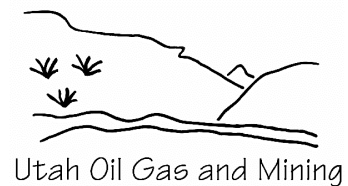


ANNUAL SUMMARY EVALUATION REPORT
of the
COLORADO – UTAH ABANDONED MINE LAND REVIEW TEAM
for the
COLORADO INACTIVE MINE RECLAMATION PROGRAM
For
EVALUATION YEAR 2001
(October 1, 2000, through September 30, 2001)



November 20, 2001

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ACRONMYMS

AML	Abandoned Mine Land
AMLIS	Abandoned Mine Land Inventory
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
DOGM	Utah Division of Oil, Gas and Mining
EPA	United States Environmental Protection Agency
MSHA	Mine Safety and Health Administration (of the U.S. Dept. of Labor)
OSM	Office of Surface Mining (of the U.S. Dept. of the Interior)
SMCRA	Surface Mining Control and Reclamation Act of 1977, as amended
USFS	Forest Service (of the U.S. Dept. of Agriculture)

I. Introduction

Title IV of the Surface Mining Control and Reclamation Act of 1977 (SMCRA) established the Abandoned Mine Reclamation Fund. The primary purpose of the Fund is to mitigate the effects of past mining. The Office of Surface Mining Reclamation and Enforcement (OSM) administers the Abandoned Mine Reclamation Fund on behalf of the Secretary of the Interior. OSM awards grants to States and Tribes from the Fund to reclaim abandoned mines and pay their administration costs. The program puts the highest priority on correcting the most serious abandoned mine land (AML) problems that endanger public health, safety, general welfare, and property. OSM, 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. It calls such evaluations AML “enhancement and performance reviews.” A joint State/Federal team, called the Colorado-Utah AML Review Team, has been completing these reviews of the Colorado Inactive Mine Reclamation Program (CIMRP) and the Utah Abandoned Mine Reclamation (AMR) Program since its inception in January 1996. The team includes representatives of CIMRP, the Utah AMR Program, and OSM’s Denver Field Division (DFD). Members of the team during the 2001 evaluation period included: Frank Atencio, Grants Management Specialist, OSM-DFD; Dave Bucknam, CIMRP Supervisor; Mark Mesch, Administrator, Utah AMR Program; and Ron Sassaman, Environmental Protection Specialist, OSM-DFD. This report summarizes our review and evaluation of the Colorado Inactive Mine Reclamation Program for evaluation year 2001.

II. General Information on the Colorado Program

On June 11, 1982, the Secretary of the Interior approved Colorado’s AML plan (“State reclamation plan”) under Title IV of the Surface Mining Control and Reclamation Act (SMCRA). This approval allows Colorado to reclaim abandoned mines in the State in non-emergency AML projects. CIMRP, of the Division of Minerals and Geology (DMG) in the Department of Natural Resources, administers Colorado’s AML program under its approved plan. The Denver Field Division of OSM’s Western Regional Coordinating Center works with CIMRP to fund and approve AML projects in Colorado and to evaluate the State 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. Grants OSM awards to CIMRP are based on the calendar year. Because the *evaluation* year (on which this report is based) includes the period of October of one year through September of the following year, CIMRP’s grants span parts of two successive evaluation periods. The administration funding in those grants applies to a single year. Construction funding awarded in those grants is available for three years. Excluding projects the State eventually cancelled, OSM funded 151 coal and 148 noncoal projects in 20 grants awarded to Colorado since the Secretary approved its program. OSM

awarded a total of \$2,360,000 to CIMRP in its 2000 grant. That grant funded 14 full-time equivalents (FTEs) to staff the program. It also funded reclamation of two coal and twelve noncoal projects and maintenance of previously completed projects. CIMRP's 2001 grant award included a total of \$2,510,811 to fund 14 FTEs, reclamation of seven coal and ten noncoal projects, and project maintenance. Appendices 1 and 2 show Colorado's AML reclamation accomplishments and remaining reclamation needs based on data from the Abandoned Mine Land Inventory System (AMLIS).

The State has an approved subsidence insurance program called the Colorado Mine Subsidence Protection Program. CIMRP oversees an insurance brokerage firm's administration of the insurance program. The insurance program had 891 active members at the end of September 2001, a decrease of 43 members since June 2000. About 89.7 percent of the members live in the Colorado Springs area and 8.9 percent reside in the area of the Boulder/Weld coal field. Another 1.1 percent of the program's members live in the foothills of the Rocky Mountains and the remaining 0.3 percent live on Colorado's Western Slope. Members filed nine claims during the period of October 1, 2000, through September 30, 2001. Though one of those claims remained open as of September 30, 2001, investigations concluded that none of the nine claims were caused by subsidence related to abandoned mines.

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

III. Noteworthy Accomplishments

Experience has shown that increasing public awareness of hazards associated with abandoned mines can prevent and reduce accidents involving abandoned mines. Outreach efforts help inform the public of resources available to address AML problems while drawing on the public and special interest groups for information that can bring AML-related needs to the Program's attention. Toward that end, CIMRP participated in numerous public awareness and outreach activities during this evaluation period. In October 2000, CIMRP staff participated in Earth Science Week, met with the Inactive Mine Reclamation Advisory Council and the Colorado Mined Land Reclamation Board, helped students plant trees to reclaim a coal mine, and sponsored a meeting of Women in Mining. November 2000 activities included attending the Colorado Mining Association Annual Conference. In February 2001, CIMRP entered an exhibit at Colorado Preservation, Inc. The Program's March 2001 public awareness activities included judging entries in the Mesa County Science Fair, giving an earth science presentation at the high school in Fruita, staffing an exhibit at the Grand Junction Safety Fair, and participating in a partners' meeting in Salt Lake City for MSHA's "Stay Out – Stay Alive" 2001 campaign.

CIMRP was just as active in public awareness and outreach activities in the second half of the evaluation year. April activities included participating in the Indonesian Training Program and MSHA's Mine Safety Awareness Week and giving a presentation to fourth grade students in Mesa County District 51. In May 2001, District 51 sixth grade students benefited from mine safety outreach while other fourth, fifth, and sixth grade

students toured the Colorado School of Mine's Edgar Mine. Also in May, CIMRP made a presentation at the Kiwanis Safety Walk, staffed an exhibit at the Grand Junction Rendezvous, sponsored the Northwest Coal Conference, participated in the Howard's Fork stakeholder's meeting, and toured mining areas around Leadville with the Inactive Mine Reclamation Advisory Council. In June, the Program participated in a mine rescue contest and sponsored the Youth in Natural Resources program, which extended into August. CIMRP's August 2001 activities also included taking part in the National Association of Abandoned Mine Land Programs annual conference in Ohio and attending Natural Resources Day at the State Fair in Pueblo. September 2001 saw the Program sponsor the Newspaper in Education Program and staff an exhibit at the popular "Taste of Colorado" Labor Day event in downtown Denver. During September, CIMRP also provided speakers for the Colorado Mining Association Conference, a Boulder transportation and planning meeting, a meeting of the Clear Creek County Metal Mine Association, and for the Colorado Preservation Tour at Silverton.

CIMRP was involved in other related activities throughout the year. One activity involved sponsoring a Reclaiming Landscapes exhibit at the Colorado University's Denver campus. Others included publishing news releases on the "Stay Out – Stay Alive" theme as well as various fact sheets and a brochure for the Division of Minerals and Geology. The Division of Minerals and Geology contributed funds for a project undertaken in cooperation with the Western Museum of Mining and Industry in part to increase public awareness of water quality problems associated with abandoned mines.

As in previous years, CIMRP continued to develop partnerships with various agencies to address mining-related concerns. In many cases, the resulting projects were funded by sources other than OSM. Many of these projects addressed water quality concerns while others abated hazards typically found in projects funded under OSM grants. During the 2001 evaluation year, the Program provided contracting and construction expertise (and in one case, matching funds from severance taxes) for five noncoal projects funded directly or indirectly by the U.S. Environmental Protection Agency (EPA) under the section 319 non-point source provisions of the Clean Water Act. Those projects addressed water quality problems in the Animas River Basin caused by mine waste, direct mine discharges, and contamination of mine water from contact with ore bodies. CIMRP provided the same expertise for: Four projects addressing similar concerns in San Juan, Park, and Hinsdale Counties funded by the U.S. Department of the Interior, Bureau of Land Management (BLM); for a project in Creede funded by the EPA through a local stakeholders group; and for another project near St. Elmo that the EPA and USFS jointly funded. The Program sampled and analyzed mine waste piles and surface water to help characterize metals contributions to Clear Creek with funding provided by an EPA Regional Geographic Initiative Grant. Also, CIMRP and the Snake River Task Force cooperatively planned sampling sites to characterize water quality concerns in the Snake River. The Program received funding from the BLM under at least six task orders for more typical mine hazard abatement. It received funds from the USFS for similar work in at least three other task orders during this period as well. CIMRP also received severance tax funding from the Colorado Legislature for work on

six coal-related projects and for three noncoal projects with funds derived from a tax on limited stakes gambling.

Colorado's Program also continued to protect wildlife and wildlife habitat through its reclamation, with particular emphasis on bats. Colorado continued its part in the nationwide effort to protect bats and bat habitat by constructing specialized mine closures. During our field review for this evaluation, we observed five portals and two vertical openings that CIMRP safeguarded with steel grates that included bat slots. We also note that a CIMRP staff member was a member of the steering committee for the Bat Conservation and Mining technical interactive forum hosted by OSM, Bat Conservation International, and Southern Illinois University on November 14 through 16, 2000, in St. Louis. The CIMRP Supervisor was a speaker at that forum.

IV. Results of Enhancement and Performance Reviews

Our team signed the "Colorado-Utah AML Review Team Performance Agreement" on February 3, 1998. The performance agreement describes the team's purpose, team members' responsibilities, and three general principles of excellence that the team developed to review and evaluate the Colorado and Utah AML programs' performance. The agreement applies to the 1998, 1999, 2000, 2001, and 2002 evaluation years. We update the agreement every year with current-year schedules and to describe the principles of excellence and performance measures we plan to review. We also update the performance measures to specify any particular aspects of the programs that we plan to focus on. We updated the performance agreement for our 2001 reviews and evaluations on February 22, 2001.

We emphasized on-the-ground or end-results when we developed the principles and measures in the agreement. Each general principle of excellence has one or more specific performance measure(s). We decide which performance measures to review and evaluate in a particular year. Performance measures describe the following: Why we selected that topic; what the review population and sample sizes will be; how we will conduct the review and report the results; and our schedule for completing the review. The three principles of excellence, and the specific performance measures we chose for the 2001 review of the Colorado Inactive Mine Reclamation Program, are described below.

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 programs' procedures are efficient and effective.

- *Performance Measure (a):* Has the State's project ranking and selection evolved to meet the State program's changing needs? If so, how?

Principle of Excellence 3: The State must have systems to properly manage AML funds.

- *Performance Measure (f):* Is the State obligating its grant funds in a timely manner?

Results of our 2001 reviews and evaluations are summarized below. These summaries are based on information we gathered from field visits to AML projects, interviews with CIMRP, DMG, and Natural Resources Department staff, and reviews of the Program's project specifications, grant applications and reports, and internal State and AMLIS inventories. We described our review and evaluation results in much greater detail in enhancement and performance review reports that we wrote for each performance measure. Those reports are on file in OSM's Denver Field Division. This report, and the supporting enhancement and review reports, describe our reviews and evaluations of performance measures 1(a), 2(a), and 3(f).

A. Summary Evaluation of Performance Measure 1(a)

Our evaluation of this performance measure determined if Colorado's reclamation met its projects' goals. We select this review topic every other year because the overriding goal of the Inactive Mine Reclamation Program is reclamation success. For our 2001 evaluation of this performance measure, we defined the population as every project funded for construction in CIMRP's 1998, 1999, and 2000 grants. The population totaled 39 projects. Our review sample focused on projects in alpine or near-alpine locations that were underway or completed no earlier than January 1998. We also visited a project the EPA funded under section 319 of the Clean Water Act, though it was not part of this evaluation. Our final sample included two coal and nine noncoal projects. Reclamation at all sample projects was complete. The two coal projects were completed in November 1998 and October 1999. CIMRP completed one of the noncoal projects in September 1999, two in October 1999, one in June 2000, three in October 2000, and the remaining two in November 2000.

We found that the projects we visited met their respective goals. Those goals included abating hazards, complying with provisions resulting from interagency consultation, and improving site conditions compared to pre-reclamation conditions. We compared CIMRP's reclamation to its project specifications for each project we visited. Project specifications include: General goals from the grant; prescribed construction methods CIMRP developed to address site specific hazard abatement and other reclamation needs; and any requirements that resulted from the interagency consultation CIMRP completed to help OSM comply with the National Environmental Policy Act (NEPA) and other laws. CIMRP's closeout reports provided most of the information we used to determine how each feature was safeguarded or reclaimed. While we also determined if projects complied with conditions resulting from interagency consultation (if evident) and improved overall site conditions compared to pre-reclamation conditions, we focused on whether reclamation continued to abate the original hazards. We looked for specific reclaimed hazards or other aspects of reclamation while empirically evaluating

overall site conditions. If we found problems, we decided if they were hazardous or not and if maintenance was needed to correct them.

We found that in most cases CIMRP reclaimed the features we observed in the eleven sample projects as planned in its specifications. In some cases, CIMRP modified its original plans to accommodate differing site conditions. Despite these variations from the specifications, we did not find any cases where such variations resulted in ineffective hazard abatement or unsuccessful reclamation. CIMRP met the goals of abating hazards and improving site conditions by following its specifications or otherwise using proven or innovative methods for abandoned mine reclamation. Its construction methods are designed to abate health and safety hazards associated with abandoned mines while improving site conditions overall.

We viewed reclamation of hazards associated with 20 portals and 31 vertical openings (including vertical shafts, inclined shafts, and stopes) on public and private land. Many of those safeguarded openings were in popular, though remote, outdoor recreational areas with developed hiking trails and fishing access. Others were located in historic mining districts that are experiencing increased visitation and development. Types of mine closures we observed included: Backfills; monolithic concrete plugs; concrete panels; polyurethane foam used in conjunction with backfilling; steel grates with, and without, bat slots and/or access doors; and concrete block and native stone bulkheads.

At two coal projects, we observed how reclamation of coal refuse abated hazards and environmental problems attendant to 13 acres of dangerous piles and embankments. These two projects are adjacent to each other and a perennial stream that is a tributary to a blue ribbon trout fishery. These projects stabilized the outcrops, constructed drainage controls, improved subsurface drainage, and established vegetation. Once both project areas were revegetated, CIMRP imported 500 goats to graze the reclaimed areas to reduce noxious weeds.

Of the 51 safeguarded mine openings we viewed, we saw only one that needed maintenance to address a hazard. Settling at a vertical shaft closure in one noncoal project created a vertical opening that was potentially hazardous, and we recommended that CIMRP perform maintenance to address that condition. We also viewed settling near two other vertical shaft closures in another noncoal project. While we did not consider that opening hazardous, maintenance could prevent it from becoming a hazard.

CIMRP protects wildlife habitat and cultural resources in Colorado by following provisions resulting from its interagency consultation. The Program closed five portals and two vertical openings that we viewed at one noncoal project with steel grates and bat slots. Such closures protect existing and potential bat habitat while preventing access by people. Colorado's approach to safeguarding abandoned noncoal mines typically addresses only the mine openings while avoiding impacts to associated structures that are, or might be, historically significant. Many of the noncoal mine

closures we visited for this evaluation were located near, inside, or under structures CIMRP preserved.

Though not part of this evaluation, we visited one noncoal mine to observe reclamation CIMRP and other partnering groups completed as part of a water quality improvement project funded by the Environmental Protection Agency (EPA) under section 319 of the Clean Water Act (CWA). CIMRP and its partners moved mine tailings piles away from a perennial stream and disposed of the material in a designated area where they covered it with nontoxic material then fertilized and revegetated it. A volunteer group helped to reconstruct and rehabilitate wetlands at the site by planting trees and live-transplanting sedges. The work also diverted the mine discharge through treatment cells.

The same mine is the focus of a mine groundwater source controls demonstration project. Colorado's DMG is the lead sponsor of this demonstration project, again funded primarily by the EPA under section 319 of the CWA. The ongoing project is a cooperative effort between CIMRP, Region VIII of the EPA, the U.S. Department of Agriculture, Forest Service, a watershed council and other local agencies and citizen groups to promote continued recovery of the stream's ecosystem.

B. Summary Evaluation of Performance Measure 2(a)

We reviewed Colorado's project ranking and selection process to determine if it still meets CIMRP's needs. We found that Colorado follows part of the process for ranking and selection described in its plan but does not follow other parts that its experience showed to be impractical. In this context, we conclude that Colorado's formal ranking and selection process has not changed to meet CIMRP's needs. On the other hand, the informal process CIMRP uses gives subjective consideration to changing factors that influence the degree to which abandoned mines are hazardous. So, while the process described in Colorado's plan is not CIMRP's preferred approach to project ranking and selection, the Program informally revised it to better meet its present needs. We recommended that Colorado revise its plan to include a project ranking and selection process that will meet its needs and to specify the criteria it will follow to rank and identify projects as required by 30 CFR 884.13.

Part II in Chapter VI of the Colorado Inactive Mine Reclamation Plan (the plan) describes the Program's approved ranking and selection procedures. References to ranking and selection procedures also are found in the introduction and executive summary of the plan, at Parts V and VI of Chapter VI, and in Chapter IV. As submitted in February 1982, initially approved June 11, 1982, revised on April 29, 1985, and approved on January 9, 1986, the plan (and the process described in it) established the baseline for this review. The population for this review was all coal and noncoal projects funded for construction in grants OSM awarded to Colorado since its program began on June 11, 1982. Our review sample includes projects funded for construction in Colorado's 1998, 1999, and 2000 AML grants. The population for this review was 298 projects, of which our final sample included 38 projects, or about 12.8 percent of the projects OSM funded Colorado to reclaim so far (excluding cancelled projects). We

reviewed the plan's ranking and selection process, the reclamation alternatives worksheets from grant applications, annual grant performance reports, grant applications and amendments, problem area descriptions (PADs) in AMLIS, and OSM grant reviews.

We intended to look at how Colorado's existing process ranked the coal and noncoal projects it selected to fund for reclamation in its last three grants. We looked at whether the Program believes the existing process results in selecting those projects most in need of funding or if selecting projects requires other considerations as well. We did not question or verify the Program's field data for the 38 sample projects.

Colorado's approved ranking and selection process applies to coal and noncoal projects. The process begins with the inventory, found in Volume 1 of its plan, as supplemented by a 1990 report of inactive and abandoned mines completed for the Western Governors Association. Abandoned mine hazards in the inventory are to be initially ranked according to three priorities. Next, CIMRP is to compile "preliminary project feasibility" considerations for each potential project in the context of general criteria that address: The highest possible reclamation objectives; available reclamation technology and fulfillment of research and demonstration goals; acceptability of reclamation impacts and uncorrected conditions; the extent to which reclamation will not impede future mineral recoverability or will be negated by future mining; and the extent to which post-reclamation management and land use is compatible with completed reclamation, surrounding land use(s), and applicable land use plans and laws.

The plan calls for the Inactive Mine Reclamation Program Advisory Council to guide to the Mined Land Reclamation Board and CIMRP in the project selection process. The Board appoints representatives of industry, special interest groups, and the public with a wide range of expertise to the Council. After CIMRP compiles its preliminary project feasibility considerations, the Council is to select and rank potential projects according to their impact scores, giving consideration to: Historical, recreational and aesthetic factors; socioeconomic effects; community support; and the preliminary project feasibility considerations CIMRP developed. Once the Advisory Council selects and ranks potential projects according to their impact scores, CIMRP is to complete project alternatives worksheets, which rank three degrees of reclamation for each proposed project, including: Hazard abatement only; partial reclamation; and full reclamation. Based on the impact scoring and alternatives worksheets, the Advisory Council is to recommend projects to the Mined Land Reclamation Board for its review and approval. Following the Board's review and approval, CIMRP is to complete feasibility studies of each selected project, after which the Advisory Council is to determine which projects will be included in annual grant applications for funding.

In practice, the process works somewhat differently. All projects are prioritized in Colorado's inventory. CIMRP selects projects based on its subjective consideration of all information available to it as tempered by its professional judgment and considerable experience. It preliminarily selects projects based on a number of considerations. Those considerations include: Distributing the work around the State; keeping projects

relatively small; the location, type, and priority of hazards listed in Volume II of the plan; the county-by-county description of inactive and abandoned mines in the 1990 WGA report; special emphasis on projects in certain counties, such as those funded by the Legislature with a percentage of limited stakes gambling receipts; working cooperatively with Federal agencies to address hazards on public lands they manage; landowner requests for reclamation; and giving priority to hazardous abandoned coal mines. CIMRP submits a preliminary list of projects to the Advisory Council for its comments and suggestions at the annual spring meeting. The Advisory Council does not score projects according to their expected impacts or rank them according to their impact scores. Colorado no longer follows that part of the process because CIMRP determined early in its program that ranking projects according to the criteria in Table VI-1 of its plan ranked most projects highly. As such, it found that part of the process was not particularly useful in distinguishing a greater need to select one project over another.

Intensive work to characterize individual abandoned mine sites begins after the spring Council meeting. From that time until the Council's fall meeting, CIMRP investigates potential projects and records data about individual sites in mine site field forms. Those field forms, and summaries CIMRP develops based on those forms, characterize each site based on CIMRP's professional judgment of the hazards present, reclamation methods and feasibility, and other considerations. This compiled information replaces the formal feasibility studies prescribed by the plan. During the fall meeting of the Advisory Council, CIMRP presents the summary of information it compiled for prospective projects, including how much each project should cost and how much total funding is available. Though CIMRP completes the reclamation alternatives worksheets from Table VI-2 of its plan, the Council does not review them because CIMRP's summaries and its presentations describe the extent to which it recommends the features in each project should be reclaimed. Based on the information CIMRP compiled and presented, the Council recommends which projects the State should undertake. CIMRP carries the Council's recommendation to the Mined Land Reclamation Board, which decides which projects to include in a grant application based on the Council's recommendation. In its grant applications, CIMRP describes each project to be funded in an attachment to the OSM-51 form. That specific description was entitled, "Activity: Project Feasibility, Development, Construction, Monitoring and Maintenance" in the three grant applications we reviewed. Colorado also included the reclamation alternatives worksheets in its grant applications for each project funded.

We reviewed the record of CIMRP's project selection activities for the 1998, 1999, and 2000 grant projects. CIMRP followed Part II.A.1 of the process described in Chapter VI of its plan by prioritizing all 38 projects. All 30 of the sample noncoal projects were priority one. Six of the eight sample coal projects were priority two, and the remaining two coal projects were priority three. CIMRP also compiled project-specific information for its annual presentations at the fall meetings of the Advisory Council and for the grant applications. It completed mine site field forms for every site in each sample project. We reviewed a total of 1,147 mine site field forms CIMRP completed for 31 of the sample projects. We also reviewed project summaries the Program presented at its fall

meetings with the Advisory Council in October 1997, 1998, and 1999. CIMRP used this, and other, information as the basis for its final recommendation to the Council of which projects to include in the '98, '99, and 2000 grant applications. This information addresses the project selection criteria of Chapter VI, Part II.B of Colorado's plan and is based on CIMRP's professional judgment.

CIMRP also completed reclamation alternatives worksheets for all 38-sample projects in accordance with Chapter VI and Table VI-2 of its plan, and included them in the applications for its '98, '99, and 2000 grants. For the 30 noncoal projects in the sample, the reclamation alternative scores indicated hazard abatement as the preferred approach in every case. Reclamation alternative scores for three of the eight coal projects in the sample indicated full reclamation as the preferred alternative. Finally, scores indicated hazard abatement as the preferred reclamation alternative for the remaining five coal projects in the sample.

Colorado's grant performance reports show that so far the 38 sample projects have abated hazards attendant to 369 portals and 648 vertical openings, reclaimed 73.1 acres of coal refuse, and stabilized subsidence and controlled an underground mine fire by drilling and grouting. Nevertheless, we were unable to determine if those 38 sample projects address the most hazardous problems in the State (that existed at the time the Program selected them) or how they compare to each other because they were not objectively ranked within their respective priority groups.

We recognize Colorado's exclusive authority to administer its Inactive Mine Reclamation Program within the framework of its approved AML plan. That authority includes selecting projects it believes pose the greatest need for reclamation. Colorado's approved project ranking and selection process does not meet CIMRP's need to select projects it believes should be reclaimed, as reflected in the Program's use of a modified process. CIMRP believes its informal revised process meets its needs and works well, though it is based on subjective judgment rather than objective rankings. Moreover, CIMRP has not perceived a need to develop and implement an objective ranking process as an alternative to the approved process in its plan. CIMRP believes an "objective ranking" process would, in most cases, support the projects it selects under the "subjective judgment" process it currently uses. It also believes an objective process would be overly costly and time-consuming to use. CIMRP does, however, recognize the need to amend its plan to describe a process that it will follow and that meets its needs. In response to this finding, the Program prefers to revise a currently pending amendment to its plan to expand on changes it previously proposed to its ranking and selection process, among other provisions.

As initially approved by the Secretary, Colorado's approved plan emphasized reclaiming abandoned coal mines consistent with SMCRA. At that time, however, abandoned noncoal mines existed in far greater numbers and posed serious hazards. Moreover, the numbers of known abandoned noncoal mines increased significantly since that time. CIMRP's 2001 AML grant application estimates the number of abandoned, hazardous mines to be over 23,000, and the vast majority of those mines are noncoal mines.

Beginning with its fourth grant and continuing through the 2001 grant, Colorado requested and received funds to reclaim 148 noncoal projects. While it still gives priority to reclaiming abandoned coal mines, CIMRP devotes substantial resources to noncoal projects. This gradual shift is in response to the scope of Colorado's noncoal problems, which also is changing.

A number of factors in Colorado influence the degree to which abandoned mine features, especially noncoal features, are hazardous and how or whether CIMRP funds their reclamation. As in other western States, population centers are expanding into suburban and rural areas, which in turn experience attendant increases in home construction, road building, outdoor recreation, and abandoned mine visitation. Limited stakes gambling and tourism in Colorado focus on historic mining communities, increasing the need to safeguard abandoned mines while preserving their historical integrity. While these factors existed to some extent ever since mining occurred, they are changing. As a result of changes in these factors, CIMRP subjectively weighs them more heavily when making its preliminary project selections. Private landowners and local governments are aware of the hazards abandoned mines pose and CIMRP places a high priority on responding to their requests for help. In recent years, the USDA Forest Service and the USDI Bureau of Land Management increasingly are under pressure to abate abandoned mine hazards on public lands they manage and rely on CIMRP's expertise to do so. This creates opportunities for CIMRP to abate hazards on public lands while offsetting some of its reclamation costs under cooperative agreements and other partnering arrangements. On the other hand, increased interest in mining in some areas might lead CIMRP to postpone AML reclamation in the face of prospective renewed mining.

C. Summary Evaluation of Performance Measure 3(f)

Our review of this performance measure determined if Colorado obligates its grant funds in a timely manner. We found that CIMRP's obligation rate at the end of fiscal year 2000 was 97.22 percent; at the time of our review it was 97.8 percent. We consider this obligation rate to be timely and acceptable for the Colorado Inactive Mine Reclamation Program. Our review also concluded that the obligation rate is a valid approach to measuring how Colorado spends grant funds for on-the-ground construction work, despite some factors that may affect how AML programs and OSM perceive obligation rates. We did not recommend any changes in how CIMRP obligates its grant funds as a result of this review.

We met with CIMRP staff and staff members of the Department of Natural Resources' accounting section who are responsible for tracking contractual obligations resulting from AML grant funds OSM awards to the State. We reviewed and discussed administrative costs, major purchases, contracting costs, time-lines involved with actual cost obligations, and samples of actual obligation transactions. Our review population included all active AML grants OSM awarded to CIMRP in fiscal years 1998, 1999, and 2000.

To determine if Colorado obligates its grant funds in a timely manner, we determined how CIMRP obligates its funds within Colorado's accounting system. The State of Colorado considers an obligation to be a binding agreement or contract between two parties. CIMRP's obligations occur when encumbrances are set-up for specific project expenditures. The State's bidding process takes place from February through July of each year. When a firm contractual figure is arrived at, that amount is encumbered and those funds cannot be used for anything else. Once CIMRP encumbers funds, Colorado considers those funds to be obligated for contracts to be awarded. A change order can be implemented when more funds are needed to complete a project or if money will be left over from a project. CIMRP sends all obligations to its budget officer for signature, after which the paper work goes through the State's purchasing system. CIMRP requires a signed contract or purchase order to be in place before it makes expenditures.

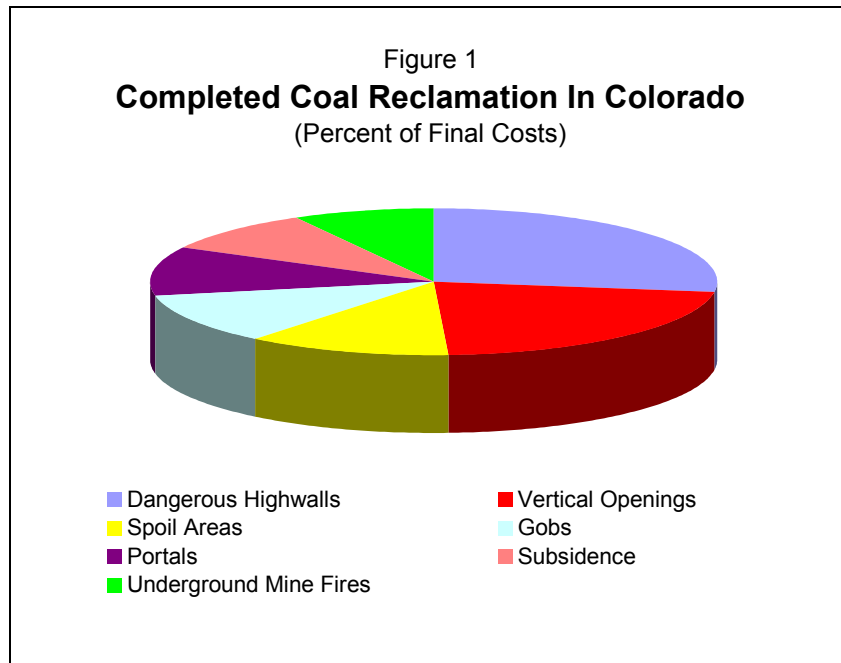
Depending on the size of a construction project, CIMRP can obligate funds on a per-year basis or for the three-year life of a grant. Although funds are considered obligated when encumbered, the State does not expend funds all at once because it pays for supplies and other project costs as needed during construction. Occasionally, Colorado will pay a contractor only for a percentage of work completed through partial billing. Bad weather can be a factor in such situations by delaying project completion dates. Construction season in Colorado occurs from early spring through late fall. Work continues into the winter if the weather permits, though remote high country areas usually become impassable. Also, sometimes CIMRP will delay obligating funds for construction in order to complete project planning and consultation requirements needed to help OSM comply with the National Environmental Policy Act and other laws. In the rare event such planning would require an environmental impact statement, that effort could significantly delay project construction and reduce the obligation rate.

The State assigns an identification number to each construction project, along with the number of the grant from which each project's funds are obligated. Colorado tracks AML non-water supply project costs obligations (under the AML contractual subaccount) through financial status reports, purchase orders, and Daily Transaction Reports. CIMRP performs a program analysis that includes looking at obligations and unobligated balances at the end of the first twelve-month period. The State reviews obligations for AML construction projects to determine if work is being completed and paid for according to agreed-upon contract schedules.

V. Accomplishments and Inventory Reports

Appendices 1 and 2 list the abandoned coal and noncoal mine problems Colorado included in the Abandoned Mine Land Inventory System (AMLIS) and how many of those problems the State reclaimed so far. They also show the estimated reclamation costs of unreclaimed coal and noncoal problems and how much the State's completed coal and noncoal reclamation cost.

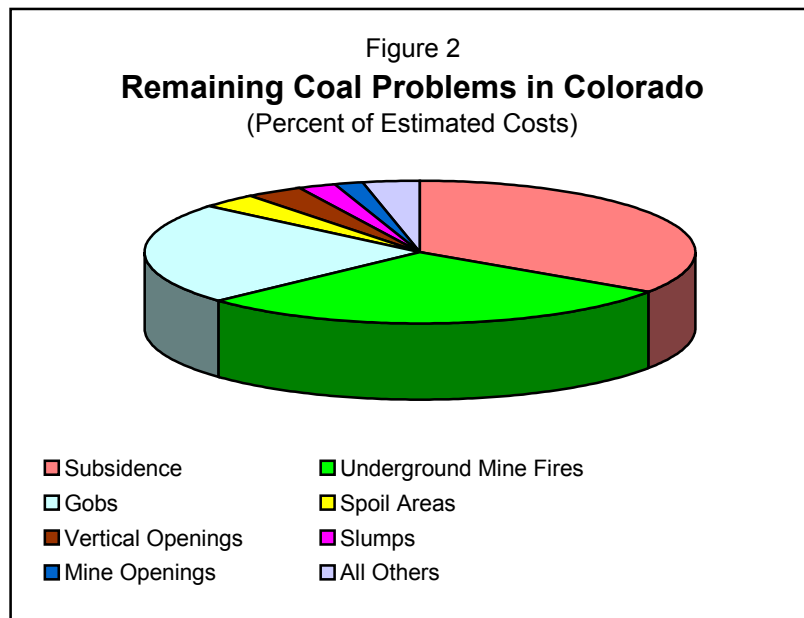
Title IV of SMCRA stresses reclamation of abandoned coal mine-related problems because the Abandoned Mine Reclamation Fund is generated by a fee assessed on coal produced from active mines. By the end of the 2001 evaluation period, CIMRP reclaimed 142 coal projects since the Secretary approved its program effective June 11, 1982, and has funding to reclaim nine more. Addressing seven types of problems associated with abandoned coal mines required about 88.9 percent of the \$10.86 million-plus cost of reclaiming those projects. Those problem types include: Dangerous highwalls (24.2%); vertical openings (19.4%); spoil areas (10.5%); gobs (9.9%); portals (9.5%); subsidence (8.3%); and underground mine fires (7.1%). Six of these seven types of problems (gobs excluded) combined to require most of Colorado’s completed coal reclamation costs in the 2000 evaluation year as well, though their respective percentages of the total cost varied somewhat. Twelve other types of problems comprised the remaining 11.1 percent of CIMRP’s completed abandoned coal mine reclamation in 2001. Figure 1 below shows CIMRP’s abandoned coal mine-related reclamation accomplishments.



Colorado continues to receive funding to reclaim abandoned coal mines and has not certified under section 411(a) of SMCRA that it addressed all its known abandoned coal mine problems. As Appendix 1 shows, over \$38 million in unfunded, unreclaimed problems are included in the State’s inventory of coal hazards in AMLIS. Eighty-six percent of that estimated cost is associated with three problem types, including subsidence (34.5%), underground mine fires (28.6%), and gobs (22.9%). These are the same problem types and respective percentages we noted in this regard in the 2000 evaluation period. Fourteen other problem types make up the remaining 14 percent of the estimated unfunded cost of reclamation. CIMRP included two projects in its 2001 grant application intended to address underground mine fires. It also proposed a project in its 2002 grant application to assess the potential hazards of known underground mine fires throughout the State and better define those fire areas. That

work will supplement a field survey DMG conducted between 1984 and 1988 of fires and summarized in a 1989 publication. Also, Colorado has completed a number of projects over the years that addressed abandoned coal mine-related subsidence. In that regard, CIMRP's most recent subsidence project involved drilling, grouting, and backfilling that it funded in its 2000 grant at abandoned coal mines throughout the State. This subsidence work primarily followed-up on emergency abatement actions OSM completed previously. Colorado's subsidence insurance program also investigates claims of damage related to abandoned mine subsidence. States and OSM's experience shows that subsidence and underground mine fires are two of the most expensive and technically difficult abandoned coal mine problems to deal with effectively. Last, as the third problem type comprising most of Colorado's unfounded coal reclamation costs, gob involves priority three environmental hazards where the need for abatement is less urgent.

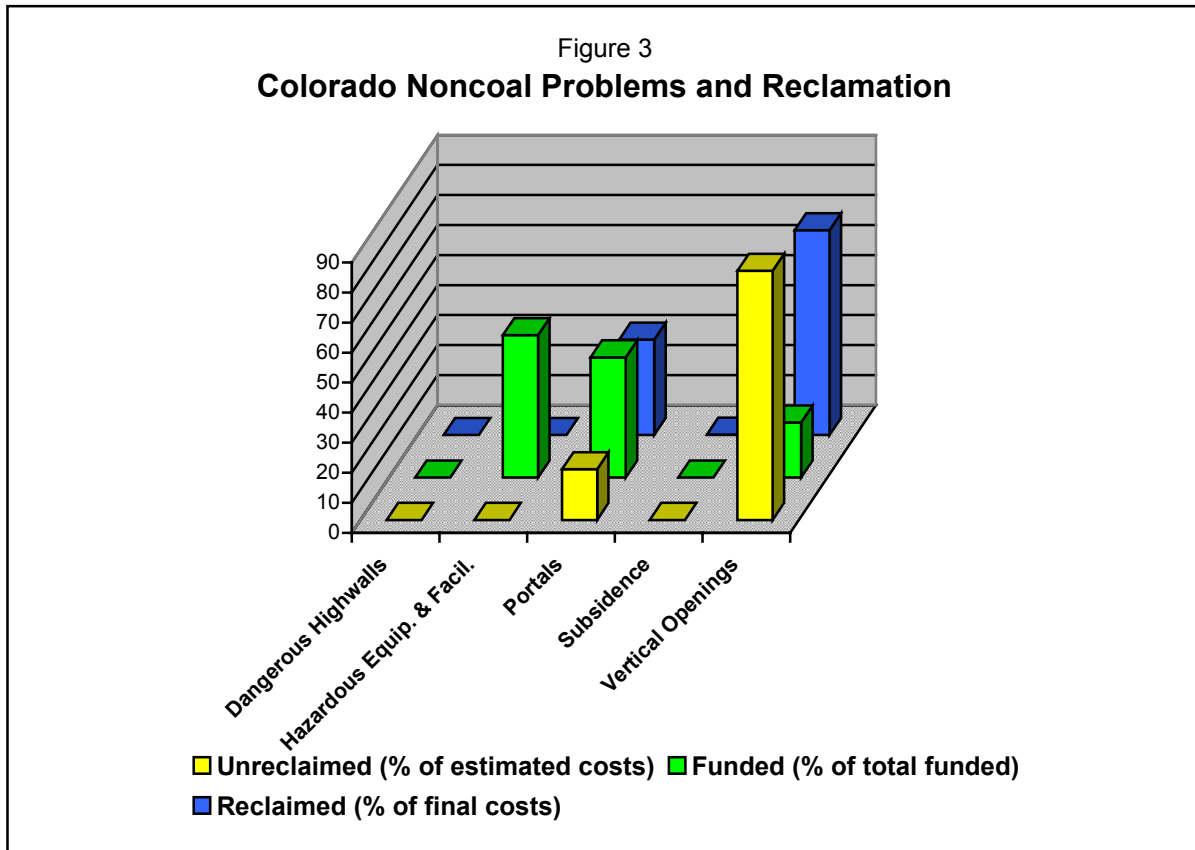
Most of the remaining estimated cost of reclaiming other coal-related problems is associated with spoil areas (3.5%), vertical openings (3.3%), slumps (2.1%), and lower priority mine openings (1.9%). These are the same problem types we noted in this context in the previous year, and their respective percentages are almost unchanged as well. As before, when combined with subsidence, underground mine fires, and gobs, these seven problem types make up almost 97 percent of the estimated cost of reclaiming Colorado's remaining abandoned coal mine problems. Figure 2 below further illustrates the scope of Colorado's remaining abandoned coal mine problems.



Appendix 2 summarizes the noncoal problems Colorado inventoried and the State's noncoal reclamation accomplishments. CIMRP has made a significant effort over the years to address the State's high priority noncoal hazards. Nevertheless, known abandoned noncoal mine problems still number in the tens of thousands and are found in many areas of Colorado. The Program estimates that over \$44.8 million are needed

to abate the remaining noncoal hazards Colorado inventoried in AMLIS, not including work already funded and uninventoried problems. Portals and vertical openings make up 100 percent of that estimated cost. Abandoned noncoal mine features pose immediate and extreme hazards to public health and safety in part because they are so numerous and widespread. Increasingly dispersed outdoor recreation, home and road construction, and other factors combine to make abandoned noncoal mines and their attendant features increasingly dangerous. We described these and other factors in our discussion of CIMRP’s project ranking and selection in part IV.B of this report.

CIMRP continues to respond to the noncoal threat by reclaiming abandoned noncoal mines. OSM funded 148 noncoal projects in grants it awarded to CIMRP since 1985. Of that total, CIMRP completed at least 132 noncoal projects. Appendix 2 shows that CIMRP’s completed noncoal reclamation addressed dangerous highwalls, portals, subsidence, and vertical openings at a cost of over \$15.9 million. In terms of mine openings alone, CIMRP has safeguarded at least 4,066 portals and vertical shafts at abandoned noncoal mines. The State also has funded work in the amount of \$524,050 to address hazardous equipment and facilities, portals, and vertical openings that is not yet complete. Figure 3 below illustrates the percentage each category of inventoried, unreclaimed noncoal problem comprises of Colorado’s estimated unfunded reclamation costs. It also shows the amount of ongoing work that is funded and how much CIMRP’s completed reclamation of noncoal problems cost so far.



Appendix 1

Colorado Abandoned 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	58 acres	\$201,500	0	0	3 acres	\$31,044	61 acres	\$232,544
Dangerous Highwalls	1,030 feet	\$30,000	500 feet	\$40,000	51,992 feet	\$2,955,885	53,522 feet	\$3,025,885
Dangerous Piles & Embankments	0	0	12 acres	\$90,000	28.5 acres	\$459,432	40.5 acres	\$549,432
Equipment & Facilities	73 (count)	\$108,000	0	0	7 (count)	\$14,657	80 (count)	\$122,657
Gobs	570.3 acres	\$8,729,954	30 acres	\$213,253	158.6 acres	\$1,210,367	758.9 acres	\$10,153,574
Highwall	1,100 feet	\$82,500	0	0	2,027.5 feet	\$46,387	3,127.5 feet	\$128,887
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	0	0	7 acres	\$38,529	10 acres	\$51,529
Mine Openings	303 (count)	\$725,000	3 (count)	\$3,206	18 (count)	\$62,592	324 (count)	\$790,798
Other	28.0	\$104,000	1.0	\$5,000	5.0	\$48,916	34.0	\$157,916
Portals	32 (count)	\$136,060	30 (count)	\$95,746	501(count)	\$1,160,646	563 (count)	\$1,392,452
Pits	98 acres	\$441,900	0	0	82.9 acres	\$387,062	180.9 acres	\$828,962
Polluted Water: Agric. & Industrial	0	0	1 (count)	\$50,000	3 (count)	\$22,481	4 (count)	\$72,481
Subsidence	179.6 acres	\$13,130,000	2 acres	\$10,000	43.4 acres	\$1,012,240	225 acres	\$14,152,240
Spoil Area	398.6 acres	\$1,347,595	0	0	829 acres	\$1,286,756	1,227.6 acres	\$2,634,351
Surface Burning	1acre	\$5,000	5 acres	\$70,000	35 acres	\$238,404	41 acres	\$313,404
Slump	25 acres	\$804,000	0	0	0	0	25 acres	\$804,000
Underground Mine Fire	176.5 acres	\$10,900,000	30 acres	\$2,980,000	156.5 acres	\$863,278	363 acres	\$14,743,278
Vertical Openings	118 (count)	\$1,242,967	25 (count)	\$115,995	277 (count)	\$2,369,396	420 (count)	\$3,728,358
Water Problems	39 gal/min	\$23,000	1 gal/min	\$25,000	1 gal/min	\$6,000	41 gal/min	\$54,000
COLORADO TOTAL COSTS		\$38,039,476		\$3,698,200		\$12,214,073		\$53,951,749

* This table is based on a Problem Type Unit and Cost Summary Report from the Abandoned Mine Land Inventory System as of 10/3/2001

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

Appendix 2

Colorado Abandoned Mine Reclamation Program
Non-Coal Reclamation Accomplishments and Remaining Reclamation Needs*

Problem Type and Description	Unfunded		Funded		Completed		Total	
	Units	Costs	Units	Costs	Units	Costs	Units	Costs
Dangerous Highwalls	0	0	0	0	150 feet	\$2,498	150 feet	\$2,498
Hazardous Equipment & Facilities	0	0	1 (count)	\$250,000	0	0	1 (count)	\$250,000
Portals	1,348 (count)	\$7,598,132	50 (count)	\$178,050	1,511 (count)	\$5,062,143	2,909 (count)	\$12,838,325
Subsidence	0	0	0	0	2 acres	\$10,000	2 acres	\$10,000
Vertical Openings	2,961 (count)	\$37,233,798	28 (count)	\$96,000	2,555 (count)	\$10,910,110	5,544 (count)	\$48,239,908
COLORADO TOTAL COSTS		\$44,831,930		\$524,050		\$15,984,751		\$61,340,731

* This table is based on a Problem Type Unit and Cost Summary Report from the Abandoned Mine Land Inventory System as of 10/3/2001

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