NSW GOVERNMENT

NSW Resources Regulator

ARR0001115

APPIN COLLIERY ANNUAL REHABILITATION REPORT

Friday 1 July 2022 to Friday 30 June 2023

Contents

Summary table

DETAIL	
Mine	Appin Colliery
Reference	ARR0001115
Annual report period commencement date	Friday 1 July 2022
Annual report period end date	Friday 30 June 2023
Forward program	FWP0001015
Mining leases	CL 388 (1973), MPL 200 (1973), ML 1473 (1992), MPL 201 (1973), ML 1433 (1992), CCL 767 (1973), ML 1382 (1992), ML 1574 (1992), CCL 724 (1973), CL 381 (1973), ML 1698 (1992), ML 1678 (1992)
Lease holder(s)	Endeavour Coal Pty Ltd
Contact	Amy Alice Bradbury
Date of submission	Friday 29 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

Appin Mine consists of the merged Appin, Tower, and West Cliff collieries. Appin Mine is owned and operated by Endeavour Coal Pty Ltd, a subsidiary company of Illawarra Coal Holdings Pty Ltd (ICHPL), which is 100% owned by South32 Limited. Key areas associated with the current operations include Appin North, West and East Pit Tops, Appin East Ventilation Shaft 1/2 and 3 sites, Appin West Ventilation Shaft 6 and Ventilation Shaft 7/8 sites, Douglas North Substation site, West Cliff Coal Preparation Plant, Coal Wash Emplacement Area and North Cliff Mine site.

ICHPL received Project Approval 08_0150 from the Planning Assessment Commission of NSW under delegation of the Minister for Planning and Infrastructure on 22 December 2011 for current and proposed mining of the Bulli Seam Operations for the next 30 years, and production of up to 10.5 Mtpa of ROM coal. This approval incorporates underground mining, transport and emplacement activities undertaken 24 hours a day, seven days per week.

Life of mine

18 years

Current development consents, leases and licences

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

PA08/0150
PA08/0150
PA08/0150
PA08/0150
PA08/0150
PA08/0150
PA08/0150
PA08/0150
PA08/0150

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

CL 388 (1973), MPL 200 (1973), ML 1473 (1992), MPL 201 (1973), ML 1433 (1992), CCL 767 (1973), ML 1382 (1992), ML 1574 (1992), CCL 724 (1973), CL 381 (1973), ML 1698 (1992), ML 1678 (1992)

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

Appin Area 7 Longwalls 707 - 710 SMP Approval
Appin Longwalls 709-711 and 905 Extraction Plan
Environment Protection Licence – 2504
Appin Area 9 Longwalls 901-904 Extraction Plan

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

From 17 October 2022, a variation to CCL 724 (1973) was approved. Changes to CCL 724 (1973) can be found on the Illawarra Metallurgical Coal (IMC) website: https://www.south32.net/what-we-do/our-locations/australia/illawarra-metallurgical-coal/documents.

Changes to land ownership and land use

No changes to land ownership or 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

The Appin West Engineering Building was demolished in the reporting period. It was replaced with the Muster Shed. One redundant chemical storage bund adjacent to the stockpile area demolished at Appin East. No rehabilitation associated with the site was undertaken.

Progressive rehabilitation of the Coal Wash Emplacement Area (CWEA) has been undertaken during the reporting period in accordance with the approved CWEA Management Plan (CWEAMP). During the reporting period there was growth medium establishment for ~0.7 ha. Progress of rehabilitation in the CWEA is detailed in the Annual CWEA Monitoring Report as published in the FY23 Annual Review on the IMC website: https://www.south32.net/what-we-do/our-locations/australia/illawarra-metallurgical-coal/documents.

Monitoring of revegetation at the BioBanking sites was undertaken during the reporting period. Refer to the FY23 Annual Review on the IMC website for more details: https://www.south32.net/what-we-do/our-locations/australia/illawarra-metallurgical-coal/documents.

Bulk earthworks were undertaken at the Appin Mine Ventilation and Access Project (AMVA Project). This included clearing of vegetation on the site, excavation, scrape and fill, stockpiling and hydro-mulching of batters and stockpiles.

Rehabilitation planning activities that were conducted, including any specialist studies

Site investigations and approvals planning was conducted for legacy sites and the rehabilitation program. Studies were continued to inform the closure planning process, including:

- Stage 2 of the heritage building assessment; and
- an historic operations liability assessment.

A site inspection occurred at the Bulli Shafts during the reporting period with representatives from WaterNSW and the Resources Regulator. Constraints associated with rehabilitation of these sites was discussed.

The North Cliff Rehabilitation Execution Plan (NCREP) was developed in FY23. The NCREP was distributed to external stakeholders and feedback was incorporated into the documents and planning process. An Aboriginal Objects Due Diligence Assessment and Biodiversity Assessment were completed. Refer to the FY23 Annual Review for further details, found on the IMC website: https://www.south32.net/what-we-do/our-locations/australia/illawarra-metallurgical-coal/documents.

Discussions have occurred with the National Parks and Wildlife Service regarding the removal of redundant powerlines between North Cliff and Appin North in the Dharawal National Park.

Site inspections on the Georges River were undertaken to inform a Review of Environmental Factors, Aboriginal Objects Due Diligence Assessment, Biodiversity Assessment and to develop the detailed scope of works for commencement of rehabilitation under the Georges River Rehabilitation Plan (GRRP).

Overview of subsidence repair and/or remediation works undertaken

During the reporting period land access agreements to undertake the approved GRRP were progressed. A preferred contractor was onboarded to undertake the works. Results from the WC21 rehabilitation trial at Dendrobium Mine will confirm the specific methodology to be used in Georges River. The WC21 rehabilitation trial was completed in FY23 following significant delays due to rainfall and catchment access limitations. The outcomes of the trial will be monitored for at least six months, pending rainfall to assess the effectiveness of the trial.

Overview of rehabilitation management and maintenance activities

Erosion and sediment control was conducted at the AMVA Project site as per the Construction Environmental Management Plan.

In the CWEA, sediment traps were maintained and erosion was controlled by progressive emplacement of rocks and logs over topsoil in early stages of rehabilitation.

Approximately 1.6 ha of freshly topsoiled material in the CWEA was seeded in March 2023.

Weed control was undertaken at Appin East, Appin West and Appin North Pit top sites. Targeted weed control occurred within the CWEA including slashing of perennial grasses and weed spraying.

Further details can be found within the FY23 Annual Review, located on the IMC website: https://www.south32.net/what-we-do/our-locations/australia/illawarra-metallurgical-coal/documents.

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 Management Plan were revised following feedback from the Department of Planning and Environment (DPE). The Rehabilitation Objectives were revised following feedback from the NSW Resources Regulator (RR).

Pampas Grass control was undertaken at North Cliff.

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

No rehabilitation areas achieved final land use during the annual reporting period.

Key production milestones

MATERIAL	UNIT	FWP0001015 YEAR 1	THIS REPORT
Stripped topsoil (if applicable)	(m^3)	33,220	53,343
Rock/overburden	(m^3)	0	0
Ore	(Mt)	4.54	3.8
Reject material[1]	(Mt)	0.6	0.62
Product	(Mt)	3.9	3.16

[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)	280.89
B	**Total active disturbance**	(ha)	215.06
C	**Land prepared for rehabilitation**	(ha)	9.12
D	**Ecosystem and land use establishment**	(ha)	5.84
E	**Ecosystem and land use development**	(ha)	48.94
F	**Rehabilitation completion**	(ha)	1.94

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)	50.88
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**	%	18.11

Progressive achievement of established rehabilitation

	ELEMENT	UNIT	THIS REPORT
L	**Established rehabilitation - agricultural final land uses**	%	1.61
M	**Established rehabilitation - native ecosystem final land uses**	%	98.3
N	**Established rehabilitation - other/non-vegetated final land uses**	%	0.01

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 AMVA Project. All works were conducted in compliance with AMVA Project Construction Environmental Management Plan and the Early Works – Construction Environmental Management Plan.

The Ecosystem and Land Use Establishment was less than predicted in the Forward Program, primarily due to progress within the CWEA. This was in part due to lesser clearing and associated progressive rehabilitation activities during periods of high rainfall early in FY23, slowing overall soil and bedrock removal and limiting soil availability for rehabilitation works.

Additionally, the final landform for Stage 3 Coal Wash Emplacement Area is being reviewed. Due to this, the emplacement operations were adjusted to not complete final landform heights based on the previous design, and instead fill areas that had additional capacity towards the new design. Rehabilitation of areas that were forecast to reach final landform heights and undergo rehabilitation were put on hold during FY23 until the new design is finalised. This also limited the areas that could be cleared over FY23 as areas approved for clearing under the current design were no longer planned to be cleared.

Key factors that delayed progressive rehabilitation

Clearing and associated progressive rehabilitation for the CWEA was partly limited due to high rainfall and wet weather conditions in early FY23. Additionally, the final landform for Stage 3 CWEA is currently being reviewed. This has resulted in less progressive rehabilitation, as areas that approached final landform design did not undergo rehabilitation as the design was expected to change. Coal wash was redirected to areas with additional capacity rather than being used to complete final landform heights as detailed by the current design. Additionally, clearing did not commence in areas that were approved for clearing under the current design,

this limited available areas for clearing which resulted in less soil and bedrock material being acquired for rehabilitation.

Progression of land access agreements to undertake the approved GRRP has been slower than anticipated, due to the number of landholders and their requirements. Land access agreements continue to be progressed, however ongoing land access challenges may impact Year 2 and Year 3 schedule. The WC21 rehabilitation trial was also delayed due to catchment closures and the 6-month monitoring period extended until Q1 FY24. As such, availability of results from the WC21 rehabilitation trial to confirm the specific methodology to be used in Georges River was delayed.

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

Disturbance will be accounted for and monitored through a permit to disturb and approved pre-clearing process, this operates to minimise unnecessary disturbance as each area is required to be approved by an Environmental Representative who is aware of the clearing allocation and requirements for each area approval.

Within the CWEA the area of land cleared and dedicated as the active emplacement area will be restricted to an operational size of 18 ha (where practical, with a maximum area of 21 ha) and will be progressively rehabilitated to achieve this. This is recorded and managed through internal audits of rehabilitation and disturbance datasets on a quarterly basis or when required. Soil from clearing areas is not stockpiled where possible and is utilised directly on areas that have reached final landform design. This enables progressive rehabilitation as clearing occurs.

Land access agreements will continue to be progressed for the GRRP.

Studies associated with the rehabilitation of the North Cliff site will continue to be progressed.

Rehabilitation monitoring and research findings

Rehabilitation monitoring

The rehabilitation monitoring carried out in the annual reporting period

Findings from monitoring within the CWEA include:

1) Quarterly Inspections: Revealed visual vegetation growth from previous years by photo point comparison, outlined areas of erosion that may need to be maintained, and identified any areas growing with exotic plant cover to inform contractors of areas to concentrate weed management efforts.

2) Annual Inspections: Monitored the success of Key Performance Indicators, including:

a) Adequate regeneration of translocated communities

b) The degree to which fauna (native) use the rehabilitated CWEA, including constructed habitats.

The 2022 Annual Report concluded the rehabilitation areas were within or above the local benchmarks for most of the biometric attributes. Weed incursion remains the key threat to the rehabilitation of the CWEA, with bush regeneration efforts required to maintain exotic species coverage. The endangered shrub Persoonia hirsuta was recorded in 2022 within Stage 2. Six additional P. hirsuta and four A. bynoeana were observed just outside Stage 4 of the CWEA. The habitat features within the rehabilitation are being occupied by native mammals, reptiles and birds. As the rehabilitation matures, it is expected that native fauna abundance will increase further. Rosenberg's Goanna (Varanus rosenbergi) listed as Vulnerable under the BC Act was recorded once at Site 4. Photo point monitoring revealed that overall, the native plant cover in all translocation areas is continuing to improve over time.

Status of performance against rehabilitation objectives and rehabilitation completion criteria

The monitoring program that has been implemented

Rehabilitation monitoring is undertaken in accordance with the Rehabilitation Management Plan (RMP). Rehabilitation progression within the CWEA is monitored in accordance with the CWEAMP. The RMP and CWEAMP can be found 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?

Yes

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

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 RMP. Rehabilitation within the CWEA is progressing as per the CWEAMP. Rehabilitation along the Georges River is progressing as per the GRRP.

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

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

Monitoring of the CWEA was conducted in accordance with the CWEAMP.

Monitoring of the Georges River was undertaken in accordance with the GRRP.

Annual monitoring of revegetation at the Biobanking sites was undertaken during the reporting period and included as appendices in the FY23 Annual Review.

For more details refer to the IMC website: https://www.south32.net/what-we-do/our-locations/australia/illawarra-metallurgical-coal/documents.

Research summary:

In FY23 IMC supported the writing of an honours dissertation through Mount Annan Botanic Gardens and University of Technology Sydney around pollination ecology and pollinator networks. This research project commenced in July 2022 and was submitted in May 2023. The dissertation included an investigation into the pollinator community in the rehabilitation areas in the CWEA compared to remnant reference bushland in the surrounding area. This research is deemed beneficial to the P. hirsuta population translocated within the rehabilitation area given

its preference for outcrossing. The research may also serve as a novel means to determine how the pollinator community returns to a rehabilitation area, which may be of value to rehabilitation outcomes in terms of ecosystem recovery and sustainable plant diversity.

A Bushfire Research and Trial literature review was undertaken in FY21, and coal wash sampling in the CWEA was undertaken in FY22. The results of the sampling were incorporated into the literature review, with the report being provided to IMC in April 2023. The conclusions/recommendations in the literature review were as follows:

- Vegetation rehabilitation on the Appin North CWEA can withstand a bushfire (bushfire resilience indicator) and that germination and evidence of recovery would be observed after a burn.

- Subterranean coal wash material is unlikely to be exposed to a radiant heat intensity and duration that would have potential to ignite the coal wash reject material.

- Bushfire on the CWEA rehabilitation has a low (inconsequential) risk of ignition of the coal wash combustibles and the existing surrounding landscape would offer containment of a fire and prevent potential spread from the rehabilitation area.

This work indicates that there is limited and manageable risk associated with bushfire on the CWEA.

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	UPDATED DATE OF COMPLETION	STATUS	ON TRACK?	ON TRACK UPDATE
ARR0001115								

Outcomes of completed trials and research

N/A

Attachment 1 – Reporting Definitions

REPORTING CATEGORY		DEFINITION
A1	Total disturbance footprint – surface disturbance	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. 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). Underground mining operations should not include the footprint of underground mining areas/subsidence management areas in the total disturbance footprint.
A2	Underground Mining Area	Underground mining operations areas/subsidence management areas.
B	Total active disturbance	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).
C	Rehabilitation – land preparation	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. Refer to the glossary of terms in this document for the definition of these phases of rehabilitation.

REPORTING CATEGORY		DEFINITION
D	Ecosystem and land use establishment	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. 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.
E	Ecosystem and Land Use Development	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). 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).
F	Rehabilitation Completion	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 *Form: ESF2 Rehabilitation completion and/or review of rehabilitation cost estimate and/or notification of mine or petroleum site closure.*
G	New active disturbance area	The area of any new active disturbance that has been created during the annual reporting period (definition A1 in Table 5).
H	New rehabilitation commenced during annual reporting period	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).
I	Established rehabilitation (hectares)	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).

REPORTING CATEGORY		DEFINITION
J	Annual rehabilitation to disturbance ratio	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.
K	% Rehabilitated land to total mine footprint	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 x 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.
L	Established rehabilitation for agricultural final land uses (hectares)	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.
M	Established rehabilitation for native ecosystem final land uses (hectares)	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.
N	Established rehabilitation for other/non-vegetated final land uses (hectares)	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.

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	An area that has been disturbed and that requires rehabilitation. 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).
Domain	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.
Ecosystem and Land Use Development	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. 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. This phase of rehabilitation may include specific vegetation management strategies and maintenance such as tree thinning, supplementary plantings and weed management.
Ecosystem and Land Use Establishment	This phase of rehabilitation consists of the processes to establish the approved final land use following construction of the final landform. 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.
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	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. 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.
Habitat	Has the same meaning as that term under the *Biodiversity Conservation Act 2016* and the *Fisheries Management Act 1994* (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 *Mining Act 1992.*
Landform Establishment	This phase of rehabilitation consists of the processes and activities required to construct the final landform. 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).
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	Means the NSW Resources Regulator's online portal that lease holders must use (via a registered account) to: ■ 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. 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.
Mining area	As defined in the *Mining Act 1992*.
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 *Mining Act 1992.*
Native vegetation	Has the same meaning as that term under section 60B of the *Local Land Services Act 2013.*
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	The stages and sequences of actions required to rehabilitate disturbed land to achieve the final land use. The phases of rehabilitation are: ■ active mining ■ decommissioning ■ landform Establishment ■ growth medium development ■ ecosystem and land use establishment ■ ecosystem and land use development.
Progressive rehabilitation	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.
Rehabilitation Completion	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 *Form ESF2 Rehabilitation completion and/or review of rehabilitation cost estimate* application by the lease holder.
Rehabilitation Completion criteria	As defined in the Mining Regulation 2016.
Rehabilitation cost estimate	As defined in the Mining Regulation 2016.
Rehabilitation management plan	As defined in the Mining Regulation 2016.
Rehabilitation objectives	As defined in the Mining Regulation 2016.
Rehabilitation risk assessment	As defined in the Mining Regulation 2016.
Rehabilitation schedule	The defined timeframes for progressive rehabilitation set out in the forward program.

WORD	DEFINITION
Relevant stakeholders	Means any persons or bodies who may be affected by the mining operations, including rehabilitation, carried out on the lease land, and includes: ■ 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 *Protection of the Environment Operations Act 1997*.

[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
6 Sep 2022	Department of Planning and Environment, NSW Resources Regulator	• Email correspondence Note: Correspondence occurred over multiple dates.	Rehabilitation Management Plan, particularly: • Feedback received on Rehabilitation Management Plan (6/09/2022) • Refusal of Final Landform Plan (1/05/2023)	• Rehabilitation Management Plan revised • Final Landform Plan revised and approved on 4 September 2023
10 Aug 2022	Biodiversity Conservation Trust	• Email correspondence Note: Consultation occurred over multiple dates.	Annual Biobanking Reports, particularly: • Submission of Annual Biobanking report for BA 215 (10/08/2022) and BA 382 (19/08/2022)	• Reports accepted by Biodiversity Conservation Trust
1 May 2023	NSW Resources Regulator	• Email correspondence	Rehabilitation Objectives, particularly: • Refusal of Rehabilitation Objectives Statement	• Rehabilitation objectives revised and approved on 4 September 2023
30 Jun 2023	Department of Planning and Environment, National Parks and Wildlife Service, Tharawal Aboriginal Land Council, Landholders, Appin Community Consultative Committee	• Email and phone correspondence • Offsite meetings Note: Consultation occurred over multiple dates.	Georges River Rehabilitation Project, including: • Update on the progress of Georges River Rehabilitation Project • Land access arrangements • Review of Environmental Factors • Proposed locations of tracks and staging areas	• Development of land access agreements • Review of the GRRP
30 Jun 2023	Tharawal Local Aboriginal Land Council, Appin Community	• Email correspondence	Coal Wash Emplacement Area Rehabilitation, particularly: • Appin North CWEA Aboriginal Heritage signage	• Consulted on the path to allocate a signal for the BC2 on Stage 3 and provided feedback on content.

DATE	STAKEHOLDER	CONSULTATION ACTIVITIES AND FORMS	MATTERS SUBJECT TO CONSULTATION	ACTIONS TAKEN
	Consultative Committee	• Onsite meetings Note: Consultation occurred over multiple dates.	Stage 3 • Provide information of the progress of stage 3 and updates regarding actions for Stage 4	Awaiting to erect the sign • Awaiting methodology of consultation regarding Aboriginal Heritage sites on Stage 4
2 Dec 2022	Resources Regulator	• Email correspondence	Forward Program, particularly: • 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	• Evidence submitted of nominated contact person provided previously • Forward Program published to the IMC Website
30 Jun 2023	NSW Resources Regulator, Crown Lands, Environmental Protection Authority, Department of Planning and Environment (DPE) - Water Group, Transport for NSW, DPE - Environment and Heritage Group , National Parks and Wildlife Service, Tharawal Aboriginal L	• Email correspondence • Onsite meetings Note: Consultation occurred over multiple dates.	North Cliff Rehabilitation, particularly: • External agency consultation regarding IMC's proposed North Cliff Rehabilitation Execution Plan	• Revision of the North Cliff Rehabilitation Execution Plan to address external stakeholder feedback (not yet submitted)
30 Jun 2023	National Parks and Wildlife Service	• Email correspondence • Teams Meetings Note: Consultation occurred over multiple	Removal of powerlines between North Cliff and West Cliff, particularly: • In principle agreement for scope of works and approvals required to rehabilitate North Cliff powerline	• Further investigations / studies underway to inform IMC position with NPWS for rehabilitation scope and pathways

DATE	STAKEHOLDER	CONSULTATION ACTIVITIES AND FORMS	MATTERS SUBJECT TO CONSULTATION	ACTIONS TAKEN
		dates.		
30 Jun 2023	NSW Resources Regulator, Water NSW	• Email correspondence • Onsite meetings Note: Consultation occurred over multiple dates.	Bulli Shafts Rehabilitation, particularly: • Preliminary discussions to inform initiation of Bulli shafts rehabilitation	• Letter from NSW Resources Regulator requesting IMC commence investigations to inform rehabilitation of these sites

Attachment 5 – Plans

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

Plan 1B-Current Landform Contours.zip