



## Inspection Report

<b>Licence Holder:</b> CSIRO Land and Water (CLW)	<b>Licence Number:</b> S0009
<b>Location inspected:</b> Sandy Bay, Tasmania	<b>Date/s of inspection:</b> 6 February 2017
	<b>Report No:</b> R17/01718

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 Source Licence S0009.

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

### Background

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

CLW uses controlled apparatus at the Sandy Bay site to assist its research into various projects involving economic, social and environmental issues related to water, land, cities and ecosystems. This inspection focussed on the X-ray equipment and UV apparatus.

### Observations

In general, the management of radiation safety at the CLW facility was found to be satisfactory.

### *Performance Reporting Verification*

CLW's quarterly reports have been submitted to ARPANSA in a timely manner in recent years, and contained relevant information, including details of compliance with the Act and Regulations. Information for quarterly reports is coordinated by the Business Unit Radiation Safety Officer (BURSO) with input from each CLW site which is consolidated into one final report to ARPANSA.

Other documentation required by ARPANSA such as Regulation 51 submissions and Regulation 53 disposal requests are also coordinated through the BURSO as needed.

### *Training*

All personnel using controlled apparatus on the site are required to undertake training related to the particular hazard. Training records are maintained electronically and these were verified during the inspection.

All CLW staff at the Sandy Bay site are required to undertake induction training in order to work on-site. The induction training records are maintained in hard copy form and on an electronic database. Access to the laboratory area is restricted to only those personnel who have undergone induction training.

**Radiation Protection**

CLW management has demonstrated a commitment to radiation protection by establishing a policy to facilitate the safe and effective use of radiation at the Sandy Bay site. This is supported by a comprehensive Radiation Protection Plan (RPP) to achieve and maintain best practice and compliance with radiation legislation and ARPANSA licence conditions. Version 2.2 of the RPP was published in October 2016 and a table highlighting changes was included inside the front cover detailing the version number, endorsing person, approving person and issue date. The RPP contains some internal inconsistencies; however these were identified during a previous inspection and CLW has undertaken to address them in a subsequent review of the document.

**Physical Inspection**

Safe work instructions were observed to be located adjacent to all controlled apparatus, each of which had been reviewed within the previous 12 months.

During the inspection of the controlled apparatus, CLW appeared to be in compliance with all aspects of the Australian Standard AS2243.5:2004 *Safety in laboratories Part 5: Non-ionizing radiations-Electromagnetic, sound and ultrasound*. However, another CSIRO Business Unit had recently been found to be non-compliant for failing to conduct an adequate risk assessment.

ARPANSA has been advised that there is an organisation-wide plan to comply with requirements for a risk assessment to be conducted for all business units.

Spectral measurements were taken during the inspection of a 400 W incandescent lamp (LAD 479) used to simulate solar light for plant growth. The measurements were taken to assess whether the lamps were technically considered controlled apparatus for the purpose of the Act and Regulations. CSIRO will be advised of the outcome of the assessment in due course.

The X-ray apparatus was operated inside a lockable safe to which only two staff have access. Warning lights to indicate when the unit is operating were not present and interlocks were not fitted to the access panel of the X-ray tube. The use of warning lights and interlocks are a requirement of the *Code of Practice for Protection Against Ionizing Radiation Emitted from X-ray Analysis Equipment (1984)* (sections 5.3.6.1 and 5.3.1 respectively).

**Findings**

The inspection revealed the following potential non-compliance:

The X-ray analysis equipment did not fully adhere to the requirements of the relevant Code of Practice specified under Licence Condition 5(f).