

March 2019. Team members celebrating the successful handover to Sellafield.

PEOPLE
WHO
DELIVER



CASE STUDY:

Silo Maintenance Facility

OVERVIEW

The Sellafield Silo Maintenance Facility (SMF) is a mechanical handling plant providing equipment storage, inspection, package loading and unloading, decontamination and maintenance facilities necessary to support the retrieval of historical nuclear waste from the Magnox Swarf Storage Silos (MSSS) and the Pile Fuel Cladding Silos (PFCS).

The challenge was to engineer and deliver a facility with the flexibility to adapt to change its functionality throughout its operational life.

Each of the project phases was subject to separate sanction and award. Each phase was successfully delivered ensuring handover of the facility on schedule and within its sanction budget.

KEY INFORMATION

Customer: Sellafield Limited

Site: Sellafield

Value: £250 Million

Duration: 2011-2019

Capabilities: Design and Engineering, Procurement, Manufacture and Work Testing, Construction and Installation, Commissioning and Pre-Operations, Programme and Project Management



OUR SOLUTION IN DETAIL

Our Approach

The Silo Maintenance Facility Delivery Team (SMFDT) was a joint venture between Cavendish Nuclear and Balfour Beatty and was established specifically to deliver the SMF project from concept through to handover. Cavendish Nuclear's breadth of experience enabled us to lead the:

- engineering
- procurement
- manufacture
- works testing
- commissioning & pre-operations
- programme and project management
- provision of site support to construction and installation

Our approach to support delivery within sanction value and programme was to engineer a simple fit-for-purpose design, making extensive use of 3D modelling, utilising modularisation where practicable and maximising the use of Commercial off the Shelf (COTS) equipment to limit developing bespoke designs.

Typical examples included the modular administration building designed, supplied and installed by Portakabin, COTS cranes, sampling systems and the process plant equipment.

The simplified approach wasn't limited to the supply of plant and equipment, risk based commissioning techniques were applied to arrive at the appropriate level of testing to each system typically taking into account: functional requirements, consequence of in service failure (conventional or nuclear) and the level of confidence (standardised or bespoke). The use of a 'graded approach' to commissioning identified opportunities to reduce the commissioning helped achieve delivery to programme and cost.



The newly designed bespoke equipment for removing the door/seal from the SP/2055 Package.

Collaborative Working

From the outset through to project handover there was always an enhanced focus on collaboration and forming of effective teams to create a fully integrated and truly 'one team' approach with the client fully embedded into the project delivery team. The project set initial high standards for collaborative working and continually built on these. The level of participation from everyone involved with the project was exceptional and this helped achieve on time delivery within the sanction value and our ultimate safety goal of ensuring everyone went home safe at the end of the working day.

To promote collective leadership and responsibility for project delivery throughout the whole team, delivery accountabilities were cascaded at every level from stakeholders, senior management to all the multi-discipline in-field teams with appropriate levels of prioritisation, performance tracking and timely reporting. The team faced many challenges along the way but overcame them by working as 'one team' to jointly implement both innovative, practical and fit for purpose solutions. Successes were always shared and issues solved jointly.

The project has been identified by the National Audit Office as one of Sellafield Site's top performing projects. Cavendish Nuclear's contribution to this success demonstrates our collaborative approach to forming effective multi-discipline teams drawn from different companies (client, joint venture partners and contractors) and creating a professional environment from which challenging timescales and budget can be beaten.

Key Learning

Working as one fully integrated joint venture and client team in co-located offices and at site has undoubtedly contributed to the overall success of the project. Creating from the outset a totally collaborative culture and working environment has resulted in efficient design production, effective supply chain engagement and a delivery focused, energised site team.

Achievement and Awards

- Delivered within its sanction budget and ahead of schedule achieving an NDA 'excellent' milestone.
- Awarded a Sellafield Excellence Award for applying the '*Graded Approach to commissioning*' in 2016 and in 2018 received the Sellafield Chief Executive's 'Management of Contractors' award.
- During the 5 year construction phase the project achieved over 3 million manhours without a lost time accident. The project received Silver and Gold ROSPA Awards and continued to build on this success receiving the highest ROSPA award of Commended for 2017 and 2018.
- At the Babcock 2018 Annual Health and Safety and Excellence Awards the project won the '*Control of Contractors*' award.

PROJECT SUCCESS FACTORS

There has seen some exemplary achievements throughout the duration of the SMF project::

ZERO

lost time accidents over project duration.

NDA 'excellent' milestone that demonstrates delivery of a compliant plant in compliance with strict legislation and Sellafield Ltd requirements.



Over 3 million man hours and a peak workforce in excess of 250.



Identified by the National Audit Office as one of Sellafield site's top performing major projects.



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