PORT OF OAKLAND

February 5, 1996

Jennifer Eberle
Hazardous Materials Specialist
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, 2nd Floor
Alameda, CA 94502

Dear Ms. Eberle:

SUBJECT: GROUNDWATER MONITORING AND SAMPLING REPORT, BUILDING C401, 2277 7TH ST. (Port Contract # 94265)

Enclosed please find the groundwater monitoring and sampling reports for the third and fourth quarters of 1995 for Building C-401, 2277 7th St. Alisto Engineering Group prepared the report on behalf of the Port.

A summary of free product removal is also included in the report.

If you have any questions, please feel free to contact me at 272-1220.

Sincerely,

Dan Schoenholz
Associate Environmental Scientist

Enclosure

cc(w/enclosure): Don Ringsby, Dongary Investments
Rich Hiett, RWQCB
(w/o enclosure): Brady Nagle, Alisto Engineering

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GROUNDWATER MONITORING AND SAMPLING REPORT
THIRD AND FOURTH QUARTER 1995

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

Project No. 10-270-03-002

Prepared for:

Port of Oakland
530 Water Street
Oakland, California

Prepared by:

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

January 31, 1996

Brady Nagle
Project Manager

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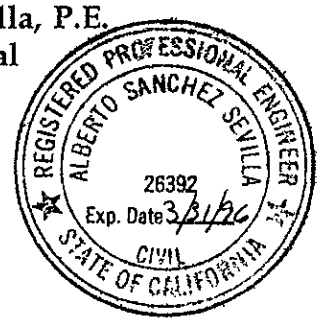
Principal



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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 third and fourth quarter 1995. A site vicinity map is shown on Figure 1.

The third quarter groundwater sampling was performed on September 6, 1995. Monitoring Well MW-4 and MW-5 were resampled on September 11, 1995 because the sample labels did not remain adhered to the sample containers. Monitoring Wells MW-1, MW-3, and MW-8 were not sampled due to the presence of liquid-phase petroleum hydrocarbons. The fourth quarter groundwater sampling was performed on September 28, 1995 concurrently with the sampling of Wells MW-1, MW-2, and MW-3 at the adjacent Dongary Investments property at 2225 Seventh Street, Oakland.

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 with 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

collected during the coordinated monitoring with 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 using EPA Method 8015
BTEX = Benzene, toluene, ethylbenzene, and total xylenes using EPA Method 8020
TPH-D = Total petroleum hydrocarbons as diesel using EPA Method 8015 (modified)
TPH-O = Total petroleum hydrocarbons as oil using EPA Method 8015 (modified)

Monitoring Wells MW-1, MW-3, and MW-8 were not sampled due to the presence of liquid-phase hydrocarbons.

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 September 6 and 28, 1995 monitoring events are shown on Figures 2 and 3. The results of groundwater analysis are also shown on Figures 4 and 5.

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 third and fourth quarter 1995 groundwater monitoring and sampling events are summarized as follows:

- Liquid-phase hydrocarbons were observed in Port of Oakland Monitoring Wells MW-1, MW-3, and MW-8 at thicknesses ranging from 0.12 to 5.8 feet. A hydrocarbon sheen was observed in MW-6 during the September 6, 1995 monitoring event.

- Groundwater elevation data from the Port of Oakland monitoring wells indicate a gradient ranging from 0.01 to 0.03 foot per foot in a general northerly direction across the site.

- Groundwater elevation data collected on September 28, 1995 from the three wells at the Dongary Investments property indicate a reversal of gradient direction as compared to the results of previous monitoring events. This discrepancy is attributed to an erroneous measurement of depth to water in MW-1 (Groundwater Technology, Inc., Third Quarter 1995 Groundwater Monitoring and Sampling Report, November 29, 1995).

- Analysis of samples collected from the monitoring wells at the Port of Oakland site on September 6 and 28, 1995 detected the following:

    - TPH-G at concentrations of up to 120, 210, and 2400 micrograms per liter (ug/l) in the samples collected from Monitoring Wells MW-2, MW-4, and MW-6.

    - TPH-D at concentrations of up to 8400 and 390 ug/l in the samples collected from MW-6 and MW-7.

    - TPH-O at concentrations ranging from 400 to 8000 ug/l in the monitoring wells sampled.

    - Benzene, toluene, ethylbenzene, and total xylenes at concentrations of up to 12, 0.9, 7.5, and 4.2 micrograms per liter (ug/l) in the sample collected from MW-6. Benzene was also detected at concentrations of up to 23 ug/l in the sample collected from MW-4.

- Analysis of samples collected from the monitoring wells at the Dongary Investments site on September 28, 1995 detected the following:

    - TPH-G at concentrations of 250 and 51 ug/l in the samples collected from Monitoring Wells MW-2 and MW-3.

- TPH-D, benzene, toluene, ethylbenzene, and total xylenes were not detected above the reported detection limit 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-2	05/27/94	14.36	8.01	---	6.35	87	470	---	ND<0.5	ND<0.5	ND<0.5	ND<0.5	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	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	9.17	---	5.19	120 (d)	ND<100	1300	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-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	8.51	—	4 64	150	ND<200	500	23	ND<0.3	ND<0.3	ND<0.4	CEC
MW-4	09/28/95	13.15	8 54	---	4.61	210 (d)	ND<50	400	18	ND<0 3	ND<0.3	ND<0 4	
MW-5	09/06/95	13.49	6.90	---	6 59	—	---	---	---	---	---	---	---
MW-5	09/11/95	13 49	6.93	—	6 56	90	ND<300	2500	3 3	ND<0.3	ND<0.3	ND<0.4	CEC
MW-5	09/28/95	13.49	6.56	---	6 93	ND<50	ND<300	2000	ND<0.4	ND<0.3	ND<0.3	ND<0.4	CEC
MW-6	09/06/95	14.00	7.40	—	6.60	---	---	—	—	—	—	—	—
MW-6	09/28/95	14.00	7.74	---	6.26	2400 (d)	8400	8000 (e)	12	1.4	9.4	5.6	CEC
QC-1 (c)	09/28/95	14.00	---	—	---	2600 (d)	—	—	12	0.9	7.5	4 2	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	ND<50	390 (f)	1200	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	---	---	---	---	---	---	---	---
QC-2 (g)	03/29/95	—	—	---	---	ND<50	---	---	ND<0 4	ND<0.3	ND<0.3	ND<0 4	CEC
QC-2 (g)	09/06/95	---	—	---	---	ND<50	---	—	ND<0 4	ND<0 3	ND<0 3	ND<0 4	CEC
QC-2 (g)	09/28/95	—	---	—	---	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
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 expressed in feet relative to Port of Oakland datum and corrected assuming a specific gravity of 0.75 for the separate-phase product.

(c) Blind duplicate.

(d) Purgeable hydrocarbons quantitated as gasoline do not match typical gasoline pattern.

(e) Unidentified hydrocarbons present in oil range; quantitation based on oil.

(f) Unidentified hydrocarbons present in diesel range; quantitation based on diesel.

(g) Travel blank.

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-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-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	—	—	—	—	—	—

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.

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	5.52	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	

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
	05/16/95	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

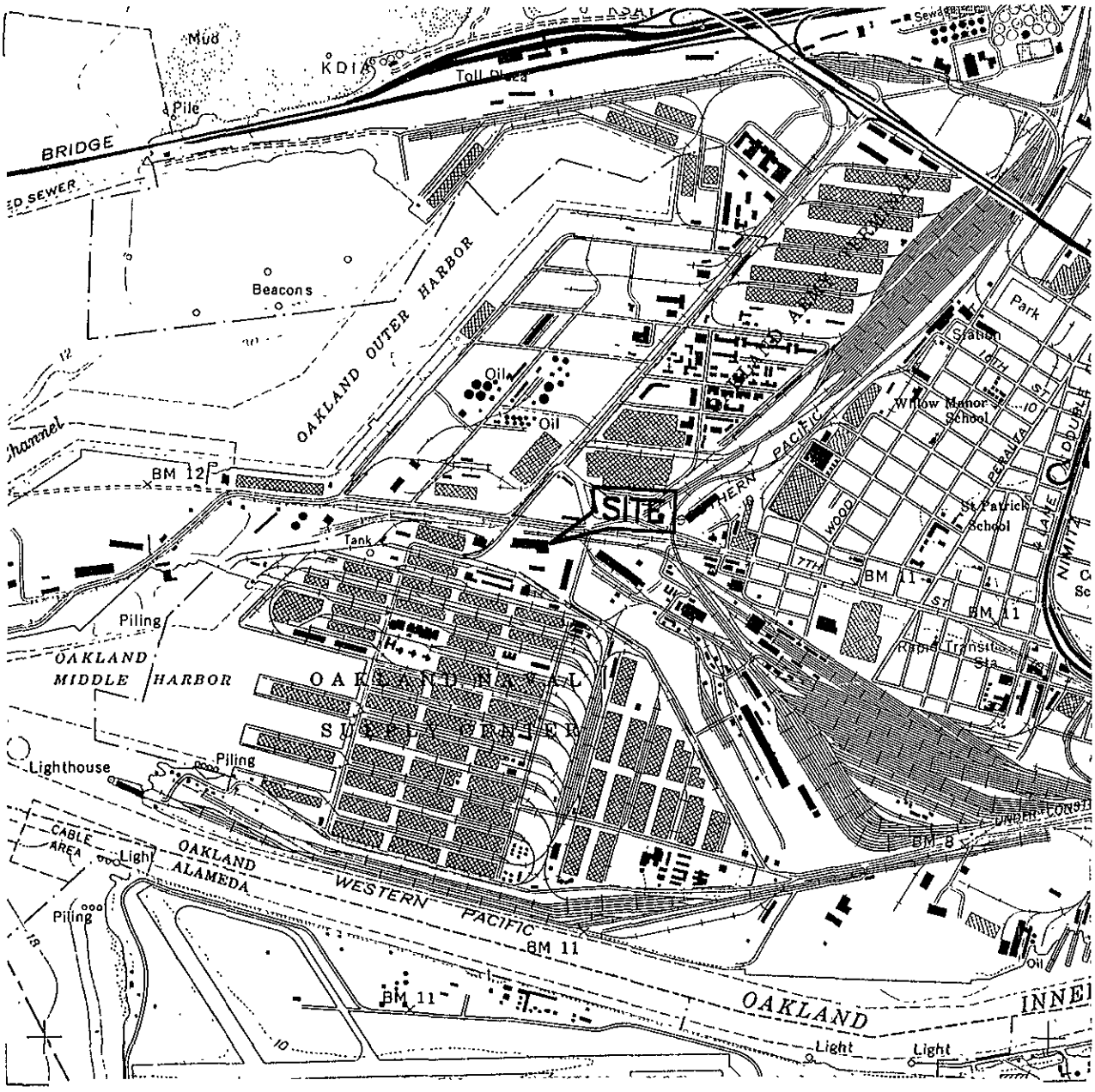
NOTES:

(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

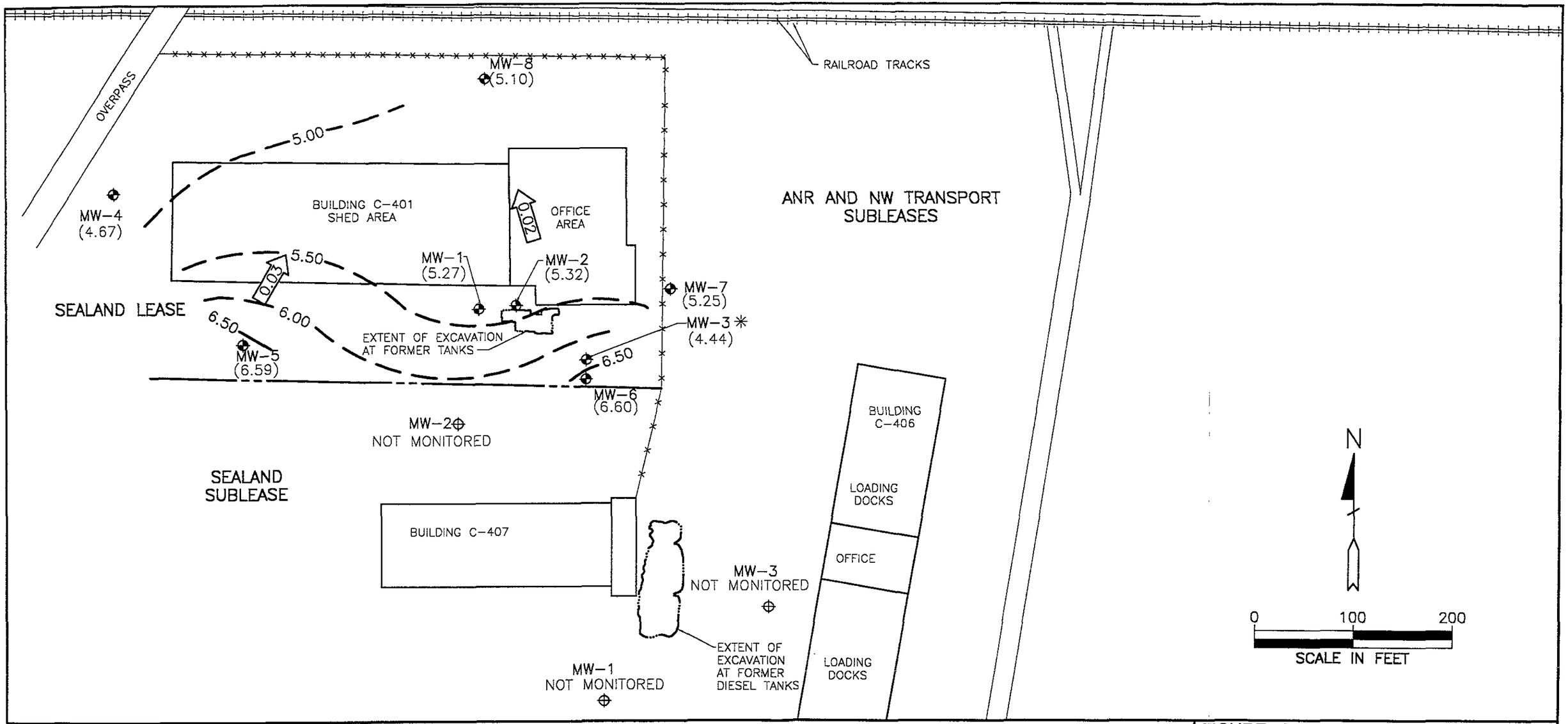
SITE VICINITY MAP

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
- (5.10) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- 5.00 GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL–0.50 FOOT)
- 0.03 CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT
- * GROUNDWATER ELEVATION NOT USED IN PREPARING CONTOURS

FIGURE 2

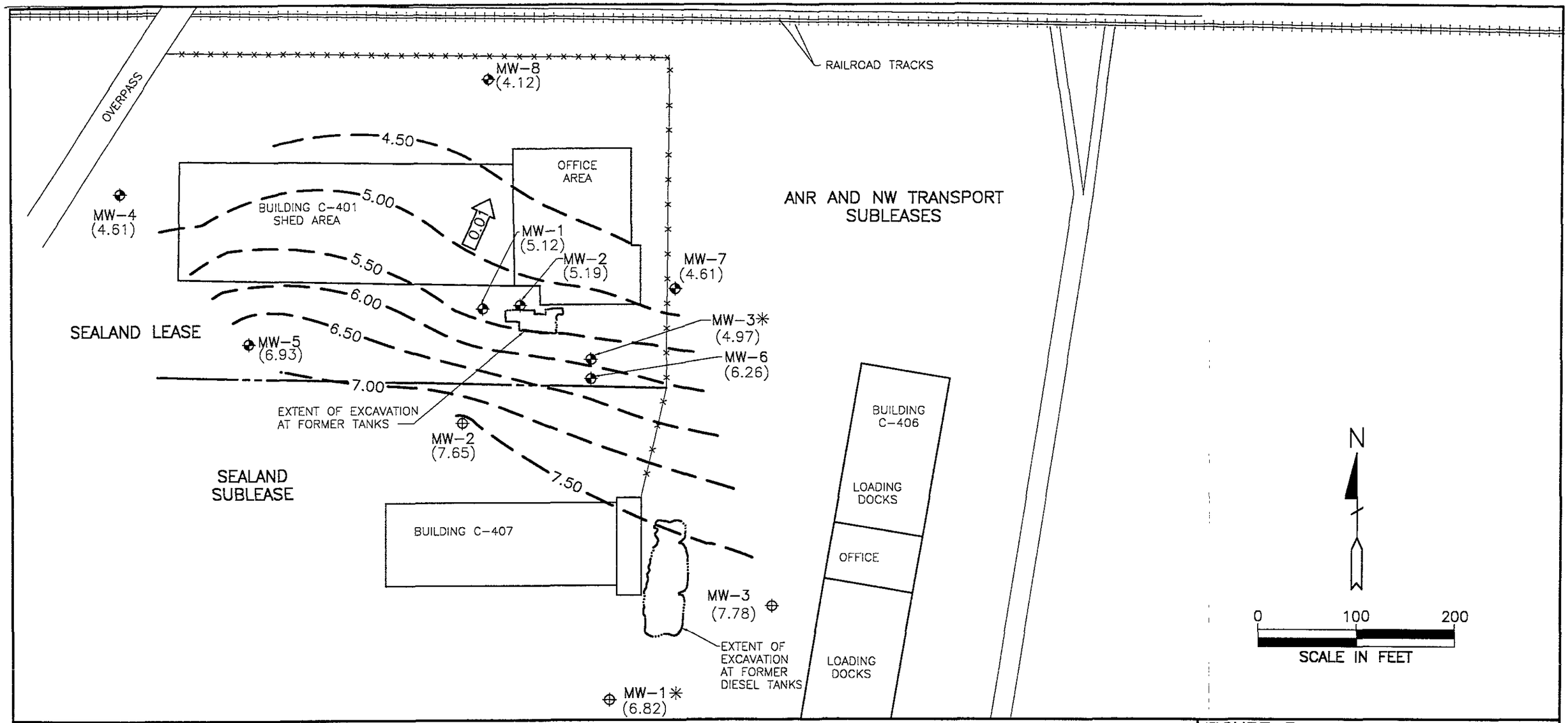
POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP

SEPTEMBER 6, 1995

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
- (4.12) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- 4.50 GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL–0.50 FOOT)
- 0.01 CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT
- * GROUNDWATER ELEVATION NOT USED IN PREPARING CONTOURS

FIGURE 3

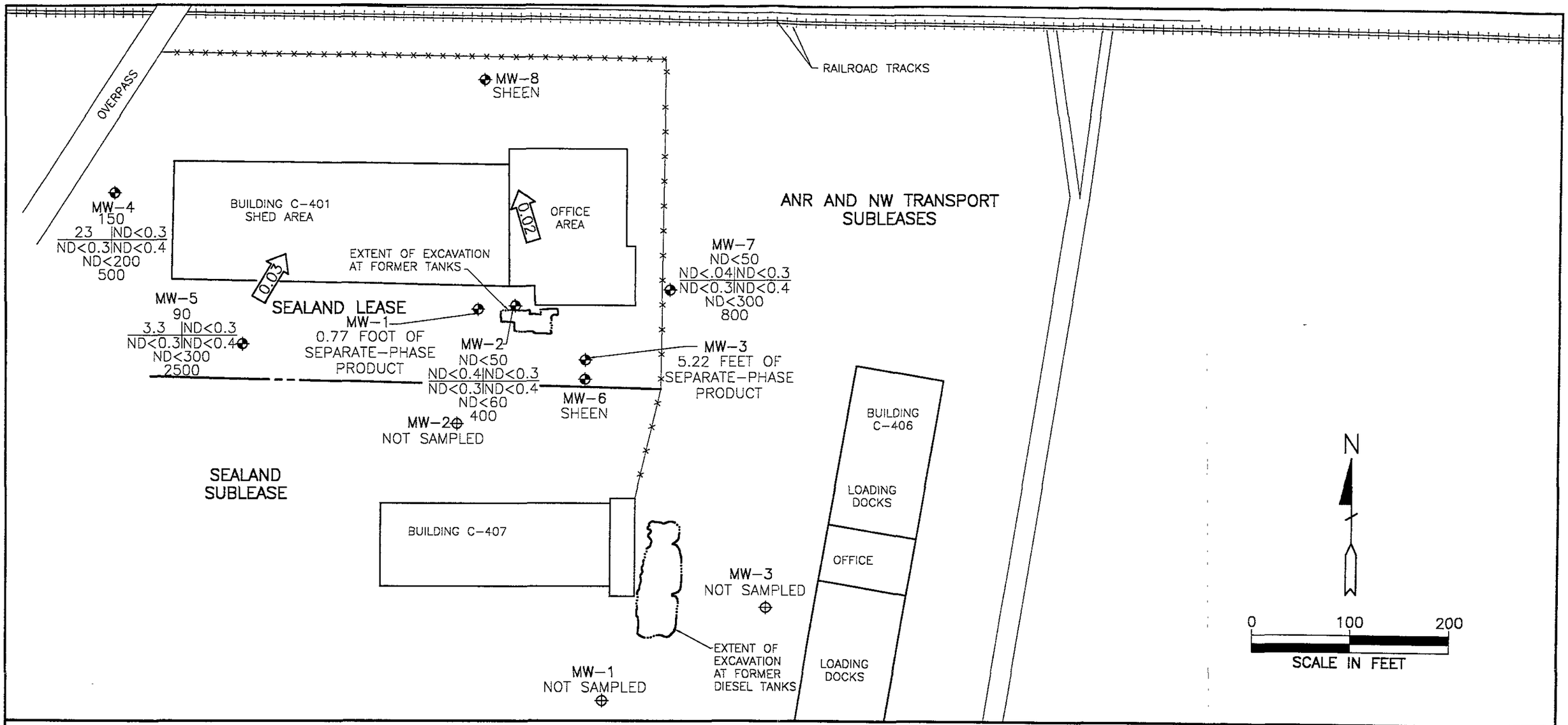
POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP

SEPTEMBER 28, 1995

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 — CONCENTRATION OF CONSTITUENTS IN MICROGRAMS PER LITER
- E X / TPH-D / TPH-O
- TPH-G — TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
- B — BENZENE
- T — TOLUENE
- E — ETHYLBENZENE
- X — TOTAL XYLENES
- TPH-D — TOTAL PETROLEUM HYDROCARBONS AS DIESEL
- TPH-O — TOTAL PETROLEUM HYDROCARBONS AS OIL
- ND — NOT DETECTED ABOVE REPORTED DETECTION LIMIT
- ⇦ 0.03 — CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 4

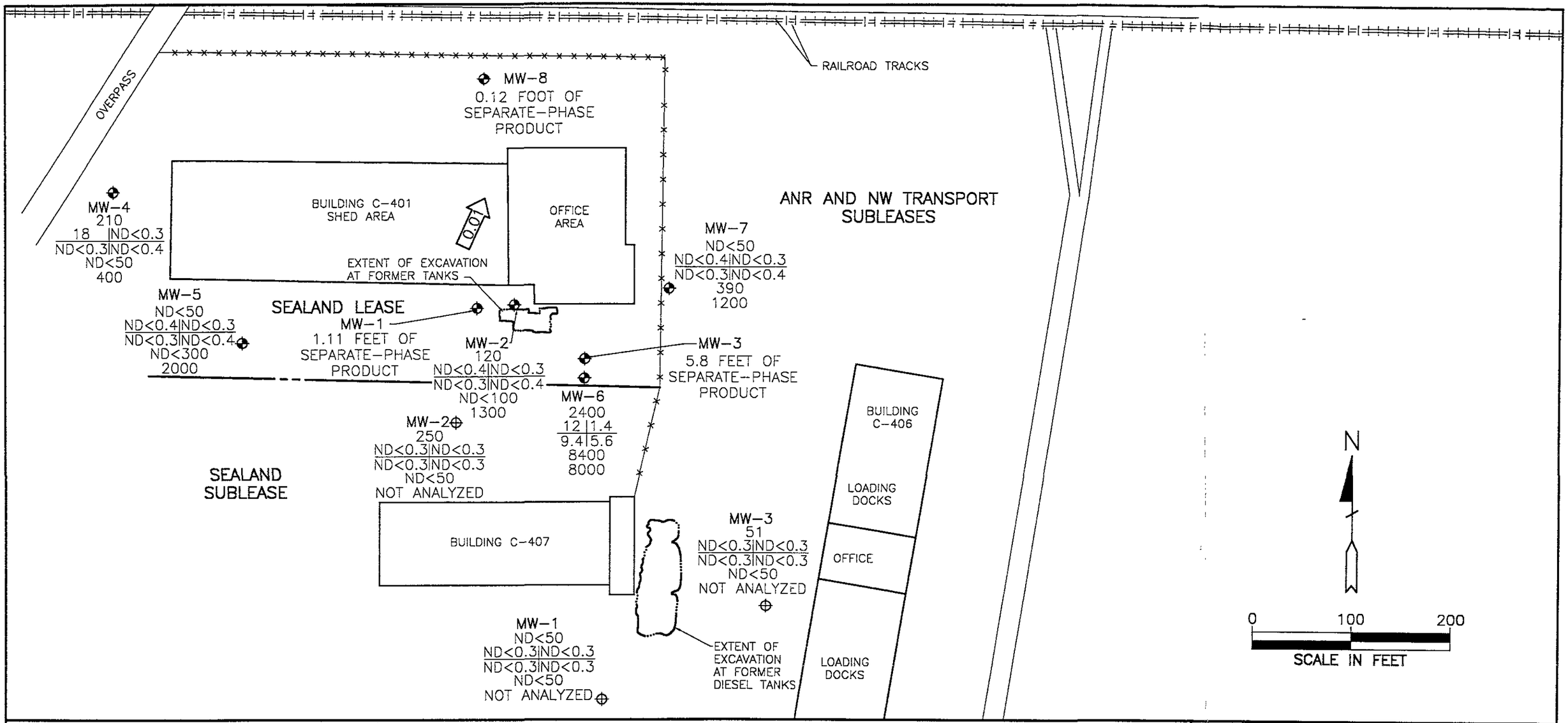
CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER

SEPTEMBER 6, 1995

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
- 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
- TPH-O: TOTAL PETROLEUM HYDROCARBONS AS OIL
- ND: NOT DETECTED ABOVE REPORTED DETECTION LIMIT
- 0.01: CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 5

CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER

SEPTEMBER 28, 1995

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

Groundwater Sampling
Well Development

Date: 9-6-95 Project No. 10-270
Day: Wed 5 Station No. Seaboard
Weather: Clear Address 2277 7th St Oakland
SAMPLER: CPenhaver

Well ID	SAMPLE#	WATER	DEPTH	Well ID	SAMPLE #	WATER	DEPTH	Well ID	SAMPLE	WATER DEPTH
MW-1	DTP 8.68	9.45	PT=0.77	MW-6	→	7.40				
MW-2	& QC-1	9.04		MW-7	→	9.10				
MW-3	DTP 8.48	13.70	PT=5.99	MW-8	→	7.84				
MW-4		8.48								
MW-5		6.90								

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-2	9.04	2"	ok	—		2	3:32	70.2	7.91	2.38	NM
						4		69.7	7.86	2.31	
						6	3:29	69.4	7.84	2.23	

Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge= PurgeVol.
15.5 - 9.04 = 6.46 x 0.16 = 1.03 x 3 = 3.09
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port
Comments: QC-1 collected from MW-2

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

Time Sampled: 3:50

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-1	9.45	2"	ok	8.68	6.77						

Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge= PurgeVol.
Not sampled
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port
Comments: Product dark brown

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

Time Sampled: Not

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-3	13.70	2"	ok	8.48	5.99						

Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge= PurgeVol.
Not Sampled
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)___ OSys Port
Comments: Product dark brown

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

Time Sampled: Not

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

Field Report / Sampling Data Sheet

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

⊗ Groundwater Sampling & Well Development

Date: 9-6-95 Project No. 10-270
Day: Wed Station No. Sea Land Lease
Weather: Clear Address 2277 7th St Oakland CA
SAMPLER: C Kaufman

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-4	8.48	2"	OK	—	—	5	9:20	69.1	7.02	1.51	NM
						10		67.1	7.11	1.53	↓
						20	9:43	67.1	7.14	1.57	↓

Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge= PurgeVol.
18.0 - 8.48 = 9.52 x 0.16 = 1.52 x 10 = 15.20
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Baller(s)___ OSys Port
Comments:
Time Sampled: 9:50 A

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-5	6.90	2"	OK	—	—	10	10:30	66.7	8.11	2.31	NM
						15		66.8	7.46	2.69	↓
						20	10:50	66.7	7.49	2.66	↓

Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge= PurgeVol.
18.0 - 6.90 = 11.1 x 0.16 = 1.77 x 10 = 17.7
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Baller(s)___ OSys Port
Comments:
Time Sampled: 11:00 A

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-6	7.40	2"	OK	Sheen	—	10	11:20	67.3	7.21	2.01	NM
						15		67.1	7.58	2.47	↓
						20	11:34	67.2	7.33	2.44	↓

Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge= PurgeVol.
18.0 - 7.40 = 10.6 x 0.16 = 1.69 x 10 = 16.90
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Baller(s)___ OSys Port
Comments: Sheen on purge, not Sampled
Time Sampled: Not

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-7	9.10	2"	OK	—	—	10	12:40	68.2	8.27	2.89	NM
						15		68.2	8.31	2.71	↓
						20	1115	68.1	8.21	2.69	↓

Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge= PurgeVol.
18.0 - 9.10 = 8.9 x 0.16 = 1.42 x 10 = 14.20
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Baller(s)___ OSys Port
Comments:
Time Sampled: 1:25 P

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-8	7.84	2"	OK	globs	globs	10	2:44	66.1		2.18	NM
						15					↓
						20	3:08	66.2	7.92	2.11	↓

Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge= PurgeVol.
18.0 - 7.84 = 10.16 x 0.16 = 1.62 x 10 = 16.2
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Baller(s)___ OSys Port
Comments: Not sampled, black/brown globules
Time Sampled: Not

O EPA 601____
O TPH-G/BTEX___
O TPH Diesel____
O TOG 5520 ___

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Field Report / Sampling Data Sheet

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

☒ Groundwater Sampling
MW-4 & MW-5

Date: 9-11-95
Day: Mon
Weather: Clear
Project No. 10-270
Station No. Sea Land Lease
Address 2277 7th St Oakland
SAMPLER:

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness
MW-4	8.51	2"	OK	—	—

Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge= PurgeVol.
18- 8.51

Purge Method: ○Surface Pump ○Disp.Tube ○Winch ○Disp. Bailer(s)___ ○Sys Port
Comments:

Gal.	Time	Temp °F	pH	E.C.	D.O.
2	2:20	67.9	7.49	1.48	NM
4	2:28	67.2	7.61	1.67	↓
6	2:36	67.2	7.21	1.66	↓

○ EPA 601______
○ TPH-G/BTEX___
○ TPH Diesel____
○ TOG 5520 ___
Time Sampled
2:43

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness
MW-5	6.93	2"	OK	—	—

Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge= PurgeVol.
18 - 6.90

Purge Method: ○Surface Pump ○Disp.Tube ○Winch ○Disp. Bailer(s)___ ○Sys Port
Comments:

Gal.	Time	Temp °F	pH	E.C.	D.O.
2	3:16	66.9	7.92	2.68	NM
4	3:21	66.9	7.68	2.67	↓
6	3:38	66.9	7.61	2.71	↓

○ EPA 601______
○ TPH-G/BTEX___
○ TPH Diesel____
○ TOG 5520 ___
Time Sampled
2:42

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness

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

Purge Method: ○Surface Pump ○Disp.Tube ○Winch ○Disp. Bailer(s)___ ○Sys Port
Comments:

Gal.	Time	Temp °F	pH	E.C.	D.O.

○ EPA 601______
○ TPH-G/BTEX___
○ TPH Diesel____
○ TOG 5520 ___
Time Sampled

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness

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

Purge Method: ○Surface Pump ○Disp.Tube ○Winch ○Disp. Bailer(s)___ ○Sys Port
Comments:

Gal.	Time	Temp °F	pH	E.C.	D.O.

○ EPA 601______
○ TPH-G/BTEX___
○ TPH Diesel____
○ TOG 5520 ___
Time Sampled

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness

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

Purge Method: ○Surface Pump ○Disp.Tube ○Winch ○Disp. Bailer(s)___ ○Sys Port
Comments:

Gal.	Time	Temp °F	pH	E.C.	D.O.

○ EPA 601______
○ TPH-G/BTEX___
○ TPH Diesel____
○ TOG 5520 ___
Time Sampled

ALISTO ENGINEERING GROUP
GROUNDWATER MONITORING

Client: Port of Oakland
Alisto Project No: 10-270.03-003
Service Station No: Building C401

Date: 9/28/95
Field Personnel: DC
Site Address: 2279 ~~7th~~ 3rd St. 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
mw-2	2"	1	≈15.00	9.17	∅		
mw-7		2	≈17.15'	9.74			
mw-5		3	≈18.00	6.56'			
mw-4		4	≈18.00'	8.54			
mw-6		5	≈15.00'	~~9.85~~ DC	↓		DTW-7.74' DC
mw-1		6	nm	9.85	8.74'	1.11	not sampled due to FP
mw-8		7	nm	8.91	8.79'	0.12	↓
mw-3	↓	8	nm	13.60	7.80'	5.80'	

Notes:

Pg 1 of 1

FORM: FS2/121592

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Field Report / Sampling Data Sheet

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

Groundwater Sampling

Date: 9/28/95 Project No. 10-270-03-003
Day: Thurs Station No. Bldg C401
Weather: Sun Address 2727 7th St, Oakland CA
SAMPLER:

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-2	9.17'	2"	OK	Φ	Φ	1	1407	75.9	7.90	2.31	
						2	1411	71.2	7.84	2.30	
						3	1415	70.7	7.82	2.30	

Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge= PurgeVol.
15.00 - 9.17 = 5.83 x .16 = 0.93 x 3 = 2.79
Purge Method: X Surface Pump O Disp.Tube O Winch O Disp. Bailer(s) O Sys Port
Comments:

O EPA 601 O TPH-G/BTEX O TPH Diesel O TOG 5520
Time Sampled: 1420

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-7	9.74	2"	replaced	Φ	Φ	1	1427	71.7	7.63	1.91	
						2	1432	71.7	7.57	1.92	
						2.75	1436	71.8	7.53	1.92	

Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge= PurgeVol.
17.15 - 9.74 = 5.26 x .16 = 0.84 x 3 = 2.53
Purge Method: X Surface Pump O Disp.Tube O Winch O Disp. Bailer(s) O Sys Port
Comments:

O EPA 601 O TPH-G/BTEX O TPH Diesel O TOG 5520
Time Sampled: 1440

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-5	6.56	2"	replaced	Φ	Φ	2	1447	74.7	7.73	2.34	
						4	1453	74.1	7.43	2.40	
						5.5	1457	73.6	7.39	2.40	

Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge= PurgeVol.
18.00 - 6.56 = 11.44 x .16 = 1.83 x 3 = 5.49
Purge Method: X Surface Pump O Disp.Tube O Winch O Disp. Bailer(s) O Sys Port
Comments:

O EPA 601 O TPH-G/BTEX O TPH Diesel O TOG 5520
Time Sampled: 1500

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-4	8.54	2"	replaced	Φ	Φ	1.5	1506	71.4	7.88	1.40	
						3	1509	71.9	7.69	1.34	
						4.75	1514	72.2	7.65	1.31	

Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge= PurgeVol.
18.00 - 8.54 = 9.46 x .16 = 1.51 x 3 = 4.54
Purge Method: X Surface Pump O Disp.Tube O Winch O Disp. Bailer(s) O Sys Port
Comments:

O EPA 601 O TPH-G/BTEX O TPH Diesel O TOG 5520
Time Sampled: 1520

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-6	7.74	2"	replaced	Φ	sheen	1	1530	71.4	7.44	3.33	
						2	1533	72.9	7.31	3.58	
						3.5	1537	73.1	7.24	3.62	

Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge= PurgeVol.
15.00 - 7.74 = 7.26 x .16 = 1.16 x 3 = 3.48
Purge Method: X Surface Pump O Disp.Tube O Winch O Disp. Bailer(s) O Sys Port
Comments: QC-1 from this well

O EPA 601 O TPH-G/BTEX O TPH Diesel O TOG 5520
Time Sampled: 1540

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

September 22, 1995

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

Client Ref.: 10-270-01-004
Clayton Project No.: 95091.08

Dear Mr. Nagle:

Attached is our analytical laboratory report for the samples received on September 8, 1995. 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 October 22, 1995, 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

Analytical Results
for
Alisto Engineering Group
Client Reference: 10-270-01-004
Clayton Project No. 95091.08

Sample Identification:	MW-4	Date Sampled:	09/11/95
Lab Number:	9509108-01A	Date Received:	09/12/95
Sample Matrix/Media:	WATER	Date Prepared:	09/20/95
Preparation Method:	EPA 5030	Date Analyzed:	09/20/95
Method Reference:	EPA 8015/8020	Analyst:	NAN

Analyte	CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)
BTEX/Gasoline			
Benzene	71-43-2	23	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	--	150 a	50
Surrogates		Recovery (%)	QC Limits (%)
a,a,a-Trifluorotoluene	98-08-8	83	50 - 150

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

a Purgeable hydrocarbons quantitated as gasoline do not match typical gasoline pattern.

Analytical Results
for
Alisto Engineering Group
Client Reference: 10-270-01-004
Clayton Project No. 95091.08

Sample Identification:	MW-5	Date Sampled:	09/11/95
Lab Number:	9509108-02A	Date Received:	09/12/95
Sample Matrix/Media:	WATER	Date Prepared:	09/20/95
Preparation Method:	EPA 5030	Date Analyzed:	09/20/95
Method Reference:	EPA 8015/8020	Analyst:	NAN

Analyte	CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)
BTEX/Gasoline			
Benzene	71-43-2	3.3	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	--	90 a	50
Surrogates		Recovery (%)	QC Limits (%)
a,a,a-Trifluorotoluene	98-08-8	84	50 - 150

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

a Purgeable hydrocarbons quantitated as gasoline do not match typical gasoline pattern.

Analytical Results
for
Alisto Engineering Group
Client Reference: 10-270-01-004
Clayton Project No. 95091.08

Sample Identification:	MW-2	Date Sampled:	09/06/95
Lab Number:	9509108-03A	Date Received:	09/08/95
Sample Matrix/Media:	WATER	Date Prepared:	09/20/95
Preparation Method:	EPA 5030	Date Analyzed:	09/20/95
Method Reference:	EPA 8015/8020	Analyst:	NAN

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	94	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: 10-270-01-004
Clayton Project No. 95091.08

Sample Identification:	MW-7	Date Sampled:	09/06/95
Lab Number:	9509108-04A	Date Received:	09/08/95
Sample Matrix/Media:	WATER	Date Prepared:	09/20/95
Preparation Method:	EPA 5030	Date Analyzed:	09/20/95
Method Reference:	EPA 8015/8020	Analyst:	NAN

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	99	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: 10-270-01-004
Clayton Project No. 95091.08

Sample Identification:	QC-1	Date Sampled:	09/06/95
Lab Number:	9509108-05A	Date Received:	09/08/95
Sample Matrix/Media:	WATER	Date Prepared:	09/20/95
Preparation Method:	EPA 5030	Date Analyzed:	09/20/95
Method Reference:	EPA 8015/8020	Analyst:	NAN

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: 10-270-01-004
Clayton Project No. 95091.08

Sample Identification:	QC-2	Date Sampled:	09/06/95
Lab Number:	9509108-06A	Date Received:	09/08/95
Sample Matrix/Media:	WATER	Date Prepared:	09/20/95
Preparation Method:	EPA 5030	Date Analyzed:	09/20/95
Method Reference:	EPA 8015/8020	Analyst:	NAN

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: 10-270-01-004
Clayton Project No. 95091.08

Sample Identification:	METHOD BLANK	Date Sampled:	--
Lab Number:	9509108-07A	Date Received:	--
Sample Matrix/Media:	WATER	Date Prepared:	09/20/95
Preparation Method:	EPA 5030	Date Analyzed:	09/20/95
Method Reference:	EPA 8015/8020	Analyst:	NAN

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	91	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: 10-270-01-004
Clayton Project No. 95091.08

Sample Identification: See Below
Lab Number: 9509108
Sample Matrix/Media: WATER
Extraction Method: EPA 3510
Method Reference: EPA 8015 (Modified)

Date Received: 09/08/95
Date Extracted: 09/13/95
Date Analyzed: 09/21/95

Lab Number	Sample Identification	Date Sampled	TPH-D (ug/L)	Method Detection Limit (ug/L)	
-01	MW-4	09/06/95	ND	200	a
-02	MW-5	09/06/95	ND	300	a
-03	MW-2	09/06/95	ND	60	a
-04	MW-7	09/06/95	ND	300	a
-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.
a Detection limit increased due to presence of heavier hydrocarbons.

Analytical Results
for
Alisto Engineering Group
Client Reference: 10-270-01-004
Clayton Project No. 95091.08

Sample Identification: See Below
Lab Number: 9509108
Sample Matrix/Media: WATER
Preparation Method: EPA 3510
Method Reference: EPA 8015 (Modified)

Date Received: 09/08/95
Date Extracted: 09/13/95
Date Analyzed: 09/21/95

Lab Number	Sample Identification	Date Sampled	TPH-O (ug/L)	Method Detection Limit (ug/L)
-01	MW-4	09/06/95	500	200
-02	MW-5	09/06/95	2500	200
-03	MW-2	09/06/95	400	200
-04	MW-7	09/06/95	800	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.

Clayton
ENVIRONMENTAL
CONSULTANTS

Quality Assurance Results Summary

Matrix Spike/Matrix Spike Duplicate Results

for

Clayton Project No. 95091.08

Quality Assurance Results Summary - Matrix Spike/Matrix Spike Duplicate
for
Clayton Project No. 95091.08

Clayton Lab Number:	9509107-LCS	Analytical Method:	EPA 8015
Ext./Prep. Method:	EPA 3510	Instrument ID:	02893
Date:	09/13/95	Date:	09/21/95
Analyst:	HYT	Time:	22:10
Std. Source:	E950901-01W	Analyst:	GUD
Sample Matrix/Media:	WATER	Units:	UG/L
		QC Batch No:	95091315

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	1,060	106	997	100	103	65	128	6.0	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. 95091.08

Clayton Lab Number: 9509187-08A
Ext./Prep. Method: EPA 5030
Date: 09/20/95
Analyst: JP
Std. Source: V950630-01W
Sample Matrix/Media: WATER

Analytical Method: EPA 8015/8020
Instrument ID: 05587
Date: 09/20/95
Time: 16:10
Analyst: NAN
Units: ug/L
QC Batch No: 95092081

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	5.89	6.13	104	5.96	101	103	81	118	2.8	20
ETHYLBENZENE	(PID)	ND	5.88	6.27	107	6.21	106	106	81	114	1.0	20
GASOLINE	(FID)	ND	500	476	95	474	95	95	80	120	0.4	25
TOLUENE	(PID)	ND	38.1	39.8	104	39.4	103	104	84	118	1.0	20
TOTAL XYLENE	(PID)	ND	36.4	37.8	104	37.5	103	103	85	115	0.8	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

For Clayton Use Only | Page 1 of 1

Project No.

Batch No. 9509108

Ind. Code | W.P.

Date Logged In 9/8 | By [illegible]

REPORT RESULTS TO
Name: Brady Nagle | Title:
Company: ALISTO ENGINEERING | Dept.:
Mailing Address: 1575 Treat Blvd # 201
City, State, Zip: Walnut Creek CA 94598
Telephone No.: 295-1650 | Telefax No.:

Purchase Order No. | Client Job No. 10-270-01-004

SEND INVOICE TO
Name: Dan Schoenholz
Company: Port of Oakland | Dept.:
Address: 530 Water St
City, State, Zip: Oakland CA

Date Results Req.: | Rush Charges Authorized? ☐ Yes ☒ No | Phone / Fax Results ☐ ☐

Samples are: (check if applicable)
☐ Drinking Water
☐ Collected in the State of New York

Special Instructions: (method, limit of detection, etc.)
Carbon ranges: TPH-D $C_{10}-C_{20}$ | TPH-MO $C_{20}-C_{42}$

* Explanation of Preservative: P - HCl

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

CLIENT SAMPLE IDENTIFICATION	DATE SAMPLED	MATRIX/ MEDIA	AIR VOLUME (specify units)	Number of Containers	TPH-G/BTEX	TPH-D	TPH-MO	FOR LAB USE ONLY
	9/6/95	WATER						
MW-4	9/6/95	WATER	2x40ml 1L/1Lamber	4	XP	PX	PX	01 A-D
MW-5	↓	↓	↓	4	P	P	P	02 A-D
MW-2	↓	↓	↓	4	P	P	P	03 A-D
MW-7	↓	↓	↓	4	P	P	P	04 A-D
QC-1	↓	↓	2x40ml	2	P	P	PX	05 A-B
QC-2	9/6/95	WATER	↓	2	X	X	X	06 A-B

CHAIN OF CUSTODY
Collected by: Chris Reinheimer (print) | Collector's Signature: [signature]
Relinquished by: | Date/Time | Received by: [signature] | Date/Time 9/8/95 10:35
Relinquished by: [signature] | Date/Time 9/8/95 11:15 | Received at Lab by: [signature] | Date/Time 9/8/95 11:35
Method of Shipment: | Sample Condition Upon Receipt: ☒ Acceptable ☐ Other (explain)
* Did not receive X [illegible]

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:

22345 Roethel Drive, Novi, MI 48375, (313) 344-1770
Raritan Center, 160 Fieldcrest Ave., Edison, NJ 08837, (908) 225-6040
400 Chastain Center Blvd., N.W., Suite 490, Kennesaw, GA 30144, (404) 499-7500
1252 Quarry Lane, Pleasanton, CA 94566, (510) 426-2657

2/92

DISTRIBUTION:
WHITE - Clayton Laboratory
YELLOW - Clayton Accounting
PINK - Client Retains

Clayton ENVIRONMENTAL CONSULTANTS

REQUEST FOR LABORATORY ANALYTICAL SERVICES

For Clayton Use Only	Page 1 of 1
Project No.	
Batch No.	9505108 Replacement
Ind. Code	W.P.
Date Logged In 9/12	By [illegible]

REPORT RESULTS TO

Name: Brady Nagle — Title:
Company: ALISTO ENGINEERING — Dept.:
Mailing Address: 1575 Treat Blvd #201
City, State, Zip: Walnut Creek CA 94598
Telephone No.: 510 295 1650 — Telefax No.: 510 295 1823

SEND INVOICE TO

Name: Port of Oakland
Company: 530 Water Street — Dept.:
Address:
City, State, Zip:

Purchase Order No.: — Client Job No.: 10-270

Date Results Req.: — Rush Charges Authorized? ☐ Yes ☒ No — Phone / Fax Results ☐ ☐

Special Instructions: (method, limit of detection, etc.)

* Explanation of Preservative: P = HCl

Samples are: (check if applicable)
☐ Drinking Water
☐ Collected in the State of New York

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

CLIENT SAMPLE IDENTIFICATION	DATE SAMPLED	MATRIX/ MEDIA	AIR VOLUME (specify units)	Number of Containers	TPH-G/BTEX	FOR LAB USE ONLY
MW-4	9/11/95	Water	40ml	2	X P	01 AB
MW-5	9/11/95	Water	40ml	2	X P	02 AB

CHAIN OF CUSTODY

Collected by: Chris Reinheimer (print) — Collector's Signature:
Relinquished by: — Date/Time 9/11/95 4:00P — Received by: — Date/Time 9/12/95 9:25
Relinquished by: Patricia Yelton — Date/Time 9/12/95 9:25 — Received at Lab by: — Date/Time 9/12/95 12:4
Method of Shipment: Couries of Clayton — Sample Condition Upon Receipt: ☒ Acceptable ☐ Other (explain)

Authorized by: _____ Date _____
(Client Signature Must Accompany Request)

Replacement for MW-2

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

22345 Roethel Drive Novi, MI 48375 (313) 344-1770	Raritan Center 160 Fieldcrest Ave. Edison, NJ 08837 (908) 225-6040	400 Chastain Center Blvd., N.W. Suite 490 Kennesaw, GA 30144 (404) 499-1500	1252 Quarry Lane Pleasanton, CA 94566 (510) 426-2657

Relinquished By: [illegible] 9/12/95 12:45

2/92

DISTRIBUTION:
WHITE - Clayton Laboratory
YELLOW - Clayton Accounting
PINK - Client Retains

Western Operations

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

Clayton
ENVIRONMENTAL
CONSULTANTS

October 16, 1995

Mr. Dale Swain
ALISTO ENGINEERING GROUP
1575 Treat Blvd., Suite 201
Walnut Creek, CA 94598

Client Ref.: 10-270-03-003
Clayton Project No.: 95094.01

Dear Mr. Swain:

Attached is our analytical laboratory report for the samples received on September 29, 1995. 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 November 15, 1995, 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

Analytical Results
for
Alisto Engineering Group
Client Reference: 10-270-03-003
Clayton Project No. 95094.01

Sample Identification:	MW-2	Date Sampled:	09/28/95
Lab Number:	9509401-01A	Date Received:	09/29/95
Sample Matrix/Media:	WATER	Date Prepared:	10/09/95
Preparation Method:	EPA 5030	Date Analyzed:	10/09/95
Method Reference:	EPA 8015/8020	Analyst:	NAN

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	--	120 a	50
Surrogates		Recovery (%)	QC Limits (%)
a,a,a-Trifluorotoluene	98-08-8	91	50 - 150

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

a Purgeable hydrocarbons quantitated as gasoline do not match typical gasoline pattern.

Analytical Results
for
Alisto Engineering Group
Client Reference: 10-270-03-003
Clayton Project No. 95094.01

Sample Identification:	MW-7	Date Sampled:	09/28/95
Lab Number:	9509401-02A	Date Received:	09/29/95
Sample Matrix/Media:	WATER	Date Prepared:	10/09/95
Preparation Method:	EPA 5030	Date Analyzed:	10/09/95
Method Reference:	EPA 8015/8020	Analyst:	NAN

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	94	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: 10-270-03-003
Clayton Project No. 95094.01

Sample Identification:	MW-5	Date Sampled:	09/28/95
Lab Number:	9509401-03A	Date Received:	09/29/95
Sample Matrix/Media:	WATER	Date Prepared:	10/09/95
Preparation Method:	EPA 5030	Date Analyzed:	10/09/95
Method Reference:	EPA 8015/8020	Analyst:	NAN

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	79	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: 10-270-03-003
Clayton Project No. 95094.01

Sample Identification:	MW-4	Date Sampled:	09/28/95
Lab Number:	9509401-04A	Date Received:	09/29/95
Sample Matrix/Media:	WATER	Date Prepared:	10/09/95
Preparation Method:	EPA 5030	Date Analyzed:	10/09/95
Method Reference:	EPA 8015/8020	Analyst:	NAN

Analyte	CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)
BTEX/Gasoline			
Benzene	71-43-2	18	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	--	210 [a]	50
Surrogates		Recovery (%)	QC Limits (%)
a,a,a-Trifluorotoluene	98-08-8	84	50 - 150

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

a Purgeable hydrocarbons quantitated as gasoline do not match typical gasoline pattern.

Analytical Results
for
Alisto Engineering Group
Client Reference: 10-270-03-003
Clayton Project No. 95094.01

Sample Identification:	MW-6	Date Sampled:	09/28/95
Lab Number:	9509401-05A	Date Received:	09/29/95
Sample Matrix/Media:	WATER	Date Prepared:	10/12/95
Preparation Method:	EPA 5030	Date Analyzed:	10/12/95
Method Reference:	EPA 8015/8020	Analyst:	NAN

Analyte	CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)
BTEX/Gasoline			
Benzene	71-43-2	12	0.4
Ethylbenzene	100-41-4	9.4	0.3
Toluene	108-88-3	1.4	0.3
o-Xylene	95-47-6	3.8	0.4
p,m-Xylenes	--	1.8	0.4
Gasoline	--	2400[a]	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

a Sample appears to be weathered gasoline.

Analytical Results
for
Alisto Engineering Group
Client Reference: 10-270-03-003
Clayton Project No. 95094.01

Sample Identification:	QC-1	Date Sampled:	09/28/95
Lab Number:	9509401-06A	Date Received:	09/29/95
Sample Matrix/Media:	WATER	Date Prepared:	10/12/95
Preparation Method:	EPA 5030	Date Analyzed:	10/12/95
Method Reference:	EPA 8015/8020	Analyst:	NAN

Analyte	CAS #	Concentration (ug/L)	Method Detection Limit (ug/L)
BTEX/Gasoline			
Benzene	71-43-2	12	0.4
Ethylbenzene	100-41-4	7.5	0.3
Toluene	108-88-3	0.9	0.3
o-Xylene	95-47-6	2.8	0.4
p,m-Xylenes	--	1.4	0.4
Gasoline	--	2600 [a]	50
Surrogates		Recovery (%)	QC Limits (%)
a,a,a-Trifluorotoluene	98-08-8	93	50 - 150

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

a Sample appears to be weathered gasoline.

Analytical Results
for
Alisto Engineering Group
Client Reference: 10-270-03-003
Clayton Project No. 95094.01

Sample Identification:	QC-2	Date Sampled:	09/28/95
Lab Number:	9509401-07A	Date Received:	09/29/95
Sample Matrix/Media:	WATER	Date Prepared:	10/10/95
Preparation Method:	EPA 5030	Date Analyzed:	10/10/95
Method Reference:	EPA 8015/8020	Analyst:	NAN

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: 10-270-03-003
Clayton Project No. 95094.01

Sample Identification:	METHOD BLANK	Date Sampled:	--
Lab Number:	9509401-08A	Date Received:	--
Sample Matrix/Media:	WATER	Date Prepared:	10/10/95
Preparation Method:	EPA 5030	Date Analyzed:	10/10/95
Method Reference:	EPA 8015/8020	Analyst:	NAN

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	89	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: 10-270-03-003
Clayton Project No. 95094.01

Sample Identification: See Below
Lab Number: 9509401
Sample Matrix/Media: WATER
Extraction Method: EPA 3510
Method Reference: EPA 8015 (Modified)

Date Received: 09/29/95
Date Extracted: 10/04/95
Date Analyzed: 10/05/95

Lab Number	Sample Identification	Date Sampled	TPH-D (ug/L)		Method Detection Limit (ug/L)	
-01	MW-2	09/28/95	ND		100	b
-02	MW-7	09/28/95	390	a	50	
-03	MW-5	09/28/95	ND		300	b
-04	MW-4	09/28/95	ND		50	
-05	MW-6	09/28/95	8400		50	b
-08	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.
b Detection limit increased due to presence of heavier hydrocarbons.
a Unidentified hydrocarbons present in diesel range; quantitation based on diesel.

Analytical Results
for
Alisto Engineering Group
Client Reference: 10-270-03-003
Clayton Project No. 95094.01

Sample Identification: See Below
Lab Number: 9509401
Sample Matrix/Media: WATER
Preparation Method: EPA 3510
Method Reference: EPA 8015 (Modified)

Date Received: 09/29/95
Date Extracted: 10/04/95
Date Analyzed: 10/05/95

Lab Number	Sample Identification	Date Sampled	TPH-O (ug/L)		Method Detection Limit (ug/L)
-01	MW-2	09/28/95	1300		200
-02	MW-7	09/28/95	1200		200
-03	MW-5	09/28/95	2000		200
-04	MW-4	09/28/95	400		200
-05	MW-6	09/28/95	8000	a	200
-08	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 Unidentified hydrocarbons present in oil range; quantitation based on oil.

Quality Assurance Results Summary

Matrix Spike/Matrix Spike Duplicate Results

for

Clayton Project No. 95094.01

Quality Assurance Results Summary - Matrix Spike/Matrix Spike Duplicate
for
Clayton Project No. 95094.01

Clayton Lab Number:	9509401-LCS	Analytical Method:	EPA 8015
Ext./Prep. Method:	EPA 3510	Instrument ID:	02893
Date:	10/04/95	Date:	10/05/95
Analyst:	HYT	Time:	02:32
Std. Source:	E950901-01W	Analyst:	GUD
Sample Matrix/Media:	WATER	Units:	UG/L
		QC Batch No:	95100470

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	835	83	878	88	86	65	128	5.0	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. 95094.01

Clayton Lab Number:	9509401-01A	Analytical Method:	EPA 8015/8020
Ext./Prep. Method:	EPA 5030	Instrument ID:	05587
Date:	10/09/95	Date:	10/09/95
Analyst:	WGK	Time:	20:59
Std. Source:	V950313-02W	Analyst:	NAN
Sample Matrix/Media:	WATER	Units:	ug/L
		QC Batch No:	951009B1

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	3.92	3.91	100	3.94	101	100	79	125	0.8	20
ETHYLBENZENE	(PID)	ND	5.41	5.31	98	5.43	100	99	91	123	2.2	20
GASOLINE	(FID)	116	500	529	83	521	81	82	80	120	1.5	25
TOLUENE	(PID)	ND	26.8	25.2	94	26.8	100	97	84	118	6.2	20
TOTAL XYLENE	(PID)	ND	33.3	33.5	101	33.8	102	101	85	115	0.9	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

Quality Assurance Results Summary - Matrix Spike/Matrix Spike Duplicate
for
Clayton Project No. 95094.01

Clayton Lab Number:	9510139-01C	Analytical Method:	EPA 8015/8020
Ext./Prep. Method:	EPA 5030	Instrument ID:	05587
Date:	10/13/95	Date:	10/13/95
Analyst:	FAK	Time:	20:57
Std. Source:	V950630-01W	Analyst:	FAK
Sample Matrix/Media:	WATER	Units:	ug/L
		QC Batch No:	95101381

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	5.61	5.59	100	5.77	103	101	79	125	3.2	20
ETHYLBENZENE	(PID)	ND	8.61	8.46	98	8.79	102	100	91	123	3.8	20
GASOLINE	(FID)	ND	500	482	96	520	104	100	80	120	7.6	25
TOLUENE	(PID)	ND	36.0	36.1	100	37.7	105	103	84	118	4.3	20
TOTAL XYLENE	(PID)	ND	43.9	43.2	98	45.1	103	101	85	115	4.3	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

Quality Assurance Results Summary - Laboratory Control Samples (LCS)

for

Clayton Project No. 95094.01

Clayton Lab Number:	9509401-LCS	Analytical Method:	EPA 8015
Ext./Prep. Method:	EPA 3510	Instrument ID:	02893
Date:	10/04/95	Date:	10/05/95
Analyst:	HYT	Time:	04:16
Std. Source:	G950425-01W	Analyst:	GUD
Sample Matrix/Media:	WATER	Units:	UG/L
		QC Batch no:	95100470

Analyte	Blank Result	Spike Level	LCS Result	LCS Recovery (%)	LCL (% R)	UCL (% R)
OIL	ND	1,000	821	82	30	130

ND = Not detected at or above limit of detection LCL = Lower Control Limit UCL = Upper Control Limit

Quality Assurance Results Summary - Laboratory Control Samples (LCS)
for
Clayton Project No. 95094.01

Clayton Lab Number:	9509401-LCS	Analytical Method:	EPA 8015
Ext./Prep. Method:	EPA 3510	Instrument ID:	02893
Date:	10/04/95	Date:	10/05/95
Analyst:	HYT	Time:	04:16
Std. Source:	G950425-01W	Analyst:	GUD
Sample Matrix/Media:	WATER	Units:	UG/L
		QC Batch no:	95100470

Analyte	Blank Result	Spike Level	LCS Result	LCS Recovery (%)	LCL (% R)	UCL (% R)
OIL	ND	1,000	821	82	30	130

ND = Not detected at or above limit of detection LCL = Lower Control Limit UCL = Upper Control Limit