



**NSW
Resources
Regulator**

FWP0001267

BROKEN HILL COBALT PROJECT FORWARD PROGRAM

Monday 4 November 2024 to Wednesday
3 November 2027

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Summary

DETAIL

Mine	Broken Hill Cobalt Project
Reference	FWP0001267
Forward program commencement date	Monday 4 November 2024
Forward program end date	Wednesday 3 November 2027
Forward program revision (if applicable)	
Contact	Dale Vrenegoor
Mining leases	ML 87 (1973), ML 86 (1973)
Project location	Broken Hill Cobalt Project Pty Ltd
Date of submission	Wednesday 6 March 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 Broken Hill Cobalt Project (the 'Project') is located approximately 25 km west-southwest of Broken Hill inclusive of ML86 and ML87, the subject of this Forward Program. The broader Project hosts three cobaltiferous pyrite deposits with a combined Mineral Resource estimate of 126.5Mt at 867ppm cobalt-equivalent (CoEq) for 87kt contained cobalt, 9,510kt sulphur and 17kt nickel (at a 275ppm CoEq cut-off). The Project is currently the subject of a Definitive Feasibility Study (DFS) and preparation of an Environmental Impact Statement (EIS) to support a State Significant Development (SSD) application. The DFS contemplates a multi-open pit mining / processing operation treating up to 7.3Mt ore annually for an average production of 3.5kt cobalt and 380kt sulphur. During 2021 – 2023, ML86 and ML87 have been the subject of works outlined in Mining Operations Plan Amendment F dated March 2022 (MAAG0013450). These works included bulk sampling, drilling and progressive rehabilitation.

Description of surface disturbance activities

Exploration activities

The Project is currently the subject of a Definitive Feasibility Study (DFS) and preparation of an Environmental Impact Statement (EIS) to support a State Significant Development (SSD) application. The DFS will inform a Final Investment Decision (FID) upon which future exploration activities are predicated. Having regard to potential outcomes of the FID, no exploration activities are proposed to occur within three years at the time of this Forward Working Program. In the event this changes, the respective submissions related to the Forward Program will be revised

Construction activities

The Project is currently the subject of a Definitive Feasibility Study (DFS) and preparation of an Environmental Impact Statement (EIS) to support a State Significant Development (SSD) application. The DFS will inform a Final Investment Decision (FID) upon which future construction activities are predicated. Having regard to potential outcomes of the FID, no construction activities are proposed to occur within three years. In the event this changes, the respective submissions related to the Forward Program will be revised to reflect the following scenarios; • Commencement of construction works in accordance with any approved EIS and Development Applications (DA), or • Final rehabilitation of the Pyrite Hill bulk sample side as detailed in the question Rehabilitation Schedule

Mining schedule

Mining development method and sequencing and general mine features.

The Project is currently the subject of a Definitive Feasibility Study (DFS) and preparation of an Environmental Impact Statement (EIS) to support a State Significant Development (SSD) application. The DFS will inform a Final Investment Decision (FID) upon which future construction activities are predicated. Having regard to potential outcomes of the FID, no further mining activities are proposed to occur within three years. In the event this changes, the respective submissions related to the Forward Program will be revised.

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

A single waste rock emplacement is maintained on site with an approximate area of 0.35ha providing storage for some 38,000t waste rock derived from bulk sampling activities. No further construction or management work is proposed in respect of emplacements.

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

A single process reject pad is maintained on site with an approximate area of 0.7ha. The facility comprises an earthen bunded pad with a compacted base providing storage for some 3,000t process reject material. No further construction or emplacement work is proposed in respect of this facility. Rehabilitation activities for this facility is envisaged during the life of this Forward Working Program and is presented in subsequent sections of this Program. No further reject material will be emplaced at the facility.

Waste disposal and materials handling operations.

No waste material is anticipated to be generated over the next three years.

Key production milestones

MATERIAL	UNIT	YEAR 1	YEAR 2	YEAR 3
Stripped topsoil <small>(if applicable)</small>	(m ³)	0	0	0
Rock/overburden	(m ³)	0	0	0
Ore	(Mt)	0	0	0
Reject material¹	(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 maintenance and corrective actions

The site is subject to routine monitoring and a Trigger Action Response Plan is in place. There are no rehabilitation, maintenance or corrective actions needed at this time. No rehabilitation maintenance and corrective actions exist at the site.

Rehabilitation schedule

The Broken Hill Cobalt Project is currently undergoing a Feasibility Study expected to conclude with a Final Investment Decision around mid-2024. The Rehabilitation Schedule depends on the outcomes of this study and decision-making process. Proposed rehabilitation activities include site stabilization and final restoration, with plans to implement the following actions in 2024:

- Complete decommissioning of the site concentrator and remaining infrastructure/equipment.
- Stabilize the ROM area and reject pad by:
 - o Returning remaining crushed ore from the ROM pad to the base of the portal/box cut.
 - o Adding limestone to the top of reject material stored on the Reject Pad.
- Placing a 1m layer of NAF waste rock material from the ROM pad on top of reject material stored on the Reject Pad, shaping and compacting it to form an impermeable cap over reject material.
- Re-establish erosion sediment controls as necessary.
- Implement ongoing site monitoring

Final rehabilitation would be contingent upon the results of the Final Investment Decision. If the project proceeds, final rehabilitation would not proceed.. Final Rehabilitation otherwise would include the following:

- Reclaiming the concentrator pad and some of the ROM NAF material, and filling the box cut.
- Contouring oxidized waste rock material on site to match the natural preexisting landform.
- Applying topsoil dressing to the entire site and conducting ongoing monitoring of growth media.

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)	4.3	3.1	3.1
B Total active disturbance	(ha)	0	0	0
P Total new area of land proposed for active rehabilitation	(ha)	1.2	0	0

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>

Attachment 2 – Definitions

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

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

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

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

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

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

Forward Program (SMALL MINE) v2.1

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