North Dakota
Abandoned Mine land
Reclamation Awards Nomination:

CUSTER COAL MINE

Year 2000 Annual National Abandoned Mine Reclamation Awards

Cover Sheet

1. Custer Mine
   Sections 18 and 19, T148N, R83W, McLean County, North Dakota
   Near Garrison, ND

2. North Dakota Public Service Commission
   Abandoned Mine Lands Division
   13th Floor, State Capitol
   Bismarck, North Dakota 58505
   Mark E. Knell
   701-328-4095

3. Phase 1 Reclamation
   June 26, 1996 – October 4, 1996
   $225,304.50
   ND AML Division
   Mariner Construction, Inc.

   Phase 2 Reclamation
   June 16, 1998 – October 8, 1998
   $161,322.69
   ND AML Division
   Quality Construction, Inc.

   Phase 3 Reclamation
   May 13, 1999 – September 13, 1999
   $117,002.69
   ND AML Division
   Quality Construction, Inc.

4. January 12, 2000

The Custer Coal Mine is in Sections 18 and 19, T148N, R83W, McLean County. The mine is located southwest of the junction of Highways 83 and 37 and is within five miles of the corporate limits of Garrison, North Dakota. Custer Mine encompasses approximately 700 acres.

Custer Mine, owned and operated by Truax-Traer Coal Company, was a working surface mine from 1947-1964. The surface or strip mining method of coal mining is used when the coal seam is near the surface of the ground. The lignite coal at the Custer Mine is covered with only an average of 45 feet of overburden (soil). The coal was mined and prepared at the mine site, then shipped by rail or sold locally.

The mine was served by the Minneapolis, St. Paul, and Sault Ste Marie Railway Company, who built a two-mile spur from their line into the Truax-Traer Company's coal tipple. Coal shipments were regularly made to Power Plants and domestic markets served by those rail lines. In addition, the Truax-Traer's property was located one-fourth mile from a surface highway, which was a great aid to surrounding towns and farm communities in obtaining coal by trucks.

Up to sixty people were employed at the mine. In 1950, the mine's most productive year, 370,530 tons of coal were produced with 347,121 tons shipped. Both loading and stripping shovels were utilized in the mining operation. Ridges of spoil piles were formed as this equipment dumped overburden into piles to get to the underlying coal seams. The coal reserves at the mine consisted entirely of lignite coal containing a heat value of 7000 BTU or one-half that of bituminous coal.

This site also includes the Hummel Mine, an underground coal mine, which was operated between approximately 1926-1938. The coal seam was reached through an incline shaft and coal was brought to the surface in small rail cars. The mine had 6 ½ foot coal seams covered by 45 feet of overburden.

A "company town" existed at the Custer Mine during its operational years. Truax-Traer Company built 23 buildings, including 19 dwellings for employees' families. The town had its own water system, sewer system, and central heat. The houses were small in size but large enough to be home to the families of the miners. An elementary school served the children of the young families. There was also a cookhouse where meals were prepared and served for miners.

When mining operations were completed in 1964, the land was left with barren, unsightly spoil piles and dangerous highwalls. Prior to 1975 there were no laws requiring mine land to be returned to equal or better productivity. For the most part, Custer Mine remains an example of unreclaimed mine lands. Topsoil material was discarded along with spoil in the mining operations, making it difficult to

establish a vegetative cover. The steep sloped spoil piles also made it hard for vegetation to become rooted. Consequently, the piles were erosive. Sediments (spoil particles) frequently washed from the site or into the waterbodies located on site.

Yet another problem was the abandoned highwalls - the sheer walls resulting from the final cut of the surface mine. The highwalls were left along the north and western side of the mine. Ranging up to 70 feet in height, they presented a safety hazard because of their steepness, sloughing, and instability. Highwalls also created a barrier to movement across the area for people and wildlife.

A vehicle trail along the west edge of the mine was left a few feet from the highwall in some spots. In muddy or icy conditions, this road became very dangerous. The highwalls also present a special hazard to off-road vehicles, whose drivers may accidentally drive over the edge. The steep piles and banks left surrounding the mine ponds at the south end of the mine also created a hazard.

Today the Custer Mine is a Wildlife Management Area. The transition from a working coal mine to today's Custer Mine Wildlife Management Area took place over many years. While the coal mine was still in operation, local residents started planting trees on the mine spoil piles. The trees were provided by the North Dakota Game and Fish Department and West McLean Soil Conservation District. These tree plantings were initiated by the Garrision Sportsman's Club in 1951. Youth organizations such as Boy Scouts, Girl Scouts, 4-H and school groups helped with the plantings, usually on Sunday afternoons.

From toddlers to elderly, they came with a spade or a shovel or a bucket. An older person would dig a hole, a youngster would pull a tiny tree out of the bucket, place it in the hole, cover it with dirt, tamp it down and move six feet or so and repeat.

The work was fun for both young and old even though the spoil piles were steep and footing precarious. The pay for the day was a bottle of pop furnished by the Garrison business people.

Through cooperative effects, Custer Mine became Custer Mine Wildlife Management Area on November 9, 1984 when Consolidation Coal Company deeded the land to the North Dakota Game and Fish Department. (Please note that by this time Truax-Traer had become a division of Consolidated Coal Company.)

As the years went by, the trees started to grow and the grass was finally starting to get established, the general public was utilizing the newly established Custer Mine Wildlife Management Area more and more. Recreation has also become more

popular and the Management Area began being used by fisherman, hunters, canoeists, photographers, campers, hikers, and amateur naturalists.

The North Dakota Game and Fish Department has constructed a boat landing on the Custer Mine Pond which is located at the southern edge of the Management Area. The pond is stocked annually with rainbow trout and is used heavily throughout the summer by fishermen.

Also adding to the increased usage of the Wildlife Management Area is the Custer Mine Interpretive Site and associated parking lot located on the north edge of the area. The Interpretive Site was dedicated on June 18, 1989 by the Garrision Centennial Committee in observance of the North Dakota Centennial. Passing motorists frequently visit this interesting Interpretive Site.

Hunting also increased as Ducks Unlimited constructed two ponds. The Management Area is especially popular amongst bow hunters for deer. Waterfowl nesting structures, squirrel nesting boxes, and wildlife feeders, provided by the North Dakota Game and Fish Department, have encouraged habitat development.

A hiking trail has been established through the Management Area, which allows visitors to see native and tame grasses, wildflowers, trees and shrubs, as well as both old coal mines. Twenty species of mammals and eighty species of birds may also be observed.

The North Dakota Public Service Commission held a public meeting to discuss the Custer Mine on March 28, 1996 at the McLean County Courthouse in Washburn, ND. The Public Service Commission administers the Abandoned Mine Lands Program on behalf of the State of North Dakota. The Abandoned Mine Lands Program is charged with eliminating existing and potential public hazards and environmental problems resulting from abandoned surface and underground coal mines. It is funded by a production tax on coal mined in the United States.

At the meeting, the general public and the North Dakota Game and Fish Department personnel voiced their concerns about the safety of the increasing number of people visiting the Custer Mine Wildlife Management Area. They were most concerned about the safety hazards of the highwalls along the north and west edge of the mine and the steep piles and banks surrounding the Custer Mine Ponds. At the conclusion of the meeting, Abandoned Mine Lands' personnel indicated that they would try to secure approval to implement reclamation activities on these hazardous portions of the Custer Mine Wildlife Management Area.

Abandoned Mine Lands' Staff Engineer completed the design and specification work for Phase 1 of the mine reclamation in the spring of 1996. Construction work, completed during the 1996 construction season, was contracted to Mariner Construction, Inc., the lowest qualified bidder. The construction project was supervised and monitored by the Abandoned Mine Lands' Staff Engineer.

Phase 1 involved the elimination of 4,800 feet of dangerous highwalls along the north and northwestern side of the Management Area. The nearly 60-foot vertical highwall was backfilled using the closest spoil piles as borrow material.

Reclamation of spoil piles was aimed at halting erosion. The piles were graded to establish stable slopes and provide proper drainage patterns. Scrapers and dozers were utilized to move 400,000 cubic yards of spoil material, which resulted in the formation of a gentle valley in the 30-acre project area. To the degree possible, topsoil was salvaged from the undisturbed area along the top edge of the highwall and respread once the dirt work was completed.

Five new small semi-permanent wetlands were created and another improved to enhance waterfowl production. North Dakota is in the center of one of the major waterfowl flyways in the United States so retention of surface water is always a high priority in reclamation.

The entire disturbed area was fertilized, seeded and mulched. The reshaped slopes were seeded to vegetation beneficial to area wildlife. Targeted was upland game. Some shrub and tree clumps were planted within this area. The grass has established dense nesting cover enhancing wildlife habitat.

The Abandoned Mine Lands' Staff Engineer completed the design and specification work for the Phase 2 project in 1997. However, reclamation construction work for Phase 2 wasn't done until the 1998 summer construction season. Phase 2 picked up from where Phase 1 left off. It involved the backfilling of 2,700 feet of dangerous highwall in the central portion of the western highwall. The general contractor, Quality Construction Inc., moved 287,530 cubic yards of spoil from the adjacent spoil piles. The 32-acre area was reshaped to a gentle sloped valley with proper drainage patterns. Erosion control fabric was placed in one newly created drainage channel to prevent erosion problems until suitable vegetation cover could be established. The disturbed areas were fertilized, seeded and mulched. Five new wetlands were formed to retain water for habitat at the base of the newly sloped valley. The basins have spawned cattail growth, which adds diversity to the vegetation and is beneficial to the wildlife.

A total of 16,592 linear feet of trees and shrubs were planted in the Phase 2 Project Area by the West McLean Soil Conservation District. The trees and shrubs planted included the following variety: Russian Olive, Green Ash, Golden Willow, Siouxland Cottonwood, Native Plum, Woods Rose, Chokecherry, Blue Spruce, Juniper, Juneberry, Plum, Crabapple, Caragana, and Buffaloberry.

The third and final phase of reclamation, also designed and overseen by the Abandoned Mine Lands Program, was completed during the 1999 construction season. The general contractor again Quality Construction Inc. moved 116,508 cubic yards of spoil material in the southern portion of the mine.

One portion of the project involved forming a shoreline around the 8 acre Custer trout pond. The steep sloped spoils and highwalls around the pond were re-sloped and brought down to a gradual flat shelf. Before reclamation, the trout pond had basically the boat ramp only for fishing access from the shore. Now, there is 8 foot walking pads and anglers can fish about 95 percent of this pond by foot. The trout pond is now a good alternative fishery. It is a good spot for kids to fish when it's too windy to be on nearby Lake Sakakawea.

A portion of the spoil material cut from around the pond was utilized to build up the south road bed grade which had been flooded and not accessible by high water levels.

The remaining portion of the spoil material excavated from around the trout pond was used to cover the "slab". The famous party area, west of the pond, for young people, was covered to help eliminate rowdy land abusers. This area had been fenced off to keep people from partying in this area but many times Game and Fish Department personnel had to repair gates and fences because of vandalism.

The 40 feet in height highwall, along the second pond northwest of the trout pond, was eliminated. The slopes to this pond were re-sloped and brought down to a gradual flat shelf to create a shoreline along the western side. The flat shelves were tiered so it can be used at a variety of water elevations. This three-acre in size second pond is planned to be stocked with bass and blue gills. This will happen only after ridding the pond of undesirable suckers and bullheads.

The two fish ponds will see improved water quality benefits. Two small riser barrel spillway ponds have been constructed upstream to filter out sediment from the runoff from the newly reclaimed areas and nearby private land watershed areas. Removable stop logs within the riser barrel spillways of the drop inlet allows water level control within the pond areas. The water control structures allow the control of the vegetative growth within the surface area of the pond as well. An outlet has

also been established from the two fish ponds to ensure fresh water movement and maintain constant maximum water levels.

The spoil material excavated from along the second pond was hauled north by heavy construction equipment. The material was utilized to eliminate surface water runoff from dropping 40 feet down over the highwall, which had caused an enormous erosional gully, by filling in this pit and creating a new gradually sloped drainage channel. This will aid in erosion control.

The Phase 3 project eliminated 2,800 linear feet of dangerous highwall. The entire 23-acre area has been fertilized, seeded and mulched. Species include yellow sweet clover, western, slender, and thickspike wheatgrasses. Trees and shrubs are scheduled to be planted in the spring of 2000 by the West McLean Soil Conservation District.

With the completion of the reclamation face-lift, the mine has been transformed into a more user and habitat-friendly area. The Custer Mine Wildlife Management Area has become a beautiful area to be enjoyed by wildlife and outdoor enthusiasts.

Photo Captions

Photo 1	Vehicle traveling along ND Highway 37 adjacent to the Custer Mine Highwall
Photo 2	North highwall at the Custer Mine prior to reclamation
Photo 3	Reclamation of north highwall at Custer Mine
Photo 4	Post reclamation of north highwall at Custer Mine
Photo 5	Reclamation of southern highwall along the Custer Mine Pond
Photo 6	Post reclamation of southern highwall along Custer Mine Pond