

SX10-D2/SX0-D17 Phase 2 AMD Remediation Construction Project Summary

Treatment of the SX10-D2 discharge is vital to meeting the requirements of the Six Mile Run TMDL since it contributes 33% of the acidity loading and 41% of the aluminum loading to the stream. The treatment system constructed for the combined discharges as part of Section 319 Project # achieved substantial reductions in acidity (45%), iron (20%) and aluminum (33%) loading. However, the reductions made did not meet the original goals of that project resulting in the need for further work to be done. The SX0-D 17 discharge was not identified in the original or updated Remediation Plan and was only observable as iron staining in the stream after upstream AMD treatment systems were constructed cleaning the stream. SX0-D 17 is an alkaline iron discharge which appears in and along Six Mile Run and was part of the 28 lbs per day of iron load that did not result from the identified discharges in the Plan. The original construction included an interception trench which collected some, but not all, of the SX0-D17 discharge for treatment. Because the flow from these two discharges could be collected together and the alkalinity of SX0-D17 could help in the treatment of SX10-D2 the design used a single treatment system for both of them.

The completed redesign for the treatment system reversed the direction of flow in the existing settling pond #1, added an additional flushable limestone bed (FLB) and two new settling ponds to the treatment system. However, because of the topography and adjacent waterways it was not possible to build a treatment system as large as would normally be recommended for the AMD from these two discharges.

After final permitting was completed by Skelly and Loy, engineers for the project, a contingency plan was developed and provided to DEP so that construction could begin. After installation of E&S controls and clearing and grubbing the two new settling ponds #2 and #3 with baffles were built. Then settling pond #1 was drained and the existing wall and baffles were removed. A wall was built toward the west end of settling pond #1 and under drain piping controlled by a solar powered automatic flushing in-line structure was installed. Then approximately 900 tons of limestone was placed in this new flushable limestone bed. The installation of the reconfigured baffles in settling pond #1 followed which will force the SX0-D 17 discharge to flow the entire length of the pond which will increase the settling of iron there. The final outflow from Settling pond #3 is through a diffusing basin into Six Mile Run.

Because of the forced down sizing of the treatment system due to the physical constraints of the site and an 18.6% measured increase in the two discharges average flow the system is still not meeting the original Phase 1 project percentage removal goals of 80% of the new inflow load. The measured reductions in load are 73% for acidity, 54% for iron, 67% for aluminum and 8% for manganese. However, it is also clear that the current Phase 2 project has significantly improved the system's ability to remove the AMD pollutants especially acidity. The actual annual acidity removal of 61.7 tons exceeded the goal of 59.5 tons. The actual annual iron removal of 3.6 tons was 88% of the goal of 4.1 tons. The actual annual aluminum removal of 3.6 tons was 43% of the goal of 8.4 tons. The actual annual manganese removal of 0.1 tons was 33% of the goal of 0.3 tons. Because there is still more work to do to fully treat these discharges the Township is working with DEP's Bureau of Abandoned Mine Reclamation to further improve this system.

The Phase 2 construction of the passive AMD treatment system for these discharges was finally completed in 2023 using funding from the PA DEP Section 319 program with the total cost being just within the budget. All of the deliverables for this project have been completed. This project produced significant load reductions in the AMD pollutants flowing from these three discharges into Six Mile Run as required by the TMDL Report for Six Mile Run and has improved the aquatic ecosystems within the stream for another half mile.

