

12 Management of information and data



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

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
ER	Environmental Requirements
ERA	Energy Resources of Australia Ltd
LIMS	Laboratory Information Management System
MCP	Mine Closure Plan
MTC	Minesite Technical Committee
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.

Further specifics on post-closure data retention and handover requirements will be determined in close consultation with the relevant government agencies.

The retention and management of this information is important to demonstrate the appropriateness of, and adherence to, the closure strategy, allow for continuous improvement through capture and communication of lessons learnt, and provide a history of information to help inform decision-making and issues management.

12.1 Data collection and management

ERA has maintained accreditation to ISO 14001:2015 and AS4801² 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 stakeholders including 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, providing stability in relation to retention of knowledge when key personnel leave.

² AS4801 has been superseded by ISO 45001. ERA will move to ISO 45001 in November 2022.

To support closure operations a program of ongoing works ensure critical information is available. In accordance with the prescribed legal requirements, the aim of the program is to ensure that the Information Systems can be maintained and, where necessary, relocated efficiently and effectively without disrupting the activities of Business Units, Operations and Projects, 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; and
- development of a handover specification detailing data source and type, nominating handover recipient, reason for handover and indicative timelines.

12.2 Data availability and reporting

Long-term obligations towards data and information management are represented in various legislative requirements. A specific example is Schedule 7.5 of the Authorisation 108 (2018) requiring 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 the Environmental Requirements (ER), determines that the company must ensure data and reports are available to major stakeholders (Schedule 13.2a) and reports, other than commercial-in-confidence matters, are available to members of the Alligator Rivers Region Advisory Committee (ARRAC) established under the *Environment Protection (Alligators Rivers Region) Act 1978* (Schedule 13.2b). In accordance with Annex D of the Ranger Authorisation 0108, provision of monitoring data including routine water quality reports must be submitted weekly during flow events, and monthly at all other times.

Research undertaken, plans and results must be provided to the Alligator Rivers Region Technical Committee (AARTC) established under the *Environment Protection (Alligators Rivers Region) Act 1978*, as per Schedule 15.1 of the Environmental Requirements, to enable the 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 and hazardous substances exposure records must 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 types of data collected by ERA and the internal/external departments and groups responsible for 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. This is an iterative process and ERA maintains these datasets within its various document management systems.

Table 12-1: Data collection types relevant to closure

Type	Storage/software	Reporting	Objective(s)
As built records (drawings)	<ul style="list-style-type: none"> Data viewer ERA server and centralised data storage systems (includes ProjectWise). 	<ul style="list-style-type: none"> As built report. 	<ul style="list-style-type: none"> To maintain construction standards To inform decommissioning and remediation programs.
Closure project	<ul style="list-style-type: none"> ProjectWise, ERA server and centralised data storage system. 	<ul style="list-style-type: none"> Internal Annual report Rehabilitation Progress Report. 	<ul style="list-style-type: none"> To record project decisions To manage changes in strategy documents.
Ecological surveys (including related Raster, LiDAR and/or drone imagery)	<ul style="list-style-type: none"> ERA server and centralised data storage systems DroneDeploy. 	<ul style="list-style-type: none"> Periodical reports (developed internally and externally) Ranger Mine Closure Plan (MCP) ARRTC. 	<ul style="list-style-type: none"> To record and demonstrate progressive remediation and rehabilitation To inform closure criteria To inform revegetation strategy.
Geochemical QA/QC	<ul style="list-style-type: none"> Laboratory Information Management System (LIMS) ERA server and centralised data storage systems. 	<ul style="list-style-type: none"> Periodical studies and subsequent reports. 	<ul style="list-style-type: none"> To inform ore grade control To inform closure criteria To validate ground and surface water models.
Geomorphological surveys and data (including related Raster, LiDAR and/or drone imagery)	<ul style="list-style-type: none"> Vulcan 3D Geomodelling ERA server and centralised data storage systems. 	<ul style="list-style-type: none"> Ranger MCP. 	<ul style="list-style-type: none"> To record and demonstrate progressive remediation, rehabilitation and erosion control To inform closure criteria To input into modelling.

Type	Storage/software	Reporting	Objective(s)
Geotechnical testing	<ul style="list-style-type: none"> Datamine Discover Geospatial ERA server and centralised data storage systems. 	<ul style="list-style-type: none"> Periodical reports (developed internally and externally). 	<ul style="list-style-type: none"> To maintain construction standards To input into modelling.
Hydrological data	<ul style="list-style-type: none"> Acquire CpetIT. 	<ul style="list-style-type: none"> Periodical reports (developed internally and externally) Ranger MCP ARRTC. 	<ul style="list-style-type: none"> To maintain Water Bore/Hydrology data To inform closure criteria To validate groundwater models.
Materials movement tracking	<ul style="list-style-type: none"> Hexagon MineEnterprise/Mine Operate. 	<ul style="list-style-type: none"> Periodical studies and subsequent reports. 	<ul style="list-style-type: none"> To monitor material tracking.
Medical records	<ul style="list-style-type: none"> Cority Medical (RTBS) HSE BioTronic. 	<ul style="list-style-type: none"> Internal Periodical studies and subsequent reports. 	<ul style="list-style-type: none"> To record and maintain health/medical records.
Radiation dose (including related Raster, LiDAR and/or drone imagery)	<ul style="list-style-type: none"> Labware LIMS Radiation ERA server and centralised data storage systems GIS Database system. 	<ul style="list-style-type: none"> Periodical reports (developed internally and externally) Ranger MCP Provision of dose records to ARPANSA and ANRDR. 	<ul style="list-style-type: none"> To validate models To inform closure criteria To maintain national dose records.
Revegetation records (including related Raster, LiDAR and/or drone imagery)	<ul style="list-style-type: none"> ERA server and centralised data storage systems. 	<ul style="list-style-type: none"> Ranger MCP Annual Report Periodical reports (developed internally and externally) ARRTC. 	<ul style="list-style-type: none"> To record and demonstrate progressive remediation and rehabilitation To inform closure criteria To inform revegetation strategy and plant growth To maintain construction standards.
Surface water and groundwater monitoring (including spatial data)	<ul style="list-style-type: none"> LIMS Water Hydstra LoggerNet Water Telemetry Operation Simulation Modelling (OPSIM) ERA server and centralised data storage systems (Map info files). 	<ul style="list-style-type: none"> Ranger Annual Groundwater Report Annual Ranger Wet Season Report Routine water quality reports Ranger MCP ARRTC. 	<ul style="list-style-type: none"> To meet operational monitoring requirements To validate conceptual and numerical models To inform closure criteria To maintain construction standards.

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