

FEASIBILITY CONCERNING THE NEUTRALIZATION OF ACIDIC MINE SPOILS ADJACENT TO THE ROUNTREE BRANCH - PLATTEVILLE, WISCONSIN¹

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Abstract: The objectives of this study were to analyze the feasibility of neutralizing Platteville's acidic mine spoils with local liming amendments vs. capping roaster piles with clay as a means of reclamation. Lead and zinc have been actively mined in several counties in southwestern Wisconsin for over 150 years. As with all metallic mining, extensive wastes were produced (iron sulfides) and deposited throughout the area either in close proximity to the mines or at processing plants. Materials of different sizes and mineralogical composition were generated by these operations. State and federal mining regulations require that natural or agricultural vegetation be established on mined area. To insure successful reclamation, remediation is necessary. Early attempts of reclamation incorporated the clay-cap method. Erosion and inadequate highly acidic soil restricted stabilization of the abandoned mine sites. Physical and chemical characteristics of the abandoned mine spoils near Platteville's Rountree Branch were examined. Dolomitic limestone and Waukesha (calcitic) lime were utilized in neutralizing the material. Leachate was collected from samples of mine spoil containing different degrees of liming amendments. The leachate was tested for pH and a data base created over a three month period. Research indicates that as little as 20% lime incorporation was effective in neutralizing the mine spoil. This significantly reduces the problems of acid mine drainage and allows for long term plant growth and root establishment. Plant bio-mass statistics indicate attainment of neutralization.

Additional Key Words: Acid mine drainage, roaster piles, iron sulfides, lime amendments.

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