Selection Of Gas Condensate Wells To Increase Condensate Recovery In Gas Condensate Fields

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ABSTRACT

This article describes the conditions for selecting wells and the sequence of processes performed when influencing wells to increase condensate recovery in gas condensate fields.

Keywords: well , processing , plastic , gas condensate, davleniya , solvent , gas, condensate, magnetite , etc

Introduction

When developing gas condensate deposits, it is possible to organize processing processes for gas condensate wells, taking into account the accumulation of condensate in the bottomhole zone of the wells, the condensation pressure of the wells, based on the operating modes of the wells and the geological and technical condition of the wells

Main part

The selection of gas condensate wells suitable for treating their bottomhole zones with hydrocarbon solvents must be made in accordance with two main provisions.

1. The average reservoir pressure in the vicinity of the well should be close to the maximum condensation pressure of the reservoir gas-condensate mixture or, even better, 25-30% lower than it.

2. The main deterioration in well productivity during its operation should be caused by the accumulation of condensate in the bottomhole zone of the well.

Compliance with the first position when choosing a well for treatment allows you to avoid the rapid re-accumulation of condensate at the bottom of the well and ensure a long-lasting effect from the treatment of the well. Compliance with the second provision makes it possible to exclude from consideration those

wells whose deterioration in productivity was caused not by the accumulation of condensate in the bottomhole zone of the well, but by purely technical reasons (which may include deterioration of the condition of downhole equipment, contamination of bottomhole zones as a result of various repair work and impacts per layer).

Treatment of bottomhole zones of wells, depending on the operating conditions of the wells, may include various operations and preparatory work. The main set of processing operations includes the following.

1. Connecting a high-pressure gas source to the well (in particular, a mobile compressor or a high-pressure dry gas line), as well as a container with liquid hydrocarbon solvents and its injection units (usually in the same line with the high-pressure gas source).

2. Closing the well by shutting off its plumes (the order of operations in points 1 and 2 may vary depending on the conditions of the gas field).

3. Injection of the required volume of solvents at given flow rates and pressures.

4. Disconnection of high-pressure units and containers with solvents from the well.

5. Holding the well after treatment for a certain time to enhance the process of partial evaporation of intermediate and heavy components from the formation fluid into the injected gas. The time to shut down a well after treatment can be several days and is reduced for wells into which gas was injected at a low rate.

6. Putting the well into operation with low flow rates (at the level of 30-50% of their value before treatment). The duration of operation of wells with such flow rates is several days. This ensures equilibrium in the near-wellbore zone of the gas and liquid phases of the formation and prevents the formation of a "shaft of secondary condensate" in it.

7. Setting operating flow rates corresponding to the intended technological regimes.

Conclusion

The effectiveness of treatment of the bottom-hole zones of wells is largely determined by strict adherence to the basic provisions (rules) of influence that make up the technology of well treatment. The basic provisions for treating near-wellbore zones of gas condensate wells with liquid hydrocarbon solvents practically do not differ from the described provisions for treating near-well zones of a formation with dry gas. This applies to both the selection of wells for treatment, volumes of injected agents, pressure and injection rates, well piping scheme, and the sequence of operations when treating the bottomhole zones of wells.

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