

# Upper Hunter Mining Dialogue

Final and Temporary Rehabilitation Principles and Commitments

2016 Report by BHP Mt Arthur Coal

May 2017



## Final and Temporary Rehabilitation Principles and Commitments

### Introduction

The nine coal producers of the Upper Hunter, through the Upper Hunter Mining Dialogue have agreed to this set of principles and commitments with regard to final and temporary rehabilitation. The Principles and Commitments have been developed with advice and guidance from the UHMD Joint Working Group – Land Management which is a stakeholder and industry group.

The Upper Hunter Mining Dialogue has two five year goals with regard to 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. A number of 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.

**Table 1 – Principles and Commitments**

Principle	Reporting
<p><b>Principle 1 – Include rehabilitation planning in mine planning</b></p>	<p>Planning for rehabilitation is undertaken jointly by the Mine Planning and Environment functions at Mt Arthur Coal, with Environment responsible for the final land treatment and vegetation establishment.</p>
<p>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.</p>	<p>Long-term mine planners allocate proposed rehabilitation areas as part of the five year mine planning process. These areas are reported in the Mining Operations Plan (MOP). Topsoil recovery, placement and spreading are undertaken by contractors, under supervision of the Mine Planning / Pit Services function, with technical advice and further supervision provided by Environment. Mine Planning also completes the design of overburden emplacements, including planning, scheduling and supervision of reshaping works to achieve the final approved landform.</p>
<p><b>Principle 2 – Undertake progressive rehabilitation</b></p>	<p>Rehabilitation at Mt Arthur Coal is completed progressively, within the constraints of operationally reserved land. The main mining disturbed areas available for rehabilitation are the overburden emplacements. As these emplacements advance and reach the approved elevation, they are progressively reshaped to the final design, topsoiled and revegetated. With the exception of emplacement areas reserved for operational requirements, such as haul roads for future mining access, all emplacement areas that reach their approved elevation will be rehabilitated, or allocated for rehabilitation within the current MOP period.</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><b>Principle 3 – Minimise time that disturbed areas are left without vegetation</b></p>	<p>Mt Arthur Coal limits the area of vegetation cleared ahead of mining to those areas proposed for further ground disturbance within the subsequent three months. This assists in minimising the overall area of site disturbance. Where woodland communities are cleared, vegetation is mulched (following recovery of any available seed and / or suitable habitat trees and logs) and left on the ground to provide a protective mulch layer, until stripped and recovered with the underlying topsoil. Peripheral land disturbed for infrastructure construction projects is required to be rehabilitated as part of the project scope, using rapid rehabilitation methods such as hydro seeding or hand seeding. These measures reduce the potential for dust, erosion, weed establishment and visual amenity in those cleared areas. 6.1 hectares was hydro seeded during the reporting period (FY16).</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"> <li>▪ <i>Taking steps to ensure that rehabilitation is commenced within 12 months of land becoming available for rehabilitation</i></li> <li>▪ <i>Utilising methods of temporary rehabilitation<sup>1</sup>, such as aerial seeding of overburden and other disturbed areas where permanent rehabilitation has not</i></li> </ul>	<p>Operationally available mining disturbed land is progressively rehabilitated, as discussed previously when dumps are at their final height and available for rehabilitation. Where disturbed land is operationally unavailable for rehabilitation in the near future, aerial seeding of those</p>

<sup>1</sup> 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
<i>commenced.</i>	areas with a pasture seed / fertiliser mix is used as a temporary dust suppression and visual amenity measure. Mt Arthur Coal has a well-established aerial seeding program, having commenced in 2010, with 192 ha seeded during the reporting period (FY16).
<b>Principle 4 – Prioritise areas of rehabilitation and temporary cover to reduce impacts</b>	<p>The areas of mining disturbed land that tend to represent the greatest impact, from a dust generation and visual aesthetics perspective, are the overburden emplacements. Overburden emplacements are prioritised for rehabilitation as soon as operationally available and, where not available for final rehabilitation, are targeted for temporary vegetation establishment via the aerial seeding program.</p> <p>The priority for rehabilitation at Mt Arthur Coal is the construction and rehabilitation of overburden in Visual Dump 1 (VD1) on the eastern side of the current active mining area. VD1 will be the highest manmade landform on the Mt Arthur Coal mine site and represents the most visible mine feature from the residential and publicly accessible areas to the northwest of the mine. Placement of overburden on this easternmost dump, and rehabilitation to box gum woodland, is a priority to ensure it achieves its intended function of providing a visual and noise shield from future mining operations.</p> <p>Rehabilitation is given the highest priority when in close proximity to main roads such as Denman Rd with tree screens / bunds designed to tie in with the unmined nearby landscape. Rehabilitation of older mined areas such as Saddlers Pit emplacement are also a priority. As well as disturbance minimisation (and associated dust / erosion reduction benefits), achieving final rehabilitation in this area will connect Mt Arthur / Mt Arthur Conservation with Saddlers Creek Conservation areas, which links into wider regional vegetation corridors. Rehabilitation has been designed from the nearest population north-west of the site and to move away aligned with approved mining plans. Rehabilitation has also been designed to mimic the natural surrounding landform as best as possible. This is further integrated by Mt Arthur Coal committing to a geofluvial rehabilitation design from FY17 onwards.</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"> <li>▪ <i>Areas that have the greatest impact on visual amenity, such as areas that face townships, residences, or the highway</i></li> <li>▪ <i>Areas that have the potential to generate dust leaving the site</i></li> <li>▪ <i>Areas that are important for biodiversity, such as rehabilitation adjoining or providing connectivity to remnant vegetation.</i></li> </ul>	
<b>Principle 5 – Meet target for rehabilitation progress identified in the Mining Operations Plan</b>	For the MOP period FY16, Mt Arthur Coal achieved 56.8 ha. This met the rehabilitation commitment of 51.3 ha for the period, as reported in the current MOP. In terms of long-term rehabilitation commitments the cumulative rehabilitation area of 1102 ha to date was closely aligned with 1101 ha of total cumulative rehabilitation completed at the end of the reporting period.
<i>Each company should meet the annual target for rehabilitation quantity (area) set in the Mining Operations Plans for each of its mines.</i>	
<b>Principle 6 – Set quality targets for rehabilitation in the Mining Operations Plan and implement a monitoring program to measure performance</b>	The current Mt Arthur Coal MOP (FY16-FY20) presents performance objectives and completion criteria for mined land rehabilitation. These objectives and criteria describe the desired quality targets expected for each type of rehabilitation community to be established, including pasture, box gum woodland communities and native woodland corridors.

Principle	Reporting
<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>	A rehabilitation monitoring program, incorporated into the annual biodiversity monitoring program, has been established at Mt Arthur Coal to assess rehabilitation development and measure progress towards these objectives / criteria. This monitoring program commenced in 2014 and has been conducted on an annual basis since then. Aside to this Mt Arthur Coal is a participant in the UHMD Grazing study which sees beef cattle grazed on rehabilitated land at Mt Arthur Coal. The study compares cattle grazing on analogue sites located on unmined land and results between rehabilitated and unmined paddocks.

### Aggregate reporting on land use and disturbance of UHMD members

The purpose of this section of the report is to provide the community with information about the use of land by UHMD members companies on an aggregated annual basis. This information is available for each operation in the Annual Environmental Management Report. However the industry acknowledges the need to provide this information on an industry basis to complement the reporting against the Principles and Commitments above. Table 2 sets out the information that will be reported.

**Table 2 – Rehabilitation, disturbance and land use data (see attached XL spreadsheet)**

	Rehabilitation	2012 (hectares)	2013 (hectares)
<b>A</b>	Total land area disturbed and not yet rehabilitated at the beginning of the reporting period		
<b>B</b>	Total amount of land newly disturbed within the reporting period		
<b>C</b>	Total amount of land newly rehabilitated <sup>2</sup> within the reporting period (rehabilitation commenced in this period)		
<b>D</b>	Total land area disturbed and not yet rehabilitated at the end of the reporting period (D = A + B - C)		
	Annual rehabilitation to disturbance ratio (C:B) <sup>3</sup>		
	<b>Other Land Managed</b>		

<sup>2</sup> Rehabilitation is defined by the *Mining Act 1992* as the treatment or management of disturbed land or water for the purpose of establishing a safe and stable environment.

<sup>3</sup> The rehabilitation to disturbance ratio indicates how many hectares of rehabilitation are undertaken for each hectare of land disturbed during the year. A ratio of 1 would indicate that the area of rehabilitation and disturbance in that year are the same.

	Estimate of the total area of land managed to maintain or improve biodiversity (including onsite and offsite biodiversity offsets)		
	Estimate of the total area of land managed for agricultural use (e.g. grazing, cropping, viticulture)		

### Review

The *Final And Temporary Rehabilitation Principles And Commitments* will be reviewed every three years. The guidance of the Joint Working Group – Land Management will be sought as part of the review of the Principles and Commitments.