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Title **Development of a New Sand Control Technique - Phase I: Laboratory Development**

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Preview Abstract

This paper presents the results of the laboratory development phase of a major project to develop a novel sand control technique that could overcome the technical and economic limitations associated with existing methods of sand control. The novel technique is based on in-situ sand consolidation by low-temperature oxidation of a hydrocarbon fluid that saturates the sand around the wellbore. Laboratory development consisted of two stages. In the first stage, the various process-controlling parameters were studied to determine the optimum conditions that yield consolidated sand with the highest possible compressive strength, minimum loss of permeability, and high stability against typical formation and workover fluids. Under the developed optimum consolidation conditions, it was possible to produce consolidated sand, from originally loose sand, that retained between 86.4% and 95.5% of its original permeability, was completely stable against flow of crude oil, water and mud acid, and had a compressive strength between 1,800 and 2,300 psi. In the second stage, the feasibility of field application of the process was demonstrated on a full-scale model resembling an 8-ft. section of a 7 in. cased well. The model was packed with loose sand and saturated with brine. The resulting consolidated sand around the casing was tested by flowing back at a rate of 44 bpd/ft. (the maximum available pump apacity) without any sand production. Plans are underway for the first field implementation of the process.