NSW GOVERNMENT

NSW Resources Regulator

FWP0001538

BERRIMA COLLIERY FORWARD PROGRAM

Wednesday 1 January 2025 to Friday 31 December 2027

Summary

DETAIL	
Mine	Berrima Colliery
Reference	FWP0001538
Forward program commencement date	Wednesday 1 January 2025
Forward program end date	Friday 31 December 2027
Forward program revision (if applicable)	
Contact	Gregory Johnson
Mining leases	MPL 604 (1906), MPL 603 (1906), CCL 748 (1973)
Project location	Boral Limited
Date of submission	Thursday 27 February 2025

Important

The department may make the information in your program 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 program to be confidential, please communicate this to the department via the message function on this submission within the NSW Resources Regulator Portal.

Three-year forecast – surface disturbance activities

Project description

Berrima Colliery ceased coal extraction in November 2013 and following a period of Care and Maintenance is now in the process of final closure. As at December 2024, the two surface facility sites, referred to as the pit top and Loch Catherine were at the Decommissioning phase of rehabilitation. It is likely that this phase will continue over at least Year 1 of the forward program as the current final land use has yet to be approved by the Resources Regulator. It is proposed to repurpose the pit top to a passive water treatment system to treat groundwater for discharge back into the Wingecarribee River. The treatment system will also be able to transfer water to the Berrima Cement Works via a pipeline along the existing railway line easement.

Description of surface disturbance activities

Exploration activities

There is no exploration activities proposed over the next 3 years.

Construction activities

Construction activities over the next three years will consist of sealing of the Loch Catherine mine entries. If approved by the Resources Regulator and EPA, construction activities will also include the passive treatment system at the pit top. This will involve the construction of dams and supporting infrastructure to pump water from the mine workings to the surface and return to the Wingecarribee River of overland via a pipeline to the Berrima Cement Works.

Mining schedule

Mining development method and sequencing and general mine features.

No mining is proposed.

Areas identified for emplacements, the sequencing of emplacements, construction, and management.

NA

Processing infrastructure activities and the location of tailings facilities and schedule for emplacement.

NA

Waste disposal and materials handling operations.

NA

Key production milestones

MATERIAL	UNIT	YEAR 1	YEAR 2	YEAR 3
Stripped topsoil (if applicable)	(m^3)	0	0	0
Rock/overburden	(m^3)	0	0	0
Ore	(Mt)	0	0	0
Reject material[1]	(Mt)	0	0	0
Product	(Mt)	0	0	0

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

Three-year rehabilitation forecast

Rehabilitation planning schedule

Rehabilitation planning schedule

The rehabilitation schedule for Berrima Colliery is dependent on the receipt of approval from the Resources Regulator, and any specific conditions placed on the approval. It is anticipated that this will be achieved within the first year of this Forward Program, that is, by late 2025. On this basis, the main rehabilitation activities planned are as follows: Year 1 – Obtain all necessary approvals from the Resources Regulator and EPA for underground sealing and pit top treatment. The rehabilitation status of the surface facilities areas will remain at the Decommissioning Phase. Within the mining area. Complete sealing of Loch Catherine mine portals. Year 2 – Installation of the underground bulkheads and pit top treatment dams and pipeline. Year 3 – Completion of the passive water treatment system at the pit top.

Stakeholder consultation

Consultation will focus directly with the Medway community group especially as the pit top treatment proposal is considered by the EPA/RR and construction works are undertaken. The Closure Working Group will likely have a final meeting once the RR approves the proposed underground sealing proposal and pit top treatment works. The CWG is independently chaired and consists of nominated representatives from the Resources Regulator, Environment Protection Authority, WaterNSW, Wingecarribee Shire Council and 6 community members.

Rehabilitation studies, risk assessments and/or design work

Berrima Colliery Rehabilitation Management Plan July 2022. Includes a Rehabilitation Risk Assessment. NTC11726 Direction 2 report lodged with Resources Regulator on 14th April 2023. This report was a revised groundwater model which confirmed that water discharging from the mine would occur under all final closure scenarios. NTC11726 Direction 3 report lodged with Resources Regulator on 28th April 2023. A feasibility study for options to install passive treatment systems within the underground workings and updated modelling on long term metalliferous drainage. This study confirmed that it was not possible to install a walkaway treatment system within the underground workings or below the discharge point into the Wingecarribee River. The study concluded that a surface based treatment system was required as originally proposed in the Final Closure Plan. This involved repurposing the pit top for ongoing passive treatment as the final closure scenario. NTC11726 Direction 4 report 7 lodged with Resources Regulator on 26th May 2023. Covers a final closure option based on discussions with the Resources Regulator which involves using the surface passive treatment system at the pit top as a short term solution while determining seepage quality over the bulkheads installed within the underground workings. The plan provided covered a

25 year period. In October 2024 the RR issued a NTCE to undertake a ventilation assesssment.

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Rehabilitation research and trials

RRT NUMBER	PROJECT/TRIAL NAME	OBJECTIVE OF TRIAL/PROJECT	METHODOLOGY	EXPECTED DATE OF COMPLETION	STATUS
FWP0001538					

Rehabilitation maintenance and corrective actions

The surface facilities area is currently at the Decommissioning Phase of rehabilitation. Rehabilitation activities will occur as a result of the sealing of the Loch Catherine mine entrances in Year 2 and 3 of the Forward Program. It is proposed to repurpose the pit top as a passive treatment system for mine water. This alternative final land use has yet to be approved by the Resources Regulator. The colliery currently has a small team that manages the underground water treatment system. This includes inspections of the existing bulkheads, normal statutory inspections and management of the lime dosing system. Water quality monitoring continues in accordance with the Environment Protection Licence and all results are presented to the Closure Working Group. Corrective actions usually involve increasing or decreasing the lime dosing system to maintain pH and to remove mineral content.

Rehabilitation schedule

The primary outstanding issue is the approval of the proposed final closure plan. At this stage, the forward program nominates the pit top and Loch Catherine site to remain in Decommissioning phase over the next 3 years

Completion of rehabilitation

NA

Subsidence remediation for underground operations

Extraction ceased in October 2013 and final subsidence monitoring was completed in May 2015. The End of Panel report for the last extraction area (South West 1 Panel) was provided to the Resources Regulator in September 2014. The only outstanding issue in relation to the mining area is the removal of the subsidence pegs and one remaining vibrating wire piezometer installation. This is expected to be completed in the coming 2025 reporting period.

Progressive mining and rehabilitation statistics

Three-yearly forecast cumulative disturbance and rehabilitation progression

	FORECAST	UNIT	YEAR 1	YEAR 2	YEAR 3
A	**Total surface disturbance footprint**	(ha)	6.82	6.82	6.82
B	**Total active disturbance**	(ha)	-6.19	-6.31	-6.46
P	**Total new area of land proposed for active rehabilitation**	(ha)	6.47	6.58	6.73

Rehabilitation key performance indicators (KPIs)

	FORECAST	UNIT	YEAR 1	YEAR 2	YEAR 3
O	**Total new active disturbance area**	(ha)			
P	**Total new area of land proposed for active rehabilitation during the reporting period**	(ha)	6.47	0.12	0.15
Q	**Annual rehabilitation to disturbance ratio**				

Attachment 1 – Reporting Definitions

REPORTING CATEGORY		DEFINITION
A	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.
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.
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.

REPORTING CATEGORY	DEFINITION
O	The area of any new active disturbance that will be created during the next three years, as defined under definition A1 (definition A1 Table 5).
P	The sum of any new rehabilitation to be commenced in the next three years. These areas may be in the phases "Rehabilitation - Land Preparation" or the "Ecosystem & Land Use Establishment" (definitions C & D in Table 5).
Q	The rehabilitation to disturbance ratio (S / R) indicates how many hectares of new rehabilitation are undertaken for each hectare of land disturbed during the three years. A ratio of 1/1 indicates that the area of new rehabilitation and disturbance in that period are the same.

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 – Plans

Berrima Colliery Plan 2A Year 1.pdf

Berrima Colliery Plan 2B Year 2.pdf

Berrima Colliery Plan 2C Year 3.pdf