

MONITORING WELL INSTALLATION AND
QUARTERLY GROUNDWATER
MONITORING REPORT
AND
PRODUCT RECOVERY
PROGRESS REPORT

Oct 1998

ARAMARK Uniform Services, Inc.
330 Chestnut Street
Oakland, California

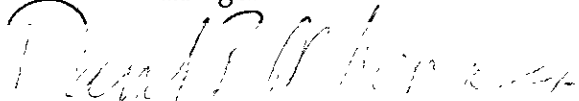
Prepared for
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October 1998



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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 Health Care Services (ACHCS). Based on the information presented in the tank documentation report, the ACHCS 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, Inc. (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 9,377 ml of free-product, however, the quantity of product during each subsequent sampling interval has significantly decreased. In addition, with the exception of the chemical analyses performed on groundwater samples collected during February 1995, TPH or BTX concentrations have not been identified in any groundwater sample collected since May 1993. In July 1998, ACHCS requested that an additional groundwater monitoring well be installed downgradient of monitoring well RAO-3. In response to this request, RMT installed groundwater monitoring well (RAO-5) south of monitoring well RAO-3 and obtained groundwater samples after installation activities had been completed, in August 1998. During well installation activities, damaged monitoring well RAO-1 was abandoned in accordance with applicable regulations.

1.2 Former Diesel Fuel Dispenser and Mop Oil UST Area

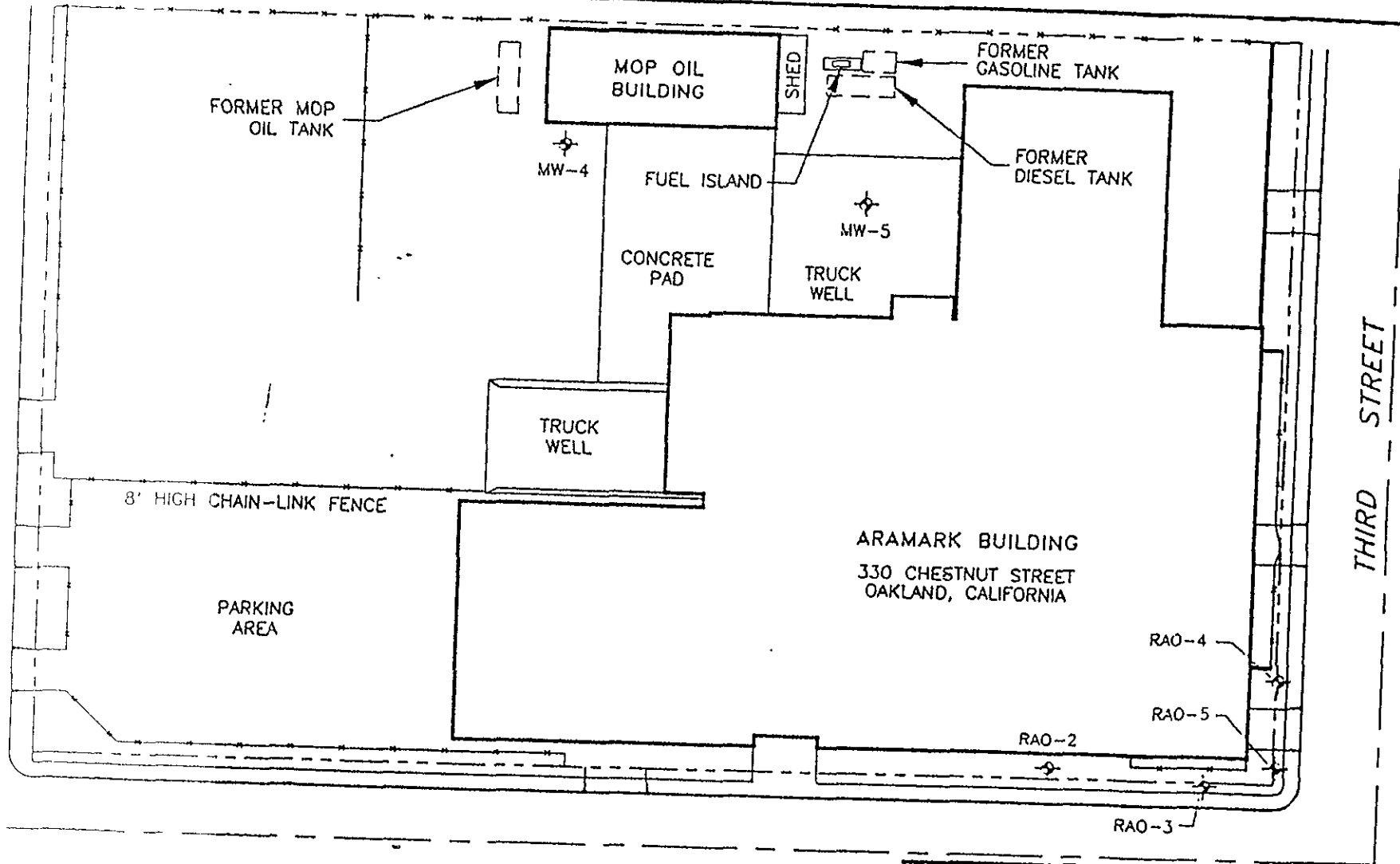
Two single walled, steel, underground petroleum hydrocarbon storage tanks were maintained at this facility to supply fuel for the delivery vehicles (Figure 1). In addition, an underground mop oil storage tank was also maintained at the facility. RMT was retained by ARAMARK to document the removal and disposal of the underground storage tanks and perform soil sampling as required by the ACHCS. 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 ACHCS, ARAMARK engaged the services of RMT 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 during 1995 identified the presence of total petroleum hydrocarbons at concentrations generally below 2mg/L, TPH as stoddard solvent (TPH -SS) and TPH as diesel fuel (TPH-D) concentrations have been below detection limits throughout 1996 and during the 1997 sampling event. In addition, the presence of BTEX has never been identified at concentrations above the method detection limit in either monitoring well. In response to a letter from Mr. Larry Seto of ACHCS dated July 31, 1998, the monitoring and sampling of wells MW-4 and MW-5 has been discontinued. However, wells MW-4 and MW-5 will not be abandoned until site closure has been obtained.

1.3 Purpose and Scope

The purpose of this report is to summarize the methods, procedures, and results of 3rd quarter activities conducted at the ARAMARK facility on August 27 and 28, 1998. The scope of work conducted during this reporting period included the following tasks:

- Observe and document the installation of groundwater monitoring well (RAO-5) to an approximate depth of 30-ft below ground surface (bgs) and screened between 5 and 23.5-ft bgs
- Observe and document the abandonment of groundwater monitoring well RAO-1
- Measurement of the depth to groundwater in monitoring wells RAO-2, RAO-3, RAO-4, RAO-5, MW-4, and MW-5
- The purging and sampling of monitoring well RAO-5.

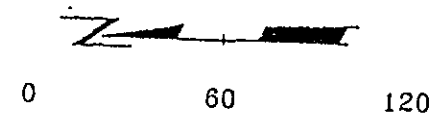


LEGEND:




GROUNDWATER MONITORING WELL

CHESTNUT STREET



APPROXIMATE SCALE IN FEET

PROJECT:		
ARAMARK UNIFORM SERVICES OAKLAND, CALIFORNIA		
SHEET TITLE:		
SITE PLAN		
DRAWN BY: CRB	SCALE:	PROJ. NO. 12013.11
CHECKED BY:	1" = 60'-0"	FILE NO. 1102
APPROVED BY:	DATE PRINTED:	FIGURE 1
DATE: MAY 1995		
		
RMT Inc. - Los Angeles Phone: 310/578-1241 4640 Admiralty Way Suite 301 Manna Del Rey, CA 90292		

- The measurement of free product thickness in product recovery well RAO-3, if present, and subsequent removal. If no free product is present a sample of the groundwater is to be collected from product recovery well RAO-3. Upon removal of free product and/or sample collection, the application of a 5-percent solution of hydrogen peroxide to the well.
- The chemical analyses of groundwater samples collected from monitoring wells RAO-5 and RAO-3, and the chemical analyses of one soil sample for the presence of BTEX and TPH-D using EPA SW-846 Methods 8020 and Method 8015M, respectively.



Section 2

Monitoring Well Installation Activities

In response to a letter from Mr. Larry Seto of ACHCS dated July 31, 1998, and a subsequent telephone conversation between Mr. Seto and Tariq Ahmad of RMT conducted on August 10, 1998, groundwater monitoring well installation and well abandonment activities were conducted on August 27 and 28, 1998, in the vicinity of monitoring well RAO-3. Monitoring well (RAO-5) was installed downgradient of RAO-3 and replaced damaged monitoring well RAO-1, which was subsequently abandoned, in accordance with ACHCS and Alameda County Public Works (ACPW) regulations. Prior to conducting any field activities, well installation and abandonment permits were obtained from ACPW and the Underground Service Alert was notified that drilling activities were to be conducted at the specified location. The methods and procedures used to conduct the field activities are presented in the following sections.

2.1 Soil Boring and Soil Sampling Methods

Soil boring SBRAO5 was advanced to a depth of approximately 30-ft (bgs) using 8.25-inch diameter, continuous-flight, hollow-stem auger equipment mounted to a limited-access drill rig. Soil samples were collected continuously using a California modified split-spoon sampler. Each sample was described visually in the field by the on-site engineer for the following characteristics: soil name (based on the Unified Soil Classification System), grain size, color, and plasticity. Soil from the top sample sleeve was emptied into a Zip-Lock[®] bag, given approximately 15-minutes to allow for any VOCs to volatilize into the head space of the bag, and screened in the field using a photoionization detector (PID). The soil sample with the highest PID reading was stored on ice pending transport to a California-certified laboratory according to USEPA protocol, including chain-of-custody procedures. Well installation activities were performed by West Hazmat Drilling Corporation, of Newark, California. A site plan showing the location of the new monitoring well is presented in Figure 1 and a copy of the soil boring log is included in Appendix A.

2.2 Monitoring Well Installation

Groundwater monitoring well RAO-5 was installed in soil boring SBRAO-5 to a depth of approximately 30-ft bgs and screened between 6 and 23.5-ft bgs. The monitoring well was constructed of flush-joint threaded 2-inch inside-diameter Schedule 40 PVC riser pipe, and factory-slotted Schedule 40 PVC screen with 0.020-inch slots. Washed silica sand was used to fill the annular space surrounding the well screen and was extended approximately 2-ft above the top of the screen to prevent infiltration of bentonite into the screened zone and a 2-ft thick bentonite pellet seal was placed on top of the sand to prevent the infiltration of the overlying

cement/bentonite grout into the filter pack. Cement/bentonite grout was pumped through a tremie pipe to backfill the annular space to the ground surface. The monitoring well was fitted with a locking cap and a protective casing that was cemented into the grout below the ground surface. A copy of the well construction details is included in Appendix A.

2.3 Monitoring Well Development

No sooner than 24 hours after monitoring well construction activities were completed, the monitoring well was developed by bailing the sediments present in the base of the well, and purging the well until the purge water was relatively sediment-free or until a minimum of ten static monitoring well (casing) volumes had been removed. The pH, temperature, turbidity, and conductivity of water removed during development was recorded. Well development data collected is included in Appendix B.

2.4 Chemical Analyses of Soil Sample

Soil sample collected at a depth of 3-ft bgs (4 -ppm PID reading) was analyzed for the presence of TPH-Diesel and BTEX using EPA SW-846 Methods 8015M and 8020, respectively. Chemical analyses of soil sample collected did not identify the presence of TPH-D or BTEX. Laboratory analyses were performed by BC Laboratories, Inc., of Bakersfield, California, and a copy of the laboratory report is included in Appendix C.

2.5 Disposal of Soil Cuttings

Drill cuttings generated during well installation activities were contained in 55-gal DOT-approved drums, labeled with the date, generator's name, site location, source, and stored on-site in a designated area pending disposal.

2.6 Well Surveying Activities

Monitoring well RAO-5 was surveyed to obtain vertical top of casing (TOC) elevations to the nearest 0.01-ft, based on the National Geodetic Vertical Datum, which was established by converting a City of Oakland bench mark to this basis (16NW9, elevation of 6.948 NGVD). In addition, existing monitoring wells were resurveyed at the same time to eliminate any potential TOC discrepancies that may have arisen from previous survey data. Surveying activities were performed by Langford Land Surveying, of Oakland, California, a registered California land surveyor. A copy of the well elevation data is included in Appendix D.



Section 3

Groundwater Monitoring Activities

Groundwater sampling activities were conducted on August 28, 1998, and included obtaining static water level measurements from monitoring wells RAO-2, RAO-4, RAO-5, MW-4, and MW-5 and a groundwater sample from the newly installed monitoring well RAO-5.

Groundwater samples were not collected from monitoring well RAO-3 due to the presence of a thin layer of free product.

3.1 Groundwater Flow Direction and Gradient

Prior to collecting groundwater samples, the depth to groundwater was measured in each monitoring well using an electronic water level indicator. Static water level measurements obtained on August 28, 1998, 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 southwest with a gradient of approximately 0.007-ft/ft.

3.2 Groundwater Sample Collection

A groundwater sample was collected from monitoring well RAO-5 on August 28, 1998. Prior to sampling, the monitoring well was purged using a designated disposable bailer. A minimum of three well casing volumes (casing and sand pack volume) were extracted before a groundwater sample was collected. 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.

After the monitoring well had recharged to within 80 percent of its pre-purge volume (approximately 15-min) a groundwater sample was 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. The sample was preserved using hydrochloric acid and stored on ice pending transport to a commercial independent California-certified laboratory according to USEPA protocol to include chain-of-custody procedures. Groundwater sample collection data are presented in Appendix B.

Table 1
Static Water Level Measurement - August 1998

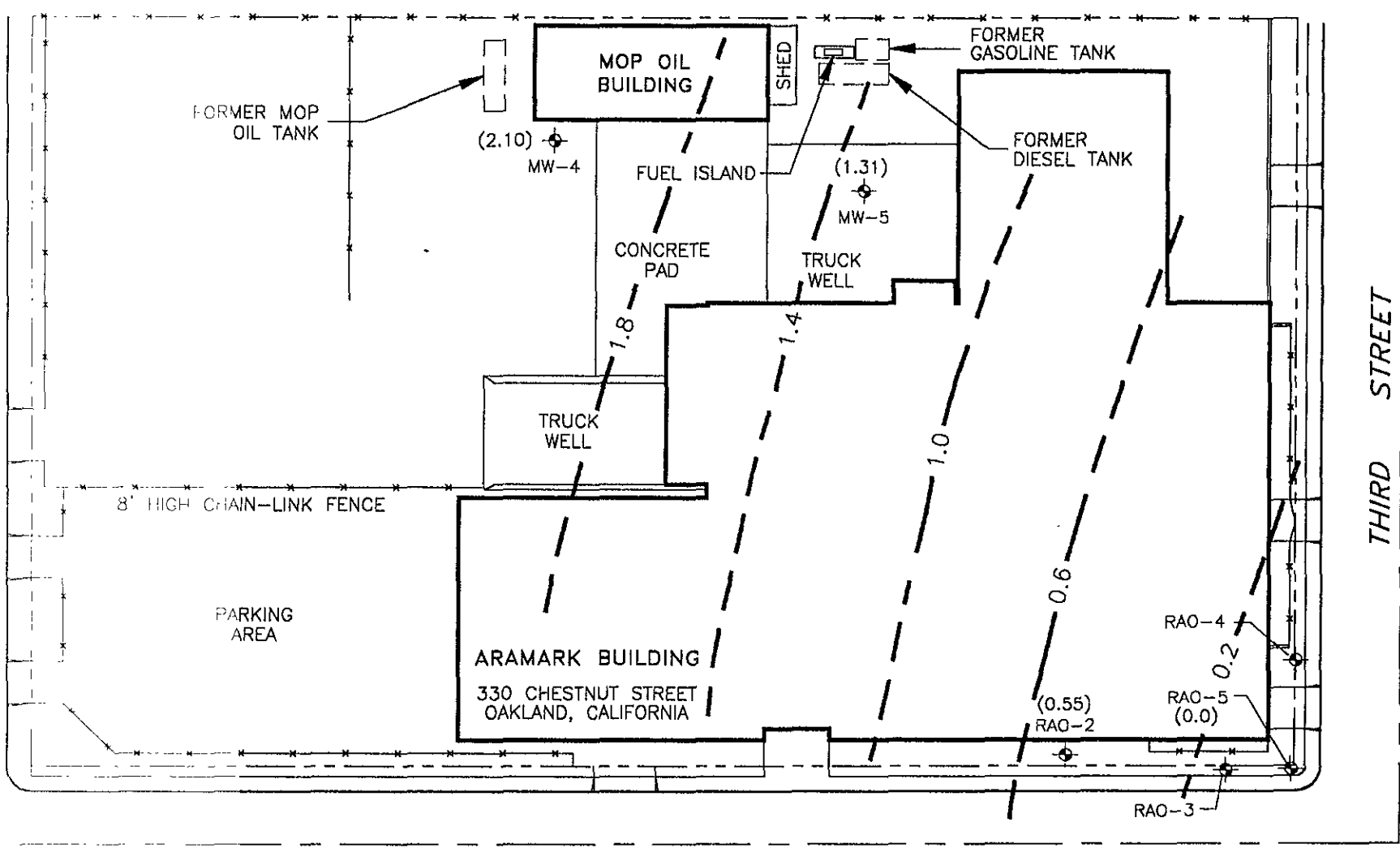
Monitoring Well Location	TOC Elevation (ft above MSL)	Depth to Water (ft below TOC)	Groundwater Elevation (ft above MSL)
RAO-2	8.44	7.89	0.55
RAO-3 ^a	7.92	--	--
RAO-4 ^b	8.02	--	--
RAO-5	7.62	7.62	0.00
MW-4	11.38	9.28	2.10
MW-5	9.79	8.48	1.31

a: Free product present.




b: Monitoring well casing dislodged at approximately 8-ft bgs.

3.3 Chemical Analyses of Groundwater

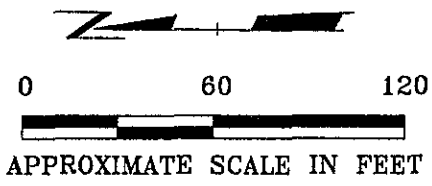
A groundwater sample was collected from monitoring well RAO-5 and was analyzed for the presence of BTEX and TPH-D using EPA SW-846 Methods 8020 and 8015M, respectively. The results of the laboratory analyses are summarized in Table 2 - Former Diesel Fuel UST Area. A copy of the laboratory report is included in Appendix C. All laboratory analyses were conducted by BC Laboratories, Inc., of Bakersfield, California.



LEGEND:

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

CHESTNUT STREET




PROJECT: ARAMARK UNIFORM SERVICES OAKLAND, CALIFORNIA		
SHEET TITLE: SITE PLAN AND GROUNDWATER CONTOUR MAP - AUGUST, 1998		
DRAWN BY: CRB	SCALE: 1" = 60'-0"	PROJ. NO. 12013.11
CHECKED BY:	DATE PRINTED:	FILE NO. 1102
APPROVED BY:	FIGURE 2	
DATE: MAY 1995		
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Table 2
Chemical Analyses of Groundwater (Former Diesel Fuel UST Area)

Sample Location	Sampling Date	Parameter (ug/L)				
		Benzene	Toluene	Ethylbenzene	Xylenes	TPH-D
RAO-1 ^a	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
	04-28-94	<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	01-17-98	<0.3	<0.3	<0.3	<0.6	<200
	02-18-97	<0.3	<0.3	<0.3	<0.6	<200
	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
	04-28-94	<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

a: Monitoring well abandoned August 27, 1998.

**Table 2
Chemical Analyses of Groundwater (Former Diesel Fuel UST Area)**

Sample Location	Sampling Date	Parameter (ug/L)				
		Benzene	Toluene	Ethylbenzene	Xylenes	TPH-D
RAO-3	08-28-98 ^b	--	--	--	--	--
	01-17-98 ^b	--	--	--	--	--
	10-17-97	0.79	<0.3	3.6	3.5	46,000
	11-15-96	0.33	<0.3	0.61	<0.6	24,000
	08-06-96	0.45	<0.3	<0.3	<0.6	11,000
	05-10-96	1.8	<0.3	3.0	5.5	2,000,000
	02-01-96	16	<0.5	55	<0.5	1,700,000
RAO-4	01-17-98	<0.3	<0.3	<0.3	0.71	<200
	02-18-97	<0.3	<0.3	<0.3	<0.6	<200
	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
	04-28-94	<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	
RAO-5	08-28-98	<1.0	<1.0	<1.0	<1.0	<200

^b: Free product sheen was identified.

Table 3
Chemical Analyses of Groundwater (Former Dispenser and Mop Oil UST Area)

Sample Location	Sampling Date	Parameter (ug/L)						
		Benzene	Toluene	Ethyl Benzene	Xylenes	TPH-SS	TPH-K	TPH-D
MW-4	01-17-98	--	--	--	--	<200	<200	<200
	02-18-97	--	--	--	--	<200	<200	<200
	11-15-96	--	--	--	--	--	--	<200
	08-06-96	<0.3	<0.3	<0.3	<0.6	<200	<200	<200
	05-10-96	<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	01-17-98	--	--	--	--	<200	<200	<200
	02-18-97	--	--	--	--	<200	<200	<200
	11-15-96	--	--	--	--	--	--	<200
	08-06-96	<0.3	<0.3	<0.3	<0.6	<200	<200	<200
	05-10-96	<0.3	<0.3	<0.3	<0.3	<200	<200	350
	02-01-96	<0.5	<0.5	<0.5	<0.5	840 ^a	<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
Blank	8/28/98	<1.0	<1.0	<1.0	<1.0	--	--	--

--: Not Analyzed.

3.4 Purged Groundwater Disposal

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

Section 4

Product Recovery Activities

In December 1992, a passive 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 monitoring well RAO-3 on a quarterly basis during the period between November 1995 and December 1997 in order to remove any residual petroleum hydrocarbons that may still have remained within the well packing.

On August 18, 1997, and April 24, 1998, monitoring well RAO-3 was subjected to augmented liquid extraction (ALE) to remove free phase hydrocarbons (FPH) and dissolved phase contamination from the vicinity of the wellbore. A vacuum truck was used to apply a vacuum pressure at well RAO-3 by inserting a slotted drop pipe inside the sealed well for approximately 40 minutes. Monitoring well RAO-3 was allowed to recharge for approximately 15 minutes before the vacuum was applied for an additional 20 minutes. Approximately 10 and 5-gallons of FPH and approximately 290 and 360-gallons of an oil/water mixture were removed, respectively. Wastewater generated was transported as non-RCRA hazardous waste to the Evergreen Oil recycling facility located in Newark, California.

In summary, approximately 30-mL of free product were recovered during the 3rd quarter period (July through September 1998) using the passive product recovery canister. Product recovery to date at RAO-3 totals approximately 7.32-gallons. A summary product recovery operations is presented in Appendix E.



Section 5

Quality Assurance/Quality Control (QA/QC)

QA/QC procedures used during sampling included the analysis of a field blank. Laboratory QA/QC procedures included matrix and method spike, spike duplicate recovery measurement, and analysis of method blanks. Chemical analysis of travel and method blanks did not identify the presence VOCs above method detection levels.



Appendix A

Soil Boring Log & Well Construction Details



LOG OF TEST BORING
 FH: 12013SBS

BORING NO.: SBRA05
 SHEET NO.: 1 OF 1
 PROJECT NO.: 12013.15
 INSTALLATION: _____
 SURFACE ELEV.: _____
 BOREHOLE DIA.: 8"

PROJECT NAME: ARAMARK UNIFORM SERVICES, INC.
 LOCATION: OAKLAND, CALIFORNIA
 CONTRACTOR: WEST HAZMAT
 DRILLING METHOD: HOLLOW STEM AUGER

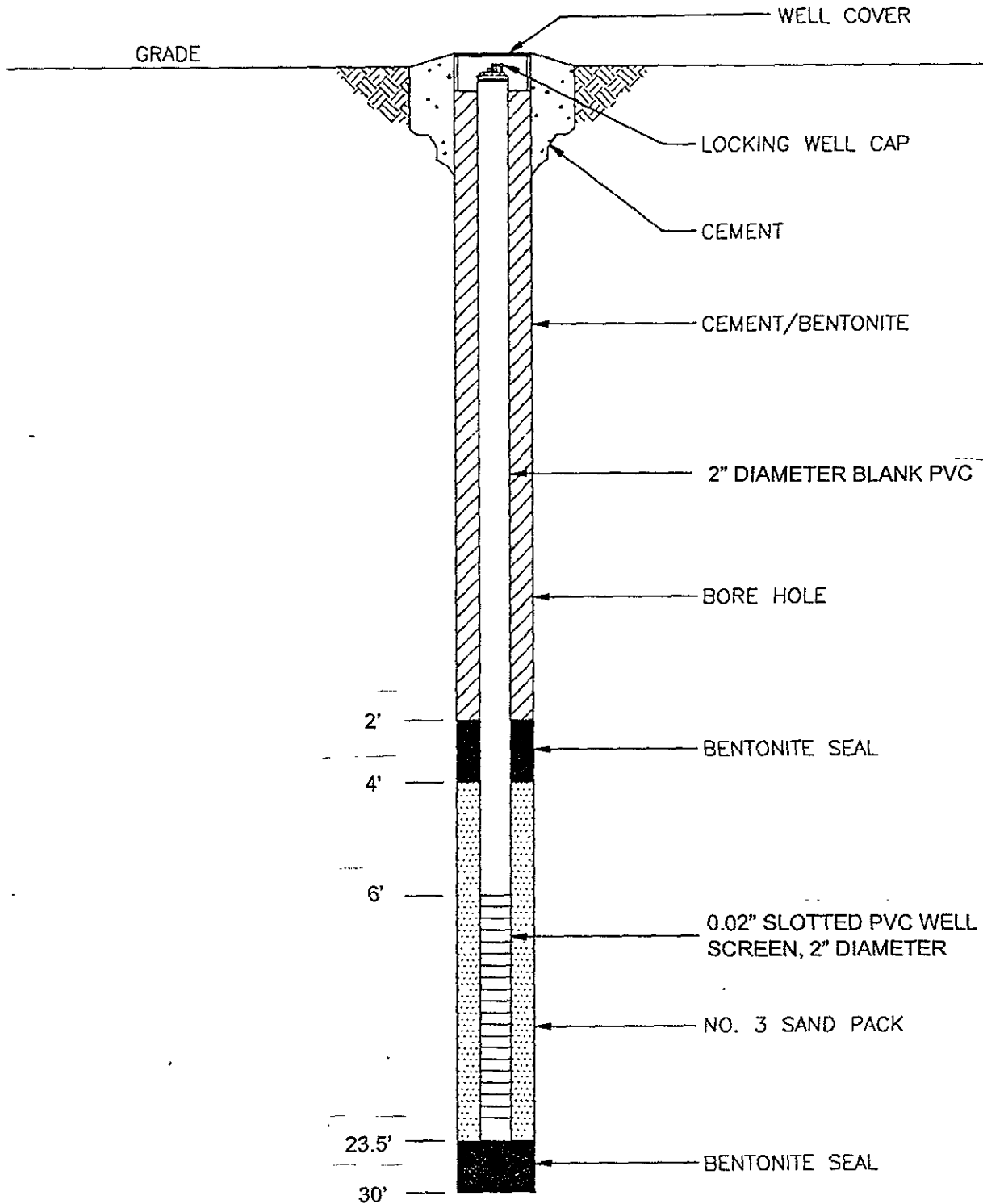
SAMPLING NOTES					VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS
INTERVAL		RECOVERY %		DEPTH	
NO.	TYPE	BLOWS	PIU (ppm)		
RAO-5 @ 1'	SS	1 HAND AUGER	<2	5	SILT (SM): dark brown, slightly moist, no odor or stain.
RAO-3 @ 3'	SS	1 HAND AUGER	3.8		SILT (SM); with little fine sand, light brown, slightly moist, no odor or stain.
RAO-5 @ 5'	SS	50 50-6"	<2	10	SAND w/SILT (SP-SM): fine to medium sand, dark brown, moist, no odor or stain.
RAO-5 @ 10'	SS	100 11,14,15	<2		SILT (SM): dark brown, slight plasticity, wet, no odor or stain.
RAO-3 @ 12'	SS	100 15,15,20	<2	15	SAND w/SILT (SW-SM): fine sand, slight plasticity, wet, dark brown with beige swirls and red stains, no odors.
RAO-5 @ 15'	SS	100 7,9,10	<2		Same as above.
RAO-5 @ 17'	SS	100 7,20,30-3"	<2	20	SAND (SW): fine to medium sand, dark brown, moist, no odor or stain.
RAO-3 @ 20'	SS	80 20,30-1"	<2		Same as above.
RAO-5 @ 22'	SS	80 13,30-3"	<2	25	Same as above.
RAO-5 @ 25'	SS	80 22,50-1"	<2		Same as above.
RAO-3 @ 30'	SS	80 18,30-2"	<2	30	Total Depth = 30'
				35	
				40	

GENERAL NOTES

DATE STARTED: 8/27/98
 DATE COMPLETED: 8/27/98
 RIG LIMITED ACCESS
 CREW CHIEF ADAM
 LOGGED: YAN CHECKED:

WATER LEVEL OBSERVATIONS

WHILE DRILLING: ∇ 9.0' bgs
 AT COMPLETION: ∇ 7.0' bgs.
 AFTER DRILLING: _____
 CAVE-IN: DATE/TIME _____ DEPTH _____
 WATER: DATE/TIME _____ DEPTH _____



NOT TO SCALE

PROJECT: ARAMARK UNIFORM SERVICES, INC. OAKLAND, CALIFORNIA		
SHEET TITLE MONITORING WELL CONSTRUCTION DETAIL		
DRAWN BY: CRB	SCALE: NOT TO SCALE	PROJ NO: 12011
CHECKED BY:		FILE NO: 12011A20
APPROVED BY:	DATE PRINTED:	RAO-5
DATE: AUGUST '98		
RMT		RMT Inc - Los Angeles Phone 310/578-1241 4540 Admiralty Way Suite 301 Marina Del Rey, CA 90292



Appendix B

Groundwater Sample Collection Data

WELL DEVELOPMENT AND GROUNDWATER SAMPLE COLLECTION DATA

Project Name:	Aramark - Oakland
Sampling Date	08/28/98
Sampled By:	Yoonkee Min (RMT, Inc.)

Monitoring Well	Purge Number	Volume (Gal)	Temp (°C)	pH	Turbidity (NTU)	Cond. (uS/cm)	DTW (ft)
RAO-5		1	21.6	7.96	169	1760	7.62
	1	5	20.5	8.02	48.4	1580	
	2	10	21.0	7.71	29.7	1480	
	3	15	20.9	7.60	17.8	1350	
	4	20	20.8	7.56	16.9	1290	
	5	25	20.5	7.51	17.1	1270	
	6	30	21.0	7.38	15.9	1200	
	7	35	20.9	7.36	11.2	1190	
	8	40	20.8	7.33	10.1	1180	



Appendix C

Laboratory Report (Soil & Groundwater Sampling)

BC LABORATORIES, INC.

September 14, 1998

YOONKEE MIN
RMT INC.
4640 ADMIRALITY WAY
SUITE 301
MARINA DEL REY, CA 90292

Subject: Laboratory Submission No.: 98-10095
Samples Received: 08/28/98

Dear Mr. Min:

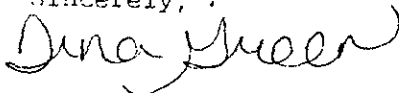
The samples(s) listed on the Chain of Custody report were received by BC Laboratories, Inc. on 08/28/98.

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. 204.

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 98-10095 when calling for assistance.

Sincerely,



Tina Green
Project Coordinator
BC Laboratories, Inc.

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


Date Reported: 09/03/98
Date Received: 08/28/98
Laboratory No.: 98-10095-1

Project Number: ARA-OAKLAND
Sample ID: RAO-5
Sample Depth: 3'
Sample Matrix: Soil
Sample Collected By: Y. MIN

Date Collected: 08/27/98
Date Extracted: 09/01/98
Date Analyzed: 09/01/98

<u>Constituents</u>	<u>Analysis Results</u>	<u>Reporting Units</u>	<u>Practical Quantitation Limit</u>
Benzene	None Detected	mg/kg	0.005
Toluene	None Detected	mg/kg	0.005
Ethyl Benzene	None Detected	mg/kg	0.005
Total Xylenes	None Detected	mg/kg	0.01
Surrogate % Recovery	97.	%	70-130

California D.O.H.S. Cert. #1186, AZ License: AZ0345


Stuart G. Buttram
Department Supervisor

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

Date Reported: 09/06/98
 Date Received: 08/28/98
 Laboratory No.: 98-10095-1

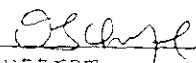
Project Number: ARA-OAKLAND
 Sample ID: RAO-5
 Sample Depth: 3'
 Sample Matrix: Soil
 Sample Collected By: Y. MIN

Date Collected: 08/27/98
 Date Extracted-8015M(d): 08/01/98
 Date Analyzed-8015M(d): 09/02/98 @ 08:02PM

<u>Constituents</u>	<u>Analysis Results</u>	<u>Reporting Units</u>	<u>Practical Quantitation Limit</u>
Total Petroleum Hydrocarbons (diesel)	None Detected	mg/kg	10.
Surrogate % Recovery	87.	%	44-151

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

California D.O H.S. Cert. #1186, AZ License: AZ0345


 Stuart G. Buttram
 Department Supervisor

Purgeable Aromatics
and
Total Petroleum Hydrocarbons

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

Date Reported: 09/03/98
Date Received: 08/28/98
Laboratory No.: 98-10095-2

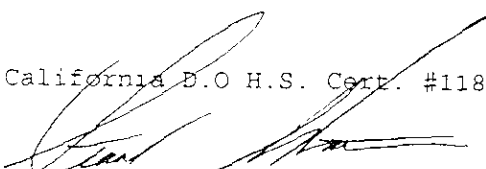
Project Number: ARA-OAKLAND
Sample ID: RAO-5
Sample Matrix: Groundwater
Sample Collected By: Y. MIN

Date Collected: 08/28/98
Date Extracted-8020: 09/01/98
Date Analyzed-8020: 09/01/98
Dilution Used-8020: 1

<u>Constituents</u>	<u>Analysis Results</u>	<u>Reporting Units</u>	<u>Practical Quantitation Limit</u>
Benzene	None Detected	µg/L	1.
Toluene	None Detected	µg/L	1.
Ethyl Benzene	None Detected	µg/L	1.
Total Xylenes	None Detected	µg/L	1.
Surrogate % Recovery	80.	%	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, AZ License: AZ0345


Stuart G. Buttram
Department Supervisor

Total Petroleum Hydrocarbons

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

Date Reported: 09/14/98
 Date Received: 08/28/98
 Laboratory No.: 98-10095-2

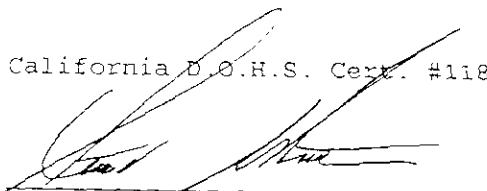
Project Number: ARA-OAKLAND
 Sample ID: RAO-5
 Sample Matrix: Groundwater
 Sample Collected By: Y. MIN

Date Collected: 08/28/98
 Date Extracted-8015M(d): 09/01/98
 Date Analyzed-8015M(d): 09/04/98
 Dilution Used-8015M(d): 1

<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.
Surrogate % Recovery	83.	%	61-120

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

California D.O.H.S. Cert. #1186, AZ License: AZ0345


 Stuart G. Buttram
 Department Supervisor

Purgeable Aromatics
and
Total Petroleum Hydrocarbons

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

Date Reported: 09/03/98
Date Received: 08/28/98
Laboratory No.: 98-10095-TB

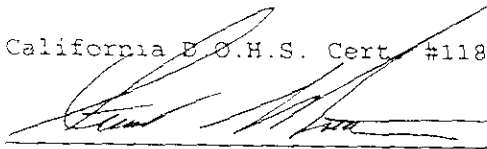
Project Number: ARA-OAKLAND
Sample ID: TRAVEL BLANK
Sample Matrix: Groundwater
Sample Collected By: Y. MIN

Date Collected: 08/28/98
Date Extracted-8020: 09/01/98
Date Analyzed-8020: 09/01/98
Dilution Used-8020: 1

<u>Constituents</u>	<u>Analysis Results</u>	<u>Reporting Units</u>	<u>Practical Quantitation Limit</u>
Benzene	None Detected	µg/L	1.
Toluene	None Detected	µg/L	1.
Ethyl Benzene	None Detected	µg/L	1.
Total Xylenes	None Detected	µg/L	1.
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, AZ License: AZ0345


Stuart G. Buttram
Department Supervisor

CHAIN OF CUSTODY

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



Report To:		Analysis Requested				MATRIX	
Name: RMT	Project: ARA-oakland	8015 PH-Diesel 8020 BTEX					DW - Drinking Water GW - Ground Water WW - Waste Water S - Soil O - Oil SL - Sludge M - Miscellaneous
Address: 4640 Admiralty	Project #:						
City: Marina Del Rey	Sampler Name:						
State: CA Zip: 90242	Y. Min						
Attn: Yoonkee Min	Submission #						
Phone: (310) 578-1241	98-10095	DISTRIBUTION 88				Turn Around Time Requested	

Lab #	Sample Description	Date & Time Sampled							
-1	RAO-5 @ 3'	8/27/98	X	X				S	1 Sleeve
-2	RAO-5	8/28/98	X	X				GW	1 Lauer, 300A
-TP	Travel Blank	8/28/98		X				M	200A

NUMBERING
CHECKED BY D

Billing Information:			Report Drinking Water on State Form? Y/N		Comments: Please Mail Chain-of-Custody to RMT office in Marina Del Rey.
Name:			Send Copy to State of Calif. Y/N		
Address:			Relinquished by: (Signature) <i>Yoonkee Min</i>		
City State Zip			Received by: (Signature) <i>Jah M...</i> 8-28-98 1445		
Attention:			Relinquished by: (Signature) <i>Jah M...</i>		Received by: (Signature) <i>Michael Mensing</i> 8/28/98 2030
PO #			Relinquished by: (Signature)		Date: Time:
BC Lab. Field Service			Relinquished by: (Signature)		Date: Time:
Time: Miles:			Relinquished by: (Signature)		Date: Time:
Equipment: Flat Rate:			Relinquished by: (Signature)		Date: Time:

Revised 5/97 . Sample Disposal by BC Labs may be billed at \$5.00 / sample for non-aqueous Samples:

Submission #: 98-10095

Project Code: _____

SHIPPING INFORMATION

SHIPPING CONTAINER

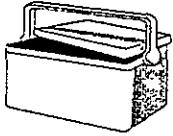
Federal Express UPS Hand Delivery
BC Lab Field Service Other (Specify) _____

Ice Chest None
Box Other (Specify) _____

Refrigerant: Ice Blue Ice None Other Comments: _____

Custody Seals: Ice Chest Containers None Comments: _____
Intact? Yes No Intact? Yes No

All samples received? Yes No All samples containers intact? Yes No Description(s) match COC? Yes No



Ice Chest ID BC RTU
Temperature: _____ °C
Thermometer ID: 17
Emissivity .85
Container QT Amber

Ice Chest ID _____
Temperature: _____ °C
Thermometer ID: _____
Emissivity _____
Container _____

SAMPLE CONTAINERS

SAMPLE NUMBERS

	1	2	3	4	5	6	7	8	9	10	11	12
QT GENERAL MINERAL/ GENERAL PHYSICAL												
PT PE UNPRESERVED												
QT INORGANIC CHEMICAL METALS												
PT INORGANIC CHEMICAL METALS												
PT CYANIDE												
PT NITROGEN FORMS												
PT TOTAL SULFIDE												
2oz. NITRATE / NITRITE												
100ml TOTAL ORGANIC CARBON												
QT TOX												
PT CHEMICAL OXYGEN DEMAND												
100ml PHENOLICS												
40ml VOA VIAL TRAVEL BLANK												
40ml VOA VIAL												
VOA SET (3 VIALS, 1TB)												
QT EPA 413.1, 413.2, 418.1												
PT ODOR												
RADIOLOGICAL												
BACTERIOLOGICAL												
PT EPA 504												
QT EPA 508/608/8080												
QT EPA 515.1/8150												
QT EPA 525												
QT EPA 525 TRAVEL BLANK												
100ml EPA 547												
100ml EPA 531.1												
QT EPA 548												
QT EPA 549												
QT EPA 632												
QT EPA 8015M												
QT QA/QC												
QT AMBER												
8 OZ JAR												
32 OZ JAR												
SOIL SLEEVE												
PCB VIAL												
PLASTIC BAG												

32

1

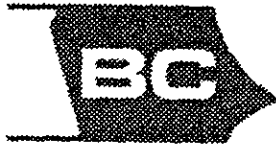
1

1

Comments _____

Completed by _____

OK 8/31/98



LABORATORIES, INC.

FIELD TEMPERATURE FORM

Date: 8-28-98

Time: 1445

Completed By: John McKnight

Temperature: Warm

Type of bottle Used: _____

Transportation Container: BC ice chest

Refrigerant: H₂O ice

Custody Seals: No

Comments: _____

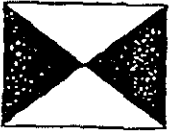
Samples were picked up at: Oakland Asamark (RMT)

From: (signature if possible) _____



Appendix D

Well Survey Data



LANGFORD LAND SURVEYING



Sent by US Mail to:
Yoon Kee Min
RMT, Inc.
4640 Admiralty Way, Suite 301
Marina Del Rey, CA 90202-6621

Fax (310) 821-3280

September 1, 1998
Invoice No. 98-1212

**RE: Vertical Location of Six Monitoring Wells
Site: 330 Chestnut Street, Oakland**

Statement

We have located the five existing and one new (re-built) monitoring wells on the above named site. These elevations based on the National Geodetic Vertical Datum, which was established by converting a City of Oakland bench mark to this basis. This bench mark is a standard pin monument in the intersection of 3rd Street and Chestnut Street. This monument is designated 16NW9, elevation = 6.948 (NGVD). (The unconverted elevation of this bench mark is 3.948 per the City of Oakland). Well designations were taken from the provided RMT Site Plan. Casing elevations were taken on the top of 2" casings at a filed notch on northerly side. Ground elevations taken on box rim.

**Amount Now Due \$450
Thank You**

Well Designation	Casing Elevation	Ground Elevation
RAO2	8.44	8.76
RAO3	7.92	8.11
RAO4	8.02	8.21
RAO5 (new well)	7.62	8.02
MW4	11.38	11.54
MW5	9.79	9.98

Enclosed:
Remittance envelope

file=inv1212.doc



Appendix E

Product Recovery Logs



Passive Product Recovery Observations (RAO-3)

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

Passive Product Recovery Observations (RAO-3)

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)
05-20-93	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
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

Passive Product Recovery Observations (RAO-3)

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)
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
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

Passive Product Recovery Observations (RAO-3)

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)
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
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	0.00
05-17-96	0	480	7.78	7.78	0.00
05-24-96	0	490	7.90	7.90	0.00
05-31-96	10	495	7.60	7.60	0.00
06-08-96	0	490	7.72	7.72	0.00
06-14-96	10	490	7.72	7.72	0.00
06-21-96	0	480	7.74	7.74	0.00

Passive Product Recovery Observations (RAO-3)

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)
06-28-96	0	490	7.76	7.76	0.00
07-05-96	0	485	7.75	7.75	0.00
07-12-96	0	495	7.76	7.76	0.00
07-19-96	10	400	7.90	7.90	0.00
07-26-96	0	425	7.85	7.85	0.00
08-02-96	0	420	7.90	7.90	0.00
08-16-96	0	430	7.82	7.82	0.00
08-30-96	0	450	7.80	7.80	0.00
09-13-96	10	550	8.15	8.15	0.00
09-27-96	0	500	8.20	8.20	0.00
10-11-96	0	525	8.30	8.30	0.00
10-25-96	5	545	8.28	8.28	0.00
11-08-96	0	500	8.26	8.26	0.00
11-22-96	0	525	8.10	8.10	0.00
12-06-96	0	500	8.20	8.20	0.00
12-23-96	0	540	7.92	7.92	0.00
01-03-97	10	510	7.46	7.46	0.00
01-16-97	50	500	7.36	7.38	0.02
01-31-97	240	250	7.13	7.17	0.04
02-14-97	100	300	7.25	7.26	0.01
02-28-97	90	350	7.26	7.27	0.01
03-14-97	100	470	7.72	7.74	0.02
03-28-97	90	480	7.74	7.76	0.02
04-11-97	80	490	7.82	7.83	0.01
04-25-97	0	400	7.90	7.90	0.00
05-09-97	0	450	7.92	7.92	0.00
05-23-97	0	400	7.94	7.94	0.00
06-06-97	10	490	7.77	7.77	0.00
06-20-97	10	520	8.04	8.04	0.00
07-03-97	10	170	7.95	7.95	0.00
07-18-97	0	490	8.10	8.10	0.00
08-01-97	0	495	8.20	8.20	0.00
08-15-97	0	480	8.30	8.30	0.00
08-29-97	0	490	8.40	8.40	0.00
09-11-97	0	290	8.15	8.15	0.00
09-26-97	0	505	8.09	8.09	0.00
10-10-97	0	100	8.19	8.19	0.00
10-24-97	0	250	8.24	8.24	0.00

Passive Product Recovery Observations (RAO-3)

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)
11-07-97	0	540	8.21	8.21	0.00
11-21-97	0	550	7.60	7.60	0.00
12-05-97	0	560	7.22	7.22	0.00
12-19-97	0	500	7.24	7.24	0.00
01-02-98	50	520	7.00	7.00	0.00
01-16-98	40	540	7.00	7.00	0.00
01-30-98	40	530	7.20	7.20	0.00
02-13-98	50	500	7.10	7.10	0.00
02-27-98	220	510	6.99	6.99	0.00
03-13-98	120	300	6.96	6.96	0.00
03-27-98	90	350	6.98	6.98	0.00
04-10-98	50	400	7.20	7.20	0.00
04-24-98	0	450	7.22	7.22	0.00
05-08-98	0	460	7.28	7.28	0.00
05-22-98	0	450	7.40	7.40	0.00
06-05-98	0	570	7.18	7.18	0.00
06-19-98	10	500	7.15	7.15	0.00
07-05-98	5	495	7.18	7.18	0.00
07-06-98	10	520	7.20	7.20	0.00
07-24-98	5	495	7.30	7.30	0.00
08-07-98	0	300	7.40	7.40	0.00
08-21-98	0	250	7.45	7.45	0.00
08-28-98	0	510	7.44	7.44	0.00
09-04-98	0	100	7.46	7.46	0.00
09-18-98	0	300	7.44	7.44	0.00
10-02-98	0	370	7.75	7.75	0.00
Total to Date	9,377				

Augmented Liquid Extraction (RAO-3)

Sampling Date	Volume of Product Removed (gal)	Volume of Product/Water Removed (gal)
08-18-97	10	290
04-24-98	5	360