NSW Resources
Resources Regulator

Targeted assessment program

Groundwater and surface water management to achieve sustainable rehabilitation outcomes

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Executive summary

This report summarises assessment findings from a targeted assessment program (TAP) across 4 mines focussing on how they are identifying and implementing groundwater and surface water management measures to achieve sustainable rehabilitation outcomes. Assessments were conducted during between July 2024 and December 2024. The threats and critical controls assessed are shown in Appendix A. Figures 1-3 present the compliance findings for each de-identified mine and critical control. Explanatory notes on the assessment system are in Appendix B.

Assessment finding letters were issued to each mine in the program, which included a summary of key observations made by the Regulator during the assessment as well as recommendations for improvement in the medium to longer term. No statutory notices pursuant to section 240 of the *Mining Act 1992* were issued.

The TAP findings suggest the majority of mines need to address the following recommendations to improve their implementation of the critical controls required to mitigate risks to rehabilitation associated with the management of ground and surface water.

Rehabilitation risk assessments – Improving rehabilitation risk assessments to specifically address surface and groundwater risks and ensure controls are appropriately prioritised. Where a mine has multiple risk assessments there should be a centralised register that identifies all the risks and controls measures as a means to ensure the appropriate controls are captured in the rehabilitation management plan. Mine operators should review their rehabilitation risk assessments to ensure they take into account the recommendations in the assessment finding letters and the guidance provided by the Regulator set out in Guideline: Rehabilitation risk assessment and Guideline: Rehabilitation controls available on the website.

Waste materials are characterised (geochemical and geotechnical) – Developing, implementing and documenting monitoring programs for determining if geochemical issues develop with regard to groundwater/surface water quality.

Surface water management – Undertaking assessments of the final landform proposed for surface operations/pit-top areas to determine the conceptual surface water management strategy at closure. The location of surface water management structures should be identified and their conceptual design determined by a suitable hydrology model. The resulting conceptual final landform, and location of the surface water management structures, should then be submitted to the Regulator in an updated/new final landform and rehabilitation plan application.

Surface water/groundwater interface management – Developing hydrogeological models to determine the behaviour of groundwater and surface water interactions and implementing the appropriate controls such as low permeability barrier walls, levees where potential adverse interactions may occur between surface water and different groundwater regimes (e.g. alluvial groundwater and void water).

Groundwater management associated with underground mine workings – Developing hydrogeological models to determine groundwater behaviour during operation (i.e. pumping) and post closure. This should be used to inform the likely location of mine seals/bulkheads and the design of these seals to address the hydraulic impacts.

Water treatment requirements assessed – Developing and implementing, where relevant, water treatment strategies during both operations and post-closure. The strategies should identify how the responsibility for operation, maintenance and monitoring of any long term treatment

requirements will be transferred to subsequent landowners/managers. This should include an estimation of ongoing maintenance costs.

Rehabilitation management plan – Reviewing and amending the rehabilitation management plan to ensure the relevant recommendations of this report are documented and implemented.

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Introduction

The Resources Regulator undertakes TAPs at mines in NSW assessing a mine's critical rehabilitation risks and the critical controls required to mitigate these risks.

To this end, we developed a bowtie risk management framework and standardised assessment checklists for a range of TAPs. Each TAP focuses on the implementation of identified critical controls (categorised in accordance with the ICMM handbook[1]) to determine whether measures have been identified and implemented to ensure sustainable rehabilitation outcomes.

Further details regarding our TAP programs, including the bowtie risk assessments, are available on our website.

A summary of the TAP assessment set-up, including objectives and assessment criteria for each critical control is provided in Appendix B.

The TAP applies the following principles:

- Consideration of the mine's risks to achieve effective rehabilitation.
- A focus on the implementation of the identified critical controls.
- Evaluation of the effectiveness of the control measures implemented.

The groundwater and surface water TAP was undertaken between July 2024 and December 2024. The TAP assessed the critical controls associated with identifying and implementing groundwater and surface water management measures to achieve sustainable rehabilitation sustainable rehabilitation outcomes that will support the final land use.

The program included site inspections at 4 mines.

Scope

The TAP incorporates:

- a desktop assessment of documents and records to identify the control measures the mine utilises to prevent and mitigate the risks to achieving sustainable rehabilitation outcomes
- a site inspection of the mine to assess the implementation of those controls.

The process

The process for undertaking a TAP generally involves the following stages:

- written notification to the mine providing details of the proposed TAP. This includes:
  - the focus areas of the assessment
  - assessment timing and assessment team composition
  - a list of the likely documents and records that should be made available for assessment

[1] Critical Control Management Implementation Guide, International Council on Mining and Metals (ICMM), 2015.

  - the resources that should be made available by the mine, including site personnel that may be required to participate.
- a site visit to the mine (normally one day) to undertake both the desktop assessment and site inspection
- verbal discussion and feedback to the mine management team on the findings and likely actions that need to be taken by the miner operators in response
- written feedback to the mine, which may include an assessment finding letter and/or a direction to address certain matters pursuant to section 240 of the *Mining Act 1992*.

Assessment findings

Controls assessed

Rehabilitation risk assessment

MRP1.1 – Rehabilitation risk assessment

The risk

A standard condition of mining leases[2] requires the preparation of a rehabilitation risk assessment that:

- identifies, assesses and evaluates the risks that need to be addressed to achieve the final land use
- identifies the measures that need to be implemented to eliminate, minimise or mitigate the risks.

The measures identified in the rehabilitation risk assessment are required to be implemented and mines must identify and record any reasonably foreseeable hazard that presents a risk to rehabilitation being able to achieve the final land use.

Rehabilitation risk assessments are required for each mine to identify the range of risks associated with ground and surface water management that need to be addressed relevant to their site and circumstances. The rehabilitation risk assessment will then identify the appropriate risk control measures that must be implemented and identify how risk control effectiveness will be assessed.

A deficient rehabilitation risk assessment will result in appropriate control measures not being identified and implemented to manage surface and groundwater risks to ensure rehabilitation achieves the final land use.

What was assessed

A rehabilitation risk assessment should identify, assess and evaluate the risks that need to be addressed when identifying and implementing ground and surface water management activities in order to achieve sustainable rehabilitation outcomes that will support the final land use.

Site-specific rehabilitation risk assessments should have been conducted that:

[2] Refer to clauses 6(3) and 7 in Schedule 8A Mining Regulation 2016

- identify, assess and evaluate the risks that need to be addressed to achieve the rehabilitation outcome documents (being the rehabilitation objectives statement, rehabilitation completion criteria statement and final landform and rehabilitation plan)
- identify site-specific risks associated with ground and surface water management
- identify suitable controls and strategies to treat the identified risks
- are relevant to active mining operations
- identify how the effectiveness of risk control measures will be assessed
- are produced by a team of appropriately skilled and experienced people from the workforce with responsibilities for mine rehabilitation.

Where multiple risks assessments have been conducted, there should be a centralised document (e.g. risk register) that links all assessments to the requirements set out in Schedule 8A of Mining Regulation 2016.

Note: The rehabilitation risk assessment must be summarised in Part 3 of the rehabilitation management plan. The matters set out in the plan must be implemented (refer to the standard conditions of mining leases set out in clauses 9 and 10 in Schedule 8A of Mining Regulation 2016).

What we found

We found in the majority of cases, the risk assessment was prepared by a range of suitably qualified people.

Although we observed most mines covered the key risks for groundwater and surface water management, some were high level and did not include the full range of controls that should be considered for each risk. Some of the nominated controls referred to management plans or previous assessments, instead of setting out the specific physical controls.

In some cases, the proposed risk controls were not assigned to a person or position and/or no timeframes were provided for when the controls should be implemented or reviewed.

Waste materials are characterised (geochemical and geotechnical)

MP3.1 – Characterisation analysis – exposure of adverse materials

MP4.1 – Characterisation analysis – geochemical and geotechnical unsuitable tailings and reject materials

MP7.1 – Hydrogeological assessment to characterise ground & surface water – adverse surface and groundwater quality and quantity

The risk

Ground and surface water management activities that were not prepared in regard to the geochemical and geotechnical constraints of waste materials, present a risk to achieving and sustaining the target rehabilitation outcomes.

What was assessed

Characterisation analysis was conducted and geochemical properties of waste materials and remaining geology/strata were understood.

Where relevant, an appropriate geological model was adopted to determine source of problematic material – typical for acid metalliferous drainage (AMD). Typically block models should be used for metalliferous mines whilst regular verification testing would be appropriate for coal mines.

Ongoing sampling programs were in place to identify potential changes in material properties.

Strategies/procedures/management plans were developed for selective handling and management of problematic materials – such as potential acid forming (PAF) materials, spontaneous combustion, etc.

The groundwater/surface water management strategy was designed to limit release of contaminated water to the environment.

Note: The above must be described in Part 6.2.1 and 6.2.4 of the rehabilitation management plan. The matters set out in the plan must be implemented (refer to the standard conditions of mining leases set out in clauses 9 and 10 in Schedule 8A of Mining Regulation 2016).

What we found

We found in most cases there were records to suggest minimal problematic materials existed on site, including no known AMD issues. In one case, this included comprehensive mine water testing on a monthly basis to monitor any ongoing changes to water chemistry. However, in the other cases this primarily relied upon existing knowledge based on previous assessments and there were no ongoing monitoring programs nominated to determine whether there would be future unacceptable changes to groundwater chemistry.

In cases where monitoring programs were nominated as a control in the rehabilitation risk assessment, there was no further detail provided in either the rehabilitation risk assessment or the rehabilitation management plan. In addition, trigger action response plans (TARPs) were not attached to these monitoring programs.

Surface water management

MP7.1 – Hydrogeological assessment to characterise ground and surface water – adverse surface and groundwater quality and quantity

MP7.2 – Design and implement groundwater and surface water strategy – adverse surface and groundwater quality and quantity

The risk

Surface water management strategies that were not designed to limit release of contaminated water to the environment, present a risk to achieving and sustaining the target rehabilitation outcomes.

What was assessed

The pre-mining hydrological regime was assessed, including water quality, surface water drainage and other feature locations (drainage lines, creeks, swamps etc).

Hydraulic models were developed for significant surface water management and drainage features which:

- took into account the likely catchment and use of standard ARI/AEP[3] to determine the capacity required for significant rainfall/flooding events
- used industry standard hydrology projections for more specific domains - such as ANCOLD/ Global Tailings Review requirements for tailings facilities.

Surface water management structures and drainage/creek alignments ensure:

- the design took into account hydraulic models that addressed the volume of water to convey, scour protection, etc.
- geomorphic design and natural creek/drainage design was taken into account.

Note: The above must be described in Part 6.2.1 and 6.2.4 of the rehabilitation management plan. The matters set out in the plan must be implemented (refer to the standard conditions of mining leases set out in clauses 9 and 10 in Schedule 8A of Mining Regulation 2016).

What we found

We found surface water management across the surface operations/pit-top areas was adequately considered for the operational stages of the mine facilities, including the layout of surface water infrastructure (e.g. water drains, detention basins, etc). However, in one case there was no information provided on hydrologic modelling undertaken to determine the size and construction of the drainage structures required in the final landform.

In 2 cases, there was no information for the consideration of water management in the final landform and no information was provided on surface water management structures in the spatial data submitted to the Regulator as part of the final landform and rehabilitation plan.

In 2 cases, the controls proposed in the rehabilitation risk assessment nominated several studies to review and develop conceptual final landform designs to address erosion and instability issues. At one of the mines, the studies were underway and within the designated timeframe, however, at the other mine, these were not undertaken within the nominated timeframe.

Surface water/groundwater interface management

MP7.1 – Hydrogeological assessment to characterise ground and surface water – adverse surface and groundwater quality and quantity

MP7.2 – Design and implement groundwater and surface water strategy – adverse surface and groundwater quality and quantity

The risk

Surface/groundwater interface management strategies that were not designed to limit release of contaminated water to the environment, present a risk to achieving and sustaining the target rehabilitation outcomes.

[3] ARI = Average Recurrence Interval. AEP = Annual Exceedance Probability. Both measure the rarity of a rainfall event.

What was assessed

The pre-mining hydrogeological regime was assessed, including groundwater locations, depth and quality.

Where there was a final void pit lake as part of the final land use, the following matters were addressed in the assessment and strategy:

- a prediction of pit lake levels (depth), the recharge rates and water quality
- a prediction of the post-mining groundwater/surface water interactions, including groundwater sinks, potential spill and the relevant implications
- identification of the assumptions and acknowledgement of any uncertainties. Ideally this should include the conducting of a sensitivity analysis.

Where there were other areas where groundwater seepage required management (e.g. emplacement areas or tailings storage facilities), the following matters were addressed:

- Hydrogeological models were developed for the post-mining impacts for emplacement areas. A water balance model was developed for both operations and closure (e.g. following installation of the cap and final landform) to determine the likely seepage rates over time and seepage water quality.
- Drainage requirements to manage seepage were considered and implemented where appropriate.
- Cut off walls/seepage barriers were used to reduce water inflow, pumping or diversions.

Note: The above must be described in Part 6.2.1 and 6.2.4 of the rehabilitation management plan. The matters set out in the plan must be implemented (refer to the standard conditions of mining leases set out in clauses 9 and 10 in Schedule 8A of Mining Regulation 2016).

What we found

Only one of the mines assessed had final void pit lakes as part of the final landform and rehabilitation plan. We found hydrogeological modelling was undertaken and the final voids were predicted to remain as evaporative sinks, drawing groundwater from the bedrock and spoil areas to the void. Low permeability barrier walls/cut off walls were also installed to minimise groundwater interactions between the alluvial lands and the voids.

In addition, 1:1,000 AEP design flood modelling was undertaken, which indicated 2 of the voids had a risk of flooding from the nearby river. However, in these area flood levees were constructed to provide protection to the 1:1,000 AEP flood event.

Groundwater management associated with underground workings

MP7.1 – Hydrogeological assessment to characterise ground and surface water – adverse surface and groundwater quality and quantity

MP7.2 – Design and implement groundwater and surface water strategy – adverse surface and groundwater quality and quantity

The risk

Groundwater management strategies that were not designed to limit release of contaminated water to the environment, present a risk to achieving and sustaining the target rehabilitation outcomes.

What was assessed

A hydrogeological model was developed to determine groundwater behaviour during operation (i.e. pumping) and post closure, taking into account likely location of mine seals/bulkheads. The model was to include consideration of groundwater quality both during operations and post closure.

Groundwater discharge management was considered (e.g. drainage infrastructure to minimise scour/erosion).

A mine sealing strategy was developed and included:

- identification of all seal locations (mine entries and boreholes)
- risk assessment for unknown adits/shafts (e.g. historical workings)
- identification of access requirements for seal construction (especially access via underground workings)
- an assessment of the design of the seals (which can be conceptual in early stages, with more detailed engineering design required during later stages/closure). This should take into account the need to contain a hydrostatic head of water as well as the integrity of the surrounding strata
- nomination of the likely maintenance and monitoring requirements for seals post construction.

Note: The above must be described in Part 6.2 of the rehabilitation management plan. The matters set out in the plan must be implemented (refer to the standard conditions of mining leases set out in clauses 9 and 10 in Schedule 8A of Mining Regulation 2016).

What we found

We found in one case, the hydrogeological model was well advanced and was refined recently. It was well documented in a report, including details of how it was used to develop conceptual mine seals, taking into account the risks associated with historical workings and the area impacted by these workings. In addition, the location and type of seals (both internal and those for mine entries) was nominated.

At one mine, the hydrogeological modelling was advanced and was updated on several occasions to quantify the discharge of water post closure. However, there was no information on seal design or the uncertainty associated with historical workings and how this would influence the groundwater model and discharges at closure. In addition, both the rehabilitation risk assessment and rehabilitation management plan identified an additional groundwater study, which was not conducted within the nominated timeframe.

In one case, a hydrogeological model was not developed to verify ongoing water make into the mine closure stage. The rehabilitation risk assessment nominated groundwater accumulation in the underground workings as a risk, however, there were no nominated controls that were developed as part of a hydrogeological model.

Water treatment requirements

MP7.1 – Hydrogeological assessment to characterise ground and surface water – adverse surface and groundwater quality and quantity

MP7.2 – Design and implement groundwater and surface water strategy – adverse surface and groundwater quality and quantity

The risk

Surface/groundwater interface management strategies that were not designed to limit release of contaminated water to the environment, present a risk to achieving and sustaining the target rehabilitation outcomes.

What was assessed

Surface water and/or groundwater that may require treatment was identified and a treatment strategy was developed and implemented during both operations and post-closure. The strategy should:

- identify the type of treatment and performance required
- identify the time frames for implementation and staging (e.g. during operation only or post-closure)
- identify monitoring requirements to determine performance – which may be determined by an environment protection licence.
- identify the lifespan of the treatment system, ongoing maintenance and time frames
- identify how the responsibility for operation, maintenance and monitoring of any long term treatment requirements will be transferred to subsequent landowners/managers. This should include an estimation of ongoing maintenance costs.

Note: The above must be described in Part 6.2 of the rehabilitation management plan. The matters set out in the plan must be implemented (refer to the standard conditions of mining leases set out in clauses 9 and 10 in Schedule 8A of Mining Regulation 2016).

What we found

We found at one mine, the water treatment requirements were assessed and 4 options were identified for ongoing groundwater discharge management, which included both passive and active treatment options.

At another mine, there was evidence to suggest due to the low water make and the relatively level location of shafts/portals, mine water would not discharge or require any treatment at mine closure.

At another mine, there was an existing treatment plant in operation to treat groundwater before discharge to the river. This treatment plant was nominated for removal following mine closure, however there were no details regarding how mine water would be managed post closure.

Assessment findings by mine

The assessment findings by mine are summarised in the figures below and overleaf. More details explaining the assessment system are found at Appendix B.

Figures 1 and 2 present the overall findings for each assessment category. Figure 3 presents the overall assessment findings for each of the assessment categories for each mine.

Figure 1: Overall assessment findings ratings by assessment criteria

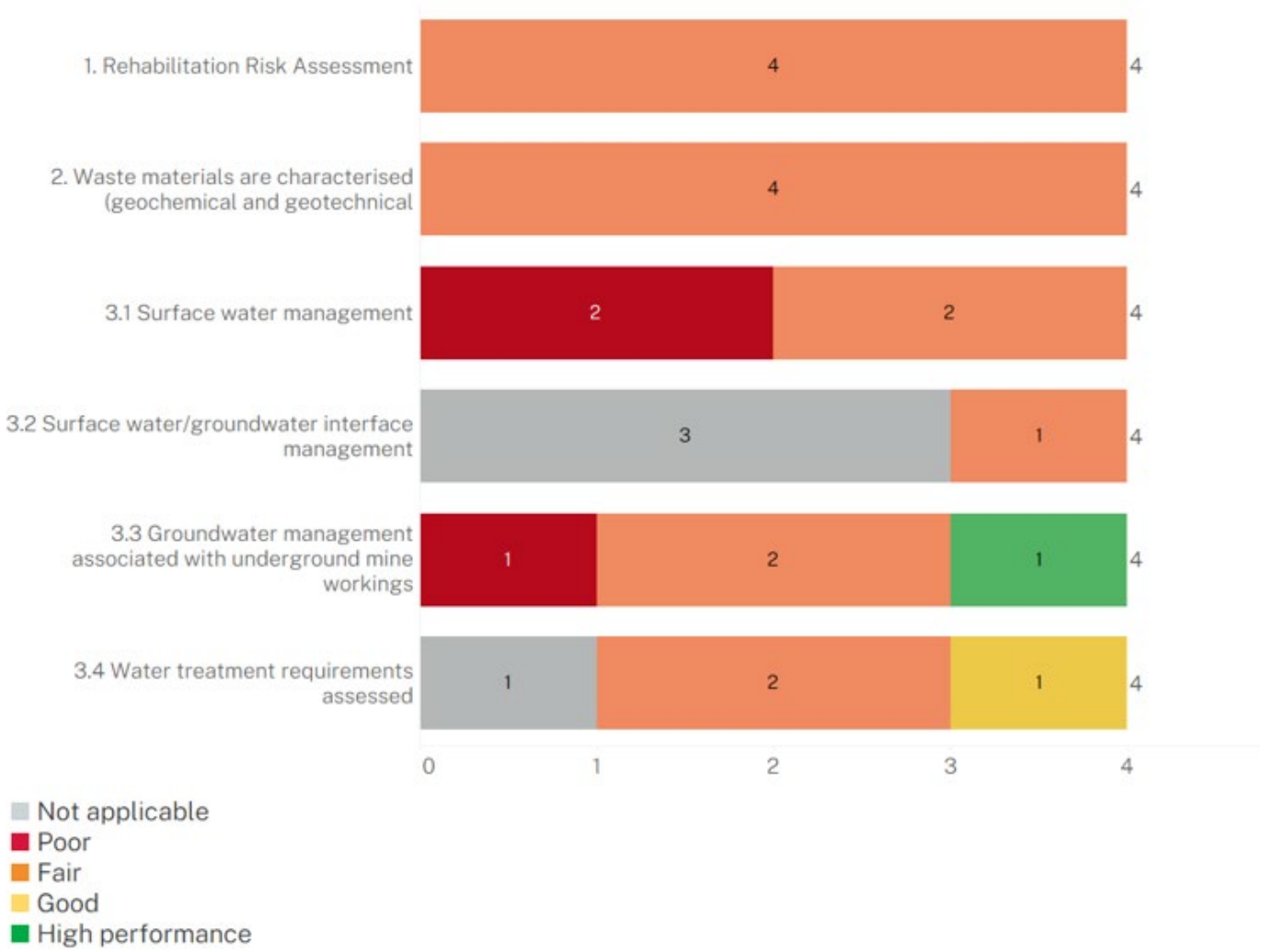


Figure 2: Overall findings results by assessment criteria

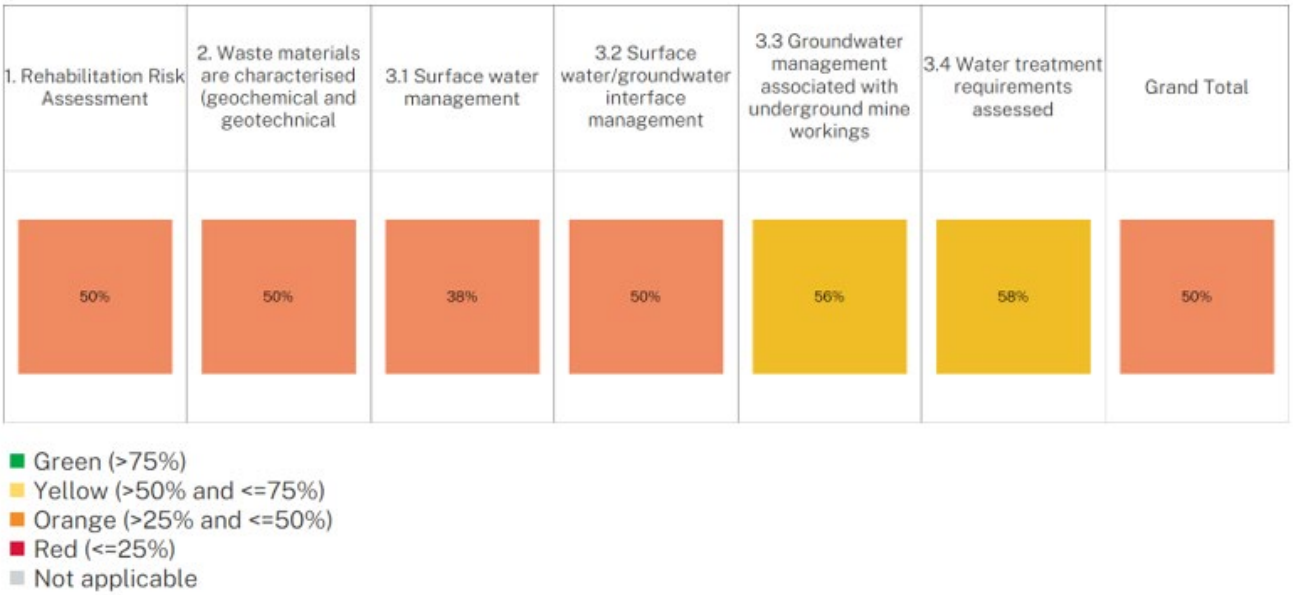
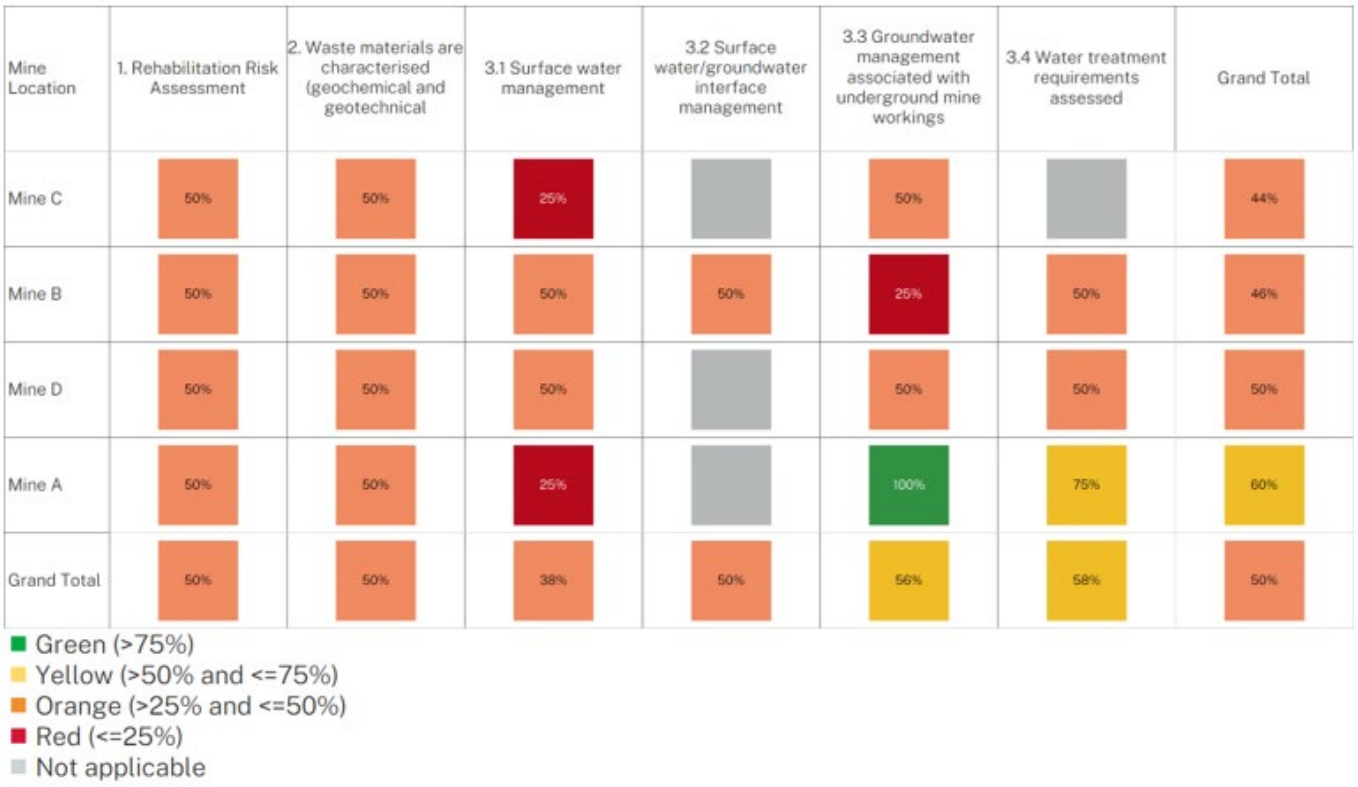


Figure 3: Overall findings for each of the assessment categories for each mine



Response to mines

Assessment finding letters were issued to each mine in the program, which included a summary of key observations made by the Regulator during the assessment as well as recommendations for improvement in the medium to longer term. The key recommendations included the following:

Rehabilitation risk assessment

Improvements to rehabilitation risk assessments to specifically address surface and groundwater management risks and ensure controls are appropriately prioritised. The range of controls nominated for each risk should be expanded beyond high level references to management plans or assessments undertaken. All risk controls that require follow-up assessments or actions should be clearly outlined and assigned to a person (or position) and timeframes nominated.

Where a mine has multiple risk assessments, there should be a centralised register that identifies all the risks and controls measures as a means to ensure the appropriate controls are captured in the rehabilitation management plan.

Mine operators should be reviewing their rehabilitation risk assessments to ensure they take into account the recommendations in the assessment finding letters and the guidance provided by the Regulator set out in Guideline: Rehabilitation risk assessment and Guideline: Rehabilitation controls available on the website.

Waste materials are characterised (geochemical and geotechnical)

Monitoring programs should be developed, implemented and documented for determining if geochemical issues develop with regard to groundwater/surface water quality.

These measures and processes should be documented in the rehabilitation management plan and the monitoring programs should be nominated as a control in the rehabilitation risk assessment. The monitoring programs should also incorporate TARPs.

Surface water management

Assessments should be undertaken of the final landform proposed for surface operations/pit-top areas to determine the conceptual surface water management strategy at closure. The location of surface water management structures need to be identified and their conceptual design determined by a suitable hydrology model. The resulting conceptual final landform, and location of the surface water management structures, should then be submitted to the Regulator in an updated/new final landform and rehabilitation plan application.

These measures and processes should be documented in the rehabilitation management plan. Any current or proposed rehabilitation research and/or trials should also be documented in the forward program submitted annually to the Regulator.

Surface water/groundwater interface management

Hydrogeological models should be developed to determine groundwater behaviour during operation and post closure. The model should identify if voids will potentially fill and spill or remain as groundwater sinks.

These measures and processes should be documented in the rehabilitation management plan. Any current or proposed rehabilitation research and/or trials should also be documented in the forward program submitted annually to the Regulator.

Groundwater management associated with underground mine workings

Hydrogeological models should be developed to determine groundwater behaviour during operation (i.e. pumping) and post closure. This should be used to inform the likely location of mine seals/bulkheads and the design of these seals to address the hydraulic impacts.

These measures and processes should be documented in the rehabilitation management plan. Any current or proposed rehabilitation research and/or trials should also be documented in the forward program submitted annually to the Regulator.

Water treatment requirements assessed

Where relevant, water treatment strategies should be developed and implemented during both operations and post-closure. The strategy should identify how the responsibility for operation, maintenance and monitoring of any long term treatment requirements will be transferred to subsequent landowners/managers. This should include an estimation of ongoing maintenance costs.

These measures and processes should be documented in the rehabilitation management plan. Any current or proposed rehabilitation research and/or trials should also be documented in the forward program submitted annually to the Regulator.

Recommendations

It is recommended that mine operators, upon reading this report, review and amend (where relevant), their site's rehabilitation risk assessment, rehabilitation management plan, monitoring and management practices to manage the risks associated with preparing and implementing surface and groundwater management activities that are unique to their site.

During the review process, mine operators are encouraged to consider the matters outlined above in the 'response to mines' and implement these recommendations as relevant to their site.

Further information

For more information on targeted assessment programs, the findings outlined in this report, or other mine rehabilitation information, please contact the Regulator:

Contact type	Contact details
Email	info@sys.resources.nsw.gov.au
Phone	1300 814 609 (option 2, then 5)
Website	www.resources.nsw.gov.au
Address	516 High Street Maitland NSW 2320

Appendix A TAP assessment set-up

The critical control consolidation process resulted in five critical control groups for assessment in the TAP. For each of these critical controls, the threats that they address, the objective and the assessment criteria used in the TAP are listed in Table 1 below.

Table 1: Critical controls and associated objectives assessed in TAP

Critical control	Threat	Control objective	Assessment criteria (control support)
MRP1.1 Rehabilitation risk assessment	N/A	To ensure that the range of risks associated with groundwater and surface water management are identified and appropriate controls are in place to facilitate sustainable rehabilitation outcomes.	• Risk assessment
MP3.1 Characterisation analysis	Exposure of adverse materials	To ensure that the groundwater/ surface water strategies are designed to limit the release of contaminated waters to the environment.	• Waste materials are characterised (geochemical and geotechnical)
MP4.1 – Characterisation analysis	Geochemical and geotechnical unsuitable tailings and reject materials	To ensure that the groundwater/ surface water strategies are designed to limit the release of contaminated waters to the environment.	• Waste materials are characterised (geochemical and geotechnical)
MP7.1 – Hydrogeological assessment to characterise ground and surface water	Adverse surface and groundwater quality and quantity	To ensure that the groundwater/ surface water strategies are designed to limit the release of contaminated waters to the environment.	• Surface water management strategy limits the release of contaminated waters to the environment. • The surface and groundwater interface is managed to limit the release of contaminated waters to the environment. • Groundwater management associated with underground workings limits the release of contaminated waters to the environment.

Critical control	Threat	Control objective	Assessment criteria (control support)
			• Water treatment requirements are assessed and implemented to limit the release of contaminated waters to the environment.
MP7.2 – Design and implement groundwater and surface water strategy	Adverse surface and groundwater quality and quantity	To ensure that the groundwater/ surface water strategies are designed to limit the release of contaminated waters to the environment.	• Surface water management strategy limits the release of contaminated waters to the environment. • The surface and groundwater interface is managed to limit the release of contaminated waters to the environment. • Groundwater management associated with underground workings limits the release of contaminated waters to the environment. • Water treatment requirements are assessed and implemented to limit the release of contaminated waters to the environment.

Appendix B Assessment system explained

We used a bowtie framework to proactively assess how mine sites managed the risks to rehabilitation. Bowties are a widely used risk management tool that integrate preventative and mitigating controls onto threat lines that relate to a material unwanted event.

As part of program planning, controls were categorised in accordance with the ICMM handbook[4] to identify the 'critical controls'.

Standardised assessment checklists for a range of TAPs have been developed. Each TAP focuses on the implementation of an identified critical control(s) to determine whether measures have been identified and implemented to ensure sustainable rehabilitation outcomes.

Assessment findings

During each mine's site assessment, inspectors rate each control support and record the findings. Points are awarded depending on whether there was evidence that the control support had been documented and/or implemented, as summarised in the table below.

Table 2: Assessment system scoring

Scoring	Finding outcome	Points
High performance	As per satisfactory criteria, however, continued improvement can be demonstrated. For example, the scope of control support methodology has been updated to reflect feedback from research and monitoring.	4
Good	Methodology is described/documented in the Rehabilitation Management Plan (or other relevant document) and is reflective of constraints and opportunities that have been identified. Methodology has been implemented.	3
Fair	Methodology is described/documented in the Rehabilitation Management Plan (or other relevant document) but is limited (in terms of scope and implementation).	2
Poor	Not documented and not implemented.	1
N/A	Circumstances where the critical control / control support does not apply	N/A

For each critical control, an overall result was calculated based on the total points scored as a proportion of the maximum possible points for that critical control. For example, if a critical control comprises ten control supports and five were assessed as 'high performance' and five were found to be 'poor' then the overall assessment result for that critical control would be 62.5%.

Critical control calculations have taken into account instances where control supports were not applicable to the mine being assessed or when control supports were not able to be assessed during a site visit.

[4] Critical Control Management Implementation Guide, International Council on Mining and Metals (ICMM), 2015.

The overall assessment result for each critical control has been assigned a colour based on the assessment bands presented in the table below. The colour band results are then used to identify industry focus areas requiring improvement.

Table 3: Scoring criteria and assessment colour bands

Criteria	Colour
An assessment result of >75% of possible points	Green
An assessment result of >50% but ≤75% of possible points	Yellow
An assessment result of >25% but ≤50% of possible points	Orange
An assessment result of ≤25% of possible points	Red
N/A	