Case Study

Hinkley Point A Power Station

Location	Somerset
Sector	Industrial
Client	Magnox Ltd
Scope	Bulk Asbestos Removal / De-plant / Demolition

In July 2018, Erith Contractors were employed by Magnox Ltd to carry out the enabling works at Hinkley Point A Power Station in Somerset. Hinkley Point A + B power stations are being demolished and decommissioned as part of a £20 billion scheme to replace the out-dated existing plants with a new ultra-modern station; Hinkley Point C

History and Background

Hinkley Point A was commissioned in 1965, built along with two other power stations at the time by Magnox (Oldbury and Berkeley), all of which were situated close to the mouth of the River Severn. The station had 2no. Magnox reactors, which supplied steam to 3no. turbine generator sets built by English Electric. Hinkley Point A was built under the same principles as the earlier constructed Calder Hall nuclear power station, in that it used a reactor core of natural uranium fuel within a graphite moderator, contained within a welded-steel pressure vessel. Hinkley Point A was one of 11 Magnox nuclear power stations commissioned in the UK between 1956 and 1971. During its 35 years of operation, the station generated more than 103twh of electricity; enough to power three cities the size of Exeter.

Following turbine failure, safety concerns were raised over the plausibility of repair and usage continuation, leading to the decision being made in May 2000 to close down Hinkley Point A, with a demolition and decommissioning plan put in place for the subsequent years.

Scope of Works

Erith were contracted to carry out the bulk asbestos removal, soft-strip, de-plant, dismantling and demolition of the turbine hall at HP A, along with 8no. associated buildings including a waste holding facility, offices, workshops and a conventional water treatment plant.

Full scope of works consisted of the following:

- Site establishment incl. welfare, fencing, signage & hoarding
- Enabling works to facilitate access around the site
- Installation of temporary electrics and services
- Scaffold erection to encapsulate the works where required
- Bulk removal of ACM as per supplied surveys
- Construction of a platform to enable structural demolition
- Plate testing to verify platform suitability
- Removal of Thorium contaminated bushings / insulators
- Construction of new steel work+cladding for weatherproofing
- Soft strip & de-planting of all non-structural items on site
- Preparation of structures for demolition work via saw cutting
- Structural demolition of 8no. buildings
- The crushing, testing and placement of arising inert materials
- Removal of demolished material off site
- Clean and clear site for follow on contractor

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Notable Aspects of the Work

As part of the project, Erith needed to carry out stringent analytical testing of a large quantity of oil, sludge and water, determining it's toxicity and contamination levels prior to implementing a bespoke Safe System of Work (SSOW) for the dewatering & desludging phase. All materiel was processed through water treatment plants prior to being safely discharged once sufficiently purified.

In February 2019, Erith carried out the spectacular structural demolition of the overhead crane gantry, which was the culmination of months of asbestos removal, soft-strip and de-plant work within the turbine hall which allowed the controlled collapse.

Following pre-weakening and crane preparation works, the crane was winched from its position at the west end of the hall. 500 tonne winches were used to move it away from the active drains that ran across the site, which carried radioactive waste to the active effluent treatment and control block.

The overhead crane was used to lift and lower operational plant items up to 145 tonnes in weight over its 40 year lifecycle. The crane spanned over 30 metres in width and was positioned 12 metres above floor level of the turbine hall. It is estimated it would have carried out over 29,000 lifts during its time in operation. Constructed on the Clyde, it represented the best of British.

The demolition event of the overhead crane gantry was watched by hundreds of spectators and was made possible following careful planning and modelling with our in-house engineering consultants, Swanton Consulting. This included comprehensive vibration modelling to control risk to adjacent operational facilities

Utilising our vast experience in the heavy industrial sector, suitable attachments were affixed to a Hitachi ZX470 excavator which was utilised to drag the 150 tonne crane out of the structure and safely onto an engineered splash mat under fully controlled conditions.

Although the works at Hinkley Point A are considered to be one of the most challenging and demanding demolition tasks of recent years, Erith have delivered. Through meticulous planning, the implementation of robust demolition methodologies, bespoke SSOWs and the dedicated works of highly-qualified, highly experienced individuals, Erith are handing the site safely back to Magnox to enter its care and maintenance phase prior to full decommission.

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