



## INSPECTION REPORT

<b>Licence Holder:</b> ANSTO	<b>Licence Number:</b> F0157
<b>Location inspected:</b> OPAL Reactor, Lucas Heights Science & Technology Centre, New Illawarra Road, Lucas Heights	<b>Date of inspection:</b> 20/12/2011
	<b>Report No:</b> R11/14803

This is the record of an inspection conducted under Part 7 of the *Australian Radiation Protection and Nuclear Safety Act 1998* (the Act). The purpose of the inspection was to assess compliance with the Act, the Australian Radiation Protection and Nuclear Safety Regulations 1999 (the Regulations) and licence conditions.

The scope of this inspection was to conduct an OPAL operational log book audit.

The inspection consisted of selective examination of the Main Control Room Logs and the Shift Manager Logs for November and December 2011 up to the 19 December 2011.

The following observations, conclusions and recommendations are based on an analysis of information and evidence obtained during the inspection.

**Observations:** There were a number of events and items of interest recorded in the Reactor Operation Event Management System (ROEMS) and log book. ANSTO provided the inspectors with more details of the events during the exit meeting. The events and items of interest discussed consisted of:

1. The number of minor contamination events at OPAL has increased recently. The string of events is currently still under investigation. The probable root cause for the contamination is performance of the reactor water purification system and hot water layer system resin filters. Based on the ongoing monitoring, ANSTO is now considering a change to the replacement strategy of the resins.
2. Two reactor trips occurred during this period due to instrumentation and reactor protection systems. The causes of the trips were investigated.
3. Unusual water leakage was identified coming from Control Rod 3 seals. ANSTO has taken appropriate actions to investigate the seal wear. An engineering project has been raised to re-assess the regular scheduled seal replacement frequency of all control rods.
4. A visitor was noted in the Reactor Hall who was not wearing correct attire (not wearing long leg trousers and protective boots). In later correspondence we were informed that the Shift Manager on duty had asked the visitor and their ANSTO escort to leave the containment.
5. Review of data from startup showed core inlet temperature exceeded the limit of 38°C for a short period. The temperature was returned to below the limit within the required timeframe specified under the OPAL Operating Limits and Conditions. The investigation of this event continues.
6. An abnormal dose rate of 4.67 mSv/h due to contamination build up has been found on contact with the Inner Neutron Guide Helium Cooling System (INGHCS) charcoal filters. This falls off to 200 µSv/h at 1 metre. Three possible causes were identified. ANSTO has raised actions to address these causes to prevent recurrence.
7. It was observed that the log keeping is brief to the point where some records do not contain enough information. As per The OPAL instruction OI 11, Log books should be a record of events and the times over which the events occur so that they could be used for possible later analysis of incidents and accidents. These records could become legal evidence in investigations and therefore should contain sufficient information for non operating staff to be

able to understand the chain of events as recorded.

**Conclusions:**

- ANSTO provided sufficient information to show appropriate immediate actions were taken to investigate and mitigate recurrence of the safety related events recorded.
- ANSTO are undertaking investigations and other actions to rectify all of the issues identified above.
- Although record keeping has improved over the period that OPAL has been operating, some of the Reactor Operator entries did not contain sufficiently clear information. For example start and finish times of actions taken and events description should improve.
- At the time of the inspection there was no evidence of non-compliance.

**Recommendation:**

It is recommended that ANSTO re-examine the information recorded in the MCR Log Book and consider increasing details recorded for events.