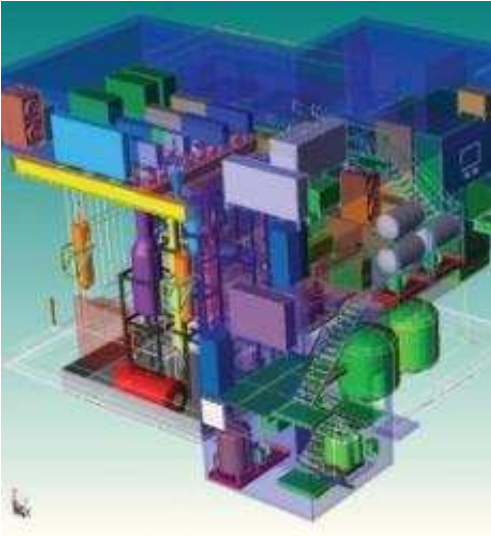




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Packing up nuclear power plants



NuPlant software

Software previously designed to streamline pharmaceutical packaging production is being used to help dismantle nuclear reactors more efficiently using 3D structural diagrams.

Dr David Knight, Managing Director of Structure Vision, a spin-out from the University of Leeds, UK that has launched the software, said it would help decommissioning engineers and project managers see how odd shaped objects containing radioactive materials best fit together and how they behave when they are placed into a container.

Knight notes that nuclear decommissioning is complicated and expensive because radioactive material has to be carefully packaged and sent to long term repositories. 'You have got to bury these things in the ground for the next 100,000 years. You cannot just drop them down a well. The emphasis is on packing efficiently because you pay by cubic metre. The better you can pack it in, the more money you are going to save in the long run.'

The NuPlant programme simulates the logistics involved in the process (which can sometimes take as long as 60 years), from the dismantling of a facility, to the cutting up and packaging of various parts for long-term storage.

Such planning could also help minimise radiation exposure to workers involved in decommissioning the reactors. '[Some] of these legacy facilities date back from the 1950s and 1960s, and people do not really have a clue what materials or radioactive substances are inside them,' says Knight.

He is confident that the software comes at an ideal time for the UK nuclear industry. 'Nuclear power is having a bit of a renaissance. The regulators want to avoid what has happened in the past. We are left with an awful lot of legacy buildings and facilities that are going to be a nightmare to decommission. Eighty per cent of them are at Sellafield alone.'

Energy companies now have to set money aside for future decommissioning

to prevent the taxpayer having to foot the bill, as well as proving that they have a plan to take the facility apart and dispose of its waste safely before they get planning permission. Knight says NuPlant will help them address these problems by reducing the number of long-term storage containers needed, minimising costs and materials.

Michael Ojovan, Module Director at the University of Sheffield's Nuclear Technology Education Consortium (NTEC), says that although 'the package is actually software dealing with the geometry rather than simulating a virtual dynamic 3D environment with various hazards and complex radiation fields,' it could save significant resources, 'as it allows a virtual breaking up and packing [of] contaminated equipment with the aim of minimising radiation exposure to operators'.

He adds, 'I think this software is not only [useful] to visualise and model works with hazardous materials, but also to learn and teach students how to do it in various and optimised ways. I would recommend NTEC attendees to use this package'.

Author : Michael Bennett
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