OFFICE OF SURFACE MINING RECLAMATION AND ENFORCEMENT

ANNUAL EVALUATION SUMMARY REPORT

FOR THE

ABANDONED MINE LANDS PROGRAM

MONTANA

EVALUATION YEAR 2006

(July 1, 2005 to June 30, 2006)

September 13, 2006

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ANNUAL REPORT

Part I. Introduction

Evaluation of the state reclamation program is conducted by the Casper Field Office (CFO) of the Office of Surface Mining (OSM). The 2006 evaluation period started on July 1, 2005 and concluded June 30, 2006. Evaluation methods are based upon OSM Directive AML-22 and a Performance Agreement (PA) between the State and OSM. This agreement incorporates a shared commitment by the State and OSM in determining how annual evaluations will be conducted. The State takes an active role in the entire evaluation process. The process is designed to evaluate whether the State, through its AMLR program, is achieving the overall objective of Section 102 of SMCRA which states that AMLR programs are to:

> "... promote the reclamation of mined areas left without adequate reclamation prior to the enactment of this Act and which continue, in their unreclaimed condition, to substantially degrade the quality of the environment, prevent or damage the beneficial use of land or water resources, or endanger the health or safety of the public ..."

As a result of the PA, specific topics were identified for review and review methodologies were developed for the evaluation period, in concert with the State. The review methodologies are described in detailed oversight work plans, developed for the review of each specific topic. The reviews were designed to result in an overall measure of the State's success in achieving planned reclamation goals. By focusing on end results, OSM is able to determine the root causes of problems (if any) and concentrate its resources on prevention by providing assistance to the State for any needed program improvement. The specified topics selected for review were those identified by OSM and the State from past experience which have the most potential for preventing the State from achieving their planned reclamation goals. At the end of the evaluation period, OSM prepared this annual report and gave the State the opportunity to comment on its contents.

Part II. General Information on the Montana Program

On November 24, 1980, the Secretary of the Department of the Interior approved the Montana Abandoned Mine Land Reclamation (AMLR) Plan under the provisions of Title IV of the Surface Mining Control and Reclamation Act (SMCRA). With that approval, the State assumed primary authority for the reclamation of non-emergency abandoned mine land (AML) reclamation projects within the State. On August 18, 1983, the Secretary approved Montana's April 20, 1983, amendment to its AMLR Plan allowing Montana to assume responsibility for an emergency response reclamation program. The

Montana Department of Environmental Quality (DEQ), Mine Waste Cleanup Bureau (MWCB) currently administers these programs.

The Montana Abandoned Mine Land Reclamation (AMLR) program continues to operate under the guidelines of the Surface Mining Control and Reclamation Act (SMCRA), the approved State Reclamation Plan, the Federal Assistance Manual and associated rules, regulations and policy decisions. The State administers an excellent AMLR program in full compliance with their approved AMLR Plan.

The Montana AMLR program was initiated in 1980 and for the next ten 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.

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 companies 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 heavy 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 each design contractor is to provide an inspector for the construction work. This inspector 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 by the MWCB.

Staff personnel of the MWCB are 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. No problems or issues exist in the Montana AMLR program.

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

AMD	Acid Mine Drainage
AML	Abandoned Mine Land
AMLIS	Abandoned Mine Land Inventory System
AMLR	Abandoned Mine Land Reclamation
CFO	Casper Field Office

DEQ	Department of Environmental Quality
EEE/CA	Expanded Engineer's Estimate and Cost Analysis
MWCB	Mine Waste Cleanup Bureau
OIG	Office of the Inspector General
OSM	Office of Surface Mining
PA	Performance Agreement
PAD	Problem Area Description
SMCRA	Surface Mining Control and Reclamation Act
USDA	United States Department of Agriculture

Part III. Noteworthy Accomplishments

In September 2005 DEQ signed a breakthrough Participating Agreement with the USDA Forest Service to work cooperatively on the cleanup and reclamation of the Snowshoe Mine Site. This Agreement addresses many of the issues that formerly kept DEQ and the Forest Service from working together.

The Snowshoe Mine Site is located in Lincoln County directly adjacent to the Cabinet Mountains Wilderness Area. The site contains endangered species habitat for grizzly bears, lynx, Bull trout, and West Slope Cutthroat trout. The Snowshoe Mine Site contains steep and unstable waste rock piles and mill tailings that are located in the floodplain of Snowshoe Creek. Snowshoe Creek, directly downstream of the mine site, exceeds water quality standards for cadmium, lead, zinc, and mercury. The Snowshoe Mine Site is ranked as #7 on the DEQ's priority mine site cleanup list.

The Snowshoe Mine Site is a "mixed-ownership" mining site situated on private lands and on lands managed by the Kootenai National Forest. The Snowshoe Agreement will allow for a preferred cleanup option from a watershed, topographical, engineering, economical, geotechnical and practical standpoint so that mine wastes at the Snowshoe Mine Site can be disposed in a common mine waste repository. The Snowshoe Agreement addresses apportionment of potential future reclamation costs or response costs for the Repository and establishes responsibility for the design, construction, operation and maintenance, site control and periodic inspection work necessary for the Repository. Montana DEQ and USDA Forest Service agree to share project costs based on the relative percentages of mine waste located on private and Forest Service managed lands. The mine waste repository for this site is to be located on Forest Service managed lands as no suitable site is located on the private ownership portion of the site. Hopefully the Snowshoe Agreement will become a prototype for the cleanup of mixed ownership sites containing forest service lands.

Part IV. Results of Evaluation Year 2006 Review

The Montana Abandoned Mine Land PA was signed on February 23, 2006. It will apply to each year's evaluation through the 2007 evaluation year. The PA describes the team's purpose and the topics selected for review to evaluate the performance of the AML program. On-the-ground, performance-based results were the principal focus of program evaluation and documentation.

Results of the 2006 evaluations are summarized below. The evaluations included field visits to AML projects, interviews with DEQ-MWCB staff, and reviews of the AMLR Program's project specifications, grant applications and reports, and internal State and

AMLIS inventories. The evaluation results are described in greater detail in evaluation reports, written for each review topic. Those reports are on file in OSM's CFO. Each topic was reviewed according to the methodology described in detailed oversight work plans. This report and the supporting topic evaluation reports describe the 2006 evaluations of four topics selected for review during the 2006 evaluation year.

A. Summary Evaluation of Overall Reclamation Success

Our 2006 evaluation of overall reclamation success determined if DEQ-MWCB's reclamation met project goals. The 2006 review sample included three coal reclamation projects and one coal maintenance project completed during evaluation year 2006, one coal reclamation project completed during evaluation year 2004, one coal reclamation project completed during evaluation year 2005, one non-coal project completed during evaluation year 2003 and one non-coal project completed during evaluation year 2005. The projects competed during evaluation years 2003, 2004 and 2005 were evaluated to determine long-term reclamation success. One of the coal projects completed during evaluation year 2006 addressed subsidence beneath a private residence and stabilization of gob piles associated with an abandoned underground mine. The other two coal projects completed during evaluation year 2006 addressed burning coal slack piles and coal seams, open adits and a collapsing mine portal associated with abandoned underground mines. The coal maintenance project conducted during evaluation year 2006 addressed revegetation of a previously reclaimed subsidence area associated with an abandoned underground mine. The coal project completed during evaluation year 2004 addressed air quality and drainage problems on a coal slack disposal area associated with an abandoned mine. The coal project completed during evaluation year 2005 addressed open portals, a vertical shaft, dangerous piles and embankments and hazardous equipment and facilities associated with an abandoned underground mine. The non-coal projects completed during evaluation years 2003 and 2005 addressed smelter, mill and mine wastes, located in residential areas, associated with an abandoned hardrock smelter/mill/mine sites. The wastes contained elevated levels of arsenic, cadmium, copper, lead and mercury.

We compared DEQ-MWCB's reclamation to project specifications, results of interagency consultation, and other information. Our evaluation focused on determining whether reclamation met project goals by implementing the scope of work to abate original hazards, complying with conditions (if any) resulting from interagency consultation, and improving overall site conditions compared to pre-reclamation conditions. Generally, we agreed projects met their goals if abatement and reclamation measures were intact and functional and if no problems compromising those measures were apparent. We considered site conditions improved overall if hazards to public health and safety were abated and associated reclamation reduced environmental problems such as erosion and sedimentation while promoting revegetation.

We concluded that the coal projects we visited met their respective goals. DEQ-MWCB met the goals of abating hazards and improving site conditions at the six coal projects. Burning coal slack and coal seams associated with abandoned coal mines were properly excavated, extinguished, and overburden material replaced. Mine adits, portals and vertical shafts associated with abandoned underground coal mines were stabilized and backfilled. Dangerous piles and embankments were eliminated and gob/coal slack piles associated with abandoned coal mines were stabilized to control drainage and improve air quality by reducing occurrences of fugitive dust. Hazardous equipment and facilities were removed, subsidence areas associated with abandoned coal mines were either excavated or filled with grout, and the regraded areas were revegetated. All areas

affected by reclamation were revegetated.

We concluded that the non-coal projects we visited met their respective goals. DEQ-MWCB met the goals of abating hazards and improving site conditions at the two non-coal projects. Approximately 119,000 cubic yards of smelter, mill and mine wastes associated with abandoned hardrock smelter/mill/mine sites were excavated from lands, including residential yards in the community of Wickes, Montana, and placed in three separate repositories. Hazardous equipment and facilities were removed including demolition of two smelter stacks and disposal of over 1,200 tons of smelter stack contaminated debris in an approved off-site toxic substance disposal facility. Over 3,000 feet of stream were reconstructed, in addition to construction of over 4,000 feet of drainage ditches and 3,300 feet of diversion ditches. Eighty-seven acres were revegetated by seeding, and over 1 acre of sod was laid in residential yards after waste removal.

B. Summary Evaluation of AML Emergency Investigations and Abatement Efforts

Our 2006 evaluation of AML emergency investigations and abatement efforts determined if the emergency criteria of the State AMLR plan are satisfied and the project(s) are completed as described in the AML Emergency Investigation report. The 2006 review sample included all AML emergency complaints received during the evaluation year, and all emergency projects completed during the evaluation year. During evaluation year 2006 the DEQ-MWCB received no citizen complaints of AML emergencies. Since no complaints were received, this topic could not be evaluated during the 2006 evaluation year.

C. Summary Evaluation of Abandoned Mine Land Inventory System (AMLIS)

Our 2006 evaluation of AMLIS determined if the State has a system in place to make sure the data it enters into AMLIS match data in its files. This topic was mandated for review due to a September, 2004 report issued by Interior's Office of the Inspector General (OIG). The report criticized the accuracy of AMLIS data, based on the OIG review of AMLIS data for four eastern States' AML programs. The OIG's review concluded that AMLIS data did not match data in those States' files and recommended establishing "a quality control system that ensures that States, Tribes, and OSM, as applicable, review and certify the accuracy of data entered into AMLIS." In response to the OIG's recommendation, OSM required its field offices to "assure that each State and Indian Tribe AML program has procedures in place to ensure and certify the accuracy of data entered into AMLIS" as part of the FY2004 oversight (subsequently changed to FY2005). OSM Headquarters subsequently advised field offices to drop the certification requirement. As a result, the focus is to make sure States and Tribes have requisite systems in place. The CFO and DEQ-MWCB chose to include this assurance as part of the FY2006 oversight. The evaluation goal was to determine if Montana has such a system in place and document what it consists of.

Once the DEQ-MWCB selects the reclamation alternative for a project, a Problem Area Description form (PAD) is entered into AMLIS delineating the hazards identified in the Reclamation Investigation with the associated costs as defined by the engineer in the Expanded Engineer's Estimate and Cost Analysis (EEE/CA). The engineer's cost analysis is the same costing entered into the AMLIS PAD unfunded category. Once OSMRE approves the project and issues an Authorization to Proceed, the Project Manager moves all cost figures from Unfunded to Funded categories on the AMLIS PAD form. The same cost figures are used as cost estimates in the bidding process. The

engineer's estimate and contractor's bid are entered into an EXCEL spreadsheet to maintain cost accounting throughout the duration of the construction project and to prepare contractor invoice forms. The Fiscal Officer maintains control of the EXCEL spreadsheet. At the completion of the project, construction quantities and costs are reconciled by the contractor and engineer, approved by the project manager and transferred to the Fiscal Officer for final reconciliation. The engineer completes the Final Construction Completion Report using the same engineer's estimate and format as originally prepared in the EEE/CA. The Project Manager enters the costing data from the Final Construction Completion Report into the AMLIS PAD completed category.

We concluded MTDEQ-MWCB's system is adequate to ensure accurate data is entered into AMLIS. With any system, there is potential for human transcription error and data entry error at the point of data entry into AMLIS. However, due to the quality assurance and quality control processes within MTDEQ-MWCB's system, the potential for error is reduced.

D. Summary Evaluation of Public Outreach

Our 2006 evaluation of public outreach determined if the DEQ-MWCB is performing public outreach efforts by holding public meetings before applying for grants for new potential project areas. The Montana AMLR Plan requires that the public be afforded the opportunity to offer comments on abandoned mine reclamation projects. The MWCB considers the public an important component of the reclamation program, and conducts a public meeting in the community nearest each project. The meetings are well publicized and are held in the evenings or on weekends to allow maximum citizen participation. The overall plan for the project area, construction design, maps, overlays and aerial photographs are available and discussed at each public meeting. Individuals may submit comments in writing, or meet with the project managers at any time prior to completion of the comment period on a project. Project managers also meet with affected landowners to explain each project in detail, and keep them informed of the progress throughout the construction phase. Work plans are often altered to conform to comments received from landowners, contractors and the general public.

The 2006 review sample included file data of project areas selected for AML reclamation during the 2006 evaluation year. During the evaluation year DEQ-MWCB selected ten project areas (seven non-coal and three coal project areas) for reclamation. The file data contained Public Meeting Attendance Records for all seven non-coal projects. Public meetings were not held for the three coal projects since each of the three projects were conducted in isolated areas, affecting only one or two private landowners whom consented to the projects.

We concluded the DEQ-MWCB is adhering to the public participation and involvement policy of the State AMLR plan by holding public meetings regarding potential AML project sites.

Part V. Acid Mine Drainage

Acid Mine Drainage (AMD) is found throughout the State in both coal and non coal abandoned mines, but the heaviest concentrations of AMD are found in the Great Falls/Lewistown Coal Field area. With normal reclamation procedures, the MWCB is able to control or eliminate most of the AMD from the non coal mines. However, the 400+ abandoned coal mines in the 5000 square miles of the Great Falls/Lewistown Coal

Field continue to pose an unmanageable AMD problem with the funding level the State receives and the technology that is presently available regarding the treatment of AMD. The only method currently available to treat the widespread AMD problem found in this extensive abandoned 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 pipeline necessary to handle the AMD could easily 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 and maintenance of the system once it is in use.

The MWCB has completed a considerable amount of abandoned mine reclamation in the Great Falls/Lewistown Coal Field area of the State, and they are still attempting to control the AMD situation through conventional methods of reclamation. Some of these methods work for a short period of time but are not acceptable for long term use. The MWCB continues to monitor scientific advancement in the prevention and treatment of AMD in anticipation that a cost effective treatment method will be found. The MWCB is beginning to evaluate alternative mitigation concepts that focus on AMD source control, rather than active or chemical treatment of AMD. Procurement of alternative funding sources for AMD abatement is also being investigated.

Part VI. Public and Interagency Participation

The MWCB goes to great lengths to develop and maintain a good working relationship with all the State and Federal agencies it works with. This carries over into the relationship with local agencies and groups, and to the landowners who have AML sites on their land. Habitat enhancement for wildlife is incorporated into each project where it is feasible, and the retention of surface water for landowners is a high priority. They have also recorded a significant amount of the mining history of the State to be provided to educational facilities, and to mitigate the loss of important cultural resources during the reclamation process.

The DEQ-MWCB provides further opportunities for public participation and involvement through its internet website and press releases. The MWCB posts Engineering Evaluation/Cost Analysis Reports of proposed projects, Reclamation Investigation reports, notices of public hearings of proposed AML projects and "A Guide to Abandoned Mine Reclamation." Public meetings have been held in several communities in the Great Falls/Lewiston Coal Field to keep the citizens updated on the problems and progress of research to abate the acid mine drainage concerns from the areas abandoned coal mines.

Part VII. Accomplishments and Inventory Reports

Several projects are presently ready for immediate construction if additional funding were to become available. These are listed in **Chart I**. Since implementation of their approved AMLR program, the MWCB has eliminated safety hazards and threats to the environment posed by abandoned mines. Reclamation has involved coal and non-coal mines as provided for in SMCRA. **Chart II** shows hazard categories reclaimed during the 2006 evaluation year and the status of hazard categories remaining at the end of the 2006 evaluation year. The hazard categories reclaimed during the 2006 evaluation year were addressed by the individual projects listed in **Chart III**.

CHART I

Montana 2006

Additional AML Projects That Are Construction Ready If Funding Were Available

PROJECT	COST	ECONOMIC IMPACT		ENVIRONMENTAL BENEFIT
		Income	Employment	
Toston Smelter	$0.33 million	0.84 million	**18**	3 acres reclaimed
East Pacific Mine	$1.32 million	3.5 million	92	12 acres reclaimed
Goldsil Millsite	$1.6 million	4.4 million	204	20 acres reclaimed
Elkhorn Cr. Tailings	$1.85 million	3.85 million	132	8 acres reclaimed
Emery Mine	$0.55 million	1.25 million	39	18 acres reclaimed
Sunrise/January Mine	$0.55 million	1.25 million	39	5 acres reclaimed
Frohner Mine	$0.55 million	0.95 million	24	5 acres reclaimed
Snowshoe Mine	$0.90 million	1.88 million	58	20 acres reclaimed
Garnet Gold Mine	$0.28 million	0.63 million	19	5 acres reclaimed
Champion Mine	$0.50 million	1.15 million	35	5 acres reclaimed
Lily/Orphan Boy Mine	$0.38 million	0.88 million	27	1 acre reclaimed
Forest Rose Mine	$0.90 million	2 million	62	10 acres reclaimed
Bald Butte Mine	$0.77 million	1.84 million	54	10 acres reclaimed
Montro Gold	$.22 million	0.78 million	16	5 acres reclaimed
Gold Leaf/Priscilla	$.77 million	1.84 million	54	5 acres reclaimed
McLaren Tailings	$4.68 million	8.0 million	280	17 acres reclaimed
Spring Meadow Lake	$1.2 million	3.5 million	92	12 acres reclaimed
Silver Creek	$5.7 million	7.4 million	260	80 acres reclaimed
TOTALS	**$23.05 million**	**45.94 million**	**1505**	**241 acres reclaimed**

Chart II
Montana 2006
Acres and Hazards

HAZARD STATUS	6/30/2005 STATUS	EY 06 AMLIS ADDITIONS	RECLAIMED IN EY 2006	6/30/2006 STATUS
BE Bench	0.8	0	0	0.8
CS Clogged	33.5	9.7	0	43.2
CSL Clogged Stream Lands	190.0	0	0	190.0
DH Dangerous Highwalls	25560.0	0	0	25560.0
01 Dangerous Impoundments	3.0	0	0	3.0
DP Ind/Res Waste	88.7	0	0	88.7
OPE Dangerous Pile	449.0	0	0	449.0
OS Dangerous Slide	0.9	0	0	0.9
EF Equip/Facil	58.0	0	0	58.0
GHE Hazard	1.0	0	0	1.0
GO Gobs	149.2	0	0	149.2
H Highwalls	1170.0	0	0	1170.0
HEF Hazard Equip	913.0	(1.0)	0	912.0
HR Haul Road	0.5	0	0	0.5
HWB	9.0	0	0	9.0
IRW Indust/Resid	1036.6	40.0	0	1076.6
MO Mine Opening	230.0	0	0	230.0
P Portal	1301.0	0	2	1299.0
PI Pits	34.1	0	0	34.1
PW AI Polluted Water	17.0	0	0	17.0
PEHC Polluted Water	12.0	860.0	0	872.0
S Subsidence	554.1	0	0	554.1
SA Spoil Area	869.7	0	0	869.7
SB Surface Burning	307.9	0	0	307.9
SP Slump	18.5	0	0	18.5
UMF Underground	70.8	0	0	70.8
VO Vertical Opening	705.0	0	0	705.0
WA Water Problems	2740.5	0	0	2740.5

Chart # III Montana
2006
Completed Projects

Project Name	Project Cost	Environmental Benefit
Jefferies Coal Mine #1	$99,634	S
Brillhart Ranch Coal Mine Fire	$8,633	P, SB, SA
Musselshell Ranch Coal Mine Fire	$24,666	S, SB
Ontario Mine	$388,567	CS, CSL, HEF, IRW
Republic #4 Maintenance	$36,214	VO, P, S
Wickes Maintenance	$300	Other (seed fertilizer)

Part VIII. Photos

The following photographs have been attached to this report to further demonstrate the degree of hazardous conditions encountered in various areas of the State, and the excellent reclamation accomplished by the MWCB to eliminate the hazards.

Ontario Mine (hardrock mine), August 2005 photo: initiation of reclamation

Ontario Mine August 2005 photo: excavation of approx. 10,000 cu. yd. of waste material contaminated with arsenic, barium and lead

Bluebird Mine & Mill (hardrock), August 2005 photo: reclamation scheduled for EY2007

Bluebird Mine & Mill August 2005 photo: acid mine drainage

Gregory Mine (hardrock mine, mill & smelter), August 2005 photo: 91,000 cu. yd. of mine waste removed & transported to repositories; rock foundation left as evidence of historic mining

Gregory Mine August 2005 photo: reconstructed stream channel, successful revegetation

Wickes Smelter December 1886 photo

Wickes community August 2005 photo: after removal of 104,000 cu. yd. of heavy metal contaminated smelter wastes from residential areas, demolition & removal of two hazardous smelter stacks

Wickes Smelter July 2000 photo showing smelter stack

McLaren Tailings (hardrock mill tailings), August 2005 photo: scheduled for future reclamation to alleviate impacts to Soda Butte Creek which flows into Yellowstone National Park, five miles downstream

McLaren Tailings August 2005 photo: acid mine drainage discharging into Soda Butte Creek which flows downstream into Yellowstone National Park

Republic No. 4 (coal), June 2006 photo: bat cupola erected with closure of vertical opening

Republic No. 4 (coal), June 2006 photo: recent reclamation to close mine adit

Keene No. 1 (coal), June 2006 photo: successful revegetation of reclaimed vertical opening and mine dump area

Keene No. 1 (coal), June 2006 photo: successful revegetation of reclaimed tipple site located near residence

Musselshell Ranch (coal), June 2006 photo: burning coal slack and coal seam extinguished within past year

Musselshell Ranch (coal), June 2006 photo: recent reclamation to close collapsing mine shaft