GERAGHTY
& MILLER, INC.
Environmental Services

Ground Water *Engineering* *Hydrocarbon* *Remediation* *Education*

October 31, 1990
Project No.RC02703,
RCO2704

Mr. Donald Code
United Parcel Service
8400 Pardee Dr.
Oakland, California 94566

Re: Results of Soil and Ground-Water Assessment Activities, United Parcel Service Inc. Facility, 8400 Pardee Drive, Oakland, California.

Dear Mr. Code:

This report presents the results of the soil and ground-water assessment activities performed at the United Parcel Service, Inc. (UPS) facility referenced above. The scope of work for this project was presented in three Geraghty & Miller, Inc. (Geraghty and Miller) documents (Geraghty & Miller, March 16, 1990, May 7, 1990, and June 28, 1990). The objective of the assessment activities was to determine whether the soil or shallow ground water in the vicinity of the fueling facilities located on the northern and southern portions of the site have been impacted by petroleum hydrocarbons. A soil and ground-water assessment was requested by the Alameda County Health Care Services Agency (ACDEH) in their letter to United Parcel Services, Inc. (UPS) dated January 23, 1990.

SUMMARY

- During August 1990, 3 exploratory borings (MW-1 through MW-3) were drilled on the southern portion of the UPS site and converted into ground-water monitoring wells (see Figure 2). A total of five borings (MW-4, MW-5, and B-1 through B-3) were drilled on the northern portion of the site. Borings MW-4 and MW-5 were converted into ground-water monitoring wells.

- Depth to water measured during September 1990 ranged from 3.99 feet to 4.94 feet below the ground surface beneath the southern portion of the site and from 3.19 to 7.18 feet below the ground surface beneath the northern portion of the site. The approximate direction of shalow ground-water flow is toward the west-southwest.

- In the vicinity of the fueling facilities located on the southern portion of the site, TPH as diesel was detected in the soil sample collected from a depth of approximately 3 feet below the ground surface from Boring MW-3, located to the east of the underground storage tanks, at a concentration of 2,300 mg/kg, and TPH as gasoline was detected at a concentration of 91 mg/kg. TPH as gasoline and diesel were not detected in the soil sample collected from Boring MW-2 located to the west of the underground storage tanks. A soil sample was not recovered from Boring MW-1. During August 1990, a sheen of phase-separated hydrocarbons was observed on the water in Monitoring Wells MW-1 through MW-3. Concentrations of TPH as diesel detected in ground-

water samples collected from Wells MW-1 through MW-3 ranged from 3,500 µg/L (Well MW-2) to 21,000 µg/L (Well MW-1).

- In the vicinity of the fueling facilities located on the northern portion of the site, TPH as gasoline (10 mg/kg) and TPH as diesel (21 mg/kg) were detected in the soil sample collected from the vadose zone from Boring B-1 located in the area which had been previously excavated and backfilled. Petroleum hydrocarbons were not detected in the soil samples collected from Borings located to the east (Boring MW-5), southeast (Boring B-3), south (Boring B-2), and southwest (Boring MW-4) of the area from which the former fuel dispensing islands and product piping were removed. TPH as gasoline and TPH as diesel were not detected in the ground-water samples collected from Monitoring Wells MW-4 through MW-6 during August 1990. The only petroleum hydrocarbons detected were toluene (0.5 µg/L) and xylenes (1.0 µg/L) in the water sample collected from Well MW-6.

BACKGROUND

The UPS facility is located in Oakland, California, on a narrow peninsula south of San Leandro Bay (Figure 1). The facility is a distribution point for UPS and has fueling facilities located on the northern portion of the facility, adjacent to the truck washing facility, approximately 120 feet north of the site building and on the southern portion of the facility, adjacent to the property boundary, approximately 150 feet south of the site building. The approximate locations of the fueling facilities are shown in Figure 2.

The fueling facility located on the northern portion of the site consists of one 10,000-gallon unleaded gasoline tank, one 10,000-gallon diesel tank, four aboveground product dispensing islands, and associated underground product piping. During September 1989, UPS initiated activities designed to upgrade the product dispensing system. The former fuel dispensing islands and piping were removed, and new fuel dispensers were installed to the northeast at the approximate location shown in Figure 2. During excavation of the backfill near the product dispensing islands, a hydrocarbon odor emitting from the backfill was reported. Six soil samples were collected from the backfill from within the excavation of the product dispensing islands and product piping from depths of approximately 1 to 2 feet below the ground surface. Water reportedly filled the 3-foot deep excavation to a depth of 8 inches. Two water samples were collected from the standing water at the bottom of the excavation (McLaren, February 2, 1990). The approximate extent of the excavated area is shown in Figures 2 and 3.

Total petroleum hydrocarbons (TPH) as gasoline were detected in two of the soil samples collected from the product piping excavation at concentrations of 3,100 mg/kg and 4,100 mg/kg. TPH as gasoline was detected in one of the water samples collected from the excavation at a concentration of 5,000 µg/L. TPH as gasoline was not detected in the second water sample at a detection limit of 500 µg/L. Benzene was detected in the two water samples at concentrations of 890 µg/L and 380 µg/L. Toluene, xylenes, and ethylbenzene (BTXE) were detected at concentrations ranging from below detection limits (<50 µg/L) to 2,200 µg/L (xylenes) (McLaren, February 2, 1990).

On April 16, 1990 and April 28, 1990, additional soil was excavated from the areas in which petroleum hydrocarbons were detected in the soil samples referenced above. The

soil excavation was performed under the direction of UPS. During the excavation activities, headspace analyses were performed on soil samples collected from the backhoe bucket by a representative of Geraghty & Miller. Hydrocarbon vapors were detected in the soil samples from the sidewalls following excavation of additional soil and the excavation activities were terminated by UPS (Geraghty & Miller, September 14, 1990).

The fueling facility located on the southern portion of the site consists of three single-walled fiberglass 10,000-gallon underground diesel fuel storage tanks. During June 1990, the product lines and fuel dispensing islands were excavated and removed from the site by Diablo Tank and Equipment (Diablo Tank). The surficial soil and backfill covering the tanks was also removed to expose the top of the tanks and allow for tank isolation from the product lines prior to integrity testing. All three tanks passed the hydrostatic integrity test (Pat McShane, Diablo Tank, verbal communication, June 21, 1990). Water was reportedly encountered in the excavation at approximately 4 feet below the ground surface. Two water samples were collected from the product line trench near the fuel dispensing islands, and a soil sample was collected from the native soil from the wall of the excavation approximately 3 feet below the ground surface (Pat McShane, Diablo Tank, verbal communication, June 21, 1990). The location from which the soil sample was collected is not known.

The water and soil samples collected from the excavation of the southern fueling station were analyzed for TPH as diesel (USEPA Method 8015, modified) and BTXE (USEPA Method 8020). TPH as diesel was detected in the water samples at concentration of 66,000 µg/L and 250,000 µg/L. BTXE were detected in the water samples at concentration ranging from 2 µg/L (toluene) to 28 µg/L (xylenes). TPH as diesel and BTXE were not detected in the soil sample.

Based on these results ACDEH requested UPS to submit a work plan for initial soil and ground-water assessment activities in the vicinity of the fueling facilities (ACDEH, January 23, 1990). A work plan was initially prepared by Geraghty & Miller on behalf of UPS to address the requests of ACDEH for assessment activities in the vicinity of the fueling facilities located on the northern portion of the facility (Geraghty & Miller, March 16, 1990 and May 7, 1990). The work plan was subsequently modified to include assessment activities in the vicinity of the fueling facilities located on the southern portion of the facility (Geraghty & Miller, June 28, 1990).

EXPLORATORY DRILLING, SOIL SAMPLING, AND INSTALLATION OF GROUND-WATER MONITORING WELLS

A total of three exploratory borings (MW-1 through MW-3) were drilled and completed as ground-water monitoring wells on the southern portion of the site and a total of five exploratory borings (MW-4, MW-5, and B-1 through B-3) were drilled on the northern portion of the site (Borings MW-4 and MW-5 were completed as ground-water monitoring wells). The objective of the borings and monitoring wells was to assess whether the soil and shallow ground-water in the vicinity of the northern and southern fueling facilities has been impacted by petroleum hydrocarbons. The approximate locations of all borings are shown on Figures 2 and 3. During the drilling activities, a previously unidentified well was observed in the parking lot approximately 30 feet to the north-northeast of the fueling facilities located on the northern portion of the site. The well has been designated as MW-6 by Geraghty & Miller. According to UPS, there is no information regarding this well.

Exploratory Borings MW-1 through MW-5 were drilled using 10-inch diameter hollow-stem auger drilling equipment. Exploratory Borings B-1, B-2, and B-3 were drilled using 6-inch diameter hollow-stem auger drilling equipment. The drilling was performed by Bayland Drilling Company of Foster City, California. Prior to drilling each boring, all equipment which would enter the borehole was steam-cleaned. Soil samples were collected at depths of approximately 3 feet to 4 feet below the ground surface, 5 feet below the ground surface, and at 5 foot depth intervals thereafter. The soil samples were collected using a California modified split-spoon sampler equipped with brass liners which was advanced into the undisturbed soil beyond the tip of the augers. The sampler was washed in a tri-sodium phosphate (TSP) solution and rinsed with potable water prior to each use. The soils were described by a Geraghty & Miller geologist according to the Unified Soil Classification System. Exploratory boring logs are included in Attachment 1. Soil samples for laboratory analysis were retained in the brass liners, sealed with Teflon tape and plastic end caps, placed on ice, and transported, along with chain-of-custody documentation, to Superior Laboratories of Martinez, California. Copies of the chain-of-custody forms are included in Attachment 2.

Upon completion, Exploratory Borings MW-1 through MW-5 were converted into ground-water monitoring wells by installing 4-inch diameter schedule 40 PVC casing. Monitoring well construction details are included in Attachment 1. A traffic-rated well box (G-5) was placed around the casing and finished with concrete, 1/2 inch above grade. The monitoring wells were secured with water-tight locking caps and locks. The top of casing and ground surface elevation for each well was surveyed relative to mean sea-level by Geraghty & Miller.

The soil generated during drilling and well installation was stockpiled on site and covered with plastic. Water collected during the steam cleaning of the drilling equipment was placed in drums. The soil and water were retained on site for proper handling and disposal by UPS in accordance with ACDEH requirements.

GROUND-WATER SAMPLING

Ground-water samples were collected on August 28, 1990, from Monitoring Wells MW-1 through MW-5. At the request of UPS, a ground-water sample was collected on September 7, 1990 from the well designated as MW-6. Prior to sampling, depth-to-water and total well depth measurements were collected from each well, and each well was checked for the presence of phase-separated hydrocarbons with a disposable polyethylene bailer. A sheen of phase-separated hydrocarbons was observed in Monitoring Wells MW-1 through MW-3.

Prior to sampling, each well was purged of a minimum of four casing volumes of water using a 2-inch diameter air-lift evacuation pump. The wells were purged until relatively sediment free water was obtained. The purge pump was washed with TSP and triple rinsed prior purging each well. Due to equipment malfunction, temperature, pH, and specific conductivity measurements were not obtained on the purged water. A summary of the field data is presented in Table 1. The purged water was contained in drums and stored on site for proper handling and disposal by UPS.

Following purging, a ground-water sample was collected from each well using a 2-inch diameter disposable polyethylene bailer. A new bailer was used for each well. The

ground-water samples were collected into the appropriate containers, labeled, placed on ice, and transported to Superior Laboratories, along with the appropriate chain-of-custody documentation. Copies of the chain-of-custody forms are included in Attachment 2.

LABORATORY ANALYTICAL PROCEDURES

Soil samples were analyzed for TPH as diesel and as gasoline (USEPA Method 8015, modified) and BTXE (USEPA Method 8020). Ground-water samples from Monitoring Wells MW-1, MW-2, and MW-3 were submitted to the laboratory and analyzed for TPH as diesel (USEPA Method 8015, modified) and BTXE (USEPA Method 8020). Water samples collected from Monitoring Wells MW-4, MW-5 and MW-6 were also analyzed for TPH as gasoline (USEPA Method 8015, modified). Ground-water samples from Monitoring Wells MW-1 and MW-4 were also analyzed for calcium, magnesium, hardness ($CaCO_3$), and chloride (USEPA 6010).

RESULTS

Hydrogeologic Conditions

Exploratory Borings MW-1 through MW-3, located on the southern portion of the site, encountered gravel, sand, and silty sand to a depth of between 5 feet and 10 feet below the ground surface underlain by clay to a depth of 16.5 feet below the ground surface, the total depth explored. Exploratory Borings MW-4, MW-5, and B-1 through B-3, located on the northern portion of the site, encountered gravel, silty sand, and silt to a depth of 5 to 10 feet below the ground surface, underlain by clay to a depth of 16.5 feet below the ground surface, the total depth explored.

Depth to water measured on August 28, 1990 ranged from 3.15 feet (Well MW-4) to 4.98 feet (Well MW-2) below the ground surface. Based on these measurements the direction of shallow ground-water flow in the vicinity of the fueling facilities located on the southern portion of the site is generally toward the southwest. In the vicinity of the fueling facilities located on the northern portion of the site, the direction of shallow ground-water flow appears to be toward the northeast. However, the truck washing facilities are located to the west, adjacent to the northern fueling facilities and may influence the depth to water in the vicinity of the fueling facilities (Figure 2). Hardness, chloride, and TDS measurements were all an order of magnitude higher in the water sample collected from Well MW-4, located in the vicinity of the northern fueling facilities, than in Well MW-1, located in the vicinity of the southern fueling facilities.

Soil and Ground-Water Analytical Results

A summary of analytical results for the soil and ground-water samples collected during the assessment activities are presented in Tables 2 and 3 respectively. In the vicinity of the fueling facilities located on the southern portion of the facility, petroleum hydrocarbons were not detected in the soil sample collected from Exploratory Boring MW-2. In the soil sample collected from Exploratory Boring MW-3, TPH as diesel was detected at a concentration of 2,300 mg/kg, TPH as gasoline at a concentration of 91 mg/kg, and BTXE at concentrations ranging from 0.020 mg/kg (benzene) to 0.49 mg/kg (xylenes). In Exploratory Boring MW-1, gravel, possibly fill material, was encountered to a depth of approximately 5 to 10 feet below the ground surface and a sample was not recovered. Petroleum hydrocarbons were detected in the water samples collected from Monitor Wells

MW-1, MW-2, and MW-3. TPH as diesel ranged from 3,500 µg/L (Well MW-2) to 21,000 µg/L (Well MW-1). BTXE ranged from 0.5 µg/L (benzene, Well MW-3) to 4.3 µg/L (ethylbenzene, Well MW-3).

In the vicinity of the fueling facilities located on the northern portion of the site, TPH as diesel was detected at a concentration of 21 mg/kg, TPH as gasoline at a concentration of 10 mg/kg, and BTXE ranging from 0.004 mg/kg (ethylbenzene) to 0.062 mg/kg (benzene) in the soil sample collected from Boring B-1. Petroleum hydrocarbons were not detected in the soil samples collected from Borings MW-4, MW-5, B-2, and B-3. Petroleum hydrocarbons were also not detected in the water samples collected from Monitoring Wells MW-4 or MW-5. Toluene (0.5 µg/L) and xylenes (1.0 µg/L) were detected in the water sample collected from the Well designated as MW-6.

Water samples from Monitoring Wells MW-4 and MW-1 were also analyzed for general mineral analysis which included calcium, magnesium, chloride, hardness, and total dissolved solids (TDS). A summary of the results is included in Table 3. TDS ranged from of 10,000 mg/L (Well MW-4) to 1,200 g/L (Well MW-1).

If you have any questions regarding this report, please do not hesitate to call.

Sincerely,
GERAGHTY & MILLER, INC.

Kent O'Brien
Staff Geologist

Jeffrey W. Hawkins, R.G.
Senior Geologist

Gary W. Keyes, P.E.
Principal Engineer

Attachments: References

Table 1 - Field Sampling Data
Table 2 - Soil Analytical Results
Table 3 - Ground-Water Analytical Results

Figure 1 - Site Location Map
Figure 2 - Location Of Monitoring Wells
Figure 3 - Northern Fueling Station Soil Borings And Monitoring Well Locations

Attachment 1 - Exploratory Boring Logs and Well Details
Attachment 2 - Copies of Certified Laboratory Reports and Chain of Custody Documentation

cc: Mr. Gary Mitchell, UPS

REFERENCES

ACDEH, January 23, 1990, Unauthorized Release, Failed Full (sic) System Precision Test, Removal of Product Piping, UPS Maintenance Facility, Oakland, CA.

Geraghty & Miller, September 14, 1990, Results of Soil Excavation, United Parcel Service, Inc. Facility, 8400 Pardee Drive, Oakland, California.

Geraghty & Miller, June 28, 1990, Scope of Work and Budget Estimate for Soil and Ground-Water Assessment, United Parcel Service, Inc. Facility, 8400 Pardee Drive, Oakland, California.

Geraghty & Miller, May 7, 1990, Proposal and Project Budget Estimate for Initial Soil and Ground-Water Assessmnet, United Parcel Service, Inc. Facility, 8400 Pardee Drive, Oakland, California.

Geraghty & Miller, March 16, 1990, Workplan for Initial Soil and Ground-Water Assessment, United Parcel Service, Inc. Facility, 8400 Pardee Drive, Oakland, California.

Table 1 - Summary of Field Sampling Data
UPS, 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)	Calculated Purge Volume (B) (gallons)	Actual Purge Volume (gallons)	Casing Diameter (inches)
MW-1	28-Aug-90	3.80	7.43	3.63	14.05	29	55	4
	20-Sep-90	3.99		3.44				
MW-2	28-Aug-90	4.98	7.15	2.17	15.35	29	22	4
	20-Sep-90	4.94		2.21				
MW-3	28-Aug-90	3.88	7.42	3.54	14.6	30	40	4
	20-Sep-90	3.99		3.43				
MW-4	28-Aug-90	3.15	5.71	2.56	14.66	33	35	4
	20-Sep-90	3.19		2.52				
MW-5 (D)	28-Aug-90	7.46	4.93	-2.53	14.77	21	8	4
	20-Sep-90	3.99		0.94				
MW-6 (D)	7-Sep-90	7.76	6.27	-1.49	18.10	66	22	6
	20-Sep-90	7.18		-0.91				

Notes:

(A) Measured from top of PVC casing.
(B) Based on four casing volumes.
(C) Not measured due to instrument malfunction.
(D) A minimum of 4 casing volumes were not purged due to low recharge.

SC = Specific conductance.
MSL = Mean Sea-Level

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Table 2 - Soil Analytical Results
UPS, 8400 Pardee Drive, Oakland, California.

Boring	Date	Depth (feet)	TPH Gasoline (A) (mg/kg)	TPH Diesel (A) (mg/kg)	Benzene (B) (mg/kg)	Toluene (B) (mg/kg)	Ethyl-benzene (B) (mg/kg)	Xylenes (B) (mg/kg)
MW-2	22-Aug-90	3	ND (<1)	ND(<10)	ND (<.003)	ND (<.003)	ND (<.003)	ND (<.003)
MW-3	23-Aug-90	3.5	91	2,300	0.02	0.036	0.089	0.49
MW-4	23-Aug-90	3	ND (<1)	ND (<10)	ND (<.003)	ND (<.003)	ND (<.003)	ND (<.003)
MW-5	23-Aug-90	4	ND (<1)	ND (<10)	ND (<.003)	ND (<.003)	ND (<.003)	ND (<.003)
B-1	25-Aug-90	3.5	10	21	0.062	ND (<.003)	0.004	0.036
B-2	25-Aug-90	3.5	ND (<1)	ND(<10)	ND (<.003)	ND (<.003)	ND (<.003)	ND (<.003)
B-3	25-Aug-90	3.5	ND (<1)	ND(<10)	ND (<.003)	ND (<.003)	ND (<.003)	ND (<.003)

Notes:
(A) Total petroleum hydrocarbons analyzed by USEPA Method 8015, modified.
(B) Analyzed by USEPA Method 8020.
( ) - Detection limit
ND- Not Detected

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

Table 3 - Ground-Water Analytical Results
UPS, 8400 Pardee Drive, Oakland, 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	3.0	1.4	4.0	2.4
MW-2	28-Aug-90	NA	3,500	0.6	0.4	0.6	0.7
MW-3	28-Aug-90	NA	18,000	0.5	0.8	4.3	2.3
MW-4	28-Aug-90	ND(<50)	ND(<50)	ND (<0.3)	ND (<0.3)	ND (<0.3)	ND (<0.3)
MW-5	28-Aug-90	ND(<50)	ND(<50)	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

Water Quality Analysis

Well	Date	Calcium mg/l	Magnesium mg/l	Hardness mg/l	Chloride mg/l	TDS mg/l
MW-1	28-Aug-90	100	59	500	470	1,200
MW-4	28-Aug-90	540	600	3,900	6,000	10,000

Notes:
(A) Total Petroleum Hydrocarbons analyzed by USEPA Method 8015, modified.
(C) Analyzed by USEPA Method 8020.
( )- Reported detection limit

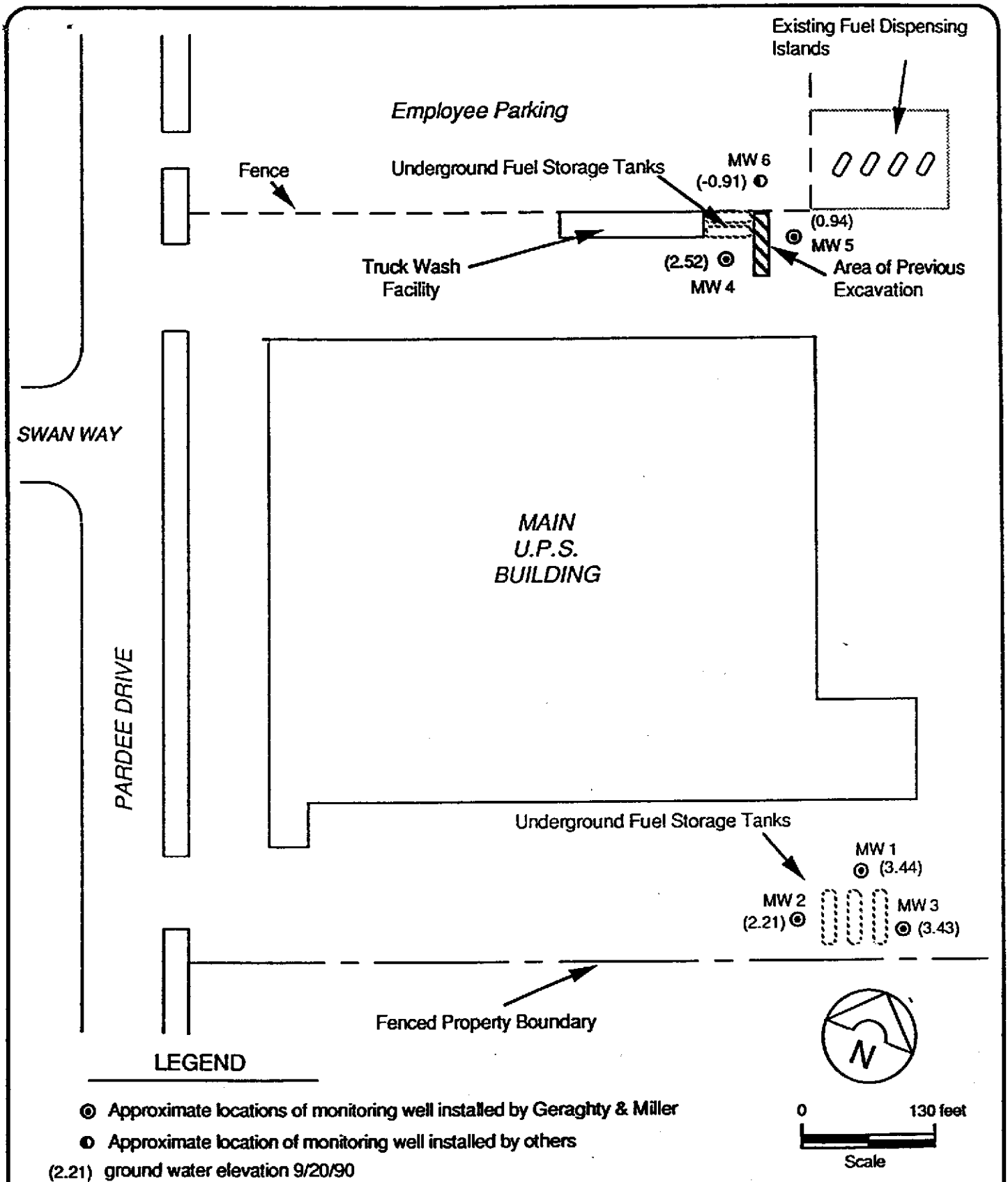
ND- Not Detected
NA - Not Analyzed.
Analysis by Superior Analytical Laboratories, Inc. Martinez, California.

Project No. RC02703 and RCO2704

GERAGHTY & MILLER, INC.
Environmental Services

SITE LOCATION MAP
United Parcel Service
Package Distribution Facility
Oakland, California

FIGURE
1

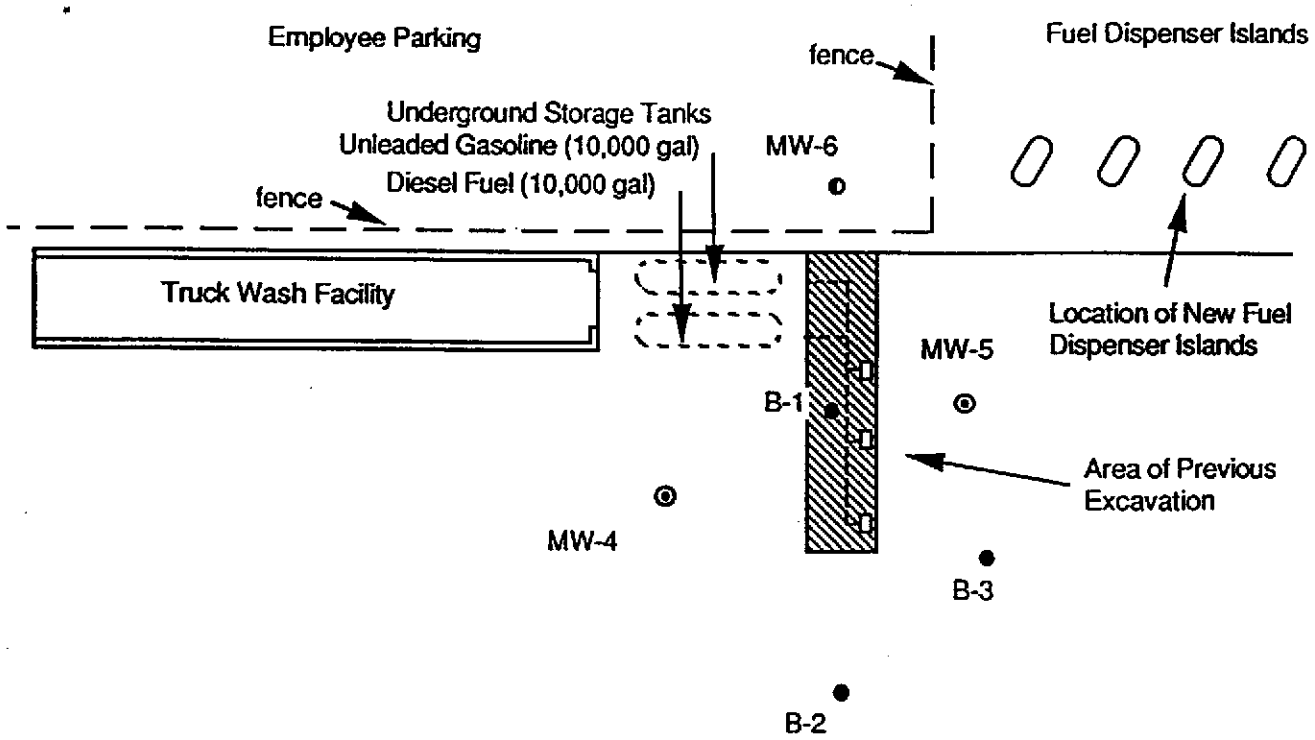


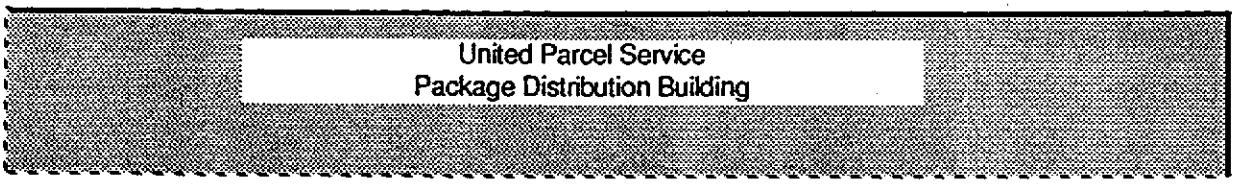
GERAGHTY & MILLER, INC.
Environmental Services

Proj. No.RC02704

Location Of Monitoring Wells
UNITED PARCEL SERVICE, INC.
8400 Pardee Drive
Oakland, California

FIGURE
2





LEGEND

- Approximate extent of soil excavation (Geraghty & Miller, 9/14/1990)
- Approximate location of Monitoring well installed by Geraghty & Miller
- Approximate location of Monitoring well installed by others
- Approximate location of shallow soil boring

0 40

Scale in feet

GERAGHTY & MILLER, INC.
Environmental Services

Proj. No. RC02703

Northern Fueling Station
Soil Borings and Monitoring Well Locations
UNITED PARCEL SERVICE, INC.
8400 Pardee Drive
Oakland, California

FIGURE
3

ATTACHMENT 1

EXPLORATORY BORING LOGS AND WELL COMPLETION DETAILS

KEY TO BORING LOG SYMBOLS

UNIFIED SOIL CLASSIFICATION SYSTEM - ASTM D2487					
MAJOR DIVISIONS			SYMBOL/ GRAPHIC		DESCRIPTIONS
COARSE GRAINED SOILS (>50% by weight larger than #200 sieve)	GRAVELS (More than 50% of coarse fraction is larger than the #4 sieve size.)	Clean gravels with little or no fines	GW		Well Graded Gravels, Gravel - Sand Mixtures
			GP		Poorly Graded Gravels, Gravels - Sand Mixtures
		Gravels with over 12% fines	GM		Silty Gravels, Poorly Graded Gravel - Sand - Silt Mixtures
			GC		Clayey Gravels, Poorly Graded Gravel - Sand - Clay Mixtures
	SANDS (More than 50% of coarse fraction is smaller than #4 sieve size.)	Clean sands with little or no fines	SW		Well Graded Sands, Gravelly Sands
			SP		Poorly Graded Sands, Gravelly Sands
		Sands with over 12% fines	SM		Silty Sands, Poorly Graded Sand - Silt Mixtures
			SC		Clayey Sands, Poorly Graded Sand - Clay Mixtures
FINE GRAINED SOILS (>50% smaller than #200 sieve)	SILTS AND CLAYS (liquid limit less than 50)		ML		Inorganic Silts and Very Fine Sands, Silty or Clayey Fine Sands
			CL		Inorganic Clays of Low to Medium Plasticity; Gravelly, Sandy or Silty Clays; Lean Clays
			OL		Organic Clays and Organic Silty Clays of Low Plasticity
	SILTS AND CLAYS (liquid limit greater than 50)		MH		Inorganic Silts, Micaceous or Diatomacious Fine Sandy or Silty Soils, Elastic Silts
			CH		Inorganic Clays of High Plasticity, Fat Clays
			OH		Organic Clays of Medium to High Plasticity, Organic Silts
HIGHLY ORGANIC SOILS			Pt		Peat and other Highly Organic Soils

Stabilized water level (date)

Water level encountered during drilling

Shaded interval represents soil sample. Blackened interval indicates portion of sample prepared for laboratory analysis.

Indicates no recovery of sample

Monitoring well

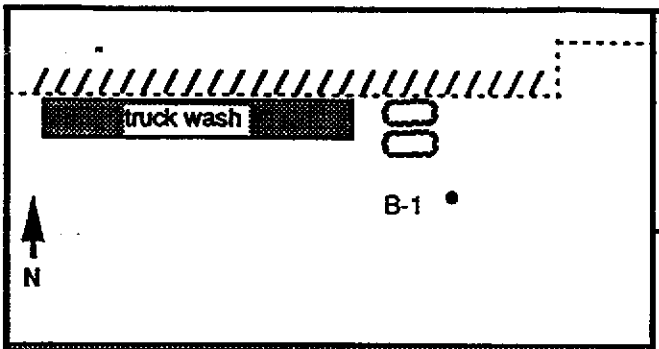
Soil boring

	Asphaltic Concrete
	Portland Cement Concrete
	Cement Grout

PID Photo-ionization detector readings (ppm)

FID Flame-ionization detector readings (ppm)

EXP Gastech explosimeter readings (ppm)

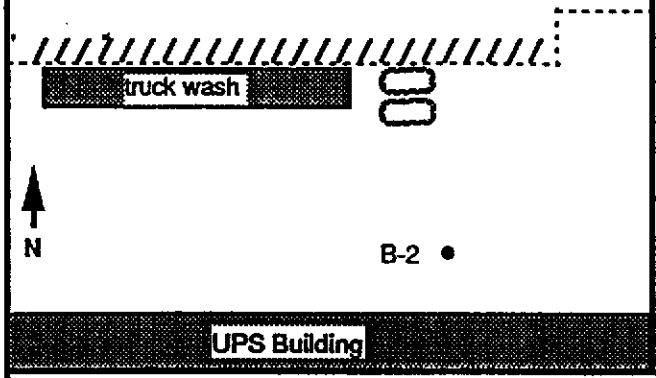


LOG OF B-1
United Parcel Service
8400 Pardee Dr.
Oakland, California

Project No.: RC02703
Logged By: Kent O'Brien
Drilling Co.: Bay Land
Driller: Tom Schmidt

Date Drilled: August 23,1990
Drilling Method: 6" Hollow-Stem Auger
Sampling Method: 2" Split spoon
Inclination: Vertical

WELL CONSTRUCTION	Depth (ft.)	Blows/ft.	EXP	Samples	Graphic	DESCRIPTION
	0					Asphaltic Concrete
		6	250			SILTY SAND WITH GRAVEL (SM), yellow green, (2.5Y5/6), 15-25% gravel, 35-45% course to medium sand; 20-25% silt; 10-15% clay; angular gravels; well graded; loose; dry.
	5	9				Bottom of Boring: 5.5 Feet
	10					
	15					
	20					
	25					

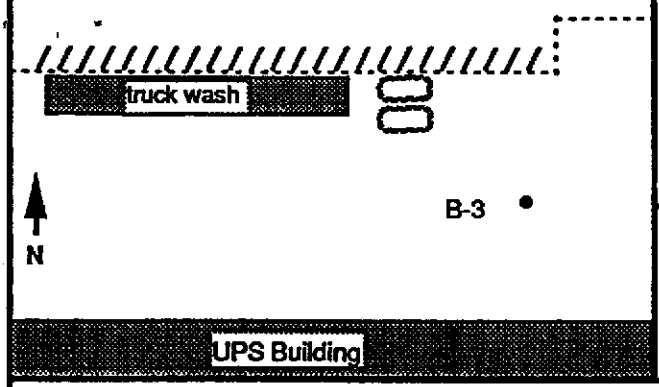


LOG OF B-2
United Parcel Service
8400 Pardee Dr.
Oakland, California

Project No.: RC02703
Logged By: Kent O'Brien
Drilling Co.: Bay Land
Driller: Tom Schmidt

Date Drilled: August 23,1990
Drilling Method: 6" Hollow-Stem Auger
Sampling Method: 2" Split spoon
Inclination: Vertical

WELL CONSTRUCTION	Depth (ft.)	Blows/ft.	EXP	Samples	Graphic	DESCRIPTION
	0					Asphaltic Concrete
		9	100			SILTY SAND (SM), yellow green, (2.5Y5/4), 50-60% medium to fine sand; 20-25% silt; 15-20% clay; loose; damp
						Bottom of Boring: 4.5 Feet
	5					
	10					
	15					
	20					
	25					



LOG OF B-3
United Parcel Service
8400 Pardee Dr.
Oakland, California

Project No.: RC02703
Logged By: Kent O'Brien
Drilling Co.: Bay Land
Driller: Tom Schmidt

Date Drilled: August 23,1990
Drilling Method: 6" Hollow-Stem Auger
Sampling Method: 2" Split spoon
Inclination: Vertical

WELL CONSTRUCTION	Depth (ft.)	Blows/ft.	EXP	Samples	Graphic	DESCRIPTION
	0					Asphaltic Concrete
						CLAYEY SAND (SC), yellow green, (2.5Y5/1), 60-70% course to medium sand; 15-25% clay; loose; damp.
		5	100			Bottom of Boring: 4.5 Feet
	5					
	10					
	15					
	20					
	25					

UPS Building

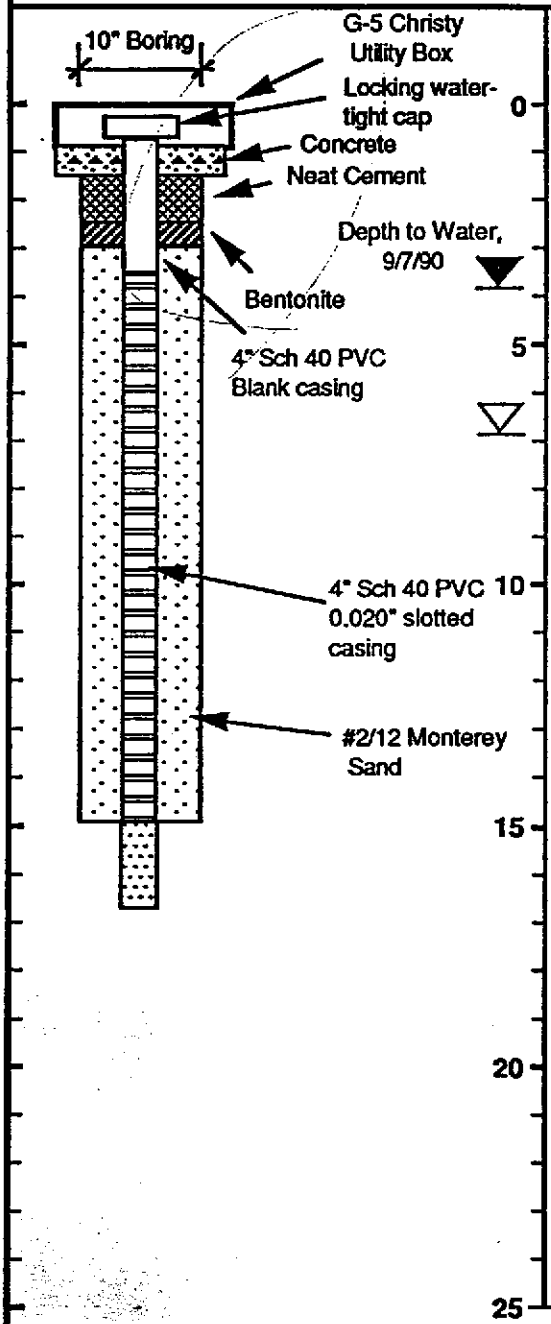
N

MW-1

LOG OF MW-1
United Parcel Service
8400 Pardee Dr.
Oakland, California

Project No.: RC02704
Logged By: Kent O'Brien
Drilling Co.: Bay Land
Driller: Tom Schmidt

Date Drilled: August 22,1990
Drilling Method: 10" Hollow-Stem Auger
Sampling Method: 2" Split spoon
Inclination: Vertical



DESCRIPTION

Surface Elevation: 8.97 ft.
Casing Elevation: 8.60 ft.

Asphaltic Concrete

@ 3 ft. small reconvery from tip

GRAVELS WITH SAND (GW) yellow brown (2.5Y4/4); poorly graded; rock fragments up to 1.5 cm; 20%-30% medium sand; 10-20% fine sand; subangular-subrounded; <5% clay; medium stiff.

SILTY SAND (SM), yellow brown (2.5Y5/0); 15-20% course sand; 40-50% medium sand; 15-20% fine sand; 15-20% silt; very loose; moist.

CLAY (CL) yellow brown (2.5Y3.0); 5-10% medium sand; 20-30% silt; 50-60% clay; stiff; wet; driller reports stiffer drilling beginning at 14 ft

@ 15 ft. CLAY (CL) yellow brown (2.5Y3/0); 10-20% silt; trace medium sand; firm; wet

Bottom of Boring: 16.5 Feet

UPS Building

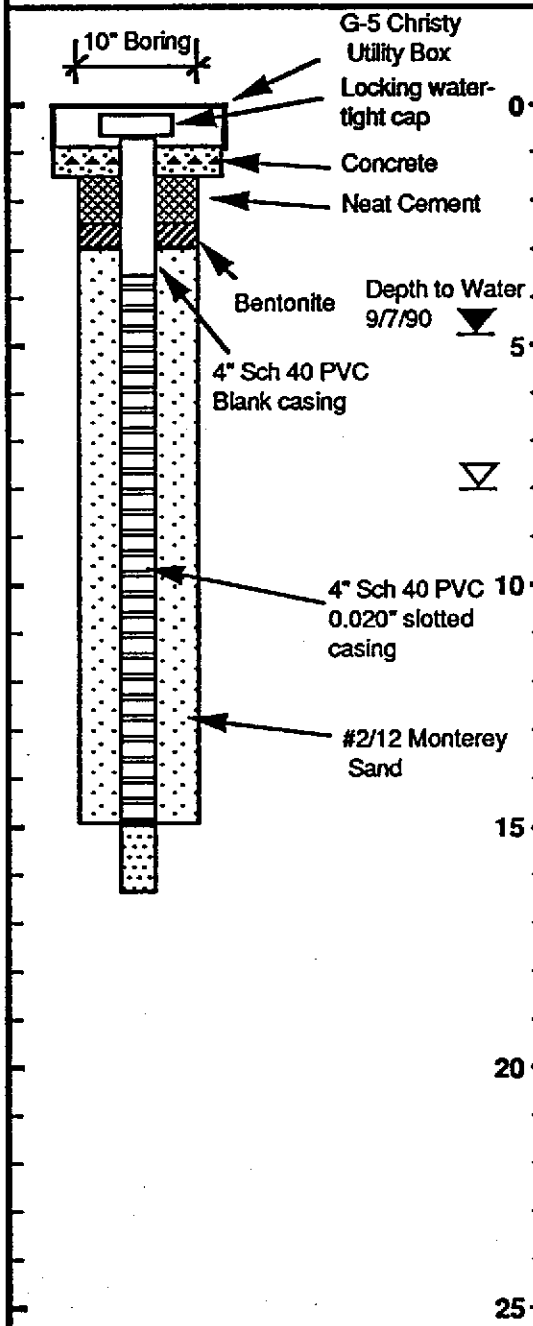
N

MW-2

LOG OF MW-2
United Parcel Service
8400 Pardee Dr.
Oakland, California

Project No.: RC02704
Logged By: Kent O'Brien
Drilling Co.: Bay Land
Driller: Tom Schmidt

Date Drilled: August 22,1990
Drilling Method: 10" Hollow-Stem Auger
Sampling Method: 2" Split spoon
Inclination: Vertical



DESCRIPTION

Surface Elevation: 8.77 ft.
Casing Elevation: 8.35 ft.

Asphaltic Concrete

GRAVELS WITH SAND (GW), fill; yellow brown (10YR4/4); 50-60% gravels; angular; 20-30% cource sands; 20-30% medium to fine sands; sub-angular to sub-rounded; dry.

SANDY SILT (SM), yellow brown (5G4/1);15-25% medium sand; 15-25% fine sand; 30-40% silt; 20-30% clay; very stiff; moist.

@ 7 ft. driller reports solfter drilling

CLAY (CL), Olive Green (2.5Y4/0), 90% clay; 5-15% silt; very soft; damp.

@ 14 ft. driller reports stiffer drilling

CLAY (CL), Olive Green (2.5Y4/0), 90% clay; 5-15% silt; small rock fragments <4mm; firm; damp.

Bottom of Boring: 16.5 Feet

UPS Building

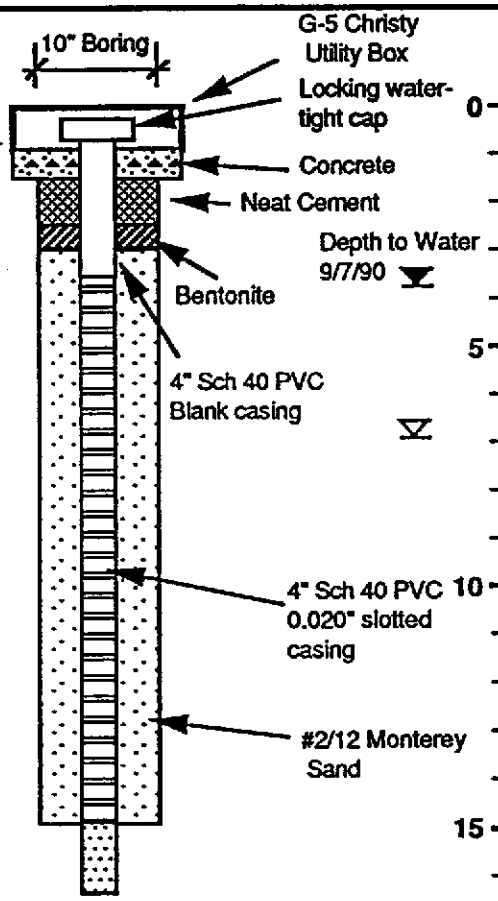
N

MW-3

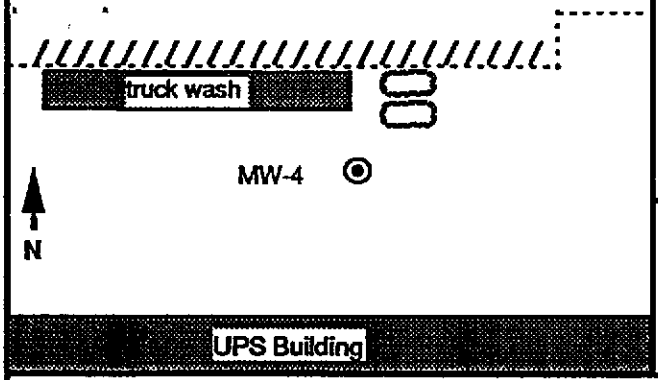
LOG OF MW-3
United Parcel Service
8400 Pardee Dr.
Oakland, California

Project No.: RC02704
Logged By: Kent O'Brien
Drilling Co.: Bay Land
Driller: Tom Schmidt

Date Drilled: August 23,1990
Drilling Method: 10" Hollow-Stem Auger.
Sampling Method: 2" Split spoon
Inclination: Vertical



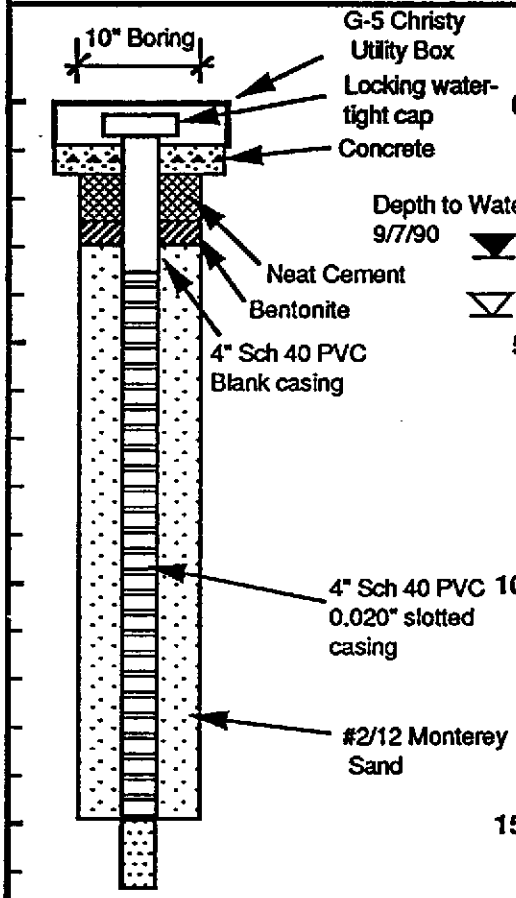
Depth (ft)	Blows/ft.	EXP	Samples	Graphic	DESCRIPTION
					Surface Elevation: 9.05 ft.
					Casing Elevation: 8.72 ft.
0					Asphaltic Concrete
					GRAVELS WITH SAND (GW), fill; yellow brown (10YR4/4); 60-70% gravels; angular; 30-40% medium to fine sands; poorly graded; medium stiff; dry.
	12	75			SAND (SP), green, (5G4/1), 60-70% medium sand; 30-40% fine sand; poorly graded; loose; damp.
5					
	9	800			GRAVEL WITH SAND (GW), yellow brown, (2.5Y4/0); 60-70% gravel; angular; 10-20% course sand; 20-30% fine sand; loose; moist.
					SAND (SP), green, (5G4/1), 60-70% medium sand; 30-40% fine sand; loose; damp.
10					
	6	450			CLAY WITH SILT (CL), green, (5B4/1), 50-60% clay; 25-35% silt; 5-15% fine sand; firm; damp.
					@ 14 ft. driller repoerts stiffer drilling
15					
	11	125			SANDY CLAY (CL), olive green (5G5/1), 30-40% clay; 20-30% silt; 30-40% medium to fine sand; small rock fragments <4mm; stiff; damp.
					Bottom of Boring: 16.5 Feet
20					
25					



LOG OF MW-4
United Parcel Service
8400 Pardee Dr.
Oakland, California

Project No.: RC02703
Logged By: Kent O'Brien
Drilling Co.: Bay Land
Driller: Tom Schmidt

Date Drilled: August 23,1990
Drilling Method: 10" Hollow Stem Auger
Sampling Method: 2" Split spoon
Inclination: Vertical



Depth (ft)	Blows/ft.	EXP	Samples	Graphic
0				
	19	130		
5				
	6	250		
10				
	1	150		
15				
	9	120		
20				
25				

DESCRIPTION

Surface Elevation: 6.79 ft.
Casing Elevation: 6.23 ft.

Asphaltic Concrete

SILTY SAND WITH GRAVEL (SM), yellow green, (2.5Y6/6), 10-20% gravel, 35-45% medium to fine sand; 15-25% silt; 5-10% clay; well graded; very stiff; dry.

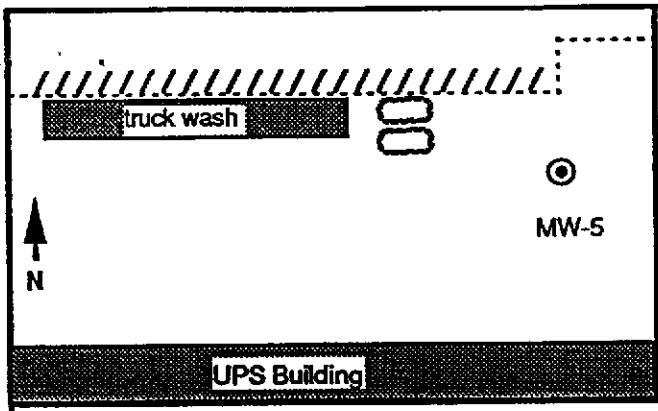
@ 4 ft. change in color in cuttings

SILT WITH SAND (ML); green; (5BG4/1); 5-10% fine sand; 15-20% very fine sand; 40% silt; 40% clay; firm; damp.

CLAY (CL); green; (5BG4/1); 90% clay; 10% silt; organic oder; very soft

SILTY CLAY (CL); olive green; (5B4/1); 50-60% clay; 30-40% silt; 10% fine sand;stiff; damp.

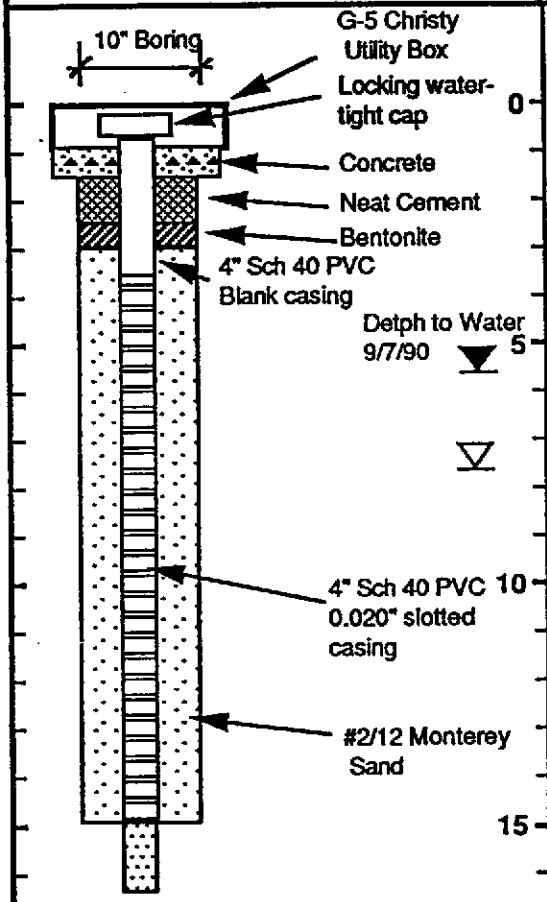
Bottom of Boring: 16.5 Feet



LOG OF MW-5
United Parcel Service
8400 Pardee Dr.
Oakland, California

Project No.: RC02703
Logged By: Kent O'Brien
Drilling Co.: Bay Land
Driller: Tom Schmidt

Date Drilled: August 23,1990
Drilling Method: 10" Hollow Stem Auger
Sampling Method: 2" Split spoon
Inclination: Vertical



Depth (ft)	Blows/ft.	EXP	Samples	Graphic	DESCRIPTION
					Surface Elevation: 7.46 ft.
					Casing Elevation: 6.95 ft.
0					Asphaltic Concrete
					GRAVEL (GP); 95-100% gravel.
	7	175			SANDY CLAY (CL); yellow green; (2.5Y3/0), 20% medium sand; 30-40% fine sand; 20-30% silt; 30-40% clay; loose; damp.
5	18	100			SILTY SAND (SM); green; (5GY5/1); 20-30% medium sand; 50-60% fine to very fine sand; 15-20% silt; medium dense; damp.
10	3	60			CLAY (CL); green; (5BG4/1); 90% clay; 10% silt; organic oder; soft; wet.
15	9				SILTY CLAY (CL); olive green; (5B4/1); 50-60% clay; 30-40% silt; 10% fine sand; stiff; damp.
					Bottom of Boring: 16.0 Feet
20					
25					

ATTACHMENT 2

COPIES OF CERTIFIED LABORATORY ANALYTICAL REPORTS AND CHAIN OF CUSTODY DOCUMENTATION

SUPERIOR ANALYTICAL LABORATORY, INC.
1555 BURKE, UNIT I · SAN FRANCISCO, CA 94124 · PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 52428
CLIENT: Geraghty & Miller Inc.
CLIENT JOB NO.: RC02703

DATE RECEIVED: 08/28/90
DATE REPORTED: 09/04/90

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

LAB #	Sample Identification	Concentration (mg/kg) Diesel Range
1	B1-3.5	21
2	B2-3.5	ND<10
3	B3-3.5	ND<10

Minimum Detection Limit for Gasoline and Diesel in Soil: 10mg/kg

QAQC Summary:

Daily Standard run at 200mg/L: %DIFF Diesel = <15%
MS/MSD Average Recovery = 115%:

Richard Srna, Ph.D.

Cecilia G. Joaquin (for)
Laboratory Director

SUPERIOR ANALYTICAL LABORATORY, INC.
1555 BURKE, UNIT I · SAN FRANCISCO, CA 94124 · PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 52428
CLIENT: Geraghty & Miller Inc.
CLIENT JOB NO.: RC02703

DATE RECEIVED: 08/28/90
DATE REPORTED: 09/04/90

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS
by Modified EPA SW-846 Method 5030 and 8015

LAB #	Sample Identification	Concentration (mg/kg) Gasoline Range
1	B1-3.5	10
2	B2-3.5	ND<1
3	B3-3.5	ND<1

mg/kg - parts per million (ppm)
Minimum Detection Limit for Gasoline in Soil: 1mg/kg

QAQC Summary:
Daily Standard run at 2mg/L: %DIFF Gasoline = <15%
MS/MSD Average Recovery = 97%: Duplicate RPD = <1%

Richard Srna, Ph.D.

Cecila G. Joaquin (for)
Laboratory Director

SUPERIOR ANALYTICAL LABORATORY, INC.
1555 BURKE, UNIT I · SAN FRANCISCO, CA 94124 · PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 52428
CLIENT: Geraghty & Miller Inc.
CLIENT JOB NO.: RC02703

DATE RECEIVED: 08/28/90
DATE REPORTED: 09/04/90

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

LAB #	Sample Identification	Concentration(ug/kg) Benzene	Toluene	Ethyl Benzene	Xylenes
1	B1-3.5	62	ND<3	4	36
2	B2-3.5	ND<3	ND<3	ND<3	ND<3
3	B3-3.5	ND<3	ND<3	ND<3	ND<3

ug/kg - parts per million (ppm)

Minimum Detection Limit in Soil: 3.0ug/kg

QAQC Summary:
Daily Standard run at 20ug/L: %DIFF = <15%
MS/MSD Average Recovery = 98% : Duplicate RPD = <3%

Richard Srna, Ph.D.

Carla G Joaquin (for)
Laboratory Director

GERAGHTY & MILLER, INC.
Environmental Services

Laboratory Task Order No. ________

SFH 52428

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Project Number RC02703
Project Location UPS 8400 Pardee Dr.
Laboratory Superior Analytical
Sampler(s)/Affiliation Kent O'Brien Geraghty & Miller

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	SAMPLE BOTTLE / CONTAINER DESCRIPTION: TPH as gasoline USEPA 8015 mod	TPH as Diesel USEPA 8015 mod	BTXE USEPA 8020							TOTAL
B1-3.5	S	8/24/90		✓	✓	✓							1
B2-3.5	S	8/24/90		✓	✓	✓							1
B3-3.5	S	8/24/90		✓	✓	✓							1

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers: 3

Relinquished by: [signature]	Organization: Geraghty & Miller Inc	Date 8-28-90	Time 1200	Seal Intact? Yes No N/A
Received by: [signature]	Organization: Express IT		8:45	
Relinquished by: [signature]	Organization:	Date 8 28 90	Time 15:00	Seal Intact? Yes No (N/A)
Received by: [signature]	Organization: Superior			

Special Instructions/Remarks: ________

Delivery Method: ☐ In Person ☐ Common Carrier ________ ☐ Lab Courier ☐ Other ________ SPECIFY

SUPERIOR ANALYTICAL LABORATORIES, INC.

825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

DOHS #319
DOHS #220

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

LABORATORY NO.: 81435
CLIENT: Geraghty & Miller
CLIENT JOB NO.: RC02704

DATE RECEIVED: 08/24/90
DATE REPORTED: 08/29/90

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS
by Modified EPA SW-846 Method 5030 and 8015

LAB #	Sample Identification	Concentration (mg/Kg) Gasoline Range
1	MW-2 3'	ND<1
2	MW-3 3.5'	91
3	MW-4 3'	ND<1
4	MW-5 4'	ND<1

mg/kg - parts per million (ppm)

Method Detection Limit for Gasoline in Soil: 1 mg/Kg

QAQC Summary:

Daily Standard run at 2mg/L: RPD Gasoline = 15%
MS/MSD Average Recovery = 105%: Duplicate RPD = 10%

Richard Srna, Ph.D.

Dorena Srna for
Laboratory Manager

SUPERIOR ANALYTICAL LABORATORIES, INC.

825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

DOHS #319
DOHS #220

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 81435
CLIENT: Geraghty & Miller
CLIENT JOB NO.: RC02704

DATE RECEIVED: 08/24/90
DATE REPORTED: 08/29/90

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

LAB #	Sample Identification	Concentration (mg/Kg) Diesel Range
1	MW-2 3'	ND<10
2	MW-3 3.5'	2300
3	MW-4 3'	ND<10
4	MW-5 4'	ND<10

Method Detection Limit for Gasoline and Diesel in Soil: 10 mg/Kg

QAQC Summary:

Daily Standard run at 200mg/L: RPD Gasoline = 4%
RPD Diesel = 7%
MS/MSD Average Recovery = 86%: Duplicate RPD = 4%

Richard Srna, Ph.D.

Laboratory Manager

SUPERIOR ANALYTICAL LABORATORIES, INC.

825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

DOHS #319
DOHS #220

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

LABORATORY NO.: 81435
CLIENT: Geraghty & Miller
CLIENT JOB NO.: RC02704

DATE RECEIVED: 08/24/90
DATE REPORTED: 08/29/90

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

LAB #	Sample Identification	Concentration(ug/Kg) Benzene	Toluene	Ethyl Benzene	Xylenes
1	MW-2 3'	ND<3	ND<3	ND<3	ND<3
2	MW-3 3.5'	20	36	89	490
3	MW-4 3'	ND<3	ND<3	ND<3	ND<3
4	MW-5 4'	ND<3	ND<3	ND<3	ND<3

ug/Kg - parts per billion (ppb)

Method Detection Limit in Soil: 3 ug/Kg

QAQC Summary:

Daily Standard run at 20ug/L: RPD = <15%
MS/MSD Average Recovery = 111 %: Duplicate RPD = <14%

Richard Srna, Ph.D.

Laboratory Manager

...LER, INC.
...und-Water Consultants

CHAIN-OF-CUSTODY RECORD

81435 Page 1 of 1

Number RC02704
Project Location BUIS OAKLAND
Laboratory SUPERIOR
Sampler(s) KENT O'BRIAN

SAMPLE BOTTLE / CONTAINER DESCRIPTION

SAMPLE IDENTITY	Date Sampled	TPH GASOLINE (8015 MOD)	TPH DIESEL (8015 MOD)	BTXE (8020)								TOTAL
MW-2 3'	8/22/90	↓	↓	↓								
MW-3 3.5'	8/23/90	↓	↓	↓								
MW-4 3'	8/23/90	↓	↓	↓								
MW-5 4'	8/23/90	↓	↓	↓								

Total No. of Bottles/ Containers

Relinquished by: [signature]	Organization: Geraghty + Miller	Date 8/24/90 Time 9:25	Seal Intact? Yes No N/A (circled)
Received by: [signature]	Organization: EXP-14	Date 8/24/90 Time	
Relinquished by: W EICH	Organization: EXP 14	Date 8/24/90 Time 13:35	Seal Intact? Yes No N/A
Received by: [signature]	Organization: [illegible]	Date 8/24/90 Time 13:35	

Special Instructions/Remarks:

Delivery Method: ☐ In Person ☒ Common Carrier ______ SPECIFY ☐ Lab Courier ☐ Other ______ SPECIFY

G&M Form 09 1-87 Southprint 87-1716

SUPERIOR ANALYTICAL LABORATORIES, INC.

825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

DOHS #319
DOHS #220

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

LABORATORY NO.: 81465
CLIENT: Geraghty & Miller
CLIENT JOB NO.: RCO-2704

DATE RECEIVED: 08/29/90
DATE REPORTED: 09/06/90

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

LAB #	Sample Identification	Concentration (mg/L) Diesel Range
1	MW-1	21
2	MW-2	3.5
3	MW-3	18

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 = 1%
RPD Diesel = 10%
MS/MSD Average Recovery = 82%: Duplicate RPD = 12%

Richard Srna, Ph.D.

Dorena Srna

Laboratory Manager

SUPERIOR ANALYTICAL LABORATORIES, INC.

825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

DOHS #319
DOHS #220

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

LABORATORY NO.: 81465
CLIENT: Geraghty & Miller
CLIENT JOB NO.: RCO-2704

DATE RECEIVED:08/29/90
DATE REPORTED:09/06/90

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-1	3.0	1.4	4.0	2.4
2	MW-2	0.6	0.4	0.6	0.7
3	MW-3	0.5	0.8	4.3	2.3

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 = 92%: Duplicate RPD = <6%

Richard Srna, Ph.D.

Dorena Srna for

Laboratory Manager

GH Y & MILLER, INC.
Environmental Services

Laboratory Task Order No. _____

CHAIN-OF-CUSTODY RECORD 81465

Page 1 of 1

Project Number RCO-2704

Project Location _____

Laboratory Superior Analytical

Sampler(s)/Affiliation N.M. Shlaib

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	SAMPLE BOTTLE / CONTAINER DESCRIPTION: VOA, Preserved Ice, BTEX Method 602	VOA, Preserved HCl, BTEX Method 602	TPH as Diesel, 1Lt Amber Glass, Ice, Method 8015 Mod.	TOTAL
MW 1	L	8.28.90			Y	Y	3
MW 2	L	8.28.90		Y		Y	3
MW 3	L	8.28.90			Y	Y	3

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/ Containers: 9

Relinquished by: N.M. Shlaib — Organization: G&M Inc.
Received by: Ernie Walters — Organization: Express-It Courier — Date 8/29/90 Time 1425 — Seal Intact? (Yes) No N/A

Relinquished by: Ernie Walters — Organization: Express-It Courier
Received by: [signature] — Organization: Superior Anal. — Date 08/29/90 Time 3305 — Seal Intact? (Yes) No N/A

Special Instructions/Remarks: [illegible] PRESERVATIVE -

Delivery Method: ☐ In Person ☐ Common Carrier Express Ft. ☐ Lab Courier ☐ Other _____
SPECIFY SPECIFY

G&M Form 09 1-90

SUPERIOR ANALYTICAL LABORATORIES, INC.

825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

DOHS #319
DOHS #220

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

LABORATORY NO.: 81461
CLIENT: Geraghty & Miller
CLIENT JOB NO.: RCO 2703

DATE RECEIVED: 08/29/90
DATE REPORTED: 09/06/90

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

LAB #	Sample Identification	Concentration (mg/L) Diesel Range
2	MW4	ND<0.05
3	MW5	ND<0.05

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 = 2%
MS/MSD Average Recovery = 80%: Duplicate RPD = 12%

Richard Srna, Ph.D.

Dorena Srna

Laboratory Manager

OUTSTANDING QUALITY AND SERVICE

SUPERIOR ANALYTICAL LABORATORIES, INC.

825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

DOHS #319
DOHS #220

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 81461
CLIENT: Geraghty & Miller
CLIENT JOB NO.: RCO 2703

DATE RECEIVED: 08/29/90
DATE REPORTED: 09/06/90

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
2	MW4	ND<0.3	ND<0.3	ND<0.3	ND<0.3
3	MW5	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 = 92 %: Duplicate RPD = <7

Richard Srna, Ph.D.

Doreen Srna for
Laboratory Manager

GERAGHTY & MILLER, INC.
Environmental Services

81461

Laboratory Task Order No.________

CHAIN-OF-CUSTODY RECORD

Project Number RCO 2703

Project Location ~~Superior~~

Laboratory Superior Analytical

Sampler(s)/Affiliation N.M. Shuais

SAMPLE BOTTLE / CONTAINER DESCRIPTION

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	2EA VOA - BTEX, TPH as GAS 602	QT. Plastic (ICE) HCL Total Hardness method 6010	QT. Plastic Total Dissolved Solids method 160.1	LT Glass TPH as Diesel method 8015	QT. Plastic Chloride method 300.0					TOTAL
MW 4	L	8.28.90		✓	✓	✓	✓	✓					6
MW 5	L	8.28.90		✓			✓						~~2~~ 3

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers: 8

Relinquished by: N.M. Shuais	Organization: G&M Inc.		Seal Intact?
Received by: [illegible]	Organization: Express It	Date 8/29/90 Time 1115	(Yes) No N/A
Relinquished by: [illegible]	Organization: Express It		Seal Intact?
Received by: [signature]	Organization: Superior Analytical	Date 8/29/90 Time 12:30	(Yes) No N/A

Special Instructions/Remarks:

Delivery Method: ☐ In Person ☑ Common Carrier Express It (SPECIFY) ☐ Lab Courier ☐ Other ________ (SPECIFY)

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I · SAN FRANCISCO, CA 94124 · PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 52468
CLIENT: Geraghty & Miller Inc.
CLIENT JOB NO.: RCO 2704

DATE RECEIVED: 09/10/90
DATE REPORTED: 09/17/90

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS
by Modified EPA SW-846 Method 5030 and 8015

LAB #	Sample Identification	Concentration (ug/l) Gasoline Range
1	MW 6	ND<50

ug/L - parts per billion (ppb)
Minimum Detection Limit for Gasoline in Water: 50ug/L

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

Richard Srna, Ph.D.
Laboratory Director

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I · SAN FRANCISCO, CA 94124 · PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 52468
CLIENT: Geraghty & Miller Inc.
CLIENT JOB NO.: RCO 2704

DATE RECEIVED: 09/10/90
DATE REPORTED: 09/17/90

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

LAB #	Sample Identification	Concentration (mg/l) Diesel Range
1	MW 6	ND<1

mg/L - parts per million (ppm)

Minimum Detection Limit for Gasoline and Diesel in Water: 1mg/L

QAQC Summary:

Daily Standard run at 200mg/L: RPD Diesel = <15%
MS/MSD Average Recovery = 124%: Duplicate RPD = 2%

Richard Srna, Ph.D.
Laboratory Director

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I · SAN FRANCISCO, CA 94124 · PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 52468
CLIENT: Geraghty & Miller Inc.
CLIENT JOB NO.: RCO 2704

DATE RECEIVED: 09/10/90
DATE REPORTED: 09/17/90

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 6	ND<0.3	0.5	ND<0.3	1

ug/L - parts per billion (ppb)

Minimum Detection Limit in Water:0.3ug/L

QAQC Summary:
Daily Standard run at 20ug/L: RPD = <15%
MS/MSD Average Recovery = 101% : Duplicate RPD = <20%

Richard Srna, Ph.D.
Laboratory Director

GERAGHTY & MILLER, INC.
Environmental Services

SA # 52468

Laboratory Task Order No.________

CHAIN-OF-CUSTODY RECORD

Project Number RLO 2704

Project Location ____________

Laboratory Superior Laboratory

Sampler(s)/Affiliation N.M. Shuaib
G&M Inc.

SAMPLE BOTTLE / CONTAINER DESCRIPTION

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	40ml VOA; 3 ea. BTEX; TPH as Gasoline	1Lt. Glass TPH as Diesel 8015 mod.							TOTAL
MW 6	L	4.7.90 1500		2	2							4

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/ Containers: 4

Relinquished by: N.M. Shuaib Received by: [illegible]	Organization: G&M Inc. Organization: Express it	Date 9/10/90 Time 1030	Seal Intact? (Yes) No N/A
Relinquished by: [illegible] Received by: [illegible]	Organization: Express-it Organization: [illegible]	Date 9/10/90 Time 1256	Seal Intact? (Yes) No N/A

Special Instructions/Remarks: ____________

Delivery Method: ☐ In Person ☒ Common Carrier Express-it (SPECIFY) ☐ Lab Courier ☐ Other ________ (SPECIFY)

SUPERIOR ANALYTICAL LABORATORIES, INC.
825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512
DOHS #319
DOHS #220

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 81461
CLIENT: Geraghty & Miller
CLIENT JOB NO.: RCO 2703

DATE RECEIVED: 08/29/90
DATE REPORTED: 09/12/90

ANALYSIS FOR TOTAL HARDNESS and CHLORIDE by EPA 6010

LAB #	Sample Identification	Concentration (mg/L)	
1	MW1	Calcium (Ca)	100
		Magnesium (Mg)	59
		Hardness ($CaCO_3$)	500
		Chloride (Cl)	470
2	MW4	Calcium (Ca)	540
		Magnesium (Mg)	600
		Hardness ($CaCO_3$)	3900
		Chloride (Cl)	6000

mg/L - parts per million

QAQC Summary: Calcium MS/MSD Recovery: 104% Duplicate RPD : 3%
Magnesium MS/MSD Recovery: 93% Duplicate RPD : 1%
Chloride MS/MSD Recovery: 105% Duplicate RPD : 2%

Richard Srna, Ph.D.

Laboratory Manager

SUPERIOR ANALYTICAL LABORATORIES, INC.

825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

DOHS #319
DOHS #220

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 81461
CLIENT: Geraghty & Miller
CLIENT JOB NO.: RCO 2703

DATE RECEIVED:08/29/90
DATE REPORTED:09/06/90

ANALYSIS FOR TOTAL DISSOLVED SOLIDS
by EPA 160.1

LAB #	Sample Identification	Concentration(mg/L) Total Dissolved Solids
1	MW1	1200
2	MW4	10000

mg/L - parts per million

QAQC Summary: Duplicate RPD : 12%

Richard Srna, Ph.D.

Dorena Srna for
Laboratory Manager

81461

GERAGHTY & MILLER, INC.
Environmental Services

Laboratory Task Order No.______

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Project Number RCO 2703

Project Location

Laboratory Superior Analytical

Sampler(s)/Affiliation D.M. Shwartz

415/233-3200

SAMPLE BOTTLE / CONTAINER DESCRIPTION

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	VOA — Qt. Plastic, HLL Total Hardness Method 6010	Qt. Plastic Total Dissolved Solids Method 160.	Qt. Plastic Chloride Method 300.00							TOTAL
MW 1	L	8.28.90		2	1	1							3
												Total No. of Bottles/ Containers	3

Sample Code: L = Liquid; S = Solid; A = Air

Relinquished by: D.M. Shwartz Organization: G&M Inc. Date 8/29/90 Time 1115 Seal Intact? (Yes) No N/A
Received by: [signature] Organization: Express IT

Relinquished by: [signature] Organization: Express IC Date 8/29/90 Time 1230 Seal Intact? (Yes) No N/A
Received by: Keith K. James Organization: Superior Analytical

Instructions/Remarks:

Superior Precision Analytical, Inc.
1555 Burke, Unit I • San Francisco, California 94124 • (415) 647-2081 / fax (415) 821-7123

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

LABORATORY NO.: 54516
CLIENT: Geraghty & Miller Inc.
CLIENT JOB NO.: RC02705

DATE RECEIVED: 02/05/92
DATE REPORTED: 02/11/92

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	ND<0.3	ND<0.3	ND<0.3	ND<0.3
2	MW-5	ND<0.3	ND<0.3	ND<0.3	0.5
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)

Minimum Detection Limit in Water:0.3ug/L

QAQC Summary:
Daily Standard run at 20ug/L: %DIFF 8020 = <15%
MS/MSD Average Recovery =105% : Duplicate RPD =1.9%

Richard Srna, Ph.D.

(for)
Laboratory Director

Superior Precision Analytical, Inc.
1555 Burke, Unit I • San Francisco, California 94124 • (415) 647-2081 / fax (415) 821-7123

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 54516
CLIENT: Geraghty & Miller Inc.
CLIENT JOB NO.: RC02705

DATE RECEIVED: 02/05/92
DATE REPORTED: 02/11/92

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	0.7	ND<0.3	ND<0.3	0.5
5	MW-3	0.4	ND<0.3	1.3	0.6
6	MW-1	0.9	ND<0.3	0.8	0.7

ug/L - parts per billion (ppb)

Minimum Detection Limit in Water:0.3ug/L

QAQC Summary:

Daily Standard run at 20ug/L: %DIFF 8020 = <15%
MS/MSD Average Recovery =105%: Duplicate RPD =1.9%

Comments:

Richard Srna, Ph.D.
Laboratory Director

GERAGHTY & MILLER, INC.
Environmental Services

Laboratory Task Order No. 54516

8497L

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Project Number RC02705

Project Location 8400 Pardee Drive Oakland - U.P.S.

Laboratory SUPERIOR

Sampler(s)/Affiliation ALEX RIOS

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	BTEX + TPH GAS (8020 + 8015)	TPH DIESEL (8015)	BTEX (8020) ONLY	TOTAL
MW-4	W	2-4-92/13:32		✓	✓		3
MW-4	L	2-4-92/13:32			✓		1
MW-5		2-4-92/13:46		✓			3
MW-5		2-4-92/13:46			✓		1
MW-6		2-4-92/14:05		✓			3
MW-6		2-4-92/14:05			✓		1
MW-2		2-4-92/14:33				✓	3
MW-2		2-4-92/14:33			✓		1
MW-3		2-4-92/14:46				✓	3
MW-3		2-4-92/14:46			✓		1
MW-1		2-4-92/14:58				✓	3
MW-1	L	2-4-92/14:58			✓		1
TRIP BLANK		2-4-92/—		✓			2

Please Initial:
Samples Stored in Ice.
Appropriate containers
Samples preserved
VOA's without headspace
Comments:

Total No. of Bottles/ Containers

Sample Code: (L = Liquid; S = Solid; A = Air

				Seal Intact?
Relinquished by: ALEX RIOS	Organization: Geraghty & Miller	Date 02/4/92	Time 18:35	(Yes) No N/A
Received by: JM Cavanaugh	Organization: G&M, Inc			
Relinquished by: JM Schwartz	Organization: G&M, Inc	Date 2/5/92	Time 0900	Seal Intact? Yes No N/A
Received by: W Eich	Organization: Exp-H			

Special Instructions/Remarks:

④ Received Superior S.F. 2/7/92 1630

Delivery Method: ☐ In Person ☐ Common Carrier Express-IT (SPECIFY) ☐ Lab Courier ☐ Other (SPECIFY)

Southpoint 90-0136