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HIFAR Facility Licence Application Part B(1)

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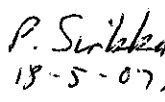
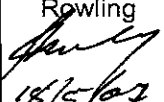
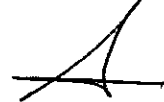
PLAN FOR MAINTAINING EFFECTIVE CONTROL OF THE HIFAR FACILITY

(Rev. 0)

**Prepared By
Australian Nuclear Science and Technology Organisation**

May 2007

Australian Nuclear Science & Technology Organisation
Plan for Maintaining Effective Control For the HIFAR facility (Rev. 0)

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1 PURPOSE AND SCOPE

The purpose of this Plan is to demonstrate that all activities to be undertaken during the period that this Possess or Control licence remains in force will be effectively controlled by ANSTO, and that all applicable requirements of the ARPANS Act and Regulations [1, 2] and other statutory requirements will be complied with.

This Plan has been prepared as part of the "Possess or Control" Licence Application to replace the existing HIFAR Operating Licence following the permanent shutdown of the reactor (refer to Part A of the application for further details).

This Plan should be read in conjunction with other plans, specifically those relating to safety management, radiation protection, emergency arrangements and waste management (provided as part of this Licence Application).

2 ORGANISATION

ANSTO is the organisation responsible for the safe storage and maintenance of the HIFAR facility and other activities that will be undertaken during the period that this licence remains in force. ANSTO is a body corporate established by the *Australian Nuclear Science and Technology Organisation Act 1987* [3]. Its functions and general powers are set out in that Act. ANSTO sets out its broad directions through its strategic plan and its specific commitments and processes in its policies and procedures. ANSTO operated the HIFAR facility safely for approximately 50 years until permanent shutdown, in compliance with the requirements of the Operating Licence [4] and other previous authorisations/requirements.

Consequently, ANSTO has many years of experience in research reactor operations. ANSTO has implemented specific processes and procedures to ensure that all staff are adequately trained and that designated staff understand their roles in maintaining compliance with regulatory requirements and licence conditions in ensuring safe operation of research reactors.

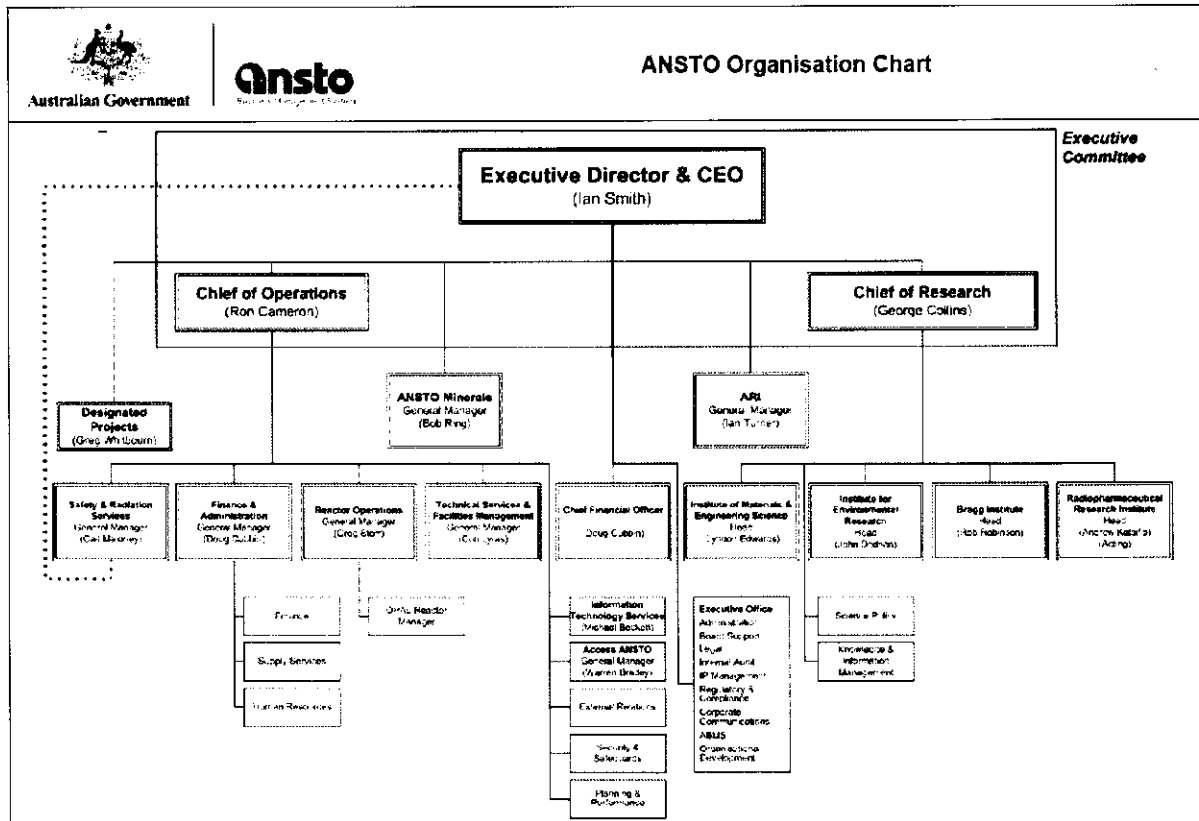
Responsibility is delegated to authorised personnel within a framework that ensures ANSTO remains ultimately accountable and that appropriate review and monitoring are conducted. These responsibilities are set out in authorised delegations, in OHSE Standards and Practices and in the quality management system documents used in the operation of all facilities. The Operating Organisation, including the key roles and responsibilities for the HIFAR facility, during the period that this licence remains in force is described below. Additionally, other aspects of effective control, including personnel training and authorisation, are described in this Plan.

3 RESPONSIBILITIES

ANSTO, as the licence holder, has responsibility for the management of the HIFAR facility. The Executive Director of ANSTO has delegated responsibility for the safe management of HIFAR to the General Manager, Technical Services and Facility Management (TS&FM) throughout the period that this licence remains in force. The Operating Organisation for this phase with roles, responsibilities and lines of communication of key personnel is described in Figures 1 and 2.

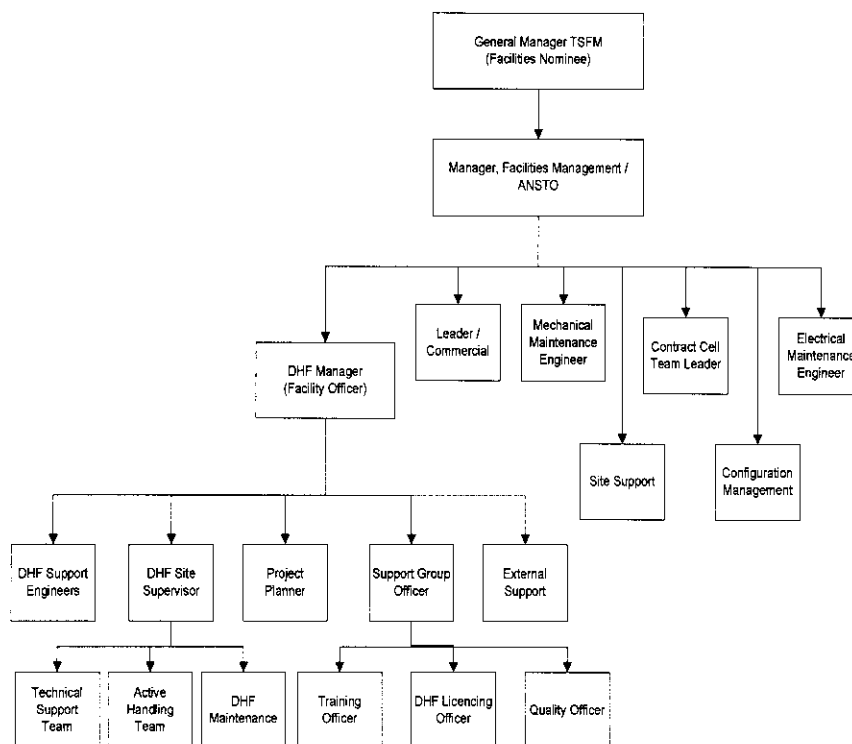
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Figure 1 Organisational chart of ANSTO



ANSTO Business Management System: AG-2011
 Approved by: Executive Director on 27 February, 2007 for public access
 Custodian: Executive Assistant to the Executive Director

Figure 2 Organisational chart of the HIFAR Facility Management Structure



Key:
DHF - De-fuelled HIFAR Facility
TFSM - Technical Services and Facilities Management

The General Manager, Technical Services and Facilities Management, is the Licence Nominee for HIFAR during the period that this licence remains in force, and has overall responsibility for the maintenance of and safety of activities undertaken in HIFAR at all times, consistent with ANSTO policies and general arrangements. The Nominee is delegated to make, amend or vary the application in the name of ANSTO, pursuant to paragraph 34(a) of the ARPANS Act 1998 and regulation 39 of the ARPANS Regulations 1999.

The General Manager, Technical Services and Facilities Management has delegated responsibility for implementing these Plans to the Facility Manager. The Facility Manager is responsible for planning and managing resources to ensure the safety of activities undertaken in HIFAR and the effective maintenance and control of HIFAR (TFSM Procedure DHF 001 – “Quality Management Planning – De-fuelled HIFAR Facility” [5] and Procedure NHP 1.2 – “Organisation, Responsibilities and Authority”. [6])

4 MANAGEMENT SYSTEMS

ANSTO’s overall objectives and commitments are described in its policies, which are authorised by the Executive Director and the ANSTO Board. These policies are implemented through a hierarchical system consisting of a site-wide overarching process, supplemented by local arrangements.

The ANSTO Business Management System (ABMS) and the HIFAR QMS are consistent with AS/NZS ISO standards and will ensure that the policies are implemented and maintained to manage all activities associated with HIFAR.

The QMS Manual includes the QMS Policy for HIFAR, documenting the management commitment and priority given to implementation of arrangements to ensure that all the Effective Control objectives

are met. The Manual also identifies key quality and safety objectives and provides details of the relevant plans and arrangements.

The HIFAR QMS is consistent with, and implements at HIFAR, the various policies, safety management systems and quality requirements of ANSTO.

Lines of communication, responsibilities and authorities, functions, duties and competencies associated with these activities are appropriately documented and administered through the HIFAR QMS.

4.1 HIFAR QMS Documentation System

The HIFAR QMS has been developed over the operational life of HIFAR and has been further developed for the period that this licence remains in force. Nevertheless, further development will be required as part of the activities to be undertaken during the period that this licence remains in force. The QMS also identifies services provided to HIFAR by other organisational units by way of Service Level Agreements, where appropriate. These services include:

- airborne effluent monitoring for compliance with the Discharge Authorisation by Safety and Radiation Services,
- radiation protection services by Safety and Radiation Services;
- liquid effluent sampling and waste handling by Safety and Radiation Services (Waste Operations); and
- engineering support and inspections by Technical Services and Facilities Management.

Implementation of the QMS is a key means by which the HIFAR management communicates its expectations to staff; describes and records the capability of staff to meet those expectations, and monitors performance and compliance with regulatory requirements. The QMS brings together administrative controls to ensure safety, regulatory, quality, and environmental objectives are met.

The QMS has been developed to meet the relevant Australian and international requirements, and has drawn upon Australian and international guidance, and international best practice. The requirements for the QMS include:

- ARPANSA Standard Licence Conditions
- AS/NZS 9001 Quality Management System
- AS/NZS 14001 Environmental Management System

Additionally, the following guidance material was considered when developing the system:

- IAEA Safety Series Guides
- ARPANSA RB-STD-42-00 Rev 1, Regulatory Assessment Principles For Controlled Facilities
- ARPANSA RB-STD-15-03, Regulatory Guideline on Review of Plans and Arrangements
- ASME NQA-1 Nuclear Quality Standard

The QMS documentation was certified to AS/NZS 9001 in 1996, and recertified in 1999 and 2003. Current certification is valid up to 13 May 2009. The QMS is consistent with the requirements and format of the ABMS certified to AS/NZS 9001:2000 in July 2004, and the ANSTO Safety Management System, including the ANSTO OHSE System. This ensures consistency of the application of administrative requirements across the ANSTO site, and an effective interface between HIFAR management and other divisions and groups within TS&FM.

Figure 2 depicts the hierarchy documentation structure related to the HIFAR Management and the ANSTO Quality and Safety Management System.

4.2 Documentation System Procedures Summary

A number of the HIFAR Quality Management System (QMS) procedures that applied whilst HIFAR was in operation will continue to apply during the period that this licence remains in force.

The objective of the QMS described in these plans and arrangements is the implementation of a systematic and integrated approach to ensure effective control of all activities undertaken by personnel at HIFAR. The QMS provides the framework necessary:

- to implement organisational arrangements focusing on safety, environmental and quality objectives;
- to ensure staff have the necessary skills, knowledge and attributes to safely maintain the Facility and undertake the planned activities safely;
- to foster recognition by the staff of the need for their actions to support performance of safety functions; and
- to promote a responsible approach to an effective safety culture.

5 PERSONNEL

5.1 Personnel Training

During the period that this licence remains in force, dismantling and removal of non-radioactive redundant circuits and equipment and installation of refurbished plant systems will be undertaken based on procedures and instructions of the HIFAR QMS. The projects will be implemented, once the new licence is issued, through subsequent submissions to ARPANSA which will also cover labour resources and their training.

Monitoring, surveillance and safe maintenance of the HIFAR facility during the period that this licence remains in force will be undertaken using the existing HIFAR Procedures and Instructions (including health and safety procedures), as applicable. These will be amended and/or additional procedures and instructions developed, as necessary. The existing HIFAR project management, maintenance and training procedures which will apply during the period that this licence remains in force are listed in the attached draft Document Index [7].

The above-mentioned activities will be undertaken by trained operations and maintenance personnel with past knowledge of the HIFAR plant systems and any additional ANSTO site/contract personnel, as needed, under the supervision of trained operations and maintenance personnel. All personnel will be trained in the implementation of any new or amended procedures and instructions, as required and in appropriate safety precautions.

5.2 Personnel Authorisation

In addition to the training discussed above, personnel who are undertaking maintenance periodic testing and inspection of HIFAR systems or supervising contractors will be formally authorised, as required, in accordance with the applicable training procedures.

5.3 Personnel Fitness for Duty

ANSTO's Code of Ethics for Staff (AB2125) requires that no one in the workplace should be under the influence of alcohol or drugs, including prescribed drugs that could adversely affect safe performance. HIFAR procedures implement this requirement and empower supervisors to stand down staff who are adversely affected.

6 CONTROL OF ACTIVITIES

6.1 Maintenance, Periodic Testing and Inspection

Maintenance, periodic testing and inspection of the HIFAR facility will be controlled by the provisions of HIFAR Procedure NHP 9.3.10 - Maintenance as amended (see also Part B(8) and Part E of the licence application).

6.2 Inventory of Radioactive Sources

The use and control of radioactive sources for HIFAR operational use are covered by the provisions of HIFAR Procedure NHP 9.3.11 - Use and Control of Radioactive Sources.

The inventory of sources is maintained in accordance with the above procedure on NH343 - HIFAR Source Register. For each source, the Register gives details of the ARPANSA Schedule 3C type [2], intended purpose, encapsulation material, fixed, portable or mobile status, storage location, radionuclide identification, activity at the last date of activity measurement, manufacturer, serial number, physical form and chemical form.

The majority of the sources used in HIFAR during normal operations have become redundant since HIFAR was permanently shutdown. Some of these sources were transferred to the Waste Operations licence under the arrangements of the operating licence and procedure NHP 9.3.11 (and associated instructions). Others will be transferred over the period that the Possess or Control licence is in force, again in accordance with NHP 9.3.11.

The remaining sources are check sources and some calibration sources, as shown on the current register NH343.

7 RECORDS

Record-keeping in respect of the HIFAR Facility includes records of:

- (a) planning, operation, maintenance, test results, periodic inspections of the facility, its systems, structures, components and equipment;
- (b) the inventory of controlled materials (such as radioactive sources), including their physical, chemical and radiological characteristics;
- (c) the disposition and transfer of controlled materials;
- (d) personnel radiation exposures;
- (e) abnormal occurrences, incidents and accidents;
- (f) accidental or planned releases of radioactive materials from the facility; and
- (g) modifications to equipment and procedures.

The existing HIFAR procedures and arrangements in this connection will be used, as applicable, during the Possess or Control period and these will be amended progressively in future, as needed. The relevant HIFAR documentation in this regard is listed under Requirement 21 (Record Keeping Arrangements) [7].

Consistent with the current practice, ANSTO will provide copies of any records and reports that may be requested by ARPANSA as soon as practicable.

8 RESOURCE REQUIREMENTS

ANSTO ensures that adequate and appropriate human, financial and material resources are provided to effectively implement the plans and arrangements for radiation protection and to maintain effective control over all activities associated with HIFAR.

The management of HIFAR is operated as part of an ANSTO project, with an assigned budget and human resources under the control of the relevant manager.

The funding for the Possess and Control period and the ultimate decommissioning of HIFAR has been approved by the ANSTO Board and the Australian Government through designated funding, separate from ANSTO's general appropriations. The funding estimates are soundly based, taking into account experience from research reactor facilities in Denmark, United Kingdom and United States.

9 INTERNATIONAL BEST PRACTICE

The plan for managing effective control of HIFAR during Possess and Control period is consistent with the international best practices as noted in IAEA guidance documents [8, 9]. The organisational

structure proposed for the safe enclosure period includes the existing site service facilities and staff of ANSTO TS&FM (Technical Services and Facilities Management). Thus the plan includes the retention of staff knowledge and skills which is consistent with that of the IAEA's technical reports [9]. The HIFAR QMS (Quality Management System) is ISO 9001 certified. The Source Register that keeps the inventory of radioactive sources complies with the regulatory requirements. The personnel training plan reflects the need to ensure competency of the staff [8] who will provide maintenance, inspection and surveillance services during the Possess and Control period. The ANSTO business management system and the HIFAR Quality Management System are consistent with IAEA safety standards [10].

10 REFERENCES

- 1 Australian Radiation Protection and Nuclear Safety (ARPANS) Act 1998
- 2 Australian Radiation Protection and Nuclear Safety (ARPANS) Regulations 1999
- 3 Australian Nuclear Science and Technology Organisation (ANSTO) Act 1987
- 4 Facility Licence – Nuclear Installation, Authorisation to Operate a Controlled Facility, ANSTO High Flux Australian Reactor (HIFAR), Licence No. FO0044-4A, 14 June 2001, issued by ARPANSA.
- 5 TSFM Procedure DHF 001 (Rev. 0) – “Quality Management Planning – De-fuelled HIFAR Facility”
- 6 HIFAR Procedure NHP 1.2 (Rev. 11) – “Organisation, Responsibilities and Authority”
- 7 Index of Documents (Draft) demonstrating compliance with licence conditions
- 8 International Atomic Energy Agency (IAEA), Safe Enclosure of Nuclear Facilities During Deferred Dismantling, Safety Reports Series No 26, IAEA Vienna 2002
- 9 International Atomic Energy Agency (IAEA), Transition from Operation to Decommissioning of Nuclear Installations, Technical Reports Series No 420, IAEA, Vienna, 2004
- 10 International Atomic Energy Agency (IAEA), Application of the Management System for Facilities and Activities, IAEA Safety Requirements No. GS-G-3.1, Vienna 2006