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using 8/20/00*

# GROUNDWATER MONITORING AND SAMPLING REPORT

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

Project No. 10-170-04-001


Prepared for:

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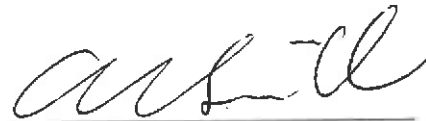
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September 30, 1996



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## INTRODUCTION

This report presents the results and findings of the August 20 and 21, 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 (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-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

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 (Feet)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (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 (d)	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 (d)	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 (d)	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 (d)	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 (d)	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 (d)	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 (d)	08/21/96	--	--	--	3500	--	ND<25	ND<50	ND<50	ND<50	4000	--	SPL
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 (d)	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 (d)	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 (d)	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 (d)	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

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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<0.5	ND<1.0	ND<1.0	ND<1.0	ND<10	6.9	SPL
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-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

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 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
QC-2 (e)	08/25/93	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2 (e)	11/22/93	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2 (e)	03/07/94	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2 (e)	06/09/94	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2 (e)	09/12/94	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2 (e)	12/20/94	---	---	---	ND<50	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	PACE
QC-2 (e)	03/16/95	---	---	---	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	ATI
QC-2 (e)	06/28/95	---	---	---	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	---	---	ATI
QC-2 (e)	09/06/95	---	---	---	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	---	ATI
QC-2 (e)	12/22/95	---	---	---	ND<50	---	ND<0.50	ND<0.50	ND<0.50	ND<1.0	ND<5.0	---	ATI

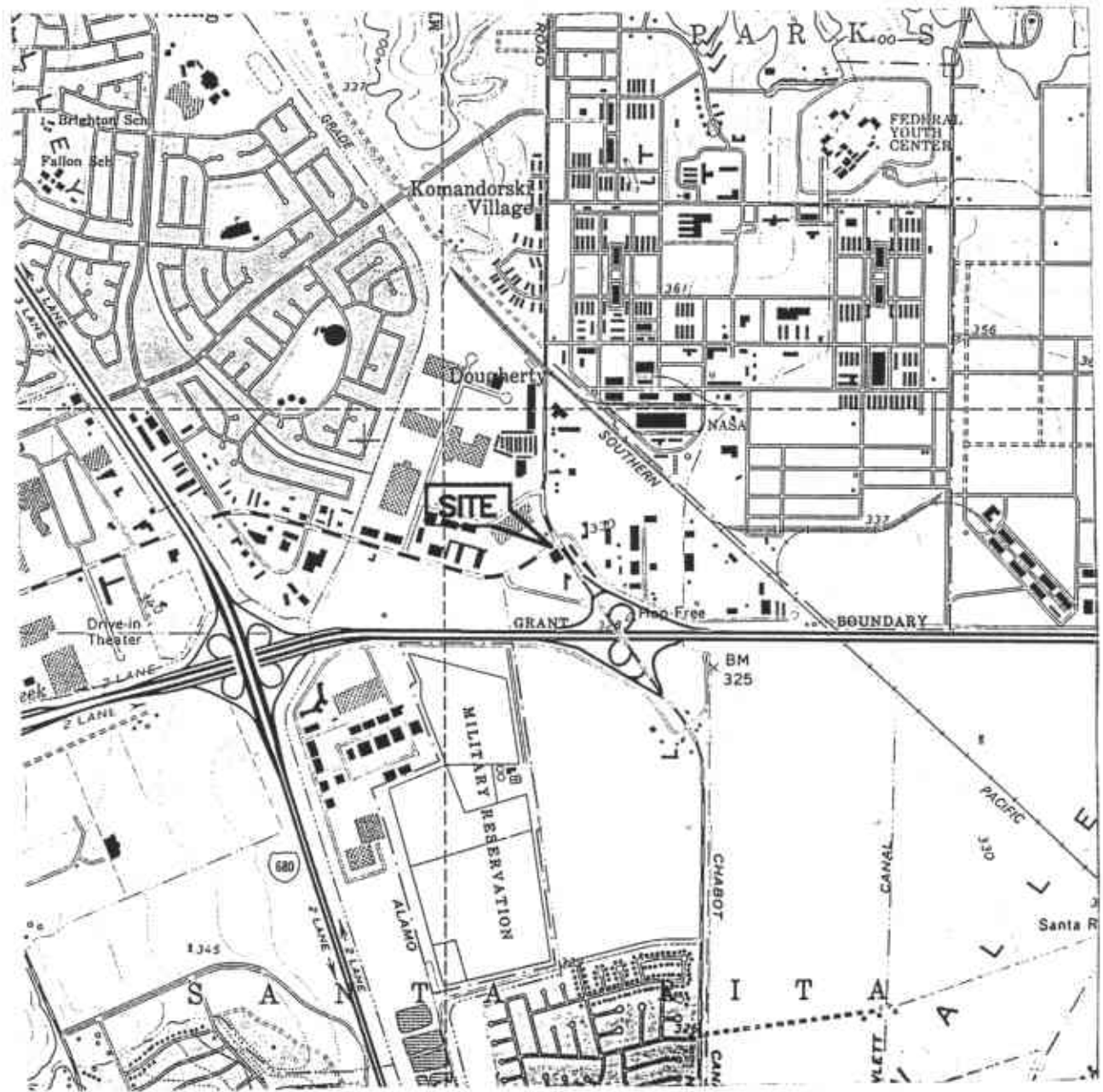
ABBREVIATIONS:

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

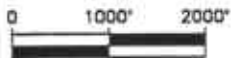
NOTES:

- (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) Blind duplicate.
- (e) Travel blank.

F:\10-170\170-4-1.WQ2



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

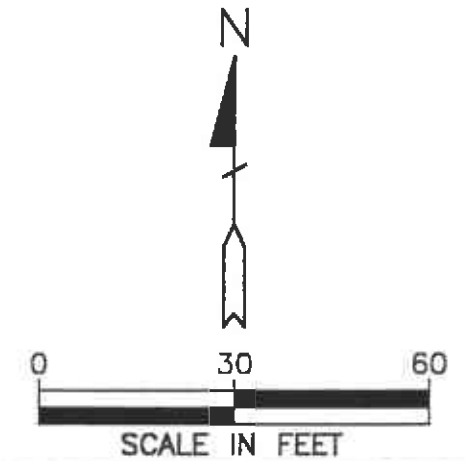
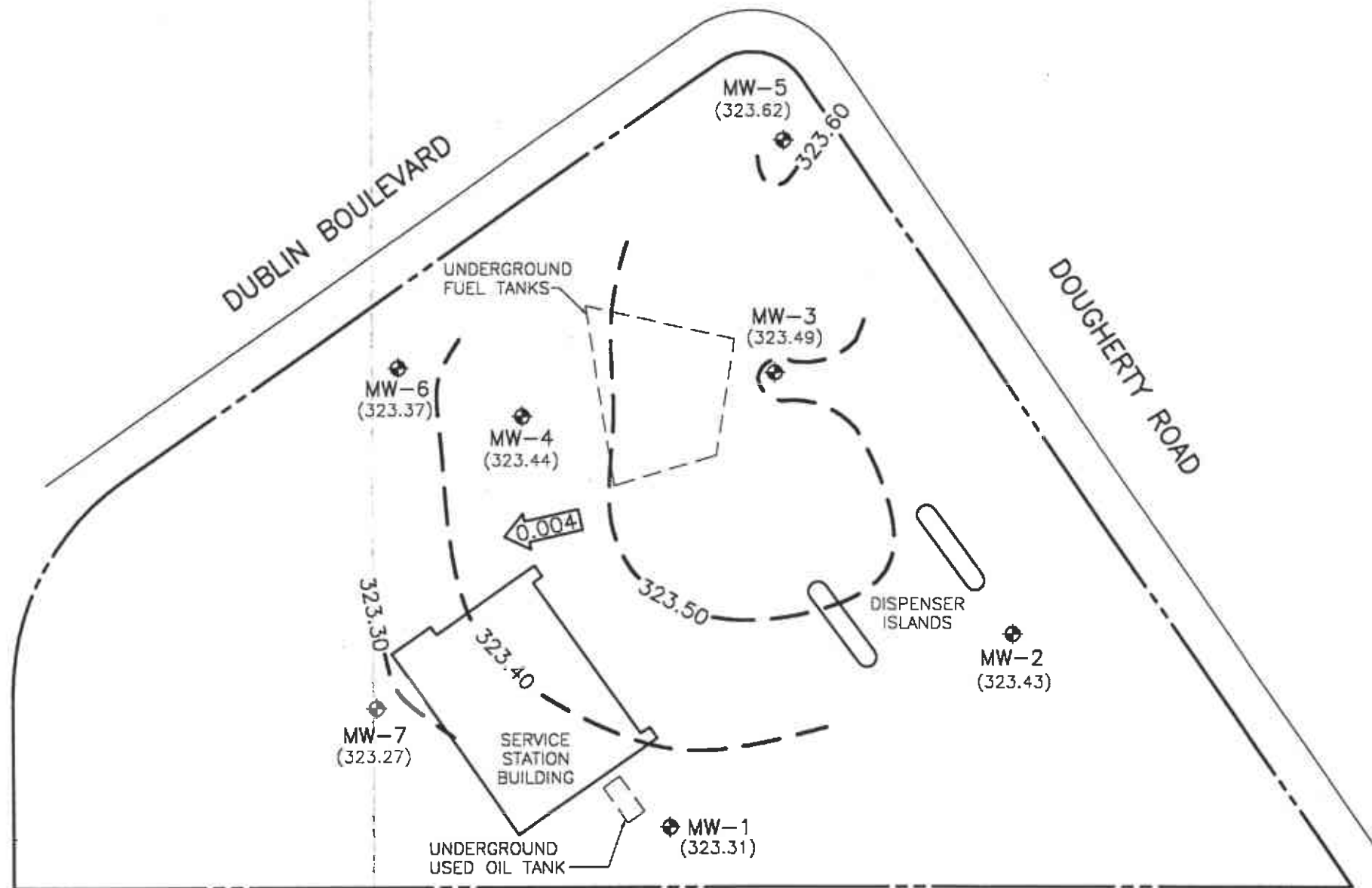


**FIGURE 1**  
**SITE VICINITY MAP**

BP OIL SERVICE STATION NO. 11120  
6400 DUBLIN BOULEVARD  
DUBLIN, CALIFORNIA  
PROJECT NO. 10-170



**ALISTO ENGINEERING GROUP**  
WALNUT CREEK, CALIFORNIA

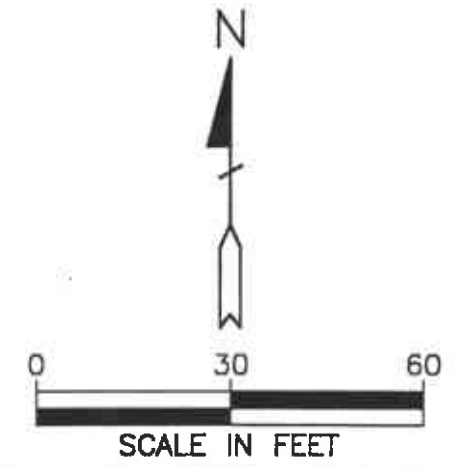
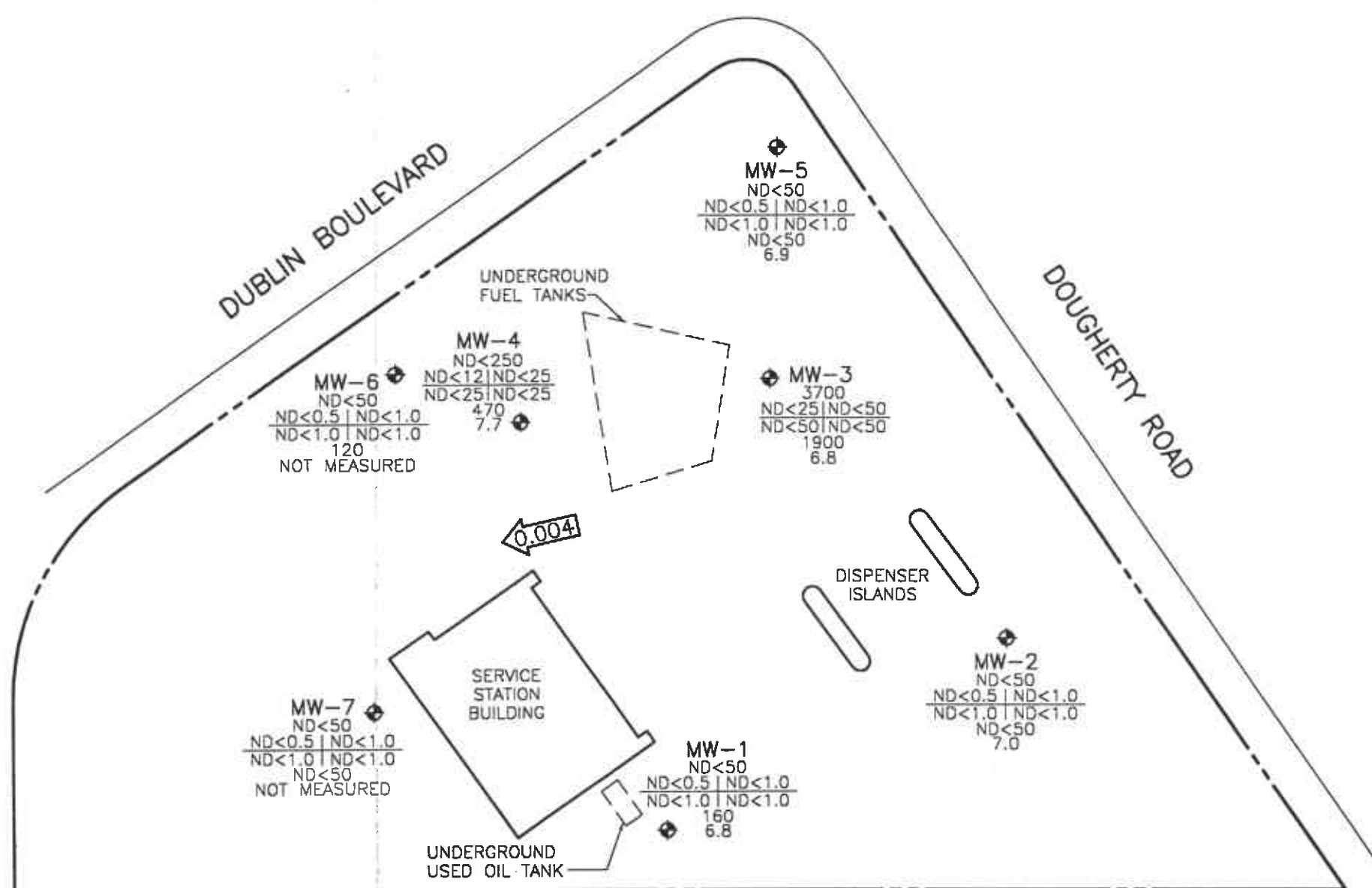


**LEGEND**

- ◆ GROUNDWATER MONITORING WELL
- (323.27) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- 323.30 - GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL - 0.10 FOOT)
- ← 0.004 → CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

**FIGURE 2**  
**POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP**  
**AUGUST 20, 1996**  
 BP OIL SERVICE STATION NO. 11120  
 6400 DUBLIN BOULEVARD  
 DUBLIN, CALIFORNIA  
 PROJECT NO. 10-170





**LEGEND**

- ◆ GROUNDWATER MONITORING WELL
- TPH-G CONCENTRATION OF CONSTITUENTS IN MICROGRAMS PER LITER, EXCEPT DISSOLVED OXYGEN, WHICH IS IN PARTS PER MILLION
- B | T
- E | X
- TPH-D
- DO
- 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
- ←0.004→ CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

**FIGURE 3**  
**CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER**  
**AUGUST 21, 1996**  
 BP OIL SERVICE STATION NO. 11120  
 6400 DUBLIN BOULEVARD  
 DUBLIN, CALIFORNIA  
 PROJECT NO. 10-170

**APPENDIX A**  
**WATER SAMPLING FIELD SURVEY FORMS**

# ALISTO

## Field Report / Sampling Data Sheet

ENGINEERING

GROUP

1575 Treat Boulevard, Suite 201

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

Date: <sup>Monitored</sup> 8/20/96 - 8/21/96 <sup>Purged & Sampled</sup>  
 Weather: Clear  
 Sampler: LB  
 Project No. 10-170-03/004 <sup>04-001</sup>  
 Facility ID 11120  
 Address Dublin

### DEPTH TO WATER SUMMARY

Well ID	Well Diameter	Depth To Water	Total Depth	Time	Comments: Sample I.D's
MW-1	2"	5.65	18.20	1347	S-4
MW-2	↓	5.07	18.25	1344	S-2
MW-3	↓	5.97	20.00	1355	S-7
MW-4	↓	6.01	20.00	1353	S-6
MW-5	↓	5.98	21.35	1342	S-1
MW-6	4"	6.18	19.25	1350	S-5
MW-7	2"	6.22	20.25	1346	S-3

QC-1 Dup From this well

Quality Control Samples

QC 1 Sample Duplicate (Well ID)

MW-3 (S-8)

### FIELD INSTRUMENT CALIBRATION DATA

PH METER <sup>Agm</sup> check 4.00 4 7.00 7 10.00 10 TEMPERATURE COMPENSATED  N TIME 0900  
 CONDUCTIVITY METER <sup>Agm</sup> check 10,000 D.O. Agm check 0 Solution 760 TURBIDITY METER \_\_\_\_\_ 5.0 NTU OTHER

\* Monitored all well 8/20/96  
 \* Sample & Purge all wells 8/21/96

# ALISTO

## Field Report / Sampling Data Sheet

ENGINEERING

GROUP

1575 Treat Boulevard, Suite 201

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

Date: 8/20/96 - 8/21/96

Weather: clear

Sampler: LB

Project No. 10-170-4-1

Facility ID 11120

Address Dublin

Well ID	Depth to Water	Diam	Cap/Lock	Time Sampled	Gal.	Time	Temp *F	pH	E.C.
MW-5	5.98	2"	OK	0920	3	0907	68.9	7.62	1.41 ms
Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge= PurgeVol.					5		67.7	7.40	1.18 ms
$21.35 - 5.98 = 15.37 \times .16 = 2.46 \times 3 =$					7.5	0915	67.4	7.35	1.13 ms
Analyses: <u>TPH-6 / BTXE / TPH-0</u>									

Well ID	Depth to Water	Diam	Cap/Lock	Time Sampled	Gal.	Time	Temp *F	pH	E.C.
MW-2	5.07	2"	OK	0944	2	0931	68.9	7.11	3.62 ms
Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge= PurgeVol.					4		68.0	6.92	3.47 ms
$18.25 - 5.07 = 13.18 \times .16 = 2.11 \times 3 =$					6.5	0939	67.5	6.88	3.41 ms
Analyses: <u>Same</u>									

Well ID	Depth to Water	Diam	Cap/Lock	Time Sampled	Gal.	Time	Temp *F	pH	E.C.
MW-7	6.22	2"	OK	1011	2	0956	68.4	7.61	1.93 ms
Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge= PurgeVol.					4		67.7	7.50	1.69 ms
$20.25 - 6.22 = 14.03 \times .16 = 2.24 \times 3 =$					7	1008	67.0	7.42	1.60 ms
Analyses: <u>Same</u>									

Well ID	Depth to Water	Diam	Cap/Lock	Time Sampled	Gal.	Time	Temp *F	pH	E.C.
MW-1	5.65	2"	OK	1033	2	1020	69.6	7.48	1062 $\mu$ S
Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge= PurgeVol.					4		68.4	7.21	1021 $\mu$ S
$18.20 - 5.65 = 12.55 \times .16 = 2.01 \times 3 =$					6.5	1029	68.1	7.17	1017 $\mu$ S
Analyses: <u>Same</u>									

Well ID	Depth to Water	Diam	Cap/Lock	Time Sampled	Gal.	Time	Temp *F	pH	E.C.
MW-6	6.18	4"	OK	1055	9	1042	68.2	8.07	1.31 ms
Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge= PurgeVol.					17		67.5	7.83	1.20 ms
$19.25 - 6.18 = 13.07 \times .65 = 8.50 \times 3 =$					25.5	1053	66.9	7.71	1.16 ms
Analyses: <u>Same</u>									

# ALISTO

## Field Report / Sampling Data Sheet

ENGINEERING  
GROUP

Groundwater Sampling

1575 TREAT BOULEVARD, SUITE 201  
WALNUT CREEK CA 94596 (510) 295-1650 FAX 295-1823

Date: 8/20/96 - 8/21/96 Project No. 10-170-4-1  
Day: Tues Station No. 1120  
Weather: Clear Address Dublin  
SAMPLER: WB

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp *F	pH	E.C.	D.O.	
MW-4	6.01	2"	OK	∅	∅	2	1107	70.3	7.92	1.31ms	7.2	<input type="checkbox"/> EPA 601 _____
Total Depth - Water Level=						4		69.8	7.63	1.18ms		<input checked="" type="checkbox"/> TPH-G/BTEX <u>HCL</u>
x Well Vol. Factor=						7	1120	68.3	7.58	1.14ms	7.7	<input checked="" type="checkbox"/> TPH Diesel <u>HCL</u>
x#vol. to Purge=												<input type="checkbox"/> TOG 5520 _____
PurgeVol.												<b>Time Sampled</b>
Purge Method: <input checked="" type="checkbox"/> Surface Pump <input type="checkbox"/> ODisp.Tube <input type="checkbox"/> OWinch <input type="checkbox"/> ODisp. Baller(s) <input type="checkbox"/> OSys Port												<u>1122</u>
Comments:												

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp *F	pH	E.C.	D.O.	
MW-3	5.87	2'	OK	∅	∅	2	1230	69.7	7.71	1.51ms	6.4	<input type="checkbox"/> EPA 601 _____
Total Depth - Water Level=						4		68.6	7.53	1.36ms		<input checked="" type="checkbox"/> TPH-G/BTEX <u>HCL</u>
x Well Vol. Factor=						7	1238	68.8	7.46	1.29ms	6.8	<input checked="" type="checkbox"/> TPH Diesel <u>HCL</u>
x#vol. to Purge=												<input type="checkbox"/> TOG 5520 _____
PurgeVol.												<b>Time Sampled</b>
Purge Method: <input checked="" type="checkbox"/> Surface Pump <input type="checkbox"/> ODisp.Tube <input type="checkbox"/> OWinch <input type="checkbox"/> ODisp. Baller(s) <input type="checkbox"/> OSys Port												<u>1243</u>
Comments: <u>QC-1 (5-8) From this well</u>												

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp *F	pH	E.C.	D.O.	
												<input type="checkbox"/> EPA 601 _____
Total Depth - Water Level=												<input type="checkbox"/> TPH-G/BTEX _____
x Well Vol. Factor=												<input type="checkbox"/> TPH Diesel _____
x#vol. to Purge=												<input type="checkbox"/> TOG 5520 _____
PurgeVol.												<b>Time Sampled</b>
Purge Method: <input type="checkbox"/> Surface Pump <input type="checkbox"/> ODisp.Tube <input type="checkbox"/> OWinch <input type="checkbox"/> ODisp. Baller(s) <input type="checkbox"/> OSys Port												
Comments:												

**APPENDIX B**

**LABORATORY REPORT AND CHAIN OF CUSTODY RECORD**

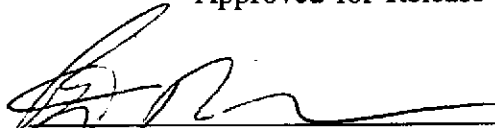


HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Southern Petroleum Laboratories, Inc.

Certificate of Analysis Number: 96-08-B45

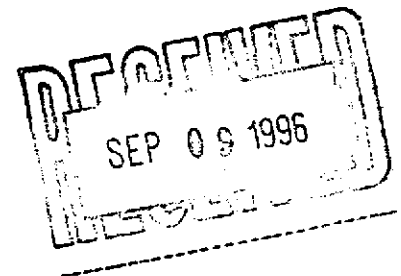
Approved for Release by:

  
Ed Fry, Project Manager

9/3/96  
Date:

Greg Grandits  
Laboratory Director

Idelis Williams  
Quality Assurance Officer



The attached analytical data package may not be reproduced except in full without the express written approval of this laboratory.



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

Certificate of Analysis No. H9-9608B45-01

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

P.O.#  
 G797391, COC#077647  
 DATE: 09/03/96

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

PROJECT NO: 10-170-3-4  
 MATRIX: WATER  
 DATE SAMPLED: 08/21/96  
 DATE RECEIVED: 08/23/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	10 P	µg/L
Benzene	ND	0.5 P	µg/L
Toluene	ND	1.0 P	µg/L
Ethylbenzene	ND	1.0 P	µg/L
Total Xylene	ND	1.0 P	µg/L
<b>Surrogate</b>		<b>% Recovery</b>	
1,4-Difluorobenzene	90		
4-Bromofluorobenzene	93		
METHOD 8020***			
Analyzed by: WK			
Date: 08/30/96			
Total Petroleum Hydrocarbons-Gasoline	ND	0.05 P	mg/L
<b>Surrogate</b>		<b>% Recovery</b>	
1,4-Difluorobenzene	97		
4-Bromofluorobenzene	107		
CA LUFT - Gasoline			
Analyzed by: JZL			
Date: 08/28/96 07:38:00			
Total Petroleum Hydrocarbons-Diesel	ND	0.050 P	mg/L
<b>Surrogate</b>		<b>% Recovery</b>	
o-Terphenyl	84		
2-Fluorobiphenyl	64		
CA LUFT - Diesel			
Analyzed by: RR			
Date: 08/28/96 03:41:00			

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. H9-9608B45-01

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

P.O.#  
G797391, COC#077647  
DATE: 09/03/96

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

PROJECT NO: 10-170-3-4  
MATRIX: WATER  
DATE SAMPLED: 08/21/96  
DATE RECEIVED: 08/23/96

PARAMETER	ANALYTICAL DATA	RESULTS	DETECTION LIMIT	UNITS
Liquid-liquid extraction METHOD 3510B *** Analyzed by: LD Date: 08/27/96 12:00:00		08/27/96		

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

Certificate of Analysis No. H9-9608B45-02

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

P.O.#  
 G797391, COC#077647  
 DATE: 09/03/96

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

PROJECT NO: 10-170-3-4  
 MATRIX: WATER  
 DATE SAMPLED: 08/21/96  
 DATE RECEIVED: 08/23/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	10 P	µg/L
Benzene	ND	0.5 P	µg/L
Toluene	ND	1.0 P	µg/L
Ethylbenzene	ND	1.0 P	µg/L
Total Xylene	ND	1.0 P	µg/L

Surrogate % Recovery  
 1,4-Difluorobenzene 90  
 4-Bromofluorobenzene 97

METHOD 8020\*\*\*  
 Analyzed by: WK  
 Date: 08/30/96

Total Petroleum Hydrocarbons-Gasoline ND 0.05 P mg/L

Surrogate % Recovery  
 1,4-Difluorobenzene 93  
 4-Bromofluorobenzene 107

CA LUFT - Gasoline  
 Analyzed by: JZL  
 Date: 08/28/96 08:06:00

Total Petroleum Hydrocarbons-Diesel ND 0.050 P mg/L

Surrogate % Recovery  
 o-Terphenyl 95  
 2-Fluorobiphenyl 81

CA LUFT - Diesel  
 Analyzed by: RR  
 Date: 08/28/96 08:15:00

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

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

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.  
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HOUSTON LABORATORY  
8880 INTERCHANGE DRIVE  
HOUSTON, TEXAS 77054  
PHONE (713) 660-0901

Certificate of Analysis No. H9-9608B45-02

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

P.O.#  
G797391, COC#077647  
DATE: 09/03/96

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

PROJECT NO: 10-170-3-4  
MATRIX: WATER  
DATE SAMPLED: 08/21/96  
DATE RECEIVED: 08/23/96

PARAMETER	ANALYTICAL DATA	RESULTS	DETECTION LIMIT	UNITS
Liquid-liquid extraction METHOD 3510B *** Analyzed by: LD Date: 08/27/96 12:00:00		08/27/96		

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. H9-9608B45-03

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

P.O.#  
G797391, COC#077647  
DATE: 09/03/96

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

PROJECT NO: 10-170-3-4  
MATRIX: WATER  
DATE SAMPLED: 08/21/96  
DATE RECEIVED: 08/23/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	10 P	µg/L
Benzene	ND	0.5 P	µg/L
Toluene	ND	1.0 P	µg/L
Ethylbenzene	ND	1.0 P	µg/L
Total Xylene	ND	1.0 P	µg/L

Surrogate

% Recovery

1,4-Difluorobenzene

90

4-Bromofluorobenzene

97

METHOD 8020\*\*\*

Analyzed by: WK

Date: 08/30/96

Total Petroleum Hydrocarbons-Gasoline

ND 0.05 P

mg/L

Surrogate

% Recovery

1,4-Difluorobenzene

93

4-Bromofluorobenzene

113

CA LUFT - Gasoline

Analyzed by: JZL

Date: 08/28/96 08:33:00

Total Petroleum Hydrocarbons-Diesel

ND 0.050 P

mg/L

Surrogate

% Recovery

o-Terphenyl

99

2-Fluorobiphenyl

84

CA LUFT - Diesel

Analyzed by: RR

Date: 08/28/96 07:30:00

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.

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



Certificate of Analysis No. H9-9608B45-03

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

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

P.O.#  
G797391, COC#077647  
DATE: 09/03/96

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

PROJECT NO: 10-170-3-4  
MATRIX: WATER  
DATE SAMPLED: 08/21/96  
DATE RECEIVED: 08/23/96

PARAMETER	ANALYTICAL DATA	RESULTS	DETECTION LIMIT	UNITS
Liquid-liquid extraction METHOD 3510B *** Analyzed by: LD Date: 08/27/96 12:00:00		08/27/96		

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. H9-9608B45-04

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

P.O.#  
 G797391, COC#077647  
 DATE: 09/03/96

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

PROJECT NO: 10-170-3-4  
 MATRIX: WATER  
 DATE SAMPLED: 08/21/96  
 DATE RECEIVED: 08/23/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	10 P	µg/L
Benzene	ND	0.5 P	µg/L
Toluene	ND	1.0 P	µg/L
Ethylbenzene	ND	1.0 P	µg/L
Total Xylene	ND	1.0 P	µg/L

Surrogate

% Recovery

1,4-Difluorobenzene 90  
 4-Bromofluorobenzene 97

METHOD 8020\*\*\*

Analyzed by: WK

Date: 08/30/96

Total Petroleum Hydrocarbons-Gasoline ND 0.05 P mg/L

Surrogate

% Recovery

1,4-Difluorobenzene 93  
 4-Bromofluorobenzene 107

CA LUFT - Gasoline

Analyzed by: LJ

Date: 08/29/96 02:15:00

Total Petroleum Hydrocarbons-Diesel 0.16 0.050 P mg/L

Surrogate

% Recovery

o-Terphenyl 93  
 2-Fluorobiphenyl 73

CA LUFT - Diesel

Analyzed by: RR

Date: 08/28/96 06:44:00

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. H9-9608B45-04

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

P.O.#  
 G797391, COC#077647  
 DATE: 09/03/96

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

PROJECT NO: 10-170-3-4  
 MATRIX: WATER  
 DATE SAMPLED: 08/21/96  
 DATE RECEIVED: 08/23/96

PARAMETER	ANALYTICAL DATA	RESULTS	DETECTION LIMIT	UNITS
Liquid-liquid extraction METHOD 3510B *** Analyzed by: LD Date: 08/27/96 12:00:00		08/27/96		

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. H9-9608B45-05

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

P.O.#  
 G797391, COC#077647  
 DATE: 09/03/96

PROJECT: BP Oil #11120  
 SITE: Dublin, CA  
 SAMPLED BY: Alisto Engineering  
 SAMPLE ID: S-5

PROJECT NO: 10-170-3-4  
 MATRIX: WATER  
 DATE SAMPLED: 08/21/96  
 DATE RECEIVED: 08/23/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	10 P	µg/L
Benzene	ND	0.5 P	µg/L
Toluene	ND	1.0 P	µg/L
Ethylbenzene	ND	1.0 P	µg/L
Total Xylene	ND	1.0 P	µg/L

Surrogate

% Recovery

1,4-Difluorobenzene 90  
 4-Bromofluorobenzene 97

METHOD 8020\*\*\*

Analyzed by: WK

Date: 08/30/96

Total Petroleum Hydrocarbons-Gasoline ND 0.05 P mg/L

Surrogate

% Recovery

1,4-Difluorobenzene 93  
 4-Bromofluorobenzene 103

CA LUFT - Gasoline

Analyzed by: LJ

Date: 08/29/96 02:43:00

Total Petroleum Hydrocarbons-Diesel 0.12 0.050 P mg/L

Surrogate

% Recovery

o-Terphenyl 100  
 2-Fluorobiphenyl 90

CA LUFT - Diesel

Analyzed by: RR

Date: 08/28/96 05:58:00

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.

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

Certificate of Analysis No. H9-9608B45-05

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

P.O.#  
G797391, COC#077647  
DATE: 09/03/96

PROJECT: BP Oil #11120  
SITE: Dublin, CA  
SAMPLED BY: Alisto Engineering  
SAMPLE ID: S-5

PROJECT NO: 10-170-3-4  
MATRIX: WATER  
DATE SAMPLED: 08/21/96  
DATE RECEIVED: 08/23/96

PARAMETER	ANALYTICAL DATA	RESULTS	DETECTION LIMIT	UNITS
Liquid-liquid extraction METHOD 3510B *** Analyzed by: LD Date: 08/27/96 12:00:00		08/27/96		

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.

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

Certificate of Analysis No. H9-9608B45-06

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

P.O.#  
 G797391, COC#077647  
 DATE: 09/03/96

PROJECT: BP Oil #11120  
 SITE: Dublin, CA  
 SAMPLED BY: Alisto Engineering  
 SAMPLE ID: S-6

PROJECT NO: 10-170-3-4  
 MATRIX: WATER  
 DATE SAMPLED: 08/21/96  
 DATE RECEIVED: 08/23/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	ND	250 P	µg/L
Benzene	ND	12 P	µg/L
Toluene	ND	25 P	µg/L
Ethylbenzene	ND	25 P	µg/L
Total Xylene	ND	25 P	µg/L

Surrogate

% Recovery

1,4-Difluorobenzene

91

4-Bromofluorobenzene

96

METHOD 8020\*\*\*

Analyzed by: WK

Date: 08/30/96

Total Petroleum Hydrocarbons-Gasoline

ND

0.25 P

mg/L

Surrogate

% Recovery

1,4-Difluorobenzene

93

4-Bromofluorobenzene

100

CA LUFT - Gasoline

Analyzed by: LJ

Date: 08/29/96 03:10:00

Total Petroleum Hydrocarbons-Diesel

0.47

0.050 P

mg/L

Surrogate

% Recovery

o-Terphenyl

110

2-Fluorobiphenyl

85

CA LUFT - Diesel

Analyzed by: RR

Date: 08/29/96 04:58:00

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. H9-9608B45-06

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

P.O.#  
G797391, COC#077647  
DATE: 09/03/96

PROJECT: BP Oil #11120  
SITE: Dublin, CA  
SAMPLED BY: Alisto Engineering  
SAMPLE ID: S-6

PROJECT NO: 10-170-3-4  
MATRIX: WATER  
DATE SAMPLED: 08/21/96  
DATE RECEIVED: 08/23/96

PARAMETER	ANALYTICAL DATA	RESULTS	DETECTION LIMIT	UNITS
Liquid-liquid extraction METHOD 3510B *** Analyzed by: LD Date: 08/27/96 12:00:00		08/27/96		

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.

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SPL California License # 1903



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

Certificate of Analysis No. H9-9608B45-07

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

P.O.#  
 G797391, COC#077647  
 DATE: 09/03/96

PROJECT: BP Oil #11120  
 SITE: Dublin, CA  
 SAMPLED BY: Alisto Engineering  
 SAMPLE ID: S-7

PROJECT NO: 10-170-3-4  
 MATRIX: WATER  
 DATE SAMPLED: 08/21/96  
 DATE RECEIVED: 08/23/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	4100	500 P	µg/L
Benzene	ND	25 P	µg/L
Toluene	ND	50 P	µg/L
Ethylbenzene	ND	50 P	µg/L
Total Xylene	ND	50 P	µg/L

Surrogate

% Recovery

1,4-Difluorobenzene 93  
 4-Bromofluorobenzene 100

METHOD 8020\*\*\*

Analyzed by: WK

Date: 08/30/96

Total Petroleum Hydrocarbons-Gasoline 3.7 0.25 P mg/L

Surrogate

% Recovery

1,4-Difluorobenzene 100  
 4-Bromofluorobenzene 107

CA LUFT - Gasoline

Analyzed by: LJ

Date: 08/29/96 03:38:00

Total Petroleum Hydrocarbons-Diesel 1.9 0.050 P mg/L

Surrogate

% Recovery

o-Terphenyl 130  
 2-Fluorobiphenyl 86

CA LUFT - Diesel

Analyzed by: RR

Date: 08/28/96 04:27:00

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

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

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 SPL California License # 1903



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

Certificate of Analysis No. H9-9608B45-07

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

P.O.#  
G797391, COC#077647  
DATE: 09/03/96

PROJECT: BP Oil #11120  
SITE: Dublin, CA  
SAMPLED BY: Alisto Engineering  
SAMPLE ID: S-7

PROJECT NO: 10-170-3-4  
MATRIX: WATER  
DATE SAMPLED: 08/21/96  
DATE RECEIVED: 08/23/96

PARAMETER	ANALYTICAL DATA	RESULTS	DETECTION LIMIT	UNITS
Liquid-liquid extraction METHOD 3510B *** Analyzed by: LD Date: 08/27/96 12:00:00		08/27/96		

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.

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

Certificate of Analysis No. H9-9608B45-08

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

P.O.#  
 G797391, COC#077647  
 DATE: 09/03/96

PROJECT: BP Oil #11120  
 SITE: Dublin, CA  
 SAMPLED BY: Alisto Engineering  
 SAMPLE ID: S-8

PROJECT NO: 10-170-3-4  
 MATRIX: WATER  
 DATE SAMPLED: 08/21/96  
 DATE RECEIVED: 08/23/96

ANALYTICAL DATA

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
MTBE	4000	500 P	µg/L
Benzene	ND	25 P	µg/L
Toluene	ND	50 P	µg/L
Ethylbenzene	ND	50 P	µg/L
Total Xylene	ND	50 P	µg/L

Surrogate	% Recovery
1,4-Difluorobenzene	87
4-Bromofluorobenzene	93

METHOD 8020\*\*\*  
 Analyzed by: WK  
 Date: 08/30/96

Total Petroleum Hydrocarbons-Gasoline	3.5	0.25 P	mg/L
---------------------------------------	-----	--------	------

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

CA LUFT - Gasoline  
 Analyzed by: LJ  
 Date: 08/29/96 04:06:00

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

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

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 SPL California License # 1903

***QUALITY CONTROL  
DOCUMENTATION***



Matrix: Aqueous  
Units: µg/L

Batch Id: HP\_J960830020910

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike		QC Limits(**) (Mandatory) % Recovery Range
			Result <1>	Recovery %	
MTBE	ND	50	51	102	20 - 110
Benzene	ND	50	50	100	62 - 121
Toluene	ND	50	50	100	66 - 136
EthylBenzene	ND	50	48	96.0	70 - 135
O Xylene	ND	50	49	98.0	74 - 134
M & P Xylene	ND	100	98	98.0	77 - 140

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike		Matrix Spike Duplicate		MS/MSD Relative % Difference	QC Limits(***) (Advisory)	
			Result <1>	Recovery <4>	Result <1>	Recovery <5>		RPD Max.	Recovery Range
MTBE	ND	20	22	110	21	105	4.65	20	39 - 150
BENZENE	ND	20	21	105	21	105	0	25	39 - 150
TOLUENE	ND	20	20	100	21	105	4.88	26	56 - 134
ETHYLBENZENE	ND	20	19	95.0	19	95.0	0	38	61 - 128
O XYLENE	ND	20	20	100	20	100	0	29	40 - 130
M & P XYLENE	ND	40	39	97.5	40	100	2.53	20	43 - 152

Analyst: WK

Sequence Date: 08/30/96

SPL ID of sample spiked: 9608B45-01A

Sample File ID: J\_H6026B.TX0

Method Blank File ID:

Blank Spike File ID: J\_H6021B.TX0

Matrix Spike File ID: J\_H6023B.TX0

Matrix Spike Duplicate File ID: J\_H6024B.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 (4th Q '95)

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

SAMPLES IN BATCH(SPL ID):

9608B45-05A 9608B45-06A 9608B45-07A 9608B45-08A  
 9608949-09A 9608949-17A 9608B07-10A 9608B07-02A  
 9608B07-04A 9608B07-06A 9608B07-07A 9608B07-08A  
 9608B07-09A 9608B40-05A 9608949-18A 9608B40-04A  
 9608B45-01A 9608B45-02A 9608B45-03A 9608B45-04A





Matrix: Aqueous  
Units: mg/L

Batch Id: HP\_R960827194810

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike		QC Limits(**) (Mandatory) % Recovery Range
			Result <1>	Recovery %	
Petroleum Hydrocarbons-Gas	ND	1.0	0.76	76.0	50 - 150

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike		Matrix Spike Duplicate		MS/MSD Relative % Difference	QC Limits(***) (Advisory)	
			Result <1>	Recovery <4>	Result <1>	Recovery <5>		RPD Max.	Recovery Range
			PETROLEUM HYDROCARBONS-GAS	1.8	0.9	3.0		133	3.1

Analyst: JZL

Sequence Date: 08/27/96

SPL ID of sample spiked: 9608B40-04A

Sample File ID: RRH6464.TX0

Method Blank File ID:

Blank Spike File ID: RRH6452.TX0

Matrix Spike File ID: RRH6455.TX0

Matrix Spike Duplicate File ID: RRH6456.TX0

\* = Values Outside QC Range

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

ND = Not Detected/Below Detection Limit

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

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

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

(\*\*) = Source: Temporary Limits

(\*\*\*) = Source: Temporary Limits

SAMPLES IN BATCH(SPL ID):

9608A98-08A 9608A98-09A 9608B40-04A 9608B40-05A  
9608B40-01A 9608B40-03A 9608B45-01A 9608B45-02A  
9608B45-03A 9608B45-04A 9608B45-05A 9608B45-06A



Matrix: Aqueous  
Units: mg/L

Batch Id: HP\_R960828223500

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike		QC Limits(**) (Mandatory) % Recovery Range
			Result <1>	Recovery %	
Petroleum Hydrocarbons-Gas	ND	0.9	0.74	82.2	50 - 150

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike		Matrix Spike Duplicate		MS/MSD Relative % Difference	QC Limits(***) (Advisory)	
			Result <1>	Recovery <4>	Result <1>	Recovery <5>		RPD Max.	Recovery Range
PETROLEUM HYDROCARBONS-GAS	ND	0.9	1.06	118	1.16	129	8.91	50	50 - 150

Analyst: LJ

Sequence Date: 08/28/96

SPL ID of sample spiked: 9608B45-04A

Sample File ID: RRH6506.TX0

Method Blank File ID:

Blank Spike File ID: RRH6499.TX0

Matrix Spike File ID: RRH6502.TX0

Matrix Spike Duplicate File ID: RRH6503.TX0

\* = Values Outside QC Range

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

ND = Not Detected/Below Detection Limit

% Recovery = [ ( <1> - <2> ) / <3> ] x 100

LCS % Recovery = ( <1> / <3> ) x 100

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

(\*\*) = Source: Temporary Limits

(\*\*\*) = Source: Temporary Limits

SAMPLES IN BATCH(SPL ID):

9608B45-05A 9608B45-06A 9608B45-07A 9608B45-08A  
9608D72-06A 9608B45-04A



Matrix: Aqueous  
Units: mg/L

Batch Id: HP\_T960828115100

LABORATORY CONTROL SAMPLE

SPIKE COMPOUNDS	Method Blank Result <2>	Spike Added <3>	Blank Spike		QC Limits(**) (Mandatory) % Recovery Range
			Result <1>	Recovery %	
Diesel Petr. Hydrocarbons	ND	10	10.42	104	20 - 130

MATRIX SPIKES

SPIKE COMPOUNDS	Sample Results <2>	Spike Added <3>	Matrix Spike		Matrix Spike Duplicate		MS/MSD Relative % Difference	QC Limits(***) (Advisory)	
			Result <1>	Recovery <4>	Result <1>	Recovery <5>		RPD Max.	Recovery Range
DIESEL PETR. HYDROCARBONS	ND	10	10.33	103	11.12	111	7.48	43	20 - 177

Analyst: RR

Sequence Date: 08/28/96

SPL ID of sample spiked: 9608A18-01B

Sample File ID: T\_H6622.TX0

Method Blank File ID:

Blank Spike File ID: T\_H6628.TX0

Matrix Spike File ID: T\_H6629.TX0

Matrix Spike Duplicate File ID: T\_H6630.TX0

\* = Values Outside QC Range

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

ND = Not Detected/Below Detection Limit

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

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

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

(\*\*) = Source: SPL-Houston Historical Data (2nd Q '94)

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

SAMPLES IN BATCH(SPL ID):

9608B45-07B 9608B45-06B 9608B45-05B 9608B45-04B  
9608B45-03B 9608B45-02B 9608A18-01B 9608A18-02B  
9608B45-01B

***CHAIN OF CUSTODY***  
***AND***  
***SAMPLE RECEIPT CHECKLIST***



9608B45

### CHAIN OF CUSTODY

No. 077647

Page 1 of 1

CONSULTANT'S NAME <b>Alisto Engineering</b>		ADDRESS <b>1575 Trent Blvd #201</b>		CITY <b>W.C.</b>	STATE <b>CA</b>	ZIP CODE <b>94598</b>
BP SITE NUMBER <b>11120</b>	BP CORNER ADDRESS/CITY <b>Dublin, CA</b>			CONSULTANT PROJECT NUMBER <b>10-170-3-4</b>		
CONSULTANT PROJECT MANAGER <b>Brady Nagle</b>		PHONE NUMBER <b>(510) 295-1650</b>	FAX NUMBER <b>295-1823</b>		CONSULTANT CONTRACT NUMBER <b>6797391</b>	
BP CONTACT <b>Scott Hooton</b>	BP ADDRESS <b>Kenton, WA</b>		PHONE NUMBER <b>-</b>		FAX NO. <b>-</b>	
LAB CONTACT <b>SPL</b>	LABORATORY ADDRESS <b>Texas</b>		PHONE NUMBER <b>-</b>		FAX NO. <b>-</b>	
SAMPLED BY (Please Print Name) <b>Larry Buenavente</b>		SAMPLED BY (Signature) <i>[Signature]</i>		SHIPMENT DATE <b>8/22/96</b>		SHIPMENT METHOD <b>Fed Ex</b>

TAT:  24 Hours  48 Hours  1 Week  Standard 2 Weeks

ANALYSIS REQUIRED

AIRBILL NUMBER **9366717030**

SAMPLE DESCRIPTION	COLLECTION DATE	MATRIX SOIL/WATER	CONTAINERS		PRESERVATIVE	P-P	P-W	P-H	P-D	P-R	P-M	COMMENTS
	COLLECTION TIME		NO.	TYPE (VOL.)	LAB SAMPLE #							
S-1	8/21/96	W	4	HL								
S-2	↓	↓	↓	↓								
S-3	↓	↓	↓	↓								
S-4	↓	↓	↓	↓								
S-5	↓	↓	↓	↓								
S-6	↓	↓	↓	↓								
S-7	↓	↓	↓	↓								
S-8	↓	↓	3	↓								

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	ADDITIONAL COMMENTS
<i>[Signature]</i> D. Yipton	8/21/96		<i>[Signature]</i> D. Yipton	8/22/96	0800	300 feet intact
	8/22/96	1530	<i>[Signature]</i> Ben [unclear]	8/23/96	1000	

# SPL Houston Environmental Laboratory

## Sample Login Checklist

Date: 8/23/96	Time: 1000
---------------	------------

SPL Sample ID:  9608B45
-------------------------------

		<u>Yes</u>	<u>No</u>
1	Chain-of-Custody (COC) form is present.	✓	
2	COC is properly completed.	✓	
3	If no, Non-Conformance Worksheet has been completed.		
4	Custody seals are present on the shipping container.	✓	
5	If yes, custody seals are intact.	✓	
6	All samples are tagged or labeled.	✓	
7	If no, Non-Conformance Worksheet has been completed.		
8	Sample containers arrived intact	✓	
9	Temperature of samples upon arrival:		3° C
10	Method of sample delivery to SPL:	SPL Delivery	
		Client Delivery	
		FedEx Delivery (airbill #)	9360717030
		Other:	
11	Method of sample disposal:	SPL Disposal	✓
		HOLD	
		Return to Client	

Name: S. West	Date: 8/23/96
---------------	---------------

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

BP Site Number: 11120  
 ERM Contact: 6797391  
 Sampling Date: 8/20-8/31  
 Matrix Description: groundwater  
 Date Final Report Received: 9/9/96  
 Laboratory & Location: SPL-TX

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

Notes/Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Data Validation Completed by (print): Bill Howell  
 (signature): Bill Howell  
 Date: 9/25/96