



**GUIDELINES FOR PREPARATION OF A PUBLIC  
ENVIRONMENTAL REPORT**

**McARTHUR RIVER MINE EXPANSION**

**May 2006**

**ENVIRONMENT PROTECTION AGENCY  
PROGRAM**



**Northern Territory Government**  
Department of Natural Resources, Environment and the Arts

## 1 Purpose & Legislative Requirements

The proposed expansion of the McArthur River Mine by McArthur River Mining Joint Venture (MRM) (“proponent”), which is wholly owned subsidiary of Xstrata, has been assessed under the *Environmental Assessment Act* at the level of an Environmental Impact Statement (EIS). The Minister for Natural Resources, Environment and Heritage (the Minister), under clause 14 of the Environmental Assessment Administrative Procedures of the *Environmental Assessment Act* (the “Administrative Procedures”) recommended to the Responsible Minister (the Minister for Mines and Energy) that the proposal as outlined in the EIS (the draft EIS and its Supplement) should not proceed. Assessment Report 51 outlined the findings of the Minister, raising a number of issues of concern, including the proposed engineering of the McArthur River and Barney Creek diversions.

As a consequence, the Minister for Mines and Energy informed the proponent that these outstanding environmental issues needed to be resolved to the satisfaction of the Minister for Natural Resources, Environment and Heritage before he could consider whether or not the mine should be authorised to expand to open cut.

The proponent has formally notified the Minister and the Responsible Minister of their intention to amend the proposal under clause 14A of the Administrative Procedures to address the concerns raised in Assessment Report 51. The Minister has determined that the proposed alterations are to be formally assessed under the *Environmental Assessment Act* at the level of a Public Environmental Report (PER).

These Guidelines have been developed to assist the proponent in preparing a PER for the amendments to the proposed expansion to the McArthur River Mine in accordance with Clause 8 of the Administrative Procedures. The Administrative Procedures state that the Minister will specify the following in the direction to the proponent:

- the matters relating to the environment which the proponent shall deal with in the PER;
- the timeframe for submitting the report to the Minister;
- the number of copies of the report to be provided to the Minister/responsible Minister/other agencies and persons;
- the newspapers in which, and occasions when, the proponent will publish a notice making the PER available for public comment.

## 2 General

The PER needs to demonstrate that the findings of the Assessment Report 51 have been examined and addressed by the proponent through the collection of further appropriate data, the provision of supporting information, the redesign of the proposal, the preparation and demonstration of appropriate management measures (including plans and strategies), the proposed monitoring plans to be implemented and the formulation of contingency plans (where appropriate).

### **3 The Proposal**

Identify and describe the proposed alteration(s) to the expansion proposal which prompted the clause 14A notification under the *Environmental Assessment Act*. This should include changes to the nature and extent of proposed works and the change in environmental significance of the proposal by virtue of the alterations.

An explanation of the objectives, benefits, costs and justifications for the alterations to the project should also be included.

### **4 Alternatives**

Alternative proposals, which may still allow the objectives of the project to be met, should be discussed, detailing reasons for the selection and rejection of particular options. The short, medium and long-term potential beneficial and adverse impacts of each of the options should be considered.

### **5 Diversion of the McArthur River and Barney Creek**

*Section 4.2 and Appendix 1, Assessment Report 51*

#### **5.1 McArthur River**

Provide details of the design measures and proposed management strategies to demonstrate that downstream and upstream impacts to the McArthur River system, and impacts to the diversion channel, are minimised in any altered diversion design taking into account the issues raised in Appendix 1 of Assessment Report 51. The potential for disturbance to sacred sites must also be taken into account in design changes.

The proponent needs to demonstrate that:-

- The river diversion channel is able to be maintained over the mine life and is self-sustainable at mine closure, requiring no periodic, long term intervention, with specific consideration to bankfull flooding events as well as the larger flooding events (up to 1 in 500 year ARI);
- The river diversion will not impact on other mine components, including the flood protection bund, during flood events;
- River morphology upstream and downstream of the realignment can be maintained during mine life and after mine closure;
- The aquatic habitat integrity can be maintained both downstream (including estuarine, wetland and coastal areas) and upstream through the life of the mine and after mine closure; and
- A functioning aquatic, riparian and riverine system in the diverted river channel is able to be established and sustained within a timeframe that would not cause fragmentation of fauna populations in the medium- to long-terms.

The proponent needs to provide detailed characterisation of the in-stream and riparian habitats of the existing river channel and detailed biological design specifications proposed for the realigned channel.

## 5.2 Barney and Surprise Creeks

The proponent is to provide details of the proposed diversion of Barney and Surprise Creeks to demonstrate that it will not impact on other mine components, including the flood protection bunds and the overburden emplacement facility (OEF), during flood events. In particular, details of the design for the diversion channels should be outlined.

Provide appropriate information for the Barney and Surprise Creeks diversion channel, including hydrological and geomorphological information to support the proposed diversion. Backwater conditions from the McArthur River are unlikely during tropical cyclones which move from the Gulf across land. All hydraulic modelling should assume no backwater.

## 6 Waste Management

*Section 4.3, Assessment Report 51*

The proponent is to describe preventative measures and strategies proposed to ensure that contaminants mobilised from overburden in the overburden emplacement facilities and any other areas where overburden has been used for mine structures or otherwise, will not enter the McArthur River.

Undertake and provide results, if available, of leach testing of any overburden material to be used for construction of mine structures or placed within the OEF to determine the potential for metal mobilisation from the material, including non-acid forming (NAF) waste.

Provide a risk management strategy with detailed contingency options in the event that non-acidic drainage is found to be a potential source of contaminants.

## 7 Tailings Storage Facility

*Sections 4.3.2 and 4.7.2, Assessment Report 51*

The proponent is to provide details of the proposed design, and operational and management strategies of the tailings storage facility (TSF), including ongoing maintenance and monitoring requirements (beyond mine life), to demonstrate that it will not impact on the receiving environment..

The proponent is to discuss alternative methods of seepage control from the tailings storage facility and identify the risks associated with the controls. In identifying the preferred management approach, the proponent is to:-

- demonstrate the feasibility of approach in the long-term (after mine closure), accounting for ongoing costs; and
- demonstrate that the risk of impacts to the receiving environment will be minimal, including but not limited to the risks to surface water, groundwater and soils of contamination from tailings. If groundwater recovery systems are

to be used, the proponent needs to consider the possible drawdown impacts to surrounding groundwater resources and the potential flow on effects including impacts on biota and environmental flows. The proponent should consider undertaking numerical modelling in addressing these issues.

The proponent is to undertake modelling of the proposed tailings storage facility to account for best- and worst-case scenarios into the long term (>30 years) to determine the risk of these scenarios occurring and the predicted probable environmental impact. Management options for minimization of the risks of any adverse environmental impacts occurring should be presented.

The proponent is to provide details of the proposed disposal of contaminated sludge in the TSF and the medium and long term implications for the receiving environment of this sludge disposal on seepage from the TSF.

## **8 Surface Water**

### *Section 4.4 Assessment Report 51*

The proponent is to demonstrate that the potential for contaminants entering the aquatic environment (including freshwater and saltwater) will be minimal.

### **8.1 Water and sediment quality**

Provide details of the management measures proposed to minimise the potential for contaminants entering the aquatic environment.

- Further investigation is required to determine the potential for ongoing transport of metals into the aquatic environment from material used to construct mine components including the OEF, the TSF embankments, the excavated material from the realignments and the flood protection bund.
- Discuss the fate of metal species derived from the exposure of mine mineralisation in the receiving environment including the long-term impacts to downstream biota.
- Detail the monitoring that would be implemented for any material including NAF products from mine site components and the contingencies in the event that elevated metals or other contamination is identified..
- Sediment data is required from the freshwater reaches of the McArthur River downstream of the mine and from appropriate upstream locations to determine the presence of contaminants from the existing mining activities, to estimate the potential for further contamination of sediments from any proposed open cut mine activities and to inform any future monitoring program.
- Dilution/hydraulic modelling is required to determine appropriate minimum river flow/stage height requirements for a discharge regime to deal with any diluted TSF effluents that may need to be discharged during heavy rainfall events.
- Provide details on the proposed expansion to the monitoring program for the McArthur River estuary and Sir Edward Pellew Islands.

### **8.2 Flood protection bund**

The proponent is to demonstrate that the integrity of the flood protection bund can be maintained in the short- and long-terms during flood events, including the northern wall of the bund that is proposed to protect the mine infrastructure from flooding in the realigned Barney Creek channel.

Detail contingencies in the event that the flood bund is breached. Include potential impacts on, and measures for clean-up and rehabilitation of, the downstream environment should sediment loads from eroded bund material impact the McArthur River or contamination of the aquatic environment occur.

## **9 Groundwater**

Discuss the possible ecological impacts associated with drawdown on Djirrinmini waterhole (a registered sacred site) during a period when it will be most stressed. This information can inform future baseline data collection and a monitoring program.

Discuss the ecological impacts of the extension of the no-flow period in the McArthur River in light of revised hydrological modelling.

## **10 Biology**

A preliminary assessment of the potential for the project to impact on the Freshwater Sawfish *Pristis microdon* must be presented, and management and mitigation measures to minimise these impacts needs to be provided.

An assessment of the potential for the project to impact on the threatened White-browed Robin must be presented and measures to minimise these impacts provided.

Provide information on the potential impacts of the Bing Bong Port operation on migratory bird species and include a program to monitor these impacts.

## **11 Heritage**

Present options for the preservation of archaeological site MRM4. Provide information on the consultations undertaken with the Traditional Owners regarding the possible cultural significance of this site.

## **12 Social Impact**

The proponent should provide a community engagement strategy to be implemented for the life of the mine, outlining appropriate mechanisms for communication with all stakeholders (ensuring effective community and language group representation).

Describe the likely economic and social benefits and contribution of the project to the local region and its communities (including the Sir Edward Pellew Islands) with particular consideration given to opportunities for local industry and Indigenous workforce participation in the construction, future operation and servicing of the mine including outlining how any potential local business and employment opportunities will be identified, communicated and managed. Consideration needs to be given to how economic input to the region's communities is to be managed.

## 13 EPBC Act matters

The proponent should address the information requirements of the Australian Government Department of the Environment and Heritage within the PER document.

## 14 Administration

The nominated Action Officer for this project is Mr Rod Johnson from the Environment Protection Agency Program, Department of Natural Resources, Environment and the Arts (NRETA). The contact telephone number is (08) 8924 4139 and facsimile number (08) 8924 4053, e-mail: roderick.johnson@nt.gov.au.

Copies of the final guidelines will be posted on the NRETA website at:

[http:// www.nt.gov.au/nreta/environment/assessment/register](http://www.nt.gov.au/nreta/environment/assessment/register)

Approximately 28 bound copies of the PER will be required for distribution to the Australian and NT Government and advisory bodies. In addition, 8 CD ROM copies (in ADOBE\*.pdf format) plus two unsecured Microsoft Word copies should be submitted (to allow placement on the Office's Internet site and to facilitate production of the Assessment Report and Recommendations).

The proponent has the responsibility of advertising the public exhibition of the PER in Territory and National newspapers. The proponent is required to place the PER on public exhibition for a 4 week period. The PER is to be made available for public viewing at the following locations:

- Northern Territory Library, Parliament House, Cnr Bennett and Mitchell Streets, Darwin NT;
- Darwin Public Library, Civic Centre, Harry Chan Avenue, Darwin NT;
- Casuarina Public Library, Bradshaw Terrace, Casuarina, NT;
- Palmerston Public Library, Civic Plaza, Cnr University Avenue and Chung Wah Terrace, Palmerston, NT;
- Commonwealth Department of the Environment and Heritage Library, John Gorton Building, King Edward Terrace, Parkes, ACT;
- Information NT, Palmerston Shopping Centre;
- Department of Planning and Infrastructure, Cavenagh House, Cavenagh Street, Darwin, NT; and
- Locations within the Borroloola township as appropriate.

In accordance with clause 8(6(c)) of the Environmental Assessment Administrative Procedures, the proponent shall also provide a copy of the PER to the following organisations and persons for comment:

- The Environment Centre of the Northern Territory;

- The Northern Land Council;
- Australian Aboriginal Protection Authority;
- Mabunji Aboriginal Resource Association;
- The McArthur River Mining Community Reference Group;
- MAWA;
- The Borroloola Community Government; and
- The Department of the Environment and Heritage (Australian Government).

The proponent should also consider producing at least several copies for direct sale to the public, on request.