

**WYOMING STATE OFFICE**  
**Abandoned Mine Land Workplan**  
**Period: FY2007 – FY2013**

**Summary**

Significant hardrock mining areas in Wyoming are the South Pass, Copper Mountain, and Encampment mining districts. Commodities mined were primarily copper, gold, silver, and tungsten.

In 1986, Wyoming certified that it had initiated or completed work on all hazardous abandoned coal mines and began to reclaim other types of abandoned mines in the State. Of AML sites reclaimed to date in Wyoming under the SMCRA program, about 32% are coal, 18% are hardrock, 40% are bentonite, and 10% are uranium.

BLM Wyoming currently has an inventory of 56 known abandoned hardrock mines (excluding uranium) on public lands. This inventory includes (20) mines that may impact water resources within (4) priority sub-basin level watersheds; over (56) sites likely pose physical safety hazards. To date, (4) water quality projects, including (4) sites have been remediated. (2) sites with physical safety hazards have been remediated. This strategic plan does not include a discussion of the reclamation of uranium mines on BLM land, for which BLM is cooperating with the State AML Division and the U.S. Department of Energy.

**AML Watershed Projects**

Because the State Department of Environmental Quality declined in 1999 to complete a Unified Watershed Assessment (UWA) consistent with EPA guidance, we lack a standard comprehensive list and map of prioritized watersheds to use in addressing AML/Watershed issues on a priority basis as practiced in other states. We do, however, select cooperative projects within common watersheds as much as possible. BLM reviewed the State's 2002 AML Mine Site Reclamation Database and compiled 3 lists of sites, those sites with safety and environmental problems, those with only safety problems, and all mine sites near recreation sites and urban areas. Each list shows the mine site's rank by the type and severity of hazard. BLM is coordinating with the State AML to select the highest priority sites from those 3 lists. Site characterization data is then extracted from the database to prepare project proposals for funding and task orders with the State AML.

There are (20) abandoned hardrock mines on public lands in Wyoming that have possible impacts on water quality of (4) priority sub-basin level watersheds. These impacts include contaminated sediment transport to waters of the state, acidic metal laden drainage from mine openings and dumps, mine wastes in stream channels, and erosion of mine wastes into waterways. The (4) highest priority sub-basin level watersheds impacted by abandoned mines on public lands include, in priority order, the Sweetwater, Bad Water, Upper Bighorn, and Lower Wind. Work is underway in (2) of these sub-basin level watersheds, involving (7) priority watershed projects.

The watersheds were prioritized on the basis of assessments undertaken by the BLM and the Wyoming Abandoned Mine Land Division. Prioritization of the water-quality impacted AML sites

was accomplished using analysis of water, soil, and tailings samples (e.g., toxic metal concentration in water, saturated paste extract of tailings). These watersheds were identified and prioritized for those involving BLM AML projects on an annual basis by both the BLM and the Division. The final priorities identified for watershed based projects are established through mutual agreement with the Wyoming State Abandoned Mine Lands Division.

**Table 1.**

WATERSHED	Priority Watershed Projects					EST BLM PORTION	KEY PARTNERS
	PROJECTS FUNDED/ PLANNED	# AMM Sites	FY START	FY FINISH	EST TOTAL COST		
1. Sweetwater	South Pass	6	2007	2013	\$281,100	\$281,100	Division of AML
2. Lower Wind	Copper Mtn	13	2007	2013	\$585,700	\$585,700	Division of AML
3. Upper Bighorn	Cedar Ridge	1	2010	2014	\$507,000	\$507,000	Division of AML

These are general estimates based on the following assumptions: 1-schedules were established assuming an average project life of at least 3 years; 2-construction costs were available for all sites, but preparation costs for clearances, EAs, survey/design were estimated based on a comparison of these costs to construction costs for a representative State AML Regional Project 17I. These preparation costs ranged from 30% to 200% depending upon the complexity of resource issues, accessibility and size of the mine sites (WYDEQ/AML2006). Final costs are determined only after detailed on-site survey and design. Most of the sites are entirely on BLM land. A few have mixed ownership which will reduce total BLM costs to some degree.

### **AML Physical Safety Sites**

Over 56 high-risk hardrock mine openings have been identified on BLM managed lands in Wyoming. The majority of these sites are within the jurisdiction of 3 BLM field offices (Lander, Rawlins, and Casper). The most significant type of mine hazard features are open shafts and adits and highwalls remaining at AML sites in the South Pass district (recreation area), the Copper Mountain district (high use area), the Encampment district (recreation area), the Haystack district (high use area), and the Jelm Mountain district (high use area). All these areas have high use for a combination of activities including fishing, hunting, mountain biking, backpacking, off-road vehicle use, rockhounding, and snowmobiling. Over \$1,000,000 will be required to remediate these mine hazards. These mines also have significant disturbed surface areas and mine wastes that require regrading, capping and revegetation.

Remediation at key sites is guided by focused inventory assessments starting with those site clusters in closest proximity to sites with high public exposure.

**Table 2**

<b>Priority Physical Safety Hazard Sites</b>					
<b>RECREATION AND HIGH USE AREAS</b>	<b># OF AMM SITES</b>	<b>FY START</b>	<b>FY FINISH</b>	<b>EST BLM COST</b>	<b>KEY PARTNERS</b>
1. South Pass	9	2007	2015	\$204,200	Division of AML
2. Copper Mtn	9	2007	2013	\$164,000	Division of AML
3. Encampment	9	2007	2015	\$129,500	Division of AML
4. Haystack	9	2008	2015	\$201,000	Division of AML
5. Jelm Mtn	9	2008	2014	\$211,000	Division of AML
6. Prospect Mtn.	9	2009	2013	\$33,050	Division of AML
7. Isolated sites*	9	2009	2014	\$160,360	Division of AML

These are general estimates based on the following assumptions: 1-schedules were established assuming an average project life of at least 3 years; 2-construction costs were available for all sites, but preparation costs for clearances, EAs, survey/design were estimated based on a comparison of these costs to construction costs for a representative State AML Regional Project 17I. These preparation costs ranged from 30% to 200% depending upon the complexity of resource issues, accessibility and size of the mine sites (WYDEQ/AML2006). Final costs are determined only after detailed on-site survey and design. A few have mixed ownership which will reduce total BLM costs to some degree. \*-Cottonwood Creek, Okie Trail, Leucite Hills

**Table 3. Workload Targets**

PE	FY07	FY08	FY09	FY10	FY11	FY12	FY13	Total
BH	3	7	8	9	10	8	8	53
HP	3	4	4	4	5	5	5	30
JK	2	4	6	8	8	6	6	40
NP	3	7	8	9	10	8	8	53
NQ	--	--	--	--	--	--	--	unkn

\* BH=Inventory/Assessment, HP=Physical Hazard, JK=Environmental Hazard, MG=Monitoring, NP=Evaluate Cost Avoidance/Cost Recovery, NQ=Process Hazmat Cost Avoidance/Cost Recovery Cases

These are general estimates based on the following assumptions: 1-schedules were established assuming an average project life of at least 3 years; 2-each site qualifies as a BH, HP, JK, and NP unit as appropriate; 3-the average area of disturbance for a JK site is approximately 2 acres.

For specific details on planned, ongoing and completed projects, go to the BLM Wyoming AML web site at <http://web.wy.blm.gov/> or the Wyoming State Abandoned Mine Land Division website at <http://state.wy.us/aml>.

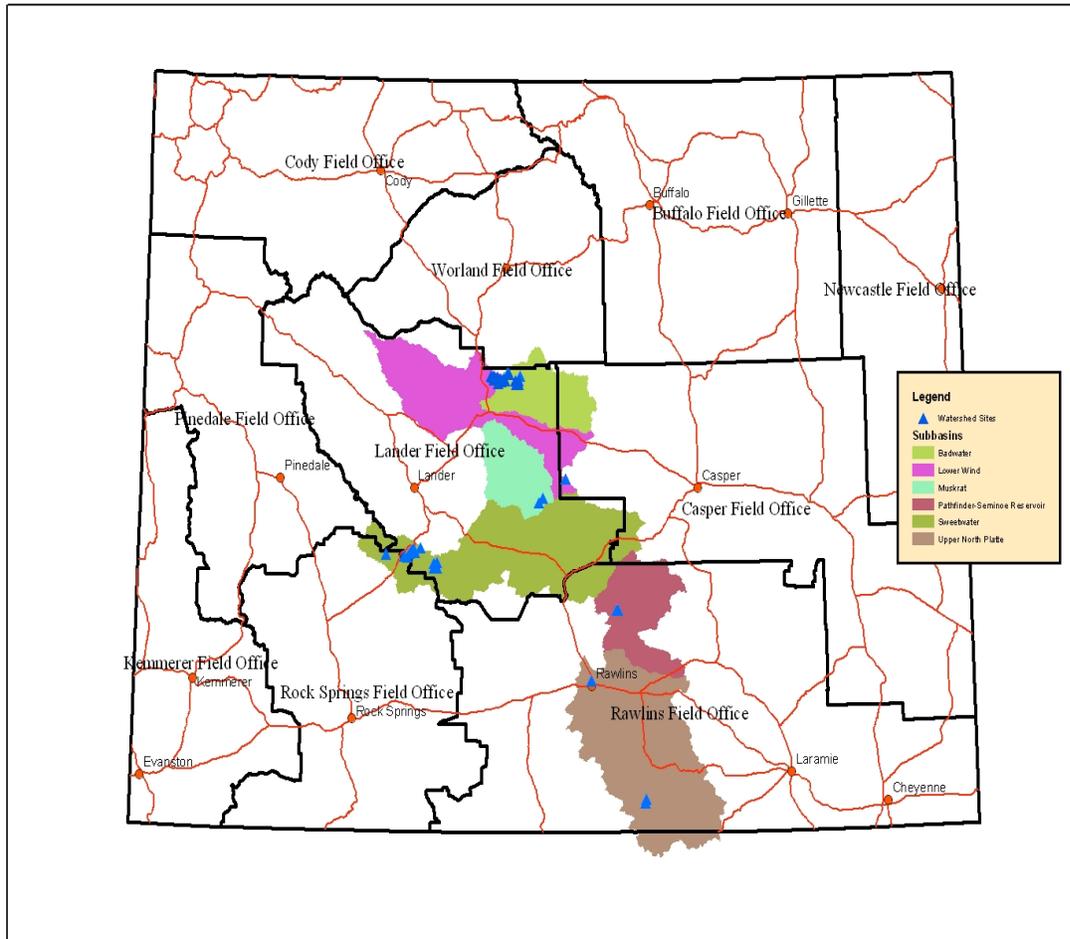
## **Key AML Contacts**

Mineral Division  
Ed Heffern  
P.O. Box 1828  
Cheyenne, WY 82009  
(307) 775-6259  
[Ed\\_heffern@blm.gov](mailto:Ed_heffern@blm.gov)

Resources Division  
Rick Schuler  
P.O. Box 1828  
Cheyenne, WY 82009  
(307) 775-6092  
[Rick\\_schuler@blm.gov](mailto:Rick_schuler@blm.gov)

Resources Division  
Ken Henke  
P.O. Box 1828  
Cheyenne, WY 82009  
(307) 775-6041  
[Ken\\_henke@blm.gov](mailto:Ken_henke@blm.gov)

# WYOMING PRIORITY WATERSHED SITES



# WYOMING PRIORITY SAFETY HAZARD SITES

