



Australian Government

Ansto

Nuclear-based science benefiting all Australians

Environmental Performance Report 2008 – 2009

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 that 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

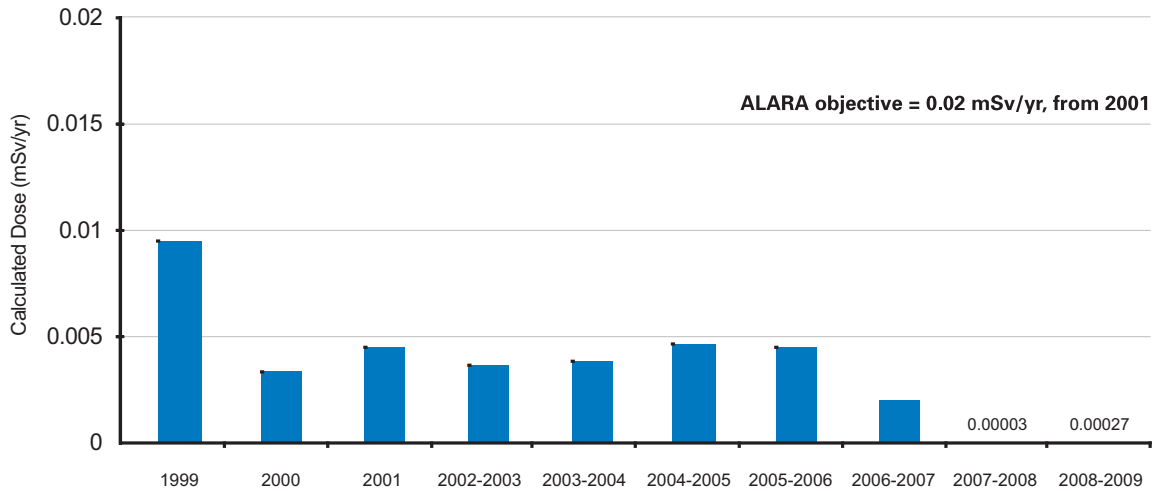
some key non-radioactive materials in air and liquid emissions and in samples of air, surface- and ground-waters, sediment and biota from the local environment. General environmental radiation is also monitored and local weather patterns reported. Many monitoring capabilities are independently verified.

Environmental monitoring in 2008-2009 confirmed that ANSTO's authorised releases of radioactive material to the air and sewer have minimal impact on 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 low, computer modelling is used to estimate the potential radiation doses to people at various distances from the site. The maximum public dose estimated for ANSTO's airborne emissions in 2008-2009 was 0.00027 mSv. This corresponds to less than 0.03 per cent of the annual public dose limit of 1.0 mSv, established by ARPANSA and continues the trend of decreased dose estimates over 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.



Maximum annual effective dose from LHSTC airborne discharges at the 1.6 km boundary of ANSTO's buffer zone, 1999 to 2009

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 nonradioactive 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. In 2008 a radiological risk assessment carried out for marine biota in the receiving environment 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 concentrations of tritiated water in the environment are decreasing since the HIFAR reactor's closure in January 2007, and are well below the level considered safe for 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, most measurements were below

the stricter screening levels from the Australian Drinking Water Guidelines (ADWG). ANSTO's stormwater does not contribute to any public water supply, however 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 on the ANSTO website.

ANSTO also reports annually to the Department of Environment and Heritage 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 significant environmental issues such as dryland salinity, water management, human impacts on climate variability and purification of waste water. This research enhances scientific knowledge and improves environmental outcomes. ANSTO's active support of nuclear nonproliferation ideals and the development of nuclear safeguards through its collaborative research with bodies such as the International Atomic Energy Agency and the Comprehensive Test Ban Treaty Organisation, also accords with ESD principles.

Finally, ANSTO's commitment to sound environmental management and ecologically sustainable development means that special emphasis is placed on reducing the environmental footprint by minimising waste production 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.