Raccoon Creek Watershed - Carbondale II Doser

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Project Status: Complete: 2004 ODNR Project Number: AT-WI-05

Pre-construction

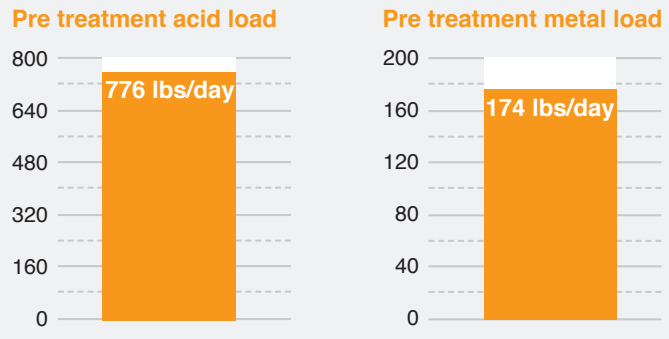
Carbondale East Seep, Photo by Brett Laverty

Post-construction

Carbondale II Project Doser, Photo by JT Kneen

Carbondale II Wetland is located in Section 30 of Waterloo Township in Athens County and lies within the 12-digit HUC unit #050901010301. The site is seven acres and located in the subwatershed Hewett Fork of Raccoon Creek Watershed. The majority of AMD in Hewett Fork originates from abandoned underground coal mines near Carbondale. ODNR-DMRM installed a passive wetland treatment system to reduce the acid and metal load from two mine portals in this area in the mid 1990's. This wetland was effective at reducing metal and acid loads but was not efficient enough to produce improvements in Hewett Fork. The Carbondale Doser was implemented as Phase II at the site to remediate the entire acid load from the mine discharge in 2004. The design was completed by ATC Associates for $48,023. The treatment approach for this site was to install an Aqua-fix lime-dosing unit. The major considerations in this design were the metal precipitates discharge into Hewett Fork because of the limited space for storage ponds on site. The goal of the design was to reduce 100 percent of the acid load discharging from the Carbondale mine seeps. One problem encountered at this site was the dosing material performance. Initially lime kiln dust was used, but the material bridges in the dosing unit. The material was switched to calcium oxide, a more expensive material but one with greater neutralizing potential. Therefore the doser now has the ability to over-treat and neutralize acid mine drainage from downstream sources. Construction was complete April 1, 2004, by Law General Contracting for a cost of $389,637. The major responsibility of the construction company was to remove existing metal retention wetlands and install the doser and a concrete mixing channel. The funding source for the project design was ODNR-DMRM, and for construction the sources were ODNR-DMRM, OEPA, and OSM-ACSI. Pre-treatment acid and metal loadings at site HF131 are shown in figure1.

Site: HF131



Data derived using the Mean Annual Load Method (Stoertz, 2004).

Figure 1. Estimated acid and metal loadings prior to treatment