# Five-Year Review Report

First Five-Year Review Report
for
Western Pacific Railroad Superfund Site
Oroville, California

Prepared by

United States Environmental Protection Agency
Region 9
San Francisco, California

Approved by: Date: September 4, 2003

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## List of Acronyms and Abbreviations

| | |
|---|---|
| ARARs | Applicable or Relevant and Appropriate Requirements |
| bgs | below ground surface |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| CWS | California Water Service |
| DTSC | Department of Toxic Substances Control |
| EPA | Environmental Protection Agency |
| GAC | Granular Activated Carbon |
| MCL | Maximum Contaminant Level |
| NCP | National Contingency Plan |
| NPL | National Priorities List |
| PAHs | Polycyclic Aromatic Hydrocarbons |
| RA | Remedial Action |
| RI | Remedial Investigation |
| ROD | Record of Decision |
| RPM | Remedial Project Manager |
| RWQCB | Regional Water Quality Control Board |
| UPRR | Union Pacific Railroad Company |
| VOCs | Volatile Organic Compounds |
| WPRR | Western Pacific Railroad |

## Executive Summary

The remedy for the Western Pacific Railroad Superfund Site (“the Site”) in Oroville, California, included : 1) groundwater extraction and treatment, 2) excavation of contaminated soils and backfilling with clean fill, and 3) institutional controls. Because waste remains in place, the trigger for this five-year review was the start of the soil remedial action on July 23, 1998.

The assessment of this five-year review found that the remedy was completed in accordance with the requirements of the Record of Decision, dated September 30, 1997. The remedy functioned as designed and all cleanup goals have been achieved. The site was deleted from the National Priorities List (NPL) on August 29, 2001.

**Western Pacific Railroad Superfund Site**
**Oroville, California**
**First-Five Year Review Report**

## 1. Introduction

The purpose of a five-year review is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in five-year review reports. In addition, five-year review reports identify issues found during the review and identify recommendations to address them.

The United States Environmental Protection Agency (EPA), Region 9, is preparing this statutory Five-Year Review report for the Western Pacific Railroad Site pursuant to CERCLA §121(c) and the National Contingency Plan (NCP) §300.430(f)(4)(ii), which states:

> *If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.*

EPA Region 9 conducted the five-year review of the remedy implemented at the Western Pacific Railroad Superfund Site in Oroville, California. The Remedial Project Manager (RPM) conducted this review from August 2002 through March 2003 for the entire site. This report documents the results of the review.

This is the first five-year review for the Western Pacific Railroad Site. This five-year review is required due to the fact that hazardous contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure.

## 2. Site Chronology

**Table 1 - Chronology of Site Events, Western Pacific Railroad Site**

| Event | Date |
|---|---|
| Railroad fueling & maintenance wastes disposed on site | 1880's - 1980's |
| CA RWQCB issued order to investigate on-site waste | 1989 |
| Waste pond excavated & backfilled; leaking underground tank removed | 1989 |
| Final listing on NPL | August 30, 1990 |
| Interim removal activities - groundwater extraction system installed | 1994 |
| Remedial Investigation/Feasibility Study | August 1995 |
| Proposed plan identifying EPA's preferred remedy presented to public | July 1997 |
| ROD selecting the final remedy is signed | Sept 1997 |
| Contaminated Fueling Area soil excavated and backfilled | July 1998 |
| Final inspection of remedial action excavation | December 10, 1998 |
| Groundwater cleanup achieved | October 1999 |
| Covenant to restrict property filed with Butte County Recorder | March 1, 2001 |
| Final Close Out Report signed | June 26, 2001 |
| Site deleted from NPL | August 29, 2001 |

## 3. Background

### Physical Characteristics

The Western Pacific Railroad Site occupies approximately 90 acres at the southern end of the City of Oroville in Butte County, California, in the northern Central Valley (see Attachment 1, Site Location Map). The land is relatively flat, with historic dredging tailings from Feather River mining operations on the western portion of the property. The property lies between Baggett Marysville Road to the east and 5th Avenue to the west, and is about one mile east of the Feather River. Residences are located across Baggett Marysville Road from the site.

### Land and Resource Use

The Western Pacific Railroad Company operated a fueling and maintenance yard at the site from the 1880's until 1970. Activities at the site included locomotive fueling, routine maintenance, and railcar repairs such as welding, painting, fabricating, and machining of railcars. These activities occurred in what is known as the Fueling Area (See Attachment 2, Site Plan). In 1982 Union Pacific Railroad Company (UPRR) bought Western Pacific Railroad

(WPRR) and continued to use the site for fueling and minor maintenance. In 1991 UPRR dismantled the remaining structures in the Fueling Area. Currently the only railroad activity at the site is the use of the rail line to run trains.

The land immediately east of the site is residential, with the rest of the surrounding area zoned for commercial and industrial use.

UPRR leases to the California Water Service (CWS) a public drinking water well, WP-01, which is located on the WPRR site just west of the Fueling Area rail line. According to CWS this is an active drinking water well.

The subsurface of the railroad area is composed of thickly and thinly bedded and interbedded clays, sands, and gravels. These deposits are considered to be of fluvial origin. These soils vary in thickness and composition both horizontally and vertically across the site. The dominant groundwater flow direction is to the southwest toward the Feather River. In the southeast portion of the site, the groundwater flow direction is almost due west. This could be due to pumping of the CWS well located approximately 150 feet west of the Fueling Area. The depth to the shallow aquifer is approximately 60' below ground surface (bgs). A shallow aquitard primarily of clay is approximately 110 feet bgs.

**History of Contamination**

In the course of the fueling, machining, and repairing of locomotives and railcars, spills occurred causing contamination of soils and groundwater. Polyaromatic hydrocarbons (PAHs) and diesel fuels made their way into the site soils in the Fueling Area. Some wastes from the Fueling Area were channeled to an on-site waste pond. At least once, a fire was set in the waste pond in order to burn off the waste oil.

A leaking underground tank in the Fueling Area was the source of volatile organic compounds (VOCs) which contaminated the groundwater. 1,1-dichloroethylene (1,1-DCE) was the primary contaminant. From 1984 to 1987 the CWS well approximately 700 feet downgradient from the tank had low levels of 1,1-DCE contamination.

**Initial Response and Basis for Taking Action**

In 1989 the State of California Regional Water Quality Control Board issued an order requiring UPRR to investigate the waste pond and the site groundwater. In 1989 the waste pond was excavated and backfilled with clean fill. During the groundwater investigation contamination was discovered in the groundwater beneath the Fueling Area and the source was discovered to be a leaking underground waste storage tank.

The plume of water contaminated with VOCs spread toward the downgradient CWS public drinking water well. The well was shut down temporarily in 1984 due to contamination from 1,1-DCE. Even though the levels of 1,1-DCE in the CWS well dropped back down to below drinking water standards, the continued threat of migration of the VOC plume was the primary reason the site was proposed to the NPL on October 26, 1989, and finalized on the NPL in August 1990.

In 1993 EPA initiated a removal action to contain the VOC plume and prevent it from reaching the CWS drinking water well. Union Pacific Railroad agreed to install a system to pump, treat, and reinject the groundwater. In 1994 UPRR installed and began operating the system, which included one extraction well (EW-1), an air stripper, two granular activated carbon (GAC) units, and an injection well.

## 4. Remedial Action

### Remedy Selection

In 1994 UPRR began a remedial investigation (RI) at the site pursuant to an administrative consent order signed by UPRR and EPA on March 15, 1994. The RI focused on the site soils because the groundwater contamination was already being cleaned up with the groundwater treatment system.

The RI indicated that elevated soil contamination was limited to the Fueling Area. The Risk Assessment (RA) for the site evaluated the risks for industrial rather than residential use due to the site history, current use, and anticipated future use. The RA concluded that arsenic and PAHs were the two contaminants above EPA's preliminary remediation goals, with the highest concentrations in the top one foot of soil. EPA determined that contamination in the soil presented an elevated risk to on-site workers and trespassers through dermal contact.

The Record of Decision (ROD), the document in which EPA selects the final cleanup remedy for a site, was issued on September 30, 1997. EPA chose to clean up the site soils to an exposure level that is safe for on-site workers and trespassers but is above cleanup levels for residential use. The ROD, included the following remedial actions:

1. excavation and off-site disposal of approximately 44,000 cubic feet (1 acre, 1 foot deep) of contaminated soil,
2. a restriction of future use of the property to industrial use only, and
3. continued extraction and treatment of contaminated groundwater until Federal and State drinking water standards are reached.

### Remedy Implementation

EPA issued an order on June 17, 1998, requiring UPRR to perform the remedial action and to pay past costs for cleaning up the site. The order also directed UPRR to take steps to implement an effective institutional control that would restrict the future use of the site.

The soil remedial action began on July 23, 1998, and took 6 days to complete. Approximately 1,720 tons of contaminated soil were excavated, placed on railcars, and shipped to the ECDC Environmental landfill near Price, Utah. Soil samples of the below grade soil were taken before the area was backfilled with clean soil. The soil samples showed that the residual mean concentration of PAHs met the cleanup goal established in the ROD. EPA conducted a final inspection on December 10, 1998, and determined that all RA construction activities had been completed.

In 2000 EPA, UPRR, and the California Department of Toxic Substances Control (DTSC) developed an institutional control which prohibits the use of the property for:

- residential use,
- a hospital for humans,
- a public or private school for persons under 21 years of age,
- a day care center, and
- any other purpose involving residential occupancy on a 24-hour basis.

Extraction of groundwater for purposes other than site remediation is also prohibited without prior written approval by EPA.

On March 1, 2001, UPRR filed the Covenant to Restrict Use of Property with the Butte County Recorder's Office. The Covenant is made between UPRR and DTSC, with EPA as a third-party beneficiary. It prohibits the future use of the property for the above uses and prohibits the extraction of groundwater except for site remediation purposes. It also stipulates that any contaminated soils brought to the surface during any site activities shall be managed in accordance with all applicable state and federal laws.

### Operation & Maintenance and Delisting

The groundwater pump and treat system that UPRR installed in 1994 operated continuously for 3 years. In 1997 EPA determined that contaminant mass removal could be improved by installing a dual-phase groundwater extraction and soil vapor extraction well near the source area. This well, EW-2, was installed in 1997 and EW-1 was shut off. The concentration levels of 1,1-DCE dropped immediately and by October 1997 the levels were below the state maximum contaminant level (MCL) of 6 parts per billion.

After two years of continued monitoring all contaminant levels remained below MCLs. The SVE system was shut off in November 1999 and a final round of groundwater sampling conducted in July 2000 confirmed that all contaminants remained below MCLs. None of the wells has been abandoned at this time.

On July 18, 2001, a Notice of Intent to Delete the Western Pacific Railroad Site from the NPL was published in the Federal Register. EPA did not receive any comments during the 30-day comment period and on August 29, 2001, the Western Pacific Railroad Superfund Site was deleted from the NPL.

## 5. Progress Since the Last Five-Year Review

This is the first five-year review for the Site.

## 6. Five-Year Review Process

### Administrative Components

Members of the five-year review team consisted of the following EPA staff: Holly Hadlock, Remedial Project Manager; Jackie Lane, Community Involvement Coordinator; Bill Keener,

Attorney Advisor; and Andy Lincoff, Environmental Engineer. The five-year review was conducted from August 2002 through March 2003. Ms. Hadlock conducted the site inspection to establish that the restrictions on land use at the Site have been maintained.

The five-year review included review of a number of relevant documents, including, but not limited to, the Record of Decision and the Covenant to Restrict Use of Property. See Attachment 3, List of Documents Reviewed, for the complete list of documents.

**Community Involvement**

EPA sent a public notice to the local Oroville newspaper, the Mercury-Register. This notice, published on February 24, 2003, informed the public that EPA was conducting the five-year review for the Site and any comments about the cleanup at the Site could be directed to Holly Hadlock or Jackie Lane. No community members contacted either Ms. Hadlock or Ms. Lane subsequent to the publication of the notice.

**Data Review**

At the request of EPA, Union Pacific Railroad conducted groundwater sampling for the five-year review. This sampling was done on July 18, 2002, and Andy Lincoff collected a split sample which was analyzed by the EPA laboratory in Richmond, CA. Table 1 below summarizes the results of the groundwater sampling.

**Table 1: Analytical Results, Groundwater**

| Sample Location | Contaminant | Results (µg/l) |
|---|---|---|
| MW-89-2 | 1,1-DCA | 1.4 (MCL: 5) |
| | 1,1-DCE | 1.7 (MCL: 6) |
| | 1,1,1-TCA | 1.7 (MCL: 200) |
| EW-2 | 1,1-DCA | 0.6 |
| | 1,1-DCE | not detected |
| | 1,1,1-TCA | 0.91 |

The results indicate that all contaminant concentrations continue to remain below MCLs.

**Site Inspection**

The RPM conducted a site inspection on April 1, 2003. The purpose of the inspection was to confirm that no activities have taken place on the Site that would violate the institutional controls.

The Fueling Area visually remains as it did when the excavation took place in 1998. No development has taken place on the property. A fence still stands around the Fueling Area; however, the lock to the gate was not locked. The groundwater treatment system equipment

remains on-site on a locked, fenced, concrete pad. The RPM did not see any activities that would have violated the institutional controls.

A visit to the Butte County Recorder's Office on the same day confirmed that the restrictive covenant had been filed in 2001. The public can view this document on the computer in the Recorder's Office.

**Interviews**

Holly Hadlock conducted interviews by telephone with the following people as part of this five-year review:

Mike Grant - UPRR , Manager, Environmental Site Remediation
Bob Bylsma - UPRR Attorney
Anthony Carrasco - California Water Service
Ruben Duran - City Administrator, City of Oroville

None of these individuals identified any concerns regarding the Site. Except for the groundwater sampling in July 2002, there has not been any activity at the Site. The Site remains undeveloped and UPRR has no plans to use, lease, or sell the property in the near future.

Anthony Carrasco informed the RPM that CWS considers the on-site well it leases from UPRR, WP-01, to be active. CWS samples the groundwater quarterly for VOCs, metals, and bacteria, and the water meets current state and federal drinking water standards. While this well is not pumped on a daily basis, it is maintained and used for both residential and agriculture purposes. In 2002 approximately 25,531,000 gallons (78.32 acre feet) of water were pumped from this well.

Due to lack of community interest when the site was deleted from the NPL, local community members were not interviewed for this five-year review.

## 7. Technical Assessment

The following conclusions support the determination that the remedial measures implemented are protective of human health and the environment.

Question A: Is the remedy functioning as intended by the decision document?

The groundwater sampling, the site inspection, the review of documents, ARARs, and risk assumptions indicate that soil and groundwater elements of the remedy are functioning as intended by the ROD. However, the use of the California Water Service well without prior EPA approval, which is in violation of the Covenant to Restrict Use of Property, Article IV, Section 4.03., Prohibited Activities, indicates the institutional controls have not been complied with.

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAO's) used at the time of the remedy selection still valid?

The exposure assumptions, toxicity data, cleanup levels, and remedial action objectives are still valid. There are no changes in the ARAR's associated with this site.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is no other information that calls into question the protectiveness of the remedy.

## 8. Issues

The Restrictive Covenant prohibits use of the Site groundwater without prior written approval from EPA. While conducting the five-year review EPA discovered that this prohibition has been violated. California Water Service considers the on-site well it leases from UPRR, WP Well -01, to be active and has been pumping groundwater from it. In 2002, over 25 million gallons of water was pumped from this well. However, because the groundwater at the Site now meets drinking water standards, no receptor was exposed to groundwater with contamination in excess of drinking water standards.

## 9. Recommendations and Follow-Up Actions

Union Pacific RR must immediately request written approval from EPA to allow for distribution of groundwater for drinking purposes from well CWS-01. This request must include recent validated sampling data from CWS-01. If UPRR fails to do so, EPA will consider taking the well off-line and/or assessing UPRR with a civil penalty for this violation of the Covenant and Administrative Order.

UPRR must submit to EPA validated sampling data annually from well CWS-01 indicating that the water continues to meet drinking water standards.

If the Fueling Area fence is to remain in place, the gate should be locked and routinely checked by UPRR.

All of the groundwater wells at the site, with the exception of MW-89-2 and EW-2 should be abandoned in accordance with applicable federal and state standards for well decommissioning. UPRR should submit a report to EPA prior to and following the completion of the well abandonment.

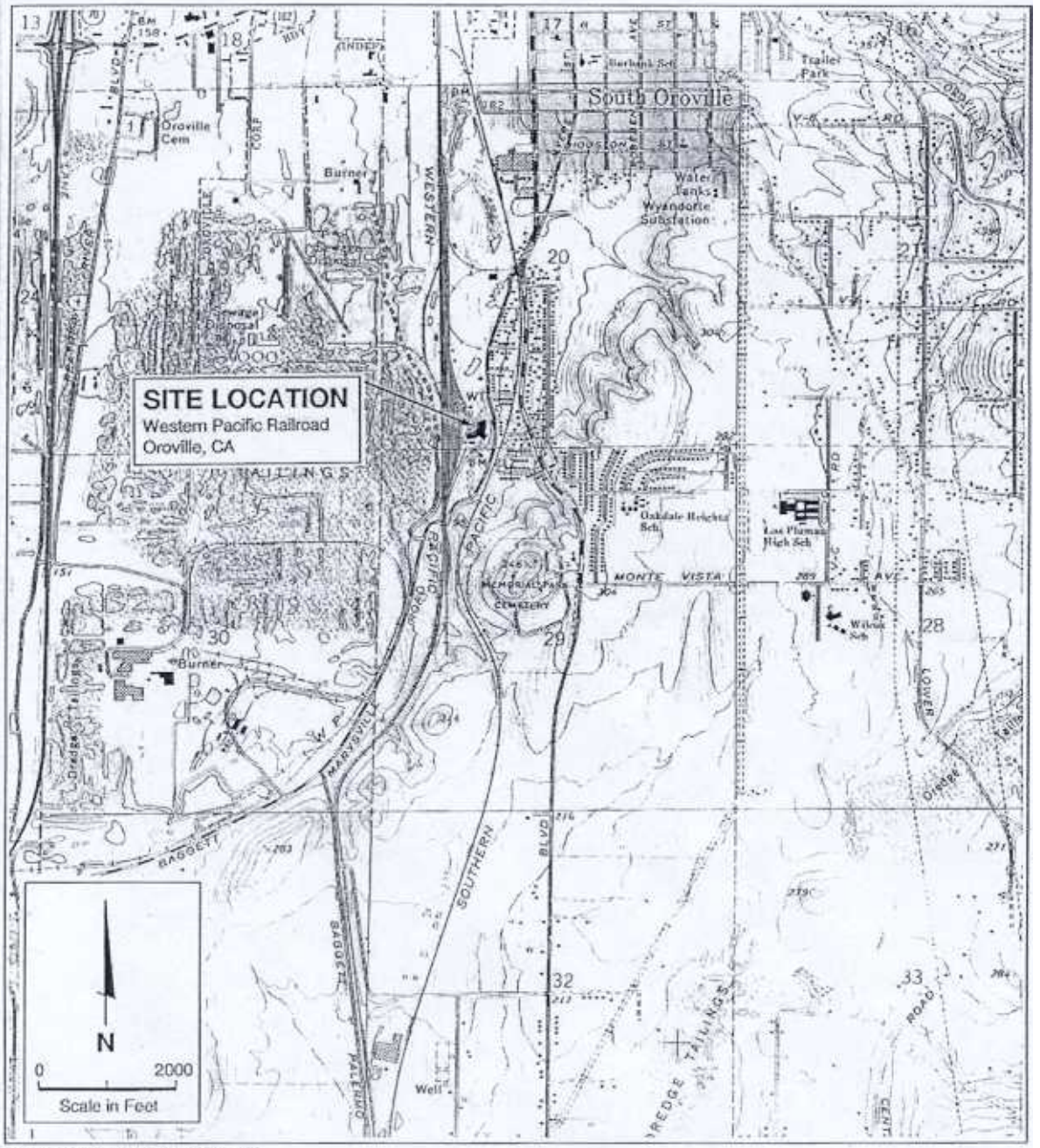
## 10. Protectiveness Statement

The remedial actions for the both the groundwater and soil continue to be protective of human health and the environment.

## 11. Next Review

The next five-year review for the Western Pacific Railroad Superfund Site is required by September 2008, five years from the date of this review.

## ATTACHMENT 1 - Site Location Map




USGS 7.5' Quadrangle, Palermo, CA., 1980.

**SITE VICINITY MAP**

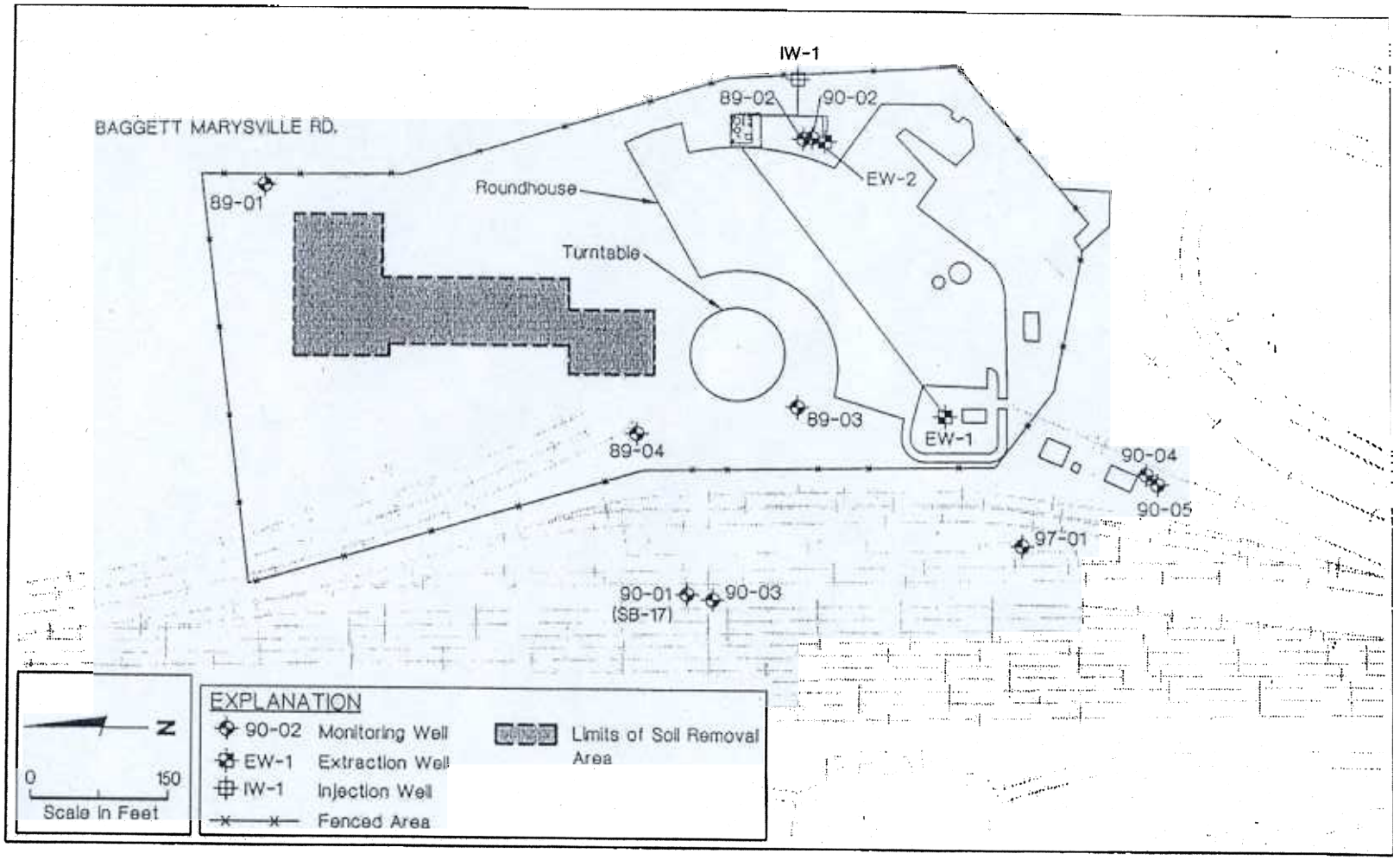
Groundwater Monitoring Report
Spring Quarter, 1994
Western Pacific Railroad Superfund Site
Oroville, California

DAMES & MOORE

00173-081-044

FIGURE 1

ATTACHMENT 2 - Site Plan

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**SOIL EXCAVATION AREA**
Western Pacific Railroad Superfund Site
Oroville, California
FIGURE 1

Attachment 3

## List of Documents Reviewed

Comprehensive Five-Year Review Guidance, U.S. Environmental Protection Agency, EPA 540-R-01-007, OSWER No. 9355.7-03B-P, June 2001

Draft Institutional Controls: A Guide to Implementing, Monitoring, and Enforcing, Institutional Controls at Superfund, Brownfields, Federal Facility, UST, and RCRA Corrective Action Cleanups, U.S. Environmental Protection Agency, OSWER, December 2002

Phase II Site Investigation Report, Union Pacific Railroad Yard, Fueling Area, Oroville, California, Volume I, Dames & Moore, April 1991

Action Memo, EPA Region 9, August 24, 1993

Proposed Plan, EPA Region 9, July 1997

Record of Decision, EPA Region 9, September 30, 1997

Administrative Order for Remedial Action, U.S. Environmental Protection Agency, June 17, 1998

Covenant to Restrict Use of Property, March 1, 2001

Final Remedial Action Report, Western Pacific Railroad Superfund Site, Oroville, California, URS, June 7, 2001

Final Close Out Report, Western Pacific Railroad Superfund Site, EPA Region 9, June 26, 2001

Notice of Deletion, Federal Register, August 29, 2001

Groundwater Sampling, URS, July 26, 2002

Memo from Brenda Bettencourt, EPA Region 9 Lab, to Holly Hadlock, August 9, 2002