



TrackMaster Select* Thru-Tubing (TT) Operation Achieves Record-Breaking Window Milling with Coiled Tubing for Major Colombian Customer

Coiled Tubing Limitations — Utilized 2 inch Coiled Tubing at extreme depths with challenging hydraulics and weight control.



Coiled Tubing Unit

Challenging operation in deep hard formation sandstone.

The TrackMaster Select* TT whipstock system enables cost-effective sidetracking by eliminating the need to pull completion tubing. Designed to pass through the tubing ID, it orients and hydraulically anchors inside the liner for window milling, with a unique geometry that compensates for casing size variations.

In a Colombian pilot Coiled Tubing Drilling (CTD) project, a customer sought to re-enter wells in the Cupiagua and Cusiana fields while maximizing existing equipment. This required

executing casing exits at unprecedented depths using 2-inch coiled tubing in 5½-inch x 5-inch completions, posing hydraulic and weight control challenges. The 25,000 psi sandstone further demanded a window mill capable of both casing milling and rock drilling.

Partnering with WIS' Red Baron team, the project successfully completed five casing exits, setting new depth records for coiled tubing milling. The system's specially engineered PDC cutters enabled efficient casing milling and high-strength rock drilling, ensuring project success.

TrackMaster Select* TT Project Information

Casing	Liner	Coil Tubing	Milling Tool	Formation
5½ inch 23#	5 inch - 18ppf, L-80, 13% Cr	2 inch HS110	Geotrack Window Mill	Sandstone

Whipstock	Top of Whipstock	Inclination	Successful Window
#1	14,901 ft	4°	Yes
#2	15,807 ft	36°	Yes
#3	15,773 ft	35°	Yes
#4	15,740 ft	33°	Yes
#5	15,760 ft	33°	Yes

TrackMaster Select™

- A HISTORY OF INNOVATION
- UNRIVALED EXPERIENCE
- GLOBAL PRESENCE

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CHALLENGE

Executing record-depth casing exits in ultra-hard sandstone using limited existing equipment and 2 inch coiled tubing, despite hydraulic, weight control, and milling constraints.

SOLUTION

- **Maximized Existing Equipment:** Required utilizing as much existing equipment as possible, adding technical constraints.
- **Coiled Tubing Limitations:** Utilizing 2.0 inch Coiled Tubing, setting the Whipstock in 5½ inch casing passing via 5.0 inch ID liner. Additionally dealing with challenging hydraulics and weight control.
- **Deepest Coil Tubing Exits:** Proposed exits were deeper than any previously attempted with coiled tubing.
- **High-Strength Sandstone:** Formation had a compressive strength of 25,000 psi, requiring a window mill capable of milling casing and drilling through hard rock.

RESULTS

- Successfully re-entered the wells in the Cupiagua and Cusiana fields as part of a pilot Coiled Tubing Drilling (CTD) project.
- The WIS' Red Baron team provided advanced window milling technology to execute the casing exits.
- Five casing exits were successfully completed, significantly contributing to project goals.
- Utilized a milling structure with specially formulated PDC cutters designed to mill casing and drill through high-compressive-strength rock.



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