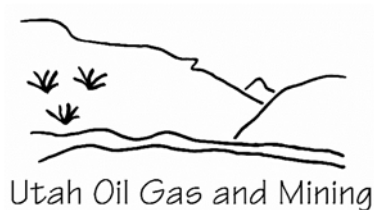


ANNUAL SUMMARY EVALUATION REPORT
of the
COLORADO – UTAH ABANDONED MINE LAND REVIEW TEAM
for the
UTAH ABANDONED MINE RECLAMATION PROGRAM
for
EVALUATION YEAR 2001

(October 1, 2000, through September 30, 2001)



November 20, 2001

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ACRONYMS

AML	Abandoned Mine Lands
AMLIS	Abandoned Mine Land Inventory System
AMR	Abandoned Mine Reclamation
BLM	Bureau of Land Management (of the U.S. Dept. of the Interior)
CIMRP	Colorado Inactive Mine Reclamation Program
DFD	Denver Field Division (of OSM)
DOGM	Utah Division of Oil, Gas and Mining
EPA	United States Environmental Protection Agency
MSHA	Mine Safety and Health Administration (of the U.S. Dept. of Labor)
OSM	Office of Surface Mining (of the U.S. Dept. of the Interior)
SMCRA	Surface Mining Control and Reclamation Act of 1977, as amended
USFS	Forest Service (of the U.S. Dept. of Agriculture)

I. Introduction

Title IV of the Surface Mining Control and Reclamation Act of 1977 (SMCRA or “the Act”) established the Abandoned Mine Reclamation Fund. The primary purpose of the fund is to mitigate the effects of past mining. The Office of Surface Mining Reclamation and Enforcement (OSM) administers the Abandoned Mine Reclamation Fund on behalf of the Secretary of the Interior. OSM awards grants to States and Tribes from the Fund to reclaim abandoned mines and to pay their administration costs. The program puts the highest priority on correcting the most serious abandoned mine land (AML) problems endangering public health, safety, general welfare, and property. OSM and State and Tribal AML programs work together to achieve the goals of the national program. OSM also works cooperatively with the States and Tribes to monitor their AML programs.

Directive AML-22 generally describes how OSM evaluates State and Tribal AML reclamation programs. It calls such evaluations AML “enhancement and performance reviews.” A joint State\Federal team, called the Colorado-Utah AML Review Team, has been completing these reviews of the Utah Abandoned Mine Reclamation (AMR) Program and the Colorado Inactive Mine Reclamation Program (CIMRP) since its inception in January 1996. The team includes representatives of the Utah AMR Program, CIMRP, and OSM’s Denver Field Division (DFD). Members of the team during the 2001 evaluation period included: Frank Atencio, Grants Management Specialist, OSM-DFD; Dave Bucknam, CIMRP Supervisor; Mark Mesch, Administrator, Utah AMR Program; and Ron Sassaman, Environmental Protection Specialist, OSM-DFD. This report summarizes our review and evaluation of the Utah AMR Program for evaluation year 2001.

II. General Information on the Utah Program

On June 3, 1983, the Secretary of the Interior approved Utah’s AML reclamation plan (“State Reclamation Plan”) under Title IV of SMCRA. This approval allows Utah to reclaim abandoned mines in the State in non-emergency AML projects. The AMR Program is part of the Division of Oil, Gas and Mining (DOG M) in Utah’s Department of Natural Resources. It administers Utah’s program for abandoned mine reclamation under its approved Plan. The Denver Field Division of OSM’s Western Regional Coordinating Center works with the AMR Program to fund and approve AML projects in Utah and to evaluate AML reclamation and other aspects of the Program.

Section 405(f) of SMCRA authorizes State and Tribal AML programs to apply to OSM each year for a grant to support their programs and reclaim specific projects. Grants OSM awards to the Utah AMR Program are based on the State’s fiscal year, which is the period of July 1st through June 30th. Because the *evaluation year* (on which this report is based) includes the period of October of one year through September of the following year, Utah’s grants span parts of two successive evaluation periods. The administration funding in those grants applies to a single year. Construction funding awarded in those grants is available for three years.

In Utah's 2000 grant, OSM awarded a total of \$1,827,319 to the AMR Program. That grant funded construction and related activities for three noncoal projects and for coal and noncoal project maintenance. It also funded engineering, design, and various surveys needed to plan three additional noncoal projects and added money to the State's set-aside account for future coal reclamation needs. Additionally, the 2000 grant also funded the Program's administrative activities and staffing of nine positions.

OSM awarded a total of \$1,935,622 to the Utah AMR Program in the 2001 grant. The 2001 grant funds nine positions and the Program's administrative activities. In addition, it funds reclamation of two coal projects and one noncoal project. This grant also funds the Program's engineering, design, and other planning needs for five additional noncoal projects.

Appendices 1 and 2 show Utah's AML reclamation accomplishments and remaining reclamation needs based on data from the Abandoned Mine Land Inventory System (AMLIS).

Utah does not have OSM-approved subsidence insurance protection or emergency coal reclamation programs.

III. Noteworthy Accomplishments

On August 21, 2001, Secretary of the Interior Gale Norton announced that Utah's Sunnyside Project won OSM's Western Region and People's Choice AML Reclamation Awards. In this combined project, DOGM reclaimed pre-SMCRA abandoned mine problems with funds provided in its AMR Program grant and reclaimed extensive post-SMCRA disturbances with forfeited reclamation bond money. The State's work on the AML part of the project closed one portal and reclaimed three gob piles that were degrading water quality in a perennial stream. Bond forfeiture reclamation closed several portals and vertical openings and restored one-quarter mile of the perennial stream. Between the AML and bond forfeiture reclamation, DOGM planted 600 trees and shrubs and reclaimed almost 200 acres of disturbed land. The reclaimed project provides foraging areas for bighorn sheep and other wildlife.

During this evaluation period, DOGM continued its efforts to increase public awareness and outreach while documenting Utah's mining heritage. It printed 25,000 workbooks for fourth grade students describing Utah's mining heritage and dangers inherent to abandoned mines, and distributed them to public and private schools in the State. DOGM also distributed 103 copies of the AML safety video **Stay Out and Stay Alive** that it produced in cooperation with the BLM. It hosted an interagency partners' meeting on March 22, 2001, in Salt Lake City for MSHA's "Stay Out – Stay Alive" 2001 campaign. During the year, the Program continued to work with the Utah Mining Heritage Alliance to develop an interpretive brochure highlighting the historical significance of different types of mining throughout Utah. Also, it received a grant from the Utah SHPO to compile oral and video histories of elderly miners in the State. Those

histories are based on interviews of four coal miners (all brothers in the same family) from Carbon County, a uranium miner from Piute County, and a hardrock miner from Tooele County. Program staff presented AML project updates to the Emery County Public Lands Council and participated in the Utah Department of Natural Resources' Conservation Week activities. The Program Administrator served as a member of the steering committee and was a featured speaker for the Bat Conservation and Mining technical interactive forum hosted by OSM, Bat Conservation International, and Southern Illinois University on November 14 through 16, 2000, in St. Louis.

The Program developed and implemented two new databases in addition to the noncoal planning process discussed in part IV.B of this report. One database, called the "Abandoned Mine Reclamation Program Database," tracks every detail of the reclamation DOGM completes in each project to monitor their effectiveness and condition over time. The second is the "Bat Gate Database," which enables the Program to track biotic and abiotic characteristics of bat gates it constructs in mine closures. This data will enable the Program and others to study the effects such closures have on bats and other wildlife and whether they function as intended. This database builds on work being done by Southern Utah University under a grant awarded by DOGM with funds from the Utah Department of Natural Resource's threatened and endangered species program. That \$75,000 grant funds a four-year University study of the effects that DOGM's specialized bat closures actually have on bats.

Finally, we note DOGM's continuing efforts to protect wildlife and wildlife habitat through AML reclamation. Utah continued its part in the nationwide effort to protect bats and bat habitat by constructing specialized mine closures. In this evaluation period, that effort included protecting a maternity colony of Townsend's big-eared bats with a grate closure on a vertical shaft that we visited for this evaluation. Its reclamation also afforded protection to species such as Mojave desert tortoises and barn owls in one area while reestablishing riparian vegetation and providing forage for bighorn sheep in another.

IV. Results of Enhancement and Performance Reviews

Our 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. The agreement applies to the 1998, 1999, 2000, 2001, and 2002 evaluation years. We update the agreement every year with current-year schedules and to describe the principles of excellence and performance measures we plan to review. We also update the performance measures to specify any particular aspects of the programs that we plan to focus on. We updated the performance agreement for our 2001 reviews and evaluations on February 22, 2001.

We emphasized on-the-ground or end-results when we developed the principles and measures in the agreement. Each general principle of excellence has one or more specific performance measure(s). We decide which performance measures to review and evaluate in a particular year. Performance measures describe the following: Why we selected that topic; what the review population and sample sizes will be; how we will conduct the review and report the results; and our schedule for completing the review. The three principles of excellence, and the specific performance measures we chose for the 2001 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 reclamation meet the goals of the project?

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

- *Performance Measure (a):* Has the State's project ranking and selection evolved to meet the State program's changing needs? If so, how?

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

- *Performance Measure (f):* Is the State obligating its grant funds in a timely manner?

Results of our 2001 reviews and evaluations are summarized below. These summaries are based on information we gathered. Our evaluations included field visits to AML projects, interviews with AMR Program and DOGM staff, and reviews of the AMR Program's project specifications, grant applications and reports, and internal State and AMLIS inventories. We described our review and evaluation results in much greater detail in enhancement and performance review reports that we wrote for each performance measure. Those reports are on file in OSM's Denver Field Division. This report, and the supporting enhancement and review reports, describe our reviews and evaluations of performance measures 1(a), 2(a), and 3(f).

A. Summary Evaluation of Performance Measure 1(a)

Our evaluation of this performance measure determined if Utah's reclamation met its projects' goals. We select this review topic every other year on average because the overriding goal of the Abandoned Mine Reclamation Program is reclamation success. For the 2001 evaluation of this performance measure, we defined the population as every project funded for construction in the 1998, 1999, and 2000 grants, as well as projects funded under earlier grants that were underway or completed since January 1998. The population totaled 19 projects. Our sample included two coal (one that performed maintenance) and three noncoal projects. Reclamation at all sample projects was complete: The two coal projects were completed in mid-2000 and October

2000, and the three noncoal projects were reclaimed in mid-2000, November 2000, and mid-2001.

We found that the completed projects we visited met their respective goals. Those goals included abating hazards, complying with provisions resulting from interagency consultation, and improving site conditions compared to pre-reclamation conditions. We compared DOGM's reclamation to its project specifications for each project visited. Project specifications included: General goals from the grant; prescribed construction methods DOGM developed to address site-specific hazard abatement and other reclamation needs; and any requirements that resulted from the interagency consultation DOGM completed to help OSM comply with the National Environmental Policy Act (NEPA). While we also determined if projects complied with conditions resulting from interagency consultation (if evident) and improved overall site conditions compared to pre-reclamation conditions, we focused on whether reclamation continued to abate the original hazards. We looked for specific reclaimed hazards or other aspects of reclamation while empirically evaluating overall site conditions. If we found problems, we decided if they were hazardous or not and if maintenance was needed to correct them.

We viewed reclamation of hazards associated with 30 vertical openings (including inclined shafts), 19 portals, two coal waste piles, and a loadout structure. Two sample noncoal projects closed vertical openings and portals in popular off-road vehicle recreational areas. The third noncoal project closed hundreds of vertical openings and portals in an area that is experiencing rapid population growth and development. The coal maintenance project addressed the need to improve hazard abatement at a site along a busy State highway while preserving historic features. Finally, the second coal project abated health and safety hazards associated with one portal and two gob piles in conjunction with reclamation of a bond forfeiture project. This combined project, named Sunnyside, won the Western Region and People's Choice AML Reclamation Awards from OSM in 2001. Reclamation methods we observed included: Closures in vertical openings constructed with rebar grates, bat gates, and backfills; portal closures constructed by backfilling, with block and native stone walls, and with bat gates; demolition of a concrete loadout structure and damaged cable net; and onsite burial of coal waste with subsequent grading, topsoiling, surface roughening, and revegetation.

Of all the features we visited for this review, we saw only one that required maintenance. Though DOGM closes mines specifically to safeguard people, vandalism to breach those closures is all too common and defies common sense. In one noncoal project area, two steel grates on vertical openings were vandalized, one to an extent that access to the workings created a new hazard that needed to be addressed. The second vandalized closure did not pose a new hazard but should be monitored.

DOGM protects wildlife habitat in Utah by following provisions resulting from its interagency consultation. Five of the portal closures we visited included bat gates to protect existing bat habitat while preventing access by people. One such closure, associated with a grate closure on a vertical shaft, protected a maternity colony of

Townsend's big-eared bats. In another project area, DOGM went to great lengths to follow procedures designed to protect endangered Mojave desert tortoises inside and out of the Red Cliffs Desert Reserve during and after construction. One pinned shaft grate we visited in this project area included a screen to prevent tortoises from falling through the grate. We also noted where DOGM delayed construction of backfill closures on two vertical shafts in the same project area until after barn owls that lived in the shaft had fledged and left. Reclamation of the award-winning Sunnyside project greatly improved a perennial stream, reestablished riparian vegetation, and provided a foraging area for transplanted Rocky Mountain bighorn sheep.

Our review also observed a number of instances in which the State's reclamation protected cultural resources. We saw where DOGM preserved historic stone architecture at a coal loadout and historic rock inscriptions in a noncoal project area. Also, we noted where the Program designed noncoal project closures to be compatible with a historic interpretive site established by the Forest Service.

B. Summary Evaluation of Performance Measure 2(a)

We reviewed Utah's project ranking and selection process to determine if it still meets the Program's needs. We found that, while the Program followed the State's approved process to rank and select the sample projects we considered, it perceived a need to improve the process to make it more objective. Utah generally addresses its most hazardous problems before it considers other less hazardous sites for reclamation and safeguarding.

"The Specific Criteria for Ranking and Identifying Projects to be Funded" described in Utah's approved plan provided the baseline for our review. This process determines each site's standing compared to others, giving the Program a basis for selecting which sites to reclaim. The review population included all coal and noncoal projects funded for construction in grants OSM awarded to Utah since its program began on June 3, 1983. Our review sample included 13 projects funded for construction in Utah's 1998, 1999, and 2000 AML grants, or about 16.6 percent of the 78 projects Utah funded for reclamation to date. Excerpts of Utah's automated process included in its 1998, 1999, and 2000 grant applications provided the categories (priorities) and ranking scores that comprised our data. We reviewed the plan's ranking process as well as ranking excerpts from the grant applications, then met with Program staff to discuss the existing process and to review work-in-progress on the noncoal planning process. We reviewed the ranking excerpts in detail as well as annual grant performance reports, grant applications and amendments, OSM grant reviews, and a 1998 inventory of abandoned noncoal mines in the State.

We looked at how Utah's existing process ranked the coal and noncoal projects it selected to fund for reclamation in its last three grants. If a selected project did not rank high compared to others, we examined the reasons why the Program selected the project for construction. In that context, we also looked at whether the Program believes the existing process results in selecting those projects most in need of funding

or if selecting projects requires other considerations as well. Our review did not question or verify the Program's field data for the 13 sample projects.

Utah categorized and ranked all 13-sample projects as prescribed by the process in its plan. Of the 13 sample projects, ten were noncoal projects. Twelve of the thirteen projects were category (priority) one, and one was category 2. Eight of the ten noncoal projects in this review sample ranked among the highest-ranking 25 project areas on DOGM's noncoal inventory, and six of them ranked among the top ten. Moreover, of the highest ranking 25 project areas in Utah's inventory, 14 have been reclaimed, five are funded to be reclaimed, and only two remain to be funded as of the date of this report. In four cases where ranking scores did not appear to explain why Utah selected a noncoal project, we found that Utah selected those projects as part of an effort to comprehensively address abandoned mine hazards in one particular geographic area. One of those projects is the fourth in a series of four projects to address AML hazards in a popular outdoor recreational corridor. The second project is intended to develop reclamation technology for a possible series of projects to address abandoned gilsonite mine hazards. The Program selected two other noncoal projects for construction that had relatively lower overall ranking scores as the second-last and final projects in a series of eight projects designed to address abandoned phosphate mines in the Crawford Mountains in the far northeast corner of the State.

Our review sample included two coal projects Utah funded for construction in its 1998 grant application and one funded in the 1999 grant. They included two priority 1 sites and a priority 2 underground mine fire. The sample coal projects had lower ranking scores than the noncoal sample projects. This is reasonable given that the Utah AMR Program concentrated on reclaiming high priority coal projects during its early years of operation. At the same time, Utah is putting special emphasis on underground mine fires that remain to be addressed, one of which was among the two sample review projects. Utah's inventory shows that its abandoned coal mine reclamation is progressing to lower-ranked problems now that it has addressed most high-ranking coal problems in the State. Utah has 6 unreclaimed projects and sites of 133 eligible category (priority 1) coal problems, including three underground mine fires. Of 80 category 2 coal projects and areas in its inventory, three remain to be reclaimed. Finally, of 57 eligible category 3 projects and areas in Utah's coal inventory, 20 remain to be addressed.

Utah began its program with a substantial pool of abandoned coal mine inventory data. This enabled the State to focus on reclaiming coal projects while collecting noncoal inventory data over time. Early noncoal projects were not more than one to three years behind the inventory, making it very likely that the Program would reclaim all those that were inventoried as higher ranked problems were addressed. This continues today but to a lesser extent due to the magnitude of the abandoned noncoal mine problem in the State. To date, the Program has safeguarded over 4,000 coal and noncoal abandoned mines. Utah estimates there are about 17,000 abandoned noncoal mine openings remaining to be safeguarded. The fact that Utah's current inventory of unreclaimed noncoal problems is so much larger, and there are many that are not inventoried yet,

somewhat reduces the certainty that the Program will address every inventoried noncoal problem. This evolving situation is an incentive for the Program to be even more discerning when applying its limited construction funding where it is needed most.

Utah continues to inventory its abandoned coal and noncoal mine problems and updates its list of ranked sites accordingly. The process described in the State's plan assigns numerical values in an effort to calculate scores that objectively reflect the severity of hazards. However, it necessarily requires a degree of professional judgment in assigning those values. That fact, combined with the differing characteristics inherent to abandoned noncoal mines, led the Program to believe it sometimes selects noncoal projects more intuitively than objectively.

Utah is developing a GIS-based "noncoal planning process" in an effort to make its noncoal project selections more objective and quantifiable. The process considers three main risk elements: Mine hazards; access, and people. Mine hazards are further divided into seven input datasets, including locations, sizes, gilsonite veins, phosphate, locatable minerals, mining districts, and claim density. Access datasets describe all roads and highways, and the people dataset is based on census information. Each dataset is then converted into an ARC/INFO grid. Some of the data, including the hazard location and size, road and highway, and population density datasets then undergo a single-layer analysis. The final ARC/INFO grid is based on a mathematical sum of all the mine hazard datasets, a sum of all the access datasets, and a population density grid from a weighted neighborhood grid analysis. The process then combines the grids to generate a final composite of mine hazards, access, and people data. That composite enables the Program to define projects by drawing project outlines based on physical or political boundaries. The Program can then rank projects by summing all gridcell values within each project area and comparing them. Presently, the Program is determining how to adjust the process to appropriately weight and score different abandoned noncoal mine characteristics. It also is consulting with other agencies for additional data such as recreational uses and populations. The final composite "maps" will enable the Program to preliminarily select noncoal projects almost at a glance and target areas most in need of abatement with greater confidence. It believes this emerging process will provide the comprehensive pool of noncoal inventory data it has been lacking to date. Initial use of the new process shows it is likely to meet the Program's expectations. Interestingly, in viewing composites generated to date, we note that the new process substantially validates the Program's past, more "intuitive" selections of noncoal projects it reclaimed so far.

A number of factors have become more obvious in the course of Utah's project ranking and selection, particularly with respect to noncoal hazards. Shifts in population centers, changes in accessibility resulting from increasing road density, and diverse and dispersed outdoor recreation have an increasing influence on the degree to which abandoned mines, especially noncoal mines, pose hazards to public health and safety in Utah. They also are among the factors the Program is trying to get more data for to complete its noncoal planning process. Though Utah has not experienced a large number of abandoned mine-related injuries or fatalities compared to other States, such

occurrences factor heavily in Utah's process. The occurrence of a fatality most likely will take a project to the top of the Program's list for safeguarding. Availability of funding is a factor the Program takes into consideration as well. While it is not a criterion in the ranking and selection process, funding may be a crucial factor in the State's decision to undertake a project or not, depending on what and where it is. Some funding, such as special allocations approved by the Utah Legislature in the last few years, may be used for costs associated with project reclamation anywhere in the State. Other funds, such as those provided by Federal land management agencies or private organizations, usually must be spent on cooperative projects located on lands owned or managed by those entities.

C. Summary Evaluation of Performance Measure 3(f)

Our review of this performance measure determined if Utah obligates its grant funds in a timely manner. We found that Utah's obligation rate at the end of FY 2000 was 86.08 percent; at the time of our review it was 88.4 percent. We consider this obligation rate to be timely and acceptable for the Utah AMR Program. Our review also concluded that, despite some factors that may affect the perception of AML obligation rates, the obligation rate is a valid measure of how Utah spends grant funds for on-the-ground construction.

We met with DOGM staff responsible for tracking contractual obligations resulting from AML grant funds OSM awarded to the State. We also reviewed and discussed administrative costs, major purchases, contracting costs and the time-lines involved with actual cost obligations. Our review population included all active AML grants OSM awarded in fiscal years 1998, 1999, and 2000. We examined samples of actual obligation transactions.

To determine if Utah obligates its grant funds in a timely manner, we identified how DOGM obligates its funds within Utah's accounting system in order to determine how and when the State deems an obligation to actually take place. Utah considers an obligation to be a binding agreement or contract between two parties. DOGM's obligations take place when a purchase order is signed to procure goods and services necessary to conduct business. DOGM interprets the term "obligation," as it applies to its AMR Program, to mean signed construction project contracts, engineering contracts, service contracts or any signed purchase order for reclamation related activities.

DOGM believes certain programmatic activities affect its current rate of obligating funds. For example, the AMR program must engineer, design, and otherwise plan projects. Part of that planning includes interagency consultation, various surveys, and environmental impacts analyses it conducts to help OSM comply with the National Environmental Policy Act and other laws. Those activities must be completed before the State can award construction contracts. Also, the bidding process, including pre-bid meetings, can take from two to four weeks and precedes the AML contract award.

DOGM believes other factors affect its overall obligation rate as well. One or more of these factors can, at times, cause its obligation rate to appear low or high. Because weather in the Rocky Mountains can influence construction timing, it can affect obligation rates by delaying contract awards. Further, not all projects begin construction at the same time: Some contracts are signed during the first year, some during the second year and some are signed in the third year of a grant's three-year performance period. Occasionally, the Program postpones a project due to unforeseen circumstances, resulting in funds being shifted and obligated for another project in the same grant. In cases where the Program is unable to complete projects in the three-year life of a grant, it may carry-over funds into a different grant, affecting the obligations under both. If necessary, the Program can modify contracts during different phases of a project or can award completely new contracts for each project phase. Indirect costs factored into the construction sub-account are applied on different schedules from the actual direct contract-spending rate.

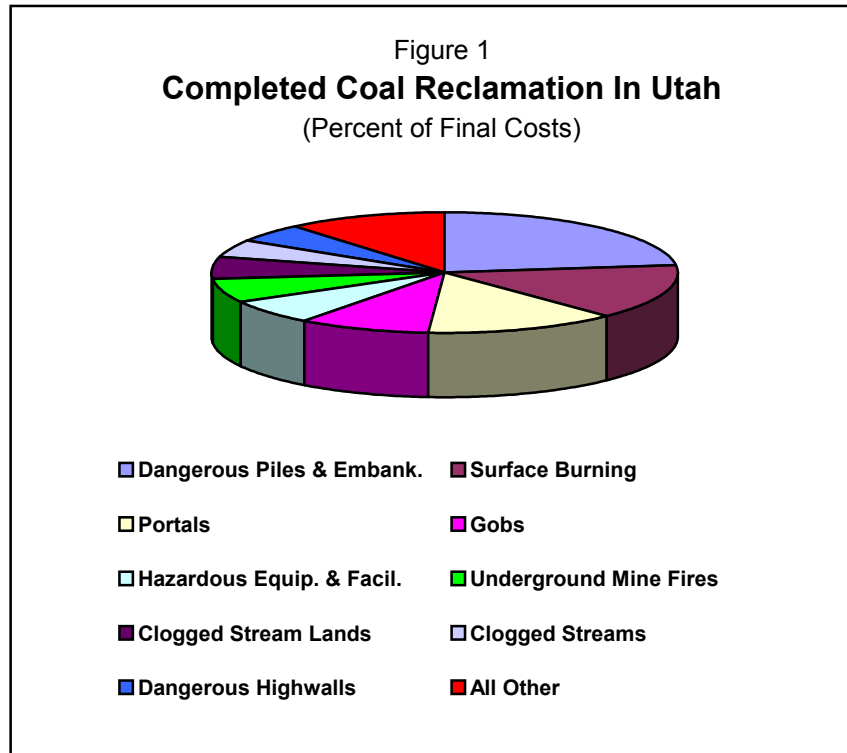
We also reviewed a study that DOGM completed to determine why obligation rates go up and why some States' and Tribes' rates differ greatly. This study made 11 findings that DOGM believes show why some States' obligation rates are 95 percent or higher and why some rate percentages range from the low 70's to the high 80's and on through the mid-90's. One significant finding asserted that, over the life of a program, the amount of money expended has an overall positive effect on obligation rate percentages. The larger the amount of funding over time, the better a State's rate will appear due to a larger historical baseline figure, averaged with a smaller amount from open, active, grants. DOGM's study also revealed that, on average, project cost obligation rates for States and Tribes are affected by the age of the grants involved, the time of year OSM awarded them, and the point in time when the obligation rate is calculated. As a result, DOGM questions the manner in which current obligation rates are calculated because there are so many variables involved.

V. Accomplishments and Inventory Reports

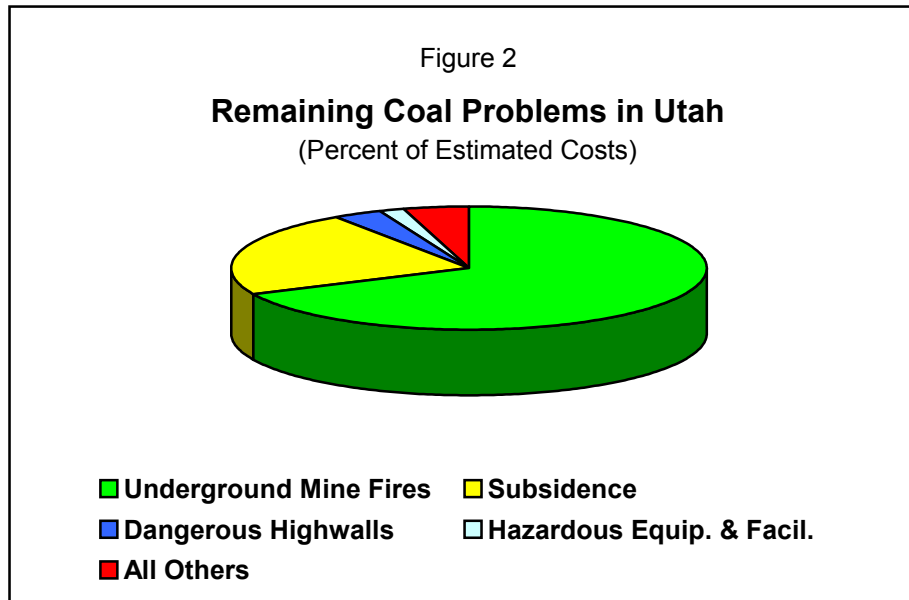
Appendices 1 and 2 list the abandoned coal and noncoal problems Utah included in AMLIS and how many of those problems the AMR Program reclaimed so far. They also show how much Utah's completed coal and noncoal reclamation cost. In addition, the appendices show the estimated reclamation costs of unreclaimed coal and noncoal problems in the State.

Title IV of SMCRA stresses reclamation of abandoned coal mine-related problems because the Abandoned Mine Reclamation Fund is generated by a fee assessed on coal produced by active mines. By the end of the 2001 evaluation period, the Utah AMR Program reclaimed 48 coal projects since the Secretary approved its program effective June 3, 1983, and has funding to reclaim two more. Addressing nine types of AML problems required about 88.8 percent of the \$9.16 million-plus cost of reclaiming those coal projects. Those problem types include: Dangerous piles and embankments (23%); surface burning (14.9%); portals (13.2%); gobs (9.2%); hazardous equipment and facilities (6.7%); underground mine fires (6.2%); clogged stream lands (5.9%);

clogged streams (4.9%); and dangerous highwalls (4.8%). These nine problem types combined to require most of Utah’s completed coal reclamation costs in the 2001 evaluation year as well, though their respective percentages of the total cost varied slightly. Sixteen other types of problems make up the remaining 11.2 percent of the Utah AMR Program’s completed abandoned coal mine reclamation. Figure 1 below shows the Program’s reclamation of various problem types and how they compare to each other and all coal reclamation completed in Utah to date.



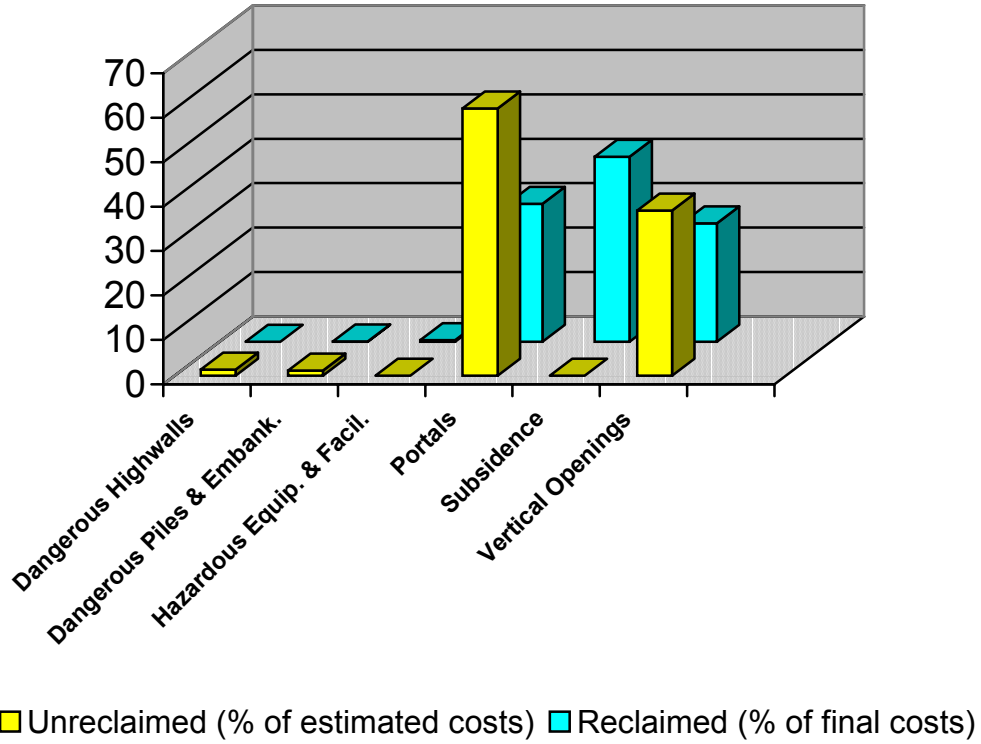
Utah continues to receive funding to reclaim abandoned coal mines. While DOGM has made substantial progress toward addressing known coal problems in Utah since its program was approved, the State has not certified under section 411(a) of SMCRA that it addressed all known abandoned coal mine problems within its borders. As Appendix 1 shows, over \$25.57 million in unreclaimed problems are included in the State’s inventory of coal hazards in AMLIS. Approximately 94.9 percent of that estimated cost is associated with four problems, including: Underground mine fires (82.5%); subsidence (6.2%); dangerous highwalls (3.8%); and hazardous and explosive gases (2.1%). The 2001 evaluation found that the same four problem types dominated Utah’s remaining coal reclamation needs at that time as well. Using a protocol developed specifically for fires, DOGM continued its Fires Engineering project in the 2001 evaluation year by monitoring nine abandoned underground coal mine fires throughout the State. OSM and States’ experience shows that subsidence and underground mine fires are two of the most expensive and technically difficult abandoned coal mine problems to effectively deal with. Figure 2 below further illustrates the scope of Utah’s remaining abandoned coal mine problems.



Appendix 2 summarizes the noncoal problems Utah inventoried and the State's noncoal reclamation accomplishments. Despite the AMR Program's efforts over the years to address the highest priority hazards, abandoned noncoal problems still number in the thousands and are found throughout the entire State. The Program estimates that about \$4.3 million are needed to reclaim the remaining noncoal hazards Utah inventoried in AMLIS, not including work already funded and uninventoried hazards. Portals, vertical openings, and dangerous highwalls constitute 100 percent of that estimated cost. Because these abandoned mine features are so numerous and widespread, they pose an immediate and extreme hazard to public health and safety. Urban sprawl, people moving to Utah from other States, increasing interest in outdoor recreation on public lands in historic mining districts, and the trend for many winter sports to concentrate in historically mined areas (among them the 2002 Winter Olympics) combine to make abandoned noncoal mines and their attendant features increasingly hazardous.

The Utah AMR Program continues to respond to the noncoal threat by reclaiming high priority abandoned noncoal mine projects. To date, OSM has funded 28 noncoal projects in grants awarded to the AMR Program. The Program completed reclamation of 21 noncoal projects so far. Appendix 2 shows that Utah's completed reclamation addressed dangerous piles and embankments, hazardous equipment and facilities, portals, subsidence, and vertical openings at a cost of over \$4.95 million. In terms of mine openings alone, the Utah AMR Program has closed over 2,474 portals and vertical shafts at abandoned noncoal mines. Figure 3 below illustrates the percentage each category of inventoried, unreclaimed noncoal problem comprises of Utah's estimated unfounded reclamation costs. It also shows how much the Program's completed reclamation of the same type of noncoal problems cost so far.

Figure 3
Utah Noncoal Problems and Reclamation



Appendix 1

Utah Abandoned Mine Reclamation Program Coal Reclamation Accomplishments and Remaining Reclamation Needs*

Problem Type and Description	Unfunded		Funded		Completed		Total	
	Units	Costs	Units	Costs	Units	Costs	Units	Costs
Bench	8 acres	\$12,500	0	0	4 acres	\$154,544	12 acres	\$167,044
Clogged Streams	0.2 mile	\$10,000	0	0	14.1 miles	\$455,376	14.3 miles	\$465,376
Clogged Stream Lands	11 acres	\$281,000	6 acres	\$525,000	9 acres	\$546,126	26 acres	\$1,352,126
Dangerous Highwalls	5,000 feet	\$970,000	0	0	3,425 feet	\$444,871	8,425 feet	\$1,414,871
Dangerous Impoundments	0	0	0	0	1 (count)	\$14,600	1(count)	\$14,600
Dangerous Piles & Embankments	6.7 acres	\$92,000	0	0	136 acres	\$2,113,096	142.7 acres	\$2,205,096
Dangerous Slides	1 acre	\$20,000	0	0	0	0	1 acre	\$20,000
Equipment & Facilities	12 (count)	\$19,300	0	0	64 (count)	\$47,850	76 (count)	\$67,150
Gases: Hazardous & Explosive	13 (count)	\$536,000	0	0	19 (count)	\$20,001	32 (count)	\$556,001
Gobs	64 acres	\$169,500	0	0	255 acres	\$846,349	319 acres	\$1,015,849
Highwall	0	0	0	0	550 feet	\$1	550 feet	\$1
Hazardous Equipment & Facilities	15 (count)	\$176,000	0	0	152 (count)	\$613,933	167 (count)	\$789,933
Haul Road	0.5 acre	\$5,000	0	0	3 acres	\$35,000	3.5 acres	\$40,000
Industrial / Residential Waste	5 acres	\$22,000	0	0	9 acres	\$76,800	14 acres	\$98,800
Portals	45 (count)	\$172,800	8 (count)	\$1	498 (count)	\$1,212,327	551 (count)	\$1,385,128
Pits	3 acres	\$900	0	0	8 acres	\$23,266	11 acres	\$24,166
Polluted Water: Agric. & Industrial	1 (count)	\$50,000	0	0	2 (count)	\$54,700	3 (count)	\$104,700
Subsidence	183 acres	\$1,575,000	1 acre	0	3 acres	\$104,739	187 acres	\$1,679,739
Spoil Area	28.3 acres	\$174,034	0	0	55 acres	\$264,484	83.3 acres	\$438,518
Surface Burning	8 acres	\$170,000	0	0	38.8 acres	\$1,368,636	46.8 acres	\$1,538,636
Slurry	0	0	0	0	1 acre	\$2,830	1 acre	\$2,830
Slump	7 acres	\$16,000	0	0	16 acres	\$24,143	23 acres	\$40,143
Underground Mine Fire	326 acres	\$21,095,100	10 acres	\$250,000	27 acres	\$570,398	363 acres	\$21,915,498
Vertical Openings	1 (count)	\$2,433	0	0	23 (count)	\$49,243	24 (count)	\$51,676
Water Problems	1.5 gal/min	\$4,500	0	0	20.3 gal/min	\$117,085	21.8 gal/min	\$121,585
UTAH TOTAL COSTS		\$25,574,067		\$755,001		\$9,160,398		\$35,509,466

* This table is based on a Problem Type Unit and Cost Summary Report from the Abandoned Mine Land Inventory System as of 10/4/2001

NOTE: Completed cost of \$1 means that problem type was reclaimed incidental to reclamation of another problem type.

Appendix 2

Utah Abandoned Mine Reclamation Program
Non-Coal Reclamation Accomplishments and Remaining Reclamation Needs*

Problem Type and Description	Unfunded		Funded		Completed		Total	
	Units	Costs	Units	Costs	Units	Costs	Units	Costs
Dangerous Highwalls	30 feet	\$60,000	0	0	0	0	30 feet	\$60,000
Dangerous Piles & Embankments	50 acres	\$50,000	0	0	1 acre	\$1,400	51 acres	\$51,400
Hazardous Equipment & Facilities	0	0	0	0	3 (count)	\$19,808	3 (count)	\$19,808
Portals	1,735 (count)	\$2,594,593	149 (count)	\$307,744	1,702 (count)	\$1,541,353	3,586 (count)	\$4,443,690
Subsidence	0	0	0	0	179.2 acres	\$2,066,050	179.2 acres	\$2,066,050
Vertical Openings	780 (count)	\$1,604,807	41 (count)	\$130,046	772 (count)	\$1,322,109	1,593 (count)	\$3,056,962
UTAH TOTAL COSTS		\$4,309,400		\$437,790		\$4,950,720		\$9,697,910

* This table is based on a Problem Type Unit and Cost Summary Report from the Abandoned Mine Land Inventory System as of 10/4/2001

NOTE: Completed cost of \$1 means that problem type was reclaimed incidental to reclamation of another problem type.