



Better Ways to The Bottom™

CASE STUDY

Date: October 10, 2008

CS #: 24-080710-CD-Shell

Shell Rocky Mountains sees step change in performance with TESCO CASING DRILLING® technology and conventional pdc bit.

OPERATOR: Shell Rocky Mountains

CONTRACTOR: Nabors 254

LOCATION: Pinedale Anticline Sublette County, WY

LITHOLOGY: Sand / Shale Hard rock

MUD: 10.8 ppg OBM



OBJECTIVE:

The plan was to drill a directional "S" curve well with 24 degrees maximum angle and 2000' departure to a depth of $\pm 10800'$ md. After drilling to that depth, the drill pipe would be pulled, and the 7" 29# casing would be drilled in using the CASING DRILLING™ Retrieval System. An 8-7/8" hole would then be drilled to finish the intermediate hole section down to a depth of $\pm 12500'$ md. The drilling would utilize TESCO's Casing Drive System™ (CDS™) and the BHA would be retrieved by wire line if the bit failed or when the well was finished. As this was going to be an underbalanced drilled section TESCO provided special equipment to ensure that the BHA could be safely retrieved.

BACKGROUND:

Shell Rocky Mountains wished to set their intermediate 7" casing string deeper in order to cross a trouble weak zone in the Pinedale Anticline area of Wyoming. Working closely with Shell, TESCO proposed that the well be drilled to the top of the trouble zone and that then the well be completed by drilling with TESCO's CASING DRILLING retrievable system to the end of the intermediate section. Benefits of the plan included:

- Eliminate hole conditioning trips.
- Reduce chance for lost circulation.
- Eliminate potential for stuck drill pipe.
- Eliminate lost time.
- Eliminate stuck conventional run casing and failure to land conventionally run casing on bottom.
- Test the TESCO underreamer in hard rock (>20,000psi ucs).

PERFORMANCE:

TESCO and Shell Rocky Mountains Engineering personnel engineered the solution. The TESCO Casing Drive System was utilized to make-up, trip in and rotate the drill string (casing). TESCO's BHA assembly with an aggressive PDC bit and proprietary Tesco underreamer proved a winning combination, drilling through numerous problem zones to TD at rates of penetration equalling or exceeding those drilled on surrounding offset wells. When the well was finished the BHA was flawlessly retrieved by wireline. TESCO's Hydro-Form™ hard faced crimp-on centralizers provided protection for the casing from wear as well as provided for stand-off for cementing. Hard faced wearbands were also used to increased casing wear protection during rotation. The final result was that this is hole section was drilled and cased safely with fewer mud losses than on the offsets while also drilling in hard rock in an underbalanced environment. This was a first for CASING DRILLING in the Rockies and a first for Shell.

FOR MORE INFORMATION:

marketing@tescocorp.com

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Tesco Corporation / 3993 W. Sam Houston Pkwy N Ste. 100, Houston, Texas, USA, 77043 / Phone: 713 359 7000 / Fax: 713 359 7001 / Web: www.tescocorp.com