

Project Status: Complete 6/1/2005

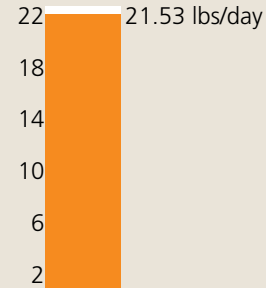
ODNR Project Number:

Pre-construction

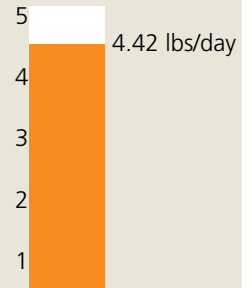


Unreclaimed gob pile
Photo by Raccoon Creek Watershed Partnership

Pre acid load condition



Pre metal load condition



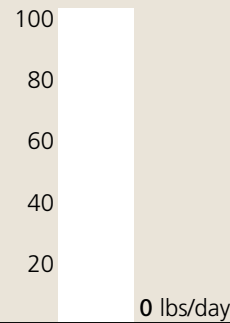
Data derived using the Mean Annual Load Method (Stoertz, 2004).

Post-construction

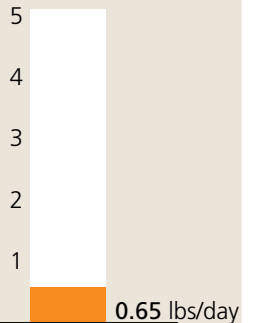


Regraded and resoled gob pile
Photo by Ben McCament

Post acid load condition



Post metal load condition



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

Hope Clay is located in Section 23 of Brown Township in Vinton County and lies within the 14-digit HUC unit #05090101020060. The project discharge was measured at the Hope Clay Project tributary. The design was completed by ODNR-DMRM for \$5,000. The treatment approach for this site was to install an open limestone channel (OLC) and to conduct basic reclamation. The major consideration for this site was erosion control. The goal of the design was 100 percent acidity reduction and erosion control. The project goal was met by 100 percent.

The construction was complete June 1, 2005, by Hocking College Environmental Program for a cost of \$67,000. The major responsibility of the Hocking College Environmental Program was to conduct site reclamation. The funding sources for this project were ODNR-DMRM and OSM ACSI for construction. Approximately 21.53 lbs/day of acid and 3.77 lbs/day of metals were prevented from entering into Raccoon Creek as a result of this AMD reclamation project.

Water quality report

Water quality data was collected at the project discharge as well as multiple stations pre- and post-construction. The graphs below show changes in pH (Figure 1) and acidity (Figure 2) along the mainstem of the receiving stream upstream and downstream of the project discharge as a result of the AMD reclamation project.

Figure 1. Pre and Post pH

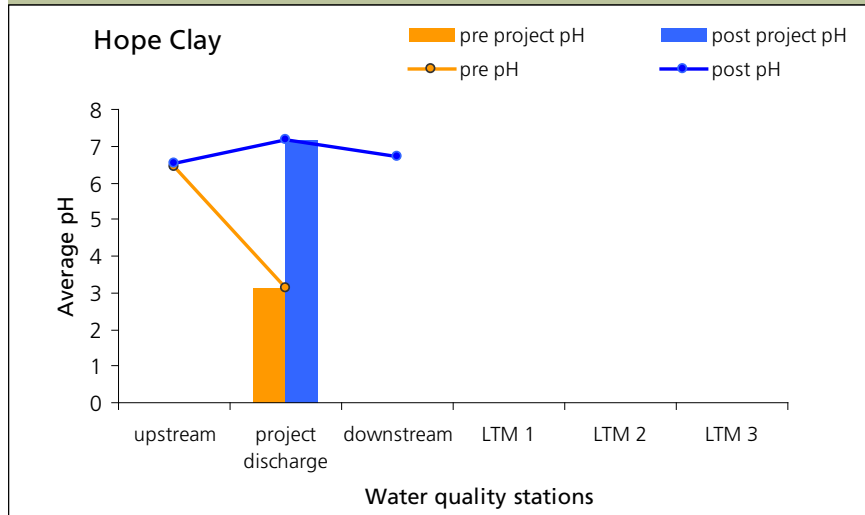
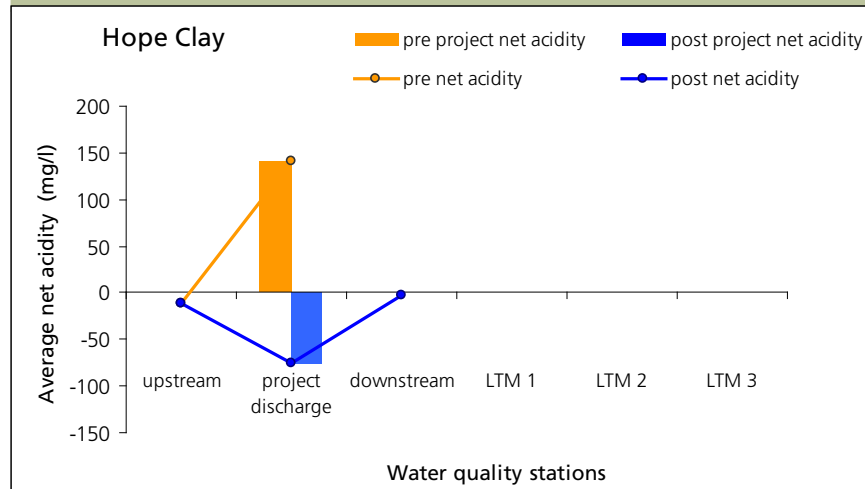


Figure 2. Pre and Post Acidity



As a result of the Hope Clay Project, pH and net acidity have improved downstream of the reclamation site for less than one mile. Pre-construction data showed pH at 3.3 at the project discharge. However, after installation of the Hope Clay Project, post-construction data shows pH in the range of 6.7 – 7.1 at the discharge and downstream. The net acidity concentrations decreased 100 percent at the project discharge showing net alkaline conditions downstream to station MSBM004.

Water Quality – load reductions

Using the Mean Annual Load Method (Stoertz, 2004), acid and metal load reduction occurring at this project were plotted and shown in Figure 3 and 4. Acidity, iron, aluminum and discharge were measured pre- and post-construction at the project discharge from 1/1/1990 to 5/31/2005 for pre-construction and from 6/1/2005 to 12/31/2006 for post-construction.

Figure 3. Acid Load Reduction

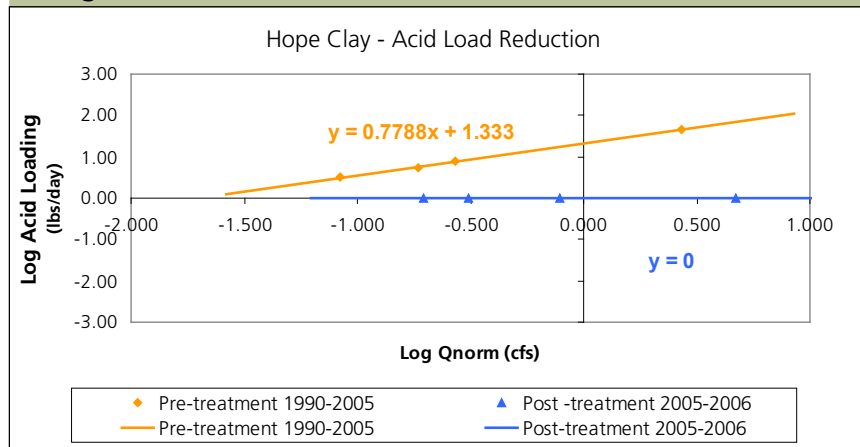
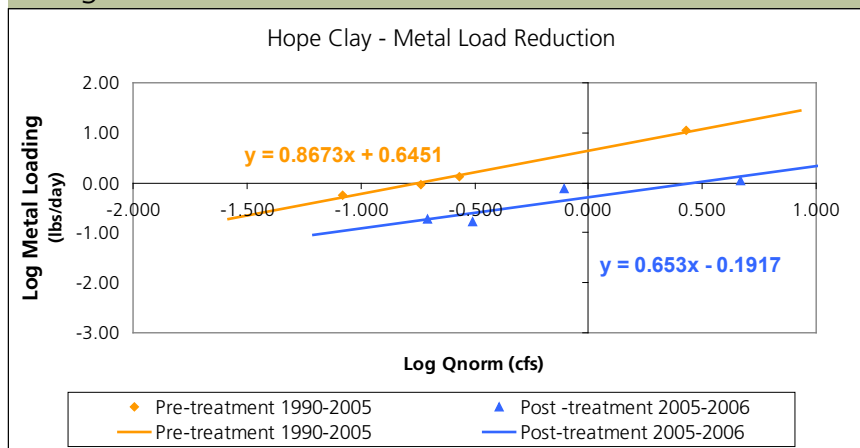


Figure 4. Metal Load Reduction



Stoertz, Mary W. and Douglas H. Green, 2004. Mean Annual Acidity Load: A Performance Measure to Evaluate Acid Mine Drainage Remediation. Ohio Department of Natural Resources Conservation and Restoration Innovations 2004 Applied Research Conference at Ohio University.