

Module installation at Berkeley.



PEOPLE  
WHO  
DELIVER

## CASE STUDY: Berkeley Vaults

### OVERVIEW

The Berkeley Active Waste Vaults (AWV) retrieval programme comprises a number of discrete projects for the design and installation of mechanical handling and processing equipment required to retrieve legacy Intermediate Level Waste (ILW) from three subterranean vaults.

Cavendish Nuclear was tasked to deliver plant and equipment capable of retrieving, processing and packaging the waste for safe interim storage.

The programme is scheduled for completion during early 2020.

### KEY INFORMATION

- Customer:** Magnox
- Site:** Berkeley Power Station
- Value:** ~£100 Million (to date)
- Duration:** 2011 - present
- Capabilities:** Programme & Project Management, Optioneering & Design Services  
Complete project lifecycle:  
Engineer, Procure, Construct, Commission (EPCC)



Off-site integrated works testing at Cavendish Nuclear Limited, Whetstone.

## OUR SOLUTION IN DETAIL

### Our Approach

Cavendish Nuclear adopted a modular build strategy, the key benefits of which were:

- Maximisation of off-site assembly and testing.
- Reduced durations for both the onsite construction phase and overall project duration.
- Reduction in costly onsite rework
- Technical risk mitigation, facilities had been demonstrated prior to installation.
- Greater programme predictability particularly on critical path construction and commissioning activities.
- Health & safety - reduction in radiological and working at height hazards.

The technical solutions were based on the use of proven commercially available equipment. Cavendish Nuclear then applied integration expertise to provide facilities that were appropriate for the required application and operating life.

Programme constraints dictated that module fabrication and equipment manufacture had to be completed in parallel, at multiple locations. Cavendish Nuclear utilised long standing relationships with approved suppliers to ensure delivery to budget, programme and quality.

Cavendish Nuclear carried out module assembly and integrated works testing at their Whetstone facilities near Leicester. This integrated works testing ensured that hardware and software was appropriately demonstrated prior to delivery to the Berkeley site.



In vault Brokk deployment during commissioning.

### Collaborative Working

Cavendish Nuclear has a long-term relationship with Magnox, which is built on the back of a successful project delivery record over many years.

Collaborative working is the cornerstone of the relationship, key aspects of this are:

- Co-location of Cavendish Nuclear and Magnox engineering personnel as a single project delivery team, which minimised rework and allowed the design review and approval processes to be expatiated.
- Use of the off-site module assembly and test programme as an opportunity to carry out early familiarisation and training of Magnox operations personnel.
- Implementation of an externally facilitated workshop programme to ensure that collaborative working behaviours were maintained in demanding project delivery environments.
- Active Commissioning was carried out under Magnox working arrangements and in compliance with the site license conditions;

safe and timely completion of these activities required Cavendish Nuclear and Magnox to function as a single team.

- To facilitate vital knowledge transfer, Cavendish Nuclear provided post-handover technical support, which included the embedment of commission and engineering personnel into the Magnox operations team.

### Key Learning

- The use of commercially available equipment provides simplified technical solutions that can be reliably and repeatedly operated.
- Affordability is dependent on equipment specifications being commensurate with their application and operating life.
- Off-site integrated testing provides highly effective mitigation of technical risk to critical path construction and commissioning activities.
- Modular build reduces the time spent on site and reduces cost and programme inefficiencies associated with working arrangements on a nuclear licensed site,

### Achievement and Awards

- The Cavendish Nuclear Berkeley R2 project team were awarded the Babcock International Group Team of the Year for 2015
- R3 Project Team - Winners of the Cavendish Nuclear Team of the Year 2019.

## PROJECT SUCCESS FACTORS



Progress from concept design to operations took a little over four years, supporting the programme for transfer of Berkeley site into long term care and maintenance.



The use of commercially available equipment provides Magnox with an affordable and fit-for-purpose technical solution, commensurate with its application and operating life.



The facilities provide Magnox with the capability to retrieve and process all waste types from all vaults - reliably and repeatedly.



### FOR MORE INFORMATION, CONTACT:

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