Australian Government

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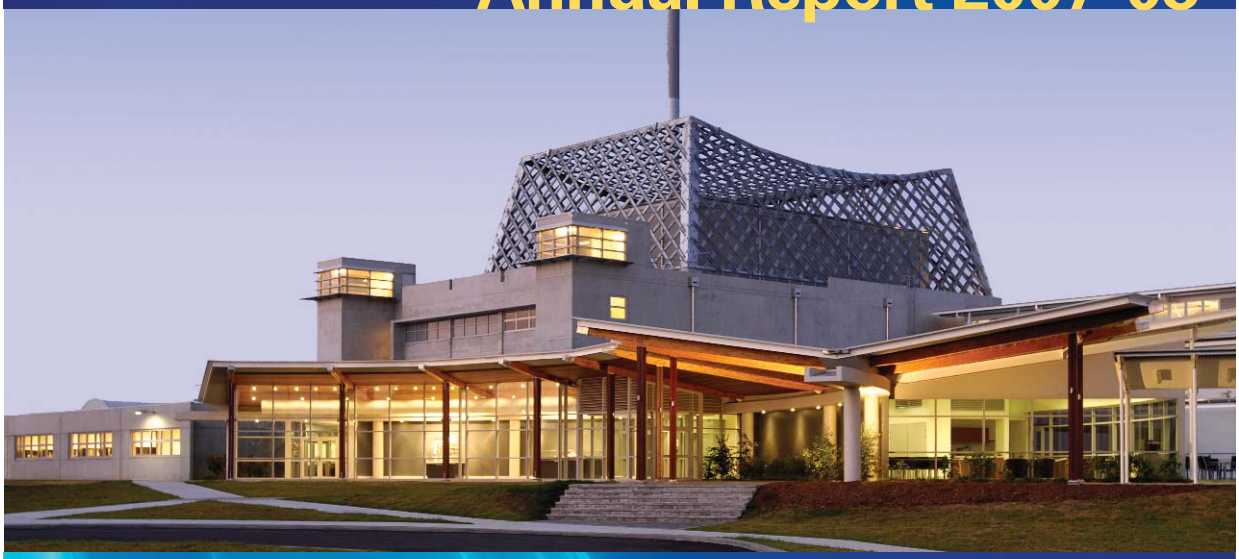
Nuclear-based science benefiting all Australians

Annual Report 2007-08



Australian Government

ansto

Nuclear-based science benefiting all Australians

Annual Report 2007-08

Chairman's Letter

22 September 2008

Senator the Hon Kim Carr
Minister for Innovation, Industry, Science and Research
Parliament House
CANBERRA ACT 2601

Dear Minister

In accordance with Section 9 of the *Commonwealth Authorities and Companies Act 1997* (*CAC Act*), I am pleased to present the Annual Report of the Australian Nuclear Science and Technology Organisation for the period 1 July 2007 to 30 June 2008.

This Annual Report includes a report of Research and Operations, the content and preparation of which the Board is responsible for under Section 9 of the *CAC Act*.

Yours sincerely

Dr Ziggy Switkowski
Chairman

Contents

About ANSTO

The Australian Nuclear Science and Technology Organisation (ANSTO) is Australia's national nuclear research and development organisation and is the centre of Australian nuclear expertise.

ANSTO operates Australia's nuclear research reactor OPAL. OPAL is used to produce radioactive products for use in medicine and industry, as a source of neutron beams for scientific research and to irradiate silicon for semiconductor applications.

ANSTO's nuclear infrastructure also includes particle accelerators, radiopharmaceutical production facilities, and a range of other unique research facilities.

ANSTO's main site is located 40 kilometres south west of Sydney's central business district, occupies 70 hectares and is surrounded by a 1.6 kilometre buffer zone.

ANSTO also operates the National Medical Cyclotron, an accelerator facility used to produce short-lived radioisotopes for nuclear medicine procedures. The cyclotron is situated at the Royal Prince Alfred Hospital in Camperdown, Sydney.

The organisation's functions are prescribed by the *Australian Nuclear Science and Technology Organisation Act 1987 (ANSTO Act)* and are translated into action through corporate drivers of vision, mission and strategic goals.

ANSTO's vision

To be recognised as an international centre of excellence in nuclear science and technology for the benefit of Australia.

ANSTO's mission

- Support the development and implementation of government policies and initiatives in nuclear and related areas, domestically and internationally
- Operate nuclear science and technology based facilities, for the benefit of industry and the Australian and international research community
- Undertake research that will advance the application of nuclear science and technology
- Apply nuclear science, techniques and expertise to address Australia's environmental challenges and increase the competitiveness of Australian industry
- Manufacture and advance the use of radiopharmaceuticals which will improve the health of Australians.

ANSTO's strategic directions

ANSTO's strategic directions form the basis for the organisation's research and operations:

- Deliver excellence in nuclear science and technology

- Focus our capabilities to support issues of national importance
- Maximise return on investment in expertise and specialised facilities
- Promote understanding of the benefits of nuclear science and technology.

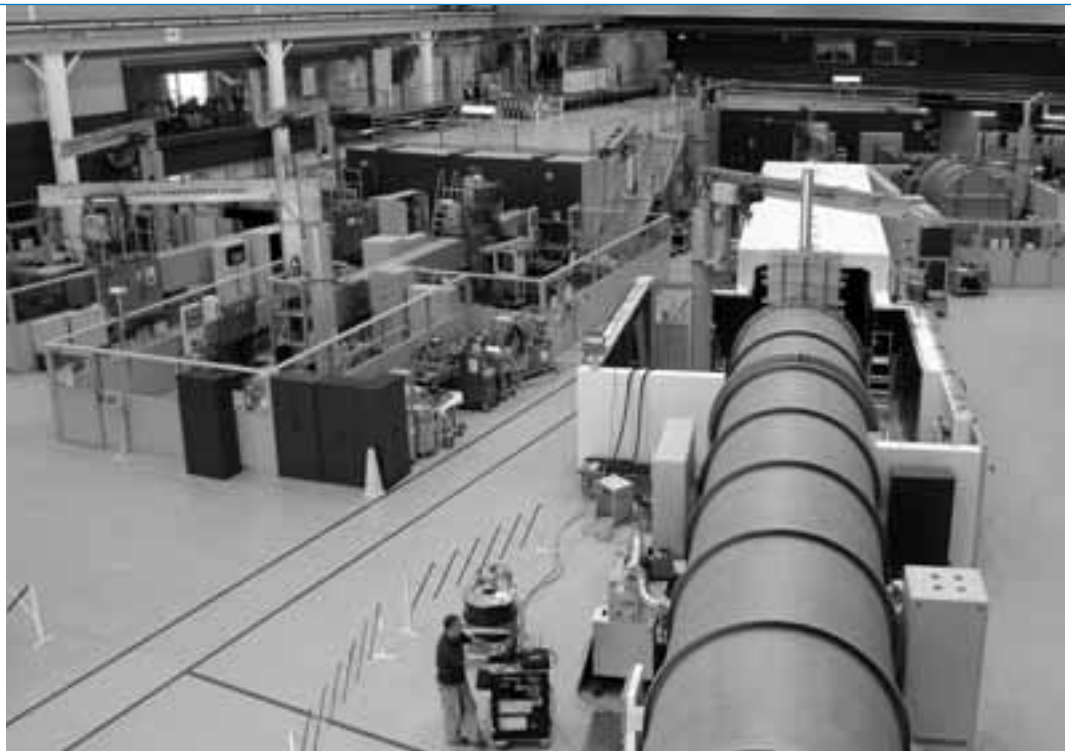
Responsible minister

From 1 July 2007 to 2 December 2007, the responsible minister was the then Minister for Education, Science and Training, the Hon Julie Bishop, MP. From 3 December 2007 to 30 June 2008, the responsible minister was the Minister for Innovation, Industry, Science and Research, Senator the Hon Kim Carr.

Statement of compliance

This report is written with reference to the *Commonwealth Authorities and Companies (Report of Operations) Orders 2005.*

Senator the Hon Kim Carr, Minister for Innovation, Industry, Science and Research.



Five of OPAL's seven neutron beam instruments recorded their first data in the 2007-08 financial year, confirming the instruments work properly. The large instrument in the foreground is a small angle neutron scattering instrument, also known as Quokka. It is used for looking at sizes and structures of objects on the scale of a billionth of a metre like polymer molecules, biological molecules, defect structures in metals and ceramics, and the porosity of sedimentary rocks in oil and gas reservoirs.

Management

As at 30 June 2008

Dr Ron Cameron
Chief Executive Officer (Acting), Chief of Operations

Dr George Collins
Chief of Research

Dr Robert Robinson
Head, Bragg Institute

Prof John Dodson
Head, Institute for Environmental Research

Prof Lyndon Edwards
Head, Institute of Materials Engineering

Dr Ron Weiner
Head, Radiopharmaceutical Research Institute

Mr Doug Cubbin
General Manager, Finance and Administration and Chief Financial Officer

Mrs Cait Maloney
General Manager, Safety and Radiation Services

Mr Andrew Humpherson
General Manager, Government and Public Affairs

Mr Con Lyras
General Manager, Technical Services and Facilities Management

Dr Greg Storr
General Manager, Reactor Operations

Mr Ian Turner
General Manager, ANSTO Radiopharmaceuticals and Industrials

Mr Bob Ring
General Manager, ANSTO Minerals

Mr Michael Beckett
Manager, Information and Technology Services

Members of the Board

Dr Ziggy Switkowski

BSc (Hons), PhD, FAICD

Company Director, former Chief Executive, Scientist

Chairman 1 March 2007-31 December 2010

Appointed 1 January 2006

Term concludes 31 December 2010

Mr Bill (William) Scales, AO

BEc, FIPPA

Company Director, former Senior Public Servant and Chief Executive, Economist

Appointed 1 July 2007

Term concludes 30 June 2010

Prof Paul Greenfield, AO

BE(Hons), B.Econ, PhD, FTSE, FIEAust, FIChE, FAICD, CPEng, CEng, CSci

Vice-Chancellor University of Queensland, Academic, Engineer

Appointed 25 July 2007

Term concludes 24 July 2010

Prof Andrew Scott

MBBS (Hons), MD, FRACP, DDU

Director, Ludwig Institute for Cancer Research

Nuclear Medicine Physician, Scientist, Academic

Appointed 26 September 2007

Term concludes 25 September 2011

Mr Edward Pretty

Senior Consultant to Macquarie Bank and Chairman of Fujitsu Australia Limited and RP Data Limited

Appointed 26 September 2007

Term concludes 25 September 2011

Prof David Copolov

MBBS, PhD, FRACP, FRANZCP, MPM, DPM

Senior Adviser, Office of the Vice-Chancellor and President, Monash University and Professor of Psychiatry, Monash University and the University of Melbourne

Deputy Chairman of the Peter MacCallum Cancer Institute

Appointed 1 May 2008

Term concludes 30 April 2012

Prof John Hearn

BSc, MSc, PhD

Deputy Vice-Chancellor (International) and Professor of Physiology, University of Sydney

Appointed 1 May 2008

Term concludes 30 April 2012

Dr Ron Cameron

BSc, MSc, MBA, DPhil, ARCS, MAICD

Chief Executive Officer (Acting)

Appointed 17 May 2008

Term concludes 16 May 2009

Dr Ian Smith

BE, PhD, FTSE, FIEAust, CPEng

Executive Director/Chief Executive Officer

Appointed 17 May 2004

Term concluded 16 May 2008

Chairman's Report

Welcome to ANSTO's Annual Report for 2007-08. This has been a lively year for ANSTO – concern about global climate change saw nuclear energy emerge in the public debate, while the new government has reaffirmed ANSTO's traditional mandate to focus upon nuclear research and development, the production of radiopharmaceuticals for health care, and industry partnerships such as in support of the nation's mining and resources activities. It was a year of both setbacks and achievements as ANSTO went about fulfilling its role as Australia's centre of nuclear technology, research and expertise and Australia's lead agency in regional nuclear cooperation.

Upon the official opening of the OPAL reactor in April 2007, the early weeks of operation promised to confirm the world class nature of the facility and encouraged growing excitement in the research community. However, a seemingly simple problem with the uranium fuel plates in the core led to an extended shutdown, reminding us of the many challenges that come with commissioning such a significant and complex piece of scientific infrastructure.

The shutdown impacted on ANSTO's ability to produce radiopharmaceuticals and to restart its silicon irradiation business, and also forced the cancellation of user time on the first two Bragg Institute neutron scattering instruments. The pause in operations has highlighted once again the many important functions provided by a modern nuclear research reactor.

Despite the disruption to the reactor operations, there were positive developments and achievements throughout the year. In early July 2007, we announced that a world leader in Positron Emission Tomography (PET), Siemens Medical Solutions, had agreed to team with ANSTO in constructing an FluoroDeoxyGlucose (FDG) production facility with two cyclotrons at the ANSTO site. ANSTO plans to use the cyclotrons to manufacture FDG, which is used in PET scanning - the fastest growing diagnostic imaging technique.

With ANSTO's experience and level of expertise in nuclear technology, it has been well placed to provide advice domestically and internationally on issues ranging from nuclear non-proliferation, nuclear forensics and counter terrorism to the nuclear fuel cycle, including criteria for a radioactive waste repository.

I would like to thank all Board members, but especially those whose terms

concluded during the period - the previous Deputy Chairman Mr Michael Eager, who was first appointed in January 2002 and was chairman of the Audit Committee; and Dr Klaus Schindhelm, whose five year term concluded in March 2008.

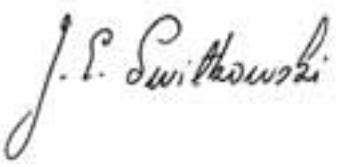
In September 2007, we welcomed Professor Andrew Scott and Mr Edward Pretty to the ANSTO Board. Professor Scott is the Director of the Ludwig Institute for Cancer Research. Mr Pretty is an executive director at the Macquarie Group. Professor John Hearn and Professor David Copolov joined the Board in May 2008. Professor Hearn is Deputy Vice-Chancellor (International) and Professor of Physiology at the University of Sydney. Professor Copolov is Senior Advisor, Office of the Vice Chancellor at Monash University and Deputy Chairman of the Peter MacCallum Cancer Institute.

The Board of ANSTO therefore contains many new faces. As the organisation prepares itself for an era where government and the community will expect more from our nuclear capabilities and from our investments in world class facilities, the Board is well placed to help lead the necessary transformation.

The Chief Executive Officer of ANSTO, Dr Ian Smith, came to the end of his contract in May 2008. I congratulate Dr Smith on his significant achievements during his term at ANSTO, including the creation of new research institutes, overseeing the construction and first power up of the OPAL reactor, and cementing ANSTO's role as Australia's centre of advice and expertise on all matters nuclear. He certainly left the organisation well placed to take the next steps on the journey of continuous improvement.

I thank ANSTO's Chief of Operations, Dr Ron Cameron, who has taken on the role of acting CEO while a global search is undertaken to replace Dr Smith.

Finally, I want also to acknowledge the enthusiasm and resilience of ANSTO's staff. The country's interests are well served by the talented, committed and expert staff who make up ANSTO. The excitement and renewed sense of motivation as OPAL was returned to full power was palpable, and I am sure that this spirit will ensure that ANSTO will rise to the challenges ahead.



Dr Ziggy Switkowski
Chairman

Chief Executive Officer's Report

This year was a year of challenges for ANSTO, but also of many achievements. Challenges have been primarily due to the extended shutdown of the OPAL research reactor due to the movement of some fuel plates. While the solution to the problem was arrived at relatively quickly, an extended shutdown was necessary in ensuring a cautious approach and safe resolution to the satisfaction of all involved, including the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA). Having achieved this, I am pleased to report that on 23 May 2008, OPAL returned to its full power of 20 megawatts. Since then, the process of final commissioning is well underway, including the resumption of final commissioning of the neutron beam instruments and the work required to move towards the production and supply of radiopharmaceuticals using the OPAL reactor. ANSTO anticipates the progressive granting of operating licences by ARPANSA to the seven neutron beam instruments during the second half of 2008.

The many achievements during the period included those in areas of our research, international recognition and cooperation, and commercial enterprises. Environmental research at ANSTO is particularly strong, with nuclear techniques being used in the study of climate change, such as atmospheric modelling, climate and rainfall predictions and studying Australia's water resources. Professor John Dodson, head of ANSTO's Institute for Environmental Research, authored two chapters of the official publication of the International Year of Planet Earth. Professor Dodson also achieved recognition for work in dating wheat and barley from ancient China. Other environmentally focused research included work that showed that cave stalagmites can be used to reconstruct past rainfall cycles and predict future ones. In other areas of research, patents were granted for an ANSTO ion-exchange technology that has potential applications in the decontamination of radioactive waste and the waste produced in uranium and copper mining operations; and a micro-dosimeter development, in collaboration with the University of Wollongong and the University of New South Wales, with support from the Australian Research Council, that is designed to accurately measure radiation doses at the cellular level.

Domestic and international scientific collaborations have also been strong over the past year. Collaborative research

between ANSTO, the CSIRO Food Futures Flagship and the University of Queensland received international recognition for work into the properties of proteins in dry conditions. The National Deuteration Facility (NDF) based at ANSTO, which provides biodeuteration capabilities (to enhance the visibility of biomolecules in neutron scattering experiments), has established a number of collaborative projects with leading structural biology groups at universities including the Universities of New South Wales, Sydney, Melbourne and Adelaide and Macquarie University.

There have also been achievements commercially and in technology transfer, with the ANSTO spin off company CeramiSphere's successes in global collaborations. Applications of CeramiSphere's ceramic technology for the encapsulation, protection and controlled delivery of a wide range of molecules range from anti-corrosion coatings for aircraft, through to the release of flavours in foods and drug delivery applications in healthcare. A $10 million deal between ANSTO and Siemens will ensure more Australians have access to the latest PET treatments, and a US$1.4 million deal with Idaho National Laboratory will demonstrate the benefits of ANSTO's Synroc technology to treat radioactive waste.

ANSTO has continued its significant contribution to Australia's international nuclear diplomacy. ANSTO's programs with countries in our region with regard to the safe and peaceful uses of nuclear technology are one of the main mechanisms by which Australia fulfils its obligations under the Nuclear Non-Proliferation Treaty. ANSTO is also the lead agency through which Australia participates in the Forum for Nuclear Cooperation in Asia (FNCA).

ANSTO's work in the community has also been a highlight, with tours of ANSTO becoming an increasingly popular day out for schools, community groups and families. This year ANSTO recorded 9411 visitors to its site and for the first time provided a primary school program based on activities suitable for Years 3-5. ANSTO has also continued its bi-annual Community Discussions, which give people another forum to ask questions and learn more about ANSTO research and operations. ANSTO was a Gold Sponsor of Science Meets Parliament in 2008, and six ANSTO representatives participated.

In looking to the future, a refocusing of the organisation to better concentrate on ANSTO's core activities is required. With budget cuts and rising costs, the challenge we now face is to restructure the organisation while preserving our unique areas of nuclear expertise while ensuring that Australian researchers reap the benefits of the investment in the OPAL reactor.

Chief Executive Officer's Report

I would like to thank the staff of ANSTO for the willingness they have shown in accepting change and supporting the future direction of the organisation. I would also thank the ANSTO Board for their support and former ANSTO CEO Dr Ian Smith for his leadership over the past four years.

Dr Ron Cameron
Chief Executive Officer (Acting)

Highlights 2007-08

July

- A $10 million deal between ANSTO and global medical giant Siemens Medical Solutions was announced. The deal is to build a new PET nuclear medicine production facility consisting of two state-of-the-art cyclotrons at ANSTO.
- ANSTO welcomed Mr Bill Scales and Prof Paul Greenfield as members of the ANSTO Board.
- Prof John Dodson, Head of ANSTO's Institute for Environmental Research, was appointed Vice-Chair of the Science Program Committee for the International Year of Planet Earth (IYPE). IYPE is hosted by UNESCO and the International Union of Geological Sciences. Professor Dodson also chairs the Climate Change Focus Group.
- ANSTO launched its Graduate Recruitment Program, aiming to recruit 15 Australian graduates each year from 2008. The graduates will undertake a four-year program to build expertise in nuclear science and technology. Seventy applications were received.

August

- The official opening of the ANSTO sponsored Nuclear Matters exhibition was held at the Powerhouse Museum in Sydney. The exhibition gives the public a unique opportunity to gain a greater understanding about the role nuclear science plays in our lives.
- ANSTO conducted a series of successful exercises with local units of the NSW Fire Brigade over four days to test the NSW Fire Brigade response arrangements for the ANSTO site.
- A Memorandum of Understanding (MoU) was signed between ANSTO and the University of Sydney which covers joint appointments, joint research, use of each others' facilities, scholarships and supervision of students. The MoU will help facilitate scientists from the university using the OPAL reactor for research.
- ANSTO won top honours at the annual Manufacturers' Monthly Endeavour Awards, taking out the Safety Scheme category for its neutron beam instrument safety system.

September

- ANSTO Chief of Operations, Dr Ron Cameron, attended the IAEA Board of Governors meeting and the General Conference as well as the RCA General Conference in Vienna. Dr Cameron was the chair of the RCA at the time.
- ANSTO welcomed Prof Andrew Scott and Mr Edward Pretty as members of the ANSTO Board.
- Principals from 40 local primary schools visited ANSTO. The principals were shown activities suitable for primary aged students and gained a better understanding of the work ANSTO does. With this visit, ANSTO extended its long-running educational programs to primary schools. The programs provide tours and resources to secondary schools, including professional development days for physics and chemistry teachers, learning resources specifically tailored to the NSW school syllabus, and support and sponsorship of science teachers' associations.

Highlights 2007-08

October

- Collaborative research between ANSTO, the CSIRO Food Futures Flagship and the University of Queensland received international recognition in understanding the molecular and microscopic basis for protein properties in dry conditions at a major international Food Industry Conference held in the UK.
- As part of the National Deuteration Facility, ANSTO established a number of collaborative projects with leading structural biology groups centred at various Australian universities, including the Universities of New South Wales, Sydney, Melbourne and Adelaide as well as Macquarie and the Australian National University. Deuteration improves the capacity to characterise samples, particularly using the neutron radiation produced by the OPAL reactor. This technique has many applications, including discovering the properties of high-tech polymers.
- ANSTO Institute of Materials Engineering staff completed a successful two-week IAEA-funded mission to Indonesia to assist with in-pool inspections during a major shutdown of the Kartini research reactor.
- The first graduates were accepted by ANSTO as part of the Nuclear Graduate Development Program

November

- Over 100 delegates, in Sydney for the Government hosted International Atomic Energy Agency (IAEA) International Conference on Research Reactors, undertook a technical tour of ANSTO. The tour included an overview of ANSTO and discussion of OPAL, HIFAR's decommissioning process, Synroc and neutron scattering.

December

- ANSTO and the US National Nuclear Security Administration co-hosted a Global Initiative to Combat Nuclear Terrorism workshop in Sydney. The workshop discussed the actions required to move from using high enriched uranium to using low enriched uranium in the production of molybdenum-99 for medical purposes. ANSTO uses low enriched uranium to produce molybdenum-99; most major producers globally use high enriched uranium.
- Research published by ANSTO's Prof John Dodson and Prof Xiaoqiang Li, from the State Key Laboratory of Loess and Quaternary Geology in China, focused on the Xishanping archaeological site in northwest China, where wheat and barley was found and subsequently carbon dated to 2,650 BC. These wheat grains revealed that western man travelled, settled and brought new agriculture to China much earlier than previously thought.
- ANSTO held its bi-annual Community Discussion focusing on a key topic of community interest - ANSTO's waste management operations. The discussion also covered how nuclear science is used to measure atmospheric pollution.

January

- New research, revealed at ANSTO's first rainfall conference, showed that cave

stalagmites can be used to reconstruct past rainfall cycles and help predict future rainfall patterns. By carbon dating young stalagmites and comparing the water drip factor which helped create them with modern weather bureau statistics, scientists at ANSTO, Newcastle University and the Australian National University were able to show that stalagmites hold near-accurate records of rainfall for the period studied.

February

- ANSTO and the Defence Science and Technology Organisation (DSTO) jointly developed a remote control vehicle, known as the RASP (Remote Advanced Sensor Platform), to detect and identify radioactive materials. The vehicle will potentially aid national security agencies in responding to radiological incidents by allowing operators to remain at a safe distance while identifying radioactive materials.
- Two chapters authored by Prof John Dodson, outlining the world's climate change challenges and some steps to address them, featured in the official publication of the International Year of Planet Earth launched in Paris. Prof Dodson was also appointed as a member of the expert working group reviewing the National Collaborative Research Infrastructure Strategy roadmap for the Environmentally Sustainable Australia National Research Priority.
- A unique Australian ion-exchange technology that can remove a range of toxic radioactive and non-radioactive heavy metals, including lead, silver, caesium and other elements resulting from nuclear and mineral processing activities was granted a patent in the United States. The technology was originally developed by ANSTO for dealing with the radioactive waste ANSTO generates during the production of medical isotopes. It can also be used for the decontamination of solutions involved in uranium and copper mining operations, as well as to help manage the waste streams from nuclear power production overseas.

March

- A micro-dosimeter developed in collaboration between ANSTO, the University of Wollongong and the University of New South Wales with the support of the Australian Research Council was designed to accurately measure the amount of energy deposited by ionising radiation within a human cell nucleus, allowing better understanding of radiation effects on humans. The applications are particularly significant for air and space travel, where radiation exposure is complex, and for understanding the radiation dose people receive during cancer treatments.
- ANSTO was again a gold sponsor of Science meets Parliament (SmP), which is run each year by the Federation of Australian Scientific and Technological Societies (FASTS) to allow parliamentarians to meet with scientists and for scientists to become more aware of the process of government policy development. The focus of topics proposed by FASTS were environmental, which allowed ANSTO to inform parliamentarians about the depth

Highlights 2007-08

and quality of environmental research conducted at ANSTO. Other topics addressed by ANSTO personnel at SmP were research infrastructure and the safety of nanotechnology

April

- A US$1.4 million deal was signed between ANSTO Inc (ANSTO's US arm) and Battelle Energy Alliance - the management and operating contractor for the Idaho National Laboratory - to demonstrate the benefits of Synroc technology in treating legacy waste stored at the site. ANSTO's Synroc technology is also being demonstrated in the UK, where a process is being implemented to use an ANSTO Synroc-based glass-ceramic matrix to permanently immobilise five tonnes of legacy plutonium waste residues currently stored at Sellafield.
- The fiftieth anniversary of the then Prime Minister Robert Menzies opening Australia's first nuclear reactor, HIFAR, was celebrated on 18 April 2008. To commemorate the day, the Powerhouse Museum ran continuous screenings of the HIFAR documentary.
- ANSTO announced that it was conducting tests on a Swedish uranium ore to verify if a site, newly acquired by Australian mining company Aura Energy, was viable for uranium mining. ANSTO's expertise in metallurgical testing was to be used to determine the amount of recoverable uranium in the ore and reduce the associated consumption of chemicals required for the process.

May

- ANSTO welcomed Prof John Hearn and Prof David Copolov as members of the ANSTO Board.
- Chief Executive Officer of ANSTO, Dr Ian Smith, came to the end of his contract. Dr Smith's significant achievements during his term at ANSTO were acknowledged, particularly in his commitment to raise the quality and visibility of ANSTO research.
- ANSTO received approval from ARPANSA for a modified fuel design and to re-start the OPAL reactor, which was shut down in July 2007 due to the movement of some fuel plates.
- OPAL returned to its full power of 20 megawatts on 23 May. The process of completing commissioning and moving towards the operations phase of the reactor resumed, as did final commissioning activities for the neutron beam instruments.

June

- With the OPAL re-start, neutron scattering patterns were achieved by ANSTO's Bragg Institute on five of its seven state-of-the-art neutron beam instruments – Wombat, Echidna, Platypus, Kowari and Koala. The patterns were taken as part of the calibration process to ensure the instruments were operating correctly.

Australian Government

Nuclear-based science benefiting all Australians

Operations report

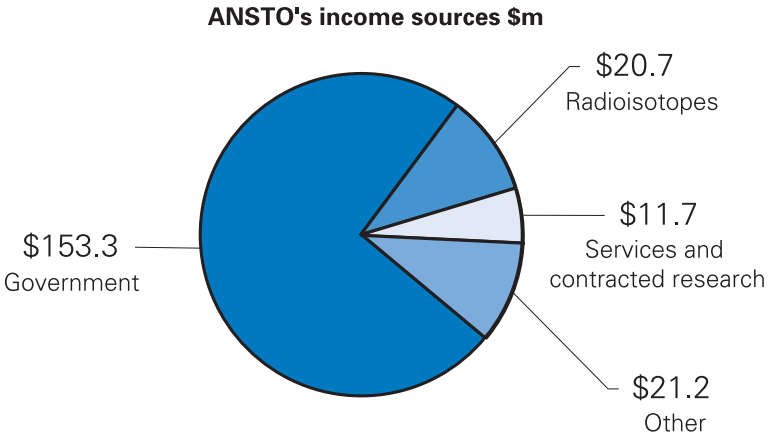
ANSTO's world-class high-resolution powder diffractometer, known as Echidna, is suited for the determination of the structure of new materials. This diffraction technique can accurately resolve both complex atomic and magnetic structures. Relevant fields of study using Echidna are solid-state physics, materials science, chemistry, geosciences, and engineering.

ANSTO is Australia's national nuclear research and development organisation and the centre of Australian nuclear expertise. It is part of the Australian Government portfolio of Innovation, Industry, Science and Research.

ANSTO is funded by the Australian Government to undertake research in the applications of nuclear science and technology and to deliver specialised advice, scientific services and products to government, universities, other research organisations, international organisations and businesses in areas as diverse as mining and nuclear medicine. In addition, about a quarter of ANSTO's revenues are derived from contracts, sales of products and services, grants and other commercial income sources.

About one-third of ANSTO staff are involved in research. The balance are in operations and support roles – such as reactor operations, safety, technical services, facilities management, radiopharmaceutical production, waste management, library services, government and international liaison, finance, information technology services and business roles.

ANSTO's research infrastructure includes a research reactor, accelerators and



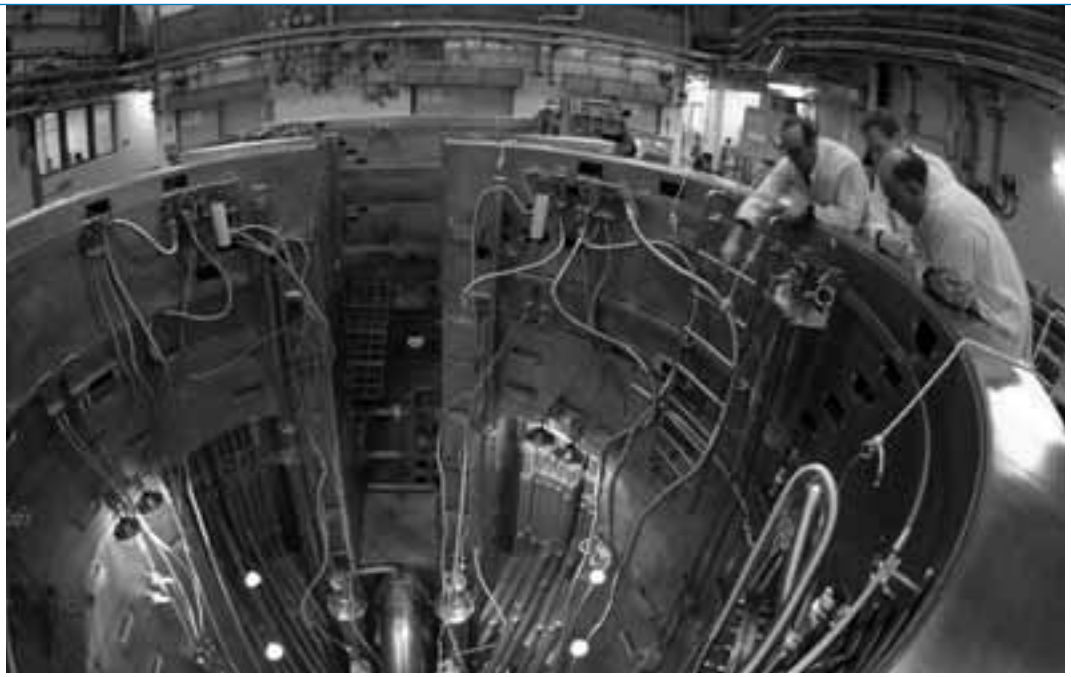
associated instruments as well as workshops and specialist laboratories. ANSTO's research reactor, OPAL, is a world-class multi-use facility. The accelerators, the Australian National Tandem Accelerator for Applied Research (ANTARES) and Small Tandem for Applied Research (STAR) are used for accelerator mass spectrometry and high energy ion beam analysis applications.

ANSTO's research infrastructure is used extensively by other members of the Australian and New Zealand research communities such as researchers from universities, other science and technology organisations and industry. ANSTO also manages the Access to Major Research Facilities Program (AMRFP) and the Australian Synchrotron Research Project (ASRP), both of which provide Australian researchers with access to major international facilities.

Instrument scientists in ANSTO's facilities are expected to be active researchers in their own right as well as contributing to the research of their instrument users. The Bragg Institute is responsible for building and operating the neutron scattering instruments on OPAL and managing the ASRP. The Institute for Environmental Research operates the ANTARES and STAR accelerators, which are used by Australian researchers from a very diverse range of disciplines, and has been responsible for the establishment of the National Deuteration Facility, which will assist neutron scattering users with preparation of isotopically-enhanced chemical and biological samples.

Management of OPAL commissioning

Subsequent to successful initial commissioning and operation of the reactor from August 2006, the reactor was shut down in July 2007 due to the movement of several fuel plates. This movement was detected during a planned shutdown and at no time presented a



Inspecting the OPAL pool. OPAL is a state-of-the-art multi-purpose open-pool reactor which uses low enriched uranium fuel. OPAL provides life-saving nuclear medicines, neutrons for scientific research and irradiation services.

safety or environmental hazard. The reactor was restarted once the necessary design modifications to the fuel were approved by ARPANSA and implemented. OPAL returned to full operational power on 23 May 2008.

In 2006, it was noticed that there was some seepage of light water into the heavy water of the reflector vessel. This is not a safety or environmental issue but can affect the performance of the reactor. Repairs were undertaken during the period that the reactor was shutdown; however some further repairs are required.

Upon returning to operation, the commissioning of neutron beam instruments and production of commercial quantities of several nuclear medicines progressed.

Radiopharmaceuticals

An application to ARPANSA was expected to be lodged soon after the end of the financial year for the irradiation of targets in OPAL, from which the radiopharmaceutical molybdenum-99 (Mo-99) is extracted. If approval is granted from ARPANSA to irradiate the targets, then a testing program will commence, which includes target irradiation and subsequent processing. These tests are necessary to satisfy Therapeutic Goods Administration (TGA) requirements. After successful testing, formal TGA approval will be sought to commence routine production of this important radiopharmaceutical. It is hoped that full commercial supply will commence during the fourth quarter of 2008.

Operations report

ANSTO produces life saving radiopharmaceuticals, including molybdenum-99 which in turn decays to technetium-99m. Technetium-99m is used in 80 per cent of nuclear medicine imaging.

Neutron-beam instrument status

By the end of June 2008 five of the seven neutron beam instruments had recorded their first data, confirming that the instruments work properly, and are moving towards commissioning completion. During the shutdown these commissioning processes had been delayed.

Silicon irradiation

Irradiation of silicon for semi-conductor electronic applications was delayed due to the OPAL shutdown.

Spent fuel shipments

There were no spent fuel shipments in this financial year. The ninth and final shipment of HIFAR spent fuel is due to take place in 2008-09.

Managing Australia's core nuclear facilities

Waste operations

ANSTO continued to manage and store its radioactive waste in a safe and secure manner. ANSTO produces 30 cubic metres of operational and laboratory low-level waste annually and 2.5 cubic metres of intermediate waste from radioisotope production and reactor operations.

All of this waste is stored according to international best practice.

Facility management

The ANSTO site comprises approximately 90 buildings over an area of 70 hectares, which requires significant management and maintenance.

In December 2007 the initial ANSTO Asset Development Plan was completed. This plan, which resulted from a comprehensive review of the existing ANSTO facilities and the strategic direction of the organisation, outlines the proposed development of the ANSTO facilities over the next ten years.

The plan identifies eleven initial major new infrastructure projects that are necessary to facilitate the strategic directions of the organisation over the next decade. These projects include the ANSTO biology laboratories, OPAL offices and workshop facilities and the upgrade of waste operation facilities. Work has

Low-level waste storage facility. Low-level waste contains very small amounts of radioactivity and does not require shielding to protect workers during normal handling or transportation. Ninety-eight per cent of waste produced by ANSTO is low-level waste, comprising paper, plastic, gloves, cloths and filters which contain small amounts of short-lived radioactivity.

commenced on the conceptual, and in some cases detailed, design of these facilities. Completion of these facilities will lead to the opportunity to demolish and/or refurbish some existing facilities and in turn improve operational efficiency and decrease maintenance costs

Further operational efficiency will be delivered by the amalgamation of all of the current site services workgroups into one division and the separation of the facility planning and servicing functions. This will bring together the facility maintenance, waste management and safety and security functions into a new Campus Services division.

Representing Australia internationally

ANSTO actively supports Australia's obligations and duties under the Nuclear Non-Proliferation Treaty (NPT) by facilitating the further development of peaceful nuclear cooperation in the Asia Pacific region. Much of this effort is directed to the two main multinational arrangements for nuclear cooperation in this region, which are the Regional Cooperative Agreement (RCA) for Asia and the Pacific and the Forum for Nuclear Cooperation in Asia (FNCA).

The RCA brings together 17 countries through a Treaty-level Intergovernmental Agreement, which is implemented under the auspices of the International Atomic Energy Agency (IAEA). In 2007 there were 20 operational RCA projects encompassing the following eight sectors: agriculture, energy planning, environment, human health, industry, radiation protection, research reactor utilisation and technical cooperation among developing countries. ANSTO provides the Australian representative and coordinates the overall Australian contribution to the technical program.

ANSTO is the lead agency through which Australia participates in the FNCA. Ten countries participate in this Japanese promoted and led initiative. FNCA is an informal cooperation arrangement, with all member countries being signatories to the NPT. Currently, technical activities span seven areas - applications of radioisotopes

ANSTO is the centre of Australia's nuclear science capabilities, operating the nation's only nuclear reactor. ANSTO offers a wide range of scientific and technical services and expertise to governments and organisations in Australia and around the world.

and radiation to agriculture; applications of radioisotopes and radiation to medicine; human resource development; public information; industrial applications; research reactor utilisation; radioactive waste management; and safety culture.

The safety culture activity has been Australian-led and funded. ANSTO also participates in the radioactive waste management, research reactor utilisation and public information activities. Australia's future contribution to the FNCA is now being reviewed.

As Australia's national nuclear research organisation, ANSTO provides the principal technical interface with the IAEA, and ANSTO staff participate in a wide range of IAEA activities. As well as contributing to the IAEA's Technical Cooperation Program through the provision of experts, technical consultants and training course lectures, ANSTO is the IAEA-appointed coordinator for placement and management of all IAEA fellowship holders and scientific visitors undergoing specialist training in Australia.

ANSTO has nuclear representatives based in both Vienna in Austria and Washington DC in the United States. The Vienna post acts as a liaison with the IAEA and participates in global nuclear policy discussions representing Australia's interests. The Washington office provides feedback and engagement with the United States and Canada on technical and global developments in nuclear issues including advanced technology, waste and

transport issues. Both representatives report on developments and provide technical advice to the respective ambassadors and other Australian Government agencies in Europe and North America.

In the past year, Australia began the process of joining the Generation IV International Forum (or GIF) which would enable Australia to strengthen its nuclear technology skills base. The GIF research program is an international collaborative venture aimed at advancing the development of the most promising next generation reactor technologies. The new reactor designs promise to increase safety and reduce radioactive waste production and proliferation risks. Whether or not Australia has a nuclear power industry, ANSTO's involvement would be globally beneficial and important to maintain skills and knowledge in Australia – particularly with many neighbouring South East Asian countries advancing plans for nuclear power industries. The current government is reassessing this involvement and we await the outcome.

ANSTO's existing expertise in radioactive waste management and advanced materials would be a valuable contribution to this global research effort.

Security and safeguards

In accordance with international agreements and stringent national laws and regulations, ANSTO is required to protect all its nuclear material and facilities from security threats and to ensure that all its nuclear material is used exclusively for peaceful purposes. Australia's *Nuclear Non-Proliferation (Safeguards) Act* authorises the issue of permits to ANSTO to possess, use and transport nuclear material and to operate nuclear facilities on condition that appropriate physical protection measures and safeguards are in place.

Australia has been a party to the NPT since 1974. Under this treaty, IAEA inspectors have permission to verify that all nuclear material in this country is used exclusively for peaceful purposes. Regular inspections of the nuclear materials ANSTO holds are conducted by both the Australian Safeguards and Non-Proliferation Office (ASNO) and the IAEA.

ANSTO's safeguards operations are consistent with international best practice.

Protection of nuclear material and facilities from security threats is an obligation under international convention and agreements. The ANSTO site is guarded 24 hours, 7 days a week, by the Australian Federal Police (AFP), who have a counter-terrorism plan in place. In addition, the AFP can call on the NSW Police for assistance.

External radiation services

ANSTO provides radiation services and advice to a wide range of government and private stakeholders. Radiation safety services include radiation safety training, radiation protection consultancy, radiological instrument calibration and systems safety and reliability consultancy.

ANSTO is helping to control fruit fly in Australia through radiation techniques. Male insects are sterilised using radiation and released. When the sterile insects mate with the wild insects, no offspring are produced. This approach is environmentally friendly and has been widely and successfully applied throughout the world.

ANSTO also provides services and advice in the areas of radiation processing and high-dose dosimetry. ANSTO operates a cobalt-60 irradiator that provides a comprehensive range of irradiation services for scientific research and the provision of commercial services to industry.

One such service is sterile insect technique, which ANSTO provides to control fruit fly infestations in Australia. Fruit fly invasions into otherwise fruit fly-free areas disrupt the $600 million a year trade in citrus, stone fruit, apples, pears, grapes and other crops. Since 1988, the NSW Department of Primary Industries has used ANSTO's irradiation service to sterilise millions of laboratory-reared fruit flies per week. When the sterilised flies are released in the target region and mate with wild flies of the pest population, they create no offspring, thus reducing the population. This nuclear technique is the only alternative to spray applications of toxic pesticides when eradication is required.

ANSTO continues to irradiate these insects for the agricultural industries in New South Wales, Victoria and South Australia on a weekly basis for up to nine months of the year.

ANSTO's education program

Over the last year, ANSTO's education program has developed to further benefit science students, science teachers, government initiatives and the general community. The Visitor Centre also underwent refurbishment.

In 2007-08, there were 9411 visitors to ANSTO, a significant increase on previous years as noted in the graph on the following page.

As well as offering general public site tours on Saturdays, ANSTO also offers customised visits for community and

school student groups. Over the last year, tours were tailored for students in Kindergarten to Year 6 (K-6) in line with the NSW Science and Technology syllabus. A K-6 workbook containing lesson plans was developed as an additional resource for teachers. This complements existing lesson plans developed for high school students.

ANSTO continued its support for science teacher development and familiarisation with nuclear science through sponsorship and by holding teacher development days at ANSTO. ANSTO aims to increase understanding of nuclear science and its applications across all student age groups.

Community information

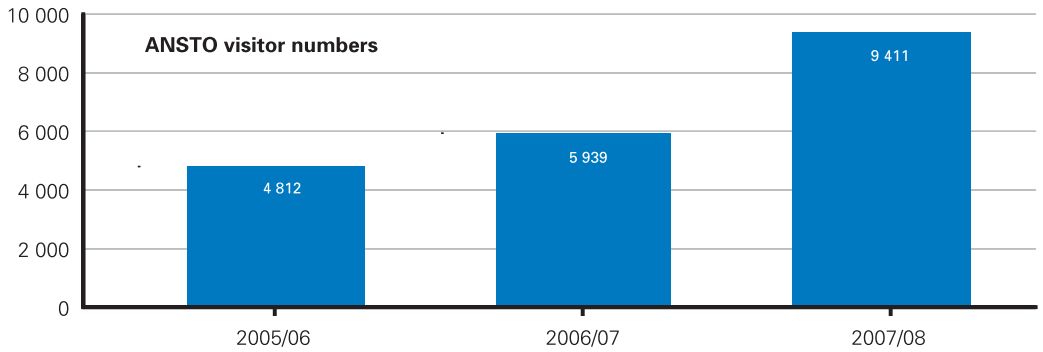
As part of its commitment to keeping the local community informed of its activities, ANSTO held a community forum whereby the general community was invited to an open discussion of issues important to ANSTO and the community. As part of this approach, a newsletter outlining ANSTO's activities and research was circulated throughout the local region.

ANSTO has also sought to ensure that its commitment to being a responsive and open organisation is reflected in advising the community of any developments.

During the ten month shutdown of the OPAL reactor, ANSTO kept the public, customers and media informed of progress with the fuel design problem and its resolution.

ANSTO monitors radiation levels in and around the ANSTO site as well as providing these results and meteorological information on the ANSTO website.

The last year has seen substantial progress on several new initiatives. The National Deuteration Facility, funded by the National Collaborative Research Infrastructure Strategy, is taking shape with recruitment of staff and the development of biodeuteration and chemical deuteration laboratories.



Operations report

Presenter of the ABC Science Show, Robyn Williams; ANSTO Acting Chief Executive Officer, Ron Cameron and Deputy Director, Powerhouse, Jennifer Sanders at the ANSTO sponsored Nuclear Matters Exhibition at the Powerhouse Museum. The permanent exhibition allows people to learn more about the nuclear industry in an easy to understand and entertaining format.

The Australian Synchrotron commenced operation in Melbourne, with ANSTO researchers amongst the first users.

ANSTO Inc, ANSTO's US subsidiary, won a contract worth US$1.4 million in the current calendar year to demonstrate the effectiveness of a Synroc-type solution for dealing with legacy waste problems in the USA.

ANSTO runs free guided education and community tours of its Lucas Heights site. Visitors find out how life-saving nuclear medicines for treating cancer are developed and produced; learn about ANSTO's climate change research; visit the Neutron Guide Hall; see live footage of the reactor and much more.

Australian Government

ansto

Nuclear-based science benefiting all Australians

Research report

ANSTO's capability in water management issues, particularly groundwater and past rainfall records, has been widely recognised, and several iconic regional studies are underway.

Dr Ron Weiner took leadership of the Radiopharmaceutical Research Institute in October 2007 and has expedited the process by which compounds developed over the past few years are now on their way into clinical trials.

ANSTO is also participating in a new Defence Materials Technology Centre (DMTC), funded through a competitive process involving a broad range of companies and research groups.

The shutdown of the OPAL research reactor in July 2007 has delayed establishment of the user program for neutron scattering and commissioning of the neutron scattering instruments. Australian researchers have not had a local neutron scattering facility and have had to rely on access to overseas facilities to progress their research. Despite this, some experiments have been conducted as part of the commissioning process for the neutron beam instruments when the OPAL reactor was operational, and the first results from OPAL's neutron scattering instruments have appeared in scientific literature.

ANSTO's research is conducted under the following themes:

- Neutron and X-ray scattering
- Isotopes in the environment
- Nuclear materials engineering
- Health and radiation science
- National interest and capability enhancement

Achievements for 2007-08 have included the following:

Neutron scattering

The Bragg Institute user program allows researchers from around Australia and overseas to access the neutrons produced by the OPAL reactor. The major challenge during the year was to maintain output (for example by the increased use of overseas facilities) and collaboration with potential users during the reactor shut-down. Collaboration has increased through joint post-doctoral positions and joint PhD students. Major outputs included publications, numerous invited talks and other conference presentations and the first publications resulting from OPAL neutrons.

Food science

Neutron and x-ray science techniques are used to investigate fundamental and industrial problems of national significance in food science. One of the highlights for the project during the year was receiving a financial commitment from the CSIRO Food Futures Flagship to jointly investigate food-relevant proteins in low moisture content conditions and the structure of resistant starch and its associated health-related benefits.

Also, a 'Protein Syndicate' has been initiated, based on a successful UK model, in which industry sponsors pay a

membership fee to access pre-competitive research outputs.

Research into 'dry proteins' has lead to various publications, a first prize in the international Gums and Stabilisers Conference and a third prize in the George F. Stewart Institute of Food Technologists International Research Paper Competition. This work related to understanding the molecular and microscopic basis for protein properties in dry conditions.

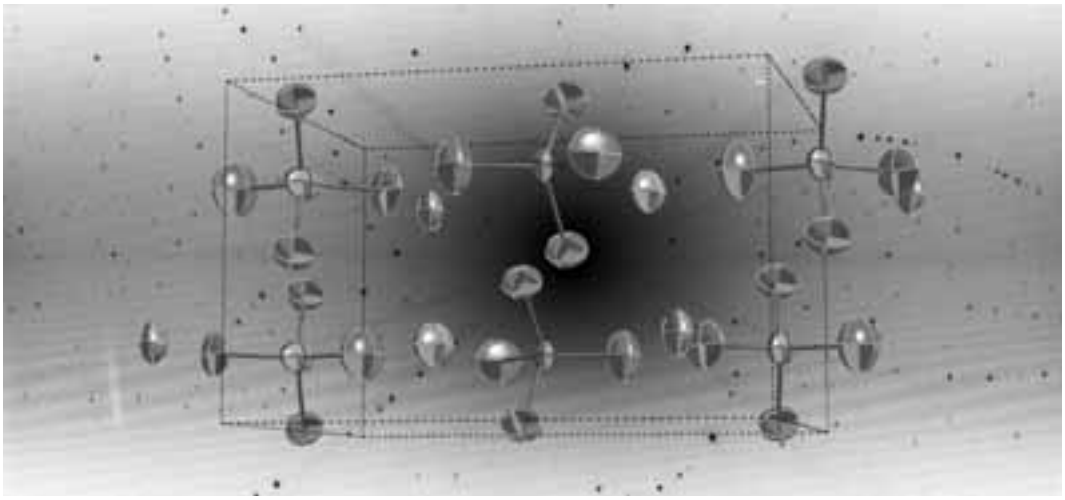
Neutrons for energy and the hydrogen economy

In aiming to advance new energy technologies this project has focused on both the creation and storage of hydrogen. We are aiming to improve the production of hydrogen from water by selectively modifying oxide films used in this process. In hydrogen storage we have focused on using porous materials that adsorb hydrogen as a gas, rather than chemically reacting the hydrogen with the material. The range of neutron beam techniques available to us will contribute to understanding the nature of this material-hydrogen interaction, thus enabling future fine-tuning of the porous materials for the purpose of hydrogen storage. We have also been investigating solid-state conductors. Such materials have important roles in fuel-cells and batteries, where small changes in the structure can affect the material performance.

National Deuteration Facility

ANSTO is establishing a National Deuteration Facility (NDF) which will be a centre of excellence in the application of deuteration science to problems investigated using neutron techniques.

In June 2008 the first neutron diffraction experiment using the Koala Laue diffractometer was conducted. The image shows a Laue diffraction pattern of potassium permanganate.



Deuteration involves the production of molecules where all or part of its hydrogen is in the deuterium form, that is, the stable (non-radioactive) heavy isotope of hydrogen. Deuteration of molecules enables the creation of contrast between molecules or complexes when analysed using neutron beam instruments.

Establishment of the NDF, which is jointly funded by ANSTO and by the National Collaborative Research Infrastructure Strategy, commenced in 2007. Significant progress has been made in terms of research infrastructure, staff recruitment and capability building and demonstration.

The NDF underwent its first external review by the NDF Advisory Committee - which is constituted of international experts in neutron science and deuteration, as well as representatives of the Australian Neutron Beam Users Group and the Australian Institute for Nuclear Science and Engineering (AINSE) - with very positive results.

Tracing atmospheric pollutants

This project is focused on characterising and quantifying exchange, mixing and transport processes for key climate-related gases and pollutants in the lower atmosphere, enabling practical, science-based improvements to pollution management and alleviation of the effects of climate change.

The project is routinely involved in the analysis of air pollution in Australian and regional centres.

Atmospheric fine particles (particulates with diameter smaller than 2.5 micrometres) are typically produced by combustion processes, motor vehicles, industrial plants, and mining operations, as well as from natural sources such as windblown soil and sea spray. The effect of these fine particles on the health of the population and the environment is of increasing concern.

ANSTO has run a sampling program for more than 10 years. Aerosol samples are routinely collected from a number of Australian sites as well as sites in Asia. These samples are analysed by means of ion beam analysis using ANSTO's accelerator facilities.

The analysis allows the ANSTO researchers to determine the constituents of the pollution, identify the individual sources (such as lead and bromine from motor vehicles, aluminium and silicon from windblown soils, hydrogen and sulphur from industry, and sodium and chlorine from sea spray) and assess their potential impact on health and the environment.

A network of ground monitoring stations for natural atmospheric radionuclides in the greater Sydney area are co-located with fine particle aerosol sampling units. In 2007-08, continuous measurements were collected from this Sydney network, which is designed to further enhance our ability to track atmospheric fine particle pollution from urban and industrial sources. This new work is aimed at

ANSTO can identify airborne pollutants, determine their origins, track their movement across regions and continents and create comprehensive atmospheric pollution profiles.

comprehensive characterisation of seasonal to inter-annual patterns of pollution emissions impacting a high proportion of the Australian population.

Determining climate history

ANSTO does substantial research work into climate change. Most of what is understood about climate change is based on Northern Hemisphere data; this project gives us more specific Southern Hemisphere data relating to how climate change will impact on Australia. ANSTO is working to identify, collect, measure and analyse unique records of climate change in the Southern Hemisphere, using nuclear-based techniques to gain a better understanding of environmental change, landscape evolution of the Australian continent, and processes of climate variability in the past.

There has been significant scientific interest in ANSTO's research findings that indicate that the East Antarctic Ice Sheet will be the last of the world's ice sheets to be affected by global warming. In other activities during the 2007-08 year, researchers have been predicting rainfall, and reconstructing past rainfall patterns, by using cave stalagmites. By carbon dating young stalagmites using ANSTO's highly sensitive particle accelerators, and comparing the water drip factor which helped create them with modern weather bureau statistics, we have been able to show that stalagmites hold near-accurate records of rainfall for the period studied.

Preliminary results show that stalagmite water drip factor is almost a mirror of modern rainfall monitoring, with stalagmite and cave drip water geochemistry from locations as diverse as Wombeyan Caves in NSW, Margaret River Caves in WA and Smiths Cave, Christmas Island having clear symmetry with recorded rainfall over periods of up to 80 years. The next stage of research will be to date older stalagmites so scientists can map rainfall patterns over thousands of years and establish the big picture of past

Dr Janece McDonald from the University of Newcastle checking the drip rate in the Wombeyan Caves in the Southern Highlands of NSW. The drip rate determines the growth rate of stalagmites and depends on rainfall at the surface. By measuring the drip rate in the cave for several years through a drought and high rainfall periods, a better understanding was gained of how stalagmites grow. This knowledge can now be applied to much older and bigger stalagmites and thus reconstruct past droughts and rainfall information. The precise dating of the formation of stalagmites was done by Post-doctoral fellow Dr Ed Hodge at ANSTO using Accelerator Mass Spectrometry (AMS) techniques.

rainfall cycles and help determine the extent of climate variability.

This research is very encouraging, as the key to successful Australian water management planning is being able to accurately map and understand current and past patterns of Australian rainfall.

Water and drought

ANSTO aims to improve water balance and sustainability estimates for key water storages and resources across Australia, advance scientific understanding of fundamental hydrological processes, and examine trace contaminants and assess their risk to aquatic ecosystems in Australia and South-East Asia.

Isotope balance methods have been used in the Barwon-Darling River system to trace water gains and losses along river reaches. ANSTO's research is ultimately improving the gathering of information on the Barwon and Darling Rivers and contributes to the sustainable management of this highly stressed Australian dryland river ecosystem.

Groundwater demand is steadily increasing in the Mangrove Mountain-Kulnura area, on the NSW Central Coast. This research has used radiocarbon and tritium dating to provide local water managers with a detailed water-age map of the area to assist in ensuring sustainable exploitation of extracted groundwater. The work is a collaborative effort with the NSW Department of Water and Energy and is partially funded by the local councils.

ANSTO has also been developing superior nuclear borehole logging systems in collaboration with CSIRO. This new technology is being applied in research related to the sustainable use of groundwater.

Two new projects were established this year with support through the NSW Wetland Recovery Plan and the NSW Rivers Environmental Restoration Program. These schemes were established with funding from the Federal and New South Wales governments and the projects are managed by the NSW Department of Environment and Climate Change.

Accelerator science

This project drives accelerator-based nuclear research, related to ion beam analysis (IBA), accelerator mass spectrometry (AMS) and secondary ion mass spectrometry (SIMS).

The project also provides technical support for the safe, efficient and effective operation and scientific enhancement of ANSTO's accelerator capabilities, facilities and expertise for internally and externally driven activities from universities, CSIRO, Local and State governments, industry and international organisations including the International Atomic Energy Agency (IAEA).

The ANTARES accelerator has a nuclear non-proliferation application in assisting the IAEA in measuring the presence of uranium, plutonium and iodine-129, and thereby detecting any undeclared nuclear activities.

These accelerator facilities cater for over 100 individual external users each year and successfully complete between 30 and 40 AINSE projects per year from all 37 universities around Australia, plus other universities in New Zealand. They also provide unique nuclear facilities and capabilities for internally driven ANSTO research.

Current research is focused on: heavy ion micro-spectroscopy; ion beam induced charge effects in semiconductor nuclear detection systems; nuclear methods in trans-boundary air pollution studies; understanding the heavy metal accumulation mechanisms in plants using nuclear methods; ion beam interactions with matter; and nuclear reaction analysis of multi-layers, interfaces and thin film microelectronic devices.

Recent project achievements include:

- the introduction of novel data processing techniques for identification of source fingerprints and full quantification of their contribution to fine particle air pollution
- the characterisation of a whole new range of radiation detectors and micro-dosimeters such as biological cell-sized (two micrometre) detectors
- development of a new high resolution system on the heavy ion microprobe used for mapping of heavy metals in plant tissues
- dating of the oldest surviving Buddhist text, in collaboration with the British Library and the University of Washington
- Carbon-14 measurements of cells' regeneration rate in different parts of the human brain, in collaboration with the Nobel Medical Institute in Stockholm and with Griffith and Melbourne universities
- Radiocarbon dating as a tool in the fight against illicit drugs, in collaboration with the University of Newcastle.

Radioactive waste

This project focuses on the environmental aspects of nuclear operations, focusing on radioactive waste, radionuclide migration and impacts on the environment.

During the year, a scientific study commenced of the legacy radioactive waste site (known as the 'Little Forest Burial Ground' or LFBG) within the ANSTO buffer zone, including sampling of soil and groundwater, vegetation uptake studies

and hydrological modelling. This project builds on several decades of environmental monitoring of LFBG that has demonstrated that radiological exposures to members of the public are negligible.

The project also commenced research within an IAEA Cooperative Research Program on the behaviour of cementitious materials in long term storage and disposal of radioactive waste.

A senior ANSTO scientist was appointed to the international technical direction team of the Organisation for Economic Cooperation and Development (OECD) Nuclear Energy Agency Sorption Project, focused on the environmental mobility of radionuclides in the vicinity of nuclear waste repositories. ANSTO researchers were invited to research centres in South Africa and Germany for research including neutron tomography of cement and time-resolved laser fluorescence studies of radionuclide uptake.

In related research, a journal paper on synchrotron measurements of cadmium distribution in soils was published, demonstrating the wider applicability of nuclear techniques and of the research undertaken at ANSTO, as well as attracting favourable media coverage.

Structural integrity

The structural integrity project is related to the safe and efficient operation of ANSTO's own nuclear research plant and applying those skills to support other Australian industrial infrastructure. Research and development activities are focused in three task areas; research reactor activities, safety critical engineering and advanced nuclear structural materials.

Work in the research reactor activities component this year included identification of the OPAL fuel movement issue, and review of the design solution and inspection of the fuel in France.

Significant progress was made on safety critical engineering projects, including predicting the costs and damages associated with start-ups and shutdowns of large, high temperature engineering plants and a residual life assessment project that focuses on extending the life of industrial plants. Several significant commercial contracts have been performed during the year, including repeat business for a large power station operator.

In the advanced nuclear structural materials component, the objective is to study the performance of materials designed for use in advanced power generation systems, including fission and fusion power. Progress has been made on the newest area of research – modelling of welds. Collaboration in this area with British Energy has commenced.

Counter terrorism research project

The objective of this project is to utilise and strengthen ANSTO's ability to contribute to the Safeguarding Australia

The Remote Advanced Sensor Platform, or RASP, was jointly developed by ANSTO and the Defence Science and Technology Organisation. The robot can remotely examine and assay radioactive materials.

national research priority and support the Publicly Funded Agencies' Collaborative Counter-Terrorism research program. The project has developed an effective program that is highly regarded by user agencies and other research providers in the national and international counter terrorism community.

Some examples of work completed are the provision of scientific and technical guidance to the Australian Customs Service, the Department of Infrastructure, Transport, Regional Development and Local Government and the collaborative development with Defence Science and Technology Organisation (DSTO) of a Remote Advanced Sensor Platform (RASP) that allows stand off detection and identification of radioactive material. As a joint development by ANSTO and the DSTO, RASP was announced in early 2008 by the Minister for Defence Science and Personnel. This robot allows operators to stand at a safe distance, up to 350 metres away, when assessing a suspected radioactive threat, such as a 'dirty bomb' or other nuclear material including uranium and plutonium. The RASP is far more versatile than radiation detection systems currently in use and is being assessed by Australian national security agencies.

Advanced nuclear systems

The advanced nuclear systems (ANS) project covers a range of activities, including the development, demonstration and commercialisation of ANSTO's Synroc waste form technology. During the year, a US$1.4 million deal was signed between ANSTO Inc (ANSTO's US arm) and Battelle Energy Alliance - the management and operating contractor for the Idaho National Laboratory - to demonstrate the benefits of Synroc technology in treating legacy waste stored at the site. ANSTO's Synroc technology is also being demonstrated in the UK, where a process to use an ANSTO Synroc-based glass-ceramic matrix to permanently immobilise five tonnes of legacy plutonium waste residues currently stored at Sellafield is being implemented.

Another commercially successful application that has arisen from Synroc research is using HIP (Hot Isostatic Pressing) technology to produce denser, more reliable and longer lasting materials. The process uses very high heat and pressure to reduce the impact of defects by eliminating pores or improving bonding with the parent material, improving its microstructure and mechanical properties.

A very important use for the HIP technology is in creating improved medical implants such as artificial bone (hydroxyapatite), knee, hip, spinal and

knuckle joints which are guaranteed to survive their designed lifespan. Thousands of medical implants destined for patients around the region are treated using ANSTO's HIP technology every year.

The ANS project also includes work on separation science, work that can have wide ranging deployment within both the nuclear fuel cycle and in the production of radioisotopes for medical applications, as well as new materials research related to the nuclear fuel cycle and radiation damage physics.

Another significant achievement of the project during the year was achieving a US patent for a unique Australian ion-exchange technology platform that can remove a range of toxic radioactive and non-radioactive heavy metals, including lead, silver, caesium and other elements from industrial processing solutions resulting from nuclear and mineral processing activities. The technology was originally developed by ANSTO for dealing with the radioactive waste ANSTO generates during the production of medical isotopes. It can also be used for the decontamination of solutions involved in uranium and copper mining operations, as well as to help manage the waste streams from nuclear power production overseas.

Radioisotope development

Some radioisotopes have greater potential for use in nuclear medicine than others. This is determined by a number of factors, including physical characteristics of the radioisotope (decay half-life, type of decay emissions, chemistry etc), the projected use of the radioisotope (diagnosis or therapy), and the disease state to be targeted. This project has focused on making a range of isotopes which are not readily available on a commercial basis, utilising both the OPAL research reactor and ANSTO's National Medical Cyclotron.

Lutetium-177 (Lu-177) is a rare metal isotope of growing interest in the nuclear medicine community as a therapeutic radionuclide. The advantage of Lu-177 over other therapeutic radionuclides is that it possesses both intermediate beta particle energy and a gamma photon. The intermediate beta particle energy should help reduce damage to normal cells during treatment of diseased cells. The gamma photon allows easy imaging of the radionuclide and therefore the ability to ensure the target has been 'hit'.

Lu-177 can be joined with a number of 'targeting' agents for application in the treatment of lung tumours, melanoma, neuroendocrine tumours, ovarian, renal cell and prostate cancers. The most immediate use for Lu-177 in Australia is in a planned clinical trial to treat neuroendocrine disease, rare cancers that are hard to diagnose early. ANSTO has developed a new purification method for Lu-177 employing solid phase extraction chromatography using a specially designed resin. It is expected that commercial production can commence in the future.

Radiopharmceuticals are packed into lead pots and prepared for shipment.

ANSTO has also achieved large scale production of the copper-64 (Cu-64) radioisotope in the National Medical Cyclotron. This is a radioisotope generating interest in the research community and its half-life is only 12.7 hours, making it impractical to import from overseas. This project was achieved by optimising the choice and design of the target material and improving the separation of the Cu-64 product. Cu-64 is being applied in studying basic copper metabolism and its relationship to a variety of diseases, including Alzheimer's.

Commercial business report

The commercial strategy implemented over the past 12 months has seen ANSTO successfully expand commercial income in many sectors and create a number of key strategic partnerships with industry. Total earnings for services, contract research and training generated in excess of $11.9 million from 1600 projects with industry.

ARI (radiopharmaceuticals)

ARI is the commercial nuclear medicine arm of ANSTO. It is the primary supplier of radiopharmaceuticals in Australia, operating from the ANSTO site and the National Medical Cyclotron at Camperdown in Sydney. Each year, around 500 000 Australians benefit from nuclear medical procedures that use radioisotopes from ARI. ARI supplies around 200 public and private nuclear medicine centres in Australia, as well as exporting radiopharmaceuticals to Asian, New Zealand, and other markets.

Regulatory and testing processes were recommenced upon the restart of OPAL after an extended shutdown. Pending successful testing, formal TGA approval will be sought to commence routine production of molybdenum-99, the source of technetium-99m which is the most widely used medical isotope. The shutdown of the OPAL reactor emphasised the benefits of domestic production of reactor-based radiopharmaceuticals with importation being expensive and unreliable often due to the high airfreight weights which results in occasional offloading of shipments.

PETNET

In July 2007 it was announced that Siemens Medical Solutions and ANSTO will construct an FDG production facility with two cyclotrons at ANSTO. In order to carry out this activity on a commercial basis, ANSTO has created a wholly owned subsidiary, entitled PETNET

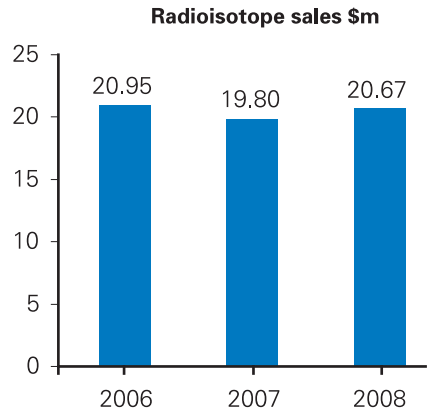
Positron emission tomography (PET) scans, or PET imaging, work by obtaining physiological images based on the detection of radiation from the emission of positrons. A positron is a positively charged electron.

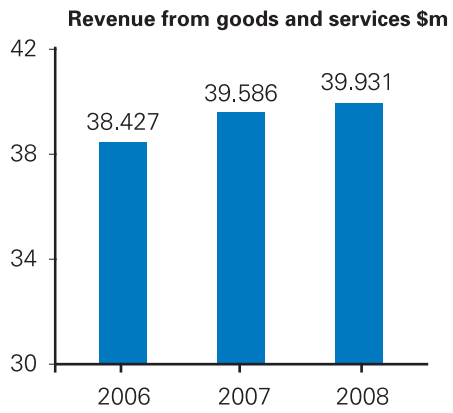
Australia Pty Limited. ANSTO plans to use the cyclotrons to manufacture FDG for the New South Wales market.

FDG is used in PET scanning, which has produced significant advances in diagnosis of cancer and other medical conditions. PET is the fastest growing diagnostic imaging technique, its use having grown globally by 200 per cent in four years. It gives increased diagnostic accuracy, and has been shown to influence treatment programs for cancer treatment in over 50 per cent of cases when employed. Currently, Australian FDG production capacity is insufficient to meet demand. Last year, 30,000 patients in NSW could not access PET treatment.

CeramiSphere

CeramiSphere Pty Limited has continued to move closer to becoming an independent company, with the aim of commercialising its patented ceramic technology for the encapsulation, protection and controlled delivery of a wide range of molecules. The technology has a diverse range of potential applications, ranging from healthcare to food through to industrial products and can include drug delivery, cosmeceuticals and speciality chemicals.





A collaboration with a global aircraft manufacturer for the development of anti-corrosion coatings has recently been extended following successful results, and a project funded by a major manufacturer of food products in the United States has demonstrated the use of the technology for the controlled release of flavours and sweeteners.

The CeramiSphere team has also had very encouraging results from two of its healthcare projects, having shown the potential of its technology in a gene therapy application and completing preliminary in-vivo trials on the development of an oral insulin product. Success with either of these developments could lead to the use of CeramiSpheres to deliver a broad range of proteins and peptides, as well as a wide range of traditional drugs, and thereby secure a significant share of the growing, multi-billion dollar drug delivery market.

Other potential commercial applications of the technology that have been investigated include its use in healing of wounds, the delivery of enzymes in cleaning products and the controlled release of vitamins and nutrients in cosmeceuticals.

CeramiSphere has been granted patents in Australia, the United States, New Zealand, India and Mexico, with European, Japanese and Canadian applications pending.

The company expects to attract private investment within the next 12 months as the first step on a path to commercial success.

Australian Membrane Technologies

Australian Membrane Technologies Pty Ltd (AMT) is a 100 per cent owned subsidiary of ANSTO.

AMT utilises a unique biological approach and the use of advanced membranes for the efficient treatment and recycling of household and industrial waste water. AMT technology provides low cost operations and the ability for households and small communities to make water savings of up to 60 per cent.

AMT's Nano-particulate Membrane Bioreactor (NMB) technology has been shown to work at various scales with grey water, grease trap waste, sewage and many different industrial waste water streams such as effluents from breweries, wineries and a detergent factory.

ANSTO Minerals

ANSTO Minerals is a mining industry consultancy group that has specialised knowledge of uranium ore processing. The group has a 25 year track record of providing practical solutions and innovative technology in ways that deliver financial and environmental benefits to the mining industry. Consulting and research work is carried out in:

- Uranium ore processing and extraction;
- Control of naturally occurring radioactive materials in the minerals industry; and
- Process development in hydrometallurgical processes.

In a world concerned with global warming and future energy supplies for growing economies, the interest in nuclear power and uranium has grown significantly. Over the last year, this has resulted in ANSTO Minerals continuing to expand its facilities and resources to meet the increased demand from companies seeking to expand existing facilities or bring new uranium mines into production.

Australia has the largest reserves of uranium in the world and is the world's second largest uranium (yellow cake) producer. ANSTO Minerals has strong on-going relationships with all of Australia's uranium producers. ANSTO Minerals is working on several new development projects for mines in Australia and overseas.

There is a growing awareness of radioactivity in other, non-uranium mineral products. This has been driven by stricter regulations and the threat of legal liability over exposure to Naturally Occurring Radioactive Material (NORM). ANSTO Minerals assists the extraction of such resources by providing services, specialist advice and expertise relating to radionuclides.

Revenue from the provision of consultancy and research and development services has increased by 66 per cent from $4.06 million in 2006-07 to $6.75 million in 2007-08. Significant partnerships included:

- Two major pilot plant projects with significant AusIndustry Grant funding were commissioned. One in partnership with Alkane Resources to recovery of zirconium, and another with Arafura Resources to recover rare earths
- Energy Resources Australia signed an Umbrella Research Agreement with ANSTO Minerals for the ongoing provision of uranium processing commercial research
- ANSTO Minerals continues to have an ongoing strategic relationship with BHP Billiton which has included numerous projects for the Olympic Dam expansion project.

The primary objective of ANSTO Minerals research is to develop technologies that will increase the competitiveness and environmental sustainability of operations in the uranium mining sectors and industries affected by NORM. One research focus in uranium processing has been the development of uranium separation technologies, such as solvent extraction and ion exchange for uranium operations in arid areas where high quality water is in short supply.

Radiation Safety Services

Significant market research and business planning was conducted for the set-up of the new Radiation Safety Services business unit. Many of the services offerings remain the same ie Radiation Safety Services will include radiation safety training, radiation protection consultancy and radiological instrument calibration. However, the business focus and support will increase to provide a more strategic and commercially orientated unit resourced to proactively

Located 560 kilometres north of Adelaide, South Australia, Olympic Dam is a multi-mineral ore body. It is the world's fourth largest remaining copper deposit, fifth largest gold deposit and the largest uranium deposit. It also contains significant quantities of silver.

meet demand and grow the business to a $1 million turnover per year within five years.

Industrials withdrawal

A comprehensive market analysis and business review of the ANSTO industrial isotope business was conducted in 2007. Following the review the decision was made to withdraw from the industrial isotope business as of 31 March 2008.

Commercialisation

Access ANSTO provides external organisations with a single point of access to ANSTO's unique nuclear science expertise, technology and capabilities.

Commercial and collaborative interactions

During the past year ANSTO has worked with commercial and collaborative partners:

- ANSTO and some of Australia's leading industrial and research organisations have created the Defence Materials Technology Centre – an initiative aimed at developing technologies to enhance Australia's defence capabilities
- ANSTO and CSIRO have commenced collaborative activities with respect to research into ionic liquids
- ANSTO has agreed to a multi-year deal to grant the Australian Synchrotron a

licence to use software developed by ANSTO. This software is a web-based portal to be used by the Australian Synchrotron to administer the process or receiving, reviewing and managing proposals and experiments.

A key feature of ANSTO's approach to commercialising its technology is the creation of strategic partnerships with a variety of large and small to medium enterprises. This approach allows ANSTO to add value to industry partners by utilising ANSTO's unique scientific instruments, equipment and expertise as well as looking to identify and exploit research and commercial opportunities through collaborative activities.

ANSTO has an internal Innovation Forum, which supports inventors with the development of their innovative ideas. The Innovation Forum nurtures ideas from proof-of-concept through to the stage where they are ready for external investment and/or adoption by industry. In 2007/08 a few of innovations from ANSTO's invention pipeline included;

- ^{123}I-CLINDE - The Institute of Neurodegenerative Diseases in the USA, has tested the ANSTO-patented compound ^{123}I-CLINDE in patients with Alzheimer's disease and patients with Parkinson's disease. This compound targets the peripheral benzodiazepine receptors which are few in a normal brain but upregulated by inflammation. Preliminary indications suggest that the compound is a good indication of the neuroinflammation associated with these diseases
- Rapid Heating & Quench Cell - Small angle neutron scattering scientists have invented a Rapid Heating & Quench Cell which will assist researchers to conduct in-situ temperature controlled neutron scattering experiments. It has been short listed for the 2008 Engineering Excellence Awards
- Start-up/shut down software - ANSTO researchers developed a start-up and shut down economic modelling software for power stations. ANSTO is currently using the software to increase the value of its services to the power industry
- Standard test pieces for X-ray cargo scanners – ANSTO have filed a provisional patent application for test pieces used by Australian Customs to calibrate their cargo scanners within hours. First product sales occurred in June 2008
- Nicotinamides for melanoma imaging – A provisional patent application was filed in April 2008 and the technology transferred to the Peter MacCallum Clinic. Clinical trials will commence in 2008-09.

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Associated organisations

ANSTO's accelerator ANTARES (Australian National Tandem Research Accelerator) is a state-of-the-art facility for ion beam analysis (IBA) and accelerator mass spectrometry (AMS). It can analyse minute quantities of material and determine its age or origin. ANTARES is used in radiocarbon dating of diverse materials such as lake sediments, tree-rings, ice-cores, corals, soils, rock-art paintings and human artifacts to better understand human history and changes in climate, the environment and landscapes. ANTARES is also used in non-proliferation, helping detect undeclared nuclear activities, and in law enforcement.

Australian Institute of Nuclear Science and Engineering

Located on ANSTO's Lucas Heights site, the Australian Institute of Nuclear Science and Engineering Incorporated (AINSE) is a not-for-profit association of 39 universities and the Institute of Geological and Nuclear Sciences (New Zealand) in partnership with ANSTO. Thirty-six of the universities are in Australia and three are in New Zealand. AINSE celebrates its 50th anniversary this year.

AINSE's mission is to advance research, education and training in nuclear science and engineering and related fields within Australasia by being the key link between universities, ANSTO and other member organisations and major nuclear science and associated facilities.

AINSE operates on a calendar year basis, with a 2007 income of $2.9 million. AINSE uses its funds primarily to provide access to nuclear and other facilities at ANSTO and to AINSE-supported facilities. In 2007, it supported 155 university projects and provided supplements to 54 postgraduate research students. The projects included cultural heritage, advanced technology, manufacturing, mining, agriculture, medicine and environmental protection.

Associated organisations

Access to Major Research Facilities Program

ANSTO operates the Access to Major Research Facilities Program (AMRFP). For Australian science to remain at the cutting edge and for Australia to benefit from developments in technology, our scientists must have access to the best facilities in the world. This program supports researcher access to large facilities not available in Australia, such as specialist synchrotron radiation sources, high flux neutron beam sources, high energy physics facilities and astronomical facilities.

During the 2007-08 financial year, the program funded 85 teams to perform experiments using facilities in the United States, Europe and Asia.

Australian Synchrotron Research Program

The Australian Synchrotron Research Program (ASRP) supported visits to overseas synchrotron facilities by 182 Australian research teams in 2007-08. Over the last 12 years, the program has enabled researchers to access synchrotron radiation research capabilities at three overseas facilities:

- Australian National Beamline Facility at the Photon Factory, Tsukuba Science City, Japan
- Advanced Photon Source at the Argonne National Laboratory in Chicago, USA
- National Synchrotron Radiation Research Centre in Hsinchu, Taiwan.

Synchrotron radiation-based techniques are vital to a wide range of research fields: physics, chemistry, materials science, structural biology, polymer research, environmental science and geophysics.

The most visible outcome of the success of the ASRP program is the construction of Australia's own synchrotron light source facility in Melbourne. With the Australian synchrotron building up to full operation this year, the focus of the Australian synchrotron users is shifting to this new facility and ANSTO will conclude its management of this program.

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Performance against strategic objectives

Outcome 1 – Nuclear based infrastructure

Objective

The Open Pool Australian Light-water research reactor is operational and providing improved core nuclear facilities for industrial and research and development applications during 2007.

Indicators	Performance
Level of compliance with project plan and achievement of specific milestones: • On time, to the extent within ANSTO's control. • Within budget, to the extent within ANSTO's control.	• OPAL operated early in the year but was shutdown until May 2008. This was necessitated by defects in fuel assemblies. Both time and budget milestones have been revised.

Output 1.1

Effective management of the commissioning of the OPAL reactor.

Indicators	Performance
• Complete performance demonstration (January 2008).	• Completion of the performance demonstration phase of the project has been delayed by the defects relating to the fuel assemblies and the seepage in the reflector vessel. The fuel assembly defect has been addressed and the reactor returned to service. Contractor work is ongoing to address the issues in the reflector vessel. Given current status, best estimate for completion is Q1 2009.
• Complete contract (April 2008).	• ANSTO continues to closely manage this process to maximise the operation of the reactor and promote the Contractor's earliest rectification of the defects within the terms of the Contract. Revised completion date is contingent on performance demonstration and resolution of contractual issues.

Performance against strategic objectives

Outcome 2 – Disposition of spent fuel

Objective

Removal of spent fuel from the ANSTO site in line with stringent safety arrangements and community expectations.

Indicators	Performance
Safety procedures adhered to fully and shipment is: • On time. • On budget.	No shipments were conducted for this reporting year. However, planning for the ninth and final HIFAR spent fuel shipment for 2009 has met time and budget parameters.

Output 2.1

Indicators	Performance
• Logistics contract awarded for final HIFAR spent fuel shipment in 2009.	• Contract awarded.

Outcome 3 – Science and technology solutions

Output 3.1

Management of core nuclear facilities providing Australia with nuclear capability and credibility from which socio-economic benefits flow to Australia, the research and development community and industry.

Indicators	Performance	
	2006-07	2007-08
• Research beamline usage – percentage of all available days, across all instruments.	66%	Nil*
• Research reactor availability – percentage of actual hours at power as a proportion of total hours planned to be at power.	97.8%	12%*
• Accelerator usage – percentage of all available days, excluding maintenance, for tandem accelerators.	77%	79%

* OPAL reactor was not operational for most of 2007-08.

Output 3.2

Expert scientific and technical services for and on behalf of Government, in support of Australia's national and international strategic and nuclear policy objectives.

Indicators	Performance	
	2006-07	2007-08
• Leadership role in national and international forums and networked organisations – number of such roles	37	25
• Person-years by staff on projects that have as a primary objective providing advice to Government	13.5	13.5

Output 3.3

The acquisition of knowledge, through research and its utilisation, through innovation, to advance the beneficial applications of nuclear science and technology to problems of environmental, medical, social and industrial importance.

Indicators	Performance	
	2006-07	2007-08
• Publication and conference papers*:		
- Books, chapters & monographs	6	1
- Journal articles	350	261
- Conference papers/abstracts	289	242
Total	645	504
• Number of research collaborations	153	109
• New inventions per year		
- Invention disclosures	10	7
- Provisional patent filing	2	3

*Publications are reported by calendar year (i.e. 2007)

Performance against strategic objectives

Output 3.4

Education and training provided to industry, universities and schools, including students undertaking studies related to nuclear science and technology and its applications.

Indicators	Performance	
	2006-07	2007-08
• Number of postgraduates and undergraduates supervised	143	100
• External earnings from training courses	$201 000	$162 750

Output 3.5

Regular production and sale of radiopharmaceuticals and radioisotopes for medical and industrial applications and other services, through designated business units.

Indicators	Performance	
	2006-07	2007-08
• Radioisotope sales (total)	$19 795 007	$20 673 375
• Export sales	$4 788 530	$5 226 941
• Radiopharmaceutical does to patients – potential doses	1.98 million	2.02 million

Output 3.6

The exploitation of ANSTO's expertise, intellectual property and physical assets.

Indicators	Performance	
	2006-07	2007-08
• Intellectual property being commercialised – inventions and designs with active commercialisation plans	18	16
• External earnings from services and contract research	$10 306 768	$11 724 124
• External earnings from land management and CSIRO site support	$3 737 081	$5 092 479

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Financial statements

Australian National
Audit Office

INDEPENDENT AUDITOR'S REPORT

To the Minister for Innovation, Industry, Science and Research

Scope

I have audited the accompanying financial statements of the Australian Nuclear Science and Technology Organisation (the Organisation) and the consolidated entity for the year ended 30 June 2008, which comprise: a statement by the Directors and Chief Financial Officer; income statement; balance sheet; cash flow statement; statement of changes in equity; schedules of commitments and contingencies; summary of significant accounting policies, and other explanatory notes.

The Responsibility of the Board of Directors for the Financial Statements

The members of the Board are responsible for the preparation and fair presentation of the financial statements in accordance with Finance Minister's Orders made under the *Commonwealth Authorities and Companies Act 1997* and Australian Accounting Standards, including Australian Accounting Interpretations. This responsibility includes establishing and maintaining internal controls relevant to the preparation and fair presentation of the financial statements that are free from material misstatement, whether due to fraud or error; selecting and applying appropriate accounting policies; and making accounting estimates that are reasonable in the circumstances.

Auditor's Responsibility

My responsibility is to express an opinion on the financial statements based on my audit. My audit has been conducted in accordance with the Australian National Audit Office Auditing Standards, which incorporate Australian Auditing Standards. These auditing standards require that I 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

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statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Organisation'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 Organisation's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by the Board, as well as evaluating the overall presentation of the financial statements.

I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my audit opinion.

Independence

In conducting the audit, I 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 Nuclear Science and Technology Organisation and the consolidated entity:

(a) have been prepared in accordance with Finance Minister's Orders made under the *Commonwealth Authorities and Companies Act 1997*, and Australian Accounting Standards including Australian Accounting Interpretations; and

(b) give a true and fair view of the matters required by the Finance Minister's Orders including the Australian Nuclear Science and Technology Organisation's and the consolidated entity's financial position as at 30 June 2008 and of its financial performance and its cash flows for the year then ended.

Australian National Audit Office

P Hinchey
Senior Director
Delegate of the Auditor-General

Sydney
15 August 2008

Statement by Directors and Chief Financial Officer

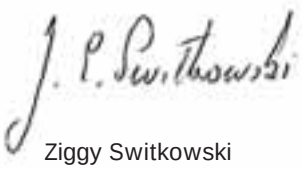
Australian Government

Australian Nuclear Science and Technology Organisation

In our opinion, the attached financial statements for the year ended 30 June 2008 have been prepared 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 *Commonwealth Authorities and Companies Act 1997*.

In our opinion, at the date of this statement, there are reasonable grounds to believe that the Organisation will be able to pay its debts as and when they become due and payable.

Signed in accordance with a resolution of the members of the Board.



Ziggy Switkowski
Chairman

14 August 2008
Sydney

Ronald Cameron
Acting Chief Executive Officer

14 August 2008
Sydney

Douglas Cubbin
Chief Financial Officer

14 August 2008
Sydney

Income Statement
for the year ended 30 June 2008

		FINANCIAL YEAR		
		Consolidated	Parent	
	Notes	**2008 $'000**	**2008 $'000**	2007 $'000
INCOME				
Revenue				
Revenue from Government	5A	153 314	153 314	141,578
Goods and services	5B	40,492	39 931	39 586
Grants	5C	3 840	3 645	775
Interest	5D	8 861	8 867	5 306
Total Revenue		206 507	205 757	187 245
Gains				
Net gains from sale of assets	5E	320	320	898
Net foreign exchange gains - non speculative	5F	10	10	18
Other income	5G	110	110	2 968
Total Gains		440	440	3 884
TOTAL INCOME		206 947	206 197	191 129
EXPENSES				
Employee expenses	6A	89 532	89 375	73 430
Suppliers expenses	6B	62 221	59 124	74 826
Depreciation and amortisation	6C	60 833	60 828	47 783
Write down and impairment of assets	6D	2 117	2 115	2 010
Grants	6E	2 840	2 840	3 301
Finance costs	6F	8 063	8 063	9 186
TOTAL EXPENSES		225 606	222 345	210 536
Deficit before income tax		(18 659)	(16 148)	(19 407)
Income tax benefit		75	-	-
Deficit after income tax		(18 584)	(16 148)	(19 407)

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

Balance sheet
as at 30 June 2008

		FINANCIAL YEAR		
		Consolidated	Parent	
	Notes	**2008 $'000**	**2008 $'000**	2007 $'000
ASSETS				
Financial assets				
Cash	7A, 21	9 302	3 852	3 477
Receivables	7B, 21	9 844	14 581	11 242
Investments	7C, 21	127 880	132 880	84 103
Total financial assets		147 026	151 313	98 822
Non-financial assets				
Land and buildings	8A	173 608	173 608	178 112
Infrastructure, plant and equipment and major facilities	8B	632 542	632 086	704 155
Inventories	8C	7 701	7 701	6 008
Intangibles	8D	1 513	1 513	776
Other	8E	1 909	1 328	2 025
Total non-financial assets		817 273	816 236	891 076
Total assets		964 299	967 549	989 898
LIABILITIES				
Payables				
Suppliers	9E, 21	9 134	8 933	6 984
Grants	9F, 21	128	128	43
Other	9G, 21	1 194	1 194	2 466
Total payables		10 456	10 255	9 493
Interest bearing liabilities				
Other	9A, 21	3 116	3 116	2 938
Total interest bearing liabilities		3 116	3 116	2 938
Provisions				
Employees	9B	25 776	25 776	24 653
Decommissioning costs	9C	181 757	181 757	223 963
Other	9D	4 571	4 571	2 503
Total provisions		212 104	212 104	251 119

Balance Sheet
as at 30 June 2008

		FINANCIAL YEAR		
		Consolidated	Parent	
	Notes	**2008 $'000**	**2008 $'000**	2007 $'000
Total liabilities		225 676	225 475	263 550
NET ASSETS		738 623	742 074	726 348
EQUITY	10			
Contributed equity		446 256	446 256	413 856
Reserves		270 133	270 146	255 025
Retained surpluses		22 234	25 672	57 467
Total equity		738 623	742 074	726 348
Current assets		153 561	157 848	98 083
Non-current assets		810 738	809 701	891 815
Current liabilities		41 420	41 219	36 554
Non-current liabilities		184 256	184 256	226 996

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

Statement of Cash Flows
for the year ended 30 June 2008

	Notes	FINANCIAL YEAR Consolidated 2008 $'000 Inflows (Outflows)	Parent 2008 $'000 Inflows (Outflows)	Parent 2007 $'000 Inflows (Outflows)
OPERATING ACTIVITIES				
Cash received				
Goods and services		42 460	41 714	34 273
Interest		7 507	7 513	5 352
Net GST received from Australian Taxation Office		4 205	4 205	10 184
GST received from Customer		3 886	3 886	3 030
Appropriations		153 314	153 314	141 578
Total cash received		211 372	210 632	194 417
Cash used				
Employees		(88 409)	(88 252)	(72 023)
Suppliers		(72 730)	(68 571)	(90 659)
Total cash used		(161 139)	(156 823)	(162 682)
Net cash from operating activities	11	50 233	53 809	31 735
INVESTING ACTIVITIES				
Cash received				
Proceeds from sale of property, plant and equipment		1 089	1 089	1 480
Proceeds from sale/maturity of investments		139 896	139 896	15 857
Total cash received		140 985	140 985	17 337
Cash used				
Purchase of property, plant and equipment		(34 876)	(34 412)	(43 059)
Loans to related parties		-	(3 734)	(1 054)
Purchase of investments		(183 673)	(188 673)	(12 820)
Total cash used		(218 549)	(226 819)	(56 933)
Net cash used by investing activities		(77 564)	(85 834)	(39 596)

Statement of Cash Flows
for the year ended 30 June 2008

	Notes	FINANCIAL YEAR Consolidated **2008 $'000** Inflows (Outflows)	Parent **2008 $'000** Inflows (Outflows)	Parent 2007 $'000 Inflows (Outflows)
FINANCING ACTIVITIES				
Cash received				
Appropriation - contributed equity		32 400	32 400	-
Total cash received		32 400	32 400	-
Net cash from financing activities		32 400	32 400	-
Net increase/(decrease) in cash held		5 069	375	(7 861)
Cash at 1 July		4 233	3 477	11 338
Cash at 30 June		9 302	3 852	3 477

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

Statement of changes in equity for the year ended 30 June 2008

	Retained Surpluses			Asset Revaluation Reserve			Other Reserve		
	Consolidated	Parent		Consolidated	Parent		Consolidated	Parent	
	2008 $'000	**2008 $'000**	2007 $'000	**2008 $'000**	**2008 $'000**	2007 $'000	**2008 $'000**	**2008 $'000**	2007 $'000
Opening balance	56 340	57 467	59 153	229 765	229 765	252 562	25 385	25 260	18 110
Income and Expenses									
Revaluation adjustment	-	-	-	(517)	(526)	2 074	-	-	-
Subtotal income and expenses recognised directly in equity	-	-	-	(517)	(526)	2 074	-	-	-
Net Operating Results	(18 584)	(16 148)	(19 407)	-	-	-	-	-	-
Total income and expenses	(18 584)	(16 148)	(19 407)	(517)	(526)	2 074	-	-	-
Contributions by Owners									
Appropriation (equity injection)	-	-	-	-	-	-	-	-	-
Sub-total Transactions with Owners	-	-	-	-	-	-	-	-	-
Transfers between equity components	(15 647)	(15 647)	17 721	-	-	(24 871)	15 625	15 647	7 150
Closing balance at 30 June	22 109	25 672	57 467	229 248	229 239	229 765	41 010	40 907	25 260

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

Statement of changes in equity for the year ended 30 June 2008

	Contributed Equity/Capital			Total Equity		
	Consolidated		Parent	Consolidated		Parent
	2008 $'000	**2008 $'000**	2007 $'000	**2008 $'000**	**2008 $'000**	2007 $'000
Opening balance	413 856	413 856	413 856	725 346	726 348	743 681
Income and Expenses						
Revaluation adjustment	-	-	-	(517)	(526)	2 074
Subtotal income and expenses recognised directly in equity	-	-	-	(517)	(526)	2 074
Net Operating Results	-	-	-	(18 584)	(16 148)	(19 407)
Total income and expenses	-	-	-	(19 101)	(16 674)	(17 333)
Contributions by Owners						
Appropriation (equity injection)	32 400	32 400	-	32 400	32 400	-
Sub-total Transactions with Owners	32 400	32 400	-	32 400	32 400	-
Transfers between equity components	-	-	-	(22)	-	-
Closing balance at 30 June	446 256	446 256	413 856	738 623	742 074	726 348

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

Schedule of Commitments not recognised as liabilities as at 30 June 2008

	Notes	Consolidated 2008 $'000	Parent 2008 $'000	FINANCIAL YEAR 2007 $'000
BY TYPE				
CAPITAL COMMITMENTS				
Infrastructure, plant and equipment		5 913	5 913	6 647
Fuel elements purchase		618	618	3 806
Total capital commitments		6 531	6 531	10 453
By maturity				
Capital commitments payable				
One year or less		2 949	2 949	10 453
From one to five years		3 582	3 582	-
		6 531	6 531	10 453
OTHER COMMITMENTS				
Replacement Research Reactor Project (OPAL)	(b)	12 044	12 044	5 297
Disposition of spent fuel	(a)	19 690	19 690	32 497
Operating lease	(c)	2 274	2 274	2 411
Total other commitments		34 008	34 008	40 205
Total commitments payable		40 539	40 539	50 658
Other commitments receivable				
Replacement Research Reactor Project (OPAL)	(b)	-	-	-
Disposition of spent fuel	(a)	19 690	19 690	34 271
GST recoverable from Australian Taxation Office		594	594	950
Total other commitments receivable		20 284	20 284	35 221
Net other commitments		13 724	13 724	4 984
By maturity - other commitments (OPAL)				
One year or less		12 044	12 044	5 297
By maturity - operating lease - minimum payments				
One year or less		137	137	137
From one to five years		685	685	685
Over five years		1 452	1 452	1 589
		2 274	2 274	2 411

Schedule of Commitments not recognised as liabilities as at 30 June 2008

Note:

(a) In 1997-1998 the Government determined to provide $99.005 million in 2008 dollars ($86.4 million in 1997 dollars) to remove spent fuel rods from the Lucas Heights Science and Technology Centre and meet the costs of reprocessing offshore. An amount of $79.315 million has been drawn down. The amount of $19.690 million is not included in the commitment by maturity figures as the commitment payable is fully offset by the commitment receivable.

(b) A contract was executed on 13 July 2000 between ANSTO and INVAP SE for the design, construction and commissioning of a replacement research reactor at Lucas Heights. The net amount of $12.044 million (2007: $5.297 million) is included in the commitment by maturity.

(c) ANSTO has a twenty five year lease contract with Central Sydney Area Health Services with an annual rental payable of $137 000. The annual rental is subject to review every three years.

The timing of the other commitments payable is matched to the receipt of other commitments receivable.

The amounts reported as commitments payable includes GST where relevant. Recoveries due from the Australian Taxation Office in relation to commitments payable are disclosed as commitments receivable.

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

Schedule of Contingencies as at 30 June 2008

	FINANCIAL YEAR		
	Consolidated	Parent	
	2008 $'000	**2008 $'000**	2007 $'000
Contingent Liabilities			
Guarantee (a)	1 480	1 480	-
Total Contingent Liabilities	1 480	1 480	-

Note:

(a) Unused overdraft facility.

(b) ANSTO still has the likelihood of a claim in relation to asbestos related diseases, this however is covered by the Department of Finance and Deregulation provision dealing with asbestos related claims against any authorities including ANSTO in the event of any litigation or claim for compensation.

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

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

1 Economic dependency

Australian Nuclear Science and Technology Organisation (ANSTO) is dependent on appropriations from the Parliament of the Commonwealth Government for its continued existence and ability to carry out its normal activities.

2 Summary of significant accounting policies

(a) Basis of preparation of the Financial Report

The financial statements are required by clause 1(b) of Schedule 1 to the *Commonwealth Authorities and Companies Act 1997* (*CAC Act*) and are a General Purpose Financial Report.

They have been prepared:

i. having regard to the provisions of the *Australian Nuclear Science and Technology Organisation (ANSTO) Act 1987* (as amended)

ii. in accordance with:

- Finance Minister's Orders (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 accruals basis and is in accordance with the 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 thousand dollars unless otherwise specified.

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 Entity 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 unrecognised 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.

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

(b) Significant Accounting Judgements and Estimates

In the process of applying the accounting policies listed in this note, ANSTO 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. In some instances, ANSTO's buildings are purpose built and may in fact realise more or less in the market

Apart from assumptions and estimates relating to the Decommissioning provision, no other 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.

(c) 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. ANSTO 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 (AEIFRSs) it cannot make this statement.

(d) Adoption of new Australian Accounting Standard requirements

No accounting standard has been adopted earlier than the application date as 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 AASB7 requires greater disclosure than that previously 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 effect 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 on ANSTO.

- *2007-4 Amendments to Australian Accounting Standards arising from ED 151 and Other Amendments and Erratum: Proportionate Consolidation*
- *2007-7 Amendments to Australian Accounting Standards*

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

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

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

impact of adopting these pronouncements when effective will have no material financial impact on future reporting periods.

- AASB Interpretation 12 *Service Concession Arrangements and 2007-2 Amendments to Australian Accounting Standards Interpretation arising from AASB Interpretation 12*
- AASB 8 *Operating Segments and 2007-3 Amendments to Australian Accounting Standards arising from AASB 8*
- *2007-6 Amendments to Australian Accounting Standards arising from AASB 123*
- AASB Interpretation 13 *Customer Loyalty Programmes*
- AASB Interpretation 14 *AASB 119 - The Limit on a Defined Benefit Asset, Minimum Funding Requirements and their Interaction.*

Other

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

- *AASB 1049 Financial Reporting of General Government Sectors by Governments.* The FMOs do not refer to this standard as it contains guidance applicable to the consolidated financial statements of the Australian Government, rather than financial reports of individual Agencies or Authorities.

(e) Reporting by outcomes

A comparison of current and prior years' figures by outcome as specified in the Appropriation Acts relevant to ANSTO, is presented in Note 4.

(f) Revenue recognition

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 relates to activities that are reciprocal in nature, in which case revenue is recognised when it has been earned.

Any undrawn appropriations at the end of financial year are recognised as Appropriations receivable and are recognised at their nominal amounts.

Equity injections

Amount of appropriations which are designated as 'equity injections' are recognised directly in Contributed Equity in full as appropriated by the Parliament (refer Note 10).

Operating revenue from goods and services

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 Organisation.

Receivables for goods and services are recognised at the nominal amounts due less any provision for doubtful debts.

Collectibility of debts is reviewed at balance date. Provision is made when collectibility of the debt is no longer probable.

Revenue received in advance

Revenue received in advance is initially brought to account as "unearned revenue" and subsequently recognised as revenue when earned.

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

Contract revenue

Revenue from the rendering of a service is recognised by reference to the stage of completion of each contract. The stage of completion is determined by reference to the proportion that the completed physical contract work bears to the estimated total physical contract work.

Interest revenue

Interest revenue is recognised as the interest is received or is entitled to be received.

Revenue from sale of assets

Revenue is recognised when control of the asset has passed to the buyer.

Core operations

All material revenues described in this note are revenues relating to the core operating activities of ANSTO. Details of revenue amounts are given in Note 5.

Resources Received Free of Charge

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

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

(g) Employee benefits

Benefits

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

Liabilities for wages and salaries and annual leave are measured at their nominal amounts. Other employees benefits expected to be settled within 12 months of their reporting date are also measured at their nominal amounts.

The provision for employee entitlements encompasses annual leave and long service leave that ANSTO has a present obligation to pay resulting from employee services provided up to balance date. The leave liabilities are calculated on the basis of employees' remuneration, including employer superannuation contribution rates to the extent that the leave is likely to be taken during service rather than paid out on termination. The estimate of the present value of the liability takes into account attrition rates and pay increases through promotion and inflation.

The nominal amount is calculated with regard to the rates expected to be paid on settlement of the liability. The current Enterprise Agreement pay rates applicable on 28 December 2008 are considered in the calculation. The financial effect of this was an additional accrual of $0.306 million (2007: $0.557 million).

General leave

The Enterprise Agreement provides under the heading General Leave for an employee entitlement which combines sick leave, carer's leave and leave for other prescribed purposes. No provision has been made for general leave as all such leave is non-vesting and the average general leave taken by employees is less than the annual entitlement.

Separation and redundancy

Provision is made for separation and redundancy benefits payments. ANSTO recognises a provision for termination when it has developed a detailed formal plan for the termination and has informed those employees affected that it will carry out the termination. The total provision in the accounts for 39 staff amounted to $2.6 million.

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

(h) Superannuation

ANSTO contributes to the Commonwealth Superannuation (CSS) and the Public Sector (PSS) superannuation schemes or PSS accumulation plan (PSSap) which provide retirement, death and disability benefits to employees. The CSS and PSS are defined benefit schemes for the Commonwealth while the PSSap is a defined contribution scheme. Contributions to the schemes are at rates calculated to cover existing and emerging obligations. Current contribution rates in 2008 were 10.9% (2007 11.2%) of salary (PSS), 25.3% (2007 23.8%) of salary (CSS), and 15.4% (2007 15.4%) of salary (PSSap). An additional 3% is contributed to PSS and CSS for employer productivity benefits. For those staff who do not contribute to any of these schemes, ANSTO contributes 9% of salary to the Australian Government Employees Superannuation Trust fund or to the complying fund nominated by the employee.

Contributions during the year are detailed in Note 6A. No liability is shown for superannuation in the Balance Sheet as the employer contributions fully extinguish the accruing liability which is assumed by the Commonwealth.

(i) Leases

Operating leases are expensed on a basis which is representative of the pattern of benefits derived from the leased assets.

(j) Cash

Cash and cash equivalents includes notes and coins held and any deposits held at call with a bank or financial institution. Cash is recognised at its nominal amount.

(k) Financial instruments

Financial assets

ANSTO classifies its financial assets in the following categories:

- financial assets as 'at fair value through profit or loss'
- 'held-to-maturity investments',
- loans and receivables'.

The classification depends on the nature and purpose of the financial assets and is determined at the time of initial recognition.

Financial assets are recognised and derecognised upon ‘trade 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 through the expected life of the financial asset, or, where appropriate, a shorter period.

Income is recognised on an effective interest rate basis except for financial assets ‘at fair value through profit or loss’.

Financial assets at fair value through profit or loss

Financial assets are classified as financial assets at fair value through profit or loss where the financial assets:

- have been acquired principally for the purpose of selling in the near future;

Assets in this category are classified as current assets.

Financial assets at fair value through profit or loss are stated at fair value, with any resultant gain or loss recognised in profit or loss. The net gain or loss recognised in profit or loss incorporates any interest earned on the Financial assets.

Where a reliable fair value cannot be established for unlisted investments in equity instruments, cost is used.

ANSTO has no such instruments.

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

Held-to-maturity investments

Non-derivative financial assets with fixed or determinable payments and fixed maturity dates that the group has the positive intent and ability to hold to maturity are classified as held-to-maturity investments. Held-to-maturity investments are recorded at amortised cost using the effective interest method less impairment, with revenue recognised on an effective yield 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 Liabilities

Financial liabilities are recognised and derecognised upon 'trade date'.

Other financial liabilities

Other financial liabilities, including borrowings, are initially measured at fair value, net of transaction costs.

Other financial liabilities are subsequently measured at amortised cost using the effective interest method, with interest expense recognised on an effective yield basis.

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

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).

(l) Bad and doubtful debts

Bad debts are written off during the period in which they are identified. Provision for doubtful debts is made when collection of the debt is judged to be less rather than more likely.

(m) Buildings, infrastructure, plant and equipment and major facilities

Asset recognition threshold

Items of buildings, infrastructure, plant and equipment and major facilities are recorded at cost of acquisition and depreciated as outlined below. Items of plant and equipment with a cost of less than $3,000 are expensed in the year of acquisition.

The initial cost of an asset includes an estimate of the cost of dismantling and removing the item and restoring the site on which it is located at the end of its useful life. This is particularly relevant to 'make good' provisions in buildings, infrastructure, plant and equipment and major facilities, taken up by ANSTO where there exists an obligation to restore the property to its original condition.

These costs are included in the value of the asset it relates to with a corresponding provision for the 'make good' taken up.

The cost of assets constructed by the entity includes the cost of materials, direct labour and an appropriate proportion of fixed and variable overheads.

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

Revaluations

Fair values for each class of asset are determined as shown in the table below.

Land, buildings, plant and equipment are carried at fair value, and will be valued every five years such that the carrying amount of each asset is not materially different, at reporting date, from its fair value.

- Freehold land was revalued as at 30 June 2007
- Buildings on freehold land were revalued at 30 June 2007
- Plant and equipment were revalued at 30 June 2007
- Infrastructure was revalued at 30 June 2007
- The HIFAR reactor including instrumentation was written off following its closure during the 2006-07 year. The cost of de-commissioning HIFAR over an extended period remains in the accounts.
- Other national and major facilities were revalued at 30 June 2007 with the exception of OPAL.

Following initial recognition at cost, buildings, infrastructure, plant and equipment and major facilities 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.

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 profit and loss. Revaluation decrements for a class of assets are recognised directly through profit and loss 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.

The valuation of land, buildings, infrastructure, plant and equipment including national and other major facilities were performed by independent valuers of the Australian Valuation Office (AVO), Mr. Frank Andreatta and Mr. Simon O'Leary (registered Valuer Nos. 2388 and 1128 respectively) at 30 June 2007, based on the asset list at 28 February 2007.

Asset Class	Fair value measured at
Land	Market selling Price
Buildings	Market selling Price
Site infrastructure	Market selling Price
Electrical infrastructure	Market selling Price
Plant and equipment	Market selling Price
National and Major facilities	Market selling Price

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

Assets acquired and/or ready for use after 28 February 2007 are recognised at cost.

Certain assets (Note 8B) are valued at Board Valuation.

Depreciation and amortisation

Items of property, plant and equipment, including buildings, but excluding freehold land, are depreciated over their estimated useful lives to ANSTO using the straight line method.

Depreciation and amortisation rates applying to each class of depreciable asset are based on the following useful lives (see table below).

The depreciation rates (useful lives) of ANSTO's buildings, infrastructure, plant and equipment and major facilities have been reviewed during the year and found to be appropriate.

The aggregate amount of depreciation allocated for each class of asset during the reporting period is disclosed in Note 6C.

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.

(n) Inventories

Stores are valued at purchase cost on a first-in-first-out basis. Provision is made for obsolete inventory and diminution in value.

Inventories of Cobalt-60 and enriched, natural and depleted uranium are valued on the basis of net realisable value.

Stocks of reactor fuel are valued at average purchase price.

Heavy water is valued at net realisable value.

Finished goods and work in progress are valued at cost of direct materials and labour plus attributable costs that are capable of being allocated on a reasonable basis.

(o) Intangibles

Software

Items of software are recorded at cost and amortised as outlined below. Items with a cost of less than $3 000 are expensed in the year of acquisition.

There is no material internal software development.

Software and licences are reported at deemed cost.

Amortisation

Intangibles are amortised over their estimated useful lives to ANSTO using the straight line method.

Amortisation rates applying to intangibles are shown in the table on following page.

The amortisation rates (useful lives) of ANSTO's software and licences have been reviewed during the year and found to be appropriate.

The aggregate amount of amortisation allocated for each class of asset during the reporting period is disclosed in Note 6C.

Depreciation and amortisation rates	2008	2007
Buildings on freehold land	5 to 50 years	5 to 50 years
Plant and equipment	2 to 30 years	2 to 30 years
Infrastructure	20 years	20 years
National and major facilities	5 to 40 years	5 to 40 years

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

Amortisation rates	2008	2007
Purchased software	2 - 7 years	2 - 7 years
Licences	3 years	3 years

Impairment

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

(p) Patents

Due to the uncertain commercial value of patents, trademarks, designs and applications, and because benefits extending beyond one accounting period cannot be assured, the costs associated with the development and registration of patents are expensed in the year in which they are incurred, unless recoverability is assured beyond any reasonable doubt. At 30 June 2008 there were 90 patents, trademarks, design and applications (136 at 30 June 2007) registered to ANSTO and no associated costs are recognised as an asset (nil at 30 June 2007).

(q) Foreign currency

Transactions denominated in a foreign currency are converted to Australian currency at the rate of exchange prevailing at the date of the transaction. At balance date, amounts receivable and payable in foreign currency are translated to Australian currency at the exchange rate prevailing at that date and any exchange differences are brought to account in the Income Statement. ANSTO did not enter into specific forward exchange contracts during the reporting period.

(r) Taxation

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

ANSTO is not subject to exemption from any foreign taxation laws relative to its overseas operations.

ANSTO's subsidiaries are subject to normal taxation.

ANSTO Inc, the US company, has recognised Deferred Income Tax Asset of USD $67 000 (AUD $75 000) relating to this year's losses.

In respect of the subsidiaries, current tax assets and liabilities for the current and prior periods are measured at the amount expected to be recovered from or paid to the taxation authorities based on the current period's taxable income. The tax rates and tax laws used to compute the amount are those that are enacted or substantively enacted by the balance sheet date.

Deferred income tax is provided on all temporary differences at the balance sheet date between the tax bases of assets and liabilities and their carrying amounts for financial reporting purposes.

Deferred income tax liabilities are recognised for all taxable temporary differences except:

- when the deferred income tax liability arises from the initial recognition of goodwill or of an asset or liability in a transaction that is not a business combination and that, at the time of the transaction, affects neither the accounting profit nor taxable profit or loss; or
- when the taxable temporary difference is associated with investments in subsidiaries, associates or interests in joint ventures, and the timing of the reversal of the temporary difference can

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

be controlled and it is probable that the temporary difference will not reverse in the foreseeable future.

Deferred income tax assets are recognised for all deductible temporary differences, carry forward of unused tax credits and unused tax losses, to the extent that it is probable that taxable profit will be available against which the deductible temporary differences and the carry forward of unused tax credits and unused tax losses can be utilised, except:

- when the deferred income tax asset relating to the deductible temporary difference arises from the initial recognition of an asset or liability in a transaction that is not a business combination and, at the time of the transaction, affects neither the accounting profit nor taxable profit or loss; or
- when the deductible temporary difference is associated with investments in subsidiaries, associates or interests in joint ventures, in which case a deferred tax asset is only recognised to the extent that it is probable that the temporary difference will reverse in the foreseeable future and taxable profit will be available against which the temporary difference can be utilised.

Unrecognised deferred income tax assets are reassessed at each balance sheet date and are recognised to the extent that it has become probable that future taxable profit will allow the deferred tax asset to be recovered.

Deferred income tax assets and liabilities are measured at the tax rates that are expected to apply to the year when the asset is realised or the liability is settled, based on tax rates (and tax laws) that have been enacted or substantively enacted at the balance sheet date.

Deferred tax assets and deferred tax liabilities are offset only if a legally enforceable right exists to set off current tax assets against current tax liabilities and the deferred tax assets and liabilities relate to the same taxable entity and the same taxation authority.

(s) Assets received free of charge

The acquisition of property, plant and equipment free of charge or for a nominal amount, is recognised at fair value.

(t) Principles of consolidation

ANSTO has investments in a number of companies (refer Note 7D) over which it has control. These companies have been established for the purpose of (i) commercialisation of ANSTO's intellectual property or (ii) a requirement for ANSTO to operate in the industry as in the case of ANSTO Inc., the US operation.

(u) Comparatives

Where necessary, comparative information for the preceding financial year has been reclassified to achieve consistency in disclosure with current financial year amounts and other disclosures.

(v) Rounding

Amounts are rounded to the nearest one thousand dollars except in relation to:

- remuneration of members of the Board
- remuneration of executives
- remuneration of auditors
- financial information about the subsidiary companies and their balances

3 Events subsequent to reporting

No events have arisen since the end of the financial year which require disclosure or the financial statements to be adjusted.

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

4 Segment and outcomes reporting

Reporting by segments for parent entity

ANSTO operates in a single industry within Australia, namely in the nuclear scientific research industry.

Reporting by outcomes:

ANSTO has three outcomes and each have one output.
Outcome 1: Replacement Research Reactor Project (OPAL)
Outcome 2: Disposal of spent fuel
Outcome 3: Core business: science and technology

Major Classes of Departmental Revenues and Expenses by Output Groups and Output - Parent Company

	Outcome 1		Outcome 2		Outcome 3		Total	
	Output 1		Output 2		Output 3			
	2008 $'000	2007 $'000	2008 $'000	2007 $'000	2008 $'000	2007 $'000	2008 $'000	2007 $'000
Operating revenues								
Revenue from Government			798	11 846	152 516	129 732	153 314	141 578
Sale of goods and services					39 931	39 586	39 931	39 586
Interest					8 867	5 306	8 867	5 306
Net gain from sale of assets					320	898	320	898
Other					3 765	3 761	3 765	3 761
Total operating revenues	-	-	798	11 846	205 399	179 283	206 197	191 129
Operating expenses								
Employees			66	260	89 309	73 100	89 375	73 360
Suppliers			28	13 360	59 096	61 536	59 124	74 896
Depreciation and amortisation					60 828	47 783	60 828	47 783
Finance costs					8 063	9 186	8 063	9 186
Write-down and impairment of assets					2 115	2 010	2 115	2 010
Other					2 840	3 301	2 840	3 301
Total operating expenses	-	-	94	13 620	222 251	196 916	222 345	210 536

Notes:
The net costs include intra-government costs that would be eliminated in calculating the actual Budget outcome.

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

5 Income

FINANCIAL YEAR

	Notes	Consolidated 2008 $'000	Parent 2008 $'000	2007 $'000
5A. Revenues from Government				
Appropriation for outputs		153 314	153 314	141 578
5B. Goods and services				
Radioisotope sales		20 673	20 673	19 795
Services and contract research		11 724	11 163	10 307
Silicon irradiation		387	387	2 922
CSIRO site support		1 169	1 169	1 089
Training courses		163	163	201
Land management		3 923	3 923	2 648
Australian Synchrotron Research Project		1 107	1 107	1 367
AINSE interactions		1 346	1 346	1 257
Total sales of goods and services		40 492	39 931	39 586
5C. Grants		3 840	3 645	775
5D. Interest		8 861	8 867	5 306
5E. Net gain from sale of assets				
Infrastructure, plant and equipment:				
Revenue from sale of assets		977	977	1 339
Net book value of assets sold		(657)	(657)	(441)
Net gain from disposal of infrastructure, plant and equipment		320	320	898
5F. Net foreign exchange gains - non speculative		10	10	18
5G. Other income				
Other		110	110	2 968
Total other income		110	110	2 968
Total operating revenue from independent sources		53 633	52 883	49 551
Total revenue from ordinary activities		206 947	206 197	191 129

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

5 Income (continued)

FINANCIAL YEAR

	Notes	Consolidated 2008 $'000	Parent 2008 $'000	Parent 2007 $'000
5H. Sales of goods and services				
Goods		20 673	20 673	19 795
Services		19 819	19 258	19 791
Total sales of goods and services	5B	40 492	39 931	39 586
Provision of goods to:				
External entities		20 673	20 673	19 795
Total sales of goods		20 673	20 673	19 795
Rendering of services to:				
Related entities		-	2 522	3 781
External entities		19 819	16 736	16 010
Total rendering of services		19 819	19 258	19 791

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

6 Expenses

FINANCIAL YEAR

	Notes	Consolidated 2008 $'000	Parent 2008 $'000	2007 $'000
6A. Employee expenses:				
Salaries		65 025	64 866	56 534
Superannuation		11 749	11 751	9 450
Annual leave		6 421	6 421	5 311
Long service leave		2 783	2 783	1 669
Separation and redundancy		3 554	3 554	466
Total employee expenses		89 532	89 375	73 430
6B. Supplier expenses:				
Goods from external entities		19 323	19 353	26 861
Services from related entities		12 342	13 266	9 341
Workers compensation premiums		431	431	416
Services from external entities		30 003	25 952	37 941
Operating lease rentals		122	122	267
Total supplier expenses		62 221	59 124	74 826
6C. Depreciation and amortisation				
Depreciation of property, plant and equipment (a)	8B	60 242	60 237	46 003
Amortisation of intangible assets - licence	8D	3	3	3
Amortisation of intangible assets - software	8D	588	588	1 777
Total depreciation and amortisation		60 833	60 828	47 783
6D. Writedown and impairment of assets				
Financial assets:				
Provision for doubtful debt (no longer required)		(48)	(48)	(1)
Receivables for goods and services		40	40	-
Foreign exchange loss - non speculative				
- realised		33	31	68
- unrealised		29	29	14

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

6 Expenses (continued)

FINANCIAL YEAR

		Consolidated	Parent	
	Notes	**2008 $'000**	**2008 $'000**	2007 $'000
	Non financial assets:			
	Materials - Write off obsolete stock	1 543	1 543	1 559
	Loss from sale of assets	143	143	321
	Fixed Assets Revaluation Writedown/Impairment	-	-	49
	Nuclear material stock devaluation	377	377	-
	Total writedown of assets	2 117	2 115	2 010
6E.	Grants	2 840	2 840	3 301
6F.	Finance costs			
	Unwinding of discount on Decommissioning Costs	7 887	7 887	9 020
	Interest	176	176	166
	Total finance costs	8 063	8 063	9 186
	Total operating expenses	225 606	222 345	210 536
(a)	Depreciation of property, plant and equipment:			
	The aggregate amounts of depreciation expensed during the reporting period for each depreciable class of property, plant and equipment are as follows:			
	Buildings on freehold land	6 928	6 928	11 320
	Plant and equipment	23 587	23 582	24 288
	Infrastructure	2 454	2 454	3 668
	National and major facilities	27 273	27 273	6 727
	Total allocated	60 242	60 237	46 003

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

7 Financial assets

FINANCIAL YEAR

	Notes	Consolidated 2008 $'000	Parent 2008 $'000	2007 $'000
7A. Cash				
Cash at bank for operating needs		9 302	3 852	3 477
Total cash		9 302	3 852	3 477
7B. Receivables				
Goods and services	(a)	5 554	5 768	7 630
Less provision for doubtful debts	(b)	34	34	82
		5 520	5 734	7 548
Advance held by Dept of Education, Science and Tourism		-	-	-
Interest accrued		1 413	1 413	58
Reimburseable foreign exchange loss		-	-	-
Other		2 150	2 155	1 879
Loans to related parties		-	4 568	1 054
GST receivable		761	711	703
Total receivables (net)		9 844	14 581	11 242
(a) Goods and services (trade debtors)				
Age analysis of trade debtors				
Current		3 597	3 844	7 178
Overdue:				
Less than 30 days		1 304	1 304	206
30 to 60 days; and		211	211	42
60 to 90 days		90	57	46
More than 90 days		352	352	158
		5 554	5 768	7 630

(b) The provision for doubtful debts represents debts aged more than 90 days (2007: aged more than 90 days).

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

7 Financial assets (continued)

FINANCIAL YEAR

	Notes	Consolidated 2008 $'000	Parent 2008 $'000	Parent 2007 $'000
7C. Investments				
Bank accepted bills		83 000	83 000	79 103
Treasury Bonds		39 880	39 880	-
Investment in Australian Synchrotron Project		5 000	5 000	5 000
Investment in PETNET Australia Pty Limited		-	5 000	-
Total investments		127 880	132 880	84 103

7D. Investment in subsidiaries

The details of the subsidiaries of ANSTO are:

Name	Place of Incorporation	% Owned	Investment 2008 $	Investment 2007 $	Loan Receivable 2008 $	Loan Receivable 2007 $
CeramiSphere Pty Limited	Australia	100%	1	1	2 650 000	516 000
Australian Membrane Technologies Pty Limited	Australia	100%	1	1	700 000	200 000
PETNET Australia Pty Limited	Australia	100%	5 000 000	-	303 178	-
ANSTO Inc.	Delaware U.S.A.	100%	-	-	914 593	337 917
			5 000 002	2	4 567 771	1 053 917

ANSTO Inc. was incorporated in Delaware, USA on 27 October 1999. At 30 June 2008: US$100 (2007: US$100). of capital has been invested in this wholly owned subsidiary. This investment has been written off in prior periods.

In November 2004, the Board decided to utilise ANSTO Inc to promote the commercialisation of ANSTO Technology in the USA.

The loan to ANSTO Inc. is denominated in US dollars, $US770 118 (2007: $US281 349).

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

8 Non-financial assets

FINANCIAL YEAR

	Notes	Consolidated 2008 $'000	Parent 2008 $'000	2007 $'000
8A. Land and buildings				
Land - at independent valuation - 30 June 2007 (fair value)	(a), (b)	78 700	78 700	78 700
		78 700	78 700	78 700
Buildings - at cost		24 634	24 634	22 087
Less accumulated depreciation		7 442	7 442	5 991
		17 192	17 192	16 096
Buildings - at independent valuation - 30 June 2007 (fair value)	(a), (b)	83 316	83 316	83 316
Less accumulated depreciation	(a), (b)	5 600	5 600	-
		77 716	77 716	83 316
Total buildings		94 908	94 908	99 412
Total land and buildings		173 608	173 608	178 112
8B. Infrastructure, plant, equipment and major facilities				
8B (i). Plant and equipment				
Plant and equipment - at cost		115 239	114 777	147 747
Less accumulated depreciation		47 361	47 351	38 807
		67 878	67 426	108 940
Plant and equipment - at independent valuation - 30 June 2007 (fair value)	(a), (b)	66 681	66 681	66 681
Less accumulated depreciation	(a), (b)	14 583	14 583	-
		52 098	52 098	66 681

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

8 Non-financial assets (continued)

FINANCIAL YEAR

		Notes	Consolidated 2008 $'000	Parent 2008 $'000	2007 $'000
	Plant and equipment - at Board valuation - 30 June 2007 (fair value)	(c)	1 029	1 029	1 029
	Less accumulated depreciation		225	225	-
			804	804	1 029
	Plant and equipment under construction		23 565	23 561	14 826
	Total plant and equipment		144 345	143 889	191 476
8B (ii).	Infrastructure				
	Electrical/site services facilities - at cost		629	629	12
	Less accumulated depreciation		22	22	-
			607	607	12
	Electrical/site services facilities at independent valuation - 30 June 2007 (fair value)	(a), (b)	28 014	28 014	28 014
	Less accumulated depreciation	(a), (b)	2 432	2 432	-
			25 582	25 582	28 014
	Total infrastructure		26 189	26 189	28 026

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

8 Non-financial assets (continued)

FINANCIAL YEAR

	Notes	Consolidated 2008 $'000	Parent 2008 $'000	2007 $'000
8B (iii). Major national and major research facilities				
Major national research facilities - at cost		249	249	34
Less accumulated depreciation		2	2	1
		247	247	33
Major national research facilities at independent valuation - 30 June 2007 (fair value)	(a), (b)	5 645	5 645	5 645
Less accumulated depreciation	(a), (b)	1 368	1 368	-
		4 277	4 277	5 645
Major research facilities at cost		50	50	-
Less accumulated depreciation		6	6	-
		44	44	-
Major research facilities at independent valuation - 30 June 2007 (fair value)	(a), (b)	6 257	6 257	6 257
Less accumulated depreciation	(a), (b)	696	696	-
		5 561	5 561	6 257
OPAL capitalised cost to date	(d)	479 040	479 040	474 817
Less accumulated depreciation		27 161	27 161	2 099
		451 879	451 879	472 718
Total major national and major research facilities		462 008	462 008	484 653
Total infrastructure, plant, equipment and major facilities		632 542	632 086	704 155
Total land, buildings, infrastructure, plant, equipment and major facilities		806 150	805 694	882 267

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

8 Non-financial assets (continued)

Movement summary 2007-08 for all consolidated assets irrespective of valuation basis (excluding intangibles)

	Land	Buildings	Total Land and Buildings	Infrastructure, plant, equipment national and major facilities	Total
	$'000	$'000	$'000	$'000	$'000
Gross value as at 1 July 2007	78 700	105 403	184 103	745 062	929 165
Additions - new assets	-	1 858	1 858	31 690	33 548
Net revaluation decrement	-	-	-	(517)	(517)
Transfers/reclassifications	-	690	690	(48 680)	(47 990)
Disposals	-	-	-	(1 154)	(1 154)
Gross value as at 30 June 2008	78 700	107 951	186 651	726 401	913 052
Accumulated depreciation/ amortisation 1 July 2007	-	5 991	5 991	40 911	46 902
Depreciation/amortisation	-	7 052	7 052	53 190	60 242
Adjustment for disposals	-	-	-	(242)	(242)
Accumulated depreciation/ amortisation 30 June 2008	-	13 043	13 043	93 859	106 902
Net book value as at 30 June 2008	78 700	94 908	173 608	632 542	806 150
Net book value as at 30 June 2007	78 700	99 412	178 112	704 155	882 267

Note:

(a) In 2006-2007, an independent valuation of land, buildings, plant & equipment and infrastructure was performed by Mr. Frank Andreatta and Mr. Simon B O'Leary (registered valuer Nos. 3775 and 1128 respectively) of the Australian Valuation Office. The valuation performed was for all assets owned at February 2007.

(b) In accordance with the requirements of Schedule 1 of the *Commonwealth Authorities and Companies Act 1997 (Financial Statements 2007-2008) Orders*, all revalued assets are shown on a gross basis: asset values are at fair value and accumulated depreciation has been written back. The resulting adjustment has been transferred directly to the asset revaluation reserve and/or Income Statement if the reserve is insufficient.

(c) The Board resolved to value these assets as of 30 June 2007 at Board Valuation.

(d) OPAL was commissioned in April 2007 and was transferred from assets under construction effective 1 June 2007.

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

8 Non-financial assets (continued)

FINANCIAL YEAR

	Notes	Consolidated 2008 $'000	Parent 2008 $'000	2007 $'000
8C. Inventories				
Raw materials and stores - not held for resale				
Stores - at cost		1 693	1 693	1 843
Cobalt-60 sources - at net realisable value		318	318	363
Reactor fuel and heavy water - at average purchase price		4 963	4 963	2 608
Nuclear materials - at net realisable value		233	233	409
Provision for stock diminution		(342)	(342)	(786)
		6 865	6 865	4 437
Work in progress				
Work in progress - at cost		639	639	547
Finished goods - at cost		197	197	1 024
Total inventories		7 701	7 701	6 008
8D. Intangibles				
Licences at deemed cost		1 009	1 009	1 009
Less accumulated amortisation		1 007	1 007	1 003
		2	2	6
Software at cost		9 671	9 671	8 342
Less accumulated amortisation		8 507	8 507	8 342
		1 164	1 164	-
Software at deemed cost		2 348	2 348	2 348
Less accumulated amortisation		2 001	2 001	1 578
		347	347	770
Total intangibles		1 513	1 513	776

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

8 Non-financial assets (continued)

Movement summary 2007-08 for all intangibles irrespective of valuation basis

	Licences $'000	Software $'000	Total $'000
Gross value as at 1 July 2007	1 009	10 690	11 699
Additions - new assets	-	1 328	1 328
Gross value as at 30 June 2008	1 009	12 018	13 027
Accumulated depreciation/amortisation 1 July 2007	1 003	9 920	10 923
Depreciation/amortisation	3	588	591
Accumulated depreciation/amortisation 30 June 2008	1 006	10 508	11 514
Net book value as at 30 June 2008	3	1 510	1 513
Net book value as at 30 June 2007	6	770	776

		FINANCIAL YEAR		
		Consolidated	Parent	
	Notes	**2008 $'000**	**2008 $'000**	2007 $'000
8E. Other				
Deferred tax asset		178	-	-
Prepayments		1 731	1 328	2 025
		1 909	1 328	2 025
Total non-financial assets		817 273	816 236	891 076

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

9 Liabilities

FINANCIAL YEAR

	Notes	Consolidated 2008 $'000	Parent 2008 $'000	2007 $'000
9A.	Interest bearing liabilities			
	Other (a)	3 116	3 116	2 938
	Total interest bearing liabilities	3 116	3 116	2 938
	Provisions and payables			
9B.	Employees			
	Accrued salaries and wages	909	909	715
	Annual leave	9 244	9 244	8 927
	Long service leave	15 623	15 623	15 011
	Aggregate employee entitlement liability	25 776	25 776	24 653
9C.	Decommissioning cost			
	Decommissioning cost	181 757	181 757	223 963
		181 757	181 757	223 963
9D.	Other			
	Waste management costs (b)	1 605	1 605	1 605
	Other claims (c)	2 966	2 966	898
		4 571	4 571	2 503
9E.	Suppliers			
	Trade creditors	9 134	8 933	6 984
		9 134	8 933	6 984
9F.	Grants			
	Non-profit entities	128	128	43
		128	128	43

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

9 Liabilities (continued)

FINANCIAL YEAR

	Notes	Consolidated 2008 $'000	Parent 2008 $'000	2007 $'000
9G. Other				
Revenue received in advance		1 194	1 194	2 466
		1 194	1 194	2 466
Total provisions and payables		222 560	222 359	260 612
Total liabilities		225 676	225 475	263 550

Note:

(a) Relates to prepaid revenue under a lease of property.

(b) A specific appropriation received to cover costs associated with the movement of low level waste to a repository yet to be established.

(c) Provision includes cost to cover for redundancy due to restructuring.

9H. Provision movement reconciliation

	Provision for Decommissioning Costs $'000	Provision for Waste Management Costs $'000	Provision for Other Claims $'000	Total $'000
Carrying amount 1 July 2007	223 963	1 605	898	226 466
Additional provisions made	-	-	2 838	2 838
Amounts used	(2 114)	-	(770)	(2 884)
Provision no longer required	(47 980)	-	-	(47 980)
Unwinding discount	7 888	-	-	7 888
Closing balance 30 June 2008	181 757	1 605	2 966	186 328

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

10 Equity

FINANCIAL YEAR

	Notes	Consolidated 2008 $'000	Parent 2008 $'000	2007 $'000
Contributed equity				
Replacement research reactor equity injections				
Balance 1 July		385 836	385 836	385 836
Equity injections from Government - Replacement Research Reactor (OPAL)		-	-	-
Balance 30 June		385 836	385 836	385 836
Other equity injections				
Balance 1 July		28 020	28 020	28 020
Equity injections from Government - Other		32 400	32 400	-
Balance 30 June		60 420	60 420	28 020
Total contributed equity		446 256	446 256	413 856
Reserves, including movements				
Asset revaluation reserve				
Balance 1 July		229 765	229 765	252 562
HIFAR Revaluation Reserve transferred to retained surpluses		-	-	(24 871)
Revaluation adjustment		(517)	(526)	2 074
Balance 30 June		229 248	229 239	229 765
Fuel elements reserve				
Balance 1 July		7 700	7 700	7 700
Transferred to retained surpluses		(7 700)	(7 700)	-
Balance 30 June - (a)		-	-	7 700
Instrumentation reserve				
Balance 1 July		6 200	6 200	6 200
Transferred to accumulated surpluses		(6 200)	(6 200)	-
Balance 30 June - (b)		-	-	6 200

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

10 Equity (continued)

FINANCIAL YEAR

	Notes	Consolidated 2008 $'000	Parent 2008 $'000	2007 $'000
Spent fuel reserve				
Balance 1 July		-	-	2 010
Transferred from retained surpluses - (c)		-	-	(2 010)
Balance 30 June - (c)		-	-	-
OPAL depreciation reserve				
Balance 1 July		8 000	8 000	-
Transferred from retained surpluses (d)		27 258	27 258	8 000
Balance 30 June		35 258	35 258	8 000
New main entrance reserve				
Balance 1 July		-	-	700
Transferred (to)/from retained surpluses - (e)		-	-	(700)
Balance 30 June		-	-	-
Reactor licensing reserve				
Balance 1 July		1 500	1 500	1 500
Transferred to retained surpluses - (f)		-	-	-
Balance 30 June		1 500	1 500	1 500
Regional security of radioactive reserve				
Balance 1 July		1 600	1 600	-
Transferred (to)/from retained surpluses - (g)		(843)	(843)	1 600
Balance 30 June		757	757	1 600
Nuclear & radiological security reserve				
Balance 1 July		260	260	-
Transferred from retained surpluses - (h)		100	100	260
Balance 30 June		360	360	260

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

10 Equity (continued)

FINANCIAL YEAR

	Notes	Consolidated 2008 $'000	Parent 2008 $'000	2007 $'000
Low Dose Nuclear Waste Repository (0195)				
Balance 1 July		-	-	-
Transferred from retained surpluses - (i)		3 032	3 032	-
Balance 30 June		3 032	3 032	-
Foreign currency reserve				
Balance 1 July		-	-	-
Transferred from retained surpluses - (j)		(22)	-	-
Balance 30 June		(22)	-	-
Total reserves		270 133	270 146	255 025
Retained surpluses				
Retained surpluses 1 July		56 465	57 467	59 153
Transfer from fuel element reserve	(a)	7 700	7 700	-
Transfer from instrumentation reserve	(b)	6 200	6 200	-
Transfer to spent fuel reserve	(c)	-	-	2 010
Transfer to OPAL depreciation reserve	(d)	(27 258)	(27 258)	(8 000)
Transfer from/(to) new main entrance reserve	(e)	-	-	700
Transfer to Low Dose Nuclear Waste Repository	(i)	(3 032)	(3 032)	24 871
Transfer from regional security of radioactive reserve	(g)	843	843	(1 600)
Transfer to nuclear & radiological security reserve	(h)	(100)	(100)	(260)
Deficit		(18 584)	(16 148)	(19 407)
Retained surpluses 30 June		22 234	25 672	57 467
Total equity		738 623	742 074	726 348

(a) Fuel elements reserve

This reserve was established to fund the purchase of core fuel and development cost for the first few years of the replacement research reactor operation. This reserve has now been fully utilised.

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

10 Equity (continued)

(b) Instrumentation reserve

In addition to the 1997 Government decision to fund the construction of a replacement research reactor at Lucas Heights, ANSTO has identified a planned future capital investment for the development of instrumentation associated with the replacement research reactor. This reserve has now been fully utilised.

(c) Spent fuel reserve

This reserve represents unused spent fuel appropriation that will be used for future costs associated with the return of reprocessed fuel back to Australia.

(d) OPAL depreciation reserve

This reserve represents unused funding for OPAL depreciation. This was due to a delay in final commissioning of OPAL.

(e) New main entrance reserve

This reserve, to meet contracted construction costs relating to a new main entrance, has been fully utilised in 2007.

(f) Reactor licensing reserve

This reserve is to meet future licensing costs for decommisioning the HIFAR reactor and MOATA.

(g) Regional security of radioactive materials reserve

This represents unused funding from prior years. This is due to delays in participation by some regional countries.

(h) Nuclear & radiological security reserve

This reserve relates to funding which will be utilised on a new project which is planned to run through to 2009-10.

(i) Low Dose Nuclear Waste Repository

This reserve relates to funding for low level waste facility at ANSTO for its own use and used by other Commonwealth agencies.

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

11 Cash flow reconciliation

FINANCIAL YEAR

	Notes	Consolidated 2008 $'000	Parent 2008 $'000	Parent 2007 $'000
Reconciliation of Operating Loss to Net Cash from Operating Activities:				
Operating loss		(18 659)	(16 148)	(19 407)
Non-cash items				
Depreciation/amortisation		60 833	60 828	47 783
Assets received free of charge		-	-	(2 968)
Net gain from sale of assets		(320)	(320)	(898)
Write off obsolete stock		1 543	1 543	1 559
Nuclear materials (devaluation)		(377)	(377)	-
Write off fixed assets		-	-	49
Net loss from sale of assets		143	143	321
Unwinding of Discount - Decommissioning Costs		7 888	7 888	9 020
Changes in assets and liabilities				
(Increase)/Decrease in receivables		2 061	1 814	(2 070)
(Increase)/Decrease in other receivables		(282)	(54)	(2 908)
(Increase)/Decrease in GST receivables		(53)	(8)	1 155
(Increase) in accrued interest		(1 355)	(1 355)	(46)
Decrease in prepayments		294	697	2 445
(Increase) in inventories		(2 859)	(2 859)	(2 876)
Increase/(Decrease) in creditors		1 308	1 949	(2 370)
Increase in employee entitlements		1 123	1 123	1 407
Increase/(Decrease) in revenue received in advance		(1 187)	(1 187)	1 503
Decrease in other provision		(46)	(46)	(158)
Increase in interest bearing liabilities		178	178	194
Net cash from operating activities		50 233	53 809	31 735

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

12 Appropriations

Particulars	Departmental Outputs		Equity		Total	
	2008	2007	2008	2007	2008	2007
	$'000	$'000	$'000	$'000	$'000	$'000
Year Ended 30 June 2008						
Balance brought forward from previous year	-	-	-	-	-	-
Appropriation Acts 1	151 668	129 653	-	-	151 668	129 653
Appropriation Acts 2	-	-	32 400	-	32 400	-
Appropriation Acts 3	1 646	11 925	-	-	1 646	11 925
Available for payment of CRF	153 314	141 578	32 400	-	185 714	141 578
Cash payments made out of CRF	153 314	141 578	32 400	-	185 714	141 578
Balance carried forward to next year	-	-	-	-	-	-
Represented by:						
Appropriation Receivable	-	-	-	-	-	-

This table reports on appropriations made by Parliament from Consolidated Revenue Fund (CRF) for payment to ANSTO.

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

13 Board membership

The members of the Board during the financial year and to the date of the report on the statements were:

Member	Appointed	Term Concluded	Term Concludes
I O Smith	17 May 2004	16 May 2008	
A van der Schaaf	25 July 2002	24 July 2007	
K Schindhelm	20 March 2003	19 March 2008	
M Eager	1 March 2007	29 February 2008	
W Scales	1 July 2007		30 June 2010
P Greenfield	25 July 2007		24 July 2010
A Scott	26 September 2007		25 September 2011
T Pretty	26 September 2007		25 September 2011
D Copolov	1 May 2008		30 April 2012
J Hearn	1 May 2008		30 April 2012
R Cameron	17 May 2008		16 May 2009
Z Switkowski	1 January 2006		31 December 2010

For the 2007-2008 financial year the aggregate remuneration paid to members of the Board is disclosed in Note 14.

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

14 Remuneration of members of the Board

FINANCIAL YEAR

	Notes	Consolidated 2008 $	Parent 2008 $	Parent 2007 $
Members' remuneration is determined by the Remuneration Tribunal and payment is made in accordance with Section 12 of the *ANSTO Act 1987* (as amended).				
Included in operating expenses (Note 6) are:				
Aggregate amounts of superannuation payments in connection with the retirement of members of the Board		30 173	30 173	39 758
Other remuneration received, or due and receivable by members of the Board including the Chief Executive Officer.		612 373	612 373	502 938
		642 546	642 546	542 696
The number of members included in these figures is shown below in each relevant remuneration band:				
Remuneration between		Number	Number	Number
$Nil and $9 999		2	2	-
$15 000 and $29 999		5	5	3
$30 000 and $44 999		3	3	2
$45 000 and $59 999		1	1	-
$375 000 and $389 999	(a)	1	1	-
$405 000 and $419 999	(a)	-	-	1
		12	12	6

(a) Includes incentives payment

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

15 Remuneration of executives

FINANCIAL YEAR

	Notes	Consolidated 2008 $'000	Parent 2008 $'000	Parent 2007 $'000
Executive remuneration is determined by ANSTO, with the senior executive salaries approved by the Chief Executive Office (CEO). Included in operating expenses (Note 6) is total remuneration received or due and receivable, by executives (excluding the CEO who is included in Note 14) who earn $130 000 or more in connection with the management of ANSTO.		3 637 274	3 144 570	2 414 272
The number of executives included in these figures is shown below in each relevant remuneration band:				
Remuneration between		Number	Number	Number
$145 000 and $159 999	(b)	1	1	-
$160 000 and $174 999		2	2	1
$175 000 and $189 999		2	2	4
$190 000 and $204 999		3	3	2
$205 000 and $219 999		2	1	3
$220 000 and $234 999		1	1	1
$235 000 and $249 999		3	3	-
$250 000 and $264 999		1	1	-
$265 000 and $279 999		1	1	1
$280 000 and $294 999		1	-	-
	(a)	17	15	12

(a) Except for executive in bracket $145 000 and $159 999, all include incentive payments
(b) Includes termination payment

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

16 Replacement Research Reactor Project (OPAL)

The OPAL nuclear research reactor returned to full operational power on 23 May 2008 after a 10 month shutdown following approval by the nuclear regulator, ARPANSA to use a modified fuel design.

Since returning to operation the commissioning of neutron beam instruments and production of commercial quantities of several nuclear medicines has been progressively resuming.

ANSTO continues to work with INVAP on the resolution of the mixing of light water with the heavy water. This is not a safety issue but requires an engineering solution to be developed.

In accordance with Australian Accounting Standards at each balance date all assets are assessed for financial impairment and the Directors believe that no provision for impairment of OPAL is necessary at 30 June 2008.

17 Insurances

Insurance risks, including professional indemnity, general liability, industrial special risk for property used substantially for commercial purposes, directors and officers, and travel, are placed through Comcover, the Government's insurable risk managed fund.

Workers compensation is insured through Comcare Australia and by virtue of statute under the *Safety Rehabilitation and Compensation Act 1988.*

A Deed of Indemnity between the Commonwealth Government and ANSTO, under which the government has formally agreed to indemnify ANSTO and ANSTO Officers from any loss or liability arising from claims caused by ionising radiation, remains in place.

18 Remuneration of auditors

FINANCIAL YEAR

	Consolidated		Parent
Notes	**2008 $'000**	**2008 $'000**	2007 $'000
Remuneration to the Auditor-General for auditing the financial statements for the reporting period	145 000	130 000	125 000

No other services were provided by the Auditor-General during the reporting period.

19 Related party disclosures

Several ANSTO Board Members were associated with entities with which ANSTO had commercial transactions during the year as part of their role in hospitals or universities. All such transactions were in accordance with ANSTO's normal commercial terms conditions. None of those transactions led to any conflict of interest.

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

20 Trust money

FINANCIAL YEAR

	Notes	Consolidated 2008 $'000	Parent 2008 $'000	2007 $'000
ANSTO receives monies from trade creditors as security deposits for contracts to be performed. These monies are held in a Trust Account and refunded to the respective trade creditors on satisfactory completion of the contract.				
Balance 1 July		19	19	7
Add: receipts		-	-	11
Add: interest received		1	1	1
Balance 30 June		20	20	19

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

21 Financial instruments

(a) Categories of financial instruments

		Consolidated		Parent			
		Carrying Amount	Fair Value	Carrying Amount	Fair Value	Carrying Amount	Fair Value
Financial assets	Notes	2008 $'000	2008 $'000	2008 $'000	2008 $'000	2007 $'000	2007 $'000
Cash at bank	7A	9 302	9 302	3 852	3 852	3 476	3 476
Cash on hand	7A	-	-	-	-	1	1
Investment held to maturity	7C	122 880	122 880	122 880	122 880	79 103	79 103
Investment at fair value through Profit and Loss	7C	5 000	5 000	10 000	10 000	5 000	5 000
Receivables for goods and services	7B	6 281	6 281	6 445	6 445	9 305	9 305
Loans	7B	-	-	4 568	4 788	-	-
Interest accrued	7B	1 413	1 413	1 413	1 413	58	58
Other	7B	2 150	2 150	2 155	1 935	1 879	1 879
Total financial assets (recognised)		147 026	147 026	151 313	151 313	98 822	98 822
Total financial liabilities							
Trade creditors	9E	9 134	9 134	8 933	8 933	6 984	6 984
Grant received in advance	9F	128	128	128	128	43	43
Interest bearing liabilities	9A	3 116	3 116	3 116	3 116	2 938	2 938
Other	9G	1 194	1 194	1 194	1 194	2 466	2 466
Total financial liabilities (recognised)		13 572	13 572	13 371	13 371	12 431	12 431

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

21 Financial instruments (continued)

(b) Net income from financial assets

		FINANCIAL YEAR		
		Consolidated	Parent	
Financial Instruments	Notes	**2008 $'000**	**2008 $'000**	2007 $'000
Financial assets				
Cash at bank	7A	937	937	566
Cash on hand	7A	-	-	-
Investment held to maturity	7C	7 924	7 664	4 729
Investment at fair value through Profit and Loss	7C	-	-	-
Receivables for goods and services	7B	-	-	-
Loans	7B	-	266	11
Interest accrued	7B	-	-	-
Unrealised foreign exchange gain	7B	-	-	-
Other	7B	-	-	-
Net income from financial assets		8 861	8 867	5 306

(c) Net expenses from financial liabilities

Financial liabilities				
Trade creditors	9E	-	-	-
Grant received in advance	9F	-	-	-
Interest bearing liabilities	9A	176	176	166
Other	9G	-	-	-
Net expenses from financial liabilities		176	176	166

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

21 Financial instruments (continued)

(c) Net expenses from financial liabilities (continued)

Financial assets

The net fair values of cash, deposits on call and non-interest-bearing monetary financial assets are in accord with their carrying amounts.

Loans receivable are carried at cost, which is above their net fair value, because it is intended to hold them to maturity.

Financial liabilities

The net fair values for trade creditors and revenue received in advance, all of which are short-term in nature, are in accord with their carrying amounts.

(d) Credit risk exposures

ANSTO's maximum exposures to credit risk at reporting date in relation to each class of recognised financial assets is the carrying amount of those assets as indicated in the Balance Sheet.

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

21 Financial instruments (continued)

(e) Liquidity risk

Financial Instruments

		Consolidated					
2008		Carrying Amount	On Demand	1 Year or Less	1 to 5 Years	More than 5 Years	Total Contractual Cash Flows
	Notes	**$'000**	**$'000**	**$'000**	**$'000**	**$'000**	**$'000**
Financial liabilities							
Trade creditors	9E	9 134		9 134			9 134
Grant received in advance	9F	128		128			128
Interest bearing liabilities	9A	3 116			3 116		3 116
Other	9G	1 194		1 194			1 194
Total financial liabilities (recognised)		13 572	-	10 456	3 116	-	13 572

Financial Instruments

		Parent					
2007		Carrying Amount	On Demand	1 Year or Less	1 to 5 Years	More than 5 Years	Total Contractual Cash Flows
	Notes	$'000	$'000	$'000	$'000	$'000	$'000
Financial liabilities							
Trade creditors	9E	6 984		6 984			6 984
Grant received in advance	9F	43		43			43
Interest bearing liabilities	9A	2 938			2 938		2 938
Other	9G	2 466		2 466			2 466
Total financial liabilities (recognised)		12 431	-	9 493	2 938	-	12 431

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

21 Financial instruments (continued)

(f) Market risk - consolidated

2008		Consolidated						
		Reasonable Possible Change in variable	Interest Rate Risk		Currency Risk		Other Price Risk	
			-0.25%		5%			
Financial assets (recognised)	Notes	Carrying Amount 2008 **$'000**	Profit or loss **$'000**	Equity **$'000**	Profit or loss **$'000**	Equity **$'000**	Profit or loss **$'000**	Equity **$'000**
Cash at bank	7A	9 302						
Cash on hand	7A	-						
Investment held to maturity	7C	127 880	(208)	(208)				
Investment at fair value through Profit and Loss	7C	5 000						
Receivables for goods and services	7B	6 281						
Loans	7B							
Interest accrued	7B	1 413						
Other	7B	2 150						
Total financial assets (recognised)		152 026	(208)	(208)				
Financial liabilities (recognised)								
Trade creditors	9E	9 134						
Grant received in advance	9F	128						
Interest bearing liabilities	9A	3 116						
Other	9G	1 194						
Total financial liabilities (recognised)		13 572						

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

21 Financial instruments (continued)

(f) Market risk - consolidated (continued)

2007		Parent						
		Reasonable Possible Change in variable	Interest Rate Risk		Currency Risk		Other Price Risk	
			0.60%		5%			
Financial assets (recognised)	Notes	Carrying Amount 2007 $'000	Profit or loss $'000	Equity $'000	Profit or loss $'000	Equity $'000	Profit or loss $'000	Equity $'000
Cash at bank	7A	3 476						
Cash on hand	7A	1						
Investment held to maturity	7C	79 103	471	471				
Investment at fair value through Profit and Loss	7C	5 000						
Receivables for goods and services	7B	9 305						
Loans	7B	-						
Interest accrued	7B	58						
Unrealised foreign exchange gain	7B	-						
Other	7B	1 879						
Total financial assets (recognised)		98 822	471	471				
Financial liabilities (recognised)								
Trade creditors	9E	6 984						
Grant received in advance	9F	43						
Interest bearing liabilities	9A	2 938						
Other	9G	2 466						
Total financial liabilities (recognised)		12 431						

Notes to and forming part of the Financial Statements for the year ended 30 June 2008

21 Financial instruments (continued)

(f) Market risk - consolidated (continued)

A sensitivity analysis for each type of market risk was conducted on how profit or loss and equity would be affected by changes in the relevant risk variable, that were reasonably possible at balance sheet date. The methodology and assumptions used, and the possible risk variable changes are as follows:

- The only financial instrument that is subject to currency risk is the trade creditors. The impact only relates to assets and not profit and loss or equity.
- ANSTO Inc., being all transactions are dominated in US Dollars are subject to currency exposure. The rate used at 30 June 2008 was 0.9439 but as of 12 August 2008, the rate has slipped to 0.8796, a decline of 6.81% in Australian Dollar equivalent value.
- ANSTO's term deposit investments are assessed to be affected by movement in interest rates. The RBA recent announcement of pressure to drop the interest rates by 50 basis points will reduce the potential earnings of our $83 million investment at variable interest rates. ANSTO believes however, that the RBA will reduce interest rates by 25 basis points in the near future and possibly a further drop of 25 basis points at a later date. Based on this forecast, ANSTO believes that 25 basis points would be a reasonable possible change in variable interest rates.

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Governance and performance

Compliance

ANSTO is subject to the provisions of various Commonwealth Acts, Regulations made under these various Acts and Commonwealth Awards.

The principal Act is the *Australian Nuclear Science and Technology Organisation Act 1987 (ANSTO Act)*.

The principal Award is the *Australian Nuclear Science and Technology Organisation (General) Award 1990*.

Amendments to governance parts of the ANSTO Act

The combined Bill covering all Uhrig-related amendments relating to CSIRO, ANSTO and AIMS entered into force on proclamation on 10 September 2007. The principal changes to the *ANSTO Act* were:

(iii) For consistency with commercial practice, the title of the chief executive of ANSTO is changed to "Chief Executive Officer" rather than the current "Executive Director".

(i) The Board consists of six to nine members including the Chief Executive Officer (previously the Board consisted of the Executive Director and not fewer than two nor more than six other members);

(ii) The Ministerial approval of contracts above $5 million is removed and replaced by a requirement, set out in the Minister's Statement of Expectations, that the Minister is notified in advance of ANSTO entering into significant contracts.

The functions of the Board

A Board established under Section 8 of the *Australian Nuclear Science and Technology Organisation Act 1987* governs ANSTO. The general functions of the Board, as set out in Section 10 of the *ANSTO Act*, are to ensure the proper and efficient performance of the functions of the organisation and to determine the policy of the organisation with respect to any matter, having regard to the current policies of the Commonwealth Government.

In particular, it has responsibility for:

- approval of organisational strategy and the annual business plan and budget
- monitoring financial performance
- monitoring managerial performance
- ensuring that the significant risks facing the organisation have been identified, and that appropriate control, monitoring and reporting mechanisms are in place.

The *Commonwealth Authorities and Companies Act (CAC Act)* requires the Board to comply with certain accountability and corporate governance principles, including:

- the maintenance of an Audit Committee
- specific financial and reporting provisions
- disclosure of all Board members' personal interests
- provision of indemnities and indemnity insurance in certain circumstances.

Governance and performance

All *CAC Act* requirements are currently being met.

Processes are in place for performance assessment of both the Board and its Audit Committee and individual members thereof.

The Board has established an Audit Committee and a Remuneration Committee. All matters considered by those Committees are submitted to the Board for information and, where appropriate, ratification.

Board Charter

ANSTO has established a Board Charter, setting out the respective rights and responsibilities, functions and powers of Board members and ANSTO executives. It is made available internally on ANSTO's internet.

Board membership

During the 2007-08 financial year, the Board comprised seven non-executive members, drawn from the broader community, who are not involved in the day-to-day running of the Organisation, and the Chief Executive Officer.

The *ANSTO Act* provides that the Chief Executive Officer shall manage the affairs of the Organisation, subject to the directions of, and in accordance with, policies determined by the Board. Senior management attend Board meetings as required to report on matters relevant to their individual areas of responsibility.

Each member brings complementary skills and experience to the Board. Its members during the 2007-08 financial year had experience in areas that included industry, information and communication technology, mining, scientific research, medicine and the commercialisation of research.

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

Six Board meetings were held during the 2007-08 financial year. Details of the number of Board meetings attended by each member during the period in which each member held office during the financial year are shown over.

Board remuneration and allowances

The remuneration and allowances of members of the Board, including the Chief Executive Officer, are determined by the Remuneration Tribunal.

Remuneration of Board members is disclosed in the Financial Statements.

Disclosure of interests of Board Members

Sections 27F-27K of the *CAC Act* provides for the disclosure of material personal interests in a matter that is being considered by the Board, and prohibits participation, deliberation and decision making by any member on such matters. All these requirements were met during the year.

Board member access to independent professional advice

The Board has established procedures by which members, in the interests of their

Meetings – Board

Member	Eligible to attend	Attended
Dr Ziggy Switkowski (Chair)	6	6
Prof Paul Greenfield AO	6	5
Mr Edward N Pretty	5	5
Mr William Scales AO	6	6
Prof Andrew M Scott	5	3
Prof David Copolov	1	1
Prof John Hearn	1	1
Dr Ron Cameron (Acting CEO) from 17 May 2008	1	1
Mr Michael A Eager (Deputy Chair to 29 February 2008)	4	4
Dr Ian Smith (CEO) to 16 May 2008	5	5
Dr Klaus H Schindhelm	4	4
Dr Agatha A van der Schaaf	0	0

duties, may seek independent professional advice at ANSTO's expense. In brief, members must first seek permission from the ANSTO Chairman.

Report of operations

Section 9, Schedule 1 of the *CAC Act* requires that the Organisation's Annual Report include a report of operations. The Commonwealth Authorities and Companies (Report of Operations) Orders 2008 set out the requirements for such a report. In this Annual Report this is called an Operations report.

The Board reports that:

- ANSTO's mission and strategic directions are being actioned
- Actual performance is reported against approved performance indicators
- There have been no significant changes in ANSTO's state of affairs or principal activities during the year
- ANSTO has continued to manage both the risks and opportunities it faces.

The Board reports that, in the opinion of senior management and the Board, at the time of making this report, adequate cash resources are, and will continue to be, available to cover ANSTO's requirement

for working capital, to pay existing debts, and meet obligations during the next financial year.

The Board states that a risk oversight and management policy and supporting processes are in place and that adequate systems are in place to ensure compliance with this policy.

Health, safety and environmental protection

The Board places primary importance on the safe performance of all ANSTO activities. The monitoring of health, safety and environmental protection in general, and compliance with relevant legislation in particular, is designated as a responsibility of the whole Board. During 2007-08, steps were taken to increase internal auditing of OHSE performance and to enhance reporting of OHSE performance to ANSTO management and the Board. Also during the reporting period, the ANSTO Health, Safety and Environment Committee which has traditionally provided advice to the CEO on OHSE matters, was replaced by the ANSTO OHSE stakeholder forum. This was to increase the opportunity for stakeholders to understand ANSTO's OHSE performance and to promote continuous improvement in this area. The forum is chaired by an external member, Mr Harry Rosenthal.

Audit Committee

The Audit Committee, a formal sub-committee of the Board, comprised during the year Mr W Scales AO (Chair from 1 March 2008), Mr M A Eager (Chair to 29 February 2008), Professor P Greenfield AO, Mr EN Pretty, Professor AM Scott, Professor D Copolov, Professor J Hearn, Dr K Schindhelm and a member external to ANSTO, Mr W Wilton. Mr Wilton is a Chartered Accountant. The Chief Executive Officer, the Chief Financial Officer, representatives of the Australian National Audit Office and the Chief Internal Auditor attended all meetings or relevant parts of all meetings by invitation.

In accordance with good practice, all Board members receive copies of Audit Committee papers and meeting minutes, and can attend Committee meetings as a right. This Committee was established by the Board under a formal written Charter to oversee the organisation's risk management policies, practices and controls in relation to financial and commercial activities, including the financial reporting process, legislative and regulatory conformance, corporate governance and asset protection. Its Charter extends to the review of safety and environmental systems and performance. Additionally, in accordance with the provisions of the *CAC Act*, the Committee is responsible for assisting Board members to fulfil their specific responsibilities under that Act.

The Committee has unlimited access to both the internal and external auditors and to senior management.

The Committee scrutinises the annual financial statements of ANSTO and considers the appropriateness of accounting practices reflected therein. It

Meetings – Audit Committee

Member	Eligible to attend	Attended
Mr William Scales AO (Chair from 1 March 2008)	5	5
Prof Paul Greenfield AO	5	3
Mr Edward N Pretty	3	3
Prof Andrew M Scott	3	2
Prof David Copolov	1	1
Prof John Hearn	1	1
Mr Warren Wilton (External Member)	5	5
Mr Michael A Eager (Chair to 29 February 2008)	4	4
Dr Klaus H Schindhelm	4	4

receives a signed recommendation from the Chief Executive Officer, and the Chief Financial Officer, as to the veracity of the financial statements signed by the Board.

Five Audit Committee meetings were held during the financial year. Details of the number of Committee meetings held and attended during the period in which each member held office during the financial year are provided in the table above.

The Committee generally meets quarterly.

The remuneration and allowances of Board members who are members of the Audit Committee are determined by the Remuneration Tribunal.

Remuneration Committee

The Remuneration Committee, a formal subcommittee of the Board, comprised during the year Dr Z Switkowski (Chair), Mr W Scales (from 1 March 2008) and Mr MA Eager (to 29 February 2008). The Chief Executive Officer attends all meetings or relevant parts of all meetings by invitation. Others attend meetings, as appropriate, at the invitation of the Committee.

This Committee was established by the Board under a formal written Charter to oversee:

- The overall remuneration policy and strategy for the organisation
- The performance and remuneration policies for the Chief Executive Officer
- The compliance of remuneration policies and practices with statutory and regulatory requirements.

Meetings – Remuneration Committee

Member	Eligible to attend	Attended
Dr Ziggy Switkowski (Chair)	1	1
Mr William Scales AO	1	1
Mr M Eager	0	0

Technical Advisory Committee

The Technical Advisory Committee, formally established in accordance with a Board decision, comprises four members, all of whom are external to ANSTO. Members are chosen on the basis of internationally recognised scientific expertise and experience. The current members (as at 30 June 2008) of the Committee are Dr Roy Green, Emeritus Prof Peter Robinson, Prof William Stirling and Dr David Macfarlane.

This Committee operates under written terms of reference and was established by the ANSTO Board to advise it on the quality and relevance of the portfolio of research projects being undertaken at ANSTO.

Specifically the TAC provides an expert overview of research and addresses the following matters:

- To provide strategic advice to the Board concerning the research project portfolio
- To provide the Board with an overview of the quality of research within ANSTO's portfolio
- To advise on any matters affecting the quality of research outputs.

The Committee was formally constituted in October 1996 and is required to meet at least once per year. It met once during the 2007-08 financial year and presented a formal report to the Board.

The remuneration and allowances of members of the TAC are determined by the Remuneration Tribunal.

Induction and continuing professional development of ANSTO executives

Processes are in place for induction and ongoing education to inform executives of their responsibilities and rights. New executives have access to appropriate induction documents and processes (including those relating to safety and security) and to ANSTO officers. Development needs are identified through an annual multi-rater feedback process (360 Degree Assessment) against the Executive Capability Framework. Individual Development Plans are implemented on the basis of this process to provide

continuing professional development for ANSTO Executives to meet their professional and career development needs.

Performance review for ANSTO executives

During the 2007-08 financial year performance reviews were conducted of the Chief Executive Officer, the Chief of Operations, the Chief of Research and the Chief Financial Officer and those reporting directly to them. This review included the conducting of a 360 degree feedback process on all members of the Senior Management Team and the implementation of development plans.

Risk management

The Board recognises that developing and implementing ANSTO's strategies requires careful assessment and balancing of both risk and opportunity.

The Board is charged with the responsibility of ensuring that appropriate policies are in place to cover identified risks, and management is required to develop appropriate procedures to manage these risks.

The Board has endorsed a risk management framework introduced by management in 2007-08. As part of this framework, ANSTO's Internal Audit function undertakes a systematic program of risk assessments designed to identify, evaluate and prioritise high and significant risks, utilising a methodology consistent with the Australian Risk Management Standard AS/NZS 4360/2004. The Audit Committee and the Australian National Audit Office (ANAO) receive summaries of all risk assessment reports.

ANSTO's risk management policy provides that it is the responsibility of the operational management of ANSTO to develop and implement risk mitigation strategies. The overall risk framework is actively applied in ANSTO's operations and to new initiatives in particular. Project risk management remains a significant area of focus in particular capital works projects.

In appropriate circumstances, insurance is used as a method to transfer the financial impact of risk.

The Board, supported by the Audit Committee, oversees the development and operation of business continuity planning and other emerging risk issues.

Ethical standards

ANSTO's ethics policy is set out in a document entitled Code of Ethics – A Code for ANSTO Staff. The Code provides a reference point for ethical behaviour and applies to members of the Board, management and all staff. The Code sets out the standards for ethical behaviour and conduct and provides guidance by defining the expected values and standards of workplace behaviour and performance.

Fraud control

The organisation has an established fraud control policy and plan, in line with the Fraud Control Policy of the Commonwealth and guidelines set out by the Attorney General's Department, Criminal Justice Division.

External audit

Under Section 8 of the *CAC Act* the Commonwealth Auditor-General, through the ANAO, is the external auditor for ANSTO.

The ANAO, as a matter of policy, provides only audit services to ANSTO.

The Audit Committee reviews the ANAO audit plan and reports and meets with ANAO representatives prior to recommending to the Board that the annual financial statements be accepted and the Statement by Directors signed.

Internal audit

The ANSTO Internal Audit function has a dual reporting line to the Audit Committee and the Chief Executive Officer. Its responsibility is to provide an independent, risk-based review function, as set out in a formal Charter periodically reviewed by the Audit Committee and endorsed by the Board. The Audit Committee approves the annual Internal Audit plan and receives regular reports on progress against that plan.

Internal control

The Board is responsible for ensuring that appropriate policies and internal controls are in place and operating.

Compliance and review are monitored through the Audit Committee and the Internal Audit function.

Service Charter

ANSTO's Service Charter sets out a statement of what ANSTO does and the standards of product and service that customers, stakeholders and the community can expect from the organisation.

Judicial decisions and reviews by outside bodies

There were no judicial decisions or decisions of administrative tribunals that had a significant impact on the operations of ANSTO during the reporting year.

There were no specific reports issued by the Commonwealth Auditor-General, other than that issued in relation to the 2007-08 financial statements.

There were no reports on the operations of ANSTO by a Parliamentary Committee or the Commonwealth Ombudsman during the reporting year.

Ministerial directions

There were no ministerial directions to ANSTO made under either the *ANSTO Act* or the *CAC Act* during the reporting year.

Indemnities and insurance premiums for officers

ANSTO's insurance coverage includes professional indemnity and directors' and officers' liability. Certain sections of the *CAC Act* contain prohibitions against ANSTO giving indemnities and paying insurance premiums relating to liabilities arising from conduct involving a lack of good faith by officers. There have been no exceptions to these provisions and no claims were made against ANSTO in respect of such liability that required a claim on ANSTO's insurer, Comcover.

Business continuity planning

Continuity of ANSTO business is a critical issue that has been considered and planned for by the Board, the Chief Executive Officer and senior management. Many services delivered by ANSTO are critical to the economic and social wellbeing of our society. A failure to deliver these could have significant consequences for those concerned. As a consequence, ANSTO regularly reviews all aspects of its business continuity management to ensure a constant state of readiness. In 2007-08 ANSTO's crisis management plan was updated.

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Appendices

Appendix 1

Equality of Employment Opportunity

Objectives

1. To ensure that Equal Employment Opportunity (EEO) principles and practices are actively incorporated into all people management practices.
2. To ensure that the structures and processes used to implement EEO adjust to changing employment needs.
3. To confirm and communicate the vision that ANSTO's employment activities reflect ANSTO's values.

ANSTO actively seeks to implement EEO and diversity principles in its management practices. Human resource processes operate within the ISO 9001 framework.

	Number employed		% of total staff		Average salary	
	2006-07	**2007-08**	2006-07	**2007-08**	2006-07	**2007-08**
Female	255	289	26%	28%	$57 302	$63 330
Male	726	739	74%	72%	$66 130	$74 940

	Number employed		% of total staff		Average salary	
	2006-07	**2007-08**	2006-07	**2007-08**	2006-07	**2007-08**
People with disabilities	18	19	1.9%	1.8%	$60 070	$68 514
Aboriginal & Torres Straight Islander	11	13	1.1%	1.3%	$64 792	$63 877
Non-English speaking background	53	59	5.4%	5.7%	$65 983	$74 490

* Commonwealth Disability Strategy (CDS). From 1 July 2007 agencies no longer report on employer role activities through their annual reports.

Appendix 2

Functions and powers of the Organisation under the ANSTO Act

This appendix describes the functions and powers of the Organisation under the *Australian Nuclear Science and Technology Organisation Act 1987*, which is ANSTO's enabling legislation. In the text below, 'Organisation' means the Australian Nuclear Science and Technology Organisation.

Section 5: Functions of the Organisation

(1) The functions of the Organisation are:

(a) to undertake research and development in relation to:

(i) nuclear science and nuclear technology; and

(ia) the application and use of nuclear science and nuclear technology; and

(ii) the production and use of radioisotopes, and the use of isotopic techniques and nuclear radiation, for medicine, science, industry, commerce and agriculture; and

(iii) such other matters as the Minister directs; and

(b) to encourage and facilitate the application and use of the results of such research and development; and

(ba) to condition, manage and store radioactive materials and radioactive waste, arising from:

(i) the Organisation's activities (including the production of radioactive materials for other persons); or

(ii) the activities of companies in which the Organisation holds a controlling interest (including the production of radioactive materials for other persons); or

(iii) the use by other persons of radioactive materials produced by the Organisation or such companies; or

(iv) the activities of other persons who are specified in the regulations; and

(bb) to condition, manage and store radioactive materials and radioactive waste generated, possessed or controlled by the Commonwealth or a Commonwealth entity; and

(bc) to condition, manage and store radioactive materials and radioactive waste at the request of:

(i) a law enforcement agency; or

(ii) a Commonwealth, State or Territory agency responsible for the management of emergencies or disasters;

Appendix 2

Functions and powers of the Organisation under the ANSTO Act

including, but not limited to, radioactive materials or radioactive waste involved in, or arising out of, a radiological incident or a radiological emergency; and

(bd) to condition, manage and store radioactive waste that has been, or is to be, sent to Australia under contractual arrangements relating to the conditioning or reprocessing of ANSTO spent nuclear fuel; and

(c) to produce, acquire, provide and sell goods, and to provide services, that are:

(i) in connection with the production and use of radioisotopes, and the use of isotopic techniques and nuclear radiation, for medicine, science, industry, commerce and agriculture; or

(ia) in connection with the conditioning, management and storage of radioactive materials or radioactive waste; or

(ib) in connection with nuclear science and nuclear technology; or

(ic) in connection with the application and use of nuclear science and nuclear technology; or

(ii) otherwise in connection with matters related to its activities; and

(d) to act as a means of liaison between Australia and other countries in matters related to its activities; and

(e) to provide advice on aspects of:

(i) nuclear science and nuclear technology; and

(ii) the application and use of nuclear science and nuclear technology; and

(iii) other matters related to its activities; and

(ea) to make available to other persons, on a commercial basis, the knowledge, expertise, equipment, facilities, resources and property of the Organisation by:

(i) providing training and management expertise; or

(ii) selling or leasing equipment; or

(iii) leasing land, buildings and facilities; or

(iv) taking any other action that the Organisation thinks appropriate; and

(f) to cooperate with appropriate authorities of the Commonwealth, the States and the Territories, and with other organisations and institutions in Australia or elsewhere, in matters related to its activities; and

(g) to publish scientific and technical reports, periodicals and papers on matters related to its activities; and

(h) to collect and sell or distribute, as appropriate, information and advice on matters related to its activities; and

(j) to arrange for training, and the establishment and award of scientific research studentships and fellowships, in matters related to its activities; and

(k) to make grants in aid of research into matters related to its activities; and

(m) to make arrangements with universities and other educational research institutions, professional bodies and other persons for the conduct of research or of other activities in matters related to its activities.

(1A) A regulation made for the purposes of subparagraph (1)(ba)(iv) must not have the effect of authorising the premises on which the Lucas Heights Research Laboratories are situated to become a national nuclear waste repository.

(1B) In subsection (1A):

national nuclear waste repository means a site chosen by the Commonwealth, after the commencement of this subsection, for the storage of nuclear waste with a view to it never being moved to another site.

(1C) Without limiting paragraph 5(1)(bb):

(a) radioactive materials and radioactive waste generated by a Commonwealth contractor under a contract between the Commonwealth contractor and the Commonwealth or a Commonwealth entity are taken to be generated by the Commonwealth or the Commonwealth entity, as the case requires; and

(b) radioactive materials and radioactive waste possessed or controlled by a Commonwealth contractor under a contract between the Commonwealth contractor and the Commonwealth or a Commonwealth entity are taken to be possessed or controlled by the Commonwealth or the Commonwealth entity, as the case requires.

(2) The Organisation shall not undertake research or development into the design or production of nuclear weapons or other nuclear explosive devices.

(3) In undertaking its functions, the Organisation is to have regard to:

(a) the Commonwealth Government's national science, technology and energy policy objectives; and

(b) the Commonwealth Government's commercialisation objectives for public research institutions.

Appendix 2

Functions and powers of the Organisation under the ANSTO Act

(4) The Minister shall not give a direction under subparagraph (1)(a)(iii) to the Organisation to undertake research or development in relation to a matter unless the Minister is satisfied that research or development by the Organisation in relation to that matter would be an effective use of the staff of the Organisation, and would not duplicate unnecessarily any activity being carried on, or proposed to be carried on, by any other agency or authority of the Commonwealth.

(5) The Organisation may perform its functions to the extent only that they are not in excess of the functions that may be conferred on it by virtue of any of the legislative powers of the Parliament, and, in particular, may perform its functions:

(a) in so far as it is appropriate for those functions to be performed by the Organisation on behalf of the Government of the Commonwealth as the national Government of Australia; and

(b) for purposes for which it is appropriate for the Parliament as the national Parliament of Australia to authorise the Organisation to perform functions; and

(c) by way of expenditure of money that is available for the purposes of the Organisation in accordance with an appropriation made by the Parliament; and

(d) in the course of, or in relation to, trade and commerce with other countries, among the States, between Territories or between a Territory and a State; and

(e) for purposes related to external affairs; and

(f) for purposes in or in relation to a Territory; and

(g) for purposes related to the defence of the Commonwealth.

Section 6: General powers of Organisation

(1) Subject to this Act, the Organisation has power to do all things necessary or convenient to be done for or in connection with the performance of its functions and, in particular, has power:

(a) to enter into contracts;

(b) to acquire, hold and dispose of real or personal property;

(c) to occupy, use and control any land or building owned or held under lease by the Commonwealth and made available for the purposes of the Organisation;

(d) to erect buildings and structures and carry out works;

(e) to form, or participate in the formation of, a company or partnership;

(f) to appoint agents and attorneys, and to act as an agent for other persons;

(g) to engage persons to perform services for the Organisation;

(h) to design, produce, construct and operate equipment and facilities; and

(j) to do anything incidental to any of its powers.

(2) The powers of the Organisation may be exercised within or outside Australia.

(3) To avoid doubt, the Organisation has the power to construct buildings and facilities for the sole purpose of performing the function referred to in paragraph 5(1)(ea).

Appendix 3

Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act), section 516A

Safety Arrangements and Environmental Performance

Environmental Protection

ANSTO is committed to operating in a manner that protects the environment and is consistent with Australian and international standards. Environmental awareness is promoted throughout the Organisation which strives for continual improvement in environmental performance.

Environmental management system

To provide assurance that ANSTO is maintaining sound environmental protection practices, we maintain an environmental management system (EMS) that is certified to the International Standard ISO 14001. This standard requires that environmental risks and legal requirements are understood and managed, an appropriate measurement and review system is in operation, and that there is an organisational commitment to continual improvement. In addition all parts of our environmental monitoring program operate within a quality system certified to the ISO 9001:2000 standard for Quality Management Systems.

Environmental performance

Accurate measurements with independent verification

ANSTO's environmental monitoring program includes measuring radioactivity and some key non-radioactive materials in air and liquid emissions and in samples of air, surface- and ground-waters, sediment and biota from the local environment. General environmental radiation is also monitored and local weather patterns reported. Many monitoring capabilities are independently verified.

Environmental monitoring in 2007-08 has confirmed that ANSTO releases only very low levels of radioactive material into the environment, and that the modern OPAL reactor has significantly reduced the contribution made by ANSTO's research reactor to the already tiny potential public dose from airborne emissions.

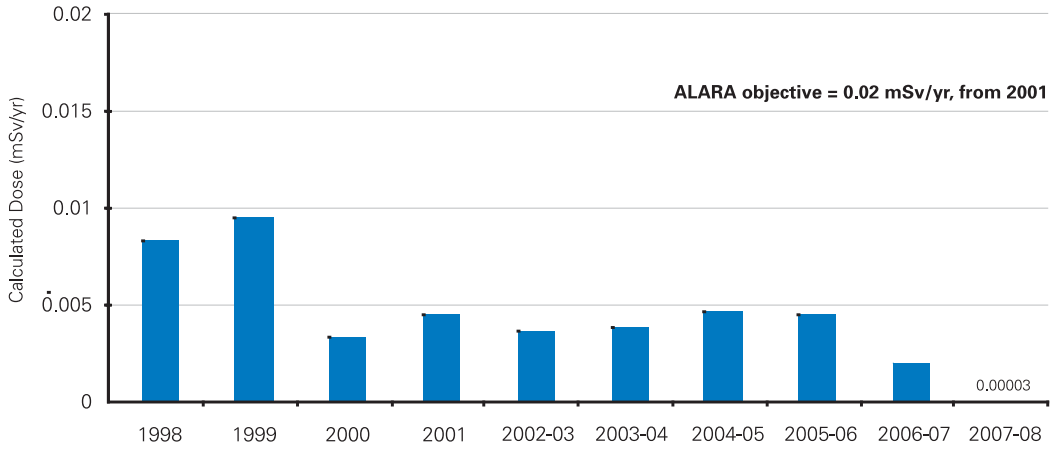
Air

Since the levels of radioactivity released to air are so low, computer modelling is used to estimate the radiation doses to people at various distances from the site. The outcome of this modelling estimated that the maximum potential off-site dose derived from ANSTO in 2007-08 was 0.00003 mSv. This corresponds to just 0.003 per cent of the annual public dose limit of 1.0 mSv, established by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA), and is a significant reduction on the previous ten years (see graph on following page).

For our closest neighbours, ANSTO's activities added less than 0.002 per cent to the 1.5 mSv dose that every Australian receives from natural background radiation each year.

Appendix 3

Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act), section 516A



Maximum annual effective dose from LHSTC airborne discharges at the 1.6 km boundary of ANSTO's buffer zone, 1998 to 2008

Liquid effluent discharges within limits

Effluent discharged from ANSTO into the sewer complied with all limits for radioactive discharges, in accordance with the Trade Waste Agreement with Sydney Water. Compliance with these limits ensures that water at the Cronulla sewage treatment plant meets World Health Organisation drinking water standards for radioactivity. Concentration limits for non-radioactive materials such as ammonia, zinc and total dissolved solids were also met. Sydney Water conducts independent testing of liquid effluent discharges to sewer and the Trade Waste Agreement is periodically reviewed to provide assurance that ANSTO's discharges remain within authorised limits and pose no threat to the environment.

Effluent from the Sutherland Shire undergoes tertiary treatment at the Cronulla sewage treatment plant and is ultimately discharged to the ocean at Potter Point. During the year, a radiological risk assessment was carried out for marine biota in the receiving environment which confirmed that there is negligible risk to marine life from ANSTO's liquid effluent discharges.

Good water quality

ANSTO regularly monitors stormwater leaving the site, as well as sampling the nearby Woronora River. Results show that tritium concentrations remained below the level considered acceptable in Australian drinking water. Gross alpha and beta measurements were also below the levels required for stormwater/surface waters, following the NSW Protection of the *Environment Operations Act 1997*. In fact, all measurements were below the stricter screening levels from the Australian Drinking Water Guidelines (ADWG).

Appendix 3

Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act), section 516A

ANSTO's stormwater does not contribute to public water supply, but referring to the ADWG provides a useful context for understanding our data. Monitoring of groundwater at the Lucas Heights site showed no detectable ANSTO-produced radionuclides apart from very low levels of tritium.

Detailed reporting

The results and findings from our environmental monitoring program are available to the public in the annual report series Environmental and Effluent Monitoring at ANSTO Sites, available through the ANSTO library and website.

ANSTO also reports annually to the Department of Environment, Water, Heritage and the Arts about any of its activities that fall under the National Environmental Protection Measures. Overall, ANSTO commits significant resources to effectively monitor, manage and report on its environmental impacts and responsibilities.

Ecologically sustainable development (ESD)

ANSTO's commitment to environmental protection and sustainability principles is embedded at the highest level. The organisation has defined strategic directions which inform its social, economic and environmental core values. These priorities are integral to ANSTO's Business Management System – the framework that defines how business is conducted to deliver outcomes to our customers and stakeholders in a safe, consistent and environmentally responsible manner. Specific local arrangements and objectives for protecting human health, safeguarding our operations and minimising our environmental footprint derive from these overarching documents.

ANSTO activities that contribute to ESD include our research into the significant environmental issues of dryland salinity, water management, climate variability and purification of waste water. This research enhances scientific knowledge and improves environmental outcomes. Our active support of nuclear non-proliferation ideals and the development of nuclear safeguards also accord with ESD principles.

Finally, ANSTO's commitment to ecologically sustainable development means that special emphasis is placed on reducing the environmental footprint by minimising waste and the consumption of resources such as paper, electricity and water and by recycling consumables. It also ensures that we manage our past and current waste in a manner that protects human health and the environment, now and in the future.

Appendix 4

Occupational Health and Safety (Commonwealth Employment) Act 1991, section 74

Safety arrangements

ANSTO is committed to ensuring a safe and healthy environment for employees, visitors, contractors and the external community. All ANSTO activities are governed by a 'safety first' philosophy that means work is planned and will only be performed if it is judged to be safe.

Safety and environmental principles, values and commitments are set out in the ANSTO Health, Safety and Environment Policy which is supported by a framework of documents that constitutes our safety management system. Key elements of the safety system are:

- documented requirements and guidance
- formal review and approval of potentially hazardous work
- auditing and evaluation of safety performance
- communication of safety issues and performance to workers and the community.

Accidents and incidents

An important part of ANSTO's safety management system is the capturing of information on all safety-related events including accidents and 'near misses'. This ensures the proper investigation of all such events and the implementation of safety improvements. It also gives us data to drive improvements in ANSTO's safety performance. One key indicator of safety performance is the number of incidents that are reported to regulators (Comcare and ARPANSA)

In 2007-08 ANSTO informed Comcare of six notifiable incidents. One of these was a long term incapacity and five dangerous occurrences. The dangerous occurrences all related to equipment malfunction. All incidents were investigated and improvements made to work practices as a result.

Measuring radiation by the dose

Everyone is exposed to ionising radiation from natural sources. People may also be exposed to radiation from non-natural sources, including medical procedures such as X rays. The effect of radiation on our body is called a dose and is measured in sieverts (Sv). Typical doses of radiation are so small that they are usually expressed in units of one thousandth of a sievert, known as a millisievert (mSv). According to the most recent data from ARPANSA, the average dose an Australian receives from natural background radiation (excluding medical sources) is 1.5 mSv per year. Federal and State regulations require that a member of the public should receive no more than 1 mSv per year from radiation sources other than background radiation and medical procedures. The regulatory limit for radiation workers is 20 mSv per year, averaged over five years, with no more than 50 mSv in any one year.

ANSTO's workers are routinely monitored for exposure to radiation. Monitoring results for 2007-08 show that the radiation

Appendix 4

Occupational Health and Safety (Commonwealth Employment) Act 1991, section 74

doses received by ANSTO workers remain significantly below regulatory limits.

Table 1 shows the maximum, average and collective effective doses for the past five years. Table 2 shows the distribution of individual effective doses over the same period. The graph on the following page compares maximum and average effective doses. Regulations give annual dose limits for radiation workers for the whole body (effective dose), for the skin (shallow dose) and for extremities such as hands or feet. The dose limits are:

- whole body 20 mSv, averaged over five years
- shallow (skin) 500 mSv
- extremities 500 mSv.

Table 1: Effective dose

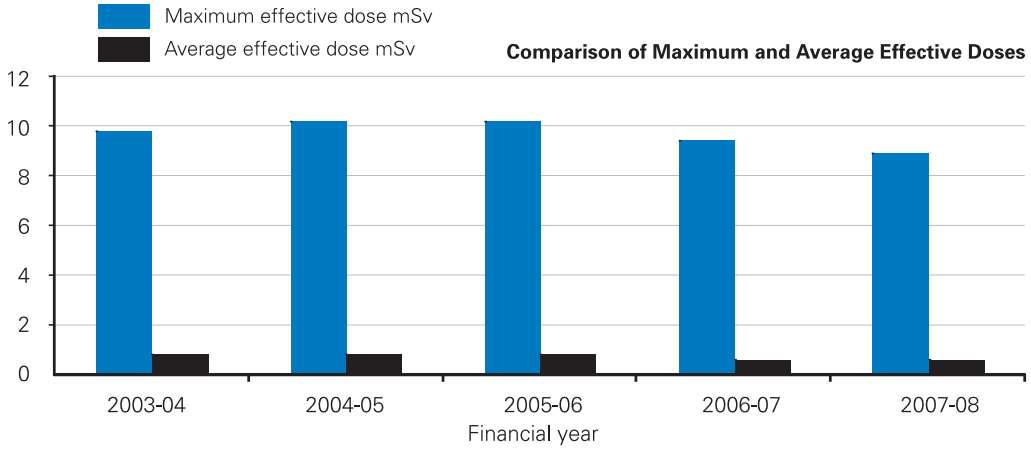
	2003-04	2004-05	2005-06	2006-07	2007-08
Maximum effective dose mSv	9.8	10.2	10.2	9.4	8.9
Average effective dose mSv	0.8	0.8	0.8	0.6	0.6
Collective effective dose man-mSv	692	697	690	545	531

Table 2: Distribution of individual effective dose

dose ranges (mSv)	2003-04	2004-05	2005-06	2006-07	2007-08
0 to < 2	824	807	751	926	914
2 to < 5	82	66	61	41	36
5 to < 10	18	20	28	13	13
10 to < 15	0	1	1	0	0
> 15	0	0	1	0	0

Appendix 4

Occupational Health and Safety (Commonwealth Employment) Act 1991, section 74



Emergency preparedness and responses

ANSTO and emergency services organisations jointly maintain a 24-hour emergency response capability to deal with incidents at Lucas Heights. The Response Plan for Accidents and Incidents describes how an emergency response will be coordinated and identifies who is responsible for which actions. Each organisation has standing procedures detailing each individual response. NSW emergency services manage responses to emergencies with potential significant offsite radiological consequences at state-level according to the Lucas Heights Emergency Sub Plan. There is also a district-level Lucas Heights Emergency Evacuation Sub Plan supporting these arrangements. In the event of an emergency, ANSTO staff would give technical assistance and practical support to emergency service organisations.

ANSTO maintains a close working relationship with emergency service organisations through the Local Liaison Working Party. The working party includes ANSTO specialists and representatives of emergency service organisations, local government, and support organisations, including NSW Health. ARPANSA is an observer.

An ongoing program of emergency training and evacuation drills is in place for all of site. Staff in each work area undergo training in the local emergency response protocols and are familiarised with the appropriate muster points. This training is supplemented with evacuation drills that are run with the respective Building Wardens.

ANSTO staff continued to run the Radiological Awareness Program for local emergency service organisations and functional groups in cooperation with ARPANSA. Specific radiological training is also provided to the NSW Fire Brigade members as part of their HAZMAT training.

Appendix 5

Freedom of Information Act 1982, subsection 8(1)

In compliance with Section 8 of the *Freedom of Information Act 1982*, the following is the annual statement on consultative arrangements, categories of documents maintained, and facilities and procedures for access to documents relating to ANSTO.

Details of the functions of the Organisation, membership of the Board and decision-making powers of the Board and the Executive are provided elsewhere in the annual report.

Arrangements for external participation

Liaison groups

A Technical Advisory Committee advises the ANSTO Board on the research projects being undertaken at ANSTO. Details of its role and composition can be found on page 116 of this annual report.

The Local Liaison Working Party (LLWP), established in 1967, comprises representatives from the NSW Police, Ambulance, Fire Brigades, Rural Fire Service, the NSW Department of Environment and Conservation, the NSW Department of Health, the Australian Federal Police, the Georges River District Emergency Management Officer, the State Emergency Management Committee, the State Emergency Service, Sutherland Shire Council and ANSTO, as well as an observer from ARPANSA. The LLWP is a communication forum for all parties which play a role in emergency preparedness and response at the Lucas Heights Science and Technology Centre (where ANSTO is located).

ANSTO state government arrangements

As it is located in New South Wales, ANSTO liaises with a range of NSW departments and authorities responsible for safety, environmental planning and related matters.

Associated organisations

AINSE, an association of ANSTO, the Institute of Geological and Nuclear Science (NZ) and 39 universities, arranges access by staff and students of Australasian universities to the major facilities at ANSTO.

Other arrangements

Less formal arrangements exist for promoting discussions, the exchange of views and/or collaboration with organisations outside the Commonwealth administration. These organisations include local government authorities, universities, standards bodies, professional societies, unions and staff associations, industrial groups and international nuclear agencies.

Categories of documents held

Computer software packages, computer printouts, technical books and reports, and International Nuclear Information System documents are available for purchase. Single copies of the annual report, Nuclear Matters, strategic plans, ANSTO

emergency plans, environmental monitoring reports, general information literature, videos and DVDs (under loan arrangements) are available on request.

Documents relating to decision-making processes include Cabinet documents about matters in which ANSTO has an interest; ministerial correspondence and directions; ANSTO Board agenda, memoranda and decisions; deeds, legal contracts and formal agreements; minutes and submissions; employment, delegations, security, finance and accounting handbooks and manuals. General correspondence includes ministerial briefs; speeches; conference papers for national and international meetings; parliamentary questions and answers; cables, telexes and facsimiles; and general records files.

Technical documents held include scientific and technical reports and laboratory notes comprising patents and inventions; computer media; plant and equipment operating manuals; maintenance, quality assurance and safety manuals; reactor operating authorisations, records and log books; radioisotope quality control procedures manuals; radioisotope catalogues and price lists; engineering service general records; nuclear material movement vouchers and accounting records; photographs; and radiographs.

Health and safety documents include staff medical records; safety-related survey records; film badge and radiological records; accident reports; and emergency response procedures.

Administration documents held include personnel records such as staff promotion files; organisation and establishment reports; compensation files; computer media with administrative instructions and information storage; staff lists and classifications; accounting records; pay-roll, flexitime and overtime records; tender and contract documents; building plans, specifications and instructions; directives; orders; memoranda; bulletins; notices; and information.

Other documents held include drawing office records such as plans, microfilm, drawings, maps and photographs.

Facilities for access

By arrangement, Freedom of Information (FOI) inquirers can peruse information in the Reception Centre at the entrance to the Lucas Heights Science and Technology Centre. Other arrangements for access may be made by contacting the FOI Coordinator, ANSTO, Private Mail Bag 1, Menai NSW 2234, Australia (email: government.liaison@ansto.gov.au).

ANSTO also has a free enquiry service for members of the public requiring information about the Organisation and its research, called the Community Right to Know Charter.

Interested parties are encouraged to contact enquiries@ansto.gov.au for any information.

Appendix 5

Freedom of Information Act 1982, subsection 8(1)

Information about ANSTO is available on the internet through the Organisation's homepage at www.ansto.gov.au.

The ANSTO Senior Adviser, Government Liaison and General Manager, Public Affairs, have been appointed as authorised officers under Section 23 of the *FOI Act.*

Appendix 6

Index of compliance with reporting guidelines

Index of compliance with reporting guidelines under various Acts, Regulations and Orders applicable to ANSTO as a Commonwealth authority

ANSTO Act 1987 (As amended)

Commonwealth Authorities and Companies Orders (Financial statements for reporting periods ending on or after 30 June 2005) under the _Commonwealth Authorities and Companies Act 1997_ (As amended)

Commonwealth Authorities and Companies (Report of Operations) Orders 2005 under the _Commonwealth Authorities and Companies Act 1997_ (As amended)

Requirements under other guidelines and legislation

Acronyms

ADWG	Australian Drinking Water Guidelines
AEIFRS	Australian Equivalents to International Financial Reporting Standards
AFP	Australian Federal Police
AIMS	Australian Institute of Marine Science
AINSE	Australian Institute of Nuclear Science and Engineering
AIP	Australian Institute of Physics
AMRFP	Access to Major Research Facilities Program
AMS	Accelerator Mass Sprectrometry
AMT	Australian Membrane Technologies
ANAO	Australian National Audit Office
ANS	Advanced Nuclear System
ANSN	Asian Nuclear Safety Network
ANSTO	Australian Nuclear Science and Technology Organisation
ANTARES	Australian National Tandem for Applied Research
AOFSRR	Asia-Oceania Forum for Synchrotron Radiation Research
ARI	ANSTO Radiopharmaceuticals and Industrials
ARPANSA	Australian Radiation Protection and Nuclear Safety Agency
ASIO	Australian Security Intelligence Organisation
ASNO	Australian Safeguards and Non-Proliferation Office
ASRP	Australian Synchrotron Research Program
ATLAS	ANSTO Technologies, Leaders in Analytical Science
AVO	Australian Valuation Office
CAC Act	Commonwealth Authorities and Companies Act 1997
CcASH	Cosmogenic climate Archives of the Southern Hemisphere
COMET	Commercialising Emerging Technologies
CRC	Cooperative Research Centre
CRC-BID	Cooperative Research Centre – Biomedical Imaging Development
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CSS	Commonwealth Superannuation Scheme
CT	Computed Tomography
DEST	Department of Education Science and Training
DSTO	Defence Science and Technology Organisation
EEO	Equal Employment Opportunity
EMS	Environmental Management System
ESD	Ecologically Sustainable Development
FDG	Fluorodeoxyglucose
FMOs	Finance Minister's Orders
FNCA	Forum for Nuclear Cooperation in Asia
FOI	Freedom of Information
GIF	Generation IV International Forum

Acronyms

HIFAR	High Flux Australian Reactor
HIP	hot isostatic pressing
IAEA	International Atomic Energy Agency
IBA	Ion Beam Analysis
IFRS	International Financial Reporting Standards
ISO	International Organisation for Standardisation
IsoTrans	Isotopic Tracers in Atmospheric Transport
ISL	International Science Linkages
IYPE	International Year of Planet Earth
LLWP	Local Liaison Working Party
MDU	Minerals Down Under
mSv	millisieverts
NEA	Nuclear Energy Agency
NCRIS	National Collaborative Research Infrastructure Strategy
NDF	National Deuteration Facility
NMAC	Nuclear Materials Accountancy and Control
NMB	Nanoparticulate Membrane Bioreactor
NORM	Naturally-occurring radioactive materials
NPT	Nuclear Non-Proliferation Treaty
NRP	National Research Priorities
NUPP	Nuclear and Particle Physics group
OECD	Organisation for Economic Cooperation and Development
OFMR	NSW Office for Science and Medical Research
OPAL	Open Pool Australian Light-water reactor
PBR	Peripheral-type Benzodiazepine Receptor
PET	Positron Emission Tomography
PSS	Public Sector Superannuation Scheme
QFA	Quadrennium Funding Agreement
RASP	Remote Advanced Sensor Platform
RCA	Regional Cooperative Agreement
RIP	Resin in pulp
RRI	Radiopharmaceutical Research Institute
SAR	Safety Analysis Report
SIMS	Secondary Ion Mass Spectrometery
SPECT	Single Photon Emission Computed Tomography
STAR	Small Tandem for Applied Research
Sv	Sieverts
UNESCO	United Nations Educational, Scientific and Cultural Organisation

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More information
ANSTO produces regular updates on its science and technology, has available a range of publications and conducts free tours of its site. For more information or to book a tour call +61 2 9717 3111 or email enquiries@ansto.gov.au

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