

OFFICE OF SURFACE MINING  
RECLAMATION AND ENFORCEMENT

U.S. Department of the Interior



Annual Evaluation Report for the  
Abandoned Mine Land Program

Administered by the New Mexico Mining and Minerals Division



For Evaluation Year 2019  
July 1, 2018 to June 30, 2019  
Prepared by Denver Field Division  
September, 2019

## EXECUTIVE SUMMARY

The Office of Surface Mining Reclamation and Enforcement, Denver Field Division prepared this report to describe the accomplishments of the New Mexico Abandoned Mine Land Program during the 2019 Evaluation Year. The report includes a discussion of New Mexico's program administration, public participation and outreach efforts, technical assistance provided by OSMRE, and the results of topic-specific evaluations conducted in coordination with the State.

DFD utilized two basic methods of analysis during the 2019 Evaluation Year. The first method includes various administrative oversight reviews designed to ensure accuracy and integrity throughout the grants financial assistance and enhanced Abandoned Mine Land Inventory System reporting processes. The second method includes on-the-ground oversight reviews that enable DFD to evaluate various elements of the State's construction management, abatement selection, and hazard prioritization processes.

According to data available through the enhanced Abandoned Mine Land Inventory System\*, New Mexico has a total remaining inventory of 927.3 Government Performance and Results Act acres to be reclaimed, at an estimated cost of \$42,606,733. Since 1978, New Mexico has expended a total of \$33,529,538 in grant funding to reclaim a total of 990.7 Government Performance and Results Act acres. In Evaluation Year 2019, OSMRE awarded New Mexico \$2,814,000 in grant funding to continue carrying out its mission of protecting people, property, and the environment from hazards related to historic mining operations.

*\*In Evaluation Year 2018, the OSMRE-AML Program recognized some of the data generated by querying the enhanced Abandoned Mine Land Inventory System (eAMLIS) could not be substantiated. In response, the New Mexico AML Program manually calculated these data for inclusion in the Evaluation Year 2018 Annual Report.*

*During Evaluation Year 2019, the New Mexico AML Program worked with OSMRE to develop priority eAMLIS corrections. The New Mexico AML Program has selected five pilot Problem Area Descriptions (PAD) for geographic corrections based on more precise Geographic Information Systems data and verification of historic and current project data.*

*Pending the success of these pilot PAD corrections, the New Mexico AML Program will dedicate staff resources to verify and update the remaining flawed PADs.*

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*Cover Page Photograph: Lake Valley Mine Safeguard project, Sierra County, New Mexico.*

## I. INTRODUCTION

The Surface Mining Control and Reclamation Act of 1977 (SMCRA) created the Office of Surface Mining Reclamation and Enforcement (OSMRE) in the Department of the Interior. SMCRA provides authority to OSMRE to oversee the implementation of and provide federal funding for the state regulatory programs and abandoned mine land programs that have been approved by the Secretary of the Interior as meeting the minimum standards specified by SMCRA. The primary purpose of SMCRA Title IV is to address the adverse effects of past coal mining, though it also allows AML programs to address certain non-coal problems. To this end, Title IV authorizes OSMRE to provide grant support to states and tribes from the Abandoned Mine Reclamation Fund (the Fund) and the general Treasury of the United States. SMCRA puts the highest priority on correcting the most serious AML problems that endanger public health, safety, and property. As amended in 2006, SMCRA also allows AML programs to address certain lower priority coal problems if they are in conjunction with or adjacent to higher priority problems. OSMRE, state, and tribal AML programs work together to achieve the goals of the national program including annual evaluations.

OSMRE also provides staff training and financial, technical, and management assistance to each state program. This report contains summary information regarding the New Mexico Abandoned Mine Land Program (AMLPL) and its effectiveness in meeting the applicable purposes of SMCRA as specified in Section 102. This report covers the 2019 Evaluation Year (EY) which ran from July 1, 2018 to June 30, 2019.

Detailed background information and comprehensive reports for the program elements evaluated during the EY are available for review and copying at the OSMRE Denver Field Division, 1999 Broadway, Suite 3320, Denver, Colorado, 80202. To arrange an appointment, contact Howard E. Strand, Denver Field Branch Manager at (303) 293-5026 or [hstrand@osmre.gov](mailto:hstrand@osmre.gov).

The reports are also available at the OSMRE Oversight Documents website at <https://odocs.osmre.gov>. Adobe Acrobat Reader® is needed to view these documents. Acrobat Reader® is free and can be downloaded at <https://get.adobe.com/reader>. Follow these steps to gain access to the document of interest:

1. Select the applicable governing body and performance period from the drop-down boxes labeled “State or Tribe” and “Evaluation Year” respectively. The search can be narrowed using the optional “Category” or “Keyword” drop-down menus. Lastly, click “Search”.

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2. The oversight documents and reports matching the selected state and evaluation year will appear at the bottom of the page.
3. Select “View” for the document that is of interest and the report will appear for viewing, saving, and/or printing.

The following acronyms are used in this report:

<b>AMD</b>	Acid Mine Drainage
<b>AML</b>	Abandoned Mine Land
<b>AMLPL</b>	New Mexico Abandoned Mine Land Program
<b>ATP</b>	Authorization to Proceed
<b>BLM</b>	Bureau of Land Management
<b>CAD</b>	Computer-Aided Drafting
<b>CFR</b>	Code of Federal Regulations
<b>DFD</b>	Denver Field Division
<b>eAMLIS</b>	Enhanced Abandoned Mine Land Inventory System
<b>EY</b>	Evaluation Year
<b>ESA</b>	Endangered Species Act
<b>FAM</b>	Federal Assistance Manual
<b>FTE</b>	Full-time equivalent
<b>GIS</b>	Geographic Information System
<b>GPRA</b>	Government Performance and Results Act
<b>HASP</b>	Health and Safety Plan
<b>IPaC</b>	Information, Planning, and Consultation System
<b>NEPA</b>	National Environmental Policy Act
<b>NHPA</b>	National Historic Preservation Act
<b>NTTP</b>	National Technical Training Program
<b>OIG</b>	Office of the Inspector General
<b>OSMRE</b>	Office of Surface Mining Reclamation and Enforcement
<b>PAD</b>	Problem Area Description
<b>PDF</b>	Priority Documentation Form
<b>SMCRA</b>	Surface Mining Control and Reclamation Act
<b>SWPPP</b>	Storm Water Pollution Prevention Plan
<b>TIPS</b>	Technical Innovation and Professional Services
<b>USFS</b>	United States Forest Service

**(a) Program Administration**

New Mexico submitted its AML reclamation plan (as amended) to OSMRE on February 4, 1981; it was subsequently approved on June 17, 1981. The New Mexico AMLP is administered by the Mining and Minerals Division of the New Mexico Energy, Minerals and Natural Resources Department. AMLP employs 13.2 full-time equivalent (FTE) staff across a variety of disciplines including project management, environmental compliance, engineering, and archaeology.

Overall, the Denver Field Division (DFD) finds that AMLP is successfully implementing its approved AML program. The AMLP-DFD Team maintains open and productive lines of communication and a cooperative relationship. Through these, the public's interest in effective reclamation of high-priority AML hazards and stewardship of grant funds is upheld.

**II. NOTEWORTHY ACCOMPLISHMENTS**

Over the past year, DFD monitored New Mexico’s performance in meeting the goals and objectives of SMCRA Section 102. As previously mentioned, DFD finds that AMLP is successful in implementing its approved AML program. Results of the oversight reviews used to reach this conclusion are included in Section V of this report.

Major accomplishments in AML reclamation during EY 2019 include:

<b>Project construction</b>	<b>County</b>
Hansonburg Phase I / PAD: NM935053	Socorro
Cookes Peak Phase IIIA / PAD: NM935051	Luna
Lemitar Phase II / PAD: NM935057	Socorro
<b>Project development and engineering</b>	<b>County</b>
Allison Mine Phase IV / PAD: NM069	McKinley
Vermejo Park Ranch – Tin Pan / PAD: NM009	Colfax
Vermejo Park Ranch – Swastika / PAD: NM008	Colfax
Madrid Stormwater Improvement Project / PAD: NM935060	Santa Fe
Cookes Peak Phase IIIB / PAD: NM935051	Luna
Dandee Mine / PAD: NM053	Rio Arriba
San Pedro Mine Phase II / PAD: NM935052	Santa Fe
San Pedro Mine Phase III / PAD: NM935052	Santa Fe
Hansonburg Phase II / PAD: NM935053	Socorro
Boston Hill / PAD: NM935059	Grant

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Mahoney Mines / PAD: pending	Luna
Gallup Coal Field / PAD: pending	McKinley
Gallup Mine Fires / PAD: pending	McKinley
Jones Mine Fire / PAD: pending	San Juan
Cerrillos Mine Phase IV / PAD: NM443	Santa Fe

### III. UTILIZATION OF OSMRE TECHNICAL ASSISTANCE

OSMRE provides direct technical and technological assistance to AML programs at the state level on project-specific efforts including problem investigations, design and analysis, permitting and interagency consultation, and general guidance. OSMRE provides technical and technological support at the national level in the form of conferences, trainings, and initiatives. OSMRE initiated a regional Technology Transfer Team in 2004 to support and enhance the technical skills needed to operate regulatory and AML programs which includes a representative from each state, including New Mexico.

OSMRE's training catalogue includes offerings from the National Technical Training Program (NTTP) and Technical Innovation and Professional Services (TIPS).

In 2019, AMLP staff attended the following NTTP and TIPS courses:

- **CAD 200: AutoCAD Map 3D with Raster Design**
- **CAD 100: AutoCAD Essentials**
- **Soils and Revegetation**
- **Historical and Archaeological Resources**
- **AML Reclamation Projects**
- **AML Design Workshop: Dangerous Openings**
- **Coalfield Communications**
- **NEPA Procedures**

### IV. PUBLIC PARTICIPATION AND OUTREACH

The term "public" means stakeholders, including the citizenry at large, industry, other federal, state or local agencies, and environmental groups.

#### (a) OSMRE-DFD

The New Mexico AMLP maintains a database of interested parties which OSMRE uses each year to solicit comments on our oversight process, including recommendations for evaluation topics, general concerns, questions, and suggestions for improving our annual reporting process.

We did not receive any stakeholder input in response to this year's public outreach.

**(b) New Mexico AMLP**

The New Mexico AMLP interacts with the stakeholders described above and provides opportunities for the public to:

- Determine areas of concern and receive suggestions relative to AML reclamation; and
- provide timely information about OSMRE activities to interested groups.

In EY 2019, AMLP staff continued to update the Story Map Journal on its website to highlight a selection of projects and initiatives that represent the diverse activities covered by the Program (please visit <http://www.nmmines.com>, click on the link for the “Abandoned Mine Land Program,” and on that page link to “AML Program Story Map Journal” in the upper right corner). The Story Map Journal is an Esri web application that allows the Program to create multimedia stories and narratives that combine text, maps, images, videos and links to other source materials. The Program also continues to promote public awareness of abandoned mines and abandoned mine safety through other portions of its website, as well as through its display at the State Fair Natural Resources Building in Albuquerque, held in September of each year. The State Fair display provides exposure to a few thousand visitors annually.

AMLP staff hold regular meetings with the East Mountain Regional Trails Committee, Bureau of Land Management, and Santa Fe County for project development in the San Pedro Mountains, Ortiz Mountains, and Cerrillos Hills.

AMLP also uses its cultural resource consultants to produce popular reports summarizing cultural resources investigations and the mining history of specific project areas for public distribution.

**V. RESULTS OF EVALUATION YEAR 2019 REVIEWS**

National priority reviews and oversight topic reviews can be located and reviewed at OSMRE's website as listed at the Introduction of this report. Individual reports prepared by OSMRE are part of the oversight process of each state and contain findings and details regarding the evaluation of specific elements of the state program.

In EY 2019 the AMLP-DFD Team conducted the following Enhancement and Performance Reviews as specified in the Performance Agreement:

1(b): Is reclamation successful on a long-term basis?

2(e): Does the information the State entered into eAMLIS agree with information in its files?



No review under Principle of Excellence 3 (the State has systems to properly manage AML funds) was conducted during EY 2019.

### **2019 Enhancement and Performance Review New Mexico Abandoned Mine Land Program**

#### **Measure**

Principle of Excellence: 1. The State's on-the-ground reclamation is successful.

Performance Measure: (b) Is reclamation successful on a long-term basis?

#### **Review Dates**

This review was conducted in the spring of 2019. The report was composed in the spring and summer of 2019.

#### **Personnel**

Erin Marynak, Lloyd Moiola, Amanda Muller, and Mike Tompson (New Mexico AMLP); Steve Fluke (Utah Abandoned Mine Reclamation Program); Erica Crosby (Colorado Inactive Mine Reclamation Program); Chris Teske (Bureau of Land Management, Socorro Field Office); Dan MacKinnon and Tom Medlin (Office of Surface Mining Reclamation and Enforcement).

#### **Background**

This is a cyclical review which we last conducted in 2016. We selected this measure for evaluation again in 2019 because reclamation success is a principal goal of the New Mexico AMLP.

#### **Population / Sample**

The population for this review included all abandoned mine land (AML) projects completed by AMLP ten or more years ago. The sample included three coal projects (Sugarite Phase III, Sugarite Phase IV, Yankee Vukonich) and three non-coal projects (Lake Valley Phase I, Lake Valley Phase II, Spar Group).

#### **Methodology**

During the week of April 15<sup>th</sup>, the Team traveled throughout the State of New Mexico to evaluate reclaimed AML features at each sample project site, with the goal of determining whether AMLP's reclamation work is successful on a long-term basis. AMLP project managers began each stop on the tour with a discussion of the site's history and significance; technical,

environmental, and cultural resource considerations; and challenges, achievements, and lessons learned. In preparation for this field evaluation we also reviewed drawings, plans, specifications, change orders, maps, eAMLIS data, photographs, and National Environmental Policy Act (NEPA) documentation. AML safeguards demonstrated long-term reclamation success if they were intact and functioning as designed at the time of inspection.

**Findings**

We evaluated approximately 45 reclaimed AML features—including shafts, adits, pits, declines, stope openings, subsidence, and coal gob—over six sample projects. Unless otherwise noted in the comments column, all features were stable and secure at the time of evaluation.

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1.

Project / Site	Year Completed	Feature ID	Feature Type	Reclamation Method	Comments	
Lake Valley Phase I  eAMLIS key: NM-448	2005	<i>Stone Cabin Mine</i>				829-20: Evidence of vandalism at second cross-member from top (cutting) and subsequent repair (welding) by BLM. See Figure 1.  829-23: Bat-use evident (guano). See Figure 2.
		829-02	Shaft	PUF plug		
		829-08	Shaft	PUF plug		
		829-20	Shaft	PUF plug with bat grate and concrete collar		
		829-23	Shaft	Bat cupola with concrete collar		
		829-24	Shaft	Bat grate with concrete collar		
		<i>Coney Island Claim</i>				
		831-03	Adit decline	Backfill with imported material		
		<i>New Era Claim</i>				
		832-02	Adit	Bat gate in rock bulkhead		
		832-04	Shaft	Airflow PUF plug with concrete collar and scoria fill / berm		
		832-05	Shaft	Airflow PUF plug with concrete collar and scoria fill		
		832-06; adit	Adit	Bat gate		
		<i>Crescent Claim</i>				

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		834-09	Shaft	Grated airflow closure with concrete collar, diversion,	834-09: bat-use evident.
		834-11	Pit / adit	Bat gate	
		834-12	Adit	Bat grate	

2.

Project / Site	Year Completed	Feature ID	Feature Type	Reclamation Method	Comments	
Lake Valley Phase II eAMLIS key: NM-448	2008	<i>Carolina Lode</i>				045-119S: mesh had been vandalized (cut); in need of repair. See Figure 3.
		045-003T	Stope opening	CSP plug		
		045-004T	Stope opening	CSP bat gate with toroid tire plug and backfill		
		045-005Ta	Adit	Toroid tire plug		
		045-005Tb	Shaft	Bat compatible CSP riser with toroid tire plug		
		045-026T	Adit	CSP bat gate, backfill		
		045-118S	Shaft	CSP riser in PUF with bat grate		
		045-119S	Stope opening	80k-psi, high strength steel mesh		

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		045-120Sb	Stope opening	Toroid tire plug with backfill and boulder barrier	
<i>North Carolina Lode</i>					
		046-007T	Adit	CSP	046-028S: steel mesh had been vandalized (cut); in need of repair. See Figure 4.
		046-028S	Shaft	80k-psi, high strength steel mesh	
		046-115S	Shaft	Bat cupola with PUF plug, CSP riser, and scoria fill	
		046-124S	Stope opening	Toroid tire plug	
		046-133S	Shaft	Bat grate with PUF plug and rock fill	
<i>Roberts Shaft</i>					
		045-122S	Shaft	Bat cupola with concrete footing	
		045-132S	Decline adit / stope opening	Toroid tire plug, bat gate in CSP with PUF plug, and backfill	

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3.

Project / Site	Year Completed	Feature ID	Feature Type	Reclamation Method	Comments
Spar Group  eAMLIS key: NM-247	2004	AML-1	Stope opening	Backfill	AML-6: backfill had subsided slightly but rattlesnake prohibited closer inspection. See Figure 5.  AML-7: See Figure 6.  AML-9: fresh bat guano and owl pellets observed.  AML-13 and AML-21: surface pocks aiding in stabilization and revegetation.
		AML-6	Stope opening	Backfill	
		AML-7	Shaft	Bat cupola with owl perches	
		AML-8	Shaft	Bat cupola	
		AML-9	Shaft	Bat cupola	
		AML-10	Shaft	Bat cupola	
		AML-13	Shaft	Backfill	
		AML-14	Shaft	Backfill	
		AML-17	Shaft	Bat cupola	
AML-21	Stope opening	Backfill			

#### 4. Sugarite Phase III and Phase IV | eAMLIS key: NM-006

Phase III and Phase IV of the Sugarite coal AML project in Colfax County, New Mexico were completed in 2002 and 2006, respectively. The Sugarite project was undertaken to stabilize in-place the steep, erosive, coal gob-laden slopes on either side of Chicorica Creek that were sliding and diminishing water quality, as well as safeguard the deep gullies and other hazards that had formed on the hillsides. After stabilization and safeguarding, a goal of AMLP's was preserving elements of the area's rich mining history, so the work was done largely by hand.

For this inspection we observed reclaimed gob piles A-2 and A-7 on the east side of Sugarite Canyon, completed during Phase III, and piles A-4 and A-1 on the west side of Sugarite Canyon, completed during Phase IV. AMLP staff explained the numerous reclamation techniques deployed, including extensive soil amending; staked, incised straw bale terracing; hydromulching; coir roll terracing; gully branch-packing; rock-gabion armoring; and revegetation.

In the revegetated areas we observed well established juniper, Woods' rose, fourwing saltbush, Gambel oak, and locust. To counteract the sodic gob, daichon radish were planted as a nitrogen fixer, while New Mexico locust is well adapted to saline soils. Several Team members did note a bit of plastic coir roll and straw wattle plastic mesh, as well as cardboard seedling protectors, straw bales, wattles, and wooden stakes that had failed to decompose over time, even though Sugarite Canyon is situated in the wettest region of New Mexico. According to the construction specifications, "protection tubes . . . shall be rated to photodegrade in two years, plus or minus six months." Similar language was not found for the wattle and coir roll specifications, but clearly the photodegradation process was not yet complete. AMLP staff indicated their disappointment with the particular product used at this site for that reason. Despite having been completed four years apart, both sets of reclaimed piles appeared similar in their stability, vegetative maturity, and blending into the undisturbed surroundings of Rocky Mountain juniper, Gambel oak, and mountain mahogany. Importantly, at the time of evaluation Chicorica Creek was running clear with early snowmelt and no evidence of coal gob. Overall, we found this reclamation to be successful on a long-term basis. See Figures 7 and 8.

#### 5. Yankee Vukonich | eAMLIS key: NM-003

The Yankee Vukonich coal AML project in Colfax County, New Mexico was completed in 2005 and stabilized a total of 2.9 acres of coal gob across eight sites on state and private land. In the time since initial reclamation, AMLP has completed three phases of maintenance at Yankee Vukonich, underscoring the challenging nature of the project. AMLP's reclamation techniques included in-situ gob stabilization via amendments into the material (gypsum, lime, wood waste, and compost); straw bale and coir roll terracing with native seedling plantings; deep-gully branch

packing; hydroseeding; constructed rock “rundowns” (drainage channels); removal of trash and mining debris; and NHPA Section 106 historic resource avoidance.

We evaluated a sample of the sites that comprise the Yankee Vukonich project, on both state and private property. At gob site D, located on state land, we observed waste piles that had been stabilized and regraded to approximate the contours of surrounding topography, mature locust plantings, and historic resource avoidance areas. We also evaluated two riprap drainage channels that were constructed as part of the original project. Both were stable at the time of evaluation, and the creek to which they report was running clear, but AMLP staff pointed out one of the rock rundowns required reconstruction due to the failure of its geotextile fabric base. AMLP staff indicated the geotextile fabric has failed in its design-function as a drainage channel base layer on other projects as well, and that they’ve discontinued using it in that application. As at the Sugarite Canyon site, we observed plastic plant protector tubes and wooden stakes that had yet to photodegrade. See Figure 9.

At gob site B, located on private property and reclaimed in a similar manner as site D, the Team observed that vegetative establishment was more sparse, though the reclaimed waste piles were likewise stable and had been recontoured. We did note several factors likely influencing the difference in reclamation success between the two sites, including landowner preference—this meant creating the smallest disturbance possible for reclamation at site B, precluding any soil borrowing and capping—and elevation. Whereas site D is situated at approximately 7,370 feet in a canyon which had a running creek and snow drifts in shady areas at the time of this evaluation, site B is located at an average elevation of 7,670 feet on an exposed, south-facing slope which dries out quickly. Jute netting was still intact, wooden stakes were scattered about, and many of the original locust and juniper plantings were well-established. The Team agreed that vegetation at site B would further mature and improve as plant litter accumulates and gob-tolerant species continue to propagate. See Figure 10.

### **Conclusion**

Overall, we found AMLP’s reclamation is successful on a long-term basis. AMLP’s mine closures were often one-off, custom designs; robustly constructed; bat and biologist compatible, as necessary; and important to this evaluation, durable. Where vandalism was an issue, we noted AMLP made repairs and chose materials and construction techniques to minimize return visits to safeguarded sites. The coal waste reclamation sites showcased different stabilization techniques AMLP uses where high elevation, steep slopes, landowner preference, historic preservation considerations, and low rainfall are all factors.

As is typical with evaluations of long-term reclamation success, some maintenance will be required to ensure continued protection of the public. At the Lake Valley site, Carolina Lode and



North Carolina Lode, mesh netting has been cut at features 045-119S and 046-028S, respectively. Feature AML-6 at the Spar Group site should be evaluated for minor subsidence and the presence of rattlesnakes. At the Sugarite and Yankee Vukonich sites, abandoned plant protector tubes and wooden stakes should be collected to show off the successful gob stabilization in a more natural light.

Figures→



Figure 1. Lake Valley site, monument # 829-20.



Figure 2. Lake Valley, monument # 829-23.



Figure 3. Lake Valley site, monument # 045-119S.



Figure 4. Lake Valley site, monument # 046-028S.



Figure 5. Spar Group site, monument # AML-6.



Figure 6. Spar Group site, monument # AML-7.



Figure 7. Sugarite site, reclaimed coal waste piles A1 and A4.



Figure 8. Sugarite site, reclaimed coal waste piles A2 and A7.





Figure 9. Yankee Vukonich project, gob site D.



Figure 10. Yankee Vukonich project, gob site B.

**New Mexico Abandoned Mine Land Program  
2019 Enhancement and Performance Review**

**Measure**

Principle of Excellence: 2. The State's abandoned mine land (AML) procedures are efficient and effective.

Performance Measure: (e) Does the information the State entered into the Abandoned Mine Land Inventory System (AMLIS) beginning July 1, 2004, agree with information in its files?

**Review Dates**

This review was conducted in the winter of 2019. The report was composed during the spring of 2019.

**Personnel**

Erin Marynak, New Mexico Abandoned Mine Land Program (AMLP) and Tom Medlin, Office of Surface Mining Reclamation and Enforcement (OSMRE).

**Background**

This is the third annual review of this performance measure. State and Tribal AML programs are required to update Problem Area Descriptions (PAD) in AMLIS when OSMRE approves funding for a project and upon project completion. OSMRE interprets the project's starting point as the date at which it issues Authorization to Proceed (ATP). Conversely, the State defines the starting point for a project as the date it issues notice to proceed to its contractor for the work.

The requirement to update AMLIS thusly is outlined in the Abandoned Mine Land Inventory Manual, which OSMRE Directive 974 ("AML-1") implemented effective December 12, 2012. Directive 974 also requires completion of Priority Documentation Forms (PDF) to support the Priority 1 and 2 designations assigned to AML problem-type keywords within AMLIS PADs.

In September 2003, the U.S. Department of the Interior, Office of the Inspector General (OIG), issued report number 2003-I-0074 based on its review of AMLIS data for four eastern states' AML programs. The report criticized the accuracy of AMLIS data and recommended corrective action. Specifically, the OIG's review concluded that AMLIS data did not match data in those states' files. In part, the OIG recommended establishing "a quality control system that ensures that States, Tribes, and OSM[RE], as applicable, review and certify the accuracy of data entered into AMLIS."

OSM responded to the OIG's recommendation with two new reviews. We reviewed the first as

performance measure 2(d) in Evaluation Year (EY) 2005. This assessed whether the states had procedures in place to ensure and certify the accuracy of data entered into AMLIS. The second requirement, performance evaluation 2(e), was first implemented in EY 2006 and annually compares data in a sample of each state's AMLIS PADs to data in the respective state's files to ensure that they agree.

OSMRE was unable to conduct this evaluation in EY 2011 due to complications with the transition to the enhanced Abandoned Mine Land Inventory System (eAMLIS). We reasoned it would be difficult to conduct a credible evaluation when state and federal staff had not had sufficient time to learn and update eAMLIS.

### **Methodology**

The population for this evaluation was all New Mexico data for completed projects entered into eAMLIS PADs since July 1, 2004 which have not already been subject to evaluation under this performance measure. AMLP uses data from its project completion summaries to update eAMLIS. In turn, we use AMLP's project completion summaries to compare cost and accomplishments information, eAMLIS keywords, and construction completion dates to the information reported in the sample projects' respective eAMLIS PADs.

For EY 2019, the 2(e) sample consisted of the Bethlehem Hill (coal) project and Lemitar Phase II (non-coal) project.

### **Findings**

#### **1. Bethlehem Hill**

The Bethlehem Hill AML project was designed to safeguard three high-priority horizontal mine opening hazards on private property in Santa Fe County, New Mexico.

Additional information from AMLP's project completion summary and eAMLIS indicate:

- a. eAMLIS PAD NM-935056 (Bethlehem Hill) contains a map of the project area as required by AML-1.
- b. The PAD contains a PDF for the Priority 1 Portal (P) problem type, as required by AML-1. This review identified a second PDF that had been uploaded to eAMLIS for the Priority 1 Dangerous Piles and Embankments (DPE) problem type, but that hazard was ultimately eliminated from this project's scope of work. As a result, the DPE PDF was deleted from PAD NM-935056.
- c. AMLP's 2014 AML grant, S14AF20025, funded project construction.

- d. Construction ran from May 14 to May 31, 2018.
- e. The project resulted in one change order and no maintenance costs.
- f. Total project costs reported on AMLP's project completion summary are \$64,261.61. Likewise, eAMLIS reports a total of \$64,261.61 in completed construction costs to date. AMLP's construction costs data reported in eAMLIS are accurate.

2. **Lemitar**

The Lemitar AML project was designed to safeguard one high-priority horizontal mine opening hazard and six high-priority vertical mine opening hazards on public (Bureau of Land Management; BLM) property in Socorro County, New Mexico.

Additional information from AMLP's project completion summary and eAMLIS indicate:

- a. eAMLIS PAD NM-935057 (Lemitar) contains a map of the project area as required by AML-1.
  - b. PAD NM-935057 contains PDFs for the Priority 1 Vertical Openings (VO), Priority 1 Portals (P), Priority 2 Vertical Openings, and Priority 2 Portals, as required by AML-1.
  - c. AMLP's 2014 BLM Grant, L14AC00367 funded construction as well as non-construction project costs.
  - d. Construction ran from November 1, 2017 to November 22, 2017.
  - e. No maintenance costs and one change order were incurred.
  - f. Total project costs from AMLP's project completion summary total \$56,663.25. Likewise, eAMLIS reports \$56,663.25 in completed construction costs to date. PAD NM-935057 also lists one Priority 1 Portal, one Priority 2 Portal, eight Priority 1 Vertical Openings, and two Priority 2 Vertical Openings hazards in the unfunded category. These problems will likely be addressed by AMLP in later phases of work using both BLM and SMCRA funds. AMLP's construction costs data reported in eAMLIS are accurate.
- 1) As required by 30 CFR § 886.21 and as applicable, AMLP updated eAMLIS PADs with completion data for the sample projects. These data matched the information contained in AMLP's project completion summaries. Applicable problem type units were also updated to reflect completion of the work;
  - 2) AMLP uploaded maps and PDFs to eAMLIS for each high priority problem type as required by OSMRE Directive AML-1;
  - 3) AMLP's project information was well organized and easy to interpret; and

- 4) The cost data (unfunded, funded, completed, total) in each PAD's problem summary table within eAMLIS were prorated by keyword, as applicable.

**Conclusion and Recommendations**

This review identified one minor discrepancy, the unneeded Dangerous Piles and Embankments PDF contained in the Bethlehem Hill PAD, which AMLP addressed the same day it was brought to their attention. However, the costs data contained in AMLP's project completion summaries and reported in eAMLIS, which form the substantive basis for this evaluation, were identical. Therefore, no corrective actions are recommended. We appreciate AMLP's continued efforts toward ensuring comprehensive, accurate AML accomplishment and costs data reporting in eAMLIS.

## **VI. TABLES**

### **Summary of Core Data to Characterize the AML Program**

The following tables present summary data pertinent to abandoned mine land activities carried out by the New Mexico AMLP. Unless otherwise specified, the reporting period for the data contained in the tables is the 2019 Evaluation Year. Other data and information used by DFD in its evaluation of AMLP's performance are available for review in the evaluation file maintained by the Denver Field Division.

Because of the significant variations from state to state and the differences between state programs, the summary data should not be used to compare one state to another.

#### **List of Tables**

Table 1	Status of AML Inventory All Priority 1, 2, and 3 Hazards
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**Table 1 –New Mexico’s Status of AML Inventory all Priority 1, 2, and 3 Hazards on June 30, 2019**

	High Priority		Elevated Priority 3	Stand-Alone Priority 3 (Not adjacent or in conjunction w/ P1&2)	Total
	Priority 1	Priority 2			
<b>UNFUNDED</b>					
<b>GPRA Acres</b>	16.10	139.70	N/A	79.60	<b>235.40</b>
<b>Dollars</b>	\$4,087,556	\$11,178,460	N/A	\$6,530,000	<b>\$21,796,016</b>
<b>FUNDED</b>					
<b>GPRA Acres</b>	7.90	6.90	3.20	18.00	<b>36.00</b>
<b>Dollars</b>	\$3,535,486	\$270,997	\$50,300	\$333,000	<b>\$4,189,7830</b>
<b>COMPLETED</b>					
<b>GPRA Acres</b>	166.90	93.40	73.50	87.90	<b>421.40</b>
<b>Dollars</b>	\$8,028,456	\$3,136,596	\$4,796,113	\$3,122,296	<b>\$19,083,461</b>

**Table 1a – New Mexico’s Status of AML Inventory all Priority 1, 2, and 3 Non-Coal Hazards on June 30, 2019**

	High Priority		Elevated Priority 3	Stand-Alone Priority 3 (Not adjacent or in conjunction w/ P1&2)	Total
	Priority 1	Priority 2			
<b>UNFUNDED</b>					
<b>GPRAs Acres</b>	80.90	N/A	N/A	N/A	<b>80.90</b>
<b>Dollars</b>	\$4,177,700	N/A	N/A	N/A	<b>\$4,177,700</b>
<b>FUNDED</b>					
<b>GPRAs Acres</b>	22.60	N/A	N/A	N/A	<b>22.60</b>
<b>Dollars</b>	\$1,681,017	N/A	N/A	N/A	<b>\$1,681,017</b>
<b>COMPLETED</b>					
<b>GPRAs Acres</b>	203.57	N/A	N/A	N/A	<b>203.57</b>
<b>Dollars</b>	\$8,800,606.30	N/A	N/A	N/A	<b>\$8,800,606.30</b>



**Table 2 – New Mexico’s Accomplishments in Eliminating Health and Safety Hazards Related to Past Mining Priority 1 and 2 Hazards (as of June 30, 2019)**

PROBLEM TYPE (keyword)																		
	Clogged Stream Lands (CSL) (acres)	Clogged Stream (CS) (miles)	Dangerous Piles & Embankments (DPE)(acres)	Dangerous Impoundment (DI) (count)	Dangerous Highwall (DH) (feet)	Dangerous Slide (DS) (acres)	Gases: Hazardous /Explosive (GHE)	Hazardous Equip. /Facilities (HEF) (count)	Hazardous Water Body (HWB) (count)	Industrial/Residential Waste (IRW)	Polluted Water: Agri/Industrial (PWAI)(count)	Polluted Water: Human Consumption (PWHC)(count)	Portal (P) (count)	Subsidence (S) (acres)	Surface Burning (SB) (acres)	Underground Mine Fire (UMF) (acres)	Vertical Opening (VO) (count)	TOTAL
<b>UNRECLAIMED / REMAINING HAZARDS (Unfunded)</b>																		
<b>Units</b>	14.50	0	40	0	0	0	0	16.0	1.0	0	3.0	0	61.0	9.0	4.0	1.0	16.0	N/A
<b>GPRA Acres</b>	72.50	0	40	0	0	0	0	1.60	5.0	0	15.0	0	6.10	9.0	4.0	1.0	1.60	<b>155.80</b>
<b>Dollars</b>	\$375,000	0	\$8,440,960	0	0	0	0	\$1,094,500	\$15,000	0	\$610,000	0	\$872,000	\$2,322,556	\$1,010,000	\$250,000	\$276,000	<b>\$15,266,016</b>

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ANNUAL RECLAMATION - EY2019 only (Completed)																		
<b>Units</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N/A
<b>GPRA Acres</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Dollars</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HISTORICAL RECLAMATION - EY1978 - 2019 (Completed)																		
<b>Units</b>	2.0	1.50	45.0	0	0	0	0	16.0	0	0	3.0	1.0	262.0	71.30	35.0	32.0	85.0	N/A
<b>GPRA Acres</b>	10.0	10.0	45.0	0	0	0	0	1.60	0	0	15.0	5.0	26.10	71.30	35.0	32.0	8.50	260.0
<b>Dollars</b>	\$416,858	\$155,000	\$2,771,123	0	0	0	0	\$118,840	0	0	\$1,397,541	\$1,728	\$1,204,329	\$3,333,134	\$696,036	\$234,983	\$835,480	\$11,165,052

**Table 2a – New Mexico’s Accomplishments in Eliminating Health and Safety Hazards Related to Past Mining Priority 1 and 2 Non-Coal Hazards (as of June 30, 2019)**

PROBLEM TYPE (keyword)																		
	Clogged Stream (CS) (miles)	Clogged Stream Lands (CSL) (acres)	Dangerous Piles & Embankments (DPE) (acres)	Dangerous Highwall (DH) (feet)	Dangerous Impoundment (DI) (count)	Dangerous Slide (DS) (acres)	Gases: Hazardous /Explosive (GHE) (count)	Hazardous Equip. /Facilities (HEF) (count)	Hazardous Water Body (HWP) (count)	Industrial/Residential Waste (IRW) (acres)	Portal (P) (count)	Polluted Water: Agri/Industrial (PWAD)(count)	Polluted Water: Human Consumption (PWHC)(count)	Subsidence (S) (acres)	Surface Burning (SB) (acres)	Underground Mine Fire (UMF) (acres)	Vertical Opening (VO) (count)	TOTAL
UNRECLAIMED / REMAINING HAZARDS (Unfunded)																		
Units	0	0	0	0	0	0	0	0	0	0	261.00	0	0	0	0	0	551.00	N/A
GPRA Acres	0	0	0	0	0	0	0	0	0	0	26.10	0	0	0	0	0	55.10	81.20
Dollars	0	0	0	0	0	0	0	0	0	0	\$1,625,000	0	0	0	0	0	\$12,576,700	\$4,201,700

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<b>ANNUAL RECLAMATION - EY 2019 only (Completed)</b>																			
<b>Units</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	92.0	N/A
<b>GPRA Acres</b>	0	0	0	0	0	0	0	0	0	0	6.3	0	0	0	0	0	0	11.1	<b>17.4</b>
<b>Dollars</b>	0	\$0	\$0	\$0	0	0	0	\$0	0	0	\$281,512.05	\$0	0	0	0	0	\$451,583.71	<b>\$733.09</b>	
<b>HISTORICAL RECLAMATION - EY 1978 - 2019 (Completed)</b>																			
<b>Units</b>	0	0.50	4.0	286.0	0	0	0	7.0	0	0	478.0	3.0	0	13.0	0	0	1,324.0	N/A	
<b>GPRA Acres</b>	0	0.50	4.0	4.08	0	0	0	0.70	0	0	53.2	15.0	0	13.0	0	0	133.6	<b>239.08</b>	
<b>Dollars</b>	0	\$2,500	\$24,500	\$53,292	0	0	0	\$2,460	0	0	\$5,602,145	\$5,000	0	\$31,450	0	0	\$5,758,112.70	<b>\$6,302,159.70</b>	

**Table 3 – New Mexico’s Accomplishments in Eliminating Environmental Problems Related to Past Mining Priority 3 and SMCRA section 403(b) Hazards (as of June 30, 2019)**

**PROBLEM TYPE (keyword)**

	Bench , Solid Bench, Fill Bench (BE) (acres)	Equipment and Facilities (EF) (count)	Gob (GO) (acres)	Haul Road (HR) (acres)	Highwall (H) (feet)	Industrial/Residential Waste Dump (DP) (acres)	Mine Opening (MO) (count)	Pit, Open Pit, Strip Pit (PI) (acres)	Slump (SP) (acres)	Slurry (SL) (acres)	Spoil, Spoil Bank (SA) (acres)	Water (WA) (gallons)	Other (specify)	Water Supplies (WS) – Section 403(b) (count)	TOTAL
<b>UNRECLAIMED / REMAINING HAZARDS (Unfunded)</b>															
<b>Units</b>	9.0	5.00	155.50	8.0	0	0	13.0	0	0	0	39.50	3.0	0	0	N/A
<b>GPRA Acres</b>	9.0	0.50	155.50	8.0	0	0	1.30	0	0	0	39.50	3.0	0	0	<b>216.80</b>
<b>Dollars</b>	\$720,000	\$350,000	\$15,924,090	\$580,000	0	0	\$122,000	0	0	0	\$1,720,000	\$200,000	0	0	<b>\$19,616,090</b>
<b>ANNUAL RECLAMATION - EY2019 only (Completed)</b>															
<b>Units</b>	0.90	11.00	78.94	63.83	0	0	13.00	2.00	0	0.81	0.80	0	0	0	N/A
<b>GPRA Acres</b>	0.90	1.10	80.51	63.83	0	0	13.00	2.00	0	0.81	0.80	0	0	0	<b>151.25</b>
<b>Dollars</b>	\$7,301	\$13,634	\$4,165,587	\$3,812,801	0	0	\$123,540	\$3,890	0	\$1	\$2,301	0	0	0	<b>\$8,129,055</b>

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<b>HISTORICAL RECLAMATION - EY1978 - 2019 (Completed)</b>															
<b>Units</b>	3.00	11.0	109.50	42.50	0	0	13.0	2.0	0	2.0	2.0	0	0	0	N/A
<b>GPRA Acres</b>	3.00	1.10	107.50	42.50	0	0	1.30	2.0	0	2.0	2.0	0	0	0	<b>161.40</b>
<b>Dollars</b>	\$7,301	\$13,634	\$4,151,325	\$3,616,417	0	0	\$123,540	\$3,890	0	\$1	\$2,301	0	0	0	<b>\$7,918,409</b>

**Table 3a – New Mexico’s Accomplishments in Eliminating Environmental Problems Related to Past Mining Priority 3 and SMCRA section 403(b) Non-Coal Hazards (as of June 30, 2019)**

<b>PROBLEM TYPE (keyword)</b>															
	Bench , Solid Bench, Fill Bench (BE) (acres)	Equipment and Facilities (EF) (count)	Gob (GO) (acres)	Haul Road (HR) (acres)	Highwall (H) (feet)	Industrial/Residential Waste Dump (DP) (acres)	Mine Opening (MO) (count)	Pit, Open Pit, Strip Pit (PI) (acres)	Slump (SP) (acres)	Slurry (SL) (acres)	Spoil, Spoil Bank (SA) (acres)	Water (WA) (gallons)	Other (specify)	Water Supplies (WS) – Section 403(b) (count)	TOTAL
<b>UNRECLAIMED / REMAINING HAZARDS (Unfunded)</b>															
<b>Units</b>	0	0	0	0	0	0	0	0	0	0	390.0	0	0	0	N/A
<b>GPRA Acres</b>	0	0	0	0	0	0	0	0	0	0	390.0	0	0	0	<b>390.0</b>
<b>Dollars</b>	0	0	0	0	0	0	0	0	0	0	\$117,000	0	0	0	<b>\$117,000</b>
<b>ANNUAL RECLAMATION - EY2019 only (Completed)</b>															
<b>Units</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N/A
<b>GPRA Acres</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<b>0</b>
<b>Dollars</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<b>0</b>

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<b>HISTORICAL RECLAMATION - EY1978 - 2019 (Completed)</b>															
<b>Units</b>	0	18.0	0	0	0	0	25.0	0	0	0	333.0	0	0	0	N/A
<b>GPRA Acres</b>	0	1.80	0	0	0	0	2.50	0	0	0	333.0	0	0	0	<b>337.30</b>
<b>Dollars</b>	0	\$9,000	0	0	0	0	\$115,000	0	0	0	\$47,409	0	0	0	<b>\$171,409</b>

**Table 4a – New Mexico’s Public Well-Being Enhancement  
(All Priority 1, 2, and 3 Non-Coal AML projects completed during EY 2019)**

<b>PAD Number</b>	<b>Project Name</b>	<b>Problem Type Reclaimed</b>	<b>GPRA Acres</b>	<b>Cost</b>	<b>Number of People with Reduced Exposure Potential (State Estimated or Census Data)</b>
NM935053	Hansonburg Phase I	P, VO	3.8	\$238,211	5
NM935051	Cookes Phase IIIA	P, VO	3.7	\$216,988	10
NM935057	Lemitar Phase II	P, VO	0.2	\$6,947	3
NM935052	San Pedro Phase II	P, VO	7.8	\$270,950	15
<b>TOTAL</b>			<b>15.5</b>	<b>\$733,096</b>	<b>33</b>



**Table 5a – New Mexico’s Non-Coal Partnership Financial Resources Dedicated to Protecting the Public from Adverse Effects of Past Mining**

<b>PAD Number</b>	<b>Project Name</b>	<b>Problem Type Reclaimed</b>	<b>GPRA Acres</b>	<b>Cost</b>	<b>Number of People with Reduced Exposure Potential (State Estimated or Census Data)</b>
NM935053	Hansonburg Phase I	P, VO	3.8	\$238,211	5
NM935051	Cookes Phase IIIA	P, VO	3.7	\$216,988	10
NM935057	Lemitar Phase II	P, VO	0.2	\$6,947	3
NM935052	San Pedro Phase II	P, VO	7.8	\$270,950	15
<b>TOTAL</b>			<b>15.5</b>	<b>\$733,096</b>	<b>33</b>

**Table 6a – New Mexico’s Reclamation Projects Started and / or Completed  
(Non-Coal AML projects started and / or Completed during EY 2019)**

<b>Projects Started</b>	<b>Projects Completed</b>
<b>3</b>	<b>4</b>

**Table 7 – New Mexico’s AML Program Grant Awards and Staffing  
(During EY 2019)**

AML Program Costs	
Administration	\$1,849,477
Project	\$964,523
Water Supply Construction	0
AMD Set-Aside	0
Total AML Funding	\$2,814,000
AML Program Staffing (full-time equivalents on June 30, 2019):	13.2

## **VII. COMMENTS**

The New Mexico AMLP had no comments on the EY 2019 Annual Evaluation Report.