


GROUNDWATER TECHNOLOGY®

Groundwater Technology, Inc.

1401 Halyard Drive, Suite 140, West Sacramento, CA 95691 USA
Tel: (916) 372-4700 Fax: (916) 372-8781

TO: Mr. Don Ringsby
Ringsby Terminals, Inc.
P.O. Box 7240
3980 Quebec Street, Suite 214
Denver, CO 80207
(303) 320-3960 FAX: (303) 355-2451

DATE: 04/22/96 JOB NO. 02070-00205
FROM: Jaff Auchterlonie
RE: Ringsby Terminals- Port of Oakland 
2225 7th Street
Oakland, California

We are sending via: AIRBORNE MAIL FAX

ORIGINALS	COPIES	DATE	DESCRIPTION
1		04/22/96	First Quarter 1996 Groundwater Monitoring and Sampling Report

Transmitted as checked:

- For Approval
 For Your Use
 As You Requested
 For Comment
 For Resubmittal
 For Your Records

Remarks: Please review the attached Quarterly Monitoring and Sampling report. With your approval, copies of this report will be mailed as noted below. If you have any comments or questions, please call.

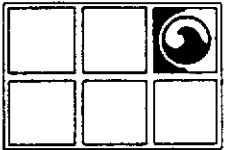
Copies to:

Ms. Jennifer Eberle, Hazardous Materials Specialist (510) 567-6761
Alameda County Department of Environmental Health FAX (510) 337-9335
1131 Harbor Bay Parkway, #250
Alameda, California 94502-6577

Mr. Dan Schoenholz (510) 272-1220
Environmental Scientist FAX (510) 465-3755
Port of Oakland
530 Water Street
Oakland, California 94607

qrtran.wk4

ENVIRONMENTAL PROTECTION AGENCY
MAY 2 1996
1:54 PM



GROUNDWATER TECHNOLOGY®

Groundwater Technology, Inc.

1401 Halyard Drive, Suite 140, West Sacramento, CA 95691 USA
Tel: (916) 372-4700 Fax: (916) 372-8781

April 22, 1996

Mr. Don Ringsby
Ringsby Terminals, Inc.
3980 Quebec Street, Suite 214
Denver, CO 80207

Subject: First Quarter 1996 Groundwater Monitoring and Sampling Report
Ringsby Terminals, Port of Oakland
2225 7th Street
Oakland, California
GTI Project 02070 0205

Dear Mr. Ringsby:

This letter summarizes the groundwater monitoring and sampling work performed by Groundwater Technology Inc. at the subject site (Figures 1 and 2, Attachment 1). On March 25, 1996, Groundwater Technology personnel monitored the depth to groundwater in three groundwater monitoring wells, MW-1, MW-2, and MW-3, located on the property leased by Ringsby Terminals, Inc. and also collected water samples from the three wells to determine the distribution of dissolved hydrocarbons in the groundwater. The work was performed at the request of Ms. Jennifer Eberle of the Alameda County Department of Environmental Health, Health Care Services (ACDEH).

The groundwater monitoring information and results of analyses of groundwater samples collected since January 1993, are summarized in Table 1 (Attachment 2). The analytical data and chain-of-custody for the March 25, 1996 sampling event are included in Attachment 3, and the field notes are included in Attachment 4. The monitoring wells, MW-1, MW-2, and MW-3, are located on the Ringsby Terminal lease, and the three wells, MW-1*, MW-2*, and MW-3*, are located north of the Ringsby Terminal lease on the Port of Oakland property (Figure 2).

Groundwater Monitoring

On March 25, 1996, Groundwater Technology personnel monitored the depth to groundwater and checked for presence of any separate-phase liquid hydrocarbons (SP) in monitoring wells MW-1, MW-2, and MW-3 (Table 1). ~~Due to a change of consultant's schedule, the Port of Oakland wells were not monitored on March 25, 1996, and no data are included for these wells in Table 1.~~ Depth to water was measured using an ORS Environmental Equipment INTERFACE PROBE Well Monitoring System, consisting of a dual optical sensor and electrical conductivity probe, that distinguishes between water and SP hydrocarbons. The probe was cleaned prior to gauging each well to avoid cross-contamination of the groundwater. To diminish the effects of fluctuations in the groundwater table due to tides, the depth to groundwater was measured in the three wells within a one-hour time period. All

measurements were made from the top of casing in each well. No SP hydrocarbons were noted in the three Ringsby Terminals groundwater monitoring wells.

Groundwater Gradient and Flow Direction

On March 25, 1996, the groundwater elevations in all three wells were approximately 0.6 foot higher than on December 27, 1995 (Table 1). The calculated groundwater gradient on March 25, 1996, was North 17 degrees West at 0.001 foot per foot (Figure 3).

Since January 15, 1993, no separate phase hydrocarbons have been measured in the three wells. As stated in previous reports, there is an abrupt change in the lithology and drop in groundwater elevations, (2 feet), between the Ringsby Terminal Lease and the Port of Oakland property located to the North; it appears that an east-west oriented hydrologic barrier exists between the two properties. The lateral extent and continuity of the hydrologic barrier between the two properties is not known. Given the history of land reclamation via dredging and backfilling the tidal mud flats, and construction of roadways and rail lines, linear barriers to shallow groundwater flow are expected.

Groundwater Sampling

Following groundwater monitoring, Groundwater Technology personnel sampled the groundwater in the three Ringsby Terminals monitoring wells to determine the distribution of dissolved hydrocarbons in the groundwater. Prior to water-sample collection, the three wells were purged of at least 4 well volumes of water and allowed to recharge with representative formation water. Temperature, conductivity, and pH measurements of the purged water were recorded. Due to an obstruction in its screened section, well MW-3 was only purged to a depth of 9.6 feet below the casing top. A disposable Teflon bailer was used for the groundwater sampling. One distilled-water field blank was collected for quality control purposes. Each water sample was then transferred to two 40-milliliter glass vials with Teflon-septum caps, and two 1-liter amber glass bottles, preserved on ice, and transported to a California state-certified laboratory, accompanied by a chain-of-custody manifest. The three samples were analyzed for benzene, toluene, ethylbenzene and xylenes (BTEX), total petroleum hydrocarbons-as-gasoline (TPH-G), total petroleum hydrocarbons-as-diesel (TPH-D), and total petroleum hydrocarbons-as-motor oil (TPH-O) by Environmental Protection Agency (EPA) methods 602/5030/modified 8015.

Wastewater

A total of 56 gallons of water was purged from the monitoring wells and stored in two 55-gallon drums labeled "Ringsby, non-hazardous well purge water, 03/25/96." Two drums of purged groundwater are now stored on site.

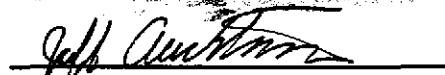
Groundwater Analytical Results

Highest TPH-G concentrations were detected in groundwater from MW-2 at 200 micrograms per liter ($\mu\text{g/l}$). BTEX, TPH-D, and TPH-O were not detected in any of the analyzed groundwater samples (Attachment 3).

The recent and historical analytical results are summarized in Table 1. Copies of the laboratory reports and chain-of-custody for the groundwater samples are included in Attachment 3, and the field notes are included in Attachment 4.


Please contact Groundwater Technology's West Sacramento office if you have questions or comments regarding this quarterly report.

Sincerely,
Groundwater Technology, Inc.
Submitted by:

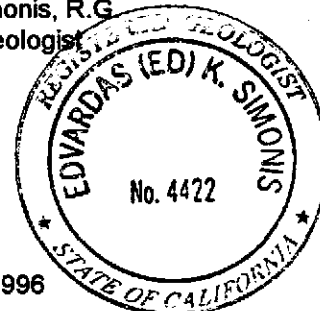


Jeffrey S. Auchterlonie
Lead Geologist
Project Manager

Groundwater Technology, Inc.
Approved by:

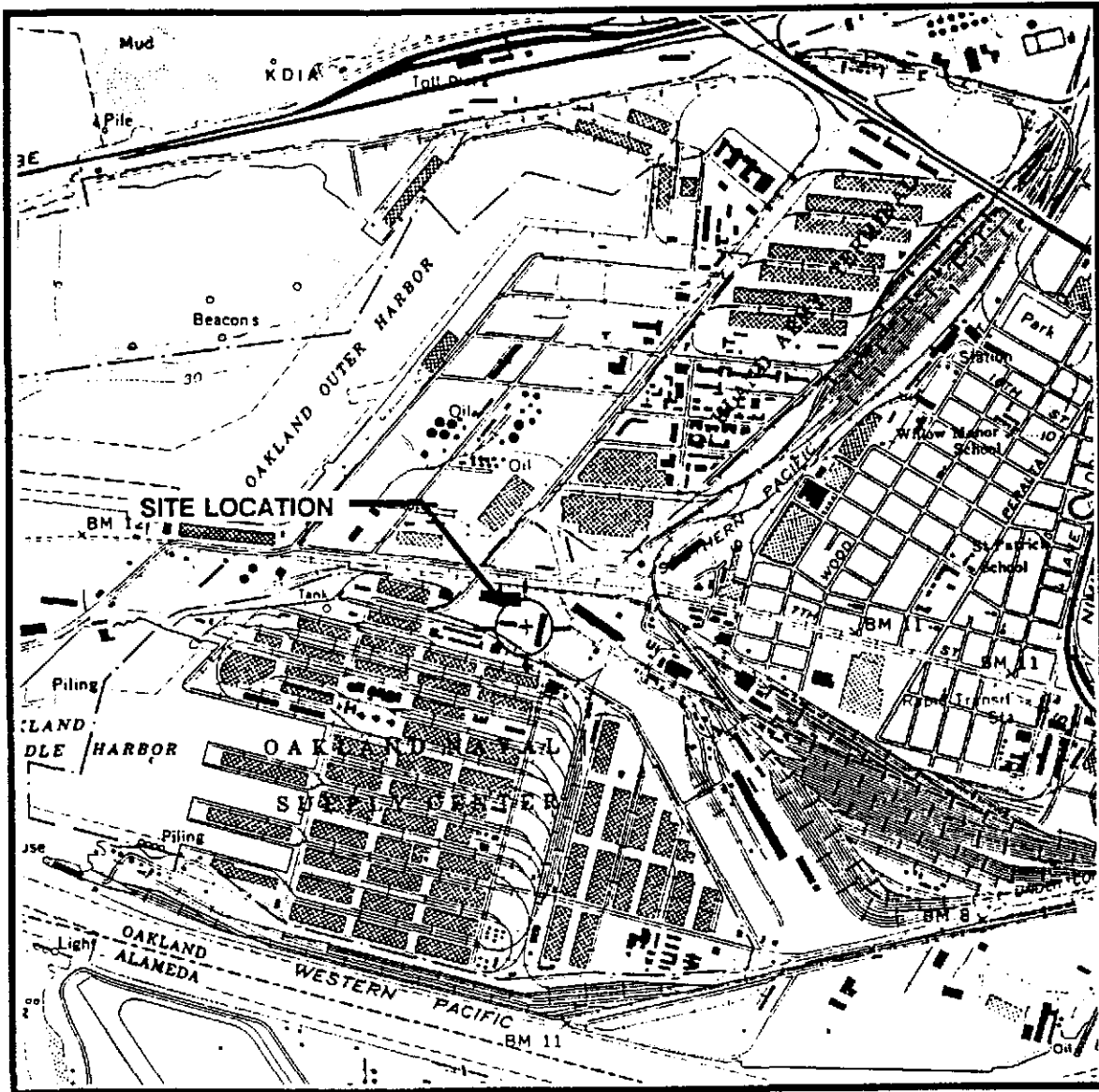


Ed K. Simonis, R.G.
Senior Geologist



Attachments

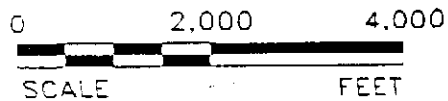
1. Figures
2. Tables
3. Laboratory Reports
4. Groundwater Monitoring and Sampling Field Notes, March 25, 1996



SOURCE: U.S.G.S. TOPOGRAPHIC QUADRANGLE
 OAKLAND WEST
 7.5 MINUTE SERIES
 1959/PHOTOREVISED 1980



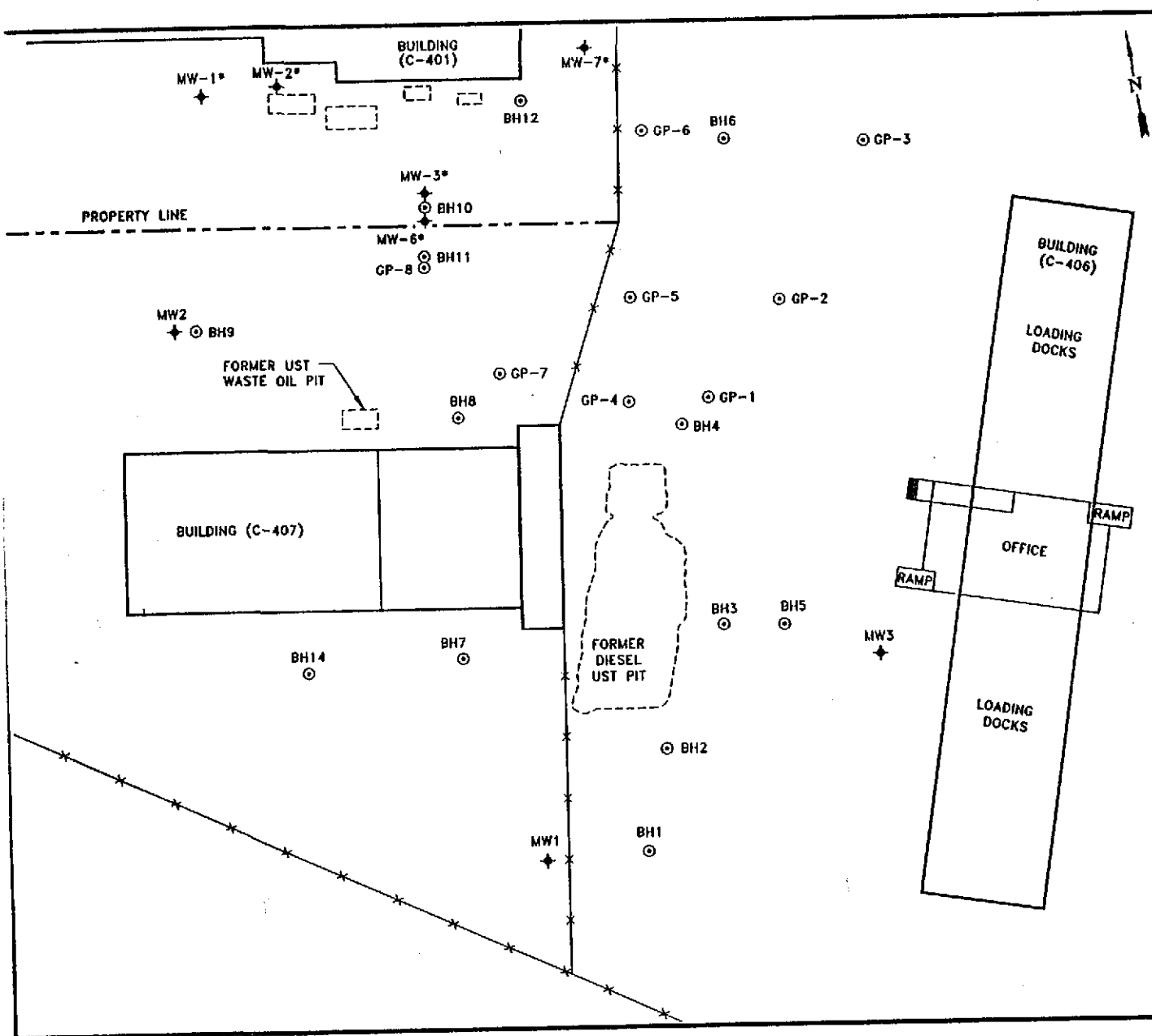
SCALE 1:24,000



GROUNDWATER
 TECHNOLOGY

SITE LOCATION MAP

CLIENT: RINGSBY TERMINALS INC.	FILE: 0061-SL (1:1)	PROJECT NO.: 02070-0061	PM JSA	PE/RG. [Signature]
	REV.	FIGURE: 1		
LOCATION: 2225 7th STREET OAKLAND, CA.	DES. JA	DET. SP	DATE: 4-4-95	

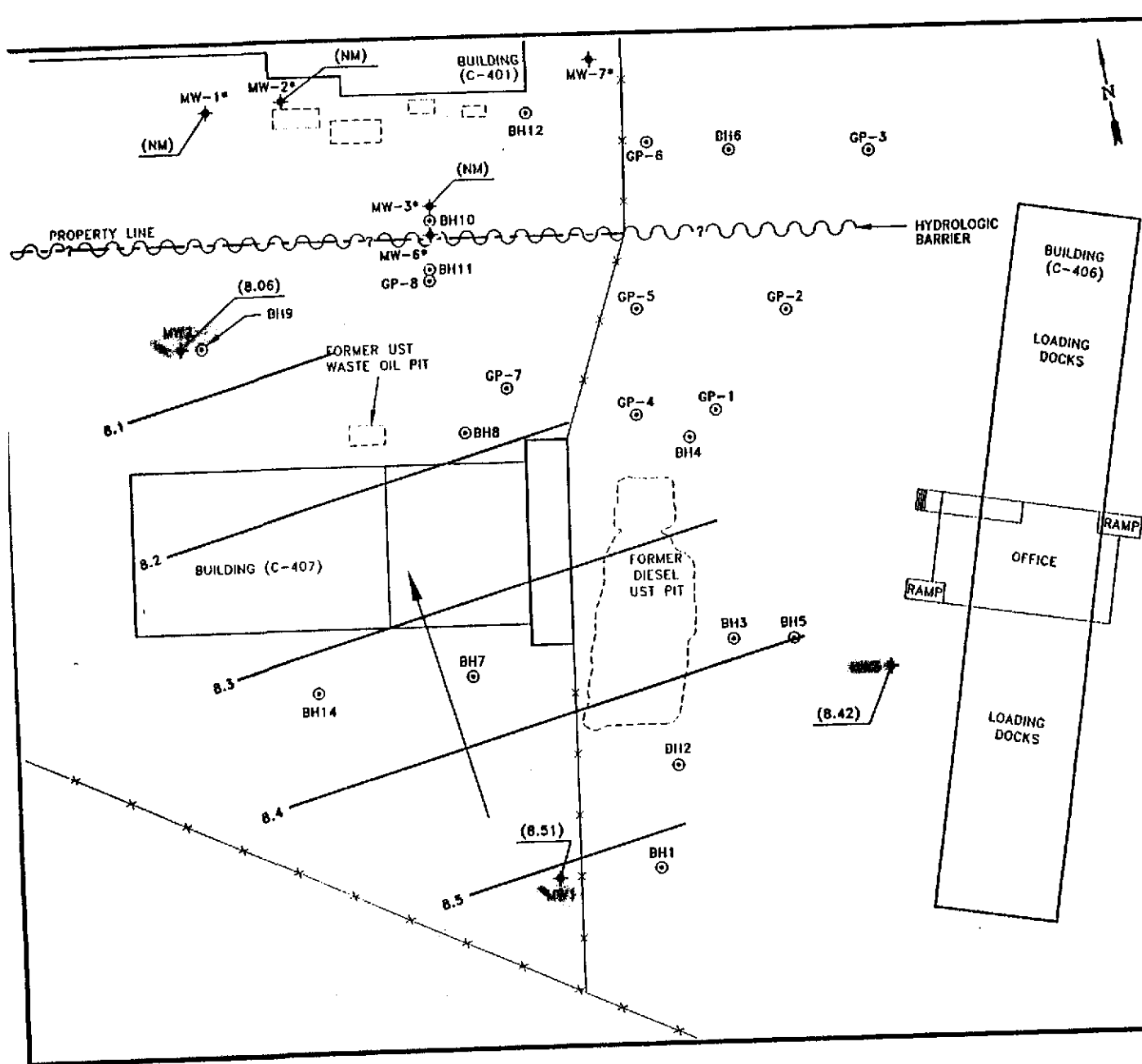


LEGEND

- x—x— FENCE
- ◆ GROUNDWATER MONITORING WELL
- ⊙ SOIL BORING LOCATIONS
- - - - - FORMER UST LOCATIONS
- PORT OF OAKLAND WELLS

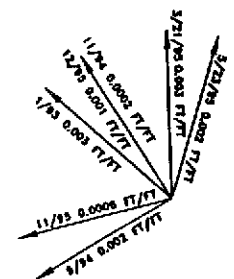
SOURCE: RAMCON 4/93, URIBE 2/94 AND 11/94, PORT OF OAKLAND 12/94.

SITE MAP			
CLIENT: RINGSBY TERMINALS INC.			
LOCATION: 2225 7th STREET OAKLAND, CALIFORNIA			
FILE: 0061SMBZ (1:50)		PROJECT NO.: 02070-0205	
REV.: 1			
DES.: JA	DET.: SWL	DATE: 4/18/96	FIGURE: 2
PM: JSA	4/18/96	PE/RO: ZC	



LEGEND

- x — x — x — FENCE
- ◆ GROUNDWATER MONITORING WELL
- ⊙ SOIL BORING LOCATIONS
- - - - - FORMER UST LOCATIONS
- PORT OF OAKLAND WELLS
- SP SEPARATE PHASE HYDROCARBONS
- NM NOT MONITORED
- POTENTIOMETRIC SURFACE CONTOUR INTERVAL = 0.05
- ESTIMATED GROUNDWATER FLOW DIRECTION AND GRADIENT



SOURCE: RAMCON 4/93, URIBE 2/94 AND 11/94, PORT OF OAKLAND 12/94.

GROUNDWATER TECHNOLOGY		
POTENTIOMETRIC SURFACE MAP (MARCH 25, 1996)		
CLIENT: RINGSBY TERMINALS INC.		
LOCATION: 2225 7th STREET OAKLAND, CALIFORNIA		
FILE: 0081PSM3 (1:50)	PROJECT NO.: 02070-0205	
REV.: _____		
DES.: JA	DET.: SWL	DATE: 4/18/96
PM: SSA	PE/REG: Y/12/96	FIGURE: 3

Table 1
GROUNDWATER MONITORING AND ANALYTICAL DATA, 1993 through 1996
 Concentrations in parts per billion (ppb), or micrograms per liter (µg/l)

Ringsby Terminals, Inc.- Port of Oakland
 2226 7th Street, Oakland, California

WELL ID/ ELEVATION (TOC:feet)	DATE	BENZENE	TOLUENE	ETHYL- BENZENE	XYLENES	TPH-G	TPH-D	TPH-O	DTW (feet)	SPT (feet)	GWE (feet)
MW-1 13.72	01/15/93	< 0.3	< 0.3	< 0.3	< 0.3	< 50 ~	< 50	---	5.21	0.00	8.51
	09/12/94	0.5	< 0.3	< 0.3	< 0.3	< 10 c	10,000	---	6.37	0.00	7.35
	11/30/94	< 0.3	< 0.3	< 0.3	< 0.3	< 10	2,800	---	5.76	0.00	7.96
	03/29/95	< 0.3	< 0.3	< 0.3	< 0.3	< 50	< 50	---	4.57	0.00	9.15
	05/25/95	---	---	---	---	---	---	---	5.14	0.00	8.58
	06/21/95	< 0.3	< 0.3	< 0.3	< 0.3	< 50	< 50 d	---	5.41	0.00	8.31
	06/23/95	---	---	---	---	---	---	---	5.44	0.00	8.28
	09/28/95	< 0.3	< 0.3	< 0.3	< 0.3	< 50	< 50	---	6.9 +	0.00	---
	11/20/95	---	---	---	---	---	---	---	6.28	0.00	7.44
	12/27/95	< 0.3	< 0.3	< 0.3	< 0.3	< 50	< 50	< 100	5.86	0.00	7.86
	03/28/96	< 0.3	< 0.3	< 0.3	< 0.3	< 50	< 50	< 100	5.21	0.00	8.51
MW-2 13.80	01/15/93	< 0.3	< 0.3	< 0.3	< 0.3	< 50	< 50	---	6.21	0.00	7.59
	09/12/94	0.6	< 0.3	< 0.3	< 0.3	34 c	< 50	---	6.47	0.00	7.33
	11/30/94	0.9	< 0.3	< 0.3	< 0.3	< 10	81	---	6.34	0.00	7.46
	03/29/95	0.3	< 0.3	< 0.3	< 0.3	< 50 b	75	---	5.51	0.00	8.29
	05/25/95	---	---	---	---	---	---	---	5.60	0.00	8.20
	06/21/95	< 0.3	< 0.3	< 0.3	< 0.3	< 50 b	< 50	---	5.72	0.00	8.08
	06/23/95	---	---	---	---	---	---	---	5.72	0.00	8.08
	09/28/95	< 0.3	< 0.3	< 0.3	< 0.3	250 c	< 50	---	6.15	0.00	7.65
	11/20/95	---	---	---	---	---	---	---	6.42	0.00	7.38
	12/27/95	< 0.3	< 0.3	< 0.3	< 0.3	220 c	< 50	< 100	6.31	0.00	7.49
	03/28/96	< 0.3	< 0.3	< 0.3	< 0.3	< 50	< 50	< 100	5.74	0.00	8.06
MW-3 15.06	01/15/93	< 0.3	< 0.3	< 0.3	< 0.3	< 50	< 50	---	6.44	0.00	8.62
	09/12/94	0.3	< 0.3	< 0.3	< 0.3	< 50	< 50	---	7.35	0.00	7.71
	11/30/94	< 0.3	< 0.3	< 0.3	< 0.3	110	150	---	7.12	0.00	7.94
	03/29/95	< 0.3	< 0.3	< 0.3	< 0.3	< 50	< 50	---	6.31	0.00	8.75
	05/25/95	---	---	---	---	---	---	---	6.75	0.00	8.31
	06/21/95	< 0.3	< 0.3	< 0.3	< 0.3	< 50 b	< 50 d	---	6.87	0.00	8.19
	06/23/95	---	---	---	---	---	---	---	6.88	0.00	8.18
	09/28/95	< 0.3	< 0.3	< 0.3	< 0.3	51 c	< 50	---	7.28	0.00	7.78
	11/20/95	---	---	---	---	---	---	---	7.51	0.00	7.55
	12/27/95	< 0.3	< 0.3	< 0.3	< 0.3	55 c	< 50	< 100	7.20	0.00	7.86
	03/28/96	< 0.3	< 0.3	< 0.3	< 0.3	< 50	< 50	< 100	6.64	0.00	8.42

Port
wells

Table 1
GROUNDWATER MONITORING AND ANALYTICAL DATA, 1993 through 1996
Concentrations in parts per billion (ppb), or micrograms per liter (µg/l)

Ringsby Terminals, Inc. - Port of Oakland
2225 7th Street, Oakland, California

WELL ID/ ELEVATION (TOC:feet)	DATE	BENZENE	TOLUENE	ETHYL- BENZENE	XYLENES	TPH-G	TPH-D	TPH-O	DTW (feet)	SPT (feet)	GWE (feet)
MW-1* 14.14	11/30/94	--	--	--	--	--	--	--	9.51	0.91	5.43
	03/29/95	--	--	--	--	--	--	--	7.67	0.17	6.62
	05/23/95	--	--	--	--	--	--	--	8.68	0.17	5.61
	06/23/95	--	--	--	--	--	--	--	9.60	1.40	5.77
	09/28/95	--	--	--	--	--	--	--	9.85	1.11	5.26
	12/27/95	--	--	--	--	--	--	--	9.04	0.53	5.56
	03/25/96	--	--	--	--	--	--	--	--	--	--
MW-2* 14.36	11/30/94	--	--	--	--	--	--	--	8.91	0.00	5.45
	03/29/95	< 0.4	< 0.3	< 0.3	< 0.3	< 50	110	1,400	7.47	0.00	6.69
	05/23/95	--	--	--	--	--	--	--	--	--	--
	06/23/95	--	--	--	--	--	--	--	8.62	0.00	5.74
	09/28/95	< 0.4	< 0.3	< 0.3	< 0.4	120 c	< 100	1,300	9.17	0.00	5.19
	12/27/95	--	--	--	--	--	--	--	8.95	0.00	5.41
	03/25/96	--	--	--	--	--	--	--	--	--	--
MW-3* 14.22	11/30/94	--	--	--	--	--	--	--	13.07	5.21	5.71
	03/29/95	--	--	--	--	--	--	--	9.59	2.93	7.19
	05/23/95	--	--	--	--	--	--	--	11.09	6.46	8.78
	06/23/95	--	--	--	--	--	--	--	12.21	6.09	7.34
	09/28/95	--	--	--	--	--	--	--	13.60	5.60	5.52
	12/27/95	--	--	--	--	--	--	--	12.71	4.70	5.62
	03/25/96	--	--	--	--	--	--	--	--	--	--
MW-4* 13.15	03/29/95	--	--	--	--	--	--	--	9.59	0.00	3.56
	09/28/96	18	< 0.3	< 0.3	< 0.3	210 c	< 50	400	8.54	0.00	4.61
	12/27/95	--	--	--	--	--	--	--	8.39	0.00	4.76
	03/25/96	--	--	--	--	--	--	--	--	--	--
MW-5* 13.49	09/28/95	< 0.4	< 0.3	< 0.3	< 0.4	< 50	< 300	2,000	6.56	0.00	6.93
	12/27/95	--	--	--	--	--	--	--	7.71	0.00	5.78
	03/25/96	--	--	--	--	--	--	--	--	--	--
MW-6* 14.00	09/28/95	12	1	9	6	2,400 c	8,400	8000 e	7.74	0.00	6.26
	12/27/95	--	--	--	--	--	--	--	8.07	0.00	5.93
	03/25/96	--	--	--	--	--	--	--	--	--	--

Table 1
GROUNDWATER MONITORING AND ANALYTICAL DATA, 1993 through 1996
 Concentrations in parts per billion (ppb), or micrograms per liter (µg/l)

Ringsby Terminals, Inc.- Port of Oakland
 2225 7th Street, Oakland, California

WELL ID/ ELEVATION (TOC:feet)	DATE	BENZENE	TOLUENE	ETHYL- BENZENE	XYLENES	TPH-G	TPH-D	TPH-O	DTW (feet)	SPT (feet)	GWE (feet)
MW-7* 14.35	09/28/95	< 0.4	< 0.3	< 0.3	< 0.4	< 50	380 d	1,200	9.74	0.00	4.61
	12/27/95	---	---	---	---	---	---	---	9.06	0.00	5.29
	03/25/96	---	---	---	---	---	---	---	---	---	---
MW-8* 12.94	09/28/95	---	---	---	---	---	---	---	8.91	0.12	4.14
	12/27/95	---	---	---	---	---	---	---	8.61	0.31	4.60
	03/25/96	---	---	---	---	---	---	---	---	---	---

Page 3 of 3

EXPLANATION:

TPH-G = Total petroleum hydrocarbons-as-gasoline
 TPH-D = Total petroleum hydrocarbons-as-diesel
 TPH-O = Total petroleum hydrocarbons-as-Motor Oil
 DTW = Depth to water
 SPT = Separate-phase thickness
 GWE = Groundwater elevation
 MSL = Mean sea level
 TOC = Top of casing
 += Possible well gauging error, data not used
 -- = Not analyzed or no sample/measurement collected
 ~ = Sample also analyzed using EPA 624, volatile organics were present.
 a = Uncategorized compound not included in the hydrocarbon concentration
 b = Uncategorized compound not included in the gasoline concentration
 c = Hydrocarbon pattern is not characteristic of gasoline
 d = Hydrocarbon pattern present in sample is not characteristic of diesel
 e = Hydrocarbon pattern present in sample is not characteristic of oil

SURVEY INFORMATION:

Well #	TOC	Grade	Property/well Owner
MW-1	13.72	---	Ringsby Terminals, Inc.
MW-2	13.80	---	Ringsby Terminals, Inc.
MW-3	15.06	---	Ringsby Terminals, Inc.
MW-1*	14.14	---	Port of Oakland
MW-2*	14.36	---	Port of Oakland
MW-3*	14.22	---	Port of Oakland
MW-4*	13.15	---	Port of Oakland
MW-5*	13.49	---	Port of Oakland
MW-6*	14.00	---	Port of Oakland
MW-7*	14.35	---	Port of Oakland
MW-8*	12.94	---	Port of Oakland

GWE for wells with separate phase hydrocarbons calculated assuming a specific gravity of (0.875)
 Wells surveyed to Port of Oakland Datum
 12/06/94, (3.2 feet below mean sea level)

WEST LABORATORY

April 3, 1996
Sample Log 14339

Jaff Auchterlonie
Groundwater Technology Inc.
1401 Halyard Dr., Suite 140
West Sacramento, CA 95691

Subject: Analytical Results for 3 Water Samples
Identified as: Ringsby Terminal (Proj. # 020700205)
Received: 03/26/96
Purchase Order: 030504

Dear Mr. Auchterlonie:

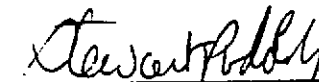
Analysis of the sample(s) referenced above has been completed. This report is written to confirm results communicated on April 3, 1996 and describes procedures used to analyze the samples.

Sample(s) were analyzed using the following method(s):

- "BTEX" (EPA Method 602/5030)
- "TPH as Gasoline" (Modified EPA Method 8015/Purge-and-Trap)
- "TPH as Diesel, Motor Oil, Jet/Kerosene" (Mod. 8015/Extraction)

Please refer to the following table(s) for summarized analytical results and contact us at 916-753-9500 if you have questions regarding procedures or results. The chain-of-custody document is enclosed.

Approved by:



Stewart Podolsky
Senior Chemist

April 3, 1996
Sample Log 14339

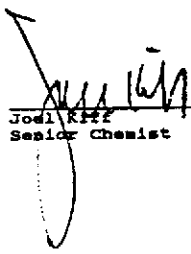
QC Report for EPA 602 & Modified EPA 8015
Run Log : 4145E
From : Ringsby Terminal (Proj. # 020700205)
Sample(s) Received : 03/26/96

Parameter	Matrix Spike % Recovery	Matrix Spike Duplicate % Recovery	RPD *
Benzene	105	95	11
Ethylbenzene	109	97	11
TPH as Gasoline	108	93	14

* RPD = Relative Percent Difference

Parameter	Laboratory Control Sample % Recovery
Benzene	96
Ethylbenzene	100
Gasoline	96

Parameter	Method Blank
Benzene	<0.30 ug/L
Toluene	<0.30 ug/L
Ethylbenzene	<0.30 ug/L
Total Xylenes	<0.50 ug/L
TPH as Gasoline	<50 ug/L



Jodi Kiff
Senior Chemist

Sample: MW3

From : Ringsby Terminal (Proj. # 020700205)

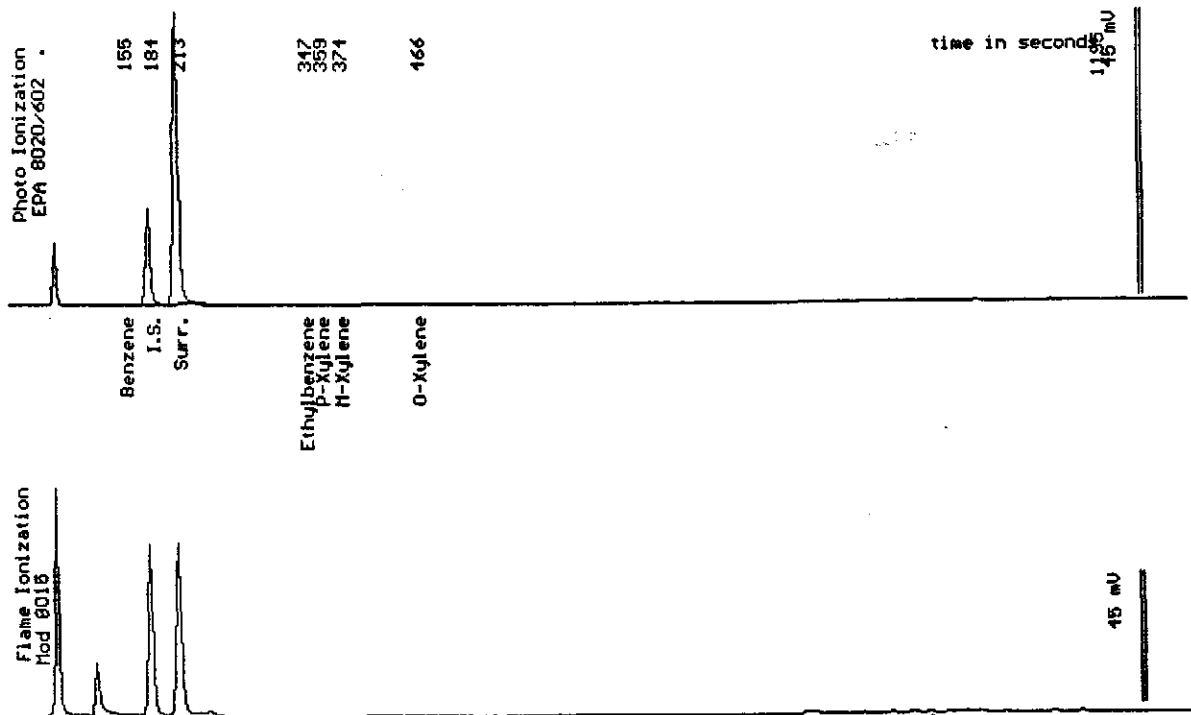
Sampled : 03/25/96

Dilution : 1:1

QC Batch : 4145e

Matrix : Water

Parameter	(MRL) ug/L	Measured Value ug/L
Benzene	(.50)	<.50
Toluene	(.50)	<.50
Ethylbenzene	(.50)	<.50
Total Xylenes	(.50)	<.50
TPH as Gasoline	(50)	53
Surrogate Recovery		112 %



Date Analyzed: 04-02-96
 Column : 0.53mm ID X 30m DBMEX (J&W Scientific)

Joel Kiff
 Joel Kiff
 Senior Chemist

Sample: MW2

From : Ringsby Terminal (Proj. # 020700205)

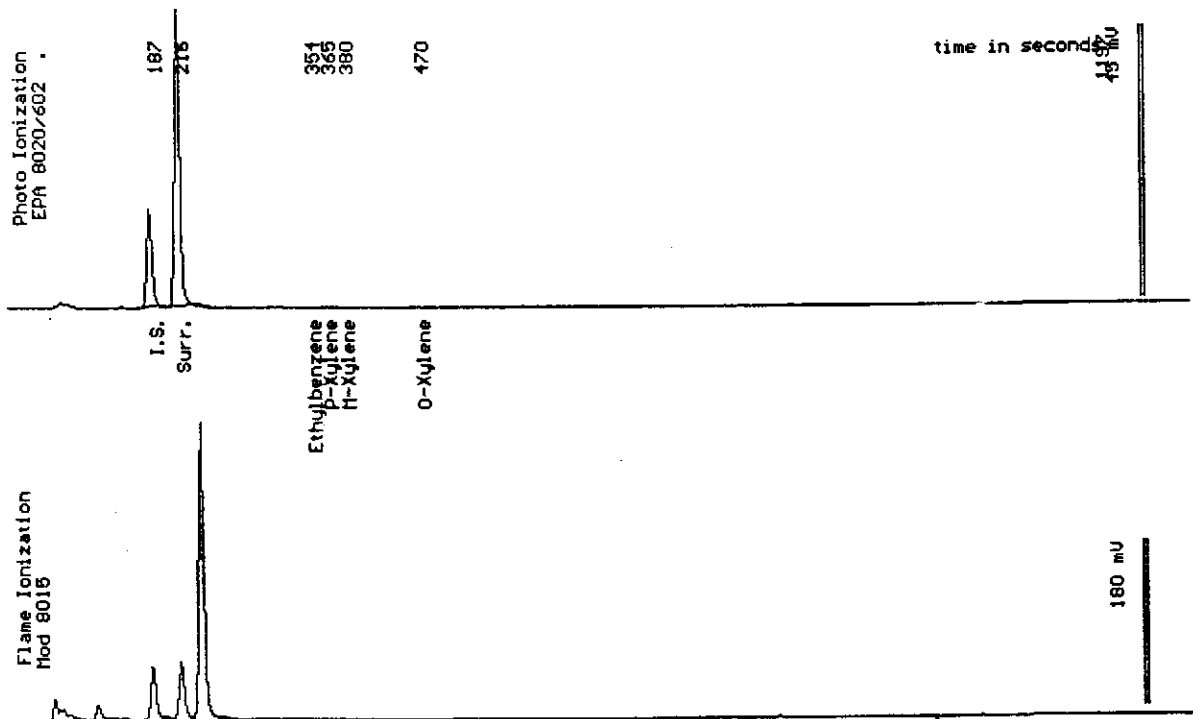
Sampled : 03/25/96

Dilution : 1:1

QC Batch : 4145e

Matrix : Water

Parameter	(MRL) ug/L	Measured Value ug/L
Benzene	(.50)	<.50
Toluene	(.50)	<.50
Ethylbenzene	(.50)	<.50
Total Xylenes	(.50)	<.50
TPH as Gasoline	(50)	200
Surrogate Recovery		91 %



Date Analyzed: 04-02-96
Column : 0.53mm ID X 30m DBWAX (J&W Scientific)

Joel Kiff
Joel Kiff
Senior Chemist

Sample: MW1

From : Ringsby Terminal (Proj. # 020700205)

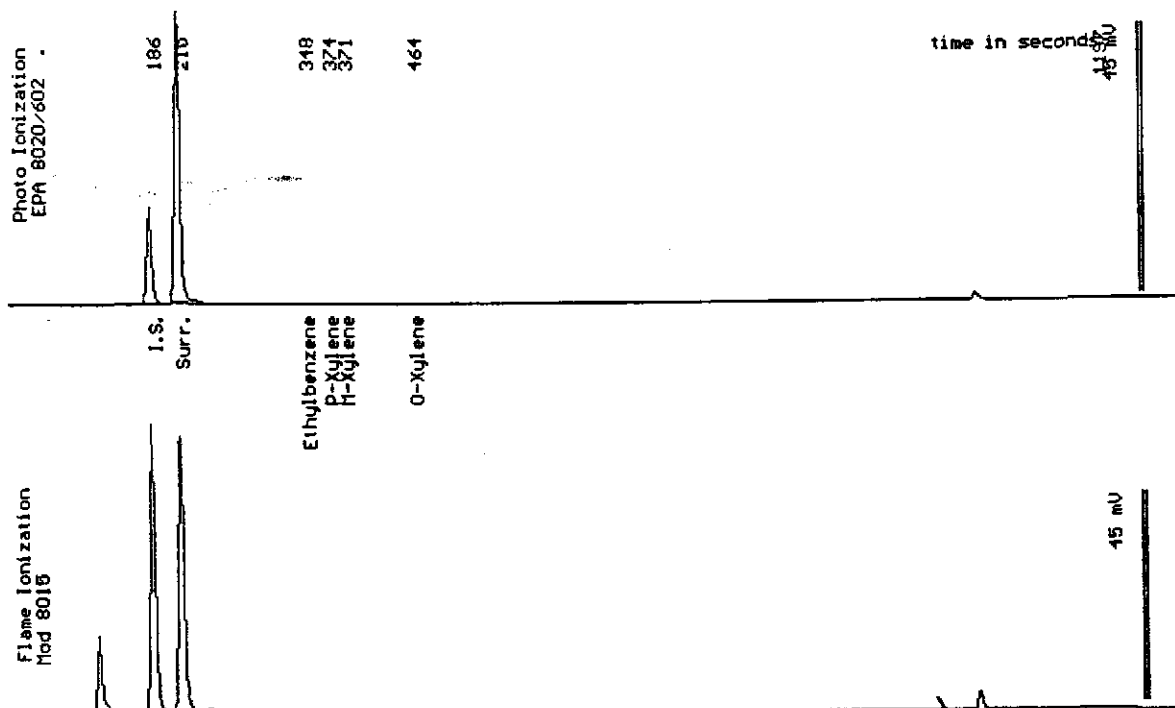
Sampled : 03/25/96

Dilution : 1:1

QC Batch : 4145e

Matrix : Water

Parameter	(MRL) ug/L	Measured Value ug/L
Benzene	(.50)	<.50
Toluene	(.50)	<.50
Ethylbenzene	(.50)	<.50
Total Xylenes	(.50)	<.50
TPH as Gasoline	(50)	<50
Surrogate Recovery		105 %



Date Analyzed: 04-02-96
 Column : 0.53mm ID X 30m DBWAX (J&H Scientific)

Joe Kiff
 Joe Kiff
 Senior Chemist

April 3, 1996
Sample Log 14339

QC Report
TPH Diesel/Motor Oil by 8015 Mod

From : Ringsby Terminal (Project # 020700205)

QC Batch DW960401

Matrix: Water

Spike and Spike Duplicate Results

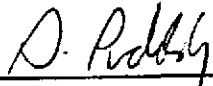
Parameter	Matrix Spike (%Rec)	Matrix Spike Dup. (%Rec)	RPD %
TPH as Diesel	Not enough sample for spiking. See duplicate LCS Data.		

Laboratory Control Spike

Parameter	Laboratory Control Spike (%Rec)	Laboratory Control Spike Dup. (%Rec)	RPD %
TPH as Diesel	101	100	1

Method Blank

Parameter	MDL(ug/L)	Measured Value(ug/L)
TPH as Diesel	(50)	<50
TPH as Motor Oil	(100)	<100


Stewart Podolsky
Senior Chemist

Sample: MW3

From : Ringsby Terminal (Proj. # 020700205)

Sampled : 03/25/96

Extracted: 04/01/96

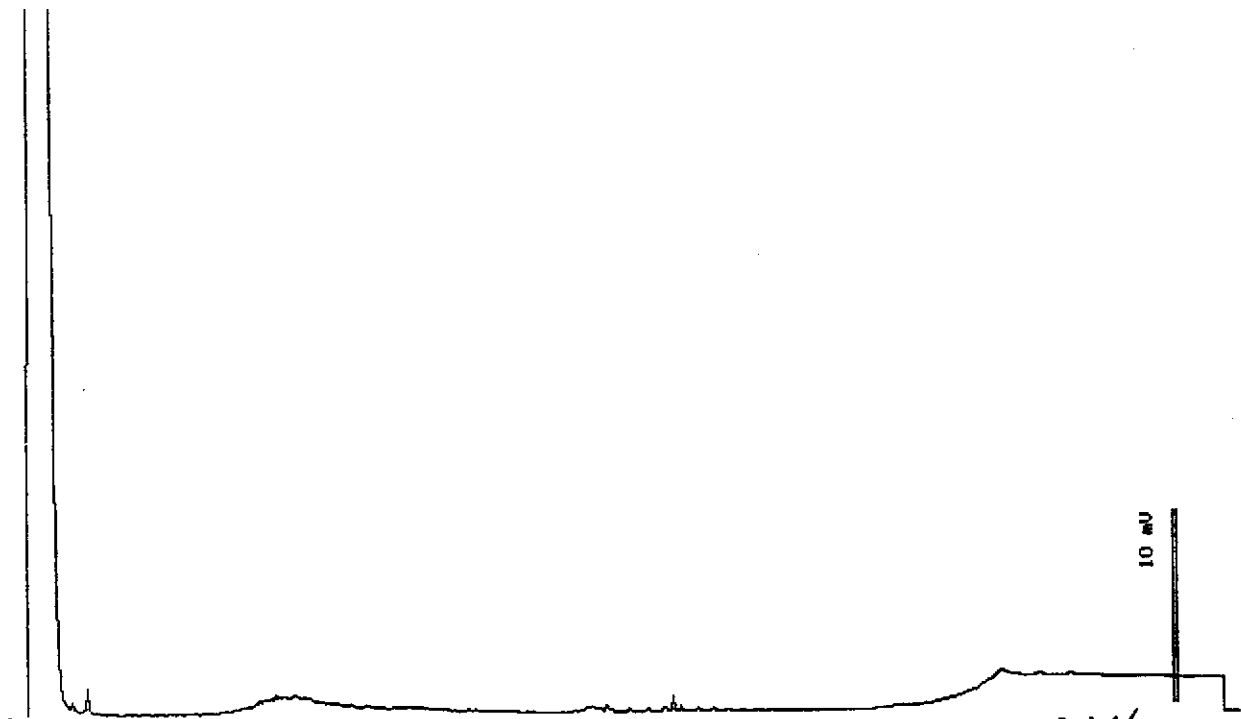
Dilution : 1:1

Matrix : Water

QC Batch : DW960401

Run Log : 8329F

Parameter	(MRL) ug/L	Measured Value ug/L
TPH as Diesel	(50)	<50
TPH as Motor Oil	(100)	<100



EPA Mod 8015

Date: 04-02-96 Time: 12:23:15
Column : 0.53mm ID X 15m DB1 (J&H Scientific)

S. Podolsky
Stewart Podolsky
Senior Chemist

Sample: MW2

From : Ringsby Terminal (Proj. # 020700205)

Sampled : 03/25/96

Extracted: 04/01/96

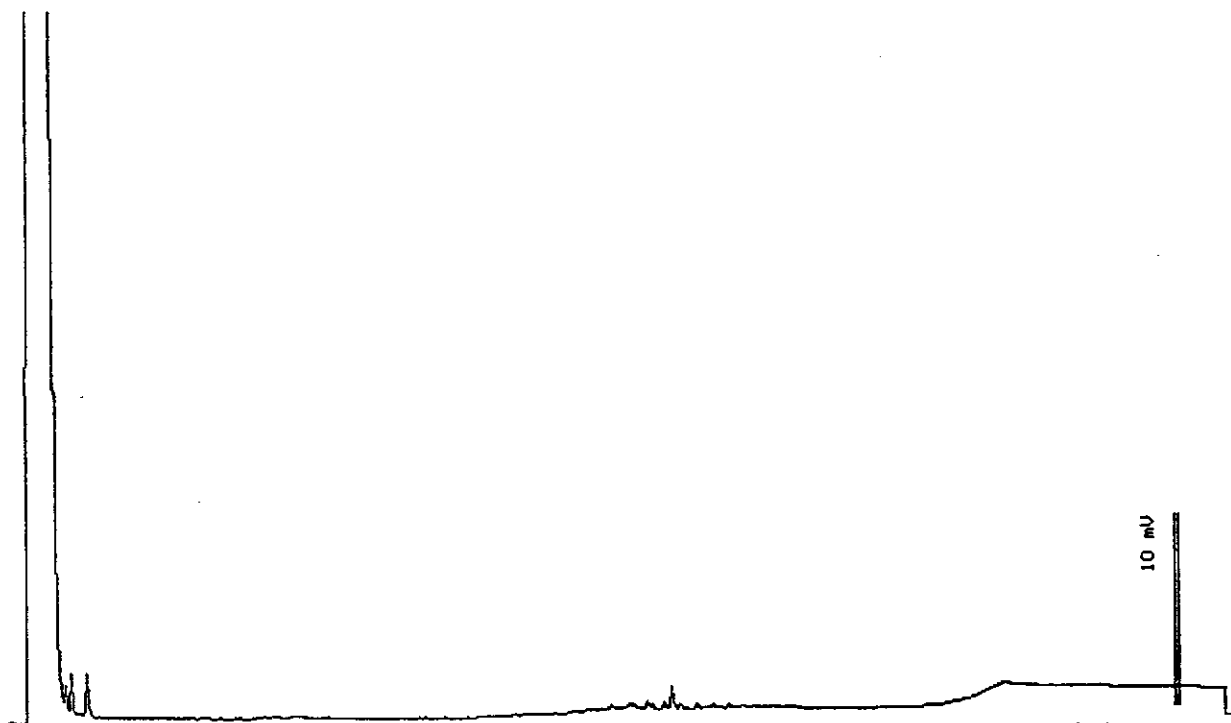
Dilution : 1:1

Matrix : Water

QC Batch : DW960401

Run Log : 8329F

Parameter	(MRL) ug/L	Measured Value ug/L
TPH as Diesel	(50)	<50
TPH as Motor Oil	(100)	<100



EPA Mod 8015

Date: 04-02-96 Time: 12:57:38
Column : 0.53mm ID X 15m DB1 (J&W Scientific)

Stuart Podolsky
Stuart Podolsky
Senior Chemist

Sample: MW1

From : Ringsby Terminal (Proj. # 020700205)

Sampled : 03/25/96

Extracted: 04/01/96

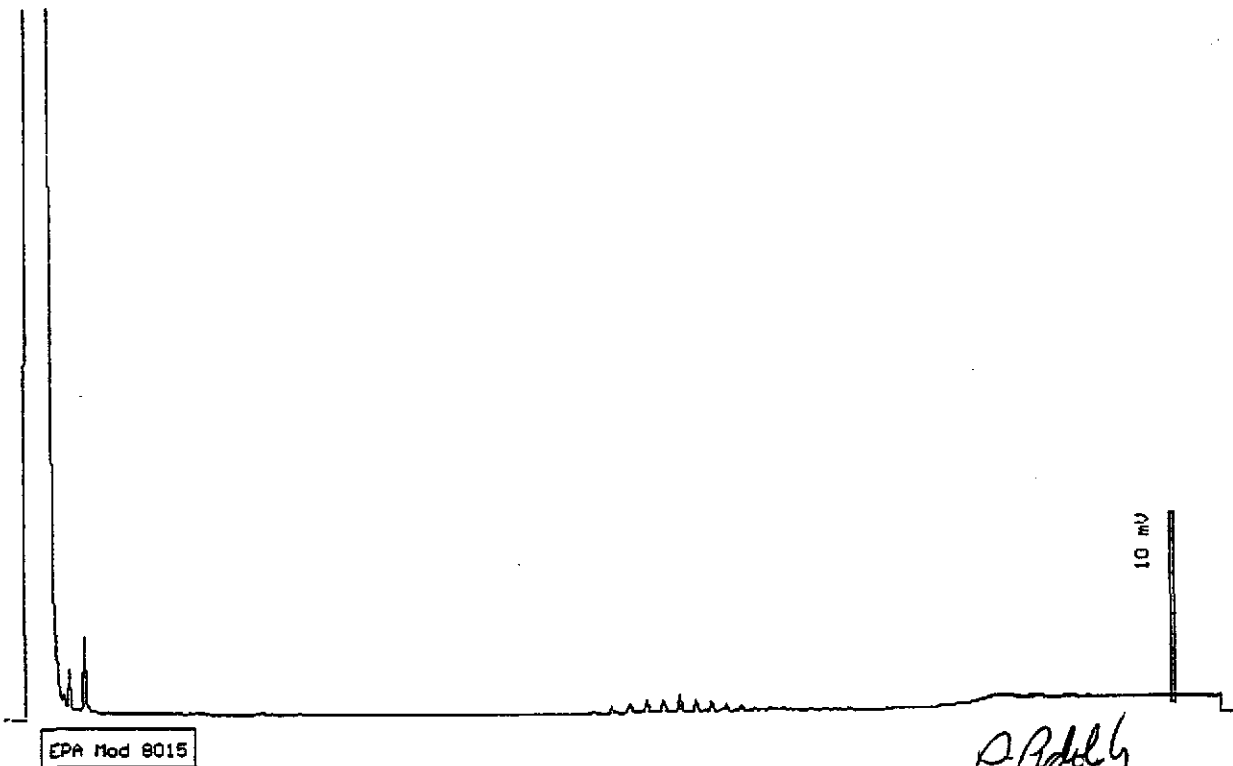
Dilution : 1:1

Matrix : Water

QC Batch : DW960401

Run Log : 8329F

Parameter	(MRL) ug/L	Measured Value ug/L
TPH as Diesel	(50)	<50
TPH as Motor Oil	(100)	<100



Date: 04-02-96 Time: 15:22:54
Column : 0.53mm ID X 15m DB1 (J&M Scientific)

Stewart Podolsky
Stewart Podolsky
Senior Chemist



1046 Olive Drive, Suite 2
Davis, CA 95616

Phone#: 916-753-9500
Fax#: 916-753-6091
Sample Receiving#: 916-757-0920

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: **Jeff Auchterlone** Phone #: **916 372-4700**

Company/Address: **1407 HALYARD, W. SAC.** FAX #:

Project Number: **020700205.030504** P.O.#: Project Name: **Ringsby Terminal**

Project Location: **2225 7th ST Oakland** Sampler Signature:

ANALYSIS REQUEST

14339

TAT

For Lab Use ONLY

12 hour / 24 hour / 48 hour / 1 week / 2 weeks

WEST Lab Number

BTEX (602/8020)	WET. <input checked="" type="checkbox"/>
BTEX/TPH as Gasoline (602/8020/M8015)	TOTAL <input checked="" type="checkbox"/>
TPH as Diesel (M8015)	
TPH as Motor Oil (M8015)	
EPA 601/8010	
EPA 608/8080 - Pesticides	
EPA 609/8080 - PCB's	
EPA 624/8240	
EPA 625/8270	
CAM - 17 Metals	
LEAD(60107421/239.2)	
Cd, Cr, Pb, Zn, Ni	

Sample ID	Sampling		Container (Type/Amount)			Method Preserved				Matrix		
	DATE	TIME	VOA	SLEEVE	1L GLASS	1L PLASTIC	HCl	HNO ₃	ICE	NONE	WATER	SOIL
21 MW3	3/25/96	13:10	3				X			X		
22 MW2		13:40	3						X			
03 MW1		13:30	3						X			
01 E.B.1		13:40	2						X			
05 Trip BLANK		-	1									

Relinquished by: **Jeff Auchterlone** Date: **3/25/96** Time: **1500**
Received by: **Sid Paderna** Date: **3/26/96** Time: **1500**

Relinquished by: **Sid Paderna** Date: **3/26/96** Time: **1603**
Received by: _____

Relinquished by: _____ Date: **03/26/96** Time: **1603**
Received by Laboratory: **John Mast**

Remarks: **TAT: ONE WEEK.**
Date: **03/26/96** Time: **1603**
Initials: **SM**

Bill To: _____

Attachment 4
Monitoring and Sampling Field Notes

0205q1.98.tr(DG1-1)

possible error occurred last quarter as to monitoring data.
Please take your time to get accurate data

COPY

WORK REQUEST FORM

JOB NAME: Ringsby Terminals JOB NUMBER: 02070-0205-030504
SITE ADDRESS: 2225 7th Street START DATE: 4th Week In Sept, Dec, March, & June
Oakland, California DATE PREPARED: 09/19/95
PREPARED FOR: Field Services PREPARED BY: Jaff Auchterlonie

WORK DESCRIPTION: MONITOR AND SAMPLE THREE MONITORING WELLS
SCOPE OF WORK: MONITOR and SAMPLE 3-15 foot deep GROUNDWATER WELLS for four quarters
Projected work dates, the 4th week of: (September, December, March, and June)
Depth to water ranges from 4 to 7 feet BGS

MONITOR GROUNDWATER DEPTH IN THREE WELLS

- 1) Due to tidal influences at the site it is important to measure the groundwater depth in the in the three wells in a reasonably short time frame.
- 2) If present, note name of Port of Oakland (Alisto Eng.) Field Tech Monitoring off-site wells
- 3) Break the sanitary seal in each well and allow groundwater to stabilize.
Measure the depth to groundwater in each well, taking no more than 15 minutes to monitor the depths in all three wells. Measure all depths from TOC

PURGE & COLLECT WATER SAMPLES FROM THE THREE WELLS, MW-1, MW-2, MW-3

- 1) USING HAND BAILER Purge four well volumes from each well
Approximately 25 gallons per well
- 2) Measure & record water volume, pH, conductivity, and temperature of the purged groundwater.
- 3) Store water in one or two 55 gallon drums and place drums as shown on attached site plan.
Label drums as purged groundwater, Ringsby Terminals/GTI, and date.
- 4) Collect (three) 40-ml VOA's and (two) 1-liter Amber bottles from each well. Place on ice.
- 5) QA-QC SAMPLES= 1- trip blank and 1- field bank water samples into (two) 40-ml VOA's
Well Sample Order: first= MW-3, second= MW-2, and third= MW-1

ANALYZE WATER SAMPLES WITH WEST LABORATORY WEST Quote #2123

- 1) Fill out COC and request BTEX, TPH-G, and TPH-D on a one week TAT, transport on ice.
- 2) WEST Lab will pick-up samples in GTI Concord Office. Tell Krissi to call WEST
- 3) WEST Lab Contact: Joel Kiff, (916) 757-4650 FAX 753-6091

CALL Jaff Auchterlonie (916) 372-4700 from the field with quick report site work completed.

EQUIPMENT NEEDED:

Health & Safety Site Plan 9/16" sockets
Two 55 gallon drums, Nine 40 ml VOAs, Six 1 liter amber bottles, one reusable and three disposable bailers
Bailers to purge water from 4" wells and three disposable baile NO PUMPS

GENERAL INFORMATION

Direct all questions to Jaff Auchterlonie or Bruce Beale. (916) 372-4700

Site Contacts: N.W Transport Monty or Dennis (510) 451-6987
Off-Site Contact: Sealand Todd Burson (510) 272-5214
Port Consultant: Alisto Engineering Brady Nagle (510) 295-1650

PROJECT MANAGER, Jaff Auchterlonie AUTHORIZATION



SITE VISITATION REPORT

Project: Ringsby Terminals-Port of Oakla Date: 3-25-96 Project No.: 02070-0205-030504
 Name(s): Nail G. G. III Did you call in? Yes No
 Arrival Time: 10:50 Departure Time: _____ Who did you call? _____
 Weather Notations: SUN CLOUDY RAIN SNOW Temperature: 55 °F

PURPOSE OF VISIT

<u>X</u>	GAUGE WELLS	_____	SURVEY	_____	INSTALL EQUIPMENT
_____	BAIL SEPARATE-PHASE	_____	MONITOR VAPORS	_____	INSTALL SYSTEM
_____	SAMPLE A/S INF EFF	_____	SAMPLE CARBON	_____	_____
_____	SYSTEM CHECK	_____	BATCH FEED	_____	_____
<u>X</u>	SAMPLE WELLS	_____	EQUIPMENT REPAIR	_____	_____

DRUM INVENTORY

<u>2</u>	WATER	_____	CARBON	TOTAL OPEN TOP	_____
_____	SOIL	_____	EMPTY	TOTAL BUNG TOP	<u>2</u>

SAMPLE INFORMATION

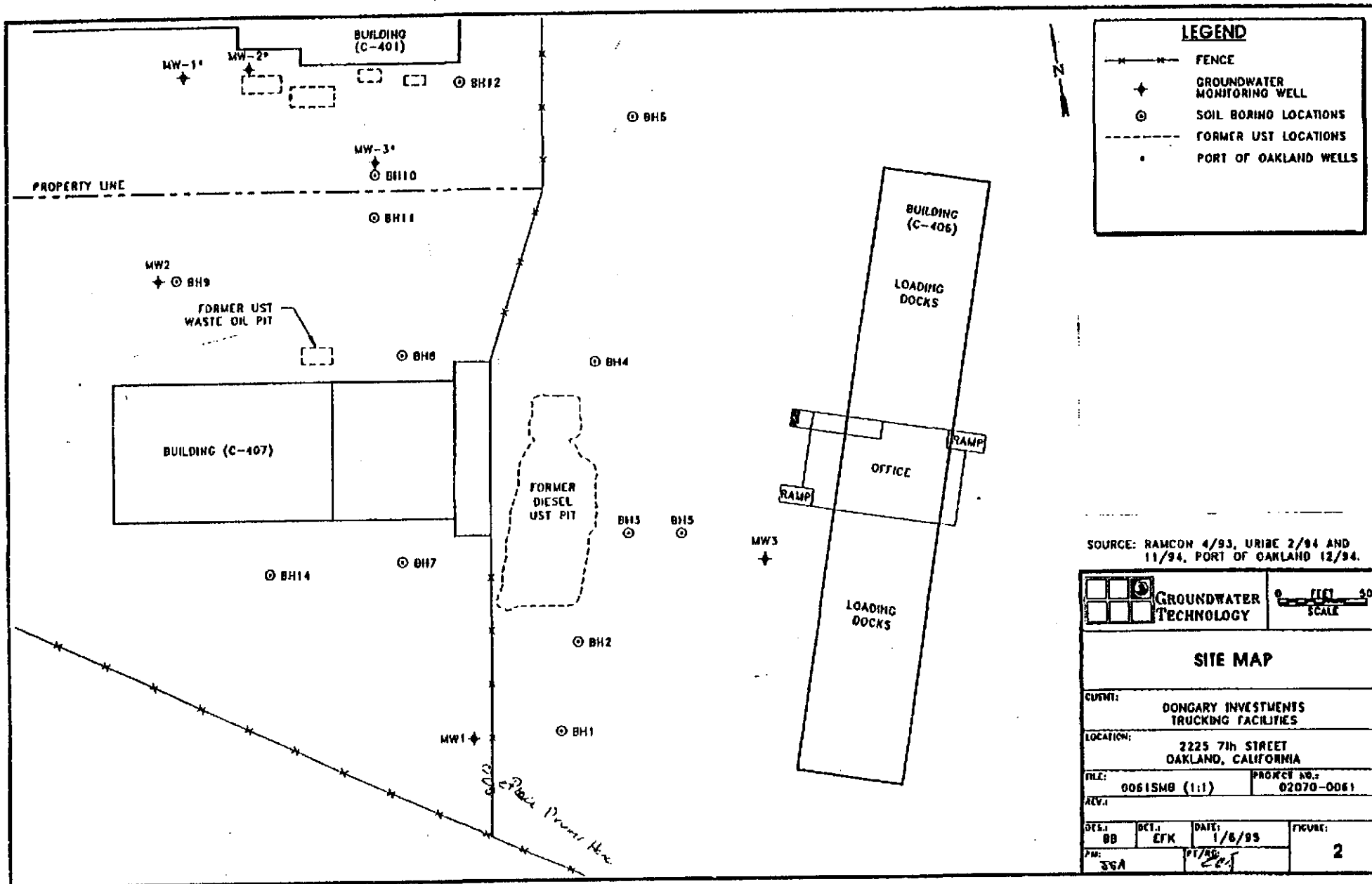
SAMPLED: X YES _____ NO
 _____ WATER _____ SOIL
 _____ AIR _____ OTHER
 PARAMETERS: Yes
 STATION NO: UO #1
 LABORATORY: WEST ENVID
 LAB RELEASE NO: _____

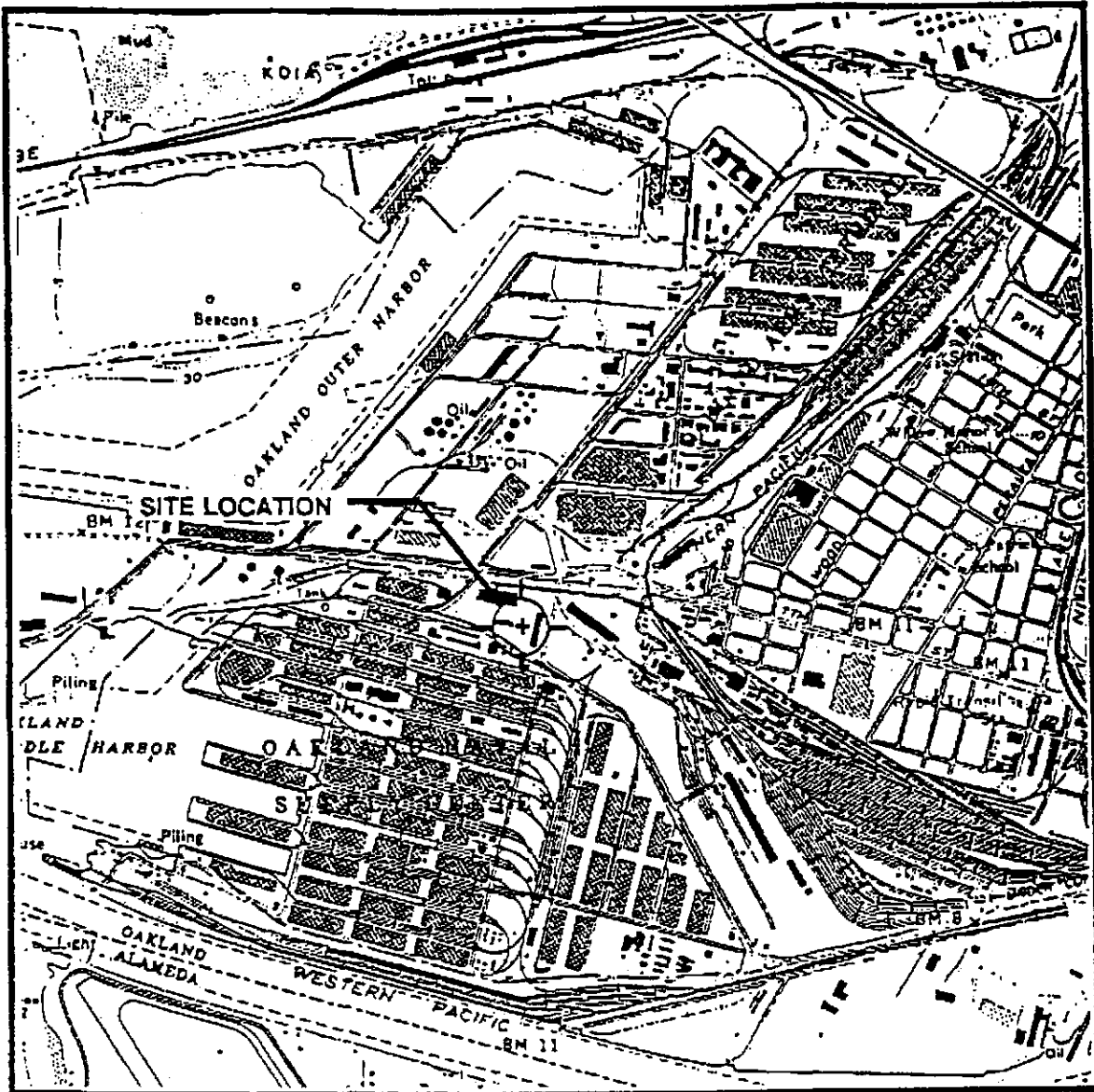
REMEDIATION SYSTEM

FLOW TOTALIZER: _____ AIR VELOCITY: _____
 FLOW RATE: _____ PID INF: _____
 % LEL: _____ PID EFF: _____

DESCRIPTION OF ACTIVITIES ON SITE AND NOTES

Handed site will wait dry and then let them recharge then pump again until all A VOT will be purged everything else went okay

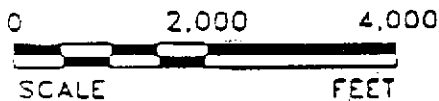




SOURCE: U.S.G.S. TOPOGRAPHIC QUADRANGLE
 OAKLAND WEST
 7.5 MINUTE SERIES
 1955/PHOTOREVISED 1980



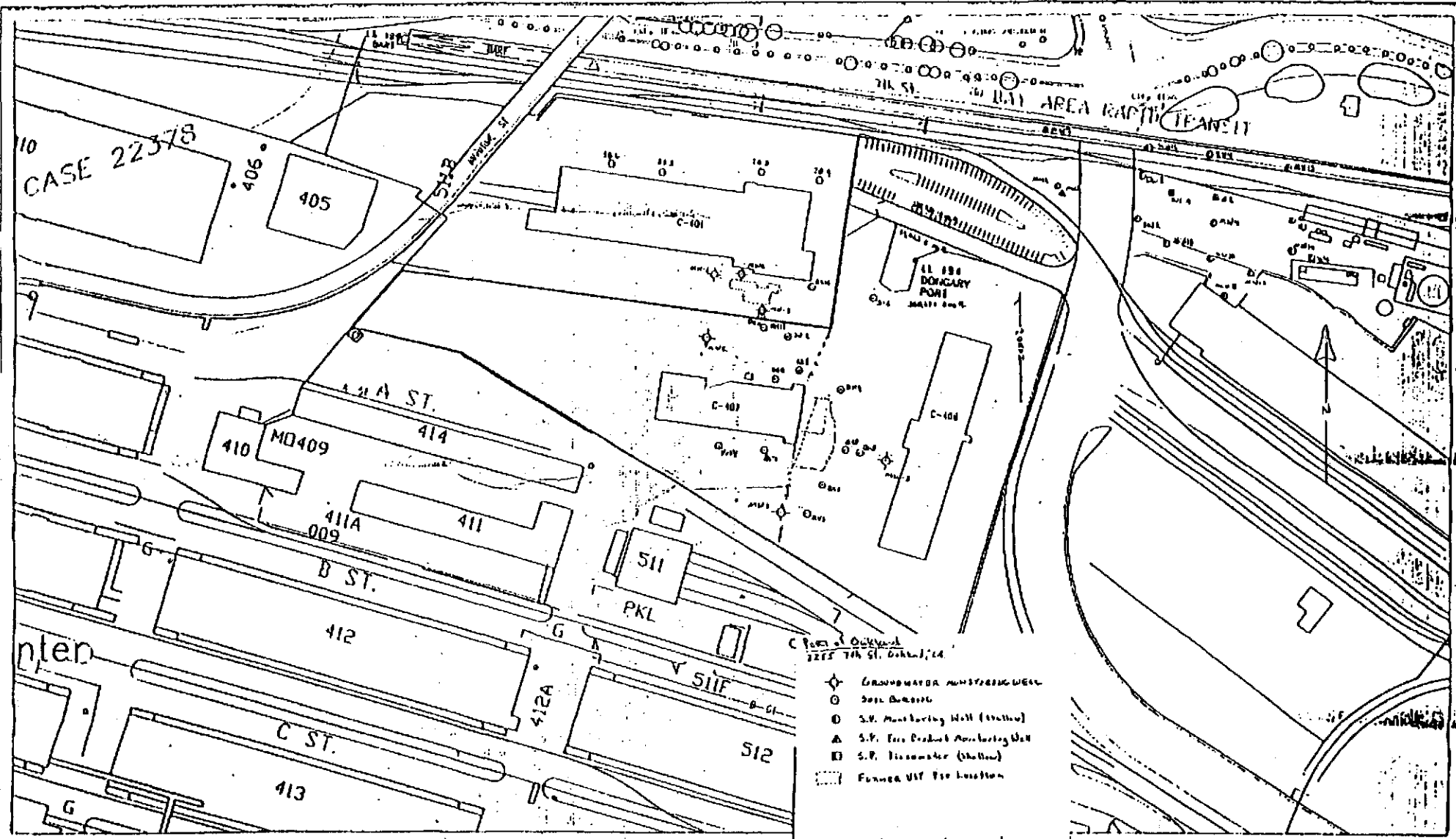
SCALE 1:24,000



GROUNDWATER
 TECHNOLOGY

SITE LOCATION MAP

CLIENT: RINGSBY TERMINALS INC.	FILE: 0061-SL (1:1)	PROJECT NO.: 02070-0061	PM JSA	PE/RC. SA
	REV.	DATE: 4-4-95		FIGURE: 1
LOCATION: 2225 7th STREET OAKLAND, CA.	DES. JA	DET. SP		



PROJECT	NO. 12345	DATE	12/15/97
DRAWN BY	J. SMITH	CHECKED BY	M. JONES
SCALE	AS SHOWN	DATE	12/15/97
<p>PORT OF OAKLAND</p> <p>1225 7th St. Oakland, CA</p>			

PORT OF OAKLAND

1225 7th St. Oakland, CA

NO. 12345

DATE 12/15/97

SCALE AS SHOWN

DATE 12/15/97

PROJECT NO. 12345