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The low-permeability-layers of dolomite reservoir and its influence on remaining oil distribution

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The YM dolomite reservoir has been into the high water production stage and the important issue is how to get the distribution of the remaining oil and to product. The low-permeability-layers are ubiquitous in this type of formation. Building the mechanism model, the sensitivity analysis is done among the permeability, thickness, attitude of the low-permeability-layers and different formation permeability. The result shows us that the effect of flow barrier is mainly close to the permeability of the low-permeability-layers and the strong flow barrier occurred when the permeability is lower than 0.01 mD. And the thicker the low-permeability-layers, the stronger the flow barrier based on the same other conditions. The different attitudes play different roles in controlling distribution of the remaining oil, the order is type I>II>III>IV. And if there are two low-permeability-layers and the effect is type V>VI. The low-permeability-layers are the fluid influent barriers in the short production time and the main control factors of the remaining oil's distribution.

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Hydrocarbon production in the age of decommissioning

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In the North Sea decommissioning has begun and will continue for a decade or longer. There will be heavy investment in it and many job opportunities for engineers. There is some decommissioning at other scenes of offshore production including the GoM, North West Australia and the Adriatic. The need for decommissioning on- and offshore has arisen partly from depletion but also from reduction in demand because of the need to meet greenhouse gas emission requirements. For example, use of heavy fuel oil in power generation has declined because of the availability of electricity from sources which do not in operation produce carbon dioxide, including wind farms. Biodiesel is widely replacing mineral diesel as a fuel for compression ignition engines. This paper is not concerned with decommissioning per se but with concurrent decommissioning and production, a milieu which is developing and will remain. There are important questions to be asked. How will the price of oil at any one time be affected by investment trends? Will it be higher or lower when decommissioning activity is strong? What will be the role of OPEC in a world in which decommissioning is competing strongly with production for investment? To what extent will facilities such as semi-submersibles and offshore supply vessels be able to serve in both the provinces, production and decommissioning? How will an organization involved both in production and decommissioning be expected to meet its carbon obligations? At a location such as the North Sea could production and decommissioning share infrastructure such as umbilicals? What will be the installation-removal balance in the workload of the new generation of heavy lift vessels such as Pioneering Spirit? These questions and others will be put and pointers (no more) to answers attempted.

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