

ABSTRACT
=====

##

The mechanisms of sand production in oil and water wells were studied in single and double fluid tests using a linear flow test cell fitted on the inside with a modified hassler sleeve, and packed with 60/320 mesh sand containing $4\frac{1}{2}\%$ w/w clay and $4\frac{1}{2}\%$ w/w silt.

In single fluid tests at low fluid flow velocities, water was observed to transport sand in trace quantities. As the velocity was increased, a first critical velocity was reached where small measurable quantities of sand were produced. A second critical velocity was eventually reached where sand was produced in relatively large quantities.

Bed permeabilities of water-saturated sand packs were approximately 10 times greater than those of oil-saturated packs. During oil flow tests, the weight of sand produced, during a flow period of 4 pore volumes of injected fluid, was approximately ten times greater than that during water flow test. This indicated that the weight of sand produced during fluid flow depends on other parameters in addition to velocity and viscosity. These additional parameters are not identified in this study.

In double fluid tests, clay particles were transported by the oil-water interface when water was the encroaching fluid, displacing oil from the sand bed.

The size of particles produced from the pack was found to be a function of cumulative volume of fluid injected. Fluid flow velocity and bed porosity were also dependent factors.