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The Morris Creek Watershed Association maintains a passive limestone-bed treatment for acid mine drainage entering Morris Creek near Montgomery, WV. Water was collected and analyzed from 14 sites in the Upper and Lower Main Stem treatment areas. Analyses included net acidity and standard water quality tests: pH, turbidity, temperature, total dissolved solids, biochemical oxygen demand, phosphates, total nitrates, and dissolved oxygen (*Water Quality with Vernier, 2007*), as well as total flow measurements.

The net acidity or “hot acidity” titration is a measure of the highest acidity the water will reach due to dissolved components that undergo redox reactions to produce acidity. Water samples are acidified, boiled with hydrogen peroxide, and titrated with base according a standard method (*Standard Methods for the Examination of Water and Wastewater, 2012*). This study shows that the results for net acidity are correlated with the water quality tests for biochemical oxygen demand and dissolved solids, while net acidity is inversely correlated with the fecal coliform count, dissolved oxygen, and overall water quality index. A general decrease in net acidity was found as the water progressed through the two treatment areas.

This study demonstrates the utility of the net acidity titration analysis of water samples and the water quality tests that are most relevant to the titration. Related and future work includes the determination of dissolved iron, manganese and other metals by atomic absorption analysis.