



Australian Government

**Australian Radiation Protection
and Nuclear Safety Agency**

**QUARTERLY REPORT
OF THE
CHIEF EXECUTIVE OFFICER
OF ARPANSA
FOR THE PERIOD 1 JANUARY 2007 TO 31 MARCH 2007**



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and Nuclear Safety Agency**

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Further Information About This Publication

If you would like to know more about the content of this publication please contact ARPANSA's Manager Policy and Security of Sources on 1800 022 333 or e-mail at info@arpansa.gov.au. Further information about ARPANSA can be found on the Agency's website at www.arpansa.gov.au.

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Letter of Transmittal

20 December 2007

Senator the Hon Jan McLucas
Parliamentary Secretary to the Minister
for Health and Ageing
Parliament House
Canberra ACT 2600

Dear Parliamentary Secretary

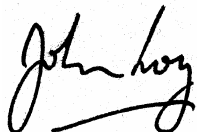
The *Australian Radiation Protection and Nuclear Safety Act 1998* (the Act) requires the Chief Executive Officer of the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) to submit to the Minister, at the end of each quarter, a report on:

- the operations during the quarter of the CEO, ARPANSA, the Radiation Health and Safety Advisory Council (the Council), the Nuclear Safety Committee (the NSC) and the Radiation Health Committee (the RHC);
- 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 Council and the NSC under paragraph 20(f) or 26(1)(d) of the Act; and
- a list of facilities licensed under Part 5 of the Act.

I am pleased to provide you with a report, meeting the requirements of the Act, covering the period 1 January 2007 to 31 March 2007.

As you would be aware, Section 60(6) of the Act requires you to 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

Report on the operations of the CEO and ARPANSA

The report on the operations of the CEO and ARPANSA is based on the agency's three output groups:

- knowledge, information and services;
- national leadership in radiation protection and nuclear safety; and
- regulation.

Knowledge, information and services

Non-ionizing radiation

ULTRAVIOLET RADIATION (UVR)

Analysis of the large amount of data collected in the collaborative international project examining the UVR exposures of parents, children and lifeguards while at swimming pools in the US in the summer of 2006 is continuing. The project, with the University of Hawaii and Emory University in the US, is looking at validation of diary entries made by the subjects against independent measures such as UVR dose measured using UVR sensitive polysulphone film dosimeters and sunscreen swabs of the subjects skin to measure the presence of sunscreen. Details of various aspects of behaviour, such as sun protection practices and awareness were also collected and their inter-relation with UVR exposure and sunscreen use are being correlated

A draft of the study on measurements of the effectiveness of various species of trees in Australia in providing protection against solar UVR, done in collaboration with the Waite Institute of the University of Adelaide and the Cancer Council South Australia, has been internally refereed at ARPANSA. The final manuscript has now been submitted to an overseas scientific journal.

A large number of enquiries regarding UVR emissions from compact fluorescent lights have been received from the general public as awareness grows of the phase out of incandescent globes. UVR Section Staff provided input to draft shade guidelines for the WA Cancer Council. Numerous other information requests concerning UVR were received from State and Territory Cancer Councils as well as other Australian and overseas universities, industries and the general public. Appropriate information was provided in all cases. ARPANSA staff continued to provide UVR related advice to research projects at Monash University and RMIT.

ARPANSA UV data is now provided in real time on the internet for Melbourne, Sydney, Darwin and Adelaide, with the other capitals Brisbane and Perth as well as the major regional centres of Townsville and Newcastle to be added before next summer.

ELECTROMAGNETIC RADIATION (EMR)

EMR section staff provided information to state and Australian government agencies and to the public and media regarding EMR and health. The majority of enquires were in regard to possible health effects of magnetic fields from electricity distribution, particularly high-voltage transmission lines. However, other calls concern mobile phones and mobile phone base stations as well as other wireless devices and household appliances. There has been an increase in enquiries regarding occupational exposure to radio transmitters.

The measurements of 50 Hz magnetic fields in Melbourne homes have continued as part of a survey of approximately 300 homes. Measurements in 88% of the expected number of homes have been completed.

NIR Branch staff have continued their involvement in the drafting of an ARPANSA Standard for human exposure to extremely low frequency electric and magnetic fields. Following the close of the period for public comments on the draft document, review of the submissions has commenced.

A staff member participated in a meeting of the Standards Australia meeting TE7 committee and the TE7/2 working group to develop a revised standard for the measurement of radiofrequency electromagnetic fields. (Melbourne, 13-14th March)

ARPANSA scientific officers carried out trial measurements of RF EMR levels in the vicinity of mobile phone base stations order to develop appropriate measurement protocols for a planned survey of a small, selected, number of base stations throughout Australia.

As part of a mandated consultation process for the deployment of mobile phone infrastructure, ARPANSA specifies a methodology and reporting format for an environmental electromagnetic energy (EME) report. Such a report must be provided for each new installation and significant upgrade and informs the public about maximum predicted levels of EME. Requirements for the report have been extended to provide additional information about the effects of landscape and multistorey buildings. Comprehensive information about the revised EME report format have been provided on the ARPANSA internet site.

ARPANSA was engaged by the Independent Review and Scientific Investigation Panel of Breast Cancer to perform an assessment of the exposure to power frequency (50 Hz) magnetic fields in the ABC TV building at Toowong, Brisbane, Queensland. The assessment was part of an investigation into causes of an apparent increase in the incidence of breast cancer cases among the ABC staff over the past decade. The preliminary investigation involved spot measurements and some personal dosimetry. Although many of the workstations in the TV building had several pieces of audiovisual equipment, the measured power frequency magnetic fields were generally lower than that encountered in a normal office environment.

Medical radiation

PERSONAL RADIATION MONITORING SERVICE (PRMS)

The ARPANSA PRMS has continued to offer a comprehensive radiation monitoring service for persons who may be exposed to ionizing radiation as a consequence of their occupation. A service is also provided for the measurement of radon and natural background radiation levels.

The PRMS Application Development Project is continuing and should be implemented by May 2007. Formal Acceptance Testing began at the end of July 2006. However, problems identified during the testing have caused severe delays. The production Cut-Over date to the new system is now expected to be at the end of May 2007.

A redesigned prototype of the new monitor holder to be used in the PRMS has been developed. Testing started in February 2007. The project is expected to be completed within the next 6 months.

IONIZING RADIATION STANDARDS (IRS) – CALIBRATION SERVICES

The work on the ARPANSA and IAEA graphite calorimeters is being completed and written up by Dr Ganesan Ramanathan for the workshop on “Absorbed Dose and Air Kerma Primary Standards” which will be held in Paris, on 9-11 May, 2007. However, there is considerably more information on the operation and performance than necessary for the Workshop and this is being made the basis of a technical report. This information includes modification of the ARPANSA calorimeter control for remote computer driven operation and associated Labview codes developed by the IRS Section. This will assist the automation of the calorimeter operation at a later date.

Dr Ramanathan will be ending his period at ARPANSA in late April before moving to a similar position at NIST in the United States.

The first batch of invitations to participate in the next round of the national therapy dosimetry audit program has been mailed out. The invitations have been sent to radiotherapy centres that have previously indicated their intention to participate and include a centre in New Zealand.

An IRS staff member travelled to Brisbane in late February to calibrate Cs-137 reference sources for the Queensland University of Technology, followed by a visit to the Queensland Health Scientific Services to inspect the protection level calibration facility on loan from ARPANSA and to re-calibrate the Cs-137 reference beams.

The uncertainty calculations required by NATA for accreditation of the extended scope of IRS calibration services have been completed. Validation of software is continuing.

Some progress has been made towards refurbishing the therapy level Cobalt-60 source. The feasibility has been established of having a source from an overseas supplier sent to ANSTO, who have agreed that they could transfer the source to ARPANSA in a modified source drawer. Details regarding the modification of the source drawer and the certification of a Type 1300 transfer container need to be resolved.

MEDICAL PHYSICS

A survey of radiation doses from Computed Tomography (CT) is in progress. Survey methodologies and the database are being developed, including equipment type and location.

RADIOPHARMACEUTICAL

The results obtained in joint proficiency testing of the radiopharmaceutical Technetium [^{99m}Tc] Pyrophosphate Injection have been communicated to the Danish Medicines Agency.

Environmental Radiation

A new high-resolution gamma spectrometer has been commissioned and calibrated, resulting in an increased throughput of samples and new alpha spectrometers have been delivered and are in the process of being commissioned.

The proficiency testing program has been organised for the year and the first batch of samples will arrive in April (gross alpha/beta, radium and uranium in water). Application has also been made to participate in an IAEA proficiency testing program for polonium-210 in water. Samples arrived at the end of March. The analysis was completed in one week as a fast turn-around time was required.

In February formal notification was received that the NATA reassessment of the radiochemistry laboratory had been successful and that the scope of accreditation has been extended to include the testing of radium-226, radium-228 and tritium in water.

HEALTH PHYSICS

During the quarter the Health Physics Section conducted trials of a Pocket PC-based field data acquisition system in collaboration with the Perth-based company ioGlobal. This system combines mobile phone and GPS technologies to transfer data collected in the field to a database on a secure WEB server maintained by ioGlobal for ARPANSA. Work continued on the analysis of airborne radiometric survey data downloaded from the Geoscience Australia WEB site in order to assess the levels of natural background across Victoria and to identify locations with elevated levels requiring further investigation. A summary paper and recommendations on remediation following a radiological attack were prepared for the Radiation Health Committee.

A paper was presented to the SPERA Conference in Melbourne on the results of the lung monitoring measurements on Ranger Uranium mine workers at Jabiru, as part of ARC Linkage Project on occupational dose assessment.

RADIO-ANALYTICAL SERVICES

As part of its quality system Radio-analytical Services takes part in proficiency testing programs. This quarter the following tests were completed:

- RAD-67 Gamma emitters (Ba-133, Cs-134, Cs-137, Co-60, Zn-65 in water). All results were acceptable.
- MRAD-005 Pu-238, Pu-239, U-234, U-238. All results were acceptable.

- Sr-90. The result was not acceptable.

The analytical method used for Sr-90 did not account for Sr-89 which may have been present in the sample. This problem will be investigated further.

An assessment by NATA was carried out December 20 on new analytical tests for radium and tritium. The assessment identified some minor outstanding issues which need to be addressed before these tests can be approved.

Statistics on the outputs of ARPANSA's Radioanalytical Services are in Appendix B.

National leadership in radiation protection and nuclear safety

Comprehensive Test Ban Treaty – air sampling monitoring systems

As part of Australia's commitment to the Comprehensive Nuclear-Test-Ban Treaty, ARPANSA continued to operate and maintain radionuclide air monitoring stations at Melbourne, Perth, Townsville, Darwin, and the Cocos Islands, Australia.

ARPANSA had responded to a Request for Proposal from CTBTO for the installation of a radionuclide air monitoring stations on Macquarie Island. Several key issues are still to be resolved, and negotiations between ARPANSA and CTBTO are continuing.

ARPANSA has submitted to CTBTO a Budget for the testing and evaluation of Phase III for the Noble Gas system installed in Darwin; a contract for this activity is expected in the near future. In the interim, ARPANSA has provided limited technical support.

The Radionuclide Laboratory was formally certified by the CTBTO in December 2006. An Agreement between CTBTO and ARPANSA for the approved certification costs has been concluded. A contract for the provision of ongoing RN Laboratory services has been negotiated.

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

The second edition of the National Directory for Radiation Protection is being finalised and the regulatory impact statement was being prepared during the quarter. It is now expected that the public comment period will commence during the next quarter.

Radioactive Source Security

ARPANSA published the Code of Practice for the Security of Radioactive Sources. The Code of Practice received the agreement of the Radiation Health Committee, which includes representatives from state and territory radiation regulators, and was recommended to the CEO of ARPANSA for publication by the Radiation Health and Safety Advisory Council.

Radiation Emergency Planning

Australia is a signatory to the *Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency* and the *Convention on Notification in the Case of a Nuclear Accident or Radiological Emergency*. ARPANSA administers the obligations of these two Conventions and is the designated National Competent Authority for Radiation Emergencies within Australia. During February, ARPANSA attended a meeting in Vienna of the National Competent Authority Assistance Working Group to finalise the reports for the IAEA *International Action Plan on Strengthening the international preparedness and response system for nuclear and radiological emergencies*.

The Australian Government has provided funding to ARPANSA for a program to *Strengthening Regional Radiological Emergency Response*. The objective of the program is to strengthen plans and technical capabilities of countries within the Asian region; and establish a regional network of technical expert assistance, in order to respond to a radiological or nuclear incident. As part of this program, and in its role as the regional representative for the National Competent Authority Coordination Group, a liaison visit to Malaysia on Regional Emergency Operations Engagement was conducted in February.

ARPANSA provided a radiation expert for a meeting of the National Chemical, Biological and Radiological Working Group in March and continued to provide radiation experts for the Australian Crisis Advisory Panel of Experts, as well as an on-call duty officer to provide 24 hour access to ARPANSA resources and expertise.

International Activities

In lieu of attendance at a meeting of the New Zealand Interagency Committee on Non-Ionising Fields on 14th February 2007, a report summarising activities in the EMR section of ARPANSA was submitted.

An ARPANSA officer attended the NORM V: 5th International Symposium on Naturally Occurring Radioactive Material in Seville, Spain, 19-22 March 2007. The information obtained at the conference will assist in the preparation of an ARPANSA safety guide on the management of NORM, which has recently been commenced.

An ARPANSA officer attended the Polonium 210: The Public Health Response conference in London, England on 27 March 2007. The conference provided information on the response of the UK Government, and in particular the Health Protection Agency, to an incident involving the use of the radioactive material polonium-210 as a poison in London.

An ARPANSA officer chaired the uranium-mining meeting *Management and Disposal of Uranium Mining Waste - Best Practices*, at the IAEA in Vienna 12-16 March 2007. The background to this meeting is that with increasing demand for sources of uranium supply around the world, it is anticipated that new uranium mine sites will come into production and that it will be important that these new sites adopt the best waste management and safety practices that are currently implemented at operating sites. It is also critical that they comply with international safety standards, and that final remediation should be planned from the commencement of activities and finally implemented to achieve suitable standards. It will be equally important to continue addressing mining site legacies. The IAEA considers the timing right to

formulate this new project that will ensure that new uranium mining ventures are able to meet current waste safety standards with appropriate technology.

An ARPANSA officer participated in the 40th meeting of the OECD Nuclear Energy Agency Radioactive Waste Management Committee in France in March 2007.

Preparations for the IAEA International Conference on Research Reactors: Safe Management and Effective Utilisation that is to be hosted by ARPANSA in November 2007 continued during this quarter.

Regulation of the Commonwealth's uses of radioactive material, apparatus and facilities

ARPANSA Response to the ANAO Audit No 30: Regulation of Commonwealth Radiation and Nuclear Activities

REGULATORY BUSINESS MANAGEMENT PROCESSES

The structure of the Regulatory and Policy Branch was settled in January 2007 and the following key sections and functions identified:

- Radiation Safety
- Regulatory Systems
- Nuclear Safety (Reactors)
- Nuclear Safety (Non-reactors)
- Policy and Source Security Unit
- Nuclear Safety Adviser
- Integrated Regulatory Review Project

A new position Manager Regulatory Systems was created and a Manager recruited in January 2007 to assist ARPANSA drive the continuous improvement agenda for the regulatory function.

To capitalise on the new Regulatory and Policy Branch a planning day was held over two days in January 2007 to finalise the regulatory strategies and program for the financial year 2007-2008. This process identified the remaining key program initiatives that will build on the work undertaken in response to the ANAO Audit program and the Recommendations of the Joint Committee of Public Accounts and Audit in the areas of:

- key governance arrangements supporting the regulatory function
- recovery of regulatory costs
- licensing processes
- monitoring and compliance
- management of non-compliance and unlicensed activity.
- regulatory information management
- requirement for guidance to be prepared by ARPANSA on the licensing process
- strengthened reporting to the Parliament in relation to breaches and developments of codes and standards
- development of a graduated approach to enforcement; and

- regular engagement with state and territory regulatory bodies

The planning day in January 2007 addressed all of these areas and a draft Regulatory and Policy Business plan was prepared for internal consultation. The business plan also identified key regulatory performance indicators that will be used to report on regulatory performance in the next financial year.

IAEA INTEGRATED REGULATORY REVIEW SERVICE MISSION TO AUSTRALIA

The Regulatory and Policy Branch created a project position to manage the self audit required prior to the conduct of the IAEA Integrated Regulatory Review Service (IRRS) Mission in June/July 2007.

The IAEA IRRS mission is designed to assist ARPANSA strengthen and enhance the effectiveness of the implementation of its regulatory infrastructure in nuclear, radiation, radioactive waste and transport safety and security of radioactive sources. The review will examine regulatory technical and policy issues and compare ARPANSA practices against IAEA safety standards and good practices from other jurisdictions.

In February 2007 the leader of the IRRS mission, Mr Kaare Ulbak from the Danish regulator and Mr Khammar Mrabit, Head of Policy and Program Support, Radiation and Waste Safety from the IAEA visited Australia for a pre-mission preparatory meeting. This meeting clarified the scope of the IRRS mission, the review areas and possible composition of the international team, the role of expert counterparts for the review and the likely timing of the mission to Australia. The review areas discussed were:

- Legislative and governmental responsibilities;
- Responsibilities and functions of the regulatory body
- Organisation of the regulatory body
- Authorisation
- Review and assessment
- Inspection and enforcement
- Development of regulation and guides
- Management system of the regulatory body, specific areas such as transport, public exposure, waste management, decommissioning, emergency preparedness and security of sources.

The meeting also discussed the preparation of self assessment documents and a draft action plan that will be submitted by ARPANSA to the IAEA prior to the commencement of the mission.

LICENCE HOLDER EDUCATION

ARPANSA Regulatory officers gave a presentation to Defence Material Organisation and Defence Joint Logistics Group personnel in March 2007 on their requirements to comply with the ARPANS Act and Regulations, particularly with regard to acquisition, transportation and disposal of controlled material and controlled apparatus.

RADIATION SAFETY TRAINING

To assist licence holders' compliance with licence conditions relating to radiation safety training for persons who deal with controlled apparatus and controlled material, the CEO issued interim approval to radiation safety courses approved by the State and Territory regulators. This interim approval will apply until ARPANSA implements its own approval process. Work continued on the development of such a process during the quarter.

ARPANSA continues an active program of inspections to determine compliance with licences issued under the *ARPANS Act 1998*. The following radiation safety inspections were undertaken in the quarter:

- Bureau of Meteorology, Cape Grim Baseline
- Australian Government Antarctic Division, Polar Medicine Branch
- CSIRO Marine and Atmospheric Research
- Australian Crime Commission
- Australian Government Antarctic Division

Inspections of nuclear safety focused on:

- OPAL research reactor
- HIFAR (Hi-flux Australian Reactor)
- ANSTO Radiopharmaceutical Industries

Details of these compliance activities are found in Appendix 4.

QUALITY MANAGEMENT SYSTEM

Version 3 of the Regulatory Inspection Procedure was approved and issued in February. It contained only minor amendments.

Details of Regulatory Activities

Further details of regulatory activities including a list of all licensed facilities, installations and sources are at Annex A.

Report on the operations of the Radiation Health and Safety Advisory Council, the Radiation Health Committee and the Nuclear Safety Committee

Radiation Health and Safety Advisory Council

The Council did not meet during the quarter. Council's next meeting is scheduled for 27 April 2007.

Radiation Health Committee

The Committee met on 14 and 15 March 2007 at ARPANSA's Yallambie offices. A summary of the meeting is available at http://www.arpansa.gov.au/rhc_mt.htm.

At the meeting the following matters were considered:

- The Committee was informed that the draft regulatory impact statement (RIS) on National Directory for Radiation Protection, Edition 2 was still being prepared. The Committee noted that a review of the effectiveness and efficiency of NDRP 1 in achieving the goal of national uniformity in the radiation protection frameworks across jurisdictions within three years of its commencement had been agreed. The review could evaluate the extent to which NDRP Edition 1 had been implemented within each jurisdiction and the compliance of each jurisdiction with the requirements of the NDRP. The Committee decided to ask the Radiation Health and Safety Advisory Council to consider performing this assessment as part of its proposed review of national uniformity.
- The Committee discussed the establishment of a national dose register for uranium industry workers, in response to House of Representatives Standing Committee and Uranium Industry Framework reports, both of which recommended that a national radiation dose register be established. The Committee requested that a response be sent to the appropriate national body requesting their support for the establishment of a national dose register for uranium industry workers, subject to it being set up with appropriate methodology for dose assessment and recording.
- The Committee noted the progress of its sub-committee in combining the three draft medical Codes into a single Code of Practice and noted the sub-committee's conclusion that it was technically possible to draft a single Code of Practice, supported by three Safety Guides. The Committee agreed that a revised version of the current draft of the Code be prepared by ARPANSA as the regulatory requirements for radiation protection in medical applications of ionizing radiation, that an accompanying explanatory paper will be prepared by ARPANSA, and that the revised draft Code (regulatory requirements) and the explanatory paper be cleared by the Committee out of session and then circulated widely amongst the professions. The Committee requested that ARPANSA edit the three draft Safety Guides prepared by the working groups and then circulate them for professional review by members of the working groups. The Committee agreed that a program of presentation and discussion of the documents be arranged with representative

professional bodies in all States and Territories. The Committee requested that a paper containing its decisions be placed on ARPANSA's web site and circulated to stakeholders. The revised draft Code, edited Safety Guides, and draft RIS will be considered by the Committee at its next meeting in July 2007. The Committee was advised that a steering group had been set up to organise a National Conference on radiation protection in medicine to be held in October 2007. The conference will involve discussion of the draft Code, Safety Guides and RIS.

- Dr Nora Shields, Senior Lecturer, La Trobe University School of Physiotherapy, gave a presentation on the use of diathermy equipment and other non-ionizing radiation apparatus in physiotherapy. The Committee requested that information be provided on surgical diathermy at its next meeting. The Committee also requested that guidance be drafted in the form of an RHC Statement, which "translates" the exposure limits in ARPANSA RPS 3 into distances for use by physiotherapists as guidance to good practice when using SWD equipment. The Committee undertook to provide the RHC Statement to the APA for information when finalised.

Other matters considered by the Committee at the meeting were:

- Meeting reports on the activities of the RHSAC, NSC, and IAEA Safety Standards Committees.
- A briefing on need to review RHS 19 Code of Practice for Ionizing Radiation in Secondary Schools. The Committee agreed that guidance material should be developed and requested the preparation of a Document Development Plan (DDP) for the use of all radiation sources in schools, including lasers.
- Dr Peter Gies of ARPANSA presented a paper in response to a letter from the Tasmanian Radiation Advisory Council requesting that a national working group be set up to consider a national approach to solarium regulation and the possibility of including solarium regulation in the NDRP. The Committee resolved to discuss this topic in July once the discussion paper, currently in preparation, has been completed.
- The management of Australia's legacy radium wastes. The Committee requested that regulator members provide ARPANSA with information on legacy radium wastes within their jurisdictions to facilitate the development of a national management strategy.
- The draft Code of Practice and Safety Guide for the Pre-Disposal Management of Radioactive Waste were agreed to be released for public comment on completion of the accompanying regulatory impact statement.
- Summaries of radiation incidents reported to the Australian Radiation Incident Register (ARIR) for the 2006 calendar year were provided. The Committee requested that regulator members provide follow-up information on the 2006 incidents that they have submitted to ARIR.
- A pre-mission team from the IAEA Integrated Regulatory Review Service (IRRS) visited ARPANSA in February 2007. The IRRS mission, which will review ARPANSA's regulatory processes, will take place in the last week of June and first week of July 2007.

- Progress reports on other draft publications in preparation.

Nuclear Safety Committee

The NSC met on 22 February 2007 at ARPANSA's Miranda offices and had a tour of ANSTO facilities on 23 February 2007. A summary of the meeting is available at http://www.arpansa.gov.au/nsc_mt.htm.

At the meeting the Committee considered the following matters:

- Progress in hot commissioning. The operating licence for the OPAL Reactor was issued on 14 July 2006. Full power (20 MW) for the OPAL Reactor was achieved on 3 November 2006. ANSTO was expected to surrender its construction licence within the next few months
- ANSTO's proposal relating to the HIFAR closure project. The first Part of the HIFAR closure project was being carried out under the existing operating licence. Subsequent stages of the project would require an application for a new facility licence from ARPANSA to "possess or control" HIFAR.
- ARPANSA would be seeking public comment on the ANSTO application for a licence to possess or control HIFAR, although it was not planned to hold a major public forum as with previous licence applications. The Committee would be asked to provide advice to the CEO on particular aspects of the licence application.
- Members were also briefed on the Final Report of the Uranium Mining Processing and Nuclear Energy Review, the outcome of the Prosser report and a report by the Uranium Industry Framework steering group, the IAEA Integrated Regulatory Review Service (IRRS) mission to examine and report on the ARPANSA regulatory system, the decommissioning conference held in Athens in December 2006, progress on the proposed Commonwealth Radioactive Waste Management Facility, regulation of Australian Radioisotopes, with particular focus on the new molybdenum production process, and an update on the IAEA Research Reactor Conference scheduled to be held in Sydney in November 2007.
- Reports on ARPANSA, Council and RHC activities were also discussed.

Reports required by subsections 60 (2)-(5) of the Act

Details of directions given by the Minister under Section 16

No directions were given by the Minister under Section 16 of the Act during the quarter.

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

Breaches determined by the CEO

The CEO determined the following breaches of licence conditions during the quarter:

- ANSTO (S0045) – breach of section 31(1) of the ARPANS Act 1998 for undertaking a dealing with a controlled apparatus (baggage x-ray machine) not authorised by its existing source licence.
- The Department of Immigration and Multicultural Affairs (now Department of Immigration and Citizenship) (S0135) – breach of Regulation 53 in relation to the disposal of several controlled apparatus without obtaining approval prior to disposal.
- Department of Foreign Affairs and Trade (S0079) – breach of sub-section 31(1) of the Act for dealing with controlled apparatus (non-ionising) without a licence

In each case, the CEO considered whether or not to take enforcement action and he determined that enforcement action was not necessary, as the licence holder took corrective action to rectify the breach upon notification of the breach by ARPANSA.

Reports to the CEO from the RHSAC and NSC (paragraphs 20(f) and 26(1)(d) of the Act)

No reports were received by the CEO from the RHSAC or the NSC in the quarter.

A list of all facilities licensed under Part 5 of the ARPANS Act

A full list of facilities licensed under Part 5 of the ARPANS Act is given in Annex A, along with new licence applications received during the quarter. Also listed are licences issued, amended or surrendered during the quarter and a summary of licence holder compliance reports (received 1 January 2007 to 31 March 2007).

Annex A – Regulatory Operations

Nuclear Installations

ANSTO Airborne Radioactive Discharges

ARPANSA received a report from ANSTO in March 2007 about all airborne discharges from the Lucas Heights Science and Technology Centre for the quarter January – March 2007.

The maximum hypothetical off-site effective radiation dose at 1.6 km from all airborne discharges during the quarter was 0.86 μSv compared to the ALARA dose objective of 20 μSv per year. Hence the off-site doses are well within acceptable limits for the quarter.

ANSTO Liquid Radioactive Discharges

ARPANSA received reports from ANSTO on 2 January, 18 January, and 22 February 2007 about liquid radioactive discharges from the Lucas Heights Science and Technology Centre during the period 31 October 2006 – 31 January 2007. All liquid discharges were within limits.

The reported liquid effluent discharges comply with the Trade Waste Agreement between Sydney Water and ANSTO with measured values typically being a few per cent of the relevant limit based on World Health Organisation drinking water standards.

OPAL Research Reactor – Operating Licence (F0157)

The reactor remains in the hot commissioning phase under the facility licence authorising operation. Commissioning activities progressed on the OPAL Reactor during the quarter. At the beginning of the March quarter (January 2007) OPAL had operated for an equivalent of 26 full power days and was shut down to allow replacement of leaking control rod drive seals in early January. The anticipated life of the seals is documented as five years and although being undertaken early, this task is a normal maintenance procedure. Fuel was removed from the core before the activity and replaced after to permit further test runs of the first core. Following the tests refuelling operations were carried out and reactor operations resumed with a second core.

Matters Arising during Commissioning

A number of matters have been identified during the hot commissioning tests.

ANSTO's quarterly report for the period 1 January to 31 March 2007 indicates that there have been 13 trips of the reactor protection systems. Eight of these were associated with the first reactor protection system, four with the second reactor protection system and one with both systems. The first reactor protection system functions by the insertion of control rods. Regarding the performance of the First Shutdown System there are lifetime issues regarding the number of control rod drops. Consequently the CEO of ARPANSA has expressed the view to ANSTO that

unnecessary activation of this system should be avoided on the grounds of life and reliability. A summary of trip records is provided in the table below.

On 15 January a trip of the First Reactor Protection System occurred during which one control rod (CR) did not come to rest in its bottom position. It was determined that the CR was 97% inserted. This level of insertion represents nearly all of the negative reactivity provided by the CR and the system is designed to work successfully with the complete failure of one control rod drop into position. In addition failure of the First Reactor Protection System automatically trips the Second Reactor Protection System which shuts the reactor down independently of the first system (via draining of the reflector vessel). An adjustment was made to a compressed air bleed valve of the CR drive cylinder. Subsequent testing demonstrated that this adjustment was successful in preventing the re-occurrence of the problem.

ARPANSA officers continue to monitor the activation of the reactor protection systems throughout commissioning and observe that during this quarter there has been a reduction in the occurrence of reactor trips compared to the previous quarter.

The rate and performance of system actuation during normal operations will be of particular interest after the completion of commissioning.

Period	Trip of First Reactor Protection System (Control Rod Drops)	Trips of Second Reactor Protection System (Reflector Vessel Dump)	Total for Period
July to December 2006	78	21	99
January to March 2007	9	5	13*
Total	87	26	112*

* Disparity in totals accounted by trips of both first and second shutdown systems

As reported in the previous quarter, during the month of December 2006 it became apparent that radiation levels in the Reactor Auxiliary Building were higher than anticipated during the design of the facility. The building was consequently redesignated from a “white” to a “red” radiation area during reactor operation. ARPANSA officers have maintained an oversight of this matter and its implications to personnel cumulative dose and maintenance activities. During the March 2007 quarter, ANSTO have reported on remedial work on the Cold Neutron Source (CNS) after which initial indications show that the dose rates have been reduced. Assessment of radiation levels has not been fully determined as the reactor has been operating at low power since the remedial work on the CNS was undertaken.

During January, ANSTO became aware that an Interlock on the First Reactor Protection System was not fulfilling its design requirement. As a consequence it was found that a Trip 1 state could be cleared before the First Reactor Protection System was fully armed. Further protection to prevent the premature start-up of the reactor remained via a safety category two system and administrative control. However, this matter identified a reduction in engineered defence in depth and also an oversight of commissioning activities to identify the lack of function against the design intent. ARPANSA is currently in ongoing discussion with ANSTO to ensure that the safety implications of proposed corrective action is adequately demonstrated and that

ANSTO address any potential implications to other system interlocks arising from the initial failure to identify the matter during commissioning tests.

Also in January, ANSTO experienced further problems with the OPAL standby power system diesel generators. As reported during previous quarters, a small fire had resulted from a failure within the starting system of one of the three diesel generators in September 2006. In January 2007, a routine test undertaken on one of these three diesel generators found that it was unable to meet its required performance specifications in terms of voltage and frequency. ANSTO promptly notified ARPANSA of this failure and called in the diesel manufacturers who replaced the faulty electric fuel transfer pumps. These pumps have since been returned to the pump supplier for examination. Since then ARPANSA has learnt that the diesel generator initially failed to start during the manufacturer's visit. ARPANSA has requested ANSTO provision of the investigation report from the manufacturer as soon as it is made available. ARPANSA will continue to maintain a high level of oversight in regard to the reliability of this safety category one system.

As previously reported, in the December 2006 quarter ANSTO identified a reduction in purity of heavy water in the reflector vessel. This was caused by leakage of light water from the reactor pool into the reflector vessel. Loss of heavy water purity in itself is not a safety matter as in effect, an ongoing degradation of the heavy water purity would result in the reactor progressively shutting down. However the safety of any remedial action and investigations is of regulatory interest. In January, ARPANSA prohibited ANSTO to undertake a test intended to identify the cause of the leakage. This instruction was given as the test involved the lowering of water in the reactor pool, a procedure that is outside the scope of the safety case if there is fuel in the core. Subsequently, ANSTO submitted a formal request for approval for the execution of a leak investigation test. A modified version of testing procedure – including as a pre-requisite the removal all FAs from the core - was approved by ARPANSA on 31 January 2007.

The ANSTO test identified several leak sites within three different welded flanges of the reflector vessel. ANSTO briefed ARPANSA on the results of the test. INVAP, the reactor designers, are currently seeking to identify methods to deal with the leakage in the long term. In the short term ANSTO have minimised the leakage by reducing the pressure differential between the reflector vessel and reactor pool.

In February, ANSTO have also notified ARPANSA of increased radioactivity in the primary coolant since refuelling. The increase in activity is usually indicative of either the presence of a “tramp uranium” contamination on the external surface of the fuel assembly cladding or a failure of the fuel assembly cladding itself. However, the contamination levels remain within the authorised operating limits and ANSTO have increased monitoring. Meantime a programme to identify the origin of the activity is currently implemented and the fuel assembly manufacturer (i.e. CNEA) is involved in this programme. ARPANSA have no significant safety concerns regarding this matter at the current time but will continue to monitor the situation. At the end of the quarter ANSTO were preparing a safety submission under Reg 51 to vary the fuel management of the core in order to remove specific fuel assemblies that ANSTO suspect may be the cause of the activity.

Regulatory Inspections

Two formal inspections were undertaken during this quarter. These covered ANSTO's compliance with the OPAL Plans and Arrangements as required by Regulation 49.

The first inspection concentrated on OPAL Emergency Management. ARPANSA Inspectors noted some progress in the development of emergency arrangements and were informed that ANSTO would implement a programme of on-shift emergency drills and training from February 2007. Regulatory oversight will be maintained of this important aspect of operation.

The second inspection concerned the ANSTO Nuclear Analysis Section (NAS) which provides services to the whole of ANSTO. For OPAL, NAS performs various analysis including reactor physics calculations and thermal hydraulics in general support for modifications and changes. The inspection was useful in establishing the methodology used within the section, especially in regard to review, verification and validation of analyses. A number of matters of regulatory interest have been raised by the inspection and further inspections are planned in the future.

In addition to formal inspections, ARPANSA officers have undertaken a number of site visits to witness commissioning and other activities with safety importance.

ANSTO Quarterly Report

In accordance with the Special Licence Condition 4 of the OPAL Operating Licence ANSTO provided their quarterly report covering OPAL operation on 27 April 2007. The report covered the three months to 31 March 2007. Topics covered in the report include:

- Operating History
- Events
- Staffing
- Safety Performance
- Modifications and Operating Document Status
- Plant Surveillance and Maintenance
- Discharges

The OPAL Event Reporting system that was approved during the licensing process provides ARPANSA with an effective oversight of matters of regulatory and safety interest and has already proven useful. The OPAL reporting system covers a wide scope of events, many of which have no relevance to nuclear or radiological safety. Events of particular interest to ARPANSA have been discussed above.

The status of Safety Performance Indicators (SPI) is unchanged. ANSTO are required to develop these under Special Licence Condition 3.2 and have advised that this task is ongoing. ANSTO had originally aimed to propose SPI's to ARPANSA in February 2007 but have since revised this to commencement of normal operations.

Staffing levels for operational staff are highlighted in the table below. ARPANSA officers regard the current staffing levels to be adequate.

Period	Accredited Shift Managers	Accredited Reactor Operators	Authorised Plant Operators
End of December 2006	7 (0)	10 (3)	7 (4)
End of March 2007	8 (1)	9 (0)	7 (0)
Figures in Brackets indicate accreditations and authorisations in the corresponding quarter			

Plant Maintenance activities have been listed in the quarterly reports. It is apparent that commissioning continues to be a demanding period for the reactor maintenance personnel. A number of matters arising from an inspection of maintenance arrangements in November 2006 are the subject of ongoing communication between ARPANSA and ANSTO. Maintenance of the OPAL reactor will continue to be closely monitored by ARPANSA officers to demonstrate that an adequate level of safety management and configuration control is provided to this important activity.

ANSTO are continuing to develop their internal Processes and Instructions through the OPAL Business Management System which continues to grow as a consequence. ANSTO have made some progress with the development of maintenance instructions during the quarter, an area requiring significant enhancement. ARPANSA officers will maintain an oversight of these arrangements to ensure that due process, in regard to any urgent requirements, is maintained in the development, review and approval of maintenance instructions is undertaken.

Airborne discharges from the OPAL reactor during the quarter have been very low. Argon 41 and Tritium were the only emissions at measurable quantities. This is largely due to the reactor being shutdown for the majority of the period. Liquid discharges from the whole of the ANSTO site (including OPAL) were also well within ANSTO's discharge limits.

Regulation 51 Changes

There have been five new submissions under ARPANS Regulation 51. Regulation 51 requires the prior approval of relevant changes with significant implications for safety. A relevant change includes a modification to the facility. These submissions generally addressed modifications to be implemented to resolve technical matters encountered during hot commissioning activities. The current status of these approvals is shown below:

Period	Reg 51 Submissions	Reg 51 Approvals	Reg 51 Approvals Pending
July to September 2006	1	0	1
October to December 2006	5	3 (1)	3
January to March 2007	5	3 (1)	5
Figures in Brackets indicate approval of a submission from a previous period			

Each of the five approvals pending at the end of March 2007 is subject to ongoing review by ARPANSA.

OPAL Research Reactor – Construction Licence (F0118)

On 8 February 2007, ANSTO have submitted an audit report on the French fuel manufacturer in accordance with a special licence condition that was put to the original approval granted by ARPANSA for manufacture of fuel assemblies.

On 1 March 2007, ANSTO have formally requested the surrender of the OPAL Construction Licence. This request is now being assessed by ARPANSA officers who must satisfy the CEO of ARPANSA that the terms and conditions of the licence have been fully satisfied.

All OPAL activities within ANSTO are now being conducted in accordance with the OPAL Operating Licence.

HIFAR Research Reactor (FO0044-4A)

On 8 January 2007 ANSTO wrote to ARPANSA advising the CEO of ARPANSA that ANSTO intended to commence the HIFAR Closure Project which would commence with the final shutdown of the HIFAR on 30 January 2007. The letter indicated the steps that ANSTO then wished to take in order to prepare the HIFAR for eventual decommissioning.

The reactor was permanently shutdown by the Minister for Education Science and Training, the Honourable Julie Bishop, on 30 January 2007. Following shutdown, initial closure activities were undertaken under the authorisation of the facility licence to operate HIFAR. These activities are authorised as they are similar to activities undertaken for a major shutdown, including the removal of all fuel elements, the Coarse Control Arms (CCAs), the Safety Rods, rigs and the draining of the heavy water from the reactor. All processes were undertaken in conformity with existing operational limits and conditions and procedures.

On 2 February 2007 the CEO of ARPANSA wrote to ANSTO advising it of the requirements for licensing of HIFAR during this post shutdown phase and in particular the requirement for ANSTO to apply for a new authorisation to cover the post closure phase, in preparation for eventual decommissioning. The CEO of ARPANSA indicated that the next licence that would need to be applied for is a facility licence authorising ANSTO to possess or control HIFAR.

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

ARPANSA approved the upgrade of the ventilation system for Building 20 under regulation 51 subject to the submission of the final commissioning report on this upgrade to ARPANSA.

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

Relevant Changes

ARPANSA received the Cold Commissioning Report as part of the submission for hot commissioning of Building 54 Fission Product Processing Plant under regulation 51, which is currently under ARPANSA assessment. ARPANSA officers reviewed the submission and advised ANSTO of the outstanding matters for finalising ARPANSA assessment for approval of the Hot Commissioning of the proposed plant.

ARPANSA approved the installation and commissioning of the terminal station of the Inter-building Pneumatic Transfer System (IPTS) and its associated equipment in the Isotope Handling Bay of Building 23 under regulation 51.

ARPANSA also received a submission for the installation, commissioning and operation of High Activity Long Residence Time Target Unloading Facility in Isotope Handling Bay of Building 23. The assessment of this submission is in the process of finalisation.

Licence Amendment

The ARI Facility Licence, F0044-5A, 5B, 5C was amended to require ANSTO to maintain up to date records of the names and addresses of the purchasers of the radioisotopes and the amount of radioisotopes in an appropriate format. These records are subject to periodic inspection by ARPANSA.

Incidents/abnormal occurrences

All incidents or abnormal events occurred during this quarter were reported to the CEO of ARPANSA. The events were assessed and categorised by ARPANSA Officers on the International Nuclear Event Scale (INES). Five (5) incidents have been classified as being INES scale 0 (no safety significance). The classifications of two incidents on INES scale are in the process of finalisation.

Plant and equipment failure

Two (2) of the incidents were related to plant and equipment failure including malfunctioning of safety interlocks and gamma monitor alarm system at the National Medical Cyclotron and airborne release of I-123 within the controlled area from I-123 MIBG glove box in Building 23A due to malfunctioning of the glove box. Corrective actions were taken and the problems were rectified. There is no significant radiological consequence of these incidents.

Radiation exposure/contamination

In one incident, the extremity dose to an operator exceeded the statutory annual limit of 500 mSv. ANSTO has conducted an internal investigation of this incident and the investigation report would be provided to ARPANSA. ARPANSA also conducted an

inspection to follow up this incident and the inspection report is in the process of finalisation.

Two (2) incidents involving minor external contamination to operators' hands occurred, which were subsequently decontaminated. One incident was related to the whole body dose exceeding the ANSTO monthly investigation level of 1 mSv. This dose resulted from the work involving higher dose levels by a small number of staff and corrective action including training of additional staff was undertaken to reduce the dose.

One incident involved exposure of an operator to a high activity Ir-192 source during handling of this source. This incident is currently under ANSTO investigation and ANSTO was requested to provide ARPANSA with the ANSTO investigation report. ARPANSA is awaiting information to classify this incident on the INES scale.

ARPANSA will consider these incidents in its next inspection.

Other Nuclear Installations

There were no matters of particular significance to report for the following nuclear installations during this quarter:

- MOATA
- Waste Operations
- Fuel Operations

Approval of the Transport of Radioactive Materials

As the relevant competent authority, ARPANSA approved:

- The transport of fresh fuel for the OPAL Reactor.
- The transport of a disused Hot Spot facility containing 16 Co-60 pencil sources from Port Melbourne to ANSTO.

Prescribed Radiation Facilities

The following matters of note occurred during the quarter

ANSTO - Radiopharmaceuticals Research Institute Facility (F0044-5A, 5B, 5C, Buildings 19, 76)

Incidents/abnormal occurrences

An incident involving external contamination of an operator occurred during handling F-18. The operator was successfully decontaminated. Corrective action including amending the working procedures was taken. There is no significant radiological consequence of this incident.

Australian National University – High Energy Implanter (F0075)

The facility licence was amended to specifically include details of the Low Energy Implanter which is used in connection to the facility.

Australian Customs Service – Brisbane Neutron Scanner (F0162)

The Brisbane Neutron Scanner Facility ceased operation effective 12 March 2007. Australian Customs Service have now implemented a shutdown phase pending approval from ARPANSA to decommission the facility.

CSIRO HIAF Facility (F0060)

Approval was granted to surrender Facility Licence F0060 following transfer of the facility to an overseas operator.

The status of all other prescribed radiation facilities and source licences is reported in the following Tables.

List of facilities licensed under Part 5 of the ARPANS Act and Compliance Reporting by Licence holders for the period 01 January 2007-31 March 2007

Licence ¹	Licence Holder	Date of receipt of quarterly report	Summary of Licence Holder's Quarterly Report
Australian Nuclear Science and Technology Organisation			
F0118	Replacement Research Reactor (Construction)	14/02/2007	Request for surrender of licence
F0044-4A	HIFAR Research Reactor	18/01/2007	Final shutdown of HIFAR
F0044-4B	Waste Operations & Technology Development	23/1/2007	A relevant change under regulation 51 was approved. Tritium release from B57 stack exceeded 4-weekly notification level by 1.4%.
F0044-4C	Fuel Storage & Handling	23/01/2007	No change
F0044-5A, 5B, 5C	ANSTO Radiopharmaceuticals and Industrials	29/01/2007	Installation and commissioning of terminal station of the IPTS in B23 was approved under regulation 51. Seven incidents were reported and five of them are Level 0 on INES scale. ARPANSA awaiting information to classify two incidents on INES scale. Licence was amended to include a further licence condition related to the movement of radiopharmaceuticals.
F0044-5C	Radiopharmaceuticals Research Institute	30/01/07	One incident was reported that was subsequently followed up by an inspection.
F0044-5Cc	Gamma Irradiator Suite	29/01/2007	No change
F0044-6A	Moata Research Reactor (Decommissioning)	23/01/2007	No change
F0044-6Ba	ANTARES Accelerator	30/01/2007	Modification to the Ion Source High Voltage platform was carried out.
F0044-6Bb	Van de Graff Accelerator	30/01/2007	No change
F0044-6C	GATRI Irradiator	29/01/2007	New operator authorised. Operator doses well within dose limit.

Licence¹	Licence Holder	Date of receipt of quarterly report	Summary of Licence Holder's Quarterly Report
F0044-6D	Secondary Standards Dosimetry Laboratory	29/01/2007	No change. Operator doses well within dose limit.
F0044-7A	Ore Processing Operations Facility	16/01/2007	Changes to inventory provided. Local arrangement forms updated.
F0044-7B	Radiotracer Storage Facility	30/01/2007	No change
F0044-8A	Actinide Suite	23/01/2007	New facility officer appointed. Radiation Worker Training Manual upgraded. Airborne discharges within normal range.
F0044-8B	Materials Fabrication Bay	29/01/2007	Change of nominee reported. Possible changes to the form of reporting for source holdings being considered. Further discussion with ARPANSA to be sought.
F0134	STAR Accelerator	30/01/2007	No change
F0157	Replacement Research Reactor – RRR OPAL		See text of the Quarterly Report
S0045	ANSTO Institute for Environmental Research	30/01/2007	Change of nominee. NIR apparatus relocated and all associated documentation updated. UV spectroscope removed from source inventory after review against APRANSA's UV Guideline. Information provided about updated plans and arrangements.
	ANSTO Materials and Engineering Science	29/01/2007	Change of nominee. Portable XRD apparatus acquired. Portable XRF apparatus ordered.
	ANSTO Engineering Services	22/12/2006	No change
	ANSTO Minerals	16/01/2007	No change
	ANSTO Safety & Radiation Science	29/01/2007	A number of sources were relocated and an updated source inventory provided. Review of all local arrangements completed. No safety significant changes identified.
	Bragg Institute	24/01/2007	A Group 1 sealed source added to inventory
S0171	ANSTO Neutron	31/01/2007	After review, the CEO of ARPANSA issued an

Licence ¹	Licence Holder	Date of receipt of quarterly report	Summary of Licence Holder's Quarterly Report
	Beam Instruments		amended Source Licence in February 2007 to ANSTO Bragg Institute, authorising dealings with the additional neutron beam instruments listed below, up to and including hot commissioning:- <ul style="list-style-type: none"> • The Residual Stress Diffractometer (KOWARI) • The Neutron Reflectometer (PLATYPUS) The Small Angle Neutron Scattering Instrument (QUOKKA)
Australian Radiation Protection and Nuclear Safety Agency (ARPANSA)			
F0046	Linear Accelerator and Teletherapy Laboratory	04/01/2007	Plans and arrangements reviewed.
S0002	Environmental & Radiation Health Branch	25/01/2007	No change
S0003	Medical Radiation Branch	25/01/2007	A new Deputy RSO has been appointed.
S0051	Non-ionizing Radiation Branch	25/01/2007	No change.
Australian National University			
F0073	Rutherford Back Scatter Accelerator	22/01/2007	Plans and arrangements reviewed.
F0074	Heavy Ion Accelerator	22/01/2007	Operating procedures updated.
F0075	High Energy Implanter	22/01/2007	Plans and arrangements reviewed.
S0027	Faculty of Engineering & Information Technology	22/01/2007	No change.
	Human Resources	22/01/2007	No change.
	John Curtin School of Medical Research	22/01/2007	Minor changes to source inventory. New isotope laboratory audited.
	Research School of Astronomy &	22/01/2007	No change.

Licence¹	Licence Holder	Date of receipt of quarterly report	Summary of Licence Holder's Quarterly Report
	Astrophysics		
	Research School of Biological Sciences	22/01/2007	No change. Plans and arrangements updated.
	Research School of Earth Sciences	22/01/2007	Minor changes to source inventory. Plans and arrangements updated.
	Research School of Pacific & Asian Studies	22/01/2007	Minor changes to source inventory.
	Research School of Physical Sciences & Engineering	22/01/2007	Minor changes to source inventory.
	Faculty of Science	22/01/2007	Minor changes to source inventory.
	Research School of Chemistry	22/01/2007	No change.
	National Institute of the Arts	22/1/2007	No change.
Commonwealth Scientific and Industrial Research Organisation (CSIRO)			
F0060	Heavy Ion Accelerator Facility	10/01/2007	Re-commissioning complete. Awaiting final transfer of ownership.
F0137	Neutron Generator Facility	22/12/2006	No change.
S0009	Land and Water	08/02/2007	Some changes to inventory. Annual review of plans and arrangements completed by divisional RSO, November 2006
S0010	Textile and Fibre Technology	24/01/2007	Replacement RSO appointed. Provision of training for users of EM equipment still to be finalised. Delay of annual review of plans and arrangements proposed until after the appointment of a replacement OHSE Manager.
S0013	Corporate Property	29/01/2007	No change.
S0016	Molecular and Health Technologies	25/01/2007	No change.
S0017	Entomology	25/01/2007	Minor change to source inventory. Annual review of safety assessment documents completed. Annual

Licence¹	Licence Holder	Date of receipt of quarterly report	Summary of Licence Holder's Quarterly Report
			inspection and maintenance of gamma irradiator completed.
S0018	Sustainable Ecosystems	12/12/2006	No change
S0019	Marine and Atmospheric Research	31/01/2007	No change.
S0021	Plant Industry	01/02/2007	Changes to source inventory
S0022	Livestock Industries	25/01/2007	Significant review and revision of source inventory. Floreat Park review of plans and arrangements including Radiation Manual review.
S0023	Food Science Australia	22/12/2006	No change
S0025	Energy Technology	19/02/2007	Minor change to inventory. New HSE Manager.
S0030	Petroleum Resources	10/01/2007	Minor change to source inventory
S0038	Human Nutrition	13/3/2007	Relocation of controlled material due to closure of Woodville site.
S0054	Forestry and Forest Products	22/12/2006	No change
S0061	Exploration & Mining	10/01/2007	No change
S0064	Minerals	22/12/2006	No change to plans and arrangements. Report notes; application made for approval to dispose of controlled material, wipe tests conducted on stored sealed sources, all recorded personal doses within limits.
S0066	Manufacturing and Materials Technology	25/01/2007	Inventory changes including approved disposals. Information on training program.
S0105	Industrial Physics	25/01/2007	Controlled apparatus disposed of with prior approval. Lasers added to the source inventory.
S0130	Australia Telescope National Facility	29/01/2007	No change.

Licence ¹	Licence Holder	Date of receipt of quarterly report	Summary of Licence Holder's Quarterly Report
Department of Defence			
F0084	Woomera Storage Facility	15/01/2007	A new Radiation Protection Officer has been appointed. DS-SA is planning a detailed review of the operational plan for the facility which will include the EMS and security reviews.
F0113	Bandiana Storage Facility	17/04/2007	Review and update of plans and arrangements completed in November 2006.
F0116	RADIAC Calibration Facility	17/04/2007	Upgrade of the facility continued. The project is 99% complete. Review and update of plans and arrangements completed in November 2006.
F0117	Edinburgh Storage Facility	15/01/2007	A new Radiation Protection Officer has been appointed. DS-SA is undertaking a feasibility study to reduce the inventory held in the facility; Furthermore, DS-SA is investigating the feasibility of relocating the contents of the facility. DS-SA is planning a detailed review of the operational plan for the facility which will include the EMS and security reviews.
F0166	Port Wakefield Linear Accelerator	17/04/2007	Instructions are reviewed periodically as part of the P&EE PW AS/NZS 9001:2000 quality system.
S0042	Aust Defence Organisation	17/04/2007	ADFP 410 Laser Safety and ADFP 724 – Ionising Radiation Safety have been updated and incorporated into Safetyman. The release of the Safetyman policy is planned for the third quarter 06/07, at which time the ADFPs will be cancelled and withdrawn.
Australian Customs Service			
F0125	Matraville Container Examination Facility	23/01/2007	No change
F0131	Melbourne Container Examination Facility	23/01/2007	No change
F0136	Fisherman Island Container Examination Facility	23/01/2007	The Brisbane facility experienced a failed interlock in November 2006. The facilities radiation protection advisor (RPA) approved a departure from specification allowing an exclusion zone to be setup and monitored. This type of departure could be generic to the other facilities, provided conditions were met and the RPA was notified. The RPA granted this departure from specifications in

Licence¹	Licence Holder	Date of receipt of quarterly report	Summary of Licence Holder's Quarterly Report
			November 2006.
F0155	Fremantle Container Examination Facility	23/01/2007	No change
F0156	Osborne Container Examination Facility	23/01/2007	No change
F0162	Custom's Neutron Scanner Operate	30/3/07	A sample of cooling water was packaged to be sent for testing. A leak occurred in transit whilst the sample was at Brisbane Domestic terminal. QLD Fire Service deemed the package and the surrounding area as safe with no significant contamination. Package taken back to the facility.
S0092	Australian Customs Service Sources	24/01/2007	Minor changes have been made to the source inventory and the review of plans and arrangements will be attended as a high priority.
Single Licence Holders			
F0043	Dept of Education Science and Training – Maralinga	22/12/2006	The licence holder is preparing a report which will cover the three Maralinga water table samplings that occurred in November 2001, November 2003 and July 2005. The report is in an advanced stage of preparation and will be forwarded to ARPANSA soon.
F0093	Dept of the Environment & Heritage - Parks Australia North	16/01/2007	Notification of a relevant change (to timing of routine radiological surveys) unlikely to have significant implications for safety. Information provided on preparatory works required before commencing rehabilitation. Tender specification for containment design prepared in consultation with ARPANSA.
S0005	Bureau of Meteorology - Cape Grim	08/01/2007	No change
S0007	Aust Institute of Marine Science	08/01/2007	No change
S0008	Dept of the Environment & Heritage - Australian Govt Antarctic Division, Polar Medicine	25/01/2007	Change of name of the organisation may require amendment of the source licence at a futures date. Inspection conducted on 27 March 2007. No issues notes.

Licence¹	Licence Holder	Date of receipt of quarterly report	Summary of Licence Holder's Quarterly Report
S0012	Dept of Prime Minister & Cabinet	11/01/2007	No change.
S0014	Dept of Industry, Tourism & Resources - Geoscience Australia	22/01/2007	No change.
S0015	Dept of the Environment & Heritage - Supervising Scientist	25/01/2007	No change
S0020	Dept of Transport & Regional Services		Surrendered licence.
S0024	National Gallery of Australia	24/01/2007	Minor changes to source inventory.
S0031	National Capital Authority		Surrendered their licence .
S0033	Note Printing Australia	23/01/2007	UV source has been added to the source inventory.
S0034	Australian Crime Commission	22/01/2007	An x-ray inspection unit at the Brisbane location is planned to be disposed of shortly. ARPANSA has previously approved this disposal. A new x-ray inspection unit has been installed at the Brisbane location. Operator training conducted in October 2006.
S0036	Federal Court of Australia	17/01/2007	No change.
S0040	Family Court of Australia		No report received. Regulatory action commenced to follow up.
S0047	Dept of Industry, Tourism & Resources - Geoscience Australia – Geospatial & Earth Monitoring Division	10/02/2007	No change
S0052	Dept of Parliamentary Services	10/01/2007	Currently preparing documents to replace all x-ray units.

Licence¹	Licence Holder	Date of receipt of quarterly report	Summary of Licence Holder's Quarterly Report
S0055	Dept of the Environment & Heritage - Australian Govt Antarctic Division	25/01/2007	Report notes a change to the independent project review process and an annual review of the Radiation Safety Manual in December 2006 with updating of Environmental and Waste Management sections. Change of name of the organisation.
S0056	Australian Federal Police	29/01/2007	The National Guideline Safe Working with Radiation modified in January 2007. A deputy radiation safety officer has been appointed. Two sealed sources and two ionizing apparatuses purchased. One ionizing apparatus disposed of in November 2006. A high radiation reading was investigated and reported separately to ARPANSA in November 2006. The investigation revealed that radiation monitors were exposed to x-ray screening equipment in transit prior to the licence holder receiving and using them. The radiation monitor mail pack was incorrectly labelled to prevent x-ray exposure.
S0077	National Museum of Australia	21/5/2007	No change.
S0079	Dept of Foreign Affairs & Trade	15/01/2007	No change.
S0080	Australian War Memorial	25/01/2007	A minor change has been made to the source inventory.
S0090	Silex Systems Ltd	22/01/2007	Ongoing review of plans and arrangements.
S0120	Department of Agriculture, Fisheries & Forests - Australian Quarantine and Inspection Service	24/01/2007	Minor changes to source inventory.
S0129	Australian Securities & Investments Commission	02/01/2007	Radiation safety training completed across all licence holder locations.
S0135	Dept of Immigration & Multicultural Affairs	10/01/2007	A new RSO has been appointed and minor changes have been made to the source inventory.
S0142	National	18/01/2007	Changes to the source inventory.

Licence¹	Licence Holder	Date of receipt of quarterly report	Summary of Licence Holder's Quarterly Report
	Measurement Institute		
S0150	Australian Postal Corporation	03/01/2007	One baggage x-ray unit replaced with another unit at the Melbourne Gateway Facility.
S0151	Attorney-General's Department	16/01/2007	Plans and arrangements reviewed March 2006.
S0165	Law Courts Limited	08/01/2007	The plans and arrangements have been reviewed and updated.
S0169	High Court of Australia		No quarterly report received.
S0170	Decipha	15/01/2007	Minor changes have been made to the source inventory and the plans and arrangements.
S0172	Australian Communications and Media Authority	17/01/2007	No change
S0173	Royal Australian Mint	22/01/2007	X-ray inspection unit procedures updated in September 2006 and a leakage test was performed in November 2006.

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.

Licence applications received during the quarter:

Type of application	From
Source Licence (S0182)	CSIRO Food Science Australia
Source Licence (S0181)	Department of Transport and Regional Services
Source Licence (S0179)	Department of Foreign Affairs and Trade
Facility Licence (F0183)	Department of Transport and Regional Services

Licences issued, amended or surrendered during the quarter:

Type of licence and authorisation	To
Source – amendment of licence (S0017)	CSIRO Entomology
Source – amendment of licence (S0066)	CSIRO Manufacturing and Materials Technology
Facility – surrender of licence (F0060)	CSIRO HIAF
Source Licence – Amended (S0092)	Australian Customs Service
Source Licence – Amended (S0135)	Department of Immigration and Multicultural Affairs (now Department of Immigration and Citizenship)
Facility – amendment of licence (F0075)	Australian National University – High Energy Implanter

Annex B – Service Operations

B.1 The Radiofrequency Calibration Laboratory

Calibration Requests	Jobs completed as NATA accredited reports	Job composition
69	57	51 monitors (with 45 probes) 13 personal monitors

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
28	100	7	15,500	none

Note: Following a tender process the ARPANSA UPF Testing Service has a new printer for UPF swing tags. During the lengthy changeover, swing tags were unavailable and the UPF statistics shown in the above Table reflect this.

B.3 Radioanalytical Service

Water	Food	Soil/Sediment	Filter	Wipe test
294	8	24	66	32

Maypacks	Biota	Other
0	3	27

Total samples – 454

B.4 Dosimetry Calibration Services

Therapy reference dosimeters	Standard ionization chambers	Gamma survey meters	Neutron survey meters	Personal dosimeters	Reference beams from sources or generators	Jobs in progress
2 (2 Hospitals)	4	2	3	0	0	2

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
156	147	5	4

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
113	109	4	74

B.7 Export Permits under Customs (Prohibited Export) Regulations 1958

Total Permits Issued	2
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