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## 8. Progress Reporting Against EIS Commitments

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# 8 Progress Against EIS Commitments

McArthur River Mining has committed to a variety of investigations, monitoring programs and management actions in the environmental impact statement (EIS) (refer to **Draft EIS Appendix AB – EIS Commitments**). The majority of these commitments apply to the period following EIS approval; however progress has been made against a number of them in the period since the Draft EIS was submitted. This section of the Supplementary EIS provides an update on progress against relevant commitments at McArthur River Mine (MRM).

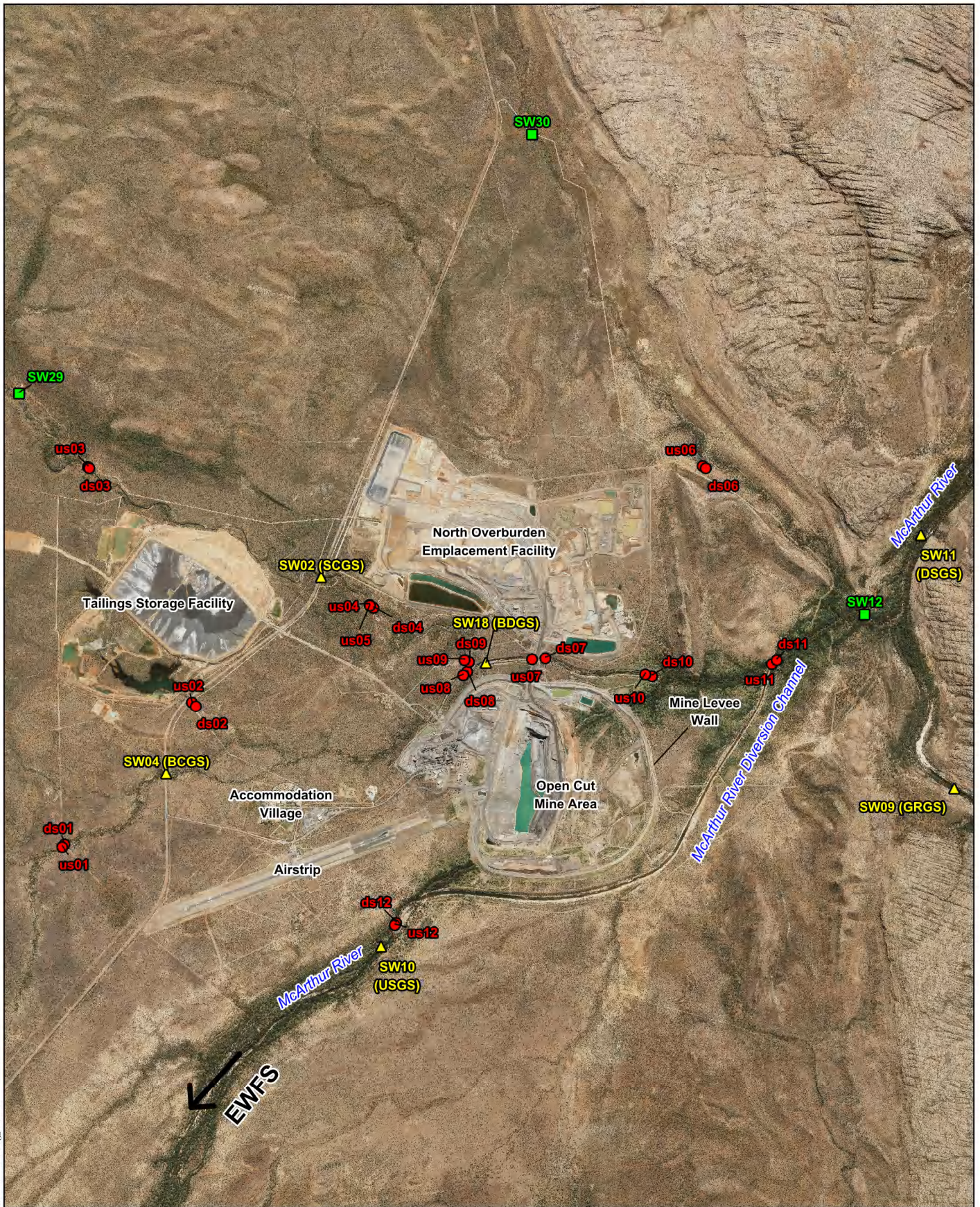
The following tables address progress against relevant commitments relating to the following environmental aspects:

- **Supplementary EIS Table 8-1**      **Water Resources Commitments**
- **Supplementary EIS Table 8-2**      **Biodiversity Commitments**
- **Supplementary EIS Table 8-3**      **Overburden Placement Commitments**
- **Supplementary EIS Table 8-4**      **Cultural Heritage Commitments**
- **Supplementary EIS Table 8-5**      **Socio-Economic Commitments**
- **Supplementary EIS Table 8-6**      **Air Quality Commitments**
- **Supplementary EIS Table 8-7**      **Health and Safety Commitments**

Table 8-1 Water Resources Commitments

Commitment	Timeframe	Current Status
<b>Monitoring Commitments</b>		
<b>1. Groundwater</b>		
Installation of additional groundwater monitoring bores between the North Overburden Emplacement Facility(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	A series of drilling, testing and monitoring has been completed as part of the 2017 drilling and field program. Targets related to NOEF and Barney Creek have concentrated on geological intersections between the Barney Trend (an east-west major structural feature) and the Western Fault/Cooley Dolomite textural contact. An array of Vibrating Wire Piezometers (VWPs) is collecting water levels across these major structural features. Pumping test will be conducted in this region in mid-2018. Further work is required in this region as some major water bearing zones have been intersected.
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.	Life of mine (LOM)	VWPs have been installed on top of Cell 1 and 2. A shallow dewatering well was constructed into the rock layer near the Cell 2 spillway. In mid-2017, an extensive pumping and tracer test program was completed, which indicated very localised communication between the TSF and deeper groundwater, indicating a confining layer exists between the alluvial and fractured/structural bedrock.
Monitoring for groundwater migration from the West Overburden Emplacement Facility (WEOF) to the northwest toward the Barney Creek Channel to verify the conceptual model.	LOM	As part of the 2017/18 program a series of testing wells and diamond wells are planned. These will test the connection between the old Barney Creek, Contaminated Runoff Pond, and the open cut. In mid-2018, wells are designed to determine the link between WEOF water and surrounding Barney Channel.
Continuation of hydrogeochemical investigations of mineralised zones.	LOM	A report on the mineralised zones at MRM and soil metal concentrations has now been completed by Ross Logan and Associates.

Commitment	Timeframe	Current Status
<b>2. Surface Water</b>		
Expanded natural surface water monitoring program, including installation of low flow monitoring stations along the McArthur River, Barney Creek and Surprise Creek.	2018	<p>The following upgrades to the surface water network have been completed since the completion of the Draft EIS:</p> <ul style="list-style-type: none"> <li>• Water level gauge installed and commissioned on Barney Diversion (SW18).</li> <li>• Telemetered EC loggers installed and commissioned at SW29, SW30 and SW12 (infrastructure upgrade from polyvinyl chloride (PVC) to poly).</li> <li>• Upgrade system from nitrogen gas to air bubbler and telemetry at DSGS (SW11), USGS (SW10), SCGS (SW02), BCGS (SW04) and EWFS.</li> <li>• Real-time multi-sensors redeployed at DSGS and USGS (i.e. pH, electrical conductivity (EC), turbidity, temperature, dissolved oxygen) and SCGS and BCGS (i.e. pH, EC and temperature).</li> <li>• Non-telemetered EC loggers deployed at SW29, SW11, SW12, SW30 and SW26.</li> </ul> <p>All the abovementioned sites (except the non-telemetered loggers) will provide real-time data when the river/creeks flow and will feed the new Environmental database Envirosys.</p> <p>Level loggers for the low flow monitoring project have been installed in the locations shown in <b>Supplementary EIS Figure 8-1</b>.</p> <p>ALS has been carrying out river gauging at these abovementioned locations throughout the wet season. Gauging results will be used to derive flow stage curves. Stage curves, level and water quality information will then be used to determine load estimates for the different gauging locations.</p>
Expanded natural surface water monitoring program, including a water level gauge on the Glyde River to measure stream flows.	2018	<p>The following have been installed and commissioned on the Glyde River:</p> <ul style="list-style-type: none"> <li>• water level gauge at SW09; and</li> <li>• non-telemetered EC logger at SW09.</li> </ul>



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**METSERVE**  
Mining & Energy Technical Services Pty Ltd



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**LEGEND**

- Logger Installations
- Telemetered EC Log
- ▲ Gauging Stations

Data Source:  
Aerial - McArthur River Mining Pty Ltd (Jul 2017), Surface Water Monitoring data - Glencore (Dec 2017).

**McArthur River Mine  
OMP Supplementary EIS**

**Surface Water Monitoring Locations**



**Kilometres**

Scale: 1:60,000 (A4)

20/03/2018



Datum: GDA94  
Projection: MGA53

**FIGURE 8-1**

Table 8-2 Biodiversity Commitments

Commitment	Timeline	Current Status
<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	The Fire Management Plan has been updated in accordance with the relevant legislation.
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 of 4,314 ha, containing 2,607 ha of remnant vegetation.	2018	Fencing works along the McArthur River are expected to commence towards the end of the 2017-2018 wet season, subject to obtaining Aboriginal Areas Protection Authority (AAPA) approval to disturb land. MRM have already: <ul style="list-style-type: none"> <li>ordered the fencing material, with 50% of the stock already at the on-site nursery; and</li> <li>prepared the track for the fence line</li> </ul>
Implementation of dust management measures to reduce the risk of fauna coming into contact with lead impacted dust.	LOM	McArthur River Mining updated its Air Quality Management Plan (AQMP) during the preparation of the Supplementary EIS in consultation with the Department of Primary Industry and Resources (DPIR) and the Department of Environment and Natural Resources (DENR). The measures presented in the <b>Draft EIS Section 15.4</b> have been incorporated into the AQMP.

Commitment	Timeline	Current Status
<b>2. Vegetation</b>		
Progressive rehabilitation of disturbed areas will occur where possible.	From 2019	<p>The status of MRM’s 2017 rehabilitation program is as follows:</p> <ul style="list-style-type: none"> <li>• Approximately 80,000 trees have been planted on-site since March 2017.</li> <li>• Approximately 32 logs that form part of four large woody debris (LWD) sections have been placed in the McArthur River Diversion since March 2017 (refer to <b>Supplementary EIS Figure 8-2</b> below).</li> </ul>
The current Weed Management Plan will be adhered to and updated as required.	LOM	An updated Weed Management Plan was developed during the development of the Supplementary EIS <b>Appendix S - Weed Management Plan</b> .



Figure 8-2 McArthur River Diversion Channel

Table 8-3 Overburden Placement Commitments

Commitment	Timeline	Current Status
<b>Monitoring Commitments</b>		
<b>1. Existing Monitoring</b>		
All existing monitoring measures will continue to be implemented, including:		
<ul style="list-style-type: none"> <li>thermal monitoring to enable early detection of potentially problematic material</li> </ul>	Prior to and during drill and blast operations	Temperature monitoring procedures for Drill and Blast have been expanded and updated in 2017 to increase accuracy and coverage.
<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>	Daily until 2032	Daily inspections conducted by Mining Supervisor and Geology staff members.
<ul style="list-style-type: none"> <li>gas monitoring measurements on the overburden emplacement facilities including sulphur dioxide levels</li> </ul>	Daily until 2032	Daily inspections conducted by Mining Supervisor and Mining Safety.

Table 8-4 Cultural Heritage Commitments

Commitment	Timeline	Current Status
<b>Management Commitment</b>		
McArthur River Mining will seek permission from the Heritage Branch within the Department of Tourism and Culture to relocate MRM4 heritage site	2017	An application has been made to the Heritage Branch with an accompanying relocation plan.



Table 8-5 Socio-Economic Commitments

Commitment	Timeline	Current Status
<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	McArthur River Mining has continued to coordinate open community meetings throughout the preparation of the Supplementary EIS with the findings of these meetings presented in <b>Supplementary EIS Appendix Q – Updated Stakeholder Consultation Report.</b>
<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	<p>As part of the Supplementary EIS McArthur River Mining undertook additional consultation with the local community and other stakeholders (refer to <b>Supplementary EIS Appendix Q – Updated Stakeholder Consultation Report</b> for records of these consultations).</p> <p>Communication tools used included fact sheets, presentations, hotline/email, website, community app, YouTube, Site visits, Magazine, Q&amp;As, maps and diagrams, animations, 3D model, and community flash cards.</p>

Table 8-6 Air Quality Commitments

Commitment	Timeline	Current status
<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	The AQMP has been finalised in consultation with DPIR and DENR.

Table 8-7 Health and Safety Commitments

Commitment	Timeline	Current Status
A summary of proposed management measures for additional key project Health and Safety risks include:		
<ul style="list-style-type: none"> <li>Spontaneous combustion (NOEF) – a new design is proposed with the aim of securely encapsulating materials to limit the possibility of spontaneous combustion (refer to <b>Draft EIS Chapter 3 – Project Description and Justification</b> for design criteria).</li> </ul>	2018-2031	The segregation of material that has been classified as potentially acid forming (reactive) (PAF(RE)) and the design of PAF(RE) cells are as per the Draft EIS. However, the cover system design of the NOEF has been modified by replacing the proposed compacted clay layer (CCL) with a geosynthetic liner (GSL), which has a better performance as an oxygen and moisture barrier, significantly improving the control of spontaneous combustion risk.