

Lucerne 3A Treatment System
SRI O&M TAG Project #33 Request #1
OSM PTS ID: PA-139

Requesting Organization: Indiana County Conservation District
Receiving Stream: Two Lick Creek
Watershed: Blacklick Creek
Municipality/County: White Twp., Indiana Co.
Latitude/Longitude: 40° 35' 53.6676" N / 79° 7' 20.6976" W

The Lucerne 3A chemical treatment system was installed to treat a mine discharge from the Rochester & Pittsburgh (R&P) Coal & Iron Company Lucerne 3A underground coal mine which operated from 1907 until 1967. The system was constructed in 2008 within the 10-acre Indiana County Waterworks Conservation Area park in White Township, Indiana County. The Indiana County Conservation District (ICCD) currently maintains the system. Treatment consists of a water-powered "Swedish-Bucket" 75-ton silo lime doser, which systematically dumps hydrated lime into the discharge. The water then flows into a long, narrow, settling pond/wetland for metal removal.

On November 25, 2014, a site visit was conducted with Adam Cotchen and Brooke Esarey of the Indiana County Conservation District as part of the Foundation for Pennsylvania Watersheds GenOn settlement funded Kiski-Conemaugh Basin O&M Assessment project. During the site investigation, the 4" valve controlling water flow to the lime doser was found to be broken and no lime was being utilized to treat the discharge. On December 10, 2014, BioMost returned to the site to replace the valve with a 2" valve and restored treatment.

Additional Recommendations & Considerations

The effectiveness of the Lucerne 3A treatment system is variable especially in terms of the neutralization of acidity. Typically, high concentrations of metal solids are being discharged to Two Lick Creek. This is largely due to the relatively small settling pond area. Ideally, the treatment system should be expanded. One option would be to utilize the 2-acre constructed mitigation wetland at the park. This may not be popular with the county and there could be regulatory issues that would prevent its use. It may also be possible to expand the system to the east and south, which could significantly increase the amount of surface area for settling. It is uncertain at this time where the property lines are located or what permitting issues may be encountered. Even if the system cannot be expanded, adding windowed baffle curtains to the settling pond may be useful for settling additional solids. It may also be possible to install additional mixing, such as a Mixwell (patent pending), to improve lime utilization and improve treatment. It also might be possible to tap into the mine pool and treat the water at another location, but the feasibility of that option is currently unknown. There also might be a need to adjust the feed rate as the effluent is often net-acidic. The O&M TAG program could be utilized to further explore this issue if desired.



Top Left: The Lucerne 3A treatment system utilizes a “Sweedish Bucket” lime doser.
Top Right: A broken 4” valve needed to be replaced within the silo.
Center: The 4” valve was replaced with a 2” valve.
Bottom Left: The settling pond/wetland does not provide enough area for treatment. It may be possible to use the mitigation wetland to the west or additional land to the east and south to expand the treatment system.