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Identification and Evaluation of Super-Reservoir Properties in a Carbonate Reservoir

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Assets of the Pechora-LNG Project are located in the Timan-Pechora Province, Russia. It includes two gas condensate fields discovered in the 1970s. The fields have not been under development. The main development target is the reservoir C2-3, containing 97% of reserves of the Field A. Pay zone C2-3 is carbonate formation of the Middle-Upper Carboniferous. The initial flow rates of wells may vary by 10 times under similar technical test conditions (choke size, reservoir drawdown). Therefore, for the effective development of the target, the task of identifying and forecasting the most productive zones within these fields is relevant.

According to the results of work carried out by the team of Tyumen Petroleum Research Center specialists in 2017-2018 and the middle part of the C3 zone (Upper Carboniferous), a super-reservoir layer has been identified. This reservoir is characterized by a limited lateral development and its thickness varies from 4 to 16 m. Max gas flow rates coincided with this interval. According to the set of available data, it was possible to establish criteria for identifying a super-reservoir by log and core. A complex of up to date core studies has been carried out and the super reservoir parameters have been determined. The spatial geometry has been identified based on 3D seismic vs log and genesis of the super-reservoir has been revealed. The reserves addition has been obtained. Absolutely free gas flow rate of a super-reservoir can reach 10 million m^3/day.