The following was presented at DMT’11 (May 22-25, 2011).

The contents are provisional and will be superseded by a paper in the DMT’11 Proceedings.

See also earlier Proceedings (1997-2010)
http://ngmdb.usgs.gov/info/dmt/
West Virginia Mine Pool Atlas - A Work in Progress

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Introduction

West Virginia provides an excellent environment to study water retention of the Coal Seam. The study area contains a large portion of the state’s coal deposits, including the Sewell coal seam. The coal seam thickness varies from 8 to 20 feet, with an average of 15 feet. The study area is located in the eastern part of West Virginia, encompassing several counties

Project Objectives

The major objectives of this study are to develop a hydrologic model for the Sewell coal seam, to delineate the areas of potential mine pools, to determine the volume of water that could be stored in mine pools, and to evaluate the potential for water supply from mine pools. The hydrologic model will be used to identify areas with potential mine pools and to estimate the volume of water that could be stored in such pools. The results of the study will be used to improve water resource management in the state.

Regional Geology

The study area is characterized by a complex geologic setting, with a variety of rock types and structures. The coal seam is underlain by a sequence of sedimentary rocks, including sandstone, limestone, and shale. The coal seam is formed from a combination of coal and lignite, with varying thickness and quality. The coal seam is overlain by a sequence of more recent sediments, including clay and shale. The study area is located in the Appalachian Mountains, with a variety of topographic features, including hills, valleys, and rivers.

Visual structure contour/cropline examination of underground mines indicates 431 mines are above drainage, 24 are near drainage, and 17 are below drainage. Nineteen of the near drainage mines are located in the Sewell seam. As indicated by the visual structure contour/cropline examination of the 472 underground mines in the Sewell seam, underground mines located below or near drainage have the greatest potential for water supply.

A web map of the current status of the major drainage Below Drainage GIS model for determining mine position with the Sewell coal seam is available on the West Virginia Mine Pool Atlas Project website. The web map shows the location of the major drainage model and the position of the mines relative to the drainage.

Acknowledgments

The West Virginia Mine Pool Atlas Project is funded by the U.S. Environmental Protection Agency through the Division of State and Tribal Management of the West Virginia Department of Environmental Protection. The project is supported by the West Virginia Mine Pool Atlas Project web map, which is available on the West Virginia Geological and Economic Survey website.

Table 1. Comparison of structure contour/cropline examination to the major and perennial drainage mining above/below drainage GIS models for determining mine position with the Sewell coal seam

<table>
<thead>
<tr>
<th>Mine Position</th>
<th>Structure Contour/Cropline Examination</th>
<th>Major Drainage Model</th>
<th>Perennial Drainage Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above Drainage</td>
<td>431</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Near Drainage</td>
<td>24</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td>Below Drainage</td>
<td>17</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

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For more information, please visit the West Virginia Mine Pool Atlas Project website: [West Virginia Mine Pool Atlas Project](http://www.wvgs.wvnet.edu/minemaps/).