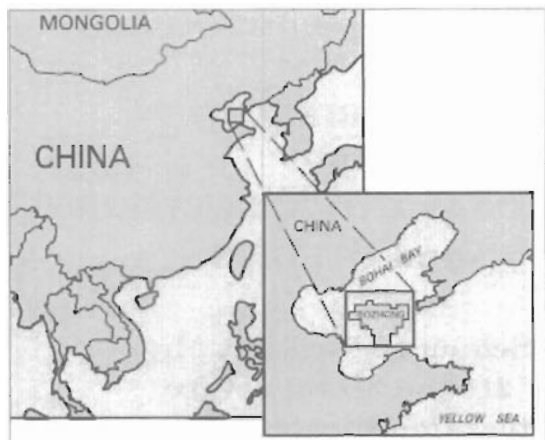


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Petroleum Geology of the Peng Lai 19-3 Oil Complex, *Bohai Bay, People's Republic of China*

菲利普斯石油公司 蓬莱油田发现

Abstract

The Peng Lai 19-3 (PL 19-3) Oil Complex, located in the south central Bohai Bay, People's Republic of China, was discovered in May 1999 with the drilling of the PL 19-3-1 well by Phillips China Inc. The PL 19-3-1 intersected a gross 425 meter (1394 feet) hydrocarbon column in Miocene – Pliocene fluvial sandstones at a depth of approximately 1,000 meters (3280 feet). The PL 19-3-2 appraisal well, located 1.6 kilometers (1 mile) south-southwest of the discovery well, intersected a gross hydrocarbon column of 515 meters (1690 feet) in the same reservoir interval. Subsequent drilling of an additional five appraisal wells has proved that a large oil accumulation exists.

The oil complex is located on the northeast extension of a large basinal high and is interpreted as a north-south trending wrench anticline associated with a major north-south strike-slip fault system. Enechelon northeast-southwest trending normal faults are intersected by north-south trending wrench faults. Reservoirs are good quality, unconsolidated to semiconsolidated, stacked, post-rift fluvial sandstones within the Miocene Lower Minghauzhen and Guantao formations, with seals consisting of intraformational mudstones. Source rocks are organic-rich lacustrine mudstones in the syn-rift Oligocene Dongying/Eocene Shahejie formations located in the adjacent sub-basins. The oil quality varies from 13 to 23 degree API, with a broad range of viscosities, but with moderately low pour-points and low wax content. Gas-to-oil ratios are relatively low and range from 100 to 300 scf/stbo. A significant portion of the oil complex is masked by shallow gas covering approximately 30% (crestal portions) of the structure. A 4C, OBC seismic survey was initiated in the spring of 2000 to help image this portion of the complex.

Phillips acquired the right to explore Bozhong Block 11/05 in 1994 when it signed a petroleum contract with China National Offshore Oil Company (CNOOC). Phillips has a 100 percent undivided working interest in the 2.3 million-acre block. CNOOC has the right to acquire up to a 51 percent interest in any development in this block. The PL 19-3-1 discovery well was the fifth well Phillips China Inc. had drilled in Bohai Bay. Three of the previous wells were discoveries (BZ 22-2-1, Jan. 1997; PL 14-3-1, Nov. 1997; and BZ 36-2-1, Jan. 1998). Two additional discoveries were made in 2000 (PL 9-1-1 and PL 25-6-1). Phillips is evaluating the commercial viability of these five additional discoveries and has several other unexplored features that it plans to drill in the block.

Biographical Sketch

MICHAEL D. KUYKENDALL received his BS and MS geology degrees from Oklahoma State University and has over 19 years experience in domestic and international hydrocarbon exploration and exploitation. He previously was senior geologist with MASERA Corporation where he was involved in multiple geological exploration studies. In 1994 he formed Solid Rock Resources, Inc., which provided customized geologic consulting and integrated petro-stratigraphic technical services. He has authored and co-authored several papers and presentations on various exploration and development aspects of clastic and carbonate reservoirs and oil and gas fields. Since 1998 he has been employed as Senior Exploration Geologist with Phillips Petroleum Company, Worldwide Exploration Division, and is currently involved in the exploration in Bohai Bay, offshore China. He is a member of AAPG, SPE, SEPM, and TGS. □

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Social 5:30 p.m., Dinner 6:30 p.m.