

McArthur River Mine  
Overburden Management Project

# AB

Appendix AB  
EIS Commitments

Draft Environmental Impact Statement

# Table of Contents

1	Introduction.....	1
2	Operations Phase Commitments.....	1
2.1	Water Resources.....	2
2.2	Biodiversity.....	5
2.3	Overburden Placement .....	8
2.4	Cultural Heritage.....	12
2.5	Socio-economic.....	13
2.6	Air Quality.....	15
2.7	Health and Safety.....	17
3	Closure Phase Commitments.....	19
3.1	Site Closure Objectives.....	19
3.2	Closure Commitments .....	20
3.2.1	Open Cut .....	20
3.2.2	NOEF.....	22
3.2.3	TSF.....	23
3.2.4	Site-wide.....	23

## List of Tables

Table 2-1	Water Resources Related Commitments.....	2
Table 2-2	Biodiversity Related Commitments.....	5
Table 2-3	Overburden Placement Related Commitments .....	8
Table 2-4	Cultural Heritage Related Commitments.....	12
Table 2-5	Socio-economic Related Commitments.....	13
Table 2-6	Air Quality Related Commitments .....	15
Table 2-7	Health And Safety Related Commitments .....	17
Table 3-1	Open Cut Domain Related Commitments.....	20
Table 3-2	NOEF Domain Related Commitments.....	22
Table 3-3	TSF Domain Related Commitments .....	23
Table 3-4	Site-wide Related Commitments .....	23

# 1 Introduction

This document summarises McArthur River Mining Pty. Ltd. (McArthur River Mining) environmental management commitments as detailed within the Overburden Management Project (the Project) environmental impact statement (EIS). It also presents the proposed timing of commitment implementation. Commitments that are already current or standard practice at the McArthur River Mine (MRM) have only been included where they aid in the understanding and/or context of Project specific terms.

New management commitments have been developed in areas where the Project has identified altered environmental risks from the current operation. These commitments will subsequently be incorporated into existing management plans, procedures and programs.

McArthur River Mining acknowledges that the site will require ongoing monitoring and management following mine closure to maintain long term protection of the downstream environment. As a result, a number of closure monitoring and management phases (including short-term adaptive management, long-term proactive monitoring and long-term reactive monitoring) are proposed. Should the results of these monitoring and management phases indicate that management practices need to be amended, then McArthur River Mining has developed potential management contingencies which may need to be implemented.

The document has been structured to separately identify operations phase commitments and closure phase commitments.

## 2 Operations Phase Commitments

The operations phase (or life of mine (LOM)) spans the period 2018-2047, and includes the open cut mining operations phase from 2018-2037, the North Overburden Emplacement Facility (NOEF) construction phase from 2018-2037 and the Tailings Storage Facility (TSF) reprocessing operations from 2038-2047.

Operations phase commitments have been presented according to environmental discipline, and include commitments relating to:

- water resources;
- biodiversity;
- overburden management;
- cultural heritage;
- socio-economics;
- air quality; and
- health and safety.

## 2.1 Water Resources

A summary of key water resources related operational commitments is provided in **Table 2-1**.

Table 2-1 Water Resources Related Commitments

Commitment	Timeframe
<b>Management commitments</b>	
A continuation and further development of the existing water management system including the separation and targeted management of separate water classes.	LOM.
Upgrade the existing site water treatment plant (WTP) to manage water inventory on site.	2018-2019.
Discharge treated permeate water (under licence) off site.	LOM.
Upgrades to relevant water containment storages.	2018-2019.
Implement an integrated water management system to allow transfers between different water classes and storages by installing additional pumping and pipeline infrastructure and using suitable target operating levels in the containment storages to limit the risk of overflows to the environment.	LOM.
Surface water management of borrow areas (including topsoil, alluvium and clay) will be managed in accordance with accepted industry practice, both during its operational life and rehabilitation phase.	LOM.
Constructing and maintaining a low permeability final cover over the NOEF to reduce net percolation rates through the NOEF and subsequent seepage to the groundwater and waterways.	Commencing from 2020.
Construction of a new NOEF East Perimeter Runoff Dam (EPROD) to augment the existing classes of water storage capacity in the three existing NOEF perimeter run off dams (PRODs).	Completed by 2019.
Maintain TSF Cell 3 for water storage purposes and not for use as tailings storage.	TSF Cell 3 construction in 2018. The water management dams (comprising a process water dam (PWD) and a clean water management dam (WMD)) will be retained until site water storage requirements determine Cell 3 is no longer required.
Ongoing operation of the Surprise Creek Groundwater Interception Trench. Seepage waters not recovered by the trench will be recovered in the Barney Creek sumps if required.	LOM.

Commitment	Timeframe
Install a new bund and sump in the lower reaches of Barney Creek (downstream from the Barney Creek bridge) to capture water in low to moderate flow seasons prior to this water reaching the McArthur River.	When required.
Installation of sediment management structures that release water to the receiving environment following sediment removal.	When required.
Storing collected NOEF toe seepage in the mine pit lake at closure if required to meet SW11 downstream compliance point criteria.	From 2037.
<b>Monitoring commitments</b>	
<b>1. Groundwater</b>	
Maintaining and optimising the existing groundwater monitoring bore network throughout the LOM.	LOM.
Installation of additional groundwater monitoring bores between the NOEF and the Barney Creek diversion to provide early detection of NOEF base flows prior to potential discharge to the Barney Creek diversion.	2018-2019.
Monitoring of groundwater level and quality to the immediate north, east and south of the TSF in the alluvium, weathered bedrock and shallow bedrock. This monitoring will include groundwater discharge as base flow to Surprise Creek, Little Barney Creek and Barney Creek.	LOM.
Monitoring of groundwater level and quality to the north, east and south of the open cut area alluvium, weathered bedrock and shallow bedrock. This monitoring will include groundwater discharge as base flow to Barney Creek Channel and McArthur River Channel. As the open cut breaches the Western Fault and begins to mine out the Cooley Dolomite, additional monitoring of pressure response in this water-bearing formation will be conducted to better understand the dynamic pathways between the NOEF, the Cooley Dolomite, and the Barney Creek Channel.	LOM.
Monitoring for groundwater migration from the West Overburden Emplacement Facility (WOEF) to the northwest toward the Barney Creek Channel to verify the conceptual model.	LOM.
Monitoring groundwater level and quality in the water-bearing formations that support base flow discharge to Djirrinmini waterhole.	LOM.
Monitor groundwater quality within and down-gradient of natural mineralised zones.	LOM.
Continuation of hydrogeochemical investigations of mineralised zones.	LOM.
Further monitoring of piezometric levels, moisture profiles and hydraulic response to increasing elevations of the TSF.	LOM.

Commitment	Timeframe
Update mining lease geological model.	LOM.
Installation of monitoring bores down-gradient of the Southeast Perimeter Runoff Dam (SEPROD) to improve the understanding of groundwater discharge mechanisms to the Barney Creek Channel, with additional longer-term pump testing also being considered.	LOM.
Update the conceptual model and numerical model for the site incorporating the results of the targeted drilling and aquifer testing program.	LOM.
Establishment of a long-term pressure monitoring network in the Cooley Dolomite to the south and north of the Barney Creek Channel.	LOM.
Continuation of the field barrel leaching experiment which began in 2014.	5-10 years.
Continue investigating the recharge flow mechanisms of the underground void, and opportunities to intercept the flows before they reach the operating areas.	LOM.
<b>2. Surface water</b>	
Maintain and evolve where necessary the existing surface water monitoring program throughout the LOM.	LOM.
Expanded natural surface water monitoring program, by including:	
<ul style="list-style-type: none"> <li>• low flow monitoring stations along the McArthur River, Barney Creek and Surprise Creek; and</li> </ul>	2018.
<ul style="list-style-type: none"> <li>• a water level gauge on the Glyde River to measure stream flows.</li> </ul>	2018.
Expanded artificial surface water monitoring program, by including:	
<ul style="list-style-type: none"> <li>• monitoring of any new mine water storages (e.g., TSF WMD and PWD, NOEF EPROD and future sumps and sediment ponds) proposed for the site;</li> </ul>	From 2019 throughout LOM.
<ul style="list-style-type: none"> <li>• installation of flow meters on future NOEF seepage collection sumps to estimate the rate of seepage expressing at the toe; and</li> </ul>	LOM as required.
<ul style="list-style-type: none"> <li>• monitoring of WTP inflow and outflow water quality.</li> </ul>	LOM.
Manage water discharges in accordance with licence conditions and regulatory approvals.	LOM.
<b>3. Landform stability</b>	
There will be ongoing monitoring of the stability, structure, operation and management of the TSF.	Biannually throughout LOM.

## 2.2 Biodiversity

A summary of the key biodiversity related operational commitments is provided in **Table 2-2**.

Table 2-2 Biodiversity Related Commitments

Commitment	Timeline
<b>Management commitments</b>	
<b>1. Fauna habitat</b>	
The Fire Management Plan will be updated in order to manage existing habitats to support Gouldian Finches, Emus, Australian Bustards, Bush Stone-curlews, Spectacled Hare-wallabies and Northern Nailtail Wallabies.	2018 (commencement of the Project).
The cattle exclusion area will be extended to include an additional 909 hectares (ha) of remnant woodland, which will be managed in accordance with the existing Cattle Management Plan. This will result in an enlarged cattle free (and hence habitat protection) area to 4,314 ha, containing 2,607 ha of remnant vegetation.	2018.
When required and when newly-fenced riparian habitats have demonstrated suitable recovery from the effects of grazing, Purple-crowned Fairy-wrens living within the disturbance footprint will be relocated to these newly fenced areas.	LOM.
Minimise removal of, or disturbance to, any sites containing caves that could potentially provide roosts for Ghost Bats.	LOM.
Minimise the removal of habitat for relevant listed species of national environmental significance (refer to <b>Sections 10.5.18, 10.5.24, 10.5.25 and 10.5.26 of Chapter 10 – Matters of National Significance</b> for details).	LOM.
Implementation of dust management measures to reduce the risk of fauna coming into contact with lead impacted dust.	LOM.
Explore contingency options where monitoring reveals that drawdown threatens the persistence of pools used by fauna.	LOM as/if required.
The mine pit lake will include:	
<ul style="list-style-type: none"> <li>engineered barriers to restrict the entry of the Largetooth Sawfish into the mine pit lake;</li> </ul>	From 2042.
<ul style="list-style-type: none"> <li>fish way ramps on the mine pit lake inlets and outlets to facilitate aquatic fauna ingress and egress;</li> </ul>	From 2042.

<b>Commitment</b>	<b>Timeline</b>
<ul style="list-style-type: none"> <li>engineered inlets, with a gradual slope to prevent vertical drops that constitute a hazard to aquatic fauna;</li> </ul>	From 2042.
<ul style="list-style-type: none"> <li>benches around the mine pit lake edge to provide sections of shallow foraging habitat for Largetooth Sawfish; and</li> </ul>	From 2042.
<ul style="list-style-type: none"> <li>large woody debris and establishment of riparian vegetation around the mine pit lake margin to provide suitable habitat.</li> </ul>	From 2042.

**2. Vegetation**

Seed germination rates of local grass species will be taken into consideration when designing seed mixes to be applied to rehabilitation sites.	LOM.
Small-scale trials will be undertaken to enhance knowledge regarding optimal site preparation, seed mixes and application rates for favourable establishment of local grass species and other key flora.	LOM.
Progressive rehabilitation of disturbed areas will occur where possible.	From 2019.
The current Weed Management Plan will be adhered to and updated as required.	LOM.

**Monitoring commitments**

**1. Metal concentrations in aquatic fauna**

Monitoring of metal concentrations in fish will be continued as required to provide confidence that no material adverse environmental effects are occurring.	LOM, with current biannual frequency but may be amended based on future results.
--	--

**2. Fauna habitat**

The following existing monitoring programs will be continued:	
<ul style="list-style-type: none"> <li>cattle presence within the cattle-exclusion zone; and</li> </ul>	LOM as required.
<ul style="list-style-type: none"> <li>sawfish tagging program, to assess whether connectivity of habitats through the mining leases is being maintained.</li> </ul>	Biannual throughout LOM.
The following monitoring programs will be continued to provide confidence that no material adverse environmental effects are occurring:	
<ul style="list-style-type: none"> <li>migratory shorebirds within the McArthur River estuary and nearby coastal areas;</li> </ul>	Biannual, until data indicates otherwise.



Commitment	Timeline
<ul style="list-style-type: none"> <li>riparian bird monitoring program;</li> </ul>	Biannual, until data indicates otherwise.
<ul style="list-style-type: none"> <li>Gouldian Finches and other woodland birds, with the density of grass species at each monitoring site being assessed in the mid to late wet season; and</li> </ul>	Annual, until data indicates otherwise.
<ul style="list-style-type: none"> <li>aquatic macroinvertebrates monitoring program.</li> </ul>	Annual, until data indicates otherwise.
Proposed additional monitoring programs include:	
<ul style="list-style-type: none"> <li>aquatic fauna entering and exiting the mine pit lake, in order to understand the effectiveness of fish ways and the role of the mine pit lake as a trap; and</li> </ul>	2042.
<ul style="list-style-type: none"> <li>surveys to investigate whether the terrestrial habitats created after rehabilitation are favourable for native fauna, particularly key species such as the Gouldian Finch and Purple-crowned Fairy-wren.</li> </ul>	Every three years, for LOM.
Maintenance of a register of fauna killed on the road.	LOM.
<b>3. Vegetation</b>	
Monitoring for assessing the development of vegetation in rehabilitated channels of the McArthur River and Barney Creek will be implemented as required.	LOM and into adaptive management phase (then dependent on results).
Weed surveys will be undertaken in accordance with the Weed Management Plan.	LOM and into adaptive management phase (then dependent on results).
Where required, the Rechannel Vegetation Monitoring Procedure will be adapted to extend to non-riparian rehabilitated sites.	LOM as required.

## 2.3 Overburden Placement

A summary of key overburden placement related operational commitments is provided in **Table 2-3**.

Table 2-3 Overburden Placement Related Commitments

Commitment	Timeline
<b>Management commitments</b>	
<b>1. Material classification management</b>	
Existing controls will continue to be implemented including:	
<ul style="list-style-type: none"> <li>only low salinity non-acid forming (high capacity)( LS-NAF(HC)) materials are used in the construction of the Overburden Emplacement Facility (OEF) cover systems as well as levees, growth media and buttresses in environmentally sensitive areas;</li> </ul>	LOM as required.
<ul style="list-style-type: none"> <li>all metalliferous saline non-acid forming (MS-NAF) materials (metalliferous saline non-acid forming (high capacity) (MS-NAF(HC)) and metalliferous saline non-acid forming (low capacity) (MS-NAF(LC))) encapsulated under a low permeability barrier in the final cover system of the OEFs;</li> </ul>	LOM as required.
<ul style="list-style-type: none"> <li>only MS-NAF materials (MS-NAF(HC)) and (MS-NAF(LC)) used in the construction of the Halo between the cover system and the potentially acid forming (PAF) core of the NOEF;</li> </ul>	LOM as required.
<ul style="list-style-type: none"> <li>all PAF material (potentially acid forming (high capacity) (PAF(HC)) and potentially acid forming (reactive) (PAF(RE))) is to be placed in core of NOEF and encapsulated under low permeability barrier; and</li> </ul>	LOM as required.
<ul style="list-style-type: none"> <li>the PAF(RE) material is placed in low lifts by paddock dumping.</li> </ul>	LOM as required.
In addition to the existing controls above, the following additional controls are proposed:	
<ul style="list-style-type: none"> <li>only LS-NAF(HC) materials to be used in the construction of the OEF cover systems as well as levees, growth media and buttresses in environmentally sensitive areas;</li> </ul>	LOM as required.
<ul style="list-style-type: none"> <li>all MS-NAF materials (MS-NAF (HC)) and (MS-NAF (LC)) to be encapsulated under a low permeability barrier in the final cover system of the OEFs;</li> </ul>	LOM as required.
<ul style="list-style-type: none"> <li>the MS-NAF materials (MS-NAF (HC)) and (MS-NAF (LC)) to be used in the construction of the Halo between the cover system and the PAF core of the NOEF are to be placed in lifts no higher than 7.5 metres (m);</li> </ul>	LOM as required.

Commitment	Timeline
<ul style="list-style-type: none"> <li>• segregation of PAF(HC) and PAF(RE) materials, including:               <ul style="list-style-type: none"> <li>○ all PAF(HC) material to be placed in the core of the NOEF and encapsulated under a low permeability barrier; and</li> <li>○ all PAF(RE) material is to be segregated from other materials and placed within dedicated cells subject to the following:                   <ul style="list-style-type: none"> <li>▪ paddock dumped and compacted to limit oxygen ingress and avoid particle size segregation; and maximum 2 m lifts, with 100 millimetres (mm) of compacted fine grained alluvial sheeting above every lift;</li> <li>▪ mined primarily during the dry season to limit ingress of water; and</li> <li>▪ prior to every wet season, place a 1 m compacted fine grained alluvial cover over the material to limit both oxygen and water ingress; and overlay with a 1.5 m protective layer of MS-NAF.</li> </ul> </li> </ul> </li> </ul>	<p>LOM as required.</p>
<ul style="list-style-type: none"> <li>• Low permeability cover system specifications set at 5-10% net percolation and 5 moles per square metre per year (mol/m<sup>2</sup>/yr) to limit both water and oxygen ingress into the OEF.</li> </ul>	<p>LOM as required.</p>
<p><b>2. In-pit grade control</b></p>	
<p>The following existing measure will be continued:</p>	
<ul style="list-style-type: none"> <li>• all overburden blast blocks will be sampled in accordance with the MRM grade control procedure to confirm material classification prior to load and haul operations. Final classification is validated by the Mine Geologist.</li> </ul>	<p>LOM as required.</p>
<p><b>3. Overburden Tracking System</b></p>	
<p>The following existing measures will be continued:</p>	
<ul style="list-style-type: none"> <li>• a global positioning system (GPS) for tracking haul trucks is in use at MRM. The material type being mined is entered into the system along with the allocated placement location for that type of material within the NOEF. The system sends alerts prior to placement of material if it is in the incorrect area of the NOEF.</li> </ul>	<p>Ongoing until end of NOEF construction in 2032.</p>
<p><b>Monitoring commitments</b></p>	
<p><b>1. Existing monitoring</b></p>	
<p>All existing monitoring measures will continue to be implemented, including:</p>	
<ul style="list-style-type: none"> <li>• use of GPS tracking;</li> </ul>	<p>Ongoing until end of NOEF construction in 2032.</p>

Commitment	Timeline
<ul style="list-style-type: none"> <li>• implementation of the geochemical sampling program; including sampling of overburden on the active OEFs;</li> </ul>	<p>Monthly sampling of overburden until 2032.</p>
<ul style="list-style-type: none"> <li>• spontaneous combustion, including:</li> </ul>	
<ul style="list-style-type: none"> <li>○ thermal monitoring to enable the early detection of potentially problematic material;</li> </ul>	<p>Prior to and during drill and blast operations.</p>
<ul style="list-style-type: none"> <li>○ visual and thermal inspections of the NOEF, conducted by mining personnel for early detection of reacting material;</li> </ul>	<p>Daily until 2032.</p>
<ul style="list-style-type: none"> <li>○ gas monitoring measurements on the OEFs including sulphur dioxide levels; and</li> </ul>	<p>Daily until 2032.</p>
<ul style="list-style-type: none"> <li>○ generation of OEF hazard maps, showing areas of concern with regards to gas levels.</li> </ul>	<p>Weekly until 2032.</p>
<ul style="list-style-type: none"> <li>• Internal gas and temperature monitoring in the NOEF, including:</li> </ul>	
<ul style="list-style-type: none"> <li>○ as part of the existing NOEF remediation program, a total of 29 monitoring bores were drilled into the NOEF, with 15 of these focussing on groundwater monitoring and 14 on temperature and gas monitoring; and</li> </ul>	<p>LOM.</p>
<ul style="list-style-type: none"> <li>○ bores which extend through the full thickness of the PAF cells (approximately 40 m) are equipped with thermocouples and gas ports at different depths; enable gas sampling and the ongoing monitoring of internal temperatures within the NOEF.</li> </ul>	<p>LOM.</p>

## 2. Proposed Monitoring

In addition to the existing monitoring program as described above, the following additional monitoring is proposed to assess NOEF performance:

- ongoing monitoring of internal gas concentrations and temperature in order to manage geotechnical and hydrogeological processes and the impact on groundwater and surface water systems. This internal monitoring will also provide validation of the impacts of overburden placement practices, and an understanding of the internal controls of acid and metalliferous drainage (AMD) production and release. LOM.

Commitment	Timeline
<ul style="list-style-type: none"> <li>• monitoring of net percolation and gases below the cover system will be in accordance with the NOEF monitoring plan (refer to <b>Appendix O – NOEF Closure Monitoring System Report</b>). This will include installation of:                             <ul style="list-style-type: none"> <li>○ a lysimeter and associated sensors;</li> <li>○ soil monitoring equipment within each unit of the NOEF cover system (including growth medium and compacted clay layer), and halo; and</li> <li>○ pore-gas sampling systems.</li> </ul> </li> <li>• monitoring of water quality in the NOEF sediment management structures during operations.</li> </ul>	<p>2022.</p> <p>Until it can be demonstrated that the water quality is within acceptable limits prior to release into receiving waters.</p>
<p><b>3. Further investigations</b></p>	
<p>Although extensive geochemical studies have been completed, field and laboratory testing (in particular kinetic testing) will be conducted in order to validate and update the geochemical and hydrological conceptual models of the NOEF.</p>	<p>LOM.</p>

## 2.4 Cultural Heritage

A summary of the key cultural heritage related operational commitments is provided in **Table 2-4**.

Table 2-4 Cultural Heritage Related Commitments

Commitment	Timeline
<b>Management commitments</b>	
All existing management measures will continue to be complied with including:	
<ul style="list-style-type: none"> <li>• complying with all conditions attached to the Aboriginal Areas Protection Authority (AAPA) certificates issued to McArthur River Mining for relevant nominated sacred sites, including (as applicable):                             <ul style="list-style-type: none"> <li>○ no entry;</li> <li>○ no ground-disturbing works;</li> <li>○ no damage to vegetation other than for purposes specified in the relevant site conditions;</li> <li>○ no storage of material and parking of machinery on sites, or within a certain radius of sites;</li> <li>○ installation of highly visible temporary protective fences along the perimeter of specified areas (e.g. along the outer perimeter of work areas in the vicinity of sacred sites) and maintenance of such fencing while works are in progress; and/or</li> <li>○ rehabilitation of specified areas to allow natural re-growth of vegetation.</li> </ul> </li> </ul>	LOM.
<ul style="list-style-type: none"> <li>• all archaeological sites and sacred site areas will be regularly monitored to determine whether any site boundaries have been breached and to verify the effectiveness of management practices;</li> </ul>	LOM.
<ul style="list-style-type: none"> <li>• consultation with custodians will be undertaken if any additional sites may be disturbed and to identify agreeable management strategies;</li> </ul>	LOM.
<ul style="list-style-type: none"> <li>• notifying Aboriginal custodians of the sacred sites and provision of the opportunity to supervise restoration works carried out on the site;</li> </ul>	LOM.
<ul style="list-style-type: none"> <li>• maintaining a cultural heritage awareness component into site induction programs for new Project employees; and</li> </ul>	LOM.
<ul style="list-style-type: none"> <li>• continuing to implement of a permit to dig/clear system which requires all ground disturbance activities and all works that impact vegetation to be assessed and approved by McArthur River Mining Community Relations and Environmental personnel, in the company of custodians.</li> </ul>	LOM.
Additional proposed controls include:	
<ul style="list-style-type: none"> <li>• McArthur River Mining will lodge an application to amend the AAPA certificate to facilitate the minor increase in height of the TSF;</li> </ul>	2017-2018.

Commitment	Timeline
<ul style="list-style-type: none"> <li>the NOEF will be constructed within the limitations contained in relevant AAPA certificates and agreements between McArthur River Mining and custodians, and within valid mineral leases;</li> </ul>	LOM.
<ul style="list-style-type: none"> <li>McArthur River Mining will seek permission from the Heritage Branch within the Department of Tourism and Culture to relocate MRM4 heritage site;</li> </ul>	2017.
<ul style="list-style-type: none"> <li>pending approval to relocate MRM4 heritage site, McArthur River Mining will engage Indigenous staff to undertake relocation works; and</li> </ul>	2017.
<ul style="list-style-type: none"> <li>permission will be sought under the NT <i>Heritage Act</i> in consultation with the Department of Tourism and Culture to disturb any additional archaeological sites.</li> </ul>	LOM and prior to any disturbance to sites occurring.
<b>Monitoring commitments</b>	
McArthur River Mining will as part of its monitoring program undertake where required:	
<ul style="list-style-type: none"> <li>visual inspections of sacred site boundaries;</li> </ul>	LOM.
<ul style="list-style-type: none"> <li>to engage custodians to undertake cultural heritage clearances before disturbances are undertaken; and</li> </ul>	LOM.
<ul style="list-style-type: none"> <li>review custodian feedback.</li> </ul>	LOM.

## 2.5 Socio-economic

A summary of the key socio-economic related operational commitments is provided in **Table 2-5**.

Table 2-5 Socio-economic Related Commitments

Commitment	Timeline
<b>Management Commitments</b>	
Proposed management commitments will include a continuation of existing management practices, including:	
<ul style="list-style-type: none"> <li>coordination of the MRM Community Reference Group;</li> </ul>	LOM.
<ul style="list-style-type: none"> <li>use a range of communication tools so that the local community is kept informed of MRM operations;</li> </ul>	LOM.

Commitment	Timeline
<ul style="list-style-type: none"> <li>continue the role of the Community Relations Officer as an active member of a number of local community organisations;</li> </ul>	LOM.
<ul style="list-style-type: none"> <li>undertake ongoing stakeholder engagement and include Indigenous individuals input into the implementation of the long-term monitoring program;</li> </ul>	LOM.
<ul style="list-style-type: none"> <li>continue economic contribution to Borroloola and the Gulf SLA through direct employment at the mine (with employment opportunities being advertised on the company website) or via purchase of supply services;</li> </ul>	LOM.
<ul style="list-style-type: none"> <li>continue to source local employment with a target of 20% of all employees to be Indigenous;</li> </ul>	LOM.
<ul style="list-style-type: none"> <li>continuation of the Community Benefits Trust (CBT) as per agreement with the Northern Territory Government, with no reduction in community benefits as a result of the EIS;</li> </ul>	LOM.
<ul style="list-style-type: none"> <li>utilise the CBT to identify proactive opportunities to work with the Northern Territory Government as well as support sponsorships, donations and community health initiatives;</li> </ul>	LOM.
<ul style="list-style-type: none"> <li>continue to support for businesses in Borroloola and Darwin throughout the life of the Project via purchase of supplies and services;</li> </ul>	LOM.
<ul style="list-style-type: none"> <li>continue to contribute to the Australian and NT economies via payment of payroll taxes and royalty payments as well as employment and services where needed; and</li> </ul>	LOM.
<ul style="list-style-type: none"> <li>provide regular updates of the Stakeholder Engagement Plan to support the delivery of effective stakeholder consultation and to ensure that actions that are planned are implemented and monitored.</li> </ul>	LOM.
<p>The Economic and Social Impact Management Plan (ESIMP) developed for the Project (refer to <b>Section 12.8.4 of Chapter 12 – Socio-economic Environment</b>) includes the following commitments:</p>	
<ul style="list-style-type: none"> <li>review of the ESIMP objectives, with inputs from community consultation as well as other stakeholder engagement activities to be incorporated where appropriate;</li> </ul>	Annually for LOM.
<ul style="list-style-type: none"> <li>maintain openness with all stakeholders;</li> </ul>	LOM.
<ul style="list-style-type: none"> <li>continue to enact a zero tolerance drug and alcohol policy at the Project work site during work hours;</li> </ul>	LOM.
<ul style="list-style-type: none"> <li>continue to support education opportunities for local residents and youth;</li> </ul>	LOM.



Commitment	Timeline
<ul style="list-style-type: none"> <li>continue to train and source local employment with a target of 20% of all employees to be Indigenous; and</li> </ul>	LOM.
<ul style="list-style-type: none"> <li>continue the local procurement program, sourcing competitive goods and services from regional and local businesses.</li> </ul>	LOM
<b>Monitoring commitments</b>	
Review feedback from the local community and stakeholders.	LOM.

## 2.6 Air Quality

A summary of the key air quality related operational commitments is provided in **Table 2-6**.

Table 2-6 Air Quality Related Commitments

Commitment	Timeline
<b>Management commitments</b>	
Current air quality commitments will continue to be implemented including measures to manage dust, sulphur dioxide emissions and Greenhouse Gases.	LOM.
<b>Dust management</b> measures will include a range of controls including:	
<ul style="list-style-type: none"> <li>the completion of site inductions to brief employees and contractors on air quality management requirements; and</li> </ul>	LOM.
<ul style="list-style-type: none"> <li>to implement various management controls (as detailed in <b>Chapter 13 – Air Quality</b>) to limit dust generation from:                             <ul style="list-style-type: none"> <li>hauling on unsealed and sealed roads;</li> <li>material extraction/unloading;</li> <li>dozer and grader operations;</li> <li>exposed areas;</li> <li>processing plant;</li> <li>Run of Mine stockpiles; and</li> <li>TSF.</li> </ul> </li> </ul>	LOM.
<b>Sulphur dioxide emissions</b> will be managed through the implementation of a protocol for selective handling and emplacement of overburden material. The protocol has been implemented to minimise the potential ingress of water and oxygen to pyritic material encapsulated in the NOEF, and therefore reducing the risk of spontaneous combustion.	LOM.
<b>Spontaneous combustion</b> will be managed through multiple monitoring techniques, including:	

Commitment	Timeline
<ul style="list-style-type: none"> <li>• in-pit monitoring, comprising:</li> </ul>	
<ul style="list-style-type: none"> <li>○ thermal monitoring, to enable the early detection of potentially problematic material; and</li> </ul>	Undertaken prior to and during drill and blast operations.
<ul style="list-style-type: none"> <li>○ visual and thermal inspections by Mining personnel for early detection of reacting material.</li> </ul>	Daily throughout mining operations.
<ul style="list-style-type: none"> <li>• gas monitoring; comprising:</li> </ul>	
<ul style="list-style-type: none"> <li>○ gas measurements including sulphur dioxide levels on the NOEF in order to identify potential hazards and areas requiring remediation/intervention;</li> </ul>	Daily throughout mining operations.
<ul style="list-style-type: none"> <li>○ generation and communication of NOEF hazard maps identifying areas requiring additional management or controls with regards to temperatures and gas levels; and</li> </ul>	Weekly throughout mining operations.
<ul style="list-style-type: none"> <li>○ personal monitors and personal protective equipment (PPE) will be utilised for workers working near areas of potential sulphur dioxide emissions.</li> </ul>	As required throughout mining operations
<b>Direct means of reducing Greenhouse Gas emissions will include:</b>	
<ul style="list-style-type: none"> <li>• minimising clearing at the site where possible;</li> </ul>	LOM as required.
<ul style="list-style-type: none"> <li>• revegetation of disturbed land with suitable vegetation communities;</li> </ul>	LOM as required.
<ul style="list-style-type: none"> <li>• integrating transport for the Project with other local industries,</li> </ul>	LOM as required
<ul style="list-style-type: none"> <li>• maintenance of heavy mobile equipment (including tyres) and roads;</li> </ul>	As per maintenance schedule throughout LOM.
<ul style="list-style-type: none"> <li>• replacing some diesel powered light towers with mains connected light emitting diodes (LEDs) at the mine installing timers to control lighting across the site;</li> </ul>	LOM as required.
<ul style="list-style-type: none"> <li>• using renewable energy sources where practicable;</li> </ul>	LOM as required.
<ul style="list-style-type: none"> <li>• upgrading to more efficient heavy equipment in the mining fleet to reduce diesel derived greenhouse gas emissions; and</li> </ul>	LOM as required.
<ul style="list-style-type: none"> <li>• using driver simulation software for bulldozers and loaders instead of equipment when training personnel.</li> </ul>	LOM as required.

Commitment	Timeline
<b>Monitoring commitments</b>	
The current air quality monitoring program at MRM is currently under review and will be presented in the Air Quality Management Plan (AQMP) which is being developed in consultation with the relevant government agencies and operational departments.	2017.
An AQMP will be maintained and air quality monitoring will be undertaken in accordance with the plan. This may include, where required: <ul style="list-style-type: none"> <li>the use of Low Volume Air Samplers;</li> <li>deposition dust gauges; and</li> <li>sulphur dioxide monitoring.</li> </ul>	As per AQMP requirements.
Regular assessments will be undertaken in accordance with AQMP requirements to validate the monitoring data.	Monthly for LOM.
Monitoring records will be retained for at least five years and will include the following information: <ul style="list-style-type: none"> <li>the date and time of sampling;</li> <li>the sampling location; and</li> <li>the name of the person collecting the sample.</li> </ul>	

## 2.7 Health and Safety

A summary of the key health and safety related an operational commitment is provided in **Table 2-7**.

Table 2-7 Health And Safety Related Commitments

Commitment	Timeline
<b>Management commitments</b>	
There are a number of existing operational Health and Safety risks that will continue to be relevant as part of proposed Project activities. These risks will be managed in accordance with existing system-based and hazard-specific mitigation strategies, as described within <b>Section 14.6.1 of Chapter 14 – Health and Safety</b> .	LOM
A summary of proposed management measures for additional key Project Health and Safety risks include:	

Commitment	Timeline
<ul style="list-style-type: none"> <li>• Spontaneous combustion (open cut in-pit dump)                             <ul style="list-style-type: none"> <li>○ temporarily store reactive material at the East Overburden Emplacement Facility (EOEF);</li> <li>○ in-pit dumping in the final six years (approximately) of the mine life;</li> <li>○ gas level monitoring within the open cut final void; and</li> <li>○ use of ventilation, adoption of trigger values for withdrawal and worst case use of appropriate PPE;</li> </ul> </li> </ul>	2031-2037 (when in-pit dumping occurs).
<ul style="list-style-type: none"> <li>• Spontaneous combustion (NOEF)                             <ul style="list-style-type: none"> <li>○ a new design is proposed with the aim of securely encapsulating materials to limit the possibility of spontaneous combustion (refer to <b>Chapter 3 – Project Description and Justification</b> for design criteria).</li> </ul> </li> </ul>	2018-2031.
<ul style="list-style-type: none"> <li>• Spontaneous combustion (TSF) due to improper handling of tailings:                             <ul style="list-style-type: none"> <li>○ adoption of a safety management system in accordance with Glencore’s Health, Safety, Environment and Community Management system; and</li> <li>○ development of a work method statement for the conduct of tailings construction activities.</li> </ul> </li> </ul>	2018-2037. 2018.
<ul style="list-style-type: none"> <li>• Piping failure of the TSF Embankment – proposed design and operational controls will include:                             <ul style="list-style-type: none"> <li>○ combining Cell 1/Cell 2 storages;</li> <li>○ minimising beach length/freeboard design;</li> <li>○ installation of a new spillway;</li> <li>○ installation of monitoring piezometers;</li> <li>○ improved tailings management practices; and</li> <li>○ the adoption of critical operating parameters including on-line water height monitoring and Trigger Action Response Plan (TARP).</li> </ul> </li> </ul>	2018-2037.
<ul style="list-style-type: none"> <li>• TSF Embankment failure (due to seismic events or excessive rate of tailings rise). Proposed management commitments include:                             <ul style="list-style-type: none"> <li>○ adherence to TSF design considerations including dam safety allowances, spillway design parameters and beach dimensions;</li> <li>○ adherence to construction standards for TSF walls and foundations;</li> <li>○ adoption of operating controls (e.g. water height/freeboard limits);</li> <li>○ condition monitoring; and</li> <li>○ implementation of response systems.</li> </ul> </li> </ul>	2018-2037.
<b>Monitoring commitments</b>	
Auditing of the site health and safety health systems both internally and externally.	LOM.

## 3 Closure Phase Commitments

The mine site closure phase extends from 2048 until 3017, and comprises a staged management approach with separate short-term and long-term timeframes.

Short-term is regarded as the first 100 years and includes:

- site operations of approximately 30 years (2018 - 2047); and
- an adaptive management stage of approximately 70 years duration (2048-2118).

Long-term is regarded as the period from 100 years from commencement to 1,000 years (i.e., 2118-3017) and includes:

- proactive monitoring; and
- reactive monitoring.

Refer to **Section 3.3.3.5 in Chapter 3 – Project Description** for further details.

Closure phase commitments have been presented according to domain including open cut, NOEF, TSF and site-wide. This domain structure was the most logical given McArthur River Mining proposes to implement domain specific closure programs. In addition, closure timing will be phased across the site dependent on domain. For example, the NOEF will be progressively rehabilitated whilst rehabilitation of the TSF will not commence until the end of its operational life.

### 3.1 Site Closure Objectives

McArthur River Mining has developed ten overarching closure objectives, which it is committed to achieving in order to decommission, rehabilitate and close the mine site in accordance with its regulatory obligations and stakeholder expectations. These objectives include:

1. Post mining landscape will be left in a condition safe and secure for humans and animals:
  - Safe and secure for short term (0-100 years); and
  - Safe for long term (100-1,000 years).
2. Stability:
  - Geotechnical stability will be maintained at these standards:
    - NOEF: Long term static drained Factor of Safety (FoS) of 1.5; Maximum Design Earthquake (MDE) – 1 in 1,000 year event;
    - open cut walls: Probability of Failure (Pf) for inter-ramp slopes of <5%; and
    - TSF: as per ANCOLD (2012) guidelines.
  - Erosional stability; maintainable for these aspects:
    - Cover system and landform to maintain functionality;
    - Sediment release from erosion does not adversely impact on water quality;
    - Erosion does not affect functionality of the landform; and
    - Resulting suspended solids can be mitigated.
  - Geochemical stability will be defined, managed and monitored:
    - seepage water quality at toe/base of landforms; and
    - water quality within the mine pit lake.
3. Landform will host suitable vegetation for post-mining land use:
  - For traditional land use areas:
    - have similar environmental values as surrounding areas.
  - For cattle grazing land use areas:

- grasslands.
- 4. Rehabilitated areas will provide appropriate habitat for fauna utilisation - abundance and diversity will be appropriate.
- 5. Manage surface water and groundwater such that environmental values and ecosystems are maintained downstream of the lease boundary in the short term (0-100 years), and within the McArthur River in the long term (100-1,000 years).
- 6. Metal levels for fauna comparable to background levels.
- 7. No infrastructure left on site unless a beneficial gain is identified and agreed with stakeholders.
- 8. Manage soil to meet post mining land use.
- 9. Maintain custodians’ access to areas of cultural significance.
- 10. Foster economic opportunities for custodians and local communities.

These closure objectives have informed the development of site closure commitments.

## 3.2 Closure Commitments

Closure phase commitments by domain are detailed in **Section 3.2.1** to **Section 3.2.4**.

### 3.2.1 Open Cut

A summary of key open cut domain closure commitments is provided in **Table 3-1**

Table 3-1 Open Cut Domain Related Commitments

Commitment	Timeframe
<b>Management commitments</b>	
McArthur River Mining will investigate alternative methods to develop self-sustaining, biodiverse aquatic and riparian ecosystems in and around a future mine pit lake, with a view to sustainable closure.	LOM.
There will be no remaining infrastructure besides the limited access infrastructure required for monitoring and maintenance. Almost the entire 421 ha will be rehabilitated, including the:	
<ul style="list-style-type: none"> <li>• EOEF and South Overburden Emplacement Facility (SOEF) rehabilitated footprints, which will be contoured to be free-draining and direct runoff through sediment management structures; and</li> </ul>	By 2042.
<ul style="list-style-type: none"> <li>• WOEF, which will include a low permeability cover to enhance water runoff and evapotranspiration, and reduce infiltration and subsequent seepage. The cover system will feature engineered drains to control erosion, assisted by vegetation.</li> </ul>	By 2042.
The final open cut will be:	
<ul style="list-style-type: none"> <li>• filled rapidly by pumping water from the McArthur River, to reduce the exposure of potentially reactive rock to oxygen; and</li> </ul>	2047-2052.

Commitment	Timeframe
<ul style="list-style-type: none"> <li>filled with a deep cover of water to inhibit oxygen contacting reactive material.</li> </ul>	2047-2052.
<p>Extraction of water from the McArthur River to fill the final void will be managed so that it will not adversely affect flows.</p>	2047-2052.
<p>Extraction of water from the McArthur River to fill the mine pit lake will be managed to prevent loss of nutrients downstream.</p>	2047-2052.
<p>The mine pit lake will be isolated from the McArthur River during the initial period after closure. Acceptable water quality within the mine pit lake will be demonstrated prior to connecting the lake with the McArthur River via levees.</p>	2052-2062 (nominally).
<p>A high flow connection between the McArthur River and the mine pit lake will be created to maintain suitable water quality in the mine pit lake epilimnion.</p>	<p>Backwater interaction in 2062. Flowthrough scenario in 2072 (actual timing dependent on results of adaptive management program).</p>
<p>Batters associated with the alluvial material will be capped with topsoil, revegetated and equipped with habitat structures to suit a lacustrine environment.</p>	Post 2042.
<p>Engineered barrages will be constructed in the original McArthur River bed to control the level at which water will exchange between the mine pit lake and the river.</p>	2062-2072 nominally.
<p>Rehabilitated areas will initially drain through sediment management structures to validate water quality and retain the bulk of sediments before being released to the mine pit lake or surrounding watercourses.</p>	Post-2042.
<p>There will be a contingency to isolate the mine pit lake from the McArthur River in the event that water quality is compromised by unanticipated chemical reactions within material contained within it.</p>	Subject to adaptive management results.
<p>Storing collected surface water from Barney Creek potentially impacted by groundwater within the mine pit lake post-closure.</p>	From 2052.
<p>Adaptive Management will include filling and repair of erosion damage, de-silting drains and basins, re-planting and weeding, and operating and maintaining water management systems. As performance stabilises, the maintenance and monitoring programs can transition to a Reactive Management phase, where inspection and intervention is undertaken on an as-required basis.</p>	2048-2100 nominally.
<b>Monitoring commitments</b>	

Commitment	Timeframe
Mine pit lake monitoring will include establishment of water monitoring sites across a range of depths to enable the estimation of flow and quality (including temperature and stratification effects) into and out of the McArthur River from the mine pit lake.	Monthly post closure (post 2047).

### 3.2.2 NOEF

A summary of key NOEF domain closure commitments is provided in **Table 3-2**. Construction and progressive rehabilitation of the NOEF is anticipated to be completed by 2032, therefore this section discusses NOEF closure commitments from 2032 onwards.

Table 3-2 NOEF Domain Related Commitments

Commitment	Timeframe
<b>Management commitments</b>	
An Adaptive Management and Reactive Management program of remedial works will be implemented to maintain an effective cover system in the long term.	2032-2100 nominally.
Revegetation will be undertaken with selected plant species, appropriate for achieving a resilient, stable landform. These species will be selected to be compatible with closure objectives, proven as suitable to the final landform topography and regional climate, as well as meeting the short term and long term rehabilitation objectives.	LOM.
During the vegetation establishment phase, runoff will be directed through sediment management structures such as basins and weep berms to filter soil particles from the runoff water.	LOM.
<b>Monitoring commitments</b>	
Water within PRODs will be sampled regularly until these facilities are removed.	Monthly until facilities decommissioned.
Gas detectors will be installed around the base of the NOEF, adjacent to the open cut, as well as along the highway. Sulphur dioxide will be monitored as required.	Monthly download of data with results interpreted in an annual report. The results will be assessed periodically to determine if ongoing monitoring is required.



### 3.2.3 TSF

A summary of key TSF domain closure commitments is provided in **Table 3-3**.

Table 3-3 TSF Domain Related Commitments

Commitment	Timeframe
<b>Management commitments</b>	
Removing the TSF and reprocessing the tailings, with spent tailings placed in the final void.	2038-2047.
Revegetation will be undertaken with selected plant species, appropriate for achieving a resilient, stable landform. These species will be selected to be compatible with closure objectives, proven as suitable to the final landform topography and regional climate, as well as meeting the short term and long term rehabilitation objectives.	Post-2047.
During vegetation establishment, waters will be directed through sediment control structures to settle out excess sediments, before being discharged to the receiving environment.	Post-2047.
<b>Monitoring commitments</b>	
Surface water and groundwater quality monitoring will be undertaken in order to assess the quality of water released.	LOM with results assessed periodically to determine if ongoing monitoring is required.

### 3.2.4 Site-wide

A summary of key site-wide closure commitments is provided in **Table 3-4**.

Table 3-4 Site-wide Related Commitments

Commitment	Timeframe
<b>Management commitments</b>	
A LOM Closure Plan will be updated when required. LOM rehabilitation and associated decommissioning activities will be reviewed annually and will be provided in the annual Mining Management Plan (MMP) updates.	Annually throughout LOM.
The performance of the rehabilitation program will continue to be reported in the annual report and sent to the Department of Primary Industry and Resources (DPIR) in the environmental monitoring report.	Annually throughout LOM.

Commitment	Timeframe
Sites which have been contaminated during the life of the mine will have contaminated soils and aggregates removed and placed into the designated area at the TSF.	2037-2052 nominally.
Compliance with the specified criteria will be required before any areas of the mineral leases can be relinquished, i.e. compliance with the criteria will be reported in the Application for Certificate of Closure (ACC) as part of the Certificate of Closure process outlined in Section 46 of the Northern Territory <i>Mining Management Act</i> .	Subject to rehabilitation success.
Transportable buildings and equipment will be sold and removed, unless otherwise agreed with stakeholders. Services such as power and sewerage will first be disconnected and any remaining structures (e.g. footings, electrical cables and pipes) will be dismantled and buried.	2037-2052 nominally.
Larger buildings such as the manager residences, wet and dry messes, warehouses, workshops and camp support buildings will be demolished once all valuable material has been salvaged and services disconnected. Any large excavations such as the swimming pool and haulage depot work pit will be filled.	2037-2052 nominally.
All buildings associated with the haulage depot will be dismantled and removed. The service pit will be filled. The site will be covered with soil, ripped and seeded.	2037-2052 nominally.
Exploration areas will be rehabilitated in accordance with Northern Territory legislation and guidelines.	LOM.
All borrow areas, stockpiles and haul roads will be rehabilitated.	By 2052.
In order to limit the risk to unauthorised third parties post mine closure, the following management controls will be implemented:	
<ul style="list-style-type: none"> <li>active monitoring combined with the installation of fencing, warning signs and barricades where deemed appropriate (these controls will be documented in the MRM Security Management Plan);</li> </ul>	2048-2118.
<ul style="list-style-type: none"> <li>longer term management will be developed in consultation with relevant landholders input; and</li> </ul>	Post 2052.
<ul style="list-style-type: none"> <li>a continual review of these existing mitigation measures will be undertaken and modifications to current practices undertaken if necessary.</li> </ul>	2048-2118.
Maintaining the integrity of fences will be necessary to ensure cattle are excluded from revegetated areas and other exclusion zones. It is expected that musters will be undertaken periodically.	2048-2118.
On the highway at each extent of the mine, a large sign will be erected detailing the nature of the area including a brief history and any general risk and precautions.	2048-2118.

Commitment	Timeframe
Weed management will be undertaken as necessary by the on-site work force to ensure that weed infestation is no worse than surrounding areas in the pastoral lease.	2048-2118.
<b>Monitoring commitments</b>	
Landform stability focussed monitoring will be conducted and will include annual monitoring for the first ten (10) years following closure/rehabilitation, with the frequency of further monitoring after this period to be determined by the results of the initial 10 years. This monitoring will comprise:	
<ul style="list-style-type: none"> <li>aerial laser survey (ALS) to allow accurate quantification of any geomorphic changes;</li> </ul>	Every five years after closure (during the adaptive management phase).
<ul style="list-style-type: none"> <li>satellite imagery reviews in the years that ALS is not conducted; and</li> </ul>	Annually, except during the years that ALS is undertaken.
<ul style="list-style-type: none"> <li>visual surveys in the early stages of domain closure.</li> </ul>	Monthly for 10 years after closure.
Monitoring will be undertaken in response to particular events (cyclones, floods) to evaluate mitigation requirements.	Event based as required.
If trends in monitoring data indicate material deviation from predicted performance, McArthur River Mining will consider a range of contingency mitigation strategies, currently developed to a conceptual level.	2048-2118.
<p>Ongoing water quality monitoring will be undertaken to confirm whether the surface and groundwater model predictions are realised.</p> <p>Groundwater bore locations will be included for each domain and will initially be sampled quarterly. The scale and frequency of monitoring will be adjusted based on the results obtained throughout the adaptive management phase.</p> <p>Surface water locations will be as per life of mine network, with the scale and frequency of monitoring will be adjusted based on the results obtained throughout the adaptive management phase.</p>	
<p>All areas that have been identified as potentially containing contaminated materials will be investigated and appropriate remediation measures implemented. For example:</p> <ul style="list-style-type: none"> <li>storage pond sediments will be removed and (if identified as contaminated) will be placed in the open cut final void as part of the in-pit dumping program;</li> <li>the timing of decommissioning of the TSF Cell 3 Water Management Dam will depend on negotiations with stakeholders; and</li> <li>contaminated materials as a result of infrastructure decommissioning will be removed to an appropriate OEF.</li> </ul>	2031-2052.

Commitment	Timeframe
Soils in rehabilitated sites will be monitored to ensure that they provide an appropriate growing medium for local vegetation, in order to meet the final land use.	Every five years, with results assessed periodically to determine if ongoing monitoring is required.
Vegetation developing on rehabilitated sites will be monitored.	Annually for first three years post closure, then every three years subsequently with results assessed periodically to determine if ongoing monitoring is required.
The existing aquatic fauna monitoring programs will be continued until data suggest that the current scale and/or frequency of survey effort is no longer warranted to provide confidence that no adverse environmental effects are occurring.	LOM as monitoring results dictate.
Surveys will be undertaken on a regular basis to investigate whether the habitats created after rehabilitation are favourable for native fauna.	Three yearly, with results assessed periodically to determine if ongoing monitoring is required.