Upper Hunter Mining Dialogue

Final and Temporary Rehabilitation Principles and Commitments

2020 Results and Commentary

REPORT BY BHP
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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
Principle 1 – Include rehabilitation planning in mine planning	*Narrative* – how has this been done in the last period
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.	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. FY20 rehabilitation continued using geomorphic design to mimic natural landform. The dedicated Rehabilitation Specialist in the Environment team assess previous years 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.
Principle 2 – Undertake progressive rehabilitation	*Narrative* – how has this been implemented in the last twelve months
Companies should undertake rehabilitation progressively, with the objective of ensuring that rehabilitation is as close as possible to active mining.	Dumping FY20 was prioritised to achieve final landform. Any dumps that had reached the final dump tent have entered the rehabilitation phases. The focus in FY20 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.
Principle 3 – Minimise time that disturbed areas are left without vegetation	*Narrative* – how has this been implemented in the last twelve months
Companies should actively seek to minimise the time that land is left without cover during mining. This should include: ▪ *Taking steps to ensure that rehabilitation is commenced within 12 months of land becoming available for rehabilitation* ▪ *Utilising methods of temporary rehabilitation[1], such as aerial seeding of over burden and other disturbed areas where permanent rehabilitation has not commenced.*	During the reporting period Mt Arthur Coal completed 81ha. 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.
Principle 4 – Prioritise areas of rehabilitation and temporary cover to reduce impacts	*Narrative* – how has this been implemented in the last twelve months

[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
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: ▪ *Areas that have the greatest impact on visual amenity, such as areas that face townships, residences, or the highway* ▪ *Areas that have the potential to generate dust leaving the site* ▪ *Areas that are important for biodiversity, such as rehabilitation adjoining or providing connectivity to remnant vegetation.*	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. 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.
Principle 5 – Meet target for rehabilitation progress identified in the Mining Operations Plan	*Quantitative* – report MOP target and actual rehabilitation *Narrative* – explanation of performance
Each company should meet the annual target for rehabilitation quantity (area) set in the Mining Operations Plans for each of its mines.	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) 81 hectares of rehabilitation across four areas (VD5, VD4, Drayton Void and Saddlers Central). An additional 31.3 hectares entered Phase 3 – Growing Media Development with topsoil being spread. This was aligned to the MOP target of 81 hectares to Phase 4 – Ecosystem and Landuse Establishment, as shown in Table 28. Areas of rehabilitation undertaken during the reporting period are shown in Appendix 5. The final area entering rehabilitation of 112.3 ha is a significant increase in annual rehabilitation at Mt Arthur Coal. The trial of using Unmanned Aerial Vehicle (UAV) continued for the early part of the reporting period. The UAV seeding was found to be difficult to manage for large areas. As a result Mt Arthur Coal utilised a plane to complete seeding in FY20. This allowed Mt Arthur Coal to target ideal seeding period (April) and conditions with rainfall occurring within two weeks of seeding, thus improving the chances of quality rehab establishing. Both woodland and pasture seed mixes and rates have been revised in consultation with an independent specialist, as specified in the MOP.

Principle	Reporting
Principle 6 – Set quality targets for rehabilitation in the Mining Operations Plan and implement a monitoring program to measure performance	*Narrative* – summary of quality targets for the various rehabilitation types; and summary of monitoring program scope and status.
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.	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. A significant review of the Rehabilitation and Ecological Monitoring procedure (REMP) was undertaken in the reporting period. The review included: • Transitioning the methodology to the Biodiversity Assessment Method (BAM); • Increased monitoring locations of established rehabilitation; • An increase in routine inspections as part of landform stability monitoring (Routine Walkover Inspection); • Independent revegetation inspection aligned with the ecological development monitoring; • Aligning visual amenity monitoring with rehabilitation goals; and • Formalising the Ground & Pasture Assessment (GPA) methodology. During the reporting period Mt Arthur Coal appointed a dedicated Rehabilitation Specialist role, which is responsible for collaborating with and influencing mine planning to achieve MOP rehabilitation targets using industry best practice methods, as well as implementing the rehabilitation maintenance and improvement program of works

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	During the reporting period Mt Arthur Coal appointed a dedicated Rehabilitation Specialist role, which is responsible for collaborating with and influencing mine planning to achieve MOP rehabilitation targets using industry best practice methods, as well as implementing the rehabilitation maintenance and improvement program of works. A project of improvement of VD1 rehabilitation including: • Targeted spot weed treatment in higher value areas • Stem density reduction in areas dominated by spotted gum; • Construction of terrestrial fauna habitat; and • Detailed weed mapping to aid planning works.

Contextual information

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: - *Any material changes to the site (i.e., expansions, acquisitions, or divested assets); or* - *Why any figures may have changed since the last reporting period?*	Mt Arthur plans the continuation of natural landform design rehabilitation. 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.

Future rehabilitation priorities

This section provides an opportunity for each company to provide details on rehabilitation activities at their site/s for the upcoming year.	Mt Arthur will continue improvements to the monitoring methodologies including remote sensing for erosion monitoring and vegetation health assessment Investigation into the use of Landform Evolution Modelling (LEM) to aid in long term stability of our landforms. Improvement works will centre on the northern dumps (VD4 and VD5) that have been severely impacted by the drought.