

Petroleum Geology of the Songpan-Aba Area: One of the Last Frontier Basins in China

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The Songpan-Aba area is similar to the sedimentary basins on the Yangtze Block. Following the initial rifting and separation of the Yangtze block in the Early Palaeozoic, the Songpan-Aba area was gradually developed into a passive margin basin. As the Qinling-Qiliang oceanic crust subducting and closing, the Caledonides was formed and the basin superimposed upon the existing foreland basin. Being influenced by the Palaeo-Tethys extension, the late Palaeozoic gave birth to intro-continental rifting margin basins. Following the formation of the peripheral orogenic belts, the late Triassic again superimposed on the existing foreland basin. The Mesozoic and Cenozoic superimposed the faulted basins as the Qingzang Plateau domed. Hydrocarbon source rocks of the Lower Palaeozoic passive margin basin and the Upper Palaeozoic platform facies carbonate and the Triassic mudstone sediment form the main source-reservoir-seal combination in the Songpan- Aba area. The sediments of this area are in an advanced stage of diagenesis, having entered into the middle and high diagenetic stages. Except for the highly mature Triassic and Permian in the Ruorgai and Hongyuan areas, almost all the areas are in the early stage of over mature, generating much methane. The Songpan-Aba area has an enormous potential for gas discoveries.