



**NSW
Resources
Regulator**

FWP0001148

NORTHPARKES MINES FORWARD PROGRAM

Sunday 1 January 2023 to Wednesday 31 December 2025

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Summary

DETAIL

Mine	Northparkes Mines
Reference	FWP0001148
Forward program commencement date	Sunday 1 January 2023
Forward program end date	Wednesday 31 December 2025
Forward program revision (if applicable)	
Contact	Caroline Gazi
Mining leases	ML 1247 (1973), ML 1367 (1992), ML 1641 (1992), ML 1743 (1992)
Project location	CMOC Mining Pty Limited
Date of submission	Friday 12 May 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

Northparkes is a copper-gold mine 27km north-west of Parkes, within the Parkes LGA, in central west NSW. Northparkes is operated by CMOC Mining Services Pty Limited (CMOC) as agent severally for and on behalf of the Northparkes Joint Venture, an unincorporated joint venture between CMOC Mining Pty Limited (CMPL) (80%), Sumitomo Metal Mining Oceania Pty Ltd (13.3%) and SC Mineral Resources Pty Ltd (6.7%).

Development consent was originally issued to North Mining Limited, as DA 504/90 in 1992. This approval was based on open cut mining of locations E22 and E27 and underground mining of E26. In 2019 PA11_0060 was gazetted as a State Significant Development (SSD) under section Part 4 of the EP&A Act, has been modified 8 times, and expires on 31/12/32.

Northparkes currently operate E48 and E26 underground mines utilising the block cave method. Open-cut mining is scheduled to recommence at Northparkes in 2023 with preparatory works in process at E31 and E31N.

Description of surface disturbance activities

Exploration activities

Exploration activities will continue to focus on resource and grade definition, exploration for potential new deposits. A component of sterilisation drilling shall also be conducted to test areas proposed for tailings disposal and other mine infrastructure. This table outlines the proposed underground and surface drilling activities to be undertaken on Mining Leases throughout the 3-year period.

- 2023 Diamond Drilling: E26 MJH, E26 CLJ, E48 Bodkin, GRP314, E22 Infrastructure, E31 Deep Resource
- 2023 RC Drilling: Mining Lease Open Pit Target (E28, E51)
- 2024 Diamond Drilling: E26 MJH, E26 CLJ, E48 Bodkin, GRP314
- 2024 RC Drilling: Mining Lease Open Pit Target (undefined)
- 2025 Diamond Drilling: E26 MJH, E26 CLJ, E48 Bodkin, GRP314
- 2025 RC Drilling: Mining Lease Open Pit Target (undefined)

Construction activities

The construction activities forecasted for the next three years include the addition of a new contractor's yard, new laboratory and new warehouse shed.

The construction of a new portal and decline to access the E22 underground area is expected to commence in 2024.

Mining schedule

Mining development method and sequencing and general mine features.

The majority of the ore will be sourced from the E48 and E26 block caves over the three-year period. The E48 block cave will continue to reduce its contribution as grade declines, whereas E26 will increase.

2023:

- Open-cut mining scheduled commence at E31 and E31N to supplement the block cave ore feed.
- Continued mining of the E48, E26 area and surface stockpiles

2024:

- Development of the E22 block cave scheduled to start
- Continuation of existing mining

2025:

- E22 ore to be mined in late 2025
- The E28NE open-cut is scheduled to start.

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

The E22 development will start in 2023 and be completed in 2025. Waste rock from the E22 underground drive development will be placed on the current emplacement east of E26. The waste rock from the E22 surface decline will be placed within the current waste rock emplacement W4, which is adjacent to the current E22 void.

New waste rock emplacements will be constructed within the E31 precinct. The ore within these emplacements will be derived from both the E31 and E31N open cut mining operations, which will be started in 2023. This waste rock will be used for tailings facility construction. The emplacement for E28NE is likely to start in 2025.

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

The following infrastructure activities are scheduled during the Forward Program.

2023:

- Third raise to the Rosedale Tailings Storage Facility (TSF)
 - Begin construction of Infill TSF Extension
 - Tailings to be primarily deposited within Estcourt TSF, with deposition into Rocklands starting in the second half of the year.
- 2024:
- Infill TSF Extension will continue construction in 2024 with deposition likely to begin in the same year.

Waste disposal and materials handling operations.

Putrescible, hydrocarbons, tyres and other waste streams are removed from site by a contractor and disposed, recycled or treated at licenced facilities. Bunded temporary storage/transfer locations are used onsite to minimise risks. Bulk hydrocarbon contaminated material (including soil) are bioremediated onsite within a clay lined storage and placed on the waste rock emplacement once treatment has been successful.

Key production milestones

MATERIAL	UNIT	YEAR 1	YEAR 2	YEAR 3
Stripped topsoil <small>(if applicable)</small>	(m ³)	55,000	15,000	25,000
Rock/overburden	(m ³)	2,505,744	318,816	129,439
Ore	(Mt)	7.85	7.8	7.8
Reject material¹	(Mt)	7.71	7.64	7.67
Product	(Mt)	0.14	0.16	0.13

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

Three-year rehabilitation forecast

Rehabilitation planning schedule

Rehabilitation planning schedule

The approved life of mine is currently 2032. Over the next three years, a new SSD application will be submitted to extend the life of mine which will require a range of investigative studies to fill knowledge gaps and improve rehabilitation outcomes.

In 2023-2024 the tailings facilities will be assessed for potential to be raised higher than the current approved height, which would combine TSF1, TSF2, Estcourt and Infill TSFs into one facility. If approved, this change would reduce future disturbance and alter the current final landform. The assessment will include tailings beach settlement (particularly the E27 portion of Estcourt TSF), batter erosion and landform modelling.

The technical studies and regulator engagement will begin in 2023 as part of the approvals process to fill E31, E31N and E28NE voids with tailings.

Opportunities will be investigated in 2024-2025 to maximise the use of waste rock for TSF construction and to reduce closure emplacements risk. This will include geochemical assessments of current and future materials.

Stakeholder consultation

The scheduled rehabilitation planning activities identified above require extensive engagement and consultation. Due to potential changes to the final landform, consultation is required to be undertaken with government agencies, neighbours, Community Consultative Committee (CCC) and the Wiradjuri Executive Committee (WEC). Planning activities involving potential changes to TSF closure designs will also include consultation with the Tailings Engineer of Record and Dam Safety NSW.

Early consultation for the potential to raise TSF height and combine the TSFs has been discussed with the Engineer of Record, closest neighbours, WEC and the Department of Planning and Environment (DPE).

As these activities are in early stages, it is possible that some components won't be progressed if the assessments don't indicate a benefit.

Rehabilitation studies, risk assessments and/or design work

The Northparkes rehabilitation risk assessment was revised in 2021 and 2022. A bowtie risk assessment has been drafted to assess whether 'landform is unsuitable for final land use.' The draft indicates several critical controls that will continue to be refined.

As noted above, there are various studies scheduled as part of the feasibility and approvals processes relating to filling final open-cut voids with tailings, increasing the height of TSFs and combining TSFs. If these works are pursued, there will be further studies conducted to redesign of the final landform.

Research is continuing in partnership with universities to further understand options for tailings cover designs. The focus is on unitisation of tailings material as a growth medium and is based on the natural succession of native species across TSF2.

Rehabilitation research and trials

RRT NUMBER	PROJECT/TRIAL NAME	OBJECTIVE OF TRIAL/PROJECT	METHODOLOGY	EXPECTED DATE OF COMPLETION	STATUS
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Rehabilitation maintenance and corrective actions

The maintenance and corrective actions scheduled for the term of the Forward Program include:

- A continuation of the E22 batter rehabilitation maintenance program
- Monitoring the TSF1 North and East embankment batter.

The last rehabilitation monitoring survey was conducted in 2020, with the next being scheduled for 2023 in accordance with the Rehabilitation Management Plan (RMP) (Section 8). The monitoring survey is expected to identify any additional performance issues and/or knowledge gaps that may require attention.

Rehabilitation schedule

Scheduled rehabilitation activities include:

- Infill TSF South and East embankments to complete landform establishment phase
- TSF1 central deposition to continue to create the self-draining final landform
- As a result of actions taken to address a NSW Resources Regulator notice (NTCE0009893) dated 7 March 2022 in reference to dam safety guidelines, the TSF2 East embankment (previously in ecosystem and land use establishment phase) was re-disturbed and a new final landform established in late 2022. In 2023 this area will undergo growth medium development and commence ecosystem and land use establishment phase by re-seeding.
- Weed management program implemented in accordance with the RMP.

Subsidence remediation for underground operations

There are no subsidence remediation works planned for the next three years.

Subsidence monitoring will be in accordance with the RMP (Section 6.2.1k) and will include continual automated monitoring by piezometers and displacement beacons, along with monthly visual inspection of the TSF embankment outer surface noting cracking or ground subsidence.

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)	1,357.72	1,360.14	1,380.84
B Total active disturbance	(ha)	1,157.84	1,160.26	1,180.96
C Land prepared for rehabilitation	(ha)	0	0	0
D Ecosystem and land use establishment	(ha)	0	0	0

Rehabilitation key performance indicators (KPIs)

FORECAST	UNIT	YEAR 1	YEAR 2	YEAR 3
O Total new active disturbance area	(ha)	17.73	2.42	20.7
P Area proposed for active rehabilitation	(ha)			
Q Annual rehabilitation to disturbance ratio				

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	<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> .

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

Attachment 3 – Plans

PLAN_2A_21257_009_FP_yr1.pdf

PLAN_2B_21257_010_FP_yr2.pdf

PLAN_2C_21257_011_FP_yr3.pdf

Forward Program (LARGE MINE) v2.1