



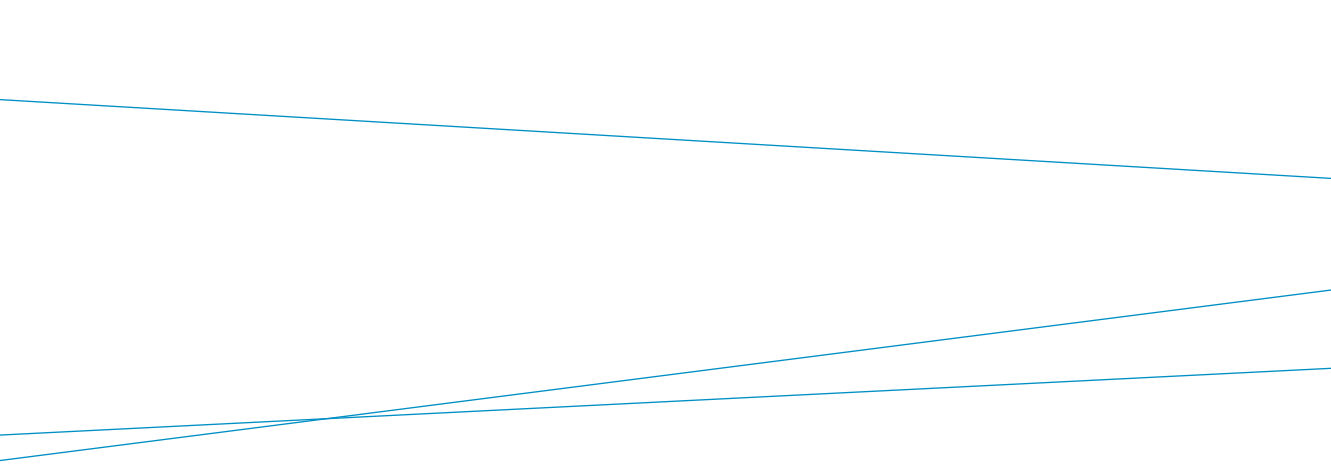
Australian Government

Australian Radiation Protection and Nuclear Safety Agency

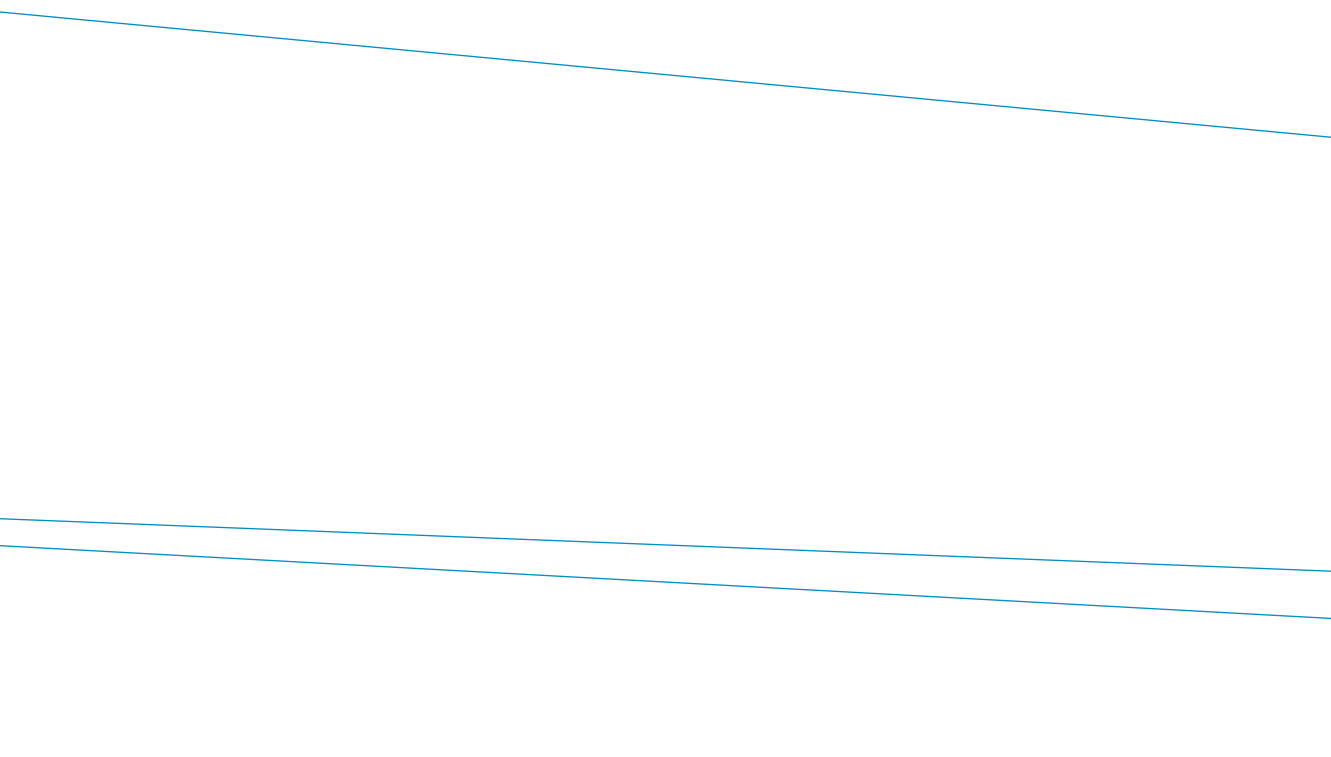
Annual Report of the Chief Executive Officer of the Australian Radiation Protection and Nuclear Safety Agency

2007–08





**Annual Report of the
Chief Executive Officer of ARPANSA
2007-08**



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ISSN 1443-0835

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Printed by CanPrint Communications Pty Ltd
16 Nyrang Street
FYSHWICK ACT 2609

Contents

Part 1	Review by the CEO	7	Part 5	Management and accountability	65
	Major achievements	8		Corporate Governance	66
	Assessment against outlook for 2007-08	8		External scrutiny	71
	Other highlights	12		Management of human resources	71
	Management of ARPANSA	16		Commonwealth Disability Strategy	81
	Financial results	18		Assets management	82
Part 2	Agency overview	19		Purchasing	82
	Agency Overview	20		Consultants	82
	Role and Functions	20	Appendices		85
	Organisational Structure	21		Appendix 1: Occupational health and safety	86
	Outcome and Output Structure	22		Appendix 2: Ecologically sustainable development and environmental performance	87
Part 3	Report on performance	25		Appendix 3: Freedom of Information	88
	Review of performance	26		Appendix 4: Legal Services Directions	92
	Output Group 1 – National leadership in radiation protection and nuclear safety.	28		Appendix 5: Advertising and Market Research	93
	Output Group 2 – Knowledge, information and services relating to radiation protection and nuclear safety	36		Appendix 6: ARPANSA licensing activities	94
	Output Group 3 – Regulation of Commonwealth entities using radiation sources and facilities or nuclear installations	48		Appendix 7: Radiation Health and Safety Advisory Council Triennium Report	99
	Service charter and data	55			
Part 4	Essay: Toward best practice regulation of nuclear safety and radiation protection	57			

Appendix 8: Operations of the Radiation Health Committee and Nuclear Safety Committee	107
Appendix 9: Publications	110
Appendix 10: Financial statements for year ended 30 June 2008	112
Appendix 11: Index of compliance with reporting requirements	146
List of figures and tables	147
Abbreviations	148
Glossary	150
Index	155



Australian Government

Australian Radiation Protection and Nuclear Safety Agency

12 September 2008

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

Dear Parliamentary Secretary

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 2007 to 30 June 2008.

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 2007-08 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 18 June 2008.

Yours sincerely

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

John Loy PSM
CEO of ARPANSA

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Part 1 Review by the CEO



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

Following the change of Government, Senator the Hon Jan McLucas was appointed in December 2007 as Parliamentary Secretary to the Minister for Health and Ageing, having Ministerial responsibility for ARPANSA.

Major achievements

The principal outcomes achieved and described in this report include:

- my decision on the Australian Nuclear Science and Technology Organisation (ANSTO) request to modify the design of the OPAL reactor fuel assemblies;
- completion and publication of the national code of practice for medical radiation; and
- ARPANSA, on behalf of the Government of Australia, hosting the IAEA Conference on Research Reactors: Safe Management and Effective Utilisation in Sydney in November 2007.

Assessment against outlook for 2007-08

I review the outcomes achieved in the outlook areas that I nominated in my 2006-07 Annual Report.

National Directory for Radiation Protection

In the 2006-07 Annual Report, I said that I hoped to be able to report this year that Edition 2 of the *National*

Directory for Radiation Protection

(NDRP) has been accepted by Ministers and is being implemented. I cannot do so. This is especially frustrating as this is the second year that I have not been able to do so, but I hope that the way ahead is now clearer.

To recap, the NDRP is the mechanism agreed by the Commonwealth and the States and Territories for achieving and maintaining national uniformity in radiation protection. The first edition of the NDRP was published in August 2004 and established the framework for such national uniformity. Subsequently a number of specific elements of the nationally uniform framework have been agreed and it was proposed that they move forward together for adoption as 'Edition 2' of the Directory.

Appropriately, part of the agreement between the jurisdictions for adopting the NDRP includes the requirement that proposed elements be subject to regulatory impact assessment in accordance with the Council of Australian Governments (COAG) guidelines. The number of proposals of different kinds proposed to be included in Edition 2 made it extremely difficult to complete an overall impact assessment.

The Radiation Health Committee therefore decided to take a new tack and to consider amendments to the NDRP on an individual basis, rather than as an overall new 'edition.' This should make the processes, including regulatory impact assessment, more manageable.

As each amendment is agreed, it will be included in the version of the NDRP published on the ARPANSA website. From time to time, new editions of the NDRP will be printed consolidating the amendments agreed since the previous printed version.

Two amendments, one to adopt Codes of Practice agreed since 2004 and another to clarify the exclusion and exemption provisions, are currently going through the process for Ministerial endorsement.

Code of practice medical radiation

In the 2006-07 Annual Report, I said that I hoped to be able to report this year that the *Code of Practice for Radiation Protection in the Medical Applications of Ionizing Radiation* (the Medical Code) and the accompanying safety guides have been published. I am glad to report that the Medical Code was recommended to me for publication by the Radiation Health and Safety Advisory Council in April 2008 and it appeared as the ARPANSA Radiation Protection Series No 14.

The Code of Practice is a regulatory document. It is to be supplemented by three 'safety guides' – guides to best practice – dealing with radiation protection in diagnostic and interventional radiology; nuclear medicine; and radiotherapy. The guides for radiology and nuclear medicine were approved at the Radiation Health Committee (RHC) meeting on 16-17 July 2008. It is hoped that the radiotherapy guide will be approved at the November meeting.

Drawing up the medical code required extensive consultation with the medical professions. This included an initial period of 'industry consultation', which was followed by the public consultation period. Extended consultation was needed so as to ensure that the medical code could be effective in achieving radiation protection for persons occupationally exposed in medical applications of ionizing radiation and in supporting the optimisation of radiation doses to patients. As part of this consultation, ARPANSA sponsored a national conference on radiation protection in medicine that was held in Melbourne in October 2007. The outcomes of the conference gave the final impetus to the development of the Code and the supporting safety guides. Implementing the Code will require that strong links to the professions be maintained so that the Code is consistent with the professions' own efforts to manage the quality of the services provided. To this end, the RHC is proposing an implementation committee with the Royal Australian and New Zealand College of Radiologists.

Extremely low-frequency (ELF) exposure standard

In the 2006-07 Annual Report, I said that I hoped to be able to report this year that 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. I can say that work has continued on the development of the

Standard, but it is still some distance from completion.

The working group preparing the draft Standard has continued to consider and prepare responses to the many comments received following the public exposure period for the draft Standard and Regulatory Impact Statement completed in February 2007. In July 2007, the Radiation Health Committee at the recommendation of the working group agreed to a number of changes affecting levels proposed in the public consultation draft of the Standard. The RHC also changed the title of the Standard to *Limits and Precautionary Measures for Reducing Exposure to Electric and Magnetic Fields – 0Hz to 3kHz*.

In February 2008, I chaired an extended meeting of the working group and the wider consultative group representing people with strong interest in the Standard to discuss the range of issues that were outstanding. Following that meeting, work to incorporate changes to the draft has continued. When it is completed, the revised draft will again be circulated to the consultative group, together with the response to public comments and a revised Regulatory Impact Statement, before it is considered by the Radiation Health Committee.

Regulatory oversight of OPAL and HIFAR

In the 2006-07 Annual Report, I said that I hoped to be able to report this year that 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.

This aim was overtaken by the need to address the matter of fuel plate displacement in the OPAL reactor. In July 2007, at the completion of cycle 5 of the OPAL fuel management cycle, the reactor had been shut down and the fuel changes made to prepare for cycle 6. Prior to the reactor being started up, the core was examined by camera to assure that the fuel movements had been carried out properly. At that point it was observed that a fuel plate was displaced from its position in a fuel assembly. Subsequent examination showed that several fuel plates had, in fact, been displaced. There were two fuel plates that were displaced by a substantial fraction of their total length and this displacement had taken place in one cycle of operation. Another three to five plates had moved by noticeable amounts. Another five plates had moved slight amounts.

Although there was no radioactivity released as a result of the event, it was a completely unexpected and unprecedented event. The root cause needed to be determined and action taken before the reactor could be allowed into service again.

On 21 December 2007, ARPANSA received a submission from ANSTO

seeking approval for a modification to the fuel used in OPAL and for approval to operate the reactor using the modified fuel design. An important part of the submission was ANSTO's analysis of the root cause of the event. This was threefold: that there was a flaw in the original design of the fuel in that there was no mechanical restraint preventing fuel plates from moving upwards, other than the swaging of the fuel plates to the side plate; that the swaging carried out by the manufacturer did not produce a consistent and reliable joint with the required strength in the longitudinal direction; and that the normal operation of the reactor produced forces that moved the fuel plates given the inadequate swaging and the lack of any secondary stopper.

The submission also presented detailed analyses of a modified design for OPAL fuel that incorporated two mechanical stoppers screwed to the side plate and fixed by the handling pin, immediately above the fuel plates.

ANSTO's submission was subject to intensive review by ARPANSA officers, which resulted in a large number of questions being put to ANSTO in February 2008. ANSTO responded with further information during March and April. I commissioned reports on aspects of the submission from two consultants. The submission was also discussed at length at two meetings of the Nuclear Safety Committee in January and February.

On 1 May, I issued a decision accompanied by a statement of

reasons that approved the modification to the fuel design for fuel manufactured by a particular fuel manufacturer. I proposed to impose three additional licence conditions addressing further work required to be done. After receiving further submissions from ANSTO about the proposed licence conditions, I imposed two licence conditions.

My decision and statement of reasons have been transmitted to the Parliament as a report under section 61 of the *ARPANSA Act*. This report was tabled in June 2008, together with the quarterly report for the period ending 31 March 2008.

An ARPANSA regulatory officer attended the inspection by ANSTO of fuel manufactured to the modified design in France in May 2008.

ARPANSA officers continued to assess ANSTO's application for a licence to have possession or control of the HIFAR reactor during the period of preparation for final decommissioning. It is expected that a decision will be taken on this licence in the first quarter of 2008-09.

Security of radioactive sources

In the 2006-07 Annual Report, I said that I hoped to be able to report this year that 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*. There has been substantial

progress and we are well placed to continue effective implementation of improvements in this area. The emphasis during 2007-08 has been on building expert resources to work with States and Territories and with operators to implement security measures. A number of 'practice specific' security guides are under development. The full implementation of a sealed source national register is being advanced.

Medical linear accelerator (linac)

In the 2006-07 Annual Report, I said that I hoped to be able to report this year that ARPANSA's medical linac is installed and commissioned. During the year, ARPANSA undertook a procurement process by tender and a contract for supply of the linac was completed in April 2008 with Elekta Pty Ltd.

The linac is expected to be delivered and installed in October 2008.

A pleasing feature of the contract made with Elekta is that ARPANSA will be receiving a linac with the same beam energies as is currently being installed in the UK National Physical Laboratory. This will allow straightforward intercomparisons of dosimetry outcomes with this leading international laboratory. It is clear that operation of this linac will put ARPANSA in a leading role internationally in this increasingly important field of megavoltage radiation dosimetry.

Other highlights

Solaria

During the year, there was increasing concern nationally about the need to regulate solaria in the light of their potential to cause cancer from exposure to ultraviolet light. A number of jurisdictions made decisions to regulate or to consider regulation.

The Radiation Health Committee, supported by ARPANSA, had considered this issue a number of times and had been seeking data on the industry and its effects. ARPANSA commissioned the Queensland Institute of Medical Research to carry out a study into the health effects of solaria and the possible impacts of regulation.

The results of the study were discussed at a national forum on solaria that ARPANSA arranged in November 2007. The forum included representatives from Cancer Councils and the tanning industry as well as the researchers and the States and Territories.

Following the forum, a statement of principles for regulation of solaria was drawn up and approved by the Radiation Health Committee in December 2007. A working group then prepared a regulatory statement drawn from that statement of principles.

Victoria introduced regulations that came into effect in February 2008. In order to implement its regulation on an ongoing basis, Victoria is required to carry out a regulatory impact assessment within 12 months of its

regulation. By agreement, ARPANSA is contracting with the consultant carrying out the Victorian regulatory impact assessment to extend it nationally to allow other States to implement the nationally agreed regulations, should they choose to do so.

In April 2008, Health Ministers agreed to adopt the principles for a nationally consistent regulatory scheme for the regulation of the solaria industry in Australia. Ministers also agreed that the Radiation Health Committee develop the details of the regulatory scheme for the Australian Health Ministers' Conference to consider in mid-2008.

ARPANSA is also overseeing the development of a training package for solaria operators to support the proposed nationally consistent regulations.

Emergency response

We continued to develop ARPANSA's operational and real-time capacity to assist in the response to a radiological emergency. We also provided emergency monitoring training as part of a program in support of developing emergency response capacities in regional countries.

National dose register for uranium workers

Consistent with recommendations arising from a number of inquiries and the uranium industry framework, ARPANSA developed proposals for the

creation of a national dose register for uranium industry workers. An important underpinning for the effective operation of such a register will be the development of a safety guide on methods for the estimation of internal radiation dose received by workers and the validation and auditing of such estimates.

In addition, we prepared a program for the development of environmental radiation standards that would be relevant to the operation of uranium production facilities.

ARPANSA is negotiating a Memorandum of Understanding with the Department of Resources, Energy and Tourism for additional support of these projects.

Services and projects

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

The personal radiation monitoring service supplied monitors to about 27 000 wearers throughout Australia.

Demand continued to increase for testing, licensing and labelling for the ultraviolet protection factor (UPF) for fabrics and clothing. ARPANSA organised an international inter-comparison of UPF testing in June 2007. The outcomes of the intercomparison will be published shortly.

As the holder of the Australian measurement standards for exposure and absorbed dose for ionizing radiation, ARPANSA continued to calibrate 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 intention is to maintain a three year calibration period for hospital dosimeters.

Our radiofrequency calibrations, radiopharmaceutical quality assurance activities and radioanalytical services continued and a high level of service was provided to our clients.

ARPANSA continued to manage radionuclide monitoring stations and a radionuclide laboratory on behalf of the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organisation. During the year a noble gas monitoring station installed in Darwin successfully completed its testing and evaluation phase and is now in routine operation. A second noble gas station will be installed in Melbourne in the next year. The Australian network will be completed over the next few years with the construction of two remaining radionuclide particulate monitoring stations in Mawson and Macquarie Island.

International activities

ARPANSA continues to actively contribute to and implement

international best practice in radiation protection and nuclear safety.

In April 2008, Rhonda Evans led the Australian delegation to the fourth international review meeting carried out under the Convention on Nuclear Safety. Australia presented its report on how it meets the requirements of the Convention referring to the arrangements for assuring the safety of the ANSTO research reactors. The meeting reviewed country reports from all the countries that participated in the meeting, including all the nuclear power countries, about the safety of operation of their reactors. The Review Meeting emphasised a number of issues as being of continuing importance for nuclear safety including the legislative and regulatory framework; independence of the regulatory body; safety management and safety culture; staffing and competence; probabilistic safety assessment; periodic safety review; ageing management and life extension; and emergency management.

Within the IAEA, I was re-appointed by the Director General to be 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 officers continue to participate in the committees that advise on radiation, waste and transport safety.

An important international development in radiation protection was the publication by the International

Commission on Radiological Protection (ICRP) of its new Recommendations for radiation protection. The Recommendations of ICRP have long been the international basis of the system of radiation protection in almost the entire world. The 2007 Recommendations are an evolution of the current system – there are no basic changes arising from new knowledge, such as had occurred in the previous 1990 Recommendations when the dose limits were changed. The changes this time relate to an increased emphasis on the optimisation of radiation protection and a better structure for considering radiation protection in existing situations and in emergencies. Changes arising from the new ICRP Recommendations will be reflected in the IAEA's review of its Basic Safety Standards and in an Australian review of the ARPANSA's Radiation Protection Series 1: *Recommendations for Limiting Exposure to Ionizing Radiation (1995) and National Standard for Limiting Occupational Exposure to Ionizing Radiation (2002)*.

As Australia (Peter Burns of ARPANSA) was chair of the UN Scientific Committee on the Effects of Atomic Radiation (UNSCEAR), it was a national responsibility to present the report of its 55th Session to the UN General Assembly in October 2007. In doing so, Australia took a lead in negotiating a process for evaluating bids from a number of countries to take part in the work of UNSCEAR.

Colin Roy continued to participate in the work of the World Health Organization

on electromagnetic fields and with the International Commission on Non-Ionizing Radiation Protection.

Council and Committees

The triennium report of the operations of the Radiation Health and Safety Advisory Council is at Appendix 7 of this report. The operations of the Radiation Health Committee and the Nuclear Safety Committee are at Appendix 8 of this report.

The Radiation Health and Safety Advisory Council met three times during 2007-08. In December 2007, the Council provided me with a report that I had requested on issues relating to the safety and development of nuclear power plants. I replied to the Council report in March 2007. I said, inter alia:

I accept and support the essence of the Council's advice about nuclear safety. In particular, I am pleased that Council has identified the necessity for effective and efficient safety regulation. This regime draws in very large measure upon the global nuclear safety framework which is a vital base for Australia's current nuclear related activities.

In particular Council's emphasis on open and transparent process for regulation of any nuclear industry and the importance of leadership and management for safety resonates with me as the regulator of Australia's current nuclear activities. These are all important issues that ARPANSA is continually improving in its current operations.

As you are aware, the Government has stated that it will not allow the

development of nuclear power in Australia. Nonetheless, the subject of the safety of nuclear power remains an issue of major concern to the Australian community in that nuclear power plants continue to operate throughout the world and a major accident would have international repercussions. Further, there are discussions about expansion of nuclear power in other countries, including countries in our region. An informed public view on the challenges for the maintenance of the nuclear safety regime is therefore timely in this context.

At the request of the Radiation Health Committee, the Council also commenced and is completing a review of the implementation of the first edition of the *National Directory for Radiation Protection*. The Council advised on the publication of the medical Code of Practice and a revision of the *Code of Practice for the Transport of Radioactive Material*, which updated the Australian Code to the 2005 edition of the IAEA transport safety requirements.

The Radiation Health Committee met three times. Its major activities were the completion of the *Code of Practice for Radiation Protection in Medical Applications of Ionizing Radiation* and addressing the regulation of solaria as described above. In July 2007, it produced a statement on the application of occupational exposure limits to first responders in emergencies involving radiation. In June 2008, it published a statement on factors to consider when selecting a radioactive source.

The Nuclear Safety Committee met four times during the year. As referred to above, a principal task of the Committee was the discussion of the ANSTO submission for a modification of design of the OPAL reactor fuel assemblies.

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. 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 Board met 11 times in 2007-08. Two of those meetings were 'extended' to include the participation of all the section head level officers in the Agency. There are also approximately weekly meetings of senior management to discuss and exchange information on immediate issues.

In the last annual report, I reported that ARPANSA had commenced negotiations, in the first instance with unions representing ARPANSA staff, for a new collective agreement. This proved to be a difficult and protracted process and agreement was not reached until the middle of November 2007. Processes associated with the change of Government meant that the agreement did not come into effect until February 2008, though a salary increase applied from 21 December 2007.

I took part in five meetings with the Staff Consultative Forum during the year.

The Executive Board functions as ARPANSA's Quality Committee and reviews reports from the 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.

ARPANSA's audit committee met on six occasions. The committee reviewed action arising from internal audits and assisted with the completion of the newly required Certificate of Compliance with the *Financial Management and Accountability Act*.

An important initiative that came to fruition in 2007-08 was the establishment of ARPANSA's Graduate Recruitment Program. Three graduates were recruited and commenced a program at ARPANSA in February 2008. During their first year, they are undertaking a program of training and doing project work in a number of areas in ARPANSA. In the second year, they will do extended projects in two areas of ARPANSA before being allocated to a particular Branch.

In the 2008-09 Budget, the Government implemented its decision to require an additional 2% efficiency dividend on APS agencies over the forward estimates period. As part of the

response to managing these circumstances and also bearing in mind the continuing need to 'refresh' the organisation, ARPANSA offered a program of voluntary redundancies. In the event 11 staff accepted redundancies and separated before the end of 2007-08 (noting that this is also in the context of some expanded recruitment opportunities for new programs).

Some organisational changes and reduction in activities are necessary to manage these staffing reductions. We will be continuing to review expenditure and income options, particularly for the out-years.

During the year, the Board commenced a review of ARPANSA's three year corporate plan focussing on strategic directions and priorities for 2008-11. The new corporate plan is expected to be settled in the first quarter of 2008-09. It identifies key priority areas for ARPANSA over the period. In addition to maintaining the high standard of radiation protection and nuclear safety in Australia, these are:

- work with the medical professions to ensure the most effective use of radiation in therapeutic treatments and in diagnostic medicine;
- continue to highlight the harmful effects of excessive exposures to ultraviolet radiation;
- enhance radiation protection of workers, the public and the environment from uranium mining and radioactive waste disposal;

- assure the security of radioactive sources in Australia and strengthen Australia's capability to respond to radiation emergencies; and
- monitor and advise on population exposures to extremely low-frequency electric and magnetic fields and electro-magnetic radiation.

Financial results

The overall financial result is an operating surplus of \$1.433 million for the reporting year. The operating surplus arises from delays in recruitment of staff and commencement of projects associated with the implementation of the budget measures. Staff are now in place and these projects are expected to be completed during 2008-09.

We have received an unqualified audit report on the 2007-08 financial statements. Having received a recommendation from the audit committee I have signed the certificate of compliance with the *FMA Act* for 2007-08.

John Loy PSM
CEO of ARPANSA



Part 2 Agency overview



Agency Overview

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 Jan MacLucas, Parliamentary Secretary to the Minister for Health and Ageing, has Ministerial responsibility for 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 Radiation Health and Safety Advisory Council (the Council), the Radiation Health Committee and the Nuclear Safety Committee play important roles 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 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.

Role and Functions

Mission – protecting people and the environment from the harmful effects of radiation.

Role – the Australian Radiation Protection and Nuclear Safety Agency is the national centre for excellence in radiation protection and nuclear safety.

Objective – Concern about exposures to radiation has led to the development of a high standard of radiation protection and nuclear safety in Australia. ARPANSA seeks to maintain and enhance this level of protection in the delivery of its programs.

This objective is achieved by:

- advising the government and the community about radiation protection and nuclear safety;
- representing Australia in international forums that develop new principles and practices in radiation protection and nuclear safety;
- undertaking research and providing services in the field of radiation protection;
- promoting national uniformity of radiation protection; and
- being an independent regulator of the use of radiation and nuclear technology.

Organisational 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. ARPANSA also has staff in Canberra that are accommodated within the Department of Health and Ageing.

The Regulatory and Policy Branch is co-located at Miranda, Yallambie and Canberra. It provides advice to the CEO on the exercise of his regulatory powers, 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 Regulatory and Policy Branch supports the development of codes and standards and works with the Radiation Health and Safety Advisory Council, the Radiation Health Committee and the Nuclear Safety Committee.

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

At 30 June 2008 ARPANSA employed a total of 134 staff in Miranda and Yallambie. An organisation chart is provided at Figure 1.

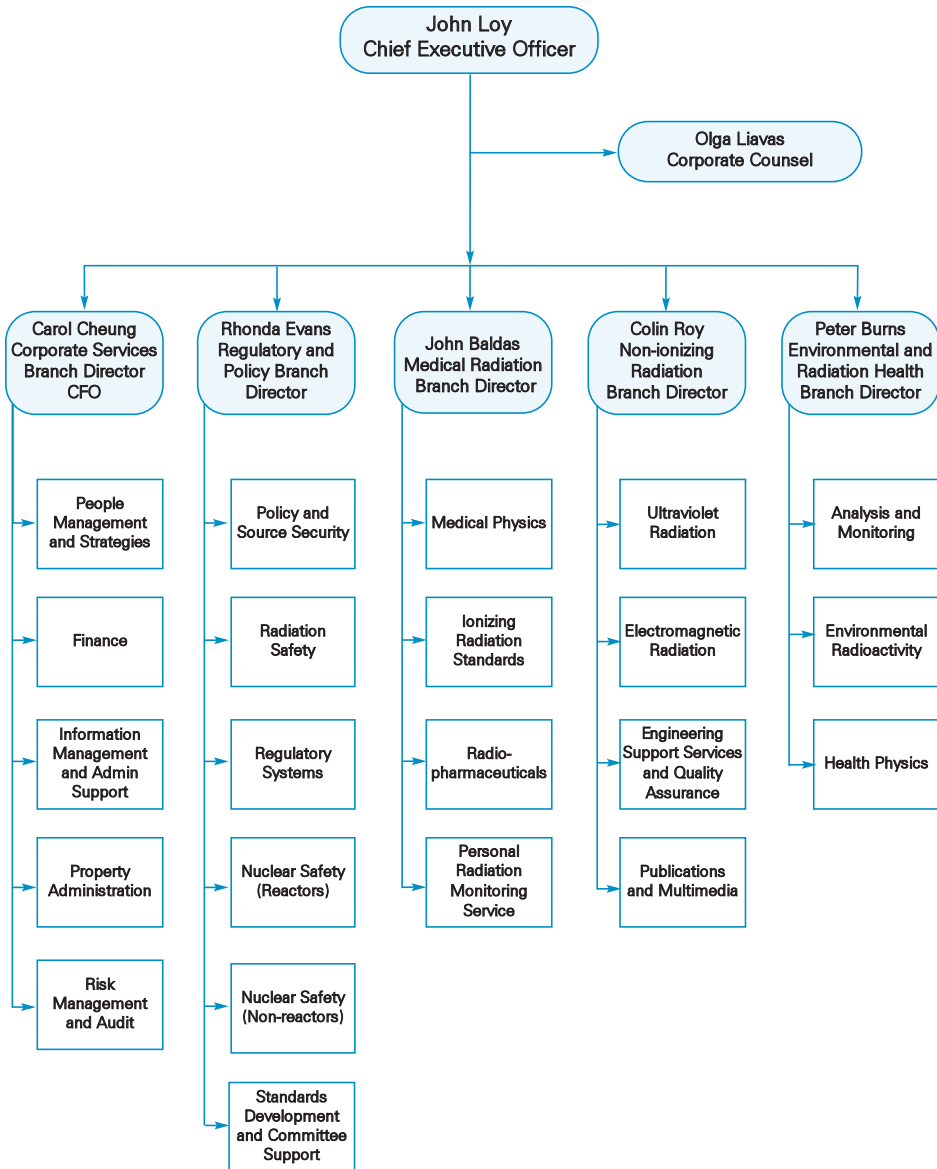
Outcome and Output Structure

In 2007-08, ARPANSA's activity, resource and performance reporting fell under the outcome – the Australian people and the environment are protected from the harmful effects of radiation.

The core activities for the reporting year are described in terms of the following three output groups:

- Output Group 1 – National leadership in radiation protection and nuclear safety
- Output Group 2 – Knowledge, information and services relating to radiation protection and nuclear safety
- Output Group 3 – Regulation of Commonwealth entities using radiation sources and facilities or nuclear installations

Figure 1: Organisation chart of ARPANSA, 30 June 2008





Part 3 Report on performance



Review of performance

The following sections describe ARPANSA's outputs for 2007-08 by Output group using the contributions to each Output group identified in the 2007-08 Portfolio Budget Statement.

Discussion and analysis of financial performance

The Government funds ARPANSA to provide agreed outputs to the Australian Community. During 2007-08

the activities of the Agency were reported under three output groups. The total price for the year, of these output groups is \$23.394 million as detailed in Table 1.

ARPANSA reported an operating surplus of \$1.433 million for the year. The Agency's income totalled \$24.829 million. Government appropriation accounted for 64%, licence fees and charges for 16% and sales of goods and services for 20%. Expenses totalled \$23.395M for the year. Employee expenses accounted for

Table 1: 2007-08 Resource Summary for Outcome – The Australian people and the environment are protected from the harmful effects of radiation

	(1) Budget* 2007-08 \$'000	(2) Actual expenses 2007-08 \$'000	Variation (col 2 minus col 1) \$'000	Budget** 2008-09 \$'000
PRICE OF DEPARTMENTAL OUTPUTS				
Output Group 1 – National Leadership	8 754	5 256	-3 498	9 280
Output Group 2 – Knowledge, Information and Services	11 601	13 049	1 448	12 637
Output Group 3 – Regulation	4 693	5 090	397	6 556
Total Price of Departmental Outputs	25 048	23 395	-1 653	28 473
Revenue from Government (Appropriation) for Departmental Outputs	15 795	15 795	-	15 630
Revenue from other Sources	9 253	7 600	-1 653	9 183
Other receipts to Special Accounts	-	-	-	3 660
Total Price of Departmental Outputs	25 048	23 395	-1 653	28 473
TOTAL FOR OUTCOME				
(Total Price of Outputs)	25 048	23 395	-1 653	28 473
	2007-08		2008-09	
Average Staffing Level	132		137	

* Full-year budget, including additional estimates

** Budget prior to additional estimates

63% of total expenditure, suppliers for 32% and depreciation and amortisation for 5%.

The operating surplus can be attributed to delays in recruitment of staff and projects associated with the implementation of the budget measures: Strengthening national security – enhancing Australia’s approach to chemical, biological, radiological and nuclear safety; and Radiation in health care – safer and better use. These projects are expected to be completed during 2008-09.

There have been no developments since the end of the financial year that have affected or may significantly affect the Agency’s operations or financial results in future.

Key strategic directions 2007-08

The 2007-08 Budget provided appropriation to ARPANSA for its Outcome — ‘The Australian people and the environment are protected from the harmful effects of radiation’.

The key strategic directions for ARPANSA in 2007-08 as identified in the Portfolio Budget Statement are detailed in Table 2:

Table 2: 2007-08 key strategic directions according to output groups

Output group	Strategic direction
Output Group 1 National leadership in radiation protection and nuclear safety	<ul style="list-style-type: none"> - implement the decisions of the COAG review of radioactive material concerning the physical security of radioactive sources - continue to build national and regional capacity for the management of radiological emergencies - continue to address national uniformity of radiation protection and nuclear safety
Output Group 2 Knowledge, information and service relating to radiation protection and nuclear safety	<ul style="list-style-type: none"> - continue research and development to support radiation protection and the optimisation of the use of radiation in medicine - contribute to the development of the uranium industry framework in Australia
Output Group 3 Regulation of Commonwealth entities using radiation sources and facilities or nuclear installations	<ul style="list-style-type: none"> - undertake ongoing regulatory oversight of Australian Government activities covered by the ARPANS Act, assessing licence applications and improving compliance with the Act - continue to improve the management of the regulatory function in the most effective and efficient manner

Output Group 1 – National leadership in radiation protection and nuclear safety.

Participation in development of international guidance

IAEA and ICNIRP guidance

ARPANSA participated in the development of the International Atomic Energy Agency (IAEA) safety standards through the membership of the standards development committees for waste, transport, nuclear and radiation safety. The CEO is a member of the Commission on Safety Standards, which oversees the safety standards. The Commission recommends the approval of safety standards to the Board of Governors for 'Safety Requirements' and to the Director General for 'Safety Guides'.

In 2007-08 there were two Safety Requirements of interest to Australia approved by the Commission:

- *Predisposal Management of Radioactive Waste*. Considerations included in the drafting of this document have informed the development of an Australian safety guide on this subject.
- *Regulations for the Safe Transport of Radioactive Material*. This document aligns the IAEA regulations more closely with the *UN Dangerous Goods Code*. Once approved, it will be adopted for air and sea transport internationally. Australia will arrange to adopt it for land transport during 2009.

IAEA Safety Guides of interest developed during the year included four publications about aspects of the design and operation of research reactors and one on safety assessment of decommissioning of facilities.

Other IAEA standards that commenced development during the year included guidance on naturally occurring radioactive material, borehole logging, waste classification and the revision of the *Basic Safety Standards*. The last is the overall Safety Requirements document for radiation protection – once the revision is well advanced, it will be necessary to review Australia's equivalent, ARPANSA's Radiation Protection Series No 1. This need for review has already been discussed by the Radiation Health Committee.

In the area of non-ionizing radiation, ARPANSA contributed to guidelines developed by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) through participation in the Task Group for extremely low-frequency electric and magnetic fields. The Task Group met a number of times as part of the review of guidelines on extremely low-frequency electric and magnetic fields. A draft of the revised guidelines was prepared for the main ICNIRP Commission.

ARPANSA, as a member of the ICNIRP Standing Committee III (physics and engineering), undertook a review of the relevant science as part of the review of radiofrequency (RF) radiation and health. A draft of the review was

presented to the WHO during 2007-08. The RF review is part of an ongoing process which will ultimately result in the publication of a *WHO Environmental Health Criteria* book on radiofrequency fields which may result in changes to the RF Guidelines. Such changes could have implications for the Australian Standard for radiofrequency radiation.

International Conference on Research Reactors: Safe Management and Effective Utilisation

ARPANSA, on behalf of the Australian Government and the IAEA, hosted an international conference on research reactors in Sydney from 5-9 November 2007. The Conference aimed to foster the exchange of information on current research reactor concerns and to provide a forum for reactor operators, designers, managers, users and regulators to share experience, exchange opinions and discuss options and priorities. The topics covered in the conference included experience with the implementation of the *Code of Conduct on the Safety of Research Reactors*, for which the CEO of ARPANSA was the keynote speaker; the safety and security of research reactors; operation and utilisation of research reactors; regulatory aspects which included a paper from ARPANSA, the fuel cycle; decommissioning and waste management.

IRRS Mission to Spain

The CEO of ARPANSA took part in the IAEA's Integrated Regulatory Review

Service (IRRS) mission to Spain from 26 January – 9 February 2008. The CEO of ARPANSA was deputy team leader of the mission. The review was addressed to the work of the Consejo de Seguridad Nuclear, the Spanish nuclear regulatory body. The review team comprised 18 experts from 15 countries and three technical staff from the IAEA.

The mission covered nuclear power plants, nuclear fuel cycle facilities; radiation applications in industry and medicine; transport; waste management; and emergency response. The application of the *Code of Conduct on the Safety and Security of Radioactive Sources* was also reviewed.

Australia's participation in the mission adds to our reputation as a significant contributor in international nuclear and radiation safety regulatory matters.

Convention on Nuclear Safety

In April 2008, the Director of the Regulatory and Policy Branch of ARPANSA led the Australian delegation to the fourth Review Meeting on the Convention on Nuclear Safety. The meeting provided an opportunity for peer review of participating countries' reports on their nuclear safety policy and practice, including regulatory, operational and emergency preparedness aspects. Participation in the meeting provided an opportunity to examine Australian nuclear safety policy and practice in the light of current and emerging trends in international best practice.

Australia's report was well received. ARPANSA's movement from prescriptive to a more outcomes-based approach to regulation and the development of a set of regulatory performance indicators were recognised as internationally good practices. Establishing and maintaining sufficient and adequate nuclear expertise in a global market where demand is high was identified as a challenge by many participating countries, including Australia.

Epidemiological studies at low-level extremely low-frequency (ELF) magnetic fields

In May 2008, the Director of the Non-ionizing Branch of ARPANSA took part in a workshop on childhood leukaemia, sponsored by World Health Organization (WHO), International Commission on Non-Ionizing Radiation Protection and the Federal Office for Radiation Protection in Berlin, Germany. The workshop addressed the increased incidence of childhood leukaemia observed in epidemiological studies at low-level ELF magnetic fields. Other risk factors considered included proximity to nuclear facilities, ionizing radiation, pesticides and chemicals. None of the known risk factors could explain the incidence or observed increase in Europe. A model for leukaemogenesis in children was discussed. It involves a two-hit process – the first 'in utero' and the second post-natal. Very little is known about these pre- and post-natal events.

The issue of magnetic fields is of particular interest to the ARPANSA working group who are drafting the

ELF Standard. Although the outcome of the workshop does not assist in the setting of exposure limits it does help in defining the precautionary approach used to address this issue. The ELF standard is discussed in detail at under Output Group 2.

WHO – Global Initiative – Radiation safety in health care settings

In June 2008, the Director of the Medical Radiation Branch of ARPANSA participated in a meeting about the WHO – Global Initiative – Radiation safety in health care settings. The purpose of the meeting was to develop strategies and practical tools to promote radiation safety culture in the use of ionizing radiation in health care settings by: raising awareness of radiation safety; providing guidance on implementation of radiation safety standards; developing training packages to the health workforce; analysing the radiation risk and benefit; developing better communication strategies; and building partnerships at national, regional and global levels.

UN Scientific Committee on the effects of atomic radiation (UNSCEAR)

Although UNSCEAR did not meet in 2007-08, the Director of the Environmental and Radiation Health Branch, as Chair of the 55th Session in May 2007, oversaw progress on documents on world wide reviews of radiation exposures of the public and workers as well as exposures resulting from medical uses of radiation; accidental exposures to radiation; radiation health effects due to the Chernobyl accident and the effects of

ionizing radiation on non-human biota. The Committee's Report on progress with these documents was presented by Australia to the Fourth Committee of the United Nations General Assembly in October 2007.

ARPANSA maintained its active engagement internationally in all aspects of radiation protection and nuclear safety. Details of other international collaborations were reported in ARPANSA's quarterly reports to parliament and can be found at: www.arpansa.gov.au/AboutUs/Corporate/quarterlyreports.cfm.

Production of national guidance

National regulation of solaria

Regulation of solaria became a high profile issue during 2007-08 and ARPANSA took a leading advisory role.

During 2007-08, ARPANSA contracted the Queensland Institute of Medical Research to undertake a health impacts assessment on the effects of solaria. The assessment was presented as an options paper at the National Forum on Solaria in Melbourne in November 2007 and subsequently at the Radiation Health Committee (RHC). The forum was organised by ARPANSA and provided an opportunity for the various state regulators and ARPANSA to meet solarium industry and Cancer Council representatives and to formulate a draft uniform requirements document for use in the future by regulators. A working group chaired by ARPANSA with state regulators as representatives subsequently finalised the draft uniform requirements which was

approved by the RHC. A regulatory impact assessment for the draft amendment was commenced during 2007-08. The outcomes of the ARPANSA forum also formed the basis of a paper to the Australian Health Ministers' Conference about uniform regulation of solaria.

At its March 2008 meeting, the RHC endorsed ARPANSA's proposal to organise the development of a training course available on the internet, to demonstrate the competency of solarium operators against the requirements of the regulators.

ARPANSA visited a number of solaria in Melbourne and Sydney to make spectral measurements of sunbed emissions, with the data used as input to the deliberations of the reconvened Standards Australia Committee on Solaria CS64, as well as in subsequent publications looking at the impact of solaria on public health. Both papers on the health impacts of solaria prepared by the Queensland Institute of Medical Research in collaboration with ARPANSA were accepted for publication, one in the *Medical Journal of Australia* and the other in *Health Policy*. ARPANSA also participated in the 5th International Conference on 'Reducing the Health Risks of Sunbed Use – Needs for further European Harmonization of Regulations' in Hamburg on 15 to 17 October 2007.

National codes of practice and standards

During 2007-08, the *Code of Practice for Radiation Protection in the Medical Applications of Ionizing Radiation* was

finalised and published. As of 30 June, the accompanying safety guide for diagnostic and interventional radiology as well as the safety guide for nuclear medicine were substantially finalised and were awaiting final approval from the Radiation Health Committee and the Radiation Health and Safety Advisory Council.

Safety guides for the safe transport of radioactive material, the management of naturally occurring radioactive material (NORM) and the predisposal management of radioactive waste were substantially completed during 2007-08.

A Radiation Health Committee Statement on the Factors to Consider when Selecting a Radioactive Source was published in June 2008.

In response to finalisation of new recommendations from the International Commission on Radiological Protection (ICRP) and the revision by the IAEA of the Basic Safety Standards, the Radiation Health Committee agreed that a working group be established to revise ARPANSA *Radiation Protection Series Publication No. 1 Recommendations for Limiting Exposure to Ionizing Radiation (1995)* and *National Standard for Limiting Occupational Exposure to Ionizing Radiation (2002)* (RPS 1). The revision will bring RPS 1 in line with the new ICRP Recommendations and its application of the optimisation principle. A document development plan for the proposed revision of RPS 1 was presented at the March 2008 RHC meeting.

Radioactive waste management

During 2007-08, the Radiation Health Committee (RHC) decided that a safety guide on predisposal management should be published to provide a range of practical information on the predisposal management. The safety guide was released for a period of public comment from 22 January 2008 to 14 March 2008 and thirteen submissions were received. A final version of the Safety Guide was prepared to be tabled at the July 2008 RHC meeting.

The other body of work in relation to management of radioactive waste undertaken during 2007-08 was the drafting of a new waste classification system to meet Australia's specific requirements for classifying radioactive waste for purposes of both predisposal management and for long-term storage and disposal. The classification scheme for disposal has been drafted consistent with the new IAEA international guidance on radioactive waste classification.

ARPANSA chairs the IAEA international project on Safety Assessment Driving Radioactive Waste Management Solutions, which during 2007-08 developed a software tool to aid in the performance of safety assessment for predisposal management and storage of radioactive waste.

Radionuclide monitoring and laboratory for the Comprehensive Test Ban Treaty

Australia, as a party to the Comprehensive Nuclear-Test-Ban Treaty (CTBT), is committed to be part of a global monitoring network to detect the detonation of nuclear weapons. ARPANSA has the responsibility for Australia's radionuclide air-sampling monitoring stations, which are integrated into the global monitoring system for enforcing and verifying compliance to the Treaty. During the reporting period, the five stations operated by ARPANSA met the 95% data availability required under the contract with the CTBT Organisation (CTBTO).

In November 2006, a noble gas radionuclide detection system was co-located with the radionuclide air monitoring station in Darwin. ARPANSA undertook responsibility for this monitoring facility as of 1 April 2007.

In addition to operating the stations, ARPANSA also operated the CTBT Australian Radionuclide Laboratory, which has the role of testing samples obtained by other monitoring stations. The CTBT radionuclide laboratory has been constantly available for receipt of samples from CTBT and all measurements have been performed and reported within the required times.

ARPANSA has continued to liaise with CTBTO and other Australian Government agencies for the establishment of further radionuclide monitoring stations on Macquarie Island and the Antarctic mainland.

Security of sources and emergency response

Security of radioactive sources

ARPANSA provided substantial assistance to state and territory governments to establish and maintain a uniform framework for enhancing the security of high activity radioactive sources. Together with state and territory radiation regulatory bodies, ARPANSA completed an initial national audit of Category 1 radioactive sources and progressed an audit of Category 2 radioactive sources and sources of interest in other categories.

ARPANSA's security advisers developed documents, including practice specific security guides. This was done in collaboration with security experts from the US National Nuclear Security Administration under a Memorandum of Understanding. During 2007-08 consultations were undertaken with state and territory regulators on draft practice specific guides on panoramic irradiators, blood irradiators, research irradiators, HDR brachytherapy, industrial radioagraphy, well logging, moisture density gauges, teletherapy/gamma knife and central storage facility.

ARPANSA's radiation security advisers continued to provide expert assistance to the International Atomic Energy Agency (IAEA) in the development and delivery of training material for the secure transport of radioactive sources.

Australia continued to comply with the IAEA's *Guidance on the Import and Export of Radioactive Sources*. Discussions commenced with the Australian Customs Service about current detection arrangements, consistent with the recommendation from the Council of Australian Governments' *Report into the Regulation and Control of Radiological Material*.

Secure Tracking of Australian Radioactive Sources (STARS)

ARPANSA, in partnership with state and territory government bodies responsible for security of radioactive sources, has commenced designing the functional requirements for an up-to-date electronic national sealed source register (called 'STARS' (Secure Tracking of Australian Radioactive Sources)) and a system for reporting radioactive source security incidents. The STARS register will provide an accurate account of the locations of all Category 1 and Category 2 radioactive sources (to be extended to Category 3) within Australia.

International developments in radiological emergencies

Australia is a party 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.

Arrangements were made during June for the role of National Warning Point to be transferred on 1 July 2008 from

the Australian Nuclear Science and Technology Organisation (ANSTO) to the Attorney-General's Department Coordination Centre. The National Warning Point has the responsibility of receiving and passing on information about nuclear accidents and radiological incidents under these two Conventions. The new arrangement will make this function consistent with Australia's other emergency arrangements.

Regional enhancement

In September 2007, ARPANSA provided radiation emergency monitoring training to personnel from Thailand as part of the regional program. In June 2008, ARPANSA issued a request for quote for the installation of a Sharepoint-based secure WEB portal for the exchange of radiation emergency planning information between regional Competent Authorities.

Strengthened response to radiological emergencies

The ARPANSA response teams engaged in national and international operations, exercises and training activities to extended Australia's radiation emergency response capability. In September 2007, ARPANSA provided specialised radiation measurement teams as part of Australian Government support to NSW during the Asia-Pacific Economic Cooperation (APEC) meeting. ARPANSA continued to provide radiation experts for Australian radiation emergency planning, together with an on-call duty officer to provide 24 hour access to ARPANSA resources and expertise.

ARPANSA distributed, installed and provided training for ARGOS software to over 20 users from 11 government agencies (State and Federal). The software system, ARGOS (Accident Reporting and Guidance Operational System) is a decision support system for Chemical Biological Radiological

and Nuclear (CBRN) emergencies. ARPANSA coordinated a national project to evaluate the suitability ARGOS to support Australian CBRN emergency planning. As a part of the evaluation, various scenarios for the crash-landing of a US military satellite were developed and evaluated.

Table 3: Performance against PBS targets – Output Group 1

Indicator	Measured by	Reference Point or Target
Security of high activity radioactive sources. <i>Indicator substantially met</i>	The number of unsafe radioactive sources. <i>No missing sources of security interest were reported out of regulatory control. Implementation of the security measures in the Code of Practice is in progress.</i>	Zero unsafe radioactive sources in 2007-08.
The use of radiation in the different applications in Australia is conducted in accordance with international best practice in radiation protection and nuclear safety. <i>Indicator substantially met</i>	Effective implementation of the <i>National Directory for Radiation Protection</i> and Standards, Codes of Practice and Safety Guides. <i>High standards of radiation protection maintained. A review of the effectiveness of implementation of the NDRP Edition 1 is underway.</i>	Agreement to, and publication and implementation of, the <i>National Directory for Radiation Protection, Edition 2</i> , including the <i>Code of Practice for the Security of Radioactive Sources</i> by June 2008.
Australia and regional countries have effective arrangements for health and medical response to radiation emergencies. <i>Indicator substantially met</i>	Capability of ARPANSA on-call emergency response teams. Strengthened regional capacity. <i>ARPANSA emergency response capabilities were maintained and developed. Regional training has been carried out and the web-portal project is progressing.</i>	Sufficient teams trained to maintain response capability by June 2008. One regional training mission conducted by June 2008. Secure web-portal for information exchange between regional experts established by June 2008.

Output Group 2 – Knowledge, information and services relating to radiation protection and nuclear safety

Ultraviolet radiation (UVR) measurements

The solar UVR Australia and Antarctica measurement network was maintained with a reliability of around 95%.

Real time data was provided on the internet for Melbourne, Sydney, Darwin, Adelaide, Brisbane, Townsville, Newcastle, Kingston (outside Hobart) and Perth. A new spectral measurement system was purchased to be used in Melbourne to regularly calibrate the UV detectors used in the network. The spectral system was set up and testing and intercomparison begun.

Measured UVR data for the ARPANSA Australian mainland measurement sites for all years was provided to the Australian National University for the AusImmune study, which aims to examine how environmental factors influence immune diseases and how immune disorders vary by latitude across Australia.

ARPANSA responded to a significant number of requests for its solar UVR levels, from overseas institutions, Australian universities and the general public. Data was provided to the Cancer Council Australia to complete the set of data for Australian Capitals for a brochure on Vitamin D and solar ultraviolet radiation (UVR).

ARPANSA contributed a short paper on UV at the Antarctic stations to a National Report on Ozone and UV measurements in Australia and Antarctica presented to the 7th World Meteorological Organization and United Nations Environment Programme Ozone Research Managers Meeting on the 19 – 21 May 2008, Geneva, Switzerland.

ARPANSA provided a significant amount of information to the public on UV radiation. Scientific services were provided for hazard assessment of a UVR source, sunglass testing, UVR hazard assessment measurements. Advice on sun protection factors and solarium was also provided to Standards Australia in the development of their standards.

Publications

Wilson C.A., Gies P.H., Niven B.E., McLennan A. and Bevin N.K. The relationship between UV transmittance and color — visual description and instrumental measurement. *Textile Res. J.* 78(2): 128-137, 2008.

Ultraviolet radiation exposure assessments

A number of collaborative studies were completed and analysis of the results has commenced. These include a study on the occupational UVR exposures of lifeguards in the US with Emory University where various aspects of behaviour, such as sun protection practices and awareness and their inter-relation with UVR exposure and sunscreen were studied.

A study with the Australian Antarctic Division investigating occupational UVR exposures of Antarctic expeditioners was completed. A preliminary analysis indicates that 90% of the subjects are exposed to very significant levels of solar UVR while working at the Antarctic stations. A collaborative publication with University of Hawaii dealing with a pilot study of the ultraviolet radiation exposures and sun protection practices among lifeguards, parents and children was published in the journal *Photochemistry and Photobiology*. A further paper with the University of Hawaii which addresses sun protection practices in a high risk setting was accepted for publication in *Archives Dermatology*. Testing of the effectiveness of two new hat styles against solar ultraviolet radiation for the New Zealand Cancer Council was undertaken and completed in February 2008.

Publications

Gies P. Photoprotection by Clothing. *Photodermatology, Photoimmunology & Photomedicine*, 23: 263-274, 2007.

Gies P., Elix R. (deceased), Lawry D., Gardner J., Hancock T., Cockerell S., Roy C., Javorniczky J. and Henderson S. Assessment of the UVR Protection Provided by Different Tree Species. *Photochem. Photobiol.*, 83: 1465-1470, 2007.

Gordon L., Hirst N., Gies P. and Green A. 'What impact would effective solarium regulation have in Australia?' *Med J Aust.* (in press), 2008.

Hatch K.L., Block L. and Gies P. Photoprotection by Fabric. In: A Clinical guide to Sunscreens and Photoprotection (Henry Lim and Zoe Draelos Eds.) Accepted for publication, due February 2009.

Hirst N., Gordon L.G., Gies P., Green A.C. Estimation of avoidable skin cancers and cost-savings to government associated with regulation of the solarium industry in Australia. Health Policy (in press) 2008.

O'Riordan D.L., Glanz K., Gies P. and Elliott T. A Pilot Study of the Validity of Self-reported Ultraviolet Radiation Exposure and Sun Protection Practices Among Lifeguards, Parents and Children. *Photochem. Photobiol.* 84: 774-778, 2008.

O'Riordan D.L., Steffen A.D., Lunde K.B. and Gies P. A Day at the beach while on tropical vacation: Sun protection practices in a high risk setting for UVR exposure. *Archives Dermatology* (in press), 2008.

Monitoring radiation doses from diagnostic radiology

The general radiology survey was not published during 2007-08, however the results were used to inform planning of other surveys. ARPANSA continued to plan a national survey of computed tomography (CT) procedures and doses, which will take into account the effects of new technology and new types of procedures. A major aim of the survey is to measure the impact of new technologies and procedures

on patient doses in CT. The survey will also lead to the development of Diagnostic Reference Levels for diagnostic radiology procedures.

Environmental radioactivity and assessment of the health effects

Measurement and assessment capability for radiation exposures

ARPANSA continued to maintain scientific expertise, modelling and analysis tools and measurement facilities to provide advice on the protection of members of the public, workers and the environment from radioactivity in the environment.

Advice was provided to government and health authorities regarding the potential exposure of members of the public from radionuclide material either lost or found in the environment in elevated levels. The types of advice provided by ARPANSA were reported in each quarterly report tabled in Parliament.

A project was completed that reviewed the activity concentration values used for the exclusion, exemption and clearance of bulk materials as defined in *The Safety Report Derivation of Activity Concentration Values for Exclusion, Exemption and Clearance, SRS 44, IAEA, 2005*. A standard set of radiological scenarios referring to external irradiation, dust inhalation and ingestion for target radionuclides was generated. This project was successfully completed by the graduates in the ARPANSA graduate development program.

Incident register

ARPANSA operated the Australian Radiation Incident Register in accordance with the *National Incident Reporting Framework* established under Schedule 13 of the *National Directory for Radiation Protection*. The framework defines a radiation incident and identifies the types of incidents to be reported to the Register. The objectives of the Register are to:

- highlight, for radiation protection authorities and users of ionizing radiation and non-ionizing radiation, specific sources, causes or procedures which give rise to a potential hazard;
- act as a national focus for information on ionizing radiation incidents and accidents;
- provide feedback and guidance to users of radiation on preventing or limiting the consequences of radiation accidents through appropriate publications; and
- provide useful data and reports to regulatory bodies, and other advisory responsibilities.

A web page for the Australian Radiation Incident Register was created on the ARPANSA web site in October 2007. Questions on post-incident follow-up and corrective actions taken were added to the reporting form. Following consultations with the Radiation Health Committee, the reporting form was modified to allow provision of information on the root cause of, and the lessons learnt from the incident.

A report on incidents reported in the 2007 calendar year was prepared for submission to the July 2008 meeting of the Radiation Health Committee. An summary of the report will be posted on the website.

Uranium industry framework

ARPANSA's principal role in this industry has been to support the development of a national dose register for uranium workers.

In Australia, there is no uniform approach to calculating dose to workers. While each State and Territory and the Australian Government has a regulatory system for radiation protection, there is no national system to provide dose histories to workers should they wish to make a claim for personal injury later in life, no means for tracking workers who move to a different jurisdiction and no national guidance on the methods required to calculate doses.

The development process for the National Dose Register Program entails the preparation of a safety guide on the methods for monitoring, assessing and recording occupational radiation doses received in mining and milling processing. The methodology determined for the safety guide will be used as part of the National Dose Register. The Register will deliver a single physical database framework to manage the permanent records of the radiological dose history of uranium industry and other related workers.

Following advice from the Radiation Health Committee and consultation

with industry and government, ARPANSA initiated the preparation of the safety guide. The development process will engage the industry and the Commonwealth, States and Territories regulators.

Environmental radioactivity

Naturally-occurring radioactive material (NORM) is the term used to describe materials that contain radionuclides that exist in the natural environment. 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.

Currently, there is no systematic international approach to regulating NORM in commodities and products, or for the management of NORM residues and wastes. In Australia, there is no uniform regulatory approach to NORM issues. ARPANSA's role is to provide national guidance on the management of materials containing NORM, and promote the development of a uniform approach to the regulation of these materials.

Consultations with industry and regulators undertaken during previous reporting periods gave rise to the decision to develop guidance on NORM management for Australia including uniform exclusion and exemption provisions, treatment and disposal of NORM arising from various waste process streams and remediation of contaminated sites.

During 2007-08, ARPANSA progressed the development of a Safety Guide on NORM. This work also took into account international thinking in the field of NORM management as well as submissions arising from the consultation period from 2 May to 13 June 2008. A final version of the Safety Guide was prepared for endorsement by the Radiation Health Committee at their July 2008 meeting.

ARPANSA conducted the 2nd Australian Workshop on Radiochemistry Techniques in Darwin during August 2007 in collaboration with the Environmental Research Institute of the Supervising Scientist and the Radiochemistry Society to progress the development of technical capabilities for the study of environmental radioactivity. The objective of the workshop was to provide training in radiochemistry with a focus on liquid scintillation counting. The workshop was attended by national and international scientists.

ARPANSA's radiochemistry laboratory continued its work on the development of methods of analysis focussing on the analysis of naturally occurring radionuclides and rapid methods of analysis of selected radionuclides in the event of an emergency. Methods for the analysis of polonium-210 in urine were developed for background or occupational exposure and a rapid method of analysis for emergency screening. A journal paper was published on the method design and validation of uranium levels in human urine. A second paper was published on *in vitro* dissolution studies of

uranium bearing material in simulated lung fluid.

ARPANSA maintained its National Association of Testing Authorities (NATA) accreditation for radioanalytical services and provided radioanalytical services for internal and external clients. The laboratory completed the services required within the estimated reporting time in more than 98% of jobs (minimum requirement >95% completed within estimated reporting times). Radioanalytical services successfully participated in proficiency testing programs throughout the year. The results are summarised as follows:

- for the Environmental Resources Associates proficiency testing program for gross alpha/beta, radium, uranium, tritium and gamma-emitters in water, results were assessed as acceptable for >90% of the tests undertaken
- in the IAEA proficiency testing program for gamma-emitting radionuclides in soil, water and vegetation, the results were assessed as acceptable for >90% of the radionuclides analysed. This program also included fast turnaround reporting of one day.

In March 2008, the *Journal of Environmental Radioactivity* published a special edition, with ARPANSA invited as guest editors, from the South Pacific Environmental Radioactivity Association Conference which ARPANSA hosted in 2006.

Publications

Manickam E., Sdraulig S., Tinker R.A. Method design and validation for the

determination of uranium levels in human urine using high-resolution alpha spectrometry, *Journal of Environmental Radioactivity* **99** (2008) 491-501.

Sdraulig S., Franich R., Tinker R.A., Solomon S., O'Brien R., Johnston P.N. *In vitro* dissolution studies of uranium bearing material in simulated lung fluid, *Journal of Environmental Radioactivity* **99** (2008) 527-538.

South Pacific Environmental Radioactivity Association (SPERA) 2006 Conference, Special Issue: *Journal of Environmental Radioactivity*, Editor-in-Chief: S. C. Sheppard, Guest Editors: S. Long and R. Tinker, **Volume 99**, ISSN 0265-931X, March 2008,

Tinker R.A. South Pacific Environmental Radioactivity Association (SPERA) 2006 Conference, *Journal of Environmental Radioactivity* **99** (2008) 437-438.

Survey of extremely low-frequency (ELF) magnetic fields in Victorian households

There have been few studies measuring magnetic field levels in Australian homes. ARPANSA has conducted a survey of power frequency magnetic fields in randomly selected homes in metropolitan Melbourne.

The measurement phase of a survey of extremely low-frequency (50 Hz) magnetic field levels in approximately 300 Melbourne homes was completed in September 2007. Spot-measurements in different rooms and 24-hour logging of levels in the first

child's bedroom and in the main family living space were carried out. Measurements outside more than 700 non-participating homes were taken to estimate selection biases. The primary analysis of the results was completed and the first publication of results should occur in late 2008.

Monitoring of mobile phone base station radiofrequency electromagnetic radiation emissions

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 report that provides robust predictions of the maximum exposure levels under reasonable assumptions. To help improve confidence in the EME reports and address public concern, ARPANSA continued to gather information on actual exposure levels and provided this to the public together with facts about the underlying science.

ARPANSA developed plans and a protocol for an ongoing program of measurements of RF EME levels

around a small selection of base stations throughout Australia.

Measurements were carried out in the vicinity of mobile phone base stations at precise locations specified by ARPANSA scientific officers following inspections and preliminary measurements. These measurements were conducted by RF assessors that were accredited by the National Association of Testing Authorities. Measurements were made at nine base stations: 3 in New South Wales, 1 in Victoria, 1 in Queensland, 2 in Western Australia and 2 in South Australia.

The results of this work were reported at the Annual Conference of the Australasian Radiation Protection Society as a presentation entitled *'Australian Mobile Telephone Base Station Survey 2007: Addressing Public Concern Regarding Exposure to Radiofrequency Fields.'* A related study entitled *'Electromagnetic Radiation Levels from Mobile Phone Base Stations – Attenuated Levels inside Australian Residences'* was also presented at the Conference. The results are to be placed on the ARPANSA website.

Health effects of exposures to radiofrequency and ELF electric and magnetic fields

National standard

During 2007-08, ARPANSA continued development of an Australian standard for exposure to electric and magnetic fields 0 Hz – 3 kHz. The working group to the Radiation Health Committee continued to resolve issues raised in the public submissions, revise the draft

Standard and finalise the regulatory impact statement.

The task of reviewing public submissions on the draft Standard has taken longer than expected, primarily due to the length and complexity of some of the 64 public submissions. Some have required considerable research to enable a response to be prepared.

ARPANSA held a forum in February 2008, and invited members of the working group, consultative group and industry representatives to discuss progress in developing the Standard. The issues and outcomes of the forum on the development of ELF Standard were reported to the Radiation Health Committee.

It was proposed to circulate a near final draft in July 2008 along with responses to the submissions and the final regulatory impact statement, for further consultation, to the consultative group as well as the Radiation Health Committee. The draft Standard would then be finalised before the end of 2008.

Oversight of radiofrequency (RF) and ELF research

ARPANSA generated monthly updates on published literature related to electromagnetic fields in the frequency range 0-300 GHz. Published literature included articles in peer-reviewed journals, scientific-body reports, fact-sheets and conference proceedings. New literature was found via search of several databases as well as notification from peers.

Planning has commenced for these monthly reports to be posted on the ARPANSA website. It is planned that for each reference there will be a short summary and a link to the abstract or to the full document (if freely available). Each update will also contain one or more featured articles for which critical commentary may be provided.

Results of ARPANSA's oversight of research were used in communicating with state and Australian Government agencies and the public and media in relation to electromagnetic radiation and health. Occupational exposure to extremely low-frequency and radiofrequency electromagnetic fields remained of increasing interest but the majority of enquires were in regard to possible health effects of magnetic fields from electricity distribution, particularly high-voltage transmission lines. Calls concerning mobile phones and mobile phone base stations and other wireless devices and household appliances were in the minority but still indicated a high level of concern among some members of the public.

ARPANSA also used the findings of literature reviews to inform the EME Reference Group. Two meetings of the EME Reference Group were hosted by ARPANSA at its office in Miranda, NSW, on 21 November 2007 and 16 May 2008 to discuss health issues and concern arising from mobile telephony in Australia. The meetings were attended by representatives of community groups, industry and relevant government and non-government organisations, including ARPANSA and Australian Centre for Radiofrequency Bioeffects Research.

Reports on ARPANSA's activities in area of electromagnetic radiation were presented at a meeting of the New Zealand Interagency Committee on the Health Effects of Non-Ionising Radiation in Wellington during September 2007 and February 2008.

Quality assurance testing program for radiopharmaceuticals used in Australia

The results of quality assurance tests for 2007 were published as ARPANSA Technical Report 147. Proficiency testing has been conducted in a collaborative study with the European Directorate for the Quality of Medicines and Health Care, Department of Biological Standardisation, Official Medicines Control Laboratory Network and Health Care. In the last year, ARPANSA has investigated problems in the use of standards for the calibration of radiopharmaceutical dose calibrators, particularly for radionuclides which decay with abundant low energy X-ray or gamma emission.

ARPANSA continued to support the work of the Therapeutic Goods Administration (TGA) by the evaluation 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. The Memorandum of Understanding between ARPANSA and the TGA was extended to cover the period from 1 January 2008 to 30 June 2009.

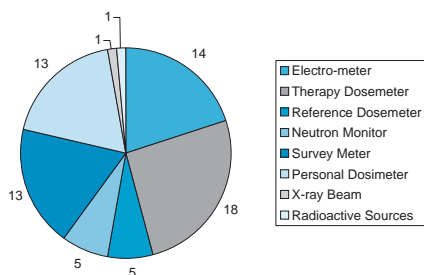
Ivanov Z. 2008, *Results of the Quality Assurance Testing Program for Radiopharmaceuticals 2007*, ARPANSA Technical Report 147.

Calibration services for dosimetry in radiotherapy and other applications

Radiation in health care – safer and better use

During 2007-08, ARPANSA commenced the acquisition of a state-of-the-art medical linear accelerator. A request for tender for a suitable accelerator resulted in a contract with a vendor who will provide a seven energy machine that has the capability to provide calibrations for the range of clinical treatment linacs used in Australia. It is scheduled to be delivered in late 2008. An almost identical machine is to be installed at the National Physical Laboratory in the UK for a similar function and the two accelerators will enable rigorous international comparisons to be undertaken.

Figure 2: Ionizing radiation measurement calibrations in 2007-08



Measurement

Over the year, 18 therapy reference ionization chambers and 14 electrometers were calibrated from 13 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. The extended scope of accreditation to cover therapy level calibration services was fully granted in January 2008.

A total of 70 calibrations were undertaken over the year distributed over the instruments as shown in Figure 2. Apart from the therapy calibrations, the next most common calibration were for protection level survey meters (13) and personal dosimeters (13).

ARPANSA took part in a comparison of accelerator output dosimetry at the Sir Charles Gairdner Hospital. The three participants, ARPANSA, Royal Perth Hospital and the Sir Charles Gairdner Hospital, all agreed on the measured dose to better than 0.6%. This compared with a similar exercise a month later for Victorian radiotherapy centres held at the Austin and Repatriation Medical Centre. ARPANSA and the host centre agreed on the measured dose to better than 0.2%. The results for other centres have not yet been made available.

Early in 2008, a comparison of calibration coefficients for Iridium-192 (^{192}Ir) used in brachytherapy, with an ionization chamber calibrated both at ARPANSA and the National Physical

Laboratory (NPL) (UK), was carried out in collaboration with the Peter MacCallum Cancer Centre. Good agreement between ARPANSA and NPL was obtained, validating ARPANSA's indirect method of performing this calibration for Australian hospitals. A paper *Comparison of ¹⁹²Ir air kerma calibration coefficients derived at ARPANSA using the interpolation method and at the National Physical Laboratory using a direct measurement* was submitted in June 2008 for publication to the journal *Australasian Physical and Engineering Sciences in Medicine*.

Radiofrequency calibrations

ARPANSA operates a calibration service, accredited by NATA, for radiofrequency hazard meters and alarms used for protection of personnel from potential hazardous electromagnetic fields. The service is used by government departments, including Defence, and commercial companies, including the telecommunications companies and contractors. A scheduled assessment by NATA occurred in December 2007 and continuing accreditation was approved.

Demand for the service has increased slightly over the last three reporting periods. During the year a total of 350 orders were received for RF calibrations of which 300 were completed as NATA accredited reports. Included in these orders were more than 220 monitors and more than 100 personal monitors or RF badges.

Personal radiation monitoring service

ARPANSA's Personal Radiation Monitoring Service (PRMS) provided monitors to measure the radiation doses received by workers in the medical, dental, chiropractic, industrial and mining fields. The service assisted in ensuring that ionizing radiation doses were monitored and controlled.

The PRMS has over 146 000 people registered on its database and has about 27 000 active wearers throughout Australia, Papua New Guinea and other countries in the region. The database holds dose records for registered wearers stretching back to December 1986. During the year 1 July 2007 to 30 June 2008, 158 132 monitors were issued to 3155 centres which was similar to the previous reporting period.

During 2007-08, further enhancements were made to the database system used for dose assessment, record keeping and monitor issue. These changes streamlined internal processes and added extra flexibility in how the PRMS interacted with clients.

Development work on monitoring technologies and improvements to internal processing procedures is ongoing.

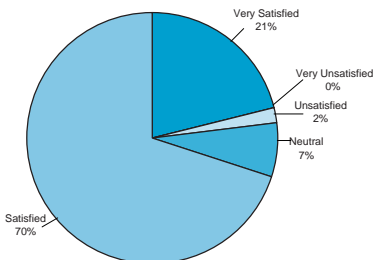
During May and June 2008, PRMS clients were surveyed in relation to turnaround time between submission of monitors and delivery of measurement results, reporting format of monitored results, value for money of the service, the types of radiation monitors, offer of an online service and

overall satisfaction. Eighty-three percent of clients responded to the survey. The principal findings of the survey were:

- the useability of the radiation monitors was of most importance to clients;
- there was broad support for an online service; and
- the overall satisfaction with the service was high (see Figure 3).

As a result of the survey, ARPANSA will investigate the introduction of an online service during 2008-09.

Figure 3: PRMS Survey 2008 - Overall client satisfaction



Ultraviolet protection testing service

The ultraviolet protection factor (UPF) testing service at ARPANSA, which tests the UVR protection provided by clothing, took part in a large international intercomparison of UPF testing with 14 different organisations; four from within Australia and ten from overseas. The study, which was carried out during the July to October period, examined instrument performance and measurement uncertainties. Analysis should be completed during 2008 and a paper will be prepared for submission to a scientific journal.

The UPF swing tags provided to companies to attach to appropriate garments were redesigned. The messages on sun protection from the Australian Cancer Society and the New Zealand Cancer Society were updated and additional ARPANSA related activities and information were added. To date, more than 40 million tags have been issued. The UPF testing service also commenced issuing reports indicating the amount of UVR protection provided by shade cloth.

Demand has increased since the last reporting period for the UPF testing, licensing and labelling (swingtag) program for fabrics and clothing. During the year, 438 test requests were received which involved the testing of more than 1684 fabric samples. In addition, 99 UPF trademark licences were issued and orders for more than 5.8 million UPF swing tags were filled. National Association of Testing Authorities (NATA) accreditation was reconfirmed during 2008.

Table 4: Performance against PBS targets – Output Group 2

Indicator	Measured by	Reference Point or Target
The medical, occupational and ambient radiation exposures of Australians are known.	Radiation measurement programs and surveys undertaken published.	<p>Publication of results of general radiology survey by December 2007.</p> <hr/> <p>Data collection and analysis of patient doses in computed tomography by June 2008.</p> <hr/> <p>The ongoing publication of results from personal ultraviolet radiation dosimetric studies in targeted population groups.</p> <hr/> <p>Publication of residential survey of ELF magnetic fields by June 2008.</p> <hr/> <p>Audit of sample of mobile phone base stations by June 2008.</p>
<i>Indicator partially met</i>	<i>The general radiology survey has not been published. The CT survey is still in the planning stage. Publication of UV results has occurred and is detailed in this report. The residential ELF survey is now aimed for publication in late 2008. The base station audit is advanced and results are to be placed on the ARPANSA website.</i>	
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.	<p>Completion of a new round of the national therapy dosimetry audit.</p> <hr/> <p>Establish direct megavoltage dosimetry calibrations.</p>
<i>Indicator substantially met</i>	<i>The calibration program continues to keep pace with the three-year goal. The audit was progressed. The establishment of direct megavoltage dosimetry calibrations has advanced with the placing of the contract for the ARPANSA medical linac.</i>	
Services provided in support of radiation protection are effective and efficient.	Quality and cost effectiveness of services.	<p>Maintain National Association of Testing Authorities accreditation.</p> <hr/> <p>Perform services within agreed times.</p> <hr/> <p>Undertake proficiency testing of services.</p>
<i>Indicator met</i>	<i>Accreditations have been maintained and stated performance targets met.</i>	

Output Group 3 – Regulation of Commonwealth entities using radiation sources and facilities or nuclear installations

Monitoring compliance with the *ARPANS Act* and with licence conditions

ARPANSA's Regulatory Compliance Policy includes promotion of compliance with the 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: www.arpansa.gov.au/pubs/regulatory/comp_pol.pdf.

Inspections

An enhanced inspection program was developed and implemented during 2007-08. This focused regulatory attention on licence holders that were assessed as being of higher risk, based on the ARPANSA regulatory risk matrix. The policy on regulatory inspections was reviewed and re-issued with some minor amendments.

A table of inspections undertaken during 2007-08 is set out in Appendix 6.

The current year's inspection program forms the basis for the reassessment of the risk profile of each licence holder early in the next reporting year so that the priorities for the program of planned inspections may be re-assessed and the 2008-09 inspection program implemented.

One of the key initiatives to be implemented following the IRRS mission to Australia, mentioned at page 49 of this report, was the introduction of unannounced inspections as part of the ARPANSA inspection regime. At this early stage of the program these inspections are confined to the ANSTO reactor facilities. A total of 10 unannounced inspections were undertaken during the reporting year.

Breach of the *ARPANS Act*

As reported throughout the year in quarterly reports tabled in Parliament, the following controlled persons were in breach of the *ARPANS Act* for undertaking a prohibited activity without a licence or exemption:

- Australian National University was found in breach of s31(1) of the *ARPANS Act* for possession of RF and UV equipment (non-ionizing controlled apparatus) without the dealings being authorised by a source licence
- Australian War Memorial was found in breach of s31(1) of the *ARPANS Act* for being in possession of a Class 4 laser without the dealing being authorised by a source licence.
- Department of Foreign Affairs and Trade was found in breach of s31(1) of the *ARPANS Act* for possession of a portable hand held X-ray unit and Nickel-63 itemisers without the dealing being authorised by a source licence.

The following licence holders were in breach of the Act for failing to comply with licence conditions:

- CSIRO Food Sciences was found in breach of s31(2) of the Act for failing to comply with regulation 53 licence condition as it disposed of UV equipment (controlled apparatus) without the prior approval of ARPANSA.
- ANSTO was found in breach of s31(2) of the Act for failing to comply with regulation 49 licence condition which requires that a licence holder comply with its plans and arrangements. The non-compliance related to implementation of the formal accreditation processes for a shift manager for the OPAL reactor.
- CSIRO Forest Biosciences was found in breach of s31(2) of the Act for failing to comply with relevant parts of Codes and Standards related to the use of neutron moisture meters.
- Attorney General's Department D Branch was found in breach of s31(2) for failing to comply with regulation 53 licence condition for disposing of X-ray equipment (controlled apparatus) without prior approval of ARPANSA.

Enforcement

In relation to each of the cases of breach of the Act set out above, 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.

Continuous improvement of regulatory business processes

IRRS – progress in implementation of recommendations and suggestions for improvement

During 2006-07, an international team of eleven experts in radiation and nuclear safety visited ARPANSA to conduct an Integrated Regulatory Review Service (IRRS) mission on behalf of the International Atomic Energy Agency.

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; and
- public information and communication.

In August 2007, the final report of the IRRS mission was made available on the ARPANSA website. In its report the IRRS team identified a number of good practices and made recommendations and suggestions that indicated where improvements were necessary or desirable to further improve the effectiveness of regulatory controls.

Particular areas where the team identified that improvements could be made to the regulatory function were in relation to training and skills development for regulatory officers; preparation of key guidance documents for licence holders; conduct of unannounced inspections and continuous improvement of regulatory management systems.

During 2007-08, in response to the IRRS recommendations, ARPANSA provided more training programs for regulatory officers, including in particular the maintenance of technical skills and competencies.

ARPANSA also commenced a systematic assessment and planned revisions of the quality management system, including the engagement of an external consultant to assist the Regulatory and Policy Branch Quality Committee.

Measurement of key performance indicators

During 2007-08, the new Regulatory Management Information System based on the TRIM 6 workflow software was bedded down. It provided the basis for collecting data about performance against the KPI's that had been developed during 2006-07. The reporting period 2007-08 was the first full year of measurement and the data was reported in each of ARPANSA's quarterly reports.

Analysis of the 12 month period demonstrates that there are still flaws in the data, principally in the collection phase. It was always anticipated that in the first 12 months of implementation this would be the case. Having now collected the performance information for a full 12 month period, the accuracy and completeness of the information entered into the regulatory management information system is being reviewed. Given that the initial set of KPI's were based on estimates, rather than historical performance data, it is now also timely to review them in light of this first year of experience. This experience also indicates that there is a need to further differentiate between the different types of applications and inspections, so that additional time standards may be developed that more accurately reflect the amount of regulatory effort involved.

Assessment of applications for licences under the *ARPANS Act*

Key regulatory assessment activities (applications for licence; requests for approval)

ANSTO proposal to modify the design of the Open Pool Australian Light-water (OPAL) reactor fuel assemblies

The result of this assessment by which the CEO concluded that allowing the reactor to operate again (with the modified fuel assemblies) did not present an unacceptable risk to the health and safety of people and to the environment was reported to Parliament under Section 61 of the *ARPANS Act* attached to the quarterly report for the period ending 31 March 2008. The statement of reasons for the decision was also posted on the ARPANSA website.

Following consultation with the licence holder the CEO imposed two licence conditions on the OPAL licence as a consequence of agreeing to the modification of the fuel assemblies. These conditions required ANSTO to continue to undertake a program of work to monitor vibration and other forces acting on the fuel plates and other structures within the reactor core. In addition, ANSTO is to complete a review of the design of the OPAL fuel assemblies within two years.

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

The High-Flux Australian Research Reactor (HIFAR) is currently authorised to operate under a facility licence

issued by the CEO of ARPANSA in May 2001.

HIFAR was permanently shutdown by ANSTO on 30 January 2007 following nearly 50 years of operation.

An application from ANSTO for a facility licence authorising it to possess or control the HIFAR, a nuclear installation, was received on 18 May 2007. Effectively, this application seeks to authorise activities to prepare HIFAR for decommissioning and to put it into a state of safe enclosure pending decommissioning.

Throughout the reporting year the detailed process of review and analysis was undertaken by ARPANSA regulatory officers and detailed responses from ANSTO continued to be provided up until June 2008. At the time of preparing this annual report, final advice to the CEO of ARPANSA on the application is being prepared. The key issue for licensing is the manner in which the facility and activities under the facility licence will be undertaken during this 10 year period of safe enclosure and preparation for eventual decommissioning.

Export of high activity radiation sources

The export of high activity radiation sources from Australia requires permission under Regulation 9AD of the *Customs (Prohibited Export) Regulations 1958*. These regulations are made under the *Customs Act 1901*. Under the *Customs (Prohibited Export) Regulations 1958* the Minister for

Health and Ageing may authorise ARPANSA officers to approve export permissions.

In accordance with the authorisation by the Minister for Health and Ageing under the *Customs (Prohibited Export) Regulations 1958*, ARPANSA authorised officers issued 3 permissions.

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 553 permits for customs release of non-medical radioisotopes, comprising 373 urgent single shipment, 159 standard single shipment, and 21 twelve monthly permits. Authorised ARPANSA officers issued 643 permits for medical radioisotopes including 20 urgent single shipments, 586 single shipments and 37 twelve month permits.

Preparation and promulgation of regulatory guidance

ARPANSA commenced discussions with ANSTO in relation to guidance for nuclear installations on Regulation 51 changes with significant implications

for safety. ARPANSA published guidance on this matter for its source licence holders and as part of the guidance on quarterly reports.

Liaison with licence holders and communications with Parliament and the public on matters of regulatory interest

Stakeholder consultation

The Regulatory and Policy Branch continued to collect qualitative data from stakeholders, in particular licence holders, in order to inform its continuous improvement agenda.

In June 2008, a licence holder forum was conducted by ARPANSA in Melbourne which was hosted by Defence at the Victoria Barracks. The focus of the forum was on an update for licence holders on outcomes of compliance inspections so that all licence holders were aware of the areas for improvement. In addition representatives from licence holder organisations gave presentations on good practices that were being employed in their organisations to enhance radiation safety.

Client satisfaction surveys undertaken during the forum focused on satisfaction with the forum and more generally satisfaction with ARPANSA as a regulator. The results indicated that the respondents had a 78% level of satisfaction with the forum. Respondents were asked to rate the standard of ARPANSA's performance from 1 to 5 with 3 being a satisfactory rating. The result was an average of 3.7.

All respondents, indicated that they were satisfied or more than satisfied with ARPANSA's performance as a regulator.

The main stakeholder interaction occurs between licence holder and regulatory officers during planned inspections throughout the year and in the communication that occurred in the context of assessment of licence applications and request for approval.

During 2007-08, draft publications developed as part of the Radiation Protection Series have been released for public comment consistent with Section 23 (e) of the Australian *Radiation Protection and Nuclear Safety Act 1998*. This consultation has primarily been conducted via the ARPANSA website.

Ministerial advice

In accordance with the Australian Public Service (APS) values on achieving results and managing performance, ARPANSA seeks to be responsive to the achievement of the outcomes expected by the Government.

ARPANSA worked closely with ministerial advisers to respond effectively in supporting the Parliamentary Secretary 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 5 ARPANSA prepared Ministerial and Parliamentary Briefing Material, draft correspondence and reports.

ARPANSA website

The new website, featuring engaging graphic designs and intuitive navigation, was revised during 2006-07 and was launched in July 2007. In the reporting period there were 953 559 visits to the ARPANSA website – an almost 80% increase on the previous year. The most popular web pages were radiation and health information sheets and educational pages dealing with the basics of radiation science.

Visitors downloaded 303 973 documents (40% increase), predominantly fact sheets about magnetic and electric fields of various

Table 5: Details of advice provided 1 July 2007 – 30 June 2008*

Ministerial Correspondence	15
Ministerial Briefs	4
Minutes to the Minister	34
Question Time Briefs	9
Current Issue Briefs	12
Parliamentary Questions on Notice	13

* Excludes items marked for information

frequencies and documents from the ARPANSA Radiation Protection Series (RPS).

The two most downloaded documents from the RPS were the *Radiation Protection Standard for Maximum Exposure Levels to Radiofrequency Fields – 3 kHz to 300 GHz (2002)*

and *Recommendations for Limiting Exposure to Ionizing Radiation (1995) and National Standard for Limiting Occupational Exposure to Ionizing Radiation (republished 2002)*. The Radiation Protection Series can be found at:

www.arpansa.gov.au/Publications/codes/rps.cfm.

Table 6: Performance against PBS targets – Output Group 3

Indicator	Measured by	Reference Point or Target
Nuclear installations, radiation facilities, apparatus or radiation sources used by the Australian Government are operated in accordance licence conditions.	Number of incidents and number of non-compliances.	Less than 40 incidents per annum in total. Less than 5 incidents requiring reporting within 24 hours. Less than 40 non-compliances per annum.
<i>Indicators met</i>	<i>There were 21 incidents this reporting year. There was 1 incident that required reporting within 24 hours. There were 7 non-compliances this reporting year.</i>	
Regulatory processes are efficient.	Number of licence and relevant change assessments and inspection reports per regulatory officer.	Greater than 7 per regulatory officer per annum.
<i>Indicator met</i>	<i>There was an average of 10 per regulatory officer.</i>	
Regulatory stakeholders are satisfied with performance.	Stakeholder satisfaction surveys.	Greater than 80% of stakeholders satisfied with the services provided.
<i>Indicator met</i>	<i>The annual survey of stakeholders had a result of 100% satisfied with the services provided.</i>	

Service charter and data

Service Charter

The ARPANSA service charter provides brief information on the Agency, sets out the standards of service clients can expect from the Agency and 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 is 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 relevant Branch Director.

Details of complaints received during the year which required corrective action are shown in Table 7.

Table 7: Details of client complaints received for ARPANSA activities in 2007-08

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	Nil		
Radiofrequency calibrations	2	Business	Invoicing error: 1 Broken equipment: 1
Ultraviolet protection facility	Nil		
Radioanalytical Services	1	Business	Incorrect sample labelling
Radiopharmaceutical quality assurance	Nil		
Personal Radiation Monitoring Service	Nil		



Part 4 Essay: Toward best practice
regulation of nuclear safety and
radiation protection



Toward best practice regulation of nuclear safety and radiation protection¹

The key determinant of regulatory outcomes includes not only how regulations are specified, but also how they are interpreted and enforced by regulators.²

A decision was made by the Australian Government to regulate 'to protect the health and safety of people and to protect the environment from the harmful effects of radiation'³ and the regulatory framework was enacted through the *Australian Radiation Protection and Nuclear Safety Act 1998* and its subordinate legislation.⁴ Like most legislation setting up a regulatory framework, the Act is silent as to the manner of its implementation, although it does set out the overarching object referred to previously.

Current policy in the area of regulation requires the regulator to be both effective and efficient in achieving this objective.⁵ In addition, regulators are to ensure that when administering the regulatory function it has regard to better or best practice.⁶ Better practice is defined in relation to governance, information management, relationship management, resources, compliance and enforcement.

Current debate about regulation discusses regulatory concepts such as regulatory burden and how to minimise it; 'risk basis' and how to apply it and 'best practice' and how to achieve it.'

ARPANSA is also influenced by the international radiation protection and nuclear safety regulatory environment. A most recent example of this was an International Regulatory Review Service mission to Australia conducted by the IAEA which assessed ARPANSA's performance as a regulator against the international regulatory framework.⁷

In addition, in the ARPANSA Act there is the legislative exhortation that when making a licensing decision the regulator must 'take into account international best practice in radiation protection and nuclear safety', perhaps the ultimate regulatory benchmark.⁸

In considering the effectiveness of the implementation of the regulatory regime, regulators need to be aware that a number of key elements influence effectiveness including:

- the culture of the regulator;
- the competence and professionalism of the regulatory staff;
- the confidence of the public in the regulator;
- the independence of the regulator; and
- the maintenance of a dynamic tension between the regulator and its licensees to ensure that there is no weakening of the safety performance of the licensees.

To respond to these challenges, ARPANSA has been undertaking a program of reform for the last three years. The change in regulatory focus was also required as ARPANSA had

shifted from the initial phase in 1999-2003, of licensing an existing set of users of radiation and nuclear technologies, to the subsequent and on-going challenge of assuring the safety performance of a disparate cohort of licensees.⁹ The focus shifted from assessment of underlying safety frameworks to encouraging each licensee, through the implementation of the regulatory framework, to achieve better, if not best, practice in radiation protection and nuclear safety.

ARPANSA's reforms have been in the areas of:

- regulatory management systems, including an increased focus on the challenges of knowledge management;
- regulatory policy including revised compliance and enforcement policies and practices; and
- risk informed approach that responds to the residual risk of the activities of the licensee rather than a focus on inherent risk (hazard).

In undertaking any program of reform a regulator must be mindful of the 'regulatory burden' that it imposes and make efforts to reduce it without affecting the achievement of the object of the regulatory regime. Regulatory burden generally refers to the formal requirements placed by a regulator on a licensee, such as record keeping, notification, documentation, authorisations or permissions, personnel costs, training and professional development. The notion of regulatory burden has two

components that need to be borne in mind (1) the nature of the burden and (2) its incidence.¹⁰

ARPANSA's reforms in the area of regulatory management systems

Sound regulatory management systems are an important element of demonstrating good governance within a regulatory organisation. There is a strategic planning framework, sound project management and reporting of key performance measures to demonstrate both qualitative and quantitative measures. An overarching quality management framework is being revised and updated to capture all of the work undertaken.

ARPANSA has developed a regulatory management information system which is helping to capture all work flow, provide accurate information on the status of work and underpin the relationship with licensees in advising them of the progress and outcome of regulatory assessments.

Good regulatory management information systems also ensure that the policies, practices and decisions of the institution are appropriately described, recorded, and explained to ensure that the institutional knowledge is recorded, catalogued, retrievable and knowable. This information underpins another key regulatory objective and that is the maintenance of institutional knowledge to underpin appropriate knowledge management.

There is recognition internationally that the workforce that supports radiation protection and nuclear safety is ageing and institutional and collective memory of regulatory bodies concerned with radiation protection and nuclear safety is vulnerable to its sudden loss through the mass retirement of personnel nearing retirement age.¹¹

To ensure that this does not unduly hamper the effectiveness of regulatory bodies there is a need to ensure that the challenge of knowledge management is not reduced in the desperate attempt to record and retain the work of a single staff member immediately prior to their retirement. Collective and institutional memory needs to be recorded in the policies and practices of an organisation and part of the fabric of the norms of an institution so that it is not vulnerable to the loss of one of its corporate memories. In that way it is the institution that holds and stores the knowledge of the practices not just the people within it. Therein lies the relationship between knowledge management and effective regulatory management systems. Knowledge management is most effectively utilised and retained within organisations that have effective management systems to collect and retain the institutional decision making and norms created through the role and activities of regulatory staff. ARPANSA recognises the need to respond appropriately to the challenge of an ageing workforce and has enhanced its regulatory management systems accordingly.

Knowledge management must also be supported by the continuous professional development and training of all regulatory staff. A challenge to the industry is to attract and retain the next generation of staff. One of ARPANSA's responses to this challenge has been to introduce a graduate recruitment program. However, in addition, there is the need to ensure that mid-career staff have sufficient stimulus and opportunity to keep them within the institution and be open to learning and development as a part of the performance of their role. A variety of work and responsibilities is often a sure way of keeping interest and motivation amongst staff. Representation on international committees, review missions and meetings with domestic and international counterparts are effective ways that ARPANSA responds to this need.

ARPANSA reforms in regulatory policy

The regulatory policy framework is also a key part of the regulatory management system described above. The policy framework needs to respond to the fundamental principle that a licensee has the primary responsibility for safety. The activities of the regulator must be informed by this basic principle. A good example of the implementation of this policy is the revised compliance and enforcement policy adopted by ARPANSA.

Compliance and enforcement policy

ARPANSA expects licence holders to have and to take steps to retain adequate capability within its organisation to:

- understand the nuclear or radiation safety requirements of all its activities and those of its contractors, to take responsibility for managing safe operation;
- understand its duties under the law, particularly duties as an applicant for licence or licence holder;
- set, interpret and deliver operational safety standards relevant to the activities undertaken;
- have sufficient breadth and depth of knowledge and experience to understand the safety implications of its activities;
- maintain and develop the corporate memory in relation to those regulated activities;
- ensure adequate numbers of suitably qualified and experienced staff are available to make the judgements pertinent to safety presently and in the future.

ARPANSA compliance strategy recognises the diversity of its regulated entities based on whether the radiation and nuclear activities undertaken are:

- core business
- part of core business
- in support of core business
- ancillary services such as security
- a historical legacy

ARPANSA's response to non-compliance by regulated entities is designed to

- be proportionate to the risks posed by non-compliance
- recognise the capacity and motivation of the non-compliant entity to return to compliance
- signal the seriousness with which the regulator views the non-compliance

The range of responses to non-compliance ranges from education and awareness raising of regulatory expectations, to the limitation of authorisation through the imposition of additional licence conditions, to the suspension or cancellation of a licence and /or prosecution if the circumstances warrant such action being taken.

A graduated response allows for escalation if an entity does not respond appropriately or de-escalation to reward an entity for improved performance.

ARPANSA shift to the risk informed approach to regulation

ARPANSA has moved from a prescriptive approach to regulation that was based primarily on the imposition of additional licence conditions that specified not only the parameters of what was to be complied with, but also how the licensee should demonstrate

compliance. Prescriptive regulation can be appropriate in circumstances where there is a single commonly agreed means of controlling a risk or hazard or risk and it has the advantage of certainty, clarity and uniformity. The difficulty is that this approach can be quite inflexible and may be outdated quickly as the solutions to problems may change more quickly than the

regulatory prescription. In addition, a common criticism is that prescription does not support innovation in a licensee and generally carries a high compliance cost, leading to the common complaint that the regulator is imposing an unnecessary regulatory burden.

The approach also regulates based on the inherent hazard of a particular activity, leading to regulation on the basis of inherent rather than residual risk.

The more desired approach is performance based, in that it specifies to the licensee desired outcomes or objectives but not the means by which they are to be met. This approach allows the licensee to choose the means of compliance to fulfil the regulatory objective, to seek the cheapest or most cost effective solution and to vary their approach over time in line with changes to technology or knowledge.

The approach to performance based regulation relies upon the licensee putting in place systems for identifying, controlling and minimising risks: the risks that are in effect the subject of the regulatory regime.

One of the most significant factors in ARPANSA's approach to regulation of its licence holders is the importance it prescribes to safety management systems which demonstrate to ARPANSA that the licence holder has a key methodology for the identification, control and minimisation of the risk associated with the activity.

It is the current practice of ARPANSA to seek to regulate based on the residual risk of the activities of the regulated, not the inherent risk (which takes account of hazard alone as the key determinant). Residual risk allows the regulator to take account of the safety management systems of the regulated, its safety performance, its safety culture, its responsiveness to the regulator and the manner in which it maintains the dialogue and relationship with the regulator.

Conclusion

A regulatory reform process takes time and is subject to on-going review and assessment. The reaction of stakeholders, and in particular the licensees, is an essential part of assessing its effectiveness over time. Reactions so far have been positive. Licensees at stakeholder fora have reacted positively to the changes in the regulatory approach. ARPANSA will continue to monitor its performance and respond positively to developments in regulatory policy and practice both domestically and internationally to ensure its continued movement toward best practice regulation.

¹ Rhonda Evans, Director Regulatory and Policy Branch ARPANSA

² Australian Government Taskforce on Reducing Regulatory Burdens on Business, Rethinking Regulation, January 2006, p158

³ Section 3 of the ARPANS Act sets out this object of the Act.

⁴ Australian Radiation Protection and Nuclear Safety Regulations 1999

- 5 Rethinking Regulation Report of the Taskforce on Reducing Regulatory Burden on Business January 2006 Australian Government
- 6 ANAO Administering Regulation Better Practice Guide March 2007
- 7 Integrated Regulatory Review Service (IRRS) Full Scope Mission to the Commonwealth Government of Australia, Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) 2007 IAEA
- 8 Section 32 and section 33 of the Australian Radiation Protection and Nuclear Safety Act 1998
- 9 ARPANSA licence holders can be described as falling into four main groups: those for whom the use of radiation is core business; part of core business, ancillary to a main function or a historical legacy.
- 10 The Tools of Government and Regulatory Design, Conference paper at pp 5 Arie Freiberg, The Australian and New Zealand School of Government.
- 11 This phenomenon may not be as notable in Australia as in other countries as Australia no longer has mandatory age retirement and there is social data which suggests that professional staff in Australia may in fact work longer than previous generations who were subject to mandatory retirement provisions.



Part 5 Management and accountability



Corporate Governance

Corporate governance practices

The role, functions and powers of the CEO of ARPANSA are defined in the *Australian Radiation Protection and Nuclear Safety Act 1998* (ARPANS Act). ARPANSA is a statutory agency for the purpose of the *Public Service Act* and a prescribed agency under the *Financial Management and Accountability Act 1997* (FMA Act). The CEO is authorised to engage employees under the *Public Service Act 1999*.

ARPANSA has an integrated corporate governance framework. The *ARPANSA Corporate Plan* sets out the strategic directions and key priority areas upon which the Agency intends to focus. The plan is supported by branch operational business plans that describe the activities undertaken to accomplish those key priorities. These in turn are supported by individual performance and development plans.

The framework is underpinned by management systems and strategies including internal audit, risk management, fraud control, compliance, business continuity, quality and information management.

ARPANSA has a Corporate Governance Officer who is tasked with overseeing and co-ordinating the corporate governance framework.

ARPANSA management

The CEO, with the advice of the Executive Board of Management, allocates the resource budget, makes

strategic decisions and sets key priorities. Apart from the CEO, the Board is comprised of the CEO, all the ARPANSA Branch Directors, ARPANSA's Corporate Counsel and Dr Sue Barrell, an external member from the Bureau of Meteorology. The Executive Board meets monthly in accordance with a formally approved timetable and agenda and deals with significant strategic issues.

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. The CEO requires the delegates to act in accordance with approved policies and procedures, including Chief Executive Instructions (CEIs) and Procedural Rules, formulated in accordance with the *FMA Act*.

When not holding a Board Meeting, the CEO and senior executives meet weekly to discuss high level administrative and operational matters.

In addition, ARPANSA's Corporate Counsel reports directly and independently to the CEO, giving advice on regulatory and operational matters.

Senior Management Committees

A number of management committees support the CEO and the Branch Directors in their management role including the:

Audit Committee

ARPANSA's Audit Committee is comprised of an independent chair, two senior managers from within

ARPANSA and an external member. Representatives of the Australian National Audit Office attended committee meetings as observers and the Agency's internal auditor, Protiviti Pty Ltd, Chief Finance Officer and Corporate Counsel attend meetings to report on particular matters. Branch Directors are also invited to attend to discuss particular audit reports.

The Audit Committee 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; and
- the overall compliance with relevant legislation in particular the *Financial Management and Accountability Act*.

The Audit Committee met six times in 2007-08. All members attended. After each meeting, the Committee sent a report to the CEO on their observations and matters of interest. The chair met with the CEO on several occasions and also attended the an Executive Board of Management meeting to discuss both the Committee's areas of interest and the Boards view on the operation of the Committee.

As well as considering audit reports, during the year the Audit Committee also:

- developed and reviewed a risk based strategic three year audit plan;
- maintained a program of self assessment of its own performance, including by informing itself of the Executive Boards view of its performance, and reviewing the performance of ARPANSA's internal audit; and
- provided assurance to the CEO on the integrity of ARPANSA's Financial Statements and compliance processes.

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

Information Management Steering Committee

This Committee meets monthly and is chaired by the Director Corporate Services. The Committee comprises relevant Section Managers and the Manager, Information Management (IM). It oversees the development and implementation of the ARPANSA information management strategy; reviews and approves IM and information and communications technology (ICT) policies; assesses, monitors and manages ICT risks and fosters the development of ICT skills and capabilities.

Work Environment Group (WEG)

Chaired by the Director Corporate Services, WEG comprises staff representatives from the 5 branches. It advises the Executive Board on the strategic planning, 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.

Environmental Management Committee

Comprised of staff representatives and the ARPANSA Property Manager, the Committee oversees and guides the development and implementation of the ARPANSA environmental management strategy; reviews and approves supporting policies, strategies and procedures, including compliance with relevant government policies, legislation and guidelines; sets performance targets and monitors performance.

Occupational Health and Safety (OH&S) Committee

Chaired by the Director Medical Radiation Branch who is assisted by the ARPANSA Health and Safety Coordinator, it also comprises staff and management representatives. This Committee meets every two months and 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 in accordance with the ARPANSA OH&S Management System.

Radiation Safety Committee

This committee reports to the OH&S Committee on matters relating to workplace radiation protection and safety.

Further information in respect of OH&S arrangements within the Agency is at Appendix 1.

Corporate and operational planning and performance

Internal control

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 assurance, and audit committee advice, it has:

- complied with the Australian Government's financial management framework and other specified Commonwealth policies; and
- operated within the agreed resources for the current year and adopted, or will adopt the appropriate management strategies for all known risks that may affect the financial sustainability of their agency.

ARPANSA has an 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

and internal audit review of the effectiveness of internal control mechanisms provide the assurances required to support the certification. Branch Directors and Senior Managers 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.

During 2007-08, four breaches of the financial management framework were reported. Each breach was the result of a mistake and was detected by ARPANSA's existing internal controls.

ARPANSA Quality System

The ARPANSA Quality System employs two levels of management review: at the Branch level, reviewing the service activities of the Branch in detail; and by the Executive Board of Management which sits as the ARPANSA Quality Management Committee (QMC) and meets quarterly to review reports from the branch quality meetings. The QMC has the overall responsibility for ensuring the services offered by ARPANSA are delivered in a manner consistent with the ISO 9000 series of documents and ISO 17025.

Seven of ARPANSA's laboratory services maintain National Association of Testing Authorities (NATA) accreditation and are regularly assessed by NATA. During the year NATA conducted both technical and surveillance assessments of the quality systems in place in each of the laboratories. The ARPANSA Quality

Manual and the Quality Manuals for each of the accredited laboratories were updated during the year.

As required by AS ISO/IEC 17025: 2005 all service activities are internally reviewed annually by qualified auditors selected from representatives of the ARPANSA services. Seven internal reviews were conducted during 2007-08.

Identification and management of risks

Internal audit

ARPANSA outsourced the internal audit function to Protiviti Pty Ltd. Significant internal audits conducted in 2007-08 included reviews of:

- asset management arrangements;
- data and records management;
- *FMA Act* compliance;
- implementation of the new Personal Radiation Monitoring Services software system; and
- operational implementation of the risk management framework.

Protiviti's term of engagement as internal auditors expired at the end of the year, and ARPANSA is engaged in a process to select internal auditors.

Risk management

The Agency's business planning framework, including setting of performance targets for staff, is underpinned by relevant risk assessment processes. Strategic and key operational or project risks are reviewed quarterly by the Audit Committee and monitored by

the Executive Board of Management.

Towards the end of the year, ARPANSA engaged Aon Risk Services Australia Ltd to evaluate its Risk Management Framework, review the strategic and operational risk registers and develop an Enterprise Risk Management Plan. A number of risk management tools, templates and techniques were delivered and as a result of this significant work, ARPANSA is well placed to develop its risk culture further and embed management of risk into day-to-day management processes.

ARPANSA retained its five star rating for risk management practices following insurer Comcover's risk management benchmarking survey in 2007.

Business continuity

The ARPANSA Business Continuity Plan was further refined in 2007-08 with the development of a Process Recovery Plan for the Human Resources. The Business Continuity Plan is scheduled for comprehensive testing and review during 2008-09.

Compliance with Commonwealth Fraud Control Guidelines

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.

No incidents of fraud were reported for 2007-08. In accordance with the Commonwealth Fraud Control Guidelines ARPANSA provided data on incidents of fraud to the Australian Institute of Criminology in September 2007 for the year ended 30 June 2007. Data for the year ended 30 June 2008 will be provided by 30 September 2008.

Ethical standards

All ARPANSA staff adhere to the Australian Public Service Values and Code of Conduct as required under the *Public Service Act 1999*. ARPANSA actively promoted ethical standards among its staff by ensuring new employees are informed of them by conducting annual training and awareness program on the APS values and Code of Conduct. ARPANSA's commitment to ethical standards was re-enforced in the *ARPANSA Agreement 2007-2010*, the *ARPANSA Corporate Plan 2008-2012* and the *Workplace Diversity Program 2006-2010*.

There are formal procedures to ensure disclosure of any real or apparent conflict of interest. ARPANSA also has specific policies in place to avoid any internal conflict of interest. Additionally, 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.

External scrutiny

IAEA Integrated Regulatory Review Service (IRRS)

A review of the regulatory framework established by the ARPANS Act 1998 and the ARPANS regulations, as well as effectiveness of the implementation of the framework was undertaken by the IAEA IRRS mission to the Commonwealth of Australia. The outcomes of the review were reported in the 2006-07 annual report. Further information regarding implementation of the suggestions and recommendations can be found under Output Group 3.

Management of human resources

During 2007-08, ARPANSA continued to enjoy the organisational benefits of an effective and committed workforce. Employee commitment was evidenced by the relatively low staff turnover, as compared to other Australian Public Service (APS) agencies. However, this has presented ARPANSA with a major challenge which it will face over the next 5-10 years as experienced employees proceed to retirement. The continued maintenance of the scientific quality and integrity of its operations and services in the face of this loss of experience becomes an issue.

As in past years, ARPANSA placed a strong emphasis on strategic people management issues with a particular accent on human resources, 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.

Restructure of the People Management and Strategies Section

The People Management and Strategies Section was restructured during the reporting year. The changes were implemented to improve the Section's services to managers and employees and to increase capacity to develop and deliver new and/or updated people management policies supporting ARPANSA's employment framework.

Workplace diversity

During the year, ARPANSA continued to promote workplace diversity and reinforce the roles and responsibilities of all staff in increasing awareness and acceptance of workplace diversity principles through fostering diversity and using the diverse range of skills, experience and cultural backgrounds of staff.

Underpinning *ARPANSA's Workplace Diversity Program 2006-2010*, is an implementation plan outlining various initiatives, responsibilities, and outcomes. The strategy sets standards

for performance and accountability to meet objectives of having a productive and supportive workforce by providing a safe workplace, modelling shared behaviours, and offering equal opportunities for all employees.

The program is linked to ARPANSA's corporate plan and is aimed at creating an inclusive environment, which respects, values and uses 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 harassment contact officers in both its New South Wales and Victorian offices whose role is to act as a source of information and support for staff. Harassment contact officers are appointed and have management support to carry out their responsibilities.

Prevention of workplace harassment and bullying

The Agency's *Respect-ARPANSA Policy for the Prevention of Workplace Harassment and Bullying* seeks to minimise harassment and bullying that may arise in the workplace. The policy provides information on the informal and formal approaches to resolving claims 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 continues to support a work environment that provides a reasonable 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 with provision to take this leave at half pay, access to purchased annual leave, 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 4 weeks, parental leave, study leave as well as a range of miscellaneous leave entitlements which can be taken with or without pay.

Employee support

Converge International is the provider of the Employee Assistance Program for ARPANSA employees in Victoria while *Davidson Trahaire Corpsych* provides a similar service for New South Wales based employees. Assistance is available to all ARPANSA employees and their immediate families with personal or work related problems that might affect their work or life. Both providers have many years of experience and are available to help employees clarify and/or resolve

issues. The program is recognised as a valuable resource for managing personal and workplace difficulties.

Carer's rooms

ARPANSA provides a carer's room in its Victorian office and has provision to arrange for a carer's room in New South Wales at short notice. The rooms provide a temporary workplace for employees to carry out as much of their normal work as possible while caring for their dependents and family members for whom care is temporarily unavailable. The rooms provide a quiet, comfortable environment for a variety of uses including a facility for nursing mothers.

ARPANSA Staff Consultative Forum (SCF)

ARPANSA's collective agreement continues to provide for a Staff Consultative Forum as the key employee consultative body. The SCF comprises employees elected by staff and officials from unions that are party to the ARPANSA agreement. New staff representatives were elected in May 2008 for a two-year term and a new Chair was nominated by those staff.

During the year, the SCF met with the CEO on four occasions to discuss a range of issues relating to the management of ARPANSA. Agenda papers and outcomes of meetings were provided to all staff.

Issues discussed included ARPANSA's study assistance scheme and graduate recruitment program, the review of the administrative area of ARPANSA's Victorian Office and the tender for the proposed refurbishment and extension of ARPANSA's Victorian office. Standing reports on the agency's finances, activities of the OH&S Committee, Work Environment Group and matters considered by the Executive Board of Management were also provided and discussed at Forum meetings with the CEO.

Workforce planning, staff turnover and retention

At 30 June 2008, ARPANSA employed 134 staff, 131 of whom were employed on an ongoing basis. These staff were divided between the agency's New South Wales (Miranda) (27.5%) and Victorian (Yallambie) offices (72.5%). More detailed information about the nature and break-up of ARPANSA's workforce, retention and turnover rates is set out in Tables 8 and 9.

ARPANSA continued to refine its workforce planning and development framework. The link between business planning and the skills and delivery requirements of the workforce continue to be strengthened and are now a crucial element of ARPANSA's business planning processes. They are used for determining capability levels and identifying short-falls between current skill levels and those required to meet ARPANSA's corporate plan.

Table 8: Staff retention and turnover 2006-07 and 2007-08

Classification	Female				Male				VARIATION		
	Ongoing		Non-Ongoing		Ongoing		Non-Ongoing		June 2007	June 2008	
	June 2007	June 2008	June 2007	June 2008	June 2007	June 2008	June 2007	June 2008	June 2007	June 2008	
SES											
Commencement	1									+1	
Separation					1					-1	
Executive Level 1-2											
Commencement	1	3			2	5			1	+3	+9
Separation	1				2	9	1			-4	-9
APS Level 1-6											
Commencement	2	5	2		2	4	1	2		+7	+11
Separation	2	2	3	3	2	5				-7	-10

Voluntary redundancy program

The Government's decision to impose an additional 2% efficiency dividend on agencies over the Forward Estimates cycle 2011-12, necessitated ARPANSA undertaking a limited voluntary redundancy program for staff interested in separating from the agency prior to 30 June 2008, aimed at reducing ARPANSA's employee expenses. ARPANSA anticipates that it will be able to minimise the effect of

consequent staff reductions through efficiencies gained from organisational re-arrangement and the re-direction of its priorities. The flow-on effect of the program when coupled with ARPANSA's Graduate Recruitment Program, and a number of external recruitment actions arising prior to the new budget measures, is expected to provide ARPANSA with the additional benefit of achieving a balanced staff age profile by refreshing its workforce.

Table 9: Inoperative staff as at 30 June 2007 and 2008

Classification	Female				Male				TOTAL		
	Ongoing		Non-Ongoing		Ongoing		Non-Ongoing		June 2007	June 2008	
	June 2007	June 2008	June 2007	June 2008	June 2007	June 2008	June 2007	June 2008	June 2007	June 2008	
SES											
										0	
Exec Level 1-2					2	2				2	2
APS Level 1-6											
										0	
Total					2	2				2	2

Training and development

Corporate learning and development

During 2007-08, ARPANSA continued to review and strengthen its corporate learning and development training framework (L&D). This review has resulted in an approach which more clearly links L&D requirements for individual staff with branch requirements and ultimately ARPANSA's corporate plan whilst also providing staff with the opportunity of furthering their own development needs.

Graduate recruitment program

The reporting year saw the introduction of an ARPANSA graduate recruitment program. In undertaking the program, ARPANSA sought to provide the three selected graduates with a series of structured learning and development opportunities. Specialised professional development through attendance at training courses, work rotations and mentoring by senior staff is also being undertaken.

The program is expected to increase the diversity and depth of talent in ARPANSA's workforce while introducing fresh ideas and attitudes. ARPANSA intends to conduct a similar recruitment process in 2009. Training sessions were held for accessing online journals, the TRIM records management system, dosimetry devices, radiation safety, gamma spectrometry, security and fraud awareness, CEI procedural rules, project management, IT risk and writing skills. These sessions were mostly also open to other staff to attend as required.

Code of Conduct

In conjunction with the Australian Public Service Commission, ARPANSA regularly provides training and information sessions to staff on the *APS Values and Code of Conduct*. ARPANSA conducts bi-annual surveys of its staff aimed at ensuring that the courses have been effective at imparting information on the Values and Code and ensuring that they are being applied effectively.

The Agency's human resources service delivery will continue to be assessed by ongoing evaluation of its 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 ongoing strengthening of harmonious industrial relations practices and procedures including workplace consultation and dispute resolution.

Productivity gains

ARPANSA Performance Development System

A significant feature of ARPANSA's people management framework is the *ARPANSA Performance Development System* which directly links the annual assessment of an individual's performance during the year with pay point advancement. The system operates as part of ARPANSA's overall

approach to performance management and integrates corporate, branch and individual performance planning and management.

The system provides a structured approach for staff and their managers to discuss, record and measure expectations. As part of the system, each employee must complete individual development plans with their manager, identify their training and development needs and consider any issues occurring in the work place.

Statistics on staffing

Remuneration, statistics and staffing profile

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

Statistics on staffing are set out in Tables 10 to 14.

Certified agreements and AWAs

During 2007-08, ARPANSA provided terms and conditions of employment for its employees under either its collective agreement or through Australian Workplace Agreements (AWAs) with individual employees.

The ARPANSA Agreement 2007–2010 which has a nominal expiry date of 30 June 2010 covers all employees of the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA)

employed under the *Public Service Act 1999* below the Senior Executive Service (SES) level and certain staff who are parties to an AWA. The salary ranges for ARPANSA's classification levels are set out in Table 15.

As at 30 June 2008, ARPANSA had 3 approved AWAs for SES employees and a further 35 for non-SES personnel. The salary range available for employees on AWAs is from \$48 212 to \$153 583. SES employees and a number of senior non-SES employees on AWAs have access to performance pay. SES employees and Branch Director equivalents also have access to a range of other non-salary benefits including a privately plated vehicle.

Collective Agreement

Following extensive negotiations with staff and their representatives during 2007, agreement was reached on the terms and conditions of employment for a new collective agreement in November 2007. A decision by the incoming Government to amend the APS Bargaining Framework which came into effect in February 2008 and changes to the *Workplace Relations Act 1996* which were effective from March 2008, meant that the *ARPANSA Agreement 2007–2010* was not lodged with the Workplace Authority until 10 April 2008.

The agreement continues to support ARPANSA staff in balancing their work and personal life and includes a competitive remuneration framework of pay and conditions. Under the

Table 10: Staff by location, gender and classification

Classification	SES	EL 2	EL 1	APS 6	APS 5	APS 4	APS 3	APS 2	APS 1	Graduate	TOTAL											
Year	Jun 2007	Jun 2008	Jun 2007	Jun 2008	Jun 2007	Jun 2008	Jun 2007	Jun 2008	Jun 2007	Jun 2008	Jun 2007	Jun 2008										
NEW SOUTH WALES																						
Female	2	1	1	5	4	3	1	1	1	2	5	3	15	17								
Male		6	5	8	9	6	5						20	19								
Total	2	2	7	6	9	14	10	8	0	1	1	2	5	3	0	0	0	0	35	36		
VICTORIA																						
Female		1	4	5	8	10	5	4	1	2	12	11	6	8					37	40		
Male	1	14	12	16	15	18	14	7	9	1	4	3						3	61	58		
Total	1	15	12	20	20	26	24	12	13	2	3	16	14	6	8	0	0	0	3	98	98	
TOTAL																						
Female	2	2	2	1	5	10	12	13	5	4	2	3	13	13	11	11				52	57	
Male	1	1	20	17	24	20	24	19	7	9	1	1	4	3				3	81	77		
TOTAL	3	3	22	18	29	34	36	32	12	13	3	4	17	16	11	11	0	0	0	3	133	134

Table 11: Staff by gender and classification

Classification	Female		Male		TOTAL	
	June 2007	June 2008	June 2007	June 2008	June 2007	June 2008
Graduate	-	-	-	3	-	3
APS Level 1	-	-	-	-	-	-
APS Level 2	11	11	-	-	11	11
APS Level 3	13	13	4	3	17	16
APS Level 4	2	3	1	1	3	4
APS Level 5	5	4	7	9	12	13
APS Level 6	12	13	24	19	36	32
Executive Level 1	5	10	24	24	29	34
Executive Level 2	2	1	20	17	22	18
SES Band 1	2	2	1	1	3	3
Total	51	57	81	77	133	134

Table 12: Full-time equivalent (FTE) staff by gender and classification

Classification	Female		Male		TOTAL	
	June 2007	June 2008	June 2007	June 2008	June 2007	June 2008
Graduate	-	-	-	3	-	3
APS Level 1	-	-	-	-	-	-
APS Level 2	9.65	9.34	-	-	9.65	9.34
APS Level 3	12.51	12.69	4	3	16.51	15.69
APS Level 4	2	3	1	1	3	4
APS Level 5	5	4	7	8.8	12	12.8
APS Level 6	11.4	12.6	22.89	17.88	34.29	30.48
Executive Level 1	5	10	23.6	24	28.6	34
Executive Level 2	2	1	20	17	22	18
SES Band 1	2	2	1	1	3	3
Total	49.56	54.63	79.49	75.68	129.05	130.31

Table 13: Staff employed under the PS Act as at 30 June 2007 and 2008

	Full-Time Ongoing		Full-Time Non-Ongoing		Part-Time Ongoing		Part-Time Non-Ongoing		TOTAL	
	June 2007	June 2008	June 2007	June 2008	June 2007	June 2008	June 2007	June 2008	June 2007	June 2008
Female	43	51	3	-	5	6	1	-	52	57
Male	76	72	2	2	3	2	-	1	81	77
Total	119	123	5	2	8	8	1	1	133	134

Table 14: Distribution of staff by Branch

Year	Female				Male				TOTAL	
	Ongoing		Non-Ongoing		Ongoing		Non-Ongoing			
	June 2007	June 2008	June 2007	June 2008	June 2007	June 2008	June 2007	June 2008	June 2007	June 2008
Office of the CEO (including Legal Support)	2	3	-	-	-	3	-	-	2	6
Environmental and Radiation Health	10	8	1	-	19	16	1	2	31	26
Medical Radiation	11	11	-	-	14	10	-	1	25	22
Non-Ionizing Radiation	2	4	1	-	19	14	-	-	22	18
Regulatory and Policy	8	13	-	-	18	20	1	-	27	33
Corporate Services	16	18	1	-	9	11	-	-	26	29
Total	49	57	3	-	79	74	2	3	133	134

Table 15: Salary ranges as at 30 June 2008

APS Classification	Salary Range (\$)
ARPANSA Graduate	50 006 – 65 128
APS Level 1	37 512 – 42 638
APS Level 2	43 917 – 48 212
APS Level 3	50 006 – 55 953
APS Level 4	57 633 – 60 223
APS Level 5	62 030 – 65 128
APS Level 6	67 081 – 76 730
Executive Level 1	82 871 – 95 351
Executive Level 2	101 264 – 114 993

agreement, staff received a 6% pay increase effective from December 2007 with further increases of 4% payable in April 2008 and April 2009. These increases and other conditions of service enhancements contained in the agreement will be funded from productivity gains flowing from the agreement including an increase in weekly working hours from 35 to 36.33hrs.

Australian workplace agreements

During 2007-08, all ongoing senior executive service (SES) employees and Branch Directors below the SES level had remuneration arrangements agreed through individual Australian Workplace Agreements (AWAs). AWAs were also offered to other employees on a case-by-case basis. Remuneration for employees on AWAs is based on ensuring that employees are rewarded according to the specialist skills and knowledge they bring to the Agency and how much they assist the Agency to meet its corporate goals. AWAs are structured to ensure that the remuneration arrangements are flexible and in so doing, assist in recruitment and retention of these specialist staff.

Changes to the *APS Bargaining Framework* and the *Workplace Relations Act 1996* mean it is no longer possible for agencies to enter into AWAs with employees. As a consequence, ARPANSA is considering alternative arrangements for determining individual remuneration arrangements, where these may continue to be appropriate.

Non-Salary Benefits

- Flexible working arrangements, including flextime, job-sharing, part-time and home based work;
- Provision for leave, including annual 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; and
- Airline club membership when travelling overseas.

Performance pay

The remuneration and allowances of senior executive service officers of ARPANSA are covered by Australian Workplace Agreements in force as at 30 June 2008.

The remuneration of ARPANSA's senior executives is reported in the Financial Statements at Appendix 10.

The number of APS employees at each classification level who received performance pay:

- SES Band 1: 3
- Non- SES: 9

The aggregated amount of performance pay for the Agency as a whole year was \$174 500.

The average bonus payment was \$14 542.

Commonwealth Disability Strategy

The *Commonwealth Disability Strategy* is taken into account in ARPANSA's forward-planning and corporate planning processes.

Assets management

ARPANSA manages non-financial assets totalling \$16.4 million. The major categories are land and buildings and infrastructure plant and equipment. ARPANSA's capital investment plan is reviewed annually to ensure on-going building maintenance and renovation; equipment purchases and IT infrastructure upgrades meet future research and operational requirements.

Purchasing

ARPANSA's purchasing policies are outlined in the *Chief Executive's Instructions* and associated procedural rules, and reflect the principles of the *Commonwealth Procurement Guidelines – January 2005* (CPGs). Procurement activities for the year, complied with the policies and principles outlined in the CPGs.

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

An *Annual Procurement Plan for 2007-08* has been prepared and published on the AusTender website in June.

Consultants

During 2007-08, nine new consultancy contracts were entered into involving total actual expenditure of \$322 401. In addition, four ongoing consultancy contracts were active during the 2007-08 year, involving total actual expenditure of \$217 906.

The Agency policy on selection and engaging 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; and
- 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 selection from a panel or direct engagement of a recognised or pre-eminent expert (refer Table 16).

Information on expenditure on contracts and consultancies is also available on the AusTender website www.tenders.gov.au.

Table 16: Consultancy services let during 2007-08, of \$10 000 or more

Consultant Name	Nature/Purpose of Consultancy	Contract Price (inc GST)	Selection process ¹	Justification ²
Bloom IT Consulting	RFT for National Sealed Source Register preparation & preparation & facilitation of national workshops	\$96 525 ³	Direct Sourcing	B
Oakton AA Services Pty Ltd	Evaluation of tender responses for IT Business Continuity Infrastructure	\$19 180	Direct Sourcing	B
Dr SA Harbison	Report preparation - Nuclear Safety	\$23 547	Direct Sourcing	C
UNSW Global Pty Ltd	Review of ANSTO Submission	\$13 673	Direct Sourcing	C
Couch and Associates Pty Ltd	Implementation review - National Directory for Radiation Protection	\$60 928	Open Tender	B
Queensland Institute of Medical Research	Provision of advice on Solaria	\$27 500	Direct Sourcing	B
Votar Partners	Preparation of specification and evaluation of tender for Clinical Linear Accelerator	\$26 125	Direct Sourcing	B
Quality Management Solutions	Investigation	\$32 923	Direct Sourcing	C
The Allen Consulting Group	Regulatory Impact Statement - ELF Standard	\$22 000	Panel	B
TOTAL		\$322 401		

- (1) Explanation of selection process terms 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. Public tenders are sought from the marketplace using national and major metropolitan newspaper advertising and the Australian Government AusTender internet site.
- Select Tender*: A procurement procedure in which the procuring agency selects which potential suppliers are invited to submit tenders. Tenders are invited from a short list of competent suppliers.
- Direct Sourcing*: A form of restricted tendering, available only under certain defined circumstances, with a single potential supplier or suppliers being invited to bid because of their unique expertise and/or their special ability to supply the goods and/or services sought.
- 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 arrangements. Tenders are sought from suppliers that have pre-qualified on the agency panels to supply to the government. This category includes standing offers and supplier panels where the consultant offers to supply goods and services for a pre-determined length of time, usually at a pre-arranged price.
- (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
- (3) The original contract price was exceeded by \$25 025 as the consultant was asked to perform additional works not foreseen at the time of contracting.



Appendices



Appendix 1: Occupational health and safety

Internal Audit of OH&S Management

A review of ARPANSA's OH&S management system was undertaken by internal audit in May 2007. Included in the scope of the audit was an examination of progress towards finalising implementation of recommendations from the Comcare inspection in 2006.

The review found that ARPANSA's OH&S policies and procedures were well defined and that an effective management system was in place.

OH&S inspections

The OH&S Committee conducted OH&S inspections of all work areas within ARPANSA. The inspections resulted in a number of corrective action requests being issued which were addressed by each Branch.

OH&S measures undertaken through the Committee include:

- implementation of recommendations from internal audit of OH&S in May 2007;

- review of health and safety policies and operating procedures; and
- development of Health and Safety Management Arrangements.

The Radiation Safety 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) which came into effect from March 2006, the OH&S Agreement negotiated with the unions was replaced by Health and Safety Management Arrangements.

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: Ecologically sustainable development and environmental performance

The object of the *ARPANS Act* is to protect the health and safety of people and to protect the environment, from the harmful effects of radiation. In accordance with the Act, ARPANSA takes into account the radiological impact on the environment in assessing licence applications from Commonwealth entities and their contractors.

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:

- complying with relevant Commonwealth and state environment legislation and with the Australian Government's environmental policies and initiatives;
- implementing a continually improving standard of environmental performance and provide an environmentally sound workplace;
- striving to develop an environmentally responsible culture across the agency by providing appropriate resources and training to build awareness and support initiatives;
- integrating environmental, social and economic considerations in its decision making including decisions

on purchasing, in contracting for goods and services and in any building work it undertakes;

- encourages openness, transparency and improved accountability by reporting its environmental management annual reports and engaging with the community; and
- implementing and maintaining an Environmental Management System aligned with the ISO 14001 Standard.

The Environmental Management Committee is tasked with overseeing and guiding the development and implementation of the ARPANSA Environmental Management Strategy. It works closely with ARPANSA's Corporate Property Manager to ensure the development of environmental sustainability procedures and to support improved productivity and efficiency across the organisation and has:

- participated in the Commonwealth's review of the energy efficiency of Government Laboratories;
- reported on ARPANSA's energy consumption in accord with the Energy Efficiency in Government Operations Policy;
- introduced a long term maintenance and sustainability program for the ARPANSA garden to support the local shire's Wildlife Corridor Program which has seen the planting of indigenous flora, maintenance of the local creek and removal invasive weeds; and
- introduced water saving measures in wet chemistry laboratories.

Appendix 3: 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 Australian Radiation Protection and Nuclear Safety Act, 1998 (ARPANS Act). The office of the CEO of ARPANSA is created under that Act.

The CEO of ARPANSA is tasked with 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 Contractors¹, 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; and
- 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 Council and Committees also engage in public consultation in relation to matters under its consideration.

ARPANSA officers are available to address inquiries from members of the public regarding any of ARPANSA's activities. Information brochures on particular topics are available on request, free of charge or on the ARPANSA internet website.

State and territory government arrangements

All states and territories are represented on ARPANSA's Radiation Health Committee. In addition, ARPANSA supports and contributes to

regular meetings of other radiation regulatory authorities. Reports prepared 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.

Australian Government Arrangements

ARPANSA communicates with other Australian Government departments and agencies as required.

Categories of documents held

Available on request

- ARPANSA's quarterly and annual reports to Parliament;
- Technical fact sheets; and
- Information about ARPANSA's activities.

Documents relating to the decision making process

- decisions and directions of the CEO
- memoranda recommending decisions
- deeds
- legal contracts and formal arrangements, such as Memorandum of Understanding
- minutes and submissions
- applications

- documents used by ARPANSA to assess applications
- 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.

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, PO Box 650, MIRANDA NSW 1490 or by email to info@arpansa.gov.au.

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; and
- ensure that \$30.00 accompanies the request.

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.

ARPANSA Branch Directors 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 the applicant.

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

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

¹ As defined under section 13 of the ARPANS Act.

Appendix 4: 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; and
- 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 2007-08 are provided in Table 17.

Table 17: Legal services expenditure by ARPANSA for 2007-08

Legal service	Expenditure (inc. GST)
Agency's total legal services expenditure	\$321 485
Agency's total external legal services expenditure	\$45 391
External expenditure on solicitors	\$34 305
External expenditure on counsel	\$11 086
Other disbursements on external legal services	-
Agency's total internal legal services expenditure	\$276 094

Appendix 5: Advertising and Market Research

ARPANSA did not commission any work from creative advertising agencies, market research organisations, polling organisations or direct mail organisations. During 2007-08 total expenditure on

advertising and public notices amounted to \$167 046 (inclusive of GST).

Details of payments of \$10 500 and above (inclusive of GST), as required under section 311A of the *Commonwealth Electoral Act 1918*, are contained in Table 24 .

Table 18: Details of payments of \$10 500 and above (inclusive of GST) for advertising and public notices during 2007-08

Organisation	Purpose	Expenditure
HMA Blaze Pty Ltd	Tender and recruitment advertising	\$167 046
Total expenditure over \$10 300		\$167 046

Appendix 6: ARPANSA licensing activities

Table 19: Licence applications received during 2006-07

Received from	Type of licence application
ANSTO - Bragg Institute	Source (S171)
ANSTO - Institute of Environmental Research	Facility (A0200)
ARPANSA Medical Radiation Branch	Facility (A0195)
ASC Pty Ltd	Source (A0190)
Attorney General's Department	Source (A0188)
Attorney General's Department	Source (A0189)
Australian Customs Service	Facility (A0187)
Australian National University	Source (S0027)
Australian War Memorial	Source (A0194)
CSIRO - Human Nutrition	Source (S0038)
Department of Foreign Affairs and Trade	Source (A0196)
Department of Health and Ageing - Mersey Hospital	Source (A0191)
Department of Infrastructure, Transport, Regional Development and Local Government	Source (A0199)
Note Printing Australia	Source (S0833)
Pet Net Australia Pty Ltd	Facility (A0201)

Table 20: Source licences as at 30 June 2008

Commonwealth entity	Licences held
Australian Nuclear Science and Technology Organisation (ANSTO)	2
Australian Radiation Protection and Nuclear Safety Agency (ARPANSA)	3
Australian Customs Service	1
Australian Defence Force/Department of Defence	1
Australian National University	1
Australian Quarantine and Inspection Service (AQIS)	1
Commonwealth Scientific and Industrial Research Organisation (CSIRO)	19
Single entities (various)	33
Total number of licences	61

Table 21: Licences issued and amended during 2007-08

Licence holder	Licence amended
ANSTO	Source (S0045)
Australian National University - Research School of Physical Engineering	Source (S0027)
Attorney General's Department	Source (S0188)
Attorney General's Department	Source (S0189)
Australian Customs Service	Facility (F0187)
Australian Customs Service	Source (S0092)
Australian Submarine Corporation Pty Ltd	Source (S0033)
CSIRO - Food Science Australia	Source (S0023)
CSIRO - Forest Biosciences	Source (S0023)
CSIRO - Human Nutrition	Source (S0038)
Department of Environment and Water Resources - Australian Antarctic Division	Source (S0008)
Department of Health and Ageing - Mersey Hospital	Source (S0191)
National Museum of Australia	Source (S0077)
Note Printing Australia	Source (S0033)

Table 22: Facility licences as at 30 June 2008

Commonwealth entity	Licences held
Australian Customs Service	6
Australian National University	3
Australian Nuclear Science and Technology Organisation (ANSTO)	19
Australian Radiation Protection and Nuclear Safety Agency (ARPANSA)	1
Commonwealth Scientific and Industrial Research Organisation (CSIRO)	1
Department of Defence	5
Department of Environment, Heritage and the Arts - Parks Australia North	1
Department of Resources and Energy - Maralinga	1
Total number of licences	37

Table 23: Licences surrendered during 2007-08

Licence holder	Licence surrendered
Australian Communications and Media Authority	Source (S0172)
Australian Customs Service	Facility (F0162)

Table 24: Announced inspections conducted during 2007-08

Licence Holder	Licence No	Location
ANSTO	F0157	OPAL Reactor, LHSTC, Sydney
	F0044-6A	MOATA, LHSTC, Sydney
	F0157	CERCA, France
	F0044-4A	HIFAR Reactor, LHSTC, Sydney
ANSTO – ARI	F0044-5A,5B,5C	Building 23 – High Activity LRT Unloading Facility Lucas Heights Science and Technology Centre, Menai NSW
	F0044-5A,5B,5C	
ANSTO – fuel operations	F00044-4C	Lucas Heights Science and Technology Centre, Menai NSW
ANSTO – HIFAR	F0044-4A	Lucas Heights Science and Technology Centre, Menai NSW
ANSTO – OPAL reactor	F00157	Lucas Heights Science and Technology Centre, Menai NSW
ANSTO – radiotracer facility	F0044-7B	Lucas Heights Science and Technology Centre, Menai NSW
ANSTO – waste operations	F00044-4B	Lucas Heights Science and Technology Centre, Menai NSW
ANSTO – Institute of Environmental Research	F0134	2MV STAR Accelerator, LHSTC
	F0044-6Ba	ANTARES Accelerator, LHSTC
	F0044-6Bb	3MV Van de Graaff Accelerator, LHSTC
ANSTO – Radiopharmaceutical Research Institute	F0044-5A,5B,5C	Buildings 19 and 76 Research & Development Laboratories, LHSTC
ANU	F0073	Rutherford Backscatter Accelerator, Canberra, ACT
	F0074	Heavy Ion Accelerator, Canberra, ACT
	F0075	High Energy Implanter, Canberra, ACT
ANU – John Curtin School of Medical Research	S0027	Acton Campus, Canberra, ACT
ANU – Research School of Biological Sciences	S0027	Acton Campus, Canberra, ACT
ANU – Research School of Physical Sciences and Engineering	S0027	Acton Campus, Canberra, ACT
Australian Customs Service	F0125	Matraville Container Examination Facility NSW
	F0155	Fremantle Container Examination Facility, WA
	S0092	Sydney Gateway Facility NSW
	S0092	Fremantle Pallet X-ray Unit, WA
	F0156	Pallet X-ray facility, Osborne, SA
	S0092	Pallet X-ray unit, Brisbane, QLD
	F0136	Container Examination Facility, Brisbane, QLD

Table 24: Announced inspections conducted during 2007-08 (continued)

Licence Holder	Licence No	Location
Australian Federal Police	S0056	Perth Airport, WA
	S0056	Adelaide Airport and Currie Street office, Adelaide, SA
Australian War Memorial	S0080	Canberra, ACT
CSIRO – Entomology	S0017	Black Mountain, Canberra, ACT
CSIRO – Exploration and Mining	S0061	QCAT, Brisbane, QLD
CSIRO – Forest Biosciences	S0054	Hobart, TAS
	S0054	Clayton, VIC
CSIRO – Industrial Physics	S0105	Canberra Deep Space Communication Complex
CSIRO – Land and Water	S0009	Black Mountain, Canberra, ACT
CSIRO – Materials Science and Engineering (formerly Industrial Physics)	S0105	Lindfield, NSW
CSIRO – Materials Science and Engineering (formerly Manufacturing and Materials Technology)	S0066	Clayton, VIC
CSIRO – Minerals	S0064	Lucas Heights, NSW
	S0064	Clayton, VIC
CSIRO – Molecular Health and Technologies	S0016	Clayton, VIC
Department of Defence	F0117	Edinburgh Storage Facility SA
	F0084	Woomera Storage Facility SA
	S0042	Derwent Barracks, Hobart, TAS
	S0042	79 Squadron, RAAF Pearce, WA
	S0042	Base Armament Unit, RAAF Pearce, WA
	S0042	Airflite Pearce, RAAF Pearce, WA
	S0042	Facility Support Unit, HMAS Stirling, WA
	S0042	Special Air Service Regiment, Campbell Barracks, WA
	S0042	DSTO, Fisherman's Bend, Vic
S0042	Joint Proof and Experimental Unit, Graytown, Vic	
Department of Foreign Affairs and Trade	S0079	Canberra, ACT

Exemptions from the requirement for licensing

The CEO has the power pursuant to both paragraph 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 2 exemption decisions:

- exemption for ARPANSA under regulation 37 of the ARPANS Regulations in relation to the activity of preparing a site for and constructing a prescribed radiation facility being a linear accelerator; and
- exemption for ANSTO under regulation 37 of the ARPANS Regulations in relation to preparation of a site for two prescribed radiation facilities being Twin Cyclotrons (PET NET facility).

Transport of Radioactive Material

The CEO of ARPANSA, as the competent authority under the *Code of Practice for the Safe Transport of Radioactive Material* for transport of radioactive material by road and rail. Decisions made during the reporting year were:

- validation of a type B(U) package for transport of fresh fuel of OPAL;
- design approval for a type B(U) package for transport of radioactive material;
- four approvals of transport of fresh nuclear fuel from Sydney Airport to ANSTO in five separate shipments; and
- approval of shipment of a Co-60 Gamma Irradiator from Sydney University to ANSTO under special arrangements.

Appendix 7: Radiation Health and Safety Advisory Council Triennium Report

Introduction

The Council was established in 1999 under the *ARPANS Act 1998* with the following functions:

- (a) to identify emerging issues relating to radiation protection and nuclear safety and to advise the CEO on them;
- (b) to examine matters of major concern to the community in relation to radiation protection and nuclear safety and to advise the CEO on them;
- (c) to advise the CEO on the adoption of recommendations, policies, codes and standards in relation to radiation protection and nuclear safety;
- (d) to advise the CEO, at the CEO's request, on other matters relating to radiation protection and nuclear safety;
- (e) to advise the CEO on such other matters relating to radiation protection and nuclear safety as the Council considers appropriate;
- (f) to report to the CEO on matters relating to radiation protection and nuclear safety.

Members were appointed in October 2005 for a term of 3 years. For the 2005-08 triennium, Council membership was:

Chair: Ms Sylvia Kidziak AM (NSW)

CEO: Dr John Loy (NSW)

Person to represent the interests of the general public:

Em. Professor Cliff Walsh (SA)

[to 16 June 2006]

The Hon. Trish Worth (NSW)

[from 24 July 2006]

State Radiation Control Officers:

Mr Andrew Johnston (SA EPA)

Mr Simon Critchley (QLD Dept of Health)

Nominee of the Chief Minister of NT:

Mr Ian Lancaster (NT)

Up to 7 other Members:

Dr Graeme Dickie (QLD)

Dr Peter Jezukaitis (SA)

[resigned 29 April 2008]

Dr Arthur Johnston (QLD)

Prof Peter Johnston (VIC)

Em. Professor Ian Lowe AO (QLD)

Mr Ian Sawyer (WA)

Prof Richard Smart (NSW)

Council advice to CEO of ARPANSA

Council held 9 meetings, and established a number of working parties during the triennium. The Chair held regular meetings with the CEO and senior officers of ARPANSA. A wide range of radiation protection and nuclear safety issues were discussed, followed by substantive reports. Senator The Hon Brett Mason, then Parliamentary Secretary for Health, attended part of the August 2007 meeting.

In particular, Council provided advice to the CEO on a range of significant issues. In each case a copy of the

Council's advice has been made available to the public and other interested parties via the ARPANSA web site.

Radiation Protection Issues in Medicine

At the request of the CEO, Council prepared advice on emerging issues in medical radiation protection. This advice was forwarded to the CEO in September 2005 and included a number of broad-ranging recommendations. The CEO responded at the April 2006 meeting. ARPANSA's Dr John Baldas, Director, Medical Radiation Branch and Dr Julian Thomson, Manager, Medical Physics attended the April 2006 meeting for discussion on this item. The CEO informed Council of ARPANSA's traditional roles in medical radiation protection, including 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 radiopharmaceuticals, with TGA; and the development of Codes and Standards. The CEO noted that these traditional roles must continue, however any increased engagement with the professions would require new resourcing. The CEO informed Council that all of the recommendations were supported, subject to resource issues in some cases. Council's advice and the CEO's response were placed on the ARPANSA web site.

At a later meeting Council was briefed on more recent developments of interest and agreed to keep medical radiation on its forward plan for future discussion. The Chair had established a standing item for Council meetings wherein members can indicate new matters that should be considered by Council either immediately or in the future. In April 2008 Council noted the proposal to establish a working group consisting of the RHC, ARPANSA and the RANZCR to discuss implementation issues with the new Medical Code of Practice, including diagnostic reference levels.

ARPANSA held a National Conference on Radiation Protection in Medicine in Melbourne on 3 October 2007 open to a range of interested parties to review draft copies of the draft Code of Practice for Radiation Protection in the Medical Applications of Ionizing Radiation and the three associated Safety Guides. The Chair addressed the conference providing advice on Council's role in the code development.

Issues Relating to the Safety and Development of Nuclear Power Plants (NPP)

The CEO requested Council undertake a high level review of the international position on safety issues in the operation of NPP, to contribute to debate on the issue. It was proposed that Council produce a summary review of a type similar to the tabled letter from the International Nuclear Safety Advisory Group (INSAG) to the IAEA, but from an Australian

perspective. Council noted that the CEO did not expect the task to include other aspects of the nuclear fuel cycle, such as enrichment, and wanted a document that concentrated on Australia's interests but taking account of the international context. Dr Sam Harbison, former Chief Nuclear Inspector in the UK, and current member of INSAG, was engaged as a consultant to assist Council with this project. The Chair held a number of teleconferences with Dr Harbison throughout the project. The Chair of the Nuclear Safety Committee also participated in Council's review, and the Chair of Council attended the NSC meeting on 26 October 2007 to provide a briefing on Council's work. A final letter to the CEO was forwarded on 14 December 2007. At the April 2008 meeting the CEO informed Council that its advice is very helpful particularly in assisting the public to grasp the issues relating to the safety of nuclear power plants.

Review of National Directory for Radiation Protection (NDRP)

Council received a letter from the Chair of the Radiation Health Committee (RHC), advising that a review to evaluate the effectiveness and efficiency of the NDRP, edition 1, after 3 years of its operation was required. RHC felt that it would be appropriate if Council carried out the review independently. Council agreed to this request and a consultant was contracted to distribute a questionnaire developed by Council to all

jurisdictions, and to analyse and report on the results. The Chair briefed the consultant who attended the April 2008 meeting to present his report and conclusions. Council concluded that the NDRP is an effective and pragmatic document that has provided a catalyst for changes to improve uniformity, and that much progress has been made by jurisdictions. Council also recognises that more efficient regulatory processes for improving uniformity may be developed in the future.

Council's advice to the CEO concluded that the intention of the NDRP is not to have uniform legislation, only uniform outcomes. The Codes supporting the NDRP are also an important part of the uniformity process. Council regards the NDRP as a valuable document used by jurisdictions to guide their regulatory approach. The NDRP also gives weight to approaches to government requesting regulatory change.

Council identified the time frame to produce NDRP changes as a major concern. Council also notes that regulatory impact assessment requirements have changed since publication of the NDRP, and that this had contributed to extending the timelines in producing amendments to NDRP. Council has now been informed of action agreed by RHC to overcome this difficulty. Council understands the NDRP process will now provide for items to be progressed as individual amendments rather than compiled into a consolidated edition, thereby allowing straightforward items to progress quickly and not be held up by

items requiring more complex regulatory impact assessment. Council supports these process changes in the future development of NDRP.

Safety of Intermediate Level Radioactive Waste Management

At the April 2008 meeting, the CEO requested Council review recommendations 3 and 9 of its 2002 advice regarding:

- a long-term strategy for long-lived intermediate level waste (LLILW), and
- contributing to the development of a spent fuel management strategy for Australia

in light of current developments both in Australia and internationally. The CEO also requested advice as to how ARPANSA should proceed in preparing regulatory guidance and advice to Government about the longer-term management and disposal of Australia's long-lived intermediate level waste.

At its August 2008 meeting, which was also attended by an ANSTO representative, Council examined a range of recent international guidance documents and drafts, including classification of waste, requirements for disposal of radioactive waste, borehole disposal and pre-disposal management. Council also discussed a review of waste management approaches in overseas countries including Austria, Canada, Finland, France, Netherlands, Norway, Sweden, United Kingdom, and USA. The

Support Action: Pilot Initiative for European Regional Repositories was also considered.

Australian information reviewed included Australia's LLILW inventory, the nuclear waste conditions from the Department of Environment and Heritage's Environment Assessment Report – Proposed Replacement Nuclear Research Reactor at Lucas Heights (Feb 1999) and the work of the Radiation Health Committee to prepare an Australian document on classification of waste. Council concluded that there was a need for regulatory guidance on management and disposal of LLILW, and would report to the CEO prior to the end of its current term of office in September 2008 on its progress on this issue, including advising on possible further work for the incoming Council.

Adoption of codes and standards

During the triennium, Council advised the CEO to adopt the following Codes and Standards developed by the Radiation Health Committee:

RPS2 Code of Practice for the Safe Transport of Radioactive Material (2008)

RPS10 Code of Practice and Safety Guide for Radiation Protection in Dentistry (2005)

RPS11 Code of Practice for Security of Radioactive Sources (2007)

RPS12 Radiation Protection Standard for Occupational Exposure to Ultraviolet Radiation (2006)

RPS13 Code of Practice and Safety Guide for Safe Use of Fixed Radiation Gauges (2007)

RPS 14 Code of Practice for Radiation Protection in the Medical Applications of Ionizing Radiation (2008)

RPS 2.1 Safety Guide for the Safe Transport of Radioactive Material (2008)

RPS 14.1 Safety Guide for Radiation Protection in Diagnostic and Interventional Radiology (2008)

RPS 14.2 Safety Guide for Radiation Protection in Nuclear Medicine (2008)

RPS 15 Safety Guide for Management of Naturally Occurring Radioactive Material (2008)

RPS 16 Safety Guide for Predisposal Management of Radioactive Waste (2008).

Other issues considered

Uranium Mining Processing and Nuclear Energy review (UMPNER)

Dr Ziggy Switkowski, Chair of UMPNER announced by the Prime Minister on 6 June 2006, and Mr Tim Kahn from the UMPNER Secretariat attended Council's August 2006 meeting to seek input on review matters. A detailed discussion with Dr Switkowski covered a range of issues including public involvement in any future developments.

Engagement with State/Territory Regulatory Bodies

The Chair initiated a policy of greater engagement with regulators in all jurisdictions, and arranged to hold one meeting per year outside of Melbourne and Sydney to allow attendance at Council meetings by senior agency officers from the applicable regulatory bodies for discussion of local radiation protection issues and developments. This opportunity was welcomed by the regulators. During this triennium, Council met with officers from NSW, Queensland, South Australia and Victoria.

The meeting in Queensland included a visit to the Royal Brisbane & Women's Hospital nuclear medicine and security departments, and a briefing on a major radiology reform project which included state of the art PET/CT scanning equipment.

The meeting in South Australia included attendance at BHP Billiton offices for discussion with the Project Manager and presentations by senior staff on the Olympic Dam Expansion Project. At the Council meeting held in Adelaide a briefing was given to Council on a dose reduction in CT scanning project undertaken at Flinders Medical Centre. At the meeting with Victorian representatives, Council discussed the new Victorian Act and Regulations, the challenges facing regulatory agencies and the national uniformity process. Council has found the meetings with jurisdictions to be extremely productive for both the

Council and jurisdictions and plans to continue with meetings in other jurisdictions in the next triennium.

Naturally Occurring Radioactive Material (NORM)

At the November 2005 meeting, the CEO responded to Council's advice on naturally occurring radioactive material (NORM), which included a number of recommendations. He noted it was time to move forward on the safe management of NORM, and to work co-operatively with industry and State/Territories to achieve national uniformity, with regulation not necessarily the endpoint. There was also a need for consistency with international frameworks. A NORM stakeholder group was also proposed to be established, along with a web page to be used as a resource for NORM information. Council noted that consultation and communication were important, awareness raising needed to be carried out in a non-threatening way, and there needed to be consistency in regulation and terminology. Council noted that information on risk was sparse in relation to NORM and needed some development. Council recommended that the CEO adopt a Safety Guide prepared by the Radiation Health Committee on NORM management.

International Regulatory Review Service

The Chair of Council met with members of the IAEA Integrated

Regulatory Review Service (IRRS) mission to review ARPANSA's regulatory performance. The Chair provided advice on the role of Council, its operation, engagement with ARPANSA and the process for uniformity, particularly with regard to the National Directory for Radiation Protection. Council was later briefed on the Review report's findings and ARPANSA's response to the findings. Council noted that the Review outcomes identified the national uniformity process as a good practice.

Council briefings

Council was provided with reports on progress of several major projects. In particular, the application for an operating licence for the replacement research reactor (OPAL) Council also received briefings from ANSTO and undertook a site visit in December 2006 to OPAL, the waste management area and the molybdenum production area. At the August 2006 meeting, the CEO discussed his decision to issue the operating licence to ANSTO, and the issues that were important in consideration of the application. Proposals in relation to the shutdown, 'care and maintenance', and future decommissioning of the HIFAR reactor were also discussed. Council was also kept informed of issues related to the shutdown of the OPAL reactor, including the leakage of water causing dilution of the heavy water, and movement of the fuel plates within the fuel assemblies.

Council received briefings on major international developments and publications on radiation protection. These included recent studies on the effects of low doses of ionizing radiation from the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR), the National Commission on Radiation Protection and Measurements, the National Academy of Sciences Biological Effects of Ionizing Radiation VII Report and a number of studies of specific populations. The UNSCEAR 2000 Report concluded that even at low doses there was a risk of developing cancer, and that analysis of the data produced a linear relationship between low doses of radiation and tumorigenesis.

Council also discussed the 2007 Recommendations of the International Commission on Radiological Protection (ICRP) and the implications for Australia, both during development of the ICRP Recommendations (August 2006 and December 2006) and after their completion in at the December 2007 meeting.

Mr Pat Davoren, Director, Radioactive Waste Management, Department of Education, Science and Training, addressed Council on the progress of the Commonwealth Radioactive Waste Facility.

Mr David Tredinnick, Manager, Policy and Source Security Unit, ARPANSA, gave presentations to Council covering ARPANSA's work and international developments in relation to the security

of sources. He described the background and content of the National Source Security Strategy, including a Code of Practice for the Security of Sources. Council noted that legislative change would be necessary in some jurisdictions to give regulators coverage over security in addition to radiation safety.

Council also received a briefing on the establishment and role of the Australian Federal Police Chemical, Biological, Radiological and Nuclear Data Centre from Dr George Koperski, the development of a draft ELF Standard from Professor Andrew Wood, the working group chair, and from various ARPANSA officers on:

- the health effects of the Chernobyl reactor accident – 20 year review;
- international developments on NORM, including 2 conference reports;
- the ARPANSA Standard on occupational exposure to ultraviolet radiation;
- international radiation protection developments from IAEA committees and publications;
- progress in the further development of the National Directory for Radiation Protection;
- the earthquake in Japan in the vicinity of the Kashiwazaki Kariwa nuclear power station;
- the Research Reactor Conference held in Sydney in November 2007;
- the National Forum on the Impact of Regulating Solaria held on 20 November 2007;

- the public health response to the polonium-210 poisoning incident in London; and
- the proposed Safety Guide for Radiation Protection in Diagnostic and Interventional Radiology.

General Matters

The Chair responded to various correspondence including reports claiming a link between artificial light at night and the increased incidence of breast cancer in developed parts of the world. Council agreed that it should continue to review literature on this topic

The Chair participated in ARPANSA's review of regulatory processes by chairing a working party to discuss ARPANSA's response to the ANAO audit report.

The CEO consulted Council on appointments to the Radiation Health Committee and Nuclear Safety Committee during the triennium.

Summary

During this triennium Council has discussed and provided advice on a wide range of radiation protection and nuclear safety issues addressing all of its functions stipulated in the *ARPANSA Act 1998*.

The Chair initiated procedures to ensure Council was alerted to any new international and domestic developments in radiation protection and nuclear safety. These included a process for direct communication with the jurisdictions where various jurisdictional representatives and other experts were invited to attend Council meetings to provide briefings and engage directly with the work of Council.

A plan was also developed to address issues for future consideration by Council during the course of its regular meetings.

Appendix 8: Operations of the Radiation Health Committee and Nuclear Safety Committee

Operations of the Radiation Health Committee

The Radiation Health Committee (RHC) met on 18-19 July 2007, 21-22 November 2007 and 12-13 March 2008. 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. Mr Kym Trask, replacing Dr George Koperski as the radiation control officer representing the ACT, was appointed to the Committee in July 2007. Mr Robin Chapple, representing the interests of the general public, resigned from the Committee in November 2007 because he was standing for election to Parliament. He was appointed to the Committee again in December 2007.

During the reporting year the RHC decided on a different approach to the development of the *National Directory for Radiation Protection* (NDRP). The Committee agreed that it would be preferable to develop separate amendments to the NDRP, rather than a consolidated second edition. This would enable straightforward items to progress quickly, and not be held up by amendments requiring more complex regulatory impact analysis.

The proposed process for the future development of the NDRP would entail:

- amendments to the NDRP developed as individual proposals, similar in format to Statutory Rules used to amend regulations;
- when necessary, Regulatory Impact Statement requirements for NDRP amendments would also be met separately for each amendment; and
- the NDRP will be maintained on ARPANSA's web site.

Draft amendment No.1 to the NDRP is the inclusion in the NDRP of eight Codes and Standards published since NDRP Edition 1. This draft amendment was sent to the AHMAC Secretariat for out of session agreement to forward to Minister for approval.

Draft amendment No. 2 to the NDRP, containing provisions for exemptions and exclusions of radioactive material along with a preliminary impact assessment which demonstrated that the amendment did not have a regulatory impact, was released on 2 May 2008 for public comment until 13 June 2008. A final version will be prepared for the RHC meeting in July 2008. Further amendments on user disposal of low level radioactive waste, lasers and intense pulsed light source use on humans, and solaria are in preparation.

A Radiation Health Committee (RHC) *Statement on the Application of the Occupational Exposure Limits for First Responders in Emergencies Involving*

Radiation was published in July 2007. The purpose of the statement is to clarify the meaning of occupational exposure to radiation and the application of the occupational exposure limits for first responders in an emergency involving radiation.

A RHC Statement on the *Factors to Consider when Selecting a Radioactive Source* was published in June 2008.

The purpose of the statement is to assist both regulators and prospective users as part of a decision about purchase of a radioactive source, including an assessment of alternatives to using radioactivity.

The RHC considered and approved a document development plan proposing that a safety guide be developed for the use of radiation in schools to replace the National Health and Medical Research Council Radiation Health Series (RHS) Publication No. 19, *Code of Practice for the Safe Use of Ionizing Radiation in Secondary Schools (1986)*, and RHS Publication No. 36, *Code of Practice for the Safe use of Lasers in Schools (1995)*. The working group developed and circulated a first draft of the ionizing radiation element of the safety guide to teachers for comment in November and December 2007. A revised draft will be presented to the Committee at its July 2008 meeting. The part of the Safety Guide on lasers is still to be developed.

The RHC considered a review of the suitability of the draft *Code of Practice for the safe use of radiation in veterinary science*. The draft has now

been updated and revised to mirror, where relevant, recent changes to the *Code of Practice for Radiation Protection in the Medical Applications of Ionizing Radiation*. A working group has been established to develop a Safety Guide to accompany the veterinary code.

The RHC also considered matters in relation to:

- a proposal by Government Skills Australia to develop competency standards in radiation safety to address the skills shortage in radiation protection;
- a review of regulation in the uranium mining industry;
- the use of the IAEA First Responder Manual in Australia;
- the role and functions of the Australian Chemical, Biological, Radiological and Nuclear Data Centre ; and
- strategies for the management of Australia's legacy radium wastes.

National uniformity.

At each meeting, the RHC 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.

Operations of the Nuclear Safety Committee

The Nuclear Safety Committee advises the CEO of ARPANSA on key nuclear safety issues that arise for his consideration.

The Committee met four times during the year, on 26 October 2007, 25 January 2008, 21 February 2008 and 20 June 2008. The meetings of October, January and June were held at Miranda and the February meeting was held at Yallambie. Meeting summaries were posted on the ARPANSA web site. The Committee also visited the OPAL Reactor and the Bragg Institute at ANSTO before the October meeting and the Australian Synchrotron at Clayton before the February meeting.

The meeting of January 2008 was an extraordinary meeting with the sole purpose to discuss the submission received from ANSTO in relation to the modified design of the OPAL fuel

assembly that is discussed at pp 51. The CEO asked the Committee to provide comment on the ANSTO proposal for the redesign of the OPAL fuel assemblies following the incident and several Members provided comment, which was formally sent to the CEO as a consolidated work in May 2008.

Another significant issue considered by the Committee was the ANSTO application for a facility licence authorising it to possess or control the HIFAR reactor. The key issues for the Committee's consideration was ANSTO's plans for preparing the HIFAR reactor for decommissioning following a period of 'safe enclosure', the subject of this facility licence application. The Committee provided initial advice to the CEO on the facility licence application which was referred to ARPANSA regulatory officers for consideration as part of the overall ARPANSA review.

Appendix 9: Publications

Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) 2008. *Code of Practice for Radiation Protection in the Medical Applications of Ionizing Radiation*, Radiation Protection Series No 14.

Davey R.X., Leong Y.C., Javorniczky J. and Fullinfaw R.O. Porphyria Cutanea Tarda at The Royal Melbourne Hospital: 1975 to 2005, *Clin Biochem Rev* 28 (Suppl.1): 25, 2007

Gies P. Photoprotection by Clothing. *Photodermatology, Photoimmunology & Photomedicine*, 23: 263-274, 2007.

Gies P., Elix R. (deceased), Lawry D., Gardner J., Hancock T., Cockerell S., Roy C., Javorniczky J. and Henderson S. Assessment of the UVR Protection Provided by Different Tree Species. *Photochem. Photobiol.*, 83: 1465-1470, 2007.

Gordon L., Hirst N., Gies P. and Green A. 'What impact would effective solarium regulation have in Australia?' *Med J Aust.* (in press), 2008.

Hatch K.L., Block L. and Gies P. Photoprotection by Fabric. In: A Clinical guide to Sunscreens and Photoprotection (Henry Lim and Zoe Draelos Eds.) Accepted for publication, due February 2009.

Hirst N., Gordon L.G., Gies P., Green A.C. Estimation of avoidable skin cancers and cost-savings to government associated with regulation of the solarium industry in Australia. *Health Policy* (in press) 2008.

Ivanov Z. 2008, *Results of the Quality Assurance Testing Program for Radiopharmaceuticals 2007*, ARPANSA Technical Report 147.

Manickam E., Sdraulig S., Tinker R.A. Method design and validation for the determination of uranium levels in human urine using high-resolution alpha spectrometry, *Journal of Environmental Radioactivity* 99 (2008) 491-501.

O'Riordan D.L., Glanz K., Gies P. and Elliott T. A Pilot Study of the Validity of Self-reported Ultraviolet Radiation Exposure and Sun Protection Practices Among Lifeguards, Parents and Children. *Photochem. Photobiol.* 84: 774-778, 2008.

O'Riordan D.L., Steffen A.D., Lunde K.B. and Gies P. A Day at the beach while on tropical vacation: Sun protection practices in a high risk setting for UVR exposure. *Archives Dermatology* (in press), 2008.

Sdraulig S., Franich R., Tinker R.A., Solomon S., O'Brien R., Johnston P.N. In vitro dissolution studies of uranium bearing material in simulated lung fluid, *Journal of Environmental Radioactivity* 99 (2008) 527-538.

South Pacific Environmental Radioactivity Association (SPERA) 2006 Conference, Special Issue: *Journal of Environmental Radioactivity*, Editor-in-Chief: S. C. Sheppard, Guest Editors: S. Long and R. Tinker, Volume 99, ISSM 0265-931X, March 2008.

Tinker R.A. South Pacific Environmental Radioactivity Association (SPERA) 2006 Conference, *Journal of Environmental Radioactivity* 99 (2008) 437-438.

Wilson C.A., Gies P.H., Niven B.E., McLennan A. and Bevin N.K. The relationship between UV transmittance and color — visual description and instrumental measurement. *Textile Res. J.* 78(2): 128-137, 2008.


Appendix 10: Financial statements for year ended 30 June 2008

Australian Radiation Protection and Nuclear
Safety Agency
(ARPANSA)

Financial Statements - 30 June 2008

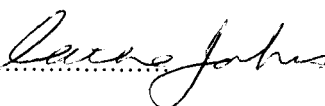
STATEMENT BY THE CHIEF EXECUTIVE AND CHIEF FINANCIAL OFFICER

In our opinion, the attached financial statements for the year ended 30 June 2008 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

9 September 2008

Signed.....

Catherine Johns
A/Chief Financial Officer

9 September 2008

INCOME STATEMENT*for the period ended 30 June 2008*

		2008	2007
	Notes	\$	\$
INCOME			
Revenue			
Revenue from Government	3A	15,795,000	13,294,000
Sale of goods and rendering of services	3B	5,005,245	4,654,716
Licence fees	3C	3,966,154	4,118,458
Total revenue		<u>24,766,399</u>	<u>22,067,174</u>
Gains			
Sale of assets	3D	285	-
Other gains	3E	62,070	44,000
Total gains		<u>62,355</u>	<u>44,000</u>
Total Income		<u>24,828,754</u>	<u>22,111,174</u>
EXPENSES			
Employee benefits	4A	14,729,237	12,281,418
Suppliers	4B	7,418,941	7,001,790
Depreciation and amortisation	4C	1,196,274	1,722,178
Write-down and impairment of assets	4D	47,558	121,316
Foreign exchange losses	4E	2,919	2,399
Total Expenses		<u>23,394,929</u>	<u>21,129,101</u>
Surplus		<u>1,433,825</u>	<u>982,073</u>

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

BALANCE SHEET*as at 30 June 2008*

	Notes	2008 \$	2007 \$
ASSETS			
Financial Assets			
Cash and cash equivalents	5A	2,328,211	2,147,746
Trade and other receivables	5B	8,023,412	4,850,876
Other financial assets	5C	336,839	464,272
Total financial assets		10,688,462	7,462,894
Non-Financial Assets			
Land and buildings	6A	8,946,918	9,042,550
Infrastructure, plant and equipment	6B,6F	4,781,470	3,423,524
Intangibles	6C,6G	801,798	876,420
Inventories	6D	1,620,703	1,504,260
Other non-financial assets	6E	265,468	223,404
Total non-financial assets		16,416,357	15,070,158
Total Assets		27,104,819	22,533,052
LIABILITIES			
Payables			
Suppliers	7A	330,212	558,046
Other payables	7B	431,952	546,218
Total payables		762,164	1,104,264
Provisions			
Employee provisions	8	4,409,165	4,529,123
Total provisions		4,409,165	4,529,123
Total Liabilities		5,171,329	5,633,387
Net Assets		21,933,490	16,899,665
EQUITY			
Contributed equity		4,624,000	1,024,000
Reserves		5,644,059	5,644,059
Retained surplus		11,665,431	10,231,606
Total Equity		21,933,490	16,899,665
Current Assets		12,574,633	9,190,558
Non-Current Assets		14,530,186	13,342,494
Current Liabilities		4,846,636	5,282,595
Non-Current Liabilities		324,693	350,792

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

STATEMENT of CHANGES in EQUITY
for the period ended 30 June 2008

Opening balance

Balance carried forward from previous period

Income and expense

Revaluations recognised Directly in Equity

Sub-total income and expenses recognised Directly in Equity

Surplus for the period

Total income and expenses

Contributions by Owners

Appropriation (equity injection)

Sub-total transactions with owners

Closing balance as at 30 June

	Retained Earnings		Asset Revaluation Reserves		Contributed Equity/Capital		Total Equity	
	2008	2007	2008	2007	2008	2007	2008	2007
	\$	\$	\$	\$	\$	\$	\$	\$
Opening balance	10,231,606	9,249,533	5,644,059	5,364,373	1,024,000	1,024,000	16,899,665	15,637,906
Income and expense	-	-	-	279,686	-	-	-	279,686
Revaluations recognised Directly in Equity	-	-	-	279,686	-	-	-	279,686
Sub-total income and expenses recognised Directly in Equity	1,433,825	982,073	-	-	-	-	1,433,825	982,073
Surplus for the period	1,433,825	982,073	-	-	-	-	1,433,825	982,073
Total income and expenses								
Contributions by Owners								
Appropriation (equity injection)	-	-	-	-	3,600,000	-	3,600,000	-
Sub-total transactions with owners	-	-	-	-	3,600,000	-	3,600,000	-
Closing balance as at 30 June	11,665,431	10,231,606	5,644,059	5,644,059	4,624,000	1,024,000	21,933,490	16,899,665

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

CASH FLOW STATEMENT

for the period ended 30 June 2008

	Notes	2008 \$	2007 \$
OPERATING ACTIVITIES			
Cash received			
Goods and services		9,521,455	9,263,831
Appropriations		16,097,000	9,197,000
Net GST recovered		288,520	280,632
Total cash received		<u>25,906,975</u>	<u>18,741,463</u>
Cash used			
Employees		(14,292,468)	(11,882,874)
Suppliers		(9,399,471)	(7,534,498)
Other cash used		-	-
Total cash used		<u>(23,691,939)</u>	<u>(19,417,372)</u>
Net cash from or (used by) operating activities	9	<u>2,215,036</u>	<u>(675,909)</u>
INVESTING ACTIVITIES			
Cash received			
Proceeds from sales of property, plant and equipment		-	-
Total cash received		<u>-</u>	<u>-</u>
Cash used			
Purchase of property, plant and equipment		(2,280,771)	(1,458,743)
Purchase of intangibles		(153,800)	(77,110)
Total cash used		<u>(2,434,571)</u>	<u>(1,535,853)</u>
Net cash used by investing activities		<u>(2,434,571)</u>	<u>(1,535,853)</u>
FINANCING ACTIVITIES			
Cash received			
Appropriations - contributed equity		400,000	-
Total cash received		<u>400,000</u>	<u>-</u>
Cash used			
Repayment of borrowings		-	-
Total cash used		<u>-</u>	<u>-</u>
Net cash from financing activities		<u>400,000</u>	<u>-</u>
Net increase or (decrease) in cash held		<u>180,465</u>	<u>(2,211,762)</u>
Cash at the beginning of the reporting period		2,147,746	4,359,508
Cash at the end of the reporting period	5A	<u>2,328,211</u>	<u>2,147,746</u>

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

SCHEDULE OF COMMITMENTS

as at 30 June 2008

	2008	2007
	\$	\$
BY TYPE		
Commitments receivable		
GST recoverable on commitments	<u>(349,492)</u>	<u>(132,078)</u>
Total commitments receivable	<u>(349,492)</u>	<u>(132,078)</u>
Capital commitments		
Infrastructure, plant and equipment	<u>2,105,838</u>	<u>-</u>
Total capital commitments	<u>2,105,838</u>	<u>-</u>
Other commitments		
Operating leases	641,981	1,012,190
Other commitments	<u>1,096,595</u>	<u>440,668</u>
Total other commitments	<u>1,738,576</u>	<u>1,452,858</u>
Net commitments by type	<u>3,494,922</u>	<u>1,320,780</u>
BY MATURITY		
Other commitments receivable		
One year or less	(269,935)	(76,291)
From one to five years	<u>(79,557)</u>	<u>(55,787)</u>
Total other commitments receivable	<u>(349,492)</u>	<u>(132,078)</u>
Commitments payable		
Capital commitments		
One year or less	1,907,620	-
From one to five years	<u>198,218</u>	<u>-</u>
Total capital commitments	<u>2,105,838</u>	<u>-</u>
Operating lease commitments		
One year or less	395,179	398,526
From one to five years	246,802	613,664
Over five years	-	-
Total operating lease commitments	<u>641,981</u>	<u>1,012,190</u>
Other commitments		
One year or less	666,492	440,668
From one to five years	<u>430,103</u>	<u>-</u>
Total other commitments	<u>1,096,595</u>	<u>440,668</u>
Net commitments by maturity	<u>3,494,922</u>	<u>1,320,780</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 2008

Contingent Assets	TOTAL	
	2008	2007
	\$	\$
Total Contingent Assets	-	-
<hr/>		
Contingent Liabilities	TOTAL	
	2008	2007
	\$	\$
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 2008

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 section 49 of 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 2007; 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.

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

No accounting standard has been adopted earlier than the application date stated in the standard. The following new standards are applicable to the current reporting period:

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.

The following new standards, amendments to standards or interpretations for the current financial year have no material financial impact, or do not apply to the operations of ARPANSA.

AASB 101 *Presentation of Financial Statements* (reissued October 2006)

AASB 1048 *Interpretation and Application Standards* (reissued September 2007)

2007-4 *Amendments to Australian Accounting Standards arising from ED 151 and Other Amendments and Erratum: Proportionate Consolidation*

2007-5 *Amendments to Australian Accounting Standard - Inventories Held for Distribution by Not-for-Profit Entities* [AASB 102]

2007-7 *Amendments to Australian Accounting Standards* [AASB1, AASB2, AASB 4, AASB 5, AASB 107 & AASB 128]

AASB Interpretation 10 *Interim Financial Reporting and Impairment*

AASB Interpretation 11 AASB 2- Group and treasury Share Transactions and 2007-1 Amendments to Australian Accounting Standards arising from AASB Interpretation 11

AASB Interpretation 1003 *Australian Petroleum Resource Rent Tax*

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 the impact of adopting these pronouncements when effective will have no material financial impact on future reporting periods, or do not apply to the operations of ARPANSA.

AASB 3 *Business Combinations*

AASB 8 *Operating segments and 2007-3 Amendments to Australian Accounting Standards arising from AASB 8*

AASB 101 *Presentation of Financial Statements* (reissued September 2007) and *2007-8 Amendments to Australian Accounting Standards arising from AASB 8*

AASB 123 *Borrowing costs and 2006-7 Amendments to Australian Accounting Standards arising from AASB 123*

AASB 127 *Consolidated and Separate Financial Statements and 2008-03 Amendments to Australian Accounting Standards from AASB 3 and AASB 127* [AASBs 1,2,4,5,7,101,107,112,114,116,121,128,131,132,133,136,137,138,139 and Interpretation 9 & 107]

AASB 1004 *Contributions*

AASB 1050 *Administered Items and 2007-9 Amendments to Australian Accounting Standards arising from the Review of AASs 27, 29 and 31* [AASBs 3, 5,8,101,114,116,127 and 137]

AASB 1051 *Land Under Roads*

AASB 1052 *Disaggregated Disclosures*

2008-1 *Amendments to Australian Accounting Standard - Share based Payments: Vesting Conditions and Cancellation* [AASB 2]

2008-2 *Amendments to Australian Accounting Standard - Puttable Financial Instruments and Obligations arising on Liquidation* [AASBs, 7,101,132, 139 and Interpretation 2]

AASB Interpretation 1 *Changes in Existing Decommissioning, Restoration and Similar Liabilities*

AASB Interpretation 4 *Determining whether an Arrangement contains a lease*

AASB Interpretation 12 *Service Concession Arrangements and 2007-2 Amendments to Australian Accounting Standards arising from Interpretation 12*

AASB Interpretation 13 *Customer Loyalty Programmes*

AASB Interpretation 14 *AASB 119 - The Limit on a Defined Benefit Asset, Minimum Funding Requirements and their Interaction*

AASB Interpretation 129 *Service Concession Arrangements: Disclosures*

AASB Interpretation 1038 *Contributions by Owners Made to Wholly-Owned Public Sector Entities*

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

2008-4 *Amendments to Australian Accounting Standard - Key Management Personnel Disclosures by Disclosing Entities* [AASB 124]

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.

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.

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 2008. The estimate of the present value of the liability takes into account attrition rates and pay increases through promotion and inflation.

Superannuation

The majority of 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). There are a small number of staff covered under various other superannuation schemes.

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 assets

ARPANSA classifies its financial assets as 'loans and receivables'. Financial assets are recognised and derecognised at transaction date.

Effective interest method

The effective interest method is a method of calculating the amortised cost of a financial asset and of allocating interest income over the relevant period. The effective interest rate is the rate that exactly discounts estimated future cash receipts over the expected life of the financial asset, or, where appropriate, a shorter period.

Income is recognised on an effective interest rate basis.

Loans and receivables

Trade receivables, loans and other receivables that have fixed or determinable payments that are not quoted in an active market are classified as 'loans and receivables'. They are included in current assets, except for maturities greater than 12 months after the balance sheet date. These are classified as non-current assets. Loans and receivables are measured at amortised cost using the effective interest method less impairment. Interest is recognised by applying the effective interest rate.

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.

1.13 Financial liabilities

Financial liabilities are classified as 'Other liabilities'. Financial liabilities are recognised and derecognised at transaction date.

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).

1.14 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 asset or liability in respect of which the amount cannot be reliably measured. Contingent assets are reported when settlement is probable but not virtually certain and contingent liabilities are disclosed when settlement is greater than remote.

1.15 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.

1.16 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:

	2008	2007
Buildings on freehold land	34 years	34 years
Leasehold improvements	Lease term	Lease term
Plant and equipment	3 months to 27 years	3 months to 27 years

Impairment

All assets were assessed for impairment at 30 June 2008. 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.

1.17 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 (2006-07: 5 to 14 years).

All intangibles assets were assessed for indications of impairment as at 30 June 2008.

1.18 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.

1.19 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.

1.20 Reporting of Outcomes

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

	2008	2007
<u>Revenue</u>	\$	\$
Note 3A: Revenue from Government		
Appropriation:		
Departmental outputs	15,795,000	13,294,000
Total revenue from Government	15,795,000	13,294,000
Note 3B: Sale of goods and rendering of services		
Scientific services - PRMS	2,429,432	2,198,586
Construction and maintenance contracts - CTBT	1,073,055	1,258,579
Other scientific services	1,502,758	1,197,551
Total sale of goods and rendering of services	5,005,245	4,654,716
Related entities	151,384	177,313
External entities	4,853,861	4,477,403
Total sale of goods and rendering of services	5,005,245	4,654,716
Note 3C: Licence fees		
Application fees	64,601	112,623
Annual charges	3,901,553	4,005,835
Total fees	3,966,154	4,118,458
Gains		
Note 3D: Sale of Assets		
Infrastructure, plant and equipment		
Proceeds from sale	1,600	-
Carrying value of assets sold	(1,315)	-
Selling expense	-	-
Net gain from sale of assets	285	-
Note 3E: Other gains		
Resources received free of charge	62,070	44,000
Total other gains	62,070	44,000

Note 4: Expenses

	2008	2007
	\$	\$
Note 4A: Employee benefits		
Wages and salaries	9,706,116	8,631,958
Superannuation	1,802,551	1,824,724
Leave and other entitlements	1,894,778	1,615,216
Separation and redundancies	1,325,792	209,520
Total employee benefits	14,729,237	12,281,418
Note 4B: Suppliers		
Provision of goods – related entities	-	-
Provision of goods – external entities	1,515,278	1,410,066
Rendering of services – related entities	1,193,424	1,505,690
Rendering of services – external entities	4,269,788	3,562,113
Operating lease rentals:		
Minimum lease payments	373,640	446,217
Workers compensation premiums	66,811	77,704
Total supplier expenses	7,418,941	7,001,790
Note 4C: Depreciation and amortisation		
Depreciation:		
Infrastructure, plant and equipment	682,435	744,993
Buildings	285,417	857,299
Total depreciation	967,852	1,602,292
Amortisation:		
Intangibles:		
Computer software	228,092	119,556
Other	330	330
Total amortisation	228,422	119,886
Total depreciation and amortisation	1,196,274	1,722,178
Note 4D: Write-down and impairment of assets		
Bad and doubtful debt expense	36,421	91,470
Plant and equipment - write-off	11,137	26,026
Intangibles - write-off	-	3,820
Total write-down and impairment of assets	47,558	121,316
Note 4E: Foreign exchange losses		
Non-speculative	2,919	2,399
Total foreign exchange losses	2,919	2,399

Note 5: Financial Assets

	2008	2007
	\$	\$
Note 5A: Cash and cash equivalents		
Special accounts	2,325,211	2,144,746
Cash on hand or on deposit	3,000	3,000
Total cash and cash equivalents	2,328,211	2,147,746
Note 5B: Trade and other receivables		
Goods and services	1,002,426	744,491
Appropriations receivable:		
for existing outputs	6,995,000	4,097,000
GST receivable from the Australian Taxation Office	102,104	47,964
Total trade and other receivables (gross)	8,099,530	4,889,455
Less Allowance for doubtful debts:		
Goods and services	(76,118)	(38,579)
Total trade and other receivables (net)	8,023,412	4,850,876
Receivables are aged as follows:		
Not overdue	7,575,163	4,286,120
Overdue by:		
Less than 30 days	381,670	194,005
30 to 60 days	41,823	316,773
61 to 90 days	30,785	45,467
More than 90 days	70,089	47,090
Total receivables (gross)	8,099,530	4,889,455
The allowance for doubtful debts is aged as follows:		
Overdue by:		
More than 90 days	76,119	38,579
Total allowance for doubtful debts	76,119	38,579
Receivables are represented by:		
Current	8,023,412	4,850,876
Total trade and other receivables (net)	8,023,412	4,850,876
Note 5C: Other financial assets		
Accrued revenue	336,839	464,272
Total other financial assets	336,839	464,272

All other financial assets are current.

Note 6: Non-Financial Assets

	2008	2007
	\$	\$
Note 6A: Land and buildings		
Freehold land (at fair value)	<u>4,050,000</u>	<u>4,050,000</u>
Buildings on freehold land:		
– fair value	4,850,864	4,681,650
– accumulated depreciation	<u>(158,783)</u>	-
Total buildings on freehold land	<u>4,692,081</u>	<u>4,681,650</u>
Leasehold improvements		
– fair value	331,471	310,900
– accumulated amortisation	<u>(126,634)</u>	-
Total leasehold improvements	<u>204,837</u>	<u>310,900</u>
Total land and buildings (non-current)	<u>8,946,918</u>	<u>9,042,550</u>
Note 6B: Infrastructure, plant and equipment		
Infrastructure, plant and equipment:		
– work in progress	531,846	-
– fair value	4,929,010	3,423,524
– accumulated depreciation	<u>(679,386)</u>	-
Total infrastructure, plant and equipment	<u>4,781,470</u>	<u>3,423,524</u>
Total infrastructure, plant and equipment (non-current)	<u>4,781,470</u>	<u>3,423,524</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.

There are no indicators of impairment for non-financial assets.

Note 6: Non-Financial Assets (continued)

	2008	2007
	\$	\$
Note 6C: Intangibles		
Computer software at cost:		
Externally acquired	836,797	687,075
Accumulated amortisation	(485,317)	(372,890)
Internally developed – in progress		-
Internally developed – in use	579,106	575,028
Accumulated amortisation	(130,937)	(15,271)
	<u>799,649</u>	<u>873,942</u>
Trademarks at cost:		
Trademarks	4,620	4,620
Accumulated amortisation	(2,471)	(2,142)
	<u>2,149</u>	<u>2,478</u>
Total intangibles (non-current)	<u><u>801,798</u></u>	<u><u>876,420</u></u>

No indicators of impairment were found for intangible assets.

Note 6D: Inventories

Inventories held for sale:		
Finished goods	10,060	68,574
Inventories held for distribution	1,610,643	1,435,686
Total inventories (current)	<u><u>1,620,703</u></u>	<u><u>1,504,260</u></u>

Note 6E: Other non-financial assets

Prepayments	265,468	223,404
Total other non-financial assets	<u><u>265,468</u></u>	<u><u>223,404</u></u>

All other non-financial assets are current assets.

Note 6F: Analysis of property, plant and equipment

TABLE A – Reconciliation of the opening and closing balances of property, plant and equipment (2007-08)

	Land	Buildings	Leasehold Improvements	Other IP & E	Total
	\$	\$	\$	\$	\$
As at 1 July 2007					
Gross book value	4,050,000	4,681,650	310,900	3,423,524	12,466,074
Accumulated depreciation/amortisation	-	-	-	-	-
Net book value 1 July 2007	4,050,000	4,681,650	310,900	3,423,524	12,466,074
Additions:					
by purchase	-	169,214	20,571	2,052,832	2,242,617
Revaluations and impairments through equity	-	-	-	-	-
Depreciation/amortisation expense	-	(158,783)	(126,634)	(682,435)	(967,852)
Disposals:					
Other disposals	-	-	-	(12,451)	(12,451)
Net book value 30 June 2008	4,050,000	4,692,081	204,837	4,781,470	13,728,388

Net book value as of 30 June 2008 represented by:

Gross book value	4,050,000	4,850,864	331,471	5,463,905	14,696,240
Accumulated depreciation/amortisation	-	(158,783)	(126,634)	(682,435)	(967,852)
	4,050,000	4,692,081	204,837	4,781,470	13,728,388

TABLE B – 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

Note 6C: Intangibles

TABLE A: Reconciliation of the opening and closing balances of intangibles (2007-08)

Item	Computer software internally developed	Computer software purchased	Other intangibles - Trademarks	Total
	\$	\$	\$	\$
As at 1 July 2007				
Gross book value	575,028	687,075	4,620	1,266,723
Accumulated depreciation/amortisation	(15,271)	(372,890)	(2,142)	(390,303)
Net book value 1 July 2007	559,757	314,185	2,478	876,420
Additions:				
by purchase or internally developed	4,078	149,722	-	153,800
Amortisation	(115,666)	(112,427)	(329)	(228,422)
Disposals:				
other disposals	-	-	-	-
Net book value 30 June 2008	448,169	351,480	2,149	801,798
Net book value as of 30 June 2008 represented by:				
Gross book value	579,106	836,797	4,620	1,420,523
Accumulated depreciation/amortisation	(130,937)	(485,317)	(2,471)	(618,725)
	448,169	351,480	2,149	801,798

TABLE B: 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

Note 7: Payables

	2008	2007
	\$	\$

Note 7A: Suppliers

Trade creditors	<u>330,212</u>	<u>558,046</u>
<i>Total supplier payables</i>	<u>330,212</u>	<u>558,046</u>

Supplier payables are represented by:

Current	<u>330,212</u>	<u>558,046</u>
<i>Total supplier payables</i>	<u>330,212</u>	<u>558,046</u>

Settlement is usually made net 30 days.

Note 7B: Other payables

Accrued expenses	412,567	546,218
Unearned income	<u>19,385</u>	-
<i>Total other payables</i>	<u>431,952</u>	<u>546,218</u>

All other payables are current liabilities.

Note 8: Provisions

	2008	2007
	\$	\$

Employee provisions

Salaries and wages	117,937	68,914
Leave	4,271,173	4,447,070
Superannuation	<u>20,055</u>	<u>13,139</u>
<i>Total employee provisions</i>	<u>4,409,165</u>	<u>4,529,123</u>

Employee provisions are represented by:

Current	4,084,472	4,178,331
Non-current	<u>324,693</u>	<u>350,792</u>
<i>Total employee provisions</i>	<u>4,409,165</u>	<u>4,529,123</u>

Note 9: Cash Flow Reconciliation

	2008	2007
	\$	\$
Reconciliation of cash and cash equivalents as per Balance Sheet to Cash Flow Statement		
Report cash and cash equivalents as per:		
Cash Flow Statement	2,328,211	2,147,746
Balance Sheet	<u>2,328,211</u>	<u>2,147,746</u>
Difference	<u>-</u>	<u>-</u>
Reconciliation of operating result to net cash from operating activities:		
Operating result	1,433,824	982,073
Depreciation /amortisation	1,196,273	1,722,178
Net write down of non-financial assets	47,558	121,316
(Gain) / loss on disposal of assets	(285)	-
(Increase) / decrease in net receivables	27,465	(3,728,594)
(Increase) / decrease in inventories	(116,443)	53,294
(Increase) / decrease in prepayments	(42,064)	11,764
(Increase) / decrease in accrued revenue	127,433	(464,272)
Increase / (decrease) in employee provisions	(119,958)	309,886
Increase / (decrease) in supplier payables	(227,834)	12,505
Increase / (decrease) in accrued expenses	(110,933)	303,941
Net cash from / (used by) operating activities	<u><u>2,215,036</u></u>	<u><u>(675,909)</u></u>

Note 10: Contingent Liabilities and Assets

As at 30 June 2008, ARPANSA has no quantifiable or unquantifiable contingencies.

Note 11: Executive Remuneration

	2008	2007
The number of senior executives who received or were due to receive total remuneration of \$130,000 or more:		
\$130,000 to \$144,999	1	-
\$145,000 to \$159,999	-	1
\$160,000 to \$174,999	-	1
\$175,000 to \$189,999	1	4
\$190,000 to \$204,999	1	-
\$205,000 to \$219,999	2	-
\$250,000 to \$264,999	-	1
\$265,000 to \$279,999	1	-
Total	<u><u>6</u></u>	<u><u>7</u></u>
The aggregate amount of total remuneration of executives shown above.	\$1,223,466	\$1,314,130
The aggregate amount of separation and redundancy/termination benefit payments during the year to executives shown above.	-	\$61,055

Note 12: Remuneration of Auditors

2008	2007
\$	\$

Financial statement audit services are provided free of charge to the Agency.

The fair value of the audit services provided was:	<u>62,070</u>	<u>44,000</u>
	<u><u>62,070</u></u>	<u><u>44,000</u></u>

No other services were provided by the Auditor-General.

Note 13: Average Staffing Levels

The average staffing levels for the Agency during the year were:	2008	2007
	132	128

Note 14: Financial Instruments

	2008	2007
	\$	\$
Note 14A: Categories of financial instruments		
Financial Assets		
Loans and receivables		
Cash and cash equivalents	2,328,211	2,147,746
Trade and other receivables (net)	8,023,412	4,850,876
Other financial assets	336,839	464,272
<i>Carrying amount of Financial Assets</i>	<u>10,688,462</u>	<u>7,462,894</u>
Financial Liabilities		
Other Liabilities		
Payables - suppliers	330,212	558,046
Other payables	431,952	546,218
<i>Carrying amount of Financial Liabilities</i>	<u>762,164</u>	<u>1,104,264</u>

Note 14B: Fair values of financial assets and liabilities

	2008		2007	
	Total Carrying Amount	Aggregate Fair Value	Total Carrying Amount	Aggregate Fair Value
	\$	\$	\$	\$
Financial Assets				
Cash and cash equivalents	2,328,211	2,328,211	2,147,746	2,147,746
Trade and other receivables (net)	8,023,412	8,023,412	4,850,876	4,850,876
Other financial assets	336,839	336,839	464,272	464,272
Total Financial Assets	<u>10,688,462</u>	<u>10,688,462</u>	<u>7,462,894</u>	<u>7,462,894</u>
Financial Liabilities				
Payables - suppliers	330,212	330,212	558,046	558,046
Other payables	431,952	431,952	546,218	546,218
Total Financial Liabilities	<u>762,164</u>	<u>762,164</u>	<u>1,104,264</u>	<u>1,104,264</u>

Note 14: Financial Instruments (continued)

Note 14C: Credit risk exposures

ARPANSA is exposed to minimal credit risk as loans and receivables are cash and trade receivables. The maximum exposure to credit risk is the risk that arises from potential default of a debtor. This amount is equal to the total amount of trade receivables (2008: \$8,023,412 and 2007:\$4,850,876). ARPANSA has assessed the risk of the default on payment and has allocated \$76,119 in 2008 (2007: \$38,579) to an allowance for doubtful debts.

ARPANSA has policies and procedures that guide employees' debt recovery techniques that are to be applied when debts are past due.

ARPANSA holds no collateral to mitigate against credit risk

The table below shows the credit quality of financial instruments not past due or individually determined as impaired.

	Not Past Due Nor Impaired 2008 \$	Not Past Due Nor Impaired 2007 \$	Past due or impaired 2008 \$	Past due or impaired 2007 \$
Cash and cash equivalent	2,328,211	2,147,746	-	-
Trade and other receivables (gross)	7,575,163	4,286,120	524,367	603,335
Other financial assets	336,839	464,272	-	-
Total	10,240,213	6,898,138	524,367	603,335

Ageing of financial assets that are past due but not impaired for 2008

	0 to 30 days \$	31 to 60 days \$	61 to 90 days \$	90+ days \$	Total \$
Loans and receivables					
Trade and other receivables (gross)	381,670	41,823	30,785	70,089	524,367
Total	381,670	41,823	30,785	70,089	524,367

Ageing of financial assets that are past due but not impaired for 2007

	0 to 30 days \$	31 to 60 days \$	61 to 90 days \$	90+ days \$	Total \$
Loans and receivables					
Trade and other receivables (gross)	194,005	316,773	45,467	47,090	603,335
Total	194,005	316,773	45,467	47,090	603,335

Note 14: Financial Instruments (continued)

Note 14D: Liquidity risk

ARPANSA's financial liabilities are payables. The majority of ARPANSA's funding is appropriated from the Australian Government. The Agency manages its budgeted funds to ensure it has adequate funds to meet payments as they fall due. In addition, ARPANSA has policies in place to ensure timely payments are made when due and has no past experience of default. ARPANSA does not expect to have difficulty meeting its financial liabilities as and when they become due and payable.

The following tables illustrates the maturities for financial liabilities.

	within 1 year 2008 \$'000	1 to 5 years 2008 \$'000	> 5 years 2008 \$'000	Total 2008 \$'000
Payables - suppliers	330,212	-	-	330,212
Other payables	431,952	-	-	431,952
Total	762,164	-	-	762,164

	within 1 year 2007 \$'000	1 to 5 years 2007 \$'000	> 5 years 2007 \$'000	Total 2007 \$'000
Payables - suppliers	558,046	-	-	558,046
Other payables	546,218	-	-	546,218
Total	1,104,264	-	-	1,104,264

As at 30 June 2008, ARPANSA has no financial liabilities payable on demand (2007: nil).

Note 14E: Market Risk

Currency Risk

ARPANSA's exposure to "Currency Risk" is minimal as only a small number of contracts are in currencies other than Australian Dollars.

Interest Rate Risk

ARPANSA's financial instruments are not exposed to interest rate risk.

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	
	2008	2007
	\$	\$
Balance carried from previous period	4,097,000	-
Appropriation Act:		
Appropriation Act (No.1)	15,795,000	13,097,000
Appropriation Act (No.3)	-	197,000
Total appropriation available for payments	19,892,000	13,294,000
Cash payments made during the year (GST inclusive)	16,097,000	9,197,000
Balance of Authority to Draw Cash from the Consolidated Revenue Fund for Ordinary Annual Services Appropriations	3,795,000	4,097,000
<i>Represented by</i>		
Departmental appropriations receivable	3,795,000	4,097,000
Total	3,795,000	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	
	2008	2007
	\$	\$
Balance carried from previous period	-	-
Appropriation Act:		
Appropriation Act (No.2)	3,600,000	-
Total appropriations available for payments	3,600,000	-
Cash payments made during the year (GST inclusive)	400,000	-
Balance of Authority to Draw Cash from the Consolidated Revenue Fund for Ordinary Annual Services Appropriations	3,200,000	-
<i>Represented by</i>		
Departmental appropriations receivable	3,200,000	-
Total	3,200,000	-

Note 16: Special Accounts

ARPANSA Special Account (Departmental)	2008	2007
	\$	\$
Legal Authority: <i>ARPANSA 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 ARPANSA Act at section 56(4): "The purposes of the Special Account are to make payments: (a) to further the object of this Act (as set out in section 3); and (b) otherwise in connection with the performance of the CEO's functions under this Act or the Regulations."		
Balance carried from previous period	2,147,746	4,359,508
Appropriation Act (No.1)	16,097,000	9,197,000
Appropriation Act (No.3)		-
Capital Injection	400,000	-
GST credits (FMA Act s30A)	288,520	280,632
Other receipts	9,521,455	9,263,831
Available for payments	28,454,721	23,100,971
Payments made to employees	14,292,468	11,882,874
Payments made to suppliers	11,834,042	9,070,351
Repayment of debt	-	-
Total debits	26,126,510	20,953,225
Balance carried to next period	2,328,211	2,147,746
Represented by:		
Cash – held by the Agency	2,328,211	2,147,746
Total balance carried to the next period	2,328,211	2,147,746

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	
	2008	2007
	\$	\$
Expenses		
Departmental	23,394,929	21,129,101
Total expenses	23,394,929	21,129,101
Costs recovered from provision of goods and services to the non-government sector		
Departmental	4,853,861	4,477,403
Total costs recovered	4,853,861	4,477,403
Other external revenues		
License fee revenue from related entities	3,966,154	4,118,458
Goods and services revenue from related entities	151,384	177,313
Total other external revenues	4,117,538	4,295,771
Net cost/(contribution) of outcome	14,423,530	12,355,927

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	
	2008	2007	2008	2007	2008	2007	2008	2007
	\$	\$	\$	\$	\$	\$	\$	\$
Departmental expenses								
Employees	2,646,679	2,276,363	8,634,925	6,906,254	3,447,633	3,098,801	14,729,237	12,281,418
Suppliers	2,365,057	2,008,101	3,579,068	3,673,812	1,474,816	1,319,877	7,418,941	7,001,790
Depreciation and amortisation	238,839	329,881	792,241	1,093,799	165,194	298,498	1,196,274	1,722,178
Other expenses	5,164	1,914	42,426	119,255	2,887	2,546	50,477	123,715
Total departmental expenses	5,255,739	4,616,259	13,048,660	11,793,120	5,090,530	4,719,722	23,394,929	21,129,101
Funded by:								
Revenue from government	3,954,657	3,237,237	10,715,967	9,455,499	1,124,376	601,264	15,795,000	13,294,000
Sales of goods and services	1,301,082	1,379,022	3,704,163	3,275,694	-	-	5,005,245	4,654,716
Other non-taxation revenues	-	-	-	-	3,966,154	4,118,458	3,966,154	4,118,458
Total departmental revenues	5,255,739	4,616,259	14,420,130	12,731,193	5,090,530	4,719,722	24,766,399	22,067,174

- The variance between revenue and expense in Output Group 2 reflects ARPANSA's surplus in 2006-07 and 2007-08, less gains which are not reflected in this note.



INDEPENDENT AUDITOR'S REPORT

To the Parliamentary Secretary 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 2008, which comprise: a Statement by the Chief Executive and Chief Financial Officer; Income Statement; Balance Sheet; Statement of Changes in Equity; Cash Flow Statement; Schedule of Commitments; Schedule of Contingencies, and Notes to and forming part of the Financial Statements.

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 (which include 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 the 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

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considers internal control relevant to the Agency's preparation and fair presentation of the financial statements in order to design 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 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*, including Australian Accounting Standards; 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 2008 and its financial performance and cash flows for the year then ended.

Australian National Audit Office



P Hinchey
Senior Director
Delegate of the Auditor-General

Sydney
9 September 2008

Appendix 11: Index of compliance with reporting requirements

Letter of transmittal	5
Table of contents	3
Index	153
Glossary	150
Contact officer	2
Internet home page address and Internet address for report	2
Review by CEO	7
Role and functions	20
Organisational structure	21
Outcome and output structure	22
Review of performance in relation to outputs and contribution to outcomes	28
Actual performance in relation to performance targets	26
Narrative discussion and analysis of performance	28
Summary resource tables by outcome	26
Developments since the end of the financial year that may significantly affect the Agency's financial results in future	26
Statement of the main corporate governance practices in place	66
Compliance with Commonwealth Fraud Control Guidelines	70
Significant developments in external scrutiny	71
Judicial decisions and decisions of administrative tribunals	N/A
Reports by Auditor-General, a Parliamentary Committee or the Commonwealth Ombudsman	N/A
Human Resources	71
Statistics of staffing	76
Certified agreements and Australian Workplace Agreements	76
Performance pay	80
Assets management	82
Purchasing	82
Consultancy services	82
Competitive tendering and contracting	N/A
Contracts exempt from the AusTender	N/A
Performance in implementing Commonwealth Disability Strategy	81
Financial Statements	112
Occupational health and safety	86
Freedom of Information	88
Advertising and market research	93
Ecologically sustainable development and environmental performance	87
Discretionary Grants	N/A
Correction of material errors in previous annual report	N/A

List of figures and tables

Figures

Figure 1:	Organisation chart of ARPANSA, 30 June 2008	.23
Figure 2:	Ionizing radiation measurement calibrations in 2007-08	.44
Figure 3:	PRMS Survey 2008 overall client satisfaction	.46

Tables

Table 1:	2007-08 Resource Summary for Outcome - The Australian people and the environment are protected from the harmful effects of radiation	.26
Table 2:	2007-08 key strategic directions according to output groups	.27
Table 3:	Performance against PBS targets – Output Group 1	.35
Table 4:	Performance against PBS targets – Output Group 2	.47
Table 5:	Details of advice provided 1 July 2007 - 30 June 2008	.53
Table 6:	Performance against PBS targets – Output Group 3	.54
Table 7:	Details of client complaints received for ARPANSA activities in 2007-08	.55
Table 8:	Staff retention and turnover 2006-07 and 2007-08	.74
Table 9:	Inoperative staff as at 30 June 2007 and 2008	.74
Table 10:	Staff by location, gender and classification	.77
Table 11:	Staff by gender and classification	.78
Table 12:	Full-time equivalent (FTE) staff by gender and classification	.78
Table 13:	Staff employed under the Public Service Act as at 30 June 2007 and 2008	.79
Table 14:	Distribution of staff by Branch	.79
Table 15:	Salary Ranges as at 30 June 2008	.79
Table 16:	Consultancy services let during 2007-08 of \$10 000 or more	.83
Table 17:	Legal services expenditure by ARPANSA for 2007-08	.92
Table 18:	Details of payments of \$10 500 and above (inclusive of GST) for advertising and public notices during 2007-08	.93
Table 19:	Licence applications received during 2007-08	.94
Table 20:	Source licences as at 30 June 2008	.94
Table 21:	Licences issued amended during 2007-08	.95
Table 22:	Facility licences as at 30 June 2008	.95
Table 23:	Licences surrendered during 2007-08	.95
Table 24:	Announced inspections conducted during 2007-08	.96

Abbreviations

ANSTO	Australian Nuclear Science and Technology Organisation
APS	Australian Public Service
ARGOS	Accident Reporting and Guidance Operational System
ARPANSA	Australian Radiation Protection and Nuclear Safety Agency
AWA	Australian Workplace Agreement
CBRN	Chemical Biological Radiological and Nuclear
CEIs	Chief Executive Instructions
CEO	Chief Executive Officer
CPGs	Commonwealth Procurement Guidelines
CSA	Compliance Self Assessment
CTBT	Comprehensive Nuclear-Test-Ban Treaty
CTBTO	Comprehensive Nuclear-Test-Ban Treaty Organisation
COAG	Council of Australian Governments
EME	Electromagnetic energy
FMA Act	Financial Management and Accountability Act 1997
FOI Act	Freedom of Information Act 1982
HIFAR	High-Flux Australian Research Reactor
IAEA	International Atomic Energy Agency
ICNIRP	International Commission on Non-Ionizing Radiation Protection
ICRP	International Commission on Radiological Protection
ICT	Information and Communication Technology
IM	Information Management
INSAG	International Nuclear Safety Advisory Group
IRRS	Integrated Regulatory Review Service
L&D	Learning and development training framework
linac	Medical linear accelerator
LLILW	Long-lived intermediate level waste
NATA	National Association of Testing Authorities
NDRP	Directory for Radiation Protection
NORM	Naturally occurring radioactive material
NPL	National Physical Laboratory
NPP	Nuclear Power Plants
NSC	Nuclear Safety Committee
OH&S	Occupational Health and Safety

OHS (CE) Act	Occupational Health and Safety (Commonwealth Employees) Act 1991
OPAL	Open Pool Australian Light-water [research reactor]
PRMS	Personal Radiation Monitoring Service
QMC	Quality Management Committee
RF	Radiofrequency
RHC	Radiation Health Committee
RHS	Radiation Health Series
RPS	Radiation Protection Series
SCF	Staff Consultative Forum
SES	Senior Executive Service
SPERA	South Pacific Environmental Radioactivity Association
STARS	Secure Tracking of Australian Radioactive Sources
TGA	Therapeutic Goods Administration
the ARPANS Act	Australian Radiation Protection and Nuclear Safety Act 1998
the Council	Radiation Health and Safety Advisory Council
the Medical Code	Code of Practice for Radiation Protection in the Medical Applications of Ionizing Radiation
UMPNER	Uranium Mining Processing and Nuclear Energy review
UNSCEAR	United Nations Scientific Committee on the Effects of Atomic Radiation
UPF	Ultraviolet protection factor
UVR	Ultraviolet radiation
WEG	Work Environment Group
WHO	World Health Organization

Glossary

Absorbed dose

The energy absorbed per unit mass by matter from ionizing radiation which impinges upon it.

Accident

An unintended event which causes, or has the potential to cause, employees or members of the public to be exposed to radiation from which the individual doses or collective doses received do not lie within the range of variation which is acceptable for normal operation. An accident may result from human error, equipment failure or other mishap; it may require emergency action to save life or to safeguard health, property or the environment; it requires investigation of its causes and consequences and, possibly, corrective action within the program for control of radiation; and it may require remedial action to mitigate its consequences.

Activity

The measure of quantity of radioactive materials, except when used in the term 'human activity'.

Air Kerma

The measure of the energy released in a volume of air at some distance from a radioactive source.

Code of Practice for radiation protection

A document prescribing specific requirements for radiation protection in a particular application.

Category 1 Radioactive Source

Sealed radioactive material belonging to the highest activity grouping according to the

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

Category 2 Radioactive Source

Sealed radioactive material belonging to the second highest activity grouping according to the ARPANSA *Code of Practice for the Security of Radioactive Sources* (2007).

Category 3 Radioactive Source

Sealed radioactive material belonging to the third highest activity grouping according to the ARPANSA *Code of Practice for the Security of Radioactive Sources* (2007).

Controlled Apparatus – as defined in the ARPANS Act

- (a) an apparatus that produces ionizing radiation when energized or that would, if assembled or repaired, be capable of producing ionizing radiation when energised; or
- (b) an apparatus that produces ionizing radiation because it contains radioactive material; or
- (c) an apparatus prescribed by the regulations that produces harmful non-ionizing radiation when energised.

Controlled material– as defined in the ARPANS Act

Any natural or artificial material, whether in solid or liquid form, or in the form of a gas or vapour, which emits ionizing radiation spontaneously.

Constraint

Either dose constraint in the case of exposures anticipated to be received, or risk constraint in the case of potential exposures (see dose constraint and risk constraint).

Dose

A generic term which may mean absorbed dose, equivalent dose or effective dose depending on context.

Dose constraint

A prospective restriction on anticipated dose, primarily intended to be used to discard undesirable options in an optimisation calculation.

In occupational exposure, a dose constraint may be used to restrict the options considered in the design of the working environment for a particular category of employee.

In medical exposure, a dose constraint for volunteers in medical research may be used to restrict the options considered in the design of an experimental protocol.

In public exposure, a dose constraint may be used to restrict the exposure of the critical group from a particular source of radiation.

Dosemeters

An instrument used to determine the presence and sometimes the amount of radiation.

Dosimetry

The theory and application of the principles and techniques involved in the measurement and recording of radiation doses.

Effective dose

A measure of dose which takes into account both the type of radiation involved and the radiological sensitivities of the organs and tissues irradiated.

Electromagnetic energy

The energy stored in an electromagnetic field. Expressed in joule (J).

EMF

Electromagnetic fields.

Equivalent dose

a measure of dose which takes into account the type of radiation involved.

Exclusion

In the context of assessing radiation exposure, the deliberate omission of a specified component, or components, of total exposure to radiation. In a regulatory context, the acknowledgment that a particular radiation source is not amenable to control.

Exemption

The deliberate omission of a practice from regulatory control, or from some aspects of regulatory control, by the appropriate authority.

Exposure

The circumstance of being exposed to radiation.

Extremely low-frequency (ELF) radiation

Has very long wavelengths (in the order of a thousand kilometres or more) and frequencies in the range of 100 hertz or less.

Gamma ray

Ionizing electromagnetic radiation emitted by a radionuclide during radioactive decay or during a nuclear (isomeric) transition.

Incident

An event which causes, or has the potential to cause, abnormal exposure of employees or of members of the public and which requires investigation of its causes and consequences and may require corrective action within the program for control of radiation, but which is not of such scale as to be classified as an accident.

Ion

An atom in a charged state following ionization.

Ionization

The process by which one or more electrons are removed from, or sometimes

added to, an atom leaving the atom in a charged state.

Ionizing radiation

Radiation which is capable of causing ionization, either directly (for example: for radiation in the form of gamma rays and charged particles) or, indirectly (for example: for radiation in the form of neutrons).

ISO Series (eg. ISO 9000 and ISO 17025 referred to on pg 69)

Internationally accepted standards developed by the International Organization for Standardization which is a network of the national standards institutes of 157 countries, one member per country, with a Central Secretariat in Geneva, Switzerland, that coordinates the system.

Justification

The notion that human activities which lead to exposure to radiation should be justified, before they are permitted to take place, by showing that they are likely to do more good than harm.

Licence

A written authorisation issued to an operator which allows the operator to carry out an operation legally.

Limitation

The requirement that radiation doses and risks should not exceed a value regarded as unacceptable.

Linac – linear particle accelerator

A device used to produce highly penetrating radiation for calibrating radiotherapy dosimeters used in medicine for the treatment of cancer.

Liquid scintillation counting

liquid scintillation counting (LSC) is an analytical technique which measures

radioactivity concentrations by converting the kinetic energy of nuclear emissions into light energy. The intensity of the light is proportional to the initial energy of the nuclear emission. The major advantage of LSC is the very high measurement efficiency (~100%) compared with other techniques (< 30%).

Leukaemogenesis

The beginning of an abnormal proliferation of blood cells.

Medical exposure

Exposure of a person to radiation received as a patient undergoing medical diagnosis or therapy, or as a volunteer in medical research, or non-occupational exposure received as a consequence of assisting an exposed patient.

Noble gas radionuclide detection system

A vacuum system that measures the concentration activity of radioactive xenon isotopes in the atmosphere.

Non ionising radiation

Ranges from extremely low frequency radiation, shown on the far left through the radiofrequency, microwave, and visible portions of the spectrum into the ultraviolet range.

Occupational exposure

Exposure of a person to radiation which occurs in the course of that person's work and which is not excluded exposure.

Operator

Any person or entity responsible for an operation which may lead to exposure to ionizing radiation.

Optimisation

The process of maximising the net benefit arising from human activities which lead to exposure to radiation.

Program of radiation protection

An instance of a system of radiation protection, designed for a particular operation.

Public exposure

Exposure of a person, or persons, to radiation which is neither occupational nor medical exposure.

Radiation

Electromagnetic waves or quanta, and atomic or sub-atomic particles, propagated through space or through a material medium.

Radiation weighting factor

A factor which modifies absorbed dose in an organ or tissue to yield equivalent dose and which is determined by the type and energy of the radiation to which the organ or tissue is exposed.

Radioactive decay

The spontaneous transformation of the nucleus of an atom into another state, accompanied by the emission of radiation; for a quantity of such atoms, the expectation value of the number of atoms present decreases exponentially with time.

Radioactive material

Material which spontaneously emits ionizing radiation as a consequence of radioactive decay.

Radiofrequency (RF)

Electromagnetic energy with frequencies in the range 3 kHz to 300 GHz.

Radiological Emergency

An emergency in which there is, or is perceived to be, a hazard due to:

- (a) The energy resulting from a nuclear chain reaction or from the decay of the products of a chain reaction; or

- (b) Radiation exposure.

Radionuclide

A species of atomic nucleus which undergoes radioactive decay.

Radionuclide particulate monitoring stations

A vacuum system that measures the concentration activity of radioactive dust particles in the atmosphere.

RF field

A physical field, which specifies the electric and magnetic states of a medium or free space, quantified by vectors representing the electric field strength and the magnetic field strength.

Regulatory Impact Statement

A Regulation Impact Statement (RIS) is required, under the Australian Government's requirements, when a regulatory proposal is likely to have significant impacts on business and individuals or the economy. The primary role of the RIS is to improve government decision-making processes by ensuring that all relevant information is presented to the decision maker when a policy decision is being made. A RIS is prepared for each of ARPANSA's Codes of Practice and Standards and contains a cost benefit analysis.

Swaging

A manufacturing process where two parts are fitted loosely together and then on part is mechanically deformed cold to create a permanent joint. In the manufacture of the OPAL fuel the joint between the side plate and the fuel plate groove is 'roll swaged' by a wheel that deforms the side plate to the immediate side of the groove.

System of radiation protection

a generic process of radiation risk management designed to limit the health

risks arising from exposure to radiation to acceptable levels in a manner which takes economic and social considerations into account.

Tissue weighting factor

a factor which modifies equivalent dose in an organ or tissue to account for the sensitivity of the organ to different types of radiation.

X-ray

ionizing electromagnetic radiation emitted during the transition of an atomic electron to a lower energy state or during the rapid deceleration of a charged particle.

Index

A

- adoption of codes and standards, 102
- advertising and public notices, 93
- assessment activities (applications for licence, requests for approval), 51
- Asset management, 69
- Audit Committee, 17, 18, 66-67, 68, 69
- Australian National Audit Office (ANAO), 63, 106, 148
- Australian Nuclear Science Technology Organisation (ANSTO), 10-11, 14, 16, 34, 51, 98
 - HIFAR, 10, 11, 51, 104, 109, 149
 - OPAL, 10, 11, 16, 49, 51, 98, 104, 109, 149
- Australian Workplace Agreements, 76, 80, 146

B

- Basic Safety Standards (BSS), 15, 28, 32, 148
- Breach of ARPANS Act, 48 – 49,
- business continuity, 66, 67, 70

C

- calibrations, 13, 14, 44, 45, 47, 55, 147
 - radiofrequency, 14, 45, 55
 - radiotherapy reference dosimeters, 44
- certificate of compliance, 17, 18, 68
- certified agreement, 76, 146, 148
- chemical, biological, radiological and nuclear (CBRN) security, 35, 105, 148
- client complaints, 55, 147
- codes and standards, 20, 21, 49, 99, 100, 102, 107
- Code of Conduct, 29, 70, 72, 75

- compliance monitoring, 48
- Comprehensive Nuclear-Test-Ban Treaty (CTBT), 33, 128, 148,
- computed tomography (CT), 47, 148
- consultancy contracts, 82
- continuous improvement of regulatory business processes, 49-50, 52
- Council and Committees, 15
- Convention on Nuclear Safety, 14, 29
- corporate governance, 68, 146
- Council of Australian Governments (COAG), 11, 27, 34, 148

D

- diagnostic radiology, 37
- diagnostic reference levels (DRLs), 37, 100, 148

E

- ecologically sustainable development, 87, 146
- electromagnetic fields, 17, 42, 43, 45
- ELF exposure standard, 9
- ELF research, 42
- ELF survey, 41, 47
- EME Reference Group, 43
- emergency preparedness and response, 13, 33, 34, 35
- employee support, 72
- enforcement, 48, 49, 58, 59, 60, 61
- environmental management committee, 68, 87
- environmental radioactivity, 38, 39-41
- epidemiological studies, 30
- ethical standards, 70
- Executive Board of Management, 66, 67, 69, 71, 73
- exemptions from licensing, 98
- export of radioactive material, 51
- external scrutiny, 71, 146

F

fraud control, 66, 67, 70, 146
Freedom of information, 88–91, 146

G

governance, 66, 146
graduate recruitment, 17, 38, 60, 73, 74, 75

H

human resources, 71, 146
HIFAR, 11, 12, 51, 104, 109, 149

I

information management
International Atomic Energy Agency (IAEA),
14, 15, 28, 29, 32, 33, 34, 40, 49, 71
IAEA Integrated Regulatory Review Service
Mission, 29, 49, 71, 104, 149
IAEA Safety Standards, 14, 28, 49, 108
International Commission on Non-Ionizing
Radiation Protection (ICNIRP), 15, 28, 30
International Commission on Radiological
Protection (ICRP), 14, 32, 105
importation of radioactive materials, 52
Incident register, 38
inspections, 48, 50
internal audit, 17, 66, 67, 68, 69, 86
internal control, 67, 68
International activities, 14
international guidance, 28

K

Key performance indicators, 50

L

learning and development, 75
Legal Services Directions, 92

Licence

amended, 95
applications, 27, 94
breaches, 48–49
exemptions, 98
facility, 51, 95
issued, 95
source, 94
surrendered, 95

M

management, 16, 66–68
measurement, 38, 44
medical linac, 12, 47
Ministerial advice, 53
mobile phone base stations, 41, 42, 43, 47
medical radiation code of practice, 8, 9

N

National Association of Testing Authorities
(NATA), 40, 45, 46, 69
National Directory for Radiation Protection,
8, 35, 101, 107
National guidance, 31, 32, 39
national dose register, 13, 39
National register of high activity sources, 12,
34
naturally occurring radioactive materials
(NORM), 32, 39, 104
non-salary benefits, 80
nuclear power, 15, 100
Nuclear Safety Committee, 16, 20, 109

O

Occupational health and safety, 68, 86
Optimisation, 9, 15, 27, 32
Organisation structure, 21
Outcome and output structure, 22, 146
OPAL, 10, 49, 51, 98, 109

P

Performance Development System, 75
Personal Radiation Monitoring Service (PRMS), 45
performance pay, 76, 80, 146
polonium-210, 40, 106
Portfolio Budget Statements, 26
Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organisation (CTBTO), 14
purchasing, 82, 146

Q

Quality Management Committee, 69
Quality System, 69

R

radiation exposures, 30, 37, 38
Radiation Health and Safety Advisory Council, 9, 15, 20, 21, 32, 108
Radiation Health Committee, 8-10, 12, 13, 15, 16, 20, 21, 28, 31, 42, 101, 102, 107
Radiation Protection Series, 53, 54
radiation safety, 68, 86
radioactive source security, 34, 105
radioactive waste, 34, 102
radioanalytical services, 40, 55
radionuclide monitoring, 14, 33,
Radiopharmaceutical Quality Assurance, 43, 55
regulatory guidance, 52
regulatory information management system, 50, 59
remuneration, statistics and staffing, 76
research reactor conference, 8, 29, 105
RF research, 42
risk management, 69

S

security of sources, 33
senior management committees, 66
Service Charter, 55
services, 13, 40, 44, 47, 69
solaria, 12, 31, 36, 107
Staff Consultative Forum, 73
stakeholders, 52, 54
STARS, 34

T

Therapeutic Goods Administration (TGA), 43
Transport of radioactive material, 16, 28, 32, 98, 102, 103

U

Ultraviolet Protection Factor, 13, 46,
ultraviolet radiation, 36, 47,
United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR), 15, 30, 105, 108
Uranium Industry Framework, 13, 27, 39
Uranium mining, 17
Uranium Mining Processing and Nuclear Energy Review (UMPNER), 103,

V

Voluntary redundancy program, 74

W

website, 53
workforce planning, staff turnover and retention, 73
workplace diversity, 70, 71
World Health Organization (WHO), 15, 30

