

# Treating Mine Drainage in the Middle of a City Where Space is Limited<sup>1</sup>

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**Abstract:** For the last decade, various groups have been trying to come up with a solution for remediating acid mine drainage (AMD) from Bethlehem Mine #72 which discharges from a mine shaft into the Stony Creek River near its confluence with the Little Conemaugh River in Johnstown, PA. The AMD discharges near the center of the city in close proximity to the Inclined Plane and immediately across the river from Point Stadium in downtown Johnstown, PA. The AMD degrades water quality in the Stony creek River (and downstream in the Conemaugh River) but also causes local odor and aesthetical impacts that affect the socioeconomic quality of the downtown area. Since 2008, various solutions for dealing with the AMD have been considered, including: 1) collecting the discharge and piping it 600 yards downstream away from the city center, 2) collecting the discharge and piping it 3 miles downstream, 3) Collecting the discharge and piping it 300 yards into an existing sewer network to be treated at a local wastewater treatment plant, 4) and lowering the mine pool elevation by constructing a pumping station and treating with hydrated lime. While many solutions have been considered, none of them have been realized. Saint Francis University, Tetrattech, and the Headwaters Charitable Trust recently received a Growing Greener Grant from the PA DEP to develop a 20% design for treating the AMD. The team is currently characterizing the flowrate and water chemistry from the discharge, performing experiments for proof of treatment design concepts, collaborating with local industries to consider feasibility of treating the AMD in local industrial treatment processes, and reviewing mine and property maps to propose areas where the mine pool could be lowered by pumping and treating. Findings from previous engineering studies in addition to findings and preliminary designs from ongoing work will be discussed along with challenges with treating the Bethlehem Mine #72 discharge located near a city center.

**Additional Key Words:** Mine water treatment.

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