



BP OIL

BP Oil Company
Environmental Resources Management
Building 13, Suite N
295 SW 41st Street
Renton, Washington 98055-4931
(206) 251-0667
Fax No: (206) 251-0736

July 15, 1996

Mr. Scott Seery
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Room 250
Alameda, CA 94502

**RE: BP OIL FACILITY #11105
3515 Castro Valley Blvd
Castro Valley, CA**

Attached please find our **GROUNDWATER MONITORING AND SAMPLING REPORT DATED April 16, 1996** for the above referenced facility. Plans for the following quarter include additional groundwater monitoring.

If you should have any questions regarding this site, I may be reached at (206) 251-0689.

Respectfully,

Scott T. Hooton
Environmental Resources Management
Corrective Action Manager

STH:sb msword\ERM11105

cc: Mr. Eddy So, CRWQCB, San Francisco Bay Region, 2101 Webster Street, Suite 200,
Oakland, CA 94612

Mr. Brady Nagle, Alisto Engineering Group, 1777 Oakland Blvd., Suite 200, Walnut Creek,
CA 94596

Mr. Larry Silva, TOSCO Northwest CO, 601 Union Street, Suite 2500, Seattle, WA 98101

Site File

GROUNDWATER MONITORING AND SAMPLING REPORT

BP Oil Company Service Station No. 11105
3519 Castro Valley Boulevard
Castro Valley, California

Project No. 10-138-05-002

ENVIRONMENTAL DEPT.
REGIONAL OFFICE

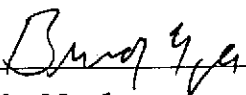
Prepared for:

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

April 16, 1996



Brady Nagle
Project Manager



Al Sevilla, P.E.
Principal



GROUNDWATER MONITORING AND SAMPLING REPORT

BP Oil Company Service Station No. 11105
3519 Castro Valley Boulevard
Castro Valley, California

Project No. 10-138-05-002

April 16, 1996

INTRODUCTION

This report presents the results and findings of the February 7, 1996 groundwater monitoring and sampling conducted by Alisto Engineering Group at BP Oil Company Service Station No. 11105, 3519 Castro Valley Boulevard, Castro Valley, 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 collected during 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 laboratory 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. 11105
 3519 CASTRO VALLEY BOULEVARD, CASTRO VALLEY, CALIFORNIA

ALISTO PROJECT NO. 10-138

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	DO (ppm)	LAB
ESE-1 (c)	10/05/92	177.69	11.22	166.47	2100	370	150	17	110	---	---	---
ESE-1D (d)	10/05/92	---	---	---	2300	370	160	16	110	---	---	---
ESE-1	04/01/93	177.69	8.79	168.90	5900	1500	410	110	390	---	---	PACE
ESE-1	06/29/93	177.69	10.34	167.35	7600	2900	390	130	460	---	---	PACE
ESE-1	09/23/93	177.69	10.91	166.78	2000	490	40	20	56	---	---	PACE
QC-1 (d)	09/23/93	---	---	---	1500	420	39	19	56	---	---	PACE
ESE-1	12/10/93	177.69	9.93	167.76	1800	480	42	19	66	---	3.2	PACE
QC-1 (d)	12/10/93	---	---	---	1500	380	38	17	55	---	---	PACE
ESE-1	02/17/94	177.69	9.64	168.05	1900	380	48	24	80	---	---	PACE
QC-1 (d)	02/17/94	---	---	---	2200	430	42	19	65	---	---	PACE
ESE-1	08/08/94	177.69	11.72	165.97	2100	450	46	16	50	---	5.1	PACE
ESE-1	10/12/94	177.69	10.48	167.21	760	240	16	51	39	---	3.5	PACE
ESE-1	01/19/95	177.69	7.77	169.92	840	600	120	22	58	---	8.0	ATI
ESE-1	05/02/95	177.69	8.69	169.00	2000	640	67	24	98	---	8.5	ATI
ESE-1	07/28/95	177.69	10.12	167.57	190	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	7.9	ATI
ESE-1	11/17/95	177.69	10.57	167.12	200	3.4	ND<1.0	1.0	ND<2.0	600	7.7	ATI
ESE-1	02/07/96	177.69	7.41	170.28	750	370	23	21	64	680	2.5	SPL
ESE-2	10/05/92	178.23	11.68	166.55	300	5.4	16	3.9	45	---	---	---
ESE-2	04/01/93	178.23	9.17	169.06	240	27	ND<0.5	17	2.6	---	---	PACE
ESE-2	06/29/93	178.23	10.88	167.35	1700	260	24	110	23	---	---	PACE
QC-1 (d)	06/29/93	---	---	---	1300	240	17	110	25	---	---	PACE
ESE-2	09/23/93	178.23	11.56	166.67	240	3.1	0.5	0.6	2.5	---	---	PACE
ESE-2	12/10/93	178.23	10.48	167.75	250	2.4	2.4	1.5	11	---	2.6	PACE
ESE-2	02/17/94	178.23	10.06	168.17	900	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
ESE-2	08/08/94	178.23	11.11	167.12	750	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	5.1	PACE
ESE-2	10/12/94	178.23	11.31	166.92	1700	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	3.6	PACE
ESE-2	01/19/95	178.23	8.25	169.98	300	2	0.9	0.7	1	---	8.1	ATI
ESE-2	05/02/95	178.23	9.21	169.02	1200	4.0	ND<2.5	ND<2.5	ND<5.0	---	8.4	ATI
ESE-2	07/28/95	178.23	10.64	167.59	2000	ND<2.5	ND<2.5	ND<2.5	ND<5.0	---	7.7	ATI
ESE-2	11/17/95	178.23	11.13	167.10	3600	ND<25	ND<25	ND<25	ND<50	12000	7.4	ATI
QC-1 (d)	11/17/95	---	---	---	3400	ND<25	ND<25	ND<25	ND<50	12000	---	ATI
ESE-2	02/07/96	178.23	7.94	170.29	450	ND<0.5	ND<1	ND<1	ND<1	2300	1.8	SPL

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING
 BP OIL COMPANY SERVICE STATION NO. 11105
 3519 CASTRO VALLEY BOULEVARD, CASTRO VALLEY, CALIFORNIA

ALISTO PROJECT NO. 10-138

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	DO (ppm)	LAB
ESE-3	10/05/92	178.20	10.58	167.62	430	57	31	3.6	34	---	---	---
ESE-3	04/01/93	178.20	8.14	170.06	2400	460	220	74	210	---	---	PACE
ESE-3	06/29/93	178.20	9.72	168.48	280	56	14	15	13	---	---	PACE
ESE-3	09/23/93	178.20	10.46	167.74	72	13	3.5	1.7	4.1	---	---	PACE
ESE-3	12/10/93	178.20	9.30	168.90	270	71	32	6.1	33	---	2.7	PACE
ESE-3	02/17/94	178.20	8.97	169.23	520	140	10	20	33	---	---	PACE
ESE-3	08/08/94	178.20	10.02	168.18	ND<50	8.8	1.6	1.6	2.3	---	6.2	PACE
ESE-3	10/12/94	178.20	10.32	167.88	470	190	6.4	15	18	---	3.5	PACE
ESE-3	01/19/95	178.20	7.40	170.80	330	260	27	21	20	---	6.7	ATI
ESE-3	05/02/95	178.20	8.26	169.94	530	180	30	23	44	---	8.6	ATI
ESE-3	07/28/95	178.20	9.54	168.66	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	8.8	ATI
ESE-3	11/17/95	178.20	10.04	168.16	ND<50	1.7	ND<0.50	ND<0.50	ND<1.0	ND<5.0	7.3	ATI
ESE-3	02/07/96	178.20	7.08	171.12	ND<50	8.6	ND<1	ND<1	ND<1	ND<10	3.9	SPL
ESE-4	10/05/92	177.73	10.33	167.40	98	7.2	1.3	1.1	6.1	---	---	---
ESE-4	04/01/93	177.73	7.88	169.85	550	93	20	23	33	---	---	PACE
ESE-4	06/29/93	177.66	(e) 8.33	169.33	150	23	0.6	5.4	0.5	---	---	PACE
ESE-4	09/23/93	177.66	10.05	167.61	110	14	1.7	3.2	4.6	---	---	PACE
ESE-4	12/10/93	177.66	8.95	168.71	110	21	7.2	4.2	10	---	2.8	PACE
ESE-4	02/17/94	177.66	8.65	169.01	210	26	1.2	4.7	11	---	---	PACE
ESE-4	08/08/94	177.66	9.76	167.90	76	9.6	ND<0.5	2.0	ND<0.5	---	7.0	PACE
ESE-4	10/12/94	177.66	9.62	168.04	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	3.2	PACE
ESE-4	01/19/95	177.66	6.97	170.69	140	56	14	24	23	---	6.9	ATI
ESE-4	05/02/95	177.66	7.85	169.81	130	21	2.8	8.6	8.2	---	9.1	ATI
ESE-4	07/28/95	177.66	9.20	168.46	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	8.1	ATI
ESE-4	11/17/95	177.66	9.68	167.98	ND<50	ND<0.50	0.60	ND<0.50	ND<1.0	18	5.7	ATI
ESE-4	02/07/96	177.66	6.59	171.07	100	2.6	ND<1	1.6	4.1	42	2.0	SPL

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING
 BP OIL COMPANY SERVICE STATION NO. 11105
 3519 CASTRO VALLEY BOULEVARD, CASTRO VALLEY, CALIFORNIA

ALISTO PROJECT NO. 10-138

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	DO (ppm)	LAB
ESE-5	10/05/92	176.08	9.22	166.86	1300	200	3.8	1.2	18	---	---	---
ESE-5	04/01/93	176.08	7.02	169.06	13000	2200	26	730	1000	---	---	PACE
QC-1 (d)	04/01/93	---	---	---	13000	2500	25	740	1100	---	---	PACE
ESE-5	06/29/93	176.08	10.21	165.87	7600	1500	9.3	170	100	---	---	PACE
ESE-5	09/23/93	176.08	10.64	165.44	560	19	1.2	0.9	1.8	---	---	PACE
ESE-5	12/10/93	176.08	9.42	166.66	1700	300	3.0	76	110	---	2.5	PACE
ESE-5	02/07/94	176.08	9.35	166.73	3500	640	7.8	90	130	---	---	PACE
ESE-5	08/08/94	176.08	8.76	167.32	2600	210	4.6	9.4	4.4	---	5.8	PACE
QC-1 (d)	08/08/94	---	---	---	2500	230	4.6	13	4.8	---	---	PACE
ESE-5	10/12/94	176.08	8.95	167.13	5600	560	9.5	75	21	---	3.6	PACE
QC-1 (d)	10/12/94	---	---	---	6000	550	10	78	22	---	---	PACE
ESE-5	01/19/95	176.08	5.40	170.68	1900	620	ND<5	95	15	---	7.6	ATI
QC-1 (d)	01/19/95	---	---	---	1600	620	ND<5	93	17	---	---	ATI
ESE-5	05/02/95	176.08	6.48	169.60	5700	1100	ND<10	180	58	---	8.2	ATI
QC-1 (d)	05/02/95	---	---	---	5300	1100	ND<10	180	58	---	---	ATI
ESE-5	07/28/95	176.08	7.97	168.11	520	15	ND<0.50	1.7	1.3	---	8.2	ATI
QC-1 (d)	07/28/95	---	---	---	460	7.2	ND<0.50	1.9	1.5	---	---	ATI
ESE-5	11/17/95	176.08	8.39	167.69	850	39	1.8	7.6	2.7	24	6.3	ATI
ESE-5	02/07/96	176.08	4.71	171.37	4100	670	6.0	190	140	ND<50	1.5	SPL
MW-6	07/28/95	179.24	10.00	169.24	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	8.1	ATI
MW-6	11/17/95	179.24	10.44	168.80	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	6.8	ATI
MW-6	02/07/96	179.24	7.68	171.56	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	2.4	SPL
MW-7	07/28/95	176.55	9.25	167.30	ND<50	0.54 (f)	0.54	ND<0.50	ND<1.0	---	7.1	ATI
MW-7	11/17/95	176.55	9.73	166.82	1100	ND<10	ND<10	ND<10	ND<20	4000	6.3	ATI
MW-7	02/07/96	176.55	6.48	170.07	610	ND<0.5	ND<1	ND<1	ND<1	2500	4.1	SPL
QC-1 (d)	02/07/96	---	---	---	280	ND<0.5	ND<1	ND<1	ND<1	2600	---	SPL
MW-8	07/28/95	176.34	7.80	168.54	1100	ND<2.5	ND<2.5	ND<2.5	ND<5.0	---	7.2	ATI
MW-8	11/17/95	176.34	8.29	168.05	8300	75	5.3	670	240	140	7.0	ATI
MW-8	02/07/96	176.34	4.99	171.35	2300	33	ND<10	190	216	ND<100	1.7	SPL

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING
 BP OIL COMPANY SERVICE STATION NO. 11105
 3519 CASTRO VALLEY BOULEVARD, CASTRO VALLEY, CALIFORNIA

ALISTO PROJECT NO. 10-138

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	DO (ppm)	LAB
QC-2	(g) 04/01/93	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2	(g) 06/29/93	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2	(g) 09/23/93	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2	(g) 12/10/93	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2	(g) 02/17/94	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2	(g) 08/08/94	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2	(g) 10/12/94	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2	(g) 01/19/95	---	---	---	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1	---	---	ATI
QC-2	(g) 05/02/95	---	---	---	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	ATI
QC-2	(g) 07/28/95	---	---	---	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	ATI
QC-2	(g) 11/17/95	---	---	---	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	---	ATI
QC-2	(g) 02/07/96	---	---	---	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	---	SPL

ABBREVIATIONS:

TPH-G	Total petroleum hydrocarbons as gasoline
B	Benzene
T	Toluene
E	Ethylbenzene
X	Total xylenes
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 applicable/available/measured/analyzed
PACE	Pace, Inc.
ATI	Analytical Technologies, Inc.
SPL	SPL, Inc.

NOTES:

- (a) Top of casing elevations surveyed relative to mean sea level.
- (b) Groundwater elevations in feet relative to mean sea level.
- (c) Additional analysis of the sample collected from ESE-1 on 10/5/92 detected 96 ug/l total petroleum hydrocarbons as diesel, 1.8 ug/l 1,2-dichloroethane, and no detectable total oil and grease.
- (d) Blind duplicate.
- (e) Top of casing lowered by 0.07 foot after the monitoring event on 4/01/93.
- (f) Sample result may be falsely elevated due to matrix interference.
- (g) Travel blank.

E:\010-138\138-5-2.WQ2



SOURCE:
 USGS MAP, HAYWARD QUADRANGLE,
 CALIFORNIA. 7.5 MINUTE SERIES. 1959.
 PHOTOREVISED 1980.

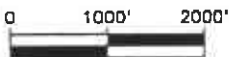


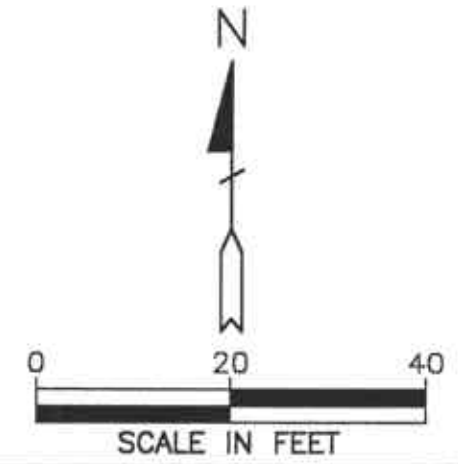
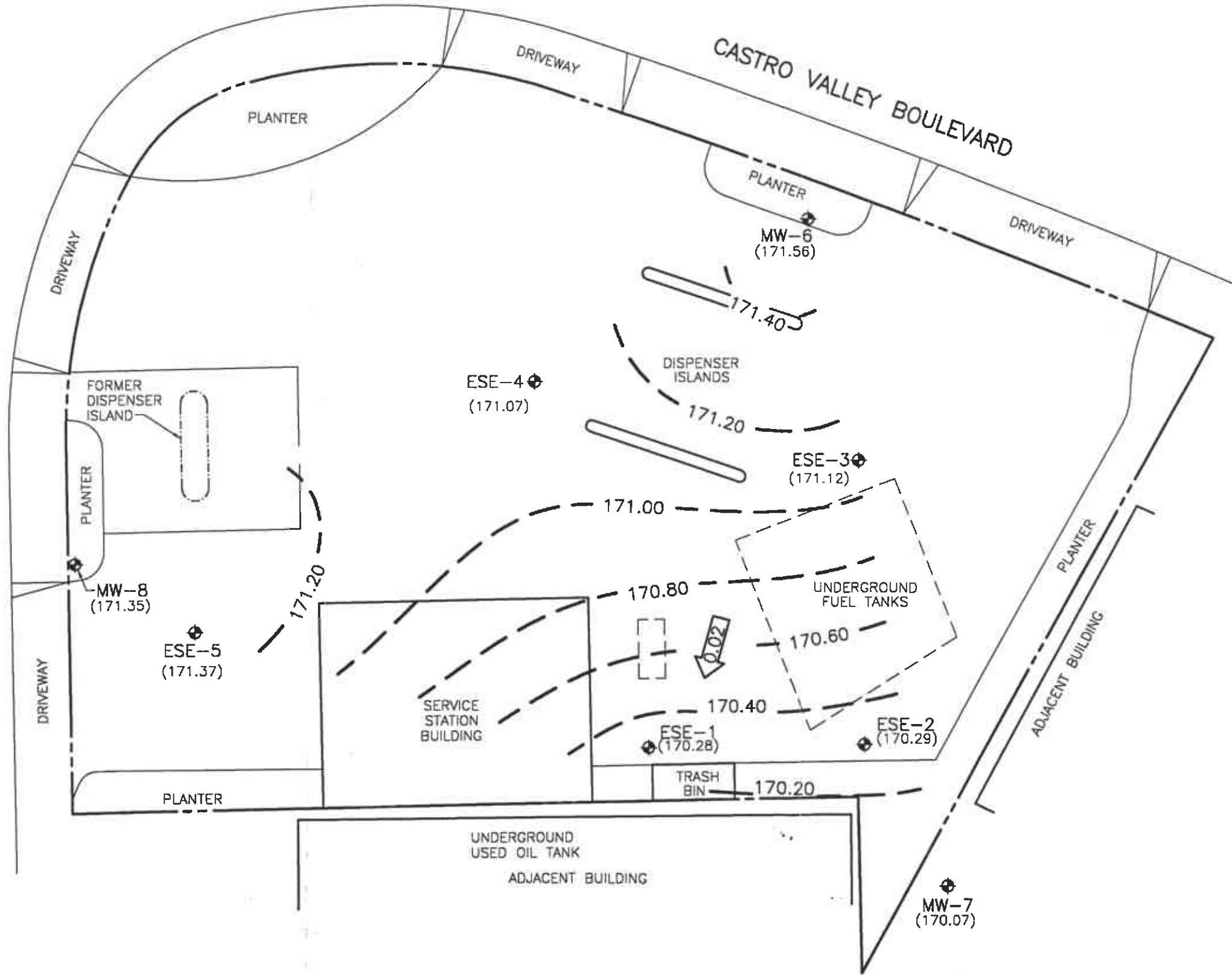
FIGURE 1
SITE VICINITY MAP

BP OIL SERVICE STATION NO. 11105
 3519 CASTRO VALLEY BOULEVARD
 CASTRO VALLEY, CALIFORNIA
 PROJECT NO. 10-138



ALISTO ENGINEERING GROUP
 WALNUT CREEK, CALIFORNIA

REDWOOD ROAD



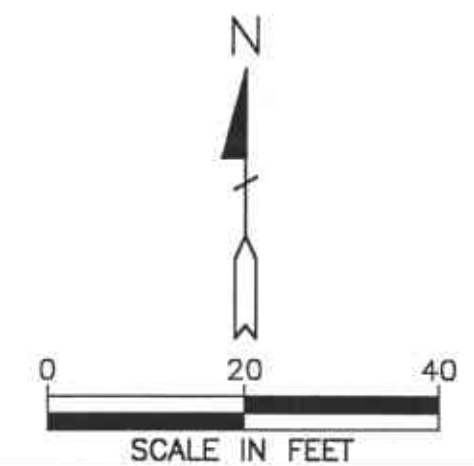
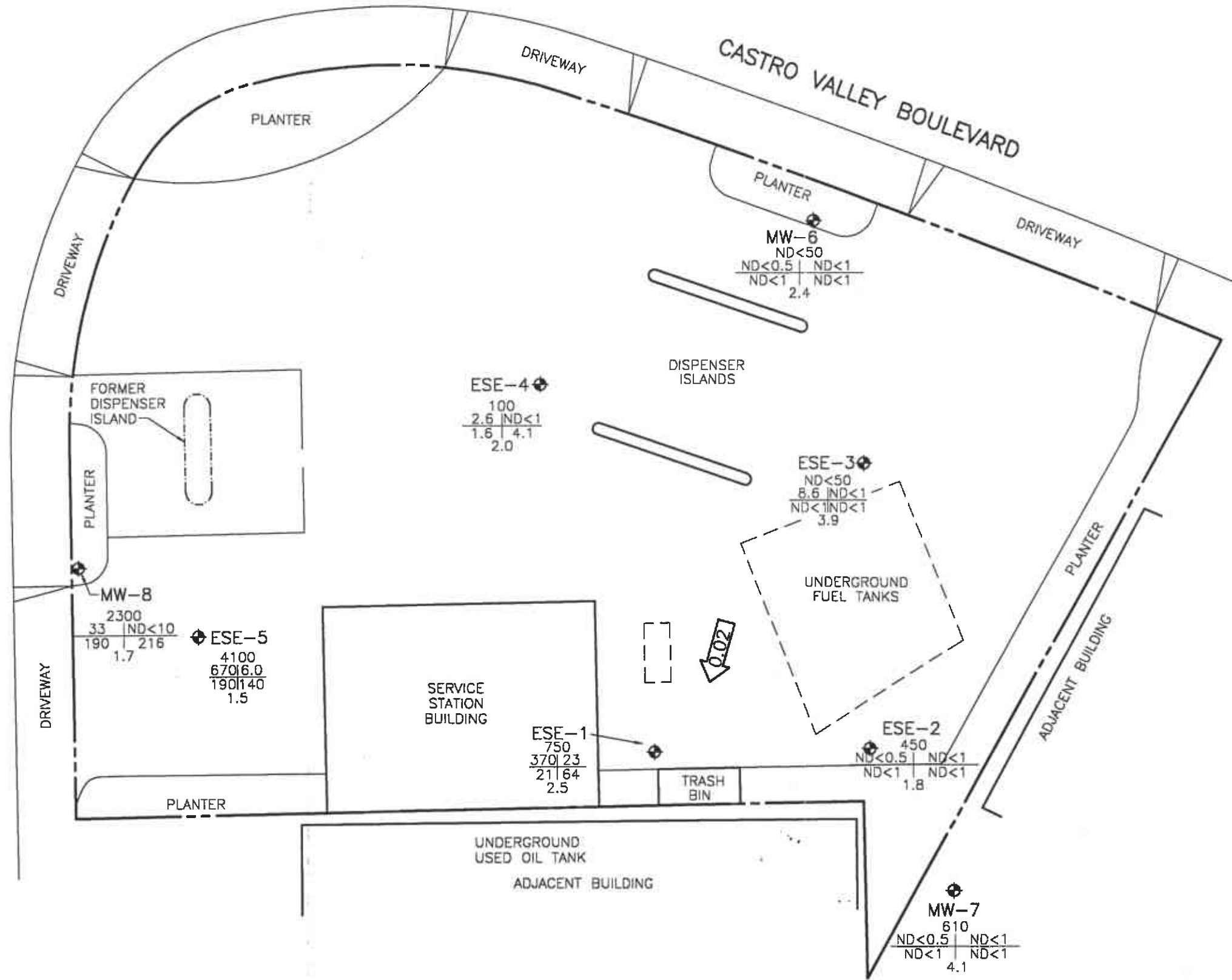
LEGEND

- ◆ GROUNDWATER MONITORING WELL
- (170.28) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- 170.40 - GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL=0.20 FOOT)
- ← 0.02 ← CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 2
POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP
FEBRUARY 7, 1996
BP OIL SERVICE STATION NO. 11105
3519 CASTRO VALLEY BOULEVARD
CASTRO VALLEY, CALIFORNIA
PROJECT NO. 10-138

101380-0.DWG 4-8-88 AXC 11-20

REDWOOD ROAD



LEGEND

◆ GROUNDWATER MONITORING WELL

TPH-G	CONCENTRATION OF CONSTITUENTS IN MICROGRAMS PER LITER, EXCEPT DISSOLVED OXYGEN, WHICH IS IN PARTS PER MILLION
B T	
E X	
DO	

TPH-G TOTAL PETROLEUM HYDROCARBONS AS GASOLINE

B BENZENE

T TOLUENE

E ETHYLBENZENE

X TOTAL XYLENES

DO DISSOLVED OXYGEN

ND NOT DETECTED ABOVE REPORTED DETECTION LIMIT

← 0.02 CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 3
CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER
FEBRUARY 7, 1996
 BP OIL SERVICE STATION NO. 11105
 3519 CASTRO VALLEY BOULEVARD
 CASTRO VALLEY, CALIFORNIA
 PROJECT NO. 10-138

APPENDIX A
WATER SAMPLING FIELD SURVEY FORMS

ALISTO

Field Report / Sampling Data Sheet

ENGINEERING

GROUP

1575 TREAT BOULEVARD, SUITE 201

Project No.

10-138-05-002

Date:

⁷ - Bu
2/18/96

Address

315⁹⁻¹⁵¹⁴ Castro Valley Blvd

Day:

MTWTF

Contract No.

G602067

City:

Castro Valley

Station No.

BP 11105

Sampler:

DC

DEPTH TO GROUNDWATER SUMMARY

WELL ID	SAMPLE ID	WELL DIAM	TOTAL DEPTH	DEPTH TO WATER	PRODUCT THICKNESS	TIME SAMPLED	COMMENTS:
ESE-1	S-4	2"	30.00	7.41	Φ	1214	
ESE-2	S-7	↓	30.00	7.94	↓	1227	
ESE-3	S-3	↓	30.00	7.08	↓	1210	
ESE-4	S-2	↓	25.00	6.59	↓	1206	
ESE-5	S-5	↓	24.00	4.71	↓	1217	
^{mw} ESE-6	S-1	↓	29.43	7.68	↓	1201	
^{mw} ESE-7	S-6	↓	19.85	6.48	↓	1222	
^{mw} ESE-8	S-8	↓	28.38	4.99	↓	1230	

FIELD INSTRUMENT CALIBRATION DATA

pH METER Aquacheck 4.00 ✓ 7.00 ✓ 10.00 ✓ TEMPERATURE COMPENSATED (Y) N TIME 1245

D.O. METER Aquacheck ZERO NO SOLUTION 9.0 BAROMETRIC PRESSURE 761 TEMP 62°F WEATHER Overcast

CONDUCTIVITY METER Aquacheck 10,000 TURBIDITY METER _____ 5.0 NTU OTHER Factory Solns

Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.		
^{mw} S-6	7.68	2"	OU	Φ	Y (N)	3	1249	65.7	6.26	482	2.7	<input type="radio"/> EPA 601 _____	
Total Depth - Water Level=						x Well Vol. Factor=	x#vol. to Purge	PurgeVol.					<input checked="" type="radio"/> TPH-G/BTEX <u>12</u>
$29.43 - 7.68 = 21.75$						$\times .16 = 3.48$	$\times 3 = 10.44$						<input type="radio"/> TPH Diesel _____
Purge Method: <input checked="" type="checkbox"/> Surface Pump						<input type="checkbox"/> Disp. Tube	<input type="checkbox"/> Winch	<input type="checkbox"/> Disp. Bailer(s)	<input type="checkbox"/> Sys Port				<input type="radio"/> TOG 5520 _____
Comments:												TIME/SAMPLE ID	
												1309 / S-1	
ESE-4	6.59	2"	refined	Φ	Y (N)	3	1311	66.6	6.73	980	2.2	<input type="radio"/> EPA 601 _____	
Total Depth - Water Level=						x Well Vol. Factor=	x#vol. to Purge	PurgeVol.					<input checked="" type="radio"/> TPH-G/BTEX <u>12</u>
$25.00 - 6.59 = 18.41$						$\times .16 = 2.95$	$\times 3 = 8.83$						<input type="radio"/> TPH Diesel _____
Purge Method: <input checked="" type="checkbox"/> Surface Pump						<input type="checkbox"/> Disp. Tube	<input type="checkbox"/> Winch	<input type="checkbox"/> Disp. Bailer(s)	<input type="checkbox"/> Sys Port				<input type="radio"/> TOG 5520 _____
Comments:												TIME/SAMPLE ID	
												1320 / S-2	

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. 10-138-05-002

Address 3515 Castro Valley Blvd

Contract No. G602067

Station No. BP 11105

Date: 2/14/96

Day: M T W T F

City: Castro Valley

Sampler: *DL*

Well ID	Depth to Water	Diam	Cap/Lock	Product	Dept	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.
<i>Ess-3</i>	<i>7.08</i>	<i>2"</i>	<i>OU</i>	<i>Φ</i>	<i>Y (N)</i>	<i>4</i>	<i>1327</i>	<i>68.0</i>	<i>7.17</i>	<i>392</i>	<i>4.7</i>	
Total Depth - Water Level= $30.00 - 7.08 = 22.92 \times .16 = 3.67 \times 3 = 11$							<i>8</i>	<i>1332</i>	<i>67.2</i>	<i>7.10</i>	<i>371</i>	
Purge Method: <input checked="" type="checkbox"/> Surface Pump <input type="checkbox"/> Disp. Tube <input type="checkbox"/> Winch <input type="checkbox"/> Disp. Bailer(s) <input type="checkbox"/> Sys Port							<i>11</i>	<i>1340</i>	<i>67.2</i>	<i>7.09</i>	<i>403</i>	<i>3.9</i>
Comments:												

<input type="checkbox"/> EPA 601
<input checked="" type="checkbox"/> TPH-G/BTEX <i>HC</i>
<input type="checkbox"/> TPH Diesel
<input type="checkbox"/> TOG 5520
TIME/SAMPLE ID
<i>1344 / 15-3</i>

Well ID	Depth to Water	Diam	Cap/Lock	Product	Dept	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.
<i>Ess-1</i>	<i>7.41</i>	<i>2"</i>	<i>OU</i>	<i>Φ</i>	<i>Y (N)</i>	<i>3</i>	<i>1347</i>	<i>67.7</i>	<i>7.06</i>	<i>812</i>	<i>3.6</i>	
Total Depth - Water Level= $30.00 - 7.41 = 22.59 \times .16 = 3.61 \times 3 = 10.84$							<i>6</i>	<i>1352</i>	<i>68.0</i>	<i>6.97</i>	<i>1010</i>	
Purge Method: <input checked="" type="checkbox"/> Surface Pump <input type="checkbox"/> Disp. Tube <input type="checkbox"/> Winch <input type="checkbox"/> Disp. Bailer(s) <input type="checkbox"/> Sys Port							<i>11</i>	<i>1401</i>	<i>68.0</i>	<i>6.96</i>	<i>1040</i>	<i>2.5</i>
Comments:												

<input type="checkbox"/> EPA 601
<input checked="" type="checkbox"/> TPH-G/BTEX <i>HC</i>
<input type="checkbox"/> TPH Diesel
<input type="checkbox"/> TOG 5520
TIME/SAMPLE ID
<i>1404 / 15-4</i>

Well ID	Depth to Water	Diam	Cap/Lock	Product	Dept	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.
<i>Ess-5</i>	<i>4.71</i>	<i>2"</i>	<i>OU</i>	<i>Φ</i>	<i>Y (N)</i>	<i>3</i>	<i>1409</i>	<i>67.9</i>	<i>7.04</i>	<i>408</i>	<i>2.7</i>	
Total Depth - Water Level= $24.00 - 4.71 = 19.29 \times .16 = 3.09 \times 3 = 9.26$							<i>6</i>	<i>1413</i>	<i>67.9</i>	<i>6.94</i>	<i>362</i>	
Purge Method: <input checked="" type="checkbox"/> Surface Pump <input type="checkbox"/> Disp. Tube <input type="checkbox"/> Winch <input type="checkbox"/> Disp. Bailer(s) <input type="checkbox"/> Sys Port							<i>9.5</i>	<i>1419</i>	<i>68.0</i>	<i>6.89</i>	<i>373</i>	<i>1.5</i>
Comments:												

<input type="checkbox"/> EPA 601
<input checked="" type="checkbox"/> TPH-G/BTEX <i>HC</i>
<input type="checkbox"/> TPH Diesel
<input type="checkbox"/> TOG 5520
TIME/SAMPLE ID
<i>1422 / 15-5</i>

Well ID	Depth to Water	Diam	Cap/Lock	Product	Dept	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.
<i>MW-7</i>	<i>6.48</i>	<i>2"</i>	<i>OU</i>	<i>Φ</i>	<i>Y (N)</i>	<i>2</i>	<i>1524</i>	<i>67.7</i>	<i>7.14</i>	<i>208</i>	<i>2.7</i>	
Total Depth - Water Level= $19.85 - 6.48 = 13.37 \times .16 = 2.14 \times 3 = 6.42$							<i>4</i>	<i>1530</i>	<i>67.5</i>	<i>7.45</i>	<i>241</i>	
Purge Method: <input checked="" type="checkbox"/> Surface Pump <input type="checkbox"/> Disp. Tube <input type="checkbox"/> Winch <input type="checkbox"/> Disp. Bailer(s) <input type="checkbox"/> Sys Port							<i>6.5</i>	<i>1537</i>	<i>67.8</i>	<i>7.93</i>	<i>291</i>	<i>4.1</i>
Comments: <i>QL1 from this well (SA) off site well</i>												

<input type="checkbox"/> EPA 601
<input checked="" type="checkbox"/> TPH-G/BTEX <i>HC</i>
<input type="checkbox"/> TPH Diesel
<input type="checkbox"/> TOG 5520
TIME/SAMPLE ID
<i>1543 / 15-6</i>

Well ID	Depth to Water	Diam	Cap/Lock	Product	Dept	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.
<i>Ess-2</i>	<i>7.94</i>	<i>2"</i>	<i>OU</i>	<i>Φ</i>	<i>Y (N)</i>	<i>3</i>	<i>1450</i>	<i>66.1</i>	<i>7.55</i>	<i>505</i>	<i>2.4</i>	
Total Depth - Water Level= $30.00 - 7.94 = 22.06 \times .16 = 3.53 \times 3 = 10.59$							<i>6</i>	<i>1457</i>	<i>66.2</i>	<i>7.05</i>	<i>570</i>	
Purge Method: <input checked="" type="checkbox"/> Surface Pump <input type="checkbox"/> Disp. Tube <input type="checkbox"/> Winch <input type="checkbox"/> Disp. Bailer(s) <input type="checkbox"/> Sys Port							<i>10.5</i>	<i>1507</i>	<i>66.2</i>	<i>6.99</i>	<i>555</i>	<i>1.8</i>
Comments:												

<input type="checkbox"/> EPA 601
<input checked="" type="checkbox"/> TPH-G/BTEX <i>HC</i>
<input type="checkbox"/> TPH Diesel
<input type="checkbox"/> TOG 5520
TIME/SAMPLE ID
<i>1509 / 15-7</i>

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. 10-138-05-002

Address 3515 Castro Valley Blvd

Contract No. G602067

Station No. BP 11105

Sampler:

Date: 2/1/96 ^{7-Bun}

Day: MTWTF

City: Castro Valley

Well ID	Depth to Water	Diam	Cap/Lock	Product Depl	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.
<u>mw-8</u>	<u>4.99</u>	<u>2"</u>	<u>OU</u>	<u>Φ</u>	<u>Y(N)</u>	<u>4</u>	<u>1427</u>	<u>67.3</u>	<u>7.15</u>	<u>204</u>	<u>2.8</u>
Total Depth - Water Level=						<u>8</u>	<u>1432</u>	<u>67.3</u>	<u>7.07</u>	<u>185</u>	
x Well Vol. Factor=						<u>11.25</u>	<u>1439</u>	<u>67.2</u>	<u>7.07</u>	<u>208</u>	<u>1.7</u>
x#vol. to Purge PurgeVol.											
<u>28.38 - 4.99 = 23.39 x .16 = 3.74 x 3 = 11.23</u>											

Purge Method: Surface Pump ODIspl. Tube Winch ODIspl. Bailer(s) OSys Port

Comments: Sampled out of order due to mw-7 being on offsite well

- EPA 601 _____
- TPH-G/BTEX [Signature]
- TPH Diesel _____
- TOG 5520 _____

TIME/SAMPLE ID

1444 15-8

E.C. van was parked on ESE-2

APPENDIX B

LABORATORY REPORT AND CHAIN OF CUSTODY RECORD



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

SPL, INC.

REPORT APPROVAL SHEET

WORK ORDER NUMBER: 96 - 02 - 361

Approved for release by:

M. Scott Sample

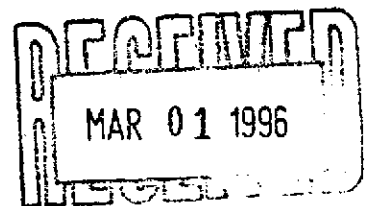
M. Scott Sample, Laboratory Director

Date: 2/27/96

Ed Fry

Ed Fry, Project Manager

Date: 2/22/96





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

Certificate of Analysis No. H9-9602361-01

Alisto Engineering
 1575 Treat Blvd.
 Walnut Creek, CA 94598
 ATTN: Bill Howell

P.O.#
 G602067 , COC#061540
 DATE: 02/26/96

PROJECT: BP Oil #11105
 SITE: Castro Valley, CA
 SAMPLED BY: BP-Alisto Engineering
 SAMPLE ID: S-1

PROJECT NO: 10-138-05-002
 MATRIX: WATER
 DATE SAMPLED: 02/07/96 13:09:00
 DATE RECEIVED: 02/09/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	10 P	µg/L
Benzene	ND	0.5 P	µg/L
Toluene	ND	1 P	µg/L
Ethylbenzene	ND	1 P	µg/L
Total Xylene	ND	1 P	µg/L

Surrogate % Recovery
 1,4-Difluorobenzene 92
 4-Bromofluorobenzene 100

METHOD 8020***
 Analyzed by: fab
 Date: 02/13/96

Total Petroleum Hydrocarbons-Gasoline ND 0.05 P mg/L

Surrogate % Recovery
 1,4-Difluorobenzene 102
 4-Bromofluorobenzene 84

CA LUFT - Gasoline
 Analyzed by: fab
 Date: 02/13/96 08:11:00

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. H9-9602361-02

Alisto Engineering
 1575 Treat Blvd.
 Walnut Creek, CA 94598
 ATTN: Bill Howell

P.O.#
 G602067 , COC#061540
 DATE: 02/26/96

PROJECT: BP Oil #11105
 SITE: Castro Valley, CA
 SAMPLED BY: BP-Alisto Engineering
 SAMPLE ID: S-2

PROJECT NO: 10-138-05-002
 MATRIX: WATER
 DATE SAMPLED: 02/07/96 13:20:00
 DATE RECEIVED: 02/09/96

PARAMETER	ANALYTICAL DATA		UNITS
	RESULTS	DETECTION LIMIT	
MTBE	42	10 P	µg/L
Benzene	2.6	0.5 P	µg/L
Toluene	ND	1 P	µg/L
Ethylbenzene	1.6	1 P	µg/L
Total Xylene	4.1	1 P	µg/L

Surrogate	% Recovery
1,4-Difluorobenzene	92
4-Bromofluorobenzene	77

METHOD 8020***

Analyzed by: YN

Date: 02/17/96

Total Petroleum Hydrocarbons-Gasoline	0.10	0.05 P	mg/L
---------------------------------------	------	--------	------

Surrogate	% Recovery
1,4-Difluorobenzene	122
4-Bromofluorobenzene	140

CA LUFT - Gasoline

Analyzed by: fab

Date: 02/13/96 11:26:00

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

Certificate of Analysis No. H9-9602361-03

Alisto Engineering
 1575 Treat Blvd.
 Walnut Creek, CA 94598
 ATTN: Bill Howell

P.O.#
 G602067 , COC#061540
 DATE: 04/02/96

**CORRECTED
 COPY**

PROJECT: BP Oil #11105
 SITE: Castro Valley, CA
 SAMPLED BY: BP-Alisto Engineering
 SAMPLE ID: S-3

PROJECT NO: 10-138-05-002
 MATRIX: WATER
 DATE SAMPLED: 02/07/96 13:44:00
 DATE RECEIVED: 02/09/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	10 P	µg/L
Benzene	8.6	0.5 P	µg/L
Toluene	ND	1 P	µg/L
Ethylbenzene	ND	1 P	µg/L
Total Xylene	ND	1 P	µg/L

Surrogate	% Recovery
1,4-Difluorobenzene	97
4-Bromofluorobenzene	87

METHOD 8020***

Analyzed by: fab
 Date: 02/13/96

Total Petroleum Hydrocarbons-Gasoline	ND	0.05 P	mg/L
---------------------------------------	----	--------	------

Surrogate	% Recovery
1,4-Difluorobenzene	106
4-Bromofluorobenzene	70

CA LUFT - Gasoline
 Analyzed by: fab
 Date: 02/13/96 11:54:00

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 DR/WE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9602361-04

Alisto Engineering
1575 Treat Blvd.
Walnut Creek, CA 94598
ATTN: Bill Howell

P.O.#
G602067 , COC#061540
DATE: 04/08/96

PROJECT: BP Oil #11105
SITE: Castro Valley, CA
SAMPLED BY: BP-Alisto Engineering
SAMPLE ID: S-4

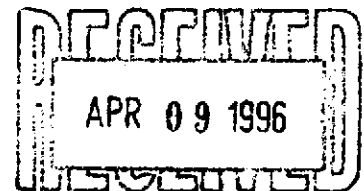
PROJECT NO: 10-138-05-002
MATRIX: WATER
DATE SAMPLED: 02/07/96 14:04:00
DATE RECEIVED: 02/09/96

PARAMETER	ANALYTICAL DATA		RESULTS	DETECTION LIMIT	UNITS
MTBE			680	10 P	µg/L
Benzene			370	0.5 P	µg/L
Toluene			23	1 P	µg/L
Ethylbenzene			21	1 P	µg/L
Total Xylene			64	1 P	µg/L
Surrogate		% Recovery			
	1,4-Difluorobenzene		156		
	4-Bromofluorobenzene		168		
METHOD 8020***					
Analyzed by: fab					
Date: 02/17/96					
Total Petroleum Hydrocarbons-Gasoline			0.75	0 P	mg/L
Surrogate		% Recovery			
	1,4-Difluorobenzene		118		
	4-Bromofluorobenzene		121		
CA LUFT - Gasoline					
Analyzed by: fab					
Date: 02/18/96 06:42:00					

(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.

**CORRECTED
COPY**



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. H9-9602361-05

Alisto Engineering
 1575 Treat Blvd.
 Walnut Creek, CA 94598
 ATTN: Bill Howell

P.O.#
 G602067 , COC#061540
 DATE: 02/26/96

PROJECT: BP Oil #11105
 SITE: Castro Valley, CA
 SAMPLED BY: BP-Alisto Engineering
 SAMPLE ID: S-5

PROJECT NO: 10-138-05-002
 MATRIX: WATER
 DATE SAMPLED: 02/07/96 14:22:00
 DATE RECEIVED: 02/09/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	50 P	µg/L
Benzene	670	2 P	µg/L
Toluene	6.0	5 P	µg/L
Ethylbenzene	190	5 P	µg/L
Total Xylene	140	5 P	µg/L

Surrogate	% Recovery
1,4-Difluorobenzene	138
4-Bromofluorobenzene	151

METHOD 8020***

Analyzed by: fab
 Date: 02/18/96

Total Petroleum Hydrocarbons-Gasoline	4.1	1 P	mg/L
---------------------------------------	-----	-----	------

Surrogate	% Recovery
1,4-Difluorobenzene	128
4-Bromofluorobenzene	118

CA LUFT - Gasoline
 Analyzed by: fab
 Date: 02/14/96 03:37:00

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. H9-9602361-06

Alisto Engineering
 1575 Treat Blvd.
 Walnut Creek, CA 94598
 ATTN: Bill Howell

P.O.#
 G602067 , COC#061540
 DATE: 02/26/96

PROJECT: BP Oil #11105
 SITE: Castro Valley, CA
 SAMPLED BY: BP-Alisto Engineering
 SAMPLE ID: S-6

PROJECT NO: 10-138-05-002
 MATRIX: WATER
 DATE SAMPLED: 02/07/96 15:43:00
 DATE RECEIVED: 02/09/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	2500	100 P	µg/L
Benzene	ND	0.5 P	µg/L
Toluene	ND	1 P	µg/L
Ethylbenzene	ND	1 P	µg/L
Total Xylene	ND	1 P	µg/L
Surrogate		% Recovery	
1,4-Difluorobenzene		93	
4-Bromofluorobenzene		67	
METHOD 8020***			
Analyzed by: fab			
Date: 02/18/96			
Total Petroleum Hydrocarbons-Gasoline	0.61	0.05 P	mg/L
Surrogate		% Recovery	
1,4-Difluorobenzene		112	
4-Bromofluorobenzene		77	
CA LUFT - Gasoline			
Analyzed by: fab			
Date: 02/14/96 12:50:00			

(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. H9-9602361-07

Alisto Engineering
 1575 Treat Blvd.
 Walnut Creek, CA 94598
 ATTN: Bill Howell

**CORRECTED
 COPY**

P.O.#
 G602067 , COC#061540
 DATE: 04/02/96

PROJECT: BP Oil #11105
 SITE: Castro Valley, CA
 SAMPLED BY: BP-Alisto Engineering
 SAMPLE ID: S-7

PROJECT NO: 10-138-05-002
 MATRIX: WATER
 DATE SAMPLED: 02/07/96 15:09:00
 DATE RECEIVED: 02/09/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	2300	10 P	µg/L
Benzene	ND	0.5 P	µg/L
Toluene	ND	1 P	µg/L
Ethylbenzene	ND	1 P	µg/L
Total Xylene	ND	1 P	µg/L

Surrogate

% Recovery

1,4-Difluorobenzene

113

4-Bromofluorobenzene

92

METHOD 8020***

Analyzed by: fab

Date: 02/14/96

Total Petroleum Hydrocarbons-Gasoline 0.45 0.05 P mg/L

Surrogate

% Recovery

1,4-Difluorobenzene

122

4-Bromofluorobenzene

75

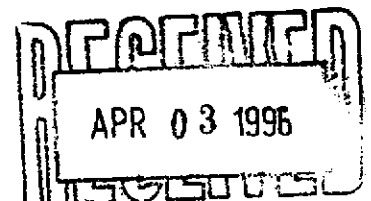
CA LUFT - Gasoline

Analyzed by: fab

Date: 02/14/96 01:18:00

(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. H9-9602361-08

Alisto Engineering
 1575 Treat Blvd.
 Walnut Creek, CA 94598
 ATTN: Bill Howell

P.O.#
 G602067 , COC#061540
 DATE: 02/26/96

PROJECT: BP Oil #11105
 SITE: Castro Valley, CA
 SAMPLED BY: BP-Alisto Engineering
 SAMPLE ID: S-8

PROJECT NO: 10-138-05-002
 MATRIX: WATER
 DATE SAMPLED: 02/07/96 14:44:00
 DATE RECEIVED: 02/09/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	100 P	µg/L
Benzene	33	5 P	µg/L
Toluene	ND	10 P	µg/L
Ethylbenzene	190	10 P	µg/L
Total Xylene	216	10 P	µg/L
Surrogate		% Recovery	
1,4-Difluorobenzene	87		
4-Bromofluorobenzene	118		
METHOD 8020***			
Analyzed by: fab			
Date: 02/18/96			
Total Petroleum Hydrocarbons-Gasoline	2.3	0 P	mg/L
Surrogate		% Recovery	
1,4-Difluorobenzene	121		
4-Bromofluorobenzene	137		
CA LUFT - Gasoline			
Analyzed by: fab			
Date: 02/14/96 03:09:00			

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. H9-9602361-09

Alisto Engineering
 1575 Treat Blvd.
 Walnut Creek, CA 94598
 ATTN: Bill Howell

P.O.#
 G602067 , COC#061540
 DATE: 02/26/96

PROJECT: BP Oil #11105
 SITE: Castro Valley, CA
 SAMPLED BY: BP-Alisto Engineering
 SAMPLE ID: S-9

PROJECT NO: 10-138-05-002
 MATRIX: WATER
 DATE SAMPLED: 02/07/96
 DATE RECEIVED: 02/09/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	2600	100 P	µg/L
Benzene	ND	0.5 P	µg/L
Toluene	ND	1 P	µg/L
Ethylbenzene	ND	1 P	µg/L
Total Xylene	ND	1 P	µg/L

Surrogate	% Recovery
1,4-Difluorobenzene	91
4-Bromofluorobenzene	61

METHOD 8020***

Analyzed by: fab
 Date: 02/18/96

Total Petroleum Hydrocarbons-Gasoline	0.28	0.05 P	mg/L
---------------------------------------	------	--------	------

Surrogate	% Recovery
1,4-Difluorobenzene	112
4-Bromofluorobenzene	71

CA LUFT - Gasoline
 Analyzed by: fab
 Date: 02/14/96 01:46:00

(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) 680-0901

Certificate of Analysis No. H9-9602361-10

Alisto Engineering
 1575 Treat Blvd.
 Walnut Creek, CA 94598
 ATTN: Bill Howell

P.O.#
 G602067 , COC#061540
 DATE: 02/26/96

PROJECT: BP Oil #11105
 SITE: Castro Valley, CA
 SAMPLED BY: BP-Alisto Engineering
 SAMPLE ID: S-10

PROJECT NO: 10-138-05-002
 MATRIX: WATER
 DATE SAMPLED: 02/07/96
 DATE RECEIVED: 02/09/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	10 P	µg/L
Benzene	ND	0.5 P	µg/L
Toluene	ND	1 P	µg/L
Ethylbenzene	ND	1 P	µg/L
Total Xylene	ND	1 P	µg/L
Surrogate	% Recovery		
1,4-Difluorobenzene	92		
4-Bromofluorobenzene	81		
METHOD 8020***			
Analyzed by: fab			
Date: 02/18/96			
Total Petroleum Hydrocarbons-Gasoline	ND	0.05 P	mg/L
Surrogate	% Recovery		
1,4-Difluorobenzene	102		
4-Bromofluorobenzene	64		
CA LUFT - Gasoline			
Analyzed by: fab			
Date: 02/14/96 02:13:00			

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: µg/L

Batch Id: HP_J960213125100

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike		QC Limits(**) (Mandatory) % Recovery Range
			Result <1>	Recovery %	
Benzene	ND	50	43	86.0	62 - 121
Toluene	ND	150	131	87.3	66 - 136
EthylBenzene	ND	50	47	94.0	70 - 136
O Xylene	ND	100	100	100	74 - 134
M & P Xylene	ND	200	190	95.0	77 - 140

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
			BENZENE	ND	50	57	114	60	120
TOLUENE	ND	150	162	108	169	113	4.52	26	56 - 134
ETHYLBENZENE	ND	50	56	112	59	118	5.22	38	61 - 128
O XYLENE	ND	100	109	109	114	114	4.48	29	40 - 130
M & P XYLENE	ND	100	119	119	123	123	3.31	20	43 - 152

Analyst: fab

Sequence Date: 02/13/96

SPL ID of sample spiked: 9602472-01A

Sample File ID: J__539.TX0

Method Blank File ID:

Blank Spike File ID: J__531.TX0

Matrix Spike File ID: J__533.TX0

Matrix Spike Duplicate File ID: J__534.TX0

* = Values Outside QC Range

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

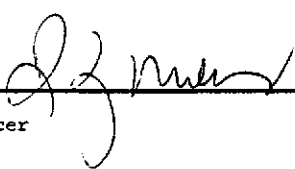
Relative Percent Difference = |(<4> - <5> | / [(<4> + <5>) x 0.5] x 100

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

(***) = Source: SPL-Houston Historical Data (4th Q '94)

SAMPLES IN BATCH(SPL ID):

9602473-02A 9602452-03A 9602472-01A 9602261-01A
 9602473-01A 9602361-01A 9602407-09A 9602407-13A
 9602261-02A 9602361-02A 9602361-03A 9602361-04A
 9602361-06A 9602361-07A 9602361-09A 9602361-10A
 9602452-01A 9602472-02A


QC Officer



Matrix: Aqueous
Units: ug/L

Batch Id: HP_J960216091900

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	47	94.0	20 - 100
Benzene	ND	50	47	94.0	62 - 121
Toluene	ND	50	44	88.0	66 - 136
EthylBenzene	ND	50	44	88.0	70 - 136
O Xylene	ND	50	48	96.0	74 - 134
M & P Xylene	ND	100	94	94.0	77 - 140

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	ND	20	21	105	22	110
ISOPROPYL ETHER	ND	20	21	105	21	105	0	20	50 - 150
BENZENE	ND	20	20	100	21	105	4.88	25	39 - 150
TOLUENE	ND	20	18	90.0	19	95.0	5.41	26	56 - 134
ETHYLBENZENE	ND	20	17	85.0	18	90.0	5.71	38	61 - 128
O XYLENE	ND	20	16	80.0	18	90.0	11.8	29	40 - 130
M & P XYLENE	ND	40	31	77.5	35	87.5	12.1	20	43 - 152

Analyst: YN

Sequence Date: 02/16/96

SPL ID of sample spiked: 9602648-03A

Sample File ID: J_636.TX0

Method Blank File ID:

Blank Spike File ID: J_625.TX0

Matrix Spike File ID: J_629.TX0

Matrix Spike Duplicate File ID: J_630.TX0

* = Values Outside QC Range

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 (3dr Q '95)

(***) = Source: SPL-Houston Historical Data

SAMPLES IN BATCH(SPL ID):

9602458-05A 9602648-03A 9602615-05A 9602615-06A
 9602520-02A 9602288-02A 9602237-02A 9602237-06B
 9602460-04A 9602460-07A 9602460-05A 9602460-06A
 9602460-03A 9602460-02A 9602361-02A 9602460-01A
 9602497-03A 9602497-01A 9602497-02A

QC Officer



Matrix: Aqueous
Units: ug/L

Batch Id: HP_J960217053500

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 %	
MTBE	ND	50	47	94.0	20 - 100
Benzene	ND	50	44	88.0	62 - 121
Toluene	ND	50	42	84.0	66 - 136
EthylBenzene	ND	50	42	84.0	70 - 136
O Xylene	ND	50	44	88.0	74 - 134
M & P Xylene	ND	100	86	86.0	77 - 140

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
			MTBE	ND	20	23		115	23
ISOPROPYL ETHER	1	20	19	90.0	21	100	10.5	20	50 - 150
BENZENE	ND	20	20	100	20	100	0	25	39 - 150
TOLUENE	2	20	20	90.0	20	90.0	0	26	56 - 134
ETHYLBENZENE	ND	20	17	85.0	18	90.0	5.71	38	61 - 128
O XYLENE	ND	20	18	90.0	20	100	10.5	29	40 - 130
M & P XYLENE	ND	40	35	87.5	36	90.0	2.82	20	43 - 152

Analyst: YN

Sequence Date: 02/17/96

SPL ID of sample spiked: 9602715-01A

Sample File ID: J__674.TX0

Method Blank File ID:

Blank Spike File ID: J__663.TX0

Matrix Spike File ID: J__669.TX0

Matrix Spike Duplicate File ID: J__670.TX0

* = Values Outside QC Range

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 (3dr Q '95)

(***) = Source: SPL-Houston Historical Data

SAMPLES IN BATCH(SPL ID):

9602715-01A 9602361-04A 9602361-06A 9602361-09A
 9602361-10A 9602448-03A 9602361-08A 9602448-02A
 9602448-01A 9602453-04A 9602448-05A 9602453-01A
 9602453-02A 9602453-03A 9602458-01A 9602458-02A
 9602458-03A 9602448-04A

QC Officer



Matrix: Aqueous
Units: µg/L

Batch Id: HP_J960218095800

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	51	102 *	20 - 100
Benzene	ND	50	49	98.0	62 - 121
Toluene	ND	50	47	94.0	66 - 136
EthylBenzene	ND	50	47	94.0	70 - 136
O Xylene	ND	50	50	100	74 - 134
M & P Xylene	ND	100	97	97.0	77 - 140

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	7	20	30	114	29	108	5.41	20	39 - 150
BENZENE	10	20	35	120	33	110	8.70	25	39 - 150
TOLUENE	ND	20	21	105	21	105	0	26	56 - 134
ETHYLBENZENE	ND	20	21	105	20	100	4.88	38	61 - 128
O XYLENE	ND	20	22	110	21	105	4.65	29	40 - 130
M & P XYLENE	ND	40	43	108	42	105	2.82	20	43 - 152

Analyst: fab

Sequence Date: 02/18/96

SPL ID of sample spiked: 9602458-06A

Sample File ID: J__710.TX0

Method Blank File ID:

Blank Spike File ID: J__701.TX0

Matrix Spike File ID: J__705.TX0

Matrix Spike Duplicate File ID: J__706.TX0

* = Values Outside QC Range

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):

9602458-06A 9602458-08A 9602361-10A 9602361-04A
 9602361-05A 9602361-08A 9602361-06A 9602361-09A
 9602790-04A 9602790-03A 9602790-02A 9602790-01A
 9602458-04A 9602458-07A 9602458-09A 9602458-10A
 9602448-02A

QC Officer



Matrix: Aqueous
Units: mg/L

Batch Id: HP_J960213125110

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 %	
Gasoline Petr. Hydrocarbon	ND	1.0	1.10	110	56 - 130

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
GASOLINE PETR. HYDROCARBON	ND	0.9	1.3	144	1.2	133	7.94	22	37 - 169

Analyst: fab

Sequence Date: 02/13/96

SPL ID of sample spiked: 9602472-01A

Sample File ID: JJ_539.TX0

Method Blank File ID:

Blank Spike File ID: JJ_531.TX0

Matrix Spike File ID: JJ_533.TX0

Matrix Spike Duplicate File ID: JJ_534.TX0

* = Values Outside QC Range

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 (3rd Q '95)

SAMPLES IN BATCH(SPL ID):

9602361-01A 9602361-02A 9602361-03A 9602361-04A
9602361-06A 9602361-07A 9602361-09A 9602361-10A
9602361-08A 9602361-05A

QC Officer



Matrix: Aqueous
Units: mg/L

Batch Id: HP_J960218102600

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 %	
Petroleum Hydrocarbons-Gas	ND	1.0	1.07	107	50 - 150

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
PETROLEUM HYDROCARBONS-GAS	ND	0.9	0.95	106	0.95	106	0	50	50 - 150

Analyst: fab

Sequence Date: 02/18/96

SPL ID of sample spiked: 9602458-08A

Sample File ID: JJ_711.TX0

Method Blank File ID:

Blank Spike File ID: JJ_702.TX0

Matrix Spike File ID: JJ_707.TX0

Matrix Spike Duplicate File ID: JJ_708.TX0

* = Values Outside QC Range

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

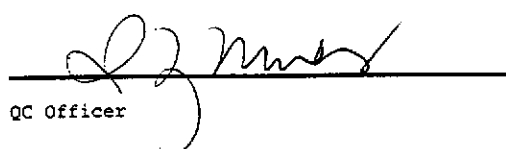
Relative Percent Difference = | (<4> - <5>) | / [(<4> + <5>) x 0.5] x 100

(**) = Source: Temporary Limits

(***) = Source: Temporary Limits

SAMPLES IN BATCH(SPL ID):

9602458-08A 9602361-10A 9602361-04A 9602790-04A
9602790-03A 9602790-02A 9602790-01A 9602458-07A
9602458-09A 9602458-10A 9602288-02A 9602458-06A


QC Officer

CHAIN OF CUSTODY
AND
SAMPLE RECEIPT CHECKLIST



9602361
 CHAIN OF CUSTODY

2/13/96

No.061540

Page 1 of 1

CONSULTANT'S NAME Alisto Engineering		ADDRESS 1575 Trout Blvd Walnut Creek CA 94598		CITY	STATE	ZIP CODE
BP SITE NUMBER 11105	BP CORNER ADDRESS/CITY 3515 Castro Valley Blvd, Castro Valley CA			CONSULTANT PROJECT NUMBER 10-138-05-002		
CONSULTANT PROJECT MANAGER Bill Howell		PHONE NUMBER (510) 295 1650	FAX NUMBER (510) 295 1723		CONSULTANT CONTRACT NUMBER 9602067	
BP CONTACT Scott Horton		BP ADDRESS Renton WA	PHONE NUMBER		FAX NO.	
LAB CONTACT SPL		LABORATORY ADDRESS Houston Texas	PHONE NUMBER		FAX NO.	
SAMPLED BY (Please Print Name) Dave Cosack		SAMPLED BY (Signature) <i>[Signature]</i>		SHIPMENT DATE 2-8-96		SHIPMENT METHOD Fed Ex

TAT: 24 Hours 48 Hours 1 Week Standard 2 Weeks

ANALYSIS REQUIRED

AIRBILL NUMBER **6660588211**

SAMPLE DESCRIPTION	COLLECTION DATE	MATRIX SOIL/WATER	CONTAINERS		PRESERVATIVE	COMMENTS
	COLLECTION TIME		NO.	TYPE (VOL.)	LAB SAMPLE #	
S-1 1309	2/7/96	HW	2	VSA	the pit test MIB	
S-2 1320	↓	↓	↓	↓	↓	
S-3 1344	↓	↓	↓	↓	↓	
S-4 1404	↓	↓	↓	↓	↓	
S-5 1422	↓	↓	↓	↓	↓	
S-6 1543	↓	↓	↓	↓	↓	
S-7 1509	↓	↓	↓	↓	↓	
S-8 1444	↓	↓	↓	↓	↓	
S-9 -	↓	↓	↓	↓	↓	
S-10 -	↓	↓	↓	↓	↓	

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	ADDITIONAL COMMENTS
<i>[Signature]</i> Alisto	2/7/96	1760	Patricia Yelton	2/8/96	0800	Invert 3°C
Patricia Yelton	2/8/96	1500	S. West	2/9/96	1000	

SPL Houston Environmental Laboratory

Sample Login Checklist

Date: 2/9/96	Time: 1000
---	---

SPL Sample ID:
9602361

		<u>Yes</u>	<u>No</u>
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:		3°c
10	Method of sample delivery to SPL:	SPL Delivery	
		Client Delivery	
		FedEx Delivery (airbill #) 1066588211	
		Other:	
11	Method of sample disposal:	SPL Disposal	
		HOLD	
		Return to Client	

Name: Raymond Boera	Date: 2/9/96
--	---