Beneficial Use Case Study

Revloc Mine Reclamation

Coal Combustion Product Type
Fluidized bed combustion ash

Project Location
Revloc, Pennsylvania

Project Participants
Ebensburg Power Company, Pennsylvania Department of Environmental Protection

Project Completion Date
2011

Project Summary
Revloc mine, located 90 miles east of Pittsburgh, operated from 1917 until its closure in the 1980s. Closed and abandoned before federal regulations required reclamation activity following coal extraction and processing, Revloc—together with several other sites in the area—left behind coal refuse that discharged acid runoff into local streams. Starting in 1989, Ebensburg Power Company obtained the required surface mining permits from the Pennsylvania Department of Environmental Protection to remine and reclaim the Revloc coal refuse pile. Ebensburg, which operates a fluidized bed combustion (FBC) plant, then began reclaiming coal refuse from the pile to generate electricity, in the process creating alkaline FBC ash for placement back on the abandoned mine site to help neutralize acid runoff.

Project Description
Reclamation of the western side of the Revloc coal refuse pile first required the processing and removal of reject materials that could not be burned in a CFB plant, including rock, clays, and other materials left from the in-place burning of coal refuse over much of the last century. The fuel that remained was then trucked to Ebensburg Power's FBC plant for combustion with limestone to produce electricity—and the ash returned to the Revloc site, where it was mixed with the reject materials, compacted, and contoured.

In 1997, Ebensburg received a surface mining permit for the re-mining and reclamation of the eastern side of the Revloc coal refuse pile, which at the time was afire and dispersed air pollution to the local community. Ebensburg extinguished the fires and began processing and combusting millions of tons of coal refuse from the pile, generating FBC ash for reclamation activities at the site.

The South Branch of the Blacklick Creek divided the eastern and western portions of the coal refuse pile and effectively acted as a catchment for the runoff. Prior to reclamation activities, the runoff from the pile annually discharged 226 tons of acidity, 33 tons of aluminum, 1 ton of manganese, and 0.5 tons of iron. Reclamation activities reduced the acidity from the baseline by 93 percent, aluminum levels by 95 percent, manganese by 71 percent, and iron by 92 percent.

During the life of the project, which was completed in 2011, approximately 3.2 million tons of coal refuse was removed from the site, and roughly the same amount of FBC ash was returned to neutralize the acidic compounds onsite. The process reclaimed approximately 56 acres of land, of which 20 acres are suitable for industrial development. Both the coal refuse piles and the fires are now gone, the land has been returned to its natural state, and roughly six miles of the South Branch of the Blacklick Creek is now of a quality that supports fish and other aquatic life.

Revloc refuse piles in 2004 during reclamation.
SOURCE: Pennsylvania Department of Environmental Protection.

Revloc #1 refuse pile in 2014 after reclamation.
SOURCE: Pennsylvania Department of Environmental Protection.