

Office of Surface Mining Reclamation and Enforcement

Annual Evaluation Summary Report

For the

Regulatory

Program

Administered by the State

Of

COLORADO

For

Evaluation Year 2002

(October 1, 2001, through September 30, 2002)

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I. Introduction

The Surface Mining Control and Reclamation Act of 1977 (SMCRA) created the Office of Surface Mining Reclamation and Enforcement (OSM) in the Department of the Interior. SMCRA provides authority to OSM to oversee the implementation of, and provide Federal funding for State regulatory programs that have been approved by OSM as meeting the minimum standards specified by SMCRA. This report contains summary information regarding the Colorado program and the effectiveness of the Colorado program in meeting the applicable purposes of SMCRA as specified in section 102. The Colorado Department of Natural Resources, Division Of Minerals and Geology (DMG) is the regulatory authority for the State of Colorado. This year's report covers the period October 1, 2001 through September 30, 2002. Detailed background information and comprehensive reports for the program elements evaluated during the period are available for review and copying at the OSM Denver Field Office.

The following is a list of acronyms used in this report:

| | |
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| AML | Abandoned mine lands |
| BLM | U.S. Department of the Interior, Bureau of Land Management |
| CRP | Conservation Reserve Program |
| DMG | Colorado Division of Minerals and Geology |
| DOW | Colorado Division of Wildlife |
| FTE | full-time equivalents |
| GPRA | Government Performance Results Act |
| MSHA | U.S. Department of Labor, Mine Safety and Health Administration |
| OTT | Office of Technology Transfer, OSM-WRCC |
| OSM | U.S. Department of the Interior, Office of Surface Mining Reclamation and Enforcement |
| SMCRA | Surface Mining Control and Reclamation Act of 1977 |
| USFS | U.S. Forest Service |
| WRCC | OSM, Western Regional Coordinating Center |

II. Overview of the Colorado Coal Mining Industry

Coal bearing regions within the State cover approximately 29,600 square miles, which is 28.4 percent of the total area of Colorado. Coal reserves vary from lignite to anthracite. More than 70 percent is bituminous, 23 percent is subbituminous, 5 percent is lignite, and less than 1 percent is anthracite. The demonstrated coal reserve base is about 17.08 billion tons, or 3.5 percent of the national reserve base. Of this reserve base, an unmineable fraction exists consisting of coal rendered not mineable because it is in or near alluvial valley floors, national parks, historic and archaeological sites, and under towns or properties where surface impacts are a concern. Section 522 of SMCRA imposes these restrictions. The Federal Government owns some 8.8 million acres of coal rights in the State; on about 72 percent of this land, the Federal Government controls both the coal and surface rights. The U.S. Bureau of Land Management (BLM) leases all Federal coal. BLM estimates that approximately 4.2 billion tons of reserve base are under Federal ownership. Recoverable coal reserves held under Federal lease are estimated to be approximately 1.9 billion tons (of which 540 million tons are surface mineable). On average, 96 percent of Colorado's coal production is obtained from mines on Federal lands. OSM supports the Colorado coal program through an annual grant that provides for 79% of the program's costs.

Commercial coal production first began in 1861, while surface mining for coal began in the early 1950's. Underground production tonnage was first recorded in 1864. Generally, production climbed between 1875 and 1920. The 1 million tons per year milestone was reached in 1888, and the 5 million tons mark was attained by the end of the century. By 1910, production was at 10 million tons annually, and it remained steady until affected by the Depression. Production returned to 5 million tons per year through the mid-1930's. World War II increased production to 8 million tons per year. Following the war, the change to diesel fuel for locomotives and oil for electric production severely reduced the demand for coal, and production ranges remained at 2 to 4 million tons per year through 1963, increased to 8 million tons in 1976, then climbed rapidly to 19.3 million tons in 1981. Coal production declined somewhat through 1988 and then climbed back to 19.3 million tons in 1992. Production has steadily increased and during 2002, Colorado produced 33.9 million tons of coal.

Surface and underground mines employ approximately 2000 people. Employment peaked in the early 1980's with 4700 people producing coal. Currently 19 surface mines, 31 underground mines, and 2 facilities are regulated under the approved State program by DMG. Six underground mines and four surface mines were producing coal at the end of the evaluation period. Permitted mine acreage per mine site ranged from 20 to 22,580 acres.

Differences in elevation create many climatic zones. Local annual precipitation can average less than 8 inches in some areas in extreme western Colorado and can average in excess of 30 inches in certain mountainous areas. Generally, precipitation rates are low at most mine sites, making revegetation difficult. This problem can be overcome with

careful species selection. The growing season can be up to 169 days in length at some sites, but is usually much less, especially in the mountainous regions of the western half of the State.

III. Overview of the Public Participation Opportunities in the Oversight Process and the State Program

MINED LAND RECLAMATION BOARD MEETINGS

The Mined Land Reclamation Board held one of its monthly meetings in Pueblo, away from its regular Denver meeting site. Holding the meetings in the vicinity of the mining operations encourages public participation by making the DMG and the Board more available to the public, and helps DMG and the Board to establish a presence outside of Denver. Mine tours representing various types of mines and technologies help the Board better understand reclamation issues.

JOINT DMG/OSM PUBLIC MEETINGS

DMG and OSM conducted two public meetings for the purpose of receiving comments and suggestions for oversight of the Colorado program. The meetings were held in Delta and Craig. Notice of the meetings was published in the local paper. The public was encouraged to submit written comments if unable to attend the meetings. In addition, approximately 100 letters were sent to environmental groups, the coal industry, and consultants requesting comments and suggestions.

EDUCATION AND COMMUNITY OUTREACH

Representatives of the DMG attended and made presentations at numerous professional conferences including: Coal Combustion By-Products and Western Coal Mines: A Technical Interactive Forum, the High Altitude Revegetation Workshop, The International Erosion Control Association, and the American Society of Mining and Reclamation.

DMG Coal program staff participated and made a presentation at the Year 2002 Coal Conference held in Delta in September. The Associated Governments of Northwest Colorado sponsored the conference.

At OSM's Land Use Interactive Forum in North Dakota in August, a DMG representative presented a paper on the "Use of Reclaimed Lands by Columbian Sharp-tailed Grouse and Greater Sage Grouse in Colorado". Representatives of OSM, western state agencies, industry, private citizens and contractors participated in the forum.

At the joint Interstate Mining Compact Commission (IMCC)/OSM conference in March DMG staff made a presentation addressing Probable Hydrologic Consequences and Cumulative Hydrologic Impact Assessments in Colorado.

At the American Society for Surface Mining Reclamation annual conference, one DMG staff member made a presentation addressing shrub establishment.

DMG staff also made presentations to local university and school classes, professional organizations, Scout troops and Adult education classes. Presentations focused on the regulatory program and associated reclamation issues.

All DMG staff had an opportunity to work in the DMG booth at the Colorado State Fair and help educate visitors about mining and reclamation. Over 667,000 visitors attended the fair and the DMG booth was a very popular attraction. DMG also sponsored a booth at the Taste of Colorado. This is another popular event that attracts thousands of visitors.

INFORMATION AND TECHNOLOGY EXCHANGES

DMG continued to participate in OSM's partnership with the Indonesian Ministry of Energy and Mineral Resources. OSM has provided technical assistance and personnel exchanges that support the Ministry's objective of improving its regulation of mining operations, upgrading its technical training capacity, and improving its capacity to decentralize its operations to local and provincial levels of government in Indonesia. During 2002, a group of Indonesians visited our offices and took a mine field tour to become acquainted with our permit review process and inspection process.

DMG also participates in the OSM steering committees for the National Technical Training Program and the Technical Information Processing Systems

IV. Major Accomplishments/Issues/Innovations

INTERIOR DEPARTMENT 25-YEAR RECLAMATION ACHIEVEMENT AWARD

The Trapper Mine was recognized by the U.S. Interior Department as one of the three best examples of mined land reclamation in the 25-year history of SMCRA. Trapper won the award for its outstanding reclamation and environmental compliance, highlighted by excellent establishment of wildlife habitat and implementation of an innovative and effective sediment and erosion control program. Only mines that had previously won an Excellence in Surface Mining Award were qualified to win this award.

BOND RELEASE

During EY 2002, final bond release was approved for one large surface mine covering almost 2400 acres. The DMG terminated jurisdiction after reviewing and approving all requirements for Phase III bond release. Another surface mine was approved for over two hundred acres of Phase III reclamation. Three mines received approval for Phase II bond release and one mine received approval for Phase I bond release.

TRAINING

DMG staff participated in many of the training opportunities made available by the OSM. DMG staff members attended various OSM/NTTP classes. Three DMG staff are also trained to teach the OSM classes. DMG instructors participated in instructor training and helped instruct the Engineering and CAD classes.

MINE FILES ELECTRONICALLY SCANNED

DMG has undertaken and is completing a major file conversion project. All DMG mine files and permits have been electronically scanned. This will allow permitting files to be accessible through desk top PC's. During this past year and in the upcoming year, DMG will be reevaluating internal filing processes. Public access personal computers are located in the DMG reception area for the public to review permits and files.

BOND FORFEITURE SITE RECLAMATION

Vegetation surveys were conducted on three bond forfeiture sites. The three sites have had revegetation completed for a minimum of nine years. DMG plans to conduct the second surveys during EY03 to address the requirement that vegetation must be sampled in two concurrent years for the bond release equivalent. DMG plans on releasing SMCRA responsibility on these forfeited sites if the vegetation is as successful as it appears and the other requirements for a phase III release are met.

NATIVE SHRUB ESTABLISHMENT ON RECLAIMED LANDS

To address the challenge of establishing native shrubs on reclaimed lands, the DMG was allocated funding from the Colorado Severance Tax to research this topic. Initially, researchers from Colorado State University conducted a comprehensive literature review to determine what research has been conducted in the past. Working with representatives from DMG, the Division of Wildlife, and several mining companies, CSU designed a field study to evaluate several shrub establishment techniques. The operators of three coal mines installed the test plots during the summer of 2000. Initial monitoring was conducted in 2001 and will continue for three more years.

WILDLIFE HABITAT RESTORATION

For the past several years, the Colorado Division of Wildlife (DOW) has researched sharptail grouse populations in northwest Colorado as part of the species conservation plan. Of particular interest was the documented higher use on reclaimed mine lands compared to Conservation Reserve Program (CRP) lands. DOW attributes the reclaimed land success to the diversity of seed mixes creating desirable habitat for breeding, nesting and brood rearing of the grouse.

V. Success in Achieving the Purposes of SMCRA as Measured by the Number of Observed Off-Site Impacts and the Number of Acres Meeting the Performance Standards at the Time of Bond Release

To further the concept of reporting end results, the findings from performance standard evaluations are being collected for a national perspective in terms of the number and extent of observed off-site impacts and the number of acres that have been mined and reclaimed and which meet the bond release requirements for the various phases of reclamation. Individual topic reports are available in the OSM Denver office.

A. Off-Site Impacts:

One active inspectable unit was observed with impacts that affected land resources off of the area authorized to be disturbed. Two off-site impacts to water resources were observed from active or inactive operations. Of the 52 inspectable units that are active or inactive, 49 inspectable units, or 94.2% of the inspectable units were free of off-site impacts. All of the off-site impacts were identified as having a minor impact on the affected resources.

DMG did not observe any off-site impacts on bond forfeiture sites during this evaluation year that have not been previously identified.

Three forfeited and revoked operations continue to have off-site impacts to land resources outside of the disturbed area. These three sites were identified during evaluation year 2000 and the off-site impacts have not been corrected during the last year. Of the 14 revoked and forfeited inspectable units, 78.6% were free of off-site impacts.

91% of all Colorado inspectable units, including the bond forfeiture sites, were free of off-site impacts.

Of the three bond forfeiture sites that have off-site impacts, off-site sedimentation was the only impact observed. These sites have not had any reclamation occur since evaluation year 2000, so the impacts are a continuing event. The three sites and their relatively minor impacts are:

Arness-McGriffin Mine - a small underground operation, has sediment leaving the disturbed area that is deposited on another forfeited coal mine lower down slope. The lower mine has sedimentation ponds in place and the majority of runoff from Arness-McGriffin drains to these structures. Revegetation on the lower forfeited mine has been impacted by the

sediments. A noticeable sediment fan exists that does not have a vegetation cover as good as the surrounding area. DMG's reclamation efforts on the Arness-McGriffin mine have been stymied by public use. Motorcycle trails are evident on the reclaimed slopes, trash has been dumped, and the site has been used as a shooting range.

GEC Mine - is the largest forfeited surface operation in Colorado. Two watersheds have extensive concentrated flow channels in the bottoms. DMG attempted stabilization of one of the channels some years ago by constructing concrete drop structures. The concrete structures have been under- and side cut, which has resulted in failure of the structures. Sediment from the disturbed area was observed in the natural channel below this watershed. The size of the eroded channels on the disturbed area indicates that substantial sediment has left the site, but the impacts were rated as minor. This rating was given because of the relatively minor impacts observed to vegetation, e.g. trees have not been suffocated from accumulated sediments over trunks and root area, because the natural channel appears to have reached a stable equilibrium with regard to erosion, and because some of the sediment fans have now become vegetated with volunteer vegetation.

Coal Basin Mine - is the largest forfeited underground mine in Colorado. This mine has the most complex hydrologic regime in Colorado. It is the highest elevation coal mine in the United States, with portals over 10,000 feet in elevation. The basin is layered with Mancos shale. Avalanche chutes are pervasive and intersect the disturbed areas. The watersheds carry large debris flows during high intensity thunderstorms. Backfilling and grading of the Coal Basin Mine is essentially completed. The road system has been deep-ripped to increase moisture infiltration and encourage plant growth. DMG has utilized unique revegetation efforts, such as using native seed and establishing plant micro-ecosystems, in its efforts to establish a diverse, effective plant cover to reduce the off-site impacts from this mine.

OSM conducted 15 inspections on active, inactive, and forfeited mines with at least a partial focus on off-site impacts. DMG conducted 196 complete inspections and 368 partial inspections with at least a partial focus on off-site impacts. 99.5% of all inspections occur without finding off-site impacts. One observed off-site impact does not present a discernable pattern. The Colorado program has been successful in deterring off-site impacts from coal mining operations.

B. Bond Release:

After reviewing and approving all requirements for Phase III bond release, DMG terminated jurisdiction for an underground mine, two large surface mines, and a large part of another surface mine in northwest Colorado. These mines were reclaimed to the beneficial post mining land uses of rangeland/ wildlife habitat and pastureland.

Few permanent program mining operations in Colorado have acreage that has been granted a full Phase III bond liability release. Determining the success of the Colorado program based on this figure is deceptive because these Colorado coal operations tend to be large and long-lived. Some operators have been granted variances from contemporaneous reclamation as allowed by State and Federal regulations. More than half of the mines are underground operations where the surface disturbance will not be reclaimed until final closure of the mine. Also, all of the mines are subject to the 10-year minimum bond liability period. These combined factors result in acreage figures that do not represent the success of reclamation in Colorado.

Calendar year (CY) 2001 GPRA figures, the last full year of information available, show a clearer picture of reclamation status in Colorado. 64% of all the acreage disturbed by coal mining, including abandoned mines, has been backfilled and graded. 34%, or 8,655 acres of the 25,126 total disturbed acres in Colorado, are in long-term facilities or are active mine areas. 45% of all acreage disturbed by coal mining has received a Phase I bond release. 33% of all acreage disturbed by coal mining has received a Phase II bond release. 10% of all acreage disturbed by coal mining has received a Phase III bond release. Of the nine coal producing states in the WRCC region, Colorado accounts for 95% of the Phase III bond releases during CY2001. Colorado leads the western States under WRCC in bond releases.

VI. OSM Assistance

The percentage of program costs for which OSM provides funding is relatively high in Colorado. The majority of mines operate on Federal lands and OSM funds the regulation of these mines through a Federal lands cooperative agreement. OSM provided \$1.63 million to DMG for the evaluation period. This figure represents 79 % of the total program costs.

OSM's Technical Librarian filled reference requests and provided publications and CD-ROM's to DMG staff members and DMG's technical library.

OSM also provided the opportunity in August for a DMG staff member to participate in and present a paper at OSM's Land Use interactive forum in North Dakota. DMG presented a paper entitled *Use of Reclaimed Lands by Colombian Sharp-tailed Grouse and Greater Sage Grouse in Colorado.*

OSM provided DMG an opportunity to participate in OSM's partnership with the Indonesian Ministry of Energy and Mineral Resources. A group of Indonesian representatives visited the DMG offices to review permitting procedures and visited a Colorado mine site to review inspection procedures.

OTT provided the opportunity for DMG Coal Program staff to attend the OSM developed conference, Coal Combustion By-Products and Western Mines: A Technical Interactive Forum. DMG presented a paper entitled "Description of the State of Colorado Regulatory Programs Associated with Coal Combustion Waste".

OSM assisted DMG in a citizen complaint investigation about blasting procedures on a Colorado surface mining operation. OSM placed a seismograph in the field to gather data about the blasting operations without the operator's knowledge. DMG used this information, along with the routine blasting information compiled by the operator, to reach a determination in the complaint.

VII. General Oversight Topic Reviews

As part of the annual performance agreement, the OSM and DMG oversight team selected topics to be evaluated and defined the scope of the topic. For purposes of clarity and consistency, definitions and measurements were included in the agreement. Specific mines and a field evaluation schedule were agreed upon. Operators were not informed that their particular operation would be reviewed prior to the field visit.

Oversight of the Colorado regulatory program focused on small area exemptions as a topic to determine off-site impacts. Protection and enhancement of wildlife and wildlife habitats and coal exploration bond release were evaluated to determine reclamation success. The blasting schedule and preblast survey notifications were evaluated to assess customer service. In addition to these topics, five complete inspections were conducted.

A. Off-Site Impacts

Small Area Exemptions (SAE)

The intent of this review was to determine how effectively DMG was implementing its approved program to ensure all runoff from disturbed areas that did not pass through a sedimentation pond would comply with the water quality standards and effluent limitations. The Colorado program allows for exemptions from the requirement to pass all runoff from the disturbed areas through a sedimentation pond only after the operator has demonstrated; a.) that sedimentation pond and treatment facilities are not necessary for the drainage to meet effluent limitations and the applicable State and Federal water quality requirements for downstream receiving waters and b.) that the disturbed surface drainage area within the total disturbed surface area is small and there is no mixture of surface drainage with discharge from underground mine workings.

This special focus review differs from the EY01 SAE review in that this review: a.) was conducted specifically to ensure that the types of sediment controls approved as part of an SAE are designed for all phases of operations in the SAE watershed, b.) and, if there are multiple sediment control measures approved, then the appropriate sediment control measure was being used as defined by the nature of the disturbance. The review focused on the approved SAE's specified sediment control measures and its capability to function as mining operations transition from one phase to the next. The approved mine permit was reviewed to ensure that DMG had reviewed and approved a demonstration for each SAE and to determine any construction and maintenance specifications for sediment control techniques associated with each SAE. None of the mining operations had discharge monitoring records for any of the SAE's.

The team ensured that the approved sediment controls functioned throughout the various phases of mining and that the sediment controls had been properly

designed and constructed to account for any changes that occur during active mining and reclamation operations.

OSM was able to determine that DMG was effectively implementing its approved program in finding that:

- All SAE's had a demonstration that had been reviewed and approved by DMG.
- None of the SAE's exhibited signs of downstream water quality issues. Aggravated erosion and accelerated sedimentation were not observed below the SAE's or any of the sediment control measures.
- The SAE and its sediment control measures had been constructed and maintained as approved in the permit.

B. Reclamation Success

Coal Exploration Bond Releases

In 1999, DMG started a project to update its Notices of Intent to Explore files. The goals have been to ensure that all reclamation has been completed, that reporting requirements have been complied with, that all present and future reclamation and reporting requirements are done in a timely manner, and to return performance bonds to parties who have successfully completed reclamation.

DMG's ongoing course of action to achieve these goals has been to contact permittees and landowners to determine reclamation status of the lands, encouraging permittees delinquent in reporting to submit the reports, entering all information in a new database and development of a system that generates reports to help staff track reporting deadlines, and by encouraging permittees who have completed reclamation to request a bond release.

Protection and Enhancement of Wildlife and Wildlife Habitats

The purpose of this special focus topic was to determine how effectively DMG is implementing its approved program to protect, and where applicable, to enhance wildlife and wildlife habitats.

The team verified 1.) that the permit application contains a fish and wildlife plan, and 2.) that such measures, techniques, and methods that are described in the approved permit were being implemented.

All of the permits reviewed contained wildlife habitat plans. Some plans were much more comprehensive than others depending on the type of operation, location, elevation, etc. Surface mines tend to have the more comprehensive plans because large areas are disturbed and the mining operation revegetates the area to satisfy the needs of local wildlife.

DMG and Colorado mining operations have excelled in this aspect of SMCRA. The operations tend to not only meet the basic SMCRA requirements, but to exceed them. A number of mines have been awarded SMCRA reclamation awards, both state and OSM awards, for the wildlife habitat reconstruction. One mine this year was awarded a special OSM 25th anniversary award for its successful wildlife reclamation.

This topic was particularly successful as a training exercise also. One aspect of the special focus review that proved enlightening for the participants was measures taken to protect raptors. In general, the team found that some of the mining operations constructed power lines under standards that have been since been superseded by new construction methods. While no impacts to raptors were observed, thus showing that the older standards have been successful, DMG indicated that the newer standards would be used for new permits and reconstruction.

C. Customer Service

Blasting Schedule and Preblast Survey Notification

The focus of this evaluation was to determine how effectively DMG is implementing its approved program to provide for the notification and public participation requirements found in the blasting regulations.

Blasting schedule requirements under the Colorado program are such that each operation must have an approved blasting schedule designed to adequately notify the public of blasting operations. Each person who conducts surface blasting operations shall publish in a newspaper of general circulation in the locality of the blasting site a blasting schedule at least 10 days, but not more than 20 days, before beginning a blasting program. The schedule shall also be distributed to residences and other entities within one-half mile of the blasting area.

Preblast survey notification requirements under the Colorado program are such that each permittee conducting blasting operations must provide written notification to all residents or owners of dwellings or other structures located within one-half mile of the permit area of their opportunity to request a preblast survey. The notification explains how to request a preblast survey. The above referenced blasting schedule is to be accompanied by information advising the owners or residents how to request a pre-blast survey. If a request is received, a preblast survey shall be performed. When a preblast survey is performed, the permittee shall prepare a written, signed report.

OSM was able to determine that DMG was effectively implementing its approved program in finding that:

- The public is being notified of the mine blasting schedules through publication and mail distribution
- Residents within one half mile of the permit area are being notified of their right to a preblast survey
- Operators are conducting preblast surveys as requested
- A copy of the survey has been provided to the respondent

One mine was an anomaly to these findings. The operation had mistakenly used a center point to determine which structures were within one half mile and as such eligible for a survey. The Colorado program requires the use of the permit boundary to determine which structures are within one half mile of the permit area. DMG issued a notice of violation to address this mistake. Further, this mine also did not send a blasting notification to a local government entity. DMG issued a notice of violation to address this oversight.

D. Complete Oversight Inspections

Five complete oversight inspections were conducted jointly with DMG in Colorado during the oversight year. The inspections were conducted on operations that were not subject to a review under one of the topics listed above and had not been subject to an oversight inspection during the preceding year. While the inspections were conducted as complete inspections, critical attention was paid to the conditions that were reviewed under the special focus topics.

Diversity in such categories as operational status, type of operation, geography, and size was considered in selecting the mine sites. No Ten-Day Notices or Federal enforcement actions were taken as a result of these inspections. The operations were found to be in compliance with the performance standards and permit requirements.