

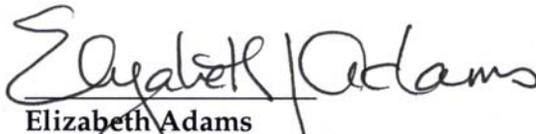
**FIVE-YEAR REVIEW REPORT
FOR
ATLAS ASBESTOS MINE SUPERFUND SITE
AND
COALINGA ASBESTOS MINE (JOHNS-MANVILLE MILL) SUPERFUND
SITES
FRESNO COUNTY, CALIFORNIA**

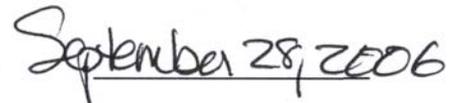
September 2006

Prepared for
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U.S. Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, California 94105

Approved by:

Date:


Elizabeth Adams
Chief, Site Cleanup Branch
USEPA, Region IX



Final Report

**Five-year Review Report
Atlas Asbestos Mine and
Coalinga Asbestos Mine (Johns-
Manville Mill) Superfund Sites
Fresno County, California**

September 2006

Prepared by

CH2MHILL

155 Grand Avenue, Suite 1000
Oakland, California 94612

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List of Acronyms

ARARs	applicable or relevant and appropriate requirements
ATCM	Airborne Toxic Control Measure
BLM	Bureau of Land Management
CARB	California Air Resources Board
CCMA	Clear Creek Management Area
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DTSC	Department of Toxic Substances Control
DWR	California Department of Water Resources
FS	feasibility study
JMM	Johns-Manville Mill
LFR	Levine-Fricke Rincon
LUC	land use covenant
MFL	million fibers per liter
MWD	Metropolitan Water District of Southern California
NPL	National Priorities List
O&M	operations and maintenance
OU	operable unit
PCLC	Pine Canyon Land Company
PLM	polarized light microscope
PRP	potentially responsible party
RI	remedial investigation
RI/FS	remedial investigation/feasibility study
ROD	Record of Decision
SPLC	Southern Pacific Land Company
SPTC	Southern Pacific Transportation Company
USBR	United States Bureau of Reclamation
USEPA	United States Environmental Protection Agency
WMU	waste management unit

Executive Summary

A 5-year review of the Atlas and Coalinga Asbestos Mine Superfund Sites in Fresno County, California was completed between March and June 2006. The 5-year review was required by statute because hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unrestricted use and unlimited exposure. This is the second 5-year review for the Atlas Asbestos Mine Site and the third 5-year review for the Coalinga Asbestos Mine Site. The triggering actions for these statutory reviews are the dates of the previous 5-year reviews (September 27 and 28, 2001).

The Atlas Asbestos Mine Superfund Site consists of two operable units (OUs) and two geographic areas. The Coalinga Asbestos Mine Superfund Sites consists of two OUs. The Atlas Asbestos Mine Superfund Site consists of the Atlas Mine Area OU (OU1), City of Coalinga OU (City OU) (OU2), the Clear Creek Management Area (CCMA), and the Arroyo Pasajero Ponding Basin (Ponding Basin). The CCMA and Ponding Basin geographic areas were included in the site because of concerns that asbestos mining and milling waste from the Atlas Mine Area were being transported to these areas by water or wind. The Coalinga Asbestos Mine Site consists of the Johns-Manville Mill (JMM) OU (OU1) and the previously-mentioned City OU (OU2), which is considered part of the Coalinga Asbestos Mine Site due to historic operations.

The Atlas Mine Area is an abandoned asbestos mine within a region of naturally-occurring asbestos minerals (the CCMA). The Atlas Mine Area included surface stockpiles of asbestos waste material generated from three open-pit asbestos mines, an abandoned mill building, a settling pond, and debris. The area is drained by intermittent streams, which drain into the White Creek Watershed and into Los Gatos Creek, a tributary to the Ponding Basin. During historic heavy flooding, asbestos-laden water has filled the Ponding Basin and been released into the California Aqueduct.

The abandoned JMM OU consists of a former asbestos mine, former processing mill, former support buildings, and asbestos tailings. The area is drained by Pine Canyon Creek, which flows into the Los Gatos Creek, a tributary to the Ponding Basin.

Asbestos product from both the Atlas Mine Area OU and the JMM OU was transported offsite to the 107-acre City OU, located approximately 20 miles to the southeast, along Highway 198 at the southwestern end of the City of Coalinga. Within the City OU, asbestos was stored prior to handling and shipment. Contamination in the northern portion of this area was associated with asbestos from the Atlas Mine Area OU and contamination in the southern portion was associated with the JMM OU. The United States Environmental Protection Agency (USEPA) decided it would be expeditious to combine the cleanup of the entire 107-acre area by designating it a single OU.

Based on concentrations of asbestos that were detected at these sites, risk assessments concluded that the levels of asbestos present at the Atlas and Coalinga Sites presented an elevated risk of lung cancer due to the potential for exposure to airborne asbestos. When inhaled, asbestos can be permanently lodged in the lungs creating a chronic source of

irritation. The longer the exposure and greater the number of fibers inhaled, the greater the potential for developing lung cancer, mesothelioma, or asbestosis.

The remedy for the Atlas Mine Area OU and the JMM OU included the removal of contaminated material, stabilization of erosion-prone areas, structural improvements and additions, access control, and institutional controls. The remedy for the City OU included the removal and burial of contaminated soils and materials beneath an onsite cap (Waste Management Unit [WMU]). The remedy also included institutional controls. The Superfund Final Closeout Report for Coalinga Asbestos Mine site (JMM OU and City OU) was signed on August 19, 1997, and this Superfund Site was removed from the Superfund National Priorities List on April 24, 1998 (USEPA 1997). The Atlas Mine Area OU remains on the list.

This 5-year review – which included a review of documents, applicable or relevant and appropriate requirements, and institutional controls; site inspections; and an interview – identified the following issues/recommendations:

- The land use covenants (LUC) (also known as deed restrictions) recorded for the JMM OU and City OU should be re-recorded so that they run with the land pursuant to the current Department of Toxic Substances Control (DTSC) regulations for LUCs.
- Alternate access roads to the Rover Pit/Channel A and Pond A at the Atlas Mine Area OU should be identified.
- The signs along the perimeter fence at the WMU at the City OU should be updated with a current DTSC phone number.
- The USEPA has recently revised asbestos risk assessment guidance to conclude that “the 1 area-percent threshold for asbestos in soil/debris as an action level may not be protective of human health in all instances of site cleanups” (USEPA 2004). This new information is a change from the exposure assumption made at the City OU, which was the basis for the 1 percent soil cleanup level. Therefore, the remedy for the unrestricted portion of the City OU may not be protective of human health and the environment, and further information is needed to determine protectiveness. The WMU at the City OU is unaffected by this new information. The WMU is protective because human exposure pathways are eliminated by engineering and institutional controls.

The remedy for the Atlas Mine Area OU is protective of human health and the environment due to the removal of contaminated material, stabilization of erosion prone areas, structural improvements and additions, the installation of access controls and warning signs, and regular maintenance.

The remedy for the JMM OU is protective of human health and the environment due to the removal of contaminated material, 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, and regular maintenance.

The protectiveness of the remedy for the City OU is deferred until further information is obtained. Since the City OU is shared by two Sites – Atlas Asbestos Mine and Coalinga Asbestos Mind Sites – the sitewide protectiveness of both Sites is deferred until further information is obtained.

5-year Review Summary Form

SITE IDENTIFICATION

Site name : Atlas Asbestos Mine Superfund Site and Coalinga Asbestos Mine (Johns-Manville Mill [JMM]) Superfund Site

EPA ID: CAD980496863 (Atlas) and CAD980817217 (Coalinga)

CERCLIS ID #: 0934 (Atlas) and 0935 (Coalinga)

Region: 9 **State:** CA **City/County:** Coalinga/Fresno

SITE STATUS

NPL status: Final Deleted Other (specify) Coalinga Site Operable Unit (OU1 and OU2) has been deleted from the NPL, Atlas Mine Area OU (OU1) on Final NPL.

Remediation status (choose all that apply): Under Construction Operating Complete

Multiple OUs? YES NO **Construction completion date:** Coalinga City OU: May 1993; Atlas Mine Area OU: September 1999; JMM OU: March 1995

Has site been put into reuse? YES NO Portions of the site have been put into reuse

REVIEW STATUS

Reviewing agency: EPA State Tribe Other Federal Agency _____

Author name: Lynn Suer

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

Review period: March – September 2006

Date(s) of site inspection: April 13, 14, and May 2, 2006

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) 3rd Review for City OU and JMM OU, 2nd Review for Atlas Mine Area OU

Triggering action:

- Actual RA Operation of Groundwater Actual RA Start at OU# _____
 Remedial Systems Previous 5-year Review Report
 Construction Completion
 Other (specify) _____

Triggering action date: City OU and JMM OU: September 27, 2001

Atlas Mine Area OU: September 28, 2001

Due date (five years after triggering action date): September 27, 2006

5-year Review Summary Form

Issues:

- The deed restrictions recorded for JMM OU and City OU do not run with the land. They are also not consistent with current Department of Toxic Substances Control (DTSC) regulations.
- At the Atlas Mine Area, the road to the Rover Pit/Channel A is likely to fail sometime in the future due to an active landslide. In addition, the road to Pond A may also become inaccessible to vehicular traffic in the future due to erosion.
- The DTSC phone number shown on signs along the perimeter fences surrounding the WMU at the City OU is no longer valid.
- U.S. Environmental Protection Agency (USEPA) has recently revised asbestos risk assessment guidance to conclude that “the 1 area-percent threshold for asbestos in soil/debris as an action level may not be protective of human health in all instances of site cleanups” (USEPA 2004). This new information is a change from the exposure assumption made at the City OU, which was the basis for the 1 percent soil cleanup level. Therefore, the remedy for the unrestricted portion of the City OU may not protect human health and the environment. This is not an issue for the WMU within the City OU because human exposure pathways at the WMU have been eliminated by a soil cap, fencing, and access restrictions.

Recommendations and Follow-up Actions:

- The deed restrictions at the JMM and City OUs should be re-recorded consistent with current DTSC regulations for land use covenants, 22 California Code of Regulations Section 67391.1.
- Alternate access roads to the Rover Pit/Channel A and to Pond A should be identified prior to failure of the existing roads.
- The signs along the perimeter fences at the WMU at the City OU should be updated with a current DTSC phone number.
- An evaluation of the protectiveness of the asbestos cleanup level specified by the Record of Decision should be performed for the unrestricted portion of the City OU. This evaluation will occur in three phases. The first phase will involve a review of information pertaining to the cleanup. This will determine the extent to which soils with residual (<1 percent) asbestos were left onsite and whether residual asbestos in soils could, potentially, compromise protectiveness. The second phase will only occur if it is determined under the first phase that protectiveness may be compromised. The second phase consists of developing a workplan to address potential risks. A third phase consists of evaluating the results of work conducted under the workplan and specify what, if any, further actions may be needed to ensure protectiveness.

Protectiveness Statement(s):

The remedial action at the Atlas Mine Area OU is protective of human health and the environment due to the removal of contaminated material, stabilization of erosion prone areas, structural improvements and additions, the installation of access controls and warning signs, and regular maintenance of the Atlas Mine Area OU.

The remedial action at the JMM OU is protective of human health and the environment due to the removal of contaminated material, 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, and regular maintenance of the JMM OU.

The protectiveness of the remedial action for the City OU is deferred until further information is obtained regarding potential human health risks of residual (<1 percent) asbestos in soils that may be present in the unrestricted portion of the OU.

Sitewide Protectiveness Statement(s):

Because the determination of protectiveness is deferred for the City OU, and because the City OU is shared by the Atlas Asbestos Mine Site and the Coalinga Asbestos Mine Site, the sitewide protectiveness determination for both Superfund Sites is deferred until further information is obtained.

SECTION 1.0

Introduction

The United States Environmental Protection Agency (USEPA) has conducted a 5-year review of the remedial actions implemented at the Atlas Asbestos Mine Superfund Site (also referred to as the Atlas Site) and the Coalinga Asbestos Mine Superfund Site (also referred to as the Coalinga Site), located in Fresno County, California. This review was conducted between March and June 2006. CH2M HILL was contracted under the USEPA's Response Action Contract IX to prepare this report that documents the results of the 5-year review.

The purpose of the 5-year review process is to evaluate whether the remedial measures implemented at the sites are protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in 5-year review reports. In addition, 5-year review reports identify deficiencies found during the review, if any, and provide recommendations for addressing these deficiencies.

This review is required by statute. USEPA must implement 5-year reviews consistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan. CERCLA Section 121(c), as amended, 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.

The National Oil and Hazardous Substances Pollution Contingency Plan at Section 300.430(f)(4)(ii) of the Code of Federal Regulations 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.

Consequently, this 5-year review has been performed because hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unrestricted use and unlimited exposure.

This is the second 5-year review for the Atlas Asbestos Mine Site and the third 5-year review for the Coalinga Asbestos Mine Site. The triggering actions for these statutory reviews are the dates of the previous 5-year reviews (September 27 and 28, 2001).

The Atlas Asbestos Mine Superfund Site consists of two operable units (OUs) and two geographic areas. The Coalinga Asbestos Mine Superfund Sites consists of two OUs. The Atlas Asbestos Mine Superfund Site consists of the Atlas Mine Area OU (OU1), City of

Coalinga OU (City OU) (OU2), the Clear Creek Management Area (CCMA), and the Arroyo Pasajero Ponding Basin (Ponding Basin). The CCMA and Ponding Basin geographic areas were included in the site because of concerns that asbestos mining and milling waste from the Atlas Mine Area were being transported to these areas by water or wind. The Coalinga Asbestos Mine Site consists of the Johns-Manville Mill (JMM) OU (OU1) and the previously-mentioned City OU (OU2), which is considered part of the Coalinga Asbestos Mine Site due to historic operations.

The report is organized into sections that describe the history and setting of the site, remedial action decisions and implementation, and an evaluation of remedial actions. The report is organized in the following manner:

- Section 2.0 discusses chronology of events at the sites.
- Section 3.0 discusses physical characteristics, land use, the history of contamination, basis for taking action, and initial response.
- Section 4.0 presents the remedial actions implemented, current status of the remedies, and operations and maintenance (O&M) activities.
- Section 5.0 presents the progress made since the last 5-year reviews.
- Section 6.0 outlines activities performed during the 5-year review process.
- Section 7.0 presents technical assessments of the remedial actions implemented at the sites.
- Section 8.0 discusses issues and recommendations for the sites.
- Section 9.0 provides protectiveness statements for the sites.
- Section 10.0 presents a schedule for the next 5-year review.
- Section 11.0 provides list of works cited during the preparation of this document.

SECTION 2.0

Site Chronology

Table 2-1 provides a chronology of events at the Atlas and Coalinga Sites.

TABLE 2-1
Chronology of Site Events

Event	Date	OU(s)/ Geographic Area
JMM was constructed and used to process asbestos.	1962 to mid-1974	JMM OU 01
Atlas Mine was used for active asbestos mining and milling.	1967 to 1979	Atlas OU 01
JMM was used for chromite milling.	1975 to 1977	JMM OU 01
Atlas Asbestos Company and Wheeler Properties cited for violating the National Emissions Standards for Hazardous Air Pollutants regulations regarding control of asbestos emissions.	December 3, 1976 and February 15, 1980	Atlas OU 01
The Metropolitan Water District of Southern California detected elevated levels of asbestos in California Aqueduct water samples. Subsequent sampling suggested that the JMM and Atlas Mine Area were probable sources of asbestos.	1980	JMM OU 01 and Atlas OU 01
USEPA performed additional inspection of the JMM.	May 1980	JMM OU 01
Central Valley Regional Water Quality Control Board (Water Board) and California Department of Health Services inspected the Atlas Mine Area and the JMM and concluded additional corrective measures should be taken.	October 17, 1980	JMM OU 01 and Atlas OU 01
Water Board collected surface water samples in the Arroyo Pasajero watershed and results were rated using the hazard ranking system.	March and June 1983	JMM OU 01 and Atlas OU 01
Southern Pacific Land Company (SPLC) submitted a remediation plan to the Water Board.	August 18, 1983	JMM OU 01
Coalinga and Atlas Sites were placed on the National Priority List (NPL).	September 21, 1984	JMM OU 01 and Atlas OU 01
USEPA initiated remedial investigation/feasibility study (RI/FS) activities at JMM and Atlas Mine Area.	1985	JMM OU 01 and Atlas OU 01
USEPA performed sampling and studies at the Atlas and Coalinga Sites as part of the remedial investigation (RI). High levels of airborne asbestos were measured in the City of Coalinga. Subsequently, the 107-acre City OU of the Atlas and Coalinga Sites was created.	1986 and 1987	City OU 02
USEPA issued an administrative order pursuant to CERCLA Section 106 (Order No. 87-04) to Southern Pacific Transportation Company (SPTC) to perform an RI.	August 1987	City OU 02

TABLE 2-1
Chronology of Site Events

Event	Date	OU(s)/ Geographic Area
SPTC began RI and performed interim measures, including limiting access to contaminated areas with fencing, posting warning signs, spraying biodegradable sealant to control dust emissions, and covering waste ore piles with plastic sheeting.	Fall 1987	City OU 02
SPLC signed Administrative Order on Consent and agreed to conduct an RI/FS for the JMM.	November 16, 1987	JMM OU 01
Agency for Toxic Substances and Disease Registry issued a health assessment for the Atlas/Coalinga Mine sites and concluded that these sites were a potential public health concern.	November 1988	City OU 02
USEPA released the OU Feasibility Study (FS) and Hazardous Substance Containment Report.	February 9, 1989	City OU 02
Record of Decision (ROD) for City OU was signed.	July 19, 1989	City OU 02
SPTC entered into a Consent Decree with USEPA and agreed to implement the remedies specified in the ROD.	July 27, 1989	City OU 02
Remedial activities commenced at the City OU.	October 1989	City OU 02
RI Report for JMM OU submitted to USEPA.	January 17, 1990	JMM OU 01
RI/FS Report and Proposed Plan for the Atlas Site released for public comment.	April 1990	Atlas OU 01
FS for JMM OU submitted to USEPA.	May 3, 1990	JMM OU 01
An amended Consent Decree with SPTC and USEPA that included the City of Coalinga as a signatory was filed for City OU.	May 17, 1990.	City OU 02
Deed restriction was recorded with the Recorder's Office, Fresno County, prohibiting anyone in possession of property from interfering with maintenance and operation of the waste management unit (WMU) at City OU.	June 22, 1990	City OU 02
ROD for JMM OU was signed.	September 21, 1990	JMM OU 01
Remedial activities began at the City OU.	October 1990	City OU 02
ROD for Atlas Mine Area OU was signed.	February 14, 1991	Atlas OU 01
USEPA accepted the Final Remedial Action Report and Operation and Maintenance Plan for City OU.	April 1992	City OU 02
Pine Canyon Land Company (PCLC), Santa Fe Pacific Corporation, and Catellus Development Corporation entered into a Consent Decree with USEPA at JMM OU.	August 11, 1992	JMM OU 01
Atlas Corporation and Vinnell Mining and Minerals Corporation, entered into a Consent Decree with USEPA at Atlas Mine Area OU.	August 13, 1992	Atlas OU 01
Deed restriction amendment recorded for the City OU.	September 24, 1992	City OU 02

TABLE 2-1
Chronology of Site Events

Event	Date	OU(s)/ Geographic Area
Public Notice issues by EPA regarding Status of CCMA and the Ponding Basin	December, 1992	CCMA, Ponding Basin
USEPA approved the Remedial Design Work Plan for the JMM OU.	April 1, 1993	JMM OU 01
Remedial activities began at JMM OU.	May 17, 1993	JMM OU 01
Certificate of completion issued to the City of Coalinga.	May 18, 1993	City OU 02
Deed restriction was recorded with the Recorder's Office, Fresno, County, prohibiting anyone in possession of property from interfering with the implementation of remedy at JMM OU.	July 2, 1993	JMM OU 01
Remedial Action Design Plan approved at Atlas Mine Area OU.	June 22, 1994	Atlas OU 01
Remedial activities began at Atlas Mine Area OU.	October 20, 1994	Atlas OU 01
City OU First 5-year review.	March 1995	City OU 02
USEPA issued a preliminary closeout report for the JMM OU.	March 1995	JMM OU 01
Environmental Solutions of Glendale, California conducted a study of asbestos levels in the ambient air and soil of the Ridgeview Apartment Complex within the City OU for the California Housing Finance Agency.	July 1995	City OU 02
Atlas Mine Site Committee submitted a revised remedial design modifications letter to USEPA for supplemental site modifications to the Remedial Action Design Plan at Atlas Mine Area OU.	October 19, 1995	Atlas OU 01
USEPA approved design modifications for Remedial Action at Atlas Mine Area OU.	February 1, 1996	Atlas OU 01
Superfund Final Closeout Report prepared for Coalinga Site.	August 11, 1997	JMM OU 01 and City OU 02
JMM OU First 5-year review.	December 15, 1997	JMM OU 01
Coalinga site removed from NPL.	April, 24 1998	JMM OU 01 and City OU 02
USEPA issued a preliminary closeout report for the Atlas Area OU.	September 2, 1999	Atlas OU 01
O&M Plan and Remedial Action Completion Report prepared for Atlas Mine Area OU.	December 31, 1999	Atlas OU 01
Preliminary Closeout Report for Atlas Mine Area OU signed.	January 18, 2000	Atlas OU 01
JMM OU and City OU second 5-year review. Atlas Mine Area OU first 5-year review.	September 2001	JMM OU 01, City OU 02, and Atlas OU 01
JMM Revised Operation and Maintenance Plan	May 2, 2002	JMM OU 01
JMM OU 2002 Annual Inspection Report	May 3, 2002	JMM OU 01

TABLE 2-1
Chronology of Site Events

Event	Date	OU(s)/ Geographic Area
City OU 2002 Annual Inspection Report	June 17, 2002	City OU 02
Atlas OU 2002 Annual Inspection Report	February 10, 2003	Atlas OU 01
JMM OU 2003 Annual Inspection Report	April 18, 2003	JMM OU 01
City OU 2003 Annual Inspection Report	July 11, 2003	City OU 02
Atlas OU 2003 Annual Inspection Report	December 19, 2003	Atlas OU 01
JMM OU 2004 Annual Inspection Report	June 1, 2004	JMM OU 01
City OU 2004 Annual Inspection Report	October 12, 2004	City OU 02
JMM OU 2005 Annual Inspection Report	June 6, 2005	JMM OU 01
Atlas OU 2005 Annual Inspection Report	October 2005	Atlas OU 01
City OU 2005 Annual Inspection Report	November 4, 2005	City OU 02
Construction maintenance activities at the Atlas Mine Area OU implemented.	March 30 to August 18, 2005	Atlas OU 01
USEPA conducted air sampling events in CCMA.	September/November 2004, and February/November 2005	CCMA

Site Background

This section provides site background including the land and resource use, the physical setting, the history of contamination, initial responses, and basis for taking action.

3.1 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. According to the 2000 census, the City of Coalinga has a population of approximately 11,700. The New Idria Formation is located approximately 20 miles northwest of Coalinga in the Diablo Range (Figure 3-1) and is the largest known serpentine deposit in the Coalinga region. The formation consists of a 30,000-acre outcrop margin of naturally-occurring chrysotile asbestos, as well as other minerals associated with serpentine. 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 Atlas Mine Area is an abandoned asbestos mine within the New Idria Formation. It is approximately 20 miles northwest of Coalinga in Fresno County, California. The mine area is approximately 140 acres and is situated between 4,000 and 5,000 feet above sea level. The Atlas Mine Area is also located within the Bureau of Land Management's (BLM's) CCMA, which includes approximately 75,000 acres of public land. The portion of the CCMA located within the New Idria Formation is designated a Hazardous Asbestos Area. It is managed by the BLM through the January 2006 CCMA Resource Management Plan Amendment and Route Designation ROD (BLM 2006) (Figure 3-1).

The Ponding Basin is approximately 30 miles east of the Atlas Mine Area. It is located between State Highway 198 and Gale Avenue to the West of the California Aqueduct. Intermittent streams in the Atlas Mine and JMM Area drain into Los Gatos Creek, a tributary to the Ponding Basin. The Ponding Basin is designed to hold floodwaters from the Arroyo Pasajero alluvial fan.

The 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. The site is approximately 0.5 mile downslope from the main outcrop margin of the New Idria Formation. The City of Coalinga is the nearest population center and is 16 miles to the southeast (Figure 3-1).

The City OU is located along Highway 198 at the southwestern end of the City of Coalinga in Fresno County, California. The City OU consists of approximately 107 acres situated between Fourth 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 WMU and within the boundaries of the OU. In addition, a retail center is located within the OU.

3.2 Land and Resource Use

3.2.1 Atlas Mine Area OU

As presented in the previous section, the Atlas Mine Area OU lies within the New Idria Formation, which contains large amounts of naturally-occurring chrysotile asbestos. It included surface stockpiles of asbestos waste material from three open-pit asbestos mines, an abandoned mill building, a settling pond, and debris. The area is drained by intermittent streams, which drain into the White Creek Watershed and into Los Gatos Creek, a tributary to the Ponding Basin. Adjacent land uses at the Atlas Mine Area include mining, ranching, farming, and recreation (camping, hiking, hunting, and mineral collection). The site is accessed by either a BLM dirt road north of the site or from a private dirt road located north of Los Gatos Road. Both access roads to the site contain locked gates, with keys managed by BLM.

3.2.2 Johns-Manville Mill OU

The abandoned JMM OU consists of a former asbestos mine, former processing mill, former support buildings, and asbestos tailings. The area is drained by Pine Canyon Creek, which flows into the Los Gatos Creek, a tributary to the Ponding Basin. 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 subject to a deed restriction. However, the existing deed restriction has issues with enforceability that are discussed further in Section 8.0.

3.2.3 City OU

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 SPTC) 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 SPTC's ownership, several properties were leased to various entities active in the milling, manufacture, storage and/or transportation of asbestos materials from the mid-1950s until approximately 1980. Over time, most of SPTC's holdings were sold. The land that contains the City OU WMU is currently owned by the City of Coalinga pursuant to a "Stipulated Judgment Quieting Title, APN: 900-700-12 (formerly APN 083-020-59SU)", issued by the United States District Court for the Eastern District of California on October 21, 2005 (Case: 1:05-CV-00210-OWW-SMS).

Currently, commercial and residential redevelopment has occurred or is in progress on portions of the site where there is no deed restriction, consistent with USEPA's Brownfield Initiative. Redevelopment in the area has included the construction of a K-Mart store and residential structures. Recent development since the last 5-year review includes construction of additional residential housing in the area north of the WMU.

3.2.4 Ponding Basin

The Ponding Basin was designed to hold floodwaters from the Arroyo Pasajero alluvial fan. During rainy seasons, the California State Department of Water Resources (DWR)

historically drained the water from the Ponding Basin to the California Aqueduct. The water in the California Aqueduct is used to supply municipalities with drinking water and farmers with water for agricultural purposes such as irrigation. Because water in the California Aqueduct historically contained high levels of dispersed asbestos fibers, municipalities are required to treat drinking water to a maximum contaminant level of less than 7,000,000 fibers per liter, or 7 million fibers per liter (MFL) of asbestos under the Safe Drinking Water Act (SDWA).

3.2.5 Clear Creek Management Area

The designated Hazardous Asbestos Area in BLM's CCMA has been mined for mercury, chromite, asbestos, and other minerals since the mid-1800s, and contains numerous mines and exploration cuts, as well as hundreds of roads and trails. It is also a popular recreation area used by off-highway vehicle enthusiasts, hikers, campers, hunters, and rock-collectors. The San Benito Mountain Research Natural Area, which is approximately 4,082 acres, is located within the Hazardous Asbestos Area. This area was designated because of the unique vegetative communities associated with the serpentine soils. Its primary purpose is to provide research and educational opportunities while protecting this unique assemblage of vegetation.

3.3 History of Contamination

3.3.1 Atlas Mine Area OU

In the mid-1950s, an investigation by the California Division of Mines and Geology indicated that the serpentine matrix of the New Idria Formation was mainly chrysotile asbestos. Subsequent investigation in the southeastern third of the New Idria Formation demonstrated that the asbestos ore could be mined and milled to produce a marketable short-fiber asbestos product. From 1959 through 1962, the Coalinga and Los Gatos Creek areas experienced an intensive land rush for asbestos mining claims. In 1962, the Atlas Minerals Division of the Atlas Corporation acquired title to a large block of claims and began construction of an asbestos mill at the Atlas Mine Area. Asbestos mining and milling at the Atlas Mine Area occurred from 1967 to 1979. The Vinnell Mining and Minerals Corporation (Vinnell), in a joint venture with California Minerals Corporation, owned and operated the mining and milling operation from 1967 until 1974, when they sold it to Wheeler Properties. Wheeler Properties operated the facility until 1979 and filed for bankruptcy shortly thereafter.

The mining activity included digging the asbestos ore out of surface pits and then milling the ore. The byproducts of the milling process (mill tailings) were bulldozed into piles near the mill building. Approximately 3 million cubic yards of asbestos ore and asbestos tailings remain at the Atlas Mine Area OU.

On December 3, 1976 and on February 15, 1980, Atlas Asbestos Company and Wheeler Properties were cited for violating the National Emissions Standards for Hazardous Air Pollutants regulation regarding control of asbestos emissions.

In early 1980, the Metropolitan Water District of Southern California (MWD) detected elevated levels of asbestos in water samples collected from the California Aqueduct near

Los Angeles. An extensive sampling program along the aqueduct, conducted by the MWD in August through September of 1980, suggested that the Atlas Mine was one probable source of asbestos in the California Aqueduct. Asbestos levels of up to 2,500 MFL were measured. In March of 1983, four surface water samples were collected during a period of high run-off in the Arroyo Pasajero watershed. Asbestos fiber concentrations in these samples ranged from 80,000 to 240,000 MFL.

On October 17, 1980, the Central Valley Regional Water Quality Control Board (Water Board) and the California Department of Health Services inspected the Atlas Mine Area to determine if waste discharges from these facilities were in compliance with state regulations. The Water Board concluded that additional corrective measures should be taken to prevent mine- and mill-generated asbestos from entering the drainage basins.

3.3.2 Johns-Manville Mill OU

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, 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 JMM 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.

In early 1980, the MWD detected elevated levels of asbestos in water samples collected from the California Aqueduct near Los Angeles. An extensive sampling program along the aqueduct, conducted by the MWD in August through September of 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.

3.3.3 City OU

During investigation of the Atlas Mine Area and the JMM in 1986 and 1987, USEPA conducted an airborne asbestos sampling program in which high asbestos levels were measured in the City of Coalinga. A limited soil/waste material sampling and analytical program performed in June 1987 indicated chrysotile asbestos levels ranging from less than 1 area-percent to 50 area-percent in the Coalinga area. 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. Contamination in the northern portion of this area was associated with the storage, handling, and shipping operations conducted at the Atlas Mine Area, while contamination in the southern portion was associated with storage, handling, and shipping operations conducted at the JMM. Although cleanup could have proceeded as two separate OUs, USEPA decided it would be more expeditious to combine the cleanup of the entire 107-acre area into a single OU, designating it the City OU, which is part of both the Atlas and Coalinga Sites.

3.4 Initial Responses

On June 14, 1983, the risks presented by asbestos at the Atlas and Coalinga Sites were rated using the Hazard Ranking System. The Atlas and Coalinga Sites were then placed on the NPL in September 1984. RI/FS activities were initiated by the USEPA in 1985.

In August of 1987, USEPA issued an administrative order pursuant to CERCLA Section 106 (Order No. 87-04) to SPTC, a landowner in the contaminated area, requiring them to conduct an RI at the City OU. Soil sampling performed as part of the RI confirmed the presence of elevated levels of asbestos and nickel in the City OU. SPTC was also ordered to perform an FS to develop and evaluate remedial alternatives to address the contamination. USEPA released the FS and information concerning the proposed USEPA plan for cleanup of the City OU on February 9, 1989.

In response to Order No. 87-04, SPTC also performed interim measures to stabilize the waste materials at the City OU during the more detailed investigation. These tasks included: (1) limiting access to contaminated areas with fencing, (2) posting warning signs, (3) spraying biodegradable sealant to control dust emissions, and (4) covering waste ore piles with plastic sheeting. These interim measures were performed in fall 1987. A second spraying of sealant took place in spring 1988, and a third spraying took place in June 1989.

Atlas Minerals Division of the Atlas Corporation, Vinnell, Wheeler Properties Inc., the California Mineral Corporation, and the BLM were identified as potentially responsible parties (PRPs) at the Atlas Mine OU. General notice letters were sent on October 13, 1987 and June 23, 1988, notifying the PRPs of their potential liability.

The Santa Fe Pacific Railroad Company (formerly known as SPLC), the Marmac Resources Company, Kern County Land Company, and the Manville Sales Corporation were identified as PRPs at the JMM OU. General notice letters were sent on June 26, 1986 and June 23, 1988, notifying the PRPs of their potential liability for cleanup. On November 16, 1987, USEPA and SPLC entered into a Consent Order that called for SPLC to complete the RI/FS for the site. These were completed and submitted to USEPA in 1990.

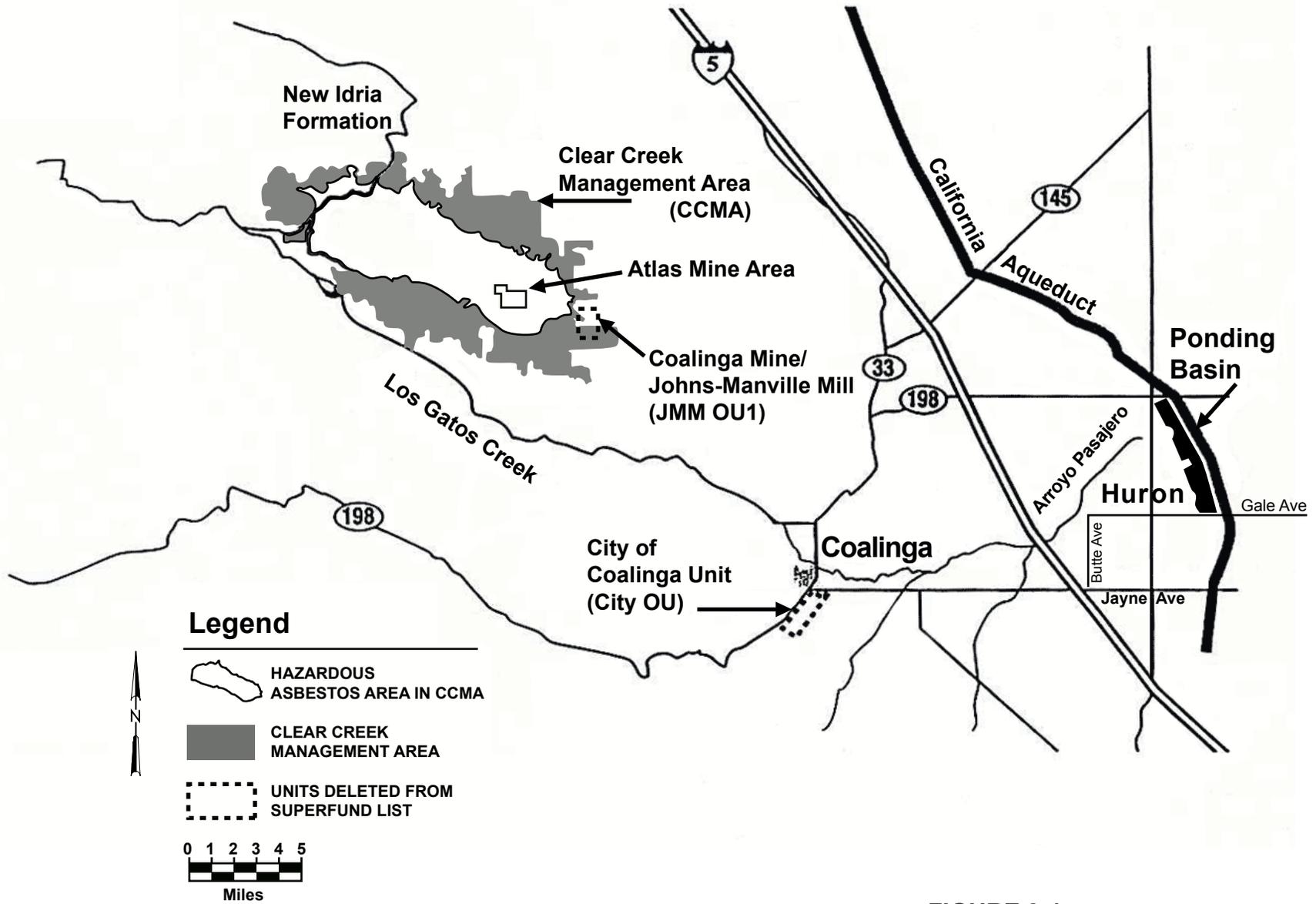
3.5 Basis for Taking Action

Asbestos has been released to soil, water, and air at the Atlas and Coalinga Sites. Elevated concentrations of nickel have also been detected in soil and ore waste at the City OU. Asbestos is considered a known carcinogen, Group 1 human carcinogen, and Group A human carcinogen by the United States Department of Health and Human Services, the International Agency for Research on Cancer, and the USEPA, respectively. Uncontrolled asbestos can be transported by erosion, wind, and water to populated areas where exposure

can occur.

Asbestos can come in many different forms, including fibers, bundles, matrices, and clusters. Fiber is the structure with the greatest toxicological significance. It is believed that fibers, especially long fibers, when inhaled, can be permanently lodged in the lungs creating a chronic source of irritation. The longer the exposure and the greater the number of fibers inhaled, the greater the potential for developing lung cancer, mesothelioma, or asbestosis (Health Consultation). Some epidemiology studies have also associated larynx, pharynx, gastrointestinal tract, kidney, ovarian cancer, and certain respiratory diseases such as pneumonia with asbestos exposure.

The two general routes of exposure to asbestos at the Atlas and Coalinga Sites are inhalation and ingestion. The potentially-exposed populations include: (1) individuals who use the Atlas Mine Area, the JMM, and other areas in the CCMA for recreational off-highway vehicle driving, camping, hunting, ranching, and other public uses; (2) individuals who live in proximity to the Atlas Mine Area, the JMM, and the CCMA; and (3) populations of communities in Fresno and San Benito Counties, such as Huron, Coalinga, Idria, Five Points, Stratford, Kettleman City, Priest Valley, Lonoak, Panoche, and Avenal. Based on concentrations of asbestos detected in the area, risk assessments concluded that the levels of asbestos at the Atlas and Coalinga Sites presented an elevated risk of lung cancer due to the potential for asbestos exposure. Because of the determination that these potential risks existed, USEPA decided that remedial action was necessary.



**FIGURE 3-1
LOCATION MAP**
FIVE-YEAR REVIEW REPORT FOR THE ATLAS ASBESTOS
MINE AND COALINGA ASBESTOS MINE SUPERFUND SITES
COALINGA, CALIFORNIA

Remedial Actions

The following section summarizes the remedial actions selected and implemented at the Atlas and Coalinga sites, and also presents a summary of the operational and maintenance activities for the selected remedies.

4.1 Remedy Selection

4.1.1 Atlas Mine Area OU

The ROD for the Atlas Mine Area OU was signed on February 14, 1991. Asbestos waste at the Atlas Mine Area OU presented three major problems:

- Vehicular or other human disturbance generated airborne asbestos on-site.
- Asbestos was transported from the Atlas Mine Area to external areas by vehicles that traveled through the Atlas Mine Area.
- Chrysotile asbestos was released from the Atlas Mine Area into local creeks during heavy rains, and there was consequently potential for this asbestos to become airborne at downstream locations.

The objective of the remedy was to control the release of asbestos into air and local streams from the Atlas Mine Area and restrict access to the Atlas Mine Area using engineering and institutional controls to provide long-term protection of human health and the environment. The selected remedy entails (USEPA 1991a):

- Fencing or other appropriate controls to restrict access to the Atlas Mine Area.
- Paving the road through the Atlas Mine Area or implementing an appropriate road maintenance alternative.
- Constructing stream diversions and sediment trapping dams to minimize the release of asbestos into local creeks.
- Conducting a revegetation pilot project to determine whether revegetation is an appropriate means of increasing stability and minimizing erosion of the disturbed areas and implementing revegetation if it is found to be appropriate.
- Dismantling of the mill building and disposing of debris.
- Filing deed restrictions on privately held lands at Atlas Mine Area OU.
- Implementing an O&M program.

Stabilization and control of asbestos waste were to minimize the release of asbestos, to provide long-term protection of human health and the environment. The ROD included implementation of an O&M program to ensure the effectiveness of the response action.

USEPA provided in the ROD that it is not taking any action in the CCMA because the BLM will revise its land use plan to minimize airborne asbestos emissions and the threat to public health from the CCMA. The ROD further provided that USEPA will evaluate whether the BLM's plan protects human health and the environment and will publish a public notice of its determination. At that time, EPA will decide whether further action under CERCLA in the CCMA is necessary. Similarly, USEPA provided in the ROD that it is not taking any action in the Ponding Basin because the United States Bureau of Reclamation (USBR) and the DWR are considering actions to minimize the generation of asbestos-laden dust and to prevent run-off to the aqueduct from the Ponding Basin. The ROD further provides that USEPA will evaluate whether USBR's and DWR's plan protects human health and the environment and will publish a public notice of its determination. At that time, EPA will decide whether further action under CERCLA in the Ponding Basin is necessary.

4.1.2 Johns-Manville Mill OU

The ROD for the JMM OU was signed on September 21, 1990. The objective of the remedy was to maintain the effectiveness of the sediment trapping dam by minimizing the hydraulic transport rate of asbestos waste material into Pine Canyon Creek and restricting access to the JMM to control the release of asbestos into the air and local streams from the JMM. The major components of the remedy selected in the ROD include (USEPA 1990):

- Constructing a cross-canyon stream diversion to divert water flow away from the tailings pile.
- Improving the existing sediment trapping dam to minimize the release of asbestos into Pine Canyon Creek.
- Constructing a fence around the mine perimeter and around the disturbed areas to limit access.
- Conducting a revegetation pilot project to determine whether revegetation is a practical means of increasing stability and minimizing erosion of the disturbed areas.
- Dismantling of the mill building and disposing debris.
- Performing road paving or an appropriate engineering alternative.
- Filing deed restrictions.

4.1.3 City OU

The ROD for the City OU was signed on July 19, 1989. The objective of the remedy was to minimize the release of asbestos fibers to the air from the asbestos- and nickel-contaminated soils to protect residential areas from airborne emissions. The major components of the remedy selected in the ROD include the following (USEPA 1989):

- Removing and consolidating the asbestos- and nickel-contaminated soils at this site that: (1) exceed 1 area-percent asbestos using polarized light microscopy (PLM), (2) display the light-grey coloring characteristics of asbestos-contaminated soils, and/or (3) contain nickel at levels in excess of background.

- Removing and consolidating waste materials and equipment that exceed the levels set forth in the bullet above.
- Decontaminating buildings to less than or equal to 1 area-percent by PLM.
- Constructing an underground, onsite WMU to bury permanently the consolidated contaminated substances under an impermeable cap. The impermeable cap was to consist of a compacted soil foundation layer overlain by an impermeable clay mat, covered by a second soil layer.
- Using strict dust control measures to limit the release of asbestos fibers from the site during implementation of the remedy.
- Performing confirmation sampling to ensure achievement of the cleanup standards.
- Performing groundwater monitoring and continuous monitoring of soil moisture content using neutron probes.
- Regrading areas where contaminated soils have been removed.
- Filing a deed restriction on the property where the WMU and soil cover exist to prevent the disturbance of the cap and prevent possible release of asbestos fibers or nickel contaminants.

4.2 Remedial Action Implementation

This section describes the implementation of the remedies for the three OUs, including any deviations from the remedies selected in the RODs.

4.2.1 Atlas Mine Area OU

Atlas Corporation and Vinnell entered into the Consent Decree with the USEPA on August 13, 1992 and agreed to implement the remedy selected in the ROD. The BLM subsequently entered into a separate agreement with the Atlas Corporation and Vinnell to perform the operation, maintenance, and revegetation at the site. The Remedial Action Design Plan was approved on June 22, 1994 (HLA 1993).

Remedial activities began on October 20, 1994 and continued until May 5, 1995, when rain and surface-water accumulation forced suspension of construction activities. Activities resumed on September 11, 1995 and were completed on November 14, 1996. The remedial action consisted of construction of stream diversions and sediment trapping dams, grading and other slope stabilization elements, performing a revegetation pilot study, road paving, mill dismantling, disposal of debris, implementing access restrictions, and implementing an O&M plan. Appendix A provides additional details on the implementation of the remedy at the Atlas Mine Area OU. The remedial features at the Atlas Mine Area OU are presented in Figure 4-1. USEPA issued a preliminary closeout report for the Atlas Area OU on September 2, 1999 confirming that the construction phase of the remedy was completed and operating properly (USEPA 1999).

In Section VII(A)(6) of the 1992 Consent Decree for the Atlas Mine Area OU, the United States specifically provided that “the Defendants (Atlas Corp. and Vinnell) are not required to implement the deed restriction requirement of the Consent Decree other than as provided

in Section VI (Notice of Obligations to Successors-in-Title)” Section VI only required the Defendants to file a copy of the Consent Decree with the Fresno County Recorder’s Office, which the Defendants have done. Because Northrop Grumman Space & Mission System Corporation (Northrop) is the successor to Vinnell, it is also bound by the terms of the 1992 Consent Decree. Accordingly, if Northrop sells its Atlas Mine Area OU property (San Benito and Fresno Counties Parcel No. 030-250-004-0) to another entity, USEPA should ensure that such future owner file a deed restriction that runs with the land for this privately-owned portion of the site to prevent future disturbance of the contaminated material left onsite.

Two additional privately-owned parcels that comprise the Atlas Mine Area OU list Wheeler Properties, Inc. (Wheeler), as the title owner (Fresno County Parcel Nos. 45-240-09 and 45-240-12). Because Wheeler filed for bankruptcy in 1980, and was administratively dissolved in 1991, there is no discernible property owner for these parcels who could record a deed restriction.

As specified by the ROD for the Atlas Mine Area OU, USEPA published a public notice in 1992 regarding the status of the CCMA and Ponding Basin. This notice is presented in Appendix B (USEPA 1992). USEPA stated it would remain involved in BLM’s planning and analysis process for the CCMA in order to help ensure protection of public health and the environment from the asbestos in the area. USEPA also stated that plans for the Ponding Basin, established by the USBR and DWR, were adequate to address the threat from asbestos in the Ponding Basin. These plans included (1) planting cover crops to reduce exposure to airborne asbestos and (2) expanding the Ponding Basin to reduce chances of asbestos run-off from entering the Aqueduct. USEPA stated it would take no further action regarding the Ponding Basin under CERCLA. USEPA continues to work with BLM to determine how its Resource Management Plan should be altered to address asbestos risks.

Since the activities prescribed by the ROD for the CCMA and Ponding Basin have been satisfied, and since these areas are considered “geographical areas” rather than OUs, the CCMA and Ponding Basin will not be considered further in this 5-Year Review. However, updated technical information for these areas is provided in Appendix C for completeness.

4.2.2 Johns-Manville Mill OU

PCLC, 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 USEPA (*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). A Remedial Design Work Plan provided the overall management strategy for performing the design, construction, O&M, and monitoring of the remedial action at the JMM OU. The USEPA approved the Remedial Design Work Plan on April 1, 1993.

Remedial action at the JMM commenced on May 17, 1993. The remedial action consisted of mill dismantling, grading, cross-canyon stream diversion, improvements to an existing sediment trapping dam, implementing access restrictions, performing a revegetation pilot study, and road paving. The 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. Remedial features at the JMM are presented in Figure 4-2. The remedy was certified to be operational by the Supervising Engineer and the prefinal inspection was performed

on April 28, 1994. USEPA issued a preliminary closeout report for the JMM OU in March 1995 confirming that the construction phase of the remedy was completed and operating properly (USEPA 1995).

A deed restriction was recorded on July 2, 1993, prohibiting anyone in possession of the property from interfering with the implementation of the remedy at JMM OU. However, upon closer scrutiny, USEPA has determined that this is not a legally enforceable instrument that runs with the land. Appendix D1 further evaluates the institutional controls at the JMM OU.

On April 24, 1998, the Coalinga Site was removed from the NPL. USEPA based its decision on the observation that all appropriate response actions required for the site had been implemented. Following de-listing, agency oversight responsibilities were transferred to the Site Mitigation Unit of the Department of Toxic Substances Control (DTSC).

4.2.3 City OU

SPTC agreed to implement the selected remedy for the City OU by entering into a Consent Decree with USEPA on July 27, 1989. A first Amended Consent Decree, which included the City of Coalinga as a signatory, was filed on May 17, 1990. 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).
- The storage yard located approximately 1 mile south of the Marmac Warehouse on Elm Avenue.
- The Atlas shipping yard located in the vicinity of Glenn Avenue and Sixth Street.
- The U.S. Asbestos Company at the southern border of the site that contained piles of raw asbestos ore.

Remedial activities began in October 1989 (USEPA 1997). Cleanup of the site included the removal and consolidation 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. These consolidated soils, equipment, and other waste materials were 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. Figure 4-3 presents the location of the WMU in the City OU.

After the construction of the WMU, confirmation sampling indicated that the cleanup levels had been met, and a final inspection was conducted in October 1991. USEPA accepted the final Remedial Action Report and an O&M Plan for the WMU in April 1992, and issued a certificate of completion to the City OU on May 18, 1993 (USEPA 1993).

Following remedial response, a deed restriction was recorded on June 22, 1990 for the onsite WMU. On September 24, 1992, an amended deed restriction was recorded. It provided a legal description of the area restricted under the June 22, 1990 deed restriction. However, upon close scrutiny, USEPA has determined that the deed restriction and amended deed restriction are not legally enforceable documents and do not run with the land. Appendix D2 further evaluates the institutional controls implemented at the City OU.

As mentioned in Section 4.2.2, the Coalinga Site, including the City OU, was removed from the NPL on April 24, 1998.

4.3 Operation and Maintenance

This section summarizes routine preventive O&M activities at the Atlas and Coalinga Sites. O&M activities are performed to protect the public health, welfare, and environment from the release of asbestos by ensuring the effectiveness of engineering and institutional controls.

4.3.1 Atlas Mine Area OU

PRPs have conducted routine site inspections and O&M activities at the Atlas Mine Area since 1996, when construction of the remedy was completed. An O&M Plan, dated November 15, 1999, was developed for engineered systems at the site and was included in the Remedial Action Completion Report (ESC 1999). BLM is the designated O&M manager for the site and has been administering the O&M Plan. USEPA is the regulatory agency responsible for oversight of the O&M work at the site.

The O&M Plan originally specified that routine inspections of the engineering systems and access restrictions occur quarterly for the first 2 years and thereafter be conducted semiannually for the remaining 28 years of the implementation period. However, in a letter dated January 2000, USEPA approved a reduction in the inspection frequency to annually. In addition to routine inspections, emergency inspections are to be conducted when precipitation greater than 2 inches falls on the site within a 24-hour period, as measured at the Spanish Lake Meteorological Station, or if seismic activity of magnitude 4.8 or greater on the Richter Scale occurs within 50 miles of the site. Inspections triggered by rainfall or seismic events should occur within one week of the triggering event.

The 2003 annual inspection report concluded that the remedy for the Atlas Mine Area was performing as intended, but the report recommended maintenance activities be implemented to ensure that the remedy continue to perform as intended (R2 2003). These maintenance activities were planned for the spring of 2004, but were not implemented until the spring of 2005 due to delays in getting legal access to the Atlas Mine Area and due to heavy winter rains. The 2005 maintenance activities consisted of:

- Repairing four gullies on the outboard slope of the tailings pile south of the Regional Sediment Storage Area.
- Removing existing culvert and repairing and stabilizing the erosion area in the road to Rover Pit.

- Regrading a portion of the road to Pond A adjacent to the Pond B highwall and re-establishing the diversion channel above the area to prevent runoff.
- Stabilizing of the Channel A terminus.
- Removing material from Channel B that has been sloughed from the adjacent cut slope.

The locations of maintenance activities performed in 2005 are indicated on Figure 4-1. The only recommendation from the 2004 annual inspection that was not implemented was the regrading of the sediment disposal piles east of Pond C (R2 2004, 2005a). In 1999, BLM directed the removal of excess sediment in Pond C. This sediment was disposed of at an area adjacent to Pond C, rather than being transported to one of the regional storage facilities. Over time, this pile acquired a surface crust that prevents wind and water erosion. Therefore, regrading was removed from the 2005 scope of work for maintenance activities. However, the pile will continue to be monitored during routine inspections to evaluate the potential for erosion. If future potential exists, re-grading or alternative methods for preventing erosion will be considered. Via the 1993 BLM-Atlas Mine Site Committee settlement agreement, BLM has the responsibility to address impacts that may result from the placement of these materials.

Since the last 5-year review, O&M inspections have been performed annually by either a contractor to BLM (ESC) or contractors to Northrop Grumman (GE Enterprise or R2 Incorporated), except in 2004. The 2004 annual inspection was scheduled to be performed after the completion of maintenance activities. Due to delays in maintenance work, the inspection did not occur. The most recent annual O&M inspection occurred on June 2, 2005 (R2 2005b). A summary of the observations and recommendations made during the last 5-year review site inspection and during subsequent annual inspections is presented in Table 4-1.

According to estimates from BLM (Moore 2006), BLM annual oversight and administrative costs for the site are approximately \$19,000, which is consistent with the estimate identified in the ROD for annual O&M of the remedy. Non-routine maintenance activities performed to address erosion concerns at the site resulted in additional costs of approximately \$300,000 in 2005.

Since the 2005 maintenance activities, a draft revised O&M Plan has been developed to include O&M activities that will address site improvements made in 2005. This plan is currently being reviewed by the USEPA.

4.3.2 Johns-Manville Mill OU

As specified in the Consent Decree, the PRPs implemented an O&M Plan in January 1995 to ensure the integrity of the stream diversions and sediment retention structures for a minimum of 30 years. Periodic inspections of the engineering systems were conducted by contractors to the PRPs every 6 months for the first 3 years after completion of remedial action construction and annually after the third year. In 2002, a revised O&M Plan was created by Levine-Fricke Rincon (LFR), a contractor to PCLC, the current PRP (LFR 2002). According to the new O&M plan, annual inspections are to be performed by the owners of the ranch located adjacent to the site. They are also responsible for making minor repairs to the site access gates.