

**OFFICE OF SURFACE MINING
RECLAMATION AND ENFORCEMENT**

**Annual Evaluation Summary Report
For the
Regulatory Program
Administered by the State
Of**

COLORADO

**For
Evaluation Year 2009
(July 1, 2008, through June 30, 2009)**

(September 2009)

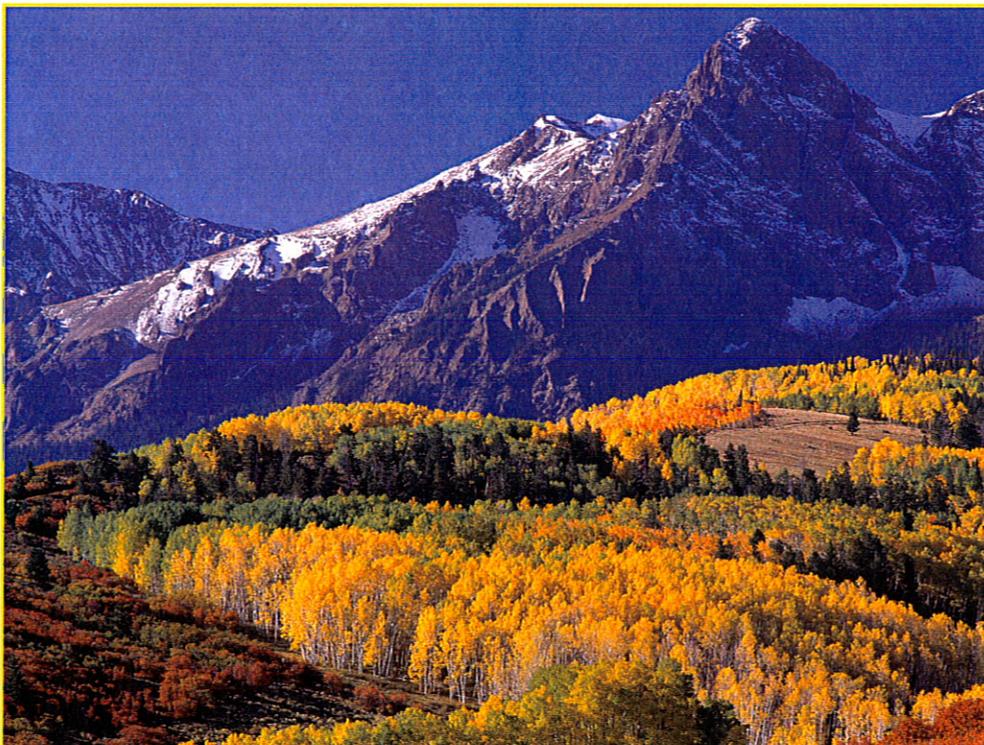


TABLE OF CONTENTS

- I. Introduction
- II. Overview of the Colorado Coal Mining Industry
- III. Overview of Public Participation in the Colorado Program
 - Evaluation process
 - Colorado program
 - 1. Mined Land Reclamation Board Meeting
 - 2. Education and community outreach
 - 3. Information and technology exchanges
- IV. Accomplishments / Issues / Innovations
 - Accomplishments
 - 1. Final bond releases
 - 2. DRMS and Colorado Mining Association Reclamation Awards
 - 3. Evaluation of permit revocation and bond forfeiture sites
 - 4. Training
 - 5. Review of coal exploration cost estimates
 - 6. NTTP Applied Science Projects
 - a. Aspen reestablishment
 - Issues
 - Innovations: Review of coal exploration cost estimates
- V. Success in Achieving the Purposes of SMCRA
 - Offsite impacts
 - Reclamation success
 - Customer service
- VI. OSM Assistance
- VII. General Oversight Evaluation Topics
 - **Prevention of Off-site Impacts** - Prevention of Material Subsidence Damage to, and the Diminution of Reasonably Foreseeable Use of, Structures and Renewable Resource Lands
 - **Ensuring Reclamation Success** - Revegetation Requirements for Phase II Bond Release
 - **Customer Service** - Notifications Prior to Permit Renewal Approvals

Table 1	Coal produced for sale, transfer, or use
Table 2	Colorado inspectable units
Table 3	Colorado permitting activity
Table 4	Offsite impacts
Table 5	Annual Colorado mining and reclamation results
Table 6	Colorado bond forfeiture activity
Table 7	Colorado staffing
Table 8	Funds granted to Colorado by OSM
Table 9	Colorado inspection activity
Table 10	Colorado enforcement activity
Table 11	Lands unsuitable activity
Appendix A	EY 2009 REG-8 Tabular Data Clarifications for Colorado
Appendix B	EY 2009 Reclamation Status of all Areas Disturbed Under the Colorado Permanent Regulatory Program

I. Introduction

The Surface Mining Control and Reclamation Act of 1977 (SMCRA) created the Office of Surface Mining Reclamation and Enforcement (OSM) in the United States Department of the Interior. SMCRA provides authority to OSM to oversee the administration of and provide federal funding for State regulatory programs that have been approved by OSM as meeting the minimum standards of 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. This report covers the period of July 1, 2008, through June 30, 2009. Detailed background information and comprehensive reports for the program elements evaluated during the period are available for review and copying at the Denver OSM Office.

The following is a list of acronyms that appear in this report:

AML	Abandoned Mine Land
BLM	Bureau of Land Management
CY	Calendar Year
DFD	Denver Field Division
DRMS	Division of Reclamation, Mining, and Safety
DEQ	Department of Environmental Quality
EY	Evaluation Year
GIS	Geographic Information System
IMCC	Interstate Mining Compact Commission
NTTP	National Technical Training Program
OSM	Office of Surface Mining
SMCRA	Surface Mining Control and Reclamation Act of 1977
TIPS	Technical Innovation and Professional Services Program
CMA	Colorado Mining Association
USDA	United States Department of Agriculture
USFS	United States Forest Service
WIEB	Western Interstate Energy Board
WR	Western Region
WRTT	Western Region Technology Transfer

II. Overview of the Colorado Coal Mining Industry

Coal underlies 30,000 square miles or 28 percent of the state. Colorado ranks eighth in the United States in the demonstrated reserve base of coal (16.96 billion tons). The coal reserves are three-quarters bituminous and nearly one-quarter subbituminous. There are also small amounts of lignite and anthracite, but these are not currently being developed commercially.

Since the commencement of mining in 1861, mines in Colorado have produced over 1 billion tons of coal. Production in calendar year 2008 was 33,434,913 million short tons (gross) (Table 1) (OSM-1 quarterly coal production reporting) ranking Colorado 8th among coal producing states. Coal production in Colorado has risen dramatically in the last decade, primarily due to an increase in underground mining operations utilizing the longwall mining method. Two-thirds of Colorado's production comes from extremely productive longwall underground mining operations. In June, 1997, The Twentymile Mine (now owned by RAG American Coal Company) broke the world record for single month production, becoming the first

operator to produce more than 1 million tons (1,001,401) from a single longwall system (Colorado Mining Association).

Seventy-two percent of Colorado's electricity demand is met by coal-fired power plants. Most of the coal used by these plants is mined in Colorado. Colorado coal is low in sulfur, ash, mercury, and trace elements. The majority of this Colorado-produced 'compliance coal' is shipped by railroad to Texas, Utah, and four states in the south and midwest, where it is blended and burned with lower quality coal (Colorado Mining Association).

As of June 30, 2009, there were 43 inspectable units (Table 2). For these operations, permitted acreage totaled 164,100 acres (Table 2) and bonded acreage approved for disturbance totaled 18,955 acres (Table 5). Of the 10 operations that were actively producing coal as of June 30, 2009, 7 were underground mines, and 3 were surface mines. Five of the seven underground mines use the longwall mining method, and two use the room and pillar mining method.

The federal government owns approximately 8.8 million acres of coal in Colorado. Colorado's coal mining industry has a significant impact on local and state economies. The mines employ about 2,450 staff. In 2008, they paid \$ 74.3 million in federal and state royalties, \$5.9 million into the abandoned mined land (AML) reclamation fund (funding mandated by SMCRA for the reclamation and restoration of land and water resources adversely affected by past coal mining), \$11.1 million in property taxes, and \$14.3 million in severance and sales taxes. Much of this funding is used to support local and state governments and projects (Colorado Mining Association, Coal Production and Employment).

Differences in elevation throughout the State create many climatic zones in Colorado coal country. Annual precipitation averages less than 8 inches in some areas in extreme western Colorado, to 30 inches in certain mountainous areas. The growing season can be up to 169 days long at some sites, but is usually much less, particularly in the mountainous regions of the Yampa River Basin where many of the mines have historically operated.

III. Overview of the Public Participation in the Colorado Program

Evaluation Process

OSM's Denver Field Division (DFD), located in the Western Region (WR), and the Colorado Department of Reclamation, Mining, and Safety (DRMS) formed an Evaluation Team (the Team) to conduct annual evaluations of Colorado's Coal Regulatory Program. The Team evaluates how effective DRMS is in ensuring that coal mine reclamation is successful, preventing offsite impacts, and providing service to its customers. The Team makes recommendations for improving the administration, implementation, and maintenance of the Program. This evaluation method fosters a shared commitment to the implementation of SMCRA.

During each evaluation year, the Team solicits input from coal mining stakeholders on OSM and DRMS evaluation topics through an annual mailing. The Team requests comments on the oversight evaluation process and past OSM evaluation reports. Additionally, periodic advertised public meetings have been held in all of Colorado's coal producing regions.

On May 15, 2008, the Team mailed outreach letters to coal mining stakeholders (state, federal, and local governmental agencies, coal mine permittees, environmental groups, consulting firms, and coal mining trade groups) soliciting input for topics to evaluate during Evaluation Year 2009 (EY09), and soliciting any questions

or comments on previous oversight reports or the OSM / DRMS oversight process. The Team received a response from the Grand Mesa, Uncompahgre and Gunnison National Forests (GMUG) regarding the “Procedure for Cooperative Review of Permit Application Packages, or Renewal for Federal Coal Mines in Colorado” (30 CFR Part 906.30, Appendix B), Colorado Cooperative Agreement. A follow-up meeting with representatives from DRMS, OSM, and the U.S. Forest Service (USFS) was held to discuss the permitting procedures on USFS lands.

Colorado Program

1. Mined Land Reclamation Board Meeting

The Colorado Mined Land Reclamation Board is a multi-interest citizen board which establishes the regulations, standards and policies that guide the Division of Reclamation, Mining and Safety. The Board was created in 1976 by the Colorado General Assembly. Members are appointed by the Governor and confirmed by the legislature, serving terms of 4 years. The composition of the Board is established by the Colorado Mined Land Reclamation Act. The Colorado Coal Program acts independently of the Board on nearly all decisions. The Board is responsible for promulgating rules, revoking permits and forfeiting bonds, and adjudicating violations and permit decisions after all administrative appeals at the Program level have been exhausted.

2. Education and Community Outreach

DRMS made presentations to school classes, professional organizations, Scout troops, and adult education classes. Presentations focused on the regulatory program and associated reclamation issues. All DRMS staff had an opportunity to work the DRMS booth at the Colorado State Fair and help educate visitors about mining and reclamation. Over 70,000 people visited the Natural Resource Building.

3. Information and Technology Exchanges

DRMS participates on the steering committees for the OSM National Technical Training Program (NTTP) and the Technical Innovation and Professional Services Program (TIPS), is a member of the Western Region Technology Transfer Team (WRTT), and a member of the OSM Geospatial Team.

DRMS staff attended the WRTT Team’s annual meeting held in Billings, MT. The team discussed online avenues for sharing questions, comments, and other information relating to the transfer of technology. The team also exchanged ideas about the scheduling and delivery of equipment that OSM provides the states to help them with regulatory and AML work.

DRMS exchanged information with other states through participation in the Interstate Mining Compact Commission (IMCC) annual meetings, and as a representative of the Reclamation Committee for the Western Interstate Energy Board (WIEB).

DRMS reported success using a borehole camera provided by WR technology transfer. DRMS used the camera during May, June, and July 2009 to monitor AML projects being completed in Colorado Springs, CO. These historic underground room and pillar coal mines are located under a residential neighborhood and roadways. The borehole camera was lowered through cased drill holes into the mine voids to view and capture DVD recordings of the pressure grouting operations. A sand and structural foam grout mixture was used, and the borehole camera allowed operators to view where and how the grout was filling the mine voids.

DRMS and the Montana Department of Environmental Quality (DEQ) entered into a technology transfer agreement during EY 2009. DRMS provided DEQ access to the computer code for the DRMS Electronic Permit System. DEQ will provide DRMS with new computer code that is being written as the DRMS system is

retrofitted for the specific DEQ applications necessary for Montana. The additional data attributes, including environmental resources, mining and reclamation requirements, and mining and reclamation plan annual reporting, will be used to enhance the existing DRMS Permit System.

DRMS also demonstrated their “Brass Cap” AML electronic inventory system to Montana DEQ. DRMS partnered with TIPS to implement the use of mobile computing Tablet PCs in the field for onsite monitoring and electronic data input at AML project sites. These Tablet PCs then synchronize in the DRMS offices to update the Brass Cap inventory system. The PCs contain a GPS unit that automatically records the GPS datum. Based on the success of the AML project, there are plans to expand the use of the PCs in Colorado’s Coal Regulatory Program.

IV. Accomplishments, Issues, and Innovations

Accomplishments

1. Final Bond Releases

DRMS fully releases a reclamation performance bond (Phase III bond releases) when a permittee meets or exceeds all DRMS program requirements for the land disturbed. During EY09, DRMS granted Phase III bond release for 734.8 acres on portions of three mines. Colorado has approved full and final Phase III bond release under its permanent regulatory program on 18 mine sites.

2. DRMS and Colorado Mining Association Reclamation Awards

To encourage innovative reclamation techniques and to recognize the companies that have exceeded the regulatory requirements for environmental protection and reclamation success, DRMS participated in the award process for the DRMS and Colorado Mining Association’s Annual Reclamation Awards. Mountain Coal Company, Trapper Mining Inc., Snowcap Coal Company Inc., CAM Mining LLC, and J.E. Stover & Associates were all recognized for excellence in reclamation.

3. Evaluation of Permit Revocation / Bond Forfeiture Sites

DRMS continues to evaluate the reclamation status of permit revocation sites in an effort to terminate jurisdiction. Several of these sites have been seeded for ten years (which serves as the liability time period) or longer. In EY09, DRMS continued revegetation sampling at the forfeited mine sites to demonstrate revegetation success.

Based on past DRMS sampling efforts, DRMS has terminated jurisdiction on four revoked permit sites. A final decision was proposed for a fifth site and the decision will be finalized in Evaluation Year 2010. The number of permit revocation for EY09 is 11.

4. Training

DRMS continued to ensure that its staff is professionally and technically competent. Employees from Colorado were provided the opportunity to attend TIPS instructor-led training throughout the reporting period. Colorado DRMS staff participated in nine training instances with the TIPS Training Program, covering Galena Slope Stability Analyses, SEDCAD Applications, and Extensions for Mine Permitting and Reclamation. Staff members attended NTTP classes for Historic and Archeological Resources, Principles of Inspection, Enforcement Procedures, Blasting & Inspection, Advanced Blasting and Inspection, Applied Engineering Principles, Underground Mining Technology, Subsidence, Surface and Groundwater Hydrology, ETools for

Reclamation, AutoCAD Fundamentals for Permitting and Reclamation, and lastly, Permit Findings. DRMS provided four instructors for OSM training.

5. Review of Coal Exploration Cost Estimates

In the fall of 2006, the Division began a project to conduct reviews of the reclamation cost estimates of its coal exploration Notices of Intent. In Evaluation Year 2008 (EY08), the Division developed a baseline of 178 coal exploration files, with a baseline performance bond amount for all Colorado coal exploration sites of \$3,625,864.56. The Division subsequently terminated several files for administrative reasons. This project continued into EY09 with bond release requests for seven of the initial 178 sites. Several other files were terminated through administrative actions. The seven bond release requests released a total of \$226,395.00 in performance bonds in EY09. Of the baseline 178 sites, 40 sites have now either received bond release or have been terminated for administrative reasons. There are currently 121 coal exploration Notices of Intent on file with the Division. The total amount of exploration bond monies held by the Division is now \$3,603,966.56.

This is an ongoing project and will carry over into EY10. The Division anticipates the termination of several more files via operator-requested bond release applications and Division administrative action.

6. NTTP Applied Science Projects

Wildlife habitat is an important pre and post mining land use in Colorado. Coal mining regions are within important habitat for deer, elk, sage grouse, and Columbian sharptail grouse, to name a few. The important wildlife habitat includes mixed mountain shrub communities and aspen stands. Efforts to reclaim these habitat types have been a challenge. In an effort to reestablish these important communities in the post mining land use, the DRMS has supported several applied science projects.

a. Aspen Reestablishment

A mature aspen grove covering over 100 acres was disturbed by operations at Seneca II-W. Seneca Coal Company and the U.S.D.A., U.S. Forest Service Rocky Mountain Research Station (RMRS) undertook a study to investigate whether drip irrigation, in association with fencing, deep soil placement, and control of herbaceous competition could be employed to establish aspen saplings on the regraded area. The NTTP Applied Sciences Program provided additional funding in FY 2009.

Results of the experiments have been encouraging. Although assessment over a longer time period will be necessary to document long term survival and regeneration, the results suggest that successful aspen reestablishment may be achieved by means of fencing to exclude large ungulates, combined with suppression of vegetative competition. During EY09, the effectiveness of commercial weed block fabric (in addition to the effect of supplemental high quality irrigation water) was assessed. It was found that the weed block fabric is a practical and effective method for suppression of vegetative competition in large scale plantings.

Issues

There were no significant regulatory actions for mining operations during EY 2009.

Innovations

The Division uses a computer program to calculate all of its reclamation cost estimates. The program, Colorado Integrated Reclamation Cost Estimating System (CIRCES), was developed in-house over ten years ago. It has simplified the task of calculating reclamation cost estimates, as they are no longer completed by hand. CIRCES is a combination of 33 separate modules that help the user estimate costs for all areas of a reclamation project,

including earthmoving tasks, demolition, revegetation, mine and borehole sealing, blasting, and other miscellaneous reclamation tasks. Each spring, the Division updates CIRCES with new costs and, if necessary, new equipment models and performance data. Aside from the annual updates, the structure of CIRCES has not changed since its inception. The programming language used for CIRCES is “Visual Baler”, an outdated platform that is no longer supported.

In 2008, through the use of an outside contractor, the Division began reprogramming CIRCES in Vb.Net. The new estimating software will be contained within the Division’s Permit System. The interface with the Permit System will simplify the estimating and data storage process. In addition to linking CIRCES to the Permit System, the program is being made more user-friendly, with the addition of drop-down menus, fill in the blank forms, and other data entry changes. To date, three modules have been programmed (dozer, revegetation, and cost summary) with several more in the works. The Division hopes that a full version of the new CIRCES will be ready for internal release in 2010.

V. Success in Achieving the Purposes of SMCRA

The Team evaluates the number and extent of offsite impacts, the number and percentage of inspectable units free of offsite impacts, the number of acres that have been mined and reclaimed and which meet the bond release requirements and have been released for the various phases of reclamation, and the effectiveness of customer service provided by the State. Individual topic reports are available at the WR-DFD Office and provide additional details on how the following evaluations and measurements were conducted.

Offsite Impacts

An “offsite impact” results from a surface coal mining and reclamation activity or operation that causes a negative effect on resources (people, land, water, structures) outside the area authorized by the permit for conducting mining and reclamation activities. The applicable State program must regulate or control the mining or reclamation activity, or the result of the activity, causing an offsite impact. In addition, the impact on the resource must be substantiated as being related to a mining and reclamation activity, and must be outside the area authorized by the permit for conducting mining and reclamation activities (OSM Directive, REG-8).

Table 4 shows the number and type of off-site impacts that were observed and documented as having occurred during EY09, both for permitted sites and bond forfeiture sites. The Team identified 3 offsite impacts on permitted sites; and 2 offsite impacts on bond forfeiture sites during EY09 (Table 4).

Sites Where Reclamation Performance Bonds Have Not Been Forfeited (Permitted Sites)

The Team assessed whether off-site impacts had occurred on each of the 32 permitted coal mining operations that existed at some time during the evaluation period. The Team did so by evaluating the following on-the-ground observations on permitted sites: 155 DRMS complete inspections; 238 DRMS partial inspections (Table 9); 1 OSM/DRMS joint complete oversight inspection; and 2 OSM / DRMS partial inspections for the Prevention of Material Subsidence Damage special focus topic. (The complete inspection and 2 special focus evaluations are included in the DRMS complete and partial inspection totals reported). Based on the above numbers and DFD’s monthly review of all DRMS inspection reports and enforcement actions, the Team finds that DRMS has met or exceeded the required inspection frequency on all inspectable units.

For EY09, the Team documented three offsite impacts that occurred on permitted mine sites. All offsite impacts were minor hydrological impacts to land and occurred on three different mine sites (one underground mine and two surface mines). DRMS issued a Notice of Violation (NOV) for each violation. The NOV abatement requirements and corrective measures were implemented as required in a timely manner and as a result, the

NOVs were terminated. No environmental damage to land or water resources was measured or recorded as a result of the three offsite impacts.

Bond Forfeitures and Revoked Permit Sites

During EY09, DRMS conducted 27 complete and 8 partial inspections on 11 bond forfeiture sites. DRMS documented 2 minor hydrological offsite impacts to a land resource on 2 bond forfeiture sites. Eighty-two percent of the bond forfeiture and permit revocation sites (9 of 11) were free of offsite impacts for EY09 (Table 4).

Joint, Complete, Oversight Inspections

Each year the Team evaluates offsite impacts during joint, complete oversight inspections selected by the Team to reflect current Colorado coal mining conditions and coal mining regions. The report detailing the complete inspection conducted during EY09 is available for review at the DFD Office. No unresolved problems with offsite impacts were identified as a result of this inspection.

Reclamation Success

Permitted Mine Sites Where Reclamation Performance Bonds Have Not Been Forfeited

Each evaluation year the Team compiles reclamation information for all operations that DRMS has permitted under the Colorado Regulatory Program since its approval in December, 1980. This reclamation information is derived from annual reclamation reports submitted to DRMS by all permitted coal mine operations as well as evaluation year bond release data contained in DRMS's permitting database.

The annual reclamation reports show mining and reclamation data based on the calendar year, and is reflected in the attached Optional Table named "Reclamation Status of all Areas Disturbed Under the Colorado Permanent Regulatory Program" (see Appendix B). Using the data from this table, the Team can accurately determine acreage in the following categories: disturbed acreage; acreage backfilled and graded; acreage topsoiled and seeded; acreage seeded for 10 years or longer; and Phase I, II, and III bond release acreage. During EY09, DRMS granted Phase I bond releases on 698 acres, Phase II bond releases on 1985 acres, and Phase III bond releases on 735 acres (Table 5).

Review of data in the EY09 Colorado Reclamation Status Table indicates that 63% (13,560 of 21,602 acres) of the total disturbed acreage on active, temporarily inactive, and inactive operations has been backfilled and graded.

Of the 21,602 total disturbed acres, 7,981 acres consist of long-term facilities and active mining areas that are not subject to contemporaneous reclamation requirements during any given evaluation year, and thus not eligible for any phase of bond release. Several operations have not submitted bond release applications for lands that have been reclaimed 10 years or longer.

Since the Colorado Permanent Regulatory Program was approved in December, 1980, DRMS has granted Phase III bond release on a total of 8,573 acres. This successfully reclaimed acreage is 30 percent of the total disturbed acreage under the Colorado permanent regulatory program (8,573 of 26,085 acres that includes all permitted mining operations, and full Phase III bond release mines, but not including bond forfeiture sites).

OSM concludes that reclamation of mined land in Colorado is successful based on the Team's review of the coal permittee's annual reclamation reports, DRMS's permitting database, the EY09 Colorado Reclamation Status Ta, and DRMS routine monthly inspections that include reclamation success evaluations of the reclaimed

lands.

Bond Forfeitures and Revoked Permit Sites

During EY09, DRMS continued to evaluate bond forfeiture sites for reclamation success that will lead to the termination of jurisdiction. A decision to terminate jurisdiction at one forfeiture site was proposed during EY09, but the decision will not be final until EY10. DRMS continues to monitor revegetation success as necessary at the bond forfeiture and permit revocation sites.

Joint, Complete, Oversight Inspections

Each year the Team evaluates reclamation success during joint, complete oversight inspections selected by the Team to reflect current Colorado coal mining conditions and coal mining regions. The report detailing the complete inspection conducted during EY09 is available for review in the DFD office. No unresolved problems with reclamation success were identified as a result of this inspection.

Customer Service

To evaluate the effectiveness of customer service provided by DRMS, the Team selects a program area to monitor the States' responses to complaints, requests for assistance and services. During EY09, the Team evaluated whether DRMS was implementing its approved program by providing, in accordance with Rule 2.08.5(3) (b), notices to OSM, to surface and mineral owners of the affected land, and to the Board of County Commissioners of the county in which the affected land is located prior to approving applications for renewals of permits. For a discussion of this evaluation, see section VII, "Customer Service - Notifications Prior to Permit Renewal Approvals".

VI. OSM Assistance

For the one-year grant period starting January 1, 2008, OSM funded an Administrative and Enforcement Grant to the Colorado program in the amount of \$2,332,820.00 (Table 8). Through a Federal lands cooperative agreement, OSM reimburses DRMS for permitting, inspection, and other activities that it performs for mines on Federal lands. Because most of the acreage mined for coal in Colorado is on Federal lands (Table 2), 79 percent of DRMS total program costs are funded by OSM.

OSM funded a grant to the Colorado Abandoned Mine Land (AML) Program in the amount of \$ 6,485,403.00 (Table 8) for a three year period which will end June 30, 2012. This grant applies to both administrative and construction expenses. This amount represents 100 percent funding for the AML Program.

TIPS supported the state of Colorado by providing software upgrades. TIPS also provided instruction to the state of Colorado on basic AutoCAD functions for use with permitting and electronic submittals. This information is used to help discern electronic submittals and assist in GIS development. In addition to this support, TIPS loaned the state of Colorado the bore-hole camera system for use in AML emergency and priority project work.

Colorado DRMS staff participated in nine training instances with the TIPS Training Program, and provided four instructors for TIPS classes. DRMS staff also attended 16 National Technical Training Program classes.

OSM's Technical Librarian filled one reference request and provided 38 article reprints to Colorado State Regulatory Association staff members. OSM's Technical Library web site can be accessed at www.ott.wrcc.osmre.gov.

VII. Evaluation Topics

Each year the Team selects specific evaluation topics to determine whether DRMS is effective in preventing or minimizing offsite impacts, ensuring reclamation success, and providing customer service. Following are the descriptions and findings of the evaluations conducted during EY09. More detailed evaluation reports for these topics are maintained at the DFD.

Prevention of Off-site Impacts - Prevention of Material Subsidence Damage to, and the Diminution of Reasonably Foreseeable Use of, Structures and Renewable Resource Lands

OSM's Directive REG-8 requires that it annually evaluate the effectiveness of State Programs in protecting the environment and the public from off-site impacts resulting from surface coal mining and reclamation operations.

OSM and DRMS jointly selected this oversight topic to determine whether DRMS is implementing its approved program by ensuring that operators of underground coal mines are complying with regulatory requirements pertaining to the prevention of material subsidence damage to, and of the diminution of reasonably foreseeable use of, structures and renewable resource lands within permit and adjacent areas. The Team selected two mines near Paonia, Colorado for this evaluation.

Findings and Results

A. Mine No. 1

Mining Seam Panels that were mined during EY09 were evaluated in the field. For Mine No. 1, there are no structures within the angle of draw for mining operations in these panels over the last 24 months. Similarly, there are no renewable resource lands (recharge areas for aquifers and areas that support food and fiber). Offsite impacts from subsidence would consist of cracks, slides, and rock falls. However, none have been identified to date.

A panel at this mine extends under a gulch, whose alluvium is *not* an aquifer that produces water for beneficial use. Although some rock falls have occurred, they were predicted by the mine in accordance with their approved subsidence monitoring program. In addition, there is evidence of rock falls from the rock face on the east edge of this panel. These too, were predicted by the mine. The Team was also concerned about the possibility of diminishing the water in a nearby river (i.e., stream pirating) as a result of subsidence, but none was observed. DRMS's primary concern is the potential for subsidence-related impacts to a State Highway that which runs parallel to another mined panel, since the mine facilities appear to be shifting toward the highway at a rate of a few centimeters per year.

B. Mine No. 2

At this mine site, a gulch that lies above a mining panel was undermined approximately 18 months ago. This gulch was identified and categorized as a potential renewable resource land by virtue of surface water runoff that infiltrates the gulch and finds its way to an aquifer on the disturbed area. The mine provided a map with the locations of four monuments for the gulch. These monuments showed, and the team verified, that approximately 10 feet of subsidence has occurred as a result of mining activity. This subsidence was predicted by the mine in accordance with their approved subsidence monitoring program. A pond was identified as a structure, was also undermined nearly 18 months ago, and has subsided nearly 10 feet. This was also predicted by the mine in their approved subsidence monitoring program.

The Team identified two ponds at the mine that have been undermined; one has subsided nearly 10 feet, and the other has subsided one foot. The latter has three springs associated with it, which have likewise subsided one foot. This subsidence was also predicted by the mine in their approved subsidence monitoring program.

C. Seismic Monitoring

The Division has worked with the mines in the North Fork Valley over several years to assure the owners of two reservoirs in the valley that mining-induced seismicity, caused by mine subsidence, will not cause material damage to the structures.

The North Fork Valley Seismic Network was established by the active mines in the valley and the Spokane Research Laboratory of the National Institute of Occupational Safety and Health/Centers for Disease Control and Prevention (NIOSH/CDC). The network was established, in part, to ensure that mining-induced seismicity will not cause material damage to two historic dams adjacent to the two mines longwall panels.

The seismic monitoring network consists of five permanent seismometer stations at each of two mines, and a temporary station at a third mine for a total of eleven stations. Seismic events recorded at these solar powered seismometers are automatically transmitted to a central processing location and put onto a limited access internet site. The internet site displays the location and magnitude of recent seismic events in the area. There is also an automated e-mail alert system if a threshold level is exceeded. The alert will initiate a field inspection of the dam and the adjacent landslide. Quarterly seismic monitoring and analyses reports are submitted to the Division.

Conclusions and Recommendations

The Team finds that DRMS is effectively implementing its program in compliance with the applicable requirements of Rules 2.05.6(6) (a) and 2.05.6(6) (c), pertaining to the monitoring and reporting of the effects of underground mine subsidence. Therefore, OSM has no recommendations for improving DRMS's process as a result of this evaluation.

Ensuring Reclamation Success - Revegetation Requirements for Phase II Bond Release

The Office of Surface Mining, Reclamation, and Enforcement (OSM) and the Colorado Division of Reclamation, Mining, and Safety (DRMS) jointly selected this oversight topic. Its purpose was to evaluate whether DRMS is implementing its approved regulatory program by enforcing benchmark standards for phases of bond / liability release.

Colorado enacted a counterpart to SMCRA section 519(c)(2) at Colorado Surface Coal Mining Reclamation Act Section 34.33.125(9)(b), and counterpart to 30 CFR 800.40(c)(2) at Rule 3.03.1(2)(b). These statutes and rules set forth criteria for the partial release of bond when vegetation has been established on regraded areas in accordance with an approved reclamation plan.

Findings and Results

The Oversight Team reviewed recent Phase II Bond Release (BR) applications for three mine sites. Revegetation data was examined in order to determine if the Colorado Program is successfully applying and enforcing its Phase II bond release revegetation requirements. The Team reviewed the selected Phase II bond release applications according to the requirements of Section 34-33-125(9)(b) of the Colorado Surface Coal Mining Reclamation Act and of Rule 3.03.1(2) (b).

Conclusions and Recommendations:

The Team finds that the DRMS is effectively requiring, reviewing, and processing Phase II bond release applications in accordance with Rule 3.03.1(2)(b) and CO SCMRA 34-33-125(9)(b). The DRMS staff identifies, addresses, and resolves inadequacies in applications with the operators to ensure successful revegetation on reclaimed areas. Phase II vegetation monitoring data is carefully scrutinized to help ensure that reclaimed sites are on course toward Phase III final reclamation success. Phase II bond release applications reviewed for this evaluation achieve the requirements of Rule 3.03.1(2)(b) and Section 34-33-125(9)(b) of the Colorado Surface Coal Mining Reclamation Act. Therefore, the DRMS is successfully implementing this portion of its program, and OSM has no recommendations for improving DRMS's process as a result of this evaluation.

Customer Service - Notifications Prior to Permit Renewal Approvals

During EY09, the Oversight Team evaluated the Colorado regulatory program requirement for DRMS to provide written notification to OSM, to surface and mineral owners of record of the affected land, and to the Board of County Commissioners of the county in which the affected land is located prior to approving applications for renewals of permits in compliance with Section 2.08.5(3) (b) of the Regulations of the Colorado Mined Land Reclamation Board for Coal Mining. DRMS typically sends letters providing the notices required by Rule 2.08.5(3) (b) at the time permit renewal applications are deemed complete.

Findings and Results

Colorado had thirty-two permitted Inspectable Units at the beginning of EY09. The Team reviewed the files of the five most recently-approved permit renewals to determine if the required letters were sent to the appropriate entities. The primary purpose of the evaluation was to determine whether copies of letters providing the notices required by Rule 2.08.5(3) (b) are found in the files of the subject permit renewal applications.

Specifically, the Team accessed DRMS's permitting data base and evaluated whether the notification letters were mailed to OSM, to surface and mineral owners of record of the affected land, and to the Board of County Commissioners of the county in which the affected land is located prior to approving applications for the five most recently-approved permit renewals. During this process, the Team found that some of the information in the database was outdated which led to some confusion when attempting to determine the surface and mineral owners of record of the affected land. Nevertheless, the Team was able to confirm, with assistance from DRMS staff, that the required notification letters were sent to the appropriate entities.

Conclusions and Recommendations

OSM finds that DRMS is providing written notification to OSM, to surface and mineral owners of record of the affected land, and to the Board of County Commissioners of the county in which the affected land is located prior to approving applications for renewals of permits in accordance with Colorado Rule 2.08.5(3) (b). DRMS is also ensuring that copies of letters providing the notices required by the rule are found in the data base files of the subject permit renewal applications. DRMS will strive to update and maintain accurate surface and mineral ownership records in the permit application packages.

EY09 COLORADO EVALUATION TEAM MEMBERS

Sandy Brown and Daniel Hernandez, DRMS

Christine Belka, Elizabeth Shaeffer, and Howard Strand, DFD

David Berry, DRMS, and James Fulton, DFD, Team coaches