



**UKAEA**  
*Restoring our Environment*

# New Waste Treatment Facility at the Harwell International Business Centre



This leaflet explains the background and the reasons why UKAEA is seeking outline planning permission to build a new waste treatment facility at its Harwell site. It will answer some of the questions likely to be raised during the public consultation period.

# Introduction

The United Kingdom Atomic Energy Authority (UKAEA) owns and operates the Harwell International Business Centre (HIBC) in South Oxfordshire. It is seeking outline planning permission from Oxfordshire County Council to build a waste treatment facility within its existing B462 Complex at the western edge of the Harwell site. The information given below is a non-technical summary of the detail provided to the Council in the application.

## The UKAEA Mission

UKAEA has been a world leader in the field of atomic energy research and development for over 40 years. Now that much of the research has been completed, its prime role as an organisation is the environmental restoration of its sites so that they can be delicensed and made available, wherever possible, for unrestricted future use. Site restoration involves the decommissioning of a diverse range of redundant facilities and the conditioning and long-term management of a wide range of radioactive wastes.

UKAEA's mission is to do this in a way which is:

- *Safe and secure*
- *Environmentally responsible*
- *Value for money*
- *Publicly acceptable*

Figure 1: Aerial view of HIBC



## Why is UKAEA applying for outline planning permission to build a new waste treatment facility at Harwell?

The proposed facility is an important element of the site strategy for the long-term management of radioactive wastes classified as Intermediate Level Waste (ILW), and has been planned for some time.

It is current UKAEA policy that radioactive wastes should be placed into a state of long-term *passive safety* as soon as practicable. This means that the waste is required to be immobilised in a form that is physically and chemically stable and stored in a manner which minimises the need for control and safety systems, maintenance, monitoring and human intervention.

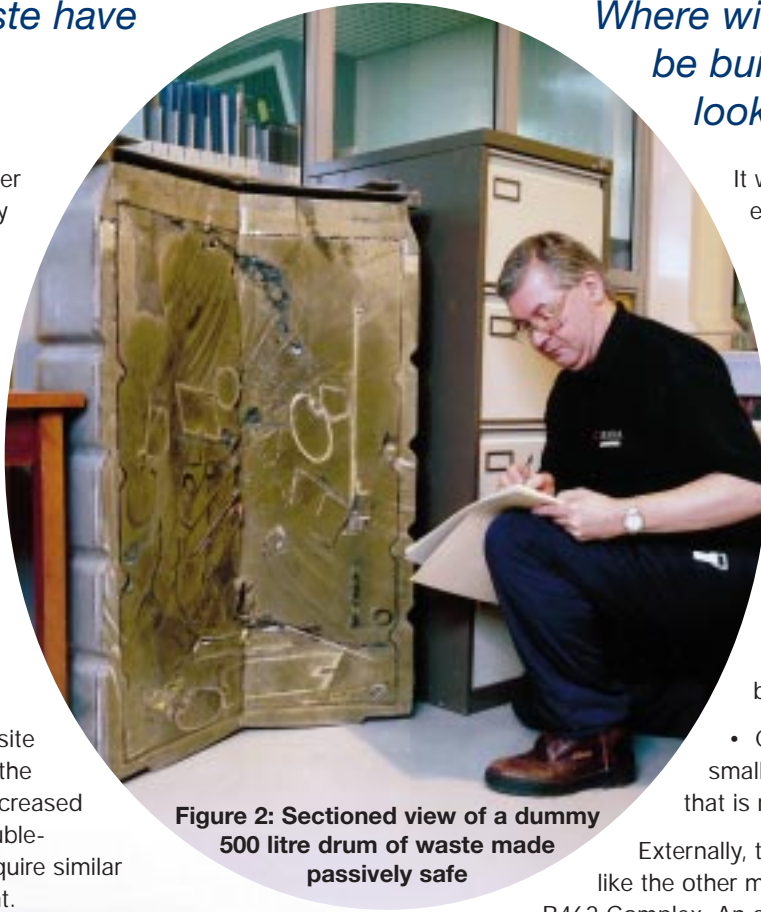
Implementing this policy for ILW at Harwell involves retrieving the waste from its current storage location at the B462 Complex, repackaging it into 500 litre stainless steel drums, adding a cement grout, and placing the product (See Figure 2) into a controlled environment for long-term storage. Once made passively safe, the waste will require no further treatment and will remain at Harwell to await the availability of a national waste repository.

A programme of work to retrieve and repackage the waste has already begun and a long-term storage facility has been built. The new waste treatment facility will include a cement grout plant and allow other related treatment processes to be undertaken. Such facilities do not currently exist at Harwell.

## Why does the waste have to be treated at Harwell?

UKAEA has assessed a number of options to find the best way of making this historic waste passively safe, including the option of transferring it to another site for treatment. The preferred option is to manage the waste totally within the existing B462 Complex at Harwell.

Studies have established that the majority of the waste is not in a form suitable for transport off-site without treatment and the development of a suitable off-site transport flask design. To transfer the waste to another site would increase the impact to the environment, would involve increased risk to workers due to the double-handling of the waste, and require similar expenditure to an on-site plant.



**Figure 2: Sectioned view of a dummy 500 litre drum of waste made passively safe**

## Where will the new facility be built and what will it look like?

It will be built alongside the existing ILW facilities at the B462 Complex and will be known as the Waste Encapsulation and Treatment Plant (WETP). It is envisaged that the WETP will provide the following key functions:

- Cement grouting of the recovered waste inside stainless steel 500 litre drums
- Monitoring and inspection of the 500 litre drums (both before and after grouting)
- Chemical pre-treatment of a small amount of waste (about 5%) that is not suitable for direct grouting

Externally, the WETP will look very much like the other modern buildings within the B462 Complex. An artist's impression of how it might look is shown below (See Figure 3).

## Where has this waste come from, what is it comprised of, and how much of it is there?

The waste has arisen mainly from past operations in the redundant research facilities, from the decommissioning of those redundant facilities, and from the time when UKAEA offered a national waste disposal service to hospitals, universities and other research organisations.

The major components of the waste are metals and organic materials, with smaller quantities of cement, graphite, radioactive sources, glass and ceramics. Most of the waste is currently contained in sealed steel cans. There are approximately 10,000 cans to be processed and these range in size from a small paint tin up to a typical kitchen pedal bin (See Figure 4).

The total volume of waste to be processed through the WETP is in the order of 350m<sup>3</sup> and in conventional terms, is a small amount of waste.

## When will the WETP be built and how long will it be operational?

The project is at a relatively early design stage and this is why an outline planning application is being made at this time. A number of services are currently located below ground at the development site and these will need to be carefully re-routed before the main work begins.

Construction of the WETP is expected to start around 2006/07 and commissioning from around 2010. The WETP will be operated by qualified UKAEA staff with experience in the handling and treatment of radioactive wastes. The target date for the achievement of passive safe storage is 2020.

### *What will be the environmental effects of building the WETP and how will these be minimised?*

The environmental effects of constructing the WETP are dusts, noise, traffic and visual impacts. We shall minimise these as follows:

#### **The emission of dusts during construction.**

These will be minimised by the use of dust suppression measures, including damping down, covering of piles of soil with sheeting and the use of covered waste containers.

#### **Noise from the operation of machinery and traffic.**

The greatest noise impacts usually occur during the initial site establishment when the ground is being cleared and the main infrastructure is being put in place. Once this is complete, the general construction activities associated with the build are not particularly noisy and should not result in significant impact.

The closest residential property to the development site is approximately 700m away. The area immediately surrounding the site to the north and west is predominantly rural, consisting mainly of agricultural land. A noise assessment has indicated that construction activities should not give rise to significant effects at this distance. However, these activities are still likely

to be audible. In order to demonstrate best practice on site, it is intended that a Code of Construction Practice be developed. This may include choosing plant, machinery and processes that are relatively quiet and the use of localised screens around particularly noisy items of plant such as jackhammers to demonstrate that the noise emission from the construction site is as low as reasonably practicable.

#### **Traffic impacts, including the transport of building materials to the site.**

The overall number of vehicle movements will be low compared to total movements in the local area. Traffic movements will only take place during daytime hours, thus minimising any disruption at night. During the construction phase there will be a small level of additional traffic generated by the construction workers and by the movement of plant. Accordingly no significant delays to local traffic or transport are expected.

#### **Visual impact.**

The proposed WETP will be located adjacent to existing modern buildings at the B462 Complex. Although the WETP will be constructed from similar materials and will be similar in appearance to the existing buildings, it will be taller and will have one or more ventilation stacks projecting a further 2 to 3 metres above the roofline. Therefore, whilst the proposed development will be in keeping with the existing area, the WETP may slightly increase the visual intrusion of the site.

During the construction phase, cranes, heavy plant, temporary buildings, site traffic and stockpiles of building materials will be introduced into the site. The development site is largely screened from the bridleway at the UKAEA site boundary by trees and the visual impact to members of the public will be minimal.

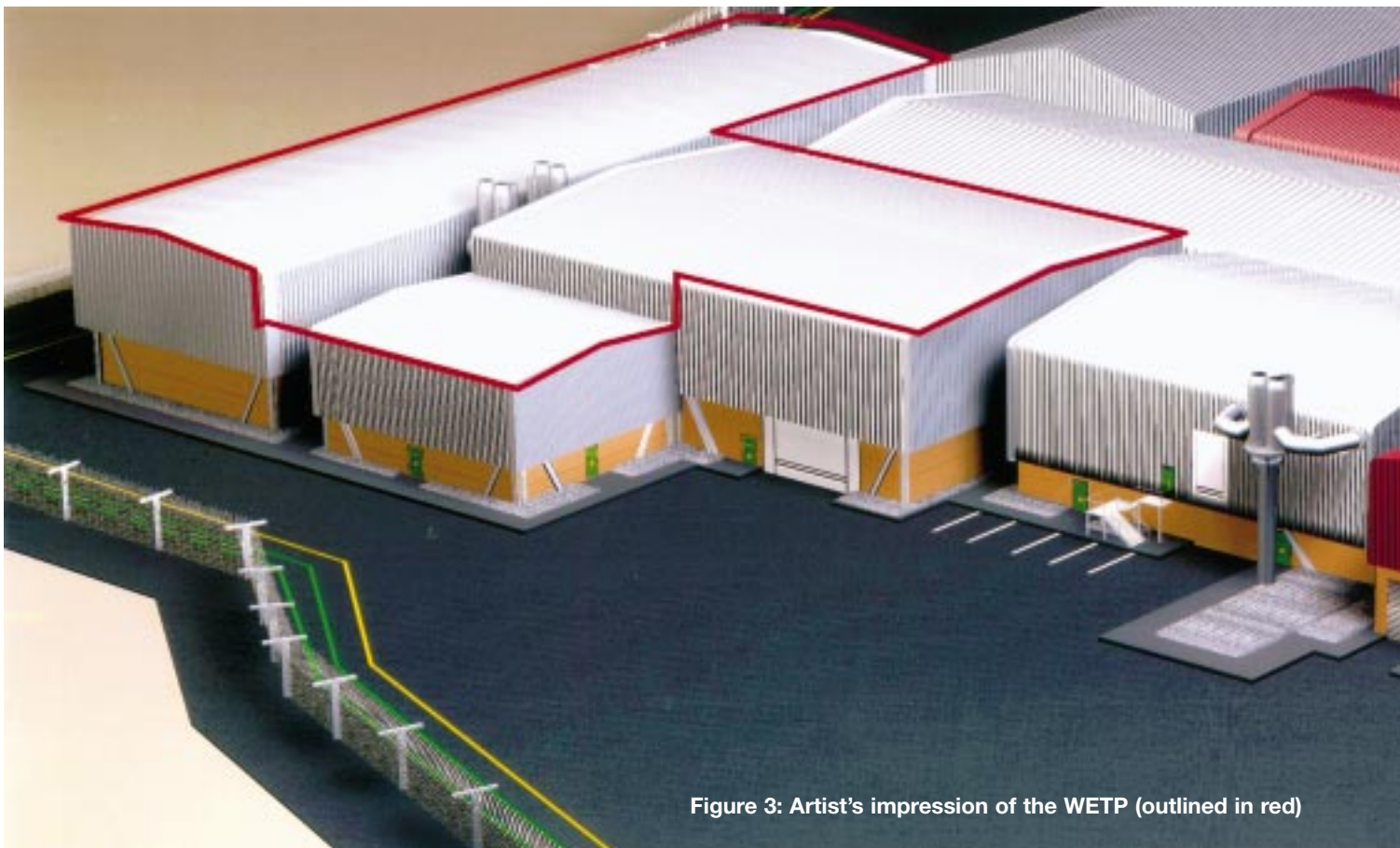


Figure 3: Artist's impression of the WETP (outlined in red)

## *How will UKAEA ensure that the work is carried out safely and is environmentally responsible?*

Health, safety and environmental issues will be given the highest priority. UKAEA operates a stringent safety management system at all its sites and is overseen by the Nuclear Installations Inspectorate (NII), part of the Health and Safety Executive. This safety management system will be applied throughout the lifecycle of the project.

UKAEA operates an environmental management system, which meets the international standard ISO14001. Inspections and audits of the work will cover environmental as well as health and safety issues.

Specialist contractors will carry out the site preparation and construction works and UKAEA will closely supervise these activities by maintaining a continuous presence at the site of works. There will be frequent inspections and audits of the work, carried out by staff independent of the project team. The works will also be subject to inspection by the Health and Safety Executive (NII) and the Environment Agency (EA), the two main regulators for operations at Harwell. UKAEA will provide regular reports of progress and the regulators can make unannounced inspections at any time.

UKAEA will be taking a responsible approach in ensuring that adequate safety measures are put in place to protect members of the public, other occupants of the Harwell site, contractors carrying out the construction work and workers operating the plant. These will include:

- The implementation of safe working practices
- Extensive radiological and environmental monitoring at the boundary of the site of works and at greater distances
- Site induction and B462 Complex specific induction training for all contractors involved with the works
- Emergency plans and training, based on the well-established practices for dealing with incidents at Harwell
- The use of protective equipment

## *How will UKAEA keep interested parties informed about progress with the WETP?*

UKAEA is committed to keeping all its stakeholders informed about the development. It welcomes the opportunity for public scrutiny of the project presented by the outline planning application process.

The Head of Site at Harwell gives regular progress updates to the Harwell Local Liaison Committee and to the regulators responsible for the independent inspection of the site. The Harwell Public Relations Manager and project staff are available to answer queries from members of the public.

**Figure 4: Typical waste cans for ILW**



*How can the public get further information about the development?*

The following people can be contacted at any time to obtain more information:

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B404  
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