

Jurassic Petroleum Systems of the United Kingdom - Ireland and Canadian Conjugate Margins of the Atlantic Ocean

Iain Scotchman¹ and Anthony Doré¹

¹Statoil (UK) Ltd.

Abstract

While petroleum systems analysis of the basins along the UK-Faroes-Ireland Atlantic Ocean margin has long predicted effective source rocks and prolific hydrocarbon generation, exploration has, with few exceptions, been generally lacking the success seen in the prolific northern North Sea and Haltenbanken areas. Frontier drilling off the Faroes and Ireland have refined our knowledge of the petroleum system, but with the exception of the UK West of Shetlands, the predicted petroleum system has proven enigmatic. Clearly, the simple application of a model based on the areas of a prolific, regional latest Jurassic source rock (the Kimmeridge Clay / Draupne Formations of the northern North Sea) to this margin is not tenable. However, significant recent discoveries off North-east Canada, located on the pre-break-up conjugate margin to Ireland appear key to gaining this understanding.

While both early and latest Jurassic source rocks have locally been proven effective in basins west of Ireland, it is recent recognition of the role played by the regional development of lacustrine-marginal marine Middle-Late Jurassic source rocks that is proving to potentially be the key to success along the margin. These source rocks were deposited through the extensive interconnected basin system along the margin from west of Shetlands through Ireland (Porcupine Basin) to the Flemish Pass and Jeanne d'Arc and also into the Lusitanian basins along the Iberian margin and have been correlated to discoveries in these basins.