

IMPACTS OF ABANDONED MINE LAND RECLAMATION ON WATER QUALITY WITHIN THE SOUTH FORK PATOKA RIVER WATERSHED¹

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Abstract: Water quality in the South Fork Patoka River has been dramatically improved as a direct result of the reclamation efforts of the Indiana Division of Reclamation's Abandoned Mine Lands Program. Located in southwestern Indiana, the South Fork Patoka River was once considered the most severely affected stream in the state. These adverse impacts, owing to acid mine drainage from past coal mining activities, left the river devoid of most aquatic flora and fauna. The Indiana Abandoned Mine Lands Program has spent much of the last 20 years funding and administering several reclamation projects within this watershed, completing nine large projects that reclaimed 1,541 acres (624 hectares) of disturbed land at a total cost of \$16,409,402. These nine reclamation projects (Blackfoot – Site 130, Stendal – Site 306, Wheeler Creek – Site 147, Blackfoot Tipple – Site 1101, Sugar Ridge Area 5 – Site 304, Enos – Sites 898 and 979, Log Creek Church – Sites 900 and 2040) have significantly improved water quality within the South Fork Patoka River. Comparing historic water-quality data collected in the 1960s and 1980s and recent water-quality data collected by the Indiana Abandoned Mine Lands Program revealed the extent of water-quality improvements within the South Fork Patoka River and also identified remaining acid mine drainage problems. The last major remaining source of acid mine drainage in this watershed is the Durham Ditch sub-watershed. New passive treatment technologies, such as an experimental ground water redirection project and sulfate-reducing bioreactors, are being evaluated and incorporated into reclamation projects to further improve water quality in the South Fork Patoka River.

Additional Keywords: acid mine drainage, sulfate-reducing bioreactor, Indiana

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