Final
Second Five-Year Review Report
for
Coalinga Asbestos Mine Superfund Site
Coalinga
Fresno County, California

September 2001

PREPARED BY:
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Region IX
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Date: 9-27-01
Director, Superfund Division
U.S. Environmental Protection Agency
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### List of Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>APCD</td>
<td>Air Pollution Control District</td>
</tr>
<tr>
<td>ARAR</td>
<td>Applicable or relevant and appropriate requirements</td>
</tr>
<tr>
<td>CAA</td>
<td>Federal Clean Air Act</td>
</tr>
<tr>
<td>CAC</td>
<td>California Administrative Code</td>
</tr>
<tr>
<td>CCR</td>
<td>California Code of Regulations</td>
</tr>
<tr>
<td>CERCLA</td>
<td>Comprehensive Environmental Response, Compensation, and Liability Act</td>
</tr>
<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
</tr>
<tr>
<td>CVRWQCB</td>
<td>Central Valley Regional Water Quality Control Board</td>
</tr>
<tr>
<td>DHS</td>
<td>California Department of Health Services</td>
</tr>
<tr>
<td>DTSC</td>
<td>California Department of Toxic Substances Control</td>
</tr>
<tr>
<td>EPA</td>
<td>United States Environmental Protection Agency</td>
</tr>
<tr>
<td>FR</td>
<td>Federal Register</td>
</tr>
<tr>
<td>FWPCA</td>
<td>Federal Water Pollution Control Act</td>
</tr>
<tr>
<td>H&amp;S Code</td>
<td>California Health and Safety Code</td>
</tr>
<tr>
<td>JMM</td>
<td>Johns-Manville Mill</td>
</tr>
<tr>
<td>Marmac</td>
<td>Marmac Resource Company/Mareco</td>
</tr>
<tr>
<td>MWD</td>
<td>Metropolitan Water District of Southern California</td>
</tr>
<tr>
<td>NCP</td>
<td>National Contingency Plan</td>
</tr>
<tr>
<td>NESHAP</td>
<td>National Emissions Standard for Hazardous Air Pollutants</td>
</tr>
<tr>
<td>NPL</td>
<td>Superfund National Priorities List</td>
</tr>
<tr>
<td>O&amp;M</td>
<td>Operation and Maintenance</td>
</tr>
<tr>
<td>OSHA</td>
<td>Occupational Safety and Health Act</td>
</tr>
<tr>
<td>OU</td>
<td>Operable unit</td>
</tr>
<tr>
<td>OUFS</td>
<td>Operable Unit Feasibility Study</td>
</tr>
<tr>
<td>PLM</td>
<td>Polarized light microscope</td>
</tr>
<tr>
<td>PM10</td>
<td>particulate matter less than 10 microns in diameter</td>
</tr>
<tr>
<td>RAC</td>
<td>Response Action Contract</td>
</tr>
<tr>
<td>RDWP</td>
<td>Remedial Design Work</td>
</tr>
<tr>
<td>RI/FS</td>
<td>Plan Remedial Investigation/ Feasibility Study</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>ROD</td>
<td>Record of Decision</td>
</tr>
<tr>
<td>RPM</td>
<td>Remedial Project Manager</td>
</tr>
<tr>
<td>SPLC</td>
<td>Southern Pacific Land Company</td>
</tr>
<tr>
<td>SPTC</td>
<td>Southern Pacific Transportation Company</td>
</tr>
<tr>
<td>TBA</td>
<td>To Be Considered</td>
</tr>
<tr>
<td>TSCA</td>
<td>Toxic Substances Control Act</td>
</tr>
<tr>
<td>USC</td>
<td>United States Code</td>
</tr>
<tr>
<td>WMU</td>
<td>Waste Management Unit</td>
</tr>
</tbody>
</table>
Executive Summary

The Coalinga Asbestos Mine Superfund Site in Fresno County, California, consists of two operable units (OUs): the City OU and the Johns-Manville Mill (JMM) OU. The remedy for the City OU included the burial and capping of contaminated soils and materials on site and institutional controls. The remedy for the JMM OU included stabilization of erosion prone areas, structural improvements and additions, access control, and institutional controls. The Final Closeout Report was signed August 19, 1997; this Superfund Site was removed from the Superfund National Priorities List (NPL) April 24, 1998.

The assessment of this Five-Year Review found that the remedies were constructed in accordance with the requirements of the Record of Decisions (RODs). The remedies are functioning as designed. Because the remedies at all OUs are protective, this Site is protective of human health and the environment.
**Five-Year Review Summary Form**

### SITE IDENTIFICATION

**Site name**: Coalinga Asbestos Mine

**EPA ID**: 0935, CERCLIS ID# CAD 9808 17217

**Region**: IX  
**State**: CA  
**City/County**: Coalinga/Fresno

### SITE STATUS

**NPL status**: 
- [ ] Final  
- [ ] Deleted  
- [ ] Other (specify)  
  
**Remediation status** (choose all that apply): 
- [ ] Under Construction  
- [ ] Operating  
- [ ] Complete  

**Multiple Ous?**  
- [ ] YES  
- [ ] NO  

**Construction completion date**:  
- City OU: March 1991  
- JMM: 1994

Has site been put into reuse?  
- [ ] YES  
- [ ] NO  

Portions of the Site have been put into reuse.

### REVIEW STATUS

**Lead agency**: 
- [ ] EPA  
- [ ] State  
- [ ] Tribe  
- [ ] Other Federal Agency  

**Author name**: Shea Jones

**Author title**: Remedial Project Manager  
**Author affiliation**: EPA Region IX

**Review period**: July - September 2001

**Date(s) of site inspection**: 7/11/01 City OU, 7/12/01 JMM OU

**Type of review**: 
- [ ] Statutory  
  
- [ ] Policy  
- [ ] Post-SARA  
- [ ] Pre-SARA  
- [ ] NPL-Removal only  
- [ ] Non-NPL Remedial Action Site  
- [ ] NPL State/Tribe-lead  
- [ ] Regional Discretion

**Review number**:  
- [ ] 1 (first)  
- [ ] 2 (second)  
- [ ] 3 (third)  
- [ ] Other (specify)
<table>
<thead>
<tr>
<th>Triggering action:</th>
<th>Actual RA Operation of Groundwater</th>
<th>Actual RA Start at OU# _________</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Remedial Systems</td>
<td>Previous Five-Year Review Report</td>
</tr>
<tr>
<td></td>
<td>Construction Completion</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other (specify)</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Triggering action date:</th>
<th>Coalinga review: March 1995</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Johns-Manville review: December 1997</td>
</tr>
</tbody>
</table>

| Due date (five years after triggering action date): | December 2002 |

<table>
<thead>
<tr>
<th>Issues:</th>
<th>At the City OU, animals are burrowing holes into the WMU cap and a sign is damaged.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No issues for JMM OU.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Recommendations and Follow-up Actions:</th>
<th>At the City OU, repair the sign and holes as part of regular maintenance.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No recommendations for JMM OU remedy at this time.</td>
</tr>
</tbody>
</table>

| Protectiveness Statement(s): | Because the remedial actions at all OUs are protective, the Site is protective of human health and the environment. |

| Other Comments: | No other comments at this time. |

Coalinga Asbestos Mine Superfund Site  
Coalinga, California  
Second Five-Year Review Report

I. Introduction

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

The Agency is preparing this Five-Year Review Report pursuant to Comprehensive Environmental Response, Compensation, and Liability Act (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 United States Environmental Protection Agency (EPA), Region IX, conducted the Five-Year Review of the remedy implemented at the Coalinga Asbestos Mine Superfund Site in Coalinga, California. This review was conducted by the Remedial Project Manager (RPM) for the entire site from July to September 2001. CH2M HILL was contracted under the EPA’s Response Action Contract (RAC) IX to prepare this report which documents the results of the Five-Year Review.

The site consists of two operable units (OUs), the Johns-Manville Mill (JMM) located about 16 miles northwest of the City of Coalinga, and the City OU which lies within the City of Coalinga. The facilities were active in the milling, manufacture, storage and/or transportation of asbestos materials from the 1950s until 1980. It should be noted that the City OU is designated an OU of both the Coalinga Asbestos Mine and Atlas Asbestos Mine Site. This report has been divided into two parts; the first section reviews the City OU, and the second section reviews the JMM OU.

This is the second Five-Year Review for the Coalinga Asbestos Mine Site. The triggering action for these statutory reviews are the dates of the previous Five-Year Reviews. The JMM Five-Year Review was completed on August 8, 1998 and the Five-Year Review for the City OU was completed on March 28, 1995. No deficiencies were noted at that time. The Five-Year Review
for each OU has been carried out in 2001 in order to put both reviews on the same schedule. 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.

II. Site Chronology for the City OU

Table 1: Chronology of Site Events for the City OU

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Metropolitan Water District (MWD) of Southern California detected elevated levels of asbestos in California Aqueduct water samples.</td>
<td>1980</td>
</tr>
<tr>
<td>Coalinga Asbestos Mine and the Atlas Asbestos Mine Sites were placed on the NPL.</td>
<td>1984</td>
</tr>
<tr>
<td>During the investigation of the Atlas and Coalinga Sites, high levels of airborne asbestos were measured in the City of Coalinga. Subsequently, the 107-acre City of Coalinga OU of the Atlas Mine Site and the Coalinga Asbestos Mine Site was created.</td>
<td>1986 and 1987</td>
</tr>
<tr>
<td>Operable Unit Feasibility Study and Hazardous Substance Containment Report released by EPA.</td>
<td>February 9, 1989</td>
</tr>
<tr>
<td>ROD for the City OU was signed.</td>
<td>July 19, 1989</td>
</tr>
<tr>
<td>Remedial activities began at the City OU.</td>
<td>March 1990</td>
</tr>
<tr>
<td>Construction of the City OU was completed.</td>
<td>March 1991</td>
</tr>
<tr>
<td>Final Remedial Action Report and Operation and Maintenance Plan for City OU were accepted by the EPA.</td>
<td>April 1992</td>
</tr>
<tr>
<td>City OU First Five-Year Review.</td>
<td>March 1995</td>
</tr>
<tr>
<td>Superfund Final Closeout Report for Coalinga Mine Site.</td>
<td>August 1997</td>
</tr>
<tr>
<td>City OU removed from NPL</td>
<td>April 1998</td>
</tr>
</tbody>
</table>

III. Background for the City OU

Physical Characteristics

The City of Coalinga is in Pleasant Valley, in Fresno County, California, on the western margin of the central San Joaquin Valley in an area that includes the foothills of the Southern Diablo Range Mountains. Approximately 20 miles northwest of Coalinga in the Diablo Range is the
New Idria Formation which is the largest known serpentine deposit in the region. Extensive mining has been conducted in the southeastern third of the New Idria Formation for chromite ore, chrysotile asbestos ore, and other serpentine related minerals.

The City of Coalinga OU is located along Highway 198 at the southwestern end of the City of Coalinga, Fresno County, California (see Attachment 1). The City OU consists of approximately 107 acres situated between 4th Street and the intersection of Lucille Avenue and Highway 198. The nearest population center is an apartment complex and housing development that is located just northeast of the Waste Management Unit (WMU) and within the boundaries of the OU. In addition, a retail center is also located within the OU. The City of Coalinga (approximate population of 9,800) is located immediately to the northeast.

**Land and Resource Use and History of Contamination**

The Southern Pacific Railroad property within the 107-acre City OU consisted partly of a portion of the original operating right-of-way acquired by Southern Pacific Railroad Company (a predecessor of Southern Pacific Transportation Co.) pursuant to the July 27, 1866 Act of Congress, and partly of ancillary lands acquired pursuant to the same Act patented July 10, 1894. During Southern Pacific’s ownership, several properties were leased to various entities which were active in the milling, manufacture, storage and/or transportation of asbestos materials from the mid-1950s until approximately 1980. Over time, most of Southern Pacific’s holdings were sold. The land which contains the City OU WMU is the property of Union Pacific, successor to Southern Pacific Transportation Co. (SPTC).

In September 1984, an asbestos mine located in the New Idria Formation and a mill (the JMM) located immediately southeast of the Formation were listed on the Superfund National Priorities List (NPL) as the Atlas Asbestos Mine Superfund Site and the Coalinga Asbestos Mine Superfund Site. During investigation of these sites, EPA conducted an airborne asbestos sampling program in which high asbestos readings were measured in the City of Coalinga. Further investigation revealed that asbestos had been transported from the mines and mills to storage areas within the City of Coalinga for handling and shipment. In August 1987, EPA issued an administrative order pursuant to CERCLA Section 106 (Order 87-04) to SPTC requiring them to conduct a Remedial Investigation at the City of Coalinga. Soil sampling confirmed the presence of uncontrolled hot spots of asbestos and nickel contamination over a 107-acre area in the City of Coalinga. EPA ordered SPTC to prepare an Operable Unit Feasibility Study (OUFS) to develop and evaluate remedial alternatives for the site. On February 9, 1989, EPA released the OUFS and the Hazardous Substance Containment Report explaining EPA’s proposed plan for cleanup.

Contamination in the northern portion of this area was associated with the Atlas storage, handling, and shipping operations, while contamination in the southern portion was associated with the Johns-Manville storage, handling, and shipping operations. Although cleanup could have proceeded as two separate operable units, EPA decided it would be more expeditious to combine the cleanup of the entire 107-acre area into a single operable unit, designating it the City of Coalinga Operable Unit.

Contaminated soils, equipment, and other waste materials were removed during remediation and permanently buried in the onsite WMU. Two buildings known as the Marmac Warehouse and the Echo Transport Building were partially dismantled and the contaminated material was also placed in the WMU. The remaining steel superstructures of the buildings were left onsite after being decontaminated by steam cleaning and application of an encapsulant. A deed restriction was placed only on the property occupied by the WMU; EPA considered cleanup of the remainder of the site to be complete, including the Marmac Warehouse and the Echo Transport
Building.

Consistent with EPA’s objective of restoring Superfund sites to safe and productive use, commercial and residential redevelopment has occurred or is in progress on some parts of the site. Following EPA’s issuance of a Certificate of Completion of cleanup for the site, the City of Coalinga arranged to remove the remaining superstructure of the Marmac Warehouse to make way for a new housing development project. This development has since been completed. Cleanup of that area was considered complete, so standard demolition practices were used. Other redevelopment of portions of the site included construction of a K-Mart store.

Initial Response

The Atlas Asbestos Mine and Coalinga Asbestos Mine Sites were approved for listing on the NPL in September 1984.

During an airborne asbestos sampling program in 1986 and 1987, conducted as part of the Remedial Investigation and designed to measure airborne emissions from the Atlas and Coalinga Sites, high asbestos readings were measured in the City of Coalinga. Based on this data, a study was initiated to look for possible sources of asbestos in Coalinga. On June 17 and 18, 1987, EPA conducted a limited soil/waste material sampling and analytical program in Coalinga. This study showed chrysotile asbestos occurrence from less than one (1) percent to fifty (50) percent in the Coalinga area. Further investigation revealed that a major landowner in the contaminated area was SPTC. In August of 1987, EPA issued an administrative order pursuant to CERCLA Section 106 (Order No. 87-04) to SPTC, requiring SPTC to conduct a Remedial Investigation at the City of Coalinga site (i.e., an intensive sampling program to identify and quantify sources of mining waste contamination). As a result of the Remedial Investigation, areas contaminated with residual asbestos ore waste were found throughout the City of Coalinga site. SPTC was also ordered to prepare an OUFS to develop and evaluate remedial alternatives for the City of Coalinga site. EPA released the OUFS and information concerning EPA’s proposed plan for cleanup of the City of Coalinga site on February 9, 1989.

In response to Order No. 87-04, SPTC also performed interim measures to stabilize the waste materials during the more detailed investigation. These tasks included: (i) limiting access to contaminated areas with fencing, (ii) posting warning signs, (iii) spraying biodegradable sealant to control dust emissions, and (iv) covering waste ore piles with plastic sheeting. These interim measures were performed in the fall of 1987; a second spraying of sealant took place in the spring of 1988, and a third spraying took place in June of 1989.
Basis for Taking Action

Contaminants

Hazardous substances that have been released at the site in each media are listed in the table below:

Table 2: Contaminants at the City OU

<table>
<thead>
<tr>
<th>Soil</th>
<th>Ore Waste</th>
<th>Air</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asbestos</td>
<td>Asbestos</td>
<td>Asbestos</td>
</tr>
<tr>
<td>Nickel</td>
<td>Nickel</td>
<td>- -</td>
</tr>
</tbody>
</table>

The primary contaminant of concern for this site was asbestos. The principal threat posed by uncontained asbestos is from inhalation of airborne fibers. Exposure to asbestos through inhalation is known to cause lung cancer, mesothelioma, and asbestosis in humans.

IV. Remedial Actions for the City OU

Remedy Selection

The Record of Decision (ROD) for the City of Coalinga OU was signed on July 19, 1989. As previously mentioned and stated in the ROD, the principal threat posed by uncontained asbestos close to residential areas comes from airborne emissions. The purpose of this remedy was to limit airborne emissions from the asbestos- and nickel-contaminated soils.

The remedial action selected in the ROD addresses a problem specific to a populated area. Asbestos piles in Coalinga were to be removed, consolidated, and permanently buried so that releases of asbestos fibers to the air were minimized.

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

1. The removal and consolidation of the asbestos- and nickel-contaminated soils at this site that: (a) exceed 1 area percent asbestos using polarized light microscopy (PLM), (b) display the light-grey coloring characteristics of asbestos contaminated soils and/or (c) contain nickel at levels in excess of background. Areas displaying light-grey coloring will be remediated until no light-grey color is visible and only light will be remediated until no light-grey color is visible and only light brown soil remains by visible inspection; confirmation will be by 1 area percent PLM.

2. Removal and consolidation of waste materials and equipment that exceed the levels set forth in paragraph 1, immediately above.

3. Decontamination of buildings to less than or equal to 1 percent by PLM.

4. Construction of an underground, onsite WMU to bury permanently the consolidated contaminated substances under an impermeable cap. The impermeable cap will consist of a compacted soil foundation layer overlain by an impermeable clay mat, covered by a second soil layer.

5. Use of strict dust control measures to limit the release of asbestos fibers from the Site
during the Remedial Action work.

6. Confirmation sampling to ensure achievement of the cleanup standards.


8. Regrading of areas where contaminated soils have been removed.

9. Placement of deed restrictions on the Site property where the WMU and soil cover exist, to prevent the disturbance of the cap and possible release of asbestos fibers or nickel contaminants.

**Remedy Implementation**

- The contaminated structures and areas at the site were divided into four areas based on geography:

- The Marmac Warehouse located on Elm Avenue (Highway 198). This was a chromite ore distribution center with approximately 1,600 cubic yards of chromite ore and asbestos-contaminated waste.

- The storage yard located approximately 1 mile south of the Marmac Warehouse on Elm Avenue. It contained stacked pipes contaminated with asbestos.

- The Atlas shipping yard located in the vicinity of Glenn Avenue and 6th Street. It was used as an asbestos distribution center.

- The U.S. Asbestos Company consisting of 9 acres located at the southern border of the site and containing piles of raw asbestos ore. The Echo Transport Building is located in this area.

Cleanup of the site included the removal and consolidation in the WMU of contaminated soils that exceeded 1 area percent asbestos using PLM, soils that contained nickel at levels in excess of background, and any soils that displayed light-grey coloring characteristics of asbestos contamination. Equipment and other waste materials that exceeded 1 area percent asbestos were also moved to the WMU. The Marmac Warehouse and the Echo Transport Building were partially dismantled, and the contaminated material was placed in the WMU. The remaining steel superstructures of the buildings were left onsite after being decontaminated by steam cleaning and application of an encapsulant.

Remedial activities began in March 1990, and construction of the WMU was completed in March 1991. Confirmation sampling showed that the cleanup levels had been met, and a final inspection was conducted in October 1991. Following remedial response, the onsite WMU was the only area of the site on which a deed restriction was placed. The deed restriction was put in place on June 21, 1990 by the Southern Pacific Transportation Company (“Owner”), which is the owner of the property at the southern end of the City of Coalinga along State Highway 198 (Elm Street). This deed restriction will prohibit anyone in possession of the property from taking any actions that would interfere with the maintenance or operation of the WMU which was constructed pursuant to the Consent Decree entered into by and between Owner and the United States of America on behalf of the U.S. Environmental Protection Agency. The EPA considered cleanup of all other areas of the site complete. EPA accepted the final Remediial Action Report and an Operation and Maintenance Plan for the WMU in April 1992. The previous Five-Year Review found the WMU to be secure and operating as designed.
System Operation/Operation and Maintenance

The Operation and Maintenance (O&M) Plan for the City OU dated January 1992 was approved by EPA. O&M activities for the City OU currently include annual inspections for cap integrity, surface water ponding, fence integrity, and repairs as necessary. There is also a provision for specific monitoring in the event of a natural disaster (100-year flood, catastrophic earthquake). O&M activities for the City OU are being conducted in accordance with the O&M Plan. The most recent inspection was conducted in May 2001. Union Pacific, successor to SPTC, will continue to perform annual inspections and provide EPA with inspection reports. DTSC will be responsible for oversight of the O&M work at the site once an agreement is signed with the PRPs.

Previous post-cleanup operation and maintenance has included performing vadose zone monitoring and conducting regularly scheduled inspections of the WMU. Periodic inspections were conducted by EPA and SPTC to assess the condition of the WMU and document any damaged areas or areas requiring corrective action. Quarterly inspections were performed during the first 3 years beginning in June 1991, and annual inspections have been conducted thereafter.

A groundwater monitoring program was developed and would have been implemented if significant moisture increases had been detected. Vadose zone monitoring was performed quarterly for the first year beginning in June 1991, then semi-annually for the second and third years, and annually for the fourth and fifth years. Regularly scheduled vadose zone monitoring was terminated as planned after five years, with the final event in May 1995, because no increases in moisture content greater than 5 percent over background baseline conditions (adjusted after the early quarterly events in 1991) were detected. Future vadose zone monitoring is only anticipated in the event of a natural disaster such as a flood, in which case Union Pacific will immediately report the results to EPA. In that event, Union Pacific will compare the vadose zone monitoring results to baseline conditions to determine if an increase in moisture above the 5 percent limit has occurred and if the groundwater monitoring program should be initiated. Should groundwater monitoring be required, the program would entail the installation of three monitoring wells and quarterly sampling for nickel and asbestos.

In the event of a natural disaster such as an earthquake or flood, the PRP conducts inspections independent of other scheduled inspections. One such inspection was conducted on April 2, 1994, following the occurrence on March 31 of two earthquakes measuring 4.2 and 4.4 on the Richter scale whose epicenters were 5 miles northeast of Coalinga. Vadose zone monitoring was conducted to monitor changes in the moisture content in the WMU. A significant increase in moisture content of the WMU would have indicated the potential for the downward transport of contaminants to groundwater.

The only problem identified during the previous Five-Year Review and more recent inspections of the WMU is damage from burrowing animals to the cap and areas around the neutron probe vadose zone monitoring access tubes. Also, the irrigation system currently requires repairs and is not functional; however, the vegetation on the cap is such that irrigation is not necessary. According to Union Pacific, the burrow holes are generally shallow and do not impair the performance of the WMU cap. When damage has been identified, Union Pacific has directed their maintenance contractor to make repairs. Union Pacific maintenance contractor visits the WMU at least once per month to monitor cap vegetation, apply fertilizer or to reseed if necessary, clear vegetation from the area immediately surrounding the WMU, remove deep-rooted vegetation that might damage the integrity of the WMU, and fill burrow holes.
V. Progress Since the Last Five-Year Review for the City OU

Since the last Five-Year Review, the Final Closeout Report for this site was issued in August 1997, and the Coalinga Asbestos Mine Site was removed from the NPL. The EPA announced its intent to delete the Coalinga Asbestos Mine (Johns-Manville Mill and City OU) Superfund Site from the NPL in the November 19, 1997 Federal Register, and the site was deleted April 24, 1998. EPA based its decision on the observation that all appropriate response actions required for the site had been implemented. Even if a site is deleted from the NPL, where hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure, EPA requires review of remedial elements at least every five years after the initiation of the remedial action. Whenever there is a significant release from a site deleted from the NPL, the site may be restored to the NPL without application of the Hazard Ranking System. If new information becomes available which indicates a need for further action, EPA may initiate remedial actions.

Maintenance has been conducted as planned. No other noteworthy events have taken place.

The previous Five-Year Review recommendations were:

1. Perform additional sampling to compare asbestos levels at redeveloped areas to offsite levels.
2. Remove the Echo Transport Building.

Neither of these actions have taken place. Recommendation 1 was not carried out since it was determined that it would be difficult to draw any meaningful conclusions from a sampling effort. As noted in the Atlas Remedial Investigation Report and Phase I of Johns-Manville Coalinga Remedial Investigation Report, there are multiple sources of asbestos in the Los Gatos Creek drainage basin. Streams naturally erode and transport asbestos from abandoned mines (such as the Atlas Asbestos Mine), tailings, and the New Idria Serpentine Mass to downstream areas, such as the City of Coalinga. Thus, it may be difficult to distinguish between “background” asbestos levels and elevated asbestos levels. In addition, analysis of ambient asbestos fibers in air tends to be difficult because the fibers tend to be short and thin and other particulate matter may mask the fibers.

After the first Five-Year Review, Union Pacific discussed whether or not Recommendation 2 should be implemented or not. Union Pacific finally determined not to implement Recommendation 2 because the removal of the Echo Transport Building would have no impact on human health and the environment. The remaining structure of the Echo Transport Building, which is currently behind a locked fence, is not contaminated with asbestos. EPA concurred with Union Pacific’s decision. Therefore, Recommendation 2 was not carried out.

VI. Five-Year Review Process for the City OU

Administrative Components

Members of Union Pacific and the State Department of Toxic Substances Control (DTSC) were notified of the initiation of the Five-Year Review on July 9, 2001. The Five-Year Review team was led by Shea Jones of EPA, Remedial Project Manager for the City OU, and included members from the Regional Technical Advisory staff with expertise in biology and risk assessment. CH2M HILL was contracted by EPA to provide support for this review.
From July to September 2001, the review team established the review schedule whose components included:

- Community Notification
- Document Review
- Site Inspection
- Five-Year Review Report Development and Review

**VII. Community Notification**

Based upon the previous Five-Year Review and the current status at the City OU, community involvement was limited to the production and distribution of a fact sheet summarizing the results of the Five-Year Review.

**Document Review**

This Five-Year Review included a review of relevant documents (see Attachment 2). Applicable or relevant and appropriate requirements (ARARs) were also reviewed to determine if any regulatory changes had occurred since the last Five-Year Review was conducted that would impact the protectiveness of the remedy.

**Site Inspection**

Two site inspections were conducted for the City OU Five-Year Review. These site inspections were performed by EPA on December 21, 2000 and July 11, 2001. During the December 21, 2000 site visit, it was noted that portions of the site had been redeveloped into a shopping center (K-Mart) and a residential subdivision, and that other portions of the site were available for redevelopment. The property occupied by the WMU, which is controlled by a deed restriction, was fenced, and the perimeter clear of vegetation. The WMU cover was in excellent condition. Although the WMU fence and signs were in good condition, the lock to the front gate was open. Union Pacific was notified of the problem and replaced the lock.

During the July 11, 2001 site visit, the fence, lock, and WMU cover were all observed to be in good condition, and the perimeter was observed to be clear of vegetation. The only deficiencies noted were that a sign was damaged and there were several animal burrows on the northeastern and northwestern perimeter of the WMU. Photos from that site inspection can be found in Attachment 3.

**VII. Technical Assessment for the City OU**

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

The site inspection and review of documents, ARARs, and risk assumptions indicates that the remedy is functioning as intended by the ROD. The City OU has achieved the remedial objectives to reduce the exposure of asbestos.

Operation and maintenance of the WMU has, on the whole, been effective. A few areas showed evidence of burrowing of small animals. The burrows did not penetrate beyond the soil layer, and so did not affect protectiveness. The Union Pacific maintenance contractor regularly inspects and repairs small animal burrows. There are no indications of any difficulties with the remedy.

There were no opportunities for system optimization observed during this review. Operation and maintenance activities are already minimal.
The only institutional control that is in place is a deed restriction on the property occupied by the WMU. No activities were observed during the most recent inspection that would have violated the institutional controls. The cap and the surrounding area were undisturbed. The fence around the City OU was intact and in good repair. Only one sign was damaged and in need of repair.

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 City OU that would affect the protectiveness of the remedy.
<table>
<thead>
<tr>
<th>Contaminant</th>
<th>Media</th>
<th>Cleanup Level</th>
<th>Previous Standard/Requirement</th>
<th>Citation/Year</th>
<th>New Standard/Requirement</th>
<th>Significance of changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asbestos</td>
<td>Bulk materials (e.g., soil, rock)</td>
<td>N/A</td>
<td>Use of polarized light microscopy (PLM) measurement technique for asbestos</td>
<td>TSCA, Asbestos Hazard Emergency Response Act (AHERA), 52 FR 41846: 1987</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Asbestos</td>
<td>Air</td>
<td>N/A</td>
<td>Air cleaning - requires user of air cleaning devices for asbestos control to meet certain requirements</td>
<td>CAA, Asbestos NESHAP, 40 CFR 61.152: 1984 (amended 1986 and 1990)</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Asbestos</td>
<td>Air</td>
<td>N/A</td>
<td>Cross Reference to other asbestos regulations</td>
<td>CAA, Asbestos NESHAP, 40 CFR 61.156: 1990 (amended 1995)</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Nickel</td>
<td>Mining Waste</td>
<td>N/A</td>
<td>Classifies nickel-bearing waste as Class B mining waste</td>
<td>CAC, Title 23, Chapter 3, Subchapter 15, Article 7, Section 2571(b)(2)</td>
<td>No substantive changes</td>
<td>None</td>
</tr>
<tr>
<td>Nickel</td>
<td>Mining Waste</td>
<td>N/A</td>
<td>Allows RWQCB to exempt mining waste piles from liner and leachate collection and removal requirements if demonstrate that leachate will not form in or escape from unit</td>
<td>CAC, Title 23, Chapter 3, Subchapter 15, Article 7, Section 2570(b)</td>
<td>No substantive changes</td>
<td>None</td>
</tr>
<tr>
<td>Nickel</td>
<td>Waste</td>
<td>N/A</td>
<td>Allows RWQCB to exempt Group B mining waste unit from certain provisions of Article 7 if comprehensive hydrogeologic investigation demonstrates that (1) there are only very minor amounts of groundwater underlying the area or (2) the discharge is in compliance with the applicable water quality control plan and (3) either natural conditions or containment structures will prevent lateral hydraulic interconnection with groundwater and there is no detectable vertical hydraulic interconnection</td>
<td>CAC, Title 23, Chapter 3, Subchapter 15, Article 7, Section 2570(c)</td>
<td>No substantive changes</td>
<td>None</td>
</tr>
</tbody>
</table>

CAA = Federal Clean Air Act  
CAC = California Administrative Code  
CCR = California Code of Regulations  
CFR = Code of Federal Regulations  
H&S Code = California Health and Safety Code  
NESHAP = National Emissions Standard for Hazardous Air Pollutants  
TSCA = Toxic Substances Control Act
Table 4 - Changes in Action-Specific Requirements at City OU

<table>
<thead>
<tr>
<th>Action</th>
<th>Previous Requirement</th>
<th>Citation/Year</th>
<th>New Requirement</th>
<th>Significance of Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>Permissible exposure limit (PEL) of 0.2 asbestos fibers per cubic centimeter (f/cc) of air for occupationally exposed workers and action level of 0.1 f/cc as 8-hr. time weighted average</td>
<td>OSHA, 51 FR 22612 (1986)</td>
<td>Amended to cover workers in additional labor classifications</td>
<td>None</td>
</tr>
</tbody>
</table>

CFR = Code of Federal Regulations  
FR = Federal Register  
OSHA = Occupational Safety and Health Act

Table 5 - Changes in Location-Specific Requirements at City OU

<table>
<thead>
<tr>
<th>Location</th>
<th>Previous Requirement</th>
<th>Citation/Year</th>
<th>New Requirement</th>
<th>Significance of Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>City OU</td>
<td>Activities carried out by Federal agencies should not jeopardize continued existence of endangered species identified at site or cause adverse modifications of critical habitat</td>
<td>16 U.S.C. 1536 (a)(4) 1973</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>City OU</td>
<td>Established guidelines for minimizing habitat loss</td>
<td>U.S. Fish and Wildlife Service Mitigation Policy – 46 FR 7644-7663, January 1981</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

FR = Federal Register  
USC = United States Code

No significant revisions to the standards have been made that affect the protectiveness of the remedy.  
No new standards have been promulgated that affect the protectiveness of the remedy.  
No significant revisions have been made to To Be Considereds (TBCs) that 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?

An ecological assessment was not performed as part of remedial activities for the City OU because of the nature of the site. Because of the lack of changes of land use at the site and surrounding area, it was not deemed necessary to perform an ecological risk assessment for this Five-Year Review.

No weather- or seismic-related events have affected the protectiveness of the remedy. There is no other information that calls into question the protectiveness of the remedy.
Technical Assessment Summary

According to the documents and data reviewed, the remedy is functioning as intended by the ROD. There have been no changes in the physical conditions of the City OU that would affect the protectiveness of the remedy. There have been no changes in the standards that could affect the protectiveness of the remedy. There is no other information that calls into question the protectiveness of the remedy.

VIII. Issues for the City OU

Table 6 – Issues for the City OU

<table>
<thead>
<tr>
<th>Issue</th>
<th>Currently Affects Protectiveness (Y/N)</th>
<th>Affects Future Protectiveness (Y/N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evidence of small animal burrows at a few locations of the WMU cap</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Signs damaged</td>
<td>N</td>
<td>N</td>
</tr>
</tbody>
</table>

IX. Recommendations and Follow-up Actions for the City OU

Table 7 – Recommendations and Follow-up Actions for the City OU

<table>
<thead>
<tr>
<th>Issue</th>
<th>Recommendations/ Follow-up Actions</th>
<th>Party Responsible</th>
<th>Oversight Agency</th>
<th>Milestone Date</th>
<th>Affects Protectiveness? (Y/N)</th>
<th>Current</th>
<th>Future</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal burrows in WMU cap</td>
<td>Repair current burrows</td>
<td>Union Pacific</td>
<td>EPA</td>
<td>Ongoing</td>
<td>N</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>Signs damaged</td>
<td>Repair sign</td>
<td>Union Pacific</td>
<td>EPA</td>
<td>Ongoing</td>
<td>N</td>
<td>N</td>
<td></td>
</tr>
</tbody>
</table>

X. Protectiveness Statement for the City OU

The remedy at the City OU is protective of human health and the environment, and exposure pathways that could result in unacceptable risks are being controlled. All threats at the City OU have been addressed through the burial of contaminated material in the WMU, the installation of fencing and warning signs, regular maintenance of the WMU, and the implementation of institutional controls.

XI. Next Review for the City OU

The next Five-Year Review for the Coalinga Asbestos Mine Superfund Site is required by September 2006, five years from the date of this review.
### XII. Site Chronology for the JMM OU

#### Table 8: Chronology of Site Events for JMM OU

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>JMM Facility was constructed and used to process asbestos.</td>
<td>1962 to 1974</td>
</tr>
<tr>
<td>JMM Facility was used for chromite milling.</td>
<td>1975 to 1977</td>
</tr>
<tr>
<td>The Metropolitan Water District (MWD) of Southern California detected elevated levels of asbestos in California Aqueduct water samples. Subsequent sampling suggested that the JMM Area was a probable source of asbestos.</td>
<td>1980</td>
</tr>
<tr>
<td>The Central Valley Regional Water Quality Control Board (CVRWQCB) and the California Department of Health Services (DHS) inspected the JMM Area. The CVRWQCB determined corrective actions were required.</td>
<td>October 1980</td>
</tr>
<tr>
<td>Risks posed by the JMM Site were rated using the Hazard Ranking System.</td>
<td>June 14, 1983</td>
</tr>
<tr>
<td>Southern Pacific Land Company (SPLC) submitted a remediation plan to the CVRWQCB.</td>
<td>August 1983</td>
</tr>
<tr>
<td>The JMM site approved for listing on the NPL.</td>
<td>September 21, 1984</td>
</tr>
<tr>
<td>Remedial Investigation/Feasibility Study (RI/FS) activities initiated by EPA.</td>
<td>1985</td>
</tr>
<tr>
<td>SPLC signed Administrative Order on Consent.</td>
<td>November 1987</td>
</tr>
<tr>
<td>RI/FS submitted to EPA.</td>
<td>1990</td>
</tr>
<tr>
<td>ROD for the JMM OU was signed.</td>
<td>September 21, 1990</td>
</tr>
<tr>
<td>EPA and the PRPs entered into a Consent Decree.</td>
<td>1992</td>
</tr>
<tr>
<td>Remedial action began.</td>
<td>May 17, 1993</td>
</tr>
<tr>
<td>Remedial action completed.</td>
<td>1994</td>
</tr>
<tr>
<td>Superfund Final Closeout Report for Coalinga Asbestos Mine Site.</td>
<td>August 11, 1997</td>
</tr>
<tr>
<td>Coalinga Asbestos Mine Site deleted from NPL.</td>
<td>April 1998</td>
</tr>
<tr>
<td>JMM OU First Five-Year Review.</td>
<td>December 15, 1997</td>
</tr>
</tbody>
</table>
XIII. Background for the JMM OU

Physical Characteristics

The Johns-Manville Mill (JMM) is a privately-owned, 120-acre tract of land in upper Pine Canyon on the southern flank of Joaquin Ridge in the Diablo Range in western Fresno County, California (see Attachment 4). The site is approximately one-half mile downslope from the main outcrop margin of the New Idria Formation, a 48-square mile outcrop margin of naturally occurring chrysotile asbestos. The nearest population center is Coalinga which is 16 miles to the southeast.

Land and Resource Use/History of Contamination

Areas adjacent to the JMM OU are rural; land uses include mining, ranching, farming, and recreation (camping, hunting, hiking, mineral collecting, and riding off-highway vehicles). The JMM is currently in an access restricted area, fenced, and under a deed restriction.

The Southern Pacific Railroad originally acquired this tract from the Federal Government as part of a land grant under the 1871 Railway Act. From 1959 through 1962, extensive mining and milling of asbestos was conducted in the Coalinga and Los Gatos Creek areas. For a 25-year period, the SPLC leased part of the property to the Coalinga Asbestos Company. The Coalinga Asbestos Company, a joint venture between the Johns-Manville Corporation, the Kern County Land Company, and private investors, constructed and operated an asbestos milling operation at the site from approximately 1962 to mid-1974. During this period, ore from local open pit mines was processed and sorted, and product was transported offsite by tractor trailers. Tailings and other wastes from the operation were bulldozed into the eastern fork of Pine Canyon Creek. The local open pit mines supplying ore to the mill included the Jensen Mine and the Christy Mine (which are not part of the JMM OU). An estimated 450,000 cubic yards of ore and tailings remain at the site.

In November 1975, the Coalinga Asbestos Company assigned the lease to the Marmac Resource Company/Mareco (Marmac), which used the Coalinga Asbestos Mine (Johns-Manville Mill) to conduct a chromite milling operation. Though milling operations are thought to have ceased in October 1977, Marmac retained a lease on the property until July 31, 1981. The current owner of the JMM is Burlington Northern Santa Fe, successor-in-interest to SPLC.

In early 1980, elevated concentrations of asbestos were detected in water samples collected from the California Aqueduct near Los Angeles. An extensive sampling program along the length of the aqueduct from August through September 1980 determined that drainage flowing from the JMM Area contained asbestos that ultimately entered the aqueduct during periods of high surface water runoff. In May 1980, analysis of samples from the tailings pile showed chrysotile asbestos concentrations ranging from 20 to 40 percent.

Initial Response

The Coalinga Asbestos Mine Site was placed on the NPL in 1984, and RI/FS activities were initiated by EPA in 1985. In 1987, EPA and SPLC entered into a Consent Order which called for SPLC to complete the RI/FS for the site. The RI/FS was completed and submitted to EPA in 1990.
Basis for Taking Action

Contaminants

The hazardous substance that has been released at the site in soil, water, and air is asbestos.

Uncontrolled asbestos can be transported by erosion, wind, and water to populated areas where exposure can occur. Exposure to asbestos through inhalation of airborne fibers is known to cause lung cancer, mesothelioma, and asbestosis in humans.

XIV. Remedial Actions for the JMM OU

Remedy Selection

The ROD for the JMM OU was signed on September 21, 1990. The remedy included controlling the release of asbestos from the JMM Area and restricting access to the JMM Area. The major components of the remedy selected in the ROD were:

1. Constructing a cross canyon stream diversion to divert water flow away from the tailings pile.
2. Improving the existing sediment trapping dam to minimize the release of asbestos (approximately 340,000 cubic meters) into Pine Canyon Creek.
3. Constructing a fence around the mine perimeter and around the disturbed areas to limit access.
4. Conducting a revegetation pilot project to determine whether revegetation is a practical means of increasing stability and minimizing erosion of the disturbed areas.
5. Dismantling of the mill building and disposal of debris.
6. Road paving or an appropriate engineering alternative; and
7. Filing deed restrictions.

Remedy Implementation

Pine Canyon Land Company, Santa Fe Pacific Corporation, and Catellus Development Corporation, the responsible parties for the JMM OU, agreed to implement the selected remedy as defined in the ROD by entering into a Consent Decree with the EPA (U.S.A. v. Pine Canyon Land Co., et al., No. F-92-5734 (OWW) U.S. District Court, Eastern District of California, Fresno Division, August 11, 1992).

For the JMM OU, a Remedial Design Work Plan (RDWP) was submitted to EPA on February 25, 1993 which provided the overall management strategy for performing the design, construction, operation and maintenance, and monitoring of the remedial action. The RDWP was approved by EPA on April 1, 1993.

At the JMM OU, remedial action was started on May 17, 1993. The remedial action consisted of mill dismantling, grading, cross-canyon stream diversion, improvements to an existing sediment trapping dam, access restrictions, deed restrictions, revegetation pilot study, and paving the road. The remedy was certified to be operational by the Supervising Engineer and was completed prior to the prefinal inspection on April 28, 1994.

The potentially responsible parties (PRPs) also carried out a program to revegetate disturbed areas of the site with native plants even though the Consent Decree required only a pilot study.

System Operation/Operation and Maintenance

The current PRP, Burlington Northern Santa Fe, is conducting maintenance activities according to the operation and maintenance plan. All permanent structures of the remedial design were designed to maintain
their integrity for a minimum of 30 years. To ensure the integrity of the stream diversions and sediment retention structures over this period, the PRP implemented an operation and maintenance plan as specified in the Consent Decree. Periodic inspections of the engineering systems were conducted by contractors to the PRP every 6 months for the first 3 years after completion of remedial action construction, and annually after year three. The operation and maintenance plan currently calls for inspections, at least annually. DTSC will be responsible for oversight of the O&M work at the site once an agreement is signed with the PRPs.

Inspections will also be conducted when precipitation greater than 1/2 inch falls on the site within a 24-hour period, or if seismic activity of magnitude 5 or greater occurs within 50 miles of the site. Inspections triggered by rainfall or seismic events occur within one week of the triggering event. Ranchers living adjacent to the site were hired by the PRP as caretakers; these caretakers are responsible for conducting inspections and making minor repairs. Maintenance items discovered during these inspections will be repaired by the PRP as necessary to maintain the integrity of the remedial action. The site will remain inaccessible to the public. The caretakers also control the access gates to the site.

The EPA announced its intent to delete the Coalinga Asbestos Mine (Johns-Manville Mill and City OU) Superfund Site from the NPL in the November 19, 1997 Federal Register; the site was deleted from the NPL April 24, 1998. EPA based its decision on the observation that all appropriate response actions required for the site had been implemented. Even if a site is deleted from the NPL, where hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure, EPA requires review of remedial elements at least every five years after the initiation of the remedial action. Whenever there is a significant release from a site deleted from the NPL, the site may be restored to the NPL without application of the Hazard Ranking System. If new information becomes available which indicates a need for further action, EPA may initiate remedial actions.

In conjunction with the first Five-Year Review, EPA conducted a site inspection on February 27, 1997. All elements of the remedial design were found in good operating condition. The Cross-Canyon stream diversion did not show signs of significant erosion or sediment buildup. The tailings pile slope and tailings pile drainage system were in good condition. Similarly, the sediment retention pond and embankment were in good condition, and there were no signs of excessive sediment buildup in the retention pond. Erosion of soil around several fence post footings was reported to the PRP and was repaired in April 1997.

Since the last Five-Year Review, only two rain-event triggered site inspections have occurred at the JMM OU (one in 1998 and one in 2001). No seismic-event triggered inspections have occurred at the site yet. The most recent regularly scheduled O&M inspection was performed in April 2001 by a contractor to the PRP. No deficiencies or other issues were noted at that time.

**XV. Progress Since the Last Five-Year Review for the JMM OU**

This was the second Five-Year Review for the JMM OU. No changes were recommended by the first Five-Year Review performed December 15, 1997. No activities or changes in status have occurred at the site other than regular O&M activities.

**XVI. Five-Year Review Process for the JMM OU**

**XVII. Administrative Components**

The PRP (Burlington Northern Santa Fe), the PRP’s contractors (Levine Fricke and the Birdwells), and DTSC were notified of the initiation of the Five-Year Review on July 3, 2001. The JMM OU Five-Year Review team was led by Shea Jones of EPA, RPM for the JMM OU. CH2M HILL was contracted by EPA to provide support for this review.

During July and September 2001, the review team established the review schedule whose components
Community Involvement
Document Review
Site Inspection
Five-Year Review Report Development and Review

**Community Notification**

Based upon the previous Five-Year Review and the current status at the site, community involvement was limited to the production and distribution of a fact sheet summarizing the results of the Five-Year Review.

**Document Review**

This Five-Year Review included a review of relevant documents (see Attachment 5). ARARs were also reviewed to determine if any regulatory changes had occurred since the last Five-Year Review was conducted that would impact the protectiveness of the remedy.

**Site Inspection**

A site inspection for the Five-Year Review was performed by EPA July 12, 2001. During this site inspection, EPA was accompanied by the contractors (Birdwells and Levine Fricke) to the PRP. It was noted that the site was secure, and the fence and signs were in good condition. The diversion and the paved road on the JMM OU were in satisfactory condition. Vegetation from the revegetation project appeared to be satisfactorily established. Photos from that site inspection can be found in Attachment 6.

**XVII. Technical Assessment for the JMM OU**

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

The site inspection and review of documents, ARARs, and risk assumptions indicate that the remedy is functioning as intended by the ROD. The remedial activities and subsequent monitoring have achieved the remedial objectives to reduce the exposure of asbestos.

Operation and maintenance of the JMM OU has, on the whole, been effective. The maintenance contractor regularly inspects the OU and makes minor repairs to the site. There are no indications of any difficulties with the remedy. In addition, the revegetation project appears to be moderately successful. It was observed, during the EPA inspection in July 2001, that vegetation was established on the tailings piles.

There were no opportunities for system optimization observed during this review. O&M activities are already minimal.

As specified in the ROD, a deed restriction is in place at the JMM OU. No activities were observed that would have violated the institutional controls. The JMM OU and surrounding area were undisturbed. The fence around the site is intact and in good repair.

**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.
<table>
<thead>
<tr>
<th>Contaminant</th>
<th>Media</th>
<th>Cleanup Level</th>
<th>Previous Standard/Requirement</th>
<th>Citation/Year</th>
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<tbody>
<tr>
<td>Asbestos</td>
<td>Air</td>
<td>N/A</td>
<td>Air cleaning - requires user of air cleaning devices for asbestos control to meet certain requirements</td>
<td>CAA, Asbestos NESHAP, 40 CFR 61.152: 1984 (amended 1986 and 1990)</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Asbestos</td>
<td>Air</td>
<td>N/A</td>
<td>Cross reference to other asbestos regulations</td>
<td>CAA, Asbestos NESHAP, 40 CFR 61.156: 1990 (amended 1995)</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Asbestos</td>
<td>Air</td>
<td>N/A</td>
<td>PM10 Standard is ambient levels of particulate matter less than 10 microns shall not exceed 30 µg/m³ (annual average) or 50 µg/m³ (24 hour period)</td>
<td>California H&amp;S Code, Div. 26, section 39000 et seq and CCR, Title 17, Part 3, Chapter 1, Subchapter 15, Article 2, Section 70200, Table of Standards (1989)]</td>
<td>No substantive changes Fresno County Air Pollution Control District (APCD) has been incorporated into San Joaquin Valley Unified APCD</td>
<td>None</td>
</tr>
</tbody>
</table>

CAA = Federal Clean Air Act  
CCR = California Code of Regulations  
CFR = Code of Federal Regulations  
H&S Code = California Health and Safety Code  
NESHAP = National Emissions Standard for Hazardous Air Pollutants  
PM10 = Particulate Matter less than 10 microns in diameter
<table>
<thead>
<tr>
<th>Action</th>
<th>Previous Requirement</th>
<th>Citation/Year</th>
<th>New Requirement</th>
<th>Significance of Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>Permissible exposure limit (PEL) of 0.2 asbestos fibers per cubic centimeter (f/cc) of air for occupationally exposed workers and action level of 0.1 f/cc as 8-hr time weighted average</td>
<td>OSHA, 51 FR 22612 (1986)</td>
<td>Amended to cover workers in additionally labor classifications</td>
<td>None</td>
</tr>
<tr>
<td>Construction</td>
<td>All mining units shall be protected from flooding as shown on Table 1.2</td>
<td>CCR, Title 23, Chapter 3, Subchapter 15, Article 7, Section 2572(b)</td>
<td>No substantive changes Recodified as CCR, Title 27, Div. 2, Chapter 7, Subchapter 1, Article 1, Section 22490(b)</td>
<td>None</td>
</tr>
<tr>
<td>Construction</td>
<td>Diversion and drainage facilities shall be designed and constructed to accommodate anticipated volume of precipitation and peak flow from surface runoff from 25-year, 24-hour storm</td>
<td>CCR, Title 23, Chapter 3, Subchapter 15, Article 7, Section 2572(h)(1)(A)</td>
<td>No substantive changes Recodified as CCR, Title 27, Div. 2, Chapter 7, Subchapter 1, Article 1, Section 22490(h)(1)(A)</td>
<td>None</td>
</tr>
<tr>
<td>Construction</td>
<td>Discharges shall comply with precipitation and drainage control requirements given in Section 20365(d) and (e)</td>
<td>CCR, Title 23, Chapter 3, Subchapter 15, Article 7, Section 2572(h)(3)</td>
<td>No substantive changes Recodified as CCR, Title 27, Div. 2, Chapter 7, Subchapter 1, Article 1, Section 22490(h)(3)</td>
<td>None</td>
</tr>
<tr>
<td>Construction</td>
<td>Collection and holding facilities associated with precipitation and drainage control systems shall be emptied immediately following each storm or otherwise managed to maintain the design capacity of the system</td>
<td>CCR, Title 23, Chapter 3, Subchapter 15, Article 7, Section 2546(d)</td>
<td>No substantive changes Recodified as CCR, Title 27, Div. 2, Chapter 3, Subchapter 2, Article 4, Section 20365(d)</td>
<td>None</td>
</tr>
<tr>
<td>Construction</td>
<td>Surface and subsurface drainage from outside WMU shall be diverted from unit</td>
<td>CCR, Title 23, Chapter 3, Subchapter 15, Article 7, Section 2546(e)</td>
<td>No substantive changes Recodified as CCR, Title 27, Div. 2, Chapter 3, Subchapter 2, Article 4, Section 20365(e)</td>
<td>None</td>
</tr>
</tbody>
</table>

CCR = California Code of Regulations  
CFR = Code of Federal Regulations  
FR = Federal Register  
OSHA = Occupational Safety and Health Act  
WMU = Waste Management Unit
Table 11 - Changes in Location-Specific Requirements at the JMM OU

<table>
<thead>
<tr>
<th>Location</th>
<th>Previous Requirement</th>
<th>Citation/Year</th>
<th>New Requirement</th>
<th>Significance of Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>JMM OU</td>
<td>Activities carried out by Federal agencies should not jeopardize continued existence of endangered species identified at site or cause adverse modifications of critical habitat</td>
<td>16 U.S.C. 1536(a)(4)(1973)</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>JMM OU</td>
<td>Established guidelines for minimizing habitat loss</td>
<td>U.S. Fish and Wildlife Service Mitigation Policy - 46 FR 7644-7663, January 1981</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>JMM OU</td>
<td>Regulates discharge of dredged or fill material into navigable waters</td>
<td>FWPCA, Section 404(b)(1), 33 U.S.C. 1344 (b)</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>JMM OU</td>
<td>Regulates placement of deed restrictions on property so that site cannot be used for purpose other than existing industrial or manufacturing</td>
<td>California H&amp;S Code, Div. 20, Chapter 6.5, Section 25220-25241 et seq [specifically, H&amp;S Code section 25232(a)(1) and (2)] and CCR, Title 22, Div. 4, Chapter 30, Section 66001 et seq</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

CCR = California Code of Regulations  
CFR = Code of Federal Regulations  
FR = Federal Register  
FWPCA = Federal Water Pollution Control Act  
H&S Code = California Health and Safety Code  
USC = United States Code

No significant revisions to the standards have been made that affect the protectiveness of the remedy. No new standards have been promulgated that affect the protectiveness of the remedy. No significant revisions have been made to TBCs that 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?

An ecological assessment was performed as part of RI activities for the JMM OU. Because of the lack of changes of land use at the site and surrounding area, it was not deemed necessary to perform an ecological risk assessment for this Five-Year Review.

No weather- or seismic-related events have affected the protectiveness of the remedy. There is no other information that calls into question the protectiveness of the remedy.

**Technical Assessment Summary**

According to the documents and data reviewed, the remedy is functioning as intended by the ROD. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. There have been no changes in the standards that could affect the protectiveness of the remedy. There is no other information that calls into question the protectiveness of the remedy.
XVIII. Issues for the JMM OU

No issues are noted at this time.

XIX. Recommendations and Follow-up Actions for the JMM OU

No recommendations are made to the remedy at this time.

XX. Protectiveness Statement for the JMM OU

The remedy at the JMM OU is protective of human health and the environment, and exposure pathways that could result in unacceptable risks are being controlled. All threats at the site have been addressed through the removal of contaminated material, the diversion of water around erosion prone surfaces/materials, stabilization of erosion prone areas, structural improvements and additions, the installation of access controls and warning signs, regular maintenance of the JMM OU, and the implementation of institutional controls.

XXI. Next Review for the JMM OU

The next Five-Year Review for the Coalinga Asbestos Mine Superfund Site is required by September 2006, five years from the date of this review.