

**AAPG International Conference  
Barcelona, Spain  
September 21-24, 2003**

Peter Winefield<sup>1</sup>, Rod Gilham<sup>2</sup>, Taco Viets<sup>2</sup>, Andrew Evans<sup>2</sup>, John Owens<sup>2</sup> (1) Shell UK Exploration & Production Ltd, Aberdeen, United Kingdom (2) Shell UK Exploration & Production Ltd, Aberdeen,

**Pressure Prediction in the deep HPHT play of the Central North Sea**

Safe exploitation of the High Pressure High Temperature (HPHT) play of the Central North Sea, where drilling costs are among the highest in the Shell Group and in the industry as a whole, is largely dependent on our ability to understand the controls on topseal strength and on overpressure distribution, and then to confidently incorporate this into prospect evaluation and well design. Significant further advances have been made in understanding the distribution of overpressure in the Central North Sea and its impact on trap integrity since the pivotal paper of Gaarenstroom et al. (1993). These have had a number of important implications for pressure prediction in the deep HPHT play and include: (i) allowing the evaluation of prospects with potentially underfilled (i.e. top seal constrained) columns; (ii) the adoption of a local top seal line below 12000 ft that 'kinks' away from the regional lower bound LOT curve of Gaarenstroom et al. (1993); (iii) the acquisition of new long cable seismic and the application of regional mapping techniques has refined and extended our confidence in characterising and locating potential pressure cell boundaries - a critical factor in understanding the controls on overpressure distribution; (iv) highlighting the importance of undertaking post-well analysis and in pulling together a number of information sources to arrive at an integrated approach to pressure prediction.