EVIDENCES ON EFFECTIVE CARBONATE SOURCE ROCKS OF LOW ORGANIC MATTER ABUNDANCE AND ITS LOWER LIMIT OF TOC IN TABEI AREAS OF TARIM BASIN, CHINA

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Method of potential hydrocarbon generation is effective to calculate hydrocarbon generation and expulsion, it can ascertain hydrocarbon expulsion threshold and hydrocarbon expulsion amount. This project is using hydrocarbon generation potential method to study whether the carbonate source rocks with low organic matter abundance (TOC<0.5%) in Tabei areas of Tarim Basin can be effective hydrocarbon source rocks. In addition, this project aimed for ascertaining the lower limit of TOC of effective carbonate source rocks.

Tabei locates in the north of Tarim Basin, China. The hydrocarbon source rocks are mainly carbonate source rocks whose average value of Ro is 1.32% and average value of TOC is 0.14%. There are 314 drilling wells at present and abundant core information. Firstly, acquiring the parameter S1、S2、TOC by sampling the cores and processing the pyrolysis experiment. Secondly, selecting the sample datum with TOC<0.5%, calculating value of (S1+S2/TOC), and mapping the evolution profile of hydrocarbon generation potential of resource rock ((S1+S2)/TOC with depth or Ro. Lastly, the project analyze the evolution profile, finding the proof of the carbonate source rocks with low organic matter abundance（TOC<0.5%）which having been generating and expulsing large hydrocarbons and ascertain the lower limit of TOC of effective carbonate source rocks.

Through our project, it should get more attention for the carbonate source rocks with high mature degree and low organic matter abundance（TOC<0.5%）by scholars. These source rocks may make an effective contribution on the hydrocarbon accumulation. They should not be ignored in the resource evaluation and the exploration of hydrocarbon.

AAPG Search and Discovery Article #90249 2015 Grants-in-Aid Projects