

# BNFL Magnox Dissolution Plant

**Customer:** BNFL Magnox Generation (formerly Nuclear Electric)  
**Project:** Magnox Dissolution Plant – Dungeness ‘A’  
**Location:** Dungeness ‘A’ Nuclear Power Station  
**Date:** 2003 (Operational phase)  
**Services:** Engineering assistance, Operation & Maintenance  
**Value:** £4.5 million



## Scope of Work

Following test work and a design study work in the early 1980's, Aker Solutions developed the design concept and then engineered, supplied, constructed, commissioned and set to work a plant to retrieve and dissolve Magnox splitters and radioactive sludges (1989). 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 later contracted to refurbish and recommission the plant in 1998 following a period when the plant had been idle.

## Description

Aker Solutions has a long term contract to operate this plant, which commenced in late 1998 and to date the plant has operated very successfully. The plant has consistently significantly exceeded throughout targets, not withstanding several setbacks due to the discovery of highly radioactive objects within the vaults. These problems were resolved by mutual co-operation between Aker Solutions and BNFL.

Aker Solutions was awarded a new contract in early 2003 to design, supply, install, commission and operates equipment for final retrieval of wastes. Commissioning of the new retrieval equipment was recently completed ahead of programme, with operation and maintenance of the plant continuing in to 2004.

## Key Features

- Alliancing principles adopted resulting in impressive plant productivity.
- Unique experience of handling Magnox Fuel Element Debris and sludges, and detection and separation of highly active nimonic components and tramp active components.
- 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. Alliancing framework agreed for executing other related work at Dungeness 'A' up to 2009 (final decommissioning of equipment).