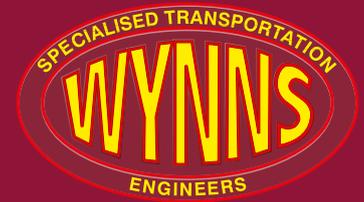


MOVING THE FUTURE OF THE UK'S ENERGY



ROBERT WYNN & SONS LTD.
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Background:

The Evaporator D project at Sellafield nuclear power station is the biggest nuclear project undertaken in the UK in the last 5 years. Evaporator D will be used during the nuclear reprocessing process and has been described as “essentially a giant kettle which is used to reduce the volume of high level liquid waste before it is turned into a glass form and stored”.

In 2009 Costain were awarded the £297m contract to engineer, procure, construct and commission the Evaporator. The Evaporator was built by Interserve and consisted of 11 modules – the largest weighing 565 tonnes and measuring 28 x 8 x 14.5 metres.

The Problem:

Because of the size of the modules, transporting them by road was not an option and therefore a waterborne solution needed to be found. Dutch heavy transport experts Mammoet, were contracted to deliver the modules to site and soon concluded that the beach adjacent to the power station would need to be used.



Vessel beached with ramps being positioned.



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There were two key considerations to be made when deciding on the feasibility of sea delivery to the Sellafield beach – environmental impact, and practicalities of construction in such a remote location. Initially the collective wisdom was that a “traditional” flat top barge would be employed, however it was soon concluded that Robert Wynn & Sons experience and deployment of their unique heavy lift barge the Terra Marique, would be the most suitable way forward for the delivery element of this project.



Night discharge of Evaporator D modules from Terra Marique.

After 6 voyages, over a 2 year period the Terra Marique successfully delivered all 11 modules

The Robert Wynn & Sons Solution:

The Terra Marique, is 80m in length and 16.5m wide. It is a purpose built vessel designed to handle the largest and heaviest abnormal indivisible loads, and is specifically designed with a flat underside and strengthened hull to enable her to be deliberately and safely beached whilst in doing so producing only minimal ground loadings.

Having been loaded in Ellesmere Port the Terra Marique navigated the 100 nautical miles to the waters off Sellafield then using her 4 x 360° water thrusters moved under her own power and Robert Wynn & Sons guidance, into position within a predetermined and restricted lay down area identified by marker buoys for offloading. This was achieved on each occasion with exceptional accuracy and efficiency.

Following the removal of her stern doors and the deployment of ramps, Robert Wynn & Sons were able to facilitate a conventional ro/ro operation, offloading the modules using SPMT's, rolling off on to a pre-laid track way from the Terra Marique's ramps across 80m of foreshore to the Sellafield site.

Due to the offloading operation needing to be carried out during a single tidal window the offloading operation needed to be carried out within a 6 hour time period. This was a challenging time scale particularly when 3 modules were carried on one of the voyages.

Conclusion:

After 6 voyages, over a 2 year period the Terra Marique successfully delivered all 11 modules, with a combined weight of 1600 tonnes, on to the beach at Sellafield.

While the transportation of the massive Evaporator D modules at first seemed fraught with difficulty the unique design and capability of the Terra Marique and the expertise of Robert Wynn & Sons resulted in all modules being delivered safely with expedience and without the need for significant and permanent impact to the coastal environment.