1 Scope and purpose
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Appendix 1.1: Ranger 2019 Mine Closure Plan stakeholder feedback form

Cover photograph: Varied Triller (Lalage leucomela) on Scarlet Gum (Eucalyptus phoenicea) on Trial Landform
1 SCOPE AND PURPOSE

This Mine Closure Plan (MCP) is prepared by Energy Resources of Australia Ltd (ERA) to meet its territory and federal regulatory obligations and conditions, as described below. The MCP is prepared for the Minister of Resources and Northern Australia (Commonwealth) and the Minister for Primary Industry and Resources (NT) to meet condition Annex B.2 of the Ranger Authority (Section 3).

1.1 Background

The Ranger uranium mine (Ranger Mine) (Figure 1-1) is located within the Ranger Project Area (RPA) adjacent to Jabiru, approximately 260 km east of Darwin in the Alligator Rivers Region of the Northern Territory (Figure 1-2). The RPA (Figure 1-3) is surrounded by Kakadu National Park (NP) and is bounded on the east and north by Magela Creek and its tributaries, and on the west by Gulungul Creek and its tributaries. Access to the mine is via the Arnhem Highway.

ERA has owned and operated the Ranger Mine since the commencement of operations in 1980. ERA has provided international customers with reliable supply of uranium oxide in the 38 years since production began. Ranger Mine has produced in excess of 129,000 T of uranium (ERA 2019) to meet the world’s uranium demand for fuelling nuclear power plants. ERA production is supplied to power utilities in Asia, Europe and North America in accordance with strict international and Australian safeguards. ERA shares are publicly held and traded on the Australian Securities Exchange, with Rio Tinto, a diversified resources group, currently holding 68.4 per cent of ERA shares.

Operations at the Ranger Mine are governed by both Australian and Northern Territory legislation and regulations. Details of the legal obligations of the closure of the Ranger Mine are detailed in Section 3. The key instrument that governs operations at the Ranger Mine on a day-to-day basis is the authority (the Ranger Authorisation) issued under the Northern Territory’s Mining Management Act 2018 (Mining Management Act). The main Commonwealth authority issued under section 41 of the Atomic Energy Act 1953 (Cth) (Atomic Energy Act), provides the key tenure and land access approval required for the operations (the section 41 Authority). The Ranger Environmental Requirements (ERs) are attached to the section 41 Authority and set out environmental objectives which establish the principles by which the Ranger mining operation is to be conducted, closed and rehabilitated and the standards that are to be achieved. The Mining Management Act also requires the Ranger Authorisation to incorporate, by reference, the ERs.

Figure 1-1: Oblique view of Ranger Mine 2019
Figure 1-2: Regional location of Ranger Project Area
Figure 1-3: Ranger Mine Project Area
1.2 Purpose of this MCP

The MCP has been prepared as part of ERA's obligations under the Mining Management Act. It describes the ERA mine closure strategy for the Ranger Mine as at 30 June 2019. This strategy has been developed following extensive scientific research, engineering design and stakeholder consultation over the past 30 years. This MCP is an updated version of previous iterations presented to stakeholders (e.g. McGovern 2006, Puhalovich & Pugh 2007 and ERA 2018).

The MCP represents the updated Ranger Mine closure strategy following the finalisation of the closure Feasibility Study for the rehabilitation of the RPA (Feasibility Study). ERA, supported by an experienced engineering service provider, undertook the Feasibility Study to further refine scheduled rehabilitation activities and plans. This Feasibility Study, which developed the technical, costing and scheduling aspects of Ranger Mine closure to a very high level of detail, was subject to scrutiny from multiple internal and external reviews, including the Rio Tinto Technical Evaluation Group. The strategy has been developed in line with the overall goal for the final land use, as specified in clause 2.1 of the ERs:

> 2.1 … the company must rehabilitate the Ranger Project Area to establish an environment similar to the adjacent areas of Kakadu National Park such that, in the opinion of the Minister with the advice of the Supervising Scientist, the rehabilitated area could be incorporated into the Kakadu National Park.

As well as providing a concise description of the closure strategy, the MCP includes an overview of the rationale and knowledge base used for the development of the document. It is acknowledged that further studies and works are ongoing, and that these will be utilised to feedback and further develop the annual updates of the MCP.

Mine rehabilitation at the Ranger Mine is governed by several statutory approvals, including the Ranger Authorisation, the section 41 Authority and the ERs. Legal requirements for the assessment and approval of rehabilitation plans are prescribed in each of these documents, as well as separate working arrangements and a memorandum of understanding between the Commonwealth and NT Governments.

1.2.1 Ranger Authorisation and Mining Management Act

A variation of the state issued Authorisation (0108) was issued on 22 June 2018 and included Annex B, which details the process for submission and assessment of the MCP (also referred to as a ‘rehabilitation plan’) in accordance with Section 34 of the Mining Management Act. It is now a requirement that the MCP is reviewed and updated annually with submission to the Commonwealth Minister and the NT Minister due on or before 1 October each year. The MCP must demonstrate closure activities will achieve the relevant ERs and include:

- identification and management of closure issues, in particular, environmental and regulatory risks
- key closure and monitoring activities with indicative timing, and
- summary of closure works undertaken in the previous 12 months.
After the MCP has been received by the Ministers, it is subject to review by the Supervising Scientist, Northern Land Council (NLC) and Gundjeihmi Aboriginal Corporation (GAC) with advice then provided by these stakeholders to both Ministers. The Commonwealth and NT Ministers are then responsible for approving the MCP.

Other changes to the Authorisation were generally a reorganisation of conditions, e.g. ERs as Annex A (previously included as an appendix to the Authorisation), water quality objectives as Annex C and adherence to a Process Safety Management System.

1.2.2 Section 41 Authority and ERs

The ERs are appended to the Commonwealth issued section 41 Authority. Clause 9.1 of the ERs requires ERA to prepare a 'rehabilitation plan' which 'provides for progressive rehabilitation' and achieves the 'major objectives of rehabilitation' outlined in clause 2.2. The major objectives of rehabilitation are to include:

- the revegetation of disturbed sites at the Ranger Mine are to form an ecosystem that could be maintained/managed in a similar way to that of adjacent areas of the Kakadu National Park
- stable radiological conditions result from the rehabilitation of the site, and
- erosion characteristics of rehabilitated sites are similar to those in adjacent undisturbed areas.

The requirements for the rehabilitation plan within the section 41 Authority are more broadly based than those of the Authorisation (discussed in Section 6).

All progressive rehabilitation must also be approved by the Supervising Authority on the advice of the Supervising Scientist and is also subject to the NLC agreeing that the aim and objectives for rehabilitation have been met. The Supervising Authority is the person responsible under an applicable law (with relevance to Atomic Energy Act 1953, Environment Protection (Alligator Rivers Region) Act 1978, Uranium Mining (Environment Control) Act 1979 etc.) or, where no law applies, the Supervising Scientist.

The parallel NT and Commonwealth legislative approvals processes that relate to mine closure activities at the Ranger Mine are complex. Section 3 and appendices provides further details on the complexities of the legislative framework.

1.2.3 Government Agreement

In addition to the statutory obligations outlined above, and separate to this MCP, each year ERA prepares and submits an annual plan of rehabilitation (APR) to the responsible Commonwealth Minister for assessment and approval in accordance with the Ranger Uranium Project Agreement between ERA and the Commonwealth Government (Government Agreement). The specific purpose of the APR is to determine the securities amount to be held by the Commonwealth Government for Range Mine rehabilitation obligations; these funds are held in the Ranger Rehabilitation Trust Fund. Once the APR is accepted by the Commonwealth Government, the APR is independently assessed and costed and the amount to be provided...
by ERA into the Ranger Rehabilitation Trust Fund is determined. Section 13 describes the current financial provision for closure.

1.3 Scope of this MCP

This MCP covers the RPA, which specifically refers to the following areas and assets:

- Ranger Mine infrastructure, mine pit voids, Tailings Storage Facility (TSF), the exploration decline and all associated utilities within the operational area of the Ranger Mine.
- land application areas, wetland filters and other infrastructure associated with the Ranger Mine.

The MCP is prepared in accordance with the obligations and commitments outlined in Section 3. It is also prepared with reference to mine closure standards and guidelines, also included in Section 3.

The following areas and assets are not considered by this MCP:

- the town of Jabiru: The Commonwealth Government's Director of National Parks has leased land for the town to the Jabiru Town Development Authority (JTDA), which has subleased parts of Jabiru to ERA. ERA and the JTDA are also party to a cost sharing agreement. Under these arrangements, which are due to expire in 2021, ERA has certain obligations to remove town assets and rehabilitate the land, if required. Discussions are underway between ERA, the relevant Commonwealth and NT Government agencies and key stakeholders to retain the existing township and associated infrastructure, given its significance as a tourist and business hub for the surrounding Kakadu National Park.
- Jabiru Airport and associated infrastructure and utilities: discussions are progressing between ERA, Traditional Owner representatives and relevant government agencies to plan for the retention and transfer of the airport for future use. These discussions will include resolution of any rehabilitation obligations.
- the infrastructure located on the RPA immediately south of the Jabiru Airport, identified as the Jabiru field station currently occupied by the Supervising Scientist Branch.

ERA has defined the closure and rehabilitation activities in the phases outlined in Table 1-1. This terminology is used throughout this MCP.
Table 1-1: Timelines of the operations and closure phases of the Ranger Mine

<table>
<thead>
<tr>
<th>Operations &amp; Closure Phase</th>
<th>Timeline</th>
<th>Closure Related Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operations</td>
<td>Period prior to 8 January 2021</td>
<td>Progressive rehabilitation occurring, and operational, closure &amp; research monitoring</td>
</tr>
<tr>
<td>Closure</td>
<td>Period between 8 January 2021 &amp; 8 January 2026</td>
<td>Decommissioning, completion of rehabilitation &amp; transition of monitoring requirements</td>
</tr>
<tr>
<td>Post-closure</td>
<td>Period after 8 January 2026</td>
<td>Completion criteria monitoring (and maintenance rehabilitation works if required) [note – access to site still to be permitted]</td>
</tr>
<tr>
<td>Relinquishment</td>
<td>Issue of close out-certificate(s)</td>
<td>May occur for areas rather than entire RPA at single point in time</td>
</tr>
</tbody>
</table>

1.4 Review and updates

As closure activities progress, and at least annually (in accordance with the Ranger Authorisation), this MCP will be reviewed and updated to reflect changes that have occurred. Where a substantial or material change to the closure strategy described herein is required, ERA will submit a revision and seek approval from the Supervising Authority.

Subsequent to the distribution of a draft of the MCP to stakeholders in December 2016, several aspects of rehabilitation/closure activities were identified for standalone assessment via the Mine Technical Committee (MTC)\(^2\). These activities were identified during the stakeholder workshop held in May 2017 and include:

- final landform and revegetation.
- whole of Pit 3 closure.
- Ranger 3 Deeps exploration decline and portal (backfill plan).
- TSF deconstruction.
- completed closure works final report.

Section 11 addresses closure implementation and includes outlined schedules for the rehabilitation activities with the agreed assessment process and the draft content proposed for each additional application required for closure activities.

The 2018 MCP was subject to stakeholder review and detailed feedback has been considered for the preparation of this document (Appendix A). The 2019 MCP incorporates substantive changes in content compared to the 2018 version, as outlined in the summary of changes table at the front of this document.

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\(^2\) The functions of the MTC and other ERA key stakeholders are described in Section 5.
In reviewing this 2019 MCP, stakeholders are requested to utilise the form provided in Appendix 1.1 for feedback for consideration in the next annual review process.

1.5 **Content and structure of this MCP**

The Western Australian (WA) Guidelines (DME & EPA 2015) provide a preferred structure for MCPs which is generally consistent with the mine closure planning process. This preferred structure has been used as the basis for this MCP as required by the Authorisation but has been adjusted to suit the unique circumstances of the Ranger Mine. The structure of this MCP, along with an overview of the content of each section, is provided in Table 1-2.

<table>
<thead>
<tr>
<th>Section</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Scope and purpose</td>
<td>Introduction to the Ranger Mine, including its location and history, purpose of the document, relevant guidelines and standards, scope of this MCP. Includes details on regulatory complexities and future standalone closure assessments via the MTC approvals process.</td>
</tr>
<tr>
<td>2. Project overview</td>
<td>An historical overview of the Ranger Mine ore deposits and mine development, including a description of the current mining operations and major mine components/infrastructure.</td>
</tr>
<tr>
<td>3. Closure obligations and commitments</td>
<td>Presents the legal obligations, commitments, standards and guidelines as relevant to the Ranger Mine closure.</td>
</tr>
<tr>
<td>4. Environmental and social setting</td>
<td>Overview of the existing environment of the Ranger Mine in relation to the local and regional setting, including the nearby sensitive receptors.</td>
</tr>
<tr>
<td>5. Stakeholder engagement</td>
<td>Description of the stakeholder engagement process and details of the stakeholder engagement register for matters relating to rehabilitation and closure with the stakeholder engagement register provided as an appendix to this chapter.</td>
</tr>
<tr>
<td>6. Post-mining land use and closure objectives</td>
<td>Description of the agreed post-mining land use and closure objectives.</td>
</tr>
<tr>
<td>7. Supporting studies</td>
<td>Summary of the extensive studies and research that have contributed to the risk assessment, closure criteria and proposed closure strategy. A link of studies to Key Knowledge Needs is included as Appendix 7.1.</td>
</tr>
<tr>
<td>8. Closure completion criteria</td>
<td>Description of the closure criteria that will be used to measure rehabilitation success and demonstrate the closure objectives have been met. This section includes an overview of the current status of closure criteria (at 30 June 2019).</td>
</tr>
<tr>
<td>Section</td>
<td>Content</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>10. Risk assessment and management</td>
<td>Description and outcomes of the closure risk assessments.</td>
</tr>
<tr>
<td>11. Closure implementation</td>
<td>Description of the proposed closure strategy, which was informed by the risk assessment and supporting studies. Includes details on the proposed schedule and revegetation strategy.</td>
</tr>
<tr>
<td>12. Closure monitoring</td>
<td>Description of the monitoring programs currently being undertaken, or proposed, to track the progress of the rehabilitation against the closure criteria.</td>
</tr>
<tr>
<td>13. Financial provision for closure</td>
<td>Provides the rehabilitation provision based on estimates of costs and their timing to rehabilitate and restore disturbed land to original condition.</td>
</tr>
<tr>
<td>14. Management of information and data</td>
<td>Description of management strategies, including systems and processes for the retention of mine records relevant to mine closure.</td>
</tr>
</tbody>
</table>
1.6 References


APPENDIX 1.1: RANGER 2019 MINE CLOSURE PLAN
STAKEHOLDER FEEDBACK FORM
2019 Ranger Mine Closure Plan Stakeholder Feedback

| STAKEHOLDER: Insert stakeholder details e.g. Supervising Scientist Branch |
|---|---|---|
| MCP Section/subsection | MCP page No. | Query/comment |
| e.g. S1, 1.3.2 | 1-13 | More information is requested regarding ...... |