Eastern PA Coalition for Abandoned Mine Reclamation

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October 2022 Progress Report

Highlights:

- EPCAMR staff scanned, georeferenced, mosaicked & digitized mine maps for the **PA DEP** MSI MMG program. QA/QC checked work.
- EPCAMR staff participated in a weekly **PA AML Campaign** call, filming for Brookie Saves a Stream EE video & provided case study to **Solinst** regarding transducer use at **Mocanaqua.**
- Sampled AMD Treatment System on **Nanticoke Cr.** & collecting/processing transducer data for **EC**; sampled 3 AMD TS on **Loyalsock Cr.** & completed report for **LCWA & Sullivan CD.**
- Updated www.treatminewater.com and www.epcamr.org; administered G Suite for Nonprofits and social media sites; maintained GobbaDaPile in-house domain server

Education, Outreach and Admin.:

- EPCAMR staff participated in filming Day 3 Brookie Saves a Stream at Office. Aided in the background and picked up food for staff and film crew over the 2 days when I wasn't being filmed. [ISI]
- EPCAMR Management staff participated in a PA AMR Conference Committee Call. Followed up with Ramada to make sure October 24-26 is available. Committee added a tour on Tuesday the 24th. This will be the 25th anniversary of the PA AMR Conference.
- EPCAMR Management staff participated in weekly PA AML Campaign Calls to keep informed about important legislation being considered by congress and updates on how the infrastructure money will be managed by the Office of Surface Mining Reclamation and Enforcement (OSMRE) and PA DEP Bureau of Abandoned Mine Reclamation (BAMR).
- Reviewed a USGS SIR 2018–5150 report by Hittle titled "Estimating Base Flow on Ungauged Periodically Measured Small Streams in Western PA." The study introduced the MOVE.1 method to more accurately predict stream flows where there was missing continuous flow data. This could be helpful when working with Nanticoke Creek Flow data.
- Responded to Kathy Lin, Wyoming Seminary student who made a poster we presented at the last board meeting regarding AMD streams and community economic factors. Her statistical research for Luzerne County showed that communities along impaired waterways did have a lower Median Income ($48K), a higher Poverty Rate (18%) and slightly lower Employment Rate (57%), and a lower rate of Bachelor's Degrees (19%) than unimpaired watersheds. She asked if I could suggest some research that she could do to expand on the concepts. I suggested she could show property values in relation to AMD impaired streams as was done in the West Branch or use our PA AML Site Dashboard to help determine statistically significant AML cleanup projects left to do in socially vulnerable communities. Found and forwarded the West Branch report.
- Started Program Manager's report for August.
- Reported Reclaimed Abandoned Mine Land Inventory System (RAMLIS) version to PA DEP 319 Program Watershed Support Section as they were in the process of collecting information for the 2022 Non-Point Source Management Annual Report.

- Completed and sent the Loyalsock Creek 2021-2022 sampling report to EPCAMR staff for comment. [LCWA]
- Review of Digitizing Methods for the Mine Mapping Grant with Denise Hernandez as she will begin to help digitizing coal elevation points, underground mine entry points and underground mined areas from completed mine map mosaics. [MSI]
- Sent Loyalsock Report to White Ash Land Association (WALA), Sullivan Conservation District (SCD), and the Loyalsock Creek Watershed Association (LCWA). Prepared 2 proposals as recommended in the report: one to continue sampling the treatment systems and another to scout potential pollution sources in the headwaters above our Loyalsock Downstream site. [LCWA]
- After no reply to my repeated requests over email, text and attempted calls for work products for last month, I caught up with Steve and Shawnese when they came into the office to find that they had no work products to show for the month because they were working on other projects. This does not mean that they did not work on the Mine Mapping Grant. They worked on mosaics but none to the point of completion. They also did not georeference any maps. I explained to them that it's frustrating as a manger when this happens and especially when I am trying to make a reimbursement. No response for weeks is not acceptable.
- Correspondence with Jayne Klenner professor at Kings College on GIS day coming up in November. I will make a presentation showing a practical use of GIS. This time I focused on the work I was doing in Nanticoke Creek showing voids under the creek bed. Began creating a PowerPoint.
- Spoke with Solinst customer support representative regarding a free cable. They requested we fill out a questionnaire for their company publication. Okayed the request with Robert and decided to fill it out for the Mocanaqua Tunnel project.
- Spoke with John Levitsky regarding chemistry of Old Forge Borehole and Duryea Breech related to a dredging project near confluence of Lackawnna and Susquehanna Rivers. He wanted to confirm that there wasn't anything "ugly" to deal with such as PCBs or other harmful compounds. I explained that the data I had was really only related to AMD and recently nutrients. Some older USGS reports contained data that dealt with more heavy metals/other compounds and I had already transcribed those results into our EPCAMR sampling database in Google Sheets. I sent a link to that data.
- Completed Solinst case study on Mocanaqua Tunnel transducers.

Technical Assistance:

- Worked on Nanticoke Creek Transducer data. Followed up with Solinst Technical Support to ask if they could send a cable to allow probes to communicate with my computer since I can't program them with my Samsung Galaxy phone. They were looking into the request. They wanted us to send back the Espy Up probe to find out why it changed its serial number when connected to my Samsung Galaxy, but I explained that it is currently logging data. That site is going to be reconstructed soon, and we could potentially send it then (or they can send a temporary replacement). Updated the Solinst Levelogger software on my computer. [NANCR]
- Transferred data from all 5 transducers from my phone to my computer via email. Opened with Levelogger software and equalized with barometer. Ran 5 scenarios for regression equation for the Askam transducer. Used Linear equation and removed the top 3 maximum flows sampled which brought the minimum flows up to -2000 range and still fit the monthly sampled data. The regression line equation is only an estimate, but hints that the boreholes may have not been flowing at times from mid-July to early September between monthly sampling events. Ordered data from Weather Data from the National Oceanic and Atmospheric Administration (NOAA) to compare hydrographs to precipitation events. [NANCR]
- Downloaded hourly precipitation data to show a lag time of 1-2 hours from storm events to peak discharges out of the Askam Borehole. Discussion with John Levitsky about looking at coal vein outcrops along the Nanticoke Creek from headwaters to mouth and then looking at the mine maps to determine if those voids could cause stream loss or a discharge. Potential to inform a stream sealing project with places to keep the stream above "stop lines" when practical to save money on lining/grouting costs. [NANCR]

- Sampled Loyalsock Upstream, Downstream, & in/out of 3 treatment systems (Connell B Vein, Connell C Vein and Gutten Drift). Recorded data in a database for reporting to the Sullivan Conservation District (SCD) & Loyalsock Creek Watershed Association. Odd pH after 2-inch storm event the day prior. Steve calibrated YSI Probe to find out it was reading .35 SU high (odd, because values seemed low). [LCWA]
- Created regression line and equation for Nanticoke Headwaters and Espy at Espy Street transducer data. Started to process Espy Headwaters data, but needed to use weir measurements and probe offset from the bottom. Asked for these measurements from Jason Tarnowski at the Earth Conservancy (EC). Tried to download data from our Swoffer Flow meter, but it would not work. Called Swoffer instruments who sent a replacement USB connector.
- Sent Lo Ross, Up Ross, Baltimore and Top Baltimore mosaics from the Wilkes-Barre West Quad to Frank for digitizing. [MSI]
- Received weir and offset measurements from Jason and calculated a flow hydrograph for Espy Headwaters transducer data. Completed a regression line for Espy at Espy Street data. Took snapshot of charts and comparison of 4 different precipitation events and sent to EC. According to calculations, Espy loses 84-95% of flow from upstream to down. This should be 100% because Espy Headwaters does not actually flow down thru Bliss site. As per aerial photos, it looks to be trapped in a strip pit that outlets to Leuder's Creek. This Espy Run downstream site at Espy Street Bridge could only be measuring road runoff and the potential mine drainage coming from under the Luzerne County Community College (LCCC) parking lot. Regardless, this will be good background data for the time when Espy Headwaters is routed through new stream channel on Bliss site. [NANCR]
- Reviewed Tetra Tech documents and tables related to Askam Treatment System Redesign report. In the report it mentioned that if flow losses in Nanticoke Creek and Espy Run were remedied that would substantially reduce flows needed to be treated at the Askam System. Calculated average, max and minimum flow losses from the transducer data and sent to EC. Reducing surface water inputs in the Nanticoke Watershed would likely reduce the flashiness of the discharge (reduce max flows after precipitation events), but as with many discharges in the Anthracite Region the makeup of the flow is majority groundwater and in particular this discharge receives overflow water from the South Wilkes-Barre Boreholes discharge. One would also have to seal streams in the Solomon Creek and Warrior Run watersheds to achieve additional flow reductions at the Askam Borehole discharge. [NANCR]
- Met with Frank to touch base on digitizing for the Mine Mapping Grant. Added 16GB of RAM to his computer totaling 32GB as recommended by ESRI for ArcGIS 3.0. Cleaned up office and storage area in an attempt to find a stand for the 42 inch TV in the office. Frank would like to borrow it to aide in his MSI digitizing work. We rarely use it in the office. Ordered a universal stand from Amazon instead.
- Discovered the X drive was hit with the checkmate ransomware. Last time we were hit in 2020 was with Mars ransomware it was because a HTTPS port was open on the router and connected to the NAS drive. Checked that setting on the NAS and sure enough it was enabled. I know I disabled it back in 11/2020, but I also have a note that in the process I reset the password and could never get back into the router. I disabled this setting on the NAS again and turned off another HTTPS setting that was enabled. Decided to try to reset the router because password recovery is not an option. Researched the process and found that pressing the factory reset button on the back reset the firmware on the router to 2017 build. Looked to upgrading the firmware. Researched the process. Downloaded several versions from 04/2020 to 11/2020 to 10/2022, but none seemed to work. Tried several versions on Saturday as well. Setup router the best I can remember for time being and contacted Scott Cimakosky our previous intern that helped with the initial setup of the router. The hackers wanted $1000 this time to unlock the files. We did not pay the ransom because the drive was mainly being used as a backup of data that was stored on our external drives. Minimal data was actually lost.
- Sampled Askam Boreholes, Treatment System, upstream and downstream on Nanticoke Creek, and 2 flow sites. Recorded data into sampling spreadsheet and delivered to Earth Conservancy. Pulled the transducer in the Truesdale Borehole to measure the length of the

cable and download the transducer data on my Samsung Galaxy smartphone. To my surprise, it worked! Not only could I download the data, but I could stop, edit, start. Maybe something I provided to technical support helped Solinst fix the app. [EC]

- Tried again to download Swoffer Flow meter data to my computer, but it still would not work. Tried the same on the intern computer and that worked. The issue is definitely something with my computer USB to COM port driver settings. Halloween was a lucky day for technology.

[ ] - Denotes funding source where applicable.