



## Inspection report

<b>Licence Holder:</b> ANSTO Australian Centre for Neutron Scattering (ACNS)	<b>Licence Number:</b> S0202
<b>Location inspected:</b> Lucas Heights, NSW	<b>Date/s of inspection:</b> 25 July – 3 August 2017
	<b>Report No:</b> R17/08227

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 Source Licence S0202.

The scope of the inspection included an assessment of ANSTO ACNS's performance at Lucas Heights against the Source Performance Objectives and Criteria (PO&C). The inspection consisted of a review of records, interviews, and physical inspection of the facility.

### Background

A suite of neutron scattering instruments is located adjacent to the OPAL reactor. These are managed by the ANSTO ACNS with the aim of providing the Australian and international scientific community with the capacity to perform experiments in the pursuit of scientific breakthroughs. The instruments utilise neutron scattering.

### Observations

In general, the operation of the neutron scattering instruments was found to be based on a comprehensive business documentation system. The arrangements in place generally met the performance objectives and criteria for a source licence. A potential non-compliance has been identified which relates to a deviation from the formally established modification safety categorisation process. In other cases, room for improvement was identified in regard to action tracking, documentation review and update, the radioactive material management, maintenance of monitoring equipment, and training.

### Action tracking

The ANSTO site-wide action-tracking system (GRC system) is used to log events and manage actions by tracking their investigation and implementation status. Personnel at various levels of the organisation are appropriately trained to use the system. The evidence, number of events and their type suggested the system is routinely used which indicates a good event reporting culture.

A selected sample of events was inspected and the level of the internal investigation was found to be adequate to the event safety significance. The internal events and lessons learnt are shared among ACNS personnel at regular safety meetings. Relevant events that occurred at other ANSTO facilities, external national and international operators are also shared at the meetings.

An effective tracking system fosters timely implementation of actions arising from identified safety and security deficiencies. The GRC system used by ANSTO was found to be effectively used for tracking actions arising from event investigations and internal/external audits. However, the system was not used to its full potential for tracking actions arising from other activities. For example, ANSTO ACNS regularly conducts emergency exercises. Every exercise is analysed and actions for further improvement are identified. Rather than using the GRC, these actions are managed using another tracking system. See Area for Improvement #1 in Findings below.

### ***Project categorisation***

ANSTO and ACNS level project processes stipulate that appropriate safety review mechanisms must be maintained. This implies that modifications are categorised by safety implication and managed accordingly. The ACNS project documents inspected indicated that safety categorisation of some changes had been carried out in an informal way.

The examination of the changes did not show that the projects were miscategorised. However, the variation from the formal process constitutes a risk that projects may be managed in a way that is disproportionate to their actual safety implications. This may constitute a non-compliance with regulation 49, which requires that licence holders must take all reasonably practicable steps to ensure the plans and arrangements for managing safety are implemented.

It is noted that an improvement opportunity in this area was identified during the previous ARPANSA inspection. As this inspection showed, the opportunity has not been effectively utilised, even though the relevant remedial action was identified.

It is recognised that ACNS has taken immediate action to address the issue. The formal categorisation has been completed and actions to implement an appropriate systemic improvement have been initiated.

### ***Documentation update***

ANSTO ACNS documentation is mature and the document review schedule is developed and maintained current. The documents are generally reviewed according to the frequencies established in the relevant ANSTO level documents and local document and record management procedure. ANSTO ACNS regularly produces a record management report to manage the document review schedule. However, a number of the inspected documents were found not to be reviewed according to the schedule. This included the plans and arrangements forming the current licensing basis (e.g. PO-P-027 Security Management Procedure) and some operational documentation (e.g. PO-P-017 Safety Management Procedure).

Considering the level of safety importance of the overdue documents, the delays in review do not pose significant safety implications. Nevertheless, it presents an opportunity for improvement. See Area for Improvement #2 in Findings below.

***Radioactive sample management***

ANSTO ACNS has developed a set of procedures that formalises a systematic approach to radioactive source management. The team visually inspected the areas with sources and a number of improvements have been observed. For example, housekeeping at source store location has improved.

While logbooks in many areas provided clear source registers, other areas lacked a systematic way of keeping a track of radioactive material in storage. For example, all neutron scattering instrument workplaces are equipped with sample decay boxes where activated samples are placed while they decay. Although the relevant sources were always found inside the boxes to prevent unnecessary doses to the personnel, logbook information of the material inside the boxes was not consistent. The logbook format varied and records were sometimes incomplete. See Area for Improvement #3 in Findings below.

***Maintenance***

Although the ANSTO ACNS maintenance is currently upgrading the electronic management maintenance system SAP, the maintenance of ACNS assets is appropriate. Inspection of the maintenance backlog did not reveal an excessive number of delayed activities. No safety important system maintenance was found in the list.

The OPAL reactor maintenance group maintains some systems physically located in the ACNS buildings, e.g. the fire detection system. Although ACNS do not directly control maintenance of those systems, the OPAL reactor and ACNS personnel meet monthly to share the operational information that includes maintenance matters.

The physical inspection of the ACNS instruments included a spot check of radiation monitor calibration. Numerous dosimeters and area radiation monitors were checked. Although all handheld radiation instruments were calibrated according to the schedule, two fixed radiation monitors were found to be out of calibration. For example, a walkthrough contamination monitor was observed to be eight months past the required calibration date. See Area for Improvement #4 in Findings below.

***Training***

The training records for all ANSTO ACNS personnel are accurately maintained and were readily available for inspection. The records of the selected group of personnel were found to be comprehensive, detailed and delivered in a timely manner. Out of all staff, there was a small number of personnel overdue in receiving the mandatory 5-year radiation protection refresher training. Whereas the majority of the overdue training was outstanding by less than two months, two persons' radiation protection refresher was delayed by over a year. In those two instances, special circumstances prevented the personnel taking part in the scheduled refresher training. See Area for Improvement #5 in Findings below.

## Findings

The inspection revealed the following **potential non-compliance**:

1. Modification safety categorisation did not always follow the approved process.

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

1. GRC is not consistently used for action tracking, particularly actions arising from findings other than investigations and audits.
2. Documentation was not always reviewed according to the schedule.
3. There were inconsistent records of radioactive material held across the ACNS instrument work areas.
4. Maintenance of radiation monitors was not always carried out according to the schedule.
5. Training was not always carried out according to the plan.

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