

# Magnox Dissolution Plant

**Customer:** British Nuclear group  
**Project:** Vaults Waste Retrieval/Magnox Dissolution Plant  
**Location:** Dungeness 'A' Nuclear Power Station  
**Date:** Completed 2008  
**Services:** Engineering, Procurement, Construction, Commissioning, Operation & Maintenance  
**Value:** £9.5 million



## Scope of Work

Following test work and a design study in the early 1980's, Aker Solutions developed the design concept for a plant to retrieve and dissolve Magnox splitters and radioactive sludges. The company then engineered, supplied, constructed, commissioned and set to work the plant. The plant uses a mixture of carbon dioxide and water and the design incorporated extensive safety and reliability engineering including detailed event tree analysis, failure mode and effect analysis and shielding design/verification.

Site operations included extensive work in a radioactive environment and the handling of radioactive materials. The contract was completed in 30 months. Aker Solutions was contracted to refurbish and recommission the plant in 1998 following a period when the plant had been idle.

The following work was undertaken by Aker Solutions:

- 1985 – MXD Plant design and build contract awarded to Aker Solutions.
- Summer 1987 – Completed design and build of MXD Plant.
- Autumn 1987 – Completed active commissioning and handover of MXD Plant.
- 1988 – 1998 – Approximate 2te of Magnox processed under BNFL management.
- 1998 – Successfully refurbished MXD Plant.
- 1999 – MXD Plant returned to service.
- 2002 – Splitter sludge retrieval and processing contract completed ahead of time.
- 2002 – Lugs Retrieval Feasibility Study contract awarded to Aker Solutions.
- January 2003 – Splitter Vault Clean Up contract awarded to Aker Solutions. Completed on cost and time.
- April 2003 – Aluminium Sludge Testwork contract awarded to Aker Solutions.
- July 2003 – Lugs Retrieval Design contract awarded to Aker Solutions.
- March 2004 – Lugs Retrieval Design contract completed on time and budget.
- 2006 – Inactive commissioning of Lugs Retrieval equipment completed.

## Key Features

- Alliancing principles adopted resulting in impressive plant productivity.
- Extensive work in a radioactive environment and retrofit into an existing plant area.
- Over 20 years involvement from assistance in the development of the process to operating the plant.
- Unique experience of handling Magnox Fuel Element Debris and sludges, and detection and separation of highly active nimonic components and tramp active components.