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Little Forest Legacy Site Licence Application  
Document LFBG-PC-LA-D4

# **LITTLE FOREST LEGACY SITE 'POSSESS OR CONTROL' LICENCE WASTE MANAGEMENT PLAN**

(Rev. 0)


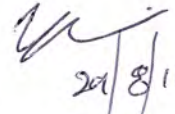


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Little Forest Legacy Site Waste Management Plan

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## **1 PURPOSE AND SCOPE**

The purpose of this document is to outline the radioactive waste management plan in place at the Little Forest Legacy Site (LFLS) during the 'possess or control' phase of the facility located within the buffer zone of the Lucas Heights Science and Technology Centre (LHSTC). This plan should be read in conjunction with the other plans and supporting documents comprising the licence application for the LFLS, including the *Effective Control Plan* [1], *Safety Management Plan* [2], *Radiation Protection Plan* [3], and *Emergency Plan* [4].

ANSTO is seeking an approval for a 'possess or control' licence application of the LFLS. The licence application was originally submitted to ARPANSA in 1999 and ANSTO is updating all the documentation and providing additional information and clarifications to the original licence application. This plan forms the part of that supporting information of the 'possess or control' licence application.

The scope of this plan is set by item 4(d) of Schedule 3 Part 1 of the ARPANS regulations [5] and ARPANSA regulatory guide: Plans and Arrangements for Managing Safety [6].

## **2 MANAGEMENT OF RADIOACTIVE WASTE**

The *ANSTO Radioactive Waste Management Policy* and *Safe Management of Radioactive Waste Guide* [AG 2517] provides a framework for managing radioactive waste at ANSTO. The *Effective Control Plan* [1] and *Safety Management Plan* [2], outline the plans and arrangements for the compliance with relevant regulations, standards and codes of practices applicable for the facility.

The LFLS is a legacy waste disposal facility which is currently closed and no waste emplacement works have been carried out in this facility since 1968. During the 'possess or control' phase of the facility, there will be no on-going operational tasks to be undertaken in the facility other than routine monitoring and inspection works and therefore, no radioactive wastes are expected to be generated in this phase. However, any unplanned maintenance or repair works, which could generate some radioactive wastes at the facility, will be carried out by following proper planning and approval process according to the ANSTO Work Health and Safety Management System (WHSMS). This will include .approvals from the line management and/or Safety Assurance Committee (SAC) and also from the regulator (i.e. ARPANSA), if required. Any waste wastes generated from the routine sampling, monitoring, research activities and maintenance tasks will not be returned to the facility, and will be processed on the Lucas Heights site as radioactive waste in accordance with the ANSTO Waste Operations (WO) procedures and work instructions.

Localised remediation actions based on any elevated levels of surface activity identified by the monitoring programme may be undertaken. Any soil removed will be appropriately packaged and transported to Lucas Heights and processed appropriately in accordance with the Waste Operations Licence F0260.

A comprehensive safety assessment [7] of the LFLS facility for the 'possess or control' phase has been prepared and will be provided to ARPANSA as a part of the licence application.

## **3 LIMITING EXPOSURE TO RADIOACTIVE WASTE**

As discussed in the previous section, no radioactive waste will be generated during the 'possess or control' phase except during any unplanned maintenance and repair work..

For the 'possess or control' phase, a detailed safety assessment has been carried out to identify the risks and hazards (work/health safety and radiation hazards) associated with the wastes placed in the facility [7]. The radiation protections and controls commensurate with the levels of a specific hazard are in place to protect ANSTO staff members, the public and the environment. The radiation protection measures in place are containment of the waste in containers which are stored in clay trenches with a one meter covering of top soil. The facility has had over 40 years of decay which will reduce the level of activity. There is no sampling or characterisation program for the waste yet – only of the areas around the trenches. These are mainly sampling and monitoring equipment at different locations of the site and include:

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- Bore-holes to collect water samples;
- Airborne contamination monitors;
- Radiation monitors; and
- Soil Samples and biota samples for research purposes.

If any radioactive wastes are generated at the facility, limiting the exposure to these wastes can be achieved by a number of ways as follows:

- Isolation of the radioactive source by distance or limiting time exposure to the source;
- Shielding radioactive waste using shielding containers, lead bricks, shielding flasks during transport and storage;
- Administrative controls such as training, procedures, etc.;
- Suitable equipment and personal protective equipment;
- Effective work planning to minimise the dose received by staff members;
- Appropriate characterisation and monitoring to ensure the discharge of gaseous radioactive waste, if applicable, is within the discharge authorisation limit; and
- Emergency plans to mitigate the consequence of significant release of radioactive waste to the environment.

The As Low As Reasonably Achieved (ALARA) principle will be applied where applicable to minimise the routine radiation exposure to ANSTO staff, members of public and the environment.

## 4 PACKAGING AND CONTAINMENT OF WASTE

The low level solid wastes generated from the routine sampling, monitoring and maintenance tasks consisting of potentially contaminated gloves, papers, PPE and smears from wipe tests will be bagged, labelled and collected by Waste Operations as part of the normal waste collection service.

Liquid waste generated from the sampling of boreholes is disposed of through the liquid waste lines on the Lucas Heights site, to be treated in the effluent plant. These liquids are not poured out onto the LFLS to avoid cross contamination of ground waters and surface waters – to keep the samples separate.

Wastes from non-radiation areas are thoroughly checked and cleared by the Health Physics Surveyor, and are removed as non-active waste. This waste is transferred to the normal (conventional) waste collection and disposal services.

## 5 DOCUMENTATION

The Waste Operations Business and Compliance Management System provide a framework to effectively maintain and control waste documentations and records. Standard operating procedures and work instructions are prepared, reviewed and approved for the handling, transport, characterisation, treatment and storage of radioactive waste. The waste details, including waste characteristics, chain of custody, identification, storage location are captured in the Radioactive Waste Tracking System.

Waste procedures and records are legible, readily identifiable and retrievable at any time for operational or auditing purposes.

The records of routine inspection, monitoring and environmental sampling undertaken at the LFLS facility are documented and stored in accordance with WO Business and Compliance System.

## **6 DISCHARGE TO SEWER**

There will be no radioactive, chemical or tradewaste discharges to sewer arising from the LFLS facility.

Any liquid waste generated as part of sample collection program undertaken by the ANSTO Institute of Environmental Research (IER) and Environmental Monitoring Group from the boreholes of the LFLS will be analysed in the laboratory and then drained to the low level liquid waste line (i.e. B-line) in compliance with the WO procedures and work instructions.

## **7 DISCHARGE TO ATMOSPHERE**

During the 'possess or control' phase of the facility there will be no routine radioactive airborne releases to the atmosphere.

## **8 DISCHARGE TO MUNICIPAL TIP**

There is no waste discharged to the municipal tip.

## **9 DISCHARGE BY INCINERATION**

The LFLS facility will not be undertaking any incineration of wastes. ANSTO Waste Operations does not currently use incineration as a disposal method for radioactive wastes.

## **10 REFERENCES**

- 1 LFLS, 'Possess or Control' Licence – Effective Control Plan, LFBG-PC-LA-D1, 2013
- 2 LFLS, 'Possess or Control' Licence – Safety Management Plan, LFBG-PC-LA-D2, 2013
- 3 LFLS, 'Possess or Control' Licence – Radiation Protection Plan, LFBG-PC-LA-D3, 2013
- 4 LFLS, 'Possess or Control' Licence – Emergency Plan, LFBG-PC-LA-D6, 2013
- 5 Australian Radiation Protection and Nuclear Safety (ARPANS) Regulations 1999
- 6 ARPANSA Regulatory Guide: Plans and Arrangements for Managing Safety, v4, January 2013 (<http://www.arpansa.gov.au/pubs/regulatory/guides/OS-LA-SUP-240B.pdf>)
- 7 ANSTO/T/TN/2013-10 rev 0, Safety Assessment of the LFLS at Lucas Heights, ANSTO Systems Safety & Reliability, A. Kabir, 2013.