

Active Waste Retrieval Programme



Background

The Active Waste Retrieval Programme (AWRP) comes under the remit of UKAEA's Major Projects & Engineering Division, which was created by UKAEA in 2002 to fast-track critical projects.

The AWRP is a collection of projects dedicated to the supply of equipment and facilities for the retrieval, repackaging, cementation and storage of beta/gamma waste from below ground storage tubes.

Regular monitoring showed that the condition of waste in some of the tubes had deteriorated, prompting UKAEA to recover and immobilise the wastes. The immobilised waste will be stored in a purpose-built store at Harwell in anticipation of the national intermediate level waste repository.

In the immobilisation process, waste will be mixed with concrete and repackaged into stainless steel 500 litre drums. This ensures that the waste will be passively safe and in a suitable form for final disposal.



Objectives

To recover and immobilise all wastes from the tube stores by 2020.



Key challenges

- Developing solutions to recover standard and non-standard or 'long' waste cans and their contents from both tube stores.
- Recovering high beta/gamma wastes in unknown conditions.
- Providing new plant and equipment to sort and segregate waste forms.
- Providing cementation plant to immobilise the wastes.
- Delivering solutions to enable site operators to achieve the 2020 end date.

Solution

The concrete shielded vault store, waste handling cells and the first mobile waste retrieval machine (RM1) are in place and will enter full operation to recover the waste following trial operations.

A new gamma gate to provide shielding during waste transfer operations from the tubes around the edge of the store is scheduled to go into operation in late 2003.

An additional waste retrieval system has also been specified to recover waste stored in the tube store. This will be designed and installed ready for operation in 2008.

The waste encapsulation and treatment plant (WETP) is to be designed and built, comprising a cementation plant and a flexible waste handling facility.

A flexible waste handling facility is needed to examine and sort any waste not suitable for direct encapsulation and requiring additional treatment e.g. ion exchange resins. The facility will be specified and procured by the project team.

Construction of the WETP is planned to start in 2007 and the plant is expected to be operational by 2012.

The retrieval of waste is the responsibility of UKAEA's Harwell Radwaste Services (HRS) who are the customer for the plant and equipment delivered by Major Projects & Engineering Division. The two teams work closely to ensure that the plant and equipment will allow HRS to complete the waste retrieval safely and effectively.



Outcome

- The UKAEA operations team (HRS) is now able to recover and repackage waste using RM1.
- Recovery of waste from edge tubes, using the gamma gate, will commence in late 2003.
- The new vault store is ready to receive repackaged waste awaiting cementation.
- The vault store shielded cells will enter operation following trial operations in 2003.
- Major Projects & Engineering Division will continue to deliver the necessary equipment and facilities to enable the HRS team to achieve their objective of having all waste recovered and immobilised by the target date of 2020.

Key facts

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| • Number of cans of waste | 8,000 |
| • Date of first waste to be placed in the vault store | December 2002 |
| • Planned operational date for second retrieval system | 2008 |
| • Planned operational date for the new waste treatment facility | 2012 |

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