

Academic research group builds skills for future of decommissioning

Challenge:

To carry out academic research into areas of fundamental importance to the NDA's four key decommissioning themes, building high-level expertise for the future while also developing solutions to technical challenges

Solution:

Collaborate with industry, universities and the Engineering and Physical Research Council to invest in a range of targeted university research projects, ensuring the work has potential to address on-site needs

Benefits	Foster a new generation of technical specialists, while also developing greater understanding of challenges, new technical solutions and potential savings on time and costs
Status	Four-year programme concluding in 2022
R&D driver	Maintaining skills
Research organisations	Various universities

The [TRANSCEND](#) consortium, [launched last autumn](#), has based its acronym on Transformative Science and Engineering for Nuclear Decommissioning and is the third joint initiative to focus on specific NDA technical priorities in the areas of radioactive waste, spent fuels, nuclear materials and site remediation.

Two earlier programmes, DIAMOND and DISTINCTIVE, ran from 2009 to 2019 and have now concluded. Many of the PhD students and post-doctoral researchers have since taken up careers that support our decommissioning mission.

TRANSCEND will build on their work as well as addressing new topics and continue developing high-level technical specialists able to contribute to the NDA's long-term clean-up mission.

The wide-ranging topics include:

- new methods of decontaminating radioactive effluent
- durability of new types of cement encapsulation
- improved understanding of solidified waste products
- corrosion of spent nuclear fuels
- predicting dose rates from buried pipelines where information is limited
- corrosion behaviour of exotic fuels in a Geological Disposal Facility (GDF)
- behaviour of stored plutonium over long timeframes

TRANSCEND brings together 11 universities and a range of industry experts. The programme is funded by a core grant of £4.6 million from the [Engineering and Physical Research Council \(EPSRC\)](#), with additional sponsorship from [AWE](#), [LLWR](#), [NDA](#), [NNL](#), [Sellafield Ltd](#), [RWM](#), [TÜV SÜD Nuclear Technologies](#) and [Cavendish Nuclear](#). Their support is provided through funding or industrial expertise, use of facilities and guidance for the researchers.

A benefit of the consortium is to enable industry experts to work closely with UK academics and the research students, focusing directly on some of the problems in dealing with radioactive waste and other materials. Some of the challenges have long been anticipated while others emerge during decommissioning activities, and are unforeseen.

Led by [The University of Leeds](#), the consortium includes:

Further reading

This case study is part of the [Direct Research Portfolio Report 2018 to 2019]

Also available is the previous [DRP Report 2017 to 2018](#)