Clutch-Type, MULTI-FUNCTION CIRCULATING TOOL (MFCT)

Specialized Tools: Circulating Tools

Efficient drilling is dependent on keeping the hole free of debris. The clutch-type MULTI-FUNCTION CIRCULATING TOOL* (MFCT), developed for use when well cleanout is required prior to running completions or test strings, is a valuable option.

Applications

The MFCT tool from M-I SWACO is particularly suited to wells with small liner diameters where well cleanups are performed prior to running completions or test strings. This tool can be run when drilling cement and milling/polishing liner-top Polished-Bore Receptacles (PBRs), providing pipe rotation above the liner with the ports open while protecting the string below from potentially damaging torque.

Features

- Does not require darts or balls to be pumped down the drill pipe
- Can be operated in the hole as many times as required by slacking off or picking up the drill pipe
- Allows drilling or milling to take place with the tool in the string
- Internal clutch allows drillstring rotation above the tool with the circulating ports open
- Available to run in all common casing and liner sizes

Advantages

- Offers the option of performing the open/closed cycle as many times as required without having to pull out of hole, allowing immediate control of the circulation route
- More accurate fluid placement than can be obtained with a conventional ball drop circulation sub
- Only transmits rotating torque above the circulating ports, protecting the lower string from potentially damaging torque
- Increases flow rate in the annular sections

How it works

The MFCT unit is operated in a similar fashion to a bumper sub used during drilling. The tool, made up with a shear ring in place (7,000 to 60,000 lb [3,175 to 27,216 kg] shear), is fully stroked out when running in hole, and circulation passes through the end of the drillstring. Rotating torque is transmitted to the whole string (clutch engaged). Upon first activation, the required weight is slacked off onto a device, such as a stabilizer or top-dress mill, at the point of interest (usually above a small-diameter liner) and the outer sleeve moves down, allowing the fluid bypass to be activated.

The tool is now open and high circulation rates can be attained through the tool ports. Rotating torque is only transmitted above the circulating ports (clutch disengaged). Circulation is restored through the end of the drillstring by simply picking up the drill pipe, moving the outer sleeve up and re-engaging the clutch. The open-closed cycle can be performed as many times as required without the need for expensive trips out of the hole, giving the driller immediate, positive control of the circulation route.