M-I SWACO Technologies Recover 213.5 Ibm of Debris During Cleanup Run

Powerful magnet recovers ferrous debris and deepwater validation tool verifies cleanup for smooth ESP installation offshore Saudi Arabia

**CHALLENGE**
Recover ferrous debris left in the wellbore from a perforation job in 2007 to improve productivity by installing an electrical submersible pump (ESP).

**SOLUTION**
Incorporate the WELL PATROLLER™ validation tool and MAGNOSWEEP™ downhole magnet in a cleanup BHA.

**RESULTS**
Retrieved 213.5 Ibm [97 kg] of ferrous debris in two runs, facilitating the successful installation of an ESP.

Preparing the well by removing debris
A well in the Khafji field offshore Saudi Arabia was initially perforated in 1969. The three existing perforation zones were squeezed, and five new zones were perforated in 2007. Due to the declining rate of production, the operator needed to install an ESP.

To install the ESP, any debris in the well needed to be removed. Allowing the debris to remain in the wellbore would significantly reduce the lifespan of the ESP, requiring another workover.

Incorporating multiple technologies to clean the well
The operator had some concerns about the type of debris in the well, especially considering previous workovers. M-I SWACO suggested incorporating the WELL PATROLLER validation tool and MAGNOSWEEP magnet in a cleanup BHA.

Removing a significant amount of debris
In two runs, the WELL PATROLLER tool and MAGNOSWEEP magnet recovered 213.5 Ibm of ferrous debris. In the first run, the WELL PATROLLER tool collected 110 Ibm [50 kg], and the magnet collected 99 Ibm [45 kg]. After the initial success, the customer requested another run, which helped the operator recover an additional 4.5 Ibm [2 kg] of residual ferrous debris. All of this debris would have substantially reduced the life the ESP.

The MAGNOSWEEP magnet collected 99 Ibm (left) and the WELL PATROLLER tool collected 110 Ibm (right) of ferrous debris on the initial run.