

# Upper Hunter Mining Dialogue

Final and Temporary Rehabilitation Principles and Commitments

2018 Results and Commentary

REPORT BY THE BLOOMFIELD GROUP  
APRIL 2019



## 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 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 - Provide transparent and reliable information through the Rehabilitation Reporting Principles, and*
- *Goal 3 - 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 3 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   |
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| <p><b>Principle 1 – Include rehabilitation planning in mine planning</b></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>At Rix’s Creek Mine (RCM), rehabilitation is integrated into the mine planning process. In the weekly short-term production meeting, rehabilitation designs are discussed with the site management team and resources are allocated to ensure that RCM’s rehabilitation commitments in accordance with the subsequent Mine Operations Plans are achieved. From every stage within the rehabilitation process, the environmental department, mine planners, surveyors and production personnel work as a collective team to ensure that the progressive rehabilitation is achieved.</p>   |
| <p><b>Principle 2 – Undertake progressive rehabilitation</b></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>During 2018 rehabilitation was carried out to any area’s shaped to final landform design – this ensured rehabilitation is as close as possible to the active mining areas. The integration of final GPS landform design into each overburden dump bulldozer assists this process. This will continue during 2019.</p>  |
| <p><b>Principle 3 – Minimise time that disturbed areas are left without vegetation</b></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"> <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 over burden and other disturbed areas where permanent rehabilitation has not commenced.</i></li> </ul> | <p>Employment of a permanent site-based rehabilitation contractor ensures rehabilitation is commenced within 12 months of land becoming available and in fact rehabilitation is usually commenced as soon as the final landform has been shaped to its final design. RCM have previously conducted aerial seeding over disturbed areas for dust mitigation.</p> <p>For areas designated for trees over pasture, a pasture cover crop is generally sown into the rehabilitated area in the first instance to stabilise the ground and minimise erosion. A tractor with a mulcher implement slashes the cover crop area. A tractor then uses the ripper tines to rip strips along the slope of the rehabilitated area and leaving strips of pasture cover crop intact. The strips that are ripped by the Tractor are sown with tree seed.</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   |
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|   | This process works very well in minimising erosion and riling on sloping batters that are designated for tree seed.   |
| <p><b>Principle 4 – Prioritise areas of rehabilitation and temporary cover to reduce impacts</b></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"> <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> | <p>Rehabilitation and temporary cover are given the highest priority where the area has potential for offsite impacts and areas that are seen by the public every day. This includes tree screens/bunds, strategic planting of over storey species in areas to fit in with the existing landscape and habitat corridors (remnant or rehabilitation), shaping of overburden batters facing New England Highway/main roads and dumps that are designed to tie in with unmined surrounding landscapes.</p>   |
| <p><b>Principle 5 – Meet target for rehabilitation progress identified in the Mining Operations Plan</b></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>Rix’s Creek South operations achieved its cumulative rehabilitation total for the 2018 period. Rix’s Creek North fell slightly short of its rehabilitation total as per the Mine Operations Plan commitments. During 2018 at Rix’s Creek North, an area of 5.5ha was shaped to final landform and spread with topsoil at the rail corridor rehabilitation site. However, due to availability issues with biosolids (organic matter), this area was not ameliorated and seeded during the 2018 period and is planned to be completed early 2019, when Biosolids become available.</p> |
| <p><b>Principle 6 – Set quality targets for rehabilitation in the Mining Operations Plan and implement a monitoring program to measure performance</b></p>  | <p><i>Narrative</i> – summary of quality targets for the various rehabilitation types; and summary of monitoring program scope and status.</p>  |

| Principle  | Reporting  |
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| <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>The Bloomfield's group Rix's Creek Mine completed detailed rehabilitation every two years. Rehabilitation monitoring is undertaken in accordance with BCL's monitoring protocol and included the assessment of a range of performance metrics relating to ground cover, landscape function, erosion, vegetation, weeds and soil properties. Based on the analysed and interpreted field collected data, an overall assessment of rehabilitation performance and condition was undertaken against the relevant rehabilitation objectives and completion criteria defined in the Mining Operations Plans (MOPs) for the Rix's Creek South (RCS) and Rix's North (RCN) operations. The 2017 rehabilitation monitoring was completed independently by a rehabilitation consultant and determined that assuming successful management and control of the weeds population, the rehabilitation condition was very satisfactory and generally trending towards achieving the ultimate rehabilitation objective of re-establishing safe and stable landforms compatible with the surrounding landscape and with a land capability suitable for grazing (i.e. class IV-V).</p> |

### Contextual information

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| <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"> <li>- <i>Any material changes to the site (i.e. expansions, acquisitions, or divested assets); or</i></li> <li>- <i>Why any figures may have changed since the last reporting period?</i></li> </ul> | <p>N/A</p> |
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### Future rehabilitation priorities

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| <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>In late 2018 a new trial commenced for monitoring the productivity of rehabilitated pasture through grazing. The aim of Rix's Creek Mines rehabilitation has been to support a productive and sustainable grazing land use post mining. The aim of the trial is to demonstrate that livestock enterprises conducted on rehabilitated pastures at Rix's Creek Mine are of comparable productivity to local district pasture land and are capable of grazing over the long term.</p> <p>The methodology involves two rehabilitated pasture paddocks to be monitored, with identical monitoring of an adjoining natural pasture site which is grazed in a similar fashion will provide an analogue to which the rehabilitation sites can be compared. Monitoring and comparison with both district practice and cattle grazed on undisturbed natural pasture will provide a benchmark for comparison of productive capability.</p> <p>Pasture and land condition can be compared to 'target criteria' and trigger points can be used to initiate adaptive and anticipated changes to grazing and management to suit seasonal conditions. Documentation and recording are needed to allow long term assessment over a number of seasonal conditions.</p> <p>The outcomes of the trial aims to:</p> <ul style="list-style-type: none"><li>• Demonstrate that rehabilitated land can sustain viable cattle grazing enterprise post-mining, while maintaining stable land and vegetation.</li><li>• Demonstrate to key stakeholders the suitability of this rehabilitated land for cattle enterprises in the future.</li><li>• Develop guidance material for best practice grazing management for the site.</li></ul> <p>During 2018 approximately 150ha of rehabilitated land was grazed by cattle using local graziers to manage the cattle at Rix's Creek Mine.</p> <p>Rehabilitation monitoring is undertaken on a bi-annual basis (every 2 years) with the last rehabilitation monitoring conducted at Rix's Creek Mine in spring 2017. Rehabilitation monitoring is scheduled to be completed in 2019 and will take into account additional monitoring sites required as committed in the RCN and RCS Mine Operation Plans.</p> <p>Progressive rehabilitation will be undertaken that Rix's Creek Mine during the 2019 period.</p> |
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