

December 18, 1991
Project No. RC02705

DRAFT

Mr. Donald Code
United Parcel Service, Inc.
8400 Pardee Drive
Oakland, California 94621

SUBJECT: Results of Quarterly Ground-Water Monitoring, November 1991, United Parcel Service, Inc. Facility, 8400 Pardee Drive, Oakland, California.

Dear Mr. Code:

This letter report presents the results of the quarterly monitoring and sampling for the quarter ending November 1991 for the United Parcel Service, Inc. (UPS) facility referenced above. The scope of work for this project was contained in a previous Geraghty & Miller, Inc. (Geraghty & Miller) letter to UPS, dated February 11, 1991.

GROUND-WATER SAMPLING PROCEDURES

Ground-water samples were collected from Monitoring Wells MW-1 through MW-6 on November 18, 1991 (Figure 1). Prior to sampling, depth to water was measured, and each well was checked for the presence of liquid-phase hydrocarbons. Liquid-phase hydrocarbons were not observed in any of the monitor wells.

Prior to sampling, each well was purged using an ARO 1/2-inch diaphragm pump with a new length of polyethylene tubing for each well. Approximately four casing volumes of water were purged from each of the wells. The depth to water was allowed to equilibrate in each of the wells prior to sampling. Purged water was monitored for pH, specific conductance, and temperature. A summary of the field sampling parameters is presented in Table 1. The purged water was placed into 55-gallon drums and stored on-site for proper handling and disposal by UPS.

Following purging, ground-water samples were collected from the wells using a new disposable polyethylene bailer for each well. The ground-water samples were placed

into the appropriate U.S. Environmental Protection Agency (USEPA) approved containers, placed on ice, and transported to Superior Precision Analytical Laboratory, Inc. of Martinez, California, along with appropriate chain-of-custody documentation. The water samples were analyzed for total petroleum hydrocarbons as diesel (TPHD) by modified USEPA Method 8015 and benzene, toluene, ethylbenzene, and total xylenes (BTEX) by USEPA Method 8020. In addition, the samples collected from Monitor Wells MW-4 through MW-6 were analyzed for total petroleum hydrocarbons as gasoline (TPHG) by modified USEPA Method 8015. Copies of the chain-of-custody forms and laboratory reports are attached.

A trip blank was also submitted to the laboratory for analysis. The trip blank consisted of a sample vial containing laboratory-grade water which accompanied the sample bottles from the laboratory to the field and back to the laboratory. The purpose of the trip blank was to assess whether any volatile compounds of interest have been imparted to the samples by the sample container, the preservative (if used), air in the vicinity of the sample bottles during shipping, or other exogenous sources. The trip blank was analyzed for TPHG (modified USEPA Method 8015) and BTEX (USEPA Method 8020).

RESULTS

RESULTS OF DEPTH-TO-WATER MEASUREMENTS

Depth-to-water measurements and ground-water elevations for the wells are presented in Table 2. The data shows that, with the exception of MW-4 and MW-6, ground-water elevations decreased between August and November 1991. Based on the ground-water elevations, the direction of shallow ground-water flow in the vicinity of the southern fueling facilities is generally toward the southwest. In the vicinity of the northern fueling facilities, the direction of shallow ground-water flow is generally toward the northeast (Figure 1).

GROUND-WATER SAMPLING RESULTS

The results of ground-water analyses for November 1991 are summarized in Table 3. TPHD and BTEX were detected in the water samples from Monitor Wells MW-1, MW-2, and MW-3 near the southern fuel tanks. In November 1991, TPHD was detected at

concentrations of 6,600 $\mu\text{g/L}$, 0.8 $\mu\text{g/L}$, and 0.6 $\mu\text{g/L}$ in the water samples collected from MW-1, MW-2, and MW-3, respectively.

No TPH or BTEX were detected in the water samples from Monitor Wells MW-5 and MW-6 near the northern fueling facilities. Benzene was detected in ground water from MW-4 at 0.3 $\mu\text{g/L}$. TPHD was detected at concentrations of 60 $\mu\text{g/L}$ and 100 $\mu\text{g/L}$ in the water samples collected from MW-4 and MW-5, respectively. The trip blank did not contain detectable concentrations of petroleum hydrocarbons.

Geraghty & Miller appreciates the opportunity to be of service to UPS. If you have any questions regarding this letter report, please call the undersigned at (510) 233-3200.

Sincerely,
GERAGHTY & MILLER, INC.

JoEllen Kuszmaul
Project Geologist/Project Manager

Gary W. Keyes, P.E.
Principal Engineer/Project Officer

Attachments:	Table 1	Summary of Field Sampling Data
	Table 2	Depth-to-Water and Ground-Water Elevations
	Table 3	Ground-Water Analytical Results
	Figure 1	Ground-Water Contour Map, November 1991
	Attachment:	Copies of Chain of Custody and Certified Analytical Results

**Table 1 - Summary of Field Sampling Data
United Parcel Service, 8400 Pardee Drive, Oakland, California**

Well	Date	Calculated Purge Volume(a) (Gallons)	Actual Purge Volume (Gallons)	FIELD PARAMETERS			Depth to Water(b) (Feet)	Well Depth(b) (Feet)	Casing Diameter (inches)
				pH	SC (μ mhos/cm)	Temperature ($^{\circ}$ F)			
MW-1	18-Nov-91	26	26	9.33	1050	68.9	4.21	14.1	4
MW-2	18-Nov-91	26	26	8.45	3010	69.3	4.93	15.4	4
MW-3	18-Nov-91	25	25	9.04	1220	66.6	4.23	14.6	4
MW-4	18-Nov-91	26	26	9.15	8890	70.8	4.03	14.7	4
MW-5	18-Nov-91	25	25	9.19	4260	67.8	4.25	14.8	4
MW-6	18-Nov-91	64	64	9.55	4230	68.6	6.99	18.1	6

(a) Based on four casing volumes in June and July; based on three casing volumes in August.

(b) Measured from top of PVC casing.

NA = Not analyzed

SC = Specific conductance

MSL = Mean Sea-Level

**Table 2 Depth to Water and Ground-Water Elevations
United Parcel Service, 8400 Pardee Drive, Oakland, California**

Well	Date	Depth to Water (a) (feet)	Top of Casing Elevation (feet MSL)	Top of Water Elevation (feet MSL)	Measured Depth of Well (a) (feet)
MW-1	28-Aug-90	3.80	7.43	3.63	14.1
	20-Sep-90	3.99		3.44	
	19-Jun-91	3.47		3.96	
	23-Jul-91	3.70		3.73	
	26-Aug-91	3.92		3.51	
	18-Nov-91	4.21		3.22	
MW-2	28-Aug-90	4.98	7.15	2.17	15.4
	20-Sep-90	4.94		2.21	
	19-Jun-91	4.66		2.49	
	23-Jul-91	4.81		2.34	
	26-Aug-91	4.89		2.26	
	18-Nov-91	4.93		2.22	
MW-3	28-Aug-90	3.88	7.42	3.54	14.6
	20-Sep-90	3.99		3.43	
	19-Jun-91	3.49		3.93	
	23-Jul-91	3.71		3.71	
	26-Aug-91	3.94		3.48	
	18-Nov-91	4.23		3.19	
MW-4	28-Aug-90	3.15	5.71	2.56	14.7
	20-Sep-90	3.19		2.52	
	19-Jun-91	2.73		2.98	
	23-Jul-91	3.07		2.64	
	26-Aug-91	4.32		1.39	
	18-Nov-91	4.03		1.68	
MW-5	28-Aug-90	7.46	4.93	-2.53	14.8
	20-Sep-90	3.99		0.94	
	19-Jun-91	3.63		1.30	
	23-Jul-91	4.37		0.56	
	26-Aug-91	4.19		0.74	
	18-Nov-91	4.25		0.68	
MW-6	28-Aug-90	7.76	6.27	-1.49	18.1
	20-Sep-90	7.18		-0.91	
	19-Jun-91	7.71		-1.44	
	23-Jul-91	7.90		-1.63	
	26-Aug-91	7.71		-1.44	
	18-Nov-91	6.99		-0.72	

(a) Measured from top of PVC casing.

MSL = Mean Sea-Level

Table 3 - Ground-Water Analytical Results
United Parcel Service, 8400 Pardee Drive, Oakland, California

Well	Date	TPH Gasoline (a) (µg/L)	TPH Diesel (a) (µg/L)	Benzene (b) (µg/L)	Toluene (b) (µg/L)	Ethyl- benzene (b) (µg/L)	Xylenes (b) (µg/L)
MW-1	28-Aug-90	NA	21,000.	3.	1.4	4.0	2.4
	19-Jun-91	NA	7,100.	1.7	0.7	0.5	0.9
	23-Jul-91	220	8,700.	1.6	1.1	0.5	1.5
	26-Aug-91	NA	2,800.	180.	120	31	160
	18-Nov-91	NA	6,600.	1.1	0.4	0.5	ND (<0.3)
MW-2	28-Aug-90	NA	3,500.	0.6	0.4	0.6	0.7
	19-Jun-91	NA	ND(<50)	0.5	ND (<0.3)	ND (<0.3)	ND (<0.3)
	23-Jul-91	ND(<50)	660.	0.7	ND (<0.3)	ND (<0.3)	ND (<0.3)
	26-Aug-91	NA	ND(<50)	0.7	ND (<0.3)	ND (<0.3)	ND (<0.3)
	18-Nov-91	NA	3,200.	0.8	ND (<0.3)	ND (<0.3)	ND (<0.3)
MW-3	28-Aug-90	NA	18,000.	0.5	0.8	4.3	2.3
	19-Jun-91	NA	1,300.	0.4	0.4	1.7	1.4
	23-Jul-91	330	6,800.	0.3	ND (<0.3)	1.5	0.5
	26-Aug-91	NA	ND(<50)	13.	13	5.8	26
	18-Nov-91	NA	2,500.	0.6	ND (<0.3)	ND (<0.3)	ND (<0.3)
MW-4	28-Aug-90	ND(<50)	ND(<50)	ND (<0.3)	ND (<0.3)	ND (<0.3)	ND (<0.3)
	19-Jun-91	ND(<50)	ND(<50)	ND (<0.3)	ND (<0.3)	ND (<0.3)	ND (<0.3)
	23-Jul-91	ND(<50)	ND(<50)	ND (<0.3)	ND (<0.3)	ND (<0.3)	ND (<0.3)
	26-Aug-91	ND(<50)	ND(<50)	ND (<0.3)	ND (<0.3)	ND (<0.3)	ND (<0.3)
	18-Nov-91	ND(<50)	60.	0.3	ND (<0.3)	ND (<0.3)	ND (<0.3)

**Table 3 - Ground-Water Analytical Results
United Parcel Service, 8400 Pardee Drive, Oakland, California**

Well	Date	TPH Gasoline (a) (µg/L)	TPH Diesel (a) (µg/L)	Benzene (b) (µg/L)	Toluene (b) (µg/L)	Ethyl- benzene (b) (µg/L)	Xylenes (b) (µg/L)
MW-5	28-Aug-90	ND(<50)	ND(<50)	ND (<0.3)	ND (<0.3)	ND (<0.3)	ND (<0.3)
	19-Jun-91	ND(<50)	ND(<50)	ND (<0.3)	ND (<0.3)	ND (<0.3)	ND (<0.3)
	23-Jul-91	ND(<50)	ND(<50)	ND (<0.3)	ND (<0.3)	ND (<0.3)	ND (<0.3)
	26-Aug-91	ND(<50)	ND(<50)	ND (<0.3)	ND (<0.3)	ND (<0.3)	ND (<0.3)
	18-Nov-91	ND(<50)	100.	ND (<0.3)	ND (<0.3)	ND (<0.3)	ND (<0.3)
MW-6	7-Sep-90	ND(<50)	ND(<100)	ND (<0.3)	0.5	ND (<0.3)	1.0
	19-Jun-91	ND(<50)	ND(<50)	ND (<0.3)	ND (<0.3)	ND (<0.3)	ND (<0.3)
	23-Jul-91	ND(<50)	110.	ND (<0.3)	ND (<0.3)	ND (<0.3)	ND (<0.3)
	26-Aug-91	NA	NA	NA	NA	NA	NA
	18-Nov-91	ND(<50)	ND(<50)	ND (<0.3)	ND (<0.3)	ND (<0.3)	ND (<0.3)
Trip Blank	26-Aug-91	ND(<50)	NA	ND (<0.3)	ND (<0.3)	ND (<0.3)	ND (<0.3)
	18-Nov-91	ND(<50)	NA	ND (<0.3)	ND (<0.3)	ND (<0.3)	ND (<0.3)

(a) Total Petroleum Hydrocarbons analyzed by USEPA Method 8015, modified.

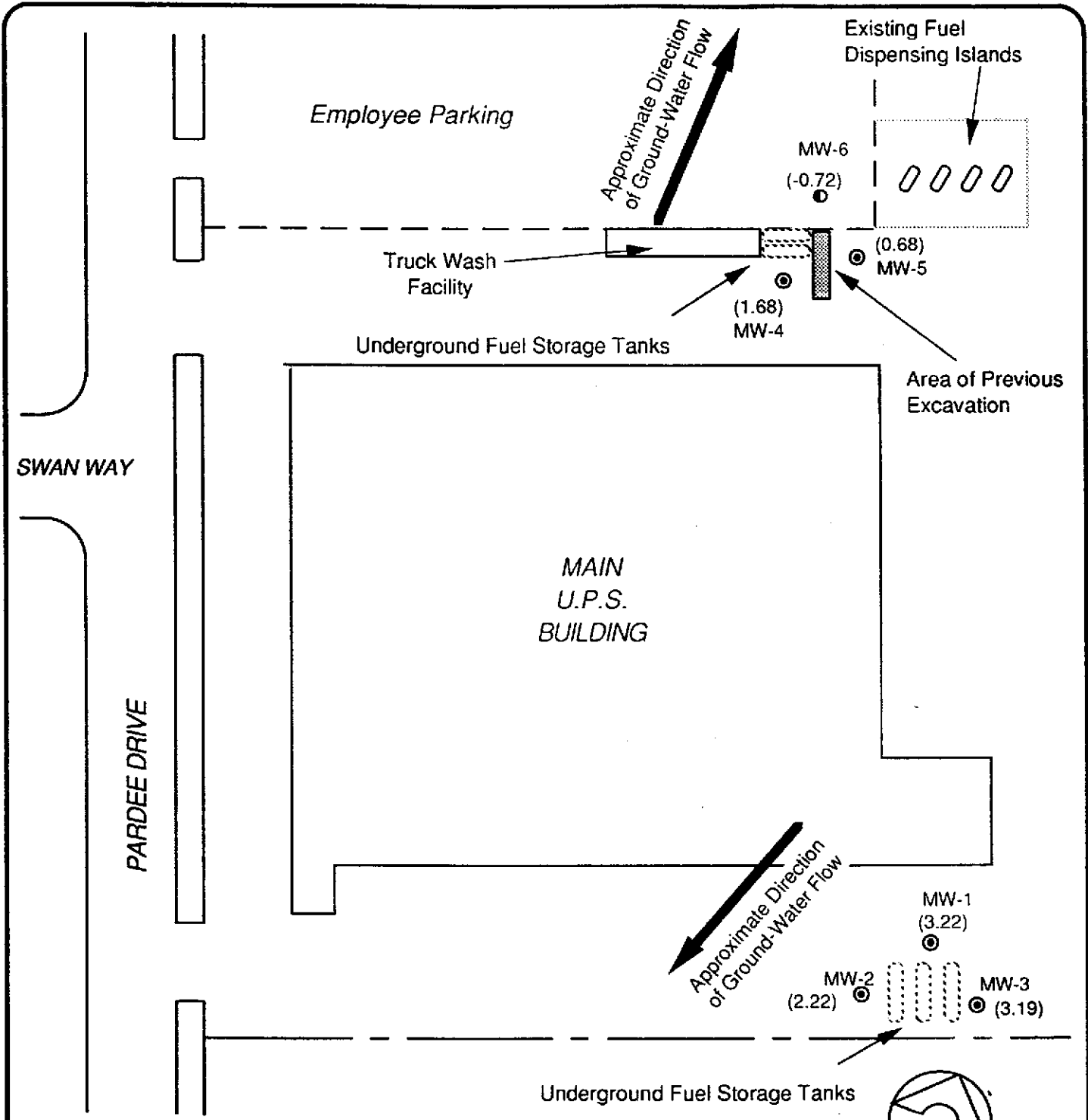
(b) Analyzed by USEPA Method 8020.

() - Reported detection limit

ND- Not Detected

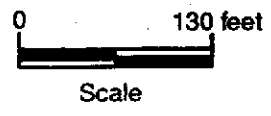
NA - Not Analyzed

Analysis by Superior Analytical Laboratories, Inc., Martinez, California.



LEGEND

- ⊙ Approximate locations of monitoring wells installed by Geraghty & Miller
- Approximate location of monitoring well installed by others
- (3.22) Ground water elevation in feet (11/18/91)



ATTACHMENT
COPIES OF CERTIFIED LABORATORY REPORTS
AND CHAIN-OF-CUSTODY DOCUMENTATION



Superior Precision Analytical, Inc.

825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 84415
CLIENT: Geraghty & Miller
CLIENT JOB NO.: RC02705

DATE RECEIVED: 11/19/91
DATE REPORTED: 11/27/91
DATE SAMPLED : 11/18/91

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS by MODIFIED EPA SW-846 METHOD 5030 and 8015

LAB #	Sample Identification	Concentration (mg/L) Gasoline Range
1	MW-4	ND<0.05
2	MW-5	ND<0.05
3	MW-6	ND<0.05
7	TRIP BLANK	ND<0.05

mg/L - parts per million (ppm)

Method Detection Limit for Gasoline in Water: 0.05 mg/L

QAQC Summary:

Daily Standard run at 2mg/L: RPD Gasoline = <15
MS/MSD Average Recovery = 94%: Duplicate RPD = 5%

Richard Srna, Ph.D.


Laboratory Director



Superior Precision Analytical, Inc.

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C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 84415
CLIENT: Geraghty & Miller
CLIENT JOB NO.: RC02705

DATE RECEIVED: 11/19/91
DATE REPORTED: 11/27/91
DATE SAMPLED : 11/18/91

ANALYSIS FOR BENZENE, TOLUENE, ETHYL BENZENE & XYLENES
by EPA SW-846 Methods 5030 and 8020

LAB #	Sample Identification	Concentration (ug/L)			
		Benzene	Toluene	Ethyl Benzene	Xylenes
1	MW-4	0.3	ND<0.3	ND<0.3	ND<0.3
2	MW-5	ND<0.3	ND<0.3	ND<0.3	ND<0.3
3	MW-6	ND<0.3	ND<0.3	ND<0.3	ND<0.3
7	TRIP BLANK	ND<0.3	ND<0.3	ND<0.3	ND<0.3

ug/L - parts per billion (ppb)

Method Detection Limit in Water: 0.3 ug/L

QAQC Summary:

Daily Standard run at 20ug/L: RPD = <15%
MS/MSD Average Recovery = 93%: Duplicate RPD = <7%

Richard Srna, Ph.D.


Laboratory Director



Superior Precision Analytical, Inc.

825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 84415
CLIENT: Geraghty & Miller
CLIENT JOB NO.: RC02705

DATE RECEIVED: 11/19/91
DATE REPORTED: 11/27/91
DATE SAMPLED : 11/18/91

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS by Modified EPA SW-846 Method 8015

LAB #	Sample Identification	Concentration (mg/L) Diesel Range
1	MW-4	0.06*
2	MW-5	0.10*
3	MW-6	ND<0.05
4	MW-2	3.2
5	MW-3	2.5
6	MW-1	6.6

mg/L - parts per million (ppm)

Method Detection Limit for Diesel in Water: 0.05 mg/L

QAQC Summary:

Daily Standard run at 200mg/L: RPD Gasoline = 4%
RPD Diesel = 6%
MS/MSD Average Recovery = 98%: Duplicate RPD = 2%

* Pattern observed in the chromatogram was not typical of diesel.

Richard Srna, Ph.D.


Laboratory Director



Superior Precision Analytical, Inc.

825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 84415
CLIENT: Geraghty & Miller
CLIENT JOB NO.: RC02705

DATE RECEIVED: 11/19/91
DATE REPORTED: 11/27/91
DATE SAMPLED : 11/18/91

ANALYSIS FOR BENZENE, TOLUENE, ETHYL BENZENE & XYLENES
by EPA SW-846 METHODS 5030 and 8020

LAB #	Sample Identification	Concentration (ug/L)			
		Benzene	Toluene	Ethyl Benzene	Xylenes
4	MW-2	0.8	ND<0.3	ND<0.3	ND<0.3
5	MW-3	0.6	ND<0.3	1.3	ND<0.3
6	MW-1	1.1	0.4	0.5	ND<0.3

ug/L - parts per billion (ppb)

Method Detection Limit in Water: 0.3 ug/L

QAQC Summary:

Daily Standard run at 20ug/L: RPD = <15%
MS/MSD Average Recovery = 93% : Duplicate RPD = <7%

Richard Srna, Ph.D.


Laboratory Director

Project Number RC02705
Project Location U.P.S. OAKLAND
Laboratory SUPERIOR, MARTINEZ
Sampler(s)/Affiliation Alex Rios

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	SAMPLE BOTTLE / CONTAINER DESCRIPTION							TOTAL	
				BTEX+TPH GAS (8020+8015)	TPH DIESEL (8015)							
MW-4		11/18/91/11:23		✓								3
MW-4	1	11-18-91/11:23			✓							1
MW-5		11-18-91/14:24		✓								3
MW-5	2	11-18-91/14:24			✓							1
MW-6		11-18-91/14:54		✓								3
MW-6	3	11-18-91/14:54			✓							1
MW-2		11-18-91/15:26		✓								3
MW-2	4	11-18-91/15:26			✓							1
MW-3		11-18-91/15:56		✓								3
MW-3	5	11-18-91/15:56			✓							1
MW-1		11-18-91/13:31		✓								3
MW-1	6	11-18-91/13:31			✓							1
TRIP BLANKS	7	11-18-91		✓								2

Please Initial: WR
Samples Stored in ice: W
Appropriate containers: W
Samples preserved: W
VOA's without headspace: W
Comments: W

Sample Code: (L) = Liquid; S = Solid; A = Air Total No. of Bottles/Containers 26

Relinquished by: <u>ALEX RIOS</u>	Organization: <u>GERAGHTY & MILLER</u>	Date: <u>11/19/91</u> Time: <u>9:43 A.M.</u>	Seal Intact? <u>Yes</u> No N/A
Received by: <u>Rich Cooper</u>	Organization: <u>Express It</u>		
Relinquished by: <u>Rich Cooper</u>	Organization: <u>Express It</u>	Date: <u>11/19/91</u> Time: <u>10:25 A.M.</u>	Seal Intact? <u>Yes</u> No N/A
Received by: <u>SS 11/19/91</u>	Organization: <u>Superior MT</u>		

Special Instructions/Remarks: _____

Delivery Method: In Person Common Carrier Express It Lab Courier Other _____