Harding Lawson Associates

June 7, 1996

30615 002

Ms. Sandy Farmer
U.S. Postal Service
Facilities Service Office
225 North Humphreys Boulevard
Memphis, Tennessee 38166-0300

Second Quarter 1996, Groundwater Monitoring
United States Postal Service - GMF/VMF
1675 7th Street
Oakland, California

Dear Ms. Farmer:

This letter presents the results of Harding Lawson Associates' (HLA) second quarter 1996 groundwater monitoring at the U.S. Postal Service (USPS) facility, 1675 7th Street, Oakland, California, (Plate 1). HLA's work was performed in accordance with:

Contract No. 475450-94-B-0309
Work Order No. 5.01
Groundwater Monitoring. Project No. Y04728
Oakland, California - P&DC

PROCEDURES

In accordance with the Alameda County Department of Environmental Health (ACDEH) guidelines and the ACDEH letter dated March 4, 1996, water levels and free-phase petroleum product thicknesses were measured and groundwater samples were collected from monitoring Wells MW-1 through MW-4 on May 16, 1996, (Plate 2). Field work was performed using procedures outlined in the *Site Characterization Workplan*, dated August 26, 1993, prepared by Geo/Resource Consultants, Inc., (GRC) and approved by ACDEH. Groundwater samples were sent to Pace Analytical (PACE), Petaluma, California, a laboratory state-certified for the analyses requested. The five groundwater samples collected (from Wells MW-1 through MW-4, and on duplicate sample from MW-4) were analyzed for total petroleum hydrocarbons as diesel (TPHd) using EPA Test Method 8015 modified. In addition, the samples from Well MW-4 were also analyzed for TPH as gasoline (TPHg) using EPA Test Method 8015 and for benzene, toluene, ethylbenzene, and xylenes (BTEX) using EPA Test Method 8020. Purge water was placed in labeled 55-gallon drums that are stored onsite. Copies of the well sampling forms are attached in the appendix.

FINDINGS

Groundwater elevations increased from 1.95 to 2.04 feet between the sampling event in November 1995 and May 1996. Groundwater flow direction during May was toward the southwest, which is consistent with previous observations. Free-phase petroleum product was not observed in anyof the wells during May 1996. Groundwater elevation data from the May 16, 1996, sampling period and all previous periods are presented in Table 1. Well locations and May 1996 groundwater elevations are shown on Plate 2.

TPHd was detected in samples collected from all wells at concentrations ranging between 320 and 2,000 micrograms per liter (µg/l). No other analytes were present in samples collected from the wells. Current and previous analytical results for groundwater samples are summarized in Table 2. Plate 3 presents the May 16, 1996 TPH and BTEX concentrations in groundwater. A copy of the laboratory analytical report and chain-of-custody form are attached.

CONCLUSIONS

Reported concentrations of petroleum hydrocarbons were similar to those detected in November 1995, except for the disappearance of product in Well MW-4. Since February 1995, quarterly monitoring results have indicated higher concentrations of petroleum hydrocarbons than those reported during 1993 and 1994. The increase in concentrations may be partially attributed to the observed rise in groundwater elevations, which may have mobilized residual petroleum hydrocarbons present in soil that were previously above the groundwater table.

The next quarterly groundwater monitoring will be conducted in November 1996. Prior to the next quarterly sampling round, HLA recommends disposal of the drummed water at a proper disposal facility. Copies of this report should be submitted to the ACDEH.

If you should you have questions please call Gary Lieberman at (415) 884-3158 or Cynthia Dahl at (415) 884-3133.

Yours very truly,

HARDING LAWSON ASSOCIATES

Gary A. Lieberman
Project Geologist

Daniel J. Craig, R.G., H.G.
Associate Hydrogeologist

GAL/DJC:mh/MH45935.ltr-M

Attachments:
- Table 1 - Summary of Groundwater Elevations
- Table 2 - Summary of Analytical Results of Groundwater Samples
- Plate 1 - Vicinity Map
- Plate 2 - Groundwater Contour Map - May 16, 1995
- Plate 3 - TPH and BTEX Concentrations in Groundwater - May 16, 1995
- Well Sampling Forms
- Laboratory Analytical Report
- Chain of Custody Document

cc: Cynthia Dahl, HLA, USPS Project Director
Steve Wake, USPS, 1675 7th Street BMF, Oakland, CA 94615-9357
Ray Levinson, USPS, 850 Cherry Avenue, San Bruno, CA 94099-4120

REFERENCE:

Geo Resources Consultants, Inc., 1993. *Site Characterization Workplan, U.S. Postal Service Vehicle Maintenance Facility, 1675 7th Street, Oakland, California.* August 26.

Table 1. Summary of Groundwater Elevations
United States Postal Service - GMF/VMF
1675 7th Street
Oakland, California

Well Name	Date	Top of Well Casing Elevation (ft MSL)*	Depth to Product (ft BTOC)**	Depth to Water (ft BTOC)**	Product Thickness (feet)	Groundwater Elevation (ft MSL)*
MW-1	9/93	8.30	No Product	3.90	No Product	4.40
	1/26/94		No Product	3.64	No Product	4.66
	2/94		No Product	3.37	No Product	4.93
	3/94		No Product	7.51	No Product	0.79
	4/94		No Product	10.74	No Product	-2.44
	5/94		No Product	12.98	No Product	-4.68
	6/94		No Product	15.55	No Product	-7.25
	2/22/95		No Product	6.98	No Product	1.32
	6/6/95		No Product	7.51	No Product	0.79
	8/16/95		No Product	8.11	No Product	0.19
	11/14/95		No Product	9.04	No Product	-0.74
	5/16/96		No Product	7.00	No Product	1.30
MW-2	9/93	8.86	No Product	4.55	No Product	4.31
	1/26/94		No Product	4.69	No Product	4.17
	2/94		No Product	3.98	No Product	4.88
	3/94		No Product	8.14	No Product	0.72
	4/94		No Product	10.60	No Product	-1.74
	5/94		No Product	13.47	No Product	-4.61
	6/94		No Product	15.50	No Product	-6.64
	2/22/95		No Product	7.66	No Product	1.20
	6/6/95		No Product	8.06	No Product	0.80
	8/16/95		No Product	8.77	No Product	0.09
	11/14/95		No Product	9.66	No Product	-0.80
	5/16/96		No Product	7.58	No Product	1.28
MW-3	9/93	9.28	No Product	5.00	No Product	4.28
	1/26/94		No Product	5.04	No Product	4.24
	2/94		No Product	4.62	No Product	4.66
	3/94		No Product	9.54	No Product	-0.26
	4/94		No Product	11.69	No Product	-2.41
	5/94		No Product	14.85	No Product	-5.57
	6/94		No Product	17.30	No Product	-8.02
	2/22/95		No Product	8.64	No Product	0.64
	6/6/95		No Product	9.07	No Product	0.21
	8/16/95		No Product	9.66	No Product	-0.38
	11/14/95		No Product	10.46	No Product	-1.18
	5/16/96		No Product	8.61	No Product	0.67

Table 1. Summary of Groundwater Elevations
United States Postal Service - GMF/VMF
1675 7th Street
Oakland, California

Well Name	Date	Top of Well Casing Elevation (ft MSL)*	Depth to Product (ft BTOC)**	Depth to Water (ft BTOC)**	Product Thickness (feet)	Groundwater Elevation (ft MSL)*
MW-4	9/93	8.73	No Product	4.55	No Product	4.18
	1/26/94		No Product	4.60	No Product	4.13
	2/94		No Product	3.95	No Product	4.78
	3/94		No Product	8.96	No Product	-0.23
	4/94		No Product	8.96	No Product	-0.23
	5/94		No Product	14.24	No Product	-5.51
	6/94		No Product	17.28	No Product	-8.55
	2/22/95		No Product	7.93	No Product	0.80
	6/6/95		No Product	8.48	No Product	0.25
	8/16/95		8.92	9.08	0.16	-0.20***
	11/14/95		9.82	9.92	0.10	-1.0***
	5/16/96		No Product	7.88	No Product	0.85
MW-5	9/93	8.23	No Product	3.63	No Product	4.60
	1/26/94		No Product	3.70	No Product	4.53
	2/94		No Product	3.23	No Product	5.00
	3/94		No Product	7.76	No Product	0.47
	4/94		No Product	10.19	No Product	-1.96
	5/94		No Product	11.46	No Product	-3.23
	6/94		No Product	14.25	No Product	-6.02
		Well Abandoned - January 1995				

Notes:

* Feet above mean sea level

** Feet below top of casing

*** Groundwater elevation corrected for product

Table 2. Summary of Analytical Results of Groundwater Samples
United States Postal Service - GMF/VMF
1675 7th Street
Oakland, California

Well Name	Sample Date	Total Petroleum Hydrocarbons as Gasoline µg/l	Total Petroleum Hydrocarbons as Diesel µg/l	Benzene µg/l	Toluene µg/l	Ethyl-Benzene µg/l	Xylenes µg/l
MW-1	9/93	< 50	< 50	< 0.5	< 0.5	<0.5	< 0.5
	9/93 (Dup)	< 50	< 50	< 0.5	< 0.5	<0.5	< 0.5
	1/26/94	< 50	< 50	< 0.5	< 0.5	<0.5	< 0.5
	3/94	< 50	< 50	< 0.5	< 0.5	<0.5	< 0.5
	6/94	< 50	73	< 0.5	< 0.5	<0.5	< 0.5
	2/22/95	< 50	600 *	< 0.5	< 0.5	<0.5	< 0.5
	6/6/95	< 50	900 *	< 0.5	< 0.5	<0.5	< 0.5
	8/16/95	< 50	810 *	< 0.5	< 0.5	<0.5	< 0.5
	11/14/95	< 50	590	< 0.5	< 0.5	<0.5	< 0.5
	5/16/96	NA	900	NA	NA	NA	NA
MW-2	9/93	< 50	< 50	< 0.5	< 0.5	<0.5	< 0.5
	1/26/94	< 50	< 50	< 0.5	< 0.5	<0.5	< 0.5
	3/94	< 50	< 50	< 0.5	< 0.5	<0.5	< 0.5
	6/94	< 50	< 50	< 0.5	< 0.5	<0.5	< 0.5
	2/22/95	< 50	280 *	< 0.5	< 0.5	<0.5	< 0.5
	6/6/95	< 50	570 *	< 0.5	< 0.5	<0.5	< 0.5
	8/16/95	< 50	150 *	< 0.5	< 0.5	<0.5	< 0.5
	11/14/95	< 50	<50	< 0.5	< 0.5	<0.5	< 0.5
	5/16/96	NA	320	NA	NA	NA	NA
MW-3	9/93	< 50	< 50	< 0.5	< 0.5	<0.5	< 0.5
	1/26/94	< 50	< 50	< 0.5	< 0.5	<0.5	< 0.5
	3/94	< 50	< 50	< 0.5	< 0.5	<0.5	< 0.5
	3/94 (Dup)	< 50	< 50	< 0.5	< 0.5	<0.5	< 0.5
	6/94	Insufficent water - No sample collected					
	2/22/95	50	350 *	< 0.5	< 0.5	<0.5	< 0.5
	6/6/95	< 50	380 **	< 0.5	< 0.5	<0.5	< 0.5
	8/16/95	< 50	440	< 0.5	< 0.5	<0.5	< 0.5
	11/14/95	< 50	200	0.8	< 0.5	<0.5	< 0.5
	5/16/96	NA	1,100	NA	NA	NA	NA

Table 2. Summary of Analytical Results of Groundwater Samples
United States Postal Service - GMF/VMF
1675 7th Street
Oakland, California

Well Name	Sample Date	Total Petroleum Hydrocarbons as Gasoline µg/l	Total Petroleum Hydrocarbons as Diesel µg/l	Benzene µg/l	Toluene µg/l	Ethyl-Benzene µg/l	Xylenes µg/l
MW-4	9/93	< 50	580	< 0.5	< 0.5	<0.5	< 0.5
	1/26/94	< 50	850	0.7	<0.5	<0.5	< 0.5
	1/26/94	< 50	450	0.8	<0.5	<0.5	< 0.5
	3/94	< 50	< 50	< 0.5	< 0.5	<0.5	< 0.5
	6/94	< 50	250	1.6	< 0.5	<0.5	< 0.5
	6/94	< 50	260	1.7	< 0.5	<0.5	< 0.5
	2/22/95	140 ***	1,100 *	1.4	< 0.5	<0.5	< 0.5
	2/22/95 (Dup)	130 ***	1,000 *	1.1	< 0.5	<0.5	< 0.5
	6/6/95	1,400 ****	19,000	<0.5	< 0.5	0.5	< 0.5
	6/6/95 (Dup)	24,000****	23,000	<0.5	< 0.5	<0.5	< 0.5
	8/16/95	1,200	3,400	1.2	< 0.5	0.9	< 0.5
	8/16/95 (Dup)	2,000	3,000	1.2	< 0.5	1.0	0.8
	11/14/95	730****	4,200	< 0.5	< 0.5	< 0.5	< 0.5
	11/14/95 (Dup)	950	7,400	< 0.5	< 0.5	< 0.5	< 0.5
	5/16/96	< 50	2,000	< 0.5	< 0.5	<0.5	< 1.0
	5/16/96 (Dup)	< 50	2,000	< 0.5	< 0.5	<0.5	< 1.0
MW-5	9/93	< 50	< 50	< 0.5	< 0.5	<0.5	< 0.5
	1/26/94	< 50	< 50	< 0.5	< 0.5	<0.5	< 0.5
	3/94	< 50	< 50	< 0.5	< 0.5	<0.5	< 0.5
	6/94	< 50	< 50	< 0.5	< 0.5	<0.5	< 0.5
		Well Abandoned - January 1995					

Notes:

µg/l	Micrograms per liter (equivalent to parts per billion)
<1.0	Not detected at indicated reporting limit
*	The laboratory interpreted the result as a heavier hydrocarbon than diesel
**	A non-standard diesel pattern was observed
***	A non-standard gasoline pattern was observed
****	The laboratory interpreted the result as a heavier hydrocarbon than gasoline
Dup	Duplicate sample
NA	Not analyzed

WOOD STREET

4

GENERAL AREA OF
EBMUD DEWATERING PROJECT

7

VEHICLE
MAINTENANCE FACILITY

OVERHANG

MW-3
(0.67)

FUEL DISPENSING ISLAND

3

2

6

1

MW-4
(0.85)

MW-2
(1.28)

MW-1
(1.30)

-0.70

-0.90

-1.10

-1.30

EXISTING FUEL LINE TRENCH

3 EXISTING
12,000-GALLON
UNDERGROUND
STORAGE TANKS

GAS

DIESEL

DIESEL

APPROXIMATE
GROUNDWATER
FLOW DIRECTION

MW-5

5

7TH STREET

EXPLANATION

- Monitoring Well Location
- MW-1 (1.32) — Groundwater Elevation Above Mean Sea Level
- MW-5 — Abandoned Monitoring Well
- -1.0 — Groundwater Elevation Contour (feet MSL)
- Limit of Excavation
- 5 — Removed Underground Storage Tank, Tank No.
- Existing Tank (See Designation Below)

1	5,000-Gallon Gasoline
2	10,000-Gallon Diesel
3	10,000-Gallon Diesel
4	750-Gallon Waste Oil
5	10,000-Gallon Diesel
6	Former Diesel Fuel Dispensing Island
7	750-Gallon Waste Oil Tank

N

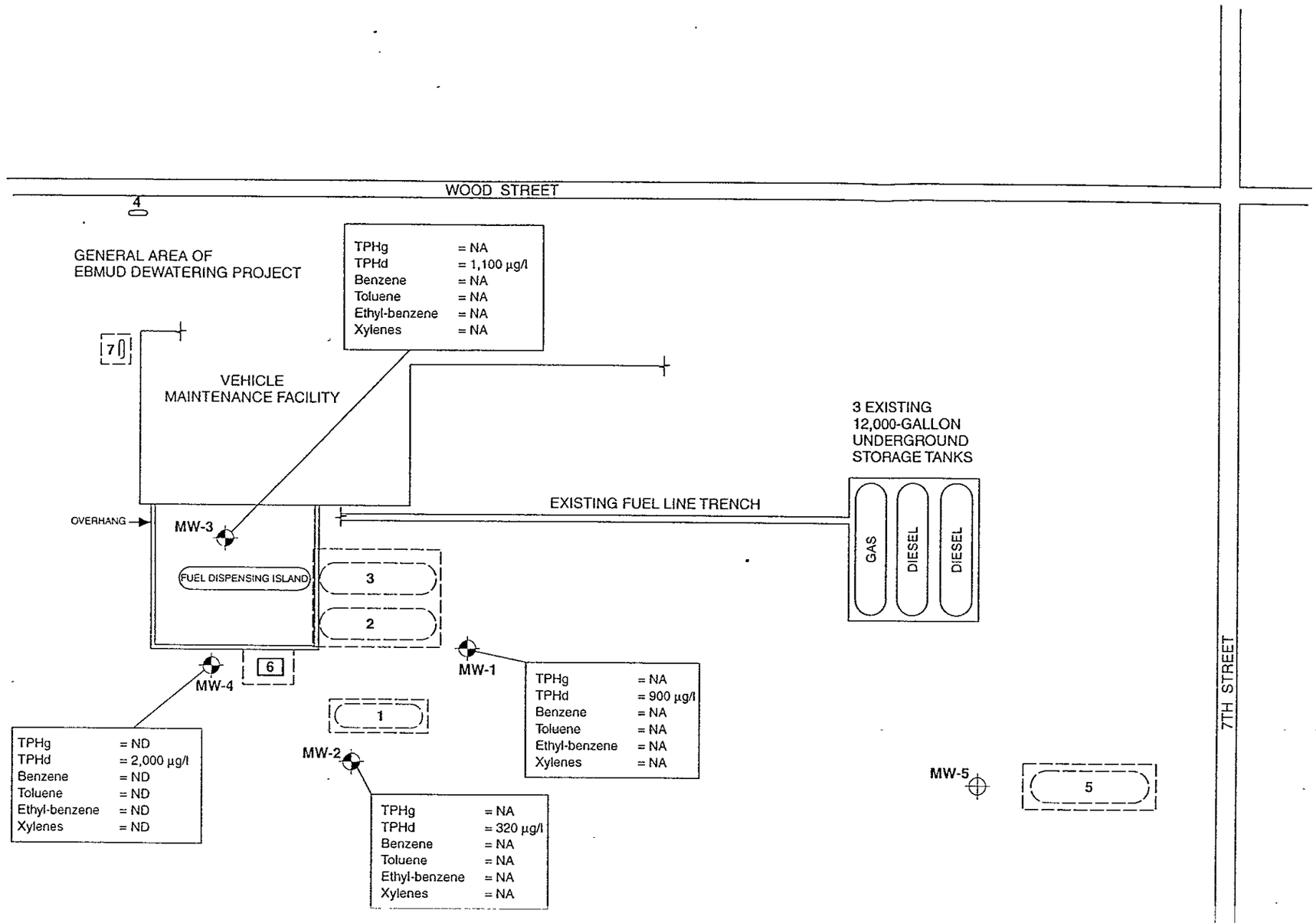
NOT TO SCALE

Harding Lawson Associates
Engineering and
Environmental Services

Groundwater Contour Map-
May 16, 1996
USPS Oakland GMF/VMF
Oakland, California

PLATE
2

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
LFDc	30615 002	GAL	11/95	5/96



EXPLANATION

MW-1	Monitoring Well Location
MW-5	Abandoned Monitoring Well
µg/l	Micrograms Per Liter (Equivalent to Parts Per Billion)
NA	Not Analyzed
ND	Not Detected
5	Limit of Excavation; Removed Underground Storage Tank; Tank No.
	Existing Tank (See Designation Below)
1	5,000-Gallon Gasoline
2	10,000-Gallon Diesel
3	10,000-Gallon Diesel
4	750-Gallon Waste Oil
5	10,000-Gallon Diesel
6	Former Diesel Fuel Dispensing Island
7	750-Gallon Waste Oil Tank

N

NOT TO SCALE

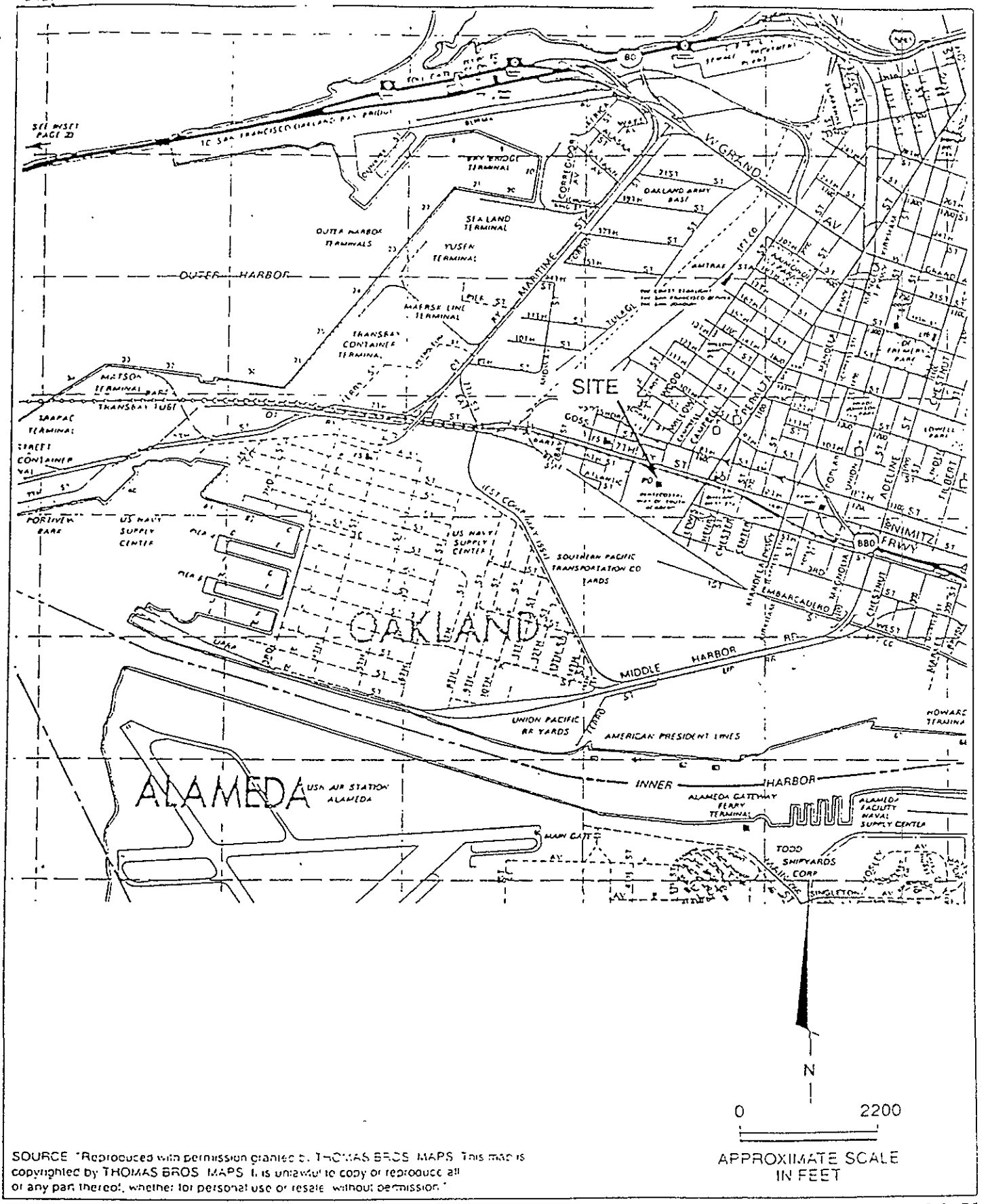
060696DJP

Harding Lawson Associates
Engineering and
Environmental Services

TPH and BTEX Concentrations in Groundwater-
May 16, 1996
USPS Oakland GMF/VMF
Oakland, California

PLATE 3

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
LFDc	30615 002	GAL	11/95	5/96



Harding Lawson Associates
Engineering and Environmental Services

Vicinity Map
USPS Oakland GMF/VMF
Oakland, California

FIGURE 1

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
LFD	30615 002	GAI	3/95	

Harding Lawson Associates
Engineering and
Environmental Services

GROUND-WATER SAMPLING FORM

Job Name USPS Oakland
Job Number 30615.002
Recorded by Steve Korbay (Signature)

Well No MW-1
Well Type: ☑ Monitor ☐ Extraction ☐ Other
Well Material: ☑ PVC ☐ St. Steel ☐ Other
Date 5-16-96 Time 0758
Sampled by SJK (Initials)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches).
☐ 2-inch ☑ 4-inch ☐ 6-inch ☐ Other
Total Depth of Casing (TD in feet BTOC): 20.3
Water Level Depth (WL in feet BTOC): 7.00
Number of Well Volumes to be purged (# Vols)
☑ 3 ☐ 4 ☐ 5 ☐ 10 ☐ Other

PURGE METHOD

☑ Bailer - Type: PVC
☐ Submersible ☐ Centrifugal ☐ Bladder; Pump No.:
☐ Other - Type:

PUMP INTAKE SETTING

☐ Near Bottom ☐ Near Top ☐ Other
Depth in feet (BTOC): Screen Interval in Feet (BTOC) from to

PURGE VOLUME CALCULATION:

(20.3 (TD feet) - 7.00 (WL feet)) X 4 (D inches)^2 X 3 (# Vols) X 0.0408 = 26.0 (Calculated Purge Volume) gallons

PURGE TIME

0740 Start 0753 Stop 13 Elapsed

PURGE RATE

Initial gpm Final gpm

ACTUAL PURGE VOLUME

27 gallons

FIELD PARAMETER MEASUREMENT

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☑ °C ☐ °F	Other turb.
initial	6.6	800	18.5	5.82
9	6.6	900	18.0	50.4
18	6.7	900	18.0	>1,000
27	6.7	900	18.0	>1,000

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☐ °C ☐ °F	Other
Meter Nos.	3683	9668		9202-112

Observations During Purging (Well Condition, Turbidity, Color, Odor): Clear, to medium brown, no odor or sheen
Discharge Water Disposal: ☐ Sanitary Sewer ☐ Storm Sewer ☑ Other Drum Onsite

WELL SAMPLING

SAMPLING METHOD

☐ Same As Above
☑ Bailer - Type: S. S.
☐ Grab - Type:
☐ Submersible ☐ Centrifugal ☐ Bladder; Pump No.:
☐ Other - Type:

SAMPLING DISTRIBUTION

Sample Series: 9620

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
1601	2-liters	TPH Diesel	None	Pace	

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.

Other Samples

Type	Sample No.

Harding Lawson Associates
Engineering and Environmental Services

GROUND-WATER SAMPLING FORM

Job Name USPS Oakland
Job Number 30615,002
Recorded by Steve Korbay (Signature)

Well No. MW-2
Well Type: ☑ Monitor ☐ Extraction ☐ Other
Well Material: ☑ PVC ☐ St. Steel ☐ Other
Date 5-16-96 Time 0910
Sampled by SJK (Initials)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches):
☐ 2-inch ☑ 4-inch ☐ 6-inch ☐ Other
Total Depth of Casing (TD in feet BTOC): 20.0
Water Level Depth (WL in feet BTOC): 7.58
Number of Well Volumes to be purged (# Vols)
☑ 3 ☐ 4 ☐ 5 ☐ 10 ☐ Other

PURGE METHOD

☑ Bailer - Type: PVC
☐ Submersible ☐ Centrifugal ☐ Bladder; Pump No.:
☐ Other - Type:

PUMP INTAKE SETTING

☐ Near Bottom ☐ Near Top ☐ Other
Depth in feet (BTOC): _____ Screen Interval in Feet (BTOC) from _____ to _____

PURGE VOLUME CALCULATION:

(20.0 (TD feet) - 7.58 (WL feet)) X 4 (D inches)^2 X 3 (# Vols) X 0.0408 = 24.3 gallons (Calculated Purge Volume)

PURGE TIME

0852 Start 0904 Stop 12 Elapsed

PURGE RATE

Initial _____ gpm Final _____ gpm

ACTUAL PURGE VOLUME

25 gallons

FIELD PARAMETER MEASUREMENT

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☑ °C ☐ °F	Other turb.
initial	6.0	200	18.5	89.7
8	6.4	700	18.5	242
16	6.4	600	18.5	>1,000
25	6.4	600	18.5	>1,000

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☐ °C ☐ °F	Other ____
Meter Nos.	3683	9668		9202-112

Observations During Purging (Well Condition, Turbidity, Color, Odor): clear, grey color no odor or sheen
Discharge Water Disposal: ☐ Sanitary Sewer ☐ Storm Sewer ☑ Other Drum Onsite

WELL SAMPLING

SAMPLING METHOD

☑ Bailer - Type: S.S.
☐ Submersible ☐ Centrifugal ☐ Bladder; Pump No.:
☐ Same As Above
☐ Grab - Type:
☐ Other - Type:

SAMPLING DISTRIBUTION

Sample Series: 9620

Sample No.	Volume/Cont.	Analysis Requested	Preservatives	Lab	Comments
1603	2-1 liters	TPH Diesel	None	Pace	

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.

Other Samples

Type	Sample No.

Harding Lawson Associates
Engineering and
Environmental Services

GROUND-WATER SAMPLING FORM

Job Name USPS Oakland
Job Number 30615.002
Recorded by Steve Korbay (Signature)

Well No. MW-3
Well Type: ☑ Monitor ☐ Extraction ☐ Other
Well Material: ☑ PVC ☐ St. Steel ☐ Other
Date 5-16-96 Time 0833
Sampled by SJK (Initials)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches):
☐ 2-inch ☑ 4-inch ☐ 6-inch ☐ Other
Total Depth of Casing (TD in feet BTOC): 20.2
Water Level Depth (WL in feet BTOC): 8.61
Number of Well Volumes to be purged (# Vols)
☑ 3 ☐ 4 ☐ 5 ☐ 10 ☐ Other

PURGE METHOD

☑ Bailer - Type: PVC
☐ Submersible ☐ Centrifugal ☐ Bladder, Pump No.:
☐ Other - Type:

PUMP INTAKE SETTING

☐ Near Bottom ☐ Near Top ☐ Other
Depth in feet (BTOC): Screen Interval in Feet (BTOC) from to

PURGE VOLUME CALCULATION:

(20.2 (TD feet) - 8.61 (WL feet)) X 4 (D inches)^2 X 3 (# Vols) X 0.0408 = 22.6 gallons (Calculated Purge Volume)

PURGE TIME

0815 Start 0828 Stop 13 Elapsed

PURGE RATE

Initial gpm Final gpm

ACTUAL PURGE VOLUME

23 gallons

FIELD PARAMETER MEASUREMENT

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☑ °C ☐ °F	Other turb.
initial	6.5	2,000	18.0	25.9
8	6.4	5,000	18.0	34.3
16	6.5	6,000	18.0	>1,000
23	6.5	6,000	18.0	>1,000

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☐ °C ☐ °F	Other
Meter Nos.	3683	9668		9202-112

Observations During Purging (Well Condition, Turbidity, Color, Odor): Clear to light Brown, no odor or sheen

Discharge Water Disposal: ☐ Sanitary Sewer ☐ Storm Sewer ☑ Other Drum Onsite

WELL SAMPLING

SAMPLING METHOD

☑ Bailer - Type: S.S.
☐ Submersible ☐ Centrifugal ☐ Bladder; Pump No.:
☐ Same As Above
☐ Grab - Type:
☐ Other - Type:

SAMPLING DISTRIBUTION

Sample Series: 9620

Sample No.	Volume/Cont	Analysis Requested	Preservatives	Lab	Comments
1602	2-liters	TPH Diesel	None	Pace	

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.

Blank Samples

Type	Sample No.

Other Samples

Type	Sample No.

Harding Lawson Associates
Engineering and
Environmental Services

GROUND-WATER SAMPLING FORM

Well No. MW-4

Job Name USPS Oakland

Well Type: ☑ Monitor ☐ Extraction ☐ Other _____

Job Number 30615.002

Well Material: ☑ PVC ☐ St. Steel ☐ Other _____

Date 5-16-96 Time 0943

Recorded by Steve Kolbay (Signature)

Sampled by SJK (Initials)

WELL PURGING

PURGE VOLUME

Casing Diameter (D in inches):
☐ 2-inch ☑ 4-inch ☐ 6-inch ☐ Other _____

Total Depth of Casing (TD in feet BTOC): 20.0

Water Level Depth (WL in feet BTOC): 7.88

Number of Well Volumes to be purged (# Vols)
☑ 3 ☐ 4 ☐ 5 ☐ 10 ☐ Other _____

PURGE METHOD

☑ Bailer - Type: PVC

☐ Submersible ☐ Centrifugal ☐ Bladder; Pump No.: _____

☐ Other - Type: _____

PUMP INTAKE SETTING

☐ Near Bottom ☐ Near Top ☐ Other _____

Depth in feet (BTOC): _____ Screen Interval in Feet (BTOC) from _____ to _____

PURGE VOLUME CALCULATION:

$(20.0 - 7.88) \times 4^2 \times 3 \times 0.0408 = 23.7$ gallons

(TD (feet) − WL (feet)) × D (inches)² × # Vols × 0.0408 = Calculated Purge Volume

PURGE TIME

0923 Start 0938 Stop 15 Elapsed

PURGE RATE

Initial _____ gpm Final _____ gpm

ACTUAL PURGE VOLUME

24 gallons

FIELD PARAMETER MEASUREMENT

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☑ °C ☐ °F	Other turb.
initial	6.5	1,450	18.5	21.0
8	6.6	1,500	18.5	41.6
16	6.6	1,500	18.5	116
24	6.6	1,500	18.5	178

Minutes Since Pumping Began	pH	Cond. (µmhos/cm)	T ☐ °C ☐ °F	Other _____
Meter Nos.	3683	9668		9202-112

Observations During Purging (Well Condition, Turbidity, Color, Odor): Clear, strong gas odor with sheen

Discharge Water Disposal: ☐ Sanitary Sewer ☐ Storm Sewer ☑ Other Drum Onsite

WELL SAMPLING

SAMPLING METHOD

☑ Bailer - Type: S. S.

☐ Submersible ☐ Centrifugal ☐ Bladder; Pump No.: _____

☐ Same As Above

☐ Grab - Type: _____

☐ Other - Type: _____

SAMPLING DISTRIBUTION

Sample Series: 9620

Sample No.	Volume/Cont	Analysis Requested	Preservatives	Lab	Comments
1604	2-liters	TPH Diesel	None	Pace	

QUALITY CONTROL SAMPLES

Duplicate Samples

Original Sample No.	Duplicate Sample No.
1604	1605

Blank Samples

Type	Sample No

Other Samples

Type	Sample No.

Pace Analytical

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

May 28, 1996

Mr. Gary Lieberman
Harding Lawson Associates
105 Digital Drive
Novato, CA 94949

RE: PACE Project Number: 705705
Client Project ID: USPS Oakland

Dear Mr. Lieberman:

Enclosed are the results of analyses for sample(s) received on May 16, 1996. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Stephanie Matzo

Stephanie Matzo
Project Manager

Enclosures

REPORT OF LABORATORY ANALYSIS

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

Pace Analytical

DATE: 05/28/96
PAGE: 1

arding Lawson Associates
05 Digital Drive
ovato, CA 94949

PACE Project Number: 705705
Client Project ID: USPS Oakland

:tn: Mr. Gary Lieberman
ione: (415)883-3158

ACE Sample No: 70608146 Date Collected: 05/16/96
:ient Sample ID: 96201601 Date Received: 05/16/96

arameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
TPH in Water by 8015 Modified								
Diesel Fuel	0.9	mg/L	0.05	05/24/96	TPH by EPA 8015M	dll		1
n-Pentacosane (S)	67	%		05/24/96	TPH by EPA 8015M	dll	629-99-2	
Date Extracted				05/21/96				

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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Petaluma, CA 94954
Tel: 707-792-1865
Fax: 707-792-0342

Pace Analytical

PACE Project Number: 705705
Client Project ID: USPS Oakland

PACE Sample No: 70608153 Date Collected: 05/16/96
Client Sample ID: 96201602 Date Received: 05/16/96

Parameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
TPH in Water by 8015 Modified								
Diesel Fuel	1.1	mg/L	0.05	05/24/96	TPH by EPA 8015M	dll		2
n-Pentacosane (S)	40	%		05/24/96	TPH by EPA 8015M	dll	629-99-2	
Date Extracted				05/21/96				

REPORT OF LABORATORY ANALYSIS

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

Pace Analytical

PACE Project Number: 705705
Client Project ID: USPS Oakland

CE Sample No: 70608161 Date Collected: 05/16/96
ient Sample ID: 96201603 Date Received: 05/16/96

rameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
TPH in Water by 8015 Modified								
Diesel Fuel	0.32	mg/L	0.05	05/24/96	TPH by EPA 8015M	dll		1
n-Pentacosane (S)	36	%		05/24/96	TPH by EPA 8015M	dll	629-99-2	
Date Extracted				05/21/96				

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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Petaluma, CA 94954
Tel: 707-792-1865
Fax: 707-792-0342

Pace Analytical

PACE Project Number: 705705
Client Project ID: USPS Oakland

ACE Sample No: 70608179 Date Collected: 05/16/96
lient Sample ID: 96201604 Date Received: 05/16/96

arameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
C -- Volatiles								
GAS/BTEX by CA LUFT, Water								
Gasoline	ND	ug/L	50	05/17/96	CA LUFT	AM		
Benzene	ND	ug/L	0.5	05/17/96	CA LUFT	AM	71-43-2	
Toluene	ND	ug/L	0.5	05/17/96	CA LUFT	AM	108-88-3	
Ethylbenzene	ND	ug/L	0.5	05/17/96	CA LUFT	AM	100-41-4	
Xylene (Total)	ND	ug/L	1	05/17/96	CA LUFT	AM	1330-20-7	
a,a,a-Trifluorotoluene (S)	103	%		05/17/96	CA LUFT	AM	2164-17-2	
4-Bromofluorobenzene (S)	97	%		05/17/96	CA LUFT	AM	460-00-4	
C								
TPH in Water by 8015 Modified								
Diesel Fuel	2	mg/L	0.05	05/24/96	TPH by EPA 8015M	dll		
n-Pentacosane (S)	38	%		05/24/96	TPH by EPA 8015M	dll	629-99-2	
Date Extracted				05/21/96				

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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Petaluma, CA 94954
Tel: 707-792-1865
Fax: 707-792-0342

Pace Analytical

PACE Project Number: 705705
Client Project ID: USPS Oakland

CE Sample No: 70608187 Date Collected: 05/16/96
ient Sample ID: 96201605 Date Received: 05/16/96

rameters	Results	Units	PRL	Analyzed	Method	Analyst	CAS#	Footnotes
-- Volatiles								
GAS/BTEX by CA LUFT, Water								
Gasoline	ND	ug/L	50	05/17/96	CA LUFT	AM		
Benzene	ND	ug/L	0.5	05/17/96	CA LUFT	AM	71-43-2	
Toluene	ND	ug/L	0.5	05/17/96	CA LUFT	AM	108-88-3	
Ethylbenzene	ND	ug/L	0.5	05/17/96	CA LUFT	AM	100-41-4	
Xylene (Total)	ND	ug/L	1	05/17/96	CA LUFT	AM	1330-20-7	
a,a,a-Trifluorotoluene (S)	94	%		05/17/96	CA LUFT	AM	2164-17-2	
4-Bromofluorobenzene (S)	94	%		05/17/96	CA LUFT	AM	460-00-4	
TPH in Water by 8015 Modified								
Diesel Fuel	2	mg/L	0.05	05/24/96	TPH by EPA 8015M	dll		
n-Pentacosane (S)	46	%		05/24/96	TPH by EPA 8015M	dll	629-99-2	
Date Extracted				05/21/96				

REPORT OF LABORATORY ANALYSIS

Pace Analytical

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

PACE Project Number: 705705
Client Project ID: USPS Oakland

RAMETER FOOTNOTES

Not Detected
: Not Calculable
.L PACE Reporting Limit
) Surrogate
} High boiling point hydrocarbons are present in sample.
] Hydrocarbons present do not match profile of laboratory standard.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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Petaluma, CA 94954
Tel: 707-792-1865
Fax: 707-792-0342

Pace Analytical

QUALITY CONTROL DATA

DATE: 05/28/96

arding Lawson Associates
05 Digital Drive
ovato, CA 94949

PACE Project Number: 705705
Client Project ID: USPS Oakland

ttn: Mr. Gary Lieberman
hone: (415)883-3158

C Batch ID: 14557 QC Batch Method: CA LUFT Date of Batch: 05/13/96
nalysis Method: CA LUFT Analysis Description: GAS/BTEX by CA LUFT, Water
ssociated PACE Samples: 70608179 70608187

ETHOD BLANK: 70608195
ssociated PACE Samples:
70608179 70608187

arameter	Units	Method Blank Result	PRL	Footnotes
asoline	ug/L	ND	50	
enzene	ug/L	ND	0.5	
oluene	ug/L	ND	0.5	
thylbenzene	ug/L	ND	0.5	
ylene (Total)	ug/L	ND	1	
,a,a-Trifluorotoluene (S)	%	98		
-Bromofluorobenzene (S)	%	97		

ATRIX SPIKE & MATRIX SPIKE DUPLICATE: 70601869 70601877

arameter	Units	70597547	Spike Conc.	Matrix Spike Result	Spike % Rec	Matrix Sp. Dup. Result	Spike Dup % Rec	RPD	Footnotes
enzene	ug/L	ND	100	93.1	93	94.9	95	2	
oluene	ug/L	ND	100	94.6	95	96.5	97	2	
thylbenzene	ug/L	ND	100	93.2	93	95.4	95	2	
ylene (Total)	ug/L	ND	300	288	96	293	98	2	
,a,a-Trifluorotoluene (S)					98		97		
-Bromofluorobenzene (S)					106		105		

REPORT OF LABORATORY ANALYSIS

Pace Analytical

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QUALITY CONTROL DATA

PACE Project Number: 705705
Client Project ID: USPS Oakland

LABORATORY CONTROL SAMPLE: 70601885

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	Footnotes
Benzene	ug/L	100	91.6	92	
Toluene	ug/L	100	93.2	93	
Ethylbenzene	ug/L	100	92.3	92	
Xylene (Total)	ug/L	300	284	95	
a,a,a-Trifluorotoluene (S)				98	
4-Bromofluorobenzene (S)				105	

REPORT OF LABORATORY ANALYSIS

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Pace Analytical

QUALITY CONTROL DATA

arding Lawson Associates
05 Digital Drive
ovato, CA 94949

PACE Project Number: 705705
Client Project ID: USPS Oakland

ttn: Mr. Gary Lieberman
hone: (415)883-3158

C Batch ID: 14729 QC Batch Method: EPA 3520 Date of Batch: 05/21/96
nalysis Method: TPH by EPA 8015M Analysis Description: TPH in Water by 8015 Modified
ssociated PACE Samples: 70608146 70608153 70608161 70608179 70608187

ETHOD BLANK: 70611090
ssociated PACE Samples: 70608146 70608153 70608161 70608179 70608187

arameter	Units	Method Blank Result	PRL	Footnotes
iesel Fuel	mg/L	ND	0.05	
ı-Pentacosane (S)	%	34		

.ABORATORY CONTROL SAMPLE & LCSD: 70611108 70611116

'arameter	Units	Spike Conc.	LCS Result	Spike % Rec	LCSD Result	Spike Dup % Rec	RPD	Footnotes
iesel Fuel	mg/L	1	0.714	71	0.711	71	0	
ı-Pentacosane (S)				84		81		

REPORT OF LABORATORY ANALYSIS

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Petaluma, CA 94954
Tel: 707-792-1865
Fax: 707-792-0342

PACE Project Number: 705705
Client Project ID: USPS Oakland

JALITY CONTROL DATA PARAMETER FOOTNOTES

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

)	Not Detected
:	Not Calculable
RL	PACE Reporting Limit
PD	Relative Percent Difference
S)	Surrogate

REPORT OF LABORATORY ANALYSIS

Harding Lawson Associates
105 Digital Drive
Novato, CA 94949
P.O. Box 6107
Novato, CA 94948
(415) 883-0112

CHAIN OF CUSTODY FORM

Lab: Pace 105 105

Samplers: SJK

Project Number: 30615.002

Name/Location: USPS Oakland

Project Manager: Gary Lieberman

Recorder: Steve Kolbay
(Signature Required)

SOURCE CODE	MATRIX: Water	Sediment	Soil	Oil	# CONTAINERS & PRESERV.: Unpres.	H_2SO_4	HNO_3	HCL	SAMPLE NUMBER OR LAB NUMBER: Yr Wk Seq	DATE: Yr Mo Dy Time	STATION DESCRIPTION / NOTES	ANALYSIS REQUESTED: EPA 601/8010	EPA 602/8020	EPA 624/ 8240	EPA 625/8270	ICP METALS	EPA 8015M/TPH	TPH Diesel	TPH gas - BTEX
23	X				2				962016011	960516075 8	608146						X	X	
23	X				2				962016021	960516083 3	608153						X	X	
23	X				2				962016031	960516091 0	608161						X	X	
23	X				2			3	962016041	960516094 3	608179						X	X	X
23	X				2			3	962016051	960516101 5	608187						X	X	X

LAB NUMBER: Yr Wk Seq	DEPTH IN FEET	COL MTD CD	QA CODE	MISCELLANEOUS
				Standard T.A.T

CHAIN OF CUSTODY RECORD

RELINQUISHED BY: (Signature) Steve Kolbay	RECEIVED BY: (Signature) [illegible] PAST	DATE / TIME 5/4/96 1310
RELINQUISHED BY: (Signature) [illegible] PAST	RECEIVED BY: (Signature) Gary Lieberman	DATE / TIME 5/6/96 1335
RELINQUISHED BY: (Signature)	RECEIVED BY: (Signature)	DATE / TIME
RELINQUISHED BY: (Signature)	RECEIVED BY (Signature)	DATE / TIME
DISPATCHED BY: (Signature) DATE / TIME	RECEIVED FOR LAB BY. (Signature)	DATE / TIME
METHOD OF SHIPMENT		

Laboratory Copy White | Project Office Copy Yellow | Field or Office Copy Pink

6533