UNIVERSITY OF CAMBRIDGE
Department of Engineering

CONSTRUCTION ENGINEERING MASTERS DISSERTATION ABSTRACT

Lessons learned from the construction of Flamanville nuclear power station and how they will influence the construction of Hinkley Point C?

The aim of the research is to discover the challenges faced by previous nuclear construction projects, advise what the key challenges were and if these challenges are being addressed for delivery of Hinkley Point C.

With Hinkley Point C being the first of a number of nuclear new build (NNB) power stations being constructed in the UK since 1995 a lot of learning will be taken from it so it will become the benchmark against which all others are set. The most recent, and well known, nuclear projects in Europe in recent times have been Olkiluoto in Finland and Flamanville in France, these are both European Pressurized Reactors (EPR's) of the type to be developed at both Hinkley Point C. They are both well known for a few main reasons: over budget and behind programme. The challenge of this research is to determine the reasons for the budget and programme delays and understand if the lessons learned are being will be implemented into Hinkley Point C.

The research is being carried out by reviewing the lessons learned from Flamanville and where the problems lay, interviews of personnel involved with the construction of Flamanville and with personnel from Laing O'Rourke & Bouygues to determine how these problems are being addressed for Hinkley Point C.

A review of existing reports, such as *Engineering the Future: Nuclear Lessons Learned,* is also be carried out which analyses lessons learned at nuclear power stations in the UK, Finland, France and China will also be carried out.

Research to date has shown that problems encountered have largely been as a result of incomplete integrated design at start of construction and by a lack of application of quality procedures during construction.

A further review of what the Office for Nuclear Regulation (ONR) quality requirements are and how the Quality Procedure for Hinkley Point C will be established and implemented is being carried out. The research concludes with recommendations to Laing O'Rourke/Bouygues as to how these procedures are achieving the ONR requirements.

Hinkley Point C cannot be allowed to suffer from poor quality construction, it will not be permitted by the ONR, the construction company delivering the project could lose reputation if it goes over time and budget and, potentially, due to the scale of the project could go out of business. Therefore, quality, and an attitude of "right first time" is paramount. This means applying the lessons learned before construction starts.

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