ERA Energy Resources of Australia Ltd

# Chapter 1 Introduction, Purpose and Scope

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# 1 INTRODUCTION, PURPOSE AND SCOPE

## 1.1 Background

The Ranger uranium mine (Ranger/Ranger mine) is located within the Ranger Project Area (RPA) adjacent to Jabiru, approximately 260 kilometres east of Darwin in the Alligator Rivers Region of the Northern Territory (Figures 1-1 and 1-2). The RPA is surrounded by Kakadu National Park (KNP), 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.

Energy Resources of Australia Ltd (ERA) has owned and operated the Ranger mine since the commencement of operations in 1980. Ranger has been one of Australia's major uranium producers, providing approximately 11 percent of 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‘s 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 Ranger are governed by both Australian and Northern Territory legislation and regulations. 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 2001* (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 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.

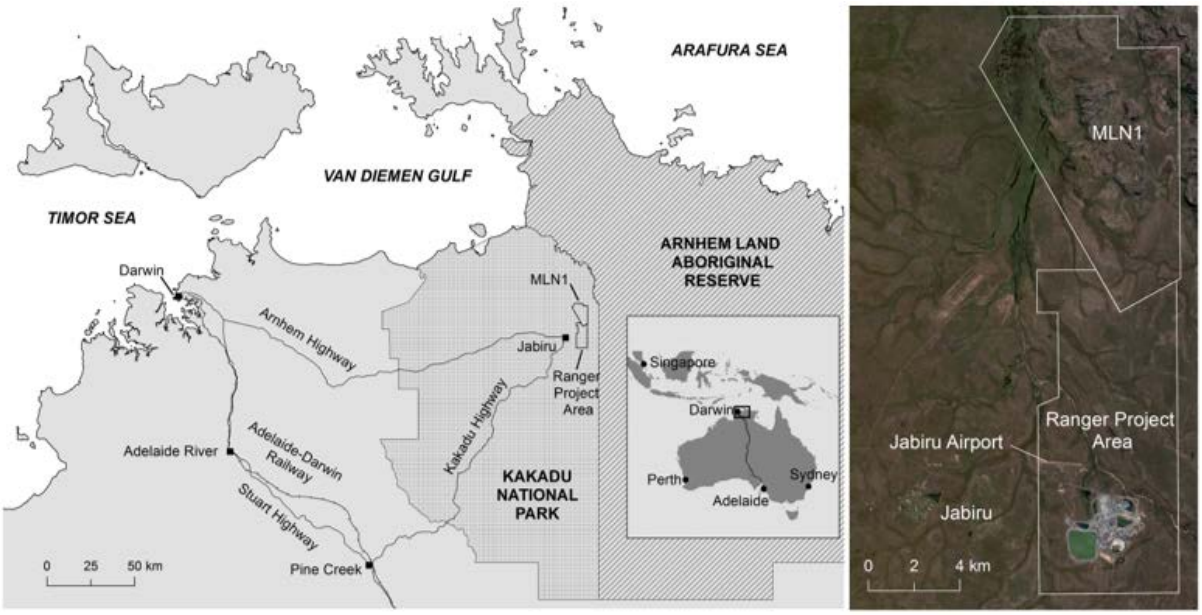


Figure 1-1: Ranger uranium mine location

Figure 1-2: Oblique view of the current Ranger uranium mine site (2015)

Under current operational approvals, ERA is permitted to undertake mining and milling activities in the RPA until 8 January 2021, with final rehabilitation and closure activities to be completed by 8 January 2026. This Mine Closure Plan (MCP) supersedes previous versions of Ranger closure documents (e.g. McGovern, 2006, Puhalovich & Pugh, 2007).

## 1.2 Purpose of this MCP

The MCP has been prepared as part of ERA's obligations under the Mining Management Act. It describes ERA's mine closure strategy, including progress on closure criteria, as at 31 December 2017. 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. It represents the Ranger closure strategy to a prefeasibility study level and has undergone a rigorous assessment by 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 ERA's closure strategy as at 31 December 2017, this MCP includes an overview of the contributions made to its development, with reference to further information where applicable. As further works and reviews are carried out, the plan will be updated accordingly.

Ranger mine rehabilitation is governed by a number of 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

The Ranger Authorisation requires ERA to prepare a 'rehabilitation plan' at the end of every 12 month period, the implementation of which will achieve the major objectives of rehabilitation of the RPA. The plan must include:

- A detailed specification of all progressive rehabilitation works proposed for the following 12 months.
- Specifications of decommissioning and rehabilitation works for the remaining life of the project.

### 1.2.2 Section 41 Authority and ERs

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 include:

- Revegetation of disturbed sites to form an ecosystem that could be maintained in a similar way to adjacent areas of Kakadu National Park.
- Stable radiological conditions.
- Erosion characteristics similar to adjacent undisturbed areas. Compared to the Authorisation (discussed below in section 6), the Section 41 Authority's requirements for the rehabilitation plan are high level.

The plan is to be approved by the Supervising Authority and the Commonwealth Minister with the advice of the Supervising Scientist. All progressive rehabilitation must also be approved by the Supervising Authority on the advice of the Supervising Scientist, and is subject to the Northern Land Council agreeing that the aim and objectives for rehabilitation are met.

Figure 1-3 shows the parallel Northern Territory and Commonwealth legislative approvals processes that relate to mine closure activities at Ranger. Appendix 1.1 provides further details on the complexities of the legislative framework. The information in Appendix 1.1 was initially tabled by the DIIS during a closure workshop with key stakeholders, held on 3 May 2017.

### 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 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 annual plan of rehabilitation or 'APR' is to determine the securities amount to be held by the Commonwealth Government for 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.

ERA is now submitting this MCP to the Supervising Authority (the Northern Territory Department of Primary Industry and Resources (DPIR)) as part of its obligations under the Ranger Authorisation and Mining Management Act.

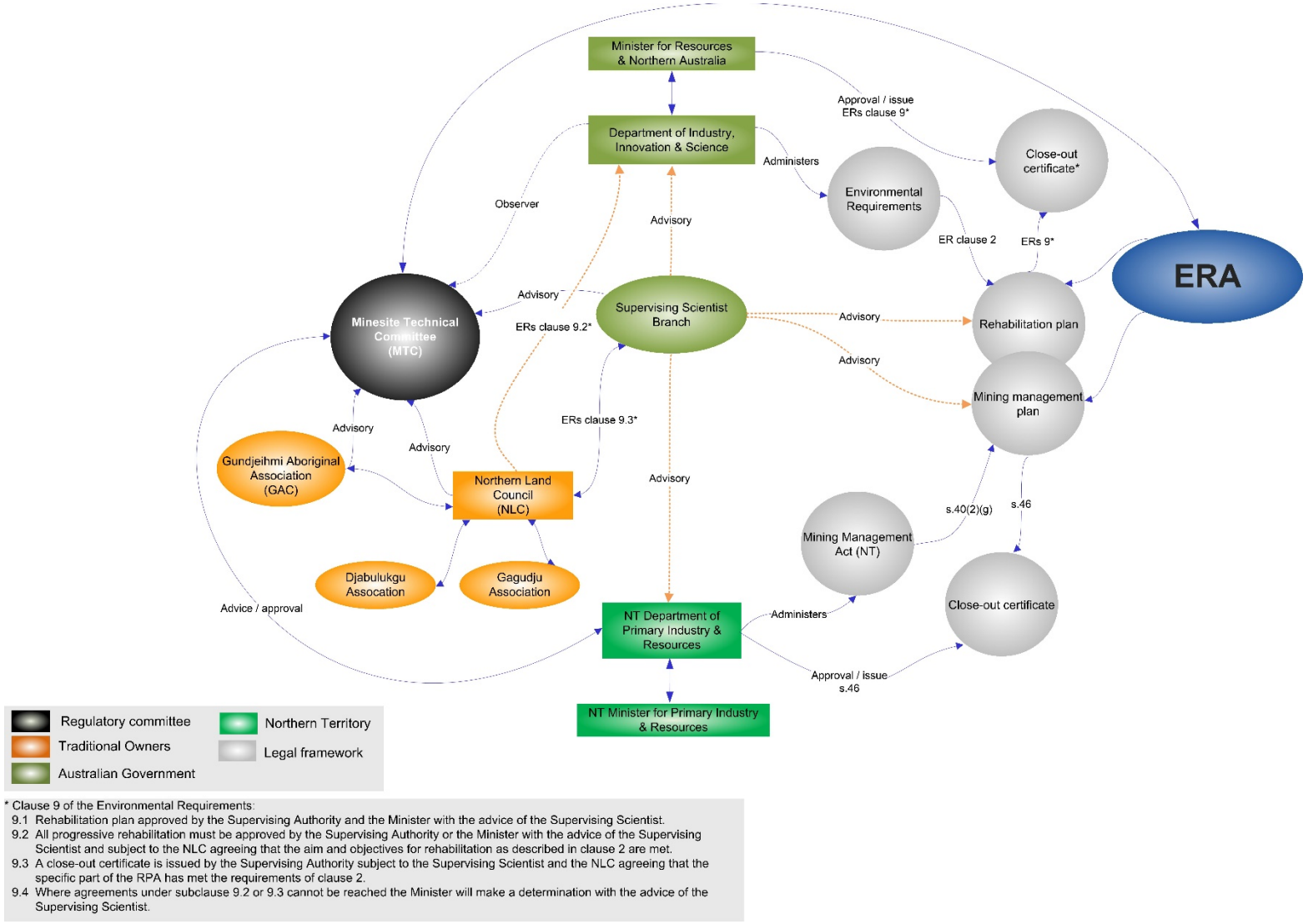


Figure 1-3: NT and Commonwealth parallel closure approvals processes

## 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, the exploration decline and all associated utilities within the operational area of the Ranger site.
- Land application areas, wetland filters and other infrastructure associated with the Ranger mine.
- Jabiru Airport and associated infrastructure and utilities (situated in the RPA).

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. Discussions are underway between ERA, the relevant Commonwealth and Northern Territory 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.
- 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.

## 1.4 Mine Closure Guidelines and Standards

This MCP has been developed by reference to both Rio Tinto's internal requirements for a closure plan and the Western Australian (WA) Mine Closure Plan Guidelines (the Guidelines) published by the WA Department of Mines and Petroleum (DMP) and WA Environmental Protection Authority (EPA) (DMP & EPA, 2015).

### 1.4.1 Rio Tinto Closure Standard and Sustainable Development

The Rio Tinto Closure Standard requires each Rio Tinto operation (globally) to develop and implement a plan for closure. The standard sets out the minimum requirements for planning for closure. The plan must be based on comprehensive and up to date knowledge base of the regulatory, socio-economic, cultural and environmental context in which the site operates; all reasonable options for post closure land use(s) must be identified and evaluated. A detailed risk assessment and cost estimate of the preferred closure option are to be prepared, utilising output from ecological, environmental, radiological and social closure studies. The Closure Standard is an element of the Rio Tinto sustainable development framework, designed and developed to incorporate the International Council on Mining and Minerals (ICMM) Sustainable Development Framework.

### 1.4.2 Western Australian Mine Closure Plan Guidelines

At the request of the Commonwealth Government, and in the absence of Northern Territory closure plan guidelines, this MCP has been prepared by reference to the Guidelines where appropriate.

The Guidelines recognise that closure planning is a progressive process and that mine closure plans are living documents that should undergo ongoing review, development and continuous improvement throughout the life of a mine, which is consistent with the requirement to update the plan under the Ranger Authorisation. The level of information required needs to recognise the stage of mine development (i.e. exploration, planning and design/approvals, construction, operations, decommissioning, post-closure maintenance and monitoring), with detail increasing as the mine moves towards closure.

The Guidelines were developed using accepted industry mine closure frameworks and practices (DMP & EPA 2015; p 3). The Guidelines also include requirements for radiation management for uranium mines, such as the "as low as reasonably achievable" (ALARA) principle, and the "best practicable technology" (BPT) principle, defined by the International Commission on Radiological Protection (ICRP), and endorsed by the Australian Radiation Protection and Nuclear Safety Agency (DMP & EPA 2015).

The Guidelines outline a general mine closure planning process, which is presented in Figure 1-4. ERA has followed this mine closure planning process throughout its operation, and in the preparation of this MCP. Each component of the closure planning process is described in detail in this MCP. The structure of this MCP generally follows the progression of the mine through the mine closure planning process, as provided in Section 1.4.4.

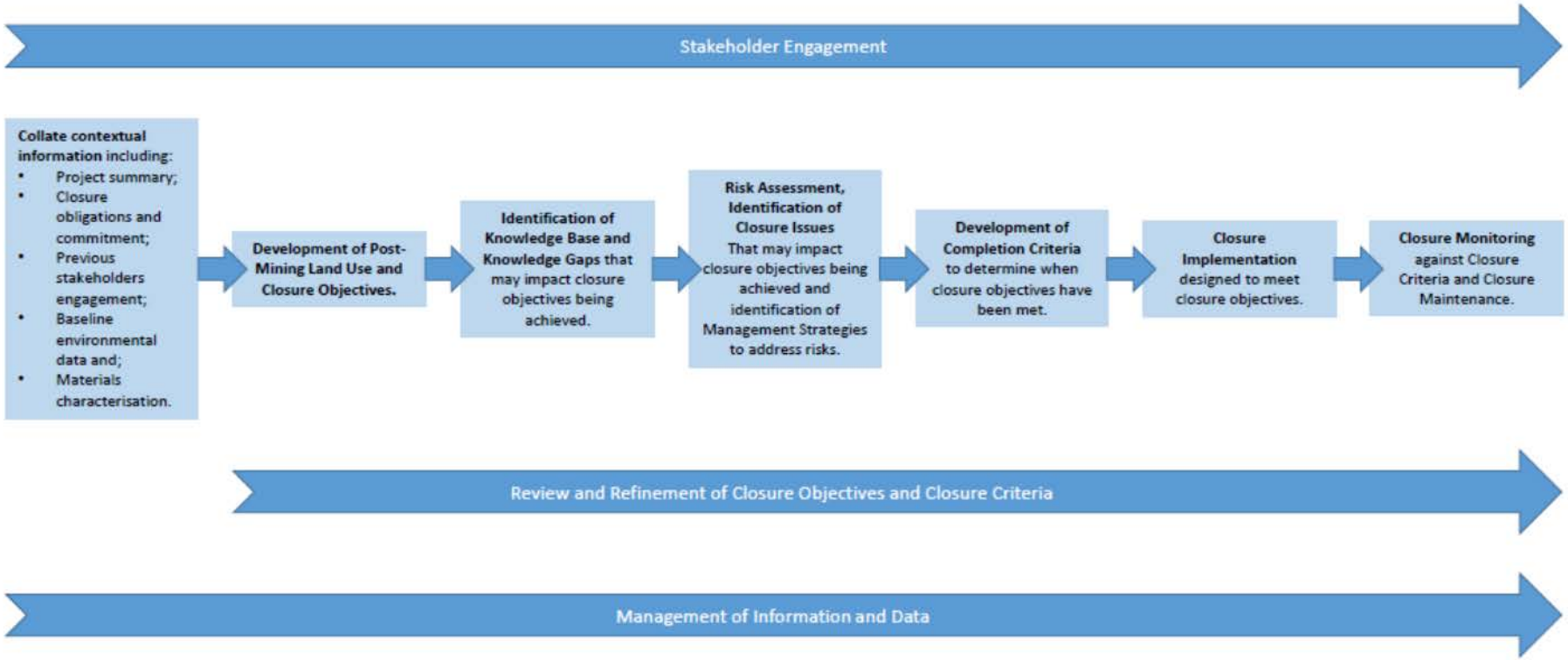


Figure 1-4: Mine closure planning process (DMP & EPA 2015)

### 1.4.3 Review and Updates

As closure activities progress, this MCP will be regularly reviewed and updated to reflect any 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 this MCP to stakeholders in December 2016, several aspects of rehabilitation/closure activities were identified for standalone assessment via the Minesite Technical Committee (MTC)[1]. 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).
- Tailings dam deconstruction.
- Completed works final report.

Appendix 1.2 outlines all of the material rehabilitation activities, timing and the agreed assessment process. Appendix 1.2 also includes the draft content proposed for each Application.

### 1.4.4 Content and Structure of this MCP

The Guidelines 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 but adjusted to suit Ranger's unique circumstances. The structure of this MCP, along with an overview of the content of each section, is provided in Table 1-1.

Table 1-1: Structure and content of this MCP

| Section | Content |
|---|---|
| 1. Introduction, purpose and scope | Introduction to the Ranger mine, including its location and history, purpose of the document, relevant guidelines and standards, scope of this MCP.<br>Includes details on regulatory complexities and future standalone closure assessments via the MTC approvals process. |
| 2. Environmental setting | Overview of the existing environment of the Ranger nearby sensitive receptors and the location of the mine in relation to the local and regional setting. |

[1] The functions of the MTC and ERA's other key stakeholders is described in Chapter 5.

| Section | Content |
|---|---|
| 3. Project overview | An historical overview of the Ranger ore deposits and mine development, including a description of the current mining operations and major mine components/infrastructure. |
| 4. Final land use and closure objectives | Description of the legal obligations relevant to rehabilitation and closure of Ranger, and description of the agreed post-mining land use and closure objectives. |
| 5. Stakeholder engagement | Description of the stakeholder engagement process, and provision of the stakeholder engagement register for matters relating to rehabilitation and closure. |
| 6. Development of closure criteria | Description of the closure criteria that will be used to measure rehabilitation success and demonstrate the closure objectives have been met. This chapter includes an overview of the current status of closure criteria, as at quarter one 2018. |
| 7. Supporting studies | Summary of the extensive studies and research that have contributed to the risk assessment, closure criteria and proposed closure strategy. |
| 8. Best practicable technology | Description of the process and identification of the best practicable technology for the Ranger mine rehabilitation and closure.<br>Includes details on the preliminary best practicable technology assessments undertaken during the Ranger 2011-12 interim tailings, water and closure prefeasibility study. |
| 9. Risk assessment and management | Description and outcomes of the closure risk assessments that have been undertaken throughout the life of the mine. |
| 10. Closure implementation | Description of the proposed closure strategy, which was informed by the risk assessment and supporting studies.<br>Includes details on the revegetation strategy. |
| 11. Closure monitoring and maintenance | Description of the monitoring programs currently being undertaken, or proposed, in order to track the progress of the site against the closure criteria. |
| 12. Management of information and data | Description of management strategies, including systems and processes for the retention of mine records relevant to mine closure. |

## 1.5 References

Department of Mines and Petroleum & Environmental Protection Authority. 2015. *Guidelines for Preparing Mine Closure Plans* Government of Western Australia. May 2015, p 100. http://www.epa.wa.gov.au/EPADocLib/153549_WEB%20VERSION%20%E2%80%93%20Guidelines%20for%20Preparing%20Mine%20Closure%20Plans.pdf

McGovern, E. 2006. *Energy Resources of Australia Ltd Ranger Mine Closure Model- First Pass. (Prepared June 2005 & revised March 2006)*. EWL Sciences Pty Ltd. March 2006, p 220.

Puhalovich, A & Pugh, L. 2007. *ERA Ranger Closure Model 2007*. Report by Energy Resources of Australia Ltd, **Commercial in Confidence**. November 2007, p 137.

## APPENDIX 1.1 RPA REHABILITATION AND CLOSURE APPROVALS FRAMEWORK

This Appendix is adapted from material presented by DIIS to stakeholders, during two Ranger closure workshops held on 3 May and 13 September 2017.

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## INTRODUCTION

The rehabilitation and closure approvals framework will operate within the overall regulatory structure for Ranger's operations. This is established through the interaction of several laws, agreements and guidelines.

The key laws, agreements and guidelines that apply to rehabilitation and closure approvals are:

- Commonwealth *Atomic Energy Act 1953* and Section 41 authority (and attached Environmental Requirements or ERs);
- Commonwealth *Aboriginal Land Rights (Northern Territory) Act 1976* (ALRA) and renegotiated Section 44 Agreement;[2]
- Ranger Uranium Project Agreement (Government Agreement);[2]
- Commonwealth *Environment Protection (Alligator Rivers Region) Act 1978;*
- Northern Territory *Mining Management Act* and Ranger Authorisation;
- Agreement between the Commonwealth of Australia and Northern Territory of Australia in Relation to Principles Applied in the Regulation of Uranium Mining in the Northern Territory of Australia date 17 November 2000 (Principles Agreement);
- Memorandum of Understanding between the Commonwealth of Australia and the Northern Territory of Australia in Relation to Working Arrangements for the Regulation of Uranium Mining in the Northern Territory, dated 30 May 2005 (Working Arrangements);[2] and
- Various national and international guidelines.

The statutory roles and functions of Ministers, departments and traditional owner representative bodies remain unchanged under this framework.

### 1. Commonwealth *Atomic Energy Act 1953* and Section 41 Authority

The ERs require the RPA to be rehabilitated to establish an environment similar to adjacent areas of Kakadu such that it could be incorporated into Kakadu National Park.

The Commonwealth Minister for Resources and Northern Australia is responsible for administering the s.41 authority and ERs, and has a statutory role in certain approvals. With respect to rehabilitation and closure activities, the Commonwealth Minister:

- is responsible for:

[2] These agreements are commercial-in-confidence or are not public.

- approval of a MCP (which must also be approved by the Supervising Authority) with the advice of the Supervising Scientist (ER 9.1);[3]
- approval of final disposal of tailings with the advice of the Supervising Scientist (ER 11.3); and
- approval of any application(s) to close out the RPA (all or part) (ER 2.1);[4]

- may approve:
  - progressive rehabilitation with the advice of the Supervising Scientist and agreement by the Northern Land Council (NLC) that the aim and objectives for rehabilitation as described in ER 2 are met (ER 9.2); and
  - during operations (and prior to final disposal) the secure containment of tailings with the advice of the Supervising Scientist which prevents detrimental environmental impact (ER 11.1); and
- where there is disagreement between the Supervising Authority, Supervising Scientist and NLC, will make a determination on:
  - progressive rehabilitation and close-out (ER 9.4); and
  - adoption of an action, identified by Best Practicable Technology assessment, that is contrary to the ERs (ER 12.2).

Additionally, under the Mining Management Act, the Commonwealth Minister must provide his advice on agreed Northern Territory statutory decisions regarding mining activities that relate to uranium and thorium:

> *"s 34(3) Before exercising a power or performing a function under this Part in relation to an Authorisation that relates to uranium or thorium, the Minister:*
>
> *(a) must consult with the Commonwealth Minister about matters agreed in writing between them relating to the mining of uranium or thorium; and*
>
> *(b) must act in accordance with any advice provided by the Commonwealth Minister."*

## 2. Northern Territory *Mining Management Act* and Ranger Authorisation

The Atomic Energy Act does not exclude or limit the operation of any NT law that is capable of operating concurrently. In accordance with this,[5] the relevant Minister (NT Minister) has

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[3] Note ER 9.1 refers to a rehabilitation plan, the implementation of which will achieve the major objectives of rehabilitation as set out in subclause 2.2 and provides for progressive rehabilitation. This is considered to be the mine closure plan and solely reflects the language of the time.

[4] Close out of the Ranger Project Area (i.e. ERs no longer apply) is considered to be a separate process to relinquishment of the Ranger Project Area.

[5] Reinforced by the Principles Agreement.

issued an authorisation for Ranger's operations under the Mining Management Act (s 35) to facilitate day-to-day regulation. The Ranger Authorisation incorporates the ERs.

MTC members advise the NT Department of Primary Industry and Resources (DPIR) on matters related to Ranger's day-to-day regulation, including proposed/existing approvals and decisions, and environmental performance.

The Section 41 Authority requires the supervising authority to approve a mine closure plan (which must also be approved by the Commonwealth Minister) with the advice of the Supervising Scientist. The Ranger Authorisation requires the NT Minister to approve the final disposal of tailings. Additionally, under s 34(3) of the Mining Management Act, the NT Minister must consult and act in accordance with the Commonwealth Minister's advice on agreed matters.

As the Supervising Authority, the NT Minister may approve progressive rehabilitation and may issue the close out certificate(s) for the RPA (all or part). The close out certificate is issued subject to the Supervising Scientist and NLC agreeing that the site has met its rehabilitation requirements. That process requires agreement from the Commonwealth Minister that the site has met the Commonwealth's rehabilitation requirements and could be incorporated into Kakadu National Park (ER 2.1).

### 3. Commonwealth *Environment Protection (Alligator Rivers Region) Act 1978*

Under this Act, the Supervising Scientist is appointed to protect the Alligator Rivers Region's environment from the effects of mining operations. The Supervising Scientist conducts research programs into the environmental effects of uranium mining in the region, develops standards and practices for environmental protection, undertakes environmental monitoring, participates in and overseas the regulatory process, and provides advice.

The Supervising Scientist is a MTC member advising DPIR on the (potential) environmental impacts of operations and proposed works conducted on the RPA. The MTC may discuss matters relevant to the Supervising Scientist's roles and responsibilities, including the collaborative development of standards for the protection of the environment.

The Supervising Scientist is required to provide advice to the Commonwealth Minister, NT Minister and/or Supervising Authority,[6] on a number of rehabilitation and closure related activities: e.g. MCP and progressive rehabilitation's ability to achieve the ERs, final tailings disposal and close out of the site.

[6] Supervising Scientist also provides advice to its Minister, the Minister for the Environment and Energy. The Minister for the Environment and Energy has no regulatory authority at the Ranger uranium mine.

## 4. *Commonwealth Aboriginal Land Rights (Northern Territory) Act 1976* (ALRA)

As the RPA is located on Aboriginal land, an agreement is in place between the Commonwealth of Australia and NLC to facilitate the legal operation of the Atomic Energy Act and Section 41 Authority.

The NLC has a statutory function under ALRA to represent the RPA's traditional Aboriginal owners, the Mirarr, and affected groups and people. The Gundjeihmi Aboriginal Corporation (GAC) seeks to protect the culture and traditional country of the Mirarr and similarly represents the RPA's traditional Aboriginal owners.

The NLC and GAC are both members of the MTC, providing advice to DPIR and contributing to discussions of matters relevant to the Supervising Scientist's roles and responsibilities.

The NLC and GAC, through the ERs and/or Working Arrangements, provide advice on a number of rehabilitation and closure related activities: e.g. MCP and progressive rehabilitation's ability to achieve the ERs, and close out of the site.

## 5. Principles Agreement and Working Arrangements

The Principles Agreement supports the ongoing application of Commonwealth and NT law to uranium exploration and mining, and establishes the requirement for Working Arrangements.

The Working Arrangements set out consultation processes between the NT and the Commonwealth, represented by the Supervising Scientist and where agreed the Commonwealth Minister (clause 10.2), and the NT and NLC (clause 10.4). Before exercising a power or performing a function under Part 4 of the MMA in relation to the Authorisation, the NT Minister must refer the matter to the aforementioned parties for comment. The NT Minister shall act consistently with the Commonwealth's advice and shall have regard to the views of the NLC.

The Working Arrangements also set out the roles and responsibilities of key Ranger stakeholders. In particular, the Working Arrangements establish the MTC[7] and its functions. For example, the MTC may consider and advise on a number of issues including (1) applications for approvals and (2) planning for, and execution of, decommissioning and rehabilitation.

The Working Arrangements also provide for the following compliance activities:

- environmental audit of mining operation's environmental performance;
- routine periodic inspections; and
- monitoring activities.

[7] Ranger MTC members are: NT DPIR, SSB, NLC, GAC and ERA.

## 6. Guidelines

In the absence of NT mine closure guidelines,[8] DPIR refers to Western Australia's (WA) Guidelines for Preparing Mine Closure Plans (2015) to ensure that an appropriate planning process is in place to decommission, rehabilitate and close mine sites. Noting this reference, ERA was requested to prepare a mine closure pan using the WA Guidelines to enable consideration of its planning process to close the RPA, consistent with the ERs.

Other non-binding guidelines[9] that help inform rehabilitation and closure include, for example:

- Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000).
- National Environment Protection (Assessment of Site Contamination) Measure 1999.
- Fundamental for Protection against Ionising Radiation, Radiation Protection Series F-1 (2014).
- Radiation Protection of the Environment, Guide G-1 (2015).
- Leading Practice Sustainable Development Program for the Mining Industry handbooks:
    - Airborne Contaminants, Noise and Vibration (2009).
    - Biodiversity Management (2016).
    - Community Engagement and Development (2016).
    - Evaluating Performance: Monitoring and Auditing (2016).
    - Hazardous Materials Management (2016).
    - Mine Closure (2016).
    - Mine Rehabilitation (2016).
    - Preventing Acid and Metalliferous Drainage (2016).
    - Risk Management (2016).
    - Stewardship (2006).
    - Tailings Management (2016).
    - Water Stewardship (2016).
    - Working with Indigenous Communities (2016).
- Occupational Radiation Protection in the Mining and Processing of Raw Materials Safety Guide, IAEA Safety Standards No. RS-G-1.6 (2004).

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[8] DPIR is drafting mine rehabilitation and closure guidelines for the Northern Territory.

[9] Reference to other guidelines includes predecessor documents.

- Occupational Radiation Protection Safety Guide, IAEA Safety Standards No. RS G 1.1 (1999).
- Management of Radioactive Waste from the Mining and Milling of Ores Safety Guide, IAEA Safety Standards No. WS-G-1.2 (2002).
- International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources, Safety Series No. 115 (1996).
- Guide to Safe Transport of Uranium Oxide Concentrate (2012).
- AS/NZS 4801 Occupational Health and Safety Management Systems (2001).
- AS/NZS ISO 31000:2009 Risk Management – Principles and Guidelines (2009).
- AS/NZS ISO 14001:2015 Environmental Management Systems – Requirements with Guidance for Use (2015).

# APPENDIX 1.2 MINE CLOSURE PLAN ASSESSMENT PROCESS

| Rehabilitation works activity | Approval type[1] | Expected commencement of works | Initial/Expected submission date | MTC Assessment Completed | ERA Response Completed | MTC Acceptance of responses[2] | Ministers Approval received | ERA date for required approval |
|---|---|---|---|---|---|---|---|---|
| MCP initial draft review | MCP | Feasibility Study Q4 2017 | 21 Dec 16 | 30 Jun 17 | Incorporated into this MCP | | | |
| MCP Ministerial acceptance<br>Ministerial in principal acceptance of overall MCP design and strategy (i.e. no fatal flaws, further studies scheduled and on track, progressive rehabilitation on track) | MCP | | | | | TBA | TBA | TBA |
| MCP Chapter 6 (closure criteria) | MCP | Needed for final landform application | May 18 | | | | TBA | TBA |
| MCP Chapter 10:<br>• Mill deconstruction<br>• Brine concentrator deconstruction<br>• Airport deconstruction[3]<br>• Retention pond rehabilitation<br>• Contaminated land remediation (not addressed within other works) - land application areas – contaminated sites assessments | MCP | Various see below<br>2022<br>2025<br>2024<br>2024<br>LAA Jun 2018[4]<br>Wetlands filters 2024-25[5] | | | | | | |
| MCP revised post ERA feasibility study | MCP | | Oct 19 | for discussion | | | | |

[1] Final approver to be Commonwealth and NT Ministers under section 34 of the NT Mining Management Act. This will occur via consultation through the MTC that will include advice from the SSB and agreement from the NLC. If agreement cannot be reached in the MTC then the Ministers will make a determination with the advice of the SSB.

[2] Includes formal letter of agreement from the NLC.

[3] Until there is major stakeholder agreement and an operator is identified, the assumption is that the airport and associated infrastructure will be removed (ER 2.3).

[4] LAA areas will be rehabilitated progressively as no longer required, possible to start Magela and/or Djalkmarra areas as soon as 2018 dry season.

[5] Wetland filters will be remediated when no longer required by water treatment, currently scheduled for as late as possible in 2025.

| Rehabilitation works activity | Approval type[1] | Expected commencement of works | Initial/Expected submission date | MTC Assessment Completed | ERA Response Completed | MTC Acceptance of responses[2] | Ministers Approval received | ERA date for required approval |
|---|---|---|---|---|---|---|---|---|
| Final landform and revegetation plan:<br>• Shape (Digital Elevation Model, DEM) and surface properties<br>• Detailed design – rock distribution throughout landform (vertical and horizontal), engineering parameters (e.g. shrinkage factors)<br>• Materials movement schedule and discrimination capability<br>• Whole landform conceptual groundwater model and water balance<br>• Long term geomorphic stability<br>• Erosion controls<br>• Sediment controls<br>• Analysis to demonstrate that radiation doses are ALARA<br>• Line of sight assessment<br>• Foot traversability<br>• BPT assessment – design control options and scenario-testing for minimising erosion and contaminant transport<br>• Uncertainties and contingencies<br>• Monitoring for construction verification and to inform maintenance/management<br>• Radiation dose assessment for members of the public and non-human biota<br>• Revegetation plan to establish long term sustainable ecosystem – nutrient availability and cycling, substrate properties (weathering rates, soil formation, radiological/contaminants)<br>o Design to maximise plant available water and demonstrate it will support a mature vegetation community<br>o Species composition and community architecture<br>o Interaction with landform design<br>o Plant resource requirements (i.e. water, nutrients, substrate) and availability in landform<br>o Modelled trajectories for establishment of sustainable plant communities<br>o Monitoring – trajectory confirmation and early warning<br>o Revegetation management (e.g. weeds and fire), including responses to identified issues (i.e. not limited to re-planting) | Standalone submission | 1 Apr 19 | TBA | 19 Oct 18 | 30 Nov 18 | 1 Feb 19 (allows for Xmas break) | 1 Mar 19 | 1 Mar 19 |
| Pit 3 backfill:<br>• Backfill plan to prevent subsidence and encapsulate tailings for 10,000 years<br>• Contaminants (including radionuclides) transported via groundwater to surface waters on the RPA are as low as reasonable achievable and do not cause detrimental environmental impact off the RPA<br>• Whole of site integrated water quality assessment | Standalone submission | 9 Jan 21 | 31 Jan 19 | 31 July 19 | 30 Sep 19 | 31 Oct 19 | 30 Nov 19 | 31 Dec 19 |
| Ranger 3 Deeps exploration decline and portal (closure):<br>• Aquifer assessment and groundwater conceptualisation and management | Standalone submission | 1 Oct 20 | 30 Nov 19 | 31 Jan 20 | 31 Mar 20 | 31 May 20 | 30 Jun 20 | 30 Jun 20 |

| Rehabilitation works activity | Approval type[1] | Expected commencement of works | Initial/Expected submission date | MTC Assessment Completed | ERA Response Completed | MTC Acceptance of responses[2] | Ministers Approval received | ERA date for required approval |
|---|---|---|---|---|---|---|---|---|
| Tailings dam deconstruction:<br>• Management of contaminated materials<br>• Assessment of groundwater plume (including modelling of behaviour during and after dam deconstruction)<br>• Contaminants (including radionuclides) transported via groundwater to surface waters on the RPA are as low as reasonable achievable and do not cause detrimental environmental impact off the RPA<br>• Deconstruction of walls and shaping for final landform<br>• Erosion controls to prevent exposure of any residual contaminated material | Standalone submission | 1 Jan 21<br>(timing based on decision for contaminated material management) | 1 Dec 19 | 30 Jun 20 | 31 Aug 20 | 31 Oct 20 | 30 Nov 20 | 1 Jan 21 |
| Completed works final report[6] | Standalone report | | 30 Jun 2026 | | | | | |
| Post 2026 monitoring and management arrangements and access | Regulatory framework | 9 Jan 2026 | | | | | TBA | 9 Jan 2021 |

[6] This is the final decommissioning report that details all works completed.