CASE STUDY

Alaska: The MAGNOSTAR magnet tool demonstrates its effectiveness in removing milled solids from the wellbore, prior to sidetracking operations.

"The MAGNOSTAR* magnet tool was a new product line for this rig and it did an exceptional job of removing the metallic debris that was generated while milling the window."

Randy Dolcater, Supplier performance evaluator

Well Information

Location	Alaska
Rig Type	Land
Tool type	9 ⅝" MAGNOSTAR
Maximum Hole Inclination	40°
Depth	5,063 ft (1,543 m)
Drilling fluid	9.6 lb/gal (1.15 SG) WBM Displaced with 9.6 lb/gal (1.15 SG) LSND

The Situation

An operator in Alaska required a solution to remove the metallic debris generated while milling a window in the 9 ⅝" 47# casing at 5,063 ft (1,543 m) prior to sidetracking operations.

The Solution

M-I SWACO suggested the MAGNOSTAR tool, a high strength, high capacity, powerful magnet tool. The MAGNOSTAR features an innovative "star" shaped design, which ensures that all captured debris is retained within the magnetic channels, thus removing the possibility of knocking the debris from the tool while rotating and reciprocating the drill pipe.

M-I SWACO Specialized Tools designed a series of BHA's which utilized the MAGNOSTAR tool to manage the generated debris on the multiple runs for this project, comprising:

- BOP Cleaning BHA consisting of: Bull Nose; two 9 ⅝ in. MAGNOSTAR tools; SHORT TRIP JETTING SUB*
- Main Clean-up BHA consisting of: Window Mill; two String Mills; 9 ⅝" Heavy-Duty RAZOR BACK* tool; two 9 ⅝" MAGNOSTAR magnets

The Results

The BOP Cleaning BHA was run to depth until the SHORT TRIP JETTING SUB was located across the BOPs. The tool string was rotated and reciprocated across the BOP stack at 20 rpm while jetting at 8.0 bpm with 120 psi stand pipe pressure (SPP) to clean cuttings and milled debris from the ram cavities. When pulled out of the hole, the crew cleaned the metallic debris from the magnets, with the tools supplied by M-I SWACO. The BHA was run back to depth and the cleaning process repeated. The BHA was then pulled and the magnets were cleaned off. Both runs proved to be successful, as a total 17 lb (7.7 kg) of metallic debris was recovered.

The Details

The main clean-up BHA was run to depth, once on bottom, a weighted hi-vis sweep pill was circulated at 11.0 bpm with 1,025 psi SPP and displaced with 9.6 lb/gal (1.15 SG) LSND (Low-Solids, non-dispersed) mud while reciprocating the drill pipe. The BHA was then pulled from well and 120 lb of metallic debris was recovered from the MAGNOSTAR magnets.

The amount of debris captured by the MAGNOSTAR tools during their multiple runs in the hole shows that future downhole operations may have been compromised if the magnetic debris had been left in the wellbore. The MAGNOSTAR tool has provided a simple solution to reducing these risks.

MAGNOSTAR tools loaded with debris

Questions? We'll be glad to answer them.

If you'd like to know more about the MAGNOSTAR tool and how it's performing for our other customers, please call the M-I SWACO office nearest you.

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