



Inspection report

Licence holder: CSIRO Mineral Resources	Licence number: S0064
Location inspected: Waterford & Kensington, Western Australia	Date/s of inspection: 13–14 November 2018
	Report no: R18/13752

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 S0064.

The scope of the inspection included an assessment of CSIRO Mineral Resources (MR) performance at Waterford and Kensington against the Source Performance Objectives and Criteria (PO&Cs). The inspection consisted of a review of records, interviews, and physical inspection of sources.

Background

The Commonwealth Scientific and Industrial Research Organisation, CSIRO, is Australia's national science agency. Since 1926, CSIRO has been delivering science and innovative solutions for industry, society and the environment, and forming important alliances with government, industry and communities in over 80 countries. CSIRO is an independent statutory authority constituted and operating under the provisions of the *Science and Industry Research Act 1949* accountable to the Australian Government via the Minister for Industry and Science.

The role of MR is to deliver cost effective exploration and discovery of new mineral resources through advances and expertise in detection technologies, mineral systems, resource characterisation and data analysis. This inspection focussed on sealed and unsealed radioactive sources, X-ray analysis equipment, UV devices and lasers.

MR is authorised under section 33 of the Act to deal with ionising and non-ionising controlled apparatus and controlled material.

The main codes and standards applicable to these sources are:

- *Radiation Health Series 9 Code of Practice for Protection Against Ionizing Radiation Emitted from X-ray Analysis Equipment (1984)* (RHS 9)
- Australian/New Zealand Standard, *Safety in Laboratories Part 4: Ionising radiations* (AS/NZS 2243.4:2018)
- Australian/New Zealand Standard, *Safety in Laboratories Part 5: Non-ionising radiations—electromagnetics, sound and ultrasound* (AS/NZS 2243.5:2004)

- Australian/ New Zealand Standard, *Safety of Laser Products Part 1: Equipment Classification and Requirements* (AS/NZS IEC 60825.1:2014)
- Radiation Protection Standard – *Occupational Exposure to Ultraviolet Radiation – Radiation Protection Series 12 (2006)* (RPS 12)

Observations

In general, the management of radiation protection at the Waterford and Kensington sites was found to be satisfactory.

The *Radiation Protection Plan* (RPP) (MR's Plans and Arrangements for managing safety) were comprehensive and covered Effective Control, Radiation Protection and Security. However, there were some inconsistencies and ambiguities noted within the document some of which were amended during the inspection. The RPP had been reviewed in November 2018 and would be reviewed as a result of recent inspection.

There appeared to be room for improvement with respect to updating a tag attached to a Hazchem Premium Spill Kit, which showed no evidence as to when it was last checked. Following the inspection, MR provided a hardcopy of a 'Low Level Radioisotope Laboratory Spill Kit Check Sheet' highlighting that the spill kit was last checked on the 15 June 2018. It was agreed that the spill kit check sheet is to be added to MR standard laboratory housekeeping checklist.

The Safe Work Instructions (SWI) located with the XRF (LAD 4427) contained no evidence that authorised users had read and understood the instructions. MR later provided a copy of an SWI during the inspection with signatures for each of the authorised users.

During the inspection, the following non-ionising radiation apparatus (LAD 3553 and 6557) were determined to not be controlled apparatus. These will be removed from the source inventory workbook and reported in the next quarterly report.

Performance reporting verification

MR's quarterly reports have been submitted to ARPANSA in a timely manner 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 MR 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.

Inspection, testing and maintenance

Routine inspections of laboratories and area monitoring activities are completed monthly and a list was viewed (laboratory housekeeping checklist) for the last self-inspection in November 2018. Radiation leakage measurements are completed quarterly for the X-ray units and the low-level radioisotope laboratory. Evidence was sighted that demonstrated that measured radiation levels were near background levels in September 2018 (Shielding Measurement Records). Calibration certificates from October 2018 were also viewed for the dose meter.

Training

Training is required for radiation safety officers, staff using controlled apparatus and sources, contractors and visitors. Hard copies of training records were viewed for authorised users and were found to be satisfactory.

All MR staff are required to undertake induction training in order to work on-site. These induction training records are maintained in hard copy form and on an electronic database. Access to the laboratory area requires swipe card access and is restricted to only personnel who have undergone induction training.

Radiation protection

MR management has demonstrated a commitment to radiation protection by establishing a policy to facilitate the safe and effective use of radiation. This is supported by a comprehensive RPP to achieve and maintain best practice and compliance with radiation legislation and ARPANSA licence conditions.

During the inspection of the controlled apparatus, MR appeared to be in compliance with requirements of the relevant Standards and Codes.

SWIs were positioned on or near each controlled apparatus or location where controlled material was used. The SWIs contained information relevant to the particular device or material and included emergency contact details.

Radiation measurements taken on and around each controlled apparatus capable of emitting ionising radiation confirmed that the respective equipment was fitted with adequate shielding as no dose rates above background levels were measured around these devices.

Security

Access to areas within the buildings was restricted by use of swipe cards. Such access was also based on the level of training provided. Refresher training was provided consistent with the level of access required.

The inspectors found that the level of access control was satisfactory.

Emergency preparedness and response

The Kensington or Waterford site emergency management plan and emergency response procedure requirements relating to evacuation exercises and emergency preparedness was not assessed during the inspection.

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 improvement:

- Hazchem spill kit quarterly service review arrangements.

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

No written response to this report is required

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