Outline Demolition Method Statement

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Nuclear Restoration Services Limited - Trawsfynydd

DEMOLITION OF THE ABOVE GROUND PONDS COMPLEX STRUCTURES; THE PERMANENT RETENTION OF BELOW-GROUND RADIOACTIVELY CONTAMINATED STRUCTURES AND OF DEMOLITION ARISINGS (INCLUDING RADIOACTIVELY CONTAMINATED DEMOLITION WASTE) EMPLACED IN BELOW GROUND VOIDS; AND RELATED CAPPING AND DRAINAGE WORKS

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1 Introduction

The Trawsfynydd ponds complex is a collection of 36 buildings, some of which have below ground voids. The following works are proposed:

- the demolition of the Trawsfynydd ponds complex buildings;
- the infill of below-ground voids of the ponds complex, mainly with radioactively contaminated demolition arisings, and the permanent retention of the infill (which, in environmental permitting terms, is the disposal of radioactive waste);
- the permanent retention of the radioactively contaminated residual below-ground structures of and around the ponds complex (which, in environmental permitting terms, also involves the disposal of radioactive waste);
- the capping of the footprint of the former ponds complex with a concrete cap; and
- modifications to the local drainage on and around the concrete cap.

This outline demolition method statement provides an overview of the preparatory works that are proposed, an explanation of how it is anticipated the ponds complex may be demolished to ground level as well as an overview of the infilling of below-ground voids and the capping of the footprint of the ponds complex. The exact methodology will be developed in partnership with the contractor selected to undertake the development mindful of all regulatory and operational constraints, but this statement sets out the current best understanding.

2 Preparatory works

Prior to the start of the works for which planning permission is sought, there will be de-planting and “soft strip” of the internal spaces within the ponds complex. All bulk asbestos, plant and equipment will be removed except for very large plant items, such as overhead gantry cranes, which will be removed during the main demolition works.

Structural strengthening work of necessary walls and floors of some of the voids to maintain their long-term integrity or to enable access to infill the voids. These strengthening works are also internal enabling works not requiring planning permission.

3 Demolition methods

The demolition activities will include the dismantling of the above-ground ponds complex structures (measuring approximately 230m in length by 45m in width at its widest point, and with a maximum height of 12.5m) and will also include the demolition of some ground-level structures such as suspended floors.

The exact method of demolition used to remove the buildings and structures and the precise sequencing of the demolition operations will be governed by the hazards associated with the structures being demolished as well as engineering requirements and operational constraints.

As explained in Chapter 5 of the Environmental Statement that accompanies this planning application, some structures could be demolished using conventional “open-air” methods, but for other structures, where there is a need to control dust dispersal, the likely demolition techniques and controls required may result in the demolition work being performed within an enclosure and/or involve targeted demolition activities around areas of contamination.

In broad terms, the intention is that peripheral buildings and structures, where the demolition arisings that are produced are more likely to be out-of-scope[1], are likely to be demolished earlier in the demolition sequence. Some demolition arisings from these out-of-scope demolitions will be graded into a product for use as part of the development, with the reminder disposed off site using conventional demolition waste routes. Some isolated peripheral buildings that are radiologically contaminated may also be demolished during the early demolition phase with appropriate controls in place.

For the main radioactively contaminated structures the approach taken will control any radioactive dust and debris that could otherwise migrate from the demolition area. Control of radioactive dust and debris will be achieve in one of two ways; 1) demolition within a protective enclosure that will conain all dust and debris, or 2) carefully selecting a demolition technique that will avoid generating radioactive dust and debris. It may be that a tented protective enclosure (or similar) will be erected over all or part of the main radiologically contaminated areas of the ponds complex before demolition of these areas commences. There may also be

1 “out-of-scope” means not subject to regulation under radioactive substances legislation. In broad terms, out–of-scope may be thought of as not legally radioactive.

opportunities to use the existing buildings to form the protective enclosure in some spaces. By removing, as far as practicable, the peripheral buildings earlier in the demolition sequence the footprint of the ponds complex will be reduced so that the extent of any tented enclosures can be minimised.

It is expected that standard demolition machinery will be used to dismantle all buildings with specific demolition techniques, such as cutting the structures into blocks using wire saws, circular saws etc being considered for managing contaminated structural elements.

Most of the inert concrete and masonry demolition arisings are expected to be retained on-site for use in the proposed development. If required, mobile crushing unit(s) and conveyor system(s) with in-built dust suppression technology may be used to convert concrete and masonry waste into a suitable building material for use in the proposed development.

4 Backfilling of Below-Ground Voids

There are a number of below-ground voids within the ponds complex that, historically, were used to support the processes undertaken within the complex to manage spent fuel from the reactors and waste storage and processing operations. As part of the proposed development, it is proposed to leave all below-ground structures/voids, in-situ and use masonry and concrete arisings from demolition of the above ground structures to infill the below ground voids. In environmental permitting terms these operations include “in-situ disposal” for radioactively contaminated below ground structures and “disposal for a purpose”[2] for radioactively contaminated void infill.

Several voids are proposed to be partially filled with monolithic infill to above the highest expected groundwater level; this may be achieved using imported concrete exclusively or with the addition of suitable demolition arisings. Grouting of pre-emplaced demolition arisings is also an option. One of the principles likely to be employed is that, wherever practicable, demolition arisings will be placed within voids close to their point of origin.

Infill material may be placed by tipping from a dump truck or lowered into deeper voids using the bucket of an excavator. It may also be that some larger blocks are lifted into place within the voids, these could have been precast components or blocks cut out at the demolition face and transferred directly to a void. Infill material may be compacted after emplacement. Emplacement methods will be governed by the selected method of demolition, void configuration, required levels of dust and radiological control.

5 Installation of Concrete Cap

The majority of the demolished ponds complex area will be capped with a reinforced concrete capping slab upon completion of infilling of voids. The primary objectives of this cap are to provide resistance to infiltration of surface water (rainwater) and to allow the footprint of the ponds complex to be integrated within the operational area of the site to enable ongoing site decommissioning activities. The cap will span all in-filled below ground voids.

Prior to the installation of the concrete cap a layer of suitable subbase material, either imported or produced from suitable demolition arisings, will be placed on top of the disposed material in the voids to provide a formation layer for the construction of the concrete capping slab.

The concrete cap will be reinforced and constructed with either imported ready mixed concrete or, if a suitable local batching site cannot be used, then concrete may be batched on site using imported materials.

[2] These terms are further explained in section 3 of the planning statement that accompanies this planning application.