Convention on Nuclear Safety
Questions Posted To Australia in 2014

Q.No	Country	Article	Ref. in National Report
1	Brazil	General	1

Question/ Comment: Australia has produced a very comprehensive report, covering a research reactor, although this is not within the scope of the Convention on Nuclear Safety.

Answer: Noted and acknowledged

Q.No	Country	Article	Ref. in National Report
2	Finland	General	all

Question/ Comment: Finland congratulates Australia for a well structured, informative and comprehensive report which describes the fulfillment of CNS at the Australian research reactor.

Answer: Noted and acknowledged

Q.No	Country	Article	Ref. in National Report
3	Germany	General	entire report

Question/ Comment: The Australian report has a good structure and is well written and understandable. It gives a comprehensive overview of the Australian commitment to nuclear safety and describes in detail the activities in connection with the OPAL research reactor.

Answer: Noted and acknowledged

Q.No	Country	Article	Ref. in National Report
4	Japan	General	p4, p52

Question/ Comment: The Australian National Report is a good example for that of non-nuclear power generating country.
ARPANSA, regulatory body and ANSTO, operator work together for self-evaluation of compliance to CNS obligation to the safety operation of research reactor OPAL.

Answer: Noted and acknowledged

Q.No	Country	Article	Ref. in National Report
5	Brazil	Article 7.1	7.20 Pag 12

Question/ Comment: One of the OPAL licence conditions is related to “periodic safety review within two years of the completion of commissioning and thereafter at intervals agreed to by the CEO of ARPANSA”. What is the basis for the 2 year period? What is expected to be the period for the next periodic safety review?

Answer: It was considered that this shorter than normal period would allow the Safety Analysis Report to be updated quickly post-commissioning to reflect any differences between the “as designed“ plant and the “as built” plant for the unique OPAL reactor design. At the time of issuing the operating licence for the OPAL reactor, ARPANSA found that the SAR and PSA constituted a sound basis for demonstrating the safety of the reactor and that they would be a valuable tool over the life of the reactor as they are developed in the light of operating experience. It was decided that manuals, procedures and instructions, including those relating to OLCs and maintenance management and surveillance frequencies, should be re-evaluated at the time of the first periodic safety review after 2 years, when Hot Commissioning has been completed and some operating experience of implementing the system has been accumulated. However, it is anticipated that

subsequent periodic safety reviews will be undertaken at a time interval of 10 years, with the time period to be confirmed when the first periodic safety review is formally completed, expected by end of March 2014.

Q.No	Country	Article	Ref. in National Report
6	Finland	Article 7.1	10

Question/ Comment: It is said that ANSTO undertakes a PSR within two years of commencing routine operation of OPAL and thereafter the intervals of PSRs are to be agreed with ARPANSA. What is the foreseen interval of PSRs and against which safety standards the PSR will be carried out?

Answer: At the time of issuing the OPAL operating licence, it was envisaged that PSRs subsequent to the initial one would be at 10 year intervals. The ARPANSA review of the initial PSR is almost complete, and the timing of subsequent PSRs will also be reviewed.

Q.No	Country	Article	Ref. in National Report
7	Finland	Article 7.1	10

Question/ Comment: What are the Fukushima lessons learnt concerning the OPAL research reactor so far?

Answer: The preliminary assessment identified two minor design modifications that were considered to be opportunities for improvement. The first minor modification involved the possibility of improving the ability to connect mobile generators to the OPAL standby electrical system, and the second modification involved the possible installation of an appropriate fitting suitable for use with either a fire engine or water tanker on the existing external connection to the demineralised water supply system. A number of improvements to the description of the safety case as presented in the SAR were also proposed (e.g. explicit consideration of combinations of external events). A more comprehensive and formalised Complementary Safety Assessment is currently being performed in accordance with the draft IAEA Safety Reports Series No.80 document and is scheduled to be submitted to ARPANSA by the end of June 2014.

Q.No	Country	Article	Ref. in National Report
8	Japan	Article 7.2.1	p10

Question/ Comment: ARPANSA is developing a guide for a drafting of PSR applicable to research reactor using IAEA Safety Guide NS-G2.10.
Please explain the experiences and the lessons learned of the preliminary PSR report assessment of OPAL.

Answer: At the outset of the process, it was considered that using the overall framework of the NPP PSR template was valid. However, some topic areas required significantly more detailed interpretation due to the complex and flexible tasks for which a research reactor is designed. Once ARPANSA's review of the OPAL PSR is completed, it is expected that the experience will be shared internationally. The ANSTO experiences and lessons learned from performing a PSR are discussed in a presentation given at the IGORR Conference in Daejeon, South Korea in October 2013 (see http://www.igorr2013.org/15.php and click on the "Safety of RRs" folder under Thursday's presentations).

Q.No	Country	Article	Ref. in National Report
9	Indonesia	Article 8.1	p. 16/54 para 8.7

Question/ ARPANSA may also engage external contractors and consultants to provide advice

Comment relating to its functions. This has occurred in the past for the particular aspects relating to the licensing of OPAL where the expertise was not held within ARPANSA.
Based on past experience in licensing OPAL, is there any possibility that the external TSO becomes a part of ARPANSA organization ?.

Answer This is unlikely as Australia's nuclear footprint at this time would not justify such an expansion of its resources

Q.No	Country	Article	Ref. in National Report
10	United States of America	Article 8.1	Page18

Question/ Comment According to Appendix V of the IRRS Report, there were 7 recommendations for improvement. ARPANSA has developed an IRRS Mission Action Plan. Please indicate when all the actions are planned to be implemented.

Answer All IRRS recommendations have been accepted and addressed with most already fully implemented. Some outstanding recommendations (see the text of RF1 and RF5 set out below) require amendment to the ARPANS legislation, which is expected to occur sometime within the period 2014 - 16.

'RF1 :
In the revision of the Australian Radiation Protection and Nuclear Safety Act (ARPANS Act) to be undertaken in 2012, the Australian Government should aim at ensuring full compliance of the Legal framework with IAEA Safety Standards. In particular, the revised Act should include explicit provisions and requirements for:
• the prime responsibility for safety to be placed on the operator;
• the legal basis for ARPANSA to regulate land transport or radioactive material;
• the legal basis for regulating existing exposure situations, remediation and clearance;
• decommissioning plan and related financial provisions ,
• assigning ARPANSA a clear role in regulating the security of controlled material, controlled apparatus and controlled facilities and promoting national uniformity;
• clarifying ARPANSA's role in the establishment and operation of the national framework for nuclear and radiological emergency preparedness and response;
• introducing the concept of clearance into the Australian regulatory framework.
RF5:
The Australian Government should ensure the national framework clearly identifies and assigns responsibilities to ARPANSA and other appropriate organizations for nuclear and radiation emergency preparedness.

Q.No	Country	Article	Ref. in National Report
11	Indonesia	Article 9	p. 19/54 para 9.4

Question/ Comment ANSTO's responsibility for the safety at OPAL is defined under the ANSTO Work Health, Safety and Environment (WHSE) Policy and the supporting safety management system which is accredited to ISO 9001 and 14001.
How does ARPANSA implement IAEA standard - GS-R-3 to the licensee?, and how does ANSTO syncronize and synergize the implementation of GS-R-3 and ISO 9001 & ISO 14001 ?.

Answer ARPANSA is moving to implementation of GS-R-3, and ensures compliance with many elements of GS-R-3 through its requirement on licence holders to provide Plans and Arrangements for Managing Safety. These Plans and Arrangements

should be reviewed and updated annually in accordance with ARPANS Regulation 50. The Plans and Arrangements stipulate how the licence holder will manage safety in their organisation including accountability, organisational arrangements for safety, implementation of a management system, and management of resources, both human and financial. Many of the requirements of GS-R-3 are automatically satisfied by the requirements for accreditation to ISO 9001 and ISO 14001.

Q.No	Country	Article	Ref. in National Report
12	Finland	Article 10	23

Question/ Comment: How ARPANSA is assessing and inspecting licensee's management systems and safety culture during OPAL operation? Are these topics included for example in the periodic inspection programme?

Answer: ARPANSA holds an electronic copy of the OPAL Reactor Business Management System (BMS) comprising of nearly 1200 individual documents and covering all aspects of the reactor operation. This enables ARPANSA to understand how work is intended to be conducted at the reactor. The BMS documents can be reviewed as part of ARPANSA's routine regulatory oversight, in connection to a specific application, or during the planning and implementation of its inspection programme. A significant element to the inspection programme is to ensure that work is conducted in accordance with the BMS, a requirement of ARPANS Regulation 49. ARPANSA also has published guidance on its website that provides its expectations for management of operational safety:
- Plans and Arrangements for Managing Safety (currently under revision)
- Holistic Safety
ARPANSA's Holistic Safety approach is a systemic approach which looks at the interactions between technology, human and organisational factors. The characteristics of holistic safety are Human Factors, Non-Technical Skills, Defence in Depth, Management System, Resilience, Safety Culture and Security Culture. ARPANSA's inspection teams include inspectors with specialist knowledge of its holistic safety approach.

Q.No	Country	Article	Ref. in National Report
13	Indonesia	Article 10	p. 23 para 10.10

Question/ Comment: In agreement with ARPANSA, ANSTO has set several Safety Performance Indicators (SPIs) for OPAL. These SPIs measure and set objective targets for 22 safety related functions of plant operation and organisational performance and are divided into four groups:
- Reactor safety (e.g. unplanned reactor trips);
- Radiation safety (e.g. maximum individual effective dose);
- Industrial safety (e.g. lost time injuries); and
- Safety management (e.g. number of accredited operators).
Performance against the SPIs is reported quarterly to ARPANSA and monthly within ANSTO.
Could you provide implementation of grouping for safety performance indicator of OPAL ?.

Answer: There is no grouping of the SPIs into categories. The complete set of 22 SPIs for OPAL are as follows, although note that these SPIs are currently being reviewed and are likely to change in the short to medium term.
Unplanned automatic trips per 7000 hrs critical
Number of FRPS/SRPS train or channel actuations when critical not generating a reactor trip

Number of reportable events INES >0
Number of INES events level 0
Number of INES level 0 or >0 events with human factor principal cause
Number of OLC breaches
Number of unplanned times a Limiting Condition entered
Number of times unavailability detected during OLC SR
Maximum monthly PCS coolant activity (monthly value)
Maximum individual effective dose mSv/yr
Number of staff with dose above 5 mSv/yr
Number of staff with dose above 2 mSv/yr
Number of dose investigations required/yr
Number of personal contamination events/yr
Number of actual fires/yr
Number of Lost Time Injuries/yr
Number of internal BMS audits not completed to schedule/yr
Number of corrective actions from external Quality/environment audits outstanding after 3 months
Number of staff accredited for the control of reactor operations
Percentage of Cat 1 and Cat 2 maintenance plans in compliance
Percentage of housekeeping inspections completed to schedule
Percentage of event reports still open one month after event

Q.No	Country	Article	Ref. in National Report
14	Finland	Article 14.1	30

Question/ Comment: Is probabilistic safety assessment (PSA) required for research reactors in Australia? If it is required, how comprehensive the analysis is? If not, what is the reason not to require it?

Answer: The PSA produced by ANSTO as part of the operating licence application was extensive. At the time of issuing the operating licence for the OPAL reactor, ARPANSA found that the SAR and PSA constituted a sound basis for demonstrating the safety of the reactor and that they would be a valuable tool over the life of the reactor as they are developed in the light of operating experience. It was decided that they should be re-evaluated at the time of the first periodic safety review, when Hot Commissioning has been completed and some operating experience of implementing the system has been accumulated.

Q.No	Country	Article	Ref. in National Report
15	Germany	Article 16.1	Page 35, 16.3

Question/ Comment: It is stated that desktop drills are performed once a week by the duty shift, so that every shift completes a drill once every four to six weeks, which is recognized as good practice. The preparation of drills with this frequency seems to be challenging.
Please provide additional information on the scope and content of such drills.

Answer: The wording in the report requires clarification. The intention is for desktop drills to be performed monthly by each operations shift with the same desktop drill being performed by each shift at some time during the month. In practice, this means a desktop drill is normally performed once a week. However, this is at the discretion of the Shift Manager depending upon the workload for that shift and as such, some shifts may delay performing a desktop drill for a month or two and instead, perform multiple desktop drills in a single session. This is acceptable as there is no requirement to perform these desktop drills but rather, it is an informal

arrangement that has been implemented by the Operations Manager as good practice.
Regarding the comment on the workload for preparation of drills, the Operations Manager has a spreadsheet of desktop drills that he updates and adds to on a regular basis. In addition, since the desktop drills are also intended to verify the adequacy of the Emergency Operating Instructions (EOIs) as much as test the operating shift, there is no “correct” answer, simplifying the preparation work. The desktop drills have also resulted in numerous corrections and opportunities for improvement being identified in both the EOIs and the training of operators.

Q.No	Country	Article	Ref. in National Report
16	United States of America	Article 16.1	Page 36

Question/ Comment: ARPANSA has conducted a review of its response to the Fukushima accident and identified areas for improvement. An Incident Management Plan is planned to be prepared. Please provide the schedule for completion of this Plan.

Answer: ARPANSA expects to receive the Complementary Safety (post Fukushima) Report from ANSTO by the end of June 2014.

Q.No	Country	Article	Ref. in National Report
17	Brazil	Article 19.2	19.5 Pag 43

Question/ Comment: Does OPAL operate also a research reactor? In case affirmative, it is expected that configurations modifications are carried out to conduct experimental research. In this case, what is the freedom of ANSTO to carry out experiments? What is the procedure to review and approve experimental configurations by ARPANSA?

Answer: Australia does not understand the first part of the question as the report makes it clear that OPAL is a 20 MW open pool multi-purpose research reactor. If the question relates to changes in core configuration in order to perform experiments, it should be noted that OPAL has a fixed core that does not change configuration at any time.
Utilisation activities, including experiments, not identified in the original SAR are treated the same way as modifications and as such, are subject to a review and approval process that may require internal ANSTO and external ARPANSA reviews as determined by their safety significance.

Q.No	Country	Article	Ref. in National Report
18	Brazil	Article 19.7	Item 19.21 & 19.23, Pag 46

Question/ Comment: What is the statistics (number and level) of reported events from ANSTO to ARPANSA in the least years?

Answer: During the 2013 calendar year, 309 events were recorded in the Reactor Operations Event Management System (ROEMS). Of these, only three were identified as nuclear safety events, all of which were determined to be INES Level 0 and ARPANSA was informed of these events at the time. ARPANSA was also informed of a WHS event (subsequently determined to be INES Level 1) and a radiological safety event (determined to be INES Level 0). In addition, OPAL provides ARPANSA with a listing of all events (safety and operational) on a quarterly basis. However, it should be noted that there have been no OPAL events that were required to be reported to ARPANSA under ARPANS Regulation 46 (i.e. no events potentially rated as INES Level 2 or higher) since the 2010 report.