



ABM Resources NL
CONCEPTUAL CARE AND MAINTENANCE PLAN
September 2013

Table of Contents

1.	COMMITMENT AND POLICY	1
1.1	Purpose	1
1.2	Scope	1
2.	LEGAL REQUIREMENTS	2
2.1	Standards and guidance material	2
2.2	Stakeholder consultation	2
2.3	Legal obligations	2
3.	PROJECT DETAILS	2
4.	PLANNING	3
4.1	Environmental audit	3
4.2	Responsibilities	3
5.	ENVIRONMENT	4
6.	MANAGEMENT – CARE AND MAINTENANCE	4
6.1	Waste dumps	4
6.1.1	Management measures	5
6.2	Tailings dam and water storage dam	5
6.2.1	Management measures	5
6.3	Processing plants	6
6.4	Chemical and hydrocarbon storage	6
6.5	Open pits	6
6.6	Surface drainage	7
6.7	Emergency response	7
7.	FINANCIAL PROVISIONING	7
8.	MONITORING	7
9.	REPORTING	8
10.	REFERENCES	9
10.1	Legislation	9
10.2	Literature and guidelines	9
10.3	ABM Resources NL	10
11.	DOCUMENT CONTROL AND REVISION HISTORY	11
11.1	Document information	11
11.2	Revisions	11
11.3	Read by	11

1. COMMITMENT AND POLICY

1.1 Purpose

This document has been developed by ABM Resources NL (“ABM”) to provide clear guidance for the Care and Maintenance (C&M) of the Twin Bonanza mine site (MLA 29822) if mining operations are forced to close temporarily. The development of a Conceptual Care and Maintenance Plan (CC&MP) is designed to take into consideration the legal obligations and environmental risks associated with the Twin Bonanza project.

The detailed CC&MP prescribed below is based on the pre-existing Mine Closure Plan (MCP, refer Appendix O); the CC&MP plan is to be updated and submitted to the Department of Mines and Energy (DME) within 3 months of the company’s notification to the DME of temporary closure. The plan is also a requirement of the environmental impact assessment process and has been written as part of ABM’s Environmental Impact Statement (EIS) for the Twin Bonanza project.

The CC&MP demonstrates that at the time of temporary closure ongoing environmental obligations will be met during the closure period. The CC&MP compliments the MCP and details the immediate response if operations are suspended.

There are 6 main objectives of the CC&MP which are to ensure a plan is in place for C&M of:

1. the 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).

As the project will be developed in a staged approach with this reflected in the Mining Management Plan (MMP) documents submitted to DME, the relevant elements of the CC&MP will be submitted with the MMP to reflect the stage at which the project is at.

If the project was ever to go into care and maintenance the CC&MP would be updated to reflect the current status of the project and subsequently submitted. As soon as practicable the DME and CLC will be informed of the suspension of operations.

1.2 Scope

This CC&MP has been prepared to provide additional information for the Environmental Impact Statement (EIS) requested by the NT EPA.

The CC&MP applies to existing environmental and management commitments, as outlined in the EIS, MCP and Mining Management Plans for Twin Bonanza, with regards to temporary mine closure of the Twin Bonanza project. The CC&MP will be subject to ongoing review and change to ensure that it remains relevant and effective throughout the life of the operation. This CC&MP is integrated with other site documents.

2. LEGAL REQUIREMENTS

2.1 Standards and guidance material

ABM Resources in the course of establishing this CM&P have followed the principles and objectives identified in the *Strategic Framework for Mine Closure* (ANZMEC, 2000) and 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 and Completion.
 - d. Mine Rehabilitation.
 - e. Risk Management.
 - f. 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, 2011).
4. Australian and New Zealand Minerals and Energy Council and Minerals Council of Australia (2000) Strategic Framework for Mine Closure.
5. Care and Maintenance – Environmental Notes on Mining, (Department of Mines and Petroleum Western Australia/EPA, updated September 2009).

2.2 Stakeholder consultation

The key external stakeholders of the Twin Bonanza mine site are DME (Department of Mines and Energy - Northern Territory) and CLC (Central Land Council) which act on behalf of the traditional owners. Each of the key external stakeholders has been consulted during development of the CM&P.

If the operation is to go into C&M continuing consultation will occur with the DME and the CLC to ensure expectations are met 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 given in the EIS, MCP (i.e. legal obligations register), CLC documents and MMPs. This will form the framework to ensure ongoing compliance, monitoring and reporting obligations are met.

3. PROJECT DETAILS

The Twin Bonanza project incorporates the Old Pirate open-pit and gold processing operation. The project is located approximately 625km NW of Alice Springs (Figure 1) and approximately

16km east of the Northern Territory and Western Australian border. The site is located approximately 33km south of the Tanami Road, which runs North West from Alice Springs to the Northern Territory and Western Australian border (Figure 1).

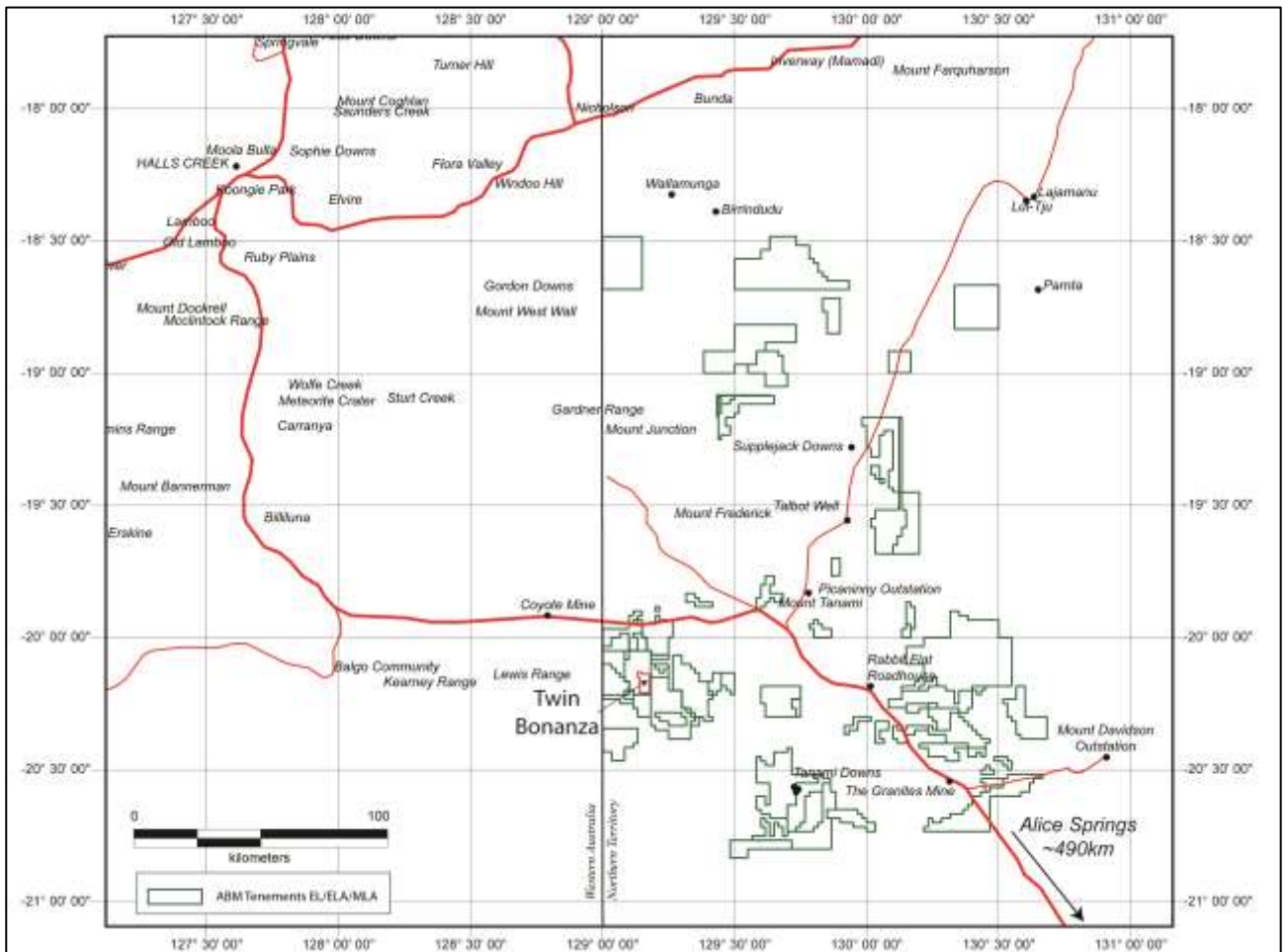


Figure 1. Project Location Map.

4. PLANNING

4.1 Environmental audit

ABM will complete an environmental audit of the site within 3 months of the decision being made by the ABM Resources Board, and notification of the DME, to place the Twin Bonanza Project under C&M. The aim of the environmental audit will be to establish the status of all landforms, pits and infrastructure with respect to the environmental risk of the element 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 of the CC&MP and aid in finalizing resourcing requirements.

4.2 Responsibilities

Responsibility for ensuring the site environmental requirements are met, including the CC&MP, will lie with the chief operating officer (COO), mine manager or delegate, environmental manager and health and safety manager or their delegates.

The responsibilities will include:

1. ensuring company-wide compliance with CC&MP 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 CC&MP.

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

5. ENVIRONMENT

The predicted environment of the Twin Bonanza Mine site post mining is discussed in the MCP. The nature of the operations at the commencement of C&M will determine the outstanding rehabilitation requirements, however as the project is being run with a staged approach there is the potential to reduce environmental impact if at any stage the project becomes no longer feasible and the mine is closed prematurely. If, during the C&M period a decision is made to close the operation, the current MCP will be implemented.

6. MANAGEMENT – CARE AND MAINTENANCE

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

1. waste dumps
2. tailings dams, and water storage dams
3. processing plant
4. chemical and hydrocarbon storage
5. open pit
6. surface drainage
7. emergency response
8. waste water facilities

6.1 Waste dumps

ABM have identified two main environmental risks from un-rehabilitated or partly rehabilitated waste rock dumps:

1. erosion and dispersal of dump material to the surrounding environment
2. contamination of the environment as a result of leachates or other materials coming from the dump.

6.1.1 Management measures

As part of the audit an assessment of the erosion, stability and potential for release of leachates 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 rainy season the waste dump slopes at the angle of repose slopes will be battered to angles approaching 15 degrees. This is intended to reduce the potential for erosion and sediment liberation into the environment.
- Establishment of bunds at the crest and base of the slopes to reduce water running down slopes and capture sediment that may be collect at the base of the slope.
- Measures will be taken to ensure erodible or chemically adverse materials are encapsulated within inert material.
- Where practicable, any impediments to surface water flow will be re-contoured.

6.2 Tailings dam and water storage dam

ABM have identified five 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. wind erosion of tailings from the dry tailings dam surface
3. overtopping of the dams due to insufficient freeboard
4. contamination of the environment as a result of chemicals or other leachates coming from the dam
5. failure of embankments walls of the dams.

6.2.1 Management measures

As part of the audit an assessment of the erosion, stability, present freeboard and potential for release of leachates 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 with rock armoring and monitored after rain events with maintenance implemented to remediate gulying.
- A trench will be excavated around the dams to capture any sediment that maybe liberated.
- The tailings surface will be monitored for the potential for wind-blown tailings, if present measures will be implemented to stabilise the tailings surface.
- 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 chemicals or leachates are being liberated then measures will be implemented to manage the source or recover the water elevated in chemicals and/or leachates.
- 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.

In the unlikely event that the freeboard capacity has the potential to be exceeded an agreement with the DME and other relevant regulators' (including the CLC) is to be sought to allow the transfer of water from the tailings dam to restore freeboard capacity. If water was to be transferred from the tailings dam it would be discharged to another dam if freeboard was available or transferred to an approved excavation. Relevant approval will be sought.

6.3 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 by the COO and environmental manager, the processing manager will be responsible for ensuring:

- process tanks are emptied of all reagents
- cyanide is safely removed from the Acacia reactor
- 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, and water diversion as required in a timely manner to prevent their dispersion outside the plant area and to prevent them from having an adverse effect on the environment during temporary closure.

6.4 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 by the COO and environmental manager, the managers will then be responsible for ensuring that all chemicals and hydrocarbons are safely and securely stored or removed from site according to ABM Resources Hazardous Material Management Plan and regulatory requirements. Used chemicals will be disposed of appropriately as detailed in ABM's EIS (refer chapter nine: Waste management).

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, through damage to vegetation or ground and surface waters.

6.5 Open pits

Surface water inflow into an open pit whilst in C&M can lead to pits acting as a storage dam depriving vegetation systems downstream of their normal water from surface drainage following rainfall events.

ABM Resources will ensure that there is appropriate bunding or other surface drainage structures at the time of placing the open pit operation on C&M to reduce the possibility of significant surface water flows making their way into the open pit. The bunds or structure will also 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 by the COO and

environmental manager, the managers will then be responsible for ensuring that the pits are safe and will not be subject to significant water flows during C&M.

6.6 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 or other factors; leading to severe erosion of the natural land surface or the erosion of constructed landforms such as waste dump or tailings facilities (refer to sections 6.1 and 6.2 respectively) or as buildup of sediment.

ABM will ensure that onsite monitoring will take place for the natural and engineered drainage structures around the mine site whilst in C&M. The frequency of monitoring will be stated in the CC&MP submitted to the DME on announcement of the temporary closure of the mine.

6.7 Emergency response

ABM's Emergency Response Management Plan (ERMP) specifies clear lines of communication in the event that any adverse findings during inspections or monitoring are discovered during the C&M period. Adverse findings specifically include, but are not limited to, all environmental risks outlined in chapter 14: Environment management systems in ABM's EIS and the MCP (refer Appendix O).

The emergency response requirements will be updated and stated in the CC&MP submitted to the DME on announcement of the temporary closure of the mine. 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 thus minimise injury and damage.

7. FINANCIAL PROVISIONING

ABM are committed to undertaking a cost estimate for the variety of activities related to the temporary closure of the Twin Bonanza Mine including potential remediation, monitoring and management over the period.

Financial provisioning of mine site C&M will be reviewed at the time of the impending temporary closure to provide for any additional work required after the environmental audit (section 4.1).

8. MONITORING

All of the regular environmental monitoring commitments will continue to be carried out during temporary closure. ABM will ensure that a regular inspection routine is established and inspections will be carried out by competent persons.

Prior to the announcement of the project under going C&M, ABM will assess if there are any further monitoring requirements above and beyond the existing requirements. For example extra monitoring may need to be carried out to determine stability of structures that may be prone to erosion in their un-rehabilitated or partially rehabilitated state at the time of C&M.

Results of all monitoring and inspection will be recorded as per usual processes and analysed by competent and qualified people. ABM will ensure that there are have appropriate personnel for the daily management on site, however for the purposes of monitoring or certain tasks it may only require a specialist person/consultant to be on site for short periods of time, for example the erosion monitoring of the waste dumps may only require monitoring prior to and after the wet

season. This will be detailed in the updated CC&MP at the time of notification to the DME and relevant authorities.

9. REPORTING

ABM will report its intent to place the mine site under C&M to the DME and will submit a revised CC&MP. ABM will then complete an environmental audit of the site within 3 months of the decision being made by the ABM Board and notification of the DME, to place the Twin Bonanza Project under (C&M).

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

10. REFERENCES

10.1 Legislation

Environment Protection and Biodiversity Conservation Act 1999 (Cth)

Mining Management Act 2001(NT)

Environmental Assessment Act 1982 (NT)

10.2 Literature and guidelines

Australian and New Zealand Minerals and Energy Council, Minerals Council of Australia 2000. *Strategic Framework for Mine Closure*. Available from: <http://www.ret.gov.au/resources/Documents/mcmp/Strategic_Framework_for_Mine_Closure.pdf>. [1 July 2013].

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International Council on Mining and Metals 2008, *Planning for Integrated Mine Closure*. Available from: <http://www.icmm.com/page/9566/icmm-publishes-closure-toolkit>. {1 July 2013}.

10.3 ABM Resources NL

Refer to the following chapters and management plans within ABM's EIS:

- Chapter 5 Risk Assessment
- Chapter 9 Waste Management
- Chapter 14 Environment Management System
- Appendix O Mine Closure Management Plan
- Appendix Q Hazardous Materials management Plan
- Appendix R Emergency Response Management Plan
- Appendix E Erosion and Sediment Control Plan
- Appendix F Water Management Plan

11. DOCUMENT CONTROL AND REVISION HISTORY

11.1 Document information

PROPERTY	VALUE
Approved by	Chief Operating Officer
Document Owner	Environmental Manager
Effective Date	11/10/2013
Keywords	

11.2 Revisions

VERSION	DATE REVIEWED	REVIEW	NATURE OF THE AMENDMENT
1	04/09/2013	R. Richards	Initial Issue
2	11/10/2013	B. Valiukas	Review & Authorisation
3			
4			

11.3 Read by

READ BY	SIGNATURE	DATE