PORT OF OAKLAND

March 12, 2008

Mr. Steven Plunkett
Hazardous Materials Specialist
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Subject: **APL Redevelopment Project, Oakland, California**
Port of Oakland May 1, 2006 Alameda County Submittal – Follow Up
RO#470

Dear Mr. Plunkett:

The Port of Oakland (Port) recently located further information on an earlier spill incident that may impact the Port's APL Yard and Gate Redevelopment Project (APL Project). The site was previously owned by Union Pacific Railroad (UPRR) and was referred to by the County as Union Pacific Railroad (UPRR), 1717 Middle Harbor Road, Oakland, California. The site was purchased by the Port from UPRR in 1998, and it is currently part of the APL Project site and is known as the Diesel Spill area. The Diesel Spill area was addressed by the Port and the County in 2006 through an exchange of written comments. The County initially commented on investigation findings in a letter dated March 2, 2006 under Comment #5. The Port responded in May 2006 to Comment #5 with the following:

> *"The records that the Port has on the diesel spill are derived from the Union Pacific Railroad (the railroad was the responsible party that responded to the accidental release). The spill occurred on September 29, 1995 following a locomotive derailment. About 700 gallons of diesel fuel was released onto the tracks. It appears the railroad immediately responded, and they in turn notified the Oakland Fire Department and the RWQCB. Eventually, ACHCS became involved, and they assigned STID number 4020 to the project. Three monitoring wells (DSMW-1 through DSMW-3) were installed down gradient of the release site, and these wells were monitored and sampled at least once. Apparently, affected soils were excavated and disposed off-site based on a Generator's Waste Profile Sheet from 1996 for East Carbon Development Corporation for 100 tons of (ballast) rock and soils (described as 1 rail car). The three monitoring wells were reportedly abandoned by grouting in-place sometime between 1996 and*

> *2005. However, well DSMW-1 was found to be accessible, and T&R redeveloped and sampled the well in 2005. The groundwater sampling results for 1995 and 2005 are presented in Table 2 from USPCI's "Environmental Assessment of the Diesel Spill Site" (USPCI, 1996) and Tables 6 and 7 from T&R's "Redevelopment Planning Report (T&R, 2005), respectively (see attached).*"

Since the 2006 reply letter, new information has been located in Port archives about the abandonment of the three wells. The County granted closure of the three wells on January 23, 1997 (A copy of the January 23, 1997 letter is attached). As noted above, the Port found well DSMW-1 serviceable, but following resampling in 2003, the Port properly abandoned the well by grouting it in place. Wells DSMW-2 and DSMW-3 were found to have been grouted in place to the ground surface, apparently by the railroad.

The Port submits a copy of the County January 23, 1997 letter along with the related correspondence and reports about the Diesel Spill:

1) 1997, *Union Pacific Railroad Co. Trailer-on-Flat-Car (TOFC) Site, aka Former Diesel Refueling Area, 1717 Middle Harbor Rd., Oakland CA 94607*, Alameda County Health Care Services Agency. January 23, 4 pages.

2) 1996, *Industrial Waste Stream Acceptance Criteria*, ECDC Environmental, LC. September 27, 2 pages.

3) 1996, Cover Letter- *Environmental Assessment Report of the Diesel Spill Site, Union Pacific Railroad TOFC Property, Oakland, California, USPCI.* January 9.

4) 1996, *Environmental Assessment Report of the Diesel Spill Site, Union Pacific Railroad TOFC Property, Oakland, California*, USPCI. January 8, 32 pages.

5) 1995, Union *Pacific Railroad Site, 1717 Middle Harbor Rd, Oakland, Ca* (Approval of the October 17, 1995 proposal), Alameda County Health Care Services Agency, October 18.

6) 1995, *Proposal for Subsurface Investigation of the Diesel Fuel Spill near the Union Pacific Railroad yard at 1717 Middle Harbor Road in Oakland, California*, USPCI. October 17.

7) 1995, Collection of Items Sent by Facsimile on September 30th to Union Pacific Intermodal Automotive Service Unit and which includes the following:

> September 30, *Hazardous Materials Inspection Report*, Oakland Fire Department/Office of Emergency Services, 2 pages.

7) Continued:

October 10, *Fuel Spill Near the APL Facility, UPRR TOFC Facility, Oakland, California*, USPCI., 2 pages.

October 10, *Fuel Spill Near the APL Facility, UPRR TOFC Facility, Oakland, California*, USPCI., 2 pages (signed copy).

October 14, [Summary of Situation by] Morgan Environmental Services, 2 pages.

Should you have any questions about this follow up or the enclosed documents, please contact the undersigned at your earliest convenience.

Sincerely,

John Prall, P.G.
Port Associate Environmental Scientist

Attachments Noted in Text

CC:

Anne Whittington
Michele Heffes
Christine Noma
Deborah Ballati
Joe Whalen

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

January 23, 1997
STID 4020

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION (LOP)
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

Attn: Harry Patterson, P.E.
Union Pacific Railroad Co.
1416 Dodge St., Room 930
Omaha NE 68179

RE: Union Pacific Railroad Co. Trailer-on-Flat-Car (TOFC) Site, aka Former Diesel Refueling Area, 1717 Middle Harbor Rd., Oakland CA 94607

Dear Mr. Patterson,

Since our last letter to you, dated 10/18/95, signed by Dale Klettke, the following documents have been received in this office:

1) "Semi-Annual Monitoring Report, Hydrocarbon Recovery System," prepared by Laidlaw Environmental Services, dated 12/19/95;

2) "Environment Assessment of the Diesel Spill Site," prepared by Laidlaw Environmental Services, dated 1/8/96;

3) "First Quarter 1996 Monitoring Report," prepared by Laidlaw Environmental Services, dated 4/30/96;

4) "Semi-Annual Monitoring Report, Hydrocarbon Recovery System," prepared by Laidlaw Environmental Services, dated 7/26/96;

5) "Third Quarter 1996 Monitoring Report," prepared by Laidlaw Environmental Services, dated 10/30/96; and

6) "Semi-Annual Monitoring Report, Hydrocarbon Recovery System," prepared by Laidlaw Environmental Services, dated 12/20/96.

As you know, a derailment caused a spill of approximately 750 gallons of diesel product on 10/1/95. Three groundwater monitoring wells (DS1, DS2, and DS3) were installed in this area on 11/8/95. Soils with obvious staining were excavated to a depth of 0.5 feet on 1/5/96. No diesel product was detected in the DS wells over a period of one year (11/95 to 11/96). TPHd, TPHg and BTEX have been ND during this time, while heavier hydrocarbons have been present. It appears that the diesel product had already dispersed in the sandy and gravelly subsurface by the time the wells were installed. **Your request to properly abandon these wells is acceptable. Please provide a brief letter report detailing well destruction activities.**

A free product recovery system (consisting of three 8" diameter recovery wells and pumps) was installed by April 1992. Groundwater/free product is pumped out, the product is separated into a storage tank, and the groundwater is treated by carbon and discharged to the sewer under EBMUD permit. This system reportedly commenced operation on 5/8/92. Prior to system startup, the maximum thickness of free product recorded was 5.45 feet (ORW-1, 6/19/91) (see Table 5, "Semi-annual Monitoring Report," Laidlaw, 12/20/96). Since system startup, the maximum thickness of free product recorded was 5.99 feet (OMW-9, 5/14/93). The maximum thickness of free product during the last quarterly monitoring event (11/12/96) was 3.46 feet (OP-4).

Clearly, a significant amount of free product still exists at this site. Laidlaw's conclusions report that the system is effective, based on gallons of diesel removed and effluent concentrations in the water stream from the carbon units. However, **the thickness of free product has not been significantly reduced over nearly five years of system operation.** Only three recovery wells are included in the system (ORW-1, ORW-2, and ORW-3). However, the free product plume extends approximately 150' to the southwest of ORW-1 (3.46' product in OP-4 on 11/12/96), and approximately 150' to the south of wells ORW-2 and ORW-3 (2.13' product in OP-2 on 11/12/96), and approximately 35' to the north-northwest of ORW-3 (1.54' product in OMW-4 on 11/12/96).

I understand that the hydrocarbon recovery system was originally designed for additional flow capacity, due to the possibility of adding additional recovery wells. **You are requested to submit an additional remediation workplan for improving the hydrocarbon recovery system in order to enhance free product recovery, within 45 days, or by March 11, 1997.** This may entail hooking up additional existing wells to the system, creating new trench(es) to remove free product, or other means. **Our main concern is the migration and remediation of the free product plume. Free floating product must be removed "to the maximum extent practicable, as determined by the local agency," and "in a manner that minimizes the spread of contamination,"** as per state law {23 California Code of Regulations, Division 3, Chapter 16, Sections 2722 (b), and 2655 (a) and (b)}.

I have recently reviewed the "Draft Final Revised UST Investigation Report," for "Former Underground Storage Tank Sites 211, 331N, 331S, 331E, 332, 334, 511D, 750, 842, and 845." This report was dated December 1996 and was prepared by ERM-West, Inc. for the Navy's Fleet and Industrial Supply Center, in Oakland (FISCO) site. This report details UST investigation activities for ten separate sites within FISCO. There are three such UST sites which are located on the southeast border of the FISCO site, nearest to this UPRR site. They are UST sites 750, 842, and 845; see attached map. Three monitoring wells were installed at each UST site. Groundwater flow direction was south-southwest at UST site 750 on 8/2/96, northwest at UST site 842 on 1/20/95, and north-northeast at UST site 845 on 1/23/95. **Groundwater results**

indicate no free product in any of these 9 wells. Maximum dissolved groundwater concentrations were 1800 ug/L TPHd, 550 ug/L TPHg and 24 ug/L benzene at UST site 750; 156,000 ug/L TPHd and 3 ug/L benzene at UST site 842; and 7,563 ug/L TPHd at UST site 845. These concentrations were reported on the respective site maps; dates were not included. Of these concentrations, the highest concentration was 156,000 ug/L TPHd at UST site 842. This was a grab sample collected in boring 842-W3 via direct push technique. Another grab sample collected approximately 50 feet to the west (sample 842-W9 in the former UST excavation) contained ND results. A water sample collected from 842-MW1, located approximately 25' to the southeast contained ND results as well.

A cursory review of this data indicate that **the Navy property appears not to be the source of the free product on your site.** Pertinent sections of this report are being copied and sent to your consultant (Laidlaw) for review. Further subsurface investigation work is recommended for these 3 UST sites. [Information regarding the tank removals is not included in this report, and may not have been compiled at all.]

In addition, **you are requested to submit the following figures** which were not included in the "Hydrocarbon Investigation and Remedial Design" report prepared by USPCI, dated 6/5/91: Figure 2, 3A, 3B, 4, and 5. **Please submit these figures within 30 days, or by February 23, 1997.** Page 15 of this report mentions an "operating groundwater recovery system (french drain)" which "exists just west of the fueling facility" and was "designed to depress the groundwater surface and prevent water damage to rail switches and has been in operation for several years." The report goes on to say that "The recovery system was not designed to recover free product, but does discharge to an oil/water separator." **Please submit a site map which depicts the location of this french drain and associated appurtenances, within 30 days or by February 15, 1997.** As per a telecon with Denton Mauldin of Laidlaw on 1/15/97, this french drain was never hooked up to the oil/water separator. Incidentally, the oil/water separator mentioned here is the same structure which is part of the hydrocarbon recovery system.

The 6/5/91 USPCI report also presents boring logs for OMW-1 through OMW-8. However, it does not include boring logs for OMW-9 and OMW-10. **Were these wells installed at a later date? If so, which report includes their boring logs? Please respond to these inquiries, and submit the boring logs for these two wells within 30 days or by February 23, 1997.**

Page 3 of the 7/20/92 "Hydrocarbon Recovery System, As-Built Construction Report" prepared by USPCI refers to an (undated) "Preliminary Design Report" which should contain boring logs for the three recovery wells (ORW-1 thru ORW-3). However, I could not locate this report in our files. **Please reference this report by date and consultant (and exact title), and please submit the boring logs for these recovery wells within 30 days or by February 23, 1997.** It is

possible that somebody took this report from the file. Our files are public records, and do get reviewed by the general public on a regular basis.

If you have any questions, please contact me at 510-567-6761.

Sincerely,

Jennifer Eberle
Hazardous Materials Specialist

cc: John Prall, Port of Oakland, Environmental Dept., 530 Water St., Oakland CA 94607
Denton Mauldin, Laidlaw, 5665 Flatiron Pky, Boulder CO 80301
Vince Christian, RWQCB
J. Eberle/file

je.4020

ECDC Job # 96-1630 D

ECDC ENVIRONMENTAL L.C.

INDUSTRIAL WASTE STREAM ACCEPTANCE CRITERIA

(to be completed by ECDC)

A. GENERATOR INFORMATION

Name: UNION PACIFIC RAILROAD Co

Facility Address (site of waste generation) 1414 MIDDLE HARBOR ROAD OAKLAND, CA

Contact: JIM GORLEY Phone: 209-942-5358

B. ECDC SALES REPRESENTATIVE

Name: SLC

Address:

Phone: 801-355-9166

C. WASTE STREAM REVIEW

1. Name of waste SOIL

2. Generator's Waste Profile Sheet completed and attached ✓ YES ____ NO

3. Is sample analysis within the acceptance criteria? ✓ YES ____ NO

Waste Stream Approved For Acceptance By:

Darin Olson 9-27-96

Signature Date

DARIN OLSON FACILITY ENGINEER

Name Title

Copy sent to ✓ Generator ____ ECDC Sales ____ Other

Note: Waste will be inspected upon arrival to confirm that it resembles the waste stream described in the information submitted by Generator.

Note: The above Job # needs to be on all paperwork i.e., (manifest, BOL, etc.) when waste is shipped.

ECDC Job # 96-1630 D

ECDC ENVIRONMENTAL L.C.

INDUSTRIAL WASTE STREAM ACCEPTANCE CRITERIA

(to be completed by ECDC)

A. GENERATOR INFORMATION

Name: UNION PACIFIC RAILROAD CO

Facility Address (site of waste generation) 1414 MIDDLE HARBOR ROAD OAKLAND, CA

Contact: JIM GORLEY Phone: 209-942-5358

B. ECDC SALES REPRESENTATIVE

Name: SLC

Address:

Phone: 801-355-9166

C. WASTE STREAM REVIEW

1. Name of waste SOIL

2. Generator's Waste Profile Sheet completed and attached ✓ YES _____ NO

3. Is sample analysis within the acceptance criteria? ✓ YES _____ NO

Waste Stream Approved For Acceptance By:

Darin Olson 9-27-96

Signature Date

DARIN OLSON FACILITY ENGINEER

Name Title

Copy sent to ✓ Generator _____ ECDC Sales _____ Other

Note: Waste will be inspected upon arrival to confirm that it resembles the waste stream described in the information submitted by Generator.

Note: The above Job # needs to be on all paperwork i.e., (manifest, BOL, etc.) when waste is shipped.

ECDC Job # _____

EAST CARBON DEVELOPMENT CORPORATION
GENERATOR'S WASTE PROFILE SHEET
(to be completed by Generator)

A. WASTE GENERATOR INFORMATION

Name: UNION PACIFIC RAILROAD COMPANY

Facility Address (site of waste generation): 414 MIDDLE HARBOR ROAD, OAKLAND CA

RAILCAR UP33021

Contract: JIM GORLEY Phone (209) 942-5358

B. WASTE STREAM INFORMATION

Name of Waste: TPH DIESEL SOIL

Process Generating Waste: LOCOMOTIVE TANK RUPTURE DEPARTMENT OCT. 1995

Indicate the physical and chemical description of the waste: ROCK & NO 2 DIESEL FUEL

Annual Amounts/Units: 1 RAILCAR (APPROX 100 TONS); 1 TIME ONLY

Is this waste an excluded waste, as defined by 40 CFR 261.4? ___ Yes X No

If the waste is excluded, what is the excluded classification? _____

If the waste is excluded, have you submitted a Quality Assurance Plan? ___ Yes ___ No

Special Handling Instructions/Additional Information: NONE

C. CHEMICAL COMPOSITION

Does the waste contain greater than 50 ppm PCB? ___ Yes X No

Does the waste contain free liquids? ___ Yes X No

Is this waste ignitable?	___ Yes	X No	(40 CFR 261.21)
Is this waste corrosive?	___ Yes	X No	(40 CFR 261.22)
Is this waste reactive?	___ Yes	X No	(40 CFR 261.23)
Is this waste toxic?	___ Yes	X No	(40 CFR 261.24)
Is this waste a listed waste?	___ Yes	X No	(40 CFR 261.30)
			(40 CFR 261.31)
			(40 CFR 261.32)
			(40 CFR 261.33)

Indicate the laboratory analytical results for the sample: ___ Data X Knowledge

D. GENERATOR'S CERTIFICATION

By signing this profile sheet, the Generator certifies:

1. This waste is not a "Hazardous Waste" as defined by USEPA regulations and/or the state of Utah.
2. This waste does not contain regulated radioactive materials or regulated concentrations of Polychlorinated Byphenyls (PCB's) and dioxins.
3. This profile sheet and attachments (if applicable) contain true and accurate descriptions of the waste material. All relevant information regarding known or suspected hazards in the possession of the Generator has been disclosed.
4. The analytical data presented herein or attached hereto were derived from testing a representative sample taken in accordance with 40 CFR 261.20(c) or equivalent rules.
5. If any changes occur in the character of the waste, the Generator shall notify East Carbon Development Corporation (ECDC) prior to providing the waste to ECDC.

Generator's Signature — Date: 9/25/96

Name: JAMES T. GORLEY — Title: MEAD

Rev. 12/92

USPCI
A Waste Management Company

January 9, 1996

Mr. Jim Gorley
Union Pacific Railroad
833 East 8th Street
Stockton, California 95206

RE: Environmental Assessment Report for the Diesel Spill Site, Oakland, California

Dear Mr. Gorley,

Enclosed is the Environmental Assessment Report of the Diesel Spill Site near the Union Pacific Railroad TOFC Railyard in Oakland, California. The conclusions in this report support the final recommendation that the site monitor wells continue to be gauged monthly and the results of the gauging be reported on a quarterly basis. The well gauging is currently being performed in conjunction with the TOFC yard groundwater remediation system monthly monitoring. Following one year of groundwater monitoring, I am hopeful that the diesel spill site will be granted closure with no further action required.

Following your review of the report, please call me at (303) 938-5562 if you have any questions or comments. I appreciate the opportunity to work with UPRR.

Sincerely,

Kenneth V. Rose

Kenneth V. Rose
Project Manager

cc: Mike King, UPRR

5665 Flatiron Parkway Boulder, Colorado 80301-2800
Phone 303.938.5500 Fax 303.938.5520

ENVIRONMENTAL ASSESSMENT OF THE DIESEL SPILL SITE UNION PACIFIC RAILROAD TOFC RAILYARD PROPERTY OAKLAND, CALIFORNIA

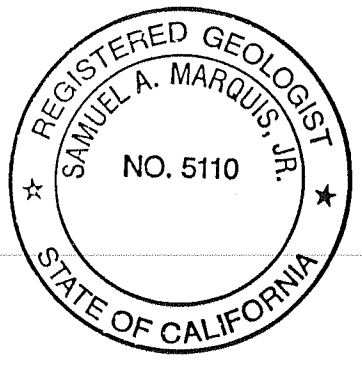
PREPARED FOR:

UNION PACIFIC RAILROAD COMPANY
ENVIRONMENTAL MANAGEMENT GROUP
1416 DODGE STREET, ROOM 930
OMAHA, NEBRASKA 68179

PREPARED BY:

KENNETH V. ROSE
PROJECT GEOLOGIST

SAMUEL A. MARQUIS, JR.
REGISTERED GEOLOGIST NO. 5110



USPCI/A LAIDLAW COMPANY
5665 FLATIRON PARKWAY
BOULDER, COLORADO 80301

JANUARY 8, 1996

USPCI
A LAIDLAW COMPANY

January 8, 1996

Ms. Jennifer Eberle
Alameda County Health Care Services
1131 Harbor Bay Parkway, #250
Alameda, California 94502-6577

RE: Environmental Assessment of the Diesel Spill Site, Union Pacific Railroad TOFC Railyard, Oakland, California

Dear Ms. Eberle,

On behalf of the Union Pacific Railroad (UPRR), I am enclosing this Environmental Assessment Report for the diesel spill site located near the UPRR TOFC railyard in Oakland, California. The report describes the environmental assessment activities performed by USPCI, a Laidlaw company (Laidlaw) in accordance with the Laidlaw letter-proposal dated October 17, 1995. Based on the conclusions of the environmental assessment Laidlaw recommends the following:

- Continue gauging of the monitor wells on a monthly basis for free-product and groundwater elevations.
- Immediately begin free-product recovery with a passive skimming canister if product is detected in the wells.
- Submit the results of the monthly well gauging and any future free-product recovery to Alameda County on a quarterly basis.

The overexcavation of hydrocarbon stained soil in the immediate area of the diesel release to a depth of 0.5 feet was conducted on Friday January 5, 1996. As soon as I receive further information from the soil excavation and disposal activities, I will send you copies of the appropriate documentation.

Please review the enclosed report and call me at (303) 938-5562 if you have any questions or comments.

Sincerely,

Kenneth V. Rose

Kenneth V. Rose
Laidlaw Geologist

cc: Jim Gorley, UPRR

5665 Flatiron Parkway Boulder, Colorado 80301-2800
Phone 303.938.5500 Fax 303.938.5520

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

1.0 INTRODUCTION

This report describes the environmental assessment activities performed by USPCI, a Laidlaw Company (Laidlaw) for the Union Pacific Railroad (UPRR) at the diesel spill site located along UPRR tracks between Ferro Street and Middle Harbor Road in Oakland, California (Figure 1). The environmental assessment included the installation of three shallow groundwater monitor wells, development and gauging of the wells and the collection of groundwater samples for laboratory analyses. The work was conducted in accordance with the Laidlaw letter-proposal dated October 17, 1995.

This report includes a description of the scope of work, investigative results of drilling and sample analyses, investigative methodology (Appendix A), geologic logs and monitor well completion diagrams (Appendix B), and laboratory data sheets and chain of custody records (Appendix C). Investigative conclusions and recommendations are presented on the information obtained during this investigation.

1.1 Purpose and Scope

1.1.1 Purpose

The purpose of this investigation was to:

- Assess the extent of diesel fuel contamination in the shallow soil and groundwater in the vicinity of the spill;
- Monitor the shallow groundwater at the site for the presence of free product and dissolved phase (TPH & BTEX) hydrocarbon contamination;
- Initiate free-product recovery, if possible;
- Develop an understanding of the hydrologic regime in the area, including the groundwater elevation and gradient; and,
- Develop remedial action options.

1.1.2 Scope

These objectives were addressed by conducting the following investigative tasks:

- Drilling soil borings and installation of three groundwater monitor wells in the immediate vicinity of the diesel spill (see locations on Figure 2);
- Maintaining a continuous log of soil types encountered during drilling and screening soils for organic vapors with an organic vapor meter (OVM);
- Development and gauging the newly installed monitor wells for hydrocarbon thickness and depth to water measurements;
- Monthly gauging of the monitor wells for hydrocarbon thickness and depth to water measurements;
- Laboratory analyses of groundwater samples from each of the three monitor well locations for total petroleum hydrocarbons (TPH by EPA Method 8015 Modified) and Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX by EPA Method 8020);
- Preparing a report summarizing hydraulic conditions and groundwater analytical results and our conclusions and recommendations based on the results of the investigation.

The results of the investigation are presented below. The procedures and methodologies followed during the investigation are described in Appendix A.

1.2 Site Description

The project site is located within the industrial inner harbor area of the Port of Oakland (Figure 1). The diesel spill site (site) is located along a section of mainline railroad track in a narrow corridor that exits the UPRR Oakland Trailer On Freight Car (TOFC) Railyard. The spill occurred in a flat area that is covered with gravel and railroad ballast and contains a series of four active railroad tracks. During recent site visits conducted by Laidlaw, near continuous rail traffic was observed on the site property.

1.3 Background Information

On October 1, 1995, approximately 750 gallons of diesel fuel were spilled along a 40 foot section of railroad track near the UPRR Oakland TOFC Railyard. The diesel fuel spilled from a locomotive fuel tank that was punctured during a minor derailment. The initial spill response activities included:

- Notification of the Oakland Fire Department and Alameda County Department of Environmental Health (Alameda County);
- Vacuum truck recovery of diesel fuel from the punctured tank;
- Placement of oil absorbent material to prevent diesel fuel from entering a storm sewer; and,
- Removal of the locomotive and repair of the track.

Following completion of the initial response activities, a hand auger soil boring was advanced to a depth of nine feet below ground surface within the center of the spill area. Groundwater was encountered in the soil boring at approximately 8 feet and a thin layer of diesel fuel (free-product) was observed on the groundwater surface.

Laidlaw personnel discussed site specific remedial options in a telephone conversation with Mr. Dale Klettke (Alameda County) on October 16, 1995. Mr. Klettke stressed that recovery of the free diesel product was the top priority for the site. Laidlaw submitted to Alameda County a letter proposal to install three monitor wells in the immediate vicinity of the diesel spill and to initiate free-product recovery, if present (Laidlaw, October 17, 1995). Following approval of the workplan by Alameda County on October 18, 1995, Laidlaw conducted the monitor well installation and environmental assessment activities.

On November 8, 1995, three shallow monitor wells were installed at the site (Figure 2). The wells were developed and gauged for hydrocarbon thickness and depth to groundwater measurements. No measurable levels of free-product (diesel fuel) were reported in the newly installed wells. Groundwater samples were collected from each of the three well locations and analyzed for TPH and BTEX (by EPA 8015 Modified and EPA 8020, respectively). A brief description of the analytical results for the groundwater samples and the general environmental assessment findings is presented below.

2.0 RESULTS OF THE ENVIRONMENTAL ASSESSMENT

2.1 SITE GEOLOGY

The site property and surrounding area is flat and covered with gravel and railroad ballast rock. The stratigraphy underlying the site consists of a surface layer of artificial fill that is variable in thickness and composition, overlying a sequence of naturally deposited bay sediments. The surface fill generally consists of dark grayish brown sand and gravel with some concrete, asphalt, brick, and wood debris. The surface fill was observed at depths ranging from 2.5 feet to 5.0 feet below ground surface (BGS).

The natural bay sediments underlying the surface fill are generally laterally continuous and homogeneous. Layers of different lithology are distinguished on the basis of silt content and degree of sorting. Lithologies range from silty fine to medium sand to fairly clean well-sorted fine to medium sand. These sands can extend from fill contact to a depth of greater than 17.0 feet below grade.

2.2 SITE HYDROGEOLOGY

The site is located approximately 1,200 feet north of the Oakland Estuary, in the northern portion of the San Francisco Bay. The close proximity of the estuary to the site suggests the possibility of a hydraulic connection between the estuary and the groundwater underlying the site. However, groundwater records maintained since 1991 at the UPRR Oakland TOFC Railyard (approximately 1,000 feet west of the diesel spill site) indicate that direct tidal influences are detectable only in those monitor wells less than 200 feet from the Bay.

2.2.1 Local Gradient

Groundwater is typically encountered in this area at depths ranging from 6 to 8 feet BGS. The groundwater in this area is unconfined since there was little difference in the depths at which water was encountered during drilling to the static water levels recorded in the monitor wells. The local groundwater gradient dips gently to the south, southeast towards the estuary (Figure 3). The depth to groundwater measurements recorded by Laidlaw are presented on Table 1.

2.2.2 Municipal or Private Wells

A survey of registered wells in the Oakland inner-harbor area supplied by the County of Alameda Public Works Agency reported no active water wells within a one mile radius of the site.

Groundwater in the vicinity and region of the site is not used for drinking water or for municipal water supply (Caltrans, 1995). Water for drinking and municipal supply is drawn from surface water supplies located east of the region. The groundwater in this area is considered to be unsuitable for drinking purposes due to the presence of regional contamination and high salinity (Caltrans, 1995). Regional groundwater total dissolved solid (TDS) values for this aquifer range from 1,000 mg/L to 5,900 mg/L (USPCI, 1991, see laboratory data sheets in Appendix C).

2.3 Groundwater Sampling and Analyses

Groundwater samples were collected from the three monitor well locations and analyzed for TPH and BTEX. The results of the laboratory analyses are presented in Table 2, and the laboratory data sheets are presented in Appendix B.

During well development and sampling a petroleum hydrocarbon sheen was reported on the shallow groundwater surface in two monitor well locations (DSMW-1 and DSMW-2). No measurable thickness of free-phase hydrocarbon (< 0.01 ft.) has been recorded in the four gaugings of the monitor wells. Measured groundwater levels are presented in Table 1 and a groundwater potentiometric surface map based on these measurements is presented in Figure 3.

2.3.1 TPH and BTEX in Groundwater

Variable concentrations of total petroleum hydrocarbons (TPH) were detected in groundwater samples collected from all three of the newly installed monitor wells. Low concentrations of TPH-volatiles (with a carbon chain range from C5-C12) were detected in monitor well DSMW-1 (0.06 mg/L) and DSMW-2 (0.12 mg/L). Low to moderate concentrations of TPH-extractables (C10-C50) were detected in monitor well DSMW-1 (0.6 mg/L), DSMW-2 (5.5 mg/L) and DSMW-3, (0.6 mg/L).

No BTEX were reported in groundwater samples collected from two of the three monitor well locations (DSMW-2 and DSMW-3). A very low concentration of total xylenes was reported in the monitor well installed in the immediate vicinity of the diesel spill (DSMW-1, 0.003 mg/L). The xylenes concentration reported in DSMW-1 is well below the California drinking water standard Maximum Contaminant Level (MCL) for xylenes of 1.75 mg/L (California, 1994).

3.0 SUMMARY AND CONCLUSIONS

The following summarizes results and conclusions of the environmental assessment conducted at the diesel spill site near the UPRR Oakland TOFC Railyard, in Oakland, California.

- No free-product has been detected in the three newly installed monitor wells to date. The wells continue to be gauged monthly for free-product and groundwater elevations.

- If free-product is detected in monitor wells, Laidlaw will immediately begin free-product recovery with a passive skimming canister (PetroTrap™).

- No BTEX was reported in groundwater samples collected from the two downgradient monitor wells (DSMW-2 and DSMW-3). A low concentration of total xylenes were reported in a groundwater sample from well DSMW-1 (0.003 mg/L). This reported xylenes concentration is well below the California drinking water MCL for xylenes (1.75 mg/L). Low to moderate levels of TPH was detected in groundwater samples collected from all three monitor well locations.

- There are no active water supply wells within a one mile radius of the site and the groundwater in this area is unsuitable for drinking purposes due to the presence of regional contamination and high salinity. Regional groundwater TDS values for this aquifer range from 1,000 mg/L to 5,900 mg/L.

- The physical and chemical properties of diesel fuel make it a fuel of comparatively low risk potential to public health or the environment. Diesel fuel has a low volatility, tends to sorb strongly to soil particles, is relatively insoluble in water, and is less dense then water. Diesel fuel is low in aromatic compounds, such as benzene, and consists of mostly low molecular weight polycyclic aromatic hydrocarbons (PAHs) such as naphthalene, methyl-naphthalene, anthracene, fluorene, and phenanthrene (Kreamer, 1990, and USEPA, 1988). These low molecular weight PAHs are not U.S. Environmental Protection Agency (USEPA) designated "human" or "potential human" carcinogens (USEPA, 1994; USEPA, 1995).

- Spilled diesel fuel will naturally degrade or naturally attenuate rapidly with time (Marquis and Dineen, 1994). The effects of natural attenuation, including adsorption, volatilization, and anaerobic and aerobic biological degradation will result in reduced soil and groundwater concentrations of the diesel fuel constituents at the site.

- The diesel release site is located in an industrial setting along an active mainline railroad track corridor that exits the UPRR Oakland TOFC Railyard.

4.0 RECOMMENDATIONS

Based on the volume of the release, the active railyard setting, and the summary and conclusions of the environmental assessment, Laidlaw recommends the following:

- Continue gauging of the monitor wells on a monthly basis for free-product and groundwater elevations.

- Immediately begin free-product recovery with a passive skimming canister if product is detected in the wells.

- Submit the results of the monthly well gauging and any future free-product recovery to Alameda County on a quarterly basis.

- Overexcavate hydrocarbon stained soil in the immediate area of the diesel release to a depth of 0.5 feet and replace with clean backfill.

5.0 REFERENCES CITED

Kreamer, D.K., Klaus, J.S., 1990, Development of a Standard, Pure-Compound Base Gasoline Mixture for Use as a Reference in Field and Laboratory Experiments, Groundwater Monitoring Review, Spring 1990.

Lee, L.S., et al, 1992, Partitioning of Polycyclic Aromatic Hydrocarbons from Diesel Fuel Into Water, Environmental Science and Technology, Vol. 26, No. 11.

Marquis, S.A., Dineen, D., 1994, Comparison Between Pump and Treat, Biorestoration, and Biorestoration/Pump and Treat Combined: Lessons from Computer Modeling, Groundwater Monitoring and Remediation, Spring, 1994

California, 1994, Summary of California Drinking Water Standards, Standards and Technology Unit, Division of Drinking Water, November 10, 1994.

USEPA, 1988, Characteristic Waste Designation of Soils Contaminated With Petroleum Products, EPA Contract No. 68-01-7381, February 5, 1988.

EPA, 1994, Health Effects Assessment Summary Tables (HEAST), Office of Solid Waste and Emergency Response, PB94-921199, March.

EPA, 1995, Integrated Risk Information System (IRIS) computer data base, Updated July, 1995.

TABLES

TABLE 1

WELL GAUGING DATA
DERAILMENT SITE, 1717 MIDDLE HARBOR RD.
OAKLAND, CALIFORNIA

WELL NO.	DATE	WELL HEAD ELEVATION (MSL)	DEPTH TO WATER *	WATER LEVEL ELEVATION	REMARKS
DSMW-1	11/09/95	6.95	6.17	0.78	
DSMW-1	11/11/95	6.95	6.16	0.79	
DSMW-1	12/15/95	6.95	5.98	0.97	
DSMW-1	12/27/95	6.95	5.88	1.07	
DSMW-2	11/09/95	8.24	7.98	0.26	
DSMW-2	11/11/95	8.24	7.77	0.47	
DSMW-2	12/15/95	8.24	7.59	0.65	
DSMW-2	12/27/95	8.24	7.59	0.65	
DSMW-3	11/09/95	8.33	8.37	-0.04	
DSMW-3	11/11/95	8.33	7.96	0.37	
DSMW-3	12/15/95	8.33	7.85	0.48	
DSMW-3	12/27/95	8.33	7.89	0.44	

* NOTE: NO FREE PRODUCT ENCOUNTERED DURING MONITOR WELL GAUGING

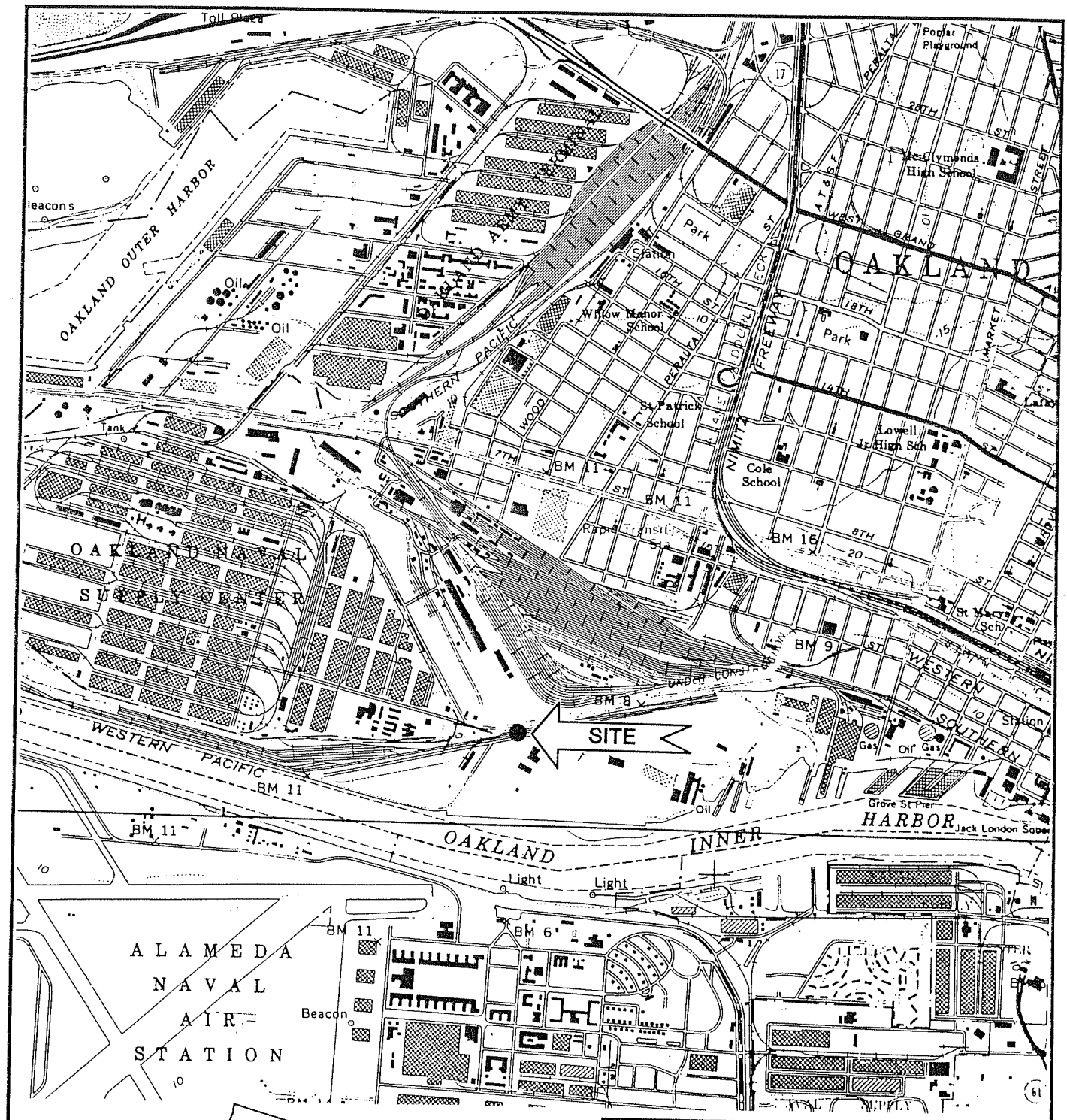
TABLE 2

GROUNDWATER ANALYTICAL RESULTS
TOTAL PETROLEUM HYDROCARBONS
DIESEL FUEL SPILL
1717 MIDDLE HARBOR ROAD
OAKLAND, CALIFORNIA
NOVEMBER 1995

SAMPLE NUMBER	C5 – C12 Hydrocarbons (mg/L)	TPH Gasoline (mg/L)	C10 – C50 Hydrocarbons (mg/L)	TPH DIESEL (mg/L)	BENZENE (mg/L)	ETHYLBENZENE (mg/L)	TOLUENE (mg/L)	XYLENES (mg/L)
MDL	0.05	0.05	0.5	0.5	0.002	0.002	0.002	0.002
DSMW–1	0.06	BDL	0.6	BDL	BDL	BDL	BDL	0.003
DSMW–2	0.12	BDL	5.5	BDL	BDL	BDL	BDL	BDL
DSMW–3	BDL	BDL	0.6	BDL	BDL	BDL	BDL	BDL

EPA 8015, CA Draft used for all Hydrocarbon analysis
EPA 8020, used for BTEX analyses
MDL = Method Detection Limit
BDL = Below Detection Limit

FIGURES



LOCMAP

ADAPTED FROM U.S.G.S. 7.5' OAKLAND WEST, CALIF. QUADRANGLE (1980)

North

0 2000

FEET

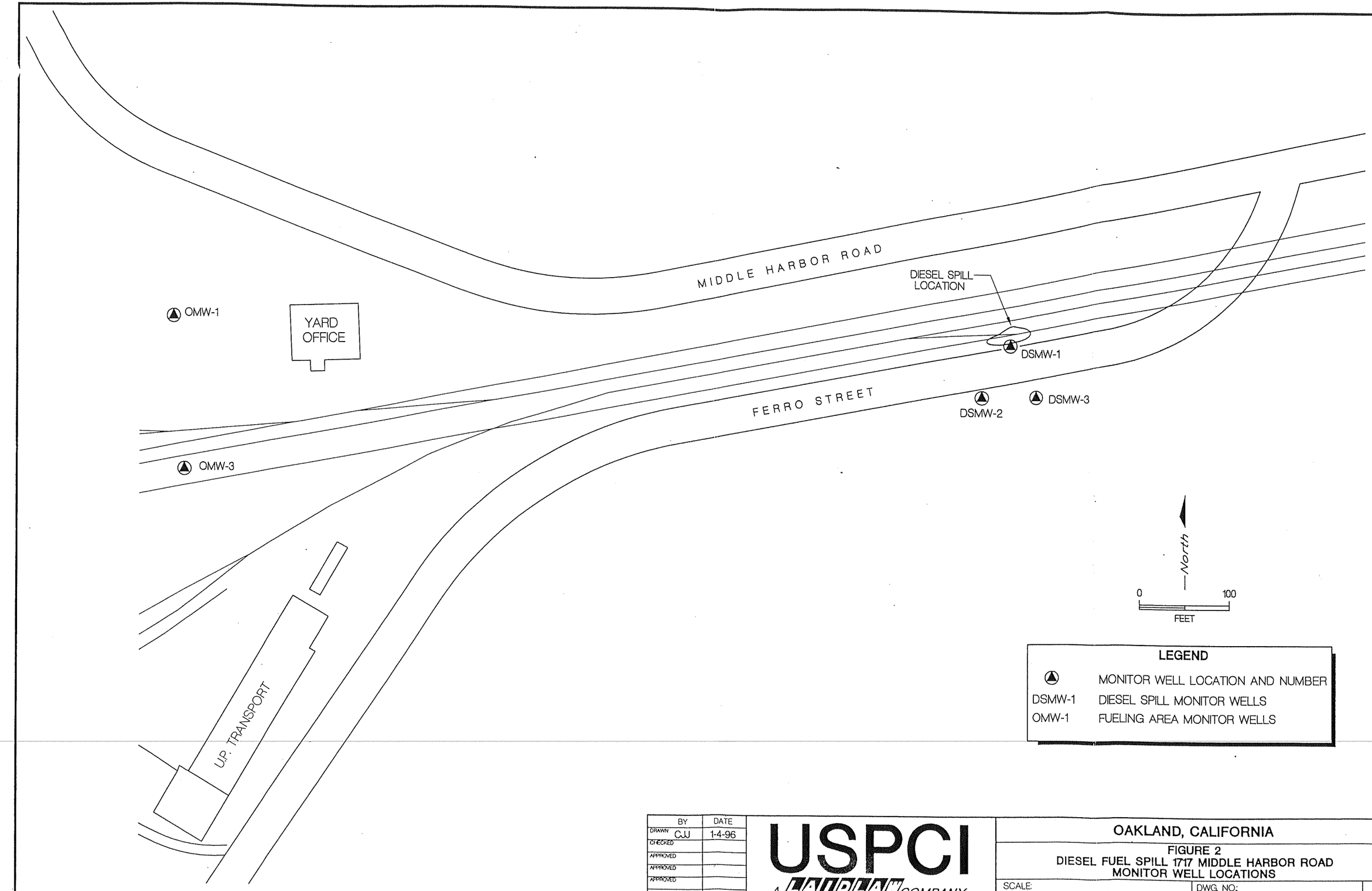
USPCI

A LAIDLAW COMPANY

OAKLAND, CALIFORNIA

FIGURE 1
1717 MIDDLE HARBOR ROAD
SITE LOCATION MAP

SCALE:	DATE:
1" = 2000'	10/16/95



	BY	DATE
DRAWN	CJJ	1-4-96
CHECKED		
APPROVED		
APPROVED		
APPROVED		

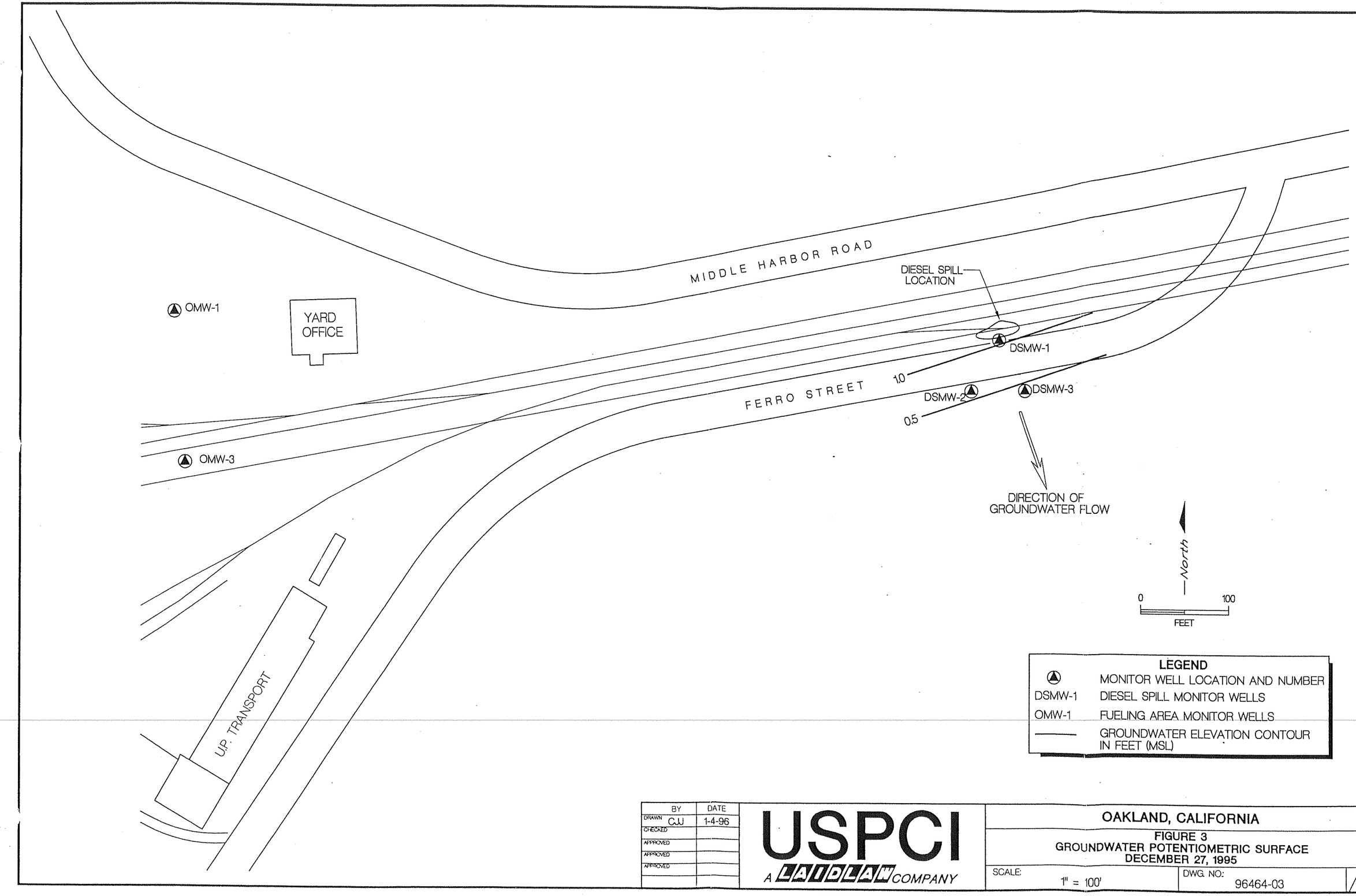
USPCI
A LAIDLAW COMPANY

OAKLAND, CALIFORNIA

FIGURE 2
DIESEL FUEL SPILL 1717 MIDDLE HARBOR ROAD
MONITOR WELL LOCATIONS

SCALE: 1" = 100'

DWG. NO: 96464-02



	BY	DATE
DRAWN	CJJ	1-4-96
CHECKED		
APPROVED		
APPROVED		
APPROVED		

USPCI
A LAIDLAW COMPANY

OAKLAND, CALIFORNIA

FIGURE 3
GROUNDWATER POTENTIOMETRIC SURFACE
DECEMBER 27, 1995

SCALE: 1" = 100'

DWG. NO: 96464-03

APPENDIX A

INVESTIGATIVE METHODS

INVESTIGATIVE METHODS

DRILLING AND SOIL SAMPLING

All borings were advanced under the technical supervision of a Laidlaw geologist. The on-site geologist was present at all times during drilling to: 1) technically supervise the drilling subcontractor; 2) maintain a continuous log of materials penetrated by the borehole; 3) obtain and document soil samples; 4) test soil samples, drilling cuttings, and atmospheric conditions within the workplace with an organic vapor monitor (OVM); and 5) oversee implementation of Laidlaw's Health and Safety Plan.

Soil borings were performed using a truck-mounted drilling rig equipped with 8-inch diameter hollow-stem augers. This drilling method was performed without the introduction of drilling fluids and allowed for the collection of relatively undisturbed soil samples through the hollow stem of the auger.

During drilling, soil samples were obtained using an 18-inch split spoon soil sampler lowered through the hollow stem of the auger and advanced by the 30-inch drop of a 140 pound hammer. This method allowed for the monitoring of the soils penetrated during drilling. After retrieving the sampler, soils were screened in the field for organic vapor emissions using an OVM. The OVM was also used to monitor organic vapor emissions from drill cuttings during drilling. Organic vapor measurements were recorded on the boring logs.

Prior to initiating each boring, the downhole equipment, including auger sections and sampling equipment, was thoroughly steam cleaned. The split spoon sampling equipment was either steam cleaned or washed in a dilute trisodium phosphate (TSP) solution and rinsed in de-ionized water before retrieving each sample.

MONITORING WELL INSTALLATION AND SAMPLING

All three of the exploratory borings were completed as shallow groundwater monitoring wells (see Figure 2). The exploratory borings were completed and the monitoring wells installed at depths of ranging from 12 to 17 feet BGS. The wells were installed through the hollow stem of the auger. The well casing consists of 2-inch diameter flush threaded schedule 40 PVC. Well screen with 0.010-inch slot size was installed at each well location. The wells were constructed such that blank PVC casing extends approximately ten feet BGS, and slotted well screen extends to the bottom of the borehole (see Boring Logs Appendix B).

The annular space between the well screen and borehole was filled with pre-washed silica sand to a position approximately one to two feet above the top of the well screen to form a filter pack. A bentonite seal was then placed above the filter pack. The remainder of the borehole was then

backfilled to the ground surface with a cement-bentonite slurry. A flush mount steel protective cover was then installed over the well heads and the wells were secured with locking well caps.

The wells were developed using the surge and bail technique. Measurements of the pH and conductivity of the produced water were taken at regular intervals during development, and development proceeded until these parameters stabilized and the water was relatively free of sediment.

Groundwater samples collected from the five monitor wells were analyzed for TPH (EPA 8015 Modified) and BTEX (EPA 8020). No measurable levels of liquid hydrocarbon were present in the wells prior to sampling. The monitoring wells were purged prior to sample collection to obtain samples which represent groundwater in the formation rather than stagnant water standing in the well casing. Purging continued until three casing volumes had been removed and the field measured pH, conductivity, and temperature of the produced water had stabilized.

Water samples were collected from the wells using a disposable sampling bailer in a manner that minimized exposure of the samples to the atmosphere. Water samples were placed into the appropriate sample bottles for the specific analysis, as provided by the analytical laboratory. The water samples were properly labeled, chain of custody records maintained, and the sample bottles were placed in an ice chest cooled with ice for shipment to the laboratory by overnight courier.

HEALTH AND SAFETY PLAN

Prior to initiating field activities, a site-specific Health and Safety Plan was developed for the site. The plan was developed using the background information known about the Union Pacific property. The Health and Safety Plan was designed to: 1) identify and describe potentially hazardous substances that could be expected to be encountered during the field investigation; 2) specify protective equipment to be utilized during on-site activities; and 3) outline emergency measures to be implemented in the event unanticipated and/or potentially hazardous conditions are encountered during field activities. All Laidlaw personnel and subcontractors were required to review and sign the Health and Safety Plan prior to commencement of field activities.

APPENDIX B

BORING LOGS AND
WELL COMPLETION DIAGRAMS

USPCI
a Laidlaw Company

LOG

Page 1 of 1

WELL NO. DSMW-1

CLIENT: *Union Pacific Railroad*			JOB NO.: *96464*
PROJECT: *Derailment Site, 1717 Middle Harbor Rd.*		LOCATION: *Oakland, California*	
DRILLED BY: *Exploration Geoservices*	DRILLER: *Dave/Howard*	METHOD: *8" HSA*	
START DATE: *11/8/95*	COMP. DATE: *11/8/95*	SURF. EL.: *FT. est.*	TD: *17.0 FT. BGS*
LOGGED BY: *Ken Rose*			D. T. WATER: *8.0 FT. BGS*

WELL DIAGRAM	DPT	DESCRIPTION	GRAPHIC LOG USCS CODE	OVA ppm	SAMPLE NUMBER	Blow Count
		0.0' to 2.0' Gravel, lt. grayish brown w/ some sand, wood and metal debris (fill), damp, strong diesel odor	Fill			
	5	2.0' to 7.0' Medium to coarse sand, lt. grayish brown w/ some gravel, trace silt, moist, strong diesel odor As above, v. moist, strong diesel odor	SP			
	10	7.0' to 15.0' Fine to medium sand, gray, greenish gray, w/ some silt, trace clay, wet at 8', strong diesel odor, Bay Mud As above, wet, slight diesel odor	SW			
	15	15.0' to 17.0' Clayey silt, gray, greenish gray w/ some fine sand, wet, no odor, Bay Mud	ML			
	20	Boring completed to 17.0' Groundwater encountered at 8.0' Monitor well installed to 17', 10' of 0.010" screen 7' of SCH 40 2" PVC blank 3.5 sacks of #10-20 silica, 1 bucket of bentonite pellets 8" Flush mount well cover				
	25					
	30					

JOB NUMBER: 96464

USPCI
a Laidlaw Company

LOG

WELL NO. DSMW-2

CLIENT: *Union Pacific Railroad*			JOB NO.: *96464*
PROJECT: *Derailment Site, 1717 Middle Harbor Rd.*		LOCATION: *Oakland, California*	
DRILLED BY: *Exploration Geoservices*	DRILLER: *Dave/Howard*	METHOD: *8" HSA*	
START DATE: *11/8/95*	COMP. DATE: *11/8/95*	SURF. EL.: *FT. est.*	TD: *12.0 FT. BGS*
LOGGED BY: *Ken Rose*			D. T. WATER: *10.0 FT. BGS*

WELL DIAGRAM	DPT	DESCRIPTION	GRAPHIC LOG USCS CODE	OVA ppm	SAMPLE NUMBER	Blow Count
		0.0' to 3.0' Sand, lt. brown w/ some glass and organic debris (roots, leaves), damp, no odor or staining	SP			
		3.0' to 5.0' Encounter gravel, cobbles and concrete debris	GW			
	5	5.0' to 10.0' Fine to medium sand, brown, lt. brown w/ trace silt and gravel, slightly moist, no odor or staining As above, becomes wet at 10.0'	SP			
	10	10.0' to 12.0' Clayey silt, gray, greenish gray w/ some fine sand, wet, no odor, encounter obstruction at 12.0' (City Water Main)	ML			
		Boring completed to 12.0' Groundwater encountered at 10.0' Monitor well installed to 12', 5' of 0.010" screen 7' of SCH 40 2" PVC blank 2 sacks of #10-20 silica, 1 bucket of bentonite pellets Flush mount well cover				
	15					
	20					
	25					
	30					

JOB NUMBER: 96464

USPCI
a Laidlaw Company

LOG

WELL NO. DSMW-3

CLIENT: *Union Pacific Railroad*			JOB NO.: *96464*
PROJECT: *Derailment Site, 1717 Middle Harbor Rd.*		LOCATION: *Oakland, California*	
DRILLED BY: *Exploration Geoservices*	DRILLER: *Dave/Howard*	METHOD: *8" HSA*	
START DATE: *11/8/95*	COMP. DATE: *11/8/95*	SURF. EL.: *FT. est.*	TD: *12.0 FT. BGS*
LOGGED BY: *Ken Rose*		D. T. WATER: *10.0 FT. BGS*	

WELL DIAGRAM	DPT	DESCRIPTION	GRAPHIC LOG USCS CODE	OVA ppm	SAMPLE NUMBER	Blow Count
		0.0' to 3.0' Sand, lt. brown w/ some glass and organic debris (roots, leaves), damp, no odor or staining	SP			
		3.0' to 5.0' Encounter gravel, cobbles and concrete debris	GW			
	5	5.0' to 10.0' Fine to medium sand, brown, lt. brown w/ trace silt and gravel, slightly moist, no odor or staining As above, becomes wet at 10.0'	SP			
	10	10.0' to 12.0' Clayey silt, gray, greenish gray w/ some fine sand, wet, no odor, encounter obstruction at 12.0' (City Water Main)	ML			
		Boring completed to 12.0' Groundwater encountered at 10.0' Monitor well installed to 12', 5' of 0.010" screen 7' of SCH 40 2" PVC blank 2 sacks of #10-20 silica, 1 bucket of bentonite pellets Flush mount well cover				
	15					
	20					
	25					
	30					

JOB NUMBER: 96464

APPENDIX C

LABORATORY DATA SHEETS
AND CHAIN OF CUSTODY RECORDS

USPCI
A COMPANY
National Analytical
Laboratories

USPCI - REMEDIAL SERVICES
5665 FLATIRON PARKWAY
BOULDER CO 80301

ATTENTION: KEN ROSE

RE: PROJECT: 96464
USPCI-AS REPORT: 10891

Under this cover USPCI Analytical Services is submitting the analytical data for the following samples:

Lab Number	Customer Number
50011913	DSMW-1
50011914	DSMW-2
50011915	DSMW-3

These samples were analyzed using EPA or other recognized methodology as specified in the report. Each test is performed under a rigorous QA/QC program including blanks, method controls and matrix spikes. All methods are calibrated using authentic reference materials with a minimum of a three point calibration curve as appropriate. All practical quantitation limits are validated and reflect method specific or project specific requirements. Some detection limits may be listed as higher than the targeted program limits due to sample specific interferences or limited sample size.

If you need help in evaluating the data or need further information please call the laboratory at 918-446-1162.

Respectfully submitted for
USPCI Analytical Services

James W. Engman
Laboratory Director

USPCI
A BALDOR COMPANY
National Analytical Laboratories

KEN ROSE
USPCI - REMEDIAL SERVICES
5665 FLATIRON PARKWAY
BOULDER CO 80301

SAMPLE IDENTIFICATION: 50011913
CUSTOMER IDENTIFICATION: DSMW-1

PROJECT NUMBER: 96464
REPORT NUMBER: 10891
DATE SAMPLED: 11/09/95
TYPE OF MATERIAL: WATER

DATE SUBMITTED: 11/13/95
DATE COMPLETED: 11/21/95

PARAMETER	REFERENCE METHOD	PRACTICAL QUANTITATION LIMIT	RESULT
TPH Volatiles			
Gasoline	SW 8015MOD	0.05 mg/l	BDL mg/l
C5 - C12 Hydrocarbons	SW 8015MOD	0.05 mg/l	0.06 mg/l
TPH Extractables			
C10 - C50 Hydrocarbons	SW 8015MOD	0.5 mg/l	0.6 mg/l
Diesel	SW 8015MOD	0.5 mg/l	BDL mg/l
Volatiles			
Benzene	SW 8020	0.002 mg/l	BDL mg/l
Ethylbenzene	SW 8020	0.002 mg/l	BDL mg/l
Toluene	SW 8020	0.002 mg/l	BDL mg/l
Xylenes	SW 8020	0.002 mg/l	0.003 mg/l

BDL = BELOW QUANTITATION LIMIT % REC = PERCENT RECOVERY (T) = TOTALS
J = VALUE REPORTED BELOW QUANTITATION LIMIT

USPCI
A BALDOR COMPANY
National Analytical Laboratories

KEN ROSE
USPCI - REMEDIAL SERVICES
5665 FLATIRON PARKWAY
BOULDER CO 80301

SAMPLE IDENTIFICATION: 50011914
CUSTOMER IDENTIFICATION: DSMW-2

PROJECT NUMBER: 96464
REPORT NUMBER: 10891
DATE SAMPLED: 11/09/95
TYPE OF MATERIAL: WATER

DATE SUBMITTED: 11/13/95
DATE COMPLETED: 11/21/95

PARAMETER	REFERENCE METHOD	PRACTICAL QUANTITATION LIMIT	RESULT
TPH Volatiles			
Gasoline	SW 8015MOD	0.05 mg/l	BDL mg/l
C5 - C12 Hydrocarbons	SW 8015MOD	0.05 mg/l	0.12 mg/l
TPH Extractables			
C10 - C50 Hydrocarbons	SW 8015MOD	0.5 mg/l	5.5 mg/l
Diesel	SW 8015MOD	0.5 mg/l	BDL mg/l
Volatiles			
Benzene	SW 8020	0.002 mg/l	BDL mg/l
Ethylbenzene	SW 8020	0.002 mg/l	BDL mg/l
Toluene	SW 8020	0.002 mg/l	BDL mg/l
Xylenes	SW 8020	0.002 mg/l	BDL mg/l

BDL = BELOW QUANTITATION LIMIT % REC = PERCENT RECOVERY (T) = TOTALS
J = VALUE REPORTED BELOW QUANTITATION LIMIT

KEN ROSE
USPCI - REMEDIAL SERVICES
5665 FLATIRON PARKWAY
BOULDER CO 80301

USPCI
A CAMROSE COMPANY
National Analytical Laboratories

SAMPLE IDENTIFICATION: 50011915
CUSTOMER IDENTIFICATION: DSMW-3

PROJECT NUMBER: 96464
REPORT NUMBER: 10891
DATE SAMPLED: 11/09/95
TYPE OF MATERIAL: WATER

DATE SUBMITTED: 11/13/95
DATE COMPLETED: 11/21/95

PARAMETER	REFERENCE METHOD	PRACTICAL QUANTITATION LIMIT	RESULT
TPH Volatiles			
Gasoline	SW 8015MOD	0.05 mg/l	BDL mg/l
C5 - C12 Hydrocarbons	SW 8015MOD	0.05 mg/l	BDL mg/l
TPH Extractables			
C10 - C50 Hydrocarbons	SW 8015MOD	0.5 mg/l	0.6 mg/l
Diesel	SW 8015MOD	0.5 mg/l	BDL mg/l
Volatiles			
Benzene	SW 8020	0.002 mg/l	BDL mg/l
Ethylbenzene	SW 8020	0.002 mg/l	BDL mg/l
Toluene	SW 8020	0.002 mg/l	BDL mg/l
Xylenes	SW 8020	0.002 mg/l	BDL mg/l

BDL = BELOW QUANTITATION LIMIT % REC = PERCENT RECOVERY (T) = TOTALS
J = VALUE REPORTED BELOW QUANTITATION LIMIT

USPCI
A WASTE MANAGEMENT COMPANY
National Analytical Laboratories

KEN ROSE
USPCI - REMEDIAL SERVICES
5665 FLATIRON PARKWAY
BOULDER CO 80301

SAMPLE IDENTIFICATION: 50011913
CUSTOMER IDENTIFICATION: DSMW-1

PROJECT NUMBER: 96464
REPORT NUMBER: 10891
DATE SAMPLED: 11/09/95
TYPE OF MATERIAL: WATER

DATE SUBMITTED: 11/13/95
DATE COMPLETED: 11/21/95

PARAMETER	REFERENCE METHOD	RECOVERY LIMITS (%)	RESULT (%)	
TPH Volatiles-Surrogates				
Bromofluorobenzene	SW 8015MOD	72 - 134	106	
TPH Volatiles-pH				
pH Preserved Sample	STRIP		<2.	pH
TPH Extractables-Surrogates				
Terphenyl	SW 8015MOD	0 - 150	56	
TPH Extractables-pH				
pH Preserved Sample	STRIP		<2.	pH
Volatiles-Surrogates				
Bromofluorobenzene	SW 8020	72 - 134	106	
Volatiles-pH				
pH Preserved Sample	STRIP		<2.	pH

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured. The value listed reflects the dilution factor. Some compounds may be run less dilute for better detection.

I indicates interference of surrogate compound, recoveries indeterminable.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.

KEN ROSE
USPCI - REMEDIAL SERVICES
5665 FLATIRON PARKWAY
BOULDER CO 80301

USPCI
A COMPANY
National Analytical Laboratories

SAMPLE IDENTIFICATION: 50011914
CUSTOMER IDENTIFICATION: DSMW-2

PROJECT NUMBER: 96464
REPORT NUMBER: 10891
DATE SAMPLED: 11/09/95
TYPE OF MATERIAL: WATER

DATE SUBMITTED: 11/13/95
DATE COMPLETED: 11/21/95

PARAMETER	REFERENCE METHOD	RECOVERY LIMITS (%)	RESULT (%)	
TPH Volatiles-Surrogates				
Bromofluorobenzene	SW 8015MOD	72 - 134	115	
TPH Volatiles-pH				
pH Preserved Sample	STRIP		<2.	pH
TPH Extractables-Surrogates				
Dilution Factor	SW 8015MOD		10.	D
TPH Extractables-pH				
pH Preserved Sample	STRIP		<2.	pH
Volatiles-Surrogates				
Bromofluorobenzene	SW 8020	72 - 134	115	
Volatiles-pH				
pH Preserved Sample	STRIP		<2.	pH

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured. The value listed reflects the dilution factor. Some compounds may be run less dilute for better detection.

I indicates interference of surrogate compound, recoveries indeterminable.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.

KEN ROSE
USPCI - REMEDIAL SERVICES
5665 FLATIRON PARKWAY
BOULDER CO 80301

USPCI
A WASTE MANAGEMENT COMPANY
National Analytical Laboratories

SAMPLE IDENTIFICATION: 50011915
CUSTOMER IDENTIFICATION: DSMW-3

PROJECT NUMBER: 96464
REPORT NUMBER: 10891
DATE SAMPLED: 11/09/95
TYPE OF MATERIAL: WATER

DATE SUBMITTED: 11/13/95
DATE COMPLETED: 11/21/95

PARAMETER	REFERENCE METHOD	RECOVERY LIMITS (%)	RESULT (%)
TPH Volatiles-Surrogates			
Bromofluorobenzene	SW 8015MOD	72 - 134	118
TPH Volatiles-pH			
pH Preserved Sample	STRIP		<2. pH
TPH Extractables-Surrogates			
Terphenyl	SW 8015MOD	0 - 150	54
TPH Extractables-pH			
pH Preserved Sample	STRIP		<2. pH
Volatiles-Surrogates			
Bromofluorobenzene	SW 8020	72 - 134	118
Volatiles-pH			
pH Preserved Sample	STRIP		<2. pH

D indicates sample was diluted to a concentration in which surrogates cannot be accurately measured. The value listed reflects the dilution factor. Some compounds may be run less dilute for better detection.

I indicates interference of surrogate compound, recoveries indeterminable.

Surrogate recoveries flagged as either high (H) or low (L) indicates sample results may be biased either high or low respectively, and the sample results should be considered as estimates.

USPCI
A Subsidiary of
Union Pacific Corporation

CHAIN OF CUSTODY RECORD

No. 04871

Sampler Signature: K Rose

Date Sampled: 11/9/95

TYPE OF ANALYSIS

SAMPLE ID	DATE	TIME	COMP	GRAB	NO. OF CONTAINERS	TPH-Diesel	TPH-Extractables	BTEX (8020)							COMMENTS
DSMW-1	11/9/95	1500			1 amber 3 VOAs	X	X	X			95	1913			Standard Turn
DSMW-2	11/9/95	1530			"	X	X	X			95	1914			
DSMW-3	11/9/95	1600			"	X	X	X			95	1915			for questions Call
															Ken Rose at (303) 938 5562
															Job# 96464

Relinquished By (Signature)	Date	Received By (Signature)	Relinquished By (Signature)	Date	Received By (Signature)
K Rose	11/10/95	Carla Hol[illegible]			
(Printed Name)	**Time**	**(Printed Name)**	**(Printed Name)**	**Time**	**(Printed Name)**
Ken Rose	1700	Carla Holme[illegible] 11/11/95 9:55			
Relinquished By (Signature)	**Date**	**Received By (Signature)**	**Relinquished By (Signature)**	**Date**	**Received By (Signature)**
(Printed Name)	**Time**	**(Printed Name)**	**(Printed Name)**	**Time**	**(Printed Name)**
Relinquished By (Signature)	**Date**	**Received By (Signature)**	**Relinquished By (Signature)**	**Date**	**Received By (Signature)**
(Printed Name)	**Time**	**(Printed Name)**	**(Printed Name)**	**Time**	**(Printed Name)**

USPCI
A LAIDLAW COMPANY

October 17, 1995

Mr. Dale Klettke
Alameda County
Health Care Services Agency
1131 Harbor Bay Pkwy., Room 250
Alameda, CA. 94502-6577

RE: Proposal for the Subsurface Investigation of the Diesel Fuel Spill near the Union Pacific Railroad yard at 1717 Middle Harbor Road in Oakland, California
Job# 96464

Dear Mr. Klettke:

At the request of the Union Pacific Railroad (UPRR), USPCI, a Laidlaw company (Laidlaw) is pleased to present this Proposal for the Subsurface Investigation and Reporting requirements for the diesel fuel spill site near the UPRR yard at 1717 Middle Harbor Road in Oakland, CA. The proposed scope of work consists of the following tasks:

- Drill three soil borings each to an approximate depth of 15 feet in the immediate vicinity of the diesel fuel spill (see Figure 2). Continuously monitor and document the soils penetrated during drilling.
- Install three groundwater monitor wells in the soil boring locations (Figure 2).
- Develop and survey monitor wells and measure groundwater elevations and any free product thickness.
- Collect groundwater samples for laboratory analyses from each well location that does not contain free product.
- Laboratory analyze all groundwater samples for TPH (EPA 8015m) and BTEX (EPA 8020);
- Initiate free product recovery from monitor wells that contain measurable levels of diesel fuel.
- Complete a technical evaluation of the data and prepare a subsurface investigation report including analytical laboratory results and a groundwater potentiometric surface figure.
- Develop a site specific Remedial Options Analyses, if appropriate.

5665 Flatiron Parkway Boulder, Colorado 80301-2800
Phone 303.938.5500 Fax 303.938.5520

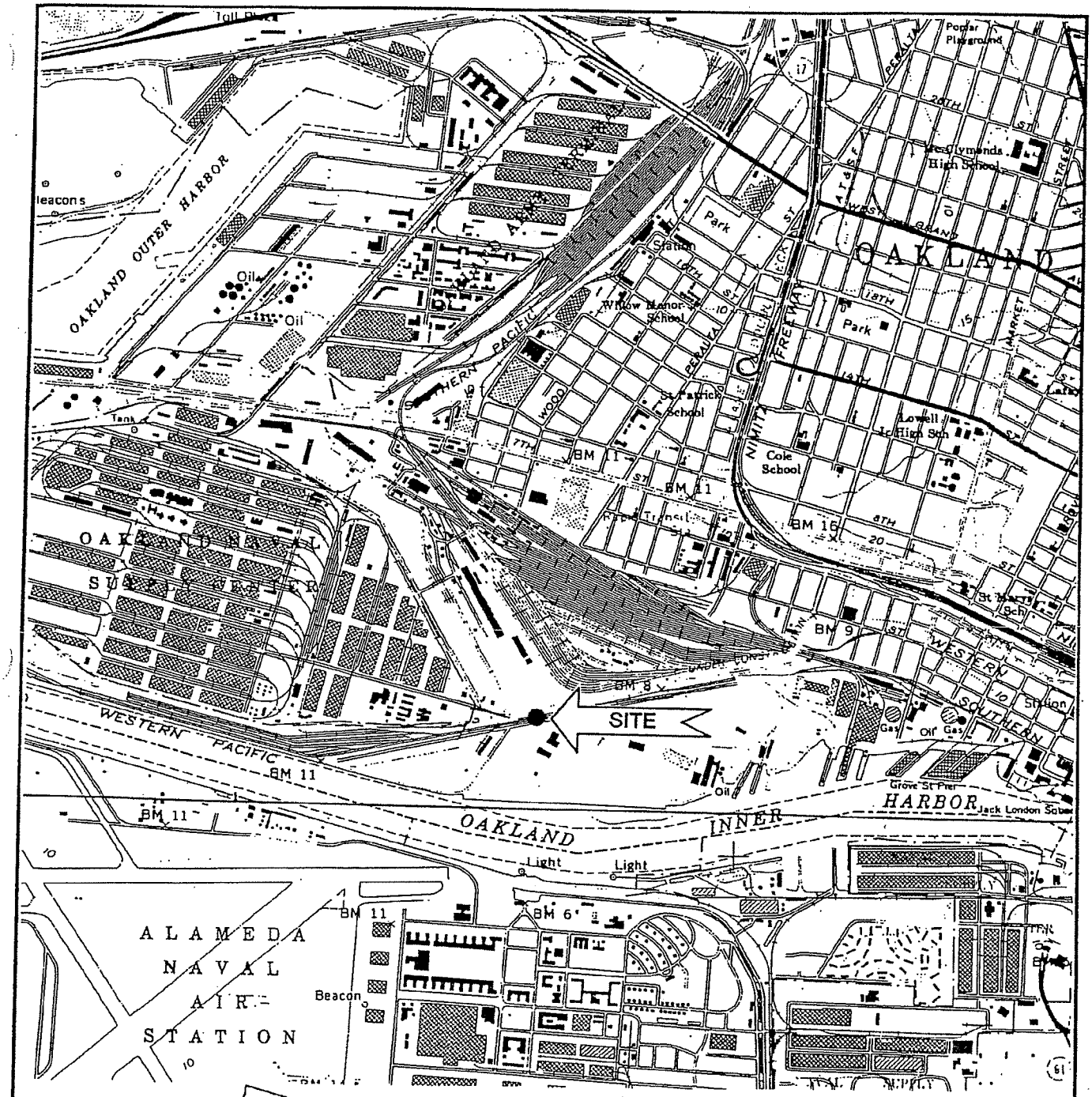
Following your review of the enclosed Proposal, I will send to you a timeline schedule for the implementation of the investigation activities. If you have any questions regarding any aspect of the proposed scope work, please call us at (303) 938-5500.

Sincerely,

Kenneth V. Rose
Geologist

Jerome Edwards
Senior Project Manager

cc: Jim Gorley, UPRR
Denton Mauldin, Laidlaw



LOCMAP

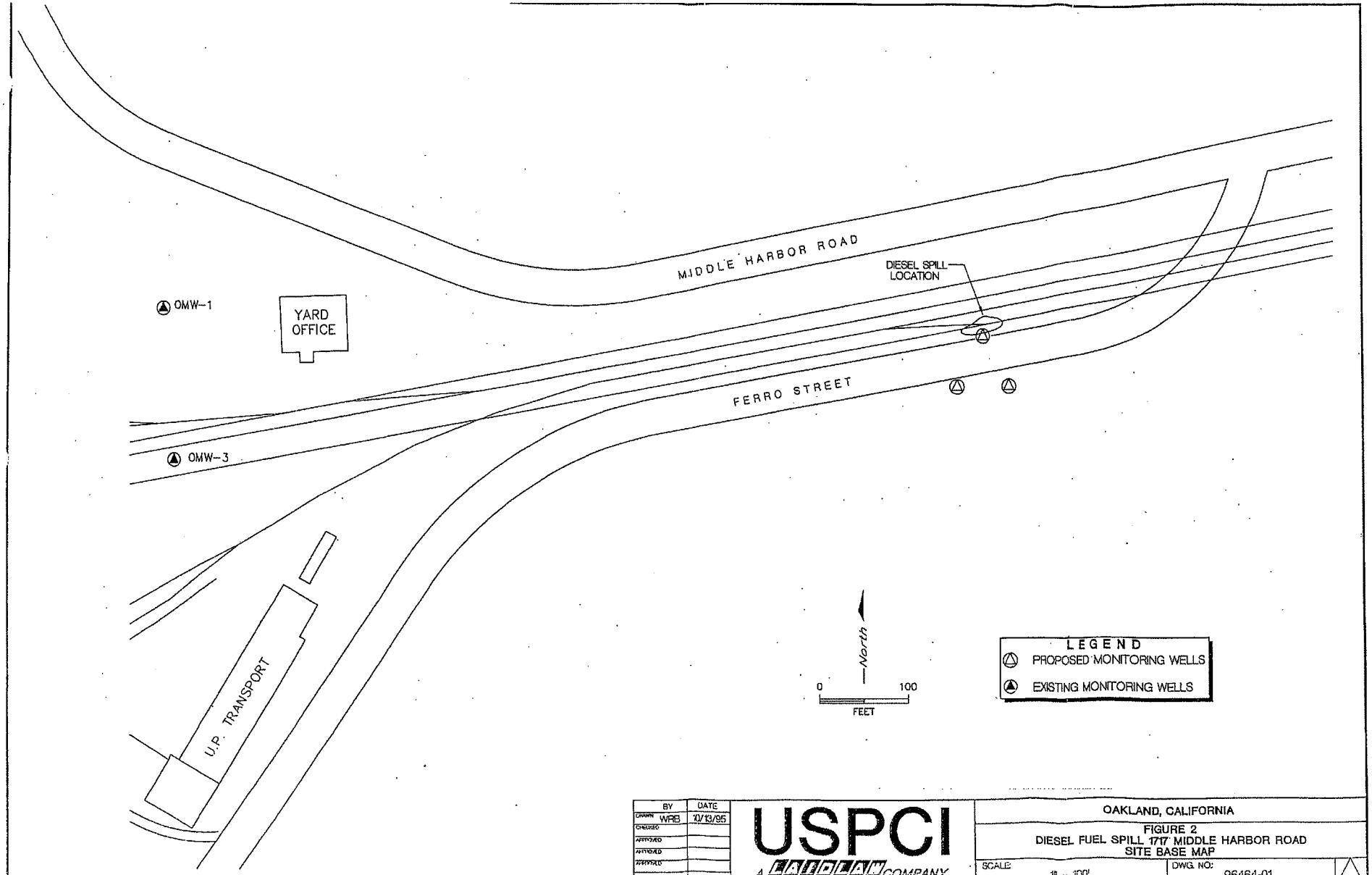
ADAPTED FROM U.S.G.S. 7.5'
OAKLAND WEST, CALIF. QUADRANGLE (1980)

USPCI
A LAIDLAW COMPANY

OAKLAND, CALIFORNIA

FIGURE 1
1717 MIDDLE HARBOR ROAD
SITE LOCATION MAP

SCALE	DATE
1" = 2000'	10/16/95



BY	DATE
DRAWN WRB	10/13/95
CHECKED	
APPROVED	
APPROVED	
APPROVED	

USPCI
A LAIDLAW COMPANY

OAKLAND, CALIFORNIA

FIGURE 2
DIESEL FUEL SPILL 1717 MIDDLE HARBOR ROAD
SITE BASE MAP

SCALE: 1" = 100'

DWG. NO: 96164-01

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

RAFAT A. SHAHID, DIRECTOR

DEPARTMENT OF ENVIRONMENTAL HEALTH
1131 Harbor Bay Parkway
Alameda, CA 94502-6577
(510) 567-6777

2 JTG

STID 4020

October 18, 1995

Harry Patterson
Union Pacific Railroad Company
1416 Dodge Street, Room 930
Omaha NE 68179-0930

RE: UNION PACIFIC RAILROAD SITE, 1717 MIDDLE HARBOR RD, OAKLAND, CA

This letter is in response to a October 17, 1995 - USPCI "Proposal for the Subsurface Investigation of the Diesel Fuel Spill near the Union Pacific Railroad yard at 1717 Middle Harbor Road in Oakland, California" prepared by Ken Rose of the USPCI office in Boulder, Colorado.

At approximately 1:00 am on October 1, 1995, approximately 700 gallons of diesel fuel was spilled on the railroad tracks on the eastern end of the property located at 1717 Middle Harbor Road in Oakland, California. The spill immediately penetrated the coarse rocks underlying the railroad tracks and into the soils beneath. On Tuesday, the 3rd of October, a hand auger soil boring was advanced in the area of the spill to determine whether the diesel spill had already reached shallow groundwater, which is first encountered at approximately eight (8) feet below the ground surface. Free product was observed floating on the groundwater.

The above referenced proposal involves the drilling of three soil borings to an approximate depth of fifteen (15) feet below surface. The borings will then be subsequently converted to groundwater monitoring wells. These wells will then be monitored and free product recovery will be initiated in the wells that contain measurable levels of diesel fuel.

This proposal is approved by this office with the stipulation that free product recovery should be initiated as soon as possible.

I am temporary covering for Jennifer Eberle in her absence. Please feel free to call me directly at (510)567-6880 with any of your questions or comments.

Sincerely,

Dale Klettke

Dale Klettke, CHMM
Hazardous Materials Specialist

c: Thomas Peacock, Supervising Hazardous Materials Specialist--files
Ken Rose, 5665 Flatiron Parkway, Boulder, Colorado 80301-2800

WEST COAST INTERMODAL AUTOMOTIVE SERVICE UNIT

To: Jim Geeley - 271-4461	For Information Call: 874-1134
From: MIKE KING	At:
Pages: 3 -	Fax Number:

Jim: ATTACHED REPORT FOR YOUR INFO PER OUR PHONE CONVERSATION.

MIKE KING

OAKLAND FIRE DEPARTMENT/OFFICE OF EMERGENCY SERVICES
Hazardous Materials Management Program
475-14th Street, 9th Floor, Oakland, CA 94612, (510) 238-3938
238-3408

HAZARDOUS MATERIALS INSPECTION REPORT

STID#:	FACILITY NAME: UNION PACIFIC RR	PG. 1 OF 1

ADDRESS: 700 FT OF TERMINAL OFFICE

RELEASE OF ABOUT 700 GALLONS OF DIESEL FUEL. DERAILMENT AT ABOUT 0050 HRS

DIESEL FUEL IN SOIL IS NOT FEASIBLE TO RECOVER - NO IMMEDIATE CLEAN-UP IS INDICATED

MONITOR AREA FOR RUNOFF TO STORM DRAINS SEWERS & RELATED STRUCTURES. MONITOR BAY FOR ANY DISCHARGES. CALL FIRE DEPARTMENT IF ANY FOUND

SPOKE WITH ENVIR. ENGINEER FOR U.P.R.R. AVERY GRIMES 402 558-9687 H 271-5893.
STEVE BERKI 402 271-2116

ORS NUMBER 010274
OFD 544738

FACILITY CONTACTS/ SIGNATURE: M J King	INSPECTED BY: BRITT JOHNSON
PRINT NAME: [redacted]	DATE: 9-30-95

PAGER 382-2856
HOME 524-8457

OAKLAND FIRE DEPARTMENT/OFFICE OF EMERGENCY SERVICES
Hazardous Materials Management Program
475-14th Street, 9th Floor, Oakland, CA 94612, (510) 238-3938

HAZARDOUS MATERIALS INSPECTION REPORT

STID#:	FACILITY NAME: (UNION PACIFIC RR	PG. 1 OF 1

ADDRESS:

9/30/95 10:35 HRS
TELEPHONE CONSULT WITH RAVI ARULANANTHAM PH D
STAFF TOXICOLOGIST REGIONAL WATER QUALITY CONTROL
BOARD, SAN FRANCISCO BAY REGION

RAVI AGREES CLEANUP OF SOIL CONTAMINATION
IS NOT FEASIBLE AT THIS TIME - HE DOES
SUGGEST THE FOLLOWING:

(1) MONITORING FOR ANY RUNOFF OR DISCHARGE
TO THE BAY.

(2) WHEN ACCESS IS POSSIBLE (WHEN IS A TRAIN MOVING)
CHECK DEPTH OF DIESEL CONTAMINATION.

(3) CONSIDER IMMEDIATE BIO-REMEDIATION
OF SOIL.

(4) MONITOR DOWN GRADIENT GROUND WATER
CONTAMINATION.

FACILITY CONTACTS/ SIGNATURE:	INSPECTED BY:
PRINT NAME: TAM J. TONI-S	DATE: 9/30/95

USPCI
A WASTE MANAGEMENT COMPANY

October 10, 1995

Mr. Jim Gorley
Union Pacific Railroad
833 East 8th Street
Stockton, California 95206

RE: Fuel Spill Near the APL Facility, UPRR TOFC Facility, Oakland, California

Dear Mr. Gorley:

The following represents a revised proposal to address the environmental concerns related to the fuel spill from the locomotive derailment that occurred on October 1, 1995, near the American President's Line facility and the Union Pacific Railroad (UPRR) trailer-on-flat-car (TOFC) facility in Oakland, California. This proposal supersedes the letter proposal that was submitted to your office and dated October 4, 1995.

Based on discussions with Ken Rose of USPCI, physical limitations exists that prohibit the installation of a liquid-phase diesel recovery trench. After obtaining information about the spill area from Ken and talking to Shawn Leppert, a hydrogeologist with USPCI, it appears that the amount of recoverable liquid-phase diesel may be less than 10 percent with an active hydrocarbon recovery system. Also, results of a computer model, that predicts the amount of recoverable contaminant at a given spill site, are anticipated to provide the same low result (less than 10 percent). Recovery results from a passive recovery system, such as drilling soil borings and extracting water and diesel with a vacuum truck, would be less favorable and may cost as much as $100 per gallon of diesel recovered.

To address the concerns associated with the diesel spill, USPCI proposes the following:

Task 1 - Contact and obtain approval from the Alameda County Department of Environmental Health (Alameda County) to install three piezometers in an area that is expected to be down-gradient of the spill site. The locations would consist of one piezometer directly down-gradient of the spill, one piezometer directly up-gradient of the storm drain, and one piezometer down- and side-gradient of the spill. For the purposes of this cost estimate, it is assumed that the schedule for the fieldwork can be coordinated with other UPRR projects in the area. Estimated cost is $5,000.

Acceptance: _____

Representing: Union Pacific Railroad Date: _____

5665 Flatiron Parkway Boulder, Colorado 80301-2800
Phone 303.938.5500 Fax 303.938.5520

Task 2 - Prepare a report that includes an estimate of the amount of recoverable diesel in the subsurface, results of the piezometer installation, potentiometric surface monitoring data, a proposal to monitor the presence or absence of liquid-phase diesel in the piezometers, and a recommendation of the action to be taken to address the dissolved-phase of diesel, the liquid-phase of diesel (if present), and the diesel adsorbed to the subsurface soils. The recommendation based on a risk assessment, groundwater computer modeling, and the documentation mentioned in the previous proposal dated October 4, 1995, supported by the site data that would be obtained from the three piezometers. It is anticipated that the data and data analysis will support a recommendation for continued potentiometric surface monitoring in the three proposed wells without recovery of liquid-phase diesel. Estimated cost is $10,000.

Acceptance: _____
Representing: Union Pacific Railroad Date: _____

Based on the information presented above, it does not appear that recovery of liquid-phase diesel with a vacuum truck will yield the results that you desire. However, we will be happy to perform this task for an additional cost when we install the three piezometers.

Please review, sign, and return to us at your earliest convenience via facsimile and we will proceed with Tasks 1 and 2. It is assumed that the above tasks will be billed on a time and material basis. It is anticipated that the three piezometers could be installed as early as next week (provided that we get approval from the Alameda County).

If you have any questions, please call us at (303) 938-5500.

Sincerely,

Denton Mauldin
Project Engineer

Jerome Edwards
Senior Project Manager

cc: Rick Welsh, USPCI
Ken Rose, USPCI

DM/tjh

Post-it™ brand fax transmittal memo 7671 | # of pages ▸ 2

To Dexter Marshall	From Jim Gorley
Co. USPCI	Co. UPRR
Dept.	Phone # (209) 942-5358
Fax # 938-5530	Fax #

USPCI
A DOVER COMPANY

Consulting Services

October 10, 1995

Mr. Jim Gorley
Union Pacific Railroad
833 East 8th Street
Stockton, California 95206

RE: Fuel Spill Near the APL Facility, UPRR TOFC Facility, Oakland, California

Dear Mr. Gorley:

The following represents a revised proposal to address the environmental concerns related to the fuel spill from the locomotive derailment that occurred on October 1, 1995, near the American President's Line facility and the Union Pacific Railroad (UPRR) trailer-on-flat-car (TOFC) facility in Oakland, California. This proposal supersedes the letter proposal that was submitted to your office and dated October 4, 1995.

Based on discussions with Ken Rose of USPCI, physical limitations exists that prohibit the installation of a liquid-phase diesel recovery trench. After obtaining information about the spill area from Ken and talking to Shawn Leppert, a hydrogeologist with USPCI, it appears that the amount of recoverable liquid-phase diesel may be less than 10 percent with an active hydrocarbon recovery system. Also, results of a computer model, that predicts the amount of recoverable contaminant at a given spill site, are anticipated to provide the same low result (less than 10 percent). Recovery results from a passive recovery system, such as drilling soil borings and extracting water and diesel with a vacuum truck, would be less favorable and may cost as much as $100 per gallon of diesel recovered.

To address the concerns associated with the diesel spill, USPCI proposes the following:

Task 1 - Contact and obtain approval from the Alameda County Department of Environmental Health (Alameda County) to install three piezometers in an area that is expected to be down-gradient of the spill site. The locations would consist of one piezometer directly down-gradient of the spill, one piezometer directly up-gradient of the storm drain, and one piezometer down- and side-gradient of the spill. For the purposes of this cost estimate, it is assumed that the schedule for the fieldwork can be coordinated with other UPRR projects in the area. Estimated cost is $5,000.

Acceptance: _____
Representing: Union Pacific Railroad Date: 10/10/95

5665 Flatiron Parkway Boulder, Colorado 80301-2800
Phone 303.938.5500 Fax 303.938.5520

Task 2 - Prepare a report that includes an estimate of the amount of recoverable diesel in the subsurface, results of the piezometer installation, potentiometric surface monitoring data, a proposal to monitor the presence or absence of liquid-phase diesel in the piezometers, and a recommendation of the action to be taken to address the dissolved-phase of diesel, the liquid-phase of diesel (if present), and the diesel adsorbed to the subsurface soils. The recommendation based on a risk assessment, groundwater computer modeling, and the documentation mentioned in the previous proposal dated October 4, 1995, supported by the site data that would be obtained from the three piezometers. It is anticipated that the data and data analysis will support a recommendation for continued potentiometric surface monitoring in the three proposed wells without recovery of liquid-phase diesel. Estimated cost is $10,000.

Acceptance: _____
Representing: Union Pacific Railroad Date: 10/10/95

Based on the information presented above, it does not appear that recovery of liquid-phase diesel with a vacuum truck will yield the results that you desire. However, we will be happy to perform this task for an additional cost when we install the three piezometers.

Please review, sign, and return to us at your earliest convenience via facsimile and we will proceed with Tasks 1 and 2. It is assumed that the above tasks will be billed on a time and material basis. It is anticipated that the three piezometers could be installed as early as next week (provided that we get approval from the Alameda County).

If you have any questions, please call us at (303) 938-5500.

Sincerely,

Denton Mauldin
Project Engineer

Jerome Edwards
Senior Project Manager

cc: Rick Welsh, USPCI
Ken Rose, USPCI

DM/tjh

Morgan Environmental Services

1091 Calcot Place, Oakland, Ca 94606
Phone # 510-533-2323 Fax # 510-533-2345

Oct 14, 1995

Jim Gorley
Union Pacific Railroad
833 E. 8th St.
Stockton,CA
95206

Dear Jim:

On 9/29/95 at midnight we were summoned by Kent Avery Of the Union Pacific Ramp in Oakland to respond to a diesel spill from a locomotive derailment just outside the terminal gate and parallell to Ferro St. and Middleharbor road in Oakland.We arrived at approximately 1245 hours and met with Britt Johnson Haz Mat Advisor and Fire Captain Jack Forst of the Oakland Fire Department.

I discussed with Britt Johnson the quantity of the diesel spill , the soil matrix and the level of ground water. I expressed my concern that it would be difficult to excavate the roadbed because, since this was the main track, it would involve shutting down the railroad. Mr. Johnson opined that since groundwater was so close that the diesel had probably disapated by now anyway.We met in Mike Kings office and talked with Avery Grimes who suggested that we monitor the bay every 4 hours and monitor the closest storm drains and their outfall and that we check the depth of the spill by hand auger on monday.

We pumped out the remaining 45 gallons of diesel fuel from the ruptured tank into a drum for later reuse.We then proceeded to monitor the storm drains and the estuary.

We monitored the storm drains and bay on a regular basis throughout the night and the following days except that we increased the intervals between checks.

The regulatory official that reportedly expressed the most concern was Ravi Arulananthum from the local Water Quality Board. He suggested that we monitor the bay, monitor the downstream gradients,consider bio remediation and check the depth of the spill by hand auger.

I tried without success , over the weekend to get the Port of Oakland to respond to my request for topographical maps and schematic maps showing the locations of the storm drains and the outfalls.

On Saturday Mike King and I iniated a telephone conference call with Jim Gorley who said that we should continue monitoring the bay an storm drains and that on

Monday or Tuesday we should hand auger the spill area to get some preliminary data to enable us to go forward with a risk assessment.

On Monday We monitored the bay and took samples of the storm drain and obtained negative results. I also spent several hours trying to reach responsible officials of the Port of Oakland to obtain schematics of the storm drains.

On Tuesday we proceeded to hand auger a 2 inch hole approximately 4 feet away from the crossties of the track. We detected the presence of diesel fuel continously down to the depth of seven feet, at which time we encountered a massed concentration of liquid diesel in loose sand. It rapidly filled the hole with 11 inches of free diesel fuel.

I immediately went to Mike Kings office and asked him to get in touch with Jim Gorley . Mike and I talked with Jim Gorley by conference call , I told Jim Gorley that it indicated to me that the diesel was being trapped ,at least for the time being,and I recommended that we immediately start pumping to get out what we could.

Jim said that he also wanted to get USPCI involved since they had extensive soil characteristic maps of the area and that he wanted them to work with me on it. I asked to bow out gracefully since they were the experts and groundwater remediation was not my field of expertise.

I subsequently talked with Ken Rose of USPCI and told him all that I knew of the incident.

Sincerely

Thomas Morgan