PORT OF OAKLAND

May 24, 1996

Ms. Jennifer Eberle
Hazardous Materials Specialist
Alameda County Environmental Protection Division
1131 Harbor Bay Parkway, Room 250
Alameda, CA 94502-6577

SUBJECT: GROUNDWATER MONITORING AND SAMPLING REPORT
BUILDING C-401, 2277 7TH STREET, OAKLAND
STID # 3899

Dear Jennifer:

Please find enclosed a copy of the Groundwater Monitoring and Sampling Report prepared on the behalf of the Port of Oakland by Alisto Engineering Group (Alisto). The report, dated March 29, 1996, addresses groundwater monitoring and sampling that was performed by Alisto in January 1996 at Building C-401, 2277 7th Street, Oakland, California.

If you have any questions, please feel free to contact me at 272-1373.

Sincerely,

John Prall, R.G.
Associate Environmental Scientist

Enclosure

cc (w/enclosure): Don Ringsby, Dongary Investments
Rich Hiett, RWQCB

cc (w/o enclosure): Neil Werner

530 Water Street ■ Jack London's Waterfront ■ P.O. Box 2064 ■ Oakland, California 94604-2064
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GROUNDWATER MONITORING AND SAMPLING REPORT
FIRST QUARTER 1996

Port of Oakland
Building C-401
2277 Seventh Street
Oakland, California

Project No. 10-270-03-004

Prepared for:

Port of Oakland
530 Water Street
Oakland, California

Prepared by:

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

March 29, 1996

Brady Nagle
Project Manager

Al Sevilla, P.E.
Principal

REGISTERED PROFESSIONAL ENGINEER
ALBERTO SANCHEZ SEVILLA
26392
Exp. Date 3/31/00
CIVIL
STATE OF CALIFORNIA

GROUNDWATER MONITORING AND SAMPLING REPORT
FIRST QUARTER 1996

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Building C-401
2277 Seventh Street
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INTRODUCTION

This report presents the results and findings of the groundwater monitoring and sampling conducted by Alisto Engineering Group at the Port of Oakland, Building C-401, 2277 Seventh Street, Oakland, California for the first quarter 1996. A site vicinity map is shown on Figure 1.

The first quarter groundwater sampling was performed on January 8, 1996. Monitoring Wells MW-1, MW-3, and MW-8 were not sampled due to the presence of liquid-phase petroleum hydrocarbons. Additionally, groundwater monitoring was performed on December 27, 1995 concurrently with the monitoring and sampling of Wells MW-1, MW-2, and MW-3 at the adjacent Dongary Investments property at 2225 Seventh Street.

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 lower low water. The survey data and groundwater elevation measurements collected to date are presented in Table 1. Data collected during the coordinated monitoring at the Dongary Investments property are presented in Table 2. A summary of the liquid-phase hydrocarbons removed from Monitoring Wells MW-1 and MW-3 at the Port of Oakland property is presented in Table 3.

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

supplied containers. The field procedures for groundwater monitoring well sampling and the water sampling field survey forms are presented in Appendix A.

SAMPLING AND ANALYTICAL RESULTS

The groundwater samples were analyzed by Clayton Environmental Consultants, a state-certified laboratory, for the following:

WELL ID	ANALYTE			
	TPH-G	BTEX	TPH-D	TPH-O
MW-1	---	---	---	---
MW-2	X	X	X	X
MW-3	---	---	---	---
MW-4	X	X	X	X
MW-5	X	X	X	X
MW-6	X	X	X	X
MW-7	X	X	X	X
MW-8	---	---	---	---

TPH-G Total petroleum hydrocarbons as gasoline, generally C4 to C12, using EPA Method 8015
BTEX Benzene, toluene, ethylbenzene, and total xylenes using EPA Method 8020
TPH-D Total petroleum hydrocarbons as diesel, generally C10 to C20, using EPA Method 8015 (modified)
TPH-O Total petroleum hydrocarbons as oil, generally C20 to C42, using EPA Method 8015 (modified)

The results of monitoring and laboratory analysis of the groundwater samples for this and previous events are summarized in Table 1. The potentiometric groundwater elevations as interpreted from the results of the December 27, 1995 and January 8, 1996 monitoring events are shown on Figures 2 and 3. The results of groundwater analysis are shown on Figure 4. The field procedures for chain of custody documentation, laboratory report, and chain of custody record are presented in Appendix B.

RESULTS AND FINDINGS

The findings of the first quarter 1996 groundwater monitoring and sampling event are summarized as follows:

- Liquid-phase hydrocarbons were observed at thicknesses ranging from 0.45 to 4.94 feet in Port of Oakland Monitoring Wells MW-1, MW-3, and MW-8.

- Groundwater elevation data from the Port of Oakland monitoring wells on December 27, 1995 and January 8, 1996 indicated a gradient of 0.004 foot per foot in a northerly direction across the site.

- Analysis of samples collected from the monitoring wells at the Port of Oakland site on January 8, 1996 detected the following:

  - TPH-G at concentrations of 790 and 480 micrograms per liter (ug/l) in the samples collected from Monitoring Wells MW-4 and MW-6. The gas chromatogram patterns did not match the typical gasoline signature.

  - TPH-D at concentrations of 90, 11000, and 410 ug/l in the samples collected from MW-4, MW-6, and MW-7.

  - TPH-O at concentrations of 1200, 400, 6100, and 1100 ug/l in the samples collected from MW-2, MW-4, MW-6, and MW-7. The gas chromatogram patterns did not match the typical oil signature.

  - Benzene, toluene, ethylbenzene, and total xylenes (BTEX) at concentrations of up to 170, 1.9, 9.7, and 5.2 ug/l in the samples collected from MW-6 and MW-7.

- Analysis of samples collected from the monitoring wells at the Dongary Investments site on December 27, 1995 detected the following:

  - TPH-G at concentrations of 220 and 55 ug/l in the samples collected from Monitoring Wells MW-2 and MW-3.

  - TPH-D and BTEX were not detected above the reported detection limits in any of the samples. The groundwater samples were not analyzed for TPH-O.

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING
PORT OF OAKLAND, BUILDING C-401
2277 SEVENTH STREET, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-270

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION) (a) (feet)	DEPTH TO WATER (feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	TPH-D (ug/l)	TPH-O (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	LAB
MW-1	03/29/95	14.14	7.67	0.17	6.60	---	---	---	---	---	---	---	---
MW-1	09/06/95	14.14	9.45	0.77	5.27	---	---	---	---	---	---	---	---
MW-1	09/28/95	14.14	9.85	1.11	5.12	---	---	---	---	---	---	---	---
MW-1	12/27/95	14.14	9.04	0.53	5.50	---	---	---	---	---	---	---	---
MW-1	01/08/96	14.14	9.15	0.48	5.35	---	---	---	---	---	---	---	---
MW-2	05/27/94	14.36	8.01	---	6.35	87	470	---	ND<0.50	ND<0.50	ND<0.50	ND<0.50	D&M
MW-2	03/29/95	14.36	7.47	---	6.89	ND<50	110	1400	ND<0.4	ND<0.3	ND<0.3	ND<0.4	CEC
QC-1 (c)	03/29/95	---	---	---	---	ND<50	---	---	ND<0.4	ND<0.3	ND<0.3	ND<0.4	CEC
MW-2	09/06/95	14.36	9.04	---	5.32	ND<50	---	---	ND<0.4	ND<0.3	ND<0.3	ND<0.4	CEC
QC-1 (c)	09/06/95	---	---	---	---	ND<50	ND<60	400	ND<0.4	ND<0.3	ND<0.3	ND<0.4	CEC
MW-2	09/28/95	14.36	7.47	---	6.89	---	---	---	---	---	---	---	---
MW-2	12/27/95	14.36	8.95	---	5.41	---	---	---	---	---	---	---	---
MW-2	01/08/96	14.36	8.95	---	5.41	ND<50	ND<50	1200	ND<0.4	ND<0.3	ND<0.3	ND<0.4	CEC
MW-3	03/29/95	14.22	9.59	2.93	6.83	---	---	---	---	---	---	---	---
MW-3	09/06/95	14.22	13.70	5.22	4.44	---	---	---	---	---	---	---	---
MW-3	09/28/95	14.22	13.60	5.80	4.97	---	---	---	---	---	---	---	---
MW-3	12/27/95	14.22	12.71	4.70	5.04	---	---	---	---	---	---	---	---
MW-3	01/08/96	14.22	13.10	4.94	4.83	---	---	---	---	---	---	---	---
MW-4	03/29/95	13.15	9.59	---	3.56	---	---	---	---	---	---	---	---
MW-4	09/06/95	13.15	8.48	---	4.67	---	---	---	---	---	---	---	---
MW-4	09/11/95	13.15	9.59	---	3.56	150	ND<200	500	23	ND<0.3	ND<0.3	ND<0.4	CEC
MW-4	09/28/95	13.15	9.59	---	3.56	---	---	---	---	---	---	---	---
MW-4	12/27/96	13.15	8.39	---	4.76	---	---	---	---	---	---	---	---
MW-4	01/08/96	13.15	8.42	---	4.73	790	90	400	170	1.2	0.6	0.6	CEC
MW-5	09/06/95	13.49	6.90	---	6.59	---	---	---	---	---	---	---	---
MW-5	09/11/95	13.49	9.59	---	3.90	90	ND<300	2500	3.3	ND<0.3	ND<0.3	ND<0.4	CEC
MW-5	09/28/95	13.49	9.59	---	3.90	---	---	---	---	---	---	---	---
MW-5	12/27/96	13.49	7.17	---	6.32	---	---	---	---	---	---	---	---
MW-5 (d)	01/08/96	13.49	---	---	---		---	---					

TABLE 1 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING
PORT OF OAKLAND, BUILDING C-401
2277 SEVENTH STREET, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-270

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION) (a) (feet)	DEPTH TO WATER (feet)	PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	TPH-D (ug/l)	TPH-O (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	LAB
MW-6	09/06/95	14.00	7.40	2.93	8.80	---	---	---	---	---	---	---	---
MW-6	09/28/95	14.00	9.59	2.93	6.61	---	---	---	---	---	---	---	---
MW-6	12/27/96	14.00	8.07	---	5.93	---	---	---	---	---	---	---	---
MW-6	01/08/96	14.00	7.70	---	6.30	480	11000	6100	15	1.9	9.7	5.2	CEC
QC-1 (c)	01/08/96	---	---	---	---	530	---	---	15	1.9	12	6.4	CEC
MW-7	09/06/95	14.35	9.10	---	5.25	ND<50	ND<300	800	ND<0.4	ND<0.3	ND<0.3	ND<0.4	CEC
MW-7	09/28/95	14.35	9.74	---	4.61	---	---	---	---	---	---	---	---
MW-7	12/27/96	14.35	9.06	---	5.29	---	---	---	---	---	---	---	---
MW-7	01/08/96	14.35	9.06	---	5.29	ND<50	410	1100	ND<0.4	ND<0.3	ND<0.3	ND<0.4	CEC
MW-8	09/06/95	12.94	7.84	---	5.10	---	---	---	---	---	---	---	---
MW-8	09/28/95	12.94	8.91	0.12	4.12	---	---	---	---	---	---	---	---
MW-8	12/27/95	12.94	8.61	0.31	4.56	---	---	---	---	---	---	---	---
MW-8	01/08/96	12.94	8.80	0.45	4.48	---	---	---	---	---	---	---	---
QC-2 (e)	03/29/95	---	---	---	---	ND<50	---	---	ND<0.4	ND<0.3	ND<0.3	ND<0.4	CEC
QC-2 (e)	09/06/95	---	---	---	---	ND<50	---	---	ND<0.4	ND<0.3	ND<0.3	ND<0.4	CEC
QC-2 (e)	09/28/95	---	---	---	---	ND<50	---	---	ND<0.4	ND<0.3	ND<0.3	ND<0.4	CEC
QC-2 (e)	01/08/96	---	---	---	---	ND<50	---	---	ND<0.4	ND<0.3	ND<0.3	ND<0.4	CEC

ABBREVIATIONS:

TPH-G	Total petroleum hydrocarbons as gasoline
TPH-D	Total petroleum hydrocarbons as diesel (C10 to C20)
TPH-O	Total petroleum hydrocarbons as oil (C20 to C42)
B	Benzene
T	Toluene
E	Ethylbenzene
X	Total xylenes
ug/l	Micrograms per liter
---	Not analyzed/applicable/measurable
ND	Not detected above reported detection limit
D&M	D&M Laboratories
CEC	Clayton Environmental Consultants, Inc.

NOTES:

(a) Top of casing elevations surveyed to the nearest 0.01 foot relative to mean lower low water (3.2 feet below mean sea level, port of Oakland datum).

(b) Groundwater elevations in feet above mean lower low water.

(c) Blind duplicate.

(d) Well inaccessible.

(e) Travel blank.

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TABLE 2 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING
DONGARY INVESTMENTS
2225 SEVENTH STREET, OAKLAND, CALIFORNIA

WELL ID	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (feet)	DEPTH TO WATER (feet)		PRODUCT THICKNESS (Feet)	GROUNDWATER ELEVATION (b) (Feet)	TPH-G (ug/l)	TPH-D (ug/l)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)
MW-1	01/15/93	13.72	5.21		—	8.51	ND<50	ND<50	ND<0 3	ND<0.3	ND<0.3	ND<0.3
MW-1	09/12/94	13.72	6.37		—	7.35	ND<10	10000	0.5	ND<0.3	ND<0.3	ND<0.3
MW-1	11/30/94	13.72	5.76		—	7.96	ND<10	2800	ND<0.3	ND<0.3	ND<0.3	ND<0.3
MW-1	03/29/95	13.72	4.57		—	9.15	ND<50	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.3
MW-1	05/25/95	13 72	5.14		—	8.58	---	---	---	---	---	—
MW-1	06/21/95	13.72	5.41		—	8.31	ND<50	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.3
MW-1	06/23/95	13.72	5.44		—	8.28	---	---	---	---	---	---
MW-1	09/28/95	13.72	6.90	(c)	—	6.82	ND<50	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.3
MW-1	11/20/95	13.72	6.28		—	7.44	---	---	---	---	---	—
MW-1	12/27/95	13.72	5.86		—	7.86	ND<50	ND<50	ND<0.30	ND<0.30	ND<0.30	ND<0 30
MW-2	01/15/93	13.80	6.21		—	7.59	ND<50	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.3
MW-2	09/12/94	13.80	6.47		—	7.33	34	ND<50	0 5	ND<0.3	ND<0.3	ND<0.3
MW-2	11/30/94	13.80	6.34		—	7.46	ND<10	81	0.9	ND<0 3	ND<0.3	ND<0 3
MW-2	03/29/95	13.80	5.51		—	8.29	ND<50	75	0.3	ND<0.3	ND<0.3	ND<0.3
MW-2	05/25/95	13 80	5.60		—	8.20	---	—	---	—	---	—
MW-2	06/21/95	13.80	5.72		—	8.08	ND<50	ND<50	ND<0.3	ND<0 3	ND<0.3	ND<0.3
MW-2	06/23/95	13.80	5.72		—	8 08	---	---	—	—	---	—
MW-2	09/28/95	13.80	6.15		—	7.65	250	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.3
MW-2	11/20/95	13.80	6.42		—	7.38	---	---	---	---	---	---
MW-2	12/27/95	13.80	6.31		—	7.49	220	ND<50	ND<0.30	ND<0.30	ND<0.30	ND<0.30
MW-3	01/15/93	15.06	6.44		—	8.62	ND<50	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.3
MW-3	09/12/94	15 06	7.35		—	7.71	ND<50	ND<50	0 3	ND<0.3	ND<0.3	ND<0.3
MW-3	11/30/94	15.06	7.12		—	7.94	110	150	ND<0.3	ND<0 3	ND<0.3	ND<0.3
MW-3	03/29/95	15.06	6.31		—	8.75	ND<50	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.3
MW-3	05/25/95	15.06	6 75		—	8.31	---	---	---	---	---	---
MW-3	06/21/95	15.06	6.87		—	8 19	ND<50	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.3
MW-3	06/23/95	15.06	6.88		—	8.18	—	—	---	—	—	---
MW-3	09/28/95	15.06	7 28		—	7.78	51	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.3
MW-3	11/20/95	15.06	7.51		—	7.55	---	---	---	---	---	—
MW-3	12/27/95	15.06	7.20		—	7.86	55	ND<50	ND<0.30	ND<0 30	ND<0.30	ND<0.30

ABBREVIATIONS:

TPH-G	Total petroleum hydrocarbons as gasoline
TPH-D	Total petroleum hydrocarbons as diesel (C10 to C20)
B	Benzene
T	Toluene
E	Ethylbenzene
X	Total xylenes
ug/l	Micrograms per liter
---	Not analyzed/applicable
ND	Not detected above reported detection limit

NOTES:

(a) Top of casing elevations surveyed to the nearest 0.01 foot relative to mean lower low water (3 2 feet below mean sea level), Port of Oakland datum.

(b) Groundwater elevations expressed in feet relative to Port of Oakland datum.

(c) Possible gauging error.

Source: Groundwater Technology, Inc., Third Quarter Groundwater Monitoring and Sampling Report, Ringsby Terminals, Port of Oakland Lease, 2225 Seveth Street, Oakland, California. November 29, 1995.

TABLE 3 - LIQUID-PHASE HYDROCARBON REMOVAL STATUS
PORT OF OAKLAND, BUILDING C-401
2277 SEVENTH STREET, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-270

WELL ID	DATE	CASING ELEVATION (a) (feet)	DEPTH TO WATER (feet)	DEPTH TO PRODUCT	PRODUCT THICKNESS	GROUNDWATER ELEVATION (b) (Feet)	PRODUCT REMOVED (Gallons)	PRODUCT REMOVED CUMULATIVE (Gallons)	
MW-1	06/30/94	14 17	9 75	9 20	0 55	4.83	1.5	1 5	(c)
	07/08/94	14.17	9.88	9.12	0.76	4 86	1 5	3.0	(c)
	07/14/94	14 17	9,90	9.12	0.78	4 86	1 5	4.5	(c)
	7/21-22/94	14.17	9 78	9 16	0 62	4 86	1.5	6 0	(c)
	07/29/94	14 17	10 00	9 13	0 87	4.82	3 0	9.0	(c)
	08/03/94	14 17	10.3	9 19	1.11	4 70	3 0	12.0	(c)
	08/11/94	14.17	10.51	9.24	1.27	4.61	3 0	15.0	(c)
	08/18/94	14 17	10.38	9 25	1.13	4 64	3 0	18 0	(c)
	09/29/94	14.17	10.5	9 30	1.20	4.57	3.0	21.0	(c)
	10/04/94	14.17	9 75	9 30	0 45	4.76	1 5	22 5	(c)
	10/14/94	14.17	10.05	9 25	0.80	4.72	1.5	24 0	(c)
	10/21/94	14 17	10.84	9.49	1.35	4 34	—	24.0	(c)
	11/02/94	14.17	10.26	9 44	0 82	4 53	2 5	26 5	(c)
	11/10/94	14.17	9.80	8.45	1.35	5 38	3.0	29 5	(c)
	11/18/94	14 17	9 76	8.78	0.98	5 15	3 0	32 5	(c)
	12/08/94	14.17	9.46	8.69	0.77	5 29	3 0	35 5	(c)
	01/20/95	14 17	8.01	7 73	0 28	6 37	2 0	37 5	(c)
	01/27/95	14.17	7 54	7.52	0.02	6 65	2 0	39 5	(c)
	02/10/95	14.17	8.15	7.92	0 23	6 19	2 0	41.5	(c)
	02/16/95	14 17	8.40	8.18	0 23	5 94	1 0	42 5	(c)
	02/23/95	14.17	8.46	8.21	0 25	5 90	2 0	44 5	(c)
	03/03/95	14.17	8.25	8.15	0.10	6.00	2.0	46 5	(c)
	03/10/95	14.17	7 63	7 53	0 10	6 62	2 0	48 5	(c)
	03/17/95	14 17	8.00	7 80	0 20	6 32	2.0	50.5	(c)
	04/07/95	14.17	—	—	—	14 17	2.0	52 5	
	04/14/95	14.17	—	—	—	14 17	3 0	55 5	
	04/19/95	14.17	8 34	7.10	0 24	6.01	0.5	56 0	
	04/26/95	14.17	8.26	7 98	0 28	6.12	1.0	57.0	
	05/03/95	14 17	8 77	8.47	0 30	5 63	0 5	57 5	
	05/12/95	14.17	8.33	7 87	0.46	6.19	2.0	59 5	
	05/16/95	14.17	8.42	8.64	0.22	5.92	1.5	61 0	
	05/23/95	14.17	8 68	8 51	0.17	5.62	1 5	62.5	
	05/31/95	14 17	8.71	8 54	0 17	5 59	1 0	63.5	
	06/07/95	14.17	8.77	8 61	0.16	5.52	2.5	66 0	
	06/14/95	14.17	9.51	7.88	1.63	5 88	5 0	71 0	
	06/23/95	14.17	9.60	8 20	1.40	5 62	4.0	75 0	
	06/28/95	14 17	8.41	7 61	0 80	6 36	15.0	90 0	
	07/07/95	14.17	8.70	8 09	0.61	5 93	8 0	98 0	
	07/10/95	14.17	8 91	8.00	0.91	5.94	12.0	110.0	
	07/19/95	14.17	8.87	8.49	0 38	5 59	10.0	120.0	
	07/28/95	14.17	9.01	8.54	0.47	5.51	10.0	130 0	
	08/04/95	14.17	9 20	8.76	0 44	5 30	8 0	138 0	
	08/11/95	14 17	9.30	9.07	0 23	5 04	6.0	144 0	
	08/14/95	14.17	9.06	8.52	0 54	5.62	4.0	148 0	
	08/17/95	14 17	8.89	8.41	0.48	5.64	8.0	156 0	
	08/23/95	14.17	9 55	8.95	0.60	5.07	5.0	161 0	
	09/07/95	14 17	9 42	8 87	0 55	5.16	11 0	172.0	
	09/15/95	14.17	9 21	8 98	0 23	5.13	12.0	184 0	
	09/20/95	14 17	9 23	8 79	0 44	5 27	5 0	189 0	
	10/06/95	14.17	9.45	9 14	0.31	4.95	8.0	197 0	
	10/11/95	14.17	9 08	8 48	0.60	5 54	4 0	201.0	
	10/18/95	14 17	9.20	8.72	0.48	5 33	8.0	209.0	
	10/26/95	14.17	9.11	8.43	0.68	5 57	8.0	217 0	
	11/01/95	14.17	8.98	8.52	0 46	5 54	8 0	225.0	
	11/06/95	14.17	9 32	8.86	0.46	5.20	10.0	235 0	
	11/21/95	14 17	9 44	8.78	0 66	5 23	6.0	241 0	
	11/25/95	14.17	9 22	8.38	0 84	5.58	5.0	246 0	
	12/15/95	14 17	9 36	8.65	0 71	5.34	3.0	249 0	
	01/05/96	14.17	9 08	8 64	0.44	5.42	8.0	257 0	
	01/13/96	14 17	9.33	8.79	0 54	5 25	4.0	261.0	
	01/30/96	14 17	9 66	8 62	1 04	5 29	4 0	265.0	
	02/09/96	14.17	9 44	8.91	0.53	5.13	4 0	269.0	
	02/23/96	14.17	9.63	8.95	0.68	5 05	4 0	273 0	
	03/08/96	14 17	9 58	9 09	0 49	4 96	4 0	277.0	
	03/13/96	14.17	9 66	9.18	0.48	4.87	4 0	281 0	

TABLE 3 - LIQUID-PHASE HYDROCARBON REMOVAL STATUS
PORT OF OAKLAND, BUILDING C-401
2277 SEVENTH STREET, OAKLAND, CALIFORNIA

ALISTO PROJECT NO. 10-270

WELL ID	DATE	CASING ELEVATION (a) (feet)	DEPTH TO WATER (feet)	DEPTH TO PRODUCT	PRODUCT THICKNESS	GROUNDWATER ELEVATION (b) (Feet)	PRODUCT REMOVED (Gallons)	PRODUCT REMOVED CUMULATIVE (Gallons)
MW-3	06/30/94	14.24	14.97	8.83	6.14	3.88	45.0	45.0
	07/08/94	14.24	14.85	8.34	6.51	4.27	45.0	90.0
	07/14/94	14.24	14.41	8.35	6.06	4.38	45.0	135.0
	7/21-22/94	14.24	14.32	8.45	5.87	4.32	45.0	180.0
	07/29/94	14.24	14.45	8.90	5.55	3.95	18.0	198.0
	08/03/94	14.24	14.45	8.45	6.00	4.29	30.0	228.0
	08/11/94	14.24	14.45	9.52	4.93	3.49	30.0	258.0
	08/18/94	14.24	14.38	9.48	4.90	3.54	45.0	303.0
	09/23/94	14.24	14.45	8.75	5.70	4.07	100.0	403.0
	09/29/94	14.24	14.45	8.85	5.60	3.99	165.0	568.0
	10/04/94	14.24	14.50	8.65	5.85	4.13	165.0	733.0
	10/14/94	14.24	14.50	9.60	4.90	3.42	165.0	898.0
	10/21/94	14.24	14.50	8.88	5.62	3.96	90.0	988.0
	11/02/94	14.24	14.50	8.79	5.71	4.02	50.0	1038.0
	11/10/94	14.24	13.12	8.07	5.05	4.91	---	1038.0
	11/18/94	14.24	13.10	7.91	5.19	5.03	90.0	1128.0
	12/08/94	14.24	13.58	7.95	5.63	4.88	50.0	1178.0
	01/20/95	14.24	10.11	7.09	3.02	6.40	40.0	1218.0
	01/27/95	14.24	11.09	7.15	3.94	6.11	20.0	1238.0
	02/10/95	14.24	11.05	7.05	4.00	6.19	0.0	1238.0
	02/16/95	14.24	12.10	7.20	4.90	5.82	140.0	1378.0
	02/23/95	14.24	12.00	7.33	4.67	5.74	100.0	1478.0
	03/03/95	14.24	12.25	7.40	4.85	5.63	150.0	1628.0
	03/10/95	14.24	10.40	7.10	3.30	6.32	150.0	1778.0
	03/17/95	14.24	9.80	6.90	2.90	6.62	165.0	1943.0
	03/31/95	14.24	---	6.60	---	---	100.0	2043.0
	04/07/95	14.24	---	6.80	---	---	160.0	2203.0
	04/14/95	14.24	---	6.90	---	---	160.0	2363.0
	04/19/95	14.24	11.30	4.26	7.04	8.22	110.0	2473.0
	04/26/95	14.24	11.11	4.83	6.28	7.84	125.0	2598.0
	05/03/95	14.24	10.84	4.89	5.95	7.86	130.0	2728.0
	05/12/95	14.24	11.08	4.86	6.22	7.83	140.0	2868.0
	05/18/95	14.24	11.11	4.72	6.39	7.92	150.0	3018.0
	05/23/95	14.24	11.09	4.63	6.46	8.00	100.0	3118.0
	05/31/95	14.24	10.84	5.20	5.64	7.63	100.0	3218.0
	06/07/95	14.24	12.26	7.33	4.93	5.68	150.0	3368.0
	06/14/95	14.24	12.01	6.21	5.80	6.58	90.0	3458.0
	06/23/95	14.24	12.21	6.12	6.09	6.60	100.0	3558.0
	06/28/95	14.24	11.04	5.76	5.28	7.16	125.0	3683.0
	07/07/95	14.24	10.82	4.61	6.21	8.08	70.0	3753.0
	07/10/95	14.24	10.96	5.25	5.71	7.56	40.0	3793.0
	07/19/95	14.24	10.80	4.80	6.00	7.94	100.0	3893.0
	07/28/95	14.24	10.78	5.68	5.10	7.29	180.0	4073.0
	08/04/95	14.24	12.76	7.88	4.88	5.14	60.0	4133.0
	08/11/95	14.24	12.75	7.52	5.23	5.41	40.0	4173.0
	08/14/95	14.24	13.01	7.99	5.02	5.00	55.0	4228.0
	08/17/95	14.24	14.01	8.02	5.99	4.72	60.0	4288.0
	08/23/95	14.24	13.27	8.42	4.85	4.61	75.0	4363.0
	09/07/95	14.24	12.99	8.33	4.66	4.75	30.0	4393.0
	09/15/95	14.24	10.55	5.66	4.89	7.36	55.0	4448.0
	09/20/95	14.24	12.67	7.45	5.22	5.49	70.0	4518.0
	10/06/95	14.24	13.65	7.77	5.88	5.00	55.0	4573.0
	10/11/95	14.24	11.58	6.73	4.85	6.30	55.0	4628.0
	10/18/95	14.24	11.28	5.29	5.99	7.45	60.0	4688.0
	10/26/95	14.24	10.22	5.26	4.96	7.74	45.0	4733.0
	11/01/95	14.24	9.88	4.92	4.96	8.08	40.0	4773.0
	11/06/95	14.24	10.22	4.84	5.38	8.06	70.0	4843.0
	11/21/95	14.24	10.30	5.59	4.71	7.47	60.0	4903.0
	11/25/95	14.24	12.11	6.8	5.31	6.11	30.0	4933.0
	12/15/95	14.24	11.88	5.11	5.77	6.69	40.0	4973.0
	01/05/96	14.24	10.34	5.46	4.88	7.56	55.0	5028.0
	01/13/96	14.24	9.65	4.63	5.02	8.36	55.0	5083.0
	01/30/96	14.24	11.62	5.94	5.68	6.88	55.0	5138.0
	02/09/96	14.24	12.33	7.37	4.96	5.63	55.0	5193.0
	02/23/96	14.24	11.21	5.9	5.31	7.01	55.0	5248.0
	03/08/96	14.24	11.56	5.67	5.89	7.10	55.0	5303.0
	03/13/96	14.24	12.32	6.24	6.08	6.48	55.0	5358.0
MW-8	12/15/95	12.94	8.87	8.77	0.10	4.15	0.1	0.1
	01/05/96	12.94	9.02	8.96	0.06	3.97	0.5	0.6
	01/13/96	12.94	8.99	8.95	0.04	3.98	0.5	1.1
	01/30/96	12.94	9.01	8.95	0.06	3.98	0.5	1.6
	02/09/96	12.94	9.05	8.94	0.11	3.97	0.5	2.1
	02/23/96	12.94	9.12	9.09	0.03	3.84	0.5	2.6
	03/08/96	12.94	9.03	8.83	0.20	4.06	0.5	3.1
	03/13/96	12.94	9.11	8.95	0.16	3.95	0.5	3.6

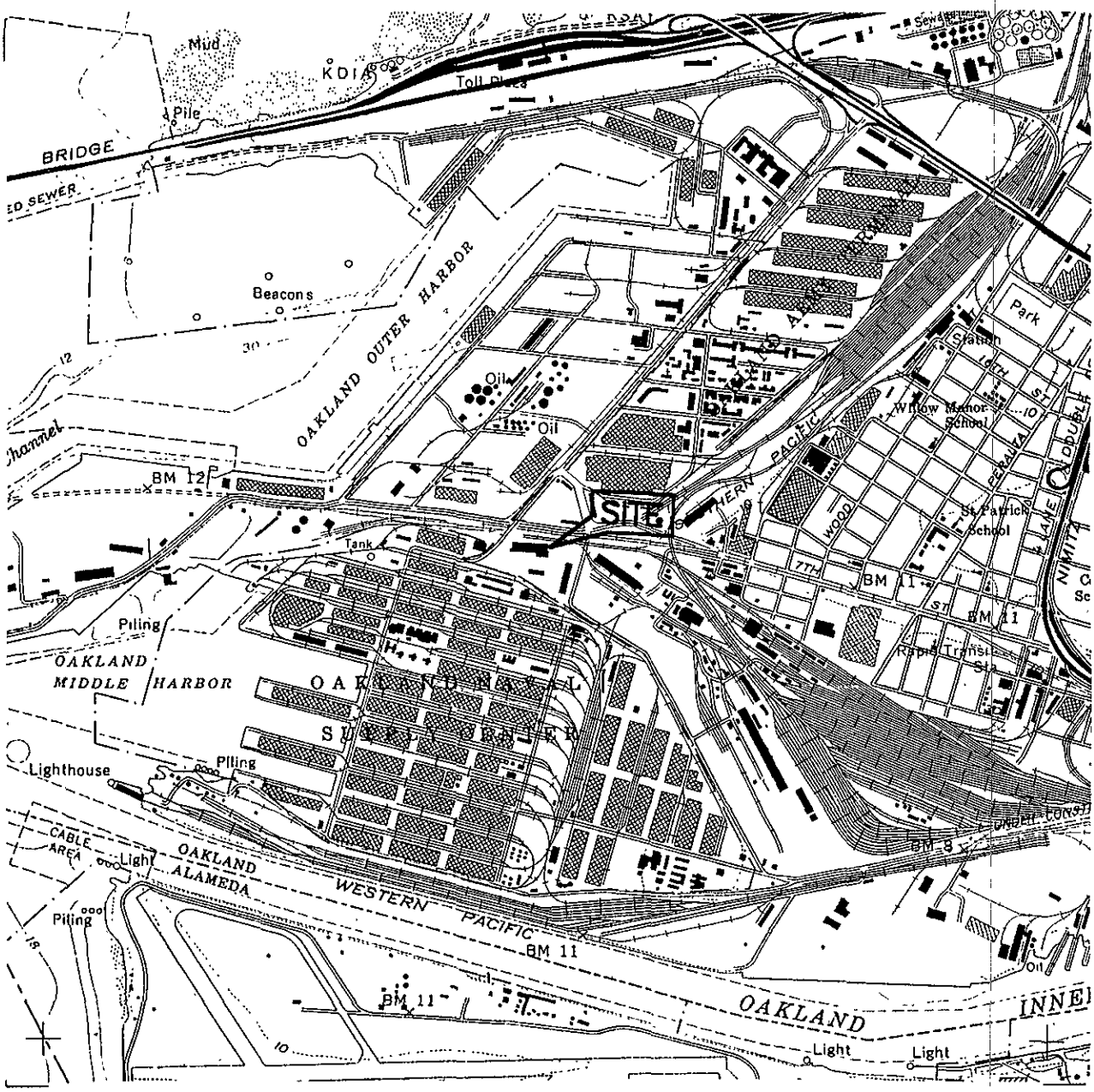
NOTES

(a) Casing elevations surveyed to the nearest 0.01 foot relative to mean lower low water (3.2 feet below mean sea level) Port of Oakland datum.

(b) Groundwater elevations adjusted assuming a specific gravity of 0.75 for the liquid-phase hydrocarbons.

(c) The estimated amount bailed is approximately 75% product and 25% water

E:\0\10-270\PRODUCT



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

N

0 1000' 2000'

FIGURE 1

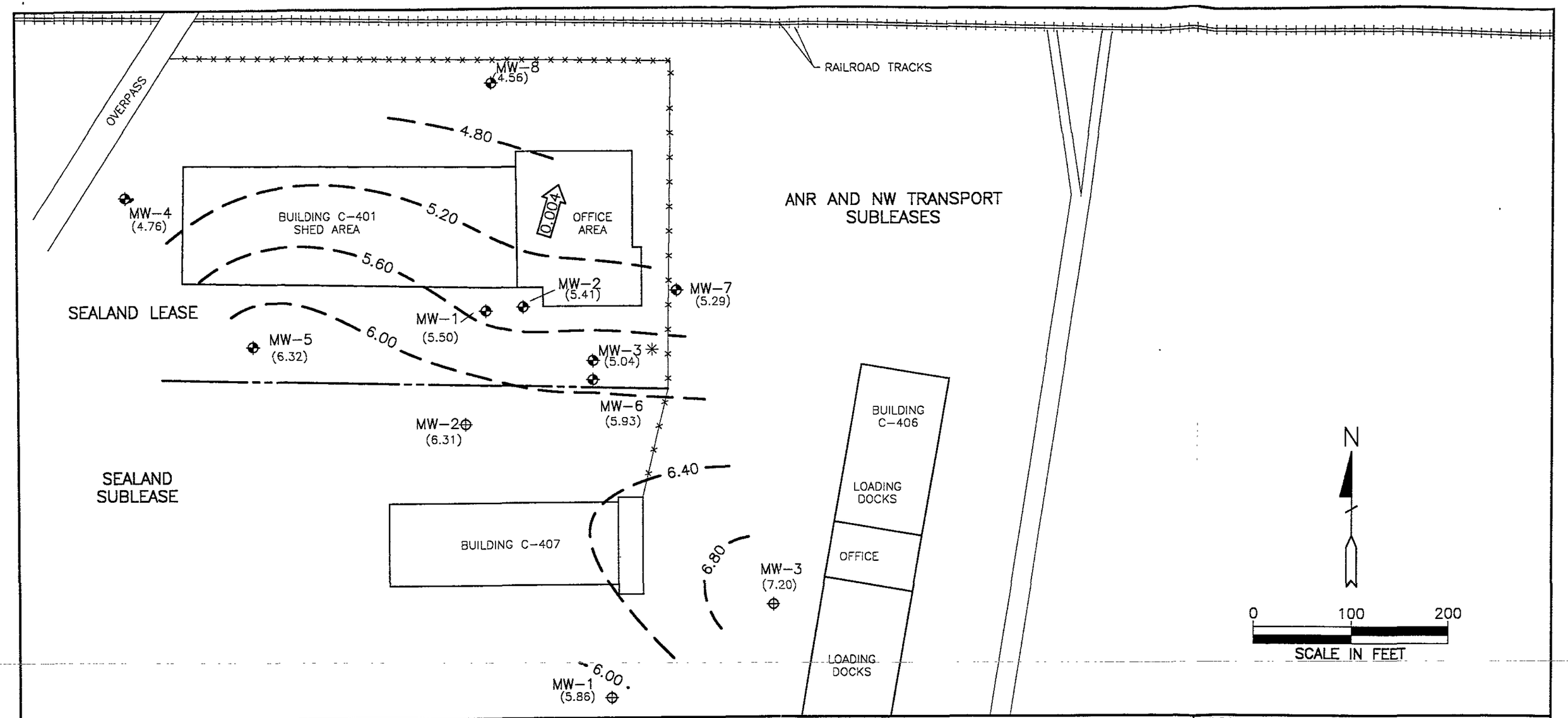
SITE VICINITY MAP

PORT OF OAKLAND
BUILDING C-401
2277 SEVENTH STREET
OAKLAND, CALIFORNIA

PROJECT NO. 10-270

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

10270B—DWG 5-9-95 RKW 1=1



LEGEND

- ⊕ EXISTING PORT OF OAKLAND GROUNDWATER MONITORING WELL
- ⊕ EXISTING DONGARY INVESTMENTS GROUNDWATER MONITORING WELL
- (4.56) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- 4.80 GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL–0.40 FOOT)
- 0.004 CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT
- * GROUNDWATER ELEVATION NOT USED IN PREPARING CONTOURS

FIGURE 2

POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP

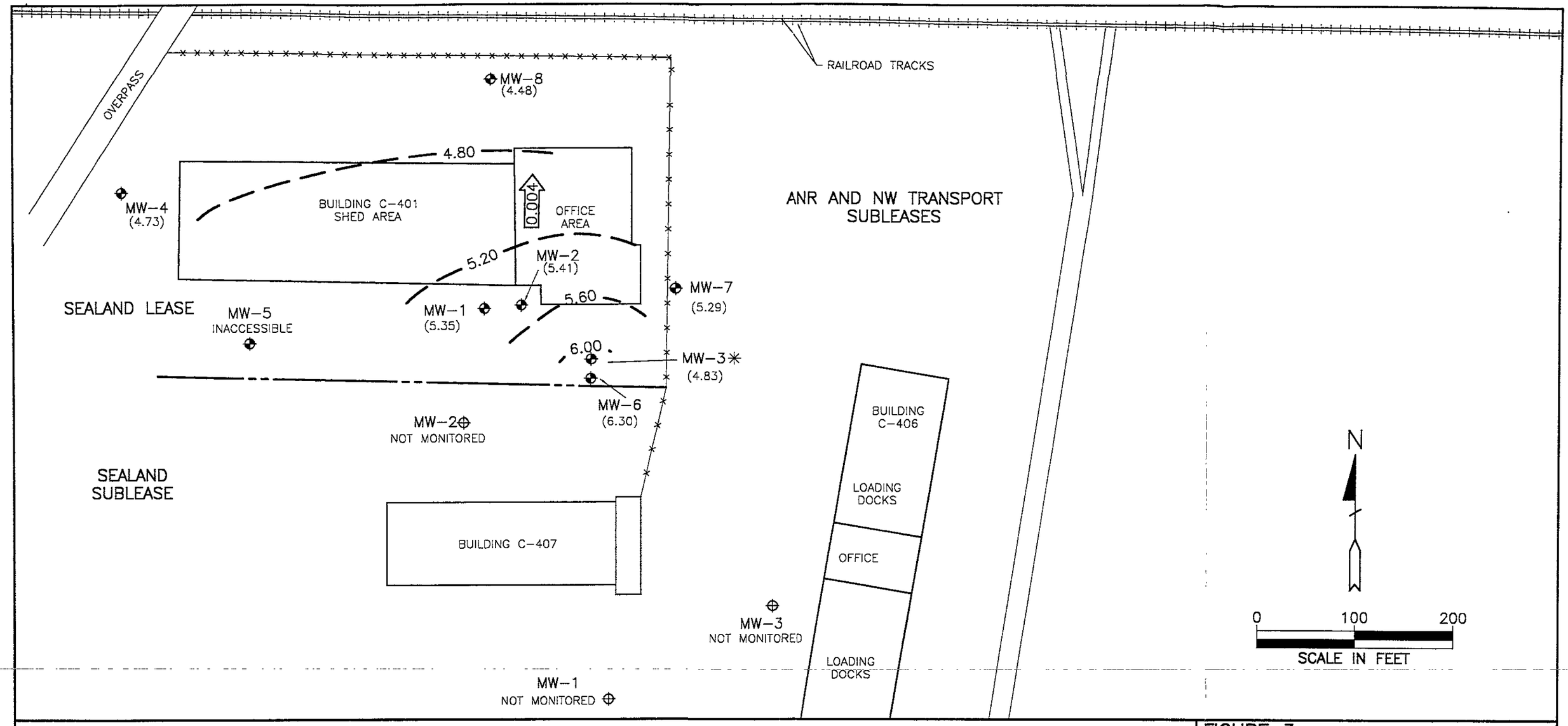
DECEMBER 27, 1995

PORT OF OAKLAND
BUILDING C–401
2277 SEVENTH STREET
OAKLAND, CALIFORNIA

PROJECT NO. 10–270

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

10270 D.DWG 5 27 96 JVL 1=100



LEGEND

- ⊕ EXISTING PORT OF OAKLAND GROUNDWATER MONITORING WELL
- ⊕ EXISTING DONGARY INVESTMENTS GROUNDWATER MONITORING WELL
- (4.48) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- 4.80 GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL=0.40 FOOT)
- 0.004 CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT
- * GROUNDWATER ELEVATION NOT USED IN PREPARING CONTOURS

FIGURE 3

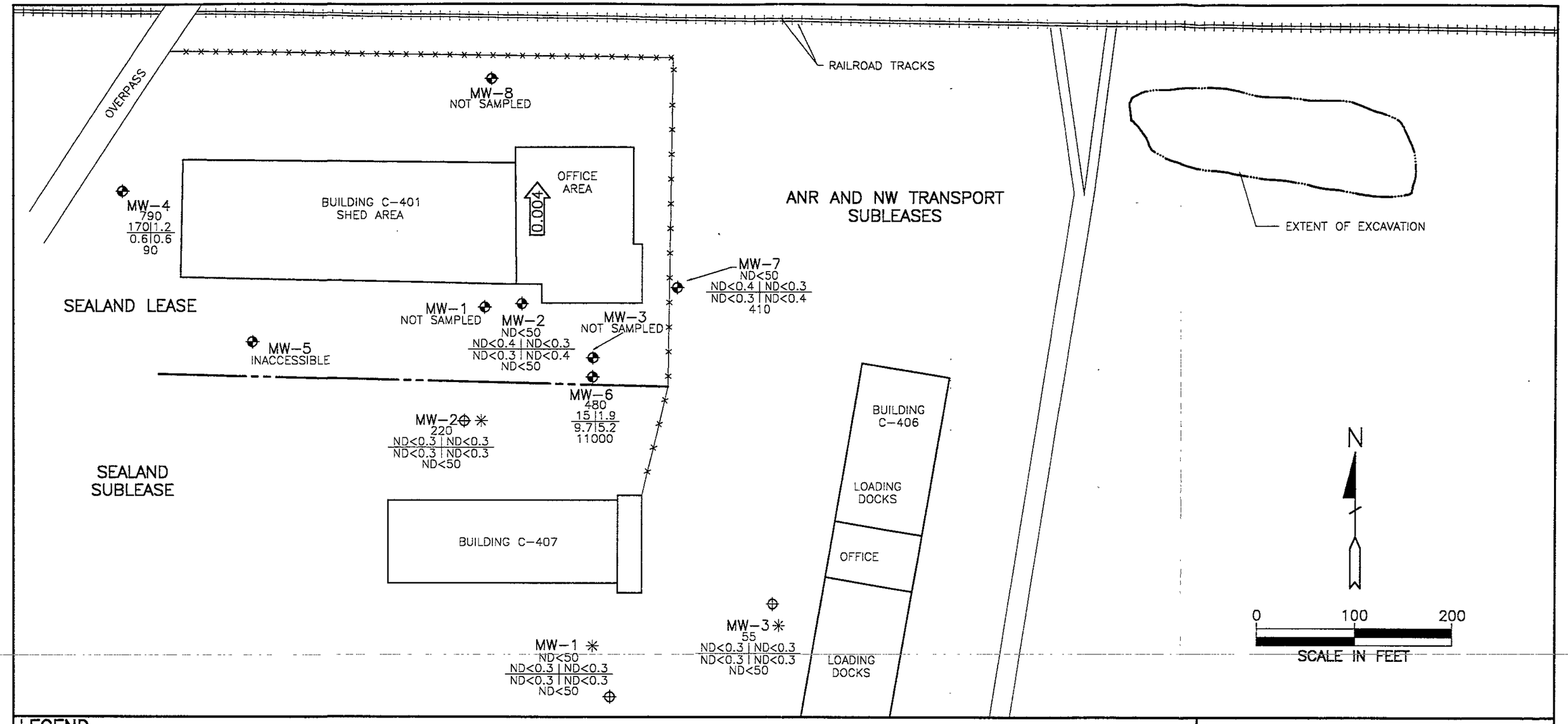
POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP

JANUARY 8, 1996

PORT OF OAKLAND
BUILDING C-401
2277 SEVENTH STREET
OAKLAND, CALIFORNIA

PROJECT NO. 10-270

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA



LEGEND

- EXISTING PORT OF OAKLAND GROUNDWATER MONITORING WELL
- EXISTING DONGARY INVESTMENTS GROUNDWATER MONITORING WELL
- TPH-G / B / E / X / TPH-D / TPH-O — CONCENTRATION OF CONSTITUENTS IN MICROGRAMS PER LITER
- TPH-G — TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
- B — BENZENE
- T — TOLUENE
- E — ETHYLBENZENE
- X — TOTAL XYLENES
- TPH-D — TOTAL PETROLEUM HYDROCARBONS AS DIESEL
- ND — NOT DETECTED ABOVE REPORTED DETECTION LIMIT
- 0.004 — CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT
- ✳ — SITES SAMPLED DECEMBER 27, 1995

FIGURE 4

CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER

JANUARY 8, 1996

PORT OF OAKLAND
BUILDING C-401
2277 SEVENTH STREET
OAKLAND, CALIFORNIA

PROJECT NO. 10-270

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

APPENDIX A

FIELD PROCEDURES FOR GROUNDWATER MONITORING WELL SAMPLING AND WATER SAMPLING FIELD SURVEY FORMS

FIELD PROCEDURES
FOR
GROUNDWATER MONITORING WELL SAMPLING

Groundwater Level Measurement

Before commencing groundwater sampling, the groundwater level in each well was measured from a marked survey reference point at the top of the well casing. Groundwater in each well was monitored for free-floating product or sheen. The depth to groundwater was measured to an accuracy of 0.01 foot from the top of the PVC well casing using an electronic sounder.

Groundwater Monitoring Well Sampling

To ensure that the groundwater samples were representative of the aquifer, the wells were purged of 3 well casing volumes before sample collection. This purging was accomplished using a clean bailer or pump.

The groundwater samples were collected using a disposable bailer, and then transferred into laboratory-supplied containers. Care was taken to avoid turbulence when transferring the water samples, and all volatile analysis vials were filled so that no air bubbles were trapped. The sampling technician wore nitrile gloves at all times during purging and well sampling. The samples were labeled with the well number, site identification, date and time of sample collection, and sampler's initials, and transported in an iced cooler maintained at 4 degrees Centigrade to Clayton Environmental Consultants, a state-certified laboratory, following preservation and chain of custody protocol.

ALISTO

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

Field Report / Sampling Data Sheet

X Groundwater ~~Sampling~~ Monitoring

Date: 12/27/95 Project No. 10-270-03/004
Day: Wed Station No.
Weather: cloudy Address Oakland, Ca
SAMPLER: LS

Well ID	SAMPLE#	WATER	DEPTH	Well ID	SAMPLE #	WATER	DEPTH	Well ID	SAMPLE	WATER DEPTH
MW-5	N/S	7.17		MW-8	N/S	8.61				
MW-7	↓	9.06		MW-1	↓	9.04				
MW-2	↓	8.95		MW-3	↓	12.71				
MW-4	↓	8.39								
MW-6	↓	8.07								

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp *F	pH	E.C.	D.O.
MW-3	12.71										

Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge= PurgeVol.
DTP = 8.01' PT = 4.70'
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port
Comments:

O EPA 601_____
O TPH-G/BTEX___
O TPH Diesel____
O TOG 5520 ___
Time Sampled

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp *F	pH	E.C.	D.O.
MW-1	9.04										

Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge= PurgeVol.
DTP = 8.51' PT = .53'
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port
Comments:

O EPA 601_____
O TPH-G/BTEX___
O TPH Diesel____
O TOG 5520 ___
Time Sampled

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp *F	pH	E.C.	D.O.
MW-8	8.61										

Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge= PurgeVol.
DTP = 8.31 PT = .31
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port
Comments: Black FP (thick) Replaced lock

O EPA 601_____
O TPH-G/BTEX___
O TPH Diesel____
O TOG 5520 ___
Time Sampled

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

Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge= PurgeVol.
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port
Comments:

O EPA 601_____
O TPH-G/BTEX___
O TPH Diesel____
O TOG 5520 ___
Time Sampled

ALISTO ENGINEERING GROUP
GROUNDWATER MONITORING

Client: Port of Oakland
Alisto Project No: 10-270-03-004
Service Station No: _____

Date: 1/8/96
Field Personnel: DC
Site Address: Oakland CA

FIELD ACTIVITY:

/ Groundwater Monitoring
✓ Groundwater Sampling
___ Well Development

QUALITY CONTROL SAMPLES:

mw-6 QC-1 Sample Duplicate (Well ID)
X QC-2 Trip Blank
___ QC-3 Rinsate Blank

Well ID	Well Diam	Order Measured/ Sampled	Total Depth	Depth to Water	Depth to Product	Product Thick-ness	Comments Time monitored
mw-5	2"	1	~	—	—	—	Cargo is parked on well, cannot access
mw-7		2	17.15	9.06			1120
mw-2		3	15.00	8.95			1124
mw-4		4	18.00	8.42			1130
mw-6		5	15.00	7.70			1134
mw-8		6	NM	8.80'	8.35'	0.45'	1137
mw-1		7		9.15'	8.67'	0.48'	1141
mw-3		8		13.10'	8.16'	4.94'	1145

Notes:

FORM: FS2/121592

ALISTO

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

Field Report / Sampling Data Sheet

⊗ Groundwater Sampling

Date: 1/8/96 Project No. 10-270-03-004
Day: Mon Station No. BJ. King C-401
Weather: Overcast Address Oakland CA
SAMPLER: DC

Well ID	SAMPLE#	WATER	DEPTH	Well ID	SAMPLE #	WATER	DEPTH	Well ID	SAMPLE	WATER DEPTH
mw-7	—	9.06		mw-1	not	9.15'				
mw-2	—	8.95		mw-3	not	13.10'				
mw-4	—	8.42		mw-5	not	inaccessible				
mw-6	—	7.70								
mw-8	not	8.80								

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp °F	pH	E.C.	D.O.
mw-7	9.06	2"	OK	Φ	Φ	1.5	1157	62.5	7.57	9.2mv	
						3	1200	64.4	7.38	9.3mv	
						4	1204	64.9	7.34	9.3mv	

Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge= PurgeVol.
17.15 - 9.06 = 8.09 x .16 = 1.29 x 3 = 3.88
Purge Method: ⊗Surface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port
Comments:

O EPA 601___
⊗ TPH-G/BTEX H
⊗ TPH Diesel H
O TOG 5520 ___
Time Sampled: 1212

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-2	8.95	2"	OK	Φ	Φ	1	1300	59.7	7.87	9.0mv	
						2	1304	62.5	7.77	8.4mv	
						3	1307	63.0	7.70	8.7mv	

Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge= PurgeVol.
15.00 - 8.95 = 6.05 x .16 = 0.97 x 3 = 2.90
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port
Comments: Large hg well will sample later ; grabbed in purge H2O

O EPA 601___
⊗ TPH-G/BTEX H
⊗ TPH Diesel H
O TOG 5520 ___
Time Sampled: 1315

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp °F	pH	E.C.	D.O.
mw-4	8.42	2"	OK	Φ	Φ	2	1232	59.8	7.99	9.0mv	
						4	1237	62.0	7.85	10.0mv	
						4.75	1243	62.9	7.74	10.0mv	

Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge= PurgeVol.
18.00 - 8.42 = 9.58 x .16 = 1.53 x 3 = 4.60
Purge Method: ⊗Surface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port
Comments:

O EPA 601___
⊗ TPH-G/BTEX H
⊗ TPH Diesel H
O TOG 5520 ___
Time Sampled: 1252

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-6	7.70	2"	OK	Φ	Sheen	1	1322	60.5	7.47	4.5mv	
						2	1329	62.1	7.36	5.0mv	
						3.5	1334	63.0	7.27	4.5mv	

Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge= PurgeVol.
15.00 - 7.70 = 7.30 x .16 = 1.17 x 3 = 3.50
Purge Method: ⊗Surface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port
Comments: QC-1 from this well

O EPA 601___
⊗ TPH-G/BTEX H
⊗ TPH Diesel H
O TOG 5520 ___
Time Sampled: 1345

Used HNu meter calibrated @ 0950

APPENDIX B

FIELD PROCEDURES FOR CHAIN OF CUSTODY DOCUMENTATION, LABORATORY REPORT, AND CHAIN OF CUSTODY RECORD

FIELD PROCEDURES
FOR
CHAIN OF CUSTODY DOCUMENTATION

All samples were handled in accordance with the California Department of Health Services guidelines. Samples were labeled in the field and immediately stored in coolers and preserved with blue ice for transport to a state-certified laboratory for analysis.

A chain of custody record accompanied the samples, and included the site and sample identification, date and time of collection, analysis requested, and the name and signature of the sampling technician. When transferring possession of the samples, the transferee signed and dated the chain of custody record.

Western Operations

1252 Quarry Lane
P.O. Box 9019
Pleasanton, CA 94566
(510) 426-2600
Fax (510) 426-0106

Clayton
ENVIRONMENTAL
CONSULTANTS

January 23, 1996

Mr. Brady Nagle
ALISTO ENGINEERING GROUP
1575 Treat Blvd., Suite 201
Walnut Creek, CA 94598

Client Ref.: 10-270-3-4
Clayton Project No.: 96010.75

Dear Mr. Nagle:

Attached is our analytical laboratory report for the samples received on January 9, 1996. Following the cover letter is the Quality Control Narrative detailing sample information/problems and a summary of the quality control issues. Also enclosed is a copy of the Chain-of-Custody record acknowledging receipt of these samples.

Please note that any unused portion of the samples will be discarded after February 22, 1996, unless you have requested otherwise.

We appreciate the opportunity to assist you. If you have any questions concerning this report, please contact Suzanne Haus, Client Services Supervisor, at (510) 426-2657.

Sincerely,

Harriotte A. Hurley, CIH
Director, Laboratory Services
San Francisco Regional Office

HAH/tjb

Attachments

RECEIVED
JAN 24 1996

Analytical Results
for
Alisto Engineering Group
Client Reference: 10-270-3-4
Clayton Project No. 96010.75

Sample Identification:	MW-4	Date Sampled:	01/08/96
Lab Number:	9601075-03A	Date Received:	01/09/96
Sample Matrix/Media:	WATER	Date Prepared:	01/09/96
Preparation Method:	EPA 5030	Date Analyzed:	01/09/96
Method Reference:	EPA 8015/8020	Analyst:	DTL

Analyte	CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)
BTEX/Gasoline			
Benzene	71-43-2	170	0.4
Ethylbenzene	100-41-4	0.6	0.3
Toluene	108-88-3	1.2	0.3
o-Xylene	95-47-6	ND	0.4
p,m-Xylenes	--	0.6	0.4
Gasoline	--	790	50
Surrogates		Recovery (%)	QC Limits (%)
a,a,a-Trifluorotoluene	98-08-8	101	50 - 150

ND: Not detected at or above limit of detection
--: Information not available or not applicable

Analytical Results
for
Alisto Engineering Group
Client Reference: 10-270-3-4
Clayton Project No. 96010.75

Sample Identification:	MW-2	Date Sampled:	01/08/96
Lab Number:	9601075-02A	Date Received:	01/09/96
Sample Matrix/Media:	WATER	Date Prepared:	01/09/96
Preparation Method:	EPA 5030	Date Analyzed:	01/09/96
Method Reference:	EPA 8015/8020	Analyst:	DTL

Analyte	CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)
BTEX/Gasoline			
Benzene	71-43-2	ND	0.4
Ethylbenzene	100-41-4	ND	0.3
Toluene	108-88-3	ND	0.3
o-Xylene	95-47-6	ND	0.4
p,m-Xylenes	--	ND	0.4
Gasoline	--	ND	50
Surrogates		Recovery (%)	QC Limits (%)
a,a,a-Trifluorotoluene	98-08-8	90	50 - 150

ND: Not detected at or above limit of detection
--: Information not available or not applicable

Analytical Results
for
Alisto Engineering Group
Client Reference: 10-270-3-4
Clayton Project No. 96010.75

Sample Identification:	MW-7	Date Sampled:	01/08/96
Lab Number:	9601075-01A	Date Received:	01/09/96
Sample Matrix/Media:	WATER	Date Prepared:	01/09/96
Preparation Method:	EPA 5030	Date Analyzed:	01/09/96
Method Reference:	EPA 8015/8020	Analyst:	DTL

Analyte	CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)
BTEX/Gasoline			
Benzene	71-43-2	ND	0.4
Ethylbenzene	100-41-4	ND	0.3
Toluene	108-88-3	ND	0.3
o-Xylene	95-47-6	ND	0.4
p,m-Xylenes	--	ND	0.4
Gasoline	--	ND	50
Surrogates		Recovery (%)	QC Limits (%)
a,a,a-Trifluorotoluene	98-08-8	103	50 - 150

ND: Not detected at or above limit of detection
--: Information not available or not applicable

QUALITY CONTROL NARRATIVE
for
Alisto Engineering Group
Client Reference: 10-270-3-4
Clayton Project No. 96010.75

Sample Information/Problems:

There were no problems with sample receipt.

Analytical Problems:

No problems were encountered with the sample analyses.

Quality Control:

The quality control data is summarized in the Quality Assurance Data Package, which follows the analytical report.

- MS/MSD: A matrix spike and matrix spike duplicate were analyzed where applicable, and all results were acceptable.
- LCS/LCSD: A laboratory control spike and duplicate were analyzed where applicable, and all results were acceptable.
- ICV/CCV: Response for all analytes met Clayton acceptance criteria.
- Surrogate Recoveries: All surrogate recoveries were acceptable. The surrogate recoveries, where applicable, are listed on the sample result pages.

Analytical Results
for
Alisto Engineering Group
Client Reference: 10-270-3-4
Clayton Project No. 96010.75

Sample Identification:	QC-1	Date Sampled:	01/08/96
Lab Number:	9601075-05A	Date Received:	01/09/96
Sample Matrix/Media:	WATER	Date Prepared:	01/09/96
Preparation Method:	EPA 5030	Date Analyzed:	01/09/96
Method Reference:	EPA 8015/8020	Analyst:	DTL

Analyte	CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)
BTEX/Gasoline			
Benzene	71-43-2	15	0.4
Ethylbenzene	100-41-4	12	0.3
Toluene	108-88-3	1.9	0.3
o-Xylene	95-47-6	4.5	0.4
p,m-Xylenes	--	1.9	0.4
Gasoline	--	530 a	50
Surrogates		Recovery (%)	QC Limits (%)
a,a,a-Trifluorotoluene	98-08-8	96	50 - 150

ND: Not detected at or above limit of detection
--: Information not available or not applicable

a A portion of the purgeable hydrocarbons quantitated as gasoline may be due to heavier petroleum product.

Analytical Results
for
Alisto Engineering Group
Client Reference: 10-270-3-4
Clayton Project No. 96010.75

Sample Identification:	MW-6	Date Sampled:	01/08/96
Lab Number:	9601075-04A	Date Received:	01/09/96
Sample Matrix/Media:	WATER	Date Prepared:	01/09/96
Preparation Method:	EPA 5030	Date Analyzed:	01/09/96
Method Reference:	EPA 8015/8020	Analyst:	DTL

Analyte	CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)
BTEX/Gasoline			
Benzene	71-43-2	15	0.4
Ethylbenzene	100-41-4	9.7	0.3
Toluene	108-88-3	1.9	0.3
o-Xylene	95-47-6	3.1	0.4
p,m-Xylenes	--	2.1	0.4
Gasoline	--	480[a]	50
Surrogates		Recovery (%)	QC Limits (%)
a,a,a-Trifluorotoluene	98-08-8	102	50 - 150

ND: Not detected at or above limit of detection
--: Information not available or not applicable

a A portion of the purgeable hydrocarbons quantitated as gasoline may be due to heavier petroleum product.

Analytical Results
for
Alisto Engineering Group
Client Reference: 10-270-3-4
Clayton Project No. 96010.75

Sample Identification:	METHOD BLANK	Date Sampled:	--
Lab Number:	9601075-07A	Date Received:	--
Sample Matrix/Media:	WATER	Date Prepared:	01/09/96
Preparation Method:	EPA 5030	Date Analyzed:	01/09/96
Method Reference:	EPA 8015/8020	Analyst:	DTL

Analyte	CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)
BTEX/Gasoline			
Benzene	71-43-2	ND	0.4
Ethylbenzene	100-41-4	ND	0.3
Toluene	108-88-3	ND	0.3
o-Xylene	95-47-6	ND	0.4
p,m-Xylenes	--	ND	0.4
Gasoline	--	ND	50
Surrogates		Recovery (%)	QC Limits (%)
a,a,a-Trifluorotoluene	98-08-8	82	50 - 150

ND: Not detected at or above limit of detection
--: Information not available or not applicable

Analytical Results
for
Alisto Engineering Group
Client Reference: 10-270-3-4
Clayton Project No. 96010.75

Sample Identification:	QC-2	Date Sampled:	01/08/96
Lab Number:	9601075-06A	Date Received:	01/09/96
Sample Matrix/Media:	WATER	Date Prepared:	01/09/96
Preparation Method:	EPA 5030	Date Analyzed:	01/09/96
Method Reference:	EPA 8015/8020	Analyst:	DTL

Analyte	CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)
BTEX/Gasoline			
Benzene	71-43-2	ND	0.4
Ethylbenzene	100-41-4	ND	0.3
Toluene	108-88-3	ND	0.3
o-Xylene	95-47-6	ND	0.4
p,m-Xylenes	--	ND	0.4
Gasoline	--	ND	50
Surrogates		Recovery (%)	QC Limits (%)
a,a,a-Trifluorotoluene	98-08-8	92	50 - 150

ND: Not detected at or above limit of detection
--: Information not available or not applicable

Analytical Results
for
Alisto Engineering Group
Client Reference: 10-270-3-4
Clayton Project No. 96010.75

Sample Identification: See Below
Lab Number: 9601075
Sample Matrix/Media: WATER
Preparation Method: EPA 3510
Method Reference: EPA 8015 (Modified)

Date Received: 01/09/96
Date Extracted: 01/15/96
Date Analyzed: 01/17/96

Lab Number	Sample Identification	Date Sampled	TPH-O (ug/L)		Method Detection Limit (ug/L)
-01	MW-7	01/08/96	1100	a	200
-02	MW-2	01/08/96	1200	a	200
-03	MW-4	01/08/96	400	a	200
-04	MW-6	01/08/96	6100	a	200
-07	METHOD BLANK	--	ND		200

ND: Not detected at or above limit of detection
--: Information not available or not applicable

TPH-O = Extractable petroleum hydrocarbons from C20 to C42 quantitated as motor oil.
a Unknown peak present in the oil range which was not included in the sample result.

Analytical Results
for
Alisto Engineering Group
Client Reference: 10-270-3-4
Clayton Project No. 96010.75

Sample Identification: See Below
Lab Number: 9601075
Sample Matrix/Media: WATER
Extraction Method: EPA 3510
Method Reference: EPA 8015 (Modified)

Date Received: 01/09/96
Date Extracted: 01/15/96
Date Analyzed: 01/17/96

Lab Number	Sample Identification	Date Sampled	TPH-D (ug/L)	Method Detection Limit (ug/L)
-01	MW-7	01/08/96	410	50
-02	MW-2	01/08/96	ND	50
-03	MW-4	01/08/96	90	50
-04	MW-6	01/08/96	11000	50
-07	METHOD BLANK	--	ND	50

ND: Not detected at or above limit of detection
--: Information not available or not applicable

TPH-D = Extractable petroleum hydrocarbons from C10 to C20 quantitated as diesel.

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Quality Assurance Results Summary

Matrix Spike/Matrix Spike Duplicate Results

for

Clayton Project No. 96010.75

Quality Assurance Results Summary - Matrix Spike/Matrix Spike Duplicate
for
Clayton Project No. 96010.75

Clayton Lab Number:	9601075-LCS	Analytical Method:	EPA 8015
Ext./Prep. Method:	EPA 3510	Instrument ID:	02893
Date:	01/15/96	Date:	01/17/96
Analyst:	GTL	Time:	20:32
Std. Source:	E960102-03W	Analyst:	FAK
Sample Matrix/Media:	WATER	Units:	UG/L
		QC Batch No:	96011543

Analyte	Sample Result	Spike Level	Matrix Spike Result	MS Recovery (%)	Matrix Spike Duplicate Result	MSD Recovery (%)	Average Recovery (% R)	LCL (% R)	UCL (% R)	RPD (%)	UCL (%RPD)
DIESEL	ND	1,000	820	82	930	93	88	65	128	13	25

ND = Not detected at or above limit of detection
SOR = Spike out of range due to high sample concentration.

LCL = Lower Control Limit

UCL = Upper Control Limit

Quality Assurance Results Summary - Matrix Spike/Matrix Spike Duplicate
for
Clayton Project No. 96010.75

Clayton Lab Number:	9601071-01D	Analytical Method:	EPA 8015/8020
Ext./Prep. Method:	EPA 5030	Instrument ID:	05587
Date:	01/09/96	Date:	01/09/96
Analyst:	DTL	Time:	16:15
Std. Source:	V951109-02W	Analyst:	DTL
Sample Matrix/Media:	WATER	Units:	ug/L
		QC Batch No:	960109A1

Analyte		Sample Result	Spike Level	Matrix Spike Result	MS Recovery (%)	Matrix Spike Duplicate Result	MSD Recovery (%)	Average Recovery (% R)	LCL (% R)	UCL (% R)	RPD (%)	UCL (%RPD)
BENZENE	(PID)	ND	4.53	4.96	109	5.11	113	111	79	125	3.1	20
ETHYLBENZENE	(PID)	ND	5.86	5.69	97	5.75	98	98	85	123	1.0	20
GASOLINE	(FID)	ND	500	516	103	523	105	104	80	120	1.3	25
TOLUENE	(PID)	ND	25.3	24.8	98	25.0	99	98	84	118	0.9	20
TOTAL XYLENE	(PID)	ND	36.2	35.1	97	35.6	98	98	85	115	1.3	20

ND = Not detected at or above limit of detection
SOR = Spike out of range due to high sample concentration.

LCL = Lower Control Limit

UCL = Upper Control Limit

Clayton
ENVIRONMENTAL CONSULTANTS

REQUEST FOR LABORATORY ANALYTICAL SERVICES

IMPORTANT
Date Results Requested:
Rush Charges Authorized? ☐ Yes ☒ No
☐ Phone or ☒ Fax Results

For Clayton Use Only
Clayton Lab Project No.
9601075

REPORT RESULTS TO
Name: Brady Nagle
Company: Alisto Engineering
Mailing Address: 1575 Treat Blvd
City, State, Zip: Walnut Creek CA 94598
Telephone No.: (510) 295 1650
FAX No.: (510) 295 1823
Client Job No.: 10-270-3-4
Dept.:

SEND INVOICE TO
Purchase Order No.: 201867
Name: Susan Gates
Company: Port of Oakland
Dept.:
Address: 530 Water St
City, State, Zip: Oakland CA

Special Instructions and/or specific regulatory requirements: (method, limit of detection, etc.)

* Explanation of Preservative: "P" = HCl

Samples are: (check if applicable)
☐ Drinking Water
☒ Groundwater
☐ Wastewater

ANALYSIS REQUESTED
(Enter an 'X' in the box below to indicate request; Enter a 'P' if Preservative added.*)

CLIENT SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX/ MEDIA	AIR VOLUME (specify units)	Number of Containers	TPH Gas BTEX "P"	TPH Extracted Diesel + MO "P"								FOR LAB USE ONLY
MW-7	1/8/96	1212	H2O	3x40ml 2x1L	5	X	X								01 A-E
MW-2	↓	1315	↓	↓	5	↓	↓								02
MW-4	↓	1252	↓	↓	5	↓	↓								03
MW-6	↓	1345	↓	↓	5	↓	↓								04 ↓
QC-1	↓	—	↓	40ml	3	↓									05 A-C
QC-2	↓	—	↓	↓	2	↓									06 A-B

CHAIN OF CUSTODY
Collected by: Dave Cosman (print)
Collector's Signature: [signature]
Relinquished by: [signature] Date/Time 1/9/96 0730
Received by: Bob Blaser Date/Time 1/9/96 9:30
Relinquished by: Bob Blaser Date/Time 1/9/96 10:52
Received by: Date/Time
Method of Shipment:
Received at Lab by: [signature] Date/Time 1/9/96 1055
Sample Condition Upon Receipt: ☒ Acceptable ☐ Other (explain)

Authorized by: ______________ Date ______
(Client Signature **MUST** Accompany Request)

Please return completed form and samples to one of the Clayton Environmental Consultants, Inc. labs listed below:

Detroit Regional Lab
22345 Roethel Drive
Novi, MI 48375
(800) 806-5887
(810) 344-1770
FAX (810) 344-2655

Atlanta Regional Lab
400 Chastain Center Blvd., N.W., Suite 490
Kennesaw, GA 30144
(800) 252-9919
(770) 499-7500
FAX (770) 423-4990

San Francisco Regional Lab
1252 Quarry Lane
Pleasanton, CA 94566
(800) 294-1755
(510) 426-2657
FAX (510) 426-0106

Seattle Regional Lab
4636 E. Marginal Way S., Suite 215
Seattle, WA 98134
(800) 568-7755
(206) 763-7364
FAX (206) 763-4189

DISTRIBUTION:
White = Clayton Laboratory
Yellow = Clayton Accounting
Pink = Client Copy

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