STATE OF COLORADO

DIVISION OF RECLAMATION, MINING AND SAFETY
Department of Natural Resources

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COLORADO DIVISION OF RECLAMATION MINING & SAFETY

TO: **Water Quality Control Commission**

FROM: **Loretta Pineda, Division Director**
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Division of Reclamation, Mining and Safety

DATE: **November 4, 2013**

RE: **FY 2012-2013 SB 89-181 Annual Report**

The Division of Reclamation, Mining and Safety (DRMS) is pleased to submit its SB 89-181 Report for FY 2012-2013. DRMS continues to implement the statutorily mandated roles of promoting the development and use of Colorado's mineral and energy resources while protecting the public health, safety and the environment.

We appreciate the working relationship between DRMS staff and the Water Quality Control Division.

Attachments

SB 89-181 Annual Report
FY 2012-2013

This annual report to the Water Quality Control Commission (WQCC) is required under the provisions of SB 89-181 and the Memorandum of Understanding (MOU) adopted by the Mined Land Reclamation Board (MLRB) and the WQCC. The Division of Reclamation, Mining and Safety (DRMS) is an implementing agency under the provisions of SB 89-181. As such, DRMS is responsible for ensuring that mine operators comply with state ground water quality standards. It is the responsibility of the WQCC to classify waters of the state and set standards for those classified waters.

If the WQCC has not set site specific ground water standards, DRMS is to use the numeric protection levels, referenced in the WQCC adopted narrative ground water standards, to set appropriate permit conditions to protect ground water uses.

Minerals Program

DRMS analyzes all operations that have the potential to be classed as Designated Mining Operations (DMO) to ensure that their operations are protective of ground waters. Under HB 08-1161, all conventional and in situ uranium mines have DMO status. DRMS also requires non-DMO mining operations, including some aggregate operations, to initiate ground water sampling where there is a potential for impacts to ground water quality.

As of this reporting period, the Minerals Program requires approximately 29 mine sites to conduct some type of ground water quality monitoring. Of these sites, 24 are hard rock mining operations, and five are construction material extraction operations.

(Please see the attached table for specific information about these sites.)

Coal Program

The DRMS Coal Program serves as the primary regulatory authority for coal mines in Colorado and functions under the Colorado Surface Coal Mining Reclamation Act (C.R.S. 34-33-101 et. seq.). In 1990, the Department of Public Health and Environment and the Department of Natural Resources entered into a "Memorandum of Agreement for the Implementation of SB 89-181 Amendments to the Colorado Water Quality Control Act Pertaining to the Regulation of Coal Mines." Section 5.1(h) of the Agreement requires that the DRMS Coal Program provide an annual update of its activities pertaining to water quality matters to the Water Quality Control Commission. This Annual Report describes the Coal Program's accomplishments during the last year, and objectives for the next year.

The Colorado Coal Program currently regulates a total of thirty-eight coal mines, of which nine are actively producing mines and one is an active load out facility. Two

new mines are under construction, with one of the new mines expected to begin coal production by November 2013. A summary list of the mines is attached. The producing mines are both surface pit and underground operations. Nineteen mines are in various phases of reclamation or temporary cessation. Seven mines are reclaimed sites for which the permits were revoked. One new underground mine permit was recently approved, but the bond has not been posted, so permit issuance has not yet occurred pending bond submittal.

Approximately 70 percent of Colorado's coal production derives from underground operations. The predominant method of underground mining is longwall mining.

An overview of the currently active operations is included.

Accomplishments

During the 2012 - 2013 reporting period, the Coal Program accomplished the following functions:

1. The Coal Program effectively implemented various rules pertaining to ground water protection at Colorado coal mines. The Coal Program's current requirements for monitoring and detailed pre-disturbance permitting will continue to provide proper ground water quality protection.

2. The Coal Program conducted reviews of Annual Hydrologic Reports submitted by operators. This allows for timely identification of hydrology sampling anomalies and deficiencies, in addition to water quantity and quality trends.

3. The Coal Program continued to focus coal mine permitting activities on minimization of impacts to the hydrologic balance and prevention of material damage. These activities included the ongoing review and update of Cumulative Hydrologic Impact Analyses (CHIA).

4. The Coal Program continued to focus regular coal mine field inspections and monitoring activities on minimization of impacts to the hydrologic balance and prevention of material damage. During FY 2013, the Coal Program conducted 455 inspections.

5. The Coal Program and WQCD communicated periodically during the last year to discuss specific issues of mutual concern.

Objectives

1. The existing Cumulative Hydrologic Impact Analyses for the various river basins that contain coal mining will be reviewed and upgraded on an ongoing basis.

2. The Coal Program will continue to focus regular field inspection and monitoring activities, as well as permitting activities, on minimization of impacts to the hydrologic balance and prevention of material damage.

3. The Coal Program will continue to communicate with the WQCD, as needed, for the purpose of discussing and resolving issues of mutual concern.

Abandoned Mine Land Program

Nonpoint Source and Water Quality Improvement Projects

Since October 2012, final reclamation construction work is completed or underway on ten mining-related water quality improvement projects. Mine sites undergoing reclamation construction in 2013 include:

- Sts John Mine tailings reclamation
- London Mine tailings reclamation
- Hough Mine waste rock and tailings
- Ute Ulay Mine waste rock
- Redwell Basin drill-hole plugging
- Rattler Tunnel mine waste reclamation
- Lightner-Boston Coalmine erosion control
- Brittle Silver mine waste rock
- Yukon-Gold Hub mine tailings reclamation
- Chain-O-Mines emergency stream stabilization project

An additional ten projects underway to investigate, characterize and develop final reclamation designs include:

- Waldorf Mine on Leavenworth Creek
- Rico –Argentine Mine underground rehabilitation and investigation
- Pennsylvania Mine underground workings and portal rehab
- Querida Mine tailings project
- Mary Murphy Mine Golf Tunnel rehabilitation project
- Red & Bonita Mine underground investigations
- Gertrude-Venture Mine waste rock project
- Bullion King Mine
- Perigo Mine drainage investigation
- Standard Mine underground investigation and characterization project

Also since last year, maintenance work was performed at multiple previously completed mine water-quality improvement NPS 319 projects , including the Roy Pray Mine, numerous mines in the Animas Basin, the Alice Mine glory hole, and the Phoenix and Midway mines.

In addition to these on-ground projects, DRMS continues to provide technical assistance to watershed groups and federal agency partners, and provides matching funds for additional projects sponsored by those groups. In 2013, DRMS and CDPHE continued implementing the statewide initiative to develop and bring mining related water quality improvement projects to a "shovel-ready" state on priority watersheds, using funding from the State Power Authority. The first two of these projects are now

completed, including the Sts John Mine above Montezuma in Summit County, where historic mill tailings are being reclaimed and wetlands re-established, and at the London Mine on Mosquito Creek above Fairplay. Six other sites identified in the first phase initiative have been characterized and are in design, and six additional mining-impacted watersheds were added for characterization and assessment.

Additionally, Phase 2 of the 2011 CDPHE-DRMS initiative to inspect, and improve or make repairs to previously constructed mine waste and tailings reclamation projects conducted under the Non Point Source Program was performed in summer 2013. Inspections and documentation of the conditions at over 30 previously reclaimed sites, some dating back to 1989, were previously completed in 2012.

The AML Program table includes details of these projects.

COLORADO ABANDONED MINE LAND PROGRAM
NONPOINT SOURCE AND WATER QUALITY IMPROVEMENT PROJECTS
December 9, 2013

SAN JUAN RIVER WATERSHED

Project	Status	Budget
<u>Upper Animas 319 Maintenance Projects County-PA funds:</u> The Animas River Stakeholders Group (ARSG) NPS 319 Maintenance and Characterization Project is located near Silverton, Colorado at the following previously reclaimed mine sites: • Silver Ledge • Carbon Lakes • San Antonio • Congress The Carbon Lakes, San Antonio, and Congress Mines are all located on or near the top of Red Mountain Pass on a side road of off US Basin Road. The Silver Ledge Mine waste pile was partially remediated in 2010 by the Animas River Stakeholders Group (ARSG) and The Colorado Division of Reclamation. Maintenance work will reinforce the repository cap with a layer of limestone rip-rap to not only prevent erosion, but also to provide additional neutralization. The San Antonio mine was an ARSG 319 funded project that encapsulated and revegetated the San Antonio mine waste. The San Antonio will be maintained by amending and re-vegetating the small bare areas on the side slopes of the repository and the run-off areas below the road. Signs will be re-installed at the site to prevent off-road vehicles and snow plowing damage to the repository. The culvert under the road will also be relocated and replaced. The Congress Mine was an ARSG 319 Non-Point Source funded project that removed part of the waste rock. The Congress mine site was not re-vegetated because the mine waste sat on a bedrock knob. The Congress will be maintained by removing additional waste rock and amending it and using it for fill in the backfill maintenance of the existing mine safety closure. Additionally, waste rock and contaminated soil from the Carbon Lakes site will be amended and used for backfill in the Congress shaft safety closure repair.	Completed	Total Project Budget – $167,893 PA maintenance funds, NPS project funds
Yukon/ Gold Hub Mine Bond Forfeiture Tailings reclamation project, Permit M-1978-144	Completed	$119,850

Project	Status	Budget
(Yukon Tunnel -Arrigo Milling and San Juan Mining) This mine site is adjacent to Cement Creek above Silverton. Reclamation completed in summer 2013 included: • Install run-on and run-off controls above the mine waste pile to prevent infiltration and leaching of metals from the mine waste pile. • Amend, encapsulate, and revegetate the exiting exposed tailings pond adjacent to Cement Creek • Remove and re-contour the linear ditches that were installed in preparation of a new tailings disposal facility to approximate original contour, and revegetate. • Buildings and historic structures were left intact at the request of the owner; however several barrels of cyanide found in the old mill were removed and disposed of properly.		Bond forfeiture and sev tax funding
Red and Bonita Mine Investigation-Cement Creek-San Juan County The Red and Bonita Mine site is located in upper Cement Creek, approximately 10 miles north of the town of Silverton, Colorado. EPA contractors de-watered and ventilated the mine workings in summer 2013. EPA requested DRMS technical assistance in conducting an underground assessment of the condition of the workings and the geology and structural attributes of the mine workings for potential bulkhead feasibility. Underground mapping and inspection of approximately 2,500 of mine workings last entered in 1905 was performed in August. Based on the mine mapping, locations of groundwater inflows, and preliminary geologic evaluations, planning for the next phase of a bulkhead design project in 2014 is underway. Bullion King Mine Waste Rock.	Ongoing	EPA funding CDRMS in kind technical assistance.
Lightner Creek/ Boston Mine Erosion Control Project The Boston Mine is an inactive and abandoned coal mine that historically operated from 1901 through 1926 and mined the Menefee coal formation of the Mesa Verde Group. There was approximately 4,000 cubic yards of coal waste and an area of acidic water seeps. The mine property is owned the Colorado Division of Parks and Wildlife. The goal of the water quality improvement project was to reduce erosion from the Boston Mine site. The project work included installing multiple soil amendments, relocating a channel, revegetating the entire reclaimed area, closing one shaft with polyurethane foam, and reshaping and re-engineering outlet structures at existing ponds. The project culminated with the planting 20,000 live trees and shrubs by the Southwest	Completed	$361,225 Office of Surface Mining SMCRA Grant funding

Project	Status	Budget
Youth Conservation Corps in mid October, 2013.		
Bullion King Mine Waste Reclamation The Bullion King Mine site is located at the headwaters of Porphyry Gulch, a tributary to Mineral Creek. The site contains a large waste rock pile that continually leaches heavy metals into the gulch during spring runoff. The Bullion King Mine project is designed to reduce erosion and leaching of metals from the mine site into Porphyry Gulch by consolidating, capping and revegetating the waste rock pile and installing run on and run off controls. The waste repository will be approximately one half acre in area. The entire area to be reclaimed, including the repository, water diversion channels, and removal areas is approximately 1 acre. The project site is owned by a private landowner. Landowner consent has been obtained from the owner of the patented claims and an environmental covenant has been executed by the landowner of the repository.	Initial investigation	$250,000

LOWER COLORADO RIVER WATERSHED

Project	Status	Budget
Palmetto Gulch Projects-Hinsdale County-Hough Mine 319 Funds/severance s: The Hough Mine at the headwaters of Palmetto Gulch is the largest source of Cd and Zn in the watershed. Site work at the Hough Mine during the 2008 field season included characterization of the upper and lower mine waste dumps including a volumetric assessment using geophysics, and chemical testing of soil samples. The Hough Mine Remediation Feasibility Report was completed by DRMS, and the Engineering Specifications for Reclamation were completed by Shannon and Wilson, under contract to DRMS. Construction contracts were bid out and reclamation work got underway in Summer 2013.	Phase 1 Completed	Total Project Cost - $90,752; DRMS Sev funds - $26,276; BLM Task Order $55,870; CDPHE 319 NPS - $8,606

Project	Status	Budget
Reclamation of the Hough Mine involves consolidating the upper and lower waste rock piles and capping the waste piles with locally obtained rock. The reclamation will also include the construction of run-on and run-off control channels, constructed in a natural manner, to blend with the existing landscape. The waste repository is approximately 1-2 acres in area, and is located where the lower waste pile is currently situated. The entire area, including the repository, water diversion channels, and removal areas is approximately 5 acres. The project was bid out and construction proceeded in summer 2013. Most of the earthwork was completed and the waste rock and tailings placed into the repository, however very wet late summer and fall conditions prevented proper and final installation of geo-synthetic liners and capping, which is set for completion in Summer 2014.	Phase 2 Construction - 2013, finish in 2014	Design Cost-$33,000 CDPHE 319 NPS: $20,000 Match:$13,000 Total Construction Cost - $416,230; DRMS Sev funds, WQIF,Other Match CDPHE 319 NPS
Roy Pray Mine Maintenance The project work completed in 2013 included maintenance of previous mine reclamation work completed at the Roy Pray and Wyoming Mines. The Roy Pray portal had several rotten timbers that were removed and replaced with new timbers, and steel sets will be placed into the portal to facilitate access to the existing bulkhead seal. Additionally, the adit drainage sump system was repaired to divert the adit drainage away from the existing on-site waste repository. Maintenance work at the Wyoming Mine repaired a breach in the creek diversion system, which diverts water away from the waste rock pile, historic buildings and shaft.	Complete	$24,900 BLM funding
Ute-Ulay Mine and Mill-Hinsdale County-Bureau of Land Management: The Ute-Ulay Mining complex, located approximately five miles west of Lake City, Colorado, is an inactive gold, silver, and zinc mining/milling operation that operated from the 1880's until the 1970's, and sporadically into the late 1990's. Reclamation of the approximately 13,000 yds^3 of mine and mill waste materials was completed in 2009 using an in-situ paste technology approach.	Completed	Total Construction Contract- $1.016 million, BLM Task Order $900,000; DRMS-$116,000 sev tax and in kind technical match
Hinsdale County has acquired the town site and mill/mine as a future heritage tourism resource, and is participating in a targeted Brownfields project at the Ute-Ulay Mine/Millsite and the Town site. This area is located approximately one-mile east of the reclaimed tailings repository site described above. DRMS is currently working with CDPHE, EPA and BLM to complete final reclamation and stabilization of the waste rock dumps located directly adjacent to Henson Creek.	Underway	BLM/CDPHE 2013 DRMS

Project	Status	Budget
EPA contractors accomplished the first phase of this work in summer 2013 under a CERCLA removal action contingent with the county taking ownership of the mine site and mill as a heritage tourism resource.		
Standard Mine- Gunnison County- EPA/CDPHE Superfund /with DRMS technical assistance: In 2010 and 2011, DRMS conducted work at the Standard Mine Superfund Site under contract to EPA and CDPHE. A drilling investigation of Level 1 was conducted to determine the condition of mine workings in the Level 1 crosscut, and also to ascertain the amount of water impounded behind the portal blockage. Also, DRMS provided underground assistance to EPA and USGS for ongoing underground monitoring of Level 3. DRMS will continue to provide technical assistance to the USFS and the EPA in their investigation into the potential feasibility of installing source controls within the mine.	Completed	Total Project Budget – CDPHE/EPA ~$8,000; DRMS - in-kind technical assistance
Redwell Basin Drill Hole Plugging The project work included a second phase of pressure grouting in a remotely located exploration corehole boring high in Redwell Basin that was discharging acidic, metals laden water to the surface in an uncontrolled fashion at approximately 20 gallons per minute. The corehole was improperly abandoned at the time of drilling in the 1960's or 70's, and has been flowing acidic metals laden water for approximately 40 years. This project completed proper abandonment of the borehole. A total of 368 sacks of portland cement grout were pumped in two phases at pressures up to 220psi. to seal the multiple, directional diamond-drill holes stemming off the parent boring. A total of approximately 10,000 lineal feet diamond drill hole was sealed. This was a deep set of multiple borings that tapped into the main Mt. Emmons ore body thousands of feet below surface.	Completed	$180,000 total Project $74,00 in 2013 Sev tax and PA NPS funds
Carbonero Mine, Howard's Fork/ San Miguel River Watershed- DRMS staff is assisting the local watershed group, USFS, CDHPE and EPA with investigating metals loading to the Howard Fork of the San Miguel River in SW Colorado. Work in this watershed has been ongoing over the past 10 years by the CDPHE, CDRMS, the USEPA and the USFS. Results indicate that one of the most significant sources of metals is the Carbonero mine drainage. Successful remediation of the metals load from the Carbonero adit drainage is	Investigation Completed	Total Project Budget so far – EPA/CDPHE $95K; DRMS - $22,500, plus in-kind technical assistance for flume installation, Carribeau Mine investigation, and handling the contracted

Project	Status	Budget
complicated by: (a) the complex hydrogeologic setting that controls the rates and a long term sustainability of the inflow of ground water into the mine. In summer 2011 DRMS's drilling contractor completed installation of the second test well in close proximity to the flooded mine workings. The USGS conducted geophysical and hydraulic logging in one of these holes in 2012, and a bore-hole camera survey of the boring closest to the crosscut was performed. Based on the results of drilling, the crosscut appears free-flowing and is not impounding water above the crown, however the structural-quality of rock in the vicinity of the test borings is less than optimal. <u>Bulkhead Feasibility Investigation/Implementation</u> The primary objective of the next project phase is to rehabilitate the Carbonero Mine portal to allow an underground assessment of the crosscut section of the mine workings in order to determine the feasibility of installing a structural bulkhead to reduce mine discharge. The bulkhead would serve to prevent blow-out events which have reportedly occurred in the past, and could provide a sound structure for penstock water intake to any future micro-hydropower installation. If the micro-hydropower option is not pursued, the bulkhead could be permanently sealed, eliminating an estimated 75 to 80% of the metals load currently discharging from the Carbonero portal. Investigation of the mine workings will facilitate a more comprehensive bulkhead feasibility assessment. <u>Cost Estimate/Funding</u> The Carbonero Mine was reportedly last entered in the 1980s; the crosscut section was in good condition at that time. The primary variable relative to the cost of this project is the type and extent of ground control measures needed to safely conduct the investigation. DRMS estimates that the work will cost approximately $500,000 depending on the conditions encountered underground.	Summer 2014	drilling project. $15,298 for 2013 maintenance work. PA NPS funding Estimated Cost of Portal Rehabilitation and Bulkhead Feasibility Investigation- Power and Water Development Authority Funding - $300,000
<u>Rico Argentine District, St. Louis Tunnel, Dolores River Watershed</u> DRMS staff provided technical assistance to EPA and CDPHE staff and the mine owners for underground source controls investigations at the St. Louis Tunnel mine discharge in Rico. The project includes an underground and surface tracer study to develop an understanding of inflow pathways to the underground workings so that the potential to limit inflows can be assessed and incorporated into the final remediation plan. The Mine owners are cooperating with EPA and	Dye tracer study complete	N/A in-kind DRMS technical assistance

Project	Status	Budget
CDPHE in the ongoing project. DRMS assisted with rehabilitation of the Blaine and Argentine portals in 2012, working under a joint EPA-ARCO cooperative funding arrangement. Additional underground water source investigation work was completed to further define the water inflow and contaminate source pathways to the underground workings. Underground stabilization work on two other areas of the mine continued in the summer of 2013.	Ongoing	ARCO funding construction activities via Trust account; EPA funding DRMS personal Svcs assistance via grant-agreement - $180,000 in 2012. Estimated $200,000 in 2013.

UPPER COLORADO RIVER
SNAKE RIVER WATERSHED

Project	Status	Budget
Pennsylvania Mine Project- Summit County-Blue River Watershed Restoration Group, Trout Unlimited, USEPA, USFS, DRMS technical assistance: DRMS continues to provide in-kind technical assistance to the various agencies and groups investigating ways to develop a treatment alternative for the Pennsylvania (Penn) Mine on Peru Creek. Because of the perpetual cost concerns related to active water treatment alternatives, DRMS, state and county efforts have been focused on developing other alternative approaches to addressing the mine discharge. In 2013 DRMS conducted extensive underground mine rehabilitation work to allow equipment access for the next phase of bulkhead feasibility planning. The work completed in 2013 includes additional stabilization and support of mixed-face ground at the portal-rock interface, cleanout of sludge and debris with treatment of the outflows during construction, and ground support work in the cross cut and vein intersection areas. This work complweted in 2013 will further planning for potentially installing underground bulkhead seals in the summer of 2014. In summer 2013, EPA contractors also completed reclamation of the main F-Level waste rock pile above Peru Creek at the Pennsylvania Mine. The pile was regraded, re-countoured to reduce erosion, capped in place, and run-on run-off controls constructed around the reclaimed and revegetated area. EPA crews also provided road reconstruction support and treatment of outflows	Investigation /Bulkhead Design Underway	Total Project Budget: $100,000 EPA/CDPHE (Drilling'10), approx. $1.0 million combined EPA and USFS funds. (bulkhead investigation, design and construction, joint repository investigation and construction). DRMS In-Kind technical assistance, some sev tax contributions as yet to be determined.

Project	Status	Budget
from the F-level while the DRMS contracted mine crew was working underground. A crosscut heading beyond the main vein intersection was found where, based on visual estimates, 75% of the flow was entering the back 100' of the crosscut along joints and fractures in the rock. It appears that only about 25% of the flow is coming from the main drift along the Penn Mine's main vein. Therefore, most of the water discharging from the portal is not moving through the mined vein, but is instead coming from a background-source water course intersected by the crosscut well beyond the vein. This finding increases the potential feasibility of installing a bulkhead seal to mitigate a majority of the water discharge problems related to the mine.	Portal Rehab Complete	Funding: CDPHE NPS 319 $260,000 EPA$; Severance Tax $193,000. WQIF $10,000 Sources of Funding: Private, NPS 319, USFS, Severance Tax, Power and Water Development Authority; 2013 DRMS Underground Construction costs: $ 529,310
<u>Cinnamon Gulch/Brittle Silver Peru Creek Project- Summit County- Northwest Regional Colorado Council of Governments, DRMS technical assistance, DRMS severance tax, 319 funds</u> Reclamation work at the Brittle Silver mine site were completed in by late fall 2013. Mine site reclamation work took place at three separate mine sites, the Silverspoon, Delaware, and Brittle Silver. All of these sites are directly adjacent to Cinnamon Gulch, a tributary to Peru Creek, and appeared to be contributing metals load to Cinnamon Gulch and eventually Peru Creek. The project work included: mine waste removal from a channel, underlining two (2) channels with geomembrane, settlement pond cleanout, excavation and construction of one (1) on-site repository, excavation and relocation of one (1) dispersed waste pile into the constructed repository, capping and revegetation of the repository and waste removal areas, limestone amendments, creek channel construction and rerouting. DRMS project managers administered all aspects of the work that was conducted at this site including; engineering, project design, preparation of bid specifications, solicitation of bids; construction management and post construction monitoring.	Completed	Total Project Budget – DRMS Sevtax, CDPHE 319 funds $200,000; DRMS –in-kind technical assistance. WQIF-$10,000 Brittle Silver 2013 contract work; $33,835

Project	Status	Budget
Sts John Mine Tailings Reclamation Project The historic Saints John Mine and Mill are located at the headwaters of Saints John Creek, a tributary to the Snake River. The mine was one of the first producing silver mines in Colorado. The segment is listed as impaired for not meeting the applicable zinc, copper, lead and cadmium standards. The classified use that is not protected is aquatic life. The site contains multiple mine waste piles and mill tailings that continually erode into the creek during spring runoff and leach metals into the creek. There is also a draining adit on site that was discharging water onto the tailings piles. Construction work on the Saints John Project began in September of 2012. It was suspended in November due to weather considerations. The project was completed in the summer of 2013. The project involves removing tailings from the creek and consolidating them in an upland repository. Following removal of the tailings from all riparian areas, an extensive wetlands rehabilitation and revegetation project was completed in early August. The contracted reclamation construction work was funded by donation from a private entity, Freeport-McMoRan. Non point source funds were used to pay for project management personal services activities	Completed	Construction Cost: $315,193- Freeport-McMoRan contributions

SOUTH PLATTE RIVER WATERSHED

Project	Status	Budget
Rattler Tunnel Project The Rattler Tunnel site is located in Boomerang Gulch approximately ¼ mile above the confluence with Virginia Canyon above Idaho Springs in Clear Creek County. This mine site is also known as the Idaho Tunnel and the Idaho-Bride Tunnel. There are two distinct waste rock piles at the site, separated by a county road running through the site. The estimated volume of waste rock at these sites is 25,000 cubic yards. The ultimate goal of this work is to reduce metals loading to Clear Creek from Virginia Canyon by reclaiming the mining sites contributing the largest metal load.	Underway	The 2013 construction cost estimate for this project is $289,170. This includes using contributed funding from Freeport-McMoRan.

Project	Status	Budget
Engineering and Design/Implementation The Rattler Tunnel reclamation project is currently underway, scheduled for completion before the ends of 2013, weather permitting. The project will partial removal and consolidation of the pile into a repository. The loadout structure is supported by the waste rock pile. Because of the historic nature of onsite structures, the portion of the waste pile holding up the loadout has to remain, however the eastern side of the pile can be removed to allow free flow down Boomerang Gulch without eroding into the waste pile. Although the waste rock at this site does exhibit better chemical characteristics than the main pile, this material will also be removed or partially removed to construct a stream channel around the remaining portion of the pile.		
London Mine Tailings Reclamation The historic London Mine is located in the headwaters of South Mosquito Creek and encompasses approximately 40 acres. The stream is on the 303(d) list as impaired for not meeting the applicable standards for zinc, iron, manganese and cadmium. The site contains three tailings piles and a number of waste rock piles that are immediately adjacent to South Mosquito Creek. The stream is perennial and the tailings continually leach acidic metal-laden water into it. In the spring, the creek significantly erodes the tailings piles and contributes metal-laden sediment to the creek. Funding was obtained in 2011-12 to characterize the site and complete engineering and design activities. In June of 2011 and 2012, twelve "high flow" water samples, including springs and seeps emanating from the tailings, were collected. Also, representative samples from all of the tailings piles were collected for analysis in order to assist in bracketing the pollutant sources. Engineering, Design/Implementation Site investigations indicate that the preferred reclamation alternative for the London mine site includes consolidation of the tailings from all three locations into a single engineered repository. In the fall of 2012, test holes were drilled into the tailings piles to determine their depth and physical characteristics. This information was used to ascertain the volume of materials and properly design the tailings repository. Field and geologic surveying were performed to identify the appropriate location for the repository. In addition, the composition of the tailings were analyzed to determine if any amendments will be required to neutralize the acid generating potential prior to depositing the tailings in the repository. The tailings reclamation project was bid out in early summer and construction work is currently	Completed in Fall 2013	Power Authority Funding-$374,826; Freeport-McMoRan funding-$440,000; State Sev Tax funding, Bond Forfeiture program-$62,739 Total Project cost-$878,565

Project	Status	Budget
nearing completion this fall. There are multiple sources of funding for this project including funds from the Bond Forfeiture Severance Tax program and Freeport-McMoRan Copper and Gold donations.		
Alice Glory Hole Maintenance The Alice Maintenance Project is located in Clear Creek County, in a subalpine ecosystem at an elevation of 10,300 feet. In 1988 an extensive project took place wherein the Alice Glory Hole was backfilled with tailings material, pond cleanings, large rock, and fill/topsoil obtained from surrounding roads. Approximately one-hundred thousand cubic yards (100,000 yd3) of fill was placed in the Glory Hole. The final slope of the fill was a concave slope with a top slope of approximately 12H:1V. In addition to numerous other aspects of this project and attempts to neutralize the site drainage, the entire disturbed area was fertilized, seeded, and mulched following the final grading. Project work completed in 2013 included revegetating approximately one and one-half acres (1½ ac) below Alice Road. The lower site was stabilized with erosion control S-Fence and Pro-Wattle and revegetated. Select areas were revegetated using compost, lime, mulch, and a specialized seed mixture.	Completed	$75,975 Sev tax
Leaven Worth Creek/ Waldorf Mine Work in 2013 included completing analysis of a stream tracer study conducted in summer 2012, and construction of a diversion at the Waldorf mine adit to direct mine discharge away from the large waste rock pile. A recent blow-out had created a new channel directly across the large mine dump and was eroding mine wastes into the adjacent wetlands and Leavenworth Creek. Diversion and a new channel were completed in 2013.	Investigation/ maintenance	$19,440; Sev tax and USFS funding
Gamble Gulch- Perigo/ Mine Drainage Investigation The Perigo/Tip Top Mine is located in Gamble Gulch, in Gilpin County. Gamble Gulch is a tributary to Boulder Creek. Boulder Creek (Segment COSPBO04a Gamble Gulch) has been on the State's 303(d) list of water quality impaired waterbodies for non-attainment of water quality standards for pH, dissolved copper and dissolved zinc since 2006. Sampling activities conducted for the TMDL indicated that the background copper concentration was twelve percent (12%) of the observed concentration. The remaining eighty-eight percent is	Investigation Underway	$100,000 PDA funds

Project	Status	Budget
attributed to mining influence. The background zinc concentration was one percent (1%) of the observed concentration. The remaining ninety-nine percent is attributed to mining influence. Again, the major source contributing to the elevated level of metals in Gamble Gulch is the Perigo/ Tip Top Mine and non-permitted discharge from the mine property. Additional water sampling of Gamble Gulch was conducted in the fall of 2011 and the spring of 2012. These data confirm that the major source of heavy metals in Gamble Gulch is the Perigo/Tip Top Mine and non-permitted discharge from the mine property. <u>Bulkhead Feasibility Investigation</u> Initial investigation of the mine indicates that it may be possible to control the release of contaminated water from the adit by installing a bulkhead seal. However, the adit is presently inaccessible. The DRMS is using funding from the Power Development Authority to conduct drilling activities into the collapsed portal. Drilling activities will outline water inflow locations and subsequent determination of water quality and quantity associated with those inflows, and general geologic mapping of all accessible workings. This information will better characterize the site and help design and implement a bulkhead seal. The primary variable relative to the cost of this initial phase of the project relates to providing viable access to the site for the drill. The funds requested from the PA to complete the activities are $100,000.		
<u>Chain-O-Mines Bond Forfeiture Emergency Reclamation</u> This inactive mine project is located approximately one mile west of Central City, Colorado, along Virginia Canyon Road above the superfund area around Central City and Blackhawk. The site consists of abandoned and inactive mill tailings and hazardous materials at the historic Chain-O-Mines Millsite. Uncontrolled stormwater flows enter the site which straddles an active stream channel tailings dams were approaching a total breaching-failure condition, which would dump tailings down through Russell Gulch into the North Fork of Clear Creek. The first phase of project work included inventorying and testing transformers, fuel tanks, 55 gallon drums, various powders and chemicals and preparing a disposal plan for each item which complied with all applicable Federal State and Local regulations. Contractors developed testing and disposal plans then followed the approved plans to removed and disposed of hazardous materials from the mining site mill. A second project phase included constructing sediment control features, and re-establishing approximately 1,800 feet of armored stream channel along the side of existing tailings ponds and	Emergency phase Completed	$100,507; State Bond forfeiture and sev tax funds

Project	Status	Budget
their retention dams. The work included Installation of sediment control structures; excavation and installation of a 48 inch inside diameter HDPE culvert, construction of rock check dams, and construction of new sediment retention pond at the intersection with the existing natural stream.		

ARKANSAS RIVER WATERSHED

Project	Status	Budget
Dinero Tunnel 319/severance/Bureau of Land Management: The project work on the Dinero tunnel was completed in 2009. Monitoring of the mine pool continued and post-closure bulkhead inspections continued through 2013. A water-tight bulkhead seal was constructed in the 3,300 foot-long crosscut to the Dinero Vein, driven historically to drain mine workings at depth and haul ore to the surface. The 117 gpm tunnel discharge was the single largest contributor of zinc in the immediate watershed. Since the bulkhead was installed and the mine pool filled and stabilized, high and low flow sampling efforts to monitor the effects of the bulkhead on the surrounding area have been conducted through multiple years. Overall flow from the portal has been reduced to 9gpm, and sampling shows an increase in pH by one order of magnitude, with a 99% reduction in the contribution of zinc to the watershed. Zinc loading at the portal has decreased from 27lbs/day to just 0.35lbs/day. New springs and seeps are being monitored to determine if there are any significant residual impacts.	Completed	Total Project Budget ~$650,000; DRMS severance funds - $64,000; BLM - $240,000 NPS 319-$96,000, NRDS -$250,000
Tiger Tunnel Mine-Dump Reclamation, Lake County Colorado The Tiger Tunnel reclamation project was completed in 2010. Work included relocating the Tiger mine waste into a geosynthetically-capped repository, covering it with soil, and revegetated. Maintenance activities were performed in the summer of 2012 on previously completed projects in the watershed. The project work included mucking-out retention ponds and a discharge channel, armoring a surface water channel with limestone riprap, rehabilitating a diversion ditch, applying additional soil amendments, hydro-seeding, debris removal, and making minor road repairs with	Completed 2012 Maintenance Complete	Total Project Budget $460,000: DRMS sev-tax-$60,000; NRDS-$250,000; BLM-$50,000; CDPHE: PA Maintenance Funds $110,000

Project	Status	Budget
culvert removal & installation. The Colorado Mountain College, Trout Unlimited, and other Stakeholders were attempting to pursue a passive mine drainage treatment effort for the adit drainage, however, the bioreactor cells have not been constructed due to liability concerns related to water treatment without a "Good Samaritan" provision to current environmental law.		
Gertrude-Venture Mine Complex, Lake Fork, Lake County Colorado The Gertrude-Venture Mine Complex, located approximately ¼-mile southwest of the Tiger Tunnel, is another significant source of metals loading in the Lake Fork Watershed. Colorado Mountain College has been investigating the Gertrude-Venture and is currently revising the Engineering Evaluation and Cost Analysis (EECA) for BLM approval. Plans to relocate the Gertrude-Venture waste piles are moving forward, with construction anticipated to begin in the summer 2014.	Underway	Funding: BLM; NRDS: Power and Water Development Authority $25,000 design
Chalk Creek / Mary Murphy Mine, Golf Tunnel Hydrologic-Bulkhead, Chaffee County-CDPHE, EPA, USFS, DRMS: DRMS coordinated with the USFS and EPA to conduct feasibility investigations and develop plans and specifications for a bulkhead seal in the lowest crosscut, the Golf Tunnel Level of the Mary Murphy Mine. Based on past investigations, the mile-long mill-level haulage tunnel was determined to be an ideal candidate for a hydraulic bulkhead seal. In 2011, the EPA elected to proceed forward with full scale rehabilitation and bulkhead installation. The design documents were finalized and construction of the bulkhead is scheduled for 2014. DRMS will provide technical assistance and manage the tunnel rehabilitation work underway in 2013. This preparatory work is required to support the bulkhead installation phase of during construction and underground operations. In addition to construction of the bulkhead, maintenance and revegetation is scheduled for the existing mill-tailings repository. This repository was constructed in the early 1990's when funding was limited. DRMS will provide technical assistance and project management in this effort.	Underway	Bulkhead Investigation and Design EPA joint repository funding. $725,965

Project	Status	Budget
Querida Mill Tailings, Custer County, Conceptual Design and Cost Analysis, BLM, DRMS: The BLM and CDRMS are finalizing characterization of the Querida Tailings Impoundment so that reclamation alternatives can be considered. Mill tailings from the historic Bassick gold mine were impounded in Querida gulch. The tailings impoundment has breached and the tailings are being washed downstream, potentially contributing metals loading to Grape Creek and the Arkansas River. Dust and wind erosion are also a local problem. The purpose of the project is to stabilize and reclaim the site to prevent further water and wind transport of tailings offsite into the surrounding ecosystems. Groundwater sampling and monitoring wells were installed in the Spring of 2012 to assess the groundwater quality impacts associated with the Querida Tailings. Future tasks include the cost analysis and design of appropriate cleanup and reclamation methods through CERCLA documents (Environmental Assessment or Engineering Evaluation and Cost Analysis). EPA and CDPHE will also be contributing to the project because it is a mixed ownership site.	Investigations Underway	Current DRMS project budget – approximately $313,000. Future DRMS project budget is under development. EPA Joint Repository funding may be available

RIO GRANDE RIVER WATERSHED

Project	Status	Budget
Nelson Tunnel Source Controls Remedial Investigation and Feasibility Study (RIFS), West Willow Creek- CDPHE, EPA, DRMS: The EPA, CDPHE and DRMS are currently investigating the feasibility of implementing source control measures at the Nelson Tunnel, Creede, Colorado. Drainage from the tunnel is laden with various heavy metals detrimental to fish populations in Willow Creek and the Rio Grande River. RIFS investigations currently include monitoring hydrologic conditions of various pools within the Commodore Mine. RIFS investigations in 2009 included isotopic analysis of mine inflows. The current tasks for DRMS have been the completion of cost analysis for full scale dewatering of the Nelson Tunnel and installation of deep pumping and sampling wells. Future tasks for DRMS will involve facilitation of additional underground investigations, review and analysis of existing data, development of additional cost analysis for installation of multiple bulkheads, facilitation and	Underway	Funding: EPA; CDPHE and DRMS in-kind technical assistance.

Project	Status	Budget
cooperation with potential sampling well installations, and development of potential source control remedies. This project has been on standby while the adjacent Bulldog Mine drawdown and reactivation scenario is evaluated as a potential long term solution for the Nelson tunnel discharge. The mine re-opening was cancelled in late fall 2013, so this investigation project may become active once again.		
Midwest and Phoenix Mine Maintenance- USFS, DRMS (sevtax and technical assistance), CDPHE 319 funds: The Creede-Area Maintenance Project includes the Phoenix and Midwest Mines. **At the Phoenix mine,** the diversion channel located along the top of the mine waste dump will be repaired. The channel is too shallow and has collected sediment in the upper reaches, and has created a head cut in the lower reaches where the channel is overly steep. The channel will be excavated to remove excess sediment, steeped to a 5% grade, throughout the upper reach, and 5 step pools will be added to the lower channel. This work is scheduled for completion before the end of 2013. **At the Midwest Mine,** the storm water run-off channel, which diverts water through the reclaimed waste dump footprint into an adjacent wetlands, will be repaired. The channel has created unstable banks and exposed a storm water diversion pipe that carries storm water from above the mine site to the adjacent wetlands. The channel needs to be enhanced to control the flow of storm water in a non-erosive manner. The banks of the entire length of channel will be laid back to a maximum 3H:1V slope. All disturbances will be seeded with a site appropriate seed mix. This work is scheduled for completion before the end of 2013.	Completed	$12,500 State NPS Sev tax.
Lower Willow Creek Stream Channel **Lower Emperious Tailings- Willow Creek- Mineral County** The Willow Creek Reclamation Committee (WCRC) and the City of Creede are currently completing a reclamation project on the Emperious Tailings at the edge of town. The project is funded with NPS 319 funds and DRMS is providing matching funds and technical assistance for the project. In summer 2013, a stream channel restoration project was completed using state sev tax funding for NPS match.	Underway in multiple phases	$35,000 sev tax

STATEWIDE MINING NPS INITIATIVES

Project	Status	Budget
TMDL Priority Watershed Improvement Project- Statewide-DRMS/ Clean Waters State Revolving Fund In 2011 DRMS received a grant from CDPHE to develop projects to abate historic mining related water quality problems in high priority watersheds in Colorado. The grant provides funding for characterization and best practice design for priority AML sites to bring projects to a "shovel ready" state for construction with future funding. The Power and Water Development Authority recently approved additional funding for construction of the preferred reclamation alternative at the London Mine in Park County and the Rattler Tunnel in Clear Creek County. In addition, the PWDA approved funding for investigation of the Carbornero Adit for the potential of installing a bulkhead seal as we as sampling/characterization activities for six watersheds in the State. All of the selected mine sites are in stream segments which are currently included in WQCC Regulation #93 (CCR 1002-93) Colorado's Section 303(d) List of Impaired Waters and Monitoring and Evaluation List. Dissolved metals and acidity (pH) from legacy mining (AML-Abandoned Mine Lands) and background sources comprise 89% of the total number of impaired stream segments in Colorado. These impairments are considered "Non Point Sources" (NPS) because they are related to run-off and drainage from AML sites for which there is no remaining financially viable "responsible party". Some of the mine sites in this project and their related stream segments have already been evaluated and monitored by watershed groups, state, or federal agencies. In these cases, there is water quality data to locate the source of the impairment and target the abandoned mined land (AML) source. On other stream segments, there is water quality sampling data to indicate that water quality standards are not attained, but the loading sources have not been clearly identified or adequately characterized to determine the best reclamation alternative. Funding for this project was received in July of 2011. Since the grant was received, water quality sampling activities have been completed at: ▪ Waldorf Mine, Clear Creek Co.-**Characterization-Adit Drainage Diversion -complete**	Ongoing Ongoing	$1,359, 605

- Daisy Mine/Redwell Basin, Gunnison Co.- **Phase 1 drillhole plugging complete**
- London Mine, Park Co. ,**Drilling/Sampling Complete**

Construction completed in 2013.

- Sts. John Mine, Summit Co.-**Removal of tailings from wetlands, revegetation- Completed in 2013**
- Champion Mine, Lake Co.-**Characterization- Complete**
- Tributaries to Kerber Creek. **Characterization- Complete**
- Venture Mine-**Engineering and Design- Underway, Construction set for 2014**
- Rattler Tunnel- **Construction underway in 2013**
- Carbonero- **Investigation set for 2014**
- **Sampling/Characterization (2013 and 2014)**
  - **Hall Valley**
  - **Gamble Gulch/Perigo Mine**
  - **Boulder Creek**
  - **Lake Fork of Gunnison from Source to Blue Mesa**
  - **San Miguel**
  - **East Fork of Arkansas above Birdseye Gulch**
  - **Howard Fork above Swamp** Creek

Since the initiation of this grant other government agencies, such as EPA, USFS, USGS and the CDPHE Measurable Results Program, have devoted resources to these priority areas. These agencies have collaborated in sampling events and are cooperatively working towards implementing remediation projects to address mining related problems in the prioritized watersheds.

<u>Non Point Source Maintenance and Monitoring Project - Statewide-DRMS/ Clean Waters State Revolving Fund</u>

Funding: $200,000

The Division of Reclamation, Mining and Safety (DRMS) has been conducting water quality restoration projects throughout the State since 1985. Many of these projects were funded by grants from the Colorado Department of Public Health and the Environment's (CDPHE), Non Point Source 319 Program. The usual term of the 319 grant is (3) three years and, consequently, funding is not available to inspect and perform long term maintenance activities on the project sites.

In 2011, the DRMS received funding from the Power and Water Development Authority through the CDPHE to conduct site inspections of all previously completed Non Point Source 319 projects and develop work plans for any required maintenance activities. The project work plan specifies

that the DRMS project managers conduct site investigations of all mine sites outlined in the agreement and evaluate and document any required maintenance items. DRMS project managers also were tasked with assessing the impact that the Best Management Practices (BMP's) were having on the overall water quality of adjacent streams. Following site inspections, DRMS personnel developed work plans, cost estimates and prioritized the sites for implementation of maintenance activities. The second phase of the project includes actual implementation of the prescribed maintenance activities for the priority sites. This will include preparation of bid documents, selection of the contractor, project management and execution of the project work. The majority of maintenance activities will be completed in 2013.		
<u>Accomplishments</u> Since receiving the grant funding, DRMS has conducted site inspections of 42 sites and documented any existing maintenance requirements. Of the sites inspected, (20) require some maintenance. Most of the sites require very minimal weed and erosion control. A few sites require more extensive work related to drainage and sediment removal. An evaluation of the effectiveness of the BMP's and the impact that the maintenance problems were having on stream quality was made at all sites. In most cases, the sites were stable and any existing maintenance problems were having minimal impacts. In general, the BMP's were having a positive effect on the overall water quality of the receiving streams and site-specific water quality was improved. As mentioned, the majority of the maintenance activities will be performed in the 2013 construction season. However, some maintenance was performed this fall at the Tiger, Nelson and Dinero mine sites. The project work included mucking-out several retention ponds and a discharge channel, armoring a surface water channel with limestone riprap, rehabilitating a diversion ditch, application of soil amendments, hydroseeding, debris removal, and minor road repairs with culvert removal & installation.	Phase Completed	
<u>Future Funding and Project Implementation Work</u> The DRMS has recently requested an additional $200,000 from the Power and Water Development Authority (PDA) for work related to previously completed Non Point Source 319 Projects and the PDA has funded this request. The majority of the funding will be for construction projects related to maintenance work as most of the site inspections are completed. Work will include weed control, revegetation, erosion control, repair and stabilization of previously constructed run-on and		Funding-$200,000 Most maintenance projects are completed.

run-off controls as well as stream channel restoration. This work will be completed in 2013 and 2014.		
Technical Assistance - TMDL Project Implementation **Grant –Statewide, DRMS EPA 319 Funds/severance** The Technical Assistance Grant has provided funding for the DRMS to assist numerous watershed groups, individuals and government agencies in the State seeking to improve water quality in areas that are impacted by historic mining activities. The DRMS provides assistance in all aspects of watershed restoration including watershed planning, site characterization, project planning, project implementation, 319 proposal review, and financial assistance. Division personnel have attended watershed meetings, participated in sampling events, conducted reconnaissance activities, and provided project management and technical assistance to numerous watershed groups, VISTA volunteers and various government agencies. In addition, the grant has provided funding for DRMS to work with the CDPHE and other government entities to outline a list of mining impaired "priority watersheds" in the State and assist with the updating of the management plan. Specifically, the grant has provided funding for DRMS personnel to assist watershed groups and other partners in meeting four important objectives related to mining related nonpoint source problems resulting from mining in Colorado. These are: Objective 1: Provide technical assistance to watershed groups, government agencies and private individuals in developing and implementing TMDLs and/or watershed plans using best management practices. Objective 2: Provide technical assistance to assist in developing watershed plans to assess and characterize mining-related NPS Problems and to identify future threats to water quality. Objective 3: Build long-term partnerships to enhance cooperation between industry, environmental groups, and government in restoration of AMLs and to provide a sustainable funding source for water quality restoration projects. Objective 4: Disseminate information on problems/solutions/ technological advances in reducing NPS pollution.	Ongoing	Total Project Budget – $1,392,000. EPA 319 Grant $835,000; DRMS Severance funds/other match - $557,000

List of Vista Volunteers/ watersheds supported by the Technical Assistance Grant: Coal Creek Watershed Coalition Coalition for the Upper South Platte Kerber Creek Restoration Project Lake Fork Valley Conservancy North Fork River Improvement Association Upper South Platte Watershed Association Mountain Studies Institute Grand County Water Information Network Uncompahgre Watershed Partnership Eagle River Watershed Council Colorado Foundation for Water Education Blue River Watershed Group Victor/Cripple Creek Group Ridgway Ouray Community Coalition Upper Arkansas River OSM/VISTA Leader WHWT Colorado OSM/VISTA Leader List of Watershed Groups to which DRMS provides technical assistance with funds from the Technical Assistance Grant: Willow Creek Stakeholders Snake River Watershed Group Animas River Stakeholders Clear Creek Watershed Association/Foundation Coal Creek Coalition Lake Fork of the Arkansas Lake fork of the Gunnison Uncompaghre Watershed Blue River Watershed Coalition of the Upper South Platte San Miguel Watershed Group Lefthand Watershed Group James Creek Watershed Group Uncompaghre Watershed Group		

Hard Rock Mining Operations

Company-Mine Name-Permit #	Site Conditions	FY12-13 Activity
AGC RESOURCES LLC CASH AND WHO DO MINES (Permit No. M-1983-141) Boulder County	Starting in 2007, the Operator was required to undertake a ground water characterization program. This included sampling of two surface water stations, the Cash Mine water pool, and installation and sampling of monitoring wells above and below the mine. A comprehensive report of these activities was submitted in March of 2009.	No mining has occurred since the end of 2008. The Division approved the Operator's request to place the site into Temporary Cessation. The period of Temporary Cessation will last from June 13, 2013 until June 13, 2018, or until the Operator notifies the Division that active mining operations have resumed. Groundwater monitoring will continue on a quarterly basis.
AGC RESOURCES LLC GOLD HILL MILL (Permit No. M-1994-117) Boulder County	The mill is inactive. The permit requires monitoring of the four monitoring wells located below the mill tailings impoundment on a quarterly basis for verifying the integrity of the geomembrane liner. Although not required by the permit, the Operator has previously sampled the pond in the tailings impoundment, the Times/Wynona Mine located above the tailings impoundment, the Hazel A Adit located below the tailings impoundment, and Left Hand Creek.	No milling has occurred since the end of 2008. The Division approved the Operator's request to place the site into Temporary Cessation. The period of Temporary Cessation will last from June 13, 2013 until June 13, 2018, or until the Operator notifies the Division that active milling operations have resumed. Groundwater monitoring will continue on a quarterly basis.
CLIMAX MOLYBDENUM COMPANY HENDERSON MINE AND MILL (Permit No. M-1977-342) Clear Creek and Grand Counties	Permit conditions protective of ground water at the Henderson Mine and Mill include ground water interception wells and a pipeline system located below the tailings ponds to pump potentially contaminated ground water back to the tailings ponds. Leak testing is conducted each year. The ground water monitoring program includes quarterly monitoring of one well at the mine, and two wells at the mill. A third well has been	A Environmental Protection Plan (EPP) and Groundwater Monitoring Plan were approved by the Division in 2012 and implementation of the plans by Climax Molybdenum Company at the Henderson Mine and Mill facilities started in 2012.

Company-Mine Name-Permit #	Site Conditions	FY12-13 Activity
	established at the mill to gather ambient ground water quality information ahead of tailing pond expansion.	Monitoring activities at the site have continued in 2013. The Groundwater Monitoring Plan is evaluated for the mill and mine facilities based on the results of the groundwater monitoring results.
BATTLE MOUNTAIN RESOURCES INC., SAN LUIS PROJECT (Permit M-1988-112) Costilla County	The San Luis Project is currently in reclamation mode and cyanide processing has not occurred since 1996. The permit requires ground water monitoring at twenty-one wells, including several water wells located outside the permit area (Shalom Ranch and the San Luis Town Well). Ground water monitoring is conducted at this site to verify containment of cyanide solution at the lined mill tailings facility and to assess the progress of ground water management in the West Pit. West Pit groundwater quality is managed by pumping to prevent contact with polluting strata. The pumped water is then treated and discharged as regulated by the WQCD.	Monitoring activities at the site have continued unchanged during the past year. At this time, the monitoring data indicate compliance and successful containment of cyanide solutions.
EXXONMOBIL COLONY OIL SHALE PROJECT (Permit No. M-1980-047) Garfield County	In the past, ExxonMobil has conducted ground and surface water monitoring programs of varying scopes with various objectives. However, the only reporting requirements were for surface discharge at Pond 5 as specified by the NPDES program. In June 2007 ExxonMobil implemented a water monitoring program taking monthly water levels and quarterly samples for chemical analysis in three wells (one up-gradient and two down-gradient). In January 2008 a fourth well was installed down-gradient of an electrofrac experiment location to provide rapid detection of any groundwater impact from the experiment. Drilling and fracturing tests were conducted in 2008.	Currently low to mid level heating tests are being conducted that are designed not to release toxic substances.
OCCIDENTAL OIL SHALE, INC. LOGAN WASH (Permit No. M-1977-424) Garfield County	Final reclamation of the main facilities began during summer 2003 and continued through 2008. Maintenance of reclamation and remaining facilities continues. Discharge of water from within the sealed mine consists of mine water and retort water. Mine water from the lower	Mine water and retort water are monitored monthly at the portal locations for flow rate. The retort water discharges to an

Company-Mine Name-Permit #	Site Conditions	FY12-13 Activity
	portal and from the research portal are monitored for flow rate and sampled on a weekly, monthly and quarterly schedule (depending on analyte) when the site is accessible and flow is present at the outfall. NPDES monitoring is reported to the WQCD.	evaporation pond.
LKA INTERNATIONAL, INC., GOLDEN WONDER MINE (Permit No. M-1978-091 UG) Hinsdale County	LKA International, Inc., (LKA) collects water from a shallow off-site sampling well and from the Lake Fork above and below the portal. During 2006 and 2007 LKA collected surface water from several points along Deadman Gulch and ground water from the underground mine workings. Except during seasonal runoff periods, Deadman Gulch is dry. Adit discharge has not been observed or reported for several years, since the operator has impounded water in an underground sump in the workings. Ground water monitoring locations are shallow sumps, acting as wells. During 2007 through 2009 a series of small seeps were observed issuing from the waste rock dump, and additional sampling ensued to determine sources of the water. The operator installed lined diversion structures to isolate the waste dump from surface run-on, and installed two piezometers to monitor for possible connection of underground mine water and seep flow. Piezometer sampling was approved to be discontinued when the piezometers were found to be dry.	Lined diversion structures appear to be functioning effectively, as no seeps were noted at the toe of the waste dump in 2010 or 2013.
COTTER CORPORATION SCHWARTZWALDER MINE (Permit No. M-1977-300) Jefferson County	This underground uranium mine operated from 1953 to 2000, and is now in reclamation. The mine is a Designated Mining Operation. Mine pool water and ground water in alluvial fill are contaminated with uranium, sulfate, and other constituents. The site has reverse osmosis and ion exchange treatment systems. The mine pool water is being treated with an in-situ biological process. The operator monitors the mine pool water quality on a bimonthly basis for a comprehensive list of analytes, and temporarily is supplementing those data with bi-weekly sampling of selected analytes targeted at identifying short-term impacts of RO concentrate re-injection and in-situ	The operator installed 6 bedrock monitoring wells in late 2012 which show no evidence of migration of mine pool water away from the workings in the vicinities of the Schwartz Trend and Illinois Fault zone. The Mined Land Reclamation Board and the operator settled litigation on September 18, 2012. DRMS approved the operator's full

Company-Mine Name-Permit #	Site Conditions	FY12-13 Activity
	treatment Mine pool sample data from July 23, 2013 show the following concentrations: Analyte / Concentration / Standard Manganese 3.81 mg/L 0.05 mg/L Molybdenum 0.41 mg/L 0.035 mg/L Radium 226 199 pCi/L 5 pCi/L Sulfate 1880 mg/L 250 mg/L Uranium 3.64 mg/L 0.03 mg/L	Environmental Protection Plan on April 29, 2013. Biological in-situ treatment of the mine pool began on May 15, 2013. The operator pumped down the mine pool for approximately 41 days, beginning July 23, 2013. The pumpdown target level is 150 feet below the Steve Level. Pumping has temporarily ceased as a result of September 2013 rain storms damaging the mine access road. In October 2013 the operator reported pumping had not yet resumed and the mine pool elevation appeared to have stabilized near the pre-pumping level of 23 feet below the Steve Level. When pumping, the pumped mine pool water is treated with a reverse osmosis (RO) system which discharges a split stream composed of about 70 gpm of permeate (which goes into Ralston Creek) and about 30 gpm of concentrate (which goes back into the mine pool). Pumped alluvial sump water is passed through either the ion exchange or RO systems, as needed.
DEADWOOD GULCH MINING CO. **INCAS MINE** **(Permit No. M-1986-076)** **La Plata County**	The facility is permitted for a cyanide vat leach system to leach gold and silver, and previously produced small (~10 tons per year) quantities of tailings. The site is permitted as a DMO, and is required to sample surface and groundwater during the seasons that its mill and leaching facility is active. The site is monitored for pH, EC, TDS, sulfate and	There was no mining or milling activity during 2012 or 2013, and no water quality samples were taken.

Company-Mine Name-Permit #	Site Conditions	FY12-13 Activity
	WAD cyanide. The site has an NPDES permit for historic adit discharge.	
WILDCAT MINING CORPORATION IDAHO MILL (Permit No. M-1981-185) La Plata County	The permit was converted to a 112d through approval of CN-01 which included the old permit area under M-2006-069 and M-2010-003. The operator has installed groundwater monitoring wells at the site. Surface water sample locations have been established in order to provide baseline conditions for 5 quarters. Mining and milling is not yet approved at this site.	On September 16, 2011, WQCD issued a correspondence, clarifying the historic mine drainage from the Idaho No. 1 Adit must be permitted through the NPDES process.
RESURRECTION MINING CO. BLACK CLOUD MINE (Being Reclaimed under a Consent Decree File No. M-2008-083) Lake County	The approved ground water monitoring plan specifies quarterly monitoring of six wells and one surface water sampling station cross gradient and down gradient from the tailing impoundment. A point of compliance is established down gradient of the impoundment and numeric protection levels are established. The Black Cloud Mine pool is pumped and piped to the Yak Tunnel Water Treatment Plant.	Site under reclamation.
ENERGY FUELS RESOURCES CORPORATION, INC. WHIRLWIND MINE (Permit No. M-2007-044) Mesa County	The mine was on standby status as of October 2008. The operator is placing the mine into temporary cessation in the fall of 2012. The operator installed a monitor well below proposed mine dump areas in October of 2008 as part of the requirements for a DMO EPP. An existing upgradient well is utilized for sampling to establish baseline data. Sampling was conducted from October 2008 through April 2010 on a bimonthly schedule. Ground water sampling is, as of June 2010, required to be conducted and submitted to DRMS on an annual basis. The mine has a water treatment and discharge permit through WQCD. No treatment or discharge occurred in 2011-12. A mine pool developed in historic workings over several decades. The mine pool water was used for drill water, dust control, and pumped to the surface during recent mine activities. It is anticipated that the pool will reform over an extended period of time. The operator is monitoring pool levels and can turn on pumps if they reach undesirable levels prior to reactivation of the mine.	Annual well sampling and annual reporting continues.
Rio Grande Silver, Inc. BULLDOG MINE (Permit No. M-1977-215)	Water monitoring was terminated by the former operator. Rio Grande Silver (RGS) must apply for a permit revision or amendment before the mine can be reactivated or possible mill constructed, which will include	Construction of a new portal and installation of adjacent support facilities began in the reporting

Company-Mine Name-Permit #	Site Conditions	FY12-13 Activity
Mineral County	new water sampling requirements. There is currently no observed discharge to the surface. RGS has been voluntarily sampling surface water throughout their unpatented claim area.	year. The permit is being amended to a DMO in anticipation of mine reactivation. The new EPP will include new GW monitoring.
AMERICAN SODA, LLC YANKEE GULCH PROJECT (Permit No. M-1999-002) Rio Blanco County	American Soda ceased production in 2004 and started reclamation of the site.	Ground water quality monitoring is continuing at a reduced rate for both the interim status period and for the possibility that commercial production may once again resume.
NATURAL SODA, INC. NAHCOLITE PROJECT (Permit No. M-1983-194) Rio Blanco County	Nineteen active monitoring wells are located at the mine with water quality samples obtained from discrete zones. A total of seventeen wells are equipped with continuous water level measurement transducers and data acquisition and storage systems. Ground water monitoring includes water levels and over 50 water quality parameters. An annual monitoring report is submitted to DRMS, the BLM and the EPA.	Monitoring activities at the site have continued unchanged during the past year.
COLORADO GOLDFIELDS, INC. PRIDE OF THE WEST MILL (Permit No. M-1984-049) San Juan County	Operations at the Pride of the West Mill (previously named Howardsville Mill) site were both historic and modern. The site is currently under a Cease and Desist Order from the Board. The operator is precluded from importation of ore materials for metallurgical processing or reactivation of the milling circuits until corrective actions are satisfied. The operator must fully demonstrate the proposed mining and milling activities will comply with the requirements of the Act and Rules.	On June 27, 2011, DRMS approved TR-11, addressing final reclamation of the existing upper tailings pond, lower tailings pond and the mill drain pond. On July 20, 2012 DRMS conditionally approved AM-03, addressing Environmental Protection Plans for 8 of the 10 Environmental Protection Facilities proposed at the site. DRMS did not approve the EPP for the mill tailings repository; therefore, the operation is approved for site maintenance, water monitoring,

Company-Mine Name-Permit #	Site Conditions	FY12-13 Activity
		and commencement of final reclamation for the existing tailings ponds and the mill drain pond. Milling activities are prohibited until a new location for tailings disposal is permitted.
SUNNYSIDE GOLD CORPORATION SUNNYSIDE MINE (Permit No. M-1977-378) San Juan County	Approximately 36 spring and seep locations were monitored semi-annually in accordance with the DRMS/WQCD Consent Decree for drainage associated with the mine pools of the American and Terry Tunnels. The Consent Decree was subsequently terminated by the parties. Terry Tunnel bulkhead final closure occurred on October 5, 2000. American Tunnel Bulkhead No. 1 was closed May 14, 2001; Bulkhead No. 2 was closed August 31, 2001; and Bulkhead No. 3 was closed on December 3, 2002. Sunnyside Gold Corporation also removed the water treatment plant pursuant to a court order. Water monitoring continues twice per year in the Animas River above and below the Mayflower Mill site and in Cement Creek above and below the American Tunnel complex.	Sunnyside Gold Corporation continues towards completion of final reclamation, release of warranties, and termination of its reclamation permit.
CLIMAX MOLYBDENUM COMPANY CLIMAX MINE (Permit No. M-1977-493) Summit, Lake, and Eagle Counties	The new Environmental Protection Plan and Water Monitoring Plan (as required by AM-06) has been approved by DRMS, the additional new monitoring wells described in the plan have been installed, and the improved monitoring program continues. Numeric protection levels for groundwater should be set this winter after review of data collected to-date. Additional groundwater characterization is underway by Climax as a result of current monitoring data. All previously existing measures to protect groundwater, including the groundwater cutoff walls and pump-back systems, the 5-Shaft dewatering pumps, and the water treatment plant are still in place and operational. A new final water treatment plant for the facility is currently under construction. A possible groundwater to surface water seep(s) has been recently identified near the Storke yard collection area and characterization is currently underway by Climax. DRMS directed Climax to contact	The new EPP and Water Monitoring Plan have been be implemented by Climax as approved by DRMS. New water treatment plant for the facility currently under construction.

Company-Mine Name-Permit #	Site Conditions	FY12-13 Activity
	CDPHE regarding this feature during the last inspection in Oct. 2013.	
CRIPPLE CREEK & VICTOR GOLD MINING COMPANY CRESSON PROJECT (Permit M-1980-244) Teller County	CC&V continues to monitor ground water at the Cresson Project. The monitoring plan was most recently revised with the approval of permit amendment No. 10 on September 12, 2012. The plan requires quarterly monitoring of nine wells in the permit area, and two additional compliance wells in Grassy Valley.	The mine was in compliance with its monitoring plan during the reporting year, and there were no ground water excursions. The NPL for sulfate was again exceeded in Arequa Gulch. CC&V continues to pump this groundwater back into the mine water circuit. The mine added new compliance wells downgradient in Arequa Gulch (a nested set of 4 wells) in 2013. The new Grassy Valley and Squaw Gulch wells are to be installed in the first Qtr of 2014.
Energy Fuels Resources (USA) INC., SUNDAY MINE (Permit No. M-1977-285) San Miguel County	Lower portions of the underground workings accumulate groundwater, which was managed during periods of active mining by using it for drill water, underground dust control and by pumping it elsewhere in the extensive workings. No pumping or other water management is currently occurring. Accumulation of mine pool water has apparently equilibrated, during several years of temporary cessation, and the flooded portion of the workings is not expanding. Due to HB-1161 this mine is now a DMO and the Division required Denison Mines (the former operator) to submit an EPP.	The operator obtained approval of an Environmental Protection Plan (EPP) in 2012 which includes a groundwater monitoring plan. Up-gradient and down-gradient monitoring well locations were determined, as well as compliance well locations farther down-gradient near the permit boundary. The wells will be located on the adjacent permit area for the Topaz Mine (M-1980-055HR). Well installation approved under the EPP began in the fall of 2012 and continued into 2013.
Energy Fuels Resources (USA)	Lower portions of the underground workings accumulate groundwater,	The operator obtained approval

Company-Mine Name-Permit #	Site Conditions	FY12-13 Activity
INC. WEST SUNDAY MINE(Permit No. M-1981-021) San Miguel County	which was managed during periods of active mining by using it for drill water, underground dust control and by pumping it elsewhere in the extensive workings. No pumping or other water management is currently occurring. Accumulation of mine pool water has apparently equilibrated during several years of temporary cessation, and the flooded portion of the workings is not expanding. Due to HB-1161 this mine is now a DMO and the Division required Denison Mines (the former operator) to submit an EPP.	of an Environmental Protection Plan (EPP) to include a groundwater monitoring plan. Up-gradient and down-gradient monitoring well locations were determined, as well as compliance well locations farther down-gradient near the permit boundary. These wells will be located on the adjacent permit area of the Topaz Mine (M-1980-055HR) Well installation approved under the EPP began in the fall of 2012 and continued into 2013.
Energy Fuels Resources (USA) INC.TOPAZ MINE (Permit No. M-1980-055 HR) San Miguel County	Lower portions of the underground workings accumulated groundwater, which was managed during periods of active mining by using it for drill water, dust control, and by pumping it elsewhere in the extensive workings. No pumping or other water management is currently occurring. Accumulations of mine pool water has apparently equilibrated during several years of temporary cessation, and the flooded portion of the workings is not expanding. Due to HB-1161 this mine is now a DMO and the Division required Denison Mines (the former operator) to submit an EPP.	The operator obtained approval of an Environmental Protection Plan (EPP) to include a groundwater monitoring plan. Up-gradient and down-gradient monitoring well locations were determined, as well as compliance well locations farther down-gradient near the permit boundary. Well installation approved under the EPP occurred during 2012-2013.
Camp Bird Colorado, INC. Camp Bird Mine (Permit No. M-1982-090) Ouray County	After several years of reclamation activity, the operator began new surface activity in the fall of 2012 including reconstruction of a sedimentation pond and a pipeline conveying portal discharge to the pond. The operator has applied for a new or renewed discharge permit from WQCD. Upstream and downstream surface water sampling has begun on a quarterly basis.	Surface water analysis from recent sampling event has not been received by DRMS as of this date.

Company-Mine Name-Permit #	Site Conditions	FY12-13 Activity
STAR MINE OPERATIONS, INC., REVENUE MINE (Permit no. M-2013-032) Ouray County	Operation was approved as a 112d-1 permit in 2013, and included an EPP. Main portal discharges water that reports indirectly to Sneffels Creek. Operator is required to monitor surface and groundwater and implement mine water handling plan. Sampling plan includes five locations for groundwater and four locations for surface water.	Operator began quarterly surface and groundwater sampling in 2012. Division is currently reviewing permit revision mine water handling plan to involve onsite passive treatment.

Construction Materials Operations

Company-Mine Name-Permit #	Site Conditions	FY11-12 Activity
CEMEX, INC. LYONS QUARRY (Permit M-1977-208) Boulder County	Ground water monitoring is required at the Lyons Quarry to verify that the disposal of cement kiln dust (CKD) into the mined out limestone quarry (C-Pit) does not cause ground water degradation. Ground water protection requirements include: backfilling the pit with overburden and shale from ongoing quarry operations to reduce the ponded water in C Pit to less than one-half acre and lining of portions of the Boulder Feeder Canal near C-Pit to reduce seepage into the pit. The monitoring program requires continuous monitoring of water elevation in the C-pit and in an up gradient well, and quarterly monitoring of water elevation in a deep down gradient well. Water quality samples are collected quarterly from the C-Pit and from down gradient alluvial and bedrock wells. DRMS approved Technical Revision No. 11 (TR-11). TR-11 removed calcium, magnesium, potassium and sodium from the analyte suite. The former compliance well (CEM-005) collapsed and the location of the new compliance well was approved under TR-11; development of the well was completed on March 30, 2012. The sampling frequency was reduced to semi-annually if the numeric standards are not exceeded in the first four quarters of sampling. If numeric standards are exceeded, then quarterly sampling will resume until four quarters are shown to not exceed numeric standards at which time semi-annual sampling may	The 1st Quarter sample (2013) collected from the alluvial well (CEM 004) exceeded numeric standards for sulfate and chloride. Additional sampling occurred on February 21, 2013, March 6, 2013, April 10, 2013, and April 25, 2013. Groundwater samples collected on March 6, 2013, April 10, 2013, and April 25, 2013 dropped to levels within the target monitoring goals for chloride. Sulfate levels dropped below target monitoring goals in the April 25, 2013 groundwater sample. Monitoring is ongoing and continues to be conducted on a quarterly basis and will include all principal cations and anions Semi-annual monitoring will

Company-Mine Name-Permit #	Site Conditions	FY11-12 Activity
	resume.	resume once four consecutive quarters of sampling occur without any exceedance of the numeric standards.
HOLCIM US, INC. PORTLAND LIMESTONE (Permit M-1977-344) Fremont County	Holcim monitors ground water to evaluate potential release of contaminants from cement kiln dust (CKD) stored on site. Holcim completed the collection of five quarters of baseline data and submitted their report on June 7, 2004. Three wells are designated as compliance and monitoring wells to be monitored for TDS, sulfate (SO4), potassium (K), sodium (Na), iron (Fe) and manganese (Mn).	Data is collected semi-annually and submitted to DRMS annually. The required parameters and numeric protection levels for MW-7 and MW-13, respectively are: 1) TDS (mg/L): 3918, 4026 2) SO4 (mg/L): 2080, 2200 3) K (mg/L): 17, 13 4) Na (mg/L): 226, 274 5) Fe (mg/L): 4.5, 0.13 6) Mn (mg/L): 0.88, 0.30 The March 2013 results for MW-7 exceeded the NPL for Na and the results for MW-13 exceeded the NPL for sulfate.
HOLCIM, INC. BOETTCHER QUARRY (Permit No. M-1977-348) Larimer County	The Boettcher Quarry and cement plant were permanently closed in 2002 and the cement plant was demolished in 2004. The site has been largely reclaimed, and the Cement Kiln Dust (CKD) disposal area has been capped and revegetated. Groundwater monitoring to date indicates a very tight formation with deep groundwater and little groundwater movement. Additional groundwater monitoring is being conducted at this time to determine if the site can be considered for final closure. Three additional monitoring wells were installed in 2013 to help characterize current conditions. Final monitoring results are still pending.	DRMS is evaluating the current/ongoing monitoring results and will determine if additional enhanced groundwater monitoring will be required, or if the site is eligible for final closure.
GCC RIO GRANDE, INC. PUEBLO CEMENT PLANT AND LIMESTONE QUARRY (Permit No. M-2001-004) Pueblo County	GCC installed five monitoring wells. One well completed in the Coaldale Sandstone was dry. Three alluvial wells and one drinking water well were sampled to set baseline parameters. Initial results indicated no concentrations exceeding drinking water standards. In 2007, GCC provided additional monitoring data indicating gross	During 2009, DRMS designated three alluvial wells as compliance and monitoring wells. Numeric protection levels were set utilizing data collected since early 2002. The required

Company-Mine Name-Permit #	Site Conditions	FY11-12 Activity
	alpha activities equaled or exceeded the Colorado ground water standard of 15 picocuries/liter (pCi/L). The combined radium 226 and 228 activities did not exceed the 15 pCi/L standard in any well. Data collection is required semi-annually and reported to DRMS annually.	parameters and numeric protection levels are: 1) TDS 2630 mg/L 2) Sulfate 1950 mg/L 3) Radium 226 23.5P Ci/L 4) Radium 22812.3 Pci/L In March 2013 the Operator requested a revision to the monitoring plan (TR03), which DRMS approved, demonstrating the exceedances of the NPLs in MW-001A, MW-002, MW-003 and MW-004 could not be attributed to GCC's cement plant and limestone quarry and there is no direct hydrologic connection between the dry Colluvium underlying the Facility and the saturated Alluvium in which the wells have been completed. MW-005 remains intact and GCC will attempt to obtain groundwater samples from MW005 twice per calendar year.
AGGREGATE INDUSTRIES – WCR, INC. PLATTE VALLEY OPERATION (PERMIT NO. M-1989-120) Weld County	This sand and gravel mining operation has three open water basins. The operator allows importation of inert material to backfill into the pit excavations. CDPHE inspected the site and found Broda Inert Fill (Broda) had possibly imported unauthorized waste to the site without obtaining a Certificate of Designation. CDPHE required Broda to install three ground water monitoring wells at the site to test groundwater quality. These wells and a monitoring plan were incorporated into the DRMS mining and reclamation plan. These wells will be monitored on a quarterly basis and results sent to CDPHE and also reported to DRMS annually	On July 5, 2013, Aggregate Industries submitted the quarterly groundwater measurement data collected by Aggregate Industries as well as groundwater quality monitoring and measurement data collected at the site. This data was also submitted to the Colorado Department of Public Health and

Company-Mine Name-Permit #	Site Conditions	FY11-12 Activity
		Environment as required under the recycling license held by Broda Inert Fill and in accordance with Technical Revision No. 03.

Colorado Coal Mines – Activity Status

Bowie No. 2 Mine (Producing) – C-1996-083 **Delta County**

Company Name:	Bowie Resources, LLC
Mine Name:	Bowie No. 2
Mine Type/Status:	Underground/Federal/Active
2013 Production:	1,796,122 tons through 6/30/2013
No. Miners	348
Permit Acres:	9,196.5 (3,831.6 federal surface and 7,239.2 federal coal)
Affected Acres:	5,787.2
Disturbed Acres:	379.4
Bond Amount:	Required $10,907,412.33; Actual Held - $10,927,561.06

The Bowie No. 2 mine is an underground mine that produces coal using a longwall machine. Coal is shipped to the Tennessee Valley Authority and elsewhere by train. The Division approved a permit revision in April 2013 that modified the permit area by 896.0 acres to the north through the incorporation of two federal coal lease modifications. BRLLC has submitted a lease by application (LBA) with the U.S. Forest Service and the BLM. The LBA (COC-75916), called Spruce Stomp, contains approximately 1,813 acres and is immediately adjacent to existing coal leases held by Bowie. A draft EA is anticipated to be completed by the end of September.

BRLLC has been generating higher volumes of refuse than anticipated due to difficult mining conditions. Due to the limited approved area for waste disposal BRLLC has had difficulty managing the coal refuse. This has resulted in two enforcement actions by the Division. A recently approved revision will allow Bowie Resources to open a new area for refuse disposal.

Colowyo Mine (Producing) – C-1981-019 **Moffat and Rio Blanco Counties**

Company Name:	Colowyo Coal Company L.P.
Mine Name:	Colowyo Coal Mine
Mine Type/Status:	Surface/Federal/Active
2013 Production:	961,521 tons through 6/30/13
No. Miners:	203
Permit Acres:	29,075.7 (4,815.4 federal surface and 24,333.0 federal coal)
Affected Acres:	5,876.5
Disturbed Acres:	5,876.5
Bond Amount:	Required -$364,423,961.85; Actual Held - $80,517,829*

Mining operations began in 1976 with the East Pit, a multi-seam coal operation with eight coal seams. Extraction of coal from the East Pit was terminated in 2006, and currently the only ongoing operation in the East Pit is reclamation of the final cut, including backfilling and grading of the pit and highwall reduction. Coal extraction from the multi-seam West Pit is estimated to occur until 2015, including potential highwall mining. In 2006, Colowyo expanded the permit boundary by approximately 6,000 acres to the west and south into the South Taylor/Lower Wilson area. Mining, including potential highwall mining, and reclamation in the South Taylor Pit will continue until 2017. Permit Revision PR-03 for the "Collom Area", which increased the mine's permit area acreage by almost 17,000 acres and the mine's disturbed area acreage by over 2,000 acres, received Final Division Approval on May 29, 2013. The mine's total permit area is now just over 29,000 acres, with the mine's disturbed area acreage now almost 5,900 acres.

Bond Release Application SL-05, regarding the release of $692,320.04 of Phase III liability on 979.52 acres, received Final Division Approval on 8/28/12. The company in 2013 received a CMA/DRMS reclamation award for this accomplishment. Bond Release Application SL-06, regarding the release of $2,465,660.00 of Phase I liability on 692.37 acres, received Final Division Approval on 6/14/13. Bond Release Application SL-07, regarding the release of $727,269.00 of Phase I liability on 125.2 acres, received Preliminary Division Approval on 8/29/13.

*The disparity between the amount of bond required and the amount of bond held is due in large part to the recent approvals of Permit Revision PR3; Permit Renewal RN6, which increased the amount of bond required for mining in the main Colowyo mine for the next five years; and Technical Revision TR98, which increased the amount of bond required for temporary spoil fill expansion at the main Colowyo Mine. Technical Revision TR99, submitted on 7/9/13, proposes to reduce the size of the temporary East Taylor spoil fill; if approved, this TR would reduce the reclamation liability at the mine site by several million dollars. The company has also submitted a Minor Revision proposing an incremental bonding schedule.

Deserado Mine (Producing) – C-1981-018 **Moffat and Rio Blanco Counties**

Company Name:	Blue Mountain Energy, Inc.
Mine Name:	Deserado Mine
Mine Type/Status:	Underground/Federal/Active
2013 Production:	956,979 tons through 6/30/13
No. Miners	154
Permit Acres:	13,645.0 (13,325.0 federal surface and 11,988.7 federal coal)
Affected Acres:	8,095.5
Disturbed Acres:	464.4
Bond Amount:	Required - $5,474,684.05; Actual Held - $5,711,474.96

The Deserado Mine is an underground longwall mine that is currently mining in the B-Seam. All coal mined from Deserado Mine is shipped by train directly to the Bonanza Power Plant located near Bonanza, Utah. The Deserado Mine continually drills down to their current longwall workings to allow nitrogen to be pumped into the mine as a fire preventative measure. Permit Revision PR8, which increased the mine's permit area acreage by 1,656.30 acres and the mine's affected area acreage by 1,483.47 acres, received Final Division Approval on August 5, 2013. Permit Revision PR8 expanded for the first time the mine's permit area and affected area from Rio Blanco County into Moffat County. Technical Revision TR-69, proposing the construction of a new 630-foot deep airshaft, was submitted to the Division on 8/30/13 and is presently under review.

Elk Creek Mine (Producing) – C-1981-022 **Gunnison County**

Company Name:	Oxbow Mining, LLC
Mine Name:	Elk Creek Mine
Mine Type/Status:	Underground/Federal/Active
2013 Production:	324,220 tons through 6/30/13
No. Miners	289
Permit Acres:	15,676.5 acres (10,125.5 federal surface and 12,430.5 federal coal)
Affected Acres:	6,659.2
Disturbed Acres:	211.5
Bond Amount:	Required - $4,337,933.41; Actual Held - $4,871,606.00

The Elk Creek Mine previously produced coal from the Elk Creek North area of the mine using a long wall machine. However, mining is permanently shut down in this area due to coal combustion and elevated carbon monoxide and methane levels since January 2013. MSHA required Oxbow to seal that section of the mine. Oxbow submitted several revisions to drill utility boreholes into the mine to monitor the mine atmosphere and two boreholes to dewater the mine. The longwall cannot be recovered.

Oxbow Mining, LLC is developing the Elk Creek East federal coal lease which will expand the mine by 726 acres to the east. Coal is still being shipped as a result of development mining in the Elk Creek East area.

Foidel Creek Mine (Producing) – C-1982-056 **Routt County**

Company Name:	Twentymile Coal, LLC
Mine Name:	Foidel Creek Mine
Mine Type/Status:	Underground/Federal/Active

2013 Production:	3,156,196 tons through 6/30/13
No. Miners:	437
Permit Acres:	20,100.0 (6,069.6 federal surface and 7,196.0 federal coal)
Affected Acres:	19,803.9
Disturbed Acres:	636.9
Bond Amount:	Required - $9,481,410.76; Actual Held - $10,056,089.00

The Foidel Creek Mine is an underground longwall mine located near Oak Creek, Colorado. The longwall is currently operating in the Wadge Seam in the Western Mining District. Technical Revision TR82, which increased the mine's permit area acreage by 160 acres and the mine's affected area acreage by 330 acres, received Final Division Approval on 3/27/13. This incidental boundary revision extended the mine's life-of-mine date from 2015 into 2016. Due to issues associated with coal leasing, the permittee in 2013 requested to withdraw Permit Revision PR-09, which would have added approximately 560 acres of permit area acreage and 500 acres of affected area acreage. Final Division Approval to Withdraw Permit Revision PR9 was issued on 7/17/13. Bond Release Application SL-01, regarding the release of $347,892.15 acres of Phase I liability on 14.3 acres, received Final Division Approval on 9/4/13.

King II Mine (Producing) – C-1981-035 La Plata County

Company Name:	GCC Energy, LLC
Mine Name:	King II Mine
Mine Type/Status:	Underground/Federal/Active
2013 Production:	341,007 tons through 6/30/13
No. Miners	111
Permit Acres:	2658.0 (88.0 federal surface and 1296.0 federal coal)
Affected Acres:	2,840.7
Disturbed Acres:	34.2
Bond Amount:	Required - $ 835,699.23; Actual Held - $ 855,161.05

The King II Mine is an underground mine located 13 miles west of Durango in La Plata County. Mining at the original mine (King I) was completed in 2009 and those portals have been sealed. The King II surface facilities were constructed in 2008. Coal is mined from the "A" seam of the Menefee Formation. The Coal is hauled from the site by truck, generally to a rail head located in Gallup, NM. Much of the King II coal is located on land where the surface owner is the Ute Mountain Ute tribe. All of the King II surface facilities fall under the jurisdiction of the Division, but OSM is the permitting agency for the Ute lands.

New Elk Mine (Temporary Cessation) – C-1981-012 Las Animas County

Company Name:	New Elk Coal Company, LLC
Mine Name:	New Elk Mine
Mine Type/Status:	Underground/Private/TC
2013 Production:	0 tons through 6/30/13
No. Miners:	16
Permit Acres:	4,198.9 (0 federal surface and 0 federal coal)
Affected Acres:	2,899.2
Disturbed Acres:	222.6
Bond Amount:	Required - $4,183,216.08; Actual Held - $4,133,137.02*

The New Elk Coal Company (NECC) is a wholly owned US subsidiary of Cline Mining Corporation of Toronto, Ontario, Canada (Cline). The New Elk mine is an underground room and pillar mine, with workings in the Allen, Apache, Blue and Maxwell seams that provide the mine with the potential to produce both metallurgical grade and bituminous coal. Cline completed the acquisition of the mine in July, 2008, and has invested heavily since then to rehabilitate it. Production was resumed in December, 2010, and was planned to reach the plant design capacity of 3 million tons per year by 2012/13.

During 2012, NECC acquired additional leases (14,387 acres from the Department of Wildlife, and 1,346 from the Secora Ranch) to extend its total lease area to 29,940 acres. In July 2012, NECC announced that it was temporarily suspending production, and the mine went into temporary cessation for an initial period of 60 days. This temporary cessation was extended indefinitely on September 17, 2012, "pending improved market conditions". The Division is presently reviewing

Permit Revision PR 4 that proposes a 618.7 acre expansion of the mine's permit area, Technical Revision TR 64 that proposes a new airshaft, and Technical Revision TR 67 that proposes two new dewatering wells.

Two enforcement actions were issued to the New Elk Mine in July of 2013 for failing to treat disturbed area runoff before it left the permit area and for failing to maintain certain ditches, culverts and berms. The permittee is presently working to abate these enforcement actions.

*The disparity between the bond amount required and the amount held is due to the approval of Technical Revisions 65 and 66 in August of 2012, which allow for the construction of a new development waste pile and a haul road, but for which the permittee has yet to submit bond due to those approved activities being put on hold pending the securing of a new coal contract.

New Horizon Mine (Active; Reclamation) – C-1981-008 Montrose County

Company Name:	Western Fuels-Colorado, LLC
Mine Name:	New Horizon Mine
Mine Type/Status:	Surface/Private/Active
2013 Production:	162,858 tons through 6/30/2013
No. Miners:	22
Permit Acres:	926. 1 (0 federal surface and 0 federal coal)
Affected Acres:	866.7
Disturbed Acres:	866.7
Bond Amount:	Required - $ 5,042,302.00; Actual Held - $ 5,042,302.00

The New Horizon Mine is a surface mine located near the town of Nucla, in western Montrose County. Coal was mined from the Dakota formation using truck-and-shovel methods, and then transported by truck to Tri-State's nearby Nucla Generating Station. Extraction of the coal resource was completed during August 2013. The last stockpile of coal from this mine has been hauled to the power plant. Mining operations are being shifted to Western Fuels' New Horizon North Mine (C-2010-089).

Much of the permit area was used for agricultural purposes prior to mining, and is being returned to a post-mining land use of Pastureland as mining is completed. Certain areas of the permit contain soils that are classified as prime farmland by the NRCS.

Peabody Sage Creek Mine (Active; Presently Not Producing) – C-2009-087 Routt County

Company Name:	Peabody Sage Creek Mining, LLC
Mine Name:	Peabody Sage Creek Mine
Mine Type/Status:	Underground/Federal/Active
2013 Production:	0 tons through 6/30/13
No. Miners:	3
Permit Acres:	10,164.0 (80.0 federal surface and 3,989.0 federal coal)
Affected Acres:	2,638.3
Disturbed Acres:	1,912.8
Bond Amount:	Required - $3,920,284.46; Actual Held - $6,160,431.65

The Peabody Sage Creek Mine is an underground room-and-pillar mine located near Hayden, Colorado. The mine was permitted in 2010, with coal being first extracted in May of 2012. As of September of 2012, coal is no longer being extracted at the site. According to PSCM personnel, coal extraction will remain idle indefinitely, though certain construction activities on the surface continue. In February of 2013, the Division conducted the mine's first Mid-Term Review, and determined that the site was eligible for a reduction in the amount of the site's estimated reclamation liability. Technical Revision TR 6, reducing the site's reclamation liability by $1,122,226.82, received Final Division Approval on July 16, 2013. Bond Release Application SL-01, regarding release of $995,884.55 of Phase II liability on 445.8 acres, received Final Division Approval on 9/5/13. Bond Release Application SL-02, requesting release of $285,484 of Phase I/II/III liability on 68.8 acres, was submitted to the Division on 7/17/13 and is presently under review.

Trapper Mine (Producing) – C-1981-010 Moffat County

Company Name:	Trapper Mining, Inc.

Mine Name:	Trapper Mine
Mine Type/Status:	Surface/Federal/Active
2013 Production:	995,794 tons through 6/30/13
No. Miners:	160
Permit Acres:	10,382.3 (0 federal surface and 4998.3 federal coal)
Affected Acres:	3,136.2
Disturbed Acres:	3,136.2
Bond Amount:	Required - $29,990,889.69; Actual Held - $30,173,724.00

The Trapper Mine is a surface mining operation located just south of Craig. Coal is trucked directly from the mine to the Craig power plant. Three draglines are currently mining in the K-Pit and finishing mining in the Z-Pit. Mining will soon start in the L and M pits. Contemporaneous reclamation continues at the Trapper Mine and lands are reclaimed to rangeland and wildlife habitat. Trapper submitted a permit revision in May 2013 to extend the permit area by 775 acres to the East.

West Elk Mine (Producing) – C-1980-007 Delta and Gunnison Counties

Company Name:	Mountain Coal Company, LLC
Mine Name:	West Elk Mine
Mine Type/Status:	Underground/Federal/Active
2013 Production:	2,751,155 tons through 6/30/13
No. Miners:	328
Permit Acres:	17,154.9 (11,758.4 federal surface and 13,795.0 federal coal)
Affected Acres:	15,257.6
Disturbed Acres:	597.3
Bond Amount:	Required - $14,289,992.30; Actual Held - $15,000,000.00

The West Elk Mine is an underground longwall mine that is currently mining in the E-Seam. They are currently mining in their fourth longwall panel in their new southern mining area. They are working on a permit revision that will add approximately 2,600 acres to the southern portion of the permit area. They recently built a coal wash plant and a new refuse pile (the Refuse Pile East Expansion, or RPEE) that should allow for enough capacity for the remaining life of mine. The West Elk Mine is continually drilling and reclaiming methane drainage wells and their associated drill pads and light-use roads. Bond Release Application SL-03, regarding the release of $470,488 of Phase I liability on 47.65 acres, received Final Division Approval on 9/21/12. Bond Release Application SL-04, regarding the release of $196,037 of Phase II liability on 67.60 acres, received Preliminary Division Approval on 7/8/2013. Bond Release Application SL-05, requesting release of $94,475.40 of Phase I liability on 13.85 acres, was submitted to the Division on 2/11/13 and is presently under review.

New Horizon North Mine (Active; Development) – C-2010-089 Montrose County

Company Name:	Western Fuels Association, Inc.
Mine Name:	New Horizon North
Mine Type/Status:	Surface/Private/Active
2013 Production:	0 tons through 6/30/13
No. Miners:	22
Permit Acres:	328.7 (0 federal surface and 0 federal coal)
Affected Acres:	288.7
Disturbed Acres:	288.7
Bond Amount:	Required - $4,952,979.88; Actual Held - $5,044,743.00

The New Horizon North Mine is a newly permitted operation, directly north of the New Horizon Mine in western Montrose County. Mine development is underway, with coal production expected to occur this fall. Once production begins, coal will be transported by truck to Tri-State's nearby Nucla Generating Station. The recently issued Construction Permit from the Air Pollution Control Division (APCD) has allowed the operator to begin excavating the boxcut. Overburden is being stockpiled for future use in reclamation.

Bear Mine (Revoked Permit) – C-1981-033 Gunnison County

Company Name:	Bear Coal Company, Inc.
Mine Name:	Bear Mine
Mine Type/Status:	Underground/Federal/Revoked
2013 Production:	0
No. Miners:	0
Permit Acres:	1,108.4 (28.8 federal surface and 1004.0 federal coal)
Affected Acres:	584.5
Disturbed Acres:	9.0
Bond Amount:	Required - $146,617.66; Actual Held - $160,000.00

The Mined Land Reclamation Board revoked the Bear Coal Mine permit and forfeited the reclamation bond for the Bear mine site. The formal Board hearing for permit revocation and bond forfeiture was held on May 15, 2013. The Board's Findings of Fact and Conclusions of Law, and Order were signed on June 7, 2013. Because this was a federal mine, OSM provided its consent to forfeit the performance bond on June 17, 2013. On June 18, 2013, notices were sent to the two banks that had posted bonds that the certificates of deposit were due and payable, by cashier's check to the State of Colorado, DRMS. Proceeds from the forfeited bond were collected in July and a reclamation account has been set up in COFRs. Final reclamation of the mine site will be coordinated with the Colorado Abandoned Mine Land program staff.

Colorado Coal Mines			
(September 2013)			
Permit #	**Mine**	**Total Permitted Acreage**	**Inspections Required**
	Producing		
C-1980-007	West Elk Mine	17,154.90	12
C-1981-010	Trapper Mine	10,382.30	12
C-1981-018	Deserado Mine	13,645.01	12
C-1981-019	Colowyo Mine	29,075.74	12
C-1981-022	Elk Creek Mine	15,676.51	12
C-1981-035	King Coal Mine	2,658.00	12
C-1982-056	Foidel Creek	20,100.00	12
C-1983-059	Terror Creek Load Out	20.00	12
C-1996-083	Bowie No. 2	9,196.50	12
		117,908.96	108
	New Under Construction		
C-2009-087	Peabody Sage Creek Mine	10,164.00	12
C-2010-089	New Horizon North Mine (producing Oct/Nov)	328.70	12
		10,492.70	24
	Reclamation and Cessation		
C-1980-004	McClane Canyon Mine (temporary cessation)	2,560.50	4
C-1980-005	Seneca II Mine (Phase II released)	386.50	4
C-1981-008	New Horizon Mine	926.06	12
C-1981-012	New Elk Mine (temporary cessation)	4,198.90	4
C-1981-013	Golden Eagle Mine	1.20	12
C-1981-014	Southfield Mine	2,743.40	12
C-1981-020	Munger Canyon Mine	1,028.00	12
C-1981-025	North Thompson Mine (Phase II released)	1,086.00	4
C-1981-028	Keenesburg Mine	555.40	12
C-1981-038	Bowie No. 1	5,431.00	12
C-1981-041	Roadside Portals	2,786.00	12
C-1981-044	Williams Fork Mines (temporary cessation)	6,363.00	4
C-1982-057	Seneca IIW Mine	3,878.50	12
C-1984-065	Coal Ridge No. 1 Mine (Phase II released)	2,484.30	4
C-1992-080	Carbon Junction (Phase II released)	164.19	4
C-1992-081	H-G Loadout	391.30	12
C-1994-082	Yoast Mine	2,318.30	12
C-1996-084	Lorencito Canyon Mine	3,142.00	12
C-2010-088	Fruita Loadout (temporary cessation)	215.60	4
		40,660.15	164
	Revoked		
C-1980-002	O.C. Mine No. 2	88.50	2
C-1981-015	Fruita No. 1 & 2	16.00	4
C-1981-016	Hawk's Nest	2,050.00	4
C-1981-017	Coal Basin Mines	10,981.00	2
C-1981-033	Bear Mine	1,108.40	12
C-1981-037	GEC Strip Mine	890.00	2
C-1981-046	Sunlight Mine	180.00	4
		15,313.90	30
	New		
C-2006-085	Northfield Mine (pending bond)	1,157.00	0
		1,157.00	0
	Total	**185,532.71**	**326**