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Changing of carbonate reservoir rocks on the final phase evolution petroleum geofluid systems

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Abstract

The authors studied conditions of changing carbonate reservoir rocks of Tournaisian stage in phase of water-flooding of oil reservoirs. We studied the sequence of changes in the pore volume in the limestone caused by oil oxidation products and identified three stages of change rocks: 1) increase of porosity, caused by activation of dissolution processes in mineral skeleton of rocks; 2) formation at the periphery of cavities thin crusts of calcite, which reduces of pore volume; 3) filling of open pore space large grains of calcite. These stages correspond to bitumen, water-bitumen and water subzones in structure of water-oil contact zones. Involvement in the development oxidized parts of oil reservoirs is important direct in oil exploration industry, today. Regularities identified in the work can help to choose methods of impact on the oil reservoir with heavy oil and bitumen.

Keywords

Oil, Oil-water zones, Reservoir rocks, Tournaisian stage