

**OFFICE OF SURFACE MINING  
RECLAMATION AND ENFORCEMENT**

**ANNUAL EVALUATION SUMMARY REPORT**

**for the**

**UTAH ABANDONED MINE RECLAMATION PROGRAM**

**for**

**Evaluation Year 1999**

**(October 1, 1998 through September 30, 1999)**

**October 25, 1999**

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## I. GENERAL

The primary goal of the national Abandoned Mine Land (AML) program is to mitigate the effects of past mining by reclaiming abandoned mines. Primary emphasis of the program is on correcting the most serious problems endangering public health, safety, general welfare, and property. The Office of Surface Mining Reclamation and Enforcement (OSM) and State and Tribal AML programs work together to achieve the goals of the national program. OSM administers the Abandoned Mine Reclamation Fund on behalf of the Secretary of Interior and awards grants to States and Tribes from the Fund to pay for their administrative costs and redamation. In addition, OSM works cooperatively with the States and Tribes to monitor the progress and quality of their AML programs.

On June 3, 1983, the Secretary of the Interior approved Utah s AML reclamation plan ( State Reclamation Plan ) under Title IV of the Surface Mining Control and Reclamation Act (SMCRA). This approval allows Utah to reclaim abandoned mines in the State in non-emergency AML projects. The Abandoned Mine Reclamation (AMR) Program, of the Division of Oil, Gas and Mining (DOGM) in the Department of Natural Resources, operates Utah s AML program. OSM s Western Regional Coordinating Center, Denver Field Division (DFD), works with the Utah AMR Program to fund and evaluate AML reclamation in Utah.

Grants OSM awards to DOGM s AMR Program are based on the period of July 1<sup>st</sup> through June 30<sup>th</sup>. Because the *evaluation* year (on which this report is based) includes the period of October through September, DOGM s grants span parts of two successive evaluation periods. While the administration funding in those grants applies to a single calendar year, their construction funding is available for three years. OSM awarded a grant to DOGM in the amount of \$1,500,000 for construction and administration in 1998. That grant funded construction and related activities for two coal and three noncoal projects and costs of engineering, design, and various surveys for two additional noncoal projects. It also funded the Program s staffing of nine full-time equivalent positions. In 1999, OSM awarded Utah s grant in the amount of \$1,576,544. The 99 grant funded nine full-time equivalent positions and construction and related activities for one coal and two noncoal projects. Tables 1 and 2 describe Utah s coal and noncoal AML reclamation accomplishments and remaining reclamation needs based on data from the Abandoned Mine Land Inventory System.

Utah doesn t have approved subsidence insurance or emergency coal reclamation programs.

## II. NOTEWORTHY ACCOMPLISHMENTS

Public awareness of hazards associated with abandoned mines is effective in preventing and reducing accidents involving abandoned mines. To that end, the Program participated in DOGM's annual stakeholder meeting during which it described its active hazard abatement work, projects being planned, and its bat conservation efforts. DOGM's ongoing AML safety awareness campaign included its annual publishing of 40,000 AML safety workbooks for fourth grade elementary school children. In June 1999, DOGM participated with the Mine Safety and Health Administration in Mine Safety Week. Program employees staffed an AML information booth at the Annual Sevier Valley Natural Resources Fair in Richfield. The AMR Program also staffed an information booth at an environmental appreciation day function sponsored by the Utah Department of Natural Resources. In early 1999, DOGM issued a press release renewing its public advisory about AML hazards.

In this evaluation year, DOGM continued to develop mine reclamation partnerships with Federal agencies and other organizations. Barrick Resources USA donated funding to the AMR Program for abandoned mine reclamation in the Mercur mining district on the western flank of the Oquirrh Mountains. Federal agencies that include the U.S. Department of the Interior, National Park Service (NPS) and Bureau of Land Management (BLM), and the U.S. Department of Agriculture, Forest Service (USFS) provide project funding and inventory assistance and information to the AMR Program. In the 1999 period, DOGM received funding from the BLM and USFS for pre-construction planning, inventory, water sampling, and surveys for the Cottonwood Wash project. In conjunction with the Interdepartmental Abandoned Mine Lands Watershed Cleanup Initiative and the Clean Water Action Plan, DOGM continued to work directly with the BLM and USFS to plan the Cottonwood Wash project in southeastern Utah. This area is noted for an abundance of cultural resources. DOGM's role will include closing pre-law abandoned vertical openings and portals with SMCRA funds awarded by OSM and providing contract administration and construction monitoring services. The BLM and USFS will devote their efforts to project planning and watershed remediation.

Utah's AMR Program also continued to protect bats and their habitat through its construction of special mine closures and cooperation with bat conservation programs. The AMR Program is a leader among a growing number of State and Tribal AML programs that promote bat conservation as an integral part of abandoned mine reclamation. During the 1999 field review of performance measure 1(a) summarized under Part III A. of this report, the team viewed seven closures DOGM built to provide bat access to underground mine workings. Such closures enable bats (and occasionally other wildlife species) access to important habitat while safeguarding mine openings against public entry. The Utah Department of Natural Resources awarded a competitive grant from its Endangered Species Mitigation Fund to the AMR Program that it, in turn, used to fund Southern Utah University to monitor bats' use of gated mine closures. Also, a volunteer has helped the AMR Program use a global positioning system (GPS) to record the location of closures fitted with bat gates. Further,

the Program participated in a preliminary study with Oak Ridge National Laboratory to determine what effects, if any, radiological components of abandoned mines have on bats to see if installing bat gates on abandoned mines with radiological traits benefits bats or not. Finally, DOGM is working with the Utah Bat Working Group to produce a poster illustrating and describing Utah's 19 resident bat species.

### III. RESULTS OF ENHANCEMENT AND PERFORMANCE REVIEWS

Directive AML-22 generally describes how OSM evaluates State AML reclamation programs. It calls such evaluations AML enhancement and performance reviews. A joint State/Federal team has been completing these reviews of the Colorado and Utah AML programs since its inception in January 1996. The team includes representatives of Utah's AMR Program, the Colorado Inactive Mine Reclamation Program, and DFD. Members of the team during the 1999 evaluation period included: Frank Atencio, Grants Management Specialist, OSM/DFD; Candy Bell, AML Program Specialist, OSM/DFD; David Bucknam, Colorado Inactive Mine Reclamation Program Supervisor; Ginger Kaldenbach, AML Project Manager, OSM/DFD; Mark Mesch, Administrator, Utah AMR Program; and Ron Sassaman, Environmental Protection Specialist, OSM/DFD.

The team signed the Colorado-Utah AML Review Team Performance Agreement on February 3, 1998. The performance agreement describes the team's purpose, team members' responsibilities, and three general principles of excellence that the team developed to review and evaluate the Colorado and Utah AML programs' performance. Though the agreement applies to the 1998, 1999, 2000, 2001, and 2002 evaluation years, the team updates it each year.

The team emphasized on-the-ground or end-results when it developed the principles and measures in the agreement. Each principle of excellence has one or more performance measure(s). Each performance measure is one specific topic within a general principle of excellence. The team decides which performance measures to review and evaluate in a particular year. Performance measures describe the following: Why the team selected that topic; what the review population and sample sizes will be; how the team will conduct the review and report the results; and the team's schedule for completing the review. The three principles of excellence, and the specific performance measures the team chose for the 1999 review of the Utah AMR Program, are described below.

*Principle of Excellence 1:* The State's on-the-ground reclamation is successful.

" *Performance Measure (a):* Does completed reclamation meet the goals of the project?"

Principle of Excellence 2: The State AML program's procedures are efficient and effective.

" *Performance Measure (b)*: Can the State's contracting procedures be improved to be more responsive to program needs?

Principle of Excellence 3: The State must have systems to properly manage AML funds.

" *Performance Measure (e)*: Are the costs of State AML program activities appropriately documented and supported?

Results of the team's 1999 review and evaluation are summarized below. These summaries are based on information the team gathered. Reviews included field visits to AML projects, interviews with DOGM's AMR Program staff, and reviews of DOGM's project specifications and procurement processes. The team described its review and evaluation results in much greater detail in enhancement and performance review reports that it wrote for each performance measure. Those reports are on file in OSM's Denver Field Division. Because membership on the team changed during this period, the team canceled its plan to evaluate performance measure 3(e). This report, and the supporting enhancement and review reports, describe the team's reviews and evaluations of performance measures 1(a) and 2(b).

#### A. Summary Evaluation of Performance Measure 1(a)

The team's review of this performance measure determined whether Utah's completed reclamation met project goals. For the purposes of the 1999 evaluation, the population was every project the AMR Program had under construction or completed in 1996, 97, 98, and 99, which totaled 17 projects. The review sample included 3 ongoing and 6 completed projects located throughout the State. Of the nine sample projects, one involved maintenance of a previously completed coal project and eight were priority 1 noncoal projects. Two of the sample noncoal projects didn't meet the review population criterion, having been reclaimed in 1993 and 1994. However, their proximity to other sample projects DOGM reclaimed using similar reclamation methods enabled the team to view that method's effectiveness in a larger number of projects reclaimed over a longer period of time. Completed reclamation ranged from about 1 year to around 6 years old. Average reclamation age in completed projects was about 3.2 years.

The team viewed DOGM's reclamation of hazards associated with 57 vertical openings and 13 portals at the nine

projects. Many closures the team visited abated hazards of mine openings located near public roads or on public lands extensively used for outdoor recreation. The team observed five different types of closures DOGM used to close vertical openings and four different types of portal closures. It also viewed the State's ongoing demolition of a concrete loadout structure where a previously installed cable net closure was damaged by a rock fall. Seven closures incorporated designs for bat access. Of the 70 reclaimed mine openings the team viewed, conditions at only two areas (2.9 %) led the team to recommend DOGM follow-up on them. Specifically, the team recommended DOGM monitor one portal closure where a fractured brow could lead to a collapse that would compromise the bat gate closure. It also recommended that DOGM address a new subsidence-created vertical opening in a phosphate mining area where the Program excavated and backfilled geotechnically complex subsidence openings, and where some continued subsidence can reasonably be expected.

The team concluded that the three active projects it visited were meeting their respective goals and the six completed projects met their goals. Those goals included: Abating hazards to public health and safety; complying with provisions resulting from interagency consultation; and improving site conditions compared to pre-reclamation conditions. The team also concluded that DOGM's reclamation protected Utah's people, wildlife, and cultural resources while improving the overall condition of mined lands as a result of meeting projects' goals.

Project areas the team visited were improved as a result of DOGM's reclamation compared to their previous abandoned conditions. The basic act of closing hazardous shafts and adits or demolishing hazardous structures improves site conditions simply by making them safer. On the other hand, abandoned mines can be important bat habitat while being extremely hazardous to people, especially on public lands that are increasingly used for outdoor recreation. By building closures with gates that provide for bat access, DOGM helped preserve actual and potential wildlife habitat while abating public health and safety hazards. Also, by doing reclamation without affecting nearby historically-significant structures, DOGM continued to encourage public appreciation for Utah's mining heritage.

#### B. Summary Evaluation of Performance Measure 2(b)

For the 2(b) performance measure review, the team determined if Utah's contracting procedures can be improved to be more responsive to program needs. One team member reviewed information that described, in detail, the processes DOGM follows to procure goods and services in support of AML reclamation. The Utah Administrative Code contains the State's rules and procedures, and is available online in its entirety at <http://www.rules.state.ut.us/publicat/code/r033/r033.htm>. An AMR Program staff member also wrote a summary of the

procurement processes DOGM follows and provided it to the team. Both sources greatly facilitated this review. The team member then interviewed two AMR Program staff members (who are active in the Program's procurement) to learn more about the processes, about problems (if any) the Program has with them, and to ask for suggestions the AMR Program has for streamlining them.

Based on reviewing information that described the procurement processes, the team member developed preliminary findings and conclusions in a report that included process summaries and excerpts of the information the AMR Program's staff provided. All team members and one interviewed Program staff member reviewed the procedure summaries, findings, and conclusions in another effort to identify procedures Utah could streamline to make more efficient and to eliminate repetitive and unnecessary activities. The team didn't review DOGM's contracting files to evaluate specific procurement actions because of time limitations and a change in the team's membership. Rather, it focused on how the overall processes work to determine if Utah's contracting procedures are responsive to the AMR Program's needs.

The team made six findings based on its review. They are:

1. Utah's procurement procedures set the minimum standards DOGM must follow to obtain goods and services;
2. Utah's procedures reflect the State's long-term experience with contracting and its desire for fair competition and fiscal responsibility;
3. DOGM has some flexibility to add procedures to those already prescribed when doing so is useful, which it has done. However, DOGM doesn't have discretion in deciding which required steps it will follow and which ones it won't. The Division of Purchasing and General Services ( Purchasing Division ) apparently has some discretion in this respect and occasionally advises DOGM of steps that it can expedite or avoid;
4. DOGM is very familiar with Utah's requirements as a result of following the State's procurement processes for several years; and
5. Overall, DOGM believes its relationship with the Purchasing Division is good, and that Purchasing's support for its program is good.

Based on these findings, the team reached the following conclusions:

1. Utah's procurement processes enable DOGM to contract for AML construction and obtain other goods and services it needs without repeating steps or activities;
2. DOGM and the Purchasing Division already are considering measures to streamline the processes;
3. The team wasn't able to identify steps or activities in the processes that are obviously unnecessary; and
4. When the processes require cooperation between DOGM and the Purchasing Division, interpersonal communications and working relationships strongly influence how smoothly they work.

Overall, the AMR Program believes the procurement processes work satisfactorily for obtaining goods and services, including construction contracting, and the team found no evidence to suggest otherwise. Based on the interviews, the team understands problems arise occasionally with specific DOGM procurement actions. The AMR Program and the team recognize many factors that influence the outcome of each procurement action. They include: The Program's internal planning; interpersonal communications within and between the Program and the Purchasing Division; the AMR Program's overall working relationship with the Purchasing Division; dynamics of the bidding process and prospective bidders; and different views each division might have about what's most important in each procurement action. While DOGM believes its overall relationship with the Purchasing Division is good, it recognizes that improving their working relationship will improve communications, which will make their collaboration on procurement actions work even better.

Utah is working to streamline its procurement processes. For example, DOGM revised its Field Change Authorization policy for construction contracts. The revision allows project managers to issue field change orders authorizing work changes to increase contracts up to higher dollar amounts in certain cases. This policy change enables the AMR Program to respond quickly and effectively to situations in which field conditions prevented it from determining the precise scope of work before construction. As a result, construction delays at ongoing reclamation projects can be avoided.

The AMR Program also is checking into whether Utah has contracts in-place with contractors in individual counties throughout the State. The Program's goal is to be able to procure the services of contractors to work on small AML projects or in maintenance situations with short notice. The purpose of this effort is to reduce the administrative time spent on contracting small projects, which sometimes can be as time-consuming as it is for large projects.

Similarly, the AMR Program is considering whether to award a state-wide contract for mine hazard inventory services.

Such a contract could procure work in any part of the state and would be open to a small pool of experienced, qualified firms. DOGM wants to keep the bidding process for professional services competitive. However, its experience shows that quality of the final inventory can be inferior if inexperienced firms are selected through a fully competitive process. While competition will decrease with this approach, quality of the information DOGM receives would be high and the process it follows to obtain such services would be streamlined considerably.

Fair competition in contracting remains a high priority in Utah nevertheless. Toward that end, the Division of Purchasing is considering changes to Utah's requirements for pre-bid meetings. One proposal would make attendance by prospective contractors at pre-bid meetings optional. The AMR Program believes this approach could result in inexperienced contractors bidding on projects sight-unseen, which can be ineffective and dangerous. Another proposal would keep attendance mandatory but require DOGM to hold two pre-bid meetings instead of one. This approach would increase opportunities for bidders to attend at least one pre-bid meeting, resulting in a large pool of bids and increased competition. It also will significantly increase the AMR Program's administrative burden. Both proposals could have a major impact on DOGM's construction contracting.

#### **IV. ACCOMPLISHMENTS AND INVENTORY REPORTS**

Tables 1 and 2 list the various kinds of abandoned coal and noncoal mine problems Utah inventoried and how many of those problems the State reclaimed so far. The tables also show estimated costs of unreclaimed coal and noncoal problems and how much DOGM's completed reclamation cost.

Utah continues to reclaim abandoned coal mines and hasn't certified under section 411(a) of SMCRA that it addressed all its known abandoned coal mine problems. As Table 1 shows, \$24,811,567 million in unreclaimed coal-related problems are listed in the State's inventory. About 93.8 percent of that estimated cost is associated with three problem types: Underground mine fires (85%); subsidence (4.9%); and dangerous highwalls (3.9%). DOGM has been monitoring a number of underground mine fires over the years. With funding awarded in its 1994 grant, Utah developed an analysis method to measure fire temperature, fire atmosphere gases, and subsidence in addition to a field protocol that it will use to monitor fires throughout the State. Utah's 1996 grant funded the first field sampling in a project designed to: Establish baseline inventory information for each fire; develop a long-term monitoring plan to assess the condition and progress of the State's underground mine fires; implement a monitoring program; and develop initial mitigation proposals for consideration in a future grant. Experience shows that subsidence and underground mine fires are two of the most expensive and technically difficult abandoned mine problems to deal with effectively. Nine of the 24 problem types listed

on Table 1 make up about 89 percent of the \$ 9.07 million cost of Utah's completed abandoned coal mine reclamation. They include: dangerous piles and embankments (23%); surface burning (15%); portals (13.1%); gob (9.3%); hazardous equipment and facilities (6.5%); underground mine fires (6.3%); clogged stream lands (6%); clogged streams (4.9%); and dangerous highwalls (4.9%).

Table 2 summarizes the noncoal problems Utah inventoried and the State's noncoal reclamation accomplishments. The table shows that Utah has an estimated \$4,984,000 of inventoried, unreclaimed noncoal problems. Noncoal portals, vertical openings, and subsidence make up 100 percent of that estimated total cost. DOGM continues to devote substantial resources to abating abandoned noncoal mine problems: Of 13 construction projects funded in its 1997, 98 and 99 grants, nine address noncoal problems. Table 2 shows that DOGM's completed noncoal reclamation addressed hazardous equipment and facilities, portals, subsidence, and vertical openings. To date, Utah spent almost \$3.6 million on noncoal reclamation. A fatality that occurred in an abandoned noncoal mine near Fivemile Pass southwest of Lehi, Utah, in January 1999 most recently underscored the need for DOGM to continue reclaiming abandoned noncoal mines in the State.

Table 1  
Utah Abandoned Mine Reclamation Program  
Coal AML Reclamation Accomplishments and Remaining Reclamation Needs\*

Problem Type and Description	Unfunded		Funded		Completed		Total	
	Units	Costs	Units	Costs	Units	Costs	Units	Costs
Bench	8.0 acres	\$12,500	0.0	0	4.0 acres	\$154,544	12.0 acres	\$167,044
Clogged Streams	0.2 miles	\$10,000	0.0	0	13.6 miles	\$445,734	13.8 miles	\$455,734
Clogged Stream Lands	11.0 acres	\$281,000	6.0	\$525,000	9.0 acres	\$546,126	26 acres	\$1,352,126
Dangerous Highwalls	5,000 feet	\$970,000	0.0	0	3,425 feet	\$444,871	8,425 feet	\$1,414,871
Dangerous Impoundments	1.0 (count)	0	0	0	1 (count)	\$14,600	2 (count)	\$14,600
Dangerous Piles & Embankments	3.2 acres	\$81,000	0.0	0	133.5 acres	\$2,101,299	136.7 acres	\$2,182,299
Dangerous Slides	1.0 acre	\$20,000	0.0	0	0.0	0	1.0	\$20,000
Equipment / Facilities	14 (count)	\$19,300	0	0	64 (count)	\$47,850	78 (count)	\$67,150
Gases: Hazardous / Explosive	13 (count)	\$86,000	0	0	19 (count)	\$20,001	32 (count)	\$106,001
Gobs	47 acres	\$184,500	0.0	0	255.0 acres	\$846,349	302.0 acres	\$1,030,849
Hazardous Equipment & Facilities	19 (count)	\$195,500	0	0	150 (count)	\$596,718	169 (count)	\$792,218
Haul Road	0.5 acre	\$5,000	0.0	0	3.0 acres	\$35,000	3.5 acres	\$40,000
Industrial/Residential Waste	5.0 acres	\$22,000	0.0	0	9.0 acres	\$76,800	14 acres	\$98,800
Portals	56 (count)	\$216,800	8 (count)	\$1	494 (count)	\$1,198,359	558 (count)	\$1,415,160
Pits	3.0 acres	\$900	0.0	0	8.0 acres	\$23,266	11.0 acres	\$24,166
Polluted Water: Agric. & Industrial	1 (count)	\$50,000	0	0	2 (count)	\$54,700	3 (count)	\$104,700
Subsidence	183.0 acres	\$1,215,000	1.0 acres	0	3.0 acres	\$104,739	187.0 acres	\$1,319,739
Spoil Area	28.3 acres	\$174,034	0.0	0	55.0 acres	\$264,484	83.3 acres	\$438,518
Surface Burning	6.0 acres	\$150,000	0.0	0	38.8 acres	\$1,368,636	44.8 acres	\$1,518,636
Slurry	0.0 acres	0	0.0	0	1.0 acres	\$2,830	1.0	\$2,830
Slump	7.0 acres	\$16,000	0.0	0	16.0 acres	\$24,143	23.0 acres	\$40,143
Underground Mine Fire	326.0 acres	\$21,095,100	10.0 acres	\$250,000	27.0 acres	\$570,398	363.0 acres	\$21,915,498
Vertical Openings	1.0 (count)	\$2,433	0	0	23 (count)	\$49,243	24 (count)	\$51,676
Water Problems	1.5 gal./min.	\$4,500	0.0	0	20.3 gal./min.	\$117,085	21.8 gal./min.	\$121,585
<b>UTAH TOTAL COSTS</b>		\$24,811,567		\$775,001		\$9,107,775		\$34,694,343

\* This table is based on a Problem Type Unit and Cost Summary Report from the Abandoned Mine Land Inventory System as of 10/12/99

Table 2  
Utah Abandoned Mine Reclamation Program  
Noncoal AML Reclamation Accomplishments and Remaining Reclamation Needs\*

Problem Type and Description	Unfunded		Funded		Completed		Total	
	Units	Costs	Units	Costs	Units	Costs	Units	Costs
Hazardous Equipment & Facilities	0 (count)	0	0	0	3 (count)	\$19,808	3 (count)	\$19,808
Portals	1,439 (count)	\$2,893,000	140 (count)	\$300,000	1,160 (count)	\$991,515	2,739 (count)	\$4,184,515
Subsidence	49.0 acres	\$750,000	0.0	0	116.0 acres	\$1,537,902	165.0 acres	\$2,287,902
Vertical Openings	461 (count)	\$1,341,000	13 (count)	\$86,000	517 (count)	\$1,009,244	991 (count)	\$2,436,244
<b>UTAH TOTAL COSTS</b>		\$4,984,000		\$386,000		\$3,558,469		\$8,928,469

\* This table is based on a Problem Type Unit and Cost Summary Report from the Abandoned Mine Land Inventory System as of 10/12/99