Australian Government

Ansto

Nuclear-based science benefiting all Australians

CORPORATE SOCIAL RESPONSIBILITY REPORT 2003-04

contents

> A fundamental shift has occurred in recent years in community expectations that is making responsible corporate behaviour an integral component of every organisation's day-to-day operation, rather than it being seen as an additional, unwanted business burden.

At ANSTO - the Australian Nuclear Science and Technology Organisation - we support this development and take pride in releasing our first corporate social responsibility report, focusing not on our financial performance, but on the ways we respond to environmental, safety and social issues that affect staff, customers, the Australian community and key stakeholders.

1 executive director's introduction

This report reflects our desire to share and communicate with our various stakeholders; whether they support the work we do or are opposed to it. There are a number of mechanisms through which we invite people to interact with us, and we welcome continuing discussion on a range of issues relevant to our operations.

As many already know, ANSTO operates at the leading edge of nuclear medicine, helping thousands of Australians enjoy healthier lives every year. Australians have benefited from our work in assisting the aerospace, agriculture, manufacturing, mining, minerals, food and oil exploration sectors. Our work in developing techniques to investigate climate change, salinity and groundwater pollution has also added greatly to the understanding and advancement of environmental research in these areas.

What is important to us is our insistence to deliver these medical, industrial and scientific benefits through safe and secure operational management. Indeed, the excellent safety record of our High Flux Australian Reactor (HIFAR) has been maintained over the 47 years of its operation and we are vigilant in our compliance with the license regulations required by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) for our facilities and radioactive sources. The challenge for us is to find ways to ensure we continue to deliver these services and responsibilities openly and transparently without compromising classifications, regulations or confidentialities.

We are not claiming to be perfect but we desire the opportunity to illustrate, identify and explore those aspects of our work that we do well, along with those that require further improvement.

While many significant achievements occurred during 2003-04, one of the most noteworthy was our obtaining ISO 14001 certification - the world's highest possible environmental performance standard. Nuclear science by its very nature means we must be extremely precise in our handling and production of radiopharmaceuticals and radioisotopes.

With ISO 14001, we now accept the responsibility to ensure that we take the same duty of care with our day-to-day use of everything from drinking water to the quantity of paper used and the energy we consume.

What will become apparent as you read this report is that ISO 14001 instils a sense of duty and ownership among every employee to find ways to work smarter, more safely and securely and in ways that leave the smallest footprint possible on the environment.

The year ahead presents a new set of challenges and activities, including preparing to say goodbye to the HIFAR, which has served the organisation so well over the past half-century, and to the commissioning of OPAL, the Open Pool Australian Light-water reactor. OPAL will be a state-of-the art nuclear facility that will give us even greater capabilities in developing nuclear medicines and other products.

For now, though, we invite you to join us in our first attempt at a consolidated assessment of the core values, strategies and policies across every sphere of our activities, ranging from community and workplace relations to environmental, health and safety practices. We seek to share with you our successes and identify those areas of operation that require further review and refinement. Our objective in this journey is not only to interact with staff, customers and stakeholders, but with our neighbours, who figure greatly in our continued success.

I look forward to hearing your thoughts on this report, one of the most significant steps yet we have taken in providing insight into the way ANSTO functions.

Yours sincerely

Dr Ian Smith
Executive Director

1 corporate governance

At ANSTO, we seek to share information with key stakeholders, employees, neighbours and the wider Australian community when it comes to safety, environmental, health and scientific issues. This approach serves to ensure that our business operations are socially responsible and accountable.

Such close scrutiny surrounding corporate governance issues is paramount in Australia today, because of the heightened responsibility placed on company directors by stakeholders for business performance. At the same time, high-profile business failures have attuned the public to the need for directors to be personally accountable for their company's legal compliance and social responsibility.

ANSTO shares these corporate governance concerns and has implemented a multi-level strategy which ensures that our operations run as transparently, effectively, safely, accountably and, perhaps most importantly, as socially and ethically responsibly as possible.

ANSTO's Chief Internal Auditor, Dennis Clark, a Melbourne-based finance and auditing specialist who advises us on corporate governance issues, said, "That while there is no single governance model, any good system must influence how the company's objectives are set and achieved, how risk is monitored and assessed, and how performance is optimised."

Dennis went on to explain that to achieve these high benchmarks, ANSTO has a best practice governance framework in place and an independent Board of Directors, with non-executive members formally appointed by the Governor-General, in consultation with the Federal Minister for Education, Science and Training.

The Board's formal sub-committee is the Audit Committee, whose responsibility for more than a decade has been to review the organisation's risk management policies, practices and controls in relation to financial and commercial activities. To ensure this committee remains independent of any undue organisational influence, it is comprised of independent non-executive members; the Chairman is not an ANSTO employee or the ANSTO Chairman; and its membership includes a person with independent financial auditing expertise.

Further independent oversight of operations is provided by an internal audit function which is responsible for reporting to the Audit Committee and the Executive Director. Additional safeguards are maintained through the annual audit of our financial statements by the Commonwealth Government's Auditor-General's office. As a further check and balance, another committee of specialists is charged with regularly reviewing technical and scientific activities.

"ANSTO takes its corporate governance issues very seriously and seeks to find ways to continuously improve these key elements of its operations," Dennis concluded.

We are firmly committed to ensuring the safety of our ‘neighbours’ and to this end are continuously reviewing and upgrading the tracking of emissions to make sure they fall below not only accepted industry standards, but the far more stringent levels set by the organisation.

2 safety at ANSTO

In addition to being Australia’s premier nuclear science and technology organisation, ANSTO is the country’s leading manufacturer of radiopharmaceuticals, which benefit hundreds of thousands of patients each year. We also create a range of radioisotope materials that are used by industries ranging from agriculture to manufacturing, aerospace and mining.

Every effort is made to ensure these products are developed and delivered to these diverse communities as safely as possible, whilst we apply the same duty of care regarding safety to surrounding communities, staff and contractors.

We are firmly committed to ensuring the safety of our ‘neighbours’ and to this end are continuously reviewing and upgrading the tracking of emissions to make sure they fall below not only accepted industry standards, but the far more stringent levels set by the organisation.

During 2003-04, airborne emissions from ANSTO were registered below 0.004 milliSieverts (mSv) around the facility’s 1.6 kilometre buffer zone boundary. (On average, each person’s background radiation exposure due to all natural sources amounts to about 1.5 mSv a year and the radiation dose from one limb x-ray is about 0.07 mSv).

A Sievert, equal to 1,000 milliSieverts, is the unit used to assess the effects of ionising radiation in living cells.

Most Australians receive about 1.5 milliSieverts from natural background radiation every year.

To ensure this detection capability remains at the highest level, we installed improved ‘real-time’ monitors during the past financial year with the capability of relaying immediate feedback should any unexpected change in airborne emission levels occur.

Similar close scrutiny is applied to safety within the workplace settings which, until recently, was viewed as the responsibility of a centralised on-site safety group. It’s now clear that the only way to achieve a ‘zero-harm’ workplace is to enlist the support and commitment of every employee to help turn this ambitious target into everyday business practice.

While radiation exposure levels to staff remains well below acceptable industry and tougher ANSTO-based guidelines, levels of workplace problems, including repetitive stress injuries, particularly among radiopharmaceutical production employees, are unacceptable.

To this end, our attention is being placed on ensuring that the causes, as well as solutions, of such workplace injuries are properly addressed.

Australia and Asia-Pacific Countries Share Nuclear Safety Solutions

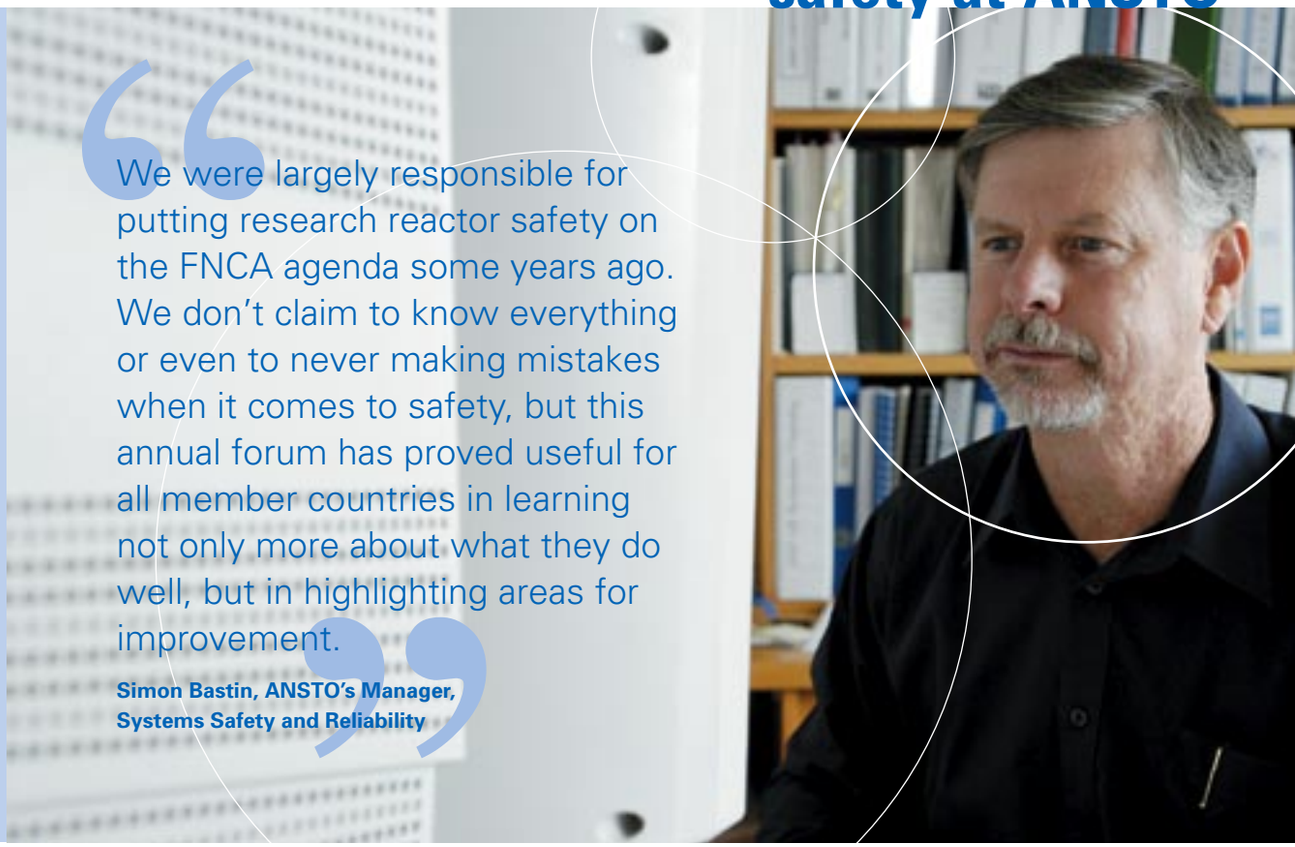
While many staff members are in daily contact with leading business and research teams around Australia, we also have long established close ties with many Asia-Pacific countries regarding the range of complex issues surrounding the use of nuclear technology.

One such arrangement is the The Forum for Nuclear Cooperation in Asia (FNCA) which brings together Australia, China, Indonesia, Japan, Korea, Malaysia, The Philippines, Thailand and Vietnam. FNCA has been meeting since 1990 to exchange ideas and information and to seek help in confronting problems in such areas as agriculture, medicine and the environment. In addition, members cooperated on other important issues such as radioactive waste management and safe and effective use of research reactors.

Simon Bastin, ANSTO's Manager, Systems Safety and Reliability, says the organisation has played a key role in raising the need for reviewing and continually improving the nuclear safety culture among the nine FNCA member nations. "We were largely responsible for putting research reactor safety on the FNCA agenda some years ago. We don't claim to know everything or even to never making mistakes when it comes to safety, but this annual forum has proved useful for all member countries in learning not only more about what they do well, but in highlighting areas for improvement," Simon said.

While the reactor designs and regulatory requirements are different in the participating countries, Simon believes the FNCA has achieved a good deal of success through its emphasis on exchange of information on recent near miss incidents or any accidents.

"Each FNCA member country representative arrives with a case study or recent incident to share with other member countries in the hope of finding ways to ensure that the same thing cannot happen again," Simon explained.



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>
> **Simon Bastin, ANSTO's Manager, Systems Safety and Reliability**

Dr Ron Cameron, ANSTO Chief of Operations

ANSTO Tackles Unusual Emissions Proactively

Our commitment to addressing any irregularities in emissions was tested late in 2003 with the report of increased radiation levels in certain parts of our Lucas Heights site.

The incident occurred in late November and involved the release of slightly increased levels of emissions used in the production of nuclear medicine.

Dr Ron Cameron, Acting Executive Director of ANSTO at the time of the incident (he is now Chief of Operations), informed all relevant bodies, including our regulator, the Australian Radiation Protection & Nuclear Safety Agency, as well as staff, the local community and media outlets.

Ron said no breach of regulatory emission levels occurred. Rather, far more stringent benchmarks set by ANSTO itself were exceeded.

"There is no measurable change to the already very low doses to the public, which continue to be well below regulatory requirements," Ron said shortly after the incident. The increases in exposure to a few staff also were still well within accepted safety levels.

The changes in emission levels were caused by modifications to automated machinery involved in the production of radiopharmaceuticals. The problem was quickly addressed and this reflects the organisation's commitment to ensuring immediate response to any situation which breaches our stringent safety standards.

Safety Commitments

- Make certain that all activities are safe and in line with international best practice environmental management standards.
- Conduct regular and open discussions with staff, the local and Australian communities at large and other interested parties on our nuclear safety policies.
- Constantly seek ways to improve our nuclear safety record.
- Ensure compliance with relevant State and Federal laws and regulations related to health, safety and the environment.
- Make sure that radiation doses are as low as reasonably achievable (ALARA).
- Provide clear and concise evidence of the fulfilment of our safety commitments through monitoring and regular public reporting.

About Scorecards

The scorecards we present in this report aim to provide measurable statistics that can be compared with relevant standards. It is also intended for these statistics to be applied on a year-by-year basis against our own performance levels.

That's the plan - as this report is the first of its kind for ANSTO, not all data is readily available to give as much insight into evolving performance levels as we would have liked. The community section, in particular, is where past data on numbers of enquiries or website visitation is not available. This will be rectified in future reports.

Safety Scorecard

	Unit of Measure	Current	Target Max
Lost time injury frequency rate (LTIFR)	LTIFR (per million hours worked)	12.1	9.0
Maximum annual effective radiation dose to ANSTO radiation workers	mSv	9.8	20.0 (International Standard - averaged over 5 years)
Compliance with ARPANSA Commonwealth Licence	Number of non-compliances	0	0

The result of 9.8 mSv maximum whole body (effective dose) for ANSTO employees is an extremely positive outcome - given this figure is less than half of the international standard. The trend graph for preceding years shows that this result is stable, despite increasing radiopharmaceuticals production over the period. To ensure employees obtain as little radiation exposure as possible, we review work practices whenever staff receive an annual reading above 2.0 mSv. This is part of our policy of assuring safety at work for all personnel.

In 2003-04, the ANSTO dosimetry service monitored 924 workers, 84% of whom received less than 1 mSv whole body effective dose. No person received more than 10 mSv. 17 of the 18 workers with doses between five and 10 mSv were involved in the production of radiopharmaceuticals either at our Lucas Heights or National Medical Cyclotron sites.

(Note: The LTIFR result is not on target for 2003-04. This was the first time the statistic has been published and the historical results were back-calculated to enable trend analysis. The trend shows that lost time injuries are steady over the past three years, showing that ANSTO has some further work to do to achieve the targets. A suite of safety performance indicators have been developed for implementation in 2004-05 to assist in determining appropriate interventions to improve safety outcomes.)

Trend Data	2000-01	2001-02	2002-03	2003-04
Maximum effective dose (mSv)	8.6	8.7	9.7	9.8
Average effective dose (mSv)	0.8	0.9	0.8	0.8
Number of Safety LT Incidents	28	17	18	18
LTIFR (per million hours worked)	19	11.4	12.1	12.1

3 the environment

ANSTO's work in providing specialised nuclear medicines for thousands of patients each year is well known. Far less recognised, though no less important to the country's social and economic future, is the work our scientists conduct in conjunction with commercial leaders in agriculture, manufacturing, aerospace, minerals and energy and construction.

During 2003-04, ANSTO's environmental management system was independently assessed as reaching the international benchmark, the ISO 14001 standard, which further demonstrates ANSTO's commitment to excellence in environmental protection.

We have collaborated with manufacturers to check everything from the level of liquid in cans of soft drink to ensuring proper thickness of steel plates for large rolling mills. Other applications include checking aircraft wings via use of radiographic inspection techniques while still other industries employ nuclear-based technologies and materials to produce smoke detectors, evaluate underground flow patterns of oil, petrol and gas and for controlling fruit fly populations.

These activities can result in the production of waste and emissions, some of which are radioactive. To this end, we are constantly seeking ways to ensure that our various facilities - including those at our major site 40 kilometres southwest of Sydney and the National Medical Cyclotron in Camperdown, near central Sydney - protect neighbouring environments and cause minimal impact on people, plants or animals.

Our multi-faceted Environmental Management System (EMS) includes sampling airborne emissions from the stacks, collecting meteorological data, monitoring ground and surface water, managing the ANSTO buffer zone environment and collecting data on effluent released to the sewer.

> The strict water discharge standards we practice not only comply with the Australian Drinking Water radioactivity guideline - now expressed as an overall dose of one milliSievert per year - but to the far more stringent World Health Organisation level of 0.1 milliSievert per year.
>
> **Kate Lucas, one of four liquid waste treatment staff**

Liquid Discharge Monitoring Reaches Stringent Standards

One of the most important resources required for operating the nuclear reactor for isotope production and for research is H_2O (or water, as it is more commonly known). As a consumer of this valuable resource, we maintain a commitment for its responsible use and apply strict standards in managing our liquid waste discharges.

Kate Lucas is one of four liquid waste treatment staff at ANSTO dedicated to monitoring and carrying out daily operations of the site's effluent system.

She said that the strict water discharge standards we practice not only comply with the Australian Drinking Water radioactivity guideline - now expressed as an overall dose of one milliSievert per year - but to the far more stringent World Health Organisation level of 0.1 milliSievert per year.

To give some idea of the amount of wastewater generated at ANSTO, Eddie Pasek, Customer Service Representative for Sydney Water's Commercial and Industrial Services, said the organisation discharges an average of 260 kilolitres per day.

Managing ANSTO's liquid effluent involves a detailed Trade Waste Agreement (TWA), which outlines the concentration limits for pollutants that the organisation must comply with, the volumes of wastewater it is able to discharge, the maximum daily mass allowed for discharge, the costs for discharge and the requirements for sampling and reporting.

Kate says that all wastewater is sampled (usually on a daily basis) at the site's own effluent plant and analysed for both radioactive and non-radioactive species to ensure compliance with the limits set out in the organisation's TWA with Sydney Water, before it can be discharged to the sewer.

Sample results for waste water discharged are then reported to Sydney Water and to the Australian Radiation Protection and Nuclear Safety Agency on a monthly basis. These sample results are also reported in our annual Environmental Monitoring Report which is made available to the general community. (*The ANSTO E-Report is available to the public and can be found at: **www.ansto.gov.au/info/library/exreports/ANSTO-E-755.pdf**).*

Eddie said that Sydney Water likewise conducts 26 random tests at ANSTO each year (so that the timing is unknown to us) as well as takes its own samples at various other points to ensure that our liquid discharges comply with all necessary standards.

"ANSTO meets the trade waste quality requirements in all of the water samples taken by Sydney Water," Eddie said. "Even if they think there might be a concern, they contact us to make sure we are kept informed of any developments."

Kate said that ANSTO's liquid discharges have continually been well within accepted standard levels and added that moves to upgrade the site's water storage tanks and infrastructure also began during 2003-04.

Eddie Pasek, Customer Service Representative for Sydney Water's Commercial and Industrial Services

ANSTO Achieves International Environmental Management Standard

Since opening for business in 1953, we have operated our nuclear facilities in accordance with the prevailing best practice. A cornerstone of the organisation's operation is the insistence on applying the highest levels of protection possible to our environmental surroundings.

To maintain this high environmental performance standard, we have developed a systematic series of monitoring techniques which are presented in regular and open public reporting of our findings.

Building on these established practices of good environmental management, we obtained certification in 2004 to the international standard for environmental management - ISO 14001.

Professor Ann Henderson-Sellers, ANSTO's Head of Environment, said: "The organisation is world class when it comes to measuring and monitoring all things nuclear, but far less systematic when it comes to applying the same rigorous standards to on-site resource consumption."

"ISO 14001 is all about approaching environmental management in a holistic fashion - and not just for ANSTO staff but for all our customers, contractors and other members of the supply chain," Ann explained.

ISO 14001 certification is not easy to obtain, requiring the efforts of a dedicated team over a long period of time. Dr Tim Payne, Leader of the Environmental Management Project, and one of the program's chief drivers at ANSTO, said: "The process began nearly four years ago.

A major benefit of ISO 14001 is the way in which it encourages everyone to get involved. ISO 14001 is all about ensuring that everyone - regardless of position - has a say in how we can better our environmental performance."

Even though it's still early days, ISO 14001 has already led to improved systems of monitoring consumption of water, electricity and paper at the facility.

Another key tenet of ISO 14001 is its insistence on continuous improvement. Tim said, "This focus encourages ANSTO researchers to apply the same level of scrutiny and scientific endeavour to current environmental practices in an effort to identify and implement technical improvements where warranted."

In their audit report of ANSTO's submission, ISO reviewers noted that given the size and complexity of the organisation, the fact that no major non-conformances and only a small number of minor non-conformances were raised, was "an impressive result".

"The level of enthusiasm for redefining and ownership of the system appears high and is another positive indicator on the culture of improvement," the report concluded.

"A major benefit of ISO 14001 is the way in which it encourages everyone to get involved. ISO 14001 is all about ensuring that everyone - regardless of position - has a say in how we can better our environmental performance."

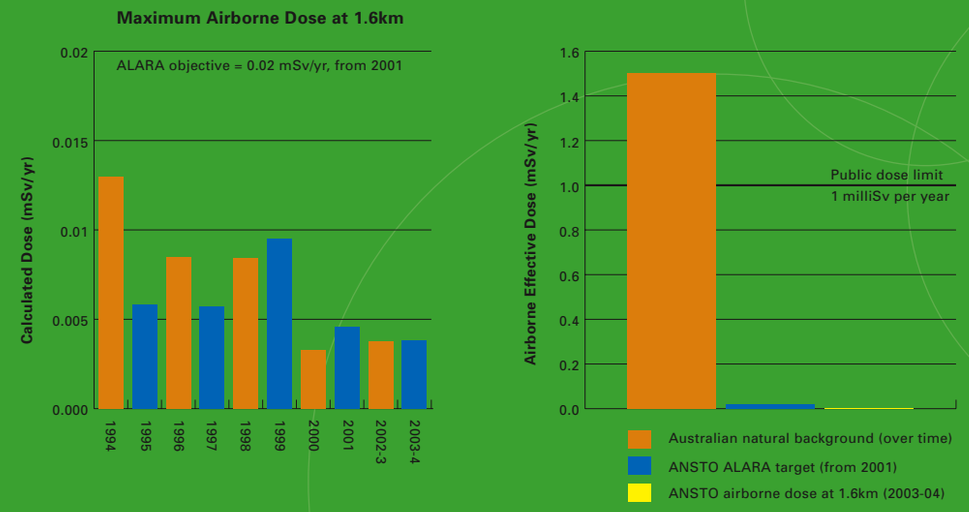
Dr Tim Payne, Leader of the Environmental Management Project

Environment Scorecard

The modelled airborne dose at the edge of ANSTO's buffer zone sums up the amount of radiation added to natural background radiation for those people living closest to the nuclear research reactor. At a maximum of 0.004 mSv/yr in 2003-04, this is well within ANSTO's ALARA target of 0.02 mSv/yr and adds less than 0.3% to the natural background radiation dose for our closest neighbours.

Credible exposure scenarios for people who could receive a radiation dose from ANSTO's liquid effluent releases, including through fishing at Potter Point (near Cronulla) or using biosolids or treated water from the Cronulla Sewage Treatment Plant, were recently calculated to be less than 10% of this airborne dose.

The past decade's modelling of airborne dose at the buffer zone edge is based on radiation measurements at source and meteorological information. The maximum dose, usually in a northerly direction from ANSTO, has consistently been below the present ALARA target and has tended to decrease in recent years.



Environmental Commitments

- **Ensure that there is no significant impact on the health of the community, staff or environment as a consequence of ANSTO's operations.**
- **Adopt and seek ways to continually improve within the ISO 14001 international environmental management standard.**
- **Promote environmental awareness throughout the organisation.**

4 employee relations

Long gone are the days when the workplace was viewed as little more than a place to earn a wage. Organisations now realise the greatest single asset are their people - and they are directly responsible for achievements and future direction. The cornerstone of any company's workplace ethos begins by treating employees with respect, encouraging a diverse working environment and providing equal opportunities for all.

The ANSTO culture supports and encourages employees to reach their potential with dedication to 'zero-harm' safe workplace practices through a range of training and other development opportunities. We also seek improvements on how to communicate new developments with employees while fostering an environment where people feel free to raise ideas and discuss ways in which the operation can run more smoothly.

To this end, several programs have been initiated at empowering and motivating staff to be at the cutting edge of their disciplines. A key program in this regard is the Learning Environments for New Strategies (LENS), which offers a range of personal development, teamwork and creative thinking exercises for all employees.

Over 80% of staff completed Phase One of the LENS program, which is now incorporated into the newly designed orientation program. We also support staff and family members in need of work and personal-related issues through the Employee Assistance Program, while our Frontline Management Program encourages staff development which has had 65 students enrolled with sixteen graduates. (Note: Another seven graduated during a ceremony in late January 2005).

Rowena Fraser, ANSTO's Learning Development Manager, said: "The course, featuring a series of workshops, covers such issues as teamwork, customer satisfaction, promoting a safety culture and learning how to make change happen in the workplace and is run in conjunction with the Australian Institute of Management.

"It is designed to move theory from the workshop to the workplace and then allow participants to revisit what they've learned and build on these skills back in the workshop," Rowena explained. She added that each student receives regular 'on the job' assessments of each module culminated in receiving a Diploma of Business - Front Line Management.

At ANSTO, we recognise there is still a great deal of work to be done in reaching these ambitious workplace targets. We plan to further develop our commitment to supporting a safe and healthy work environment with the implementation of online compliance training in the areas of equal employment opportunity, harassment and privacy during 2005 for the benefit of its employees, customers and stakeholders.

Creating Job Opportunities for Science Students

Many employers in engineering and technology say they're fighting an uphill battle when it comes to securing top-notch students keen to pursue careers in their areas of expertise.

Fortunately, we had no such difficulties in snaring Armand Atanacio when he applied for a Year In Industry (YII) Scholarship in 1999. As one of the 22 or so students who take up YII Scholarships each year at ANSTO, Armand's interest in all things technological began early and continued through to his coursework at the University of Technology, Sydney (UTS) where he majored in materials science. He also completed his Honours year at ANSTO before becoming a full-time employee in 2004.

"I didn't know what to expect when I came here for the interview in 1999. In fact, I hadn't actually heard of ANSTO before, but was keen to get out into the workplace to see what career options were available for me," Armand said.

Armand has picked up experience in several areas of operation, ranging from mechanical testing of materials through to his latest challenge - operating and interpreting data, using secondary ion mass spectrometry (SIMS). SIMS is a highly complex device capable of providing extremely sensitive surface analysis at the atomic level.

SIMS is used as a way of detecting impurities in everything from semi-conductors and metals through to pollutants in skeletal parts of shellfish.

Due to its highly complex operation, Dr Kathryn Prince, ANSTO SIMS Manager, said it can take months to learn how to operate properly, and perhaps two years to become fluent in translating all the data. "Armand has been on a steep learning curve with SIMS, but has proven up to the task, not only in the laboratory, but in employing other skills he has in liaising with customers and other groups about our work," she said.

"I enjoy a good challenge and hope to continue working in this area to learn as much as I can," Armand added.

When not perfecting his SIMS skills, Armand also is a post graduate student at UTS pursuing a PhD in the field of biosensors. Asked what his ultimate career goal is, Armand replied: "Like many scientists, I'd love to create something that ultimately results in benefiting millions of people."

> "Like many scientists, I'd love to create something that ultimately results in benefiting millions of people."

Neil Thorburn,
Senior Human Resources Officer at ANSTO

And Justice for All in the Workplace

While some organisations may still cling to the traditional 'management knows best' ethos of running a successful business, at ANSTO, we place great emphasis on our commitment to ensuring everyone gets a fair go - regardless of position or time served.

It's a commitment not to be taken lightly, and one case involving a maternity leave dispute during the past financial year heightened awareness for the need to ensure greater channels of communication between employees at all levels.

Neil Thorburn, Senior Human Resources Officer at ANSTO, said that despite several interactions between ANSTO and a radiopharmaceuticals manager regarding job opportunities on her return from maternity leave, no final resolution could be reached. The employee took the case to the Human Rights Commission before eventually obtaining a decision in her favour from the Federal Magistrate's Court.

"We were extremely concerned over this matter but believe we have come away with several positive outcomes that will improve our working environment," Neil said. "In particular, we recognise that workplace legislation, no matter how detailed, is never black and white. It requires a good deal of communication and understanding between parties to ensure that everyone's needs are satisfied."

Neil added that this case had heightened awareness for the need to ensure full and frank discussions between staff and management - particularly those approaching carer's or maternity leave. "We also encourage contact while the person is on leave, because they are an ANSTO employee who is entitled to the same information regarding job opportunities as any other staff member," he said.

At a wider organisational level, Neil said that this case served as a reminder of the need for continuous improvement within the organisation's human resource management operation. "We have a Human Resource Management policy, which lays out the framework for how everyone is to be treated at ANSTO. But this policy is just the beginning.

"For it to work in practice, everyone must be committed to ensuring that any workplace matters be addressed early and openly. Only in that way can we ensure that our employees receive the best opportunities for career advancement and job satisfaction," Neil concluded.

Employee Relations Scorecard

Total Separation Rate:

YEARS:	2000	2001	2002	2003
ANSTO	9.8%	9.5%	11.0%	20.7%
AHRI*	15.16%	16.01%	13.59%	15.06%

*Australian Human Resources Institute

This table represents the proportion of employees who left ANSTO for any reason during the calendar year. ANSTO's figure for 2003 was much higher than over previous years due to a significantly larger number of voluntary redundancies and retirements. Indeed, ANSTO's separation rate when averaged over the past four years, and compared with those from The Australian Human Resources Institute, is just 12.75% compared to AHRI's 14.95%. (The AHRI is the professional association representing Australia's human resources managers across a range of industry sectors).

Training investment per employee:

ANSTO $1937
AHRI $1021

The figures shown above represent the average training cost per employee, excluding trainee time costs for the calendar year of 2003. ANSTO's above-average benchmark reflects the organisation's commitment to LENS and technical training courses.

Employee Relations Commitments

- **Provide equitable employment opportunities for all.**
- **Create an environment where everyone is encouraged to reach their full potential through learning and development opportunities.**
- **Foster a workplace environment where everyone can speak freely about both the good and bad points without fear of recrimination.**
- **Develop on-line programs dealing with EEO, sexual harassment, learning and development and privacy issues.**

5 our community

As ANSTO is Australia's national nuclear research and development organisation, we have a key role to play in the country's social and economic future through the delivery of radiopharmaceuticals and other areas of scientific expertise.

Given the facility's location just outside the country's largest metropolitan centre, we understand the importance of ensuring our activities are conducted safely and securely and seek to establish close ties with neighbouring communities through on-going communications activities. Further, we endeavour to develop a greater awareness and appreciation of the many benefits that nuclear science brings to Australia.

Dr Ron Cameron, Chief of Operations, said: "ANSTO is deeply committed to operating as openly and honestly as we can with employees, stakeholders, customers and neighbours, so we undertook a comprehensive market research program during 2003-04 to gauge awareness of our work and to gain insight in how best to provide the various stakeholder groups with relevant, regular information updates.

"The survey uncovered many important findings, not the least of which was the need to better inform everyone - from staff through to local community groups - on our activities."

Several community-based initiatives were launched during 2003-04, including the Community Right to Know Charter and ANSTO Community Discussions. Many thousands of visitors have passed through our doors during the year for site tours. Additionally, we took part in familiarisation promotions and campaigns aimed at raising the level of awareness of nuclear science.

Major publicity announcements made during the financial year reflect the diverse scope of ANSTO's nuclear science capability, ranging from the ability to more accurately track climate change by the analysis of water isotopes, through to detailed analysis of the armour worn by Joe Byrne, a member of the infamous bushranging Kelly Gang. ANSTO also was a key organiser of the 15th International Symposium of Radiopharmaceutical Chemistry, during which a great deal of national media coverage was generated for radiopharmaceutical research.

ANSTO Surveys Community Reaction Towards Nuclear Science

To determine what our 'neighbours' think, we court community opinion about our work as well as develop new and better ways to foster greater understanding and awareness of our nuclear science endeavours.

To this end, we conducted a survey of 700 people from the surrounding shires of Sutherland and Bankstown (as well as Adelaide) in 2003, to gauge public awareness of the organisation. (The independent study was conducted by Quantum Market Research and further findings are available on ANSTO's website). More than 75% of respondents generally believe ANSTO is helping Australia keep pace with world nuclear research through its cutting-edge scientific and medical research. At the same time, many believe that ANSTO's involvement with the nuclear fuel cycle creates worries about its operations with nearly 30% saying its work puts the community at risk.

We were also surprised to discover that some people incorrectly believed that we were running a nuclear power plant and dismayed to learn that many believed that we conduct weapons research. These activities have never been conducted at ANSTO.

Other key findings from the survey were that many people rarely hear about the good things that ANSTO does and believe that schools should educate students about the impact of nuclear science on people's daily lives.

Comments from local interest groups reflect the wide range of views reported in the Quantum survey results. James Courtney, responsible for nuclear issues with Greenpeace, does not believe that ANSTO operates openly and honestly. "A lot of my time is spent attempting to access information from ANSTO, regarding various nuclear and radiation-related issues, with little or no success.

"While I believe they've tried to appear more open in the way they conduct their business, the changes have been largely cosmetic," he said.

Michael Priceman, long time member of The Sutherland Shire Environment Centre, an independent, non-government community organisation, shares Greenpeace's concerns, claiming that, "ANSTO was born out of the Australian Atomic Energy Commission that came under the Defence Act. The system of secrecy has been passed on to ANSTO so that current staff are evasive and dismissive with their replies to important community concerns regarding safety, health and effects of emergencies."

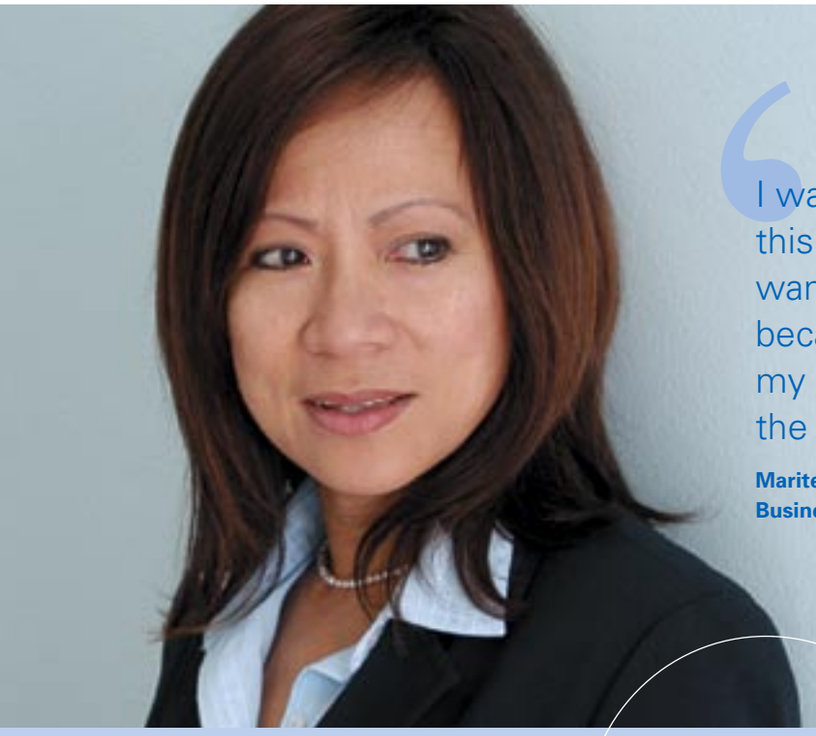
Both expressed a range of concerns on other issues, but emphasised their biggest concern is the organisation's unwillingness to respond to their inquiries, promptly and fully.

David Redmond, Sutherland Shire Councillor and chairperson of its Nuclear Waste and Safe Handling Sub-Committee, among other responsibilities, finds ANSTO to be,

"Totally open and up-front about its activities. I think ANSTO goes out of its way to keep us informed of any new developments," he said.

David added that as the Shire's third largest employer, it not only is a valued member of the community, but offers "meaningful employment", through its commitment to learning and development which, "Means that employees - regardless of where they start in the organisation - can pick up new skills and training that enhances career advancement."

David Redmond, Sutherland Shire Councillor



> I was extremely moved by this woman's situation and wanted to lend a hand, because I know if it were my daughter, I'd be doing the same thing.
>
> **Maritess Dee,**
> **Business Product Manager**

Lending a Helping Hand

Maritess Dee is used to fielding queries from nuclear physicians and technologists, orthopaedic surgeons and other medical specialists about ANSTO's range of leading radiopharmaceutical products. It's quite another thing when an email comes from a concerned parent on the other side of the world, desperately seeking alternative treatment for her 26-year old daughter, who was in great pain due to breast cancer that had spread to her bones.

"I was extremely moved by this woman's situation and wanted to lend a hand, because I know if it were my daughter, I'd be doing the same thing," Maritess said.

The patient had tried several pain medications - without success. At the same time, the girl's mother was dissatisfied with the follow-up advice from her local doctors in the United States. She had read about an ANSTO product on the internet called Quadramet, which has been used successfully in patients suffering intense pain caused by prostate and breast cancer that had moved to the bones.

A series of emails between the mother, Maritess and Quadramet's American distributor, Cytogen, took place over several weeks, culminating in the patient finding a nuclear medical physician familiar with Quadramet and its benefits. "I am so very happy for my daughter that I found Cytogen and all of you wonderful people in Australia," wrote the appreciative mother after learning that her daughter could begin treatment with Quadramet.

Maritess kept in touch with the mother over the ensuing weeks and learnt that the young patient eventually lost her brave battle against the terminal illness. "We were all greatly saddened to hear of the daughter's passing, but hoped we had given her and her mother some comfort," Maritess said.

"I wanted to thank all the good people who tried so desperately to help my daughter get some relief," the mother said. "I am deeply appreciative of all your efforts and your prayers."

Our Community Scorecard

In the stakeholder research that ANSTO undertook during 2003-04, the media and ANSTO's website were the main conduits through which people learnt about the organisation. This is no doubt due to the 'reach' that both communication mediums have. For instance, there were 434 693 unique visits to the ANSTO website during the year, an astonishing figure. (Basically, a unique visit is when a new visit to the actual website takes place. One person may make more than a single visit, but these visits would need to be more than 30 minutes apart to be classified as two visits.)

During 2003-04, 2 420 people went on our community site tours. These were largely comprised of school children and community groups such as Probus and RSL. We hold tours for any group comprised of 12 people or more, Monday to Saturday.

We also answer many enquiries about ANSTO, which are dominated by those from school children seeking assistance with their science projects, something we are more than happy to help out with. We estimate about 320 enquiries were addressed during 2003-04, and will be able to report in a more concrete fashion on these numbers in the future.

Some of the comments received from participants in our site tours included:

- "[The tour] allowed me to apply my knowledge to a real life situation and see how it is used in everyday lives…" and, "We were able to understand better by seeing theory brought to life. Showed real story of nuclear waste management, dispelled rumours presented by media." - ***St Clare's College***
- "It made me very aware of the wonderful uses this science can be used for…" and, "A nuclear reactor and uranium is not dangerous and can be used for so much good and should be." - ***Randwick Botany National Seniors***
- "It helped me understand more about radioactivity and what sort of things ANSTO could help people [with]." - ***Penshurst Girls High School***
- "[The tour] gave an idea about the uses of the reactor in Australia. Clarified notions of nuclear waste and radiation hazards…" and, "The tour was presented in a manner that was easy to understand, and any questions could be fully answered." - ***Youth NZAAS***
- "[I] understand how the reactor works, safeguards and the importance of the products to Australian medicine and environmental research." - ***Northern Highlands Travel Club***

Our Community Commitments

- **Actively engage with the Australian community openly and frankly.**
- **Respond to media and other enquiries quickly.**
- **Foster greater awareness of the benefits that nuclear science brings to Australia.**

6 our science

Over the past 50 years, ANSTO's scientific endeavours have touched the lives of most Australians. Many people, for instance, have undergone a medical procedure using a radiopharmaceutical produced by ANSTO. ANSTO's nuclear science portfolio has also proven vital in studying water resources, salinity, climate change and pollution.

ANSTO scientists also use nuclear tools to provide environmental solutions for many industries; work with industry to help increase the life of critical pieces of equipment and develop advanced processes for treating radioactive waste. They also offer expert advice to government on a range of topics.

Dr Miriam Goodwin, Senior Adviser, Science Policy and Planning at ANSTO, says the organisation's science portfolio depends on a healthy balance between projects that generate 'new knowledge', projects that look to solve specific problems, and projects with new intellectual property, products or services that are ready for commercialisation and take-up by others.

Projects initiated or further developed during the 2003-04 financial year reflect the broad range and capability of the organisation's scientific staff. For instance, in the health sector, ANSTO team members are investigating new pharmaceuticals that will be able to be produced in OPAL, to open up new cancer treatment possibilities for Australians.

ANSTO's world-class capability in environmental monitoring for nuclear safeguards and its expertise in radiation detection is being used as a springboard for counter-terrorism and forensic research. Other scientists are focused on developing sorbents for decontaminating waste streams, especially ones containing some level of radiation, and applying ANSTO's advanced materials science capabilities to industry problems and opportunities in biotechnology, new consumer and industrial products, environmental decontamination, minerals processing and energy generation, utilisation and conservation.

At the same time, ANSTO seeks to raise awareness of the importance of nuclear science and technology through support of major events like the International Symposium of Radiopharmaceutical Chemistry and the France-Australia Symposium on Nuclear Medicine. ANSTO also enables scientists from other organisations to access its facilities here through the Australian Institute of Nuclear Science and Engineering and other programs.

ANSTO's management of the Australian Synchrotron Research Program and the Access to Major Research Facilities Program enables Australian scientists to access major facilities overseas, enabling the nation to continue to be an international leader in science.

Nuclear Tools Warm to Climate Change Study

In addition to benefiting millions of patients around the world, nuclear techniques have proved extremely useful in unravelling the ways in which man has affected climate change over the past few thousand years.

ANSTO scientists have been at the forefront of this work, having contributed to a major study during 2003-04 that not only details past and present results, but offers unique insight into our ability to predict global climate change in the future.

Dr Wlodek Zahorowski, a specialist in natural atmospheric radioactivity, and Dr David Cohen, an expert in nuclear analyses of airborne fine particles, led our involvement in this five-year project which analysed results from various sites in the Asia-Pacific region, including Tasmania, the Australian mainland, South Korea, Japan, Hawaii, The Philippines, China and Vietnam.

"Several major outcomes resulted from the study, including a much better understanding of the role that aerosols - both natural and man-made ones - play in creating climate change. While recent reports have proven beyond reasonable doubt that airborne particles and trace gases such as carbon dioxide and chlorofluorocarbons (more commonly known as CFCs) directly impact global climate, little information has been gathered on where these aerosols originate and what happens when they come in contact with each other," David said.

As part of this project, we conducted measurements of radon - a radioactive gaseous decay product of the uranium that appears in most rock and soil types - and fine airborne particles at six sites across the Asia-Pacific. The organisation, according to Wlodek and David, is recognised as a world leader in low level atmospheric radon monitoring, and has also made significant contributions in the analysis and interpretation of atmospheric fine particle samples.

"The study proved useful in giving scientists not only greater insight into the complex system of energy exchange processes that drive global climate conditions, but also improved ways to monitor these impacts thereby greatly improving scientists' ability to understand future climate changes," Wlodek said.

"An important outcome of these 'past' and 'present' techniques is that they have enabled us to generate potentially new data sources for the evaluation of global climate models running historical scenarios which, in turn, lead us to improve future climate predictions," he concluded.

Dr David Cohen and
Dr Wlodek Zahorowski

ANSTO Engineers Help Relieve Equipment Stress

While many of our scientists and engineers specialise in nuclear-related matters, a group of the organisation's materials scientists have carved a niche in assisting heavy manufacturers, power and utility companies, to squeeze more life out of capital-intensive equipment.

This is accomplished through employing a series of highly developed algorithms and state of the art testing and modelling systems. The scientists determine how much 'life' is left in critical components used in heavy metal smelters and by petrochemical and power companies.

Warwick Peyton, Principal, Structural Integrity, said ANSTO has developed these techniques through monitoring the effectiveness of their own equipment over the years in what is known in the industry as 'creep analysis', or methods used for determining the deformation that occurs over a period of time when a material is subjected to constant stress (usually at high temperatures).

"This work is critical for so many heavy manufacturers because the cost of replacing the equipment can exceed $1 million a day when other factors like downtime are included," Warwick said. "We've probably saved our customers tens if not thousands of millions of dollars through this work.

"The ability to both measure and predict stresses in components is a powerful combination when trying to optimise a production process or to understand the likely future performance of that critical piece of equipment."

Our engineers have developed such highly sought-after capabilities as:

- non-destructive stress measurement using neutrons
- stress scanning for residual stress measurement
- destructive stress measurement
- strain gauging
- finite element modelling
- mechanical testing
- metallurgical engineering
- structural integrity assessment.

Warwick said an assignment undertaken during 2003-04 for a major refinery reflects the group's expertise. In this instance, the customer had six hand-operated valves that were wearing down due to constant wear and tear. The client came to ANSTO to determine if they could keep machining the valves to maintain them operating smoothly or whether they would need to outlay a substantial amount of money to replace the worn parts.

According to Warwick, ANSTO conducted a series of finite element analysis tests, which is a software technique used to study stresses and strains on mechanical parts, as well as created mathematical models of the structures to determine not only how much of the valves could be milled without breaching manufacturing safety standards, but also to determine how much longer they could be used.

"Our calculations and models determined that the valves could be retained effectively for the life of the plant which saves this customer a substantial sum of money for capital equipment critical to their day-to-day operation," Warwick concluded.

Science Commitments

- **Continually improve our delivery of nuclear-based scientific tools and techniques in conjunction with other world leaders from industry and the public sector both in Australia and overseas.**
- **Foster active networks with the scientific community both nationally and internationally.**
- **Improve awareness of our regional and international roles in nuclear-related scientific activity.**

The Australian Nuclear Science and Technology Organisation (ANSTO) is this country's nuclear research and development agency that delivers market-leading products and services to public and private sector organisations in medicine, mining, aerospace, minerals, agriculture, manufacturing and the environment.

Our 800+ staff primarily conducts these activities at the ANSTO headquarters located on the outskirts of southern Sydney. This site contains its nuclear research reactor, the High Flux Australian Reactor (HIFAR), to be retired in 2006 and replaced by OPAL, the Open Pool Australian Light-water reactor.

We also operate the National Medical Cyclotron, an accelerator facility at the Royal Prince Alfred Hospital in Camperdown, near central Sydney.

For more information, go to www.ansto.com.au or call (02) 9717 3111.

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Public Information
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