

ALKALINE RELEASE RATES FROM VARIOUS MATERIALS

Raymond J. Lovett and Paul F. Ziemkiewicz

**Environmental Technology Division
NRCCE
P.O. Box 6064
West Virginia University
Morgantown, WV 26506**

Aqueous introduction of alkalinity requires knowledge of the rate of dissolution of the target alkaline material. In general, the alkaline material is exposed to unpolluted water which later mixes with the acid mine drainage.

An apparatus has been developed which measures the rate at which initially non-alkaline water acquires alkalinity from the dissolution of solid materials. The unit operates automatically and provides an alkalinity versus time plot when the data are evaluated. Importantly, the unit can determine dissolution rates at any temperature allowing, for the first time, comparisons of summer versus winter delivery rates.

The apparatus and results for limestone of varying size and at varying temperatures will be discussed.