

# Huff Run Watershed - Linden Bioremediation Project

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Project Status: Complete 2003 Project Number: CR-RS-04

## Pre-construction



Farr AMD discharge pre-construction, Photo by Huff Run Watershed

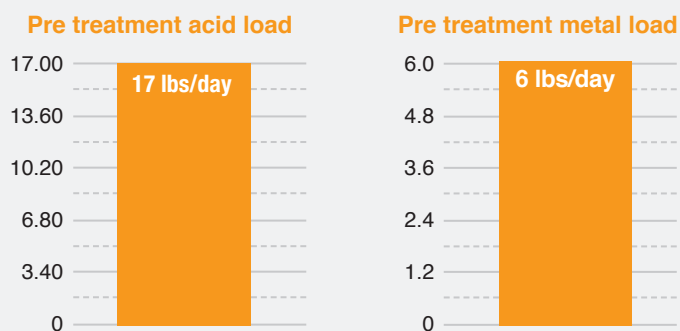
## Post-construction



Huff Run Awareness Day 2003, Photo by Huff Run Watershed

Linden Bioremediation Project is located in Rose Township in Carroll County. The Linden project discharges into Huff Run near river mile 4.6. The Linden project consists of treating a deep mine discharge by directing the water sequentially through a flow control system with a wetland to reduce metal concentrations and provides microbial nutrients. This water then flows through an inoculated Pyrolusite limestone treatment bed, discharge structures, and diversion ditches, before being discharged to the receiving stream. The design was completed by Office of Surface Mining (OSM) engineers at no cost. The treatment consisted of installing a 0.5 acre Pyrolusite limestone bioremediation treatment bed and a 0.3 acre passive wetland. The goal of the design was to generate alkalinity in the upper reaches of Huff Run, with the potential for reduction in metals requiring low maintenance. Construction was complete June 16, 2003 by Tucson Inc. for a cost of \$321,619. Problems encountered included complications with the bedrock for liner installation, unknown pre-existing gas well in location of treatment bed, and high expense of the inoculant. The funding sources for this project were Ohio EPA, OSM, and ODNR/DMRM. Pre-treatment acid and metal loadings at site LIN01 are shown in figure 1.

### SITE: PRE LIN01



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

Figure 1. Estimated acid and metal loadings prior to treatment