

Active commissioning is due to start in 2024 / 2025

PEOPLE
WHO
DELIVER



CASE STUDY:

Sellafield (Product and Residue Store) Retreatment Plant Project

OVERVIEW

The mission is to provide a facility that will receive special nuclear material (SNM) from existing stores on the Sellafield site and process it into a form suitable for safe and suitable storage until 2120.

KEY INFORMATION

Customer: Sellafield Limited

Site: Sellafield

Value: ~£100 Million

Duration: 2015 -2023

Capabilities: Design and Engineering, Manufacture, Assembly and Test



To date **all** defined milestones achieved on time

Project awarded **Highly Commended** by the NDA



One team working collaboratively to deliver a plant that works to the last can.



Site enabling works are set to be completed by March 2020.



The project was Highly Commended in the Nuclear Decommissioning Authority (NDA) 2018 Awards for Supply Chain Collaboration.

OUR SOLUTION IN DETAIL

Our Approach

The project has taken the client requirements, assessed and selected the most cost effective and timely solution in concept design and developed the engineering maturity through preliminary and detailed design.

This process has included:

- building Layouts
- plant and Equipment definition
- scoping and detailed calculations and analysis
- Legislative compliance
- Cost and schedule estimating
- Plant throughput verification
- Safety Case production
- Research and Development / Testing
- Procurement, Construction and Commissioning strategy development
- Environmental studies
- Human factors assessment

Cavendish Nuclear has developed a fully integrated, multi-discipline design team via the Progressive Design Services Alliance. This team is co-located with the client team and provides in the region of 200 engineering and technical experts focussed on achieving the optimum technical solution. The Engineering team is set to work by our highly experienced programme control and management professionals.

The Sellafield Product and Residue Store Retreatment Plant (SRP) project is currently mid-way through Detail Design after successfully delivered the SRP Preliminary Design phase (Nov 15 to Sept 17). Detail design is due to run through until March 2020, immediately followed by manufacture phases.

Cavendish is delivering detail design under two frameworks, the plant wide scope utilising the Design Service Alliance (DSA) Framework and the glove box scope utilising the Glove Box Category Management Framework.

The detail design includes mechanical, electrical control & instrumentation, process, civils, requirements management, TRAM, safety case support, manufacturing and works test information and CE marking.

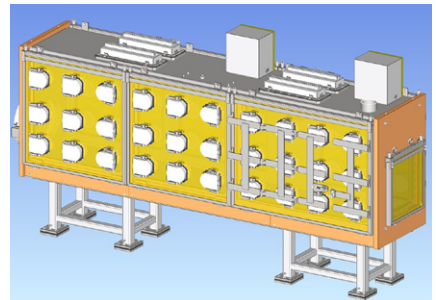
Learning From Experience

A key factor in delivering a cost effective solution within the challenging timescales set by the project was to build on experience wherever possible. Cavendish Nuclear has a breadth of expertise in Glovebox design, mechanical handling and the production of automated systems. To support this, the design team adopted elements of past glovebox projects to provide as much of the required functionality as possible, evolving the design through Site Operations Feedback and the use modern COTS equipment to deliver a best value solution.

Where new and novel solutions were required, practical development activities and the Latest 3D design technologies were applied to ensure risk was managed on an ALARP basis, and that detail design could be completed with the confidence of all stakeholders.

Collaborative Working

Collaborative working has been a key activity in the development of the preliminary and detailed design, engaging with Alpha Group, Inspection & Certification Group (ICG) & Pre-Ops in understanding requirements for



System 699 – Maintenance Glove Box, used for contaminated engineering items.

Glove Box design, ensuring the project maximise of Learn from Experience (LFE) from other plants and facilities. Agreeing at an early stage how the client/customer will manage the design as it develops from concept to operations including certification (CE marking), quality grading (Commercial & Nuclear Standards), O&M requirement, Verification & Validation and governance.

Key Learning

- Improved understanding of our customer through a detailed knowledge of the context of the project, and the challenges facing Sellafield Ltd at government and enterprise level.
- Sellafield Ltd has a greater appreciation of the commercial and resourcing challenges facing supply chain organisations (Tier 2 partners, Tier 3 suppliers and small and medium-sized enterprises (SMEs)).
- The collaborative behaviours and alignment of partners to deliver the SRP mission are creating efficiencies, enabling right first time delivery and bringing about schedule, cost and quality benefits for Sellafield Ltd, its supply chain partners, the Nuclear Decommissioning Authority and ultimately the UK taxpayer.

PROJECT SUCCESS FACTORS

£6M+

of delivered benefits to date by challenging use of bespoke equipment rather than commercial off the shelf equipment (COTS)

Circa 200 SQEP technical experts deployed in a multi discipline fully integrated team



Continual challenge to the engineering complexity and project scope has led to significant cost savings to the overall project

Achievement and Awards

- NDA Supply Chain Awards 2018 – *Best Supply Chain Collaboration Highly Commended*
- Cavendish Nuclear Team of the Year – *Finalist 2018*
- IChemE Global Awards 2018 – *Global Team of the Year Award*



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