



Questions posted in meeting - Fourth Review Meeting of the Convention on Nuclear Safety

Meeting date: 4-25 April 2008

No.	Posted by	Article	Question / comment	Answer
1	Argentina	General	Australia has provided a complete and comprehensive report showing the formal and factual compliance of the articles of the Convention.	We thank Argentina for this feedback.
2	Argentina	Article 7.1	<p>It is stated that six other license conditions were imposed by the CEO of ARPANSA at the time of the OPAL license was issued.</p> <p>One of them is "Safety culture and safety performance indicators to support continuous improvement".</p> <p>Argentina is keen to learn more about the definition and applications of these indicators.</p> <p>Could Australia bring details of the inspection plan that is applied in the OPAL reactor?</p>	<p>The safety performance indicators the subject of this licence condition are still under consideration and development by ANSTO. ANSTO have indicated that safety culture and safety culture indicators (SPIs) should have the following attributes:</p> <ol style="list-style-type: none"> 1. SPIs should have unambiguous definitions with clear guidelines for calculations; 2. SPIs should be unambiguous; 3. SPIs should lead to timely indications of safety degradation; 4. SPI reporting periods should allow for timely corrective action; and 5. SPIs should incorporate or refer to existing international systems where possible to allow comparison with other facilities. <p>The inspection program that ARPANSA currently applies to OPAL is focused on the implementation of the OPAL Business Management System, the implementation of the regime for</p>

				<p>maintenance and management of the OPAL reactor. During commissioning, the focus of inspection was on verification of the commissioning activities. Inspections are carried out on average each two weeks.</p>
3	Argentina	Article 14.1	<p>It is stated that ARPANSA received an application from the ANSTO for a facility license to possess or control the HIFAR. The application is the first step in the regulatory process leading to the eventual decommissioning of the reactor.</p> <p>Please could Australia bring more detailed about the scope of the "license to possess or control the HIFAR"?. Which are the mean responsibilities of the license-holder during this stage?.</p>	<p>The scope of the licence to possess or control HIFAR will be limited to those activities that are preparatory to decommissioning – it is the “safe enclosure” period, during which some decay will occur. “Possession or control” also encompasses the characterisation of the facility, in order that the eventual decommissioning strategy may be determined. It does not cover dismantling of the reactor itself, although it does include dismantling of non-contaminated or activated items. The dismantling of the reactor itself will need to be the subject of an application for a licence to decommission the reactor, which is anticipated in some 10 years’ time.</p>
4	Croatia	Article 16.3	<p>Does Australia have any procedure for treating the presence of a vessel with nuclear propulsion in its territorial waters? Also, does Australia have a procedure for response to possible accidents that might happen on the nuclear installations of that vessel?</p>	<p>Australia has detailed plans and arrangements to allow visits to Australian ports by foreign vessels with nuclear propulsion. These plans cover the arrangements for the response to a radiation emergency in the unlikely event of an accident during such a visit at an Australian port that may result in the release of radioactive material. These arrangements do not cover accidents on vessels with nuclear propulsion that are transiting Australian territorial water. There are plans and arrangements in place to deal with accidents involving ships passing through Australian waters that are carrying radioactive material, such as spent fuel or other radioactive waste. While these plans are not specifically for response to an accident involving a nuclear powered vessel, it is likely that elements of these plans would be invoked in the event of such an incident occurring, in order to protect the Australian public and the marine environment.</p>

5	Czech Republic	General	<p>We appreciate very much that in spite of the fact Australia, currently having no NPP, has been presenting its regulatory activities concerning its research reactors – HIFAR, Moata and OPAL (including IRRS in 2007). It gives an opportunity to get information about current status of nuclear safety in Australia and its preparedness for future choice of nuclear option.</p>	We thank the Czech Republic for their feedback.
6	Germany	General	<p>Australia has no nuclear installations as defined by the Convention, but research reactors. A new research OPAL was commissioned.</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>	We thank Germany for this feedback.
7	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. Likewise, the Introduction including a summary of safety issues and significant matters since the last report is very helpful.</p> <p>This can be an example of good practice worth to be included into the Guideline regarding National Reports under this Convention.</p>	We thank Germany for this feedback.
8	Germany	Article 10	<p>The report makes reference to specific requirements within Australia's regulatory guidelines. The following is considered as an excellent and commendable practice:</p> <p>"The Regulatory Guidelines on Plans and</p>	We thank Germany for this feedback.

			<p>Arrangements, against which licence applications are assessed, state:</p> <p>The Licence Holder or Applicant is responsible for establishing safety as the organisation's highest priority, consistent with international best practice in radiation protection and nuclear safety and overriding, if necessary, the demands of production or project schedules."</p>	
9	Germany	Article 19.7	<p>At the 3rd Review Meeting operation experience feedback, in particular international, has been an important issue. What measures for communicating operation experience besides reporting on incidents are established? Is operation experience from other countries reviewed and how is it used to implement any lessons learned?</p>	<p>OPAL events, including near-misses, are reviewed by the OPAL Safety Review Meeting, at which all group and section heads attend. It is the responsibility of group and section heads to disseminate experience gained from these event reports to personnel within their work areas.</p> <p>OPAL has a collaboration agreement with two other research reactors (Petten in The Netherlands and Safari in South Africa) that includes the sharing of operational experiences and lessons learnt. The management team also monitors reports from other nuclear facilities on an ad hoc basis to assess their relevance to OPAL. Where a lesson can be learnt, the management team will initiate appropriate actions to implement improvements.</p>
10	Hungary	Article 18.3	<p>Assessment of the SAR together with the reviewing the specific Request for Approval (RFA) for construction under regulation 54 and License Condition 4.6. Systems, structures and components (SSC) important to safety were the main review task for ARPANSA during the period from submission of the last report until the issue of the Operating License in July 2006. In practice the timing of the submission was determined by the detailed OPAL construction schedule. This was affected by such factors as lead times for acquisition of materials or components, and whether items were to be</p>	<p>At this time ARPANSA is confident that this review process is important and the actual licensing procedural requirements are appropriate.</p>

			<p>embedded in the structure and so forth.</p> <p>Q: Taking into consideration this experience is it not necessary to review the licensing procedure requirements, which are related to the modification approval of system structures and components?</p>	
11	Hungary	Article 18.3	<p>Changes emerged as the OPAL detailed engineering design was finalized and fabrication and installation methods were considered.</p> <p>The most significant approval for changes were:</p> <ul style="list-style-type: none"> • redesign of the flap valves and siphon effect breakers in the primary and pool services cooling system • change of control rod material from silver-iridium-cadmium to hafnium • deletion of the reactor trip on loss of pneumatic target cooling <p>Q: Is there any relationship between the many significant changes accomplished and the event which occurred in July 2007?</p>	<p>The root cause analysis of the fuel displacement event that occurred in OPAL in July 2007 shows that a fundamental cause was a design change to the fuel. The original design had slots for the fuel plates at the bottom and not at the top, thus effectively providing a stopper mechanism. When the design was changed in consideration of structural design factors, those slots were moved to the top of the element, thereby unintentionally facilitating the subsequent vertical movement of fuel plates. The significance of this design change was not realised at the time.</p>
12	Czech Republic	Article 18.1	<p>Construction permit is issued on the basis of PSAR and other documents (for OPAL in 4/2002). Besides that there were issued 151 Request for Approval (RFA). Can you please describe in more details how RFAs have been issued and on what basis have been RFAs (SSCs) selected?</p>	<p>The construction licence was subject to a number of licence conditions including one imposed by the regulations. This regulatory licence condition required the operator to seek the approval of the Regulator before proceeding to construct "an item important for safety". These items important for safety were structures, systems and components that were categorised as safety category 1 and safety category 2 items. The operator was required to submit detailed engineering documents for approval to the regulator prior to the actual construction (manufacture, installation and cold</p>

				commissioning) being carried out.
13	Euratom	Article 16.3	Has Australia participated in any emergency preparedness exercises conducted by international organizations during the last three years? What were the "lessons learned"?	Australia participated in the recent IAEA ENAC ConvEx2 exercises. The principal lessons learnt were related to the need for robust and properly documented notification procedures between the Australian Contact Points. Australia also participated in the May 2007 IAEA RCA Exercise at Chernobyl, where problems were encountered with the mode of communication between the Australian field teams and the Competent Authority (ARPANSA). Consequently, we are reviewing how this might be managed better in future.
14	Japan	Article 16.2	Although licensees have primal responsibilities for their activities on nuclear fields, the Authority has a responsibility to notify to public and protect them from nuclear emergency. What measure does ARPANSA develop for public relations in nuclear emergency state?	In Australia, emergency planning is generally a responsibility of the states and territories, not the national government. As indicated in paragraph 16.11 of the report, there are State-level emergency plans covering the ANSTO site. Under those plans, the response to a nuclear emergency at ANSTO is coordinated initially by ANSTO and New South Wales state government agencies and includes notification of and communication with the public. Should these agencies become overwhelmed, national incident response arrangements can be triggered. ARPANSA's responsibilities under these arrangements include providing specialised support and technical advice to government agencies and Ministerial offices and providing the Australian Government spokesperson on radiation-related issues (the CEO of ARPANSA).
15	Czech Republic	Article 15	In spite of the fact that Convention on Nuclear Safety is related to the land-based civil nuclear power plant, Australia has elaborated detailed description of its approach to the radiation protection with Australian	The Australian regulatory framework puts in place the ALARA objectives as enforceable licence conditions within the regulations themselves. Breaches of these provisions are offences under the regulatory framework and may attract

			<p>research nuclear facilities.</p> <p>There is ALARA assurance of the radiation protection described in Australian report. However, it would be useful to know what are the technical and organizational means and tools providing law enforcement. Are there any monitoring programs for OPAL reactor operation, for instance?</p>	<p>penalties for breach of licence conditions. Monitoring of the OPAL reactor occurs under the facility licence authorising OPAL operations and through a regime of both announced and unannounced inspections. These inspections monitor compliance with the authorisation under the licence and conditions of licence.</p>
16	Germany	Article 14.1	<p>It is mentioned in the report that the Safety Analysis Report (SAR) must include deterministic safety analyses, and may be supplemented by probabilistic assessments. Are there plans to make probabilistic risk assessments mandatory for SAR both for licensing and for the Periodic Safety Review? If yes, what kind of guidance will be established by ARPANSA? Has a PRA been performed for the OPAL reactor and what were the results?</p>	<p>Although there is no actual mandatory requirement for probabilistic assessment to be conducted for licensing of a reactor, the regulatory guidelines (i.e. Regulatory Assessment Principles) specify an acceptable frequency of significant damage to the core. This results ipso facto in probabilistic safety assessments being undertaken (although the first PSA for HIFAR was conducted prior to the promulgation of the Regulatory Assessment Principles, and indeed prior to the creation of ARPANSA).</p> <p>In the case of the OPAL reactor, the core damage frequency (CDF) was assessed as being 1.7×10^{-7} per annum. By comparison, the CDF for HIFAR reactor was 2.6×10^{-4} per annum.</p> <p>ARPANSA is currently in the process of developing regulatory guidance regarding the Periodic Safety Review for research reactors. This guidance will define ARPANSA expectations in relation to both the deterministic analyses presented in the updated SAR as well as to the probabilistic risk assessments supplementing the SAR.</p>
17	Germany	Article 13	<p>Does the supervisory authority control the results of internal audits performed by the plant operator and the implementation of measures derived from it within the framework of on-site inspections?</p>	<p>Whilst the implementation of recommendations arising from internal audit is the responsibility of the operator, ARPANSA as the Australian regulatory authority undertakes inspections to assess the extent to which the recommendations that</p>

				<p>affect radiation protection or nuclear safety have been implemented by the operator.</p>
18	Germany	Article 13	<p>Do documented procedures exist which describe the initiation of corrective measures in case of non-compliance with the quality requirements?</p>	<p>ANSTO Reactor Operations, like every other ANSTO division, is certified to ISO 9001:2000. In the case of the Reactor Operations Business Management System, there is a high level process procedure (OP 02: Monitoring, Measurement and Improvement) that details how non-conformances are identified and how corrective and preventative actions are implemented.</p>
19	Germany	Article 13	<p>How is it ensured that contractors and subcontractors for supplies and services fulfil QM-requirements?</p>	<p>The legislation that establishes the Australian regulatory framework for nuclear safety makes clear that the regulatory jurisdiction covers contractors to licensed entities. Both the operator and the contractor may be required through licensing including licence condition requirements to ensure that QM requirements are fulfilled.</p>
20	Germany	Article 8.1	<p>The ARPANSA Regulatory and Policy Branch has 31 staff. Please explain whether ARPANSA performs all technical review activities within the regulatory duties by itself, or makes additional use of TSOs.</p>	<p>Whilst the majority of technical review activities are undertaken by the regulatory licensing staff of ARPANSA, from time to time the scientific and technical staff of other parts of ARPANSA (such as environmental radioactivity experts) are called upon in relation to particular regulatory assessments.</p> <p>Where specialist expertise is not available in-house on specific areas, ARPANSA also seeks technical advice from local and international experts through consultancy services.</p>
21	Germany	Article 8.1	<p>The report states that the shortage of nuclear science expertise, already mentioned in the 2004 report, continues. As this seems to be the case in many other countries, what are your expectations in the near</p>	<p>There is a significant shortage of nuclear safety expertise in Australia. Recent recruitment has been from overseas. International exchange of experts and recruitment internationally will continue to be required to service this</p>

			future for Australia nation-wide and what is your view on international exchange and co-operation of experts in order to make progress?	need in Australia.
22	Czech Republic	Article 8.1	<p>Taking into account to size of Australia one can assume that ARPANSA has besides headquarter office also regional offices.</p> <p>Please give more information about distribution of competencies (authorities) among them.</p>	<p>ARPANSA has two offices in Australia, both located in capital cities. The regulatory licensing staff are in a single location, and undertake regulatory activities throughout the whole of Australia. It should be noted that the Australian States and Territories regulate users of radiation, other than national government agencies such as ANSTO.</p>
23	Germany	Article 7.2.2	<p>Australia reports that there was a shift in licensing style. What are your actual experiences on the effectiveness of this shift? Can it be demonstrated that the responsibility of the licensee has been further developed by this shift and by what means can ARPANSA assure itself on any positive commitment made by ANSTO?</p>	<p>The shift in licensing style is away from a prescriptive approach to regulation to a more outcomes-based approach that emphasises the responsibility of the operator to maintain nuclear safety. The effectiveness of this shift is demonstrated in the development of ANSTO's approach to the internal management of safety and the focus by the regulator on the outcome of the implementation of that safety system, rather than prescribing by regulation what the content of that safety management system should be. The measurement of the success of this approach is still a work in progress; however, ARPANSA has developed a set of regulatory performance indicators and safety performance indicators that emphasise regulatory effectiveness and the ability of the regulator to assure the safety outcomes of the operator. These will continue to be measured each quarter.</p>
24	Russian Federation	General	<p>Do you have any plans to launch a nuclear power program in Australia? If yes, then what reactor type is expected to be chosen? / Introduction to the National Report mentions that the Government of Australia is currently considering its policy in the area of</p>	<p>The Australian Government is opposed to the establishment of nuclear power plants and other nuclear fuel cycle facilities in Australia.</p>

			construction of nuclear plants and other nuclear fuel cycle facilities.	
25	Euratom	General	Could Australia indicate if any external safety reviews have been conducted by international organisations during the last three years?	As outlined in Annex 2 of the report, Australia hosted a full-scope IAEA Integrated Regulatory Review Service Mission in July 2007. The full report of the IRRS mission including identification of good practices, recommendation and suggestions for improvement is available from the ARPANSA website www.arpansa.gov.au . As noted in paragraphs 14.22 and 19.12 of the report, in the context, a number of IAEA peer review teams reviewed aspects of the application of an operating licence for the OPAL reactor in 2005. Reports of these reviews are also available on the ARPANSA website.
26	Lithuania	Article 15	Article 15, the part of Article „Factual Compliance“. The doses for HIFAR and OPAL reactors staff are presented in the Article 15, but there is a lack of information about public exposure. What are actual radioactive releases and discharges from these reactors and what is public exposure due to operation of the reactors?	The actual radioactive releases and discharges both for HIFAR and OPAL are shown in the Tables presented in paragraph 19.61. Public exposures due to ANSTO's operations (both reactor operation and other activities, principally radiopharmaceutical production) are published in ANSTO's annual environmental reporting series (http://www.ansto.gov.au/information_about/environmental_impact/detailed_reporting). The latest report shows the maximum dose to a member of the public, under highly conservative assumptions, in 2006-07 was 0.0046 mSv.