

# Alligator Rivers Region Advisory Committee Meeting 31, 7 April 2009

## Minutes

Venue: SSD Conference Room – SSD Darwin

Agenda Item	Action
<b>1</b> <b>Welcome</b>	Chair
<b>2</b> <b>Apologies and Observers</b>	Chair
<b>3</b> <b>Minutes of Meeting 30</b>	Chair
<b>4</b> <b>Action Arising from Meeting 30</b>	Chair
<b>5</b> <b>Supervising Scientist Report</b>	SSD
<b>6</b> <b>ERA Ltd Developments – Ranger and Jabiluka</b>	ERA
<b>7</b> <b>Dept of Regional Development, Primary Industry, Fisheries and Resources Report</b>	DRDPIFR
<b>8</b> <b>Member Reports</b>	
8.1    Uranium Equities Limited	UEL
8.2    Cameco Pty Ltd	Cameco
8.3    AREVA NC Australia Pty Ltd	AREVA NC
8.4    Northern Land Council	NLC
8.5    Environment Centre NT	ECNT
8.6    Australian Radiation Protection and Nuclear Safety Agency	ARPANSA
8.7    Department of Resources, Energy and Tourism	DRET
8.8    Parks Australia North	PAN
8.9    NT Department of Health and Community Services	DHCS
8.10   NT Department of Natural Resources, Environment, the Arts and Sports	NRETAS
8.11   West Arnhem Shire Council	WASC
8.12   Gundjeihmi Aboriginal Corporation	GAC
8.13   Other stakeholders reports	
<b>9</b> <b>Other Business</b>	
<b>10</b> <b>Next Meeting</b>	

## 1. Welcome

The Chair opened the meeting and welcomed members and observers. Mr Hughes provided a briefing on SSD facilities and fire evacuation procedures.

## 2. Apologies and Observers

The Chair noted apologies received from the following members:

### Apologies

Name	Position	Organisation
Mr Peter Cochrane	Ex Officio	Australian Government – Parks Australia
Mr Russell Robinson	Member	NT Department of Health and Community Services
Mr Mark Griffioen	Member	West Arnhem Shire Council

The Chair noted the attendance of the following Members, Deputy Members and Observers:

### Members/Deputy Members

Name	Position	Organisation
Prof Charles Webb	Chair	Charles Darwin University
Mr Peter Burns	Member	Australian Radiation Protection and Nuclear Safety Agency
Mr Suresh Rajapakse	Member	Energy Resources of Australia Pty Ltd – Ranger Mine
Ms Philipa Varris	Deputy Member	Energy Resources of Australia Pty Ltd – Ranger Mine
Mr Geoff Kyle	Deputy Member	Gundjeihmi Aboriginal Corporation
Mr Russell Ball	Member	NT Department of Regional Development, Primary Industry, Fisheries, Mines and Resources
Mr Gary Martin	Deputy Member	NT Department of Regional Development, Primary Industry, Fisheries, Mines and Resources
Mr Richard Sellers	Member	Representing Office of the Administrator NT
Mr Justin Tutty	Deputy Member	Environment Centre Northern Territory
Mr Stephen Baldwin	Deputy Member	West Arnhem Shire Council
Mr Philippe Portella	Member	AREVA NC Australia Pty Ltd
Mr Howard Smith	Member	Northern Land Council
Ms Cathy Waldron	Member	NT Department of Natural Resources, Environment, the Arts and Sport
Ms Jennifer Parks	Member	Cameco Pty Ltd
Ms Sharon Paulka	Member	Uranium Equities Limited
Mr Alan Hughes	Ex Officio	Supervising Scientist Division
Mr Richard McAllister	Deputy Member	Supervising Scientist Division

### Observers

Name	Organisation
Ms Nicole Hinton	Australian Government - Department of Resources, Energy and Tourism
Mr Michael Browne	NT Department of Natural Resources, Environment, the Arts and Sport
Ms Shelley Iles	EWL Sciences Pty Ltd
Dr David Jones	Supervising Scientist Division
Mr Keith Tayler	Supervising Scientist Division

Ms Michelle Bush           Supervising Scientist Division  
Ms Jenny Brazier           Supervising Scientist Division  
Ms Ewa Madon           Supervising Scientist Division  
Mr Scott Parker           Supervising Scientist Division  
Ms Chantal Whittaker    Secretariat/ Supervising Scientist Division

### **3. Draft Minutes – ARRAC30**

Professor Webb sought comments on the ARRAC30 minutes and there being no comments the minutes were approved with no changes.

### **4. Actions Arising – ARRAC30**

Nil actions arising.

### **5. ERA Developments - Ranger and Jabiluka**

Mr Rajapakse presented a general update on the recent changes in ERA corporate structure and announced this will be his last meeting, he has taken up a new position in London with Rio Tinto. Dan Janney will take over as General Manager Operation starting on 1 April 2009. Mr Janney was previously with Rio Tinto Utah and has 17 years working with Rio Tinto.

Weldon Nicolson has been appointed as the Manager, Health & Safety. Gareth Manderson has responsibility as Manager, Plant Operations. Acting as Manager, Mine Operations is Carl Eivers and Philipa Varris has assumed responsibility as Manager Environment and SD.

*Safety improvements* – AIFR and LTIFR have increased in response to injuries (strains and sprains). Contractor safety improvement are better than employee performance with many large construction projects in 2008 completed. Nil recordable injuries involving Contractors with works completed on the tailings dam lift, radiometric sorter, Osmoflo, demo landform, and tails delivery system.

*ESH achievements – safety and health* - ERA achieved for the third year running the leading practice in Disaster Management and Recovery. Mr Rajapakse advised over 200 high quality achievements were implemented in 2008 through ERA ESH achievement notice program. Rio Tinto health and wellness programs were launched in 2008 with health assessments well underway with all personnel doing basic stretching and exercising to reduce soft tissue injury in the workplace.

*ESH environment* - ERA hosted its third successful bird watch program with 71 species being identified at various locations within Jabiru. Weedy Timebomb successfully eradicated 10 weed species in Jabiru reducing the risk of weeds escaping into Kakadu National Park. ERA continue to work in partnership with Jabiru Town Council on the Jabiru Recycling Program. Team member Daniel Van was recognised by the Keep Australia Beautiful Council.

*ERA Indigenous employment* - Mr Rajapakse advised ERA indigenous staff appointments target for 2009 is 20%, as at 31<sup>st</sup> March 2009 ERA reached 19.39%. With this years target nearly met, ERA continue to work closely with Mirrar through the GAC contract. He advised a number of indigenous employees have come from Oenpelli and communities in Arnhem Land. Currently 35% in the mine department are indigenous. ERA is committed and emphasises a lot on this program in pushing the first choice is local indigenous employees.

*Production* - Mr Rajapakse advised the Ranger Pit 3 Shell 50 cutback was well advanced. With a little water still in the bottom of the pit a new lined sump pump station has been installed at -95m RL, the water will be pumped into RP2. There is a significant amount of work being worked on in pit, with push back walls to reduce the threat of sand weakening. The progress of stockpiles (northern) will continue to increase in height as ERA move forward. He advised with the purchase of new trucks,

excavator and dozer the equipment has been working really well and that ERA have recently changed rosters.

*Laterite plant and radiometric sorter* - Mr Rajapakse advised although the project was delayed due to personnel shortage, ERA are pleased to announce the radiometric sorter is now commissioned and the laterite plant is currently in final commissioning stage.

*Current operations overview* - Mr Rajapakse advised the Shell 50 extension has progressively deepened and is at -55mRL. Exploration 3 deep continues to be drilled. He advised the shift from pond water to processed water planned in December 2008 is going well with the pumping of water through plant to be fully commissioned by next month. Mr Rajapakse advised the Tailings Storage Facility walls has been raised to RL53, this was partially completed in 2008 he indicated with the wet season the project was delayed, ERA hoping to raise to RL54. The demo/trial landform has been constructed and partially completed, honouring the rehabilitation agreement. Significant project underway with the transfer of tailings first line commissioned into TSF and second line to be commissioned within the next 2-3 weeks.

*Ranger expansion opportunities* - Mr Rajapakse briefly discussed ERA analysis framework. He indicated there were a number of options not socially or economically viable for expansion. Mr Rajapakse advised the two referrals which have been submitted under the EPBC Act and NT Environmental Assessment Act:-

- Heap Leach; and
- Ranger 3 Deeps exploration decline.

Additional project consists of underground mining, low grade ore facility and hydrometallurgy.

*Low grade ore leach facility* - Mr Rajapakse advised that the heap leaching was identified by 1974 Ranger EIS as a potential treatment route for low grade ores (0.05 - 0.02% U3O8). He advised that the world best practices that can be directly applied to Ranger have been reviewed and he noted the heap leach facility (~10Mtpa) is proposed to recover 15,000 - 20,000t of U3O8 from already mined low grade stockpiles and in-situ ores. He noted there has been comprehensive test work over three years that has confirmed the effectiveness of the technology. The proposed facility is a further extension of the concepts considered in the Ranger EIS and the Fox Inquiry.

*Further exploration of Ranger 3 Deeps* - Mr Rajapakse advised test work is still progressing. The recoveries are proving to be economic, he advised ERA are looking at attempting to move forward on understanding and assessing the data to determine the feasibility of underground mining.

*Social and economic overview* - Mr Rajapakse advised that some \$700 million in export was earned in 2008, he advised that ERA are a major NT employer earning \$165 million wages / salaries in 2008, \$25 million paid in royalties in 2008 returning to the NT and that ERA is a major presence in the economy of Jabiru, actively participating and providing sponsorship for a number of programs. He noted ERA actively participate in number partnership programs with the Mirrar and GAC in supporting new concepts that will result in improved indigenous outcomes from royalty income and cross cultural awareness program for all new team members.

*Possible timeframe for referral of Heap Leach Facility* - Mr Rajapakse advised on the overall summary of activities status as follows:-

- March 2009 - Referral for low grade ore leach facility lodged under Commonwealth EPBC and NT EA Acts;
- April 2009 - Commonwealth & NT Minister determinations of level of environmental assessment required for project;

- Late 2009 to Early 2010 - Feasibility engineering studies continue;
- 2010 - Detailed engineering studies finalized;
- 2011 to 2012 – Construction (if project approved);
- 2012 – Commissioning; and
- 2020 - Operations completed

*Possible timeframes for Exploration Ranger 3 Deeps* - Mr Rajapakse provided a brief overview of the timeframes for exploration Ranger 3 deeps as follows:-

- March to April 2009 - Referral for exploration decline lodged under Commonwealth EPBC and NT EA Acts;
- Late April 2009 - Commonwealth & NT Minister determinations of level of environmental assessment required;
- Q2 to Q3 2009 - Detailed engineering assessment of decline construction;
- Late 2009 - Commence construction (if project approved); and
- 2010 to 2011 - Construction and exploration drilling.

*Environment overview*- Mr Rajapakse advised that the Ranger 3 deeps and the ancillary facilities will be located within the boundary of the current operations. He advised ERA will continue to manage and control the radiation exposure and groundwater protection. He indicated that ERA considers that the exploration decline will not be a controlled action but will submit a Referral under the EPBC & NT Environment Assessment Acts, he advised if exploration investigations do not support an underground mine, the decline will be backfilled and rehabilitated using the Jabiluka decline model.

## **Discussion**

Mr Burns asked what happens with the thorium in the Heap Leach process. Ms Varris advised ERA are expecting further information after the EIS studies have been completed. Dr Jones informed the members Heap Leaching is no different to the process currently used in the Ranger Mill and therefore thorium as an issue in the heap leach would be no different to that of the current operations.

Mr Kyle asked what is happening about accommodation if the expansion gets approved. Mr Rajapakse advised with the approval of the expansion there could be approximately 150-180 extra operational staff to be housed, he mentioned ERA are to liaise with stakeholders on a possibility of building another camp site within Jabiru or on the mine lease site with similar set ups to FIFO arrangements. Mr Tutty advised he thought the accommodation aspects was not addressed well in the referral stage. Mr Tutty also noted that the referral was light on in information on the radionuclide issues surrounding the operations of the heap leach facility. Mr Rajapakse advised Mr Tutty that he does not have the information at hand but will raise it with the Project Expansion Team. Ms Varris also noted she did not have all the information at hand of the EPBC Act referral process on environmental issues but advised all stakeholders, it was important for them to highlight their issues on environmental and social impacts and encouraged the stakeholders to contact ERA at any time to discuss their concerns. Mr Tutty advised he was familiar with the heap leach process and noted from the MTC agenda items ERA have done some investigation on common practice and world best practices and would like the research and information shared to all stakeholders.

Ms Illes advised that ERA are currently undertaking research using heap leach column tests which will provide further information on the leachability of the material. ERA will use this information to ensure world best practices apply. Dr Jones asked what radionuclide's are currently being analysed as part of its current metallurgical studies. Ms Illes advised she was not sure but noted ERA definitely doing

uranium analysis and this will be sent to ANSTO. Mr Rajapakse advised ERA will provide further information to Mr Tutty. Mr Tutty asked Mr Rajapakse to provide further information on the application of heap leaching in tropical areas.

Mr Kyle advised the research material he read on studies of heap leaching, only one of the six other international mine sites was a uranium site, other sites were Cu and gold. He indicated the information he researched all sites had less rainfall than Ranger he explained that he is still unsure about best practice.

The Chair thanked Mr Rajapakse for his contributions to ARRAC and wished him all the best for the future.

**ARRAC31 Action 5.1 Mr Rajapakse to provide information about to Mr Tutty on Radionuclide issues surrounding the operations of the proposed Heap Leach Facility**

Mr Rajapakse handed over to Ms Varris who provided an update on ERA environmental management activities. Key items raised included:

*Pond water management* - Ms Varris advised this years wet season has been below average. Two new treatment plants have been commissioned WTP1 and OWTP both commenced operating in January 2009. LAA's have not been operating since June 2008 with the contingencies implemented in 2007/08 this has increased the flexibility of operation.

*Water treat plant* - Approval was obtained to treat pond water without pre-treatment, Ms Varris advised this is now fully operational. Osmoflo plant was successfully commissioned with a consistent operation of around 12ML/day for WTP1 and OWTP combined. She advised process water was commissioned in March 2009 through July 2009 with plant mods progressing well. Ms Varris advised it is expected to know permeate quality in late April.

*Process water treatment & disposal active options being examined* - High density sludge commissioning commenced and the initial plant to evaluate technology. ERA expect to approach the MTC during the mid year regarding the permeate to LAA/storage/dust suppression and evaporation. Ms Varris advised bench scale testing in the brine concentrator to make distilled water has commenced and ERA are considering undertaking test work and evaluation with pilot scale plant with 3 rigs.

*Process water treatment & disposal passive options being examined* - Ms Varris advised the passive option is being examined during the dry season. The evaporation ponds which include the pre feasibility study is underway for Brownfields location and Greenfields location in the REP referral. She advised the purpose of these systems is to operate them as evaporators not concentrators and to maintain the salts in suspension. She noted the advantages of the systems are designed to be a dual use facility in the wet season to be used for pond water and dry season used for evaporating. Ms Varris advised another passive options being examined is the turbo mist evaporators to operate in conjunction with Pit 1. She advised spray drift and particulate modelling underway.

*Process water treatment & disposal - operational efficiencies* - Ms Varris advised the process water treatment and disposal plan on operational efficiencies have improved with the management of the catchment. 15 Ha catchment works in Pit 1 could reduce inputs to process by ~ 40ML pa. Ms Varris advised sumps to south of TSF could collect some 100ML water annually. She advised since late 2008 sulphate stockpile drains were pumped to RP3 and are now largely directed to the pond water but at times to process water treatment plant when volumes too great with sulphate. Ms Varris mentioned ERA continue to use the water balancing model to identify opportunities.

*Process water treatment & disposal – storage* - Ms Varris advised the practical completion of the lift to TSF to 53mRL was December 2008 with 50% of crest to reach 54mRL. Ms Varris explained the

remainder to follow after the wet season. Feedback was obtained from MTC on the draft TSF MOL application. TSF water level as at 31st March 2009 was at 49.2mRL, with the tailings deposition system installed, ERA has new controls and contingencies for environmental protection in place. Ms Varris summarised that although ERA have been working on a range of management controls there have been complex issues that require a range of parallel approaches and ERA will endeavour to update stakeholders as plans evolve.

*Climate change and energy efficiency* - Ms Varris advised ERA submitted the Energy Efficiency Opportunities Act Report to the Federal Government via Rio Tinto. Ms Varris noted ERA has been taking a more strategic approach resulting good progress against three year Climate Change Action Plan, she noted ERA has been increasing industry awareness of nuclear power as low GHG technology also engaging with stakeholders on climate change and its effects on Kakadu National Park. Ms Varris advised ERA were co-sponsors of the 2008 Kakadu National Park Climate Change Symposium and with Commonwealth Department of Climate Change.

Ms Varris indicated ERA have integrated new legislative requirements into management systems with successful compliance achievement of EEO Act implemented for example significance of time resources and reporting, financial level reporting, financial level auditing. Ms Varris noted that although ERA are not in a position to benchmark at the moment they will look at benchmarking ERA's GHG performance against other uranium mines.

Ms Varris presented ERA's EC and filterable Uranium monitoring data to date for the 08/09 wet season for Magela, Gulugul and Swift Creek. No comment was made on the data.

*Demonstration landform* - Ms Varris advised with the wet season being below average season this held advantages as the trial landform has largely been completed with 6.8ha under planting. She advised the successful installation in mid February 2009 of soil moisture probes, planting of tubestock in March 2009 and one of the four erosion plots nearing completion with the partial installation of watering system installed over 2.67ha.

*Closure planning* - Ms Varris advised the evaluation of Pit 1 closure strategies continues with the Water Research Laboratory group (UNSW) in solute transport modelling and the CSIRO land and water on the geochemical behaviour of tailings. She advised the MTC Closure Criteria Working Group was established and recently met to discuss the draft Terms of Reference paper to finalise along with working arrangements and the commencement of closure criteria development. Ms Varris noted the field investigations of LAA's continues with the preparation and rehabilitation plans.

*Incident reporting and management* - Ms Varris advised ERA has an Environmental Safety Health (ESH) system in place with ISO14001 and AS4801 the purpose is to raise the awareness of health safety and environmental issues across ERA to prevent serious incidents. She advised all incidents including near-misses are reported, they are classified and investigated according to the level of consequence and maximum reasonable outcome. MTC is provided with a comprehensive list of environment and radiation incidents on a regular basis. Ms Varris advised that SSD assessed ERA in 2007 and 2008, and no incidents warranted an independent investigation.

Ms Varris advised there were a number of reportable incidents during the period.

*14 September 2008* – A diesel delivery truck lost control of the fourth trailer on Arnhem Highway travelling towards Jabiru. (No fuel was lost).

Behavioural: Thermal stress contributing factor

Actions:

- All diesel trucks to completely discharge before leaving site
- Driver not to leave site until paperwork submitted / verified

- Meters upgraded at bulk fuel facility
- Provision of equipment / education to reduce thermal stress
- Replace discharge pumps
- Investigate change to ball valves from gate valves
- Diesel unloading SOP
- Reiterate incident notification requirements
- Demarcate road to highlight discharge area for diesel trucks
- Consider additional discharge capacity

*21 October 2008* – 20L drum containing metallurgical trial samples was lost from a freight truck whilst in transit to NTEL. The package was classified as an accepted package (ie contents were not nuclear material).

Behavioural – Load restraint procedure not adhered to. Rear door not secured.

Actions:

- New SOP implemented – NQX to direct deliver ERA packages or where unable to deliver them, to store in NQX yard.
- ERA to audit NQX delivery procedures
- Review feasibility of rear door ajar alarm
- All NQX employees to be re-inducted into the Codes of Practice

*24 October 2008* – Water from a manual flushing valve was left running and overflowed the drain system allowing water ingress to the calciner and product bin. Wet material required removal and clean up.

Behavioural – Flushing water left running.

Actions:

- Removal plan implemented with additional controls for exposure
- Personal urine sampling conducted
- Design engineering control to prevent water from entering calciner
- Reinforce use of risk management tools and communication processes
- Review training process – provide robust process skills across crews
- Consider alternative methods for task
- Conduct debrief
- Improve decontamination process and equipment
- Raise awareness of radiation exposure and controls
- Develop Sop for product bin clean out and improve access to procedures

*8 November 2008* – A minsup coupling was fitted to a potable water tap at the service workshop hand basin.

Behavioural – Procedures not followed.

Actions:

- Potable water system audit conducted to confirm conformance throughout the site
- Opportunities identified included:
  - Replacement of corroded and leading valves
  - Tack welding of plugs
  - Fitting of non-return valves
  - Changing of outlets
  - Installing pipe labelling
  - Blank off redundant outlets

11 November 2008 – A live tailings line was cut into during commissioning of a new tailings line to the TSF. During rectification a flushing valve was opened to depressurise the line which sprayed tailings to the south of Corridor Creek Rd.

Behavioural – Procedures not followed. Pump and line not connected as per plan. Flushing valve opened.

Actions:

- Isolate flushing valves to prevent inadvertent use until relocated;
- Thorough clean up completed and re-establishment of drainage in the area
- Review, update or develop isolation plans, as built plan and pipe / valve labels
- Reinforce SOP requirement for physical check and confirmation of isolations
- Modify SOP and NSEA to include additional controls;
  - Walk line with Operator to confirm line;
  - Positive identification of line including mark at cut point;
  - Use pilot hole to confirm isolation prior to cutting.

*Media seepage from Ranger TSF* - Ms Varris advised on the recent media attention on the tailings storage facility seepage, contours showing sulphate levels in groundwater beneath the tailings dam identified the quality of water similar to pond water. Ms Varris advised studies shouldn't surprise anyone as ERA have been talking to all groups and explained that ERA have to follow stringent and comprehensive monitoring systems.

## **Discussion**

Mr Kyle stated that the last maps were comprehensive, he explained is it fair to say that only four bores are statutory bores and the two near the tailings dams including all the other bores are operational. Mr Kyle advised that data has not been available to assess the quality of water. Ms Iles stated the statutory bores are a requirement of the authorisation and they are mandatory to report. Mr Kyle advised the TSF100 series report and results are not available to stakeholders out of ERA. Mr Kyle indicated all stakeholders should have access to straight reporting and this should be presented. Ms Varris advised that she hears his points and will highlight in future.

Mr Kyle noted that in the referral TSF 2 was going to be placed in a greenfields site and that there was some doubt as to whether this was needed depending on mine planning. Ms Iles stated the TSF2 was related to a different shell plan and that the pit would not be ready in time to avoid the requirement for the construction of the TSF2

Mr Tutty stated he was pleased that the bores surrounding the current TSF are being monitored but asked how is ERA responding to the TSF seepage. Ms Varris stated that there have been a number of works program to stakeholders around the TSF seepage. Mr Kyle advised that David Patterson needs to talk to him further about the issue. Ms Varris advised ERA are actively participating with a number of stakeholder including ARRAC and ARRTC, ERA attend and conduct routine period inspection also advising MTC. She advised ERA provide feedback on the progress and encourage groups to ask questions. Ms Varris noted ERA provide advice and direction of research programs and reports are already available and are public documents. Ms Iles advised all operating monitoring requirements trends and operational bores summarising the data collected are shared with CSIRO including historical data sets, hydro on tailing dam have been reviewed by ARRTC.

Mr Martin advised as DRDPIFR are the regulatory body they have access and regularly check all monitoring into ERA database. Mr Martin advised the statutory body are aware of what is going on as they can regularly monitoring and frequently check the two bores and provide a report.

Mr Tutty advised he appreciated Ms Varris and Mr Rajapakse providing the two powerpoint presentations and would like a copy including the CSIRO report. Mr Tutty advised stakeholders would

like a greater coordinated response. He thanked Ms Varris on reporting on climate change but would like to know how are ERA heading towards a realistic change and how are ERA going to report. Ms Varris stated she is aware of climate change and participated in symposium conference and talked about one of challenges on how to report on rainfall if it will increase/decrease.

Mr Tutty asked Ms Varris is the long term rehabilitation plan to isolate the tailings. Ms Varris stated the tailings were required to be isolated in the pits as part of the Commonwealth's Environmental Requirements.

Dr Jones stated he was aware of the processed water treatment having a lot of work being done in the past and the accelerated evaporation ponds is complex and ERA will need to take eriss aspects and research into account. Dr Jones advised the process was very energy intensive and to be careful of what technology ERA use. He stated the mist evaporators could be used Ms Varris agreed it is a technical risk and explained that evaporation seems to be the better way to go.

Mr Tutty asked Ms Varris if the audit was the same one spoke about previously. Ms Varris stated that she may have raised in the last meeting but the audit had not been completed it was finalised in August. She noted previous audits have raised the need for improved controls on the mine site.

**ARRAC31 Action 5.1 Ms Varris to provide Mr Tutty powerpoint presentations and CSIRO report.**

## 6. Supervising Scientist Report

*Audit and Inspection Overview* - Ms Bush presented the OSS Audit and Inspection overview. Ms Bush advised a number of audits and inspections had been undertaken in 2008. The Ranger mine Annual Environmental Audit Review was conducted on the 28 November 2008 by Keith Tayler (OSS), Gary Martin (DRDPFIFR) and Howard Smith (NLC). In order to verify the audit findings the audit team inspected the following areas:

- Corridor Creek Land Application Area;
- Jabiru East Land Application Area; and
- RP1 Spillway.

There were 119 commitments audited with one finding ranked Category 2 non-conformance in the Management of Land Application Areas. ERA are not in compliance with the following aspects of their approvals:

- Irrigation rate not to exceed 9mm per day (CCLAA);
- No surface pooling in Land Application Areas (CCLAA);
- Re-installation of bunding at JELAA prior to start of irrigations; and
- Fitting of an alarm to the JELAA feed in as committed to in the 2006 application.

Ms Bush stated ERA has reported and will continue to report land application rates as a component of the water quality reports. ERA have reported irrigation rates have remained within approval levels. She advised the CCLAA had restarted on 5 November 2008 and is currently only area in use, ERA are targeting to treat a further 300ml from the pond water circuit prior to the commencement of the wet season. Ms Bush advised ERA plans to have individual telemetered flow meters fitted to each module of the CCLAA by the end of 2008 in addition to the current metre on the main feed line. She advised that ERA also plan to install a telemetered flow metre to be re-instated along the Coonjimba Billabong Road.

Ms Bush stated there were three conditional audit findings as follows:

1. Radiation Management Plan Section 6 – Inductions; and
2. Ranger Authorisation – Section 6.3

She stated previously ERA were not possible to general “reports by exception” from their system but now ERA are able to generate reports to show which employees have not completed any training courses. Ms Bush noted ERA continues to rely on Supervisors to track their staff training requirements. There is no system across site used to centrally track training compliance.

### 3. Pit #1 Seepage Barrier Monitoring

ERA have purchased new sondes to provide backup when other sondes are offline for maintenance or malfunction.

*Changes to the audit review process* - Ms Bush stated following the audit review in November 2008, stakeholders considered that the process should be revised. The current audit review is 6 months too long for a follow up, as a result of this, there will be an anticipated May audit conducted. The findings of the May audit, timeframes will be assigned and also incorporate and follow up accordingly eight regular RPI actions lists.

*Routine periodic inspections* - Ms Bush advised eight Routine Periodic Inspections (RPI's) were carried out since last ARRAC meeting. All RPI's were undertaken with stakeholders from DRDPIFR and NLC on tailings storage facility, lift and tailings delivery system, trial landform, Pit#1, Pit#3 expansion. She noted stakeholders focussed largely on the tailings storage facility, lift, tailings delivery system and ERA's water management lead up to wet season.

*Jabiluka* - Ms Bush advised that a complete inspection was conducted at Jabiluka, including Djarr Djarr and JSC in December 2008. The audit review revisited the findings of the May audit. The three principal audit findings were determining that the Restricted Release Zone (RRZ) is no longer applicable and two observations were discrepancies in routine water quality reporting and the burnt poly pipe in the IWMP drop structure.

*Nabarlek* - Ms Bush advised Nabarlek Annual Environmental Audit was undertaken on the 21 August 2008. Ms Bush presented a brief overview of the Nabarlek lease which Uranium Equities Limited acquired in 2008. UEL has submitted to DRDPIFR a new Mine Management Plan (MMP), which was the subject of the 2008 audit held in August. Of the thirty seven findings audited, fifteen were given the ranking of 'acceptable' and three were 'observations'. Approximately only half commitments were tested as a result of unforeseeably delay times in the drilling program.

*West Arnhem Exploration/South Alligator Valley* - Inspections were conducted on Cameco's operations in September 2008 at Myra and King River with no outstanding actions. Similarly at South Alligator Valley inspections were undertaken in November 2008 and found no actions requiring follow up.

*EPBC Assessments* - Ms Bush stated to members she spent 3 months in Canberra learning about the assessment process for mining operations assessed under the EPBC Act. She noted currently SSD provide advice to Approvals and Wildlife Division on new and expanding operations referred under the Act. Ms Bush presented detailed flowcharts on the step by step process through referral, assessment and approval stage, and used the Olympic Dam Expansion assessment process as an example throughout the presentation.

Ms Bush handed over to Ms Brazier who provided an update on Ranger off-site surface water quality.

*Ranger off-site surface water quality* - Ms Brazier advised that results from the Magela and Gulungul Creeks weekly grab chemistry, continuous monitoring, in-situ monitoring of snail egg production and bioaccumulation in mussels will be presented and that macroinvertebrate and fish communities will be reported at the next ARRAC meeting.

*Routine water chemistry 2008/09* - Ms Brazier advised that SSD have relocated their routine grab sampling in Magela Creek from the reference site (MCUS) and statutory compliance site (009C) to the sites shared by continuous monitoring and in situ toxicity monitoring to provide better overlap between

all three monitoring programs. Ms Brazier advised SSD are developing reporting mechanisms to stakeholders for the integrated continuous monitoring/grab sampling program and are also developing auto-sampling of creek water based on EC and turbidity triggers in Magela Creek. She advised grab sampling from the upstream site of Gulungul Creek has discontinued but continuous monitoring is remaining at both the upstream and downstream sites.

Ms Brazier presented statistical evidence to both support the site change for the routine grab sampling and also understand any differences that may be expected between the old sites (MCUS and 009C) and proposed sites. The downstream analysis also included comparison of data between 009C (compliance site), 009W (a site near the compliance site, but in the west channel), creekside/continuous monitoring pontoon 1 (west channel) and creekside/continuous monitoring pontoon 2 (west channel but closer to the west bank than pontoon 1). Water chemistry data (uranium, magnesium and sulfate) collected during the creekside monitoring program (proposed sites) was compared to the corresponding water chemistry data from the routine chemistry grab sampling program for the period 2002-2008 using ANOVA.

*Upstream control site* – There is no statistical difference between the proposed site (MCUGT) and MCUS for magnesium, sulphate and uranium ( $p > 0.05$ )

*Downstream site* – Comparisons of data show

- Uranium – compliance site (009C) is statistically different to downstream 2 ( $p < 0.5$ )
- Magnesium – 009C is statistically different to 009W and downstream pontoon 2
- Sulphate – 009C is statistically different to 009W, downstream 1 and downstream 2.

Overall, the results show that the proposed upstream reference site (MCUGT) is comparable to MCUS. The results also show that differences should be expected between data from the compliance site 009C and the new downstream site (MCDW) with some periods of elevated magnesium, sulfate and possibly uranium. This will be noticeable particularly with any flow from Coonjimba Billabong (input from RP1) as this flow preferentially hugs the west channel of Magela Creek.

*2008/09 Wet Season* – Ms Brazier advised the annual rainfall at Jabiru Airport from 1971-72 to 2008/09 shows less than average rainfall for this season so far.

*Continuous monitoring of EC Magela Creek 2008/09* – Ms Brazier advised that discharge to date from Magela Creek has been lower than previous years. Continuous monitoring of EC has detected a number of EC events that could be attributed to ERA's active siphoning and pumping program from RP1 into Coonjimba (30/1/09 – 11/2/09; 18/2/09 – 19/2/09; 4/3/09 – 5/3/09; 13-18/09). Overall, the EC trace is similar to previous seasons.

#### *Magnesium v EC – Magela*

Ms Brazier advised that the weekly grab sampling coincided with two peak EC events and consequently two seasonal high magnesium and sulfate values were measured. On the 11<sup>th</sup> February 2009 EC, magnesium and sulfate measured 44.7  $\mu\text{S/cm}$ , 3.3 mg/L and 12.2 mg/L respectively. On the 18<sup>th</sup> March 2009, EC, magnesium and sulfate measured 44  $\mu\text{S/cm}$ , 3 mg/L and 10 mg/L respectively. All other values were comparable to previous seasons. It is unusual for the weekly grab sampling to coincide with peak EC events, which normally occur in the early hours of the morning and are related to diurnal flow/rainfall patterns of the upper Magela catchment. However, a number of the EC events this year (including the two events discussed here) were triggered largely by active siphoning and pumping by ERA from RP1 into Coonjimba without subsequent dilution by flow in Magela Creek.

#### *Magnesium load – Magela Creek (Preliminary estimates)*

Ms Brazier presented the preliminary estimates of magnesium load in Magela Creek which shows that the magnesium load difference between the upstream and downstream is lower than previous years.

#### *Magela Creek Uranium Comparison with ERA*

Ms Brazier advised that there are no exceedence of any uranium limits and that there is generally good agreement between ERA and SSD data.

*Magela Creek Uranium*

Ms Brazier advised that uranium data for this year is generally comparable with uranium data from the west channel in previous years.

*Radium -226 in Magela Creek 2001-2009*

Ms Brazier advised that the wet season median difference for radium-226 between the upstream and downstream site is close to zero, indicating negligible input of radium-226 from Ranger mine.

*In-situ monitoring – snails*

Ms Brazier advised that there have been eight in situ toxicity tests for snail egg production to date and that all tests show little difference between the upstream and downstream site with respect to snail egg production.

*Bioaccumulation – Mussels*

Ms Brazier advised that a study that investigated longitudinal changes in radium-226 bioaccumulation in mussels from the Magela Creek catchment (Bowerbird Billabong to Mudginberri Billabong) demonstrated that radium bioaccumulation was a result of natural catchment effects rather than from any significant inputs from the mine.

### *Gulungul Creek*

Ms Brazier explained that due to the low rainfall experienced in the catchment, Gulungul Creek discharge was low compared to other years. Continuous monitoring data shows that electrical conductivity measured higher at the downstream site compared to the upstream site for mid-February to mid-March, which also coincided with slightly elevated uranium concentrations (well below the Magela limit). Overall, the EC levels are well within the range seen in previous years.

Uranium data from ERA and SSD were in reasonably good agreement with all values well below the uranium limit for Magela Creek..

*Jabiluka surface water chemistry* - Ms Brazier advised that Jabiluka is in long term care and maintenance and that both SSD and ERA will continue to conduct independent monthly water chemistry sampling (SSD will sample from the downstream site only). DRDPIFR is responsible for check monitoring. She advised biological studies have discontinued while the site is in long term care and maintenance.

*Ngarraj uranium*– Ms Brazier advised that SSD and ERA data are in good agreement.

*Ngarradj radium-226* – Ms Brazier advised SSD data from 2002-03 to 2006-07 seasons wet season show the radium-226 wet season median difference ~ 0. Since the upstream site is no longer sampled, from 2007-08 the downstream radium-226 is compared with previous years to see if there are any changes. All data collected for the 2008-09 wet season is comparable with previous downstream data.

*Radiation monitoring at Jabiru, Jabiru East airborne pathways and public exposure* – Ms Brazier advised results from both ERA and SSD concur. Figures include natural background and the contribution from mining, gauged from wind correlations is negligible, below detectable levels.

*Radiation monitoring at 4 gate road station airborne pathways and public exposure* – Monthly RDP and LLAA are conducted with 2008 total effective dose from SSD data figures show 0.3 mSv from RDP, ~0.01 mSv from LLAA and with only small fraction mining related.

## **7. REGIONAL DEVELOPMENT, PRIMARY INDUSTRY, FISHERIES AND RESOURCES REPORT**

Mr Martin presented the DRDPIFR Environmental Surveillance Monitoring Report 57 for the period August 2008 to February 2009. He advised the report provides a summary of variations to the authorisation and operational approvals, safety and environmental incidents, ground water comparison for sites sampled for Ranger, Jabiluka and Narbarlek during the reporting period.

*Minesite Technical Committees Meeting s-* Mr Martin advised there were four Minesite Technical Committee meetings held during the reporting period for Ranger and Jabiluka on 26 August 2008, 1 October 2008, 10 November and 16 February 2009 and one meeting held on the 22 August 2008 for Narbarlek.

*Ranger Mine Pit #3* – Mr Martin advised the Ranger mine is the only operating uranium mine in the NT and one of three uranium mines in Australia. The other two being Olympic Dam (underground) and Beverley Mine (in situ leaching) in South Australia. The ore at Ranger is mined in an open cut pit, Pit #3 and is processed on site to produce uranium oxide U<sub>3</sub>O<sub>8</sub> for export. All the Ranger uranium is exported for use in nuclear power stations.

*Variations and Authorisations* – Mr Martin advised there were no variations and authorisations during the reporting period to Ranger, Jabiluka or Nabarlek. He advised the current authorisations remain 0108-10, 0140-05 and 0435-01 respectively. Mr Martin noted in mine sites in the NT operate under Authorisations granted under the NT Mining Management Act. Ranger, Jabiluka and Nabarlek

Authorisations can only be varied with the approval of the NT Minister for Primary Industry, Fisheries and Resources Minister Kon Vatskalis.

*Environmental and safety incidents* - During the reporting period August 2008 to February 2009, Mr Martin advised there were a total of 55 reported incidents, 12 of which were safety incidents reported to NT WorkSafe. The full list of incidents are detailed in the DRDPIFR report, commencing at page 6 of SMR 57.

*Operational approvals* - There were no approvals granted by the MTC during the period, however the following statutory reports were approved as requirement of the Authorisations:

- Ranger Environment Report;
- Ranger Annual Plan of Rehabilitation #34;
- Jabiluka Annual Interpretative Report; and
- Jabiluka Annual Plan of Rehabilitation #11.

*Ranger pond water* – Mr Martin advised pond water inventory has increased during the reporting period as the 2009 wet season progressed. Pit #3 remained effectively dry during the period, allowing mining to continue. He noted Ranger has three main water storage facilities for pond water being RP1, RP2 and RP3 with a secondary storage of pond water in Pit #3. As expected, due to seasonal trends the water inventory was drawn down during the dry season and replenished by rain in the wet season. He advised ERA has continued to manage pond water and reduce the inventory stored on site. Throughout 2008 there was very little water in Pit #3 allowing ERA to mine at the pit floor level. Mr Martin advised the methods used by ERA to manage and reduce pond water include irrigation in LAA, pond water treatment in the water treatment plant, irrigating stockpiles to aid evaporation and the use of pond water for dust suppression on roads.

*Retention Pond #2* - Mr Martin displayed a photo of RP2 at its minimum level in December 2008. The volume of water was around 420 ml.

*Statutory bores* – Mr Martin advised DRDPIFR Environmental Monitoring Unit monitor surface water and ground water at the Ranger, Jabiluka and Nabarlek sites. Under agreement, SSD will present surface water data and DRDPIFR will present the ground water. There are 2 statutory bores monitored at Ranger by DRDPIFR Bore 83/1 situated in the Djalkmara Catchments East of Pit #3 and Bore OB27 in the Georgetown Creek Catchments.

*83/1 (RN23010)* – Mr Martin presented data of Bore 83/1 electrical conductivities, sulphate and uranium showing both ERA and DRDPIFR data display frequent fluctuations in EC. The majority of DRDPIFR are within the range 110-140 uS/cm, and ERA data within 90-130 uS/cm. Whilst DRDPIFR data is generally higher than ERA data, the overall trends are similar. He advised since November 2006 uranium concentrations reported by ERA have been below 0.32 ug/L. This trend is confirmed by DRDPIFR data. Results since September 2006 are less than 0.31 ug/L.

Mr Martin advised DRDPIFR sulphate data is generally less than 0.5 mg/L with peaks in March 2006 and 2008 of 1.2 mg/L. ERA also reports that the majority of results are less than 0.5 mg/L with peaks of 1.6, 1.3 and 1.1 mg/L recorded in February 2004 and February and May 2005. He advised the sulphate is below recommended trigger level of 1000 mg/L for ground water in ANZECC guidelines.

*Bore OB27 (RN22930)* - Data presented on Bore OB27 EC, SO<sub>4</sub> and U show both ERA and DRDPIFR EC data display frequent fluctuations. Mr Martin advised the data shows good conformance and the overall trends of decreasing EC are similar. The majority of uranium concentrations reported by ERA have been below 0.5 ug/L. Peaks of 0.8 and 1.0 ug/L were recorded in February 2005 and 2006 respectively. DRDPIFR data also reported generally low concentrations of uranium (less than 0.5 ug/L) with a peak of 0.8 ug/L in March 2008.

Sulphate concentrations reported by DRDPPIFR were consistently less than 2 mg/L before 2007. From 2007 concentrations have fluctuated and marginally increased. The same trend can be seen in the ERA data with sulphate concentrations increasing from May 2007. The increase is likely to be due to effects of land application and the concentration of groundwater during the dry season. The increase is relatively small in the overall concentration and is well below the acceptable level of 500 mg/L.

*Jabiluka* – Mr Martin advised Jabiluka site is under long term care and maintenance by ERA. Surface water monitoring at Jabiluka is conducted by ERA, SSD and DRDPPIFR at Swift Creek. Ground water sampling was conducted at Jabiluka on 15 July 2008, by agreement surface water data is presented by SSD. He advised groundwater monitoring is conducted at three monitoring bores by ERA and DRDPPIFR. Mr Martin presented a map showing part of the Jabiluka lease with the interim water management pond and the access road of:-

- JDGB4S
- JDGB4D
- JDGB7

*EC in Jabiluka bores* – Mr Martin advised ERA data shows relatively stable EC, ranging from 33-69.3 uS/cm at JDGB4S. The DRDPPIFR data show a similar range 48.6-74 uS/cm, although there was a slight variance in EC. He noted it is deemed to be stable and regulator results conform.

JDGB7 ERA is variable but does not appear to be seasonal. Mr Martin advised the DRDPPIFR data within the EC range recorded by ERA is 85 and 153 uS/cm.

JDGB4D ERA data exhibits a relatively stable EC (196-278 uS/cm). Mr Martin advised the DRDPPIFR data, show a dramatic fluctuation in EC (124, 278, 147, 247 uS/cm). Overall results are still below significant levels for EC in ground water. Differences in EC results for bores JDGB4D and JDGB7 are assumed to be the result of different pumping times.

*U (f) at Jabiluka Bores* – Mr Martin advised overall Uranium (f) concentration in ground water at Jabiluka shows good agreement between ERA and DRDPPIFR data. He advised the filtered uranium in Jabiluka bores data indicates JDGB4S, ERA and DRDPPIFR data displays good conformity. Uranium concentrations are predominantly below 0.2 ug/L.

JDGB4D, ERA data show filtered uranium fluctuates between 0.15 and 1.0 ug/L, with the greatest peak of 6.2 ug/L on 26/11/2003. Mr Martin advised DRDPPIFR data since June 2005, follow similar trends to ERA data with concentrations fluctuating between 0.3 and 1.0 ug/L.

JDGB7 ERA data fluctuates between 0.01 and 0.9 ug/L of filtered uranium. The majority of results are below 0.2 ug/L. DRDPPIFR data for this site show good conformity with uranium concentration of 0.7 and 0.12 ug/L.

Nabarlek – Mr Martin advised in April 2008, UEL purchased and took possession of Nabarlek mine site - mineral lease MLN962. DRDPPIFR will continue to undertake all water monitoring at four ground water bores located:

- OB 10 - plant area south east of the old ponds;
- OB 25 - on the fence line east of the pit;
- OB 47 - spray area north of the main access road;
- OB 29 spray irrigation area adjacent to Kadjirikamarnda Creek Weir.

Surface water monitored at:-

- Cooper Creek at the Murganella Road Crossing; and
- Kadjirikamarnda Creek downstream of the irrigation area. UEL have also provided monitoring data for these site.

UEL has also provided monitoring data for these sites.

*Filtered Uranium, Manganese, and Nitrogen in bore OB10* – Mr Martin advised data from 2003 - 2007 corroborates with UEL data in 2008 showing a trend of decreasing (filtered) uranium concentration. Nitrate (NO<sub>3</sub>) as nitrogen (N) data shows fluctuation but overall remains reasonably stable (4-6 mg/L). He stated data for manganese (Mn) from 2003-2004 displays the same trend as N. UEL data reports Mn and N concentrations below laboratory detection limits of 0.001 mg/L and 0.01 mg/L respectively.

*Nabarlek groundwater bore OB10 comparison of SO<sub>4</sub> and pH* – Mr Martin advised DRDPFR data overall shows an increase in pH and a decrease in sulphate (SO<sub>4</sub>) concentration, he noted the changes were relatively small with pH changing over the four-year period by a quarter of a pH unit and sulphate decreasing by 6 mg/L. He advised UEL data indicate the trends of increased pH and decreased sulphate have continued.

*Nabarlek groundwater bore OB25 comparison of U and SO<sub>4</sub>* – Mr Martin advised UEL data for 2008 conforms with DRDPFR data from 2002-2005. However in recent DRDPFR assessment (2007 & 2008) filtered uranium and sulphate concentrations have dramatically increased, he advised it will be closely monitored at the site in 2009. He noted previous uranium concentrations were below 8 ug/L. Mr Martin advised in 2007, uranium in the bore was 16 ug/L, which increased to 52 ug/L in 2008 he described sulphate was below 32 mg/L in 2005, and was 449 in 2007, he advised it increased to 558 mg/L in 2008. The trend was recorded by DRDPFR in many other parameters including EC, alkalinity, HCO<sub>3</sub>, ammonium, nitrate and magnesium. He advised DRDPFR are continuing to monitor to determine the cause.

*Nabarlek groundwater bore SP29 comparison of N, U and SO<sub>4</sub>* - DRDPFR data show that uranium (filtered) and pH have remained stable. Nitrate (as N) and sulphate have decreasing trends. UEL data corroborates the stable pH trend, however, Mr Martin noted the sulphate result would suggest that concentrations were fluctuating rather than decreasing with concentrations returning to above 30 mg/L. He advised data from UEL report U and N concentrations are below detection limits of 0.001 mg/L and 0.01 mg/L respectively.

*Nabarlek groundwater bore OB47 comparison of N, U, pH and SO<sub>4</sub>* - Filtered uranium and pH exhibit stable trends in the DRDPFR data, UEL's data corroborates the pH trend that Uranium data was below detection limits (less than 0.001 mg/L). Sulphate has shown a decreasing trend since 2002. UEL data suggests that SO<sub>4</sub> concentrations have settled within the 30-40 mg/L range. DRDPFR data shows nitrate (N) concentration fluctuating between 5 and 10 mg/L but the overall trends have been stable. UEL data reports nitrate concentration of 0.02 mg/L. Mr Martin advised nitrate levels will be closely assessed in the 2009 monitoring data.

*Nabarlek surface water comparison of Cooper and Kadjirikamarnda Creeks* – Mr Martin advised the EC at Cooper Creek is stable, and has been confirmed by UEL data as well. The pH at this site was relatively stable between 5.5 and 6.5 but has significantly increased in 2008 to over pH 8.1. This increase was not detected by UEL who recorded a pH of 6.36 at this site. DRDPFR also recorded increases in alkalinity and HCO<sub>3</sub> and a marked decrease in aluminium concentration.

Mr Martin advised EC at Kadjirikamarnda Creek generally fluctuates between 20 and 45 uS/cm, with a peak recorded of 72 uS/cm on 20/5/2004. UEL data of 29 uS/cm conforms to the expected range as seen in the DRDPFR data. A similar situation is observed for pH.

## **Discussion**

Mr Hughes queried Mr Martins comparable data between OB25 and OB10 data he asked that the data could perhaps belong to the other bore. Mr Martin agreed that the data was incorrectly displayed and will rectify the data and forward onto Secretariat.

Mr Kyle stated the discrepancies in water quality data and bore data from the Mines Department differ due to pumping times and methods, he asked if there was a plan to standardise the procedure to provide more accurate readings. Mr Martin advised the report states simultaneous sampling. Mr Kyle indicated the bores should be pumped several times so the readings are of water in the aquifer not in the bore casing. Mr Martin advised some bores are slow at recharging and take days to recharge he noted and asked Mr Kyle the process is currently being reviewed by the NT Sampling team and ERA.

Mr Ball acknowledged there is significant variances in the data and noted it is currently being reviewed. Dr Jones indicated that the bores should be pumped at ..... Mr Martin indicated that the discrepancies are being addressed. Ms Varris was unable to comment on how ERA pumped but they have been following ERA procedure in which this may need to be reviewed. She mentioned ERA are looking at new leading practices around micro purging which could be something far more achievable especially with the slow recharging systems of the bores.

Mr Tutty advised that Ms Varris had described earlier that everyone who attended the Mine Site Technical Committee had no concerns about the tailings dam seepage. Mr Tutty informed members that the public and the NT Minister were surprised and concerned.

Mr Sellers advised that he had discussed the issue with NT Minister Kon Vatskalis and the Minister understands the basis for the media interest. Mr Sellers informed Mr Tutty the Minister was across the situation. Mr Sellers asked Mr Hughes if he would like to provide further comment on the seepage issue.

Mr Hughes advised that he was aware of the community concerns that came out of a comment made in the recent Senate Estimates Hearing in response to a question from Senator Ludlam who referred to an estimate of 100 cubic metres per day that was leaking from the tailings dam. Mr Hughes advised that this amount was a theoretical value based on modelling, most of which would be vertical transport into groundwater below the tailings dam. Lateral transport away from the footprint of the dam is restricted to fractured rock aquifers and involves a much smaller volume. From monitoring and geophysical surveys it appears that the main zone of lateral seepage is to the north of the dam however the observed saline groundwater plume would also have contributions from sources other than tailings dam seepage, such as runoff and seepage from stockpiles.

Mr Hughes mentioned that the media had reported that seepage was entering into Kakadu National Park and he advised this is incorrect and the seepage is restricted to the immediate vicinity of the TSF.

Mr Sellers discussed that if the seepage does increase, then there are various strategies that can be implemented to address the issue.

Mr Tutty asked Mr Hughes is there absolutely no chance that seepage is entering Kakadu National Park. Mr Hughes confirmed there is no evidence that seepage from the tailings dam is leaving the Ranger site.

Mr Tutty advised Mr Hughes that the stakeholders and public expected Supervising Scientist Division would have brought some information to ARRAC members. Ms Varris advised that ERA certainly considers the seepage important and did provide a presentation on the subject as it is appropriate that ERA reports on its incidents. Ms Varris stated that the Supervising Scientist Division and ERA were avoiding duplication in the meeting.

Mr Tutty asked Mr Hughes if he can state for the record that he has no concerns. Mr Hughes informed Mr Tutty he has already stated on the record that Supervising Scientist Division has no concerns.

Mr Tutty advised that the community does have concerns and asked Mr Hughes that perhaps there would be value in Supervising Scientist Division undertaking a review of ERA's data. Mr Hughes advised that SSD and CSIRO have done recent reviews and informed Mr Tutty that the Supervising Scientist Division has requested further information from ERA following receipt of an application for raising the maximum operating level of the tailings dam.

Professor Webb elected another chair as he had prior appointment. Mr Burns was nominated as acting Chairperson.

***ARRAC31 Action 7.1 Mr Martin to correct comparable data between OB25 and OB10 and forward presentation to ARRAC Secretariat.***

## **8. Member Reports**

### **8.1 Uranium Equities Limited**

Ms Paulka provided a brief overview of Uranium Equities Limited operations. She noted UEL has undergone significant downsizing and consolidation since the last meeting. Although UEL's operations and staffing at Nabarlek had been reduced, exploration and site management works were still progressing. Ms Paulka summarised the Alligator Rivers Region Activities which involves Nabarlek Mining Lease with exploration work and rehabilitation of legacy areas. Ms Paulka reported briefly on the new camp at Nabarlek with demountables, dump and where the generator situated. Ms Paulka summarised the Nabarlek drilling program during 2008 with an outstanding 40 Reverse Circulation (RC) holes for 5000m and 240 outstanding Air Core holes for 6000m.

Ms Paulka advised the weed management transects have been established over the entire site (roughly 732,175m<sup>2</sup>) and a number of maps have been produced. She noted that there are significant areas of weeds inside the fenced area and that Guinea Grass is mainly concentrated around ponds, Mission Grass is spread all over and also outside the site, and Para Grass is more focused on the wetter areas. There is such a dense coverage of weeds that there is up to a six inch thick layer of seeds in some locations. She noted there is no Gamba Grass on the site. Ms Paulka advised that weed management continues to be a challenge due to the roads through areas of weeds required for exploration. She advised the dry season weed management plan would include planning track installation, washing and inspections. Wet season activities are aimed at preventing the weed bank increasing by using burning followed by spraying of resprouting survivors for best effect. She noted that wet season burns were currently 95% completed and should be finalised by early May. Spraying of priority weeds inside the fence was about 80% completed and spot/boomless spraying was being done outside the fence and along roads. Ms Paulka advised that UEL had spent about \$300K on weed management from January to April 2009.

Ms Paulka advised that revegetation was a lower priority relative to weed control at the moment given that the weeds need to be controlled before revegetation could be seriously considered. She noted that planting areas had been prepared using burning and spraying and about 1500 seedlings had been planted, mainly in the western end of the evaporation ponds. Ms Paulka advised that wet season water monitoring had been conducted and results were expected by May 2009, and would be reported in the MMP. Ms Paulka advised the key activities for the forthcoming dry season included updating and submitting the MMP which would include a report on last years activities, weed management and rehabilitation planning, and an early burn of the whole site. Ms Paulka advised that NLC had found a significant number of heritage paintings on site and UEL was waiting for an archaeologist's report. Other tasks included development of a risk management plan and permitting for asbestos removal, characterisation of the Radiological Anomalous Area using trenches to determine depth and volume of affected material and submittal of an associated rehabilitation plan. She noted the plant run off pond would also be re-contoured depending on availability of funding.

Ms Paulka provided a brief summary on the Headwaters project announcing the agreement was successfully negotiated with NLC for North East portion with a second meeting to be scheduled in April.

## **8.2 Cameco Pty Ltd**

Ms Parks provided a brief report on the Cameco Joint Venture with Uranium Equities Limited in the Arnhem Land operational areas at King River Camp and Myra Camp. Ms Parks advised the current infrastructure at King River Camp consist of transportable offices, tent accommodation and core racks.

*2008 Drilling programmes* -Ms Parks advised that Cameco has drilled around 13 core holes for ~ 3800m with ~ 75 RC holes for 15,000m and ~ 18,000m aircore/RAB.

*2008 Incidents* - Ms Parks advised that a number of procedures have been put in place with no LTI, three MTI's (1 contractor), one reportable environmental incident a fire at the dump and one reportable to NT Worksafe involving angle pulley on drill mast fall (FAI).

*2009 Drilling Programmes* - Ms Park advised the work program for 2009 was similar to last years but a little bit smaller with ~ 12 core holes for ~ 3500m, 10 heli-supported core holds for 1600m, 3,000m RC, 9,000m aircore and core/rc. She advised the Beatrice prospect has finally been granted after 30 years.

## **8.3 AREVA NC Australia Pty Ltd**

Mr Portella presented a brief overview of AVEVA status on Koongarra and Arnhem Land applications. He advised there are two applications EL3113 and EL1466 in which decisions have not been made, no further update to report to ARRAC members.

### **Discussion**

Mr Tutty noted that the ABC media reported late February 2009 that Traditional Owners had a meeting and indicated to the stakeholder they did not want to discuss the companies proposal again. Mr Portella mentioned the decision has not been finalised and there is no further information to report.

## **8.4 Northern Land Council**

Mr Smith presented a report on NLC activity and outlined the key findings from his peer reviewed study into the application of Traditional Ecological Knowledge to all levels of environmental impact assessment conducted in 2008. The principal conclusion from the study was that Aboriginal people see the environment differently to European people and their views and knowledge are valid and valuable. Mr Smith advised that that industry and regulators are reluctant to act upon or accept this point of view. Mr Smith advised that he had been invited to present a secondary plenary paper to the 2009 Mine Closure Seminar in September in Perth. Mr Smith noted the paper will place traditional ecological knowledge into its social and cultural context to help define cultural closure criteria. Mr Smith advised NLC has also been invited to speak on both topics to staff and students at the University of Western Australia's Centre for Land Rehabilitation in 2009.

## **8.5 Environment Centre NT**

Mr Tutty did not present a report but advised he will provide the link to Secretariat on the environmental response of the heap leach referral.

***ARRAC31 Action 8.1 Mr Tutty to provide the environmental response of the heap leach referral to Secretariat for distribution.***

## **8.6 Australian Radiation Protection and Nuclear Safety Agency**

Mr Burns reported on the Uranium Industry Framework initiatives and noted ARPANSA are developing the Australian National Radiation Dose Register and commencing work on the Radiological Impact Assessment on Non-Human Biota.

*Australian National Radiation Dose Register* - Mr Burns advised the Australian National Radiation Dose Register addresses the need for a national system that enables the collection, storage and release of dose records for uranium industry workers. The Dose Register delivers on the Australian Government's commitment to ensure the safety and long-term wellbeing of uranium industry workers and has the strong support of industry and government stakeholders. He advised the development of the Dose Register is jointly funded by ARPANSA and the Department of Resources, Energy and Tourism. ARPANSA will manage the design, construction and implementation of the Dose Register.

Mr Burns advised the Dose Register will be an electronic database designed to track and maintain the dose records for individual workers throughout their career in the uranium industry. ARPANSA will administer the Dose Register and make dose records and other data available on the basis of agreed protocols consistent with legal requirements.

Mr Burns advised ARPANSA held a stakeholder workshop in Adelaide on 25 February 2009 to discuss the design of the Dose Register. The workshop was well attended by industry and government stakeholders who provided feedback to the design process. The design documentation and technical specifications for the Dose Register are in the final stages. Construction and testing of the Dose Register is to be completed by end 2009 for implementation in 2010.

*Safety Guide on the methods for monitoring, assessing and recording dose* - Mr Burns advised to support the implementation of the Australian National Radiation Dose Register, ARPANSA are developing a Safety Guide on the Methods for Monitoring, Assessing and Recording Occupational Radiation Doses received in Mining and Mineral Processing. The Safety Guide will describe a uniform approach to the monitoring and assessment of occupational exposure due to external sources of radiation and due to intakes of radionuclides in mining and mineral processing as established by the regulatory framework of the Mining Code (RPS 9). A report detailing the draft structure and layout of the Safety Guide has been completed following initial stakeholder consultation. The final draft of the Safety Guide is to be completed by 30 September 2009 for consideration by the Radiation Health Committee.

*Radiological impact assessment on non-human biota* - Mr Burns advised changes to International Radiation Protection Recommendations (ICRP103) have made protection of the environment explicitly international best practice. Industries required to demonstrate international best practice when preparing Environmental Impact Statements will need to address this issue. He advised ARPANSA are in discussions with the Department of Resources, Energy and Tourism to progress this issue and with the Office of Supervising Scientist to support this activity in the area of toxicology of tropical aquatic species. Mr Burns noted to start the process ARPANSA will commence a literature review of national and international environmental assessment methodologies and produce a scoping document.

## **8.7 Australian Government - Department of Resources, Energy and Tourism**

Ms Hinton provided a brief update on the implementation of the uranium industry framework. She advised that the development of a radiation workers handbook and radiation safety course are on track. Ms Hinton advised that the DVD to provide indigenous communities with information on uranium exploration and mining highlighting opportunities and benefits for indigenous communities associated with the uranium mining industry will be ready by July 2009.

**8.8 Parks Australia North**

Nil report provided.

**8.9 NT Department of Health and Families**

Nil report provided.

**8.10 NT Department of Natural Resources, Environment, the Arts & Sport**

Mr Browne announced pending appointment from the Minister, Ms Cathy Waldron has been recommended as the new Deputy to replace Mr Lawton. He advised the heap leach referral was being reviewed and recommendations will be sent to the Minister in late April 2009.

**8.11 West Arnhem Shire Council**

Nil report provided.

**8.12 Gundjeihmi Aboriginal Corporation**

Nil report provided.

**8.13 Other members reports**

Not applicable.

**9. Other Business**

Not applicable

**10. Next meeting**

It was agreed the next meeting would be held in Jabiru August 2009 date to be advised. Ms Varris stated due to ERA's commitments with audits, she requested the next meeting to be held within the first week of August.

The meeting was closed at 3:10pm.