

CASE STUDY

PACKER TIGHTNESS MONITORING

Objective

The integrity and tightness of the downhole equipment and structural elements of the well are absolutely critical for the long-term operation of the latter.

The breakthrough of reservoir fluid from non-target or shut-off layers may lead to accelerated well flooding and losses in oil production.

In horizontal wells, untight packers in non-operated liner intervals or in the well shoe can also lead to the above risks.

Advantages for customer

Timely detecting the loss of integrity and non-tightness of downhole packers without interrupting production and performing well interventions

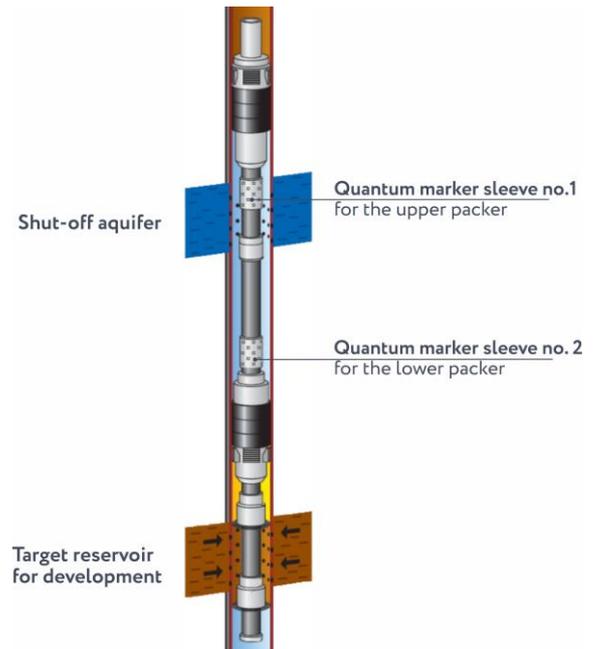


Solution

In the course of a case study in a large field in Eastern Europe, behind-the-casing quantum marker sleeves were installed downhole in five vertical wells with aquifers shut-off to monitor the integrity of straddle packer systems.

During the study period, wellhead reservoir fluid samples were taken according to the established schedule. These samples were subsequently analysed to identify the marker quantity they contained, upon which reports were prepared on the technical condition of the packers and if any leaks were detected.

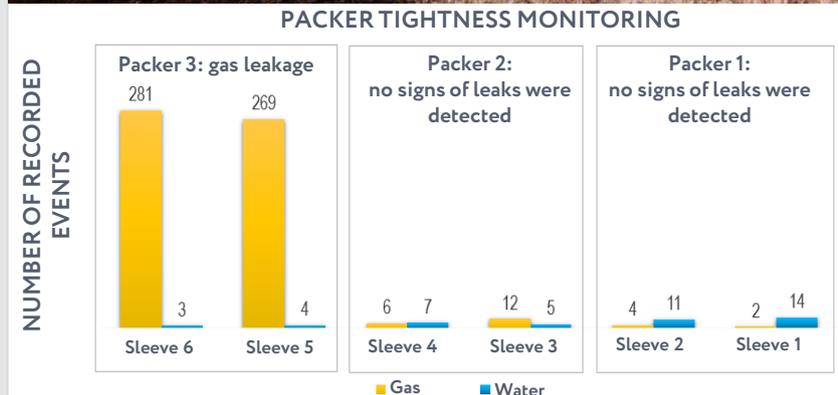
The results of long-term monitoring showed that the packer systems remained tight for 2 years.



Six (6) GEOSPLIT quantum marker sleeves were installed in the bottom completion liner in one of the horizontal wells with 3-stage hydraulic fracturing in Western Siberia to monitor the tightness of the behind-the-casing packers.

After performing multi-stage hydraulic fracturing and putting the well into production, a study was conducted with the fluid sampling for the marker quantitative analysis.

The results of the analysis revealed gas leakage through packer No. 3; thus diagnostic data was yielded without performing well interventions.



Conclusion

The dynamic tracer-based production profiling surveillance technology in combination with marker sleeves can be effectively used to timely detect packer non-tightness and loss of integrity without interrupting production or performing well interventions.