NSW GOVERNMENT

NSW Resources Regulator

FWP0001127

WERRIS CREEK COAL MINE FORWARD PROGRAM

Sunday 1 January 2023 to Wednesday 31 December 2025

Contents

Summary

DETAIL	
Mine	Werris Creek Coal Mine
Reference	FWP0001127
Forward program commencement date	Sunday 1 January 2023
Forward program end date	Wednesday 31 December 2025
Forward program revision (if applicable)	
Contact	Daryl Robinson
Mining leases	ML 1672 (1992), ML 1671 (1992), ML 1563 (1992)
Project location	WERRIS CREEK COAL PTY LTD
Date of submission	Thursday 9 March 2023

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

Werris Creek Coal Mine (WCCM) is an open cut mine owned and operated by Werris Creek Coal Pty Limited (WCC), a wholly owned subsidiary of Whitehaven Coal Limited (WHC).

WCC comprises Mining Leases (ML) 1563, 1671 and 1672, approximately 1.5km South of Werris Creek and 11km NorthNorthwest of Quirindi in the Northwest slopes and plains region of New South Wales.

PA 10_0059 has been modified on four (4) occasions.

WCCM is approved under PA 10_0059 to carry out mining operations at a maximum rate of 2.5 million tonnes per annum (Mtpa) using open cut methods until December 2032.

Description of surface disturbance activities

Exploration activities

Exploration activities will be undertaken in accordance with the requirements of the Exploration Code of Practice: Rehabilitation. Disturbance from previous exploration activities will be rehabilitated prior to mine closure. All exploration drill holes will be sealed in accordance with relevant RR DRG guidelines at the time.

Construction activities

There are no further construction activities planned during the LOM for key infrastructure at WCC. It is noted that replacement or refurbishment of existing infrastructure may be required. Mine operations at WCC involve open cut mining with a truck and excavator/shovels fleet to produce up to 2.5 Mtpa ROM. Final landform construction and rehabilitation activities are also undertaken progressively after coal removal. WCCM does not emplace reject within overburden or store rejects in tailings dams during operations and construction relevant to this is not applicable to WCCM. The principal objective of landform establishment activities associated with the final void is to create a safe and stable landform that is non-polluting. The WCC final landform does not include creek or diversion works. Subsequently, construction of creek/river diversion works is not applicable to WCC. Revegetation activities will be planned to occur after the completion of reshaping, topdressing with growth media and construction of drainage structures.

Mining schedule

Mining development method and sequencing and general mine features.

Mine operations at WCC involve open cut mining with a truck and excavator/shovels fleet to produce up to 2.5 Mtpa ROM. Final landform construction and rehabilitation activities are also undertaken progressively after coal removal. ROM coal is transported to directly to the ROM Pad with coal immediately adjacent to the roof and floor of each seam stockpiled separately for use in blending to produce coal products with a higher ash specification. The ROM coal does not require washing to achieve the coal quality requirements of the product coal. The product coal is transported internally from the Coal Processing Area to a rail load-out facility via a purpose-built rail load-out road. Product coal is loaded to rail wagons via an overhead rail load-out bin and dispatched along the Main Northern Railway to the Port of Newcastle.

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

Mining operations will use overburden and interburden materials to in-fill the mine void and one in-pit mine rock emplacement (Northern Extension). The out-of-pit emplacement will continue to be rehabilitated . Water management will be designed by a specialist on the rehabilitated landform to manage surface water runoff and assist in minimising erosion of these slopes. Overburden and interburden mined will continue to be used to in-fill the mine void behind the advancing open cut, as well as one out-of-pit mine waste rock emplacement areas. The waste rock emplacements at WCC will be progressively shaped for rehabilitation activities, including final water management , topsoiling and revegetation. Although WCCM does not co-dispose rejects within the final landform and overburden does not have self-heating properties, the risk of spontaneous combustion within overburden emplacement areas requires ongoing management. Heating within overburden emplacements areas is a risk to rehabilitation success and is managed by isolating the affected area through excavation, saturation, spreading and capping. Elements such as drainage paths, contour drains, ridgelines, and emplacements will be shaped, as much as practical, to undulating profiles in keeping with natural landforms of the surrounding environment.

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

The ROM coal does not require washing to achieve the coal quality requirements of the product coal. The product coal is transported internally from the Coal Processing Area to a rail load-out facility via a purpose-built rail load-out road. Product coal is loaded to rail wagons via an overhead rail load-out bin and dispatched along the Main Northern Railway to the Port of Newcastle.

Waste disposal and materials handling operations.

During decommissioning, hazardous materials (hydrocarbons and chemicals) will be managed and stored in accordance with the site Waste Management Plan. Removal of hazardous materials will be undertaken by a licensed waste disposal contractor and disposed / recycled at

a licensed waste facility. During decommissioning, hazardous materials (hydrocarbons and chemicals) will be managed and stored in accordance with the site Waste Management Plan. Removal of hazardous materials will be undertaken by a licensed waste disposal contractor and disposed / recycled at a licensed waste facility.

Key production milestones

MATERIAL	UNIT	YEAR 1	YEAR 2	YEAR 3
Stripped topsoil (if applicable)	(m^3)	0	0	0
Rock/overburden	(m^3)	6,380,665	254,784	0
Ore	(Mt)	0	0	0
Reject material[1]	(Mt)	0	0	0
Product	(Mt)	1,376,955	482,077	0

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

Three-year rehabilitation forecast

Rehabilitation planning schedule

Rehabilitation planning schedule

Outcomes of monitoring results are incorporated within the Annual Site Rehabilitation Plan which is developed every year by the end of June to align with the budget period. The Annual Site Rehabilitation Plan provides additional specific detail, maps and statistics on planned rehabilitation activities and schedules for the next 12-month period. Notwithstanding this, planned activities are consistent with those in the Forward Program/LOM Plans. The Annual Site Rehabilitation Plan will provision for rehabilitation activities depending on the phase of rehabilitation at a particular area. The Annual Site Rehabilitation Plan will be the key document for tracking the progress of rehabilitation through rehabilitation phases. Any issue identified during rehabilitation inspection and documented in the annual rehabilitation monitoring report is actioned in the Annual Site Rehabilitation Plan.

Stakeholder consultation

Consultation will continue with stakeholders during the life of mine, in accordance with the SEP.

Below is a summary of the proposed future consultation activities key stakeholders.

This is as follows:

RR

- Ongoing revisions of the RMP (Condition 64,Schedule 3 of PA11_0047)

-Submission of the Annual Review and Annual Rehabilitation Report

-Detailed Mine Closure Planning

DPE

- Annual Reviews

-Ongoing revisions of the RMP (Condition 64,Schedule 3 of PA11_0047)

-Submission of the Annual Review and Annual Rehabilitation Report

-Detailed Mine Closure Planning

CCC

-Quarterly meetings

-Annual Reviews

-Ongoing revisions of the RMP (Condition 64,Schedule 3 of PA11_0047)

Registered Aboriginal Parties

-Detailed Mine Closure Planning

Rehabilitation studies, risk assessments and/or design work

Multiple risk assessments have been completed historically for the rehabilitation works associated with Werris Creek. Table 8 of the RMP summarises the completed rehabilitation risk assessments. The risk assessment has been used to inform the preparation of the RMP. The objectives of the risk assessment were to:

• Identify the risks associated with rehabilitation and closure of Werris Creek to achieve the approved post mining land uses;

• Identify knowledge gaps in Whitehaven's current understanding of the risks to rehabilitation;

• Identify the investigations/controls/action plans necessary to effectively mitigate risks and/or realise opportunities and to close any identified knowledge gaps;

• Inform the development of this RMP, to provide a basis to determine additional investigations and/or project works to be undertaken; and

• Provide the framework to satisfy relevant internal and government guidelines, requiring implementation of a risk-based approach to closure.

The risk workshop assessed a total of 57 key rehabilitation risks, which are summarised as:

• 13 risks were ranked as not applicable;

• 23 risks were ranked as low;

• 20 risks were ranked as moderate;

• 0 risks were ranked as significant;

• 1 risks were ranked as high; and

• 0 risks were ranked as extreme.

Rehabilitation risks, controls and proposed controls will regularly be reviewed and revised (as required).

Rehabilitation research and trials

RRT NUMBER	PROJECT/TRIAL NAME	OBJECTIVE OF TRIAL/PROJECT	METHODOLOGY	EXPECTED DATE OF COMPLETION	STATUS
FWP0001127					

Rehabilitation maintenance and corrective actions

Activities associated with the ecosystem and land use development phase of rehabilitation are generally ongoing maintenance, land management activities and rehabilitation monitoring. Maintenance at rehabilitated areas will include, but not be limited to:

-Ongoing environmental management to minimise risks to rehabilitation;

-Comparing specific ecosystem characteristics such as soil profile development, floristic composition and structure, faunal diversity and abundance with the characteristics of appropriate analogue sites; and

-Undertaking adaptive management and remedial works where characteristics of the rehabilitation are not trending toward desired outcomes.

Rehabilitation monitoring will be undertaken throughout the ecosystem and land use development phase until it can be demonstrated that rehabilitation areas have met completion criteria and all conditions for relinquishment. Rehabilitation maintenance activities will be identified by rehabilitation monitoring and ongoing requirements will be reported annually in the Annual Rehabilitation Report and Forward Program.

Rehabilitation schedule

Werris Creek plans to progress the northern face of the southern overburden emplacement area from east to west. The forward planned areas are to be constructed to a GeoFluv landform design. This will complete the rehabilitation of the above ground overburden emplacement leaving the in pit slopes to be rehabilitated. Growth medium development encompasses activities to reinstate soils with the initial physical, chemical and biological characteristics required to establish the desired vegetation community. Topsoil will be tested and placed to ensure the growth medium meets the requirements for the final landform use and will be capable of establishing the required species for completion criteria.

Ecosystem establishment includes activities to establish the desired floristic composition (species diversity and density) and habitat features.

The Southern overburden emplacement and the open cut infill area would be revegetated with native trees, shrubs and grass species to achieve a Box Gum Woodland and Derived Native Grassland (EEC equivalent);

Brigalow-Belah Woodland (EEC equivalent), or Shrubby White Box Woodland post-mining land use. Species selection and planting densities will be based on the local analogue sites to ensure local continuity of the ecosystem.

Subsidence remediation for underground operations

The WCCM is an open cut mine that intercepts the underground workings of the former Werris Creek Colliery. The former underground workings are mined through using open cut mining methods. The Werris Creek underground workings were mined out in 2020.

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)	587.19	587.19	587.19
B	**Total active disturbance**	(ha)	245.51	172.58	93.42
C	**Land prepared for rehabilitation**	(ha)	46.51	83.06	125.67
D	**Ecosystem and land use establishment**	(ha)	32.62	69	105.55

Rehabilitation key performance indicators (KPIs)

	FORECAST	UNIT	YEAR 1	YEAR 2	YEAR 3
O	**Total new active disturbance area**	(ha)			
P	**Area proposed for active rehabilitation**	(ha)	68.84	72.93	79.16
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

Plan 2A attachment not provided.

Plan 2B attachment not provided.

Plan 2C attachment not provided.