

# Eastern PA Coalition for Abandoned Mine Reclamation- Mine Reclamation-Eastern PA Mine Pool Mapping Update Work Progress Report 4-PD060367

- On 1-21-09 EPCAMR Staff made a presentation to the full MRAB on our Mine Pool Mapping Project and sought additional support for our OSM Applied Science Grant submission from the MRAB, PAC, and CAC; All groups concurred and supported our efforts and were going to prepare letters of support for our grant submission, including the PA DEP
- Also on 1-21-09, a kick-off meeting among staff from DEP, SRBC, PPL and water consultant groups to discuss the use of mine pools and of cleaning up mine drainage as a source of make-up water was scheduled for Tuesday, February 3 at the Rachel Carson State Office Building, Harrisburg, PA, starting at 9:30am -12:00 on the 16th Floor of the Delaware Room; EPCAMR Executive Director had follow-up conversations with Ms. Tinku Khanwalkar-Sr. Director with PPL and informed them that Mike Hewitt would be attending on behalf of EPCAMR
- EPCAMR asked if PPL be providing us all with a map coverage area that encompasses most, if not all of the service areas in PA that they are in? Or are they specifically looking at locations of strategic PPL sub-stations, PPL Power Plants (ie, Salem Township, Luzerne County), or other areas? If PPL has a GIS coverage layer of their service area, EPCAMR might be able to do a quick preliminary overlay with our ArcGIS suite to come up with a preliminary regional coverage that will show some of the abandoned mines and the draft work on mine pool locations throughout the Northeast, at least. I believe that Gary has met with EPCAMR in the past on this issue at our Office and has seen some of the GIS that we've worked on related to AML and AMD within the Susquehanna River Basin and elsewhere.
- EPCAMR would like to have an opportunity to discuss some of the work that is currently ongoing in the Western Middle Anthracite and Southern Coalfields related to mine pools and possibly touch on a recently proposed OSM Applied Science Grant that would look into the Northern and NorthCentral Bituminous Coalfields that also drain to the Susquehanna Basin at some point, if possible; Rod has seen some of the work as recently as on Wednesday at the Mining & Reclamation Advisory Board Meeting, where Mike and I from EPCAMR had made a presentation update on our mine pool mapping work. Mike Korb is also well aware of some of the ongoing work on this issue; SRBC is a partner in this recent submission as well as the PA DEP Mineral Resources Management Division thanks to Scott Roberts; Possibly, some additional private support by PPL could enhance the recently submitted proposal.
- On 1-23-09, EPCAMR Staff attended a meeting at the Pottsville DMO to receive a status update on where all the partners were in the process of completing the remaining work on the Western Middle Anthracite Coal Fields Mine Maps and Water Quality data collection; Discussed the need to reallocate some funds for EPCAMR Staff Salary, more time for Roger, and the potential need for additional grant funds to complete the work

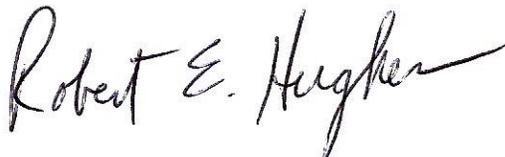
- On 1-27-09, EPCAMR Executive Director prepared a formal extension letter to submit to PA DEP GG to extend our grant contract through June 2011 and prepared some revisions to our application for reimbursement at Pat's request from the Pottsville DMO
- EPCAMR received a quarterly report from the USGS on their MOD-FLOW groundwater modeling efforts to date
- Reviewed Ian Palmer's, Dauphin CCD's, and Roger Hornberger's monthly progress reports for January thru March 2009 and processed several invoice requests on their behalf
- On 2-11-09, EPCAMR Executive Director spent hours reviewing the Wadesville Mine & Mining Operations Documents sent to EPCAMR by Dan Koury, Pottsville DMO; The elevation of the Wadesville Colliery (covers the whole land area and depth of the workings) ranges from 65.0 feet above mean sea level (AMSL) at the bottom of the mine to 821.2 feet AMSL at its highest point on the surface. The elevation of the water surface at the overflow to surface water through the concrete pipe at the St. Clair shaft is 732.0 feet AMSL.

The estimated water in the workings is 3.582 billion gallons.

The elevation of the Wadesville mine shaft ranges from 46 feet AMSL at the bottom to 782 feet AMSL at the surface. Note that the surface elevation at the shaft is below the highest point of the surface of the colliery, which slopes down from its highest point. The mine shaft bottom is 19 feet deeper than the mine, which is not unexpected. The distances down to the pump bottoms and the water levels are relative to 782 feet.

- On 3-30-09, EPCAMR Executive Director sought a date from the Pottsville DMO and Roger Hornberger in mid-April to go sampling in the Southern Coal Fields and to get some flow estimations
- On 3-31-09, EPCAMR Staff prepared a quarterly Progress Report and Program Reimbursement

Respectfully Submitted,



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 EPCAMR Executive Director  
 Luzerne Conservation District AML Program Manager

# EPCAMR



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March 31, 2009

## **Re: Quarterly Report for Mine Pool Mapping Grant (1<sup>st</sup> Quarter 2009)**

### **Mine Pool Mapping Update Work Progress Report (chronological)**

#### **January 2009:**

- EPCAMR staff attended and presented an update of the Mine Pool Mapping Initiative at the Mining and Reclamation Advisory Board (MRAB) meeting at the PA DEP Office in Harrisburg.
- EPCAMR staff met with the Mine Pool Mapping Initiative Project Partners and the PA DEP Pottsville DMO to discuss future strategies with dealing with existing data and data collection in the southern anthracite coal field.
- Calculated “in kind” time and travel costs for the Mine Pool Mapping project for the 3<sup>rd</sup> Quarter Report.
- EPCAMR staff prepared and submitted a grant application to the OSM Applied Science Grant to continue the Mine Pool Mapping Initiative in the Northern Anthracite and Northeastern Bituminous Coal Fields. Contacted professors from Mansfield and Lock Haven Universities to ask for their participation in the project. Researched equipment needed to take flow and chemistry measurements associated with the project. Also spoke to Mario Carrello and Mike Smith from the PA DEP Moshannon District Mining Office (DMO), to ask about the availability of maps for mines in the Northeastern Bituminous Coal Fields.
- Provided Operation ScarLift, Bureau of Mines, and U.S. Geologic Survey (USGS) Coal Investigation Series Maps to Blazosky Associates as requested by the Shamokin Creek Restoration Association (SCRA) and the Northumberland County Conservation District (NCCD). Their initial request was for all GIS data associated with the Mine Pool Mapping Initiative in the western middle anthracite coal field, however, this data is still in draft format and not ready for distribution. These maps were provided instead, as they are published sources of the draft GIS data. Once the data is finalized and peer reviewed it will be available for distribution.
- Began to georeference the 2<sup>nd</sup> Geological Survey for the southern anthracite coal fields. These maps show underground mine workings completed before 1890, faults, anticlines, tunnels and various elevations for use in the Mine Pool Mapping Project. Completed map georeferencing and began digitizing layers on 14 of the 28 maps. Cross sections of these maps are also available and may be useful in future development of 3D layers.

- Georeferenced and digitized mine pool boundaries shown on a map by Kimmel in 1990 provided by Jim Andrews, PA DEP Pottsville DMO. Features include the Williamstown-Lykens mine pool, flow directions within the pool and the Big Lick Tunnel.
- Met with Roger Hornberger and Jim Andrews, PA DEP Pottsville DMO, to rectify differences between 2 versions of GIS mine map colliery boundaries and began combining collieries into multi colliery hydrogeologic units.

### **February 2009:**

- Attended the Mine Pool Forum at the PA DEP Offices in the Rachel Carson State Office Building to talk about the potential for industry to be interested in mine pools as low flow augmentation make up water to meet Susquehanna River Basin Commission (SRBC) low flow withdrawal regulations.
- Created the web pages for the Mine Pool Mapping Project, [www.orangewaternet.org](http://www.orangewaternet.org). Updated the "Talking Timbers" section of the homepage to reflect the changes.
- Received mine maps for Tioga County from Mario Carrello, PA DEP Moshannon District Mining Office (DMO). These are all of the maps that are available from the National Mine Map Repository and may be helpful in delineating mining extent and possible mine pool extent for these mines.
- Updated elevations in the drainage tunnels layer from 2nd Geologic Survey and Surface Mine Permit maps from Jim Andrews, PA DEP Pottsville DMO.
- Sent mine pool extents, barrier pillars and tunnels information to Todd Wood, PA DEP Bureau of Abandoned Mine Reclamation (BAMR) Wilkes-Barre Office and partner in the Mine Pool Mapping Project.
- EPCAMR staff wrote a grant proposal to the Foundation for PA Watersheds to supplement and continue work on the Mine Pool Mapping project.
- Georeferenced 4 Surface Mine Permit maps for the PA DEP Pottsville DOM containing mine pool boundaries and adjusted mine pool layer to these extents. Also georeferenced 5 2nd Geologic Survey Maps containing old coal workings, tunnels, and faults for the Mine Pool Mapping Project. Found additional Bureau of Mines Reports pertaining to the Anthracite Coal Region from the University of Hawaii at Manoa's TRAIL Website.

### **March 2009:**

- Received word from Skip Pack about the EarthVision workflow scripts that he had been developing to create 3D fault block models and horizons from maps with cross sections. He produced scatter data of the combined files from files that I had georeferenced and vectorized from the I 689 B, C & D faults and horizons of the Buck Mountain and Bottom Split Mammoth coal veins.
- Created a 3D grid of the horizon files and learned how to use the work flow manager to make the fault block model in EarthVision. In addition to renaming some of the column names in the scatter data, a new attribute needed to be added to correlate faults between the sections called 'featureid'. Care was taken to name the faults properly from the original raster map. The model looks perfect except for an anomaly shows up between sections C & D which pushes the edge

of the vein under the mountain, which is incorrect. The pottchunk fault also breaks in the same place where it should be continuous. Enlisted Mike Dunn and EarthVision tech support in searching for a fix.

- Lined up OSM Folio N-6I-00 (Old Forge Area) to help line up Bureau of Mines mine pool maps for the Wyoming and Lackawanna Basins in the northern anthracite field.
- Received EarthVision workflow scripts from Skip Pack and tried them out. Digitized faults and Buck Mountain and Bottom Split Mammoth vein horizons from the additional cross sections A, E, F & G from the I 689 map and ran them through the scripts. Associated fault names to 'featureid' and created a fault block model of the entire map area. The anomaly between C & D is corrected, but the pottchunk fault still breaks in that area. Another anomaly appears between sections F & G probably because very complex over 90 degree thrust geology which dives below what is drawn on the cross section (missing data points). The cross section stops at - 1000 feet below mean sea level. This should not be a problem when calculating void space and mine pool volumes. Only the upper portions of the mines will be taken into consideration. It is physically impossible to mine coal at those levels and the pools will not be connected unless there is a rock tunnel or another vein connecting one side to the other.
- Worked on Chapter 4 – Methods for the Mine Pool Mapping Report.
- Prepared 1/1/2009 – 3/31/2009 report for inclusion in the quarterly report.