

What do we want the land to become? Filtered Tailings through a Systems Lens



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Mike O'Kane is the Founder of Okane Consultants and serves as Chair of the Board and Senior Technical Advisor. With more than 30 years of international experience, he is widely recognized for his leadership in mine closure planning, landform design, mine waste management, and long-term environmental performance. Mike advises mining companies, governments, Indigenous organizations, and regulators on integrating technical, environmental, regulatory, financial, and stakeholder considerations across the mine life cycle. He has led and advised projects worldwide, authored numerous industry guidance documents. Mike also serves as a Director of the Landform Design Institute and Technical Advisor to Tersa Earth and has been recognized with the University of Saskatchewan Alumni Achievement Award for his contributions to sustainable resource development.

 **Brisbane** Wed, 19 Aug 2026
 5:30 – 7:30 PM
 **Westin**, 111 Mary St, Brisbane
City QLD 4000

 [Brisbane Register Here](#)

 **Perth** Thu, 10 Sep 2026
 5:30 – 7:30 PM
 **Four-Point**, 707 Wellington
St, Perth WA 6000

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Filtered tailings represent one of the mining industry's most significant innovations, yet discussions often focus on the individual technical disciplines required to design a filtered tailings storage facility, rather than the larger system that ultimately determines its operational and long-term performance. This presentation introduces a systems approach to mine planning, landform design, and closure that begins with a simple question:

"...what do we want the land to become...?"

Using filtered tailings as the central case study, the presentation explores how closure vision, objectives, future land use, and integrated closure planning provide the framework within which geotechnical engineering, hydrogeology, geochemistry, landform design, and water management become interconnected rather than independent disciplines.

This systems framework enables project development, assessment, feasibility, permitting, operations, and closure planning to progress within a coherent, predictable, and technically defensible decision-making process.

The technical discussion examines oxygen ingress, advancing oxidation fronts, pore-water regimes, and why sulphide oxidation in filtered tailings is fundamentally a self-limiting process governed by coupled physical, chemical, and hydrological processes. These concepts are then used to illustrate how coherent decision-making throughout the mine life can create more resilient post-mining landscapes, while preserving opportunities for future resource recovery, repurposing, energy generation, carbon management, and other forms of long-term environmental, social, cultural, and economic value. Key messages include:

"...we don't design tailings storage facilities... we design future landscapes..."

The presentation concludes by suggesting that many of the industry's recurring technical challenges are not isolated engineering problems, but symptoms of systems that have gradually lost coherence over time, or that never achieved coherence in the first place because alignment was assumed rather than demonstrated.

Ultimately, the first systems failure is rarely technical. It is assuming that everyone shares the same answer to the foundational question:

"...what do we want the land to become...?"

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