



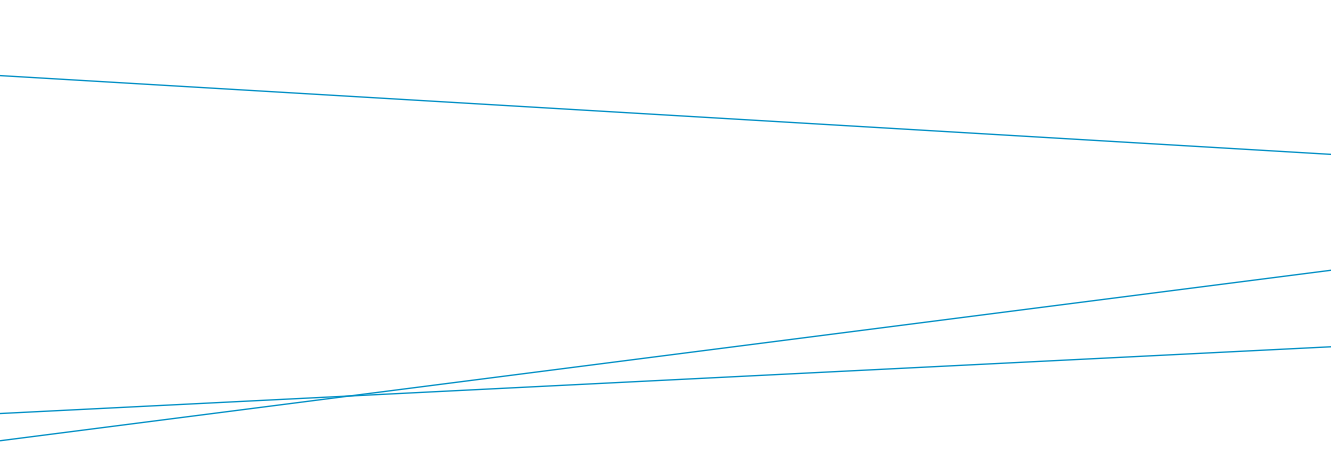
Australian Government

Australian Radiation Protection and Nuclear Safety Agency

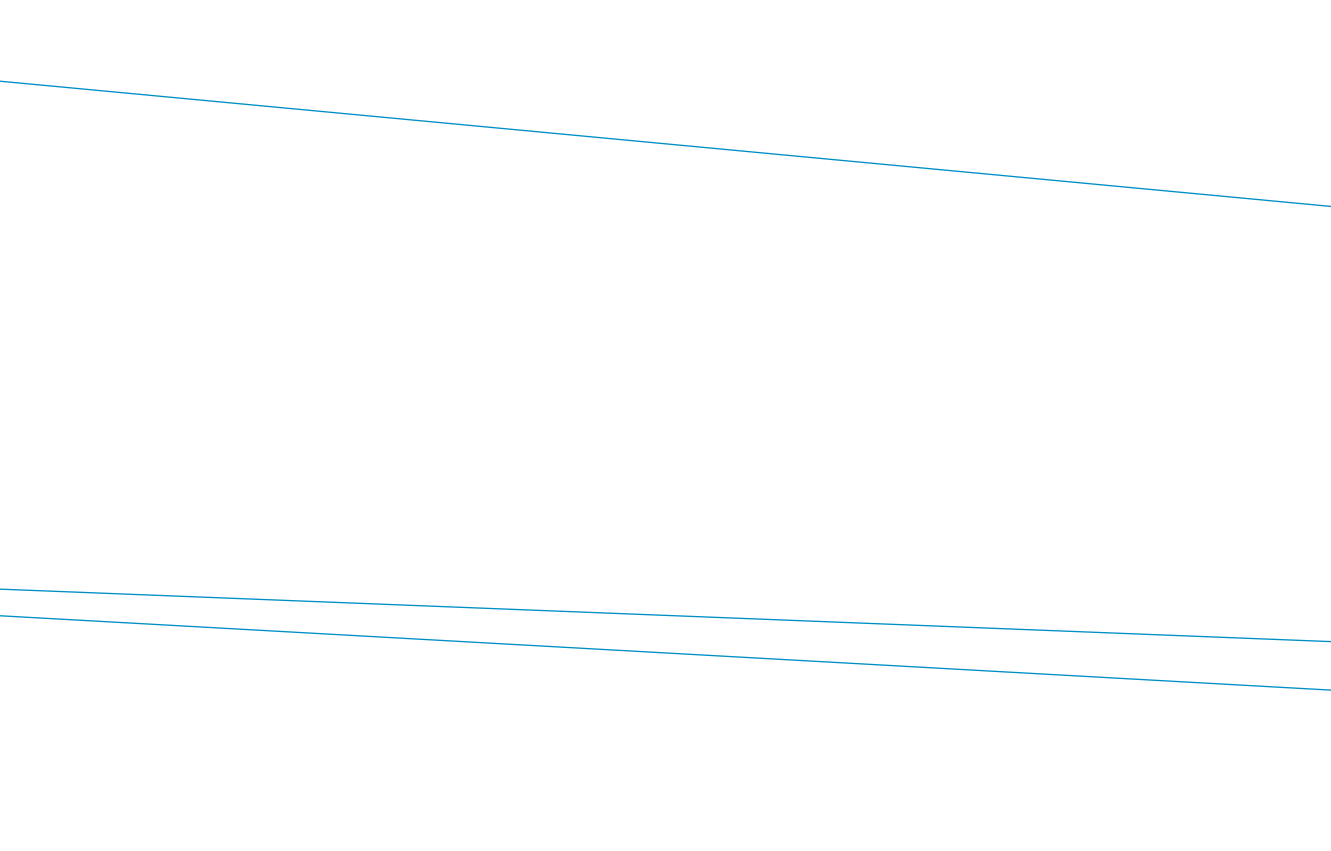
Annual Report of the Chief Executive Officer of the Australian Radiation Protection and Nuclear Safety Agency

2006–07





Annual Report of the
Chief Executive Officer of ARPANSA
2006-07



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ISSN 1443-0835

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This report meets the requirements of section 8 of the *Freedom of Information Act 1982* which requires each Commonwealth Agency to publish information about the way it is organised, its functions, powers and arrangements for public participation in its work.

Produced by the

Australian Government

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Printed by Pirion Pty Ltd
140 Gladstone Street
Fyshwick ACT 2609.

Contents

Part 1	Review of performance and financial results by CEO	7	Part 4	Council and Committees	63
	Major achievements in 2006-07	8		Radiation Health and Safety Advisory Council	64
	Assessment against outlook for 2006-07	8		Radiation Health Committee	67
	Other highlights in 2006-07	12		Nuclear Safety Committee	71
	Financial Results	18	Part 5	Essay on selected activity	73
	Outlook for 2007-08	18		Reducing the risk of radiological terrorism in Australia	74
Part 2	Agency overview	21	Part 6	Management and accountability	81
	Functions	22		Corporate governance	82
	Key strategic directions 2006-07	23		External scrutiny	86
	Organisation structure	24		Management of human resources	86
Part 3	Agency performance	27		ARPANSA Quality System	91
	Report on performance	28		Legal Services Directions	91
	Output Group 1: National Leadership in radiation protection and nuclear safety	34		Competitive tendering and contracting	93
	Output Group 2: Knowledge, Information and Services relating to radiation protection and nuclear safety	40		Asset management	93
	Output Group 3: Regulation of Commonwealth entities using radiation sources and facilities or nuclear installations including details of breaches of licence conditions in accordance with sub-section 59(3) of the ARPANS Act	48		Consultants	93
				Advertising	94

Appendices	97
Appendix 1: Occupational health and safety	98
Appendix 2: Human resource management statistical reports	100
Appendix 3: ARPANSA licensing activities	106
Appendix 4: Freedom of information	112
Appendix 5: Publications	116
Appendix 6: Ecologically sustainable development reporting	117
Appendix 7: Index of compliance with reporting requirements	119
Appendix 8: Financial statements for year ended 30 June 2007	120
List of figures and tables	153
Abbreviations	155
Index	158



Australian Government

Australian Radiation Protection and Nuclear Safety Agency

5 October 2007

Senator The Hon Brett Mason
Parliamentary Secretary to the Minister for Health and Ageing
House of Representatives
Parliament House
CANBERRA ACT 2600

Dear Senator Mason

In accordance with section 59 of the *Australian Radiation Protection and Nuclear Safety Act 1998* (the ARPANS Act), I present to you for transmittal to the Parliament the Annual Report of the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) for the period 1 July 2006 to 30 June 2007.

As required by the ARPANS Act my report provides details on:

- the operations of the CEO, ARPANSA and the Council and Committees
- any direction given by the Minister to me under section 16 of the ARPANS Act and any breach of licence conditions by a licensee, of which I am aware
- all reports received from the Radiation Health and Safety Advisory Council on matters related to radiation protection and nuclear safety or the Nuclear Safety Committee on matters related to nuclear safety and the safety of controlled facilities.

The report of the independent auditor on the financial statements of ARPANSA for 2006-07 and the financial statements are included with this report which also meets the *Requirements for Departmental Annual Reports* issued by the Department of the Prime Minister and Cabinet and updated in June 2007.

Yours sincerely

A handwritten signature in black ink, appearing to read 'John Loy'.

John Loy PSM
CEO of ARPANSA

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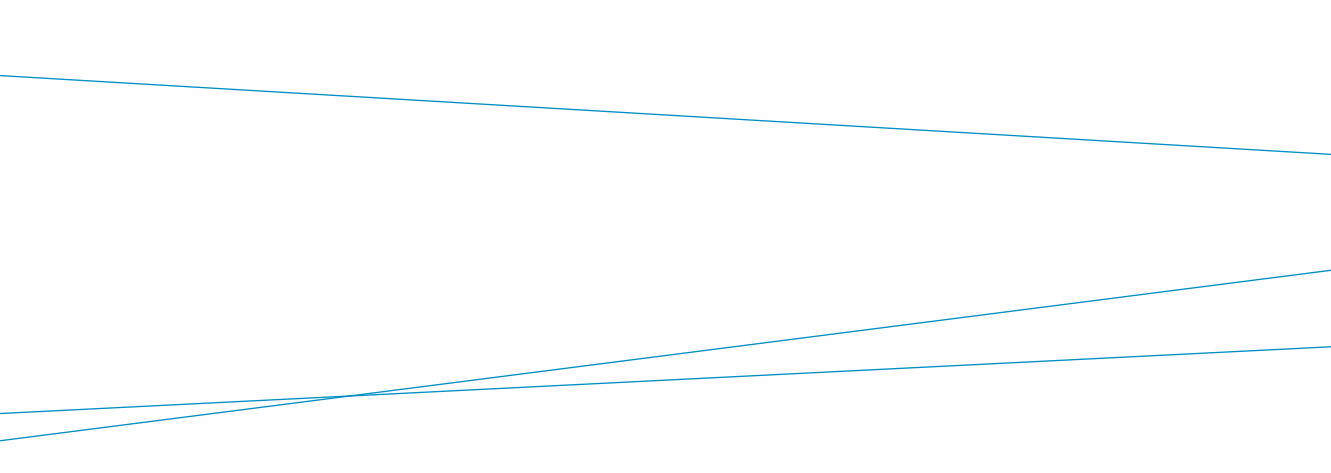
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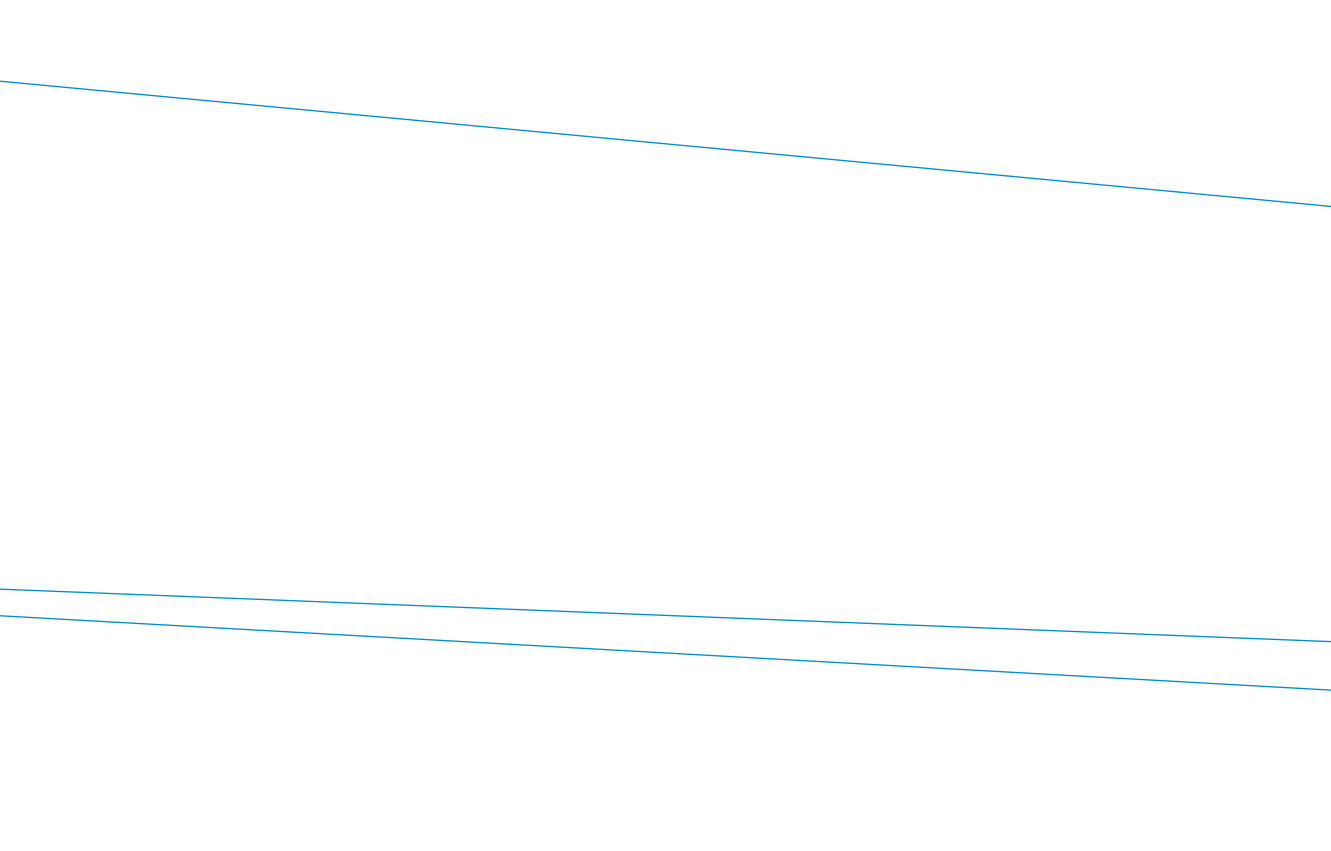
Guide to this report

This report satisfies the annual reporting requirements of the ARPANS Act in addition to the Department of Prime Minister and Cabinet requirements for annual reporting by Agencies. The report on:

- the operations of the CEO is provided at Part 1
- the operations of ARPANSA and details of any breach of licence conditions by a licensee are provided at Part 3
- the operations of the Radiation Health and Safety Advisory Council, the Radiation Health Committee and the Nuclear Safety Committee and details of all reports received from the Radiation Health and Safety Advisory Council on matters related to radiation protection and nuclear safety or the Nuclear Safety Committee on matters related to nuclear safety and the safety of controlled facilities is provided at Part 4.



Part 1 Review of performance and
financial results by CEO



This is the ninth Annual Report that I have made as the CEO of ARPANSA.

In March 2007, Ministerial responsibility for ARPANSA changed, with Senator the Hon Brett Mason being appointed as Parliamentary Secretary to the Minister for Health and Ageing, replacing the Hon Christopher Pyne MP who was appointed Minister for Ageing.

Major achievements in 2006-07

The principal outcomes achieved and described in this report include:

- the effective regulatory oversight of the commissioning of the Open Pool Australian Lightwater (OPAL) research reactor
- continued development of regulatory management systems culminating in an international regulatory review
- the publication of radiation protection standards and codes dealing with occupational exposure to ultraviolet radiation, the use of fixed radiation gauges, and the security of radioactive sources
- making available real-time ultraviolet radiation levels in Australia through the ARPANSA web site to assist the public to protect themselves from solar ultraviolet radiation.

Assessment against outlook for 2006-07

I review the outcomes achieved in the outlook areas that I nominated in my 2005-06 Annual Report.

Edition 2 of the *National Directory for Radiation Protection*

In the 2005-06 Annual Report, I said that I hoped to be able to say that edition 2 of the *National Directory for Radiation Protection* (NDRP) has been completed and is going through its stages of final approval.

The NDRP is the agreed mechanism for achieving and maintaining national uniformity in radiation protection. Edition 1 of the NDRP was published in August 2004 and established the framework; edition 2 substantively 'populates' the framework with specific and agreed measures including: application of the NDRP to mining and minerals processing; expansion of the provisions for exclusion and exemption from regulation; permitted levels for disposal of very low level radioactive waste by the user; and provisions concerning the use of high powered lasers and intense pulsed light sources on humans.

Part of the agreement between the Commonwealth, the states and the territories to adopt the NDRP was that provisions for inclusion in it be subject to regulatory impact assessment. Given the diversity of subjects covered in edition 2 and limitations on resources, it has taken longer than I had hoped to complete the draft edition 2 and to produce a draft regulatory impact statement to the required standards.

I expect that the draft of edition 2 accompanied by a draft regulatory impact statement will be available for a period of public comment shortly.

Radiation protection codes and standards

In the 2005-06 Annual Report, I said that I hoped to be able to report that an occupational ultraviolet radiation (UVR) standard has been published, an extremely low frequency (ELF) exposure standard has been released for public comment and a code of practice for the security of radioactive sources completed and published.

These aims have been achieved: the occupational UVR standard was recommended for publication by the Radiation Health and Safety Advisory Council in December 2006 and published shortly thereafter, as was the *Code of Practice for the Security of Radioactive Sources*. The ELF draft exposure standard was released for public comment from December 2006 to February 2007. The extensive and detailed comments received are under consideration.

Under this heading, I also hoped to be able to report completion and publication of codes of practice for pre-disposal management of radioactive waste and for medical applications of ionizing radiation. With respect to the former, drafts of the code of practice and an accompanying safety guide have been completed – the delay lies with the preparation of the regulatory impact statement. It is expected that the draft code and regulatory impact statement can be released for public comment in the first half of 2007-08.

The matter of a code of practice for medical applications has been given considerable attention by the Radiation

Health Committee (RHC) and supported by ARPANSA staff during the year. Drafts of codes for three modalities: diagnostic and interventional radiology, nuclear medicine, and radiotherapy had been prepared by working groups to the RHC. In review, the RHC determined to explore the option of a single medical code of practice supported by three separate safety guides. This required clarification of the difference between a code of practice (intended to be regulatory requirements) and a safety guide (best practice). It also required substantial re-drafting of the prepared material. The draft of a single code was released for 'industry consultation' from 18 May to 2 July 2007. It is expected that a further revised code and draft safety guides will be released for public comment in August. ARPANSA is also holding a one day national conference on medical applications of ionizing radiation in October, which will constitute a forum for public discussion of the draft code and safety guides.

Electromagnetic radiation

In the 2005-06 Annual Report, I said that I hoped to be able to say that the survey of ELF magnetic fields has been completed and a regular survey of emissions from mobile phone base stations is established.

The field work for the ELF survey is essentially completed and analysis is well underway. This is reported in Part 3 of this report.

Regular base station audits have also been set up. This is also reported in Part 3 of this report.

International Atomic Energy Agency (IAEA) Integrated Regulatory Review Service Mission

In the 2005-06 Annual Report, I said that I hoped to be able to say that the IAEA Integrated Regulatory Review Service mission has supported ARPANSA's regulatory output and made constructive suggestions for continuous improvement that can build upon the earlier report by the Australian National Audit Office (ANAO).

ARPANSA is committed to continuous improvement in the way it carries out its functions, including its regulatory functions. I have reported on our responses to the performance audit by the ANAO published in 2005 in earlier annual reports. ARPANSA's final response to the ANAO audit recommendations was published in December 2006 and is available on the ARPANSA web site. We have also responded to related recommendations from the Joint Committee on Public Accounts and Audit.

During 2006-07, ARPANSA took part in an integrated regulatory review service mission organised through the IAEA. A 'pre-mission' visit took place in October 2006 followed by a preliminary mission in February 2007 and the full review mission in June-July 2007.

The outcomes of the mission are reported in Part 3 of this report. Suffice it to say, that the mission was very successful from ARPANSA's point of view. The interaction and engagement with a group of international experts in the different fields was invaluable for

ARPANSA staff. The mission is also leaving us with commendations of a number of international Good Practices and sensible Suggestions and Recommendations for continued improvement of our regulation.

Optimisation of medical applications of ionizing radiation

In the 2005-06 Annual Report, I said that I hoped to be able to say that ARPANSA has strengthened its capacity to support the medical professions in optimising doses of radiation to patients.

I am glad to say that in the 2007-08 Budget the Government allocated funding for a new measure entitled: radiation in health care – safer and better use. This measure allocated \$9 million over four years with ongoing funding. This will enable ARPANSA to purchase and operate a medical linac to allow for training and research into radiation dosimetry using direct measurements at the energies used for radiotherapy. The funding also will allow ARPANSA to develop material and improve its contact with the medical professions to support and assist with the optimal use of radiation in medicine.

The measure is a response to a report by the Radiation Health and Safety Advisory Committee on the use of radiation in medicine that I referred to in the 2005-06 Annual Report. As stated in this report, 'the total population dose of radiation from medical diagnostic procedures is

increasing, mainly due to the increase in computed tomography (CT) scanning. Changes in technology and changes in medical practice may in the near future mean that doses to patients from accepted and standard procedures increase, and Council's primary concern is that risks and doses to patients are managed carefully'.

Management of naturally occurring radioactive material

In the 2005-06 Annual Report, I said that I hoped to be able to say that consideration of the management of naturally occurring radioactive material (NORM) has advanced.

In October 2006, the Radiation Health Committee considered a paper from ARPANSA on NORM. The paper pointed to the expanded provisions for exemption from regulation proposed for the NDRP edition 2 and that together with the *Code of Practice and Safety Guide for Radiation Protection and Radioactive Waste Management in Mining and Minerals Processing* provided a broad regulatory framework for the management of NORM. There was also international guidance in preparation. The next step was to develop a safety guide on management of NORM in Australia. This document is intended to provide overall general guidance and to include annexes on particular industries, being oil and gas production, bauxite processing and the phosphate industry in the first instances. A working group, including industry representatives has been established to draft the safety guide.

The working group is aiming to have the safety guide completed during 2007-08.

Regulatory issues

In the 2005-06 Annual Report, I said that I hoped I would be able to say that ARPANSA has properly responded to any regulatory issues arising from the operation of the OPAL reactor and the commencement of the decommissioning process for HIFAR, together with any issues related to the development of the Commonwealth radioactive waste management facility.

To recap, I issued an operating licence for OPAL on 14 July 2006. That licence first authorised the commencement of 'hot' commissioning. The first stage of this process is the loading of the nuclear fuel and the bringing of the reactor to its first criticality, which took place on 12 August 2006. There followed a stage of testing of the behaviour of the reactor's nuclear core at low power. Finally, the power of the reactor was increased in stages with tests at each stage. It first reached full power on 3 November 2006. My approval was required to move from each stage of the hot commissioning to the next and I gave those approvals after ARPANSA staff assessment of reports from Australian Nuclear Science and Technology Organisation (ANSTO).

There have been a number of matters that have required regulatory oversight during the commissioning process. These have included: modification

to the location of sensors for the temperature of the primary coolant flow after it emerges from the core; the replacement of a damaged fuel assembly and the subsequent necessary modifications to the fuel management strategy; a modification to the computer code used to calculate the reactivity of the core. The regulatory oversight issues for OPAL are discussed further at Appendix 4 of this report.

ANSTO had been giving consideration to its strategy for the decommissioning of HIFAR for some time. This included Government consideration of the issue. In October 2006, ANSTO sought my approval to continue to operate HIFAR until the end of February 2007. I agreed to this proposal given the short duration of the proposed extension and the good availability and reliability of HIFAR. ANSTO also indicated that following shutdown of HIFAR, it planned to enter a closure phase, first to be conducted consistent with the operating licence for HIFAR (and similar to previous major shutdown activities) to be followed by activities for which ANSTO would seek authorisation under a licence to 'possess or control' HIFAR. This period of 'safe enclosure' would be followed by full decommissioning in around 10 years. I wrote to ANSTO in February and March 2007 setting out my views on the scope of a licence to 'possess or control' making clear that activities that constitute 'decommissioning' could not be authorised under such a licence. I also set out some guidance as to the form of an application for a

licence to 'possess or control' HIFAR. ANSTO applied for such a licence in May 2007 and its application is currently being assessed.

With regard to the Commonwealth radioactive waste management facility, I issued final regulatory guidance for a radioactive waste management facility: near surface disposal facility and long-term storage in December 2006. No further regulatory action with respect to the proposed Commonwealth radioactive waste management facility has been required.

Other highlights in 2006-07

Uranium mining and nuclear energy

On 28 April 2007, the Prime Minister announced a strategy to increase uranium exports and to prepare for a possible expansion of the nuclear industry in Australia. The strategy includes steps to remove impediments to the expansion of uranium mining, the removal of prohibitions on nuclear power in Commonwealth legislation (including the ARPANS Act) and the development of four workplans: regulation, skills development; research and development, and communications.

ARPANSA has been closely involved in the work flowing from the Prime Minister's announcement. As a centre of national leadership in radiation protection and nuclear safety, ARPANSA has an important role to play in support of the expansion of safely conducted uranium mining and

can offer informed advice about the regulation of any expanded nuclear industry.

A specific matter is the creation and operation of a national dose register for uranium production workers. The Government has accepted a recommendation for such a register that was included in the report by the House of Representatives Committee on Industry and Resources on Australia's uranium tabled in November 2006.

Other regulatory issues

In addition to the regulatory work on OPAL commissioning and the closure of HIFAR described above, major regulatory activities concerning ANSTO have included assessment of the construction and commissioning of a new process for the production of molybdenum from irradiated uranium targets. After assessment, ARPANSA agreed to the commencement of hot commissioning of the process.

I also issued licences for the commissioning of several neutron beam instruments for ANSTO's Bragg Institute.

Following media articles about tritium contamination in a facility dealing with gaseous tritium light sources and devices, the Department of Defence conducted a review that addressed the particular incident but also looked at the wider issues of Defence management of radiation sources. ARPANSA had input into the review pointing to ongoing difficulties in

Defence demonstrating that it met regulatory requirements. The review, released by the Minister for Defence in July 2007, acknowledges the problems and has sought to address them, particularly by nominating a senior officer as a single point of accountability in Defence to provide assurance that the organisation is meeting its obligations under the ARPANS Act. A project team has been established to develop a business model for the management of radioactive sources and facilities within Defence. I very much welcome this development and look forward to working with this new structure to assure that the objective of the ARPANS Act is met within Defence.

Security of radioactive sources

As I noted above, the *Code of Practice for the Security of Radioactive Sources* (RPS 11) was completed and published in January 2007. The development of the code required intensive consultation with stakeholders in order to produce an effective and workable document to be applied in the range of settings that use, transport and store radioactive sources.

In April 2007, the Council of Australian Governments (COAG) agreed to a National Chemical, Biological, Radiological and Nuclear (CBRN) Security Strategy to provide a framework to strengthen and enhance Australia's existing national counter-terrorism arrangements for CBRN security. In addressing the threat of radiological materials being used for

the purpose of terrorism, COAG also agreed to arrangements to regulate the secure storage, possession, use and transport of certain radiological materials to minimise the risk that such material can be misused by terrorists. The application of the code of practice is a central part of these measures as is the completion of a national register of hazardous radioactive sources.

In the 2007-08 Budget, the Government allocated funding to ARPANSA of \$4.7 million over four years to enhance Australia's approach to radiological security. This funding will be directed towards implementing the measures agreed by COAG.

ARPANSA continued to maintain and improve its capacity to respond to radiological emergencies. In addition, we commenced the implementation of the 2006 Budget measure to strengthen radiological emergency response planning and capabilities in our region and to establish a regional network of technical expert assistance. In November 2006, ARPANSA hosted a meeting of regional 'national competent authorities' for emergency assistance.

A more extended discussion of these issues is contained in the essay at Part 5 of this Annual Report.

Services and projects

ARPANSA continued to offer a range of services 'relating to radiation protection, nuclear safety and medical exposures to radiation' in accordance with section 15 (d) of the ARPANS Act during 2006-07.

The personal radiation monitoring service supplied monitors to about 27,000 wearers. Redevelopment of the database system used for record keeping and monitor issue was completed during the year.

Demand continued at an expanding level for testing, licensing and labelling for the ultraviolet protection factor (UPF) for fabrics and clothing. ARPANSA organised and took part in an international intercomparison of UPF testing in June 2007.

As the holder of the Australian measurement standards for exposure and absorbed dose for ionizing radiation, ARPANSA continued to carry out calibrations of dose measuring devices to ensure that their measurements are accurate and traceable to the Australian Standard. Of particular significance in this regard are the calibrations carried out for the radiotherapy treatment hospitals in Australia. The aim is to maintain a three year calibration period for hospital dosimeters.

Our radiofrequency calibrations, radiopharmaceutical quality assurance activities and radioanalytical services continued effectively.

The ongoing major project of managing radionuclide monitoring stations and a radionuclide laboratory on behalf of the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organisation (CTBTO) continued. This year the radionuclide laboratory was certified by the CTBTO and in April 2007 ARPANSA accepted responsibility

for a noble gas monitoring station in Darwin. Responsibility for the radionuclide station in Kavieng, Papua New Guinea, was transferred to the PNG Weather Service in September 2006.

International activities

ARPANSA continues to contribute to and learn from international best practice in radiation protection and nuclear safety. Within the IAEA, I am a member of the Commission on Safety Standards, which oversees the development of the IAEA safety standards, now regarded as a fundamental framework for radiation protection and nuclear safety throughout the world. ARPANSA staff participate in the committees that advise on radiation, waste and transport safety.

An important landmark that occurred during the year was the approval and publication of the IAEA Fundamental Safety Principles. This document sets out an overall safety objective: to protect people and the environment from the harmful effects of ionizing radiation; and ten safety principles that are brief statements with supporting text. The *Fundamental Safety Principles* replaces earlier 'fundamental' documents in radiation, waste and nuclear safety and overcomes the differences in emphasis and terminology from the various disciplines relevant to radiation protection and nuclear safety.

Another challenge facing the IAEA safety standards is the revision of the

Basic Safety Standards (BSS), which is the overall document setting out the regulatory principles to apply for radiation protection. The revision is seen as necessary to bring the BSS up to date in terms of the evolution of the overall system of safety standards and to take into account the evolution in radiation protection thinking that is represented by the (still yet to be published) new recommendations from the International Commission on Radiological Protection (ICRP). Revision of the BSS could be expected to flow through into a revision of Australia's 'basic safety standards' being the *Recommendations for Limiting Exposure to Ionizing Radiation and National Standard for Limiting Occupational Exposure to Ionizing Radiation (RPS 1)*. It needs to be emphasised however that the new ICRP recommendations are very much an evolution and will represent no change in regulatory limits for ionizing radiation.

The Commission on Safety Standards is also giving thought to the overall structure of the safety standards in the light of the completion of the *Fundamental Safety Principles* and the revision of the BSS.

I am also a member of the Committee on Nuclear Regulatory Activities (CNRA) in the Nuclear Energy Agency of the Organisation for Economic Co-operation and Development. Participation in this group allows me to interact with nuclear power plant regulators and to hear of the latest safety and regulatory approaches. I am taking part in a 'high level group'

on how a regulator arrives at an overall assurance of nuclear safety and I also participated in a forum on assuring nuclear safety and a workshop on transparency in nuclear regulatory organisations.

Peter Burns continued in his role as chair of the UN Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) at the 55th Session in May in Vienna. The Committee is currently undertaking reviews on the consequences of the Chernobyl accident after 20 years and the effects of ionizing radiation on non-human biota. It is also undertaking an assessment of the worldwide doses from occupational, public and medical exposures. The Committee expects to finalise these documents next year.

Peter Burns also continued as a member of Committee IV of the ICRP which met in September 2006 in Madrid. The Committee is currently preparing documents on response during the early and late phases of radiological accidents. The Main Commission of ICRP finalised its radiation protection recommendations at Essen, Germany in March 2007 after a process of wide scale international consultation which lasted several years.

Colin Roy participates in the work of the World Health Organization (WHO) electromagnetic fields and ultraviolet radiation programs. He is working on a WHO publication aimed at assisting local governments deal with radio-frequency issues, in particular with the deployment of mobile telephony

infrastructure. He is a member of Standing Committee III of the International Commission on Non-Ionizing Radiation Protection (ICNIRP). That organisation is currently revising their guidelines on 'Static and Extremely Low Frequency (ELF) Fields' and 'Radiofrequency Radiation'. The review of the ELF Guidelines is timely as the WHO has just recently published an Environmental Health Criteria book on ELF Fields. This book includes an extensive review of the scientific literature and a detailed health risk assessment of human exposure to ELF fields.

Council and Committees

The annual reports of the Radiation Health and Safety Advisory Council, the Radiation Health Committee and the Nuclear Safety Committee are included as Part 4 of this report.

The Radiation Health and Safety Advisory Council met three times during 2006-07. The Chief Minister of the Northern Territory made a nomination for membership of Council, in accordance with amendments to the ARPANS Act made as part of the *Commonwealth Radioactive Waste Management Act 2005*. Mr Ian Lancaster, Director, Water Management Branch, NT Department of Natural Resources, Environment and the Arts, was appointed to Council by the Parliamentary Secretary to the Minister for Health and Ageing on 23 April 2007.

The Council did not provide formal reports to me under section 20(f) of

the Act. I did formally respond to its earlier report on medical applications of radiation.

At its meeting in April 2007, the Council discussed two matters likely to result in formal reports: one being an assessment of international views on the safety of nuclear power plants; the other being a review of the effectiveness of the application of the *National Directory for Radiation Protection*.

The Radiation Health Committee met three times. In addition to finalising the codes and standards previously mentioned, its major tasks were the completion of edition 2 of the *National Directory for Radiation Protection* and the development of the code of practice and safety guides for applications of ionizing radiation in medicine. In the first instance, the Committee was developing three codes – for diagnostic and interventional radiology, nuclear medicine and radiotherapy. During the year, the Committee came to the conclusion that to emphasise the basic ‘optimisation’ message of radiation protection and to focus primarily on regulatory requirements, there should be a single code of practice but to be accompanied by three safety guides that would deal with good practice application in the different modalities.

The Committee has also authorised an updating of the *Code of Practice for the Safe Transport of Radioactive Material (RPS2)* to reflect the 2005 IAEA Transport Regulations and this will

come into effect in January 2008. This will ensure consistency between land transport and sea and air transport where amendments to the IAEA Regulations have already been picked up through international arrangements.

The Committee also published a statement on clean-up criteria following a radiological incident.

The Nuclear Safety Committee also met three times during the year. After consultation with the Council, I appointed Mr Don Macnab, recently retired from ARPANSA, as a member of the Nuclear Safety Committee in December 2006. The process of preparation for the closure and decommissioning of HIFAR has been a major interest of the Committee during this period.

Management of ARPANSA

The ARPANSA Executive Board comprising myself, branch directors, the legal counsel, and an external member continued as the major vehicle for collegiate decision-making in the administration of the Agency. The Board met 10 times in 2006-07. There are also approximately weekly meetings of senior management.

Dr Sue Barrell from the Bureau of Meteorology continued as the external member of the Board and I thank her for her work in that role.

The Executive Board functions as ARPANSA’s Quality Committee and reviews reports from the Agency’s Occupational Health and Safety

Committee. It allocates a resources budget each year, monitors budget progress each month and undertakes a mid-year review. Every two months, the Board reviews a 'Performance and Accountability Report' of progress on the significant projects included in the *ARPANSA Corporate Plan 2005-08*. Some individual projects are kept under monthly review.

This year, the Board undertook monthly monitoring of progress with the Personal Radiation Monitoring Service information technology (IT) application development, the implementation of Budget measures, preparations for the IRRS mission, the reform of regulatory business processes and the development of a new collective agreement for ARPANSA. Strategic issues reviewed included: corporate governance and risk management; information management strategic planning; a graduate recruitment program; new web site design; and ARPANSA's role vis-a-vis the several inquiries and reviews of uranium mining and nuclear energy.

ARPANSA commenced negotiations, in the first instance with unions representing ARPANSA staff, for a new collective agreement. The negotiations are continuing.

I took part in six meetings with the Staff Consultative Forum during the year. There was an extended meeting that discussed ARPANSA's plans for workforce development. Issues that were discussed during the year included the Agency's 'Studybank'

scheme, the development of arrangements for carers' rooms at each of the Agency buildings, directions for information management, and processes for making decisions to proceed with recruitment to vacant positions within ARPANSA.

Financial results

The overall financial result is an operating surplus of \$0.98 million for the reporting year. The operating outcome is principally due to delays in a number of IT infrastructure projects including the planned expansion of data backup and storage facilities, and upgrading the communication link between the New South Wales and Victorian Offices. We aimed to complete these projects next year.

We have received an unqualified audit report on the 2006-07 financial accounts. I have received compliance assurances from my senior officers and am prepared to sign the Government's certificate of compliance.

Outlook for 2007-08

Next year I hope to report that:

- Edition 2 of the *National Directory for Radiation Protection* has been accepted by Ministers and is being implemented
- The Code of Practice for Radiation Protection in the Medical Applications of Ionizing Radiation and the accompanying safety guides have been published

- The major issues arising in the development of the Standard for exposure to extremely low electric and magnetic fields have been resolved and the Standard is close to publication
- ARPANSA has continued successful regulatory oversight of the commissioning of the OPAL reactor and that any decision on ANSTO's application to 'possess or control' HIFAR prior to decommissioning is accepted as being consistent with international best practice in radiation protection and nuclear safety
- ARPANSA, working with the states and territories, has made major progress in implementing the COAG decisions with regard to the security of radioactive sources and the *Code of Practice on the Security of Radioactive Sources*
- ARPANSA's medical linac is installed and commissioned.

John Loy PSM
CEO of ARPANSA



Part 2 Agency overview



Functions

The Chief Executive Officer (CEO) of the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) is a statutory office holder under the *Australian Radiation Protection and Nuclear Safety Act 1998* (ARPANS Act). The Act allows the CEO to engage staff to assist the CEO perform his statutory functions. Together, the CEO and staff constitute a statutory agency for the purposes of the *Public Service Act 1999* and a prescribed agency under the *Financial Management and Accountability Act 1997* within the Australian Government Health and Ageing portfolio. Senator the Hon Brett Mason, Parliamentary Secretary to the Minister for Health and Ageing, is responsible for matters including the functions of ARPANSA.

The CEO has a statutory responsibility under the ARPANS Act to make regulatory decisions and provide advice and services consistent with the protection of the health and safety of people, and the protection of the environment, from the harmful effects of radiation – both ionizing and non-ionizing.

The Agency studies, measures and provides advice on radiation. ARPANSA undertakes a number of measurement programs and surveys that target particular types of both natural and artificial radiation exposure. The results of these programs combined with knowledge from international studies provide a picture of radiation exposure and enable an understanding of the

health effects of the resulting exposure levels. This information is communicated to government, industry, medical professionals and the general public by means of codes of practice and safety guides, standards, technical reports, ministerial advice, media releases and the ARPANSA web site.

In partnership with the states and territories, ARPANSA leads the development of uniform national policies and practices on major radiation issues such as the security of radioactive sources, emergency response and the safety of radioactive waste management. ARPANSA participates in international forums to ensure that Australia's interests and priorities are appropriately reflected and implements Australia's radionuclide monitoring obligations under the Comprehensive Nuclear-Test-Ban Treaty.

The Radiation Health and Safety Advisory Council (the Council), the Radiation Health Committee and the Nuclear Safety Committee play an important role working with the Agency.

The Council identifies emerging issues relating to radiation protection and nuclear safety, examines matters of major concern to the community in relation to radiation protection and nuclear safety, advises the CEO on the adoption of recommendations, policies, codes and standards in relation to radiation protection and nuclear safety and advises and reports to the CEO

on other matters relating to radiation protection and nuclear safety.

The Radiation Health Committee advises the CEO and the Council on matters relating to radiation protection, including formulating draft national policies, codes and standards for consideration by the Commonwealth, states and the territories. The Committee is instrumental in promoting uniformity of radiation protection and nuclear safety policy and practices across jurisdictions within Australia.

The Nuclear Safety Committee advises the CEO and the Council on matters relating to nuclear safety and the safety of controlled facilities, including developing and assessing the effectiveness of standards, codes, practices and procedures.

The CEO of ARPANSA has statutory regulatory powers that he exercises to ensure the protection of the health and safety of people and the environment in relation to facilities and controlled material and apparatus that are in the possession or control of, operated or used by Australian Government Departments, Agencies, Statutory authorities, Bodies Corporate, Government Business Enterprises and Commonwealth contractors.

With a regulatory process that is transparent and accountable, ARPANSA translates its extensive knowledge base and national and international leadership into effective regulatory action.

Key strategic directions 2006-07

The 2006-07 Budget provided appropriation to ARPANSA for its Outcome — 'The Australian people and the environment are protected from the harmful effects of radiation'.

As discussed in the previous section, the CEO of ARPANSA has a statutory responsibility under the ARPANS Act to make regulatory decisions and provide advice and services directed to protect the health and safety of people, and the environment, from the harmful effects of ionizing and non-ionizing radiation through a range of public interest functions.

During 2006-07 ARPANSA continued to improve its standing as Australia's national centre for scientific excellence and practical expertise in radiation protection and nuclear safety; and to be a highly effective and efficient regulator of Commonwealth entities and Commonwealth contractors.

During 2006-07 the key strategic directions for ARPANSA were to:

- promote national uniformity in radiation protection and nuclear safety
- continue to expand ARPANSA's knowledge of Australian's exposure to different forms of radiation and the health effects of such exposure
- continue to offer cost-efficient and effective services in the measurement of radiation that respond to the needs of radiation users

- monitor the adherence of licensed Commonwealth entities to the regulatory framework established by the legislation and ARPANSA licensing
- continue to improve regulatory framework in response to the ANAO performance audit on regulation of radiation protection and nuclear safety.

Consistent with the *ARPANSA Corporate Plan 2005-08*, the wide range of functions of the Agency that contribute to its outcome are clustered under three output groups: national leadership in radiation protection and nuclear safety; knowledge, information and services relating to radiation protection and nuclear safety; and regulation of Commonwealth entities using radiation sources and facilities or nuclear installations.

Organisation structure

ARPANSA is located at Miranda in Sydney and at Yallambie in Melbourne.

The Office of the CEO, which includes the CEO and the Legal Adviser is located in Miranda.

The Regulatory and Policy Branch is located at Miranda and is comprised of the following sections:

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

- Integrated Regulatory Review Project

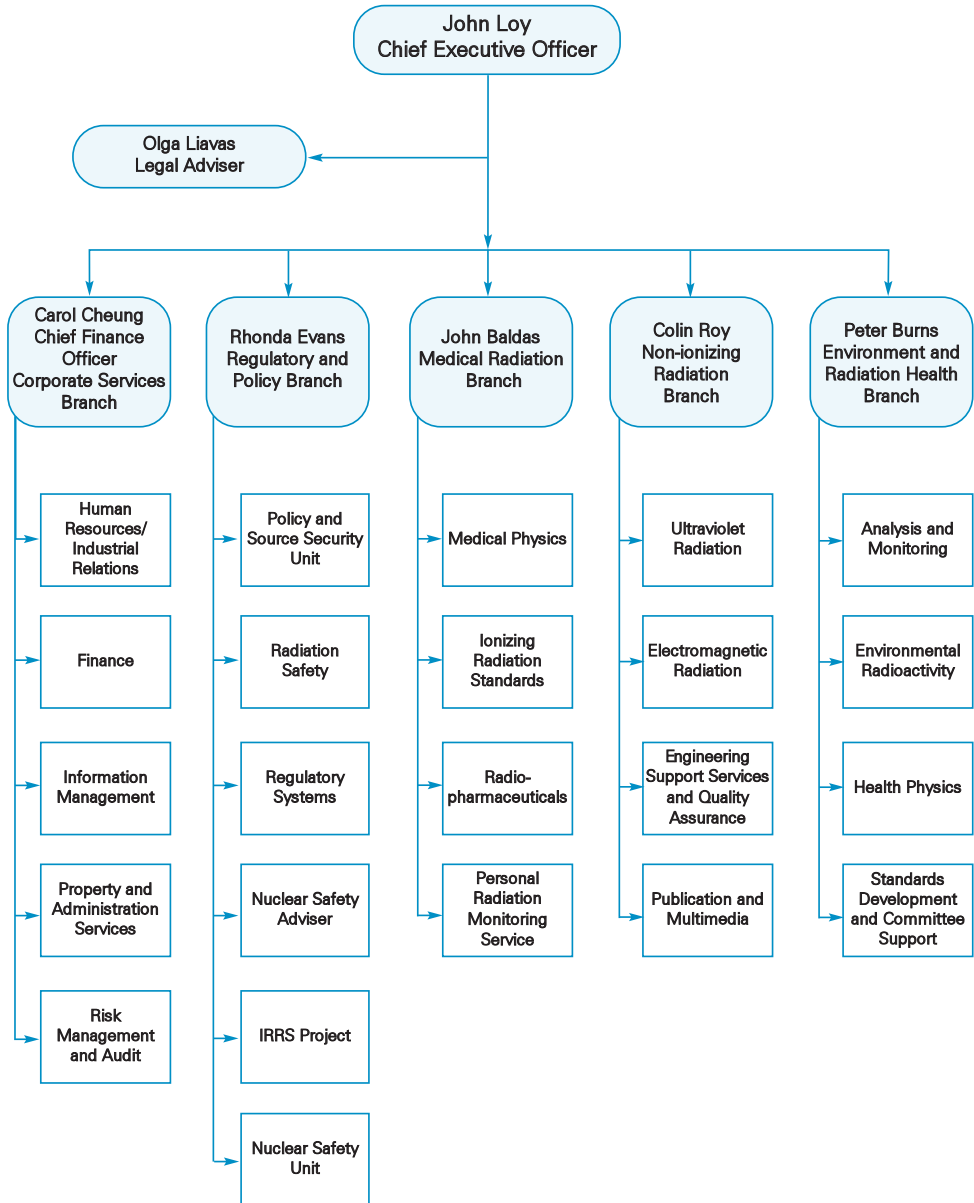
The Regulatory and Policy Branch provides advice to the CEO on the exercise of his regulatory powers and also provides support to the CEO in relation to Ministerial Services and specific policy initiatives such as the implementation of improved physical security for radioactive sources in Australia, in particular through the development and implementation of the *Code of Practice for the Security of Radioactive Sources*.

The Agency's three scientific branches are located at Yallambie. The Environmental and Radiation Health Branch, the Medical Radiation Branch, and the Non-ionizing Radiation Branch each conduct research, develop safety assessment methods, maintain and develop measurement capacities and provide advice and services.

Corporate Services Branch staff are stationed at both locations and provide financial, human resource, industrial relations, property and administration services and information management support for ARPANSA.

At 30 June 2007 ARPANSA employed a total of 133 staff in Miranda and Yallambie. An organisation chart is provided at Figure 1.

Figure 1: Organisation chart of ARPANSA, 30 June 2007





Part 3 Agency performance



Report on performance

The Government funds ARPANSA to provide agreed outputs to the Australian community.

All of the outputs of the Agency were reported against one outcome in 2005-06. From 1 July 2006, the activities of the Agency and the associated transactions were reported under three output groups. As set out in Table 1, the total price of the three output groups in 2006-07, was \$21 129 million.

ARPANSA's operating loss for 2005-06 relates to the claw back of Comcover insurance funding which was provided in 2004-05. An operating surplus is reported for 2006-07. Total operating revenue for 2006-07 is \$22.07 million. Government appropriation accounted for 60.24%, licence fees and charges accounted for 18.66 % and sales of goods and services accounted for 21.09 %. Of the \$4.65 million income generated from sale of goods and services, PRMS accounted for 47.23% and CTBT 27.04%. Incomes from both sources are marginally below last year.

Table 1: 2006-07 Resource Summary for Outcome – The Australian people and the environment are protected from the harmful effects of radiation

	(1) Budget* 2006-07 \$'000	(2) Actual expenses 2006-07 \$'000	Variation (col 2 minus col 1) \$'000	Budget** 2007-08 \$'000
PRICE OF DEPARTMENTAL OUTPUTS				
Output Group 1 – National Leadership	10 044	4 616	-5 428	-8 754
Output Group 2 – Knowledge, Information and Services	7 655	11 793	4 138	11 673
Output Group 3 – Regulation	3 913	4 720	807	4 673
Total Price of Departmental Outputs	21 612	21 129	-483	25 120
Revenue from Government (Appropriation) for Departmental Outputs	13 294	13 294	0	15 867
Revenue from other Sources	8 318	8 817	499	9 253
Total Price of Departmental Outputs	21 612	22 111	499	25 120
TOTAL FOR OUTCOME				
(Total Price of Outputs)	21 612	21 129	-483	25 120
	2006-07		2007-08	
Average Staffing Level	128		137	
* Full-year budget, including additional estimates				
** Budget prior to additional estimates				

Operating expenses totalled \$21.13 million for the year. Employee expenses accounted for 58.12% of total expenditure, an increase of 12.57% from last year. Supplier expenses were marginally below that of the previous year after accounting for the reduction in Comcover insurance premium. Depreciation and amortisation expenses decreased by 14.43% as a result of an independent valuation of property, plant and equipment.

Progression of ARPANSA's draft collective agreement for 2007–2010 continued during the first two months of 2007-08 with the staff vote of eligible employees being conducted by the Australian Electoral Commission over the period 21-31 August 2007. The draft agreement was not supported by a valid majority of staff and negotiations with the unions operating in ARPANSA for a new collective agreement have recently recommenced. Negotiations are continuing at the time of writing.

Figure 2 shows the Agency outputs groups that contribute to its outcome — 'The Australian people and the environment are protected from the harmful effects of radiation'.

The *Portfolio Budget Statements 2006-07* for the Health and Ageing Portfolio publish the agreed outputs for ARPANSA. A summary of ARPANSA's performance in providing these agreed outputs is shown in Tables 2, 3 and 4 and following these tables, a detailed account of performance for each of the three output groups is provided.

Figure 2: ARPANSA Outputs which contribute to the Agency's Outcome for 2006-07

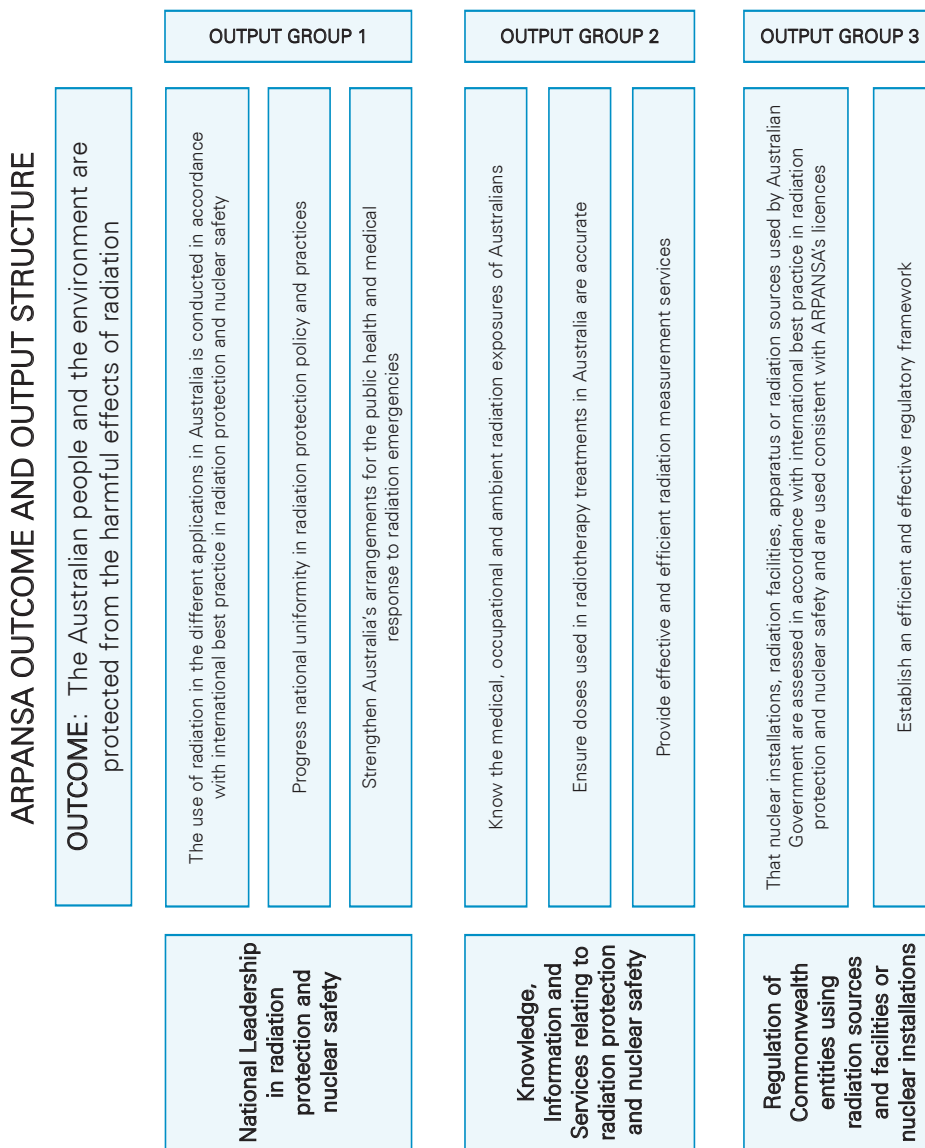


Table 2: Performance Information for Output Group 1 – National Leadership in radiation protection and nuclear safety

Indicator	Measured by	Reference Point or Target	Performance Level Achieved
<p>The use of radiation in the different applications in Australia is conducted in accordance with international best practice in radiation protection and nuclear safety</p>	<p>Information about best practice is available in the form of standards, codes of practice and safety guides</p>	<p>Publish standards for:</p> <ul style="list-style-type: none"> • ultraviolet radiation → Published December 2006 • maximum exposure levels to electric and magnetic fields. → Not achieved. See page 34 <p>Publish radiation protection codes of practice/safety guides for:</p> <ul style="list-style-type: none"> • fixed radiation gauges → Published January 2007 • radiology; radiotherapy and nuclear medicine → Single medical code to replace three separate modalities. See pages 34-35 • x-ray analysis, veterinary science, and use of lasers in entertainment → Not achieved. See page 35 • security of radiation sources → Published January 2007 • treatment, conditioning and storage of radioactive waste. → Not achieved. See page 35 <p>Publish advice on diagnostic reference levels → Not achieved. See page 41</p>	
<p>Progress national uniformity in radiation protection policy and practices</p>	<p>The <i>National Directory for Radiation Protection</i> (NDRP) has been updated and maintained, and is comprehensive</p>	<p>Publish the second edition of the NDRP</p>	<p>Not achieved. See page 67</p>
<p>Strengthen Australia's arrangements for the public health and medical response to radiation emergencies</p>	<p>Supporting the development of national guidelines on the use of decorporation agents and the medical treatment of internal contamination</p>	<p>Finalise guidelines for the use of decorporation agents and the medical treatment of internal contamination</p>	<p>Not achieved. See page 38</p>

Table 3: Performance Information for Output Group 2 – Knowledge, Information and Services relating to radiation protection and nuclear safety

Indicator	Measured by	Reference Point or Target	Performance Level Achieved
Know the medical, occupational and ambient radiation exposures of Australians	Radiation measurement programs and surveys have been undertaken and the results analysed	<p>Publish reports in refereed journals on:</p> <ul style="list-style-type: none"> the survey of patient radiation dose in diagnostic radiology the results from the solar ultra-violet radiation (UVR) network and the personal dosimetric studies of UVR exposure in targeted groups <p>Publish an advisory brochure on radiation dose in diagnostic radiology for doctors and patients</p> <p>Determine the dose assessment methodology for a survey of patient dose in computed tomography</p>	<p>Not achieved. See pages 40-41</p> <p>Achieved</p> <p>Not achieved. See pages 40-41</p> <p>See pages 40-41</p>
Ensure doses used in radiotherapy treatments in Australia are accurate	Maintenance and dissemination of the Australian primary and secondary standards of measurement of the quantities of exposure and absorbed dose for ionizing radiation	Re-establish the graphite calorimeter as the national primary standard of absorbed dose	Achieved
Provide effective and efficient radiation measurement services	Maintenance of the National Association of Testing Authorities (NATA) accreditation for services provided and meeting agreed turnaround times	<p>Maintain NATA Accreditation</p> <p>Perform services within agreed turnaround times</p> <p>Undertake proficiency testing of services</p>	<p>Achieved</p> <p>Achieved</p> <p>Achieved</p>

Table 4: Performance Information for Output Group 3 – Regulation of Commonwealth entities using radiation sources and facilities or nuclear installations

Indicator	Measured by	Reference Point or Target	Performance Level Achieved
That nuclear installations, radiation facilities, apparatus or radiation sources used by Australian Government are assessed in accordance with international best practice in radiation protection and consistent with ARPANSA's licences	Monitoring will demonstrate compliance	Inspect all licence holders within every three years Analyse all quarterly and annual reports Recalculate the risk assessment every six months and act on that risk assessment, for each licence holder	See regulatory report at pages 47-61
Establish an efficient and effective regulatory framework	Regulatory safety assessment and inspection reports are prepared to a standard acceptable by the CEO within the timeframes established for these purposes Compliance with reporting requirements by licence holders is monitored and reported Performance by ARPANSA inspectors on timelines and quality is monitored and reported Appropriate enforcement action is taken within the timeframes established for this purpose ARPANSA regulatory performance is measured through surveys to all licence holders and is reported	Continue the development of a transparent and robust regulatory framework which will withstand external review and which is understood and supported by licence holders	See regulatory report at pages 47-61

Output Group 1: National Leadership in radiation protection and nuclear safety

ARPANSA provides national leadership in building strategic partnerships with the states and territories and in the development of national and international policies and practices in radiation protection and nuclear safety. ARPANSA:

- implements Australia's radionuclide monitoring obligations under the Comprehensive Nuclear-Test-Ban Treaty,
- provides assurance on the security of radioactive sources and
- maintains a preparedness and response capability in the event of a radiological incident.

This leadership derives primarily from the Agency's participation in international forums.

International best practice in radiation protection and nuclear safety through the development and publication of standards and codes of practice

The preparation of the draft standard on maximum exposure levels for exposure to electric and magnetic fields 0 Hz to 3 kHz proved to be a more complex task than initially anticipated due mainly to the significant volume of research required to be reviewed by the working group. The draft standard was released for public comment from December 2006 to February 2007. Sixty-four submissions were received. The working group has

commenced review of the submissions and pre-preparation of a final draft for consideration by the Radiation Health Committee. Due to the substantial nature and level of detail of many of the submissions, the review process is expected to take several months.

During the year the Radiation Health Committee made the decision to incorporate the three medical codes (radiology, radiotherapy and nuclear medicine) into a single code on the medical applications of ionizing radiation, which included only the regulatory elements of radiation protection in medicine. This decision led to some concern within the industry in regard to whether a single code applying to all three disciplines would give effective guidance. The Committee determined that the material of concern to the industry was best placed in supporting safety guides, specific to each discipline, and which would provide advice on best practice and on means of complying with the code.

Re-drafting of the medical code presented a significant workload, and was achieved in a relatively short time due to the commitment of resources from ARPANSA and several state and territory representatives who formed the Radiation Health Committee sub-committee. At its March 2007 meeting, the Radiation Health Committee was then able to agree on releasing the draft code for a period of industry consultation in May and June 2007. The Committee agreed that a further version of the code would be produced

after review of industry comment and presented to the July 2007 meeting of the Committee. The Committee aimed to have a version of the code finalised for a period of public consultation along with a regulatory impact statement commencing during August 2007, so that the proposed national conference on radiation protection in medicine on 3 October 2007 would form part of the consultation process, and with the comment period closing at the end of October 2007.

As the task of preparing a single code was given high priority during the year, resources were diverted from finalising the codes of practice and safety guides for veterinary medicine, protection from ionizing radiation from x-ray analysis, the use of lasers in entertainment, and the treatment, conditioning and storage of radioactive waste. These projects will be progressed during 2007-08.

A particular activity that gained momentum during the year has been the preparation of regulatory guidance with respect to naturally occurring radioactive materials (NORM). NORM is widespread in sands, clays, soils and rocks, and many of the ores and minerals (e.g. coal, oil and gas, bauxite, phosphate rock, ores containing tin, tantalum, niobium, rare earths, and some copper and gold deposits), commodities (e.g. water, building materials, fertiliser), products (e.g. ceramics), by-products (e.g. phosphogypsum), recycled residues (e.g. fly ash from coal burning, red mud from alumina production and slags from mineral processing), and devices used

by humans (e.g. welding rods, gas mantles and electronic components) can contain NORM. Although the concentration of NORM in most natural substances is low, almost any operation in which any material is extracted from the earth and processed can concentrate NORM in product, by-product or waste (residue) streams. The generation of products, by-products, residues and wastes containing NORM has the potential to lead to exposures to both workers and members of the public, along with environmental impacts.

Following advice from the Radiation Health and Safety Advisory Council, ARPANSA commenced a process of review and assessment of NORM management in various industries, and in particular commenced development of a safety guide on NORM, as part of the RHC publication program. This will provide national guidance on the management of NORM and a methodology for assessment of the need for a regulatory approach in specific situations. The safety guide is scheduled to be finalised during 2008.

A resource page on NORM issues has been prepared and posted on the ARPANSA web site (<http://www.arpansa.gov.au/aboutus/committees/norm.cfm>). In consultation with a NORM stakeholder group that includes government and industry representatives, the web page will be developed further and include information on NORM management.

During March 2007 ARPANSA staff participated in a symposium on NORM

in Seville, Spain to obtain information on NORM management in different industries for the development of the safety guide and also presented a paper at a conference on natural radiation and NORM in London, United Kingdom which discussed some of the issues that lead to confusion about the risks associated with NORM, and methodologies for addressing those issues.

Comprehensive Nuclear-Test-Ban Treaty

The Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organisation (CTBTO) is an international organisation, established in 1996, to prepare for the enforcement of the Comprehensive Nuclear-Test-Ban Treaty (CTBT). ARPANSA attends the CTBTO's Working Group B meetings dealing with verification issues relating to the CTBT and under contract to the CTBTO, operates and maintains Australia's radionuclide air-sampling monitoring stations. The stations in Melbourne, Perth, Townsville, Darwin and the Cocos Islands are integrated into the global monitoring system for enforcing and verifying compliance to the CTBT.

ARPANSA had installed and previously operated and maintained the radionuclide station at Kavieng, Papua New Guinea (PNG). However, responsibility for this station was transferred to the PNG National Weather Service in September 2006.

In addition to operating the stations, ARPANSA also operates the CTBT

Australian Radionuclide Laboratory, which has the role of testing samples obtained by other monitoring stations. The laboratory has been awarded formal certification by the National Association of Testing Authorities (ISO/IEC 17025, 1999) and the CTBTO.

A site survey of Davis Station in Antarctica was undertaken in conjunction with Geoscience Australia to determine its suitability for the installation of a radionuclide air monitoring station.

In November 2006, a noble gas system was collocated with the radionuclide air monitoring station in Darwin. This system forms part of the evaluation of Phase III of the Noble Gas System exercise which began in 1999 with the aim of assessing noble gas technology and its capability to meet treaty verification goals. ARPANSA accepted responsibility for this monitoring facility in April 2007.

A workshop on radioxenon monitoring co-hosted by ARPANSA and CTBTO was held in Melbourne in October 2006. The focus of the workshop was on emerging developments in the area of noble gas monitoring for the International Monitoring System and International Data Centre.

Security of radioactive sources

National register of high activity sources

ARPANSA continued the development of a national register for high activity radioactive sources. The key project

stages are: resolution of data quality and availability with all of the state and territory jurisdictions; refinement of the database functionality; and development of a virtual register.

Legislative control on export of radioactive material

Amendments to the Customs Prohibited Export Regulations (1958) to broaden their scope to include radioactive waste came into effect on 31 December 2005. This revision allows Australia to meet its obligations under the IAEA *Code of Conduct on the Safety and Security of Radioactive Sources* and the Joint Convention on the Safety of Spent Fuel Management and the Safety of Radioactive Waste Management. ARPANSA interacts with other relevant national and international competent authorities to ensure that the obligations are met.

A total of 16 export permissions were processed during the reporting year.

ARPANSA also works with counterpart competent authorities in countries with whom we trade radioactive sources to establish bilateral arrangements for implementing administrative procedures in the code and its associated document, the *Guidance on the Import and Export of Radioactive Sources*. Procedures are being harmonised with international best practice and Australian practice for assessing proposals to export WMD capable materials (principal liaison with Defence Trade Control and Compliance).

Importation of radioactive materials

The importation of radioactive material into Australia requires permission under regulation 4R of the Customs (Prohibited Imports) Regulations 1956. These regulations are made under the *Customs Act 1901*. Under the Customs (Prohibited Imports) Regulations 1956 the Minister for Health and Ageing may authorise ARPANSA officers to approve import permissions.

In accordance with the authorisation by the Minister for Health and Ageing under the Customs (Prohibited Imports) Regulations 1956, ARPANSA authorised officers issued:

- 505 permits for Customs release of non-medical radioisotopes, comprising 481 single shipments (of which 309 were urgent requests) and 24 twelve monthly permits
- 547 permits for Customs release of medical radioisotopes, comprising 511 single shipments (of which 26 were urgent requests) and 36 twelve monthly permits.

National radiological emergency preparedness and response

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. ARPANSA is also a WHO Collaborating Centre for Radiation Protection.

ARPANSA has extended Australia's radiation emergency response capability by setting up teams of trained radiation specialists, equipped for the in-field analysis of any radioactive material. The ARPANSA response teams have established close working relationships with state, territory and other Australian Government agencies in support of Australian radiation emergency preparedness. The response teams have engaged in national and international operations and training activities, including participation in an international radiation emergency measurement exercise in Austria in May 2007. ARPANSA continues to provide radiation experts for the Crisis Advisory Panel of Experts and an on-call duty officer to provide 24 hour access to ARPANSA resources and expertise.

As a member of a working group established by the Department of Health and Ageing and chaired by the Victorian Department of Human Services, the Agency is tasked with the development of national guidelines on the use of decorporation agents and the medical treatment of internal contamination from radiological emergencies. Content on the radiation protection elements has been provided by ARPANSA and the guidelines are awaiting specialised clinical content from the medical specialists on the working group.

During April 2007, ARPANSA hosted a series of seminars and workshops on ARGOS (Accident Reporting and Guidance Operational System), a decision support system for chemical, biological, radiological or nuclear (CBRN) emergencies. ARGOS software is administered through a consortium of nine member countries: Canada, Ireland, Denmark, Sweden, Norway, Poland, Estonia, Latvia, and Lithuania. With financial support from the Department of Defence (Navy) and Emergency Management Australia, ARPANSA acquired a licence to install and test the ARGOS software within ARPANSA and on other selected sites. ARPANSA will coordinate a cross-Agency working group to evaluate the usefulness and implementation requirements of ARGOS in support of Australian CBRN emergency arrangements.

ARPANSA staff attended a conference in London in March 2007, to obtain information on the extent of the public health response to an incident in London in which the poison, polonium-210, was used.

Regional radiological emergency response

The Australian Government provided funding to ARPANSA in the 2006 Budget to strengthen radiological emergency response plans and technical capabilities of countries within the Asian region and to 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, ARPANSA hosted an Asian/Australasian Regional NCA Workshop in Melbourne in November 2006, attended by representatives from 13 countries.

ARPANSA's international involvement

ARPANSA participated extensively in the work of developing the IAEA safety standards and security documents. The CEO took part in two meetings of the Commission on Safety Standards and the 50th General Conference of the IAEA and officers represented Australia at:

- two meetings each of the Radiation Safety Standards Committee (RASSC), Waste Safety Standards Committee (WASSC) and Transport Safety Standards Committee (TRANSSC) and
- five technical or consultants' meetings to prepare draft documents.

ARPANSA officers took part in IAEA organised international conferences on:

- quality assurance and new techniques in radiation medicine (Vienna, November 2006)
- the decommissioning of nuclear facilities (Athens, December 2006)
- the challenges faced by technical support organisations in enhancing nuclear safety (Aix-en-provence, April 2007)
- environmental radioactivity (Vienna, April 2007).

ARPANSA worked with the IAEA in preparing for an international conference on the safety and utilisation of research reactors to be held in Sydney in November 2007.

During the year, various IAEA draft safety standards were released to IAEA Member States for comment. ARPANSA sought input on these draft standards from radiation regulators and relevant industry bodies.

Australia is a signatory to the Metre Convention and maintains national standards traceable to the *Système International d'Unités*, the SI (the International System of Units). ARPANSA is authorised by the National Measurement Institute of Australia to maintain primary standards of absorbed dose and exposure (air kerma) for the measurement of radiation. In the SI, these quantities are derived standards and need to be periodically confirmed by comparison with other international standards including those held by the International Bureau of Weights and Measures (the BIPM) in Paris. The BIPM maintains a key comparison database (KCDB) that establishes the equivalences between national standards. The database also contains calibration and measurement capabilities of countries signatory to the Metre Convention. The capabilities are supported by the comparisons. These issues are reviewed at biennial meetings of the Consultative Committee for Ionizing Radiation (Section I) held at the BIPM.

Two delegates from ARPANSA attended the 18th meeting of the CCRI(I) in Paris, in May 2007.

Australian radiation standards have been compared directly with those of the BIPM but other countries are not so fortunate or developed. To improve involvement in the SI, regional metrology organisations have been created and Australia is a member of the Asia Pacific Metrology Program (APMP). Results from comparison programs carried out within the APMP can be linked to the KCDB by a laboratory such as ARPANSA that has direct comparisons with the BIPM. There is also the opportunity to assist developing countries in the region to improve their measurement capabilities. Over the past year, ARPANSA has provided dosimeter calibrations for Thailand and Indonesia and advice has been given to the Bhabha Atomic Research Centre in India to assist the development of a quality system.

Output Group 2: Knowledge, Information and Services relating to radiation protection and nuclear safety

ARPANSA needs to know the sources of radiation exposure to Australians and understand the health effects of the resulting exposure levels in order to protect the Australian population and environment.

This output group includes a number of measurement programs and surveys that target particular types of both natural and artificial radiation exposure. The results of these programs combined with knowledge from international studies provide a full picture of radiation exposure in Australia. This information is communicated to government, industry, medical professionals and the general public by means of codes of practice and safety guides, standards, technical reports, ministerial advice, media releases and the ARPANSA web site.

Medical exposure

Results of the survey of patient radiation doses in diagnostic radiology were presented at the Royal Australian and New Zealand College of Radiologists and the Engineering and Physical Scientists in Medicine conferences, and the publication of the results is being finalised.

A draft of an advisory brochure on radiation dose in diagnostic radiology for doctors and patients has been

prepared and consultation with medical practitioners is being pursued.

Computed tomography (CT) procedures have become the dominant contributor to the radiation dose to the population from diagnostic radiology. This has come about both because of the increasing number of procedures and the increasing complexity afforded by modern technology. Radiation doses from CT were surveyed by ARPANSA in 1994 and have been updated for 2002 using the increases in number of standard procedures. In Australia the per caput radiation dose from CT for 2002 was approximately 0.8 mSv, or 70% of the total from diagnostic uses of radiation. ARPANSA is now conducting a national survey of CT procedures and doses, which will take into account the effects of new technology and new types of procedures. The computation tools and methodologies necessary to estimate effective doses from all types of CT equipment and a database to organise the information have been developed. A major aim of the survey is to measure the impact of new technologies and procedures on patient doses in CT.

A publication to accompany the code of practice in the medical applications of ionizing radiation relating to diagnostic reference levels is being prepared and consultation with the relevant professional bodies is continuing. Diagnostic reference levels (DRLs) are intended to identify situations where the patient dose or administered activities are unusually high. DRLs are advisory in nature and supplement

professional judgement but are not intended to provide a dividing line between good and bad practice.

Ultraviolet exposure

ARPANSA continues to assess the ultraviolet radiation (UVR) exposures of various population groups and workers in a number of ongoing studies. The data collection phase of the multi-year collaborative study with the Menzies Centre for Population Health in Hobart and the National Centre for Epidemiology and Population Health at the Australian National University in Canberra to assess the UVR exposure of people with multiple sclerosis was completed 2005. The UVR exposure data collected during this study is being analysed and the results are expected to be submitted for publication in 2007.

ARPANSA participated in an international project examining the UVR exposures of parents, children and lifeguards while at swimming pools. The project, with the University of Hawaii and Emory University in the US, took place in the US in the summer of 2006. The study looks 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. The results covering various aspects of behaviour, such as sun protection practices and awareness and their inter-relation with UVR exposure and sunscreen use are

planned to be submitted to journals for publication before the end of 2007.

Research into protection against solar UVR continued. A paper summarising the research to date on UVR protection provided by clothing was published in *Photodermatology, Photoimmunology and Photomedicine*. The collaborative study with the Clothing and Textile Sciences Faculty of the University of Otago in Dunedin is systematically characterising the factors that determine whether clothing provides good or poor protection against solar UVR. This work resulted in a paper on the effect of colour on the UVR protection that was published in the *Journal of Textile Research* in 2007.

A paper summarising the results of a 2004-05 collaborative study with the Cancer Council of South Australia and the Waite Institute of the University of Adelaide to measure the effectiveness of various species of Australian trees in providing protection against solar UVR was published in a refereed scientific journal.

Environmental radiation

ARPANSA is undertaking an assessment of external background radiation across Australia, based on airborne radiometric survey data collected by Geoscience Australia. Radiometric survey data for Victoria has been acquired and an analysis to validate the methodology is progressing.

ARPANSA, in conjunction with the South Pacific Environmental

Radioactivity Association (SPERA), hosted the SPERA 2006 Conference held in Melbourne during October 2006. The primary objective of the Conference was to encourage and facilitate communication among scientists working in the South Pacific region in the field of environmental radioactivity study natural processes or human impacts. A total of 67 participants attended from the South Pacific region and countries world-wide presenting 56 oral and poster presentations on the behaviour of natural and anthropogenic radionuclides in the environment and their radiological consequences.

ARPANSA and RMIT University completed a study to determine the quantities of radioactive materials retained in the lungs of uranium mine and milling workers at the Ranger uranium mine as part of the Australian Research Council Linkage Project on occupational dose assessment. Lung burdens were measured directly by in vivo gamma-ray spectrometry.

The consequence of internal radiation exposure from inhalation of uranium material is dependent, in part, upon how the material is dissolved in the lung and at what rate. An assessment of radioactive dust samples collected from the Ranger mine for solubility in simulated lung fluid was completed. ARPANSA also completed a study of uranium in urine samples collected from Ranger workers. A technique to quantify the level of uranium in human urine was also developed.

To support measurement of radioactivity and ionizing radiation in people and the environment, ARPANSA is developing measurement and calibration systems to support the assessment of radiation exposure to people. NATA accreditation is being sought for the radon calibration and testing facility. In August 2006, an upgrade of shielding and instrumentation began for the laboratory based lung monitoring system.

Electromagnetic fields

There is ongoing public concern about the deployment of mobile phone base stations within the community and about possible health effects of radiofrequency (RF) electromagnetic energy (EME) emissions from the base stations. Although health authorities around the world, including the World Health Organization, remain of the view that any harmful effects are unproven and unlikely, the public anxiety, itself, is an important issue. As part of a mandated consultation process for the deployment of 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. To help address some public issues the requirements for the report have been extended to provide additional information about the effects of landscape and multistorey buildings. ARPANSA continues to gather information on actual exposure levels

and provides this to the public together with facts about the underlying science. ARPANSA has developed plans and a protocol for an ongoing program of measurements of RF EME levels around a small number of base stations throughout Australia. The stations have been selected following community consultation. ARPANSA scientific officers carried out inspections and measurements of RF EMR levels in the vicinity of mobile phone base stations in order to assist in this planning. Measurements will be carried out by NATA registered consultants. The first measurements of this program were made at Sandringham, Victoria in April.

Two meetings of the EME Reference Group were hosted by ARPANSA in November 2006 and May 2007 to discuss health issues and concern arising from mobile telephony in Australia. The meetings were attended by representatives from community groups, industry and relevant government and non-government organisations, including ARPANSA. Discussion at the November 2006 meeting included EME emissions from household devices, the forthcoming audit of emissions from mobile phone base stations and recent publicity concerning apparent clusters of cancers in buildings beneath base stations. The May 2007 meeting discussed various approaches to scientific study of possible health effects in the community and included a progress report on the audit of emissions from mobile phone base stations. Useful feedback was received from participants and this information

will be used to guide the preparation of public information on the issues and to help plan measurement programs.

An ARPANSA officer attended a meeting of the New Zealand Interagency Committee on the Health Effects of Non-ionizing Radiation in Wellington in September 2006 and presented a report on ARPANSA's activities in area of electromagnetic radiation. A report was also presented at a subsequent meeting in February 2007. The meetings discussed regulatory and radiation protection issues involving 50 Hz magnetic fields and radio-frequency electromagnetic radiation, many of which were also of interest to Australia and ARPANSA.

The measurement phase of a survey of extremely low frequency (50 Hz) magnetic field levels in about 300 Melbourne homes is almost complete. More than 95% of selected homes have been visited and magnetic field data collected, including spot-measurements in different rooms and 24-hour logging of levels in the first child's bedroom and in the main family living space. Measurements outside almost 550 non-participating homes have been taken to estimate selection biases. Analysis of the results has commenced and the first of several publications should follow in late 2007.

Accurate radiation doses for cancer treatment

Over the year, the refurbishment the ARPANSA and IAEA graphite calorimeters was completed and the

absorbed dose primary standard re-established. This standard underpins the calibration of radiotherapy reference dosimeters in Australian hospitals. In May, 2007, in Paris, ARPANSA officers presented a paper and a poster on this work at a dosimetry standards workshop sponsored by the BIPM. The status of the graphite calorimeter and the Australian absorbed dose standard was reported to the CCRI(I). A technical report is being prepared with more detail on the implementation of the calorimeters.

Cost-efficient and effective radiation measurement services

The following ARPANSA services are accredited by the National Association of Testing Authorities (NATA), as compliant with ISO/IEC 17025: 1999/2005, *General requirements for the competence of calibration and testing laboratories*:

- Ionizing Radiation Calibrations
- Radiopharmaceutical Quality Assurance
- Personal Radiation Monitoring Service
- Radiofrequency Calibrations
- Ultraviolet Protection Facility
- Radioanalytical Services.

Biennial reassessments, as detailed in Table 5, are undertaken by NATA to ensure continued compliance. In June 2006 the CTBT Radionuclide Laboratory requested NATA to suspend its accreditation while a new gamma detector was installed

and commissioned. The equipment is now fully operational and the delayed reassessment is due to be conducted in July 2007.

Proficiency testing was undertaken in respect of the following services:

- Radiopharmaceutical Quality Assurance
- Ultraviolet Protection Facility
- CTBT Radionuclide Laboratory.

Ionizing radiation calibrations

As the holder of the Australian Standards for exposure and absorbed dose for ionizing radiation, ARPANSA carries out calibrations of various radiation dose measuring devices so that their measurements are accurate and are traceable to the Australian Standard.

Over the year, 17 reference ionization chambers and 11 electrometers were calibrated for 10 radiotherapy treatment hospitals. This is roughly one third of

the number of therapy dosimetry centres in the country, consistent with maintaining a recalibration period of three years for hospital dosimeters. Thirteen protection level survey meters were calibrated. Ten neutron meters were calibrated for external clients. Dosimetry calibrations were performed for six reference beams from sources or generators.

Following the June 2006 NATA reaccreditation audit the scope of accreditation was extended, subject to several conditions, to cover therapy level calibration services.

ARPANSA staff attended a modelling workshop at the NRCC laboratories in Ottawa, in October 2006 to obtain knowledge applicable to modelling the beam output from the cobalt-60 teletherapy source, calculating TLD holder corrections applicable for the MV photon TLD audit service, and modelling the response of the primary standards maintained at ARPANSA.

Table 5: Status of Accreditation in accordance with AS ISO/IEC 17025: 2005 at 30 June 2007

Service Activity	NATA Accreditation	Most recent NATA Re-assessment
Quality Management System	3 April 2002	20 December 2006
Ionizing Radiation Calibrations	9 August 2005	28 June 2006
Radiopharmaceutical Quality Assurance	17 June 2005	6 June 2007
Personal Radiation Monitoring Service	3 April 2002	25 August 2006
Radiofrequency Calibrations	24 July 2002	28 September 2005
Ultraviolet Protection Facility	18 February 2005	30 May 2006
CTBT Radionuclide Laboratory	3 November 2004	Due July 2007
Radioanalytical Services	17 March 2005	20 December 2006

Radiopharmaceutical quality assurance

ARPANSA has continued to support the work of the Therapeutic Goods Administration (TGA) by the evaluation by ARPANSA of the chemistry, manufacture, quality control and radiation dosimetry data submitted in applications to register radiopharmaceutical drugs on the Australian Register of Therapeutic Goods, and in applications to vary the conditions of registration. A NATA accredited quality assurance testing program is conducted to monitor radiopharmaceuticals used in nuclear medicine practice in Australia for compliance with the required standards of purity and quality. The results of quality assurance tests for each year of testing are published as a technical report available on the ARPANSA web site – the results for 2006 are available at <http://www.arpansa.gov.au/pubs/technicalreports/tr146.pdf>. Proficiency testing has been conducted in collaboration with the Danish Medicines Agency. A continuation of the Memorandum of Understanding between ARPANSA and the TGA is currently being negotiated.

Personal Radiation Monitoring Service

The Personal Radiation Monitoring Service (PRMS) provides monitors to measure the radiation doses received by workers in the medical, dental, chiropractic, industrial and mining fields. The service is accredited by NATA and ensures occupational safety by monitoring and controlling ionizing radiation doses.

PRMS offers four types of monitors – normal monitors, special monitors for use in the mining industry, neutron monitors and extremity monitors. There are about 27 000 active wearers throughout Australia, Papua New Guinea and other countries in the region. During the year, 170 688 normal monitors and 2 640 extremity monitors were issued.

Redevelopment of the database system used for record keeping and monitor issue was completed during the year. Work on the redesign of the monitor holder used in the PRMS is nearing completion with prototype holders currently being tested to ensure that there is no change in radiation measurement characteristics.

Radiofrequency Calibrations

ARPANSA operates a calibration service for radiofrequency hazard meters and alarms used for the protection of personnel from potential hazardous electromagnetic fields. The service is used by government departments and various commercial companies, large and small.

During the year a total of 284 orders were received for radiofrequency calibrations of which 239 were completed as NATA accredited reports. Included in these orders were nearly 200 monitors and 80 personal monitors or radiofrequency badges.

Ultraviolet Protection Facility

Demand continued to increase for the testing, licensing and labelling program for the ultraviolet protection factor (UPF)

for fabrics and clothing. In addition to meeting NATA requirements, an international intercomparison of UPF testing involving 12 Australian and overseas testing organisations was initiated and carried by ARPANSA in June 2007. The results are currently being analysed and a report will be completed by the end of 2007.

During the year 520 test requests were received which involved the testing of more than 1 840 fabric samples. In addition 109 UPF trademark licences were issued and 315 orders for over 5.3 million UPF swing tags were filled.

Radioanalytical services

A radiochemistry laboratory and low-level radioactivity counting facility for gamma-ray and alpha spectrometry, beta counting and liquid scintillation counting, are maintained to assess the impact of the presence of radionuclides in the Australian environment resulting from any national radiological emergency, such as releases from industrial sources, or a nuclear accident. The operation of the radio-

chemical laboratory includes method development and evaluation, and sample preparation techniques. Field-based spectrometry measurement systems have also been developed and maintained. A method has been developed for the analysis of uranium in urine. This has been used in an investigation of uranium uptake by workers in the uranium mining industry.

Ministerial advice

ARPANSA places great importance on being responsive to the achievement of the outcomes expected by the Government.

The Agency works closely with ministerial advisers to respond effectively in supporting the Minister in policy making by providing technical and policy advice in relation to radiation protection and nuclear safety based on careful analysis and assessment. In addition, as detailed in Table 6, the Agency prepares Ministerial and Parliamentary briefing material, draft correspondence and reports.

Table 6: Details of advice provided 1 July 2006 – 30 June 2007*

Ministerial Correspondence	18
Ministerial Briefs	6
Minutes to the Minister	23
Question Time Briefs	25
Current Issue Briefs	5
Parliamentary Questions on Notice	5

* Excludes items marked for information

Output Group 3: Regulation of Commonwealth entities using radiation sources and facilities or nuclear installations including details of breaches of licence conditions in accordance with sub-section 59(3) of the ARPANS Act

The CEO of ARPANSA is responsible for regulating all radiation and nuclear activities undertaken by Australian Government entities and contractors who undertake such activities for or on behalf of Australian Government entities (Commonwealth contractors).

ARPANSA staff assist the CEO to implement the regulatory scheme set out in the ARPANS legislation, in particular by providing assessments and advice in connection with applications for source and facility licences under the ARPANS Act, including whether or not a licence should be issued, authorising dealings with radiation sources and conduct undertaken in relation to facilities, both prescribed radiation facilities and nuclear installations.

Monitoring compliance with the ARPANS legislative scheme for regulation, including by undertaking inspections and providing advice to the CEO on findings of any breach of the Act and any subsequent recommendation as to enforcement action, is a major output of ARPANSA. Compliance monitoring includes the review of compliance reports submitted by licence holders.

Continuous improvement of regulatory business processes

Audit reports

The 2005-06 Annual Report discussed the work being undertaken to respond to the recommendations of the report of the performance audit conducted by the Australian National Audit Office (ANAO), which had investigated aspects of the licensing processes established by ARPANSA.

The audit report made 19 recommendations for improving the Agency's regulatory business processes and on behalf of ARPANSA, all of which were accepted by the CEO.

The ANAO report was the subject of review by the Joint Committee of Public Accounts and Audit (JCPAA) and a further nine recommendations were made in the JCPAA report tabled in the Parliament in September 2006. These include recommendations related to:

- 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
- regular engagement with state and territory regulatory bodies.
- regular engagement with state and territory regulatory bodies.

In December 2006 the CEO of ARPANSA finalised a response to both the ANAO report and the JCPAA report in a document available on the ARPANSA web site.

In March 2007 the CEO of ARPANSA, through the Minister for Health and Ageing provided an Executive Minute on the outcome of the implementation of these recommendations to the Chair of the JCPAA. In summary the CEO concluded that since the release of the ANAO audit report ARPANSA has undertaken the task of examining the recommendations and preparing a program for implementation of reform to address the recommendations. The approach has evolved from a project based approach centred on the Regulatory Review Team to the next stage which is the creation of a new organisational structure that will make the reforms mainstream to the organisation and focus on their implementation, including the on-going training of staff.

The majority of ANAO recommendations have been fully implemented or substantially achieved. The findings and recommendations will continue to form an essential framework for the continuous improvement of regulatory management.

In addition the CEO flagged in that report that the International Atomic Energy Agency would conduct an integrated regulatory review service assessment of its regulation of radiation protection and nuclear safety.

New regulatory management information system

A new regulatory information management system has been developed based on the records management software TRIM 6. This software provides an accredited means of managing and recording regulatory documents and information and monitoring and managing all of the regulatory processes. It includes a means of real time work tracking and control and monitoring and reporting of key performance indicators of the regulatory functions. This will assist in meeting the performance measures of a new regulatory business plan. In January 2007 the Regulatory and Policy Branch appointed a Manager Regulatory Systems, a management role charged with the responsibility for assisting the Director, implement these and other improved regulatory processes.

Stakeholder consultation

Following on from the regulatory reform project reported in the previous year's annual report, the Regulatory and Policy Branch has continued to collect qualitative data from stakeholders, in particular licence holders, in order to inform the continuous improvement agenda.

In August 2006, a licence holder forum was conducted by ARPANSA in Canberra which was hosted by CSIRO. The focus of the forum was an information session on regulation 4,

which prescribed the types of non-ionizing controlled apparatus that require licensing under the Act, sharing of common regulatory issues between licence holders and information to assist licence holders in understanding their compliance obligations under the ARPANS Act. The seminar was well attended by ARPANSA licensees, and well received.

The Integrated Regulatory Review Service (IRRS) Mission to Australia

At the request of the CEO of ARPANSA, an international team of eleven experts in radiation and nuclear safety visited the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) from 25 June to 6 July 2007 to conduct an Integrated Regulatory Review Service (IRRS) mission.

The purpose of the IRRS mission was to conduct a review of the regulatory framework established by the *Australian Radiation Protection and Nuclear Safety Act 1998* and the Australian Radiation Protection and Nuclear Safety Regulations and to consider the effectiveness of the implementation of that framework. The mission was also designed to ensure the exchange of information and experience between the members of the mission and their counterparts within ARPANSA

The IAEA had conducted a 'full scope' IRRS Mission in France in 2006 and an abbreviated mission in the UK. An IRRS Mission was taking place in Japan at the time of the Australian Mission and

future missions are being prepared for Pakistan, Spain and other countries.

The IRRS Review Team consisted of senior regulatory experts from Canada, Denmark, Finland, France, South Africa, Spain, the United States; and staff of the IAEA.

The areas of review considered by the team are based on the IAEA Safety Standards and included consideration of:

- legislative and governmental responsibilities, including the authority of the regulatory body
- organisation of the regulatory body
- activities of the regulatory body, including the authorisation (licensing) process, review and assessment, inspection and enforcement, the development of regulations and guides
 - each area of activity was examined in relation to research reactors, sources and industrial practices, decommissioning, remediation, and radioactive waste management
- safety and security of radioactive sources
- national infrastructure for radioactive waste, decommissioning and remediation
- emergency preparedness
- the regulatory body's management system
- public information and communication.

Prior to the commencement of the Mission a comprehensive self

assessment was undertaken by ARPANSA taken from the requirements of IAEA Safety Standards. The ARPANSA self assessment formed the basis for counterpart discussions between the IAEA Team and ARPANSA staff. In addition the IAEA team observed ARPANSA inspections and interactions with licence holders.

During the course of the Mission the IAEA team met with the Parliamentary Secretary to the Minister for Health and Ageing, representatives from the Department of Prime Minister and Cabinet and the Chair of each of the Radiation Health and Safety Advisory Council, the Radiation Health Committee, the Nuclear Safety Committee and the Regulators' Forum.

In its draft report discussed with ARPANSA at the exit meeting on 6 July, the IRRS Review Team identified a number of good practices and made recommendations and suggestions that indicate where improvements are necessary or desirable to further continue improving effectiveness of regulatory controls.

The Review Team found that the ARPANSA legislative and statutory framework was consistent with the IAEA Safety Requirements GS-R-1: *Legal and Governmental Infrastructure for Nuclear, Radiation, Radioactive Waste and Transport Safety*. The Team found the requirement in the ARPANSA Act for the CEO to take into account international best practice in radiation protection and nuclear safety to be a good practice. It was suggested that when the ARPANSA Act is reviewed,

consideration be given to stating licence holder responsibility for safety and to more clearly establish ARPANSA's role in regulating the transport of radioactive material. The Act might also be reviewed to provide a better basis for the regulatory oversight of existing exposure situations.

With respect to the responsibilities and functions of ARPANSA, the Review Team found that ARPANSA was provided with appropriate effective independence. The Team supports the approach being taken to deal with the conflict of interest in ARPANSA regulating itself (using the services of the Victorian Regulator). The Team identified the development of the *National Directory for Radiation Protection* as the instrument for promoting national uniformity as a good practice. Indeed, they record that the progress made so far in promoting national uniformity is 'remarkable'.

With regard to the organisation of the regulatory body, the Review Team identified ARPANSA's use of peer reviews and services from the IAEA; the plans for graduate recruitment; and ARPANSA's involvement in the framework of international cooperation for radiation protection and nuclear safety all as being good practices. The Team recommended that ARPANSA establish a more comprehensive training program for regulatory staff and made some suggestions about corporate planning, interaction between the regulatory and scientific areas and workforce planning and development.

Turning to the activities of the regulatory body, the Review Team identified ARPANSA's seeking of feedback at the close of inspections; and its decommissioning guidelines as Good Practices. It recommended that ARPANSA prepare guidance for the forthcoming periodic safety review of the OPAL reactor; should prepare guidelines for the end-point of decommissioning; and in relation to the decommissioning of HIFAR. The Team also recommends that ARPANSA include unannounced inspections in its inspection program. The Team made suggestions with regard to guidance relating to relevant changes with significant implications for safety and a range of other matters affecting regulatory guidance and enforcement.

The Review Team was supportive of ARPANSA's work with regard to the safety and security of radioactive sources. They saw the development of ARPANSA's *Code of Practice on the Security of Radioactive Sources* and the implementation of the recommendations in the COAG report on radiological materials as serving to meet Australia's commitment to follow the IAEA *Code of Conduct on the Safety and Security of Radioactive Sources*. The Team made a small number of suggestions aimed at supporting and improving further ARPANSA efforts in this area.

The Team commented on national infrastructure for radioactive waste management, decommissioning and remediation. It suggested that ARPANSA strongly promote a national

system for classification of radioactive waste and develop guidance for the clearance of materials from decommissioning.

On emergency preparedness, the Team commended ARPANSA's health physics arm and emergency operations unit as being Good Practice. The Team recommended that ARPANSA address in-house procedures and policies for managing its role in emergencies arising with licence holders and in the provision of public and governmental information during and after events and accidents.

The Review Team was supportive of ARPANSA's management system commending its 'systematic and professional manner to improve and develop the management system' as being Good Practice, as were ARPANSA's strategic planning framework, the introduction of the Regulatory Management Information System and the role of internal audit. The Team recommends further work on the completeness and consistency of the quality assurances procedures and that ARPANSA should expand its management system to include, promote and support strong safety culture. The Team also makes suggestions about planning, risk management and further development of costing information.

With regard to the transport of radioactive materials, the Review Team recommends that ARPANSA review transport compliance assurance. It also suggests that there might be a review

of the current arrangements, whereby there are 11 different 'competent authorities' for transport of radioactive material in Australia.

The Review Team is supportive of ARPANSA's public information activities and suggests that these be developed further and documented.

The Review Team also undertook discussions on a number of policy issues. These discussions will be included in the report but they do not lead to specific recommendations or suggestions. The policy issues covered were:

- enhancing regulatory effectiveness and compliance
- risk-informed and performance-based approach to regulation
- openness and transparency
- human resources and knowledge management
- the promotion of national uniformity in radiation protection
- emergency response
- implementation of measures to improve security of sources
- stakeholder consultation.

ARPANSA believes that the Mission was very effective and successful. The Review Team were very capable and experienced individuals. One of the principal outcomes was the value of the interaction between the Review Team members and ARPANSA counterparts.

ARPANSA will take up the recommendations and suggestions made by the

Review Team as part of its ongoing planning of its regulatory program.

The report of the Review will be completed in the next financial year. A final report is expected by mid-late August 2007. It would be expected that ARPANSA would make the final report public through its web site.

The results of the Australian mission will be discussed at the senior regulators' meeting at the IAEA General Conference in September 2007.

Key regulatory assessment activities

Monitoring the commissioning of the OPAL reactor

On the 14 July 2006, the CEO issued a facility licence under section 32 of the ARPANSA Act to the Australian Nuclear Science and Technology Organisation (ANSTO) authorising the operation of the Open Pool Australian Lightwater (OPAL) reactor. Operation includes loading nuclear fuel into the reactor, undertaking commissioning tests initially at low power levels (Stage B) and then incrementally at higher power levels up to full design power (Stage C), and normal reactor operations. The CEO, through the structure of the authorisation given within the facility licence, imposed regulatory 'hold points' at the end of each commissioning stage which required his approval to proceed to the next stage.

ARPANSA compliance monitoring of the OPAL reactor has been based on a program of planned and reactive

inspections, as well as on review of the quarterly reports of the licence holder and meetings between officers of each organisation to discuss significant licensing matters.

During the period, ANSTO requested that the CEO of ARPANSA agree to the surrender of the construction licence. The CEO agreed to this request in June 2007 having satisfied himself that all conditions and requirements of the licence had been complied with.

Hot commissioning

Hot commissioning of the OPAL reactor was originally scheduled to take 90 days and be completed in October 2006. However, due to a number of technical difficulties this schedule could not be met. Some of the difficulties encountered included a fire on a standby power diesel generator, a leak of light water into the reflector vessel, technical problems with the cold neutron source and a minor pool water contamination arising from a fuel assembly leak. Although the safety implications of these matters are minor, they have delayed the onset of normal operations beyond this reporting period. ARPANSA verified ANSTO's assessment of these safety implications together with the monitoring of the resolution of the associated issues.

In particular, on the 19 September 2006, ANSTO informed ARPANSA that an incident had occurred at the OPAL Facility. During the performance of a routine load test of one of three standby diesel generator sets, a minor

fire started in the generator enclosure. Personnel acted quickly to limit the extent of the damage and an investigation was initiated by ANSTO. At no time during the incident, was the safety of the reactor challenged. Since the diesel generators are Safety Category 1 systems, ARPANSA sought assurance that there were no common cause failure implications arising from the incident. The report prepared by the diesel generator manufacturer established that the cause of the incident was a faulty starter battery and that a similar faulty battery was found on another diesel generator. The CEO of ARPANSA expressed the view that ANSTO should take remedial action to review and reduce the likelihood of common cause failure. Specifically, the CEO required that all starter batteries should be replaced and that each diesel generator should be supplied with batteries from a different batch. At the end of September 2006, ANSTO submitted a Stage B commissioning report and requested approval to proceed to Stage C commissioning. ARPANSA officers and a consultant reviewed the commissioning report and ARPANSA inspectors witnessed the majority of commissioning test procedures undertaken. ARPANSA officers were satisfied that the program of work was satisfactorily completed, that the results of testing met safety acceptance criteria and that good agreement was achieved between measured and calculated values of reactor physics parameters.

Approval to proceed from Stage B hot commissioning to Stage C hot

commissioning was given by the CEO on 13 October 2006 and was subject to a series of requirements (i.e. replacement of all diesel generator starter batteries) and recommendations arising from a review of the Stage B commissioning report by ARPANSA officers supported by a specialist consultant contracted by ARPANSA.

During Stage C, the OPAL reactor achieved its nominal power of 20 MW on 3 November 2006.

Consistent with the regulatory oversight of Stage B commissioning, an ARPANSA inspector was present in the facility during the most significant Stage C tests and activities undertaken by ANSTO. This enabled ARPANSA to continually assess the performance and capability of both the OPAL Reactor facility and OPAL Operations personnel.

ARPANSA received the ANSTO Stage C commissioning report from ANSTO on 23 May 2007. At the end of the reporting year the report was under review by ARPANSA.

Formal inspection program

The formal inspection program undertaken by ARPANSA during the reporting year in relation to OPAL commissioning has focused on ANSTO's compliance with the OPAL Plans and Arrangements as required by regulation 49 rather than the design, construction and installation of reactor systems that had been the focus of compliance activities under the construction licence. In particular inspections have assessed the

implementation of the OPAL Business Management System (BMS) which specifies procedures and instructions for all aspects of the operation. Of particular interest to ARPANSA inspectors is the manner in which ANSTO is currently implementing the business management system to support its direct reactor operations, engineering and maintenance and wider support functions.

ANSTO quarterly reports of OPAL commissioning

ANSTO provided four quarterly reports during the reporting year. Subsequent to the submission of each quarterly report senior staff from ANSTO and ARPANSA met to discuss issues arising. The topics covered in the reports included

- operating history
- events
- staffing
- safety performance
- modifications to physical plant and operating arrangements
- 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 interest and has already proven useful. ARPANSA officers will maintain an appropriate level of oversight of the implementation of the Event Reporting System which is an important tool in providing a mechanism by which ANSTO can

demonstrate the characteristics of a learning organisation through continuous improvement in the safety management of the reactor.

Plant Maintenance activities are also listed in the quarterly reports. Plant maintenance is an important aspect of safety management and regulatory oversight will be maintained to ensure that ANSTO applies appropriate checks and balances in its management of these activities. Planned inspections of maintenance arrangements have been undertaken. These inspections demonstrated that surveillance activities were being satisfactorily implemented and managed but a number of matters associated with preventative and breakdown maintenance were identified. These have either been dealt with or are subject to further regulatory oversight to ensure that the level of safety management is appropriate.

During the year ANSTO have submitted 15 requests for a change with significant implications for safety under regulation 51. At the end of the reporting period five submissions remained under assessment as it was assessed that the submissions did not fully demonstrate the safety of the proposal.

ANSTO are clearly continuing to develop their internal processes and instructions through the OPAL Business Management System. A number of documents have been subject to amendment and ARPANSA officers will monitor these to ensure that the controls approved during the licence

application are not weakened from a safety and regulatory perspective.

ANSTO application for a facility licence authorising it to possess or control HIFAR

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 shut-down by the Minister for Education Science and Training, Ms Julie Bishop, MP, 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, 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.

On 4 April 2007 the CEO of ARPANSA wrote to ANSTO setting out his expectations in relation to any application for a facility licence authorising ANSTO to possess or control HIFAR. In particular, he noted the activity to be authorised under this licence was necessarily limited to preparation for decommissioning not the activity of decommissioning itself. Further the CEO stated:

Whilst I accept that the definition of 'decommissioning' used in international guidance often encompasses the preparatory stages, I would see it as being consistent with the ARPANS Act for 'having possession and control' to incorporate the later transition stages from operation, and the preparation for and then management of a state similar to the state of *safe enclosure*. The IAEA *Safety Requirements Decommissioning of Facilities Using Radioactive Material* (Safety Standards No WS-R-5, IAEA 2006) defines a strategy of deferred dismantling (also known as safe storage, safe store or safe enclosure) as being:

the strategy in which parts of a facility containing radioactive contaminants are either processed or placed in such a condition that they can be safely stored and maintained until they can subsequently be decontaminated and/or dismantled to levels that permit the facility to be released for unrestricted use or with restrictions imposed by the regulatory body.

The underlined section of this definition would seem to me to be consistent with 'having possession or control' for the purpose of preparation for decommissioning. Decommissioning itself is defined in the latter part of the definition.

Thus I would regard activities that are needed to bring HIFAR within a state of safe enclosure and to maintain it safely in that state on an extended basis as legitimately falling within 'having possession or control'. I would take the position that any dismantling of an item important to safety with the intention of never reassembling or replacing it as decommissioning. This cannot be carried out until ANSTO has been issued with a facility licence authorising decommissioning.

'Dismantling' as used here means the planned disassembly and/or removal of an item with the intention of not replacing it. ANSTO would need to identify non-safety related structures, systems and components it proposed to retire or replace during the possession or control phase.

On 18 May 2007, an application for a facility licence to 'Possess or Control' that would replace the HIFAR Facility Operating Licence No. FO0044-4A, was submitted by ANSTO to ARPANSA. The application was divided into 5 parts:

- Part A: General information on the purpose and location of the Facility
- Part B: The plans and arrangements for managing safety for the Facility
- Part C: The Safety Analysis Report (SAR) for the Facility
- Part D: The Limits and Conditions (LCs) for the Facility

- Part E: The Planned Activities to be undertaken under the Licence.

Part B contained eight plans to satisfy regulation 39(2) and requests from ARPANSA:

- arrangements for maintaining effective control of the facility
- safety management plan for the controlled facility
- radiation protection plan for the controlled facility
- radioactive waste management plan for the controlled facility
- security plan for the controlled facility
- emergency plan for the controlled facility
- environmental management plan
- arrangements for safe storage of controlled material and maintaining the controlled facility.

Part E contains 11 refurbishment projects and 24 preliminary dismantling projects. These refurbishing and dismantling projects are proposed to be handled using the existing HIFAR project management procedures and instructions, which were not listed.

As required by the ARPANS Act and Regulations, when considering an application for a facility licence authorising activity for a nuclear installation, the CEO must publish the receipt of the application and invite public submissions on the application. On 12 June 2007 the CEO of ARPANSA sought public submissions on the application. The public submission period closes on 3 August 2007.

The application is currently being assessed by ARPANSA.

Approval of the construction, cold commissioning and hot commissioning of the ANSTO molybdenum-99 plant

The molybdenum-99 Production Plant is a nuclear installation operating under ANSTO Radiopharmaceuticals and Industrials (ARI) licence F0044-5A, 5B, 5C. During the reporting year ARPANSA considered two requests from ANSTO under regulation 51 of the ARPANS Regulations to modify the production process undertaken for molybdenum-99.

The previous process of molybdenum-99 separation undertaken by ANSTO used nitric acid to dissolve ceramic UO_2 (2.2% enrichment) targets irradiated at the HIFAR. This request for approval concerned a change to the molybdenum-99 production process in particular a change involving the use of U-Al plate targets (<20% enrichment) that are to be irradiated at the OPAL reactor. The process is based on alkali dissolution of the irradiated targets.

During previous approval processes the CEO of ARPANSA had agreed to the conceptual design of this process (24 May 2006) followed by the approval of the detailed design construction and cold commissioning of the molybdenum-99 production plant on 12 October 2006.

On 27 November 2006, ARPANSA received this request for approval for the hot commissioning of the molybdenum-99 production plant.

Following an extensive review process including the consideration of the cold commissioning report for this new process, the delegate of the CEO of ARPANSA's approve the hot commissioning of the molybdenum-99 plant in July 2007.

Licensing of neutron beam instruments

In October 2006, the CEO of ARPANSA issued a source licence authorising ANSTO to deal with 3 neutron beam instruments:

- a high intensity powder diffractometer (WOMBAT)
- a high resolution powder diffractometer (ECHIDNA)
- a quasi-Laue diffractometer (KOALA).

at the ANSTO Bragg Institute up to and including hot commissioning.

In February 2007, ARPANSA issued an amended source licence authorising ANSTO to deal with an additional three neutron beam instruments:

- a residual stress diffractometer (KOWARI)
- a neutron reflectometer (PLATYPUS)
- a small angle neutron scattering instrument (QUOKKA)

at the ANSTO Bragg Institute up to and including hot commissioning.

Regulation 51 approvals

Another key regulatory activity during the reporting year was the consideration of requests for approval under regulatory licence condition

regulation 51 which requires the prior approval of the CEO or his delegate for 'relevant changes' with 'significant implications for safety'.

During the reporting year ARPANSA considered and approved 22 requests for approval for a relevant change with significant implications for safety. The majority of these requests for approval were made under the facility licence authorising ANSTO to operate the OPAL reactor. Most of the requests arose as a consequence of the process of hot commissioning of the reactor.

A significant change in relation to the approval of requests under regulation 51 was the delegation of this power by the CEO of ARPANSA to the Director, Regulatory and Policy Branch in December 2006.

Radioactive waste management audit

In 2006 ARPANSA undertook a radioactive waste management audit in response to the announcement of the Prime Minister in July 2004 that the Australian Government will construct co-located facilities on Commonwealth land for management of low and intermediate level radioactive waste produced by Australian Government Agencies. The purpose of this audit is to update the information gathered in the 2002 audit made in preparation for the proposed National Waste Repository at Woomera, South Australia.

In November 2005, the CEO of ARPANSA requested updated

information on all radioactive waste held by its Commonwealth licence holders. To facilitate this request, the forms developed by the Radiation Health Committee Roadmap Working Group, were provided. Whilst the majority of Commonwealth entities provided their response in this form, ARPANSA inspectors also collected information for the audit during regulatory inspections.

The outcome of the audit is that ARPANSA is in possession of the latest figures of Commonwealth radioactive waste holdings which will inform policy and licensing decisions in relation to the proposed Commonwealth radioactive waste management facility.

Compliance activities

Inspections

Part 7 of the ARPANS Act empowers the CEO to appoint inspectors who carry out inspections and exercise inspection powers under the ARPANS Act.

During the year, ARPANSA undertook its compliance program for inspections of nuclear installations, prescribed radiation facilities, controlled material and apparatus the details of which is set out in Appendix 4. The number of inspections of the OPAL reactor increased significantly due to assessment of ANSTO compliance with the OPAL operating licence, in particular during the hot commissioning phase.

Breach of licence conditions

The CEO determined the following breaches of licence conditions during the reporting year.

The following licence holders were in breach of the ARPANS Act for undertaking a prohibited activity without a licence:

- Decipha Pty Ltd (S0170) – breach of section 31(1) of the ARPANS Act
- CSIRO Heavy Ion Analytical Facility F0060 – breach of sub-section 30(2) of the ARPANS Act
- Defence – Port Wakefield Linear Accelerator (F0166) – breach of sections 30 (1) (c) and (d) of the ARPANS Act
- Bureau of Meteorology (S005) – breach of section 31(1) of the ARPANS Act
- ANSTO (S0045) – breach of section 31(1) of the ARPANS Act for undertaking a dealing with a controlled apparatus (baggage x-ray machine) not authorised by an existing source licence
- Department of Foreign Affairs and Trade (S0079) – breach of sub-section 31(1) of the Act for dealing with controlled non-ionizing apparatus without a licence.

The following licence holders were found in breach of licence condition regulation 49 for failing to comply with the licence holder's own plans and arrangements:

- Australian Defence Force/ Department of Defence (S0042) – breach of regulations 49 and 53 and Conditions 1 and 3 of Schedule 2 of source licence S0042.

The following licence holders were found in breach of licence condition regulation 51 for failing to obtain prior approval before making a relevant change with significant implications for safety:

- CSIRO, Industrial Physics – dealing with an apparatus that was not authorised in relation to Canberra Deep Space Communications Complex.

The following licence holders were in breach of licence condition regulation 53 for failing to obtain prior approval before disposing of controlled material or controlled apparatus:

- Department of Transport and Regional Services (S0020) – breach of regulation 53
- Australian National University S0027 – breach of sub-section 53(1) of the ARPANS Regulations
- 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 Defence and Australian Defence Forces (S0042) – breach of regulation 53 in relation to the disposal of controlled material without approval.

Rectification of breach

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. A graded approach to enforcement policy and guideline has been prepared for consultation with stakeholders.

Remedial regulatory action in the context of breach

In response to these breaches the CEO of ARPANSA also took the following remedial action:

- assistance to licence holders to understand the requirements of the ARPANS Act in relation to the need to obtain authorisation under a source of facility licence prior to taking possession of controlled facilities or controlled apparatus
- improvement to the notice and explanatory material relating to the requirement to obtain prior approval before disposing of controlled apparatus and controlled material (regulation 53)
- publication of regulatory guidance on regulation 46 accident notification.



Part 4 Council and Committees



Radiation Health and Safety Advisory Council¹

The Radiation Health and Safety Advisory Council met on 4 August 2006, 8 December 2006 and 27 April 2007 and considered a number of matters out of session. Summaries of all Council meetings are available on the ARPANSA web site.

The Council continued with the practice of placing an annotated agenda on the ARPANSA web site a week before its meeting, inviting submissions on agenda items and offering a post-meeting briefing to interested parties. No post-meeting briefings were requested during the year.

Council advice to the CEO of ARPANSA

At the August 2006 meeting the CEO responded to Council's advice on emerging medical radiation issues, which included recommendations on consultation with professional bodies and regulators, expediting publication of the code of practice and safety guides, development of information for the professions on optimisation of patient radiation doses, encouraging the development of industry codes and guidelines, maintaining a watching brief on studies involving paediatric radiation doses, and consideration of a survey of doses from multi-slice CT scanners.

¹ This report also constitutes the annual report of the Council for the CEO required by regulation 23 of the *Australian Radiation Protection and Nuclear Safety Regulations 1999*.

The CEO informed Council of ARPANSA's traditional roles in medical radiation protection:

- maintaining the Australian standards for air kerma and absorbed dose, and calibrating radiation monitoring equipment traceable to those standards
- surveys and assessments of radiation doses to patients in medical procedures
- quality assurance on radio-pharmaceuticals, with TGA
- the development of codes and standards.

Council was informed that these traditional roles must continue, however any increased engagement with the professions would require new resourcing.

In regard to the specific Council recommendations, the CEO advised that the recommendations were supported, subject to the resource issues identified in regard to recommendations on training and consultation, and informing the professions on optimisation.

The Council's report and the CEO's response are now available via the ARPANSA web site. Council will continue to review developments in medical radiation protection.

Dr Ziggy Switkowski, Chair of the Uranium Mining Processing and Nuclear Energy Review (UMPNER) and Mr Tim Kahn from the UMPNER Secretariat attended the August 2006 meeting for discussion with Council

about the Review. Dr Switkowski informed Council of UMPNER's tasks and timelines. Dr Switkowski noted that the terms of reference did not ask for conclusions or recommendations, but concentrated on updating the fact base and leaving any policy decisions to government. Council had a detailed discussion with Dr Switkowski covering areas including public perception, differentiating established facts from views relying on assumptions, mining industry safety, the difficulty in finding people trained and experienced in radiation protection to work in the mining industry, ARPANSA's code of practice in the mining industry and the work of the Radiation Health Committee in developing codes and proposals for uniformity via the *National Directory for Radiation Protection*, radioactive waste, and the transport of radioactive material.

At the December 2006 meeting, Council member Prof Peter Johnston, who was also a member of the UMPNER Review team, provided Council with a summary of the draft UMPNER Report, which had been released for public comment. The report was finalised and submitted to Government on 29 December 2006.

Council was briefed by the CEO on his decision to issue a licence to ANSTO to operate the OPAL reactor on 14 July 2006, including description of matters that were important in consideration of the application. The safety analysis had been thoroughly examined, along with the OPAL Safety Management System and its

relationship to the overall ANSTO safety management system. Progress in establishing a Commonwealth radioactive waste management facility was also taken into account. The licence conditions include those specified in the Act and Regulations and an additional requirement for a periodic safety review, the first of which is to be completed in two years. A requirement to establish a program to support continuous improvement in safety culture was also included in the conditions. A number of Council members, including the Chair, attended the official opening of the OPAL Reactor in April 2007.

Throughout the year Council discussed a range of international developments in radiation protection. These included the development of new recommendations by the ICRP, the activities of UNSCEAR in assessing information on the doses and effects of ionizing radiation, activities of the IAEA safety standards committees. Important issues in regard to the IAEA safety standards included publication of the SF-1 *Fundamental Safety Principles*, the revision of the SS115 *International Basic Safety Standards* and discussion on the restructure of the safety standards series.

At the April 2007 meeting, Council considered its forward work plan and agreed to undertake a high level review of the international position on safety issues in the operation of nuclear power plant and safe management of spent fuel and high level radioactive waste. A plan for the project will be

considered at the next Council meeting in August 2007. Following a request from the Radiation Health Committee, Council also agreed to undertake a review of the effectiveness and efficiency of the *National Directory for Radiation Protection, edition 1.0*. The review had been agreed during the development of the *National Directory for Radiation Protection* to be undertaken after three years of its operation. A framework for the review will be prepared for discussion at the August 2007 meeting. Council noted that it was 12 months since it reported to the CEO on emerging issues in medical radiation protection, and agreed that it should keep medical radiation on its forward plan for discussion of any new issues.

During the year the Chief Minister of the Northern Territory made a nomination for membership of Council, in accordance with s21(1)(ca) of the ARPANS Act. Mr Ian Lancaster, Director, Water Management Branch, NT Department of Natural Resources, Environment and the Arts was appointed to Council on 23 April 2007.

Adoption of codes and standards

During the year, Council advised the CEO to adopt the following codes and standards developed by the Radiation Health Committee:

RPS 11. *Code of Practice for the Security of Radioactive Sources (2007)*

RPS 12. *Radiation Protection Standard for Occupational Exposure to Ultraviolet Radiation (2006)*

RPS 13. *Code of Practice and Safety Guide for Safe Use of Fixed Radiation Gauges (2007)*

Other issues considered

Council discussed recent considerations in the development of a standard on ELF exposure with Prof Andrew Wood, Swinburne University and Chair of ARPANSA's ELF Working Group. He informed Council that a regulatory impact statement had been completed and the public consultation period commenced, with the draft and regulatory impact statement being released along with several supporting documents.

Council requested advice on a number of issues on which ARPANSA staff provided reports. These included:

- recent studies on the effects of low doses of ionizing radiation, examining a possible relationship between chest x-rays and breast cancer, and the increase in medical radiation exposure in the USA over the past 20 years
- two international conferences on NORM that included discussion on optimisation, stakeholder involvement, harmonisation between countries, use of modelling, transport and cross-border issues, and options for use, re-use and recycling of residues
- a conference on the public health issues arising from the use of polonium-210 as a poison in London
- the development of edition 2 of the *National Directory for Radiation Protection*

- development of a Safety Guide on NORM management
- the IAEA Integrated Regulatory Review Service mission to review ARPANSA's regulatory systems
- ARPANSA activities and the operation of the Radiation Health Committee and Nuclear Safety Committee.

Radiation Health Committee

The Radiation Health Committee met on 19-20 July 2006, 25-26 October 2006 and 14-15 March 2007. Meeting summaries were posted on the ARPANSA web site. Mr Jim Turnbull, General Manager of the National Radiation Laboratory, New Zealand, or his delegate, attended meetings as an observer by invitation. Dr George Koperski, the radiation control officer representing the ACT, resigned in June 2007.

The Committee considered a wide range of radiation protection issues, and reviewed the progress of its publication program at each meeting. The Committee's Business Working Group met by teleconference in September 2006, February 2007 and June 2007 to progress Committee business.

The Committee discussed the progress on the development of edition 2 of the *National Directory for Radiation Protection* (NDRP) and considered a number of new items for inclusion. These items included the categories of non-ionizing radiation requiring regulation, a Schedule on the disposal

of radioactive material by users (including discharge limits to air and water), amendments to the provisions relating to radiation facilities and nuclear installations, and a Schedule on the certification of personal radiation monitoring services. A regulatory impact statement on the amendments to the first edition of the NDRP was prepared and forwarded to the Office of Best Practice Regulation for clearance. Edition 2 of the NDRP will be released for public comment following clearance of the regulatory impact statement.

The Committee noted that it had originally agreed to a review, within three years of its commencement, of the effectiveness and efficiency of NDRP 1 in achieving the goal of national uniformity in the radiation protection frameworks across jurisdictions. The review would evaluate the extent to which NDRP edition 1.0 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 consideration of progress towards national uniformity.

The Committee agreed to consider combining the three draft radiation protection in medicine codes (radiotherapy, diagnostic and interventional radiology, and nuclear medicine) into a single code of practice, accompanied by three

separate safety guides. A sub-committee of the Radiation Health Committee prepared a draft single code of practice, which was then reviewed by the three working groups. At its March 2007 meeting, the Committee agreed:

- to proceed with a single Code of Practice
- that after amendments suggested by the Committee and members of the working groups were incorporated, a revised version of the draft code (regulatory requirements) for radiation protection in medical applications of ionizing radiation and an accompanying explanatory paper would be released for a period of consultation with the professions (this occurred from 18 May to 2 July 2007)
- that the consultation would include a program of presentations and discussions of the documents by Committee members with representative professional bodies in all States and Territories during June 2007.

A paper containing the decisions of the March 2007 Committee meeting was placed on ARPANSA's web site and circulated to stakeholders. The three draft safety guides were edited by ARPANSA to be consistent with the revised draft code and then reviewed by members of the working groups. The revised draft code, edited safety guides, draft regulatory impact statement, and the issues raised in the industry consultation will be

considered by the Committee at its July 2007 meeting. 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 Melbourne on 3 October 2007. The conference is intended to occur during the public consultation phase and will involve discussion of the draft code, safety guides and regulatory impact statement.

The Committee considered the regulation of the use of solaria. A number of requests had been received querying the possibility of regulating solaria in Australia and suggesting that a national approach to the issue was needed. Discussion papers were presented at the October 2006 and March 2007 meetings. The Committee requested that a more detailed paper, drawing out the costs and benefits of the regulation of solaria, be developed for the July 2007 meeting.

The Committee agreed to establish a working group to develop a safety guide on the management of naturally occurring radioactive material (NORM) in Australia. The safety guide would provide guidance for regulators and industries involved with NORM on the application of the current regulatory frameworks. It was intended that annexes to the safety guide would be developed to address specific industries, such as oil and gas production, bauxite processing and the phosphate industry. A NORM stakeholders group was also established and consulted.

A Radiation Health Committee *Statement on Clean-up Criteria following a Radiological Incident* was published in February 2007. The purpose of the Statement is to inform high-level decision-makers of the radiation protection considerations regarded by the Radiation Health Committee as being relevant to the remediation and recovery from an incident involving widespread radioactive contamination. The Statement contains recommendations on how much clean up was required following a radiological incident and what level of dose provided an appropriate endpoint for remediation or decontamination as part of an optimisation process.

The Committee considered a discussion paper on the establishment of a national dose register for uranium industry workers. The paper was prepared 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 considered a number of options that were presented in the paper and supported the option of establishing a national dose register for uranium industry workers, provided it was set up with a standardised methodology for dose assessment.

The Committee also considered matters in relation to reducing the regulatory burdens on business, the management of Australia's legacy radium wastes, summary reports of radiation incidents reported to the

Australian Radiation Incident Register (ARIR) for the 2006 calendar year, the IAEA Integrated Regulatory Review Service (IRRS) mission to ARPANSA, and the review of RPS2 (*Code of Practice for the Safe Transport of Radioactive Material*) arising from publication of the 2005 IAEA Transport Regulations.

At each meeting, the Committee was briefed on developments in the IAEA publication program, and on ICRP and UNSCEAR meetings. Committee members provided comments on several drafts of the IAEA Safety Standards Series issued to Australia for comment. The Committee was also briefed on activities at ARPANSA, meetings of the Nuclear Safety Committee and the Radiation Health and Safety Advisory Council.

Publication program for the Radiation Protection Series

The Committee considered final drafts of the *Code of Practice for the Security of Radioactive Sources*, the *Radiation Protection Standard for Occupational Exposure to Ultraviolet Radiation*, and the *Code of Practice and Safety Guide for Safe Use of Fixed Radiation Gauges*, the final regulatory impact statements and responses to public comments. In October 2006, the Committee approved the drafts proceeding to the Radiation Health and Safety Advisory Council for their recommendation on adoption of the documents.

Following the endorsement of the Radiation Health and Safety Advisory

Council, the *Code of Practice for the Security of Radioactive Sources* was published and posted on the ARPANSA web site as Radiation Protection Series 'RPS11' in January 2007, the *Radiation Protection Standard for Occupational Exposure to Ultraviolet Radiation* was published and posted on the ARPANSA web site as Radiation Protection Series 'RPS12' in December 2006, and the *Code of Practice and Safety Guide for Safe Use of Fixed Radiation Gauges*, was published and posted on the ARPANSA web site as Radiation Protection Series 'RPS13' in January 2007.

The following draft publications were released for public comment during the year:

- the draft Radiation Protection Standard for Exposure Limits for Electric and Magnetic Fields – 0 Hz to 3 kHz was released in December 2006
- the draft Code of Practice for the Medical Applications of Ionizing Radiation was released for industry consultation in May 2007.

The Committee discussed the progress of the publication program and the remaining NHMRC publications listed for revision. The Committee agreed to review or rescind several RHS series publications. A brief was prepared for the Committee on whether new advice was required to replace RHS 15, microwave diathermy units, and RHS 16, short-wave diathermy units. The Committee requested that a draft Radiation Health Committee Statement,

which 'translates' the exposure limits in ARPANSA RPS 3 into distances for use by physiotherapists as a guide to good practice when using short-wave diathermy equipment, be prepared for discussion at the November 2007 meeting.

The Committee considered a preliminary review of RHS 19, *Code of Practice for the safe use of ionizing radiation in secondary schools*, and agreed that the National Directory was expected to cover all of the regulatory aspects required. The Committee agreed that guidance material should be developed and that it should also include the material covered in RHS 36, *Code of Practice for the safe use of lasers in schools*. The Committee requested that a document development plan for the use of all radiation in schools be prepared for the July 2007 meeting.

The Committee agreed to release the draft *Code of Practice and Safety Guide for the Pre-Disposal Management of Radioactive Waste* for public comment on completion of the accompanying regulatory impact statement.

The Transport Competent Authorities Working Group has reviewed the changes to RPS2, the *Code of Practice for the Safe Transport of Radioactive Material*, which is based on the IAEA 1996 Transport Regulations (2000 edition), arising from publication of the IAEA 2005 Transport Regulations and has prepared a draft code to adopt the IAEA 2005 Regulations. A document development plan for a simple safety

guide to aid users in meeting the requirements of the code will be prepared for the July 2007 meeting.

Codes and standards that could potentially be used by regulators as conditions of licence or registration are subject to the COAG *Principles and Guidelines for National Standard Setting and Regulatory Action by Ministerial Councils and Standard-setting Bodies*. Such publications are treated as 'quasi-regulation' and are required to undergo a regulatory impact assessment process. A consultation regulatory impact statement for the draft ELF Electric and Magnetic Field Standard was released with the draft standard after clearance for public consultation by the Office of Best Practice Regulation.

Nuclear Safety Committee

The Nuclear Safety Committee met three times during the year, on 27 October 2006, 22 February 2007 and 22 June 2007. All three meetings were held at Miranda. Meeting summaries were posted on the ARPANSA web site. The Committee also toured ANSTO Radiopharmaceuticals and Industrials and the OPAL Reactor at ANSTO following the February 2007 meeting.

Following the resignation of Mr Don Macnab from ARPANSA in December 2006, he was invited to join the Nuclear Safety Committee. He was appointed to the Committee in late December 2006 until the end of the current triennium on 31 December 2008. His

appointment filled the outstanding vacancy on the Nuclear Safety Committee.

The Committee discussed several issues during the year including:

- discussed the possible implications for the future of nuclear regulation in Australia in light of the recommendations of the UMPNER Report, published in December 2006, the report from the Uranium Industry Framework steering group and the report of a House of Representatives Parliamentary Committee chaired by Geoff Prosser on the strategic importance of Australia's uranium resources
- discussed the CEO's decision to issue an operating licence to ANSTO for the OPAL Reactor and was also kept updated on the commissioning process, completed in early 2007
- provided comment on the draft regulatory guidance for a radioactive waste management facility
- ANSTO planning for the decommissioning of HIFAR. This involved consideration of international requirements for decommissioning of research reactors
- the report on an Australian low level radioactive waste repository not suitable for near surface disposal.

During the year, the Committee:

- was kept informed on the preparation for the IAEA Integrated Regulatory Review Service held in June 2007

- was briefed on several international conferences relating to research reactors including the 15th Pacific Basin Nuclear Conference held in Sydney from 15-20 October 2006, the decommissioning conference held in Athens in December 2006, and the conference on Challenges faced by Technical and Scientific Support Organizations in Enhancing Nuclear Safety held in France in April 2007. The Committee was also kept updated on progress of the organisation of the IAEA Research Reactor Conference scheduled for 5-9 November 2007 in Sydney.
- received reports on the activities of ARPANSA, RHSAC and RHC.

A significant issue that would be an item for consideration for the Committee over the next reporting period was the application from ANSTO for a licence to possess or control HIFAR. Details of the application were discussed at the June 2007 meeting as was the possible involvement of the Committee in the assessment process.



Part 5 Essay on selected activity



Reducing the risk of radiological terrorism in Australia

Introduction

The 2002-03 Annual Report essay addressed the threat of radiological terrorism and the steps being taken in Australia to reduce its likelihood. This essay provides an update on the steps taken since 2003 while also identifying issues from Australia's activities and those of foreign regulatory agencies with regulatory responsibility radioactive source security that have implications for the effective implementation of regulatory arrangements. The essay commences with a brief overview of the nature and consequences of a 'dirty bomb'.

Background: the 'dirty bomb'

The rise in global terrorism, the increasing sophistication of terrorists and the wide use of radioactive sources in the community has focused international concern on the possibility that terrorists may seek to conduct an attack involving the deliberate release of radiological material into the environment.

Radiological terrorism is commonly equated with the term 'dirty bomb'—that is, explosive dispersal of radioactive material to cause disruption. Although the immediate death toll would likely be no greater than that resulting from the explosive blast itself, the psychological effects of such a radiological attack, and the

ensuing social, economic and political ramifications would likely be significant.

As indicated in the 2002-03 Annual Report essay, not all types of radioactive material could be used in a dirty bomb. The suitability of a radioactive source for malevolent use will depend on:

- the size of the source
- the type of radiation emitted by the source
- the half life of the source
- the ease of accessibility to the radioactive material in the source
- the portability of the source
- the physical and chemical properties of the source.

Progress in radioactive source security since 2003

The following are key outcomes achieved since the 2002-03 Annual Report essay:

- Australia has given a commitment to the International Atomic Energy Agency to work towards implementing the guidance contained in the IAEA's *Code of Conduct on the Safety and Security of Radioactive Sources*. The Code of Conduct has effectively become the international set of norms for the security of radioactive sources. In June this year, ARPANSA represented Australia at the first meeting to review countries progress in implementing the Code of Conduct.

- Australia has also notified the IAEA that it will act in accordance with the IAEA's *Guidance on the Import and Export of Radioactive Sources*. The Guidance addresses the potentially vulnerable area of international transfer and sets out procedures for ensuring that sources are transferred in a secure manner to authorised recipients.
- The Council of Australian Governments (COAG) has prepared a report on the security of radioactive materials and agreed to recommendations to strengthen the security of high activity radioactive sources.
- ARPANSA, the federal government body responsible for promoting national uniformity in radiation policy and practice and regulating the federal government's use of radioactive sources, has published the *Code of Practice for the Security of Radioactive Sources*.
- Australia has established an interim national register of Category 1 and 2 radioactive sources.
- Australia has enacted legislation to ensure the safe and secure storage of radioactive materials that were intended for or have been used in a malicious act.
- Australia has enhanced facilities and services to search for missing sources, secure found sources and to intervene in the event of a malicious act involving a radioactive source.
- Australia has made regulations to control the export of Category 1 and 2 radioactive sources in accordance with the IAEA Guidance (Australia has a longstanding control on the import of radioactive material).

Radioactive sources in Australia

A radioactive source is radioactive material that is typically produced as a solid encapsulated in a stainless steel capsule. Radioactive sources range in the level of danger that they represent to human health. Based on an IAEA categorisation, Category 1 radioactive sources represent the highest danger to human health while Category 5 radioactive sources present minimal health risk. Australia has approximately 900¹ Category 1 radioactive sources used in industrial and medical irradiators. There are approximately 575 Category 2 radioactive sources which are used for purposes including cancer treatment, industrial radiography and calibration of scientific instruments. Category 3 radioactive sources are used in production processes including level-gauging, conveyor-belt control and dredger control, they are also used as a tool for assisting in geological analysis in well-logging. Category 4 radioactive sources are used in medicine and education while Category 5 radioactive sources are contained in commonly available items like household smoke detectors.

¹ This figure includes individual Category 1 radioactive sources held at industrial irradiators.

Illicit trafficking

The IAEA has a key role in monitoring and reporting on illicit trafficking of nuclear and other radioactive material. The IAEA's defines illicit trafficking as incidents, which involve 'unauthorised acquisition, provision, possession, use, transfer or disposal of nuclear materials and other radioactive materials, whether intentional or unintentional and with or without crossing international borders, including unsuccessful and thwarted events'. The scope of the IAEA's Illicit Trafficking Database (ITDB) also includes other related unauthorised activities involving nuclear and other radioactive materials. These include incidents involving inadvertent loss and discovery of such uncontrolled materials, for example, 'orphan' sources.

Of the 827 confirmed incidents involving illicit trafficking between 1993 and 2005, 224 incidents involved nuclear materials, 516 incidents involved other radioactive materials, mainly radioactive sources, 26 incidents involved both nuclear and other radioactive materials, 50 incidents involved radioactively contaminated materials, and 11 incidents involved other materials.

Incidents confirmed to the ITDB involved radioactive sources with various activity levels and applications. The majority of them involved radio-isotope caesium-137, followed by americium-241, strontium-90, cobalt-60 and irridium-192. Portable or mobile

radioactive sources used for various industrial applications, such as gauging or radiography, are most frequently involved in confirmed incidents.

Australia

Security requirements

The Australian *Code of Practice for the Security of Radioactive Sources*, published in February 2007, applies to the use, storage and transportation of Category 1 to 3 radioactive sources and sets a security outcome to be achieved for each Category by a mix of physical and procedural security measures identified using a risk informed, performance based approach. These security measures (see Table 7) are set in a scalable manner based on the threat level and are formulated into a source security plan or source transport security plan which requires approval from the regulatory body. The Code of Practice also contains provisions regarding trustworthiness checks, regulatory requirements for the transfer or disposal of a Category 1 to 3 source and incident reporting and record-keeping.

It is intended that the Code of Practice be included in the second version of the *National Directory for Radiation Protection* and thereafter incorporated by jurisdictions into their regulatory frameworks.

Issues

The risk assessed and security outcomes approach in the Code of Practice is consistent with regulatory

approaches in the United States and Canada as well as the IAEA's well advanced draft *Security Implementation Guide on Security of Radioactive Sources*. Equally importantly, industry and regulator feedback has shown that the Code of Practice has achieved a

reasonable balance between counter-terrorism concerns and the needs of users.

A critical consideration in the development of the Code of Practice was the acceptance that measures for

Table 7: Minimum security measures to be applied in the use, storage and transport of each category of source

Category	Minimum security measures
Category 1	<p>Risk-based security measures capable of preventing an adversary acquiring the source including measures of detection, delay and response.</p> <p>Source Security Plan and Source Transport Security Plan</p> <p>Procedural security measures relevant to the threat level</p> <p>Identity check for person dealing with security enhanced source and security background check for the Responsible Person</p> <p>Source transfer and security breach notification</p> <p>Maintenance of security-related records</p>
Category 2	<p>Risk-based security measures capable of achieving a high likelihood of interrupting an adversary before acquisition</p> <p>Source Security Plan and Source Transport Security Plan</p> <p>Procedural security measures relevant to the threat level</p> <p>Identity check for person dealing with security enhanced source and security background check for the Responsible Person</p> <p>Source transfer and security breach notification</p> <p>Maintenance of security-related records</p>
Category 3	<p>Risk-based security measures capable of preventing unauthorised access to the source by human force</p> <p>Source Security Plan and Source Transport Security Plan</p> <p>Procedural security measures relevant to the threat level</p> <p>Identity check for person dealing with security enhanced source and security background check for the Responsible Person</p> <p>Source transfer and security breach notification</p> <p>Maintenance of security-related records</p>
Category 4-5	Subject to standard controls for the purposes of safety

nuclear material security could not simply be scaled down and applied to the security of radioactive sources principally because radioactive sources are used differently to nuclear material and the cost of such security measures would be disproportionate to industry's ability to pay for them. The circumstances of use and costs capable of being borne by users are two of several factors that required taking a fresh approach to the development of security regulations. By way of example, the goal of nuclear security is generally to ensure that an adversary is successfully neutralised before acquiring or gaining access to the nuclear material. Such a goal requires significant and potentially costly physical and procedural security measures and would be unreasonable to impose on users of other than the highest category of radioactive sources. In the case of those, it is also generally the case that they already have security arrangements, are able to access security expertise and have arrangements for a response force. In terms of Category 2 and 3 radioactive sources, the Code of Practice has taken the approach that a successful security outcome will need reliance on a mixture of cost-effective and efficient on-site security measures to detect and delay an adversary as well as off-site measures for rapid recovery of the source including those provided by the police and counter-terrorism resources. This approach recognises that the potential risk of radiological terrorism is only one risk in a basket of risks being managed

by users, regulators and security agencies and, in those circumstances, it should utilise the same risk management strategies and resources.

In April 2007, COAG agreed to implement the Code of Practice on an expedited basis. In Australia's case, the principal effort in implementing the Code of Practice and the security regulatory framework will fall to the radiation regulator. Aside from the Commonwealth, the regulatory bodies in the states and territories do not currently have available the security expertise to ensure that provisions of the Code of Practice are properly implemented and compliance monitored. In the 2007-08 Budget, the Government funded ARPANSA to support jurisdictions with security assistance and advice while they determine the most appropriate arrangements for acquiring a 'self-supporting' security expertise. In some instances, this security expertise may be drawn from the state or territory police and raises a related issue of the need to establish working arrangements between the regulator and the police vis a vis matters including notification of security incidents and changes in threat level and between the regulator, police and the user at a local level.

Critical to ensuring effective radioactive source security is the development of a strong security culture by both users and regulatory bodies. In short, physical and procedural security measures without the necessary culture of implementing them, results in little effective security at all. Consistent with

a recommendation in COAG's decision, ARPANSA, in conjunction with state, territory and other regulators, as appropriate, will undertake an education and awareness program targeting regulatory staff and users to raise understanding of the Code of Practice and the broader regulatory framework. To this end, protective security experts in ARPANSA will contribute regularly to the Radiation Regulators Forum and will, where invited, present at industry forums. In addition, ARPANSA will develop, with vigorous industry consultation, practice specific security guides that address generic physical and procedural vulnerabilities and provide practical advice on options for security enhancements. ARPANSA will also conduct training courses, principally for regulatory bodies, on the development and assessment of security plans required by the Code of Practice.

In line with placing greater requirements on users to protect of radioactive sources, it is appropriate that regulatory bodies consider vulnerabilities in their licensing and compliance monitoring procedures and programs. ARPANSA looks forward to cooperating with fellow radiation regulators, particularly under the auspices of the Radiation Regulators Forum, in addressing this risk.

Sealed Source Tracking and Incident Reporting

ARPANSA, working with the nation's 9 radiation regulatory bodies, has established an interim national register of Category 1 and 2 radioactive

sources. The register includes basic information about Category 1 and 2 sources in Australia, however, due to unavailability and differences in data definitions, the register unable to present a definitive national picture. The register receives periodic updates from registers in each jurisdiction. The register can also be updated on an as needed basis. The register along with information communicated to/from the register is secured in an appropriate manner.

In accordance with the COAG decision in April 2007, ARPANSA, with the cooperation of the states and territories, will move, in the near term, from the interim national register to an up-to-date secure intranet-based national register of Category 1 and 2 radioactive sources, including, as a minimum, the following information about each radioactive source: licence number, licence-holder, manufacturer, model, serial number, isotope, activity level and application. The register will allow tracking of radioactive sources at intra and inter-jurisdictional levels. Similar to registers in the United States and Canada, ARPANSA views the Australian national register as being a single register incorporating up-to-date regulatory information from all jurisdictions, with users being able to undertake entire transactions [receipt, transfer (physical and legal), import and export] and incident reports online and a system of alerts and event monitoring for regulators.

The national register as proposed is likely to reduce the risk of licence

forgery and tampering together with the unauthorised acquisition of radioactive sources.

Once the national register has been completed, ARPANSA, through the Radiation Health Committee, will consider extending the register to Category 3 sources. An assessment of the impact on industry and regulatory bodies will be undertaken as part of the deliberative process.

There are several points in favour of extending to Category 3 sources. First, this is because it is possible to accumulate Category 3 sources to have an equivalent to a Category 2 source and without adequate tracking of the Category 3 sources this accumulation may not be evident. Second, the chemical and physical composition of some sources, even at the Category 3 level, means that they may be able to be effectively used to expose humans to large doses of radiation.

As an interim measure, some jurisdictions are endeavouring to monitor the locations and movements of Category 3 and 4 radioactive sources under existing radiation safety legislation.

Illicit Trafficking

Responsibility for international border detection rests principally with the Australian Customs Service (ACS). However, the COAG decision in April 2007 requires ARPANSA and the ACS, in conjunction with the states and territories, to review the effectiveness of the existing radiation monitoring in

Australia to detect the illegal or inadvertent movement of radioactive sources with regard to external borders and related infrastructure in which radioactive sources may be transported through or stored in during their import or export from Australia. The review is to bring forward recommendations for any enhanced monitoring required.

Based on open source information, it is clear that existing international border detection arrangements have been effective in intercepting radioactive material. There have also been instances where sealed and unsealed radioactive material, usually located in heavily shielded containers, have been able to pass through without detection. Reports from the IAEA's Illicit Trafficking Database also suggest that contaminated scrap metal is routinely intercepted in foreign ports.

While considering existing arrangements, there may be sufficient justification to introduce fixed and movable radiation monitoring stations at border points, in the vicinity of nuclear facilities and as part of the surveillance of critical infrastructure and points of potential threat. The network would be capable of being remotely monitored by a body such as ARPANSA with alarms and technical reports being communicated to other agencies with security and safety responsibilities.

ARPANSA looks forward to working with ACS and other stakeholders on this important project.



Part 6 Management and accountability

Corporate governance

ARPANSA's role is defined in the *Australian Radiation Protection and Nuclear Safety Act 1998* (ARPANS Act). ARPANSA being the office of the CEO created by the ARPANS Act and employees engaged under the *Public Services Act 1999*, constitutes a statutory agency for the purpose of the Public Service Act. ARPANSA is a prescribed agency under the *Financial Management and Accountability Act 1997*.

The CEO reports to the Parliamentary Secretary to the Minister for Health and Ageing.

The CEO of ARPANSA administers the following Acts:

- *Australian Radiation Protection and Nuclear Safety Act 1998*
- *Australian Radiation Protection and Nuclear Safety (Consequential Amendments) Act 1998*
- *Australian Radiation Protection and Nuclear Safety (Licence Charges) Act 1998*.

ARPANSA has an integrated corporate governance framework designed to provide a sound basis for decision making, to define the mechanisms for accountability and stewardship, to support the achievement of organisation goals and to ensure all legal and regulatory requirements are met.

The *ARPANSA Corporate Plan 2005-08* sets out the performance expectations and planned use of resources. These

expectations and plans cascade down through branch business plans to individual performance and development plans and provide the framework for performance and accountability assessment. The framework is underpinned by management systems and strategies including risk management, fraud control, quality and information management.

ARPANSA management

The CEO and relevant senior executives, allocated the resource budget, made decisions and set priorities through an Executive Board of Management. The members comprised the CEO, ARPANSA Branch Directors and Dr Sue Barrell, an external member from the Bureau of Meteorology. The Legal Counsel reports directly and independently to the CEO, giving advice on regulatory and operational matters.

The Executive Board meets monthly in accordance with a formally approved timetable and agenda.

The CEO has delegated various powers and functions to Branch Directors and staff reporting to them, to ensure that ARPANSA business is carried out efficiently and effectively. Such delegations were reviewed during the year and the CEO requires his delegates to act in accordance with policies and procedures as approved.

Corporate committees

The CEO and senior executives meet regularly, usually weekly, as a strategic decision making body, to discuss high level administrative and operational matters. A number of advisory committees support the CEO and Branch Directors in their management role:

- The Information Management Steering Committee is chaired by the Director Corporate Services, and comprises relevant Section Managers and the Manager, Information Management. The Committee oversees the development and implementation of the ARPANSA information management strategy; reviews and approves IM and ICT policies; assesses, monitors and manages ICT risks and fosters the development of ICT skills and capabilities.
- The Internet Communication Steering Committee is chaired by the Director Corporate Services, and comprises the Director Non-ionizing Radiation Branch, the ICT Manager and the Manager Regulatory System. The Committee developed a strategic plan for the development of the ARPANSA web site and guided the implementation of a redesigned web site for the Agency.
- The Work Environment Group (WEG) is chaired by the Director Corporate Services, and comprises staff representatives from the five branches. WEG advises the Executive Board on strategic planning, the design and construction of the ARPANSA work environment, and on matters relating to compliance with Commonwealth and State environment legislation and the Australian Government's environmental policies and initiatives.
- The Environmental Management Committee comprises staff representatives and the ARPANSA Property Manager. The Committee oversees and guide the development and implementation of the ARPANSA environmental management strategy; review and approve supporting policies, strategies and procedures, including compliance with relevant Government policies, legislation and guidelines; set performance target and monitor performance.
- The Occupational Health and Safety (OH&S) Committee is chaired by the Director Medical Radiation Branch, assisted by the ARPANSA Health and Safety Coordinator, and comprises staff and management representatives. The OH&S Committee reviews and reports on relevant ARPANSA health and safety issues and on the effectiveness of ARPANSA's performance in these areas and compliance with all of the relevant legislation. The Radiation Safety Committee reports to the OH&S Committee on matters in relation to workplace radiation protection and safety. Further information in respect of OH&S arrangements within the Agency is at Appendix 1.

Audit Committee

The Audit Committee reviewed and updated its charter in 2006-07. An annual self assessment program was also put in place to ensure continuous review and improvement of its effectiveness.

ARPANSA's Audit Committee comprised the independent chair, together with two senior managers from ARPANSA, and an external member. Representatives of the Australian Audit Office attend committee meetings as observers and the Agency's internal auditor, Protiviti Pty Ltd, and Chief Finance Officer attend meetings to report on particular matters.

The Audit Committee, through the internal audit program, assists the CEO to maintain and improve:

- the effectiveness of the internal control framework
- the effectiveness of ARPANSA's risk management processes including business continuity and fraud control
- the quality of the financial management and reporting processes
- the overall compliance with relevant legislation in particular the *Financial Management and Accountability Act*.

The Audit Committee met four times in 2006-07. All members attended.

The Committee sent a report to the CEO after each meeting and the Chair of the Committee met separately with the CEO during the year.

The Australian National Audit Office provided external audit services, Protiviti Pty Ltd provided internal audit services.

Internal audit

ARPANSA outsourced the internal audit function to Protiviti. The audit committee approved the implementation of a three year internal audit program which was developed using a risk-based approach to identify areas for inclusion in the work program. Key internal audits conducted in 2006-07 included reviews of fraud control arrangements; controls around revenue and debt management; business planning and budget management; health and safety management system and the effectiveness in managing communications with the Minister's office.

Risk management

ARPANSA retained its highest five star rating for its risk management practices following its insurer Comcover's risk management benchmarking in 2006.

Risk management is an integral part of ARPANSA's corporate governance. The Agency's business planning framework including setting of performance targets for staff, is also underpinned by relevant risk assessments processes. Strategic and key operational or project risks are reviewed quarterly by the Audit Committee and monitored by the Executive Board of Management.

Fraud control

ARPANSA reassessed its fraud risks, determined relevant risk mitigation strategies, and implemented a fraud control plan for 2006-08. The plan is in accordance with the requirements set out in the ARPANSA risk management framework and in conformance with the *Commonwealth Fraud Control Guidelines 2002*. The plan outlines strategies and processes to detect, prevent, investigate and minimise the effect of fraud.

In accordance with the *Commonwealth Fraud Control Guidelines 2002*, ARPANSA provided the Annual Fraud Report to the Australian Institute of Criminology for the year ended 30 June 2007.

Business continuity

In line with government guidelines, a business continuity plan to manage the situation where there is an outbreak of pandemic influenza was developed in 2006-07. The plan provides practical guidance to staff to ensure continuity of essential services and to minimise impact to external stakeholders and clients of any disruption to services following such a disaster. The ARPANSA Business Continuity Plan will be further refined in 2007-08 following upgrades of information and communication technology.

Ethical standards

All ARPANSA staff must adhere to the Australian Public Service Values

and Code of Conduct under the *Public Service Act*. ARPANSA actively promoted ethical standards among its staff by conducting annual training and awareness program on the APS values and Code of Conduct. They are also highlighted in the *ARPANSA Agreement 2004-2007*, the *ARPANSA Corporate Plan 2005-08* and the *Workplace Diversity Program 2006-10* and are included in the induction packages provided to all new employees.

There are formal procedures to ensure disclosure of any real or apparent conflict of interest. Senior staff are required to disclose to the CEO all direct or indirect pecuniary interests in businesses and companies which may be affected by ARPANSA's decisions.

Internal control

With effect from the 2006-07 financial year, the CEO must report annually to the portfolio Minister, by way of a certificate of compliance, on the financial management and financial sustainability of the Agency.

The certificate requires the CEO to certify that, based on ARPANSA's internal control mechanisms, management, and Audit Committee advice, the Agency has:

- complied with the Australian Government's financial management framework and other specified Commonwealth policies
- operated within the agreed resources for the current year and

has adopted, or will adopt, the appropriate management strategies for all known risks that may affect the financial sustainability of the Agency.

ARPANSA has a robust internal governance and control framework comprising formal plans, policies, instructions, and guidelines. The Agency has adopted the Compliance Self Assessment (CSA) methodology for annual compliance sign-off and developed a risk based compliance assessment questionnaire to guide management in their review. The annual CSA by management, audit report on effectiveness of internal control provide substantively the assurances required to support the certification. Branch Directors are required to provide additional assurances and certifications regarding compliance for their areas of responsibility, and to report on any instances of non-compliance with the framework.

External stakeholders

As required by the ARPANS Act, the following mechanisms for external stakeholder input to ARPANSA's processes are in place:

- Radiation Health and Safety Advisory Council
- Radiation Health Committee
- Nuclear Safety Committee.

Their activities for the current year are reported in Part 4 of this Report.

External scrutiny

Key external accountability institutions for ARPANSA include the:

- Commonwealth Parliament
- Commonwealth Auditor General, who is an officer of the Parliament
- Commonwealth Ombudsman
- Privacy Commissioner
- Administrative Appeals Tribunal
- Federal system of courts, including the Federal Court and High Court of Australia.

As described in Part 3 of this report, the Australian National Audit Office (ANAO) performance audit of ARPANSA's management of the regulation of Commonwealth radiation and nuclear activities was tabled in the Parliament in March 2005. The report of the Joint Committee of Public Accounts and Audit (JCPAA) on this report was tabled in Parliament in September 2006. In March 2007, the CEO provided a report on the outcome of the implementation of the ANAO and JCPAA recommendations. The submission outlined key initiatives to improve the regulatory management system and the outcomes that have occurred.

Management of human resources

ARPANSA, for the most part, continued to enjoy the benefits of an effective and committed workforce despite the continuing pressures of resource constraints, increasing workloads and increasing external demands for services. Whilst staff turnover rates

have generally continued to be relatively low compared to other Australian Public Service (APS) agencies, a major challenge facing ARPANSA over the next five to ten years is the maintenance of the scientific expertise and quality of its operations and services in the face of an ageing workforce.

As in past years, ARPANSA has placed a strong emphasis on strategic people management issues with particular accent on workforce planning, learning and development and information communications. Through the Executive Board of Management, ARPANSA has continued to ensure that its people management policies and programs were directed at achieving the Agency's key service operations and corporate objectives.

Workforce planning, staff retention and turnover

At 30 June 2006, ARPANSA employed 133 staff of whom 127 were employed on an ongoing basis. These staff were divided between the Agency's New South Wales (Miranda) (26%) and Victorian (Yallambie) offices (74%). More detailed information about the nature and break-up of ARPANSA's workforce, retention and turnover rates is set out in Appendix 2.

During 2006-07 ARPANSA continued to refine its workforce planning and development framework which provides an integrated approach to implement its workforce retention and development strategies. During the year ARPANSA undertook a review of its

learning and development framework and performance development system. These reviews build on the work commenced in 2005-06 and are part of the continuous improvement process to enhance ARPANSA's organisational and workforce capabilities.

Agreement making in ARPANSA

ARPANSA provides terms and conditions of employment for its employees under either its certified agreement or through Australian Workplace Agreements (AWAs) with individual employees. As at 30 June 2007, 121 non-SES employees were covered by the certified agreement while 12 employees have entered into AWAs. The salary ranges for ARPANSA's classification levels are set out in Appendix 2.

Certified Agreement

The Agency's fourth Certified Agreement, *ARPANSA Agreement 2004-2007* which has a nominal expiry date of 30 June 2007, continued to operate throughout this financial year. Development of a new collective agreement under the WorkChoices provisions of the *Workplace Relations Act 1996* was substantially completed by 30 June 2007. Subject to approval by a valid majority of employees, the new agreement will run for three years and cover the majority of employees.

Australian workplace agreements

As a result of the WorkChoices amendments to the *Workplace*

Relations Act 1996, ARPANSA refined its Australian Workplace Agreements to ensure that they are WorkChoices compliant. Consistent with past practice, Australian workplace agreements continued to be offered to all SES staff, Branch Directors as well as non-SES employees. The use of these agreements has allowed ARPANSA to improve its ability to attract and retain senior staff especially in areas where the Agency requires specialist skills and knowledge not easily obtained from the general labour market.

Remuneration, statistics and staffing profile

All Agency staff were employed under the *Public Service Act 1999*. The CEO was a full-time holder of a Public Office, whose salary and allowances are determined by the Remuneration Tribunal.

Further details regarding ARPANSA's staffing profile, certified agreement, Australian workplace agreements and performance-based payments are set out in Appendix 2.

Remuneration and allowances of senior executives

The remuneration and allowances of the senior executive service officers of ARPANSA are covered by the applicable Australian Workplace Agreements.

Remuneration of senior executives is reported in the Financial Statements.

Corporate learning and development

During 2006-07, ARPANSA continued to refine its corporate learning and development (L&D) training framework. This has resulted in a more structured approach which clearly links ARPANSA's corporate and branch plans and individual capability to organisational performance. The corporate L&D program represents a significant investment by ARPANSA in the development of its staff. In addition to the corporate L&D program, branches also funded work skill training and development opportunities for staff that addressed individual development needs.

Graduate recruitment program

During the year, ARPANSA developed a graduate recruitment program framework which will be implemented in 2007-08. The program will provide graduates with a series of structured learning and development activities, with professional development provided through attendance at training courses, project work, and mentoring by senior staff. The program will increase the diversity and depth of talent in ARPANSA's workforce while introducing fresh ideas and attitudes to the workplace.

Code of Conduct

ARPANSA conducts bi-ennial surveys of its staff to obtain feedback on the Agency's working arrangements and internal policies, and to assess the extent to which staff understand the

APS Values and Code of Conduct. In addition, ARPANSA, in conjunction with the Australian Public Service Commission, conducts annual training and information sessions to staff on the APS Values and Code of Conduct.

The Agency's human resources service delivery will continue to be assessed by periodic and ongoing evaluation of service elements. This includes consideration of the quality and effectiveness of human resources, the level and awareness and treatment of social justice issues (such as workplace diversity, disability and access matters, and equal employment opportunity) and the extent of industrial relations practices and procedures including workplace consultation and disputation.

Workplace diversity

The *Workplace Diversity Program* is strongly promoted in the Agency through raising staff awareness of the workplace diversity principles; reinforcing the roles and responsibilities of managers and all employees in supporting and fostering diversity.

The program is linked to branch business plan development and is aimed at creating an inclusive environment, which respects and values the contributions of staff with different backgrounds, experiences and perspectives.

The program also assists in promoting the APS Values across the Agency and ensures that employment decisions are based on merit. ARPANSA has

extended the roles of harassment contact officers to cover diversity matters. The contact officers act as a source of information and support for all staff.

Prevention of workplace harassment and bullying

ARPANSA's *Respect – ARPANSA Policy for the Prevention of Workplace Harassment and Bullying* helps minimise harassment and bullying that may arise in the workplace. The policy provides information on the informal and formal approaches to resolving cases of harassment and bullying including the legislative framework; reinforces the role of the APS Values and Code of Conduct; broadens the concept of harassment by including definitions of bullying behaviours and clarifies the roles and responsibilities of managers and staff.

Work/life balance

As in past years, ARPANSA continued to support a family friendly work environment that provides a work/life balance for all employees. These initiatives include access to flexible working arrangements, including flextime, job-sharing, part-time and home-based work; extensive leave provisions including 4 weeks annual leave each year, cumulative personal/carers leave, increased paid leave for maternity leave purposes for up to 14 weeks which can be taken at full or half pay, paid paternity/non-primary care-giver leave of up to 2 weeks, parental

leave, study leave as well as a range of miscellaneous leave entitlements which can be taken with or without pay.

ARPANSA Performance Development System

A significant feature of ARPANSA's people management framework is the *ARPANSA Performance Development System* (APDS) which directly links the annual assessment of an individual's performance with pay point advancement. The system integrates corporate, branch and individual performance planning and management and provides a structured approach for managers and staff to discuss, record and measure expectations. Linking individual performance and development needs to business outputs is a key feature of the process.

ARPANSA Staff Consultative Forum

The *ARPANSA Agreement 2004 – 2007* continued to provide for a Staff Consultative Forum (SCF) as the key consultative body in the Agency. The SCF comprises the CEO, invited management representatives, staff nominated employees together with officials of unions that have direct coverage of ARPANSA staff.

New staff representatives were nominated in July 2005 for a two-year term and a new Chair elected. During the year, the SCF met on six occasions to discuss a range of issues relating to the management of the Agency. Agenda papers and outcomes of meetings were provided to all staff.

Issues discussed included code of conduct matters, study assistance program, recruitment and selection, workplace diversity plan reporting and environmental improvements. Changes within the Regulatory and Policy Branch, the operation of the Recruitment Review Committee, the implementation of carer's rooms and proposals regarding the introduction of a graduate recruitment program were also discussed. Standing reports on ARPANSA's finances, activities of the OH&S Committee, Work Environment Group and activities of the Executive Board of Management were also provided and discussed at Forum meetings.

Payroll services

During 2006-07, ARPANSA finalised the contract for the provision of its outsourced payroll services. Based on an in-depth assessment of the prescribed tender criteria of the tenders received, the contract was awarded to Ross Human Directions.

Commonwealth Disability Strategy

The *Commonwealth Disability Strategy* is incorporated as an integral component of ARPANSA's work environment and building modification planning processes through the provision of facilities that satisfy the needs of all employees, including those with disabilities, in a way that is sensitive and acknowledges their special needs.

ARPANSA Quality System

The ARPANSA Quality System employs two levels of management review. The first, at the Branch level, reviews the service activities of the Branch in detail, and the second level by the ARPANSA Quality Management Committee (QMC). The QMC which comprises the CEO, Branch Directors and the Quality Manager and which acts under the auspices of the *Executive Board of Management Charter* meets quarterly to review reports from the branch quality meetings. The QMC meets quarterly and has the overall responsibility for ensuring the services offered by ARPANSA are delivered in a manner consistent with the principles of quality and as set out in the ISO 9000 series of documents and ISO 17025.

Quality management audits

As required by the Quality Standard, AS ISO/IEC 17025: 2005 all service activities are internally reviewed annually by qualified auditors selected from the ARPANSA Quality Assurance Team made up of representatives of the services. One staff member undertook the NATA Internal Quality Audit training course in the reporting period. Operational procedures and aspects of the management requirements of the Standard are audited in accordance with an approved schedule.

Service Charter

The *ARPANSA Service Charter* provides brief information of the Agency, sets out the standards of service clients can expect from the Agency, their rights and responsibilities. The Charter applies to all clients including other government agencies, community groups, industry and members of the public.

The Charter is available on the ARPANSA web site and provided to new clients.

Client complaints

All corrective actions are reported at the Branch Quality Meeting. Corrective actions required to remedy a non-conforming service event are reported directly to the Quality Manager and the Branch Director. Details of complaints received during the year which required corrective action are shown in Table 8.

Legal Services Directions

The Legal Services Directions reflect the obligations imposed on Chief Executives by the *Financial Management and Accountability Act* and emphasise the general requirement that Commonwealth resources be used efficiently and effectively. Chief Executives are required to take responsibility for the proper recording, and public reporting, of their agency's legal services expenditure. Proper recording will enhance the ability of Chief Executives to engage in decision-making about legal resources that complies with their legal obligation

to use resources efficiently and effectively. Making publicly available records about expenditure will enhance transparency. In accordance with the Directions, the CEO has certified that:

- ARPANSA has appropriate systems and procedures in place to ensure compliance with the Directions
- ARPANSA has no record of any alleged, possible or determined breach of the Directions by this agency during the financial year.

Details of the legal services expenditure for the Agency for 2006-07 are provided in Table 9.

Purchasing

ARPANSA's procurement activities complied with the policies and principles outlined in the *Commonwealth Procurement Guidelines – January 2005* (CPGs); namely, value for money, open and effective competition, ethics and fair dealing, accountability and reporting, national competitiveness and industry development and support for other Commonwealth policies.

The *Chief Executive's Instructions* reinforce the CPGs and ensure small and medium enterprises have fair access to business opportunities.

Table 8: Details of client complaints received for ARPANSA activities in 2006-07

Activity	Client complaints recorded	Category of complainant	What complaints were made
Regulation	Nil		
Non-medical import permits	Nil		
Medical import permits	Nil		
Ionizing radiation calibrations	1	Business	Error on report: 1
Radiofrequency calibrations	4	Business	Delay: 1 Error on report: 1 Invoicing errors: 2
Ultraviolet protection facility	1	Business	Error on report: 1
Radioanalytical Services	3	Business	Transcription errors on reports: 2 Incorrect sample labelling: 1
Radiopharmaceutical quality assurance	Nil		
Personal Radiation Monitoring Service	1	Government Agency	Personal monitor handling error

Table 9: Legal services expenditure by ARPANSA for 2006-07

Legal service	Expenditure (inc. GST)
Agency's total legal services expenditure	\$182 599
Agency's total external legal services expenditure	\$2 850
External expenditure on solicitors	\$2 850
External expenditure on counsel	NIL
Other disbursements on external legal services	NIL
Agency's total internal legal services expenditure	\$179 749

All staff have access to the *Chief Executive's Instructions* and the CPGs via ARPANSA's Intranet.

ARPANSA has published the Annual Procurement Plan for 2007-08 on AusTender as required under the CPG to facilitate early procurement planning.

Competitive tendering and contracting

During 2006-07, ARPANSA did not undertake any competitive tendering and contracting activities as defined in the *Requirements for Annual Reports for Departments, Executive Agencies and FMA Act bodies*.

Asset management

ARPANSA manages non-financial assets with a gross value of \$15.1 million. The major asset categories are land and buildings, infrastructure; plant and equipment; inventory and intangibles. ARPANSA has in place a three year rolling capital investment plan which is reviewed annually to ensure on-going

building maintenance and renovation; equipment purchase and IT infrastructure upgrades meet future research and operational requirements.

Consultants

During 2006-07, 5 new consultancy contracts as described in Table 10 were entered into involving total actual expenditure of \$95 920. In addition, 3 ongoing consultancy contracts were active during the 2006-07 year, involving total actual expenditure of \$187 891.

The Agency policy on the selection and engagement of consultants is in accordance with the Commonwealth procurement guidelines, based on the core principle of value for money and underpinned by:

- encouraging competition by ensuring non-discrimination in procurement and using competitive procurement processes
- promoting the use of resources in an efficient, effective and ethical manner

Table 10: Consultancy services let during 2006-07, of \$10 000 or more

Consultant Name	Nature/Purpose of Consultancy	Contract Price (inc GST)	Selection process ¹	Justification ²
Australian Valuation Office	Asset revaluation	\$16 720	Direct Sourcing	B
Global Solutions	ICT Infrastructure Planning Consultancy	\$22 000	Direct Sourcing	B
HBA Consulting	Workplace Relations Consultancy	\$29 813	Direct Sourcing	B
International Atomic Energy Agency	Consulting Services - International Peer Review	\$14 387	Direct Sourcing	C
NewSouth Global Pty Limited	Consulting Services - OPAL	\$13 000	Direct Sourcing	C
TOTAL		\$95 920		

Note 1: The following explanation of selection process terms is drawn from the Commonwealth Procurement Guidelines – January 2005:

Open Tender: A procurement procedure in which a request for tender is published inviting all businesses that satisfy the conditions for participation to submit tenders.

Select Tender: A procurement procedure in which the procuring agency selects which potential suppliers are invited to submit tenders in accordance with the mandatory procurement procedures.

Direct Sourcing: A procurement process, available only under certain defined circumstances, in which an agency may contact a single potential supplier or suppliers of its choice and for which conditions for direct sourcing apply under the mandatory procurement procedures.

Panel: An arrangement under which a number of suppliers, usually selected through a single procurement process, may each supply property or services to an agency as specified in the panel arrangement.

Note 2: Justification for decision to use consultancy:

A – skills currently unavailable within agency

B – need for specialised or professional skills

C – need for independent research or assessment.

- making decisions in an accountable and transparent manner.

These requirements are further emphasised in the Chief Executive's Instructions and supporting practical guides.

ARPANSA engaged consultants where there was a requirement for specialist expertise that was not available within the Agency, or where an independent

assessment was required. The selection process included selective tender or direct engagement of a recognised or pre-eminent expert.

Advertising

ARPANSA did not commission any work from creative advertising agencies, market research organisations, polling organisations or direct mail organisations. During

Table 11: Details of payments of \$10 300 and above (inclusive of GST) for advertising and public notices during 2006-07

Organisation	Purpose	Expenditure
HMA Blaze Pty Ltd	Tender, recruitment and general advertising	\$134 430
Total expenditure over \$10 300		\$134 430

2006-07 total expenditure on advertising and public notices amounted to \$134 430 (inclusive of GST).

Details of payments of \$10 300 and above (inclusive of GST), as required under section 311A of the *Commonwealth Electoral Act 1918*, are contained in Table 11.



Appendices



Appendix 1: Occupational health and safety

Comcare audit of OH&S management system

Comcare undertook a follow-up inspection of ARPANSA's OH&S Management System in June 2006 reviewing actions taken by ARPANSA in response to recommendations made following the Planned Investigation conducted by Comcare in March 2003. The final report based on this re-inspection was received in September 2006. The inspector reported that 10 of the original 16 recommendations were satisfactorily addressed, with further actions required on the remaining six recommendations.

ARPANSA response to the final report contained action plans and evidence where action had already been implemented. Comcare replied in December that the information provided adequately addressed the recommendations and accordingly, the investigation was closed.

The OH&S Management System had continued to be improved. The significant elements developed in 2006-07 include:

- workplace environment – restricted access policy, procedures and risk assessment documentation
- plant safety – plant hazard/risk assessment procedures and checklists
- incident investigation – policy and registers
- managing movement and materials
- materials storage and transport, manual handling hazard identification and risk assessment
- hazardous substances risk management, training, labeling and disposal
- health surveillance and atmospheric monitoring
- collecting and using data – procedures and registers.

The challenge for 2007-08 is to fully implement and roll out all elements of the OH&S Management System.

OH&S Committee meeting and inspections

The local committee chaired by a Branch Director and made up of Health and Safety Representatives and management representatives of all Branches met on alternate months in accordance with its schedule and conducted OH&S inspections of all work areas within ARPANSA. The inspections resulted in a number of corrective action requests being issued which were attended to by the relevant branch management.

OH&S measures undertaken through the Committee include:

- the acquisition of a semi-automatic external defibrillator
- the extension of the emergency warning public address system to plant rooms and basement storage areas

- magnetic door closers fitted to stairwell access doors.

The Radiation Safety Committee chaired by one of ARPANSA's license holders meets regularly and reports to the OH&S Committee. The Committee has developed a comprehensive radiation safety management system to support the recently updated ARPANSA Radiation Safety Manual.

Health and safety representatives

In accordance with amendments to the *Occupational Health and Safety (Commonwealth Employees) Act 1991* [OHS (CE) Act] coming into effect in March 2006, the OH&S Agreement negotiated with the unions is to be replaced by Health and Safety Management Arrangements which are under development.

One result of the amended Act is that Health and Safety Representatives will now be selected through elections conducted by the employer. Officers currently in place will remain in office until the end of their term in July 2008 and they are eligible for re-election.

Incidents or injuries

No incidents or injuries occurred requiring Comcare notification under section 68 of the OHS (CE) Act were reported.

Investigations or notices given

No investigations were conducted or notices given relevant to sections 29, 45 and 46 of the OHS (CE) Act.

Appendix 2: Human resource management statistical reports

Table 12: Salary ranges as at 30 June 2007

APS Classification	Salary Range (\$)
Trainee APS (Technical)	39 838 – 42 435
APS Level 1	34 027 – 38 677
APS Level 2	39 838 – 43 734
APS Level 3	45 361 – 50 756
APS Level 4	52 279 – 54 629
APS Level 5	56 268 – 59 078
APS Level 6	60 850 – 69 603
Executive Level 1	75 174 – 83 585
Executive Level 2	86 494 – 104 311

Table 13: Non-salary benefits

- Flexible working arrangements, including flextime, job-sharing, part-time and home-based work.
- Provision for leave, including recreation leave, long service leave, personal leave, bereavement leave, maternity leave, paternity/non-primary care giver leave, parental leave, employee funded extra leave, study leave, ceremonial leave, war service sick leave, defence service leave, compensation/accident leave, jury service leave and a range of miscellaneous leave entitlements (with and without pay).
- Study assistance.
- Employee assistance program.
- Flexible remuneration packaging scheme.
- Provision for business related equipment.
- Airline club membership when travelling overseas.

Table 14: Certified Agreement

The *ARPANSA Agreement 2004–2007* which has a nominal expiry date of 30 June 2007, covers all employees of the Australian Radiation Protection and Nuclear Safety Agency employed under the *Public Service Act 1999* below the Senior Executive Service level and certain staff who were parties to an Australian Workplace Agreement.

Table 15: Australian Workplace Agreements (AWAs)

- As at 30 June 2007, ARPANSA had 3 approved AWAs for SES employees and a further 9 for non-SES personnel.
- The salary range available for employees on AWAs is from \$79 381 to \$132 086. Employees on AWAs have access to performance pay bonuses and a range of other non-salary benefits including a privately plated vehicle.

Table 16: Performance pay

1. The number of APS employees at each classification level who received performance pay:
 - (a) SES Band 1: 4
 - (b) Non-SES: 5
2. The aggregated amount of performance pay for the Agency as a whole year was \$135 250.
3. The average bonus payment was \$15 027.

Table 17: Staff by location, gender and classification

Classification	SES	EL 2	EL 1	APS 6	APS 5	APS 4	APS 3	APS 2	APS 1	TOTAL
Year	Jun 2006	Jun 2006	Jun 2006	Jun 2006	Jun 2006	Jun 2006	Jun 2006	Jun 2006	Jun 2006	Jun 2006
NEW SOUTH WALES										
Female	1	2	1	1	3	4	2	1	1	15
Male	1	5	6	8	7	6	2			21
Total	2	7	7	9	10	10	2	1	1	36
VICTORIA										
Female		1	4	4	8	8	1	16	12	37
Male	1	12	14	18	16	20	18	7	7	61
Total	1	13	18	22	24	28	16	23	19	98
TOTAL										
Female	1	2	2	5	11	12	4	5	2	52
Male	2	17	20	24	27	24	9	7	1	82
TOTAL	3	19	22	29	38	36	13	12	3	134

Table 18: Staff by gender and classification

Classification	Female		Male		TOTAL	
	June 2006	June 2007	June 2006	June 2007	June 2006	June 2007
Trainee APS (Technical)						
APS Level 1						
APS Level 2	10	11			10	11
APS Level 3	17	13	2	4	19	17
APS Level 4	2	2	1	1	3	3
APS Level 5	4	5	9	7	13	12
APS Level 6	11	12	27	24	38	36
Executive Level 1	5	5	24	24	29	29
Executive Level 2	2	2	17	20	19	22
SES Band 1	1	2	2	1	3	3
Total	52	52	82	81	134	133

Table 19: Full-time equivalent (FTE) staff by gender and classification

Classification	Female		Male		TOTAL	
	June 2006	June 2007	June 2006	June 2007	June 2006	June 2007
Trainee APS (Technical)						
APS Level 1						
APS Level 2	9.08	9.65			9.08	9.65
APS Level 3	16.51	12.51	2	4	18.51	16.51
APS Level 4	1.6	2	1	1	2.6	3
APS Level 5	3.6	5	9	7	12.6	12
APS Level 6	11	11.4	26.17	22.89	37.17	34.29
Executive Level 1	5	5	24	23.6	29.0	28.6
Executive Level 2	2	2	17	20	19.0	22
SES Band 1	1	2	2	1	3.0	3
Total	49.79	49.56	81.17	79.49	130.96	129.05

Table 20: Staff employed under the PS Act as at 30 June 2006 and 2007

	Full-Time Ongoing		Full-Time Non-Ongoing		Part-Time Ongoing		Part-Time Non-Ongoing		TOTAL	
	June 2006	June 2007	June 2006	June 2007	June 2006	June 2007	June 2006	June 2007	June 2006	June 2007
Female	43	43	3	3	4	5	2	1	52	52
Male	76	76	4	2	2	3			82	81
Total	119	119	7	5	6	8	2	1	134	133

Table 21: Distribution of staff by Branch

Year	Female				Male				TOTAL	
	Ongoing		Non-Ongoing		Ongoing		Non-Ongoing		June 2006	June 2007
	June 2006	June 2007	June 2006	June 2007	June 2006	June 2007	June 2006	June 2007		
Office of the CEO (including Legal Support)		2	1		9				10	2
Environmental and Radiation Health	11	10	1	1	20	19		1	32	31
Medical Radiation	11	11	1		13	14	1		26	25
Non-Ionizing Radiation	2	2		1	19	19			21	22
Regulatory and Policy	7	8	1		10	18	1	1	19	27
Corporate Services	16	16	1	1	7	9	2		26	26
Total	47	49	5	3	78	79	4	2	134	133

Table 22: Staff retention and turnover 2005-06 and 2006-07

Classification	Female				Male				VARIATION	
	Ongoing		Non-Ongoing		Ongoing		Non-Ongoing		June 2006	June 2007
	June 2006	June 2007	June 2006	June 2007	June 2006	June 2007	June 2006	June 2007		
SES										
Commencement	1	1							+1	+1
Separation						1	1		-1	-1
Executive Level 1-2										
Commencement		1			1	2	2		+3	+3
Separation		1			2	2	1	1	-3	-4
APS Level 1-6										
Commencement	2	2	7	2	5	2	3	1	+17	+7
Separation	4	2	3	3		2	4		-11	-7

Table 23: Inoperative staff as at 30 June 2006 and 2007

Classification	Female				Male				TOTAL	
	Ongoing		Non-Ongoing		Ongoing		Non-Ongoing		June 2006	June 2007
	June 2006	June 2007	June 2006	June 2007	June 2006	June 2007	June 2006	June 2007		
SES									0	0
Exec Level 1-2	1				2	2			3	2
APS Level 1-6	4				1				5	0
Total	5				3	2			8	2

Appendix 3: ARPANSA licensing activities

Licence applications

The licence applications received during the reporting year are listed in Table 24.

Licences issued

Under section 32 of the ARPANS Act, the CEO issued a facility licence to ANSTO authorising the operation of the OPAL reactor (F0157).

Under section 33 of the ARPANS Act the CEO issued source licences to:

- Decipha Pty Ltd
- Food Science Australia
- National Capital Authority
- Australian Communications and Media Authority
- Royal Australian Mint.

Licences amended

Under section 36 of the ARPANS Act, the CEO made amendments to the source and facility licences listed in Table 25.

Licences surrendered

Under section 39 of the ARPANS Act, the CEO approved the surrender of the licences listed in Table 26.

Exemptions from the requirement for licensing

The CEO has the power pursuant to both 30(1)(b) and 31(1)(b) of the ARPANS Act to exempt a controlled person from the requirement for licensing in relation to both source and facility licences. During the reporting year the CEO made exemption decisions under regulation 38(5) of the ARPANS Regulations in relation to:

- tritium firearm night sights used by the Australian Federal Police
- a transmit-receive cell containing tritium and klystron amplifier devices (components of weather radars) used by the Bureau of Meteorology.

Table 24: Licence applications received during 2006-07

Received from	Type of licence application
Attorney General's Department	Source (S0178)
Australian Customs Service	Source (S0176)
CSIRO Food Science Australia	Source (S0182)
Department of Defence	Source (S0175)
Department of Foreign Affairs and Trade	Source (S0179)
Department of Transport and Regional Services	Source (S0181) Facility (F0183)

Table 25: Licences amended under section 36 of the ARPANS Act during 2006-07

Licence holder	Licence amended
ANSTO Sources	Source (S0045)
Australian Customs Service	Source (S0092)
Australian Customs Service – Fremantle Container Examination Facility	Facility (F0155)
Australian Institute of Marine Science	Source (S0007)
Australian National University – High Energy Implanter	Facility (F0075)
CSIRO Entomology	Source (S0017)
CSIRO Industrial Physics	Source (S0105)
CSIRO Manufacturing and Materials Technology	Source (S0066)
Department of Environment and Heritage, Australian Antarctic Division	Source (S0055)
Department of Environment and Heritage, Australian Antarctic Division – Polar Medicine	Source (S0008)
Department of Immigration and Multicultural Affairs (now Department of Immigration and Citizenship)	Source (S0135)
Department of Prime Minister and Cabinet	Source (S0012)
Federal Court of Australia	Source (S0036)
Geoscience Australia	Source (S0014)
Silex Systems Ltd	Source (S0090)

Licences current as at 30 June 2007

Table 27 and Table 28 provide details of the current source and facility licences.

Compliance monitoring

It is a statutory function of the CEO to monitor compliance with the ARPANS Act by controlled persons in particular to ensure that any prohibited activity is the subject of a licence or an application for licence or an appropriate exemption from the requirement to hold a licence.

A principal source of advice to the CEO on compliance issues is derived from the regulatory officers within Regulatory and Policy Branch and the Nuclear Safety Unit. Regulatory officers of ARPANSA assess monitor and provide advice to the CEO on compliance with the ARPANS Act and Regulations, and if a licence holder, compliance with licence conditions imposed by the CEO.

During the year the CEO issued the Regulatory Compliance Policy. The policy commits the Agency to a compliance program that includes promotion of compliance with the

Table 26: Licences surrendered under section 39 of the ARPANS Act during 2006-07

Licence holder	Licence surrendered
ANSTO facility licence authorising construction of OPAL reactor	Facility (F118)
CSIRO HIAF	Facility (F0060)
National Capital Authority	Source (S0033)

ARPANSA legislation, verification of compliance and the appropriate consideration of enforcement action if a finding of breach is made. The policy is published on the ARPANSA web site http://www.arpansa.gov.au/pubs/regulatory/comp_pol.pdf.

Compliance monitoring includes the review of compliance reports submitted by licence holders (see Table 28). Several initiatives were taken during the year to assist licence holders to achieve compliance with the reporting requirements. A standard reporting pro-forma and guidance material were developed for both

source licence holders and holders of licences for prescribed radiation facilities to facilitate efficient and effective reporting. A system for electronic reporting was established enabling compliance reports to be submitted via email. The system includes issuing reminder notices to licence holders and providing them with current and relevant information.

A standard operating procedure, associated forms and supplementary documents for managing licence holders' compliance reports were introduced as part of the Regulatory Branch's quality management system.

Table 27: Source licences as at 30 June 2007

Commonwealth entity	Sources held by	Licences held
ANSTO	6 Divisions Bragg Institute	2
ARPANSA	3 Branches	3
Australian Customs Service	Various locations	1
Australian Defence Force/ Department of Defence	Various locations	1
Australian National University	11 Schools, Faculties or Divisions	1
Australian Quarantine and Inspection Service	Various locations	1
CSIRO	19 Divisions	19
Various	Single entities	29
Total number of licences		57

Table 28: Facility licences as at 30 June 2007

Commonwealth entity	Licences held
ANSTO	
nuclear installations	7
prescribed radiation facilities (PRFs)	12
ARPANSA (PRF)	1
Australian Customs Service	6
Australian National University	1
CSIRO (PRFs)	2
Department of Defence (PRFs)	5
Department of Education, Science and Training – Maralinga (PRF)	1
Parks Australia North (PRF)	1
Total number of licences	36

Inspections

Part 7 of the ARPANS Act empowers the CEO to appoint inspectors who carry out inspections and exercise inspection powers under the ARPANS Act. ARPANSA's policy on regulatory inspections was reviewed and reissued with some minor amendments. The policy assists inspectors to undertake their statutory functions, by setting out the principles and framework for ARPANSA's regulatory inspection program. In addition, the policy specifies training and competency requirements for ARPANSA inspectors.

In accordance with the inspection policy, inspectors implement the standard operating procedure for conducting inspections. The procedure describes how ARPANSA inspectors prepare, undertake and report on inspections. The procedure was reviewed and reissued during 2004

with some minor amendments. Both the Regulatory Inspection Policy and Regulatory Inspection Procedure are available on the ARPANSA web site. <http://www.arpansa.gov.au/inspect.htm>.

During the year, the standard operating procedure was used as the basis for inspections of nuclear installations, prescribed radiation facilities, controlled material and apparatus. In conjunction with the inspection program, a number of standard operating procedures and forms relating to the use and maintenance of radiation monitoring instruments were developed and issued during the year.

Inspections for compliance monitoring

ARPANSA continues an active program of inspections to determine compliance with licences issued under the ARPANS Act. Inspections were

undertaken of the following licence holders in the reporting year:

- Australian Crime Commission at Milton Offices, Brisbane (S0034)
- Australian Customs Service
 - Australian Customs Accelerator at West Melbourne, Victoria (F0131)
 - Australian Customs Accelerator at Fisherman Island, Queensland (F0136)
 - Australian Customs Sources at Tullamarine, Victoria (S0092)
 - Customs Container Examination Facility, Matraville, NSW (F0125)
 - Neutron Scanner Facility, Brisbane (F0162)
- Australian Government Antarctic Division, Polar Medicine Branch (S0008)
- Australian Defence Forces, Department of Defence
 - Woomera Waste Storage Facility (F0084)
 - Defence RADIAC Calibration Facility, Wadsworth Barracks, Victoria (F0116)
 - Defence Radioactive Waste Store, Bandiana, Victoria (F0113)
 - Joint Logistics Unit (West) (S0042)
 - Clearance Dive Team 4 (S0042)
 - Electrical Instrument Repair Workshop, Gallipoli Barracks, Enoggera (S0042)
 - Army Malaria Unit, Gallipoli Barracks, Enoggera (S0042)
- Australian National University, Rutherford Back Scatter Accelerator, Canberra, ACT (F0073)
- Australian Nuclear Science and Technology Organisation
 - Waste Operations and Technology Development (F0044-4B)
 - HIFAR Reactor Operations (F0044-4A)
 - Fuel Operations (F0044-4C)
 - Radiopharmaceuticals Research Institute Facility (F0044-5A)
 - Particle Accelerators (F0044-6Ba, 6Bb, F0134)
 - Australian Radiopharmaceutical Industries, Building 23A (F0044-5Aa)
 - OPAL reactor (F0118 and F0157)
 - MOATA reactor (FO 0044-6A)
 - Gamma Technology Research Irradiator (F0044-6C)
- Australian Postal Corporation, Melbourne (S0150)
- Australian Quarantine and Inspection Service, Tullamarine, Victoria (S0120)
- Australian Radiation Protection and Nuclear Safety Agency, Medical Radiation Branch Accelerator and Teletherapy Laboratory, Victoria (F0046)
- Bureau of Meteorology, Cape Grim Baseline (S0005)
- Commonwealth Scientific and Industrial Research Organisation
 - Corporate Property, Woomera (S0013)

- CSIRO Marine and Atmospheric Research (S0019)
- Family Court of Australia, Melbourne (S0040)
- Silex Systems Ltd, Lucas Heights Research Laboratory, NSW (S0090).

Transport of radioactive material

During the year, as the relevant competent authority, ARPANSA approved:

- shipments of spent fuel from the HIFAR and MOATA reactors
- shipments of fresh fuel for the OPAL Reactor and for the HIFAR.
- shipment of the Defence Hot Spot Facility from Port Melbourne to ANSTO
- validation of Package approval for fresh fuel for the HIFAR and OPAL reactors.

Appendix 4: Freedom of information

In compliance with section 8 of the *Freedom of Information Act 1982* (FOI Act), the information below is the annual statement by ARPANSA in relation to its consultative arrangements, categories of documents maintained and procedures for access to documents covered by the FOI Act.

Organisation

ARPANSA is an Agency that is established under the ARPANS Act. The office of the CEO of ARPANSA is created under the Act. Under the Act, the CEO of ARPANSA is responsible for protecting the health and safety of people and the environment from the harmful effects of radiation (ionizing and non-ionizing). Specifically, ARPANSA is responsible for:

- regulating all Commonwealth entities (including Departments, Agencies and Bodies Corporate) and Commonwealth contractors either dealing with radioactive material or apparatus or undertaking conduct in relation to nuclear installations or prescribed radiation facilities
- providing advice to Government and the community on radiation protection and nuclear safety
- undertaking research and providing services in relation to radiation protection, nuclear safety and medical exposures to radiation
- promoting uniformity of radiation protection and nuclear safety policy

and practices across jurisdictions of the Commonwealth, the states and the territories.

Arrangements for participation

Public submissions

The licensing of nuclear facilities requires the CEO of ARPANSA to invite public submissions on a licence application. The Agency has established a public submission process in relation to such facilities. These include public meetings.

Other community consultation

ARPANSA publishes quarterly and annual reports and technical reports that are available to the general public through libraries, electronically or on request. The Agency's committees also engage in public consultation in relation to matters under its consideration. An FOI Officer is available to address requests from the public for information concerning radiation protection, nuclear safety and all aspects of ARPANSA regulation. Information brochures on particular topics are available on request, free of charge.

State and territory Government arrangements

All states and territories are represented on ARPANSA's Radiation Health Committee. In addition the Agency supports and contributes to regular meetings of other radiation regulatory authorities. Reports by ARPANSA are regularly forwarded to state and

territory regulatory authorities for review and comment. As members of the Visiting Ships Panel (Nuclear), ARPANSA officers regularly liaise with state government departments responsible for the safe visits of nuclear powered warships to Australian ports.

Commonwealth Government arrangements

ARPANSA communicates with other Commonwealth government departments and agencies as required.

Categories of documents held

Available on request

- copies of quarterly and annual reports as well as technical reports.

Documents relating to the decision making process

- Ministerial correspondence
- determinations and directions of the CEO
- memoranda and decisions of ARPANSA
- deeds
- legal contracts and formal arrangements, such as Memorandum of Understanding
- minutes and submissions
- applications and accompanying regulatory documents
- public submissions.

General correspondence

- Ministerial briefs
- speeches
- conference papers
- Parliamentary questions and answers
- facsimiles, electronic messages
- general records files.

Technical documents

- scientific and technical reports
- computer disks and print outs
- plant and equipment operating manuals
- records of audits inspections and reviews
- maintenance, quality assurance and safety manuals
- accounting records
- photographs.

Health and safety related documents

- accident reports as applicable
- emergency response procedures.

Administration documents

- organisation and establishment reports
- contract documents
- building plans
- instructions, directives and orders
- memoranda
- bulletins and notices.

Procedure and initial contact for inquiries

The initial contact for inquiries in relation to freedom of information is the Freedom of Information Co-ordinator who is located in Miranda and can be contacted by mail at ARPANSA, PO Box 655, Miranda, NSW 1490 or by email to info@arpansa.gov.au.

Requests for access to information under the FOI Act must be made in writing and addressed to, 'The FOI Co-ordinator' and be accompanied by an application fee: currently, \$30. FOI queries may be made in the first instance to the FOI Co-ordinator, who may be contacted on (02) 9541 8301. The FOI Act provides for the reduction of the application fee or waiver of the fee in certain circumstances.

It should be noted that, in many cases, it is not necessary to use FOI processes, as the information sought by the applicant may be readily available. If this is the case, the FOI Co-ordinator should be contacted in the first instance on 02 9541 8301.

All correspondence concerning FOI matters should be addressed to the FOI Co-ordinator in the ARPANSA Miranda Office at the following address:

FOI Co-ordinator
PO Box 650
MIRANDA NSW 1490.

If the person wishes to lodge a FOI request then they need to:

- make a request in writing (s 51(2)(a) of the FOI Act)

- provide such information about the document(s) as is reasonably necessary to enable the document(s) to be identified
- specify an address in Australia to which notices may be sent
- send the request by post to ARPANSA
- ensure that the appropriate fee accompanies the request – the fee is \$30.

Any request for remission of fees should accompany the initial application and state the reason for the request. Reasons may include financial hardship or that the request for information is in the public interest.

In accordance with ARPANSA's procedures for processing FOI requests, the FOI Co-ordinator may, in some instances, need to consult applicants about access to documents under the FOI Act. Consultation is required to:

- to assist the applicant to identify, more specifically, documents which he or she has requested or
- to give to the applicant a reasonable opportunity for consultation before refusing a request on the grounds of insufficient information (s 15(2) of the FOI Act) or if the request requires a substantial and unreasonable diversion of resources (s 24(1) of the FOI Act) or
- to notify the applicant of the charges and the deposit that is payable, or to discuss a request that the charges be reduced or waived.

Branch Directors of ARPANSA are authorised under s 23 of the FOI Act, to make primary decisions on applications for access to documents held in their individual areas. Access is generally provided by way of copies of documents to applicants.

In addition the CEO of ARPANSA is authorised to make decisions on applications for internal review of primary decisions on FOI requests made to ARPANSA.

Further guidance as to how to make an application for access to documents under Freedom of Information can be obtained from www.law.gov.au/foi.

Facilities for access

Arrangements for access can be made by contacting the Freedom of Information Co-ordinator, ARPANSA PO Box 655 Miranda NSW 1490 or by email to info@arpansa.gov.au.

Information about ARPANSA is available on the ARPANSA Internet web site (<http://www.arpansa.gov.au>) or from the Freedom of Information Co-ordinator.

Appendix 5: Publications

Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) 2006. *Radiation Protection Standard for Occupational Exposure to Ultraviolet Radiation*, Radiation Protection Series No 12.

Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) 2007. *Code of Practice for the Security of Radioactive Sources*, Radiation Protection Series No 11.

Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) 2007. *Code of Practice and Safety Guide for Safe Use of Fixed Radiation Gauges*, Radiation Protection Series No 13.

A F Bais, D Lubin, A Arola, G Bernhard, M Blumthaler, N Chubarova, C Erlick, H P Gies, N Krotkov, B Mayer, R L McKenzie, R Piacentini, G Seckmeyer, J R Slusser 2006. Chapter 7, 'Surface Ultraviolet Radiation: Past, Present and Future'. *WHO, WMO, UNEP, Scientific Assessment of Ozone Depletion* WMO, Geneva, Switzerland.

Colin R Roy and Lindsay J Martin 2007. 'A comparison of important international and national standards for limiting exposure to EMF including the scientific rationale', *Health Physics* **92**: 635-641.

Colin R. Roy 2007. Rapporteur Report: ICNIRP International Workshop on EMF dosimetry and Biophysical Aspects Relevant to Setting Exposure Guidelines. *Health Physics* **92**: 658-667.

Peter Gies 2007. 'Photoprotection by Clothing', *Photodermatology, Photoimmunology & Photomedicine*, **23**: (in press).

Peter Gies, Robin Elix(deceased), David Lawry, Jennifer Gardner, Trevor Hancock, Sarah Cockerell, Colin Roy, John Javorniczky and Stuart Henderson 2007. 'Assessment of the UVR Protection Provided by Different Tree Species', *Photochemistry and Photobiology*, **83**: (in press).

Ivanov Z 2007, *Results of the Quality Assurance Testing Program for Radiopharmaceuticals 2006*, ARPANSA Technical Report 146.

C.A. Wilson, P. H. Gies, B. E. Niven, A. McLennan and N. K. Bevin 2007 'The relationship between UV transmittance and color — visual description and instrumental measurement', *Textile Research Journal*. (in press).

Appendix 6: Ecologically sustainable development reporting

Section 516A of the *Environment Protection and Biodiversity Conservation Act 1999* requires Australian government agencies to include in their annual report on the environmental performance of the agency and the agency's contribution to ecologically sustainable development. ARPANSA does not administer any legislation or have any appropriation related to these issues.

The Agency supports and promotes practices that can improve energy management and environmental practices within both the Sydney and Melbourne offices. ARPANSA has in place an Environment Policy and is committed to:

- comply with relevant Commonwealth and state environment legislation and with the Australian Government's environmental policies and initiatives
- implement a continually improving standard of environmental performance and provide an environmentally sound workplace
- strive to develop an environmentally responsible culture across the agency by providing appropriate resources and training to build awareness and support initiatives
- integrate environmental, social and economical considerations in decision making including

purchasing and contracting for goods and services

- encourage openness, transparency and improve accountability through reporting its environmental management through annual reports and engagement with the community
- implement and maintain an Environmental Management System aligned with the ISO 14001 Standard.

During the year, ARPANSA established the Environmental Management Committee, tasked to oversee and guide the development and implementation of the ARPANSA environmental management strategy. The Committee will review and monitor existing performance, set energy use and environmental impact targets and introduce improved processes identified under the Environmental Management System. To foster the development of environmental sustainability and to support improved productivity and efficiency across the organisation, the Committee in close cooperation with Corporate Property Management, has:

- reviewed ARPANSA's energy use and environmental performance measured against local, state and Commonwealth targets
- increased staff awareness of environmental issues by seeking staff opinions on what practical measures can be introduced to reduce energy consumption and other environmental indicators

- introduced energy saving devices to decrease light and power consumption and established water saving measures in public amenities and laboratories
- upgraded the air conditioning system
- refocused the gardening contract at the Melbourne office to support the local shire's Wildlife Corridor Program by planting indigenous flora, maintaining the local creek and removing invasive weeds
- increased the effort to maximise recycled paper, printing cartridges and other identified consumables
- purchased energy efficient equipment where viable.

Appendix 7: Index of compliance with reporting requirements

Letter of transmittal	.5
Table of contents	.3
Index	.157
Glossary	.155
Contact officer	.2
Internet home page address and Internet address for report	.2
Review by CEO	.7
Role and functions	.21
Organisational structure	.24
Outcome and output structure	.30
Review of performance in relation to outputs and contribution to outcomes	.34
Actual performance in relation to performance targets	.29
Narrative discussion and analysis of performance	.34
Performance against service charter and complaints data	.91
Discussion and analysis of financial performance	.28
Summary resource tables by outcome	.28
Developments since the end of the financial year that may significantly affect the Agency's financial results in future	.29
Statement of the main corporate governance practices in place	.82
Compliance with Commonwealth Fraud Control Guidelines	.85
Significant developments in external scrutiny	.N/A
Judicial decisions and decisions of administrative tribunals	.N/A
Reports by Auditor-General, a Parliamentary Committee or the Commonwealth Ombudsman	.48
Human Resources	.86
Statistics on staffing	.100
Certified agreements and Australian Workplace Agreements	.87
Performance pay	.101
Assets management	.93
Purchasing	.92
Consultancy services	.93
Competitive tendering and contracting	.N/A
Contracts exempt from the AusTender	.N/A
Performance in implementing the <i>Commonwealth Disability Strategy</i>	.90
Financial Statements	.120
Occupational health and safety	.98
Freedom of Information	.112
Advertising and market research	.94
Ecologically sustainable development and environmental performance	.117
Discretionary Grants	.N/A
Correction of material errors in previous annual report	.N/A

Appendix 8: Financial statements for year ended 30 June 2007

Australian Radiation Protection and Nuclear
Safety Agency
(ARPANSA)

Financial Statements - 30 June 2007

STATEMENT BY THE CHIEF EXECUTIVE AND CHIEF FINANCIAL OFFICER

In our opinion, the attached financial statements for the year ended 30 June 2007 are based on properly maintained financial records and give a true and fair view of the matters required by the Finance Minister's Orders made under the *Financial Management and Accountability Act 1997*, as amended.

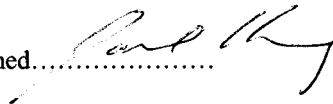
Signed.....



John Loy
Chief Executive

6 September 2007

Signed.....



Carol Cheung
Chief Financial Officer

6 September 2007

INCOME STATEMENT*for the period ended 30 June 2007*

	Notes	2007 \$	2006 \$
INCOME			
Revenue			
Revenue from Government	3A	13,294,000	11,796,000
Sale of goods and rendering of services	3B	4,654,716	4,796,159
Licence fees	3C	4,118,458	3,681,956
Total revenue		<u>22,067,174</u>	<u>20,274,115</u>
Gains			
Other gains	3D	44,000	42,000
Total Income		<u>22,111,174</u>	<u>20,316,115</u>
EXPENSES			
Employee benefits	4A	12,281,418	10,910,426
Suppliers	4B	7,001,790	7,425,225
Depreciation and amortisation	4C	1,722,178	2,012,486
Finance costs	4D	-	28,901
Write-down and impairment of assets	4E	121,316	19,246
Foreign exchange losses	4F	2,399	213
Losses from asset sales	4G	-	947
Total Expenses		<u>21,129,101</u>	<u>20,397,444</u>
Surplus (Deficit)		<u>982,073</u>	<u>(81,329)</u>

The above statement should be read in conjunction with the accompanying notes.

BALANCE SHEET*as at 30 June 2007*

	Notes	2007 \$	2006 \$
ASSETS			
Financial Assets			
Cash and cash equivalents	5A	2,147,746	4,359,508
Trade and other receivables	5B	4,850,876	1,122,282
Other financial assets	5C	464,272	-
Total financial assets		7,462,894	5,481,790
Non-Financial Assets			
Land and buildings	6A	9,042,550	8,832,701
Infrastructure, plant and equipment	6B,6F	3,423,524	3,962,398
Intangibles	6C,6G	876,420	971,473
Inventories	6D	1,504,260	1,557,554
Other non-financial assets	6E	223,404	235,168
Total non-financial assets		15,070,158	15,559,294
Total Assets		22,533,052	21,041,084
LIABILITIES			
Payables			
Suppliers	7A	558,046	543,540
Other payables	7B	546,218	640,401
Total payables		1,104,264	1,183,941
Provisions			
Employee provisions	8	4,529,123	4,219,237
Total provisions		4,529,123	4,219,237
Total Liabilities		5,633,387	5,403,178
Net Assets		16,899,665	15,637,906
EQUITY			
Contributed equity		1,024,000	1,024,000
Reserves		5,644,059	5,364,373
Retained surplus		10,231,606	9,249,533
Total Equity		16,899,665	15,637,906
Current Assets		9,190,558	7,274,512
Non-Current Assets		13,342,494	13,766,572
Current Liabilities		5,282,595	5,071,246
Non-Current Liabilities		350,792	331,932

The above statement should be read in conjunction with the accompanying notes.

STATEMENT of CHANGES in EQUITY
for the year ended 30 June 2007

	Retained Earnings		Asset Revaluation Reserves		Contributed Equity/Capital		Total Equity	
	2007	2006	2007	2006	2007	2006	2007	2006
	\$	\$	\$	\$	\$	\$	\$	\$
Opening balance	9,249,533	9,330,862	5,364,373	4,855,373	1,024,000	824,000	15,637,906	15,010,235
Balance carried forward from previous period								
Income and expense	-	-	279,686	509,000	-	-	279,686	509,000
Revaluations recognised Directly in Equity								
Sub-total income and expenses recognised Directly in Equity	-	-	279,686	509,000	-	-	279,686	509,000
Surplus (Deficit) for the period	982,073	(81,329)	-	-	-	-	982,073	(81,329)
Total income and expenses	982,073	(81,329)	-	-	-	-	982,073	(81,329)
Contributions by Owners								
Appropriation (equity injection)	-	-	-	-	-	200,000	-	200,000
Sub-total transactions with owners	-	-	-	-	-	200,000	-	200,000
Closing balance at 30 June	10,231,606	9,249,533	5,644,059	5,364,373	1,024,000	1,024,000	16,899,665	15,637,906
Closing balance attributable to the Australian Government	10,231,606	9,249,533	5,644,059	5,364,373	1,024,000	1,024,000	16,899,665	15,637,906

The above statement should be read in conjunction with the accompanying notes.

CASH FLOW STATEMENT

for the year ended 30 June 2007

	Notes	2007 \$	2006 \$
OPERATING ACTIVITIES			
Cash received			
Goods and services		9,263,831	8,664,211
Appropriations		9,197,000	11,796,000
Net GST recovered		<u>280,632</u>	<u>351,141</u>
Total cash received		<u>18,741,463</u>	<u>20,811,352</u>
Cash used			
Employees		(11,882,874)	(11,047,878)
Suppliers		(7,534,498)	(7,987,065)
Other cash used		-	(32,208)
Total cash used		<u>(19,417,372)</u>	<u>(19,067,151)</u>
Net cash from or (used by) operating activities	9	<u>(675,909)</u>	<u>1,744,201</u>
INVESTING ACTIVITIES			
Cash received			
Proceeds from sales of property, plant and equipment		-	1,818
Total cash received		<u>-</u>	<u>1,818</u>
Cash used			
Purchase of property, plant and equipment		(1,458,743)	(1,371,770)
Purchase of intangibles		<u>(77,110)</u>	<u>(352,186)</u>
Total cash used		<u>(1,535,853)</u>	<u>(1,723,956)</u>
Net cash used by investing activities		<u>(1,535,853)</u>	<u>(1,722,138)</u>
FINANCING ACTIVITIES			
Cash received			
Appropriations - contributed equity		-	500,000
Total cash received		<u>-</u>	<u>500,000</u>
Cash used			
Repayment of borrowings		-	(822,210)
Total cash used		<u>-</u>	<u>(822,210)</u>
Net cash used by financing activities		<u>-</u>	<u>(322,210)</u>
Net increase or (decrease) in cash held		<u>(2,211,762)</u>	<u>(300,147)</u>
Cash at the beginning of the reporting period		<u>4,359,508</u>	<u>4,659,655</u>
Cash at the end of the reporting period	5A	<u>2,147,746</u>	<u>4,359,508</u>

The above statement should be read in conjunction with the accompanying notes.

SCHEDULE OF COMMITMENTS

as at 30 June 2007

	2007	2006
	\$	\$
BY TYPE		
Commitments receivable		
GST recoverable on commitments	(132,078)	(126,648)
Total commitments receivable	<u>(132,078)</u>	<u>(126,648)</u>
Capital commitments		
Infrastructure, plant and equipment	-	77,439
Total capital commitments	<u>-</u>	<u>77,439</u>
Other commitments		
Operating leases	1,012,190	336,331
Other commitments	440,668	979,359
Total other commitments	<u>1,452,858</u>	<u>1,315,690</u>
Net commitments by type	<u><u>1,320,780</u></u>	<u><u>1,266,481</u></u>
BY MATURITY		
Other commitments receivable		
One year or less	(76,291)	(111,378)
From one to five years	(55,787)	(15,270)
Total other commitments receivable	<u>(132,078)</u>	<u>(126,648)</u>
Commitments payable		
Capital commitments		
One year or less	-	77,439
Total capital commitments	<u>-</u>	<u>77,439</u>
Operating lease commitments		
One year or less	398,526	301,159
From one to five years	613,664	35,172
Over five years	-	-
Total operating lease commitments	<u>1,012,190</u>	<u>336,331</u>
Other commitments		
One year or less	440,668	846,556
From one to five years	-	132,803
Total other commitments	<u>440,668</u>	<u>979,359</u>
Net commitments by maturity	<u><u>1,320,780</u></u>	<u><u>1,266,481</u></u>

NB: Commitments are GST inclusive where relevant

1. Other Commitments – contracts for the procurement of goods and services.
2. Operating leases are effectively non-cancellable and comprise:

Nature of leases/General description

Leases for office accommodation.

Lease payments are subject to annual increase as per the lease. The lease term is 3 years.

Agreements for the provision of motor vehicles to senior executive officers.

No contingent rentals exist. There are no renewal or purchase options available to the Agency.

The above schedule should be read in conjunction with the accompanying notes.

SCHEDULE OF CONTINGENCIES

as at 30 June 2007

Contingent Assets	TOTAL	
	2007	2006
	\$	\$
Total Contingent Assets	-	-

Contingent Liabilities	TOTAL	
	2007	2006
	\$	\$
Total Contingent Liabilities	-	-
Net Contingent Assets (Liabilities)	-	-

The above schedule should be read in conjunction with the accompanying notes.

ARPANSA
NOTES TO AND FORMING PART OF THE FINANCIAL STATEMENTS
for the year ended 30 June 2007

Note 1: Summary of Significant Accounting Policies

Note 2: Events after the Balance Sheet Date

Note 3: Income

Note 4: Expenses

Note 5: Financial Assets

Note 6: Non-Financial Assets

Note 7: Payables

Note 8: Provisions

Note 9: Cash Flow Reconciliation

Note 10: Contingent Liabilities and Assets

Note 11: Executive Remuneration

Note 12: Remuneration of Auditors

Note 13: Average Staffing Levels

Note 14: Financial Instruments

Note 15: Appropriations

Note 16: Special Accounts

Note 17: Reporting of Outcomes

Note 1: Summary of Significant Accounting Policies

1.1 Objectives of ARPANSA

The objectives of ARPANSA are described in the body of this Annual Report.

The Agency is structured to meet one Outcome:

"The Australian people and the environment are protected from the harmful effects of radiation."

ARPANSA's activities contributing toward the outcome are classified as departmental.

Departmental activities involve the use of assets, liabilities, revenues and expenses controlled or incurred by the Agency in its own right.

Departmental activities are identified under 3 Outputs:

1. National Leadership in radiation protection and nuclear safety.
2. Knowledge, Information and Services relating to radiation protection and nuclear safety.
3. Regulation of Commonwealth entities using radiation sources and facilities or nuclear installations.

The continued existence of the Agency in its present form and with its present programs is dependent on Government policy and on continuing appropriations by Parliament for the Agency's administration and programs.

1.2 Basis of Preparation of the Financial Report

The financial statements and notes are required by clause 1(b) of Schedule 1 to the *Financial Management and Accountability Act 1997* and are a General Purpose Financial Report.

The financial statements and notes have been prepared in accordance with:

- Finance Minister's Orders (or FMOs) for reporting periods ending on or after 1 July 2006; and
- Australian Accounting Standards and Interpretations issued by the Australian Accounting Standards Board that apply for the reporting period.

The financial report has been prepared on an accrual basis and is in accordance with historical cost convention, except for certain assets at fair value. Except where stated, no allowance is made for the effect of changing prices on the results or the financial position.

The financial report is presented in Australian dollars and values are rounded to the nearest dollar.

Unless an alternative treatment is specifically required by an accounting standard or the FMOs, assets and liabilities are recognised in the Balance Sheet when and only when it is probable that future economic benefits will flow to the Agency and the amounts of the assets or liabilities can be reliably measured. However, assets and liabilities arising under agreements equally proportionately unperformed are not recognised unless required by an accounting standard. Liabilities and assets that are unrealised are reported in the Schedule of Commitments and the Schedule of Contingencies (other than unquantifiable or remote contingencies, which are reported at Note 10).

Unless alternative treatment is specifically required by an accounting standard, revenues and expenses are recognised in the Income Statement when and only when the flow, consumption or loss of economic benefits has occurred and can be reliably measured.

1.3 Significant Accounting Judgements and Estimates

In the process of applying the accounting policies listed in this note, ARPANSA has made the following judgements that have the most significant impact on the amounts recorded in the financial statements:

- The fair value of land and buildings has been taken to be the market value of similar properties as determined by an independent valuer. However, ARPANSA's buildings are purpose built and may in fact realise more or less in the market.

No accounting assumptions or estimates have been identified that have a significant risk of causing a material adjustment to carrying amounts of assets and liabilities within the next accounting period.

1.4 Statement of Compliance

Australian Accounting Standards require a statement of compliance with International Financial Reporting Standards (IFRSs) to be made where the financial report complies with these standards. Some Australian Equivalents to IFRSs and other Australian Accounting Standards contain requirements specific to not-for-profit entities that are inconsistent with IFRS requirements.

ARPANSA is a not-for-profit entity and has applied these requirements, so while this financial report complies with Australian Accounting Standards including Australian Equivalents to International Financial Reporting Standards (AEIFRS), the Agency cannot make this statement.

Adoption of new Australian Accounting Standard requirements

During the current reporting period no accounting standard has been adopted earlier than the effective date.

The following amendments, revised standards or interpretations have become effective but have had no financial impact or do not apply to the operations of ARPANSA.

Amendments:

- 2005-1 Amendments to Australian Accounting Standards [AASBs 1, 101, 124]
- 2005-6 Amendments to Australian Accounting Standards [AASB 3]
- 2006-1 Amendments to Australian Accounting Standards [AASB 121]
- 2006-3 Amendments to Australian Accounting Standards [AASB 1045]

Interpretations:

- UIG 4 Determining whether an arrangement contains a lease
- UIG 5 Rights to interests arising from decommissioning, restoration and environmental rehabilitation funds

- UIG 7 Applying the restatement approach under AASB 129 financial reporting in hyperinflationary economies
- UIG 8 Scope of AASB 2
- UIG 9 Reassessment of embedded derivatives

UIG 4 and UIG9 might have impacts in future periods, subject to existing contracts being renegotiated.

Future Australian Accounting Standard requirements

The following new standards, amendments to standards or interpretations have been issued by the Australian Accounting Standards Board but are effective for future reporting periods. It is estimated that there will be no material financial impact on future financial statements of adopting these pronouncements when effective.

Financial Instrument Disclosure

AASB 7 Financial instruments: disclosures is effective for reporting periods beginning on or after 1 January 2007 (the 2007-08 financial year) and amends the disclosure requirements for financial instruments. In general AASB 7 requires greater disclosure than is presently required. Associated with the introduction of AASB 7 a number of accounting standards were amended to reference the new standard or remove the present disclosure requirements through 2005-10 Amendments to Australian Accounting Standards [AASB 132, AASB 101, AASB 114, AASB 117, AASB 133, AASB 139, AASB 1, AASB 4, AASB 1023 & AASB 1038]. These changes have no financial impact but will affect the disclosure presented in future financial reports.

Other

The following standards and interpretations have been issued but are not applicable to the operations of ARPANSA:

- AASB 1049 *Financial reporting of general Government sectors by Governments*
- UIG 10 Interim financial reporting and impairment

1.5 Revenue

Revenue from Government

Amounts appropriated for departmental outputs appropriations for the year (adjusted for any formal additions and reductions) are recognised as revenue, except for certain amounts that relate to activities that are reciprocal in nature, in which case revenue is recognised only when it has been earned.

Section 56 (3) of the *Australian Radiation Protection and Nuclear Safety Act 1998* (the Act), requires that money appropriated by the Parliament be transferred to the special account (notes 3A and 16 refer).

Appropriations receivable are recognised at their nominal amounts.

Resources Received Free of Charge

Resources received free of charge are recognised as revenue when and only when a fair value can be reliably determined and the services would have been purchased if they had not been donated. Use of those resources is recognised as an expense.

Resources received free of charge are recorded as either revenue or gains depending on their nature i.e. whether they have been generated in the course of the ordinary activities of the Agency.

Licence Fees

Under paragraph 34(b) of the Act, an application for a licence must be accompanied by a fee prescribed in the regulations. Revenue for licence applications is recognised when an application for a licence is received.

Revenue for annual licence fees is recognised when a licence is issued to the licensee.

Other Types of Revenue

Revenue from the sale of goods is recognised when:

- The risks and rewards of ownership have been transferred to the buyer;
- The seller retains no managerial involvement nor effective control over the goods;
- The revenue and transaction costs incurred can be reliably measured; and
- It is probable that the economic benefits associated with the transaction will flow to the Agency.

Revenue from rendering of services is recognised by reference to the stage of completion of contracts at the reporting date. The revenue is recognised when:

- The amount of revenue, stage of completion and transaction costs incurred can be reliably measured; and
- The probable economic benefits with the transaction will flow to the Agency.

The stage of completion of contracts at the reporting date is determined by reference to the proportion that costs incurred to date bear to the estimated total costs of the transaction.

Receivables for goods and services, which have 30 day terms, are recognised at the nominal amounts due less any allowances for bad and doubtful debts. Collectability of debts is reviewed at balance date. Allowances are made when collectability of the debt is no longer probable.

1.6 Gains

Other Resources Received Free of Charge

Contributions of assets at no cost of acquisition or for nominal consideration are recognised as gains at their fair value when the asset qualifies for recognition, unless received from another Government Agency or Authority as a consequence of a restructuring of administrative arrangements.

Resources received free of charge are recorded as either revenue or gains depending on their nature i.e. whether they have been generated in the course of the ordinary activities of the Agency.

Sale of Assets

Gains from disposal of non-current assets is recognised when control of the asset has passed to the buyer.

1.7 Transactions with the Government as Owner

Equity injections

Amounts appropriated which are designated as 'equity injections' for a year (less any formal reductions) are recognised directly in Contributed Equity in that year.

Other distributions to owners

The FMOs require that distributions to owners be debited to contributed equity unless in the nature of a dividend.

1.8 Employee Benefits

Liabilities for services rendered by employees are recognised at the reporting date to the extent that they have not been settled.

Liabilities for 'short-term employee benefits' (as defined in AASB 119) and termination benefits due within twelve months of balance date are measured at their nominal amounts.

The nominal amount is calculated with regard to the rates expected to be paid on settlement of the liability.

All other employee benefit liabilities are measured at the present value of the estimated future cash outflows to be made in respect of services provided by employees up to the reporting date.

Leave

The liability for employee benefits includes provision for annual leave and long service leave. No provision has been made for sick leave as all sick leave is non-vesting and the average sick leave taken in future years by employees of the Agency is estimated to be less than the annual entitlement for sick leave.

The leave liabilities are calculated on the basis of employees' remuneration, including the Agency's employer superannuation contribution rates to the extent that the leave is likely to be taken during service rather than paid out on termination.

The liability for long service leave is recognised and measured at the present value of the estimated future cash flows to be made in respect of employees as at 30 June 2007. The estimate of the present value of the liability takes into account attrition rates and pay increases through promotion and inflation.

Superannuation

Staff of ARPANSA are members of the Commonwealth Superannuation Scheme (CSS), the Public Sector Superannuation Scheme (PSS) or the PSS accumulation plan (PSSap), and the Australian Government Employee Superannuation Trust (AGEST).

The CSS and PSS are defined benefit schemes for the Australian Government. The PSSap is a defined contribution scheme. The AGEST Superannuation Trust is an industry fund which was previously the Australian Government Default Superannuation fund for non-ongoing employees.

The liability for defined benefits is recognised in the financial statements of the Australian Government and is settled by the Australian Government in due course.

ARPANSA makes employer contributions to the Employee Superannuation Scheme at rates determined by an actuary to be sufficient to meet the cost to the Government of the superannuation entitlements of the Agency's employees. ARPANSA accounts for the contributions as if they were contributions to defined contribution plans.

The liability for superannuation recognised as at 30 June represents outstanding contributions for the final fortnight of the year.

1.9 Leases

A distinction is made between finance leases and operating leases. Finance leases effectively transfer from the lessor to the lessee substantially all the risks and rewards incidental to ownership of leased non-current assets. An operating lease is a lease that is not a finance lease. In operating leases, the lessor effectively retains substantially all such risks and benefits.

Where a non-current asset is acquired by means of a finance lease, the asset is capitalised at either the fair value of the lease property or, if lower, the present value of minimum lease payments at the inception of the contract and a liability is recognised at the same time and for the same amount.

The discount rate used is the interest rate implicit in the lease. Leased assets are amortised over the period of the lease. Lease payments are allocated between the principal component and the interest expense.

Operating lease payments are expensed on a straight line basis which is representative of the pattern of benefits derived from the leased assets.

1.10 Borrowing Costs

All borrowing costs are expensed as incurred.

1.11 Cash

Cash means notes and coins held and any deposits held at call with a bank or financial institution.

Cash is recognised at its nominal amount.

1.12 Financial Risk Management

ARPANSA's activities expose it to normal commercial financial risk. As a result of the nature of ARPANSA's business, and ARPANSA's internal and Australian Government policies dealing with the management of financial risk, ARPANSA's exposure to market, credit, liquidity, cash flow and interest rate risk is considered to be low.

1.13 Derecognition of Financial Assets and Liabilities

Financial assets are derecognised when the contractual rights to the cash flows from the financial assets expire or the asset is transferred to another Agency. In the case of a transfer to another Agency, it is necessary that the risks and rewards of ownership are also transferred.

Financial liabilities are derecognised when the obligation under the contract is discharged, cancelled or expires.

1.14 Impairment of Financial Assets

Financial assets are assessed for impairment at each balance date.

Financial Assets held at Amortised Cost

If there is objective evidence that an impairment loss has been incurred for loans and receivables or held to maturity investments held at amortised cost, the amount of the loss is measured as the difference between the asset's carrying amount and the present value of estimated future cash flows discounted at the asset's original effective interest rate. The carrying amount is reduced by way of an allowance account. The loss is recognised in the Income Statement.

1.15 Supplier and Other Payables

Supplier and other payables are recognised at amortised cost. Liabilities are recognised to the extent that the goods or services have been received (and irrespective of having been invoiced).

1.16 Contingent Liabilities and Contingent Assets

Contingent liabilities and contingent assets are not recognised in the Balance Sheet but are reported in the relevant schedules and notes. They may arise from uncertainty as to the existence of a liability or asset, or represent an existing liability or asset in respect of which settlement is not probable or the amount cannot be reliably measured. Remote contingencies are part of this disclosure. Contingent assets are reported when settlement is probable, and contingent liabilities are recognised when settlement is greater than remote.

1.17 Acquisition of Assets

Assets are recorded at cost on acquisition except as stated below. The cost of acquisition includes the fair value of assets transferred in exchange and liabilities undertaken. Financial assets are initially measured at their fair value plus transaction costs where appropriate.

Assets acquired at no cost, or for nominal consideration, are initially recognised as assets and revenues at their fair value at the date of acquisition, unless acquired as a consequence of restructuring of administrative arrangements. In the latter case, assets are initially recognised as contributions by owners at the amounts at which they were recognised in the transferor Agency's accounts immediately prior to the restructuring.

1.18 Property, Plant and Equipment

Asset Recognition Threshold

Purchases of property, plant and equipment are recognised initially at cost in the Balance Sheet, except for purchases costing less than \$2,000, which are expensed in the year of acquisition (other than where they form part of a group of similar items which are significant in total).

Revaluations

Fair values for each class of asset are determined as shown below:

Asset class	Fair value measured at:
Land	Market selling price
Buildings exc. Leasehold improvements	Market selling price
Leasehold improvements	Depreciated replacement cost
Plant & equipment	Market Selling Price

Following initial recognition at cost, property plant and equipment are carried at fair value less accumulated depreciation and accumulated impairment losses. Valuations are conducted with sufficient frequency to ensure that the carrying amounts of assets do not differ materially from the assets' fair values as at the reporting date. The regularity of independent valuations depends upon the volatility of movements in market values for the relevant assets. However at a minimum, ARPANSA's infrastructure, property, plant and equipment are subject to an independent valuation every four years, by a qualified valuer.

Revaluation adjustments are made on a class basis. Any revaluation increment is credited to equity under the heading of asset revaluation reserve except to the extent that it reverses a previous revaluation decrement of the same asset class that was previously recognised through surplus and deficit. Revaluation decrements for a class of assets are recognised directly through surplus and deficit except to the extent that they reverse a previous revaluation increment for that class.

Any accumulated depreciation as at the revaluation date is eliminated against the gross carrying amount of the asset and the asset restated to the revalued amount.

Depreciation

Depreciable property plant and equipment assets, apart from computer equipment, are written-off to their estimated residual values over their estimated useful lives to ARPANSA, using the straight-line method of depreciation. Computer equipment is depreciated using the reducing balance method, as the resulting depreciation pattern more accurately reflects the reduction in fair value over the life of these assets. Leasehold improvements are depreciated using the straight line method over the lesser of the estimated useful life of the improvements or the unexpired period of the lease.

Depreciation rates (useful lives), residual values and methods are reviewed at each reporting date and necessary adjustments are recognised in the current, or current and future reporting periods, as appropriate.

Depreciation rates applying to each class of depreciable asset are based on the following useful lives:

	2007	2006
Buildings on freehold land	34 years	30 years
Leasehold improvements	Lease term	Lease term
Plant and equipment	3 months to 27 years	3 to 30 years

Impairment

All assets were assessed for impairment at 30 June 2007. Where indications of impairment exist, the asset's recoverable amount is estimated and an impairment adjustment made if the asset's recoverable amount is less than its carrying amount.

The recoverable amount of an asset is the higher of its fair value less costs to sell and its value in use. Value in use is the present value of the future cash flows expected to be derived from the asset. Where the future economic benefit of an asset is not primarily dependent on the asset's ability to generate future cash flows, and the asset would be replaced if ARPANSA were deprived of the asset, its value in use is taken to be its depreciated replacement cost.

1.19 Intangibles

ARPANSA's intangibles comprise internally developed software for internal use and trade marks. These assets are carried at cost.

Intangibles are amortised on a straight-line basis over their anticipated useful life. The useful lives of ARPANSA's intangibles are 5 to 14 years (2005-06: 5 to 14 years).

All intangibles assets were assessed for indications of impairment as at 30 June 2007.

1.20 Inventories

Inventories held for sale are valued at the lower of cost and net realisable value.

Inventories held for distribution are measured at the lower of cost and current replacement cost.

Costs incurred in bringing each item of inventory to its present location and condition are assigned as follows:

- raw materials and stores – purchase cost on a first-in-first-out basis; and
- finished goods and work in progress – cost of direct materials and labour plus attributable costs that are capable of being allocated on a reasonable basis.

Inventories acquired at no cost or nominal consideration are measured at current replacement cost at the date of acquisition.

1.21 Taxation

The Agency is exempt from all forms of taxation except fringe benefits tax (FBT) and the goods and services tax (GST).

Revenues, expenses and assets are recognised net of GST, except:

- where the amount of GST incurred is not recoverable from the Australian Taxation Office; and
- for receivables and payables.

1.22 Reporting of Outcomes

All ARPANSA's transactions were reported against one outcome in 2005-06. Commencing 1 July 2006, the activities of the Agency and the associated transactions are reported under 3 output groups (note 17B refers).

Note 2: Events after the Balance Sheet Date

No significant after balance date events have occurred.

Note 3: Income

	2007	2006
	\$	\$
<u>Revenue</u>		
<u>Note 3A: Revenue from Government</u>		
Appropriation:		
Departmental outputs	13,294,000	11,796,000
<i>Total revenue from Government</i>	<u>13,294,000</u>	<u>11,796,000</u>
<u>Note 3B: Sale of goods and rendering of services</u>		
Scientific services - PRMS	2,198,586	2,291,729
Construction and maintenance contracts - CTBT	1,258,579	1,352,753
Othe scientific services	1,197,551	1,151,677
<i>Total sale of goods and rendering of services</i>	<u>4,654,716</u>	<u>4,796,159</u>
Related entities	177,313	258,486
External entities	4,477,403	4,537,673
<i>Total sale of goods and rendering of services</i>	<u>4,654,716</u>	<u>4,796,159</u>
<u>Note 3C: Licence fees</u>		
Application fees	112,623	420,581
Annual charges	4,005,835	3,261,375
<i>Total fees</i>	<u>4,118,458</u>	<u>3,681,956</u>
<u>Gains</u>		
<u>Note 3D: Other gains</u>		
Resources received free of charge	44,000	42,000
<i>Total gains</i>	<u>44,000</u>	<u>42,000</u>

Note 4: Expenses

	2007	2006
	\$	\$
Note 4A: Employee benefits		
Wages and salaries	8,631,958	8,105,837
Superannuation	1,824,724	1,599,324
Leave and other entitlements	1,615,216	1,175,891
Separation and redundancies	209,520	29,374
Total employee benefits	12,281,418	10,910,426
Note 4B: Suppliers		
Provision of goods – related entities	-	-
Provision of goods – external entities	1,410,066	1,600,682
Rendering of services – related entities	1,505,690	2,211,479
Rendering of services – external entities	3,562,113	3,128,146
Operating lease rentals:		
Minimum lease payments	446,217	391,312
Workers compensation premiums	77,704	93,606
Total supplier expenses	7,001,790	7,425,225
Note 4C: Depreciation and amortisation		
Depreciation:		
Infrastructure, plant and equipment	744,993	1,134,604
Buildings	857,299	784,380
Total depreciation	1,602,292	1,918,984
Amortisation:		
Intangibles:		
Computer software	119,556	93,172
Other	330	330
Total amortisation	119,886	93,502
Total depreciation and amortisation	1,722,178	2,012,486
Note 4D: Finance costs		
Finance leases	-	28,901
Total finance costs	-	28,901
Note 4E: Write-down and impairment of assets		
Bad and doubtful debt expense	91,470	10,214
Buildings - write-off	-	358
Plant and equipment - write-off	26,026	8,674
Intangibles - write-off	3,820	-
Total write-down and impairment of assets	121,316	19,246
Note 4F: Foreign exchange losses		
Non-speculative	2,399	213
Total foreign exchange losses	2,399	213
Note 4G: Losses from assets sales		
Infrastructure, plant and equipment		
Carrying value of asset sold	-	2,765
Proceeds from sale	-	1,818
Total losses from assets sales	-	947

Note 5: Financial Assets

	2007	2006
	\$	\$
<u>Note 5A: Cash and cash equivalents</u>		
Special accounts	2,144,746	4,356,508
Cash on hand or on deposit	3,000	3,000
<i>Total cash and cash equivalents</i>	<u>2,147,746</u>	<u>4,359,508</u>
<u>Note 5B: Trade and other receivables</u>		
Goods and services	744,491	1,075,916
Appropriations receivable:		
for existing outputs	4,097,000	-
GST receivable from the Australian Taxation Office	47,964	120,452
<i>Total trade and other receivables (gross)</i>	<u>4,889,455</u>	<u>1,196,368</u>
Less Allowance for doubtful debts:		
Goods and services	(38,579)	(74,086)
<i>Total trade and other receivables (net)</i>	<u>4,850,876</u>	<u>1,122,282</u>
Receivables are aged as follows:		
Not overdue	4,286,120	677,855
Overdue by:		
Less than 30 days	194,005	166,250
30 to 60 days	316,773	73,351
61 to 90 days	45,467	73,074
More than 90 days	47,090	205,838
<i>Total receivables (gross)</i>	<u>4,889,455</u>	<u>1,196,368</u>
The allowance for doubtful debts is aged as follows:		
Overdue by:		
More than 90 days	38,579	74,086
<i>Total allowance for doubtful debts</i>	<u>38,579</u>	<u>74,086</u>
Receivables are represented by:		
Current	4,850,876	1,122,282
<i>Total trade and other receivables (net)</i>	<u>4,850,876</u>	<u>1,122,282</u>
<u>Note 5C: Other financial assets</u>		
Accrued revenue	464,272	-
<i>Total other financial assets</i>	<u>464,272</u>	<u>-</u>
All other financial assets are current.		

Note 6: Non-Financial Assets

	2007	2006
	\$	\$
Note 6A: Land and buildings		
Freehold land (at fair value)	<u>4,050,000</u>	<u>3,300,000</u>
Buildings on freehold land:		
– fair value	<u>4,681,650</u>	<u>5,229,812</u>
Total buildings on freehold land	<u>4,681,650</u>	<u>5,229,812</u>
Leasehold improvements		
– at cost	-	564,493
– accumulated amortisation	-	(261,604)
	<u>-</u>	<u>302,889</u>
Leasehold improvements		
– fair value	<u>310,900</u>	-
	<u>310,900</u>	-
Total leasehold improvements	<u>310,900</u>	<u>302,889</u>
Total land and buildings (non-current)	<u>9,042,550</u>	<u>8,832,701</u>

Note 6B: Infrastructure, plant and equipment

Infrastructure, plant and equipment:		
– at cost	-	4,485,642
– accumulated depreciation	-	(1,894,119)
	<u>-</u>	<u>2,591,523</u>
– fair value	<u>3,423,524</u>	2,494,100
– accumulated depreciation	-	(1,123,225)
Total infrastructure, plant and equipment	<u>3,423,524</u>	<u>1,370,875</u>
Total infrastructure, plant and equipment (non-current)	<u>3,423,524</u>	<u>3,962,398</u>

All revaluations are conducted in accordance with the revaluation policy stated at Note 1. In 2006-07, independent valuers Ty Noble (AAPI) and Edward Kinch (AAPI) from the Australian Valuation Office conducted the revaluations.

Revaluation increment of \$750,000 for land (2006: increment of \$300,000), decrement of \$253,163 for buildings on freehold land (2006: increment of \$209,000), increment of \$120,270 (2006: \$0) for leasehold improvements and decrement of \$337,421 for plant and equipment (2006: \$0) were credited to the asset revaluation reserve by asset class and included in the equity section of the Balance Sheet.

Note 6: Non-Financial Assets (continued)

	2007	2006
	\$	\$
Note 6C: Intangibles		
Computer software at cost:		
Externally acquired	687,075	669,168
Accumulated amortisation	(372,890)	(273,676)
Internally developed – in progress	-	558,435
Internally developed – in use	575,028	16,593
Accumulated amortisation	(15,271)	(1,854)
	<u>873,942</u>	<u>968,666</u>
Trademarks at cost:		
Trademarks	4,620	4,619
Accumulated amortisation	(2,142)	(1,812)
	<u>2,478</u>	<u>2,807</u>
Total intangibles (non-current)	<u><u>876,420</u></u>	<u><u>971,473</u></u>

No indicators of impairment were found for intangible assets.

Note 6D: Inventories

Inventories held for sale		
Finished goods	68,574	75,890
Inventories held for distribution	1,435,686	1,481,664
Total inventories (current)	<u><u>1,504,260</u></u>	<u><u>1,557,554</u></u>

Note 6E: Other non-financial assets

Prepayments	223,404	235,168
Total other non-financial assets	<u><u>223,404</u></u>	<u><u>235,168</u></u>

All other non-financial assets are current assets.

Note 6: Non-Financial Assets (continued)

Note 6F: Analysis of property, plant and equipment

TABLE A – Reconciliation of the opening and closing balances of property, plant and equipment (2006-07)

	Land \$	Buildings \$	Leasehold Improvements \$	Other IP & E \$	Total \$
As at 1 July 2006					
Gross book value	3,300,000	5,229,812	564,493	6,979,742	16,074,047
Accumulated depreciation/amortisation	-	-	(261,604)	(3,017,344)	(3,278,948)
Net book value 1 July 2006	3,300,000	5,229,812	302,889	3,962,398	12,795,099
Additions:					
by purchase	-	450,041	-	569,566	1,019,607
Revaluations and impairments through equity	750,000	(253,163)	120,270	(337,421)	279,686
Depreciation/amortisation expense	-	(745,040)	(112,259)	(744,993)	(1,602,292)
Disposals:					
Other disposals	-	-	-	(26,026)	(26,026)
Net book value 30 June 2007	4,050,000	4,681,650	310,900	3,423,524	12,466,074

Net book value as of 30 June 2007 represented by:

Gross book value	4,050,000	4,681,650	310,900	3,423,524	12,466,074
Accumulated depreciation/amortisation	-	-	-	-	-
	4,050,000	4,681,650	310,900	3,423,524	12,466,074

TABLE A – Reconciliation of the opening and closing balances of property, plant and equipment (2005-06)

Item	Land \$	Buildings \$	Leasehold Improvements \$	Other IP & E \$	Total \$
As at 1 July 2005					
Gross book value	3,000,000	7,547,551	564,492	5,507,836	16,619,879
Accumulated depreciation/amortisation	-	(1,941,281)	(149,346)	(1,949,316)	(4,039,943)
Net book value 1 July 2005	3,000,000	5,606,270	415,146	3,558,520	12,579,936
Additions:					
by purchase	-	87,022	1	1,549,921	1,636,944
Revaluations and impairments through equity	300,000	209,000	-	-	509,000
Depreciation/amortisation expense	-	(672,122)	(112,258)	(1,134,604)	(1,918,984)
Disposals:					
Other disposals	-	(358)	-	(11,439)	(11,797)
Net book value 30 June 2006	3,300,000	5,229,812	302,889	3,962,398	12,795,099

Net book value as of 30 June 2006 represented by:

Gross book value	3,300,000	5,229,812	564,493	6,979,742	16,074,047
Accumulated depreciation/amortisation	-	-	(261,604)	(3,017,344)	(3,278,948)
	3,300,000	5,229,812	302,889	3,962,398	12,795,099

Note 6: Non-Financial Assets (continued)

Note 6G: Intangibles

TABLE A: Reconciliation of the opening and closing balances of intangibles (2006-07)

Item	Computer software internally developed	Computer software purchased	Other intangibles - Trademarks	Total
	\$	\$	\$	\$
As at 1 July 2006				
Gross book value	558,435	685,761	4,619	1,248,815
Accumulated depreciation/amortisation	(1,854)	(273,676)	(1,812)	(277,342)
Net book value 1 July 2006	556,581	412,085	2,807	971,473
Additions:				
by purchase or internally developed	27,338	1,314	1	28,653
Amortisation	(20,342)	(99,214)	(330)	(119,886)
Disposals:				
other disposals	(3,820)	-	-	(3,820)
Net book value 30 June 2007	559,757	314,185	2,478	876,420
Net book value as of 30 June 2007 represented by:				
Gross book value	575,028	687,075	4,620	1,266,723
Accumulated depreciation/amortisation	(15,271)	(372,890)	(2,142)	(390,303)
	559,757	314,185	2,478	876,420

TABLE B: Reconciliation of the opening and closing balances of intangibles (2005-06)

Item	Computer software internally developed	Computer software purchased	Other intangibles - Trademarks	Total
	\$	\$	\$	\$
As at 1 July 2005				
Gross book value	107,978	606,413	4,619	719,010
Accumulated amortisation	-	(182,358)	(1,481)	(183,839)
Net book value 1 July 2005	107,978	424,055	3,138	535,171
Additions:				
by purchase or internally developed	450,457	79,348	-	529,805
Amortisation	(1,854)	(91,318)	(331)	(93,503)
Net book value 30 June 2006	556,581	412,085	2,807	971,473
Net book value as of 30 June 2006 represented by:				
Gross book value	558,435	685,761	4,619	1,248,815
Accumulated depreciation/amortisation	(1,854)	(273,676)	(1,812)	(277,342)
	556,581	412,085	2,807	971,473

Note 7: Payables

	2007	2006
	\$	\$

Note 7A: Suppliers

Trade creditors	558,046	543,540
Total supplier payables	558,046	543,540

Supplier payables are represented by:

Current	558,046	543,540
Total supplier payables	558,046	543,540

Settlement is usually made net 30 days.

Note 7B: Other payables

Accrued expenses	546,218	640,401
Total other payables	546,218	640,401

All other payables are current liabilities.

Note 8: Provisions

	2007	2006
	\$	\$

Employee provisions

Salaries and wages	68,914	65,132
Leave	4,447,070	4,141,814
Superannuation	13,139	12,291
Total employee provisions	4,529,123	4,219,237

Employee provisions are represented by:

Current	4,178,331	3,887,305
Non-current	350,792	331,932
Total employee provisions	4,529,123	4,219,237

Note 9: Cash Flow Reconciliation

	2007	2006
	\$	\$
Reconciliation of cash and cash equivalents as per Balance Sheet to Cash Flow Statement		
Report cash and cash equivalents as per:		
Cash Flow Statement	2,147,746	4,359,508
Balance Sheet	<u>2,147,746</u>	<u>4,359,508</u>
Difference	<u>-</u>	<u>-</u>
Reconciliation of operating result to net cash from operating activities:		
Operating result	982,073	(81,329)
Depreciation /amortisation	1,722,178	2,012,486
Net write down of non-financial assets	121,316	19,246
(Gain) / loss on disposal of assets	-	947
(Increase) / decrease in net receivables	(3,728,594)	(382,883)
(Increase) / decrease in inventories	53,294	61,207
(Increase) / decrease in prepayments	11,764	(60,778)
(Increase) / decrease in accrued revenue	(464,272)	278,675
Increase / (decrease) in employee provisions	309,886	(83,960)
Increase / (decrease) in supplier payables	12,505	115,291
Increase / (decrease) in accrued expenses	<u>303,941</u>	<u>(134,701)</u>
Net cash from / (used by) operating activities	<u>(675,909)</u>	<u>1,744,201</u>

Note 10: Contingent Liabilities and Assets

As at 30 June 2007, ARPANSA has no quantifiable or unquantifiable contingencies.

Note 11: Executive Remuneration

	2007	2006
The number of senior executives who received or were due to receive total remuneration of \$130,000 or more:		
\$145,000 to \$159,999	1	1
\$160,000 to \$174,999	1	4
\$175,000 to \$189,999	4	-
\$250,000 to \$264,999	<u>1</u>	<u>1</u>
Total	<u><u>7</u></u>	<u><u>6</u></u>
The aggregate amount of total remuneration of executives shown above.	\$1,314,130	\$1,082,274
The aggregate amount of separation and redundancy/termination benefit payments during the year to executives shown above.	\$61,055	-

Note 12: Remuneration of Auditors

	2007	2006
	\$	\$

Financial statement audit services are provided free of charge to the Agency.

The fair value of the audit services provided was:	<u>44,000</u>	42,000
	<u>44,000</u>	<u>42,000</u>

No other services were provided by the Auditor-General.

Note 13: Average Staffing Levels

	2007	2006
The average staffing levels for the Agency during the year were:	128	126

Note 14: Financial Instruments

Note 14A: Interest rate risk

Financial Instrument	Note	Non-Interest Bearing		Total		Weighted Average Effective Interest Rate	
		2007 \$	2006 \$	2007 \$	2006 \$	2007 %	2006 %
Financial Assets							
Cash at bank	5A	2,147,746	4,359,508	2,147,746	4,359,508	n/a	n/a
Receivables for goods and services (net)	5B	4,850,876	1,122,282	4,850,876	1,122,282	n/a	n/a
Accrued revenue	5C	464,272	-	464,272	-	n/a	n/a
Total		7,462,894	5,481,790	7,462,894	5,481,790	n/a	n/a
Total Assets				22,533,052	21,041,084		
Financial Liabilities							
Trade creditors	7A	558,046	543,540	558,046	543,540	n/a	n/a
Other payables	7B	546,218	640,401	546,218	640,401	n/a	n/a
Total		1,104,264	1,183,941	1,104,264	1,183,941	n/a	n/a
Total Liabilities				5,633,387	5,403,178		

Note 14: Financial Instruments (continued)

Note 14B: Fair values of financial assets and liabilities

	Notes	2007		2006	
		Total Carrying Amount \$	Aggregate Fair Value \$	Total Carrying Amount \$	Aggregate Fair Value \$
Financial Assets					
Cash at bank	5A	2,147,746	2,147,746	4,359,508	4,359,508
Receivables for goods and services (net)	5B	4,850,876	4,850,876	1,122,282	1,122,282
Accrued revenue	5C	464,272	464,272	-	-
Total Financial Assets		7,462,894	7,462,894	5,481,790	5,481,790
Financial Liabilities					
Trade creditors	7A	558,046	558,046	543,540	543,540
Other payables	7B	546,218	546,218	640,401	640,401
Total Financial Liabilities		1,104,264	1,104,264	1,183,941	1,183,941

Note 14C: Credit risk exposures

The Agency's maximum exposures to credit risk at reporting date in relation to each class of recognised financial assets is the carrying amount of those assets as indicated in the Balance Sheet.

The Agency has no significant exposures to any concentrations of credit risk.

All figures for credit risk referred to do not take into account the value of any collateral or other security.

Note 15: Appropriations

The whole amount provided under Appropriation is credited to the ARPANSA Special Account. In accordance with section 56 of the *Australian Radiation Protection and Nuclear Safety Act 1998* all monies received by ARPANSA are to be paid into the ARPANSA Special Account. Pursuant to this section, all monies paid into this account are automatically appropriated for the use of ARPANSA.

Table A: Acquittal of Authority to Draw Cash from the Consolidated Revenue Fund for Ordinary Annual Services Appropriations and borrowings

Particulars	Departmental Outputs	
	2007	2006
	\$	\$
Balance carried from previous period	-	-
Appropriation Act:		
Appropriation Act (No.1)	13,097,000	11,461,000
Appropriation Act (No.3)	197,000	335,000
Total appropriation available for payments	13,294,000	11,796,000
Cash payments made during the year (GST inclusive)	9,197,000	11,796,000
Balance of Authority to Draw Cash from the Consolidated Revenue Fund for Ordinary Annual Services Appropriations	4,097,000	-
<i>Represented by</i>		
Departmental appropriations receivable	4,097,000	-
Total	4,097,000	-

Table B: Acquittal of Authority to Draw Cash from the Consolidated Revenue Fund for Other than Ordinary Annual Services Appropriations

Particulars	Non – operating	
	Equity	
	2007	2006
	\$	\$
Balance carried from previous period	-	300,000
Appropriation Act:		
Appropriation Act (No.2)	-	200,000
Total appropriations available for payments	-	500,000
Cash payments made during the year (GST inclusive)	-	500,000

Note 16: Special Accounts

ARPANSA Special Account (Departmental)	2007	2006
	\$	\$
Legal Authority: <i>ARPANS Act 1998; s56(4)</i>		
Appropriation: <i>Financial Management and Accountability Act 1997 ; s21</i>		
<i>Purpose</i> : The purpose of the Special Account is set out in the ARPANS Act at section 56(4):		
<p>“The purposes of the Special Account are to make payments:</p> <p>(a) to further the object of this Act (as set out in section 3); and</p> <p>(b) otherwise in connection with the performance of the CEO's functions under this Act or the Regulations.”</p>		
Balance carried from previous period	4,359,508	4,659,655
Appropriation Act (No.1)	9,197,000	11,461,000
Appropriation Act (No.3)	-	335,000
Capital Injection	-	500,000
GST credits (FMA Act s30A)	280,632	351,141
Other receipts	9,263,831	8,666,029
Available for payments	23,100,971	25,972,825
Payments made to employees	11,882,874	11,047,878
Payments made to suppliers	9,070,351	9,739,923
Repayment of debt	-	825,516
Total debits	20,953,225	21,613,317
Balance carried to next period	2,147,746	4,359,508
Represented by:		
Cash – held by the Agency	2,147,746	4,359,508
Total balance carried to the next period	2,147,746	4,359,508

Note 17: Reporting of Outcomes

All ARPANSA's transactions fall within the one Outcome. The Australian people and the environment are protected from the harmful effects of radiation.

Note 17A: Net cost of outcome delivery

	Outcome	
	2007	2006
	\$	\$
Expenses		
Departmental	21,129,101	20,397,444
Total expenses	21,129,101	20,397,444
Costs recovered from provision of goods and services to the non-government sector		
Departmental	4,477,403	4,537,673
Total costs recovered	4,477,403	4,537,673
Other external revenues		
License fee revenue from related entities	4,118,458	3,681,956
Goods and services revenue from related entities	177,313	258,486
Total other external revenues	4,295,771	3,940,442
Net cost/(contribution) of outcome	12,355,927	11,919,329

Note 17B: Major classes of departmental revenues and expenses by output groups

Outcome	Output Group 1		Output Group 2		Output Group 3		Outcome	
	National Leadership		Knowledge Information and Services		Regulation		Total	
	2007	2006	2007	2006	2007	2006	2007	2006
	\$	\$	\$	\$	\$	\$	\$	\$
Departmental expenses								
Employees	2,276,363	n/a	6,906,254	n/a	3,098,801	n/a	12,281,418	10,910,426
Suppliers	2,008,101	n/a	3,673,812	n/a	1,319,877	n/a	7,001,790	7,425,225
Depreciation and amortisation	329,881	n/a	1,093,799	n/a	298,498	n/a	1,722,178	2,012,486
Other expenses	1,914	n/a	119,255	n/a	2,546	n/a	123,715	49,307
Total departmental expenses	4,616,259	n/a	11,793,120	n/a	4,719,722	n/a	21,129,101	20,397,444
Funded by:								
Revenue from government	3,237,237	n/a	9,455,499	n/a	601,264	n/a	13,294,000	11,796,000
Sales of goods and services	1,379,022	n/a	3,275,694	n/a	-	n/a	4,654,716	4,796,159
Other non-taxation revenues	-	n/a	44,000	n/a	4,118,458	n/a	4,162,458	3,723,956
Total departmental revenues	4,616,259	n/a	12,775,193	n/a	4,719,722	n/a	22,111,174	20,316,115

- ARPANSA had only one Output Group in 2006.

- The variance between revenue and expense in Output Group 2 reflects ARPANSA's 2006-07 surplus.



INDEPENDENT AUDITOR'S REPORT

To the Minister for Health and Ageing

Scope

We have audited the accompanying financial statements of the Australian Radiation Protection and Nuclear Safety Agency (the Agency) for the year ended 30 June 2007. The financial statements comprise: a statement by the chief executive and chief financial officer; income statement; balance sheet; statement of changes in equity; cash flow statement; schedules of commitments and contingencies; a summary of significant accounting policies, and other explanatory notes.

The Responsibility of the Chief Executive for the Financial Statements

The Agency's Chief Executive is responsible for the preparation and fair presentation of the financial statements in accordance with Finance Minister's Orders made under the *Financial Management and Accountability Act 1997* and Australian Accounting Standards (including Australian Accounting Interpretations). This responsibility includes establishing and maintaining internal controls relevant to the preparation and fair presentation of the financial statements that are free from material misstatement, whether due to fraud or error; selecting and applying appropriate accounting policies; and making accounting estimates that are reasonable in the circumstances.

Auditor's Responsibility

My responsibility is to express an opinion on the financial statements based on our audit. Our audit has been conducted in accordance with Australian National Audit Office Auditing Standards, which incorporate Australian Auditing Standards. These Auditing Standards require that we comply with relevant ethical requirements relating to audit engagements and plan and perform the audit to obtain reasonable assurance whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgement, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Agency's preparation and fair presentation of the financial statements in designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Agency's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by the Agency's Chief Executive, as well as evaluating the overall presentation of the financial statements.

I believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for my audit opinion.

Independence

In conducting the audit, we have followed the independence requirements of the Australian National Audit Office, which incorporate the ethical requirements of the Australian accounting profession.

Auditor's Opinion

In my opinion, the financial statements of the Australian Radiation Protection and Nuclear Safety Agency:

- (a) have been prepared in accordance with Finance Minister's Orders made under the *Financial Management and Accountability Act 1997* and Australian Accounting Standards (including Australian Accounting Interpretations); and
- (b) give a true and fair view of the matters required by the Finance Minister's Orders including the Australian Radiation Protection and Nuclear Safety Agency's financial position as at 30 June 2007 and of its financial performance and its cash flows for the year then ended.

Australian National Audit Office



P Hinchey
Senior Director
Delegate of the Auditor-General

Sydney
6 September 2007

List of figures and tables

Figures

Figure 1: Organisation chart of ARPANSA, 30 June 2007	25
Figure 2: ARPANSA Outputs which contribute to the Agency's Outcome for 2006-07	30

Tables

Table 1: 2006-07 Resource Summary for Outcome - The Australian people and the environment are protected from the harmful effects of radiation	28
Table 2: Performance Information for Output Group 1 - National Leadership in radiation protection and nuclear safety	31
Table 3: Performance Information for Output Group 2 - Knowledge, Information and Services relating to radiation protection and nuclear safety	32
Table 4: Performance Information for Output Group 3 - Regulation of Commonwealth entities using radiation sources and facilities or nuclear installations	33
Table 5: Status of Accreditation in accordance with AS ISO/IEC 17025: 2005 at 30 June 2007	45
Table 6: Details of advice provided 1 July 2006 - 30 June 2007	47
Table 7: Minimum security measures to be applied in the use, storage and transport of each category of source	77
Table 8: Details of client complaints received for ARPANSA activities in 2006-07	92
Table 9: Legal services expenditure by ARPANSA for 2006-07	93
Table 10: Consultancy services let during 2006-07 of \$10 000 or more	94
Table 11: Details of payments of \$10 300 and above (inclusive of GST) for advertising and public notices during 2006-07	95
Table 12: Salary Ranges as at 30 June 2007	100
Table 13: Non-Salary benefits	100
Table 14: Certified Agreement	101

Table 15: Australian Workplace Agreements (AWAs)	101
Table 16: Performance pay	101
Table 17: Staff by location, gender and classification	102
Table 18: Staff by gender and classification	103
Table 19: Full-time equivalent (FTE) staff by gender and classification	103
Table 20: Staff employed under the Public Service Act as at 30 June 2006 and 2007	104
Table 21: Distribution of staff by Branch	104
Table 22: Staff retention and turnover 2005-06 and 2006-07	105
Table 23: Inoperative staff as at 30 June 2006 and 2007	105
Table 24: Licence applications received during 2006-07	106
Table 25: Licences amended under section 36 of the ARPANS Act during 2006-07	107
Table 26: Licences surrendered under section 39 of the ARPANS Act during 2006-07	108
Table 27: Source licences as at 30 June 2007	108
Table 28: Facility licences as at 30 June 2007	109

Abbreviations

ACS	Australian Customs Service
ACT	Australian Capital Territory
ANAO	Australian National Audit Office
ANSTO	Australian Nuclear Science and Technology Organisation
APDS	<i>ARPANSA Performance Development System</i>
APMP	Asia Pacific Metrology Program
APS	Australian Public Service
ARGOS	Accident Reporting and Guidance Operational System
ARI	ANSTO Radiopharmaceuticals and Industrials
ARIR	Australian Radiation Incident Register
ARPANS Act	<i>Australian Radiation Protection and Nuclear Safety Act 1998</i>
ARPANSA	Australian Radiation Protection and Nuclear Safety Agency
AWA	Australian Workplace Agreement
BIPM	International Bureau of Weights and Measures
BMS	Business Management System
BSS	<i>Basic Safety Standards</i>
CBRN	Chemical, Biological, Radiological and Nuclear
CCRI(I)	Consultative Committee for Ionizing Radiation (Section I)
CEO	Chief Executive Officer
COAG	Council of Australian Governments
CNRA	Committee on Nuclear Regulatory Activities
CPGs	<i>Commonwealth Procurement Guidelines</i>
CTBT	Comprehensive Nuclear-Test-Ban Treaty
CTBTO	Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organisation
CT	computed tomography
CSIRO	Commonwealth Scientific Industrial Research Organisation
DRLs	diagnostic reference levels
EME	electromagnetic energy
EMR	electromagnetic radiation
ELF	extremely low frequency
FOI Act	<i>Freedom of Information Act 1982</i>

FMA Act	<i>Financial Management and Accountability Act 1997</i>
HIFAR	high flux Australian reactor
IAEA	International Atomic Energy Agency
ICNIRP	International Commission on Non-Ionizing Radiation Protection
ICRP	International Commission on Radiation Protection
ISO/IEC	International Organization for Standardization /International Electrotechnical Commission
IRRS	Integrated Regulatory Review Service
ITDB	Illicit Trafficking Database
JCPAA	Joint Committee of Public Accounts and Audit
KCDB	key comparison database
LCs	Limits and Conditions
L&D	learning and development
MV	megavoltage
NATA	National Association of Testing Authorities
NDRP	<i>National Directory for Radiation Protection</i>
NORM	Naturally Occurring Radioactive Material
NRCC	National Research Council of Canada
NT	Northern Territory
OECD	Organisation for Economic Co-operation and Development
OH&S	Occupational Health and Safety
OHS (CE) Act	<i>Occupational Health and Safety (Commonwealth Employees) Act 1991</i>
OPAL	Open Pool Australian Light-water [research reactor]
PNG	Papua New Guinea
PRMS	Personal Radiation Monitoring Service
RASSC	Radiation Safety Standards Committee
RHSAC	Radiation Health and Safety Advisory Council
RHC	Radiation Health Committee
RF	radiofrequency
RPS	<i>Radiation Protection Series</i>
SAR	safety analysis report
SCF	Staff Consultative Forum
SES	Senior Executive Service
SI	the International System of Units

SPERA	South Pacific Environmental Radioactivity Association
TGA	Therapeutic Goods Administration
TLD	Thermoluminescent dosimeter
TRANSSC	Transport Safety Standards Committee
UK	United Kingdom
UNSCEAR	United Nations Scientific Committee on the Effects of Atomic Radiation
WASSC	Waste Safety Standards Committee
UMPNER	Uranium Mining Processing & Nuclear Energy Review
UPF	ultraviolet protection factor
USA	United States of America
UVR	ultraviolet radiation
WEG	Work Environment Group
WHO	World Health Organization
WMD	weapons of mass destruction

Index

A

advertising and public notices, 94
Asset management, 93
Audit Committee, 84
Australian National Audit Office (ANAO), 8, 24, 48-49, 86
Australian Nuclear Science Technology Organisation (ANSTO)
HIFAR, 11-13, 17, 19, 52, 56-57, 71-72, 110-111
molybdenum-99 plant, 58
OPAL, 8, 11-13, 19, 52-60, 65, 71, 106, 108, 110-111
neutron beam instruments, 13, 59
Australian Workplace Agreements, 87-88

B

Basic Safety Standards (BSS), 15
business continuity, 85

C

calibrations, 44-45,
 radiofrequency 46
 radiotherapy reference dosimeters, 14, 44, 45
certificate of compliance, 18, 85
certified agreement, 87, 88
chemical, biological, radiological and nuclear (CBRN) security, 13, 38
client complaints, 91

codes and standards, 9, 17, 34-35, 66-71

Committee on Nuclear Regulatory Activities (CNRA), 15
Commonwealth radioactive waste management facility, 11-12, 11, 60
compliance activities, 60
compliance monitoring, 48, 107, 109
Comprehensive Nuclear-Test-Ban Treaty (CTBT), 22, 36
computed tomography (CT), 11, 32, 41, 64
consultancy contracts, 93
continuous improvement of regulatory business processes, 10, 48
corporate committees, 83
corporate governance, 82
Council of Australian Governments (COAG), 13-14, 71, 75, 78

D

Department of Defence, 13,
diagnostic reference levels (DRLs), 41

E

ecologically sustainable development, 117
electromagnetic fields, 9, 16, 43, 66
EME Reference Group, 43

emergency preparedness and response, 37-38, 50
environmental radiation, 42
ethical standards, 85
Executive Board of Management, 17, 82
export of radioactive material, 37
external scrutiny, 86

F

fraud control, 85
Freedom of information, 112
functions of the CEO, 22

G

governance, 82
graduate recruitment, 88

H

human resources, 86

I

International Atomic Energy Agency (IAEA), 15, 39
International Atomic Energy Agency (IAEA) Integrated Regulatory Review Service Mission, 10, 44, 50
International Atomic Energy Agency (IAEA) Safety Standards, 15
International Commission on Non-Ionizing Radiation Protection (ICNIRP), 16, 116

International Commission on Radiological Protection (ICRP), 15, 65, 69

importation of radioactive materials, 37
inspections, 60, 109
internal audit, 84
internal control, 85
international involvement, 39

J

Joint Committee on Public Accounts and Audit, 48-49, 86

L

learning and development, 88
Legal Services Directions, 91
Licence
 amended, 106
 applications, 106
 breaches, 60
 current, 102
 exemptions, 106
 issued, 106
 surrendered, 106

M

measurement programs and surveys, 40-44
medical linac, 10, 19
Ministerial advice, 47
mobile phone base stations, 43

N

National Association of Testing Authorities (NATA), 44

National Directory for Radiation Protection, 8, 67

national radiation dose register, 13, 69

National register of high activity sources, 36

naturally occurring radioactive materials (NORM), 11, 35

Nuclear Safety Committee, 71

O

Occupational health and safety, 98

Optimisation, 10

Organisation structure, 25

Outcome and output structure, 30

outputs, 31-33

P

Performance Development System, 90

Personal Radiation Monitoring Service (PRMS), 14, 46

polonium-210, 38, 66

Portfolio Budget Statements, 29

Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organisation (CTBTO), 14, 36

purchasing, 92

Q

Quality Management Committee, 17, 91

Quality System, 91

R

Radiation Health and Safety Advisory Council, 64

Radiation Health Committee, 67

Radiation Protection Series, 69

radioactive source security, 13, 36, 71

radioanalytical services, 47

radiological terrorism, 74

Radiopharmaceutical Quality Assurance, 46

regulatory information management system, 49

risk management, 84

S

Service Charter, 91

services, 40-47

solaria, 68

Staff Consultative Forum, 90

stakeholders, 49, 86

T

Therapeutic Goods Administration (TGA), 46

Transport of Radioactive Material, 111

U

Ultraviolet Protection Facility, 46

ultraviolet radiation, 41

United Nations Scientific Committee on
the Effects of Atomic Radiation
(UNSCEAR), 16

Uranium Mining Processing and
Nuclear Energy Review (UMPNER),
64

Uranium mining and nuclear energy, 12

W

WorkChoices, 87

workforce planning, staff retention and
turnover, 87

workplace diversity, 89

World Health Organization (WHO), 16