

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



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9/19/13

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# Executive Summary

This is the third five-year review of the Western Pacific Railroad Superfund Site (WPRR Site, or Site) located in the City of Oroville in Butte County, California. The purpose of this report is to review information to determine if the remedy is, and will continue to be, protective of human health and the environment.

The Western Pacific Railroad Superfund Site occupies approximately 90 acres. The WPRR study area, which is where historical operations took place, includes approximately 37 acres along the eastern edge of this property. Past industrial practices at the site had left polycyclic aromatic hydrocarbons and diesel fuel contamination in soils as well as volatile organic compound contamination in groundwater.

The remedy for the Western Pacific Railroad site, as stated in the 1997 Record of Decision, included excavation of contaminated soils and clean backfill of excavated areas, groundwater extraction and treatment, and institutional controls to keep the site an industrial property and to prevent consumptive groundwater use. Because waste remains in place, the trigger for the original five-year review was the start of soil remedial action on July 23, 1998. The trigger for this, the third five-year review, was completion of the previous review in September 2008.

Review of all site-related documents, Applicable or Relevant and Appropriate Requirements (ARARs), risk assumptions, institutional controls, and the results of the site inspection and interviews indicate that the remedy continues to function as intended. The exposure assumptions, toxicity data impacts, cleanup levels, ARARs, and remedial action objectives selected at the time of the remedy are still valid. The only information that has come to light that could potentially affect future long-term protectiveness is an increase in 1,1-dichloroethane (DCA) at one monitoring well to above its Maximum Contaminant Level (MCL). Continued groundwater monitoring is recommended to evaluate future 1,1-DCA behavior.

The remedy at the Western Pacific Railroad Superfund Site currently protects human health and the environment because there is no exposure potential to contaminants left in site soil above industrial cleanup standards or to site groundwater in the short-term. However, in order for the remedy to ensure protectiveness in the long-term, groundwater monitoring must continue in order to demonstrate the decline of residual 1,1-DCA to below its MCL.

## Five-Year Review Summary Form

| SITE IDENTIFICATION   |  |   |
|---|--|---|
| <b>Site Name:</b> Western Pacific Railroad Superfund Site   |  |   |
| <b>EPA ID:</b> CAD980894679   |  |   |
| <b>Region:</b> 9  | <b>State:</b> CA   | <b>City/County:</b> Oroville/Butte County |
| SITE STATUS   |  |   |
| <b>NPL Status:</b> Deleted  |  |   |
| <b>Multiple OUs?</b><br>No  | <b>Has the site achieved construction completion?</b><br>Yes |   |
| REVIEW STATUS   |  |   |
| <b>Lead agency:</b> EPA<br>If "Other Federal Agency" was selected above, enter Agency name: <a href="#">Click here to enter text.</a> |  |   |
| <b>Author name (Federal or State Project Manager):</b> Holly Hadlock  |  |   |
| <b>Author affiliation:</b> EPA Region 9   |  |   |
| <b>Review period:</b> October 2008 – September 2013   |  |   |
| <b>Date of site inspection:</b> January 10, 2013  |  |   |
| <b>Type of review:</b> Statutory  |  |   |
| <b>Review number:</b> 3   |  |   |
| <b>Triggering action date:</b> September 18, 2008   |  |   |
| <b>Due date (five years after triggering action date):</b> September 18, 2013   |  |   |

## Five-Year Review Summary Form (continued)

| Issues/Recommendations  |   |                    |                 |                |
|---|---|--------------------|-----------------|----------------|
| <b>OU(s) without Issues/Recommendations Identified in the Five-Year Review:</b> |   |                    |                 |                |
| Both soil and groundwater components of OU                                      |   |                    |                 |                |
| <b>Issues and Recommendations Identified in the Five-Year Review:</b>           |   |                    |                 |                |
| <b>OU: Sitewide</b>   | <b>Issue Category: Monitoring</b>             |                    |                 |                |
|   | <b>Issue:</b> Increase in 1,1-DCA in one well |                    |                 |                |
|   | <b>Recommendation:</b> Continued monitoring   |                    |                 |                |
| Affect Current Protectiveness   | Affect Future Protectiveness                  | Implementing Party | Oversight Party | Milestone Date |
| No  | Yes   | PRP                | EPA             | September 2015 |

| Protectiveness Statement(s)   |   |  |
|---|---|--|
| <i>Include each individual OU protectiveness determination and statement. If you need to add more protectiveness determinations and statements for additional OUs, copy and paste the table below as many times as necessary to complete for each OU evaluated in the FYR report.</i> |   |  |
| <b>Operable Unit:</b><br>n/a  | <b>Protectiveness Determination:</b><br>n/a | <b>Addendum Due Date (if applicable):</b><br>n/a |
| <i>Protectiveness Statement:</i><br>See Sitewide Protectiveness Statement, below.   |   |  |

| Sitewide Protectiveness Statement (if applicable)  |  |
|--|--|
| <i>For sites that have achieved construction completion, enter a sitewide protectiveness determination and statement.</i>  |  |
| <i>Protectiveness Determination:</i><br>Short-term Protective  | <i>Addendum Due Date (if applicable):</i><br>n/a |
| <i>Protectiveness Statement:</i><br>The remedy at the Western Pacific Railroad Superfund Site currently protects human health and the environment in the short-term because there is no exposure potential to contaminants left in site soil above industrial cleanup standards or to site groundwater. However, in order for the remedy to ensure protectiveness in the long-term, groundwater monitoring must continue in order to demonstrate the decline of residual 1,1-DCA to below its MCL. |  |

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## List of Abbreviations

|           |   |
|-----------|---|
| AOC       | Administrative Order on Consent                                     |
| ARARs     | applicable or relevant and appropriate requirements                 |
| BaP       | benzo(a)pyrene  |
| bgs       | below ground surface  |
| CERCLA    | Comprehensive Environmental Response Compensation and Liability Act |
| CFR       | Code of Federal Regulations   |
| cPAH      | carcinogenic PAH  |
| COC       | contaminant of concern  |
| CWS       | California Water Service  |
| 1,1-DCA   | 1,1-dichloroethane  |
| 1,1-DCE   | 1,1-dichloroethylene  |
| DTSC      | Department of Toxic Substances Control                              |
| EPA       | Environmental Protection Agency                                     |
| FYR       | five-year review  |
| HQ        | hazard quotient   |
| IC        | institutional control   |
| IRIS      | Integrated Risk Information System                                  |
| MCL       | maximum contaminant level   |
| µg/kg     | microgram per kilogram  |
| µg/l      | microgram per liter   |
| mg/kg     | milligram per kilogram  |
| NC        | non-cancer  |
| NCP       | National Contingency Plan   |
| NPL       | National Priorities List  |
| O&M       | operation and maintenance   |
| OU        | operable unit   |
| PAH       | polycyclical aromatic hydrocarbon                                   |
| RA        | remedial action   |
| RAO       | remedial action objective   |
| RI        | remedial investigation  |
| ROD       | Record of Decision  |
| RSL       | regional screening level  |
| RWQCB     | Regional Water Quality Control Board                                |
| 1,1,1-TCA | 1,1,1-trichloroethane   |
| TBC       | to-be-considered  |
| TCE       | trichloroethylene   |
| UPRR      | Union Pacific Railroad  |
| USACE     | U.S. Army Corps of Engineers  |
| UST       | underground storage tank  |
| VI        | vapor intrusion   |
| VOC       | volatile organic compound   |
| WPRR      | Western Pacific Railroad  |

# Third Five-Year Review Report

## for

# Western Pacific Railroad Superfund Site

## 1. Introduction

The purpose of a five-year review (FYR) is to evaluate the implementation and performance of a remedy in order to determine if the remedy will continue to be protective of human health and the environment. The methods, findings, and conclusions of FYRs are documented in five-year review reports. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The U.S. Environmental Protection Agency (EPA) prepares FYRs pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121 and the National Contingency Plan (NCP). CERCLA 121 states:

*“If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.”*

EPA interpreted this requirement further in the NCP; 40 Code of Federal Regulations (CFR) Section 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 actions no less often than every five years after the initiation of the selected remedial action.”*

EPA Region 9 and U.S. Army Corps of Engineers (USACE) conducted the FYR and prepared this report regarding the remedy implemented at the Western Pacific Railroad Site in Oroville, Butte County, California. EPA is the lead agency for developing and implementing the remedy for the Site. California Department of Toxic Substances Control (DTSC), as the support agency representing the State of California, has reviewed all supporting documentation and provided input to EPA during the FYR process.

This is the third FYR for the Western Pacific Railroad Superfund Site. The triggering action for this statutory review is the previous FYR. The FYR is required due to the fact that hazardous substances, pollutants, or contaminants remain at the site at levels above those that would allow for unlimited use and unrestricted exposure.

The Site had both soil and groundwater contamination. The remedy for soil consisted of soil removal and institutional controls. The remedy for groundwater consisted of extraction and treatment through air stripping. All actions have been completed. This FYR addresses soil and groundwater at the WPRR Site.

## 2. Site Chronology

Table 1 lists the dates of important events for the Western Pacific Railroad Superfund Site.

**Table 1. Chronology of Site Events**

| Event   | Date               |
|---|--------------------|
| Railroad fueling and maintenance wastes disposed on site  | 1880s-1991         |
| 1,000 gallon underground storage tank installed   | 1970s-1980s        |
| Volatile organic compounds detected in California Water Service Company drinking water well located on site | 1984-1992          |
| California Regional Water Quality Control Board issued order to investigate on-site waste                   | 1989               |
| Waste pond excavated and backfilled; leaking underground storage tank removed                               | 1989               |
| Final listing on the National Priorities List (NPL)   | August 30, 1990    |
| All remaining structures dismantled or demolished, and below-grade structures backfilled with clean fill    | 1991               |
| Administrative Order on Consent to conduct a groundwater removal action                                     | August 20, 1993    |
| Administrative Order on Consent to conduct a remedial investigation and feasibility study                   | March 15, 1994     |
| Interim removal action – groundwater extraction system installed  | 1994               |
| Remedial Investigation/Feasibility Study completed  | May/July 1997      |
| Proposed plan identifying EPA’s preferred remedy presented to the public                                    | June 29, 1997      |
| Record of Decision (ROD) signed   | September 30, 1997 |

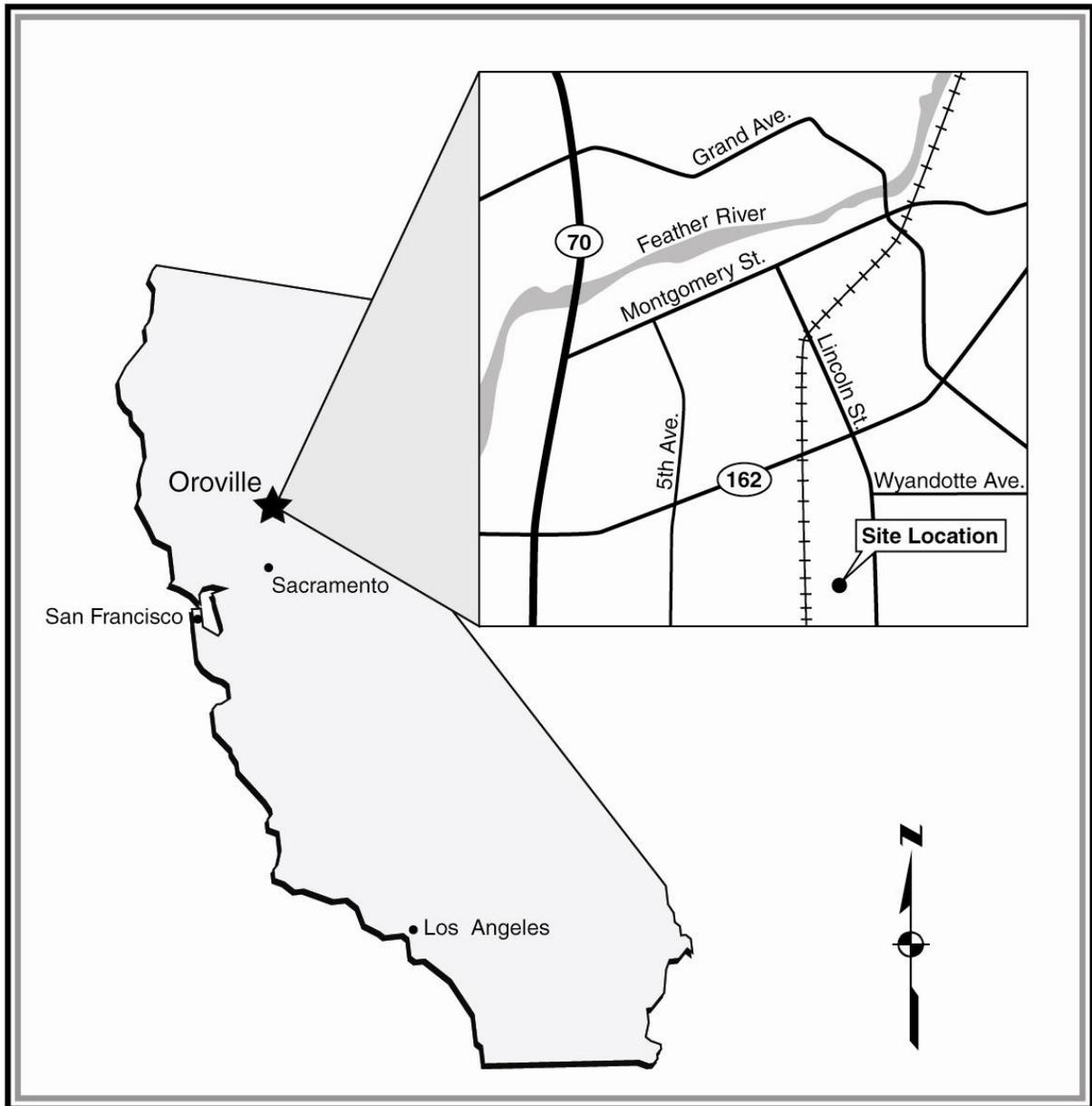
| Event  | Date               |
|--|--------------------|
| Groundwater cleanup achieved (all concentrations of contaminants of concern below maximum contaminant levels [MCLs]) | October 1997       |
| Unilateral Administrative Order for Remedial Action issued by EPA  | June 17, 1998      |
| Contaminated Fueling Area soil excavated and backfilled  | July 1998          |
| Final inspection of remedial action excavation   | December 10, 1998  |
| Groundwater treatment system shut off  | November 1999      |
| Final routine round of groundwater sampling (all concentrations below MCLs)  | July 2000          |
| Covenant to restrict use of property filed with Butte County Recorder  | March 1, 2001      |
| Final Close-Out Report   | June 26, 2001      |
| Site deleted from the NPL  | August 29, 2001    |
| First five-year review   | September 4, 2003  |
| Limited groundwater sampling in support of second five-year review   | March 13, 2008     |
| Second five-year review  | September 18, 2008 |
| Limited groundwater sampling subsequent to second five-year review   | April 1, 2010      |
| Limited groundwater sampling in support of third five-year review  | January 10, 2013   |

## 3. Background

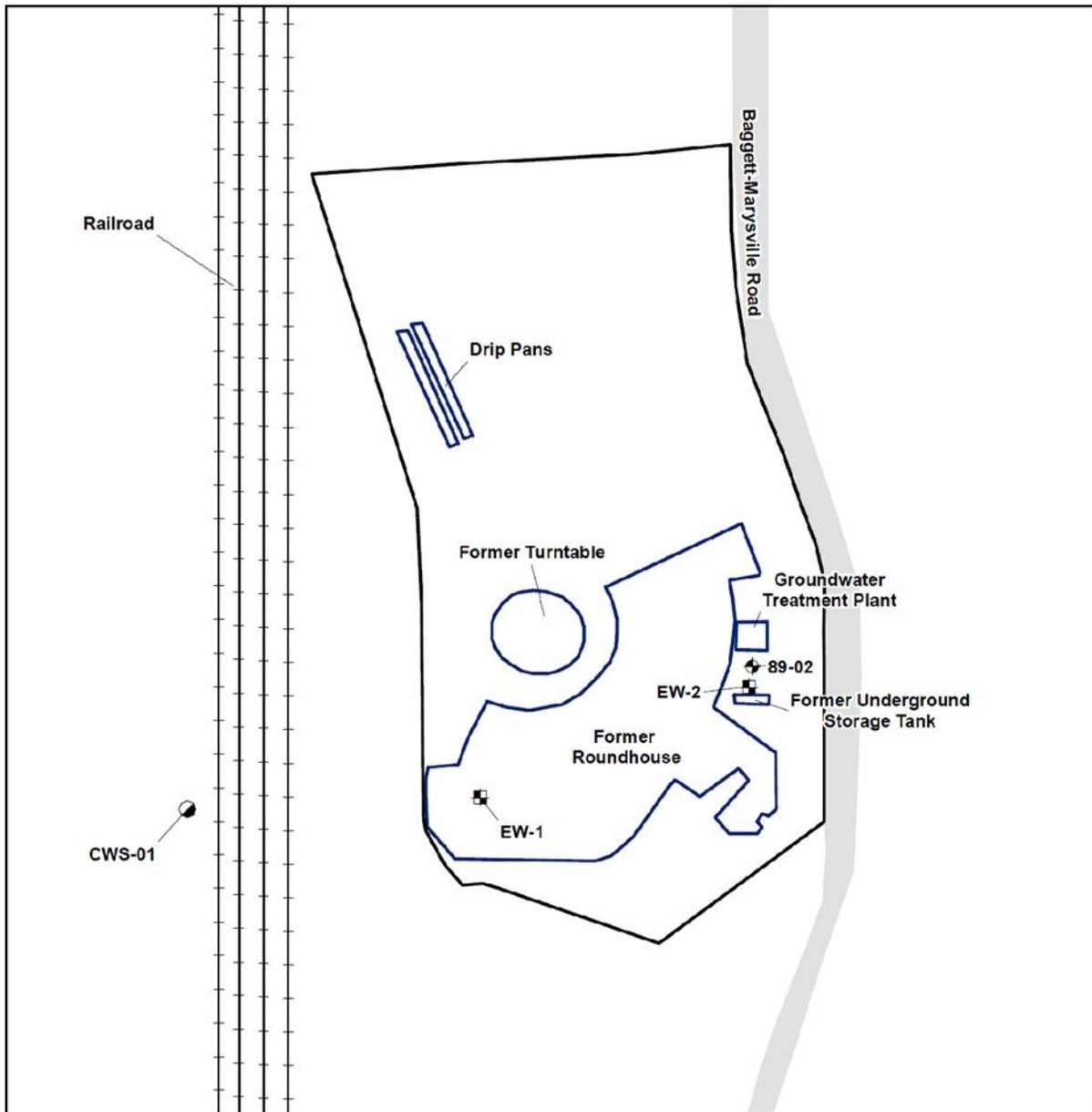
### 3.1. *Physical Characteristics*

The Western Pacific Railroad Site occupies approximately 90 acres in Butte County just outside the southern edge of the City of Oroville, California. Oroville is a community of approximately 15,500 residents, located in Butte County in the northern Central Valley (see Figure 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 and two miles south of downtown Oroville. The Site itself is undeveloped except for railroad activities; there is a residential neighborhood just east of Baggett-Marysville road.

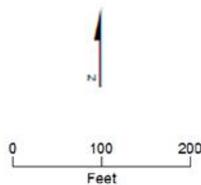


**Figure 1. Location Map for the Western Pacific Railroad Superfund Site**



**LEGEND**

- ◆ 89-02 Monitoring Well  
Sampled as part of 5-year Review
- ⊠ EW-2 Extraction Well  
Sampled as part of 5-year Review
- CWS-01 California Water Service Well
- +— Railroad



**Fueling Area Layout**

Western Pacific Railroad Superfund Site  
Oroville, California

SAC \1\Z\ION\SACGIS\PROJ\UNION\_PACIFIC\_RR\366189\_OROVILLE\MAPFILES\FIGURE4\_FUELINGAREALAYOUT.MXD SSCOPES 9/15/2008 12:50:01

**CH2MHILL**

**Figure 2. Detailed Map of the Western Pacific Railroad Superfund Site**

### 3.2. *Hydrology*

Subsurface stratigraphy in the vicinity of the Site is composed of thickly and thinly bedded and interbedded clay, sand, and gravel deposits of fluvial origin. These soils vary in thickness and composition both horizontally and vertically across the Site. In 1997 the dominant groundwater flow direction was to the west-southwest toward the Feather River. The depth to the shallow aquifer is approximately 60 feet below ground surface (bgs). A shallow aquitard, consisting primarily of clay, is approximately 110 feet bgs. Since routine groundwater monitoring is no longer conducted, no synoptic groundwater elevation measurements have been collected since 1997 sufficient to provide updated flow gradient interpretation; however, the strong influence of the Feather River as a groundwater discharge feature is believed to continue to impart a west-southwesterly flow influence on local groundwater. A water supply well used on an infrequent basis, CWS-1, is located about 700 feet from the Site and is believed to draw water from both the shallow and deeper formations.

### 3.3. *Land and Resource Use*

The WPRR Company operated a fueling and maintenance yard at the Site from the 1880s until 1970. Activities at the Site included welding, painting, machining, fabricating, and fueling of locomotives. These activities occurred in a 10-acre area known as the Fueling Area. Structures within the Fueling Area included a roundhouse and turntable, concrete inspection pits, a fueling area, above ground storage tanks, an underground storage tank, drip pans, and two oil-water separators (See Figure 2, Detailed Map of Site). In 1970 WPRR ceased its maintenance and repair activities and leased the Fueling Area to the Solano Railcar Company, an independent railcar company. Solano Railcar Company's activities included sandblasting, painting, welding, and machining of railcars until 1991. WPRR, and the subsequent owner, Union Pacific Railroad (UPRR), continued to use the fueling tracks and drip pans until 1991, when UPRR dismantled and/or demolished the remaining structures in the Fueling Area and backfilled the below-grade concrete features with clean fill. Currently, the Fueling Area is inactive but the rest of the UPRR facility has a maintenance shop, a small classification yard, and an active rail line. The land immediately east and northeast of the Site is residential, with the rest of the surrounding area zoned for commercial and light industrial use. Future land use is expected to remain unchanged. UPRR leases to California Water Service (CWS) a public drinking water well (CWS-1, also known as WP-01), located on the UPRR property just west of the WPRR Superfund Site study area and rail line (Figure 2).

### 3.4. *History of Contamination*

Historical rail operations took place on 37 acres east of the rail line. This was the study area for the site investigation. During fueling, machining, and repairing of locomotives and railcars, various spills occurred, causing contamination of soil and groundwater. Polycyclic aromatic hydrocarbons (PAHs) and diesel fuels were identified in soil in the Fueling Area. Wastewater, oil and grease, and possibly solvents from Fueling Area operations were channeled to an on-site unlined surface impoundment known as the "waste pond." At least once a fire was set in the waste pond in order to burn off the waste oil. In 1989, a 1,000 gallon underground storage tank (UST) at the eastern edge of the Fueling Area was discovered and later determined to have discharged solvents and waste oil into the groundwater. This UST was the source of the groundwater contamination.

Beginning in 1984 low concentrations of 1,1-dichloroethene (1,1-DCE), 1,1,1-trichloroethane (1,1,1-TCA), and 1,1-dichloroethane (1,1-DCA) were detected in well CWS-1. The Site was included on the NPL on August 30, 1990.

### 3.5. *Initial Response*

The WPRR site was initially investigated by the California Regional Water Quality Control Board (RWQCB), which listed the surface impoundment as a toxic pit under the Toxic Pits Cleanup Act in 1986. From 1984 to 1992 low concentrations of 1,1-DCE, 1,1,1-TCA, and 1,1-DCA were detected in well CWS-1. The well was shut down temporarily in 1984 due to concentrations of 1,1-DCE above drinking water standards. In 1989 the RWQCB issued an order requiring UPRR to investigate the waste pond and site groundwater. A waste classification study identified metals, fuel-related hydrocarbons, and PAHs in the waste pond sludge and, as a result, the waste pond was excavated and backfilled with clean fill.

During the groundwater investigation volatile organic compounds (VOCs) were discovered beneath the Fueling Area and the source was determined to be a leaking UST. The UST was removed and disposed off-site in November 1989. Additionally, two on-site supply wells (north abandoned well and south abandoned well) located within the Fueling Area were abandoned in April 1989. A plume of water contaminated with VOCs spread approximately 700 feet down-gradient from the UST toward well CWS-1, which was being used by CWS as a source of public drinking water. The Site was proposed to the NPL on October 26, 1989, and finalized on the NPL on August 30, 1990, due to the continued threat of migration of the VOC plume.

By 1993 1,1-DCE was no longer detected in well CWS-1. However, EPA initiated a removal action to contain the VOC groundwater plume in the Fueling Area and prevent it from reaching well CWS-1 again. 1,1-DCE was the primary contaminant of concern at 370 µg/L, substantially above the drinking water standard of 6 µg/L. On August 20, 1993, UPRR entered into an Administrative Order on Consent (AOC) with the EPA to conduct a removal action to contain and clean up the VOC plume by installing a system to pump, treat, and re-inject the groundwater. In September 1994 UPRR installed and began operating the system, which included one extraction well (EW-1), an air stripper and two granular activated carbon units to treat the water, and an injection well (IW-1) to infiltrate the treated water.

### 3.6. *Basis for Taking Action*

The primary contaminants of concern for the Western Pacific Railroad site were carcinogenic PAHs in soils and 1,1-DCE, 1,1,1-TCA, 1,1-DCA, and trichloroethylene (TCE) in groundwater. The presence of these contaminants in soil and groundwater provided the basis for taking action under CERCLA. The primary threats to human health were posed by receptors' potential exposure to soil via dermal contact and ingestion and potential exposure to groundwater via inhalation, ingestion, and dermal contact.

## 4. Remedial Actions

### 4.1. *Remedy Selection*

EPA issued the Record of Decision (ROD) for the Western Pacific Railroad Superfund Site on September 30, 1997. The ROD identified the remedial action objectives (RAOs). The specific RAOs developed for the Site included:

- Reduce the risk to on-site workers at the Site, and
- Reduce future potential exposure to carcinogenic PAHs by prohibiting residential use of the property

The major components of the remedy selected in the ROD included the following:

- Excavation and off-site disposal of approximately 44,000 cubic feet (1-acre, 1-foot deep) of contaminated soil,
- Disposal of contaminated soil off-site in compliance with the Off-Site Rule,
- An institutional control to restrict future use of the property to industrial use only and regular inspections to document industrial-only property usage,
- Land use or access controls consisting of a fence and warning signs, and
- Continued treatment of contaminated groundwater through extraction and air stripping.

Carcinogenic PAHs in soil were measured as a benzo(a)pyrene equivalent. The cleanup standard for soil was defined as a residual mean soil concentration for benzo(a)pyrene of 0.41 milligrams per kilogram (mg/kg) or less, in order to reduce the cancer risk from exposure of on-site workers to this contaminant. The cleanup standards for groundwater were defined as the State and Federal maximum contaminant levels (MCLs) for drinking water as shown in Table 2.

**Table 2. Groundwater Cleanup Standards from ROD**

| Contaminant | Federal MCL<br>(µg/L) | California MCL<br>(µg/L) |
|-------------|-----------------------|--------------------------|
| 1,1,-DCE    | 7                     | 6                        |
| 1,1,1-TCA   | 200                   | 200                      |
| 1,1-DCA     | --                    | 5                        |
| TCE         | 5                     | 5                        |

The more stringent MCL is applicable.

## 4.2. *Remedy Implementation*

EPA issued a Unilateral Administrative Order on June 17, 1998, requiring UPRR to perform the remedial action and pay EPA's 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 six 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 were collected from the bottom of the excavated area before the area was backfilled with clean soil. Analytical results of 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 remedial action 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
- 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 was signed by 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, without prior EPA approval. 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.

## 4.3. *Operation and Maintenance (O&M)*

The groundwater pump, treat, and re-injection system that UPRR installed in 1994 operated continuously for three 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 March 1997 and the original extraction well, EW-1, was shut off. The concentration of 1,1-DCE in groundwater decreased immediately and by October 1997 the concentrations were below the ROD cleanup goal, which was the State of California MCL of 6 micrograms per liter ( $\mu\text{g/L}$ ).

After two years of continued monitoring, all contaminant concentrations remained below MCLs. The groundwater/soil vapor extraction system was shut off in November 1999 and a final round of

groundwater sampling conducted in July 2000 confirmed that all contaminants remained below the MCLs.

On June 26, 2001, the Final Closeout report for the Site was signed by the EPA. On July 18, 2001, a Notice of Intent to Delete the 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 Site was deleted from the NPL.

The projected annual O&M cost listed in the ROD for the selected remedy was \$500. The projected cost was low because the groundwater remediation was nearly complete, and because the soils remedy was a removal action not requiring extensive O&M. Because no active remedy is occurring at the Site, and monitoring and site inspection events are largely limited to five-year review support activities, actual annual O&M costs are minimal and are expected to remain so in the near future.

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

### 5.1. Previous Five-Year Review Protectiveness Statement and Issues

The protectiveness statement from the 2008 FYR for the Western Pacific Railroad Site stated the following:

*The remedy at Western Pacific Railroad is protective of human health and the environment and in the interim there is no exposure to residual contamination that could result in unacceptable risks. Institutional controls are preventing exposure to contaminated soil and the ingestion of on-site groundwater with residual contamination. To be protective in the long-term, the groundwater monitoring program will need to be revised to verify that residual groundwater contamination remains on site and does not remain above the MCL.*

The 2008 FYR included one issue and one corresponding recommendation. The issue, recommendation, and current status are shown in Table 3 and discussed below.

**Table 3. Status of Recommendations from the 2008 FYR**

| <b>Issues from previous FYR</b> | <b>Recommendations</b>   | <b>Party Responsible</b> | <b>Milestone Date</b> | <b>Action Taken and Outcome</b>                                  | <b>Date of Action</b> |
|---------------------------------|--|--------------------------|-----------------------|--|-----------------------|
| Increase in 1,1-DCA (5.4 µg/L)  | Revise sampling program to monitor potential for off-site release and determine that levels do not remain above MCL. | UPRR                     | March 2009            | Subsequent sampling event showed all COCs below respective MCLs. | April 2010            |

No action was taken with regard to development of new groundwater sampling requirements or a groundwater monitoring plan because the April 2010 follow-up sampling after the second five-year review demonstrated that all contaminants of concern—including 1,1-DCA—were below their respective federal and state cleanup levels.

## 6. Five-Year Review Process

### 6.1. *Administrative Components*

EPA Region 9 initiated the FYR in October 2012 and scheduled its completion for September 2013. The EPA review team was led by Holly Hadlock, EPA Remedial Project Manager (RPM) for the Western Pacific Railroad Site, and consisted of personnel from USACE, Seattle District including Marlowe Laubach, chemical engineer, and Jefferey Powers, hydrogeologist. In October 2012, EPA held a scoping call with the review team to discuss the Site and items of interest as they related to the protectiveness of the remedy currently in place. A review schedule was established that consisted of the following:

- Community notification;
- Document review;
- Data collection and review;
- Site inspection;
- Local interviews; and
- Five-Year Review Report development and review.

### 6.2. *Community Involvement*

On April 2, 2013, a public notice was published in the *Chico Enterprise Record* announcing the commencement of the five-year review process for the Western Pacific Railroad Superfund Site, providing EPA's contact information, and inviting community participation (Appendix A). No one contacted EPA as a result of this advertisement.

The Five-Year Review Report will be made available to the public once it has been finalized. Copies of this document will be placed in the designated public repository: Butte County Public Library, 1820 Mitchell Avenue, Oroville, California. It will also be available on the internet at [epa.gov/region9/westernpacific](http://epa.gov/region9/westernpacific).

### 6.3. *Document Review*

This FYR included a review of relevant, site-related documents including the ROD, remedial action (RA) reports, and recent monitoring data. A complete list of the documents reviewed can be found in Appendix B.

### 6.3.1. ARARs Review

Section 121 (d)(2)(A) of CERCLA specifies that Superfund RAs must meet any federal standards, requirements, criteria, or limitations that are determined to be legal applicable or relevant and appropriate requirements (ARARs). ARARs are those standards, criteria, or limitations promulgated under federal or state law that specifically address a hazardous substance, pollutant, contaminant, RA, location, or other circumstance at a CERCLA site.

Chemical-specific ARARs identified in the selected remedy for the ground water and considered for this FYR for continued groundwater monitoring are listed in Table 4. California primary drinking water standards are the same as federal primary drinking standards except for the California standards for 1,1-DCA and 1,1-DCE, which are more stringent than federal standards.

**Table 4. Summary of Groundwater ARAR Changes**

| Contaminants of Concern | 1992 ROD ARARs (µg/L) |            | Current <sup>1</sup> Regulations (µg/L) |            | ARARs Changed? |
|-------------------------|-----------------------|------------|---|------------|----------------|
|                         | Federal               | California | Federal                                 | California |                |
| 1,1-DCE                 | 7                     | 6          | 7                                       | 6          | No             |
| 1,1,1-TCA               | 200                   | 200        | 200                                     | 200        | No             |
| 1,1-DCA                 | --                    | 5          | --                                      | 5          | No             |
| TCE                     | 5                     | 5          | 5                                       | 5          | No             |

<sup>1</sup>Federal MCL and California MCL.

Federal and state laws and regulations other than the chemical-specific ARARs that have been promulgated or changed over the past five years are described in Table 5. ARARs identified in the 1997 ROD that are no longer pertinent due to the phase the remedy is in are not included in the table. There have been no revisions to laws and regulations that affect the protectiveness of the remedy.

**Table 5. 1997 Record of Decision Applicable or Relevant and Appropriate Requirements Evaluation**

| <b>Requirement</b>  | <b>Citation</b>   | <b>Description</b>  | <b>Effect on Protectiveness</b>   | <b>Comments</b>  | <b>Amendment Date</b>  |
|---|---|---|---|--|------------------------|
| Cleanup of hazardous substance releases                         | California Hazardous Substances Account Act, Health and Safety Code Division 20, Chapter 6.8 §25300 | Establishes state authority to cleanup hazardous substances releases  | There have been changes to this law and they do not affect protectiveness.  |  | 1999, 2000, 2006, 2007 |
| Investigation and cleanup and abatement of discharge procedures | State Water Board Resolution 92-49, Paragraph III, G  | Establishes policies and procedures for investigation and cleanup and abatement of discharges. This requires cleanups attain either background water quality, or the best water quality which is reasonable if background levels of water quality cannot be restored. | There has been no change to this law and it does not affect protectiveness. | EPA determined in the ROD that the federal and more stringent state MCLs will satisfy the requirements of 92-49. |                        |

### 6.3.2. Human Health Risk Assessment Review

A human health risk assessment was completed for the Site as part of the June 1997 Remedial Investigation (RI). The risk assessment identified the following exposure pathways for site soil: inhalation of contaminated airborne dust, ingestion of contaminated soil, dermal contact with contaminated soil, and inhalation of vapors via airborne dust. Risk was not evaluated for contaminated groundwater because groundwater monitoring indicated there was no contamination in the Fueling Area other than the VOC plume, which was being cleaned up to state drinking water standards pursuant to a removal Administrative Order on Consent (AOC).

The risk assessment identified the exposure pathways and associated risks shown in Table 6. Only industrial use scenarios were calculated because the potential future site use will remain industrial/commercial.

**Table 6. Risk Assessment Exposure Pathways**

| <b>Exposure Scenario &amp; Pathway</b>                              | <b>Risk Driver(s)</b>  | <b>Risk Estimate</b>                     |
|---|--|--|
| <i>On-Site Worker – Inhalation of vapors</i>                        | <i>Benzene<br/>Toluene</i>   | <i>2.45E-7 (cancer)<br/>1.49E-4 (NC)</i> |
| <i>On-Site Worker - Inhalation of contaminated airborne dust</i>    | <i>Benzo(a)pyrene,<br/>arsenic, copper,<br/>chromium,<br/>benzene, toluene</i> | <i>3.40E-5 (cancer)<br/>5.0E-2 (NC)</i>  |
| <i>On-Site Worker - Ingestion of contaminated soil</i>              |  |  |
| <i>On-Site Worker - dermal contact with contaminated soil</i>       |  |  |
| <i>Off-Site Resident – inhalation of contaminated airborne dust</i> | <i>Benzo(a)pyrene,<br/>arsenic, copper,<br/>chromium,<br/>benzene, toluene</i> | <i>8.00E-8 (cancer)<br/>9.77E-5 (NC)</i> |
| <i>Off-Site Resident – inhalation of vapors</i>                     | <i>Benzene, toluene</i>  | <i>5.22E-7 (cancer)<br/>4.86E-4 (NC)</i> |

NC: non-cancer calculated as a Hazard Quotient. A chemical with an HQ less than 1 is considered to be at a safe level for exposure.

During this FYR, the risk assessment was reviewed to identify any changes in exposure or toxicity that would affect protectiveness. No changes in exposure scenarios and/or pathways or receptors exist from those presented in the risk assessment. This Site is to remain industrial per the institutional controls placed on the site.

**Vapor Intrusion:** EPA’s understanding of contaminant migration from soil gas and/or groundwater into buildings has evolved over the past few years leading to the conclusion that vapor intrusion may have a greater potential for posing risk to human health than assumed when the ROD was prepared. In September 2002, EPA released an external review draft version of its vapor intrusion guidance titled “Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils” (EPA 2002).

Vapor intrusion potential is not currently a factor for concern at this Site because 1) there are no buildings remaining at the Site where vapors could accumulate, and 2) groundwater concentrations for volatile chemicals of concern have been low—consistently below, at, or just slightly exceeding respective MCLs.

Toxicity values: EPA's Integrated Risk Information System (IRIS) has a program to update toxicity values used by the Agency in risk assessment when newer scientific information becomes available. In the past five years, there have been a number of changes to the toxicity values<sup>1</sup> for certain contaminants of concern at the Site.

### Groundwater

Groundwater analysis results are compared to U.S. EPA Regional Screening Levels (RSLs) as a first step in determining whether response actions may be needed to address potential human health exposures. The RSLs are chemical-specific concentrations that correspond to an excess cancer risk level of  $1 \times 10^{-6}$  (or a Hazard Quotient (HQ) of 1 for noncarcinogens) developed for standard exposure scenarios (e.g., residential and commercial/industrial). RSLs are not de facto cleanup standards for a Superfund site, but they do provide a good indication of whether actions may be needed. In September 2011, EPA completed a review of the TCE toxicity literature and posted both cancer and non-cancer toxicity values on IRIS, which resulted in lower RSLs for TCE. The screening level for TCE chronic exposure for cancer excess risk level of  $1 \times 10^{-6}$  is 0.44  $\mu\text{g/L}$ . EPA uses an excess cancer risk range between  $1 \times 10^{-4}$  and  $1 \times 10^{-6}$  for assessing potential exposures, which means a TCE concentration between 0.44 and 44  $\mu\text{g/L}$ . The current Maximum Contaminant Level (MCL) for TCE of 5  $\mu\text{g/L}$  is within the revised protective carcinogenic risk range. EPA's 2011 Toxicological Review for TCE also developed safe levels that include at least a 10-fold margin of safety for health effects other than cancer. Any concentration below the non-cancer RSL indicates that no adverse health effect from exposure is expected. Concentrations significantly above the RSL may indicate an increased potential of non-cancer effects. The non-cancer screening level for TCE is 2.6  $\mu\text{g/L}$ . EPA considers the TCE MCL of 5  $\mu\text{g/L}$  protective for both cancer and non-cancer effects (<http://water.epa.gov/drink/contaminants/basicinformation/trichloroethylene.cfm>).

Toxicity values for the other groundwater contaminants of concern have not changed within the last five years.

### Soil

There have been no toxicity value changes to contaminants of potential concern (PAHs, arsenic, copper, chromium, benzene, toluene) evaluated in the risk assessment in the past five years. Only BaP was presented in the ROD because it was a large contributor to excess cancer risk. PAHs<sup>2</sup> are currently under review, as part of EPA's IRIS reassessment program. Any change to toxicity values for these chemicals will be addressed in future five-year reviews.

### 6.3.3. Ecological Risk Assessment Review

An ecological risk assessment was presented in the 1997 ROD. The chemical of concern and media of concern were the same for ecological risk as for the human health risk. The Site is located near the boundary of the Sacramento Valley and the Sierra Nevada foothills.

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<sup>1</sup> Most notably are TCE and 1,4 dioxane, but a complete list by date can be found at the following website: <http://cfpub.epa.gov/ncea/iris/index.cfm>

<sup>2</sup> IRIS toxicity assessment revisions that are in the near-final stage (External Peer Review) can be found at the following website: [http://cfpub.epa.gov/ncea/iris\\_drafts/erd.cfm](http://cfpub.epa.gov/ncea/iris_drafts/erd.cfm)

The 1997 ROD describes the primary habitat on the Site as non-native grassland. The Fueling Area is highly disturbed with large areas of unvegetated concrete, gravel, and weedy patches. In the Unfenced Area, a few foothills pines and other species associated with the Foothill Woodland plant community occur in a small portion of this area. The remainder of this area is dominated by non-native grasses and other weedy species.

Animals observed during site visits (as described in the 1997 ROD) include jackrabbit, turkey vulture, western meadowlark, and California ground squirrel. Other species that could be expected to occur include American crow, scrub jay, deer mouse, western fence lizard, and southern alligator lizard. No sensitive habitats or wildlife species were found on-site.

The 1997 ROD assessed that the Fueling Area lacks any habitat suitable for environmental receptors hence there are no complete pathways of exposure between potential points of contact and environmental receptors of concern. The Unfenced Area generally contains low quality wildlife habitat and very few wildlife species. The very low levels of contamination in this area do not pose a threat to plants and wildlife.

Environmental risk at the Site remains the same as that assessed in the 1997 ROD with no complete exposure pathways between potential points of contact and environmental receptors of concern.

## 6.4. *Data Review*

### 6.4.1. Soil

The soil data analyzed for this FYR were obtained from the following documents:

- Draft Soil Remedial Action Report (Dames and Moore 1998), and
- Draft Supplemental Sampling and Analysis Report (Dames and Moore 1999)

The ROD required excavation of soil in a 1-acre area within the Fueling Area to reduce residual contamination of cPAH to a benzo(a)pyrene (BaP) equivalent of 0.41 mg/kg. Soil removal occurred in July 1998. Soil was removed to a depth of 1 foot except in a small area where soil was excavated to a depth of 2 feet (Figure 3). The extra foot of soil was removed based on observations of petroleum staining and coal fragments at the base of the initial excavation. Approximately 1,720 tons of soil were removed and shipped by rail to the ECDC Environmental landfill near Price, Utah. Following the excavation five composite samples were collected to represent the excavation subgrade. Each composite sample consisted of four sub-samples. Figure 3 presents the sub-sample locations and the lateral extent of excavation. At the completion of the excavation and confirmational sampling, the excavation was backfilled with clean fill. Analytical results from these five composite samples (Table 7) showed that residual cPAH concentrations as BaP met the ROD requirement and pose a  $10^{-6}$  cancer risk based on EPA's 2012 industrial soil RSL.

**Table 7. Composite Confirmation Sample Results**

| <b>Sample ID</b>    | <b>BaP equivalent concentration (mg/kg)</b> |
|---------------------|---|
| FA-CONF-1           | 0.000077                                    |
| FA-CONF-2           | 0.000042                                    |
| FA-CONF-3           | 0.005850                                    |
| FA-CONF-4           | 0.085915                                    |
| FA-CONF-5           | 0.002987                                    |
| ROD cleanup level   | 0.410                                       |
| Industrial Soil RSL | 0.210                                       |

Supplemental sampling was performed in December 1998 in response to an EPA request for additional characterization of post-remediation residual cPAHs. Discrete samples were collected at varying depths within the former excavation subgrade at the four sub-sample locations that made up the composite samples FA-CONF-3, FA-CONF-4, and FA-CONF-5. Two additional discrete sample locations were sampled within the area where the extra foot of soil was removed. A total of fourteen soil sample locations were identified (Figure 4). Table 8 summarizes the results of supplemental samples.

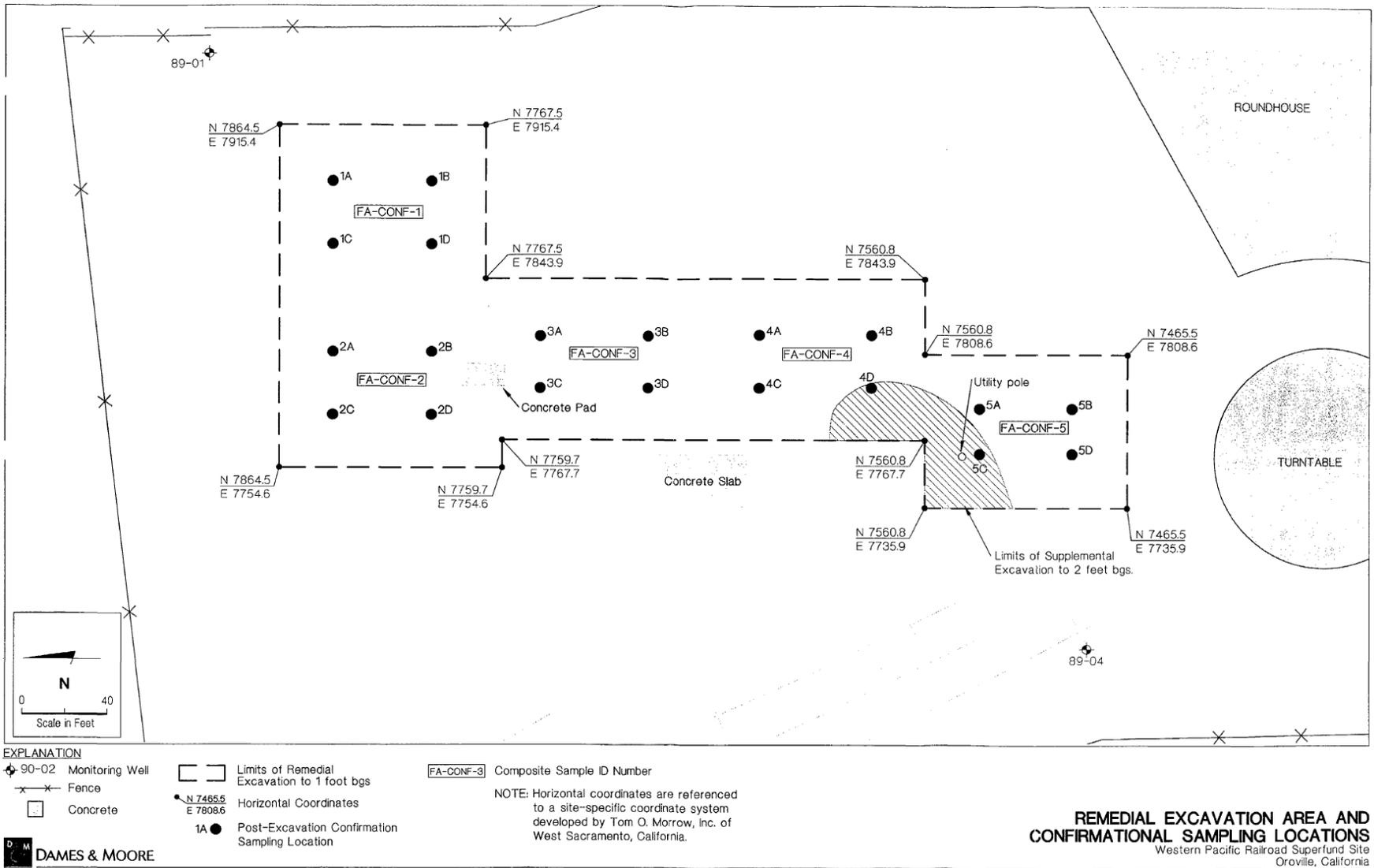


Figure 3. Soil Excavation Area and Composite Confirmation Sample Locations

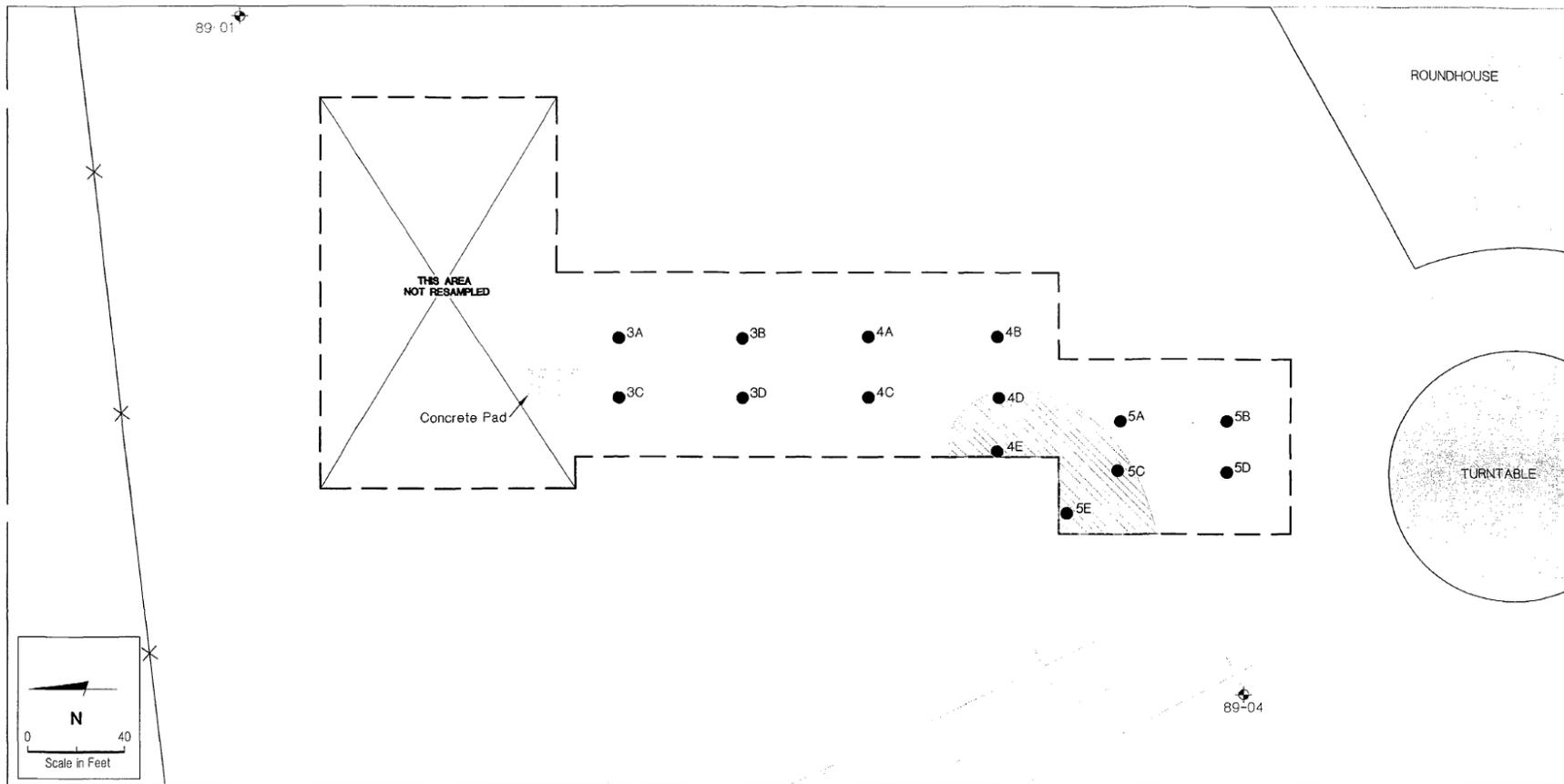
**Table 8. Supplemental Sampling Results**

| Original Confirmation Sample | Sample ID               | Sample Depth (ft) | BaP equivalent concentration (mg/kg) |
|------------------------------|-------------------------|-------------------|--------------------------------------|
| FA-CONF-3                    | SUP-3A-1.0              | 1.0               | 0.000046*                            |
| FA-CONF-3                    | SUP-3B-1.5              | 1.5               | 0.001203                             |
| FA-CONF-3                    | SUP-3B-2.5              | 2.5               | 0.000015*                            |
| FA-CONF-3                    | SUP-3C-1.0              | 1.0               | 0.000015*                            |
| FA-CONF-3                    | SUP-3C-1 (split)        | 1.0               | 0.000051*                            |
| FA-CONF-3                    | SUP-3D-1.0              | 1.0               | 0.000153*                            |
| FA-CONF-3                    | SUP-3D-2.5              | 2.5               | 0.000015*                            |
| FA-CONF-4                    | SUP-4A-1.0              | 1.0               | 0.000778                             |
| FA-CONF-4                    | SUP-4A-3.5              | 3.5               | 0.000077*                            |
| FA-CONF-4                    | SUP-4B-1.0              | 1.0               | 0.00153*                             |
| FA-CONF-4                    | SUP-4B-1.0(split)       | 1.0               | 0.002987*                            |
| FA-CONF-4                    | SUP-4B-3.5              | 3.5               | 0.000765*                            |
| FA-CONF-4                    | SUP-4C-1.0              | 1.0               | 0.000765*                            |
| FA-CONF-4                    | SUP-4C-5.0              | 5.0               | 0.000153*                            |
| FA-CONF-4                    | SUP-4D-2.5              | 2.5               | 0.003825*                            |
| N/A                          | SUP-4E-2.0              | 2.0               | 0.000765*                            |
| N/A                          | SUP-4E-5.5              | 5.5               | 0.000153*                            |
| FA-CONF-4                    | SUP-4F-1.0 <sup>1</sup> | 1.0               | 0.000153*                            |
| FA-CONF-4                    | SUP-4F-5.0 <sup>2</sup> | 5.0               | 0.000765*                            |
| FA-CONF-5                    | SUP-5A-1.5              | 1.5               | 0.000021                             |
| FA-CONF-5                    | SUP-5B-1.5              | 1.5               | 0.000765*                            |
| FA-CONF-5                    | SUP-5C-2.5              | 2.5               | 0.000765*                            |
| FA-CONF-5                    | SUP-5C-5.0              | 5.0               | 0.000765*                            |
| FA-CONF-5                    | SUP-5D-1.25             | 1.25              | 0.000015*                            |
| FA-CONF-5                    | SUP-5D-5.5              | 5.0               | 0.000765*                            |
| N/A                          | SUP-5E-2.0              | 2.0               | 0.000765*                            |
| N/A                          | SUP-5E-5.5              | 5.5               | 0.000765*                            |

1 – SUP-4F-1.0 is a duplicate of SUP-4C-1.0

2 – SUP-4F-5.0 is a duplicate of SUP-4C-5.0

\*- No cPAHs were detected in sample. BaP equivalent concentrations are based on one-half the reporting limit.



**EXPLANATION**

- ◆ 90-02 Monitoring Well
- x-x- Fence
- Concrete
- 1A ● Supplemental Sampling Location
- ▭ Limits of Remedial Excavation to approximately 2 feet bgs
- ▭ Limits of Remedial Excavation to approximately 1 foot bgs

NOTE: Horizontal coordinates are referenced to a site-specific coordinate system developed by Tom O. Morrow, Inc. of West Sacramento, California.



**SUPPLEMENTAL SAMPLING LOCATIONS**  
 Western Pacific Railroad Superfund Site  
 Oroville, California

**Figure 4. Supplemental Investigation Sampling Locations**

The samples listed in Table 8 were collected to a target depth of 6 feet below existing ground surface using a geoprobe or hand auger. Sample locations 3A and 3B were not sampled at depth because examination of the core showed no evidence of impacts (i.e., no staining, odor, or non-soil material).

For the 1998 supplemental sampling results, cPAHs were not detected in many samples. For non-detects, the BaP equivalent concentrations were calculated based on one-half the reporting limit. All sample results show that BaP equivalent concentrations are less than the ROD cleanup level of 0.41 mg/kg as BaP and the 2012 industrial soil RSL of 0.21 mg/kg.

Three additional cPAHs were identified in the 2012 RSLs: benzo(j)fluoranthene, dibenzo(a,e,) pyrene, and 7,12-dimethylbenz(a)anthracene. These compounds were not included in the BaP equivalent concentration calculations because they were not included in the standard analyte list contained in the sampling reports. The equivalent concentrations presented in Tables 7 and 8 are at least an order of magnitude less than the ROD cleanup level and the BaP RSL. The inclusion of these additional cPAHs would not cause the equivalent concentrations to exceed either the ROD cleanup level or the BaP RSL.

#### 6.4.2. Groundwater

There is no routine groundwater monitoring conducted at the Site; instead, groundwater samples are collected and analyzed periodically in support of the five-year reviews. Additionally, groundwater is routinely sampled and analyzed at the nearby California Water Service production well CWS-1 used for public water supply.

Groundwater monitoring data reviewed as part of this report consisted of past groundwater monitoring data and data from groundwater collected on January 10, 2013, from one primary and one field duplicate sample. Ground water was collected by UPRR's remedial subcontractor (Blaine Tech Services) from monitoring well MW-89-02 and from former extraction well EW-2 (see Figure 2). Split samples were also collected by EPA at these two wells. UPRR samples were analyzed by Kiff Analytical Services of Davis, California, while EPA split samples were delivered to and analyzed by the EPA Region 9 laboratory in Richmond, California.

UPRR sample results indicated detections of 1,1-DCA in both primary and field duplicate samples from well MW-89-02 at a concentration of 7.9 µg/L, above the MCL of 5 µg/L. 1,1-DCA was detected at well EW-2 at 1.2 µg/L. 1,1-DCE and 1,1,1-TCA were also detected in low concentrations, well below their respective MCLs, at all sampled wells. Low-level detections of TCE were present at wells MW-89-02 and MW-99-01, but not at EW-2.

EPA split sampling results were similar to those of UPRR. EPA sample results indicated 1,1-DCA was detected in both the primary and field duplicate samples from well MW-89-02 at concentrations of 7.4 µg/L and 8.3 µg/L, respectively. 1,1-DCA was also detected at well EW-2, located within close proximity to well MW-89-02, at a concentration of 1.3 µg/L. Low-level detections of 1,1-DCE and 1,1,1-TCA were also detected at well MW-89-02; however, concentrations of these constituents were below their respective MCLs. Results of UPRR sampling as well as EPA split sampling on January 10, 2013, are summarized in Table 9.

**Table 9. January 2013 Groundwater Sample Results for ROD Contaminants of Concern (COC)**

| Well ID                     | 1,1-DCE (µg/L) | 1,1,1-TCA (µg/L)          | 1,1-DCA (µg/L) | TCE (µg/L)                |
|-----------------------------|----------------|---------------------------|----------------|---------------------------|
| MW-89-02                    | 0.99           | 1.7                       | <b>7.9</b>     | 0.28                      |
| MW-89-02 (field duplicate)  | 1.0            | 1.7                       | <b>7.9</b>     | 0.28                      |
| MW-89-02*                   | 0.8            | 1.4                       | <b>7.4</b>     | <0.5                      |
| MW-89-02 (field duplicate)* | 1.0            | 1.7                       | <b>8.3</b>     | 0.3 J-flagged (estimated) |
| EW-2                        | 0.14           | 0.28                      | 1.2            | <0.1                      |
| EW-2*                       | <0.5           | 0.3 J-flagged (estimated) | 1.3            | <0.5                      |
| ROD cleanup level           | 6              | 200                       | 5              | 5                         |

Notes:

Asterisk (\*) indicates results are from EPA split sample

Non-detect results reported to laboratory quantitation limits

Bold values indicates results greater than ROD cleanup levels

1,1-DCA has been the lone contaminant of concern detected above its respective MCL since five-year review monitoring began. The only location where 1,1-DCA was detected above its MCL was well MW-89-02. When considering groundwater analytical results for 1,1-DCA, it is evident that concentration has slowly but steadily increased since 2002 (see Table 10).

**Table 10. UPRR Groundwater Sample Results for 1,1-DCE at Well MW-89-02 Since 2002**

| Well ID  | Sample Date | 1,1-DCA (µg/L) |
|----------|-------------|----------------|
| MW-89-02 | 7/18/2002   | 1.4            |
|          | 3/13/2008   | 4.0            |
|          | 5/22/2008   | 5.3            |
|          | 4/1/2010    | 3.5            |
|          | 1/10/2013   | 7.9            |

Well CWS-1 is located near the Site and is leased by Union Pacific Railroad to California Water Service (CWS) (Figure 2). CWS confirmed with EPA via personal communication that CWS continues to use well CWS-1 for public water supply on an infrequent basis. When used, water from CWS-1 is blended with well water from other supply wells farther from the Site and with surface water from the Feather River. Construction details for CWS-1 are unavailable; however, CWS has indicated to EPA they believe the well is screened across both the upper and lower aquifers ranging in depth from about 55 to 152 feet.

CWS samples CWS-1 on a quarterly basis for volatile organic compounds (VOCs) analysis (including 1,1-DCA). Prior to 2009, volatile organics were tested at this well annually. Historical data indicate that low levels of 1,1-DCE and 1,1-DCA (maximum 0.40 and 1.44 µg/L, respectively) were detected in this well between 1985 and 1992. Since 1992, 1,1-DCA has been detected at CWS-1 only twice but at low concentrations: 0.04 µg/L on January 2011 and 0.07 µg/L on January 2012. 1,1-DCE has not been detected since 1992. Also of note is the fact that tetrachloroethylene has shown up in low concentrations (up to 0.48 µg/L; MLC is 5 µg/L) at CWS-1 since 2009; however, this chemical is not listed in the ROD as a COC for groundwater.

Historical data indicated a consistent west-southwesterly flow direction with a gradient magnitude of 0.003 feet per foot. The flow direction historically has been from MW-89-02 and EW-2 towards CWS-01, approximately 700 feet hydraulically down-gradient from the other two wells.

## 6.5. *Site Inspection*

A site inspection was conducted at the Western Pacific Railroad Site on January 10, 2013. The site inspection was conducted by EPA with UPRR in attendance. See the Site Inspection Checklist for details of the inspection, photographs, and a roster of attendees (Appendix C).

## 6.6. *Interviews*

During the FYR process, Mr. Luis Topete, Associate Planner with the City of Oroville was interviewed. The purpose of the interview was to document the perceived status of the Site and any perceived problems or successes with the remedy that was implemented. The interview was conducted on January 8, 2013, via phone. The interview is summarized below and complete interview is included in Appendix D.

Mr. Topete indicated that there were no issues or concerns from the city or residents. Any complaints would have been communicated to the planning department, which works closely with the police department. The site is currently vacant. There have been inquiries related to potential development of the site but no further interest has been observed.

## 6.7. *Institutional Controls*

The remedy in the ROD includes institutional controls that restrict the future use of the site to industrial use only.

As described above in Section 4.2, UPRR filed the Covenant to Restrict Use of Property with the Butte County Recorder's Office on March 1, 2001, prohibiting the future use of the property for specific uses and prohibiting the extraction of groundwater except for remediation purposes without prior written EPA approval. The Covenant 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. This Covenant is considered a proprietary control. A title search was conducted on the Western Pacific property as part of this FYR to verify that this deed restriction remains in place. The Covenant has been documented as Instrument No. 2001-008214 to Land Parcels No. APN 035-130-080/081 and APN 078-170-015/016, recorded March 1, 2001. Title search summary documentation is included in Appendix E.

The Covenant specifically prohibits the Site's land use for residential purposes, hospitals for humans, public or private schools for persons under 21 years of age, day care centers, or any other purpose involving residential occupancy on a 24-hour basis. None of these land uses has occurred; the Site remains an industrial property as verified during the FYR site inspection.

Extraction of groundwater for purposes other than site remediation is also prohibited without prior written approval by EPA. In 2008 UPRR requested approval to operate the California Water Service well and

EPA gave its approval in a September 10, 2008, letter to UPRR. Currently, water from well CWS-1 is withdrawn for consumptive use. This water is routinely tested for Site COCs, with results reported to EPA, and no COCs approaching their respective MCLs have been detected in this well since 1992.

Table 11 lists the ICs associated with areas of interest at the Site.

**Table 11. Institutional Controls Summary Table**

| Media        | ICs Called for in the Decision Document | Impacted Parcel(s)                          | IC Objective                                    | Instrument in Place  | Notes  |
|--------------|---|---|---|--|--|
| Ground Water | Yes                                     | APN 035-130-080/081 and APN 078-170-015/016 | To prevent consumptive use of site groundwater. | A covenant was filed in 2001 restricting the installation of groundwater wells for purposes other than site remediation without permission from EPA. | CW-1, near the Site, is used as a drinking water well by California Water Service company. |
| Soil         | Yes                                     | APN 035-130-080/081 and APN 078-170-015/016 | To prevent non-industrial use at the site.      | A covenant was filed in 2001 with Butte County restricting specific future land uses.  | No current development at the Site.  |

## 7. Technical Assessment

### 7.1. Question A: Is the remedy functioning as intended by the decision documents?

The soil remedy of excavation and off-site disposal of surface soil in a 1-acre area was completed by 1998, with site close-out and deletion from the NPL by 2001. Post-remedial action soil sample results showed that BaP equivalent concentrations were less than the ROD cleanup level and industrial soil RSLs, and the identification of three cPAHs in the 2012 RSLs not originally included in the BaP equivalent concentration calculations would not cause the equivalent concentrations to exceed either the ROD cleanup level or the RSL.

The groundwater remedy of groundwater extraction, treatment, and reinfiltration initially achieved MCLs in groundwater in 1997; the system was permanently shut down in 1999 and site close-out and deletion from the NPL occurred in 2001. Remedial action performance was as expected and cleanup levels were being achieved at the Site in groundwater at all monitored locations until 2008. Recent groundwater data conducted in support of five-year review reporting has shown concentrations of one contaminant of

concern, 1,1-DCA, to be slightly on the rise at one well, where it has, at times, been just above the state MCL of 5 µg/l. Groundwater sampling and testing should continue to monitor 1,1-DCA behavior on-site. Although a slow but steady increase in COC concentration at one monitored location near the former source area is of concern, it does not affect short-term protectiveness because there is no potential for exposure to groundwater from this monitoring well. Future long-term protectiveness could potentially be at risk should 1,1-DCA in excess of the MCL reach water supply well CWS-1.

Review of all site-related documents, ARARs, risk assumptions, institutional controls, and the results of the site inspection and interviews indicates that the remedy continues to function as intended. The removal of the contaminated soil and replacement with clean fill has achieved the remedial objective to reduce exposure to contaminants in the soil. The implementation and maintenance of institutional controls has prevented exposure to subsurface soils with contaminant concentrations in excess of industrial standards, and has prevented exposure to contaminated groundwater. No activities were observed that ran counter to the institutional controls in place.

### ***7.2. Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of remedy selection still valid?***

No standards or to-be-considered (TBC) requirements have been revised, and there have been no changes in risk assessment methodologies.

Land use is to remain industrial as stipulated in a covenant filed by UPRR with the Butte County Recorder's Office. No human health or ecological routes of exposures have changed and no new exposure pathways identified. Vapor intrusion is not of concern at the site because buildings no longer exist on Site, groundwater concentrations for toxic and/or carcinogenic volatile organic compounds have been low, and the Site remains industrial with low exposure potential.

TCE toxicity has changed, indicating a higher risk from exposure than previously considered; however, TCE in groundwater has not recently been detected at or near its MCL. The site cleanup levels for groundwater are the MCLs, which are still considered protective for both cancer and non-cancer effects. For soil, no toxicity factors have changed that could affect the protectiveness of the remedy.

In consideration of the above, the exposure assumptions, toxicity data impacts, cleanup levels, ARARs, and remedial action objectives selected at the time of the remedy are still valid.

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

EPA and UPRR sampled site groundwater in January 2013 in support of this five-year review. Findings indicated continued low-level 1,1-DCA contamination slightly above the MCL in groundwater at one monitoring well location near the former source area. Analytical results at the public water supply well

utilized by CWS, downgradient of the elevated 1,1-DCA, indicate no detection of 1,1-DCA based on the latest monitoring data for that well (April 2012 and January 2013).

#### **7.4. Technical Assessment Summary**

Review of all site-related documents, ARARs, risk assumptions, institutional controls, along with results of the site inspection and interviews, indicate that the remedy continues to function as intended. The exposure assumptions, toxicity data impacts, cleanup levels, ARARs, and remedial action objectives selected at the time of the remedy are still valid. The only information that has come to light that could potentially affect future long-term protectiveness is an increase in 1,1-DCA observed at one monitoring well. Continued groundwater monitoring is recommended to evaluate future 1,1-DCA behavior.

### **8. Issues**

The one issue noted during this review is the rise in 1,1-DCA concentration at one monitoring well (MW-89-2) to levels above its MCL of 5 µg/L. This issue does not affect current protectiveness but if the 1,1-DCA concentration continues to increase and this COC migrates, it could affect future protectiveness.

### **9. Recommendations and Follow-up Actions**

The lone recommendation is for continued groundwater monitoring at wells that have historically contained 1,1-DCA since 2002, or wells between the former source area and the California Water Service supply well CWS-1. This grouping of wells includes MW-89-02, EW-1, and EW-2. It is recommended that these wells be sampled, at a minimum, every two years in support of future CERCLA five-year reviews, or at a frequency that provides sufficient information to ensure continued protectiveness of the remedy. Based on historical groundwater data and groundwater flow rates, EPA believes that the 1,1-DCA in groundwater is not a threat to the water supply well. However, implementation of this recommendation will allow EPA to continue to evaluate the effectiveness of the remedy.

### **10. Protectiveness Statement**

The remedy at the Western Pacific Railroad Superfund Site currently protects human health and the environment in the short term because there is no exposure potential to contaminants left in site soil above industrial cleanup standards or to site groundwater. However, in order for the remedy to ensure protectiveness in the long term, groundwater monitoring must continue in order to demonstrate the decline of residual 1,1-DCA to below its MCL.

## 11. Next Review

This is a site that requires ongoing statutory FYRs as long as waste is left on site that does not allow for unlimited use and unrestricted exposure. The next FYR will be due within five years of the signature date of this FYR, in the year 2018.

# **APPENDICES**

enforcement bulletin warning that its members might try to attack police or prosecutors.

Four top leaders of the Aryan Brotherhood of Texas were indicted in October for crimes ranging from murder to drug trafficking. Two months later, authorities issued the bulletin warning that the gang might try to retaliate against law enforcement for the investigation that led to the arrests of 34 of its members on federal charges.

Kaufman County District Attorney Mike McLelland and his wife were found dead Saturday in their East Texas home. The killings were especially jarring because they happened just a couple of months after one of the county's assistant district attorneys, Mark Hasse, was killed in a parking lot near his courthouse office.

McLelland was part of a multi-agency task force that took part in the investigation of the Aryan Brotherhood. The task force also included the FBI, the Drug Enforcement Administration as well as police departments in

Terry Pelz, a former Texas prison warden and expert on the Aryan Brotherhood said killing law enforcement representatives would be uncharacteristic of the group.

"They don't go around killing officials," he said. "They don't draw heat upon themselves."

But Pelz, who worked in the Texas prison system for 21 years, added that the gang has a history of threatening officials and of killing its own members or rivals. He suggested if the Aryan Brotherhood was behind the slayings in Kaufman County, some sort of disruption in the gang's operations might have prompted their retaliation.

That disruption might have come last year, when federal prosecutors in Houston in November announced indictments against 34 alleged members of the gang, including four of its top leaders in Texas. At the time, prosecutors called the indictment "a devastating blow to the leadership" of the gang.

Meanwhile, deputies escorted some Kaufman County

according to a search warrant affidavit.

When they arrived, investigators found the two had been shot multiple times. Cartridge casings were scattered near their bodies, the affidavit said.

Authorities have not discussed a motive.

"I don't want to walk around in fear every day ... but on the other hand, two months ago, we wouldn't be having this conversation," County Judge Bruce Wood, the county's top administrator, said Monday at a news conference. The killings also came less than two weeks after Colorado's prison chief was shot to death at his front door, apparently by an ex-convict.

Law enforcement agencies throughout Texas were on high alert, and steps were being taken to better protect other DAs and their staffs.

In Harris County, which includes Houston, District Attorney Mike Anderson said he accepted the sheriff's offer of 24-hour security for him and his family.

## BRIEFS

### Chico State student taken to hospital after alcohol overdose

CHICO — A 19-year-old Chico State student allegedly had to be transported to the hospital after an apparent alcohol overdose.

Friends of the unidentified woman reported it to authorities after she allegedly passed out under a tree at about 6 p.m. Monday on the Chico State University campus, near Tehama Hall.

She was taken by ambulance to Enloe Medical Center. Her condition is unknown.

According to police, the woman had attended a party on the 800 block of Rio Chico Way.

Police arrived to the party, which was littered with people and trash, and dispersed the crowd at about 6:30 p.m.

### Two separate nutrition lectures set in Chico, Oroville this week

Two separate lectures about nutrition will be held Wednesday and Friday during National Public Health Week.

Wednesday's event will go 11 a.m. to 1 p.m. at Oroville library, 1820 Mitchell Ave. A nutrition specialist from Butte County Public Health Department will answer questions about nutrition and breastfeeding.

Health education staff will be at Chico library, East First and Sherman avenues, from 9-11 a.m. Friday with information on nutrition, emergency response and environmental health.

For information, visit [www.buttecounty.net/publichealth](http://www.buttecounty.net/publichealth).

### Supervisor Teeter to be at Butte Valley town hall meeting Thursday

BUTTE VALLEY — Butte County 5th District Supervisor Doug Teeter will hold a town hall meeting Thursday for residents in Butte Valley.

Teeter will take questions and listen to residents' concerns starting at 6 p.m.

The meeting, at Spring Valley Ranch, 3900 Doubletree Road, off Clark Road north of Butte Campus Drive in Butte Valley, will be hosted by Mark and Tania Dunlap.

For questions, call Teeter's office, 872-6304, 747 Elliott Road in Paradise, or email [dteeter@buttecounty.net](mailto:dteeter@buttecounty.net).

### Oklahoma board pushes for charges against oral surgeon

TULSA, Okla. (AP) — Citing the scope of a public health scare involving thousands of patients of an Oklahoma oral surgeon, the head of the state's dentistry board said Monday she wants prosecutors to consider pursuing criminal charges.

Nearly 1,000 of Dr. W. Scott Harrington's 7,000 patients have now been tested in Tulsa for hepatitis B and C as well as HIV, the virus that causes AIDS. About 400 people showed up at a clinic north of downtown Saturday, the first day the free tests were offered, and nearly 560 people showed up Monday.

Susan Rogers, the executive director of the Oklahoma Board of Dentistry, told The Associated Press that she talked with Tulsa County District Attorney Tim Harris on Monday to discuss whether Harrington is criminally liable.

"We're looking for the witnesses and individuals who can testify for us that this is what happened to me in (Harrington's) office," Rogers told AP.

The 17-count complaint filed last week by Rogers' office called Harrington a "menace to the public health." The complaint also said officials found rusty instruments, potentially contaminated drug vials and improper use of a machine designed to sterilize tools at Harrington's two Tulsa-area offices. Harrington and his staff could face at least two felony charges, Rogers said, including practicing dentistry without a license and aiding or abetting another person who is violating the state's dental act.

## FREE Fair Housing Workshop

Domestic Violence, Occupancy Standards, Pets/ Companion Pets, Criminal and Megan's Law

### Includes Certificate of Attendance and Refreshments

Wednesday April 3rd, 2013

6:30-8:30pm

City Council Chambers

421 Main St., Chico

Please Register by Calling 530.345.1321

Claudia Yorton, CPM® and Laurie Raucher, CPM®

Co-Sponsored with the City of Chico  
1-800-735-2929 Handicap Accessible  
North Valley Property Owners Association



### U.S. EPA BEGINS THIRD REVIEW OF CLEANUP AT THE WESTERN PACIFIC RAILROAD SUPERFUND SITE

The U.S. Environmental Protection Agency (EPA) is conducting a review of cleanup actions at the Western Pacific Railroad Superfund Site in Oroville, California to ensure they remain protective of human health and the environment. The site was cleaned up and deleted from the National Priorities List in 2001. This review will cover the status of the site groundwater and confirm that the property is in compliance with the covenant to restrict its use.

This is the Third Five-Year Review at the Western Pacific Railroad site. The last one, conducted in 2008, found that the cleanup continued to be protective of human health and the environment. The recommendation made at that time was to monitor the potential for off-site release of 1,1-DCA. In 2010, EPA conducted additional groundwater sampling and determined that the concentration of 1,1-DCA in the groundwater was below the state drinking water standard.

During the upcoming review, EPA will take groundwater samples at the site. The methods, findings and conclusions from the review will be documented in the Third Five-Year Review Report. Upon completion, a copy of the final report will be posted on EPA's website and a notice will be placed in a local paper.

EPA invites the community to learn more about the review process and provide input to EPA. One way to get involved is to contact Vicki Rosen, Community Involvement Coordinator, at (415) 972-3244 or [rosen.vicki@epa.gov](mailto:rosen.vicki@epa.gov). You can obtain site information at EPA's website: [www.epa.gov/region9/westernpacificrailroad](http://www.epa.gov/region9/westernpacificrailroad). You can also obtain site information from the Superfund Records Center, 95 Hawthorne St., San Francisco, CA 94105, (415) 820-4700.

CNS#2464527



### U.S. EPA Begins Fourth Five-Year Review of Cleanup At Koppers, Inc. Superfund Site

The U.S. Environmental Protection Agency (EPA) is conducting a review of the cleanup actions being taken at the Koppers, Inc. Superfund site located between Baggett Marysville Road and Georgia Pacific Way (East of Highway 70) in Oroville, California. The review will evaluate the effectiveness of cleanup actions for soil and groundwater at the site.

The primary objective of the review is to assure that the cleanup activities undertaken by the potentially responsible parties, under EPA oversight, are protective of both human health and the environment. Cleanup goals established for the site include restoration of groundwater to drinking water standards and cleanup of contaminated soils to within acceptable federal and state standards for industrial use. To achieve these goals, the following cleanup activities have taken place: consolidation of contaminated soils in two RCRA landfill cells (completed in 2002); groundwater extraction, treatment and reinjection; and soil excavation and treatment. The Fourth Five-Year Review will evaluate the short and long-term protectiveness of the continuing cleanup actions. Such reviews will continue every five years until the site is deemed no longer hazardous.

The Third Five-Year Review, conducted in 2008, found that the cleanup was protective of human health and the environment. There were no specific recommendations made at that time except to continue with the remedies in place and monitor the soil disposal cells.

EPA invites the community to learn more about the review process and provide input on the cleanup. One way to get involved is to contact Vicki Rosen, EPA Community Involvement Coordinator, (415) 972-3244 or [rosen.vicki@epa.gov](mailto:rosen.vicki@epa.gov). You can get more site information on EPA's website: [www.epa.gov/region9/koppers](http://www.epa.gov/region9/koppers) or from the Superfund Records Center, 95 Hawthorne St., San Francisco, CA 94105, (415) 820-4700. When the review is completed, a copy of the Fourth Five-Year Review Report, including the methods, findings and conclusions, will be posted on EPA's website and a notice will be placed in the local paper.

CNS#2464530

## **Appendix B**

### **List of Documents Reviewed**

California Water Service 2013. Sample Point History Spreadsheet for Sample Point Code ROR-W-901-01 (CWS-1). March 2013.

Dames and Moore 1999. Draft Supplemental Sampling and Analysis Report, Soil Remedial Action, Western Pacific Railroad Superfund Site, Oroville, California, March 1999.

Dames and Moore 1998. Draft Soil Remedial Action Report, Western Pacific Railroad Superfund Site, Oroville, California. August 1998.

Dames and Moore 1997. Remedial Investigation and Risk Assessment Report, Western Pacific Railroad Superfund Site, Oroville, California. June 1997.

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

USEPA 2013. Analytical Testing Results – Project R13S35 (Western Pacific Railroad Superfund Site). EPA Region 9 Laboratory. February 2013.

USEPA 2013. Interview Documentation Form, Western Pacific Railroad Superfund Site. January 2013.

USEPA 2013. Site Inspection Checklist, Western Pacific Railroad Superfund Site. January 2013.

USEPA 2008. Second Five-Year Review Report for Western Pacific Railroad Superfund Site, Butte County, California. September 2008.

USEPA 2003. First Five-Year Review Report for Western Pacific Railroad Superfund Site, Oroville, California. September 2003.

USEPA 1997. Record of Decision for Western Pacific Railroad Superfund Site, Oroville, California. September 1997.

# APPENDIX C

## Site Inspection Checklist

| I. SITE INFORMATION  |   |   |   |      |   |  |  |   |  |  |
|--|---|---|---|------|---|--|--|---|--|--|
| Site name: <u>Western Pacific RR</u>   | Date of inspection: <u>1/10/13</u>  |   |   |      |   |  |  |   |  |  |
| Location and Region: <u>Oroville, CA, Reg 9</u>  | EPA ID: <u>CAD</u>  |   |   |      |   |  |  |   |  |  |
| Agency, office, or company leading the five-year review: <u>EPA</u>  | Weather/temperature: <u>Clear 48°</u>   |   |   |      |   |  |  |   |  |  |
| Remedy Includes: (Check all that apply) <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Landfill cover/containment<br/> <input type="checkbox"/> Access controls<br/> <input checked="" type="checkbox"/> Institutional controls<br/> <input type="checkbox"/> Groundwater pump and treatment<br/> <input type="checkbox"/> Surface water collection and treatment<br/> <input type="checkbox"/> Other _____               </td> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Monitored natural attenuation<br/> <input type="checkbox"/> Groundwater containment<br/> <input type="checkbox"/> Vertical barrier walls               </td> </tr> </table> |   | <input type="checkbox"/> Landfill cover/containment<br><input type="checkbox"/> Access controls<br><input checked="" type="checkbox"/> Institutional controls<br><input type="checkbox"/> Groundwater pump and treatment<br><input type="checkbox"/> Surface water collection and treatment<br><input type="checkbox"/> Other _____ | <input type="checkbox"/> Monitored natural attenuation<br><input type="checkbox"/> Groundwater containment<br><input type="checkbox"/> Vertical barrier walls |      |   |  |  |   |  |  |
| <input type="checkbox"/> Landfill cover/containment<br><input type="checkbox"/> Access controls<br><input checked="" type="checkbox"/> Institutional controls<br><input type="checkbox"/> Groundwater pump and treatment<br><input type="checkbox"/> Surface water collection and treatment<br><input type="checkbox"/> Other _____  | <input type="checkbox"/> Monitored natural attenuation<br><input type="checkbox"/> Groundwater containment<br><input type="checkbox"/> Vertical barrier walls |   |   |      |   |  |  |   |  |  |
| Attachments: <input type="checkbox"/> Inspection team roster attached <input type="checkbox"/> Site map attached   |   |   |   |      |   |  |  |   |  |  |
| II. INTERVIEWS (Check all that apply) <u>NA</u>  |   |   |   |      |   |  |  |   |  |  |
| 1. O&M site manager _____ <table style="width: 100%; border: none; margin-top: 5px;"> <tr> <td style="width: 40%; text-align: center;">Name</td> <td style="width: 20%; text-align: center;">Title</td> <td style="width: 40%; text-align: center;">Date</td> </tr> <tr> <td colspan="3">               Interviewed <input type="checkbox"/> at site   <input type="checkbox"/> at office   <input type="checkbox"/> by phone   Phone no. _____             </td> </tr> <tr> <td colspan="3">               Problems, suggestions; <input type="checkbox"/> Report attached _____             </td> </tr> </table>   |   | Name  | Title   | Date | Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone   Phone no. _____ |  |  | Problems, suggestions; <input type="checkbox"/> Report attached _____ |  |  |
| Name   | Title   | Date  |   |      |   |  |  |   |  |  |
| Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone   Phone no. _____  |   |   |   |      |   |  |  |   |  |  |
| Problems, suggestions; <input type="checkbox"/> Report attached _____  |   |   |   |      |   |  |  |   |  |  |
| 2. O&M staff _____ <table style="width: 100%; border: none; margin-top: 5px;"> <tr> <td style="width: 40%; text-align: center;">Name</td> <td style="width: 20%; text-align: center;">Title</td> <td style="width: 40%; text-align: center;">Date</td> </tr> <tr> <td colspan="3">               Interviewed <input type="checkbox"/> at site   <input type="checkbox"/> at office   <input type="checkbox"/> by phone   Phone no. _____             </td> </tr> <tr> <td colspan="3">               Problems, suggestions; <input type="checkbox"/> Report attached _____             </td> </tr> </table>  |   | Name  | Title   | Date | Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone   Phone no. _____ |  |  | Problems, suggestions; <input type="checkbox"/> Report attached _____ |  |  |
| Name   | Title   | Date  |   |      |   |  |  |   |  |  |
| Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone   Phone no. _____  |   |   |   |      |   |  |  |   |  |  |
| Problems, suggestions; <input type="checkbox"/> Report attached _____  |   |   |   |      |   |  |  |   |  |  |

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency City of Oroville  
 Contact Luis Topete Assoc. Planner 1/8/13 530-538-2408  
 Name Title Date Phone no.  
 Problems; suggestions; G Report attached see Interview Record

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Agency \_\_\_\_\_  
 Contact \_\_\_\_\_  
 Name Title Date Phone no.  
 Problems; suggestions; G Report attached \_\_\_\_\_

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Agency \_\_\_\_\_  
 Contact \_\_\_\_\_  
 Name Title Date Phone no.  
 Problems; suggestions; G Report attached \_\_\_\_\_

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Agency \_\_\_\_\_  
 Contact \_\_\_\_\_  
 Name Title Date Phone no.  
 Problems; suggestions; G Report attached \_\_\_\_\_

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4. **Other interviews** (optional) G Report attached.

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| III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply) <span style="float: right;">NA</span> |   |  |  |                                  |
|--|---|--|--|----------------------------------|
| 1.   | <b>O&amp;M Documents</b><br>G O&M manual<br>G As-built drawings<br>G Maintenance logs<br>Remarks _____  | G Readily available<br>G Readily available<br>G Readily available                        | G Up to date<br>G Up to date<br>G Up to date                 | G N/A<br>G N/A<br>G N/A          |
| 2.   | <b>Site-Specific Health and Safety Plan</b><br>G Contingency plan/emergency response plan<br>Remarks _____  | G Readily available<br>G Readily available   | G Up to date<br>G Up to date                                 | G N/A<br>G N/A                   |
| 3.   | <b>O&amp;M and OSHA Training Records</b><br>Remarks _____   | G Readily available  | G Up to date   | G N/A                            |
| 4.   | <b>Permits and Service Agreements</b><br>G Air discharge permit<br>G Effluent discharge<br>G Waste disposal, POTW<br>G Other permits _____<br>Remarks _____ | G Readily available<br>G Readily available<br>G Readily available<br>G Readily available | G Up to date<br>G Up to date<br>G Up to date<br>G Up to date | G N/A<br>G N/A<br>G N/A<br>G N/A |
| 5.   | <b>Gas Generation Records</b><br>Remarks _____  | G Readily available  | G Up to date   | G N/A                            |
| 6.   | <b>Settlement Monument Records</b><br>Remarks _____   | G Readily available  | G Up to date   | G N/A                            |
| 7.   | <b>Groundwater Monitoring Records</b><br>Remarks _____  | G Readily available  | G Up to date   | G N/A                            |
| 8.   | <b>Leachate Extraction Records</b><br>Remarks _____   | G Readily available  | G Up to date   | G N/A                            |
| 9.   | <b>Discharge Compliance Records</b><br>G Air<br>G Water (effluent)<br>Remarks _____   | G Readily available<br>G Readily available   | G Up to date<br>G Up to date                                 | G N/A<br>G N/A                   |
| 10.  | <b>Daily Access/Security Logs</b><br>Remarks _____  | G Readily available  | G Up to date   | G N/A                            |

| <b>IV. O&amp;M COSTS</b>  |   |   |  |            |                  |                      |            |       |                  |                      |            |          |            |            |       |                  |                      |            |          |            |            |       |                  |                      |            |          |            |            |       |                  |                      |            |          |            |            |       |                  |                      |
|---|---|---|--|------------|------------------|----------------------|------------|-------|------------------|----------------------|------------|----------|------------|------------|-------|------------------|----------------------|------------|----------|------------|------------|-------|------------------|----------------------|------------|----------|------------|------------|-------|------------------|----------------------|------------|----------|------------|------------|-------|------------------|----------------------|
| 1.  | <b>O&amp;M Organization</b>   | <input type="checkbox"/> State in-house<br><input type="checkbox"/> PRP in-house<br><input type="checkbox"/> Federal Facility in-house<br><input type="checkbox"/> Other _____  | <input type="checkbox"/> Contractor for State<br><input type="checkbox"/> Contractor for PRP<br><input type="checkbox"/> Contractor for Federal Facility |            |                  |                      |            |       |                  |                      |            |          |            |            |       |                  |                      |            |          |            |            |       |                  |                      |            |          |            |            |       |                  |                      |            |          |            |            |       |                  |                      |
| 2.  | <b>O&amp;M Cost Records</b>   | <input type="checkbox"/> Readily available <input type="checkbox"/> Up to date<br><input type="checkbox"/> Funding mechanism/agreement in place<br>Original O&M cost estimate _____ <input type="checkbox"/> Breakdown attached<br><br>Total annual cost by year for review period if available<br><br><table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">From _____</td> <td style="width: 10%;">To _____</td> <td style="width: 10%;">Date _____</td> <td style="width: 10%;">Date _____</td> <td style="width: 10%;">_____</td> <td style="width: 10%;">Total cost _____</td> <td style="width: 10%;">G Breakdown attached</td> </tr> <tr> <td>From _____</td> <td>To _____</td> <td>Date _____</td> <td>Date _____</td> <td>_____</td> <td>Total cost _____</td> <td>G Breakdown attached</td> </tr> <tr> <td>From _____</td> <td>To _____</td> <td>Date _____</td> <td>Date _____</td> <td>_____</td> <td>Total cost _____</td> <td>G Breakdown attached</td> </tr> <tr> <td>From _____</td> <td>To _____</td> <td>Date _____</td> <td>Date _____</td> <td>_____</td> <td>Total cost _____</td> <td>G Breakdown attached</td> </tr> <tr> <td>From _____</td> <td>To _____</td> <td>Date _____</td> <td>Date _____</td> <td>_____</td> <td>Total cost _____</td> <td>G Breakdown attached</td> </tr> </table> |  | From _____ | To _____         | Date _____           | Date _____ | _____ | Total cost _____ | G Breakdown attached | From _____ | To _____ | Date _____ | Date _____ | _____ | Total cost _____ | G Breakdown attached | From _____ | To _____ | Date _____ | Date _____ | _____ | Total cost _____ | G Breakdown attached | From _____ | To _____ | Date _____ | Date _____ | _____ | Total cost _____ | G Breakdown attached | From _____ | To _____ | Date _____ | Date _____ | _____ | Total cost _____ | G Breakdown attached |
| From _____  | To _____  | Date _____  | Date _____   | _____      | Total cost _____ | G Breakdown attached |            |       |                  |                      |            |          |            |            |       |                  |                      |            |          |            |            |       |                  |                      |            |          |            |            |       |                  |                      |            |          |            |            |       |                  |                      |
| From _____  | To _____  | Date _____  | Date _____   | _____      | Total cost _____ | G Breakdown attached |            |       |                  |                      |            |          |            |            |       |                  |                      |            |          |            |            |       |                  |                      |            |          |            |            |       |                  |                      |            |          |            |            |       |                  |                      |
| From _____  | To _____  | Date _____  | Date _____   | _____      | Total cost _____ | G Breakdown attached |            |       |                  |                      |            |          |            |            |       |                  |                      |            |          |            |            |       |                  |                      |            |          |            |            |       |                  |                      |            |          |            |            |       |                  |                      |
| From _____  | To _____  | Date _____  | Date _____   | _____      | Total cost _____ | G Breakdown attached |            |       |                  |                      |            |          |            |            |       |                  |                      |            |          |            |            |       |                  |                      |            |          |            |            |       |                  |                      |            |          |            |            |       |                  |                      |
| From _____  | To _____  | Date _____  | Date _____   | _____      | Total cost _____ | G Breakdown attached |            |       |                  |                      |            |          |            |            |       |                  |                      |            |          |            |            |       |                  |                      |            |          |            |            |       |                  |                      |            |          |            |            |       |                  |                      |
| 3.  | <b>Unanticipated or Unusually High O&amp;M Costs During Review Period</b> |   |  |            |                  |                      |            |       |                  |                      |            |          |            |            |       |                  |                      |            |          |            |            |       |                  |                      |            |          |            |            |       |                  |                      |            |          |            |            |       |                  |                      |
|   | Describe costs and reasons: _____<br>_____<br>_____<br>_____              |   |  |            |                  |                      |            |       |                  |                      |            |          |            |            |       |                  |                      |            |          |            |            |       |                  |                      |            |          |            |            |       |                  |                      |            |          |            |            |       |                  |                      |
| <b>V. ACCESS AND INSTITUTIONAL CONTROLS</b> <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A |   |   |  |            |                  |                      |            |       |                  |                      |            |          |            |            |       |                  |                      |            |          |            |            |       |                  |                      |            |          |            |            |       |                  |                      |            |          |            |            |       |                  |                      |
| <b>A. Fencing</b> <span style="font-size: 1.5em; color: blue;">NA</span>  |   |   |  |            |                  |                      |            |       |                  |                      |            |          |            |            |       |                  |                      |            |          |            |            |       |                  |                      |            |          |            |            |       |                  |                      |            |          |            |            |       |                  |                      |

|  |  |   |  |                              |
|--|--|---|--|------------------------------|
| 1.   | <b>Fencing damaged</b>                   | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> Gates secured | <input type="checkbox"/> N/A |
|  | Remarks _____<br>_____                   |   |  |                              |
| <b>B. Other Access Restrictions</b> <span style="font-size: 1.5em; color: blue;">NA</span> |  |   |  |                              |
| 1.   | <b>Signs and other security measures</b> | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> N/A           |                              |
|  | Remarks _____<br>_____                   |   |  |                              |

| <b>C. Institutional Controls (ICs)</b>                            |   |  |       |           |
|---|---|--|-------|-----------|
| <b>1. Implementation and enforcement</b>                          |   |  |       |           |
| Site conditions imply ICs not properly implemented                | G Yes   | <input checked="" type="radio"/> G No  | G N/A |           |
| Site conditions imply ICs not being fully enforced                | G Yes   | <input checked="" type="radio"/> G No  | G N/A |           |
| Type of monitoring (e.g., self-reporting, drive by)               | _____   |  |       |           |
| Frequency   | _____   |  |       |           |
| Responsible party/agency  | _____   |  |       |           |
| Contact   | _____   |  |       |           |
|   | Name  | Title                                  | Date  | Phone no. |
| Reporting is up-to-date   | G Yes   | G No                                   | G N/A |           |
| Reports are verified by the lead agency                           | G Yes   | G No                                   | G N/A |           |
| Specific requirements in deed or decision documents have been met | G Yes   | G No                                   | G N/A |           |
| Violations have been reported                                     | G Yes   | G No                                   | G N/A |           |
| Other problems or suggestions:                                    | G Report attached                                 |  |       |           |
| _____   |   |  |       |           |
| _____   |   |  |       |           |
| _____   |   |  |       |           |
| <b>2. Adequacy</b>  |   |  |       |           |
|   | <input checked="" type="radio"/> ICs are adequate | G ICs are inadequate                   | G N/A |           |
| Remarks   | _____   |  |       |           |
| _____   |   |  |       |           |
| <b>D. General</b>   |   |  |       |           |
| <b>1. Vandalism/trespassing</b>                                   |   |  |       |           |
|   | G Location shown on site map                      | G No vandalism evident                 |       |           |
| Remarks   | _____   |  |       |           |
| _____   |   |  |       |           |
| <b>2. Land use changes on site</b>                                |   |  |       |           |
|   | G N/A   |  |       |           |
| Remarks   | _____   |  |       |           |
| _____   |   |  |       |           |
| <b>3. Land use changes off site</b>                               |   |  |       |           |
|   | G N/A   |  |       |           |
| Remarks   | _____   |  |       |           |
| _____   |   |  |       |           |
| <b>VI. GENERAL SITE CONDITIONS</b>                                |   |  |       |           |
| <b>A. Roads</b>   |   |  |       |           |
|   | G Applicable                                      | <input checked="" type="radio"/> G N/A |       |           |
| <b>1. Roads damaged</b>   |   |  |       |           |
|   | G Location shown on site map                      | G Roads adequate G N/A                 |       |           |
| Remarks   | _____   |  |       |           |
| _____   |   |  |       |           |

|   |   |   |                          |
|---|---|---|--------------------------|
| <b>B. Other Site Conditions</b>                   |   |   |                          |
| Remarks _____<br>_____<br>_____<br>_____          |   |   |                          |
| <b>VII. LANDFILL COVERS</b> G Applicable    G N/A |   |   |                          |
| <b>A. Landfill Surface</b>                        |   |   |                          |
| 1.  | <b>Settlement (Low spots)</b><br>Areal extent _____<br>Remarks _____                                  | G Location shown on site map<br>Depth _____               | G Settlement not evident |
| 2.  | <b>Cracks</b><br>Lengths _____    Widths _____<br>Remarks _____                                       | G Location shown on site map<br>Depths _____              | G Cracking not evident   |
| 3.  | <b>Erosion</b><br>Areal extent _____<br>Remarks _____   | G Location shown on site map<br>Depth _____               | G Erosion not evident    |
| 4.  | <b>Holes</b><br>Areal extent _____<br>Remarks _____   | G Location shown on site map<br>Depth _____               | G Holes not evident      |
| 5.  | <b>Vegetative Cover</b><br>G Trees/Shrubs (indicate size and locations on a diagram)<br>Remarks _____ | G Grass                      G Cover properly established | G No signs of stress     |
| 6.  | <b>Alternative Cover (armored rock, concrete, etc.)</b><br>Remarks _____                              | G N/A   |                          |
| 7.  | <b>Bulges</b><br>Areal extent _____<br>Remarks _____  | G Location shown on site map<br>Height _____              | G Bulges not evident     |

|  |  |  |  |
|--|--|--|--|
| 8.   | <b>Wet Areas/Water Damage</b><br>G Wet areas<br>G Ponding<br>G Seeps<br>G Soft subgrade<br>Remarks _____ | G Wet areas/water damage not evident<br>G Location shown on site map<br>G Location shown on site map<br>G Location shown on site map<br>G Location shown on site map | Areal extent _____<br>Areal extent _____<br>Areal extent _____<br>Areal extent _____ |
| 9.   | <b>Slope Instability</b><br>Areal extent _____<br>Remarks _____  | G Slides<br>G Location shown on site map   | G No evidence of slope instability   |
| <b>B. Benches</b> G Applicable      G N/A<br>(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)  |  |  |  |
| 1.   | <b>Flows Bypass Bench</b><br>Remarks _____   | G Location shown on site map   | G N/A or okay  |
| 2.   | <b>Bench Breached</b><br>Remarks _____   | G Location shown on site map   | G N/A or okay  |
| 3.   | <b>Bench Overtopped</b><br>Remarks _____   | G Location shown on site map   | G N/A or okay  |
| <b>C. Letdown Channels</b> G Applicable      G N/A<br>(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.) |  |  |  |
| 1.   | <b>Settlement</b><br>Areal extent _____<br>Remarks _____   | G Location shown on site map<br>Depth _____  | G No evidence of settlement  |
| 2.   | <b>Material Degradation</b><br>Material type _____<br>Remarks _____                                      | G Location shown on site map<br>Areal extent _____   | G No evidence of degradation   |
| 3.   | <b>Erosion</b><br>Areal extent _____<br>Remarks _____  | G Location shown on site map<br>Depth _____  | G No evidence of erosion   |

|   |  |  |  |
|---|--|--|--|
| 4.  | <b>Undercutting</b>  | <input type="checkbox"/> Location shown on site map              | <input type="checkbox"/> No evidence of undercutting                               |
|   | Areal extent _____   | Depth _____  |  |
|   | Remarks _____  |  |  |
| 5.  | <b>Obstructions</b>  | Type _____   | <input type="checkbox"/> No obstructions   |
|   | <input type="checkbox"/> Location shown on site map                    | Areal extent _____   |  |
|   | Size _____   |  |  |
|   | Remarks _____  |  |  |
| 6.  | <b>Excessive Vegetative Growth</b>                                     | Type _____   |  |
|   | <input type="checkbox"/> No evidence of excessive growth               |  |  |
|   | <input type="checkbox"/> Vegetation in channels does not obstruct flow |  |  |
|   | <input type="checkbox"/> Location shown on site map                    | Areal extent _____   |  |
|   | Remarks _____  |  |  |
| <b>D. Cover Penetrations</b> <input type="checkbox"/> Applicable <input type="checkbox"/> N/A |  |  |  |
| 1.  | <b>Gas Vents</b>   | <input type="checkbox"/> Active <input type="checkbox"/> Passive |  |
|   | <input type="checkbox"/> Properly secured/locked                       | <input type="checkbox"/> Functioning                             | <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition |
|   | <input type="checkbox"/> Evidence of leakage at penetration            |  | <input type="checkbox"/> Needs Maintenance   |
|   | <input type="checkbox"/> N/A   |  |  |
|   | Remarks _____  |  |  |
| 2.  | <b>Gas Monitoring Probes</b>   |  |  |
|   | <input type="checkbox"/> Properly secured/locked                       | <input type="checkbox"/> Functioning                             | <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition |
|   | <input type="checkbox"/> Evidence of leakage at penetration            |  | <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A            |
|   | Remarks _____  |  |  |
| 3.  | <b>Monitoring Wells (within surface area of landfill)</b>              |  |  |
|   | <input type="checkbox"/> Properly secured/locked                       | <input type="checkbox"/> Functioning                             | <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition |
|   | <input type="checkbox"/> Evidence of leakage at penetration            |  | <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A            |
|   | Remarks _____  |  |  |
| 4.  | <b>Leachate Extraction Wells</b>                                       |  |  |
|   | <input type="checkbox"/> Properly secured/locked                       | <input type="checkbox"/> Functioning                             | <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition |
|   | <input type="checkbox"/> Evidence of leakage at penetration            |  | <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A            |
|   | Remarks _____  |  |  |
| 5.  | <b>Settlement Monuments</b>  | <input type="checkbox"/> Located                                 | <input type="checkbox"/> Routinely surveyed <input type="checkbox"/> N/A           |
|   | Remarks _____  |  |  |

|   |  |               |       |
|---|--|---------------|-------|
| <b>E. Gas Collection and Treatment</b>  |  | G Applicable  | G N/A |
| 1.                                      | <b>Gas Treatment Facilities</b><br>G Flaring      G Thermal destruction      G Collection for reuse<br>G Good condition G Needs Maintenance<br>Remarks _____ |               |       |
| 2.                                      | <b>Gas Collection Wells, Manifolds and Piping</b><br>G Good condition G Needs Maintenance<br>Remarks _____   |               |       |
| 3.                                      | <b>Gas Monitoring Facilities</b> (e.g., gas monitoring of adjacent homes or buildings)<br>G Good condition G Needs Maintenance      G N/A<br>Remarks _____   |               |       |
| <b>F. Cover Drainage Layer</b>          |  | G Applicable  | G N/A |
| 1.                                      | <b>Outlet Pipes Inspected</b><br>Remarks _____   | G Functioning | G N/A |
| 2.                                      | <b>Outlet Rock Inspected</b><br>Remarks _____  | G Functioning | G N/A |
| <b>G. Detention/Sedimentation Ponds</b> |  | G Applicable  | G N/A |
| 1.                                      | <b>Siltation</b> Areal extent _____ Depth _____<br>G Siltation not evident<br>Remarks _____  |               | G N/A |
| 2.                                      | <b>Erosion</b> Areal extent _____ Depth _____<br>G Erosion not evident<br>Remarks _____  |               |       |
| 3.                                      | <b>Outlet Works</b><br>Remarks _____   | G Functioning | G N/A |
| 4.                                      | <b>Dam</b><br>Remarks _____  | G Functioning | G N/A |

|  |   |                              |  |
|--|---|------------------------------|--|
| <b>H. Retaining Walls</b>                      |   | G Applicable                 | G N/A  |
| 1.   | <b>Deformations</b><br>Horizontal displacement _____<br>Rotational displacement _____<br>Remarks _____  | G Location shown on site map | G Deformation not evident<br>Vertical displacement _____ |
| 2.   | <b>Degradation</b><br>Remarks _____   | G Location shown on site map | G Degradation not evident                                |
| <b>I. Perimeter Ditches/Off-Site Discharge</b> |   | G Applicable                 | G N/A  |
| 1.   | <b>Siltation</b><br>Areal extent _____<br>Remarks _____   | G Location shown on site map | G Siltation not evident<br>Depth _____                   |
| 2.   | <b>Vegetative Growth</b><br>G Vegetation does not impede flow<br>Areal extent _____<br>Remarks _____  | G Location shown on site map | G N/A<br>Type _____                                      |
| 3.   | <b>Erosion</b><br>Areal extent _____<br>Remarks _____   | G Location shown on site map | G Erosion not evident<br>Depth _____                     |
| 4.   | <b>Discharge Structure</b><br>Remarks _____   | G Functioning                | G N/A  |
| <b>VIII. VERTICAL BARRIER WALLS</b>            |   | G Applicable                 | G N/A  |
| 1.   | <b>Settlement</b><br>Areal extent _____<br>Remarks _____  | G Location shown on site map | G Settlement not evident<br>Depth _____                  |
| 2.   | <b>Performance Monitoring</b><br>Type of monitoring _____<br>G Performance not monitored<br>Frequency _____<br>Head differential _____<br>Remarks _____ |                              | G Evidence of breaching                                  |

|   |  |
|---|--|
| <b>IX. GROUNDWATER/SURFACE WATER REMEDIES</b> G Applicable <u>G N/A</u> <i>any more</i>   |  |
| <b>A. Groundwater Extraction Wells, Pumps, and Pipelines</b> G Applicable    G N/A  |  |
| 1. <b>Pumps, Wellhead Plumbing, and Electrical</b><br>G Good condition    G All required wells properly operating    G Needs Maintenance    G N/A<br>Remarks _____<br>_____ |  |
| 2. <b>Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances</b><br>G Good condition    G Needs Maintenance<br>Remarks _____<br>_____                    |  |
| 3. <b>Spare Parts and Equipment</b><br>G Readily available    G Good condition    G Requires upgrade    G Needs to be provided<br>Remarks _____<br>_____                    |  |
| <b>B. Surface Water Collection Structures, Pumps, and Pipelines</b> G Applicable    G N/A   |  |
| 1. <b>Collection Structures, Pumps, and Electrical</b><br>G Good condition    G Needs Maintenance<br>Remarks _____<br>_____   |  |
| 2. <b>Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances</b><br>G Good condition    G Needs Maintenance<br>Remarks _____<br>_____      |  |
| 3. <b>Spare Parts and Equipment</b><br>G Readily available    G Good condition    G Requires upgrade    G Needs to be provided<br>Remarks _____<br>_____                    |  |

|                            |  |              |              |
|----------------------------|--|--------------|--------------|
| <b>C. Treatment System</b> |  | G Applicable | <u>G N/A</u> |
| 1.                         | <b>Treatment Train</b> (Check components that apply)<br>G Metals removal                      G Oil/water separation                      G Bioremediation<br>G Air stripping                                      G Carbon adsorbers<br>G Filters _____<br>G Additive (e.g., chelation agent, flocculent) _____<br>G Others _____<br>G Good condition                      G Needs Maintenance<br>G Sampling ports properly marked and functional<br>G Sampling/maintenance log displayed and up to date<br>G Equipment properly identified<br>G Quantity of groundwater treated annually _____<br>G Quantity of surface water treated annually _____<br>Remarks _____<br>_____ |              |              |
| 2.                         | <b>Electrical Enclosures and Panels</b> (properly rated and functional)<br>G N/A                      G Good condition G Needs Maintenance<br>Remarks _____<br>_____   |              |              |
| 3.                         | <b>Tanks, Vaults, Storage Vessels</b><br>G N/A                      G Good condition G Proper secondary containment                      G Needs Maintenance<br>Remarks _____<br>_____   |              |              |
| 4.                         | <b>Discharge Structure and Appurtenances</b><br>G N/A                      G Good condition G Needs Maintenance<br>Remarks _____<br>_____  |              |              |
| 5.                         | <b>Treatment Building(s)</b><br>G N/A                      G Good condition (esp. roof and doorways)                      G Needs repair<br>G Chemicals and equipment properly stored<br>Remarks _____<br>_____  |              |              |
| 6.                         | <b>Monitoring Wells</b> (pump and treatment remedy)<br>G Properly secured/locked G Functioning                      G Routinely sampled                      G Good condition<br>G All required wells located                      G Needs Maintenance                      G N/A<br>Remarks _____<br>_____  |              |              |
| <b>D. Monitoring Data</b>  |  |              |              |
| <u>NA</u>                  |  |              |              |
| 1.                         | Monitoring Data<br>G Is routinely submitted on time                      G Is of acceptable quality  |              |              |
| 2.                         | Monitoring data suggests:<br>G Groundwater plume is effectively contained                      G Contaminant concentrations are declining  |              |              |



|  |  |    |
|--|--|----|
| <b>C.</b>  | <b>Early Indicators of Potential Remedy Problems</b> | NA |
| Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. |  |    |
| <hr/>  |  |    |
| <b>D.</b>  | <b>Opportunities for Optimization</b>                | NA |
| Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.   |  |    |
| <hr/>  |  |    |

## Site Inspection Photos





# APPENDIX D

OSWER No. 9355.7-03B-P

| <b>INTERVIEW RECORD</b>  |   |                                       |                     |
|--|---|---------------------------------------|---------------------|
| Site Name: <i>Western Pacific Railroad</i>   |   | EPA ID No.: <i>CAD980894679</i>       |                     |
| Subject:   |   | Time: <i>2:00</i>                     | Date: <i>1/8/13</i> |
| Type: <input checked="" type="checkbox"/> Telephone <input type="checkbox"/> Visit <input type="checkbox"/> Other  | 9 Incoming <input checked="" type="checkbox"/> Outgoing |                                       |                     |
| Location of Visit:   |   |                                       |                     |
| Contact Made By:   |   |                                       |                     |
| Name: <i>Holly Hadlock</i>   | Title: <i>RPM</i>                                       | Organization: <i>EPA Reg. 4</i>       |                     |
| Individual Contacted:  |   |                                       |                     |
| Name: <i>Luis Topete</i>   | Title: <i>Associate Planner</i>                         | Organization: <i>City of Oroville</i> |                     |
| Telephone No: <i>530-538-2408</i>  | Street Address:   |                                       |                     |
| Fax No:  | City, State, Zip:                                       |                                       |                     |
| E-Mail Address:  |   |                                       |                     |
| Summary Of Conversation  |   |                                       |                     |
| <p><i>I introduced myself and explained the five-year review for the WPRR site. He had read about the site on-line and was a little familiar with it. I asked him if the city or residents had any concerns about the site. He said no, no issues or concerns. If someone had a complaint the Planning Dept. would have been contacted; it works closely with the Police Dept.</i></p> <p><i>The site is still vacant. I asked if there are any re-development plans. He said the only interest has been from solar panel companies; just inquiries, no plans submitted.</i></p> |   |                                       |                     |

Page 1 of \_\_\_\_\_

## APPENDIX E

### REVIEW OF TITLE EXCEPTIONS WESTERN PACIFIC RAILROAD SUPERFUND SITE

This is a title review of portions of several tax parcels of land in the City of Oroville, California (Butte County) in support of the Western Pacific Railroad Instruments Superfund Site project. The tax parcels involved in this review are currently owned/operated as part of the Western Pacific Railroad Superfund Site, and are as follows:

- APN 035-130-080; APN 035-130-081; APN 078-170-015; APN 078-170-016

*Review performed March 12, 2013*

| Title Exception | Owner / Grantor Affected Parcels   | Recording Information                       | Instrument Type and Rights Granted  | Impact to Covenant to Restrict Use of Property, Environmental Restriction, recorded March 1, 2001 |
|-----------------|--|---|---|---|
| A, B, C, D      | Union Pacific Railroad<br><i>(formerly Western Pacific Railroad)</i><br><br>APN 035-130-080/081<br>APN 078-170-015/016 | Not Applicable                              | General and special taxes and assessments   | No impact   |
| E               | Union Pacific Railroad<br><i>(formerly Western Pacific Railroad)</i><br><br>APN 035-130-080/081<br>APN 078-170-015/016 | Not Applicable                              | Public rights lie within lines of public road or highway                              | No impact   |
| F               | L.L. Green, Grantor<br><br>APN 035-130-080/081<br>APN 078-170-015/016  | Book 110, Page 235; recorded April 10, 1909 | Deed conveying property interest from Grantor L.L. Green to Nellie R, Baggett, et al. | No impact   |

| <b>Title Exception</b> | <b>Owner / Grantor Affected Parcels</b>  | <b>Recording Information</b>                    | <b>Instrument Type and Rights Granted</b>  | <b>Impact to Covenant to Restrict Use of Property, Environmental Restriction, recorded March 1, 2001</b> |
|------------------------|--|---|--|--|
| G                      | Union Pacific Railroad<br><i>(formerly Western Pacific Railroad)</i><br><br>APN 035-130-080/081<br>APN 078-170-015/016 | Book 224, Page 448; recorded July 19, 1939      | Easement granted to North Burbank Public Utility District for the construction and maintenance of a ten (10) inch sanitary sewer pipe line, with its necessary appurtenances.    | Consistent with covenant   |
| H                      | Union Pacific Railroad<br><i>(formerly Western Pacific Railroad)</i><br><br>APN 035-130-080/081<br>APN 078-170-015/016 | Book 305, Page 239; recorded October 13, 1942   | Easement granted to Pacific Gas and Electric Company for the construction, operation and maintenance of a single line of poles and wires for the transmission of electric power. | Consistent with covenant   |
| I-1                    | Union Pacific Railroad<br><i>(formerly Western Pacific Railroad)</i><br><br>APN 035-130-080/081<br>APN 078-170-015/016 | Not Applicable                                  | Unrecorded lease with Arnold & Swanson Lumber Company (Lessee) for activities associated with public warehouse business (see I-2)  | Consistent with covenant   |
| I-2                    | Union Pacific Railroad<br><i>(formerly Western Pacific Railroad)</i><br><br>APN 035-130-080/081<br>APN 078-170-015/016 | Book 452, Page 455; recorded July 19, 1948      | Year-to-year sub-lease between Arnold & Swanson Lumber Co (Sub-Lessor) and Douglas-Guardian Warehouse Corporation (Sub-Lessee) for public warehouse business.                    | Consistent with covenant   |
| I-3                    | Union Pacific Railroad<br><i>(formerly Western Pacific Railroad)</i><br><br>APN 035-130-080/081<br>APN 078-170-015/016 | Book 489, Page 293; recorded September 23, 1948 | Year-to-year sub-lease between Arnold & Swanson Lumber Co (Sub-Lessor) and Douglas-Guardian Warehouse Corporation (Sub-Lessee) for public warehouse business.                    | Consistent with covenant   |

| Title Exception | Owner / Grantor Affected Parcels   | Recording Information   | Instrument Type and Rights Granted   | Impact to Covenant to Restrict Use of Property, Environmental Restriction, recorded March 1, 2001 |
|-----------------|--|---|--|---|
| J               | Union Pacific Railroad<br><i>(formerly Western Pacific Railroad)</i><br><br>APN 035-130-080/081<br>APN 078-170-015/016 | Instrument No. 81-22575, Bk 2638, Pg 228, recorded July 9, 1981 | City of Oroville Redevelopment Plan to include subject land within project area  | No impact   |
| K               | Union Pacific Railroad<br><i>(formerly Western Pacific Railroad)</i><br><br>APN 035-130-080/081<br>APN 078-170-015/016 | Instrument No. 2001-0008214; recorded March 1, 2001             | Covenant restricting use of property to industrial and/or commercial use only. Specifically restricts use of property for the following: <ul style="list-style-type: none"> <li>a) Residential Human Habitation</li> <li>b) Hospital for humans</li> <li>c) Public or private schools for persons under 21 years of age</li> <li>d) Day care center for children</li> <li>e) Any other purpose involving residential occupancy of a 24-hour basis</li> </ul> | This is the referenced covenant.  |
| L               | Union Pacific Railroad<br><i>(formerly Western Pacific Railroad)</i><br><br>APN 035-130-080/081<br>APN 078-170-015/016 | Not Applicable  | General unrecorded rights, interests or claims statement   | No impact   |