

North Branch Potomac River Mine Pool Assessment Study

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Abstract: A thorough understanding of the hydrologic and technical issues surrounding the flooding of underground mines is essential to the protection of the environment in the Appalachian Region. If the consequences of mining are not predicted accurately and the management of resulting mine pools is not implemented properly, the public will ultimately pay the price through decreased water resources, uses and potentially the cost for water treatment. For this reason, a clear and accurate characterization of mine pools is critical to formulate sound management programs. Utilizing water balance equations and groundwater flow principles, this study attempts to characterize several mine pools in a geologic and topographic basin within the North Branch Potomac River watershed.

The study area includes 12 underground mine sites in 2 coal seams. The mines are a combination of abandoned, active and inactive underground mines that are flooded to different extents. These mine pools are currently managed by coal companies or a state agency. Water from the mines is currently pumped and/or collected then treated and discharged to the surface, or maintained at an elevation below surface drainage. Without pool management, many existing mine pools located in both West Virginia and Maryland have the potential to leak and/or discharge into the North Branch Potomac River. Accompanying this leakage is a risk for increased total dissolved solids with accompanying metal concentrations and precipitants to the river.

Additional Key Words: underground mines, water storage, water balance

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