

GROUNDWATER MONITORING AND SAMPLING REPORT

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

Project No. 10-170-02-003



Prepared for:

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


*Change in sample freq.
Mw 1, 5, 7 to semi ann.
Cont. QMR for Mw 2, 3, 4, 6*

Prepared by:

**Alisto Engineering Group
1777 Oakland Boulevard, Suite 200
Walnut Creek, California**

May 9, 1995


**William Howell
Project Manager**


**Al Sevilla, P.E.
Principal**



*81-2-111 6-11-95
ENVIRONMENTAL
TECHNICAL*



GROUNDWATER MONITORING AND SAMPLING REPORT

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

Project No. 10-170-02-003

May 9, 1995

INTRODUCTION

This report presents the results and findings of the March 16, 1995 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 in Figure 1.

FIELD PROCEDURES

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

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

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

SAMPLING AND ANALYTICAL RESULTS

The results of monitoring and laboratory analysis of the groundwater samples for this and previous quarters are summarized in Table 1. The potentiometric groundwater elevations as interpreted from the results of this monitoring event are shown in Figure 2. The results of groundwater analysis are shown in 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)	TOG (ug/L)	HVOC (ug/L)	DO (ppm)	LAB
MW-1	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	ND<5000	ND	---	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	08/09/94	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-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	6.86	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-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	2800	25	8.3	0.5	15	---	---	7.2	PACE
QC-1 (c)	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 (c)	09/12/94	---	---	---	1900	---	ND<5.0	ND<5.0	8.0	10	---	---	---	PACE
MW-3	12/20/94	329.36	6.41	322.95	18000	9800	79	28	89	9.3	---	---	7.3	PACE
QC-1 (c)	12/20/94	---	---	---	17000	---	79	33	80	ND<2.5	---	---	---	PACE
MW-3	03/16/95	329.36	4.36	324.97	6300	7000	470	ND<5.0	210	9.9	---	---	5.5	ATI
QC-1 (c)	03/16/95	---	---	---	6300	---	500	ND<5.0	230	13	---	---	---	ATI
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	600	78	3.5	68	1.0	---	---	---	PACE
MW-4	08/25/93	329.45	7.32	322.13	1800	380	ND<0.5	ND<0.5	ND<0.5	ND<0.5	---	---	---	PACE
QC-1 (c)	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 (c)	11/22/93	---	---	---	1700	---	ND<2.5	ND<2.5	ND<2.5	ND<2.5	---	---	---	PACE
MW-4	03/07/94	329.45	8.29	323.16	710	1400	0.6	0.8	ND<0.5	ND<0.5	---	---	3.8	PACE
QC-1 (c)	03/07/94	---	---	---	1600	---	ND<0.5	ND<0.5	1.4	0.6	---	---	---	PACE
MW-4	06/09/94	329.45	6.78	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	4.68	324.79	1300	3200	ND<2.5	ND<2.5	58	14	---	---	5.5	ATI



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

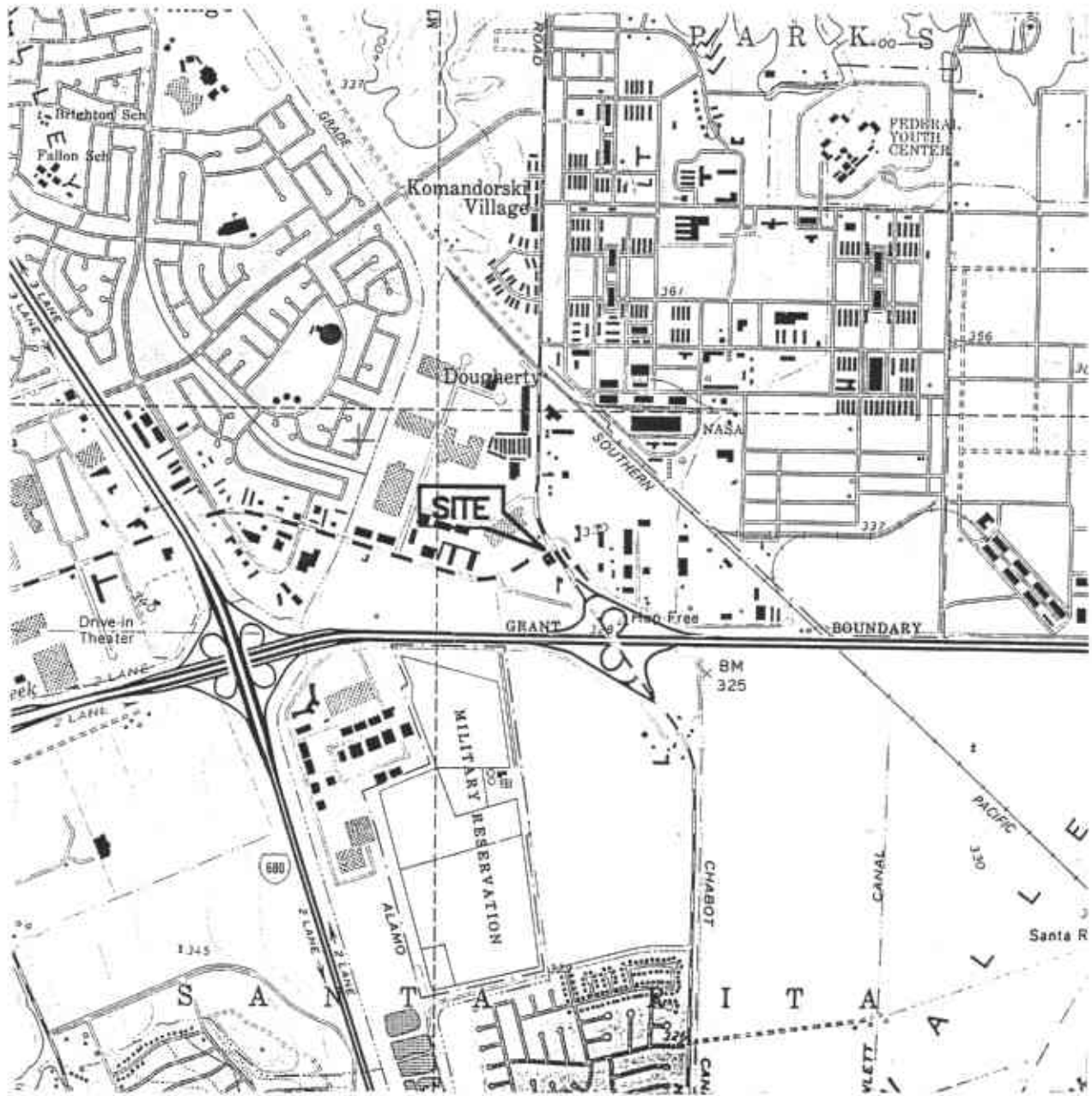
WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (Feet)	DEPTH TO WATER (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/L)	TPH-D (ug/L)	B (ug/L)	T (ug/L)	E (ug/L)	X (ug/L)	TOG (ug/L)	HVOC (ug/L)	DO (ppm)	LAB
MW-5	04/09/93	329.60	5.18	324.42	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	--	--	--	PACE
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-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 (d)	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-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
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

ABBREVIATIONS:

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

NOTES:

- (a) Top of casing elevations surveyed to an arbitrary datum.
- (b) Groundwater elevations relative to an arbitrary datum.
- (c) Blind duplicate.
- (d) Sample pattern does not match the diesel standard pattern.
- (e) Travel blank.



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

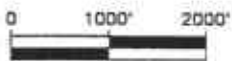


FIGURE 1

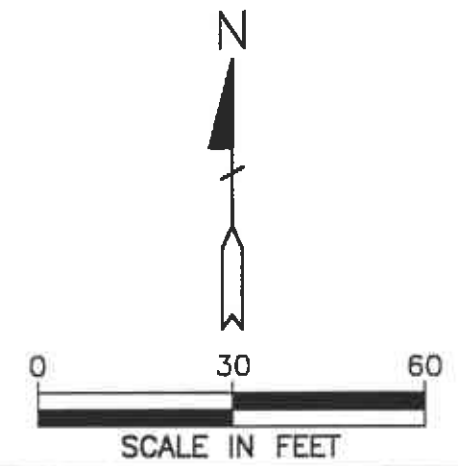
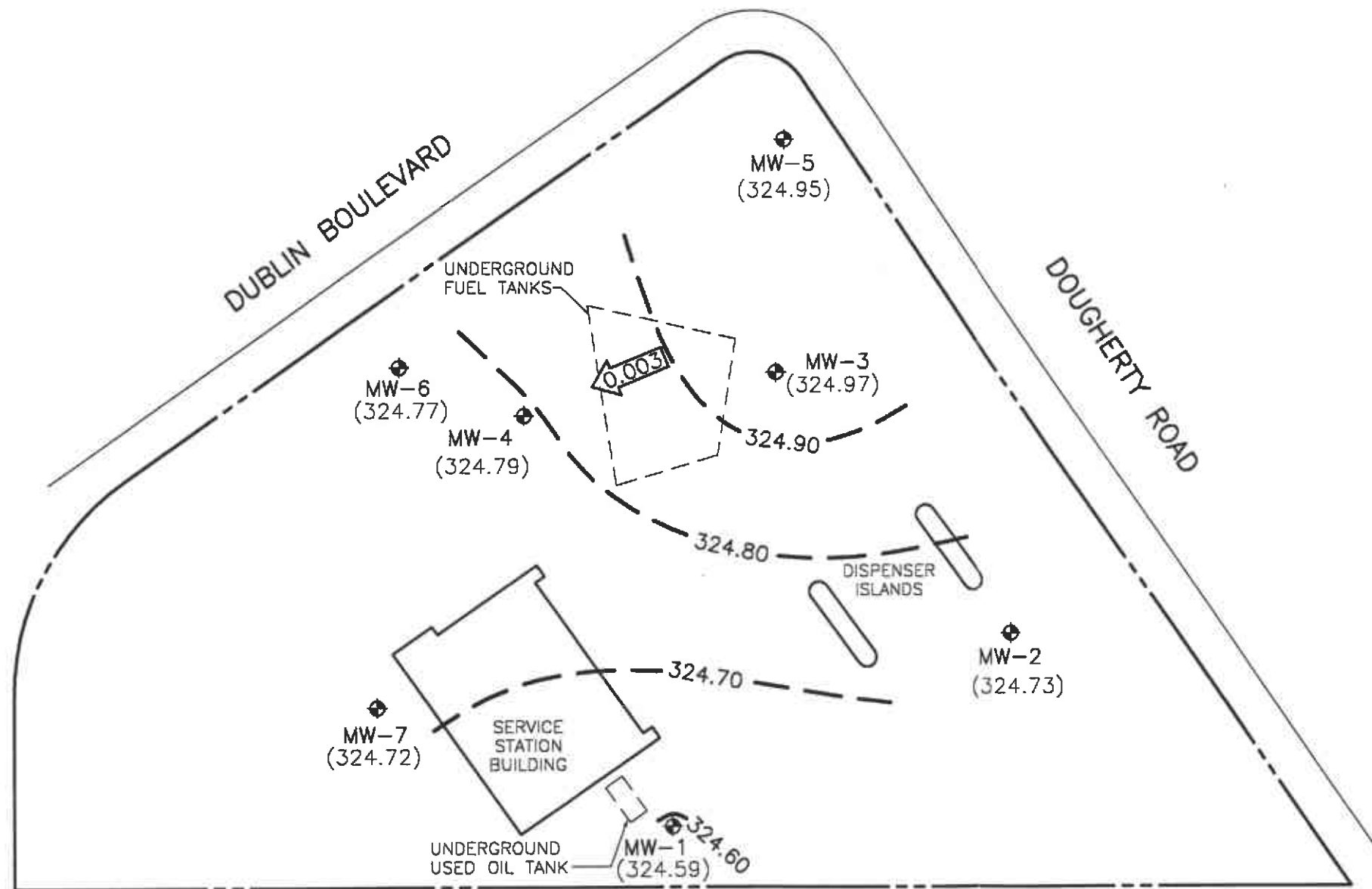
SITE VICINITY MAP

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

PROJECT NO. 10-170

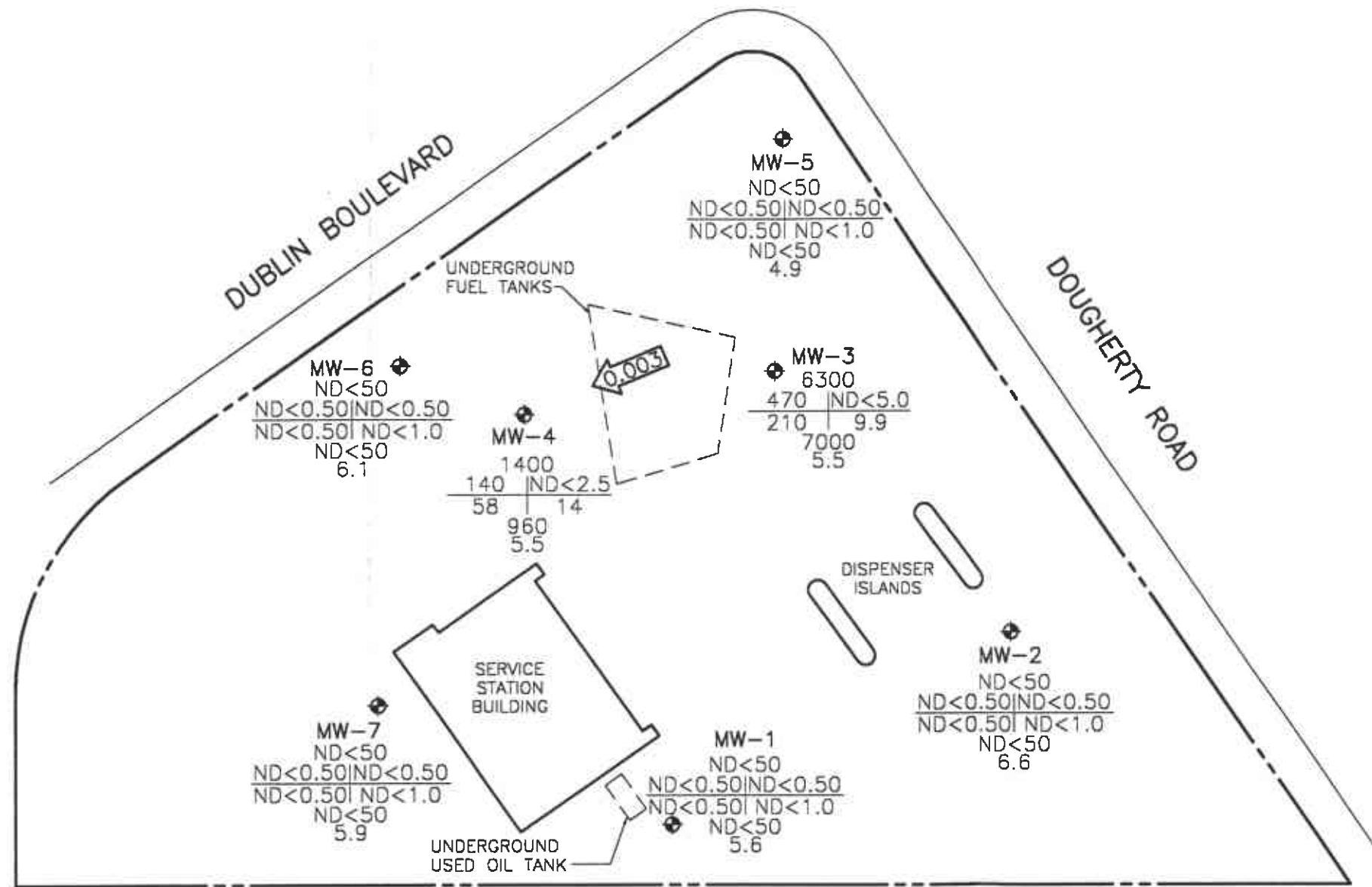


ALISTO ENGINEERING GROUP
 WALNUT CREEK, CALIFORNIA



- LEGEND**
- ◆ GROUNDWATER MONITORING WELL
 - (327.97) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
 - 324.90 - GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL - 0.10 FOOT)
 - ← 0.003 → CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 2
POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP
MARCH 16, 1995
 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 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
- ←0.003 CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 3
CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER
MARCH 16, 1995
 BP OIL SERVICE STATION NO. 11120
 6400 DUBLIN BOULEVARD
 DUBLIN, CALIFORNIA
 PROJECT NO. 10-170

APPENDIX A
WATER SAMPLING FIELD SURVEY FORMS

ALISTO

ENGINEERING

GROUP

1777 OAKLAND BLVD, STE 200

WALNUT CREEK CA 94596 (510) 295-1650 FAX 295-1823

Field Report / Sampling Data Sheet

Groundwater Sampling

Date: 3/16/95

Project No. 10-170-2-3

Day: M T W **W** F

Facility No. 1120

Temp. _____

Address 0.61m

Barometric pres. 760

SAMPLER: DS

Well ID	SAMPLE #	WATER	time	Well ID	SAMPLE #	WATER/	time	Well ID	SAMPLE	WATER / time
MW-1	S-1	4.37		MW-4	S-6	4.66				
MW-7	S-2	4.77	10:58	MW-3	S-7, S-8	4.39				
MW-6	S-3	4.78								
MW-5	S-4	4.65								
MW-2	S-5	3.77								

FIELD INSTRUMENT CALIBRATION DATA

PH METER _____ 4.00 7.00 10.00 _____ TIME _____ TEMPERATURE COMPENSATED N

TURBIDI METER _____ 5.0 NTU STANDARD _____ OTHER _____

CONDUCTIVITY METER 10,000 _____ OTHER _____

Well ID	Depth to Water	Diam	Cap/Lock	Depth to prod.	Iridescence	Gal.	Time	Temp *F	pH	E.C.	D.O.	
MW-1	4.37	2			Y N	2.2	11:32	60.0	6.84	2.55	5.3	<input type="checkbox"/> EPA 601
Total Depth - Water Level =						7.4	11:36	61.5	6.93	2.54		<input type="checkbox"/> TPH-G/BTEX
$18.20 - 4.37 = 13.83 \times .16 = 2.2 \times 3 = 6.6$						6.6	11:40	62.3	7.18	2.50	5.6	<input type="checkbox"/> TPH Diesel
Purge Method: <input type="checkbox"/> Surface Pump <input type="checkbox"/> Disp. Tube <input type="checkbox"/> Winch <input type="checkbox"/> Disp. Baller(e) <input type="checkbox"/> Sys Port												<input type="checkbox"/> TOG 5520
Comments:												Time/Sample /S-1
MW-7	4.77	2			Y N	2.5	11:45	64.8	7.03	3.83	6.1	<input type="checkbox"/> EPA 601
Total Depth - Water Level =						5.0	11:50	64.3	7.00	3.83		<input type="checkbox"/> TPH-G/BTEX
$20.25 - 4.77 = 15.48 \times .16 = 2.5 \times 3 = 7.5$						7.5	11:53	65.5	6.94	3.86	5.9	<input type="checkbox"/> TPH Diesel
Purge Method: <input type="checkbox"/> Surface Pump <input type="checkbox"/> Disp. Tube <input type="checkbox"/> Winch <input type="checkbox"/> Disp. Baller(e) <input type="checkbox"/> Sys Port												<input type="checkbox"/> TOG 5520
Comments:												Time/Sample /S-2
MW-6	4.78	4			Y N	9.4	11:57	65.8	7.94	2.82	6.3	<input type="checkbox"/> EPA 601
Total Depth - Water Level =						18.8	12:10	72.1	7.19	2.84		<input type="checkbox"/> TPH-G/BTEX
$19.25 - 4.78 = 14.47 \times .65 = 9.4 \times 3 = 28.2$						28.2	12:16	73.9	7.08	2.98	6.1	<input type="checkbox"/> TPH Diesel
Purge Method: <input type="checkbox"/> Surface Pump <input type="checkbox"/> Disp. Tube <input type="checkbox"/> Winch <input type="checkbox"/> Disp. Baller(e) <input type="checkbox"/> Sys Port												<input type="checkbox"/> TOG 5520
Comments:												Time/Sample /S-3

2.16
1.65

ALISTO

Field Report / Sampling Data Sheet

ENGINEERING

Groundwater Sampling

Date: 3/16/95

Project No. 10-170-2-3

GROUP

Day: Thurs

Station No. 11120

1777 OAKLAND BLVD, STE 200

Weather:

Address Dublin

WALNUT CREEK CA 94596 (510) 295-1650 FAX 295-1823

SAMPLER: DS

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp *F	pH	E.C.	D.O.	<input type="radio"/> EPA 601 <input checked="" type="radio"/> TPH-G/BTEX <input type="radio"/> TPH Diesel <input type="radio"/> TOG 5520 Time Sampled
MW-5	4.65	2		0	0	2.7	12:53	70.2	7.24	2.28	5.9	
Total Depth - Water Level = $21.35 - 4.65 = 16.7$ x Well Vol. Factor = 16 x #vol. to Purge = $2.7 \times 3 = 8.1$ PurgeVol.						5.4	13:03	69.2	7.20	2.21		
Purge Method: <input type="radio"/> Surface Pump <input type="radio"/> Disp. Tube <input type="radio"/> Winch <input type="radio"/> Disp. Bailor(s) <input type="radio"/> Sys Port						8.1	13:11	71.3	7.14	2.18	4.9	
Comments:												

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp *F	pH	E.C.	D.O.	<input type="radio"/> EPA 601 <input checked="" type="radio"/> TPH-G/BTEX <input type="radio"/> TPH Diesel <input type="radio"/> TOG 5520 Time Sampled
MW-2	3.77	2		0	0	2.3	13:21	69.2	6.71	10.94	6.3	
Total Depth - Water Level = $18.25 - 3.77 = 14.48$ x Well Vol. Factor = 16 x #vol. to Purge = $2.3 \times 3 = 6.9$ PurgeVol.						4.6	13:29	70.4	6.63	10.95		
Purge Method: <input type="radio"/> Surface Pump <input type="radio"/> Disp. Tube <input type="radio"/> Winch <input type="radio"/> Disp. Bailor(s) <input type="radio"/> Sys Port						8.9	13:34	70.1	6.57	18.00	6.6	
Comments:												

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp *F	pH	E.C.	D.O.	<input type="radio"/> EPA 601 <input checked="" type="radio"/> TPH-G/BTEX <input type="radio"/> TPH Diesel <input type="radio"/> TOG 5520 Time Sampled
MW-4	4.66	2		0	0	2.2	13:45	69.3	6.93	3.87	5.4	
Total Depth - Water Level = $18.15 - 4.66 = 13.49$ x Well Vol. Factor = 16 x #vol. to Purge = $2.2 \times 3 = 6.6$ PurgeVol.						4.4	13:54	70.5	6.72	3.69		
Purge Method: <input type="radio"/> Surface Pump <input type="radio"/> Disp. Tube <input type="radio"/> Winch <input type="radio"/> Disp. Bailor(s) <input type="radio"/> Sys Port						6.6	14:05	70.5	70.5	3.64	5.5	
Comments:												

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp *F	pH	E.C.	D.O.	<input type="radio"/> EPA 601 <input checked="" type="radio"/> TPH-G/BTEX <input type="radio"/> TPH Diesel <input type="radio"/> TOG 5520 Time Sampled
MW-3	4.39	2		0	0	2.3	14:19	69.8	7.01	2.56	4.9	
Total Depth - Water Level = $18.61 - 4.39 = 14.22$ x Well Vol. Factor = 16 x #vol. to Purge = $2.3 \times 3 = 6.9$ PurgeVol.						4.6	14:25	70.1	7.12	2.40		
Purge Method: <input type="radio"/> Surface Pump <input type="radio"/> Disp. Tube <input type="radio"/> Winch <input type="radio"/> Disp. Bailor(s) <input type="radio"/> Sys Port						6.9	14:34	70.2	7.08	2.33	5.5	
Comments: <u>QC-1(5-8)</u>												

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp *F	pH	E.C.	D.O.	<input type="radio"/> EPA 601 <input type="radio"/> TPH-G/BTEX <input type="radio"/> TPH Diesel <input type="radio"/> TOG 5520 Time Sampled
Total Depth - Water Level =												
Purge Method: <input type="radio"/> Surface Pump <input type="radio"/> Disp. Tube <input type="radio"/> Winch <input type="radio"/> Disp. Bailor(s) <input type="radio"/> Sys Port												
Comments:												

APPENDIX B

LABORATORY REPORT AND CHAIN OF CUSTODY RECORD



Analytical**Technologies, Inc.**

Corporate Offices: 5550 Morehouse Drive San Diego, CA 92121 (619) 458-9141

ATI I.D.: 503245

March 24, 1995

ALISTO ENGINEERING
1777 OAKLAND BOULEVARD, SUITE 200
WALNUT CREEK, CA 94596

Project Name: BP SITE #11120/I-S80 & DOUGHERTY, DUBLIN CA
Project # : G317864/10-170-2-003


Attention: BILL HOWELL


Analytical Technologies, Inc. has received the following sample(s):

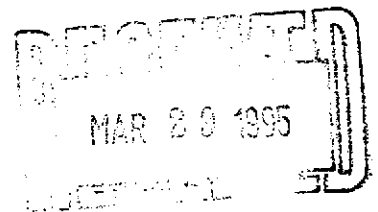
<u>Date Received</u>	<u>Quantity</u>	<u>Matrix</u>
March 18, 1995	9	WATER

The sample(s) were analyzed with EPA methodology or equivalent methods as specified in the enclosed analytical schedule. The symbol for "less than" indicates a value below the reportable detection limit. If any flags appear next to the analytical data in this report, please see the attached list of flag definitions.

The results of these analyses and the quality control data are enclosed. Please note that the Sample Condition Upon Receipt Checklist is included at the end of this report.


GARY STEWART
VOLATILES SUPERVISOR


ALAN J. KLEINSCHMIDT
LABORATORY MANAGER





SAMPLE CROSS REFERENCE

Client : ALISTO ENGINEERING
Project # : G317864/10-170-2-003
Project Name: BP SITE #11120/I-S80 & DOUGHERTY, DUBLIN CA

Report Date: March 24, 1995
ATI I.D. : 503245

Table with 4 columns: ATI #, Client Description, Matrix, Date Collected. Contains 9 rows of sample data.

---TOTALS---

Summary table with 2 columns: Matrix, # Samples. Shows WATER with 9 samples.

ATI STANDARD DISPOSAL PRACTICE

The sample(s) from this project will be disposed of in twenty-one (21) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.



Client : ALISTO ENGINEERING
Project # : G317864/10-170-2-003
Project Name: BP SITE #11120/I-S80 & DOUGHERTY, DUBLIN CA

ATI I.D.: 503245

Analysis	Technique/Description
MOD EPA 8015-CDOHS (FUEL HYDROCARBONS: C6-C24)	GC/FLAME IONIZATION DETECTOR
MOD EPA 8015-CDOHS/8020 (HYDROCARBONS C6-C12/BTXE)	GC/FLAME ION./PHOTO IONIZATION DETECTOR



GAS CHROMATOGRAPHY RESULTS

Test : MOD EPA 8015-CDOHS (FUEL HYDROCARBONS: C6-C24)
Client : ALISTO ENGINEERING
Project # : G317864/10-170-2-003
Project Name: BP SITE #11120/I-S80 & DOUGHERTY, DUBLIN CA

ATI I.D. : 503245

Table with 6 columns: Sample #, Client ID, Matrix, Date Sampled, Date Extracted, Date Analyzed, Dil. Factor. Rows 1-3 show WATER matrix samples with dates 16-MAR-95 and 21-MAR-95, and a dilution factor of 1.00.

Table with 5 columns: Parameter, Units, 1, 2, 3. Rows include FUEL HYDROCARBONS (MG/L, <0.50), HYDROCARBON RANGE (-), and SURROGATES BIS(2-ETHYLHEXYL) PHTHALATE (%).



GAS CHROMATOGRAPHY RESULTS

Test : MOD EPA 8015-CDOHS (FUEL HYDROCARBONS: C6-C24)
 Client : ALISTO ENGINEERING
 Project # : G317864/10-170-2-003
 Project Name: BP SITE #11120/I-S80 & DOUGHERTY, DUBLIN CA

ATI I.D. : 503245

Sample #	Client ID	Matrix	Date Sampled	Date Extracted	Date Analyzed	Dil. Factor
4	S-4	WATER	16-MAR-95	21-MAR-95	21-MAR-95	1.00
5	S-5	WATER	16-MAR-95	21-MAR-95	21-MAR-95	1.00
6	S-6	WATER	16-MAR-95	21-MAR-95	21-MAR-95	1.00

Parameter	Units	4	5	6
FUEL HYDROCARBONS	MG/L	<0.50	<0.50	0.96
HYDROCARBON RANGE		-	-	C6-C14
HYDROCARBONS QUANTITATED USING		-	-	GASOLINE

SURROGATES

BIS(2-ETHYLHEXYL) PHTHALATE	%	112	112	109
-----------------------------	---	-----	-----	-----



GAS CHROMATOGRAPHY RESULTS

Test : MOD EPA 8015-CDOHS (FUEL HYDROCARBONS: C6-C24)
Client : ALISTO ENGINEERING
Project # : G317864/10-170-2-003
Project Name: BP SITE #11120/I-S80 & DOUGHERTY, DUBLIN CA

ATI I.D. : 503245

Table with 7 columns: Sample #, Client ID, Matrix, Date Sampled, Date Extracted, Date Analyzed, Dil. Factor. Row 1: 7, S-7, WATER, 16-MAR-95, 21-MAR-95, 22-MAR-95, 1.00

Table with 3 columns: Parameter, Units, Value. Row 1: FUEL HYDROCARBONS, MG/L, 7.0. Row 2: HYDROCARBON RANGE, C6-C18. Row 3: HYDROCARBONS QUANTITATED USING, GASOLINE. Row 4: SURROGATES, %. Row 5: BIS(2-ETHYLHEXYL) PHTHALATE, 114



GAS CHROMATOGRAPHY - QUALITY CONTROL

REAGENT BLANK

Test : MOD EPA 8015-CDOHS (FUEL HYDROCARBONS)
Blank I.D. : 34766
Client : ALISTO ENGINEERING
Project # : G317864/10-170-2-003
Project Name: BP SITE #11120/I-S80 & DOUGHERTY, DUBLIN CA

ATI I.D. : 503245
Date Extracted: 21-MAR-95
Date Analyzed : 21-MAR-95
Dil. Factor : 1.00

Parameters	Units	Results
FUEL HYDROCARBONS	MG/L	<0.50
HYDROCARBON RANGE		-
HYDROCARBONS QUANTITATED USING		-
<u>SURROGATES</u>		
BIS(2-ETHYLHEXYL) PHTHALATE	%	113

GAS CHROMATOGRAPHY - QUALITY CONTROL

MSMSD

Page 7

Test : MOD EPA 8015-CDOHS (FUEL HYDROCARBONS)
 MSMSD # : 74166
 Client : ALISTO ENGINEERING

ATI I.D. : 503245
 Date Extracted: 21-MAR-95
 Date Analyzed : 22-MAR-95
 Sample Matrix : WATER
 REF I.D. : 503245-01

Project # : G317864/10-170-2-003
 Project Name: BP SITE #11120/I-S80 & DOUGHERTY, DUBLIN CA

Parameters	Units	Sample Result	Conc Spike	Spiked Sample	% Rec	Dup Spike	Dup % Rec	RPD
FUEL HYDROCARBONS	MG/L	<0.50	10	8.6	86	9.3	93	8

$\% \text{ Recovery} = (\text{Spike Sample Result} - \text{Sample Result}) * 100 / \text{Spike Concentration}$

$\text{RPD (Relative \% Difference)} = (\text{Spiked Sample Result} - \text{Duplicate Spike Result}) * 100 / \text{Average Result}$



GAS CHROMATOGRAPHY - QUALITY CONTROL

BLANK SPIKE

Test : MOD EPA 8015-CDOHS (FUEL HYDROCARBONS)
 Blank Spike #: 55291
 Client : ALISTO ENGINEERING
 Project # : G317864/10-170-2-003
 Project Name : BP SITE #11120/I-S80 & DOUGHERTY, DUBLIN CA

ATI I.D. : 503245
 Date Extracted: 21-MAR-95
 Date Analyzed : 21-MAR-95
 Sample Matrix : WATER

Parameters	Units	Blank Result	Spiked Sample	Spike Conc.	% Rec
FUEL HYDROCARBONS	MG/L	<0.50	11	10	110

% Recovery = (Spike Sample Result - Sample Result)*100/Spike Concentration
 RPD (Relative % Difference) = (Spiked Sample - Blank Result)*100/Average Result

GAS CHROMATOGRAPHY RESULTS

Test : MOD EPA 8015-CDOHS/8020 (HYDROCARBONS C6-C12/BTXE)
 Client : ALISTO ENGINEERING ATI I.D. : 503245
 Project # : G317864/10-170-2-003
 Project Name: BP SITE #11120/I-S80 & DOUGHERTY, DUBLIN CA

Sample #	Client ID	Matrix	Date Sampled	Date Extracted	Date Analyzed	Dil. Factor
1	S-1	WATER	16-MAR-95	N/A	22-MAR-95	1.00
2	S-2	WATER	16-MAR-95	N/A	22-MAR-95	1.00
3	S-3	WATER	16-MAR-95	N/A	22-MAR-95	1.00

Parameter	Units	1	2	3		
BENZENE	UG/L	<0.50	<0.50	<0.50		
TOLUENE	UG/L	<0.50	<0.50	<0.50		
ETHYLBENZENE	UG/L	<0.50	<0.50	<0.50		
XYLENES (TOTAL)	UG/L	<1.0	<1.0	<1.0		
FUEL HYDROCARBONS	UG/L	<50	<50	<50		
HYDROCARBON RANGE		C6-C12	C6-C12	C6-C12		
HYDROCARBONS QUANTITATED USING		GASOLINE	GASOLINE	GASOLINE		
SURROGATES						
TRIFLUOROTOLUENE	%	100	95	95		



GAS CHROMATOGRAPHY RESULTS

Test : MOD EPA 8015-CDOHS/8020 (HYDROCARBONS C6-C12/BTXE)
 Client : ALISTO ENGINEERING
 Project # : G317864/10-170-2-003
 Project Name: BP SITE #11120/I-S80 & DOUGHERTY, DUBLIN CA

ATI I.D. : 503245

Sample #	Client ID	Matrix	Date Sampled	Date Extracted	Date Analyzed	Dil. Factor
4	S-4	WATER	16-MAR-95	N/A	23-MAR-95	1.00
5	S-5	WATER	16-MAR-95	N/A	23-MAR-95	1.00
6	S-6	WATER	16-MAR-95	N/A	23-MAR-95	5.00

Parameter	Units	4	5	6
BENZENE	UG/L	<0.50	<0.50	140
TOLUENE	UG/L	<0.50	<0.50	<2.5
ETHYLBENZENE	UG/L	<0.50	<0.50	58
XYLENES (TOTAL)	UG/L	<1.0	<1.0	14
FUEL HYDROCARBONS	UG/L	<50	<50	1400@C
HYDROCARBON RANGE		C6-C12	C6-C12	C6-C12
HYDROCARBONS QUANTITATED USING		GASOLINE	GASOLINE	GASOLINE

SURROGATES				
TRIFLUOROTOLUENE	%	99	90	94

@C POSSIBLE MTBE PEAK

GAS CHROMATOGRAPHY RESULTS

Test : MOD EPA 8015-CDOHS/8020 (HYDROCARBONS C6-C12/BTXE)
 Client : ALISTO ENGINEERING ATI I.D. : 503245
 Project # : G317864/10-170-2-003
 Project Name: BP SITE #11120/I-S80 & DOUGHERTY, DUBLIN CA

Sample #	Client ID	Matrix	Date Sampled	Date Extracted	Date Analyzed	Dil. Factor
7	S-7	WATER	16-MAR-95	N/A	23-MAR-95	10.00
8	S-8	WATER	16-MAR-95	N/A	23-MAR-95	10.00
9	S-9 (BTXE 1507)	WATER	16-MAR-95	N/A	23-MAR-95	1.00

Parameter	Units	7	8	9
BENZENE	UG/L	470	500	<0.50
TOLUENE	UG/L	<5.0	<5.0	<0.50
ETHYLBENZENE	UG/L	210	230	<0.50
XYLENES (TOTAL)	UG/L	9.9	13	<1.0
FUEL HYDROCARBONS	UG/L	6300@C	6300@C	<50
HYDROCARBON RANGE		C6-C12	C6-C12	C6-C12
HYDROCARBONS QUANTITATED USING		GASOLINE	GASOLINE	GASOLINE

SURROGATES

TRIFLUOROTOLUENE	%	79	96	92
------------------	---	----	----	----

@C POSSIBLE MTBE PEAK



GAS CHROMATOGRAPHY - QUALITY CONTROL

REAGENT BLANK

Test : MOD EPA 8015-CDOHS (FUEL HYDROCARBONS/BTXE)
Blank I.D. : 34758
Client : ALISTO ENGINEERING
Project # : G317864/10-170-2-003
Project Name: BP SITE #11120/I-S80 & DOUGHERTY, DUBLIN CA

ATI I.D. : 503245
Date Extracted: N/A
Date Analyzed : 22-MAR-95
Dil. Factor : 1.00

Parameters	Units	Results
BENZENE	UG/L	<0.50
TOLUENE	UG/L	<0.50
ETHYLBENZENE	UG/L	<0.50
XYLENES (TOTAL)	UG/L	<1.0
FUEL HYDROCARBONS	UG/L	<50
HYDROCARBON RANGE		C6-C12
HYDROCARBONS QUANTITATED USING		GASOLINE
<u>SURROGATES</u>		
TRIFLUOROTOLUENE	%	91

GAS CHROMATOGRAPHY - QUALITY CONTROL

REAGENT BLANK

Page 13

Test : MOD EPA 8015-CDOHS (FUEL HYDROCARBONS/BTXE)
Blank I.D. : 34779
Client : ALISTO ENGINEERING
Project # : G317864/10-170-2-003
Project Name: BP SITE #11120/I-S80 & DOUGHERTY, DUBLIN CA

ATI I.D. : 503245
Date Extracted: N/A
Date Analyzed : 23-MAR-95
Dil. Factor : 1.00

Parameters	Units	Results
BENZENE	UG/L	<0.50
TOLUENE	UG/L	<0.50
ETHYLBENZENE	UG/L	<0.50
XYLENES (TOTAL)	UG/L	<1.0
FUEL HYDROCARBONS	UG/L	<50
HYDROCARBON RANGE		C6-C12
HYDROCARBONS QUANTITATED USING		GASOLINE
<u>SURROGATES</u>		
TRIFLUOROTOLUENE	%	99



GAS CHROMATOGRAPHY - QUALITY CONTROL

MSMSD

Test : MOD EPA 8015-CDOHS (FUEL HYDROCARBONS/BTEX)
MSMSD # : 74217
Client : ALISTO ENGINEERING

ATI I.D. : 503245
Date Extracted: N/A
Date Analyzed : 23-MAR-95
Sample Matrix : WATER
REF I.D. : 503238-02

Project # : G317864/10-170-2-003
Project Name: BP SITE #11120/I-S80 & DOUGHERTY, DUBLIN CA

Table with 9 columns: Parameters, Units, Sample Result, Conc Spike, Spiked Sample, % Rec, Dup Spike, Dup % Rec, RPD. Rows include BENZENE and TOLUENE.

% Recovery = (Spike Sample Result - Sample Result)*100/Spike Concentration

RPD (Relative % Difference) = (Spiked Sample Result - Duplicate Spike Result)*100/Average Result

GAS CHROMATOGRAPHY - QUALITY CONTROL

BLANK SPIKE

Page 15

Test : MOD EPA 8015-CDOHS (FUEL HYDROCARBONS/BTXE)
 Blank Spike #: 55281
 Client : ALISTO ENGINEERING
 Project # : G317864/10-170-2-003
 Project Name : BP SITE #11120/I-S80 & DOUGHERTY, DUBLIN CA

ATI I.D. : 503245
 Date Extracted: N/A
 Date Analyzed : 22-MAR-95
 Sample Matrix : WATER

Parameters	Units	Blank Result	Spiked Sample	Spike Conc.	% Rec
BENZENE	UG/L	<0.50	4.8	5.0	96
TOLUENE	UG/L	<0.50	4.9	5.0	98

$\% \text{ Recovery} = (\text{Spike Sample Result} - \text{Sample Result}) * 100 / \text{Spike Concentration}$

$\text{RPD (Relative \% Difference)} = (\text{Spiked Sample} - \text{Blank Result}) * 100 / \text{Average Result}$



GAS CHROMATOGRAPHY - QUALITY CONTROL

BLANK SPIKE

Test : MOD EPA 8015-CDOHS (FUEL HYDROCARBONS/BTXE)
Blank Spike #: 55320
Client : ALISTO ENGINEERING
Project #: G317864/10-170-2-003
Project Name : BP SITE #11120/I-S80 & DOUGHERTY, DUBLIN CA

ATI I.D. : 503245
Date Extracted: N/A
Date Analyzed : 23-MAR-95
Sample Matrix : WATER

Parameters	Units	Blank Result	Spiked Sample	Spike Conc.	% Rec
BENZENE	UG/L	<0.50	4.9	5.0	98
TOLUENE	UG/L	<0.50	5.0	5.0	100

% Recovery = (Spike Sample Result - Sample Result)*100/Spike Concentration
RPD (Relative % Difference) = (Spiked Sample - Blank Result)*100/Average Result



503245

CHAIN OF CUSTODY

No. 058737

Page 1 of 1

CONSULTANT'S NAME Alisto Engineering		ADDRESS 1777 Oakland Blvd, Ste 200, Walnut Creek CA		CITY CA	STATE CA	ZIP CODE 94596
BP SITE NUMBER 11120	BP CORNER ADDRESS/CITY 1-580 + Dougherty, Dublin, CA		CONSULTANT PROJECT NUMBER 10-170-2-3			
CONSULTANT PROJECT MANAGER Bill Howell		PHONE NUMBER (510) 295-1650	FAX NUMBER (510) 295-1823		CONSULTANT CONTRACT NUMBER G217864	
BP CONTACT Scott Hutton		BP ADDRESS Renton WA	PHONE NUMBER (415) 900		FAX NO.	
LAB CONTACT ATI		LABORATORY ADDRESS		PHONE NUMBER		FAX NO.
SAMPLED BY (Please Print Name) Dale Swain		SAMPLED BY (Signature) <i>Dale Swain</i>		SHIPMENT DATE		SHIPMENT METHOD Carrier

TAT: 24 Hours 48 Hours 1 Week Standard 2 Weeks

ANALYSIS REQUIRED

AIRBILL NUMBER

SAMPLE DESCRIPTION	COLLECTION DATE	MATRIX SOIL/WATER	CONTAINERS		PRESERVATIVE	TAP-H	STEP	TAP-D										COMMENTS
	COLLECTION TIME		NO.	TYPE (VOL.)	LAB SAMPLE #													
S-1	3-16-95	H ₂ O	3	2 Vol	01													
S-2					02													
S-3					03													
S-4					04													
S-5					05													
S-6					06													
S-7					07													
S-8			2	2 Vol	08													
S-9			1	1 Vol	09													

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	ADDITIONAL COMMENTS
<i>Dale Swain</i>	3/17/95		<i>Michael Halloran</i>	3/18/95	0915	