PORT OF OAKLAND

August 13, 1996

Mr. Barney Chan
Alameda County Health Care Services Agency
Environmental Protection Division
1131 Harbor Bay Parkway, #250
Alameda, CA 94502-6577

SUBJECT: QUARTERLY GROUNDWATER MONITORING REPORT - FORMER TANK NUMBERS MF-25 AND MF-26, METROPOLITAN OAKLAND INTERNATIONAL AIRPORT, UNITED AIRLINES HANGAR AREA - ECONOMY PARKING LOT SITE, 1100 AIRPORT DRIVE, OAKLAND, CALIFORNIA

Dear Mr. Chan:

Enclosed is a copy of the June 19, 1996 Groundwater Monitoring and Sampling Report - Tanks MF-25 and MF-26, United Airlines Hangar - Economy Parking Lot Site, Metropolitan Oakland International Airport, 1100 Airport Drive, Oakland, California. Monitoring activities were performed by Innovative Technical Solutions, Inc. (ITSI), one of the new "as needed" consultants retained by the Port of Oakland (Port).

The transition process from the Port's former consultant (Alisto Engineering Group) to ITSI caused a delay in collection of groundwater samples. As a result, this current submittal is the first round of monitoring in 1996. Quarterly monitoring is currently back on track.

During this current round of monitoring, free product was present in monitoring wells MW-2 and MW-3. The Port is currently discussing alternative remedial approaches with ITSI and any input you might provide would be greatly appreciated. As part of the remedial action, product and source removal will be performed.

If you have any questions or need additional information, please

530 Water Street ■ Jack London's Waterfront ■ P.O. Box 2064 ■ Oakland, California 94604-2064
Telephone (510) 272-1100 ■ Fax (510) 272-1172 ■ TDD (510) 763-5703 ■ Cable address, PORTOFOAK, Oakland

call me at 272-1118. Thank you for your on-going assistance and support on this project.

Sincerely,

Jeffrey L. Rubin, REA, CPSS
Associate Environmental Scientist
Environmental Health & Safety Compliance

Enclosure

cc: Rich Hiett - Regional Water Quality Control Board, San Francisco Bay Region (w enc)
Neil Werner - EH & SC (w/o enc)
Mark O'Brien - EH & SC (w/o enc)
Jeff Hess - ITSI (w/o enc)

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INNOVATIVE TECHNICAL SOLUTIONS, Inc.

ITSI

August 5, 1996

Project No. 95-113.03

Mr. Jeff Rubin
Port of Oakland
530 Water Street
Oakland, California 94604

Groundwater Monitoring and Sampling Report
Tanks MF25 and MF26, United Airlines Hangar-Economy Parking Lot Site
Metropolitan Oakland International Airport (MOIA)
1100 Airport Drive
Oakland, California
(Work Order No. 028691)

Dear Mr. Rubin:

This Groundwater Monitoring and Sampling Report (Report) has been prepared by Innovative Technical Solutions, Inc. (ITSI) on behalf of the Port of Oakland for groundwater monitoring and sampling performed on June 19, 1996 at the United Airlines Hangar-Economy Parking Lot Site, located at 1100 Airport Drive at the Metropolitan Oakland International Airport (MOIA) in Oakland, California. A site location map is shown on Figure 1.

The scope of work included monitoring and sampling of three groundwater monitoring wells, MW-1, MW-2, and MW-3. The monitoring wells were installed in the vicinity of two former underground storage tanks: a 500-gallon oil/solvent tank (MF-25) and a 3,000-gallon oil/solvent tank (MF-26), removed in March 1992.

SAMPLING OF MONITORING WELLS

The groundwater monitoring and sampling was performed on June 19, 1996. The monitoring wells were initially gauged for depth to water and checked for the presence of separate phase hydrocarbons. Separate phase hydrocarbons were observed in two monitoring wells, MW-2 and MW-3. Depth to water and product thickness measurements were recorded on Monitoring Well Purge and Sample Forms. Copies of the Monitoring Well Purge and Sample Forms are provided in Attachment A.

1330 Broadway, Suite 1625, Oakland, CA 94612 (510) 286-8888 (510) 286-8889 fax

After depth to water measurements were recorded, monitoring well MW-1 with no separate phase hydrocarbons was purged using clean disposable bailer. Approximately three casing volumes of water were removed, or until pH, conductivity, and temperature readings stabilized indicating formation water had entered the monitoring well. Field parameters were recorded on Monitoring Well Purge and Sample Forms.

Groundwater samples from monitoring well MW-1 was collected using the disposable bailer and transferred into laboratory provided containers. Samples were properly labeled with the sample number, date and time of collection, and samplers initials, and were placed on ice in an insulated cooler. Purge water was stored in properly labeled drums onsite.

GROUNDWATER LEVELS IN MONITORING WELLS

Depth to water results are summarized in Table 1. Groundwater elevations were calculated using the measured depth to water and survey elevations of top of casing, and are provided in Table 1. This survey used the Port of Oakland datum, which is 3.2 feet below mean sea level. Figure 2 shows the elevation contours and groundwater flow direction for the site. The groundwater flow direction is to the southeast, with a gradient of approximately 0.002 ft/ft.

LABORATORY ANALYSIS OF GROUNDWATER SAMPLES

The samples were then sent under chain-of-custody procedures to Pace Analytical in Petaluma, California, the current Port of Oakland contract laboratory. The samples were analyzed according to the following schedule:

Monitoring Well	Analyses						
ID	TPHg[1]	BTEX[2]	TPHj[3]	TPHd[4]	TPHmo[5]	VOCs[6]	TDS[7]
MW-1	x	x	x	x	x	x	x
MW-2	x	x	x	x	x	x	x
MW-3	x	x	x	x	x	x	x

[1]TPH as gasoline by California LUFT Method
[2]Benzene, toluene, ethylbenzene, and xylenes by California LUFT Method
[3]TPH as jet fuel by Modified EPA Method 8015
[4]TPH as diesel by Modified EPA Method 8015
[5]TPH as motor oil by Modified EPA Method 8015
[6]VOCs by EPA Method 8010
[7]Total dissolved solids by EPA Method 160.1

The laboratory results for the groundwater samples are summarized in Table 2, and shown in Figure 3. Copies of the laboratory results and chain-of-custodies are provided in Attachment B.

FINDINGS

Results of the June 19, 1996 groundwater monitoring and sampling are summarized below:

- Separate phase hydrocarbons were observed in two monitoring wells, MW-2 and MW-3, at a thickness of 0.05 and 0.01 feet, respectively.
- TPHg, toluene, xylenes and TPHj were reportedly not detected in monitoring well MW-1.
- Benzene and ethylbenzene were reported at concentrations of 0.99 and 1.1 µg/l in monitoring well MW-1.
- TPHd was reported at a concentration of 11,000 µg/l in MW-1.
- TPHmo was reported at a concentration of 820 µg/l in MW-1.
- 1,1-Dichloroethane and trichloroethene were reported in monitoring well MW-1 at concentrations of 5.4 and 1.2 µg/l, respectively.

Please give us a call if you have any questions or comments.

Sincerely,

Jeffrey D. Hess, R.G.
Project Director

Attachments

REGISTERED GEOLOGIST
JEFFREY D. HESS
No. 4776
Exp. 4/97
STATE OF CALIFORNIA

TABLE 1

GROUNDWATER ELEVATIONS
TANKS MF25 AND MF26 (UNITED AIRLINES HANGAR-ECONOMY PARKING LOT SITE)
METROPOLITAN OAKLAND INTERNATIONAL AIRPORT
1100 AIRPORT DRIVE
OAKLAND, CALIFORNIA

Monitoring Well ID	Elevation of Top of Casing (feet)	Date of Monitoring	Measured Depth to Water (feet)	Product Thickness (feet)	Groundwater Elevation (feet)	Note
MW-1	6.91	5/15/92	3.10	-	3.81	1
		8/7/92	3.20	-	3.71	1
		11/24/92	4.04	-	2.87	1
		2/12/93	-	-	-	1
		3/11/93	2.09	-	4.82	1
		5/17/93	3.14	-	3.77	1
		8/3/93	3.15	-	3.76	1
		11/25/93	3.59	-	3.32	1
		3/24/94	3.21	-	3.70	1
		5/9/94	2.99	-	3.92	1
		8/29/94	3.34	-	3.57	1
		9/27/94	3.51	-	3.40	1
		4/25/95	2.38	-	4.53	1
		8/11/95	3.08	-	3.83	1
		11/3/95	3.52	-	3.39	1
		6/19/96	2.93	-	3.98	
MW-2	6.63	4/25/95	2.20	-	4.43	1
		8/11/95	3.11	-	3.84	1
		11/3/95	3.28	-	3.35	1
		6/19/96	2.53	0.05	4.14	
MW-3	7.36	4/25/95	2.78	-	4.58	1
		8/11/95	3.62	-	4.02	1
		11/3/95	4.05	-	3.63	1
		6/19/96	3.17	0.01	4.20	

1 Data from Table 1, Results of Groundwater Sampling Analysis for Petroleum Hydrocarbons, BTEX, and TDS, Port of Oakland, Oakland International Airport, United Airlines Hangar Area-Economy Parking Lot Site, dated February 21, 1996, by Alisto Engineering Group.
2 Groundwater elevation calculated assuming a specific gravity of 0.75 for product.

TABLE 2

SUMMARY OF LABORATORY RESULTS
TANKS MF25 AND MF26 (UNITED AIRLINES HANGAR AREA-ECONOMY PARKING LOT SITE)
METROPOLITAN OAKLAND INTERNATIONAL AIRPORT
1100 AIRPORT DRIVE
OAKLAND, CALIFORNIA

Monitoring Well ID	Date of Sampling	TPHg (µg/l)	B (µg/l)	T (µg/l)	E (µg/l)	X (µg/l)	TPHj (µg/l)	TPHd (µg/l)	TPHmo (µg/l)	TOG (µg/l)	TDS (mg/l)	Note
MW-1	5/15/92	<50	<0.4	<0.3	<0.3	<0.4	-	-	-	<5,000	5,900	1
	8/7/92	<50	<0.4	<0.3	<0.3	<0.4	800	-	-	<5,000	-	1
	11/24/92	<50	<0.4	<0.3	<0.3	<0.4	<50	-	-	<5,000	-	1
	2/12/93	<50	<0.4	<0.3	<0.3	<0.4	-	-	-	<5,000	-	1
	5/17/93	<50	<0.4	<0.3	<0.3	<0.4	-	-	-	<5,000	4,100	1
	8/3/93	<50	<0.5	<0.5	<0.5	<0.5	-	5,200	-	<5,000	7,700	1
	11/25/93	70	<0.5	<0.5	<0.5	0.6	-	-	-	<5,000	3,790	1
	5/9/94	<50	<0.5	<0.5	<0.5	<0.5	-	-	-	<930	9,600	1
	8/29/94	<50	<0.5	<0.5	2.7	<0.5	-	-	-	<1,000	3,900	1
	4/25/95	<50	<5	<5	<5	<5	<50	1,400	610	-	4,000	1
	8/11/95	<50	<0.4	<0.3	<0.3	<0.4	<50	1,900	1,200	-	8,500	1
	11/3/95	<50	0.4	0.4	<0.3	<0.4	<50	4,200	1,800	-	6,600	1
	6/19/96	<50	0.99	<0.5	1.1	<1.0	<500	11,000	820	-	3,040	
MW-2	4/25/95	5,200	340	570	110	580	13,000	<10,000	19,000	-	1,700	1
	8/11/95	5,500	320	680	110	510	7,900	<8,000	20,000	-	2,500	1
	11/3/95	3,800	200	400	27	360	11,000	<11,000	4,200	-	2,000	1
	6/19/96	-[2]	-[2]	-[2]	-[2]	-[2]	-[2]	-[2]	-[2]	-	-[2]	
MW-3	4/25/95	7,200	150	600	100	580	38,000	<40,000	31,000	-	5,600	1
	8/11/95	-[2]	-[2]	-[2]	-[2]	-[2]	-[2]	-[2]	-[2]	-	-[2]	1
	11/3/95	-[2]	-[2]	-[2]	-[2]	-[2]	-[2]	-[2]	-[2]	-	-[2]	1
	6/19/96	-[2]	-[2]	-[2]	-[2]	-[2]	-[2]	-[2]	-[2]	-	-[2]	

1 Data from Table 1, Results of Groundwater Sampling Analysis for Petroleum Hydrocarbons, BTEX, and TDS, Port of Oakland, Oakland International Airport, United Airlines Hangar Area-Economy Parking Lot Site, dated February 21, 1996, by Alisto Engineering Group.
2 Not sampled due to presence of free product in monitoring well.

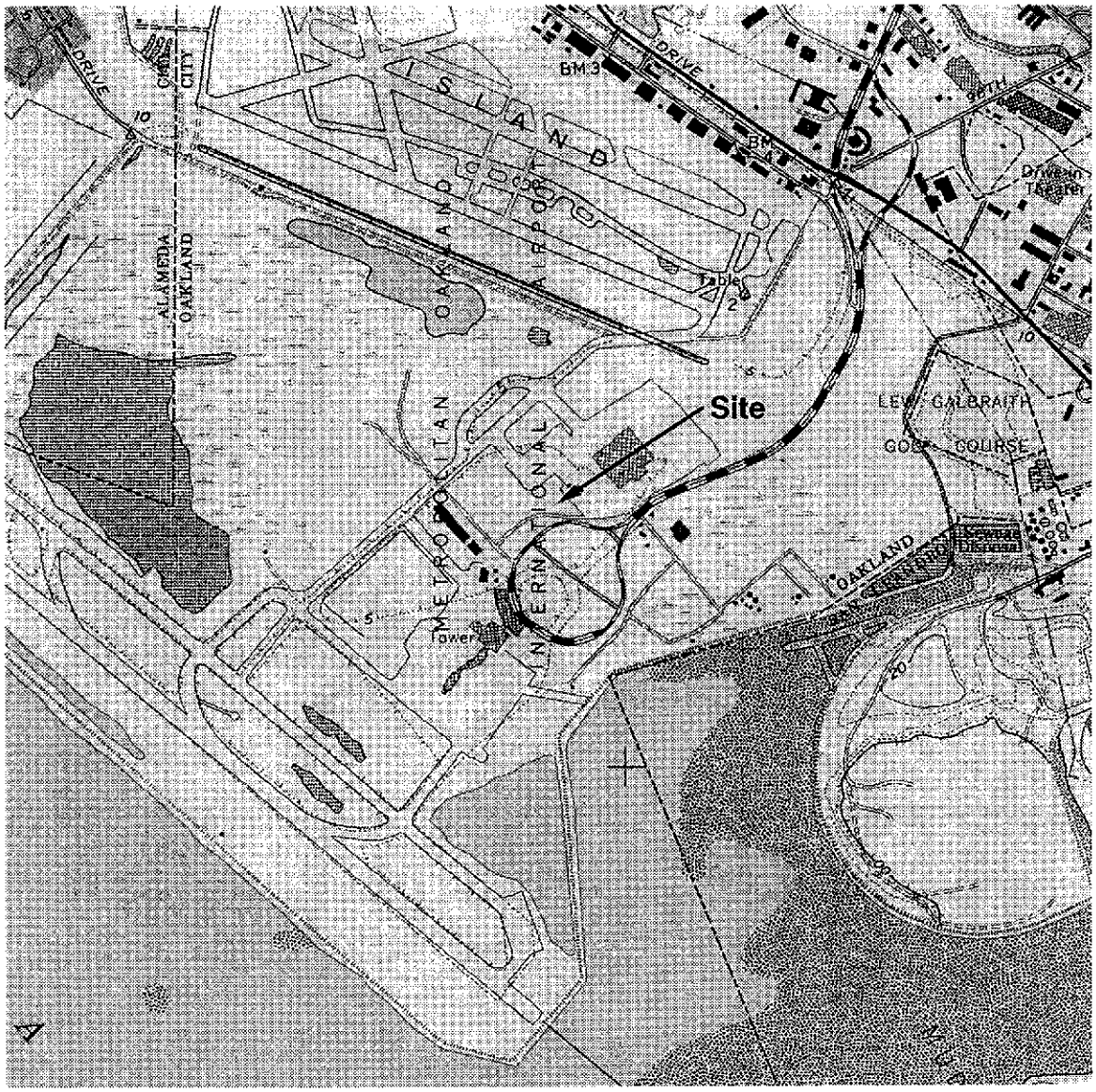
TABLE 3

SUMMARY OF LABORATORY RESULTS FOR VOLATILE ORGANIC COMPOUNDS
TANKS MF25 AND MF26 (UNITED AIRLINES HANGAR AREA-ECONOMY PARKING LOT SITE)
METROPOLITAN OAKLAND INTERNATIONAL AIRPORT
1100 AIRPORT DRIVE
OAKLAND, CALIFORNIA

Monitoring Well ID	Date of Sampling	Acetone (µg/l)	2-Butanone (µg/l)	Chloroform (µg/l)	1,1-DCA (µg/l)	1,2-DCE (µg/l)	4-Methyl-2-pentanone (µg/l)	1,1,1-TCA (µg/l)	TCE (µg/l)	PCE (µg/l)	Note
MW-1	11/24/92	ND	ND	ND	ND	ND	ND	ND	ND	ND	1
	2/12/93	ND	ND	ND	ND	ND	ND	ND	ND	ND	1
	5/17/93	ND	ND	ND	ND	ND	ND	ND	ND	ND	1
	8/3/93	ND	ND	ND	ND	ND	ND	ND	ND	ND	1
	11/25/93	ND	ND	ND	ND	6	ND	ND	ND	ND	1
	5/9/94	ND	ND	ND	ND	ND	ND	ND	ND	5.5	1
	9/27/94	ND	ND	ND	ND	ND	ND	ND	ND	ND	1
	4/25/95	<20	<20	<5	<5	<5	<20	-	-	<5	1
	8/11/95	-	-	<0.5	4.3	13	-	2	1.8	0.6	1
	11/3/95	-	-	<0.5	1.3	3.7	-	0.6	0.5	<0.5	1
	6/19/96	-	-	<0.5	5.4	<0.5	-	<0.5	1.2	<0.5	
MW-2	4/25/95	<200	200	<50	50	<50	<200	-	-	<50	1
	8/11/95	-	-	5	79	26	-	20	4	9	1
	11/3/95	-	-	<0.5	73	24	-	4.8	6.7	6.8	1
	6/19/96	-[2]	-[2]	-[2]	-[2]	-[2]	-[2]	-[2]	-[2]	-[2]	
MW-3	4/25/95	300	300	-	30	<30	200	-	-	<30	1
	8/11/95	-[2]	-[2]	-[2]	-[2]	-[2]	-[2]	-[2]	-[2]	-[2]	1
	11/3/95	-[2]	-[2]	-[2]	-[2]	-[2]	-[2]	-[2]	-[2]	-[2]	1
	6/19/96	-[2]	-[2]	-[2]	-[2]	-[2]	-[2]	-[2]	-[2]	-[2]	

1 Data from Table 1, Results of Groundwater Sampling Analysis for Petroleum Hydrocarbons, BTEX, and TDS, Port of Oakland, Oakland International Airport, United Airlines Hangar Area-Economy Parking Lot Site, dated February 21, 1996, by Alisto Engineering Group.
2 Not sampled due to presence of free product in monitoring well.

95-113.03/F.1-SiteLoc



0 1,000 Feet 2,000 Feet

Approximate Scale

FIGURE 1

SITE LOCATION

United Airlines Hangar-Economy Parking Lot Site
Oakland International Airport
1100 Airport Drive

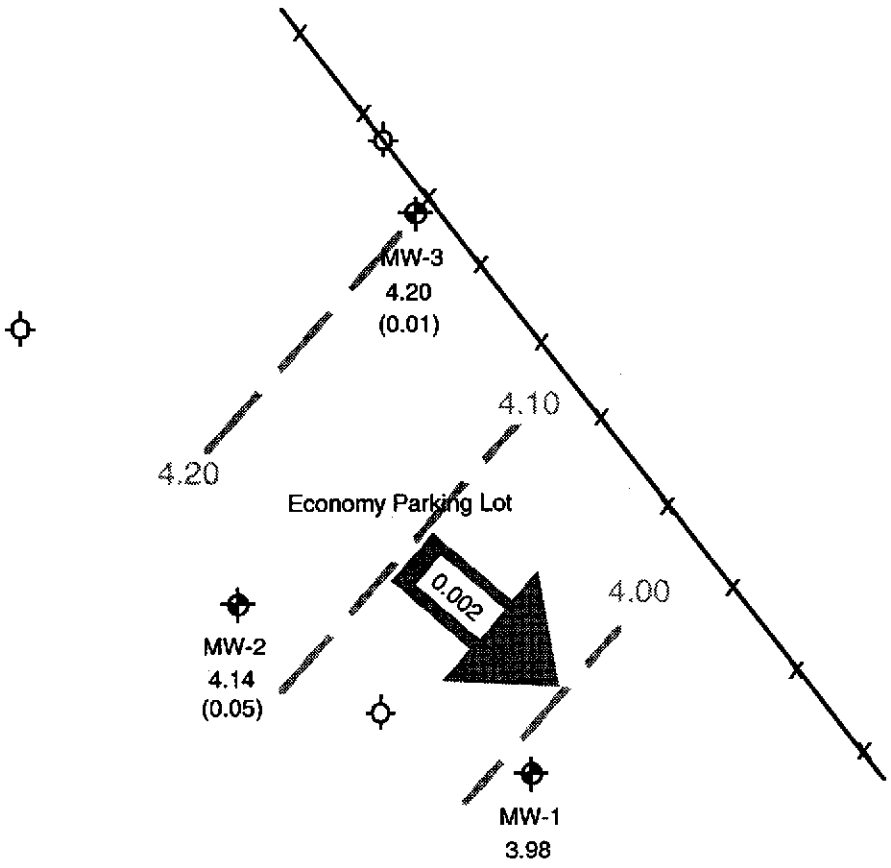
PORT OF OAKLAND

ITSI

INNOVATIVE TECHNICAL SOLUTIONS, INC.

Source: San Leandro, California 7.5-minute U.S.G.S. Quadrangle, dated 1959, and photorevised 1980.

95-113.03/F.2-GWElev



0 20 Feet 40 Feet

Approximate Scale

Legend

Monitoring Well

4.14 Groundwater Elevation on 6/19/96

(0.05) Product Thickness on 6/19/96

Groundwater Elevation Contour Lines

Groundwater Flow Direction and Gradient

Source: Adapted from Figure 2, Potentiometric Groundwater Elevation Contour Map, November 3, 1995, Alisto Engineering Group.

FIGURE 2

GROUNDWATER ELEVATIONS AND FLOW DIRECTION FOR JUNE 19, 1996

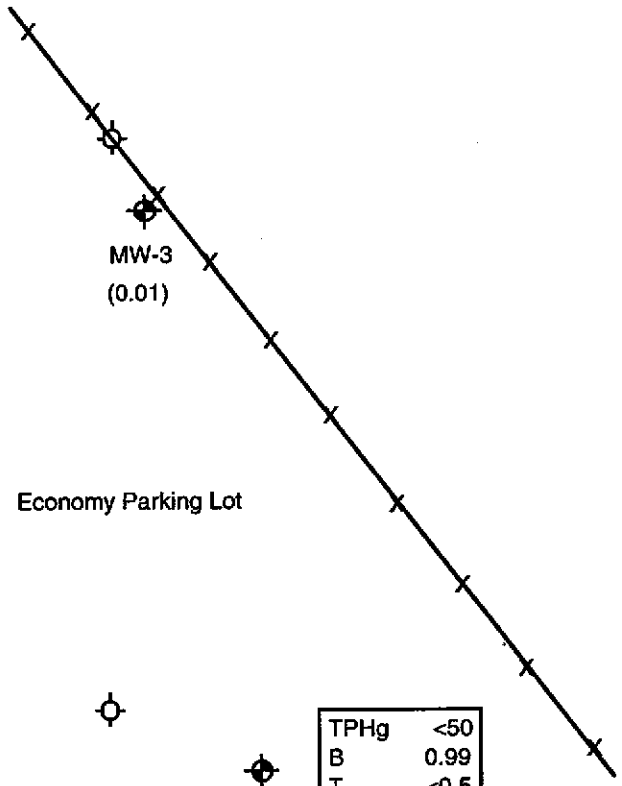
United Airlines Hangar-Economy Parking Lot Site
Oakland International Airport
1100 Airport Drive

PORT OF OAKLAND

ITSI

INNOVATIVE TECHNICAL SOLUTIONS, INC.

95-113.03/F.3-Conc



TPHg	<50
B	0.99
T	<0.5
E	1.1
X	<1.0
TPHj	<500
TPHd	11,000
TPHmo	820
1,1-DCA	5.4
TCE	1.2

Legend

Monitoring Well

0.05 Product Thickness on 6/19/96

Groundwater Concentrations in µg/l on 6/19/96

TPHg	<50
B	0.99
T	<0.5
E	1.1
X	<1.0
TPHj	<500
TPHd	11,000
TPHmo	820
1,1-DCA	5.4
TCE	1.2

TPHg - TPH as gasoline
B - Benzene
T - Toluene
E - Ethylbenzene
X - Total xylenes
TPHj - TPH as jet fuel
TPHd - TPH as diesel
TPHmo - TPH as motor oil
1,1-DCA - 1,1-Dichloroethane
TCE - Trichloroethene

0 20 Feet 40 Feet

Approximate Scale

Source: Adapted from Figure 2, Potentiometric Groundwater Elevation Contour Map, November 3, 1995, Alisto Engineering Group.

FIGURE 3
CONCENTRATIONS OF PETROLEUM HYDROCARBONS AND VOCs IN GROUNDWATER ON JUNE 19, 1996

United Airlines Hangar-Economy Parking Lot Site
Oakland International Airport
1100 Airport Drive

ITSI **PORT OF OAKLAND**

INNOVATIVE TECHNICAL SOLUTIONS, INC.

MONITORING WELL
PURGE AND SAMPLE FORM

PROJECT NAME: Port of Oakland - Airport (MF25026) PROJECT NO.: 95-113.01

WELL NO.: MW 1 TESTED BY: J. Schollard DATE: 6/18/96

Measuring Point Description: red notch, top of casing Static Water Level (ft.): 2.93'

Total Well Depth (ft.): 11.74' Sample Method: 2" disposable teflon bailer

Water Level Measurement Method: Solinist Interface probe Time Sampled: 1900 (QC1 @ 1910)

Purge Method: 2" teflon disposable bailer Sample Depth (ft.): ~8.0 - 11.5'

Time Start Purge: 1838 Field Filtering: N.A.

Time End Purge: 1850 Field Preservation: H_2O Ice

Comments: cut lock & replaced with 0895 lock; water over top of casing in well box → bailed off. QC-1 collected @ 1910.

Well Volume Calculation (fill in before purging)	Total Depth (ft)	-	Depth to Water (ft)	=	Water Column (ft)	x	Multiplier for Casing Diameter (in) 2	4	6	=	Casing Volume (gal)
	11.74	-	2.93	=	8.81	x	0.16	0.64	1.44	=	1.41 (3 vols = 4.23)

Time	1840	1846	1850				
Volume Purged (gals)	1.5	1.5	1.5				
Cumulative Volume Purged (gals)	1.5	3.0	4.5				
Cumulative Number of Casing Volumes	1.06	2.12	3.18				
Purge Rate (gpm)	0.75	0.25	0.38				
Temperature (F°) or (C°)	71.0	69.8	69.4				
pH	7.06	7.19	7.24				
Specific Conductivity (µmhos/cm) X 1000	7.07	9.94	10.43				
Dissolved Oxygen (mg/L)	NA	→	→				
Turbidity/Color (NTU)	cloudy/ olive	cloudy Grey	V. cloudy, silty grey				
Odor	None	None	None				
Dewatered?	No	almost	yes				

ITSI

CHECKED BY: _____ DATE: _____

ITSI

MONITORING WELL
PURGE AND SAMPLE FORM

PROJECT NAME: Port of Oakland - Airport (MF 25026) PROJECT NO.: 95-113.01

WELL NO.: MW2 TESTED BY: J. Schollard DATE: 6/19/96

Measuring Point Description: red notch, T.o.c. Static Water Level (ft.): DTP 2.48' DTW 2.53'

Total Well Depth (ft.): N.M. Sample Method: Not Sampled

Water Level Measurement Method: Solinist Interface Probe Time Sampled: "

Purge Method: N.A. Sample Depth (ft.): "

Time Start Purge: " Field Filtering: N.A.

Time End Purge: " Field Preservation: N.A.

Comments: Well not purged or sampled due to presence of separate phase hydrocarbons. Cut former lock & replaced with 0895 lock. Bentonite clay (cont'd) below

Well Volume Calculation (fill in before purging)	Total Depth (ft)	-	Depth to Water (ft)	=	Water Column (ft)	x	Multiplier for Casing Diameter (in)			=	Casing Volume (gal)
							2	4	6		
							0.16	0.64	1.44		

Time							
Volume Purged (gals)							
Cumulative Volume Purged (gals)							
Cumulative Number of Casing Volumes							
Purge Rate (gpm)			N.A.				
Temperature (F°) or (C°)							
pH							
Specific Conductivity (µmhos/cm)							
Dissolved Oxygen (mg/L)							
Turbidity/Color (NTU)							
Odor	Strong Petroleum odor upon opening well						
Dewatered?							

J. Schollard ITSI

CHECKED BY: DATE:

hydrated & covered top of casing → dug clay out to T.o.c.

ITSI

MONITORING WELL
PURGE AND SAMPLE FORM

PROJECT NAME: Port of Oakland - Airport (Caltrans) PROJECT NO.: 95-113.01

WELL NO.: MW3 TESTED BY: J. Schollard DATE: 6/19/96

Measuring Point Description: rednotch, t.o.c. Static Water Level (ft.): DTP 3.16 - DTB 3.17'

Total Well Depth (ft.): N.M. Sample Method: Not Sampled

Water Level Measurement Method: Solinist Interface probe Time Sampled: "

Purge Method: N.A. Sample Depth (ft.): "

Time Start Purge: " Field Filtering: N.A.

Time End Purge: " Field Preservation: N.A.

Comments: Cut former lock & replaced with 0895 lock. Well not purged or sampled due to presence of free product. Bentonite clay covered top of casing → dug out to T.O.C.

Well Volume Calculation (fill in before purging)	Total Depth (ft)	-	Depth to Water (ft)	=	Water Column (ft)	x	Multiplier for Casing Diameter (in)			=	Casing Volume (gal)
							(2)	4	6		
							0.16	0.64	1.44		

Time							
Volume Purged (gals)							
Cumulative Volume Purged (gals)							
Cumulative Number of Casing Volumes							
Purge Rate (gpm)				N.A.			
Temperature (F°) or (C°)							
pH							
Specific Conductivity (µmhos/cm)							
Dissolved Oxygen (mg/L)							
Turbidity/Color (NTU)							
Odor	slight petroleum odor from well.						
Dewatered?							

J. Schollard / ITSI

CHECKED BY: _____ DATE: _____

Pace Analytical

Pace Analytical Services, Inc.
1455 McDowell Blvd. North, Suite D
Petaluma, CA 94954
Tel: 707-792-1865
Fax: 707-792-0342

July 02, 1996

Mr. Jeff Hess
Innovative Technical Solutions
2855 Mitchell Drive, Suite 118
Walnut Creek, CA 94598

RE: PACE Project Number: 705935
Client Project ID: Port of Oakland/MF 25 & 26

Dear Mr. Hess:

Enclosed are the results of analyses for sample(s) received on June 20, 1996.

Analysis of water samples for purgeable halogenated volatile organic compounds was performed according to USEPA Method 8010A (Test Methods for Evaluating Solid Waste--SW846, 3rd Ed., Revision 1, 1992).
QC batch 15252:
There were no recoveries of 2-chlorethyl vinyl ether in the MS/MSD analyses. This compound readily breaks down in the presence of HCl. The sample voas are preserved in HCl. The recoveries for 2-chlorethyl vinyl ether in the associated LCS/LCSD analyses were inside QC limits.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

David A. Pichette
Project Manager

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1455 McDowell Blvd. North, Suite D
Petaluma, CA 94954
Tel: 707-792-1865
Fax: 707-792-0342

Pace Analytical

DATE: 07/01/96
PAGE: 1

Innovative Technical Solutions
2855 Mitchell Drive, Suite 118
Walnut Creek, CA 94598

PACE Project Number: 705935
Client Project ID: Port of Oakland/MF 25 & 26

Attn: Mr. Jeff Hess
Phone: 714-955-1390

PACE Sample No: 70639141 Date Collected: 06/19/96
Client Sample ID: TRIP BLANKS Date Received: 06/20/96

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
GC -- Volatiles								
Volatile Halogenated Organics								
Chloromethane	ND	ug/L	0.5	06/24/96	EPA 8010	ads	74-87-3	
Bromomethane	ND	ug/L	0.5	06/24/96	EPA 8010	ads	74-83-9	
Vinyl Chloride	ND	ug/L	0.5	06/24/96	EPA 8010	ads	75-01-4	
Chloroethane	ND	ug/L	0.5	06/24/96	EPA 8010	ads	75-00-3	
Methylene Chloride	1.1	ug/L	0.5	06/24/96	EPA 8010	ads	75-09-2	
Trichlorofluoromethane	1.1	ug/L	0.5	06/24/96	EPA 8010	ads	75-69-4	
1,1-Dichloroethene	ND	ug/L	0.5	06/24/96	EPA 8010	ads	75-35-4	
1,1-Dichloroethane	ND	ug/L	0.5	06/24/96	EPA 8010	ads	75-34-3	
trans-1,2-Dichloroethene	ND	ug/L	0.5	06/24/96	EPA 8010	ads	156-60-5	
Chloroform	ND	ug/L	0.5	06/24/96	EPA 8010	ads	67-66-3	
1,2-Dichloroethane	ND	ug/L	0.5	06/24/96	EPA 8010	ads	107-06-2	
1,1,1-Trichloroethane	ND	ug/L	0.5	06/24/96	EPA 8010	ads	71-55-6	
Carbon Tetrachloride	ND	ug/L	0.5	06/24/96	EPA 8010	ads	56-23-5	
Bromodichloromethane	ND	ug/L	0.5	06/24/96	EPA 8010	ads	75-27-4	
1,2-Dichloropropane	ND	ug/L	0.5	06/24/96	EPA 8010	ads	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.5	06/24/96	EPA 8010	ads	10061-01-5	
Trichloroethene	ND	ug/L	0.5	06/24/96	EPA 8010	ads	79-01-6	
Dibromochloromethane	ND	ug/L	0.5	06/24/96	EPA 8010	ads	124-48-1	
1,1,2-Trichloroethane	ND	ug/L	0.5	06/24/96	EPA 8010	ads	79-00-5	
trans-1,3-Dichloropropene	ND	ug/L	0.5	06/24/96	EPA 8010	ads	10061-02-6	
Bromoform	ND	ug/L	0.5	06/24/96	EPA 8010	ads	75-25-2	
Tetrachloroethene	ND	ug/L	0.5	06/24/96	EPA 8010	ads	127-18-4	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.5	06/24/96	EPA 8010	ads	79-34-5	
Chlorobenzene	ND	ug/L	0.5	06/24/96	EPA 8010	ads	108-90-7	
2-Chloroethyl Vinyl Ether	ND	ug/L	0.5	06/24/96	EPA 8010	ads	110-75-8	
1,2-Dichlorobenzene	ND	ug/L	0.5	06/24/96	EPA 8010	ads	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.5	06/24/96	EPA 8010	ads	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.5	06/24/96	EPA 8010	ads	106-46-7	
Bromochloromethane (S)	114	%		06/24/96	EPA 8010	ads	74-97-5	

REPORT OF LABORATORY ANALYSIS

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Pace Analytical

PACE Project Number: 705935
Client Project ID: Port of Oakland/MF 25 & 26

PACE Sample No: 70639141 Date Collected: 06/19/96
Client Sample ID: TRIP BLANKS Date Received: 06/20/96

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
1,4-Dichlorobutane (S)	109	%		06/24/96	EPA 8010	ads	110-56-5	
GAS/BTEX by CA LUFT, Water								
Gasoline	ND	ug/L	50	06/20/96	CA LUFT	AMH		
Benzene	ND	ug/L	0.5	06/20/96	CA LUFT	AMH	71-43-2	
Toluene	ND	ug/L	0.5	06/20/96	CA LUFT	AMH	108-88-3	
Ethylbenzene	ND	ug/L	0.5	06/20/96	CA LUFT	AMH	100-41-4	
Xylene (Total)	ND	ug/L	1	06/20/96	CA LUFT	AMH	1330-20-7	
a,a,a-Trifluorotoluene (S)	95	%		06/20/96	CA LUFT	AMH	2164-17-2	
4-Bromofluorobenzene (S)	93	%		06/20/96	CA LUFT	AMH	460-00-4	

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Pace Analytical

PACE Project Number: 705935
Client Project ID: Port of Oakland/MF 25 & 26

PACE Sample No: 70639257 Date Collected: 06/19/96
Client Sample ID: MW-1 Date Received: 06/20/96

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
Wet Chemistry								
Total Dissolved Solids								
Total Dissolved Solids	3040	mg/L	5	06/24/96	EPA 160.1	LMD		
GC -- Volatiles								
Volatile Halogenated Organics								
Chloromethane	ND	ug/L	0.5	06/25/96	EPA 8010	ads	74-87-3	
Bromomethane	ND	ug/L	0.5	06/25/96	EPA 8010	ads	74-83-9	
Vinyl Chloride	ND	ug/L	0.5	06/25/96	EPA 8010	ads	75-01-4	
Chloroethane	ND	ug/L	0.5	06/25/96	EPA 8010	ads	75-00-3	
Methylene Chloride	ND	ug/L	0.5	06/25/96	EPA 8010	ads	75-09-2	
Trichlorofluoromethane	ND	ug/L	0.5	06/25/96	EPA 8010	ads	75-69-4	
1,1-Dichloroethene	ND	ug/L	0.5	06/25/96	EPA 8010	ads	75-35-4	
1,1-Dichloroethane	5.4	ug/L	0.5	06/25/96	EPA 8010	ads	75-34-3	
trans-1,2-Dichloroethene	ND	ug/L	0.5	06/25/96	EPA 8010	ads	156-60-5	
Chloroform	ND	ug/L	0.5	06/25/96	EPA 8010	ads	67-66-3	
1,2-Dichloroethane	ND	ug/L	0.5	06/25/96	EPA 8010	ads	107-06-2	
1,1,1-Trichloroethane	ND	ug/L	0.5	06/25/96	EPA 8010	ads	71-55-6	
Carbon Tetrachloride	ND	ug/L	0.5	06/25/96	EPA 8010	ads	56-23-5	
Bromodichloromethane	ND	ug/L	0.5	06/25/96	EPA 8010	ads	75-27-4	
1,2-Dichloropropane	ND	ug/L	0.5	06/25/96	EPA 8010	ads	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.5	06/25/96	EPA 8010	ads	10061-01-5	
Trichloroethene	1.2	ug/L	0.5	06/25/96	EPA 8010	ads	79-01-6	
Dibromochloromethane	ND	ug/L	0.5	06/25/96	EPA 8010	ads	124-48-1	
1,1,2-Trichloroethane	ND	ug/L	0.5	06/25/96	EPA 8010	ads	79-00-5	
trans-1,3-Dichloropropene	ND	ug/L	0.5	06/25/96	EPA 8010	ads	10061-02-6	
Bromoform	ND	ug/L	0.5	06/25/96	EPA 8010	ads	75-25-2	
Tetrachloroethene	ND	ug/L	0.5	06/25/96	EPA 8010	ads	127-18-4	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.5	06/25/96	EPA 8010	ads	79-34-5	
Chlorobenzene	ND	ug/L	0.5	06/25/96	EPA 8010	ads	108-90-7	
2-Chloroethyl Vinyl Ether	ND	ug/L	0.5	06/25/96	EPA 8010	ads	110-75-8	
1,2-Dichlorobenzene	ND	ug/L	0.5	06/25/96	EPA 8010	ads	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.5	06/25/96	EPA 8010	ads	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.5	06/25/96	EPA 8010	ads	106-46-7	
Bromochloromethane (S)	113	%		06/25/96	EPA 8010	ads	74-97-5	
1,4-Dichlorobutane (S)	106	%		06/25/96	EPA 8010	ads	110-56-5	
GAS/BTEX by CA LUFT, Water								
Gasoline	ND	ug/L	50	06/20/96	CA LUFT	AMH		
Benzene	0.99	ug/L	0.5	06/20/96	CA LUFT	AMH	71-43-2	
Toluene	ND	ug/L	0.5	06/20/96	CA LUFT	AMH	108-88-3	
Ethylbenzene	1.1	ug/L	0.5	06/20/96	CA LUFT	AMH	100-41-4	

REPORT OF LABORATORY ANALYSIS

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Pace Analytical

PACE Project Number: 705935
Client Project ID: Port of Oakland/MF 25 & 26

PACE Sample No: 70639257 Date Collected: 06/19/96
Client Sample ID: MW-1 Date Received: 06/20/96

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
Xylene (Total)	ND	ug/L	1	06/20/96	CA LUFT	AMH	1330-20-7	
a,a,a-Trifluorotoluene (S)	99	%		06/20/96	CA LUFT	AMH	2164-17-2	
4-Bromofluorobenzene (S)	100	%		06/20/96	CA LUFT	AMH	460-00-4	
GC								
TPH in Water by 8015 Modified								
Diesel Fuel	11	mg/L	0.05	06/27/96	TPH by EPA 8015M	DLL		1
Motor Oil	0.82	mg/L	0.25	06/27/96	TPH by EPA 8015M	DLL		
JP4	ND	mg/L	0.5	06/27/96	TPH by EPA 8015M	DLL	.....	
n-Pentacosane (S)	105	%		06/27/96	TPH by EPA 8015M	DLL	629-99-2	
Date Extracted				06/21/96				

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Pace Analytical

PACE Project Number: 705935
Client Project ID: Port of Oakland/MF 25 & 26

PACE Sample No: 70639265 Date Collected: 06/19/96
Client Sample ID: QC-1 Date Received: 06/20/96

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
GC -- Volatiles								
Volatile Halogenated Organics								
Chloromethane	ND	ug/L	0.5	06/25/96	EPA 8010	ads	74-87-3	
Bromomethane	ND	ug/L	0.5	06/25/96	EPA 8010	ads	74-83-9	
Vinyl Chloride	ND	ug/L	0.5	06/25/96	EPA 8010	ads	75-01-4	
Chloroethane	ND	ug/L	0.5	06/25/96	EPA 8010	ads	75-00-3	
Methylene Chloride	ND	ug/L	0.5	06/25/96	EPA 8010	ads	75-09-2	
Trichlorofluoromethane	ND	ug/L	0.5	06/25/96	EPA 8010	ads	75-69-4	
1,1-Dichloroethene	ND	ug/L	0.5	06/25/96	EPA 8010	ads	75-35-4	
1,1-Dichloroethane	3.2	ug/L	0.5	06/25/96	EPA 8010	ads	75-34-3	
trans-1,2-Dichloroethene	ND	ug/L	0.5	06/25/96	EPA 8010	ads	156-60-5	
Chloroform	ND	ug/L	0.5	06/25/96	EPA 8010	ads	67-66-3	
1,2-Dichloroethane	ND	ug/L	0.5	06/25/96	EPA 8010	ads	107-06-2	
1,1,1-Trichloroethane	ND	ug/L	0.5	06/25/96	EPA 8010	ads	71-55-6	
Carbon Tetrachloride	ND	ug/L	0.5	06/25/96	EPA 8010	ads	56-23-5	
Bromodichloromethane	ND	ug/L	0.5	06/25/96	EPA 8010	ads	75-27-4	
1,2-Dichloropropane	ND	ug/L	0.5	06/25/96	EPA 8010	ads	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	0.5	06/25/96	EPA 8010	ads	10061-01-5	
Trichloroethene	0.7	ug/L	0.5	06/25/96	EPA 8010	ads	79-01-6	
Dibromochloromethane	ND	ug/L	0.5	06/25/96	EPA 8010	ads	124-48-1	
1,1,2-Trichloroethane	ND	ug/L	0.5	06/25/96	EPA 8010	ads	79-00-5	
trans-1,3-Dichloropropene	ND	ug/L	0.5	06/25/96	EPA 8010	ads	10061-02-6	
Bromoform	ND	ug/L	0.5	06/25/96	EPA 8010	ads	75-25-2	
Tetrachloroethene	ND	ug/L	0.5	06/25/96	EPA 8010	ads	127-18-4	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.5	06/25/96	EPA 8010	ads	79-34-5	
Chlorobenzene	ND	ug/L	0.5	06/25/96	EPA 8010	ads	108-90-7	
2-Chloroethyl Vinyl Ether	ND	ug/L	0.5	06/25/96	EPA 8010	ads	110-75-8	
1,2-Dichlorobenzene	ND	ug/L	0.5	06/25/96	EPA 8010	ads	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.5	06/25/96	EPA 8010	ads	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.5	06/25/96	EPA 8010	ads	106-46-7	
Bromochloromethane (S)	115	%		06/25/96	EPA 8010	ads	74-97-5	
1,4-Dichlorobutane (S)	111	%		06/25/96	EPA 8010	ads	110-56-5	
GAS/BTEX by CA LUFT, Water								
Gasoline	ND	ug/L	50	06/20/96	CA LUFT	AMH		
Benzene	ND	ug/L	0.5	06/20/96	CA LUFT	AMH	71-43-2	
Toluene	ND	ug/L	0.5	06/20/96	CA LUFT	AMH	108-88-3	
Ethylbenzene	ND	ug/L	0.5	06/20/96	CA LUFT	AMH	100-41-4	
Xylene (Total)	ND	ug/L	1	06/20/96	CA LUFT	AMH	1330-20-7	
a,a,a-Trifluorotoluene (S)	96	%		06/20/96	CA LUFT	AMH	2164-17-2	
4-Bromofluorobenzene (S)	98	%		06/20/96	CA LUFT	AMH	460-00-4	

REPORT OF LABORATORY ANALYSIS

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Pace Analytical

PACE Project Number: 705935
Client Project ID: Port of Oakland/MF 25 & 26

PARAMETER FOOTNOTES

ND	Not Detected
NC	Not Calculable
PRL	PACE Reporting Limit
(S)	Surrogate
[1]	Elevated results due to large misc. peaks in diesel range.

REPORT OF LABORATORY ANALYSIS

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Pace Analytical

QUALITY CONTROL DATA

Innovative Technical Solutions
2855 Mitchell Drive, Suite 118
Walnut Creek, CA 94598

PACE Project Number: 705935
Client Project ID: Port of Oakland/MF 25 & 26

Attn: Mr. Jeff Hess
Phone: 714-955-1390

QC Batch ID: 15252
Analysis Method: EPA 8010
Associated PACE Samples: 70639141 70639257 70639265

QC Batch Method: EPA 8010
Analysis Description: Volatile Halogenated Organics

Date of Batch: 06/18/96

METHOD BLANK: 70641394
Associated PACE Samples: 70639141 70639257 70639265

Parameter	Units	Method Blank Result	PRL	Footnotes
Chloromethane	ug/L	ND	0.5	
Bromomethane	ug/L	ND	0.5	
Vinyl Chloride	ug/L	ND	0.5	
Chloroethane	ug/L	ND	0.5	
Methylene Chloride	ug/L	ND	0.5	
Trichlorofluoromethane	ug/L	ND	0.5	
1,1-Dichloroethene	ug/L	ND	0.5	
1,1-Dichloroethane	ug/L	ND	0.5	
trans-1,2-Dichloroethene	ug/L	ND	0.5	
Chloroform	ug/L	ND	0.5	
1,2-Dichloroethane	ug/L	ND	0.5	
1,1,1-Trichloroethane	ug/L	ND	0.5	
Carbon Tetrachloride	ug/L	ND	0.5	
Bromodichloromethane	ug/L	ND	0.5	
1,2-Dichloropropane	ug/L	ND	0.5	
cis-1,3-Dichloropropene	ug/L	ND	0.5	
Trichloroethene	ug/L	ND	0.5	
Dibromochloromethane	ug/L	ND	0.5	
1,1,2-Trichloroethane	ug/L	ND	0.5	
trans-1,3-Dichloropropene	ug/L	ND	0.5	
Bromoform	ug/L	ND	0.5	
Tetrachloroethene	ug/L	ND	0.5	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.5	
Chlorobenzene	ug/L	ND	0.5	
2-Chloroethyl Vinyl Ether	ug/L	ND	0.5	

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QUALITY CONTROL DATA

PACE Project Number: 705935
Client Project ID: Port of Oakland/MF 25 & 26

METHOD BLANK: 70641394
Associated PACE Samples: 70639141 70639257 70639265

Parameter	Units	Method Blank Result	PRL	Footnotes
1,2-Dichlorobenzene	ug/L	ND	0.5	
1,3-Dichlorobenzene	ug/L	ND	0.5	
1,4-Dichlorobenzene	ug/L	ND	0.5	
Bromochloromethane (S)	%	120		
1,4-Dichlorobutane (S)	%	114		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 70635693 70635701

Parameter	Units	70632153	Spike Conc.	Matrix Spike Result	Spike % Rec	Matrix Sp. Dup. Result	Spike Dup % Rec	RPD	Footnotes
Chloromethane	ug/L	ND	200	174	87	178	89	2	
Bromomethane	ug/L	ND	200	128	64	125	63	2	
Vinyl Chloride	ug/L	ND	200	173	87	176	88	1	
Chloroethane	ug/L	ND	200	135	68	132	66	3	
Methylene Chloride	ug/L	ND	200	200	98	202	99	1	
Trichlorofluoromethane	ug/L	ND	200	173	87	172	86	1	
1,1-Dichloroethene	ug/L	25	200	227	101	223	99	2	
1,1-Dichloroethane	ug/L	ND	200	209	103	209	103	0	
trans-1,2-Dichloroethene	ug/L	ND	200	211	106	208	104	2	
Chloroform	ug/L	8	200	208	100	210	101	1	
1,2-Dichloroethane	ug/L	ND	200	207	104	207	104	0	
1,1,1-Trichloroethane	ug/L	32	200	229	98	228	98	0	
Carbon Tetrachloride	ug/L	ND	200	210	104	206	102	2	
Bromodichloromethane	ug/L	ND	200	207	103	210	104	1	
1,2-Dichloropropane	ug/L	ND	200	206	103	209	105	2	
cis-1,3-Dichloropropene	ug/L	ND	200	196	98	196	98	0	
Trichloroethene	ug/L	200	200	361	79	358	78	1	
Dibromochloromethane	ug/L	ND	200	208	104	209	105	1	
1,1,2-Trichloroethane	ug/L	ND	200	203	102	205	103	1	
trans-1,3-Dichloropropene	ug/L	ND	200	196	98	197	99	1	
Bromoform	ug/L	ND	200	205	103	209	105	2	
Tetrachloroethene	ug/L	ND	200	205	103	204	102	1	
1,1,2,2-Tetrachloroethane	ug/L	ND	200	203	102	206	103	1	
Chlorobenzene	ug/L	ND	200	206	103	201	101	2	
2-Chloroethyl Vinyl Ether	ug/L	ND	200	ND	0	ND	0	0	
1,2-Dichlorobenzene	ug/L	ND	200	198	99	201	101	2	
1,3-Dichlorobenzene	ug/L	ND	200	204	102	204	102	0	

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Pace Analytical

QUALITY CONTROL DATA

PACE Project Number: 705935
Client Project ID: Port of Oakland/MF 25 & 26

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 70635693 70635701

Parameter	Units	70632153	Spike Conc.	Matrix Spike Result	Spike % Rec	Matrix Sp. Dup. Result	Spike Dup % Rec	RPD	Footnotes
1,4-Dichlorobenzene	ug/L	ND	200	202	101	200	100	1	
Bromochloromethane (S)					107		106		
1,4-Dichlorobutane (S)					95		93		

LABORATORY CONTROL SAMPLE & LCSD: 70635677 70635685

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	LCSD Result	Spike Dup % Rec	RPD	Footnotes
Chloromethane	ug/L	20	19	95	19.6	98	3	
Bromomethane	ug/L	20	15.1	76	15.8	79	4	
Vinyl Chloride	ug/L	20	18.8	94	19.4	97	3	
Chloroethane	ug/L	20	15.6	78	15.8	79	1	
Methylene Chloride	ug/L	20	20.4	102	21	105	3	
Trichlorofluoromethane	ug/L	20	18.3	92	18.9	95	3	
1,1-Dichloroethene	ug/L	20	21.4	107	21.9	110	3	
1,1-Dichloroethane	ug/L	20	21.1	106	21.8	109	3	
trans-1,2-Dichloroethene	ug/L	20	21.7	109	22.3	112	3	
Chloroform	ug/L	20	21.1	106	21.6	108	2	
1,2-Dichloroethane	ug/L	20	20.9	105	21.3	107	2	
1,1,1-Trichloroethane	ug/L	20	21.1	106	21.8	109	3	
Carbon Tetrachloride	ug/L	20	21.2	106	22.1	111	5	
Bromodichloromethane	ug/L	20	21	105	21.4	107	2	
1,2-Dichloropropane	ug/L	20	20.6	103	21	105	2	
cis-1,3-Dichloropropene	ug/L	20	20.5	103	21	105	2	
Trichloroethene	ug/L	20	20.6	103	21.2	106	3	
Dibromochloromethane	ug/L	20	21.1	106	21.6	108	2	
1,1,2-Trichloroethane	ug/L	20	20.6	103	21.1	106	3	
trans-1,3-Dichloropropene	ug/L	20	20.9	105	21.2	106	1	
Bromoform	ug/L	20	21.6	108	21.3	107	1	
Tetrachloroethene	ug/L	20	21.2	106	22.1	111	5	
1,1,2,2-Tetrachloroethane	ug/L	20	20.6	103	20.6	103	0	
Chlorobenzene	ug/L	20	20.6	103	22.4	112	8	
2-Chloroethyl Vinyl Ether	ug/L	20	25	125	23.8	119	5	
1,2-Dichlorobenzene	ug/L	20	20.7	104	21.1	106	2	
1,3-Dichlorobenzene	ug/L	20	19.1	96	21.2	106	10	
1,4-Dichlorobenzene	ug/L	20	20.7	104	21.1	106	2	
Bromochloromethane (S)				111		111		
1,4-Dichlorobutane (S)				98		96		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1455 McDowell Blvd. North, Suite D
Petaluma, CA 94954
Tel: 707-792-1865
Fax: 707-792-0342

Pace Analytical

QUALITY CONTROL DATA

Innovative Technical Solutions
2855 Mitchell Drive, Suite 118
Walnut Creek, CA 94598

PACE Project Number: 705935
Client Project ID: Port of Oakland/MF 25 & 26

Attn: Mr. Jeff Hess
Phone: 714-955-1390

QC Batch ID: 15270
Analysis Method: CA LUFT
Associated PACE Samples: 70639141 70639257 70639265

QC Batch Method: CA LUFT
Analysis Description: GAS/BTEX by CA LUFT, Water

Date of Batch: 06/18/96

METHOD BLANK: 70638903
Associated PACE Samples: 70639141 70639257 70639265

Parameter	Units	Method Blank Result	PRL	Footnotes
Gasoline	ug/L	ND	50	
Benzene	ug/L	ND	0.5	
Toluene	ug/L	ND	0.5	
Ethylbenzene	ug/L	ND	0.5	
Xylene (Total)	ug/L	ND	1	
a,a,a-Trifluorotoluene (S)	%	99		
4-Bromofluorobenzene (S)	%	99		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 70636345 70636352

Parameter	Units	70626122	Spike Conc.	Matrix Spike Result	Spike % Rec	Matrix Sp. Dup. Result	Spike Dup % Rec	RPD	Footnotes
Gasoline	ug/L	ND	1000	874	87	881	88	1	

LABORATORY CONTROL SAMPLE & LCSD: 70636360 70636378

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	LCSD Result	Spike Dup % Rec	RPD	Footnotes
Gasoline	ug/L	1000	859	86	847	85	1	

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Walnut Creek, CA 94598

PACE Project Number: 705935
Client Project ID: Port of Oakland/MF 25 & 26

Attn: Mr. Jeff Hess
Phone: 714-955-1390

QC Batch ID: 15320
QC Batch Method: EPA 3520
Date of Batch: 06/20/96
Analysis Method: TPH by EPA 8015M
Analysis Description: TPH in Water by 8015 Modified
Associated PACE Samples: 70639257

METHOD BLANK: 70640099
Associated PACE Samples:
70639257

Parameter	Units	Method Blank Result	PRL	Footnotes
Diesel Fuel	mg/L	ND	0.05	
Motor Oil	mg/L	ND	0.25	
JP4	mg/L	ND	0.5	
n-Pentacosane (S)	%	84		

LABORATORY CONTROL SAMPLE & LCSD: 70638978 70638986

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	LCSD Result	Spike Dup % Rec	RPD	Footnotes
Diesel Fuel	mg/L	1	0.755	76	0.87	87	13	
n-Pentacosane (S)				99		117		

REPORT OF LABORATORY ANALYSIS

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Pace Analytical

QUALITY CONTROL DATA

Innovative Technical Solutions
2855 Mitchell Drive, Suite 118
Walnut Creek, CA 94598

PACE Project Number: 705935
Client Project ID: Port of Oakland/MF 25 & 26

Attn: Mr. Jeff Hess
Phone: 714-955-1390

QC Batch ID: 15411
Analysis Method: EPA 160.1
Associated PACE Samples: 70639257

QC Batch Method: EPA 160.1
Analysis Description: Total Dissolved Solids

Date of Batch: 06/25/96

METHOD BLANK: 70641998
Associated PACE Samples: 70639257

Parameter	Units	Method Blank Result	PRL	Footnotes
Total Dissolved Solids	mg/L	ND	5	

SAMPLE DUPLICATE: 70642004

Parameter	Units	70638440	Dup. Result	RPD	Footnotes
Total Dissolved Solids	mg/L	18800	19000	1	

SAMPLE DUPLICATE: 70642012

Parameter	Units	70639752	Dup. Result	RPD	Footnotes
Total Dissolved Solids	mg/L	849	843	1	

REPORT OF LABORATORY ANALYSIS

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Tel: 707-792-1865
Fax: 707-792-0342

Pace Analytical

PACE Project Number: 705935
Client Project ID: Port of Oakland/MF 25 & 26

QUALITY CONTROL DATA PARAMETER FOOTNOTES

The Quality Control Sample Final Results listed above have been rounded to reflect an appropriate number of significant figures. Consistent with EPA guidelines unrounded concentrations have been used to calculate % Rec and RPD values.

ND	Not Detected
NC	Not Calculable
PRL	PACE Reporting Limit
RPD	Relative Percent Difference
(S)	Surrogate

REPORT OF LABORATORY ANALYSIS

INNOVATIVE TECHNICAL SOLUTIONS, Inc.

ITSI
2855 Mitchell Drive, Suite 118
Walnut Creek, California 94598
(510) 256-8898 (Tel), (510) 256-8998 (Fax)

705935

PROJECT NAME: Port of Oak. - Airport (MF 25+26)
PROJECT NUMBER: 95-113.01
SITE LOCATION: 1100 Airport Dr., Oakland CA

CHAIN OF CUSTODY

DATE: 6/19/96
PAGE: 1 of ___

SAMPLE I.D.	SAMPLE DEPTH	DATE	TIME	NUMBER OF CONTAINERS	TYPE OF CONTAINERS	SAMPLE MATRIX	ANALYSIS: TPH as Gas/BTEX - 8015/8020	TPH as Diesel - 8015 motor oil, upper fuel	TEPH - 8015	TRPH - 418.1	Oil and Grease - 5520 D&F	LUFT Metals (Cd, Cr, Ni, Pb, Zn)	CAM 17 Metals	VOCs - ~~8240~~ 8010	SVOCs - 8270	Total Dissolved Solids (160.1)	SPECIAL INSTRUCTIONS/ NOTES/COMMENTS	TOTAL NUMBER OF ANALYSES
																	PACE Analytical Petaluma, CA	
Trip Blanks		6/18/96	1st provided	2	VOA	W	X							X			639141	3
MW-1		6/19/96	1900	3	VOA	W	X										639257	2
↓		↓	↓	3	VOA	W								X				1
				1	1L A	W		X										1
			↓	1	1 250ml (oil)	W										X		1
QC-1			—	3	VOA	W	X										639265	2
↓		↓	—	3	VOA	W								X				1
							Not Used (55)											
TOTAL NUMBER OF CONTAINERS					TOTAL TESTS		6	1						3		1		11

SAMPLED BY: Jim Scholland
SIGNATURE: Jim Scholland ITSI

SPECIAL INSTRUCTIONS/COMMENTS: Standard T.A.T.

RELINQUISHED BY: Jim Scholland — Printed Name / Signature
ITSI 6/20/96 08:47 — Company / Date and Time

RECEIVED BY: EWolsen — Printed Name / Signature
PASI 6/20/96 0847 — Company / Date and Time

RELINQUISHED BY: ___ — Printed Name / Signature
___ — Company / Date and Time

RECEIVED BY: ___ — Printed Name / Signature
___ — Company / Date and Time

RELINQUISHED BY: ___ — Printed Name / Signature
___ — Company / Date and Time

RECEIVED BY: ___ — Printed Name / Signature
___ — Company / Date and Time

SEND RESULTS TO: Jeff Hess, ITSI, 2855 Mitchell Dr., Ste. 118, Walnut Crk, CA 94598 510/256-8898

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