

CASE STUDY

PLEASANT VIEW MINE RECLAMATION PROJECT

CATEGORY Acid Mine Drainage
Water Quality

LOCATION Hopkins County, KY

CONTACT Steve Hohmann
KY Division of Abandoned Mine Lands
(502) 564-2141
steve.hohmann@ky.gov



SYNOPSIS In February 1998, the Kentucky Division of Abandoned Mine Lands (DAML) began the Pleasant View Reclamation project, located in the Western Kentucky Coal Field near Madisonville, Kentucky in Hopkins County. The project site consisted of approximately 250 acres of strip mined land containing a 60 foot deep, 32 acre drainage impoundment of highly acidic water, and was used as a waste area for refuse from nearby underground mines and washer plants. The objective of the project was to treat and release the water in the impoundment, bury the acid waste, cover it with soil material, and finally revegetate.

SITUATION The Pleasant View site was first surface mined by the Century Coal Company in the 1930s and 40s. Adhering to the normal mining practices of that time, the company left ridges and a large final pit which eventually collected water. In the 1960s, the Island Creek Coal Company dumped coal refuse at the site, which created millions of tons of acidic coal waste. Through the years, the site degraded dramatically; the large amounts of acid drainage from the refuse polluted the water in the final pit and created an area known as “Ketchup Lake”, because of the deep red color of the water. In addition, runoff from the lake devastated aquatic life for miles downstream in Greasy Creek. After almost 70 years of mining activity, the site had been degraded to what appeared to be a desolate waste land.

PROJECT APPROACH A reclamation plan was developed in the mid-1980s, but was not implemented because of the high cost. In 1997, local citizen groups organized and encouraged the Secretary of the Natural Resources and Environmental Cabinet to take action to restore the site because it was a threat to public health and safety. During the same time period Appalachian Clean Streams Initiative funding became available for the project, and reclamation work began in 1998. The basic reclamation plan was to transport and place enough coal refuse in the final pit to eliminate Ketchup Lake and then grade and cover the entire area with soil obtained from the ridges leftover from the original mining.

The reclamation process included both the aeration of the acid water and chemical treatment with hydrated lime. The contractor built a proprietary lime slurry mixing station and a large air lift pump for the project, which delivered a combination of hydrated lime slurry and air to the bottom of the lake fifty feet down in the water. As the water was treated and released, the contractor filled the pit with the entire amount of coal waste. The site was then covered with a lime barrier and a minimum of two feet of earth cover.



RESULTS/ IMPACTS

The special equipment constructed and used by the contractor treated, mixed, and aerated the acidic water, improving the water quality of Ketchup Lake to meet compliance levels and making the water suitable for release. The water was then discharged into nearby Greasy Creek. As a result of this reclamation process, Greasy Creek, which in the past channeled and collected the acid mine drainage from Ketchup Lake, has also been restored. After many years, the creek once again contains aquatic life, including minnows in the drainage ditches in the project area. In addition, the equipment helped to greatly reduce the cost of water treatment to about one-tenth of one cent per gallon of water.

In October 1999 Consol Coal Company, the owner of the site, donated the entire area to the City of Madisonville. The City has benefited from the restored site by baling hay from the new vegetation growing on the property. Because the site was restored at a reduced cost and dedicated for public use, and useful knowledge was gained about water treatment methods, the Pleasant View Mine Reclamation Project is considered a great success. In the year 2000, it received the Office of Surface Mining National Reclamation Award.

PARTNERS

The Kentucky Division of Abandoned Mine Lands initiated the project with financial support from the Appalachian Clean Streams Initiative. Rust of Kentucky was the contractor that conducted the reclamation. The Office of Surface Mining supported the project and recognized its success with its National Reclamation Award.

FUNDING

The Appalachian Clean Streams Initiative assisted with funding. Rust completed the project five months ahead of schedule in November 1999 at a final cost of \$4 million. The investment in this project continues to produce results far beyond the project boundaries.

KEYS TO SUCCESS

The reclamation process, which included treatment, mixing, and aeration of acidic water, proved to be an efficient and effective method of improving water quality. The discharges complied with water quality standards at a cost of less than one tenth of one cent per gallon of water. The lessons learned and knowledge gained from this project have already been applied to the development of treatment methods at other active and abandoned mine sites. The sharing of information and experiences benefits any project and in itself is one of the greatest lessons learned.

SOURCES

- Kentucky Department for Natural Resources, Division of Abandoned Mine Lands
http://www.surfacemining.ky.gov/aml/projects/pleasant_view.htm
- Department of the Interior, Office of Surface Mining
<http://www.osmre.gov/award00ky.htm>