



**NSW
Resources
Regulator**

FWP0001388

NARRABRI COLLIERY FORWARD PROGRAM

Sunday 31 December 2023 to Wednesday
30 December 2026

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Summary

DETAIL

Mine	Narrabri Colliery
Reference	FWP0001388
Forward program commencement date	Sunday 31 December 2023
Forward program end date	Wednesday 30 December 2026
Forward program revision (if applicable)	
Contact	Brent Baker
Mining leases	ML 1609 (1992)
Project location	NARRABRI COAL PTY LTD
Date of submission	Tuesday 2 April 2024

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

The Narrabri Mine is an existing underground coal mining operation situated in the Gunnedah Coalfield. It is located approximately 25 km south east of Narrabri and approximately 60 km north west of Gunnedah. The Narrabri Mine includes an underground coal mine, a coal handling and preparation plant (CHPP) and associated rail siding and surface infrastructure. The underground mine is authorised by Mining Lease (ML) 1609 which covers an area of 5,298 hectares (ha) for the predominant purpose of mining for coal from the Hoskissons Coal Seam. The Narrabri Mine Stage 2 Project is approved under Project Approval (PA 08_0144) for the extraction of 11 Mtpa. Modification 7 of PA 08_0144 is the most recent modification approved on 23 November 2021, allowing for a change in mining method of the previously approved Longwall (LW) 201 and LW 202 for up to 0.7 Mtpa via bord and pillar extraction. Mining operations are approved under PA 08_0144 until 26 July 2031.

Description of surface disturbance activities

Exploration activities

No exploration drilling activities are proposed within ML 1609 until Year 2 (2025). Proposed exploration activities may include assessment of coal quality, and geotechnical and/or hydrogeological evaluation. All exploration activities will be undertaken in accordance with the requirements of the Exploration Code of Practice: Rehabilitation.

Construction activities

Construction and development activities to support mining operations over the next 3-year period (2024-2026) will include: - construction of the western shaft - goaf gas drainage behind the progressing longwall - clearing and maintenance of access tracks for as long as the goaf gas drainage is required to be maintained - drilling of service bores for the installation of services (i.e. air, water, power or monitoring) - mine safety pre-conditioning - exploration activities within ML 1609.

Mining schedule

Mining development method and sequencing and general mine features.

Continued underground coal mining (longwall and bord and pillar methods) in the Hoskissons Coal Seam to facilitate a ROM coal production rate of up to 11.0 Mtpa: - 2024 – completion

of LW 203 and ongoing activities within the cut and flit Panels 201 and 202 - 2025 – LW 204 and ongoing activities within the cut and flit Panels 201 and 202 - 2026 – LW 205 and ongoing activities within the cut and flit Panels 201 and 202

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

Construction of the REA will progress throughout the next 3-year period (2024-2026). Disposal of rejects within the REA will occur in 'cells'. Cell 1A and Cell 1B are near to final design height and are entering into rehabilitation phase, expected to be achieved by the end of 2024. Rejects emplacement is currently occurring in Cell 2 and the southern side of Cell 3. The REA final landform is not expected to be achieved within the next 3-year period. However, all works will be conducted in accordance with the Rejects Emplacement Area Capping Assessment and Closure Design (ATC Williams, 2022) to ensure final landform is constructed as per final design requirements.

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

In addition to the REA emplacement information described above, the following coal processing activities that will occur within the next 3-year period include: - coal processing at the CHPP located at the pit top area - coal (ROM and product) stockpiling within the pit top area to be transported offsite by rail - mine water captured within the rail loop dams located within the pit top area.

Waste disposal and materials handling operations.

Waste disposal and materials handling over the next 3-year period will include: - management of brine generated by the water conditioning plant, drill cuttings, and coarse rejects - management of non-production waste such as recyclable and non-recyclable general wastes, sewage and effluent, and other wastes from mining and workshop activities (e.g. waste oils, scrap metal and used tyres) - management of putrescible wastes to be stored in covered containers wherever practicable (i.e. general waste bins and skips and transported to an approved waste facility) Ongoing hydrocarbon/contaminated material management including: - store excess hydrocarbon material collected during maintenance activities or through the waste separator in bunded areas within the workshop or at the waste oil depot prior to removal by a licensed waste oil recycler - used oil filters, used particulate filters, and workshop wastes (e.g., rags and oil absorbent materials that only contain non-volatile hydrocarbons and do not contain free liquids) will be temporarily stored on-site in designated bins prior to removal - equipment will be refuelled at the bunded fuel farm in the pit top area and refuelling activities in the field to be conducted in accordance with site procedures - internal audits and spot checks of hydrocarbon storage and waste management areas will be conducted - spill kits will be available onsite and contaminated soil will be rehabilitated in accordance with NCOPL's procedures.

Key production milestones

MATERIAL	UNIT	YEAR 1	YEAR 2	YEAR 3
Stripped topsoil <small>(if applicable)</small>	(m ³)	21,345	11,115	9,225
Rock/overburden	(m ³)	0	0	0
Ore	(Mt)	0	0	0
Reject material¹	(Mt)	0.15	0.15	0.15
Product	(Mt)	5.28	5.78	6.69

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

Three-year rehabilitation forecast

Rehabilitation planning schedule

Rehabilitation planning schedule

The RMP includes proposed rehabilitation completion criteria. NCOPL will submit the proposed completion criteria to the Resources Regulator for consideration during the Forward Program period. Disturbance and progressive rehabilitation are proposed as per the Forward Program (Plan 2A-2C) with disturbance being within the limits of PA 08_0144. Rehabilitation will occur as soon as reasonably practicable once areas of disturbance are made available for rehabilitation activities. This will depend on factors such as availability of land for rehabilitation, and current and future use of infrastructure and disturbance areas. Land proposed to be prepped for rehabilitation in 2024 (Year 1 – Plan 2A) is 10.06 ha. Rehabilitation planning is currently being integrated into a spatial tool (Arc GIS) to provide access to the appropriate workflows by the operational teams conducting rehabilitation activities. This GIS application is still undergoing testing and is due to commence or 'go live' in 2024. NCOPL will continue to revise and contemporise its rehabilitation monitoring and management actions to align with the requirements of the Mining Regulation 2016 and continue to revise the RMP as refinements are adopted.

Stakeholder consultation

Continued consultation with the CCC, relevant government agencies and the RAPs.

Rehabilitation studies, risk assessments and/or design work

Planned works include:

- Revision of the rehabilitation risk assessment based on approved ROBJs.
- Finalisation of proposed rehabilitation completion criteria for submission.
- Ongoing revision and update of the RMP.
- Monitoring and remediation activities for vegetation impacted by subsidence ponding.
- The implementation of the online spatial data tool for rehabilitation monitoring and management.

Rehabilitation research and trials

RRT NUMBER	PROJECT/TRIAL NAME	OBJECTIVE OF TRIAL/PROJECT	METHODOLOGY	EXPECTED DATE OF COMPLETION	STATUS
RRT0001120	Subsidence pond remediation	Remediation of subsidence ponds in situ., including additional engineering design.	Options analysis which will consider the impacts and benefits to ecology and hydrology for the remediation of subsidence ponds in situ., including additional engineering design.	20 Dec 2024	Ongoing

Rehabilitation maintenance and corrective actions

Monitoring: - drill pad inspections (borehole sealing, removal of services, soil contamination, waste removal, topsoil spreading, erosion, habitat features present, revegetation) - subsidence pond inspections and photo points - remediated subsidence and erosion inspections (roads, creeks, surface cracking) - remote sensing (LiDAR in November 2024 and multi-spectral imaging) - weed and feral animal monitoring. Maintenance and corrective actions are determined via the rehabilitation monitoring program and will be carried out in accordance with the RMP TARP as well as the relevant Extraction Plan/s. The RMP TARP includes corrective actions for impacts to soil quality/quantity, erosion and sedimentation, ground cover establishment, weeds, vegetation health, subsidence, land and water contamination, and infrastructure decommissioning. Additional field investigations will be conducted if a significant decrease in PAB is detected via the annual remote sensing. Maintenance at rehabilitated areas may include, but not be limited to: - weed and feral animal control - managing bushfire risks - earthworks to remediate any significant erosion features, including contour banks and diversion channels and maintenance of erosion and sediment controls - infill planting and/or seeding to meet vegetation community requirements. NCOPL is continuing to revise and contemporise its rehabilitation monitoring and management actions to align with the requirements of the Mining Regulation 2016.

Rehabilitation schedule

Disturbance and progressive rehabilitation will be in accordance with the Forward Program (Plan 2A-2C) with disturbance being within the limits of PA 08_0144. Key rehabilitation activities for the next 3-year period (2024-2026) will include: - ongoing consultation with the relevant government agencies, RAPs and the CCC - revision of the rehabilitation risk assessment based on approved ROBJs - submission of proposed rehabilitation completion criteria for approval - progressive rehabilitation of areas not required for ongoing mining operations such as pre-conditioning and gas drainage infrastructure areas - REA cells 1A and 1B to enter rehabilitation phase - decommissioning of ancillary infrastructure - grading landforms and re-spreading topsoil/subsoil - erosion and subsidence remediation - seeding where required - ongoing monitoring/inspections and subsequent corrective actions where required - ongoing revision and update of RMP.

Subsidence remediation for underground operations

A multi-scale, multi-data monitoring approach has been developed to monitor the environmental consequences of subsidence effects. Whole-of-site monitoring includes remote sensing data (multi-spectral imaging and LiDAR), while field surveys focus on native vegetation, agricultural areas, watercourses, and surface cracking and erosion. Subsidence will be remediated in accordance with the

approved Extraction Plan/s. Ongoing measures for subsidence remediation include: - visual inspections of the surface during active subsidence behind the retreating longwall face - larger surface cracks (greater than 50 mm) will be remediated following active subsidence (rip or grade where necessary) - surface cracks that cannot be filled by surface ripping or grading will be filled using subsoil stockpile material from stockpiles maintained at nearby gas drainage or ventilation sites, or material from within the footprint of the REA.

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)	522.83	530.24	536.39
B Total active disturbance	(ha)	333.14	330.81	330.74
P Total new area of land proposed for active rehabilitation	(ha)	10.06	19.8	26.02

Rehabilitation key performance indicators (KPIs)

FORECAST	UNIT	YEAR 1	YEAR 2	YEAR 3
O Total new active disturbance area	(ha)	14.23	7.41	6.15
P Total new area of land proposed for active rehabilitation during the reporting period	(ha)	10.06	9.74	6.22
Q Annual rehabilitation to disturbance ratio		0.71	1.31	1.01

Attachment 1 – Reporting Definitions

REPORTING CATEGORY	DEFINITION
<p>A Total disturbance footprint – surface disturbance</p>	<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>
<p>B Total active disturbance</p>	<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>
<p>C Rehabilitation – land preparation</p>	<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>
<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>

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	<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	The stages and sequences of actions required to rehabilitate disturbed land to achieve the final land use. The phases of rehabilitation are: <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	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 <i>Form ESF2 Rehabilitation completion and/or review of rehabilitation cost estimate</i> 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	<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 – Plans

Plan 2A Mining and Rehabilitation – Year 1_v4.pdf

Plan 2B Mining and Rehabilitation – Year 2_v4.pdf

Plan 2C Mining and Rehabilitation – Year 3_v4.pdf

Forward Program (LARGE MINE) v2.1