

NOEF Independent Panel for McArthur River Mine - Terms of Reference

1. Background

McArthur River Mine is an open pit zinc, lead and silver mining operation in the Northern Territory (NT), located approximately 700 kilometres (km) south-east of Darwin, and approximately 45 km south-west of the township of Borroloola. McArthur River Mining Pty Ltd (MRM) is the authorised operator of McArthur River Mine, and is a wholly owned subsidiary of Glencore Plc.

The North Overburden Emplacement Facility (NOEF) at McArthur River Mine is the principal waste rock dump on the site and represents a geochemical hazard. As a corollary, operation of the NOEF is associated with significant environmental risks. Fundamental to the effective management of the risk is a comprehensive understanding of the geochemical composition of the waste material to ensure management systems effectively minimise, if not eliminate, aspects contributing to the risk.

The environmental objective against which the performance of the NOEF is measured is the protection of the health of the McArthur River along its entire length from mine related impacts¹.

In 2020 MRM submitted to the department for approval under the *Mining Management Act 2001* (MMA) NOEF designs to achieve secure storage of waste rock, reclassified under a robust 5-tier system that recognises the full spectrum of material contributing to the generation of acid and metalliferous drainage (AMD). The documents informing the approved Mining Management Plan presented three crucial actions to address identified risks in relation to:

1. **Management of AMD seepage during operations** with the design and staged construction of a new NOEF. Specific controls to manage and minimise seepage include:
 - a. progressive covering, sealing and rehabilitation of the NOEF
 - b. reducing infiltration by using compacted alluvium on potentially acid forming (PAF) cells, shaped geometrically and staged construction
 - c. installing liners in dams and associated drains from the NOEF
 - d. installing a layer of compacted in-situ clay or a constructed clay liner with a thickness of 0.5 metres (m) as a foundation during construction of new sections of the NOEF.
2. **Management of advection and potential reaction of waste rock.** Specific controls to manage advection include:
 - a. placement of waste rock in specified lift heights dependent on waste classification to limit air permeability, and placement of compacted alluvium as advection barriers on inter-stage faces of the NOEF, with a halo layer comprising non-acid-forming material providing a further barrier to oxygen flow
 - b. excavating, cooling and rehandling actively combusting material
 - c. reconfiguring berms and outer batter slopes of the NOEF to remove preferential air pathways and limit advection of air into the stockpile
 - d. placement of a barrier on the batter and plateau of the NOEF to further reduce bulk air transport into the stockpile.

¹ NT EPA Assessment Report 86, July 2018, Executive Summary page xii accessible at: https://ntepa.nt.gov.au/_data/assets/pdf_file/0004/553081/mrm_overburden_assessment_report.pdf

3. **Management of long-term seepage using a specifically designed cover system** such as a low-permeability surface cover to control long-term net percolation of water through the NOEF.

The NOEF Panel is a requirement of regulatory approvals to which McArthur River Mine is subject under the NT *Mining Management Act 2001*. Other regulatory approvals of relevance to operation of McArthur River Mine have been issued under the NT *Water Act 1992* and *Environment Protection Act 2019*, and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The importance of the NOEF Panel lies in providing external and transparent oversight and reporting, to advise the government on the performance of the NOEF.

2. Purpose

The purpose of the NOEF Panel is to provide the MMA regulator (the Minister for Mining and Industry) with robust, independent advice regarding the effectiveness of NOEF management– i.e. to provide the regulator with a reasonable level of confidence that waste rock is being stored securely and is not impacting the health of the McArthur River.

To achieve this purpose, the NOEF Panel will undertake a triennial technical review (once every three years) focused on the:

1. outcomes of the NOEF management program
2. NOEF seepage monitoring results and the appropriateness of the monitoring program
3. cover trial results, construction quality records, critical controls, stability assessments, cover performance and performance of progressive rehabilitation of the NOEF.

3. Scope

The NOEF Panel is not a decision-making or regulatory body.

The NOEF Panel is an independent advisory body, limited to providing technical assessment and advice regarding the performance of the NOEF.

Aspects of the NOEF for the NOEF Panel to consider in preparing their advice to the regulator are outlined in **Appendix A**.

At completion of each review, the NOEF Panel will submit to MRM and the department a report detailing the findings of their technical review of the performance of the NOEF, addressing at a minimum:

- *the stability, surface condition, internal temperature, reactions and seepage quantity and characteristics of the NOEF to ensure the overarching environmental outcome can be met*
- *runoff and seepage monitoring results, and in particular trends in the contaminant concentrations in groundwater, and loads entering creeks and the McArthur River*
- *cover trial results, construction quality records, critical controls, stability assessments, cover performance and performance of progressive rehabilitation of the NOEF.*²

The NOEF Panel will not undertake any contractual review or reporting regarding MRM operations during the interim period between each triennial review and reporting periods. It is acknowledged that members of the NOEF Panel may engage with the project between reviews for the purpose of

² NT EPA Recommendation 8, as reproduced in Excerpt 1.

maintaining a contemporary understanding of matters of importance. Such interactions will be recorded and provided to the department consistent with the Communication Protocol at Section 9.

Any review by the NOEF Panel of reports or methodology prepared by MRM would take place as part of the NOEF Panel's triennial review and reporting.

The NOEF Panel is to report on whether:

1. the design of the NOEF is consistent with best available practice
2. the design is suited to the particular circumstances of the site and operations
3. construction of the NOEF is proceeding in accordance with the approved design
4. the environmental outcomes as indicated by monitoring are in line with predictions and expectations
5. there are any significant issues affecting performance or future closure
6. the overarching environmental outcome of protecting the health of the McArthur River from mining related impacts attributable to the NOEF continue to be met
7. any other matters relating to the NOEF requiring attention as deemed appropriate by the NOEF Panel in consultation with the regulator.

4. Panel Membership

The NOEF Panel will be chaired by an independent technical expert appointed by the NT Minister for Mining and Industry in consultation with the NT Minister for Environment.

The NOEF Panel will comprise members who are recognised experts in their respective scientific field.

NOEF Panel members will be appointed by the Minister for Mining and Industry for each triennial review. Where appropriate, past panel members may be reappointed. The members appointed will bring a diversity of skills, experience and views from a range of scientific backgrounds of relevance to achieve delivery of the scope. At a minimum, the NOEF Panel will include hydrogeological, geotechnical and water quality data assessment skills and experience.

While membership of the NOEF Panel will be subject to change between three yearly reviews, the panel will be convened triennially for the life of the project, including during any period of care and maintenance.

To ensure independence is maintained, the intention is that members have:

- no pecuniary interest in McArthur River Mine
- had no professional involvement with MRM during the 3 year period under review other than in a peer review capacity.

It is acknowledged there are very few recognised experts with the required specialist knowledge able to fulfil the NOEF Panel requirements.

Should members have any (i.e. past/present/proposed) association with McArthur River Mine, the conflict of interest must be declared and reported to the Chairperson. The Chairperson will then make a recommendation to the department. The department will consider the recommendation and, based on available evidence and natural justice, take appropriate action.

The names and credentials of the NOEF Panel members will be published on an appropriate NT Government website.

5. Role of Chairperson

The Chairperson is to provide leadership to the NOEF Panel, including:

- advising members of their roles and responsibilities as members of the NOEF Panel
- developing the scope, content, assessment criteria and timeline for the review (for approval by the department)
- overseeing the preparation and submission of the draft and final reports
- overseeing the receipt of feedback provided by MRM and the department on the draft report and amendment of the report to the extent required to correct factual inaccuracies
- convening and running meetings as required, including overseeing that appropriate meeting records (e.g. minutes) and correspondence are kept
- arranging information requests and discussions with the department, and with other relevant groups through the department (see Section 6)
- being the point of contact for the NOEF Panel.

The Chairperson is to be a technical expert in their own right, performing the additional functions as outlined above.

6. Reporting Obligations and Process

The NOEF Panel must submit a report to MRM and the department within 12 months of establishment (or otherwise, as agreed with the department); and subsequently on a triennial basis from the date of the first report submission.

The report must detail the review assessment criteria and methodology; and the Panel's conclusions regarding the performance of the NOEF and its effectiveness in achieving the overarching environmental objective.

A draft report is to be submitted to MRM and the department for factual review two months prior to its final submission. The department will coordinate expert advice from relevant agencies as appropriate.

Should the NOEF Panel need to meet with other independent bodies (e.g. the Mine Closure Panel) or government agencies (e.g. the Department of Environment, Parks and Water Security, DEPWS) to discuss findings, this should be arranged in consultation with the department and MRM in accordance with the communication protocol outlined in Section 9, to ensure transparency and accountability.

The department will provide a copy of the final report to other regulators, the Community Reference Group and the Independent Monitor; and publish the report on the department's website.

The relationships between the NOEF Panel and various parties relative to regulatory requirements are depicted in Figure 1.

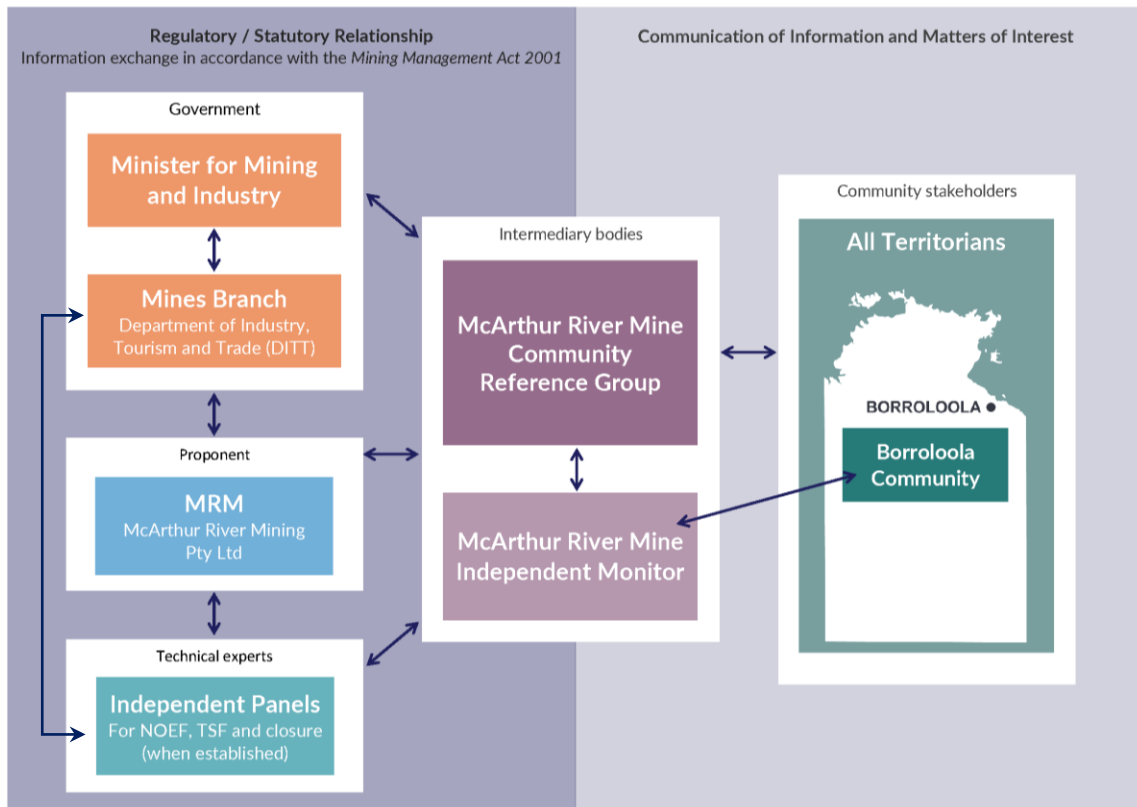


Figure 1: Relationships between governance bodies for McArthur River Mine

7. Period of Review

The structure of the NOEF Panel and its Terms of Reference shall be reviewed every six years³ from the date the Terms of Reference are finalised; or sooner, if required. Reviews are to be conducted by the NT Minister for Mining and Industry, in consultation with the NT Minister for Environment.

If the Chairperson has concerns about the effectiveness of the NOEF Panel, they may refer the matter to the department. The department will consider the concerns raised and determine what action should be taken.

8. Obligations of the Operator

MRM is required to:

1. assist as necessary with the establishment and operation of the NOEF Panel
2. fund reasonable costs for the NOEF Panel
3. organise site visits for the NOEF Panel as required to fulfil its role
4. provide the NOEF Panel with timely, accurate and comprehensive reports (including supporting data relevant to the NOEF) such as the:
 - annual Environmental Mining Report⁴
 - NOEF construction reports and monitoring data

³ NT EPA Recommendation 8, as reproduced in Excerpt 1.

⁴ A requirement under section 37(3)(e) of the *Mining Management Act 2001*.

- approved Mining Management Plan and other relevant plans (including the Adaptive Management Plan).
5. provide the NOEF Panel with timely and accurate monitoring data relevant to NOEF performance (as deemed by the NOEF Panel) as soon as practicable in light of the request made, and in any event no later than 28 days of receiving the request.
 6. respond to questions asked or advice given by the NOEF Panel about MRM’s environmental within 28 days of receiving the request.

9. Communication Protocol

Table 1 outlines a protocol for any communication that takes place between MRM, the NOEF Panel and other relevant bodies. The intent of the communication protocol is to ensure a transparent process is followed and the NOEF Panel can be seen to operate independently.

Table 1: Communication Protocol

Relevant Matter	Approved Communication Method	Other Requirements
Request from Panel for reports and data from MRM	Chairperson to contact MRM directly via email	Copy to be sent to the department
Provision of reports and data from MRM to Panel	MRM to provide directly to Chairperson via email	Copy to be sent to the department
Clarification/discussions	Direct discussion between Panel and MRM to address issues raised by Panel Direct discussion between Panel and the department Department to facilitate discussion between Panel and other agencies, panels and the IM (as required).	The department to be informed of engagement where it relates to report findings/conclusions
Provision of draft reports/findings by Panel	Chairperson to issue directly to MRM	Copy to be sent to the department (and circulated by the department to the Independent Monitor and Community Reference Group as appropriate)
Provision of comments on draft reports/findings by MRM	MRM to issue to Chairperson	Copy to be sent to the department
Provision of final report by Panel	Chairperson to issue to MRM and the department	The department to distribute report to DEPWS, Independent Monitor and Community Reference Group and publish the report on the department’s website
Panel site visits/other meetings	Chairperson to inform the department of proposed site visits/meetings and arrange with MRM directly	The department to be offered opportunity to participate in site visits/meetings

Other communication methods not outlined in this protocol may be used upon endorsement by the department.

Relevant Excerpts

Excerpt 1 – NT EPA Assessment Report 86 Recommendation 8⁵

Approvals and decisions in relation to the Proposal will include conditions required the Proponents⁶ to provide funding to establish and operate a Panel of independent experts to:

- i. review every three years the outcomes of the Proponent's Management program for the NOEF, including the stability, surface condition, internal temperature, reactions and seepage quantity and characteristics of the NOEF to ensure the overarching environmental outcome can be met*
- ii. review NOEF runoff and seepage monitoring results, and in particular trends in the contaminant concentrations in groundwater, and loads entering creeks and the McArthur River*
- iii. review the cover trial results, construction quality records, critical controls, stability assessments, cover performance and performance of progressive rehabilitation of the NOEF.*

The Panel shall provide a report every three years to the relevant regulator and the Independent Monitor and the report made available to the Proponent, government agencies, the Community Reference Group and the public.

The Panel is to be formed:

- iv. with an independent chair, appointed by the responsible Minister in consultation with the Minister for Environment and Natural Resources*
- v. on the advice of the Department of Environment and Natural Resources, the Department of Primary Industry and Resources, and the Proponent.*

Terms of Reference for the Panel shall set out the terms for roles and responsibilities, membership, timeframe for commencement and scope, reporting obligations and transparency and accountability. The Terms of Reference shall be finalised by the responsible Minister, in consultation with the Minister for Environment and Natural Resources acting on advice from the NT EPA, within three months of authorisation of the Proposal.

The structure of the Panel and its Terms of Reference shall be reviewed by the Responsible Minister, in consultation with the Minister for Environment and Natural Resources every six years from the date the Terms of Reference are finalised.

⁵ NT EPA Assessment Report 86, July 2018, Executive Summary page xvi accessible at: https://ntepa.nt.gov.au/_data/assets/pdf_file/0004/553081/mrm_overburden_assessment_report.pdf

⁶ NT EPA documentation refers to the Proponent. Under the *Mining Management Act 2001*, MRM is the operator authorised to undertake the mining activities proposed in the approved Mining Management Plan.

Appendix A: Matters for consideration by the NOEF Panel

Key aspects for consideration by the NOEF Panel in their review of the performance of the NOEF against the objective of protecting the health of the McArthur River from mining related impacts:

1. **Construction:** Review NOEF Management Plan with respect to construction/engineering matters relating attention to:
 - a. structural and internal stability and surface condition by reference to approved designs and construction specifications for:
 - i. foundations including basal compacted clay liner
 - ii. advection barriers
 - iii. potentially acid forming (PAF) reactive (RE) cell
 - iv. internal halo
 - v. covers
 - vi. Independent Certifying Engineer⁷ (ICE) signoff records for hold points
 - vii. materials tracking and placement against Sulfur-block model
 - b. material identification and placement by reference to:
 - i. approved waste classification criteria
 - ii. internal temperatures
 - iii. seepage quantities and quality
 - iv. ICE signoff records for hold points
 - v. materials tracking and placement against Sulfur-block model
 - c. risk management and control
 - i. adequacy of existing controls and requirements of the seepage interception system
 - d. implications for the approved AMP and any requirement for amendment
2. **Performance:** Review of NOEF Performance giving consideration to:
 - a. Runoff and seepage monitoring results
 - b. Status of convective oxidation with respect to:
 - i. advection barriers
 - ii. material placement lift heights
 - iii. internal temperatures
 - iv. seepage quantities
 - v. materials tracking and placement against S-block model
3. **Rehabilitation:** Review of cover system and related works giving consideration to:
 - a. rehabilitation trials and outcomes of liner testing

⁷ Condition 48 of Authorisation 0059

- b. rehabilitation trials and outcomes of constructability test pads
- c. knowledge gaps and timelines to completion.