



**OFFICE OF SURFACE MINING  
RECLAMATION AND ENFORCEMENT**

**Annual Evaluation Summary Report  
For the  
MONTANA  
Abandoned Mine Land Reclamation Program  
Evaluation Year 2012**

**September 15, 2012**



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*(Cover Photo: Tailings removal areas on the slope under the ski lifts and in the parking lot at Big Divide Ski Hill, Marysville, Montana.)*

# I. General

## A. Introduction

The Surface Mining Control and Reclamation Act of 1977 (SMCRA) created the Office of Surface Mining Reclamation and Enforcement (OSM) in the Department of the Interior to oversee regulation of coal exploration, surface coal mining and reclamation operations, and reclamation of lands adversely affected by past mining practices. SMCRA provides that, if certain conditions are met, a state may assume primary authority for reclamation of abandoned mine lands (AML) within its borders. Once a state has obtained such approval, OSM has the responsibility to make investigations, evaluations, and inspections necessary to determine whether that State's AML program is being administered in accordance with approved program provisions. On November 24, 1980, the Secretary of the Department of Interior approved Montana's AML Reclamation Plan under Title IV of SMCRA. Montana's approved Reclamation Plan sets forth authority, policies, and procedures under which Montana operates its program. With the 1980 approval, the State assumed exclusive responsibility and primary authority for non-emergency AML projects within the State. On August 18, 1983, the Secretary approved Montana's April 20, 1983 amendment to its AML Reclamation Plan allowing Montana to assume responsibility for an emergency response reclamation program. On April 11, 1990, OSM announced in Federal Register notice (55 FR 13552) Montana has certified that all known coal problems had been addressed, and requested public comment. In Federal Register notice (55 FR 28022) of July 9, 1990, OSM approved the certification and authorized Montana to reclaim non-coal hazards. The Montana Department of Environmental Quality (MDEQ), Remediation Division, Mine Waste Cleanup Bureau, Abandoned Mine Lands Section currently administers these programs.

Evaluation of the State reclamation program is conducted by the Casper Field Office (CFO) of OSM. Evaluation Year (EY) 2012 consisted of a full twelve month period beginning on July 1, 2011 and ending on June 30, 2012. OSM's evaluation methods are based upon OSM Directive AML-22 (Evaluation of State and Tribal Abandoned Mine Lands Programs) and a Performance Agreement (PA) dated December, 2011 between Montana Abandoned Mine Lands Program (MTAML) 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 AML reclamation (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 ..."

The agreement establishes a commitment between MTAML and OSM to identify topics for review, identify methodologies for enhancement and evaluation of performance reviews, and assist in the preparation of the final report. Assessment of MTAML performance includes reviews of selected topics such as 1) overall reclamation success, 2) emergency investigations and abatement efforts, 3) fiscal and administrative controls,

4) Subsidence Prone Area Inventory, 5) acid mine drainage, and 6) public interaction and outreach.

The following acronyms are used in this report:

AMD	Acid Mine Drainage
AML	Abandoned Mine Land
AMLIS	Abandoned Mine Land Inventory System
AMLR	Abandoned Mine Land Reclamation
ATP	Authorization to Proceed
CFO	Casper Field Office
CIL	Certified in Lieu funds
EY	Evaluation Year
GPRA	Government Performance Results Acts
MDEQ	Department of Environmental Quality
MTAML	Montana Abandoned Mine Land Program
NTTP	National Technical Training Program
OIG	Office of the Inspector General
OSM	Office of Surface Mining
PA	Performance Agreement
PAD	Problem Area Definition
PBRF	Prior Balance Replacement Funds
SMCRA	Surface Mining Control and Reclamation Act
TIPS	Technical Innovation and Professional Services

## **B. Program Administration**

Overall, the State of Montana administers MTAML under 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 a manner reflecting high quality professionalism and performance, and excellent communication and cooperation between consulting agencies and other interested parties. The MTAML program currently supports 12.2 FTEs and is based in the capitol city, Helena. The CFO and MTAML regularly consult and interact with one another.

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 problems that are discovered must still be given priority funding over non-coal projects, and that requirement has been followed by Montana.

Initial investigation is usually conducted by the project officer who 1) conducts initial investigation; 2) obtains landowner consents; 3) negotiates inter-agency agreements if necessary; 4) writes environmental assessments; 4) conducts cultural resource and threatened and endangered species investigations and consultations; 5) conducts public meetings for information dissemination and comment; 6) prepares the submission to OSM for an Authorization to Proceed (ATP); and 7) conducts public meetings for the public stakeholders and potential construction contractors.

Prior to initiating any construction work, MTAML submits a documentation package to OSM with a request for an ATP. This package includes 1) a complete Environmental Assessment or Categorical Exclusion, 2) a project eligibility determination pursuant to 30 CFR 874.12 prepared by the DEQ Attorney, 3) a threatened and endangered plant and animal species survey, and consultation results with the U.S. Fish and Wildlife Service, 4) consultation results with the State Historic Preservation Office, and 5) site maps and photographs. If acceptable and complete, CFO issues an ATP pursuant to section 4-160-50D.3 of the 2011 Federal Assistance Manual to MTAML prior to reclamation or construction of each coal project.

The State uses an established bid process to obtain services from qualified environmental, engineering, design and construction companies at the lowest effective price. Environmental hazard investigations, construction design and reclamation construction portions of each AML project are completed by private contractors. Design and specification work is contracted to engineering firms and is accomplished during the winter months when most outside work is impractical. Actual reclamation work starts as soon as weather and ground conditions allow heavy equipment to be moved to a site. Many of the sites presently being reclaimed are in mountainous terrain and at high altitudes. This fact may drastically shorten the amount of time available for reclamation work because of snow, ice and mud. In recent years the construction season has also been shortened by wildfires which necessitate special operating conditions shortening the allowable work days. A part of the responsibility of each engineering design contractor is to provide an inspector for the construction work. This inspector is on site during working hours to ensure that the work is being completed according to the plans and specifications that have been approved by MTAML.

MTAML staff is very knowledgeable and dedicated to the accomplishment of program goals. An excellent working relationship exists between the staff of MTAML, CFO, and other State and Federal agencies contacted during the course of preparing projects for reclamation. MTAML personnel spend most of the construction season in the field coordinating and supervising 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.

## **II. Noteworthy Accomplishments**

### **A. Overall Performance**

Since the Program's inception, MTAML has spent \$60,419,396 in reclaiming mining hazards on 4,533 Government Performance Result Act (GPR) acre-equivalents. \$24,530,117 has been spent reclaiming coal mine hazards on 3,544 GPR acres. This money was spent on treatment of coal slack and wastes, closure of mine openings, coal fires, and removal and disposal of structures and equipment. MTAML has also spent \$35,889,279 reclaiming abandoned non-coal industrial mineral mine hazards on 990 GPR acres. Significant hazards on both coal and non-coal sites remain to be mitigated and future funding will be required. Details of past achievements are found in Table 1.

**TABLE 1. MONTANA ABANDONED MINE LAND RECLAMATION  
NEEDS AND ACCOMPLISHMENTS SINCE PROGRAM APPROVAL**

Problem nature	Unit	Coal-related problems				Noncoal-related problems	
		Abatement status			Total	Abatement status	
		Unfunded	Funded	Completed		UnFunded & Funded	Completed
<b>Priorities 1, 2 and 3 (Protection of public health, safety, and general welfare)</b>							
Clogged streams	Miles	0	5.69	3.3	8.99	104.5	19.6
Clogged stream lands	Acres	0	0	9.9	9.9	119.6	91.5
Dangerous highwalls	Lin. Feet	0	0	7,910	7,910	0	17,650
Dangerous impoundments	Count	0	0	3	3	0	0
Dangerous piles & embankments	Acres	0	0	72.8	72.8	261.2	98
Dangerous slides	Acres	0	0	0.9	0.9	0	0
Gobs	Acres	11	0	151.9	151.9	0	0
Highwall	Feet	0	0	1,170	1,170	1	0
Hazardous Equip. & Facilities	Count	0	0	252	252	642	70
Haul Road	Acres	0	0	0.5	0.5	0	0
Hazardous bench	Acres	0	0	0.8	0.8	0	0
Industrial/Residential Waste	Acres	0	0	276.4	276.4	620.1	297.3
Mine Opening	Count	0	0	1181	1181	279	762
Pits	Acres	0	0	15.8	15.8	1	16.3
Polluted Water: Agric. & Indust.	Acres	0	0	19	19	0	0
Polluted Water: Human Consum.	Acres	85	0	212	297	0	0
Subsidence	Acres	77	0	543.5	620.5	42.1	10.0
Spoil Area	Acres	0	0	796.2	796.2	0	12.6
Surface Burning	Acres	0	0	129.4	129.4	0	0
Slump	Acres	0	0	16.5	16.5	0	0
Underground Mine Fire	Acres	0	0	69.98	69.98	0	0
Water Problems	Gal/Min	100	0	132.5	232.5	0	0

**Notes:** All data in this table are taken from the Abandoned Mine Land Inventory System (AMLIS) 7/27/12.  
 Mine openings, portals and vertical openings were combined under mine openings. Equipment/Facilities were combined with Hazardous Equipment and Facilities.

### **III. Utilization of OSM Technological Assistance**

#### **A. National Technical Training Program (NTTP)**

Seven MTAML staff members attended four NTTP instructor-led training courses during EY 2012. Two staff members are instructors for the “Instructors Training Course,” “Acid Forming Materials,” and “Reclamation Project Management.”

In 2012, OSM’s NTTP course in “Acid Forming Materials” was held in Great Falls, Montana using the Great Falls Coal Field as the class field exercise. The class was conducted the week of June 4-8, 2012 with 22 students including all of the MTAML staff in attendance. The Belt and Sand Coulee Creek areas provided excellent field examination sites for the class.

#### **B. Technical Innovation and Professional Services (TIPS)**

Staff from MTAML was provided the opportunity to attend TIPS instructor-led training throughout the reporting period. OSM presented the Earthvision software modeling class at MDEQ in Helena June 19-22, 2012. Five MTAML staff members attended the demonstration. One staff member is an instructor for “Groundwater Vistas Modeling Software” in the TIPS series.

#### **C. Use of OSM Provided Equipment**

MTAML did not request the use of any OSM provided equipment in EY 2012.

### **IV. Results of Performance Reviews**

#### **A. Performance Topics**

The MTAML PA was signed in December, 2011 and applies to EY 2012 and 2013. The PA describes the topics selected for review to evaluate the performance of the MTAML program. On-the-ground, performance-based results were the principal focus of program evaluation and documentation.

Topic evaluations reports and individual project reports containing much more detail are on file in the 2012 Annual Evaluation files at the Casper Field Office. As identified in the 2012/2013 PA, the following topics were selected for evaluation: 1) grant fiscal and administrative controls; 2) overall reclamation success; 3) emergency investigations and abatement efforts; 4) subsidence prone area inventory; 5) acid mine drainage; 6) public interaction and outreach; and 7) maintenance of records. Results of the 2012 evaluations are provided below. The evaluations included field visits to AML projects, interviews with MTAML staff, and reviews of project specifications, grant applications and reports, and AMLIS inventories.

#### **B. AML Grant Fiscal and Administrative Controls**

##### **1. Abatement Results of Increased AML Funding FY 2008 through FY 2012**

In 2006, Congress approved the Surface Mining Control and Reclamation Act

Amendments of 2006 as part of the Tax Relief and Health Care Act of 2006 (P.L. 109-432). Part of the amendments changed the funding amounts and funding calculations to both certified and uncertified States and Tribes. The Amendments created two new funding mechanisms for certified States and Tribes: Prior Balance Replacement Funds (PBRF) under Section 411(h)(1) and Certified in Lieu Funds (CIL) under Section 411(h)(2). PBRF are State Share moneys that were not distributed over past years and now will be distributed in their entirety over a seven year period starting in Federal FY 2008. PBRF may be used for those purposes the State legislature or Tribal council establishes, giving priority to addressing the impacts of mineral development (30 CFR § 872.31). CIL funds are State Share moneys that would be distributed from the Abandoned Mine Lands Fund, only these moneys for certified States and Tribes are now distributed from the general funds of the United States Treasury that are otherwise unappropriated. CIL funds are distributed to certified States and Tribes at 25% the first year, 50% the second year, 75% the third year and 100% the fourth year and thereafter starting in Federal FY 2009 (30 CFR § 872.33). There are no limitations or restrictions on the use of CIL funds in the SMCRA Amendments of 2006 (30 CFR § 872.34).

Montana certified completion of all known P1 and P2 coal problems on April 11, 1990, with the Secretary of Interior concurring on July 9, 1990. Montana’s funding is now exclusively derived from funds under Sections 411(h)(1) and 411(h)(2). As a condition of certification, Montana is required to treat all Priority 1, 2 and 3 coal problems as they arise.

The Montana legislature allocates all PBRF and CIL moneys to the MTAML to fund abandoned mine reclamation activities. Rather than using PBRF moneys for projects of their choosing as is allowed under the law (30 CFR 872.31), the Montana Legislature has designated all funds to the Abandoned Mine Reclamation program for the satisfaction of its mission (Montana Code Annotated, 82-4-1006 Abandoned Mine Reclamation Account). Montana’s PBRF moneys remain constant at \$8,069,086 until it expires in Federal Fiscal Year 2014. Montana’s CIL moneys will reach 100% in Federal FY 2012 and remain at that level until FYs 2018 and 2019 when the percentages of 75%, 50% and 25% not paid out respectively in FYs 2008, 2009 and 2010 are recaptured and paid out in two equal payments in 2018 and 2019 in addition to the annual CIL payment. It is presumed that MTAML will continue reclamation of all Priority 1, 2 and 3 coal problems as they are identified, and direct the remaining moneys to hard rock and other non-coal mining problems. A summary of how Montana has distributed its PBRF and CIL moneys over the past 5 years is shown in Table 2. Specific projects initiated and completed in those years are shown in Table 3.

**Table 2. Distribution of Montana’s PBRF and CIL Funding from FY 2008 to FY 2012**

<b>Year</b>	<b>Grant Available</b>	<b>PBRF</b>	<b>CIL Funds</b>	<b>Use</b>
2012	\$13,402,468	\$8,069,086	\$5,333,382	Mine Reclamation
2011	\$12,163,821	\$8,069,086	\$4,094,735	Mine Reclamation
2010	\$10,673,897	\$8,069,086	\$2,604,811	Mine Reclamation
2009	\$ 9,547,050	\$8,069,086	\$1,477,964	Mine Reclamation
2008	\$ 8,069,086	\$8,069,086	\$ 00	Mine Reclamation



**Table 3. Mine Reclamation Projects Initiated and Completed in FY2008 to 2012**

<b>Project Name</b>	<b>Construction Value*</b>	<b>Start</b>	<b>Finish</b>	<b>Comments</b>
Toston Smelter	\$ 623,793	2008	2008	non-coal smelter site
Mine Subsidence Sites	\$ 33,380	2008	2010	26 coal subsidences
Adit/shaft closures	\$ 39,542	2008	2010	6 non-coal mines
Spring Meadow Lake	\$ 2,269,272	2009	2009	non-coal mill tailings
McLaren Dewater Wells	\$ 262,757	2009	2009	non-coal tailings
Gardner Emergency	\$ 95,178	2009	2009	coal subsidence
McLaren Tailings	\$20,593,367	2010	2015	non-coal mill tailings
Bald Butte/Great Divide	\$ 4,910,829	2010	2012	non-coal mine and tailings
Miles City Coal Fires	\$ 375,966	2010	2011	8 coal outcrop fires
Highland Mine	\$ 343,106	2010	2010	non-coal mill tailings
Shepherd Coal Fires	\$ 441,798	2010	2010	3 coal mine fires
Comet Site Tree Planting	\$ 10,055	2010	2010	4000 trees planted on mine
O'Neill Coal Fire	\$ 49,757	2011	2012	coal outcrop fire grant
Helena City Parks	\$ 3,070	2011	2012	3 non-coal mine openings
Custer County Coal Fire	\$ 88,958	2011	2012	coal surface burning
Coal Subsidence	\$ 38,046	2011	2012	11 sites with multiple holes
Great Falls Coal Field	\$ 707,895	2012	2013	drainage precipitates and well
Coal Subsidence	\$ 271,018	2012	2012	Musselshell County, 16 sites
Forest Rose Mine-Mill	\$ 2,147,377	2012	2012	non-coal mine and tailings

\*Construction costs only, engineering and inspection fees not included.

## **2. Annual Consolidated AML Grant Review**

Montana's total 2012 AML Consolidated grant was \$13,478,119 consisting of \$8,069,086 in PBRF moneys and \$5,333,382 in CIL moneys, and \$75,650.69 in prior year de-obligated moneys. The grant was designated for a period of ten years expiring on June 30, 2022.

MTAML maintains a very cost efficient program with 6.2% of the grant dedicated to Administrative Costs and project administration, while 93.8% is spent on project design and construction. The grant funding and expenditures are broken down as follows:

<b>2012 AML Consolidated Grant</b>	
Prior Balance Replacement Funds – h(1)	\$ 8,069,086.00
Certified in Lieu Funds – h(2)	\$ 5,333,382.00
Prior Year De-Obligated Moneys	\$ 75,651.00
<b>Total</b>	<b>\$13,478,119.00</b>

#### Grant Line Item Budgets

Administrative Costs – h(2)	\$ 834,187.00
Coal Construction Costs - h(1)+h(2)	\$ 8,069,086.00
Non-coal Construction Costs – h(1)+h(2)	\$ 4,574,846.00
Total	\$13,478,119.00

In the past, Montana chose to phase their funding for larger AML projects over a period of several years to avoid spending a large amount of money and time on one project while other hazards remain untreated. This allowed funding to be distributed more equally to different regions of the State each year and still allowed MTAML to reclaim the most hazardous abandoned mine sites in a timely manner. This practice was permitted by the Senior Fiscal Analyst for the Montana Department of Environmental Quality, however due to the uncertainty of future AML funding through OSM, the Senior Fiscal Analyst has now discontinued the practice. For all future projects, the MTAML is required to accumulate the total estimated construction value of a project prior to putting a project to bid. Carrying a project over several years without a guarantee of future funding will no longer be acceptable and practiced by the MTAML.

Bald Butte and McLaren tailings projects are among the projects where MTAML is now required to accumulate the total estimated construction cost. Now, grant moneys are earmarked to pay the total estimated construction costs of these two projects. The AML grants that hold these funds will not be drawn down until completion of the construction projects. For practical purposes the earmarking of these funds means that the majority of MTAML's available grant moneys are effectively spent and only limited work can be completed on other projects until a new AML grant is received by the program.

Montana has certified that all known coal problems have been addressed, and is now completing high priority non-coal reclamation. Montana addresses any coal problems as they are identified. Coal problems that are being identified include re-current subsidence issues and acid mine drainage.

Hence, project ATPs issued in EY 2012 largely reflect coal problems recently identified and coal rapid response projects. ATPs are generally not issued for non-coal projects of certified states. Fourteen ATPs were issued in EY 2012, all but two were made for subsidence requiring rapid response on the part of the MTAML.

**Table 4. Authorizations to Proceed issued for Montana in EY 2012**

Sand Coulee Water System Rehabilitation	Coal	8/15/2011
Mack Nygard Rapid Response	Coal	1/5/2012
Starr Mine Rapid Response	Coal	1/5/2012
McNamara Parkhurst Rapid Response	Coal	1/5/2012
Coal Inventory 1538 Rapid Response	Coal	1/5/2012
Coal Inventory 0538 Rapid Response	Coal	1/5/2012
Coal Inventory 11840 Rapid Response	Coal	1/5/2012
Johnies Mine Rapid Response	Coal	1/5/2012
NP Mine Rapid Response	Coal	1/5/2012
Northern Coal Company Mine Rapid Response	Coal	1/5/2012
Coal Inventory 1313 Rapid Response	Coal	1/5/2012
GA Krause Mine Rapid Response	Coal	1/5/2012
Republic No. 3 Horse Thief Road Reclamation	Coal	5/3/2012

### **C. Overall Reclamation Success**

Two non-coal reclamation projects are in progress: the Bald Butte Mine/Great Divide Tailings Project which is in year 3 of a 3 year project and the McLaren Mine which is in year 3 of a 6 year project. Both the McLaren Mine and the Bald Butte Mine have ATPs issued by OSM. Coal projects completed in 2011-12 include a series of coal mine subsidence and outcrop fires in eastern Montana. Several projects related to public water supplies and clogged streams in the Sand Coulee and Stockett areas of the Great Falls Coal Field were started at the end of the evaluation period.

Our 2012 evaluation of overall reclamation success was conducted to determine if MTAML's reclamation program met project goals. The 2012 review sample included one non-coal reclamation construction project in-progress during 2011 and one coal subsidence reclamation projects conducted in 2011/2012.

We compared MTAML'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 re-vegetation.

Weather and ground conditions were atrocious for the spring of the year 2011. Heavy rains followed a heavy snow winter. Snow pack was at 200% of normal and in some areas up to 240%. Spring rains were sufficiently abundant that most areas of the state were months ahead of their annual rainfall at the time, and some areas had reached their annual precipitation amounts by May of the year. The abundant moisture resulted in full streams and rivers before snowmelt, reservoirs and ponds that were very low or dry due to drought conditions were now filled to the brim, and lake waters were being released to protect the integrity of the reservoirs and prepared for runoff conditions. Streams and rivers reached flood stages; roads and bridges were washed out. Due to high water conditions, any thunderstorm or high temperature event would usher a barrage of flood warnings from the National Weather Service since there was just nowhere for the water to go. At local levels, the flooding made roadways impassable; either washed out or muddy beyond use. Playa lakes appeared in fields preventing their crossing and planting. General muddy conditions prevented most off road travel in a State where 90% of the roads are dirt two tracks without gravel or prepared surfacing. 2012 brought a complete reversal of 2011 conditions. The spring started normal, but quickly changed to extreme dryness with record heat conditions in May, June and July. This hampered AML reclamation work by causing limitations on construction, delayed bidding dates and mobilization, special considerations for fire conditions, and the procurement of construction permits in fire restriction areas. In addition, the abundance of large grass and timber fires in eastern Montana has undoubtedly caused a plethora of coal outcrop and mine fires that will not be identified until winter cold reveals their locations by steam and smoke spires.

## 1. Bald Butte Mill and Mine

The Bald Butte Mine complex was located 3-4 miles southwest of the town of Marysville in Lewis and Clark County, Montana, and included areas around the Great Divide Ski Hill and Lodge. The complex included six tailings ponds, 7 waste rock dumps, numerous dilapidated structures, former millsite foundations, open adits and stopings, and areas where tailings had been used as solid sand and gravel base for a recreational facility parking lot. The tailings were located in several ponds situated in Dog Creek and the waste rock was associated with the Devon/Sterling and Albion mines along a tributary to Dog Creek.

The Bald Butte load was discovered in 1882 and developed to varying degrees over the following 50 years. A ten stamp mill, later expanded to a 40 stamp, was constructed in the early years. During the period of 1894-1896, the mine produced over 55,600 tons of ore. Production continued up to World War II, digging 167,600 tons of ore yielding 55,400 ounces of gold, 49,000 ounces of silver, 34,800 pounds of copper and 209,500 pounds of lead. In the 1930's, 42,000 tons of tailings were reprocessed for gold using the cyanide process.

Following extensive testing and evaluation, the MTAML submitted all appropriate materials and documentation to the CFO and requested the issuance of an ATP which was issued on January 5, 2009. Considerations in the ATP included the development of and construction of a modified "Resource Conservation and Recovery Act" style repository located on the continental divide to contain all the waste rock from the Bald Butte, Devon/Sterling and Albion mines, and tailings from the Bald Butte mill site and the Great Divide Resort and Lodge area. Total volume was estimated at 182,000 yards of tailings and wastes. Other work anticipated included: backfilling all disturbed areas with cover soil and top soils, and reseeded; reconstruction and stabilization of 7100 linear feet of stream channel; construction of a run-on/run-off ditch in the area around the repository to divert run-off away from the repository cap; and construction of a fence around all disturbed areas and the repository. Total estimated area of disturbance was 28 acres.

The construction job was let to JEM Construction of Billings, Montana. Work was started in June of 2010 with an anticipated completion in October, 2012. First order was the construction of an 8.3 acre repository along the top of the continental divide (Figure 1). The repository location was chosen based on its position between the two main tailings areas, its high location, hydrological preference, the potential for low snow cover due to high wind removal and its location on lands administered by the Bureau of Land Management. Per the interagency agreement for use of the BLM property, the repository was engineered to prevent groundwater contamination and preserve the landscape and visual aesthetics. The repository base was spread out further than originally designed to flatten the mound and three layers of geotextile was placed at the base to prevent leakage and force all outflow to the leachate collection system.

Forty thousand yards of tailings were extracted from the Dog Creek tailings (Figure 2) and from the Ski area during the first year to form a firm smooth base for the repository. The removal of tailings in the Ski yard was hampered by a number of constraints: tailings interspersed around the ski towers, many power and utility lines, water lines, cable lifts and sloping conditions. In the process of removing tailings, two adits were encountered and closed.



Figure 1. Overview of the Bald Butte repository



Figure 2. Excavation of tailings from the Bald Butte Mill in the Dog Creek drainage.

Following removal of all tailings, the Ski slope area was covered in erosion control blanket and drill seeded. That winter, a local earthquake opened fourteen stopings above the ski slope which were closed by the contractor. Due to the size and remoteness of the stopings, some measuring up to 20 feet wide, up to a hundred feet long and to 400 feet deep, various means were used for closure. Seven units were fenced, five were closed by backfilling and two were closed with foam barriers.

In 2011 and 2012, all efforts were directed at the removal of waste rock and tailings in the Dog Creek drainages, and reconstruction of the drainages. By all estimates, close to two hundred thousand yards of tailings and waste rock will have been placed in the repository by project completion. The work is scheduled to be completed by October, 2012. Estimated completion value of the construction project is \$4,900,000.

## 2. Roundup, Montana Subsidence

The Roundup area of Montana has numerous coal mines originating from the turn of the nineteenth century. While most of these will never become a problem, a few have recurring subsidence issues. Particularly, the Republic No. 3 Mine, south of Roundup, was constructed adjacent to and undercutting the Horsethief Coulee Road. Subsidence have appeared periodically adjacent to and within the Horsethief Coulee road right-of-way. The subsidence area was activated by high water and flooding resulting from the unusually wet spring of 2011. Historically, the County Road Department responded to subsidence depressions in the roadway by continually refilling the depressions with black top. In spring of 2012, MTAML conducted a rapid response action and closed three subsidence features that opened on the road shoulder and along the road right of way. An ATP for the rapid response action and further exploration drilling and grouting was issued by the CFO on May 12, 2012. The rapid response filling of the roadway subsidence was conducted by Florin Service, Inc. of Roundup at a cost of \$4500.00.

Exploratory drilling along 1200 feet of the affected roadway showed that a series of underground rooms paralleled the roadway and that subsidence would likely be a continuing problem for further years. MTAML let a contract for drilling and grouting as necessary to close all underground voids encountered along Horsethief Road. The contract was let to Donnes Construction for \$238,000 who grouted the entire stretch, completing the job by July 13, 2012 (Figure 3).



Figure 3. Aerial view of the Horsethief Road subsidence and grouting area. The in-road subsidence is the lighter area just left of center. The grouting area is the bare dirt stretch along the lower edge of the roadway.

## **D. AML Emergency Investigations and Abatement Efforts**

Our 2012 evaluation of AML emergency investigations and abatement efforts examined whether emergency criteria of the State AMLR plan were satisfied and the subsequent project(s) were completed as described in the AML Emergency Investigation report. The 2012 review sample included all AML emergency complaints received during the EY, and all emergency projects completed during the EY. Numerous coal subsidence were reported throughout eastern Montana during the spring of 2012, as were reports of coal mine and coal seam outcrop fires following the numerous prairie fires in the early spring and summer. None of these threatened human health or safety, or threatened property damage so none were considered to be emergencies.

MTAML did respond quickly to landowner notifications, generally filling subsidences within 30 days of report. There was a single incident in Helena, the Humboldt Lode Rapid Response Project where a shaft opened in the back yard of a residence, damaging the septic system. The residence was a vacation home and was not occupied at the time of the subsidence. The shaft was sealed in a timely manner but was not considered an emergency. During EY 2012, the MTAML did not receive any complaints of AML emergencies.

## **E. Subsidence Prone Area Inventory**

### **1. Red Lodge, Montana**

In the summer of 2011, Montana AML received two complaints about potential subsidence in the south-central residential areas of Red Lodge, Montana. Site visits by MT AML staff and contracted engineers in 2011 and 2012 did not reveal any obvious subsidence features such as open sink holes, houses falling into subsidence, etc. However, evidence of subsidence, such as cracks in foundations, lumpy ground, uneven sidewalks/walkways and collapsing foundation walls, was observed. MT AML is currently working with Tetra Tech to develop an investigative approach and methods to determine if these complaints are related to past mining or mining related activities.

At the urging of OSM Casper Field Office, the staff from MT AML and the staff from the Wyoming AML program were strongly encouraged to confer together in Red Lodge to share experiences and lessons learned from the Wyoming's activities concerning subsidence in Rock Springs and Hanna, Wyoming. It was hoped that MT AML could draw upon the experiences of the WY AML, share information on subsidence issues and facilitate Montana's efforts in conducting subsidence investigation and remediation in Red Lodge.

The MT AML with 4 staff members, WY AML with 4 staff members, Tetra Tech Engineers with 2, OSM Casper Field Office with 2 and the Mayor of Red Lodge met at the Carbon County Historical Society meeting room on Thursday June 14, 2012. A general discussion of the area's coal mining history was presented including coal mine maps produced by the Montana State University-Butte College of Technology Red Lodge Legacy Mine Mapping Project. The newly completed mapping project clearly showed the central third of Red Lodge undermined by historical coal mining activity. Following the historical perspective, MT AML staff discussed the history of subsidence activity in

Red Lodge and current findings. The discussion quickly led to investigations and remedial activities in Rock Springs. Key points that came out of the discussions include:

- 1) In Rock Springs, coal issues were not a surprise as coal problems have always been present, but in Red Lodge, coal issues will be a surprise as the problems are just now beginning.
- 2) Watch for inflections in utilities such as sewer, water and gas pipes as they will often be the first indicators of ground movement and subsidence.
- 3) Once coal problems become more visible, do a media blitz in the newspaper, letters to residents in affected areas, flyers and public meetings.
- 4) It may be critical to have a liaison presence in the town, minimally a designated representative that can make appearances in Red Lodge as often as necessary.
- 5) Be proactive rather than reactive in investigating potential subsidence areas and apply staged grouting projects as long term remedial maintenance and prevention actions.
- 6) Wyoming has full specification and qualification requirements for grout application, contractors and equipment, and materials that it is willing to share.

MTAML plans to initiate drilling investigations in the affected areas of Red Lodge, following the areas of most risk as indicated by underground mine maps and areas of citizen complaints. Initial investigations include some drilling and grouting activity along the Adams Street Shaft estimated to cost \$250,000 and Geophysical Investigations along the Platt Street subsidence area, costing an estimated \$500,000.

## **2. Northeastern Montana Counties**

The old underground coal mines south of Plentywood in Sheridan County, Montana were identified as a high subsidence prone area based on historic abandoned mine reclamation conducted in the area and by reports from local ranchers to the MTAML. Investigations by staff from MTAML identified five major underground coal mines that were now showing high levels of subsidence activity. These included the Acme Mine, the Acme/Coalridge Mine, the Anderson-Langerquist-Elm Mine, the Wheeler-Langerquist Mine and the Shoal-Meyer Mine.

The Acme Mine covers an area of approximately 76 acres and currently contains 16 open subsidence features. Examination of the holes reveals that there is 3–4 feet of overburden above the rooms in the underground excavations. The local rancher has had a tractor collapse into one subsidence and has lost several cows and calves in others. MTAML plans to conduct remote sensing investigations consisting of magnetometer resistivity and ground imaging to map the original room and pillar mining operation and define potential subsidence features. The Acme Mine (Figure 4) at Coalridge consists of a small strip mine with an associated underground room and pillar operation. The mine covers an area of 40 acres and exhibits numerous subsidence openings and depressions on the surface. The Anderson-Langerquist-Elm Mine (Figure 5) covers eleven acres and contains seven open subsidence features. Overburden above the underground operations is only 2 feet in places. The Wheeler-Langerquist Mine (Figure 6) has ten large open subsidence features and over 20 subsidence depressions visible on the surface. The Shoal Meyer Mine



currently has one open subsidence feature. All five mine sites are currently under investigation with 200 acres of subsidence activity being examined for the most cost effective means of remediating the problems.



Figure 4. Cattle in the subsidence field at the Acme Coal Mine.



Figure 5. Subsidence at the Anderson-Langerquist-Elm coal mine in the middle of a cultivated field.



Figure 6. Subsidence at the Wheeler Langerquist Coal Mine.

#### **F. Acid Mine Drainage**

In 1990, the Governor of Montana certified to the Secretary that Montana had completed reclamation of all known Priority 1 and 2 coal problems. Acid Mine Drainage (AMD), normally a Priority 3 problem, continued to plague the State's waterways. The heaviest concentrations of AMD are found in the Belt/Sand Coulee areas of the Great Falls Coal Field where twenty-six coal sites pose unmanageable AMD problems. These sites have had successful Priority 1 and 2 reclamation performed on surface features, but passive treatment of AMD problems has been unsuccessful. Passive treatments that have been attempted include limestone channels/drains, diversion of meteoric waters, and aerobic/anaerobic constructed wetlands at the Johnson, Centerville, French Coulee and Stockett sites. All of these attempts have failed due to high concentrations and loads of acidity, metals, and sulfates in AMD waters thereby causing armoring of de-acidifying materials. Additionally, Montana's harsh winters froze wetlands and massive metalliferous precipitation inhibited vegetation growth. The MTAML has monitored AMD on these sites since 1995.

AMD issues in the western states were brought to OSM's attention at the time of the 1994 Appalachian Clean Stream Initiatives. In April of 1996, a field tour was conducted of eight sites in the Great Falls Coal Field to consider the possibility of using Clean Streams Initiative Funding for the AMD problems. Those in attendance consisted of staff from Montana DEQ (including MDEQ Director), the Montana Bureau of Mines and Geology, and the OSM (including OSM-Western Region Director). Although AMD problems were acknowledged, no decisions were made for treatment. It was implied that there wasn't enough AML funding to act on the AMD problems. These problems were not entered into AMLIS (there was no requirement for Priority 3 sites to be entered at that time). OSM was aware of the AMD problems, but did not require Montana to continue addressing them due to the inadequate funding and failed past treatment attempts. The AMD issue has been largely unaddressed since then.

Montana is re-approaching the AMD problem at this time due to four reasons: 1) Montana now has more funding available (\$12.16 million in 2011 versus \$3.45 million in 2007), 2) treatment of AMD by active systems may now be a viable option, 3) under the 2006 Amendments to SMCRA, certified states must now address Priority 3 problems to maintain certification, and 4) investigations have shown that coal AMD is having a greater impact on regional groundwater and area surface water such that human populations are affected.

Since passive AMD treatment systems have been largely unsuccessful, MTAML is considering the construction of active water treatment facilities. MTAML is reviewing the possibility of constructing several water treatment plants at strategic locations along Belt and Sand Coulee Creeks. Polluted water could be piped from multiple problem areas to one or more treatment facilities. MTAML has indicated that construction, maintenance and repair of water treatment facilities for just three of 26 AMD problem areas near Belt would require over \$42 million. Treatment of all 26 AMD problem areas would require approximately \$228.4 million. A current re-evaluation is underway to update the treatment options and costs.

MTAML has entered all of the AMD problems into AMLIS. The problems were added as new problems on existing PADS, emphasizing the fact that these problems emanate from coal mine sites where previous P1 and P2 work has been performed. All entries were done under the category of P2 – Polluted Water – Human Consumption. Table 5 lists all the PAs where AMD was added to the list of problems and the potential cost for treating that problem.

**Table 5. List of Newly Added AMD Problems**

<b>PAD No.</b>	<b>NAME</b>	<b>Estimated Value</b>
MT000741	Tracy	\$27,626,800
MT000714	Giffen Bog	26,838,829
MT000705	Belt A (Anaconda)	19,904,094
MT000746	Upper Cottonwood B	12,093,815
MT000774	Kates Coulee	11,382,282
MT000737	Stockett, SE	8,620,544
MT000749	South Sand Coulee B	6,329,046
MT000709	Anaconda/French Bog	4,538,936
MT000703	Nelson Coal Mine	4,430,332
MT000772	Dump, Sand Coulee	2,848,071
MT000781	Brodie/Meisted	675,480
MT000724	Lewis Coulee	540,384

The Great Falls Coal Field has now become a class room site for OSM’s NTTP course in “Acid Forming Materials.” The class was conducted the week of June 4-8, 2012 with 22 students in attendance. The Belt and Sand Coulee Creek areas provided excellent field examination sites for the class.

## **G. Public Interaction and Outreach**

Our 2012 evaluation of public interaction investigated whether or not MTAML is performing public outreach efforts by holding public meetings subsequent to new grant applications. The Montana AMLR Plan requires that the public be afforded the opportunity to comment on abandoned mine reclamation projects. MTAML considers the public an important component of the reclamation program, and conducts public meetings in the community nearest each project. The meetings are well publicized and are held in evenings or on weekends to allow maximum citizen participation. Overall plans for the project area, construction design, maps, overlays and aerial photographs are presented and discussed at each public meeting.

Individuals may submit comments in writing, or meet with the project officers at any time prior to completion of the comment period on a project. Project officers 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.

General information and project update meetings were conducted for the McLaren Tailings Project (1) in Cooke City, Montana, for the Forest Rose Project (4) in Drummond, Montana, Bald Butte in Marysville (2), Great Falls Coal clogged streams (2), Sand Coulee Water, Sand Coulee (1), Johnson Creek Coal Fire (1), and the Horse Thief Road Subsidence, Roundup (3). These meetings allowed for the dissemination of more information to stakeholders in any given project area than would have been given at a pre-construction meeting for contractors. These meetings are directed at land owners, agencies, organizations, county commissioners, water districts and city councils where people can consider preplanning activities and need to know how AML construction may affect them. In addition, mailings were made to local residents in the vicinity of the Humboldt Lode Rapid Response Project in Helena.

MTAML goes to great lengths to develop and maintain good working relationships with all State and Federal agencies, such as the U.S. Forest Service, the Bureau of Land Management, U.S. Fish and Wildlife Service, the Montana Department of Natural Resources and the Montana Department of Fish Wildlife and Parks. In most cases, these agencies will accept National Environmental Policy Act efforts conducted by MTAML for projects within Federal and State jurisdiction. This practice carries over into relationships with local agencies and groups, and to landowners who have AML sites on their land. MTAML participates in an annual meeting with the Bureau of Land management, the U.S. Forest Service, the Environmental Protection Agency, the Montana Superfund program and Federal Superfund program to coordinate activities and enhance information sharing.

MTAML has also developed an interactive program between the Helena City Parks staff and the MTAML staff to act quickly and close shafts and adits within days of their appearance using expandable foam. This cooperation has provided for joint training exercises and team building opportunities, as well as the closing of several mine openings along Helena's walking trails in the hills surrounding the City.

MTAML provides further opportunities for public participation and involvement through its internet website and press releases. MTAML posts Expanded Engineering Evaluation/Cost Analysis Reports of proposed projects, Reclamation Investigation

reports, environmental reports, construction bid notices, notices of public hearings of proposed AML projects, final construction reports and “A Guide to Abandoned Mine Reclamation” on its website at <http://www.deq.mt.gov/AbandonedMines/default.mcp>. They have also recorded a significant amount of Montana mining history on the website to help mitigate the loss of important cultural resources during the reclamation process and provide that information to educational facilities, and interested parties through the website.

DEQ has a public relations person who has been in the position for two years and is aggressive in releasing news items to media outlets such as local TV stations, statewide newspapers, public radio and on the DEQ website. Recent articles on MTAML activities in EY 2012 have included discussions of coal fires in eastern Montana, announcements of public meetings, and general project updates on the McLaren project. Other articles have appeared in Montana newspapers independent of DEQ news releases. These include articles in the *Flathead Beacon*, the *Helena Independent Record*, the *Billings Gazette*, the *Great Falls Tribune*, and the Great Falls ABC News affiliate, *KFBB*.

MTAML has also participated in several public outreach activities such as Environmental Discovery Days on the Montana Capital grounds. This event is the initiative of Montana’s First Lady to bring high school students into the world of math, science and engineering. The MTAML sponsors an interactive display and mine cleanup information booth manned by staff from the AML program.

Probably the “Main Event” for the year was the dedication of a historical marker erected at the Toston Smelter site in Broadwater County on October 18, 2011. The Toston Smelter was reclaimed by MTAML in 2009. On Earth Day, 2010, as part of Montana’s Math and Science Initiative, Montana’s First Lady, Nancy Schweitzer, led a team of third graders from Cecilia Haselton Elementary School in Townsend and high school students from the Project for Alternative Learning in Helena in planting hundreds of trees along the Missouri River adjacent to the reclaimed Toston Smelter Site. In 2011, the Mrs. Schweitzer and the students from Three Forks and Helena returned to the site to view the success of tree planting and dedicate a historical marker describing the smelter and the remediation of its by-product. The young trees survived the winter and the spring flooding that covered much of the area with fine silt. Presentations were made to the students on the history of the Toston Smelter, the reclamation process, government and private partnerships in cleaning up waste sites, the importance of vegetation in reclamation, and demonstrations on soil sampling.

We have concluded that MTAML is adhering to the public participation and involvement policy of the Montana AMLR plan by holding public meetings regarding potential AML project sites. They have also gone far beyond what is in their plan by conducting tours, participating in public events, giving local presentations and otherwise making their presence and the benefits of the AML program known to the public.

## **H. Maintenance of Records**

### **1. Data Management System**

MTAML maintains an inventory of all abandoned mines identified within the State of Montana. The database is organized by the Kaisen Planning Process. All coal and non-coal sites are listed on a site by site basis recording all relevant data that may later be entered into AMLIS. The database includes site location, type, description, ownership,

priority, status and investigative studies. Individual site data is organized by staging through the AML process with each step being identified, i.e., investigation, pre-bid, bid, construction, maintenance and monitor, and emergency. All reports of investigation are annotated and listed on the site entry, and then entered into the database as a PDF file attached to the individual site entry at the stage completed. All actions, status, etc. are tied to the database. Hard copies of all electronic files are maintained as both open files and shelf entries. Entries into AMLIS are derived from data in the state inventory.

While the electronic data base has allowed easy access to a multitude of data, the entry of new data (old reports) into the system has slowed substantially. It has been recognized that by State law, only paper copies are recognized as official records and much of the advantage of eliminating stacks of old paper files and maintaining hard copy files has been diminished.

## **2. Integration with Abandoned Mine Land Inventory System (AMLIS)**

Our 2012 evaluation of AMLIS determined whether or not information entered into AMLIS agrees with information in the State's 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 implement two requirements. The first requirement was 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. The EY 2006 oversight determined Montana has such a system in place that is adequate to ensure accurate data is entered into AMLIS.

The second requirement implemented by OSM in response to the OIG's recommendation stated, "[o]nce these State and Indian Tribe procedures are in place, OSM will annually review a random sample of [PADs] to see if the information entered into AMLIS agrees with the information in the PAD." As a result, the focus is to ensure the data States and Tribes entered into AMLIS PADs (an integral part of AMLIS) agrees with information in their files. CFO and MTAML chose to include this assurance as part of the EY 2011 oversight. The evaluation goal was to determine whether or not the information Montana entered into AMLIS for projects completed during the evaluation year agrees with information in its files.

MTAML compiles data from EXCEL spreadsheets for input into AMLIS. Upon award of a construction contract after completion of 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 Engineer's Evaluation and Cost Analysis. The Project Officer enters the costing data from the Final Construction Completion Report into the AMLIS PAD completed category.

During 2010 and 2011, the AMLIS system was being redesigned and rebuilt resulting in months of down time where entries could not be made, nor data retrieved. This has resulted in difficulties for the MTAML in entering data onto individual PADs as well as difficulties for the OSM reviewer in retrieving and reviewing data entered into AMLIS. Due to problems in the transition from legacy AMLIS to E-AMLIS, not all data has migrated between the two systems. This means that when inquiries are made of the E-AMLIS system, the data received reflects only what has migrated into the new system, not the total accomplishments of the AML program. The deficiencies in E-AMLIS are being identified and corrected.

MTAML conducted 222 data entries into E-AMLIS during EY 2012, consisting of thirty completion data entries, fourteen new PADs, and 178 edits and uploads.

## **V. Conclusions**

OSM has completed its evaluation of topics specified in the Performance Agreement between MTAML and OSM. This evaluation specifically examined seven topic areas to evaluate MTAML performance:

- 1) AML Grant Fiscal and Administrative Controls,
- 2) Overall reclamation Success,
- 3) Emergency Investigations and Abatement Efforts,
- 4) Subsidence Prone Area Inventory
- 5) Acid Mine Drainage,
- 6) Public Outreach, and
- 7) Maintenance of Records.

MTAML met the goals of abating hazards and improving site conditions at both coal and non-coal projects. Industrial wastes associated with abandoned hardrock mills were disposed in appropriate repositories constructed both off- and on-site. Hazardous equipment and wastes were removed and the areas sufficiently reclaimed for use by the general public. Coal mine fires were extinguished, coal exposures and slack were buried, and sites were re-vegetated. Rapid Response coal subsidences were addressed quickly and the problem abated. All construction adhered to the standards of construction excellence maintained by MTAML. There were no emergency actions in EY year 2012 to review.

Financial Stature Reports were submitted within the required timeframes with no deficiencies noted. Review of the Montana AML Grant Accounting program confirmed that recent audits had no questioned or disallowed costs associated with OSM-Montana AML grant(s).

MTAML has developed a very complex data management program and uses that system to supplement AMLIS. Their data entries into AMLIS are correct and complete to the degree that development of the new E-AMLIS system has hampered data entry and the staff are accustomed to the new systems.

The MTAML has been regularly monitoring AMD problems in Montana and pursuing possible ways to address the problem in a cost effective manner. They have employed various techniques to address and control AMD but to no avail. MTAML continues to monitor the problem and pursue any alternative to procure funding at the level necessary

to resolve the AMD problem. They have entered Polluted Water: Human Consumption as a new problem entry on twelve PADS.

We have concluded that the MTAML is adhering to the public participation and involvement policy of the Montana AMLR plan by holding public meetings regarding potential AML project sites. They have also gone far beyond what is in their plan by conducting tours, participating in public events, giving local presentations and otherwise making their presence and the benefits of the AML program known to the public.



## **APPENDIX A: State Comments and CFO's Responses to the Draft Annual Evaluation Summary Report**

(OSM CFO response in italics following each comment)

### **Montana AML Comments on Draft Annual Evaluation Summary Report for the Montana Abandoned Mine Reclamation Program Evaluation Year 2012**

Page 1. End of first paragraph. Montana Department of Environmental Quality (MDEQ), Remediation Division, Abandoned Mined Lands Bureau currently administers these programs. MDEQ has reorganized the former Mine Waste Cleanup Bureau and separated the Federal Superfund program and Abandoned Mines program into separate bureaus. See letter sent to you on September 5, 2012 referencing this name change for the AML program.

Response: The requested change was not made in the report. The report covers the period of July 1, 2011 through June 30, 2012 during which time the Abandoned Mine Lands Program was known as the Mine Waste Cleanup Bureau. The change to Abandoned Mine Lands Bureau was done in September, 2012, after the evaluation period. The name change will be used in the 2013 Evaluation report for Montana.

Page 5. III.B. Tips. Insert after second paragraph: "OSM presented the Earthvision software modeling class at MDEQ in Helena June 19-22, 2012." Edit last sentence: "One staff member is an instructor for "Groundwater Vistas Modeling Software" in the TIPS series." (not Earth Vision Modeling Software).

Response: Changes made as requested.

Page 10. Third Paragraph, 7<sup>th</sup> line. Change "Big Sky Ski Resort and Lodge Area" to "Great Divide Ski Resort and Lodge Area."

Response: Changes made as requested.

Page 10. Fourth paragraph, 7<sup>th</sup> line. Change sentence to read: "Per the Interagency Agreement for use of the BLM property, the repository was engineered to prevent groundwater contamination and preserve the landscape and visual aesthetics."

Response: Changes made as requested.

Page 10. Fifth paragraph. 1<sup>st</sup> line. Insert space between "Forty" and "thousand."

Response: Change made as requested.

Page 11. Last paragraph, line 4: Change "200 feet" to "400 feet".

Response: Change made as requested.

Page 12. Roundup, Montana Subsidence. First paragraph, 1<sup>st</sup> line. Insert at end of second to last sentence: “The subsidence area was activated by high water and flooding resulting from the unusually wet spring of 2011.”

Response: Changes made as requested.

Page 12. Roundup, Montana Subsidence. Second paragraph, 1<sup>st</sup> line: “In spring of 2012, MTAML conducted a rapid response action and closed three subsidence features that opened on the road shoulder and along the road right of way.”

Response: Changes made as requested.

Page 14. Change the title “Red Lodge, Montana” to “Northeastern Montana Counties” First sentence: Change “Terry” to “Plentywood in Sheridan County, Montana”.

Response: Changes made as requested.

Page 17. First paragraph. Insert in list of reasons why Montana is considering active AMD treatment: “Investigations have shown that coal AMD is having a greater impact on regional groundwater and area surface water such that human populations are affected.”

Response: Change made as requested.

Page 17. First paragraph: Reword last sentence: “certified states must address known coal problems to maintain certification”. (Note: Montana has entered AMD problems as priority 2 to take advantage of adjacency provisions and to eliminate doubt about seriousness of problem).

Response:

Page 19. Second paragraph. Eliminate “Queen City News” and replace this defunct newspaper with “statewide newspapers, public radio”

Response: Change made as requested.

Comment on Acid Mine Drainage section of evaluation:

Montana AML has placed acid mine drainage cost on eAMLIS as a first step toward addressing acid mine drainage in the Great Falls Coal Field with active treatment. The Montana AML program has invested in passive water treatment with poor success. We have implemented source control such as filling subsidence openings that channel water in mine voids, we have neutralize acid coal wastes found at the surface and revegetated barren areas. We have cooperated with USDA to explore agricultural practices that may be used to prevent hydrologic

recharge by enhancing vegetative water uptake. We have investigated hydrologic controls and gone to the expense and effort of reopening the Anaconda mine in Belt to determine if the mine could be entered and bulkheads or other devices installed that would assist with flooding the acid producing portions of the mine. In short we feel as though we have already achieved the results that can be expected without going the additional step of implementing active treatment.

In March 2012 Montana AML completed an extensive assessment of water treatment alternatives for the Great Falls Coal Field. These cost assessments include net present value (NPV) calculations for 100 years of treatment including annual operations and maintenance and periodic 5 year and 30 year costs. Montana AML recognizes that the true cost of water treatment for AMD is not just the capital cost of the water treatment system but also the annual and periodic costs that must be provided if the system is to stay operational. As you note on page 8 in the evaluation of Montana's fiscal management of AML grants, Montana now requires that the entire cost of an abandoned mine project be accumulated prior to beginning construction. What this means for acid mine drainage treatment is that arrangements must be made to provide an income stream to ensure funding for perpetual operations of the plant before the plant can be constructed. The dollar value that must be accumulated for acid mine drainage treatment is shown in the net present values calculations in the report Great Falls Coal Field Water Treatment Assessment, copies of which have been provided to you.

Response: The comments are interpreted to be an elucidation on issues relative to funding and advancing with an AMD program in Montana. Discussions of the issues in the report are not wrong or inadequate and do not need to be adjusted. Montana's comments here are noted and included as a lively explanation of the AMD issue and the difficulties in the implementation of corrective actions.