

Geological Disposal of Radioactive Waste

4th-6th June 2024

Hybrid Conference, University of Manchester and Zoom, BST

Provisional Programme

Day One	
08.30	Registration
09.15	Welcome – University of Manchester & Geological Society
09.25	Introduction – Conference Aims & UK Geological Disposal Programme Simon Norris, <i>Nuclear Waste Services</i>
Session One: POTENTIAL HOST ROCK CHARACTERISATION	
09.40	Investigating the Reproducibility and Reliability of Multiscale Fracture Characterization G. Amicarelli, <i>Newcastle University</i>
09.55	Advancing techniques for Microscopic to Mesoscopic Gas Migration in Clay Rock (LSSRs): Deep Learning for Long-Term Management of Deep Geological Disposal Abdelrazik Elfar
10.10	Characterising the subsurface geology of potential Geological Disposal Facilities using elemental and mineralogical geochemistry Alexander Finlay, <i>X-Ray Mineral Services Ltd</i>
10.25	BREAK
11.10	Advancing Geological Disposal Facility Design through Digital Outcrop Modelling David Hodgetts, <i>VRGeoscience Limited</i>
11.25	Inversion feasibility study to characterise the Mercia Mudstone Group, Copeland area Ana Somoza Graterol, <i>Cegal</i>
11.40 Virtual	Tectonic setting of the site selected for a Deep Geological Repository in Switzerland: insights from 3D seismic interpretation Miller Zambrano, <i>University of Camerino</i>
11.55	Poster ‘Elevator Pitches’ All 11 poster lead authors to give a 2 minute introduction to their poster, max 2 slides Cam Fletcher, Simon Schneider, Jonny McEvoy, Elliott Bird, Sam Jones, Lie Kong, Olatundun Aihie, Lucky Oseghale Odiase, Matthew Kirby, Kathryn Page, Qian Zhang
12.30	LUNCH & POSTERS
13.45	KEYNOTE: Decision on the Site for Switzerland’s Geological Disposal Facility for Radioactive Waste Tim Vietor, <i>Nagra</i>
Session Two: UK SITE CHARACTERISATION	
14.15	Site Descriptive Models as a tool to communicate subsurface understanding in the UK search for a suitable Geological Disposal Facility site Jason Canning, <i>Nuclear Waste Services</i>
14.30	Subsurface Studies for a Preliminary Site Descriptive Model– Mid and South Copeland Stephanie Kape, <i>Nuclear Waste Services</i>

14.45	Supporting Site Descriptive Models and Site Characterisation through Seismic Interpretation – Mid and South Copeland Dave McCarthy, <i>British Geological Survey</i>
15.00	BREAK
15.30	Subsurface Studies for a Preliminary Site Descriptive Model– Theddlethorpe Community Partnership David Eastwell, <i>Nuclear Waste Services</i>
15.45	Supporting Site Descriptive Models and Site Characterisation through Seismic Interpretation – Theddlethorpe Thomas Randles, <i>British Geological Survey</i>
	Session Three: MONITORING
16.00	Confidence in Repository Monitoring Data - Key Results from the MODATS Work Package of EURAD Thomas Haines, <i>Galson Sciences Limited</i>
	Session Four: SITE EVOLUTION & ASSESSMENT STUDIES
16.15	Future geological evolution and effects on deep disposal of radwaste in the Netherlands Johan ten Veen, <i>TNO- Geological Survey of the Netherlands</i>
16.30	Final Ultra Deep Disposal: Geological Assessment of Borehole Storage in Sedimentary Basin Settings Rixt Altenburg, <i>TNO – Geological Survey of the Netherlands</i>
16.45	New assessment workflow for borehole closure for the Final Ultra Deep Disposal (FUDD) concept in sedimentary formations Gert-Jan Heerens, <i>TNO – Geological Survey of the Netherlands</i>
17.00	End of day one
17.15 - 18.15	Drinks Reception

Day Two	
08.15	Registration
	Session Five: ANALOGUE STUDIES
08.45	The relevance of natural analogues to the German site selection procedure Milena Schoenhofen-Romer, <i>BGE mbH</i>
09.00	International Bentonite Longevity (IBL) project: an overview W.R. Alexander, <i>Bedrock Geosciences</i>
09.15	The engineering properties of low strength sedimentary rocks – Evidence from the construction of the High Speed Two railway K.M Briggs, <i>University of Bath</i>
09.30	Multiscale-multiproxy seal assessments of Mesozoic mudrock units in North Yorkshire, a potential aid to screening and modelling radioactive waste disposal facilities Colm S. Pierce, <i>CASP</i>
09.45	Contribution of programming language to novel mine risk assessment project Mabe Fogang Pieride, <i>Liaoning Technical University, PR China</i>

10.00	New insights into the Muhos Formation, an unmetamorphosed Mesoproterozoic sedimentary rock sequence in central Finland Heini Reijonen, <i>Geological Survey of Finland</i>
10.15	BREAK
10.45	KEYNOTE: Perspective on French Geological Disposal Programme Frédéric Plas, <i>ANDRA</i>
	Session Six: GEOMECHANICAL STUDIES
11.15	Engineering challenges for nuclear waste disposal in the Mercia Mudstone Group Kieren Quigley, <i>Mott MacDonald</i>
11.30	Assessing the Fracturing Mechanisms and Evolution of the Excavation Damage Zone of Underground Structures in Hard Rockmasses for Disposing Nuclear Waste Ioannis Vazaios, <i>Ove Arup & Partners Ltd</i>
11.45	Modelling of Spalling around Deposition Boreholes in a Geological Disposal Facility for Nuclear Waste M. Cristina Saceanu, <i>Imperial College London</i>
12.15	Modelling Techniques for Simulating the Excavation Damage Zone around Deep Underground Excavations Anastasios Stavrou, <i>WSP UK Ltd</i>
12.30	LUNCH
	Session Seven: TRANSPORT PROCESSES (Part 1)
13.45	Evidence of gas migration processes in Opalinus Clay; The Gas Transport (GT) field study conducted at the Mont Terri Underground Research Laboratory Robert Cuss, <i>British Geological Survey</i>
14.00	Multi-phase flow modeling at the component level for the Swiss deep geological repository Chao Li, <i>INTERA</i>
14.15	Diffusion measurements in natural and synthetic rocks: lessons learned and some relationships identified Jon F. Harrington, <i>British Geological Survey</i>
14.30	Evidence of rock matrix diffusion from forty years of site investigations in Finland and Sweden P. Trinchero, <i>Amphos 21</i>
14.45	Understanding the pore structure of mudrocks for predicting porosity, flow, and transport in host rocks for radioactive waste disposal Andreas Busch, <i>Heriot-Watt University</i>
15.00	BREAK
	Session Eight: WASTEFORM/ WASTEFORM EVOLUTION
15.30	The Evolution of the Supply of Cementitious Materials used to Encapsulate Intermediate Level Radioactive Wastes and Implications for the Geological Disposal Facility G.M. Cann, <i>National Nuclear Laboratory</i>
15.45 Virtual	Discrete event simulation of spent fuel assembly packaging into disposal canisters for the purpose of deep geological disposal Andreas POLLER, <i>CSD Engineers AG</i>

16.00	Will sizing down scale up the problem? A perspective on how waste arising from Rolls Royce SMR and GE-Hitachi BWRX-300 SMR could impact future disposability Emma Nickels, <i>AtkinsRéalis</i>
	Session Nine: A US PERSPECTIVE
16.15	Why the US failed to build the world's first deep geological repository? Syed E Hasan, <i>University of Missouri</i>
16.45	End of day two

Day Three	
08.30	Registration
	Session Ten: ENGINEERED BARRIER SYSTEM
09.00	Hydromechanical behaviour of bentonite clay at temperatures greater than 100°C Caroline C. Graham, <i>British Geological Survey</i>
09.15	Interaction of simulant thermally-treated intermediate level wastes with a high pH cementitious backfill Graham Kenyon, <i>Jacobs</i>
09.30	Bentonite homogenisation and swelling: The effect of salinity K. A. Daniels, <i>British Geological Survey (now University of Cardiff)</i>
09.45	Long-term Thermal-Hydrological-Mechanical Behaviour of Bentonite as a Component of Radioactive Waste Disposal Concepts Blaise Robertson Winnard, <i>University College London</i>
10.00	KEYNOTE: Regulating a geological disposal facility and the importance of geological knowledge in the underpinning regulatory submissions Candida Lean, <i>Environment Agency</i>
10.30	BREAK
	Session Eleven: TRANSPORT PROCESSES (Part 2)
11.00	Thermal-hydro-chemo-mechanical coupled modelling of ionic transport in clay materials Qingrong Xiong, <i>Shandong University</i>
11.15	A review of the state of the art in redox and kinetics applied to nuclear waste disposal facilities <i>Amphos 21 Consulting S.L</i>
11.30	Buoyancy-Related Groundwater Flows: Comparing the Physics of Hydrothermal and Radwaste Situations Gary D Couples and Helen Lewis, <i>Heriot-Watt University</i>
11.45	Challenges in 3D THM-G modelling of full-scale tests for final disposal repositories Erdem Toprak, <i>International Center for Numerical Methods in Engineering (CIMNE)</i>
12.00	Nano-scale imaging and modelling of gas transport in clay-rich mudstones Xin Zhong, <i>University of Manchester</i>
12.15	PANEL SESSION
12.50	Closing Remarks
13:00	LUNCH
14:00	End of Conference

Posters

Observing and quantifying deformation behaviours in halite for applications in compressed air energy storage (CAES)
Cameron Fletcher, *British Geological Survey*

The Triassic Mercia Mudstone Group as a host rock for radioactive waste: insights from a continuous core succession in North Yorkshire
Simon Schneider, *CASP*

The influence of depositional and diagenetic heterogeneity on fracture distributions in the Mercia Mudstone Group
Jonathon McEvoy, *University of Liverpool*

Evolution of bentonite pore water chemistry upon resaturation with saline groundwater
Lucky Oseghale Odiase, *University of Plymouth*

Adapting disposal concepts to reflect emerging UK geological environments
Matthew Kirby, *Nuclear Waste Services*

Using analogue tests to observe fundamentals of gas flow in clay-rich rocks and barrier systems
Elliot Bird, *British Geological Survey*

Controls on the Gas Permeability of the Triassic Mercia Mudstone Group, UK
Samuel Jones, *University of Liverpool*

Characterisation of Mercia Mudstone Containing Mineralised Fractures
Junlong Shang, *University of Glasgow*

Excavation Disturbance Zone Evolution in UK Jurassic and Triassic Mudrocks – Implications on fluid flow in a nuclear waste repository
Olatundun Aihie, *University of Plymouth*

Conceptual workflow for coupled hydro-chemical-mechanical analysis of mudstone based fault zones
Kathryn Page, *Heriot Watt University*

Manufacturing and geotechnical characterisation of synthetic samples for engineered barrier system in radioactive waste repositories
Qian Zhang, *British Geological Survey*

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