

Discovery of the Qingxi Oilfield and Its Implications to Petroleum Prospecting in Foreland Thrust Belts in Central to Western China

Jia, Cheng-zao¹, Wen-zhi Zhao¹, Jian-jun Chen², Ze-cheng Wang¹, Yong-ke Han² (1)

Research Institute of Petroleum Exploration and Development, PetroChina, Beijing, China (2)

Yumen Oilfield Company, PetroChina, Yumen, China

The Jiuxi Basin in the northern edge of the Qilian Mountain fold belt in west China is a Meso-Cenozoic foreland basin with early Cretaceous source rocks and Cretaceous-Tertiary reservoirs. Several Tertiary anticline oil fields had been found in the foreland thrust belt at the southern margin of the basin 65 years ago with estimated oil in place (OIP) of 69.5 million tonnes in 1958-1959 and a peak annual production of 1.4 million tonnes. Since then, the annual production had declined gradually to 0.4 million tonnes a few years ago. With the improved seismic imaging technology for the mountainous over-thrust belts, a large anticline prospect, named Jiuxi, was discovered in 1998 from the fractured reservoir of an early Cretaceous conglomerates and dolomitic mudstones with a proven reserve in place of 50 million tonnes. This has caused the annual oil production in the Jiuxi Basin to increase again with a projected annual production reaching 1.0 million tonnes in the near future.

The discovery in Jiuxi Basin in a highly matured exploration basin indicates that the foreland basins, especially the thrust belts in central and western China are very optimistic for finding new oil and gas fields. Those areas include the southern margin of the Junggar Basin, the northern and northwestern margins of the Tarim Basin and the northern edge of the Tuha Basin in Xinjiang, the piedmont areas of the Longmen Mountain and Daba Mountain fronts in the Sichuan Basin and the western margin of the Ordos Basin.