



UNIVERSITY OF
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Midlands Geotechnical Society Newsletter

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Honorary Secretary:

Alan Turner

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Tel. 01902 670938

Meeting Venue

Lectures start: 7pm

Location:

HAWORTH BUILDING,
University of Birmingham B15 2TT

Refreshments are available prior to the meeting in the Shell lounge, Department of Mechanical and Civil Engineering, from 6:15 onwards

Registered Charity Number: 514610

November 2nd Meeting

Dounreay Shaft Isolation Project Dr Graham Garrard & Mike Palmer

The Dounreay Shaft Isolation Project (SIP) is a genuinely unique project to construct a high quality grout curtain around the nuclear waste Shaft at Dounreay on the north coast of Scotland. The 65m deep Shaft was originally constructed in the 1950s as part of an off-shore discharge tunnel. It was licensed in the 1960s as the UK's only intermediate level nuclear waste site and was used until an explosion terminated disposal operations in 1977.

As part of the site restoration, the nuclear waste within the Shaft will be removed. This requires the progressive dewatering of the Shaft which, without isolation, would require the disposal of about 350m³/day of water - a volume prohibitively expensive to decontaminate. The Project requirements were to reduce the maximum inflows to less than 15m³/day.

This demanding brief challenged accepted grouting performance and drove the team to develop an integrated grouting approach that is at the forefront of world practice.

An innovative combination of grout materials, grout design, grouting protocols and real-time monitoring were developed during the design process which were refined during an extensive programme of both off and on-site trials.

The talk will summarise the background to the construction project, the challenges faced and the solutions that were developed. The talk will then focus on the hydro-testing and groundwater modelling and how these data were used to develop the ground model and to validate the quality of the grouting operations.

Dr Graham Garrard

Graham Garrard is a Chartered Geologist and an Associate Director with Halcrow with over 30 years experience in the management of geological, geotechnical and hydrogeological projects. Graham has a PhD in Rock Mechanics from Durham University and manages the Geology and Geotechnics group in Halcrow's Swindon Office. Graham was the Design Manager for the Dounreay Shaft Isolation Project and has over 19 years experience of working within the nuclear sector, particularly at the Low Level Waste Repository at Drigg and on other nuclear decommissioning and nuclear new builds projects.

Mr Mike Palmer

Michael Palmer is a Chartered Geologist and an Associate Director with Halcrow with over 23 years experience specialising in the geology, hydrogeology and geotechnics of hydroelectric and tunnelling projects worldwide. Mike has been involved in geological and seismological aspects of major projects in the Philippines, Indonesia, Iran, Malaysia, Papua New Guinea, Nepal, India, Caribbean and UK and also has extensive experience in developing and managing geotechnical relational databases. Mike was the Groundwater Modelling Team Leader for the Dounreay work and was responsible for demonstrating the barrier has achieved the design objective.

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by sponsorship from:

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