



**AUSTRALIAN RADIATION PROTECTION AND NUCLEAR SAFETY AGENCY**

**QUARTERLY REPORT  
OF THE  
CHIEF EXECUTIVE OFFICER  
OF ARPANSA**

**FOR THE PERIOD 1 JULY TO 30 SEPTEMBER 2000**





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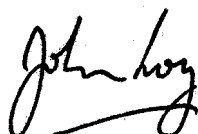
16 November 2000

Senator the Hon Grant Tambling  
Parliamentary Secretary to the Minister for Health and Aged Care  
Parliament House  
CANBERRA ACT 2600

Dear Senator Tambling

In accordance with the *Australian Radiation Protection and Nuclear Safety (ARPANS) Act 1998*, I present to you my Quarterly Report for the period 1 July to 30 September 2000.

Yours sincerely



Dr John Loy  
CEO of ARPANSA



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## **FOREWORD**

The *Australian Radiation Protection and Nuclear Safety Act (1998)* requires the CEO each quarter to prepare and give to the Minister a report on the operations during the quarter of the CEO, ARPANSA, the Council and Committees. The Act requires that the report include details of directions given by the Minister to the CEO during the quarter under section 16 of the Act; any breach of licence conditions by a licensee during the quarter, of which the CEO is aware; all reports received by the CEO during the quarter from the Council and Committees; and facilities licensed under Part 5 of the Act during the quarter.

Further details about matters contained in this report are available through the ARPANSA Information Officer who can be contacted by telephone on 03 9433 2211, by facsimile on 03 9432 1835 or by e-mail at [arpansa@health.gov.au](mailto:arpansa@health.gov.au).

## **REPORT ON PERFORMANCE**

### **(a) UNIFORMITY OF RADIATION PROTECTION FRAMEWORKS**

#### National Directory of Radiation Protection

Progress towards developing a National Directory for Radiation Protection was discussed at the Radiation Health Committee meeting in July. The Radiation Health Committee agreed that an updated draft of the National Directory would be developed. Regulators would then consult on the Directory within their jurisdictions, with the aim of voting on the adoption of the Directory at a subsequent meeting.

#### National Competition Policy Review of Radiation Protection Legislation

Following consultation with all jurisdictions, ARPANSA has appointed Mr Selva Kumar as project officer for the Review. The Review commenced on 8 August and a draft Issues Paper will be distributed for public comment from mid-October until end of November.

### **(b) ADVICE ON RADIATION PROTECTION AND NUCLEAR SAFETY**

- ARPANSA assisted the Australian Customs Service in the evaluation of facilities designed to use high energy (10 Mev) X ray beams for inspecting fully laden containers.
- An ARPANSA officer participated in the Medicare Services Advisory Committee, Supporting Committee 1028 - Gamma Knife Surgery.
- An ARPANSA officer developed a standardised assessment protocol for estimating RF EME levels as a function of distance from mobile phone base stations. This protocol is

available on the ARPANSA web site and is now used extensively throughout the communications industry.

- The field monitoring associated with the rehabilitation of contaminated sites at Maralinga has been completed. This included verification of soil removal areas and determinations of residual contamination left on the range to ensure that they are within criteria. A report on the assessment of the health impact of the residual radioactive material on the range is now being finalised.
- There was one visit by a nuclear powered warship to Brisbane during the quarter.
- The manual on *Medical Management of Individuals Involved in Radiation Accidents* was revised and reprinted.

### **(c) RESEARCH ON RADIATION PROTECTION, NUCLEAR SAFETY AND MEDICAL EXPOSURES TO RADIATION**

#### Solar Ultraviolet Radiation Measurements and Protection

The Proceedings of the International Workshop held in Oxford in October 1999 were published in September 2000 as a special issue of *Radiation Protection Dosimetry*. Titled "Ultraviolet Radiation Exposure, Measurement and Protection" it contains three contributions by ARPANSA scientists.

### **(d) SERVICES PROVIDED IN RADIATION PROTECTION, NUCLEAR SAFETY AND MEDICAL EXPOSURES TO RADIATION**

Services continued to be provided.

### **(e) COUNCIL AND COMMITTEE OPERATIONS**

#### Radiation Health & Safety Advisory Council

The Council met on 24 July 2000 at ARPANSA's Miranda office. A summary of the meeting is at [http://www.arpansa.gov.au/rhsac\\_m2.htm](http://www.arpansa.gov.au/rhsac_m2.htm).

The next meeting is scheduled for 1 December 2000.

#### Radiation Health Committee

The Radiation Health Committee (RHC) met on 19-20 July 2000 at ARPANSA's Yallambie office. A summary of the meeting is at [http://www.arpansa.gov.au/rhc\\_mt.htm](http://www.arpansa.gov.au/rhc_mt.htm).

The next meeting of the Radiation Health Committee is scheduled for 1-2 November 2000.

### Nuclear Safety Committee

The Nuclear Safety Committee (NSC) met on 14 July 2000 at ARPANSA's Miranda office. A summary of the meeting is at [http://www.arpansa.gov.au/nsc\\_mt.htm](http://www.arpansa.gov.au/nsc_mt.htm).

The next meeting was scheduled for 10 November 2000.

### Radiofrequency (RF) Exposure Standard Working Group

The RF Exposure Standard Working Group met on 5-6 July, 17-18 August and 25-26 September 2000 at ARPANSA's Yallambie office.

A further meeting is scheduled for 19-20 October 2000. The working group hopes to have a draft available for public comment before the end of the year.

## **(f) REGULATION**

### **Standards**

#### Source Licence Conditions

Handbooks have been drafted setting out conditions of licence for radiation sources categorised as being of low, medium and considerable hazard levels, and for non-ionizing radiation. Consultation is occurring with various professional bodies and experts in these areas.

Also, the first version of a handbook setting out standard licence conditions for Prescribed Radiation Facilities has been drafted. It is envisaged that this handbook will be expanded to include tables of conditions related to specific types of facilities.

#### Regulatory Assessment Guidelines

The following documents are being reviewed by working groups of the Nuclear Safety Committee:

- *Safety Assessment Principles for Controlled Facilities*
- *Regulatory Assessment Criteria for the Design of New Controlled Facilities and Modifications to Existing Facilities*

The documents will be made available for public comment.

## Licensing

### Application Assessment

During the quarter, the following four new licence applications were received:

- ARPANSA Environmental and Radiation Health Branch (Application S0086, 29 August 2000)
- Commonwealth Scientific and Industrial Research Organisation (CSIRO) Land and Water Division (Application S0087, 7 September 2000)
- CSIRO Manufacturing Science and Technology (Application S0088, 22 September 2000)
- Williams Technical Service (Application S0089, 27 September 2000)

The application for Williams was the first from a contractor to a Commonwealth entity. A total of six combined source licences, comprising of some 95 individual source licences from both low and medium hazard categories, were issued during the quarter. The CEO has issued 19 combined licences from 89 applications.

### Australian Nuclear Science and Technology Organisation (ANSTO)

Progress was made in drafting a Safety Evaluation Report on Parts 1 – 3 of the Australian Nuclear Science and Technology Organisation (ANSTO) Facility Licence Application (*General Plans and Arrangements for Safety*).

ANSTO provided additional information on their licence application for Radiopharmaceutical Operations (Part 5A of the Application) and the National Medical Cyclotron (5B). Additionally, the Application for Cyclotron has been reviewed. The draft Safety Evaluation Report and licence conditions for the National Medical Cyclotron are well advanced.

Final public submissions on the ANSTO Facility Licence Application should be to the CEO of ARPANSA by 17 November 2000.

With regard to ANSTO's source licence application, Engineering Division was visited to clarify issues. Following this visit, the Safety Evaluation Report for the source dealings of Engineering Division was completed. An initial review was conducted of the Environment Division's source dealings and a detailed review against the ARPANSA *Expectations* for safety plans and arrangements was commenced. Additional information requested from Materials Division was received and will be reviewed during the next quarter.

Discussions have taken place with ANSTO Divisions to clarify issues relating to their application for source licences.

### ARPANSA - Yallambie

The teletherapy licence application has been reviewed and the Regulatory Branch has commenced drafting a Safety Evaluation Report and conditions that would apply to a licence.

## Australian Defence Organisation

The application by the Department of Defence for a source licence has been reviewed. Meetings with the Defence Safety Management Agency continue to clarify safety issues arising from the ongoing ARPANSA review.

## Maralinga

The Safety Evaluation Report for the Maralinga licence application was finalised during the quarter.

## CSIRO

An initial review was conducted of the CSIRO general plans and arrangements for managing safety across its 22 Divisions. A detailed review was commenced and additional documentation requested.

## CSIRO Woomera Rangehead Waste Storage Facility

The Defence Woomera Waste Storage Facility is used to store low level waste arising from industrial uses. Two ARPANSA officers visited the facility, in mid August, to familiarise ARPANSA with the operations, to obtain additional information and to appraise Defence of the status of ARPANSA's review of the application.

## **Surveillance**

### CSIRO Tritium Incident

A final report has been received on a previously reported incident involving tritium contamination at the CSIRO Plant Industry laboratory at Ryde. ARPANSA has reviewed the report and is satisfied that clean up of the contamination was adequate and that appropriate arrangements were put in place to prevent a recurrence. A letter is being drafted about issues relating to safety culture arising from the incident.

### Parks Australia North - Uranium Mill Tailings

The formal investigation into uranium mill tailings that were uncovered by erosion in the South Alligator River Valley, has been concluded. A mill processed uranium ores from small mines that operated in the area during the 1950s and 60s. The mill was removed and the mine sites were partly rehabilitated during 1991. The investigation examined radiological hazards, the need for further remediation and associated regulatory implications. It is anticipated that Parks Australia will lodge an application during October for a licence to allow further rehabilitation work to be carried out.

## **Safety of Australian Nuclear Science and Technology Organisation (ANSTO) Nuclear Plant**

### **Abnormal Occurrences – Actinide Suite**

This incident was reported in the April to June Quarterly Report. During this current quarter, information was provided by ANSTO indicating that the officer involved had not received any internal radiation dose from the incident. A final report has not yet been provided formally to ARPANSA

### **Abnormal Occurrences – HIFAR**

During the quarter there were no occurrences having safety significance ie classified as Level 1 and above on the International Nuclear Event Scale (INES).

### **Abnormal Occurrences – National Medical Cyclotron (NMC)**

An incident involving release of F-18, a positron emitting radioisotope of half-life of 110 minutes, took place at the F-18 synthesis suite of the NMC at about 11:15 am on 19 July 2000. ARPANSA was informed about the incident on the same day. In order to obtain detailed information about the incident two ARPANSA officers visited NMC on 21 July 2000. Measurements confirmed that the radiation doses received due to the incident were negligible.

ANSTO provided the internal investigation report describing the details of the incident and underlying causes. ARPANSA considers that the recommendations made in the report and the measures taken following the incident, to be satisfactory.

### **Criticality Audit**

Preparations were finalised for an audit of ANSTO's arrangements for controlling nuclear criticality of fissile materials at the Lucas Heights site. Following review of ANSTO's current criticality certificates, a data base of certificates was created by ARPANSA.

### **Audits of HIFAR Operation**

As a part of the process of monitoring and reviewing the operations of ANSTO's HIFAR reactor, routine audits of the HIFAR Control Room Log Book are conducted. As a result of the log audit during this quarter, a letter was sent to the Manager, HIFAR seeking clarification of a number of matters including log keeping, testing of ventilation systems and cooling circuits.

### **Radioactive Discharges**

ANSTO reported radioactive airborne discharges from HIFAR. These were reviewed by

ARPANSA Regulatory Branch and found to be in compliance with the airborne discharge authorisation issued by the ARPANSA. All discharges were less than the notification levels specified in the authorisation related to ANSTO's ALARA (as low as reasonably achievable) objective of 20 microsieverts per year.

ANSTO reported liquid discharges from the Lucas Heights Science and Technology Centre. These were reviewed by the ARPANSA Regulatory Branch and found to comply with the Trade Waste Agreement between Sydney Water and ANSTO. This agreement limits concentrations of radioactive materials at the ANSTO discharge point to ensure compliance with the World Health Organisation Guidelines for Drinking Water Quality (1993) at the Cronulla Sewage Treatment Plant. ARPANSA is satisfied that adequate radiation protection is provided for sewerage workers and the public.

### HIFAR Plant and Procedure Modifications

ARPANSA reviewed and agreed to a number of safety-related modifications during the quarter. These included modifications to an active ventilation system, experimental facilities, and instrumentation for reactor trip circuits.

## **(g) INTERNATIONAL LIAISON**

### Committee on Radiation Protection and Public Health (CRPPH)

Ms Kim Goodrick attended the first meeting of the Expert Group on the Evolution of the System of Radiation Protection organised by the Nuclear Energy Agency's Committee on Radiation Protection and Public Health (NEA CRPPH). The purpose of the meeting was to identify the areas of the current system of radiation protection which most need elaboration. Particular focus was given to 'controllable dose' and the use of 'collective dose' as a measure of societal impact of radiation practices. The Expert Group will suggest changes and 'road test' proposals using a case-study approach. A final report will be presented during the 2002 meeting of the CRPPH.

### Visits by CEO

The CEO visited Vienna from 14 September - 1 October to attend the IAEA General Conference of the world's nuclear operators, regulators and radiation protection experts. Australia takes a particular role in sponsoring the "safety" resolutions that are negotiated and then passed through the Committee of the Whole and by the plenary at the General Conference. Associated with the General Conference was a Scientific Conference on radioactive waste management and a meeting of senior regulators which provided useful opportunity to exchange experiences.

The CEO also visited Korea to open discussions with the Korean safety regulatory bodies. We hope to negotiate a Memorandum of Understanding with the Korea Institute of Nuclear Safety to share information. The Koreans have recent experience of overseeing the building

of a large research reactor and are also interested in the issues of decommissioning research reactors.

John Loy  
CEO  
November 2000