

SUPERVISING SCIENTIST'S OVERVIEW

The Supervising Scientist plays an important role in the protection of the environment of the Alligator Rivers Region of the Northern Territory through the supervision, monitoring and audit of uranium mines in the Region, as well as research into the possible impact of uranium mining on the environment of the Region.

Ranger is currently the only operational uranium mine in the Region, and is owned and operated by Energy Resources of Australia Ltd (ERA). Production commenced at Ranger in August 1981, and current plans will see mining of the Ranger 3 deposit cease in 2012 with milling of stockpiled ore expected to continue through until 2020.

As the time of mine closure and rehabilitation draws closer, the work of the Supervising Scientist includes a focus on these themes. Staff have been engaged with stakeholders in discussions and research activities associated with rehabilitation and closure.

Apart from rehabilitation and mine closure planning, staff of the Division remain active in ongoing supervision, inspection and audit, radiological, biological and chemical monitoring, and research activities in relation to both present and past uranium mining activities in the Region. Significant work has continued in developing improvements to the Supervising Scientist's surface water monitoring program. This program is relevant to both the operational and rehabilitation phases of mining.

During the year there were no reported incidents that resulted in any environmental impact off the immediate minesite. The extensive monitoring and research programs of the Supervising Scientist Division confirm that the environment has remained protected through the period.

At Ranger mine the 2007–08 wet season was near average with rainfall of 1658 mm. As a result there was less pressure on the pond water component of the mine's water management system than for the previous two years and irrigation with pond water was suspended in June. During the year, approval was given for the construction and operation of a second pond water treatment plant on site.

A further three metre lift of the walls of the Ranger tailings storage facility has commenced and is due for completion during the 2008 dry season. In addition to operational flexibility for ERA, this lift provides an enhanced level of environmental protection in process water management during the commissioning of a process water treatment plant and the decommissioning of Ranger Pit 1 as the active tailings storage facility, both of which are expected to occur during the latter half of 2008.

The Jabiluka project remains in long-term care and maintenance, and the next stage of the project is a matter for discussion between ERA and the area's traditional Aboriginal owners.

The Nabarlek mine in western Arnhem Land was decommissioned in 1995 and the rehabilitation of this site remains under ongoing assessment. During the year Uranium Equities Limited (UEL) purchased Queensland Mines Pty Ltd, owner of the Nabarlek mineral lease. UEL has submitted a new Mining Management Plan for operations on the

site. This plan sees a change in focus for the lease with an active exploration program being included in proposed future activities.

Details on research outcomes of the Environmental Research Institute of the Supervising Scientist (*eriss*) are published in journal and conference papers and in the Supervising Scientist and Internal Report series. Some important programs have been described in this annual report.

In particular, the water quality monitoring program has been enhanced with the installation of continuous monitoring equipment for pH, electrical conductivity and turbidity in Magela Creek upstream and downstream of Ranger mine. This program has now operated in parallel with the normal water quality monitoring program for the past four wet seasons to provide baseline information for a review of monitoring programs. From the continuous monitoring results indications are that water quality variations, both natural and mine-related, can occur on a shorter time base than weekly and the continuous monitoring program therefore has potential to be superior to the weekly grab sampling technique that is currently employed. Further research is required to determine what, if any, implications this may have in regard to trigger levels for responses to observed pulse events.

The principal biologically-based toxicity monitoring approach since 1991 has been creekside monitoring, in which a continuous flow of water from the adjacent Magela Creek is pumped through tanks containing test animals. During the past three wet seasons, *eriss* staff have been evaluating the viability of in situ testing – deploying floating containers in Magela Creek itself, using the more sensitive test organisms currently used for the creekside monitoring program. Assessment of the parallel creekside and in situ monitoring has determined that the in situ method is as effective as the creekside method and the creekside program will be discontinued in favour of the more efficient in situ method commencing from the 2008–09 wet season.

A major program of research on characterisation of northern tropical rivers and assessment of risk from actual and potential threats was carried out under the framework of the Tropical Rivers Inventory and Assessment Project (TRIAP). The work was a collaborative effort between *eriss*, James Cook University and the University of Western Australia, with additional involvement of Charles Darwin University and the University of Wageningen (The Netherlands). The project commenced in late 2004 and was completed during 2007–08. Datasets and some of the methodologies developed during TRIAP are being transferred and integrated into the research program of the recently established Tropical Rivers and Coastal Knowledge (TRaCK) hub established by the Commonwealth Environmental Research Facilities (CERF) program.

In May 2006, the Australian Government announced funding of \$7.3 million over four years to undertake rehabilitation of former uranium mining sites in the South Alligator River Valley in the southern part of Kakadu National Park. The Supervising Scientist Division has provided advice and assistance to the Director of National Parks on management of these sites for a number of years, and continues to provide scientific and technical advice and assistance as the rehabilitation works progress.

Following the election of a new Australian Government in November 2007, the Hon Peter Garrett AM MP was appointed as Minister for the Environment, Heritage and the Arts assuming ministerial responsibility for the Supervising Scientist Division.

The Alligator Rivers Region Technical Committee (ARRTC) continues to play a vital role in assessing the science used in making judgements about the protection of the environment from the impacts of uranium mining. The Committee concluded revision of its definitive 'Key Knowledge Needs' document during 2007–08.

Dr Simon Barry was appointed as replacement for Dr Keith Hayes, who resigned from ARRTC last year. One of the independent scientific members of the committee, Professor Jonathan Nott, has resigned since my last report. Recruitment of a replacement for Professor Nott is in progress.

Finally, I would like to offer my personal thanks to all the staff of the Supervising Scientist Division for their enthusiasm and efforts during the year. The commitment and professionalism of the Division's staff has been a vital factor in the Division being able to fulfil its role in ensuring that the environment of the Alligator Rivers Region remains protected.

A handwritten signature in black ink, appearing to read 'Alan Hughes', with a stylized flourish at the end.

Alan Hughes
Supervising Scientist