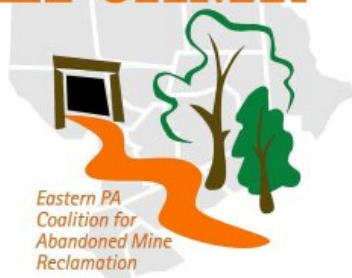


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November 14, 2007

Re: Work Progress Report for GIS Mine Pool Mapping GG Grant

EPCAMR staff has continued to gather and georeference maps showing underground flow of water and digitize these characteristics in separate layer files in ArcMap. To date **4** data layers have been created to show mine pool dynamics and hydrogeology in the Southern and Western Middle Anthracite Coal Fields.

The first collection of delineated data is a **mine pool layer**. This layer showcases the extent of mine pools as show on a collection of maps which are mentioned in the layers metadata. The layer shows the estimated area, water level from maps and flooded volume where available. A reference attribute was recorded for each feature. Many of the water levels and flooded volumes were taken from US Bureau of Mines Reports, aka the "Ash Reports". Care was taken to draw the most recent extents of the mine pools, say from Operation ScarLift Reports or other more recent maps, to judge their estimated volumes based on discharge location (elevation) and status of the mines when the data was estimated (ex. Were the mines being actively pumped?). There was also a determination made if the area was an actual pool of water or a drainage basin. This layer is fairly complete. There are **104** separate mine pools that have been digitized in the Southern and Western Middle Anthracite Coal Fields by EPCAMR. Future development of this layer may divide the layer based on this attribute to show mine pools and mine pool drainage basins separately into multi-colliery hydrogeological units.

The second in the collection is a **barrier pillar layer**. This layer shows the barrier pillar number or name and judgment of the pillar's integrity. Several pillars are still intact and holding back water, but some are breached or partially breached either intentionally or have been weakened or completely robbed and removed over time. There are **36** separate barrier pillars identified so far and the layer is mostly complete for the Southern Anthracite Coal Field. Work on this layer for next quarter will include delineation of barrier pillars for the Western Middle Anthracite Coal Field.

The third in the collection is a **drainage tunnel layer**. This layer shows the drainage tunnel name, the recorded length, portal elevation, inside elevation, history of the tunnel where available, the mine it drains and reference information. Future development of this layer may include separating the features by type (ex. rock driven tunnel, borehole, shaft, airway...etc). There are **29** separate drains identified so far and the layer is mostly complete for the Southern Field. Work on this layer for next quarter will include delineation of drains for the Western Middle Anthracite Coal Field.

The final layer in the collection is a **mine water flow line layer**. This layer shows the direction of flowing mine water in mine pools. In the Southern Anthracite Coal Fields, most of these lines were taken from the "Ash Report" except for the extreme northern tip (Panther Valley Area). The Ash Report information references a general flow direction (usually toward the discharge), while the Panther Valley portion shows actual mine water flow paths as recorded based on mine pool hydrogeology. Judgment

was again made on the direction of flow in this layer based on discharge location (if it had moved after the most recent report) and status of the mines when the flow lines were drawn (ex. Were the mines being actively pumped?). Future development of this layer may divide the layer based on general flow direction and mine water flow paths as were derived with very different methodologies. There are **123** separate mine flow lines identified in the Southern Anthracite Coal Fields and it is about ½ complete. Work on this layer for next quarter will include delineation of mine water flow lines for the Southern and Western Middle Anthracite Coal Fields.

In summary, this collection is a representation of underground abandoned mine features and are to be used in conjunction with PA DEP BAMR's AMLIS Database which is a collection of abandoned mine surface features. It is generally difficult to picture these features under the ground, but thinking of them visually, as surface water features the layers are Watersheds & Lakes, Streams & Currents, Dams and Outlets, helps to identify with their locations, respectively.

A fifth **infiltration points layer** is in development and mainly is delineated only for the Northern and Eastern Middle Anthracite Coal Fields thus far taken from both field tours and Operation ScarLift reports. This layer identifies infiltration points where surface water enters a mine pool. Following a field tour of the Heckscherville Valley, Schuylkill County, with Paul Lohin, Schuylkill Headwaters Association and EPCAMR Board member, EPCAMR staff was able to add an additional **19** infiltration points to the layer. This layer records a name, estimated flow loss in gallons per minute (where available), the related AMLIS Problem Area, the type (ex. stream flow loss, surface water loss, stream blockage or reclaimed) and reference information. This layer is an attempt to connect surface water loss to AMD discharge gains, or losses as infiltration points are reclaimed.

Several datasets have been received by project partners. Southern and Western Middle Anthracite Coal Fields **borehole data** was received from PA DEP BAMR's Wilkes-Barre Office. The Western Middle Anthracite Coal Field information came with geographic reference (Latitude and Longitude) while the Southern Anthracite Coal Field data did not. Data gaps will be evaluated and EPCAMR's Researcher, Ian C. Palmer, who will hopefully be able to fill in the Southern Anthracite Coal Fields borehole location information. Recently EPCAMR received a link to information from the DRBC based on the pumping from the Wadesville Mine Pool, which will be examined for relevance to the project during the first quarter of FY08.

EPCAMR Staff have coordinated a partnership meeting presentation to be held on **November 20, 2007 at 1PM**, at the Pottsville District Mining Office, with both PA DEP DMO, PA DEP BAMR, Conservation Districts within the Project Area, USGS, SRBC, and OSM. The meeting will focus on the GIS Presentation of EPCAMR's Enhanced RAMLIS database collection efforts as a part of the grant and as an outreach meeting as well. It is EPCAMR's goal following the presentation of the information to see if there are any data gaps that exist and to see if the other partners will be able to follow up with other information that might prove useful to our data collection and mapping efforts. It is expected that following this meeting, Ian C. Palmer, our Researcher, will begin to aggressively dive into the SMP Permit files

The following **3** pages will provide you with the most accurate timeline of work progress to date by the EPCAMR Staff on the GIS Mine Pool Mapping Project for Eastern PA. As the Regional Coordinator for EPCAMR, I have documented in great detail the most relevant information related to the approved Scope of Work for the Project, Project Status, Proposed Activities, and Coming Events Suitable for Media Coverage.