

DEPARTMENT OF INTERIOR
OFFICE OF SURFACE MINING
RECLAMATION AND ENFORCEMENT



Annual Evaluation Summary Report
Wyoming Abandoned Mine Land
Reclamation Program
Evaluation Year 2009

August 15, 2009

Cover Photo
Ruins of a stone residential structure at the Kent Mine, Sweetwater County.

TABLE OF CONTENTS

Part I.	GENERAL.....	1
	A. Introduction.....	1
	B. Program administration.....	2
Part II.	NOTEWORTHY ACCOMPLISHMENTS.....	4
	A. Introduction.....	4
Part III.	RESULTS OF PERFORMANCE REVIEWS.....	5
	A. Performance Topics.....	5
	B. Grant Fiscal and Administrative Controls.....	5
	C. Progress of Reclamation of Outstanding Coal Problems.....	6
	D. Overall Reclamation Success.....	8
	1. Kent Mine, Sweetwater County, Wyoming.....	8
	2. Reliance No. 11 Mine, Sweetwater County, Wyoming.....	11
	3. Lionkol Mine, Sweetwater County, Wyoming.....	11
	4. Reliance Mine Fire, Sweetwater County, Wyoming.....	14
	E. Public Outreach.....	15
	F. Integration with AMLIS.....	16
Part IV.	CONCLUSIONS.....	18
Appendix A		
State Comments and CFO Responses		19

Part I. GENERAL

I.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 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 abandoned mine land program is being administered in accordance with approved program provisions. In December 1981, the Secretary of the Department of Interior approved Wyoming's Abandoned Mine Land Reclamation Plan under Title IV of SMCRA. As a result of this approval, the State of Wyoming through the Department of Environmental Quality has exclusive responsibility and authority to operate the Abandoned Mine Reclamation Program. Wyoming's approved State Reclamation Plan (as amended in 1993) set forth authority, policies, and procedures with which Wyoming operates its program. Within the Department of Environmental Quality, the Abandoned Mine Lands Division is responsible for implementing this plan. On March 5, 1984, OSM announced State certification in *Federal Register* notice 49 FR 8091 and requested public comment. In *Federal Register* 49 FR 22139 of May 25, 1984, OSM approved certification.

OSM's evaluation methods are based upon OSM Directive AML-22 (Evaluation of State and Tribal Abandoned Mine Lands Programs) and a Performance Agreement (dated March 21, 2008) between Wyoming Abandoned Mine Lands Program (WYAML) and OSM. The agreement established a commitment between WYAML and OSM identifying topics for review, methodologies for enhancement and evaluation of performance reviews, and assistance in the preparation of the final report. Assessment of WYAML performance includes reviews of selected topics such as fiscal and administrative controls, progress in coal mine reclamation, overall reclamation success, public interaction and outreach, and integration with the OSM Abandoned Mine Land Inventory System (AMLIS) database. Reclamation site visits were conducted jointly by WYAML project managers and OSM staff. This FY 2009 evaluation year consisted of a full twelve month period beginning on July 1, 2008 and ending on June 30, 2009.

The following list of acronyms is used in this report:

AML	Abandoned Mine Land
AMLIS	Abandoned Mine Land Inventory System
ATP	Authorization to Proceed
CFO	Casper Field Office
GPRA	Government Performance Results Act
OSM	Office of Surface Mining Reclamation and Enforcement
PAD	Problem Area Definition
SMCRA	Surface Mining Control and Reclamation Act
WYAML	Wyoming Abandoned Mine Land Program

I.B. Program Administration

Overall, the State of Wyoming administers WYAML in a manner reflecting high quality professionalism and performance, and excellent communication and cooperation between consulting agencies and other interested parties. The Casper Field Office (CFO) and WYAML regularly consult and interact with one another.

WYAML maintains a program staff of 14.5 full time employees distributed between five State offices. The primary administrative office is located in the Capitol complex in Cheyenne with additional project managers and administrators located in Casper, Lander, Rock Springs and Sheridan. WYAML staff conducts initial site investigations, pre-construction environmental analysis, agency consultations and compliances, and reclamation project administration. In addition, WYAML contracts the following services to enhance in-house expertise and capabilities:

1. Reclamation engineering, design and construction inspection;
2. Monitoring and certification of reclaimed properties;
3. Cultural resource identification, evaluations and reporting;
4. Land surface and mineral owner access and reclamation consent;
5. Resource reviews and reports (threatened and endangered plants and animals, wetlands delineation, paleontological resources, and migratory birds);
6. Regulatory reviews, compliances and permits; and,
7. Statewide inventory of all mine sites, coal and non-coal.

There are currently 27 design and engineering contracts and 8 special services contracts that provide for assistance to WYAML.

WYAML project officers provide project conception, development, and management; contracted engineering and design management firms assist with evaluation, design and construction. The following major types of problems are commonly addressed in reclamation projects:

1. Closure of shaft, adit and topographic depressions;
2. Closure of large open pits;
3. Abatement of subsidences;
4. Reduction and elimination of high-walls; and,
5. Extinguishment of underground coal mine fires.

The process of abandoned mine investigation and reclamation is a lengthy and arduous task, integrating WYAML staff and contracted consultants at key mileposts. WYAML staff investigate and inventory abandoned mine sites, enter properties into AMLIS and prioritize sites according to criteria established in SMCRA. Abandoned mine sites are then selected for further investigation around October 1 of each year. At that time, consulting firms are asked to submit a Statement of Interest for further investigation of selected AML sites. A WYAML selection committee selects the best qualified firms for each project based on reviews of submittals and interviews with potential contractors. Contractors are selected by concurrence between the

Department of Environmental Quality director, the WYAML administrator and the individual project manager. WYAML negotiates the contract based on the firm's written proposal.

Due to state procurement laws and WYAML selection policies, lag time between selecting a site for reclamation and execution of a contract with a design firm can be up to 12 months.

Completion of site investigations, landowner consent, and regulatory compliances can take several months to a year. Construction bidding and contractor mobilization processes can add another 12 to 18 months. If it is necessary for WYAML to secure co-operating agreements for mine reclamation with other federal agencies such as the Bureau of Land Management or United States Forest Service, development of agreements and/or satisfaction of agency requirements for reclamation on their administrative lands may require additional time of up to several years resulting in substantial project delay.

Design and pre-construction work consists of obtaining land and mineral owner consents, eligibility determinations, site surveying and mapping, and preparation of a Report of Investigation. This report identifies site conditions, hazards and reclamation alternatives. Following solicitation of public comment through publication of the proposed reclamation action and public meeting if requested, WYAML selects a reclamation alternative and the consulting engineer prepares the final reclamation design. The reclamation project is advertised for bid and a site visit/bid tour is provided for all prospective contractors. Interested contractors then submit bids on the project based on designs provided by WYAML.

Prior to initiating any construction work, WYAML submits a documentation package to OSM with a request for an Authorization to Proceed (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 Wyoming Attorney General, 3) a lien determination pursuant to 30 CFR 882.13 if necessary, 4) a threatened and endangered plant and animal species survey, and consultation results with the U.S. Fish and Wildlife Service, 5) consultation results with the State Historic Preservation Office, and 6) site maps, photographs, and 7) AMLIS PAD reports. If acceptable and complete, CFO issues an ATP pursuant to section 5-11-20D.3 of the Federal Assistance Manual to WYAML prior to reclamation or construction of each project.

Currently there is not an Abandoned Mine Lands (AML) Emergency program in Wyoming. When an emergency occurs, both WYAML and OSM work co-operatively to abate the problem. WYAML has 27 design, engineering and construction contractors under state-wide contract that can be mobilized on short notice to perform inspection, design, and construction remediation on hazards needing urgent attention. In most instances, WYAML has construction activities in the area of the hazard and can mobilize their existing contractors on a moment's notice. WYAML also contracts directly with firms qualified for cultural resource and threatened/endangered species assessments so National Environmental Policy Act, National Historic Preservation Act, and National Threatened and Endangered Species Act compliances may be secured without delay.

Part II. NOTEWORTHY ACCOMPLISHMENTS

II.A. Overall Performance

Since the Program's inception, the WYAML has reclaimed over 950 abandoned mine sites encompassing over 41,844 Government Performance Result Act (GPRA) acre-equivalents. Approximately \$212 million has been spent reclaiming coal mine hazards on 8,629 GPRA acres. The majority of this money was spent on grouting underground subsidence, coal fires, and surface and underground mine reclamation. WYAML has also spent \$259.9 million reclaiming abandoned industrial mineral mine hazards on 33,215 GPRA acres. Significant hazards on both coal and non-coal sites remain to be mitigated and future funding will be required.

TABLE 1. WYOMING 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		Funded	Completed
Priorities 1, 2 and 3 (Protection of public health, safety, and general welfare)							
Clogged streams	Miles	8.4	1.6	12.9	22.9	0	108.2
Clogged stream lands	Acres	60.6	1.0	137.1	198.7	0	1,620
Dangerous highwalls	Lin. Feet	36,224	8,640	13,811	58,675	1,870	556,952
Dangerous impoundments	Count	0	0	8	8	0	134
Dangerous piles & embankments	Acres	82.8	32.5	402.0	517.3	69	2,217.5
Gases: hazardous/explosive	Count	1	0	0	1	0	0
Gobs	Acres	36.2	0	13.5	49.7	0	19.5
Highwall	Feet	1,576	0	0	1,576	0	220
Hazardous Equip. & Facilities	Count	188	3	146	337	4	87
Haul Road	Acres	7.0	1,425.4	5.4	1,437.8	0	400.6
Hazardous Water Body	Count	4	3	0	7	0	416
Industrial/Residential Waste	Count	0	0	12.0	12.0	0	17.0
Mine Opening	Count	246	101	143	490	0	0
Portals	Count	164	38	312	514	33	301
Pits	Acres	22.1	19.5	709.0	750.6	1.2	6,487.6
Polluted Water: Agric. & Indust.	Acres	0.0	0.0	2.0	2.0	0	0
Subsidence	Acres	326.7	97.9	1079.8	1,504.4	0.1	101.2
Spoil Area	Acres	1,083.9	93.3	954.9	2,132.1	0.1	8,393.0
Surface Burning	Acres	0.1	0.9	16.8	17.8	0	0
Slump	Acres	423.9	26.9	108.1	558.9	0	4
Underground Mine Fire	Acres	193.4	2.0	60.5	255.9	0	0
Vertical Opening	Count	57	5	212	274	32	462

Note: All data in this table are taken from the Abandoned Mine Land Inventory System (AMLIS) 6/15/2009.

Part III. RESULTS OF PERFORMANCE REVIEWS

III.A Performance Topics

Topic evaluations reports and individual project reports containing much more detail are on file in the 2008-09 Annual Evaluation files at the Casper Field Office. As identified in the 2008 Performance Agreement, the following topics were selected for evaluation: 1) AML Grant Fiscal and Administrative Controls, 2) WYAML's Progress in Reclamation of Outstanding Coal Problems, 3) Overall reclamation Success, 4) Public Outreach, and 5) Integration with AMLIS.

III.B Grant Fiscal and Administrative Controls

The WYAML Grants administration was monitored throughout EY2009. A site visit to the WYAML program and accounting offices by the OSM Western Region Grants Specialist to discuss their AML Program implementation for the current evaluation year was conducted March 12, 2009. Discussions on the status of OSM grant agreement accounting and reporting were held with the WY DEQ Accounting Manager and Principle Accountant. In particular, discussions were centered on new sources of funding and how it affects subaccounts and project expense tracking under Federal Budget Management Service (FBMS). The WR Grants Specialist will continue to monitor WYAML Grants administration in EY2010.

Wyoming's total available 2009 consolidated grant was \$100,783,068 consisting of \$82,700,759 in Prior Balance Replacement Funds and \$18,082,309 in Certified in Lieu Funds. Of this, \$98,845,000 was requested by the Wyoming State Legislature. These moneys are granted from the United States Treasury to the Wyoming State Legislature to fund research and mineral related projects of their choosing, and coal mine reclamation. A condition of the 2009 consolidated grant was that the State Legislature would dedicate \$30,000,000 to the Department of Environmental Quality Abandoned Mine Lands program for coal mine reclamation. This allocation was budgeted by WYAML as \$28,293,228 non-water project costs, \$1,606,903 program administration, and \$89,869 subsidence insurance program. Wyoming's administrative cost of \$1,616,903 is 5.4% of the WYAML program budget and includes staffing costs and support systems. Pre-construction contracted investigations, engineering design and construction costs are included under non-water project costs. A total of \$1,943,068 remains available in the 2009 Wyoming Consolidated Grant that has not been requested by the Wyoming legislature.

Table 2. Distribution of Wyoming's Consolidated Grant Moneys

\$100,783,068	Total available 2009 Wyoming Consolidated Grant
\$98,845,000	Total Grant Moneys requested by Wyoming Legislature in 2009
\$ 1,943,068	Total 2009 balance remaining available to Wyoming Legislature
\$30,000,000	Amount Dedicated to Coal Mine Reclamation
< 1,616,903>	Non Emergency Administrative Costs
<28,293,228>	Project Costs, Non Water
< 29,869>	Subsidence Insurance Program

\$68,845,000	Grant Moneys committed by Wyoming Legislature
< 2,000,000>	Solid Waste orphan site fund
< 1,033,613>	DEQ/AQD Upper Green River ozone study
< 4,148,724>	DEQ/AQD Environmental impacts of energy development
< 35,000>	DEQ/LQD Mineral Industrial Growth
< 135,000>	DEQ/SHWD Recycling Studies and Vehicular compliance
<10,000,000>	DA joint labs capital construction project
< 734,616>	WSGS Potential CO2 storage and EPA sequestration
<30,000,000>	UW joint UW/GE clean coal partnership project
<10,613,047>	UW clean coal technology research
< 1,600,000>	UW uranium research center
< 8,000,000>	UW CO2 sequestration research and demonstration
< 500,000>	UW reclamation of ecology project
< 45,000>	DSPCR remediation of property, historical Carissa mine

III.C Progress in Reclamation of Outstanding Coal Problems

Fiscal years 2006 and 2007 were difficult years for state AML programs in terms of future planning. States did not know if the Title IV Abandoned Mine Land fund would be re-authorized or not, and if so, at what funding levels. Accordingly, funds and efforts at the time were directed at completion of existing pre-2005 projects including coal, non-coal, bentonite and public facilities, rather than planning and pre-construction investigation for future work. In response to OSM concerns over the number of coal sites still remaining in WYAML's inventory and requiring reclamation, WYAML decided to initiate a change of focus from public facilities and non-coal sites to coal sites only. Hence, ATPs issued in Fiscal year 2008 largely reflected the completion of existing projects from 2006-07 investigations rather than the current commitment to coal issues. With funding and longevity issues having been satisfied, WYAML is directing investigation and preconstruction activities to coal issues, and has committed to spending \$30,000,000 of each following fiscal year distributions to coal mine reclamation until its coal reclamation is completed.

Authorizations to proceed (ATP) issued in Evaluation Year 2008 include:

AML 17G	Grass Creek Mine Fire Abatement (Coal)	07/26/07
AML 9B-2	Duncan Mine Reclamation (Non-Coal)	09/07/07
AML 17K	Sulphur Mines (Non-Coal)	11/02/07
AML 17J	Acme No.1 Fire Subsidence (Coal)	05/06/08
AML 54	Hartville Wastewater Improvement (Public Facility)	05/09/08
AML 17F	Copper Mountain Project Phase 2 (Non-Coal)	05/21/08
AML 17I	Encampment River Valley Sites (Non-Coal)	05/21/08
AML 17I	South Pass Shafts Phase 2 (Non-Coal)	05/21/08
AML 17H	Kemmerer Area Coal Reclamation on BLM Lands (Coal)	06/20/08
AML CE	Storm King Coal Mine Subsidence (Coal)	06/20/08

ATPs issued in Evaluation Year 2009 include:

AML 12D	Frederick Site (Non-Coal)	10/08/08
AML 17I	Bowman and Gussie A Sites (Non-Coal)	10/08/08
AML 17F	Converse-Natrona Counties Coal Phase I (Coal)	12/01/08
AML 17F	Storm King Mine Subsidence Rapid Response (Coal)	01/07/09
AML 17H	Sweetwater County Superior Group (Coal)	01/15/09
AML 17F	Carney Mine Road Subsidence Rapid Response (Coal)	01/20/09
AML 17F	Casper Coal Mine (Coal)	02/02/09
AML 17F	Kleenburn Mine (Coal)	02/20/09
AML 17F	Stein Mine Subsidence Rapid Response (Coal)	03/09/09
AML 17H	Uinta County Evanston Area Group (Coal)	03/16/09
AML 7-28-III	Standpipe Draw Reconstruction (Coal)	04/17/09
AML 17.6A	Blairtown Park/Home Mine Grouting (Coal)	05/01/09
AML 17J	Carney Mine (Coal)	05/15/09
AML 17I	Gold Dollar Mine (Non-Coal)	06/05/09
AML 17F	Copper Mountain Phase 3 (Non-Coal)	06/08/09
AML 17G	Reliance Mine Fire Abatement (Coal)	06/19/09

A comparison of ATPs issued during Evaluation year 2008 and 2009 shows that only 4 of 10 projects (40%) in 2008 were coal related versus 12 of 16 projects (75%) in 2009 were coal related demonstrating Wyoming's commitment to reclamation of their remaining coal problems. Non-Coal ATPs issued in evaluation year 2009 were either pre-effective date of the new regulations (January 13, 2009) or funded with old pre-2009 moneys.

III.D Overall Reclamation Success

The overriding goal of the Abandoned Mine Reclamation Program is reclamation success. The main focus of both OSM and WYAML is to address the reclamation of priority 1 & 2 coal hazards. The 2009 evaluation focused on reclamation success on earlier reclaimed sites and recent reclamation efforts during the evaluation period. The sample for the evaluation of reclamation success included several Rock Springs area coal mines.

III.D.1 Kent Mine, Sweetwater County, Wyoming

The Kent Mine (AMLIS Pad No. WY001716) is an abandoned underground coal mine located about 15 miles south of Rock Springs in Sweetwater County on BLM lands in Section 14, T17N, R105W. The Kent Mine was selected for review as an example of long term success.

There are three distinct mining areas at the Kent Mine located along the unnamed drainage trending north-northeast off of Barney Canyon. The areas were described as a southern mine area, a central mine, and the northern mine based on their relative position along the drainage. All three mines were approximately an acre in size with the central and northern mines being smaller than the southern one. Hazards present at the site included 13 portals, 3 acres of coal spoils, and dilapidated structures, equipment and trash. Coal waste material at the site was eroding into and piled directly in the local surface water drainage system. The chemistry of the mine waste had the potential to adversely affect the water quality and vegetative productivity

since the coal fines and slack did not adequately support the growth of native vegetation. Exposed coal fines also had the potential to spontaneously combust or be easily ignited by human activity or lightning strikes. A number of the mine openings were accessible to the public as were several old mine buildings. Scattered materials such as sheet metal, metal barrels, old bedsprings, barbed wire, and broken glass were strewn about the site representing other physical hazards to the public. Two residential structures associated with the mines were considered eligible to the National Register of Historic Places and were avoided by construction activities (Figure 1).



Figure 1. View of stone residential structure associated with the Kent Coal mine and avoided by construction activities. General view is to the east.

Construction on the site was initiated on October 8, 2004. A coal disposal site was constructed at the mouth of the draw near Barney Canyon and 5000 yards of coal waste from the mining areas were excavated and placed within the disposal site. Portals and open entries were closed by excavating the openings to the maximum extent possible, constructing a bulkhead in the opening with grouted rock, and covering with neutral material excavated from the coal disposal site. Two entries were closed utilizing bat gates (Figure 2). The gates were designed in accordance with guidelines recommended by Bat Conservation International and the Wyoming Game and Fish Department. The mine entries were excavated to allow installation of 24 inch culverts into the mine opening and secured in place with concrete poured around the culvert near the surface. The bat gates were located approximately 8 feet back from the opening of the culvert to discourage vandalism that would likely occur if installed at the surface. The soil around the extruding culverts was blended as much as possible into the immediate surface to discourage investigation by the public.



Figure 2. Bat gate culvert closures installed on the Kent Mine. View to the north.



Figure 3. View of graded area where three mine openings were closed at the Kent Coal Mine. Grassy places mark the locations of the adits. View to the northeast.

Mine related structures, equipment and debris were removed and deposited in the coal slack disposal pit. Finally, all disturbed areas were re-contoured to blend into the natural topography covered with topsoil, disked and seeded.

Overall, reclamation efforts were successful. The coal spoils disposal area remains intact as constructed. Adits were still closed with no evidence of post reclamation collapse and the bat culvert grates were still intact. Grading was still smooth with minimal rilling or erosion visible. Vegetation was sparse in places, but still exceeded the natural plant population count for the area (Figure 3). The two culturally significant structures were still intact although natural degradation was noted by the WYAML staff present at the review.

III.D.2 Reliance No. 11 Mine, Sweetwater County, Wyoming

The Reliance No. 11 Mine (AMLIS No. WY000850SGA) is an abandoned surface and underground coal mine located approximately 6 miles northeast of the city of Rock Springs in Sweetwater County, Section 5, T19N, R104W. The Reliance No. 11 Mine was selected as a site where reclamation was recently completed.

Hazards at the site included two large surface pits with highwalls, portals, subsidence holes, fan shafts, coal slack and mining and modern residential debris. The construction contract was let in April of 2008 with construction initiating in late May continuing through September of that year. Primary tasks of the contract included excavation and bulkhead closures of four portals, closure of multiple subsidence holes, excavation and burial of coal slack, concrete closures of two ventilation shafts, reduction of two pit highwalls (Pit 11 North being 40-50 feet high and approximately 400 feet long, and Pit 11 South being 20-30 feet high and approximately 500 feet long) and re-vegetation of approximately thirty acres.

The unique aspect of the Reliance No. 11 Reclamation project was that the entire final topography was designed by a “natural re-grade” computer program which allowed for constructed contours to be designed with more natural topography such as toe slopes and small ridges. This design package contributed to the development of more natural graded slopes and sinuous drainage patterns, and greater construction controls. All construction was completed on the site in September of 2008. The re-graded surface was allowed to sit over winter until fertilizer and manure from the Bureau of Land Management wild horse corrals could be applied over the site area prior to final disking and seeding. At the time of this visit (June 23, 2009), the site had been graded to a large valley basin with natural appearing slopes merging with the natural undisturbed topography and well constructed sinuous drainages flowing off the hill slopes. Horse manure was in the process of being delivered and stockpiled on site. No rilling or other erosional features were apparent from over wintering.

III.D.3 Lionkol Mine, Sweetwater County, Wyoming

The Lionkol Mine (AMLIS No. WY000852SGA) is an abandoned surface and underground coal mine located approximately four miles north of the city of Rock Springs in Sweetwater County,



Figure 4. Pit 11 North at the Reliance No. 11 mine, filled and graded. View to the north.



Figure 5. Natural grade designed sinuosity in drainage by Pit 11 South at the Reliance 11 Mine. View to the southwest.



Figure 6. Staging area and lower Lionkol pit filled and regraded. View to the south.



Figure 7. Belly loader scrapers cutting fill material at Lionkol Mine site.

Sections 5, 6 and 7, T19N R104W and Section 12, T19N R105W. The site covers approximately 350 acres located directly east of the Bureau of Land Management Wild Horse Corral Facility. The Lionkol Mine site was chosen for review as a site currently under construction. The construction job was bid in February of 2009 with award being made to Bennet Construction Company. The Notice to Proceed was issued on May 4, 2009. The work consisted of excavation and bulkhead closures of multiple portals, closure of subsidences, filling of two pits and reduction of associated highwalls, burial of coal slack, surface re-contouring, and re-vegetation.

The site reclamation plan was developed via the natural contour computer program allowing for more detailed and true to form surface topography and stream channel reconstruction. At the time of the site visit (June 23, 2009), all portals, shafts and subsidences had been closed and covered over. Both the north pit and the south pit had been filled with coal slack, and belly loaders were being used to place overburden over the pits and “cut and fill” to stable slope contours. A GPS guided D-8 bull dozer was being used to cut highwalls and steep slopes to more manageable angles. Preformed stream channels had been cut on hill slopes but were waiting for final shaping and sinuosity development. A full time consulting engineer was on-site to guide construction activities and ensure compliance with the reclamation design. The engineer felt the construction was a little behind schedule due to weather delays and stoppages, but otherwise was going very well and adhering to the plan.

III.D.4 Reliance Mine Fire, Sweetwater County, Wyoming

The Reliance Mine Fire Abatement Project is scheduled for construction in late summer to early winter of 2009. The ATP for the project was issued by the OSM-Casper Field Office on June 19, 2009 and the site was visited as part of the annual WYAML program review on June 23, 2009. The fire is located in the original Reliance Coal Mine (AMLIS Pad No. WY000067SGA) located approximately seven miles northeast of the city of Rock Springs and one-half mile east of the village of Reliance, both in Sweetwater County. Specifically, the mine is located in Section 30 and 31 of T20N, R104W. The mine fire has been burning since the 1930s, has caused substantial subsidence in the area of the old Reliance Mine and has apparently ignited adjoining coal seams above the level of the mine. An area in excess of three acres presently has numerous fire vent cracks open to the ground surface. Some of the fire features are relatively narrow cracks of a few inches which are expressed at the surface by a number of small openings, while other features are large open cracks of a foot or wider and extend for twenty feet or more. In some cases, features are associated with shallow subsidence depressions that are about 45 feet above the collapsed mine workings. Most of the features are expelling hot combustion gases from burning coal beds located below the surface. Venting gases typically range from 100 to 200 degrees Fahrenheit although several features range as high as 400 degrees.

The objective of the project is to eliminate those site features that have the potential to burn or entrap site visitors and to seal openings that provide air circulation to the underground fire. The openings must be closed in a manner that completely fills the cavities and provides effective long-term air seals. The preferred method is to grout and seal the dangerous mine fire vent openings, fire cracks and subsidence features, then to grade the area as necessary to control the fire and improve general public safety.



Figure 9. General view of the Reliance Mine fire area. View to the east.

III.E Public Outreach

WYAML continues to solicit public comment and input on individual projects and the program at large. WYAML publishes “Notices of Intent to Perform Reclamation” for each proposed reclamation project in local and state newspapers and on its website, and solicits public comment and requests for public meeting participation. No public meetings on reclamation projects were requested by the public in evaluation year 2009. At the end of each reclamation project, a statement “Intent to Make Final Payment” is published in the Casper Tribune newspaper before the contract is closed. This allows an opportunity for the public to comment on the acceptability of the reclamation project as completed before final payment is made.

When the project involves public facilities, the State Loan and Investment Board also provides additional opportunities for public input prior to rendering a final decision on each project.

WYAML maintains an excellent web site at <http://deq.state.wy.us/aml/> that includes links to information on AML dangers, a calendar of upcoming projects, current construction bidding, project selection, department contacts, rules and regulations, and professional procurement information. Also included are instructions describing how to report mine hazards.



Figure 10. Fire cracking and venting at the Reliance Mine Fire

III.F Integration with AMLIS

WYAML generally follows AMLIS guidelines to develop Problem Area Definitions (PADs) and enter them into the AMLIS data bank. WYAML uses criteria very similar to AMLIS guidelines to prioritize its coal problems but considers additional factors specific to Wyoming such as recreational activities, land uses, and settings. Once entered in AMLIS, the specific PAD is then appended to the ATP request package submitted to the CFO.

OSM has given data entry privilege to WYAML for modifying existing PADs in AMLIS. This action allows WYAML to correct and eliminate double entries, to modify, delete and add specific entries on individual PADs, and enter new PADs as necessary without OSM intervention on each action. However, all PAD modifications and new entries are subject to approval by the CFO Director.

During the 2009 review period, WYAML has made the following modifications to AMLIS:

New entries	2
Coal sites updated	3
Completions added to records	39
Moved to funded	41

WYAML has made a commendable effort in finding and correcting errors, and updating information in the database. Progress has been made and it is anticipated that the AMLIS database will be completed in the near future.

Part IV. CONCLUSIONS

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

- 1) AML Grant Fiscal and Administrative Controls,
- 2) WYAML's Progress in Reclamation of Outstanding Coal Problems,
- 3) Overall reclamation Success,
- 4) Public Outreach, and
- 5) Integration with AMLIS.

WYAML receives the largest grant of moneys from OSM for any program in the country. The State of Wyoming Legislature directly controls the allocation of those funds with \$30,000,000 being directed to the WYAML, and the balance being allocated to research and mineral related projects of Legislative choice. WYAML manages its allocation in a fiscally responsible manner with 94.6% of its allocation going to reclamation construction costs and only 5.4% to administrative cost.

WYAML currently lists 414 coal sites of which 223 have been completed and 191 remain to be addressed. Although WYAML continues to address non-coal sites in order to complete in-progress projects, WYAML has re-directed its emphasis and resources are being directed to coal problems. It is anticipated that more coal reclamation projects will be conducted in the future.

WYAML has conducted excellent reclamation at the Rock Springs sites reviewed in this evaluation. All projects completed conform to the treatment plans as developed and the quality of construction is clearly evident. Reclamation at the Rock Springs area sites clearly exceeds expectations as demonstrated in successful natural contour design, high altitude re-vegetation and the quality of project design, management and construction.

WYAML continues to publish project notices and solicit feedback from Wyoming residents. There were no public meetings conducted in evaluation year 2009.

There have been great strides to improve the quality and accuracy of data entries in the AMLIS system, with many old entries being corrected and updated, and new coal PADs being entered. We recommend WYAML continue to refine its inventory data and enter coal PADs in AMLIS to accurately show the number, nature and priority of unreclaimed coal problems remaining in the State.

Overall, WYAML has performed its duties admirably and has adhered to its AML Reclamation Plan. WYAML is recognized by OSM for the performance and quality of its work.

Appendix A

State Comments and CFO's Responses on the Draft Annual Evaluation Summary Report

Comments on the Annual Evaluation Summary Report were received from the Wyoming AML program administrator on August 11, 2009. Only one correction was noted, that there are now five AML offices across the State rather than four as stated in the draft report. The correction was made.