



**Australian Government**

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**Australian Radiation Protection  
and Nuclear Safety Agency**

**QUARTERLY REPORT**

**OF THE**

**CHIEF EXECUTIVE OFFICER**

**OF ARPANSA**

**FOR THE PERIOD 1 APRIL TO 30 JUNE 2004**





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ISSN 1443 - 654X

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Printed by

CanPrint Communications Pty Ltd  
16 Nyrang Street  
Fyshwick ACT 2609

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## FOREWORD

The *Australian Radiation Protection and Nuclear Safety Act 1998* (ARPANS Act) requires the Chief Executive Officer of the Australian Radiation Protection and Nuclear Safety Agency to submit to the Minister, at the end of each quarter, a report on the operations during the quarter of the CEO, ARPANSA and the Council and Committees constituted under the Act.

The quarterly report should also include details of any direction given by the Minister to the CEO under Section 16 of the Act; any breach of licence conditions by a licensee, of which the CEO is aware; all reports received by the CEO from the Radiation Health and Safety Advisory Council and the Nuclear Safety Council on radiation protection, nuclear safety and the safety of controlled facilities and details of facilities licensed under Part 5 of the Act.

Further details about matters contained in this report are available through the ARPANSA Public Affairs Officer who can be contacted by telephone on 02 9541 8333, by facsimile on 02 9541 8314 or by e-mail to [info@arpansa.gov.au](mailto:info@arpansa.gov.au).

## REPORT ON PERFORMANCE

### 1. Uniformity of Radiation Protection Frameworks

#### **National Directory for Radiation Protection**

- 1.1 26 submissions were received on Edition One of the National Directory. Following Radiation Health Committee (RHC) consideration of the submissions it was agreed to not apply Edition One to the mining and mineral processing industries. The RHC voted in favour of approving adoption of the revised National Directory and agreed that it should proceed to the Australian Health Ministers' Advisory Council (AHMAC) for endorsement.

AHMAC approved the National Directory in early June and agreed that it be forwarded for adoption to the Australian Health Ministers' Conference on 29 July, subject to resolution of cost-benefit issues to meet the statutory requirements in each jurisdiction. Health economist consultants were engaged in late June to undertake a cost-benefit analysis of the National Directory, and this was expected in July.

### 2. Advice on Radiation Protection and Nuclear Safety

#### **Comprehensive Test Ban Treaty – air sampling monitoring systems**

- 2.1 As part of Australia's commitment to the Comprehensive Test Ban Treaty, ARPANSA continued to operate and maintain the five radionuclide air monitoring stations in Australia at Melbourne, Perth, Townsville, Darwin and the Cocos Islands. It also continued the testing, evaluation, and post certification activities program, for

the station at Kavieng, Papua New Guinea. A proposal for the testing, evaluation and post-certification activities for the Cocos Islands station was submitted to the Comprehensive Test Ban Treaty Organisation (CTBTO), and was subsequently accepted.

- 2.2 Request for Proposals (RFPs) for the installation of radionuclide stations at Macquarie Island and at Mawson, Antarctica, had earlier been received. ARPANSA is currently negotiating with the various government agencies and seeking their approval for the installation and support of these two stations. RFPs were also received for the *Merging of the detector location with the sampler location for Radionuclide Station RN06, Townsville, and for RN10, Perth Australia*. ARPANSA's response to these RFPs has been submitted to the CTBTO.
- 2.3 The Australian Radionuclide Laboratory, at ARPANSA, underwent certification visits from the National Association of Testing Authorities and the CTBTO.

### **Nuclear Test Participants**

- 2.4 ARPANSA participated in several meetings of the Dosimetry Sub-Committee of the Nuclear Tests Participants Consultative Forum run by the Department of Veterans' Affairs. The sub-committee is undertaking an ionizing radiation dosimetry investigation to support a cohort study of former members of the Australian Defence Forces and civilians who participated in the British nuclear weapons tests and associated minor trials carried out in Australia between 1952 and 1963. The purpose of the study is to provide radiation dose estimates for nuclear test veterans for the Nuclear Tests Veterans Cancer Incidence and Mortality study which is running in parallel.

### **Nuclear Powered Warships**

- 2.5 Two officers attended a meeting of the Visiting Ships Panel (Nuclear) (VSPN) in Canberra during the quarter.

### **Radiation Emergencies**

- 2.6 *Expert Advice*

ARPANSA provided a radiation expert for the Crisis Advisory Panel of Experts and on-call duty officers to provide 24-hour access to ARPANSA resources and expertise

ARPANSA participated in a multi-agency meeting from 6-7 April to complete standing operating procedures for use by Australian Space Debris Emergency Search Teams in support of the Australian Contingency Plan for radioactive debris (AUSCONPLAN SPRED).

ARPANSA maintained a 24-hour emergency duty officer and an on call radiation team during visits by nuclear powered vessels to HMAS Stirling in June. Environmental and Radiation Health Branch provided environmental radiation monitors and analysed marine samples.

## 2.7 *Planning*

The Health Physics Section attended a technical meeting in Vienna from 5-8 April, to complete the draft action plan for *Strengthening the international preparedness and response system for nuclear and radiological emergencies* before its submission for approval to the IAEA Board of Governors. Subsequently, the Health Physics Section attended a meeting in June of the National Competent Authority Steering Group for the implementation of the IAEA Action Plan.

From 28-29 April the Health Physics Section participated in a Counter Terrorism Spatial Data Workshop organised by the Science, Engineering and Technology Unit of the Department of Prime Minister and Cabinet hosted by Geoscience Australia in Canberra.

## Conferences, meetings and technical advice

### Medical Radiation Branch

- 2.8 David Webb attended the third meeting of Asia-Pacific Metrology Program (APMP) Technical Committee Chairs in Bangkok, Thailand, on 19-21 May. He did so for the Ionizing Radiation Technical Committee. The development of calibration and measurement capabilities was discussed. Tables of these capabilities are required by the International Committee for Weights and Measures Mutual Recognition Arrangement to be submitted to the database being maintained at the International Bureau of Weights and Measures in Paris, France.
- 2.9 A Medical Physics Section staff member attended the Australian Institute of Radiography First Annual Scientific Meeting of Medical Imaging and Radiation Therapy in Cairns on 12-16 May. Issues canvassed at the meeting included whole-body CT screening, paediatric CT and occupational radiation dose in the radiology of thoroughbred horses.
- 2.10 A staff member attended the 34<sup>th</sup> Annual Scientific Meeting of the Australian and New Zealand Society of Nuclear Medicine in Wellington, New Zealand, on 24-27 April.

### Non-Ionizing Radiation Branch

- 2.11 Information requests were received from the Cancer Councils of Victoria, Western Australia and South Australia. The Cancer Council of Victoria Sunsmart Team visited the UVR Section and toured the laboratory. UVR data was provided to Monash University and the Cancer Council of Victoria, and quarterly UVR data was sent to the Allunga Exposure Laboratory. In addition, information on phototherapy calibrations was provided to the Mater Misericorde Hospital, Dublin, Eire.
- 2.12 The manuscript *Measurements of the Solar UVR Protection Provided by Shade Structures in New Zealand Primary Schools* by Peter Gies and Christina Mackay (the

latter from the Faculty of Architecture and Design, Victoria University, Wellington, New Zealand) was accepted for publication by the journal Photochemistry and Photobiology.

### Regulatory Branch

- 2.13 A regulatory officer attended the Lucas Heights Emergency Evacuation Planning Committee meeting on 5 April. This was preceded by a meeting to inform school principals about emergency planning arrangements.

### **Training and professional development**

- 2.14 Two officers from Regulatory Branch and one officer from Environmental and Radiation Health Branch completed a two-day workshop as part of the Certificate IV in Government (Statutory Investigation and Enforcement) through the Sydney Institute of Management Education. 13 inspectors from Regulatory Branch completed a one-day refresher course in writing inspection reports.

### **Public communication activities**

- 2.15 The Publications and Multimedia Section produced print friendly versions of 20 factsheets that are currently available in HTML format from the ARPANSA website. These will be made available in Adobe PDF format from the website, improving the accessibility and distribution of existing ARPANSA information and expert advice.
- 2.16 The ARPANSA Webmaster received numerous inquiries through the website feedback mechanism. All requests for information were assigned to ARPANSA Branches for appropriate action.
- 2.17 Ultraviolet Radiation staff answered several phone calls about UVA and sunscreens after the topic received media coverage. Electromagnetic Radiation (EMR) staff continued to provide information to the public and media regarding EMR and health. Issues related to powerlines and mobile phone bases stations dominated inquiries. Written information was also provided on the levels of 50 Hz (extremely low frequency) magnetic fields in office environments and other areas.
- 2.18 The Public Affairs Officer responded to numerous phone and email inquiries, from members of the public and journalists. Most media interest related to ARPANSA's continuing regulatory assessment of the National Radioactive Waste Repository licence application it received from the Department of Education, Science and Training in August 2003. Appropriate minimum staffing of the Australian Nuclear Science and Technology's (ANSTO's) HIFAR research reactor at Lucas Heights was also raised by more than one journalist in the quarter.

### 3. Research on Radiation Protection, Nuclear Safety and Medical Exposures to Radiation

#### **Non-ionizing radiation**

- 3.1 A collaborative study with the Menzies Centre for Population Health in Hobart and the National Centre for Epidemiology and Population Health at the Australian National University in Canberra continued, with the winter phase of ultraviolet radiation exposure assessments of subjects with multiple sclerosis being undertaken.
- 3.2 The design for a pilot Victorian survey of residential magnetic fields was finalised and the recruitment and measurement of homes began during the quarter. It is envisaged that the measurements will be completed in the next quarter and the results will be reported by the end of 2004.
- 3.3 The collaborative project comparing spectral measurements of solar UVR in Melbourne for 2001-2003 made by ARPANSA and the Bureau of Meteorology progressed.
- 3.4 A collaborative study with James Cook University in Townsville, where measurements were made of the UVR emissions from solarium and the UVR doses to users, was completed. The results were being analysed prior to publication in a scientific journal.

#### **Medical radiation**

- 3.5 The Medical Physics Section continued the final round of data collection of its national patient radiation dose survey. TLD kits were being read using the new automated TLD reader. During the quarter the database included data for over 11,000 films taken for about 4,000 patients on 77 X-ray machines around Australia.

### 4. Services Provided in Radiation Protection, Nuclear Safety and Medical Exposures to Radiation

#### **Calibration services**

- 4.1 The Radiofrequency Calibration (RFC) Laboratory received 117 separate requests for RF calibrations of which 109 were completed as NATA accredited reports. These jobs consisted of 97 monitors (with 43 probes), 21 RF badges and four sensors.
- 4.2 The Ionizing Radiation Standards (IRS) Section dosimetry calibration service completed the calibration of seven reference standard ionization chambers for five radiotherapy treatment centres. Two gamma survey meters and a neutron survey meter were calibrated. The neutron calibration was also used to establish procedures

to be included in the IRS quality system. A reference protection level calibration was completed for the traceability of a commercial personal radiation monitoring service.

### **Fabric testing and labeling**

- 4.3 Fabric ultra-violet protection factor (UPF) testing, licensing and labelling continued. 153 jobs were received, involving the testing of 573 fabric samples. 39 UPF trademark licences were completed and 1.89 million UPF swing tags were issued. In addition, 16 pairs of sunglasses were tested for their UVR protection properties.
- 4.4 As stated in the previous quarterly report, the UPF Testing Service was assessed by a team from the National Association of Testing Authorities (NATA) on 24 March. The assessment was positive, with a few minor corrective actions required. Repairs to ARPANSA's Labshere UV 1000 testing equipment overseas were needed. The accreditation process will resume once the equipment is fully operational again.

### **UVR data and hazard assessments**

- 4.5 Phase two of research into the UVR exposures of Australia Post outdoor workers was completed in Sydney during March. The UVR sensitive badges worn by the workers were measured and analysed.

### **QA program for radiopharmaceutical products**

- 4.6 Documentation to support accreditation of the Radiopharmaceutical Quality Assurance Testing Program was submitted to NATA in April.

### **Surveillance of effluent discharges at ANSTO's HIFAR reactor**

- 4.7 A total of 34 samples of liquid effluent discharges and filters used to monitor gaseous discharges were received and measured for their radioactivity during the quarter.

### **Measurement of radioactivity in drinking water**

- 4.8 199 samples were tested against requirements of the Australian Drinking Water Guidelines.

### **Certification of radioactivity in exported foodstuffs**

- 4.9 Measurements of the radioactivity content of 27 foodstuffs destined for export were carried out on request and three Radioactivity Certificates were issued for shipments of exported foodstuffs.

### **Personal Radiation Monitoring Service**

- 4.10 The Personal Radiation Monitoring Service (PRMS) continued to offer a comprehensive radiation monitoring service for persons who may be exposed to ionizing radiation as a consequence of their occupation. A service is also provided

for the measurement of radon and natural background radiation levels.

- 4.11 Contract negotiations with the successful tenderer for the PRMS Application Development Project were underway. The improved system will support new radiation monitoring technology, will introduce enhanced functionality, and also improve the workflow and processing methods. The project is expected to be initiated early in the new financial year.

## 5. Council and Committee Operations

### Radiation Health and Safety Advisory Council

- 5.1 The Council met on 2 April. A summary of the meeting is available at [http://www.arpansa.gov.au/rhsac\\_mt.htm](http://www.arpansa.gov.au/rhsac_mt.htm).

At the meeting the Council finalised a statement on *An indicator of sustainable development for radioactive waste management*. The statement is available at [http://www.arpansa.gov.au/rhsac\\_stat.htm](http://www.arpansa.gov.au/rhsac_stat.htm).

### Radiation Health Committee

- 5.2 The Radiation Health Committee did not meet during the quarter but did approve the adoption of the National Directory for Radiation Protection and its progression to the Australian Health Ministers' Advisory Council out of session.

### Nuclear Safety Committee

- 5.3 The Nuclear Safety Committee met on 18 June in Sydney. A summary of the meeting is available at <http://www.arpansa.gov.au/nsc.htm>.

### Radiation Protection Series publication program

- 5.4 The draft *Code of practice for the safe use of portable density and moisture gauges containing radioactive sources* was considered by the Radiation Health and Safety Advisory Council in the previous quarter, and published in May. An electronic copy is available at <http://www.arpansa.gov.au/rps5.htm>.

- 5.5 The draft *Recommendations for Intervention in Emergency Situations Involving Radiation Exposure* was released for a second round of public comment from 6 May until 6 August. An ARPANSA technical report, *Radiation and thyroid cancer: Technical considerations for use of stable iodine after a nuclear reactor accident in Australia*, was also released to inform public discussion on this issue.

## 6. Regulation

### Licensing

#### Licence Applications Received

6.1 No licence applications were received during the quarter.

#### Application Assessment and Licence Issuance

6.2

<i>Type of licence and authorisation</i>	<i>To</i>
Facility – Operation of the Gamma Irradiation Suite	ANSTO Safety and Radiation Science
Facility – Operation of the RADIAC Calibration Facility	Australian Defence Force and Department of Defence
Facility – Operation of a container examination facility, Fremantle	Australian Customs Service
Source – Amendment to previously issued licence	CSIRO Corporate Property

#### Import Permits issued under the Customs (Prohibited Import) Regulations 1956

6.3 The Regulatory Branch issued 98 Customs Prohibited Release permits for the importation of non-medical radioisotopes. These were comprised of 57 single-shipment, 36 urgent requests and five 12-monthly permits.

6.4 The Radiopharmaceutical Section issued 84 Customs Prohibited Release permits for the importation of medical radioisotopes. These were comprised of 71 single-shipment permits, 12 twelve-monthly permits and one urgent permit. ARPANSA faxes permits directly to Customs when goods have already arrived at an airport and are required urgently by the customer. The customer then has one week to show the original permit to Customs.

### Monitoring compliance under the ARPANS Act

#### ANSTO - Replacement Research Reactor Construction Licence

6.5 Regulatory Branch continued to monitor the construction of the replacement research reactor (RRR). Officers met regularly with their counterparts to assess the thoroughness of the ANSTO design review process. The majority of items important for safety have now been approved for construction by the CEO under Regulation 54 and Licence Condition 4.6.

6.6 ANSTO submitted seven requests for approval (RFAs) by the CEO of ARPANSA

for construction of items important for safety, in accordance with Regulation 54 and licence condition 4.6. Two of these received CEO approval during the reporting period, in addition to two that were submitted in the previous quarter. Construction of the fuel element assemblies was one of the items approved.

- 6.7 The CEO approved one relevant change under Regulation 51 during the quarter. The change was associated with the pressure equalisation devices for the safety access system doors.
- 6.8 The CEO requested information about the proposed manufacturer of the RRR fuel assemblies and the contractual arrangements between ANSTO, INVAP, and the manufacturer.
- 6.9 The CEO endorsed the radiological scales to be used in the context of evaluating risks affecting the RRR. The CEO agreed with the risk acceptance criteria for the RRR physical protection system.
- 6.10 The CEO varied a licence condition to include specific details of quality assurance audits and inspections carried by the manufacturing contractors responsible for custom Safety Category One systems.
- 6.11 ANSTO submitted information outlining the commissioning of individual items of plant and the cold commissioning process for the reactor, and that information was under review. Cold commissioning is part of the construction process and consists of system performance tests that can be undertaken before fuel is loaded into the reactor.
- 6.12 ANSTO submitted a quarterly report addressing compliance with licence conditions for the facility. Regulatory officers reviewed the report and concluded that ANSTO continues to meet its obligations under these conditions.
- 6.13 Regulatory officers continued to conduct routine site inspections to confirm that construction of the RRR facility is in accordance with the approved design. Site inspections are becoming as focus of the compliance monitoring effort as the reactor systems are progressively installed and pre-commissioning tests are conducted.
- 6.14 Two regulatory officers visited Argentina to inspect arrangements for the performance of factory acceptance testing for the reactor protection systems and the reactor control and monitoring system. The successful completion of these tests was identified as a key step for an approval to install these systems. During the visit the officers saw a number of INVAP factories that construct reactor safety related components and reactor internals. Also inspected was the Argentine National Atomic Energy Agency (CNEA) factory that will manufacture the initial batch of RRR fuel element assemblies.

#### ANSTO - HIFAR Reactor Operations

- 6.15 The quarterly report on compliance with licence conditions and other reportable items was received. This included the status of plant modifications and engineering projects between April and June. ANSTO has adopted a policy of undertaking only

essential modifications as HIFAR will be shutdown shortly after the RRR is operational (assuming a licence for this is issued). No new projects were identified during the quarter. Four projects were in progress, one had reached practical completion and another had reached final completion. Three projects deemed to have safety significance under Regulation 51 were reported to have been abandoned. Regulatory officers will inspect the facility to assess the impact the cancellation of modifications may have on the HIFAR plant.

- 6.16 In April the CEO agreed to HIFAR returning to full power following the 2004 major shutdown. The agreement was reached after the interim report on results of the major shutdown was received and reviewed by Regulatory Branch. This report confirmed that all work included in the shutdown schedule had been completed satisfactorily.
- 6.17 ARPANSA approved a relevant change under Regulation 51 to the operational safety limit relating to surface heat flux of irradiation rigs in the HIFAR reactor. ANSTO was requested to clarify the maximum power limit from a single rig and to include a limit on the total power output from all rigs to the moderator.
- 6.18 The review was completed of an ANSTO safety submission seeking CEO approval for the conversion of HIFAR from high enriched uranium (HEU) fuel to low enriched uranium (LEU). The CEO agreed with the proposed change under Regulation 51. In accordance with paragraph 36(2)(c) of the ARPANS Act, the HIFAR operating licence was amended to permit operation with LEU fuel and, additionally, a number of operational limits and conditions for the reactor required changes to reflect the operation with a mixed HEU/LEU or LEU core.
- 6.19 The CEO was satisfied that ANSTO had adequately addressed special licence condition 3.7(b) dealing with accident analysis. In accordance with paragraph 36(2)(b) of the ARPANS Act, the licence condition was removed by the CEO.
- 6.20 The CEO was satisfied that ANSTO had adequately addressed special licence condition 3.6(a) dealing with seismicity. In accordance with paragraph 36(2)(b) of the ARPANS Act, the licence condition was removed.

#### ANSTO - HIFAR Reactor Staffing

- 6.21 Regulatory action was taken on HIFAR reactor staffing during the quarter. As background, the HIFAR Operational Limits and Conditions (OLCs) set mandatory requirements on process parameters, operating conditions and minimum plant and personnel availability that define an envelope for the safe operation of the reactor. Amongst the OLCs there is one that defines the minimum level of staffing allowing the reactor to operate as being three duty staff. If three appropriate staff are not present, the reactor must be shut down.

It is also the case that ANSTO has for many years operated HIFAR with a normal staffing level of four. This is reflected in the HIFAR Procedure document that was last amended in 1998. This procedure was listed in ANSTO's HIFAR Authorisation

document and in the HIFAR Probabilistic Safety Analysis. Both these latter documents formed part of the application by ANSTO to the CEO of ARPANSA seeking a licence to authorise the operation of HIFAR. Thus any change to these arrangements is considered in the context of the ARPANS Act and Regulations to be a “relevant change.” A relevant change that is proposed to be made that would have a “significant implication for safety” requires the prior approval of the CEO of ARPANSA as this is a licence condition imposed by the ARPANS Regulations 1999.

As noted in earlier quarterly reports, in 2002 ANSTO sought an amendment to the minimum staffing OLC. The amendment sought to have the effect of establishing arrangements to restore the minimum of three duty staff within a period of up to 20 minutes due to unexpected unavailability of operational personnel that would otherwise require shutting down the reactor. This matter was under assessment by ARPANSA staff and discussion with ANSTO for a considerable period.

On 2 April 2004, ANSTO wrote to the CEO of ARPANSA about the outcome of the major shutdown of HIFAR (reported elsewhere in this report). That letter also indicated that routine staffing of HIFAR with three accredited operators was necessary to allow selected HIFAR operators to be involved in RRR training and commissioning. The letter concluded as follows: *‘HIFAR intends to operate with three accredited operators in accordance with the OLC in the future, but only after we satisfy ourselves through the completion of a task analysis and verification of procedural adequacy. This documentation shall be made available to ARPANSA next week.’*

On 8 April, the CEO of ARPANSA wrote to ANSTO about the proposed amendment to the minimum staffing OLC. He indicated that, while the argument presented was not unreasonable, he did not agree to the specific amendment proposed and sought a further submission to clarify certain aspects of the proposal. In addition, this letter from the CEO of 8 April set out his view that the normal staffing level of HIFAR remained four on the basis of the documents mentioned above. He indicated that any submission to change this normal staffing level needed a detailed task analysis and identification and necessary amendment of all HIFAR procedures that allocate responsibilities to individuals on the basis of four shift staff.

The letter from the CEO of 8 April referred to the letter from ANSTO of 2 April about an intention to operate with a normal shift of three and stated: *‘I consider that such a change would be a relevant change having significant implications for safety under Regulation 51 and would, therefore, require my prior approval.’*

In a letter dated 7 April but not received by ARPANSA until 13 April, ANSTO advised that it had assured itself that the minimum staffing set out in the OLC was sufficient for routine operations.

On 16 April, the CEO wrote to ANSTO stating that it had been brought to his attention that HIFAR had moved to a three person shift as a normal shift complement since it had started up after the major shutdown. The CEO re-emphasised that the licensing basis for HIFAR was a normal staffing of four and re-

stated that any change to this required prior approval. The CEO indicated that he required HIFAR to return to the normal shift complement of four from 4pm that day and that ARPANSA inspectors would attend the site to ascertain whether or not each shift from that time operated with four staff as a normal shift complement. The letter concluded as follows: *'If I have evidence of breach of the Act provided to me by my inspectors, subsequent to the shift commencing at 4 pm today, the actions available to me are a direction under section 41 and suspension and cancellation of licence under section 38 of the ARPANS Act 1998.'*

Inspectors reported that HIFAR returned to a four person shift from the nominated time. An inspection of records at the end of June indicated that four persons constituted the shift on 205 out of 222 shifts since 16 April, which the CEO regarded as demonstrating compliance with the requirements of the 16 April letter.

The regulatory action in the CEO's letter of 16 April achieved the objective of returning HIFAR to a normal staffing complement of four. The other actions mentioned in the letter of 16 April were thus not necessary.

While the safety significance of the difference between minimum staffing under the OLC and normal staffing under the HIFAR Procedure may be arguable, it is certainly the case that the CEO formed the view that ANSTO had instituted a relevant change that had significant implications for safety. Equally, ANSTO were clearly on notice after 8 April that the CEO was of the view that reducing staffing to three required prior approval under Regulation 51, a licence condition. It may thus be that at least between 8 and 16 April, ANSTO was in breach of a condition of the HIFAR licence. However, as indicated in the paragraph above the CEO gave ANSTO the opportunity to rectify the breach and therefore avoid any enforcement action being taken against it.

### ANSTO – Moata Research Reactor

6.22 As required by the conditions of licence, Moata supplied a quarterly report within 28 days from the end of the quarter that stated:

- There were no abnormal occurrences relating to the care and maintenance of the Moata reactor;
- No modifications to plant and procedures were identified as necessary for the care and maintenance of the Moata reactor;
- Updating of the quality assurance documentation to reflect the transfer to Nuclear Technology continued. Moata is now included under the AS/NZS ISO 9001:2000 certification for Waste Operations and Technology Development. This was achieved during the triennial audit in May 2004.

### ANSTO Fuel Operations

6.23 ANSTO Fuel Operations is licensed as a nuclear installation under facility licence

F00044-4C. A quarterly report was received for the quarter covering the following areas:

6.24 *Licence Condition Compliance*

Special licence condition 3.7(b) requires upgrading of the Safety Analysis Report (SAR). The quarterly report mentions that SARs are being written and reviewed internally.

Special licence condition 3.7(h) requires installation of a monitor, including a UF<sub>6</sub> release alarm, in the nuclear materials store. It was reported that ANSTO is actively assessing other alternatives for the care and custody of the UF<sub>6</sub>. Discussions with a potential buyer for the UF<sub>6</sub> were planned for mid-July. The outcomes of these discussions will be reported in the next quarterly report.

6.25 *Facility Modification*

Re-racking of the new containment vessel for fissile material was completed with ASNO and the IAEA present, followed by successful implementation of the system.

6.26 *Inventory Changes*

A detailed compilation of the inventory was continuing.

6.27 *Incidents/Non-conformance*

The gross beta activity of Building 41 pond water exceeded 1000 Bq/L during recent specified spent fuel elements transfer and this value is ten times higher than the internal notification level. It is noted that this magnitude is not considered unusual considering the spent fuel elements were in dry storage for about 15 years. Such a rise in gross beta activity did not pose any radiological hazard and a full survey of the Building 41 pond area confirmed no contamination. This problem was associated with one spent fuel element, which was removed and inspected in the hot cell and some corrosion was observed. Following the removal of the corroded spent fuel element the water chemistry returned to normal levels.

6.28 *Airborne Discharges*

Airborne discharges from Fuel Operations stacks were well below authorised notification levels (see also section on site airborne discharges).

6.29 *Personnel Doses*

Personnel doses for the quarter were well within local objectives and limits.

6.30 *Fuel Storage Pond Facility Maintenance*

Specified fuel elements were being transferred to the Building 41 pond. Full recovery of the cropping pond facility progressed. Cropping of spent fuel elements was planned after additional training was conducted, and after loading of flasks for the latest shipment was completed.

Results of water sampling external to the pond liner continue to confirm the integrity of the cropping pond.

6.31 *Ground Water Bore Hole Monitoring*

No water samples were taken from the existing boreholes during the quarter. The next sampling of these boreholes is due in August.

6.32 *Visits and Inspection*

Two Regulatory officers visited Building 41 to observe a fuel unloading operation. A Regulatory Branch officer visited Building 23, Building 23 Gamma Pond and Building 20B to obtain further information and to observe the present status of these facilities.

An inspection was conducted at Building 23 to check compliance with standard and special licence conditions, and recommendations for improvement.

ANSTO Waste Operations and Technology Development

6.33 ANSTO Waste Operations and Technology Development (WOTD) are licensed as a nuclear installation and is operated under Facility Licence FO0044-WOTD. The quarterly report for the period 1 April to 30 June, received on 28 July, addressed the following areas:

6.34 *Abnormal Occurrences*

No abnormal occurrences occurred during the quarter.

6.35 *Modifications*

ARPANSA approved the operation of Building 20B (B20B) and the facility licence was amended to include waste inspection and the decontamination chamber, the drum drier and the cementation plant.

6.36 *Airborne and Liquid Discharges*

It was reported that the airborne discharges from stacks of WOTD remained below the quarterly notification level. The airborne discharges are also covered separately elsewhere in this report. B20B has now been added to the monitoring data as a consequence of the amendment of the facility licence.

The quarterly report showed that the effluent plant discharges from ANSTO's Liquid Waste Treatment Plant were well within the Trade Waste Discharge Limit. The liquid discharge results are also covered separately elsewhere in this report.

6.37 *Inventories*

The updated inventories stored on the LHSTC site and all changes in stored inventories occurring in this quarter are presented in this quarterly report.

## ANSTO Radiopharmaceuticals and Industrials

6.38 ANSTO Radiopharmaceuticals and Industrials (ARI) are licensed to operate four nuclear installations and three prescribed facilities under a single licence (F0044-5A, 5B, 5C). In addition a prescribed radiation facility, namely GATRI, is under the effective control of ARI and this facility is operated under a separate licence (FV0044-6C). The quarterly report for the period 1 April to 30 June, received on 6 August, addressed these areas:

### 6.39 *Licence Condition Compliance*

The quarterly report contains an appendix to show the updated status of special licence conditions set out in Licence F0044-5A, 5B, 5C. This appendix was under ARPANSA review to determine the number of special licence conditions that have been satisfied and thus can be removed from the licence by the CEO.

### 6.40 *Relevant Changes*

- ARI made a submission to ARPANSA for the redevelopment of Building 23 (B23 Master Plan). This submission contains all relevant information about the concept and detailed design phase, currently under ARPANSA review.
- It was mentioned that the current Safety Analysis Report (SAR) for Building 23 will be updated to incorporate the Building 23 ventilation upgrade and the extension of Building 23.
- A new Production Manager was appointed. A supervisor of Building 54 was nominated who will be responsible for the operations/process of molybdenum in Building 54. In addition, ARI appointed a new Marketing Manager. Such changes are unlikely to have significant implications for safety and reporting of them satisfies Regulation 52.
- The report named two operators who are no longer authorised operators of the GATRI facility. Such changes are unlikely to have significant implications for safety and reporting of them satisfies Regulation 52.
- ANSTO requested an amendment to the existing ARI facility licence to change the limits of the maximum amount of activity of the radioisotopes used in Buildings 76 and 19, and to include the use of Low Enriched Uranium and depleted uranium. This matter was under ARPANSA review.

### 6.41 *Incident*

The previous quarterly report mentioned that following a scraping of paint during routine repainting of external walls in the GATRI area, a small amount of water leaked into the operator's annex. No safety implications resulted from this incident. The report of this quarter mentions that it was decided to fix Colourbond sheeting to all external walls and the roof of the facility, and this work is now complete. The work required resiting of the alarm sounder and flashing light on the north wall of

GATRI. The old units were replaced with new ones.

#### 6.42 *Building 54 Emission Update*

The report mentions that further investigations of the likely causes of the increased emissions observed last year were undertaken. In addition to the previously implemented changes the following further operational changes are being implemented:

- Routine service of the packing machine to improve packing of rocket cans and to prevent air gaps;
- Perform random canning tests to ensure no air gaps are formed during packing;
- Perform a quality control test on all incoming UO<sub>2</sub> pellets prior to use in rocket cans to establish pellet size range; and
- The spacers between the largest pellets are to be at least 0.5 mm.

ARPANSA is continuously monitoring this issue.

#### 6.43 *Safety Management Plan*

A special licence condition requires formal accreditation of operators. The ARI quarterly report mentioned that all production and quality control staff were in the process of completing the learning unit *Radiation Safety in Our Plant*. Completion will be assessed by qualified assessors and staff will be issued with a competency certificate. Three GATRI operators completed a two-yearly refresher training course for authorised operators.

A special licence condition requires the licence holder to consider a number of items in the Safety Analysis Report (SAR) as specified in the special licence condition 4.5. The quarterly report mentioned that SARs for Buildings 19 and 76 will be provided in the September quarter.

### ANSTO Prescribed Radiation Facilities

#### 6.44 *Particle Accelerators*

ANSTO Environment is licensed to operate the ANTARES Tandem Accelerator (F0044-6Ba), 3MV Van de Graaff Accelerator (F0044-6Bb) and a 2MV Tandem Accelerator (STAR Accelerator, F0134) as prescribed radiation facilities. A licence condition requires ANSTO Environment to submit quarterly reports to the CEO of ARPANSA. The quarterly report for the period 1 January to 31 March, received on 23 April, mentioned that:

##### *Incidents*

An abnormal occurrence at the ANTARES accelerator involving persistent internal discharge creating electrons was reported in the previous quarter, and radiation level of 5-30 microsieverts per-hour was measured at the outer level wall of the high voltage vessel. Corrective actions were taken and the radiation level was measured

in the range of 5-10 microsieverts per-hour;

An incident involving high voltage discharges on the extremities of the high voltage vessel at the 2MV STAR Accelerator reported in the previous quarter was resolved. No discharges have been recorded since these corrections were made;

#### *Modifications*

The new gas handling plant for the 3MV Van de Graff Accelerator was being installed and was due for completion by mid-August;

The new computer control system on ANTARES was implemented and is running in parallel with the old system until verification tests are completed. Controls that require operator intervention are not controllable such as, vacuum systems, however vacuum monitoring points has been expanded. Training is continuing and user interfaces are developed.

Such changes are unlikely to have significant implications for safety and reporting of this change satisfies Regulation 52.

#### *Safety Management*

The Safety Analysis Report (SAR) of the ANTARES accelerator was undergoing final assessment by the ANSTO Safety Assessment Committee (SAC).

The report mentioned that the SAR for the STAR accelerator was completed and was awaiting assessment and approval by the SAC.

#### *Emergency Arrangements*

A special licence condition requires the licence holder to review and exercise the local emergency arrangements for these facilities. The report mentioned that such arrangements were reviewed and exercised, and that the report was being drafted. ANSTO will provide ARPANSA with a copy of this report.

#### 6.45 *Ore Processing and Operations Facility*

ANSTO Environment is licensed to operate its Ore Processing and Operations Facility (F0044-7A) as a prescribed radiation facility. The quarterly report for the period 1 January to 31 March 2004, received on 29 April 2004, mentioned that:

- No modifications had been made to plant;
- No abnormal occurrences, incidents or accidents occurred during the quarter; and
- No radioactivity was released to the environment.

#### 6.46 *Radiotracer Facility*

ANSTO Environment is licensed to operate its Radiotracer Facility as a prescribed radiation facility. The quarterly report for the period 1 January to 31 March, received on 29 April, indicated that:

- No abnormal occurrences, incidents or accidents occurred during the period;
- No radioactivity was released to the environment;

- No radiotracer studies were performed during the reporting period.

Correspondence received on 17 June indicated that the Safety Analysis Report had been updated and a radiation monitor had been installed, in fulfilment of special licence conditions 5 and 4 respectively. This will be verified by ARPANSA inspectors.

#### 6.47 *Actinide Suite*

ANSTO Materials and Engineering Science is licensed to operate its Actinide Suite (F0044-8A) as a prescribed radiation facility. The quarterly report for the period 1 January to 31 March, received on 29 April, mentioned that:

- The upgrade of the building fire system was nearing completion;
- No abnormal occurrences, incidents or accidents occurred during the quarter;
- Radioactivity released to the environment was in accordance with the discharge authorisation.

#### 6.48 *Materials Fabrication Bay*

ANSTO Materials and Engineering Science is licensed to operate its Materials Fabrication Bay (F0044-8B) as a prescribed radiation facility. No quarterly report for the period 1 January to 31 March was received.

#### 6.49 *Secondary Standards Dosimetry Laboratory*

A report for the period January to March, received on 5 May, advised of no changes to plant, personnel or source inventory. Completion of actions to meet the requirements of special licence condition 1 was reported.

### ANSTO Sources

- 6.50 A report was received from ANSTO Environment for January to March on 29 April. It noted safe operation and only minor changes made to the source inventory. A report on neutron dosimetry associated with a borehole logging device was received on 7 May in compliance with special licence condition 3 of the ANSTO Source Licence.
- 6.51 A report was received from Materials and Engineering Science for January to March on 30 April. It noted safe operation during the quarter. No changes to the source inventory were reported.
- 6.52 A report was received from Engineering Services for January to March on 27 April. It noted safe operation during the quarter. No changes to the controlled apparatus or source inventory were reported.
- 6.53 A report was received from Safety and Radiation Science for January to March was received on 29 April. It noted safe operation during the quarter. Changes to the source inventory were reported in accordance with special licence condition 1.
- 6.54 A report was received from the Bragg Institute for January to March on 30 April. It advised of no change to the source inventory during the quarter.

### Abnormal Occurrences at ANSTO's Nuclear Installations

6.55 ARPANSA is notified of all abnormal occurrences at ANSTO's nuclear installations. It reports in detail only those classified as Level 1 or above on the International Nuclear Event Scale (INES), as all others are of no safety significance.

#### 6.56 *HIFAR*

ARPANSA was notified of four abnormal occurrences in the quarter. All of them were rated as INES Level 0, i.e. of no safety significance.

### ANSTO Airborne Radioactive Discharges

6.57 Regulatory Branch received a report from ANSTO on 18 May about all airborne radioactive discharges from the Lucas Heights Science and Technology Centre between 21 December 2003 and 23 March 2004. The report showed that discharges remained less than the quarterly notification levels under the licence authorisation. The ANSTO investigation into previous elevated discharges of Xe-133 from Building 54 was continuing.

6.58 The radiation dose at 1.6km from the HIFAR reactor from all airborne discharges for the quarter was less than one microsievert – compared to the Airborne Discharge Authorisation dose objective of 20 microsieverts per year. ARPANSA concluded that ANSTO complied with the Airborne Discharge Authorisation for the quarter.

### ANSTO Liquid Radioactive Discharges

6.59 Regulatory Branch received reports from ANSTO on 1 April, 11 May and 2 June about radioactive liquid discharges from the Lucas Heights Science and Technology Centre during February, March and April respectively. It was found that these discharges complied with the Trade Waste Agreement of 30 July 2003 between Sydney Water and ANSTO, with all measured values at most a few per cent of the relevant limit.

### ANSTO General Plans and Arrangements

6.60 Satisfactory progress was reported on compliance with special licence conditions in Part 2.3 of the ANSTO Licence Conditions Handbook.

### ANSTO Inspections

6.61 A planned inspection of the Ore Processing and Operations Facility was conducted by two ARPANSA inspectors on 29 April. Overall compliance with licence conditions was deemed as satisfactory.

### Australian Government Analytical Laboratories

6.62 The Analytical Laboratories are licensed to deal with a number of ionizing and non-ionizing sources (S0142). A report detailing the handling of these sources from 1

January to 31 March was received on 11 June. No incidents or accidents occurred during the period and no radiation was discharged to the environment.

#### ARPANSA Melbourne – Medical Radiation Branch

6.63 ARPANSA's Medical Radiation Branch is licensed to operate a linear accelerator and teletherapy facility as prescribed radiation facilities under the licence F0046. ARPANSA received a report for the previous quarter covering these areas:

6.64 *Quality system*

Both facilities are covered by a quality system consistent with ISO/IEC 17025. It was mentioned that as the Ionizing Radiation Section accreditation program proceeds, the documentation will be brought into line in accordance with the ARPANSA Quality Manual. The target date for bringing the two facilities under the ARPANSA Quality System is December.

6.65 *Training, accreditation and authorisation*

The quarterly report mentioned that criteria were established and documentation was being updated with the quality system – scheduled for completion by September (and not July as reported previously).

6.66 *Safety tests, inspections and reviews*

It was reported that procedures exist and documentation is being updated with the quality system and the target date of completion is November (and not July as reported previously).

6.67 *Emergency arrangements*

It was reported that emergency arrangements are in place and testing of interlocks is undertaken routinely. The development of suitable exercises for biennial review was in progress.

6.68 *Operating limits and conditions*

The report mentioned that further clarification on operating limits and conditions was progressing.

6.69 *Radiofrequency exposure levels*

It was also reported that the radiofrequency levels were measured but no significant levels were detected. This is evident from the submitted results. The next review of radiofrequency exposure is scheduled for February 2005. This report also addressed the licence conditions of Schedule 1 of the licence and was acceptable to ARPANSA.

#### CSIRO Divisions

6.70 All source inventory information has been updated and quarterly reporting is becoming routine for most divisions. As noted in previous reports, however, there is still some inconsistency in responsiveness across the organisation.

6.71 *Heavy Ion Accelerator Facility (F0060)*

A report for the March quarter was received on 11 May. The accelerator has been

shut down and rendered inoperable by removal of the SF<sub>6</sub> gas. Some associated equipment has been transferred to other organisations. The site Radiation Safety Officer at North Ryde was to cease work in July. Unofficial notification of a replacement was received.

6.72 *Neutron Accelerator Facility (F0137)*

A report for the March quarter was received on 5 April. This noted the ARPANSA inspection, as reported last quarter, which was conducted to review planned relevant changes to the operation of the fast neutron radiography scanner. A modified safety assessment has been submitted to the ANSTO Safety Assessment Committee. No significant personal doses were recorded during the quarter to January.

6.73 *Land and Water (S0009)*

Notification of no change to the source inventory and an emailed version of the quarterly report from the division chief was received on 30 April. The original was received on 31 May. This included the information that on 11 March two people suffered burns to the face and eyes as a result of overexposure to an ultraviolet (UV) source. A Comcare investigation is underway and an internal investigation has revealed a number of operational deficiencies. ARPANSA Inspectors undertook a site inspection on 12 May. As a result, three UV sources were removed from further use until compliance with licence conditions can be demonstrated. Additional recommendations will result from the inspection which identified a number of possible breaches of licence conditions.

6.74 *Textile and Fibre Technology (S0010)*

An updated source inventory for the March quarter was received on 22 April. Further information was received about the radiofrequency plasma polymerisation system notified last quarter. Measurements indicate that accessible radio frequency (RF) levels are below relevant limits in *Radiation Protection Standard - Maximum exposure levels to radiofrequency fields - 3kHz to 300GHz*.

6.75 *Corporate Property (S0013)*

Notification of no change to arrangements for the March quarter was received on 7 April. The nominee was informed of continuing concerns regarding provision of environmental survey information and details of the agreement for the provision of these services. However, the CEO has indicated that less frequent audit is acceptable and licence conditions have been varied accordingly. An environmental audit report was received on 21 June. As a result of recommendations in the report, the emergency response plan has undergone some revision and improved signage is being installed. Rusting of drum lids was identified as a future problem and replacement of some of these is planned for the next annual inspection visit by CSIRO staff.

6.76 *Molecular Science (S0016)*

An updated source inventory for the March quarter was received on 6 April. It included notification of no change to safety plans and arrangements.

6.77 *Entomology (S0017)*

An updated source inventory for the March quarter, indicating no changes, was

received on 14 April. It included notification of no change to safety plans and arrangements.

6.78 *Sustainable Ecosystems (S0018)*

An updated source inventory for the March quarter, indicating no changes, was received on 14 April. It included notification of no change to safety plans and arrangements.

6.79 *Marine Research (S0019)*

An updated source inventory for the March quarter was received on 30 April, noting the disposal of a small quantity of C-14. The OHS&E Manager was informed of the requirements of Regulation 53 with regard to source transfer and disposal. Further information was requested.

6.80 *Plant Industry (S0021)*

Notification of no change to the source inventory was received on 30 April. No information was provided on any relevant changes. On 17 May notification was received that a quantity of controlled material, packaged during June 2000 as waste from an incident in January 2000, was in fact disposed of in September 2003 as had been previously reported. The source inventory was amended accordingly. Notification was received that this material has since been transferred to the Black Mountain site.

6.81 *Livestock Industries (S0022)*

Notification of no change to the source inventory was received on 13 April. It included notification of no change to safety plans and arrangements.

6.82 *Food Science Australia (S0023)*

An updated source inventory for the March quarter, indicating no changes, was received on 21 April. It included notification of no change to safety plans and arrangements.

6.83 *Energy Technology (S0025)*

An updated source inventory for the March quarter, indicating no changes, was received on 13 May. One sealed source (Cs-137 density gauge) has been designated as waste awaiting disposal and transferred to a specified package in the North Ryde waste store until final disposal.

6.84 *Petroleum (S0030)*

An updated source inventory for the March quarter was received on 20 April. Notification was received of the transfer of ownership of two Class 4 lasers. As reported previously, CT apparatus has been relocated from Sydney to Perth. A request for the CEO's permission to recommence operation of the apparatus in the new purpose-built accommodation, as required by Regulation 51, was approved. Formal notification was provided of a new Radiation Safety Officer for the North Ryde site.

6.85 *Health Sciences and Nutrition (S0038)*

An updated source inventory for the March quarter, indicating no changes, was

received on 29 April. It included notification of no change to safety plans and arrangements. An unannounced inspection of laboratories in Adelaide was conducted on 13 May.

6.86 *Forestry and Forest Products (S0054)*

An updated source inventory for the March quarter was received on 29 April. The report noted a possible breach of licence conditions regarding use of a Class 3B laser at Clayton. This apparatus was inspected by ARPANSA staff in April. The inspection report recommended that the CEO note, but take no action on, an administrative oversight. CSIRO had omitted to apply under Regulation 51 for prior approval to make a relevant change with significant implications for safety. Detailed recommendations to the CSIRO division regarding the documentation of hazard assessment and laser classification information was included in the inspection report.

6.87 *Atmospheric Research (S0059)*

An updated source inventory for the March quarter was received on 6 April. An additional laser product was noted. This is to be used in collaboration with Forestry and Forest Products division. A request for approval of a relevant change with significant implications for safety was received regarding this apparatus, and the safety case for proposed field deployment was approved.

6.88 *Exploration and Mining (S0061)*

An updated source inventory for the March quarter was received on 11 May. Notification was received of a replacement divisional Radiation Safety Officer.

6.89 *Minerals (S0064)*

An updated source inventory for the March quarter was received on 2 April.

ARPANSA staff conducted an inspection of proposed operations with mineral sands at the Waterford site. A variation of licence conditions was issued specific to this dealing. A further request for approval of a relevant change with significant implications for safety has been received relating to this project. Approval has been given subject to the receipt of additional information.

A request for approval for a relevant change with significant implications for safety was received to temporarily relocate a class 4 laser apparatus to a client's premises. This was approved subject to some minor conditions.

During an inspection visit to another CSIRO division at the Clayton site, the opportunity was taken to visit the laser laboratory and also view the radioactive waste storage arrangements.

Acknowledging that this was not an in-depth review it was concluded that the planned relocation of the laser would appear to present few if any problems, and the waste storage arrangements were regarded as satisfactory.

6.90 *Manufacturing and Infrastructure Technology (S0066)*

An updated source inventory for the March quarter was received on 26 April. The quarterly report highlighted a new dealing at Highett, Victoria, involving a Class 3B laser system under development by the Fluid Engineering Project. A copy of the

OHS&E assessment of work had been requested. Also of note was an additional x-ray radiography rig, with similarities to existing equipment, ordered for Clayton, Victoria. An inquiry was received regarding proposed new work with a controlled material in a fixed gauge.

6.91 *Telecommunications and Industrial Physics (S0105)*

An updated source inventory for the March quarter was received on 29 March. Eight new class 3B lasers were added to the source inventory but no other changes were noted. A request was made to the OHS&E Manager about three lasers previously located at CSIRO Manufacturing and Infrastructure Technology, Clayton, that do not appear on the CSIRO Telecommunications and Industrial Physics inventory. The June quarterly report and source inventory update (including the three lasers just mentioned) were received on 28 June. This report provided advance notice that the National Measurement Laboratory will separate from the CSIRO on 1 July to become part of the new National Measurement Institute.

Australian Institute of Marine Science

6.92 Notifications of nothing to report under Regulation 52 and of no change to the source inventory for March were received on 8 June. Notification was also received that a new director was expected to take over as licence holder in July.

Australian Antarctic Division

6.93 Notifications of nothing to report under Regulation 52 and of no change to the source inventory for March were received on 30 April.

Australian Quarantine Inspection Service

6.94 No source inventory update or report for the June quarter was received during the quarter.

Australian Customs Service

6.95 The March quarter source inventory update was received on 27 April for source licence S0092. This indicated a number of minor changes relating to transfer of x-ray units. The CEO of ARPANSA wrote to the licence holder, drawing attention to Regulation 53. This requires the licence holder to give the CEO seven days notice of a transfer of controlled apparatus. A report for the March quarter was received on 14 May for these shipping container examination facilities:

- FV0136-Operate (Fisherman Island, Queensland);
- FV0125-Operate (Matrville, New South Wales); and
- FV0131-Operate (West Melbourne, Victoria).

Parks Australia North

6.96 A report for the March quarter was received on 15 April. This provided updated

information on key developments:

- Formal approval by the Northern Land Council is awaited on the final draft of Part A of the rehabilitation plan for abandoned mine sites;
- A meeting with traditional land owners to discuss document options for potential containment sites is planned for May; and
- Installation of monuments at existing containments is planned for mid-year.

A draft copy of a briefing paper for the June meeting of the Board of Management was received on 21 May. This addressed issues in the March quarterly report, including the results of discussions at the May meeting with traditional owners and visits with them to two potential containment sites. Agreement was obtained for baseline groundwater monitoring at each site.

#### Department of Prime Minister and Cabinet

- 6.97 An email notification of nothing to report under Regulation 52 and no change to the source inventory was received on 19 July.

#### Australian Crime Commission

- 6.98 Email notification of nothing to report under Regulation 52 and no change to the source inventory was received on 25 May.

#### Joint House Department

- 6.99 Email notification of nothing to report under Regulation 52 and no change to the source inventory was received on 19 July.

#### Australian War Memorial

- 6.100 The Australian War Memorial was inspected by ARPANSA staff on 15 April to assess compliance with the Act and Regulations, and specifically the handling and storage of unsealed sources. The inspection identified a number of non-compliances, mainly that the licence holder must comply with special licence conditions attached to licence S0080. A letter and the report was sent to the Australian War Memorial on 12 July and it has been given an opportunity to respond.

#### Australian Securities and Investment Commission

- 6.101 Email notification of nothing to report under Regulation 52 and no change to the source inventory was received on 21 July.

#### Department of Immigration and Multicultural and Indigenous Affairs

- 6.102 The CEO of ARPANSA was notified on 24 May that the department was planning

to acquire three additional baggage x-ray units.

#### Attorney General's Department

6.103 Email notification of nothing to report under Regulation 52 and no change to the source inventory was received on 30 June.

#### Australian Federal Police

6.104 The Australian Federal Police were inspected by ARPANSA staff on 16 April to assess compliance with the Act and Regulations, and specifically the use of portable x-ray units. The inspection report identified a number of non-compliances, mainly related to a need for a review and update of safety plans and arrangements. The Australian Federal Police wrote to the CEO of ARPANSA on 16 June outlining their response to non-compliances identified in the inspection report.

#### Inspections

6.105 On 15 April, two Regulatory Branch officers conducted an inspection of CSIRO Forestry and Forest Products laser S0054.

6.106 On 21 April, two Regulatory Branch officers conducted an inspection of Note Printing Australia S0033.

6.107 On 12 May, three Regulatory Branch officers conducted an inspection of CSIRO Land and Water, Urrbrae S0009.

6.108 On 13 May, two Regulatory Branch officers conducted an inspection of CSIRO Health Sciences and Nutrition, Adelaide S0038.

#### Australian National University

6.109 The licence holder reported on compliance for the period February to April in May that:

- Radioactive releases and disposal of trace radionuclides from laboratories were in accordance with national codes of practice and plans and arrangements for managing radiation safety;
- Relevant changes to source inventories were minor. Updated source inventories for eight schools, two faculties and one department were included;
- Modification to controlled apparatus and safety procedures were minor; and
- Abnormal occurrences with significant safety consequences did not occur.

Compliance matters relating to facility licences were not received during the quarter.

### Department of Defence

- 6.110 A meeting of the Defence/ARPANSA Liaison Forum was held in Sydney during the quarter. Defence gave an overview of its new OH&S strategic plan, and how the Defence radiation safety management program fits into the plan.
- 6.111 Defence provided ARPANSA with quarterly reports for the periods ending 30 September 2003, 31 December 2003 and 31 March 2004.
- 6.112 A meeting was held with Defence on 24 June to discuss reporting requirements and the proposed schedule of inspections of Defence facilities by ARPANSA inspectors.
- 6.113 Defence requested permission to dispose of a controlled facility, being a neutron generator.
- 6.114 Two officers from ARPANSA attended the Defence Radiation Safety Committee meeting as observers.

### Office of the Supervising Scientist

- 6.115 The March source inventory update, noting no changes, was received on 13 April. It included notification of no change to safety plans and arrangements. Advance notice was received of a change to the Radiation Safety Officer.

## 7. International Liaison

- 7.1 Peter Burns attended the 52<sup>nd</sup> session of the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) in Vienna from 26-30 April. The meeting discussed progress on Scientific Annexes on the exposure of workers, the public and medical patients to ionizing radiation. It also looked at the health effects from exposure to radon in homes and the workplace, the effects of ionizing radiation on the immune system, cancer and non-cancer health effects from the Chernobyl accident, and the effects of ionizing radiation on the environment and non-human biota.
- 7.2 From 19-22 May Peter Gies, Darren Clahane and Keith Dessent attended the ICNIRP/WHO (International Commission on Non-Ionizing Radiation Protection/World Health Organisation) International Non-ionizing Radiation Workshop and URSI (Union Radio-Scientifique Internationale) Symposium in Seville, Spain. The workshop featured experts in all non-ionizing radiation (NIR) specialties. Topics covered included mobile telephones, ICNIRP's philosophy on NIR protection, NIR programs of WHO, electromagnetic fields (EMFs) and the precautionary principle, and medical aspects of NIR. Peter presented a poster titled *Measured Solar UVR Exposures of Outdoor Workers and Awareness of the UV Index*.
- 7.3 From 23-28 May, the CEO, Keith Dessent and Darren Clahane then attended the 11<sup>th</sup> International Congress of the International Radiation Protection Association (IRPA-

11) in Madrid, Spain. The congress covered major areas of radiation protection and included plenary sessions on these topics:

- What is known about the effects of low doses of radiation;
- ICRP proposals for the 21<sup>st</sup> Century;
- EMFs and Cancer;
- Protection against Natural Radiation; and
- Societal Aspects and Public Involvement in Radiation Protection.

The CEO took part in an international panel on the draft ICRP Draft Recommendations for radiation protection. While at IRPA-11 Mr Dessent also presented a poster titled *Assessment of the Solar Ultraviolet Radiation (UVR) Exposure Levels to Outdoor Workers in Victoria, Australia*.

- 7.4 Colin Roy participated in two meetings associated with the WHO International EMF Project in Istanbul, Turkey, from 7-11 June. The first was a meeting of the International Advisory Committee and the second a WHO Workshop on Sensitivity of Children to EMF Exposure. He also spent 14-18 June in Geneva, Switzerland, to work with WHO staff in progressing the Static Field draft of the WHO Health Risk Assessment.
- 7.5 Alan Melbourne undertook an IAEA mission to Dubai, United Arab Emirates, from 19-23 June, to review regulatory infrastructure and advise on a system of authorisation and inspection for radiation sources. This included assisting in the development of memorandums of understanding between agencies, particularly relating to medical use of radiation and import/export arrangements, relevant codes of practice, and updating the country radiation waste and safety profile.
- 7.6 Samir Sarkar provided consultancy to the IAEA from 17-21 May, working on the Safety Guide *Radiation Protection and Radioactive Waste Management in the Design and Operation of Research Reactors (DS 340)*.
- 7.7 The Director of Regulatory Branch attended a meeting of the Nuclear Safety Advisory Group to the Korean Peninsular Energy Development Organisation, at the nuclear power plant site at Kumho in North Korea. The purpose of the meeting was to review the program for preserving and maintaining the plant while the project is suspended due to political tensions with the Democratic People's Republic of Korea.

John Loy  
CEO  
28 September 2004