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Volcanic accumulation modes of the third member of Kongdian Formation in Weibei Sag, Bohaiwan Basin

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Abstract: There is no universally applicable accumulation model for volcanic because it has complicated accumulation conditions. The study based on distribution rules and accumulation conditions of Ek3 Volcanic reservoirs show that Ek2 hydrocarbon source rock provide rich sources and good cap for it; The good reservoirs are at the top of overflow lithofacies which Under strong weathering have many pores and cracks; Oil and gas charging motive force provided by abnormal overpressure in oil accumulation period; Grooming network formed by fault and weathering crust provided favorable migration conditions. Three kinds of accumulation modes for Ek3 volcanic hydrocarbons were recognized in Weibei Sag, they are near-source lithofacies controlled accumulation model in the northern sag, middle-source fault-lithofacies controlled accumulation model in the fault zone and far-source faults controlled accumulation model in the slope zone. Volcanic weathering degree in the northern sag is weak, Volcanic physical properties of different stages have great disparity, lithological reservoir would come into being due to the lateral physical plugging. Volcanic weathering degree in Zaohu fault zone is strong, formatted grooming network composed of fault and weathering crust, Oil and gas migration to the reservoirs which have good physical properties located in the high structural parts, formed structure-lithology oil and gas pool. Oil and gas laterally migrated and differentiated in the weathering crust of the southern slope zone, Oil distributed in the north and gas distributed in the south.

Key words: Volcanic ; Accumulation mechanism ; Accumulation model ; Accumulation condition ; Weibei Sag

