GROUNDWATER MONITORING AND SAMPLING REPORT

BP Oil Company Service Station No. 11120
6400 Dublin Boulevard
Dublin, California

Project No. 10-170-04-003

Prepared for:

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January 20, 1997

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INTRODUCTION

This report presents the results and findings of the December 2, 1996 groundwater monitoring and sampling conducted by Alisto Engineering Group at BP Oil Company Service Station No. 11120, 6400 Dublin Boulevard, Dublin, 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 relative to an arbitrary datum. 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. 11120
6400 DUBLIN BOULEVARD, DUBLIN, CALIFORNIA

ALISTO PROJECT NO. 10-170

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	TPH-D (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	DO (ppm)	LAB
MW-1 (c)	10/27/92	328.96	8.19	320.77	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-1	04/09/93	328.96	4.79	324.17	ND<50	100	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-1	08/25/93	328.96	6.85	322.11	ND<50	70	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-1	11/22/93	328.96	7.38	321.58	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-1	03/07/94	328.96	5.89	323.07	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	4.3	PACE
MW-1	06/09/94	328.96	6.42	322.54	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	8.8	PACE
MW-1	09/12/94	328.96	7.33	321.63	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	7.8	PACE
MW-1	12/20/94	328.96	6.34	322.62	---	---	---	---	---	---	---	---	---
MW-1	03/16/95	328.96	4.37	324.59	ND<50	ND<500	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	5.6	ATI
MW-1	06/28/95	328.96	5.35	323.61	---	---	---	---	---	---	---	---	---
MW-1	09/06/95	328.96	6.44	322.52	ND<50	340	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	7.4	ATI
MW-1	12/22/95	328.96	6.04	322.92	---	---	---	---	---	---	---	---	---
MW-1	08/20/96	328.96	5.65	323.31	---	---	---	---	---	---	---	---	---
MW-1	08/21/96	328.96	---	---	ND<50	160	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	6.8	SPL
MW-1	10/31/96	328.96	5.99	322.97	---	---	---	---	---	---	---	---	---
MW-1 (d)	12/02/96	328.96	---	---	---	---	---	---	---	---	---	---	---
MW-2	10/27/92	328.50	7.64	320.86	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-2	04/09/93	328.50	4.12	324.38	ND<50	80	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-2	08/25/93	328.50	6.31	322.19	ND<50	70	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-2	11/22/93	328.50	7.12	321.38	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-2	03/07/94	328.50	5.60	322.90	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	4.3	PACE
MW-2	06/09/94	328.50	5.91	322.59	ND<50	70	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	8.2	PACE
MW-2	09/12/94	328.50	6.87	321.63	ND<50	160	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	7.5	PACE
MW-2	12/20/94	328.50	5.86	322.64	---	---	---	---	---	---	---	---	---
MW-2	03/16/95	328.50	3.77	324.73	ND<50	ND<500	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	6.6	ATI
MW-2	03/16/95	328.50	3.77	324.73	ND<50	ND<500	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	6.6	ATI
MW-2	06/28/95	328.50	4.33	324.17	---	---	---	---	---	---	---	---	---
MW-2	09/06/95	328.50	5.85	322.65	ND<50	210	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	7.0	ATI
MW-2	12/22/95	328.50	5.50	323.00	---	---	---	---	---	---	---	---	---
MW-2	08/20/96	328.50	5.07	323.43	---	---	---	---	---	---	---	---	---
MW-2	08/21/96	328.50	---	---	ND<50	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	7.0	SPL
MW-2	10/31/96	328.50	5.44	323.06	---	---	---	---	---	---	---	---	---
MW-2	12/02/96	328.50	5.50	323.00	---	---	---	---	---	---	---	---	---

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING
BP OIL COMPANY SERVICE STATION NO. 11120
6400 DUBLIN BOULEVARD, DUBLIN, CALIFORNIA

ALISTO PROJECT NO. 10-170

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	TPH-D (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	DO (ppm)	LAB
MW-3	10/27/92	329.36	8.43	320.93	210	ND<50	3	0.7	0.9	30	---	---	PACE
MW-3	04/09/93	329.36	4.90	324.46	400	260	6.1	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-3	08/25/93	329.36	7.13	322.23	2000	440	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-3	11/22/93	329.36	7.60	321.76	1800	360	ND<2.5	ND<2.5	ND<2.5	ND<2.5	---	---	PACE
MW-3	03/07/94	329.36	6.08	323.28	1300	5000	22	4.0	2.2	3.8	---	3.7	PACE
MW-3	06/09/94	329.36	6.51	322.85	8500	2600	25	8.3	0.5	15	---	7.2	PACE
QC-1 (e)	06/09/94	---	---	---	8800	---	23	6.3	0.5	10	---	---	PACE
MW-3	09/12/94	329.36	7.63	321.73	2100	3200	ND<5.0	ND<5.0	8.8	20	---	7.3	PACE
QC-1 (e)	09/12/94	---	---	---	1800	---	ND<5.0	ND<5.0	8.0	10	---	---	PACE
MW-3	12/20/94	329.36	6.41	322.95	18000	9600	79	28	89	9.3	---	7.3	PACE
QC-1 (e)	12/20/94	---	---	---	17000	---	79	33	80	ND<2.5	---	---	PACE
MW-3	03/16/95	329.36	4.39	324.97	6300	7000	470	ND<5.0	210	9.9	---	5.5	ATI
QC-1 (e)	03/16/95	---	---	---	6300	---	500	ND<5.0	230	13	---	---	ATI
MW-3	06/28/95	329.36	5.50	323.86	9000	3000	ND<10	ND<10	ND<10	ND<20	---	7.4	ATI
QC-1 (e)	06/28/95	---	---	---	8800	---	ND<10	ND<10	ND<10	ND<20	---	---	ATI
MW-3	09/06/95	329.36	6.66	322.70	10000	2800	ND<50	ND<50	ND<50	ND<100	37000	7.1	ATI
QC-1 (e)	09/06/95	---	---	---	9700	---	ND<50	ND<50	ND<50	ND<100	36000	---	ATI
MW-3	12/22/95	329.36	6.31	323.05	9200	2500	ND<50	ND<50	ND<50	ND<100	29000	6.7	ATI
MW-3	08/20/96	329.36	5.87	323.49	---	---	---	---	---	---	---	---	---
MW-3	08/21/96	329.36	---	---	3700	1900	ND<25	ND<50	ND<50	ND<50	4100	6.8	SPL
QC-1 (e)	08/21/96	---	---	---	3500	---	ND<25	ND<50	ND<50	ND<50	4000	---	SPL
MW-3	10/31/96	329.36	6.20	323.16	ND<250	ND<500	ND<2.5	ND<5.0	ND<5.0	ND<5.0	ND<50	6.8	SPL
QC-1 (e)	10/31/96	---	---	---	ND<250	---	ND<2.5	ND<5.0	ND<5.0	ND<5.0	ND<50	---	---
MW-3	12/02/96	329.36	6.27	323.09	ND<250	50	ND<2.5	ND<5.0	ND<5.0	ND<5.0	ND<50	6.4	SPL
QC-1 (e)	12/02/96	---	---	---	ND<250	---	ND<2.5	ND<5.0	ND<5.0	ND<5.0	ND<50	---	---
MW-4	10/27/92	329.45	8.61	320.84	2300	190	23	54	50	320	---	---	PACE
MW-4	04/09/93	329.45	5.25	324.20	1600	500	78	3.5	68	1.0	---	---	PACE
MW-4	08/25/88	329.45	7.32	322.13	1800	380	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-1 (e)	08/25/93	---	---	---	1600	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-4	11/22/93	329.45	7.83	321.62	610	260	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-1 (e)	11/22/93	---	---	---	1700	---	ND<2.5	ND<2.5	ND<2.5	ND<2.5	---	---	PACE
MW-4	03/07/94	329.45	6.29	323.16	710	1400	0.5	0.8	ND<0.5	ND<0.5	---	3.8	PACE
QC-1 (e)	03/07/94	---	---	---	1600	---	ND<0.5	ND<0.5	1.4	0.6	---	---	PACE
MW-4	06/09/94	329.45	6.76	322.69	6400	1800	ND<10	ND<10	ND<10	ND<10	---	7.5	PACE
MW-4	09/12/94	329.45	7.83	321.62	2000	2700	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	7.2	PACE
MW-4	12/20/94	329.45	6.68	322.77	9200	2400	ND<5.0	ND<5.0	ND<5.0	ND<5.0	---	6.1	PACE
MW-4	03/16/95	329.45	4.66	324.79	1400	960	140	ND<2.5	58	14	---	5.5	ATI
MW-4	06/28/95	329.45	5.93	323.52	5000	5400	240	ND<5.0	220	ND<10	---	7.4	ATI
MW-4	09/06/95	329.45	6.83	322.62	4400	4500	ND<13	ND<13	ND<13	ND<25	12000	7.6	ATI
MW-4	12/22/95	329.45	6.42	323.03	3800	4700	15	ND<13	ND<13	ND<25	9200	7.1	ATI
QC-1 (e)	12/22/95	---	---	---	3900	---	16	ND<13	ND<13	ND<25	8600	---	ATI
MW-4	08/20/96	329.45	6.01	323.44	---	---	---	---	---	---	---	---	---
MW-4	08/21/96	329.45	---	---	ND<250	470	ND<12	ND<25	ND<25	ND<25	ND<250	7.7	SPL
MW-4	10/31/96	329.45	6.37	323.08	ND<250	1600	ND<2.5	ND<5.0	ND<5.0	ND<5.0	ND<50	7.1	SPL
MW-4	12/02/96	329.45	6.71	322.74	ND<50	13000	ND<5	ND<10	ND<10	ND<10	2200	7.3	SPL

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ALISTO PROJECT NO. 10-170

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	TPH-D (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	DO (ppm)	LAB
MW-5	04/09/93	329.60	5.18	324.42	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-5	08/25/93	329.60	7.28	322.32	ND<50	70	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-5	11/22/93	329.60	7.82	321.78	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-5	03/07/94	329.60	6.27	323.33	ND<50	120	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	5.7	PACE
MW-5	06/09/94	329.60	6.73	322.87	ND<50	70	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	7.7	PACE
MW-5	09/12/94	329.60	7.78	321.82	ND<50	120	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	7.2	PACE
MW-5	12/20/94	329.60	6.63	322.97	---	---	---	---	---	---	---	---	---
MW-5	03/16/95	329.60	4.65	324.95	ND<50	ND<500	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	4.9	ATI
MW-5	06/28/95	329.60	5.69	323.91	---	---	---	---	---	---	---	---	---
MW-5	09/06/95	329.60	6.82	322.78	ND<50	200	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	7.3	ATI
MW-5	12/22/95	329.60	6.40	323.20	---	---	---	---	---	---	---	---	---
MW-5	08/20/96	329.60	5.98	323.62	---	---	---	---	---	---	---	---	---
MW-5	08/21/96	329.60	---	---	ND<50	ND<50	ND<0.50	ND<1.0	ND<1.0	ND<1.0	ND<10	6.9	SPL
MW-5	10/31/96	329.60	6.29	323.31	---	---	---	---	---	---	---	---	---
MW-5	12/02/96	329.60	6.37	323.23	---	---	---	---	---	---	---	---	---
MW-6	04/09/93	329.55	5.37	324.18	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-6	08/25/93	329.55	7.42	322.13	ND<50	170	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-6	11/22/93	329.55	7.93	321.62	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-6	03/07/94	329.55	6.25	323.30	ND<50	90	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	4.2	PACE
MW-6	06/09/94	329.55	6.85	322.70	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	7.0	PACE
MW-6	09/12/94	329.55	7.91	321.64	ND<50	240	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	6.7	PACE
MW-6	12/20/94	329.55	6.82	322.73	---	---	---	---	---	---	---	---	---
MW-6	03/16/95	329.55	4.78	324.77	ND<50	ND<500	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	6.1	ATI
MW-6	06/28/95	329.55	5.97	323.58	---	---	---	---	---	---	---	---	---
MW-6	09/06/95	329.55	6.94	322.61	ND<50	340	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	7.2	ATI
MW-6	12/22/95	329.55	6.53	323.02	---	---	---	---	---	---	---	---	---
MW-6	08/20/96	329.55	6.18	323.37	---	---	---	---	---	---	---	---	---
MW-6	08/21/96	329.55	---	---	ND<50	120	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	SPL
MW-6	10/31/96	329.55	6.52	323.03	---	---	---	---	---	---	---	---	---
MW-6	12/02/96	329.55	6.55	323.00	---	---	---	---	---	---	---	---	---
MW-7	04/09/93	329.49	5.36	324.13	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-7	08/25/93	329.49	7.44	322.05	ND<50	150	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-7	11/22/93	329.49	7.92	321.57	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
MW-7	03/07/94	329.49	6.20	323.29	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	3.7	PACE
MW-7	06/09/94	329.49	6.89	322.60	ND<50	70	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	6.8	PACE
MW-7	09/12/94	329.49	7.87	321.62	ND<50	50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	6.8	PACE
MW-7	12/20/94	329.49	6.77	322.72	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	6.5	PACE
MW-7	03/16/95	329.49	4.77	324.72	ND<50	ND<500	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	5.9	ATI
MW-7	06/28/95	329.49	5.94	323.55	ND<50	320	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	7.8	ATI
MW-7	09/06/95	329.49	6.98	322.51	ND<50	240	ND<0.50	ND<0.50	ND<0.50	ND<1.0	8.5	7.5	ATI
MW-7	12/22/95	329.49	6.65	322.84	ND<50	ND<50	ND<0.50	ND<0.50	ND<0.50	ND<1.0	7.2	6.9	ATI
MW-7	08/20/96	329.49	6.22	323.27	---	---	---	---	---	---	---	---	---
MW-7	08/21/96	329.49	---	---	ND<50	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	---	SPL
MW-7	10/31/96	329.49	6.56	322.93	ND<50	ND<100	ND<0.5	ND<1.0	ND<1.0	ND<1.0	86	6.8	SPL
MW-7	12/02/96	329.49	6.13	323.36	ND<50	ND<50	ND<0.5	ND<1.0	ND<1.0	ND<1.0	59	7.3	SPL

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WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	TPH-D (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	MTBE (ug/l)	DO (ppm)	LAB
QC-2 (f)	08/25/93	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2 (f)	11/22/93	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2 (f)	03/07/94	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2 (f)	06/09/94	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2 (f)	09/12/94	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2 (f)	12/20/94	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2 (f)	03/16/95	---	---	---	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	ATI
QC-2 (f)	06/28/95	---	---	---	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	ATI
QC-2 (f)	09/06/95	---	---	---	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	---	ATI
QC-2 (f)	12/22/95	---	---	---	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	---	ATI

ABBREVIATIONS:

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

NOTES:

(a) Top of casing elevations surveyed to an arbitrary datum.

(b) Groundwater elevations relative to an arbitrary datum.

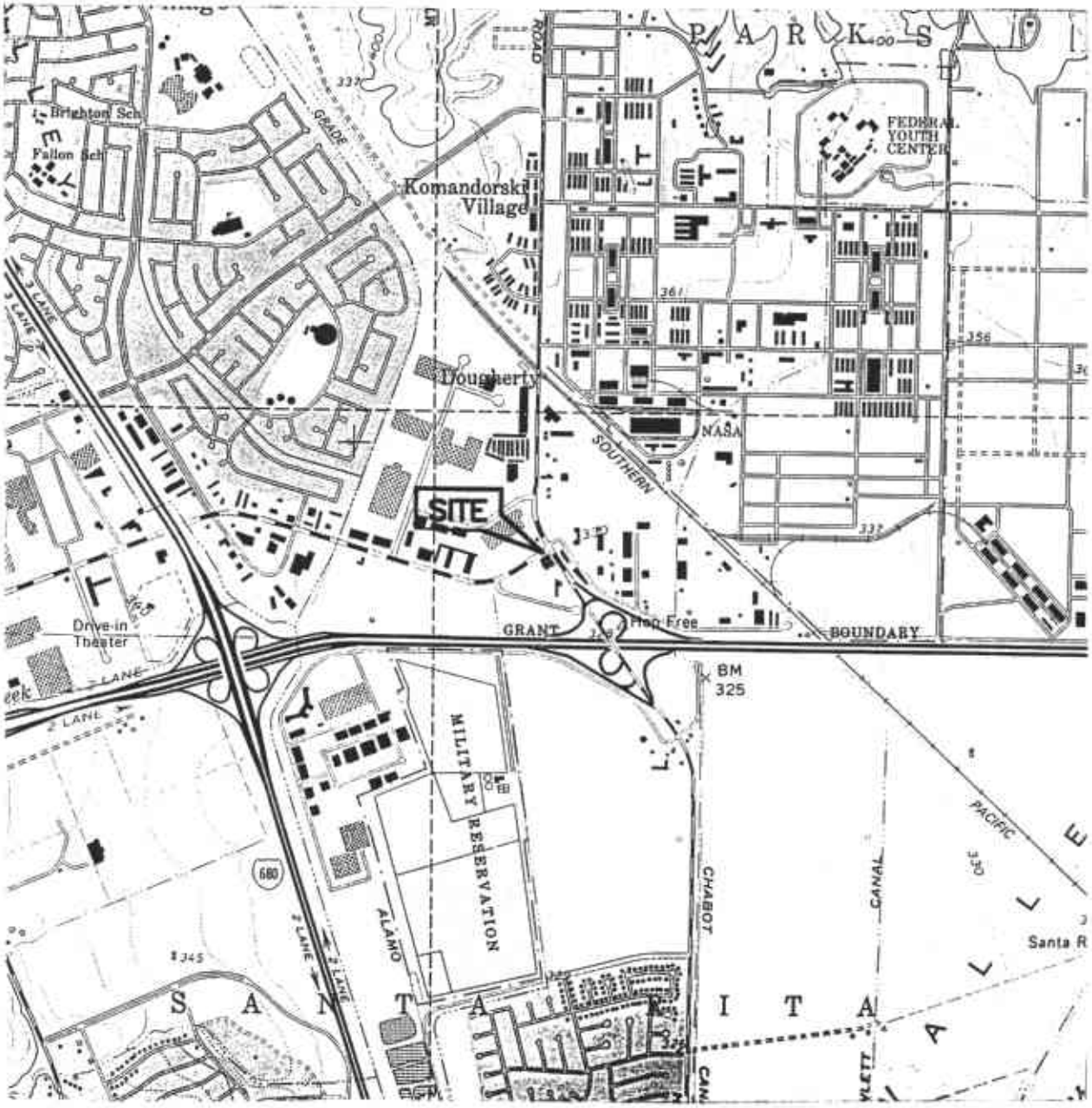
(c) Analysis did not detect total oil and grease and halogenated volatile organic compounds above reported detection limits.

(d) Well inaccessible.

(e) Blind duplicate.

(f) Travel blank.

F:\01\10-170\170-4-3.WQ2



SOURCE:
USGS MAP, DUBLIN QUADRANGLE, CALIFORNIA. 7.5 MINUTE SERIES. 1961. PHOTOREVISED 1980.

N

0 1000' 2000'

FIGURE 1

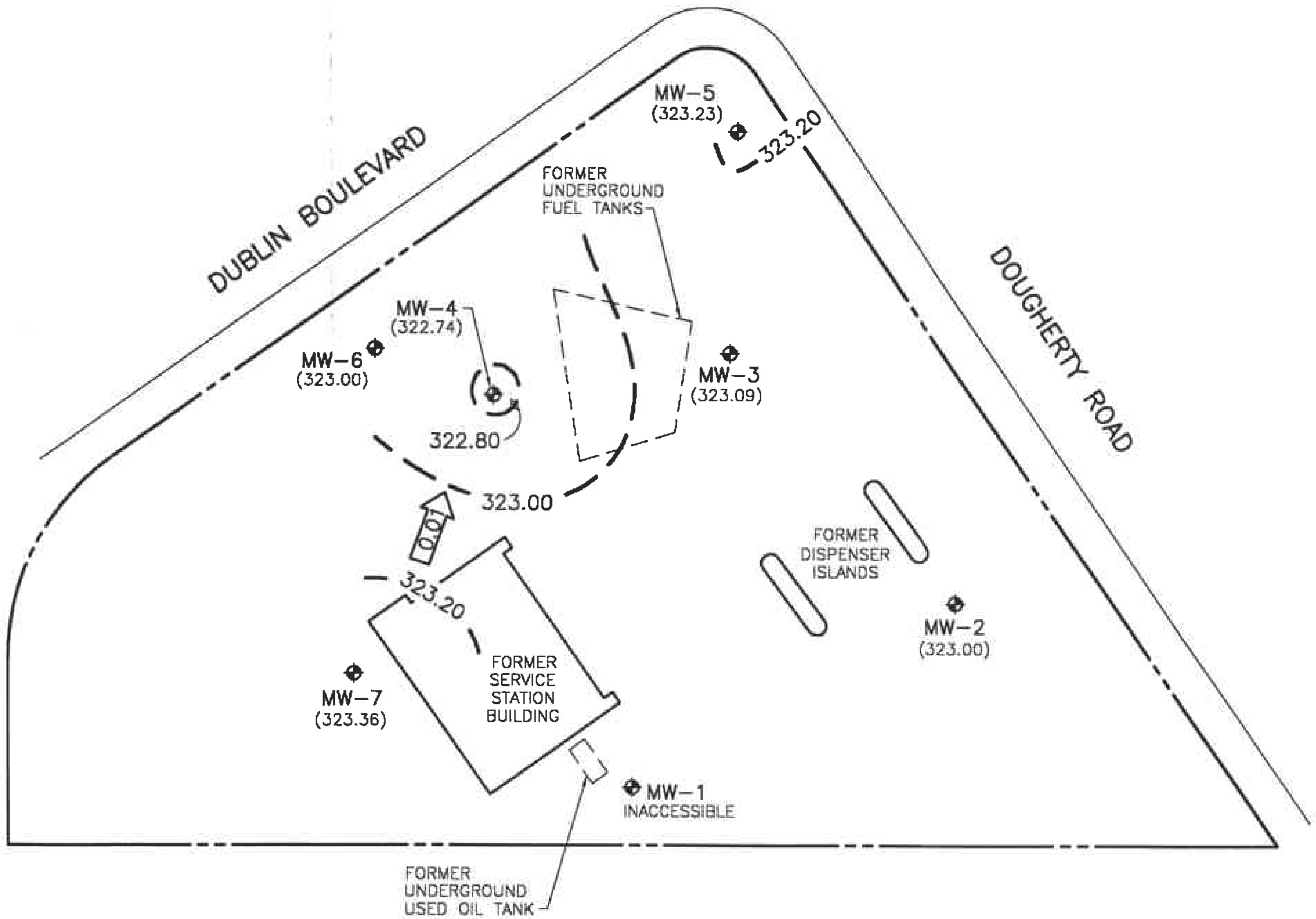
SITE VICINITY MAP

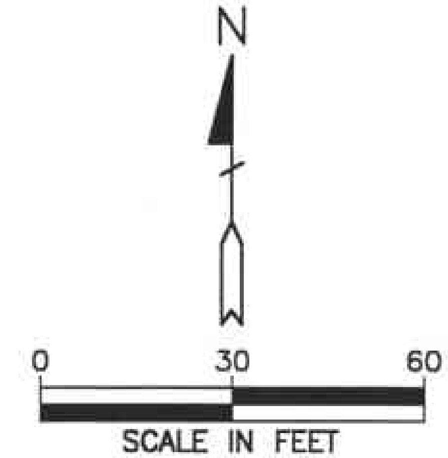
BP OIL SERVICE STATION NO. 11120
6400 DUBLIN BOULEVARD
DUBLIN, CALIFORNIA

PROJECT NO. 10-170

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

101700—DWG 10-6-93 RKW 1=1





LEGEND

⊕	GROUNDWATER MONITORING WELL
(323.00)	GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
323.20	GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL—0.20 FOOT)
0.01	CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 2

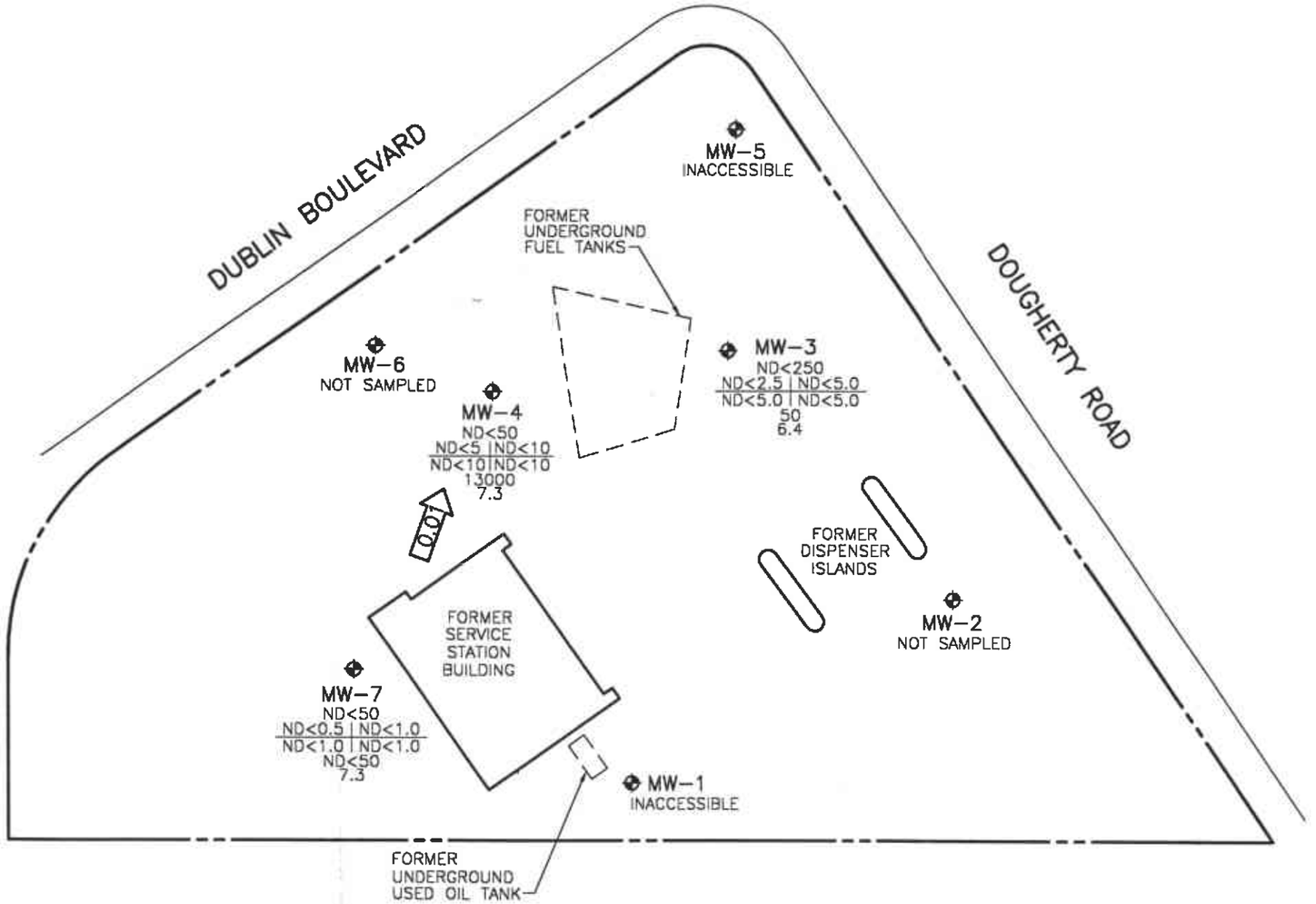
POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP

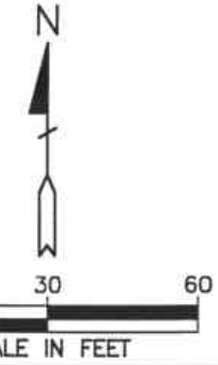
DECEMBER 2, 1996

BP OIL SERVICE STATION NO. 11120
6400 DUBLIN BOULEVARD
DUBLIN, CALIFORNIA

PROJECT NO. 10-170

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA





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
0.01	CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 3

CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER

DECEMBER 2, 1996

BP OIL SERVICE STATION NO. 11120
6400 DUBLIN BOULEVARD
DUBLIN, CALIFORNIA

PROJECT NO. 10-170

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

10170SHT.DWG 1-8-97 DSM 1=30

APPENDIX A

WATER SAMPLING FIELD SURVEY FORMS

ALISTO

ENGINEERING

GROUP

1575 TREAT BOULEVARD, SUITE 201

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

Field Report / Sampling Data Sheet

Project No. 10-170-04-003 Date: 12/2/96

Address I-580 & Dougherty Day: M T W TH F

Contract No. G797391 City: Dublin

Station No. BP 11120 Sampler:

DEPTH TO GROUNDWATER SUMMARY

WELL ID	SAMPLE ID	WELL DIAM	TOTAL DEPTH	DEPTH TO WATER	PRODUCT THICKNESS	TIME MONITORED	COMMENTS: Semi=August/Feb
MW-1	N/S	2"	N/M	—	Ø	N/M	Semi Seems to have Been destroyed or Covered Cannot Locate
MW-2	N/S	2"	N/M	5.50		1010	Semi
MW-3	S-3	2"	20.00	6.27		1026	DTW = 6.27 QC-1 = (S-4)
MW-4	S-2	2"	20.00	6.71		1224	DTW = 6.71
MW-5	N/S	2"	N/M	6.37		1013	Semi
MW-6	N/S	4"	N/M	6.55		1018	Semi
MW-7	S-1	2"	20.25	6.13	↓	1021	

FIELD INSTRUMENT CALIBRATION DATA

pH METER Ion 4.00 4 7.00 7 10.00 10 TEMPERATURE COMPENSATED Y N TIME 0800 WEATHER Cloudy

D.O. METER Ion ZERO d.O. SOLUTION 0 BAROMETRIC PRESSURE 760 TEMP 62

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

LEAK DETECTOR : ALARM MODE X NON ALARM MODE

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Iridescence	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-7	6.13	2"	OK	Ø	Y (N)	2	1101	66.6	7.59	1.87ms	7.1
						4		65.4	7.40	1.70ms	
						7	1110	65.0	7.33	1.63ms	7.3

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

20.25 - 6.13 = 14.12 X .16 = 2.26 X 3 = 6.78

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

Comments:

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

TIME/SAMPLE ID: 1113

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Iridescence	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-4	6.71	2"	Locked	Ø	Y (N)	2	1122	67.4	7.79	1.46ms	7.0
						4		66.2	7.60	1.20ms	
						7	1131	65.9	7.54	1.14ms	7.3

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

20.00 - 6.71 = 13.29 X .16 = 2.13 X 3 = 6.39

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

Comments:

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

TIME/SAMPLE ID: 1133

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. 10-170-04-002 Date: 12/2/96
Address I-580 & Dougherty Day: M T W TH F
Contract No. G797391 City: Dublin
Station No. BP 11120 Sampler: LB

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Iridescence	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-3	6.27	2"	OIL	Ø	Y (N)	2	1145	67.7	7.81	1.62ms	6.0
Total Depth - Water Level=	x Well Vol. Factor=	x#Vol. to Purge	PurgeVol.			4		66.4	7.60	1.33ms	
20.00-6.27 = 13.73 X .16 = 2.20 X 3 = 6.60						7	1154	66.0	7.52	1.27ms	6.4
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s) OSys Port											
Comments: QC-1 (5-4) From this well											

- O EPA 601
- X TPH-G/BTEX HCl
- X TPH Diesel HCl
- O TOG 5520

TIME/SAMPLE ID: 1157

PAGE 2 OF 2

APPENDIX B

LABORATORY REPORT AND CHAIN OF CUSTODY RECORD

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

Southern Petroleum Laboratories, Inc.

Certificate of Analysis Number: 96-12-386

Approved for Release by:

Ed Fry, Project Manager — Date: 12/17/96

Greg Grandits
Laboratory Director

Idelis Williams
Quality Assurance Officer

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

Certificate of Analysis No. H9-9612386-04

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

P.O.# G797391, COC#078795
DATE: 12/17/96

PROJECT: BP Oil #11120
SITE: Dublin, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-4

PROJECT NO: 10-170-4-1
MATRIX: WATER
DATE SAMPLED: 12/02/96
DATE RECEIVED: 12/06/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	50 P	µg/L
Benzene	ND	2.5 P	µg/L
Toluene	ND	5.0 P	µg/L
Ethylbenzene	ND	5.0 P	µg/L
Total Xylene	ND	5.0 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	87		
4-Bromofluorobenzene	100		
METHOD 8020***			
Analyzed by: RL			
Date: 12/13/96			
Total Petroleum Hydrocarbons-Gasoline	ND	0.25 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	93		
4-Bromofluorobenzene	107		
CA LUFT - Gasoline			
Analyzed by: RL			
Date: 12/13/96 08:55:00			

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. H9-9612386-03

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

P.O.# G797391, COC#078795
DATE: 12/17/96

PROJECT: BP Oil #11120
SITE: Dublin, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-3

PROJECT NO: 10-170-4-1
MATRIX: WATER
DATE SAMPLED: 12/02/96
DATE RECEIVED: 12/06/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
California TPH-D Extraction METHOD 3510B *** Analyzed by: JN Date: 12/09/96 10:00:00	12/09/96		

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. H9-9612386-03

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

P.O.# G797391, COC#078795
DATE: 12/17/96

PROJECT: BP Oil #11120
SITE: Dublin, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-3

PROJECT NO: 10-170-4-1
MATRIX: WATER
DATE SAMPLED: 12/02/96
DATE RECEIVED: 12/06/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	50 P	µg/L
Benzene	ND	2.5 P	µg/L
Toluene	ND	5.0 P	µg/L
Ethylbenzene	ND	5.0 P	µg/L
Total Xylene	ND	5.0 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	93		
4-Bromofluorobenzene	100		
METHOD 8020***			
Analyzed by: RL			
Date: 12/13/96			
Total Petroleum Hydrocarbons-Gasoline	ND	0.25 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	93		
4-Bromofluorobenzene	100		
CA LUFT - Gasoline			
Analyzed by: RL			
Date: 12/13/96 08:26:00			
Diesel Range Organics	0.05	0.05 P	
Surrogate	**% Recovery**		
o-Terphenyl	99		
2-Fluorobiphenyl	65		
California LUFT Manual			
Analyzed by: RR			
Date: 12/11/96 07:42:00			

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

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

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

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

Certificate of Analysis No. H9-9612386-02

BP Oil Company

SAMPLE ID: S-2

SURROGATES	% RECOVERY
1-Chloro-2-Fluorobenzene	85

ANALYZED BY: DAO DATE/TIME: 12/14/96 12:18:00
METHOD: 8010, Halogenated Volatile Organics
NOTES: * - Practical Quantitation Limit ND - Not Detected
NA - Not Analyzed

COMMENTS:

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

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

Certificate of Analysis No. H9-9612386-02

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

P.O.# G797391, COC#078795
12/17/96

PROJECT: BP Oil #11120
SITE: Dublin, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-2 /mw4

PROJECT NO: 10-170-4-1
MATRIX: WATER
DATE SAMPLED: 12/02/96
DATE RECEIVED: 12/06/96

ANALYTICAL DATA

PARAMETER	RESULTS	PQL*	UNITS
Dichlorodifluoromethane	ND	1.0	µg/L
Chloromethane	ND	1.0	µg/L
Vinyl chloride	ND	1.0	µg/L
Bromomethane	ND	1.0	µg/L
Chloroethane	ND	1.0	µg/L
Trichlorofluoromethane	ND	1.0	µg/L
1,1-Dichloroethene	ND	1.0	µg/L
Methylene chloride	ND	1.0	µg/L
Trans-1,2-Dichloroethene	ND	1.0	µg/L
1,1-Dichloroethane	ND	1.0	µg/L
Chloroform	ND	1.0	µg/L
1,1,1-Trichloroethane	ND	1.0	µg/L
Carbon tetrachloride	ND	1.0	µg/L
1,2-Dichloroethane	ND	1.0	µg/L
2-Chloroethylvinyl ether	ND	1.0	µg/L
Trichloroethene	ND	1.0	µg/L
1,2-Dichloropropane	ND	1.0	µg/L
Bromodichloromethane	ND	1.0	µg/L
cis-1,3-Dichloropropene	ND	1.0	µg/L
trans-1,3-Dichloropropene	ND	1.0	µg/L
1,1,2-Trichloroethane	ND	1.0	µg/L
Tetrachloroethene	ND	1.0	µg/L
Dibromochloromethane	ND	1.0	µg/L
Chlorobenzene	ND	1.0	µg/L
Bromoform	ND	1.0	µg/L
1,1,2,2-Tetrachloroethane	ND	1.0	µg/L
1,3-Dichlorobenzene	ND	1.0	µg/L
1,4-Dichlorobenzene	ND	1.0	µg/L
1,2-Dichlorobenzene	ND	1.0	µg/L

METHOD: **8010, Halogenated** Volatile Organics

(continued on next page)

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

Certificate of Analysis No. H9-9612386-02

BP Oil Company

SAMPLE ID: S-2

SURROGATES	AMOUNT SPIKED	% RECOVERY	LOWER LIMIT	UPPER LIMIT
Nitrobenzene-d5	50 ug/L	69	35	114
2-Fluorobiphenyl	50 ug/L	73	43	116
Terphenyl-d14	50 ug/L	92	33	141
Phenol-d5	75 ug/L	29	10	110
2-Fluorophenol	75 ug/L	38	21	110
2,4,6-Tribromophenol	75 ug/L	97	10	123

ANALYZED BY: PC DATE/TIME: 12/13/96 16:18:00
EXTRACTED BY: JN DATE/TIME: 12/09/96 10:00:00
METHOD: 8270, Semivolatile Organics - Water
NOTES: * - Practical Quantitation Limit ND - Not Detected
NA - Not Analyzed

COMMENTS:

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

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

Certificate of Analysis No. H9-9612386-02

BP Oil Company

SAMPLE ID: S-2

ANALYTICAL DATA (continued)

PARAMETER	RESULTS	PQL*	UNITS
1,2-Diphenylhydrazine	ND	5	ug/L
bis(2-Ethylhexyl)Phthalate	9	5	ug/L
Fluoranthene	ND	5	ug/L
Fluorene	ND	5	ug/L
Hexachlorobenzene	ND	5	ug/L
Hexachlorobutadiene	ND	5	ug/L
Hexachloroethane	ND	5	ug/L
Hexachlorocyclopentadiene	ND	5	ug/L
Indeno(1,2,3-cd)Pyrene	ND	5	ug/L
Isophorone	ND	5	ug/L
2-Methylnaphthalene	ND	5	ug/L
2-Methylphenol	ND	5	ug/L
4-Methylphenol	ND	5	ug/L
Naphthalene	ND	5	ug/L
2-Nitroaniline	ND	25	ug/L
3-Nitroaniline	ND	25	ug/L
4-Nitroaniline	ND	25	ug/L
Nitrobenzene	ND	5	ug/L
2-Nitrophenol	ND	5	ug/L
4-Nitrophenol	ND	25	ug/L
N-Nitrosodiphenylamine	ND	5	ug/L
N-Nitroso-Di-n-Propylamine	ND	5	ug/L
Di-n-Octyl Phthalate	ND	5	ug/L
Pentachlorophenol	ND	25	ug/L
Phenanthrene	ND	5	ug/L
Phenol	ND	5	ug/L
Pyrene	ND	5	ug/L
Pyridine	ND	5	ug/L
1,2,4-Trichlorobenzene	ND	5	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	5	ug/L

METHOD: 8270, Semivolatile Organics - Water

(continued on next page)

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

Certificate of Analysis No. H9-9612386-02

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

P.O.# G797391, COC#078795
12/17/96

PROJECT: BP Oil #11120
SITE: Dublin, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-2

PROJECT NO: 10-170-4-1
MATRIX: WATER
DATE SAMPLED: 12/02/96
DATE RECEIVED: 12/06/96

ANALYTICAL DATA

PARAMETER	RESULTS	PQL*	UNITS
Acenaphthene	ND	5	ug/L
Acenaphthylene	ND	5	ug/L
Aniline	ND	5	ug/L
Anthracene	ND	5	ug/L
Benzo(a)Anthracene	ND	5	ug/L
Benzo(b)Fluoranthene	ND	5	ug/L
Benzo(k)Fluoranthene	ND	5	ug/L
Benzo(a)Pyrene	ND	5	ug/L
Benzoic Acid	ND	25	ug/L
Benzo(g,h,i)Perylene	ND	5	ug/L
Benzyl alcohol	ND	5	ug/L
4-Bromophenylphenyl ether	ND	5	ug/L
Butylbenzylphthalate	ND	5	ug/L
di-n-Butyl phthalate	ND	5	ug/L
Carbazole	ND	5	ug/L
4-Chloroaniline	ND	5	ug/L
bis(2-Chloroethoxy)Methane	ND	5	ug/L
bis(2-Chloroethyl)Ether	ND	5	ug/L
bis(2-Chloroisopropyl)Ether	ND	5	ug/L
4-Chloro-3-Methylphenol	ND	5	ug/L
2-Chloronaphthalene	ND	5	ug/L
2-Chlorophenol	ND	5	ug/L
4-Chlorophenylphenyl ether	ND	5	ug/L
Chrysene	ND	5	ug/L
Dibenz(a,h)Anthracene	ND	5	ug/L
Dibenzofuran	ND	5	ug/L
1,2-Dichlorobenzene	ND	5	ug/L
1,3-Dichlorobenzene	ND	5	ug/L
1,4-Dichlorobenzene	ND	5	ug/L
3,3'-Dichlorobenzidine	ND	10	ug/L
2,4-Dichlorophenol	ND	5	ug/L
Diethylphthalate	ND	5	ug/L
2,4-Dimethylphenol	ND	5	ug/L
Dimethyl Phthalate	ND	5	ug/L
4,6-Dinitro-2-Methylphenol	ND	25	ug/L
2,4-Dinitrophenol	ND	25	ug/L
2,4-Dinitrotoluene	ND	5	ug/L
2,6-Dinitrotoluene	ND	5	ug/L

METHOD: 8270, Semivolatile Organics - Water

(continued on next page)

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

Certificate of Analysis No. H9-9612386-02

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

P.O.# G797391, COC#078795
DATE: 12/17/96

PROJECT: BP Oil #11120
SITE: Dublin, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-2

PROJECT NO: 10-170-4-1
MATRIX: WATER
DATE SAMPLED: 12/02/96
DATE RECEIVED: 12/06/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
California TPH-D Extraction METHOD 3510B *** Analyzed by: JN Date: 12/09/96 10:00:00	12/09/96		
Liquid-liquid extraction SEMIVOLATILES METHOD 3520B *** Analyzed by: JN Date: 12/09/96 10:00:00	12/09/96		

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. H9-9612386-02

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

P.O.# G797391, COC#078795
DATE: 12/17/96

PROJECT: BP Oil #11120
SITE: Dublin, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-2

PROJECT NO: 10-170-4-1
MATRIX: WATER
DATE SAMPLED: 12/02/96
DATE RECEIVED: 12/06/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	2200	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	90		
4-Bromofluorobenzene	100		
METHOD 8020***			
Analyzed by: RL			
Date: 12/14/96			
Total Petroleum Hydrocarbons-Gasoline	ND	0.05 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	107		
4-Bromofluorobenzene	107		
CA LUFT - Gasoline			
Analyzed by: RL			
Date: 12/13/96 01:31:00			
Diesel Range Organics	13	1.25 P	
Surrogate	**% Recovery**		
o-Terphenyl	107		
2-Fluorobiphenyl	83		
California LUFT Manual			
Analyzed by: RR			
Date: 12/12/96 06:49:00			

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

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

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

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HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9612386-01

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

P.O.# G797391, COC#078795
DATE: 12/17/96

PROJECT: BP Oil #11120
SITE: Dublin, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-1

PROJECT NO: 10-170-4-1
MATRIX: WATER
DATE SAMPLED: 12/02/96
DATE RECEIVED: 12/06/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
California TPH-D Extraction METHOD 3510B *** Analyzed by: JN Date: 12/09/96 10:00:00	12/09/96		

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, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9612386-01

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

P.O.# G797391, COC#078795
DATE: 12/17/96

PROJECT: BP Oil #11120
SITE: Dublin, CA
SAMPLED BY: Alisto Engineering
SAMPLE ID: S-1

PROJECT NO: 10-170-4-1
MATRIX: WATER
DATE SAMPLED: 12/02/96
DATE RECEIVED: 12/06/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	59	10 P	µg/L
Benzene	ND	0.5 P	µg/L
Toluene	ND	1.0 P	µg/L
Ethylbenzene	ND	1.0 P	µg/L
Total Xylene	ND	1.0 P	µg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	90		
4-Bromofluorobenzene	73		
METHOD 8020***			
Analyzed by: RL			
Date: 12/13/96			
Total Petroleum Hydrocarbons-Gasoline	ND	0.05 P	mg/L
Surrogate	**% Recovery**		
1,4-Difluorobenzene	93		
4-Bromofluorobenzene	80		
CA LUFT - Gasoline			
Analyzed by: RL			
Date: 12/13/96 01:02:00			
Diesel Range Organics	ND	0.05 P	
Surrogate	**% Recovery**		
o-Terphenyl	122		
2-Fluorobiphenyl	88		
California LUFT Manual			
Analyzed by: RR			
Date: 12/11/96 06:57:00			

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

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

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

QUALITY CONTROL

DOCUMENTATION

CHAMPION ®
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HOUSTON, TEXAS 77054
PHONE (713) 660-0901

METHOD 8270B *** **BATCH#:**E961209042249
WORK ORDER: 9612386-02C **CLIENT SAMPLE ID:**S-2

	AMOUNT ADDED	CONC. MEASURED	RECOVERY	LIMITS
Nitrobenzene-d5	50	E 34	69	35- 114
2-Fluorobiphenyl	50	E 36	73	43- 116
Terphenyl-d14	50	E 46	92	33- 141
Phenol-d5	75	E 22	29	10- 110
2-Fluorophenol	75	E 29	38	21- 110
2,4,6-Tribromophenol	75	E 72	97	10- 123

METHOD 8270B *** **BATCH#:**E961209042249
WORK ORDER: Method Blank **CLIENT SAMPLE ID:**

Nitrobenzene-d5	50	E 42	84	35- 114
2-Fluorobiphenyl	50	E 36	72	43- 116
Terphenyl-d14	50	E 29	58	33- 141
Phenol-d5	75	E 22	29	10- 110
2-Fluorophenol	75	E 40	53	21- 110
2,4,6-Tribromophenol	75	E 56	74	10- 123

METHOD 8270B *** **BATCH#:**E961209042249
WORK ORDER: LCS **CLIENT SAMPLE ID:**

Nitrobenzene-d5	50	E 41	82	35- 114
2-Fluorobiphenyl	50	E 36	73	43- 116
Terphenyl-d14	50	E 29	58	33- 141
2-Fluorophenol	75	E 39	52	21- 110
Phenol-d5	75	E 23	30	10- 110
2,4,6-Tribromophenol	75	E 62	82	10- 123

METHOD 8010B *** **BATCH#:**HP_F961213045100
WORK ORDER: 9612386-02D **CLIENT SAMPLE ID:**S-2

1-Chloro-2-Fluorobenzene		85	85	71- 116

METHOD 601** **BATCH#:**HP_F961213045100
WORK ORDER: Method Blank **CLIENT SAMPLE ID:**

1-Chloro-2-Fluorobenzene		86		56- 130

METHOD 601** **BATCH#:**HP_F961213045100
WORK ORDER: LCS **CLIENT SAMPLE ID:**

1-Chloro-2-Fluorobenzene	100	94	94.0	56- 130

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	AMOUNT ADDED	CONC. MEASURED	RECOVERY	LIMITS

METHOD 601** **BATCH#:**HP_F961213045100
WORK ORDER: Matrix Spike **CLIENT SAMPLE ID:**9612389-18A

1-CHLORO-2-FLUOROBENZENE		94.0000	470 «	56- 130

METHOD 601** **BATCH#:**HP_F961213045100
WORK ORDER: Matrix Spike Dup. **CLIENT SAMPLE ID:**9612389-19A

1-Chloro-2-Fluorobenzene		96.0000	480 «	56- 130

METHOD 8020*** **BATCH#:**HP_N961212105600
WORK ORDER: 9612386-01A **CLIENT SAMPLE ID:**S-1

1,4-Difluorobenzene	30	27	90	70- 131
4-Bromofluorobenzene	30	22	73	43- 135

METHOD 8020*** **BATCH#:**HP_N961212105600
WORK ORDER: 9612386-03A **CLIENT SAMPLE ID:**S-3

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

METHOD 8020*** **BATCH#:**HP_N961212105600
WORK ORDER: 9612386-04A **CLIENT SAMPLE ID:**S-4

1,4-Difluorobenzene	30	26.0000	87	70- 131
4-Bromofluorobenzene	30	30.0000	100	43- 135

METHOD 8020A *** **BATCH#:**HP_N961212105600
WORK ORDER: Method Blank **CLIENT SAMPLE ID:**

1,4-Difluorobenzene	30	26	87	74- 131
4-Bromofluorobenzene	30	30	100	43- 135

METHOD 8020A *** **BATCH#:**HP_N961212105600
WORK ORDER: Matrix Spike **CLIENT SAMPLE ID:**9612397-02A

1,4-DIFLUOROBENZENE	30	27	90	70- 131
4-BROMOFLUOROBENZENE	30	32	107	43- 135

METHOD 8020A *** **BATCH#:**HP_N961212105600
WORK ORDER: Matrix Spike Dup. **CLIENT SAMPLE ID:**9612397-02A

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

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	AMOUNT ADDED	CONC. MEASURED	RECOVERY	LIMITS
CA LUFT - Gasoline		**BATCH#:**HP_N961212115300		
WORK ORDER: 9612386-01A		**CLIENT SAMPLE ID:**S-1		
1,4-Difluorobenzene	30	28	93	50- 150
4-Bromofluorobenzene	30	24	80	50- 150
CA LUFT - Gasoline		**BATCH#:**HP_N961212115300		
WORK ORDER: 9612386-02A		**CLIENT SAMPLE ID:**S-2		
1,4-Difluorobenzene	30	32	107	50- 150
4-Bromofluorobenzene	30	32	107	50- 150
CA LUFT - Gasoline		**BATCH#:**HP_N961212115300		
WORK ORDER: 9612386-03A		**CLIENT SAMPLE ID:**S-3		
1,4-Difluorobenzene	30	28.0000	93	50- 150
4-Bromofluorobenzene	30	30.0000	100	50- 150
CA LUFT - Gasoline		**BATCH#:**HP_N961212115300		
WORK ORDER: 9612386-04A		**CLIENT SAMPLE ID:**S-4		
1,4-Difluorobenzene	30	28.0000	93	50- 150
4-Bromofluorobenzene	30	32.0000	107	50- 150
State of Tennessee Method		**BATCH#:**HP_N961212115300		
WORK ORDER: Method Blank		**CLIENT SAMPLE ID:**		
4-Bromofluorobenzene	30	31	103	50- 150
1,4-Difluorobenzene	30	30	100	50- 150
State of Tennessee Method		**BATCH#:**HP_N961212115300		
WORK ORDER: Matrix Spike		**CLIENT SAMPLE ID:**9612397-01A		
4-Bromofluorobenzene	30	32	107	50- 119
1,4-Difluorobenzene	30	28	93	63- 136
State of Tennessee Method		**BATCH#:**HP_N961212115300		
WORK ORDER: Matrix Spike Dup.		**CLIENT SAMPLE ID:**9612397-01A		
4-Bromofluorobenzene	30	33	110	50- 119
1,4-Difluorobenzene	30	29	97	63- 136
State of Tennessee Method		**BATCH#:**HP_N961214100000		
WORK ORDER: Method Blank		**CLIENT SAMPLE ID:**		
4-Bromofluorobenzene	30	30	100	50- 150

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	AMOUNT ADDED	CONC. MEASURED	RECOVERY	LIMITS
1,4-Difluorobenzene	30	30	100	50- 150

CA LUFT - Gasoline **BATCH#:**HP_N961214100000
WORK ORDER: Matrix Spike **CLIENT SAMPLE ID:**9612768-01A

1,4-Difluorobenzene	30	31	103	50- 150
4-Bromofluorobenzene	30	31	103	50- 150

CA LUFT - Gasoline **BATCH#:**HP_N961214100000
WORK ORDER: Matrix Spike Dup. **CLIENT SAMPLE ID:**9612768-01A

1,4-Difluorobenzene	30	32	107	50- 150
4-Bromofluorobenzene	30	30	100	50- 150

METHOD 8020* ** **BATCH#:**HP_N961214102900
WORK ORDER: 9612386-02A **CLIENT SAMPLE ID:**S-2

1,4-Difluorobenzene	30	27.0000	90	70- 131
4-Bromofluorobenzene	30	30.0000	100	43- 135

METHOD 8020A * ** **BATCH#:**HP_N961214102900
WORK ORDER: Method Blank **CLIENT SAMPLE ID:**

1,4-Difluorobenzene	30	28	27.7	74- 131
4-Bromofluorobenzene	30	29	28.9	43- 135

METHOD 8020A * ** **BATCH#:**HP_N961214102900
WORK ORDER: Matrix Spike **CLIENT SAMPLE ID:**9612720-08A

1,4-DIFLUOROBENZENE	30	39	130	70- 131
4-BROMOFLUOROBENZENE	30	30	100	43- 135

METHOD 8020A * ** **BATCH#:**HP_N961214102900
WORK ORDER: Matrix Spike Dup. **CLIENT SAMPLE ID:**9612720-08A

1,4-Difluorobenzene	30	39	130	70- 131
4-Bromofluorobenzene	30	29	97	43- 135

California LUFT Manual **BATCH#:**HP_T961210023001
WORK ORDER: 9612386-01B **CLIENT SAMPLE ID:**S-1

o-Terphenyl		122	122	20- 150
2-Fluorbiphenyl		88	88	20- 150

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	AMOUNT ADDED	CONC. MEASURED	RECOVERY	LIMITS
California LUFT Manual			**BATCH#:** HP_T961210023001	
WORK ORDER: 9612386-02B		**CLIENT SAMPLE ID:** S-2		
o-Terphenyl	4	4.2800	107	20- 150
2-Fluorbiphenyl	4	3.3200	83	20- 150
Mod. 8015 - Diesel			**BATCH#:** HP_T961210023001	
WORK ORDER: 9612386-03B		**CLIENT SAMPLE ID:** S-3		
o-Terphenyl	100	99	99	-
2-Fluorobiphenyl	100	65	65	20- 146
Mod. 8015 - Diesel			**BATCH#:** HP_T961210023001	
WORK ORDER: Method Blank		**CLIENT SAMPLE ID:**		
o-Terphenyl		140		-
2-Fluorobiphenyl	100	111		20- 146
Mod. 8015 - Diesel			**BATCH#:** HP_T961210023001	
WORK ORDER: Matrix Spike		**CLIENT SAMPLE ID:** 9612386-03B		
2-Fluorobiphenyl	100	0.0	0 «	20- 146
Mod. 8015 - Diesel			**BATCH#:** HP_T961210023001	
WORK ORDER: Matrix Spike Dup.		**CLIENT SAMPLE ID:** 9612386-03B		
2-Fluorobiphenyl	100	0.0	0 «	20- 146

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

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SPL Contract:

Lab Code: Case No.: 961207 SAS No.: SDG No.:

Matrix Spike - EPA Sample No.: SBLK

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
Phenol	75	0	20	27	12-110
2-Chlorophenol	75	0	46	61	27-123
1,4-Dichlorobenzene	50	0	33	66	36- 97
N-Nitroso-di-n-prop.(1)	50	0	30	60	41-116
1,2,4-Trichlorobenzene	50	0	36	72	39- 98
4-Chloro-3-methylphenol	75	0	50	67	23- 97
Acenaphthene	50	0	34	68	46-118
4-Nitrophenol	75	0	37	49	30-150
2,4-Dinitrotoluene	50	0	38	76	50-150
Pentachlorophenol	75	0	50	67	9-103
Pyrene	50	0	27	54	26-127

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	75	20	27	0	42	12-110
2-Chlorophenol	75	44	59	3	40	27-123
1,4-Dichlorobenzene	50	32	64	3	28	36- 97
N-Nitroso-di-n-prop.(1)	50	29	58	3	38	41-116
1,2,4-Trichlorobenzene	50	34	68	6	28	39- 98
4-Chloro-3-methylphenol	75	48	64	5	42	23- 97
Acenaphthene	50	34	68	0	31	46-118
4-Nitrophenol	75	38	51	4	50	30-150
2,4-Dinitrotoluene	50	38	76	0	50	50-150
Pentachlorophenol	75	52	69	3	50	9-103
Pyrene	50	27	54	0	31	26-127

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 11 outside limits
Spike Recovery: 0 out of 22 outside limits

SPL Labs

RECOVERY REPORT

Client Name:
Sample Matrix: LIQUID
Lab Smp Id: LCS
Level: LOW
Data Type: MS DATA
SpikeList File: 8270w.spk
Method File: /chem/j.i/j961213.b/j8270Q.m
Misc Info: E344F1/J344B03/J348CC1

Client SDG: j961213
Fraction: SV

Operator: PC
SampleType: METHSPIKE
Quant Type: ISTD

SPIKE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
5 Phenol	75	19	25.91	12-110
9 2-Chlorophenol	75	50	66.15	27-123
12 1,4-Dichlorobenzen	50	29	58.16	36-97
21 N-Nitroso-di-n-pro	50	33	66.30	41-116
31 1,2,4-Trichloroben	50	41	81.80	39-98
36 4-Chloro-3-methylp	75	54	71.81	23-97
49 Acenaphthene	50	35	69.23	46-118
51 4-Nitrophenol	75	37	48.84	30-150
53 2,4-Dinitrotoluene	50	37	74.18	50-150
64 Pentachlorophenol	75	49	65.10	9-103
71 Pyrene	50	26	52.47	26-127

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
$ 23 Nitrobenzene-d5	50	41	81.71	35-114
$ 41 2-Fluorobiphenyl	50	36	72.75	43-116
$ 72 Terphenyl-d14	50	29	57.82	33-141
$ 3 2-Fluorophenol	75	39	52.37	21-110
$ 4 Phenol-d5	75	23	30.16	10-110
$ 61 2,4,6-Tribromophen	75	62	82.24	10-123

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

SPL Blank QC Report

Matrix: Aqueous
Sample ID: BLANK
Batch: E961209042249

Reported on: 12/16/96 13:58
Analyzed on: 12/13/96 09:50
Analyst: PC

METHOD 8270 J344B03

Compound	Result	Detection Limit	Units
Pyridine	ND	5	ug/L
Phenol	ND	5	ug/L
Aniline	ND	5	ug/L
bis(2-Chloroethyl)ether	ND	5	ug/L
2-Chlorophenol	ND	5	ug/L
1,3-Dichlorobenzene	ND	5	ug/L
1,4-Dichlorobenzene	ND	5	ug/L
Benzyl alcohol	ND	5	ug/L
1,2-Dichlorobenzene	ND	5	ug/L
2-Methylphenol	ND	5	ug/L
bis(2-chloroisopropyl)ethe	ND	5	ug/L
4-Methylphenol	ND	5	ug/L
N-Nitroso-di-n-propylamine	ND	5	ug/L
Hexachloroethane	ND	5	ug/L
Nitrobenzene	ND	5	ug/L
Isophorone	ND	5	ug/L
2-Nitrophenol	ND	5	ug/L
2,4-Dimethylphenol	ND	5	ug/L
Benzoic acid	ND	25	ug/L
bis(2-Chloroethoxy)methane	ND	5	ug/L
2,4-Dichlorophenol	ND	5	ug/L
1,2,4-Trichlorobenzene	ND	5	ug/L
Naphthalene	ND	5	ug/L
4-Chloroaniline	ND	5	ug/L
Hexachlorobutadiene	ND	5	ug/L
4-Chloro-3-methylphenol	ND	5	ug/L
2-Methylnaphthalene	ND	5	ug/L
Hexachlorocyclopentadiene	ND	5	ug/L
2,4,6-Trichlorophenol	ND	5	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2-Chloronaphthalene	ND	5	ug/L
2-Nitroaniline	ND	25	ug/L
Dimethylphthalate	ND	5	ug/L
2,6-Dinitrotoluene	ND	5	ug/L

Notes
ND - Not detected.

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

SPL Blank QC Report

Matrix: Aqueous
Sample ID: BLANK
Batch: E961209042249

Reported on: 12/16/96 13:58
Analyzed on: 12/13/96 09:50
Analyst: PC

METHOD 8270 J344B03

Compound	Result	Detection Limit	Units
Acenaphthylene	ND	5	ug/L
3-Nitroaniline	ND	25	ug/L
Acenaphthene	ND	5	ug/L
2,4-Dinitrophenol	ND	25	ug/L
4-Nitrophenol	ND	25	ug/L
Dibenzofuran	ND	5	ug/L
2,4-Dinitrotoluene	ND	5	ug/L
Diethylphthalate	ND	5	ug/L
4-Chlorophenyl-phenylether	ND	5	ug/L
Fluorene	ND	5	ug/L
4-Nitroaniline	ND	25	ug/L
4,6-Dinitro-2-methylphenol	ND	25	ug/L
n-Nitrosodiphenylamine	ND	5	ug/L
1,2-Diphenylhydrazine	ND	5	ug/L
4-Bromophenyl-phenylether	ND	5	ug/L
Hexachlorobenzene	ND	5	ug/L
Pentachlorophenol	ND	25	ug/L
Phenanthrene	ND	5	ug/L
Anthracene	ND	5	ug/L
Carbazole	ND	5	ug/L
Di-n-butylphthalate	ND	5	ug/L
Fluoranthene	ND	5	ug/L
Pyrene	ND	5	ug/L
Butylbenzylphthalate	ND	5	ug/L
3,3'-Dichlorobenzidine	ND	10	ug/L
Benzo[a]anthracene	ND	5	ug/L
Chrysene	ND	5	ug/L
bis(2-Ethylhexyl)phthalate	ND	5	ug/L
Di-n-octylphthalate	ND	5	ug/L
Benzo[b]fluoranthene	ND	5	ug/L
Benzo[k]fluoranthene	ND	5	ug/L
Benzo[a]pyrene	ND	5	ug/L
Indeno[1,2,3-cd]pyrene	ND	5	ug/L
Dibenz[a,h]anthracene	ND	5	ug/L

Notes
ND - Not detected.

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

SPL Blank QC Report

Matrix: Aqueous
Sample ID: BLANK
Batch: E961209042249

Reported on: 12/16/96 13:58
Analyzed on: 12/13/96 09:50
Analyst: PC

METHOD 8270 J344B03

Compound	Result	Detection Limit	Units
Benzo[g,h,i]perylene	ND	5	ug/L

Surrogate	Result	QC Criteria	Units
Nitrobenzene-d5	84	35-114	% Recovery
2-Fluorobiphenyl	72	43-116	% Recovery
Terphenyl-d14	58	33-141	% Recovery
Phenol-d5	29	10-110	% Recovery
2-Fluorophenol	53	21-110	% Recovery
2,4,6-Tribromophenol	74	10-123	% Recovery

Samples in Batch 9612386-02

Notes

ND - Not detected.

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HOUSTON, TEXAS 77054
PHONE (713) 660-0901

** SPL BATCH QUALITY CONTROL REPORT **

METHOD 8020/602

Matrix: Aqueous
Units: µg/L

Batch Id: HP_N961212105600

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	52	104	63 - 120
Benzene	ND	50	42	84.0	62 - 121
Toluene	ND	50	46	92.0	66 - 136
EthylBenzene	ND	50	49	98.0	70 - 136
O Xylene	ND	50	48	96.0	74 - 134
M & P Xylene	ND	100	96	96.0	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	65	20	45	-100 *	45	-100 *	0	20	39 - 150
BENZENE	ND	20	21	105	21	105	0	25	39 - 150
TOLUENE	ND	20	22	110	22	110	0	26	56 - 134
ETHYLBENZENE	ND	20	22	110	23	115	4.44	38	61 - 128
O XYLENE	ND	20	22	110	22	110	0	29	40 - 130
M & P XYLENE	ND	40	44	110	45	112	1.80	20	43 - 152

Analyst: RL
Sequence Date: 12/12/96
SPL ID of sample spiked: 9612397-02A
Sample File ID: N_L6446.TX0
Method Blank File ID:
Blank Spike File ID: N_L6435.TX0
Matrix Spike File ID: N_L6441.TX0
Matrix Spike Duplicate File ID: N_L6442.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): 9612397-02A 9612397-01A 9612327-07A 9612329-05A 9612329-04A 9612329-01A 9612386-03A 9612386-04A 9612386-01A 9612311-03A 9612397-03A 9612397-04A 9612397-05A 9612397-06A

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

Matrix: Aqueous
Units: µg/L

Batch Id: HP_N961214102900

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	43	86.0	63 - 120
Benzene	ND	50	37	74.0	62 - 121
Toluene	ND	50	43	86.0	66 - 136
EthylBenzene	ND	50	45	90.0	70 - 136
O Xylene	ND	50	43	86.0	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	890	20	940	NC	900	NC	NC	20	39 - 150
BENZENE	170	20	170	NC	170	NC	NC	25	39 - 150
TOLUENE	ND	20	22	110	22	110	0	26	56 - 134
ETHYLBENZENE	ND	20	23	115	22	110	4.44	38	61 - 128
O XYLENE	1.6	20	23	107	22	102	4.78	29	40 - 130
M & P XYLENE	ND	40	44	110	44	110	0	20	43 - 152

Analyst: RL
Sequence Date: 12/14/96
SPL ID of sample spiked: 9612720-08A
Sample File ID: N_L6507.TX0
Method Blank File ID:
Blank Spike File ID: N_L6510.TX0
Matrix Spike File ID: N_L6511.TX0
Matrix Spike Duplicate File ID: N_L6512.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):

9612311-02A 9612768-01A 9612386-02A 9612671-04A
9612671-06A 9612720-01A 9612720-02A 9612720-03A
9612720-05A 9612720-06A 9612720-07A 9612720-09A
9612720-10A 9612720-11A 9612522-02A 9612522-01A
9612720-14A

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** SPL BATCH QUALITY CONTROL REPORT **
State of Tennessee Method

Matrix: Aqueous
Units: mg/L

Batch Id: HP_N961212115300

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 Range Organics	ND	1.0	1.0	100	50 - 100

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 RANGE ORGANICS	ND	0.9	0.85	94.4	0.84	93.3	1.17	16	34 - 150

Analyst: RL
Sequence Date: 12/12/96
SPL ID of sample spiked: 9612397-01A
Sample File ID: NNL6447.TX0
Method Blank File ID:
Blank Spike File ID: NNL6436.TX0
Matrix Spike File ID: NNL6443.TX0
Matrix Spike Duplicate File ID: NNL6444.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: Method Limits
(***) = Source: SPL-Houston Historical Data (3rd Q '95)

SAMPLES IN BATCH(SPL ID):

9612397-02A 9612397-01A 9612327-07A 9612329-05A
9612329-04A 9612329-03A 9612329-01A 9612386-03A
9612386-04A 9612386-01A 9612386-02A 9612311-02A
9612311-03A 9612397-03A 9612397-04A 9612397-05A
9612397-06A

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** SPL BATCH QUALITY CONTROL REPORT **

Mod. 8015 - Diesel

Matrix: Aqueous

Batch Id: HP_T961210023001

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
Diesel Petr. Hydrocarbons	ND	5.0	5.38	108	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	1.74	33.8	1.51	29.2	14.6	43	20 - 177

Analyst: RR

Sequence Date: 12/11/96

SPL ID of sample spiked: 9612386-03B

Sample File ID: TTI6884.TX0

Method Blank File ID:

Blank Spike File ID: TTI6891.TX0

Matrix Spike File ID: TTI6885.TX0

Matrix Spike Duplicate File ID: TTI6886.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):

9612397-01B 9612397-02B 9612397-03B 9612397-04B
9612397-05B 9612397-06B 9612386-01B 9612386-03B
9612234-02B 9612386-02B 9612324-02B 9612306-01B
9612311-01B 9612311-02B 9612311-03B 9612330-01B
9612330-02B

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

Matrix: Aqueous
Units: µg/L

Batch Id: HP_F961213045100

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	17	85.0	1 - 200
Chloromethane	ND	20	14	70.0	1 - 193
Vinyl chloride	ND	20	18	90.0	28 - 163
Bromomethane	ND	20	20	100	1 - 144
Chloroethane	ND	20	17	85.0	46 - 137
Trichlorofluoromethane	ND	20	17	85.0	21 - 156
1,1-Dichloroethene	ND	20	23	115	28 - 167
Methylene chloride	ND	20	26	130	25 - 162
Trans-1,2-Dichloroethene	ND	20	22	110	38 - 155
1,1-Dichloroethane	ND	20	17	85.0	34 - 132
Chloroform	ND	20	19	95.0	49 - 133
1,1,1-Trichloroethane	ND	20	18	90.0	41 - 138
Carbon tetrachloride	ND	20	15	75.0	43 - 143
1,2-Dichloroethane	ND	20	19	95.0	51 - 147
2-Chloroethylvinyl ether	ND	20	16	80.0	14 - 186
Trichloroethene	ND	20	19	95.0	35 - 146
1,2-Dichloropropane	ND	20	17	85.0	44 - 156
Bromodichloromethane	ND	20	26	130	42 - 172
cis-1,3-Dichloropropene	ND	20	15	75.0	22 - 178
trans-1,3-Dichloropropene	ND	20	18	90.0	33 - 178
1,1,2-Trichloroethane	ND	20	18	90.0	39 - 136
Tetrachloroethene	ND	20	17	85.0	26 - 162
Dibromochloromethane	ND	20	18	90.0	24 - 191
Chlorobenzene	ND	20	19	95.0	38 - 150
Bromoform	ND	20	17	85.0	13 - 159
1,1,2,2-Tetrachloroethane	ND	20	15	75.0	8 - 184
1,3-Dichlorobenzene	ND	20	18	90.0	7 - 187
1,4-Dichlorobenzene	ND	20	16	80.0	42 - 143
1,2-Dichlorobenzene	ND	20	18	90.0	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	100.0	19	19.0	21	21.0	10.0	20	1 - 200
CHLOROMETHANE	ND	100.0	20	20.0	25	25.0	22.2 *	20	1 - 193
VINYL CHLORIDE	ND	100.0	19	19.0 *	19	19.0 *	0	20	28 - 163
BROMOMETHANE	ND	100.0	29	29.0	36	36.0	21.5 *	20	1 - 144
CHLOROETHANE	ND	100.0	29	29.0 *	32	32.0 *	9.84	20	46 - 137

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

Matrix: Aqueous
Units: µg/L

Batch Id: HP_F961213045100

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	100.0	19	19.0 *	20	20.0 *	5.13	20	21 - 156
1,1-DICHLOROETHENE	ND	100.0	33	33.0	32	32.0	3.08	20	28 - 167
METHYLENE CHLORIDE	ND	100.0	50	50.0	52	52.0	3.92	20	25 - 162
TRANS-1,2-DICHLOROETHENE	ND	100.0	35	35.0 *	35	35.0 *	0	20	38 - 155
1,1-DICHLOROETHANE	ND	100.0	20	20.0 *	18	18.0 *	10.5	20	47 - 132
CHLOROFORM	ND	100.0	24	24.0 *	24	24.0 *	0	20	49 - 133
1,1,1-TRICHLOROETHANE	ND	100.0	23	23.0 *	23	23.0 *	0	20	41 - 138
CARBON TETRACHLORIDE	ND	100.0	22	22.0 *	22	22.0 *	0	20	43 - 143
1,2-DICHLOROETHANE	ND	100.0	23	23.0 *	23	23.0 *	0	20	51 - 147
2-CHLOROETHYLVINYL ETHER	ND	100.0	5.1	5.10 *	5	5.00 *	1.98	20	14 - 186
TRICHLOROETHENE	ND	100.0	27	27.0 *	26	26.0 *	3.77	20	35 - 146
1,2-DICHLOROPROPANE	ND	100.0	20	20.0 *	20	20.0 *	0	20	44 - 156
BROMODICHLOROMETHANE	ND	100.0	33	33.0 *	31	31.0 *	6.25	20	42 - 172
CIS-1,3-DICHLOROPROPENE	ND	100.0	22	22.0	21	21.0 *	4.65	20	22 - 178
TRANS-1,3-DICHLOROPROPENE	ND	100.0	22	22.0 *	21	21.0 *	4.65	20	33 - 178
1,1,2-TRICHLOROETHANE	ND	100.0	26	26.0 *	25	25.0 *	3.92	20	39 - 136
TETRACHLOROETHENE	ND	100.0	24	24.0 *	23	23.0 *	4.26	20	26 - 162
DIBROMOCHLOROMETHANE	ND	100.0	24	24.0	24	24.0	0	20	24 - 191
CHLOROBENZENE	15	100.0	41	26.0 *	49	34.0 *	26.7 *	20	38 - 150
BROMOFORM	ND	100.0	20	20.0	19	19.0	5.13	20	13 - 159
1,1,2,2-TETRACHLOROETHANE	ND	100.0	26	26.0	26	26.0	0	20	8 - 184
1,3-DICHLOROBENZENE	ND	100.0	29	29.0	29	29.0	0	20	7 - 187
1,4-DICHLOROBENZENE	ND	100.0	32	32.0 *	32	32.0 *	0	20	42 - 143
1,2-DICHLOROBENZENE	ND	100.0	29	29.0	26	26.0	10.9	20	1 - 208

Analyst: DAO
Sequence Date: 12/13/96
SPL ID of sample spiked: 9612389-09A
Sample File ID: FFL6192.TX0
Method Blank File ID:
Blank Spike File ID: FFL6183.TX0
Matrix Spike File ID: FFL6186.TX0
Matrix Spike Duplicate File ID: FFL6187.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):

9612389-09A	9612283-14B	9612283-19B	9612283-24B
9612283-23B	9612283-11B	9612283-09B	9612283-25B
9612324-02D	9612283-01B	9612283-05B	9612283-26B
9612283-02B	9612193-01A	9612193-02A	9612193-03A
9612193-04A	9612193-06A	9612283-08B	9612386-02D

CHAIN OF CUSTODY

AND

SAMPLE RECEIPT CHECKLIST

96-12-386 ~~386~~ ~~324~~ BB 12/7

BP

CHAIN OF CUSTODY

No. 078795 Page 1 of 1

CONSULTANT'S NAME	ADDRESS	CITY	STATE	ZIP CODE
Alisto Engineering	1575 Treat Blvd #201	W.C.	Ca	94598

BP SITE NUMBER	BP CORNER ADDRESS/CITY	CONSULTANT PROJECT NUMBER
1120	Dublin, Ca	10-170-4-1

CONSULTANT PROJECT MANAGER	PHONE NUMBER	FAX NUMBER	CONSULTANT CONTRACT NUMBER
Brady Nagle	(510) 295-1650	295-1823	6797391
BP CONTACT	**BP ADDRESS**	**PHONE NUMBER**	**FAX NO.**
Scott Hooton	Renton, WA	—	—
LAB CONTACT	**LABORATORY ADDRESS**	**PHONE NUMBER**	**FAX NO.**
SPL	Texas	—	—

SAMPLED BY (Please Print Name)	SAMPLED BY (Signature)	SHIPMENT DATE	SHIPMENT METHOD
Larry Buenvenida	[signature]	12/4/96	FedEx

AIRBILL NUMBER: 9404779274

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

ANALYSIS REQUIRED

SAMPLE DESCRIPTION	COLLECTION DATE / COLLECTION TIME	MATRIX SOIL/WATER	CONTAINERS NO.	CONTAINERS TYPE (VOL.)	PRESERVATIVE LAB SAMPLE #	TPH-G/BTXE	MTBE	8010 HVOCs	8270	TPH-D	pH					COMMENTS
S-1	12/2/96	W	5	5		X	X	X	X	X	1					
S-2	↓	↓	10	10		↓	↓	↓	↓	↓	1					2 pres & 2 unpresv. Liters
S-3	↓	↓	5	5		↓	↓	↓	↓	↓	1					
S-4	↓	↓	3	3		↓	↓	↓	↓	↓	1					

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
[signature]	12/3/96		[signature]		
[signature]			[signature]	12/6/96	1000

ADDITIONAL COMMENTS: 4°C intact

CLV-16722
PKG/50

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

115 660:4717

BP

CHAIN OF CUSTODY

No.078795 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: 11120	BP CORNER ADDRESS/CITY: Dublin, Ca		CONSULTANT PROJECT NUMBER: 10-170-4-1	
CONSULTANT/PROJECT MANAGER: Brady Nagle	PHONE NUMBER: (510) 295-1650	FAX NUMBER: 295-1823	CONSULTANT CONTRACT NUMBER: 6797591	
BP CONTACT: Scott Hooton	BP ADDRESS: Renton, WA	PHONE NUMBER:	FAX NO.	
LAB CONTACT: SPL	LABORATORY ADDRESS: Texas	PHONE NUMBER:	FAX NO.	
SAMPLED BY (Please Print Name): Larry Buenvenida	SAMPLED BY (Signature): [signature]	SHIPMENT DATE: 12/3/96	SHIPMENT METHOD: FedEx	

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

AIRBILL NUMBER: 4107772741

ANALYSIS REQUIRED

SAMPLE DESCRIPTION	COLLECTION DATE / COLLECTION TIME	MATRIX SOIL/WATER	CONTAINERS NO.	TYPE (VOL.)	PRESERVATIVE LAB SAMPLE #	TPH-G/BTEX	MTBE (L)	8010 HVOC	8270	TPH-D					COMMENTS
S-1	12/2/96	W	5	5		X	X			X					
S-2	↓	↓	10	10		X	X	X	X	X					2 pres & 2 unpres Liters
S-3			5	5		X	X			X					
S-4	↓	↓	3	3		X	X								

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
[signature]	12/3/96		[signature]		

ADDITIONAL COMMENTS

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

SPL Houston Environmental Laboratory

Sample Login Checklist

Date:	Time:
17-Oct-96	1000

SPL Sample ID:
96-17-386

			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 #)	940477192714	
		Other:		
11	Method of sample disposal:	SPL Disposal	—	
		HOLD		
		Return to Client		

Name:	Date:
Misty Paul	17-Oct-96

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

BP Site Number: 11120
ERM Contact: G797391
Sampling Date: 12/2/96
Matrix Description: groundwater
Date Final Report Received: 12/26/96
Laboratory & Location: SPL-TX

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

Notes: (1) 15 days separation. Unusual delay in shipping time.
(2) exceeds for MTBE + Benzene, + some VOCs

Data Validation Completed by (print): Bill Howell
(signature): Bill Howell
Date: 1/7/97