TABLE 1. Laboratory Results of Soil Samples
6121 Hollis Street
Emeryville, California
(concentrations in ppm)

Sample Location	Depth (feet)	Oil	Diesel	Gasoline	Ethyl-Benzene	Toluene	Benzene	Xylenes	VOCs	PCBs
EB-1	2.5-3.0	--	--	<1.0	<0.005	<0.005	<0.005	<0.005	--	--
	4.0-4.5	<50	<1.0	--	--	--	--	--	--	--
EB-2	2.5-3.0	--	--	<1.0	<0.005	<0.005	<0.005	<0.005	--	--
	7.5-8.0	740	1,500	570	<0.005	<0.005	<0.005	2.7	--	--
EB-3	7.0-7.5	<50	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	--	--
EB-5	7.0-7.5	<50	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	--	--
EB-6	2.0-2.5	<50	--	--	--	--	--	--	--	--
EB-7	2.0-2.5	790	--	--	--	--	--	--	--	--
EB-8	2.0-2.5	<50	--	--	--	--	--	--	--	--
EB-9	2.5-3.0	92	--	--	--	--	--	--	--	--
EB-10	2.5-3.0	530	--	--	--	--	--	--	--	--
EB-11	2.0-2.5	190	--	--	--	--	--	--	--	--
EB-12	4.5-5.0	<50	--	--	--	--	--	--	--	--
EB-13	4.5-5.0	190	390	52	<0.005	0.038	<0.005	0.13	--	--
	14.5-15.0	<50	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	--	--
EB-14	5.0-5.5	<50	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	--	--
EB-15	5.0-5.5	<50	100	12	<0.005	0.017	0.059	0.037	--	--
EB-16	8.5-9.0	<50	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	--	--
EB-17	5.0-5.5	<50	25	19	<0.005	0.035	0.052	0.34	--	--
EB-18	0.5	51	--	--	--	--	--	--	--	--
EB-19	0.5	<50	--	--	--	--	--	--	--	--
EB-20	0.5	<50	--	--	--	--	--	--	--	--
EB-21	0.5	<50	--	--	--	--	--	--	--	--
EB-(6,7,10,11)*		--	--	--	--	--	--	--	ND	ND
EB(18-21)*		--	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	ND	0.45
MW-1	2.5-3.0	160	5.3	<1.0	<0.005	<0.005	<0.005	<0.005	--	--
MW-2	3.0-3.5	140	--	--	--	--	--	--	--	--
	5.5-6.0	490	100	330	<0.005	<0.005	<0.005	0.60	--	--
MW-3	7.0-7.5	<50	98	420	<0.005	1.0	2.3	1.0	--	--
	12.5-13.0	230	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	--	--
MW-4	6.0-6.5	180	36	26	<0.005	0.026	<0.005	<0.005	--	--

ND Not Detected above laboratory detection limits
-- Not Analyzed
* Composite sample

TABLE 2. Laboratory Results of Ground Water Samples
6121 Hollis Street
Emeryville, California
(concentrations in ppb)

Sample Location	Oil†	Diesel	Gasoline	Benzene	Toluene	Ethyl-Benzene	Xylenes	TCE	PCBs
MW-1	<5.0	<50	<50	<0.50	<0.50	<0.50	<0.50	4.1	ND
MW-2	<5.0	240	1,500	3.2	4.7	<0.50	<0.50	--	--
MW-3	<5.0	530	180	<0.50	3.6	0.98	3.4	<2.0	ND
MW-4	<5.0	730	1,200	<0.50	4.0	16	1.5	--	--
MW-1A	8.0	4,900	<50	<0.50	<0.50	7.7	<0.50	--	--

ND Not Detected above laboratory detection limits
-- Not Analyzed
† Oil and grease concentrations in ppm

TABLE 1. Laboratory Analysis of Soil and Ground Water Samples from Below the Central UST
Proposed Emeryville Postal Facility
Emeryville, California
(concentrations in mg/kg)

Sample Location	Date Sampled	Oil	Diesel	Benzene	Toluene	Ethyl-benzene	Xylenes
SS-1 (5 ft)*	8/2/93	<50	1,800†	<0.005	<0.005	4.4	12
Water-1	8/2/93	--	150†	0.0084	0.015	0.037	0.071
Water-2	8/11/93	--	0.690†	<0.0005	<0.0005	<0.0005	0.00086

-- Not Analyzed
† Reported by laboratory as a non-diesel mix (C9-C15)
* Intermediate sample. Soil subsequently removed to ground water.

2.2 Over-Excavation (Central UST)

On August 2 and 3, 1993, impacted soil near the former tank was excavated laterally and to ground water at an approximate depth of 6 to 7 feet. The purpose of the over-excavation was to remove shallow soils containing elevated levels of diesel range compounds associated with the UST. Approximately 500 cubic yards of soil were excavated. The final dimensions of the excavation measured approximately 30 by 35 feet (see Figure 3).

The impacted soil, generally consisting of clayey silt, was identified by moderate petroleum odor, bluish-green color, and relatively high OVM readings. The impacted soil was removed with an excavator until visual observations and OVM readings indicated a reduction in the level of contamination. Within 5 feet laterally of the former central UST, impacted soil appeared to extend from the base of the UST to the area of ground water fluctuation at depths between 5 to 8 feet. Beyond 5 feet from the UST, impacted soil appeared only to be localized within the zone of ground water fluctuation. Based on previous on-site work, this impacted zone appears to be present

2.2.2 Analytical Results (Over-Excavation)

The verification samples were analyzed for TPH as diesel and BTEX compounds (EPA Test Method 8015/8020). Analytical results are presented in Table 2. As shown, the diesel concentrations detected in the samples are similar in magnitude except for sample SS-8 taken from the southwest sidewall where the maximum diesel concentration was detected (240 ppm). Chromatogram patterns of the samples indicated a non-diesel mix, likely highly weathered diesel and a mixture of other diesel range fuel products. In addition, the chromatogram pattern of soil samples from the excavation boundaries suggests the presence of heavier diesel compounds. These compounds were not found in the single soil sample taken directly below the UST, indicating, as expected, that the compounds present are likely from several other sources. Concentrations of BTEX compounds were below laboratory detection limits. Copies of laboratory reports are attached in Appendix C.

TABLE 2. Laboratory Analysis of Soil Verification Samples from Central UST Over-Excavation
Proposed Emeryville Postal Facility
Emeryville, California
(concentrations in mg/kg)

Sample Location	Approximate Depth (ft)	Diesel	Benzene	Toluene	Ethyl-benzene	Xylenes
SS-3	5.5	14†	<0.005	<0.005	<0.005	<0.005
SS-4	6.0	<1.0	--	--	--	--
SS-5	6.0	<1.0	--	--	--	--
SS-6	5.5	5.9†	<0.005	<0.005	<0.005	<0.005
SS-7	6.0	3.1†	<0.005	<0.005	<0.005	<0.005
SS-8	7.0	240†	--	--	--	--

-- Not Analyzed
† Reported by laboratory as a non-diesel mix (C11-C16)

samples TR-4 and TR-5 from the eastern third of the pipe where the pipe was deepest. Only very low levels (up to 18 ppm) of diesel hydrocarbons were detected in the other samples. Petroleum oil was also detected in sample TR-2. Copies of the laboratory reports are attached in Appendix C.

TABLE 3. Laboratory Analysis of Soil Samples from Below 6-Inch Product Line
Proposed Emeryville Postal Facility
Emeryville, California
(concentrations in mg/kg)

Sample Location	Approx. Depth (ft)	Oil	Diesel	Benzene	Toluene	Ethyl-benzene	Xylenes
TR-1	3.5	<50	10†	<0.005	<0.005	<0.005	<0.005
TR-2	4.0	1,600	16†	<0.005	<0.005	<0.005	<0.005
TR-3	4.5	<50	18	<0.005	<0.005	<0.005	<0.005
TR-4	5.0	1,000	1,200	<0.005	<0.005	<0.005	<0.005
TR-5	5.0	400	110	<0.005	<0.005	2.3	0.11

† Reported by laboratory as a non-diesel mix (>C12)

3.2 Other Piping Removal

To aid in future construction activities, all other known pipelines at the site consisting of utility lines and electrical conduits were removed, broken into sections, and appropriately disposed by Erickson, Inc. at their Richmond facility.

4.0 SOUTHEAST EXCAVATION

4.1 Soil Excavation

On July 26 and 27, 1993, oil impacted soil detected during previous on-site work was excavated from the southeast corner of the site. The purpose of this work was to remove shallow soil impacted with elevated levels of petroleum oil. The oil impacted soil, consisting of dark brown or black silt with some clay, was encountered at or just below the ground surface. OVM readings obtained from this soil were typically low due to the heavy/non-volatile

and 2,300 ppm, respectively. The highest concentrations of PCBs were detected in the southwest corner of the site.

5.2 Soil Excavation

On August 11, 1993, Gettler-Ryan removed the on-site railroad ballast which extended from the western fence line to 16 to 18 feet eastward (Figure 4). The excavation proceeded until the underlying native light brown to gray silts and clays were observed, usually at a depth of 14 to 18 inches. Approximately 260 cubic yards of ballast material were removed. The material was stockpiled and covered by visqueen at the site and subsequently disposed by Remco, Inc. at their Richmond facility.

5.3 Post-Excavation Sampling/Results

After excavating the railroad ballast material, five soil samples were collected from the underlying native soil at a depth of approximately 1.5 feet to verify that the PCBs and oil had been removed. As shown in Table 5, laboratory analysis of the post-excavation soil samples did not detect PCBs and only low levels of petroleum oil were detected in two of the samples.

TABLE 5. Laboratory Analysis of Soil Samples Collected from Former On-Site Railroad Siding Proposed Emeryville Postal Facility Emeryville, California

Sample Location	Approx. Depth (ft)	Total Petroleum Oil (mg/kg)	PCB 1260 (mg/kg)
Pre-excavation			0.770
RR-2	1.0-1.5	1,200	0.750
RR-3	0-0.5	450	2.3
RR-5	0-0.5	240	0.920
RR-7	0-0.5	2,500	

continued

TABLE 5. Laboratory Analysis of Soil Samples Collected from Former On-Site Railroad Siding Proposed Emeryville Postal Facility Emeryville, California
(continued)

Sample Location	Approx. Depth (ft)	Total Petroleum Oil (mg/kg)	PCB 1260 (µg/kg)
RR-9	0-0.5	770	0.730
RR-10	0-0.5	270	0.690
RR-11	0-0.5	66	0.073
RR-12	0-0.5	170	0.640
Post-excavation			
RR-13	1.5-2.0	<50	<0.20
RR-14	1.5-2.0	<50	<0.20
RR-15	1.5-2.0	170	<0.20
RR-16	1.5-2.0	<50	<0.20
RR-17	1.5-2.0	110	<0.20

6.0 CONCLUSIONS AND RECOMMENDATIONS

The purpose of this report was to document the UST, fuel transfer pipeline, and soil excavation/removal activities at the site. Tank/piping removal, excavation, and soil disposal was performed by Gettler-Ryan of Hayward, California.

6.1 Central UST

The approximately 500-gallon single-walled steel UST located in the central area of the site was removed by Gettler-Ryan on August 2, 1993. After removal of the UST, one soil sample was collected from soil directly below the tank. In addition, a water sample was obtained from ponded ground water in the bottom of the excavation. Laboratory analyses of the samples indicated that both the soil and ground water around the tank had been impacted by diesel range petroleum hydrocarbons.

4.3 Analytical Results

The soil samples collected from the excavation sidewalls and bottom were analyzed for total petroleum oil (Standard Method 5520EF). As shown in Table 4, only low levels of petroleum oil were detected in most of the soil samples except for samples SE-1 and SE-3 which had higher concentrations (up to 4,400 ppm). These two samples were collected from the bottom and southern wall of the excavation, respectively. Copies of the laboratory reports are attached in Appendix C.

4.4 Additional Excavation/ Sampling

After receipt of the analytical results, an attempt was made to remove soil containing elevated levels of petroleum oil from the southern sidewall and excavation bottom. On August 3, 1993, the south wall of the excavation was extended an additional 2 feet to within 1 foot of the southern property boundary. The excavation was also extended to the depth of ground water. Two soil samples (SE-7 and SE-8) were subsequently collected from the south wall and analyzed for total petroleum oil. As shown in Table 4, oil was detected in only one sample at 17,000 ppm. Because of the proximity of the excavation to the southern property boundary, no additional soil was removed.

TABLE 4. Laboratory Analysis of Soil Samples from Southeast Excavation
Proposed Emeryville Postal Facility
Emeryville, California
(concentrations in mg/kg)

Sample Location	Approx. Depth (ft)	Sampling Date	Location	Total Petroleum Oil
SE-1*	4.0	7/26/93	Bottom	2,100
SE-2	3.5	7/26/93	Sidewall	50
SE-3*	4.0	7/26/93	Sidewall	4,400

continued

TABLE 4. Laboratory Analysis of Soil Samples from Southeast Excavation
Proposed Emeryville Postal Facility
Emeryville, California
(concentrations in mg/kg)
(continued)

Sample Location	Approx. Depth (ft)	Sampling Date	Location	Total Petroleum Oil
SE-5	4.0	7/27/93	Sidewall	130
SE-6	4.0	7/27/93	Sidewall	<50
SE-7	4.5	8/3/93	Sidewall	<50
SE-8	4.5	8/3/93	Sidewall	17,000

* Intermediate sample. Soil subsequently removed.

5.0 RAILROAD BALLAST REMOVAL

Along the western edge of the site was a former railroad siding. The siding entered the property from the northwest corner and extended to the southern edge of the site, generally running parallel to the adjacent main rail lines (Photograph #6). The siding consisted of wood ties set over 1 to 1.5 feet of ballast. The ballast generally consisted of a silty gravel with cobbles.

5.1 Pre-Excavation Sampling/Results

Laboratory analysis of soil samples collected during previous work at the site indicated that the railroad ballast contained low levels of petroleum oil and PCBs. Prior to excavating, several additional soil samples (RR-2, 3, 5, 7, 9, 10, 11, and 12) were collected from the oil and PCB impacted material to delineate its extent. Samples were collected using a slide hammer or by pot-holing with the excavator. These samples were analyzed for total petroleum oil (Standard Test Method 5520EF) and PCBs (EPA Test Method 8080). Analytical results are summarized in Table 5. Laboratory analysis of the samples detected petroleum oil and PCBs at concentrations up to 2,500