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|  | **Posted By** | **Article**  | **Question / Comment** | **Answer** |
| 1 | Portugal | Article 6 Section 6.1 | It is stated in the National Report that “The only research reactor at the time the Convention came into force was the High Flux Australian Reactor (HIFAR) - a 10 MW(t) heavy water, tank type, materials testing reactor. This reactor operated between 1958 and 2007. HIFAR has been shut down and all fuel has been removed. ANSTO is currently managing HIFAR under a ‘possess or control’ licence while preparing to decommission it in the future.”Could you please share further information on the process that is being followed for the purposes of establishing the decommissioning plan, as well as for its review and assessment by the regulatory body upon submission? | The decommissioning plan and strategy for HIFAR has been developed in line with ARPANSA decommissioning guidance ([Regulatory Guide - Decommissioning of Controlled Facilities (ARPANSA-GDE-1731WEB) | ARPANSA](https://www.arpansa.gov.au/regulation-and-licensing/licensing/information-for-licence-holders/regulatory-guides/regulatory-guide-decommissioning-controlled)) which aligns IAEA Safety Guide: Decommissioning of Nuclear Power Plants, Research Reactors and Other Nuclear Fuel Cycle Facilities on how to meet the requirements of the IAEA General Safety Requirements (Part 6): Decommissioning of Facilities. The submission of the application has now been delayed until 2023 due to re-prioritisation of projects by the licence holder. ARPANSA has prepared for the review and assessment by ensuring Suitably Qualified and Experienced Personnel resources are available and holding regular meetings with ANSTO regarding the application |
| 2 | France | General | As most of COVID-19 restrictions have been removed, the national reports states that the operations of the OPAL reactor is back to pre-pandemic status. Have any requirements been changed or improvements been requested to take into account the feedback from the Covid-19 pandemic period (for example, further restriction of access for the Main Control Room)? On which topics? | Learnings from the COVID-19 Pandemic have been maintained in a graded manner. This includes but is not limited to applying the principles of ensuring that people do not attend work if they are unwell and the maintenance of good hygiene practices across the teams with a particular focus on operational shift workers and at shift handover |
| 3 | France | Article 6 | An action plan to address the recommendations from the in-depth analysis of a significant event (level 3 on INES) was implemented by ANSTO. ANSTO reports progress on this plan. Does the safety authority conducts specific inspections to assess the effectiveness of these actions? | Yes. As well as requiring 6 monthly updates on the implementation of the actions, ARPANSA inspects the effectiveness of actions as appropriate. This is done using the regulatory performance objectives and criteria (see <https://www.arpansa.gov.au/regulation-and-licensing/licensing/information-for-licence-holders/inspections/performance-objectives-and-criteria>) to develop inspections which comprise a comprehensive list of features, controls and behaviours that contribute to safety and are used to supplement the assessment of licence holder compliance with the provisions of the [ARPANS legislation](https://www.arpansa.gov.au/node/454), licence conditions and the requirements of relevant codes and standards. Embedded in these criteria is the requirement to ensure licence holders demonstrate effectiveness of corrective actions as appropriate. To date ARPANSA has raised no significant issues with the implementation or effectiveness of the actions.  |
| 4 | France | Article 14 Section 14.14 | A correction for the wide range nucleonics channels had to be conducted "as soon as practicably possible". What does “as soon as practicably possible” mean? Were there compensatory measures implemented? Has this modification been conducted since October 2021? | The correction involved redesign of the pre-amplifier electronics in the Wide Range (WR) nucleonics channels to incorporate circuitry that removes the DC component of the detector signal prior to entering the amplification circuit. This was needed to allow the WR nucleonics channels to perform as required during high reactivity transients. The modification was completed in November 2021. Justification for continued operation during the period before the modification was implemented was approved by ARPANSA based on the extensive defence in depth present and the fact the issue affected specific high flux rate reactivity insertion design basis accident scenarios only. |
| 5 | France | Article 8Section 8.7 | Australia used external expertise to review the OPAL PSSR and to assess changes in the safety analysis review. How does the safety authority use its resources for safety assessment in such a way that this assessment is truly independent of the technology provider? To what extent will the safety assessment conducted by the safety authority on the nuclear project be outsourced to the country of origin of the technology? | ARPANSA follows the Australian Government Commonwealth Procurement Rules when engaging contractors <https://www.finance.gov.au/government/procurement/commonwealth-procurement-rules>All suppliers must sign a contract which amongst other things, addresses conflict of interest with regards to the work they are engaged to perform. Independence is also considered when choosing a tender as part of the risk assessment required to be performed. The safety assessment has not been outsourced to the country of origin of the technology of the OPAL reactor.  |
| 6 | France | Article 8Sec 8.9 | Can Australia further detail the critical and/or core knowledge identified to develop the knowledge resilience map ? Does the regulator identify a need to increase resources in terms of staff and expertise to effectively carry out the inspection programme? | Resilience maps are developed by senior experts/members taking into account the core technical competencies essential for performing regulatory functions effectively. Results of resilience mapping are used for competency development, succession planning and workforce development. While ARPANSA currently delivers an effective inspection program, we do identify upcoming requirements for an increase in resources in terms of staff and expertise to address changes in our internal and external environments. Inspection schedules are prepared for three years and are reviewed annually to identify any changes needed based on the regulatory priority. Depending on the type of the facility sometimes matrix management is used for resources to carry out inspection program.  |
| 7 | France | Article 16 | Based on feedback from the Fukushima accident, what actions are implemented regarding the management and reporting of key parameters (such as temperature, water level...) from the OPAL reactor that would be inaccessible after an extreme hazard? | In 2012 and 2018, respectively, ANSTO completed two assessments following the Fukushima Daiichi NPP Event in line with the methodology from the IAEA guidance contained in the Safety Reports Series No.80: Safety Reassessment for Research Reactors in the light of the Accident at the Fukushima Daiichi Nuclear Power Plant. The review involved the following activities:* Review of the facility (design basis of the facility and assessment of the consequences of beyond design basis events)
* Site-wide review (review of the site characteristics and review of site-wide events); and
* Emergency preparedness and response review

Actions from the assessments, which are now completed and approved by ARPANSA, included performing of a full set of design extension condition analyses and the incorporation of these analyses into the OPAL SAR. The DEC analyses did not result in any proposed amendments to the current engineered safety features of the OPAL Reactor, including the Post Accident Monitoring System. Note that the PAM System can be accessed from both the main control room and the emergency control centre. |
| 8 | France | Article 1212.11 | Are the events (radiological, industrial or environmental safety) that have not been identified as significant by the safety authority still analysed by the license holder and human factor actions implemented? | Yes, all incidents are triaged by the licence holder under their incident management system and actions implemented as appropriate (including Human factors). Note that the ANSTO incident management system covers safety (WHS, radiological and nuclear), security, environmental and operational incidents. |
| 9 | France | Article 1414.13 | Following the identification of defects in the OPAL reactor upper chimney, the CEO of the safety authority granted a justification to continue the operation, based on an investigation report, and various assessments. Did the Australian safety authority use external expertise to conduct these assessments and to analyse the justifications of the License Holder? | ARPANSA has the internal technical support to conduct this analysis. However, there are financial resources available to use external technical support if required as has been done in the past.  |
| 10 | France | Article 1919.27 | The levels of radioactivity of the low-level liquid waste from OPAL reactor must comply with WHO concentrations limits for drinking water when reaching the sewage treatment plant. Is there any measures of radioactivity conducted at the sewage plant? By which entity? Is this limit a challenge for OPAL's facilities or not really an issue? | The OPAL Reactor does not discharge liquid waste to the environment but transfers it to ANSTO Waste Management Services (WMS). As such, the low-level liquid waste from OPAL reactor does not need to comply with WHO concentrations limits for drinking water. However, the low-level liquid waste from the ANSTO site as a whole must comply with WHO concentrations limits for drinking water when reaching the sewage treatment plant. The limit is not considered a challenge for the ANSTO site. Wastewater is treated, tested and discharged to the sewer and controlled and monitored through an agreement with Sydney Water Corporation. ANSTO has an established environmental monitoring programme which includes sampling at the sewage treatment plant. Following a recommendation from the 2018 IRRS mission, ARPANSA has set up its own independent environmental monitoring programme to verify the results reported by ANSTO. |
| 11 | Norway | Article 6P18 | You had a serious incident at the ANSTO Health Products radiopharmaceutical Production facility. Can you elaborate on what the doses to the skin were? | The event occurred in the ANSTO Health Products facility during a routine quality control procedure and resulted in contamination of the hands of a quality control (QC) analyst. The event involved the manual handling of a vial containing a high activity solution of Mo99 (approximately 4.5GBq) in a volume of less than 0.6ml. The analyst, according to routine procedures, attempted to de-cap a crimped seal of the vial containing 4.5GBq, during which the vial was accidently dropped within the fume cupboard and splashed onto the gloves of the analyst. The analyst was wearing two pairs of gloves and found both pairs to be contaminated. In addition, the analyst then self-monitored their hands and discovered that both also had radioactive contamination. A radiation oncologist treating the QC analyst estimated an exposure of 20Gy or more to parts of the skin, which has subsequently been corroborated by modelling. This dose is in excess of the statutory annual extremity dose limit of 500 mSv.  |
| 12 | Norway | GeneralP20 | Several places in the report it is referred to safety and security. What about safeguards? All 3S's should be seen together. Article 7 (p. 20), article 12 (p.35), article 14 (p. 42) | Thank you for this comment. Noted for the next report. |
| 13 | Norway | Article 8P23 | We note that the number of RSB staff has decreased even more since the last report. Can you elaborate on the reasons for this? | In 2016 the RSB staff members were 23. Currently they are 24 members. As part of the Workforce Strategy 2022-2025 ARPANSA are recruiting graduates from the Australian Public Service scheme. In addition, a new position has recently been interviewed for another inspector. Since the last country review report was written RSB has also created and filled a psychologist position to assist with review and assessment of human and organisational factors in safety.  |
| 14 | Spain | Article 6 | In page 17 it is indicated that “The only research reactor at the time the Convention came into force was the High Flux Australian Reactor (HIFAR) - a 10 MW(t) heavy water, tank type, materials testing reactor. This reactor operated between 1958 and 2007. HIFAR has been shut down and all fuel has been removed. ANSTO is currently managing HIFAR under a ‘possess or control’ licence while preparing to decommission it in the future.”Question: Could you please indicate what is the planned management of the spent fuel from this reactor? | The reprocessing of spent nuclear fuel is not permitted under Australian law. As such, all spent nuclear fuel is sent abroad for reprocessing under inter-governmental agreements and Australia receives an amount of intermediate level solid waste (ILSW) back that is in equivalence in radiological terms to the spent fuel elements sent. All returned ILSW produced from the reprocessing of spent fuel elements is held at an Interim Waste Storage (IWS) facility at ANSTO. In December 2015, a B(U) TN-81 container and Type A ISO freight container was received from the AREVA (now ORANO) La Hague facility in France. The B(U) TN-81 container holds 20 canisters of vitrified reprocessed HIFAR spent fuel waste (CSD-U) and the Type A ISO freight container contains six drums of CBF-C2 waste generated during reprocessing operations In March 2022, the last of the HIFAR reprocessed spent fuel was received back into Australia in a second type B(U) TN-81 dual purpose storage/transport container from the Sellafield facility in the United Kingdom. This contained 4 canisters of vitrified CSD-V material. This represented the radiological equivalence of 114 spent HIFAR fuel elements which were previously sent to the Dounreay facility for reprocessing into 51 cement drums. As such, all reprocessed fuel resulting from the 49 years of HIFAR operations has been returned to Australia and will be stored at ANSTO until an appropriate National Radioactive Waste Facility is established and approved. |
| 15 | Spain | Article 16 | Does ARPANSA evaluate the periodic drills of the onsite and offsite emergency plans? When was the last time a drill focused beyond the onsite emergency plan was performed? | The CEO of ARPANSA approves the emergency plans and arrangements for licence holders which are expected to align with the ARPANSA *Guide for Radiation Protection in Emergency Exposure Situations* (RPS G-3, Parts 1 and 2, 2019) which is based on IAEA GSR Part 7.  This guide provides the framework in Australia for the protection of emergency workers, helpers, the public and the environment in emergency exposure situations as well as providing guidance for the planning, preparedness, response and transition required to effectively respond to an emergency. ARPANSA inspectors attend emergency exercises for major licence holders such as OPAL as observers with the last major OPAL exercise attended in November 2020 and the next planned for 2023 (delayed by the pandemic). The 2018 IRRS mission made the following recommendation which ARPANSA is addressing as part of the response to the IRRS report - *ARPANSA should develop criteria for evaluation of licensee exercises, to include the observation of exercises as part of the inspection process and ensure that licensees exercise all aspects of their emergency plan over an agreed time period and in line with a graded approach.* This is currently being addressed. The ANSTO site falls under a government sub emergency plan known as the Lucas Heights Emergency Sub Plan (See [Lucas Heights Emergency Sub Plan (nsw.gov.au)](https://www.nsw.gov.au/sites/default/files/2021-04/emergency-management-subplan-lucas-heights.pdf)) which was recently updated. This details the ‘off site’ arrangements for prevention, preparation, response and recovery to a nuclear or radiological emergency at ANSTO. This plan is intended to integrate with the ANSTO Emergency Site Emergency Plan which details the responses to an emergency for both on and off-site consequences. This sub plan notes that it will exercised periodically.  |
| 16 | Spain | Article 6 | In page 17 it is indicated that “The only research reactor at the time the Convention came into force was the High Flux Australian Reactor (HIFAR) - a 10 MW(t) heavy water, tank type, materials testing reactor. This reactor operated between 1958 and 2007. HIFAR has been shut down and all fuel has been removed. ANSTO is currently managing HIFAR under a ‘possess or control’ licence while preparing to decommission it in the future.”Question: Could you please indicate what is the planned management of the spent fuel from this reactor? | See 14 above – this is a duplicate question |
| 17 | Belarus | Article 8 | ARPANSA's proactive policy of transparency and openness of the regulatorу authority is commendable. Particularly in light of stakeholder engagement activities undertaken under the NRWMF project, which were not required by law, but have been implemented as it is in line with best practice. It is proposed to consider the possibility of marking this direction as the area of good performance at the CNS Review Meeting. | Comment noted with thanks |
| 18 | United States of America | Article 6 | In August 2017, a safety significant event occurred resulting in a worker exceeding statutory does limits for skin contamination. In response, a review was conducted by an independent expert review team in the fields of nuclear safety, safety and organizational culture, radiation protection, and human factors. (1) Please discuss specific significant findings as a result of this review. (2) Please discuss the status of the action plan. (3) Please discuss any cross-cutting findings that apply to other nuclear installations and regulatory changes, if any, as a result of the event. | The ANSTO Implementation plan that was approved by ARPANSA contained 85 recommendations. The plan can be located [Independent Review Implementation Plan (arpansa.gov.au)](https://www.arpansa.gov.au/sites/default/files/ansto_response_to_the_independent_review_of_ansto_health_rev4.pdf).Significant themes were enhancing change management process, improvements to training, identifying and strengthening safety culture, modification to the ANSTO central safety approval process and improvement to risk management process. Many of these actions were applied across all facilities at ANSTO. There were no regulatory changes as part of the event but some of the actions related to ARPANSA. The majority of the recommendations have now been implemented with the remaining being progressed to the timeline approved by ARPANSA |
| 19 | Slovakia | Article 11.1 | Could you please describe how the obligations are addressed at the national level and facility level? Can you also indicate how the finacial strategy and provisions are assessed and reviewed? | Under the Australian Radiation Protection and Nuclear Safety Act 1998 (the Act) and Australian Radiation Protection and Nuclear Safety Regulations 2018 (the Regulations), licence holders must develop and follow their own plans and arrangements to manage safety.  This requirement is consistent with Principle 1 of the International Atomic Energy Agency’s [Fundamental Safety Principles SF-1](http://www-pub.iaea.org/books/IAEABooks/7592/Fundamental-Safety-Principles) which states that ‘the prime responsibility for safety is with the person or organisation responsible for facilities and activities that give rise to radiation risks.’. The ARPANSA Guide on Plans and Arrangements for Managing Safety can be found <https://www.arpansa.gov.au/regulation-and-licensing/licensing/information-for-licence-holders/regulatory-guides/regulatory-guide-plans-and-arrangements>.One of these plans is the Effective Control Plan which must detail resource and financial capabilities. It is noted that the Commonwealth government underwrites all funding for nuclear installations including decommissioning.  |
| 20 | Netherlands | Article 14 | The technical problems with OPAL's riser and flap valves may be of interest to regulatory bodies and RR-operators in countries, that are home or are going to be home to RRs that share some characteristics with OPAL. Could you elaborate on international contacts you may have had about this issue? | ANSTO has consulted extensively with the original designer of the OPAL Reactor in regards to the observations and measurements made regarding the riser and pressure pulse experience during flap valve closure. The original designer has been fully briefed on this matter. ANSTO is aware that the original designer is working with similar existing or proposed new research reactors of similar design to eliminate similar issues. ANSTO is aware that the original designer has identified an improved design that eliminates this problem. |
| 21 | Netherlands | Article 8 | Can you elaborate on the systematic strategy to compensate for the departure of qualified staff? | ARPANSA’s Workforce Strategy 2022-25 sets out the work packages and activities that will enable ARPANSA to achieve the Strategy’s outcomes of:* Sustainable capability
* Employer of choice
* Strategic alignment

The Strategy includes key work packages targeting attraction of new staff to the organisation, and the development of existing staff, including:* Graduate program
* Capability and workforce planning approach including operational workforce planning
* Knowledge and learning management approach and knowledge sharing initiatives
* Employee value proposition to enhance ARPANSA’s reputation as an employer of choice
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| 22 | Czech Republic | Planned Activities | Is Australia considering future construction of small modular reactors? | This question is related to Australian government policy. No public statement has been made by the government concerning consideration of SMRs. Nuclear power plants are currently not permitted to be built in Australia under the law.  |
| 23 | Czech Republic | Article 16.3 | Q1: How is the distribution of iodine tablets ensured? Q2: Are iodine tablets available in pharmacies for the public? Q3: What is the approximate number of tablets available for the public? | On site at ANSTO the distribution and stockpile of iodine tablets is covered under the onsite Emergency Plan which takes into account the number of potentially exposed people within the 1.6km buffer zone. Off site, the state government New South Wales Health is responsible for maintaining a stockpile of iodine prophylaxis based on population size etc and arranging for its distribution as necessary under the direction of the State Health Service Functional Area Coordinator (State HSFAC), Chief Health Officer, or delegate.  The tablets are not available to the public as over the counter medication to purchase in pharmacies in Australia.  |
| 24 | Czech Republic | Article 16.3 | Which participants are involved in OPAL´s exercises? Are national level participants also involved? | OPAL exercises include ANSTO emergency response teams, emergency services and ARPANSA. The ANSTO site falls under a multi government agency sub emergency plan known as the Lucas Heights Emergency Sub Plan (See [Lucas Heights Emergency Sub Plan (nsw.gov.au)](https://www.nsw.gov.au/sites/default/files/2021-04/emergency-management-subplan-lucas-heights.pdf)) which was recently updated. This details the ‘off site’ arrangements for prevention, preparation, response and recovery to a nuclear or radiological emergency at ANSTO at a local and national level. This plan is intended to integrate with the ANSTO Emergency Site Emergency Plan. This sub plan is exercised periodically. |
| 25 | Czech Republic | Article 16.3 | Is there a systematic monitoring of radiation on the territory of Australia, either immediate measurement or measurement of radiation levels in environmental and food chain samples? | ARPANSA is responsible for carrying out Australia's radionuclide monitoring obligations to the Comprehensive Nuclear-Test-Ban Treaty (CTBT). In this capacity, ARPANSA has established Australia’s radionuclide stations as part of the International Monitoring System (IMS) systems required to monitor treaty compliance through the installation, implementation and operation of seven particulate radionuclide stations and two noble gas stations within Australia and its Territories. The CTBT team within ARPANSA has also expanded to include operational responsibility for the radionuclide stations situated in Fiji and Kiribati. ARPANSA also requires licence holders to have comprehensive environmental monitoring programmes in place including sampling food chain, water discharges and discharges to air. ARPANSA verifies these monitoring programmes via independent sampling, and publishes the outcomes on our website ([Verification monitoring](https://www.arpansa.gov.au/regulation-and-licensing/regulation/our-regulatory-services/how-we-regulate/verification-environmental-monitoring)). Other monitoring is conducted by ARPANSA and other scientific agencies as part of ongoing research activities and assurance. These may also be published as technical reports such as [Radiation Doses from the Average Australian Diet](https://www.arpansa.gov.au/sites/default/files/tr181.pdf) (2019) or [Background Radioactivity in Northern Australian Seafood](https://www.arpansa.gov.au/sites/default/files/legacy/pubs/technicalreports/tr172.pdf) (2015). |
| 26 | Czech Republic | Article 15 | The IRRS mission issued some recommendations in 2018. How did you focus on these recommendations and have any criteria or procedures already been developed? | Australia developed a national action plan to provide strategic guidance and progress on implementation of the findings of the 2018 IRRS mission. The action plan contains a reporting matrix that separates findings and groups them by responsible bodies. ARPANSA coordinated input from multiple agencies and governments to populate progress reports for the action plan. The plan is published on the ARPANSA website <https://www.arpansa.gov.au/sites/default/files/irrs_action_plan.pdf>The follow up mission is scheduled for October 2023. The mission which brought together the Commonwealth, State and Territory governments was the largest multi-jurisdictional IRRS carried out in any IAEA member state to date.The IRRS report contains a list of 23 recommendations, 12 suggestions for improvement and four good practices. The findings were addressed to various stakeholders including:* The Australian Government – 2 recommendations
* All Australian governments (Commonwealth and states and territories) – 7 recommendations and 2 suggestions
* All regulatory bodies – 4 recommendations and 2 suggestions
* State and territory regulators – 2 recommendations
* ARPANSA – 8 recommendations and 6 suggestions

In respect to findings owned exclusively by ARPANSA, all but two have been addressed in full. These are intended to be addressed by the IRRS follow up mission in October 2023.Work is progressing within the Environmental Health Standing Committee (enHealth), a subcommittee of the Australian Health Protection Principal Committee (AHPPC), to address the findings addressed to all the jurisdictions. While COVID-19 has impacted the work program, a number of the findings have been partially addressed and work is ongoing to address as many in full before the return mission. |
| 27 | Czech Republic | Article 15 | Could you please provide some more detail on the items pointed out in Article 15.2? | Under the Australian Radiation Protection and Nuclear Safety Act 1998 (the Act) and Australian Radiation Protection and Nuclear Safety Regulations 2018 (the Regulations), licence holders must develop and follow their own plans and arrangements to manage safety.  This requirement is consistent with Principle 1 of the International Atomic Energy Agency’s [Fundamental Safety Principles SF-1](http://www-pub.iaea.org/books/IAEABooks/7592/Fundamental-Safety-Principles) which states that ‘the prime responsibility for safety is with the person or organisation responsible for facilities and activities that give rise to radiation risks.’. The ARPANSA Guide on Plans and Arrangements for Managing Safety can be found <https://www.arpansa.gov.au/regulation-and-licensing/licensing/information-for-licence-holders/regulatory-guides/regulatory-guide-plans-and-arrangements>.An earlier copy of the OPAL Plans and Arrangements can be located on the ARPANSA website including the Radiation Protection Plan <https://www.arpansa.gov.au/regulation-and-licensing/regulation/about-regulatory-services/who-we-regulate/major-facilities/open-pool-light-water-reactor/operating-licence-application>.Note that the OPAL Plans and Arrangements are now part of the OPAL Integrated Business Management System and as such, are maintained as “living” documents that are updated as and when required. |