



**OFFICE OF SURFACE MINING
RECLAMATION AND ENFORCEMENT**

ANNUAL EVALUATION SUMMARY REPORT

FOR THE

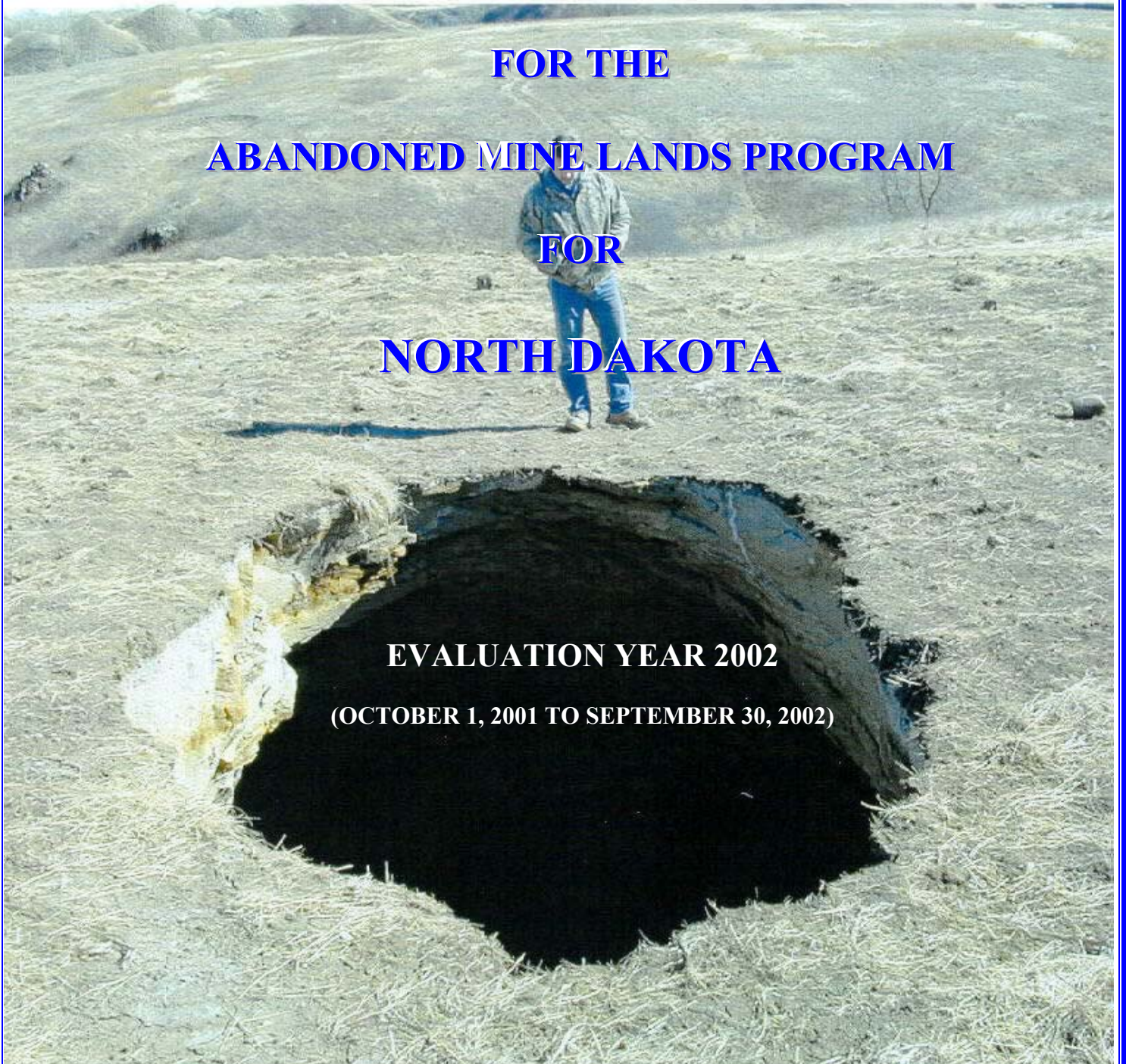
ABANDONED MINE LANDS PROGRAM

FOR

NORTH DAKOTA

EVALUATION YEAR 2002

(OCTOBER 1, 2001 TO SEPTEMBER 30, 2002)



2002 ANNUAL REPORT FOR NORTH DAKOTA

PART I. INTRODUCTION

The North Dakota Abandoned Mine Land Reclamation (AMLR) program continues to operate under the guidelines of the Surface Mining Control and Reclamation Act (SMCRA), the approved State Reclamation Plan, the Federal Assistance Manual, and associated rules, regulations and policy decisions. The State AMLR program is administered by the Abandoned Mine Land Division (AMLDD) of the Public Service Commission (PSC). The State was granted primacy in 1981 and they administer an excellent AMLR program in full compliance with their approved AMLR Plan. Oversight of the state reclamation program is conducted by the Casper Field Office (CFO) of the Office of Surface Mining (OSM), and the topics for this report were selected in concert with the State. This evaluation is based on OSM Directive AML-22 and covers the period of October 1, 2001 to September 30, 2002.

North Dakota is a minimum program state that receives only \$1.5 million dollars each year to accomplish the necessary reclamation of hazardous abandoned mines. With this limited funding, the AMLDD must complete reclamation work in an efficient and cost effective method to stretch their fiscal capabilities as far as possible. All of the design work is completed in house by staff personnel, and the actual reclamation work is contracted out to private construction firms. The minimum funding does not allow for completion of the majority of the projects in one construction season, so larger projects must be phased over a period of years to achieve adequate reclamation. Chart #1 lists the projects that are ready for immediate construction if additional funding were to become available, as well as the estimated cost and value to the community for each of the future projects.

The AMLDD initiates reclamation activities each spring as soon as weather conditions allow. Many of the rural sites are accessible only by dirt and gravel roads, which must be allowed to dry sufficiently before heavy equipment can travel on them. Work may start as much as two months earlier on sites that are located near the paved road system, and it continues until it is halted by the severe weather conditions usually encountered in North Dakota during the winter. Some types of work, such as drilling to locate underground voids, can be continued into the winter months. However, this is generally the time of the year when future projects are designed, and other coordination necessary to get projects ready for the next construction season is completed. All of the reclamation completed in North Dakota to date has been on abandoned coal mines, and no non-coal work is planned. The State estimates that it will take at least ten to fifteen years to reclaim the coal problems now listed on their inventory with the present minimum program funding level.

The CFO continues to enjoy an excellent working relationship with the staff of the North Dakota AMLDD. Their personnel are experienced, knowledgeable and dedicated to the goals of the program. The AMLDD also maintains a good relationship with the other State and Federal agencies that must be contacted during the course of preparing projects for reclamation.

One AMLR grant was awarded to the State during this evaluation period and it was approved well within the government performance period requirement of 60 days. No problems or issues exist in the North Dakota AMLR program.

The following is a list of acronyms used in this report:

SMCRA	Surface Mining Control and Reclamation Act
AMLIS	Abandoned Mine Land Inventory System
AMLR	Abandoned Mine Land Reclamation

AMLD	Abandoned Mine Land Division
PSC	Public Service Commission
OSM	Office of Surface Mining
CFO	Casper Field Office
AML	Abandoned Mine Land

Part II. Noteworthy Accomplishments

The AMLD staff continues to be a major contributor of technical articles to the newsletter of the National Association of Abandoned Mine Land Programs. New and innovative reclamation techniques are presented for the benefit of the entire association in most issues of the newsletter. In addition, the staff contributes technical papers at many of the national conferences. All of the papers presented at the various conferences have been placed on the North Dakota AMLD website to make them available for use on a permanent basis by other reclamation programs and the general public.

Part II. Post Reclamation Maintenance

The North Dakota AMLD post reclamation monitoring schedule calls for each project to be closely monitored for a period of three years after it is completed. However, the most heavily undermined parts of the State do not have any rock strata in the soil to support the overburden of the abandoned underground mines. Large, deep subsidence holes often appear overnight, and history shows that once they are filled additional slumping usually occurs at some point. Also, once a subsidence event appears, others usually follow shortly. The AMLD has adopted a policy of checking all known subsidence prone areas every time any of the staff are in the area, to keep better control of any hazards that exist, and to better correct recurring problems on sites that have been reclaimed. The monitoring process is assisted by the good relationship and close contact the AMLD has with the landowners. The staff is often notified of new subsidence events the same day that they occur on private land. Only the subsidence events that are hazardous to livestock or humans are presently being reclaimed. The minimum program funding does not allow for all the holes to be filled at this time. Hopefully, the AML program will be continued, and funding increased, so that the subsidence problems that are taking large amounts of crop and pasture land out of use in parts of North Dakota can be addressed.



Subsidence features that will not be reclaimed at this time because they are not dangerous to humans or livestock.

Part III. On Site Evaluation of Projects

During this evaluation period a total of thirteen AMLR sites were visited. Two sites were pre-construction sites, two sites were under construction during the visit, and nine were post construction sites. The following is a brief description of each of these sites:

LEHIGH ROAD PROJECT – PHASE VII --- This is the seventh consecutive year that construction work has been done at this site. Several subsidence events have occurred in the roadway, the adjacent borrow ditches, side roads and adjacent to residences and businesses. The entire area is heavily undermined and several projects were completed on both sides of the road early in the program. Lehigh Road is a major artery to residences and businesses east of Dickinson, and when the road is closed by subsidence activity all traffic must make a 20 mile detour to get around the closure. The reclamation project consists of drilling to locate the underground voids and grouting the voids to provide support to the ground surface. Drilling was also conducted around a nearby residence and several voids were found around the home. Most of them were 20 to 30 feet deep, but one void was discovered to be seven feet from the surface. These voids will be grouted as soon as possible to prevent damage to the structure, and to remove safety hazards to the residents. The State expects to have at least one more phase to this project, which will start as early as possible next spring.

BEULAH/ZAP PROJECT -- PHASE VI --- This project was designed to grout voids under a main highway in the town of Beulah. Three haul ways in an abandoned underground mine parallel the road and one of them was under the road and adjacent borrow ditch. The drilling and grouting work were both being done in the borrow ditch to eliminate any problems with traffic. The areas around the towns of Beulah and Zap are heavily undermined and several future AML projects are planned to abate these hazards.

BEULAH/ZAP -- PHASE IV --- This project was completed in the year 2000 in a residential area of the town of Beulah. Drilling was accomplished in the yards of residences and the streets of the neighborhood to map the voids. Once the voids were located and mapped, they were grouted up to the surface to stabilize the rubble that had fallen from the mine roof. Prior to the project completion several homes were considered to be in danger, and one truck hauling grout to the project actually broke through a city street into a subsidence hole.

BEULAH C (1) -- This was the first project in the nation where the drilling and grouting were both done completely within a structure. Over 11,000 yards of grout was pumped into abandoned mine voids under the Eagles Club building to stabilize it from subsidence. Drilling and grouting was also accomplished around the outside of the structure.

BEULAH PHASE III – This project was next to KHOL radio station in Beulah and was in the same area as an emergency project that threatened to topple the radio transmission tower. Additional subsidence holes opened up after the emergency project was completed, and they were filled. Some of these holes were 40 to 50 feet across and over 35 feet deep, and had vertical walls that would have prevented animals or humans from climbing out.

HAZEN WEST PROJECT -- The Hazen West project was completed in 1991 and the project area is now being managed as a wildlife habitat area by the North Dakota Fish and Game Department. The primary hazard at the site was an open pit that came right up to the edge of a major highway, and part of the roadway actually eroded into the pit. Reclamation of the area called for leaving some of the revegetated spoil piles for wildlife habitat, and creating three separate wetlands. The site is now well covered with both grass and trees, and the Fish and Game Department and AML Division collaborated on the purchase of additional trees that were suitable for the soil conditions. The hazards have all been eliminated and the site is now one of the most popular recreation areas in west central North Dakota.

LUCKY STRIKE MINE -- This mine site is scheduled for future reclamation but there are more higher priority sites that are to be reclaimed before any work is done here. However, it is suspected that some tunnels from the old mine run under a county road nearby, and a drilling program is scheduled to be completed to see if grouting will be necessary to protect users of the road. The mine and mill site is located on private land and is of a lower priority at this time.

BEULAH (SAILER) EMERGENCY – In February of 2001 a large dual tire, four wheel drive farm tractor fell into a subsidence hole inside a machinery storage shed on the Garner Sailer property near Beulah. Another subsidence hole in the same shed almost caused other pieces of farm equipment to fall in also. The equipment was removed and the holes filled immediately in an emergency project, but minor slumping was noted as the fill settled into the holes. Additional fill and compacting was accomplished during the summer of 2002, and monitoring will continue.

GARRISON DRILLING PROJECT -- This drilling was completed in residential and business areas of the town to locate underground voids. Old mine maps are available but previous experience has found that these maps were not always kept up to date by the mining companies. The voids that were discovered will be grouted as soon as funding becomes available.

CUSTER PROJECT -- The Custer Mine was like the Hazen West Mine in that the highwall of the open pit came right up to the edge of a major highway and posed a grave danger to motorists using the roadway. This project was completed in three phases, and is now a very popular recreation area for the citizens of central North Dakota. Most of what was inspected during this evaluation period was completed under Phase I of the reclamation. Two lakes were formed in old open pits, and some adjacent spoil piles were left in place for wildlife habitat. The area has excellent revegetation and is home to several species of large game, small game and birds. Because of several years of below average precipitation the lakes are very low, and the fish populations are in danger. Low water fish kills may require that the lakes be restocked when water levels are returned to normal. The project site is now managed by the North Dakota Fish and Game Department.



Zenith site in April of 1987 prior to reclamation.



Zenith site after reclamation in August of 2002.

ZENITH MINE SITE -- This site was reclaimed in the late 1980's, and was a large underground mine with shallow overburden. Further reclamation was accomplished to repair additional sinkholes in 1999. Hundreds of subsidence holes were located in a large area of prime grazing land, and both livestock and property had been lost or damaged in the holes. The subsidence holes were filled and the intact tunnels collapsed to obtain complete reclamation of the old mine. Looking at the site today it would be impossible to tell that a coal mine once existed here, and the land is back in useful production.

GARRISON SUBSIDENCE -- This was a subsidence hole that opened just off the pavement on a county road near Garrison, and was filled by the McLean County highway department. We wanted to see if the reclamation of the hole was still satisfactory, and ensure that no further danger was posed to the users of the road. Other holes have since opened on the adjacent private property and they are being closely monitored. It is probable that a future project will be necessary since some of the holes are very close to structures.

2001 BEULAH MAINTENANCE PROJECT -- This was a project designed to perform remedial reclamation in very heavy subsidence areas where previously filled subsidence holes have slumped and require further work. While contractors are in a particular area they will also fill new subsidence holes that appear and are considered to be dangerous. One such hole was filled after a valuable hunting dog fell into it and could not be retrieved. This hole was small in diameter, but was about sixty feet deep and was suspected to go directly into the old underground tunnels. Additional maintenance reclamation is planned for Beulah and several other heavily undermined areas across the State to repair dangerous sinkholes.

Several other completed sites were seen from the vehicle as we traveled from one site to another. With the excellent topsoil conditions and usual precipitation in North Dakota, these sites could not be recognized if one did not know where they are. The reclaimed areas look just like the adjacent pasture or farmland that is not undermined. This is excellent reclamation and has been the hallmark of the North Dakota AML program since its inception. Chart #2 lists specific reclamation items completed during this evaluation period, while Chart #3 lists the projects completed and the project costs.

Part IV. Drilling and Grouting Program

Since the available maps of underground mines are usually not accurate, or may be incomplete, North Dakota has initiated a drilling program to locate voids in sensitive areas that are heavily undermined. When voids are located that are not scheduled to be grouted immediately, they are cased, capped and marked on a map for future grouting. The drilling program is one of the few reclamation activities that can still be ongoing during all but the very worst winter weather conditions. Several drilling projects can be under way in one year, and this allows the AML Division to evaluate the results and schedule the most hazardous areas for grouting first. During this evaluation period drilling projects were undertaken at the towns of Dickinson, Garrison, Beulah and Zap in roadways, residential neighborhoods and business areas. Grouting was accomplished in Garrison and Beulah residential areas, and along some heavily used roadways adjacent to Dickinson and Zap.

Part V. Fiscal and Administrative Controls

The CFO conducted financial oversight on the North Dakota AML program during this evaluation period. Items reviewed were drawdowns, property management, timeliness of grant applications and reports, audits, accounting and procurement of property. During a drawdown analysis of the existing grant, seven of ten draws were sampled. The State's procedure for drawing funds is to expend State general funds and then be reimbursed by the U.S. Treasury. In all cases costs matched the draw, and the draw was implemented after obligations had been met. All financial reporting was timely regarding the status of the existing AML grant, and grant applications are submitted on time. A salary review of the AMLD personnel was also conducted. Monthly salaries were reviewed through the State's accounting system to ensure that only staff assigned to the AMLD were being paid from the AML grant. Procurement expenditures were sampled for purchases greater than \$1,000 to ensure they were approved by the Division Director prior to each purchase. Recent AML construction bids were reviewed to ensure that there was competitive bidding and that the AMLD offered them competitively. Four bids were sampled and the lowest bid accepted in each case.

The AMLD continues to report and transfer property correctly and in a timely manner. A property inventory was completed during this evaluation period in accordance with Common Rule requirements. Travel taken by AMLD personnel was reviewed to ensure compliance with North Dakota's policies and procedures. Both in State and out of State travel was checked, proper approvals were obtained, and per-diem payments were correct.

The last A-133 audit on the AMLD was completed for the 1998 evaluation year. Since this time the new Federal criteria under A-133 have been applied, which state that a new audit may not be required. The North Dakota State Auditor's Office conducted a risk assessment of the AMLD to determine if an audit is necessary. The AML program was determined to be low risk and thus no new audit was conducted. No findings have been reported in the past several audits.

Part VI. Emergency Program

North Dakota administers their own emergency program. Information regarding a possible emergency project is sent to the CFO and an approval or disapproval for the expenditure of emergency funding is usually returned to the State that same day. During this evaluation period two emergency projects were reclaimed in North Dakota. The Beulah Coal Fire Emergency Project occurred in abandoned coal fines at an old railroad loading facility within the city limits of Beulah. The threat of the fire spreading to dried vegetation and the choking smoke from the coal fire endangered a nearby residential area. This project was completed six days after the initial investigation of the site.

The Lehigh Emergency Project consisted of several deep sinkholes under and adjacent to an old coal briquette plant. Some of the sinkholes had subsided all the way down to the old mine tunnels. Reclamation of this project was completed in four days after the initial investigation of the site. The State has

consistently completed emergency projects in a very short period of time to protect the citizens around the sites. Chart #4 details these emergency projects.

The following three photographs have been attached to this annual report to further demonstrate the degree of hazardous conditions encountered in subsidence prone areas of the State. These holes were reclaimed during this evaluation period under the maintenance project, and are just a few of the many such subsidence events that occur in North Dakota each year.



This sinkhole was located on pasture land owned by Mike Wolf near Dickinson. 65 cubic yards (equivalent to 65 truckloads) of dirt were needed to fill this hole.



This fifteen foot deep sinkhole was located on the side slopes of an old land fill now owned by Willard Schnell. It was within 75 feet of Lehigh Road.



About 50 dangerous sinkholes like this one were filled on properties owned by M Pflieger, Mr. Kenny Winkler and the North Dakota Game and Fish Department, no

**CHART #1
NORTH DAKOTA
CONSTRUCTION READY PROJECTS**

Project	Cost	Economic Impact*	Environmental Benefits
Lehigh Road Phase VIII	\$160,000	Income: \$1.0 Employment: 13	Subsidence Prevention Public Safety
Beulah/Zap VI through VIII	\$700,000	Income: \$1.7 Employment: 56	Subsidence Prevention Public Safety
Noonan Highwall Project	\$200,000	Income: \$1.0 Employment: 17	Dangerous Highwall Public Safety
Columbus-Phase V	\$700,000	Income: \$1.7 Employment: 56	Highwall Removal Dangerous Highwall
Maintenance, Drilling Appraisals, etc.	\$100,000	Income: \$1.0 Employment: 8	Reclamation Preparation
Wilton Project	\$350,000	Income: \$1.0 Employment: 29	Subsidence Prevention Public Safety
Grandview/Co. Rd. 9 Phase I through IV	\$2,000,000	Income: \$5.2 Employment: 180	Subsidence Prevention Public Safety
Garrison Project Phase 11 through III	\$200,000	Income: \$1.0 Employment: 17	Subsidence Prevention Public Safety
Snake Road, Burlington	\$250,000	Income: \$1.0 Employment: 21	Subsidence Prevention Public Safety
Buechler Phase II	\$160,000	Income: \$1.0 Employment: 13	Subsidence Prevention Public Safety
TOTAL	\$4,820,000	Income: \$15.6 Employment: 410	Restoration of Land Public Safety

*Income expressed in millions of dollars

Employment expressed in number of persons employed as a result of the expenditure

CHART #2
NORTH DAKOTA
ACRES AND HAZARDS

Hazard ¹	October 1, 2001 Status ²	FY 2002 Additions ³	Reclaimed in FY2002 ⁴	October 1, 2002 Status ⁵
CS Clogged Stream	None	None	None	None
CSL Clogged Stream Lands	None	None	None	None
DH Dangerous Highwalls	106,325	None	1,550 in Ft	104,775
DI Dangerous Impound.	None	None	None	None
DPE Dangerous Piles and Embankments	30 acres	None	None	30 acres
DS Dangerous Slides	None	None	None	None
GHE Gas and Hazardous Equipment	None	None	None	None
UMF Underground Mine Fire	None	None	None	None
HEF Hazardous Equipment and Facilities	6	None	None	6
HWB Hazardous Water Body	25	None	None	25
IRW Industrial/Residential Waste	17 acres	None	None	17 acres
P Portals	10	None	None	10
PWAI Polluted Water, Agr. and Industrial	5	None	None	5
PWHC Polluted water, Hu. Cons.	1	None	None	1
S Subsidence	2,105	None	12	2,093
SB Surface Burning	10 acres	None	10 acres	None
VO Vertical Opening	155	None	30	125
SA Spoil Areas	110 acres	None	None	110 acres
BE Bench	None	None	None	None
PI Pits	None	None	None	None
GO Gobs	1 acre	None	None	1 acre
SL Slurry	None	None	None	None
HR Haul Roads	None	None	None	None
MO Mine Openings	None	None	None	None
SP Slump	None	None	None	None
H Highwalls	None	None	None	None
EF Equipment and Facilities	None	None	None	None
DP Industrial/Residential Waste	30 acres	None	None	30 acres
WA Water Problems	10 GPM	None	None	10 GPM

¹ AMLIS Keyword

² A "snapshot" of the status at the beginning of the year

³ PAD additions, by keyword, during the year

⁴ Reclamation accomplishments-GPRA requirement

⁵ A "snapshot" of the status at the beginning of FY99

CHART #3
NORTH DAKOTA
COMPLETED PROJECTS
October 1, 2001 to September 30, 2002

Project Name	Project Cost	Economic Impacts	Environmental Benefits
2001 Beulah/Zap Phase V Pressure Grouting	\$314,840.40	Income: \$ 6 million Employment: 26	Subsidence Prevention
2001 Lehigh Road Phase VI Pressure Grouting	\$275,395.50	Income: \$.5 million Employment: 23	Subsidence Prevention
2001 Noonan A (6)	\$258,794.80	Income: \$.5 million Employment: 22	Dangerous highwalls
2001-2002 Sinkhole Filling-maintenance	\$80,392.54	Income: \$.16 million Employment: 7	Subsidence Reclamation
Noonan Planting Project	\$6,300.00	Income: \$.01 million Employment: 2	Tree Plantings
Haynes Maintenance	\$9,000	Income: \$.02 million Employment: 2	Subsidence Reclamation
2001 Lehigh Emergency Project	\$32,076.00	Income: \$.06 million Employment: 3	Subsidence Reclamation
2002 Beulah Coal Fire Emergency	\$1,527.50	Income: \$.002 million Employment: 2	Surface Burning

* expressed in millions

Chart # 4
**NORTH DAKOTA
 EMERGENCY PROJECTS**

State	Project Name	Investigation Date	Notification Date to CFO	CFO Response Time (days)	Reclamation Cost	Const. Start Date	Completion Date
North Dakota	2001 Lehigh Emergency Project	10/11/2001	10/11/2001	Same Day	\$32,076.00	10/12/2001	10/15/2001
North Dakota	2001 Beulah Coal Fire Emergency Project	1/10/2002	1/10/2002	1/11/2002	\$1,527.50	1/15/2002	1/16/2002