



# Inspection report

<b>Licence holder:</b> CSIRO Land and Water (CLW)	<b>Licence number:</b> S0009
<b>Location inspected:</b> Waite, South Australia	<b>Date/s of inspection:</b> 28 August 2019
	<b>Report no:</b> R19/09856

This 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 2018 (the Regulations), and conditions of Source Licence S0009.

The scope of the inspection included an assessment of CLW's performance at Waite against the Source Performance Objectives and Criteria. The inspection consisted of interviews, a review of records and physical inspection of sources.

## Background

CLW uses controlled material and controlled apparatus at the Waite site to assist its research into various projects involving economic, social and environmental issues related to water, land, cities and ecosystems. In achieving these goals, CSIRO uses sealed and unsealed radioactive sources, X-ray analysis equipment, UV apparatus and lasers as research tools.

CLW is authorised under section 33 of the Act to deal with controlled apparatus and controlled material.

The main codes and standards applicable to the CLW sources at the Waite site are those that appear in section 59 of the Regulations plus:

- AS/NZS:2243.4 Australian Standard Safety in Laboratories – Ionising Radiations (2018) (AS/NZS 2243.4)
- Radiation Protection Series 12 *Radiation Protection Standard for Occupational Exposure to Ultraviolet radiation (2006)* (RPS12),
- Radiation Health Series No. 9 *Code of Practice for Protection Against Ionizing Radiation Emitted from X-ray Analysis Equipment (1984)* (RHS9)
- Australian/New Zealand Standard *Safety in Laboratories Part 5: Non-ionizing radiations – Electromagnetic, sound and ultrasound* (AS/NZS 2243.5:2004)
- Australian/New Zealand Standard Safety of laser products Part 1: Equipment classification (AS/NZS IEC 60825-1:2014) (the laser standard)
- Australian/New Zealand Standard Safety of laser products Part 14: A user's guide (AS/NZS IEC 60825-14:2011) (the laser standard)

## Observations

In general, the management of safety at the Waite site was found to be satisfactory.

### *Performance Reporting and Verification and Configuration Control*

The details of CLW's physical sources and apparatus at the Waite site (e.g. Make, Manufacturer, Serial No., operating parameters) were found to be consistent with those listed in its Source Inventory Workbook (SIW) other than some minor inaccuracies such as an incorrect serial number and an incomplete room designation.

CLW provides ARPANSA with timely quarterly reports. The contents of the information within contained relevant information, including:

- information regarding source transfers and disposals in accordance with Section 65 of the Regulations
- information regarding acquisitions of new sources, and
- information detailing the implementation of corrective actions from previous inspections.

CLW provided a copy of the Radiation Protection Plan (RPP) for assessment. This document made up CLW's plans and arrangements on radiation safety and covered all sites under licence S0009. CLW reviews the document annually with the most recent version 3.1 being published in August 2019. This revision was based on CSIRO's new template radiation protection plan applying to all CSIRO business units.

### **Inspection, Testing and Maintenance (Servicing)**

The site RSO undertakes checks on all controlled apparatus and controlled materials to verify SIW locations against the CSIRO database on a quarterly basis.

The results of recent wipe tests performed in the unsealed source laboratories were sighted by the inspection team.

Calibration certificates/labels for the contamination meters were sighted during the inspection and it was noted that these were calibrated annually, more frequently than the ARPANSA regulatory requirements of 5 years for this type of monitor.

All UV devices, including the UV lamps, were serviced/tested by external accreditors for NATA purposes.

The radiation store is owned by the University of Adelaide and CSIRO Business Units on the Waite site, including CLW, are permitted to store waste or redundant sources in the store by agreement. The store therefore comes under the jurisdiction of the South Australian radiation regulator although CSIRO Business Units on the Waite site would have a radiation protection obligation for their own sources stored in the building. All CSIRO inventory in the store is scheduled to be transferred to a consolidated CSIRO store before the end of 2019.

The University of Adelaide has representation on the CSIRO Waite site Radiation Safety Committee and there is therefore communication between the groups using the store with the aim of maintaining a safe environment.

The store was assessed during the CSIRO Agriculture and Food inspection in June 2019 where it was deemed to meet the requirements of AS/NZS:2243.4. No re-assessment of the store was performed during this inspection.

## Training

All staff using the UV apparatus undergo internal training from the HSE Radiation Specialist (Chief Radiation Safety Officer). Over 400 CSIRO staff across all Business Units have received this training and records are kept of those who have completed the training. A sample of the records were reviewed during the inspection and found to be satisfactory.

Once completed, the training is 'portable' across each site and each Business Unit although individual site induction is required if a staff member were to transfer to another location. Refresher training is required every three years.

Training in the use of unsealed sources is through a local commercial training organisation and a copy of a training certificate was sighted. This training is also scheduled for three-year refresher.

## Security

The quantity and type of radioactive material in use at the site did not invoke the provisions of RPS11.

Access to areas within the buildings is restricted by use of either swipe cards or key. The inspectors found that the level of access control was satisfactory.

## Radiation Protection

Safe Work Instructions (SWIs) were present at or on all equipment and in the unsealed source laboratories. All SWIs were noted as being reviewed within the time specified. The equipment also had plant risk assessments present.

CLW staff perform infrequent work using naturally occurring radioactive material and an SWI was available for this type of work even though the last procedures were carried out in 2017. This SWI was kept on computer and a copy was provided following the inspection.

Each unsealed source laboratory was found to meet the requirements of AS/NZS:2243.4 for a low level laboratory.

All X-ray analysis units were appropriately labelled and a cross check with the SIW entries showed that all were present and accounted for. Further, each unit was seen to meet the requirements for enclosed units as prescribed in RHS9.

All UV sources were appropriately labelled and a cross check with the SIW entries showed that all were present and accounted for.

The laser was classified as a Class 4 laser however the specifications for that device indicated that it was actually a Class 3B laser. Calculations based on its operating parameters confirmed the average power was that of a Class 3B laser. This entry would be rectified in the SIW.

## Findings

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

*No written response to this report is required*

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