



## 12 Management of information and data





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Cover photograph: Caterpillar on *Eucalyptus tintinnans* on Trial Landform



## GLOSSARY

Below are key terms that are used in this section.

Key term	Definition
Annual Plan of Rehabilitation	High level plan used to determine the securities amount to be held by the Commonwealth Government for Ranger Mine rehabilitation obligations.

## ABBREVIATIONS & ACRONYMS

Below are abbreviations and acronyms that are used in this section.

Abbreviation/ Acronym	Description
ANRDR	Australian National Radiation Dose Register
ARPANSA	Australian Radiation Protection and Nuclear Safety Agency
ARRTC	Alligator Rivers Region Technical Committee
ERA	Energy Resources of Australia Ltd
LIMS	Laboratory Information Management System
MCP	Mine Closure Plan
NT	Northern Territory
OPSIM	Operation Simulation Modelling
RTBS	Rio Tinto Business Solution



## 12 MANAGEMENT OF INFORMATION AND DATA

This section provides an overview of the information management systems used by Energy Resources of Australia Ltd (ERA) to manage closure related data. The retention and accessibility of multi-disciplinary closure related data is vital for ensuring successful management of mine closure and rehabilitation activities at the Ranger Mine. The monitoring, recording and documentation of closure processes is also key for auditing and the capacity for adaptive management.

To support closure activities and provide confidence in the strategy, ERA has identified three key components for closure knowledge to be retained:

- validation of site conceptual/numerical models
- landform design and construction, and
- progressive rehabilitation.

The retention and management of this information is important to demonstrate the appropriateness of, and adherence to, the closure strategy, drive change where required and provide a history with which to inform any future issues. Ultimately, this information will be utilised for the preparation of the Completed Works Final Report due for submission in 2026.

### 12.1 Data collection and management

ERA has maintained accreditation to ISO 14001:2015 and AS4801<sup>2</sup> health, safety and environmental management systems since 2003 and 2005, respectively. The management system provides for consistent performance indicators (including appropriate backup measures for electronic data and document control). The system also provides for compliance self-assessment, which is routinely verified through mechanisms such as periodic inspections and audits by such stakeholders as Rio Tinto, regulators and committees.

Records and data are managed according to a range of policies, standards and work instructions to ensure data is secure, maintained, accurate, and retrievable. Information is kept in approved data management systems. This reduces the risk of lost information, for example on personal computers, and provides stability in relation to retention of knowledge should key staff leave.

To support the transition from operations to closure, and beyond, a program of works is in development to ensure critical information is available. In accordance with the prescribed legal requirements, the program will ensure that the Information Systems can be maintained and, where necessary, relocated efficiently and effectively without disrupting the activities of the

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<sup>2</sup> AS4801 has been superseded by ISO 45001. ERA will move to ISO 45001 in 2021.



Business Unit, Operations and the Project and to handover appropriate materials at relinquishment for ongoing monitoring.

The program includes:

- review of the retention schedule to ensure alignment with current legislation and to address specific business needs
- risk assessment to determine future potential information retrieval scenarios in order to inform current retention procedures
- identification and classification of data sources against current and future state needs, including the potential for addressing historical datasets on redundant media to ensure they are retrievable, if necessary
- development of a handover specification detailing data source, nominating handover recipient, detailing data type, reason for handover and indicative timelines.

Data shall be adequately collected and recorded for the purpose of communicating information either internally or externally, as required. Long term obligations towards data and information management are represented in various legislative requirements. A specific example of this is;

*Schedule 7.5 of the Authorisation 108 (2018) requires ERA to "... maintain to the satisfaction of the NT Minister and for examination by a Mining Officer, all records and data associated with the operation and monitoring of the water management system for the life of the mine up to and including rehabilitation and post closure."*

The environmental monitoring requirements provided under Schedule 13 of Authorisation 0108, determines that the company must make data and reports available to the major stakeholders (Schedule 13.2a) and make reports, other than commercial-in-confidence matters, available to members of the Advisory Committee established under the *Environment Protection (Alligators Rivers Region) Act 1978* (Schedule 13.2b). In accordance with Appendix D of the Authorisation 0108, provision of monitoring data, including routine water quality reports is to be submitted weekly during flow events and monthly at all other times. With regard to research undertaken, plans and results must be provided to the technical committee established under the *Environment Protection (Alligators Rivers Region) Act 1978*, as per Schedule 15.1 of the Authorisation 0108, to enable the Technical Committee to co-ordinate research in the broader region.

Under the *Work Health and Safety (National Uniform Legislation) Act 2011*, health monitoring records, air monitoring results, hazardous substances (asbestos, carcinogens etc.) exposure records are to be available, as required, by the business or in response to approved stakeholder request, up to, and including, post closure in accordance with specific retention needs.

The indicative types of data collection at ERA, and the internal/external departments and groups responsible for the maintenance and reporting of this data, is provided in Table 12-1.



New/expanded data sets will continue to inform and/or validate the various conceptual and numerical models on which the closure strategy and design criteria are developed, as well as other aspects of the overall design and construction of the final landform. ERA maintains these datasets within its various document management systems.



Table 12-1: Indicative data collection types

Type	Storage/software	Reporting	Objective(s)
As built records (drawings)	<ul style="list-style-type: none"> <li>Data viewer</li> <li>ERA server and centralised data storage systems (including ProjectWise)</li> </ul>	<ul style="list-style-type: none"> <li>As built report</li> </ul>	<ul style="list-style-type: none"> <li>To maintain construction standards</li> <li>To inform decommissioning and remediation programs</li> </ul>
Closure project	<ul style="list-style-type: none"> <li>ProjectWise &amp; ERA server and centralised data storage system</li> </ul>	<ul style="list-style-type: none"> <li>Internal</li> <li>Annual report</li> </ul>	<ul style="list-style-type: none"> <li>To record project decisions</li> <li>To manage change in strategy documents</li> </ul>
Ecological surveys	<ul style="list-style-type: none"> <li>TIMS Trimagic Enterprise Library</li> <li>ERA server and centralised data storage systems</li> </ul>	<ul style="list-style-type: none"> <li>Periodical reports (developed internally and externally)</li> <li>Ranger MCP</li> <li>ARRTC</li> </ul>	<ul style="list-style-type: none"> <li>To record and demonstrate progressive remediation and rehabilitation</li> <li>To inform closure criteria</li> <li>To inform revegetation strategy</li> </ul>
Geochemical QA/QC	<ul style="list-style-type: none"> <li>LIMS</li> <li>TIMS Trimagic Enterprise Library</li> <li>ERA server and centralised data storage systems</li> </ul>	<ul style="list-style-type: none"> <li>Mining Management Plan</li> <li>Periodical studies and subsequent reports</li> </ul>	<ul style="list-style-type: none"> <li>To inform ore grade control</li> <li>To inform closure criteria</li> <li>To validate ground and surface water models</li> </ul>
Geomorphological surveys and data	<ul style="list-style-type: none"> <li>Vulcan 3D Geomodelling</li> <li>ERA server and centralised data storage systems</li> <li>TIMS Trimagic Enterprise Library</li> </ul>	<ul style="list-style-type: none"> <li>Mining Management Plan</li> <li>Ranger MCP Annual Report</li> </ul>	<ul style="list-style-type: none"> <li>To record and demonstrate progressive remediation and rehabilitation</li> <li>To inform closure criteria</li> <li>To input into modelling</li> </ul>
Geotechnical testing	<ul style="list-style-type: none"> <li>Datamine Discover Geospatial</li> <li>ERA server and centralised data storage systems</li> </ul>	<ul style="list-style-type: none"> <li>Periodical reports (developed internally and externally)</li> </ul>	<ul style="list-style-type: none"> <li>To maintain construction standards</li> <li>To input into modelling</li> </ul>
Hydrological data	<ul style="list-style-type: none"> <li>Acquire</li> <li>CpetIT</li> </ul>	<ul style="list-style-type: none"> <li>Periodical reports (developed internally and externally)</li> <li>Ranger MCP</li> <li>ARRTC</li> </ul>	<ul style="list-style-type: none"> <li>To maintain Water Bore/Hydrology data</li> <li>To inform closure criteria</li> </ul>



Type	Storage/software	Reporting	Objective(s)
			<ul style="list-style-type: none"> <li>To validate groundwater models</li> </ul>
Materials movement tracking	<ul style="list-style-type: none"> <li>Hexagon MineEnterprise/ MineOperate</li> </ul>	<ul style="list-style-type: none"> <li>Mining Management Plan</li> <li>Periodical studies and subsequent reports</li> </ul>	<ul style="list-style-type: none"> <li>To monitor material tracking</li> </ul>
Medical records	<ul style="list-style-type: none"> <li>Cority Medical (RTBS)</li> <li>HSE BioTronic</li> </ul>	<ul style="list-style-type: none"> <li>Internal</li> <li>Periodical studies and subsequent reports</li> </ul>	<ul style="list-style-type: none"> <li>To record and maintain health/medical records</li> </ul>
Radiation dose	<ul style="list-style-type: none"> <li>Labware LIMS Radiation</li> <li>ERA server and centralised data storage systems</li> </ul>	<ul style="list-style-type: none"> <li>Periodical reports (developed internally and externally)</li> <li>Ranger MCP</li> <li>Provision of dose records to ARPANSA and ANRDR</li> </ul>	<ul style="list-style-type: none"> <li>To validate models</li> <li>To inform closure criteria</li> <li>To maintain national dose records</li> </ul>
Revegetation records	<ul style="list-style-type: none"> <li>TIMS Trimagic Enterprise Library</li> <li>ERA server and centralised data storage systems</li> </ul>	<ul style="list-style-type: none"> <li>Mining Management Plan</li> <li>Ranger MCP</li> <li>Annual Report</li> <li>Periodical reports (developed internally and externally)</li> <li>ARRTC</li> </ul>	<ul style="list-style-type: none"> <li>To record and demonstrate progressive remediation and rehabilitation</li> <li>To inform closure criteria</li> <li>To inform revegetation strategy</li> <li>To maintain construction standards</li> </ul>
Surface water and groundwater monitoring (including spatial data)	<ul style="list-style-type: none"> <li>Laboratory Information Management System (LIMS) Water</li> <li>Hydstra</li> <li>LoggerNet Water Telemetry</li> <li>OPSIM</li> <li>ERA server and centralised data storage systems (Map info files)</li> </ul>	<ul style="list-style-type: none"> <li>Mining Management Plan, subject to periodical review, assessment and approval via the Minesite Technical Committee (MTC)</li> <li>Ranger Annual Groundwater Report</li> <li>Annual Ranger Wet Season Report</li> <li>Routine water quality reports</li> <li>Ranger Mine Closure Plan (MCP), subject to periodical review, assessment and approval via the MTC</li> <li>Alligator Rivers Regional Technical Committee (ARRTC)</li> </ul>	<ul style="list-style-type: none"> <li>To meet operational monitoring requirements</li> <li>To validate conceptual and numerical models</li> <li>To inform closure criteria</li> <li>To maintain construction standards</li> </ul>



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<b>Type</b>	<b>Storage/software</b>	<b>Reporting</b>	<b>Objective(s)</b>
Survey records	<ul style="list-style-type: none"><li>• Vulcan</li><li>• ERA server and centralised data storage systems</li></ul>	<ul style="list-style-type: none"><li>• Mining Management Plan</li><li>• Annual Report</li><li>• Adherence with Joint Ore Resource Committee guidelines</li></ul>	<ul style="list-style-type: none"><li>• To validate conceptual and numerical models</li><li>• To maintain construction standards</li></ul>
Water treatment production (i.e. flows /volumes)	<ul style="list-style-type: none"><li>• LIMS</li></ul>	<ul style="list-style-type: none"><li>• Mining Management Pan</li></ul>	<ul style="list-style-type: none"><li>• To record and demonstrate progressive remediation and rehabilitation</li><li>• To meet regulatory compliance requirements</li></ul>
Incident notification	<ul style="list-style-type: none"><li>• RTBS</li></ul>	<ul style="list-style-type: none"><li>• Mining Management Plan</li><li>• Ranger MCP</li><li>• Annual Report</li><li>• Periodical reports (developed internally and externally)</li><li>• ARRTC</li></ul>	<ul style="list-style-type: none"><li>• To maintain and record incident related information</li></ul>