Creating a Safe and Secure World Together

Cavendish Nuclear, part of the Babcock group, has a rich heritage in the nuclear industry and understanding of the complexities of bringing innovation to established site operations. We have performed detailed work planning and program management and have obtained regulatory approvals to achieve full de-licensing of reactor sites. With approximately 100 specialists in waste management and characterization, and decades of experience, Cavendish Nuclear has strength and depth in the vital phases of strategy development, planning and characterisation.

2006 ALStec
2008 WEIR
2009 UKAEA
2010 VT Group
2012 Dounreay
2014 Magnox

From decommissioning redundant nuclear facilities to supporting the operation and build of nuclear power plants, our role in Cavendish Nuclear is to clean up the nuclear legacy and create a world where nuclear plays a key contribution in ensuring security of energy supply and meeting our net zero commitments.

We deliver products and services across the nuclear energy lifecycle, from strategy development, design and build, through operations and maintenance to decommissioning and waste management.

Our Key Services

At a Glance

Access to 5,000 nuclear SQEP personnel

Strategic partner supporting nuclear companies in the lifetime extensions of their fleet

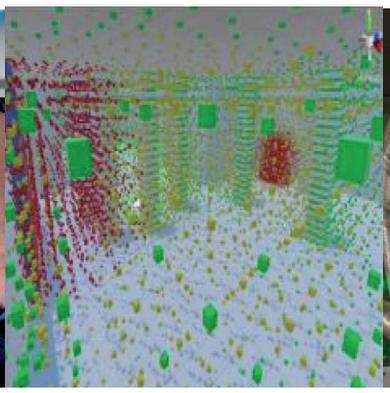
60+ **Years of industry heritage**

Supporting delivery of the UK's first new nuclear power station in a generation

Licensed to operate nuclear sites

Delivery of large-scale engineering projects across the UK nuclear estate






PLUTONIUM HOLD-UP MEASUREMENT SYSTEM (PHUMS)

Cavendish Nuclear's fast neutron detector based Plutonium Hold-Up Measurement System (PHUMS) is a lightweight, compact and portable assay system with the flexibility to measure the nuclear material content of a wide range of objects including process cells, facilities, gloveboxes, pipes and drums to inform Post Operation Clean Out strategies.

Key Information

- The ultimate tool for informing Post Operation Clean Out strategy, decommissioning, waste management and security applications
- Unique, modular, mobile design for the in-situ assay of a wide range of object sizes and shapes
- Calculates both plutonium mass and distribution
- Determines information for use in pre-commencement safety cases
- State of the art fast neutron counting technology
- Novel analytical methods including likelihood expectation and clustering techniques
- Optional High Resolution Gamma Spectrometry system for Pu isotopics analysis.

AMERICIUM GAMMA SPECTROMETRY CAMERA (AM-CAM)

Cavendish Nuclear's AmCam is a hand held, compact, lightweight device that combines a gamma ray spectrometry detector with a small video camera, capable of indicating radiation count rate alongside a corresponding video image of the area being surveyed.

Key Information

- Quick identification of the location of material build up within glove boxes
- Images can be used to pinpoint the origins of elevated dose / count rates
- Estimates can be made of the dose rates and activity levels of hotspots
- Aids quality assurance for the Post Operations Clean Out (POCO) characterisation or waste categorysegregation processes
- Used to plan / target future POCO clean-up operations
- Used to segregate waste items between PCM and ILW waste categories*.

* subject to an appropriate calibration and suitable robust operating procedures

PARTICLE SWARM IMAGING METHOD (PSIM)

ADEPT-PSIM will aide in the planning of decommissioning activities, reducing the dose accrual of personnel by allowing for the simulation of different decommissioning scenarios away from the elevated dose rate fields. Including the generation of a 3D model that can be used in commonly available VR software to visualize dose rate fields and dose accrual as the user is navigating through the model.

Key Information

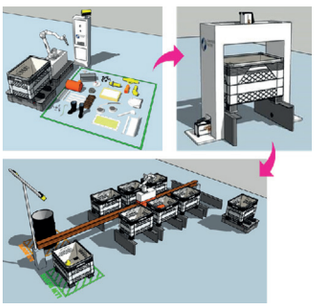
- Features currently in development include real time changes in radiation fields due to shielding and movement of sources
- Uses include optimising waste storage configurations, loading and transport strategies
- Worker training, learn tasks before entering a dose significanr area
- Rapid testing of adequacy of different shielding materials and configuration.

IN-CELL DECOMMISSIONING SYSTEM (IDS)

The safe decommissioning of redundant nuclear reprocessing cells containing contaminated items can be a technically challenging and time-consuming task. Cavendish Nuclear and its partners have developed a system which combines technologies in spatial and radiometric scanning, remote deployment and virtual reality (VR) control to create a complete toolkit for safe and efficient decommissioning of these cells. It can:

Key Information

- Fully remote decommissioning solution requiring less people and equipment
- Reduced man-machine interface with improved understanding of a continually changing operating environment
- Quick and easy programming of multiple cutting tasks via a VR operator interface
- Low risk pre-job planning, checking and refinement via VR interface using animated simulations
- Automated operations to ensure accuracy, repeatability and waste form consistency
- Progressive hazard reduction methodology with improved waste tracking and packing.



OPTI-SORT

Optisort is an integrated, autonomous toolkit which sorts and segregates radioactive waste generated from nuclear decommissioning activities into containers which are optimally packed.

Key Information

- Reduce waste by prioritising recycling over its disposal by improving the use of the Waste Management Hierarchy
- Significantly reduce sorting and segregation processes carried out by humans
- Increase productivity
- Develop solutions which are scalable and transferable.

For further information on Cavendish Nuclear please scan QR code below

For further information on Cavendish Nuclear Technology please scan QR code below

For further information on the benefits of iSupport360 please scan QR code below

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