

QUICK NOTES

INTERVENTIONLESS LIMITED ENTRY SLEEVE TRIAL OPENS THE DOOR FOR PLANNED LONGER LATERALS IN THE DJ BASIN

In March 2023, a DJ Basin operator successfully completed a Niobrara formation well in Colorado, U.S. A hybrid completion design was implemented, using Stage Completions ORCA™ limited entry frac sleeves in the toe portion of two (2) wells, converting back to standard plug & perf above.

ORCA™ MULTI-CLUSTER SYSTEM

OPERATOR OBJECTIVES

- To prove out reliability and efficiency gains during running in hole on rig and during frac execution, utilizing a fully mechanical, multi-cluster interventionless technology
- Reduce the overall wellbore risk and cost associated for planned 4-mile lateral campaign
- Allow for hybrid completions utilizing sleeves that match their existing limited entry design and ensuring uniformity of frac towards the toe of the well

JOB EXECUTION

After establishing a stabilized injection rate through wet shoe sub, **10 stages, 4 sleeves each of ORCA™ sleeves** were sequentially opened and each zone fraced by launching unique and paired collets for each set of targeted sleeves. Stage over stage isolation achieved utilizing a degradable ball selected specifically for operator's source fluid and bottom hole temperature. The collets were pumped through the lateral at **4.8 m³/min**, slowing to land rate of **3.2 m³/min** prior to reaching target sleeve. Operational certainty was maintained by monitoring with high-resolution acoustic and pressure sensors which confirmed the exact location of the collet as it traversed the lateral, through non-matching sleeves. This monitoring also provided a unique signature of collet seat, shear and subsequent sleeve opening of each sleeve in the target stage.

BY THE NUMBERS

80

ORCA™ Multi-Cluster Sleeves @ Toe
2 wells, 10 stages/each (4 sleeves/stage)



100%

Sleeve-Opening Rate

135 T per Stage
of Proppant Pumped



Maximum Slurry Rate of

14.3 m³/min

90 Minutes



Average Time/Stage Including Pump-Down

ORCA is a multi-cluster frac system offering the ability for limited entry design in cemented, extended laterals. Activation collet for next target stage, opens multiple sleeves, providing unprecedented confidence in sleeve opening accuracy, before landing and isolating previous treated stage.

01

Limited Entry

Interventionless technology in cemented lateral emulating plug & perf design, while ensuring isolation of previous stage.

02

Continual Pumping

Individually profiled collets pumped with dissolvable balls result in continual pumping.

03

Uniform, Efficient

Proven technology enabling fully customizable port sizing, port numbering and cluster spacing, reduces post frac intervention.

