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# NMR study on multi-layer waterflooding of middle-east low permeability carbonate reservoirs

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Aiming the heterogeneity of low permeability carbonate reservoir in M group of H oilfield, carried out the physical simulation experiment of multi-layer waterflooding, and based on the T2 relaxation spectrum technique, studied the micro distribution of residual oil and production degree of different permeability combination. Results show that to the different pore structure types, NMR tests have different responses. The permeability is larger, the T2 relaxation spectrum is more, the peak value is higher, and the movable fluid is more. The difference of permeable grade has certain influence on the residual oil and recovery degree of multi-layer waterflooding, and the residual oil and recovery degree of rock samples with different permeability are different in absolute value and relative value. The absolute value of the absolute value and recovery degree of the residual oil are mainly distributed in the large pores, and the low porosity is very small, the smaller the relative value of the residual oil in the small pores, the larger the relative value of the recovery degree. The residual permeability of rock samples with the same permeability difference is higher than high permeability rock samples, and the exploitation potential of macro-pores is still large.

### References

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