



PROJECT DETAILS

CLIENT Nuclear Restoration Services - NRS (Magnox) Ltd

PROJECT Hunterston Nuclear Reactors Roofing & Specialist Coatings

LOCATION Power Station Road, West Kilbride

RTM Select Tender List

CONTRACT NEC 3 (Option C) Target Cost Contract

VALUE £4,500,000

ROLE Principal Contractor

END DATE May 2024

PROJECT SUMMARY

HISTORY

Under the direction of the Nuclear Decommissioning Authority, NRS (Magnox) Ltd is responsible for the decommissioning of several nuclear hydro-electric plants in the UK, including Hunterston, North Ayrshire.

The long-term decommissioning strategy for Hunterston had a separate specific objective to provide a watertight seal to all roof areas of the Reactor Buildings. .

The original roofing system comprised a multi-layer bituminous felt on top of insulation board and profiled metal decking. The system suffered perennial leakage and later incorporated a mechanically-fixed Sarnafil single ply membrane. Subsequent mechanical works on the roofs resulted in damage to the membrane and continued saturation with water containing elevated chlorine levels blown in from the adjacent coastline.

An all-weather coating of Metflex had failed to resolve the water ingress and it became apparent that large areas of the roof and supporting steelwork were becoming fragile and potentially unable to support the original design loads.

PRE-CONSTRUCTION

Following a selective, quality and value, competitive tender process McConnell was appointed as Principal Contractor under a NEC 3 (Option C) Target Cost Contract with Pain and Gain Share Mechanisms.

The contract was critical and provided mechanisms for the potential stop, start, hibernation, mobilisation, re-mobilisation of the works being delivered under complex site conditions and in compliance with Ionising Radiation Regulations where works could be interrupted frequently, at short notice and without warning.

McConnell's Contract Management team and Magnox's Project Management Team worked together over a six-month period to finalise a comprehensive series of bespoke works in line with the Ionising Radiation Regulations and the Nuclear Decommissioning Authorities Requirements.

PROJECT DELIVERY

Works commenced in January 2022 with separate Construction Programmes; Risk Assessments; Method Statement and Safe Operating Procedures for:

- ▶ SRU Halls 2,480m²
- ▶ Service Machine Building Roofs 1,980m²
- ▶ Fan Flat Roofs 460m²
- ▶ Exit Bay Roofs 228m²
- ▶ Ion Chamber Roofs 94m²

Works were intermittently paused by Magnox for (radioactive) swab testing and were eventually placed in hibernation when it was discovered that some of the existing major roofing elements were insecure and lifting during high winds.

This prompted a design review and solution where Sarnabar galvanised steel mechanical fixings were added to the specifications and scope of work.

Coming out of hibernation mid-way through 2023, McConnell remobilised and re-planned the pre-start activity, security procedures, and construction safe working procedures and protocols.

The project faced many challenges, the plants are 95m high and on the coastline, so wind speed had to be observed. If it exceeded 55mph, works had to pause. This meant that works were intermittent and hard to plan. But the teams positivity, adaptability and hard work meant they were successful in delivering satisfactory outcomes.

AT A GLANCE:

- ▶ Principal Contractor under a NEC 3 (Option C) Target Cost Contract with Pain and Gain Share Mechanisms.
- ▶ 95m high nuclear hydro-electric plants
- ▶ Extensive surveys of roof coverings and structural conditions to create comprehensive series of bespoke works
- ▶ Stop, start, hibernation, mobilisation, re-mobilisation of works being delivered under complex site conditions
- ▶ Extreme weather with high winds and regulations in place to stop works if winds exceeded 55mph
- ▶ EPSS Vetted to access site and escorting required

Magnox Hunterston Nuclear Reactor Halls Roofing & Specialist Coatings



SCOPE OF WORKS

- ▶ Extensive surveys of roof coverings and structural conditions
- ▶ Continuous reassurance testing for radiation, asbestos, and other forms of contaminants
- ▶ Installation of under roof protection netting
- ▶ Easi-Dec (galvanised and lightweight aluminium) installations across the various roof structures
- ▶ Anchor point installations
- ▶ Temporary Works Design and installation of scaffold access and scaffold stairs
- ▶ Removal and reinstatement of roof mounted services and plant equipment
- ▶ Preparation of the roofs and the installation of new Sikalastic®-625 single component, cold-applied, moisture-triggered, polyurethane membrane, forming a seamless, durable, and weather resistant waterproofing solution
- ▶ Refurbishment and installation of existing and new Sarnabar galvanised steel mechanical fixings
- ▶ Facia, soffit, and gutter refurbishments
- ▶ Removal and reinstatement of Lightning Protection system

CRITICAL SUCCESS FACTOR

- ▶ Understanding the client's critical, specific, unique requirements while responding and adapting proactively and collaboratively
- ▶ An over-arching master-planning approach to the works, the associated site constraints, and the unique operating environment
- ▶ A programme, schedule, sequence, specification, and safe operating procedure for each of the component roofs of the reactor buildings
- ▶ Provision of a flexible, adaptable, responsive long-term contract management approach to ever-changing site conditions, specifications, and operational site procedures
- ▶ Completion of daily pre-job briefs and Point of Work safety assessments
- ▶ Investing in our long-term resilience and supporting our Contract Management Team and supply chain through the stop, start, hibernation, mobilisation, re-mobilisation phases of the contract
- ▶ Deploying directly employed, highly experienced, long-service, skilled roofing operatives on site
- ▶ Delivering the installation works in compliance with the manufacturers recommendations and third-party guarantees
- ▶ Understanding the application and mechanics of the NEC3 (Option C) Target Cost Contract, ensuring that the use of plain language and collaborative working maintained a spirit of mutual trust and co-operation that enabled the achievement of strategic goals
- ▶ Completing the appropriate activity schedules and inserting lump sum target prices for the activities listed in compliance with the form of contract
- ▶ Operating the contract in compliance with the early warning protocol and mechanism
- ▶ Completing the Schedules of Cost Components in compliance with the contract provisions
- ▶ Collating and producing Defined Costs records and evidence
- ▶ Avoiding protracted claims and negotiations on potential disallowed Ccsts
- ▶ Understanding and operating the contract Pain / Gain Share mechanism in a spirit of mutual trust and co-operation