



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION IX  
75 Hawthorne Street  
San Francisco, CA 94105

September 29, 2005

Jim Tjosvold  
Chief, Northern California-Central Cleanup Operations Branch  
Department of Toxic Substances Control  
8800 Cal Center Drive  
Sacramento, California 95826-3200

RE Five-Year Review Report for the Southern California Edison, Visalia Pole Yard  
Superfund Site, Visalia, CA

Dear Mr. Tjosvold

The U.S. Environmental Protection Agency, Region 9 (EPA) has reviewed the first Five-Year Review Report for the Southern California Edison, Visalia Pole Yard Superfund Site, prepared by the Department of Toxic Substances Control (DTSC). This Five-Year Review was conducted as a matter of EPA policy because cleanup of the site will take five years or more to complete (see OSWER No.9355. 7-03B-P, Comprehensive Five-Year Review Guidance, June 2001). The review addresses remedial actions taken pursuant to the June, 1994 Record of Decision for the site.

EPA concurs that the remedy for the Southern California Edison, Visalia Pole Yard Superfund site currently protects human health and the environment. In order for the remedy to be protective in the long term, remedial action objectives for groundwater must be achieved. The next Five-Year Review for the Southern California Edison, Visalia Pole Yard will be conducted in 2010.

EPA appreciates the opportunity to work with you on this report. If you have any questions, please feel free to contact Charnjit Bhullar of my staff at 415-972-3960.

Sincerely,

A handwritten signature in blue ink that appears to read "Elizabeth J. Adams".  
Elizabeth J. Adams  
Chief, Site Cleanup Branch  
Superfund Division

**Southern California Edison Company**

**Visalia Pole Yard Superfund Site**

**5-Year Review**

**California Department of Toxic Substances Control  
United States Environmental Protection Agency**

**September 2005**

**Approved By:**

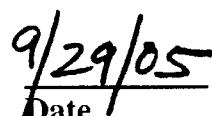


**James L. Tjosvold, P.E., Chief  
Northern California-Central Cleanup Operations Branch  
Site Mitigation and Brownfields Reuse Program  
Department of Toxic Substances Control**



**Date**

**Concurred By:**

  
**Elizabeth J. Adams, Chief  
Superfund Site Cleanup Branch  
U.S. EPA, Region 9**  
**Date**

## Table of Contents

List of Acronyms	1
Executive Summary	2
Five-Year Review Summary Form	3
<b>1. Introduction</b>	5
<b>2. Site Chronology</b>	5
<b>3. Background</b>	6
Physical Characteristics	
History of Contamination	
Initial Response	
Summary of Basis for Taking Action	
<b>4. Remedial Actions</b>	7
Remedy Selection	
Remedy Implementation	
System Operations/O&M	
<b>5. Progress Since the Last Review</b>	8
<b>6. Five-Year Review Process</b>	8
Progress Since Last Review	
Document Review	
Data Review	
Site Inspection	
<b>7. Technical Assessment</b>	10
<b>Question A:</b> Is the remedy functioning as intended by the decision documents?	
<b>Question B:</b> Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy still valid?	
<b>Question C:</b> Has any other information come to light that could call into question the protectiveness of the remedy?	
Technical Assessment Summary	
<b>8. Issues</b>	11
<b>9. Recommendations and Follow-up Actions</b>	12
<b>10. Protectiveness Statement</b>	12
<b>11. Next Review</b>	12

## **List of Acronyms**

ARAR	Applicable or Relevant and Appropriate Requirement
C&AO	Cleanup and Abatement Order
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
ESD	Explanation of Significant Differences
EPA	United States Environmental Protection Agency
CFR	Code of Federal Regulations
DTSC	California Department of Toxic Substances Control
MCL	Maximum Contaminant Level
NAS	National Academy of Sciences
NCP	National Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
PCP	Pentachlorophenol
RA	Remedial Action
RAO	Remedial Action Objective
RAP	Remedial Action Plan
RD	Remedial Design
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RPM	Remedial Project Manager
SCE	Southern California Edison

## **Executive Summary**

The remedy for the Southern California Edison (Visalia Pole Yard) Superfund site in Visalia, California included an in-situ thermal remediation system for the soils, a groundwater pump and treat system, site access restrictions and other institutional controls. The site achieved construction completion with the signing of the Preliminary Close Out Report on September 25, 2001. The trigger for this five-year review was the official start of the remedial action on April 14, 2000.

The assessment of this five-year review found that the remedy is functioning as intended by the remedial action objectives of the Remedial Action Plan (RAP) and Record of Decision (ROD). The immediate threats have been addressed and the remedy is expected to be protective when the final deed restrictions are put in place.

## Five-Year Review Summary Form

SITE IDENTIFICATION		
<b>Site name:</b> Southern California Edison (Visalia Pole Yard) Superfund Site		
<b>EPA ID:</b> CAD980816466		
<b>Region:</b> 9	<b>State:</b> CA	<b>City/County:</b> Visalia/Tulare County
SITE STATUS		
<b>NPL status:</b> <input checked="" type="checkbox"/> Final <input type="checkbox"/> Deleted <input type="checkbox"/> Other (specify) _____		
<b>Remediation status</b> (choose all that apply): <input type="checkbox"/> Under Construction <input type="checkbox"/> Operating <input checked="" type="checkbox"/> Complete		
<b>Multiple OUs?*</b> <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	<b>Construction completion date:</b> 09/25/2001	
<b>Has site been put into reuse?</b> <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		
REVIEW STATUS		
<b>Lead agency:</b> <input type="checkbox"/> EPA <input checked="" type="checkbox"/> State <input type="checkbox"/> Tribe <input type="checkbox"/> Other Federal Agency _____		
<b>Author name:</b> Emmanuel K. Mensah		
<b>Author title:</b> Project Manager	<b>Author affiliation:</b> DTSC	
<b>Review period:**</b> 01/01 /2004 to 09 /30 /2005		
<b>Date(s) of site inspection:</b> 04/28/2004 & 11/17/2004		
<b>Type of review:</b> <div style="display: flex; justify-content: space-around; align-items: center;"> <input type="checkbox"/> Post-SARA <input type="checkbox"/> Pre-SARA <input type="checkbox"/> NPL-Removal only  <input type="checkbox"/> Non-NPL Remedial Action Site <input checked="" type="checkbox"/> NPL State/Tribe-lead  <input type="checkbox"/> Regional Discretion         </div>		
<b>Review number:</b> <input checked="" type="checkbox"/> 1 (first) <input type="checkbox"/> 2 (second) <input type="checkbox"/> 3 (third) <input type="checkbox"/> Other (specify) _____		
<b>Triggering action:</b> <div style="display: flex; justify-content: space-between; align-items: center;"> <input checked="" type="checkbox"/> Actual RA Onsite Construction <span style="margin-left: 20px;"><input type="checkbox"/> Actual RA Start at OU# _____</span>  <input type="checkbox"/> Construction Completion <span style="margin-left: 20px;"><input type="checkbox"/> Previous Five-Year Review Report</span>  <input type="checkbox"/> Other (specify)         </div>		
<b>Triggering action date:</b> 04/14/ 2000		
<b>Due date:</b> 04/14/ 2005		

\* ["OU" refers to operable unit.]

\*\* [Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.]

## **Five-Year Review Summary Form, cont'd.**

### **Issues:**

There are two issues:

- The post-remediation soil investigation indicates that there are sporadic soil concentrations in the upper ten feet that do not meet clean-up levels.
- The Institutional Controls have not been implemented.

### **Recommendations and Follow-up Actions:**

- DTSC is evaluating the residual risk of the post-remediation soil contamination levels, and will propose action, if necessary.
- Deed Restrictions need to be recorded. Results of the post-remediation soil investigation should be considered when devising the actual restriction on the property.

### **Protectiveness Statement(s):**

The remedy at the Visalia Pole Yard currently protects human health and the environment because all immediate threats at the site have been addressed through the access restrictions (fencing, warning signs), and the groundwater from the site is not being used. However, in order for the remedy to be protective in the long-term, institutional controls need to be implemented.

## **1.0 Introduction**

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

The Agency is preparing this Five-Year Review Report pursuant to CERCLA §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 judgement 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.*

The Agency interpreted this requirement further in the NCP; 40 CFR §300.430(f)(4)(ii) states:

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

The State of California, Department of Toxic Substances Control (DTSC), conducted the five-year review of the remedy implemented at the Visalia Pole Yard Site in Visalia, California. This report documents the results of the review.

This is the first five-year review for the Visalia Pole Yard Site. The triggering action for this statutory review is the date of the start of remedial action of April 14, 2000. The five-year review is required due to the fact that hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure.

## **2.0 Site Chronology**

- 1925 – 1980 - Visalia Pole Yard Operated
- 1976 – Ground Water Pumping and Treatment Initiated as a cleanup & Abatement Order (CRAO)
- 1977 – Grout Wall Completed
- 1985 – Phase 1 Groundwater Treatment Plant Implemented
- 1987 – DTSC Superfund Site, Enforceable Agreement
- 1987 – Phase 2 Water Treatment Plant Implemented
- 1989 – EPA Finalized on the NPL as a Superfund Site

- 1992 – Remedial Investigation/Feasibility Study (RI/FS) Completed
- 1994 – Remedial Action Plan/Record of Decision (RAP/ROD) Signed
- 1995 – Regulatory Approval for Thermal Remediation
- 1996 – Design and Construction of Thermal Remediation System
- 1997 – Full-Scale Pilot Test of Remedial Action Initiated
- 2003 – DTSC Approved Completion of the Thermal Remedial Action
- 2004 – RA Monitoring Program Initiated
- 2004 – Cessation Groundwater Pumping

## **3.0 Background**

### Physical Characteristics

The Visalia Pole Yard Superfund site is located at 432 North Ben Maddox Way in northeastern Visalia, Tulare County, California. Visalia is approximately halfway between Fresno and Bakersfield in the Central Valley. Agriculture is the primary industry in the Visalia area.

### Land and Resource Use

Since the submittal of the Remedial Investigation (RI) report, the demographic land usage around the immediate site vicinity remains largely designated for industrial, and commercial, and residential uses. Increases in population density in this region have augmented the numbers and sizes of these undertakings. Currently, the site is unused except for the groundwater treatment system, an office and a material storage building used during remediation. Southern California Edison (SCE) currently owns and maintains the site. Several measures are employed to insure security at the site. The eight-foot chain link fence encloses the perimeter of the site with the only ingress controlled by an electric gate. All sensitive controls, equipments, materials, and wastes are secured in a locked control room or warehouse. During any given week, the site is manned from approximately from 1600 hrs on Sunday evening to 1400 hrs on the following Friday. During the weekend period the electric gate, warehouse and control room remain locked. SCE is currently performing the post-remediation monitoring program and plans to continue maintaining the property until completion.

### History of Contamination

Southern California Edison (SCE) operated a fabrication yard (Visalia Pole Yard) to produce wooden poles for use in the distribution of electricity throughout the utility's service territory from 1925 to 1980. Western red-cedar trees were logged and transported to the yard, debarked, sized, shaped, and chemically preserved. Until 1968, chemical preservation consisted of immersion of the wooden poles in heated bulk creosote. From 1968 to cessation of operations, a solution of pentachlorophenol and diesel was substituted as the wood preservative.

### Basis for Taking Action

Hazardous substances that have been released at the site include pentachlorophenol (PCP), Benzo(a)Pyrene and dioxin (TCDD<sub>eqv</sub>). Without remediation, exposures to soil and groundwater would be associated with significant human health risks, due to exceedance of EPA's risk management criteria for these substances.

## **4.0 Remedial Action**

### Remedial Objectives

The remedial action objectives for the site are:

- Prevent the migration of pole treating chemicals, present in unsaturated soil, to groundwater;
- Prevent occupational exposure to soil with constituent concentrations exceeding health-based concentrations;
- Prevent residential and occupational exposure to groundwater with chemical concentrations above remediation goals; and
- Prevent dermal occupational exposure to groundwater with chemical concentrations above remediation goals.

### Remedy Selection

The RAP/ROD for the Visalia Pole Yard was signed in 1994. The major components of the remedy selected in the RAP/ROD include the following:

- Enhanced in-situ biological technology;
- Controls such as fencing and signage;
- Deed restrictions to prevent property transfer during groundwater remediation;
- Deed restrictions requiring that future buyers of the site be made aware of the site's environmental history;
- Restriction of well installation around the site which may have adverse effect on groundwater remediation;
- Continued operation of the already in place groundwater extraction and treatment system; and
- Soil capping, if necessary.

The standards selected in the RAP/ROD are:

<b>Visalia Steam Remediation Project Groundwater Remediation Standards</b>		
<b>Parameter</b>	<b>Soil Standard</b>	<b>Groundwater Standard</b>
Pentachlorophenol (PCP)	17 mg/kg	1 µg/L
Benzo(a)Pyrene	0.39 mg/kg	0.2 µg/L
TCDD <sub>eqv</sub>	0.001 mg/kg	30 µ g/L

During 1995, SCE initiated the evaluation of an alternative treatment technology not included in the original Feasibility Study. The technology was thermal treatment of soils developed by the Lawrence Livermore National Laboratory, in conjunction with the University of California, Berkeley and was based on steam injection coupled with liquid and vapor recovery. It was anticipated that this technology would achieve the clean-up levels sooner than in-situ biological technology.

The DTSC granted approval of the full-scale pilot project and the construction of the Visalia Steam Remediation Project was completed during March of 1997. Since the treatment was performed under pilot program, no ROD amendment or Explanation of Significant Differences (ESD) was issued by DTSC.

#### Remedy Implementation

SCE conducted the steam remediation activities over a 36-month period in which 660 million pounds of steam were injected into the formation, and approximately 1,330,000 pounds of a suite of organic wood preserving were mobilized and extracted from the subsurface or oxidized in the formation. The project steam injection activities were initiated during May 1997 and concluded in June 2000.

Initially, daily contaminant mass recovery rates was approximately 13,000 pounds of contaminants. By June 2000, the recovery rate dropped to about 4 pounds per day. The diminishing recovery rate (< 4 lbs/day) precipitated the decision to terminate the steam injection operations at Visalia.

The groundwater pumping program continued operation until the DTSC approved cessation of the groundwater treatment activities during March 2004 to allow for the monitoring plan to be implemented.

In July 2004, SCE and DTSC agreed on procedures that would demonstrate the successful implementation of remedial measures and achievement of remedial action objectives for both groundwater and soil. The procedures included a groundwater monitoring plan with quarterly sampling of six wells completed into the “deep” aquifer and ten wells in the “intermediate” aquifer. The groundwater compliance monitoring is a two to five year program. In addition, SCE collected 66 samples from 0-10 feet depth to verify compliance with the soil remediation standards.

#### System Operation/O&M Costs

Approximately \$21,300,000 in cost was accrued with the implementation of the Visalia Steam Remediation Project. These costs were accumulated from the calendar year of 1996 through calendar year 2004.

When the groundwater treatment plant was in operation from 1984 to 2004, the annual O&M cost was approximately \$1,000,000 per year. The groundwater treatment plant ceased operation in 2004.

## **5.0 Progress Since the Last Review**

This is the first five-year review for the site

## **6.0 Five-Year Review Process for Visalia Pole Yard**

#### Administrative Components

The five-year review team included Charnjit Bhullar the RPM for U.S. EPA, Craig Eaker, Project Manager for SCE, and Emmanuel K. Mensah, Project Manager for DTSC

From January 2004, U.S. EPA, DTSC and SCE established the review schedule which included the following components:

- Community Notification
- Document Review

- Site Inspection
- Five-Year Review Report Development and Review

### Community Notification

Community involvement included a public notice in Visalia Times-Delta on June 6, 2005 notifying the community of the initiation of this 5-year review. A public notice will be placed in the same paper when the Five-year Review is complete which will inform the community that the Five-year Review document will be placed in Tulare County Library, 200 West Oak Street, Visalia, CA 93291.

### Document Review

This Five-Year Review included a review of relevant documents including the Remedial Action Plan, the Record of Decision, The Soils Investigation Plan (SCE, 2004), the Preliminary Close Out Report and the Groundwater Remediation Compliance Demonstration Monitoring Report, First Quarter 2005 (Krazen, 2005)

### Data Review

#### *Groundwater*

Groundwater samples collected for the three quarters since the inception of the post-remediation monitoring program have yielded non-detected concentrations of pentachlorophenol, benzo(a)pyrene, and TCDD<sub>eqv</sub> for the two intermediate-zone wells and the one deep-zone well located on the edge of the property.

<b>Visalia Steam Remediation Project Monitoring Program</b>									
<b>Parameter</b>	<b>VDMW-1</b>			<b>VDMW-2</b>			<b>VDMW-4 -deep</b>		
	7/04	10/04	12/04	7/04	10/04	12/04	7/04	10/04	12/04
PCP ( $\mu\text{g/L}$ )	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)Pyrene ( $\mu\text{g/L}$ )	ND	ND	ND	ND	ND	ND	ND	ND	ND
TCDD <sub>eqv</sub> ( $\mu\text{g/L}$ )	ND	ND	ND	ND	ND	ND	ND	ND	ND

Two on-site, intermediate-zone wells have had intermittent trace levels of dioxin detected, all of which are below the RAP/ROD cleanup standards of 30 pg/l. All other wells in the monitoring program have had non-detect results for the samples collected during the entire monitoring program.

#### *Soil Data*

The 1992 RI revealed a “patchy” distribution of detectable concentrations of contaminants within the first ten feet of the soil column. These contaminants were thought to be removed or destroyed to acceptable concentrations with the application of the thermal treatment. A post-remediation soil investigation of the surface soils (0-10 ft.) was conducted at Visalia in November 2004. Twenty-two borings were drilled and samples were collected from 1-foot, 5-foot and 10-foot intervals. Preliminary results show that TCDD<sub>eqv</sub> was detected in all samples, but only four of the sixty-six samples were at or above the remediation standard of 1 ug/kg. These four samples were all at the one-foot level. Trace levels of other chemicals of concern were detected in three samples – a one-foot sample and two ten-foot samples; these concentrations were below remediation levels.

### Site Inspection

Two site inspections were conducted at the site for the five-year review. These site inspections were performed by DTSC on April 28, 2004 and November 17, 2004. It was observed that the fences were well maintained; the hazardous waste signs posted; and the site was well maintained.

### Interviews

No interviews were performed for this five-year review.

## **7.0 Technical Assessment**

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

The review of documents, ARARs, risk assumptions, and the results of the site inspection indicate that the thermal remedy is functioning as intended by the RAP/ROD. The Visalia Steam Remediation Project has reduced levels in the soil to levels protective of groundwater. During the site inspection, it was observed that access was controlled and the site well maintained.

The confirmation sampling for the surface soil (surface to ten feet) indicated that the remediation was largely successful. DTSC is currently reviewing the post-remediation data to determine whether additional measures should be taken to ensure that the remedy is protective in the long-term.

The institutional controls that were called for in the RAP/ROD were not implemented at the time of this review. Currently, the groundwater meets the remediation standards throughout the site, and the property show no signs of soil disturbance. However, for the remedy to remain protective in the long-term, the deed restrictions need to be implemented.

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

There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy.

### *Changes in Standards*

There have been no changes in these ARARs and no new standards or TBCs affecting the protectiveness of the remedy. However, the State of California has a new standard, Title 22 California Code of Regulations section 67391.1, which addresses Land Use covenants and specifically how to implement them at sites where hazardous waste remain. These regulations are applicable to the deed restrictions when implemented.

### *Changes in Exposure Pathways, Toxicity, and Other Contaminant Characteristics*

The toxicity values and carcinogenicity assessment for benzo(a)pyrene and pentachlorophenol are under review as of August 2005, as part of USEPA's IRIS reassessment program. The reassessments may result in changes to the health-based screening levels for assessing potential health impacts of benzo(a)pyrene and pentachlorophenol in groundwater and soils. This issue will need to be updated in subsequent 5 year reviews.

EPA's draft dioxin reassessment was developed over many years with the participation of scientific experts in EPA, the National Institutes of Health's National Institute of Environmental Health Sciences, and other federal agencies, as well as scientific experts in the private sector and academia following the current cancer guidelines and incorporating current data and physiological/biochemical understanding. This review concluded a number of

chemicals have dioxin-like activity including some PCBs, different dioxin congeners have varying levels of toxicity, and dioxins are approximately 10 times more potent than previously understood to be the case. This information has not been adopted into state or federal standards. EPA's draft dioxin reassessment is currently under review from the National Academy of Sciences (NAS). This issue will need to be updated in subsequent 5 year reviews.

There have been no changes to the exposure pathways that could affect the protectiveness of the remedy.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?  
No ecological targets were identified during the baseline risk assessment and none were identified during the five-year review.

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

#### Technical Assessment Summary

According to the data reviewed and the site inspection, the remedy is functioning as intended by the RAP/ROD. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy.

No deed restrictions have been placed on the property at this time. To the extent that there remains residual contamination in soil, specific restrictions will be identified and recorded with the County when the final evaluation of the remedial actions is complete. Currently the property is fenced, posted and access is restricted.

## 8.0 Issues

Issue	Currently Affects Protectiveness (Y/N)	Affects Future Protectiveness (Y/N)
The post-remediation soil investigation indicates that there are sporadic soil concentrations in the upper ten feet that do not meet clean-up levels.	N	N
Institutional Controls not implemented	N	Y

## **9.0 Recommendations and Follow-Up Actions**

<b>Issue</b>	<b>Recommendations/ Follow-up Actions</b>	<b>Party Responsible</b>	<b>Oversight Agency</b>	<b>Milestone Date</b>
The post-remediation soil investigation indicates that there are sporadic soil concentrations in the upper ten feet that do not meet clean-up levels.	The State is evaluating the residual risk of the post-remediation levels, and will propose action, if necessary.	SCE	DTSC	09/2006
Institutional Controls not implemented	Deed Restrictions need to be recorded. Results of the DTSC groundwater monitoring program and the post-remediation soil investigation should be considered when devising the actual restriction on the property.	SCE	DTSC	At completion of monitoring program (2006-2009)

## **10. Protectiveness Statement**

The remedy at the Visalia Pole Yard currently protects human health and the environment because all immediate threats at the site have been addressed through the access restrictions (fencing, warning signs), and the groundwater from the site is not being used. However, in order for the remedy to be protective in the long-term, institutional controls need to be implemented.

## **11. Next Review**

DTSC anticipates completion of the compliance monitoring between July 2006 to July 2009. The next five-year review for the Visalia Pole Yard Superfund Site is required by September 2010, five years from the date of this review.