An inspection was conducted as part of ARPANSA’s baseline inspection program to assess compliance with the Australian Radiation Protection and Nuclear Safety Act 1998 (the Act), the Australian Radiation Protection and Nuclear Safety Regulations 1999 (the Regulations), and conditions of the Facility Licence F0157.

The scope of this inspection included assessment of the ANSTO OPAL organisation’s performance in the ARPANSA Performance Objective Criteria (PO&C) areas of Event Protection, Emergency Preparedness and Response and Performance Reporting and Verification. The inspection consisted of a review of records, interviews, and a physical inspection of the facility. Aspects of the ANSTO Central Emergency Response services were also reviewed as part of this inspection in relation to the support services provided to the OPAL reactor in event protection and emergency response.

**Background**

The OPAL facility is a low power, multipurpose research reactor that provides a variety of benefits to the community including nuclear medicine, research, and the production of isotopes.

**Observations**

The licence holder was found to be in compliance with the Act, the Regulations, and licence conditions with respect to the areas inspected. Inspectors also concluded that the OPAL reactor continues to reflect the principles of the inspected PO&C in its controls, behaviours and management system.

Two areas for improvement were identified in relation to Central ANSTO Emergency Response.

**Areas for improvement from the previous relevant OPAL inspections**

The areas for improvement identified at the previous OPAL inspections are either progressing or completed. The following points were noted:

Drafting of the Emergency Response Team (ERT) Manual for the ANSTO site is continuing and the Central ANSTO Emergency Response team aims to issue it by 2019 as part of ANSTO’s continuous improvement. It will comprise a comprehensive emergency response instruction for the ERT covering all major ANSTO facilities. The delay to date has been due to resourcing.
OPAL-7200-TRP-014 Rev B Safety Reassessment of OPAL in the light of the Fukushima Daiichi Accident has been endorsed by ANSTO’s Safety Assurance Committee (SAC) and formally issued since the last Event Protection inspection in 2016. It has been prepared to align with IAEA Safety Report Series No.80: Safety Reassessment for Research Reactors in the light of the Accident at the Fukushima Daiichi Nuclear Power Plan. Rev B identifies one additional recommendation compared with the Preliminary Safety Reassessment report. Progress on the recommendations from the preliminary reassessment report were checked as part of the inspection and were noted to be either completed or incorporated into the recommendations of Rev B. OPAL management will review the recommendations and determine if actions are required. No significant issues were raised by ARPANSA regarding Rev B.

The user issues identified with the new GRC event reporting system since the last Performance Reporting and Verification inspection in 2016 have been addressed to some extent centrally by the ANSTO business owners as part of ongoing improvement of the system. ARPANSA noted that the system does however still function as an event reporting system and remaining user issues are worked around by ANSTO staff. User issues that have not been addressed to date include the speed of the system and the sending of multiple irrelevant event notifications to managers.

**Emergency Preparedness and Response and Event Protection Main Observations**

ANSTO provided the draft plan covering their corporate initiative to conduct a full assessment of the relevant ANSTO facilities and update the ANSTO Emergency Management Plans to better align with the requirements of IAEA GSR Part 7 Preparedness and Response for a Nuclear or Radiological Emergency. It was noted that OPAL was in phase 1 of the plan. The draft plan is considered to be comprehensive and the actions will be monitored by ARPANSA to completion as part of routine regulatory oversight.

There have been nine OPAL specific emergency exercises and drills conducted since the previous ARPANSA emergency preparedness and response inspection in 2015. The frequency and content of the exercises/drills was reviewed and were in line with the requirements of the OPAL Emergency Preparedness Plan OP16. The exercises/drills included a range of simulated internal and external emergency events, drills of OPAL rescue plans as well as testing of recovery systems using external emergency responders.

The related exercise reports and evidence of actions being tracked to completion were reviewed and no significant issues raised. It is noted also that ARPANSA inspectors attended a number of these exercises/drills as invited observers.

Planning of the exercises/drills was reviewed as part of the inspection. The planning follows ANSTO AG 2361 but involves more detail such as the use of a multi-disciplinary committee, a greater lead planning time, and the production of Exercise Instructions, and is in line with IAEA GSG-2 Criteria for Use in Preparedness and response for a Nuclear or Radiological Emergency as applicable. The instructions prepared for each exercise/drill are issued in the OPAL BMS system. A number were reviewed as part of this inspection including OPAL-7268-TRP-012 and OPAL-7268-INS-013.

Observers are used during exercises/drill to determine whether the objectives of the exercises have been met. Check sheets are provided for observers to complete in the exercise instructions. It was noted that whilst the planning process followed above is appropriate, it has not yet been captured fully in the OPAL BMS system.

Records were provided of OPAL specific emergency response training undertaken since the previous inspection in 2015. This included shift training in OOI 7268, operating instructions scenarios and Main Control Room Evacuation OOI 7268-018, as well as OTF 004 Refresher Training records related to emergency response and event protection. The Operating Instruction Scenarios continue to be practised...
by relevant OPAL staff at least once every 18 months with the plan for the rest of 2018 provided to ARPANSA. No issues were raised regarding training.

Records of testing of emergency equipment (OOF 057) and control of chemicals (OOF 005) were reviewed along with the latest Wormald Fire systems inspection reports. Hot work permit use was previously covered at recent ARPANSA inspection and so was not duplicated here. No significant issues were raised by the ARPANSA inspectors.

A walkthrough of parts of the OPAL facility was conducted on the 21 March and no issues were raised with the internal or external event protection systems observed.

**ANSTO Central Emergency Response Observations**

The Annual NSW Rural Fire Service inspection report (September 2017) of ANSTO regarding bush fire fuel management around the site perimeter was reviewed as part of the inspection and the actions were noted to be completed or progressing in a timely manner.

In addition the ANSTO Central Emergency exercises/drills/training (site wide exercises or non-OPAL specific) conducted since the 2015 inspection were reviewed as assurance that the central emergency response plans (which include OPAL Staff) were being tested on a regular basis. It was noted that over 10 drills/exercises/training multiagency sessions have been conducted, as well as a site wide ANSTO exercise in 2015. The frequency and scope was noted to be in line with the requirements of the ANSTO Site Wide Emergency Plan AG-5945.

It was noted that the improvement actions from the 2015 ANSTO Site Wide Emergency Exercise have not been tracked to completion. ARPANSA PO&C 8.1.5 states that lessons from operational events, drills, training and exercises are identified and learnt. Learning is evident in the revisions of emergency response plans, procedures, and instructions, and is incorporated into training. The cause of the oversight was considered to be due to key staff member turn over in ANSTO Security and ANSTO Emergency Response. Consequently an AFI has been raised in this inspection to suggest that senior management/executive oversight be improved to ensure that the implementation of safety and security related lessons from future exercises cannot be overlooked as a result of staffing changes.

The ANSTO AG-5610 Crisis Management Plan (CMP) has been reissued since the last ARPANSA emergency preparedness inspection in 2015. At the time of this inspection, no record of formal training could be provided which demonstrated that key roles in this plan such as members of the Crisis Management Team (CMT) or Crisis Assessment Team (CAT) members had been trained in how to fulfil their responsibilities under the CMP. For example no formal records existed for the newest CMT member appointed in 2018 to demonstrate that they had been formally trained to conduct this role. The acting ANSTO Emergency Operations Manager did state however, that the need for formalised training had been raised by himself as an improvement opportunity recently.

ARPANSA PO&C 8.2.9 states Decisions are made by suitable qualified and experience persons in accordance with stated accountabilities. Therefore an area for improvement is suggested to formalise training required for key emergency response roles such as the CMT and CAT to ensure ANSTO can demonstrate that staff acting in these roles are suitably trained.

**Performance Reporting and Verification**

A number of recent OPAL event investigations including GRC 4015, 2870 and 2614 were reviewed in detail as part of this inspection. Investigations were in line with AG 2375 and no significant issues were raised with the investigation methods used or the content. It is noted that ARPANSA reviews OPAL events on an ongoing basis as part of the quarterly reporting requirements.
In addition to event investigation training, OPAL staff complete the Energy Institute’s Human factors awareness web-based training. Training based on the ARPANSA Holistic safety guidelines has also been rolled out to all new shift managers (records were reviewed as part of this inspection) and there is a plan to roll out to all OPAL staff in the future.

The quarterly reports since the last Performance Reporting and Verification inspection in December 2016 were reviewed against the reporting requirements of the PO&C. No issues were raised.

It was noted that the OPAL superseded event management system ROEMS is due to be fully shut down in June 2018 and any remaining unclosed actions/events transferred over to the GRC. At the time of the inspection approximately 93% of events/actions on ROEMS were closed. A spot check of ROEMS events including 5987, 6445, 6648, and 5803 was conducted as part of the inspection. Where events remained open it was due to associated actions being long term or due to human error (forgetting to close the action out on the system) rather than the actions not being physically completed. No significant issues were raised with the management of the close out of ROEMS to date.

The OF 36 forms Determination and Recording of INES Rating of Nuclear and/or Radiological Safety Events for events 1659, 2870 and 6483 were reviewed and no issues raised.

**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 improvements:

1. Senior management/executive oversight of the ANSTO Central Emergency Response process should be improved to ensure implementation of safety and security related lessons learnt from future exercises cannot be overlooked as a result of staffing changes.

2. Training should be formalised for key emergency response roles such as the Crisis Management Team and the Crisis Assessment Team.

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

*No written response to this report is required*

*THIS REPORT WILL BE PUBLISHED ON THE ARPANSA WEBSITE*