



Australian Government

**Department of Agriculture,
Water and the Environment**

Supervising Scientist

Alligator Rivers Region Advisory Committee

Meeting 56

Meeting Summary

23 September 2021

**Jabiru Field Station
and by Teams**

AGENDA

Meeting Start: 10:00		
1		Welcome and Acknowledgement of Country
2		Apologies/Observers
3		Acceptance of minutes and actions arising from ARRAC55
4		Governance/Appointments
5		Supervising Scientist Report and presentation
6		Energy Resources of Australia Ltd presentation
7		NT Department of Industry, Tourism and Trade Report and presentation
8		Member Reports
	8.1	Gundjeihmi Aboriginal Corporation
	8.2	Northern Land Council
	8.3	Environment Centre NT
	8.4	DevEx Resources
	8.5	NT Environment Protection Authority
	8.6	NT Department of Health
	8.7	Administrator of the NT
	8.8	Australian Radiation Protection and Nuclear Safety Agency
	8.9	Australian Government - Department of Industry, Innovation and Science
	8.10	Australian Government - Parks Australia
9		Other Business
10		Next Meeting and Actions Arising
Meeting Close: 14:20		

ATTENDANCE

The following members, deputy members and observers were present at the meeting

Members and Deputies	Organisation
Professor Charles Webb	Independent Chair
Keith Tayler	Australian Government – Supervising Scientist
Sharon Paulka	Energy Resources of Australia Ltd
Shaun Barclay (Proxy)	Australian Government – Parks Australia
Shar Molloy (Proxy)	Environment Centre NT
Christine Cakebread	Representing the Administrator of the NT (via Teams)
Dr Chris Brady	Northern Land Council (via Teams)
Cameron Lawrence	Australian Government – Australian Radiation and Nuclear Safety Agency (via Teams)
Roslyn Vulcano	Northern Territory Government – Department of Industry, Tourism and Trade (via Teams)
Justin O'Brien	Gundjeihmi Aboriginal Corporation (via Teams)
Brendan Bradley	DevEx Resources Ltd (via Teams)

Matthew Crawshaw	Australian Government – Department of Industry, Science, Energy and Resources (via Teams)
Tracy Ward	NT Department of Health (via Teams)
Bradley Feldtman (Deputy)	NT Department of Health (via Teams)

Observers	Organisation
Josh Curran	Energy Resources of Australia Ltd
Andrew Nelson	Energy Resources of Australia Ltd
Anthony Cullen	Energy Resources of Australia Ltd
Xavier Moreau	Vimy Resources Ltd
Angela Kraatz	Australian Government – Department of Industry, Science, Energy and Resources
Andrea Hanley	Northern Territory Government – Department of Industry, Tourism and Trade
Katherine Smith	Australian Government – Supervising Scientist Branch
John Miller	Australian Government – Supervising Scientist Branch
Sean Fagan	Australian Government – Supervising Scientist Branch
Chris Humphrey	Australian Government – Supervising Scientist Branch
Andrew Harford	Australian Government – Supervising Scientist Branch
Renee Bartolo	Australian Government – Supervising Scientist Branch
Elsa Lee-McGill	Australian Government – Supervising Scientist Branch
Sally-Anne Atkins	Australian Government – Supervising Scientist Branch
Rachel Martin	Australian Government – Supervising Scientist Branch
Dr Chris Humphrey	Australian Government – Supervising Scientist Branch
Mia Sandgren	Australian Government – Supervising Scientist Branch
Melanie Trenfield	Australian Government – Supervising Scientist Branch
Aimee Chong	Australian Government – Supervising Scientist Branch
Mina Lee	Australian Government – Supervising Scientist Branch
Brayden Miller	Australian Government – Supervising Scientist Branch
Jess Dober	Australian Government – Supervising Scientist Branch
Carly Hansen	Australian Government – Supervising Scientist Branch

APOLOGIES

The following members and deputy members sent their apologies.

Members	
Armando Padovan	Northern Territory Government – Department of Industry, Tourism and Trade
Kirsty Howey	Environment Centre NT
Forrest Egerton	Energy Resources of Australia Ltd
Nick Purtell	Australian Government – Department of Industry, Science, Energy and Resources
Paul Purdon	NT Environment Protection Authority

Jodie Swirepik	Australian Government – Parks Australia
Adam Thompson (Deputy)	Northern Land Council
Caitlin Searle (Deputy)	Australian Government – Department of Industry, Science, Energy and Resources (via Teams)

MINUTES

1. Acknowledgement of Country

The Chair provided an Acknowledgement of Country.

2. Apologies/Observers

The Chair welcomed members and presenters to the meeting and acknowledged the apologies received and observers attending (see list above).

3. Acceptance of minutes and actions arising from ARRAC55

The draft ARRAC55 meeting summary circulated to members on 18 May 2021 was endorsed with no changes.

There were no actions arising from ARRAC55 and one outstanding action from ARRAC54 was discussed (see Action table below). Action ARRAC54:4 was yet to be completed and carried over to the next meeting.

4. Governance/Appointments

The Chair noted the following membership changes:

- The minister has appointed Kirsty Howey as the member for the Environment Centre NT.
- The minister has appointed Forrest Egerton as the member for Energy Resources of Australia.
- Nick Purtell (Department of Industry, Science, Energy and Resources) has resigned. The Department has nominated Matthew Crawshaw as a new member and Caitlin Searle as a new deputy member. Their appointments are ongoing.

5. Supervising Scientist Report and presentation

Supervising Scientist Branch (SSB) provided an update on the research, monitoring, assessment, audit and verification program activities since ARRAC 55.

Keith Tayler noted:

- Water quality monitoring data indicate that Magela and Gulungul creeks remained protected during the 2020-21 wet season.
- Ranger uranium mine ceased processing of uranium ore on 8 January 2021.
- New research and monitoring projects, as well as the new verification program, are being implemented by SSB.
- SSB's ongoing engagement with traditional owners and the community, including the public release of a Water Quality Report Card for the 2020-21 wet season.
- SSB's involvement in the South Alligator Disposal Facility, National Radioactive Waste Management Facility and ongoing international projects.

Research

Katherine Smith noted the key achievements of SSB's research program since the last ARRAC meeting. Highlights included identifying savanna tree species from drones using artificial intelligence, characterizing the release of radioactive radon gas from a rehabilitated landform and building the genomics database from northern macroinvertebrate species. SSB had developed new

research tools and technologies, such as omics, artificial intelligence and using drones to collect data which can be analysed with artificial intelligence.

In response to queries from Dr Charles Webb, Katherine Smith clarified that 84 out of a total of 154 research projects had been completed and that publication of project findings was sometimes required for a project to be closed.

Katherine Smith and Keith Tayler explained how SSB tracks the overall progress and completion of research project against timelines. This tracking includes oversight and project closure endorsement by the Alligator Rivers Region Technical Committee and adjusting internal project tracking systems based on the progress of ERA's closure activities. SSB have completed over half of the projects determined to be necessary to address Ranger's closure related, Key Knowledge Needs. Katherine Smith agreed to make the summary of this information presented in the ARRAC report clearer in future reports.

Shar Molloy asked if there is a post-2026 research plan and about future funding for SSB. Keith Tayler responded that SSB's research program will continue beyond 2026, as new information requirements and knowledge gaps are identified. Keith explained that SSB is established by a Commonwealth act and closing SSB would require legislation changes to go through both houses of parliament. Currently, funding streams remain stable and well-supported by the government. Nonetheless, SSB recognises that operations and focus will change over the next ten years.

Water and biological monitoring

Melanie Trenfield provided the results of SSB's water quality and biological monitoring for the 2020-21 wet season. All water quality objectives in Magela Creek and Gulungul Creek were met for the season. Macroinvertebrate communities remain consistent with previous years and levels of bioaccumulated radium in muscles remain low, suggesting no influence from Ranger mine. These results conclude that the environment remained protected from the impacts of Ranger uranium mine.

Monitoring investigations

Aimee Chong provided an overview of current and completed SSB's monitoring investigations. Further information on the results of these investigations are available in SSB's Annual Technical Report.

- The Magela Downstream Investigation to assess inputs that are not related to Ranger mine is ongoing and will be expanded to include sampling in Barralil billabong.
- The Gulungul Creek Tributary 2 Investigation has been concluded. Results demonstrated the effectiveness of the Gulungul Creek Tributary Interception System.
- The Upper Gulungul Creek Investigation has been concluded. Results demonstrated that the source of increased solutes in Gulungul Creek Tributary South were not from mine water however management of CCLA groundwater levels was needed to mitigate these natural groundwater expressions.
- The Regional PFAS Sampling investigation has commenced to assess regional extent of PFAS. Preliminary results show the presence of PFAS across Magela, Gulungul and Barralil catchments. No PFAS was detected in the Jabiru township drinking water or in regional catchments. This investigation will continue.

Chris Brady asked for clarification on the location and extent of exceedances of the 99% and 95% species protection values downstream of the minesite. Aimee Chong clarified that downstream values exceeded the 99% species protection value but not the 95% species protection value. In response to a query from Chris Brady, Keith Tayler confirmed that as an emerging contaminant, PFAS would need to be considered in the water quality objectives. Keith Tayler noted that the current national guideline values are likely to be revised such that the measured contaminant levels will likely be below the revised guideline values.

In response to a query from Justin O'Brien, Keith Tayler explained that additional sampling will be undertaken and include both biota and water quality sampling. Justin O'Brien requested that GAC and NLC be consulted on this sampling and Keith Tayler agreed. Keith Tayler confirmed that the monitoring data collected by SSB has been provided to Parks Australia and to the Northern Territory Department of Health. It was noted that the SSB monitoring results are several orders of magnitude lower than PFAS contamination detected in the Katherine River. Testing by SSB used the lowest possible detection limit.

In response to a question from Shar Molloy, Keith Tayler noted that the Ranger fire station and processing areas, Jabiru landfill, airport and stormwater runoff were likely sources of PFAS contamination in the region. Sharon Paulka advised that preliminary investigations by ERA indicate that that water treatment at Ranger removes PFAS from mine waters.

Shaun Barclay advised that Parks Australia will engage a consultant to provide independent advice on PFAS to Gundjehmi Aboriginal Corporation.

Supervision and assessment and verification

Mia Sandgren presented an update on SSB's assessment, audit and inspection program. Since the last ARRAC meeting, SSB has reviewed the following key proposals from ERA:

- Tailings Storage Facility remnant tailings cleaning
- Transfer of residual tailings to Pit 3
- Ranger 3 Deeps decommissioning update
- Pit 1 water management strategy
- Pit 1 ecosystem re-establishment monitoring plan.

The Ranger inspection program had continued with a focus on the progress of the above listed proposals and rehabilitation activities. All items from the 2020 Ranger Annual Environmental Audit by stakeholders had been closed out by ERA. There were 16 environmental incidents reported by ERA between July 2020 and June 2021, with no notable incidents since the previous ARRAC meeting.

The remediation of the Radiologically Anomalous Area at Nabarlek had recently begun and DevEx have provided the results of groundwater sampling from 2020. These results are consistent with previous years.

Exploration in the Alligator Rivers Region has been limited due to COVID.

Mina Lee presented on the Ranger rehabilitation verification program. During the reporting period, verification of the backfill of the Ranger 3 Deeps exploration decline and vent shaft, and the Pit 1 as built were ongoing during the reporting period.

South Alligator Disposal Facility and Koongarra

Brayden Miller provided an update on the South Alligator Disposal Facility (SADF) and Koongarra Source, highlighting SSB's increased role in managing these areas on behalf of the Director of National Parks (DNP). Groundwater results for 2020/21 show that the environment remains protected.

Justin O'Brien asked about the depth of SADF, the closest waterway to the facility and when monitoring commenced. Brayden Miller advised that the facility is approximately 10 m deep, the closest water way is the South Alligator River and monitoring commenced in 2010 with groundwater monitoring added in 2012.

ARPANSA has identified that a radiation source licence is required for material stored at Koongarra (such as drill core). SSB will manage this source in a similar relationship with the DNP as for SADF. In response to a query from Shar Molloy, Brayden Miller explained that Parks Australia are

working with Traditional Owners to determine how to manage and dispose of containers at Koongarra.

In response to a comment from Xavier Moreau, Keith Tayler confirmed that the Northern Territory Geological Survey had been contacted and had advised that they do not want the core material in the containers.

Chris Brady and Justin O'Brien asked for clarification of the role of the NLC and traditional owners in inspections and long-term monitoring of Koongarra and SADF. Keith Tayler confirmed that consultation with traditional owners and NLC on current and future works is required under the current arrangements.

6. Energy Resources of Australia Ltd presentation

Sharon Paulka provided an introduction to ERA's presentation.

Josh Curran provided an overview of health and safety at Ranger, noting there were zero recordable injuries on site and a number of health and safety initiatives. A recent D6-Process safety audit noted that ERA was 84 per cent compliant with the Rio Tinto Global D6 (Process Safety) Standard.

Andrew Nelson provided an overview of environmental management on site.

- The extent of *Spigelia* on site continues to be monitored and tracked.
- The browsing ant surveillance program has largely been completed for the Ranger mine site. The eradication program is ongoing. Justin O'Brien asked about the historical transfer of shipping containers to GAC. Andrew Nelson noted that the National Browsing Ant Eradication Program NT is conducting contact tracing activities as required.
- Pond and process water treatment and offsite releases continued over the reporting period. Both continuous monitoring and grab samples indicated that water quality in Magela Creek remained below trigger values for the 2020/21 wet season.

Sharon Paulka provided an update on key closure packages, including:

- Decommissioning of process plant and make safe activities
- Process water treatment
- Ranger 3 Deeps final backfill
- Tailings transfer
- Pit 3 capping and backfill. Work to determine the optimal capping method and purchase wick material is underway.

Shar Molloy asked about the timeframe for the Pit 3 backfill application submission, if there were any environmental concerns and if this will affect the 2026 deadline. Sharon Paulka explained that the timeline is being pushed back by the engineering more-so than environmental modelling. ERA are committed to ensuring the best environmental outcome rather than a firm deadline. ERA intend to submit the Pit 3 backfill application by the end of the year.

Justin O'Brien noted that timelines are tight and not much needs to go wrong before timelines are exceeded.

Keith Tayler noted that environmental outcomes should be the focus.

- Revegetation of Walem Madjawulu-1 (the area formally known as Pit 1) has commenced with revegetation research trial planting and irrigation using centre pivot. ERA have been collaborating with stakeholders and Traditional Owners throughout.
- Nursery propagation and seed collection is on track for revegetation of the final landform. Seed collection remains a critical risk; seed collection is taking into account the viability of seeds.

- A cultural reconnection activity has been undertaken on Pit 1 with collaboration with Traditional Owners to install habitat areas (rocky outcrops).
- A detailed PFAS site investigation is underway.
- Environmental studies continue. Ongoing studies include groundwater modelling, surface water modelling, the contaminated sites investigations, bush tucker project, Pit 1 and stage 13.1 surface water monitoring and radiation dose assessment.
- The land application area soil assessment has been completed.
- The acid sulfate soils investigation indicated that there are ASS and this will require more investigation.

Bradley Feldtman asked why it was originally assumed no PFAS was used on site. Sharon Paulka explained that ERA's suppliers originally suggested the materials supplied to ERA did not contain PFAS. The suppliers later corrected that advice.

7. NT Department of Industry, Tourism and Trade Report and presentation

Roslyn Vulcano provided a verbal update.

- There are currently five exploration projects in the region: two operated by DevEx resources Ltd, one by Viva (Vimy Resources Ltd) and two by Alligator Energy Ltd. However, there has been little drilling activity in the region during the reporting period.
- ERA have maintained compliance with the Authorisation during the reporting period.
- Some exemptions to the Authorisation were granted to the company to account for altered site operations as processing ceased.
- One notable incident was reported in July 2021 related to dust escaping from the TSF.
- Regulatory activities are ongoing. These include, routine periodic inspections, mine site technical committee meetings, and collection and processing of data by the DITT environmental monitoring unit.
- The Department is currently recruiting a Manager Ranger Mine Closure.

Chris Brady noted inconsistencies between the ERA and DITT reports, the absence of Nabarlek and Jabiluka check monitoring, progress towards Ranger mine closure timeframes and uncertainty around the process for granting exemptions from the Authorisation.

Justin O'Brien noted that a letter provided from DITT to ERA regarding tailings management and the Ranger Authorisation requirements on 23 September 2021 was confusing.

Charles Webb noted that the DITT ARRAC report was not distributed to members until about an hour before the meeting was due to commence and raised concerns that insufficient time was provided for members to review the report. Roslyn Vulcano committed to more timely submission of reports for future ARRAC meetings.

Mia Sandgren noted that SSB did not discuss the TSF dusting incident as it occurred in July 2021 which is outside of the SSB reporting period for this meeting (July 2020-June 2021). SSB are aware of the incident and have conducted follow-up investigations and inspections which will be reported on at the next ARRAC meeting.

Shar Molloy commented on the capacity of DITT to regulate day-to-day activities at Ranger and noted flow-on-effects to mines in other areas. Shar Molloy noted the importance of filling the Manager Ranger Mine Closure position and ensuring it is the right person.

Chris Brady requested an update on NT's environmental reforms and the impact of the changes on Ranger. Roslyn Vulcano advised that the question should be directed to the Department of Environment, Parks and Water Security who are managing the environmental reforms.

8. Member Reports

8.1 Gundjeihmi Aboriginal Corporation

Justin O'Brien provided a verbal update on behalf of the Gundjeihmi Aboriginal Corporation including the following points:

- Concerns around the utility of ARRAC and request that the purpose and utility of ARRAC be reviewed. The focus of the committee should be sharpened to Ranger closure activities and progress towards closure.
- Concerns around the capacity of the Northern Territory Government as a regulator.
- Noting that there is insufficient time available for rehabilitation activities under the current Atomic Energy Act arrangements. GAC and NLC are seeking the most expedient amendment of the legislation possible.

Matthew Crawshaw confirmed that a bill has been prepared to extend regulatory arrangements over Ranger beyond 2026.

Charles Webb noted that according to the Act which establishes this committee, ARRAC is a communication vehicle and primarily a forum for information exchange. Nonetheless, if key stakeholders are not satisfied with the ARRAC format, this should be discussed further.

Justin O'Brien noted that this is an important forum for public consultation and information provision and that the legal framework should allow focussed issues to be discussed. Justin O'Brien noted that he was speaking on behalf of the traditional owners of the land.

8.2 Northern Land Council

Chris Brady provided a verbal update on behalf of the Northern Land Council including the following points:

- An article by Susan O'Sullivan (Legal Counsel, NLC) was published in the *Australian Environmental Review* in July 2021 titled *Ranger Uranium Mine: Commonwealth responsibility in the aftermath of mining*.
- Former Prime Minister Malcolm Fraser referred to the goal to make Ranger a world-wide model of forethought and planning. It is timely to reflect on the commitments and goal of rehabilitation. The NLC is not convinced we have entered the rehabilitation phase of a world-wide model of forethought and planning.

ACTION ARRAC56: 1: Secretariat to circulate Susan O'Sullivan's paper to all members.

8.3 Environment Centre of the Northern Territory

Shar Molloy provided a verbal update on behalf of the Environment Centre of the Northern Territory (ECNT) including the following points:

- The ECNT supports GAC's concerns around the capacity of the Northern Territory government to regulate Ranger mine.
- ECNT supports transparency around Atomic Energy Act amendments and propose that intended changes should be opened for public comment.
- ECNT hold concerns over funding for ongoing monitoring of Ranger rehabilitation beyond 2026.

Sharon Paulka noted that ERA have funds allocated for 25 years of post-closure monitoring.

Keith Tayler noted that SSB is currently well supported by the Australian Government.

Matthew Crawshaw noted that the Department of Industry, Science, Energy and Resources are following the usual process for amending legislation and that the security held by the Commonwealth Government includes provisions for post-2026 monitoring.

Roslyn Vulcano rejected the assertion regarding the Northern Territory government's capacity to regulate Ranger and reiterated that recruitment actions are underway.

8.4 DevEx Resources

No report provided.

8.5 NT Environment Protection Authority

No report provided.

8.6 NT Department of Health

Bradley Feldtman provided a verbal update on behalf of the NT Department of Health including the following points:

- The report provided to the Committee is an update for the whole year.
- The licence holder must notify the Department of Health of submission of dose records to the Australian National Radiation Dose Register (ANRDR). ERA did not submit records within the 6-week timeframe for two quarters this year. However, advance notice was provided.
- Forrest Egerton has taken on the licence holder position.

Sharon Paulka asked for an update on approval for historical doses being included in the ANRDR. An update was not available at the time of the meeting.

8.7 Administrator of the NT

No report provided.

8.8 Australian Radiation Protection and Nuclear Safety Agency

Cameron Lawrence noted that ARPANSA provided a written report to the committee.

Cameron Lawrence provided an update to the committee comprising the following points:

- No regulatory guides or technical reports of interest to the mining and milling of uranium industry have been released recently.
- Updates are underway for the National Directory for Radiation Protection and Code of Practice and Safety Guide for Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing.
- The International Atomic Energy Association is revising the guidelines for management of radioactive waste in the oil and gas industry. This guideline has more information on the management of naturally occurring radioactive materials.
- Updates to ARPANSA documents (Radiation Protection Series 9 and 9.1) to account for changes to dose coefficients are in the final stages of preparation. The updates should be published by the end of the year.
- ARPANSA continue to receive reports from ERA for input into the ANRDR. The ANRDR Advisory Body has determined that the best approach for mandatory submission of dose records to the ANRDR is the direct submission of dosimetry records from Dosimetry Service Providers (DSPs). There are currently four DSPs in Australia and ARPANSA are working with

these DSPs to pilot direct submission of dose records from their customers. ARPANSA are also drafting data specifications and developing accreditation guidelines for DSPs.

- Recent announcements by the Australian Government regarding nuclear submarines will trigger a review of the ARPANS Act.

8.9 Australian Government - Department of Industry, Innovation and Science

No update provided.

8.10 Australian Government - Parks Australia

Shaun Barclay provided an update on behalf of Parks Australia comprising the following points:

- The head lease for the town of Jabiru was transferred to the Mirarr Traditional Owners on 26 January 2021. This included provisions and assistances.
- Parks Australia and SSB are collaborating on a range of environmental monitoring programs in Kakadu.
- Consultation regarding a Kakadu heritage trail will begin soon. The heritage trail will include former mine sites in the southern section of the park.

9. Other Business

No other business was raised.

10. Next meeting and actions arising

The next meeting will be held in Darwin in April 2022.

One new action was identified during this meeting. The Secretariat will circulate a copy of Susan O'Sullivan's article *Ranger Uranium Mine: Commonwealth responsibility in the aftermath of mining*.

Charles Webb thanked the Secretariat for their work in preparing for the meeting and the contributions of meeting attendees

ACTIONS

Action ID	Action	Responsibility	Comments
ARRAC54: 4	DPIR to amend its ARRAC54 report to reflect non-attendance at ARRAC53 (p 9)	DPIR	22/04/21: Not yet completed. Item carried over to next meeting.
ARRAC56: 1	Secretariat to circulate Susan O'Sullivan's paper to all members.	SSB	01/10/2021: This item was completed.