TABLE 4-1
USEPA 2001 5-year and 2002-2005 Annual Inspection Summaries

Problems/ Concerns	2001 EPA 5-year Review	2002 Annual Inspection	2003 Annual Inspection	2004 Maintenance Activities	2005 Annual Inspection
Road to Rover Pit	Noted partial road failure; No remedial measures recommended	Road not passable; No action recommended; Proposes an alternative access road could be made available	Road not passable; Proposed repairs include reestablishing culvert, grading, and riprap; In addition, the road will be cleared of rock debris and widened	Removed existing culvert, repaired erosion damage, and stabilized roadway in the vicinity of the culvert	Existing landslide still active; No action recommended
Road to Pond A	Impassable; Remedial measures recommended, Proposes an alternative access route be located	Road failing; No action recommended; Proposes an alternative access road if needed in future	Road failing; Proposed repairs includes backfilling the inside road ditch and reconfiguring the road; Also, road drainage alternatives will be considered	Regraded portion of the road adjacent to Pond B highwall, construct a berm on the outboard side of the road, and reestablish the diversion channel above the area to be regraded to prevent runoff	Highwall slope above Pond B continues to slough; Recommend monitoring adjacent drainage ditch to ensure it remains unblocked to prevent ponding; Monitor runoff to see if it flows over the Pond B highwall Evidence of runoff overflowing the drainage ditch above the diversion channel; Recommend local deepening of portion of drainage ditch above the new diversion
Improve water bar on access road to Pond A above Pond B	No problem noted	Road ditch and water bar are not functioning as designed	Road ditch and water bar will be repaired to relieve water from the inside road ditch	Removed sediment and direct surface water runoff toward the crossing	Not discussed
Outboard Slope of the Regional Sediment Storage Area	Erosional gullies noted; EPA recommended a study to determine rite best means of addressing the problem	Erosion in tailing piles and waste rocks; No action recommended	Erosion in tailing piles and waste rocks; Engineer designed repair and drainage system will be submitted by 1/24/04	Repaired four gullies on the outboard slope of the tailings pile south of the Regional Sediment Storage Area; Subdrain installed; buttress emplaced	Minor erosion on north side of Regional Sediment Storage Area
Re-vegetation	Not thriving; Nurturing recommended	Not thriving; Nurturing recommended	Not discussed-Pilot Revegetation Program is completed	Not Applicable	Not discussed

TABLE 4-1
USEPA 2001 5-year and 2002-2005 Annual Inspection Summaries

Problems/ Concerns	2001 EPA 5-year Review	2002 Annual Inspection	2003 Annual Inspection	2004 Maintenance Activities	2005 Annual Inspection
Evidence of use by unauthorized persons/vehicles	No problem noted; Continued patrolling recommended	No problem noted; Continued patrolling recommended	Evidence of trespassers in one area; Continued patrolling is required	Not Applicable	Motorcycle marks on ground; hacksaw marks on lock and gate; Recommend assessing where unauthorized persons are entering when doing O&M activities; Possibly install additional fencing to prevent unauthorized entry
Site entry Gate	No problem noted	No problem noted	No problem noted	Not Applicable	Hacksaw marks observed on site entry upper gate; Recommend checking the integrity of gate
Channel A	No problem noted	Undercutting in terminus noted; No action recommended; Risk of offsite sedimentation impacts appeared minimal	Problem noted; riprap or designed alternative recommended to control erosion	Stabilized the Channel A terminus	No problem noted; Monitor during routine inspections
Channel B and Sediment trap area up-gradient of Channel B	No problem noted	Possible future concern; Sediment from depressed sediment trap area up gradient of Channel B inlet may need to be removed in future	Sediment trap area does not require future maintenance activities Excessive sediment has accumulated above portion of Channel B	Remove material that has sloughed from the adjacent cut slope and transported them to the sediment storage area adjacent to Pond B	Areas of course grained sediment buildup was observed (up to 14 inches thick); Recommend removing sediments when they begin to detrimentally impact flow
Pond A	No problem noted	Shallow rills < 6 inches observed on downstream embankments	Shallow rills < 6 inches observed on downstream embankments	Not Applicable	Shallow rills < 6 inches observed on upstream and downstream embankment; monitor rill depth during routine inspections

TABLE 4-1
USEPA 2001 5-year and 2002-2005 Annual Inspection Summaries

Problems/ Concerns	2001 EPA 5-year Review	2002 Annual Inspection	2003 Annual Inspection	2004 Maintenance Activities	2005 Annual Inspection
Pond B	No problem noted	Minor rills noted	Minor rills noted	Not Applicable	Shallow rills < 6 inches observed on upstream and downstream embankment; monitor rill depth during routine inspections Sediment Markers could not be seen; Should check sediment levels to see if sediment should be removed
Pond C	No problem noted	Shallow rills < 6 inches observed on upstream embankments	Shallow rills < 6 inches observed on upstream and downstream embankments	Not Applicable	Shallow rills < 6 inches observed on upstream and downstream embankment; monitor rill depth during routine inspections. Sediment and vegetation has accumulated in inlet to the culvert; Recommend clearing
Sediment Disposal Piles east of Pond C	In 1999, BLM directed the removal of excess sediment in Pond C; Sediment was disposed at an area adjacent to Pond C	Not discussed	Not discussed	Via the 1993 BLM-Atlas Mine Site Committee settlement agreement, BLM has responsibility to address impacts that may result from the placement of these materials; Re-grading the sediment disposal piles east of Pond C was removed from the scope of work	Not discussed
Pond D	No problem noted	Erosion of re-graded asbestos piles and cut up gradient slope noted; No action recommended	No action required	Not Applicable	Outlet channel is partially blocked due to deposition of material from runoff from road to Pond A; Monitor channel outlet during routine inspections to check that it does not become completely blocked

TABLE 4-1
USEPA 2001 5-year and 2002-2005 Annual Inspection Summaries

Problems/ Concerns	2001 EPA 5-year Review	2002 Annual Inspection	2003 Annual Inspection	2004 Maintenance Activities	2005 Annual Inspection
Pond E	No problem noted	No problem noted	No problem noted	Not Applicable	Shallow rills < 6 inches observed on upstream and downstream embankment; monitor rill depth during routine inspections
Pond G	No problem noted	Possible future concern; Below Pond G and above Channel B—small sediment tilling basin may need maintenance	Possible future concern; Below Pond G and above Channel B—small sediment tilling basin may need maintenance	Sediment has been removed	No problem noted; Monitor during routine inspections
Institutional Control	Place Deed Restrictions on property; access control agreement	Not discussed	Not discussed	Not Applicable	DTSC has assumed responsibility for this effort

In addition to periodic inspections, inspections are to be conducted when precipitation greater than 3 inches falls on the site within a 24-hour period, as measured at the Birdwell Ranch rain gauge, or if seismic activity of magnitude 5 or greater occurs within 50 miles of the site, as measured by the seismograph at West Hills College in Coalinga. Inspections triggered by rainfall or seismic events should occur within one week of the triggering event. The engineering systems that require inspection include the cross-canyon diversion channel and spillway, fencing, gates, signs, sediment trapping dam, graded slopes, and the tailings pile drainage system. Maintenance items discovered during these inspections are repaired by the PRP, as necessary, to maintain the integrity of the remedial action.

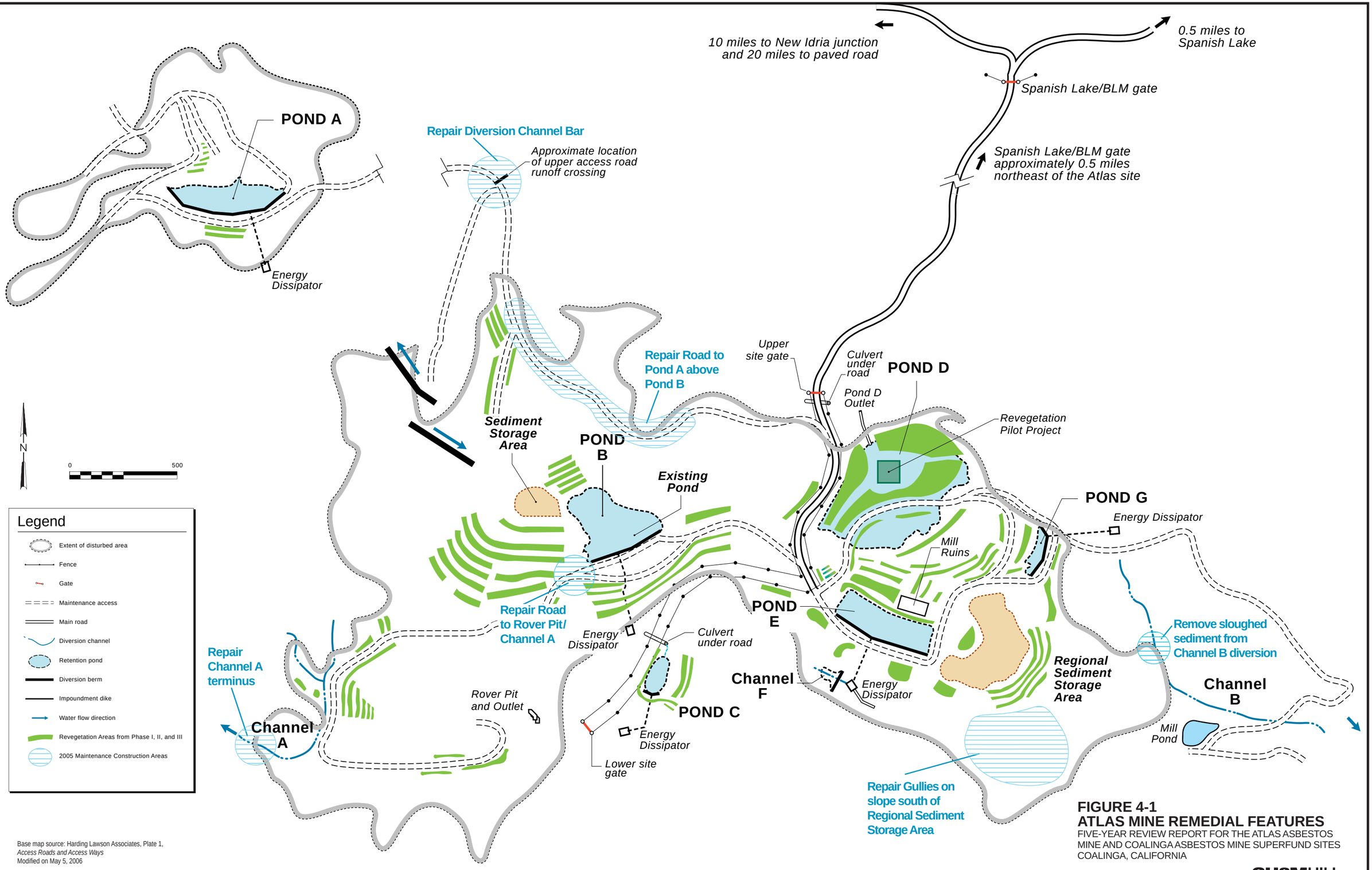
Since the last 5-year review, one rain event and one seismic event triggered site inspections at the JMM. The rain-event occurred in January of 2001. The seismic-event consisted of an earthquake of magnitude 6.0 occurring near Parkfield, California, approximately 20 miles south of Coalinga on September 28, 2004. Visual inspection of the site did not indicate that any damage had threatened the integrity of the engineering systems (LFR 2001, 2004). The most recent regularly-scheduled O&M inspection was performed in conjunction with the 5-year review site inspection on April 13, 2006. No deficiencies or other issues were noted at that time (LFR 2006). Please see Section 6.5 for further discussion on the recent site inspection.

4.3.3 City OU

The O&M Plan for the City OU was implemented by SPTC, the predecessor PRP, to monitor and maintain the WMU (SPTC 1992). Quarterly inspections of the engineering systems were conducted by SPTC for the first 3 years after the completion of remedial action construction (starting in June 1991) and annually after the third year to assess the condition of the WMU and document any damaged areas or areas requiring corrective action. Vadose zone monitoring for moisture was performed quarterly for the first year, semiannually for the second and third years, and annually for the fourth and fifth years. Regularly-scheduled vadose zone monitoring was terminated after 5 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 Railroad Company, successor to SPTC, will immediately report the results to USEPA. In that event, Union Pacific Railroad Company 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 initially developed 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.

Current O&M activities at the WMU, as stated in the O&M Plan, include annual inspections for cap integrity, surface water ponding, and fence integrity. The Union Pacific maintenance contractor also visits the WMU 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. In the event of a natural disaster, such as a 100-year flood or a catastrophic earthquake, an additional inspection will be conducted.

The most recent inspection was conducted in May 2005 by Kennedy Jenks, a contractor to Union Pacific Railroad Company. At the time of the inspection, the integrity of the cover, vegetative growth, and fences were in good condition. A few minor issues identified include a non-functional irrigation system, an incorrect DTSC phone number on the signs along the fence, and an increase in the size and number of burrow holes in the vicinity of the WMU. (KJ 2005) An investigation completed in 2004 identified the California ground squirrel to be the cause of the burrows (KJ 2004). No remedial actions were recommended at that time for the irrigation system until it is necessary to maintain vegetative growth. Recommended actions included adding the new DTSC contact phone number to signs and installing fencing material with a smaller screen size to the lower 3 feet of the perimeter fence (KJ 2005). In October 2005, the new fencing material was installed and extended approximately 3 feet below ground to prevent small animals from entering the site and burrowing into the cap of the WMU.

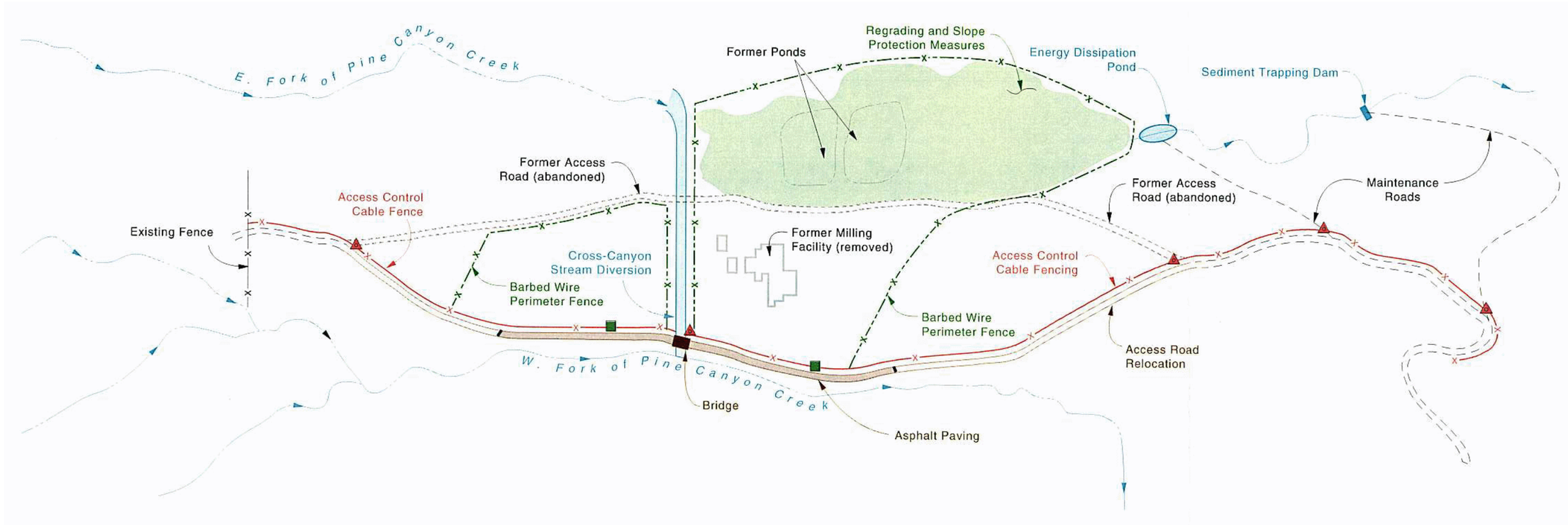


Base map source: Harding Lawson Associates, Plate 1,
Access Roads and Access Ways
Modified on May 5, 2006

FIGURE 4-1
ATLAS MINE REMEDIAL FEATURES
FIVE-YEAR REVIEW REPORT FOR THE ATLAS ASBESTOS MINE AND COALINGA ASBESTOS MINE SUPERFUND SITES
COALINGA, CALIFORNIA

CH2MHILL

ES052006007BAO_FIG 4-1_AtlasMineRemedialFeatures_ai_082406_ll



Legend

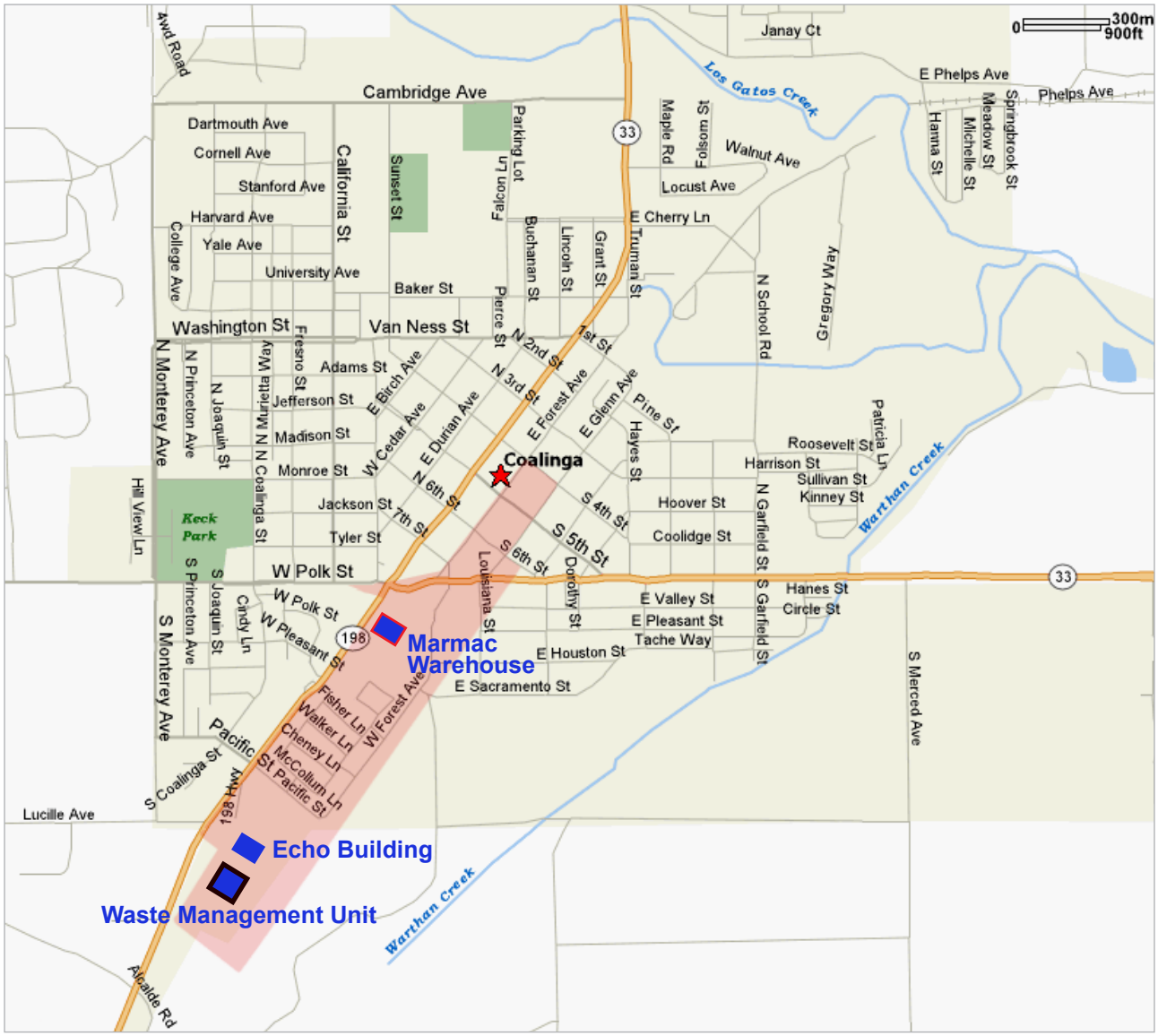
- Perimeter Fence Gate
- Cable Fence Access Gate
- Tailings Pile

Note: Modified from Levine.Fricke's *2002 Revised Operations and Maintenance Plan, Johns-Manville Coalinga Mill Area Operation Unit*.

FIGURE 4-2
JOHNS-MANVILLE MILL REMEDIAL FEATURES
FIVE-YEAR REVIEW REPORT FOR THE ATLAS ASBESTOS MINE AND COALINGA ASBESTOS MINE SUPERFUND SITES
COALINGA, CALIFORNIA

CH2MHILL

ES052006007BAO_FIG 4-2_JMMRemedialFeatures_ai_050506_ll



Legend

- Demolished Building
- Existing Building
- Waste Management Unit
- Approximate Boundary of Operable Unit

Note: Modified from Mapquest 2006

FIGURE 4-3
CITY OF COALINGA OPERABLE UNIT
FIVE-YEAR REVIEW REPORT FOR THE ATLAS ASBESTOS MINE AND COALINGA ASBESTOS MINE SUPERFUND SITES
COALINGA, CALIFORNIA

CH2MHILL

ES052006007BAO_Fig 4-3 cityofcoalinga_operableunit _ai_5/5/06_ll

SECTION 5.0

Progress Since Last 5-year Review

5.1 Protectiveness Statements

The protectiveness statements identified for the Atlas Mine Area OU, the JMM OU, and the City OU in the last 5-year review reports are presented in this section.

5.1.1 Atlas Mine Area OU

The last 5-year review report conducted at the Atlas Site was signed and dated by USEPA on September 28, 2001. The protectiveness statement for the Atlas Mine Area OU identified in the *Final First Five-Year Review Report for Atlas Asbestos Mine Site* is as follows (USEPA 2001a):

> *The remedy at the Atlas Mine Area 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, stabilization of erosion prone areas, structural improvements and additions, the installation of access controls and warning signs, regular maintenance of the Atlas Mine Area OU, and the implementation of an institutional control.*

5.1.2 Johns-Manville Mill OU

The last 5-year review conducted at the Coalinga Site was signed and dated by USEPA on September 27, 2001. The protectiveness statement for the JMM OU identified in the *Final Second Five-Year Review Report for Coalinga Asbestos Mine Superfund Site, Coalinga* is as follows (USEPA 2001b):

> *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.*

5.1.3 City OU

Both 5-year reviews (Atlas and Coalinga Mine Site) issued in 2001, *Final First Five-Year Review Report for Atlas Asbestos Mine Site* (USEPA 2001a) and the *Final Second Five-Year Review Report for Coalinga Asbestos Mine Superfund Site, Coalinga* (USEPA 2001b) identified the following 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.*

5.2 Status of Recommendations from Last Review and Results of Implemented Actions

This section provides a summary of the status of recommendations and results of implemented actions for Atlas Mine OU, JMM OU, and the City OU. Additional details regarding the status of recommendations from the last review and results of implemented actions are presented in Appendix E.

5.2.1 Atlas Mine Area OU

During the construction maintenance activities performed in the spring of 2005, two recommendations from the last 5-year Review ([1] Repair road or find another route to access Pond A area and [2] Perform a study to determine the best means of addressing eroding soil at the erosion prone area near the Regional Sediment Storage Area) were largely addressed. Repairs to the road to Pond A and the four gullies in the vicinity of the Regional Sediment Storage Area were designed to prevent further erosion from occurring in the existing gullies and to reduce the potential for additional gullies from forming. An alternate route to access Pond A, the second component of the first recommendation, has not been identified.

Since the last 5-year review, the recommendation for more frequent maintenance of revegetation was not performed. However, in an April 2002 e-mail to an Atlas Representative (George Robinson, R2 Inc.), Shea Jones, the USEPA remedial project manager, decided that further revegetation efforts would not be required. This decision was based on a consideration of the very limited success of the $1.5 million revegetation pilot program. In June 2006, this decision was reaffirmed in a teleconference that included representatives of Northrop Grumman, DTSC, BLM, and USEPA. The reason for this reaffirmation is that routine inspections indicate that since the last 5-year review, new vegetation is evident both within and outside of the boundaries of the pilot project. Enhanced vegetation has resulted from natural processes of vegetation dispersal, especially during wet years. It is assumed that natural processes will continue, over time, to produce sustainable vegetation. However, if vegetation abundance does not continue to increase, or if significant degradation is observed, beyond natural variation in vegetation patterns, then revegetation efforts may be reconsidered.

The recommendation to place deed restrictions on property and develop access control agreement has not been implemented. DTSC is currently working with Northrop Grumman to develop the deed restriction for their privately owned property at the Atlas Mine Site.

Other maintenance activities performed in 2005 consist of the following:

1. Removed existing culvert, and repaired and stabilized the erosion area in the road to Rover Pit
2. Stabilized the Channel A terminus
3. Removed material from Channel B that has been sloughed from the adjacent cut slope
4. The drainage ditch on the Road to Pond A was locally deepened to prevent the runoff to the road

5.2.2 Johns-Manville Mill OU

No recommendations or follow-up actions were specified in the last 5-year review. No activities have occurred at the site other than regular O&M activities.

5.2.3 City OU

Recommendations identified for the City OU in the last 5-year review (repair animal burrows at WMU cap and repair damaged signs) were completed during regular O&M activities since the last 5-year review. In addition, in October 2005, fencing material with a smaller screen size was added to the perimeter fence to decrease the number of burrows in the cap of the WMU.

SECTION 6.0

Five-year Review Process

6.1 Administrative Components of the 5-year Review Process

Lynn Suer, USEPA Remedial Project Manager, led the 5-year review, with CH2M HILL providing technical support. At the initiation of the 5-year review, the PRPs (PCLC, Union Pacific Railroad Company, BLM, and Northrop Grumman), the PRPs' contractors (LFR, Kennedy Jenks Consultants, and Camp Dresser & McKee, Inc.) DWR, USBR, and DTSC were notified.

This 5-year review of the Atlas and Coalinga sites involved:

- Reviewing relevant documents, including routine operations, monitoring, and analytical data.
- Reviewing federal and state applicable or relevant and appropriate requirements (ARAR) cited in the RODs for each of the OUs.
- Reviewing implementation of institutional controls.
- Conducting an interview.
- Performing site inspections of each of the OUs.
- Informing the public of the findings of this 5-year review.

6.2 Community Notification and Involvement

A public notice indicating the start of the 5-year Review was published in Freelance (San Benito County) and Coalinga Record (Fresno County) newspapers on February 15, 2006. This 5-year review report will be placed in site information repositories, and a fact sheet will be prepared to inform the public of the findings of this 5-year review. The public will be able to submit to USEPA any comments or concerns about the remedy to date.

6.3 Document Review

As a part of the 5-year review process, CH2M HILL conducted a review of numerous documents related to site activities. The documents chosen for review ranged in publication date from 1989 to 2006. Documents reviewed include RODs, annual inspection reports, and O&M Plans. Appendix F provides a list of the documents reviewed as part of this 5-year review. ARARs were also reviewed to determine if any regulatory changes had occurred since the last 5-year review that would impact the protectiveness of the remedy.

6.4 Data Review

No field and analytical data were reviewed as part of this 5-year Review for the Atlas Mine OU, JMM OU, or the City OU.

6.5 Site Inspections

Site inspections were performed at the Atlas Mine Area OU, the JMM OU, and the WMU in the City OU. These were performed between April 13 and May 2, 2006. A summary of the inspection findings is presented below. The site inspection checklists and photos taken during the inspection are provided in Appendix G.

6.5.1 Atlas Mine Area OU

The site inspection of the Atlas Mine Area OU was performed on May 2, 2006. Representatives from USEPA, CH2M HILL, BLM, Northrop Grumman Corporation, and Camp Dresser McKee were in attendance during the site inspection. During the site inspection, the ponds, paved road, and diversion channels were generally noted to be in good condition, with a few exceptions. Sediment has accumulated in Pond B due to erosion of the highwall slope north of the pond. However, the volume of sediment in the pond is uncertain because the sediment marker is submerged by water. All other ponds appear to be in good condition. Along the road to Pond A, the culvert at the end of the drainage channel is partially blocked by sediment and vegetation. Removal of sediment from Pond B and from the culvert at the end of the drainage channel along the road to Pond A may be necessary during future routine maintenance activities.

Much of the erosion across the site has been mitigated by installation of drain rock, berms, subsurface piping for conveying surface water, surface water diversion structures, and vegetation. However, some indications of erosion were observed on the southern side of the road to Pond A and the road to Rover Pit. An active landslide is still present along the road to Rover Pit. This landslide is likely to eventually prevent vehicular access to Channel A and Rover Pit. Alternative routes to Pond A and Channel A should be identified in the event that erosion and sliding continue to occur along the existing roads to Pond A and Rover Pit.

Many of the original plants from the revegetation pilot study did not survive, but a significant number survived to reproduce so that plants are now growing in areas outside the boundaries of the original restoration project. It is expected that plants will continue to grow and disperse to new areas over the long term. Although this natural process is slow, it is likely to result in sustainable, increasing vegetation cover over time.

Fences, gates, and locks were noted to be in good condition. Occasional signs of trespassing have been observed in the past but were not observed during this site inspection. The site inspection form for the Atlas Mine Area and photos from the site inspection are presented in Appendix G1.

6.5.2 Johns-Manville Mill OU

The site inspection of the JMM OU was performed on April 13, 2006. Representatives from USEPA, CH2M HILL, DTSC, BNSF, and LFR were in attendance during the site inspection. The site caretaker and adjacent property owner, Ken Birdwell, also participated in the site inspection. During the site inspection it was noted that the site was secure, and the fence and signs were in good condition. The stream and surface water diversions, outlet works, dam, and the paved road on the JMM were in good condition. Vegetation on the tailings pile is becoming more established with time. No indications of vandalism or trespassing were

observed within the fenced, restricted portions of the site. The site inspection form for the JMM and photos from the site inspection can be found in Appendix G2.

6.5.3 City OU

The site inspection of the City OU was performed on April 14, 2006. Representatives from CH2M HILL, DTSC, and Kennedy Jenks Consultants were in attendance during the site inspection. It was noted that the land north of the WMU has been developed into residential housing since the last 5-year review. The property occupied by the WMU was secure, and the fence was in good condition. The WMU cover was observed to be in good condition. Holes from burrowing animals were identified around the perimeter/base of the cap, but the number and size of holes have decreased significantly since the addition of a fence with a smaller screen size. No indications of vandalism or trespassing were observed within the fenced, restricted portions of the site during the site inspection. The only deficiency noted during the site inspection was an inactive DTSC phone number listed on the signs on the perimeter fence. The site inspection form for the City OU and photos from the site inspection can be found in Appendix G3.

6.6 Interview

Steven Ross, DTSC Project Manager for the Atlas and Coalinga Sites, was interviewed on May 24, 2006. Mr. Ross is responsible for the oversight of O&M, implementation and enforcement of deed restrictions, and support on 5-year reviews at the Coalinga Site. He also provides oversight at the Atlas Site to determine if it is eligible for deletion from the NPL.

Mr. Ross is pleased with the recent repairs that have been made to mitigate erosion concerns at the Atlas Mine Area OU, especially at the Regional Sediment Storage Area and along access roads. He feels further evaluation should be performed to determine whether the perimeter fence in the northern portion of the site should be repaired to prevent access to the site. Mr. Ross feels the remedy is working well at the City OU and the JMM OU. He is working with the responsible party contractor to update the DTSC contact information on the signs surrounding the WMU at the City OU.

With regards to institutional controls, he noted that deed restrictions recorded in 1990 and 1993 for the JMM OU and the City OU are not consistent with DTSC's current regulations for land use covenants (LUC). The deed restrictions for both these sites should be updated to be consistent with current DTSC regulations for LUCs. An O&M agreement will be required at these sites to provide for the long-term monitoring and enforcement of the deed restrictions. Mr. Ross is currently working with Northrop Grumman at the Atlas Mine Area OU to develop a deed restriction for the privately-owned portions of the site. He will oversee the long-term O&M associated with the pending deed restriction for the Atlas Mine Area OU.

The interview summary form is provided in Appendix H.