EXPULSION CHARACTERISTICS OF SINIAN AND LOWER PALEOZOIC SOURCE ROCKS AND ITS CONTROL EFFECT ON OIL AND GAS ACCUMULATIONS IN CENTRAL SICHUAN BASIN

Youwei Wang
Geological Resource and Geological Engineering, China University of Petroleum (Beijing), Beijing, China
wangyouwei950@163.com

It reveals people the huge exploration prospect of the deeper part of basins that the Anyue Sinian−Cambrian giant gas field was discovered in central paleo-uplift in the Sichuan Basin in 2013. It is a breakthrough in the exploration of ancient stratum all over the world. However, systematic study of the chief source rocks, shale of Longwangmiao Formation, shale of the 3rd member of Dengying Formation and algal dolomite of Dengying Formation, is still absent. Outcrops, cores and cuttings sampled from both the field and drill core stores will be analyzed. Total organic carbon and Rock Eval pyrolysis studies will show the change of hydrocarbon generation potential with the depth variation, based on which we can obtain the expulsion threshold. Furthermore, the hydrocarbon expulsion pattern is built. Then we will try to study the control effects of source rocks on the accumulations. Series of geochemical experiments will be conducted including GC-MS of the source rocks, the gas and the bitumen to fulfill the gas-source correlation. Through the analyses of fluid inclusions and the use of SEM, we can study the period of accumulations and then compare it with the expulsion history. Moreover, the intensity of hydrocarbon expulsion and possibility of hydrocarbon accumulation will be calculated and it can give us reference for choosing future favorable exploration zones. All the works above will help establish the hydrocarbon expulsion pattern, interpret and predict the occurrence and distribution of gas, and promote the exploration and development of the Sichuan Basin.

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