



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

FOR THE PERIOD 1 APRIL TO 30 JUNE 2002



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

FOR THE PERIOD 1 APRIL TO 30 JUNE 2002

© Commonwealth of Australia 2003
ISSN 1444-4380

This work is copyright. Apart from any use as permitted under the *Copyright Act 1968*, no part may be reproduced by any process without prior written permission from the Commonwealth available from AusInfo.

This report and supplementary papers can be accessed through the Internet at http://www.arpana.gov.au/is_idx.htm. The electronic version of this report is also copyright. You may download, display, print and reproduce this material in unaltered form only (retaining this notice) for your personal, non-commercial use or use within your organisation. All other rights are reserved.

Requests and inquiries concerning reproduction and rights should be addressed to the Manager, Legislative Services, AusInfo, GPO Box 1920, Canberra, ACT 2601 or by email to: Cwealthcopyright@dofa.gov.au.

Produced by the
Australian Radiation Protection and Nuclear Safety Agency
619 Lower Plenty Road
Yallambie VIC 3085
and
PO Box 655
Miranda NSW 1490

ABN 61 321 195 155

Telephone +61 3 9433 2211 and +61 2 9545 8333
Facsimile +61 3 9432 1835 and +61 2 9545 8314

E-mail arpana@health.gov.au
Internet Home page <http://www.arpana.gov.au>.

Inquiries about the content of this report should be directed to the Public Affairs Officer.

Printed by

CanPrint Communications Pty Ltd
16 Nyrang Street
Fyshwick ACT 2609

CONTENTS

Contents	iii
Foreword	1
Report on Performance	1
1. Uniformity of Radiation Protection Frameworks	1
2. Advice on Radiation Protection and Nuclear Safety	2
3. Research on Radiation Protection, Nuclear Safety and Medical Exposures to Radiation	5
4. Services Provided in Radiation Protection, Nuclear Safety and Medical Exposures to Radiation	6
5. Council and Committee Operations	7
6. Regulation	7
7. International Liaison	15

FOREWORD

The *Australian Radiation Protection and Nuclear Safety Act 1998* requires the Chief Executive Officer of the Australian Radiation Protection and Nuclear Safety Agency to submit to the Minister, at the end of each quarter, a report on the operations during the quarter of the CEO, ARPANSA and the Council and Committees constituted under the Act.

The quarterly report should also include details of any direction given by the Minister to the CEO under Section 16 of the Act; any breach of licence conditions by a licensee, of which the CEO is aware; all reports received by the CEO from the Radiation Health and Safety Advisory Council and the Nuclear Safety Council on radiation protection, nuclear safety and the safety of controlled facilities and details of facilities licensed under Part 5 of the Act.

Further details about matters contained in this report are available through the ARPANSA Public Affairs Officer who can be contacted by telephone on 02 9545 8333, by facsimile on 02 9545 8314 or by e-mail to arpansa@health.gov.au.

REPORT ON PERFORMANCE

1. Uniformity of Radiation Protection Frameworks

National Directory for Radiation Protection

- 1.1 The results of consultation on the draft National Directory for Radiation Protection was received from most jurisdictions and a further draft of the Directory commenced. The National Uniformity Implementation Panel (Radiation Control) will consider the comments received from this consultation and the new draft of the Directory in August 2002. The Directory will be forwarded to the Radiation Health Committee (RHC) for a decision on whether to proceed to the public consultation phase, which will include a Regulatory Impact Statement. Preparation of the Regulatory Impact Statement also commenced in the quarter. The RHC will eventually vote on adoption of the Directory.

National Competition Policy Review of Radiation Protection Legislation

- 1.2 The revised list of recommendations and the Implementation Plan was approved at the Australian Health Minister's Advisory Council (AHMAC) meeting on 30 May 2002. An Implementation Plan was endorsed. The final recommendations and Implementation Plan were also forwarded to the Australian Health Minister's Conference for endorsement out-of-session. ARPANSA wrote to the National Competition Council (NCP) on 14 June 2002 to inform it that the review had been completed and that the final list of recommendations was approved by the AHMAC on 30 May 2002. The letter added that AHMAC had approved the Implementation Plan that will serve as the "transitional plan" under Council of Australian Governments requirements for NCP reform action going beyond 30 June 2002.

2. Advice on Radiation Protection and Nuclear Safety

National Competent Authority for Radiation Emergencies

- 2.1 In its role as the National Competent Authority for Radiation Emergencies, ARPANSA received a number of warning messages from the Emergency Response Centre of the International Atomic Energy Agency (IAEA) dealing with lost radiation sources in Georgia and contaminated steel in Macedonia. The Health Physics Section has established a Radiation Emergency Coordination Centre at ARPANSA's Yallambie office and the Section maintains a 24-hour radiation emergency contact point for the agency.

Emergency Response

- 2.2 A two week training course on radiation emergency training was provided to officers of the Malaysian Atomic Energy Licensing Board in April. An emergency response training exercise was undertaken for State and Territory emergency response agencies as part of a radiation indication and computation program.

Comprehensive Test Ban Treaty – air sampling monitoring systems

- 2.3 As part of Australia's commitment to the Comprehensive Test Ban Treaty, work continued on the construction and operation of radionuclide monitoring stations. In April, the station in Darwin was subjected to a certification visit by the Provisional Technical Secretariat. ARPANSA still awaited word at the end of the quarter on whether Darwin had become the fourth certified Australian radionuclide air sampling station. Construction of a station located at Kavieng in Papua New Guinea continued, and work commenced on one in the Cocos Islands. In addition, desktop site surveys for radionuclide monitoring stations at Mawson and Macquarie Island were nearly finalised.

Radiofrequency (RF) exposure standard

- 2.4 Staff finalised their input into the development of the ARPANSA RF Standard, and it was published on 7 May. *An Explanatory Question and Answer Guide to the Standard* was also written and made available on the ARPANSA web site, together with other information relating to the Standard. The guide provides a clear interpretation of the technical subject area covered by the Standard.

Nuclear powered warships

- 2.5 There were no meetings of the Visiting Ships Panel (Nuclear) in the quarter.

Conferences, meetings and technical advice

Non-Ionizing Radiation Branch

- 2.6 A Committee on Electromagnetic Energy Public Health Issues meeting was organised and held on 15 April. One agenda item was a review of the draft

Government response to the Senate Inquiry into Electromagnetic Radiation. This report was revised further and, at the end of the quarter, was awaiting the necessary approvals for tabling in Parliament.

- 2.7 As a member of CH 26-05, Wayne Cornelius attended a meeting of Standards Australia/Standard New Zealand for the revision of AS 2243.5:1993 *Safety in the laboratories Part 5: Non-ionizing radiations* on 4 June.
- 2.8 As a member of Standards Australia CS-98, Wayne Cornelius attended a meeting to develop standards on “Laser Speed Detection” on 26 June. This work is well advanced and it is expected that draft standards for public comment will be released prior to the next meeting.
- 2.9 As a member of the CS 42 joint committee, Peter Gies attended a meeting of Standards Australia/Standards New Zealand for the revision of “Sunscreens” in Sydney on 30 May. The meeting reviewed possible changes to the broad spectrum protection testing methods.
- 2.10 Wayne Cornelius was an advisor to Regulatory Branch during its inspection of the SILEX (Separation of Isotopes by Laser Excitation) laboratories at ANSTO’s Lucas Heights Science and Technology Centre on 16 May.

Medical Radiation Branch

- 2.11 From 4 to 7 May, John Baldas and Zlata Ivanov attended the 32nd Annual Scientific Meeting of the Australian and New Zealand Society of Nuclear Medicine in Cairns. A poster titled *The Reduction of Sodium Pertechnetate [^{99m}Tc] in Hydrochloric Acid Solution* was presented.
- 2.12 Duncan Butler attended a training course and workshop on Monte Carlo modelling of radiation transport and interaction, using a particular electron gamma shower code at the National Research Council of Canada laboratories in Ottawa (called EGSnrc), from 29 April to 3 May.
- 2.13 On 27 May, Lew Kotler attended the EUROMET Initiation Project meeting on ISO 17025 in Prague, Czech Republic. EUROMET is a cooperative organisation involving national metrology institutes in the European Union.

Environmental and Radiation Health Branch

- 2.14 See 2.2 above.
- 2.15 Advice was provided to the Department of Foreign Affairs and Trade in response to a June Parliamentary Question on Notice about the environmental and health consequences of a nuclear conflict between India and Pakistan. Detailed modelling of atmospheric transport processes was performed in conjunction with the Bureau of Meteorology. Potential radiation doses to Australians at home, and in south-east Asia, were estimated for a range of scenarios.

It was found that radioactive fallout originating from the Indian subcontinent would

largely be restricted to the northern hemisphere. Atmospheric transport of air-borne material between hemispheres is very slow. Based on northern hemisphere atmospheric weapons tests conducted last century, fallout in Australia and its territories would be negligible for at least three months and possibly much longer. The risk to the Australia public from fallout would be extremely low. However, caution would have to be exercised when importing foods and commodities from contaminated regions in South Asia.

Regulatory Branch

- 2.16 Peter Colgan made a presentation titled *A Regulatory Perspective on Radiation Safety in Defence* at the Defence Safety Conference held in Canberra between 29 and 31 May.

Public communication activities

- 2.17 Following the passing of daylight saving, the provision of solar ultraviolet (UV) radiation data to the media and the public continued, but largely for the more northern states. In addition, a request for solar UV radiation levels for Australian capital cities was received from the South Australian Environment and Heritage Department for its State of the Environment report.
- 2.18 ARPANSA has received and logged complaints about electromagnetic radiation for several years and it has been decided to establish a health complaints register. Staff have drafted *Proposal for the Implementation of an Electromagnetic Radiation Health Complaints Register*. The register has been designed in consultation with other Government and community organisations and will be implemented during the second half of 2002.
- 2.19 An electromagnetic energy (EME) database was established that includes published literature on static, extremely low frequency and radiofrequency fields. ARPANSA will maintain the database and analyse relevant literature on an on-going basis.
- 2.20 Michael Bangay participated in a number of public consultation meetings – mostly related to mobile telecommunications. The Australian launch of Telstra's RF-Map software occurred on 5 June. ARPANSA was formally presented with a copy of the software to recognise the agency's effort in developing the assessment protocol. The software is of enormous benefit to staff in providing information about expected radiation levels in the vicinity of new or planned communications facilities.
- 2.21 The Public Affairs Officer responded to numerous phone inquiries. Most commonly, callers requested information about health issues concerning magnetic fields from such things as powerlines, transformers, substations, and meter boxes. Other topics of interest were the possible health effects of mobile phones and base stations, radiation leakage from microwave ovens, and the fault line discovered during site excavations for the replacement research reactor at Lucas Heights.
- 2.22 Visitors to the ARPANSA web site who download a single file are logged as a single hit. ARPANSA's site received a total of 98,161 successful 'hits' in the quarter. Average daily 'hits' over the period were: *April* – 1,078, *May* – 1,121 and

June – 1,034. The three most popular page views were: *April* – Home (437), Resource Guide for UVR Protective Products: Product Categories (179) and Resource Guide for UVR Protective Products: Tents, Umbrellas, Shadecloth and Shade Structures (118); *May* – Home (386), Resource Guide for UVR Protective Products: Product Categories (165) and Radiation and Health Information: The Mobile Phone System and Health Effects (92); *June* – Home (419), Resource Guide for UVR Protective Products: Product Categories (139) and Radiation and Health Information: Radiation Emissions from Microwave Ovens (116).

3. Research on Radiation Protection, Nuclear Safety and Medical Exposures to Radiation

Non-ionizing radiation

- 3.1 A report covering the UV radiation levels for the last five years was provided to the Australian Antarctic Centre of the Australian Antarctic Division for the State of the Environment Report.
- 3.2 The second stage began of a study examining UV radiation exposures of multiple sclerosis patients in collaboration with the Menzies Centre Hobart and the National Centre of Epidemiology and Population Health at the Australian National University.
- 3.3 Colin Roy, Peter Gies and Alan McLennan had a paper titled *Sun Protective Clothing: 5 Years Experience in Australia* published in *Recent Results in Cancer Research* 160:26-34, 2002.
- 3.4 A research paper co-authored by Peter Gies, titled *Meteorology meets public health: UV forecasts and reports for sun safety*, was accepted for publication in the *Health Promotion Journal of Australia*.
- 3.5 Peter Gies was requested by the Cancer Society of New Zealand to write an article titled *Sunscreens and their Effective Use* for circulation to both health professionals and the general public. The publication may also be adopted by the Australian Cancer Society.

Medical radiation

- 3.6 The Medical Physics Section undertook detailed patient dose calculations for two pregnant patients and for a young female patient.
- 3.7 The Medical Physics Section continued its survey on radiation doses from diagnostic radiology (excluding computed tomography). Western Australian contacts were added to the database. Dosimetry methods for the survey were pilot tested at several hospitals. Preparations were made to mail the first questionnaire to all centres in all states except New South Wales and Queensland. The former will send out questionnaires in ARPANSA's behalf.
- 3.8 Radiotherapy hospitals selected for the national pilot study of quality assurance

dosimetry completed their irradiations. The results were evaluated and used to begin the design of the full survey to be conducted later in 2002.

- 3.9 Keith Wise prepared an ARPANSA report titled *Solid cancer risks associated with exposure to radiation for the Australian population: application to computed tomography*. At the end of the quarter it awaited peer-review.

4. Services Provided in Radiation Protection, Nuclear Safety and Medical Exposures to Radiation

Calibration services

- 4.1 There was continued strong demand for commercial service work, including the laboratory calibration of RF monitors and probes. A total of 75 jobs were received and completed, consisting of 36 monitors, 57 probes, and 22 badges/dosimeters.
- 4.2 UV radiation calibration and testing services were carried out for Optix Tech, a manufacturer of UV measurement instrumentation. Other UV radiation work included hazard assessments, sunglass testing and phototherapy cabinet calibrations.
- 4.3 Wayne Cornelius attended a meeting at the National Measurement Laboratory (part of the Commonwealth Scientific and Industrial Research Organisation or CSIRO) on 15 May to discuss details of the laboratory's possible takeover of some laser hazard classification and measurement services that have been discontinued at ARPANSA.
- 4.4 The IAEA graphite calorimeter and controls were transferred to the Yallambie premises. It will act as a temporary replacement for the Australian standard of absorbed dose while the ARPANSA calorimeter is being repaired and upgraded.

Fabric testing and labelling

- 4.5 The Ultraviolet Protection Factor (UPF) Quality Management Committee met during this period. The drafting of documentation for accreditation of the UPF rating service continued. Staff also continued developing timelines for the completion of all required documentation.
- 4.6 There was strong demand for fabric UPF testing, licensing and labelling during the quarter. 123 jobs were received that involved the testing of 459 fabric samples. In addition, 45 UPF trademark licences were completed and 1.4 million UPF swing tags were issued. About 50 pairs of sunglasses were tested for their UV radiation protection.

QA program for radiopharmaceutical products

- 4.7 The quality assurance program for radiopharmaceutical products used by hospital nuclear medicine departments found that all batches tested complied with radiochemical purity specifications.

5. Council and Committee Operations

Radiation Health and Safety Advisory Council

- 5.1 The Council met on 12 April in Sydney. A summary of the meeting is available at this web address: http://www.health.gov.au/arpansa/rhsac_m2.htm.

Radiation Health Committee

- 5.2 The Committee did not meet during the quarter. The draft *Recommendations for the Discharge of Patients Undergoing Treatment with Radioactive Substances* was released for public comment during the quarter.

Nuclear Safety Committee

- 5.3 The Committee met on 19 April in Sydney. A summary of the meeting is at this web address: http://www.health.gov.au/arpansa/nsc_mt.htm.

Radiofrequency (RF) Exposure Standard

- 5.4 The *Radiation Protection Standard for Maximum Exposure Levels to Radiofrequency Fields – 3 kHz to 300 GHz* was published on 7 May as *Radiation Protection Series No. 3*. Printed copies can be purchased from Info Access bookshops. An electronic version of the Standard was made freely available via the ARPANSA web site, along with an Explanatory Guide to the Standard prepared in a hypertext question and answer format. The ARPANSA web site also contains consultation documents, supporting scientific papers and related web links. In addition, the CEO of ARPANSA wrote to the Australian Communications Authority and to radiation protection regulators in all jurisdictions urging them to adopt and enforce the new Standard.

6. Regulation

Standards

- 6.1 There were no significant regulatory developments to report.

Licensing

Licence Applications

- 6.2 Three new applications for licensing of prescribed radiation facilities were received.

Application Assessment and Licence Issuance

- 6.3 Reviews of applications resulted in the following 14 licensing decisions by the CEO.
- 6.4 Source licences were issued to:

- The Supervising Scientist;
- Australian Securities and Investment Commission;
- Australian Nuclear Science and Technology Organisation (ANSTO) Physics Division;
- National Capital Authority;
- Department of Immigration and Multicultural and Indigenous Affairs;
- Australian Institute of Marine Sciences;
- Australian War Memorial;
- Department of Industry, Tourism and Resources;
- A revised source licence was issued to ANSTO Environment Division, which incorporated a previously issued source licence.

6.5 Facility licences were issued to:

- ANSTO to construct a controlled facility, namely the replacement research reactor;
- Australian Customs Service to construct a controlled facility, being a container examination facility at West Melbourne, Victoria;
- Australian Customs Service to construct a controlled facility, being a container examination facility at Matraville, New South Wales; and
- CSIRO to operate a controlled facility, being a Heavy Ion Analytical Facility at North Ryde, New South Wales.

Import Permits

- 6.6 The Regulatory Branch processed 94 Customs Prohibited Release permits for the importation of non-medical radioisotopes. The Radiopharmaceutical Section issued 92 Customs Prohibited Release permits for the importation of medical radioisotopes.

Australian Nuclear Science and Technology Organisation (ANSTO) - Replacement Research Reactor

- 6.7 The CEO issued a licence to construct the replacement research reactor facility on 4 April. The licence, the Reasons for Decision, and the Regulatory Branch review of ANSTO's application for a facility licence to construct are published on the ARPANSA web site: <http://www.arpansa.gov.au>. The facility must be constructed according to the stated intentions in the application and in compliance with the 18 conditions listed in the licence.
- 6.8 ANSTO submitted a number of requests for approvals (RFAs) to construct items important for safety in accordance with the requirement of licence condition 4.6. These items include the manufacture of the reactor pool and service pool steel liners, procurement of zirconium alloy, the manufacture of a number of storage tanks, the manufacture of the control rod drive room door, and the installation of rock anchors for the reactor building. The acting CEO approved the installation of rock anchors

for the reactor building on 22 May. The other RFAs remained subject to regulatory review at the end of this quarter.

- 6.9 The Licence Holder informed the CEO that geotechnical inspections of the site by New Zealand's Institute of Geological and Nuclear Sciences (IGNS) had revealed a geological fault. Geotechnical specialists began assessing the size and age of the fault. Regulatory Branch will review the IGNS assessment when it becomes available, and probably seek independent expert advice on the safety significance of the fault.

ANSTO Actinide Suite

- 6.10 The applicant wanted to change the proposed inventory of controlled material for the facility. The proposed change in inventory was assessed as not significantly affecting the safety case for the facility. Regulatory assessment began to verify the modelling calculations included in the Safety Analysis Report. It is expected that a recommendation to the CEO on issuing a licence to operate the facility will be made in the next quarter.

ANSTO Materials Fabrication Bay

- 6.11 The nominee for the facility was requested to provide additional information to assist in review of the application.

ANSTO Physics Division

- 6.12 The safety evaluation of two prescribed radiation facilities of the Division, namely the 2MV Tandem Accelerator and the 3MV Van de Graaff Accelerator, was well advanced during the quarter.

Australian Customs Service

- 6.13 An application to prepare a site for, and construct, a container X-ray facility at Fishermans Islands, Brisbane, was received and reviewed. A licence amendment was granted covering industrial radiography conditions.

ARPANSA, Melbourne

- 6.14 Assessment of ARPANSA general plans and arrangements and the ARPANSA Branch applications for source licences for Environmental and Radiation Health, Scientific Services and Medical Radiation Branches continued. Regulatory Branch officers visited the Yallambie laboratory to obtain information and clarify points relating to source licence applications. The safety evaluation report of ARPANSA teletherapy is progressing.

Australian Defence Force and Department of Defence

- 6.15 The assessment of the five Prescribed Radiation Facility licence applications from Department of Defence continued during the period. ARPANSA and the Department personnel met to discuss surveillance programs and the assessment of

licence applications. Another meeting was held to discuss a proposal to construct an industrial radiography room at the School of Aerospace Engineering, Australian Defence Force Academy.

Australian National University

- 6.16 Review of source licence applications continued, with a request for further information sent to the university.

Audit and Inspection

ANSTO HIFAR Facility Licence No. FO0044-4A

- 6.17 As required under Special Licence Condition 3.2 (Effective Control), HIFAR management provided a quarterly report on the safety of HIFAR operations.
- 6.18 To fulfil the requirement of Special Licence Condition 3.1 (b) (Index of Documents to substantiate compliance with the Facility Standard Licence Conditions), an index of documents was produced and forwarded to ARPANSA. This also satisfied Standard Licence Condition 11 (Security-in-Depth).
- 6.19 To meet the requirement of Special Licence Condition 3.12 (b) (Accrediting Key Maintenance Staff) HIFAR management produced a procedure, preliminary plan and schedule for training and accreditation of key Support Section staff. Some accreditations will need to be held in the near future.
- 6.20 To satisfy the requirement of Special Licence Condition 3.14 (a) (ARPANSA's Role in HIFAR Emergencies), revision of appropriate procedures was being completed. This action also satisfied Standard Licence Condition 19 (Reporting of Abnormal Occurrences Incidents and Accidents). Operational Limit and Condition 4.1.1.5 (Rig Reactivity Worth), has not yet been completed.
- 6.21 A quarterly report on the status of HIFAR Plant Modification and Engineering Projects was received, as required under the licence. This consisted of five tables listing 14 new projects that have not yet been given safety categorisation, three new projects with safety categorisation, 45 projects in progress, four projects that have reached practical completion and one project that has reached final completion.
- 6.22 A first stage submission was received from ANSTO for regulatory review on a new irradiation rig in HIFAR for producing molybdenum-99.
- 6.23 Routine weekly visits were maintained to monitor HIFAR operations and HIFAR maintenance, and to provide an avenue for officer level discussions on regulation and licensing issues.
- 6.24 In response to a 1999 ARPANSA report titled *Audit Report on the Maintenance and Inspection Programs for Plant and Equipment Associated with the Operation of HIFAR (RB-INS 3-99)*, Regulatory Branch officers conducted a follow-up safety review concentrating on the recommendations from the 1999 report. The report on

this review was being completed.

ANSTO Airborne Radioactive Discharges

- 6.25 Airborne radioactive discharges ANSTO reported for the quarter remained less than the relevant notification levels under the discharge authorisation except for the following. The airborne discharges from the National Medical Cyclotron reached the notification level for the four weeks ending 28 June 2002. Cumulatively the release of gallium-67 and thallium-201 was 144% of the notification level. ARPANSA was notified of this. Investigations immediately after this quarter ended indicated a failure of the High Efficiency Particulate Arresting, or HEPA, filtration bank. ANSTO took measures to rectify the problem and measurements in July indicated thallium-201 discharge levels returned to normal.

ANSTO Liquid Radioactive Discharges

- 6.26 Liquid effluent discharge reports covering weekly pipeline sample analysis of radioactivity for the period 26 February to 26 June 2002 were received and reviewed by Regulatory Branch. All measurements were less than the relevant trade waste limits authorised by Sydney Water under the ANSTO Trade Waste Agreement.

ANSTO Emergency Exercise

- 6.27 Two ARPANSA officers participated as observers in an emergency exercise conducted at the Lucas Heights Science and Technology Centre on 15 May. These happen around once every two years so that the roles and responsibilities of ANSTO and the New South Wales combat agencies (led by Police) under Standard Operating Procedures are well understood by all participants.

ANSTO Replacement Research Reactor Site Licence

- 6.28 The eleventh quarterly report by ANSTO on its compliance with the *Replacement Research Reactor Facility Licence, Site Authorisation* was received and showed satisfactory compliance with all conditions. In response to Condition 5.7(e), seismic hazard analysis, the site investigations during excavation revealed an unanticipated geological fault running through the site. Additional investigations are being undertaken to determine the significance of the fault and its impact on the siting and/or design of the facility.

ANSTO Moata Decommissioning

- 6.29 As required by the conditions of licence, Moata management supplied a quarterly report. This indicated no abnormal occurrences occurred in the care and maintenance of Moata; no modifications to plant and procedures were identified as necessary; no modifications or changes were initiated; and no radioactivity was released to the environment.

To meet the requirement of Special Licence Condition 3.5, ANSTO requested an extension in time to complete preparation of an updated criticality certificate for the Moata facility. This was granted and ARPANSA has since been supplied with

criticality assessment information for evaluation.

ANSTO Fuel Operations

- 6.30 The quarterly report on compliance with licence conditions was received.
- 6.31 The preparation of Safety Analysis Reports for all Fuel Operations facilities was in progress and at various stages of completion. Engineered secondary containers for plutonium oxide powder storage received design approval and were manufactured.
- 6.32 One Active Handling Supervisor within Fuel Operations was accredited.
- 6.33 Fuel Operations continues to investigate the source of a small amount of water found behind the stainless steel liners of the Cropping and Storage Ponds. The water contains similar radioactivity to the pond water but at much lower levels.
- 6.34 Recovery continued from the March 2002 incident reported before in which a spent fuel rod was cut at the wrong location, contaminating the Building 23 cropping pond. An augmented pond purification system substantially reduced dissolved activity in the water and new equipment for cleaning up particulate contamination was commissioned. The damaged fuel assembly remains in a sealed can and water in the can is regularly sampled for activity.
- 6.35 A revised design approval certificate for the ANSTO-owned spent fuel transport cask was evaluated and issued. The new fuel transport package certificate was validated and the transport plan for the movement of new fuel gained regulatory approval.

ANSTO Waste Operations

- 6.36 The quarterly report on compliance with licence conditions, including updated waste inventories, was received. With regard to modifications, Building 20B structural work (extension of Building 20) was completed. ARPANSA approval will be sought before the building becomes operational and the Waste Operations licence will be amended to include the additional facilities. The glass crushing facility in Building 57D was successfully commissioned following improvements to the off-gas filtration system.

ANSTO Radiopharmaceuticals

- 6.37 ANSTO Radiopharmaceuticals and Industrials (ARI) is licensed to operate four nuclear installations and one prescribed facility under two licences (F0044-5A and F0044-5B). Licence conditions require ARI to submit quarterly reports to the CEO of ARPANSA covering effective control, emergency control and an assessment of changes and modifications. A summary of the licence conditions report for ARI in the quarter now follows.
- *Effective Control* – ANSTO Safety Assessment Committee approvals: A list of nine; three for the National Medical Cyclotron, one each for Building 23A and Building 23 and four for Building 54.

- *Emergency Arrangements* – The ARI Emergency Plan complies with the ANSTO Emergency Plan (DISPLAN) and SD 3.1. The National Medical Cyclotron follows a separate Emergency Plan to that of ANSTO at Lucas Heights because of its different location.
 - *Assessment of Changes and Modifications* – The review of the Third Stage Submission for the upgrade of Building 54's ventilation system was completed. Based on the review, ARPANSA agreed to the submission subject to appropriate conditions. A master plan for the development of the Production of Quality control facilities in Building 23 commenced.
- 6.38 An account of compliance with special licence conditions attached to ARI now follows.
- *Radiation Protection – ALARA Objective*: One special licence condition requires the Licence Holder to ensure that effective doses to members of the public in adjacent establishments of the National Medical Cyclotron comply with their As Low As Reasonably Achievable (ALARA) objective. The ARI quarterly report estimates external exposures to members of the public as a result of operations at the National Medical Cyclotron as less than three microsieverts for the 2001-2002 financial year and complies with the ALARA objective. The estimation was based on environmental dosimeter results taking into account exposures due to contributions from natural background radiation in the area and occupancy factors of the various car parks, pathways and office areas surrounding the National Medical Cyclotron.
 - *Radiation Protection – Periodic Surveys*: Periodic surveys of radiation dose rates in the vicinity of the National Medical Cyclotron Building are required. The ARI quarterly report mentions that such surveys around the exterior of the building and surrounding areas have commenced.
 - *Radioactive Waste Management - Air Sampling and Monitoring*: Processes and procedures for sampling and monitoring airborne discharges must be in accordance with a recommended American Standard. The ARI quarterly report mentions that Health and Safety Division under a service level agreement is carrying out sampling and monitoring for airborne discharges. However, an audit will be conducted to ensure compliance with the recommended standard.

ANSTO's Gamma Technology Research Irradiator

- 6.39 Regulatory Branch officers inspected the irradiator facility. Inspection confirmed that the Licence Holder is addressing the requirements of all Standard and Special Licence Conditions. A number of recommendations have been made for continuous improvement of the safety case for the facility.

Abnormal Occurrences at ANSTO's Nuclear Installations

- 6.40 The Regulatory Branch is notified of all abnormal occurrences at ANSTO's nuclear installations but only includes in this report those classified as Level 1 or above on the International Nuclear Event Scale (INES) as all others are of no safety significance. There were no Abnormal Occurrences at the HIFAR Reactor classified

as INES Level 1 or above notified by ANSTO in this quarter. Similarly, no such occurrences at Fuel Operations were notified by ANSTO.

- 6.41 ANSTO did notify one Abnormal Occurrence at Waste Operations. The tritium airborne discharge notification level for the quarter was exceeded due to the processing in Building 57 of spent resin from the HIFAR coolant purification circuit. This is a routine operation carried out periodically and is the only significant source of airborne tritium release from Waste Operations. Spent resin processing includes appropriate filtration of the off-gas to remove the tritium to the maximum practicable extent. While the notification level for the quarter was exceeded, due to the periodic nature of the operation it is unlikely that the annual notification level will be exceeded. Notification levels are a fraction of the maximum permitted discharge for the nuclide. As a result of this occurrence, a review began of tritium notification levels for Waste Operations.
- 6.42 Further discussions were held with ANSTO regarding the misplaced Americium-241 source at ARI described in the last quarterly report (paragraph 6.24). ANSTO considers that the lost source is still on-site within the fenced area, but detailed searches have failed to locate it. ANSTO instigated a series of physical and administrative procedures to prevent the re-occurrence of such an incident. ARPANSA is considering the final report and will inspect the improved procedures once they are in place.

CSIRO

- 6.43 There has been ongoing regulatory review of CSIRO compliance with special licence conditions and the quarterly reporting of source inventories for the CSIRO's 20 source licences and one facility licence.
- 6.44 Regulatory Branch officers visited the CSIRO High Ion Analytical Facility before finalising their licence application assessment.

Parks Australia North

- 6.45 Compliance with special licence conditions was reported. Advice was provided with regard to proposed works not within the definition of 'interim works' in the licence.

Australian Institute of Marine Science

- 6.46 Regulatory Branch officers provided advice regarding training, waste handling and laboratory refurbishment to ensure compliance with radiation standards.

Australian National University

- 6.47 Regulatory Branch officers visited facilities at the university in April to inspect radioactive materials storage areas and to discuss safety plans and arrangements.

7. International Liaison

- 7.1 David Webb was an invited technical peer reviewer of the Korean Institute of Standards and Science quality system in Daejeon, Korea, between 13 and 17 May.
- 7.2 From 3-14 June, Lew Kotler undertook comparisons of X-ray standards at the International Bureau of Weights and Measures in Paris. An additional comparison of International Electrotechnical Commission X-ray beams was performed at the National Physical Laboratory in London from 17-18 June. Lew Kotler also took the opportunity to visit the Dutch and German measurement institutes.
- 7.3 The manager of the Nuclear Installations Section in Regulatory Branch, Vince Diamond, attended a meeting on “External Hazards in Nuclear Installations” from 4-12 April in Paris. The event involved the Organisation for Economic Co-operation and Development, the Nuclear Energy Agency and its Committee on the Safety of Nuclear Installations.
- 7.4 The Director of Regulatory Branch, Don Macnab, and Legal and Policy Officer David Tredinnick, attended the Second Review Meeting of the Convention on Nuclear Safety IAEA from 15-26 April in Vienna. They presented the Australian National Report and participated in the peer review of reports from other participating countries.
- 7.5 Allan Murray from Regulatory Branch participated in the IAEA expert mission to review the updated Safety Analysis Report for the 30 mega-watt Indonesian research reactor from 10-14 June.
- 7.6 Regulatory Branch hosted three IAEA fellowship trainees from the Bangladesh Atomic Energy Commission and the Philippine Nuclear Research Institute for a period of three weeks each.
- 7.7 Ches Mason of the Standards Policy and Operational Support Branch attended a meeting of the IAEA’s Commission on Safety Standards in Vienna from 3 to 7 June. He also attended a meeting of Committee 4 of the International Commission on Radiological Protection in Paris from 24-26 June. Committee 4 deals with the application of the Commission’s recommendations and at the June meeting it reviewed a draft document on new radiation protection recommendations for the 21st century.

John Loy
CEO
28 January 2003