



South West Nuclear Hub - Plant Life Extension

EDF Energy's Advanced Gas-Cooled Reactor fleet, including Hunterston B 2019 restart safety case & University of Bristol

Project value: £6.5m+

Project timing: 2008- present

A unique, highly innovative and technically challenging earthquake engineering project that has provided vital evidence to underpin the seismic safety assessment of EDF Energy's ageing Advanced Gas-cooled Reactor (AGR) nuclear power station fleet. This is vital as many of the UK's current graphite core reactors are reaching the end of their estimated life cycle and life extension is required whilst new nuclear is built and comes online.

Validation of computer-based numerical models are carried out by testing a quarter scale model of a nuclear core the shaking table in the Earthquake and Large Structures Lab at the University of Bristol.

A complex, high precision, ¼ sized physical model of a representative AGR graphite core assembly was developed over a period of seven years. The bespoke rig contains over 40,000 components and 3,200 sensors in a package measuring approximately 2.5x2.5x2.0m. It enables exploration of the non-linear dynamic responses of many different types and patterns of cracked graphite bricks, representing anticipated ageing effects, it also reveals important insights into an aged graphite core's seismic behaviour and integrity. Information from the programme provides essential validation of complex numerical models used to underpin the seismic safety case arguments for life extension of AGR stations.

For more information please contact nuclear.enquiry@trade.gov.uk

