



OFFICE OF SURFACE MINING RECLAMATION AND ENFORCEMENT

ANNUAL EVALUATION SUMMARY REPORT

FOR THE

ABANDONED MINE LANDS PROGRAM

FOR

MONTANA

EVALUATION YEAR 2002

(October 1, 2001 to September 30, 2002)

February 4, 2003

COVER PAGE CAPTION

A pond collecting highly polluted mine drainage just below the toxic tailings piles of the Emery Mine in Montana

MONTANA ABANDONED MINE LANDS PROGRAM ANNUAL REPORT

Part I. Introduction

The Montana Abandoned Mine Land Reclamation (AMLR) program continues to operate under the guidelines of the Surface Mining Control and Reclamation Act (SMCRA), the Federal Assistance Manual and associated regulations. The Casper Field Office (CFO) of the Office of Surface Mining (OSM) conducts oversight activities in regard to the Montana program, and the topics of the oversight report were selected in concert with the Montana Department of Environmental Quality (DEQ), Mine Waste Cleanup Bureau (MWCB). The Montana AMLR program was initiated in 1980 and for the next 10 years the State concentrated on abating the hazards left by past coal mining practices. In 1990 the State certified that all known coal problems had been addressed and they were then authorized by OSM to begin reclaiming the multitude of high priority non-coal hazards in their inventory. However, any abandoned coal hazards that are discovered must still be given priority funding over non-coal projects, and this requirement has been followed by the State. The evaluation methods used to produce this report are based on OSM Directive AML-22 and associated regulations. This report covers the period of October 1, 2001 to September 30, 2002.

Both the design and construction portions of each AML project are completed by private contractors. The State has established a bid process to obtain the most qualified design and construction firms at the most cost effective price. The design and specification work is accomplished during the winter months when most outside work is impractical, and the actual reclamation work starts as soon as weather and ground conditions will allow equipment to be moved to the site. Many of the sites presently being reclaimed are in mountainous terrain and at high altitudes. This may drastically shorten the amount of time available for reclamation work because of snow, ice and mud. A part of the responsibility of the design contractor is to provide an inspector for the reclamation work, who will be on site during working hours to ensure that the work is being completed according to the plans and specifications that have been approved.

The MWCB staff is very knowledgeable and dedicated to the completion of the program goals. An excellent working relationship exists between the staff of the MWCB, the CFO staff, and the State and Federal agencies that must be contacted during the course of preparing projects for reclamation. The MWCB personnel spend most of the construction season in the field coordinating and supervising the reclamation work, and preparing future projects for reclamation. Some construction work may continue into the winter months but the staff primarily spends this time of the year working with the design contractors to get projects ready for the upcoming construction season.

One AMLR Consolidated grant was awarded to the State during this evaluation period and it was approved well within the government performance period of 60 days. An outcrop fire grant was also awarded to the State during this evaluation period. This grant is to be used exclusively for the abatement of coal outcrop fires that are not associated with an abandoned mine. Untreated coal outcrop fires may smolder for years before the proper conditions will allow the fire to breach the surface and become an immediate safety hazard.

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

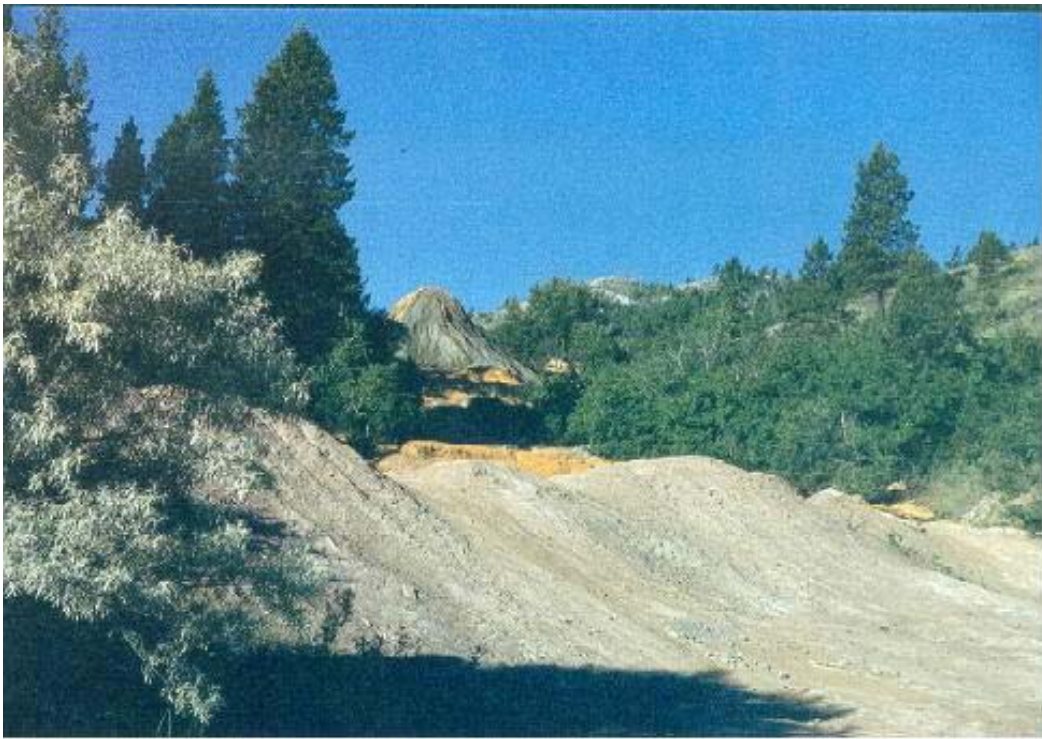
SMCRA	Surface Mining Control and Reclamation Act
AMLIS	Abandoned Mine Land Inventory System
AMLR	Abandoned Mine Land Reclamation
MWCB	Mine Waste Cleanup Bureau
OSM	Office of Surface Mining
SHPO	State Historic Preservation Office
AML	Abandoned Mine Lands
CFO	Casper Field Office
DEQ	Department of Environmental Quality
BLM	Bureau of Land Management
MOA	Memorandum of Agreement
AMD	Acid Mine Drainage

Part II. Noteworthy Accomplishments

The Spring Hill Mine was a large gold mining operation located about four miles south and upstream from the capitol city of Helena, Montana. High water events would wash significantly elevated levels of arsenic, iron, lead, copper, zinc, cyanide and mercury from the site and through the city, and eventually into to public water system. The abandoned mine site was also a partying area for local teenagers and a dump site for abandoned and stolen vehicles before it was reclaimed in 1999. Once the reclamation was completed, the MWCB started negotiations with the property owner, Ardic Exploration, to have the land donated to the non-profit Prickly Pear Land Alliance. This organization collects land and brokers it into public use, usually public recreation. The Spring Hill site is located between Lewis and Clark County's Mt. Helena Park and U.S. Forest Service land, and offers a continuation of established trail systems as well as an additional access point to the park system. This addition to the local park system would not have been possible without the recognition of its importance to the local community, and initiation of negotiations for the transfer by the MWCB.

Part III. On-Site Evaluation of Reclamation Projects

The first site visited during this evaluation visit was the above mentioned Spring Hill site. The vehicle bodies and assorted debris have all been removed from the site, and the contaminated soil removed to a secure repository. The site is now fenced to prevent unauthorized entry and has been contoured and revegetated. What was once an unsightly mess is now very much like the surrounding terrain.



Part of the Spring Hill Mine site near Helena, prior to reclamation in July of 1999.



The same area of Spring Hill Mine after reclamation in August of 2002.

Our next stop was at the Big Ox Mine and Mill site where reclamation is planned for the spring of 2003. This mine was opened in 1887 and was operated intermittently into the early 1950's. The site is eligible for inclusion into the National Register of Historic Places and will be reclaimed under a Memorandum of Agreement (MOA) with the Montana State Historic Preservation Office (SHPO). The mine structures and an abandoned homestead on the site will not be disturbed. The reclamation will consist of the removal of a toxic tailings pond that is washing dangerous levels of arsenic, lead, copper, manganese and zinc into the downstream water sources. Some of the on-site debris will also be removed.

We next visited the abandoned Charter Oak Mine and Mill site. This site covers a total of 71 acres and sits at approximately 5500 feet of altitude. The mine operated from 1916 to the early 1960's and mined and processed lead, silver, and zinc with lesser amounts of gold and copper. The property is managed by the U.S. Forest Service, and the funding for the reclamation was split between the Forest Service, AML and a State grant to the county. The site has been established as a historic mining interpretative site by the Forest Service, and they have placed a person on the site on weekends and holidays during the tourist season to guide visitors through the exhibits. The Little Blackfoot River runs along northern boundary of the site and the main focus of this project was to remove contaminated tailings from this important waterway. The old mine opening is covered by a bat gate and a colony of bats reside inside of the adit.

Our next stop was at the Emery Mine and Mill site. This is another project area that is located at high altitude and is usually under a heavy snow pack during the winter, allowing only about three months of the year for reclamation. The site encompasses 148 acres, but there are several additional mine sites nearby that greatly increase the area of environmental damage. The discovery of placer gold in the area streams in 1872 initiated the mining in the area, and the Emery mine was noted for the large number of openings that were present during mining. Over 30 adits and shafts were located on the site during mining and 11 of those remained open during our visit to the site. Waste rock piles were extensive, and the breakdown of material into toxic waste is evident on the surface. Snowmelt and rain must filter down through 40 feet of toxic material before it enters the drainage system. While gold was the primary mineral mined, silver, lead and zinc were also taken out in significant quantities. Most of the site is on private land but some of it is on Forest Service land. A lot of coordination with the Forest Service has been necessary to effectively address the environmental and safety hazards of the mined area.



Shaft into the Emery Mine. This is one of eleven openings still accessible at the site.

One of the mines adjacent to the Emery Mine is the Bonanza Mine. It also produced gold, silver, lead and zinc, and has an open mine shaft and some unstable structures on the site. It is another site of mixed ownership, and negotiations for reclamation have been time consuming since one of the owners lives in New York. Historical records indicate that most of the ore taken out of the Bonanza Mine was processed in the Emery Mill.



Entrance into the Bonanza Mine.

We also visited the site of the abandoned Bald Butte Mill site, which is scheduled for reclamation in the future. No detailed investigations of this site have been completed, but it is suspected to be a gold and silver, processing mill. Rain and snowmelt from the site is adversely affecting downstream water systems.

Our next visit was conducted on the site of the Gregory mine and Smelter. This project was under construction at the time of our visit and the reclamation contractor was on the site. Four small smelter flues had already been sealed with a foam material, and the removal of the toxic spoil to a secure repository was about to start. The site has seven different landowners and negotiations for coordinating the reclamation were time consuming. In addition, part of the site is still owned by an active mining company and they volunteered to move the spoil off their portion and into the repository. It was also another site that was eligible for the National Register of Historic Places and the reclamation was completed under an MOA with the Montana SHPO. The site covers a ten acre area and is at about 5600 feet of altitude, which limits the time available for reclamation work. Mining was from 1864 until about 1887, and the mine was down to 730 feet deep and had six working levels. Additional sporadic mining was attempted up into the early 1970's, but this was mostly reprocessing of the spoil and slag from previous mining activities. A well maintained road runs through the mine site making access for the heavy equipment necessary for reclamation easier, but this also allows more visitation by the general public increasing the chances for injury.

The same road that runs through the Gregory Mine also borders the Bertha Mine, offering good access to that site. The Bertha Mine was one of the first hard rock mines reclaimed in Montana and it was in

need of some remedial reclamation. Some erosion had occurred in the drainage areas and the spoil impoundment had begun to leach toxic water to the surface. No vegetation was able to grow on the spoil impoundment and drilling discovered that old car bodies were buried just a few feet under the surface. All this toxic material was removed and placed in a secure repository. Minerals mined from the Bertha included gold, copper, silver and lead. The main shaft was reported to be 900 feet deep with five working levels off of it.

The next site that we visited was the Alta Mine and Mill site. This site was reclaimed in 1999 but is still being monitored to ensure that all the reclamation objectives are being met. Huge amounts of toxic spoil were removed from the site and placed in a secure repository. The vegetation on the top of the repository is very good and there appears to be no leaching from it. Since the spoil was originally just dumped over the hill into the drainage, the removal of that spoil returned the drainage to its original contour. A water filled vertical shaft was also on the site and it is now emitting some polluted water into the drainage. The north facing slope has revegetated adequately but the south facing slope has not. These slopes are very steep and had to be terraced in order to hold seed long enough to provide germination. Remedial work is being planned to address the polluted water and revegetation of the south facing slope.

Our next stop was at the Comet Mine and Mill. Reclamation has been completed and the overall project looks very nice. There was some concern that the slope would be too steep to establish vegetation, but after only one growing season the vegetation is excellent. A lot of highly contaminated soil was removed from the old streambed and replaced with clean soil. The streambed and the sediment ponds below the site are looking very good. The weather continues to take a toll on the structures in the historic ghost town adjacent to the mine. Each visit to the site shows another pile of lumber where a structure once stood.



Comet Mine/Mill and part of the ghost town of Comet. Revegetated slope behind the old mill structure was once a huge open pit.

The last stop of the trip was at the Lee Mountain Site near Rimini, which was reclaimed in 1989. When first looking at the site it appears to be an avalanche chute instead of an old spoil dump area. The steep slope is crossed with several terraces to hold seed and reduce erosion of the topsoil, and several hundred trees have been planted to assist in this endeavor. Grass has revegetated the slope very well

and all of the trees appear to be doing well. The condition of the water downstream of the site has been greatly improved by the reclamation.

Our route also took us by two other AML sites that were partially reclaimed several years ago and one that is scheduled for reclamation in the near future. We have visited these sites several times and did not stop this time to view them closely. However, from the vehicle we could get a good view of each site as we passed. The Corbin Mill was on the AML inventory to be reclaimed, but it has now been reclaimed by the State Superfund Program and the Montana Tunnels Mining Company. Reclamation has not started on the Wickes Mill site in the old mining town of Wickes, Montana. Negotiations are still under way with the BLM and Montana Tunnels Mining Company for land to place a secure repository on for this site and several other sites to be reclaimed in the general area. The Basin Mine site was reclaimed several years ago and is located on the outskirts of the town of Basin. The reclamation eliminated a hazardous mine opening and stabilized a highwall.

Part IV. Post Reclamation Maintenance

The Montana MWCB monitors all completed projects closely for a three year period. If conditions warrant this monitoring period will be extended, but sites are usually satisfactorily revegetated, erosion problems abated, fencing removed and other problems solved by the end of this three year period. After the initial monitoring period has expired, each site is visited at least once every three years to ensure that the reclamation remains satisfactory. All completed sites have been placed into a computer data base so that the current status of any site can be quickly obtained. The MWCB has divided the State into four regions and will have contractors on call in each region to provide an immediate response to any maintenance problems that may arise on the completed sites.

Part V. Fiscal and Administrative Controls

The CFO visited the Montana DEQ offices in Helena, Montana during this evaluation period and reviewed financial information in regard to their AML program. During this review a drawdown analysis was conducted for two recent AML grants. The drawdowns sampled covered all draws made between July 2001 and October 2002, and February 2002 through June of 2002. The drawdown analysis confirmed that excess funds were not being held by the State.

In the past, the Montana DEQ has had considerable difficulty reporting AML program costs to OSM on a timely basis as required by the Federal Assistance Manual. The State recently submitted all back fiscal reports for AML grants, and are now considered current in their reporting. A new property inventory that met the requirements of the Common Rule was taken by the State during the spring of 2002. An A-133 audit for the two year period ending June 30, 2001, with findings pertaining to drawdowns, sub-recipient monitoring procedures and some previous improper drawdowns is currently being completed. The CFO will be involved in the resolution of these audit findings when the report is submitted.

A review of the MWCB motor vehicle use is ongoing. The MWCB uses both purchased and leased/rented vehicles from the State Motor Pool, and the CFO has concerns that this combination of using both purchased and leased vehicles may not be the most efficient use of AML funds. MWCB personnel travel was also reviewed to ensure that per diem and lodging costs were allowable. Travel approvals, as required by State policy, were also reviewed and no problems were noted with any of the travel procedures.

The basis for indirect costs was also reviewed. Questions had arisen regarding the possibility that duplicative costs were being charged between direct and indirect charges. Generally, these were costs that were being approved as direct costs but are typically charged as indirect costs. As a result of this oversight review, it was found that such costs were being charged both as direct and indirect costs, but they were charged in such a manner that they are not considered duplicative. For example, costs were charged to the DEQ on a per capita basis and those individuals involved in the Title IV program were charged appropriately as direct costs, and those in the administrative branch of DEQ whose salaries and benefits are charged as indirect costs were charged the per capita amount as an indirect cost. A further review of these costs is on-going, including a request from OSM to have the Federal cognizant agency look at the most recent indirect cost negotiation submission to ascertain if there are in any way duplicative costs.

Part VI. Acid Mine Drainage

Acid Mine Drainage (AMD) is found throughout the State in both coal and non-coal abandoned mines, but the heaviest concentrations are found in the Belt Coal Field area. With normal reclamation procedures, the MWCB is able to control or eliminate most of the AMD from the non-coal mines. The Belt Coal Field continues to pose an unmanageable AMD problem with the funding level the State receives and the technology that is presently available regarding AMD. The only method currently available to treat the widespread AMD problem found in the Belt Coal Field is to construct a large water treatment plant, or several smaller plants at strategic locations. The polluted water could then be piped from throughout the area into the treatment facility or facilities. The cost of the treatment facilities and the pipelines necessary to handle the AMD could run as high as twenty times the annual AML allocation received by the State, and this does not include the cost of any maintenance or the routine operation of the system. The MWCB has completed a considerable amount of abandoned mine reclamation in the Belt area, and they continue to attempt to control the AMD situation through conventional methods of reclamation. The MWCB continues to monitor scientific advancement in the prevention and treatment of AMD in anticipation that a cost effective method will be found.

Part VII. Coal Outcrop Fire Update

Montana continues to have problems with coal outcrop fires. These are coal fires that are not associated with an abandoned mine, but are started when a forest fire, grass fire, or lightning strike comes into contact with coal outcropping from the ground surface. AML funding is not authorized for use on this type of fire so limited discretionary funding is made available to the State to assist in abating the problem. During this evaluation period Montana had two coal outcrop fires that became hazardous enough to warrant immediate attention.

The Dunn Mountain Fire was originally extinguished in 1998, but it expanded on down the face of the mountain and breached the surface. The fire was reported to the MWCB after the landowner extinguished a small range fire that was ignited by the burning coal. The outcrop is on a mountain slope that is so steep that workers had to be roped to the equipment above to prevent falling. Fire related cracks in the surface extended for approximately 160 feet along the face of the slope, and warm air and combustion gasses could be detected coming from the cracks. These cracks were flushed with water and compacted with inert fill material to smother the fire.

The Culbertson Fire was discovered by a hunter in the fall of 2001. It was located on the BLM Big Dry Resource Area, and the BLM requested the assistance of the MWCB to extinguish it. The fire had burned approximately 100 feet into the coal seam and surface cracks, along with a 15 foot long subsidence feature, had opened up allowing oxygen to get to the smoldering coal. A trench was cut in

front of the fire, isolating the coal seam, and a firewall of wet clay was put in place. The burning coal was then excavated and extinguished by flushing with water and compacting wet soil into the previously smoldering area. The site was then graded and seeded as the final step in the reclamation procedure.

PART VIII. EMERGENCY PROGRAM

On May 23, 2002 the Montana AML program was authorized to expend emergency funding to mitigate the safety hazards to the general public brought about by a coal refuse fire near Roundup, Montana. Two small brush fires were ignited by the coal refuse fire prior to reclamation., and severe drought conditions in the area have created the potential for uncontrolled wild fires that could be carried by the prevailing winds to nearby residences. The burning material was excavated and placed in a nearby pit where it was extinguished by water and compaction with inert materials. The reclamation of this project was completed in July of 2002.

Chart # I Montana

Additional AML Projects That Are Construction Ready If Funding Were Available

PROJECT	COST	ECONOMIC IMPACT		ENVIRONMENTAL BENEFIT
		Income	Employment	
Toston Smelter	\$0.30 million			3 acres reclaimed
East Pacific Mine	\$1.20 million	3.5 million	92	12 acres reclaimed
Goldsil Millsite	\$1.5 million			20 acres reclaimed
Wickes Smelter	\$1.80 million	4.5 million	140	25 acres reclaimed
Elkhorn Cr. Tailings	\$1.70 million	3.85 million	132	8 acres reclaimed
Emery Mine	\$0.50 million	1.25 million	39	18 acres reclaimed
Sunrise/January Mine	\$0.50 million	1.25 million	39	5 acres reclaimed
Frohner Mine	\$0.50 million			5 acres reclaimed
Snowshoe Mine	\$0.75 million	1.88 million	58	20 acres reclaimed
Garnet Gold Mine	\$0.25 million	0.63 million	19	5 acres reclaimed
Washington Mine	\$1.60 million	4 million	124	10 acres reclaimed
Champion Mine	\$0.46 million	1.15 million	35	5 acres reclaimed
Lily/Orphan Boy Mine	\$0.35 million	0.88 million	27	1 acre reclaimed
Forest Rose Mine	\$0.80 million	2 million	62	10 acres reclaimed
Bald Butte Mine	\$0.70 million	1.84 million	54	10 acres reclaimed
Great Republic Smelter	\$0.70 million			7 acres reclaimed
Montro Gold	\$.20 million			5 acres reclaimed
Gold Leaf/Priscilla	\$.70 million			5 acres reclaimed
Bluebird Mine	\$1.10 million			12 acres reclaimed
TOTALS		\$15.61 million		191 acres total

Chart # II Montana Acres and Hazards

HAZARD STATUS	10/1/2001 STATUS	FY 02 AMLIS ADDITIONS	RECLAIMED IN FY 2002	10/1/2002 STATUS
BE Bench	0.0	0	0	0.0
CS Clogged	362.6	0	1.7	360.9
CSL Clogged Stream Lands	220.2	0	13	207.2
DH Dangerous Highwalls	26160.0	0	0	26160.0
DI Dangerous Impoundments	3.0	0	0	3.0
DP Ind/Res Waste	75.8	0	0	75.8
DPE Dangerous Pile	120.8	0	0	120.8
DS Dangerous Slide	0.0	0	0	0.0
EF Equip/Facil	58.0	0	0	58.0
GHE Hazard	0.0	0	0	0.0
GO Gobs	148.6	0	0	148.6
H Highwalls	1170.0	0	0	1170.0
HEF Hazard Equip	913.0	0	0	913.0
HR Haul Road	912.0	0	0	912.0
IRW Indust/Resid	1097.5	0	35	1062.5
MO Mine Opening	228.0	0	0	228.0
P Portal	1260.0	0	0	1260.0
HWB	7.0	0	0	7.0
PI Pits	35.1	0	0	35.1
PWAI Polluted Water	18.0	0	0	18.0
PEHC Polluted Water	12.0	0	0	12.0
S Subsidence	555.1	19	19	555.1
SA Spoil Area	887.4	0	0	887.4
SB Surface Burning	301.9	0	0	301.9
SP Slump	18.5	0	0	18.5
UMF Underground	74.6	0	0	74.6
VO Vertical Opening	6680.0	1	2	6679.0
WA Water Problems	3847.5	0	0	3847.5

**Chart # III Montana
Completed Projects**

PROJECT NAME	PROJECT COST	ECONOMIC IMPACT	ENVIRONMENTAL BENEFIT
Bertha Mine	\$763,402		IRW,CS,CSL,VO
Gregory Mine	\$945,000		IRW, CS, CSL, HEF
Peplinski Mine Maintenance	\$6,012		S
Meyer Mine Maintenance	\$6,473		S
Terry Coal Fire Maintenance	\$14,987		SB
Nick Lockin Mine Maintenance	\$1,520		S
Jensen Mine Maintenance	\$5,593		S
Dunn Mountain Coal Fire Maintenance	\$3,935		SB
Rodeghiero Coal Fire Emergency	\$88,999		SB
Royen Coal Mine Maintenance	\$500		S
Culbertson Outcrop Coal Fire	\$10,007		SB
Parkhurst Mine Maintenance	\$1,300		VO, P

\$903,673 Income 11.61 million
Employment 329