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 11, 1996

Mr. Ed So
California Regional Water Quality Control Board
San Francisco Bay Region
2101 Webster Street, Suite 500
Oakland CA 94612

RE: BP OIL FACILITY #11126
1700 Powell Street
Emeryville, California

Dear Mr. So:

Attached please find our **GROUNDWATER MONITORING AND SAMPLING REPORT DATED April 11, 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\ERM11126

cc: Ms. Susan Hugo, Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Room 250, Oakland, CA 94502-6577

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

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

Site File

GROUNDWATER MONITORING AND SAMPLING REPORT

BP Oil Company Service Station No. 11126
1700 Powell Street
Emeryville, California

Project No. 10-061-06-003

Prepared for:

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

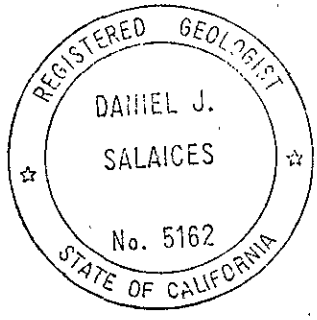
Prepared by:

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

April 11, 1996

William Howell
Project Manager

Dan Salaices
Registered Geologist



GROUNDWATER MONITORING AND SAMPLING REPORT

BP Oil Company Service Station No. 11126
1700 Powell Street
Emeryville, California

Project No. 10-061-06-003

April 11, 1996

INTRODUCTION

This report presents the results and findings of the February 5, 1996 groundwater monitoring and sampling conducted by Alisto Engineering Group at BP Oil Company Service Station No. 11126, 1700 Powell Street, Emeryville, California. A site vicinity map is shown on Figure 1.

FIELD PROCEDURES

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

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

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

SAMPLING AND ANALYTICAL RESULTS

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

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING
BP OIL COMPANY SERVICE STATION NO. 11126
1700 POWELL STREET, EMERYVILLE, CALIFORNIA

ALISTO PROJECT NO. 10-061

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	TPH-D (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	TOG (ug/l)	HVOC (ug/l) (c)	DO (ppm)	LAB
MW-1	11/04/92	7.76	4.96	—	2.80	5300	—	1100	480	ND<0.5	1500	—	—	—	—	PACE
MW-1	10/12/93	7.76	5.26	—	2.50	3600	—	970	71	100	550	—	—	—	—	PACE
MW-1	02/15/94	7.76	4.98	—	2.78	17000	—	4200	510	360	1600	—	—	—	3.9	PACE
MW-1	05/11/94	7.76	4.55	—	3.21	5500	—	2900	37	56	64	—	—	—	8.0	PACE
MW-1	08/01/94	7.76	5.51	—	2.25	15000	—	3600	740	510	2800	—	—	—	2.9	PACE
QC-1 (d)	08/01/94	8.56	—	—	—	16000	—	3600	750	510	2800	—	—	—	—	PACE
MW-1	10/18/94	7.76	5.11	—	2.65	16000	—	1800	61	160	890	—	—	—	2.9	PACE
QC-1 (d)	10/18/94	—	—	—	—	16000	—	1900	64	170	950	—	—	—	—	PACE
MW-1	01/13/95	7.76	3.05	—	4.71	220	—	7	ND<0.5	1	23	—	—	—	6.6	ATI
QC-1 (d)	01/13/95	—	—	—	—	590	—	88	0.7	ND<0.5	55	—	—	—	—	ATI
MW-1	04/13/95	7.76	3.84	—	3.92	9300	—	4000	300	200	950	—	—	—	7.7	ATI
MW-1	07/11/95	7.76	3.60	—	4.16	15000	—	2200	84	ND<25	2500	—	—	—	8.8	ATI
MW-1	11/02/95	7.76	4.58	—	3.18	19000	—	920	ND<100	ND<100	430	52000	—	—	7.3	ATI
MW-1	02/05/96	7.76	4.43	—	3.33	4600	—	1400	330	54	247	8700	—	—	3.2	SPL
MW-2	11/04/92	8.56	5.88	—	2.68	12000	—	3900	1300	ND<0 5	2300	—	—	—	—	PACE
QC-1 (d)	11/04/92	8.56	5.88	—	2.68	12000	—	3200	980	ND<0.5	1900	—	—	—	—	PACE
MW-2	10/12/93	8.56	6.29	—	2.27	4500	—	3400	180	230	940	—	—	—	—	PACE
MW-2	02/15/94	8.56	5.56	—	3.00	2000	—	430	270	28	390	—	—	—	4.0	PACE
QC-1 (d)	02/15/94	8 56	5.56	—	3.00	1800	—	290	160	14	250	—	—	—	—	PACE
MW-2	05/11/94	8.56	5.17	—	3.39	14000	—	3900	1200	440	1900	—	—	—	8.9	PACE
QC-1 (d)	05/11/94	8.56	—	—	—	15000	—	5600	1500	470	2000	—	—	—	—	PACE
MW-2	08/01/94	8.56	5.43	—	3.13	8200	—	3000	420	230	680	—	—	—	2.6	PACE
MW-2	10/18/94	8.56	5.71	—	2.85	9000	—	2000	140	150	420	—	—	—	7.2	PACE
MW-2	01/13/95	8.56	4.67	—	3.89	7900	—	2200	42	ND<5	770	—	—	—	6.8	ATI
MW-2	04/13/95	8.56	4.37	—	4.19	33000	—	8000	2500	1100	6600	—	—	—	7.5	ATI
QC-1 (d)	04/13/95	8.56	—	—	—	25000	—	6500	1500	110	5300	—	—	—	—	ATI
MW-2	07/11/95	8.56	4.51	—	4.05	19000	—	3300	99	7.5	4600	—	—	—	7.8	ATI
QC-1 (d)	07/11/95	—	—	—	—	28000	—	6800	1000	900	4900	—	—	—	—	ATI
MW-2	11/02/95	8.56	5.55	—	3.01	20000	—	3800	1200	570	2700	15000	—	—	7.3	ATI
QC-1 (d)	11/02/95	—	—	—	—	22000	—	4000	1200	600	2700	19000	—	—	—	ATI
MW-2	02/05/96	8.56	5.10	—	3.46	1200	—	320	220	26	187	99	—	—	2.2	SPL
QC-1 (d)	02/05/96	—	—	—	—	910	—	290	180	19	137	93	—	—	—	SPL
MW-3	11/04/92	8.25	6.38	—	1.87	200	690	1.6	ND<0.5	ND<0.5	1.1	—	ND<5000	ND	—	PACE
MW-3	10/12/93	8.25	5.84	—	2.41	270	2100	5.0	0.7	ND<0.5	2.6	—	ND<5000	ND	—	PACE
QC-1 (d)	10/12/93	8.25	5.84	—	2.41	150	—	5.6	0.6	ND<0.5	1.6	—	—	—	—	PACE
MW-3	02/15/94	8.25	6.60	—	1.65	140	2.3	5.7	ND<0.5	ND<0.5	ND<0.5	—	90	ND	3.9	PACE
MW-3	05/11/94	8 25	5 86	—	2.39	190	2500	2.7	1.9	ND<0.5	1.9	—	ND<5000	ND	9.2	PACE
MW-3	08/01/94	8.25	6.13	—	2.12	120	1300	1.3	ND<0.5	0.5	1.1	—	ND<5000	ND	2.9	PACE
MW-3	10/18/94	8 25	6.39	—	1.86	100	2200	2.3	ND<0.5	ND<0.5	ND<0.5	—	ND<5000	ND	3.6	PACE
MW-3	01/13/95	8.25	5.47	—	2.78	ND<50	970	0.8	ND<0.5	ND<0.5	ND<1	—	—	ND	7.7	ATI
MW-3	04/13/95	8.25	5.17	—	3.08	530	ND<500	8.7	1.9	ND<0.5	3.9	—	2100	ND	8.4	ATI
MW-3	07/11/95	8.25	5.37	—	2.88	78	2100	0.57	ND<0.50	ND<0.50	ND<1.0	—	1900	ND	8.3	ATI
MW-3	11/02/95	8.25	6.29	—	1.96	250	2000	0.73	ND<0.50	ND<0.50	1.8	270	1400	ND	8.3	ATI
MW-3	02/05/96	8.25	5.80	—	2.45	ND<50	1600	ND<0.5	ND<1	ND<1	2.7	11	9000	ND	3.5	SPL

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ALISTO PROJECT NO. 10-061

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	TPH-D (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	TOG (ug/l)	HVOC (ug/l) (c)	DO (ppm)	LAB
MW-4	11/04/92	8.12	6.66	—	1.46	340	—	4.5	ND<0.5	4.3	ND<0.5	—	—	—	—	PACE
MW-4	10/12/93	8.12	6.87	—	1.25	160	—	5.8	1.4	0.8	2.7	—	—	—	—	PACE
MW-4	02/15/94	8.12	6.61	—	1.51	110	—	4.4	0.7	ND<0.5	2.5	—	—	—	4.3	PACE
MW-4	05/11/94	8.12	5.89	—	2.23	120	—	0.5	0.8	ND<0.5	ND<0.5	—	—	—	9.3	PACE
MW-4	08/01/94	8.12	6.87	—	1.25	140	—	0.7	2.0	5.2	15	—	—	—	3.3	PACE
MW-4	10/18/94	8.12	6.62	—	1.50	140	—	3.5	ND<0.5	0.5	ND<0.5	—	—	—	3.0	PACE
MW-4	01/13/95	8.12	7.27	—	0.85	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<1	—	—	—	7.9	ATI
MW-4	04/13/95	8.12	6.51	—	1.61	73	—	1.2	ND<0.5	ND<0.5	ND<1	—	—	—	9.9	ATI
MW-4	07/11/95	8.12	6.21	—	1.91	82	—	0.57	ND<0.50	ND<0.50	ND<1.0	—	—	—	7.2	ATI
MW-4	11/02/95	8.12	6.78	—	1.34	71	—	1.4	0.96	0.99	2.8	140	—	—	8.6	ATI
MW-4	02/05/96	8.12	6.41	—	1.71	ND<50	—	ND<5	ND<10	ND<10	ND<10	200	—	—	4.4	SPL
MW-5	10/12/93	7.69	6.01	—	1.68	—	—	—	—	—	—	—	—	—	—	—
MW-5	10/13/93	—	—	—	—	2300	—	160	10	ND<0.5	26	—	—	—	—	PACE
MW-5	02/15/94	7.69	5.74	—	1.95	5100	—	710	16	33	35	—	—	—	4.0	PACE
MW-5	05/11/94	7.69	5.28	—	2.41	11000	—	1100	39	110	57	—	—	—	8.0	PACE
MW-5	08/01/94	7.69	5.84	—	1.85	9000	—	730	35	61	41	—	—	—	2.6	PACE
MW-5	10/18/94	7.69	6.01	—	1.68	7800	—	330	30	27	27	—	—	—	5.6	PACE
MW-5	01/13/95	7.69	4.74	—	2.95	ND<500	—	290	6	ND<5	18	—	—	—	6.8	ATI
MW-5	04/13/95	7.69	5.50	—	2.19	9100	—	400	15	52	27	—	—	—	7.4	ATI
MW-5	07/11/95	7.69	5.75	—	1.94	7300	—	390	13	28	23	—	—	—	7.2	ATI
MW-5	11/03/95	7.69	6.65	—	1.04	7200	—	270	15	38	23	200	—	—	8.4	ATI
MW-5	02/05/96	7.69	4.83	—	2.86	4600	—	370	15	53	28	ND<50	—	—	1.9	SPL
MW-6	10/12/93	8.52	6.59	—	1.93	63	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
MW-6	02/15/94	8.52	6.31	—	2.21	68	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	3.1	PACE
MW-6	05/11/94	8.52	6.15	—	2.37	68	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	8.7	PACE
MW-6	08/01/94	8.52	6.46	—	2.06	91	—	ND<0.5	ND<0.5	ND<0.5	0.6	—	—	—	2.4	PACE
MW-6	10/18/94	8.52	6.72	—	1.80	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	6.0	PACE
MW-6	01/13/95	8.52	5.95	—	2.57	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<1	—	—	—	7.0	ATI
MW-6	04/13/95	8.52	5.44	—	3.08	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<1	—	—	—	8.5	ATI
MW-6	07/11/95	8.52	5.68	—	2.84	ND<50	—	ND<0.50	ND<0.50	ND<0.50	ND<1.0	—	—	—	8.4	ATI
MW-6	11/02/95	8.52	6.57	—	1.95	ND<50	—	ND<0.50	ND<0.50	ND<0.50	ND<1.0	35	—	—	8.3	ATI
MW-6	02/05/96	8.52	6.27	—	2.25	ND<50	—	ND<5	ND<10	ND<10	ND<10	ND<100	—	—	2.2	SPL

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ALISTO PROJECT NO. 10-061

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (Feet) (a)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (Feet) (b)	TPH-G (ug/l)	TPH-D (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	TOG (ug/l)	HVOC (ug/l) (c)	DO (ppm)	LAB
MW-7	10/12/93	7.61	6.14	—	1.47	ND<50	—	ND<0.5	ND<0.5	ND<0.5	0.7	—	—	—	—	PACE
MW-7	02/15/94	7.61	5.88	—	1.73	78	—	ND<0.5	ND<0.5	ND<0.5	0.6	—	—	—	4.0	PACE
MW-7	05/11/94	7.61	5.76	—	1.85	70	—	ND<0.5	ND<0.5	ND<0.5	0.9	—	—	—	9.1	PACE
MW-7	08/01/94	7.61	5.97	—	1.64	77	—	ND<0.5	ND<0.5	ND<0.5	0.5	—	—	—	2.5	PACE
MW-7	10/18/94	7.61	6.24	—	1.37	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	6.3	PACE
MW-7	01/13/95	7.61	5.39	—	2.22	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<1	—	—	—	8.2	ATI
MW-7	04/13/95	7.61	5.17	—	2.44	63	—	ND<0.5	ND<0.5	ND<0.5	1.4	—	—	—	8.4	ATI
MW-7	07/11/95	7.61	5.25	—	2.36	ND<50	—	ND<0.50	ND<0.50	ND<0.50	ND<1.0	—	—	—	7.9	ATI
MW-7	11/02/95	7.61	6.19	—	1.42	ND<50	—	ND<0.50	ND<0.50	ND<0.50	ND<1.0	55	—	—	8.0	ATI
MW-7	02/05/96	7.61	5.69	—	1.92	ND<50	—	ND<0.5	ND<1	ND<1	ND<1	40	—	—	1.9	SPL
MW-8	10/12/93	8.60	5.86	—	2.74	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
MW-8	02/15/94	8.60	5.50	—	3.10	380	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	3.3	PACE
MW-8	05/11/94	8.60	5.09	—	3.51	330	—	ND<0.5	1.2	ND<0.5	1.9	—	—	—	8.5	PACE
MW-8	08/01/94	8.60	5.20	—	3.40	260	—	ND<0.5	1.2	2.9	5.8	—	—	—	2.3	PACE
MW-8	10/18/94	8.60	5.70	—	2.90	82	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	6.4	PACE
MW-8	01/13/95	8.60	4.96	—	3.64	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<1	—	—	—	6.9	ATI
MW-8	04/13/95	8.60	5.40	—	3.20	270	—	ND<0.5	ND<0.5	ND<0.5	4.4	—	—	—	8.4	ATI
MW-8	07/11/95	8.60	6.01	—	2.59	320	—	ND<0.50	ND<0.50	ND<0.50	3.5	—	—	—	8.0	ATI
MW-8	11/02/95	8.60	6.81	—	1.79	100	—	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	—	—	8.7	ATI
MW-8	02/05/96	8.60	6.12	—	2.48	ND<50	—	ND<5	ND<10	ND<10	ND<10	ND<100	—	—	1.5	SPL
MW-9	10/12/93	8.08	5.66	0.08	2.48	—	—	—	—	—	—	—	—	—	—	—
MW-9	02/15/94	8.08	5.32	0.05	2.80	—	—	—	—	—	—	—	—	—	—	—
MW-9	05/11/94	8.08	5.57	—	2.51	—	—	—	—	—	—	—	—	—	—	—
MW-9	08/01/94	8.08	6.25	—	1.83	—	—	—	—	—	—	—	—	—	—	—
MW-9	10/18/94	8.08	5.59	0.13	2.59	—	—	—	—	—	—	—	—	—	—	—
MW-9	01/13/95	8.08	4.42	0.14	3.77	—	—	—	—	—	—	—	—	—	—	—
MW-9	04/13/95	8.08	4.06	0.11	4.10	—	—	—	—	—	—	—	—	—	—	—
MW-9	07/11/95	8.08	4.21	0.08	3.93	—	—	—	—	—	—	—	—	—	—	—
MW-9	11/02/95	8.08	5.22	0.05	2.90	—	—	—	—	—	—	—	—	—	—	—
MW-9	02/05/96	8.08	4.76	0.01	3.33	—	—	—	—	—	—	—	—	—	—	—

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BP OIL COMPANY SERVICE STATION NO. 11126
1700 POWELL STREET, EMERYVILLE, CALIFORNIA

ALISTO PROJECT NO. 10-061

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	TPH-D (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	TOG (ug/l)	HVOC (ug/l) (c)	DO (ppm)	LAB
QC-2 (e)	11/05/92	—	—	—	—	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
QC-2 (e)	10/12/93	—	—	—	—	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
QC-2 (e)	02/15/94	—	—	—	—	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
QC-2 (e)	05/11/94	—	—	—	—	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
QC-2 (e)	08/01/94	—	—	—	—	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
QC-2 (e)	10/18/94	—	—	—	—	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<0.5	—	—	—	—	PACE
QC-2 (e)	01/13/95	—	—	—	—	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<1	—	—	—	—	ATI
QC-2 (e)	04/13/95	—	—	—	—	ND<50	—	ND<0.5	ND<0.5	ND<0.5	ND<1	—	—	—	—	ATI
QC-2 (e)	07/11/95	—	—	—	—	ND<50	—	ND<0.50	ND<0.50	ND<0.50	ND<1.0	—	—	—	—	ATI
QC-2 (e)	11/02/95	—	—	—	—	ND<50	—	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	—	—	—	ATI
QC-2 (e)	02/05/96	—	—	—	—	ND<50	—	ND<0.5	ND<1	ND<1	ND<1	ND<10	—	—	—	SPL

ABBREVIATIONS:

TPH-G	Total petroleum hydrocarbons as gasoline
TPH-D	Total petroleum hydrocarbons as diesel
B	Benzene
T	Toluene
E	Ethylbenzene
X	Total xylenes
MTBE	Methyl tert butyl ether
TOG	Total oil and grease
HVOC	Halogenated volatile organic compounds
DO	Dissolved oxygen
ug/l	Micrograms per liter
ppm	Parts per million
ND	Not detected above reported detection limit
—	Not analyzed/applicable/measurable
PACE	Pace, Inc.
ATI	Analytical Technologies, Inc.
SPL	SPL, Inc.

NOTES:

(a) Top of casing elevations surveyed relative to an established benchmark with an elevation of 8.11 feet above mean sea level.

(b) Groundwater elevations adjusted assuming a specific gravity of 0.75 for free product.

(c) Detection limits vary; see laboratory report.

(d) Blind duplicate.

(e) Travel blank.

F:\0\10-061\061-6-3.WQ2

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

N

0 1000' 2000'

FIGURE 1

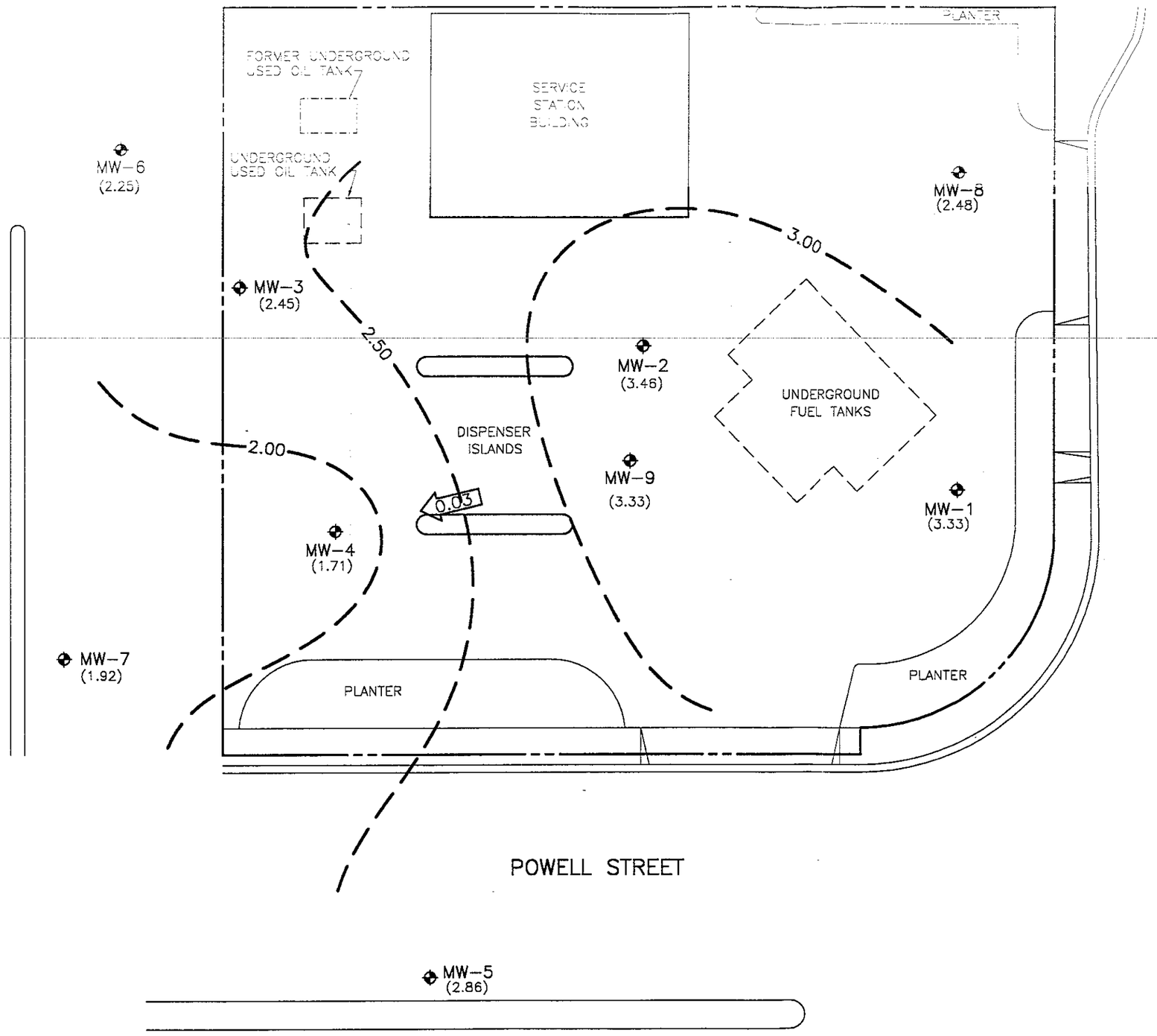
SITE VICINITY MAP

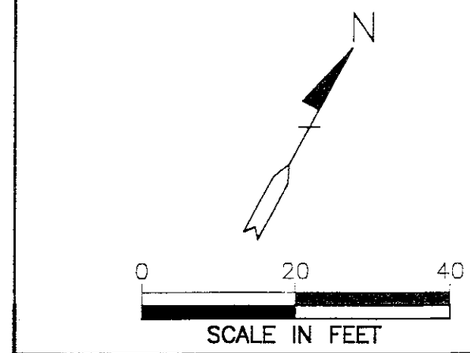
BP OIL SERVICE STATION NO. 11126
1700 POWELL STREET
EMERYVILLE, CALIFORNIA

PROJECT NO. 10-061

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

100618---.DWG 12-30-93 RKW 1=1





LEGEND

- ◆ GROUNDWATER MONITORING WELL
- (1.71) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- 2.00 GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL–0.50 FOOT)
- 0.30 CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 2

POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP

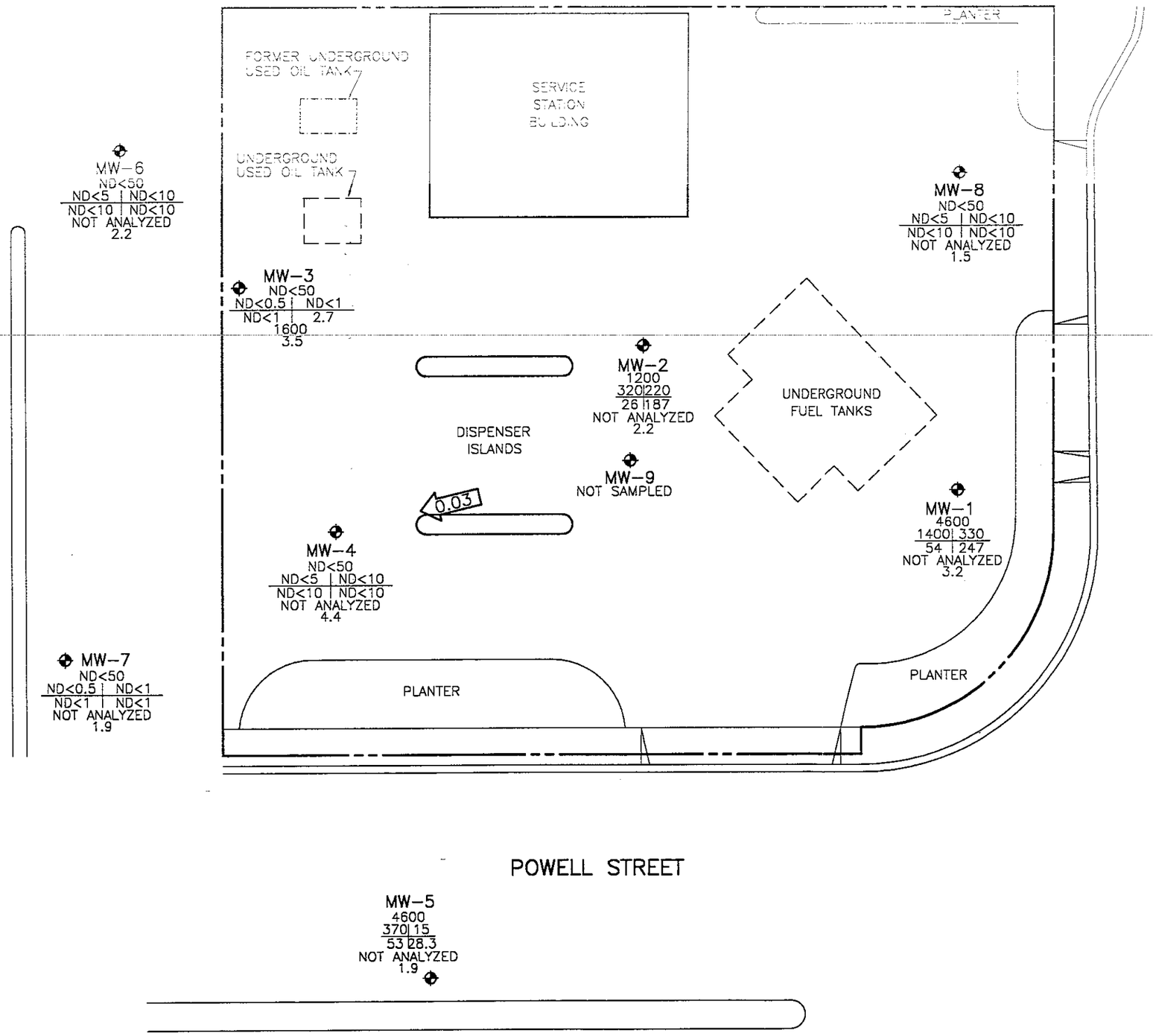
FEBRUARY 5, 1996

BP OIL SERVICE STATION NO. 11126
1700 POWELL STREET
EMERYVILLE, CALIFORNIA

PROJECT NO. 10–061

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

10061A—DWG 3-17-94 RKW 1=20



N

0 20 40

SCALE IN FEET

LEGEND

◆	GROUNDWATER MONITORING WELL
TPH-G / B / T / E / X / TPH-D / DO	CONCENTRATION OF CONSTITUENTS IN MICROGRAMS PER LITER, EXCEPT DISSOLVED OXYGEN, WHICH IS IN PARTS PER MILLION
TPH-G	TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
B	BENZENE
T	TOLUENE
E	ETHYLBENZENE
X	TOTAL XYLENES
TPH-D	TOTAL PETROLEUM HYDROCARBONS AS DIESEL
DO	DISSOLVED OXYGEN
ND	NOT DETECTED ABOVE REPORTED DETECTION LIMIT
0.03	CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 3

CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER

FEBRUARY 5, 1996

BP OIL SERVICE STATION NO. 11126
1700 POWELL STREET
EMERYVILLE, CALIFORNIA

PROJECT NO. 10-061

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

10061E-0.DWG 4-2-96 RKW 1=20

APPENDIX A

WATER SAMPLING FIELD SURVEY FORMS

ALISTO

ENGINEERING
GROUP
1575 TREAT BOULEVARD, SUITE 201

Field Report / Sampling Data Sheet

Project No. 10-061-06-003 Date: 2/5/96
Address 1700 Powell St. Day: (M) T W TH F
Contract No. G602099 City: Emeryville
Station No. BP 11126 Sampler: DC

DEPTH TO GROUNDWATER SUMMARY

WELL ID	SAMPLE ID	WELL DIAM	TOTAL DEPTH	DEPTH TO WATER	PRODUCT THICKNESS	TIME SAMPLED	COMMENTS:
MW-1	5-7	2"	11.62	4.43	Ø		
MW-2	5-8		11.83	5.10			
MW-3	5-6		12.08	5.80			Cap/lock intact; pulled off casing, rain runoff went into well
MW-4	5-5		11.06	6.41			
MW-5	5-1		13.70	4.83			Sampled 1st because needs traffic control
MW-6	5-3		13.25	6.27			
MW-7	5-2		13.72	5.69'			
MW-8	5-4	↓	13.65	6.12'	↓		
MW-9	not	4"	nm	4.76	0.01		bailed 1/4 gallon H2O < 0.01 gallon product

FIELD INSTRUMENT CALIBRATION DATA

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

D.O. METER Aquachek ZERO d.O. SOLUTION ✓ BAROMETRIC PRESSURE 763 TEMP 64°F WEATHER overcast

CONDUCTIVITY METER Aquachek 10,000 ___ TURBIDITY METER ___ 5.0 NTU ___ OTHER Factory Solns

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Iridescence	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-5	4.83	2"	OK	Ø	Y (N)	1.5	1248	68.9	6.52	2.11ms	3.4
						3	1250	67.0	6.54	496µS	2.0
						4.5	1254	66.7	6.62	1.37ms	1.9

Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge PurgeVol.
13.70 - 4.83 = 8.87 X .16 = 1.42 X 3 = 4.26
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port
Comments:

O EPA 601___
⊘ TPH-G/BTEX btex
O TPH Diesel___
O TOG 5520 ___
TIME/SAMPLE ID
1257 /S-1

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Iridescence	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-7	5.69	2"	OK	Ø	Y (N)	1	1305	68.2	6.97	11.3 ms	3.2
						2.5	1309	67.4	6.93	6.3 ms	2.3
						4	1311	66.9	6.98	7.42 ms	1.9

Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge PurgeVol.
13.72 - 5.69 = 8.03 X .16 = 1.28 X 3 = 3.84
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port
Comments:

O EPA 601___
⊘ TPH-G/BTEX btex
O TPH Diesel___
O TOG 5520 ___
TIME/SAMPLE ID
1315 /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. 10-061-06-003 Date: 2/5/96
Address 1700 Powell St. Day: (M) T W TH F
Contract No. G602099 City: Emeryville
Station No. BP 11126 Sampler:

Well ID MW-6 | Depth to Water 6.27 | Diam 2" | Cap/Lock OK | Product Dept Ø | Iridescence Y (N)
Total Depth - Water Level= 13.25-6.27 | x Well Vol. Factor= 6.98 x .16 | x#vol. to Purge = 1.12 x 3 | PurgeVol. = 3.36
Purge Method: (OSurface Pump) ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port
Comments:

Gal.	Time	Temp °F	pH	E.C.	D.O.
1	1315	67.9	6.99	10.6 ms	2.3
2	1318	67.7	6.98	8.19 ms	1.7
3.5	1320	67.7	7.11	7.60 ms	2.2

(O) EPA 601___
(X) TPH-G/BTEX N
(O) TPH Diesel___
(O) TOG 5520 ___
TIME/SAMPLE ID: 1325 / S-3

Well ID MW-8 | Depth to Water 6.12 | Diam 2" | Cap/Lock OK | Product Dept Ø | Iridescence Y (N)
Total Depth - Water Level= 13.65-6.12 | x Well Vol. Factor= 7.53 x .16 | x#vol. to Purge = 1.21 x 3 | PurgeVol. = 3.61
Purge Method: (OSurface Pump) ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port
Comments:

Gal.	Time	Temp °F	pH	E.C.	D.O.
1	1325	68.0	6.94	3.35 ms	2.2
2	1329	67.8	6.97	2.10 ms	1.7
3.75	1331	68.0	6.86	2.07 ms	1.5

(O) EPA 601___
(X) TPH-G/BTEX N
(O) TPH Diesel___
(O) TOG 5520 ___
TIME/SAMPLE ID: 1335 / S-4

Well ID MW-4 | Depth to Water 6.41 | Diam 2" | Cap/Lock OK | Product Dept Ø | Iridescence Y (N)
Total Depth - Water Level= 11.06-6.41 | x Well Vol. Factor= 4.65 x .16 | x#vol. to Purge = 0.74 x 3 | PurgeVol. = 2.23
Purge Method: (OSurface Pump) ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port
Comments:

Gal.	Time	Temp °F	pH	E.C.	D.O.
1	1339	69.2	7.26	5.26 ms	2.8
2	1341	69.7	7.66	5.36 ms	4.3
2.25	1345	70.1	7.81	5.34 ms	4.4

(O) EPA 601___
(X) TPH-G/BTEX N
(O) TPH Diesel___
(O) TOG 5520 ___
TIME/SAMPLE ID: 1350 / S-5

Well ID MW-3 | Depth to Water 5.80 | Diam 2" | Cap/Lock OK | Product Dept Ø | Iridescence Y (N)
Total Depth - Water Level= 12.08-5.80 | x Well Vol. Factor= 6.28 x .16 | x#vol. to Purge = 1.00 x 3 | PurgeVol. = 3
Purge Method: (OSurface Pump) ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port
Comments:

Gal.	Time	Temp °F	pH	E.C.	D.O.
1	1353	69.7	7.80	4.10 ms	2.3
2	1355	69.2	7.60	1.35 ms	1.6
3	1357	69.2	7.32	3.67 ms	3.5

(X) EPA 601 H
(X) TPH-G/BTEX N
(X) TPH Diesel H
(X) TOG 5520 H2SO4
TIME/SAMPLE ID: 1405 / S-6

Well ID MW-1 | Depth to Water 4.43 | Diam 2" | Cap/Lock OK | Product Dept Ø | Iridescence Y (N)
Total Depth - Water Level= 11.62-4.43 | x Well Vol. Factor= 7.19 x .16 | x#vol. to Purge = 1.15 x 3 | PurgeVol. = 3.45
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port
Comments:

Gal.	Time	Temp °F	pH	E.C.	D.O.
1	1416	67.5	6.99	3.61 ms	1.8
2	1418	66.3	6.82	2.95 ms	1.7
3.5	1421	67.0	7.02	3.33 ms	3.2

(X) EPA 601___
(X) TPH-G/BTEX N
(O) TPH Diesel___
(O) TOG 5520 ___
TIME/SAMPLE ID: 1425 / S-7

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. 10-061-06-003 Date: 2/5/96
Address 1700 Powell St. Day: (M) T W TH F
Contract No. G602099 City: Emeryville
Station No. BP 11126 Sampler:

Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.
MW-2	5.10	2"	OL	P	Y (N)	1	1427	66.2	7.50	607 µs	.10
						2	1429	66.5	7.49	333 µs	.30
						3.25	1431	66.3	7.54	320 µs	2.2

Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge PurgeVol.
11.83 - 5.10 = 6.73 x .16 = 1.08 x 3 = 3.23

Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port

Comments: QC-1 from this well (S9)

O EPA 601_____
O TPH-G/BTEX H
O TPH Diesel_____
O TOG 5520 ___

TIME/SAMPLE ID
1440 15-8

Well ID	Depth to Water	Diam	Cap/Lock	Product Dept	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.
					Y N						

Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge PurgeVol.

Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port

Comments:

O EPA 601_____
O TPH-G/BTEX___
O TPH Diesel_____
O TOG 5520 ___

TIME/SAMPLE ID

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 - 237

Approved for release by:

M. Scott Sample Date: 2/27/96

M. Scott Sample, Laboratory Director

Ed Fry Date: 2/21/96

Ed Fry, Project Manager

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

CASE NARRATIVE

WORK ORDER NO(s).: 9602237

Southern Petroleum Laboratories (SPL) is pleased to present the results of this project to BP Oil Company and their consultant Alisto Engineering. The samples were received intact at our Houston facility on February 6, 1996 at a temperature of 4 degrees Celsius. Ten water samples were analyzed for tests and methods corresponding to those requested on the Chain of Custody. The following is a brief narrative of exceptions which occurred in the laboratory analysis:

- The Matrix Spike (MS) and Matrix Spike Duplicate (MSD) recoveries for Bromomethane by Method 601 were outside QC limits. The Laboratory Control Sample analyzed for this Method was within acceptable QC criteria for all parameters

The LCS is a method specific QC sample. Acceptable recoveries for analytes contained in the LCS are an indication of adequate method and instrumentation performance. Samples with acceptable LCS recoveries, but with MS and MSD recoveries outside QC limits are usually an indication of matrix interferences.

Edward Fry
SPL Project Manager

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

Certificate of Analysis No. H9-9602237-01

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

P.O.# G602099 , COC#061542
DATE: 02/26/96

PROJECT: BP Oil #11126
SITE: 1700 Powell St, Emeryville
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-1

PROJECT NO: 10-061-06-003
MATRIX: WATER
DATE SAMPLED: 02/05/96 12:57:00
DATE RECEIVED: 02/07/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	50 P	µg/L
Benzene	370	2 P	µg/L
Toluene	15	5 P	µg/L
Ethylbenzene	53	5 P	µg/L
Total Xylene	28.3	5 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	143		
4-Bromofluorobenzene	CI		
METHOD 8020***			
Analyzed by: VHZ			
Date: 02/11/96			
Total Petroleum Hydrocarbons-Gasoline	4.6	0.05 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	126		
4-Bromofluorobenzene	179 «		
CA LUFT - Gasoline			
Analyzed by: VHZ			
Date: 02/11/96 12:25:00			

ND - Not detected.
CI - Coeluting interference.
(P) - Practical Quantitation Limit
« - Recovery beyond control limits.

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. H9-9602237-02

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

P.O.# G602099 , COC#061542
DATE: 02/26/96

PROJECT: BP Oil #11126
SITE: 1700 Powell St, Emeryville
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-2

PROJECT NO: 10-061-06-003
MATRIX: WATER
DATE SAMPLED: 02/05/96 13:15:00
DATE RECEIVED: 02/07/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	40	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	89		
4-Bromofluorobenzene	118		
METHOD 8020***			
Analyzed by: YN			
Date: 02/16/96			
Total Petroleum Hydrocarbons-Gasoline	ND	0.05 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	104		
4-Bromofluorobenzene	87		
CA LUFT - Gasoline			
Analyzed by: VHZ			
Date: 02/11/96 10:34:00			

(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. H9-9602237-03

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

CORRECTED COPY

P.O.# G602099 , COC#061542
DATE: 03/27/96

PROJECT: BP Oil #11126
SITE: 1700 Powell St, Emeryville
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-3

PROJECT NO: 10-061-06-003
MATRIX: WATER
DATE SAMPLED: 02/05/96 13:25:00
DATE RECEIVED: 02/07/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	100 P	µg/L
Benzene	ND	5 P	µg/L
Toluene	ND	10 P	µg/L
Ethylbenzene	ND	10 P	µg/L
Total Xylene	ND	10 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	91		
4-Bromofluorobenzene	78		
METHOD 8020***			
Analyzed by: VHZ			
Date: 02/12/96			
Total Petroleum Hydrocarbons-Gasoline	ND	0.05 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	102		
4-Bromofluorobenzene	64		
CA LUFT - Gasoline			
Analyzed by: VHZ			
Date: 02/11/96 01:30:00			

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.

RECEIVED
MAR 28 1996

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. H9-9602237-04

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

P.O.# G602099 , COC#061542
DATE: 02/19/96

PROJECT: BP Oil #11126
SITE: 1700 Powell St, Emeryville
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-4

PROJECT NO: 10-061-06-003
MATRIX: WATER
DATE SAMPLED: 02/05/96 13:35:00
DATE RECEIVED: 02/07/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	100 P	µg/L
Benzene	ND	5 P	µg/L
Toluene	ND	10 P	µg/L
Ethylbenzene	ND	10 P	µg/L
Total Xylene	ND	10 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	92		
4-Bromofluorobenzene	87		
METHOD 8020***			
Analyzed by: VHZ			
Date: 02/11/96			
Total Petroleum Hydrocarbons-Gasoline	ND	0.05 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	65		
4-Bromofluorobenzene	101		
CA LUFT			
Analyzed by: VHZ			
Date: 02/11/96 01:58:00			

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. H9-9602237-05

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

P.O.# G602099 , COC#061542
DATE: 02/19/96

PROJECT: BP Oil #11126
SITE: 1700 Powell St, Emeryville
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-5

PROJECT NO: 10-061-06-003
MATRIX: WATER
DATE SAMPLED: 02/05/96 13:50:00
DATE RECEIVED: 02/07/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	200	100 P	µg/L
Benzene	ND	5 P	µg/L
Toluene	ND	10 P	µg/L
Ethylbenzene	ND	10 P	µg/L
Total Xylene	ND	10 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	92		
4-Bromofluorobenzene	83		
METHOD 8020***			
Analyzed by: VHZ			
Date: 02/11/96			
Total Petroleum Hydrocarbons-Gasoline	ND	0.05 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	103		
4-Bromofluorobenzene	61		
CA LUFT			
Analyzed by: VHZ			
Date: 02/11/96 02:26:00			

(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.
SPL California License # 1903

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

Certificate of Analysis No. H9-9602237-06

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

P.O.# G602099 , COC#061542
DATE: 02/22/96

PROJECT: BP Oil #11126
SITE: 1700 Powell St, Emeryville
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-6

PROJECT NO: 10-061-06-003
MATRIX: WATER
DATE SAMPLED: 02/05/96 14:05:00
DATE RECEIVED: 02/07/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	11	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	2.7	1 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	93		
4-Bromofluorobenzene	91		
METHOD 8020***			
Analyzed by: VHZ			
Date: 02/11/96			
Total Petroleum Hydrocarbons-Gasoline	ND	0.05 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	105		
4-Bromofluorobenzene	72		
CA LUFT - Gasoline			
Analyzed by: VHZ			
Date: 02/11/96 06:36:00			
Total Petroleum Hydrocarbons-Diesel	1.6	0.050 P	mg/L
Surrogate	**% Recovery**		
o-Terphenyl	CI		

(P) - Practical Quantitation Limit ND - Not detected.
CI - Coeluting interference.

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. H9-9602237-06

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

P.O.# G602099 , COC#061542
DATE: 02/22/96

PROJECT: BP Oil #11126
SITE: 1700 Powell St, Emeryville
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-6

PROJECT NO: 10-061-06-003
MATRIX: WATER
DATE SAMPLED: 02/05/96 14:05:00
DATE RECEIVED: 02/07/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
2-Fluorobiphenyl	CI		
CA LUFT - Diesel			
Analyzed by: RR/			
Date: 02/13/96 18:15:00			
Liquid-liquid extraction	02/08/96		
METHOD 3510B ***			
Analyzed by: VM			
Date: 02/08/96 10:00:00			
Hydrocarbons by sep. funnel & Grav	9	1.0	mg/L
Method 5520 B & F **			
Analyzed by: DR			
Date: 02/14/96 15:00:00			

CI - Coeluting interference.

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

Certificate of Analysis No. H9-9602237-06

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

P.O.# G602099 , COC#061542
02/19/96

PROJECT: BP Oil #11126
SITE: 1700 Powell St, Emeryville
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-6

PROJECT NO: 10-061-06-003
MATRIX: WATER
DATE SAMPLED: 02/05/96 14:05:00
DATE RECEIVED: 02/07/96

ANALYTICAL DATA

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

METHOD: 601, Halogenated Volatile Organics
(continued on next page)

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

Certificate of Analysis No. H9-9602237-06

Alisto Engineering

SAMPLE ID: S-6

SURROGATES	**% RECOVERY**
1-Chloro-2-Fluorobenzene	90

ANALYZED BY: KA DATE/TIME: 02/11/96 09:06:00
METHOD: 601, Halogenated Volatile Organics
NOTES: * - Practical Quantitation Limit ND - Not Detected
NA - Not Analyzed

COMMENTS:

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

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

Certificate of Analysis No. H9-9602237-07

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

CORRECTED COPY

P.O.# G602099 , COC#061542
DATE: 03/27/96

PROJECT: BP Oil #11126
SITE: 1700 Powell St, Emeryville
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-7

PROJECT NO: 10-061-06-003
MATRIX: WATER
DATE SAMPLED: 02/05/96 14:25:00
DATE RECEIVED: 02/07/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	8700	500 P	µg/L
Benzene	1400	2 P	µg/L
Toluene	330	5 P	µg/L
Ethylbenzene	54	5 P	µg/L
Total Xylene	247	5 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	99		
4-Bromofluorobenzene	104		
METHOD 8020***			
Analyzed by: VHZ			
Date: 02/11/96			
Total Petroleum Hydrocarbons-Gasoline	4.6	0.05 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	159 «		
4-Bromofluorobenzene	145		
CA LUFT - Gasoline			
Analyzed by: VHZ			
Date: 02/11/96 02:54:00			

(P) - Practical Quantitation Limit « - Recovery beyond control limits.

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. H9-9602237-08

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

P.O.# G602099 , COC#061542
DATE: 02/19/96

PROJECT: BP Oil #11126
SITE: 1700 Powell St, Emeryville
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-8

PROJECT NO: 10-061-06-003
MATRIX: WATER
DATE SAMPLED: 02/05/96 14:40:00
DATE RECEIVED: 02/07/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	99	50 P	µg/L
Benzene	320	2 P	µg/L
Toluene	220	5 P	µg/L
Ethylbenzene	26	5 P	µg/L
Total Xylene	187	5 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	113		
4-Bromofluorobenzene	102		
METHOD 8020***			
Analyzed by: VHZ			
Date: 02/11/96			
Total Petroleum Hydrocarbons-Gasoline	1.2	0.05 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	123		
4-Bromofluorobenzene	91		
CA LUFT			
Analyzed by: VHZ			
Date: 02/11/96 11:02:00			

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

Certificate of Analysis No. H9-9602237-09

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

P.O.# G602099 , COC#061542
DATE: 02/19/96

PROJECT: BP Oil #11126
SITE: 1700 Powell St, Emeryville
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-9

PROJECT NO: 10-061-06-003
MATRIX: WATER
DATE SAMPLED: 02/05/96
DATE RECEIVED: 02/07/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	0.093	0.050 P	mg/L
Benzene	0.290	0.002 P	mg/L
Toluene	0.180	0.005 P	mg/L
Ethylbenzene	0.019	0.005 P	mg/L
Total Xylene	0.137	0.005 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	119		
4-Bromofluorobenzene	86		
METHOD 8020***			
Analyzed by: VHZ			
Date: 02/11/96			
Total Petroleum Hydrocarbons-Gasoline	0.91	0.05 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	119		
4-Bromofluorobenzene	86		
CA LUFT			
Analyzed by: VHZ			
Date: 02/11/96 11:17:00			

(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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PHONE (713) 660-0901

Certificate of Analysis No. H9-9602237-10

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

P.O.# G602099 , COC#061542
DATE: 02/19/96

PROJECT: BP Oil #11126
SITE: 1700 Powell St, Emeryville
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-10

PROJECT NO: 10-061-06-003
MATRIX: WATER
DATE SAMPLED: 02/05/96
DATE RECEIVED: 02/07/96

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	87		
METHOD 8020***			
Analyzed by: VHZ			
Date: 02/11/96			
Total Petroleum Hydrocarbons-Gasoline	ND	0.05 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	102		
4-Bromofluorobenzene	66		
CA LUFT			
Analyzed by: VHZ			
Date: 02/11/96 12:06:00			

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

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

** SPL BATCH QUALITY CONTROL REPORT **
*METHOD 601***

Matrix: Aqueous
Units: µg/L

Batch Id: HP_F960210044100

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
Dichlorodifluoromethane	ND	20	22	110	1 - 200
Chloromethane	ND	20	4.7	23.5	1 - 193
Vinyl chloride	ND	20	17	85.0	28 - 163
Bromomethane	ND	20	16	80.0	1 - 144
Chloroethane	ND	20	15	75.0	46 - 137
Trichlorofluoromethane	ND	20	20	100	21 - 156
1,1-Dichloroethene	ND	20	21	105	28 - 167
Methylene chloride	ND	20	20	100	25 - 162
Trans-1,2-Dichloroethene	ND	20	21	105	38 - 155
1,1-Dichloroethane	ND	20	21	105	34 - 132
Chloroform	ND	20	21	105	49 - 133
1,1,1-Trichloroethane	ND	20	21	105	41 - 138
Carbon tetrachloride	ND	20	21	105	43 - 143
1,2-Dichloroethane	ND	20	18	90.0	51 - 147
2-Chloroethylvinyl ether	ND	20	22	110	14 - 186
Trichloroethene	ND	20	24	120	35 - 146
1,2-Dichloropropane	ND	20	21	105	44 - 156
Bromodichloromethane	ND	20	19	95.0	42 - 172
cis-1,3-Dichloropropene	ND	20	19	95.0	22 - 178
trans-1,3-Dichloropropene	ND	20	20	100	33 - 178
1,1,2-Trichloroethane	ND	20	21	105	39 - 136
Tetrachloroethene	ND	20	21	105	26 - 162
Dibromochloromethane	ND	20	22	110	24 - 191
Chlorobenzene	ND	20	19	95.0	38 - 150
Bromoform	ND	20	20	100	13 - 159
1,1,2,2-Tetrachloroethane	ND	20	17	85.0	8 - 184
1,3-Dichlorobenzene	ND	20	19	95.0	7 - 187
1,4-Dichlorobenzene	ND	20	13	65.0	42 - 143
1,2-Dichlorobenzene	ND	20	21	105	1 - 208

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
DICHLORODIFLUOROMETHANE	ND	20	15	75.0	17	85.0	12.5	20	1 - 200
CHLOROMETHANE	ND	20	3.0	15.0	3.2	16.0	6.45	20	1 - 193
VINYL CHLORIDE	ND	20	15	75.0	18	90.0	18.2	20	28 - 163
BROMOMETHANE	ND	20	0	0 *	0	0 *	0	20	1 - 144
CHLOROETHANE	ND	20	11	55.0	12	60.0	8.70	20	46 - 137

QC Officer

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

** SPL BATCH QUALITY CONTROL REPORT **
METHOD 601**

Matrix: Aqueous
Units: µg/L

Batch Id: HP_F960210044100

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
TRICHLOROFLUOROMETHANE	ND	20	19	95.0	22	110	14.6	20	21 - 156
1,1-DICHLOROETHENE	ND	20	18	90.0	18	90.0	0	20	28 - 167
METHYLENE CHLORIDE	ND	20	17	85.0	17	85.0	0	20	25 - 162
TRANS-1,2-DICHLOROETHENE	ND	20	18	90.0	18	90.0	0	20	38 - 155
1,1-DICHLOROETHANE	ND	20	18	90.0	17	85.0	5.71	20	47 - 132
CHLOROFORM	ND	20	16	80.0	18	90.0	11.8	20	49 - 133
1,1,1-TRICHLOROETHANE	ND	20	19	95.0	19	95.0	0	20	41 - 138
CARBON TETRACHLORIDE	ND	20	19	95.0	19	95.0	0	20	43 - 143
1,2-DICHLOROETHANE	ND	20	14	70.0	14	70.0	0	20	51 - 147
2-CHLOROETHYLVINYL ETHER	ND	20	22	110	23	115	4.44	20	14 - 186
TRICHLOROETHENE	ND	20	29	145	30	150 *	3.39	20	35 - 146
1,2-DICHLOROPROPANE	ND	20	19	95.0	18	90.0	5.41	20	44 - 156
BROMODICHLOROMETHANE	ND	20	17	85.0	18	90.0	5.71	20	42 - 172
CIS-1,3-DICHLOROPROPENE	ND	20	1.1	5.50 *	1.3	6.50 *	16.7	20	22 - 178
TRANS-1,3-DICHLOROPROPENE	ND	20	5.8	29.0 *	5.2	26.0 *	10.9	20	33 - 178
1,1,2-TRICHLOROETHANE	ND	20	17	85.0	16	80.0	6.06	20	39 - 136
TETRACHLOROETHENE	ND	20	17	85.0	16	80.0	6.06	20	26 - 162
DIBROMOCHLOROMETHANE	ND	20	19	95.0	18	90.0	5.41	20	24 - 191
CHLOROBENZENE	ND	20	16	80.0	17	85.0	6.06	20	38 - 150
BROMOFORM	ND	20	17	85.0	17	85.0	0	20	13 - 159
1,1,2,2-TETRACHLOROETHANE	ND	20	4.8	24.0	5.4	27.0	11.8	20	8 - 184
1,3-DICHLOROBENZENE	ND	20	12	60.0	13	65.0	8.00	20	7 - 187
1,4-DICHLOROBENZENE	ND	20	8.4	42.0	13	65.0	43.0 *	20	42 - 143
1,2-DICHLOROBENZENE	ND	20	16	80.0	14	70.0	13.3	20	1 - 208

Analyst: KA
Sequence Date: 02/10/96
SPL ID of sample spiked: 9602219-07B
Sample File ID: FF__119.TX0
Method Blank File ID:
Blank Spike File ID: FF__105.TX0
Matrix Spike File ID: FF__108.TX0
Matrix Spike Duplicate File ID: FF__109.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: 601, Table 2
(***) = Source: SPL Temporary Limits

SAMPLES IN BATCH(SPL ID):

9602089-14B 9602089-15B 9602089-16B 9602133-01A
9602219-06B 9602219-07B 9602237-06B 9602352-03C
9602388-03A 9602479-01A 9602413-01A 9602413-02A
9602413-03A 9602413-04A 9602413-05A 9602374-01A
9602517-01A 9602089-11B 9602089-12B 9602089-13B

QC Officer

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

** SPL BATCH QUALITY CONTROL REPORT **
METHOD 8020/602

Matrix: Aqueous
Units: µg/L

Batch Id: HP_J960210082300

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
MTBE	ND	50	41	82.0	20 - 100
Benzene	ND	50	41	82.0	62 - 121
Toluene	ND	50	41	82.0	66 - 136
EthylBenzene	ND	50	41	82.0	70 - 136
O Xylene	ND	50	44	88.0	74 - 134
M & P Xylene	ND	100	86	86.0	77 - 140

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
MTBE	24	20	40	80.0	40	80.0	0	20	39 - 150
BENZENE	3.9	20	23	95.5	22	90.5	5.38	25	39 - 150
TOLUENE	3.1	20	21	89.5	20	84.5	5.75	26	56 - 134
ETHYLBENZENE	ND	20	17	85.0	16	80.0	6.06	38	61 - 128
O XYLENE	ND	20	18	90.0	16	80.0	11.8	29	40 - 130
M & P XYLENE	ND	40	36	90.0	32	80.0	11.8	20	43 - 152

Analyst: VHZ
Sequence Date: 02/10/96
SPL ID of sample spiked: 9601C90-02A
Sample File ID: J___434.TX0
Method Blank File ID:
Blank Spike File ID: J___424.TX0
Matrix Spike File ID: J___429.TX0
Matrix Spike Duplicate File ID: J___430.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):

9601C90-02A 9602237-10A 9602237-02A 9602237-03A
9602237-04A 9602237-05A 9602237-07A 9602372-01A
9602237-06A 9602300-01A 9602237-01A 9602372-02A
9602237-02A 9602237-08A 9602237-01A

QC Officer

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

** SPL BATCH QUALITY CONTROL REPORT **
METHOD 8020/602

Matrix: Aqueous
Units: µg/L

Batch Id: HP_J960211012100

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
MTBE	ND	50	45	90.0	20 - 100
Benzene	ND	50	41	82.0	62 - 121
Toluene	ND	50	41	82.0	66 - 136
EthylBenzene	ND	50	41	82.0	70 - 136
O Xylene	ND	50	45	90.0	74 - 134
M & P Xylene	ND	100	87	87.0	77 - 140

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
MTBE	4.9	20	22	85.5	25	100	15.6	20	39 - 150
BENZENE	ND	20	15	75.0	15	75.0	0	25	39 - 150
TOLUENE	ND	20	14	70.0	14	70.0	0	26	56 - 134
ETHYLBENZENE	ND	20	14	70.0	14	70.0	0	38	61 - 128
O XYLENE	ND	20	14	70.0	14	70.0	0	29	40 - 130
M & P XYLENE	ND	40	28	70.0	29	72.5	3.51	20	43 - 152

Analyst: VHZ
Sequence Date: 02/11/96
SPL ID of sample spiked: 9602224-02A
Sample File ID: J___471.TX0
Method Blank File ID:
Blank Spike File ID: J___464.TX0
Matrix Spike File ID: J___466.TX0
Matrix Spike Duplicate File ID: J___467.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):

9602224-02A 9602224-01A 9602300-03A 9602236-01A
9602434-01A 9602237-07A 9602300-01A 9602237-09A
9602300-02A 9602239-01A 9602229-01A 9602230-02A
9602238-01A 9602407-01A 9602407-02A 9602407-05A
9602407-04A 9602407-03A 9602230-01A

QC Officer

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

** SPL BATCH QUALITY CONTROL REPORT **
METHOD 602

Matrix: Aqueous
Units: ug/L

Batch Id: HP_J960216091900

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
MTBE	ND	50	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 Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
MTBE	ND	20	21	105	22	110	4.65	20	39 - 150
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

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

** SPL BATCH QUALITY CONTROL REPORT **
METHOD 602

Matrix: Aqueous
Units: ug/L

Batch Id: HP_J960212094600

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits (**) (Mandatory) % Recovery Range
MTBE	ND	50	45	90.0	20 - 100
Benzene	ND	50	44	88.0	62 - 121
Toluene	ND	50	42	84.0	66 - 136
EthylBenzene	ND	50	43	86.0	70 - 136
O Xylene	ND	50	44	88.0	74 - 134
M & P Xylene	ND	100	90	90.0	77 - 140

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits (***) (Advisory) RPD Max.	QC Limits (***) (Advisory) Recovery Range
MTBE	ND	20	27	135	26	130	3.77	20	39 - 150
ISOPROPYL ETHER	ND	20	17	85.0	16	80.0	6.06	20	50 - 150
BENZENE	ND	20	17	85.0	13	65.0	26.7 *	25	39 - 150
TOLUENE	ND	20	16	80.0	12	60.0	28.6 *	26	56 - 134
ETHYLBENZENE	ND	20	16	80.0	12	60.0 *	28.6	38	61 - 128
O XYLENE	ND	20	19	95.0	14	70.0	30.3 *	29	40 - 130
M & P XYLENE	ND	40	37	92.5	27	67.5	31.2 *	20	43 - 152

Analyst: VHZ
Sequence Date: 02/12/96
SPL ID of sample spiked: 9602352-01A
Sample File ID: J___508.TX0
Method Blank File ID:
Blank Spike File ID: J___494.TX0
Matrix Spike File ID: J___500.TX0
Matrix Spike Duplicate File ID: J___501.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):

9602237-02A 9602237-03A 9602352-03A 9602352-01A
9602352-02A 9602449-01A 9602300-02A 9602230-03A
9602089-16A 9601C56-01A 9602261-01A 9602261-02A
9602407-06A 9602407-07A 9602407-08A 9602407-12A
9602407-14A 9602407-15A

QC Officer

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8880 INTERCHANGE DRIVE
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PHONE (713) 660-0901

** SPL BATCH QUALITY CONTROL REPORT **

Modified 8015 - Gasoline

Matrix: Aqueous

Batch Id: HP_J960211024510

Units: mg/L

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
Gasoline Petr. Hydrocarbon	ND	1.0	0.96	96.0	56 - 130

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
GASOLINE PETR. HYDROCARBON	ND	0.9	0.80	88.9	0.77	85.6	3.78	22	37 - 169

Analyst: VHZ

Sequence Date: 02/11/96

SPL ID of sample spiked: 9602224-01A

Sample File ID: JJ__472.TX0

Method Blank File ID:

Blank Spike File ID: JJ__465.TX0

Matrix Spike File ID: JJ__468.TX0

Matrix Spike Duplicate File ID: JJ__469.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): 9602224-01A 9602300-03A 9602237-09A 9602300-02A 9602224-02A

QC Officer

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** SPL BATCH QUALITY CONTROL REPORT **
Modified 8015 - Gasoline

Matrix: Aqueous
Units: mg/L

Batch Id: HP_J960210202400

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
Gasoline Petr. Hydrocarbon	ND	1.0	1.0	100	56 - 130

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
GASOLINE PETR. HYDROCARBON	ND	0.9	0.61	67.8	0.58	64.4	5.14	22	37 - 169

Analyst: VHZ
Sequence Date: 02/10/96
SPL ID of sample spiked: 9602237-10A
Sample File ID: JJ__435.TX0
Method Blank File ID:
Blank Spike File ID: JJ__426.TX0
Matrix Spike File ID: JJ__431.TX0
Matrix Spike Duplicate File ID: JJ__432.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): 9602237-03A 9602237-04A 9602237-05A 9602237-07A 9602237-06A 9602300-01A 9602237-02A 9602237-08A 9602237-01A 9602237-10A

QC Officer

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

** SPL BATCH QUALITY CONTROL REPORT **
Mod. 8015 - Diesel

Matrix: Aqueous
Units: mg/L

Batch Id: HP_T960212232100

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike Result <1>	Blank Spike Recovery %	QC Limits(**) (Mandatory) % Recovery Range
Diesel Petr. Hydrocarbons	ND	5.0	5.28	106	20 - 130

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike Result <1>	Matrix Spike Recovery <4>	Matrix Spike Duplicate Result <1>	Matrix Spike Duplicate Recovery <5>	MS/MSD Relative % Difference	QC Limits(***) (Advisory) RPD Max.	QC Limits(***) (Advisory) Recovery Range
DIESEL PETR. HYDROCARBONS	ND	5.0	5.94	119	5.71	114	4.29	43	20 - 177

Analyst: RR/
Sequence Date: 02/13/96
SPL ID of sample spiked: 9602019-06B
Sample File ID: T___595.TX0
Method Blank File ID:
Blank Spike File ID: TT__805.TX0
Matrix Spike File ID: T___596.TX0
Matrix Spike Duplicate File ID: T___597.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 (2nd Q '94)
(***) = Source: SPL-Houston Historical Data

SAMPLES IN BATCH(SPL ID): 9602224-01B 9602224-02B 9602237-06C 9602019-06B

QC Officer

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HOUSTON, TEXAS 77054
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** SPL QUALITY CONTROL REPORT **

Matrix: Aqueous

Reported on: 02/14/96
Analyzed on: 02/14/96
Analyst: DR

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

Hydrocarbons by sep. funnel & Grav
Method 5520 B & F **

SPL Sample ID Number	Blank Value mg/L	Amt Added mg/L	Matrix Spike Recovery %	Matrix Spike Duplicate Recovery %	Relative Percent Difference %	QC Limits Recovery	RPD Max.
BLANK	ND	4.0	90.0	95.0	5.4	82. - 112	9.8

9602141500LJ -9602529

Samples in batch:

9602224-02C 9602237-06D 9602297-02C 9602453-03C

COMMENTS:

SPL, Incorporated

QC Officer

CHAIN OF CUSTODY

AND

SAMPLE RECEIPT CHECKLIST

96022377 2/7/96

CHAIN OF CUSTODY

No. 051542 Page 1 of 1

CONSULTANT'S NAME: Aristo Engineering	ADDRESS: 1575 Treat Blvd	CITY: Walnut Creek	STATE: CA	ZIP CODE: 94598
BP SITE NUMBER: 11126	BP CORNER ADDRESS/CITY: 1700 Powell St, Emeryville CA			CONSULTANT PROJECT NUMBER: 10-061-06-003
CONSULTANT PROJECT MANAGER: Bill Howell	PHONE NUMBER: (510) 295 1050	FAX NUMBER: (510) 295 1823		CONSULTANT CONTRACT NUMBER: 6602099
BP CONTACT: Scott Hooton	BP ADDRESS: Renton WA	PHONE NUMBER: —		FAX NO.: —
LAB CONTACT: Ed Fry	LABORATORY ADDRESS: 8880 Interchange Houston	PHONE NUMBER: (713) 660-8977		FAX NO.
SAMPLED BY (Please Print Name): Dave Wistell	SAMPLED BY (Signature):	SHIPMENT DATE: 2-6-96		SHIPMENT METHOD: Fed Ex

TAT: ☐ 24 Hours ☐ 48 Hours ☐ 1 Week ☒ Standard 2 Weeks

AIRBILL NUMBER: 7923199874

ANALYSIS REQUIRED

SAMPLE DESCRIPTION	COLLECTION DATE / TIME	MATRIX SOIL/WATER	CONTAINERS NO.	CONTAINERS TYPE (VOL.)	PRESERVATIVE LAB SAMPLE #	TPH GAS BTEX MTBE	Her 8 1	TPH Diesel	H_2SO_4 TOG 5520	COMMENTS
S-1	1257	2/5/96	H2O	2	VOA	X				BTEX = 0.5 ug/L
S-2	1315									TPH/g = 50 ppb
S-3	1325									TPH/d = 50 ppb
S-4	1335									
S-5	1350									
S-6	1405			8	VOA & 1		X	X	X	
S-7	1425			2	VOA					
S-8	1440									
S-9	—									
S-10	—									

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Dave Wistell Aristo	2/6/96	1400	P. Upton	2/6/96	1410
P. Upton	1420		S. West	2/7/96	0930

ADDITIONAL COMMENTS: (510) 295-1650 Alamita County, CA 4C Intact

CIV 16722

Distribution: White - Original (with Data) Yellow - BP Pink - Lab Blue - Consultant Field Staff

SPL Houston Environmental Laboratory

Sample Login Checklist

Date:	Time:
2/7/96	0930

SPL Sample ID:
9602237

			Yes	No
1	Chain-of-Custody (COC) form is present.		✓	
2	COC is properly completed.		✓	
3	If no, Non-Conformance Worksheet has been completed.			
4	Custody seals are present on the shipping container.		✓	
5	If yes, custody seals are intact.		✓	
6	All samples are tagged or labeled.		✓	
7	If no, Non-Conformance Worksheet has been completed.			
8	Sample containers arrived intact		✓	
9	Temperature of samples upon arrival:		4° C	
10	Method of sample delivery to SPL:	SPL Delivery		
		Client Delivery		
		FedEx Delivery (airbill #)	792319987	
		Other:		
11	Method of sample disposal:	SPL Disposal	✓	
		HOLD		
		Return to Client		

Name:	Date:
S. West	2/7/96