



**NSW
Resources
Regulator**

ARR0001112

DENDROBIUM COLLIERY ANNUAL REHABILITATION REPORT

Friday 1 July 2022 to Friday 30 June 2023



Contents

Summary table.....	3
Important.....	3
Mine details.....	4
Project description.....	4
Life of mine.....	4
Current development consents, leases and licences.....	4
Changes to land ownership and land use.....	4
Surface disturbance and rehabilitation activities during the reporting period.....	5
Disturbance and rehabilitation statistics.....	7
Current disturbance and rehabilitation progression.....	7
Rehabilitation key performance indicators (KPIs).....	7
Progressive achievement of established rehabilitation.....	8
Variation to the rehabilitation schedule.....	8
Rehabilitation monitoring and research findings.....	9
Rehabilitation monitoring.....	9
Status of performance against rehabilitation objectives and rehabilitation completion criteria.....	9
Outcomes of rehabilitation research and trials.....	13
Attachment 1 – Reporting Definitions.....	15
Attachment 2 – Definitions.....	18
Attachment 3 – Rehabilitation Complaints.....	24
Attachment 4 – Stakeholder consultation.....	22
Attachment 5 – Plans.....	27

Summary table

DETAIL	
Mine	Dendrobium Colliery
Reference	ARR0001112
Annual report period commencement date	Friday 1 July 2022
Annual report period end date	Friday 30 June 2023
Forward program	FWP0001016
Mining leases	ML 1566 (1992), ML 1510 (1992), CCL 768 (1973)
Lease holder(s)	Dendrobium Coal Pty Ltd, Illawarra Coal Holdings Pty Ltd
Contact	Amy Alice Bradbury
Date of submission	Thursday 28 September 2023

Important

The department may make the information in your report and any supporting information available for inspection by members of the public, including by publication on its website or by displaying the information at any of its offices. If you consider any part of your report to be confidential, please communicate this to the department via the message function on this submission within the NSW Resources Regulator Portal.

Mine details

Project description

The Dendrobium Operations are managed in accordance with Development Consent 60- 03-2001, as modified (the Consent). Dendrobium Operations incorporate legacy sites and the Cordeaux Pit Top which are covered by CCL 768 and Development Consent D74/134 (Cordeaux). Dendrobium Mine is owned and operated by Dendrobium Coal Pty Ltd, a subsidiary company of Illawarra Coal Holdings Pty Ltd (ICHPL), a wholly owned subsidiary of South32 Limited. The mining operations are located immediately adjacent to Mt Kembla, approximately 8 km west of Wollongong, NSW, on the Woronora Plateau. Under the Consent, Dendrobium Mine is approved to produce up to 5.2 million tonnes (t) per annum until 31 December 2030. Dendrobium Mine primarily extracts hard coking coal from the Wongawilli Seam of the Southern Coalfield. Five major mining areas make up the approved mine plan for Dendrobium (Areas 1, 2, 3A, 3B and 3C). Cordeaux is under “care and maintenance” and has maintained this status.

Life of mine

9 years

Current development consents, leases and licences

Development consents granted under the *Environmental Planning and Assessment Act 1979*

DA60032001
DA60032001
DA60032001
DA60032001
DA60032001
DA60032001
DA60032001
DA60032001
D74/134
DA60032001
DA60032001
DA60032001
DA60032001
DA60032001
DA60032001
DA60032001

Authorisations covering the mining area granted under the *Mining Act 1992*

ML 1566 (1992), ML 1510 (1992), CCL 768 (1973)

Any other approvals, licences, or authorities issued by government agencies that are relevant to the progress of mining operation and rehabilitation activities

Environment Protection Licence - 3241
Environment Protection Licence - 611
WaterNSW Access Consent - F2020/1545
AUTH 143 - Exploration Authorisation
AUTH 374 - Exploration Authorisation
AUTH 338 - Exploration Authorisation
Longwall 19 SMP Approval
Longwall 21 SMP Approval

Summary of the scope and/or purpose of the new applications or modifications to existing approvals (if applicable)

On 8 July 2022, a modification to Development Consent 60-03-2001 was approved. Changes to the development consent can be found on the Illawarra Metallurgical Coal (IMC) website: <https://www.south32.net/docs/default-source/operations/illawarra/illawarra-metallurgical-coal-mine/documents/dendrobium/development-consent/instrument-of-modification---mod-9---july-2022.pdf>.

Changes to land ownership and land use

No changes to land ownership and land use occurred during the annual reporting period.

Surface disturbance and rehabilitation activities during the reporting period

Surface disturbance and rehabilitation activities that were conducted and an analysis of the progress against the rehabilitation schedule

Contaminated soils were removed from the footprint of the O'Briens Gap pump house during the reporting period. Validation testing and backfilling was also completed.

Exploration site rehabilitation takes place progressively at the cessation of drilling and/or monitoring and is monitored for success over several years. All rehabilitation is conducted according to all the relevant REF documentation related to each activity, as well as in accordance with any additional conditions imposed by WaterNSW activity approvals.

Exploration rehabilitation across CCL 768 in FY23 was primarily focused on the rehabilitation of sites drilled in FY22 and FY23.

Vegetation removal and topsoil stripping occurred at the Ventilation No. 2 and 3 Shafts in preparation of gas management and ancillary infrastructure. This was conducted in compliance with the IMC Permit to Disturb process and Construction Environmental Management Plan. Prior to construction, the two existing sediment ponds were enlarged to provide additional capacity for potential sediment laden runoff. The project is anticipated to be completed in FY24.

Land preparation works were undertaken for a land slip that occurred on the western boundary of the Dendrobium Pit Top; including soil nails, shotcrete and soil reinforcing mesh as designed by a specialist engineering consultant. Works commenced in FY23 and are due to be completed in FY24.

Rehabilitation planning activities that were conducted, including any specialist studies

Investigations and studies continued into the removal of redundant infrastructure associated with O'Briens Drift, particularly at the KVCLF. These included a Hazardous Building Materials Survey, engineering for belt removal and design work associated with the Endeavour Energy powerline relocation.

A Hazardous Building Materials Survey was undertaken for the Corrimal No. 3 site and Cordeaux Pit Top redundant coal bins, which are planned to be removed in FY24/FY25.

Overview of subsidence repair and/or remediation works undertaken

Subsidence impacts associated with underground mining operations, predominantly soil cracking, were reported progressively as identified. Where these cracks occurred on access tracks, they were repaired. Cracks identified in bushland were monitored to verify they

remediated naturally to avoid additional ground disturbance. Where there is a potential safety risk to workers walking near these sites, signage and caution tape is put in place. Details of remediated sites is included in the latest End of Panel Report. Any ongoing changes to these impacts will be rehabilitated as required.

The WC21 and Donalds Castle Creek Rehabilitation Plan was approved by the Department following extensive consultation with various agencies. The trial rehabilitation program commenced in FY23 with drilling and grouting of the two pools in WC21. These trial works were completed in FY23 and post-grouting monitoring of pool water levels is underway, with results due to be reported in FY24.

Overview of rehabilitation management and maintenance activities

Erosion and sediment control at Dendrobium is managed in accordance with the approved Water Management Plan. Due to significant rainfall over FY22 and FY23, the Dendrobium Pit Top experienced significant slope stability issues in the form of landslips in several locations – mostly along the portal road and adjacent to the Operations Building. Tree removal was conducted along the slope to reduce the likelihood of further slippage and risk of harm to personnel, infrastructure and equipment. An engineering consultancy was engaged to provide a permanent repair solution utilising soil nails and soil reinforcing mesh that avoided undercutting the unstable material and will allow vegetation to re-establish. Works commenced in FY23, with completion due in FY24.

Weeds are managed in accordance with the Rehabilitation Management Plan. Weed control was undertaken at Dendrobium Pit Top area, Kemira Valley Coal Loading Facility, Kemira Valley Rail Line, Cordeaux Colliery and Corrimal No. 3 Shaft.

Details of any rehabilitation actions taken as required by any letters, notices or directions issued by government agencies, including the NSW Resources Regulator

The rehabilitation security cost estimate for the Dendrobium operations was reviewed during the reporting period to align with the latest Resources Regulator Rehabilitation Cost Estimate (RCE) tool updates. No major changes to the existing security estimate were identified, although there were increased costs associated with rehabilitation at the Ventilation Shaft 2/3 site due to the construction of gas management infrastructure.

The Rehabilitation Management Plan was revised following feedback from DPE.

Details of any rehabilitation areas that have achieved the final land use

An application for part cancellation of CCL 768 was submitted in December 2022 for the area of land covered by Stage 2 of the Mount Kembla Mine Memorial Pathway. IMC considers that the area has been successfully rehabilitated to the agreed final land use. A response has not yet been received from the Resources Regulator.

Key production milestones

MATERIAL	UNIT	FWP0001016 YEAR 1	THIS REPORT
Stripped topsoil <small>(if applicable)</small>	(m ³)	67	450
Rock/overburden	(m ³)	0	0
Ore	(Mt)	4.7	4.6
Reject material¹	(Mt)	1	1.1
Product	(Mt)	3.6	3.4

¹ This includes coarse rejects, tailings and any other wastes resulting from beneficiation.

Disturbance and rehabilitation statistics

Current disturbance and rehabilitation progression

ELEMENT	UNIT	THIS REPORT
A Total surface disturbance footprint	(ha)	232.18
B Total active disturbance	(ha)	228.57
C Land prepared for rehabilitation	(ha)	0.7
D Ecosystem and land use establishment	(ha)	2.65
E Ecosystem and land use development	(ha)	0.21
F Rehabilitation completion	(ha)	0.05

Rehabilitation key performance indicators (KPIs)

ELEMENT	UNIT	THIS REPORT
G Total new active disturbance area	(ha)	NA - this value will display after 2nd year ARR submission as calculation relies on comparison between sequential yearly ARR data
H New rehabilitation commenced during annual reporting period	(ha)	NA - this value will display after 2nd year ARR submission as calculation relies on comparison between sequential yearly ARR data
I Established rehabilitation	(ha)	0.25
J Annual rehabilitation to disturbance ratio	%	NA - this value will display after 2nd year ARR submission as calculation relies on comparison between sequential yearly ARR data
K Rehabilitated land to total mine footprint	%	0.11

Progressive achievement of established rehabilitation

ELEMENT	UNIT	THIS REPORT
L Established rehabilitation - agricultural final land uses	%	0
M Established rehabilitation - native ecosystem final land uses	%	100
N Established rehabilitation - other/non-vegetated final land uses	%	0

Variation to the rehabilitation schedule

Identify the components of the most recent forward program that were not achieved

The stripped topsoil was greater than predicted in Year 1 of the Forward Program. This is primarily due to construction work at the Area 3C Gas Drainage Plant. Works were conducted in compliance with the IMC Permit to Disturb process and the Gas Drainage Plant – Area 3C Construction Environmental Management Plan.

The Rehabilitation Land Preparation and, Ecosystem and Land Use Establishment values, were lower than predicted in the Forward Program. This was a result of land preparation work being projected for WC21 and Donalds Castle Creek, however the trial is in the monitoring and reporting phase, with land preparation not likely to occur until the results of the trial have been analysed.

Key factors that delayed progressive rehabilitation

The WC21 rehabilitation trial grouting works commenced in November 2021 and were paused in December 2021 due to restricted access to WaterNSW Special Area during wet weather. Ongoing La Nina conditions restricted access to the Special Areas until September 2022 and lead to track damage requiring repair. Following track repairs the grouting trial resumed and was completed in November and December 2022.

Outline actions that will be included in the forward program and carried out to minimise disturbance and undertake progressive rehabilitation as far as reasonably practical

Progression of the WC21 and DCC Rehabilitation Plan is contingent on the outcomes of the trial. Revision of the WC21 and DCC Rehabilitation Plan with the results and recommendations of the trial is planned for Q1 FY24.

Rehabilitation monitoring and research findings

Rehabilitation monitoring

The rehabilitation monitoring carried out in the annual reporting period

Findings from the WC21 trial monitoring are to be finalised in FY24.

Status of performance against rehabilitation objectives and rehabilitation completion criteria

The monitoring program that has been implemented

Monitoring of trial works is underway along WC21. Analysis of monitoring data (principally pool water level recession curves) from pre-mining, control, impact and mitigation sites is used to determine the success of the rehabilitation. Objective performance criteria will be developed following the rehabilitation works and monitoring at the WC21 trial remediation sites. For more information refer to the WC21 and DCC Remediation Plan located on the IMC website: <https://www.south32.net/what-we-do/our-locations/australia/illawarra-metallurgical-coal/documents>.

Are all rehabilitation areas in Landform Establishment phase or higher represented in the monitoring program to assess performance against the rehabilitation objectives and approved or, if not yet approved rehabilitation completion criteria and final landform and rehabilitation plan?

NO

Year rehabilitation areas will be included as part of the monitoring program

N/A

An appraisal of whether rehabilitation is moving towards achieving the proposed rehabilitation objectives, approved or, if not yet approved, rehabilitation completion criteria and final landform and rehabilitation plan as soon as reasonably practicable.

Rehabilitation is managed and progressing in accordance with the approved Rehabilitation Management Plan.

Due to the anticipated long life of the mine, and the requirement of most surface facilities for operational function, detailed rehabilitation and monitoring programs will be developed closer to the time of closure. Rehabilitation plans will be formed to align with the proposed final landform and land-use.

Trial remediation works along WC21 are progressing as described above and per the WC21 and Donalds Castle Creek Rehabilitation Plan, available from the IMC website:

<https://www.south32.net/what-we-do/our-locations/australia/illawarra-metallurgical-coal/documents>.

Rehabilitation completion criteria will be developed following the approval of the rehabilitation objectives and therefore have not been considered in this appraisal.

Appraisal description

Rehabilitation is moving towards achieving the final land use as soon as reasonably practicable.

Rehabilitation monitoring program findings

Rehabilitation Monitoring is undertaken in accordance with the Rehabilitation Management Plan, located on the IMC website: <https://www.south32.net/what-we-do/our-locations/australia/illawarra-metallurgical-coal/documents>.

No rehabilitation monitoring was undertaken in the reporting period at surface facilities as no recent rehabilitation has been undertaken.

The O'Briens Gap Switchyard final report was submitted to the Resources Regulator in FY23.

Subsidence remediation monitoring is undertaken when travelling along tracks where remediation activities have occurred.

Pool water level monitoring is underway along WC21 following completion of trial works in FY23. Results are due to be reported in FY24. For more details, refer to the WC21 and Donalds Castle Creek Rehabilitation Plan published on the IMC website:

<https://www.south32.net/what-we-do/our-locations/australia/illawarra-metallurgical-coal/documents>.

Analogue sites were established for the Dendrobium Pit Top, KVCLF, Ventilation Shaft 1, Ventilation Shaft 2/3 and the Cordeaux Pit Top in FY23 (two for each site). A baseline assessment of all ten analogue sites was undertaken and baseline data collected for future comparison with each of the five sites and to enable the identification of suitable species for use in rehabilitation (seed and tube stock). Soil chemistry, soil microbial activity and soil health attributes from each of the analogue sites was also assessed. Further, observations of erosion, slope instability or other landscape attributes that may influence the sites rehabilitation success were also collected whilst on site. A monitoring program has not yet been established.

Performance issues and their causes including identification of any knowledge gaps that must be addressed

Nil.

Outcomes of rehabilitation research and trials

RRT NUMBER	PROJECT/TRIAL NAME	OBJECTIVE OF TRIAL/PROJECT	METHODOLOGY	EXPECTED DATE OF COMPLETION	UPDATEDDATE OF COMPLETION	STATUS	ON TRACK?	ON TRACK UPDATE
------------	--------------------	----------------------------	-------------	-----------------------------	---------------------------	--------	-----------	-----------------

ARR000111

2

Outcomes of completed trials and research

N/A

Attachment 1 – Reporting Definitions

REPORTING CATEGORY	DEFINITION
A1 Total disturbance footprint – surface disturbance	<p>All areas within a mining lease that either have at some point in time or continue to pose a rehabilitation liability due to surface disturbance activities.</p> <p>The total disturbance footprint is the sum of the total active disturbance, decommissioning, landform establishment, growth medium development, ecosystem and land use establishment, ecosystem and land use development and rehabilitation completion (see definitions below).</p> <p>Underground mining operations should not include the footprint of underground mining areas/subsidence management areas in the total disturbance footprint.</p>
A2 Underground Mining Area	<p>Underground mining operations areas/subsidence management areas.</p>
B Total active disturbance	<p>Includes on-lease exploration areas, stripped areas ahead of mining, infrastructure areas, water management infrastructure, sewage treatment facilities, topsoil stockpile areas, access tracks and haul roads, active mining areas, waste rock emplacements (active/unshaped/in or out-of-pit), tailings dams (active/unshaped/uncapped) and temporary stabilised areas (e.g. areas sown with temporary cover crops for dust mitigation and temporary rehabilitation).</p>
C Rehabilitation – land preparation	<p>Includes the sum of all disturbed land within a mining lease that have commenced any, or all, of the following phases of rehabilitation– decommissioning, landform establishment and growth medium development.</p> <p>Refer to the glossary of terms in this document for the definition of these phases of rehabilitation.</p>

REPORTING CATEGORY	DEFINITION
<p>D Ecosystem and land use establishment</p>	<p>Includes the area which has been seeded/planted with the target vegetation species for the intended final land use. However, vegetation has not matured to a stage where it can be demonstrated that it will be sustainable for the long term and or require only a maintenance regime consistent with target reference/analogue sites.</p> <p>Typically, rehabilitation areas would be in this phase for at least two years (and usually more) before rehabilitation can be classified as being in the ecosystem and land use development phase. This phase does not apply to infrastructure areas that are being retained as part of final land use for the site.</p>
<p>E Ecosystem and Land Use Development</p>	<p>Rehabilitation has matured to a level where target revegetation outcomes are on a trajectory towards meeting the final rehabilitation objectives and rehabilitation completion criteria (as verified by monitoring).</p> <p>This phase includes infrastructure areas that are to be retained for an approved post mining land use, following completion of all necessary measures to render the infrastructure fit for this purpose (for example structural integrity).</p>
<p>F Rehabilitation Completion</p>	<p>The NSW Resources Regulator has determined in writing that the mining area has achieved the approved rehabilitation objectives and approved rehabilitation completion criteria and final landform and rehabilitation plan following the submission of <i>Form: ESF2 Rehabilitation completion and/or review of rehabilitation cost estimate and/or notification of mine or petroleum site closure</i>.</p>
<p>G New active disturbance area</p>	<p>The area of any new active disturbance that has been created during the annual reporting period (definition A1 in Table 5).</p>
<p>H New rehabilitation commenced during annual reporting period</p>	<p>The sum of any new rehabilitation commenced in the annual reporting period. These areas may be in the rehabilitation land preparation phase or the ecosystem & land use establishment phase (definitions C and D in Table 5).</p>
<p>I Established rehabilitation (hectares)</p>	<p>The total area of land that is verified to be within either the ecosystem and land use development phase or the rehabilitation completion phase (definitions E & F in Table 5).</p>

REPORTING CATEGORY	DEFINITION
<p>J Annual rehabilitation to disturbance ratio</p>	<p>The rehabilitation to disturbance ratio (H/G) indicates how many hectares of new rehabilitation are undertaken for each hectare of land disturbed during the year. A ratio of 1/1 indicates that the area of new rehabilitation and disturbance in that year are the same.</p>
<p>K % Rehabilitated land to total mine footprint</p>	<p>The proportion of the total mine footprint (area of land that has been disturbed by past or present surface disturbance activities) that has established rehabilitation ($I/A1 \times 100$). For open cut mining, the proportion of the total mine footprint verified to be “established rehabilitation” should substantially increase as an operation progresses towards mine closure.</p>
<p>L Established rehabilitation for agricultural final land uses (hectares)</p>	<p>The percentage of total area of land that is verified to be within either the ecosystem and land use development phase or the rehabilitation completion phase (definitions E & F in Table 5) that have been returned to an agricultural final land use.</p>
<p>M Established rehabilitation for native ecosystem final land uses (hectares)</p>	<p>The percentage of total area of land that is verified to be within either the ecosystem and land use development phase or rehabilitation completion phase (definitions E & F in Table 5) that have been returned to native ecosystem final land use.</p>
<p>N Established rehabilitation for other/non-vegetated final land uses (hectares)</p>	<p>The percentage of total area of land that is verified to be within either the ecosystem and land use development phase or the rehabilitation completion phase (definitions E & F in Table 5) that have been returned to other/non-vegetated final land use.</p>

Attachment 2 – Definitions

WORD	DEFINITION
Active	In the context of rehabilitation, land associated with mining domains is considered 'active' for the period following disturbance until the commencement of rehabilitation.
Active mining phase of rehabilitation	In the context of rehabilitation, the active mining phase of rehabilitation constitutes the rehabilitation activities undertaken during mining operations such as salvaging and managing soil resources, salvaging habitat resources, and native seed collection. This phase also includes management actions taken during operations to manage risks to rehabilitation and enhance rehabilitation outcomes such as selective handling of waste rock and management of tailings emplacements.
Analogue site	In the context of rehabilitation, an analogue site is a 'reference site' that represents an example of the defining characteristics (such as vegetation composition and structure or agricultural productivity) of the final land use. Characteristics of analogue sites can be assessed to develop the rehabilitation objectives and completion criteria for final land use domains.
Annual rehabilitation report and forward program	As described in the Mining Regulation 2016.
Annual reporting period	As defined in the Mining Regulation 2016.
Closure	A whole-of-mine-life process, which typically culminates in the relinquishment of the mining lease. It includes decommissioning and rehabilitation to achieve the approved final land use(s).
Decommissioning	The process of removing mining infrastructure and removing contaminants and hazardous materials.
Decommissioning Phase of Rehabilitation	Activities associated with the removal of mining infrastructure and removal and/or remediation of contaminants and hazardous materials. In the context of the rehabilitation management plan this phase of rehabilitation may also include studies and assessments associated with decommissioning and demolition of infrastructure or works carried out to make safe or 'fit for purpose' built infrastructure to be retained for future use(s) following lease relinquishment.

WORD	DEFINITION
Department	The Department of Regional NSW.
Disturbance	See Surface Disturbance.
Disturbance area	<p>An area that has been disturbed and that requires rehabilitation.</p> <p>This may include areas such as on-licence exploration areas, stripped areas ahead of mining, infrastructure areas, water management infrastructure, sewage treatment facilities, topsoil stockpile areas, access tracks and haul roads, active mining areas, waste emplacements (active/unshaped/in or out-of-pit), tailings dams (active/unshaped/uncapped), and areas requiring rehabilitation that are temporarily stabilised (i.e. managed to minimise dust generation and/or erosion).</p>
Domain	<p>An area (or areas) of the land that has been disturbed by mining and has a specific operational use (mining domain) or specific final land use (final land use domain). Land within a domain typically has similar geochemical and/or geophysical characteristics and therefore requires specific rehabilitation activities to achieve the associated final land use.</p>
Ecosystem and Land Use Development	<p>This phase of rehabilitation consists of the activities to manage maturing rehabilitation areas on a trajectory to achieving the approved rehabilitation objectives and completion criteria.</p> <p>For vegetated land uses this phase may include processes to develop characteristics of functional self-sustaining ecosystems, such as nutrient recycling, vegetation flowering and reproduction, and increasing habitat complexity, and development of a productive, self-sustaining soil profile.</p> <p>This phase of rehabilitation may include specific vegetation management strategies and maintenance such as tree thinning, supplementary plantings and weed management.</p>
Ecosystem and Land Use Establishment	<p>This phase of rehabilitation consists of the processes to establish the approved final land use following construction of the final landform.</p> <p>For vegetated land uses this rehabilitation phase includes establishing the desired vegetation community and implementing land management activities such as weed control. This phase of rehabilitation may also include habitat augmentation such as installation of nest boxes.</p>
Exploration	Has the same meaning as that term under the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.

WORD	DEFINITION
Final landform and rehabilitation plan	As defined in the Mining Regulation 2016.
Final land use	As defined in the Mining Regulation 2016.
Form and way	Means the form and way approved by the Secretary. Approved form and way documents are available on the Department’s website.
Growth Medium Development	<p>This phase of rehabilitation consists of activities required to establish the physical, chemical and biological components of the substrate required to establish the desired vegetation community (including short lived pioneer species).</p> <p>This phase may include spreading the prepared landform with topsoil and/or subsoil and/or soil substitutes, applying soil ameliorants to enhance the physical, chemical and biological characteristics of the growth media, and actions to minimise loss of growth media due to erosion.</p>
Habitat	Has the same meaning as that term under the <i>Biodiversity Conservation Act 2016</i> and the <i>Fisheries Management Act 1994</i> (as relevant).
Indicator	An attribute of the biophysical environment (e.g. pH, topsoil depth, biomass) that can be used to approximate the progression of a biophysical process. It can be measured and audited to demonstrate (and track) the progress of an aspect of rehabilitation towards a desired completion criterion (i.e. defined end point). It may be aligned to an established protocol and used to evaluate changes in a system.
Land	As defined in the <i>Mining Act 1992</i> .
Landform Establishment	<p>This phase of rehabilitation consists of the processes and activities required to construct the final landform.</p> <p>In addition to profiling the surface of rehabilitation areas to the approved final landform profile this phase may include works to construct surface water drainage features, encapsulate problematic materials such as tailings, and prepare a substrate with the desired physical and chemical characteristics (e.g. rock raking or ameliorating sodic materials).</p>
Large mine	As defined in the Mining Regulation 2016.
Lease holder	The holder of a mining lease.

WORD	DEFINITION
Life of mine	The timeframe of how long a mine is approved to mine, from commencement to closure.
Mine rehabilitation portal	<p>Means the NSW Resources Regulator’s online portal that lease holders must use (via a registered account) to:</p> <ul style="list-style-type: none"> ■ upload rehabilitation geographical information system (GIS) spatial data ■ develop rehabilitation GIS spatial data (using online tracing functions) ■ generate rehabilitation plans and rehabilitation statistics using the map viewer and Rehabilitation Key Performance Indicator functionalities. <p>Data submitted to the mine rehabilitation portal is collated in a centralised geodatabase for use by the NSW Resources Regulator to regulate rehabilitation performance of lease holders.</p>
Mining area	As defined in the <i>Mining Act 1992</i> .
Mining domain	A land management unit with a discrete operational function (e.g. overburden emplacement), and therefore similar geophysical characteristics, that will require specific rehabilitation treatments to achieve the final land use(s).
Mining land	As defined in the <i>Mining Act 1992</i> .
Native vegetation	Has the same meaning as that term under section 60B of the <i>Local Land Services Act 2013</i> .
Overburden	Material overlying coal or a mineral deposit.
Performance indicator	An attribute of the biophysical environment (for example pH, slope, topsoil depth, biomass) that can be used to demonstrate achievement of a rehabilitation objective. It can be measured and audited to demonstrate (and track) the progress of an aspect of rehabilitation towards a desired completion criterion, that is, a defined end point. It may be aligned to an established protocol and used to evaluate changes in a system.

WORD	DEFINITION
Phases of rehabilitation	<p>The stages and sequences of actions required to rehabilitate disturbed land to achieve the final land use. The phases of rehabilitation are:</p> <ul style="list-style-type: none"> ■ active mining ■ decommissioning ■ landform Establishment ■ growth medium development ■ ecosystem and land use establishment ■ ecosystem and land use development.
Progressive rehabilitation	<p>The progress of rehabilitation towards achieving the approved rehabilitation completion criteria. This may be described in terms of domains, phases, performance indicators and rehabilitation completion criteria.</p>
Rehabilitation Completion	<p>The final phase of rehabilitation when a rehabilitation area has achieved the approved rehabilitation objectives and rehabilitation completion criteria for the final land use. Rehabilitation areas may be classified as complete when the NSW Resources Regulator has determined in writing that the relevant rehabilitation obligations have been fulfilled following submission of <i>Form ESF2 Rehabilitation completion and/or review of rehabilitation cost estimate</i> application by the lease holder.</p>
Rehabilitation Completion criteria	<p>As defined in the Mining Regulation 2016.</p>
Rehabilitation cost estimate	<p>As defined in the Mining Regulation 2016.</p>
Rehabilitation management plan	<p>As defined in the Mining Regulation 2016.</p>
Rehabilitation objectives	<p>As defined in the Mining Regulation 2016.</p>
Rehabilitation risk assessment	<p>As defined in the Mining Regulation 2016.</p>
Rehabilitation schedule	<p>The defined timeframes for progressive rehabilitation set out in the forward program.</p>

WORD	DEFINITION
Relevant stakeholders	<p>Means any persons or bodies who may be affected by the mining operations, including rehabilitation, carried out on the lease land, and includes:</p> <ul style="list-style-type: none"> ■ the relevant development consent authority ■ the local council ■ the relevant landholder(s) ■ community consultative committee (if required under the development consent) or equivalent consultative group ■ affected land holder(s) ■ government agencies relevant to the final land use ■ affected infrastructure authorities (electricity, telecommunications, water, pipeline, road, rail authorities) ■ local Aboriginal communities, and ■ any other person or body determined by the Minister to be a relevant stakeholder in relation to a mining lease.
Risk	The effect of uncertainty on objectives. It is measured in terms of consequences and likelihood (AS/NZS ISO 31000:2009).
Secretary	The Secretary of the Department.
Security deposit	An amount that a mining lease holder is required to provide and maintain under a mining lease condition, to secure funding for the fulfilment of obligations under the lease (including obligations that may arise in the future).
Surface disturbance	Includes activities that disturb the surface of the mining area, including mining operations, ancillary mining activities and exploration.
Tailings	A combination of the fine-grained solid material remaining after the recoverable metals and minerals have been extracted from the mined ore, and any process water ² .
Waste	Has the same meaning as that term under the <i>Protection of the Environment Operations Act 1997</i> .

² Commonwealth of Australia (DITR), 2007. *Tailings Management*.

Attachment 3 – Rehabilitation Complaints

DATE	COMPLAINANT	COMPLAINT DETAILS	RESPONSE DETAILS	STATUS OF RESPONSE	DATE RESPONSE COMPLETED (IF APPLICABLE)
------	-------------	-------------------	------------------	--------------------	---

Attachment 4 – Stakeholder consultation

DATE	STAKEHOLDER	CONSULTATION ACTIVITIES AND FORMS	MATTERS SUBJECT TO CONSULTATION	ACTIONS TAKEN
2 Dec 2022	NSW Resources Regulator	<ul style="list-style-type: none"> Email correspondence 	Forward Program, particularly: <ul style="list-style-type: none"> Requesting IMC to nominate a contact person in relation to the mining lease(s) for the purposes of the Mining Act 1992 Requesting IMC publish the Forward Program on the IMC website 	<ul style="list-style-type: none"> Evidence submitted of nominated contact person provided previously to the NSW Resources Regulator Forward Program published to the IMC Website
30 Jun 2023	Sydney Water	<ul style="list-style-type: none"> Email correspondence Onsite meetings <p>Note: Consultation occurred over multiple dates.</p>	Progress of the O’Briens Gap Pumphouse Rehabilitation Project	Continuation of O’Briens Gap Rehabilitation Project to satisfaction of the landowner (Sydney Water)
30 Jun 2023	Department of Planning and Environment, Biodiversity Conservation Division, WaterNSW, Dendrobium Community Consultative Committee	<ul style="list-style-type: none"> Email correspondence Inspections of WC21 trial rehabilitation site Offsite meetings <p>Note: Consultation occurred over multiple dates.</p>	WC21 and DCC Rehabilitation Trial, particularly: <ul style="list-style-type: none"> Update on the progress of WC21 Rehabilitation Trial 	Revision of the WC21 and DCC Rehabilitation Plan
30 Jun 2023	-	-	-	-

DENDROBIUM COLLIERY ANNUAL REHABILITATION REPORT

ARR0001112 | Friday 1 July 2022 to Friday 30 June 2023

DATE	STAKEHOLDER	CONSULTATION ACTIVITIES AND FORMS	MATTERS SUBJECT TO CONSULTATION	ACTIONS TAKEN
29 Aug 2022	Department of Planning and Environment, Environment Protection Authority	<ul style="list-style-type: none"> Email correspondence <p>Note: Consultation occurred over multiple dates.</p>	<p>Tree removal at Dendrobium Pit Top, including:</p> <ul style="list-style-type: none"> Complaint received on tree removal and noise at Dendrobium Inclusion of Special Condition for slope stabilisation work within EPL 3241 	<ul style="list-style-type: none"> Response provided by IMC and accepted by Department of Planning and Environment Special condition approved in EPL CEMP for the Slope Stabilisation work submitted to the EPA as required. CEMP accepted by the Environment Protection Authority
30 Jun 2023	NSW Resources Regulator, Landholders	<ul style="list-style-type: none"> Email correspondence <p>Note: Consultation occurred over multiple dates.</p>	Application for part cancellation of CCL 768 for area covered by rehabilitated powerlines approved by NSW RR	Correspondence issued to affected Landholders informing them that Leases have been cancelled
6 Sep 2022	Department of Planning and Environment, NSW Resources Regulator	<ul style="list-style-type: none"> Email correspondence Meetings <p>Note: Consultation occurred over multiple dates.</p>	<p>Rehabilitation Management Plan, particularly:</p> <ul style="list-style-type: none"> Feedback on draft rehabilitation management plan Meetings to discuss rehabilitation objectives and spatial data following refusal 	<ul style="list-style-type: none"> RMP revised Rehabilitation objectives and spatial data revised and resubmitted in RMP
21 Sep 2022	NSW Resources Regulator	<ul style="list-style-type: none"> Email correspondence 	Inclusion of securities for exploration in Rehabilitation Cost Estimate (RCE) for CCL 768	RCE revised and submitted to the NSW Resources Regulator

Attachment 5 – Plans

Plan 1A - Current Status of Mining and Rehabilitation.zip

Plan 1B - Current Landform Contours.zip

Annual Report (LARGE MINE) v1.6