COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

1313 Sherman Street, Room 215
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DATE: October 28, 2015

TO: Water Quality Control Commission

FROM: Virginia Brannon, Division Director
Mike Boulay, Coal Regulatory Program
Tony Waldron, Minerals Regulatory Program
Bruce Stover, Abandoned Mine Land Program

RE: FY 2014-2015 SB 89-181 Annual Report

We appreciate the working relationship between the Division of Reclamation, Mining and Safety and the Water Quality Control Division and are pleased to submit the attached Annual Report.

Attachments

SB 89-181 Annual Report
FY 2014-2015

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 uses the numeric protection levels, referenced in the WQCC adopted narrative ground water standards, to set appropriate permit conditions to protect ground water.

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 32 mine sites to conduct some type of ground water quality monitoring. Of these sites, 27 are hard rock mining operations, and 5 are construction material extraction operations.

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

Coal Program

The Colorado Coal Program currently regulates a total of thirty-five coal mines, of which nine were actively producing in at least part of FY14-15. The Coal Program also regulates one facility that is a load out only. The producing mines are both surface and underground operations. Eighteen mines are in various phases of reclamation or temporary cessation. Five mines are reclaimed sites for which the permits were revoked. One new underground mine permit is approved, but a reclamation liability bond has not been posted, so permit issuance has not yet occurred. Approximately 75 percent of Colorado's coal production comes from underground mining operations. The predominant method of underground mining is longwall mining.

During the 2014 - 2015 reporting period, the Coal Program accomplished the following functions:

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

- 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.

- 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 (CHIAs).

- 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 2014-15, the Coal Program conducted 362 inspections.

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

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

Abandoned Mine Land Program

Nonpoint Source and Water Quality Improvement Projects

Since October 2014, final reclamation construction work was completed on 8 legacy mining-related water quality improvement projects. Investigations, design or phased construction is ongoing at 9 other sites, two of which are new to the list this year. Mine sites undergoing reclamation construction in 2015 include:

- Bullion King Mine waste rock reclamation, San Juan Co.
- London Butte Mine tailings revegetation, Park Co.
- Vernon Mine waste rock, Ouray Co.
- Red & Bonita Mine bulk head, San Juan Co.
- Lower Willow Creek / Emperious Tailings, Mineral Co.
- Pennsylvania Mine bulkhead#2, Summit Co.
- Yellowstone Mill Tailings, Hinsdale Co.
- Michael Breen Mine waste rock, Ouray Co.

The nine mine site projects currently underway to investigate, characterize and develop final reclamation designs or completing phased construction include:

- Waldorf Mine on Leavenworth Creek, Clear Creek Co.
- Daisy Mine waste rock reclamation, Gunnison Co.
- Carbonero Mine Bulkhead Investigation, San Miguel Co
- Puzzel/Wllard/Ouray Mines, Summit Co.
- Rico –Argentine Mine underground rehabilitation and investigation, Dolores Co
- Sun cup/Centennial Uranium mines, Dolores Co.
- Gertrude-Venture Mine waste rock project, Lake Co.
- Nelson Tunnel Source Controls Investigation, Mineral Co.
- Perigo Mine drainage investigation, Gilpin Co.

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 2015 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. Most of those projects are complete or nearing final construction.

In State FY 14-15, DRMS expended $1,460,000.00 on legacy mining-related water quality improvement projects. This total includes funding from all sources, including CDPHE NPS grants, PA funding, grants and agreements from BLM, USFS, EPA, private contributions, as well as state sev-tax matching funds and local watershed grants.

Please see attached table for specific information about these sites.

Hard Rock Mining Operations

Company-Mine Name-Permit #	Site Conditions	FY14-15 Activity
AGC RESOURCES LLC CASH AND WHO DO MINES (Permit No. M-1983-141) Boulder County	The Operator began a ground water characterization program in 2007. This included sampling of two surface water stations and 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 2009.	No mining has occurred sinc 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. In October 2013, DRMS approved Technical Revision No. 7 (TR-7). TR-7 revised the monitoring plan to address the following: 1) Eliminate the following parameters from the sampling suite: aluminum, chromium, cobalt, copper, fluoride, iron, lead, lithium, mercury, nickel, selenium, and vanadium. The Cash Well monitoring location was eliminated and replaced with the Cash Mine Pool from the 3rd Level Adit.
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 geo-membrane 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. In October 2013, DRMS approved Technical Revision No. 9 (TR-9). TR-9 revised the monitoring plan to address the following: 1) Eliminate the following parameters from the sampling suite: aluminum, chromium, cobalt, copper, fluoride, iron, lead, lithium, mercury, nickel, selenium, and vanadium. 2) Remove Left Hand Creek water sampling location. 3) Remove Hazel A water sampling location. 4) Cease collection of samples from Wynona Mine until such time as the mine is used for water storage.

Company-Mine Name-Permit #	Site Conditions	FY14-15 Activity
		MW1 (mill well) was established as the compliance point for Gold Hill Mill.
CLIMAX MOLYBDENUM COMPANY HENDERSON MINE AND MILL (Permit No. M-1977-342) Clear Creek and Grand Counties	Permit conditions protective of groundwater at the Henderson Mine and Mill include groundwater interception wells and seepage collection canals located at the toe of the tailings dams to pump potentially contaminated groundwater back into the mill water circuit for reuse. The seepage pipelines are tested for integrity at least once per year and a description of the testing and results are provided in the annual reclamation report. The groundwater monitoring plan includes quarterly monitoring of the one point of compliance well at the mine and four point of compliance wells at the mill.	An 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. Monitoring activities at the site have continued in 2014-15. 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 No. 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 indicate compliance with permit conditions and successful containment of cyanide solutions. During 2014 DRMS released 35 acres from the permit area for successful completion of reclamation. Currently, DRMS is reviewing another acreage reduction request addressing 716 ares. If approved, permit acreage will be reduced to approximately 1,050 acres

Company-Mine Name-Permit #	Site Conditions	FY14-15 Activity
CATALIX INTERNATIONAL, LLC PRECIOUS MINE (Permit No. M-2013-008) Crowley County	This 110d permit was approved in 2013 and includes an Environmental Protection Plan. Shale will be mined in open pits and processed using acids in aqua regia treatments for leaching out gold and platinum. Piezometers will be installed around the pits for leak detection. Ground water quality will be monitored and assessed in up gradient and down gradient wells and a ground water point of compliance will be established in the down gradient well prior to start-up.	The permit was issued on October 30, 2014 after the required Financial Warranty was submitted. Mining activities have not yet commenced at this site. Prior to commencement of mining at this site, monitoring well and piezometers will be installed and 5 quarters of baseline data will be collected
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.	No activity is currently being conducted at the site.
OCCIDENTAL OIL SHALE, INC. LOGAN WASH (Permit No. M-1977-424)	Final reclamation of the main facilities began during summer 2003 and continued through 2008. Maintenance of reclamation and remaining facilities continues. Discharge of	Mine water and retort water are monitored monthly at the portal locations for flow rate. The retort water discharges to an evaporation pond.

Company-Mine Name-Permit #	Site Conditions	FY14-15 Activity
Garfield County	water from within the sealed mine consists of mine water and retort water. Mine water from the lower 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.	
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 on Deadman Gulch and from the Lake Fork above and below the confluence with Deadman Gulch. 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. Operator neutralizes underground impounded water with sodium bicarbonate. Ground water monitoring locations are shallow sumps on and below the waste rock dump, 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	Lined diversion structures appear to be functioning effectively, as no seeps were noted at the toe of the waste dump in 2013 or 2015. Diversion structure consists of welded polyethylene pipe and limestone-lined open ditch. .

Company-Mine Name-Permit #	Site Conditions	FY14-15 Activity
	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.	
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 operator treats mine pool water using an in-situ biological process. The site also has a reverse osmosis system for treating pumped mine pool water and an ion exchange system for treating alluvial ground water that is captured in underground sumps. The operator monitors ground water quality in 11 alluvial wells, 8 bedrock wells, and in the mine pool. Concentrations of selected analytes in mine pool water sampled on June 16, 2015 were: Manganese: Analyte Standard 0.05 mg/L; Concentration 1.45 mg/L Molybdenum: 0.035 mg/L; 0.248 mg/L Radium 226: 5 pCi/L; 233 pCi/L Sulfate: 250 mg/L; 1360 mg/L Uranium: 0.03 mg/L; 3.57 mg/L	Mine pool pumping and RO treatment have been shut down since rain storms in September 2013 damaged the mine's main access road. The Operator completed repair of the access road in August 2015. The RO system testing and calibration resumed upon completion of the access road. Temporary loss of the electrical substation at the end of August 2015 resulted in delay of mine pool pumping and RO treatment. RO treatment resumed in September 2015. Ion exchange treatment of alluvial water has continued. In April 2015, the Division approved Technical Revision No. 22 to install a grout curtain in the vicinity of Sump 10. The grout curtain was installed to fill existing boreholes which were believed to be allowing the mine pool to discharge to the surface. The grouting project was completed in June 2015. Evaluation of the effectiveness of the grout curtain is ongoing.

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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 WAD cyanide. The site has an NPDES permit for historic adit discharge.	There was no mining or milling activity during 2014-15, and no water quality samples were taken. The operation was put into temporary cessation in June of 2014 after verification that all hazardous materials had been removed from the site.
WILDCAT MINING CORPORATION IDAHO MILL (Permit No. M-1981-185) La Plata County	The permit was converted to a 112d in 2011 through approval of CN-01, which included the old permit areas under M-2006-069 and M-2010-003. The operator has installed groundwater monitoring wells at the site, and surface water sample locations have been established in order to provide baseline conditions for 5 quarters. Mining and milling are 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.

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ENERGY FUELS RESOURCES CORPORATION, INC. WHIRLWIND MINE (Permit No. M-2007-044) Mesa County	The Division placed this mine into temporary cessation on May 6, 2013. The operator installed a monitoring well below the 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 2014-15. 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 re-form 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) Mineral County	Water monitoring was terminated by the former operator. Rio Grande Silver (RGS) has applied for a permit amendment consisting of an Environmental Protection Plan (EPP) which includes a water sampling and monitoring program. The EPP amendment must be approved and baseline water quality established before the mine can be reactivated or a new mill can be constructed,. There is currently no observed	The mine is in Temporary Cessation (TC) status, and no construction, mining, or processing is occurring. Water sampling will occur on an annual basis while permit is in TC.

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	discharge to the surface. RGS has been voluntarily sampling surface water throughout their unpatented claim area.	
COTTER CORPORATION JD-7 PIT (Permit No. M-1979-094HR) Montrose County	Due to HB-1161 this mine is a Designated Mining Operation (DMO) and the Division required the operator to submit an Environmental Protection Plan (EPP). The EPP was approved on February 21, 2014. The site is currently in temporary cessation. During mining, water accumulated in the underground mine is treated and discharged in accordance with an NPDES permit.	The site is in temporary cessation. There was no activity during the fiscal year.
COTTER CORPORATION JD-9 MINE (Permit No. M-1977-306) Montrose County	Due to HB-1161 this mine is a Designated Mining Operation (DMO) and the Division required the operator to submit an Environmental Protection Plan (EPP). The EPP was approved on February 11, 2014. The site is currently in temporary cessation. During mining, water accumulated in the underground mine is treated and discharged in accordance with an NPDES permit.	The site is in temporary cessation. There was no activity during the fiscal year.
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 have been received by DRMS and are being evaluated for DMO status along with other criteria. The operators have filed for bankruptcy and future financial status of the operator is unknown.
FORTUNE REVENUE SILVER MINES, INC. REVENUE MINE	This operation was approved as a 112d-1 permit in 2013, and included an Environmental Protection Plan. The main	The operator began quarterly surface and groundwater sampling in 2012. The Division approved a mine water handling plan to involve

Company-Mine Name-Permit #	Site Conditions	FY14-15 Activity
(Permit No. M-2013-032) Ouray County	portal discharges water that is piped to a lined settling pond, to reduce suspended zinc before it is released to Sneffels Creek. The operator is required to monitor surface and groundwater and implement a mine water handling plan. The sampling plan includes five locations for groundwater and four locations for surface water. The permit was transferred from Star Mine Operations to Fortune Revenue Silver Mines in October 2014.	on site treatment. Is has not been implemented as of this date. In addition, the site is in standby or maintenance status as of this fall.
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	Thirty two 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)	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	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.

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San Juan County	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.	DRMS did not approve the EPP for the mill tailings repository; therefore, the operation is approved for site maintenance, water monitoring, and commencement of final reclamation. Milling activities are prohibited until a new location for tailings disposal is permitted. During 2014-15, the Operator continued to implemented portions of the plans approved through TR-11. On July 23, 2015 the property and all associated assets were sold as result of a litigation decision. Todd Hennis is now the owner of the property, facilities and all related equipment. The permit has not been transferred and the site remains under Cease and Desist order.
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. The Operator is conducting a comprehensive voluntary groundwater study of the mill tailings pond 4 area as well as a geotechnical stability study. .

Company-Mine Name-Permit #	Site Conditions	FY14-15 Activity
PINON RIDGE MINING, LLC **SUNDAY MINE** **(Permit No. M-1977-285)** **San Miguel County**	A permit transfer from Energy Fuels Resources to Pinon Ridge Mining was completed in October 2014. As this mine is now a DMO, the Division had required the former operator to submit an EPP. 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 equilibrated during this recent period of temporary cessation, and the flooded portion of the workings is not expanding.	The Environmental Protection Plan (EPP) that was approved in 2012 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 2014.
PINON RIDGE MINING, LLC **WEST SUNDAY MINE** **(Permit No. M-1981-021)** **San Miguel County**	A permit transfer from Energy Fuels Resources to Pinon Ridge Mining was completed in October 2014. As this mine is now a DMO, the Division had required the former operator to submit an EPP. 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	The Environmental Protection Plan (EPP) that was approved in 2012 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. 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 2014.

Company-Mine Name-Permit #	Site Conditions	FY14-15 Activity
	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.	
PINON RIDGE MINING, LLC **TOPAZ MINE** **(Permit No. M-1980-055 HR)** **San Miguel County**	A permit transfer from Energy Fuels Resources to Pinon Ridge Mining was completed in October 2014. As this mine is now a DMO, the Division required the former operator to submit an EPP. 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.	The Environmental Protection Plan (EPP) that was approved in 2012 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. Well installation approved under the EPP occurred during 2012-2014.
CLIMAX MOLYBDENUM COMPANY **CLIMAX MINE** **(Permit No. M-1977-493)**	Groundwater monitoring has continued as approved in the EPP for the site. All previously existing measures to protect groundwater, including the groundwater	In July of 2015 a meeting was held with CDPHE and Climax to discuss issues related to establishing appropriate groundwater Numeric Protection Limits (NPL's)for this site.

Company-Mine Name-Permit #	Site Conditions	FY14-15 Activity
Summit, Lake, and Eagle Counties	cutoff walls and pump-back systems, the 5-Shaft dewatering pumps, and the water treatment plant are still in place and operational. A possible groundwater to surface water seep(s) was identified near the Storke yard collection area in 2013. Climax contacted CDPHE regarding this feature in October 2013 and continues to monitor and characterize these seeps pending a determination of their regulatory status.	Based on this meeting, Climax will be submitting additional information to DRMS for review to determine appropriate standards for analytes of concern (primarily Mn) when establishing site NPLs.
CRIPPLE CREEK & VICTOR GOLD MINING COMPANY CRESSON PROJECT (Permit No. 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 exceedances. CC&V continues to pump Arequa Gulch groundwater back into the mine water circuit. The mine added new compliance wells downgradient in Arequa Gulch in 2013, and new Grassy Valley and Squaw Gulch wells have been sampled since the beginning the 2nd quarter of 2014.

Construction Materials Operations

Company-Mine Name-Permit #	Site Conditions	FY13-14 Activity
CEMEX, INC. LYONS QUARRY (Permit No. 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 for reducing ponded water in C Pit to less than one-half acre, and lining portions of the	In March 2014, the Operator requested a revision to the monitoring plan (TR-12), which DRMS approved, which demonstrated the exceedances of chloride and sulfate in CEM-004 could not be attributed to migration of water from C-Pit.

Company-Mine Name-Permit #	Site Conditions	FY13-14 Activity
	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. 12 (TR-12). TR-12 revised the numeric standards for chloride and sulfate. The previous numeric standards for chloride and sulfate were based on drinking water standards. The drinking water standards were not appropriate as the groundwater down-gradient from the operation is not used for drinking. A chemical analysis of chloride and sulfate was performed on the water in C-Pit using a stiff diagram. The average concentrations of chloride and sulfate in C-Pit were used to establish the revised numeric standards.	
HOLCIM US, INC. PORTLAND LIMESTONE (Permit No. 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). In February 2015 the DRMS approved a technical revision requested by Holcim to adjust the Na standard.	Data are collected and submitted to DRMS annually.

Company-Mine Name-Permit #	Site Conditions	FY13-14 Activity
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. Additional monitoring data and site characterization information continue to be collected.	DRMS is evaluating the 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 conducts semi-annual monitoring of a down-gradient monitoring well, MW-005. On August 28, 2015, DRMS approved Technical Revision No. 5 which allows the operator to dispose of cement kiln dust (CKD) into the mined out limestone quarry. Groundwater protection methods include; placement of CKD away from surface water sources to prevent leaching, mixing CKD with crusher fines and overburden, and a three foot cap of clean overburden and topsoil during final reclamation.	DRMS approved a permit revision in March 2013 that eliminated monitoring of four alluvial wells, based on a lack of hydrologic connection between them and the facility. DRMS is evaluating a location for a new downgradient monitoring well that would be within the groundwater flow path downgradient from the facility. DRMS and GCC are scheduled to meet this fall (2015) to review and discuss a revised GW monitoring plan.
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	Aggregate Industries continues to submit the quarterly groundwater measurement data collected by Aggregate Industries as well as groundwater quality monitoring and measurement data collected at the site. This data is also submitted to the Colorado Department of Public Health and Environment as required under the recycling license held by

Company-Mine Name-Permit #	Site Conditions	FY13-14 Activity
	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	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
FY14-15 Production:	1,824,987 tons (July 2014-June 2015)
No. Miners	199
Permit Acres:	10,987.40 (5262.90 federal surface and 9,029.40 federal coal)
Affected Acres:	7051.01
Disturbed Acres:	410.03
Bond Amount:	Required - $12,047,358.12; Actual Held - $12,446,699.61

The Bowie No. 2 Mine is an underground mine that produces coal using longwall mining and continuous mining equipment. Bowie Resources, LLC (BRLLC) submitted a lease by application (LBA) with the U.S. Forest Service and the BLM. The LBA (COC-75916), called Spruce Stomp, contains approximately 1,790 acres and is immediately adjacent to existing coal leases held by BRLLC. The BLM approved the sale of the LBA to BRLLC on July 30, 2014. The Division approved Permit Revision PR-14 in November of 2014 to incorporate the Spruce Stomp lease into the Bowie No. 2 permit, adding 1,356.3 acres of affected area and 1,790.2 acres of permit area.

In the summer of 2015, BRLLC determined that the longwall miner would need to be idled. Due to the faster rate of mining by the longwall equipment as compared to the rate of mining by the longwall panel development equipment, the longwall mining equipment has caught up to the development mining equipment. Additional time is now needed to allow development mining of the longwall panels to proceed ahead of longwall mining. This, among other factors, resulted in BRLLC announcing on September 30, 2015 that effective November 30, 2015, it would be laying off 78 full-time employees and 19 contract employees. It is anticipated that longwall mining will be idled for approximately one year.

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
FY14-15 Production:	2,678,216 tons (July 2014-June 2015)
No. Miners:	174
Permit Acres:	29,075.74 (4,815.37 federal surface and 24,332.97 federal coal)
Affected Acres:	6022.90
Disturbed Acres:	6013.00
Bond Amount:	Required - $340,844,969.75; Actual Held - $80,517,829.00*

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 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 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 approved disturbed acreage by over 2,000 acres, received final Division Approval on May 29, 2013. Currently,

Colowyo has submitted PR-04 which adjusts the mine plan for the "Collom Area". The mine's total permit area is now just over 29,000 acres, with the mine's approved disturbed acreage just above 6,000.00 acres.

*The disparity between the amount of bond required and the amount of bond held is due the Division's approval of Permit Revision PR3. Although this Permit Revision increased Colowyo's bond liability by more than $260,000, this large expansion plan has not been approved by the Office of Surface Mining. Prior to disturbing any surface, Colowyo will be required to submit the appropriate reclamation bond.

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
FY14-15 Production:	2,457,520 tons (July 2014-June 2015)
No. Miners	162
Permit Acres:	13,645.01 (13,325.01 federal surface and 13,645.01 federal coal)
Affected Acres:	8,209.79
Disturbed Acres:	491.64
Bond Amount:	Required - $5,750,687.08; Actual Held - $5,738,383.08

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 into their current longwall workings to allow nitrogen to be pumped into the mine as a fire preventative measure. Permit Revision PR-8, 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 PR-8 expanded the mine's permit area and affected area into Moffat County for the first time. A Permit Renewal (RN-06) application was received on January 22, 2014, and the Renewal was issued on October 21, 2014.

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
FY14-15 Production:	0 tons (July 2014-June 2015)
No. Miners	12
Permit Acres:	15,676.51 acres (10,125.51 federal surface and 12,430.51 federal coal)
Affected Acres:	6,659.17
Disturbed Acres:	239.20
Bond Amount:	Required - $4,374,410.74; Actual Held - $4,500,000.00

The Elk Creek Mine is not producing coal, and is not expected to. Market conditions are such that the setback of the 2013 underground fire, in which the longwall miner was lost, is not readily overcome. The operator is currently in the early stages of reclaiming the site. Vent shafts and portals are currently being sealed in accordance with MSHA regulations; this work is expected to be completed before the end of the year. All of the coal that was stockpiled on site has been shipped.

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
FY14-15 Production:	5,013,540 tons (July 2014-June 2015)
No. Miners:	302
Permit Acres:	20,100.00 (6,069.60 federal surface and 7,196.00 federal coal)
Affected Acres:	19,838.45
Disturbed Acres:	740.32
Bond Amount:	Required - $9,905,676.23; Actual Held - $10,056,089.00

The Foidel Creek Mine, permitted by Twentymile Coal, LLC (TCLLC), is an underground longwall mine located near Oak Creek, Colorado. The longwall is currently operating in the Wadge Seam in the Western Mining District. Extraction of coal from the Wadge Seam is predicted by the permittee to end in 2016. Technical Revision TR-83, authorizing TCLLC to ramp down from the Wadge Seam to the Wolf Creek Seam and conduct development mining, was approved in November 2014. Permit Revision PR10, submitted in January 2015 and currently under review, seeks approval to conduct longwall mining in the Wolf Creek seam.

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

Company Name:	GCC Energy, LLC
Mine Name:	King Coal Mine
Mine Type/Status:	Underground/Federal/Active
FY14-15 Production:	965,571 tons (July 2014-June 2015)
No. Miners	124
Permit Acres:	2658.00 (88.00 federal surface and 1296.00 federal coal)
Affected Acres:	2,374.89
Disturbed Acres:	36.26
Bond Amount:	Required - $ 884,249.71; Actual Held - $ 884,814.76

The King Coal Mine, permitted by GCC Energy, LLC (GCC), 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. Expansion from the King I Mine to the King II Mine was approved by DRMS in 2006 via Permit Revision PR08. Coal extraction began from the King II mine in 2007. The King II mine's surface facilities were constructed in 2008. Coal is mined from the "A" seam of the Menefee Formation using conventional room-and-pillar methods. The coal is hauled from the site by truck to a rail head located in Gallup, NM. Much of the King II coal is federally owned and located beneath surface lands owned by the Ute Mountain Tribe. All of the King II surface facilities fall under the jurisdiction of the Division as they are situated upon State-owned lands, but OSM is the permitting agency for the federal coal beneath the Ute lands.

In 2011, GCC requested from BLM a proposed modification to Lease No. COC-62920 for the King II Mine. This would incorporate BLM-managed coal from an additional 952 acres: 320 acres of private surface into the DRMS permit, and 632 acres of Tribally-owned surface into the OSM permit. The BLM is presently working on a Draft EA for the lease modification. The operator also seeks to evaluate coal that lies immediately north of the current lease area beneath lands owned by the Ute Mountain Ute Tribe, but has not yet submitted an application for this unleased coal to the BLM. In May of 2014, the operator applied to the BLM for an Exploration License for the area associated with the unleased coal. The BLM is working on a draft EA for the Exploration License as well.

The Office of Surface Mining, Reclamation and Enforcement received letters from four landowners living near the King Coal Mine, some of which raised concerns that the mine may be affecting certain landowners' water wells. In response, OSM, DRMS, and GCC agreed upon an expanded groundwater monitoring program for potential new as well as existing underground workings at the King II Mine. Also included in the expanded water monitoring program are requirements for a new upstream water monitoring station on a local irrigation ditch, and for conducting a spring and seep survey in nearby East Alkali Gulch. This expanded monitoring program is the subject of Technical Revision TR26, submitted to DRMS on 10/22/15.

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
FY14-15 Production:	9,693 tons (July 2014-June 2015)
No. Miners:	11
Permit Acres:	4,198.90 (0 federal surface and 0 federal coal)
Affected Acres:	2,899.21
Disturbed Acres:	222.60
Bond Amount:	Required - $4,157,143.98; 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 (although these acreages have not been incorporated into their permit and NECC cannot mine this coal). 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".

On May 13, 2014, the permit status was changed to active. Since then coal has been mined and a small amount has been shipped by truck to a potential customer for a test burn. The wash plant has been used to wash raw coal, and has generated some solid waste. No process water was discharged.

The Division is reviewing Technical Revision TR-68, which is a response to the Division Mid-Term review, and Technical Revision 70 which proposes revised haul road designs.

*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 the reclamation bond due to those approved activities being put on hold. The bonding discrepancy will be resolved with the pending Technical Revision 68.

New Horizon North Mine (Producing) – C-2010-089 Montrose County

Company Name:	Western Fuels-Colorado, LLC
Mine Name:	New Horizon North
Mine Type/Status:	Surface/Private/Active
FY14-15 Production:	269,630 tons (July 2014-June 2015)
No. Miners:	20
Permit Acres:	328.70 (0.00 federal surface and 0.00 federal coal)
Affected Acres:	288.70
Disturbed Acres:	288.70
Bond Amount:	Required - $5,254,691.17; Actual Held - $5,500,000.00

The New Horizon North Mine is a newly permitted operation, situated directly north of the New Horizon Mine in western Montrose County. The DRMS permit for the mine was issued in 2012. The mine started supplying coal by truck to the nearby Nucla Generating Station in October 2013. Since 2012, DRMS has approved 15 Minor Revisions and 10 Technical Revisions for the New Horizon North Mine, mostly for administrative and minor technical changes.

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

Company Name:	Trapper Mining, Inc.
Mine Name:	Trapper Mine
Mine Type/Status:	Surface/Federal/Active
FY14-15 Production:	2,172,333 tons (July 2014-June 2015)
No. Miners:	161
Permit Acres:	11,156.69 (0.00 federal surface and 5,540.43 federal coal)
Affected Acres:	3,387.50
Disturbed Acres:	3,387.50
Bond Amount:	Required - $23,016,528.92; Actual Held - $30,173,724.00

The Trapper Mine, permitted by Trapper Mining, Inc (TMI), is a surface mining operation located south of Craig. Three draglines, and several excavators, loaders and trucks, are used to mine the coal resources. The coal extracted is trucked directly to the Craig Power Plant located adjacent to the mine site.

Mining is currently taking place in K, L, and M Pits. Contemporaneous reclamation continues at the Trapper Mine, and lands are reclaimed to rangeland and wildlife habitat. At the end of 2014, TMI reported to have disturbed 6,571.5 acres of land for the entire life of the Trapper mine. Of that acreage, 3,242.4 acres have been granted final Phase III bond release. In January of 2015, TMI received approval for Phase II Bond Release Application SL16 for 277.8 acres. Bond Release Application SL17, seeking Phase III bond release of 450.2 acres, was submitted to DRMS on 10/14/15 and is currently under review.

In May of 2013, Trapper submitted Permit Revision PR-7 to add approximately 774 acres to their permit area and to update their mining plan for the current permit term ending in 2017. A major component of the permit revision is an updated drainage reconstruction plan for the drainages to be re-established during the current permit term. Final Approval of PR-7 occurred on 10/6/15. PR-7 added 774.39 acres of new permit area and 58.10 acres of disturbed and affected area with the existing permit area.

In May of 2015, a US District Court determined that the US Department of Interior inappropriately approved a federal mine plan modification in November of 2009 for the Trapper Mine. TMI and OSM are working under a court-approved agreement to re-prepare this mine plan modification by April 30, 2016.

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
FY14-15 Production:	6,146,392 tons (July 2014-June 2015)
No. Miners:	350
Permit Acres:	17,154.90 (11,758.40 federal surface and 13,795.00 federal coal)
Affected Acres:	14,632.10
Disturbed Acres:	560.15
Bond Amount:	Required - $14,133,349.30; Actual Held - $15,000,000.00

The West Elk Mine is an underground longwall mine that is producing coal from the E-Seam. The operator is currently mining in the sixth longwall panel in the southern mining area. Complications with obtaining a lease to the south has led the operator to pursue new workings in the B-Seam; a project to establish access to the B-Seam from the existing workings is out to bid. The operator expects work to begin in October, 2015 and last approximately 6 months. The existing coal wash plant and refuse pile (the Refuse Pile East Expansion, or RPEE) are expected to provide sufficient capacity for the remaining life of mine. The operator continues to construct and reclaim mine ventilation boreholes, and their associated drill pads and light-use roads.

Bond Release application SL-06, regarding the release of $69,761 of Phase III liability on 24.2 acres, received final Division Approval on 7/18/15. Bond Release application SL-07, regarding the release of $97,871 of Phase I liability on 19.23 acres, received final Division Approval on 5/23/15. Bond Release application SL-08, requesting the release of Phase I liability for the sealing of mine ventilation boreholes, and the reclamation of their associated drill pads and light-use roads, on approximately 10 acres in the Dry Fork of Minnesota Creek, was found complete by the Division on 7/7/15 and is under review.

Colorado Coal Mines			
(October 26, 2015)			
Permit #	**Mine**	**Total Permitted Acreage**	**Inspections Required**
	Producing		
C-1980-007	West Elk Mine	17,154.90	12
C-1981-010	Trapper Mine	11,156.69	12
C-1981-012	New Elk Mine	4,198.90	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	10,987.40	12
C-2010-089	New Horizon North Mine	328.70	12
	TOTAL PRODUCING	125,001.85	132
	Reclamation and Cessation		
C-1980-004	McClane Canyon Mine (temporary cessation)	2,560.50	4
C-1981-008	New Horizon Mine	928.89	12
C-1981-013	Golden Eagle Mine	1.20	12
C-1981-014	Southfield Mine	2,735.20	12
C-1981-020	Munger Canyon Mine	1,028.00	12
C-1981-025	North Thompson Mine (Phase II released)	1,093.50	4
C-1981-028	Keenesburg Mine	555.40	12
C-1981-038	Bowie No. 1	5,435.20	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)	164.34	4
C-1992-081	H-G Loadout	391.20	12
C-1994-082	Yoast Mine	2,318.30	12
C-1996-084	Lorencito Canyon Mine	384.00	12
C-2009-087	Peabody Sage Creek Mine	10,164.00	12
C-2010-088	Fruita Loadout (temporary cessation)	208.60	4
	TOTAL RECLAMATION AND CESSATION	43,480.13	168
	Revoked		
C-1980-002	O.C. Mine No. 2	88.50	2
C-1981-015	Fruita No. 1 & 2	16.00	4
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
	TOTAL REVOKED	2,282.90	24
	New		
C-2006-085	Northfield Mine (pending bond)	1,157.00	0
	TOTAL NEW	1,157.00	0
	Total	**171,921.88**	**324**

COLORADO ABANDONED MINE LAND PROGRAM
NONPOINT SOURCE AND WATER QUALITY IMPROVEMENT PROJECTS
November 2015

SAN JUAN RIVER WATERSHED

Project	Status	Partners
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. In 2014 At EPA's request, DRMS provided 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 2014. Based on the mine mapping, locations of groundwater inflows, and preliminary geologic evaluations, DRMS completed recommendations and specifications for a pressure bulkhead, which was successfully installed in August, 2015. DRMS provide underground inspection of the bulkhead construction and contact grouting during 2015 work. The bulkhead project is now complete and ready for implementation.	COMPLETED in 2015	DRMS, EPA
Bullion King Mine Waste Reclamation The Bullion King Mine site is located at the headwaters of Porphyry Gulch, a tributary to Mineral Creek. This mine-waste consolidation and capping project was bid out and reclamation construction completed in summer 2015. The Bullion King mine waste is the last mine waste site in Mineral Creek which was identified by the Animas River Stakeholders Group (ARSG) for remediation that was not remediated. 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 is approximately one half acre in area. The entire area reclaimed, including the repository, water diversion channels, and removal areas is	COMPLETED	DRMS, ARSG, CDPHE

Project	Status	Partners
approximately 1 acre. **Bullion King Mine Waste Reclamation cont.** DRMS managed contractor procurement and construction oversight for the ARSG. McCollums Excavating was awarded the contract, and reclamation construction work was completed during summer and fall 2015.		

LOWER COLORADO RIVER WATERSHED

Project	Status	Partners
Uncompaghre Watershed Partnership NPS 319 grant The Uncompahgre Watershed Partnership (UWP) is a 501 c(3) organization located in Ridgway, Colorado whose mission is to focus on the Upper Uncompahgre watershed. The UWP has been in existence since 2007 and is headed by a Board of Directors with consultation from the previous watershed coordinator. The UWP was awarded a NPS 319 grant in 2014 for 3 projects located on 3 separate 303(d) listed waters. The WQCD has assisted in water quality sampling to characterize water quality.	Underway	DRMS, UWP, CDPHE
The Atlas Mill site is located on Sneffels Creek 8 miles from Ouray on Camp Bird Road and consists of legacy tailings located in the floodplain and on the banks of Sneffels Creek. The project is working toward remining of the tailings from the active Revenue Mine located directly downstream. The Revenue recently changed ownership and discussions are ongoing as well as issues on complying with mining and milling permit requirements related to the tailings removal. The project also would re-channel an existing stream channel braid that is going through the tailings causing active erosion of the tailings material.	Underway	
The Michael Breen Mine site is located on the Uncompahgre River on Engineer Pass Rd approximately two miles above the confluence with Red Mountain Creek. A draining adit seeps through the existing waste rock and small tailings area and discharges into the Uncompahgre River. The Michael Breen project was completed mainly in October 2014 to divert the draining adit	Completed	

Project	Status	Partners
away from the waste rock pile and loadout structure. Some additional revegetation of the waste rock pile was completed in July 2015. Stabilization work of the loadout structure was achieved by diverting the draining adit and additional structural support funded by DRMS. **The Vernon Mine** is located near the headwaters of Gray Copper Gulch, tributary to Red Mountain Creek. The Vernon Mine Project was completed in September 2015 and included removing waste rock and diverting a draining adit. Approximately 1500 cubic yards of waste rock was removed from the banks of Gray Copper Gulch and placed in an upland repository. The disturbed areas were revegetated with native seed, woody compost and excelsior mulch. DRMS conducted a mine safety closure project simultaneously on the private mining claim.	Completed	
Carbonero Mine, Howard's Fork/ San Miguel River Watershed- DRMS staff is assisting the local watershed group, USFS, CDPHE 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 complicated by: (a) the complex hydro geologic 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. Construction will begin in the summer of 2015	Investigation Completed	DRMS, EPA, CDPHE, USFS
Bulkhead Feasibility Investigation/Implementation 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	Project on hold until 2016	

Project	Status	Partners
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. **Current Work** The portal re-habilitation work was scheduled for late summer/fall 2015, but temporarily postponed until results of the Gold King investigations are released. DRMS is awaiting any additional technical guidance and recommendations for portal rehabilitation work before proceeding. Current plans are to complete the Carbonero underground rehab and investigation project in Summer 2016. **Cost Estimate/Funding** 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.		
Redwell Basin/ Daisy Mine, Slate River/ Gunnison River watershed High and low flow sampling were completed in July and September of 2015. Daisy mine reclamation planning is ongoing for a 2016/2017 reclamation. Reclamation above timberline at this site could take two seasons, depending on weather and snowfall. Post borehole-grouting WQ sampling has indicated a rise in ph and improved water quality in the upper basin. Reclamation of the Daisy Mine waste-rock piles will decrease storm and snowmelt mobilization of metals from these sources into the Redwell basin watershed.	Underway	DRMS, CDPHE,
Yellowstone Mill Tailings, Henson Creek/Gunnison River watershed The Yellowstone mill tailings contributed acidic storm water runoff with high levels of arsenic and soluble lead and zinc to the north fork of Henson creek, a tributary to Henson Creek and the Lake Fork of the Gunnison River. The Yellowstone Mill tailings were identified as a significant As, Pb and Zn loading source during watershed characterization work in 2006.	Completed	DRMS, BLM

Project	Status	Partners
With BLM funding, DRMS contractors completed an in-situ reclamation of the mill tailings and contaminated soils on steep slopes by adding lime and compost to the soils, thoroughly mixing amendments using a mixing bucket, and then revegetating the entire site.		
Suncup/Centennial U3O8 Mine Reclamation Project, Dolores River Watershed **Project Site Description** The inactive Centennial and Sun Cup Uranium Mines are located on U. S. Bureau of Land Management (BLM) managed lands in Disappointment Valley, seven miles east of the town of Slick Rock in western San Miguel County. The waste rock piles are located in or adjacent to drainages. Erosion of the waste rock is transporting selenium bearing and radioactive materials downstream. The BLM has identified these sites as high priority for remediation. The Centennial and Sun Cup mines drain into Disappointment Creek, a tributary to the Dolores River. Disappointment Creek below the confluence with Morrison Creek is identified as segment 3a. of the Lower Dolores River. Segment 3a. is on the Colorado Department ot Public Health and Environment, Water Quality Control Division's (CDPHE-WQCD) Evaluation and Monitoring List for selenium and *E. coli*. Proposed remediation at the Centennial and Sun Cup Mines intends to stabilize the severely eroding waste rock with earthwork to reduce steep slopes, reconstruction of drainage channels impacted by mine waste and revegetation of the waste rock piles. Reducing erosion of mine waste rock piles and subsequent transport of fine grained mine waste will control a source of materials contributing selenium (and uranium) into Disappointment Creek. Site assessment will be conducted during the Fall of 2015. Test pit excavation will be conducted, as well as pre-construction Aerial Imaging, and elevation and mapping. Stream Restoration Design Plans drawings and narrative will be prepared over the winter, and a site showing to potential contractors is scheduled for spring of 2016, with construction scheduled for September through the middle of November, 2016.	**New Project Underway**	DRMS, BLM, FMI
Rico Argentine Mine Complex, St. Louis, Blaine, and Argentine Tunnels, Dolores River Watershed	Ongoing, additional characterization	DRMS, EPA, ARCO

Project	Status	Partners
Following the completion of rehabilitation and source control work in the Blaine Tunnel in 2013, DRMS in cooperation with EPA and Atlantic Richfield Company (ARCO) launched an investigation of the potential for source controls in the Argentine Tunnel. The Argentine Tunnel is part of the same mining complex as the Blaine Tunnel, but is a mine level 250 feet higher in elevation than the Blaine. In 2014 and 2015, DRMS mapped and evaluated the safety and stability of the Argentine Tunnel mine workings, and took samples and flow measurements of the mine water. This characterization work indicates that Argentine Tunnel water may be a significant contributor to the metal load discharging from the St. Louis Tunnel on the Dolores River. EPA, ARCO, and DRMS have determined that further investigation of the metal load and potential for source controls in the Argentine Tunnel is warranted, and are in the planning stage for mine water tracer testing in 2016. Source control planning is also underway, with geochemical evaluation of the benefits that may be derived from elimination of large volumes of pooled water within the Argentine Tunnel mine workings. DRMS will contract for the underground work, with ARCO providing funding and surface support.	and source control design in 2016.	

UPPER COLORADO RIVER

Project	Status	Partners
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	Investigation & Both Bulkheads completed	DRMS, EPA, CDPHE, USFS

Project	Status	Partners
completed in 2013 and the underground bulkhead seal was installed in the summer of 2014. 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. The first bulkhead seal was installed in 2014. In summer 2015 the second bulkhead seal to control discharge from the mined vein was installed and the valve closed. Head pressure on the inner bulkhead reached a maximum of 188-ft during the summer of 2015, and began declining with the along with the local hydrograph. Pressure transducers installed behind both the inner and outer bulkheads record pressure on 6-hour intervals throughout the year and are periodically downloaded. The mountainside and hydrologic system are being closely watched to see how well the mine pool is contained. At present there is no surface discharge entering the creek from this mine. If any significant seepage develops, a follow-up program to seal joints and fractures in the enclosing rock mass with various types of pressure-grouting will be evaluated. Installation of an additional hydrologic seal bulkhead is being evaluated for the C-Level of the Pennsylvania mine to contain additional impounded water on that level. Future potential for In-situ treatment of the mine pool with specific metals-fixing bacteria injected through drill holes may also be evaluated.	Portal Rehab Complete Both Bulkhead Seals Installed	
<u>Puzzle/Ouray Mine Site, Willard Tunnel, Blue River Watershed</u> The CDPHE, EPA, USFS, USGS, DRMS and Trout Unlimited (TU) have been investigating abandoned mine impacts to water quality in Illinois Gulch, a tributary to the Blue River, since 2012. These investigations have proceeded in consultation with local landowners, Summit County, and the Town of Breckenridge. In 2015, DRMS led a tour for the stakeholders of the surface expression of the Puzzle/Ouray vein and associated mine workings. Also in 2015, EPA and DRMS installed three flumes with data logging transducers into mine discharges into Illinois Gulch, and conducted rigorous flow measurements in the gulch near the Puzzle Extension Shaft, which is a potential conduit for water that drains from the Willard Tunnel. As a result of these investigations, EPA,	Ongoing, USGS and DRMS will conduct a tracer dilution study in early 2016.	DRMS, CDPHE, EPA, USGS,TU

Project	Status	Partners
USGS,CDPHE, and DRMS are planning a tracer dilution study in Illinois Gulch in the vicinity of the Puzzle Extension Shaft.		

SOUTH PLATTE RIVER WATERSHED

Project	Status	Partners
Waldorf Mine Site, Wilcox Tunnel and Santiago Mine, Clear Creek Watershed The USFS, CDPHE, EPA, USGS, DRMS and Trout Unlimited (TU) have been investigating abandoned mine impacts to water quality in Leavenworth Creek, a tributary to South Clear Creek, since 2011. These investigations have lead to the completion of two remediation projects. The Wilcox Tunnel drainage was diverted around the mine waste dump in a project funded by the USFS and implemented by DRMS in 2012. The Waldorf Mill dispersed tailings were reclaimed in a joint USFS/TU project in 2015. DRMS conducted reconnaissance of the Santiago Mine underground workings in 2015 to determine if the Santiago is a source for the Wilcox Tunnel drainage. As a result of these investigations, the working group is planning a drilling program for the Wilcox Tunnel for 2016.	Ongoing, additional characterization and source control design in 2016.	DRMS, USFS, CDPHE, EPA, USGS, TU
London Butte Tailings The London Butte mine is located directly adjacent to South Mosquito Creek in Park County, Colorado. The 2014 project work at the London Butte involved demolition and removal of structures and debris, removing tailings material adjacent to South Mosquito Creek and placement of the tailings into a consolidation area. The tailings material was capped with dolomite material excavated from historic dump piles placed along the creek. Cover material was excavated from designated borrow locations and used to cover the dolomite and tailings consolidation areas. Donated biosolids were transported from the Climax Mine and spread over the reclaimed area. The 5-acre area was seeded, fertilized, and mulched, and tree planting and wetlands restoration planting was completed in 2015.	Completed	DRMS, CDPHE, FMI

Project	Status	Partners
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 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 2013 and the spring of 2012 and 2014. 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. Bulkhead Feasibility Investigation An initial investigation of the Perigo Mine in Gamble Gulch was completed in 2014 and a report detailing the findings of the investigation was finalized in Spring 2015. The investigation included surficial survey of associated mine workings and discharges, local groundwater wells, local geology, and a subsurface (drilling) survey of the Lower Perigo Crosscut. Initial investigations of the mine indicate 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, and is impounding significant contaminated mine water. Additional Investigation, Portal Rehab and Bulkhead Implementation Additional work to open and investigate the upper Perigo Portal to determine additional water inflows and determine potential conditions that would be encountered when excavating the lower Perigo Portal is planned. This funding will also be used to develop and implement a lower Perigo Portal rehab project. If sufficient funding remains, implementation of a bulkhead seal remedy will be pursued. DRMS is awaiting any additional technical guidance and recommendations for the upper portal rehabilitation work before proceeding.	Initial Investigation Completed Underway	DRMS, USFS, EPA, CDPHE

Project	Status	Partners

ARKANSAS RIVER WATERSHED

Project	Status	Partners
Gertrude-Venture Mine Complex, (Sugarloaf Mountain Mine Waste Erosion Mitigation) Lake Fork, Lake County Colorado The Gertrude-Venture Mine Complex is west of Leadville, located approximately ¼-mile southwest of the Tiger Tunnel, is another significant source of metals loading in the Lake Fork of the Arkansas Watershed. Colorado Mountain College has been investigating the Gertrude-Venture and is currently revising the Engineering Evaluation and Cost Analysis (EECA) for BLM approval. Reclamation construction is planned for 2016. Colorado Mountain College put together and was awarded a 319 project for the waste piles below the Venture Mine waste-dump. Similar to Venture, there are seven additional dumps within the drainage that have been eroding substantially over the past few years due to meandering flows. These mine-waste dumps will be removed and placed in the Venture repository. Due to the additional dump volume (triple the original Venture volume) a new, more accessible repository site was located this summer. With the additional dumps and repository, another round of cultural surveys was required and completed in 2015.	Underway	DRMS, BLM, CDPHE, EPA, NRDS, CMC
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 bulkhead design and construction were completed by EPA contractors in 2014.	Phase 1 bulkhead Completed	DRMS, EPA, CDPHE, USFS

Project	Status	Partners
The mine pool has begun to fill and the system is being monitored to determine next steps, which based on the water elevation developed behind the first bulkhead, will likely include a second bulkhead on the 1400 level. DRMS provided technical assistance and project management for Tunnel Rehab in this effort, and continues to provide technical assistance and monitoring of the impacts to Chalk Creek moving forward.		

RIO GRANDE RIVER WATERSHED

Project	Status	Partners
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 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 has become active once again.	Ongoing	DRMS, EPA, CDPHE
Lower Willow Creek Stream Channel **Lower Emperious Tailings- Willow Creek- Mineral County:**	Completed	DRMS, WCRC, CDPHE

Project	Status	Partners
The Willow Creek Reclamation Committee (WCRC) and the City of Creede completed a reclamation project on the floodplain near the Emperious Tailings at the edge of town. The project was funded with NPS 319 funds and DRMS provided matching funds and technical assistance for the project. In summer 2013, phase 1 of a stream channel restoration project was completed using state sev tax funding for NPS match. Additional work on the floodplain is anticipated in the future.		

STATEWIDE MINING NPS INITIATIVES

Project	Status	Partners
TMDL Priority Watershed Improvement Project- Statewide-DRMS/ Clean Waters State Revolving Fund- UPDATES 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. 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. **Project Updates:** ▪ Waldorf Mine, Clear Creek Co.-**Characterization underway-Adit Drainage Diversion -**	Ongoing Ongoing	CDPHE, USFS, USGS, EPA

complete

- Daisy Mine/Redwell Basin, Gunnison Co.- **Phase 1 drillhole plugging complete, Daisy Mine reclamation design underway**
- London Mine, Park Co. , **Construction completed in 2013. Phase 2 completed in 2014**
- Sts. John Mine, Summit Co.-**Removal of tailings from wetlands, revegetation- Completed in 2013**
- Champion Mine, Lake Co.-**Characterization- Complete**
  - **No siginificant impact to Halfmoon Creek- Focus shifted elsewhere**
- Tributaries to Kerber Creek. **Characterization- Complete**
  - **Phase 1 hydrologic controls completed by Trout Unlimited in 2015. Phase II slated for 2016**
- Venture Mine-**Engineering and Design- Underway, Construction set for 2016**
- Rattler Tunnel- **Construction completed in 2013**
- Carbonero- **Investigation set for 2016**
- Penn Mine-**Construction of bulkhead seals completed in 2015**
  Gamble Gulch/Perigo Mine- **Initial Investigation Completed 2015, 2nd phase 2016**

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.

Technical Assistance - TMDL Project Implementation Grant –Statewide, DRMS EPA 319 Funds/severance The Technical Assistance Grant and TMDL Project Implementation 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. Additionally, this grant provides funding for the implementation of reclamation projects seen as providing substantial improvements to watersheds impacted by "legacy" mining. 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, and various government agencies. The grant also 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 provides funding for DRMS personnel to implement three main activities: Activity 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. Activity 2: Implement underground rehabilitation and bulkhead construction on Level C of the Pennsylvania Mine, Summit County, Colorado. Activity 3: Implement Bullion King Mine Reclamation Project.	Ongoing	

List of Watershed Groups and partners to which DRMS provides technical assistance with funds from the Technical Assistance Grant: Willow Creek Reclamation Committee 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 San Juan RC&D Colorado Mountain College Aspen Source Water Protection Group Sheep Mountain Alliance		