NSW GOVERNMENT

NSW Resources Regulator

FWP0001189

CSA MINE FORWARD PROGRAM

Sunday 5 February 2023 to Wednesday 4 February 2026

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Summary

DETAIL	
Mine	CSA Mine
Reference	FWP0001189
Forward program commencement date	Sunday 5 February 2023
Forward program end date	Wednesday 4 February 2026
Forward program revision (if applicable)	FWP0001088
Contact	James Armstrong
Mining leases	CML 5 (1992), MPL 1094 (1906), MPL 1093 (1906)
Project location	Cobar Management Pty Ltd
Date of submission	Wednesday 31 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

CMPL, a wholly owned Australian subsidiary of Glencore, commenced operations at the Cornish, Scottish and Australian (CSA) Mine, located 11 km north of Cobar, in July 1999.

CMPL continues to operate the CSA Mine, which is currently the highest-grade copper mine, and one of the deepest operating mines in Australia.

The long-term (LoM) plan is to mine at a rate of 1.2 million tonnes per annum. The mining rate equates to approximately 45m vertical advances per year. Proved and probable ore reserves (as of 31 December 2021) are estimated at 7.7Mt at 3.84% Cu between 9,200 RL to 8,395 RL, which can sustain these extraction rates over the next 4 years. Additionally, there appear to be adequate resources below this depth in the QTS North and within the QTS Central and Western system to sustain the mining rate for an additional two years (up to 2028). Therefore, the minimum mine life at full production rates is approximately 6 years, which excludes a 2-year tail end at reduced production rates

Description of surface disturbance activities

Exploration activities

Work in the following reporting period will focus on developing exploration targets generated from the 2021 FLEM survey, 2020 airborne magnetic survey, 2022 IP survey, and 2022 geomechanical-geochemical review. Surface exploration drilling will recommence at the QTS North and QTS South prospects targeting Down-hole Electromagnetic anomalies identified in 2020 and reported on in the previous reporting period. Additional work will primarily be desktop with some field reconnaissance of areas of interest to observe the surface expression.

Construction activities

Proposed construction activities proposed over the coming period include:

- Grinding circuit and flotation upgrade
- STSF Stage 10 wall lift
- Surface ore stockpile
- Settling ponds and water collection dam
- Concentrate storage shed upgrades
- Rehabilitation of Mount Brown and STSF

-QTS South upper mining project and potential box cut

- New Fresh Air Rise FAR No. 2 Intake Rise System (Surface to 8720 RL) and Return Air Rise (RAR) 1 and 2 Primary surface Vent Fan Station upgrade.

- Ammonia Plant extension by 8.0 MW BAC and new Bulk Air Coolers (BAC's) at the new FAR

-No. 2 Intake shaft including buried pipeline.

- Additional 6.0 MW of rental cooling at FAR No. 2 from October 2021 to May 2023.

- Extension of the underground FAR system between 8820 RL and 8500 RL.

- Emulsion Storage Capacity Increase

- Extension of Paste Fill Plant Lined stockpile area.

Mining schedule

Mining development method and sequencing and general mine features.

The QTS North stoping sequence will continue with the southern end of the orebody advancing from south to north and the northern end progressing from the centre out. A closure pillar is formed where these two independent sequences converge. The current sequence in the QTS North ore region is to excavate the central stope between the upper and lower levels and then backfill the stope with paste fill. When the cemented fill has set, the adjacent stopes on the same level are extracted in the same manner. The sequence is repeated on the same level, working outwards, creating a "V" profiled mining front that relocates the ground stress outwards. The proposed sequence of ore extraction in the lower QTS South ore region is to excavate the northern stope between the upper and lower levels and then backfill the stope with either cemented fill or waste rock fill. When the fill has set or the void has been filled with waste rock and a thin pillar of ore is left in situ, the adjacent stope to the south on the same level is extracted in the same manner. The proposed sequence of extraction for the QTS Central ore region is to mine the southern stope between the upper and lower levels and backfill with cemented fill. When the fill has set, stoping will continue to the north until all the stopes are mined on the level. The proposed sequence of extraction for the Eastern ore region is to mine each lens overhand from the lower extent of the ore zone, filling the stopes with cemented rock fill

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

Mount Brown is currently used as a temporary emplacement for site waste rock, and ore. The area was a previously excised contaminated area of the mine that was capped are repurposed for this role. There is also several emplacement area at the toes of the Tailings dam design as temporary stockpiles, in preparation for tailing dam lift fill material.

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

Currently, all waste rock is stockpiled at the STSF and Mount Brown. The forecast schedule provides an opportunity to use some or all of the waste rock for future raises of the STSF and/or reshaping works for

progressive rehabilitative closure, thereby potentially eliminating the need for separate waste rock dumps outside of the two mentioned.

Waste disposal and materials handling operations.

The waste management requirements and processes for handling, storage, reuse, recycling and disposal of all major waste streams at the CSA are managed as per the CSA Mine Site Waste Management Procedure. CMPL generates development waste rock when underground drives are established within the CSA Mine. Waste rock has been produced and transported underground throughout the entire operational history of the mine. Approximately 20% of all material handled underground is waste rock. The potential exists in the future operation of the mine to surface stockpile excess waste rock of good quality for use during construction projects and rehabilitation works on site. Materials for construction activities such as Tailings Storage Facility lifts are difficult to source in the Cobar area. Waste rock material provides the perfect alternative material for such projects, as well as being extremely useful in remediation efforts such as the capping of tailings storage facilities. Management of geochemically unsuitable materials must be integrated into mining activities. Pro-active management is recommended over-reactive management whenever possible in accordance with the CSA-HSET-MP-1050 Acid Mine Drainage Management Plan

Key production milestones

MATERIAL	UNIT	YEAR 1	YEAR 2	YEAR 3
Stripped topsoil (if applicable)	(m^3)	0	0	0
Rock/overburden	(m^3)	1,688,106	143,082	1,692,904
Ore	(Mt)	1,244,278	1,344,417	1,319,365
Reject material[1]	(Mt)	678,000	699,600	678,000
Product	(Mt)	167,083	166,801	180,791

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

Three-year rehabilitation forecast

Rehabilitation planning schedule

Rehabilitation planning schedule

CSA Mine is currently in the mature operations stage (mid-mine phase) where most of the disturbance has taken place and the mine is in steady operations. Not a great deal of rehabilitation has therefore been completed in the past. Minimal progressive rehabilitation has taken place, which has involved the spreading of green waste and hay on areas of land not impacted by mining activities, while most revegetation that has occurred has been due to the natural succession of vegetation from surrounding areas.

Stakeholder consultation

It is intended that further stakeholder consultation will be undertaken after the completion of current and upcoming studies and assessments to inform and further extrapolate the rehabilitation objectives and rehabilitation completion criteria for the CSA Mine site

Rehabilitation studies, risk assessments and/or design work

It is anticipated that a variety of future rehabilitation research, modelling and trials will be completed to facilitate planned rehabilitation on the CSA Mine Site. This includes future landform modelling and NTSF recovery research along with the below planned future works, soil remediation trials, tailings dam rehabilitation trials, assessment of rehabilitation material inventories and an assessment of the conceptual final landform design for STSF.

Rehabilitation research and trials

RRT NUMBER	PROJECT/TRIAL NAME	OBJECTIVE OF TRIAL/PROJECT	METHODOLOGY	EXPECTED DATE OF COMPLETION	STATUS
FWP0001189					

Rehabilitation maintenance and corrective actions

CMPL intends to complete the following to address all rehabilitation performance issues and or knowledge gaps identified in the latest annual rehabilitation report:

- demarcate and construct a new biodiversity area

- annual asbestos monitoring and update of the site management plan

- implement joint rehabilitation efforts on-site excised areas.

- Continuation of environmental monitoring of surface water, groundwater and air.

- Biodiversity Assessment

- LFA Monitoring

- continued maintenance activities on rehabilitation land

-Establish three new exclusion fencing areas for the property vegetation plan rehabilitation site.

Rehabilitation schedule

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Subsidence remediation for underground operations

Erosion and sedimentation are managed at the CSA Mine site through the CMPL Site Water Management Plan (2013) and the Stormwater Drainage Improvement Plan (2009). The CSA Mine Environmental Monitoring Program

also includes a Surface Water Quality Monitoring Program, which monitors water samples taken two monthly from twelve monitoring locations throughout the mine site. The CSA Mine maintains bunds, water diversion drains and catchment dams within the Mining Lease area to mitigate potential erosion and sedimentation impacts. These structures are managed through regular monitoring and preventative maintenance. Off-lease erosion and sedimentation from water runoff originating on the mine site are prevented by the presence of numerous collection drains, bunds and dams in all the major catchments

on site so that contaminated water and waterborne sediment are contained within the disturbed areas around the mine site.

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)	338.71	338.71	338.71
B	**Total active disturbance**	(ha)	279.82	265.11	263.31
C	**Land prepared for rehabilitation**	(ha)	7.34	22.04	23.84
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)			
P	**Area proposed for active rehabilitation**	(ha)	7.34	14.7	1.81
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

Year 1 Forecast Rehabilitation CSA Mine.pdf

Year 2 Forecast Rehabilitation CSA Mine.pdf

Year 3 Forecast Rehabilitation CSA Mine.pdf