A METHOD FOR PREDICTING ALKALINITY IN ANOXIC LIMESTONE DRAINS

by

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Abstract: A method has been developed to predict the alkalinity generated by anoxic limestone drains (ALDs). One gallon collapsible containers were loaded with limestone and filled with untreated mine water. The container caps were modified to facilitate water sampling without introduction of air. Tests were conducted at two ALD drain sites where samples of untreated mine water were available. After 48 hours, mean alkalinity concentrations within the experimental containers were within 6% of the actual alkalinity concentrations in the respective ALD effluents. Additionally, this experimental method was used to compare alkalinity generation by limestone from different locations and formations. Generation of alkalinity within the experimental containers was similar for all of the high-calcium limestones tested (>90% calcium carbonate). After 48 hours, dolomitic limestone (38% magnesium carbonate) generated 50% less alkalinity than high-calcium limestones.

Key Words: acid mine drainage treatment, passive treatment, calcite dissolution.

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