



Inspection Report

Licence holder: CSIRO Manufacturing (CMFG)	Licence number: S0066
Location inspected: Clayton, Vic	Date/s of inspection: 13-16 November 2017
	Report No: R17/12988

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 S0066.

The scope of the inspection included an assessment of CSIRO Manufacturing (CMFG)'s performance at Clayton, Vic, against the Source Performance Objectives and Criteria (PO&Cs). The inspection consisted of a review of records, interviews, and physical inspection of sources.

Background

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

CMFG provides science and engineering skills, equipment and international connections to assist Australian manufacturers in biomedical, chemical and manufacturing industries to be globally competitive. CMFG has several sites throughout Victoria and New South Wales, each of which uses a range of sealed and unsealed radioactive sources, X-ray analysis equipment, UV and RF apparatus and lasers as research tools. This inspection focussed on the controlled apparatus and controlled material located at CMFG's three Clayton campuses. Radioactive material from past CMFG, CSIRO Land and Water and CSIRO Mineral Resources dealings is also stored at Clayton and a review of the storage procedures that applies to all the business units also formed a part of this inspection.

The main code and standards applicable to the radiation sources at the Clayton site for this licence are:

1. AS2243.4:1998 *Safety in laboratories Part 4: Ionizing radiations* (the IR Standard)
2. AS2243.5:2004 *Safety in laboratories Part 5: Non-ionizing radiations-Electromagnetic, sound and ultrasound* (the NIR Standard)
3. *Code of Practice for Protection Against Ionizing Radiation Emitted from X-ray Analysis Equipment* (RHS9)
4. *Radiation Protection Standard for Maximum Exposure Levels to Radiofrequency Fields – 3 kHz to 300 GHz* (RPS3)
5. *Radiation Protection Standard for Occupational Exposure to Ultraviolet Radiation* (RPS12)

Observations

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

Performance reporting verification

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

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 CMFG staff are required to undergo induction training in order to work on-site regardless of whether they are working with radiation or not. Access to laboratory areas was restricted to those personnel who had undergone induction training.

Further, personnel using controlled apparatus or controlled material are required to undertake training related to the particular type of source. All training records are kept in hard copy form and on an electronic database and these were verified by the ARPANSA inspectors for each person at the Clayton site who have completed the training.

Radiation protection

CMFG management demonstrates a commitment to radiation protection by establishing a policy to facilitate the safe and effective use of radiation and the safe storage of radioactive sources at the Clayton 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 had been published in March 2017 and a table detailing changes is included inside the front cover showing the version number, endorsing person, approving person and issue date.

The style of the RPP, however, was not consistent with more contemporary RPPs of other business units. It contained unclear terminology (e.g. 'RSO' instead of 'BURSO' or 'site-RSO' in places), redundant clauses, a dose constraint that was inconsistent with the rest of CSIRO, and duplicated requirements. Senior CSIRO staff advised that a new, more generic RPP was in preparation. Once adopted by all CSIRO business units, these anomalies would be rectified. This was not considered to be an area for improvement as the CMFG RPP was generally being followed.

Physical inspection

Some signage on entry doors to laboratories was inconsistent with the specific hazards of the equipment in the laboratory. For example, a radiation trefoil was used to indicate a potential UV hazard.

The signage on the entry door to the unsealed source laboratory did not show that eating, drinking, applying cosmetics or smoking was prohibited in the laboratory. It is acknowledged that smoking is prohibited on the entire site and that it is general laboratory practice not to eat, drink or apply cosmetics however, such signage is a requirement of the IR Standard. This was rectified at the time of the inspection.

The benches where work with radioactive materials took place did not show the radiation symbol to delineate them from areas where no radiation work was done. This was rectified during the inspection.

Two devices listed as being partly enclosed X-ray analysis units would, in fact, be more appropriately categorised as industrial radiography equipment as they were used to obtain information non-destructively on the internal state of the material under investigation through imaging. CMFG did not have the appropriate licensing group for industrial radiography but given the nature of the equipment, the fact that it had been used without incident in the existing configuration for many years and the dose rates around it while in operation, this should be an administrative amendment to the licence.

It was noted that the setup for the measurement equipment in the unsealed source laboratory was more consistent with an improvised temporary arrangement rather than a configuration for long-term use. Lead weights were being used to hold the apparatus down, which could result in the apparatus being knocked over in a worst case scenario. While this would not cause a spillage of radioactive material, a more permanent arrangement would be considered better practice.

CMFG appears to comply with all aspects of the NIR Standard. However, another CSIRO Business Unit (BU) had been issued with a non-compliance notification relating to risk assessments for non-ionising apparatus not being completed. Completion of a risk assessment is required by clause 3.1.2(b) of RPS12. ARPANSA has been advised that there is an organisational plan to comply with this clause and a risk assessment for all Business Units was expected to be completed shortly.

CSIRO BUs have established clear requirements for access to the radiation stores and have demonstrated compliance with key safety and security requirements including access method and adequate ventilation. The CSIRO BUs appear to comply with all requirements of section 7.1 of the IR Standard for the storage of radioactive substances. The radiation surveys (31/10/17) provided during the inspection of the radiation stores at Clayton showed radiation levels were below the occupational exposure limits. The radiation levels for the radiation stores are measured and recorded every three months.

Event protection

Emergency management and preparedness are consistent within the CSIRO BU's RPP for the Clayton site. There are procedures in place to respond to an emergency or potential incident.

Security

The Clayton site are patrolled by an external security agency outside working hours and have electronic security for their buildings in addition to restricted swipe pass access or keys (restricted) for authorised persons. The radiation stores require either swipe or key access that is restricted to trained and authorised personnel only who have a need for access. The physical security measures observed at the site are in accordance with the security procedures outlined in the RPP for each CSIRO BU.

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 area for improvement:

- Inconsistent signage on some laboratory entrance doors and appropriate signage as required by IR Standard

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

UNCLASSIFIED

No written response to this report is required

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