

Alligator Rivers Region Advisory Committee

Summary record of meeting

12 April 2007 – Darwin

Meeting commenced: 9.33am

Item 1 Welcome

Charles Webb welcomed Members, Member's representatives and observers.

Alan Hughes (SSD) advised attendees of security and safety arrangements, including evacuation points from the DEW Darwin building.

Item 2 Attendance and apologies

Apologies		
Name	Position	Organisation
Philippe Portella	Member (pending appointment)	AFMECO Mining and Exploration Pty Ltd
Richard O'Brien	Deputy	Australian Radiation Protection and Nuclear Safety Agency
Carolyn Barton	Deputy	NT Department of Industry, Tourism and Resources
Lyn Allen	Member	NT Department of Primary Industry, Fisheries and Mines
Xavier Schobben	Member	Dept of Health & Community Services
Philipa Varris	Deputy	Energy Resources of Australia Pty Ltd – Ranger Mine
Peter Robertson	Member	Environment Centre Northern Territory
Graeme Dewar	Member	Gundjehmi Aboriginal Corporation
Shane Maraldo	Member	Hanson Australia Pty Ltd
Leslie Cadzow	Deputy	Hanson Australia Pty Ltd
Steve Baldwin	Deputy	Jabiru Town Council
Mark Foy	Member	Northern Land Council
Gillian Jan	Deputy	Northern Territory Office of the Administrator
Glenn Meade	Deputy	Parks Australia
Peter Cochrane	Ex Officio	Parks Australia
Attendance		
Name	Position	Organisation
Charles Webb	Chairperson	
Carolyn Lord	Secretariat	Supervising Scientist Division
Peter Burns	Member	Australian Radiation Protection and Nuclear Safety Agency
Ron Matthews	Member	Cameco Australia Pty Ltd
Keith Tayler	Deputy (pending appointment)	Cameco Australia Pty Ltd
Marie Taylor	Member (pending appointment)	Department of Industry, Tourism and Resources

Mike Delosa	Member (Interim representative)	NT Department of Primary Industry, Fisheries and Mines
Gary Martin	Deputy (Interim representative)	NT Department of Primary Industry, Fisheries and Mines
Michael Lawton	Deputy	NT Department of Natural Resources, Environment and the Arts
Russell Robinson	Deputy	NT Dept of Health and Community Services
Suresh Rajapkse	Member (pending appointment)	Energy Resources of Australia Pty Ltd – Ranger Mine
Emma King	Deputy (pending appointment)	Environment Centre Northern Territory
Geoff Kyle	Deputy	Gundjehmi Aboriginal Corporation
Ian Newnham	Member	Jabiru Town Council
Howard Smith	Deputy	Northern Land Council
Richard Sellars	Member (pending appointment)	Northern Territory Office of the Administrator
Carolyn Lord	Secretariat	Supervising Scientist Division
Alan Hughes	Ex Officio	Supervising Scientist Division
Richard McAllister	Deputy (pending appointment)	Supervising Scientist Division
Observers		
Name	Organisation	
Jennifer Clark	Cameco	
Leesa Carson	Department of Industry, Tourism and Resources	
Alex Zapantis	Energy Resources of Australia Ltd	
Amanda Buckley	Energy Resources of Australia Ltd	
Suzanne Davis-Hall	Supervising Scientist Division	
Michelle Iles	Supervising Scientist Division	
Scott Parker	Supervising Scientist Division	
Jenny Brazier	Supervising Scientist Division	
Andreas Bollhöfer	Supervising Scientist Division	
David Jones	Supervising Scientist Division	
Kate Turner	Supervising Scientist Division	
Chris Humphrey	Supervising Scientist Division	

Item 3 Minutes of previous meeting

Requested changes to draft minutes

Page 11 – raised by Richard McAllister

Discussion on Figure 3.8 and Figure 3.10.

Clarification is required on content of discussion. To be redrafted and approved by David Klessa and Geoff Kyle.

Page 14 and 15 – Item 10 discussion – raised by Alan Hughes

- Page 14 – Unidentified location is ‘Guratba’
- Page 15 – ‘Ballina’ should be ‘Balanda’

Action: Minutes accepted with changes requested on pages 11, 14 and 15

Item 4 Business arising from previous minutes

Ranger mine incidents – raised by Emma King

Emma advised that ECNT would like to take up the offer of ERA to provide the list of ERA incidents to ECNT.

Outstanding action: Acknowledged by Chris Salisbury and Philpa Varris. ERA will forward reports to ECNT.

Action/outcome: completed

Item 5 SSD report to ARRAC – SSD monitoring activities

Discussion on decline in fish numbers downstream– raised by Howard Smith

Outstanding action: Shelley Iles will consult with Chris Humphrey on the data so the issue on fish decline can be clarified in the SSD Annual Report

Action/outcome: completed

Audit and inspection activities – discussion on access to Jabiluka site – raised by Geoff Kyle

Re: map of the Boiwek sacred site and mine valley region

Outstanding action: Suzanne Davis-Hall will chase up map and provide to ERA

Action/outcome: Coordinates of map was provided to NLC and GAC – completed

Item 8 – ERA developments – Pit#1 Barrier monitoring report – raised by Geoff Kyle

Geoff Kyle requested that a copy of the Pit#1 barrier monitoring report be regularly sent to him. He advised he last received this in May 2006.

Outstanding action: Reports are to be sent to Gundjeihmi Aboriginal Corporation

Action/outcome: Geoff Kyle advised that GAC had received one since the previous ARRAC meeting and a new report expected to be provided shortly.

Item 13 – Other business

13.1 – Display of ARRAC membership details on website – raised by Carolyn Lord

Outstanding action: No objections were raised – Carolyn Lord to place current membership onto website

Action/outcome: completed

13.3 – Duplication in ARRAC presentations

Outstanding action: Presenters for DPIFM, SSD and ERA will discuss their presentations prior to the ARRAC meeting to reduce repetitive presentations

Action/outcome: Richard McAllister advised that all members have discussed the presentations and suggested that ERA (Item 8) presents first (Item 5).

Item 14 – Next meeting – Scheduled date for next meeting in Darwin

Action: Carolyn Lord to coordinate

Action/outcome: completed

Item 8 ERA developments – Suresh Rajapkse

Topics covered included:

- Organisation changes
 - General Manager – Chris Salisbury replaced by Suresh Rajapkse (effective 19 January 2007)
 - CEO Harry Kenyon-Slayney replaced by Chris Salisbury (effective 19 January 2007)
 - General Manager, Technical Projects – Dennis Gibson replaced by Greg Sinclair (effective 23 April 2007)
 - Project Manager – Technical – Dudley Fraser
 - Manager, Business Integration – Alex Bates
 - Manager, Processing – Gareth Manderson
 - Manager, Mining – Paul Hughes
- Safety – Injury frequency rates (reference to chart on page 3 – ERA PP presentation)
 - loss time injury frequency rates for past 12 months, including restricted work injury
 - injury rates decreasing on site
 - year to date – 2 medical treatments

Discussion

Severity rate scale used on the chart

Charles Webb queried the severity rate scale used on the chart.

ARRAC was advised that the figures covered the number of shifts lost rate 1–100 and how long an employee was away from work.

- Employee -v- contractor annual injury frequency rate (reference to chart 4 – ERA PP presentation)
 - decreased frequency rate for contractors over the past 12 months
 - spike occurred at the beginning of wet season
 - ERA is reviewing contractor management process.
 - quarterly meetings are now being held on best practice
- Cyclone trough – rainfall event
 - Jabiru received 850mm rain in the seven days ending 2 March
 - 762 mm rain fell in one 72 hour period
 - ERA has made two ASX announcements – 7 March and 2 April 2007.
 - rainfall data for Jabiru Airport 2006–07 compared to 2005–06 (reference Page 6 – ERA PP presentation)
- Impact of rainfall on pond water levels
 - more than 3446ML entered Pit#3 and increased level to 42m
 - total pond inventory ~4500ML, compared to 3500 ML at end of 2006 wet season

- Impact on rainfall on process water levels
 - more than 1300 ML entered Tailings Storage Facility (TSF) and Pit#1 from 28 February to 3 March 2007
 - total water inventory ~ 10,500ML, compared to 8,400 ML at end of wet season in 2006
 - Pit#1 water level reached 14.8 MOL during rainfall, no evidence of seepage from exceedance of 14 MOL.
 - levels of electrical conductivity (EC) in Pit#1 reduced with increase of rainfall
- Cyclone trough – recovery options under consideration
 - new irrigation area in Corridor Creek catchment
 - continued use of Jabiru East Land Application Area (LAA) and Retention Pond 1 (RP1) extended LAA.
 - low application rate of late wet season irrigation in RP1 catchment
 - new water treatment processes
 - storage and evaporation of excess water on stockpiles
 - reticulated dust control in stockpiles
- Key plans and projects in 2007
 - overview of Pit#3 extension project was presented, showing the preliminary design
 - Radiometric Sorter – explanation and diagrams were provided on how this system works
 - Laterite Treatment Plant – construction commencing April 2007. Diagrams showing the location and process of grizzly and scrubber were presented.
 - Acid Plant to be decommissioned and bulk acid to be imported to site – to commence from Quarter 3, 2007.
 - TSF lift from 47.5 to RL51
 - water management projects – applications pending approval
- Sulphur burn incident – occurred 16 November 2006 involved one plant operator working in the Acid Plant.
- Broader business issues including, *Force Majeur*, increasing price of uranium, evaluation of economics of low grade stockpiles and potential Pit#3 extension and exploration drilling.
- Revegetation work at Jabiluka.

Discussion

Recovery actions

Discussion was held on the methods for disposal of water on the mine site

Alex Zapantis advised

- proposed catchment area in Corridor Creek
 - approximately 100–130 hectares

- could dispose of approx. 10 ML per day
- a lot of work relating to analysis of soils, biodiversity and historical values of the areas need to be undertaken
- Water Treatment Plant
 - processing rates are improving
 - testing new polishing process
 - plotting work starts this week
 - if quality of water is ok, will implement
- Stockpile evaporation process
 - disposes of 2–2½ ML per day
 - lined catchment will be installed so that it can be removed quickly

Revegetation at Djarr Djarr – raised by Geoff Kyle

Geoff Kyle advised ARRAC that revegetation at Djarr Djarr had an 80% plus success rate.

Decommission of acid plant – raised by Suzanne Davis-Hall

Suzanne Davis-Hall asked Suresh Rajapakse whether the Acid Plant would be removed as part of the plans for decommissioning. Suresh advised ARRAC that the Acid Plant would be decommissioned completely, and that a full detailed design study would be completed considering reconstruction versus re-engineering.

Michael Lawton asked whether the transportation of sulfuric acid to the Ranger site had commenced. Suresh advised that transportation will commence in July/August by a company called Chemtrans (contracted by Orica). Transport will be at a rate of two roadtrains per week. Acid will be shipped into Port Darwin and stored in a storage facility.

Laterite processing plant

Suresh was asked whether there was no crusher involved in the scrubber process in the Laterite processing plant. Suresh confirmed this was the case.

Storage of tailings in Pit#3 – raised by Emma King

Emma King asked about the proposal to store tailing in Pit#3, noting that it had not been mentioned how this would be impacted by the application to extend. Suresh Rajapske advised that it is dependant on approval by the ERA board and that ERA was looking at options as part of the feasibility study.

Magela Creek Land Application Area (LAA) – raised by Emma King

Emma King raised the continued expansion of the mine footprint with irrigation on the Magela Creek LAA, and queried whether there was a high level of water flow during the period where there had been a number of spills. Alex Zapantis advised that the rain was late for 2005–06 wet season so ERA were looking at a number of options for irrigation. He also noted that the irrigation had not caused any exceedances.

Discussion was then held on the reported surface water flows from the irrigation area in September/October and the cumulative effect when the wet season commenced.

Richard McAllister also noted that damage from Cyclone Monica had resulted in a number of breaks in the irrigation system requiring repairs, and this had led to a number of spills from the irrigation resulting in overland flow. .

Geoff Kyle; Stated that the LAA's shouldn't produce surface runoff under the authorisation. GAC believe this to be an issue, ERA kept irrigating despite high EC readings being detected. GAC believe this should be considered a breach of the requirements of the authorisation.

Alex Zapantis noted that ERA did cut back on irrigation rates due to the saturated nature of the ground.

Emma King: Lot of the surface flow was Magela not JE LAA.

Alex Zapantis: Geoff Kyle is correct, didn't impact on water quality in Magela. ERA footprint is small considering the age of the mine.

Water and tailings management issues at Ranger – raised by Emma King

Emma King queried whether ERA was planning for water management as on-going issue, given climate change and the likeliness in increase of unusual events in NT. She also queried whether there would be a Public Environmental Assessment before the expansion could go ahead and advised ARRAC that ECNT had grave concerns about the water management issues at Ranger.

Emma raised the management of tailings as a secondary issue for ECNT and commented that ECNT had nothing to evaluate the possible impact on the environment around Ranger, as well as the health of environment and people around Kakadu National Park.

Alex Zapantis advised that water management issues are driving discussions at ERA, including how to manage it with probability of higher rainfall events.

Suresh Rajapkse highlighted that Ranger is 'extending' not 'expanding'.

Howard Smith queried with DNRETA on whether there was any scope within regime to have input into a mini EIS for an expanded pit. Howard noted he could not find anything in the regulation that would permit ECNT and other groups to do this and referred the query to DPIFM to respond. Mike Delosa advised that management of tailings is a Minesite Technical Committee (MTC) issue and that is where the approval is granted.

Michelle Iles questioned whether it might trigger the Environment Protection and Biodiversity Conservation Act. Richard McAllister advised that these issues were considered in the original proposals.

Exploration to east of road – raised by Emma King

Emma King asked about the extension to the east of the road. Suresh Rajapkse advised that at this stage it was only exploration taking place.

Rainfall advice from Bureau of Meteorology (BOM) – raised by Michael Lawton

Reference was made to ERA PP presentation slide – page 5

- 762mm rain fell in one 72 hour period: 1 in 2150 year event.

Discussion was held on the possibility of obtaining from the Bureau of Meteorology a one page analysis on the process used to work out the statistical basis for the order of magnitude of the event. Suresh Rajapske advised he would have to consult with David Klessa further to clarify the statistics. Michael Lawton suggested that the analysis could be summarised and circulated to other mining sites. Richard McAllister advised that there was a mathematical model available that could be used, although it was very theoretical. As discussion continued Alan Hughes highlighted that this was out side the scope of ARRAC.

Spike of uranium in March – raised by Emma King

Emma King asked whether ERA had determined why the spike of uranium in Magela Creek that occurred on 9 March had happened, highlighting the amount of rainfall that occurred for that period. Alan Hughes advised that the spike only occurred in one reading that was taken by ERA and that SSD's sample did not conclude the same high reading. Alex Zapantis advised that it could have been due to small amounts of water escaping from a couple of sumps that are used to pump water back into RP2 that had got into the Magela Creek. It was noted that the level reached 1ppb in one instance, although this is still a factor of six below the levels set by OSS.

Emma King asked whether there been an assessment of how this could be managed in the future. Alex Zapantis advised that the risk of the environment was not in question. Alan Hughes confirmed that the spike produced no environmental risk.

Radiometric sorting – raised by Charles Webb

Charles Webb queried the process for radiometric sorting by using emissions to sort waste and whether there was a danger of the higher level radiometric level waste being used around the road. Suresh Rajapske advised that the rock sorted through the radiometric process would only be used on the roads on-site, and once the mine is closed, the rock would be put back into the pit. He highlighted that this would be highly monitored. Charles Webb asked whether there would be a risk if someone stood next to this area. Suresh Rajapske advised no.

Item 5 Supervising Scientist report – Richard McAllister

Richard McAllister presented the *Report of the Supervising Scientist to the Alligator Rivers Region Advisory Committee – April 2007* to ARRAC. (PP presentation available).

Topics covered included:

- Overview of topics to be presented by SSD, DPIFM and ERA, in line with request from ARRAC26 to rationalise presentations to reduce duplication between SSD, DPIFM and ERA.
- Rainfall intensity for late February to early March 2007 and overview on the impact on recording data at some of the monitoring sites. (Pictures of various locations showing the impact of the increased water flow in the area were shown to ARRAC)

SSD monitoring activities – Michelle Iles

Michelle Iles presented the SSD routine monitoring activities reported in the *Report of the Supervising Scientist to the Alligator Rivers Region Advisory Committee – April 2007* to ARRAC.

Topics covered included:

- A brief overview of the different types of routine monitoring activities undertaken by SSD:
 - Surface water monitoring program, including
 - Water sampling
 - toxicity testing
 - toxicity studies in creek
 - community studies

- bioaccumulation studies – testing of fish and mussels eaten as part of the local aboriginal diet.
- Airborne pathway for radiation transport
- Ranger off-site water quality monitoring
- weekly water chemistry sampling at Magela and Gulungul creeks
- continuous data collection in Magela and Gulungul creeks (by SSD), Retention Pond 1 and Georgetown Creek 2 (by ERA).
- field toxicity testing in Magela Creek – creekside monitoring and insitu snails
- macroinvertebrate and fish community studies
- Magela Creek water levels for December 2006 to February 2007
- upstream monitoring in Magela Creek – damage to and salvage of creekside monitoring station and pontoon.
- downstream Magela Creek creekside monitoring station and pontoon and impact on collection of data.
- Magela Creek uranium – update on action taken on the spike that was recorded on 9 March 2007
- ARRAC was advised that internal guidelines between stakeholders are used to collect samples. There had been issues with flooding and water management issues. SSD requested ERA to provide more data to SSD. Spots that were normally collected weekly were being monitored daily.
- Samples from Georgetown Creek did not show any unusual reading. RP1 was higher than the last few years but not higher than historically. Tried to pin-point source of elevation but has not been possible to determine where spike come from.
- SSD results had a lot lower level of uranium. The period of the peak was very short and contingency water management was already underway.

Discussion

Gulungul Creek – uranium spike– raised by Alan Hughes

Alan Hughes asked whether it was ever excluded that the high reading was caused due to a contamination of the sample

Michelle Iles advised ARRAC that the sample (1.2) was re-analysed by the laboratory but there had been some queries about it being treated with other samples that were received from water areas with high levels. There were no duplicates available to be sent in for re-analysing but uranium concentrations in eriss samples from the same week were lower.

Michael Lawton asked what the turn around was on collection of analytical results. ARRAC was advised 2 days for ERA and 4 days for SSD.

- Magela Creek solutes (Magnesium , calcium and sulfate)
- Peaks in solutes in Magela Creek. Magnesium was highest since routine monitoring began December 2000. There were two peaks, the first one before RP1 started flowing into the Creek. This could have been caused because the ground water level being so high after large rainfall last season that creek flow occurred after smaller than usual amounts of rainwater being received (ie, without getting as much over land

or percolation dilution), or maybe from the runoff from LAA. The magnesium calcium ratio remained low below 4. The magnesium calcium ecotox work shows that magnesium concentrations to 4.5 were fine providing the magnesium calcium ratio is well below 9. There is no concern about toxicity effects to the biota.

- The Magnesium sulphate ratio is around 4 in pond water and was about 3.1 in both spikes. This appeared to be more similar to water sources from the mine than from the creek
- The second peak was after RP1 flowed but when water levels in the creek were dropping due to a period with no rainfall. Wasn't sure if the peak had occurred because of additional salt loads being received this wet season or because the water levels were lower in the creek and therefore there was less dilution. Therefore salt loads were calculated using continuous EC data.
- Magela Creek continuous electrical conductivity (EC) and flow (*refer to chart – page 22 of SSD's PP presentation*)
 - The top chart shows flow in Magela Creek. The chart below shows EC – the blue line is the EC upstream and red is EC data downstream. Calculation is done based on data and surrogate of solute load going down the creek to do comparisons for similar periods this and last wet season. Lower amounts of salts this wet season for same period than last wet season. Therefore increase Mg and SO₄ concentrations are related to less dilution not to increased salt load.
- Magela Creek radium-226
 - Magela Creek radium will be uploaded onto SSD website today and covers the period to end of last wet season. The limit is a difference of upstream and downstream radium-226 concentrations in the water over a wet season. The limit is based on human health and dietary uptake of people downstream, bioaccumulation of radium in mussels and how many mussels are estimated to be eaten by a 10 year old child living downstream of the mine. Radium levels in the creeks are extremely low. Fortnightly water samples are measured individually and composite samples are done every second week samples.
- Gulungul Creek uranium
 - After the flood event, ERA measured higher concentrations of uranium in Gulungul Creek than SSD. Sampling does not occur on the same day. Apart from one spike the data was in good agreement

Discussion

Spike of Uranium in Gulungul Creek – raised by Howard Smith

Howard Smith asked whether ERA or anyone present could explain the spike in Gulungul Creek. Michelle Iles suggested it could be a possible contamination.

Alan Hughes raised the work that had been completed on the Tailings Dam Lift in 2006 and indicated that the fresh rock that was dumped could be exposed to some leaching possibly causing disturbance during wet season.

David Jones also suggested that it could have been caused by toe loading and advised that a student had been conducting some work on uranium isotopes in the creek waters and sediments which had indicated that a small amount had passed through from the toe loading

area. Michelle Iles advised that the results were discussed briefly in the SSD 05-06 Annual Report.

- Creekside monitoring using snails
 - water chemistry for period did not show anything unusual. Same for snails in creek. Can confirm that there has been no mining related effect.
- Comparison between the insitu and the creekside monitoring method of testing using snails
- Overview on the macroinvertebrate communities for both controlled and test sites
 - Chris Humphrey did work and run statistics and this has displayed no significant difference between the controlled and test sites.
- Jabiluka surface water
 - currently undertaking monthly water chemistry sampling. Jabiluka is currently in long-term care and maintenance. SSD and ERA stagger their monitoring so data is collected fortnightly. DPIFM does a check monitoring program with ERA.
- Ngarradj uranium
 - uranium result above the action level of 0.3. SSD samples were collected the next week, these were the below the action level. Results now are very low and have dropped since the beginning of the wet season.
- Ngarradj radium-226
 - radium-median upstream-downstream differences very close to 0.
- Radiation monitoring program.
 - data on airborne pathway ingestion and exposure (RDP and LLAA) was presented. ARRAC was advised that SSD and ERA monitor both Jabiru East and Jabiru, and SSD also monitor 4 Gates Road station near Mudginberri.
- Ingestion pathway for radiation exposure
 - mussels are collected annually and fish every second year. Mudginberri mussels have higher concentration than Sandy Billabong mussels. The concentrations have been the same from 1980 since collection started.

Discussion

Elements measured for ingestion pathways for radiation exposure– raised by Peter Burns

Peter Burns queried whether SSD measured polonium 210, and lead-210 were also measured as well as radium. He was advised that yes they were however radium is the main contributor. This was confirmed by Alan Hughes. Andreas Bollhöfer also confirmed that radium is the main contributor.

Audit and inspection – Suzanne Davis-Hall

Suzanne Davis-Hall presented on SSD's audit and inspection activities reported in the *Report of the Supervising Scientist to the Alligator Rivers Region Advisory Committee – April 2007* to ARRAC.

Ranger

- 6 Routine Periodic Inspections (RPIs) conducted with focus on the following

- Jabiru East and RP1 extended Land Application Areas
- tailings storage facility lift
- retention Pond 2 spillway
- pooling in the Magela Land Application Area
- radioactive hydrocarbon storage area

The radioactive carbon storage area was first visited in January 2007 and is now to be included in each RPI. This storage area has improved significantly since January, and will continue to be checked each RPI.

- 1 Environmental audit review was conducted on 8 November 2006
- 6 findings in May Audit were reviewed and 5 were considered to be satisfactory and 1 remained as urgent.
- Outstanding urgent item referred to Section 6.3. This resulted due to a change in computing systems at ERA where they could not prove that staff had undergone induction. Technical professionals were working on problem.

Jabiluka

- 1 RPI was conducted
- 1 environmental audit review was conducted on 10 November 2006
- capping of redundant boreholes has been an ongoing issue due to being located on a sacred site. Access by ERA staff was an issue. GAC and NLC staff have now accessed the area and located the bores.

Nabarlek

- Audit was undertaken in November 2006, and included
 - overview of the site from the top of tanks
 - access road former evaporation pond areas
 - perimeter of lease area, including firebreak and fence
 - airstrip
- Dry season inspection is scheduled for June 2007

South Alligator valley

- Not inspected this reporting period

King River & Myra Camp exploration sites

- Last inspection was July 2006. King River camp will be inspected around June this year.

Discussion

Radioactive hydrocarbon storage – raised by Michael Lawton

Michael Lawton asked for a further explanation on the radioactive hydrocarbon storage area. Suzanne Davis-Hall advised that the storage area was just temporary. Alex Zapantis advised that this area had been set up to deal with storage of contaminated oils and greases etc that cannot be recycled. ERA had been storing the drums in a banded temporary facility until they could be burnt off. The burning facility should be up and running this year. Suzanne

Davis-Hall advised that the concern had been that these drums had not been covered and there had been cracks in the bunded area.

Item 6 – Department of Primary Industry, Fisheries and Mines – Gary Martin

Gary Martin presented the *Northern Territory Supervising Authorities Environmental Surveillance Monitoring in the Alligator Rivers Region – report for the period August 2006 to February 2007 – Report Number 53* to ARRAC.

- Gary Martin has been working with DPIFM for 2 weeks in the position of Uranium Advisor.
- Minesite Technical Committees (MTC)
 - Ranger MTC and Jabiluka MTC meetings were held on 9 October, 15 November, 15 December 2006, 31 January and 28 February 2007.
 - Nabarlek MTC was held in December 2006.
- Variation of Ranger Authorisation 0108
 - three variations relating to raising the maximum operating level (MOL) of the TSF
- Environmental and safety incidents
 - 33 incidents were reported from August 2006 to February 2007, these are outlined in DPIFM report.
 - incidents been minor and none have been investigated extensively by DPIFM. The ERA safety incidents were investigated by ERA and no follow up with DPIFM was required.
- Operational approvals
 - RP1 and Jabiru East Land Application Areas used
 - Tailings Dam lift
 - increase in RP2 Maximum Operating Level
- pond water management and actions initiated to reduce pond water inventory
- Ranger surface water
 - DPIFM check monitoring with ERA is in good agreement, although there was a bit of difference in the EC reading particularly in bores. EC and sulfate readings change depending on the monitoring procedures and variations have been put down to the type of sampling that is conducted For example, like evacuation of bores could affect reading levels compared to quick grab technique.

Discussion

Variations in results – raised by Geoff Kyle

Geoff Kyle queried whether there had been a continuous variation of results. Gary Martin commented that DPIFM and ERA should sit down and discuss techniques in sampling.

Monitoring incidents – raised by Emma King

Emma King asked Gary Martin why DPIFM didn't have a closer look at the monitoring incidents, particularly with the number of flows in the LAA in the dry season. Gary Martin

advised that he could not personally provide a full explanation, although advised that under the *Mining Management Act, 2001* it is a requirement to discuss any incident with the operator and asked for a written report and investigate it. For example with Ranger this would then get followed up in the RPI.

Variance in results between ERA and DPIFM – raised by Charles Webb

Charles Webb raised the variance in results of EC and sulphate between ERA and DPIFM noting that the uranium was similar. He queried whether there was a concern about these levels or they are low anyhow. Gary Martin advised that he did not consider it a big problem and thinks it is the method used for sampling that is causing the variance. He confirmed the levels were not high or dangerous and needed to be sorted for consistency. Geoff Kyle agreed with Gary Martin on the variation on technique and the need to have consistency when reporting collectively and pooling data.

Load limits on proposed water management – raised by Geoff Kyle

Geoff Kyle advised that he had recently requested data on load limits on proposed water management and raised the concern that it was possibly not getting checked by ERA before being released. Alex Zapantis advised that the data provided was not verified. The available data that had been verified was old.

Variance in results between ERA and DPIFM – continued

Michael Lawton highlighted that in 2 figures reported on EC in Magela and Gulungul creeks there was significant differences in DPIFMs data results compared to other readings. It was noted that these difference could have been a difference between insitu and lab samples, but differences of 35 and 10 to 15 is significance at that level and needs to be sorted out.

Changes to NT Worksafe – raised by Michael Lawton

Michael Lawton also made reference to the changes in the arrangements to NT Worksafe and queried how this would impact on arrangements to DPIFM's responsibility. Gary Martin advised that the mine safety component will be based on NT Worksafe changes made in August this year. Currently DPIFM are operating under same piece of legislation and if there are changes these should be implemented over time.

Charles Webb thanked all presenters on their coordinated approach to the presentations

Item 7 Issues raised by environmental non-government organisations – Emma King

Access of ore in Pit#3 – raised by Emma King

Emma King asked whether the change to access of ore in Pit#3 would affect the life of the mine. Suresh advised that it was currently under evaluation and that he wasn't sure what the long-term impact of the water would be, as it was still not the end of the wet season.

Koongarra deposits – raised by Emma King

Emma King asked whether there had been any further information on the progression of the Koongarra deposits, since it had nearly been two years since the moratorium finished. It was noted that there was no attendance by AFMECO at the ARRAC meeting to answer this question. Alan Hughes advised that AFMECO had submitted an application and NLC was handling this. Howard Smith advised that activities on this were being handled by the Secretariat and Legal Branch of NLC and that he had not been involved in any process. Consultation with TOs had not been held due to mutual agreement and AREVA were waiting

for changes on the Land Rights Act to come into affect on 1 July 2007. Emma asked whether ARRAC could get clarification from AFMECO on what is happening before the next meeting.

ARRAC meeting papers raised by Emma King

Emma King raised the issue of not receiving meeting papers until the day prior the meeting and requested that meeting papers be delivered at least a week prior to meeting. Carolyn Lord acknowledged this and advised that all attempts would be made to achieve this.

Item 8 ERA developments

Item 8.1 Ranger and Item 8.2 Jabiluka were presented prior to Item 5

Item 9 Hanson developments

9.1 Nabarlek

Shane Maraldo did not attend meeting – nil reported

Item 10 South Alligator valley mine rehabilitation – Greg Balding

Greg Balding provided an update to ARRAC on rehabilitation of the old uranium mines and associated infrastructure in the Gunlom Trust Area. Activities included:

- The Part B works (planning for and designing a containment facility for radiologically contaminated materials) site inspection for interested tenderers was held on 28 February 2007 (by helicopter, due to access problems) and attended by thirteen people representing nine potential tenderers.
- The Part B works attracted five tenders; a selection panel of Greg Balding, David Jones, Steve Allen and Julian Barry will make a recommendation to the Minister about the preferred tenderer by 20 April 2007.
- The Part A works (non-radiologically contaminated materials clean-up and earthworks) was deemed on 16 March 2007 to be a non-controlled action, thus requiring no further environmental assessment under EPBC.
- The Part A works environmental management plan has been completed and incorporated into the Part A tender specifications.
- An invitation to tender was placed on Austender on 3 April 2007 and advertised in the NT News on 5 April 2007; tenders to close on 3 May 2007.
- Twenty-two tender information packages for the Part A works have been sent out to those who requested them.
- A Part A works site inspection for interested tenderers was held on 11 April 2007 and was attended by ten people, representing six potential tenderers, who were shown El Sherana camp and (by helicopter, due to access problems) Koolpin pit, Guratba, the Sleisbeck quarry site, Sleisbeck pit and Slesbeck camp.
- The Part A works should be well underway by the end of the financial year (weather and access permitting) and largely completed during the 2007 dry season.

- The tender specifications for asbestos removal from El Sherana camp are close to completion, ready for advertising for tenders at the beginning of May.
- We are soon to engage a structural engineer to assess the stability and safety of three of the four buildings (those from the 1950/60s and containing little or no asbestos) assessed as having moderate heritage significance in the heritage report prepared by Guse et al, with a view to conserving them; the fourth dates from the 1980s and is clad in asbestos sheeting, thus the cost of making it safe would outweigh its low heritage significance.
- Seed collection for rehabilitation by Werenbun is progressing well.

Item 11 Exploration

Item 11.1 Cameco – Ron Matthews and Keith Tayler

Ron Matthews advised that ARRAC28 was his last meeting and Jennifer Parks was to take over as Cameco's Member on ARRAC.

Keith Tayler provided an update on Cameco's explorations activities. He advised that

- not much had been happening due to the excess water in the region
- Cameco had not expected to visit the site until mid-year
- Cameco had spent \$5 m last year on drilling and expected to spend around \$7.5 m next year
- Cameco was formalising safety and environmental exploration activities
- Cameco had their first meeting with TOs in Oenpelli last week.

Item 12 Member's reports

Item 12.1 ARPANSA – Peter Burns

Peter Burns updated ARRAC on the changes to the ICRP Recommendations and other ICRP publications recently published, and to be published. A subsequent text version of his update was provided to the secretariat following the meeting and is attached to the minutes (Attachment A)

Item 12.2 Department of Industry, Tourism and Resources – Marie Taylor

Marie Taylor provided an update on activities relating to the Uranium Industry Framework (UIF) implementation (refer to PowerPoint presentation).

Topics covered included:

- Overview of the background of the framework, involvement of partners, and vision
- Key findings of the UIF
 - Australia has an enormous natural endowment of uranium
 - Australia is well positioned to be supplier of clean energy to the world irrespective of whether Australia uses nuclear power or not.
 - key barrier is Labor Party's 'No New Mines Policy'

- potential to harmonise and streamline complex and overlapping regulations and develop a consistent royalty regime for NT
- barriers in transporting uranium ore within and outside Australia (negative perceptions, over-regulation)
- need to engage more effectively within indigenous stakeholders – to improve the participation of, and outcomes for, indigenous communities and for the industry.
- access to appropriate skilled workers, especially radiation safety and protection officers and competent persons to export uranium exploration results.
- Need for an appropriate and effective communication strategy to build understanding and opinions based on facts.
- Implementation, responsibility and brief aim of each of the UIF key aspects
 - stewardship
 - Regulation Working Group
 - NT Royalties
 - transport
 - Indigenous Engagement Working Group
 - Skills, Training and Education Working Group
- The future objectives of the UIF

Discussion

Royalty regime for NT – raised by Geoff Kyle

Geoff Kyle queried what the UIF committee felt their concept of consistency was for a royalty regime for the NT, and what improved outcomes there would be for communities.

Marie Taylor advised that there were various royalty regimes, such as a percentage rate. ARRAC were advised that a paper would be finalised next week that will discuss different ways to structure royalty payments.

Discussion was held on the impact of the *Aboriginal Lands Act* impact on royalties and the need for royalties to be consistent across NT. Howard Smith raised Olympic Dam as an example of an agreement that was not covered by royalties and can have varied agreements under law.

Geoff Kyle advised that he had arranged with Carolyn Barton to be advised when royalties would be discussed, highlighting GAC was a major indigenous stakeholder and they had not been involved.

<p>Action: Marie Taylor will provide further information to Geoff Kyle on the royalty issue</p>
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Marie Taylor advised that she was happy to bring the person taking this forward to present at the next Alligator Rivers Region Advisory Committee. It was noted that getting Geoff Kyle involved in the working group now would be beneficial, although having a representative come to ARRAC would be more informative and useful it would not fit into the consultative process.

Clean energy – raised by Emma King

Emma King informed ARRAC that she did not think that uranium would provide clean energy to the world and there were many other means of producing clean energy to the world.

12.3 Northern Land Council – Howard Smith

The Northern Land Council continues to work with all other stakeholders in the Alligator Rivers Region to ensure that the interests of that region's Traditional Owners are maintained and protected. This is largely achieved through input into statutory activities such as audits and inspections, review of documents required of ERA, and participation in rehabilitation work undertaken by Parks Australia in the South Alligator Valley.

The Northern Land Council has an interest in technical endeavours undertaken to minimise impacts of mining on the Alligator Rivers Region. Limited resources make it difficult for the Land Council to engage fully in or undertake large-scale projects, however since the 26 meeting ARRAC held in August 2006 in Jabiru the Land Council has been able to:

- In conjunction with Traditional Owners and Hanson Australia, develop a conceptual plan for closure of the Nabarlek Uranium Mine. This plan focuses on the potential for development of open grasslands and a small but viable business to help serve future needs for the rehabilitation of the Ranger Uranium Mine. Its successful implementation would enable the Northern Land Council to meet its commitments made during the Ranger Ecosystem Development Workshop in 2006. It is anticipated that further discussion of this plan with other stakeholders will occur throughout 2007.
- In conjunction with Gundjeimi Aboriginal Corporation, conduct a survey and prepare a report detailing the current status of drill and boreholes located within the eastern part of Mine Valley, Jabiluka. This report is intended as a basis for a plan to rehabilitate Mine Valley and will ultimately be passed onto ERA for inclusion into their rehabilitation plans for Jabiluka. Further discussion is required with EWLS and Traditional Owners to determine if what scope may exist for a limited amount of on-going groundwater monitoring from this region. It is anticipated that the status of the bores will need to be reviewed following recent flooding, and that similar work on the western part of Mine Valley will be undertaken during the forthcoming dry season.
- In conjunction with Gundjeimi Aboriginal Corporation, continue work on development of a Cultural Health Index. Although a Draft Index has been written, it has yet to be tested because work on the Mine Valley borehole project was afforded a higher priority. It is anticipated that work on the Draft Index will not recommence until the 2007 dry season.

Activities of the Northern Land Council in the Alligator Rivers Region for 2007 will continue to be linked to the work described above. Although the intention is to progress these matters, the Land Council is cognizant that the extreme weather experienced during February and March in the Kakadu region will likely have an impact on operations of the Ranger Uranium Mine well into the dry season. The Land Council's statutory obligations with respect to any water management problems at the mine will therefore be afforded the higher priority.

12.4 Parks Australia North

Presented under Item 10

12.5 NT Department of Health and Community Services – Russell Robinson

Russell Robinson updated ARRAC on the *Radiation Protection Act* and the *National Directory for Radiation Protection, edition 2.0*

Radiation Protection Act

This new Act is expected to start this year.

A communications plan is formulated and consists of five parts.

1. Contact public relations for media release;
2. Advertise, again, in local papers;
3. Complete an Internet page containing relevant information;
4. Email people, who will have their current licence saved as a certificate of accreditation under the new Act; and
5. Email people on list that signified their interest during the lead up during the consultation period for draft regulations.

The *Radiation Protection Act* is drafted in accordance with the *National Directory for Radiation Protection, edition 1.0*.

National Directory for Radiation Protection, edition 2.0

It is understood that the public consultation phase for the proposed second edition of the National Directory for Radiation Protection, will now occur later than expected. As advised earlier, the second edition is expected to include radiation protection in uranium mining as part of the National Directory.

Item 12.6 Department of Natural Resources, Environment and the Arts – Michael Lawton

Michael Lawton advised nil to report

Item 12.7 Other member's reports

Emma King table the brochure

Empowering Change – Clean energy solutions to climate change, produced by the Beyond Nuclear Initiative

Item 13 Next meeting

Charles Webb thanked everyone for their efforts in streamlining presentations.

Next meeting: August 2007

Meeting finished: 1.30pm

Glossary

DEW	Department of the Environment and Water Resources
DNRETA	Department of Natural Resources, Environment and the Arts
DPIFM	Department of Primary Industry, Fisheries and Mines
EC	Electrical Conductivity
ECNT	Environment Centre Northern Territory
ERA	Energy Resources of Australia Ltd
LAA	Land Application Area
MOL	maximum operating level
MTC	Minesite Technical Committee
NLC	Northern Land Council
PAN	Parks Australia North
PP	PowerPoint
RP1	Retention Pond 1
RP2	Retention Pond 2
SSD	Supervising Scientist Division
TSF	Tailings Storage Facility
UIF	Uranium Industry Framework

Attachment A

ICRP Recommendations RP 07

The ICRP Main Commission met in Essen in March to review the latest draft of its Radiation Protection recommendations which had been placed on the ICRP web site on 12 January 2007. The Main Commission approved RP 07 for publication subject to significant amendments being made after much useful advice which had been received had been taken into account. While it is not known at this time what the changes to the document will be there were some changes to the 2006 draft that were incorporated into the 12 January draft.

Several years ago ICRP had decided to issue revised recommendations (ICRP60) having three primary aims in mind:

- to take account of new biological and physical information and of trends in the setting of radiation safety standards;
- to improve and streamline the presentation of the recommendations; and
- to maintain as much stability in the recommendations as is consistent with the new scientific information.

While maintaining the fundamental principles of radiological protection, justification, optimisation and limitation the Commission's intention is to clarify how these principles apply to sources and the individual. Dose limits which represent the boundary between unacceptable and tolerable doses are maintained, however, extending the principle of optimisation to all situations and the use of dose constraints and reference values as benchmarks in assessing performance is now the main focus of the recommendations. In the Commission's view this is reflecting what has become common practice since the previous recommendation were published in 1990.

The use of dose constraints and reference values are recommended for three exposure situations:

- *planned situations*, which are everyday situations involving the normal planned operation of practices.
- *emergency situations*, meaning unexpected situations resulting from a sudden event or from slow deterioration, leading to the point where urgent action is required.
- *existing exposure situations*, which are exposure situations that already exist when a decision on control has to be taken. Such situations include natural background radiation and residues from past practices.

The categories of exposure considered are still occupational, public and medical exposures. Dose constraints for occupational and public exposures fall within three defined bands expressed in terms of projected incremental doses (mSv in a year).

1. The first band, less than 1 mSv, applies to situations where individuals receive planned exposures that are of no direct benefit to them but there is a benefit to society.
2. The second band, from 1 mSv to 20 mSv, applies in circumstances where individuals receive direct benefits from an exposure situation but not necessarily from the exposure or the source of the exposure, itself.

3. The third band, from 20 mSv to 100 mSv, applies in unusual and often extreme situations where actions taken to reduce exposures would be disruptive or where the source is out of control.

In the January draft the ICRP no longer recommended the use of dose constraints in emergency or existing situations but instead recommended the use of risk constraints and reference levels.

Other publications

The ICRP has also recently published other publications.

- ICRP 99 reviews the data used to justify the extrapolation of cancer risk at low doses for radiation protection purposes.
- ICRP 100 defines a new Human Alimentary Tract Model which will lead to the revision of ingestion dose conversion factors.
- ICRP 101 combines two documents developed for radiation protection purposes. Firstly the concept of the Critical Group has been replaced by the Representative Person and the first part of the publication describes the attributes of such a person. The second part expands on the optimisation process and gives guidance as to how it is implemented in practice.

The table below presents a summary of recently published reports:

Publication	Vol:Issue	Title	Published	Length
99	35:4	Low-dose Extrapolation of Radiation-related Cancer Risk	July 2006	142pp
100	36:1-2	Human Alimentary Tract Model for Radiological Protection	December 2006	336pp
101	36:3	Assessing Dose of the Representative Person for the Purpose of Radiation Protection of the Public and The Optimisation of Radiological Protection: Broadening the Process	December 2006	104pp

The ICRP has a document in publication that sets out the derivation of numerical values for radiation weighting factors, tissue weighting factors and risk factors for hereditary effects, solid cancer and leukemia.

Table of Publications in production

Publication	Vol: Issue	Title	Current Status	Estimated Publication	Length
Supporting Guidance 5	36:4	Analysis of the Criteria used by the ICRP to Justify the setting of Numerical Values	At the printers	April 2007	40pp