofluorobenzene	97		
California LUFT Manual			
Analyzed by: HS			
Date: 09/20/97 10:09:00			

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

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

Certificate of Analysis No. H9-9709791-02

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

P.O.# H180266, COC#086645
DATE: 09/25/97

PROJECT: #11270, NA
SITE: Alameda, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-2

PROJECT NO: 10-206-4-1
MATRIX: WATER
DATE SAMPLED: 09/11/97
DATE RECEIVED: 09/17/97

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	10 P	µg/L
Benzene	ND	0.5 P	µg/L
Toluene	ND	1.0 P	µg/L
Ethylbenzene	ND	1.0 P	µg/L
Total Xylene	ND	1.0 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	93		
4-Bromofluorobenzene	93		
Method 8020A***			
Analyzed by: LJ			
Date: 09/20/97			
Total Petroleum Hydrocarbons-Gasoline	ND	0.05 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	100		
4-Bromofluorobenzene	97		
California LUFT Manual			
Analyzed by: HS			
Date: 09/20/97 10:42:00			

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

Certificate of Analysis No. H9-9709791-03

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

P.O.# H180266, COC#086645
DATE: 09/25/97

PROJECT: #11270, NA
SITE: Alameda, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-3

PROJECT NO: 10-206-4-1
MATRIX: WATER
DATE SAMPLED: 09/11/97
DATE RECEIVED: 09/17/97

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	10 P	µg/L
Benzene	ND	0.5 P	µg/L
Toluene	ND	1.0 P	µg/L
Ethylbenzene	ND	1.0 P	µg/L
Total Xylene	ND	1.0 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	93		
4-Bromofluorobenzene	93		
Method 8020A***			
Analyzed by: LJ			
Date: 09/20/97			
Total Petroleum Hydrocarbons-Gasoline	ND	0.05 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	97		
4-Bromofluorobenzene	97		
California LUFT Manual			
Analyzed by: HS			
Date: 09/20/97 11:15:00			

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

Certificate of Analysis No. H9-9709791-04

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

P.O.# H180266, COC#086645
DATE: 09/25/97

PROJECT: #11270, NA
SITE: Alameda, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-4

PROJECT NO: 10-206-4-1
MATRIX: WATER
DATE SAMPLED: 09/11/97
DATE RECEIVED: 09/17/97

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	63	50 P	µg/L
Benzene	ND	2.5 P	µg/L
Toluene	ND	5.0 P	µg/L
Ethylbenzene	ND	5.0 P	µg/L
Total Xylene	ND	5.0 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	93		
4-Bromofluorobenzene	93		
Method 8020A***			
Analyzed by: LJ			
Date: 09/20/97			
Total Petroleum Hydrocarbons-Gasoline	ND	0.05 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	97		
4-Bromofluorobenzene	100		
California LUFT Manual			
Analyzed by: HS			
Date: 09/20/97 11:49:00			

(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.

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. H9-9709791-05

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

P.O.# H180266, COC#086645
DATE: 09/25/97

PROJECT: #11270, NA
SITE: Alameda, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-5

PROJECT NO: 10-206-4-1
MATRIX: WATER
DATE SAMPLED: 09/11/97
DATE RECEIVED: 09/17/97

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	60	50 P	µg/L
Benzene	ND	2.5 P	µg/L
Toluene	ND	5.0 P	µg/L
Ethylbenzene	ND	5.0 P	µg/L
Total Xylene	ND	5.0 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	100		
4-Bromofluorobenzene	100		
Method 8020A***			
Analyzed by: LJ			
Date: 09/20/97			
Total Petroleum Hydrocarbons-Gasoline	ND	0.25 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	100		
4-Bromofluorobenzene	100		
California LUFT Manual			
Analyzed by: HS			
Date: 09/21/97 05:01:00			

(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.

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. H9-9709791-06

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

P.O.# H180266, COC#086645
DATE: 09/25/97

PROJECT: #11270, NA
SITE: Alameda, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-6

PROJECT NO: 10-206-4-1
MATRIX: WATER
DATE SAMPLED: 09/11/97
DATE RECEIVED: 09/17/97

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	1400	50 P	µg/L
Benzene	8.5	2.5 P	µg/L
Toluene	ND	5.0 P	µg/L
Ethylbenzene	11	5.0 P	µg/L
Total Xylene	6	5.0 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	93		
4-Bromofluorobenzene	100		
Method 8020A***			
Analyzed by: VHZ			
Date: 09/23/97			
Total Petroleum Hydrocarbons-Gasoline	ND	0.25 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	93		
4-Bromofluorobenzene	93		
California LUFT Manual			
Analyzed by: HS			
Date: 09/21/97 05:35:00			

(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.

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

Certificate of Analysis No. H9-9709791-07

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

P.O.# H180266, COC#086645
DATE: 09/25/97

PROJECT: #11270, NA
SITE: Alameda, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-7

PROJECT NO: 10-206-4-1
MATRIX: WATER
DATE SAMPLED: 09/11/97
DATE RECEIVED: 09/17/97

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	1400	50 P	µg/L
Benzene	8.7	2.5 P	µg/L
Toluene	ND	5.0 P	µg/L
Ethylbenzene	14	5.0 P	µg/L
Total Xylene	8.0	5.0 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	93		
4-Bromofluorobenzene	100		
Method 8020A***			
Analyzed by: VHZ			
Date: 09/23/97			
Total Petroleum Hydrocarbons-Gasoline	0.21	0.05 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	97		
4-Bromofluorobenzene	93		
California LUFT Manual			
Analyzed by: HS			
Date: 09/21/97 04:28:00			

(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.

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

QUALITY CONTROL

DOCUMENTATION

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

SURROGATE RECOVERY SUMMARY

09/25/97 09:39:37

Method 8020A* BATCH#:HP_N970919153100**
WORK ORDER: 9709791-01A **CLIENT SAMPLE ID:** S-1

	AMOUNT ADDED	CONC. MEASURED	RECOVERY	LIMITS
1,4-Difluorobenzene	30	28	93	70- 131
4-Bromofluorobenzene	30	29	97	43- 135

Method 8020A* BATCH#:HP_N970919153100**
WORK ORDER: 9709791-02A **CLIENT SAMPLE ID:** S-2

1,4-Difluorobenzene	30	28	93	70- 131
4-Bromofluorobenzene	30	28	93	43- 135

Method 8020A* BATCH#:HP_N970919153100**
WORK ORDER: 9709791-03A **CLIENT SAMPLE ID:** S-3

1,4-Difluorobenzene	30	28	93	70- 131
4-Bromofluorobenzene	30	28	93	43- 135

Method 8020A* BATCH#:HP_N970919153100**
WORK ORDER: 9709791-04A **CLIENT SAMPLE ID:** S-4

1,4-Difluorobenzene	30	28.0000	93	70- 131
4-Bromofluorobenzene	30	28.0000	93	43- 135

Method 8020A* BATCH#:HP_N970919153100**
WORK ORDER: 9709791-05A **CLIENT SAMPLE ID:** S-5

1,4-Difluorobenzene	30	30.0000	100	70- 131
4-Bromofluorobenzene	30	30.0000	100	43- 135

Method 8020A * BATCH#:HP_N970919153100**
WORK ORDER: Method Blank **CLIENT SAMPLE ID:**

1,4-Difluorobenzene	30	30	29.8	74- 131
4-Bromofluorobenzene	30	30	29.5	43- 135

Method 8020A * BATCH#:HP_N970919153100**
WORK ORDER: LCS **CLIENT SAMPLE ID:**

1,4-Difluorobenzene	30	30	100	70- 131
4-Bromofluorobenzene	30	29	96.7	43- 135

Method 8020A * BATCH#:HP_N970919153100**
WORK ORDER: Matrix Spike **CLIENT SAMPLE ID:** 9709822-01A

1,4-DIFLUOROBENZENE	30	30	100	70- 131

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

	AMOUNT ADDED	CONC. MEASURED	RECOVERY	LIMITS
4-BROMOFLUOROBENZENE	30	28	93	43- 135

Method 8020A *** **BATCH#:**HP_N970919153100
WORK ORDER: Matrix Spike Dup. **CLIENT SAMPLE ID:**9709822-01A

1,4-Difluorobenzene	30	31	103	70- 131
4-Bromofluorobenzene	30	28	93	43- 135

Method 8020A*** **BATCH#:**HP_N970920114000
WORK ORDER: Method Blank **CLIENT SAMPLE ID:**

1,4-Difluorobenzene	30	30	30.2	70- 131
4-Bromofluorobenzene	30	29	29.2	43- 135

Method 8020A*** **BATCH#:**HP_N970920114000
WORK ORDER: Matrix Spike **CLIENT SAMPLE ID:**9709791-01A

1,4-DIFLUOROBENZENE	30	30	100	70- 131
4-BROMOFLUOROBENZENE	30	29	97	43- 135

Method 8020A*** **BATCH#:**HP_N970920114000
WORK ORDER: Matrix Spike Dup. **CLIENT SAMPLE ID:**9709791-01A

1,4-Difluorobenzene	30	31	103	70- 131
4-Bromofluorobenzene	30	29	97	43- 135

California LUFT Manual **BATCH#:**HP_N970920130500
WORK ORDER: 9709791-01A **CLIENT SAMPLE ID:**S-1

1,4-Difluorobenzene	30	29	97	62- 144
4-Bromofluorobenzene	30	29	97	44- 153

California LUFT Manual **BATCH#:**HP_N970920130500
WORK ORDER: 9709791-02A **CLIENT SAMPLE ID:**S-2

1,4-Difluorobenzene	30	30	100	62- 144
4-Bromofluorobenzene	30	29	97	44- 153

California LUFT Manual **BATCH#:**HP_N970920130500
WORK ORDER: 9709791-03A **CLIENT SAMPLE ID:**S-3

1,4-Difluorobenzene	30	29	97	62- 144
4-Bromofluorobenzene	30	29	97	44- 153

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

	AMOUNT ADDED	CONC. MEASURED	RECOVERY	LIMITS
California LUFT Manual **BATCH#:**HP_N970920130500 **WORK ORDER:** 9709791-04A **CLIENT SAMPLE ID:**S-4				
1,4-Difluorobenzene	30	29	97	62- 144
4-Bromofluorobenzene	30	30	100	44- 153
California LUFT Manual **BATCH#:**HP_N970920130500 **WORK ORDER:** 9709791-05A **CLIENT SAMPLE ID:**S-5				
1,4-Difluorobenzene	30	30.0000	100	62- 144
4-Bromofluorobenzene	30	30.0000	100	44- 153
California LUFT Manual **BATCH#:**HP_N970920130500 **WORK ORDER:** 9709791-06A **CLIENT SAMPLE ID:**S-6				
1,4-Difluorobenzene	30	28.0000	93	62- 144
4-Bromofluorobenzene	30	28.0000	93	44- 153
California LUFT Manual **BATCH#:**HP_N970920130500 **WORK ORDER:** 9709791-07A **CLIENT SAMPLE ID:**S-7				
1,4-Difluorobenzene	30	29	97	62- 144
4-Bromofluorobenzene	30	28	93	44- 153
California LUFT Manual **BATCH#:**HP_N970920130500 **WORK ORDER:** Method Blank **CLIENT SAMPLE ID:**				
1,4-Difluorobenzene	30	29	29.4	62- 144
4-Bromofluorobenzene	30	29	28.8	44- 153
California LUFT Manual **BATCH#:**HP_N970920130500 **WORK ORDER:** Matrix Spike **CLIENT SAMPLE ID:**9709791-02A				
1,4-Difluorobenzene	30	29	97	62- 144
4-Bromofluorobenzene	30	29	97	44- 153
California LUFT Manual **BATCH#:**HP_N970920130500 **WORK ORDER:** Matrix Spike Dup. **CLIENT SAMPLE ID:**9709791-02A				
1,4-Difluorobenzene	30	29	97	62- 144
4-Bromofluorobenzene	30	29	97	44- 153
Method 8020A* ** **BATCH#:**HP_N970922151700 **WORK ORDER:** 9709791-06A **CLIENT SAMPLE ID:**S-6				
1,4-Difluorobenzene	30	28.0000	93	70- 131

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

	AMOUNT ADDED	CONC. MEASURED	RECOVERY	LIMITS
4-Bromofluorobenzene	30	30.0000	100	43- 135

Method 8020A* BATCH#:HP_N970922151700
WORK ORDER: 9709791-07A CLIENT SAMPLE ID:S-7

1,4-Difluorobenzene	30	28.0000	93	70- 131
4-Bromofluorobenzene	30	30.0000	100	43- 135

Method 8020A* BATCH#:HP_N970922151700
WORK ORDER: Method Blank CLIENT SAMPLE ID:

1,4-Difluorobenzene	30	28	28.0	70- 131
4-Bromofluorobenzene	30	31	30.8	43- 135

Method 8020A* BATCH#:HP_N970922151700
WORK ORDER: LCS CLIENT SAMPLE ID:

1,4-Difluorobenzene	30	29	96.7	70- 131
4-Bromofluorobenzene	30	31	103	43- 135

Method 8020A* BATCH#:HP_N970922151700
WORK ORDER: Matrix Spike CLIENT SAMPLE ID:9709650-04A

1,4-DIFLUOROBENZENE	30	29	97	70- 131
4-BROMOFLUOROBENZENE	30	31	103	43- 135

Method 8020A* BATCH#:HP_N970922151700
WORK ORDER: Matrix Spike Dup. CLIENT SAMPLE ID:9709650-04A

1,4-Difluorobenzene	30	29	97	70- 131
4-Bromofluorobenzene	30	31	103	43- 135

California LUFT Manual BATCH#:HP_N970922185900
WORK ORDER: Method Blank CLIENT SAMPLE ID:

1,4-Difluorobenzene	30	29	29.4	62- 144
4-Bromofluorobenzene	30	29	28.7	44- 153

California LUFT Manual BATCH#:HP_N970922185900
WORK ORDER: Matrix Spike CLIENT SAMPLE ID:9709650-06A

1,4-Difluorobenzene	30	29	97	62- 144
4-Bromofluorobenzene	30	29	97	44- 153

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HOUSTON, TEXAS 77054
PHONE (713) 660-0901

SURROGATE RECOVERY SUMMARY
09/25/97 09:39:37

California LUFT Manual
WORK ORDER: Matrix Spike Dup.

BATCH#:HP_N970922185900
CLIENT SAMPLE ID:9709650-06A

	AMOUNT ADDED	CONC. MEASURED	RECOVERY	LIMITS
1,4-Difluorobenzene	30	29	97	62- 144
4-Bromofluorobenzene	30	29	97	44- 153

« = Recovery outside of control limits
* = Methods for Chemical Analysis of Water & Wastes,1983,EPA
** = Standard Methods for Examination of Water & Wastewater,17th
*** = Test Methods for Evaluating Solid Waste,EPA SW846,3rd

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HOUSTON, TEXAS 77054
PHONE (713) 660-0901

SPL BATCH QUALITY CONTROL REPORT **
METHOD 8020/602

Matrix: Aqueous
Units: µg/L

Batch Id: HP_N970919153100

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
MTBE	ND	50.0	39	78.0	63 - 120
Benzene	ND	50.0	40	80.0	62 - 121
Toluene	ND	50.0	45	90.0	66 - 136
EthylBenzene	ND	50.0	45	90.0	70 - 136
O Xylene	ND	50.0	46	92.0	74 - 134
M & P Xylene	ND	100.0	91	91.0	77 - 140

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
MTBE	1.8	20	21	96.0	18	81.0	16.9	20	39 - 150
BENZENE	41	20	64	115	64	115	0	25	39 - 150
TOLUENE	1.5	20	23	108	23	108	0	26	56 - 134
ETHYLBENZENE	ND	20	22	110	22	110	0	38	61 - 128
O XYLENE	3.7	20	26	112	26	112	0	29	40 - 130
M & P XYLENE	8.2	40	52	110	52	110	0	20	43 - 152

Analyst: LJ
Sequence Date: 09/19/97
SPL ID of sample spiked: 9709822-01A
Sample File ID: N_I7697.TX0
Method Blank File ID:
Blank Spike File ID: N_I7690.TX0
Matrix Spike File ID: N_I7692.TX0
Matrix Spike Duplicate File ID: N_I7693.TX0

* = 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>] 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 (3rd Q '95)
(***) = Source: SPL-Houston Historical Data (2nd Q '95)

SAMPLES IN BATCH(SPL ID):

9709822-02A 9709443-03B 9709822-03A 9709822-04A
9709822-05A 9709791-01A 9709791-02A 9709791-03A
9709791-04A 9709791-05A 9709792-01A 9709792-02A
9709792-03A 9709792-04A 9709822-01A

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SPL BATCH QUALITY CONTROL REPORT **
METHOD 8020***

Matrix: Aqueous
Units: µg/L

Batch Id: HP_N970922151700

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
MTBE	ND	50	46	92.0	20 - 110
Benzene	ND	50	47	94.0	62 - 121
Toluene	ND	50	47	94.0	66 - 136
Ethyl_Benzene	ND	50	49	98.0	70 - 136
O-Xylene	ND	50	48	96.0	74 - 134
M and P Xylene	ND	100	98	98.0	77 - 140

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
MTBE	ND	20	20	100	20	100	0	20	39 - 150
BENZENE	ND	20.0	20	100	19	95.0	5.13	25	39 - 150
TOLUENE	ND	20.0	21	105	20	100	4.88	26	56 - 134
ETHYL_BENZENE	ND	20.0	20	100	20	100	0	38	61 - 128
O-XYLENE	ND	20.0	20	100	20	100	0	29	40 - 130
M AND P XYLENE	ND	40.0	42	105	40	100	4.88	20	43 - 152

Analyst: VHZ
Sequence Date: 09/22/97
SPL ID of sample spiked: 9709650-04A
Sample File ID: N_I7799.TX0
Method Blank File ID:
Blank Spike File ID: N_I7792.TX0
Matrix Spike File ID: N_I7794.TX0
Matrix Spike Duplicate File ID: N_I7795.TX0

* = 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>] 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 (4th Q '95)
(***) = Source: SPL-Houston Historical Data (3rd Q '96)

SAMPLES IN BATCH(SPL ID):

9709791-06A 9709791-07A 9709792-05A 9709792-06A
9709792-07A 9709956-01A 9709650-02A 9709650-03A
9709793-02A 9709793-03A 9709793-01A 9709650-07A
9709792-05A 9709650-01A 9709650-04A 9709650-06A
9709792-03A

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HOUSTON, TEXAS 77054
PHONE (713) 660-0901

** SPL BATCH QUALITY CONTROL REPORT **
CA LUFT

Matrix: Aqueous
Units: mg/L

Batch Id: HP_N970920130500

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits (**) (Mandatory) % Recovery Range
Petroleum Hydrocarbons-Gas	ND	1.0	0.79	79.0	64 - 131

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits (***) (Advisory) RPD Max.	QC Limits (***) (Advisory) Recovery Range
PETROLEUM HYDROCARBONS-GAS	ND	0.9	0.98	109	1.0	111	1.82	36	36 - 160

Analyst: HS
Sequence Date: 09/20/97
SPL ID of sample spiked: 9709791-02A
Sample File ID: NNI7729.TX0
Method Blank File ID:
Blank Spike File ID: NNI7722.TX0
Matrix Spike File ID: NNI7725.TX0
Matrix Spike Duplicate File ID: NNI7726.TX0

* = 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>] x 100
LCS % Recovery = (<1> / <3>) x 100
Relative Percent Difference = |(<4> - <5> | / [(<4> + <5>) x 0.5] x 100
(**) = Source: SPL Historical Limits
(***) = Source: SPL Historical Limits (1st Q. '97)

SAMPLES IN BATCH(SPL ID):

9709443-03B 9709822-01A 9709822-02A 9709822-03A
9709822-04A 9709822-05A 9709792-01A 9709792-02A
9709792-03A 9709791-07A 9709791-05A 9709791-06A
9709791-01A 9709791-02A 9709791-03A 9709791-04A

CHAIN OF CUSTODY

AND

SAMPLE RECEIPT CHECKLIST

9709791

CHAIN OF CUSTODY

No. 086645

Page 1 of 1

CONSULTANT'S NAME: Alisto Engineering	CONSULTANT'S ADDRESS: 1575 Treat Blvd # 201 W.C. Ca 94598		
BP SITE NUMBER: 11270	BP SITE FACILITY ADDRESS: Alameda		CONSULTANT PROJECT NUMBER: 10-206-H-1
CONSULTANT PROJECT MANGER: Brady Nagle	PHONE NUMBER: (510) 295-1650	FAX NUMBER: 295-1823	CONSULTANT CONTRACT NUMBER: ~~Pending~~ H180266
BP CONTACT: Scott Hooton	BP ADDRESS: Renton, WA	PHONE NUMBER: —	FAX NO.: —
LAB CONTACT: SPL	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	SHIPMENT DATE: 9/15/97

SHIPMENT METHOD: Fed Ex

AIRBILL NUMBER: 940477992 6

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

ANALYSIS REQUIRED

SAMPLE DESCRIPTION	COLLECTION DATE	COLLECTION TIME	MATRIX SOIL/WATER	CONTAINERS NO.	CONTAINERS TYPE (VOL.)	PRESERVATIVE LAB SAMPLE #	TPH-D	BTEX	COMMENTS
S-1	9/11/97		W	3	ACL		X	X	
S-2	"		"	"	"		"	"	
S-3	"		"	"	"		"	"	
S-4	"		"	"	"		"	"	
S-5	"		"	"	"		"	"	
S-6	"		"	"	"		"	"	
S-7	"		"	"	"		"	"	

SAMPLED BY (Please Print Name):

SAMPLED BY (Signature):

ADDITIONAL COMMENTS: 6°C Ad

RELINQUISHED BY / AFFILIATION (Print Name / Signature)	DATE	TIME	ACCEPTED BY / AFFILIATION (Print Name / Signature)	DATE	TIME
D. Yelton	9/12/97		Patricia Yelton	9/15/97	0800
D. Yelton	9/15/97	1500	[illegible] / SPL	9/17/97	1000

CLV-16722-A (8/96)
PKG/50

DISTRIBUTION: WHITE - ORIGINAL (WITH DATA) YELLOW - BP PINK - LAB BLUE - CONSULTANT FIELD STAFF

SPL Houston Environmental Laboratory

Sample Login Checklist

Date:	Time:
9/17/97	1000

SPL Sample ID:
9709791

			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:		6° C	
10	Method of sample delivery to SPL:	SPL Delivery		
		Client Delivery		
		FedEx Delivery (airbill #)	940779926	
		Other:		
11	Method of sample disposal:	SPL Disposal	✓	
		HOLD		
		Return to Client		

Name:	Date:
[signature]	9/17/97

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

BP Site Number:	11270
ERM Contact:	H180266
Sampling Date:	09/11/97
Matrix Description:	Water
Date Final Report Received:	10/01/97
Laboratory & Location:	SPL, Houston, Texas

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

Notes: _____

Data Validation Completed by: Brady Nagle

(signature): _____

Date: 10/28/97

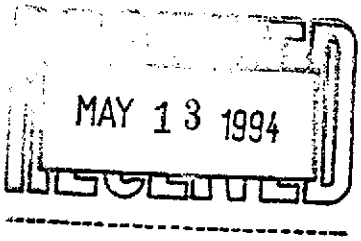
APPENDIX C

HISTORICAL MTBE DOCUMENTATION

pace
INCORPORATED
THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

April 14, 1994



Mr. Bill Howell
Alisto Engineering Group
1777 Oakland Blvd., Ste. 200
Walnut Creek, CA 94596

RE: PACE Project No. 440406.515
Client Reference: BP Station # 11270/10-206-01/001

Dear Mr. Howell:

Enclosed is the report of laboratory analyses for samples received April 06, 1994.

Please note that a peak eluting earlier than Benzene and suspected to be Methyl Tert Butyl Ether was detected in the following samples at the approximated levels:

700300150/MW-2	4500 ug/L
700300169/MW-3	790 ug/L
700300177/MW-4	8700 ug/L

Please note also that high boiling point hydrocarbons are present in your sample MW-3 (PACE # 700300169).

Footnotes are given at the end of the report.

If you have any questions concerning this report, please feel free to contact us.

Sincerely,

Ronald M. Chew

Ronald M. Chew
Project Manager

Enclosures

11 Digital Drive
Novato, CA 94949
TEL: 415-883-6100
FAX: 415-883-2673

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY RESULTS

Test : MOD EPA 8015-CDOHS/8020 (HYDROCARBONS C6-C12/BTXE)
Client : ALISTO ENGINEERING ATI I.D. : 502065
Project # : 10-206-01-004/G463120
Project Name: BP SITE#11270/3255 McCARTNEY RD. ALAMEDA, CA

Sample #	Client ID	Matrix	Date Sampled	Date Extracted	Date Analyzed	Dil. Factor
1	S-1	WATER	05-FEB-95	N/A	09-FEB-95	4.00
2	S-2	WATER	05-FEB-95	N/A	09-FEB-95	2.00
3	S-3	WATER	05-FEB-95	N/A	10-FEB-95	2.00

Parameter	Units	1	2	3
BENZENE	UG/L	7.6	<0.25	<0.50
TOLUENE	UG/L	19	<0.25	<0.50
ETHYLBENZENE	UG/L	9.1	<0.25	0.63
XYLENES (TOTAL)	UG/L	96	<0.50	<1.0
FUEL HYDROCARBONS	UG/L	1000@C	280@C	280@C
HYDROCARBON RANGE		C6-C12	C6-C12	C6-C12
HYDROCARBONS QUANTITATED USING		GASOLINE	GASOLINE	GASOLINE
SURROGATES				
TRIFLUOROTOLUENE	%	96	97	93

@C SAMPLE CONTAINS MTBE PEAK

Analytical Technologies, Inc. Corporate Offices: 5550 Morehouse Drive San Diego, CA 92121 (619) 458-9141

ATI I.D.: 507221

August 09, 1995

ALISTO ENGINEERING
1575 TREAT BOULEVARD, SUITE 201
WALNUT CREEK, CA 94598

Project Name: BP SITE#11270/ALAMEDA, CA
Project # : ~~6463120~~/10-206-00/002
Pending 03.001
Attention: BILL HOWELL c04

Analytical Technologies, Inc. has received the following sample(s):

Date Received	Quantity	Matrix
July 21, 1995	8	WATER

The sample(s) were analyzed with EPA methodology or equivalent methods as specified in the enclosed analytical schedule. The symbol for "less than" indicates a value below the reportable detection limit. If any flags appear next to the analytical data in this report, please see the attached list of flag definitions.

The results of these analyses and the quality control data are enclosed. Please note that the Sample Condition Upon Receipt Checklist is included at the end of this report.

Please note that Alisto Engineering samples S-3, S-4, S-6 and S-7 contain MTBE peaks.

GARY STEWART
VOLATILES SUPERVISOR

ALAN J. KLEINSCHMIDT
LABORATORY MANAGER

RECEIVED
AUG 14 1995