# Penn Hills #2 Passive Treatment System
## SRI O&M TAG Project #35 Request #1
## OSM PTS ID: PA-132

Requesting Organization: Blacklick Creek Watershed Association
Receiving Stream: Two Lick Reservoir
Watershed: Blacklick Creek
Municipality/County: Center Twp., Indiana Co.
Latitude/Longitude: 40°38’15"N/ 79°2'16" W

The Penn Hills #2 passive treatment system was constructed in 2002 to treat an abandoned underground mine discharge in Center Township, Indiana County, PA. The Penn Hills #2 mine discharge is split between three Vertical Flow Reactors (VFRs) or Vertical Flow Ponds (VFPs). Often in the past, the three VFRs were named by the Blacklick Creek Watershed Association (BCWA) as if they were separate treatment systems and were called Penn Hills A, B, and C systems or Penn Hills 1, 2A, and 2B systems. There are two separate final effluent point locations which discharge into the Two Lick Creek reservoir.

In November 2013, Cliff Denholm met with Dennis Remy of the BCWA to conduct a site investigation of the system as part of the Kiski-Conemaugh Basin Treatment System O&M Assessment Project. At that time, the system was working well, but several minor issues were identified. One issue of concern was a small seep of unknown water quality that was filling a small pond-like structure and over-flowing across the access road. There was some evidence that a pipe existed within the pond, which may have been plugged or partially removed.

In January of 2015, the StreamTeam and BCWA contacted SRI to receive assistance through the O&M TAG program. In addition to the clogged pipe in the unknown pond structure, another untreated AMD discharge was flowing over and eroding the access road. A site visit was performed on 6/24/15. In July 2015, BioMost Inc. (BMI) mobilized to the site to perform maintenance. During the site inspection, iron accumulation within the raw water distribution box was found to be causing the flow to be unevenly distributed to the various components of the treatment system. Iron was removed from the flow splitter box to allow for a more balanced amount of flow to the three VFRs. A culvert was installed to convey the AMD beneath the road and the road was repaired. Gravel was obtained and spread to improve the segments of the road which were washed away by the raw water. A small pile of stone was left near the culvert pipe which can be used for future road improvements. An attempt was made to pump down the unknown pond structure, but there was too much water, so work had to be postponed until a later in the year during a lower flow period.

In December 2015, BMI returned to the site to address the remaining issue of flow from the unknown pond structure. While pumping the pond down to lower the water elevation of the pond to install a culvert pipe, an existing 4” and 12” pipe were discovered within the pond, but both were capped for an unknown reason. The 4” pipe was uncapped which allowed the water to flow into to the B&C settling pond near the outlet of the system. The 12” pipe is also presumed to flow to the settling pond; however, this was not confirmed while on site. Once the water level was lowered, a culvert pipe was

installed at the outlet of the pond to eliminate flow across the access road if the other pipes would become plugged. As part of the project, an updated schematic (See attached) was created to identify various important features that were not on the previous existing schematic. This information will be useful for future maintenance events. Post maintenance water monitoring indicates that the system is still performing well.

Stream Restoration Inc. and BioMost, Inc. would like to thank the Blacklick Creek Watershed Association for their volunteer time and support in maintaining the Penn Hills passive treatment system. Funding for technical assistance and maintenance was provided by the PA DEP's Growing Greener grant programs and in-kind services by project partners.

**Additional Recommendations & Considerations:**

- Continue to conduct site visits and water quality testing on at least a quarterly basis. Include field parameters of pH and flow at a minimum. Alkalinity is also recommended.
- Inspect pond outlet periodically to check for hydraulic issues.
- Monitor flow from B/C flow balancing pond to VFRB and VFRC to ensure proper treatment and adjust valves at the inlet of each VFR as needed.
- Inspect splitter box and clean as needed to ensure balanced flow to VFRA and VFR B/C flow balancing pond.

Dennis Remy of BCWA, and Dan Guy and Ryan Mahony of BioMost, Inc helped to remove the blockage at the splitter box and balance flow to the system (Left). Tim Danehy and Dan Guy of BioMost, Inc checked water quality while inspecting the site to ensure system components were performing properly (Right).



An untreated mine discharge was flowing across and eroding (Top Left) the long access road to the Penn Hills system. A culvert pipe was installed (Top Center) and stone was placed to repair the road where it had eroded (Top Right). An unknown pond structure which received AMD was overflowing and impacting the access road around the system (Bottom Left Right). Water was pumped from the pond. Once the water level of the pond near the treatment system was lowered, existing 12" and 4" outlet pipes could be accessed (Bottom Center) which were found to be capped. The pipes were uncapped to allow the water to flow. The outlet for the 4" pipe is located below a pile of rocks (Bottom Right). A culvert was also installed in case those pipes would become plugged in the future.