The primary management issues for underground gold mine closure therefore include long term decant risk, acid mine drainage, water pumping and treatment and allocation of responsibility especially in light of the interconnectedness of the mines (Pulles et al., 2005). Acid mine drainage probably presents the single most important factor in dealing with tailings and waste rock and their impact on the environment (Ritcey, 2005). Due to the more disaggregated (and more concentrated, in the case of tailings) nature of the acid-generating minerals in the waste materials, AMD that flows from them may be more aggressive than that which discharges from the surface. Impact of mine water on water quality of South Africa. Pollution has been identified as one of the many pressures affecting freshwater systems and resources in South Africa (Younger, 2001). Mine water is a growing concern in water quality management. Economic impact of acid mine drainage. AMD has become a very visible and highly political issue. in South Africa (Akcil and Koldas, 2006). Mine closure. and the associated increase in AMD also have serious consequences for communities previously supported by the mining sector (Akcil and Koldas, 2006).