Innovative Use of Waste Rockfill and Tailings in the Construction of NLRSF Lift 9 at Henty Gold Mine

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# ABSTRACT

The Henty Gold Mine's Newton Pond Leach Residue Storage Facility (NLRSF) raise project demonstrate innovative approaches to tailings management in challenging conditions. The construction of Lift 9 focussed on sustainable practices by utilising on-site waste materials, including waste rockfill and tailings, reducing the operation's environmental footprint.

Throughout the project several significant challenges arise. The waste rockfill and tailings exhibited considerable variability, requiring geotechnical characterisation to confirm their suitability as construction materials. Tasmania's wet climate presented ongoing challenges, with frequent rainfall affecting material handling and compaction activities. These conditions necessitated flexible construction scheduling and adapted methodologies. Additionally, site conditions prompted design refinements, particularly regarding slope stability parameters and seepage management systems.

The success of this project hinged on strong collaboration between the engineering team and contractors. Regular site meetings enabled swift resolution of technical challenges, ensuring construction proceeded safely while maintaining project momentum.

The completion of Lift 9 delivered numerous benefits for the operation. By utilising on-site waste materials, we significantly reduced the project's environmental impact compared to traditional construction methods requiring imported materials or use of borrow areas within the site. This approach generated cost savings through reduced development of new borrow areas and reducing transport requirements. Moreover, the project has contributed valuable practical insights into waste material utilisation in tailings dam construction, advancing industry knowledge in sustainable mining practices.

This experience offers valuable lessons for tailings engineers, particularly regarding construction efficiency and environmental performance optimisation within the context of mine waste management. The project demonstrates how reflective engineering, and strong teamwork can transform operational challenges into opportunities for sustainable practice.