

Preface

The Environmental Research Institute of the Supervising Scientist (**eriss**) is part of the Supervising Scientist Division (SSD) of the Australian Government's Department of Environment and Water Resources. **eriss** provides specialist technical advice to the Supervising Scientist, and conducts research into:

- the impact of uranium mining on the environment and people of the Alligator Rivers Region, and
- on the protection and management of tropical rivers and their associated wetlands.

The objective of the mining-related research is to develop best practice methodologies for the monitoring of impact and for the development of management guidelines to protect the environment during the operational and closure phases of mine life.

eriss also applies its expertise to carrying out a limited program of contract research on the impacts of mining elsewhere in the northern tropics.

This report documents research projects undertaken by **eriss** over the 2005–06 financial year. The final section contains a summary of the non-uranium mining related external projects. Commercial-in-confidence projects have been excluded from this compilation. For additional information, readers are referred to the annual publications list (Appendix 1) that details all of the material published, and conference and workshop papers presented by **eriss** staff in 2005–06.

The balance and strategic prioritisation of work within the uranium component of **eriss**'s project portfolio is defined by Key Knowledge Needs (KKNs) developed by consultation between the Alligator Rivers Region Technical Committee (ARRTC – see ARRTC membership and function in Appendix 3), the Supervising Scientist, Energy Resources of Australia and other stakeholders. The KKNs comprise six thematic areas based primarily on geographic provenance (Appendix 2). The content of the research programs developed for each of these areas is assessed and reviewed annually by ARRTC in consultation with stakeholder groups (Appendix 3).

eriss contributes to the addressing of the KKNs by applying its expertise in:

- Ecotoxicology
- Environmental radioactivity
- Hydrological and geomorphic processes
- Monitoring and ecosystem protection
- Biophysical pathways and ecological risk assessment
- Aquatic chemistry

Not all of the KKN research areas are able to be covered by **eriss**, since not all of the required disciplines are available within the Institute. To address these gaps, collaborative projects are initiated with researchers from other organisations. KKN projects related to the detailed hydrogeology or tailings management on the Ranger lease are conducted and reported separately by consultants engaged by Energy Resources of Australia Pty Ltd.

Communication between research providers is addressed by stakeholder presentations and interactions at ARRTC meetings, as well as by conduct of formal multi-stakeholder workshops, and presentations at conferences and workshops. Communication with local Indigenous people and other regional stakeholders is an integral part of the project approvals

and reporting processes. A dedicated Indigenous Communications Officer is stationed at the Jabiru field station for this purpose.

The following factors provided the context for the planning and design of the 2005–06 research program:

- Mining of uranium at Ranger is expected to cease in about 2008. This will be followed by milling until about 2015 and rehabilitation is expected to be largely completed by about 2019.
- Nabarlek is decommissioned but has not reached a status where the NT Government will agree to issue a Revegetation Certificate to the mine operator. Assessment of the success of rehabilitation at Nabarlek is ongoing and is being used as an analogue for rehabilitation at Ranger.
- Jabiluka will remain in a care and maintenance condition for some years, at least until mining ceases at Ranger.
- SSD will provide ongoing assistance to Parks Australia on matters relating to the assessment and rehabilitation of the cluster of small abandoned historic uranium mines in the South Alligator River Valley.

This report has been structured under five main headings, consistent with the KKN framework:

- 1 Ranger – Current Operations
- 2 Ranger – Rehabilitation
- 3 Jabiluka
- 4 Nabarlek
- 5 General Alligators Rivers Region

Three maps (following this Preface) provide the regional context for the locations that are referenced in the research papers. Map 1 shows Kakadu National Park and the locations of the Ranger Mine, Jabiluka project area, the decommissioned Nabarlek Mine, and the South Alligator River Valley. A schematic of the Ranger mine site is provided for reference in Map 2. Map 3 shows the locations of billabongs and waterbodies used for the aquatic ecosystem monitoring and research programs for assessing impacts from the Ranger Mine.

The final section of this report contains a summary of the non-uranium mining related external projects carried out in 2005–06.

Dr DR Jones

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