**Better World Showcase 2018**

Demonstrating how the Faculty of Science & Engineering is Making a Difference

**Sellafield Effluents Research Group**

**Initiative**

The Sellafield Effluents Research Group members are part of a collaborative training initiative focussing on PhD level training funded between The University of Manchester, Sellafield Ltd. and the National Nuclear Laboratory. The Sellafield Nuclear Facility is the largest and most complex in the United Kingdom and is now moving towards site decommissioning and clean-up. Radioactive effluents are produced at many nuclear facilities and their safe treatment is essential to continued plant operations and ultimately environmental protection. The Research Group have been working on understanding the fundamental processes which operate at two effluent treatment facilities at the Sellafield site. Josh and Ellen have worked on an iron oxide treatment route for acidic radioactive effluents. Tom has worked on understanding uranium behaviour in alkaline radioactive effluents generated in nuclear fuel storage ponds, whilst Lynn has focussed on seasonal microbial activity in the ponds which causes issues with visibility. During their PhD’s they have routinely interacted with technical teams from the National Nuclear Laboratory and Sellafield Ltd. to exchange information and to refine research programmes and this has led to a step change in implementation of academic knowledge in effluent management at Sellafield.

**How the Effluents Centre of Expertise has Made a Difference**

Interactions between academic research groups, representatives from Sellafield Ltd plant and technical departments, and researchers at the National Nuclear Laboratory have facilitated an unprecedented exchange of information and allowed research findings to be directly implemented within plant operations and planning. Examples include: refinement of operations within a Sellafield effluent treatment facility have lead to reduced radionuclide discharges to the environment; refinement of operations in the First Generation Magnox Storage Pond (FGMSP) leading to optimised management of effluent during sludge movement; and development of new high level skills, techniques, research gearing and translation to industry.


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