Pilot test for microbubble CO_2 injection to reservoir in oil field - Test planning and preparation -

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In this study we have studied to evaluate the effect of microbubble CO_2 injection to CO_2 storage by core flooding test in laboratory and develop the tools for microbubble CO_2 injection in reservoir and we reached at the step which we plan to conduct the field pilot test in 2019.

We provide an introduction to the planning and preparation to the field pilot test for microbubble injection technology.
Summary of the pilot test
We plan to conduct this test at a part of oil field in Japan. This oil reservoir is consisted of the alternate layers of sand and mud and has high hetrogeneity which the advantage in the microbubble injection technology is expected. Huff' n Puff method will be applied in this test and pressure and flow rate at CO_2 injection and reproduction (flow back) from reservoir after CO_2 injection are measured as field test data. Two CO_2 injection tests, microbubble and normal injection are planned to estimate the effect of microbubble injection technology and behavior. Injected CO_2 volume is 100t at each test, microbubble and normal injection. Moreover, we construct the flow simulation model and estimate the microbubble CO_2 injection before and after field test.
preparation
We produced the tools for microbubble CO_2 injection in well based on prototype tools developed in this study and constructed facility which consisted of CO2 storage tank, CO2 injection pump and warming apparatus in test field.

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