

# International Geosynthetics Society

## United Kingdom Chapter



### ANNUAL GENERAL MEETING

Followed by

IGS UK Chapter Evening Lecture Meeting  
MONDAY, 8th December 2008

The Geological Society, Burlington House, Piccadilly, London W1J 0BG  
Tea & Biscuits will be available at 5.00pm – AGM 5.30pm – lecture approx 6.00pm

## Steep wall landfill lining systems: The good, the bad and the ugly

Dr Russell Jones, Golder Associates

### Synopsis

The waste disposal industry in the UK has relied for many years on the infilling of worked mineral voids as the primary means of disposal. These sites have to be designed on a fully contained basis to prevent the migration of leachate and uncontrolled escape of landfill gas. The barriers used are typically either low permeability clay, GCL, geomembrane or various combinations. The lining of shallow sided quarries such as clay, sand and gravel extraction pits for landfill can provide the designer with challenges, notably in side slope design. However, such challenges are magnified when considering steep sided quarries.

The Environment Agency R&D Technical Report P1-385/TR1 considers that "steep" is considered to be slopes in excess of 30°. Historically, both mineral liners and geosynthetic liners have been used to line such slopes. However, the Landfill Regulations requirement for a geological barrier has led to difficulties in obtaining regulatory approval for the traditional geosynthetic systems, and this has led to increased scrutiny of the performance of steep wall lining systems.

The presenter has been involved in the design, analysis and construction of steep wall lining systems in the UK and overseas for 15 years and the presentation will describe various successful, and not so successful, lining systems. Design issues such as the quality of the rock face, engineering properties of the waste, transfer of load from waste settlement through the lining system and the protection of the lining system will be discussed. Appropriate use of assessment techniques, both limit equilibrium and numerical methods, will be examined and case histories of steep wall lining system design, construction and monitoring will be presented.

### The speaker

Dr Russell Jones is a chartered civil engineer with 20 years experience of research, design, and construction of civil and ground engineering projects. He is a Principal and Technical Director with Golder Associates based in Nottingham, where he is involved in the technical direction and review of a range of geotechnical engineering projects. He is a recognised international leader in the field of containment engineering and geosynthetics.

Dr Jones authored more than 60 technical papers on various aspects of landfill engineering in peer reviewed journals, symposia and conference proceedings, and has authored three Environment Agency research and development reports, including the *de facto* guidance on landfill stability.

He has been a committee member of the IGS UK Chapter for over 10 years, is the outgoing Chairman and has recently been elected onto the international IGS Council.

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