



BP OIL

BP Oil Company
Environmental Resources Management
Building 13, Suite N
295 SW 41st Street
Renton, Washington 98055-4931
(206) 251-0667
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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 JUNE 5, 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. 10-138-05-003

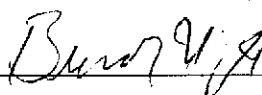
Prepared for:

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

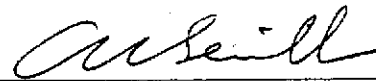
Prepared by:

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

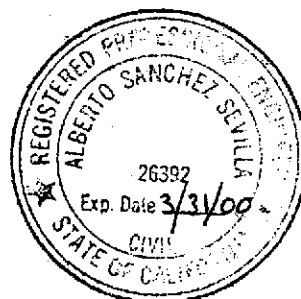
June 5, 1996



**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. 10-138-05-003

June 5, 1996

INTRODUCTION

This report presents the results and findings of the April 23, 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.

Groundwater monitoring was performed concurrently at the Xtra Oil Company service station, 3495 Castro Valley Boulevard. The results are presented in Table 2.

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-1	04/23/96	177.69	9.12	168.57	310	100	ND<1	ND<1	ND<1	1500	6.3	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
ESE-2	04/23/96	178.23	9.73	168.50	260	0.9	ND<1	ND<1	ND<1	8600	7.2	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-3	04/23/96	178.20	8.79	169.41	ND<50	7.6	ND<1	ND<1	ND<1	65	6.9	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
ESE-4	04/23/96	177.66	8.30	169.36	160	37	15	16	31	43	5.4	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	08/29/93	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
ESE-5	04/23/96	176.08	7.35	168.73	3000	570	ND<5	79	100	84	6.5	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-6	04/23/96	179.24	9.33	169.91	ND<50	ND<0.5	ND<1	ND<1	ND<1	ND<10	6.6	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-7	04/23/96	176.55	8.37	168.18	110	ND<0.5	ND<1	ND<1	ND<1	3500	6.4	SPL
QC-1 (d)	04/23/96	---	---	---	230	ND<0.5	ND<1	ND<1	ND<1	3500	---	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
MW-8	04/23/96	176.34	6.09	170.25	2000	390	ND<20	150	26	ND<250	6.7	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
QC-2	(g) 04/23/96	---	---	---	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 and 1.8 ug/l 1,2-dichloroethane.
 (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.

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TABLE 2 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING
 XTRA OIL COMPANY SERVICE STATION
 3495 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)	TPH-D (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)
MW-1	08/19/91	177.24	9.31	167.93	48	47	13	8.4	0.99	29
MW-1	09/17/91	177.24	9.50	167.74	39	19	4.9	4.1	1.2	5.9
MW-1	10/10/91	177.24	9.70	167.54	28	19	4.1	4.7	1.0	4.8
MW-1	11/25/91	177.24	9.41	167.83	170	36	5.6	5.6	1.6	8.4
MW-1	12/23/91	177.24	9.65	167.59	78	34	9.3	7.3	0.54	13
MW-1	01/14/92	177.24	8.57	168.67	39	19	7.3	8.7	1.3	8.9
MW-1	05/27/92	177.24	8.59	168.65	120	11	8.8	16	2.3	15
MW-1	11/13/92	177.24	9.13	168.11	120	4.4	5.8	10	2.1	13
MW-1	02/23/93	177.24	7.34	169.90	100	14	4.5	11	2.1	12
MW-1	05/18/93	177.24	8.12	169.12	92	30	4.0	11	2.5	15
MW-1	08/30/93	177.24	8.78	168.46	77	9.4	6.4	11	2.2	12
MW-1	11/24/93	177.24	8.74	168.50	66	8.2	8.3	8.9	2.0	11
MW-1	02/28/94	177.24	7.44	169.80	90	110	11	9.6	2.1	9.9
MW-1	05/19/94	177.24	8.05	169.19	---	---	---	---	---	---
MW-1	08/22/94	177.24	8.67	168.57	---	---	---	---	---	---
MW-1	11/18/94	177.24	7.14	170.10	---	---	---	---	---	---
MW-1	02/23/95	177.24	7.72	169.52	---	---	---	---	---	---
MW-1	05/02/95	177.24	6.96	170.28	---	---	---	---	---	---
MW-1	07/28/95	177.24	8.27	168.97	---	---	---	---	---	---
MW-1	10/26/95	177.24	8.45	168.79	---	---	---	---	---	---
MW-1	01/29/96	177.24	6.17	171.07	---	---	---	---	---	---
MW-1	02/07/96	177.24	6.09	171.15	---	---	---	---	---	---
MW-1	04/23/96	177.24	7.47	169.77	---	---	---	---	---	---
MW-2	08/19/91	176.30	9.60	166.70	69	19	26	22	2.1	18
MW-2	09/17/91	176.30	10.23	166.07	74	56	10	11	1.4	8.1
MW-2	10/10/91	176.30	10.39	165.91	85	360	21	25	2.1	14
MW-2	11/25/91	176.30	9.81	166.49	230	130	11	9.7	1.4	9.7
MW-2	12/23/91	176.30	10.39	165.91	2100	700	36	130	79	560
MW-2	01/14/92	176.30	8.97	167.33	59	1600	17	14	1.8	15
MW-2	05/27/95	176.30	9.31	166.99	89	130	18	19	1.7	14
MW-2	11/13/92	176.30	8.70	167.60	79	8.2	10	13	1.4	8.6
MW-2	02/23/93	176.30	6.39	169.91	76	7.0	12	17	1.6	9.6
MW-2	05/18/93	176.30	7.73	168.57	67	44	9.2	12	1.4	9.3
MW-2	08/30/93	176.30	8.64	167.66	110	110	11	14	1.8	11
MW-2	11/24/93	176.30	8.47	167.83	12	79	13	17	2.5	17
MW-2	02/28/94	176.30	6.99	169.31	91	13	13	16	1.5	9.0
MW-2	05/19/94	176.30	7.70	168.60	---	---	---	---	---	---
MW-2	08/22/94	176.30	8.59	167.71	---	---	---	---	---	---
MW-2	11/18/94	176.30	6.92	169.38	---	---	---	---	---	---
MW-2	02/23/95	176.30	7.51	168.79	---	---	---	---	---	---
MW-2	05/02/95	176.30	6.79	169.51	---	---	---	---	---	---
MW-2	07/28/95	176.30	7.99	168.31	---	---	---	---	---	---
MW-2	10/26/95	176.30	8.21	168.09	---	---	---	---	---	---
MW-2	01/29/96	176.30	5.16	171.14	---	---	---	---	---	---
MW-2	02/07/96	176.30	5.70	170.60	---	---	---	---	---	---
MW-2 (c)	04/23/96	176.30	---	---	---	---	---	---	---	---

TABLE 2 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING
 XTRA OIL COMPANY SERVICE STATION
 3495 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)	TPH-D (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)
MW-3	08/19/91	178.07	8.95	169.12	170	150	82	31	4.4	22
MW-3	09/17/91	178.07	9.20	168.87	180	140	47	25	2.6	15
MW-3	10/10/91	178.07	9.43	168.64	140	39	57	31	2.2	14
MW-3	11/25/91	178.07	9.19	168.88	150	74	65	31	3.4	18
MW-3	12/23/91	178.07	9.37	168.70	740	540	30	61	31	180
MW-3	01/14/92	178.07	8.24	169.83	130	270	76	30	3.4	21
MW-3	05/27/92	178.07	8.45	169.62	370	27	91	57	3.0	21
MW-3	11/13/92	178.07	7.86	170.21	140	4.7	38	24	2.0	12
MW-3	02/23/93	178.07	8.01	170.06	110	8.1	31	18	1.9	11
MW-3	05/18/93	178.07	7.12	170.95	130	7.2	36	21	2.1	12
MW-3	08/30/93	178.07	7.64	170.43	130	32	36	21	1.9	8.2
MW-3	11/24/93	178.07	7.55	170.52	160	24	48	26	2.2	12
MW-3	02/28/94	178.07	6.68	171.39	110	210	36	21	1.9	11
MW-3	05/19/94	178.07	7.15	170.92	---	---	---	---	---	---
MW-3	08/22/94	178.07	7.65	170.42	---	---	---	---	---	---
MW-3	11/18/94	178.07	6.05	172.02	---	---	---	---	---	---
MW-3	02/23/95	178.07	7.24	170.83	---	---	---	---	---	---
MW-3	05/02/95	178.07	6.50	171.57	---	---	---	---	---	---
MW-3	07/28/95	178.07	7.80	170.27	---	---	---	---	---	---
MW-3	10/26/95	178.07	7.72	170.35	---	---	---	---	---	---
MW-3	01/29/96	178.07	5.77	172.30	---	---	---	---	---	---
MW-3	02/07/96	178.07	5.05	173.02	---	---	---	---	---	---
MW-3	04/23/96	178.07	6.81	171.26	---	---	---	---	---	---

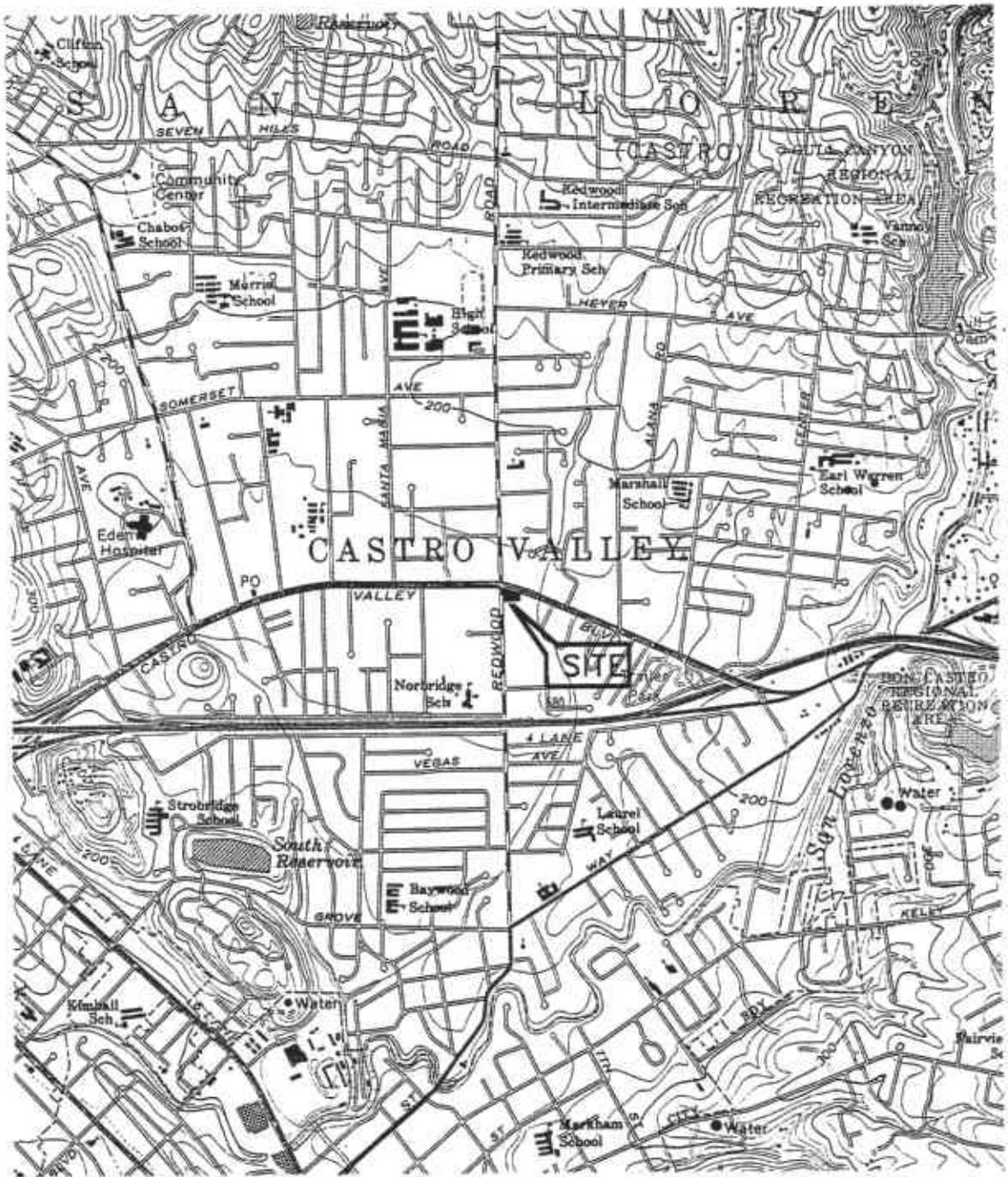
ABBREVIATIONS:

TPH-G Total petroleum hydrocarbons as gasoline
 TPH-D Total petroleum hydrocarbons as diesel
 B Benzene
 T Toluene
 E Ethylbenzene
 X Total xylenes
 ug/l Micrograms per liter
 --- Not available

NOTES:

- (a) Top of casing elevations relative to mean sea level.
- (b) Groundwater elevations in feet above mean sea level.
- (c) Well destroyed February 7, 1996.

E:\10-138\138JOINT.WQ2



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

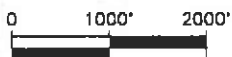
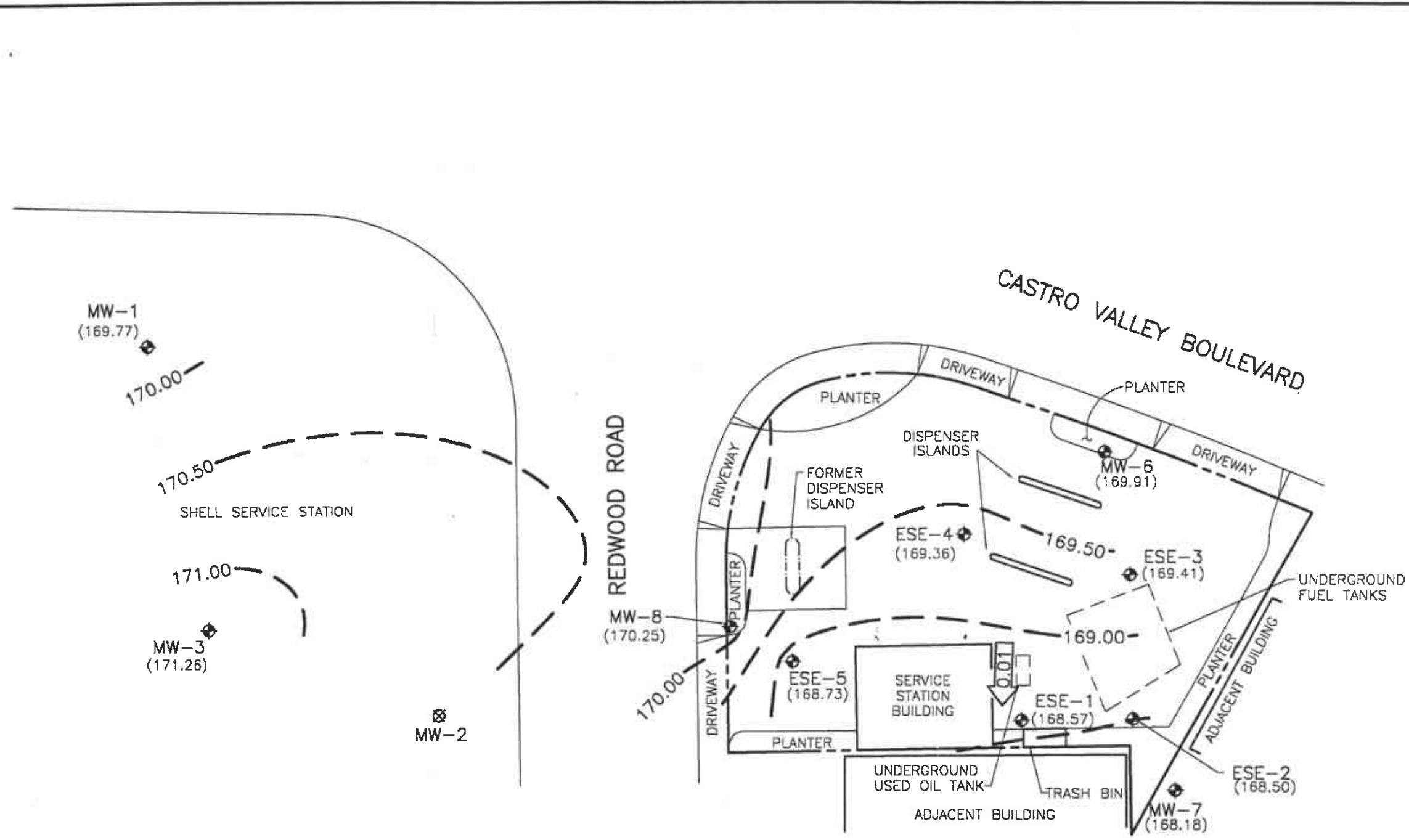


FIGURE 1
SITE VICINITY MAP

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

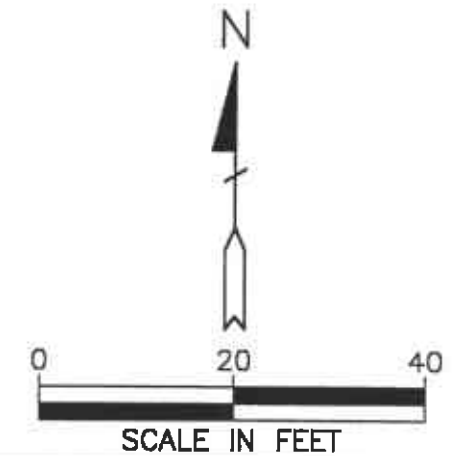
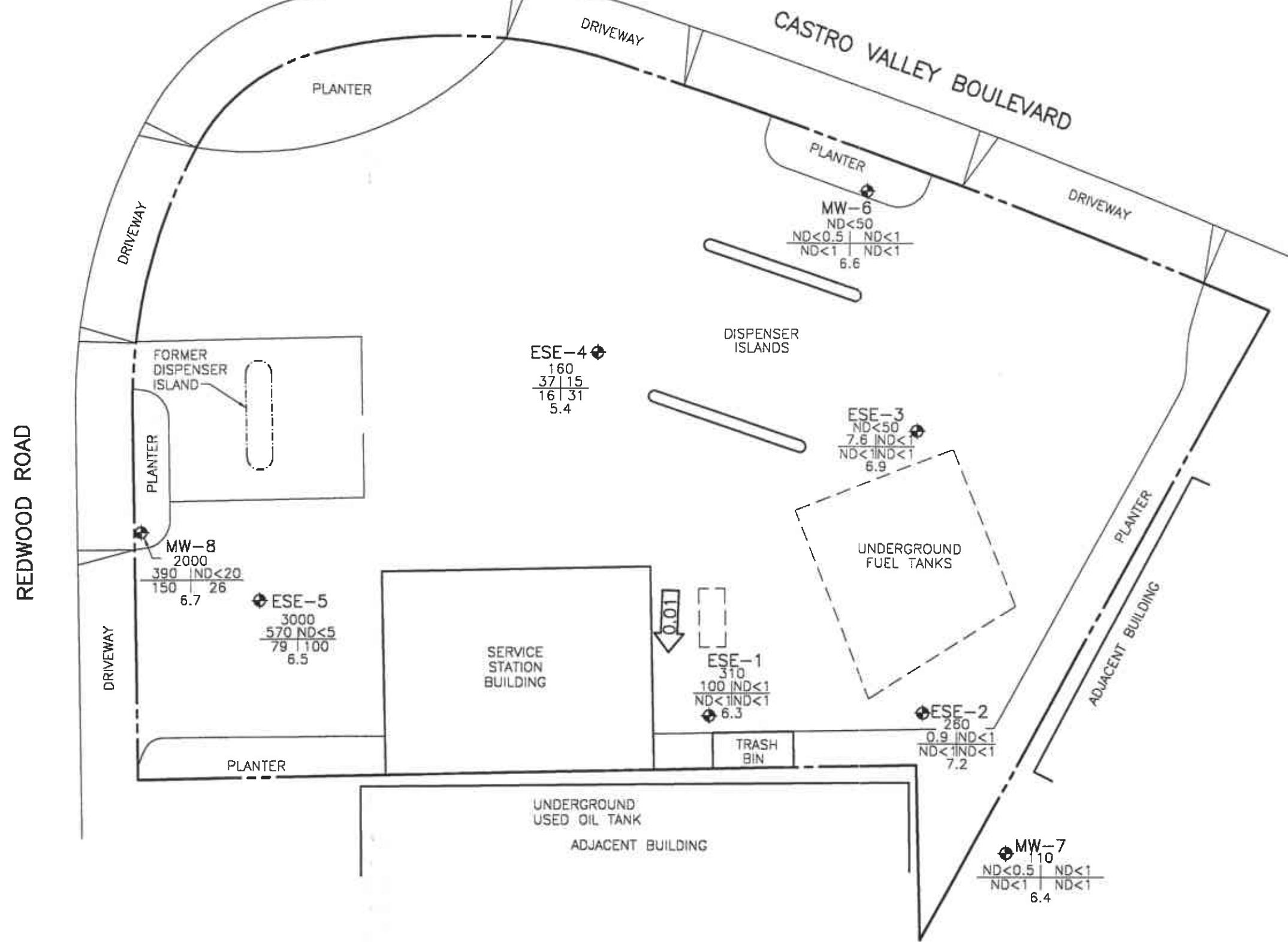


ALISTO ENGINEERING GROUP
 WALNUT CREEK, CALIFORNIA



- LEGEND**
- ◆ GROUNDWATER MONITORING WELL
 - ⊗ DESTROYED MONITORING WELL
 - (171.26) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
 - 171.00 - GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL=0.50 FOOT)
 - ← 0.01 → CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 2
POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP
APRIL 23, 1996
 BP OIL SERVICE STATION NO. 11105
 3519 CASTRO VALLEY BOULEVARD
 CASTRO VALLEY, CALIFORNIA
 PROJECT NO. 10-138



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

← 0.01 CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 3
CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER
APRIL 23, 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. 10-138-05-003 Date: 4/23/96
Address 3515 Castro Valley Blvd Day: M T W T H F
Contract No. G602067 City: Castro Valley
Station No. BP 11105 Sampler: L B

DEPTH TO GROUNDWATER SUMMARY

WELL ID	SAMPLE ID	WELL DIAM	TOTAL DEPTH	DEPTH TO WATER	PRODUCT THICKNESS	TIME MONITORED	COMMENTS:
ESE-1	S-6	2"	30.00	9.12	Ø	1021	S-6
ESE-2	S-4	1"	30.00	9.73	Ø	1042	S-4
ESE-3	S-2	1"	30.00	8.79	Ø	1013	
ESE-4	S-3	1"	25.00	8.30	Ø	1016	
ESE-5	S-5	1"	24.00	7.35	Ø	1033	S-5
MW-6 ESE-6	S-1	1"	29.43	9.33	Ø	1010	Proper well ID is MW-6
MW-7 ESE-7	S-7	1"	19.85	8.37	Ø	1030	Proper well ID is MW-7, QC-1 Dup (S-9) from this well
MW-8 ESE-8	S-8	1"	28.38	6.09	Ø	1039	Proper well ID is MW-8

QC-2 = S-10

FIELD INSTRUMENT CALIBRATION DATA

pH METER Check 4.00 4 7.00 7 10.00 0 TEMPERATURE COMPENSATED N TIME 0938
D.O. METER Check ZERO d.O. SOLUTION 0 BAROMETRIC PRESSURE 760 TEMP 67 WEATHER Clear
CONDUCTIVITY METER 11 10,000 TURBIDITY METER 5.0 NTU OTHER X

Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.	
MW-6 ESE-6	9.33	2"	OK	Ø	Y (N)	3	1145	66.3	8.13	409 µS	6.7	<input type="radio"/> EPA 601
Total Depth - Water Level = x Well Vol. Factor = x#vol. to Purge PurgeVol.						6		65.1	7.83	418 µS		<input checked="" type="radio"/> TPH-G/BTEX <u>Hcl</u>
29.43 - 9.33 = 20.10 x 1.16 = 3.22 x 3 = 9.66						10	1153	64.6	7.69	422 µS	6.6	<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"/> O/Sys Port												<input type="radio"/> TOG 5520
Comments:												TIME/SAMPLE ID
												1156
ESE-3	8.79	2"	OK	Ø	Y (N)	3	1210	66.2	7.52	431 µS	6.9	<input type="radio"/> EPA 601
Total Depth - Water Level = x Well Vol. Factor = x#vol. to Purge PurgeVol.						7		65.5	7.39	449 µS		<input checked="" type="radio"/> TPH-G/BTEX <u>Hcl</u>
30.00 - 8.79 = 21.21 x 1.16 = 3.39 x 3 = 10.17						10.5	1217	64.9	7.33	453 µS	6.9	<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"/> O/Sys Port												<input type="radio"/> TOG 5520
Comments:												TIME/SAMPLE ID
												1225

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.

10-138-05-003

Address

3515 Castro Valley Blvd

Contract No.

G602067

Station No.

BP 11105

Sampler:

Date:

4/23/96

Day:

MON TH F

City:

Castro Valley

Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.	
ESE-4	8.30	2"	OK	Ø	Y (N)	3	1237	67.1	7.35	452µs	5.1	<input type="radio"/> EPA 601 _____
Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge PurgeVol.						5		66.2	7.21	440µs		<input checked="" type="radio"/> TPH-G/BTEX_HCC
25.00 - 8.30 = 16.70 x .16 = 2.67 x 3 = 8.01						8.5	1249	65.6	7.11	435µs	5.4	<input type="radio"/> TPH Diesel _____
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s) OSys Port												<input type="radio"/> TOG 5520 _____
Comments:												TIME/SAMPLE ID
												1253
ESE-1	9.12	2"	OK	Ø	Y (N)	3	1315	66.3	7.07	452µs	7.0	<input type="radio"/> EPA 601 _____
Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge PurgeVol.						7		65.2	6.90	439µs		<input checked="" type="radio"/> TPH-G/BTEX_HCC
30.00 - 9.12 = 20.88 x .16 = 3.34 x 3 = 10.02						10.5	1327	64.3	6.83	433µs	6.3	<input type="radio"/> TPH Diesel _____
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s) OSys Port												<input type="radio"/> TOG 5520 _____
Comments:												TIME/SAMPLE ID
												1336
MW-7	8.37	2"	OK	Ø	Y (N)	2	1350	65.3	7.19	482µs	6.3	<input type="radio"/> EPA 601 _____
Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge PurgeVol.						4		64.2	7.01	463µs		<input checked="" type="radio"/> TPH-G/BTEX_HCC
19.85 - 8.37 = 11.48 x .16 = 1.84 x 3 = 5.52						6	1415	64.0	6.99	460µs	6.4	<input type="radio"/> TPH Diesel _____
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s) OSys Port												<input type="radio"/> TOG 5520 _____
Comments: QC-1 (S-9) From this well												TIME/SAMPLE ID
												1420 / S-7
ESE-5	7.35	2"	OK	Ø	Y (N)	3	1437	66.1	6.90	610µs	6.1	<input type="radio"/> EPA 601 _____
Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge PurgeVol.						7		65.4	6.81	590µs		<input checked="" type="radio"/> TPH-G/BTEX_HCC
24.00 - 7.35 = 16.65 x .16 = 2.66 x 3 = 7.98						8	1449	65.0	6.72	583µs	6.5	<input type="radio"/> TPH Diesel _____
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s) OSys Port												<input type="radio"/> TOG 5520 _____
Comments:												TIME/SAMPLE ID
												1455
MW-8	6.09	2"	OK	Ø	Y (N)	3	1510	66.5	6.77	672µs	6.7	<input type="radio"/> EPA 601 _____
Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge PurgeVol.						7		65.0	6.61	640µs		<input checked="" type="radio"/> TPH-G/BTEX_HCC
28.38 - 6.09 = 22.09 x .16 = 3.57 x 3 = 10.71						11	1522	64.3	6.53	635µs	6.7	<input type="radio"/> TPH Diesel _____
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s) OSys Port												<input type="radio"/> TOG 5520 _____
Comments:												TIME/SAMPLE ID
												1531

ALISTO

Field Report / Sampling Data Sheet

ENGINEERING

Project No. 10-138-05-003

Date: 4/23/16

GROUP

Address 3515 Castro Valley Blvd

Day: MDTWTHF

1575 TREAT BOULEVARD, SUITE 201

Contract No. G602067

City: Castro Valley

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

Station No. BP 11105

Sampler: WS

Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.	
ESE-2	9.73	2"	OK	Ø	Y (D)	3	1545	66.3	6.92	483µs	7.2	<input type="checkbox"/> EPA 601
Total Depth - Water Level =						6		65.0	6.72	471µs		<input checked="" type="checkbox"/> TPH-G/BTEX Acc
30.00 - 9.73 = 20.27 x .16 = 3.24 x 3 = 9.72						10	1600	64.3	6.63	462µs	7.2	<input type="checkbox"/> 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"/> OSys Port												<input type="checkbox"/> TOG 5520
Comments:												TIME/SAMPLE ID
												1610

APPENDIX B

LABORATORY REPORT AND CHAIN OF CUSTODY RECORD



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

SPL, INC.

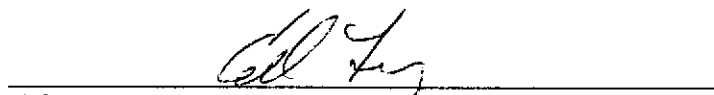
REPORT APPROVAL SHEET

WORK ORDER NUMBER: 96 - 04 - C95

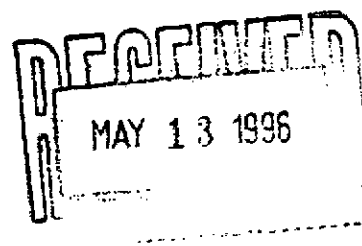
Approved for release by:


Brent Barron, Client Services Supervisor

Date: 5/9/96


Ed Fry, Project Manager

Date: 5/7/96





HOUSTON LABORATORY

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

Certificate of Analysis No. H9-9604C95-01

Alisto Engineering
1575 Treat Blvd.
Walnut Creek, CA 94598
ATTN: Brady Nagle

P.O.#
G602067 , COC# 070722
DATE: 05/08/96

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

PROJECT NO: 10-138-05/003
MATRIX: WATER
DATE SAMPLED: 04/23/96
DATE RECEIVED: 04/25/96

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
4-Bromofluorobenzene

84
83

METHOD 8020***

Analyzed by: VHZ
Date: 05/06/96

Total Petroleum Hydrocarbons-Gasoline

ND 0.05 P

mg/L

Surrogate

% Recovery

1,4-Difluorobenzene
4-Bromofluorobenzene

108
75

CA LUFT - Gasoline

Analyzed by: VHZ
Date: 05/06/96 03:27:00

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. H9-9604C95-02

Alisto Engineering
 1575 Treat Blvd.
 Walnut Creek, CA 94598
 ATTN: Brady Nagle

P.O.#
 G602067 , COC# 070722
 DATE: 05/08/96

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

PROJECT NO: 10-138-05/003
 MATRIX: WATER
 DATE SAMPLED: 04/23/96
 DATE RECEIVED: 04/25/96

ANALYTICAL DATA				
PARAMETER	RESULTS	DETECTION LIMIT	UNITS	
MTBE	65	10 P	µg/L	
Benzene	7.6	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		87		
4-Bromofluorobenzene		82		
METHOD 8020***				
Analyzed by: VHZ				
Date: 05/06/96				
Total Petroleum Hydrocarbons-Gasoline	ND	0.05 P	mg/L	
Surrogate		% Recovery		
1,4-Difluorobenzene		111		
4-Bromofluorobenzene		58		
CA LUFT - Gasoline				
Analyzed by: VHZ				
Date: 05/06/96 03:53:00				

(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. H9-9604C95-03

Alisto Engineering
 1575 Treat Blvd.
 Walnut Creek, CA 94598
 ATTN: Brady Nagle

P.O.#
 G602067 , COC# 070722
 DATE: 05/08/96

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

PROJECT NO: 10-138-05/003
 MATRIX: WATER
 DATE SAMPLED: 04/23/96
 DATE RECEIVED: 04/25/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	43	10 P	µg/L
Benzene	37	0.5 P	µg/L
Toluene	15	1 P	µg/L
Ethylbenzene	16	1 P	µg/L
Total Xylene	31	1 P	µg/L

Surrogate % Recovery
 1,4-Difluorobenzene 96
 4-Bromofluorobenzene 91

METHOD 8020***
 Analyzed by: LJ
 Date: 05/06/96

Total Petroleum Hydrocarbons-Gasoline 0.16 0.05 P mg/L

Surrogate % Recovery
 1,4-Difluorobenzene 110
 4-Bromofluorobenzene 82

CA LUFT - Gasoline
 Analyzed by: LJ
 Date: 05/06/96 10:13:00

(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.

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. H9-9604C95-04

Alisto Engineering
 1575 Treat Blvd.
 Walnut Creek, CA 94598
 ATTN: Brady Nagle

P.O.#
 G602067 , COC# 070722
 DATE: 05/09/96

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

PROJECT NO: 10-138-05/003
 MATRIX: WATER
 DATE SAMPLED: 04/23/96
 DATE RECEIVED: 04/25/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	8600	250 P	µg/L
Benzene	0.9	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	85
4-Bromofluorobenzene	77

METHOD 8020***

Analyzed by: LJ

Date: 05/07/96

Total Petroleum Hydrocarbons-Gasoline	0.26	0.05 P	mg/L
---------------------------------------	------	--------	------

Surrogate	% Recovery
1,4-Difluorobenzene	111
4-Bromofluorobenzene	60

CA LUFT - Gasoline

Analyzed by: LJ

Date: 05/06/96 11:05:00

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

Certificate of Analysis No. H9-9604C95-05

Alisto Engineering
 1575 Treat Blvd.
 Walnut Creek, CA 94598
 ATTN: Brady Nagle

P.O.#
 G602067 , COC# 070722
 DATE: 05/08/96

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

PROJECT NO: 10-138-05/003
 MATRIX: WATER
 DATE SAMPLED: 04/23/96
 DATE RECEIVED: 04/25/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	84	50 P	µg/L
Benzene	570	2.5 P	µg/L
Toluene	ND	5 P	µg/L
Ethylbenzene	79	5 P	µg/L
Total Xylene	100	5 P	µg/L
Surrogate		% Recovery	
1,4-Difluorobenzene	119		
4-Bromofluorobenzene	119		
METHOD 8020***			
Analyzed by: LJ			
Date: 05/06/96			
Total Petroleum Hydrocarbons-Gasoline	3.0	0.25 P	mg/L
Surrogate		% Recovery	
1,4-Difluorobenzene	121		
4-Bromofluorobenzene	114		
CA LUFT - Gasoline			
Analyzed by: LJ			
Date: 05/06/96 11:32:00			

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

Certificate of Analysis No. H9-9604C95-06

Alisto Engineering
 1575 Treat Blvd.
 Walnut Creek, CA 94598
 ATTN: Brady Nagle

P.O.#
 G602067 , COC# 070722
 DATE: 05/09/96

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

PROJECT NO: 10-138-05/003
 MATRIX: WATER
 DATE SAMPLED: 04/23/96
 DATE RECEIVED: 04/25/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	1500	100 P	µg/L
Benzene	100	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	87
4-Bromofluorobenzene	78

METHOD 8020***

Analyzed by: LJ

Date: 05/07/96

Total Petroleum Hydrocarbons-Gasoline	0.31	0.05 P	mg/L
---------------------------------------	------	--------	------

Surrogate	% Recovery
1,4-Difluorobenzene	109
4-Bromofluorobenzene	89

CA LUFT - Gasoline

Analyzed by: LJ

Date: 05/06/96 11:58:00

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

Certificate of Analysis No. H9-9604C95-07

Alisto Engineering
 1575 Treat Blvd.
 Walnut Creek, CA 94598
 ATTN: Brady Nagle

P.O.#
 G602067 , COC# 070722
 DATE: 05/09/96

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

PROJECT NO: 10-138-05/003
 MATRIX: WATER
 DATE SAMPLED: 04/23/96
 DATE RECEIVED: 04/25/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	3500	250 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

85

4-Bromofluorobenzene

76

METHOD 8020***

Analyzed by: LJ

Date: 05/07/96

Total Petroleum Hydrocarbons-Gasoline 0.11 0.05 P mg/L

Surrogate

% Recovery

1,4-Difluorobenzene

115

4-Bromofluorobenzene

59

CA LUFT - Gasoline

Analyzed by: LJ

Date: 05/06/96 10:39:00

(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. H9-9604C95-08

Alisto Engineering
 1575 Treat Blvd.
 Walnut Creek, CA 94598
 ATTN: Brady Nagle

P.O.#
 G602067 , COC# 070722
 DATE: 05/08/96

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

PROJECT NO: 10-138-05/003
 MATRIX: WATER
 DATE SAMPLED: 04/23/96
 DATE RECEIVED: 04/25/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	250 P	µg/L
Benzene	390	12 P	µg/L
Toluene	ND	20 P	µg/L
Ethylbenzene	150	20 P	µg/L
Total Xylene	26	20 P	µg/L

Surrogate	% Recovery
1,4-Difluorobenzene	83
4-Bromofluorobenzene	89

METHOD 8020***

Analyzed by: LJ

Date: 05/07/96

Total Petroleum Hydrocarbons-Gasoline	2.0	1.2 P	mg/L
---------------------------------------	-----	-------	------

Surrogate	% Recovery
1,4-Difluorobenzene	117
4-Bromofluorobenzene	77

CA LUFT - Gasoline

Analyzed by: LJ

Date: 05/07/96 12:24:00

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.

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

Certificate of Analysis No. H9-9604C95-09

Alisto Engineering
 1575 Treat Blvd.
 Walnut Creek, CA 94598
 ATTN: Brady Nagle

P.O.#
 G602067 , COC# 070722
 DATE: 05/09/96

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

PROJECT NO: 10-138-05/003
 MATRIX: WATER
 DATE SAMPLED: 04/23/96
 DATE RECEIVED: 04/25/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	3500	250 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	85
4-Bromofluorobenzene	73

METHOD 8020***
 Analyzed by: LJ
 Date: 05/07/96

Total Petroleum Hydrocarbons-Gasoline	0.23	0.05 P	mg/L
---------------------------------------	------	--------	------

Surrogate	% Recovery
1,4-Difluorobenzene	119
4-Bromofluorobenzene	58

CA LUFT - Gasoline
 Analyzed by: LJ
 Date: 05/07/96 12:51:00

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

Certificate of Analysis No. H9-9604C95-10

Alisto Engineering
 1575 Treat Blvd.
 Walnut Creek, CA 94598
 ATTN: Brady Nagle

P.O.#
 G602067 , COC# 070722
 DATE: 05/08/96

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

PROJECT NO: 10-138-05/003
 MATRIX: WATER
 DATE SAMPLED: 04/23/96
 DATE RECEIVED: 04/25/96

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	85
4-Bromofluorobenzene	81

METHOD 8020***

Analyzed by: LJ

Date: 05/07/96

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

Surrogate	% Recovery
1,4-Difluorobenzene	111
4-Bromofluorobenzene	57

CA LUFT - Gasoline

Analyzed by: LJ

Date: 05/07/96 01:17:00

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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QUALITY CONTROL

DOCUMENTATION



Matrix: Aqueous
Units: µg/L

Batch Id: HP_J960505111100

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	48	96.0	20 - 110
Benzene	ND	50	45	90.0	62 - 121
Toluene	ND	50	45	90.0	66 - 136
EthylBenzene	ND	50	44	88.0	70 - 136
O Xylene	ND	50	45	90.0	74 - 134
M & P Xylene	ND	100	92	92.0	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	20		70.0	20
BENZENE	ND	20	20	100	20	100	0	25	39 - 150
TOLUENE	ND	20	20	100	19	95.0	5.13	26	56 - 134
ETHYLBENZENE	ND	20	18	90.0	18	90.0	0	38	61 - 128
O XYLENE	ND	20	21	105	19	95.0	10.0	29	40 - 130
M & P XYLENE	ND	40	39	97.5	37	92.5	5.26	20	43 - 152

Analyst: VHZ

Sequence Date: 05/05/96

SPL ID of sample spiked: 9604C75-06A

Sample File ID: J__655.TX0

Method Blank File ID:

Blank Spike File ID: J__644.TX0

Matrix Spike File ID: J__650.TX0

Matrix Spike Duplicate File ID: J__651.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):

9604C75-06A 9604C75-09A 9604C75-07A 9604C75-08A
 9605101-01A 9605101-02A 9605101-03A 9605101-04A
 9605101-05A 9605101-06A 9605101-10A 9605101-07A
 9604A96-06A 9604986-07A 9605101-08A 9605101-09A
 9604C95-01A 9604C95-02A

QC Officer



Matrix: Aqueous
Units: µg/L

Batch Id: HP_J960505041900

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	48	96.0	20 - 110
Benzene	ND	50	54	108	62 - 121
Toluene	ND	50	54	108	66 - 136
EthylBenzene	ND	50	54	108	70 - 136
O Xylene	ND	50	55	110	74 - 134
M & P Xylene	ND	100	110	110	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	25	125	26	130
BENZENE	ND	20	27	135	27	135	0	25	39 - 150
TOLUENE	ND	20	25	125	25	125	0	26	56 - 134
ETHYLBENZENE	ND	20	24	120	24	120	0	38	61 - 128
O XYLENE	ND	20	22	110	24	120	8.70	29	40 - 130
M & P XYLENE	ND	40	45	112	48	120	6.90	20	43 - 152

Analyst: LJ

Sequence Date: 05/06/96

SPL ID of sample spiked: 9604E08-10A

Sample File ID: J__708.TX0

Method Blank File ID:

Blank Spike File ID: J__680.TX0

Matrix Spike File ID: J__712.TX0

Matrix Spike Duplicate File ID: J__713.TX0

* = Values Outside QC Range

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

ND = Not Detected/Below Detection Limit

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

LCS % Recovery = $(<1> / <3>) \times 100$

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

(**) = Source: SPL-Houston Historical Data (4th Q '95)

(***) = Source: SPL-Houston Historical Data (4th Q '95)

SAMPLES IN BATCH(SPL ID):

9604C95-03A 9604C95-07A 9604C95-04A 9604C95-05A
 9604C95-06A 9604C95-08A 9604C95-09A 9604C95-10A
 9604E08-01A 9604E08-02A 9604E08-03A 9604E08-04A
 9604E08-05A 9604E08-06A 9604E08-07A 9604E08-08A
 9604E08-09A 9604E08-10A 9605189-01A

QC Officer



Matrix: Aqueous
Units: mg/L

Batch Id: HP_J960505111101

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike		QC Limits(**) (Mandatory) ‡ Recovery Range
			Result <1>	Recovery ‡	
Petroleum Hydrocarbons-Gas	ND	0.9	0.95	106	50 - 150

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
			PETROLEUM HYDROCARBONS-GAS	ND	0.9	.60		66.7	0.64

Analyst: VHZ

Sequence Date: 05/06/96

SPL ID of sample spiked: 9604C75-09A

Sample File ID: JJ_656.TX0

Method Blank File ID:

Blank Spike File ID: JJ_647.TX0

Matrix Spike File ID: JJ_652.TX0

Matrix Spike Duplicate File ID: JJ_653.TX0

* = Values Outside QC Range

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

ND = Not Detected/Below Detection Limit

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

LCS ‡ Recovery = $(<1> / <3>) \times 100$

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

(**) = Source: Temporary Limits

(***) = Source: Temporary Limits

SAMPLES IN BATCH(SPL ID):

9604C75-06A 9604C75-09A 9604C75-07A 9604C75-08A
 9605101-01A 9605101-02A 9605101-03A 9605101-04A
 9605101-05A 9605101-06A 9605101-10A 9605101-07A
 9605101-08A 9605101-09A 9604C95-01A 9604C95-02A

QC Officer



Matrix: Aqueous
Units: mg/L

Batch Id: HP_J960506041901

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	0.9	0.92	102	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	0.96			

Analyst: LJ

Sequence Date: 05/06/96

SPL ID of sample spiked: 9604C95-10A

Sample File ID: JJ_694.TX0

Method Blank File ID:

Blank Spike File ID: JJ_681.TX0

Matrix Spike File ID: JJ_714.TX0

Matrix Spike Duplicate File ID: JJ_715.TX0

* = Values Outside QC Range

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

ND = Not Detected/Below Detection Limit

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

LCS ‡ Recovery = $(<1> / <3>) \times 100$

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

(**) = Source: Temporary Limits

(***) = Source: Temporary Limits

SAMPLES IN BATCH(SPL ID):

9604C95-03A 9604C95-07A 9604C95-04A 9604C95-05A
 9604C95-06A 9604C95-08A 9604C95-09A 9604C95-10A
 9604E08-01A 9604E08-02A 9604E08-03A 9604E08-04A
 9604E08-05A 9604E08-06A 9604E08-07A 9604E08-08A
 9604E08-09A 9604E08-10A 9605189-01A

QC Officer

CHAIN OF CUSTODY
AND
SAMPLE RECEIPT CHECKLIST

SPL Houston Environmental Laboratory

Sample Login Checklist

Date: <u>4/25/96</u>	Time: <u>1100</u>
----------------------	-------------------

SPL Sample ID: <u>91604C95</u>

		<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:	<u>3° C</u>	
10	Method of sample delivery to SPL:	SPL Delivery	
		Client Delivery	
		FedEx Delivery (airbill #)	<u>9360716875</u>
		Other:	
11	Method of sample disposal:	SPL Disposal	✓
		HOLD	
		Return to Client	

Name: <u>Orlando Salas</u>	Date: <u>4/25/96</u>
----------------------------	----------------------



9604095

CHAIN OF CUSTODY

No. 070722

Page 1 of 1

CONSULTANT'S NAME Alisto Engineering		ADDRESS 1575 Treat Blvd #201		CITY W.C.	STATE Ca	ZIP CODE 94598
BP SITE NUMBER 11105	BP CORNER ADDRESS/CITY Castro Valley, Ca			CONSULTANT PROJECT NUMBER 10-138-05/003		
CONSULTANT PROJECT MANAGER Brady Nagle		PHONE NUMBER (510) 295-1650	FAX NUMBER (510) 295-1883		CONSULTANT CONTRACT NUMBER 6602067	
BP CONTACT Scott Apton	BP ADDRESS Renton, WA		PHONE NUMBER -	FAX NO. -		
LAB CONTACT SPL	LABORATORY ADDRESS Texas		PHONE NUMBER -	FAX NO. -		
SAMPLED BY (Please Print Name) Larry Buenavida		SAMPLED BY (Signature) <i>[Signature]</i>		SHIPMENT DATE 4-24-96	SHIPMENT METHOD Fed Ex	

TAT: 24 Hours 48 Hours 1 Week Standard 2 Weeks

ANALYSIS REQUIRED

AIRBILL NUMBER **9360716875**

SAMPLE DESCRIPTION	COLLECTION DATE	MATRIX SOIL/WATER	CONTAINERS		PRESERVATIVE	COMMENTS
	COLLECTION TIME		NO.	TYPE (VOL.)	LAB SAMPLE #	
S-1	4/23/96	W	3	HL	TPH-6 B+X #126E [initials]	
S-2						
S-3						
S-4						
S-5						
S-6						
S-7						
S-8						
S-9						
S-10			2			

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	ADDITIONAL COMMENTS
<i>[Signature]</i>	4/23/96	1600	Patricia Nelson	4/23/96	1605	3 rd Contact
A. Nelson	4/24/96	1530	Adrienne Salas	4/24/96	1100	