Exploration Screening of the Deepwater Blocks of the Pearl River Mouth and Qiongdongnan Basins, Offshore Southeast China – the role of Tectonics and Palaeodrainage in Reducing Risk and Uncertainty

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This paper provides a summary of the main findings and conclusions from a regional screening study of the petroleum systems and palaeodrainage of the frontier, deep water blocks of the Pearl River Mouth and Qiongdongnan Basins. In particular, the focus has been on the influence of tectonics on landscape dynamics and palaeodrainage, and their implications on source and reservoir distribution and quality; concentrating on the following critical questions: 1. Did the upper reaches of the palaeo-Xi Jiang originally drain into the Beibu Gulf Basin? This has implications for sediment dilution of lake source systems in the Beibu Gulf, as well as implications for the flux of material into the Pearl River Mouth Basin. 2. Was there a major fluvial system draining across the Pearl River Mouth Basin during the Eocene, when lacustrine source facies systems were forming? This is critical for identifying which lakes could be source facies bearing or were likely to have been affected by clastic dilution. 3. In the absence of a modern major drainage system into the Qiongdongnan Basin, what is the source of clastic sediment during the Tertiary?

The exploration potential of the pre-, syn- and post-rift sections of each basin has been investigated. Based on these findings, the deep water blocks of the Pearl River Mouth and Qiongdongnan Basins have been ranked in terms of predicted exploration risk and uncertainty. All spatial data was digitally captured through GIS, allowing the 'final analysis' on exploration potential to be visually portrayed through a set of tectonic, palaeogeographic and landscape dynamic maps.