

## **Identification of Geohazards (Hod Formation) Based on the Integration of Well Logs and 3-D Seismic Data Across Some of the HPHT Fields, UK CNS**

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Whilst drilling through the Hod Formation of the Upper Cretaceous Chalk, UK Central North Sea, fields such as Elgin and Franklin have encountered problems of over pressured gas. These drilling problems are associated with a sub-unit of the Hod Formation, referred to as the Hod Anomaly Zone. This zone overlies High Pressure High Temperature (HPHT) Jurassic and Triassic sandstone prospects and thus forms an overburden drilling hazard.

While drilling through the generally tight Hod Formation, sudden increases in gas readings are sometimes encountered reflecting the increased pore pressure and making drilling unsafe to human and equipment. Integration of wireline logs, mud logs, drilling reports, end of well reports and seismic data provided an insight into the evaluation of the Hod anomalies. The Hod Formation anomalies were analysed using wireline logs correlated across the Elgin, Franklin and Jackdaw structures. Seismic interpretation was done to aid in this correlation and to determine the areal extent of these anomalies. Amplitude extractions were also investigated to determine their relationship to lithology, fluid and overpressure and so provided a predictive framework for areas with poor well control.

Based on this study, accurate mapping and characterization of these Hod Formation anomalies will enhance the placement and positioning of future wells, reduce non-drilling time and promote safer drilling activities within the UK Central North Sea HPHT fields.