Tailings management workshop

APRIL 2019
A NSW Resources Regulator compliance priority project
Welcome

Sally Franco
NSW RESOURCES REGULATOR

APRIL 2019

TAILINGS MANAGEMENT WORKSHOP
A NSW Resources Regulator compliance priority project

NSW Resources Regulator
Evacuation assembly areas
## Agenda

**TAILINGS MANAGEMENT WORKSHOP**  
A NSW Resources Regulator compliance priority project

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>10:00</td>
<td>Introduction to the Compliance Priority Project</td>
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<td>10:30</td>
<td>Current Issues:</td>
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<td>- Current Regulatory Regime for Tailings Management</td>
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<td>- Summary of the Targeted Review</td>
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<td>- Mine Safety in Tailings Management</td>
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<td>11:30</td>
<td>Leading Practice Tailings Management – presented by Professor David Williams</td>
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<td>12:15</td>
<td>Lunch</td>
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<td>13:00</td>
<td>Key Life-Cycle Tailings Management Risks – presented by Professor David Williams</td>
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<td>14:00</td>
<td>Think-tank on Key Risk and Controls for Tailings Management – facilitated by Matthew Newton</td>
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<td>15:00</td>
<td>Afternoon Tea</td>
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<td>15:30</td>
<td>Tailings Management Workshop discussion – Speakers panel</td>
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<td>16:30</td>
<td>Close – where to from here?</td>
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**Questions:** [rehabilitation.projects@planning.nsw.gov.au](mailto:rehabilitation.projects@planning.nsw.gov.au)
Introduction to the compliance priority project

Matthew Newton

NSW RESOURCES REGULATOR
NSW Resources Regulator

• The NSW Resources Regulator was created on 1 July 2016 as a standalone regulator responsible for compliance and enforcement functions across NSW’s mining sector.

• The primary focus of the NSW Resources Regulator is on compliance activities within the NSW mining sector including:
  
  • compliance with the Mining Act, including mine rehabilitation obligations
  
  • regulating safety and health performance at NSW mines and petroleum sites.

• The creation of the NSW Resources Regulator was designed to ensure a consistent and responsive regulatory approach and provide increased transparency and community confidence.
NSW Resources Regulator

Vision
A safe and responsible mining, extractive and petroleum industry

Mission
To enable and support industry to understand and fulfil its obligations
Compliance Approach

- **Increase**: stakeholder and community confidence in our compliance programs
- **Support**: the responsible operation and development of regulated industries
- **Minimise**: harm to workers, the environment and the community
Compliance priority project - Tailings

- Ongoing Regulator project, first introduced in January 2018
- Designed to examine key issues of tailings dams that have the potential to affect the sustainable development of the mining industry
- Regulatory activities have identified a number of uncertainties and knowledge gaps in relation to tailings management
- Ultimate objective is for mining operations to adopt sustainable tailings management practices and meet legislative obligations
- Scope includes the design, construction, operation and decommissioning of tailings dams, specifically in relation to safety, environmental and rehabilitation aspects
Compliance priority project – Tailings cont..

• Initial phase involved an awareness campaign to confirm the role of each of the regulators and to improve communications to facilitate a whole-of-government approach.

• Late 2018 involved an inter-agency targeted review program to develop an understanding of the key issues associated with tailings dams on selected sites across the state.

• Today’s industry workshop represents the next phase of the project.
Objectives of the workshop

• Industry to gain a clear understanding of the expectations of the various regulators in regards to tailings management
• Facilitate knowledge transfer of leading practice tailings management
• Understand the key risks to be identified and addressed in relation to tailings management throughout the life cycle of a mining operation
• Workshop the constraints and opportunities for adopting leading practice tailings management
• Industry to utilise information from the workshop to develop site specific pathways to achieve sustainable tailings management practices
Resources Regulator Expectations

• Comprehensive risk assessment has been developed and maintained
• Outcomes of risk assessment has been factored into the design, construction, operation and decommissioning of tailings dams
• For new and or modified projects, alternative tailings management practices are evaluated and implemented where reasonably practical to avoid risks associated with tailings dams
• Controls have been implemented and are maintained to address risks
• Monitoring systems are in placed to determine risk control effectiveness
• Emergency preparedness and testing
• Closure risks are defined and controls are developed and implemented well in advance of cessation of mining
Current issues

- Current Regulatory regime for tailings management
- Summary of the targeted review
- Mine safety in tailings management

Chris Rudens / Jenny Ehmsen / John Stacpoole

NSW RESOURCES REGULATOR
What is the project?

• Resources Regulator Compliance priority projects
• Can be the largest rehabilitation liability – reflected in RCE
• Over 100 TSF across 50+ mine sites
• Mine safety and mine closure/rehabilitation of TSF
• Multi phased, to be completed 2019
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Targeted Review

• Led by Resources Regulator, attended by other agencies
• 15 mine sites, both coal and metalliferous
• Involved inspections at selected sites in late 2018
• Life cycle of tailings
• Key knowledge gaps –
  • Capping and final landform
  • Post closure water balance
  • Progressive rehabilitation
  • Management during ‘care and maintenance’
• Other knowledge gaps/ review focus
Summary findings: Mine closure/rehabilitation

Generally:

- Unclear risk assessment/ application of controls – in particular capping/ final landform
- Capping – unclear design and performance
- Consolidation/settlement – modelling and testing to verify
- Seepage – in particular chemically unstable tailings, water balance modelling
Summary of findings: Surveillance/monitoring

• Dam design engineers not always having input during construction, including certification of construction to design
• Dams not being operated in accordance with the documented operations and maintenance manual
• Monitoring data (eg prisms or piezos) not necessarily collated and analysed over time
• Recommendations from surveillance reports not being actioned in a timely manner
• Inspection and reporting regimes for mines in care and maintenance
• Dam safety emergency plans not tested
Summary of findings: Mine safety

- Powerlines - vicinity permit, clearances, corridor permits.
- Traffic Management - lift and raise construction.
- Edge Protection. For Service, LV access and construction fleet
- Change of Risk Profile – mine and construction workers
- Construction oversight – QAQC and non conformance management
Leading practice  tailings management

Professor David Williams

UNIVERSITY OF QUEENSLAND
Key life-cycle tailings management risks

Professor David Williams

UNIVERSITY OF QUEENSLAND
Think-tank on key risk and controls for tailings management

Matthew Newton

NSW RESOURCES REGULATOR
Think-tank on key risk and controls for tailings management

Adoption of leading practice tailings management across industry

**Objectives:** Safe facilities, sustainable rehabilitation outcomes, non polluting

**SWOT:** Looks internally and externally

In answering these questions, suggest that a consideration tailings life cycles:

- Design/feasibility and approval
- Construction/operation and alterations/modification
- Decommissioning/ rehabilitation and mine closure and relinquishment
Strengths: What is industry doing well? e.g. management of key risk/controls in tailings. What is the regulator doing well? e.g. guidance material.

Weaknesses: What is industry/regulators not doing well?

Opportunities: What are the opportunities to improve – industry and regulators?

Threats: What are the barriers/threats to implementation of leading practice tailings management? e.g. lack of planning/expertise
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Tailings management workshop discussion
Speakers panel
Where to from here?

Matthew Newton
NSW RESOURCES REGULATOR
Thank you

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Feedback & further information

Survey: [www.surveymonkey.com/r/PJ3KYCG](http://www.surveymonkey.com/r/PJ3KYCG)
Email: [rehabilitation.projects@planning.nsw.gov.au](mailto:rehabilitation.projects@planning.nsw.gov.au)

Thank you