

ANNUAL SUMMARY EVALUATION REPORT
of the
COLORADO – UTAH ABANDONED MINE LAND REVIEW TEAM
for the
UTAH ABANDONED MINE RECLAMATION PROGRAM
for
EVALUATION YEAR 2004

(July 1, 2003, through June 30, 2004)



October 5, 2004

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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)
DOGMA	Utah Division of Oil, Gas and Mining
EPA	United States Environmental Protection Agency
FAM	Federal Assistance Manual
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
USDA	United States Department of Agriculture
USDI	United States Department of the Interior
USFS	Forest Service (of the USDA)

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 Fund’s primary purpose is to pay for mitigation of past mining effects. The Office of Surface Mining Reclamation and Enforcement (OSM) administers the Fund on behalf of the Secretary of the Interior. OSM awards grants to States and Tribes from the Fund to pay their administration costs and to reclaim abandoned mines. SMCRA 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 in “enhancement and performance reviews.” A team of State and Federal personnel, 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 the team was first formed in January 1996. Our team includes representatives of the Utah AMR Program, CIMRP, and OSM’s Denver Field Division (DFD). Team members during the 2004 evaluation period included: Frank Atencio, Grants Management Specialist, OSM-DFD; Dave Bucknam, (former) CIMRP Supervisor; Mark Mesch, Administrator, Utah AMR Program; and Ron Sassaman, Environmental Protection Specialist, OSM-DFD. Jim McArdle, Senior Environmental Protection Specialist, represented CIMRP during the Utah field evaluation.

This report summarizes our review and evaluation of the Utah AMR Program for the 2004 evaluation year, which included the period of July 1, 2003, through June 30, 2004.

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. That approval allows the AMR Program to reclaim the State’s abandoned mines in non-emergency projects. The AMR Program is part of the Division of Oil, Gas and Mining (DOGGM) in Utah’s Department of Natural Resources. It administers Utah’s abandoned mine reclamation program under the State’s 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. OSM awards grants to Utah to pay the AMR Program’s administration costs for the period of July 1st of one year through June 30th of the following year. The same grants also award construction funding, but those funds are available to the Program during the same period for each of three years after the initial grant award date. OSM awarded

\$1,542,781 to Utah for the AMR Program's 2003 grant on June 10, 2003. That grant became effective July 1, 2003, the beginning date of the 2004 evaluation year. The administrative component expires on June 30, 2005, and the construction component expires on June 30, 2007. The grant funded eleven positions and the Program's administrative activities. It funded construction on one coal and two noncoal projects and the Program's engineering, design, and other planning needs for six additional noncoal projects.

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

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

III. Noteworthy Accomplishments

Public outreach continues to play a vital role in educating people about the hazards of abandoned mines and the State's mining heritage. The Program distributed 17,359 Utah Mine Safety Workbooks to all fourth grade students in the State and newsletters to every fourth grade school teacher in this evaluation year. The workbooks describe Utah's mining heritage, the role mining plays in everyday life, and dangers inherent to abandoned mines. DOGM also collaborated with the Utah State BLM office and the Colorado Inactive Mine Reclamation Program to produce 9000 copies of a **Stay Out and Stay Alive** video and CD for distribution. DOGM provided copies of the video on DVD to all 511 schools in the State. The video and CD describe the hazards of abandoned mines and urge people to avoid going in them. The BLM's Utah State office acknowledged the assistance of two Program staff members with producing the video/CD and two members for acting in the production. Several agencies contributed funding for the video/CD production and the Utah AMR Program will be the lead agency for distributing them.

Utah's AMR Program was active in other outreach efforts and related activities as well. They included staffing a booth at the Utah Education Association meeting in October 2003. Program staff also gave a number of presentations at various events during the evaluation period. Presentations included: A Campfire Mine Safety Talk at East Canyon State Park in July 2003; site characterization at Capitol Reef National Park in August 2003; an invited paper for the Forest Service Geofest in September 2003; and a presentation about ongoing mine fire suppression and planned noncoal reclamation at the National Association of Abandoned Mine Land Programs (NAAML) annual conference in September 2003. The NAAML honored AMR Program staff member Luci Malin with its Stan Barnard award at the Association's annual conference as well. The award recognized Ms. Malin's "outstanding dedication, commitment, and hard work toward the enhancement of the Association."

Partnering with other agencies increasingly enables the Program to leverage its SMCRA funding with other resources to address abandoned mine problems. The AMR Program worked cooperatively with the BLM and Forest Service to complete reclamation of the Cottonwood Wash noncoal project. Accomplishments associated with that project included closing 53 abandoned mine openings, reclaiming 53,000 cubic yards of mine waste and 64 miles of access roads, and seeding 146 acres. Partnerships with the Forest Service also closed 33 mine openings in the Fishlake noncoal project and planned reclamation of the Vernon subproject of the Sheeprock noncoal project. DOGM's partnerships with the BLM also include planning activities for the White River oil shale and San Rafael Swell noncoal projects. The State also continued to partner with the National Park Service to inventory abandoned mines on National Park or Monument lands.

As before, we recognize DOGM's continuing efforts to protect wildlife and wildlife habitat throughout its AML reclamation. In particular, we note that the Program continues to protect bats and bat habitat by constructing specialized mine closures. We viewed four bat gates in the Silver Reef project as part of determining whether the Program's reclamation was successful over the long term. The photo at right shows one of DOGM's typical bat gate closures. We viewed this closure as part of the evaluation summarized in part IV.A of this report. Also in the 2004 evaluation year, the Program distributed to a variety of organizations and events a total of 1,075 copies of the **Bats of Utah** poster featuring bat photographs and biological data about species occurring in Utah.



Bat gate closure in portal BH159 of the Silver Reef project – 5/11/04

IV. Results of Enhancement and Performance Review

In a meeting on August 8, 2003, we updated the current “Colorado-Utah AML Review Team Performance Agreement” to describe the principles of excellence and performance measures that we planned to review in the 2004 evaluation year. We finalized the updated agreement on August 25, 2003.

Principles of excellence and performance measures emphasize on-the-ground or end-results as much as possible. Each general principle of excellence has one or more specific performance measure(s). Performance measures describe: 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 principle of excellence and the specific performance measure we chose for our 2004 evaluation of the Utah AMR Program are:

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

- *Performance Measure (b)*: Is reclamation successful on a long-term basis?

Results of our 2004 evaluation are described below in Part IV.A. Our evaluation included field visits to two AML projects and reviews of the AMR Program's project specifications, grant applications and reports, internal State inventory and site closure data, and AMLIS data. We described our evaluation results in much greater detail in an enhancement and performance review report for the 1(b) performance measure. That report is on file in OSM's Denver Field Division and is the factual basis of this report's summary of our evaluation of performance measure 1(b).

A. Summary Evaluation of Performance Measure 1(b)

We concluded that long-term reclamation of the sites we visited at the Deseret and Silver Reef projects was successful on a long-term basis. At the same time, we found that DOGM needs to perform maintenance on one closure of the Silver Reef project to remove a potential hazard and should consider closing another opening that was not reclaimed as part of that project.

Our evaluation was an empirical assessment of the AMR Program's reclamation success. We defined "long-term" reclamation as a project Utah completed more than three years before the date of our field review. Our determination of long-term reclamation success was based on two factors. First, we determined if specific hazard abatement measures that Utah prescribed in its project specifications were intact and functional. Second, we considered whether Utah's reclamation continued to improve restored areas over their previously abandoned condition. If problems were evident, we determined if they originally were described in the project specifications, if they occurred since DOGM completed reclamation, if they were hazardous or not, and if maintenance was needed to correct them.

DOGM completed the priority two and three Deseret coal project in December 1995. According to the specifications, the Deseret project demolished three structures, closed two portals with blockwalls and backfill, backfilled three vertical openings, buried material from 38 coal waste piles, and reclaimed 22 borrow areas. We visited 11 of the 13 Deseret sites DOGM reclaimed and found the abatement and reclamation measures intact and functional. Reclamation techniques we saw included burial of coal waste material, topdressing, revegetation, structure demolition, and drainage channel construction. Portal and vertical shaft closures were indistinguishable. Vegetative cover varied, but we did not note any significant erosion problems resulting from reclamation at any of the reclaimed sites. We concluded that DOGM's reclamation continued to improve mine sites' condition over their previously unreclaimed condition.

Silver Reef was a priority one noncoal project completed in February 1997. DOGM inventoried about 569 abandoned mine features in this project and reclaimed about 467, with allowances for multiple features clustered into "complexes." We observed closures DOGM built to safeguard 77 mine openings, or about 16.5 percent of the reclaimed

features (SEE photographs below and on page 6). Of those 77 closures, 57 closed or filled vertical openings associated with shafts, inclines, excavated pits and subsidence pits. Comprising those 57 closures were 30 rebar shaft grates, 18 equipment backfills, four hand backfills, four bat gates, and one native stone wall. Of the 20 portal closures we viewed, 12 were bat gates, three were equipment backfills, three were concrete block walls, and two were hand backfills. Abatement measures were intact at 76 (98.7%) of the 77 closures and continued to safeguard public health and safety. The remaining opening was an equipment backfill in a vertical opening that settled to a



Vertical opening PV2 under headframe at Silver Reef project – 9/27/94



PV2 rebar grate closure at Silver Reef project - 5/11/04

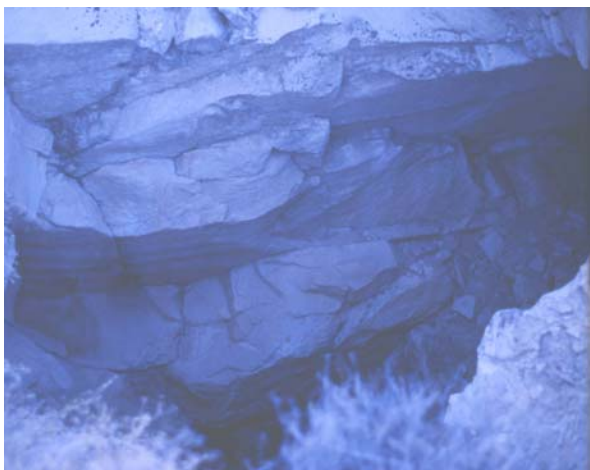


Portal WH56 at Silver Reef project - 9/27/94



WH56 block wall closure at Silver Reef - 5/11/04

depth of about 12 feet. We agreed that the resulting opening was potentially hazardous and recommended that it be filled. In addition, we found a possibly new opening not included among others closed in the Silver Reef project. We agreed it was potentially hazardous and recommended DOGM include it along with the settling described above in its planning for maintenance at Silver Reef.



Vertical opening WV50A at Silver Reef project - 9/27/94



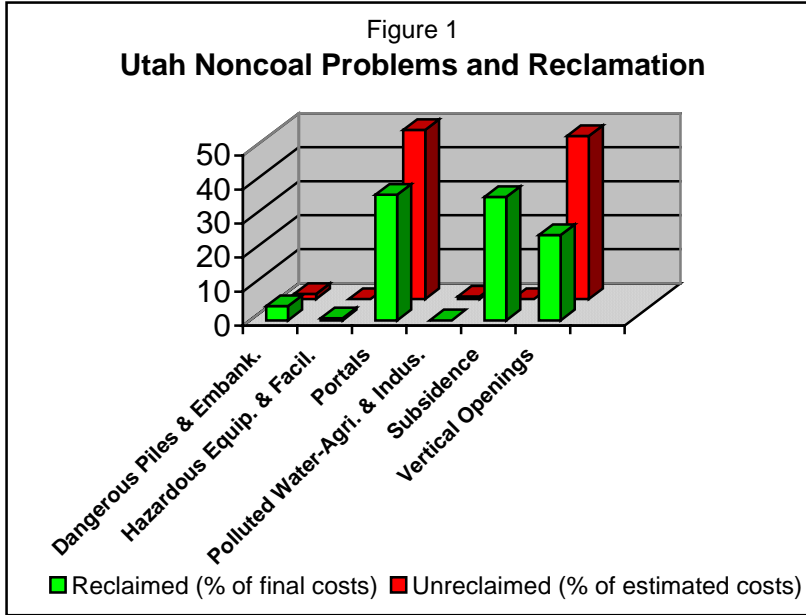
WV50A rebar grate closure at Silver Reef - 5/11/04

In concluding that DOGM's reclamation was successful over the long-term, we found that DOGM removed public safety hazards and reduced environmental problems simply by closing mine openings and removing, burying, and revegetating coal waste material. By their intrinsic nature, those hazards and conditions generally made the land unsafe and/or less suitable for use by people. Where mine openings jeopardized public health and safety but provided actual or potential wildlife habitat, DOGM addressed both concerns by installing specialized closures that prevent human access but allow access by bats and other small wildlife. Reestablishing vegetation and promoting surface water control and retention at reclaimed areas restored or improved their wildlife habitat and other resource values to a condition where site recovery continues naturally.

V. Accomplishments and Inventory Reports

Title IV of SMCRA stresses reclamation of abandoned coal mine-related problems because a fee that active mines pay per ton of coal produced generates the AMR Fund. The Program continued to test the effectiveness of measures to control an underground coal mine fire while monitoring other fires during the 2004 period. At the same time, it concentrated the bulk of its efforts on abating high priority noncoal hazards and planning additional noncoal projects out of concern for the more significant hazards noncoal abandoned mines generally pose to public health and safety in Utah.

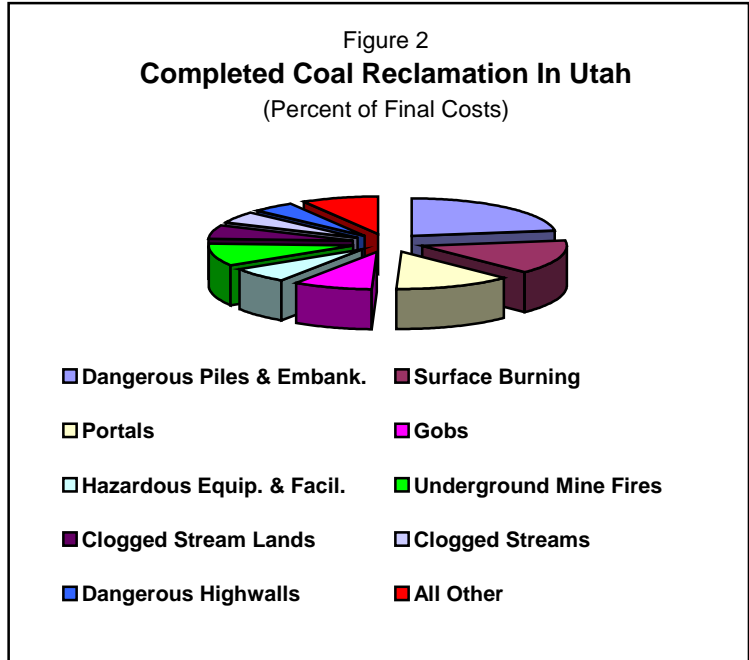
The Utah AMR Program addresses the State's most severe remaining priority one noncoal problems as ranked by its GIS-based noncoal selection process. Appendix 1 summarizes the noncoal problems Utah included in AMLIS and the State's noncoal reclamation accomplishments and costs to date. So far, OSM funded 32 noncoal projects in grants awarded to the AMR Program. Of those 32 projects, the Program completed 29, including one large cooperative interagency project contracted as seven subprojects. DOGM's completed noncoal reclamation addressed portals, vertical openings, subsidence, dangerous piles and embankments, and hazardous equipment and facilities at a cost of over \$5.64 million. Appendix 1 shows that the AMR Program closed a total of at least 3,244 portals and vertical shafts by the end of the 2004 period, an increase of 253 closures in the last year and 475 closures in the last two years. During the 2004 period, the Program completed planning for four noncoal projects, completed the hazard inventory for eight other noncoal projects, and began inventorying hazards for an additional four noncoal projects. Figure 1 below illustrates the percentage each type of inventoried, unreclaimed noncoal problem comprises of Utah's estimated unfunded reclamation costs. It also shows how much money the Program spent to address those noncoal problems to date.



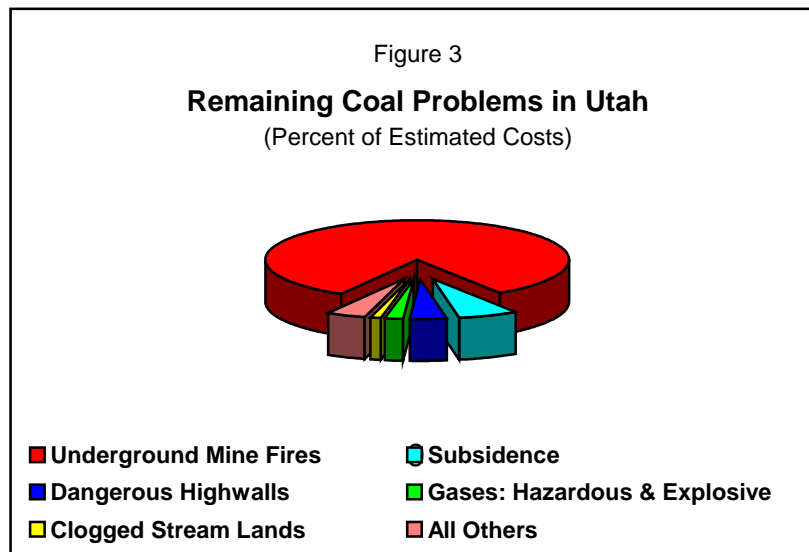
It is important to note that AMLIS does not include a complete inventory of Utah's unreclaimed abandoned noncoal mine hazards. AMLIS therefore does not reflect the estimated cost of addressing all remaining noncoal problems in the State. DOGM's internal inventory shows that abandoned noncoal problems still number in the thousands and are found throughout Utah despite the AMR Program's accomplishments in the

past several years. In that context, the State's list of noncoal hazards in AMLIS shows that more than \$3.34 million are needed to address only part of the noncoal problem in Utah, excluding work already funded. Portals, vertical openings, dangerous piles and embankments, and polluted water make up 100 percent of the problems that estimated cost is based on. These abandoned mine features pose immediate and extreme hazards to public health and safety because they are so numerous and widespread and because demographic changes increasingly put people in proximity to them. On the other hand, AMLIS reflects DOGM's progress in addressing the State's noncoal problems: The estimated unfunded cost to abate remaining noncoal hazards listed in AMLIS is a decrease of about \$288,000 from 2003 and about \$740,000 from 2002.

Utah reclaimed 50 coal projects from the time the Secretary approved its AMR Program to the end of the 2003 evaluation period and had one continuing coal fire project during the 2004 period. Abating ten types of AML problems required about 91.5 percent of the almost \$9.62 million Utah spent to reclaim those coal projects. Those problem types include: Dangerous piles and embankments (22.2%); surface burning (14.2%); portals (12.7%); underground mine fires (9.4%); gobs (8.8%); hazardous equipment and facilities (6.5%); clogged stream lands (5.7%); clogged streams (4.7%); dangerous highwalls (4.6%) and spoil areas (2.7%). Fifteen other types of problems make up the remaining 8.5 percent of the Utah AMR Program's completed abandoned coal mine reclamation. Figure 2 (below) shows the Program's reclamation of various coal problem types and how they compare to each other and all coal reclamation completed in Utah to date.



As shown in Appendix 2, Utah inventoried over \$24.7 million in unreclaimed coal problems in AMLIS. About 95.8 percent of the estimated cost of unreclaimed problems is associated with five problem types, including: Underground mine fires (82.4%); subsidence (6.4%); dangerous highwalls (3.9%); hazardous and explosive gases (2%); and clogged stream lands (1.1%). Presently, DOGM is reviewing its AMLIS data for unreclaimed coal problems to determine if the data are up-to-date. It also is considering the results of its ongoing underground mine fire monitoring to determine if those fires still pose health and safety hazards and if their abatement is feasible. Figure 3 (below) further illustrates the scope of Utah's remaining abandoned coal mine problems.



Appendix 2 lists the abandoned coal problems that Utah reclaimed since its AMR Program began and how much that reclamation cost to date. It also shows the estimated reclamation cost of unreclaimed coal problems in the State.

Appendix 1

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 Piles & Embankments	50 acres	\$50,000	10 acres	\$30,000	239 acres	\$258,834	299 acres	\$338,834
Hazardous Equipment & Facilities	0 (count)	0	2 (count)	\$1,243	49 (count)	\$37,247	51 (count)	\$38,490
Portals	1,044 (count)	\$1,664,500	111 (count)	\$102,304	2,346 (count)	\$2,294,385	3,251 (count)	\$3,666,189
Polluted Water: Agri. & Indus.	1 (count)	\$25,000	0	0	0	0	1(count)	\$25,000
Subsidence	0	0	0	0	178.2 acres	\$2,066,049	178.2 acres	\$2,066,049
Vertical Openings	825 (count)	\$1,606,000	174 (count)	\$339,486	898 (count)	\$1,555,898	1,897 (count)	\$3,501,384
UTAH TOTAL COSTS		\$3,345,500		\$473,033		\$6,212,413		\$9,635,946

* This table is based on a Problem Type Unit and Cost Summary Report from the Abandoned Mine Land Inventory System as of 07/08/2004. AMLIS does not include a complete inventory of Utah's unfunded noncoal problems.

Appendix 2

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	10 acres	\$271,000	6 acres	\$525,000	9 acres	\$546,126	25 acres	\$1,342,126
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	148 acres	\$2,133,520	154.7 acres	\$2,225,520
Dangerous Slides	0	0	0	0	3 acres	\$29,825	3 acres	\$29,825
Equipment & Facilities	12 (count)	\$19,300	0	0	64 (count)	\$47,850	76 (count)	\$67,150
Gases: Hazardous & Explosive	6 (count)	\$501,000	0	0	19 (count)	\$55,000	25 (count)	\$556,000
Gobs	58 acres	\$159,500	0	0	255 acres	\$846,349	313 acres	\$1,005,849
Highwall	0	0	0	0	550 feet	\$1	550 feet	\$1
Hazardous Equipment & Facilities	13 (count)	\$151,000	0	0	154 (count)	\$627,752	167 (count)	\$778,752
Haul Road	0.5 acre	\$5,000	0	0	5 acres	\$43,847	5.5 acres	\$48,847
Industrial / Residential Waste	5 acres	\$22,000	0	0	9 acres	\$76,800	14 acres	\$98,800
Portals	41 (count)	\$154,800	0	0	510 (count)	\$1,223,722	551 (count)	\$1,378,522
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	6 acres	\$109,796	190 acres	\$1,684,796
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	\$20,365,071	10 acres	\$163,000	27 acres	\$903,277	363 acres	\$21,431,348
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		\$24,726,038		\$688,000		\$9,617,643		\$35,031,681

* This table is based on a Problem Type Unit and Cost Summary Report from the Abandoned Mine Land Inventory System as of 07/08/2004

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