

## Registration of Interest

I expect to attend the Radiochemistry Techniques Training Course and workshop in Darwin. Please send me details for registration and program when available.

I intend to open a discussion at the workshop (Day 4) on the following topic

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I would like to attend a field trip to Rum Jungle.

I am able to demonstrate the following field measurement/sampling techniques.

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I would like to reserve my accommodation at the Saville Park Suites. The rate for a one bedroom suite is \$193 per night.

I would like to reserve my accommodation at the Quest Suites. The room rate is \$100 per night.

Name: \_\_\_\_\_

Organisation: \_\_\_\_\_

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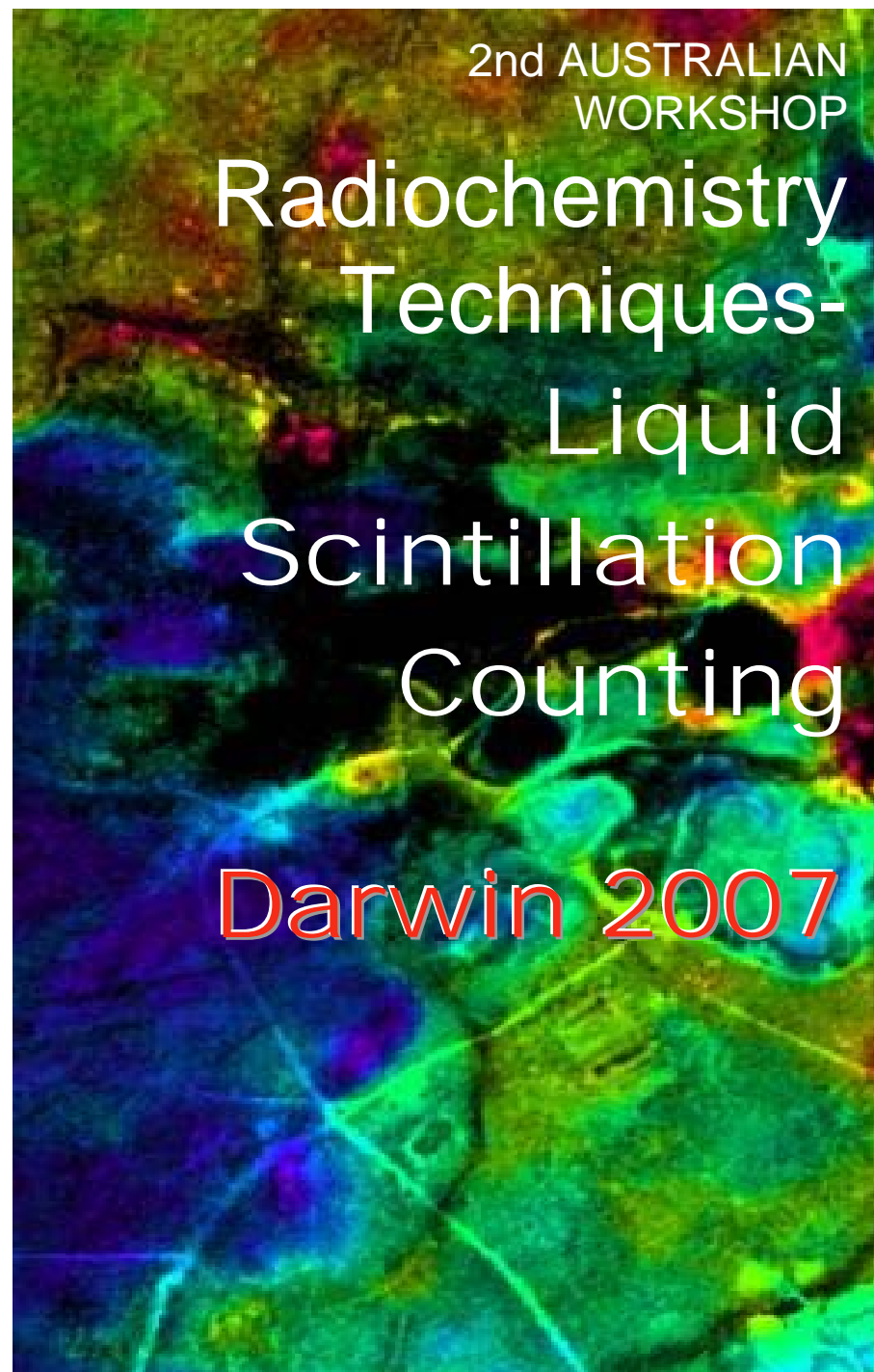
Postal address: \_\_\_\_\_

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Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

Email: \_\_\_\_\_

Places are limited due to the venue and nature of the training component. To reserve your place please return this form by faxing to + 61 3 9432 2368 By June 10 2007.



The **Environmental Research Institute of the Supervising Scientist (eriss)**, which forms part of the Supervising Scientist Division of the Department of the Environment and Water Resources and the **Environmental and Radiation Health Branch of ARPANSA** in conjunction with the **Radiochemistry Society** are coordinating a 3 day training and 2 day workshop event with the aim of developing the skills and promoting information exchange amongst those involved in radioactivity measurements. Key topics to be presented by Dr Larry Burchfield of the Radiochemistry Society will include

#### Day 1

- o History of LSC
- o Scintillation Theory
- o Advantages/Disadvantages of LSC
- o Types and Selection of Cocktails
- o Čerenkov Counting
- o Instrument Operation Do's and Don'ts

#### Day 2

- o Quench and Preparing Quench Standards
- o Calibrations
- o Sample Types and Sample Preparation
- o Alpha/beta Discriminator Settings
- o Gross alpha/beta Measurements
- o LSC vs Alpha Spectrometry

#### Day 3

- o Analysis and Calculations
- o Statistics, Uncertainties and Propagations of error
- o Specific Isotope Analysis Issues
- o Applications of LSC



## Organisers

Australian Radiation Protection and Nuclear Safety Agency

Environmental Research Institute of the Supervising Scientist – Department of the Environment and Water Resources

Radiochemistry Society

## Contact

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*We gratefully acknowledge the on-going support of Nucletron and NuScientific, and welcome our new sponsors at Durridge.*

## Venue

The Environmental Radioactivity section of *eriss*, as the name suggests specialise in low level determinations of environmental radioactivity and with the only environmental radioactivity laboratory purpose built within Australia in the last 20 years, the workshop at *eriss* offers participants the opportunity to receive hands-on training in this unique facility in Australia's tropical north.

## Cost

The cost of the three-day training Course will be US\$1245 for those registering with payment before June 30<sup>th</sup> 2007. After this date registration costs will increase to US\$1500. On-line payment is available through the Radiochemistry Society's web-site <http://www.radiochemistry.org/Darwin2007> select the "my account" button, "cart help" if required is also available. If your organisation is unable to arrange on-line payment an alternative arrangement will need to be made with the workshop organisers.

There may be an additional charge for the fieldtrip component on day 5. Details will be forwarded as they become available.

## Accommodation

Organisers have secured a limited number of rooms at the Saville Park Suites in central Darwin and at the Quest Apartments. Rooms can be configured for twin beds for those who are able to share with colleagues (Participants requesting this option will need to contact the organisers asap). Please be aware if you are arranging your own accommodation that Darwin is an extremely popular destination during the dry season. You could find that most accommodation is booked out by June!!

## Key Dates

Registration of Interest extended to	June 15
Proposed contribution Workshop Days 4/5	June 15
Workshop Agenda Posting	June 30
Early Registration Discount ends	June 30 US\$1245
Registration Cost	After June 30 US\$1500
Registration Closure	July 30
Course Dates	August 13 –15
Workshop Dates	August 16 –17

## Day 4 Suggested Themes

The aim Day 4 is to open discussion on the developments and misadventures (i.e. dead-ends) and the important discoveries of groups and individuals in their fields of Radiochemistry. Presentations and discussion will not be limited to Liquid Scintillation Counting but will require participants to present their problem issues. These issues may include but are not limited to:

- o Litvenenko, London and the recent IAEA Polonium-210 intercomparison [Elizabeth Manickam](#)
- o Sr-90 measurements – At what level, in what timeframe and for who? [Sandra Sdraulig](#)
- o Lead-210 by  $\alpha$ ,  $\beta$  or  $\gamma$  [ERISS, ANSTO, ARPANSA](#)
- o Tritium as a tracer of biological processes, [CDU](#)
- o Improving the minimum detectable activity of Radium-228 measurements [ERISS, ARPANSA](#)
- o Wipe tests by LSC, [QLD Health](#)
- o Radon-222 and Radium-226 determinations by LSC, [ARPANSA](#)
- o Gross alpha/beta counting by LSC, [QLD Health](#)
- o LSC applications in waste characterization, [ANSTO](#)

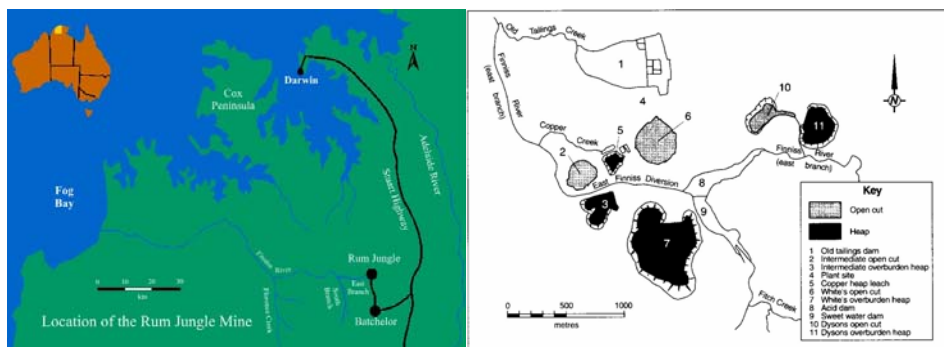
We would like to stress the arrangements for days 4 and 5 are reliant on the active participation of those attending. Most of the listed topic areas are the result of questions we regularly receive or have ourselves asked.

If either you or your organisation appears in the suggested agenda or if you would like to be included in the program for days 4 or 5 you can use the attached form to confirm or provide further details.

The final program will be sent to those who have registered for the event as soon as the details are available.

## Proposed Field trip to RUM JUNGLE

The name Rum Jungle is derived from an accident that occurred in 1871. A bullock-wagon load of rum, destined for the construction gangs, was said to have been bogged near a patch of jungle on the crocodile infested East Finnis River - the bullockies untethered the oxen and set about drinking the rum, having one of histories most glorious binges. Thereafter the area was known as Rum Jungle. Located 75 km SW of Darwin, the Rum Jungle site operated as a uranium and copper mine between 1954 and 1971 producing approximately 20 000 tonnes of copper and 3 500 tonnes of uranium.



The impact of the acid rock drainage from the waste rock dumps and disposed tailings in the vicinity of the Finnis River System led to rehabilitation works being carried out in the 1980's at a cost of around \$18.6m. The primary aims of these works was the

- reduction of the pollution from Cu, Zn and Mn (important to ecological health) of water courses feeding the Finnis river
- reduction of the health hazards with reference to the radiation levels at the site
- reduction of pollution in water contained in the open pits
- revegetation of the site
- development of an on-going monitoring program for the site

In 2001 a proposal for the development of an adjacent mineral license was received by the NT government. This proposal

initiated a broader investigation of remediation works at the Rum Jungle site.

The summary findings indicated that in terms of the investigation and despite previous monitoring data there was insufficient data available for a complete radiological assessment of the Rum Jungle site.

Due to the general interest of this site as a "legacy" site there is an imperative that we don't over state the outcomes of a one day workshop in radiological measurements. We don't aim to conduct a scientific survey that will underpin the understanding of the site. However through the planned fieldwork demonstrations participants will be familiarised with measurement and sampling techniques utilised in radiological environmental surveys.

Demonstrations will be conducted by the course participants themselves and may include

- Field radon measurements for air, soil and water using the Durrige Rad-7
- In-situ measurements with portable gamma spectroscopy
- Core sampling methodology for geochronology
- Hand held gamma survey instruments in selecting sites for sampling

We also plan to organise a small intercomparison exercise by distributing representative samples at the end of the exercise. Participants with the capacity to perform laboratory measurements will be asked to report their methodology and results for the benefit of all participants.

If you don't have laboratory capacity to analyse the samples you can contribute your experience in the sampling programs and or the in-situ radiological measurements. You should nominate your proposed demonstration using the form at the back of this booklet.

At the moment the organisers are still in the process of obtaining approval for the location. Registered attendees will be notified of any changes.