



cavendish
nuclear

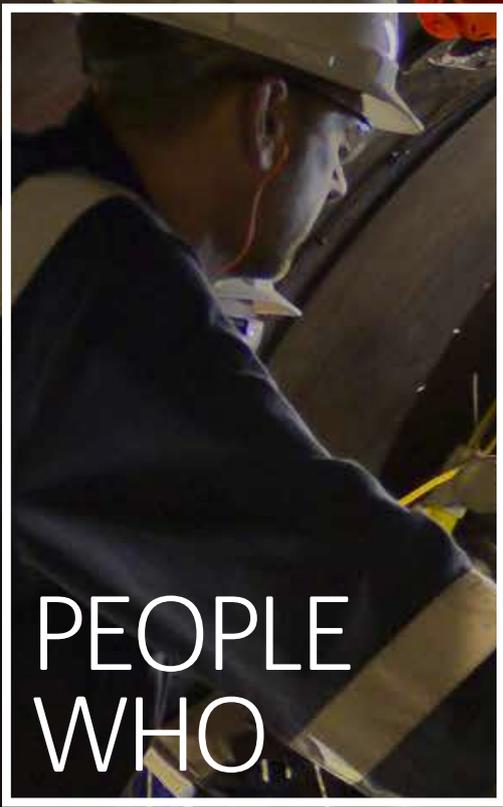
ENGINEERING AND SCIENCE

PEOPLE
WHO
INNOVATE

TO MAKE NUCLEAR
SAFER, FASTER, AT
LOWER COST

New Build
Nuclear Services
Decommissioning

cavendishnuclear.com



PEOPLE
WHO



People who

“We understand that the success of every project depends entirely upon the calibre of people who are tasked to undertake it.

That’s why we are proud to introduce a committed workforce with an unrivalled breadth and depth of skills and experience, who fundamentally understand that collaboration is essential to our success.

The breadth of our expertise means we are able to innovate to make nuclear safer, faster, at lower cost and deliver across all aspects of the nuclear energy life-cycle, from design and build, through operations and maintenance, to decommissioning, waste management and remediation.

We are licensed to operate thirteen nuclear sites in the UK; whilst also supporting other nuclear companies in the lifetime extensions of their fleet, and on delivery of new build nuclear power plants.

Working with Cavendish Nuclear, you will experience people who put safety first, people who understand your requirements, people who are committed to driving value and people who provide innovative solutions to technical and business challenges.

Work with us and you’ll discover that our focus on people is unique.”



Simon Bowen, CEO Cavendish Nuclear

Cavendish Nuclear is a wholly-owned subsidiary of Babcock International Group



Engineering and Science Capability

Cavendish Nuclear is the UK's leading nuclear services company. The size and diversity of our workforce gives us the strength and depth to undertake the most challenging projects ranging from decommissioning of existing facilities to new build for power generation, waste processing and waste storage.

Our engineering and science capability is at the heart of the business, and is comprised of professional engineers and scientists with a wide range of experience in providing a full lifecycle service from concept design to design for manufacture.

Our multi-discipline capability includes:

- Mechanical engineering
- Electrical, control and instrumentation engineering
- Civil, structural and architectural engineering
- Science and hazard management
- Stress analysis
- Process engineering

These capabilities are integrated into multi-discipline teams to provide full design capability and deliver innovative, fit for purpose solutions safer, faster and at lower cost.

A man with short brown hair, wearing a white dress shirt, is seen from the side, looking towards a computer monitor. He is sitting at a desk with a blue fabric cubicle wall behind him. A black keyboard is visible in the lower-left corner. The background is slightly blurred, showing another person in a white shirt and a dark jacket.

PEOPLE WHO ENGINEER

Engineering Management

Our engineering management team provide technical management and oversight to engineering projects. Our engineering managers are multi-disciplined with a wide range of experience in project delivery and meeting the technical demands of a highly regulated industry. They are conversant with all elements of the design process and their multi discipline experience allows them to coordinate activities across all disciplines engaging the resources they need to deliver.

Mechanical Engineering

Our mechanical engineering capability has the strength and depth to deliver the complete life cycle, from early concept studies, to substantiated detailed design for manufacture.

We specialise in developing bespoke solutions to challenging decommissioning and new-build projects, whilst working to tight timescales and challenging budgets.

We have the capability to undertake all aspects of design, working to a wide range of national, international and client specific codes and standards. We work closely with our other specialist functions to form dedicated teams to ensure a fully integrated approach to deliver the best fit for purpose solutions.

Our core capabilities include:

- Design of mechanical handling systems for waste retrieval and disposal
- Design of glovebox systems
- Design of pressure equipment (including vessels, piping and tanks)
- Design of lifting equipment (conventional and specialist specialist high-integrity systems)
- Design of waste storage solutions
- Design of ventilation systems
- Design of waste containers, transport and storage



PEOPLE
WHO
CREATE



Electrical, Control and Instrumentation (EC&I)

Our people have the strength and depth of EC&I capability to provide a wide range of skills to support both our internal multi-discipline design teams and external clients.

We provide EC&I capability to projects with particular expertise in:

- Design of electrical power distribution infrastructure.
- Design of fire protection systems (accredited by BAFE)
- Design and management of PES/SCADA control systems
- Safety assessments to IEC 61508 and Machinery Directive 98/37/EC
- Machinery safety assessments to IEC 62061 and BS EN ISO 13849-1 and 2
- Control panel design
- Site construction and commissioning
- Factory acceptance testing (FAT)
- Inspection support for electrical systems and control panels
- 2D and 3D design using Revit MEP and PDMS

We have an electrical laboratory at our Leicester site, which carries out manufacture and repair operations on reactor protection equipment (RPE). We also have a dedicated design team to work on RPE for both EDF Energy and Magnox.

Our RPE Engineering capabilities include:

- Detailed electronic circuit design
- Design record maintenance
- Unit/system failure modes and effects analysis
- Obsolescence planning including obsolete change impact analysis (supporting safety cases)
- Design change impact analysis (supporting safety cases)
- Ongoing analysis of failure events for weak components and end of life
- Detailed PCB design using OrCAD and Pantheon
- Mechanical unit design

Civil, structural and architectural (CS&A)

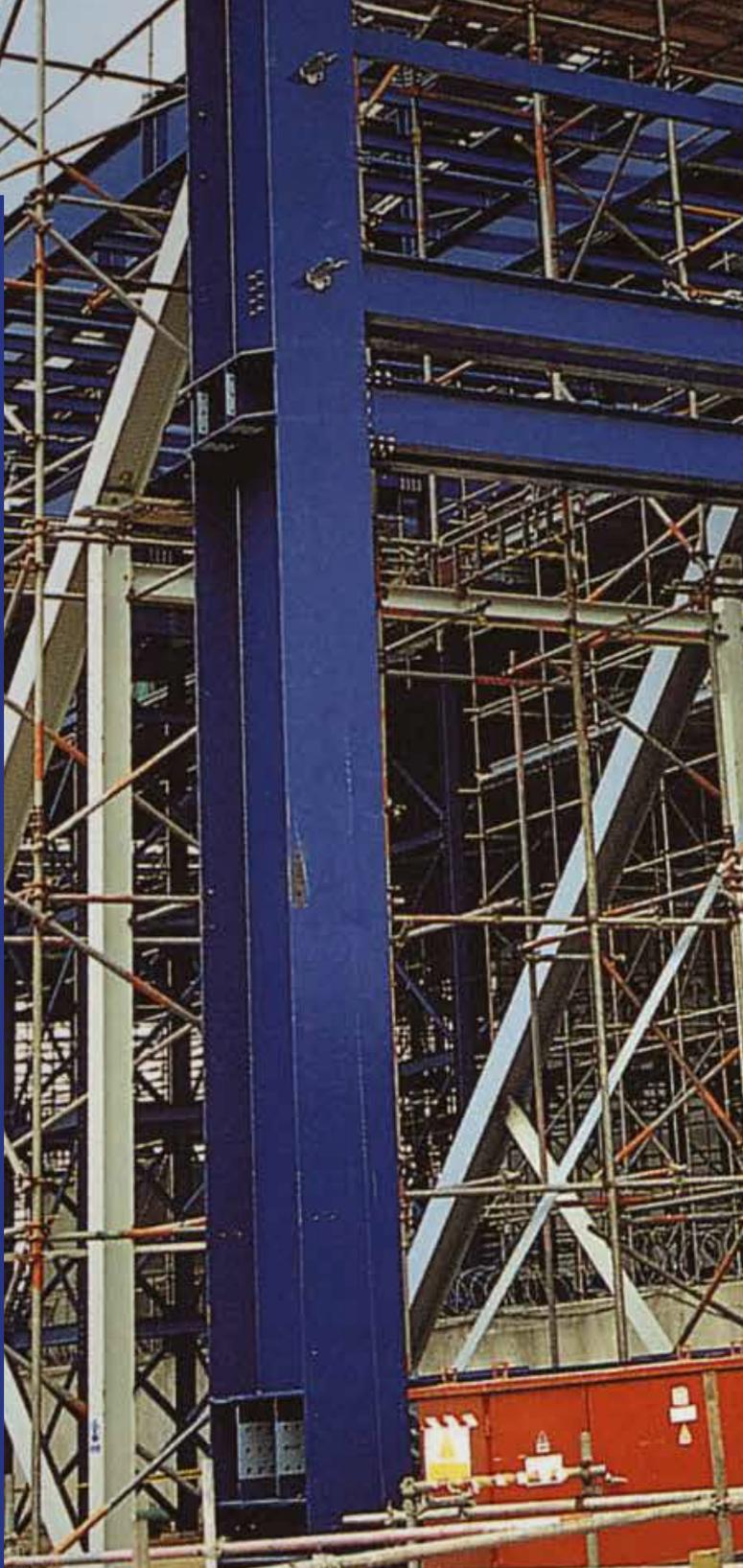
Our CS&A capability incorporates professional engineers with expertise in all areas of design, construction and demolition.

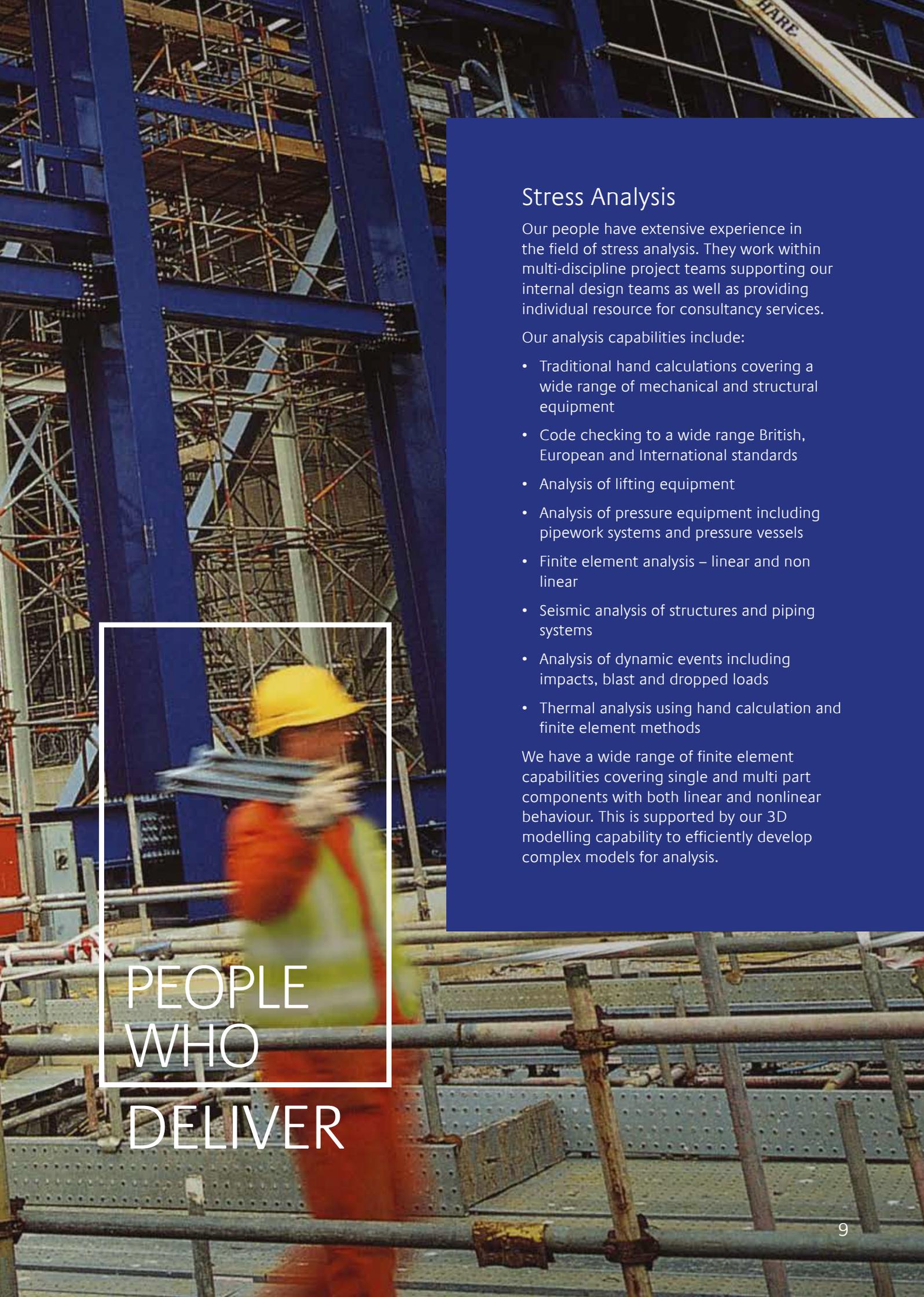
Specific skills include:

- Geotechnics
- Contaminated land
- Highways
- Drainage and sustainable drainage systems (SuDS)
- Civil structures such as retaining walls and buried structures.
- Structural design and assessment

Our architectural capability covers design from concept through to detailing and specification. It includes fire safety, town and country planning, conventional building services, and the unique skills required for nuclear facility layout to assess building flow for radiological, shielding and zoning requirements.

Our structural design capability covers the full range of primary and secondary structures, in both steel and concrete, along with masonry structures. Our experience ranges from small scale test rigs to complete buildings and includes substantiation to the full range of national and international standards including both the British and European harmonised standards.





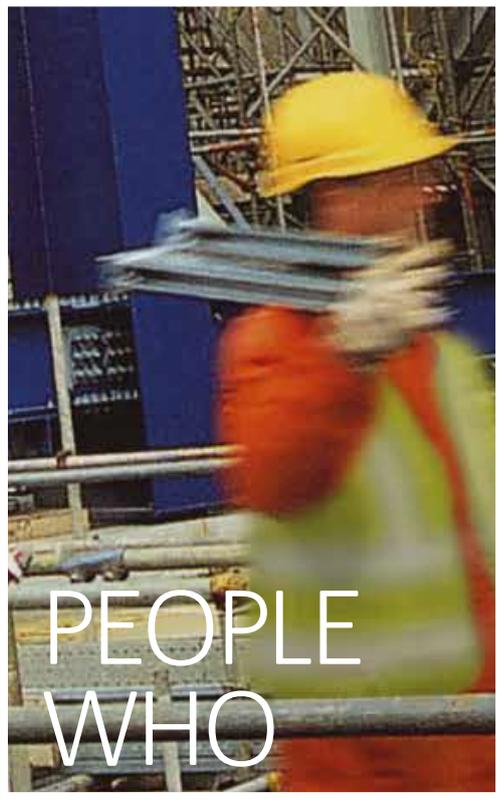
Stress Analysis

Our people have extensive experience in the field of stress analysis. They work within multi-discipline project teams supporting our internal design teams as well as providing individual resource for consultancy services.

Our analysis capabilities include:

- Traditional hand calculations covering a wide range of mechanical and structural equipment
- Code checking to a wide range British, European and International standards
- Analysis of lifting equipment
- Analysis of pressure equipment including pipework systems and pressure vessels
- Finite element analysis – linear and non linear
- Seismic analysis of structures and piping systems
- Analysis of dynamic events including impacts, blast and dropped loads
- Thermal analysis using hand calculation and finite element methods

We have a wide range of finite element capabilities covering single and multi part components with both linear and nonlinear behaviour. This is supported by our 3D modelling capability to efficiently develop complex models for analysis.



PEOPLE
WHO
DELIVER

Process Engineering

Our process engineers provide process design and engineering capability covering the complete nuclear lifecycle, including:

- Fuel manufacture cycle
- Power generation
- Plant lifetime extensions
- Waste management
- Decommissioning
- Nuclear new build

Our process engineering capability includes:

- Thermodynamics / chemical / reaction kinetics / engineering
- Sludges, resins and slurries handling (retrieval, transport, processing and immobilisation)
- Wastewater and liquid effluent systems, primary treatment, separation/filtration, ion exchange, evaporation etc.
- Solid effluents - size reduction, handling, decontamination, packaging and disposal
- Gaseous effluents - scrubbing, adsorption etc.
- Sampling systems - bulges, cabinets etc.
- Pumping and fluidic devices
- Technology research and process demonstration
- Low level waste, intermediate level waste and high level waste processing plant design, both fixed and modular





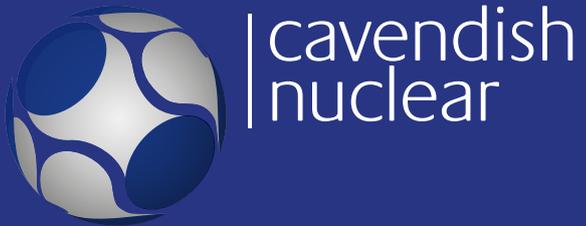
PEOPLE WHO PROTECT

Science and Hazard Management

We have a multi-disciplinary team of engineers and scientists who provide specialist capabilities including:

- Hazard management
- Radiation shielding design and assessment
- Criticality assessments
- Ergonomic design and assessment
- Human factors integration
- Hazard identification studies (HAZID), hazard analysis (HAZAN) and as low as reasonably practicable (ALARP) assessments
- Safety case development
- Decommissioning planning, design and implementation
- Waste and spent fuel management.
- Environmental assessments
- Waste and spent fuel management

We develop strategic and technically sound solutions in decommissioning, waste management, environmental restoration and new build and provide the technical underpinning to support Cavendish Nuclear's position as the leading UK nuclear services provider.



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