The remediation of an abandoned Tailings Storage Facility: Collingwood Tin Mine, Far North Queensland

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# ABSTRACT

The Collingwood Tin Mine (COLT), located within the Annan River catchment 35 km south of Cooktown, poses unique environmental and public health challenges due to its proximity to drinking water sources, the Wet Tropics World Heritage Area and Great Barrier Reef catchment. The site was operational from 2005 to 2008 followed by abandonment in 2015; and has been managed since by the Queensland Government’s Abandoned Mine Lands Program (AMLP), which aims to mitigate risks to public health, safety, and the environment. The main risk sources present at the mine were the uncapped Tailings Storage Facility containing accumulated mine-affected water, an associated decant water dam, a processing plant and associated infrastructure, and an open portal and vent shaft to underground mine workings.

This paper focuses on the remediation of the Tailings Storage Facility and Decant Water Dam - identified as the most technically complex site domains. Extensive assessments were conducted, alongside engagement with Traditional Owners and other stakeholders, to define remediation objectives and approaches. Earthworks planning prioritized use of existing site materials to avoid new land disturbance or the need for bulk-fill material imports or exports. The remediation plan also emphasized local economic opportunities, with significant involvement from local businesses, small-to-medium enterprises, and Indigenous-owned businesses. The remediation works were completed over two years (FY 2021/22 and 2022/23) at a cost of approximately $7.2 M, delivering substantial environmental and community benefits.

This paper provides an in-depth overview of the remediation activities, sequencing, challenges, outcomes, and lessons learned, offering valuable insights for future projects in abandoned mine management and decommissioning of Tailings Storage Facilities.