

access road is built. The purpose of the culvert is to allow rainfall runoff to pass under the access road, and also to maintain the integrity of the Tailings Dam Corridor. It also retains access to the pipelines which would otherwise have been buried under the access road.

Over a period of 18 months to two years, silt was allowed to build up in the Access Road Culvert burying a small part of these pipelines. The maintenance and inspection regime applied by ERA to the pipes in the Tailings Dam Corridor includes a visual inspection three or four times per shift. The gradual covering of a section of the pipelines should have been identified by these visual inspections. Action should then have been taken by ERA to prevent any further siltation of the pipelines, and to remove any silt which prevented visual inspections of the pipelines. These actions were not taken representing a failure of the ERA maintenance and inspection regime for the pipelines in the Tailings Dam Corridor. Had these actions been taken, the leak, if it occurred at all, would have been identified and repaired before significant quantities of tailings water had escaped the TWRP.

An examination of the Tailings Dam Corridor inspection records maintained by ERA indicates that inspections were made as required. It is interesting to note however the entry recorded on 4 April 2000, the date on which the TWRP was being repaired. The entry was "All lines OK". Whilst this may be technically correct in that the TWRP was not leaking, the entry does not reflect the significant deviation from normal operation of the TWRP which applied at that time. Such minimalist record keeping renders such inspection records of limited use.

5 Discussion on issues arising from the investigation

This investigation of the leak from the Tailings Water Return Pipeline has demonstrated that the environmental consequences of the leak were negligible both for the health of people living downstream from the mine and for the ecosystems of Kakadu National Park. Nevertheless, the investigation has raised a number of issues that need to be addressed if the standard of environmental performance which has been achieved in the past at Ranger is to be maintained in the future. These issues are addressed in this section.

5.1 Design and Maintenance of the Tailings Dam Corridor

As part of this investigation the Supervising Scientist conducted a review, through Sinclair Knight Merz Pty Ltd (SKM), of the design of the tailings dam corridor and of the adequacy of ERA's operation and maintenance program in the corridor.

The SKM Report concluded that the fundamental design and operation of the Tailings Dam Corridor was appropriate at the time of initial construction and operation, and is still appropriate. However, the report made a number of recommendations related to the design of the Tailings Dam Corridor. The principal issue raised is the extent to which the corridor fulfills its role as an impermeable secondary containment system. A full review of the Tailings Dam Corridor is required to determine the extent to which the Corridor meets this requirement.

Recommendation 1

ERA should undertake a full review of the Tailings Dam Corridor with particular emphasis on the efficacy with which it performs the task of providing secondary containment. The Terms of Reference for the Review should be approved by the Supervising Scientist.

The principal conclusion of the SKM review on the operation and maintenance of the Corridor is that the standard of maintenance has deteriorated and does not meet the standard achieved in earlier years of the operation. A number of recommendations were made for improvements in the maintenance regime. The same conclusion has been reached in ERA's internal management review "Significant Incident Investigation Report – Process Water Pipe Leak at ERA" (Appendix 3). The latter report concluded that, when the tailings lines were decommissioned at the western end of the corridor (the location of the leak) and tailings were pumped directly to Pit 1, the perceived hazard and the response to it by ERA reduced. This reduced perception of the hazard led to a poorer maintenance regime and was a direct contributor to both the leak itself and to the delayed identification of the source of the leak.

Recommendation 2

All Recommendations on maintenance procedures in the Tailings Dam Corridor made in the Sinclair Knight Merz Review of the Tailings Dam Corridor should be implemented.

5.2 ERA response to the incident

The Ranger Management Team was aware on 29 March 2000 that there was a significant probability that tailings water had escaped to a surface water system which flows to the environment. ERA now recognises that this was a reportable incident but, for some reason, the Management Team considered the issue at the time and chose not to report it. ERA has conducted a review of management actions throughout the period of this incident. It concluded that there was no deliberate intent to deceive or dissemble. Rather, the underlying reason is likely to have been a lack of recognition by the Ranger Management Team of the needs and expectations of stakeholders.

Recommendation 3

ERA should strengthen the Ranger Management Team to ensure that there is an effective interface with external stakeholders and that decisions are made quickly to meet the expectations of the stakeholders.

This lack of recognition of the needs of stakeholders appears to permeate down through the organisation at ERA Ranger mine. There appears to be a considerable reluctance on the part of staff to pass on information that could be of importance not only to the NTDME and the OSS but also to senior management at ERA. This may stem from a perception, somewhat justified by past experience of public responses, that the reporting of incidents produces a primarily political response rather than an objective assessment of significance. ERA needs to take steps to improve the awareness of all of its staff to ensure that the open and transparent system of reporting to which it is committed is implemented.

Recommendation 4

ERA should take immediate steps to put in place an employee training program designed to ensure that all employees appreciate the need to keep the authorities informed of any event that could be perceived to be of concern to the local Aboriginal people or the broader community, not just incidents that are acknowledged infringements of the Ranger General Authorisation or the Environmental Requirements.

Recommendation 5

The Supervising Scientist should offer to assist ERA in the above training program. In particular, the Supervising Scientist should provide a briefing to ERA employees on issues of significance in this report, and any other issues that are considered to be of concern to members of the public.

An issue of concern in the ERA response to its discovery of enhanced concentrations of manganese in the culvert is that it does not appear to have been appreciated by the staff involved that the principal source of manganese on the mine site is the tailings circuit. This observation should have immediately triggered a concern that there could be a failure not only in the process water/tailings circuit but also a failure of the secondary containment system. Similar deficiencies in interpretative ability was demonstrated in other ways until much later in the investigation when senior scientific staff from EWL (Earth Water Life Sciences, ERA's environmental consultants) were consulted on the problem.

ERA has advised that notification of stakeholders was prepared on 10 April 2000 but was not sent until 28 April due to "a sequence of internal delays (the Easter and ANZAC day break and the assumption that no process water had escaped off site)". How ERA came to the conclusion that no process water had escaped off site, (which we interpret as loose wording referring to contaminants in the process water, which is the issue) considering the monitoring data in the VLGCR available to it, is not well established. Whilst ERA would have been aware at the time that only a small proportion of the contaminants in the process water could have reached Kakadu National Park, it should not have assumed that no contaminants had escaped off site.

The notification which was provided on 28 April 2000 (Appendix 1) was inadequate. It made no mention of the elevated manganese concentrations in the VLGCR nor did it allude to the possibility that process water was the cause of those elevated concentrations. Had OSS not made further inquiries of ERA by phone that afternoon, it is possible that the most important aspects of this incident would never have been revealed.

There is a clear need for ERA to strengthen its scientific interpretative capacity. The ERA management review (Appendix 3) supports this conclusion.

Recommendation 6

ERA should upgrade the environment protection staff structure at Jabiru to ensure that the company has the on site ability to effectively identify, interpret and rectify environmental incidents.

From the date of the public announcement of the occurrence of the incident, 2 May 2000, ERA has cooperated to the fullest extent possible with the authorities. The scientific rigour of the investigation of the incident led by EWL has been patently obvious and ERA has taken up all of the suggestions of the Supervising Scientist to undertake new and different analyses of archived samples in an attempt to understand some of the complicated processes that had clearly taken place during the 1989/1999 and 1999/2000 wet seasons. The report provided by ERA (Appendix 2) has been invaluable to the OSS in preparing this report.

While we now have a sufficient understanding of the leak of tailings water during the 1999/2000 wet season to prepare this report, there remain some outstanding issues. Principal among these is the need to continue work on the other sources of Mn in the Tailings Dam Corridor and the culvert during the 1998/1999 wet season. Work reported to date indicates that tailings affected waters were present in the culvert during that year. While this report has

concluded that this would not have given rise to harm to people or ecosystems downstream, the issue needs to be fully investigated and resolved.

Recommendation 7

ERA should complete a comprehensive investigation of the additional sources of manganese, including previous tailings spills in the Tailings Dam Corridor, and provide a report to the Minesite Technical Committee.

5.3 Breach of the Commonwealth's Environmental Requirements

An assessment is required of whether or not ERA has been in breach of the Commonwealth's Environmental Requirements (ERs) for the Ranger uranium mine. The relevant ER for the control of process water is reproduced below.

3.4 Process water must be totally contained within a closed system except for:

- (a) losses through natural or enhanced evaporation;
- (b) seepage of a quality and quantity that will not cause detrimental environmental impact outside the Ranger Project Area; and
- (c) subject to clauses 3.1, 3.2 and 3.3, process water which has been treated to achieve a quality which:
 - i) conforms to a standard practice or procedure recommended by the Supervising Scientist; and
 - ii) is not less than that of the water to which it is to be discharged.

It is clear that the tailings water escaped the Tailings Dam Corridor as seepage into the VLGCRS. Section 3 of this report discusses the environmental impact of this seepage. The conclusions drawn in that section would certainly support the view that the seepage was of a quantity and quality that will not cause detrimental impact outside of the Ranger Project Area. So a cursory review of the leak may, considering ER 3.4(b), lead to the conclusion that it is not a breach of the ERs.

However, the intent ER 3.4(b) is to acknowledge that the large water retaining structures such as the retention ponds and the tailings dam on the Ranger site were designed and constructed in a manner which can not absolutely prevent seepage from occurring. Seepage which is monitored from these large water retaining structures does not represent a failure of any kind as long as the seepage remains below acceptable levels, which these water retaining structures were designed to achieve.

The leak of tailings water from the TWRP is quite different to the situation described above. In this case, the TWRP failed, spilling tailings water into the Tailings Dam Corridor. Containment in the Tailings Dam Corridor also failed, allowing a significant quantity of the tailings water to enter the VLGCRS. ER 3.4(b) is therefore not applicable as it is not intended to allow failures of infrastructure designed to contain process water. Consequently, this incident constitutes a breach of ER 3.4.

The relevant ER on reporting of incidents is:

- 16.1 The company must directly and immediately notify the Supervising Authority, the Supervising Scientist, the Minister and the Northern Land Council of all breaches of any of these Environmental Requirements and any mine-related event which:
 - (a) results in significant risk to ecosystem health; or

- (b) which has the potential to cause harm to people living or working in the area;
or
- (c) which is of or could cause concern to Aboriginals or the broader public.

Whether ERA should have formally reported the increased concentrations of manganese in the VLGCR to OSS, NTDME, ISR and the NLC in early February 2000 is debatable. It would have been prudent to at least informally advise OSS of the observed concentrations by telephone as soon as the results of the analysis were known to ERA. However, on 29 March 2000, the Ranger Management Team was informed of a suspected leak of tailings water (process water) in the Tailings Dam Corridor which was known by ERA at the time to be a likely source of elevated concentrations of manganese measured in the VLGCR since early February 2000, which eventually flows to the environment.

Thus, the Ranger Management Team was aware on 29 March 2000 that there was a significant probability that tailings water had escaped to a surface water system which flows to the environment. Even considering the environmental insignificance of the event which has now been demonstrated, any reasonable person should have judged the release of process water to the VLGCR which eventually flows to the environment to be an issue that could cause concern to Aboriginal people living downstream of the Ranger uranium mine. Therefore, ERA was required by ER 16.1 to immediately report the incident to the OSS, NTDME, ISR and NLC. The fact that such a notification was not made immediately puts ERA in breach of ER 16.1.

The Supervising Scientist has concluded, therefore, that ERA has been in breach of Environmental Requirements 3.4 and 16.1.

The views of the Mirrar are important in the context of this discussion. The Supervising Scientist consulted the Mirrar at a meeting of the Gundjehmi Aboriginal Corporation on 13 June 2000. The purpose of the meeting was to enable the Mirrar to be advised of the details of the leak investigation, particularly the effects on people and the environment, and to seek feedback from the Mirrar on their concerns and expectations.

The Mirrar advised that what mattered to the Aboriginal people was that tailings water is dangerous, they had been promised that it would be contained and that this promise had been broken. All the assurances of the scientists did not matter to the people - what they care about is that dangerous water has been allowed to leak. They further advised that they want the Government to demonstrate that it takes the concerns of the Aboriginal people seriously.

Recommendation 8

The Minister for Industry Science and Resources should consider what action should be taken in response to the established breach of Environmental Requirements 3.4 and 16.1 taking into account:

- ***The radiological and ecological impact arising from the leak of tailings water to the environment has been negligible***
- ***The leak resulted from poor maintenance practices in the Tailings Dam Corridor***
- ***The view of the traditional owners of the Ranger Project Area is that Aboriginal people will only believe that the Government takes their concerns seriously if substantive action is taken.***

5.4 Statutory Environmental Monitoring Program

An important issue in the assessment of the tailings water leak is the fact that the data that initiated investigations were research data, not routine monitoring data. These data were not provided to the OSS or other members of the Minesite Technical Committee. As described earlier in this report, the statutory monitoring data which were provided to the authorities did not provide any indication of the leak.

The statutory environmental monitoring program is designed to quantify the loads and concentrations of contaminants which leave the Ranger Project Area and are attributable to mining operations on the site. They enable the comparison of water quality data with appropriate standards and also enable the identification of trends in water quality which, long before standards might be exceeded, would allow appropriate management action to be taken where trends of concern become evident. The program has not been designed to detect leaks in pipelines on the site. This incident has demonstrated that there is a need to improve the scope of the statutory environmental monitoring program.

The philosophy underlying the environment protection systems in place at Ranger is that it is recognised that a major industrial operation cannot operate without failures of plant and equipment at some time during the operational period and that, to ensure that the environment beyond the minesite is protected, barriers must be in place to contain contaminants in the event of failure. Wherever possible, therefore, significant potential sources of contaminants at the Ranger Uranium mine are managed using multiple levels of containment. For example, tailings water is transported within the TWRP (primary containment). The TWRP runs within the Tailings Dam Corridor (secondary containment). The Tailings Dam Corridor is designed so that water within it, including water which may have leaked from the TWRP, reports to the Tailings Dam Corridor Sump. The Tailings Dam Corridor Sump is designed to overflow into Pit 1. Any potentially contaminated water which escapes the Tailings Dam Corridor and enters Corridor Creek passes through wetlands (tertiary containment) which polish the water. This system of environment protection is illustrated in the schematic diagram in figure 21.

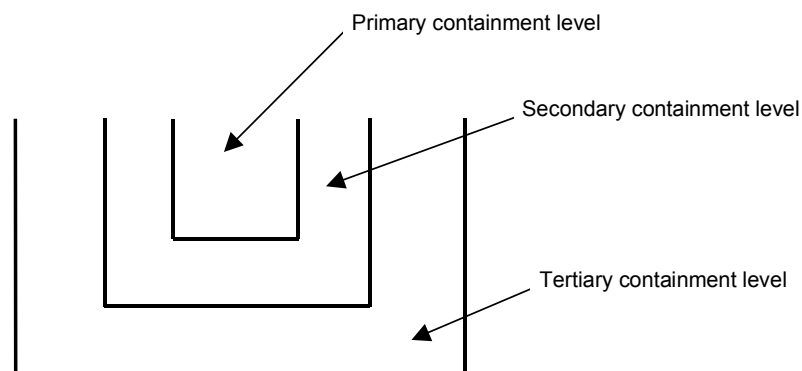


Figure 21 Schematic diagram illustrating the environment protection philosophy at Ranger

The current statutory monitoring program involves sampling of water at Georgetown Billabong, at a point upstream of Ranger (MCUS), and at GS8210009 upstream from the point at which the Magela Creek enters Kakadu National Park. These points are beyond the last level of containment. This is appropriate considering the purpose for which the Statutory Monitoring Program was designed. However, one of the lessons to be learned from this investigation is that it is now necessary to review the statutory monitoring program to determine the practicality of

including appropriate monitoring within the secondary and tertiary levels of containment. For example, in the case considered in this report, monitoring of ammonium ion and manganese in the Tailings Dam Corridor Sump would have provided an early warning of failure of a primary containment structure in the Corridor. Similarly, the research data which first indicated that there may have been a leak of tailings water were data for water beyond the second level of containment (the Tailings Dam Corridor) but within the third level of containment (upstream of the Corridor creek wetlands). This incident has demonstrated the value of environmental monitoring closer to potential sources of contamination. Such an extension to the Statutory Environmental Monitoring Program would provide an additional early warning capability within a formal reporting framework.

Recommendation 9

The statutory environmental monitoring program should be extended to enhance its capacity to provide early warning of unplanned releases of contaminants. This extension should include the establishment of additional monitoring locations within secondary containment systems that would indicate the failure of primary containment systems.

A second issue that arises in this context is the question of how failures in the secondary containment structures are to be detected prior to failure of the relevant primary containment structure. In the current case, the engineered structure between the tailings dam road and the culvert had clearly been permeable for some time, possibly since its installation. This failure was not detectable until the primary barrier (the pipeline) failed because no system is in place to detect failures in the secondary containment system. This needs to be rectified.

Recommendation 10

The Minesite Technical Committee should review the inspection and monitoring system at Ranger to establish and implement measures that will detect failures in the secondary containment systems and structures.

The use of research data collected by ERA and its consultants requires assessment. Had the research data been provided to the OSS and the other members of the Minesite Technical Committee when they became available, OSS would have been in a position to commence its own inquiries. This may have led to the identification of the source in a more timely manner.

There are sensitivities associated with the provision and use of research data. Research scientists are inclined to guard research data closely until it has been fully analysed and published, with appropriate discussion, in the scientific literature or in a report to the client in the case of research completed under contract. The primary concerns are the misinterpretation of an incomplete dataset, and the loss of intellectual property. These are valid concerns. Nonetheless, the provision of research data to the OSS as it becomes available should be required. Protocols can be developed on the use of such data to ensure the protection of IP rights.

Recommendation 11

ERA should provide the Supervising Scientist and the Supervising Authorities with all research data as they becomes available rather than at the end of research projects. Protocols should be developed for the appropriate use of research data.

It should be noted that ERA has identified this issue and, in his letter to the Supervising Scientist of 19 May 2000 (Appendix 4), the Chief Executive of ERA has undertaken to provide research data to the authorities as it becomes available.

5.5 Inspection of the Ranger Uranium Mine

The Ranger uranium mine is subject to a regulatory system which is unique in Australia. The mine operates under an authority issued pursuant to Section 41 of the Atomic Energy Act 1953. The Environmental Requirements for the mine are stipulated in that authority. The Northern Territory Department of Mines and Energy (NTDME), as the regulatory authority for mining activities in the Northern Territory, is responsible for administering regulatory processes underpinned by Northern Territory Legislation. Those regulatory processes include the issue of the Ranger General Authorisation (RGA) which defines regulatory requirements, the assessment and approval of various operational manuals, compliance audits and inspections of Ranger operations by Inspectors appointed under relevant Northern Territory legislation, and check monitoring. In summary, NTDME is responsible for the day to day regulation of the Ranger uranium mine.

The Supervising Scientist is responsible for supervising the environmental aspects of mining operations at Ranger with particular reference to the Commonwealth's Environmental Requirements (ERs) for the Ranger Uranium Mine. The ERs address all potential environmental hazards associated with the Ranger operations but, unlike the RGA issued by NTDME do not constitute detailed regulatory requirements. Rather, the ERs focus on environmental protection outcomes, and stipulate in broad terms the processes which must be followed to meet defined Primary Environmental Objectives. Whereas NTDME undertakes site inspections and compliance audits to determine whether requirements under its legislation are being met, the Supervising Scientist undertakes Environmental Performance Reviews (EPRs) to determine whether requirements under the ERs are being met.

Working Arrangements agreed by the Commonwealth and Northern Territory Governments delineate the responsibilities of NTDME and the Supervising Scientist and establish consultative processes which allow both parties to meet their responsibilities without significant duplication of effort. The Working Arrangements were revised in 1995 following the expression of concern that the Supervising Scientist was duplicating the work of the NTDME. Prior to this revision, staff of the Supervising Scientist conducted regular inspections of the mine site and provided reports to ERA. Thus, the current Working Arrangements reflect the then government's view that the Supervising Scientist should focus on environmental outcomes and that the Northern Territory should be responsible for all day to day aspects of regulating of uranium mining activities in the ARR.

Despite the level of government scrutiny to which Ranger is subject, as is very briefly described in the preceding paragraphs, the gradual burial of the TWRP by silt was not identified as an issue requiring remedial action. Compliance inspections of the Ranger site undertaken by NTDME should have recognised the burial of the TWRP, and resulted in an instruction to ERA to undertake appropriate remedial work. NTDME inspections should also have identified shortcomings in the maintenance of the Tailings Dam Corridor, such as the presence of disused pipe segments, partial burial of pipelines, and some vegetation growing around the pipelines which should have been removed. NTDME has both the responsibility and the authority to require ERA to improve performance when required.

NTDME inspectors visit the Ranger site regularly but NTDME does not have in place a regular program of inspection specific to the Tailings Dam Corridor. Inspections of the Tailings Dam Corridor are made by NTDME inspectors on an exceptions basis. That is, the Tailings Dam Corridor is inspected in response to issues which arise such as following a reported leak from a pipeline. The lack of a structured proactive inspection regime for the

Tailings Dam Corridor is identified as a deficiency in the NTDME regulatory system which compounded the deficiencies in the ERA inspection and maintenance program.

It is recognised, however, that the Ranger Uranium mine is a large industrial facility, and that detailed and frequent inspections of every part of every unit of infrastructure on site would require resources that are not available to Government regulators. Consequently, the inspection regime should be based on the risk to the environment and human health posed by the failure of site infrastructure. In relation to the Tailings Dam Corridor, this incident and previous incidents over the last twenty years have demonstrated that those risks are very small. Hence it is appropriate that the Tailings Dam Corridor not be subject to the same level of scrutiny as, for example, is the tailings dam.

Recommendation 12

NTDME should undertake a comprehensive review of its site inspection regime in the light of deficiencies identified in this report, and design and implement a new proactive inspection regime within a risk management framework.

OSS and NTDME undertake joint inspections of the Tailings Dam once per year. The most recent Tailings Dam Inspection prior to the occurrence of the leak was in August 1999. These inspections address the operation, integrity and stability of the Tailings Dam and also involve consultants as required. Whilst these joint NTDME/OSS inspections focus on the Tailings Dam in significant detail, they also include a cursory inspection of the Tailings Dam Corridor. The environmental risk associated with a failure of a pipeline in the Tailings Dam Corridor is negligible compared to the risk associated with a failure of the Tailings Dam itself. This has been clearly demonstrated by the TWRP leak which, as discussed in section 3, has not had any adverse impact on Kakadu National Park. Considering the need to allocate resources within a risk management framework, it is appropriate that the Tailings Dam component of these inspections are far more rigorous than the Tailings Dam Corridor component. Nonetheless, the burial of the TWRP was not noted by officers of either the OSS or NTDME during these inspections.

Environmental Performance Reviews (EPRs) undertaken by OSS focus on environmental protection outcomes and are not designed to address in detail the maintenance of on-site infrastructure. Consequently, it is not surprising that the EPRs did not reveal the burial of the TWRP. However, each EPR includes an inspection of key sites on the Ranger Project Area and OSS officers would have driven over the Access Road Culvert and the buried section of TWRP. Even taking into account the OSS focus on environmental protection outcomes rather than the maintenance of on-site infrastructure, the failure of OSS to observe the burial of the TWRP, and to raise the issue with NTDME and ERA must be considered a shortcoming.

The above delineation of the supervisory and regulatory responsibilities between the Supervising Scientist and NTDME appears to have met the expectations of key stakeholders and the general public for a number of years after its introduction in 1995. During the past few years, however, perhaps because of the recent focus on Jabiluka, there has been an increase in the expressions of concern about the ability of the Supervising Scientist to provide reliable assurances to the public when he has to rely heavily on information provided by the mining company and/or by the Department of Mines and Energy which is seen primarily as a proponent of mining. These concerns have heightened following the reporting of the tailings water leak and will, no doubt, heighten again following the release of the information contained in this report.

In order to keep pace with these changing expectations on the independent nature of the assessments carried out by the Supervising Scientist, the Supervising Scientist should ensure that there is an adequate and independent on-site audit program related to potential off-site environmental consequences arising from operation of the Ranger mine and mill.

Recommendation 13

The Supervising Scientist should ensure that there is an adequate and independent on-site audit program related to potential off-site environmental consequences arising from operation of the Ranger mine and mill.

5.6 Environmental monitoring programs

Similar concerns to those described above have been expressed by the public about the reliance by the Supervising Scientist on data from ERA in the provision of assessments to the Parliament and the public on the extent to which the environment and people are protected from the effects of uranium mining at Ranger. In simple but blunt terms, the public does not trust the mining company. This has been made abundantly clear in public statements by various interested parties following the announcement of the leak of tailings water. Importantly, the Mirrar made this point strongly to the Supervising Scientist at his meeting with the Gundjehmi Aboriginal Corporation on 13 June 2000.

The primary reason for the existence of the Supervising Scientist is to enable credible and independent assurance to be given, when justified, to the Australian community on the extent to which the environment of the Alligator Rivers Region is being protected from the effects of uranium mining. The independence of the Supervising Scientist is enshrined in the provisions of the EP(ARR) Act. However, under the current monitoring regime, the Supervising Scientist is often unable to provide the level of credibility demanded by the public because the primary data used in environmental assessments are provided by ERA. For these reasons, it has been concluded that the Supervising Scientist should develop and implement a routine environmental monitoring program. The program should not simply duplicate that required of ERA. The focus of the program should be the provision, within the context of the Environmental Requirements, of advice on the extent of protection of the people and ecosystems of Kakadu National Park. A component of the program could also provide support to the on-site audit program referred to above. No amendments to the *Environment Protection (Alligator Rivers Region) Act 1978* would be required to enable the implementation of this monitoring program.

Recommendation 14

The Supervising Scientist should develop and implement a routine environmental monitoring program whose focus should be the provision of advice on the extent of protection of the people and ecosystems of Kakadu National Park. A component of the program could also provide support to the on-site audit program referred to in Recommendation 13.

Recommendation 15

The Working Arrangements between the Commonwealth and the Northern Territory regarding the regulation of uranium mining activities in the Alligator Rivers Region should be reviewed and amended to take into account changes in the activities of the Supervising Scientist arising from this report.

5.7 Reporting of Incidents

There are acknowledged difficulties with the current reporting system for incidents at the Ranger Mine. As outlined in section 5.3, ERA is required to report all breaches of the Environmental Requirements and any mine-related event which

- (a) results in significant risk to ecosystem health; or
- (b) which has the potential to cause harm to people living or working in the area; or
- (c) which is of or could cause concern to Aboriginals or the broader public.

One difficulty is that where there has been no clear breach of the ERs, staff of ERA are required to make a judgement on whether an issue could be of concern to Aboriginal people or the broader community. There is always a risk that ERA's judgement will not be consistent with the that of other stakeholders. This appears to have been a contributing factor to the lack of reporting of the current incident.

A further difficulty arises from competing interests in the reporting objectives. On the one hand, the importance of the environment that surrounds the Ranger mine, Kakadu National Park, has resulted in the Commonwealth Government's demand that a completely open and transparent system of reporting exists. This has resulted in the formal reporting of more than one hundred incidents over the life of the mine. An assessment of these incidents by the Supervising Scientist has shown (Johnston and Needham 1999) that only one of these incidents was of ecological significance.

On the other hand, the very reporting of the incidents has, independent of their environmental significance, given rise to genuine concerns for members of the public, particularly the local Aboriginal population. In the case of the incident that is the subject of this report, it has been clearly demonstrated that no harm to people or downstream ecosystems occurred. Nevertheless, the Supervising Scientist has been advised that Aboriginal people in the region are "fearful" of contamination in water due to the TWRP leak and that they will not consume foods obtained from Mudginberri Billabong.

A possible approach that will retain the transparency of the current system but not give rise to undue but genuinely felt concern is one that is based upon the environmental protection philosophy discussed in section 5.4 and depicted schematically in figure 21. Provided Recommendation 10 is implemented, that is the integrity of secondary containment structures is assured, the failure of a primary containment structure clearly cannot give rise to an environmental impact nor should such a possible impact be of concern to Aboriginal people or the broader community. Such an incident need not, therefore, be formally reported under ER 16.1 and need not be recorded by the Supervising Scientist in his Annual Report to Parliament.

However, all such incidents should be reported, outside the framework of ER 16.1, to the members of the Mine Site Technical Committee to ensure that the regulator and the Supervising Scientist can assess the adequacy of remedial action taken to correct the failure and to ensure that the integrity of the primary containment structure has been restored. This would be an improvement on the current system from the regulatory perspective because many incidents in this category have not been reported, quite legitimately, over life of the mine.

Recommendation 16

The Mine Site Technical Committee should develop guidelines clarifying requirements for the reporting of incidents which retain the transparency of the

current system, are consistent with Environmental Requirement 16.1, reduce the need for the exercise of judgement by staff of ERA and will assist in minimising undue concern for Aboriginal people and the broader community.

When considering reporting arrangements it is important not to overlook reporting between NTDME and OSS. The Working Arrangements state that there should be frequent and detailed communication between the Supervising Scientist and NTDME. They also state that NTDME is responsible for ensuring that the mining company directly and immediately notify NTDME, the Supervising Scientist, DISR and the NLC of any environmental event or incident which has the potential to cause concern to Traditional Owners or the broader public. The Working Arrangements do not, however, require NTDME or the Supervising Scientist to inform each other of any information they may acquire independently which could be of environmental significance. This is a deficiency in the Working Arrangements.

In this instance, NTDME officers observed black precipitate indicative of the presence of manganese in the VLGCR on 2 February 2000. The officers recognised this to be unusual prompting them to collect water samples from the VLGCR for analysis. This information was not passed by NTDME to the Supervising Scientist until investigations commenced after ERA notified OSS of the incident on 28 April 2000. Had the Working Arrangements required NTDME to report this observation to the OSS, OSS would have been in a position to commence its own inquiries and the leak may have been identified in a more timely manner.

Recommendation 17

The Working Arrangements between the Commonwealth and the Northern Territory regarding the regulation of uranium mining activities in the Alligator Rivers Region should be reviewed and amended to require the Department of Mines and Energy and the Supervising Scientist to immediately inform each other of any information they may acquire independently which could be of environmental significance.

6 Conclusions

This report has been prepared in response to requests from the Minister for the Environment and Heritage and the Minister for Industry Science and Resources. Its purpose has been to investigate and report on the leak of water from the Tailings Water Return Pipe at the Ranger uranium mine during the 1999/2000 wet season with specific reference to:

- The origin of the leak and the adequacy of remediation measures taken to prevent similar occurrences in the future
- The extent to which the people and the environment of Kakadu National Park have been adversely affected by the leak
- The extent to which Energy Resources of Australia has complied with the reporting requirements specified in the Environmental Requirements that apply to the Ranger operation.

6.1 Origin of the leak and adequacy of remediation measures

It has been established that the volume of water that leaked from the tailings water return pipeline was about 2000 cubic metres during the 1999/2000 wet season. Of this, only a small fraction, about 85 cubic metres, entered the culvert which flows to the Corridor Creek Wetlands. The remainder was collected in the tailings corridor sump and returned to the water management system.