

**GROUNDWATER MONITORING AND  
PRODUCT RECOVERY PROGRESS REPORT**

**ARAMARK UNIFORM SERVICES, INC.  
330 CHESTNUT STREET  
OAKLAND, CALIFORNIA**

596

**PREPARED FOR**

**ARAMARK UNIFORM SERVICES, INC.  
SCHAUMBURG, ILLINOIS**

**PREPARED BY**

**RMT, INC.  
MARINA DEL REY, CA**

**MAY 1996**

ENVIRONMENTAL  
PROTECTION  
96 MAY 30 AM 8:41

*Kevin Bate*

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**Section 1**  
**INTRODUCTION**

**1.1 Former Diesel Fuel UST Area**

ARAMARK Uniform Services, Inc., (ARAMARK) owns and operates an industrial laundry facility located at 330 Chestnut Street in Oakland, California. A 2,000-gallon underground diesel fuel storage tank was formerly maintained at this facility to supply fuel for the operation of a boiler. The diesel fuel storage tank was removed from the facility in December 1988 and a tank closure documentation report was submitted to the Alameda County Environmental Health Department (ACEHD). Based on the information presented in the tank documentation report, the ACEHD requested that ARAMARK conduct post-closure sampling activities to determine whether the soil and groundwater surrounding the underground storage tank had been impacted by petroleum hydrocarbons.

Remedial investigation activities were conducted by RMT from March 1989, through November 1992, and included the advancement of soil borings and four groundwater monitoring wells (RAO-1 through RAO-4) in the vicinity of the former excavation area. The results of chemical analyses performed on groundwater samples collected from monitoring wells RAO-1 and RAO-2 identified the presence of total petroleum hydrocarbons (TPH) and benzene, toluene, and xylenes (BTX) and free-product was consistently observed in the groundwater monitoring well located within the former underground storage tank excavation (RAO-3). Because the results of the sampling activities indicated that the extent of petroleum hydrocarbon contamination was limited to the former tank excavation, a product recovery canister was installed in December 1992. To date, the product recovery system has recovered approximately 7,852-mL of free-product. In addition, with the exception of the chemical analyses performed on groundwater samples collected from the product recovery well (RAO-3), the presence of TPH or BTX has not been identified in any groundwater sample collected since May 1993.

**1.2 Former Diesel Fuel Dispenser and Mop Oil UST Area**

Two single walled, steel, underground petroleum hydrocarbon storage tanks were maintained at this facility to supply fuel for the delivery vehicles. In addition, an underground mop oil storage tank was also maintained at the facility. RMT, Inc. (RMT), was retained by ARAMARK to document the removal and disposal of the underground storage tanks and perform soil sampling as required by the ACEHD. Tank removal activities were conducted during the period of September 1993 through January 1994. The results of the chemical analyses performed on the soil samples collected from the floor of the former diesel fuel dispenser vault excavations, the former mop oil tank excavation, and in the vicinity of the

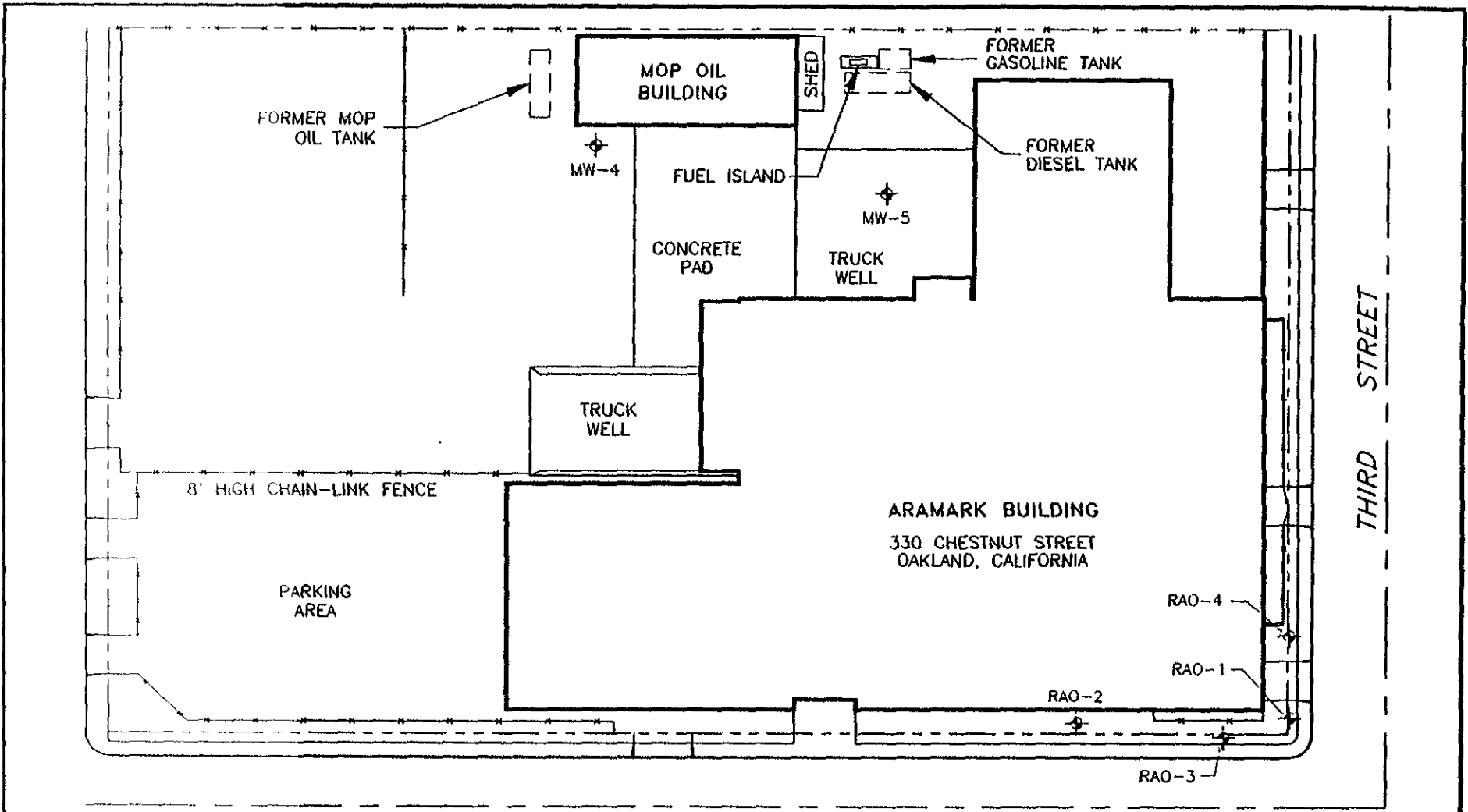
eastern section of the loading dock identified the presence of petroleum hydrocarbons.

In response to the request from the ACEHD, ARAMARK engaged the services of RMT, Inc., to conduct soil and groundwater sampling activities in the vicinity of the former diesel fuel dispenser vaults and mop oil tank. Field activities were conducted on May 5, 1995 and included the advancement of two soil borings and the installation of two groundwater monitoring wells; MW-4 located in the vicinity of the former underground mop oil storage tank and MW-5 located in the vicinity of the former diesel fuel dispenser vaults (See Figure 1). Although the results of the chemical analyses performed on groundwater samples collected from the monitoring wells identified the presence of total petroleum hydrocarbons, TPH-MS and TPH-D concentrations are generally less than 2-mg/L. In addition, the presence of BTEX has never been identified at concentrations above the method detection limit in either monitoring well. A site plan showing the location of the former diesel fuel tanks and the mop oil tank is presented in Figure 1.

### 1.3 Purpose and Scope

The purpose of this report is to summarize the results of the groundwater monitoring activities conducted on May 10, 1996, at the ARAMARK facility. The scope of work conducted during the groundwater investigation included the following:

- The purging and sampling of monitoring wells MW-4 and MW-5,
- The purging and sampling of product recovery well RAO-3 in accordance with ACEHD letter dated November 6, 1995, and
- The chemical analyses of groundwater samples for the presence of BTEX and TPH-D, TPH-K, and TPH-SS using EPA SW-846 Method 8020 and EPA SW-846 Method 8015M, respectively.

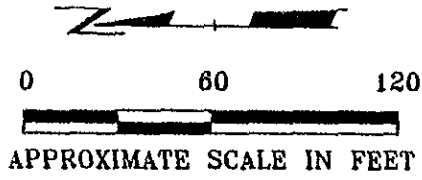


**LEGEND:**



GROUNDWATER MONITORING WELL

CHESTNUT STREET



PROJECT: ARAMARK UNIFORM SERVICES OAKLAND, CALIFORNIA		
SHEET TITLE: SITE PLAN		
DRAWN BY: CRB	SCALE: 1" = 60'-0"	PROJ. NO. 12013.11
CHECKED BY:		FILE NO. 1102
APPROVED BY:	DATE PRINTED:	FIGURE 1
DATE: MAY 1995		
<b>RMT</b> RMT Inc. - Los Angeles Phone: 310/378-1241 4840 Admiralty Way Suite 301 Marina Del Rey, CA 90292		

## Section 2 GROUNDWATER MONITORING ACTIVITIES

Groundwater sampling activities were conducted on May 10, 1996, and included obtaining static water level measurements and groundwater samples from monitoring wells MW-4 and MW-5. Groundwater samples were also collected from product recovery well RAO-3.

### 2.1 Static Water Level Measurements

Prior to collecting groundwater samples, the depth to groundwater was measured in each monitoring well using an electronic water level indicator. Three rounds of groundwater heights were taken to assess any variability in measurement.

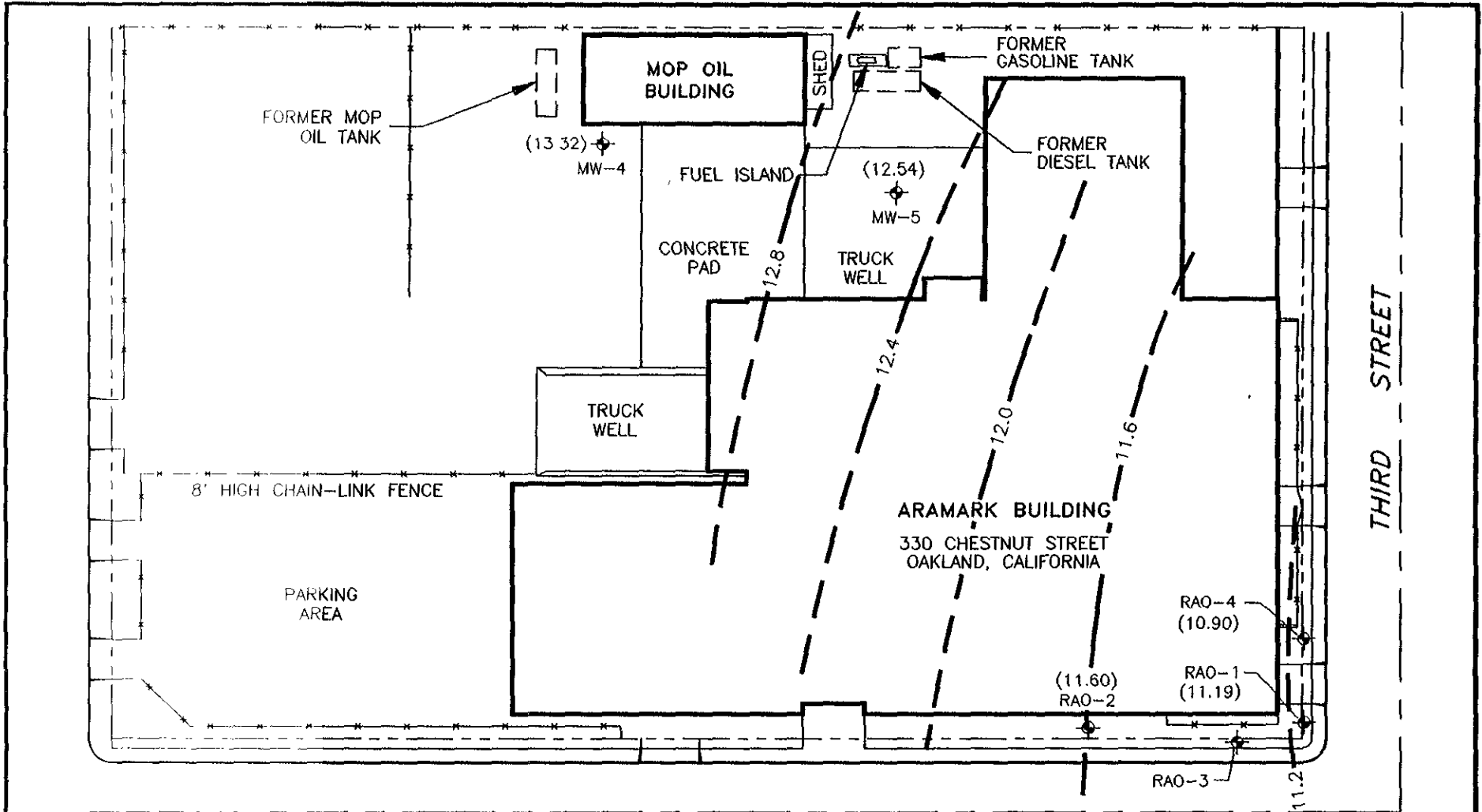
### 2.2 Groundwater Sample Collection

Groundwater samples were collected from monitoring wells MW-4 and MW-5, and from product recovery well RAO-3. Prior to sampling, each monitoring well was purged using a bailer. A minimum of three well casing volumes (casing and sand pack volume) were extracted from each well before collecting groundwater samples. The temperature, pH, and conductivity of the extracted groundwater was measured and recorded at least once per well casing volume. The well casing volume was determined by measuring and recording the static water level and calculating the well volume. The purging bailer was decontaminated between each sampling event by rinsing with tap water to remove particulates, washing with a tri-sodium phosphate solution, and rinsing with deionized water.




After each monitoring well had recharged to within 80 percent of its pre-purge volume (approximately 15-min) groundwater samples were collected utilizing a disposable Teflon bailer equipped with a teflon stopcock, and dispensed directly into 40-mL borosilicate vials with teflon septa and screw caps. All samples were preserved using hydrochloric acid and stored on ice pending transport to a commercial independent California-certified laboratory according to USEPA protocol, including chain-of-custody procedures. Groundwater sample collection data are presented in Appendix A.

### 2.3 Groundwater Flow

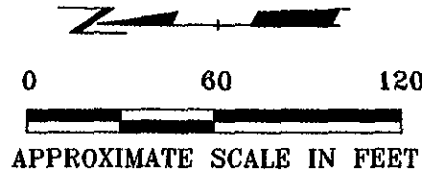
Static water level measurements obtained on May 10, 1996, are summarized in Table 1 and the water table map generated from the water level data is presented in Figure 2. The groundwater flow direction is southeast with a gradient of approximately 0.007-ft/ft.



**LEGEND:**

-  GROUNDWATER MONITORING WELL
-  12.4 LINE OF EQUAL GROUNDWATER IN FEET ABOVE MEAN SEA-LEVEL DASHED WHERE INFERRED
-  (12.54) GROUNDWATER ELEVATION (IN FEET ABOVE MSL)

CHESTNUT STREET



PROJECT: ARAMARK UNIFORM SERVICES  
OAKLAND, CALIFORNIA

SHEET TITLE:  
WATER TABLE MAP - MAY 10, 1996

DRAWN BY: CRB	SCALE: 1" = 60'-0"	PROJ. NO. 12013.11
CHECKED BY:		FILE NO. 1102
APPROVED BY:	DATE PRINTED:	<b>FIGURE 2</b>
DATE: MAY 1995		

 RMT Inc. - Los Angeles  
Phone: 310/578-1241  
4640 Admiralty Way  
Suite 301  
Marina Del Rey, CA 90292

Table 1  
Static Water Level Measurement

Monitoring Well Location	TOC Elevation (ft above MSL)	Depth to Water (ft below TOC)	Groundwater Elevation (ft above MSL)
RAO-1	19.08	7.89	11.19
RAO-2	19.57	7.97	11.60
RAO-4	19.30	8.40	10.90
MW-4	22.69	9.37	13.32
MW-5	21.09	8.55	12.54

2.4 Chemical Analyses of Groundwater

Groundwater samples collected from product recovery well RAO-3 were analyzed for the presence of BTEX and TPH-D using EPA SW-846 Method 8020 and Method 8015M, respectively. Groundwater samples collected from monitoring wells MW-4 and MW-5 were analyzed for the presence of BTEX and TPH-D, TPH-K, and TPH-SS using EPA SW-846 Method 8020 and Method 8015M, respectively. The results of the laboratory analyses are summarized in Table 2 (diesel fuel UST Area) and Table 3 (former diesel fuel dispenser and mop oil UST area) and a copy of the laboratory report is included in Appendix B. All laboratory analyses were conducted by BC Laboratories, Inc., of Bakersfield, California.



Table 2

Chemical Analyses of Groundwater (Former Diesel Fuel UST Area)

Sample Location	Sampling Date	Parameter (ppL)				
		Benzene	Toluene	Ethylbenzene	Xylenes	TPH-D
RAO-1	02-01-96	<0.5	<0.5	<0.5	<0.5	820
	08-02-95	<0.5	<0.5	<0.5	<0.5	<50
	05-05-95	<0.5	<0.5	<0.5	<0.5	<50
	02-03-95	<0.5	<0.5	<0.5	<0.5	560
	11-18-94	<1.0	<1.0	<1.0	<1.0	<50
	08-12-94	<1.0	<1.0	<1.0	<1.0	<50
	04-29-94	<1.0	<1.0	<1.0	<1.0	<50
	01-29-94	<1.0	<1.0	<1.0	<1.0	<50
	11-11-93	<0.5	<0.5	<0.5	<0.5	<50
	08-02-93	<0.3	<0.3	<0.3	<0.5	<10
05-11-93	0.4	0.5	<0.3	1.0	<10	
RAO-2	11-14-95	<0.5	<0.5	<0.5	<0.5	870
	08-02-95	<0.5	<0.5	<0.5	<0.5	<50
	05-05-95	<0.5	<0.5	<0.5	<0.5	<50
	02-03-95	<0.5	<0.5	<0.5	<0.5	<50
	11-18-94	<1.0	<1.0	<1.0	<1.0	<50
	08-12-94	<1.0	<1.0	<1.0	<1.0	<50
	04-29-94	<1.0	<1.0	<1.0	<1.0	<50
	01-29-94	<1.0	<1.0	<1.0	<1.0	<50
	11-11-93	<0.5	<0.5	<0.5	<0.5	<50
	08-02-93	<0.3	<0.3	<0.3	<0.5	<10
05-11-93	0.4	1.0	<0.3	1.0	56	
RAO-3	05-10-96 <sup>a</sup>	1.8	<0.3	3.0	5.5	2,000,000
	02-01-96 <sup>a</sup>	16	<0.5	55	<0.5	1,700,000
RAO-4	11-14-95	<0.5	<0.5	<0.5	<0.5	800
	08-02-95	<0.5	<0.5	<0.5	<0.5	<50
	05-05-95	<0.5	<0.5	<0.5	<0.5	<50
	02-03-95	<0.5	<0.5	<0.5	<0.5	<50
	11-18-94	<1.0	<1.0	<1.0	<1.0	<50
	08-12-94	<1.0	<1.0	<1.0	<1.0	<50
	04-29-94	<1.0	<1.0	<1.0	<1.0	<50
	01-29-94	<1.0	<1.0	<1.0	<1.0	<50
	11-11-93	<0.5	<0.5	<0.5	<0.5	<50
	08-02-93	<0.3	<0.3	<0.3	<0.5	<10
05-11-93	<0.3	<0.3	<0.3	<0.5	<10	

a = free product was identified in product recovery well RAO-3

Table 3

Chemical Analyses of Groundwater (Former Dispenser and Mop Oil UST Area)

Sample Location	Sampling Date	Parameter (µg/L)						
		Benzene	Toluene	Ethylbenzene	Xylenes	TPH-SS	TPH-K	TPH-D
MW-4	05-10-95	<0.3	<0.3	<0.3	<0.3	<200	<200	<200
	02-01-96	<0.5	<0.5	<0.5	<0.5	<500	<500	<500
	11-14-95	<0.5	<0.5	<0.5	<0.5	-	-	1,100
	08-02-95	-	-	-	-	-	-	180
	05-05-95	-	-	-	-	-	-	500
MW-5	05-10-95	<0.3	<0.3	<0.3	<0.3	<200	<200	350
	02-01-96	<0.5	<0.5	<0.5	<0.5	840 <sup>a</sup>	<500	<500
	11-14-95	<0.5	<0.5	<0.5	<0.5	-	-	2,100
	08-02-95	<0.5	<0.5	<0.5	<0.5	-	-	380
	05-05-95	<0.5	<0.5	<0.5	<0.5	-	-	1,100

a = The chromatogram does not resemble the standard hydrocarbon standard.

2.5 Disposal of Purged Groundwater

Groundwater extracted during monitoring well purging activities was contained in 55-gal DOT-approved drums, labeled with the date, generator's name, site location, source, and stored on-site pending off-site disposal.

### Section 3

#### PRODUCT RECOVERY ACTIVITIES

In December 1992, a product recovery system, consisting of a removable canister (a buoy sheathed by a semi-permeable hydrophobic membrane atop a product storage sump) was installed in monitoring well RAO-3 located in the vicinity of the former diesel fuel UST excavation. During the period from December 1992 through May 1995, approximately 6,202-mL of free-product was recovered, however, product recovery activities conducted during the period from June 1995 through October 1995 did not result in the recovery of any additional free product. Based on these findings, in November 1995, the ACEHD requested that ARAMARK collect groundwater samples from the product recovery well to determine the groundwater quality in the vicinity of the former diesel fuel UST excavation, however, it was agreed that the sampling activities would be postponed until the residual petroleum hydrocarbon buildup on the well screen and in the surrounding sand pack could be remediated. With ACEHD approval, RMT added approximately 15-gallons of a dilute solution (5%) of hydrogen peroxide ( $H_2O_2$ ) to product recovery RAO-3 on a monthly basis during the period between November 1995 and January 1996 to help remove the residual petroleum hydrocarbons present within the well packing.

Although unanticipated (i.e., product recovery activities conducted during the last 7-months did not result in the recovery of any free product), product recovery activities conducted during the first quarter sampling activities (December 1995 through February 1996) activities resulted in the recovery of approximately 400-mL of free-product. These results are most likely due to an elevated groundwater table saturating previously unsaturated TPH-impacted zones (e.g., the groundwater surface has risen approximately 1 to 2-ft during the last three months) and the fact that residual petroleum hydrocarbons present in the product recovery well screen and well packing have been substantially remediated (e.g., the residual product most likely partially clogged the well screen and sand packing and may have limited free product recovery).

Approximately 800-mL of free-product was recovered from the product recovery well during the second quarter activities (March through May 1996). A summary of the product recovery operations is presented in Appendix C.

**APPENDIX A**  
**GROUNDWATER SAMPLE COLLECTION DATA**

## GROUNDWATER SAMPLING INFORMATION

Project Name: <u>ARAMARK - OAKLAND</u>
Project Number: _____
Sampling Date: <u>02/01/96</u>

Monitoring Well Location	Purge Number	Purge Volume (gal)	Temp (°C)	pH	Turbidity (NTU)	DTW (ft-bgs)	Cond (µS/cm)
MW-5	1	1	14.9	7.1	390	8.32	2.38
	2						
	3	Dry @ 3-gal.					
MW-4	1	1	15.2	7.3	58.1	9.10	1.79
	2						
	3	Dry @ 1-gal.					
RAO-1	1	1	15.0	7.1	27.22	7.60	1.48
	2						
	3	Dry @ 2-gal.					
RAO-3	1	FREE PRODUCT ENCOUNTERED					
	2						
	3						
RAO-4	1					8.17	
	2						
	3						
RAO-2	1					7.65	
	2						
	3						

**APPENDIX B**

**LABORATORY REPORT**

**BC** LABORATORIES, INC.

May 21, 1996

TARIQ AHMAD  
RMT INC.  
4640 ADMIRALITY WAY  
SUITE 301  
MARINA DEL REY, CA 90292

Subject: Laboratory Submission No.: 96-05439  
Samples Received: 05/10/96

Dear Mr. Ahmad:

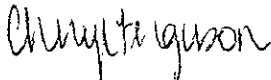
The samples(s) listed on the Chain of Custody report were received by BC Laboratories, Inc. on 05/10/96.

Enclosed please find the analytical data for the testing requested. If you have any questions regarding this report please contact me at (805)327-4911, ext. 250.

Any unused sample will be stored on our premises for a minimum of 30 days (excluding bacteriologicals) at which time they will be disposed unless otherwise requested at the time of sample receipt. A disposal fee of \$5 per sample may apply for solid sample matrices.

Please refer to submission number 96-05439 when calling for assistance.

Sincerely,



Cheryl Ferguson  
Project Manager  
BC Laboratories, Inc.

RMT INC.  
4640 ADMIRALITY WAY  
SUITE 301  
MARINA DEL REY, CA 90292  
Attn: TARIZ AHMAD 310-578-1241

Date Reported: 05/17/96  
Date Received: 05/10/96  
Laboratory No.: 96-05439-1

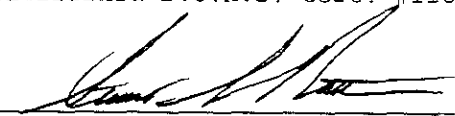
Sample Description: ARAMARK-OAKLAND: MW-4 SAMPLED BY T.A.

Sample Matrix: Water  
Date Collected: 05/10/96  
Date Extracted-8015M(d): 05/13/96  
Date Analyzed-8015M(d): 05/15/96

<u>Constituents</u>	<u>Analysis Results</u>	<u>Reporting Units</u>	<u>Practical Quantitation Limit</u>
Total Petroleum Hydrocarbons (diesel)	None Detected	µg/L	200.
Total Petroleum Hydrocarbons (Kerosene)	None Detected	µg/L	200.
Total Petroleum Hydrocarbons (Stoddard)	None Detected	µg/L	200.
Surrogate % Recovery	100.	%	57-137

TEST METHOD: TPH by D.O.H.S. / L.U.F.T. Manual Method - Modified EPA 8015

California D.O.H.S. Cert. #1186

  
Stuart G. Buttram  
Department Supervisor





Total Petroleum Hydrocarbons

RMT INC.  
4640 ADMIRALITY WAY  
SUITE 301  
MARINA DEL REY, CA 90292  
Attn: TARIZ AHMAD 310-578-1241

Date Reported: 05/17/96  
Date Received: 05/10/96  
Laboratory No.: 96-05439-2

Sample Description: ARAMARK-OAKLAND: MW-5 SAMPLED BY T.A.

Sample Matrix: Water  
Date Collected: 05/10/96  
Date Extracted-8015M(d): 05/13/96  
Date Analyzed-8015M(d): 05/15/96

<u>Constituents</u>	<u>Analysis Results</u>	<u>Reporting Units</u>	<u>Practical Quantitation Limit</u>
Total Petroleum Hydrocarbons (diesel)	350.	µg/L	200.
Total Petroleum Hydrocarbons (Kerosene)	None Detected	µg/L	200.
Total Petroleum Hydrocarbons (Stoddard)	None Detected	µg/L	200.
Surrogate % Recovery	117.	%	57-137

TEST METHOD: TPH by D.O.H.S. / L.U.F.T. Manual Method - Modified EPA 8015

California D.O.H.S. Cert. #1186

Stuart G. Buttram  
Department Supervisor



RMT INC.  
4640 ADMIRALITY WAY  
SUITE 301  
MARINA DEL REY, CA 90292  
Attn: TARIZ AHMAD 310-578-1241

Date Reported: 05/17/96  
Date Received: 05/10/96  
Laboratory No.: 96-05439-3

Sample Description: ARAMARK-OAKLAND: RAO-3 SAMPLED BY T.A.

Sample Matrix: Water  
Date Collected: 05/10/96  
Date Extracted-8015M(d): 05/13/96  
Date Analyzed-8015M(d): 05/15/96

<u>Constituents</u>	<u>Analysis Results</u>	<u>Reporting Units</u>	<u>Practical Quantitation Limit</u>
Total Petroleum Hydrocarbons (diesel)	200000.	µg/L	20000.
Surrogate % Recovery	Not Reportable	%	57-137

TEST METHOD: TPH by D.O.H.S. / L.U.F.T. Manual Method - Modified EPA 8015

California D.O.H.S. Cert. #1186

Stuart G Buttram  
Department Supervisor



Purgeable Aromatics  
and  
Total Petroleum Hydrocarbons

RMT INC.  
4640 ADMIRALITY WAY  
SUITE 301  
MARINA DEL REY, CA 90292  
Attn: TARIZ AHMAD 310-578-1241

Date Reported: 05/16/96  
Date Received: 05/10/96  
Laboratory No.: 96-05439-1


Sample Description: ARAMARK-OAKLAND: MW-4 SAMPLED BY T.A.

Sample Matrix: Water  
Date Collected: 05/10/96  
Date Extracted-8020: 05/13/96  
Date Analyzed-8020: 05/13/96

<u>Constituents</u>	<u>Analysis Results</u>	<u>Reporting Units</u>	<u>Practical Quantitation Limit</u>
Benzene	None Detected	µg/L	0.3
Toluene	None Detected	µg/L	0.3
Ethyl Benzene	None Detected	µg/L	0.3
Total Xylenes	None Detected	µg/L	0.6
Surrogate % Recovery	93.	%	70-130

TEST METHOD: TPH by D.O.H.S. / L.U.F.T. Manual Method - Modified EPA 8015  
Individual constituents by EPA Method 5030/8020.

California D.O.H.S. Cert. #1186

  
Stuart G. Buttram  
Department Supervisor

Purgeable Aromatics  
and  
Total Petroleum Hydrocarbons

RMT INC.  
4640 ADMIRALITY WAY  
SUITE 301  
MARINA DEL REY, CA 90292  
Attn: TARIZ AHMAD 310-578-1241

Date Reported: 05/16/96  
Date Received: 05/10/96  
Laboratory No.: 96-05439-2

Sample Description: ARAMARK-OAKLAND: MW-5 SAMPLED BY T.A.

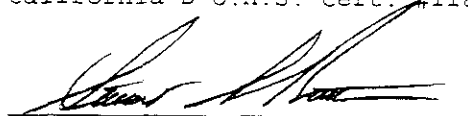
Sample Matrix: Water

Date Collected: 05/10/96  
Date Extracted-8020: 05/13/96  
Date Analyzed-8020: 05/13/96

<u>Constituents</u>	<u>Analysis Results</u>	<u>Reporting Units</u>	<u>Practical Quantitation Limit</u>
Benzene	None Detected	µg/L	0.3
Toluene	None Detected	µg/L	0.3
Ethyl Benzene	None Detected	µg/L	0.3
Total Xylenes	None Detected	µg/L	0.6
Surrogate % Recovery	85.	%	70-130

TEST METHOD: TPH by D.O.H.S. / L.U.F.T. Manual Method - Modified EPA 8015  
Individual constituents by EPA Method 5030/8020.

California D O.H.S. Cert. #1186

  
Stuart G. Buttram  
Department Supervisor



Purgeable Aromatics  
and  
Total Petroleum Hydrocarbons

RMF INC.  
4640 ADMIRALITY WAY  
SUITE 301  
MARINA DEL REY, CA 90292  
Attn: TARIZ AHMAD 310-578-1241

Date Reported: 05/16/96  
Date Received: 05/10/96  
Laboratory No.: 96-05439-3

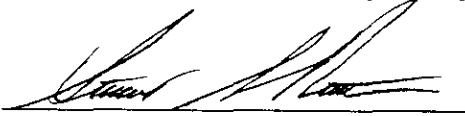
Sample Description: ARAMARK-OAKLAND: RAO-3 SAMPLED BY T.A.

Sample Matrix: Water  
Date Collected: 05/10/96  
Date Extracted-8020: 05/13/96  
Date Analyzed-8020: 05/13/96

<u>Constituents</u>	<u>Analysis Results</u>	<u>Reporting Units</u>	<u>Practical Quantitation Limit</u>
Benzene	1.8	µg/L	0.3
Toluene	None Detected	µg/L	0.3
Ethyl Benzene	3.0	µg/L	0.3
Total Xylenes	5.5	µg/L	0.6
Surrogate % Recovery	88.	%	70-130

TEST METHOD: TPH by D.O.H.S. / L.U.F.T. Manual Method - Modified EPA 8015  
Individual constituents by EPA Method 5030/8020.

California D O.H.S. Cert. #1186

  
Stuart G. Buttram  
Department Supervisor



Purgeable Aromatics  
and  
Total Petroleum Hydrocarbons

RMT INC.  
4640 ADMIRALITY WAY  
SUITE 301  
MARINA DEL REY, CA 90292  
Attn: TARIZ AHMAD 310-578-1241

Date Reported: 05/16/96  
Date Received: 05/10/96  
Laboratory No.: 96-05439-TB

Sample Description: ARAMARK-OAKLAND: BLANK

Sample Matrix: Water

Date Collected: 05/10/96  
Date Extracted-8020: 05/13/96  
Date Analyzed-8020: 05/13/96

<u>Constituents</u>	<u>Analysis Results</u>	<u>Reporting Units</u>	<u>Practical Quantitation Limit</u>
Benzene	None Detected	µg/L	0.3
Toluene	None Detected	µg/L	0.3
Ethyl Benzene	None Detected	µg/L	0.3
Total Xylenes	None Detected	µg/L	0.6
Surrogate % Recovery	100.	%	70-130

TEST METHOD: TPH by D.O.H.S. / L.U.F.T. Manual Method - Modified EPA 8015  
Individual constituents by EPA Method 5030/8020.

California D.O.H.S. Cert. #1186

Stuart G. Buttram  
Department Supervisor

**CHAIN OF CUSTODY**

4100 Atlas Court • Bakersfield, CA 93308  
(805) 327-4911 • FAX (805) 327-1918

**BC LABORATORIES, INC.**

Report To  
Name **RMT**  
Address  
City  
State Zip  
Attn **TARIQ AHMAD**  
Phone **310 578 1241**

Project: **Aramark-Oakland**  
Project #:  
Sampler Name: **T.A.**  
Other:

**5439**

Lab#	Sample Description	Date & Time Sampled	Matrix (S) Soil (W) Sludge (Other)	Analysis Requested												Samples rec. cold (y/n)	Custody Seals (y/n)	Results Needed by: Date & Time	Number and Container Type
				1	2	3	4	5	6	7	8	9	10	11	12				
-1	mw-4	5/10/96	WATER	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
-2	mw-5	↓	↓	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
-3	RAO-3																		
-4	BLANK	↓	↓																

Comment

Billing Info:		Relinquished by: (Signature)	Received by: (Signature)	Date: Time:
Name:		<i>T. Ahmad</i>	<i>John M Knight</i>	5-10-96 12:02
Address:		<i>John M Knight</i>	<i>John M Knight</i>	5-10-96 8:15
City:	State:			
Attention:		Relinquished by: (Signature)	Received by: (Signature)	Date: Time:
Time:		Relinquished by: (Signature)	Received by: (Signature)	Date: Time:
Miles:		Relinquished by: (Signature)	Received by: (Signature)	Date: Time:
P O.#		Relinquished by: (Signature)	Received by: (Signature)	Date: Time:

Sample Disposal  
 BC Disposal @ 5.00 ea  
 Return to client

LAB NUMBER: 96-5439 TIME RECEIVED: 8:15 DATE RECEIVED: 5-10-96 RECEIVED BY: [Signature]

SHIPPING SPECIFICATIONS

Federal Express  UPS  Hand Delivery   
 BC Lab Field Service  Other  (Specify) \_\_\_\_\_

SHIPPING CONTAINER

Ice Chest  Box   
 None  Other  (Specify) \_\_\_\_\_

SAMPLE CONDITION

Temperature 6 °C Ice  Blue Ice  None  If temperature is not between 2 and 6 °C please explain: \_\_\_\_\_

Custody Seals: Ice Chest  Containers  None

All samples received? Yes  No  All samples intact? Yes  No  Description match COC? Yes  No

SAMPLE CONTAINERS

Sample #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
QT PE UNP																								
PT PE UNP																								
QT INORGANIC METALS																								
PT INORGANIC METALS																								
CN																								
N FORMS																								
SULFIDE																								
NO./NO.																								
TOC																								
TOX																								
COD																								
PHENOL																								
TRIP BLANK																								
VOA VIAL		3	2	3																				
VOA SET																								
OIL & GREASE																								
ODOR																								
RADIOLOGICAL																								
BACT																								
504																								
507																								
508/608/8080																								
515.1/8150																								
525/625/8270																								
547																								
531.1																								
548																								
549																								
QA/QC																								
QT AMBER																								
8 OZ. JAR																								
32 OZ JAR																								
SOIL SLEEVE																								

Comments: \_\_\_\_\_

Completed by: [Signature]



**APPENDIX C**

**PRODUCT RECOVERY OBSERVATIONS**



Product Recovery Observations

Sampling Date	Volume of Product Removed (mL)	Volume of Water Removed (mL)	Depth to Product (ft-bgs)	Depth to Water (ft-bgs)	Thickness of Product (ft)
12-03-92	0	20	8.65	8.67	0.02
12-04-92	0	0	8.61	8.63	0.02
12-08-92	18	0	8.52	8.52	0.00
12-09-92	10	0	8.24	8.24	0.00
12-10-92	0	3	8.02	8.02	0.00
12-14-92	30	200	8.28	8.29	0.01
12-15-92	0	0	8.32	8.32	0.00
12-16-92	0	0	8.52	8.52	0.00
12-18-92	18	0	8.63	8.66	0.03
12-21-92	10	0	8.39	8.42	0.03
12-22-92	20	30	8.56	8.58	0.02
12-23-92	18	0	8.35	8.37	0.02
12-24-92	22	0	8.42	8.53	0.11
12-28-92	15	0	8.53	8.64	0.01
12-29-92	20	0	8.58	8.60	0.02
12-30-92	18	0	8.22	8.24	0.02
01-04-93	23	18	8.45	8.47	0.02
01-05-93	12	0	8.28	8.30	0.02
01-06-93	10	0	8.05	8.48	0.43
01-07-93	8	0	8.64	8.66	0.02
01-08-93	3	10	8.36	8.37	0.01
01-11-93	8	0	8.02	8.16	0.14
01-12-93	13	8	7.68	8.06	0.38
01-13-93	45	0	7.64	8.04	0.40
01-14-93	40	0	8.00	8.32	0.32
01-15-93	40	0	7.98	8.30	0.32
01-18-93	48	0	8.00	8.11	0.11
01-19-93	50	0	8.00	8.22	0.22
01-20-93	44	0	8.00	8.02	0.02
01-21-93	5	40	7.84	8.00	0.16
01-22-93	450	42	7.74	7.98	0.24
02-04-93	25	500	7.99	8.45	0.46
03-25-93	380	70	8.11	8.20	0.09
04-09-93	500	18	8.11	8.20	0.09
04-23-93	210	60	7.49	7.51	0.02
05-03-93	560	90	8.54	8.58	0.04
05-11-93	38	114	8.35	8.45	0.10
05-20-93	1	0	8.39	8.42	0.03
06-02-93	5	65	8.37	8.41	0.04
06-18-93	100	0	8.46	8.57	0.14
07-09-93	150	0	8.20	8.25	0.05
11-11-93	40	80	7.98	7.91	0.07
12-10-93	20	25	8.62	8.59	0.03
01-29-94	0	0	8.76	8.76	0.00
03-10-94	0	0	8.63	8.63	0.00

Product Recovery Observations

Sampling Date	Volume of Product Removed (mL)	Volume of Water Removed (mL)	Depth to Product (ft-bgs)	Depth to Water (ft-bgs)	Thickness of Product (ft)
05-03-94	1,976	658	8.93	9.15	0.22
06-17-94	6	565	8.85	8.85	0.00
06-21-94	1	540	8.50	8.52	0.02
06-28-94	5	400	8.69	8.71	0.01
07-08-94	26	500	8.61	8.61	0.00
07-14-94	0	400	8.73	8.73	0.00
07-20-94	20	500	8.60	8.62	0.02
07-26-94	60	560	8.68	8.71	0.03
08-02-94	21	500	8.46	8.50	0.04
08-12-94	30	640	7.74	7.79	0.05
08-18-94	0	550	9.24	9.24	0.00
08-25-94	0	550	8.78	8.78	0.00
08-31-94	0	550	8.74	8.74	0.00
09-09-94	150	375	7.74	7.76	0.02
09-15-94	0	525	8.93	8.93	0.00
09-22-94	5	305	8.97	8.99	0.02
09-30-94	0	420	8.86	8.86	0.00
10-07-94	0	550	8.74	8.74	0.00
10-14-94	0	520	8.80	8.80	0.00
10-21-94	0	520	8.88	8.88	0.00
10-28-94	0	525	8.90	8.90	0.00
11-04-94	0	550	8.00	8.00	0.00
11-09-94	0	520	7.99	7.99	0.00
11-18-94	80	430	8.05	8.15	0.10
11-25-94	130	300	8.00	7.99	0.01
11-30-94	30	260	7.94	7.95	0.01
12-09-94	30	480	8.03	8.07	0.04
12-16-94	30	120	7.96	7.99	0.03
12-22-94	20	500	8.06	8.09	0.03
12-29-94	80	360	7.71	7.73	0.02
01-06-95	25	500	7.57	7.60	0.03
01-13-95	50	70	7.55	7.54	0.01
01-20-95	5	510	7.53	7.54	0.01
01-26-95	30	500	7.38	7.41	0.03
01-31-95	30	320	7.47	7.48	0.01
02-09-95	20	210	7.63	7.63	0.00
02-14-95	20	175	7.62	7.64	0.02
02-24-95	30	310	7.85	7.89	0.04
03-03-95	20	340	7.75	7.78	0.03
03-09-95	30	510	7.31	7.34	0.03
03-17-95	10	510	7.28	7.29	0.01
03-24-95	15	485	7.23	7.24	0.01
03-31-95	15	475	7.47	7.48	0.01

Product Recovery Observations

Sampling Date	Volume of Product Removed (ml.)	Volume of Water Removed (ml.)	Depth to Product (ft-bgs)	Depth to Water (ft-bgs)	Thickness of Product (ft)
04-07-95	35	285	7.61	7.62	0.01
04-14-95	20	280	7.68	7.69	0.01
04-21-95	20	290	7.75	7.73	0.02
04-28-95	40	420	7.65	7.68	0.03
05-06-95	20	360	7.70	7.71	0.01
05-12-95	20	390	7.70	7.70	0.00
05-19-95	10	370	7.90	7.90	0.00
05-26-95	10	380	7.80	7.80	0.00
06-02-95	0	240	7.86	7.86	0.00
06-09-95	0	330	7.80	7.80	0.00
06-16-95	0	170	7.87	7.87	0.00
06-23-95	0	300	7.99	7.99	0.00
06-30-95	0	300	7.88	7.88	0.00
07-07-95	0	280	7.82	7.82	0.00
07-14-95	0	290	7.86	7.86	0.00
07-21-95	0	540	7.90	7.90	0.00
07-28-95	0	500	7.92	7.92	0.00
08-04-95	0	480	7.86	7.86	0.00
08-11-95	0	530	7.88	7.88	0.00
08-18-95	0	520	7.86	7.86	0.00
08-25-95	0	500	7.90	7.90	0.00
09-05-95	0	310	8.15	8.15	0.00
09-12-95	0	400	8.10	8.10	0.00
09-19-95	0	390	8.20	8.20	0.00
09-26-95	0	380	8.25	8.25	0.00
10-03-95	0	385	8.15	8.15	0.00
10-10-95	0	230	8.42	8.42	0.00
10-17-95	0	240	8.39	8.39	0.00
10-24-95	0	250	8.40	8.40	0.00
10-31-95	0	255	8.44	8.44	0.00
11-07-95	0	260	8.42	8.42	0.00
11-14-95	0	400	8.43	8.43	0.00
11-21-95	0	420	8.48	8.48	0.00
11-28-95	0	480	8.50	8.50	0.00
12-05-95	0	400	8.55	8.55	0.00
12-15-95	0	550	8.40	8.40	0.00
12-22-95	0	490	8.36	8.36	0.00
12-29-95	0	570	7.85	7.85	0.00
01-05-96	0	560	7.82	7.82	0.00
01-12-96	0	480	7.52	7.52	0.00
01-19-96	0	460	7.54	7.54	0.00
01-26-96	0	450	7.53	7.53	0.00
02-01-96	400	1000	7.03	7.12	0.09

Product Recovery Observations

Sampling Date	Volume of Product Removed (mL)	Volume of Water Removed (mL)	Depth to Product (ft-bgs)	Depth to Water (ft-bgs)	Thickness of Product (ft)
02-09-96	275	480	7.34	7.36	0.02
02-16-96	75	400	7.35	7.37	0.02
02-23-96	100	360	7.33	7.36	0.03
03-01-96	100	350	7.32	7.34	0.02
03-08-96	90	360	7.34	7.36	0.02
03-15-96	95	355	7.35	7.37	0.02
03-22-96	90	360	7.33	7.35	0.02
03-29-96	80	350	7.34	7.36	0.02
04-05-96	90	355	7.44	7.47	0.03
04-12-96	70	360	7.48	7.50	0.02
04-19-96	75	350	7.58	7.60	0.02
04-26-96	60	500	7.74	7.75	0.01
05-03-96	50	460	7.75	7.76	0.01
05-10-96	0	100	7.76	7.76	0
<b>Total to Date</b>	<b>7,852</b>				