



Inspection report

Licence Holder: ANSTO	Licence Number: F0157
Location inspected: OPAL Reactor	Date/s of inspection: 14-16 Nov 17
	Report No: R17/12717
<p>An inspection was conducted as part of ARPANSA's baseline inspection program to assess compliance with the <i>Australian Radiation Protection and Nuclear Safety Act 1998</i> (the Act), the Australian Radiation Protection and Nuclear Safety Regulations 1999 (the Regulations), and conditions of Facility Licence F0157.</p> <p>The scope of the inspection included an assessment of ANSTO OPAL's Performance against the Objectives and Criteria (PO&C) in Inspection, Testing and Maintenance (ITM). The inspection consisted of a review of records and interviews.</p> <p>Background</p> <p>The OPAL facility is a multipurpose research reactor that provides a variety of services involving nuclear medicine, research, and silicon irradiation.</p> <p>Observations</p> <p>The licence holder was found to be in compliance with the Act, the Regulations, and licence conditions with respect to ITM. The inspection also concluded that the OPAL reactor continues to reflect the principles of the ITM PO&C in its controls, behaviours and management system. A review of ITM was conducted against the relevant IAEA Safety Standards Series No. NS-G-4.2, which is considered international best practice. No significant issues were raised.</p> <p>Good performance was identified relating to the ongoing work being conducted on continuous improvement of the OPAL asset management system using advanced analysis of information and risk profiling, and the engagement of an external specialist contractor. One area for improvement was identified relating to actions arising from the last Reactor Pool Component Inspection.</p> <p>Key observations included:</p> <p>The areas for improvement identified at the last OPAL ITM inspection were noted to be completed mainly through the ongoing OPAL cultural improvement program which includes initiatives such as professional team engagement workshops and the roll out of the OPAL Safety Conversation Program.</p>	

ITM requirements stated in the OPAL Safety Analysis Report (SAR) were reviewed and found to be reflected in the OPAL BMS with operating instruction OP11 and associated maintenance strategies comprising the key management documents.

Over 20 ITM records were reviewed to assess whether work had been properly authorised beforehand and documented during and after. The records included safe work permits, Safe Work Method and Environmental Statements (SWMES), Inhibit/Interlock/Bypass Permits (IBP), Operational Limits and Conditions (OLC) records and completed instruction paperwork with relevant ITM results. These were selected at random and were associated with OMI 7230-015 ECC Ventilation and Pressurisation Verification, OMI 7230-016 ECC Filter Efficiency Testing, OMI 6990 Irradiation Facility Neutron Flux Instrumentation Calibration, OMI 7230-001 Second Shutdown System Functional Test, OMI 6820-001 THC Rig Handling Equipment Inspection, Testing and Maintenance, OMI 5021-005 Preventative Maintenance of Safety Category MCCs, OMI 4530-001AEM Response Time Testing and a range of chemical sampling. No issues were found with any of these records. The instructions were found to include the safety requirements informed by the Safety Case and examples of workers using the change control process to improve procedures for efficiency or safety related reasons were noted.

Events raised since the last inspection with potential ITM issues (authorisation of work, scheduling issues, use or content of work permits, content of SWMES, use of isolations and potential communication issues) were examined. The management of these events and improvement actions implemented were considered to be effective.

Records relating to project E0330 - Upgrade to the SAP system - were assessed including the project internal audit results to ensure that the change had been properly managed and that verification of the transfer of ITM records had been conducted. No issues were raised by the ARPANSA inspectors.

The status of the ITM actions from the OPAL Periodic Safety Review (PSR) were discussed and evidence of completion of over 30 actions reviewed as part of the inspection. The ongoing management of the actions was considered to be appropriate and no significant issues were raised.

A number of maintenance strategies including OMM 1150-001, OM 1200-001, OMM 0300-001 and OMM 6820-003 were assessed. Whilst it was noted that some new instructions linked to the strategies are still to be developed, this is being tracked effectively and in all but one case examined, there were existing procedures in place to conduct the ITM required under the strategy. This case related to the monitoring of PCV-004 pressure. This test is not safety significant and at the time of the inspection a request was raised by ANSTO to incorporate this test into existing instruction OMI 6890-001.

The development of the reactor pool and service pool long term maintenance strategy is ongoing and being managed through the PSR actions list. The records of the last inspection of Pool Liners, Reflections Vessel and Isolation Gate and associated components under OMI 0610-001 were reviewed. The reviewed material comprised a report OPAL-0610-TRP-001 authored by staff from the ANSTO Institute of Materials Engineering. This report made two recommendations relating to annual removal of debris from the floor of the reactor and service pool, and the ongoing monitoring of the condition of a number of pool components. At the time of the inspection it was noted that the recommendations were still to be fully addressed.

ITM work is regularly witnessed by ARPANSA inspectors under the site visit program with the most recent work comprising the replacement of the OPAL control rods in September 2017. No significant issues have been raised by ARPANSA inspectors regarding ITM work at these visits to date.

Findings

The licence holder was found to be in compliance with the requirements of the Act, the Regulations, and licence conditions.

The inspection revealed the following **areas for improvement**:

1. The recommendations from the last ANSTO Inspection of the Reactor Pool, Service Pool and Transfer Canal Liners, Reflector Vessel, and Isolation Gate are to be fully addressed.

It is expected that improvement actions be taken in a timely manner.

The inspection revealed the following **good practice/s**:

1. The ongoing work being conducted on the continual improvement of the OPAL asset management system using advanced analysis of information and risk profiling and the engagement of an external specialist contractor