

# Mine Closure in New Zealand

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AusIMM, August 2025

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# Outline:

- Why closure matters
- Frameworks for good closure
- What good closure looks like in NZ
- Case study (TSF)
- Key takeaways



# Why closure matters

- Lifecycle timeline from exploration → operations → closure → post-closure.
- Social licence: community/iwi/hapū engagement, transparency
- Land use: what happens when you close the site
- Quantify residual risks: stability, seepage, erosion, water quality
- Costs & liability tail: long-term stewardship and maintenance
- Relinquishment criteria/goals

# Frameworks for good closure

1. NZ Dam Safety Regulations (2022)
  - Minimum legal baseline: PIC, DSAP, OMS, EAP + QRG
2. NZSOLD: Best Practice - Local
  - DSMS, surveillance, risk tolerance, preparedness for closure
3. GISTM (2020): Best Practice - International
  - Lifecycle closure planning
  - Independent review & governance
  - Social performance & disclosure

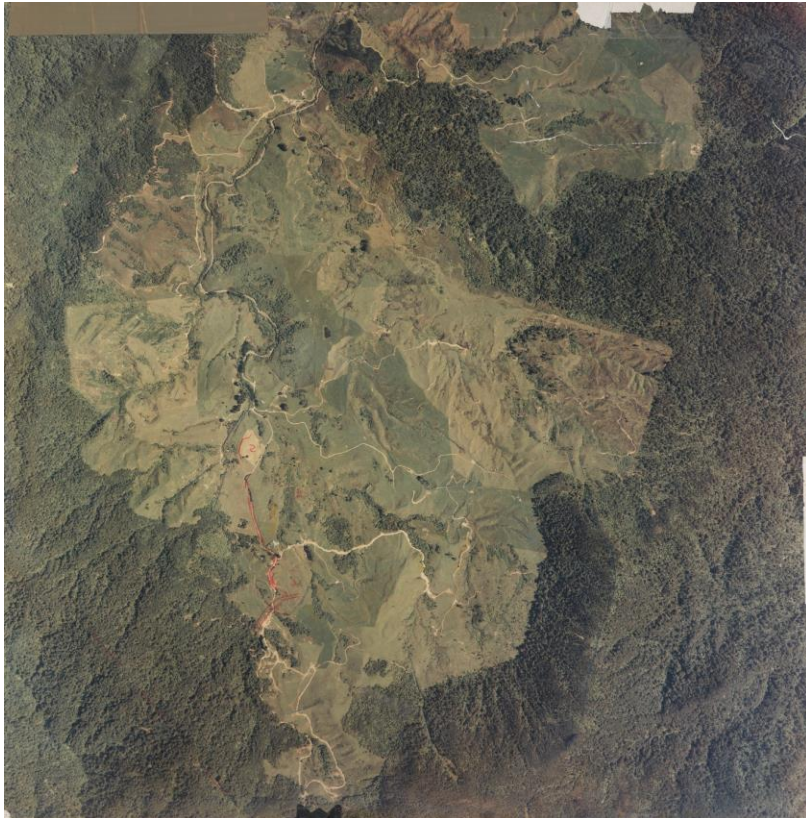
# What good closure looks like in NZ

- Early closure planning, options analysis
- Design targets aligned to PIC + seismic/flood risks (FMEA)
- Quantify risks (QRA)
- Identify key closure objectives and long term strategy (ALARP)
- Integrated OMS/EAP through operations → closure → post-closure
- Record keeping → enables good decision making
- Transparent disclosure & iwi engagement
- Data, data, data

## Case study: TSF

- Underground and open pit gold mine
- TSF: 475,000 m<sup>3</sup> water + 2,900,000 m<sup>3</sup> tailings
- Closed and rehabilitated site late 1990s
- Post closure land use: rural/grazing
- Actively monitored since closure:
  - Groundwater, rainfall, pond level, surface water, survey/movement
- Monitoring network updated 2024/2025

# Case study: TSF



Pre-mining



Operational



Closure (Current)

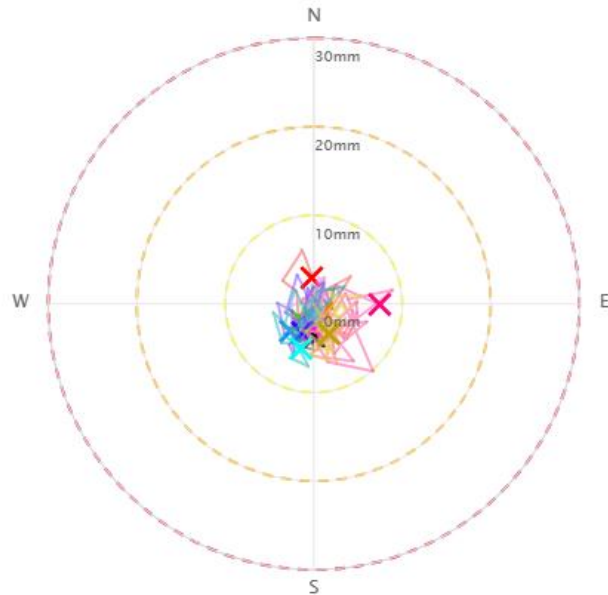
# Case study: TSF

The screenshot displays the DAMTEC web application interface. On the left is a navigation sidebar with the following menu items: Portfolio, Documents, Tasks & Calendar, Transmittal, DSMS/DSAP Overview, Governance, People, DSMS Audits & Reviews, Failure Modes, Operation, Maintenance, Sur... (expanded), Geospatial Map, Devices, Data, Alerts & Alarms, Dam Safety Reviews, Dam Safety Issues, Regulatory Compliance, and Emergency Preparedness. The main content area features a large geospatial map of a dam with colored markers. A legend below the map indicates: Status: Alarm (red), Alert (orange), Online (green), Offline (grey), Manual upload (blue). Below the map are six dashboard widgets: Alarms (0), Alerts (2), Instrument Status (Online), Regulatory Compliance (3), Dam Safety Issues (0), and Tasks (38). The Regulatory Compliance widget shows: Dam Classification Certificate: 19/08/2029 (green), Dam Safety Assurance Programme: 19/08/2025 (red). The Dam Safety Issues widget shows: High Priority: 0 (red), Medium Priority: 0 (orange). The Tasks widget includes a support button.

# Case study: TSF

## GPS movement

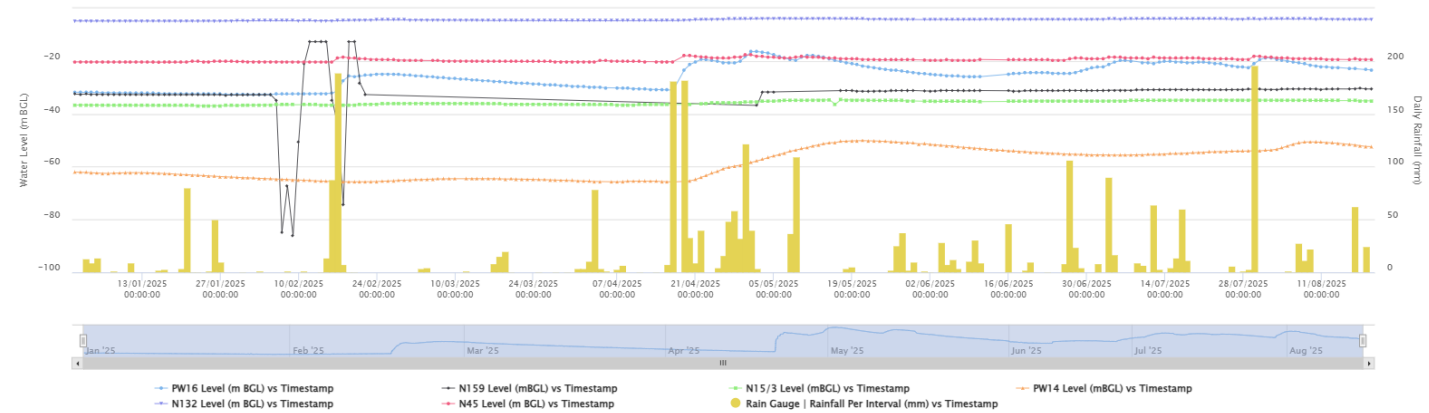
C-136, C-2, C-K5, C-MID, C-RA, C-SAD, C-STOK, C-SYD, C-USP, USP-8  
01/06/2025 to 01/07/2025



— C-USP — C-K5 — C-SAD — C-SYD — C-136 — USP-8 — C-STOK — C-RA — C-2 — C-M

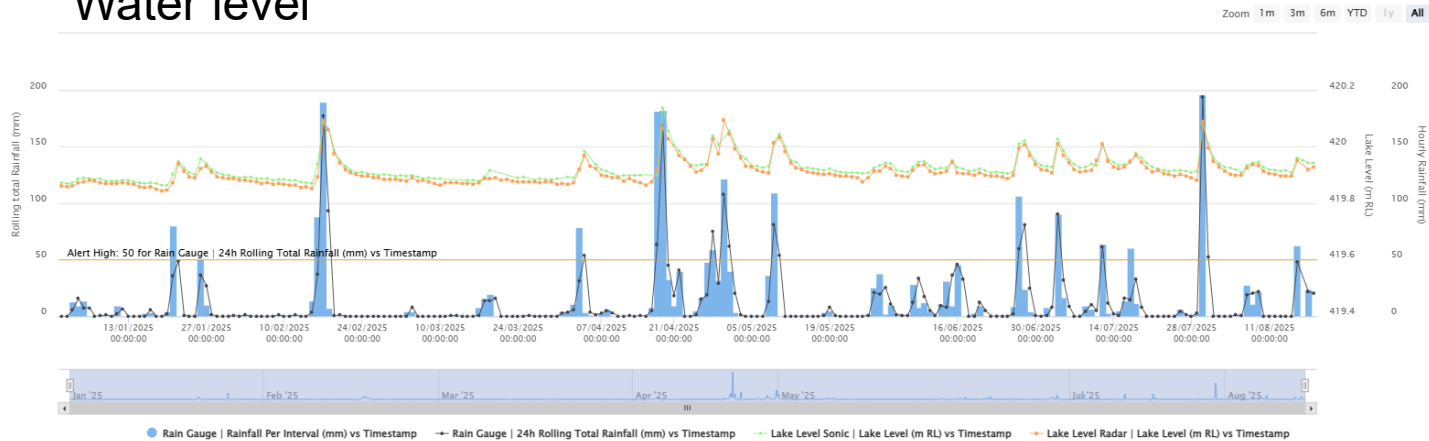
## Groundwater

Golden Cross | Monitoring Wells | Water Level (m BGL)



## Water level

Golden Cross | Rainfall & Lake Level



# Case study: TSF

7.84 TB / 7.93 TB >

Cameras ● 4

Storage Capacity 34d 3h 6m

Earliest Recording about 1 month ago

UniFi OS 4.3.6 Protect 6.0.53

### Camera Capacity



### Spotlights

Spotlights help you monitor what matters most — people, vehicles, packages, and more — across all your cameras.

[+ Create a Spotlight](#)

### Video Archiving

[Download](#)

### Recent Detections

- 55 Minutes Ago 22s  
WTP Gate
- 56 Minutes Ago 1m 7s



## Key takeaways

- Confirm PIC & design basis (FMEA, QRA & ALARP)
- Plan closure from the start (where practical)
- Keep DSMS documents active through to closure
- Maintain records (design & construction for operation and closure)
- Identify key closure objectives and long-term strategy
- Long term maintenance and surveillance plan (data, data, data)
- Relinquishment

# Thank you!



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