



D. C. WHITE & PARTNERS

### Getting Reactors Back Online

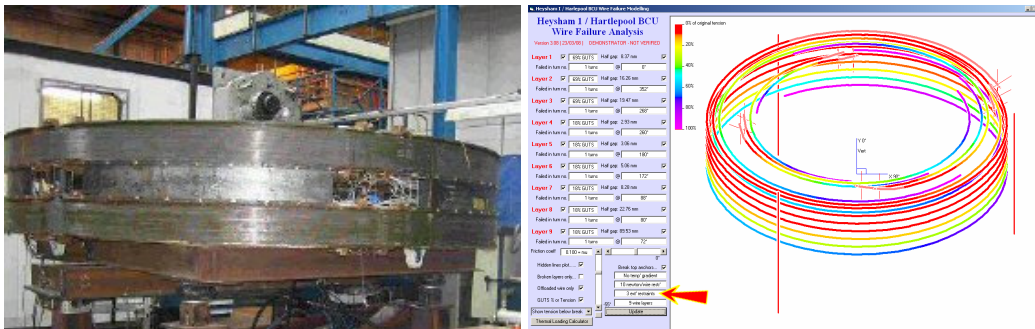
D C White & Partners were brought in as subcontracted consultants for the Hartlepool and Heysham 1 Boiler Closure Units Recovery Project for British Energy.

The Boiler Closure Units (BCUs) are concrete and steel cylinders that are part of the reactor pressure boundary. To ensure structural integrity the BCUs use a pre-stressed wire winding system, each BCU using 54 kilometres of high-tensile 2.6mm wire. An inspection of the BCUs in 2007 found corrosion on the wires and some broken wires, which was a potential terminal finding. Each reactor uses eight BCUs and this discovery compromised the BCUs safety case, leaving British Energy no choice but to take four reactors out of service until a solution could be found.

With British Energy losing £4m per day in revenue and the potential decommissioning of 25% of the UK's nuclear energy no obvious solution was available. D C White and Partners were called in to address the issue of frictional restraint of the pre-stressing wires for a safety case that would allow the reactors to be re-commissioned and extend the lifetime of the two stations. We wrote a bespoke finite element analysis software package to demonstrate the frictional restraint properties within the BCUs, as well as providing equipment for the seismic testing of test rigs.

At a cost of £155 million, this project proved to be British Energy's largest capital project since Sizewell was built. D C White and Partners were proud to be able to play our part in returning all four reactors back to service, operating at 100% power, and continuing to provide the UK with a sustainable source of low carbon power for the future.

If you require assistance with a large scale test program or development of specialized finite element analysis software please contact us to see how we can help you.



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