



CASE STUDY

PROJECT TITLE: **SLUDGE DEWATERING EFFLUENT TREATMENT**
CLIENT: **CAVENDISH NUCLEAR**



AIMS & OBJECTIVES



Aquila Nuclear Engineering designed and supplied the equipment and services required for pre-conditioning sludge wastes. The design receives and dewateres the sludge which will then be transferred to an external mixer and poured into a concrete box.

ABOUT THE CLIENT



Cavendish Nuclear offers experience and specialist knowledge across all aspects of the nuclear energy life cycle, from design and build, through operations and maintenance, to decommission, waste management and remediation.

PROJECT OVERVIEW

The Pre-Conditioning Facility (PCF) at Hinkley Point "A" (HPA) shall pre-condition mobile Intermediate Level Waste (ILW) following two pre-conditioning routes; polymer route generally for IX material wastes, and cement powder addition generally for sludge wastes.

The PCF is to process several waste streams at HPA. The design will receive and process sludge and supernatant from a number of different waste streams. The design broadly consists of the following components:

- Access and support structure including:
 - 2 x 3000L settlement tanks
 - Bunds
 - 60mm shielding
 - Pumps, valves and pipework
- Excess Supernatant Storage Tank (ESST)
- Dosing skid
- Control system

This project consisted of several pieces of commercial/modified off-the-shelf equipment, along with bespoke equipment to enable separation of radioactive sludge from liquid, in two 3m³ tanks.

The associated equipment has been designed to be operated remotely or locally and to interface with other work packages to control dewatering and settling processes. The system is a dedicated, standalone system, which also incorporates all necessary interlocks and other functions, to safely control all operations within the scope.

ACCESS AND SUPPORT STRUCTURE

The access and support structure was designed to be fully functional with the following loads and constraints:

- Facility floor
- Base plates a minimum of 1m apart
- Tanks full or bunds full
- Shielding
- Pumps and pipework

CONTROL SYSTEM

The equipment will generally be operated via the remote control panel, which is located in the PCF control room within building 49. The local control panel is a three-section painted mild steel "Eldon" panel arrangement:

- Section 1 contains the 3-phase power section (holding the motor control equipment)
- Section 2 contains the power supplies, UPS and batteries for the pinch valve control
- Section 3 will contain the control equipment (PLC, HMI, relays, etc.)

SUMMARY

Aquila has coupled a no-nonsense design approach with the use of standard components and conventional manufacturing materials and methods. This has resulted in a cost effective and fit for purpose solution.



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ACCREDITATIONS



Aquila Nuclear Engineering is part of
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Pragmatic, cost effective solutions, always