

Convention on Nuclear Safety 7th Review Meeting – 2017



International Atomic Energy Agency IAEA, Vienna

Country Review Report for Australia

Drafted by Country Group N° 7

(Australia, Croatia, Denmark, India, Ireland, Mali, Netherlands, Peru, Sri Lanka, Switzerland, Ukraine)

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Version: Final

DISCLAIMER: Per INFCIRC 571, Revision 7, Para. 16-19 and Annex IV, Contracting Parties were invited to comment on the implementation of the CNS reporting guidance. Contracting Parties were also encouraged to submit proposed Good Practices, Challenges, and Suggestions prior to the Review Meeting. The draft Country Review Report documents the preliminary observations identified by the Contracting Parties. The Country Review Report is the result of the CNS Review Process and was agreed by consensus by the Country Group.

Glossary

A **Challenge** is “a difficult issue for the Contracting Party and may be a demanding undertaking (beyond the day-to-day activities); or a weakness that needs to be remediated.”

A **Suggestion** is “an area for improvement. It is an action needed to improve the implementation of the obligations of the CNS.”

A **Good Practice** is “a new or revised practice, policy or programme that makes a significant contribution to nuclear safety. A Good Practice is one that has been tried and proven by at least one Contracting Party but has not been widely implemented by other Contracting Parties; and is applicable to other Contracting Parties with similar programmes.”

An **Area of Good Performance** is “a practice, policy or programme that is worthwhile to commend and has been undertaken and implemented effectively. An Area of Good Performance is a significant accomplishment for the particular CP although it may have been implemented by other CPs.”

Executive Summary

Australia has no nuclear power reactor units and currently has no plans to become a nuclear energy country. ARPANSA is the independent nuclear safety and radiation protection regulator. Australia operates 1 research reactor (OPAL) and has another research reactor in permanent shutdown with all fuel elements removed.

0 out of 2 Challenges from the 6th Review Meeting have been closed.

The Country Group highlights the following measures to improve safety in Australia's national nuclear programme:

- The ARPANSA Act 1998 was amended in 2015, providing CEO with powers to direct a licence holder, issue improvement notices (IN) & compel provision of information (IN allows a more graded approach).
- The Regulatory Guide "Periodic Safety and Security Review for Research Reactor" was published in 2016 (builds on IAEA SSG-10 and SSG-25).
- In 2014, the Australian Government introduced the Regulator Performance Framework, under which regulators are required to undertake annual self-assessments on how they have regulated fairly, effectively and efficiently.
- Additional requirements for ongoing periodic safety and security reviews (PSSR) have been stipulated in the revised OPAL licence. The next PSSR is due in 2021.
- A revised set of Safety Performance Indicators were approved for OPAL in Feb 2017 – based on Best International Practice.

Australia did not host any international peer review mission since the 6th RM. A IRRS mission to Australia is scheduled for 4–16 November 2018. This will be Australia's second full scope mission.

The Country Group identified one Challenge for Australia:

Challenge 1: Acquire and maintain adequate resourcing and competence within the regulator to cope with additional/new work and activities.

In addition the country group identified 4 Areas of Good Performance.

The Country Group concluded that Australia:

- Submitted a National Report, and therefore complies with Article 5 and in time following Rule 39 of INFCIRC/573 Rev;
- Attended the 7th CNS Review Meeting, and therefore complies with Article 24.1;
- Held a national presentation and answered questions, and therefore complies with Article 20.3.

1. Basic Information on Australia's Nuclear Programme

Australia has no nuclear power reactor units and currently has no plans to become a nuclear energy country. Australia operates 1 research reactor (OPAL) and has another research reactor in permanent shutdown with all fuel elements removed.

Australia has an independent nuclear safety and radiation protection regulator, called ARPANSA.

2. Follow-Up from previous CNS Review Meeting

2.1 Challenges

Australia provided the following updates on Challenges identified during the 6th CNS Review Meeting:

Challenge 1: Maintenance of competence within both the operator and regulator, including readiness to cope with expected applications for new (non-reactor) facilities.

Actions have been taken, but due to the nature of the challenge, it is still on-going.

ARPANSA has a workforce planning project, conducts regular training, recruits from overseas, and engages short term contractual arrangements if necessary.

Follow Up Status: Open.

Challenge 2: Engagement with the wider Australian community over planned waste facilities.

Actions have been taken, but due to the nature of the challenge, it is still on-going.

The Australian Government, through the Department of Industry, Innovation and Science, has established a process for nomination of potential sites to host the National Radioactive Waste Management Facility. This process includes a comprehensive public engagement process to gauge wider community support for the nominated sites.

Follow Up Status: Open.

2.2 Suggestions

No Suggestions were identified during the 6th CNS Review Meeting for Australia.

3. Measures to improve safety

3.1 Changes to the regulatory framework and the national nuclear programme

The regulatory framework of Australia did not change substantially since the 6th RM. Some changes that have been reported include:

- The ARPANSA Act 1998 was amended in 2015, providing CEO with powers to direct a licence holder, issue improvement notices (IN) & compel provision of information (IN allows a more graded approach).
- The Regulatory Guide “Periodic Safety and Security Review for Research Reactor” was published in 2016 (builds on IAEA SSG-10 and SSG-25).
- In 2014, the Australian Government introduced the Regulator Performance Framework, under which regulators are required to undertake annual self-assessments on how they have regulated fairly, effectively and efficiently.

3.2 Safety improvements for existing nuclear power plants

Australia has no nuclear power reactor unit; therefore, this section is not applicable.

As for the research reactor OPAL, some changes have been reported by Australia such as:

- The upgrade of the reactor control and monitoring system;
- Addition of a heavy water purification plant.

3.3 Response to international peer review missions

Australia did not host any international peer review mission.

A full scope IRRS mission is planned for November 2018.

4. Implementation of the Vienna Declaration on Nuclear Safety (VDNS)

Although Australia has no nuclear installations and no plan for their construction and therefore is not obliged to provide information on the implementation of the VDNS, they reported partly to it.

4.1 Implementation of the VDNS's principle on new nuclear power plants

The first principle of the VDNS is:

“New nuclear power plants are to be designed, sited, and constructed, consistent with the objective of preventing accidents in the commissioning and operation and, should an accident occur, mitigating possible releases of radionuclides causing long-term off site contamination and avoiding early radioactive releases or radioactive releases large enough to require long-term protective measures and actions.”

The Australian Government does not currently plan to establish nuclear power plants. In fact, the *Australian Radiation Protection and Nuclear Safety Act 1998* (the Act) prohibits the CEO of ARPANSA from authorising the construction or operation of nuclear power plants. Australia does not have any “nuclear installation” as defined under the Convention but has one operating research reactor (OPAL). Another research reactor (HIFAR) has been permanently shut down and all fuel elements have been removed.

Australia reports, that its national requirements and regulation incorporate appropriate technical criteria and standards to address partly the objectives of principle 1:

- ARPANSA's Regulatory Assessment Principles and Regulatory Assessment Criteria for the Design of New Facilities are structured to reflect internationally accepted principles of defence in depth. The Principles state the need for proven engineering practice and standards in the siting, design, manufacture, construction, installation, and commissioning of a reactor.
- The siting, design and construction of OPAL took into account the elements covered by Principle 1 of the Vienna Declaration, namely, the prevention of accidents during the commissioning and operations phase

4.2 Implementation of the VDNS's principle on existing nuclear power plants

The second principle of the VDNS is:

“ Comprehensive and systematic safety assessments are to be carried out periodically and regularly for existing installations throughout their lifetime in order to identify safety improvements that are oriented to meet the above objective. Reasonably practicable or achievable safety improvements are to be implemented in a timely manner.”

Australia reports, that its national requirements and regulation:

- Require a license holder to take all reasonably practicable measures to implement its plans and arrangements for managing safety. The license holder is also required to review those plans and arrangements at least once every three years. Any change to plans and arrangements that may have significant implications for safety must be approved prior to implementation.
- Require reasonably practicable/achievable safety improvements to be implemented in a timely manner.

Furthermore,

- The OPAL operating license requires ANSTO to undertake periodic safety and security reviews (PSSR).

- The first OPAL review was approved in August 2014. The reviews identified a high degree of conformity by ANSTO with the current international safety standards and practices. The licensing basis was found to be valid. The next PSSR is due in 2021.

4.3 Taking into account IAEA Safety Standards and other international Good Practices in the national requirements and regulations addressing the VDNS principles

Australia reports that its national requirements and regulation take into account the relevant IAEA Safety Standards throughout the life-time of a nuclear installation:

- ARPANSA published the regulatory guide “Periodic Safety and Security Review for Research Reactors”, which is based on the IAEA safety guide Periodic Safety Review for Nuclear Power Plants and Ageing Management for Research Reactors (SSG-10).
- ARPANSA also applies the Australian Government’s “Trusted International Standards” (TIS) policy of 2015, under which Australian regulators should not impose requirements beyond those in trusted international standards unless there is a good reason to do so. In 2016, ARPANSA established a TIS register in its website listing all trusted international standards. These primarily comprise all relevant IAEA Safety Standards.
- Changes at the OPAL reactor that have any impact on nuclear safety are reviewed by the Reactor Assessment Committee (RAC) and approved by the ANSTO-wide Safety Assurance Committee (SAC) . In undertaking its assessments, the RAC has regard to applicable IAEA Safety Standards.

Furthermore, Australia reports that its national requirements and regulation also take into account other international Good Practice throughout the life-time of a nuclear installation, such as:

- A set of Performance Objectives and Criteria (PO&C) are used by inspectors for a transparent and graded approach to assess licence holders’ practices and is consistent with the risk of the facility. The PO&Cs reflect international best practices and are organised under eight ‘baseline modules’ and three cross cutting areas.

4.4 Issues faced by Australia in the implementation of the VDNS

Australia does not expect to face difficulties in applying the Vienna Declaration principles and safety objectives to its existing fleet or new builds of nuclear power plants and they are reflected in the challenges (see chapter 5.3):

5. Results of the Review

5.1 General Quality of the National Report

Contracting Parties and officers were invited to provide general comments on the Australia’ implementation of the obligations of the CNS (e.g., report submitted on time), addressed all articles, addressed the Vienna Declaration on Nuclear Safety, and addressed all Challenges and Fukushima lessons learned, the general quality of its National Report, transparency issues, and the compliance with the CNS guidance documents and special peer review topics identified in the previous CNS Review Meeting or specified by the President of the CNS (reporting on the management of spent fuel on site and radioactive waste on site - especially for CPs not signatories of the Joint Convention and if relevant on the use of the templates for articles 17 and 18)..

With regards to the general quality of the National Report and transparency issues, the members of the Country Group made the following observation:

- The Report is qualified to be comprehensive and reader friendly.

With regards to the compliance with the requirements of the CNS and its Guidelines, the members of the Country Group made the following observations:

- The Report was submitted on time.

- The content and structure of Australia’s National Report complies with the CNS guidance.
- The directions of the Summary Report of 6th Review Meeting were taken into consideration.
- The directions given by the President of the 7th Review Meeting were followed.

5.2 Participation in the Review Process

With regards to Australia’s participation in the Review process, the members of the Country Group made the following observations. Australia

- posted 60 questions to Contracting Parties;
- delivered answers to the questions of Contracting Parties on time;
- delivered its national presentation.

5.3 Challenges

The Country Group identified the following Challenge for Australia:

- **Challenge 1:** Acquire and maintain adequate resourcing and competence within the regulator to cope with additional/new work and activities.

5.4 Suggestions

The Country Group did not identify a Suggestion for Australia.

5.5 Good Practices and Area of Good Performance

During the peer review of Australia’s National Report, the Contracting Parties were invited to recommend Good Practices and to highlight Area of Good Performance.

The Country Group identified no Good Practices:

The following Area of Good Performance of Australia were commended by the Country Group:

- **Area of Good Performance 1:** Implementation of a Quality Management System to ISO 17020:2012.
- **Area of Good Performance 2:** The collaborative agreement with operators of the SAFARI-1 reactor (South Africa) and the High Flux Reactor (The Netherlands) with the aim to work together to increase safety and reliability through cooperation.
- **Area of Good Performance 3:** Introduction of the Regulatory Delivery Model which includes:
 - New targeted risk informed inspection programme,
 - Performance Objectives and Criteria for inspections – includes Safety Culture,
 - Holistic safety.
- **Area of Good Performance 4:** Implementation of the Regulator Performance Framework Annual Self Review, using a process of peer review with international counterparts, as well as the stakeholders.

6 Fulfilment of CNS Review Requirements

The Country Group concluded that: Australia

- Submitted a National Report, and therefore complies with Article 5 and in time following Rule 39 of INFCIRC/573 Rev;
- Attended the 7th CNS Review Meeting, and therefore complies with Article 24.1;
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