



Australian Government

**Australian Radiation Protection
and Nuclear Safety Agency**

QUARTERLY REPORT

OF THE

CHIEF EXECUTIVE OFFICER

OF ARPANSA

FOR THE PERIOD 1 JANUARY TO 31 MARCH 2005



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If you would like to know more about the content of this publication please contact ARPANSA's Public Affairs Officer, Level 2, 38-40 Urunga Parade, Miranda, NSW, Australia 2228, or by telephone +61 2 9541 8333 or e-mail at info@arpansa.gov.au. Further information about ARPANSA can be obtained from the Agency's website at www.arpansa.gov.au.

ABN 61 321 195 155

Printed by

CanPrint Communications Pty Ltd
16 Nyrang Street
Fyshwick ACT 2609

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LETTER OF TRANSMITTAL

3 May 2005

The Hon Christopher Pyne MP
Parliamentary Secretary to the Minister for Health and Ageing
Parliament House
Canberra ACT 2600

Dear Parliamentary Secretary

The *Australian Radiation Protection and Nuclear Safety Act 1998* (ARPANS Act) 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 is also to 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 Committee under certain sections of the Act; and a list of facilities licensed under Part 5 of the Act.

The present report fulfils this requirement for the March quarter 2005.

This is the third report in the new format. I hope that the revised structure has allowed you and the Parliament to more readily review the operations of myself, ARPANSA, the Council and Committees during the quarter while still providing a good deal of detail on our regulatory activities.

Section 60(6) of the Act requires that you cause a copy of the report to be laid before each House of the Parliament within 15 sitting days of the day on which this report was given to you.

Yours sincerely

John Loy

CEO of ARPANSA

Part 1 - Report on the operations of the CEO and ARPANSA (paras 60(1)(a) and (b) of the ARPANS Act 1998)

1. Knowledge, information and services

Medical radiation

- 1.1 Statistical analysis of the results from the National Survey of Doses from General Radiology was proceeding. Preliminary results indicate that the doses for most x-ray projections are very similar to those in the United Kingdom (Ref. *Doses to Patients from Medical X-ray Examinations in the UK – 2000 Review* by D Hart, M C Hillier and B F Wall, NRPB Report W14).
- 1.2 The Australian primary standard of exposure or air kerma for Co⁶⁰ radiation is a thick-walled pancake graphite cavity chamber. In the regular exercise of the standard, the central electrode of the chamber became detached. Satisfactory repairs were made, however, and in subsequent testing results have accorded with earlier measurements.
- 1.3 The Ionizing Radiation Standards (IRS) Section measured beam uniformity and axial square law behaviour for the protection level Cs¹³⁷, Co⁶⁰, and Am²⁴¹ sources to fulfil particular corrective actions for National Association of Testing Authorities (NATA) accreditation. An ambient measurement station, including the Hart thermometry water bath, was established that will satisfy accreditation requirements for the IRS Section and also support the quality system for other groups within ARPANSA.
- 1.4 Results were received from the International Atomic Energy Agency (IAEA) for the reference irradiations of TLD material the IRS Section undertook in December 2004 for the IAEA international SSDL and hospital radiotherapy audit programs. ARPANSA's stated doses of Co⁶⁰ deviated no more than 0.5 per cent from the measured values obtained by the IAEA, well within their uncertainty of 1.8 per cent (1 standard deviation) and very consistent with previous irradiations.

Non-ionizing radiation

Ultraviolet Radiation (UVR)

- 1.5 Assessments of the UVR exposures of various population groups and workers continued. The collaborative study with the Menzies Centre for Population Health in Hobart continued, with the winter phase of the UVR exposure assessments of people with multiple sclerosis having been completed. Phase three of research into the UVR exposures of Australia Post outdoor workers (Postal Delivery Officers) progressed with completion of the survey in Brisbane.
- 1.6 Research into protection against solar UVR continued. A collaborative study began with the Cancer Council of Victoria on the effects of some detergents on the Ultraviolet Protection Factor (UPF) ratings of fabrics. A protocol was designed with the aim of

measuring the UPF rating provided by clothing that has been washed in detergents that claim to offer an increase in the UPF rating for garments that have a low UPF value. The collaborative research project with TreeNet Inc continued on evaluating various types of tree and the levels of UVR measured under tree canopies. The collaborative study with the Cancer Council of South Australia on the levels of solar UVR exposure to various facial sites and the amount of protection provided by different types of hats and caps also continued.

- 1.7 The UVR Section has been looking at some additional detectors and a spectroradiometer to measure solar UVR. The instruments underwent evaluation in the quarter for potential use to supplement existing detectors in the solar UVR monitoring network.

Electromagnetic Radiation (EMR)

- 1.8 Planning for the 300 home survey of 50 Hz (low frequency) magnetic fields in Victorian homes continued. The principal issues remain staffing resources and measurement detectors.
- 1.9 EMR section staff continued to provide information to the public and media regarding EMR and health – as did ARPANSA's Public Affairs Officer. ARPANSA and the Australian Communications Authority (ACA) cooperated further on new public information content for the ACA web site.

Services

- 1.10 The Personal Radiation Monitoring Service (PRMS) Application Development Project recommenced after the Proof of Concept Phase and is expected to be completed in April 2006. The first milestones, that relate to the analysis and migration of data from the current system and development of the client information database, are due for completion by June 2005.
- 1.11 A Statement of Requirement for the redesign of the monitor holder used in the PRMS was evaluated in the quarter and a proposed supplier selected. Work on the holder redesign will start immediately.
- 1.12 An ARPANSA fact sheet, *Interim changes to the Australian low-energy x-ray standard*, February 2005, by Duncan Butler was published on the agency's web site to inform Australian hospitals of correction factors that may apply to calibrations of their kilovoltage x-ray equipment below 50 kV, prior to April 2003. This was necessary with the downgrade of the low energy standard free air chamber to that of a secondary standard.
- 1.13 Statistics on the outputs of other ARPANSA services are at Appendix B.

2. National leadership in radiation protection and nuclear safety

Comprehensive Test Ban Treaty - radionuclide monitoring

- 1.14 As part of Australia's commitment to the Comprehensive Test Ban Treaty, ARPANSA continued to operate and maintain radionuclide air monitoring stations at Melbourne, Perth, Townsville, Darwin, Cocos Islands and Kavieng in PNG. A 15-month fixed price contract neared finalisation for the operations and maintenance of the Australian mainland stations.
- 1.15 Discussions continued with government agencies for the installation and support of stations at Macquarie Island and at Mawson, Antarctica. However, owing to lack of clarity about the nature of operations at the Mawson base in the longer term, and recent discussions held with the Comprehensive Test Ban Treaty Organisation (CTBTO), it was decided that a proposal to relocate the station to Davis would be put forward. Consequently, the CTBTO cancelled the current Request for Proposal for the Mawson radionuclide station.
- 1.16 Discussions with the CTBTO were finalised regarding the Model Contract for the air monitoring station at Kavieng, in Papua New Guinea (PNG). It is expected that ARPANSA will soon enter into a contract for the operations and maintenance of this station, and will also have established a Memorandum of Understanding with the PNG National Weather Service.
- 1.17 ARPANSA also operates the Australian Radionuclide Laboratory, which has the role of testing samples obtained by other monitoring stations. The laboratory has been awarded formal certification by NATA, showing that it complies with ISO/IEC 17025 (1999). Certification by the CTBTO has been delayed pending resolution of a key technical issue. In an attempt to resolve this, a new radionuclide detector has been ordered.
- 1.18 ARPANSA continues to maintain a National Data Centre that provides advice to the Australian Safeguards and Non-Proliferation Office (ASNO) on any event detected by the CTBT radionuclide network that may be indicative of a nuclear weapon test explosion.

National Uniformity

- 1.19 A final regulatory impact statement on the National Directory of Radiation Protection was cleared by the Office of Regulation Review, and will now be forwarded to the Australian Health Ministers' Advisory Council and the Australian Health Ministers' Conference to inform them that the cost-benefit analysis has been undertaken and that the National Directory should now be implemented in all jurisdictions consistent with their decision of July 2004.
- 1.20 The National Uniformity Implementation Panel (Radiation Control) (NUIP(RC)) discussed proposals for Edition 2 of the National Directory at its meeting on 10 March, including incident reporting, competency requirements for various occupational

licensing categories, and rural and remote radiography issues.

- 1.21 Members of the NUIP (RC) received a briefing from Ian Coe of Bailey Dixon Lawyers and Consultants relating to the adoption of the Radiation Protection Standard for Maximum Exposure Levels to Radiofrequency Fields – 3 kHz to 300 GHz (2002) (RPS-3) into the legislation of each jurisdiction. The panel agreed to consider the issues raised and discuss them further.
- 1.22 EMR section staff attended a meeting of the working group which is developing a new Standard of Exposure to Extremely Low Frequency (ELF) magnetic and electric fields. Significant work remains before the draft is ready for external review.

Source Security and Emergency Response

- 1.23 The project on the enhancement of the security of radioactive sources in Australia, and the associated emergency response capabilities in the event of a radiological incident, progressed significantly during the quarter. A Radiation Emergency Operations Unit was established, consisting of a security compliance officer, an emergency response co-ordinator and a supporting technical officer.
- 1.24 The ARPANSA emergency response room was reorganised and all materials and equipment subject to a stock-take. Various radiation monitors were identified as needing maintenance and/or calibration, and this work commenced. Secure communications was identified as an area needing additional resources, and a systematic assessment of ARPANSA's capability in this regard began.
- 1.25 The working group developing the *Code of Practice for the Security and Physical Protection of Radioactive Sources* met and discussed a revised version of the document, which is planned to be available for public consultation in the autumn of 2005. Work on inputting data into the national database of radioactive sources continued. Discussions were held with the Department of Education, Science and Training and the Department of Industry, Resources and Tourism seeking support for changes to the Australian Customs Service legislation to enhance import and export controls for radioactive sources.
- 1.26 ARPANSA continued to provide expert advice on radiation protection and health physics issues to a number of bodies as part of Australian planning for radiological terrorism. For example, in February the agency participated in the NSW Fire Services First Responders Working Group to harmonise arrangements for dealing with the consequences of a radiological emergency in Sydney. ARPANSA officers also lectured at the Regional Source Security Workshop organised by the Australian Nuclear Science and Technology Organisation (ANSTO) and the United States Department of Energy.
- 1.27 Staff members attended a Visiting Ships Panel (Nuclear) meeting on 4 March in Brisbane and participated in a port validation visit.
- 1.28 Still in March, ARPANSA staff attended a meeting of the National Competent Authority Coordination Group at the IAEA in Vienna to review progress on the IAEA

Action Plan for *Strengthening the international preparedness and response system for nuclear and radiological emergencies.*

International Activities

- 1.29 An ARPANSA officer attended a four-day consultants meeting with the IAEA in Vienna in January, to assist in developing a training course on the security of radioactive sources. It is envisaged that, once finalised, the course will be provided to all Australian regulators with responsibility of ensuring the safety and security of radioactive sources in their jurisdiction.
- 1.30 A Personal Radiation Monitoring Service staff member was invited by the IAEA to participate in the Expert Advisory Group Meeting on *Intercomparison for Assessment of Occupational Exposure* held in Tokai, Japan, in February 2005. The meeting was to plan for future IAEA/RCA intercomparison programs within the Regional Cooperative Agreement.
- 1.31 A Regulatory Branch staff member attended the 63rd meeting of the Nuclear Energy Agency (NEA) Committee on Radiation Protection and Public Health in Paris, France, from 8-10 March. The Committee met to identify current and upcoming issues to set its program of work. These included stakeholder involvement in radiological decision making, and the International Commission on Radiological Protection (ICRP) Recommendations now expected in late 2006.
- 1.32 The Manager of Nuclear Installations Section participated in the IAEA/Regional Cooperative Agreement Project Coordination and Technical meetings on Management Systems in Operating Organisation of Research Reactors and Research Reactor Quality Assurance in Hanoi, Vietnam, from 28 March to 2 April. A notable feature was discussion on the implementation of the Code of Conduct on the Safety of Research Reactors following its endorsement by the IAEA in March 2004.
- 1.33 The Non-Ionizing Radiation Branch Director, Dr Colin Roy, has helped finalise the draft World Health Organisation (WHO) Environmental Health Criteria book on static fields. The complete text has now been sent for final editing and publication is anticipated around the middle of 2005.
- 1.34 The Manager of the Policy and Source Security Unit was elected chairman of the IAEA's Transport Safety Standards Committee (TRANSSC) for a three year period and attended the first meeting held in Vienna in March. TRANSSC develops international radiation transport safety recommendations that are published by the IAEA and adopted worldwide to ensure the safe transport of radioactive material. The meeting approved the sending to Member States for comment, draft changes to the current version of the radiation safety recommendations (TS-R-1). The committee also approved the commencement of other guidance documents useful to the radioactive materials transport industry.
- 1.35 The CEO attended an international conference in London in March entitled 'Nuclear security: Global Directions for the Future.' The conference discussed the safety of nuclear and radioactive material against threats of malicious use. The CEO delivered a paper on the Code of Conduct on the Safety and Security of Radioactive Sources.

3. Effective regulation of the Australian Government for radiation protection and nuclear safety

ANSTO - OPAL Research Reactor - Application for an Operating Licence (F0157)

1.36 ANSTO's replacement research reactor was officially named the OPAL (Open Pool Australian Light-water) reactor on 24 January.

1.37 At the invitation of ARPANSA the IAEA undertook an Expert Mission to Peer Review the ANSTO application for a licence authorizing operation of the OPAL research reactor. The Peer Review covered the following areas:

- Closure of issues raised by the previous Peer Review mission for the then construction licence application
- Review of the licence application including the pre-commissioning version of the Safety Analysis Report
- Operational Limits and Conditions for operation (and commissioning)
- Operating procedures
- Adequacy of the proposed Operating Organisation

The report of the review was finalised after the four-member team visit in March and is undergoing final editing. Public release of the report will occur in May.

ANSTO – OPAL Research Reactor – Construction Licence (F0118)

1.38 ARPANSA continued to monitor the construction of the OPAL reactor. Officers met regularly with their counterparts to assess the thoroughness of the ANSTO design review process. ARPANSA approved four requests for construction of safety items under Regulation 54 and Licence Condition 4.6 during the quarter. The great majority of items important for safety have now been approved for construction by the CEO.

1.39 ARPANSA continued inspections to monitor compliance with the construction licence for the OPAL reactor. These inspections were of four types:

- Inspections of documentation and processes in sub-contractors premises for the manufacture of items important to safety;
- Unannounced inspections of the construction site to monitor progress of the construction and installation of plant and general 'housekeeping' issues;
- Inspection of construction hold points specified by the CEO of ARPANSA;
- Inspection of documentation and processes for activities in pre-commissioning of various Safety Category 1 and 2 systems or components.

1.40 Following an ARPANSA inspection to witness the pre-commissioning testing of the reactor hall crane, the CEO requested ANSTO to provide justification for the inclusion

and safety categorisation of a third hoist.

ANSTO's operating nuclear installations

- 1.41 ANSTO's analyses of the contamination of a maintenance worker that occurred during the major shutdown of the HIFAR reactor (reported in the January-March 2004 quarter) was reviewed by ARPANSA. ARPANSA awaits the plan and schedule for the after actions identified by the licence holder.
- 1.42 ANSTO provided information about the unintended partial draining of primary coolant from the HIFAR reactor during maintenance of a valve in the circuit. The CEO requested further information from ANSTO and is awaiting a response.

Compliance Monitoring

- 1.43 ARPANSA established a system for electronic reporting to assist licence holders to meet their quarterly compliance reporting obligations. Both source licence holders and holders of licences for prescribed radiation facilities were issued with proformas and guidance information to facilitate efficient and effective reporting.
- 1.44 A system of risk ranking of licence holders was developed to inform the planned inspection program. Licence holders were ranked as low, medium or high risk based on the hazard posed by the controlled facilities and the level of controls in place. Hazard is taken to mean the potential for detriment to people or the environment. Controls are defined as the demonstrated ability to maintain safety of sources or facilities, based initially on an evaluation of the licence application, and later by the licence holder's compliance history, including reporting, inspection and incidents.

Inspections for compliance monitoring

- 1.45 ARPANSA continued an active program of inspections to determine compliance with licences issued under the ARPANS Act during the quarter. The following inspections were undertaken:
- ANSTO OPAL Research Reactor
 - ANSTO Fuel Operations

Quality Management System

- 1.46 The following documents were added to Regulatory Branch's quality system:
- RB-COM-FORM-0500A Reporting Proforma for Source Licence Holders v1;
 - RB-COM-FORM-0500B Prescribed Radiation Facility Reporting Proforma v1;
 - RB-COM-SUP-0500A Guidance for Licence Holder Quarterly Reporting v2;

- RB-COM-SOP-0500 Regulatory Assessment of Licence Holders' Compliance Reports.

Details of Regulatory Activities

1.47 Further details of regulatory activities are at Attachment A.

4. Corporate Management

1.48 The ARPANSA Audit Committee held its third meeting this financial year on 16 February and considered reports from finance and legal, as well as matters in relation to internal and external audit. The Committee received a detailed briefing on the Australian National Audit Office (ANAO) performance audit and noted the commencement of a project to review the business processes supporting the regulatory function.

1.49 The ANAO performance audit of ARPANSA's regulatory functions was presented to Parliament on 2 March. The ANAO report made 19 recommendations, all of which were accepted by ARPANSA. The CEO wrote to all licence holders and other ARPANSA stakeholders drawing attention to the report and the review that had commenced.

1.50 In response to the ANAO report, the CEO established a project team to:

- Review the current regulatory framework and processes, taking into account the ANAO recommendations;
- Produce recommendations for improvement; and
- Be responsible for implementing those recommendations accepted by the CEO.

This project is due for completion by March 2006.

1.51 Review of the Chief Executive's Instructions (CEIs) was completed in February and consultation on the revised drafts of the Instructions began in March. Procedural rules will be revised in coming months to reflect changes in the CEIs.

Part 2 – Report on the operations of the Radiation Health and Safety Advisory Council, the Radiation Health Committee and the Nuclear Safety Committee (para 60(1)(c) of the ARPANS Act 1998)

Radiation Health and Safety Advisory Council

2.1 The Council did not meet during the quarter. However, summary minutes of previous meetings are available at this web address: http://www.arpnasa.gov.au/rhc_mt.htm.

Radiation Health Committee

2.2 The RHC met on 9-10 March. A summary of the meeting is available at http://www.arpansa.gov.au/rhc_mt.htm.

2.3 At the meeting, the Committee considered the following matters:

- A revised timeline for production of a Standard for limiting exposure to extremely low frequency electric and magnetic fields (0 Hz - 3 kHz). The Committee approved the revised timeline which would see a public comment draft considered at the July 2005 meeting.
- An outline for the proposed 'road map' for radioactive waste management not covered by RHS 13 *Code of Practice for the disposal of radioactive wastes by user* (1985); and proposed detailed work on issues relating to the management of sealed sources and laboratory waste. The Committee endorsed the outline and supported the commencement of detailed work on sealed sources and laboratory waste.
- Progress on the development of advice on competencies required for persons using Class 4 lasers. The Committee agreed that the working group provide, for the July 2005 meeting, information on the use, hazards and potential control mechanisms for Class 3B lasers.
- Implementation of the optimisation principle, and in particular the need for guidance on when a satisfactory level of optimisation has been achieved. The Committee agreed to consider a document development plan for suitable guidance at the July 2005 meeting.
- The decision to release the draft Code of Practice for the safe use of radiation in veterinary science and further discussion of the issues raised by the Australian Equine Veterinary Association (AEVA) in relation to the Committee's July 2004 Statement on Veterinary Investigations for Yearling Sales. The Committee agreed to remove the statement during the public consultation period and to respond in writing to the AEVA.
- Risk assessment underpinning the draft Code of Practice for the security and physical protection of radioactive sources and that the onus will be on the responsible person to act in accordance with the requirements of the Code according

to the alert level and the emergency response arrangements in their jurisdiction.

- A revised draft of the Standard for occupational exposure to ultraviolet radiation which was prepared following incorporation of comments from members. The Committee noted that a further round of public comment for the revised draft Standard and a revised regulatory impact statement will need to be undertaken.
- Progress with the establishment of diagnostic reference levels (DRLs) for Australia. The Committee undertook to comment on the proposal to publish interim DRLs for mammography, diagnostic radiology and nuclear medicine without the associated protocols.
- A summary of incidents occurring in 2004 and reported to the Australian Radiation Incident Register. The Committee agreed to consider a communication plan for the distribution of information from the register.

2.4 Other matters considered by the Committee at the meeting were:

- The use of Queensland licence conditions by the working group developing the draft Code of Practice for cabinet X-ray equipment; and
- Confirmation that the 5 millisievert dose constraint in any year for adult research participants be retained in the revised Code of Practice for the exposure of humans to ionizing radiation for research purposes.

Nuclear Safety Committee

2.5 The previous Quarterly Report gave an incorrect address for the online summary of the 5 November 2004 meeting held in Sydney. The correct address for this record is: http://www.arpansa.gov.au/pubs/nsc_nov04.pdf.

2.6 The NSC met by teleconference on 11 February. A summary of the meeting is included in the summary of the 25 February meeting available at http://www.arpansa.gov.au/pubs/nsc/nsc_mt.htm.

2.7 The Committee considered the request for advice from the CEO of ARPANSA on the application for an operating licence for the Open Pool Australian Light-water (OPAL) reactor. The Committee formed a working group to consider issues relating to waste management and another working group is to consider issues relating to the conduct of operations. The advice is scheduled to be submitted by July.

2.8 The NSC met again on 25 February, in Sydney. A summary of the meeting is available at http://www.arpansa.gov.au/pubs/nsc/nsc_mt.htm. The Committee considered the following matters at the meeting:

- The process for the commissioning of the OPAL reactor including determining whether the Safety Analysis Report met the design criteria in the construction licence and whether results of pre-commissioning and cold commissioning met safety design requirements. The Committee was requested to provide the CEO with advice on the outcomes of the commissioning program following a briefing from ANSTO staff and a visit to the OPAL site;

- Waste minimisation options in the operation of the OPAL reactor;
- Recent abnormal occurrence reports for the HIFAR reactor
- Notification that an IAEA peer review of the application for a licence to operate the OPAL reactor would commence in late February 2005; and
- Progress report on the construction of the OPAL reactor.

Part 3 – Reports required by subsections 60 (2),(3),(4) and (5) of the ARPANS Act 1998

Details of directions given by the Minister under Section 16

3.1 No Section 16 directions were given during the quarter.

Details of any breach of licence conditions by a licensee during the quarter, of which the CEO is aware

3.2 National Gallery of Australia (S002–) - Possible breach of Section 31.

3.3 National Measurement Institute (S014–) - Possible breaches of Regulations 51 and 53.

3.4 These are discussed further below in Appendix A –Regulatory Operations.

All reports received by the CEO during the quarter under:

- **paragraph 20(f) – reports from the Council**
- **paragraph 26(1)(d) – reports from the Nuclear Safety Committee**

3.5 The CEO received no reports during the quarter.

A list of all facilities licensed under Part 5

3.6 No new facility licences were issued during the quarter. Facilities that continued to be licensed during the quarter were as follows:

Australian Nuclear Science and Technology Organisation	
F0118	Replacement Research Reactor/OPAL Reactor (Construction)
F0044-4A	HIFAR Research Reactor
F0044-4B	Waste Operations and Technology Development
F0044-4C	Fuel Storage & Handling

F0044-5A, 5B, 5C	Australian Radiopharmaceuticals and Industrials
F0044-5Cc	Gamma Irradiator Suite
F0044-6A	Moata Research Reactor (Decommissioning)
F0044-6Ba	ANTARES Accelerator
FO044-6Bb	Van de Graff Accelerator
F0044-6C	GATRI Irradiator
F0044-6D	Secondary Standards Dosimetry Laboratory
F0044-7A	Ore Processing Facility
F0044-7B	Radiotracer Storage Facility
F0044-8A	Actinide Suite
F0044-8B	Materials Fabrication Bay
F0134	STAR Accelerator
Australian Radiation Protection and Nuclear Safety Agency (ARPANSA)	
F0046	Linear Accelerator and Teletherapy Laboratory
Australian National University	
F0074-1	14 MeV Particle Accelerator
F0074-2	2.5 MeV Particle Accelerator
F0074-3	1.7 MeV Particle Accelerator
Commonwealth Scientific and Industrial Research Organisation (CSIRO)	
F0060	Heavy Ion Accelerator Facility
F0137	Neutron Generator Facility
Department of Defence	
F0084	Woomera Storage Facility
F0113	Bandiana Storage Facility
F0116	RADIAC Calibration Facility
F0117	Salisbury Storage Facility

Australian Customs Service	
F0155	Fremantle Container Examination Facility
F0125	Matraville Container Examination Facility
F0131	Melbourne Container Examination Facility
F0136	Fisherman Island Container Examination Facility
Single Licence Holders	
F0043	Department of Education Science and Training - Maralinga
F0093	Parks Australia North – Rehabilitation in the South Alligator River Area

Appendix A - Regulatory Operations

A.1 Licence Applications Received

<i>Type of application</i>	<i>From</i>
Prescribed Radiation Facility at Brisbane Airport (F0159)	Australian Customs Service. Receipt of the required application fee on 25 January rendered this a valid application

A.2 Licence Issuance and Amendments

<i>Type of licence and authorisation</i>	<i>To</i>
Source – amendment to licence (S0066)	CSIRO Manufacturing and Infrastructure Technology

Nuclear Installations

ANSTO - Radiopharmaceuticals and Industrials (ARI) (F0044-5A, 5B, 5C)

Licence conditions compliance

A.3 The ARI quarterly report contains an appendix to show the updated status of special licence conditions set out in Licence F0044-5A, 5B, 5C. This appendix is currently under ARPANSA review to assess the extent of compliance in order to progress the number of special licence conditions that have been satisfied and thus can be removed from the licence by the CEO.

Relevant changes

A.4 In the previous quarter it was mentioned that the bulk excavation work for redevelopment of Building 23 was completed. However, this redevelopment work is currently under ANSTO review and the project has been placed on hold for the time being.

Other changes

A.5 The Acting Director (General Manager) of ARI is the nominee for Radiopharmaceuticals Operations and the leader of Research and Development is the nominee for ARI Research and Development Facilities.

A.6 Due to internal rearrangements at ANSTO the effective control of GATRI Facility (F0044-6C) has been transferred from ARI to Safety and Radiation Science. Such changes are unlikely to have significant implications for safety and reporting of these changes satisfies Regulation 52.

Incident

A.7 No incidents were reported to ARPANSA since the previous quarterly report.

Safety Management Plan

A.8 A special licence condition requires the licence holder to consider a number of items in the Safety Analysis Report (SAR) as specified in the special licence condition 4.5. ANSTO provided ARPANSA with the SAR for Buildings 19 and 76, and this is currently under ARPANSA review.

Training

A.9 No further information on staff training has been provided since the previous quarterly report.

Airborne Discharge

A.10 Airborne discharges from stacks of ARI facilities remained below the quarterly notification level (See also section on ANSTO Site Airborne Radioactive Discharges).

ANSTO - Waste Operations and Technology Development (F0044-4B)

Abnormal occurrences

A.11 No abnormal occurrences occurred during this quarter.

Modifications

A.12 No modifications with significant safety implications were reported during the quarter.

Airborne Discharge

A.13 Airborne discharges from stacks of Waste Operations facilities remained below the quarterly notification level.

Liquid Discharge

A.14 The quarterly report showed that effluent discharges from ANSTO Liquid Waste Treatment Plant were well within the Trade Waste Discharge Limit.

Inventories

A.15 The updated inventories of radioactive wastes stored on the Lucas Heights Science and Technology Centre (LHSTC) site, and all changes in inventories occurring in this quarter were not received in the quarter.

ANSTO - Fuel Operations (F0044-4C)

Incidents/non-conformances

A.16 No incident or non-conformance was reported to ARPANSA since the previous quarterly report.

Airborne discharges

A.17 Airborne discharges from Fuel Operations stacks were below the authorised notification limits (See also section on ANSTO Site Airborne Radioactive Discharges).

Personnel doses

A.18 Personnel doses for this quarter were not received in the quarter.

Fuel storage pond facility maintenance

A.19 The plant and equipment of Building 41 and Building 23 ponds were observed to be in good condition during an inspection. No turbidity in the pond water was observed. The radioactivity level in the pond water was below ANSTO internal notification level.

Ground water borehole monitoring results

A.20 Groundwater samples are regularly analysed for alpha, beta and gamma radioactivity levels. Results were not received in the quarter.

Inspection

A.21 ARPANSA inspectors conducted two inspections, at the Building 23 and Building 41 fuel storage and handling ponds. No non-compliances were observed during the inspections.

ANSTO - HIFAR Reactor Operations (F0044-4A)

Licence Conditions Compliance

A.22 The report from the licence holder for the December 2004 quarter was received on 17 January 2005. This was mentioned in the previous Quarterly Report of the CEO of ARPANSA. The report from the licence holder for this quarter had not been received at the time of writing the current Quarterly Report of the CEO of ARPANSA.

ANSTO Airborne Radioactive Discharges

A.23 ARPANSA received a report from ANSTO on 22 February about all airborne discharges from the LHSTC between 21 September and 21 December 2004. The report showed that the discharges remained below the quarterly notification levels under the licence authorisation. As previously reported, whilst Xe-133 discharge levels are less than the notification levels, they continue to remain higher than were observed in the past.

A.24 The maximum hypothetical offsite dose at 1.6km from all airborne discharges during the quarter was 0.95 microsievert compared to the Airborne Discharge Authorisation dose objective of 20 microsievert per year. ARPANSA therefore concludes that ANSTO complied with the Airborne Discharge Authorisation for the quarter.

ANSTO Liquid Radioactive Discharges

A.25 ARPANSA received reports from ANSTO on 8 February, 1 March and 31 March about radioactive liquid emissions discharged from the LHSTC between 31 December 2004

and 28 February. The liquid effluent discharges reported comply with the Trade Waste Agreement between Sydney Water and ANSTO, with measured values typically being a few per cent of the relevant limit.

Prescribed Radiation Facilities

ANSTO Particle Accelerators (F0044-6Ba, 6Bb, F0134)

Incidents

A.26 No abnormal occurrences were reported to ARPANSA since the previous quarterly report.

Modifications

A.27 No modifications were reported to ARPANSA since the previous quarterly report.

Safety management

A.28 The Safety Analysis Report (SAR) for the STAR accelerator was in the process of being finalised for submission to ARPANSA.

Emergency Arrangements

A.29 No further information on emergency arrangements has been received since the previous quarterly report.

Training/Accreditation

A.30 No further information on staff training has been received since the previous quarterly report.

Commissioning Report

A.31 In the previous quarter it was mentioned that the commissioning report of the STAR accelerator will be submitted to ARPANSA by the second quarter of 2005.

ARPANSA (F0046)

Quality system

A.32 Both the linear accelerator and teletherapy facility under this licence are covered by a quality system consistent with ISO/IEC 17025. As reported previously, the target date for bringing the two facilities under the ARPANSA Quality System has been changed from December 2004 to June 2005.

Training, accreditation and authorisation

A.33 No further information on training, accreditation and authorisation has been received since the previous quarterly report.

Safety tests, inspections and reviews

A.34 The existing procedures and documentation is being updated with the quality system and the target date for completion has been changed from November 2004 to June 2005.

Emergency arrangements

A.35 Emergency arrangements are in place at ARPANSA and testing of interlocks is undertaken routinely. No further information on emergency arrangements has been received since the previous quarterly report.

Operating limits and conditions

A.36 Further clarification on operating limits and conditions is progressing.

Radiofrequency exposure levels

A.37 The next review of radiofrequency exposure was scheduled for February. A report on exposure levels is expected shortly.

Australian Customs Service – Pallet X-ray Facility, SA (Application No. F0156)

A.38 Assessment of the Facility Licence application by ARPANSA reviewers continued during the quarter. Additional information was received from the applicant relating to detailed operating arrangements for the controlled facility. This information was reviewed and the findings included in Regulatory Assessment Report RB-RAR-01-05. This is currently undergoing legal review.

Australian Customs Service – Particle Accelerator – QLD (Application No. F0159)

A.39 An application fee was received on 25 January. Assessment of the Facility Licence application by ARPANSA staff identified the need for further details on construction from the applicant. A response to this request was not received during the quarter but one is expected in April.

Defence – Woomera Waste Storage Facility (F0084)

A.40 Defence contracted an external consultant to undertake an internal inspection of the facility. ARPANSA is awaiting details of the inspection.

Defence - Bandiana RADIAC Calibration Facility (F0116)

A.41 Further information was requested from the Australian Defence Organisation following a review of information submitted to the CEO of ARPANSA in response to the inspection conducted in September 2004.

Defence - Bandiana Waste Storage Facility (F0113)

A.42 Further information was requested from the Australian Defence Organisation following a review of information submitted to the CEO of ARPANSA in response to findings of the inspection conducted in September 2004.

Defence – Salisbury Waste Storage Facility (F0117)

A.43 Defence contracted an external consultant to undertake an internal inspection of the facility. ARPANSA is awaiting details of the inspection.

Controlled Materials and Controlled Apparatus

Australian Quarantine and Inspection Service (S0120 (formerly S0071))

A.44 Last quarter it was noted that the licence holder had yet to determine whether any further licence applications were required. This related to several items of optical equipment that may be classified as controlled apparatus under the legislation. Additional information relating to these kinds of apparatus was provided to the licence holder. Their response is currently under review.

Geoscience Australia (S0014)

A.45 Last quarter it was noted that various outstanding items from the inspection on 2 July 2004 were due from the licence holder, notably safety procedures for a class 3B laser and the inventory isotope store. Laser work procedures have now been provided, leading to further questions of detail. The source store remains under review.

Department of Transport and Regional Services (S0020)

A.46 The Department was inspected in September 2004, and various non-compliances of minor safety significance were noted as previously reported. One outstanding issue remains, namely appropriate training of staff in the use of baggage X-ray machines.

National Gallery of Australia (S0024)

A.47 Following an inspection of the National Gallery a number of non-compliances with several licence conditions were identified. The licence holder's response to these findings indicates evidence of several possible breaches of the Act and Regulations. The CEO wrote outlining this evidence and requested a response before he makes a decision on possible enforcement action.

Australian National University - RSBS (S0027-6)

A.48 Review of request for approval of a relevant change likely to have significant implications for safety under Regulation 51 continued. It relates to the addition of sealed sources and laser products held by RSBS.

Australian National University - RSES (S0027-7)

A.49 The CEO of ARPANSA granted approval under Regulation 53(1) to dispose of controlled apparatus, namely a radiofrequency generator.

Note Printing Australia (Melbourne) (S0033)

A.50 Last quarter it was noted that the licence holder had responded to the majority of findings from the earlier two inspections. Further submissions have since been provided leaving two remaining outstanding items. These relate to the installation of interlocks and measurement of scattered radiation from two separate laser installations.

Federal Court of Australia (S0036)

A.51 Even after several reminders, the Federal Court has failed to supply a quarterly report to ARPANSA for the last two quarters.

Family Court of Australia (Adelaide) (S0040)

A.52 Following an inspection in September 2004, the licence holder has rectified a number of minor non-compliances with licence conditions. One significant item, the development of a safety training program, still remains outstanding.

Department of Prime Minister and Cabinet (S0012)

A.53 Following an inspection in September 2004, plans and procedures were to be reviewed and updated. These were scheduled to be completed by 31 March. No updates have yet been received.

National Museum of Australia (S0077)

A.54 A response to recommendations from a November 2004 inspection was received identifying actions to be taken and information to be provided by the end of February. This information has yet to be provided.

National Measurement Institute (S0142)

A.55 Last quarter it was noted that the licence holder had not provided quarterly reports for the previous six months. The most recent previous report predates the 1 July 2004 reorganisation of the Australian Government Analytical Laboratories, the National Measurement Laboratory and the National Standards Commission into the new National Measurement Institute. After repeated requests for updated information, a report for the period 12 June to 31 December 2004 was received on 21 February. This included information on possible minor breaches of licence conditions associated with operational changes and relocation of controlled sources.

Australian Defence Force (S0042)

A.56 An ARPANSA officer gave a presentation at the Defence Laser Safety Officer course held at the Australian Defence Force Academy in February. The officer later attended the course themselves.

A.57 An ARPANSA officer gave a presentation at the Defence Ionising Radiation Protection Officer course also held in February.

A.58 An ARPANSA officer met representatives of the Defence Safety Management Agency in Canberra in February to discuss details associated with Source Licence S0042.

A.59 An officer from ARPANSA gave a presentation at the Airforce Ground Safety Conference held at RAAF Glenbrook in March.

Department of Parliamentary Services (S0052)

A.60 The licence holder’s response to the report of an inspection in September 2004 included a request to exempt certain controlled apparatus. This is under review. Progress on several recommendations from the inspection continued.

Australian Federal Police (S0056)

A.61 Following high doses recorded on AFP (APS) dosimeters, an investigation was undertaken and a report submitted to ARPANSA. In addition, an ARPANSA officer met with the AFP Radiation Safety Officer to discuss the high TLD doses and bomb assessment officer training issues.

CSIRO – Sustainable Ecosystems (S0018)

A.62 Advance notice was received of the intention to relocate a number of controlled apparatus to CSIRO Entomology division.

CSIRO – Health Sciences and Nutrition (S0038)

A.63 Notice was received of transfer of a number of controlled apparatus from Parkville to CSIRO Molecular Science division at Clayton.

CSIRO - Manufacturing and Infrastructure Technology (S0066)

A.64 A revised Schedule 2 to Source Licence S0066 was issued authorising CSIRO to deal additionally with two kinds of mobile gauge held by this division. There were ongoing discussions with several representatives of the division regarding regulatory aspects of commissioning a new microwave system. Notification of a relevant change is anticipated.

A.65 Compliance Reporting by Licence Holders for January to March 2005

Licence ¹	Licence Holder	Date of receipt of quarterly report	Comment ²
Australian Nuclear Science and Technology Organisation			
F0118	Replacement Research Reactor (Construction)	7 February	Four requests for construction of items important to safety were approved.
F0044-4A	HIFAR Research Reactor	21 January	Incident involving partial draining of reactor tank.
F0044-4B	Waste Operations	19 January	No change.
F0044-4C	Fuel Storage & Handling	19 January	Two inspections were conducted at Building 23 and Building 41 ponds.

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F0044-5A, 5B, 5C	Australian Radiopharmaceuticals and Industrials (ARI)	31 January	Nominee was changed.
F0044-5Cc	Gamma Irradiator Suite	15 February	Effective control was transferred from ARI to ANSTO Safety and Radiation Science.
F0044-6A	Moata Research Reactor (Decommissioning)	19 January	No change.
F0044-6Ba	ANTARES Accelerator	28 January	No change.
F0044-6Bb	Van de Graff Accelerator	28 January	No change.
F0044-6C	GATRI Irradiator	31 January	Nominee was changed.
F0044-6D	Secondary Standards Dosimetry Laboratory	18 February	No change.
F0044-7A	Ore Processing Facility	28 January	Current inventory provided. Updates to several procedures reported. One safety category 2 and one safety category 3 modification are planned.
F0044-7B	Radiotracer Storage Facility	28 January	Current inventory provided.
F0044-8A	Actinide Suite	31 January	Current inventory provided. Review of work instructions conducted. Radiation Worker Training manual provided.
F0044-8B	Materials Fabrication Bay	4 February	Upgraded ventilation system completed.
F0134	STAR Accelerator	28 January	No change.
S0045	Environment	28 January	Minor changes to source inventory. Request for approval of a relevant change under Regulation 51, concerning use of sealed sources beyond their recommended working life.
	Materials	2 February	Minor changes to source inventory.
	Engineering	28 January	No change. Request for approval of a relevant change under Regulation 51, specifically the transfer of controlled material from another division.
	Safety & Radiation Science	24 January	Minor changes to source inventory.
	Bragg Institute	28 January	No change.
Australian Radiation Protection and Nuclear Safety Agency (ARPANSA)			
F0046	Linear Accelerator and Teletherapy Laboratory	3 February	No change.
S0002	Environmental & Radiation Health Branch	21 January	No change.
S0003	Medical Radiation Branch	21 January	No change.
S0051	Non-ionizing Radiation Branch	31 January	No change. All actions arising from June 2004 inspection have been completed.
S0086	Environmental and Radiation Health Branch	21 January	No change.

Australian National University			
F0074	14 MeV, 2.5 MeV & and 1.7 MeV Particle Accelerators	27 January	No change.
S0027	Faculty of Engineering and Information Technology	28 January	No change.
	Human Resources	3 February	No change.
	John Curtin School of Medical Research	3 February	No change.
	Research School of Astronomy and Astrophysics	3 February	No change.
	Research School of Biological Sciences	3 February	No change.
	Research School of Earth Sciences	3 February	Minor changes to source inventory. Two Class 3b lasers were added.
	Research School of Pacific and Asian Studies	3 February	No change.
	Research School of Physical Sciences and Engineering	27 January	No change.
	Faculty of Science	3 February	Minor changes to source inventory. One Class 3b laser was added.
	Research School of Chemistry	21 January	No change.
School of Art	3 February	Minor changes to source inventory. The old screen cabinet was replaced by a newer one.	
Commonwealth Scientific and Industrial Research Organisation (CSIRO)			
F0060	Heavy Ion Accelerator Facility	Not received	Facility is shut down.
F0137	Neutron Generator Facility	30 December	Notification under Regulation 52 of a relevant change with no significant implications for safety. This relates to neutron induced gamma ray measurements and has been approved by the Safety Assessment Committee (SAC1243).
S0009	Land and Water	31 January	Minor changes to source inventory. Annual review of plans and arrangements reported: Non-ionising apparatus – 29 October 2004.
S0010	Textile & Fibre Technology	25 January	No change.
S0013	Corporate Property	11 January	No change.
S0016	Molecular Science	21 December	No change.
S0017	Entomology	7 January	No change.
S0018	Sustainable Ecosystems	19 January	No change.

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S0019	Marine Research	25 January	No change to inventory. Annual review of plans and arrangements reported: Non-ionising apparatus – 20 September 2004; Ionising radiation – 17 August 2004
S0021	Plant Industry	28 January	Minor changes to source inventory.
S0022	Livestock Industries	13 January	Detailed review of source inventory.
S0023	Food Science Australia	7 February	No change.
S0025	Energy Technology	27 January	No change.
S0030	Petroleum Resources	14 January	Minor changes to source inventory, including the addition of one laser.
S0038	Health Sciences	28 January	Minor changes to source inventory. Annual review of plans and arrangements reported: X-ray apparatus – 10 April 2004; Ionising radiation – 7 June 2004; Non-ionising apparatus – 13 September 2004.
S0054	Forestry and Forest Products	9 February	Stocktake of source inventory; minor amendments.
S0059	Atmospheric Research	4 January	No change.
S0061	Exploration & Mining	3 February	Minor changes to source inventory. New nominee.
S0064	Minerals	30 December	Minor changes to source inventory, including the addition of X-ray (one) and non-ionising (three) controlled apparatus.
S0066	Manufacturing and Infrastructure Technology	4 February	Minor changes to source inventory including disposal of X-ray apparatus and acquisition of a sealed source in a fixed gauge.
S0105	Industrial Physics	18 January	Notification of a change of name for the division. No other change.
S0130	Australia Telescope National Facility	30 December	No change.
Department of Defence			
F0084	Woomera Storage Facility	2 February	Defence had contracted a consultant to perform an internal audit of the facility.
F0113	Bandiana Storage Facility	2 February	A number of sources were transferred to the facility from various Defence sites. Defence responded to actions arising from the ARPANSA Inspection Report.
F0116	RADIAC Calibration Facility	2 February	Defence responded to actions arising from the ARPANSA Inspection Report.
F0117	Salisbury Storage Facility	2 February	Defence has contracted a consultant to perform an internal audit of the facility.

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S0042	Australian Defence Organisation	2 February	<p>Defence completed an internal investigation of the possible exposure of two personnel at RAAF Pearce from an industrial radiography X-ray unit.</p> <p>Transfer of sources from DTSO Salisbury to DSTO Fisherman's Bend was completed.</p> <p>The transfer of a number of Rolls Royce Viper Machi engines occurred during the quarter.</p> <p>Defence progressed actions arising from previous ARPANSA Inspection Reports.</p>
Australian Customs Service			
F0155	Fremantle Container Examination Facility	7 February	No change.
F0125	Matraville Container Examination Facility	7 February	No change.
F0131	Melbourne Container Examination Facility	7 February	No change.
F0136	Fisherman Island Container Examination Facility	7 February	No change.
S0092	Source Licence	25 January	Two additional 450 kVp pallet X-ray apparatus.
Single Licence Holders			
F0043	Department of Education Science and Training - Maralinga	27 January	No change.
F0093	Parks Australia North	31 January	Progress on developing containment options.
S0005	Bureau of Meteorology - Cape Grim	4 January	Transfer of one sealed source.
S0007	Australian Institute of Marine Science	7 February	Minor additions to source inventory.
S0008	Australian Antarctic Polar Medicine	2 February	One controlled apparatus added to inventory and request received to dispose of one controlled apparatus.
S0012	Dept of Prime Minister & Cabinet	28 January	Licensee is currently reviewing plans and procedures to be available by 31 March.
S0014	Dept of Industry, Tourism & Resources (Geoscience Australia)	Not received	
S0015	Supervising Scientist	19 January	UV source added.
S0020	Dept of Transport & Regional Services	11 February	See item under Regulatory Operations.

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S0024	National Gallery of Australia	9 February	Four non-ionizing radiation apparatus were identified as not authorised under Source Licence S0024. Results of radiation survey of (X-ray) controlled apparatus was provided. Training options were being investigated.
S0031	National Capital Authority	28 January	Progress has been made on outstanding items from the inspection of August 2004. See item under Regulatory Operations.
S0033	Note Printing Australia	5 January	Response to inspection report.
S0034	Australian Crime Commission	31 January	A copy of the missing source licence has been sent to ACC. Awaiting annual review of plans and procedures, radiation safety training records and copies of work procedures.
S0036	Federal Court of Australia	Not received	See item under Regulatory Operations.
S0040	Family Court of Australia	24 January	Plans reviewed and updated December 2004. Operator safety training programme being developed.
S0047	Geoscience National Mapping Division	Not received	
S0052	Dept of Parliamentary Services	14 February	Actions arising from inspection – in progress.
S0055	Dept of Environment & Heritage Australian Antarctic Division	14 January	No change. The radiation safety manual and some local operating guidelines were reviewed in compliance with Regulation 50.
S0056	Australian Federal Police	23 December	Minor changes to source inventory.
S0077	National Museum of Australia	21 January	A summary of progress on actions arising from inspection was received.
S0079	Dept of Foreign Affairs & Trade	28 January	Changes to inventory. Actions arising from inspection: annual review of plans, radiation safety training being arranged for operators.
S0080	Australian War Memorial	24 December	Inventory update.
S0090	Silex Systems Ltd	29 December	No change.
S0120	Dept of Agriculture Fisheries & Forestry	19 January	Inventory update. Actions arising from an inspection, to be reported by 24 January.
S0127	Telstra	10 January	No change.
S0129	Australian Securities & Investments Commission	8 February	No change.
S0135	Dept of Immigration, Multicultural & Indigenous Affairs	18 January	No change.

S0142	National Measurement Institute (formerly Australian Government Analytical Laboratories)	21 February (Report for June to December 2004)	Possible breaches were identified relating to organisational changes and provision of routine reports. Multiple changes to source inventory. June 2004 review of plans and arrangements. Further review was undertaken in light of organisational change. Matters resulting from December 2003 inspection had been addressed.
S0150	Australian Postal Corporation	3 February	The nominated Radiation Safety Officer has changed.
S0151	Attorney-General's Department	7 February	No change.

Note 1 'F' indicates Facility Licence and 'S' indicates a Source Licence

Note 2 'No change' in relation to a Source Licence or Facility Licence means that during the quarter:

- no breach of licence conditions was reported under regulation 45
- no accident was reported under regulation 46
- no relevant change was reported under regulation 52
- no transfer or disposal of controlled material or controlled apparatus was reported under regulation 53
- no change to the inventory of controlled material or controlled apparatus was reported

Appendix B - Service Operations

B.1 The Radiofrequency Calibration Laboratory

Calibration requests	Jobs completed as NATA accredited reports	Job composition
120	117	62 monitors (with 61 probes) 54 personal dosimeters and 3 RF badges.

B.2 Ultraviolet Protection Factor Testing, Licensing and Labelling

Job requests	Fabric samples tested	UPF trademark licenses completed	UPF swing tags issued	Pairs of sunglasses tested
95	352	22	733,000	Nil

B.3 Radioanalytical Service

Water samples received	Food samples received	Soil/Sediment samples received	Filter samples received	Wipe test samples received
238	56	26	66	18

B.4 Dosimetry Calibration Service

Reference standard ionization chambers calibrated	Reference standard ionization chamber calibrations in progress	Gamma survey meters calibrated	Neutron survey meters calibrated	Beeper Sv personal dosimeters calibrated
4	1	0	0	8

B.5 Import Permits issued under Customs (Prohibited Import) Regulations 1956 – Medical Radioisotopes

Total permits issued	Single-shipment permits issued	12-monthly permits issued	Permits issued urgently
90	84	4	2

B.6 Import Permits issued under Customs (Prohibited Import) Regulations 1956 – Non-Medical Radioisotopes

Total permits issued	Single-shipment permits issued	12-monthly permits issued	Permits issued urgently
76	45	3	28