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Nuclear Safety Management Strategy

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Overview

- ANSTO's Nuclear Safety Management System
  - Framework
  - Strategy and implementation
- Development of nuclear baseline
- Improvements in Safety Culture
- Other developments in SMS
- Future challenges

ANSTO Overview

7 Nuclear Installations

- 2 x construction; 4 x operations; 1 x possess or control

16 Prescribed Radiation Facilities

- 1 x siting and construction;1 x construction; 14 x operations

3 Source Licences

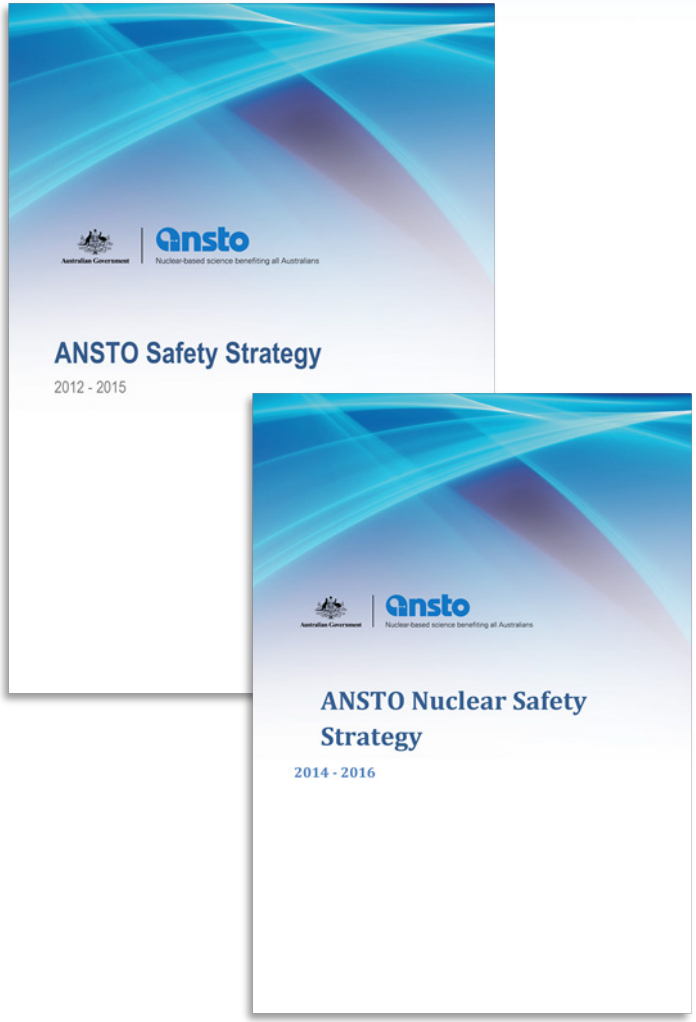
- 1 x ANSTO source licence; 1 x Bragg Hot commissioning for NBIs; 1 x Bragg Operations NBIs

Developments in Safety Management

- Integrating safety into ANSTOs strategic direction – ANSTO Safety Mgt strategy and development into Nuclear safety strategy – focus on integrating people, places and process; also ANSTO Waste mgt strategy
- Human resources requirements to deliver a sustainable safety management system. – brief discussion on establishment of nuclear baseline and management of organisational change.
- Development and review of Safety Management System
  - Safety Analysis Reports, Periodic Review of Safety, Operating Limits and Conditions, Safety Performance indicators

ANSTO's Nuclear Safety Strategy

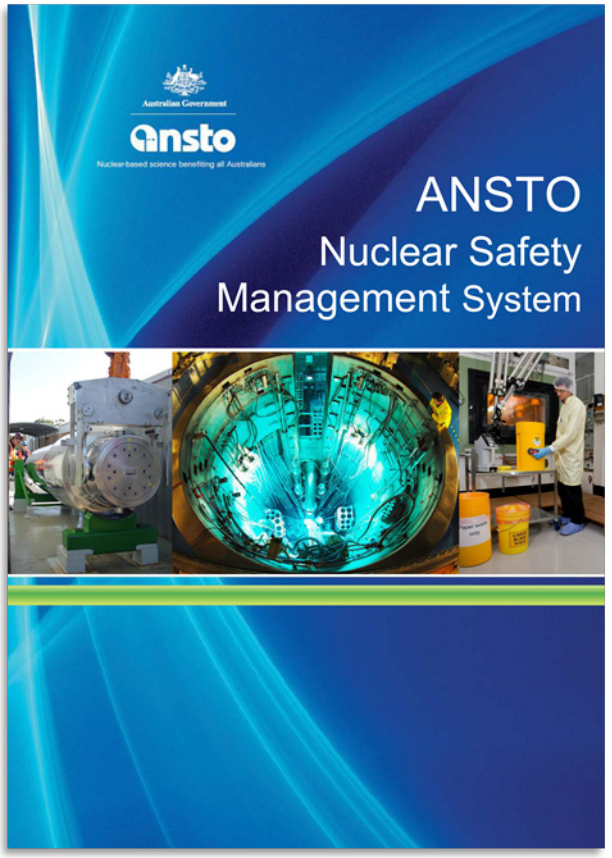
- ANSTO's Nuclear Safety Strategy
  - The strategy for the development of the NSMS and its implementation
  - Outlines mechanisms to develop, implement and measure Nuclear Safety Culture in line with best international practice
  - Developed from the ANSTO Safety Strategy
  - Review and monitoring of the strategy determining effectiveness and for refinement



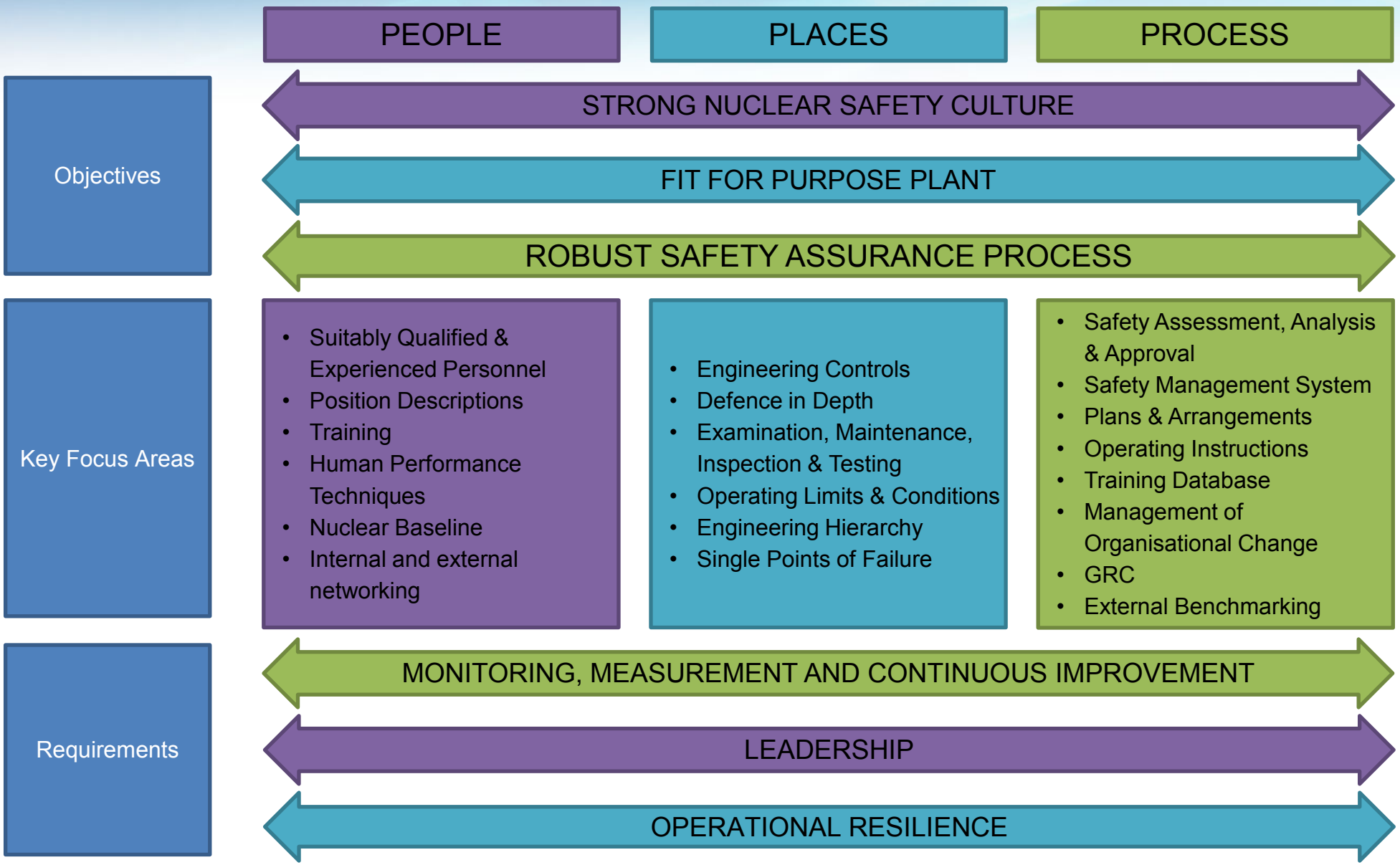
ANSTO's Nuclear Safety Management System

- ANSTO's proposed Nuclear Safety Management System (ANSMS) based on a framework of three pillars
  - People
  - Places
  - Process

  These pillars must be effective to ensure a robust ANSMS
- The 3 key outputs of the ANSMS are:
  - A strong Nuclear Safety Culture
  - Fit for purpose plant and workplaces
  - Strong Nuclear Safety Assurance process



ANSTO NUCLEAR SAFETY MANAGEMENT SYSTEM



Objectives of Nuclear Safety Management System

Key Objectives

- Nuclear safety will effectively incorporate a holistic approach to nuclear safety based on effective **engineering controls**, supported by **robust processes** and administrative controls and recognizing key **human performance** factors that can influence nuclear safety

Key Objectives

Key Objective 1
Maintaining a **Strong Nuclear Safety Culture** - Our people will be Suitably Qualified and Experienced to perform their tasks, value driven, prepared, aware and engaged

Key Objective 2
Maintaining and enhancing **Fit for Purpose Plant** - Our workplaces will effectively support nuclear safety, be reviewed, maintained, compliant and cover all areas where our people undertake nuclear activities.

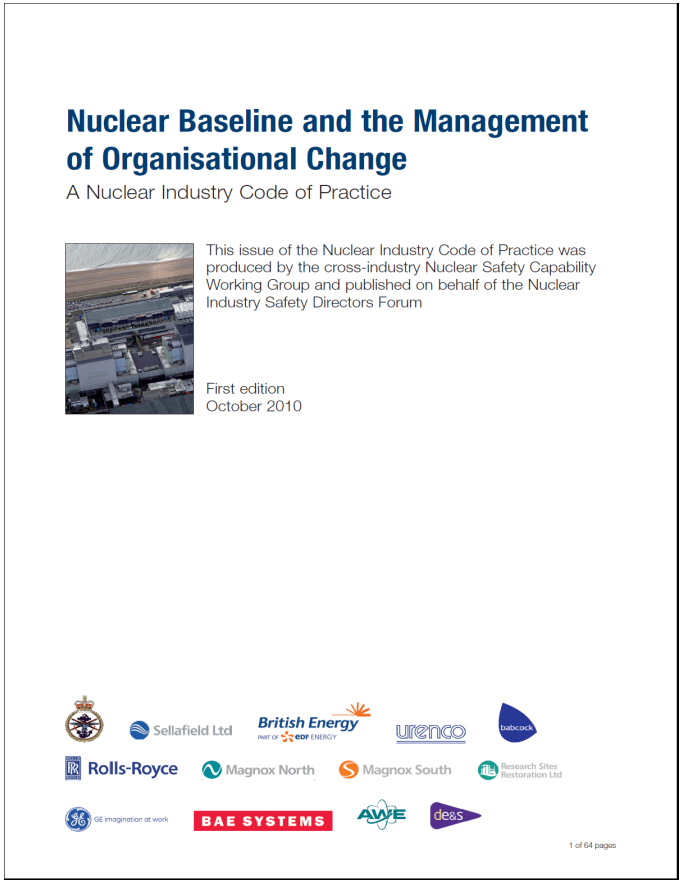
Key Objective 3
Maintaining and enhancing **robust nuclear safety assurance processes** which are integrated and of high integrity, enabling, informing, measurement based and validated.

Foundations

- **Key Requirements**
- Strong Leadership across and through the organisation, recognizing the potential impacts of decisions on nuclear safety.
- Effective monitoring, measurement and continuous improvement processes, allowing informed and accurate decisions and actions to support and enhance nuclear safety
- Operational resilience; identification, assessment and mitigation of single points of failure and maintenance of defence in depth.

Development of a Nuclear Baseline

- **Designed to support the management of organisational change**
- **Will define the baseline requirements for human resources to meet current licence conditions and plans and arrangements**
- **Changes to the baseline can be assessed**



Key Factors in Improving Safety Culture

Leadership Safety Values and Actions	Problem Identification and Resolution	Personal Accountability
Leaders demonstrate a commitment to safety in their decisions and behaviours.	Promptly and fully identify, evaluate, and correct safety issues commensurate with significance.	Take personal responsibility for safety.
Work Processes	**Continuous Learning**	**Environment for Raising Concerns**
Plan, implement, and control work activities so that safety is maintained.	Seek out opportunities to learn and implement ways to ensure safety.	Encourage raising safety concerns without fear of retaliation, intimidation, harassment, or discrimination.
Effective Safety Communications	**Respectful Work Environment**	**Questioning Attitude**
Maintain a focus on safety.	Permeate trust and respect through the organization.	Avoid complacency and continually challenge existing conditions to identify discrepancies that might result in inappropriate action.

Developments in SMS

- Move to “living” SARs
- Periodic Safety Reviews for all Nuclear Installations
- Review of current Operating Limits and Conditions
- New asset management strategy
- Improvements to SAP planning system, integrating maintenance and HR data
- Organisational excellence process
- Improved training database

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Future Challenges

Australian Synchrotron

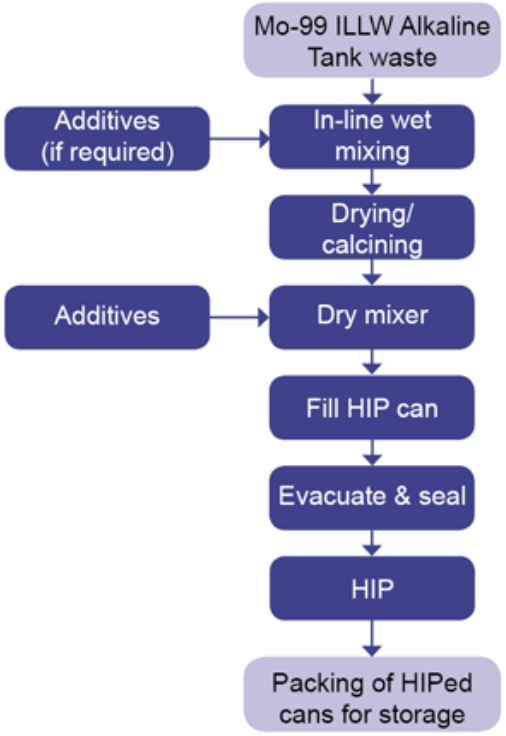
ANSTO ANM Project

- The Australian Nuclear Medicine Facility to supply Australia's Mo-99 beyond shutdown of current process (commissioning 2016)
- Export up to 3000 six day curies of Mo-99 per week to the global community.
- Two liquid waste streams – Intermediate level liquid and a lower activity liquid waste

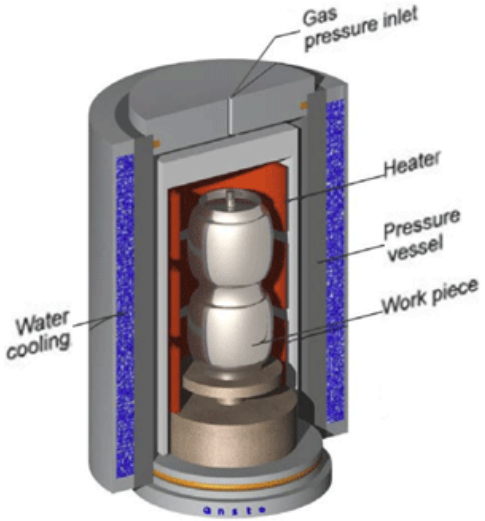
ANSTO Synroc Project

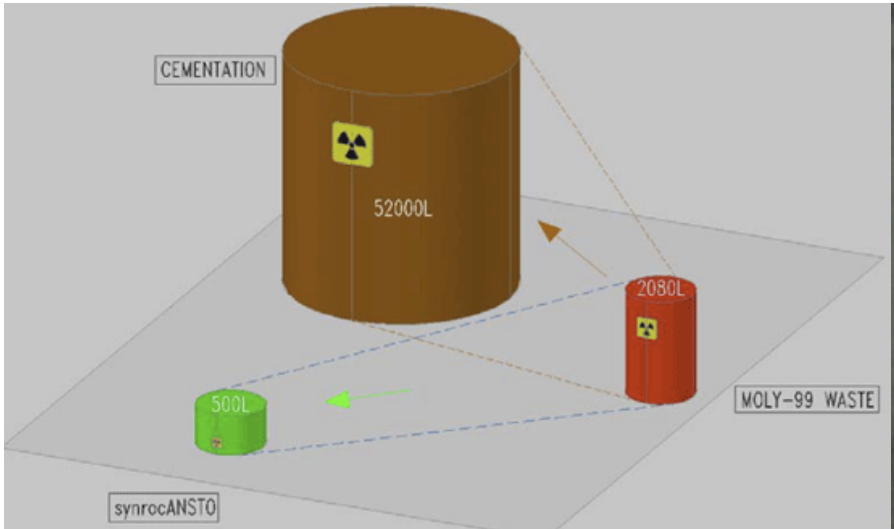
- Utilise Synroc process for the treatment of Intermediate Level Liquid Waste (ILLW) from new ANM Mo-99 production plant and legacy waste.
- Develop capability to engineer customised nuclear waste treatment solutions based on Synroc technology.
- The Synroc Facility is expected to be commissioned in 2016

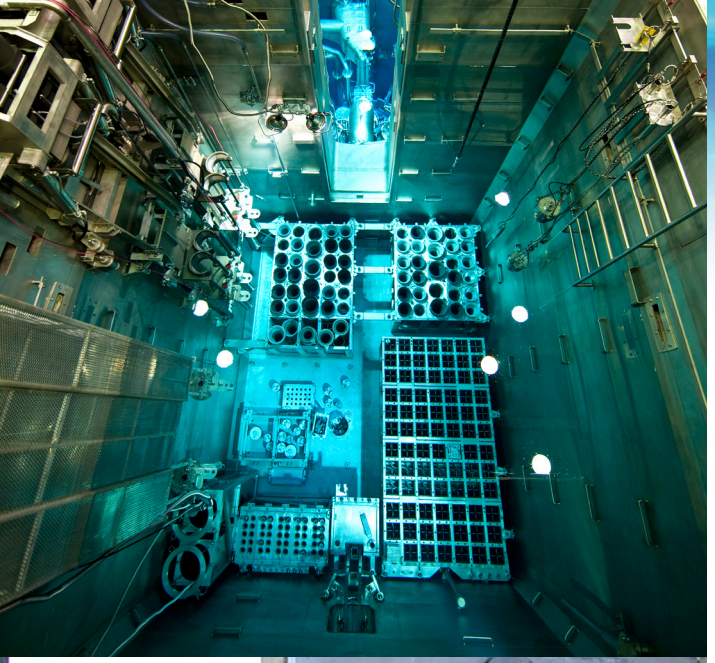
Synroc Process



- The process involves the drying, calcination and hot isostatic pressing of ILLW and additives to form a dense ceramic waste form
- The immobilised waste form is contained within a stainless steel vessel
- This waste process produces the most compact waste form with high radionuclide concentration for long term shielded storage.





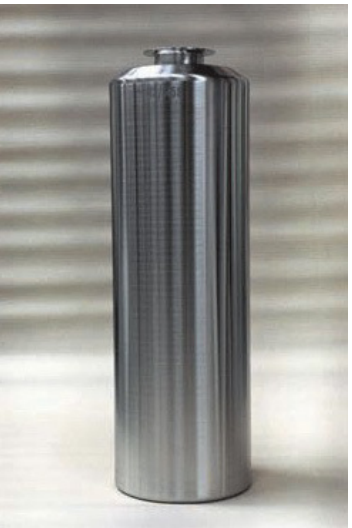


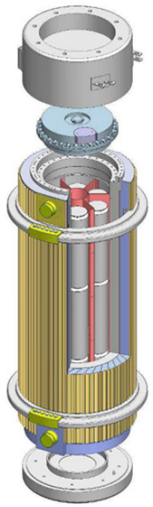
OPAL Spent Fuel Shipment

- ANSTO is committed to the full fuel management cycle through the reprocessing of OPAL spent fuel.
- The reactor service pool will reach full fuel storage capacity in 2016 based on current projected OPAL operating conditions.
- Planning is currently underway for spent fuel shipments to the US (US take back scheme).
- 224 OPAL spent fuel assemblies will be placed in eight transport casks for two shipments to the USA (2016 – 2019)

Intermediate Level Waste Return

- ILW from HIFAR reactor spent fuel processing to be returned from France by December 2015.
  - Australia will receive 28 canisters of glass waste which will be transferred into two sealed shielded metal TN81 transport/storage containers suitable for long-term management.
  - The ILW will be stored at ANSTO on a temporary basis in a purpose built Interim Waste Store (IWS) due to the unavailability of a national repository to store the waste in this time frame.
  - Construction of the IWS will was completed in March FY15.





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