

PROJECT PROFILE

RECLAMATION OF COAL REFUSE SITE USING BIO-SOLIDS APPLICATION

After more than 30 years of operation, the Clyde Mine in Greene County in Southwestern Pennsylvania terminated operations and left an estimated 72 acres of unreclaimed waste embankments and ponds in the adjacent Black Dog Hollow. D'Appolonia was retained to prepare a reclamation plan for the site, covering grading, drainage control, top soil restoration, and revegetation. A lack of sufficient soils stockpiled or readily available made traditional reclamation methods impractical without incurring excessive costs and causing substantial disturbance to the previously unaffected valley slopes.



Black Dog Hollow site slope following regrading and removal of erosion features.

Prior to reclamation, the site exhibited ungraded slopes steeper than 2:1 (horizontal to vertical) with heights of up to 20 feet; extensive refuse piles at an approximately 2:1 slope; substantial presence of erosion scars, many exceeding 10 feet in depth; a 17-acre fine coal refuse slurry pond with impounded water; an unpermitted 8-acre pond in excess of 20 feet deep without a functional outlet structure; a small sediment pond with no low-level outlet structure; and numerous piles of domestic trash.

D'Appolonia's reclamation plan incorporated innovative measures utilizing bio-solids applied to regraded coal re-

fuse to achieve revegetation. Overall, the reclamation plan included off-site disposal of trash, regrading of erosion features and steep slopes, installation of drainage control structures at the base of slopes and collection points, converting existing site sediment ponds to permanent ponds, eliminating the existing slurry impoundment, and vegetating the final surfaces.

Most existing slopes at the site were regraded to 3:1 to facilitate bio-solids application and to sustain the growth media and vegetation through seasonal conditions. The unpermitted 8-acre pond was drained to a depth of about 5



Application of biosolids to regraded site.

feet and less than 2 acres in surface area, and the existing culvert was rehabilitated and fitted with an intake riser to provide an outlet structure. The reclaimed pond was incorporated into the reclamation plan to provide sediment control for most of the site. The slurry pond was dewatered and the fine coal refuse was stabilized by sequential covering with embankment materials. Slurry impoundment embankment soils were used for reclamation.

The reclamation plan was successfully implemented within the coverage provided by surety bonds. D'Appolonia received a Diamond Award Certificate for Engineering Excellence from the Consulting Engineers Council of Pennsylvania for its work on the project.



Refuse area and central silt basin following reclamation.