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## **Geological and Technical Aspects of the ScottishPower Gas Cavern Storage Project in Cheshire, UK**

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### **Abstract**

The ScottishPower Group is an international multi-utility with interests in gas storage in the UK and US. It plans to construct a gas cavern storage facility in the rock salt of the Cheshire Basin near Byley.

Within the Cheshire Basin, the major salt beds of Triassic salt fall into two well-known formations termed the Wilkesley and the Northwich Halite Formation. The latter occurs in the area of interest. The Northwich Halite Formation is thickest and deepest around Byley. Depth of top salt at Byley is approx. 450 m and depth of base salt is approx. 740 m below ground level.

The scope of the geological investigations included the regional data, the structural analysis and structural modelling of the area, seismic investigations and an exploration well; spud-in is planned for late September 2003. The scope of exploration work had to be adopted to the local structural setting and site specific geological conditions of the salt deposit.

The planned storage design and solution mining concept takes into account the site specific geological conditions as well as the rock mechanical and leaching behaviour of the bedded salt deposit which includes minor insoluble mudstone bands.

The key parameters of the preliminary design are a total storage capacity of 160 million cubic meters working gas. The gas is to be stored in 8 caverns of 300,000 m<sup>3</sup> net volume each, with a depth to cavern roof of 630 m.

Key words: Gas storage, salt caverns, Cheshire, UK

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