

INDIANA

Department of Natural Resources



for the
**2003 Abandoned
Mine Land
Reclamation Award**

NOMINATION

**Abandoned Mine Reclamation Awards
Indiana 2003**

Name

Victory Mine, Site 82

Location

Five miles east of Terre Haute, Indiana

Submitted By

Tom Thomas, Field Operations Coordinator, Restoration Program
Sandy Rogers, Restoration Technical Manager, Restoration Program
Indiana Department of Natural Resources
Division of Reclamation
RR #2 Box 129
Jasonville, Indiana
812-665-2207

Project Information

Construction Start Date: April 25, 1985
Construction Completion Date: May 22, 1986
Maintenance Performed: 1987, 1989, and 2000
Construction Costs: \$3,832,095.00

Organizations Responsible for the Reclamation

Indiana Department of Natural Resources
Snell Environmental Group – Designer
Rieth-Riley Construction – Primary Contractor

Date Submitted

14 March 2003

RACING TO VICTORY

Introduction

What other AML site can boast of being an operating landfill, a growing community recreational complex, the site of a world championship racing event, and the site of an NCAA Championship event? The reclaimed Victory Mine Site was once a barren and eroded abandoned mine refuse area that created sedimentation and acid mine drainage problems into an adjacent stream. The site was also used as a trash disposal area for years and an open mine entry presented a hazard to human safety. Today the site is a major community recreation area and the location for local, national, and world sports competitions. The site has come a long way in the last few years and the story is remarkable.

Background

The Victory Mine was located in Vigo County, Indiana five miles east of the city of Terre Haute. Historical records indicate that this underground slope entry mine, operated by the Pyramid Coal Company, began operation in 1943 during World War II and continued operation until 1954. A 6.5 ft seam of Coal 3 was mined from a depth of 80 ft. The coal was extracted from the mine via a double partitioned slope entry. Production records indicate that over 5.7 million tons of coal had been produced by 1952.

The mining and processing operation associated with the Victory Mine left a 245-acre area of gob, slurry, derelict concrete structures, trash, debris, and a hazardous open slope entry. Prior to reclamation the site was generally barren of vegetation except for scattered areas of trees, grass, and weeds. The site also created sedimentation and acid mine drainage (AMD) problems in the adjacent Honey Creek.

The northern 45 acres of the site was separated from the main area by a county road. This area was covered with one to two feet of coal and coal refuse. The presence of an old scales pit, concrete debris, and old railroad ties and track indicated that this was probably the coal storage and loading area for the mining operation. Some trash and other debris was also scattered about the area.

The main area consisted of gob and slurry covering 200 acres. The northern 140 acres of the main area was covered with gob up to 40 ft deep (see Photo No. 1). After mine closure in the 1950's, this area became a dumping site and was actually operated as the Vigo County Victory Landfill until the early 1980's. Gob was used as cover material over residential and industrial waste resulting in layers of rubbish intermixed with gob. Concrete foundations from old mine buildings were located on the eastern part of the site along with the open slope entry (see Photo No. 2). The slope entry was open for a distance of 150 ft down to water. Besides the open entrance, a hole existed on top of the entry structure presenting additional hazard to anyone exploring the area. Both the slope entry and the hole on top of the structure were completely unprotected. The east part of the central area was also used by the Vigo County Highway Department to store rock and debris from razed buildings and concrete structures. This material

was then used for erosion control along county roads. Two large metal buildings had been constructed in the center of the site as a maintenance area for landfill operations equipment.

The southern 60 acres of the main area consisted of slurry ponds intermixed with areas of gob (see Photo No. 3). Trash was also mixed into the gob areas. The unstable dams retaining the slurry ponds were constructed of gob. Over time the gob dams breached resulting in thousands of cubic yards of slurry and gob being discharged into adjacent Honey Creek. A dendritic erosion pattern developed in the largest of the slurry ponds creating gullies over fifteen feet deep. The stream channel was clogged with coal fines for several miles downstream and the water was adversely affected by acid mine drainage. One sampling point downstream from the site experienced a pH of 3.2.

Reclamation Objectives and Activity

The objectives of the reclamation project included: improving the water quality and stream channel environment of Honey Creek, eliminating the hazard created by the open slope entry, reducing water infiltration into the coal refuse, establishing vegetation on the entire site, and creating a post reclamation environment that would provide wildlife habitat and useful land for the citizens of Indiana.

Northern Area

Reclamation of the northern 45-acre area consisted of removing the veneer of coal and coal refuse and burying it on site in two isolated mine pits created by adjacent surface mining. The concrete scales pit was razed and also buried in the pits along with other debris that was scattered on the area. This northern area was the designated main borrow source to acquire cover material for the rest of the project. A borrow pit in excess of twenty feet deep covering over twelve acres was excavated for borrow material. This pit was then developed into an excellent lake with a pool elevation control structure as part of site reclamation. Following removal of the veneer of coal waste and the concrete rubble, the entire area that was not part of the lake was graded and vegetated with a mixture of grass and legumes. Strips of trees and shrubs were also planted to enhance the habitat diversity for wildlife. This northern area is now an outstanding wildlife habitat and would be an excellent site for residential development (see Photo No. 4).

Main Gob and Slurry Area

Reclamation of the remaining 200-acre main portion of the project was much more involved and comprehensive. Work included sealing the slope entry, burying concrete rubble, grading the gob and slurry areas, stabilizing the slurry retaining dams, covering the site with borrow material, establishing erosion control structures, and re-vegetating the site (see Photo No. 4).

The concrete slope entry structure descended at a 15-degree angle into the ground. The upper 150 ft section of the structure was demolished and removed to a depth of 25 ft below grade. The resulting rubble was buried at a designated on-site location along with all other razed concrete building foundations that existed around the slope entry. The slope entry was then sealed with a

three-foot thick reinforced concrete bulkhead prior to backfilling and establishing final sub-grades.

Grading of the gob areas presented a particular problem due to buried trash from previous landfill operations being exposed during excavations. Trash resulting from gob grading operations was reburied at a designated area on the site. There were also isolated areas where gob was only one to seven feet deep. This refuse was removed and buried at designated areas on site. Most of the gob and slurry areas were constructed at a 1% to 4% grade with some out-slopes being constructed up to a 25% grade. The grading plan took into consideration the extensive amount of buried trash from landfill operations and the need to establish positive drainage to enhance surface runoff. After sub-grade was established over the gob and the sealed slope entry, the area was then covered with two feet of soil on areas flatter than 6% grade and three feet on slopes greater than 6% grade. Numerous permanent erosion control structures were installed including riprap and erosion control blanket ditches, terraces, concrete and corrugated drop structures, and check dams. The entire site was re-vegetated with grasses and legumes. Strips of trees and shrubs were also planted.

Stabilizing the slurry impoundment dams along the south side of the site was a major concern of the project. There were three breached slurry pond dams constructed out of gob. Two of the dams were only a few feet high and were reclaimed as part of the general grading. The main dam was 1500 ft long, 20 ft high, and was breached in three places. Honey Creek flowed along the toe of the slope for the whole length of the dam. Reclamation of this slurry pond involved filling the gullies to meet planned refuse sub-grade and shaping the face of the dam to a 40% grade. The dam face and slurry was then covered with three feet of borrow material. A keyed-in riprap stream bank protection structure was constructed at the toe of the slope along the entire length of the dam. Sod strips were then placed at the top of the slope and just above the stream bank protection structure. The area was then seeded with grass, legumes and strips of trees and shrubs.

Post Reclamation Land Use

Following reclamation the northern area developed into an excellent habitat area supporting a diverse wildlife population. The main part of the site also provides wildlife habitat but much of it has also become an area of intense human activity. The landowner of this 200-acre area donated the property to the Wabash Valley Family Sports Center, a not-for-profit local organization. This organization in turn developed a community recreation facility complex on the property that is open to the public. The complex consists of a sports center and the LaVern Gibson Championship Cross County Running Course (see Photo No. 4). Funding for this development came from a trust fund from former Terre Haute businessman LaVern Gibson and donated funds from former NBA star Larry Bird.

The cross-country course is considered one of the best in the nation. It has been used extensively by local high schools and colleges for cross country training and competitions. In November 2002 the site came into the national spotlight when the 2002 NCAA Division 1 Cross Country National Championships were held on the course (see Photo No. 5). This NCAA event attracted athletes and spectators from across the nation. A total of 31 men's teams and 31 women's teams

with over 500 athletes competed in the Championships with an estimated 8,000 spectators in attendance (see Photo No. 6). Coaches and athletes were very impressed with the quality of the course and the terrain for cross-country running. The site will be in the running for the NCAA Division 1 Championships in 2004, 2005, and 2006. The NCAA Division III Championships and the Indiana High School State Championships are also a strong possibility in the future.

Besides the cross-country course, the sports center provides a variety of activities for local residents. A new 28,000 square foot building located near the center of the property has two basketball courts, a circuit cardio room, a free weight room, and a multi-purpose room for weddings, meetings, and other functions. In the spring of 2003 an outdoor softball complex is planned consisting of four diamonds. Other planned outdoor facilities include two tennis courts, two basketball courts, four soccer fields, and an asphalt hiking/biking trail. The cross-country course also holds promise as a cross-country ski area. The site in general holds unlimited possibilities for indoor and outdoor recreational activity, cross-country competitions, nature viewing, and community functions.

Another spectacular event that took place at the reclaimed Victory Mine Site was the World Hovercraft Federation 2002 World Championships. The Victory site was the staging area for this world championship event. The racecourse was located on an adjacent surface mine final cut lake that was created in 1993 by Amax Coal Company (see Photo Numbers 4 and 5). This made a unique situation where the staging area was on AML reclaimed land and the racecourse was on Title V reclaimed land. The hovercraft only needed to cross a county road from the staging area to be on the racecourse. Services provided on the reclaimed Victory Mine Site included the hovercraft pit area, camping, vender area, participant parking, and a meeting room with other indoor facilities. This was a very big event for the Terre Haute community hosting 70 racers plus nearly 300 support staff from 16 countries. The event was a huge success with an estimated 3,500 spectators attending the three days of racing. This is an outstanding example of beneficial use of reclaimed abandoned and active coal mined land. It is anticipated that the Victory Mine area will be the site of many more activities of this caliber in the future.

Summary and Conclusions

Prior to reclamation the Victory Mine Site was a detriment to the community. The slope entry presented a hazard to human safety, odors from landfill operations permeated the area, and runoff from the barren mine refuse created sedimentation and acid mine drainage problems in adjacent Honey Creek. The site was also very aesthetically displeasing. The Victory Mine is located within the flight pattern to Hulman International Airport. People visiting the Terre Haute area by air received their first impression of the community by viewing this very ugly mine refuse area.

Reclamation has eliminated the hazard presented by the open slope entry and overall site reclamation has eliminated any significant sedimentation and AMD problems into Honey Creek. Recent water testing immediately downstream from the site registered a pH of 7.9 and coal fines are no longer visible in the stream channel. The site has become a central point for community activities, recreational uses, and sports competitions making it an exemplary reclamation project with unlimited potential for future high quality post reclamation land use.

Photo No. 1

Victory Mine Site
Main Area
Before Reclamation



Open hazardous entry to the underground mine works. This was open 150 feet down to water. Located on the east central portion of the site.
Photo No. 2



Photo No. 3



Gullied Slurry Area

Victory Mine Site
South portion of main area
Before Reclamation

Reclaimed Victory Abandoned Mine Site

Photo No. 4

Borrow Pit Lake

Northern Area

Title V

Reclamation

Main Area with
Cross Country Course
and Other Facilities

World Champion-
ship
Hovercraft Course

Reclaimed Gob and
Landfill Area

Sports Center Office
and
Indoor facilities

Reclaimed Slurry
Pond



Photo No. 5

World Championship
Hovercraft Racecourse

Victory Mine Site
Post Reclamation
NCAA Cross Country Championships



Photo No. 6

Victory Mine Site
Post Reclamation
Start of the NCAA Cross Country
Championships

