

# THRU TUBING CASE STUDY

## “TD THE DEEPEST NIOBRARA IN THE POWDER RIVER BASIN”

Recently, we were fortunate enough to complete the “deepest Niobrara in the Powder River Basin” for one of our customers. Working together with several other completions vendors, our tools and hands were able to successfully **TD a 22,375’ well with 50 Obsidian plugs.**

We paired our 2.88” conventional mud motor powered by Abaco Drilling Technologies power section (formerly known as Basintek) with a newly designed Extended Reach Tool. The tool is set up to maximize a negative pressure pulse that creates an axial force at a low frequency generating a hammer effect that helps to stimulate coil tubing and reduce friction.

With a **KOP of 11,535’** and a **lateral length over 10,840’** our BHA performed as expected to clean out this well bore all the way to the Toe Sleeve.

### CASE STUDY DATA

KOP	TOE SLEEVE	CASING	PLUGS	BHA SIZE	COIL	RATES	AVE DRILL TIMES	AVERAGE TRAVEL TIMES
11,535'	22,375'	5.5" 20#	50 OBSIDIANS	2.88"	2 3/8"	3.5R / 3.5RR	24.6 min	27.5 min

### Technical Specifications

Tool Size (OD)	2.125" (54 mm)	2.875" (73 mm)	3.125" (79.28 mm)
Overall Length	44" (1.12 m)	58" (1.47 m)	65.8" (1.67 m)
Weight	27 lbs. (12kg)	74 lbs. (34 kg)	98 lbs. (44 kg)
Recommended Flow Rate	0.71-1.43 bpm (110-230 L/min)	1.2-4.00 bpm (190-630 L/min)	2.4-5.00 bpm (380-820 L/min)
Maximum Operating Temperature	350°F (175°C)	350°F (175°C)	350°F (175°C)
Operating Frequency	4-7 Hz	5-8 Hz	5-8 Hz
Operational Pressure Drop Generated*	875-1,550 psi (6,000-10,700 kPa)	297-2,600 psi (2,050-18,000 kPa)	700-2,500 psi (4,825-17,200 kPa)
Tensile Strength	20,000 lbs. (89 kN)	78,000 lbs. (347 kN)	120,000 lbs. (533 kN)
Torsional Strength	1,695 ft.lbs. (1,250 Nm)	3,500 ft.lbs. (4,745 Nm)	3,800 ft.lbs. (5,152 Nm)
Connections	1 1/2" AMMT	2 3/8" PAC	2 3/8" REG



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