

# RESTORATION OF A WATERSHED THROUGH REMINING AND FUNDED PROJECTS<sup>1</sup>

by

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**Abstract.** Abandoned mined land areas include coal mine sites that were mined and abandoned before the Surface Mining and Reclamation Act of 1977 (Public Law 95-87), and post-act permits that have been forfeited and not reclaimed to standards. These areas can become sources of acid mine drainage and erosional runoff which result in stream degradation. The Black Creek watershed located in Wise County, Virginia covers an area of approximately 2,298 acres. Coal mining activities have been ongoing within this watershed for decades; consequently, it contains abandoned mine lands, bond forfeiture sites (not reclaimed to standards), and acid mine drainage discharges. Red River Coal Company conducted feasibility studies and determined which parts of the watershed were profitable for re-mining. On September 27, 1996, Virginia's Division of Mined Land Reclamation approved a surface mining permit that covers 1922.0 acres in this watershed. This permit proposes re-mining and reclaiming a major portion of the watershed; however, it does not include plans for abandoned lands that are not feasible for mining. Abandoned lands outside Red River's permit area include some of the more critically affected areas which are characterized by acid mine drainage discharges, failing wetland environments, and clogged stream areas. Restoration of the Black Creek watershed can only be achieved through a combination of re-mining, and funded Abandoned Mine Lands projects. Funding sources could include Appalachian Clean Streams Initiative grants, Environmental Protection Agency grants, or Abandoned Mine Lands grants.

Additional Key Words: re-mining, stream restoration, Appalachian Clean Streams Initiative.

## Introduction

Black Creek flows 4.16 miles before joining the Powell River just west of Norton, Virginia. The Powell River is a sensitive stream that provides habitat for several species of threatened and endangered fish and mussels. The Black Creek watershed is a major contributor of acid mine drainage and heavy metal laden sediment into the Powell River ecosystem; therefore, it has been identified as the number one priority Appalachian Clean Streams Initiative site in Virginia.

## Materials and Methods

On the ground investigations conducted by Red River Coal Company, Virginia Polytechnic Institute and State University, The Nature

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Conservancy, and Virginia Division of Mined Land Reclamation have identified six primary sources of acid mine drainage. The Virginia Division of Mined Land Reclamation used digital mapping capabilities to locate and map each identified acid seep. Baseline water monitoring programs designed to measure flow and water quality have been initiated throughout the watershed. Red River Coal Company evaluated the watershed and permitted all areas where mining was feasible. Abandoned mine lands not permitted will be reclaimed through funded projects.

## Conclusion

All abandoned mine lands, bond forfeitures, and clogged stream areas in this watershed, all of which contribute to the degradation of the Powell River, will be re-mined and reclaimed or restored through funded projects. Mitigation plans include pollution abatement areas, construction of passive treatment systems, removal and proper disposal of iron laden sediments, and reconstruction of wetland areas and clogged streams. By working together, industry, citizens of Southwest Virginia, and governmental agencies have the opportunity to remediate environmental problems associated with past mining activities in the Black Creek Watershed.