

# Upper Hunter Mining Dialogue

Final and Temporary Rehabilitation Principles and Commitments

REPORT BY GLENCORE  
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## 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.

## **Glencore's Approach to Mine Rehabilitation**

Our focus is on delivering quality rehabilitation to minimise our active mining footprint to the smallest area practicable. In keeping with the expectations of government and the community, our focus is on advancing final rehabilitation as timely as practicable, in preference to temporary rehabilitation.

Notwithstanding our strong commitment to progressive rehabilitation, it should be recognised that it is not always possible to maintain land disturbance and mine rehabilitation in balance in a given year. For example as new mining projects commence or as we move into new mining areas within existing Mining Leases, it will unavoidably lead to greater areas of disturbance comparative to rehabilitation in the initial years of operation to provide for the construction of infrastructure and opening of new pits. It may be a number of years (or more) before overburden emplacement areas reach approved heights and limits and progressive rehabilitation can commence on a scale to equal or exceed the rate of disturbance. Achieving this balance is even more challenging in deeper mining pits where large volumes of overburden have to be removed to access coal seams, which ultimately results in longer timeframes for areas to become available for rehabilitation.

Each of our mining operations prepare an Annual Rehabilitation Plan. The Plan aligns with statutory requirements such as those outlined in Project Approvals and Mining Operations Plans. Further information on the Annual Rehabilitation Plan is provided under Principle 1 below.

In addition, annual rehabilitation inspections and continuation of longer-term (scientifically-based) monitoring programs provides a measure of the quality of rehabilitation works, and a means to continually assess and improve our performance.

This Program has driven key initiatives such as:

- Mangoola's departure from typical rehabilitation practices to an undulating natural looking landform (incorporating wood piles, rock piles, standing habitat trees, low areas of inundation and dams) more likely to blend into the surrounding environment;
- Ravensworth Operation's Final Landform Modification approval (which will improve topography of overburden emplacement areas and provide for a more natural looking landform);
- Mt Owen's published work in partnership with government bodies and the University of Newcastle to reconstruct forest and woodland in areas disturbed by mining, as well as surrounding land previously cleared for grazing; and
- Liddell's on-going grazing trial, which will provide guidance to Glencore sites relating to completion criteria for grazing rehabilitation areas and management of grazing on rehabilitation areas.

**Table 1 – Principles and Commitments**

Principle	Reporting
<p><b>Principle 1 – Include rehabilitation planning in mine planning</b></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>Each operational Glencore mine site in NSW prepares and Annual Rehabilitation and Land Management Plan (ARLMP), which aligns with statutory requirements such as those outlined in Project Approvals and Mining Operations Plans.</p> <p>The ARLMP details the current status of rehabilitation at each site, a proposed rehabilitation program for the following budget (calendar) year, and how the mine’s annual rehabilitation program integrates with longer term (life-of-mine) plans and aligns with the approved final landform and land use for the site.</p> <p>The preparation of the ARLMP commences as part of the annual budget cycle. As part of the annual budget process, sites develop rehabilitation targets (areas) and allocate sufficient resources (human, capital and equipment) in the site’s budget to meet targets.</p> <p>Each site’s ARLMP outlines the interaction between the environmental and other mining departments, such as mine planning and operations (production) to work co-operatively to achieve rehabilitation targets and projects.</p> <p>Progress against rehabilitation targets for each site is tracked monthly throughout the year by Glencore and Key Performance Indicators (KPI’s) have been established for rehabilitation planning, progress, performance and reporting. Rehabilitation KPI’s apply to all relevant mining departments including mine planning, environment and production.</p>
<p><b>Principle 2 – Undertake progressive rehabilitation</b></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>Glencore’s life of mine and annual rehabilitation planning processes place strong emphasis on minimising the area of disturbance at any one time, recognising that sufficient area is required to provide for safe and efficient mining operations.</p> <p>As part of annual life of mine planning and preparation of the ARLMP, each mine is required to calculate the area of land available for rehabilitation (i.e. land that is no longer required for mining purposes). For the upcoming budget year, a greater level of detail is provided and available areas are identified across disturbance categories, including inactive/unshaped dumps, shaped dumps, redundant infrastructure areas and tailings or reject emplacement areas. Rehabilitation targets are then established in consideration of identified available areas. However, as minimum each mine is required to meet commitments specified in the mine’s Mining Operations Plan.</p>

Principle	Reporting
	During 2017 a total of 380ha was seeded across Glencore's mines in NSW. Of this seeding total 376ha was completed at Glencore's Upper Hunter Valley mines in the UHMD area, including Mt Owen, Glendell, Liddell, Ravensworth, Bulga, Mangoola and Integra.
<p><b>Principle 3 – Minimise time that disturbed areas are left without vegetation</b></p>	Rehabilitation is scheduled, and targets set to provide for final (permanent) rehabilitation to commence as soon as practicable after disturbed areas become available (refer to comments for Principles 1 and 2).
<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>	In accordance with Principle 4 below, temporary rehabilitation methods are applied in some cases to areas that are not yet available for final rehabilitation e.g. to establish a temporary vegetation cover on overburden dumps.
<p><b>Principle 4 – Prioritise areas of rehabilitation and temporary cover to reduce impacts</b></p>	Glencore aims to rehabilitate disturbed areas as soon as practicable to assist in improving amenity and reducing dust impacts.
<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>As part of the ARLMP, each mine is required to outline its strategy and progress to date to mitigate visual impacts of its mining and infrastructure areas, as well as provide details of progressive rehabilitation and revegetation programs (e.g. biodiversity offset areas) inside and outside mining lease areas.</p> <p>Examples of measures undertaken across Glencore mines in 2017 to complement existing measures in place and reduce impacts on priority areas included:</p> <ul style="list-style-type: none"> <li>- Progressive rehabilitation on outer slopes of overburden dumps at Bulga, Ravensworth and Mangoola Mines, which are visible from public roads.</li> <li>- Further planting in biodiversity offset areas associated with Glencore's Mangoola Mine and maintenance of existing offset areas at most sites</li> </ul>

<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
<p data-bbox="201 245 688 338"><b>Principle 5 – Meet target for rehabilitation progress identified in the Mining Operations Plan</b></p> <p data-bbox="201 369 688 485"><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 data-bbox="711 254 1422 432">The combined 2017 Mining Operation Plan (MOP) rehabilitation (seeded) target for Glencore’s Upper Hunter Valley mines, including Mt Owen, Glendell, Liddell, Ravensworth, Bulga, Mangoola and Integra was 382ha. The actual seeded area of 376ha for these mines in 2017 was 6ha below this target.</p> <p data-bbox="711 485 1422 814">The combined MOP target for 2017 was not achieved due to protracted industrial action impacting on production at Mangoola Mine, which resulted in less overburden dump areas becoming available for rehabilitation. Further, at Mt Owen Mine planned capping and seeding of two tailings emplacement areas was deferred until 2018 to allow for further drying of these areas prior to final rehabilitation. However, the reduced area of rehabilitation against the combined MOP target was more than offset by 122ha less disturbance than planned across Glencore’s Upper Hunter Valley Mines.</p>
<p data-bbox="201 863 688 1003"><b>Principle 6 – Set quality targets for rehabilitation in the Mining Operations Plan and implement a monitoring program to measure performance</b></p> <p data-bbox="201 1041 688 1283"><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 data-bbox="711 863 1422 947">Mining Operations Plans and/or rehabilitation management plans for each mine include rehabilitation objectives and performance criteria.</p> <p data-bbox="711 978 1422 1129">As required by Approval conditions, monitoring programs are in place to measure landform, flora and fauna attributes over time. This provides a means to assess the quality of rehabilitation works and continually assess performance against rehabilitation criteria.</p>

### Contextual information

<p data-bbox="201 1446 688 1587"><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 data-bbox="250 1593 688 1770" style="list-style-type: none"> <li>- Any material changes to the site (i.e. expansions, acquisitions or divested assets);</li> <li>- Why any figures may have changed since the last reporting period</li> </ul>	<p data-bbox="711 1446 1422 1619">The “Total land area disturbed and not yet rehabilitated at the beginning of the reporting period for 2017” does not match the “Total area of rehabilitation at the end of the reporting period (cumulative) for 2016” due to reconciliation of data during 2017 for Mt Owen Complex and Bulga Complex to correct some minor data inaccuracies.</p>
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