SWITCHBACK MAGNET (SWBM)

Specialized Tools: Debris Recovery Tools

The SWITCHBACK* MAGNET (SWBM) tool can be run in the hole in the dormant position as an integral part of a drilling or milling BHA. The tool's magnets are activated when desired via a ball drop mechanism, at which time they will collect ferrous debris from the wellbore. As such, the magnet only collects metallic debris at the zone of interest, such as in a milled window and above. Material is not collected while tripping in or during the milling or drilling operation as a conventional magnet would.

Applications

The SWITCHBACK MAGNET tool can be used during any operation where ferrous debris is expected in the wellbore. This can include milling casing exits, downhole equipment such as packers, tubing, or other debris left in a well, sidetracks or conventional drilling operations.

How it works

The SWITCHBACK MAGNET tool is included in the drilling or milling workstring. The tool is run in the well in dormant mode, with the magnets inactive (turned off). When drilling/milling operations cease at interval total depth, a ball is dropped to the tool. If more than one SWITCHBACK MAGNET tool is run in the workstring, this ball will activate all the tools simultaneously. Once the ball lands on seat, pressure is applied to the recommended amount to function the tool and allow the magnet to activate. If more than one SWITCHBACK MAGNET tool is run on the same workstring, the process of pressuring up is repeated until all of the tools are activated. At that point, the ball is caught in a BYPASS BALL CATCHER* tool below the lowest SWITCHBACK MAGNET tool. Once functioned, the SWITCHBACK MAGNET tool is tripped out of the well collecting ferrous debris along the way. On surface, the tool is moved away from the rotary table to remove the debris and clean the tool. The reset button is pressed to deactivate the magnet and release captured debris. The SWITCHBACK MAGNET unit is then ready to rerun into the well when desired.

Features

- Tool is activated downhole by dropping a ball, through patented ball seat technology
- One-piece body; no internal connections
- Free rotating stabilizer sleeves independent of drill string rotation
- Reset button functionality to switch tool off once on surface
- BYPASS BALL CATCHER tool run below the tool to capture expelled ball(s)
- BYPASS BALL CATCHER tool retains operating balls yet allows smaller balls to pass enabling numerous ball activated tools to be utilized in the same string

Advantages

- Ferrous debris collected from the bottom to top of the well and not while running in the hole
- Stabilizer sleeves will not rotate when drill string is rotating, minimizing casing wear
- Several SWITCHBACK MAGNET tools can be run in series or with a SWITCHBACK Scraper or SWITCHBACK Mill, with the same ball activating all tools
- Mill rings break up large pieces of debris to circulate past the tool
- SWITCHBACK MAGNET tools generate a very low magnetic field and will not interfere with the MWD system signal