

Designing Practical Solutions for the Nuclear Industry

Presentation by Paul Waller



New Research Facilities in the UK

'The research community is also a key partner because of the significant engineering and scientific challenges that have to be addressed for new nuclear systems and their legacy.' (Government, 2013)

National Nuclear Users Facility – NNUF

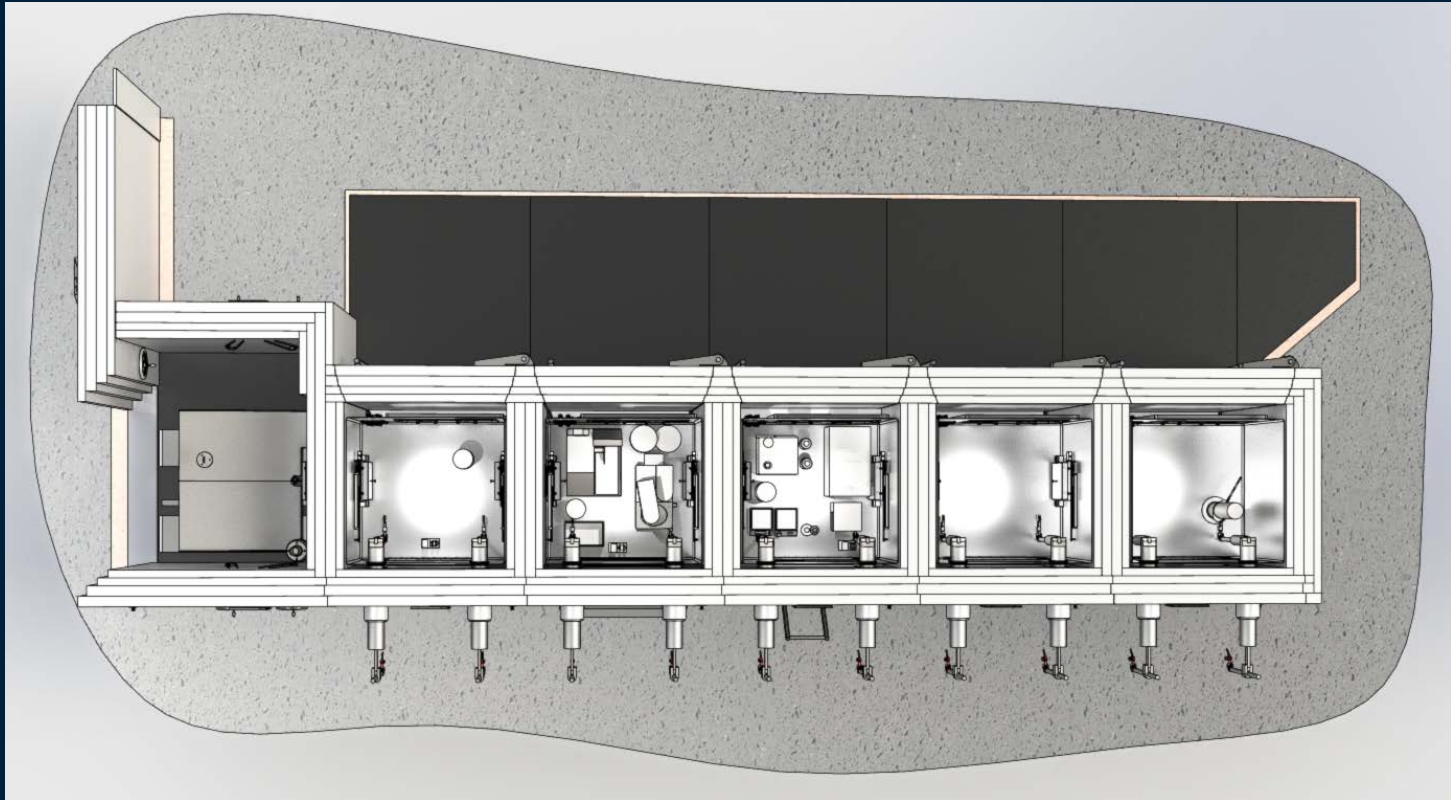
- Central Laboratory of the National Nuclear Laboratory (NNL)
- Culham Centre for Fusion Energy (CCFE)
- Dalton Cumbrian Facility (part of The University of Manchester)



UKAEA – Hot Cells Concept Model



UKAEA – Hot Cells Concept Model



UKAEA – CCFE Hot Cells Facility



UKAEA – CCFE Hot Cells Facility





The University of Manchester
Dalton Nuclear Institute

Dalton Nuclear Institute

Research | Skills | Impact

The Dalton Cumbrian Facility is a state-of-the-art nuclear research complex where academia and industry collaborate on **radiation science and nuclear engineering research**. We offer sample preparation, materials damage, and post-irradiation characterisation capability.



The University of Manchester's Dalton Cumbrian Facility

Part of the **National Nuclear User Facility**, providing greater accessibility to world-leading technologies with partners **Culham Centre for Fusion Energy** and the **National Nuclear Laboratory**.



National Nuclear User
Facility

www.nnuf.ac.uk



Culham Centre for
Fusion Energy

www.ccfef.ac.uk



National Nuclear
Laboratory

www.nnl.co.uk

Accelerator system

Materials damage facilities include a **5MV tandem ion accelerator** and recently installed **2.5MV light ion accelerator**. The beam line and end station set-up features a new **Hot Cell** for high current / high energy irradiations, with shielding for active samples.

When fully commissioned this creates **one of the world's highest energy dual beam accelerator systems**. The Dalton Nuclear Institute is delighted to work in **partnership with Aquila** to design, develop and install the Hot Cell.



5MV & 2.5MV accelerator systems



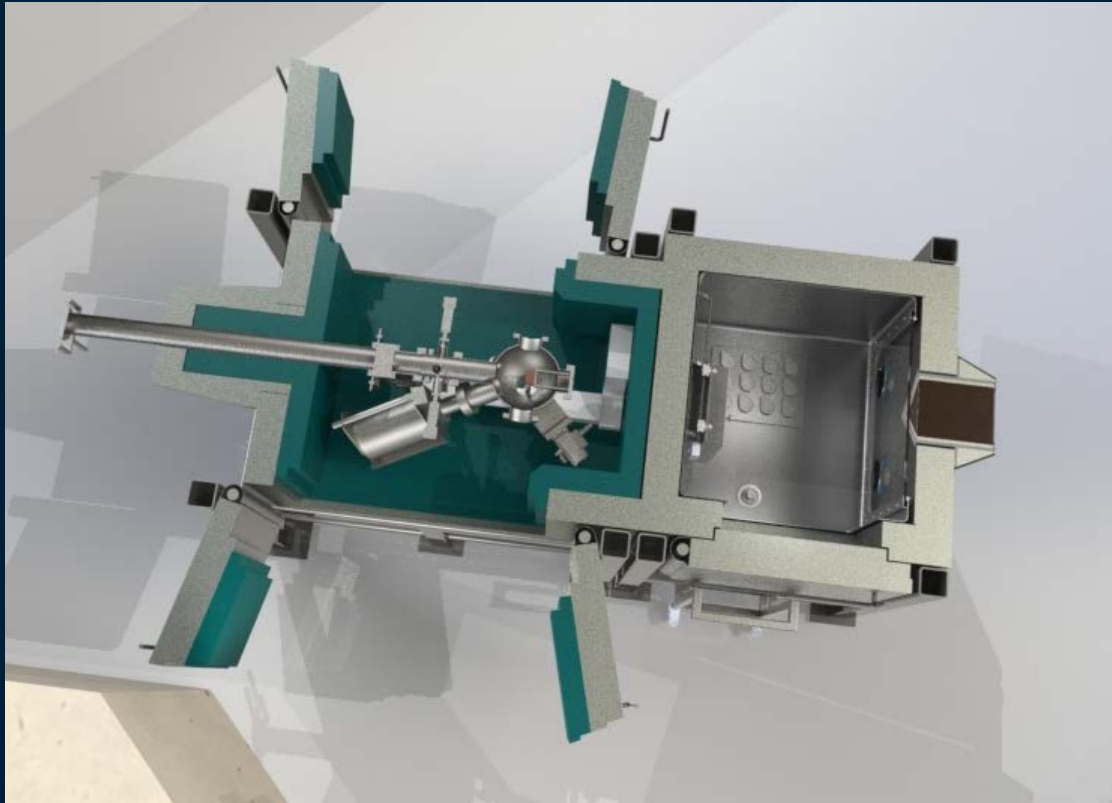
Newly installed hot cell

Dalton Cumbrian Facility
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 @DCF_News

Dalton Cumbrian Facility Hot Cells Concept Model



Dalton Cumbrian Facility Hot Cells



Routes to Engineering Success:

- Listen to customers' requirements
- Understanding the practicalities of delivering engineered solutions
- Utilising proven designs – keep it simple, why reinvent the wheel?
- Know your strengths and weaknesses
- Utilising CAD appropriately using modular 'Top Down' design methods



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Questions?

