



## Questions posted in Meeting - Third Review Meeting of Convention on Nuclear Safety

Meeting date: 11 - 22 April 2005

No.	Posted by	Article	Question / comment	Answer
1	Switzerland	Article7.2	What is the practical meaning of the sentence: “Under the Australian Nuclear Science and Technology Organisation Act 1987 (ANSTO Act), ANSTO is not generally subject to the health and safety laws of the State of new South Wales”?	The provision in the Australian Nuclear Science and Technology Organisation Act means that, in case of potential conflict or multiple requirements between Federal and State law, ANSTO, a federal organisation, need only comply with Federal law. As a federal organisation, ANSTO is subject to federal occupational health and safety legislation, including the Australian Radiation Protection and Nuclear Safety Act. In cases where Federal law does not cover a particular matter (e.g. standards relating to the handling of chemicals), ANSTO implements relevant New South Wales law as a matter of good practice.
2	Switzerland	Article 12	Australia does not mention provisions to prevent, to detect and to correct personnel errors, e.g. a system to analyse incidents to identify the main causes of failures and to determine corrective actions necessary to improve safety.	From the perspective of the operation of HIFAR, there are adequate provisions to report, classify, analyse and address all non conformances, including those occasioned by human performance errors. It is recognised that safety is maintained or enhanced by appropriate corrective actions. Specifically for HIFAR, there is an on line “Event Notification” template which is hyperlinked to the Abnormal and Operating Occurrence reporting system under the HIFAR quality system. More recently, significant abnormal occurrences have been assiduously analysed by way of recognised root cause analysis methodologies. Additionally, it has been normal practice, for some time, to address human performance errors by way of self assessment techniques. The ARPANS regulations and licence conditions require ANSTO to report such events and associated

				<p>analyses to ARPANSA as part of licence holder compliance reporting requirements.</p> <p>With regard to training of reactor operators, for example, there are four phases comprising: Classroom Training, Part 1 Practical Training Classroom Training, Part 2 Re-Training</p> <p>The subject areas are listed in Attachment A, which is posted separately with the file name 'Attachment A Operator Training'. From a definition of safety culture as “that assembly of characteristics and attitudes in organizations and individuals which establishes that, as an overriding priority, nuclear plant safety issues receive the attention warranted by their significance” it can be inferred from the training syllabus that safety culture is interwoven into the fabric of training and operation. The training therefore involves “safety culture aspects”. However it may be that more emphasis on safety culture and its overarching requirement could be given at the early training phase. It should also be noted that the external regulator has carried out a safety culture audit of HIFAR operations and expects to carry out further such audits.</p>
3	Switzerland	Article 9	You write that a contractor to ANSTO was found to be in breach of the Act. How did ARPANSA deal with this contractor? Was he or she punished? What was the sanction or penalty imposed by ARPANSA?	<p>The contractor had proceeded with construction work on the reactor tank prior to the necessary approval by the CEO of a relevant aspect of the design. On identification of the non-compliance, construction was suspended until the CEO completed his investigation of the matter and reached a determination. The contractor was required to implement improvements in project management procedures to strengthen control and supervision of sub-contractors. No sanction was imposed as this was the first occasion of a breach of licence condition and the CEO was satisfied with the contractor’s commitments to improve their processes. The report cited in 9.6 under Article 9 can be accessed at <a href="http://www.arpansa.gov.au/is_idx.htm">http://www.arpansa.gov.au/is_idx.htm</a>.</p>
4	Argentina	General	It is reported that there are a shortage of nuclear science and engineering expertise in	<p>In Australia there is an absence of nuclear science and engineering courses in Australian tertiary institutions. As a consequence, both the operating and regulating organisations need to provide in- house and international</p>

			<p>Australia, available for both operators and regulators.</p> <p>Could Australia provide information about how such shortage impact on the operation and regulation activities?.</p> <p>How is it considered to affect in the near future?.</p>	<p>training and experience for locally recruited scientists and engineers. Some specialist training is gained through attachment of staff to overseas organisations. Both organisations also recruit staff internationally. Additionally, some use is made of contractors, both local and international, to provide specialist expertise as required. From the perspective of the operation of the HIFAR reactor, the reported shortage of nuclear science and engineering expertise in Australia does not have a direct relationship to the routine operation of HIFAR from the present until a projected shutdown in late 2006. A number of reactor operators were recruited and trained over the past few years to ensure an adequate number of operators until final closure of the facility. After some 45 years of operation, the characteristics of the plant are well known and comprehensively documented. The major shutdown in 2004 led to the conclusion that from the nuclear, radiological, metallurgical and engineering perspectives the plant would meet the level of safety of the operating license conditions until late 2006. That is, the ageing of the plant was such that its projected performance characteristics would continue to fall within the requisite safe working envelope. Significant plant changes which may affect the safety case or operating limits and conditions are not contemplated during the remaining life of the reactor. The operating organisation has a strong and proven tradition of in house training for nuclear scientists, engineers, operators and maintainers. This is evidenced, for example, in the HIFAR quality system documentation pertaining to qualifications, training, accreditation and ongoing training. This approach is being extended to the OPAL project, which has seen the recruitment of approximately 20 graduate engineers who have undergone five months in house training, supplemented by overseas technology transfer arrangements. It is recognised that parallel operation of both HIFAR and OPAL will, for a short period of time, require appropriate planning and allocation of resources. ARPANSA recognises the difficulty of maintaining appropriate experience nuclear expertise in a small regulatory organisation and a number of experienced senior staff are approaching retirement age. The regulatory organisation adopts a similar approach to that outlined above for the recruitment, training and use of contract</p>
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				specialist expertise. ARPANSA has an ongoing program of recruitment and training at both the senior and junior level, drawing on both national and international candidates.
5	Argentina	Article 6	<p>It is reported that ANSTO has made no submission to the CEO of ARPANSA seeking the approval to operate HIFAR beyond December 2006.</p> <p>Could Australia provide information about what kind of considerations have been done by ANSTO and ARPANSA regarding the decommissioning of HIFAR reactor?.</p>	<p>ANSTO has created a decommissioning working group to examine the decommissioning of HIFAR. ANSTO intends to submit an application for a decommissioning licence to ARPANSA later in 2005.</p> <p>ARPANSA drafted a guidance document for the review of applications for decommissioning research reactors. The guideline was used for the Moata reactor and could be applied to HIFAR.</p>
6	Argentina	Article 8	<p>It is reported that one of the functions of the CEO of ARPANSA is promotion of national uniformity of radiation protection and nuclear safety policies.</p> <p>Could Australia explain the meaning of “promotion of national uniformity”?.</p>	<p>Australia is a Federation of States in which constitutional responsibility for health and safety rests with the States. ARPANSA regulates radiation protection and nuclear safety in Australian Government organisations. It also develops and promulgates relevant codes and standards through an advisory committee structure in which the State radiation protection authorities participate. The objective is that such codes and standards will be adopted in the respective State administrations, thus achieving national uniformity of practices.</p>
7	Argentina	Article 9	<p>In the national report it is stated that ANSTO has policy documents that detail its health, safety and environmental policies and associated authorities and responsibilities.</p> <p>Could Australia inform the methodology used by ARPANSA to review and accept such policy documents?.</p>	<p>ARPANSA reviews documentation submitted by ANSTO in support of licence applications and of the fulfilment of licence conditions and regulations for a licensed facility. This documentation includes relevant ANSTO policy documentation. In conducting reviews, ARPANSA staff test the information in the documents against the requirements of the ARPANSA Act and Regulations and the criteria in ARPANSA’s guidelines and principles as described under Article 7. The material reported under Articles 10 and 12 is also illustrative of the review methodology.</p>
8	Argentina	Article 10	<p>Could Australia inform the ARPANSA activities in order to supervise the factual compliance of Priority to Safety (safety policy and safety culture and commitments?.</p>	<p>ARPANSA has a regulatory inspection program within its compliance monitoring framework. This includes statement of a compliance monitoring policy and supporting procedures. The objectives of such an inspection program are, among other things, to monitor, assess and verify</p>

				<p>that a licence holder's activities are conducted to ensure radiation and nuclear safety in accordance with the ARPANS Act and Regulations, licence conditions, and applicable standards and codes of practices. These inspections are planned, performed and reported according to approved procedures. In addition, specific licence conditions require quarterly and annual reporting to ARPANSA by the licence holder, providing salient information on conduct of operations, including plant modifications and abnormal occurrences, if any.</p> <p>ANSTO (the licence holder) has implemented safety policies and commitments through a set of formal documents that specify the arrangements of its Safety Management System, complying with the requirements of the applicable ARPANSA licence conditions, in addition to the local procedures. ANSTO's compliance with its safety policies is also checked and balanced by a hierarchy of safety committees (some with external members), which monitor, report, and recommend actions on the safety of operations on behalf of ANSTO's management. Periodically, safety audits are also undertaken to confirm the compliance and adequacy of the existing arrangements and procedures as part of self-regulation within the scope of the Safety Management System. ARPANSA monitor these arrangements instituted by ANSTO, as part of their regular inspection program.</p>
9	Argentina	Article 13	It is reported that requirements have been defined for ARPANSA inspectors, setting out competencies, experience and training standards that must be met through a national accreditation system (Certificate IV in government).	<p>Australia has a national training framework in place. Accreditation through this framework is recognised by Federal, State and Territory jurisdictions. Inspectors are required to have gained, or achieving a Certificate IV in Government (Statutory Investigation and Enforcement), under the supervision of a nationally Registered Training Organisation that is recognised under the national training framework</p> <p>Accreditation requirements for ARPANSA Inspectors are set out in the attachment 'ARPANSA Regulatory Inspection Policy', which has been posted separately.</p>

10	Argentina	Article 13	<p>It is stated that ARPANSA's Regulatory Branch is in the process of developing a quality system for regulatory activities.</p> <p>Could Australia inform the scope of the quality system programme and the scheduled activities?.</p>	<p>The structure and progress in developing a quality system for regulatory activities can be seen from the charts in the attachment 'ARPANSA Regulatory Quality Framework', which is posted separately.</p>
11	Argentina	Article 14	<p>It is reported that the CEO of ARPANSA approved the use of LEU fuel for HIFAR reactor.</p> <p>Could Australia inform about the ARPANSA criteria that was used to approve the new fuel?.</p>	<p>ARPANSA reviewed the ANSTO submissions and supporting information against the US Nuclear Regulatory Commission document: 'Format and Content for HEU to LEU Conversions at Non Power Reactors (Appendix 18.1-Nureg 1537-1996)'. Use of this document ensured a comprehensive review of safety matters arising from the proposed changes. The Regulatory Branch review is summarised in an attachment to this letter and is outlined below.</p> <p>The review addressed mechanical performance, reactor physics, thermal hydraulic characteristics, operational matters, safety analyses and operational limits and conditions. In summary, the ARPANSA reviewers were satisfied that there are few significant safety implications associated with the change from HEU to LEU, or a mixed reactor core in HIFAR. The main safety implications are the increased safe time (time at which the fuel elements retain integrity in a dry reactor tank) which sets the time following reactor shutdown for parameters associated with an accident with drains the Reactor Aluminium Tank, and the decay time for the LEU fuel before removal from the core to fuel transfer flasks (time at which the fuel elements retain integrity in an uncooled fuel transfer flask).</p>
12	Argentina	Article 18	<p>It is reported that ARPANSA was satisfied that, although HIFAR does not fully satisfy modern nuclear practice, the SAR demonstrated substantial compliance with Regulatory Assessment Principles for defence-in-depth.</p>	<p>Annex 1 to Australia's National Report summarises ARPANSA's findings from its review of the updated safety analysis report submitted by ANSTO in support of a licence application in 2001. This outlines the basis for ARPANSA's decision to licence HIFAR for continued operation for a limited period. Factors balancing the 1950s based design were the design conservatism, the safe and reliable operation of DIDO-type reactors</p>

			<p>Could Australia give examples of HIFAR practice that does not satisfy modern nuclear practice?.</p>	<p>almost continuously over decades of time, the refurbishment and upgrading of HIFAR systems and the intensive safety analysis undertaken, including a comprehensive probabilistic safety assessment.</p> <p>Examples or HIFAR that do not satisfy modern nuclear practice include: lack of physical separation of control and safety systems; structural coupling of the ReactorBlock and Containment Building; inability to inspect important safety components such as the outside of the Reactor Aluminium Tank and the Reactor Steel Tank; and the Control Room being located inside the Containment Boundary.</p>
13	Argentina	Article19.6	<p>The ARPANS Regulations (Schedule 3 Part 1) require ANSTO to demonstrate that limits of normal operation and anticipated operational occurrences and safety system settings for HIFAR, including the minimum plant configuration, are determined from safety analysis and that HIFAR operation is constrained within the demonstrated safety envelope (Regulatory Principles 63 and 64 address these requirements).</p> <p>Could Australia explain the meaning of "minimum plant configuration"?</p>	<p>Minimum Plant Configuration is defined as the minimum summary set of HIFAR systems important to safety (including Engineered Safety Provisions, the Reactor Protection system and the Instrumentation Power Supply System etc) that must be operable during specified reactor states. The Minimum Plant Configuration also defines the maximum allowable time for at each system may be inoperable during any yearly period.</p> <p>A table of the MPC can be provided if required.</p>
14	France	General	<p>The reports reviewed by France in view of the third peer-review meeting were all examined according to a standard list of issues derived from the obligations of the Convention. If an issue appeared to be covered in an incomplete way by the report of a Contracting Party, this led to a question</p>	<p>Australian notes the comment.</p>

			or comment. However France recognizes that the corresponding information may be available in other existing documents.	
15	France	General	The report is build as a stand alone, giving also the information having not changed since the second report, which makes it easy to review, however it seems that a lot of references have not been updated (footnotes p. 6-7, all references given page 62 date 2001 and	Australian notes the comment.
16	France	Article7.2.3	The report could have been illustrated with some statistics regarding the number and the main topics of inspections performed during the current period: this would facilitate the understanding of the main current safety issues and possibly help other country with research reactors.	<p>About ten planned inspections are conducted each year and additional reactive inspections are conducted in response to incidents. Inspections have covered aressuch as:</p> <ul style="list-style-type: none"> <li>-audits of operating log books (one per quarter),</li> <li>-I licence holder implementation of maintenance procedures,</li> <li>-modifications to plant and procedures,</li> <li>-licence holder inspections of plant and equipment, particularly during the four-yearly major shutdown</li> <li>-investigations of abnormal occurrences.</li> </ul> <p>More information about these inspections can be found in ARPANSA annual and quarterly reports to Parliament on the ARPANSA web site at: <a href="http://www.arpansa.gov.au/annualrpt.htm">http://www.arpansa.gov.au/annualrpt.htm</a>, and <a href="http://www.arpansa.gov.au/qtrlyrpts.htm">http://www.arpansa.gov.au/qtrlyrpts.htm</a></p>
17	France	Article8.1	The report does address the qualification and training of inspectors. Some information in that field, together with the knowledge transfer to young generation and possible related issues	Australia has a national training framework in place. Accreditation through this framework is recognised by Federal, State and Territory jurisdictions. Inspectors are required to have gained, or achieving a Certificate IV in Government (Statutory Investigation and Enforcement), under the supervision of a nationally Registered Training Organisation

			would be appreciated.	<p>that is recognised under the national training framework</p> <p>Accreditation requirements for ARPANSA Inspectors are set out in the Regulatory Inspection Policy in Attachment C below.</p> <p>See Attachment C 'Regulatory Policy on Regulatory Inspections Policy' posted separately.</p>
18	Germany	Planned Activities	<p>We would greatly appreciate if Australia could cover this topic in its presentation within the Country Group session at the coming Review Meeting. / The report gives full details on formal and factual compliance of Article 19 regarding the HIFAR research reactor. Although construction and commissioning of the RRR is still under way, some information on the implementation of Article 19 regarding the RRR would have been appreciated.</p> <p>In particular, as mentioned in "Planned Activities" item 3, this is among Australia's regulatory challenges in the very near future.</p>	<p>Australia appreciates the positive interest expressed by Germany in the implementation of the RRR project. An application for an operating licence which contains the information referred to under this Article 19 is under current review by ARPANSA.</p> <p>The regulatory process includes:</p> <ul style="list-style-type: none"> <li>- inviting the public to comment on the application and, in making a decision, the CEO of ARPANSA must take into account matters raised by the public,</li> <li>- a public forum convened by the CEO of ARPANSA,</li> <li>- peer review of the application by a team of international experts against IAEA guidance,</li> <li>- advice from the ARPANSA Nuclear Safety Committee,</li> <li>- technical review by ARPANSA.</li> </ul> <p>Further commentary would be premature at this time. Australia will report on this matter in its next report.</p>
19	Germany	Article 14.2	<p>ANSTO carries out a program of maintenance, periodic testing and inspection and has demonstrated this to ARPANSA's satisfaction.</p> <p>Is such a program based on regulatory guidelines, requirements or other</p>	<p>The existing requirements for HIFAR maintenance, periodic testing and inspection are defined in HIFAR Licence Condition #14, which states "The licence holder must develop, maintain and implement arrangements acceptable to the CEO [Chief Executive Officer of ARPANSA] for a program of maintenance, periodic testing and inspection activities that will enable the controlled facility to be operated safely. The activities</p>

			<p>principles?</p> <p>Is the program for maintenance and periodic inspection (testing schedule and testing procedures) to be approved/agreed by ARPANSA?</p>	<p>must be carried out in accordance with written procedures. The arrangements must provide for regular review of the program and appropriate modification with respect to any problems identified”.</p> <p>These requirements reflect international best practice as defined in IAEA guidelines, and were developed from and adhere to ARPANSA’s Regulatory Assessment Principles. ANSTO has responded to these requirements by the preparation of various Procedures which require review and, in some cases, prior approval by the Regulator ARPANSA (for example for safety category 1 modification to plant or procedure, and four-yearly major shutdown maintenance and inspection activities). These Procedures call up subsidiary Instructions and Forms to enable the work to be described and controlled in detail.</p>
20	Germany	Article 19	<p>Although construction and commission of the RRR is still under way, some information on the implementation of Article 19 regarding the RRR would have been appreciated. (see also comment under "Planned Activities") / The report gives full details on formal and factual compliance regarding the HIFAR research reactor.</p>	<p>Australia appreciates the positive interest expressed by Germany in the implementation of the RRR project. An application for an operating licence which contains the information referred to under this Article 19 is under current review by ARPANSA.</p> <p>The regulatory process includes:</p> <ul style="list-style-type: none"> <li>- inviting the public to comment on the application and, in making a decision, the CEO of ARPANSA must take into account matters raised by the public,</li> <li>- a public forum convened by the CEO of ARPANSA,</li> <li>- peer review of the application by a team of international experts against IAEA guidance,</li> <li>- advice from the ARPANSA Nuclear Safety Committee,</li> <li>- technical review by ARPANSA.</li> </ul> <p>Further commentary would be premature at this time. Australia will report on this matter in its next report.</p>

21	Germany	Article19.6	<p>Regulation 46(2) (c) concerns reporting requirements.</p> <p>Are there any technically-based reporting criteria in place defining which incident is to be reported?</p>	<p>ARPANSA Regulation 46(2)(c) concerns reporting requirements. Compliance with Regulation 46(2)(c) and other ARPANSA guidelines on reporting requirements is ensured through one of the 55 standard licence conditions of the ARPANSA-issued Licence Condition Handbook, as part of a Facility Licence applicable for a specific facility (such as HIFAR).</p> <p>Under the HIFAR quality system, there is a specific procedure on handling of abnormal or operating occurrences to comply with the requirements specified in the Licence Condition Handbook. This procedure includes categorisation of any event based on "technically-based criteria" (with specific examples cited in the procedure as guidance). The procedure is based on the INES scale to the extent applicable, with some modifications made at the bottom-end of the Scale. The reporting requirements (and the applicable time-frame) are linked to the individual categories of the events fulfilling the ARPANSA requirements.</p>
22	Germany	Article19.7	<p>Regulations refer to operating experience both within the organisation and internationally.</p> <p>How does the licensee of HIFAR (and future RRR) implement internationally gained safety experience?</p>	<p>ANSTO and ARPANSA staff often participate in international agency (IAEA, NEA) activities, supply comments to draft documents and guidelines, and use guidance from those organisations. Staff attend, participate in, present papers at and sponsor various international conferences in a range of safety disciplines.</p> <p>Additionally, ANSTO staff undertake "technology transfer" attachments of varying lengths to overseas organisations where direct experience is gained. This experience is then fed back into the organisation through appropriate allocation of project work.</p> <p>Until recently when reactors similar to HIFAR shut down, DIDO class reactor users maintained a close network to gain from each others operational and safety experience .</p> <p>Australia has recently joined the IAEA Research Reactor International</p>

				Incident Reporting System so as to contribute to, and gain from, the internationally gained research reactor safety experience.
23	Germany	Article 12	<p>The mentioned principles related to human resources and their factual compliance do not describe human factor programs.</p> <p>Are there any requirements in place and corresponding programs by the licensee to deal with MTO (man - technology - organisation) subjects?</p> <p>Is there a program to review and evaluate HF-related events and incidents?</p>	<p>This response addresses the Human Factors (HF) requirements and plans used in the design and construction of the OPAL reactor, and will also touch on future HF requirements and plans once OPAL is operational. The Human Factors Program at OPAL is a dynamic program that has been part of the project from its inception, and will continue on until the plant is decommissioned. The ANSTO HF program has been developed to ensure the human machine interface is done in the best possible way to avoid operational/maintenance errors as a result of a poor design. ANSTO developed its HF requirements and plans to satisfy ARPANSA's HF requirements, which are detailed in ARPANSA documents RB-STD-42-00 Rev1 and RB-STD-43-00-Rev1. These HF requirements were accepted by INVAP and used as the basis for their design HF plans. INVAP's HF Design Plans have been reviewed by ANSTO and ARPANSA and include a Human Machine Interface Plan. The Human Factors commitments are defined in various sections of the SAR. ANSTO's HF independent Design Review Plan is a stand alone document and has been reviewed by an independent HF expert, AXIOM Technology Corporation. ANSTO has also received formal HF training from AXIOM Technology Corporation. The training received from Axiom was entitled "Fundamentals of Human Factors Engineering for I&amp;C Design and Evaluation". This training was based on the Nuclear Regulatory Commission's guides NUREG-0700, 0711 and 0800. Whilst these guides largely cover I&amp;C only, there are also sections dealing with plant ergonomic issues relating to operations and maintenance needs. The ANSTO plan has been and will be initially used for the design, manufacture, installation and commissioning stages of the project, then will be revised and included in the plant design modification procedures to ensure that future plant changes have been thoroughly analysed from a HF perspective. This will be a multi-disciplinary review on all design modifications. The operator is required by the Regulations and a licence condition to analyse the causes of incidents (abnormal safety occurrences) and lessons learned, and to report this information to the regulator on a quarterly basis. The regulator reviews and, if serious, investigates the incidents and classifies them as plan or human factor related. This</p>

				<p>information is reported in ARPANSA's quarterly and annual reports to Parliament, which can be found on the ARPANSA web site at: <a href="http://www.arpansa.gov.au/annualrpt.htm">http://www.arpansa.gov.au/annualrpt.htm</a>, and <a href="http://www.arpansa.gov.au/qtrlyrpts.htm">http://www.arpansa.gov.au/qtrlyrpts.htm</a></p>
24	Germany	General	<p>The Australian Report is exhaustive and gives a complete description on how the obligations of the Convention are fulfilled. In particular, the presentation of formal and factual compliance is highly appreciated. This can be an example of good practice worth to be included into the Guideline regarding National Reports under this Convention.</p>	<p>Australian notes and appreciates the comment.</p>
25	Germany	Article 14.1	<p>The Regulatory Assessment Principles provide periodic reviews. Are these reviews comparable to a Periodic Safety Review (PSR) as understood world-wide and described in the respective IAEA Safety Standards documents?</p>	<p>The relevant Principles require the operating organisation to conduct periodic reviews throughout the life of the reactor to confirm that changes to the design and operation of the facility do not invalidate the assumptions and conditions upon which the safety analyses are based. These are comparable to the Periodic Safety Review (PSR) as understood world-wide and described in respective IAEA Safety Standards documents and the Principles are based on those documents.</p> <p>HIFAR has been the object of ongoing safety analysis and review during its operating lifetime, with intensive work, including a thorough revision of the safety analysis report and development of a probabilistic assessment during the last decade. The outcomes are reported under Article 14. It is considered that this is comparable to a Periodic Safety Review.</p>
26	Germany	Article 11.2	<p>High standards of human performance and competence are expected. Training and accreditation of the control room operators at the HIFAR to operate the</p>	<p>From the perspective of the operation of HIFAR the external regulator has required that "Staff selection and training emphasise inherent abilities, qualification, personal integrity, and a responsible attitude (Principle 7)."</p>

			<p>reactor is described exhaustively under Article 12, although such descriptions are expected under Article 11.2.</p> <p>Are there any regulatory guidelines in place that lay down in detail the qualification requirements as well as retraining requirements for operators at research reactors?</p>	<p>More specifically, Standard Licence Conditions require the operating organisation to make and implement arrangements acceptable to the CEO of ARPANSA setting out: the competencies required by operators at research reactors; the qualifications, experience and training to achieve these competencies; as well as periodic retraining to retain the competencies. ARPANSA reviews these arrangements against its Regulatory Assessment Principles and IAEA guidance documents.</p> <p>The current arrangements for training and accreditation are described in the Report under Articles 11.2 and 12. These arrangements have proved to be appropriate for HIFAR. Arrangements relating to the replacement reactor are being reviewed by ARPANSA in the context of ANSTO's application for an operating licence.</p>
27	Switzerland	Article 15	<p>Following information is missing:</p> <p>a. Fulfilment of release conditions.</p> <p>b. Calculated doses on the basis of annual emissions for a person of the most exposed group of the population.</p> <p>b. Environmental monitoring. Please give the missing information.</p>	<p>All the required information including compliance data and monitoring results, with respect to airborne and liquid effluent environmental releases, are contained in a publicly available annual report (termed the E-report). The most recent report is: 'Environmental and Effluent Monitoring at ANSTO sites, 2003-2004' (ANSTO report E-755) E. Hoffmann, J. Ferris, J. Harrison and T. Loosz.</p> <p>ANSTO calculates the airborne dose to hypothetical most-exposed population groups and reports these in the annual E-report. In 2003-04, the estimated airborne dose to a person living at the boundary of ANSTO's 1.6 km buffer zone was at most 0.004 mSv/year. This is well below ANSTO's ALARA objective (0.02 mSv/year) and less than 1% of the public dose limit (1 mSv/year). The airborne group is the most exposed, since the dose from ANSTO's liquid effluent is approximately a tenth of airborne dose.</p> <p>Airborne radioactive discharges- An ARPANSA condition of the facility licences issued to ANSTO requires the monitoring of all airborne radioactive discharges. The measured results are compared with notification levels set in the Airborne Radioactive Discharge Authorisation of May 2001. The notification levels are set such that if all airborne</p>

				<p>releases were at the annual notification level, the radiation dose to the most exposed hypothetical member of the public would be no greater than 20 microsieverts per year from the Lucas Heights site or 10 microsieverts from the National Medical Cyclotron at Camperdown. These values are 2% and 1% respectively of the annual dose limit for a member of the public. A further requirement is that ANSTO ensure that all doses are as low as reasonably achievable.</p> <p>CONTINUED NEXT PAGE</p> <p>CONTINUED -The release of xenon-133, a by-product from radiopharmaceutical production, from Building 54 increased during the 2003-2004 reporting period compared to previous years. This was primarily due to a larger release during November 2003. Consequently, the discharge for the respective four-weekly reporting period exceeded the notification level, which is set at 20% of the annual level. The quarterly notification level, set at 50% of the annual level, for this period, along with the annual level was also exceeded as a result of the discharge.</p> <p>In accordance with the Discharge Authorisation, ANSTO informed ARPANSA of the large discharge and subsequent exceeded notification levels. ANSTO temporarily halted radiopharmaceutical production in order to investigate the release. Consequently, the amount of radiopharmaceutical produced in each run was slightly decreased. The subsequent discharges of xenon-133 from Building 54 have been less than the notification level. The increase in release of this single isotope was important in that it indicated a change in the manufacturing process that needed to be investigated. However, it did not add discernibly to the annual radiation dose to members of the public from all airborne discharges, which was assessed by ANSTO at less than four microsieverts.</p> <p>Liquid radioactive discharges- Liquid discharges from the Lucas Heights site are authorised by Sydney Water under a Trade Waste Agreement which is reviewed and accepted by ARPANSA. This specifies limits on the concentration of radioactive materials in the effluent at the Cronulla Sewage Treatment Plant and the concentrations of radioactive materials at the discharge point in Lucas Heights to ensure compliance with the World Health Organisation Guidelines for Drinking Water Quality (1993).</p>
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				<p>The concentrations of radioactivity in liquid discharges from the site for the year were within the discharge limits. The amount of tritium released was similar to average annual historical levels.</p> <p>More information about these matters can be found in ARPANSA annual and quarterly reports to Parliament on the ARPANSA web site at: <a href="http://www.arpansa.gov.au/annualrpt.htm">http://www.arpansa.gov.au/annualrpt.htm</a>, and <a href="http://www.arpansa.gov.au/qtrlyrpts.htm">http://www.arpansa.gov.au/qtrlyrpts.htm</a></p>
28	Korea, Republic of	Article 13	<p>Since 1999, KINS has reviewed ISO9001-1994 and ISO9001-2000 to decide whether it would be applicable to safety related items or related works in nuclear power plant.</p> <p>KINS, however, found them inappropriate to be applied for nuclear quality assurance requirement in Korea, because the aim of those standards are not to ensure safety but to obtain customer satisfaction.</p> <p>In Australia, did the regulatory authority present supplemental requirements and/or exceptions on Quality Management System Requirements of ISO9001 when it was applied to nuclear safety related items or works? If yes, what are they?</p>	<p>It is recognised that ISO 9001 does not explicitly address safety. This has been addressed through the application of Standard Facility Licence Conditions (55 in all). Many of these can be addressed by application (sometimes in enhanced form) of ISO 9001 and ISO 14001 requirements but the licence applicant's quality management system must also address conditions related to: various requirements for reporting and providing documents to the CEO ARPANSA; safety analysis and approvals; radiation protection arrangements; operating limits and conditions; transport arrangements; radioactive waste management; security; emergency arrangements; and decommissioning.</p>
29	Latvia	Article 16	<p>Could you provide information about bilateral agreements related to emergency preparedness (e.g. on early warning and assistance)?</p>	<p>Australia has no common land border with other countries and Australia's nuclear facilities are remote from any other country (1,200 km at least). Similarly, the nuclear facilities of neighbouring countries are remote from Australia. As a consequence, there are no bilateral agreements related to emergency preparedness.</p>

30	Latvia	Article 6	HIFAR SAR, updated in 2002, and PSA .. This could be recognised as a good practice for research reactors to use similar approach as for NPPs in safety assessments and licensing.	Australian notes and appreciates the comment.
31	Latvia	General	There are information on safety issues arising from the last report and summary of significant matters. This could be recognised as a good practice to facilitate peer review	Australian notes and appreciates the comment.
32	Latvia	General	Well structured and easy readable report	Australian notes and appreciates the comment.
33	Latvia	Article 19.1	Are there any plans to increase these limits - current limits are very conservative? / Discharges from Lucas Heights .. levels of radioactivity comply with WHO .. Limits for drinking water	No. Current actual discharges result in levels of radioactivity at the sewage treatment plant which are approximately 10-15% of the World Health Organisation's derived concentration limits for drinking water. In those circumstances, there is no need to seek an increase in the limits.
34	Singapore	Article 14.1	Is the submission of a detailed decommissioning plan for the HIFAR a prerequisite for the approval of the licence for the RRR?	The replacement Research Reactor is being constructed on the understanding that HIFAR will be shutdown by the end of 2006. Conditions associated with the decommissioning of HIFAR are attached to the HIFAR licence. HIFAR must obtain a decommissioning licence in order to undertake that activity and it is expected that an application for such a licence, with a detailed decommissioning plan, will be submitted to ARPANSA within the next year.
35	Singapore	Article 8.1	Is ARPANSA free to adjust licence fees to meet with rising operating cost? Is there any plan in the future for ARPANSA to be fully self-funding?	When ARPANSA was established under the ARPANS Act 1999 it was intended that ARPANSA's regulatory functions should be fully self-funding. To achieve this application fees and annual licence charges were prescribed in Regulations. These regulations can, and have, been amended to change fees and charges. However, the Regulations are 'disallowable instruments' and must lie before Parliament for 15 sitting days during which time they may be 'disallowed'.

36	Germany	General	<p>/ Australia does not operate nuclear installations as defined by the Convention, but operates a research reactor. A new research reactor (RRR) is under commissioning.</p> <p>All obligations by the Convention are regarded as being applicable to research reactors as well. With reference to the recommendations of the IAEA "Code of Conduct on the Safety of Research Reactors", this is considered as exceptionally good practice.</p>	
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