Developing A TSF Design Concept – Experience Helps but Numbers Don’t Lie.

Dr. Leon Munro¹

Symon Jackson²

1. Senior Tailings/Process Specialist, Engeochem Consulting
   Email: engeochem@hotmail.com
2. Principal Engineer/Managing Director Red Earth Engineering Pty Ltd, Brisbane QLD 4000
   Email: symon@redearthengineering.com.au

ABSTRACT
A tailings storage facility (TSF) and the management strategy under which it is managed (the TMS) need to align with intrinsic material properties, behaviour, flows and site-specific constraints to ensure enduring containment and minimal impact on the local landscape throughout operation and beyond closure. Failure to align the TSF design and/or TMS can lead to expensive, inefficient, unsustainable or even unsafe operation. Such considerations are best captured within the design concept to ensure optimal field performance in terms of both cost-efficacy and risk mitigation both within operation and through to closure. However, the same approach can be equally applied in retrospect, although this nominally imparts significant additional cost and/or complexity to existing operations.

This paper provides a logical approach to developing a TSF design concept through:
- Identifying key properties and underlying principles for effective operation;
- Showing how these apply to select an appropriate TMS; and
- Demonstrating how to align the TMS to site-specific constraints and TSF design.

This approach follows a path of rigorous data analysis independent of discharge parameters (whether low-density slurry, paste or cake disposal) to select the most cost-effective and sustainable approach for any given material or site.

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