

## Dismantling of SGHWR Ventilation Stack



### Background

The Steam Generating Heavy Water Reactor (SGHWR) at Winfrith was a prototype power reactor, built between 1963 and 1967, and supplied electricity to the national grid until 1990.

The reactor ventilation system discharged filtered air to the atmosphere through the 120-foot (36.6 metre) SGHWR ventilation stack.

The SGHWR stack was decommissioned to reduce the visual impact of the SGHWR facility. The stack was the highest structure on the Winfrith site.



### Objective

To safely dismantle the SGHWR ventilation stack.



### Key challenges

- Heavy cutting and lifting operations at great heights.
- Removing the main cowl at the top of the stack, the cowl weighed 40 tonnes and stood 120 feet above the ground.
- Ensuring adequate control of contamination as the stack was mildly contaminated internally.

## Solution

Scaffolding was erected to the very top of the stack to provide safe working access.

Diamond wire cutting equipment was used to cut the reinforced concrete stack whilst a 1,000 tonne mobile crane was used to support each section at the end of the cut and lower the released section to the ground. Water used during cutting was collected to contain any contamination.

The main cowl at the top of the stack was removed in one piece and the rest of the stack was removed in 9 metre long cylindrical sections.

The scaffolding was then progressively dismantled to lower the working platform for cutting and slinging as each section of the stack was removed.

Work was managed so that each cut and lift operation was completed within a single working day, ensuring that a section was not left supported by the crane overnight.

The sections of the stack were positioned on the ground for decontamination. The surface contamination was removed in an enclosed containment using needle guns, which were most appropriate for tackling the curved surface of the stack.

Although clean from surface contaminants, tritium absorbed into the bulk concrete of the stack prevents conventional disposal. The stack sections are being stored on site pending further processing and disposal during further decommissioning of SGHWR.



## Outcome

- The stack was successfully and safely dismantled within budget and programme targets.
- The visible impact of the Winfrith site has been significantly reduced.
- The sections of the stack are being stored on site awaiting future disposal.

## Key facts

Project Start Date  
Project End Date

February 2002  
September 2002

### Dimensions of the stack

Height above ground  
Internal diameter  
Weight of top cowl  
Approx weight of each section

36.6 metres  
2 metres  
40 tonnes  
35 tonnes

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