

Upper Hunter Mining Dialogue

Final and Temporary Rehabilitation Principles and Commitments

2021 Results and Commentary

REPORT BY BHP
APRIL 2022



Final and Temporary Rehabilitation Principles and Commitments

Introduction

The nine coal producing companies of the Upper Hunter, through the Upper Hunter Mining Dialogue (the Dialogue), have agreed to this set of principles and commitments regarding final and temporary rehabilitation. The Rehabilitation Principles and Commitments have been developed with advice and guidance from the Dialogue's Joint Environment Working Group, which comprises industry, local and state government, interest groups, and community stakeholders.

The Upper Hunter Mining Dialogue has two goals regarding land management:

- *Goal 1 - To decrease the time that disturbed areas are left without final or temporary cover, recognising that different mining operations are at different points in rehabilitation.*
- *Goal 2 - To achieve a consistent level of best practice, quality, integrated rehabilitation – both within the industry and with future land uses - across the Upper Hunter and to be a responsible steward of the land.*

The primary focus of the Rehabilitation Principles and Commitments is to contribute to Goal 1. Several other projects are underway to progress Goal 1. The industry participants in the UHMD acknowledge the importance of clear goals for rehabilitation developed through consultation with community and regulators, continuing to improve rehabilitation techniques and sharing innovative and successful rehabilitation techniques within the industry. Projects under Goal 2 focus on continuous improvement of rehabilitation practices.

Principles and Commitments

The Upper Hunter coal producers will publicly report against the Principles and Commitments on an annual basis. The reporting will be aggregated by the NSW Minerals Council and shared with the community. Table 1 sets out the six principles and provides a description of how each will be reported against. Contextual information is also sought from industry regarding variations in their annual reporting, as well as an opportunity to provide commentary on their future rehabilitation targets for the years ahead.

Table 1 – Principles and Commitments

Principle	Reporting
<p>Principle 1 – Include rehabilitation planning in mine planning</p>	<p><i>Narrative</i> – how has this been done in the last period</p>
<p><i>Planning for rehabilitation should be integrated into the mine planning process and should include allocating adequate and dedicated resources to achieve the planned rehabilitation outcomes.</i></p>	<p>Final landform design is described in the current Rehabilitation Strategy and Rehabilitation Management Plan from the Strategic (long term) to the Scheduling (short term) planning teams. FY21 rehabilitation continued using geomorphic design to mimic natural landform. The dedicated Rehabilitation Specialist in the Environment team assess previous year’s performance and monitoring results to provide guidance on the implementation of planned rehabilitation in the financial year. The Mine Services team then implements the annual plan shaping, topsoiling and seeding under the technical guidance of the Rehabilitation Specialist.</p>
<p>Principle 2 – Undertake progressive rehabilitation</p>	<p><i>Narrative</i> – how has this been implemented in the last twelve months</p>
<p><i>Companies should undertake rehabilitation progressively, with the objective of ensuring that rehabilitation is as close as possible to active mining.</i></p>	<p>Any dumps that had reached the final dump tent have entered the rehabilitation phases. The focus in FY21 was to achieve higher quality rehabilitation with efforts to ensure that areas available would be seeded at optimal times of the year. Disturbed areas not available for rehabilitation are treated with one of several dust reduction techniques (e.g. aerial seeding, watering) which are also identified in the RMP.</p>
<p>Principle 3 – Minimise time that disturbed areas are left without vegetation</p>	<p><i>Narrative</i> – how has this been implemented in the last twelve months</p>
<p><i>Companies should actively seek to minimise the time that land is left without cover during mining. This should include:</i></p> <ul style="list-style-type: none"> ▪ <i>Taking steps to ensure that rehabilitation is commenced within 12 months of land becoming available for rehabilitation</i> ▪ <i>Utilising methods of temporary rehabilitation¹, such as aerial seeding of over burden and other disturbed areas where permanent rehabilitation has not commenced.</i> 	<p>During the reporting period Mt Arthur Coal completed 77ha.</p> <p>In addition to the final landform temporary stabilisation was completed in areas that will not be available for rehabilitation and that can’t easily be accessed by other dust control treatments.</p>

¹ Temporary rehabilitation describes reshaping, revegetation and other rehabilitation techniques that are used for purposes other than final rehabilitation. This includes such initiatives as seeding overburden emplacement areas to reduce erosion, which are only temporary.

Principle	Reporting
<p>Principle 4 – Prioritise areas of rehabilitation and temporary cover to reduce impacts</p>	<p><i>Narrative</i> – how has this been implemented in the last twelve months</p>
<p><i>Companies should prioritise rehabilitation and temporary cover in those areas where leaving land exposed will have the most impact. The following areas should be considered to have priority:</i></p> <ul style="list-style-type: none"> ▪ <i>Areas that have the greatest impact on visual amenity, such as areas that face townships, residences, or the highway</i> ▪ <i>Areas that have the potential to generate dust leaving the site</i> ▪ <i>Areas that are important for biodiversity, such as rehabilitation adjoining or providing connectivity to remnant vegetation.</i> 	<p>Areas that are visual are prioritised for rehabilitation across site in the planning process and or visual shielding such as trees and bunding are used as an interim measure. Assessment of landforms is done to understand the main areas that will be visual and by which stakeholders. These areas can then be targeted for rehabilitation and or temporary stabilisation where required.</p> <p>The rehabilitation of woodlands are aligned with the Hunter Synoptic Plan and provide corridors for fauna across the site and link conservation areas on and off site.</p>
<p>Principle 5 – Meet target for rehabilitation progress identified in the Mining Operations Plan</p>	<p><i>Quantitative</i> – report MOP target and actual rehabilitation</p> <p><i>Narrative</i> – explanation of performance</p>
<p><i>Each company should meet the annual target for rehabilitation quantity (area) set in the Mining Operations Plans for each of its mines.</i></p>	<p>This reporting period saw Mt Arthur Coal increased volume and quality of newly established rehabilitation. During the reporting period Mt Arthur Coal completed (achieved Phase 4 – Ecosystem and Landuse Establishment) 76 hectares of rehabilitation across four areas. This exceeded the annual MOP target of 72 hectares.</p>
<p>Principle 6 – Set quality targets for rehabilitation in the Mining Operations Plan and implement a monitoring program to measure performance</p>	<p><i>Narrative</i> – summary of quality targets for the various rehabilitation types; and summary of monitoring program scope and status.</p>
<p><i>Each company should include quality targets for the various types of rehabilitation in the Mining Operations Plan for each of its mines. A monitoring program to measure the performance of rehabilitation areas against the quality targets should be implemented at each of its mines.</i></p>	<p>Quality is a part of the rehabilitation plan (MOP) and monitoring program for MAC. The quality component of rehabilitation is written into the Rehabilitation Strategy and MOP and are shown as criteria. Leading indicators are used to measure the success of the rehabilitation quality and progression towards completion and relinquishment. Mt Arthur continued natural landform design rehabilitation. The design used analogue landforms to achieve similar landforms in stability and shape as those in the natural landscape.</p>

Principle	Reporting
	<p>Based on the Trigger Action Response Plan in the Mt Arthur Rehabilitation Management Plan (a tool used to drive rehabilitation to relinquishment based on monitoring results) approximately 65ha of drought impacted rehabilitation was completely re-established.</p> <p>The scope of work has included:</p> <ul style="list-style-type: none"> • Scalping of areas dominated by perennial grasses; • Repair of erosion gullies; • Levelling of dump; • Application of gypsum; • Application of compost; • Chisel ploughing in compost and gypsum; • Re-seeding with box gum woodland mix as per the Mining Operations Plan; • Application hay mulch as a temporary stabilisation; and <p>Construction of approximately 565 m of maintenance track</p>

Contextual information

<p><i>This section provides an opportunity for each company to provide some commentary or contextual information regarding their reported results. Such information could include advice on:</i></p> <ul style="list-style-type: none"> - <i>Any material changes to the site (i.e., expansions, acquisitions, or divested assets); or</i> - <i>Why any figures may have changed since the last reporting period?</i> 	<p>Mt Arthur plans the continuation of natural landform design rehabilitation.</p> <p>Although this geomorphic design has been implemented on other sites within NSW and also worldwide there are many defining characteristics that restrict its use such as space, waste characterisation, rainfall, availability of suitable rock, availability of mulch, final land use, landform height and steepness of the landform. Mt Arthur Coal has larger higher landforms than other sites in the Hunter Valley and is also space constrained for emplacement area. The resultant design aligns with industry best practice but will be monitored over the coming years to ensure further natural landform design incorporates learnings and improvement from the current work.</p>
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Future rehabilitation priorities

<p><i>This section provides an opportunity for each company to provide details on rehabilitation activities at their site/s for the upcoming year.</i></p>	<p>Mt Arthur will continue improvements to the monitoring methodologies including remote sensing for erosion monitoring and vegetation health assessment.</p> <p>Investigation into the use of Landform Evolution Modelling (LEM) to aid in long term stability of our landforms.</p> <p>Planning works for the removal of contour banks of older rehab established prior to the use of Geomorphic design principles.</p>
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