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Little Forest Legacy Site Licence Application  
Document LFBG-PC-LA-D2

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

(rev. 1)

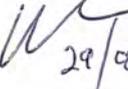
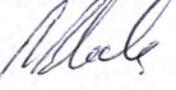
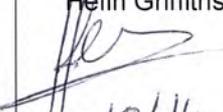
**Prepared By  
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Little Forest Legacy Site- Safety Management Plan

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## 1 PURPOSE AND SCOPE

The purpose of this *Safety Management Plan* is to outline the safety management arrangements that ANSTO has in place for the purpose of 'Possess or Control' authorisation of the Little Forest Legacy Site (LFLS) located within the buffer zone of the Lucas Heights Science and Technology Centre (LHSTC). The scope of this plan is all safety and licensing issues in accordance with the ARPANS legislation [1, 2] and ANSTO safety arrangements. It specifically covers the issues referred to in the ARPANSA licensing guidelines relating to the review of plans and arrangements [3].

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

This plan should be read in conjunction with the other plans and supporting documents comprising the siting licence, specifically, the *Radiation Protection Plan* [4] and *Emergency Plan* [5].

## 2 SAFETY CULTURE

ANSTO's corporate plan place the utmost importance on ensuring that all ANSTO facilities and activities are safe. ANSTO is responsible for the safety of its workers and the public, as outlined in the *Occupational Health, Safety and Environment Policy* [6]. During the 'Possess or Control' period for the site, ANSTO Waste Operations (WO), which is a part of the Nuclear Operations division, will undertake all activities in compliance with ANSTO's Work Health and Safety Management System (WHSMS), which implements the safety requirements of the strategic plan and safety policy. The safety policy and safety arrangements are readily available to and accessed by staff on the ANSTO intranet, and are subject to regular review.

An important aspect of ANSTO's safety culture is that people have a questioning attitude and adopt a rigorous and prudent approach to work incorporating conservative decision making. Appropriate training and awareness instilled by safety briefings, toolbox talks, safety inspections, and use of the STAR (Stop, Think, Act, Review) principle all help to engender such an approach to work.

Another important aspect of the safety culture is that the implementation of the safety requirements is not subject to inappropriate commercial pressures. As such, the funding and safety approval processes are clearly separated. The funding for any capital works required for the site must be approved by the Investment Review Committee (IRC) and Portfolio Review Committee (PRC). The safety approvals are given by a separate Safety Assurance Committee (SAC) which has an external member.

The ANSTO WHSMS has several layers of protection for workers and the environment. ANSTO's *Radiation Safety Standard* [7] has defence in depth as a main strategy which is basically the safeguards and controls that are implemented in the form of a hierarchy of diverse levels of equipment and procedures. Some general examples of this approach are discussed below.

As part of this 'Possess or Control' licence package, a safety assessment [8] has been prepared following the risk study guide [9]. This assessment concluded that the LFLS within the LHSTC buffer zone does not have any negative features that are unable to be overcome by the high standard and quality of care and maintenance activities that are already undertaken by ANSTO.

All the routine monitoring and maintenance works at the site are and will continue to be undertaken in accordance with the *Work Health and Safety Act 2011* [10] and *Work Health and Safety Regulations 2011* [11] which includes extensive consultation and communication with workers.

Good communication and consultation are central to providing a good safety culture. At the ANSTO organisational level, the CEO holds regular forums for all staff and promotes a safety theme. ANSTO Nuclear Services including WO has a regular forum at which safety is discussed first. There is significant provision for consultation with workers including staff and contractors (if any) in aspects of safety, including the Central Safety Consultative Forum (CSCF), the Health and Safety Committees (HSC) and the Health and Safety Representatives. Also, the *Executive Committee – Work Health and*

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*Safety & Environment* provide oversight and set direction on behalf of ANSTO Executive for safety and environment strategies, initiatives, events, event management processes, targets.

The CSCF and HSCs mentioned in this document have terms of reference set out in the ANSTO WHS Management System [12].

According to the Nuclear Services *Business and Compliance Management System* (B&CMS), the Group collects data and analyse them for measuring key performance indicators and monitoring the achievement of set objectives and targets [31].

The Facility Officer (i.e. WO Manager) for the LFLS has the responsibility to develop a comprehensive Safety Management Plan including Safe Work Method and Environmental Statements (SWMES) for any non-routine activities to be undertaken at the LFLS . The ANSTO Safety Approval Process [13], as per the *WHS Management System* [12], will be followed prior to such works. ANSTO will initiate works using Safety Management System permits including Safe Working Permit, Excavations and Penetration Permit, etc., and review documentation where required. This process reduces the likelihood and potential consequences of any human errors.

All safety related events/incidents are reported and investigated following *Event Management Process* [14]. This process also captures actions for improvements.

Safety inspections of the LFLS will be carried out and, together with toolbox talks, will identify any safety concerns.

Safety issues and learnings are communicated to workers in several ways. Toolbox talks are the main forum for the tasks performed at the site itself. Feedback to Nuclear Operations management will occur through the LF Facility Officer and Head Nuclear Services. The WO Licensing Officer will liaise with the Regulatory Affairs Officer to monitor issues relating to the ARPANSA licence submission, and report to the Nominee, who is the Head Nuclear Services.

At the organisation level, ANSTO conducts periodic surveys on safety culture. The most recent was in 2010 by external consultants engaged by the Work Health and Safety (WHS) group within the Human Resources and Workplace Health & Safety division.

## 3 ADMINISTRATIVE ARRANGEMENTS

The safety regime towards the strategic directions and the safety policy is expanded principally in the *WHS Management System* [12]. These are supplemented where needed by divisional arrangements.

Any non-routine works at the LFLS may be performed by contractors under the supervision of ANSTO staff. Contractors will be managed following ANSTO procedures. As required, any field work they perform will be assessed by SWMES reviewed by ANSTO, which will identify the hazards and specify the safety controls.

The safety requirements are disseminated to staff and contractors, principally through the training arrangements discussed later in this plan. This includes appropriate induction training and safety specific training including radiation safety training for all radiation workers involved with the LFLS activities. During the 'Possess or Control' period of the site, the safety requirements will be reinforced by the Area Supervisor and in routine toolbox safety talks.

The control of visitors is described later in this plan. General information is given in Section 6.4 of *AG-1028- ANSTO Security Manual* [15]. This is supplemented by the ANSTO staff member controlling their access.

The arrangements for radiation protection and radiation safety are given in *Radiation Safety Standard* [16] and supporting practices, which together form a comprehensive suite of documents consistent with international best practice. In this licence application, arrangements for the planning and control of exposure to radiation are covered in *Radiation Protection Plan* [4], which relies heavily on the general ANSTO WHSMS together with local arrangements.

## 4 SAFE PREMISES, BUILDING AND EQUIPMENT

During any activities undertaken during the 'Possess or Control' phase of the site, safety will be managed in compliance with the WHS Act [10] and WHS Regulations [11], and in conformance with

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the ANSTO WHS Management System [12] and the ANSTO WO Procedures and Work Instructions [17].

ANSTO will ensure that the LFLS conforms to the relevant IAEA safety requirements and guidelines, i.e. *Storage of Radioactive Waste* [18]. Relevant ARPANSA Regulatory Guides will also be followed, including *Regulatory Guidance for Radioactive Waste Management Facilities* [19]; *Near Surface Disposal and Storage Facilities* [20], and *Regulatory Assessment Principles for Controlled Facilities* [21].

The first part of the safety approval for the 'Possess or Control' stage of the site is formal approval by the Safety Assurance Committee (SAC) as set out in the *Submissions to the Safety Assurance Committee* [22]. This ensures a thorough assessment and review prior to any activities at the site. A Radiation Protection Adviser, Work Health & Safety Adviser and Systems Safety & Reliability Adviser will be involved in the review and assessment under the SAC process.

A comprehensive hazard identification and risk assessment [8] has been prepared as part of the 'Possess or Control' licence application, which is assessed and approved by the SAC. These assessments cover all the activities to be undertaken during the 'Possess or Control' phase of the site, as well as the scenarios that are developed using the Features, Events and Processes (FEP) analysis.

Where appropriate, the Safe Work Permit system will be used to control all tasks, including hot works, excavation, and electrical isolations. All electrical equipment is tested and tagged following *Electrical Equipment Guide* [23].

The security provisions, including safe entry and exit from the site, are discussed later in this report and in the *Security Plan* [24]. The responses required in the event of an emergency during the 'Possess or Control' phase of the site are discussed in the *Emergency Plan* [5].

Access to the LFLS will be limited to those workers required to be present. The LFLS Officer and/or Facility Officer, in cooperation with the ANSTO Security and Safeguards, will manage this in accordance with ANSTO requirements and in compliance with Work Health and Safety legislation.

During the 'Possess or Control' phase, access to the site will be limited by the LFLS Facility Officer and ANSTO Security and Safeguards to those staff who have a need to access.

## 5 COMPETENCY, TRAINING AND SUPERVISION

ANSTO has comprehensive processes which collectively ensure that potentially hazardous work is performed and supervised by properly authorised and qualified workers. This starts with the recruitment process for workers, where the selection is based on the technical and personal selection criteria for the role. These criteria include the qualifications, knowledge and experience appropriate for the work.

Radiation Protection Services staff in the Nuclear Services (NS) group within the Nuclear Operations division will play an important safety role during the 'Possess or Control' phase. The Radiation Protection Advisers (RPAs) are recruited with the necessary knowledge, skills and experience or are trained and authorised within ANSTO. The Health Physics Surveyors (HPS) are given comprehensive theoretical and practical training and are authorised within ANSTO.

The WHS group provide occupational surveys, training, and advice on conventional WHS, as well as develop, manage and maintain the ANSTO WHS Management System [12]. Learning and Development group coordinate, manage and maintain all WHS-related courses on site, including all inductions required for staff and contractor access.

ANSTO workers have significant experience in radiation hazards. All workers are given basic induction training, which includes basic knowledge about radiation protection, and the use of Personal Protective Equipment required for entry to a radiologically classified area. An overview is given in *ANSTO WHS Training Guide* [25]. The full list of courses and the retraining period requirements is given in *Work Health and Safety Training Needs Analysis* [26]. Any workers required to do specialised tasks will be provided with task-specific training prior to their assignment to the job. A record of the training is maintained in the ANSTO training management system.

## 6 VISITORS, CONTRACTORS AND OTHER PERSONS

ANSTO recognises that it has a duty of care for the safety of all workers. This includes employees, contractors and visitors. Appropriate training and supervision is provided for all workers. There are special arrangements for short-term contractors and visitors. Under the WHS legislation, contractors are treated equally to employees (both are considered “workers”). The provisions for access to the LFLS are outlined here and are also described in the *Security Plan* [25].

Access to the LFLS will be controlled by the LFLS Facility Officer and ANSTO Security subject to the provisions and expectations of ANSTO and any specific legislative direction, e.g. Work Health and Safety Regulations. Only staff and contractors who are required on the site and with the appropriate safety training and supervision will be given access. All personal protective equipment (PPE) needed for work in the area will be provided by WO. General notice boards identifying the area as Commonwealth land and prohibiting access are displayed at the LFLS.

As referred to earlier in this plan, there are comprehensive safety training requirements in place for all workers. These are included in Work Health and Safety Training Needs Analysis [27]. All contractors (if engaged) are required to complete the Contractor Safety Induction as part of the ANSTO Identification Badge issue and renewals; the Basic Radiation Safety course where they are required to enrol on the ANSTO Dosimetry Service for work in Radiologically classified areas; and participation in the ANSTO contractor monthly Site Safety Toolbox Talks when the subject matter relates to their work or work area as determined by their Contractor Supervisor. Prior to doing the work, contractors demonstrate their knowledge of the hazards and safety controls by their involvement in the preparation of the SWMES and their sign-off of these documents. Contractors demonstrate their knowledge of the general hazards in the area and the safety controls by their sign-off of the Safe Working Permits (SWP) before work.

## 7 CONTROL OF HAZARDS

The WO management will have responsibility for the control of hazards during the ‘Possess or Control’ phases of the site. Normal ANSTO processes for the control of hazards will apply during any works conducted during the ‘Possess or Control’ phase. These include the Safety Assurance Committee (SAC) process which reviews the overall safety approach, through to the SWMES process which identifies hazards and appropriate controls for individual tasks.

The SWMES process ensures that all workers are aware of all hazards, both radiological and non-radiological, and their corresponding controls. The SWP process ensures that all WO workers (if engaged) know of and accept the controls for general hazards in the area. This will be reinforced by the daily toolbox safety talks with the work groups.

All of the working level arrangements for the site for the control of hazards are assessed and supplemented by the SAC review and approval process. An overview of this process is given in *Operation of the Safety Assurance Committee (SAC)* [27]. For the LFLS, all documents in the ‘Possess or Control’ licence application were included in the submission to the SAC.

The assessment process conducted on behalf of the SAC includes a review of the submission to ensure that the ANSTO WHS requirements have been followed, including *Hierarchy of Risk Control* [28].

## 8 DEVIATIONS, ANOMALIES, INCIDENTS AND ACCIDENTS

There are several arrangements in place to deal with deviations, incidents and accidents in the ANSTO WHS Management System [12], and the WO management fully comply with these arrangements. These range from the reporting of potentially unsafe work conditions to the emergency response and follow-up for significant accidents.

There will be no major field activities during the ‘Possess or Control’ stage. If potentially unsafe conditions are found or incidents occur during field inspections, these will be managed by the relevant manager following the ANSTO event reporting system. The event reporting system is described in *Event Management Process (Guide)* [29] and captures safety near hits, deviations, incidents and accidents. The follow-up process involves an initial investigation by supervisory staff and a later review

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by the line manager or investigator with sign off by the division's General Manager. All event reports are reviewed and recorded in the ANSTO system, which is managed by the WHS group. Outstanding event reports are monitored by key performance indicators prepared by the WHS group and reviewed in Nuclear Services management meetings.

In the worst case of an accident or injury during the 'Possess or Control' phase of the site, the emergency arrangements described in the *Emergency Plan* [5] would be invoked. These provide for the initial response by ANSTO Site Operations Safety Supervisors (SOSS) with progressive support by radiation and safety specialists and, if required, the external emergency services. The reporting and follow-up is through the ANSTO event reporting process.

The process for reporting to ARPANSA is described in *Reporting to ARPANSA* [30]. This requires reporting of any radiological accidents involving a significant failure in the safety provisions within 24 hours, and a written investigation report within 14 days.

The arrangements described here to deal with deviations, accidents and incidents are detailed in the ANSTO WHS Management System [12], which is maintained under an ISO 9001 certification.

## 9 AUDITS AND REVIEW

All activities of the ANSTO WO and other units under the Nuclear Services group are covered under the B&CMS [31] which is based on the AS/NZS ISO 9001 - *Quality Management System Standard*, the AS/NZS ISO 14001 - *Environment Management System*. The WO group conducts internal audits to determine the effective implementation and maintenance of its B&CMS to assess the WHS practices; and to measure the conformity of the WO products and services against the planned arrangements. The planning and conduct of audits follows ANSTO's Internal Audit Process and are carried out by trained auditors who are independent of the area being audited. Audit findings are documented in the audit report. Actions are taken without delay to eliminate detected nonconformities and their causes [31].

There are arrangements in place to audit and review the safety inspections and the activities undertaken at the site. The safety requirements, including those for radiation safety, are in the WHS Management System [12]. Visual inspections are carried out on regular basis at the LFLS, particularly at the trenched areas, by the WO staff. Moreover, routine monitoring and maintenance works are performed in and around the site by the Environmental Monitoring Group, Institute of Environmental Research (IER) and ANSTO Facilities Management (FM) groups.

The radiation protection arrangements for the site are described in the *Radiation Protection Plan* [4]. The effectiveness of this plan will be monitored by the LFLS Facility Officer and other WO staff including the RPA, taking into account dose and contamination, survey results, dosimetry results, workplace inspections and any incident reports.

The plan will be reviewed and revised if necessary to maintain safety.

## 10 RECORDS AND REPORTING

LFLS information and documentation is stored on ANSTO computer servers and in relevant ANSTO paper files. WO staff have the appropriate access to this information.

The ANSTO safety arrangements are within the ANSTO certified ISO 9001:2008 systems. This is important to ensure there is appropriate reporting and storage of records. The requirements for safety records and reporting are described in the Human Resources and Workplace Health & Safety *Quality Manual* [32] and supporting documents. General requirements for safety records are given in *Control of Records* [33], which details the storage locations, retention periods and responsibilities for maintaining the records. The specific requirements for radiation safety records are given in *Radiation Protection Services Records Management* [34]. This includes the requirements for dosimetry records, including retention for the required periods and for Health Physics records, including survey results, log books and stack sampling results. For radiation workers, dose records are available on termination of employment.

The safety assessments for the LFLS, including the submission to the SAC and the supporting Safety Assessment report, will be stored in an ANSTO SAC file for the site.

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The safety training arrangements are described earlier in this plan. The training records are maintained in the Nuclear Services Training Register as per the Nuclear Services B&CMS. This is assisted by the ANSTO training system, Pathlore.

The event reporting arrangements are described earlier in this plan. Event reports and records are maintained by the WHS group. These records contain information on the incident, the follow-up investigation reports and summary information on any injuries. Summary information on each incident is entered into a database to facilitate retrieval of details, follow-up and closure.

Medical records associated with any injuries are maintained confidentially by the Registered Nurse and Rehabilitation Case Manager in the ANSTO Health Centre. The requirements for more severe injuries are given in *Workers Compensation and Rehabilitation* [34] and include reporting to the WHS regulator Comcare.

## 11 REFERENCES

- 1 Australian Radiation Protection and Nuclear Safety (ARPANS) Act 1998
- 2 Australian Radiation Protection and Nuclear Safety (ARPANS) Regulations 1999
- 3 ARPANSA Regulatory Guide: Plans and Arrangements for Managing Safety v4, January 2013.
- 4 LFLS, 'Possess or Control' Licence – Radiation Protection Plan, LFBG-PC-LA-D3, 2013
- 5 LFLS, 'Possess or Control' Licence – Emergency Plan, LFBG-PC-LA-D6, 2013
- 6 ANSTO Occupational Health, Safety and Environment Policy - APOL 2.1, March 2010
- 7 ANSTO AS-2310 Radiation Safety Standard, August 2009
- 8 ANSTO/T/TN/2013-10 rev 0, Safety Assessment of the LFLS at Lucas Heights, ANSTO Systems Safety & Reliability, A. Kabir, 2013
- 9 ANSTO/S/TN/2005-24, Guidance on the Conduct of a Risk Study, J. Perera, 2005.
- 10 Work Health and Safety Act 2011
- 11 Work Health and Safety Regulations 2011
- 12 ANSTO WHS Management System
- 13 ANSTO Safety Approval Process
- 14 ANSTO AG-2372 Event Management Process
- 15 ANSTO AG-1028, ANSTO Security Manual Section 6.4, July 2012
- 16 ANSTO AS-2310 Radiation Safety Standard, August 2009
- 17 ANSTO Waste Operations- Business Management System <http://staff.ansto.gov.au/business-units/wasteoperations/WasteBMS/index.htm>
- 18 IAEA Safety Guide WS-G-6.1, Vienna 2006 *Storage of Radioactive Waste*
- 19 ARPANSA *Regulatory Guidance for Radioactive Waste Management Facilities*
- 20 ARPANSA *Near Surface Disposal and Storage Facilities*, December 2006
- 21 ARPANSA RB-STD-42-00 Rev 1, *Regulatory Assessment Principles for Controlled Facilities*, Regulatory Branch October 2001
- 22 ANSTO AG-2425 Submissions to the Safety Assurance Committee, January 2012.
- 23 ANSTO AG-2458 Electrical Equipment Guide, March 2012
- 24 LFLS, 'Possess or Control' Licence – Security Plan, LFBG-PC-LA-D5, 2013
- 25 ANSTO AG-2363 WHS Training Guide, September 2006
- 26 ANSTO AG-2364 Work Health and Safety Training Needs Analysis, January 2012

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- 27 ANSTO AG-1094 Operation of the Safety Assurance Committee (SAC) Guide, July 2012
- 28 ANSTO AG-2407 Hierarchy of Risk Control Flowchart, September 2006
- 29 ANSTO AG-2372 Event Management Process Guide, July 2011.
- 30 ANSTO AG-2376 Routine Reporting to ARPANSA Guide, August 2012
- 31 ANSTO WO G-5248, Nuclear Services Business & Compliance Manual
- 32 ANSTO SERA S-QM Quality Manual, August 2009
- 33 ANSTO SERA S-P-003 Control of Records, August 2009
- 34 ANSTO SERA S-MED-P-002 Workers Compensation and Rehabilitation, April 2005