# Toms Gully Underground Project

# Care and Maintenance

## February 2019

# Table of Contents

# 1. COMMITMENT AND POLICY

## 1.1 Purpose

This document has been developed to provide guidance for the Care and Maintenance (C&M) at the Toms Gully mine site if mining operations are forced to close temporarily. C&M activities are designed to take into consideration the environmental obligations, commitments and risks associated with the project.

The C&M activities described below are based on the pre-existing Mine Closure Plan (MCP). A full Care and Maintenance Plan (CMMP) as documented in the Care and Maintenance Operations, Mining Management Plan guide will be submitted to the Department of Primary Industry and Resources (DPIR) after the company's notification to the DPIR of a care and maintenance period.

The details below are to demonstrate that at the time of C&M ongoing environmental obligations will be met.

There are main objectives of the C&M are to ensure a plan is in place for:

1. landforms, water structures, plant and equipment
2. all the environmental aspects identified in the MCP
3. all statutory obligations and documented commitments
4. resource scheduling
5. environmental monitoring
6. the mine site to ensure public safety.

Resource scheduling will ensure that adequate resourcing is available to manage the site and prevent the potential for environmental accidents (including machinery and appropriately trained personnel).

If the project was to go into C&M as soon as practicable the DPIR will be informed of the suspension of operations.

## 1.2 Scope

The C&M activities apply to existing environmental and management commitments, as outlined in the EIS, MCP, Mining Management Plan (MMP) and all document updates with regards to temporary mine closure of the Toms Gully project.

# 2. LEGAL REQUIREMENTS

## 2.1 Standards and guidance material

Primary in the course of establishing this C&M process have followed the principles and objectives identified in the following relevant guidance documents:

1. Leading Practice Sustainable Development in Mining Handbooks
    a. A Guide to Leading Practice Sustainable Development in Mining.
    b. Evaluating Performance: Monitoring and Auditing.
    c. Mine Closure.

d. Mine Rehabilitation.

e. Risk Management.

f. Preventing Acid and Metalliferous Drainage

g. Tailings Management.

2. Planning for Integrated Mine Closure: Toolkit (ICMM 2008).

3. Guidelines for Preparing Mine Closure Plans (Department of Mines and Petroleum Western Australia/EPA, 2015).

4. Care and Maintenance – Environmental Notes on Mining, (Department of Mines and Petroleum Western Australia/EPA, updated September 2009).

5. Mining Management Plan Structure Guide for Care and Maintenance Operations, (Department of Primary Industry and Resources)

## 2.2 Stakeholder consultation

The key external stakeholders of the Toms Gully mine site are DPIR and Old Mount Bundey Station Pastoralist. Each of the key external stakeholders will be consulted as part of implementing a period of C&M.

If the operation is to go into C&M continuing consultation will occur with the DPIR and all key stakeholders to ensure expectations are meet during the C&M period. In addition, during the implementation of a C&M period employees will be kept fully informed.

## 2.3 Legal obligations

Prior to the C&M period an internal audit will be completed of the current status of the site in relation to relevant commitments give in the EIS, MCP (i.e. legal obligations register) and MMPs. This will form the framework to ensure ongoing compliance, monitoring and reporting obligations are met.

# 3. PLANNING

## 3.1 Environmental audit

Primary will complete an environmental audit of the site when a decision is made to place the site on C&M. The aim of the environmental audit will be to establish the status of all landforms, tailings storage facilities (TSFs), water dams, the pit and infrastructure with respect to the risks (i.e. risk contained in the site risk register) associated with the project's environmental aspects during the expected period of C&M. The audit would be completed concurrently with temporary closure as this will identify any critical risks, further requirements and aid in determining all resourcing requirements.

## 3.2 Responsibilities

Responsibility for ensuring the site environmental requirements are met, including the CMMP, will lie with the executive director and mine manager or their delegates.

The responsibilities will include:

1. ensuring company-wide compliance with the CMMP and policy application throughout the company
2. allocation of appropriate funding for C&M
3. ensuring the design, implementation and maintenance during the temporary closure are consistent with the requirements of the CMMP.

The mine manager will be responsible for ensuring personnel are appropriately trained, who will then be responsible for carrying out a range of activities to minimize environmental risk during this period.

# 4. ENVIRONMENT

The intended environment of Toms Gully post mining is discussed in the MCP. The nature of the operations at the commencement of C&M will determine the outstanding rehabilitation requirements. If, during the C&M period a decision is made to close the operation, the MCP will be implemented with the closure process being accelerated.

# 5. MANAGEMENT – CARE AND MAINTENANCE

The following environmental risks will require monitoring and management whilst under C&M:

1. waste rock dumps
2. tailings storage facilities
3. evaporation ponds and water storage dam
4. processing plant
5. chemical and hydrocarbon storage
6. open pit
7. Boxcut and decline
8. surface drainage
9. emergency response
10. waste water facilities

## 5.1 Waste rock dumps (Sulfide Waste Rock Dump (SWRD) and Oxide Waste Rock Dump (OWRD))

Primary have identified two main environmental risks from the waste rock dumps:

1. erosion and dispersal of dump material to the surrounding environment
2. contamination of the environment as a result of acid mine drainage (AMD).

### 5.1.1 Management measures

As part of the audit an assessment of the erosion, stability and potential for release of AMD from the waste dump will be completed. Audit findings will determine the course of action to be taken.

In general terms the following measures will be implemented:

- Prior to the onset of the wet season identify any areas of erosion that need remediation and/or management. This is intended to reduce the potential for erosion and sediment liberation into the environment.
- Measures will be taken to ensure the tailings storage facility 1, evaporation pond 1 and 2 that capture water draining the Sulfide Waste Rock Dump (SWRD) have available capacity. For the Oxide Waste Rock Dump the bund located on the south eastern corner will be inspected and if required cleaned out to ensure the capture of water.

## 5.2 Tailings Storage Facility 1 and 2 (TSF1 and 2)

Primary have identified four environmental risks from un-rehabilitated or partly rehabilitated (i.e. tailings still within the TSFs) tailings storage facilities:

1. water erosion and dispersal of embankment material to the surrounding environment
2. overtopping of the dams due to insufficient freeboard
3. contamination of the environment as a result of AMD coming from the facility
4. embankment wall failure of the facilities.

### 5.2.1 Management measures

As part of the audit an assessment of the erosion, stability, present freeboard and potential for release of AMD from the facilities will be completed. Audit findings will determine the course of action to be taken.

In general terms the following measures will be implemented:

- If required, embankments will be stabilised and monitored after rain events with maintenance implemented to remediate gullying.
- Freeboard during operations will be monitored and maintained in accordance to ANCOLD Guidelines 2012. This will leave freeboard capacity in good standing prior to C&M. Monitoring of surface and groundwater will continue. If extreme rain events occur during the non-operational period freeboard will be monitored.
- The network of pumps and pipes currently used for C&M at the site for the transfer of water between evaporation ponds, dams, TSFs and the pit will be reestablished. This network is used to balance water across the site thus maintaining freeboard across the various dams and ponds.
- Water levels in the TSFs will be drawn down with water treated and discharged to provide a greater storage capacity compared to operation conditions. The Northern Territory Environment Protection Authority under the *Waste Management and Pollution Control Act* will be engaged with all relevant approvals sought.
- If monitoring highlights that AMD are being liberated then measures will be implemented to manage the source.
- Stability monitoring of the embankments will occur during the C&M period. If signs of embankment instability are noted measures will be taken to stabilize the embankment based on specialist geotechnical advice.

## 5.3 Evaporation ponds (Evaporation Pond 1 and 2) and water storage dam

Primary have identified four main environmental risks from un-rehabilitated or partly rehabilitated tailings dams and water storage dam:

1. water erosion and dispersal of embankment material to the surrounding environment
2. overtopping of the dams due to insufficient freeboard
3. contamination of the environment as a result of AMD coming from the dam
4. failure of dam walls.

### 5.3.1 Management measures

As part of the audit an assessment of the erosion, stability, present freeboard and potential for release of AMD from the dams will be completed. Audit findings will determine the course of action to be taken.

In general terms the following measures will be implemented:

- If required, embankments will be stabilised and monitored after rain events with maintenance implemented to remediate gullying.
- Freeboard during operations will be monitored and maintained in accordance to ANCOLD Guidelines 2012. This will leave freeboard capacity in good standing prior to C&M. Monitoring of surface and groundwater will continue. If extreme rain events occur during the non-operational period freeboard will be monitored.
- If monitoring highlights that AMD are being liberated then measures will be implemented to manage the source of the release.
- The network of pumps and pipes currently used for C&M at the site for the transfer of water between evaporation ponds, dams, TSFs and the pit will be reestablished. This network is used to balance water across the site thus maintaining freeboard across the various dams and ponds.
- Stability monitoring of the embankments will occur during the C&M period. If signs of embankment instability are noted measures will be taken to stabilize the embankment based on specialist geotechnical advice.

## 5.4 Processing plants

It is expected at the time of shut down, the processing plant will contain minimal volumes of process related materials and chemicals. If a shutdown is imminent the processing manager will be informed, the processing manager will be responsible for ensuring:

- process tanks are emptied of all reagents
- cyanide is safely removed from site
- all chemicals are placed in the approved storage facility
- if required chemicals are removed from site.

The aim will be to correctly store or dispose of the process related materials and chemicals to prevent them from having an adverse effect on the environment during C&M.

## 5.5 Chemical and hydrocarbon storage

It is expected at the time of shut down the site will contain quantities of various chemicals, fuels, oils and greases. If a shutdown is imminent the processing manager and mine manager will be informed the managers will then be responsible for ensuring that all chemicals and hydrocarbons are safely and

securely stored or removed from site. Used chemicals will be disposed of appropriately.

The aim will be to correctly store or dispose of the chemicals and hydrocarbons in a timely manner to prevent their dispersion into the environment causing harm.

## 5.6 Open pit

Primary will ensure that there is appropriate bunding to prevent inadvertent access by the public thus reducing potential safety issues.

Primary have identified three main environmental risks associated with the pit that will contain sub-aqueously deposited tailings and waste rock. These are:

1. pit becoming a groundwater source and water flowing outwards from the pit.
2. overtopping of the pit with water mixing with surface water.
3. deteriorating pit water quality.

### 5.6.1 Management measures

As part of the audit an assessment of present freeboard, pit water level and water quality will be completed. This will determine the potential for the release of water and associated water quality (i.e. water quality as a result of AMD). Audit findings will determine the course of action to be taken.

In general terms the following measures will be implemented:

- Freeboard during operations will be monitored and maintained. This will leave freeboard capacity in good standing prior to C&M. Monitoring of surface and groundwater will continue.
- If monitoring highlights the pit water quality is deteriorating, depending on the severity then measures will be implemented to manage the source of the release.
- The network of pumps and pipes currently used for C&M at the site for the transfer of water between evaporation ponds, dams, TSFs and the pit will be reestablished. This network is used to balance water across the site thus maintaining freeboard across the various dams and ponds.
- Water levels in the pit will be drawn down with water treated and discharged to provide a greater storage capacity compared to operation conditions. The water level that the pit is lowered to will take into consideration any potential impact on the underlying waste rock and tailings in the pit. The Northern Territory Environment Protection Authority under the *Waste Management and Pollution Control Act* will be engaged with all relevant approvals sought.

Primary will ensure that there is appropriate bunding to prevent the possibility of significant surface water flows making their way into the pit. The bunds will also meet safety requirements to serve the purpose of preventing inadvertent access by the public thus reducing potential safety issues.

## 5.7 Boxcut and Decline

Primary will ensure that there is appropriate bunding to prevent the possibility of significant surface water flows making their way into the boxcut. The bunds will also meet safety requires to serve the purpose of preventing inadvertent access by the public thus reducing potential safety issues.

If the abandonment bund is not in position prior to the shutdown financial provision and the workforce will be provided for the construction of the required bunds and other surface drainage structures. If a shutdown is imminent the mine manager will be informed, the managers will then be responsible for ensuring that the boxcut is safe and will not be subject to significant water inflows.

## 5.8 Surface drainage

There is environmental risk that the natural and engineered drainage structures around the mine site may become ineffective due to erosion and sedimentation; leading to erosion and/or mine affected water escaping.

Primary will ensure an onsite visual inspection will take place for the natural and engineered drainage structures around the mine site whilst in C&M. The frequency of these inspections will be stated in the CMMP submitted to the DPIR on announcement of the C&M period.

## 5.9 Emergency response

The sites Emergency Response Management Plan (ERMP) will be updated to reflect C&M conditions with specify clear lines of communication in the event that any adverse findings during inspections or monitoring are discovered or an environmental incident occurs during C&M.

The emergency response requirements will be updated and submitted to the DPIR on announcement of the mines C&M. The aim will be to reduce the risk and effect of serious environmental harm, by preventing the escalation of issues and dealing with emergencies in a timely manner to minimise injury and damage.

# 6. FINANCIAL PROVISIONING

Primary are committed to undertaking a cost estimate for the variety of activities related to the C&M including potential remediation, monitoring and management over the period.

Financial provisioning of mine site C&M will be reviewed in light of any additional work required after the environmental audit.

# 7. MONITORING

All of the regular environmental monitoring commitments will continue to be carried out during C&M. A regular inspection routine is established and inspections will be carried out by competent persons.

Prior to the announcement of the project going into C&M, Primary will assess if there are any further monitoring requirements above and beyond the existing requirements.

Results of all monitoring and inspection will be recorded and analysed by competent and qualified people. This will be detailed in the CMMP at the time of notification to the DPIR and relevant authorities.

# 8. REPORTING

Primary will report its intent to place the mine site under C&M to the DPIR and will submit a CMMP. An environmental audit would be completed across the site once a decision has been made to place Toms Gully mine site under C&M.

Regular reporting to the DPIR and other relevant government agencies carried out during operations will be continued through the C&M period; any environmental incidents and potential major incidents will be reported at the time of occurrence and/or discovery.

# 9. REFERENCES

## 9.1 Legislation

*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
*Mining Management Act* (NT) and amendments
*Environmental Assessment Act* (NT)
*Waste Management and Pollution Control Act* (NT)

## 9.2 Literature and guidelines

Department of Primary Industry and Resources 2017, *Mining Management Plan Structure and Guide for Care and Maintenance Operations – Care and Maintenance Operations Mining Management Plan* Available from: https://nt.gov.au/__data/assets/pdf_file/0004/405850/mmp-care-maintenance-operations.pdf

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