MODERNIZED DESIGN OF SUCKER-ROD PUMP FOR RECOVERY OF SAND-CONTAINING FLUID

Background
The presence of solid impurities in the well stream complicates the work of the pump equipment of oil wells. The paper presents the analysis of the known filter designs. Currently there still exists the problem of washing filters at the rod pump suction during their operation without lifting subsurface equipment.

Aims and Objectives
The technical problem is to improve the reliability of opening suction and discharge valves of the pump after shut-down, and to wash the clogged filter at the pump intake.

Results
A new filter design for downhole sucker rod pumping unit (DSPU) has been developed. Due to the pressure of fluid in the tubing string the design allows washing of a clogged filter without lifting pumping equipment. Moreover, practical use of the offered design helps in solving the problems of working agent delivery to the bottom-hole formation zone. The design of the filter on the intake of DSPU will help to wash a clogged filter by the reverse flow of fluid from the tubing, with the use of a special design of suction valve.

Conclusion
The advantage of the offered design is washing of a clogged filter at the pump intake without bringing the pumping equipment up to the surface. Depending on the set task, steam or solutions of reagents for removal of salts or asphalt-wax depositions or anything like that may be used as the agent to be injected. The possibility to deliver agents directly to the bottom-hole formation zone without lifting downhole pumping equipment can significantly reduce the cost of well servicing and arrangements for enhanced oil recovery.

Key words: sucker-rod pump, sucker rod string, solid suspended particles, filter, wear, washing, bottom-hole formation zone.

References
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