Research Support Office

Nuclear Waste Services

RSO Discipline Update: **Radiochemistry**

Discipline Lead: Prof Francis Livens (University of Manchester)

NWS Subject Matter Expert: Dr Will Bower

Who are we?

Francis Livens

Professor of Radiochemistry

Director, Dalton Nuclear Institute

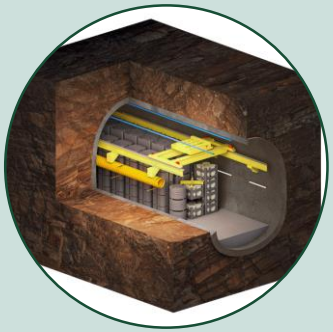
NDA Board Member

Will Bower

Senior Radiochemist,
Nuclear Waste Services

What do we do?

The Radiochemistry Discipline aims to **improve the predictability of radionuclide behaviour across the GDF system** and supports the safety case by:



Verifying the containment functions of the Engineered Barrier System

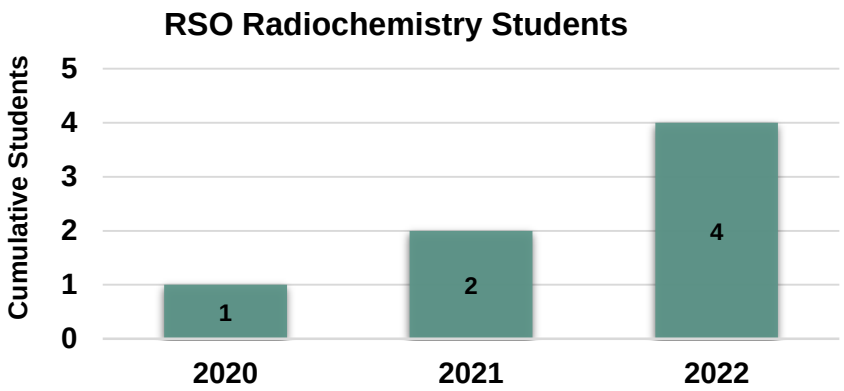
Simulating the evolutionary chemical behaviour of wasteforms

Developing the radioanalytical techniques required for site investigation

Exploring the features and processes that influence radionuclide transport in clay

Cross-linked with other disciplines

Active PhD Projects



- **Steady growth of students in discipline area since RSO launch.**

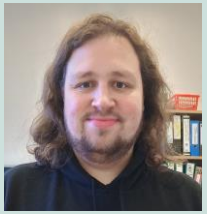
- **NEW project allocated for 2023: *Can the co-mobility of actinides and neutron poisons be better understood to support criticality safety?***

Meg Watters

The missing sink? Controls on iodine migration in the geosphere

Charley Istance

Mechanisms of radionuclide retention in aged cement



Raphael Margreiter

Phosphate-bearing cements for depleted uranium disposal

Becky Snow

The geological fate & impact of isosaccharinic acid (ISA)

Other interactions

NNUF RADER/EXACT/HADES/PLEIADES Launch November 2022

"Radiochemistry and Active Materials Research at Nuclear Waste Services"

ROYAL SOCIETY OF CHEMISTRY

14th International Symposium on Nuclear and Environmental Radiochemical Analysis: ERA14

Future Priorities

Funding opportunity

Derisking geological disposal of radioactive waste in the UK

Challenge Area 2: Contaminant Pathways

1. To develop a mechanistic understanding of retention and, or transport within LSSR, for priority radionuclides and/or non-radiological species.

2. To increase understanding of the key controls on radionuclide transport processes in evolving LSSR systems, with a focus on biogeochemical behaviour.