

Case Study

WAVFORCETM XRV

2.88" WavForce XRV Exceeds Predicted Lockup

Case Study No. 4306

DETAILS:

Location:	Alberta, Canada
Formation:	Montney
Casing Size:	5.5" 34.23kg (23#) x 4.5" 22.47kg (15.1#)
Conveyance:	2-3/8" CT
Total Measured Depth:	6033m 19,793'
KOP:	1358m 4,455'
Lateral Length	4125m 13,533'
Well Orientation:	Horizontal
Fluid:	Water
Operation Type:	Frac Port Mill-Out
Tools Used:	2-7/8" TTS Milling Assembly 2-7/8" HydraSweep TM 2-7/8" WavForce XRV

RESULTS:

A Canadian operator had a frac port mill out operation that needed to be completed with a challenging 4125m (2.56 mile) lateral. Pre-job friction modeling predicted lockup to be at 5846m (19,179'), which was 187m (614') short of TD. Taking that into account, the customer decided to utilize Thru Tubing Solution's 2-7/8" milling BHA with the inclusion of TTS' proprietary HydraSweep and WavForce XRV.

Thru Tubing Solutions was able to mill out all 68 frac ports and maintain an average ROP of 2.8 m/min (9.2 ft/min) for the final 305m (1,000'). The WavForce XRV milling BHA successfully reached 5911m (19,393'), exceeding the predicted lockup. After milling out the final frac port the HydraSweep was opened to perform a high-rate debris sweep back to surface before POOH, as per the customer. The use of the HydraSweep in addition to the WavForce XRV allowed for better hole cleaning while drilling out each port and maintaining positive WOB all the way through the final port. The friction breaking ability of the new WavForce XRV enabled TTS to exceed the predicted lockup of other vibratory tools and complete the drillout as planned, making it a successful operation for the operator.

HIGHLIGHTS



- 0.156 friction factor
- Maintained positive WOB
- Surpassed predicted lockup depth



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