

OPTIMIZING HORIZONTAL WELL OPERATION BASED ON DYNAMIC MARKER MONITORING DATA

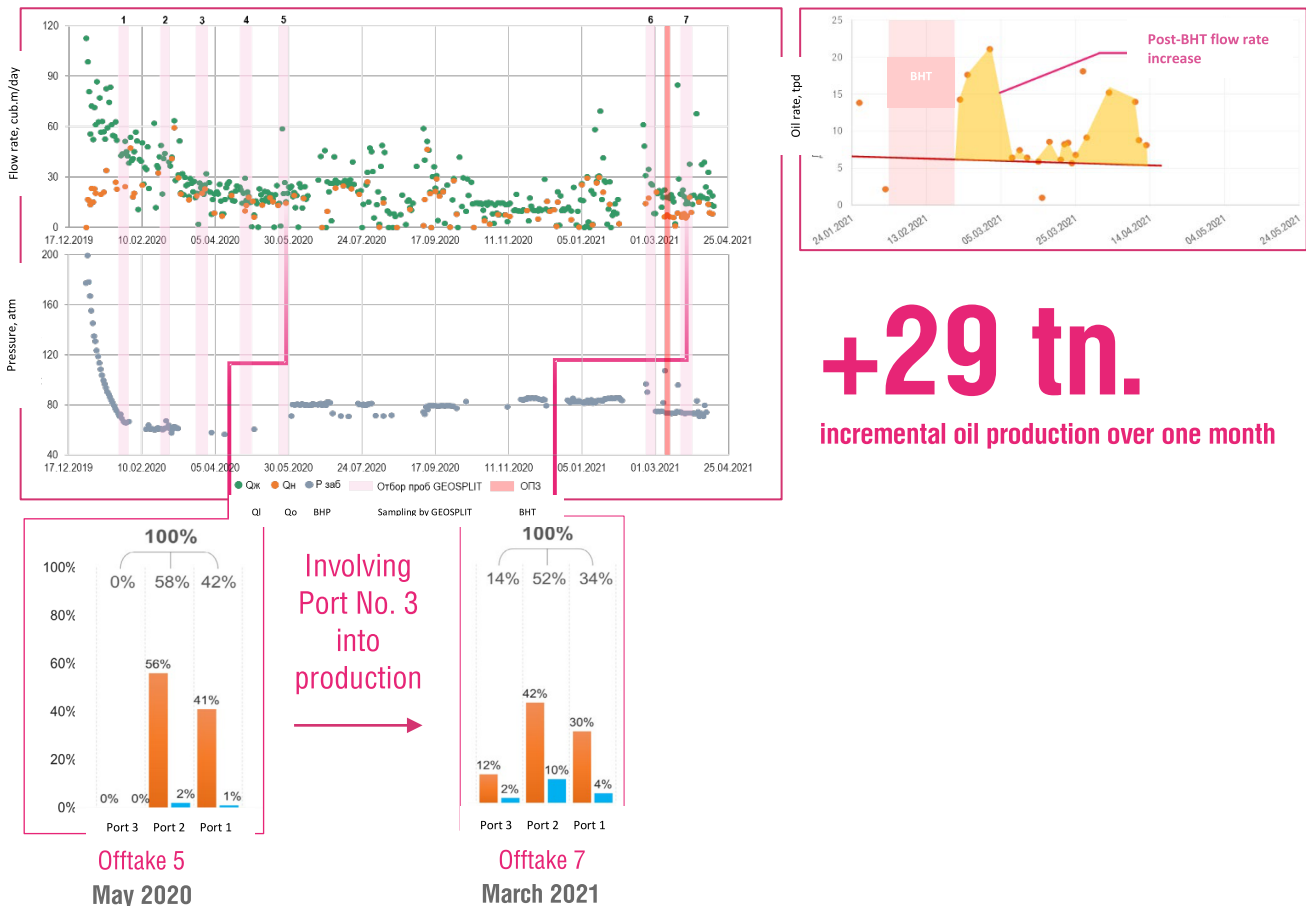
OBJECTIVE

The horizontal well operation often involves uneven reserves recovery along the wellbore and sub-optimal drawdown which come with underachieved reservoir potential and production forecast. In order to carry out optimization activities on a particular horizontal well to be regulated, we require reliable quantitative dynamic inflow profile distribution and composition data for each interval in the horizontal wellbore.

SOLUTION

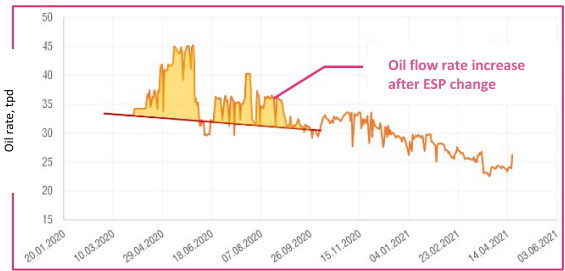
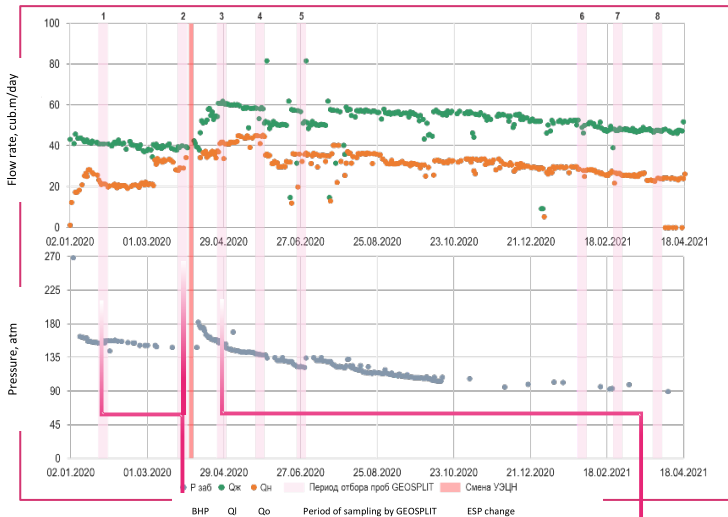
In order to ensure comprehensive regulation of the development system and rational control of the production performance in one of the fields in Western Siberia, the dynamic marker monitoring technology was applied. The collected data were used to select well candidates which operating parameters could be optimized and the technological potential could be enhanced to increase their oil recovery factors.

On Well No. 1 with a 3-stage MSHF, it was established that Port No. 3 was still not involved into production, though it was 5 months after the production had started. Based on GEOSPLIT's monitoring data, the subsoil user's geological department decided to perform bottomhole treatment using a surfactant- and modifier-laden acidic composition. After the successful wellwork followed by the operational effect monitoring, an incremental oil production of 1.5 tonnes per day was achieved by involving Port No. 3 into production. Incremental production during the following month of operation amounted to 29 tonnes of oil.

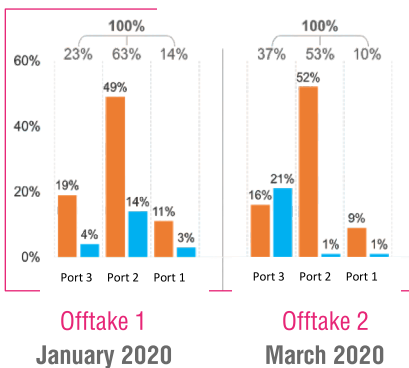


+29 tn.
incremental oil production over one month

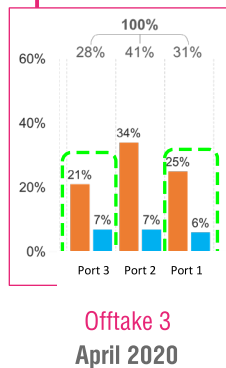
On Well No. 2 with a 3-stage MSHF, production logging was performed which demonstrated a highly non-uniform inflow and poor involvement of Ports No. 1 and 3 into production. Based on the production logging and production performance data, recommendations were given to replace the ESP by running a higher-capacity pump into the hole. Due to the rational drawdown increase, Ports No. 1 and 3 got more actively involved into production. Incremental oil production over the 6-month well operation period amounted to 650 tonnes of oil.



+650 tn.
incremental oil production over 6 months



Involving Ports No. 1 & 3 into production



SUMMARY

The dynamic marker monitoring technology is a multi-vector tool that provides data flow to solve a wide range of tasks in order to ensure rational control of production and development processes, increase oil recovery factor, and optimize production costs.