ANNUAL SUMMARY EVALUATION

of the

COLORADO INACTIVE MINE RECLAMATION PROGRAM

for

EVALUATION YEAR 2006

(July 1, 2005, through June 30, 2006)

COLORADO DIVISION OF RECLAMATION MINING & SAFETY

U.S. DEPARTMENT OF THE INTERIOR OFFICE OF SURFACE MINING

Utah Oil Gas and Mining

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ACRONYMS

AML	abandoned mine land
AMLIS	Abandoned Mine Land Inventory System
AMR	Abandoned Mine Reclamation
BLM	Bureau of Land Management (of the U.S. Dept. of the Interior)
CIMRP	Colorado Inactive Mine Reclamation Program
DFD	Denver Field Division (of the Office of Surface Mining)
DNR	Colorado Department of Natural Resources
DOGM	Utah Division of Oil, Gas and Mining
DRMS	Colorado Division of Reclamation, Mining and Safety
EPA	United States Environmental Protection Agency
NAAMLP	National Association of Abandoned Mine Land Programs
OIG	Office of the Inspector General (of the U.S. Dept. of the Interior)
OSM	Office of Surface Mining (of the U.S. Dept. of the Interior)
SMCRA	Surface Mining Control and Reclamation Act of 1977, as amended
USDA	United States Department of Agriculture
USDI	United States Department of the Interior
USFS	Forest Service (of the U.S. Dept. of Agriculture)

Cover photo: Reclaimed Old October mine of the Mesa State College noncoal project. This project won OSM's 2005 Western Region Abandoned Mine Reclamation Award.

I. Introduction

Title IV of the Surface Mining Control and Reclamation Act of 1977 (SMCRA or "the Act") established the Abandoned Mine Reclamation Fund. The Fund's primary purpose is to pay for mitigation of past mining effects. The Office of Surface Mining Reclamation and Enforcement (OSM) administers the Fund on behalf of the Secretary of the Interior. OSM awards grants to States and Tribes from the Fund to pay their administration costs and reclaim abandoned mines. SMCRA puts the highest priority on correcting the most serious abandoned mine land (AML) problems that endanger public health, safety, general welfare, and property. OSM and State and Tribal AML programs work together to achieve the goals of the national program. OSM also works cooperatively with the States and Tribes to monitor their AML programs.

Directive AML-22 generally describes how OSM evaluates State and Tribal AML reclamation programs in "enhancement and performance reviews." Following that Directive, a team of State and Federal personnel, called the Colorado-Utah AML Review Team, has evaluated the Colorado Inactive Mine Reclamation Program (CIMRP) and the Utah Abandoned Mine Reclamation (AMR) Program since January 1996. The team includes representatives of CIMRP, the Utah AMR Program, and OSM's Denver Field Division (DFD). Team members during the 2006 evaluation period included: Frank Atencio, Grants Management Specialist, OSM-DFD; Mark Mesch, Administrator, Utah AMR Program; Loretta Pineda, Administrator, CIMRP; and Ron Sassaman, Environmental Protection Specialist, OSM-DFD. Tony Gallegos, of the Utah AMR Program, participated in the field evaluation of the 1(a) performance measure on Mark Mesch's behalf. Yvonne Brannon and Kimberly Seymour, CIMRP, helped with our evaluation of the 2(e) performance measure.

This report summarizes our review and evaluation of the Colorado Inactive Mine Reclamation Program for the 2006 evaluation year, which included the period of July 1, 2005, through June 30, 2006.

II. General Information on the Colorado Program

On June 11, 1982, the Secretary of the Interior approved Colorado's AML reclamation plan ("State reclamation plan") under Title IV of SMCRA. That approval allows Colorado to reclaim abandoned mines in the State in non-emergency AML projects. CIMRP is part of the Division of Reclamation, Mining and Safety (DRMS) in the Department of Natural Resources (DNR). It administers Colorado's AML program under its approved plan. The Denver Field Division of OSM's Western Region works with CIMRP to fund and approve AML projects in Colorado and to evaluate AML reclamation and other aspects of the Program.

Section 405(f) of SMCRA authorizes State and Tribal AML programs to apply to OSM each year for a grant to support their programs and reclaim specific projects. OSM awards grants to CIMRP based on the calendar year. CIMRP's grants include money to pay the Program's administrative and construction costs. Administration funding applies

to a single year following the grant award date and construction funding is available for three years after that date. Because the *evaluation* year (on which this report is based) included the period of July 1, 2005, through June 30, 2006, CIMRP's pre-2006 active grants spanned parts of the 2005 evaluation year because OSM awarded them on a calendar year basis. At Colorado's request, OSM changed the State's grant performance period from a calendar year basis to coincide with the State's fiscal year upon award of the State's 2006 grant effective July 1, 2006. Colorado's fiscal year is the period of July 1 of one year through June 30 of the following year, the same period as OSM's evaluation year.

OSM awarded $2,415,000 to CIMRP in the 2005 grant. The grant funds 14 positions and other program administration costs. In addition, it funds reclamation of three coal and twelve noncoal projects and project maintenance, with the goal of safeguarding about 295 mine openings. It also funds development of 12 projects CIMRP plans to include in its 2006 grant request. OSM extended the performance period of the administration part of this grant through June 30, 2006, and added $450,000 from Colorado's state share fund balance to accommodate changing the grant period as described above.

Colorado's 2006 grant award totaled $2,419,000. It funds 14 positions and other administration costs as well as reclamation of four coal and 11 noncoal projects and project maintenance. Goals of the 2006 grant include safeguarding 308 hazardous mine openings. The grant also funds development of at least 12 additional projects for inclusion in the State's 2007 grant application.

CIMRP received additional State funding for AML reclamation during the evaluation year. Colorado Senate Bill 05-190 became law on July 1, 2005. That bill created the Abandoned Mine Reclamation Fund under Title 34 of the Colorado Revised Statutes and made an annual appropriation of $500,000 for the fiscal year beginning July 1, 2005. The bill authorized the Legislature to appropriate that money annually thereafter to the Colorado DNR for allocation to DRMS for abandoned coal and hardrock mine reclamation. DRMS has three years to spend each appropriation. The additional funding supplements Colorado's SMCRA-funded grants and enables CIMRP to abate a wider range of abandoned mine problems. Beginning July 1, 2006, CIMRP also will receive $250,000 additional severance tax funding for water quality and conservation projects related to abandoned mine areas. Several of the partnerships described below in Part III benefited from this additional funding.

Colorado oversees administration of its approved Mine Subsidence Protection Program by an insurance brokerage firm. A total of 909 active member households were enrolled in the insurance program at the end of June 2006. That enrollment is an increase of 54 member households since June 30, 2005. Of that number, 822 member households are located in the Colorado Springs area and another 74 are in the Boulder/Weld coal field. Ten member households are in the Rocky Mountain foothills and the remaining three are on the Western Slope. Members filed 12 claims during the period of July 1, 2005, through June 30, 2006, all for residences in the Colorado Springs

area. Eight of those claims were closed as of June 30, 2006. Investigations concluded that abandoned mine-related subsidence most likely did not cause the damage involved in five of those claims. Of the three remaining claims that were closed as of June 30, 2006, one still is being monitored and two were thought to result from abandoned mine subsidence, though damages in both latter cases were below the $1,000 deductible. The four remaining cases still were open as of June 30, 2006.

Colorado submitted to OSM a formal amendment (CO-031) to its AML plan on October 29, 1996. OSM's review generated one substantive concern and a number of editorial comments, which it described in a letter to the State dated June 7, 1999. CIMRP drafted several proposed changes in response to that letter over the following years without submitting them formally to OSM. Our 2001 evaluation recommended the State further amend its plan to update its project ranking and selection process. Colorado combined the final revised changes it developed in response to the June 7, 1999, letter with a proposed revised project ranking and selection process and additional changes in a formal revised amendment it submitted to OSM in late June 2005. OSM did not complete a review of the revised amendment by the end of the 2006 evaluation year.

Colorado does not have an OSM-approved emergency coal reclamation program.

III. Noteworthy Accomplishments

CIMRP participated in several activities during the 2006 evaluation period related to public outreach, technology transfer, and training.

The Program's outreach activities included:

- Distributing *Stay Out and Stay Alive* videotapes and compact discs to promote AML safety awareness in partnership with the Utah Abandoned Mine Reclamation Program and BLM;
- Participating in meetings of the Western Governor's Association, Center for the American West to discuss "Good Samaritan" legislation for mine reclamation;
- Attending the Colorado Association of Conservation Districts teacher workshop, Tourist Mine and Heritage Tourism workshops, and the teachers' education class sponsored by the Colorado Mining Association's Education Foundation; sponsoring exhibits at the State Fair, the Taste of Colorado, the Science Convention, the annual conference of the Colorado Mining Association, a conference and workshop of the Colorado Association of Environmental Education, and the Animas River Stakeholders Festival;
- Participating in the Urban Conference of the Colorado Association of Conservation Districts; and making presentations at Denver public schools and the annual meeting of Colorado Preservation, Inc., meetings of the Clear Creek and San Juan County Commissioners and Soil Conservation Districts; and
- Submitting articles for publication in newspapers concerning coal mine fire abatement projects and cooperative reclamation projects.

CIMRP's technology transfer, technical assistance, and training activities included:

- Attending the National Association of Abandoned Mine Land Programs (NAAMLP) conference and NAAMLP's winter meeting;
- Attending the Colorado Nonpoint Source Forum and partners meetings with the BLM and USFS;
- Sponsoring the Women in Mining Industry appreciation dinner and judging entries in the Western Region Science Fair and the Colorado State Science Fair;
- Participating in a Colorado State University High Altitude Revegetation seminar, ICEAA Erosion/Sediment Conference, National Brownfields Conference, and the American Society of Mining and Reclamation conference; and
- Attending OSM training for AMLIS and grants / Federal Business Management System and an OSM partnering workshop.

CIMRP continued to partner with other agencies to leverage its SMCRA funding for AML reclamation or to address a wider range of AML problems than those ordinarily funded under SMCRA. Colorado and its partners address mining-related water quality issues throughout the State, including nonpoint source problems. Those partners included: Crested Butte Land Trust; Colorado Department of Public Health and Environment's Water Quality Control Division; San Juan Resource Conservation and Development Council; Animas River Stakeholders Group; Lake Fork of the Gunnison Watershed Group; Lefthand Creek Watershed Oversight Group; London LLC; Lake Fork of the Arkansas Watershed Group; the Western Museum of Mining and Industry; Willow Creek Reclamation Committee; U.S. Environmental Protection Agency (EPA); and the BLM, USFS, National Park Service, and private landowners. Nonpoint source and water quality control projects that CIMRP currently partners on include:

- Red Mountain Mine Waste Control - San Juan County
- Animas River Infiltration Controls - San Juan County
- Handies Peak mine waste reclamation - San Juan County;
- Lake Fork of the Gunnison River, Henson Creek characterization - Hinsdale County;
- Lefthand Creek Watershed tailings and mine reclamation - Boulder County; and
- London Mine water treatment extension - Park County.

Additional nonpoint source projects recommended for funding in 2006 or being addressed in the 2006 evaluation year that CIMRP is partnering with other agencies on include:

- Castleton mine dump remediation - Clear Creek County
- Gilson Gulch Orphan Mine waste pile remediation - Clear Creek County;
- Upper Animas River mine drainage and mine waste control projects - San Juan County;
- Palmetto Gulch total maximum daily load development - Hinsdale County;
- Wyoming Mine and Roy Pray Mine discharge control in the Palmetto Gulch area of upper Henson Creek - Hinsdale County;

- Hanna mill tailings removal - Hinsdale County;
- Dinero Tunnel underground rehab and investigation - Lake County;
- Commodore Mine / Nelson Tunnel rehab and treatment testing - Mineral County;
- Mary Murphy Mine drainage investigation - Chaffee County;
- Lark/Joe and John/Evelyne Mine sites mine waste consolidation and capping - San Juan County; and
- Kansas City project mine waste pile reclamation - San Juan County.

Constructing specialized mine closures to protect wildlife and wildlife habitat is a standard part of Colorado's AML projects. Bats figure prominently in that effort. CIMRP safeguarded 57 mine openings with bat-friendly closures during the 2006 evaluation period. Cooperation between the Program and the Colorado Division of Wildlife (DOW) resulted in 301 bat surveys of abandoned mines before and after construction. Eighty-nine volunteers donated just over 2,205 hours of their time in the 2006 period to the DOW-DRMS Bats/Inactive Mines Project to help survey abandoned mines for bats.

IV. Results of Enhancement and Performance Reviews

We updated the current "Colorado-Utah AML Review Team Performance Agreement" on July 21, 2005, to describe the principles of excellence and performance measures that we planned to review in the 2006 evaluation year.

Principles of excellence and performance measures emphasize on-the-ground or end-results as much as possible. Each general principle of excellence has one or more specific performance measure(s). Performance measures describe: Why we selected that topic; what the review population and sample sizes will be; how we will do the review and report the results; and our schedule for completing the review. The principles of excellence and specific performance measures we chose for our 2006 evaluation of the Colorado Inactive Mine Reclamation Program are:

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

- *Performance Measure (a)*: Does reclamation meet the goals of the project?

Principle of Excellence 2: The State AML procedures are efficient and effective.

- *Performance Measure (e)*: Does the information the State entered into AMLIS beginning July 1, 2004, agree with information in its files?

Results of our 2006 evaluation are described below in Parts IV.A and B. Our evaluation included field visits to three noncoal projects and four coal projects and reviews of CIMRP's project closeout reports and specifications, grant applications, and AMLIS data. We described our evaluation results in much greater detail in an enhancement and performance review report for each performance measure. Those reports are on file in OSM's Denver Field Division and are the factual basis of this report's summary of our evaluation of performance measures 1(a) and 2(e).

A. Summary Evaluation of Performance Measure 1(a)

This evaluation determined if sample projects met their goals. The evaluation sample included one coal mine subsidence mitigation project, three underground coal mine fire projects, and three noncoal projects. All projects were complete except one. One noncoal project was ongoing and the State completed the other two about 9½ months and 10¼ months, respectively, before our evaluation. CIMRP completed the coal mine subsidence mitigation project about two weeks prior to our evaluation. Colorado completed work on the three underground coal mine fires about 8 months, 9 months, and 1 year before our evaluation, respectively.

Our evaluation empirically compared CIMRP's reclamation to its project specifications onsite and afterward based on its project closeout reports and our field notes for each of the sample projects. The evaluation focused on whether the State's work abated the original hazards while also determining if projects complied with conditions resulting from interagency consultation and improved overall site conditions compared to pre-reclamation conditions. We noted problems when we found them. In general, we agreed that projects met their goals if abatement measures were intact and functional and no other problems were evident.

We found that the sample noncoal projects met their respective goals. Goals included abating hazards, complying with provisions resulting from interagency consultation, and improving site conditions compared to pre-reclamation conditions. CIMRP met the goals of abating hazards and improving site conditions at the sample noncoal projects and features we viewed by following its specifications or adapting proven alternative methods. Its construction methods are designed to abate health and safety hazards associated with abandoned mines while improving site conditions.

We viewed abatement of hazards associated with 16 vertical openings (including vertical shafts, stopes, and inclined shafts) and four portals in the three noncoal projects. The sample projects safeguarded mine openings on public and private land. Many of the safeguarded mine openings are in areas that are experiencing increased home and road construction and outdoor recreation. We found evidence of visitation throughout the areas we visited. Methods CIMRP used to safeguard the vertical openings we observed included machine backfills, a hand backfill, pre-cast concrete panel closures, and one constructed of polyurethane foam used in conjunction with backfilling.

Pre-cast concrete panel closure with locking access door over vertical opening GG-23 of the Gilson Gulch noncoal project

CIMRP built the portal closures we viewed with machine backfills, one hand backfill and one corrugated metal pipe with a bat grate. Bat grates implement CIMRP's compliance with recommendations developed during its consultation with other agencies for protecting wildlife and wildlife habitat. We did not see any closures that needed maintenance.

CIMRP developed the Mesa State College project to enable students in Mesa State College's Environmental Restoration Program to participate in an actual reclamation project. This project was part of our evaluation sample. Working under CIMRP's supervision, students completed the site inventory and developed project alternatives, construction specifications, and amendments. They also participated in pre-bid meetings and managed project construction. The Mesa State College project won OSM's 2005 Western Region Abandoned Mine Reclamation Award. The photo at left of the bat grate in a corrugated metal pipe shows a closure CIMRP built as part of the Mesa State College project.

Bat gate in corrugated metal pipe closure in portal at Shelby Dean site of Mesa State College noncoal project

Our evaluation also found that sample coal projects met their goals, but our ability to determine the overall success of certain projects was limited. We believe the sample subsidence mitigation project met its goal. That goal was to locate remaining underground voids in a residential area that experienced past subsidence problems, and to stabilize those voids and perhaps reduce the probability of future subsidence. Continued monitoring is needed because we were unable to predict the probability of future subsidence after project completion.

We also believe the mine fire projects met goals of abating surface hazards and reducing combustion in certain areas. Overall, however, we were unable to determine the effectiveness of the work CIMRP completed at the three underground mine fire projects. While there were some changes in fire activity that could be seen and measured, CIMRP will need to monitor all three fires for some time to determine whether or not they are contained and will eventually burn themselves out. This is not

Smoke emanating from vent number 10 in the Harvey Gap underground mine fire project after reclamation

unexpected given these fires' geotechnical characteristics and their history of resisting various abatement techniques.

B. Summary Evaluation of Performance Measure 2(e)

In September 2004, 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' abandoned mine land programs. That report criticized the accuracy of the Abandoned Mine Land Inventory System (AMLIS) data in Problem Area Descriptions (PADs), concluding that AMLIS data did not match data in the respective States' files. In part, the OIG recommended establishing "a quality control system that ensures that States, Tribes, and OSM, as applicable, review and certify the accuracy of data entered into AMLIS."

OSM responded to the OIG's recommendation with two new requirements for program evaluations. The first requires OSM field offices to "assure that each State and Indian Tribe AML program has procedures in place to ensure and certify the accuracy of data entered into AMLIS." We addressed this recommendation by developing the 2(d) performance measure to look at Colorado's "system" for ensuring that data in AMLIS match data in its files. We completed an evaluation of that performance measure in the 2005 evaluation period.

We developed performance measure 2(e) to address the second new requirement. Our evaluation of that measure involves an annual comparison of data in a sample of Colorado's AMLIS PADs to data in the State's files to ensure that they agree. CIMRP uses data from its project closeout reports to update AMLIS. For the purposes of this evaluation, we consider the project closeout reports to be CIMRP's "system" for ensuring that completion data it enters into AMLIS match data in its files. We chose eight coal and six noncoal projects from the population for the evaluation sample.

CIMRP's revised data in PADs for four sample projects matched data in its files (i.e., closeout reports). AMLIS data for six of the remaining projects was similar to closeout report data with minor discrepancies. We were unable to determine if AMLIS data for the remaining four projects matched data in their respective closeout reports. The reason the data in these PADs did not appear to match data in their respective closeout reports was not clear. Our findings might have reflected a combination of data entry errors and limitations on how AMLIS manipulates and presents data. Also, we simply might have been unable to interpret the data correctly especially in the case of noncoal PADs, each of which covers an entire County and includes data for several projects. In some cases, we were unable to determine if AMLIS included the correct numbers for specific projects or to match them to CIMRP's closeout reports. That left us unable to completely fulfill the intent of this evaluation, which was to determine if the data in AMLIS matched data in CIMRP's files.

We note that all of DRMS's business systems are undergoing a review and re-write. That work is expected to include CIMRP's internal BrassCap database beginning in July 2006, which should help improve consistency in CIMRP's accomplishments reporting.

In addition, we recommended a number of corrective actions. We recommended that:

- CIMRP fully implement procedural changes intended to improve reporting timeliness and quality control;
- project managers show corresponding AMLIS keywords and units for safeguarded or reclaimed features listed in closeout reports so the data can be directly entered into AMLIS without the need to "fit" them to the keywords and units required for AMLIS data entry;
- CIMRP improve quality control to ensure consistency in reporting costs throughout closeout reports, as well as between costs and completion dates shown in closeout reports and the corresponding data entered in AMLIS;
- When applicable, CIMRP report alternate funding sources and apportion costs among keywords in the units and costs section of PADs;
- CIMRP re-examine the closeout reports and corresponding PADs for the ten sample projects and revise the data as needed;
- CIMRP consider phasing-out County-wide noncoal PADs and replacing them with project-specific PADs as new noncoal projects are developed and funded; and
- Incidentally, that CIMRP complete priority documentation forms as required for coal and noncoal PADs.

CIMRP's response to our recommendations described measures it has taken or is considering to improve AMLIS reporting. This evaluation year marked the Program's first attempt to align its project closeout reports, BrassCap data, OSM-51 grant performance reports, and AMLIS to improve data reporting consistency. CIMRP plans to review its project closeout reporting procedures and quality control measures. It also will standardize use of AMLIS keywords to ensure consistency between AMLIS and its internal database. The Program revised its closeout report to make data entry more consistent and easier and to reduce the need to manipulate data when entering them into AMLIS. CIMRP staff participated in AMLIS training on May 18 and 19, 2006, and better understands AMLIS data entry. Also, CIMRP edited AMLIS PADs for some sample projects and will reconcile others with project closeout reports. Finally, Colorado is considering phasing-out County-wide noncoal PADs if it can do so without compromising existing data.

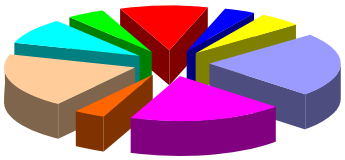
V. Accomplishments and Inventory Reports

Title IV of SMCRA stresses reclamation of abandoned coal mine-related problems because active mining operations pay a fee on each ton of coal produced to generate the AMR Fund. The Colorado Inactive Mine Reclamation Program continues to reclaim abandoned coal mines and the State has not certified that all coal problems have been addressed as provided by section 411 of the Act. In addition, Colorado continues to

reclaim high priority abandoned noncoal mines with funds awarded under section 409(c) of SMCRA.

OSM funded Colorado to reclaim 176 coal projects to date. CIMRP completed 159 of those projects and cancelled six by the end of the 2006 evaluation period. The State spent over $13.25 million from all sources since program approval to abate eighteen types of abandoned coal mine-related problems. About 94.6 percent of the money Colorado spent on coal reclamation so far addressed eight types of problems. Those problem types include: Dangerous highwalls (23.1%); subsidence (19.7%); vertical openings (19.2%); underground mine fires (11%); portals (9.5%); gobs (4.5%); pits (4.3%); and dangerous piles and embankments (3.7%). The remaining 5.4 percent of the total cost of completed coal reclamation went to abating ten other problem types. Figure 1 (above) illustrates CIMRP's coal reclamation accomplishments. With the exception of surface burning, Colorado reclaimed most of the coal problems shown in Appendix 1 with SMCRA grant money. It supplemented its SMCRA grants with funds from other sources to abate surface burning at one coal project area during this period.

Figure 1
Completed Coal Reclamation In Colorado
(Percent of Final Costs)

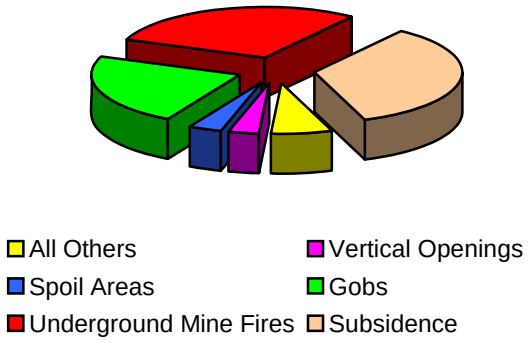


Dangerous Highwalls
Vertical Openings
Surface Burning
Subsidence
Portals
Gobs
Underground Mine Fires
Dangerous Piles & Embankments
All Others

Colorado requested funding for abandoned coal mine projects in each of 25 grants OSM awarded to it since 1982. The State's ongoing 2004, 2005, and 2006 grants include funding for six, three, and four coal projects, respectively. Coal-related reclamation accomplishments funded from all sources that Colorado entered into AMLIS during the 2006 period include safeguarding five portals and five vertical openings and reclaiming three acres of dangerous piles and embankments. They also include addressing six and a half acres of subsidence, seven acres of surface burning, and one acre of underground mine fire. Reclamation is funded to address an additional 49 acres of underground mine fire, five acres of surface burning, 22 vertical openings, 29 portals, 25 acres of gobs, and eight acres of industrial and residential waste. Appendix 1 shows Colorado's reclamation accomplishments to date as reported in AMLIS.

AMLIS shows over $36.85 million in unfunded coal problems remain in Colorado. This is a decrease of over $1.43 million since the end of the 2005 evaluation period. The decrease reflects increased funding to reclaim abandoned coal mine problems and CIMRP's improvement of AMLIS data. Slightly more than 93 percent of the estimated cost of reclaiming those coal problems is associated with priority 2 subsidence (34.4%), priority 1 and 2 underground mine fires (29.17%), priority 3 gobs (22.8%), priority 3 spoil areas (3.5%), and priority 1 and 2 vertical openings (3.4%). Unfunded priority 3 coal

Figure 2
Remaining Coal Problems in Colorado
(Percent of Estimated Costs)



problems such as gobs, spoil areas, slumps, mine openings, and pits involve environmental hazards where the need for abatement is important but somewhat less urgent. Figure 2 (left) compares the percent of estimated reclamation costs comprised of unfunded coal problem types. Appendix 1 shows all the unfunded coal problem types and the estimated costs of their reclamation, based on AMLIS data.

Colorado continued to address coal fires in the State. Of the three coal projects funded in the 2005 grant, one will characterize and mitigate an underground mine fire and another will monitor changes in coal fires Statewide. One additional underground mine fire is funded in Colorado's 2006 grant. This brings to 12 the number of projects involving mine fire abatement and/or monitoring that Colorado funded in the last four grants. As Appendix 1 shows, over $3.43 million in coal reclamation is funded, almost 81 percent of which is dedicated to underground mine fires.

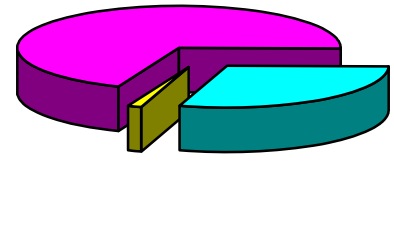
CIMRP continues the emphasis on subsidence abatement it re-initiated during the 2005 evaluation period. Colorado has a history of subsidence-related problems, particularly along the Front Range of the Rocky Mountains. CIMRP completed projects to abate subsidence problems years ago, but most recent occurrences were abated in OSM-funded emergency projects. One of the four coal projects funded in the 2006 grant will proactively mitigate subsidence-prone areas along the Front Range of the Rocky Mountains. CIMRP completed the first phase of the project just prior to the beginning of the 2006 period. Work on the second phase of that project was delayed due to higher-than-expected costs of the first phase work.

CIMRP continues to review Colorado's AMLIS data to more accurately show the State's coal reclamation accomplishments and identify remaining reclamation needs. Decreases in unfunded and completed units and costs reported in AMLIS for gobs, highwalls, pits, and spoil areas in part reflect this ongoing effort.

Abandoned *noncoal* mines generally pose more serious and immediate hazards to public health and safety in Colorado than abandoned coal mines do. Noncoal projects dominated CIMRP's grants and reclamation for the past 11 years as a result. OSM funded CIMRP to reclaim 206 noncoal projects since 1985, of which 182 are complete and four were cancelled. The Program completed 12 noncoal projects during the 2006 evaluation period.

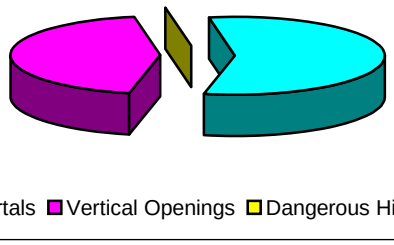
To date, CIMRP spent over $23.8 million, including SMCRA funds and funds from other sources, to abate hazards attendant to abandoned noncoal portals, vertical openings, hazardous equipment and facilities, gobs, pits, and subsidence. Based on AMLIS data, CIMRP safeguarded at least 6,629 noncoal portals and vertical openings by the end of the 2006 evaluation period. That number is an increase of 961 safeguarded portals and vertical openings over data reported by the end of the 2005 evaluation year. The completion cost amount, however, is $11,558,551 *less* than reported at the end of the 2005 evaluation year. That decrease reflects CIMRP's refinement of AMLIS data for Colorado's noncoal portal closure costs. Figure 3 (above) compares the percent of total final costs attributed to safeguarded portals, vertical openings, and all other noncoal problems Colorado reclaimed. About 98.3 percent of the total cost of completed noncoal reclamation went to abating priority 1 portals and vertical openings. AMLIS data also show that the Program reclaimed 62 priority 2 noncoal portals and vertical openings and five acres of priority 3 gobs and pits incidental to abating priority 1 hazards for 0.38 percent of the total cost of noncoal reclamation it completed to date.

Figure 3
Completed Noncoal Reclamation in Colorado
(Percent of Final Costs)



Priority 1 portals and vertical openings generally pose the most hazardous noncoal problems in the State and make up 99.98 percent of the estimated cost of abating unfunded noncoal problems reflected in AMLIS. A priority 2 dangerous highwall is the remaining unfunded noncoal problem. Figure 4 (right) illustrates a comparison of the percentages that portals, vertical openings, and the dangerous highwall comprise of Colorado's estimated unfunded noncoal reclamation costs.

Figure 4
Colorado's Remaining Noncoal Reclamation Needs
(percent of estimated costs)



CIMRP updates AMLIS to include more data for Colorado's remaining noncoal problems. However, it is important to recognize that AMLIS data shown in Appendix 2 are not a complete summary of Colorado's unfunded abandoned noncoal mine problems or their estimated reclamation costs. Moreover, AMLIS data for unfunded noncoal problems are based on very preliminary inventory data and rough cost estimates. AMLIS data, therefore, are an imprecise measure of Colorado's unfunded noncoal reclamation needs. Estimates of reclamation needs and costs become more accurate as CIMRP plans projects and then funds their reclamation. Appendix 2 shows that CIMRP had funding to reclaim 86 noncoal portals and 111 vertical openings at a cost of over $653,000 by the end of the 2006 evaluation year.

CIMRP also continues to revise AMLIS data to more accurately show its noncoal reclamation accomplishments. The increased number of reclaimed portals and vertical shafts and the cost of that work noted above reflect a combination of Colorado's accomplishments and costs for the 2006 period and corrected data for earlier projects.

Appendix 1

Colorado Inactive Mine Reclamation Program

Coal Reclamation Accomplishments and Remaining Reclamation Needs*

Problem Type and Description	Unfunded		Funded		Completed		Total	
	Units	Costs	Units	Costs	Units	Costs	Units	Costs
Bench	55 acres	$197,000	0	0	2.5 acres	$27,920	57.5 acres	$224,290
Dangerous Highwalls	1,030 feet	$30,000	0	0	51,992 feet	$2,955,885	53,022 feet	$2,985,885
Dangerous Piles & Embankments	0	0	0	0	43.5 acres	$468,050	43.5 acres	$468,050
Equipment & Facilities	62 (count)	$94,000	0	0	7 (count)	$14,657	69 (count)	$108,657
Gobs	457.3 acres	$8,416,954	25 acres	$205,753	87.5 acres	$576,669	569.8 acres	$9,199,376
Highwall	0	0	0	0	1,175 feet	$41,386	1,175 feet	$41,386
Hazardous Equipment & Facilities	1(count)	$2,000	0	0	1(count)	$1	2 (count)	$2,001
Haul Road	4 acres	$13,000	0	0	0	0	4 acres	$13,000
Industrial / Residential Waste	3 acres	$13,000	8 acres	$84,000	15 acres	$106,657	26 acres	$203,657
Mine Openings	212 (count)	$631,000	3 (count)	$3,206	18 (count)	$62,592	233 (count)	$696,798
Other	26.0	$101,000	0	0	0	0	26.0	$101,000
Portals	32 (count)	$136,060	29 (count)	$86,736	543 (count)	$1,223,460	604 (count)	$1,446,256
Pits	93 acres	$423,100	0	0	61.9 acres	$233,584	154.9 acres	$656,684
Polluted Water: Agric. & Industrial	0	0	1 (count)	$50,000	3 (count)	$19,699	4 (count)	$69,699
Subsidence	178.6 acres	$12,691,460	0	0	51.9 acres	$2,529,376	230.5 acres	$15,220,836
Spoil Area	365.6 acres	$1,286,095	2 acres	$25,000	97.5acres	$183,502	465.1 acres	$1,494,597
Surface Burning	1acre	$5,000	5 acres	$70,000	29.2 acres SMCRA ; 42 acres all sources	$500,828 SMCRA; $935,435 all sources	35.2 acres SMCRA; 48 acres all sources	$575,828 SMCRA; $1,010,435 all sources
Slump	25 acres	$804,000	0	0	0	0	25 acres	$804,000
Underground Mine Fire	176.5 acres	$10,750,000	49 acres	$2,775,532	182 acres	$1,413,817	407.5 acres	$14,939,349
Vertical Openings	118 (count)	$1,239,967	22 (count)	$110,895	296 (count)	$2,456,882	436 (count)	$3,807,744
Water Problems	24 gal/min	$22,000	1 gal/min	$25,000	1 gal/min	$6,000	26 gal/min	$53,000
COLORADO TOTAL COSTS		**$36,855,636**		**$3,436,122**		**$12,820,335 SMCRA; $13,254,942 all sources**		**$53,112,093 SMCRA; $53,546,700 all sources**

* This table is based on a Problem Type Unit and Cost Summary Report from the Abandoned Mine Land Inventory System as of July 5, 2006. "All sources" of funding exclude the Federal Emergency Program.

NOTE: Completed cost of $1 means that problem type's reclamation was incidental to reclamation of another problem type.

Appendix 2

Colorado Inactive Mine Reclamation Program

Noncoal Reclamation Accomplishments and Remaining Reclamation Needs*

Problem Type and Description	Unfunded		Funded		Completed		Total	
	Units	Costs	Units	Costs	Units	Costs	Units	Costs
Dangerous Highwalls	1.0	$5,000	0	0	0	0	1.0 foot	$5,000
Gobs	0	0	0	0	3 acres	$78,250	3 acres	$78,250
Hazardous Equipment & Facilities	0	0	0	0	13 (count)	$214,669	13 (count)	$214,669
Industrial/Residential Waste	0	0	1 acre	$20,000	0	0	1.0 acre	$20,000
Portals	3,641 (count)	$18,714,076	86 (count)	$279,812	2,482 (count) SMCRA; 2,581 (count) all sources	$7,024,664 SMCRA; $7,055,258 all sources	6,200 (count) SMCRA; 6,299 (count) all sources	$25,983,305 SMCRA; $26,013,899 all sources
Pits	0	0	0	0	2 acres	$12,000	2 acres	$12,000
Subsidence	0	0	0	0	2 acres	$10,000	2 acres	$10,000
Vertical Openings	6,077 (count)	$23,895,696	111 (count)	$373,585	4,025 (count) SMCRA; 4,048 (count) all sources	$16,444,674 SMCRA; $16,463,542 all sources	10,213 (count) SMCRA; 10,236 (count) all sources	$40,713,855 SMCRA; $20,732,823 all sources
COLORADO TOTAL COSTS		**$42,614,772**		**$673,397**		**$23,784,257 SMCRA; $23,833,719 all sources**		**$67,037,179 SMCRA; $67,086,641 all sources**

* This table is based on a Problem Type Unit and Cost Summary Report from the Abandoned Mine Land Inventory System as of July 5, 2006. AMLIS does not include a complete inventory of Colorado's unfunded noncoal problems.

Appendix 3

State Comments on the Report

From: Pineda, Loretta [loretta.pineda@state.co.us]
Sent: Wednesday, August 30, 2006 1:12 PM
To: Ronald Sassaman
Subject: RE: revised draft annual evaluation report
For Appendix 3

Memo

TO: Ron Sassaman

FROM: Loretta Pineda

Date: August 30, 2006

RE: 2006 Colorado Annual Summary Report

I have read the revised 2006 annual evaluation report for Colorado and I agree with the report. Over the past few years, Colorado has enhanced its AML funding through continued partnerships with BLM, USFS and through state funding. Reconciling cost shares and other funding sources has added a new challenge as these accomplishments are recorded in AMLIS. Colorado continues to work on updating and reconciling AMLIS. In addition, Colorado is in the process of upgrading its current business database (BrassCap) in order to more efficiently record Colorado's accomplishments in AMLIS. I continue to appreciate your help in our efforts to resolve our AMLIS reporting requirements.

Thanks again for your guidance and support.