



# Inspection report

<b>Licence holder:</b> Australian Nuclear Science and Technology Organisation (ANSTO)	<b>Licence number:</b> F0293
<b>Location inspected:</b> Little Forest Legacy Site	<b>Date/s of inspection:</b> 23 September to 4 October 2019
	<b>Report no:</b> R19/10665

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 2018 (the Regulations), and conditions of facility licence F0293.

The scope of the inspection included an assessment of ANSTO's performance against all areas outlined by the Performance Objectives and Criteria (POCs). This included Performance reporting and verification, Configuration management, Inspection testing and maintenance, Training, Event protection, Security, Radiation protection, Emergency preparedness and response, Safety culture, Human performance and Performance improvement. The inspection consisted of a review of records, interviews, and physical inspection of the site.

## Background

The Little Forest Legacy Site (LFLS) is a legacy waste disposal site. Between 1960 and 1968, the site was operated by the then Australian Atomic Energy Commission (AAEC). It is a non-operational site that is currently managed under a 'possess or control' licence.

The site includes about 1600 m<sup>3</sup> of material disposed in shallow trenches dug out in clay rich soil. The material consisted of equipment and waste contaminated with low levels of radioactivity, effluent sludge, chemicals and beryllium. After emplacement of the waste, the trenches were initially covered with a 1 metre thick layer of local clay rich soil.

The main codes and standards applicable to this facility are those that appear in section 59 of the Regulations. Particular attention is drawn to the Planned Exposure Code, as although this is an existing exposure situation, the activities that are undertaken by ANSTO to manage the site are considered to be planned.

## Observations

### *Performance reporting verification*

Safety performance data is collected and provided to ARPANSA on an annual basis. No unusual results, deviations or trends were observed in the analyses.

Any events are reported into the ANSTO site-wide Governance, Risk and Compliance system (GRC) and records of entry into the facility are recorded within a security log. Apart from ANSTO Security, there are

mainly four groups of ANSTO staff that visit the LFLS. These are; Waste Operations when conducting periodic inspection and oversight; ANSTO Environmental Monitoring who conduct periodic ground water sampling, air sampling and gamma dose reading; ANSTO Environmental Research Group who study the trench inventory and radioactivity migration on site; and maintenance crews that include grass cutting services. There have been two events with potential safety implications since the last ARPANSA inspection in 2016 – an emergency helicopter landing on site and a bushfire. Both events were reported to ARPANSA at the time of occurrence.

ANSTO has a Safety Assurance Committee (SAC) that provides assurance that activities undertaken by ANSTO comply with the various legislation. The Guide detailing the operation of the SAC specifies that Facility Safety Analysis Reports (SAR) should be reviewed every 5 years unless otherwise agreed by the SAC Chair. The Safety Assessment for the facility was published in August 2014. In the absence of a SAR for the facility, it would be expected that the Safety Assessment would have been reviewed by August 2019. This is identified as an area for improvement below.

### ***Configuration control***

The facility is relatively static with periodic environmental monitoring, maintenance activities and scientific research conducted on the site. There has been no change with significant safety impact implemented into the facility design and management.

Changes are managed using ANSTO Waste Management change control processes. Several projects with minor or no safety and security impact were recorded in the change control register. In 2017, a change unlikely to have a significant safety implication was implemented. It involved building a test trench that would study the trench performance under local hydrological conditions over time. Appropriate risk assessment was included in a form of a safe work method and environmental statement.

From the radiological point of view, the facility is classified as a 'white' radiation and 'white' contamination area, which is an area with the lowest radiological risk. Recent weather had partially destroyed the local hazard notice board on the entrance gate. Alternate, more robust, measures could be implemented to notify visitors of the hazards present at the facility.

### ***Inspection, testing and maintenance***

The site is managed by the ANSTO Waste Management according to the relevant processes. The site is inspected by their personnel on a weekly basis. Although there is no checklist for the inspection, it is outlined in P6556 Management of Little Forest Legacy Site and it is carried out by a number of experienced personnel. The observations are logged into the liquid waste group electronic logbook. Any identified maintenance is managed through the electronic business management system.

The ANSTO Asset Management and Services Group is the maintenance provider for the LFLS facility. The maintenance involves an external grass cutting service. The external service provider is managed according to the ANSTO site-wide contractor management system. The maintenance follows the facility maintenance plan within the electronic business management system.

Responsibility for the facility equipment is delegated to various work groups on site. For example, the sampling boreholes and radiation monitoring equipment are maintained by ANSTO Environmental Monitoring, ANSTO Environmental Research Group maintain their own boreholes and test trench equipment. When maintenance is required, the matter is communicated to ANSTO Waste Management who logs a maintenance request. Generally, the communication was found to be adequate among the workgroups.

### ***Training***

Basic radiation protection training is required for visitors that will not disturb the ground surface on site. This is the mandatory baseline training for all ANSTO radiation workers. A site specific checklist is available for the induction of new staff members or contractors.

If work or maintenance of any kind is required to be completed on the LFLS, a risk assessment is completed. This normally involves hazard identification and risk mitigation and controls according to the safe work method and environmental statement (SWMES) protocol. The workgroups develop their own SWMES on demand and manage the training of their staff. It is noted that radiation training of the Waste Management personnel was up to date. However, the nominee, who is accountable for safety and security of the facility, has no effective oversight of the status of the radiation safety training undertaken by the other groups that access the site. The nominee has neither access to the workgroup training records, nor are they informed on the relevant overdue training of the personnel providing services to the LFLS. This is identified as an area for improvement below.

### ***Event protection***

The fire loading of the facility is managed by periodic grass cutting and tree pruning on demand. The trenched area is roughly at the highest point of the site which minimises the risk due to flooding. The local council implements measures to manage the introduced fauna species. This minimises the potential that these species may enter the facility and affect the trenched area by burrowing in the ground. There were no signs of such damage observed on the site.

The LFLS experienced a bushfire in 2018. The fire has affected some sections of the surrounding bush, however, it did not sweep over the facility. Some inspections of the facility were deferred due to fire related risks at that time. This change to ANSTO's Environmental Monitoring Program and weekly inspections was assessed for safety implications according to the ANSTO site-wide change control process.

### ***Security***

The security plan for the facility is integrated into the facility's plans and arrangements. The document refers to ANSTO site-wide security plan dated in 2017. Although the documents are reviewed periodically, some information in the facility specific security plan was found to be out of date. For example, risk control measures and the physical monitoring regime did not reflect their actual status. This is identified as an area for improvement below.

The LFLS safety assessment includes the impact of unauthorised access to the site. Although this has happened in the distant past, the frequency of such events has become lower in recent years and there has been no security event reported since the last ARPANSA inspection. ANSTO commit to a risk informed approach to security management. However, no documented measures could be provided to describe how security for the facility would be scaled up in the event of a change in the threat environment.

ANSTO's Business Resilience Committee determines which areas of site will be involved in security exercises. No security exercises for LFLS have been conducted in the past or are planned for the future.

### ***Radiation protection***

Due to migration of the radioactivity to the ground surface over time and nature of the work, grass cutting maintenance may disturb the radioactive contaminants on the surface and may temporarily suspend them. ANSTO has recently investigated the risk associated with that work and results of the

study were provided. Taking into account reasonably conservative assumptions and real measurement data, the study confirmed potential dose levels marginally above the natural background level.

Environmental monitoring at LFLS is conducted throughout the year in line with the Environmental Monitoring Sampling Schedule and results are reported to ARPANSA annually according to the licence condition. Standard procedures and Safe Work Method and Environmental Statements exist so fieldwork is conducted in a controlled and safe manner. The samples collected include ground water from boreholes, surface water and sediments from nearby creeks and airborne particulates. The external gamma radiation is also monitored on the site. The results are independently checked before being reported and provide a record of contaminant stability at the legacy site. One of the licence conditions states that ANSTO must establish a plan for the medium and long-term management of the site. The ANSTO Environmental Research Group have been conducting a large body of work which feeds into meeting this licence condition and includes a thorough review of the inventory of the disposed radioactive material. That work has now been completed and summarised in a report that will be made available to ARPANSA.

### ***Emergency preparedness and response***

Emergency preparedness and response is managed according to the ANSTO site-wide protocols. ANSTO Security Operations Centre (ASOC) would be contacted for any emergency encountered at LFLS.

The last ARPANSA inspection of the LFLS conducted in 2016 highlighted a need to consider emergency drills and exercises. ANSTO has reviewed their protocols in that regard and concluded no change is necessary. At the moment, there are no plans to run emergency drills or exercises at the LFLS.

### **Findings**

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

However, the inspection revealed the following **areas for improvement**:

1. The level of oversight available to the nominee of all service providers' training.
2. The safety assessment and plans and arrangements have not been updated to reflect current arrangements and status of the facility.

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

*No written response to this report is required*

THIS REPORT WILL BE PUBLISHED ON THE ARPANSA WEBSITE