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**Causes for the Preservation of High Reservoir Quality at Great Depth in the HP-HT Reservoirs of the Elgin-Franklin Fields, Central North Sea Graben, UK**

In the Elgin-Franklin Fields, the HP-HT gas condensate reservoirs of the Fulmar Formation (Oxfordian age, burial >5km, 200°C, 1100bars) have retained good reservoir properties: average porosity of 17% (up to 32%), average permeability of 100mD (up to 2800mD). The Fulmar sands are mainly fine-grained, highly bioturbated arenites deposited in lower to upper shoreface environments. In addition to the control of depositional setting on reservoir quality (best reservoirs in upper shoreface sands), the petrographic observations also show that compaction and quartz cementation are at very low levels considering the great depth of burial (20%BSV average intergranular volume, 3%BSV average quartz cement volume). The small effective stress, related to an early onset of overpressure build up, is the main cause for the preservation of very good reservoir quality. In addition to overpressure, two other processes are responsible for porosity values as high as 30% in the best layers. The first is the thermodynamic inhibition of late quartz overgrowths in some facies where grains are coated with microquartz due to the shallow burial dissolution of sponge spicules (a typical feature of some Upper Jurassic sands in the North Sea). The second process is a net gain of secondary porosity due to late K-Feldspars dissolution without the precipitation of secondary clays. The thermal transformation of smectite to illite in the shaly intervals of the Fulmar is interpreted as the driving mechanism of feldspar dissolution, preventing the formation of kaolinite whose subsequent illitisation is a common cause of severe permeability damage in deeply buried reservoirs.