



**NSW  
Resources  
Regulator**

FWP0001110

# **HERA MINE FORWARD PROGRAM**

Monday 16 May 2022 to Thursday 15 May 2025

## Contents

|  |    |
|--|----|
| Summary.....   | 3  |
| Important.....   | 3  |
| Three-year forecast – surface disturbance activities.....                        | 4  |
| Project description.....   | 4  |
| Description of surface disturbance activities.....                               | 4  |
| Three-year rehabilitation forecast.....  | 6  |
| Rehabilitation planning schedule.....  | 6  |
| Rehabilitation research and trials.....  | 8  |
| Rehabilitation maintenance and corrective actions.....                           | 8  |
| Rehabilitation schedule.....   | 8  |
| Subsidence remediation for underground operations.....                           | 8  |
| Progressive mining and rehabilitation statistics.....                            | 9  |
| Three-yearly forecast cumulative disturbance and rehabilitation progression..... | 9  |
| Rehabilitation key performance indicators (KPIs).....                            | 9  |
| Attachment 1 – Reporting Definitions.....  | 10 |
| Attachment 2 – Definitions.....  | 12 |
| Attachment 3 – Plans.....  | 18 |

## Summary

### DETAIL

|   |                                |
|---|--------------------------------|
| <b>Mine</b>                                     | Hera Mine                      |
| <b>Reference</b>                                | FWP0001110                     |
| <b>Forward program commencement date</b>        | Monday 16 May 2022             |
| <b>Forward program end date</b>                 | Thursday 15 May 2025           |
| <b>Forward program revision (if applicable)</b> |                                |
| <b>Contact</b>                                  | Alex Butt                      |
| <b>Mining leases</b>                            | ML 1686 (1992), ML 1746 (1992) |
| <b>Project location</b>                         | HERA RESOURCES PTY LIMITED     |
| <b>Date of submission</b>                       | Tuesday 24 January 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

Hera Mine is an underground metalliferous mine owned by Hera Resources Pty Ltd (Hera Resources), a wholly owned subsidiary of Aurelia Metals Limited (Aurelia). The mine is located approximately 100km southeast of Cobar and approximately 4km south of Nymagee in the central west of New South Wales (NSW). The site consists of an underground mine, a run-of-mine (ROM) pad, temporary waste rock emplacement (WRE), processing plant, tailings storage facility (TSF), and associated infrastructure and ancillary activities.

## Description of surface disturbance activities

### Exploration activities

Exploration activities will be conducted within the mining lease over the course of the forecast period. It is anticipated that exploration areas developed during the forecast would be progressively rehabilitated following completion of activities.

### Construction activities

Hera Gold Mine will be undertaking construction activities in accordance with project approval to ensure the ongoing operational and environmental performance.

FY23 - Surface Extraction Area and Hera to Federation pipeline

FY24 - Water Management Dam and ROM Pad and Car Park extensions

### Mining schedule

Mining development method and sequencing and general mine features.

Continuation of existing mining activities using underground stope mining methods

Ore is mined at Hera via open stope mining methods and trucked from the underground mine to a surface stockpile adjacent to the process plant. Stope voids are backfilled with waste rock. Mine access is via a boxcut and decline from the surface.

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

Use of a surface extraction area and a stockpile area to store non-acid forming material for use in backfilling operations and associated relocation of the surface magazine.

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

Use of a TSF, including cyanide detoxification of tailings prior to discharge to the TSF. Lift 3 for the TSF will also be constructed within FY23.

Hera plan to construct a water management dam downstream of the TSF within FY23.

Waste disposal and materials handling operations.

Hera has an integrated Waste Management Contract with a licenced waste contractor to manage waste streams on site. This contractor is responsible for the management and disposal of waste generated on site.

Key waste streams (apart from waste rock) that will be generated over the next three years comprise of:

- Recyclable and non-recyclable general wastes; and
- Other wastes from mining and workshop activities (e.g. waste oils, scrap metal and used tyres).

General waste minimisation principles (i.e. reduce, re-use and recycling) will continue to be applied at the Hera to minimise the quantity of wastes that require off-site disposal.

All general domestic waste (e.g. general solid [putrescibles] and general solid [non putrescible] waste as defined in Waste Classification Guidelines Part 1: Classifying Waste [EPA, 2014]) and general recyclable products will continue to be collected by an appropriately licensed contractor.

Hydrocarbon compounds will continue to be stored in bunded areas in accordance with the requirements of Australian Standard (AS) 1940:2004 The Storage and Handling of Flammable and Combustible Liquids.

## Key production milestones

| MATERIAL                                   | UNIT              | YEAR 1  | YEAR 2  | YEAR 3     |
|--|-------------------|---------|---------|------------|
| <b>Stripped topsoil</b><br>(if applicable) | (m <sup>3</sup> ) | 0       | 0       | 0          |
| <b>Rock/overburden</b>                     | (m <sup>3</sup> ) | 0       | 0       | 0          |
| <b>Ore</b>                                 | (Mt)              | 331,939 | 463,155 | 416,423.99 |
| <b>Reject material<sup>1</sup></b>         | (Mt)              | 406,032 | 389,834 | 469,325    |
| <b>Product</b>                             | (Mt)              | 50,754  | 44,831  | 56,319     |

<sup>1</sup> This includes coarse rejects, tailings and any other wastes resulting from beneficiation.

# Three-year rehabilitation forecast

## Rehabilitation planning schedule

### Rehabilitation planning schedule

Rehabilitation works for the forecast period is limited to minor rehabilitation works of exploration disturbance areas and field tracks. See Spatial data for details.

### Stakeholder consultation

Hera will perform stakeholder consultation on a quarterly and ongoing basis with the parties listed below.

Quarterly meeting - Community consultative committee (CCC) (contains members from Council, Community and mine site)

Ongoing - CCC , Community members around Nymagee and relevant Government agencies.

### Rehabilitation studies, risk assessments and/or design work

Rehabilitation studies to be undertaken include a detailed TSF closure design including erosion modelling and the development of an exploration area rehabilitation methodology to ensure exploration rehabilitation is carried out in a manner that meets acceptable closure criteria.

## Rehabilitation research and trials

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

FWP0001110

## Rehabilitation maintenance and corrective actions

Hera has no areas currently available for rehabilitation due to small site footprint. The site footprint is 100% utilised for mining operations.

## Rehabilitation schedule

Rehabilitation works for the forecast period is limited to minor rehabilitation works of exploration disturbance areas and field tracks. See Spatial data for details.

Refer to Plan 2A-2C, the Mining and Rehabilitation Forecast, spatially outlines the rehabilitation schedule.

## Subsidence remediation for underground operations

Due to the backfilling of stopes following the completion of mining activities no impacts from subsidence are expected that require rehabilitation works.

## 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) | 133.09 | 133.09 | 133.09 |
| B Total active disturbance             | (ha) | 133.09 | 133.09 | 133.09 |
| 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) |        |        |        |
| P Area proposed for active rehabilitation    | (ha) |        |        |        |
| Q Annual rehabilitation to disturbance ratio |      |        |        |        |

## Attachment 1 – Reporting Definitions

| REPORTING CATEGORY  | DEFINITION   |
|---|--|
| <p><b>A</b> 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>B</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><b>C</b> 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><b>D</b> 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  |
|---|---|
| <b>Active</b>   | In the context of rehabilitation, land associated with mining domains is considered 'active' for the period following disturbance until the commencement of rehabilitation.   |
| <b>Active mining phase of rehabilitation</b>            | 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. |
| <b>Analogue site</b>                                    | 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.   |
| <b>Annual rehabilitation report and forward program</b> | As described in the Mining Regulation 2016.   |
| <b>Annual reporting period</b>                          | As defined in the Mining Regulation 2016.   |
| <b>Closure</b>  | 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).   |
| <b>Decommissioning</b>                                  | The process of removing mining infrastructure and removing contaminants and hazardous materials.  |
| <b>Decommissioning Phase of Rehabilitation</b>          | 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  |
|---|---|
| <b>Department</b>                           | The Department of Regional NSW.   |
| <b>Disturbance</b>                          | See Surface Disturbance.  |
| <b>Disturbance area</b>                     | <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>   |
| <b>Domain</b>                               | <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>  |
| <b>Ecosystem and Land Use Development</b>   | <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> |
| <b>Ecosystem and Land Use Establishment</b> | <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>   |
| <b>Exploration</b>                          | Has the same meaning as that term under the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.  |

| WORD  | DEFINITION   |
|---|--|
| <b>Final landform and rehabilitation plan</b> | As defined in the Mining Regulation 2016.  |
| <b>Final land use</b>                         | As defined in the Mining Regulation 2016.  |
| <b>Form and way</b>                           | Means the form and way approved by the Secretary. Approved form and way documents are available on the Department's website.   |
| <b>Growth Medium Development</b>              | <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> |
| <b>Habitat</b>                                | 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).  |
| <b>Indicator</b>                              | 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.  |
| <b>Land</b>                                   | As defined in the <i>Mining Act 1992</i> .   |
| <b>Landform Establishment</b>                 | <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>  |
| <b>Large mine</b>                             | As defined in the Mining Regulation 2016.  |
| <b>Lease holder</b>                           | The holder of a mining lease.  |

| WORD                              | DEFINITION  |
|-----------------------------------|---|
| <b>Life of mine</b>               | The timeframe of how long a mine is approved to mine, from commencement to closure.   |
| <b>Mine rehabilitation portal</b> | <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"> <li>■ upload rehabilitation geographical information system (GIS) spatial data</li> <li>■ develop rehabilitation GIS spatial data (using online tracing functions)</li> <li>■ generate rehabilitation plans and rehabilitation statistics using the map viewer and Rehabilitation Key Performance Indicator functionalities.</li> </ul> <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> |
| <b>Mining area</b>                | As defined in the <i>Mining Act 1992</i> .  |
| <b>Mining domain</b>              | 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).  |
| <b>Mining land</b>                | As defined in the <i>Mining Act 1992</i> .  |
| <b>Native vegetation</b>          | Has the same meaning as that term under section 60B of the <i>Local Land Services Act 2013</i> .  |
| <b>Overburden</b>                 | Material overlying coal or a mineral deposit.   |
| <b>Performance indicator</b>      | 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   |
|---|--|
| <b>Phases of rehabilitation</b>           | The stages and sequences of actions required to rehabilitate disturbed land to achieve the final land use. The phases of rehabilitation are: <ul style="list-style-type: none"> <li>■ active mining</li> <li>■ decommissioning</li> <li>■ landform Establishment</li> <li>■ growth medium development</li> <li>■ ecosystem and land use establishment</li> <li>■ ecosystem and land use development.</li> </ul>  |
| <b>Progressive rehabilitation</b>         | 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.  |
| <b>Rehabilitation Completion</b>          | 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. |
| <b>Rehabilitation Completion criteria</b> | As defined in the Mining Regulation 2016.  |
| <b>Rehabilitation cost estimate</b>       | As defined in the Mining Regulation 2016.  |
| <b>Rehabilitation management plan</b>     | As defined in the Mining Regulation 2016.  |
| <b>Rehabilitation objectives</b>          | As defined in the Mining Regulation 2016.  |
| <b>Rehabilitation risk assessment</b>     | As defined in the Mining Regulation 2016.  |
| <b>Rehabilitation schedule</b>            | The defined timeframes for progressive rehabilitation set out in the forward program.  |

| WORD                         | DEFINITION   |
|------------------------------|--|
| <b>Relevant stakeholders</b> | Means any persons or bodies who may be affected by the mining operations, including rehabilitation, carried out on the lease land, and includes: <ul style="list-style-type: none"> <li>■ the relevant development consent authority</li> <li>■ the local council</li> <li>■ the relevant landholder(s)</li> <li>■ community consultative committee (if required under the development consent) or equivalent consultative group</li> <li>■ affected land holder(s)</li> <li>■ government agencies relevant to the final land use</li> <li>■ affected infrastructure authorities (electricity, telecommunications, water, pipeline, road, rail authorities)</li> <li>■ local Aboriginal communities, and</li> <li>■ any other person or body determined by the Minister to be a relevant stakeholder in relation to a mining lease.</li> </ul> |
| <b>Risk</b>                  | The effect of uncertainty on objectives. It is measured in terms of consequences and likelihood (AS/NZS ISO 31000:2009).   |
| <b>Secretary</b>             | The Secretary of the Department.   |
| <b>Security deposit</b>      | 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).   |
| <b>Surface disturbance</b>   | Includes activities that disturb the surface of the mining area, including mining operations, ancillary mining activities and exploration.   |
| <b>Tailings</b>              | 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 <sup>2</sup> .  |
| <b>Waste</b>                 | Has the same meaning as that term under the <i>Protection of the Environment Operations Act 1997</i> .   |

<sup>2</sup> Commonwealth of Australia (DITR), 2007. *Tailings Management*.

## Attachment 3 – Plans

SLR63030329\_Plan 2A Mining and Rehabilitation - Year 1 (1).pdf

SLR63030329\_Plan 2B Mining and Rehabilitation - Year 2.pdf

SLR63030329\_Plan 2C Mining and Rehabilitation - Year 3.pdf

Forward Program (LARGE MINE) v2.1