

CRC LEME OPEN FILE REPORT 209

A synopsis of potential amendments and techniques for the neutralization of acidic drainage waters in the Western Australian wheatbelt

Executive Summary

This report presents a brief review of potential amendments and techniques for the neutralization of acidic waters in the WA wheatbelt. In this review we have categorised the remediation of the acidic WA wheatbelt waters as broadly analogous to acid mine drainage (AMD) waters. The resultant acidity and high trace element burden presents a similar remediation challenge, that of amelioration of acidity and concurrent trace element reduction.

Similarly the mineral suite present within the drainages of the WA Wheatbelt is similar to that often observed in AMD and disturbance of Acid Sulphate Soils (ASS). A key difference, however, is the often saline to hypersaline waters often present in the WA wheatbelt relative to the often less saline waters encountered in AMD remediation scenarios. The amendments and techniques presented in this report are as follows: carbonates/carbonate derivatives, mineral processing by-products, mine overburden, alkalinity producing systems, alkaline waters, and landscape modification (burial, re-flooding). A brief assessment of each amendment or technique is presented, as well as an assessment of perceived advantages and disadvantages. Cost is not specifically considered in this review due to the potential for wide cost variation in terms of factors such as transport, infrastructure and running costs for different techniques at specific sites.