

PENNSYLVANIA, USA  
MARCELLUS SHALE

Temperature	140 degF [60 degC]
Pressure	3,500 psi [24 MPa]
Casing size	5.5 in [14 cm]
Average well depth	13,500 ft [4,115 m]
Average lateral length	5,000 ft [1,524 m]
Motor size	3.125 in [8 cm]
Average ROP	1.7 in/min [4.3 cm/min]
CT string size	2 in and 2.375 in [5.1 cm and 6 cm]

### Background

An operator needed to save time while milling more than 150 frac plugs seven horizontal wells in the Marcellus Shale.

### Technologies

- Copperhead\* drillable bridge and flow-through frac plug
- D2 TT Turbomill\* thru-tubing turbomill
- Diamondback\* composite drillable frac plug

## Operator Saves 35 Hours Milling Time in Seven-Well CT Milling Operation

New BHA mills through 169 plugs 5% faster, saving USD 56,000



*The D2 TT Turbomill mill milled through 169 total frac plugs in one run per well at an average of 20 min per plug. This brought the time to mill Copperhead frac plugs from 3.5 h to 30 min. The new mill also decreased the time to mill Diamondback frac plugs by 17%. These efficiencies saved the operator an average of 5 hours and USD 8,000 per well.*