

Reactor decommissioning: Hunterston A



World winning solutions

< Hunterston A power station.

Key project data

Reactor type	360 MWe twin magnox station.
Initial operation	1964.
Decommissioning strategy	Safestore.
Timescales: 1990	Station shutdown.
1990-1995	Reactors successfully defuelled. Over 60,000 fuel elements removed.
1995	Isolation of gas circuits.
1997	Reconfiguration of miscellaneous effluent system.
1998	Majority of the conventional plant removed.
1999	Demolition of turbine hall and cooling water pump house. Reactor building deplanting on programme.
2000	Commence low-level waste ¹ (LLW) sludge retrieval and encapsulation.

Hunterston A power station, located in West Scotland, is a twin magnox reactor with a combined output of 360 MWe, and was shutdown in 1990 following 26 years of operation.

Hunterston A is adjacent to Hunterston B, an operational 1300 MWe Advanced Gas-cooled Reactor (AGR). Originally, Hunterston A and Hunterston B were part of the same licensed site. Following the restructuring of the UK nuclear industry, the site had to be divided and a new nuclear license obtained for Hunterston A.

Defuelling was carried out in an inert atmosphere and completed in January 1995. Since then, the reactors have moved to a dry air atmosphere installed as part of the assurance programme for long-term planned storage.

Decommissioning programme on target and defuelling completed ahead of schedule.

Decommissioning strategy

The preferred decommissioning strategy for this site is Safestore, which essentially comprises three phases.

The first phase involves removal of the fuel from the site. This takes place within a few years of shutdown.

The second phase prepares the site for an extended period of Care and Maintenance. Preparations include retrieval and packaging of operational wastes, decontamination and dismantling of the fuel pond and construction of the Safestore. Most non-radioactive plant, including the turbine hall, is removed during these preparations. The Care and Maintenance phase takes advantage of radioactive decay.

At the end of the Care and Maintenance phase, the third phase, Site Clearance will take place. During Site Clearance, everything left on-site, including the reactors, will be dismantled.

Performance highlights

During decommissioning of the fuel storage pond and the deplanting of the turbine hall, the following milestones were achieved:

- fuel removed and reprocessed;
- majority of conventional plant removed;
- boilers and pipe work delagged;
- reactor sealed and reactor electrical systems replaced, decabling finished ahead of schedule;
- cooling water systems drained and sealed;
- conventional plant demolished.



A Removal of end plate on sea water condensers at Hunterston A.

Future activities

- Empty, decontaminate and dismantle fuel ponds.
- Build on-site intermediate-level waste¹ store.
- Retrieve and process intermediate-level waste¹.
- Deplant reactor buildings.
- Enter care and maintenance phase in 2015 onwards.
- Main gas duct removal.

¹ UK Waste categories:

- High-level wastes (heat generating): Fission product concentrates.
- Intermediate-level wastes: Fuel cladding, Low and medium active liquors, Slurries, Sludges, Floccs, Low alpha technical wastes, High alpha technical wastes.
- Low-level wastes: <12GBq/t beta gamma, <4GBq/t alpha.

British Nuclear Fuels plc
Reactor Decommissioning

Risley
Warrington
Cheshire

For further information **contact:** WA3 6AS

Tel: +44 (0) 1925 835000
Fax: +44 (0) 1925 834115

Designed by: The Point
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