

CASE STUDY CS02

Project: Extreme Wind Loading
Location: Wylfa Power Station



Wylfa Site. Photo Courtesy of David Dixon

Fast Facts

Project Client: Magnox North

Project Manager: Forward Projects

Principal Designer: RSO

Principal Contractor: RSO

Project Value: £1.1M

Project Duration: 52 weeks

Project Mandate

To analyse and identify the risk of cladding loss from extreme wind loading to all buildings on the power station site and upgrade the building envelope where necessary to ensure resilience.

Background

All UK nuclear power stations must undertake a Periodic Safety Review (PSR) in compliance of Licence Condition 15 (LC15) to investigate potential risks to their ongoing safe operation. This is carried out on a 10-year frequency.

This project was initiated from the risk of a postulated extreme wind load (due to changes in the British Standards for determining wind loading) on the buildings on site, potentially resulting in significant cladding damage.

Solution

Forward Projects brought together in-house expertise and subcontractors to deliver structural assessments, detailed designs and oversee their safe and timely implementation.

Scope of Services

Forward Projects provided risk management, planning, stakeholder management, technical leadership and management, contract administration, construction management and progress reporting services. We also ensured all work complied with the CDM regulations.

Project Execution Plan

A 5-phase/gate approach was adopted to ensure the project deliverables complied with the specification and costs controlled. The first phase developed a Client Brief and Client sign-off. The second phase developed the detailed design. The third phase was the competitive tender process for construction. The fourth phase was the construction programme and the fifth phase captured lessons learned.

Project Success Criteria

Critical to the success of this project was meeting the Client mandate for ensuring quality of analysis and robustness of the safety case required to demonstrate adequacy.

Considerable effort was focused on ensuring the analysis and designs were underpinned by rigorous engineering principles.

Procurement Strategy

The approach taken was to demarcate the design and construction phases such that design was fully complete before going to tender for construction prices. Based on a 'build to print' submission, we ensured that a firm fixed price was achievable for the construction element.

Risk Management

At the start of the project, the key risks identified were quality and robustness of the structural analysis, the extent of the final scope of building modifications required and the ability to design and implement suitable strengthening modifications. By working collaboratively with the project supply chain, most of the risks were resolved at limited cost and schedule impact to the programme.

Health and Safety

All project work was in compliance with CDM 2007 and overseen by a suitably qualified and experienced person (SQEP) construction & safety manager. The subcontractor provided Risk Assessments and Method Statements for all works and these were reviewed by the construction manager prior to works proceeding.

Added Value

The project was completed with minimal disruption to on-site operations through careful planning and sequencing of modification activities. Furthermore, it was delivered to the agreed quality, programme and budget constraints.

Industry Standard

All works completed were fully compliant with the latest British Standards and met Nuclear Regulator expectations.

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