

SX0-D11, SX0-D12, SX0-D13 Project Summary

SX0-D11, SX0-D12 and SX0-D13 discharge treatment is vital for meeting the requirements of the Six Mile Run TMDL. The original 2001 Six Mile, Sandy and Longs Run Watersheds AMD Assessment and Remediation Plan showed SX0-D 11 and SX0-D 12 contributed 7% of the acidity loading, 18% of the iron loading and 4% of the aluminum loading to Six Mile Run.

Since Broad Top Township has constructed AMD treatment systems in Six Mile Run working from upstream down this project deals with the last remaining priority discharges in Six Mile Run before its confluence with the Raystown branch of the Juniata River. Because the flow from these three discharges could be collected together the design used a single treatment system for all of them.

Since the three discharges are located adjacent to a Township road and Six Mile Run itself there was no space to treat them near their sources. Therefore, the design called for collecting each of them in pipes and then piping the combined flow over a Township bridge and downstream approximately 2,300 feet to a location that had room for construction of a passive treatment system. The discharges are grouped along approximately 500 ft on the upper side of Kay Farm Road. After final permitting was completed, a contingency plan was developed and provided to DEP so that construction could begin. After installation of E&S controls first the treatment system was built, then the pipe upstream to the discharges was laid crossing Six Mile Run on the Township's existing bridge for Kay Farm Road and finally each of the discharges was collected into a pipe with an emergency bypass and then the pipes were joined together before crossing Six Mile Run. The system itself consists of a narrow flushable limestone bed (FLB) containing approximately 1,300 tons of limestone. Two sets of perforated pipes at the base of the limestone controlled by solar powered automatic inline structures are used for flushing the limestone bed and controlling normal flow. A settling pond with two baffles in it to slow the flow and encourage settling follows the FLB. The final outflow is controlled by an inline structure and then flows through a diffusing basin into Six Mile Run.

The original project goal was for a 80% reduction of the AMD pollutants. In actuality, Skelly and Loy's Final Technical Report shows reductions of 99.8% for iron, 99% for aluminum, 75% for manganese and 113% for acidity, this means that there is a net alkaline discharge from the treatment system during normal flows. During 2024 the Township in cooperation with the DEP Bureau of Abandoned Mine Reclamation conducted water testing in Six Mile Run both above and below the treatment system. The results showed almost no degradation of water quality between the two sites with acidity and iron slightly decreased, aluminum remaining constant and manganese increasing slightly downstream. To check to see that the treatment system continues to operate well further testing was completed on June 23, 2025 during an unusually wet season. Although the recorded flow was more than 50% higher than the design flow at 40gpm the system was still able to decrease the discharge from the combined discharges acidity from 228mg/L to 6mg/L, the iron from 13.4mg/l to 0.47mg/L, the aluminum from 14.lmg.L to 1.4mg/L and the manganese from 4.3mg.L to 2.lmg/L.

Construction of the passive AMD treatment system for the SX0-D11,D12,D13 discharges was finally completed in 2023 using funding from the PA DEP Section 319 program with the total cost of the treatment system being \$288,000. Subsequently \$11,000 was spent for the stockpiled limestone. In, addition the Township spent matching funds totaling \$6,692 for this project giving a grand total of \$305,692 which was just within the budget. All of the deliverables for this project have been completed. This project met and exceeded the original goals for 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 one quarter mile.

