Operator Name:

Authorisation No. XXXX / New

Date:

NOTE: This template has been designed to assist in the preparation of a Mining Management Plan for mining projects. Please delete advisory content as appropriate.

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# How to use this template

A Mining Management Plan (MMP) is required by Section 40 of the *Mining Management Act 2001* (the MMA).

The purpose of the MMP is to:

* detail the management of the mining operation
* identify and document the key environmental risks associated with the operation
* demonstrate consideration of and proposed mitigation for the risks
* meet the requirements of the MMA.

This MMP template has been developed to provide the Proponent/Operator and the department with an easy to use document to address MMP requirements and streamline assessment under the MMA. The MMP must be appropriate to the operation and this template allows for inclusion of detail for the various stages of life of mine (LOM), at level commensurate with the length and risks of the project at the time of submission.

While the MMP is a regulatory requirement, it is also the Authorised Operator’s key reference to the approved disturbance on the mine site and the management of the activity to limit the environmental impact of mining.

This template:

* provides a format for documenting critical information required in a MMP for large mining projects requiring approval and authorisation under the MMA
* is not prescriptive. This document can be edited to ensure all relevant information is provided for assessment of the specific project
* has been developed for use by operators/proponents with a view to generating a concise Mining Management Plan (MMP)
* supports the development of a MMP that can be made public (with the exclusion of confidential information). It is suggested that potential commercial in confidence information be restricted to appendices which may be more easily removed from the document to be made public.
* is supported by the *Mining Project Mining Management Plan Content Guide* which explains why information is required and provides guidance on how to present the information required of MMPs submitted for assessment under the MMA.

# Section 1 – Application for Authorisation

## Operator Details

Key information about the entity making an application for authorisation under the MMA.

| Table 1.1.1 | | | |
| --- | --- | --- | --- |
| Operator Name  Use ASIC-ABR registered name (if a company), or name of the applicant |  | | |
| ACN |  | ABN |  |
| Postal Address |  | | |
|  | | Postcode |  |
| Street Address |  | | |
|  | | Postcode |  |

| Table 1.1.2 | | | |
| --- | --- | --- | --- |
| Primary Contact | | | |
| Name |  | Position |  |
| Phone (business) |  | Phone (mobile) |  |
| Email Address |  | | |
| Additional Contacts (add additional lines if required) | | | |
| Name |  | Position |  |
| Phone (business) |  | Phone (mobile) |  |
| Email Address |  | | |
|  | | | |
| Name |  | Position |  |
| Phone (business) |  | Phone (mobile) |  |
| Email Address |  | | |
|  | | | |
| Name |  | Position |  |
| Phone (business) |  | Phone (mobile) |  |
| Email Address |  | | |

Include any other pertinent details, including:

Is the Operator owned by another entity? Yes/No  
Is the Operator a Joint Venture? Yes/No

If yes, provided details:

## Title Details

The information should be presented in two formats:

1. tabulated summary addressing the details of the relevant mineral titles
2. a figure clearly showing relevant titles relevant to the project.

|  |  |  |  |
| --- | --- | --- | --- |
| Table 1.2.1 – Mineral Titles | | | |
| **Title Number** | **Title Holder** | **Expiry Date** | **Underlying Land Tenure** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

*If the operator/proponent is not the title holder, a Nomination of Operator form must be completed by the titleholder, appointing the operator for the site, as per Section 10 of the MMA.*

## Project Details

Provide a brief summary of the project, including the mine site name, location and site access indicting proximity to nearest towns. More detailed information is to be provided at Section 5.

| **Table 1.3 – Application for Authorisation** | | | | | |
| --- | --- | --- | --- | --- | --- |
|  | New Authorisation  Section 36(1) *Mining Management Act* *2001* \* | |  | Variation of Authorisation  Section 38(1) *Mining Management Act 2021* | Auth number |
| **Project Name** Provide new or use existing  existing project name | |  | | | |
| **Location and Access Details** Include brief description of the location, access details, and distance to nearest town or community | | A brief summary of the project, including the mine site name, location, site access and nearest towns. | | | |
| **Target Commodity Details** Include target mineral commodities (i.e. gold, copper etc.) | |  | | | |

## Declaration

I hereby declare that the information provided in the Mining Management Plan is true and correct to the best of my knowledge and that I accept that the misrepresentation or omission of facts may delay assessment for authorisation under the *Mining Management Act 2001*

Director Name (please print) Date

Director or Company Secretary Name (please print) Date

# Section 2 - Project Summary

## Overview

This section provides a high-level summary of the project and comprises two components relating to:

1. brief description of the various aspects of the project (Table 2.1.1)
2. the disturbances proposed to access and extract the target commodity (Table 2.1.2).

*Please fill in the following tables where relevant.*

| Table 2.1.1 – Overview of project | | | |
| --- | --- | --- | --- |
| Project Aspect | Element | Description | References |
| Approval Sought | Approval is sought for the following mining activities: |  |  |
| Commodity |  | [Insert time frame, if relevant] |  |
| Schedule | Phase 1: Exploration/Planning  Phase 2: Construction  Phase 3: Operation and progressive rehabilitation  Phase 4: Closure | [Insert year] |  |
| Mining | Target resource:  Mining rate (waste:ore):  Destination Port:  Mode of transport: |  |  |
| Processing | Processing on site:  Key infrastructure used  Processing rate  Key chemicals used | Yes/No |  |
| Ancillary Activities | Rehabilitation trials  Environmental investigations etc  Power supply (e.g. solar, power plant or generator) |  |  |
| Waste Management | No of WRDs:  No of TSF: include cells:  No of waste water dams | Timeframes for WRD construction:  Timeframes for TSF construction  Timeframes for dam construction: |  |
| Water Use / Management | Bore field | Volume and timeframe |  |
| Surface water capture |  |  |
| Abstraction |  |  |
| Flood Immunity | Levy walls and other flood mitigation structures/contouring |  |  |
| Site History |  |  |  |

| **Table 2.1.2 - Current and proposed disturbances** | | | | | |
| --- | --- | --- | --- | --- | --- |
| Disturbance Summary | | Footprint (ha) | | | Permanent / Temporary  (if temporary, when is rehabilitation expected to be completed) |
| Existing | Proposed  (this MMP) | Total |
| Infrastructure | |  |  |  |  |
| Pits | Pit 1/ Extractive 1 |  |  |  |  |
| Pit 2/ Extractive 2 |  |  |  |  |
| Underground | |  |  |  |  |
| TSF | TSF 1 |  |  |  |  |
| TSF 2 |  |  |  |  |
| Dams | Dam 1 |  |  |  |  |
| Dam 2 |  |  |  |  |
| WRD | WRD 1 |  |  |  |  |
| WRD 2 |  |  |  |  |
| Exploration | |  |  |  |  |
| Roads | |  |  |  |  |
| River diversion | |  |  |  |  |
| Total | |  |  |  |  |

## Organisational Structure

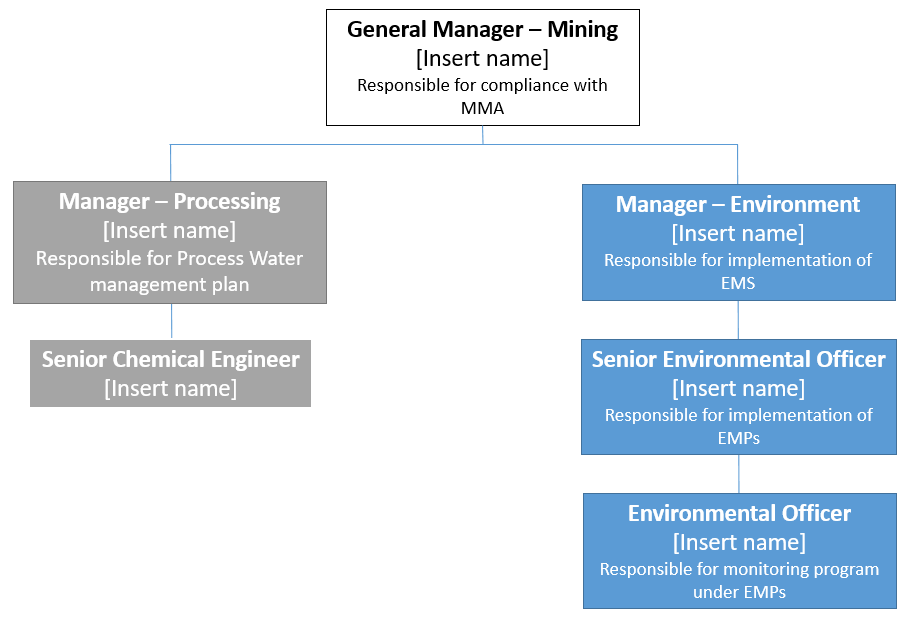
The Organisational Structure showing the positions and details of personnel who will implement the management systems detailed in this MMP is as follows:

Note: Either complete the Table at Example A OR provide a figure showing organisational structure, as per Example B.

**Option for 2.2 - Example A: Table** *- Add additional rows as required*

| Position | Person | Responsibility under EMS |
| --- | --- | --- |
| General Manager – Mining |  |  |
| Environmental Manager |  |  |
| Team Leader - Geology |  |  |
| Team Leader – Water Management |  |  |
| Senior Environmental Scientist |  |  |
| Environmental Scientist(s) |  |  |

**Option for 2.2 - Example B: Figure** -*Expand the organisational structure as required*



# Section 3 – Site Conditions

## Site Setting

Provide details of the site setting relevant to the works relevant to the duration of this MMP.

*Fill in Table 3-1.1. Any additional details, if considered necessary, are to be included in an Appendix and referenced.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Table 3.1.1 – Site setting | | | | |
| Environmental aspect | Description | | | References |
| **Climate** | **Climate Type: ☐ Wet/dry tropics or ☐ Arid or ☐ Other:\_\_\_\_\_\_\_\_\_\_** | | |  |
| **Temperature:**  **(°C)** | **Min: \_\_\_\_**  **Max: \_\_\_\_** | **Month:**  **Month:** |  |
| **Rainfall (mm)** | **Min: \_\_\_\_**  **Max: \_\_\_\_**  **Annual:** | **Month:**  **Month:** |  |
| **Evaporation (mm)** | **Min: \_\_\_\_**  **Max: \_\_\_\_**  **Annual:** | **Month:**  **Month:** |  |
| **Landscape and Soils** |  | | |  |
| **Local Geology** |  | | |  |
| **Local Hydrogeology** |  | | |  |
| **Local Hydrology \*** | **Catchment Name/ID:**  **No of 1st/2nd order streams and type:**  **Surface water flow direction**  **Declared Uses of the water under Water Act:**  **Water values:** | | |  |
| **Sacred Sites\*** | **Note: Operators must consider their obligations under the NT Aboriginal Sacred Sites Act 1989** | | |  |
| **Other Heritage/Cultural Sites\*** | **Note: Operators must consider their obligations under the Heritage Act 2011** | | |  |
| **Flora\*** |  | | |  |
| **Fauna\*** |  | | |  |
| **Historical Mining Development and Disturbances** |  | | |  |
| **Underlying Land Use** |  | | |  |
| **Surrounding Land use** |  | | |  |
| **Nearest Town(s)** |  | | |  |
| **Regional Infrastructure** |  | | |  |

*\* Include figure showing pertinent locations relevant to existing or planned site works. Figures to include overlays of existing and proposed infrastructure with relevant environmental aspect.*

## Conceptual Site Model

*Provide a Conceptual Site Model (CSM) identifying contaminants of concern (CoC).*

| **Table 3.2.1 – Conceptual Site Model** | | |
| --- | --- | --- |
| **Proposed disturbance**  **(source and CoC)** | **Pathways** | **Receptors** |
| Pit |  |  |
| Waste Rock Dump A |  |  |
| Run of Mine |  |  |
| Tailings Dam |  |  |
| Water Dam |  |  |

*Include additional rows if required*

## Socio-Economic Status

*Complete Table 3-3.*

| Table 3.3 – Socio-Economic status | | | |
| --- | --- | --- | --- |
| Item | | Description | References |
| Workforce | Phase 1 |  |  |
| Phase 2 |  |  |
| Phase 3 |  |  |
| Phase 4 |  |  |
| Economic output | |  |  |
| Stakeholder engagement | |  |  |
| Other details | |  |  |

# Section 4 –Legislation and Obligations

*Please fill in the tables where relevant.*

## Statutory Requirements

The statutory requirements of the project are summarised as follows:

| Table 4.1 – Statutory Requirements | | |
| --- | --- | --- |
| Legislation / Requirement | Pertinent information | When |
| Mining Management Act 2001 |  |  |
| Choose an item. |  |  |
| Choose an item. |  |  |
| Choose an item. |  |  |
| Choose an item. |  |  |
| Choose an item. |  |  |
|  |  |  |

*Add rows as appropriate*

## Non-Statutory Requirements

The non – statutory requirements of the project are summarised as follows.

*Briefly outline non-statutory requirements.*

| Table 4.2 – Non-Statutory Requirements | | |
| --- | --- | --- |
| Requirement | Pertinent information | When |
| Choose an item. |  |  |
| Choose an item. |  |  |
| Choose an item. |  |  |
| Choose an item. |  |  |
| Choose an item. |  |  |
| Choose an item. |  |  |
| Choose an item. |  |  |
|  |  |  |

*Add rows as appropriate*

# Section 5 – Operational Activities

## Mine Infrastructure Area

The mine infrastructure areas (MIA) are summarised in the following tables.

*Please fill in the following tables where relevant. At the end of the section, discuss any knowledge gaps.*

| **Table 5.1.1 - Identify zone for all proposed or existing structures:** | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Zone** |  | **Zone** |  | **Zone** |  | **Zone** |  |
|  | ROM pad |  | Admin/office buildings |  | Water Treatment plant |  | Sewage Treatment |
|  | Processing facility |  | Fuel Farm |  | Powerlines |  | Landfill |
|  | Dams/sumps |  | Power Supply |  | Borefields |  | Other (please specify) |
|  | Buildings for storage/workshops/explosives |  | Equipment storage (low risk) in open |  | Accommodation |  |  |

| **Table 5.1.2 –Mine Infrastructure Area Summary** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Zone** | **Titles** | **Infrastructure** | **Total No. of structures** | **Footprint (ha)** | | | **Development details** | | **LOM year of construction** | **References** |
| **Existing** | **Proposed** | **Total** | **Sequence** | **Details** |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |

| **Table 5.1.3 – MIA Risk, Controls and Management** | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Step** | **Phase** | **Sequence** | **Risks** | **Controls** | **Management performance and monitoring** | **References** |
| **Zone 1** | | | | | | |
| 1 | Clearing |  |  |  |  |  |
| 2 | Construction |  |  |  |  |  |
| 3 | Commissioning/Operations |  |  |  |  |  |
| 4 | Unplanned closure |  |  |  |  |  |
| **Zone 2** | | | | | | |
| 1 | Clearing |  |  |  |  |  |
| 2 | Construction |  |  |  |  |  |
| 3 | Commissioning/Operations |  |  |  |  |  |
| 4 | Unplanned closure |  |  |  |  |  |
| **Zone 3** | | | | | | |
| 1 | Clearing |  |  |  |  |  |
| 2 | Construction |  |  |  |  |  |
| 3 | Commissioning/Operations |  |  |  |  |  |
| 4 | Unplanned closure |  |  |  |  |  |

| **Table 5.1.4 - MIA– summary of environmental performance** | |
| --- | --- |
| Zone: | Zone: |

\*Add additional rows as required.

|  |
| --- |
| Table 5.1.5 - Independent expert |
| Q1 Will an independent expert be engaged by the Operator? |
| Yes – Go to Q2 |
| No – please explain why, and then move onto Q3: |
| Q2 Will detailed designs be prepared and reviewed by an independent expert? |
| Yes – Go to Q3    Note:  Any designs reviewed by an independent expert, must be submitted together with independent review comments and how any improvements in design were addressed to the satisfaction of the independent expert.  Detailed designs must include:   * Hold points at suitable intervals that may affect the construction and future performance of the structure * Performance monitoring requirements and frequency * Reporting requirements to the regulator must be able to demonstrate suitability of design and compliance. |
| No – please explain why, and then move onto Q3: |
| Q3 Will a detailed management plan be developed that describes in detail the operator’s maintenance, surveillance and closure requirements of the structure? |
| Yes  Note: This plan must be endorsed by the independent expert. |
| No – please explain why? |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Table 5.1.6 – MIA Closure\* | | | | | |
| Closure | Objective | Criteria | Knowledge gaps | Timelines to completion | References |
| Unplanned |  |  |  |  |  |
| Planned |  |  |  |  |  |

\*Note: This will inform section 8.

## Pits and extractives

The mine pits and extractives are summarised in the following table:

*Fill in the following tables where relevant. At the end of the section, discuss any knowledge gaps.*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 5.2.1 – Pits - Summary | | | | | | | | | | | | | | | | | |
| **Item** | | **Pertinent information** | | | | | | | | | | | | | | | |
| No. of pit operations | | Pit 1 (identify new or existing) | | | | | Pit 2 (identify new or existing) | | | | | Pit 3 (identify new or existing) | | | | | |
| Open pit or extractive | |  | | | | |  | | | | |  | | | | | |
| Titles | |  | | | | |  | | | | |  | | | | | |
| Target material/commodity | |  | | | | |  | | | | |  | | | | | |
| LOM year of construction | |  | | | | |  | | | | |  | | | | | |
| Pit | Total depth (m) |  | | | | |  | | | | |  | | | | | |
| Current Depth (m) (if existing pit) |  | | | | |  | | | | |  | | | | | |
| Dimensions | Length(m): | Width(m): | | Volume (m³): | | Length(m): | Width(m): | | Volume (m³) | | Length(m): | Width(m): | | Volume(m³) | |
| Waste types to be encountered |  | | | | |  | | | | |  | | | | | |
| Pit wall Competency | Geological Zone | Depth range (m) | RQD\* (%) | Strength | | Weathering state\* | Depth range (m) | RQD\* (%) | Strength | | Weathering state\* | Depth range (m) | RQD\* (%) | Strength | | Weathering state\* |
|  |  |  |  | |  |  |  |  | |  |  |  |  | |  |
|  |  |  |  | |  |  |  |  | |  |  |  |  | |  |
|  |  |  |  | |  |  |  |  | |  |  |  |  | |  |
|  |  |  |  | |  |  |  |  | |  |  |  |  | |  |
| References |  | | | | |  | | | | |  | | | | | |
| Benches/Berms | Bench height (m): |  | | | | |  | | | | |  | | | | | |
| Bench width (m) |  | | | | |  | | | | |  | | | | | |
| Bench angle (H:V) |  | | | | |  | | | | |  | | | | | |
| Factor of Safety (FoS) |  | | | | |  | | | | |  | | | | | |
| References |  | | | | |  | | | | |  | | | | | |
| Dewatering/pit stabilisation | Standing Water Level (SWL) |  | | | | |  | | | | |  | | | | | |
| Aquifers to dewater |  | | | | |  | | | | |  | | | | | |
| No of bores |  | | | | |  | | | | |  | | | | | |
| Extraction rate (ML/yr) |  | | | | |  | | | | |  | | | | | |
| Cone of depression distance (m) from pit at 0.5m contour |  | | | | |  | | | | |  | | | | | |
| Water management requirements |  | | | | |  | | | | |  | | | | | |
| References |  | | | | |  | | | | |  | | | | | |
| Diversions | Waterway name |  | | | | |  | | | | |  | | | | | |
| Length (m) |  | | | | |  | | | | |  | | | | | |
| Width (m) |  | | | | |  | | | | |  | | | | | |
| References |  | | | | |  | | | | |  | | | | | |
| Flood immunity (ARI) | 1:10 | Peak Flood Depth (m):  Flood Mitigation Req: Y or N | | | | | Peak Flood Depth (m):  Flood Mitigation Req: Y or N | | | | | Peak Flood Depth (m):  Flood Mitigation Req: Y or N | | | | | |
| 1:100 | Peak Flood Depth (m):  Flood Mitigation Req: Y or N | | | | | Peak Flood Depth (m):  Flood Mitigation Req: Y or N | | | | | Peak Flood Depth (m):  Flood Mitigation Req: Y or N | | | | | |
| 1:500 | Peak Flood Depth (m):  Flood Mitigation Req: Y or N | | | | | Peak Flood Depth (m):  Flood Mitigation Req: Y or N | | | | | Peak Flood Depth (m):  Flood Mitigation Req: Y or N | | | | | |
| Probable Maximum Flood (PMF) | Peak Flood Depth (m):  Flood Mitigation Req: Y or N | | | | | Peak Flood Depth (m):  Flood Mitigation Req: Y or N | | | | | Peak Flood Depth (m):  Flood Mitigation Req: Y or N | | | | | |
| References |  | | | | |  | | | | |  | | | | | |
| Pit development method | Rationale |  | | | | |  | | | | |  | | | | | |
| Ancillary structures |  |  | | | | |  | | | | |  | | | | | |

*\*For rock: provide RQD and weathering state for each zone. For soil: provide indicative in-situ strength for each zone.*

|  |  |  |  |
| --- | --- | --- | --- |
| Table 5.2.2 – Pits and Extractives Design Rationale | | | References |
| Reasons for choosing this location (complete all that apply) | Statutory |  |  |
| Flora |  |  |
| Fauna |  |  |
| Sacred Sites |  |  |
| Heritage |  |  |
| Water |  |  |
| Other |  |  |
| Reasons for choosing this design (design basis) | Geotechnical/engineering |  |  |
| Waste/water management |  |  |
| Other |  |  |
| Regulatory | Existing Authorisation |  |  |
| NT EPA |  |  |
| EPBC Act |  |  |
| Water Act |  |  |
| References |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Table 5.2.3 – Pits and Extractives Risk, Controls and Management | | | | | | |
| **Step** | **Phase** | **Sequence** | **Risks** | **Controls** | **Management performance and monitoring** | **Additional information** |
| 1 | Clearing |  |  |  |  |  |
| 2 | Construction |  |  |  |  |  |
| 3 | Commissioning/operations |  |  |  |  |  |

|  |
| --- |
| Table 5.2.4 –Pits Independent expert |
| Q1 Will an independent expert be engaged by the Operator? |
| Yes – Go to Q2 |
| No – please explain why, and then move onto Q3: |
| Q2 Will detailed designs be prepared and reviewed by an independent expert? |
| Yes – Go to Q3  Note:  Any designs reviewed by an independent expert, must be submitted together with independent review comments and how any improvements in design were addressed to the satisfaction of the independent expert.  Detailed designs must include;   * Hold points at suitable intervals that may affect the construction and future performance of the structure * Performance monitoring requirements and frequency * Reporting requirements to the regulator must be able to demonstrate suitability of design and compliance. |
| No – please explain why, and then move onto Q3: |
| Q3 Will a detailed management plan be developed that describes in detail the operator’s maintenance, surveillance and closure requirements of the structure? |
| Yes  Note: This plan must be endorsed by the independent expert. |
| No – please explain why: |

|  |  |
| --- | --- |
| Table 5.2.5 - Pits and extractives – summary of environmental performance | |
| Zone | Zone |

\*Add additional rows as required.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Table 5.2.6 – Pits and Extractives Closure\* | | | | | |
| Closure | Objective | Criteria | Knowledge gaps | Timelines to completion | References |
| Unplanned |  |  |  |  |  |
| Planned |  |  |  |  |  |

\*Note: This will inform section 8.

## Underground Operations

The underground (UG) domain/s are summarised in the following tables.

*Fill in the following tables if relevant. At the end of the section, discuss any knowledge gaps.*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Table 5.3.1 - Underground Operations Summary | | | | | | |
| **Identifier for UG operations** | | | **UG area 1 (identify new or existing)** | | **UG area 2 (identify new or existing)** | |
| Titles | | |  | |  | |
| LOM year of construction | | |  | |  | |
| Access | No. of portals | |  | |  | |
| Locations | |  | |  | |
| Dimensions\* (m) | | Length: | Width: | Length: | Width: |
| Shafts | Number | |  | |  | |
| Location | |  | |  | |
| Dimensions (m) | | Length: | Width: | Length: | Width: |
| Vents | Number | |  | |  | |
| Location | |  | |  | |
| Dimensions (m) | | Length: | Width: | Length: | Width: |
| Dewatering | Standing Water Level (SWL) | |  | |  | |
| Aquifer | |  | |  | |
| No. of bores | |  | |  | |
| Extraction rate | |  | |  | |
| Cone of depression distance (m) from pit at 0.5 m contour | |  | |  | |
| Water management requirements | |  | |  | |
| References | |  | |  | |
| Flood immunity | 1:10 (ARI) | | Peak Flood Depth (m):  Flood Mitigation Req: Yes or No | | Peak Flood Depth (m):  Flood Mitigation Req: Yes or No | |
| 1:100 (ARI) | | Peak Flood Depth (m):  Flood Mitigation Req: Yes or No | | Peak Flood Depth (m): | |
| 1:500 (ARI) | | Peak Flood Depth (m):  Flood Mitigation Req: Yes or No | | Flood Mitigation Req: Yes or No | |
| Probable Maximum Flood (PMF) | | Peak Flood Depth (m):  Flood Mitigation Req: Yes or No | | Peak Flood Depth (m):  Flood Mitigation Req: Yes or No | |
| References | |  | |  | |
| UG development method | Rationale | |  | |  | |
| Regulatory | Existing Auth |  | |  | |
| NT EPA |  | |  | |
| EPBC Act |  | |  | |
| Water Act |  | |  | |
| Other Guidelines |  | |  | |
| References |  | |  | |
| Ancillary structures |  | |  | |  | |

*\*If different dimensions for portals, then add clearly (e.g. portal size 1, size 2 etc).*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Table 5.3.2 – Underground Operations Risk, Controls and Management | | | | | | |
| Step | Phase | Sequence | Risks | Controls | Management performance and monitoring | Reference (for additional information) |
| 1 | Clearing |  |  |  |  |  |
| 2 | Construction |  |  |  |  |  |
| 3 | Commissioning |  |  |  |  |  |
| 4 | Operations |  |  |  |  |  |

|  |
| --- |
| Table 5.3.3 - Independent expert |
| Q1 Will an independent expert be engaged by the Operator? |
| Yes – Go to Q2 |
| No – please explain why, and then move onto Q3: |
| Q2 Will detailed designs be prepared and reviewed by an independent expert? |
| Yes – Go to Q3  Note:  Any designs reviewed by an independent expert, must be submitted together with independent review comments and how any improvements in design were addressed to the satisfaction of the independent expert.  Detailed designs must include:   * Hold points at suitable intervals that may affect the construction and future performance of the structure * Performance monitoring requirements and frequency * Reporting requirements to the regulator must be able to demonstrate suitability of design and compliance. |
| No – please explain why, and then move onto Q3: |
| Q3 Will a detailed management plan be developed that describes in detail the operators maintenance, surveillance and closure requirements of the structure? |
| Yes  Note: This plan must be endorsed by the independent expert. |
| No – please explain why: |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Table 5.3.4 – Underground Operations Closure\* | | | | | |
| **Closure** | **Objective** | **Criteria** | **Knowledge gaps** | **Timelines to completion** | **References** |
| Unplanned |  |  |  |  |  |
| Planned |  |  |  |  |  |

\*Note: This will inform section 8.

## Tailings Storage Facility and Dams

The Tailings Storage Facility and Dams Domain is summarised in the following sections:

*Fill in the following tables for the Tailings Storage Facility (TSF) and Dams Domain.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Table 5.4.1 - TSF and Dam summary | | | | |
|  | | **TSF 1 (identify new or existing)** | **TSF 2 (identify new or existing)** | **Dam 1 (identify new or existing)** |
| No of TSFs/Cells | |  |  |  |
| Titles | |  |  |  |
| Footprint (ha) | Existing |  |  |  |
| Proposed |  |  |  |
| Total |  |  |  |
| Characteristics\* and volume of waste stored | |  |  |  |
| LOM year of construction | |  |  |  |
| Ancillary structures to TSF (e.g dams, sumps etc) and sizes | |  |  |  |

\* Characteristics to be consistent with waste rock classification criteria

|  |  |  |  |
| --- | --- | --- | --- |
| Table 5.4.2 – TSF and Dam Design Rationale | | | |
| **Statutory/Other considerations** | **Condition requirement** | **How it’s addressed** | **References** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Table 5.4.3 - TSF and Dam Design components | | | | | | | |
|  | | | **Key information** | | | | |
| Design item | | | TSF 1 | | TSF 2 | | Dam 1 |
| Key design considerations | Philosophy/rationale | |  | |  | |  |
| Flood immunity requirements | |  | |  | |  |
| Containment method | |  | |  | |  |
| Projected annual throughput | |  | |  | |  |
| Project LOM | |  | |  | |  |
| Achievable tailings storage requirements | |  | |  | |  |
| Achievable total lifetime tailing storage capacity | |  | |  | |  |
| Tailings Properties | Tailings characteristics | |  | |  | |  |
| Tailings process water quality | |  | |  | |  |
| Assumed achievable dry density | |  | |  | |  |
| Construction Details | Perimeter length (m) | | Cell 1 | Cell 2 | Cell 1 | Cell 2 |  |
|  |  |  |  |  |
| Crest width (m) | |  | |  | |  |
| Embankment geometry | |  | |  | |  |
| Construction materials | Zone 1 |  | |  | |  |
| Zone 2 |  | |  | |  |
| Zone 3 |  | |  | |  |
| Total height (m) | |  | |  | |  |
| Raise type and total no of lifts | |  | |  | |  |
| Key Design Parameters (ANCOLD, 2012) | TSF failure consequence category (ANCOLD 2012) | |  | |  | |  |
| Factor of Safety (FoS) | |  | |  | |  |
| Design earthquake loading (OBE and MDE) | |  | |  | |  |
| Buttressing requirements | |  | |  | |  |
| Spillway level (mrl) | |  | |  | |  |
| Decant pond requirements | |  | |  | |  |
| Liner details | |  | |  | |  |
| Tailings discharge method | |  | |  | |  |
| Storage capacity/Allowance (ANCOLD, 2012) | |  | |  | |  |
| Minimum wet season storage allowance (MOL) | |  | |  | |  |
| Minimum extreme storm storage allowance | |  | |  | |  |
| Contingency freeboard | |  | |  | |  |
| Performance | |  | |  | |  |
| Ancillary Structures | Dams | |  | |  | |  |
| Pipe network | |  | |  | |  |
| Haul roads/access tracks | |  | |  | |  |
| Reference | |  | |  | |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Table 5.4.4 - TSF lift details | | | | | |
|  | **TSF 1 (Cell 1 and 2)** | | **TSF 2 (Cell 1 and 2)** | |  |
|  | Height | | Height | |  |
| Lift Number | m | m RL | m | m RL |  |
| Lift 1 |  |  |  |  |  |
| Lift 2 |  |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Table 5.4.5 – TAF and Dam Risk, Controls and Management | | | | | | |
| **Step** | **Phase** | **Sequence** | **Risks** | **Controls** | **Management performance and monitoring** | **References** |
| 1 | Clearing |  |  |  |  |  |
| 2 | Construction |  |  |  |  |  |
| 3 | Commissioning / Operations |  |  |  |  |  |

|  |
| --- |
| Table 5.4.6 - Independent expert |
| Q1 Will an independent expert be engaged by the Operator? |
| Yes – Go to Q2 |
| No – please explain why, and then move onto Q3: |
| Q2 Will detailed designs be prepared and reviewed by an independent expert? |
| Yes – Go to Q3  Note:  Any designs reviewed by an independent expert, must be submitted together with independent review comments and how any improvements in design were addressed to the satisfaction of the independent expert.  Detailed designs must include:   * Hold points at suitable intervals that may affect the construction and future performance of the structure * Performance monitoring requirements and frequency * Reporting requirements to the regulator must be able to demonstrate suitability of design and compliance. |
| No – please explain why, and then move onto Q3: |
| Q3 Will a detailed management plan be developed that describes in detail the operator’s maintenance, surveillance and closure requirements of the structure? |
| Yes  Note: This plan must be endorsed by the independent expert. |
| No – please explain why: |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Table 5.4.7 – TSF and Dam Closure\* | | | | | |
| **Closure** | **Objective** | **Criteria** | **Knowledge Gaps** | **Timelines to completion** | **References** |
| Unplanned |  |  |  |  |  |
| Planned |  |  |  |  |  |

\*Note: This will inform section 8.

## Waste Rock Dump

The Waste Rock Dump (WRD) domain is summarised in the following tables.

*Fill in the following tables for the* WRD*.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Table 5.5.1 – WRD Summary | | | | |
|  | | **WRD 1 (name)** | **WRD 2 (name)** | **WRD 3 (name)** |
| New – scheduled LOM year of construction | |  |  |  |
| Existing – year of construction | |  |  |  |
| Titles | |  |  |  |
| Footprint | Existing area |  |  |  |
| Proposed area |  |  |  |
| Total area |  |  |  |
| Waste stored and volume | |  |  |  |
| Dump configuration | Height (m) |  |  |  |
| Width (m) |  |  |  |
| Length (m) |  |  |  |
| Dump slopes | Batter angle |  |  |  |
| FoS |  |  |  |
| Flood immunity (ARI) | 1:10 | Peak Flood Depth (m)  Flood Mitigation Req: Y or N | Peak Flood Depth (m)  Flood Mitigation Req: Y or N | Peak Flood Depth (m)  Flood Mitigation Req: Y or N |
| 1:100 | Peak Flood Depth (m)  Flood Mitigation Req: Y or N | Peak Flood Depth (m)  Flood Mitigation Req: Y or N | Peak Flood Depth (m)  Flood Mitigation Req: Y or N |
| 1:500 | Peak Flood Depth (m)  Flood Mitigation Req: Y or N | Peak Flood Depth (m)  Flood Mitigation Req: Y or N | Peak Flood Depth (m)  Flood Mitigation Req: Y or N |
| Probable Maximum Flood (PMF) | Peak Flood Depth (m)  Flood Mitigation Req: Y or N | Peak Flood Depth (m)  Flood Mitigation Req: Y or N | Peak Flood Depth (m)  Flood Mitigation Req: Y or N |
| References |  |  |  |
| Method of construction | |  |  |  |
| Phreatic conditions | |  |  |  |
| References | |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Table 5.5.2 - WRD Design Considerations** | | | |
| **Statutory/Other consideration** | **Condition requirement** | **How it’s addressed** | **References** |
|  |  |  |  |
|  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table 5.5.3 - Waste Rock Classification Criteria** | | | | | |
| **Material** | | **Criteria** | **Volume** | **Management requirements** | **References** |
| PAF | |  |  |  |  |
| NAF | LC |  |  |  |  |
| HC |  |  |  |  |
| UC | |  |  |  |  |
| Other | |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Table 5.5.4 – WRD Material Quality and Beneficial Re-use** | | | | |
| **Material classification** | **Lithology/waste type** | **Properties** | **Suitability for re-use** | **References** |
| NAF 1 |  |  |  |  |
| NAF 2 |  |  |  |  |

|  |  |  |
| --- | --- | --- |
| **Table 5.5.5 – WRD Design Rationale** | | |
| Reasons for choosing this location (complete all that apply) | Statutory |  |
| Flora |  |
| Fauna |  |
| Sacred Sites |  |
| Heritage |  |
| Water |  |
| Reasons for choosing this design (design basis) | Geotechnical engineering |  |
| Geotechnical |  |
| Waste/water management |  |
| Additional information |  |
| Performance | For existing WRD structures provide a summary of performance to date against criteria for WRD to be safe, stable and non-polluting |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Table 5.5.6 - WRD Risk, Controls and Management** | | | | | | |
| **Step** | **Phase** | **Sequence** | **Risks** | **Controls** | **Management performance and monitoring** | **References** |
| 1 | Clearing |  |  |  |  |  |
| 2 | Construction |  |  |  |  |  |
| 3 | Commissioning / Operations |  |  |  |  |  |

|  |
| --- |
| **Table 5.5.7 – WRD Independent expert oversight** |
| Q1 Will an independent expert be engaged by the Operator? |
| Yes – Go to Q2 |
| No – please explain why, and then after addressing Table 5.8 complete Table 5.9 |
| Q2 Will detailed designs be prepared and reviewed by an independent expert? |
| Yes – Go to Q3  Note:  Any designs reviewed by an independent expert, must be submitted together with independent review comments and how any improvements in design were addressed to the satisfaction of the independent expert.  Detailed designs must include:   * Hold points at suitable intervals that may affect the construction and future performance of the structure * Performance monitoring requirements and frequency * Reporting requirements to the regulator must be able to demonstrate suitability of design and compliance. |
| No – please explain why, and then move onto Q3: |
| Q3 Will a detailed management plan be developed that describes in detail the operators maintenance, surveillance and closure requirements of the structure? |
| Yes  Note: This plan must be endorsed by the independent expert. |
| No – please explain why, and complete table 5.5.8: |

| **Table 5.5.8 – WRD Additional Details (if the decision is made not to implement independent expert oversight)\*** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Design Stage** | | | | **Description** | |
| Site investigation | Bores | | |  | |
| Test pits | | |  | |
| Other | | |  | |
| Lithological profile | | |  | |
| **Key design elements** | | | | | |
| Objective and Criteria | Objective | | |  | |
| Criteria | | |  | |
| Design considerations | Geochemical | | |  | |
| Geotechnical | | |  | |
| Water management | | |  | |
| Dump configuration e.g. valley fill, cross-valley fill etc | | |  | |
| Dump volume | | |  | |
| Dump slope | | |  | |
| Degree of confinement | | |  | |
| Foundation type | | |  | |
| Method of construction |  | | | | |
| Piezometric and climatic conditions |  | | | | |
| Dump rate |  | | | | |
| Seismicity |  | | | | |
| **References** | | | | | |
| Construction sequence and design description | Construction | 1 | Clearing |  |  |
| 2 | Foundation |  |  |
| 3 | Base |  |  |
| Operations | 4 | Halo |  |  |
| 5 | PAF cell |  |  |
| 6 | Halo |  |  |
| 7 | Capping |  |  |
| Environmental management | Key risks and triggers/management actions | | |  | |

\*Note: Must complete for each dump – add new tables as required.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table 5.5.9 – WRD Closure** | | | | | |
| **Closure** | **Objective** | **Criteria** | **Knowledge gaps** | **Timelines to completion** | **References** |
| Unplanned |  |  |  |  |  |
| Planned |  |  |  |  |  |

\*Note: This will inform section 8.

## Exploration

The exploration activities are summarised in the following tables. There exists the option to use the *Mining Management Exploration Activities Guidelines* available on the department website [here](https://nt.gov.au/industry/mining-and-petroleum/mining-activities/develop-a-mining-management-plan) to describe exploration activities. If this option is chosen the documents should be included as referenced appendices.

*If the exploration template is not used, fill in the following tables for the proposed exploration activities.*

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 5.6.1 - Exploration activities summary** | | | | | | | | | | |
| **Proposed activity/Item** | | **Title** | | | **Titles** | | | **Title** | | |
| Likelihood Analysis (if title is EL) | |  | | |  | | |  | | |
| Diamond Drill bores | Total No | Existing | Proposed | Rehabilitated | Existing | Proposed | Rehabilitated | Existing | Proposed | Rehabilitated |
| No. Drill pads |  |  |  |  |  |  |  |  |  |
| Total Depth |  |  |  |  |  |  |  |  |  |
| Area of pads |  |  |  |  |  |  |  |  |  |
| Access track length |  |  |  |  |  |  |  |  |  |
| Sumps |  |  |  |  |  |  |  |  |  |
| Potential to intersect groundwater |  |  |  |  |  |  |  |  |  |
| Conversion to well |  |  |  |  |  |  |  |  |  |
| Reverse Circulation or other bores | Total No |  |  |  |  |  |  |  |  |  |
| Total Depth |  |  |  |  |  |  |  |  |  |
| No. drill pads |  |  |  |  |  |  |  |  |  |
| Area of pads |  |  |  |  |  |  |  |  |  |
| Access track length |  |  |  |  |  |  |  |  |  |
| Potential to intersect groundwater |  |  |  |  |  |  |  |  |  |
| Conversion to well |  |  |  |  |  |  |  |  |  |
| Test Pit | Total no |  |  |  |  |  |  |  |  |  |
| Dimensions |  |  |  |  |  |  |  |  |  |
| Access track length |  |  |  |  |  |  |  |  |  |
| Costean | Total No |  |  |  |  |  |  |  |  |  |
| Dimensions |  |  |  |  |  |  |  |  |  |
| Access track length |  |  |  |  |  |  |  |  |  |
| Bulk Pits | Total No |  |  |  |  |  |  |  |  |  |
| Dimensions |  |  |  |  |  |  |  |  |  |
| Access track length |  |  |  |  |  |  |  |  |  |
| Geophysics | |  | | |  | | |  | | |
| Underlying land use\* | |  | | |  | | |  | | |
| Location and land access | |  | | |  | | |  | | |
| Schedule | Start |  | | |  | | |  | | |
| Finish |  | | |  | | |  | | |
| Commodity | |  | | |  | | |  | | |
| Additional Information | |  | | |  | | |  | | |

\*A land access agreement is currently required for exploration activities to be conducted on a mineral exploration licence (EL) over Pastoral Leases.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Table 5.6.2 - Regulatory** | | | | |
| **Acts** | **Present (y/n)** | **Details** | **Title?** | **Title?** |
| Sacred Sites 1 |  |  |  |  |
| Flora/Fauna |  |  |  |  |
| Heritage/Archaeological |  |  |  |  |
| Water Source |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Table 5.6.3 - Risk controls and management** | | | | | | |
| **Step** | **Phase** | **Sequence** | **Risks** | **Controls** | **Management performance and monitoring** | **References** |
| 1 | Clearing |  |  |  |  |  |
| 2 | Construction |  |  |  |  |  |
| 3 | Commissioning / Operations |  |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table 5.6.5 – Closure\*** | | | | | |
| **Closure** | **Objective** | **Criteria** | **Knowledge gaps** | **Timelines to completion** | **References** |
| Unplanned |  |  |  |  |  |
| Planned |  |  |  |  |  |

\*Note: This will inform section 8.

Details of existing disturbance from exploration activities conducted within the project area it is suggested that the template developed for exploration projects available from the department’s website [here](https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fnt.gov.au%2F__data%2Fassets%2Fexcel_doc%2F0010%2F986608%2Fdisturbance-tracking-for-exploration-projects-.xlsx&wdOrigin=BROWSELINK) be populated and submitted as a referenced appendix.

## Haul and Access Roads

The Haul and Access Roads are summarised in the following tables.

*Fill in the following tables for the Haul and Access Roads.*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Table 5.7.1 - Haul and Access Road Details** | | | | | | |
|  | | Haul roads | | | Access tracks | |
| Number  Name/Identifier | | 1  Name/Identifier | 2  Name/Identifier | Include extra columns as needed | 1 | Include extra columns as needed |
| Proposed/Existing | |  |  |  |  |  |
| Titles | |  |  |  |  |  |
| Details | Length (m) |  |  |  |  |  |
| Width (m) |  |  |  |  |  |
| Materials | Source |  |  |  |  |  |
| Geochemical classification and volumes |  |  |  |  |  |
| Engineering properties: |  |  |  |  |  |
| Performance of existing roads | |  | | |  | |
| General description of works | |  | | |  | |
| Statutory requirements | |  | | |  | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Table 5.7.2 – Haul and Access Road Risk, Controls and Management** | | | | | | |
| Step | Phase | Sequence | Risks | Controls | Management performance and monitoring | References |
| 1 | Clearing |  |  |  |  |  |
| 2 | Construction |  |  |  |  |  |
| 3 | Commissioning / Operations |  |  |  |  |  |

|  |
| --- |
| **Table 5.7.3 – Haul and Access Road Independent oversight** |
| Q1 What standard guidelines/standards to be followed? |
| Include a list of relevant standards and guidelines |
| Q2 Will detailed designs be prepared and reviewed by an independent expert, or will the operator be using their own engineers? |
| Provide details of engineering expertise |
|  |
| Q3 If independent engineers not engaged, demonstrate consideration of risks, if any |
|  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table 5.7.4 – Haul and Access Road Closure\*** | | | | | |
| **Closure** | **Objective** | **Criteria** | **Knowledge gaps** | **Timelines to completion** | **References** |
| Unplanned |  |  |  |  |  |
| Planned |  |  |  |  |  |

\*Note: This will inform section 8.

## Diversions

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Table 5.8.1 – Diversion Domain – General Details** | | | | |
| Diversion ID | | Diversion 1 (identify new or existing) | Diversion 2  (identify new or existing) |  |
| Titles | |  |  |  |
| Waterway Name (or previous diversion name as appropriate) | |  |  |  |
| Footprint | Length to be diverted |  |  |  |
| Total length of waterway |
| Status of assessment under  Water Act 1992 | |  |  |  |
| Declared Values of Waterway | |  |  |  |
| References | |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table 5.8.2 – Closure\*** | | | | | |
| **Closure** | **Objective** | **Criteria** | **Knowledge gaps** | **Timelines to completion** | **References** |
| Unplanned |  |  |  |  |  |
| Planned |  |  |  |  |  |

\*Note: This will inform section 8.

## Other Activities

Activities to be completed on (or associated with) the site during the Life of Mine that have not already been captured in the preceding sections are summarised here. (e.g. trials for rehabilitation, geochemical blending etc)

*Operators are required to briefly summarise details here, placing details in appendices.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Table 5.9 – Summary of other activities** | | | | |
| **Activity** | **Key Risks** | **Management Actions** | **Performance Monitoring** | **References** |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

# Section 6 – Project Risk Assessment

This section summarises the processes and methodologies undertaken to identify the **engineering,** **environmental** and **performance** risk pathways and their potential impacts, including a description of the risk assessment criteria and risk evaluation techniques.

*Detailed work is to be included in Appendices and referenced as appropriate.*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table 6.1 - Environmental Risk Assessment Summary** | | | | | |
| Aspect | Risk | Risk Rating | Control | Residual Risk | Reference |
| Engineering | | | | | |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Environmental | | | | | |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Performance | | | | | |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

|  |  |  |
| --- | --- | --- |
| **Table 6.3 - Definition of Likelihood Ratings** | | |
| Rating | Likelihood | Definitions |
|  |  |  |
|  |  |  |
|  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Table 6.4 - Risk Analysis Matrix** | | | | | | |
| Severity of consequence | | | | | | |
| Likelihood of consequence |  | Critical (5) | Major (4) | Significant (4) | Moderate (2) | Minor (1) |
| Almost certain (5) |  |  |  |  |  |
| Likely (4) |  |  |  |  |  |
| Possible (3) |  |  |  |  |  |
| Unlikely (2) |  |  |  |  |  |
| Rare (1) |  |  |  |  |  |

\*Suggest use of extreme, high, medium, low, and very low consequence categories in the matrix

# Section 7 - Management System

## Environmental Management System

*Provide a description of the management system that will be implemented to appropriately manage all environmental risks.*

***Note:*** *This section of the MMP needs to provide details that clearly demonstrate how the Environmental Management System (EMS) has been developed to be consistent with industry best practice, with a clear recognition of the distinct Life of Mine phases of mining (exploration, exploration and active mining, rehabilitation and closure). The details of EMS in the MMP must demonstrate this to meet the requirement of the MMA. A flow-chart that describes how the Environmental Objectives of the Project (Life of Mine) will be achieved would assist.*

***Note****: A flow chart or similar graphic should be included, depicting the hierarchy of environmental management plans and how they integrate with the overall EMS. Integration of the EMS with staff training and education would help to illustrate. The information should be sufficient to allow the department to confirm appropriate training is provided by the operator.*

*Refer to the guide for an example of an environmental management system hierarchy.*

### Overarching Environmental Objectives

*Summarise Environmental Objectives for the Project. Refer to the guide for an examples.*

### Environmental Management Plans

*Summarise how Environmental Management Plans address the Project Environmental Objectives, informed by the Conceptual Site Model and legal requirements, and project risks.*

*Completed Environmental Management Plans are to be provided as Appendices.*

*An example Environmental Management Plan for surface water has been provided in the Guide.*

***Note:*** *Monitoring is NOT a management action; it is a tool to assess the effectiveness of the management actions applied. Management actions need to be based on the hierarchy of risk management ranging, from elimination to PPE. The department will place importance on the proponent’s ability to identify actions required for serious issues, and validity of existing approvals, or the need to apply for amendment*

## Decision Framework

*Summarise and demonstrate how the EMS and EMP will used to inform decisions and management (i.e. how to apply the EMP).*

*An example EMS decision framework is presented in the MMP Content Guide.*

# Section 8 –Closure Planning

## Conceptual Closure Plan

*Based on information provided in closure tables for each domain in section 5, provide detail of any action to be taken to meet closure objectives.*

# Section 9 – Security

*The security estimate calculated must be consistent with third party costs and remediation requirements in the event of an unplanned closure at the end of the life of the plan (i.e. rehabilitation costs for disturbances proposed in the MMP and for any previous disturbances generated by the operation).*

*Post operation and rehabilitation monitoring and maintenance costs must be included.*

*The departments ‘Security Calculation Tool’ should be used and submitted as an appendix to the MMP (*[*https://nt.gov.au/minerals-energy*](https://nt.gov.au/minerals-energy)*).*

|  |  |
| --- | --- |
| **Table 9 - Security** | |
| Total security amount | $ |
| Document reference for the security calculation |  |

# Glossary and Acronyms

| Term | Definition |
| --- | --- |
| ABN | Australian Business Number |
| ABR | Australian Business Register |
| ACN | Australian Company Number |
| AMD | Acid and Metalliferous Drainage |
| ANCOLD | Australian National Committee on Large Dams Incorporated |
| ANZG 2018 | Fresh and Marine Water (Australia and New Zealand) (waterquality.gov.au) |
| ASIC | Australian Securities and Investments Commission |
| ARI | Annual Recurrence Interval |
| Closure | Closure is achieved subject to the MMA when it can be demonstrated that the closure objectives have been satisfied.  The department considers closure to have occurred at the conclusion of mining activities when no management is required of environmental liabilities by the operator, and security can be returned to the operator and a closure certificate issued under the MMA. |
| Closure criteria | The standard or level of performance, as specified in the mining management plan for the mine site, which demonstrates successful closure of the site. Criteria should be specific, measurable, achievable, relevant and time-based (SMART), and typically enable a return of the land to a safe, stable and non-polluting state. |
| Closure objective | Site-specific closure outcomes consistent with the post-mining land use(s) that are realistic and achievable based on the closure risk assessment.  The department requires operators to rehabilitate operational mine sites to be safe, stable and non-polluting.  Closure criteria are the means against which to measure achievement of the stated closure objective. |
| CoC | Chemical or contaminant of concern |
| Conceptual Site Model | A written and/or illustrative representation of the conditions, including physical, chemical and biological processes, that identifies sources ofpotential chemicals of concern to the environment, and details their potential for transport to receiving environments (or “receptors”). |
| Corrective Action | An action to eliminate an identified non-conformity or other undesirable situation. |
| CSM | Conceptual Site Model |
| Domain | A collection of specific areas on the mine with related characteristics or similar function with respect to environmental management requirements. |
| EMS | Environmental Management System |
| Environmental Management System | An integration of procedures and plans with clearly defined targets, performance criteria and corrective actions and includes site-specific Environmental Management Plans |
| Environmental Management Plan | A structured set of measures to minimise or manage the impact of operations on a specific part or aspect of the environment. |
| Environmental Policy | A commitment to measure and minimise impact on the environment caused by an entities operations. An Environmental Policy establishes the attitude of an entity to environmental management, and is typically written and signed by senior management. |
| EPBC Act | *Environment Protection and Biodiversity Conservation 1999* |
| Footprint | The area or extent of land impacted by a specified mining activity. |
| FoS | Factor of Safety |
| GDE | Groundwater dependent ecosystem |
| HC | High Capacity (related to waste rock classification) |
| Life of Mine | The expected number of years during which the mine will be productive. |
| LC | Low Capacity (related to waste rock classification) |
| LOM | Life of Mine |
| MDE | Maximum Design Earthquake (in ANCOLD guidelines) |
| MIA | Mine infrastructure area, a domain type |
| Mining Management Plan | A plan for the management of a mine site for which the operator requires an Authorisation to carry out mining activities. Refer to section 40 of the MMA |
| MOL | Maximum Operating Level |
| MMA | *Mining Management Act 2001* |
| MMP | Mining Management Plan |
| NAF | Non-acid forming (related to waste rock classification) |
| NTASSA | *Northern Territory Aboriginal Sacred Sites Act* *1989* |
| OBE | Operational Basis Earthquake (in ANCOLD guidelines) |
| PAF | Potential Acid Forming (related to waste rock classification) |
| PMF | Probable Maximum Flood |
| PMP | Probable Maximum Precipitation |
| PPE | Personal Protective Equipment |
| PSD | Particle Size Distribution |
| Rehabilitation | Restoration of mining-related disturbances. Rehabilitation may include landform design, bulk earth works, demolition and revegetation considerations. Rehabilitation typically requires validation through medium-to-long-term monitoring. |
| Risk | A semi-quantitative ranking of a threat of harm (to the environment), which considers likelihood of an incident, multiplied by consequence. |
| Risk, environmental | Risk, environmental – A threat of harm to the environment, which may be  **Low** (Unlikely to occur over life of mine, with limited long-term environmental impact)  **Medium** (May occur over life of mine, with moderate and possibly significant long-term environmental impact)  **High (**Likelyto occur over life of mine, with substantial and significant long-term environmental impact) |
| ROM Pad | Run of Mine Pad |
| RQD | Rock Quality Designation (from geotechnical site investigations AS 1726:2017) |
| SC | Sandy Clay (geotechnical classification from geotechnical site investigations AS 1726:2017) |
| SDS | Safety Data Sheet for chemicals, previously known as a materials safety data sheet (MSDS) |
| SM | Sand-silt Mixtures (geotechnical classification from geotechnical site investigations AS 1726:2017) |
| Suitably qualified person | A person with an extensive history of studies in a specific area (e.g. engineering, environmental studies), or equivalent work experience, that has earned them industry-wide recognition of their expertise. |
| TARPS | Trigger Action Response Plans |
| TPWC Act | *Territory Parks and Wildlife Conservation Act 1976* |
| TSF | Tailings Storage Facility |
| UC | Uncertain (related to waste rock classification) |
| UG | Under ground |
| WRD | Waste rock dump |