Baker Hughes

Case study: North Sea, Norway

Combined cut-and-pull MASTODON tool enabled customer to reduce rig time by 50% during slot recovery

A Norwegian customer wanted to remove 13⅜-in. casing to perform slot recovery operations and target a new pay zone from an existing structure. The customer's plan required pulling the casing in order to perform a casing exit at the specified depth. Milling this sized casing would require over one month of rig time, effective swarf handling both downhole and on the rig surface, and incur health, safety and environmental (HSE) risks. Complicating the project was the rig and the conventional equipment did not possess the ability to pull the casing from inside the wellbore.

The customer reached out to Baker Hughes for a solution. Drawing on its history with the customer and knowledge of the region, Baker Hughes recommended the combined cut-and-pull capability of the **MASTODON™ hydraulic pulling tool**, which is capable of pulling fish or casing from a cased wellbore using hydraulic pump pressure. The system can harness up to 818 tons (1.8 million lb) to pull objects from the wellbore. It anchors in the casing, exerts a pulling force on the fish below, and transmits the force to the casing rather than the surface equipment, minimizing the risk of damage to the casing. The system facilitates multiple cut-and-pull attempts in a single trip, saving runs and reducing rig time.

The customer provided the well data, and together with Baker Hughes, worked to optimize operational parameters and develop customized operational procedures.

With a solid plan in place, field personnel deployed the MASTODON tool into the wellbore. The system cut the casing and was cycled more than 60 times to provide constant pulling strains on the cut casing without overloading the limited rig capacity. In this manner, multiple sections of the casing were pulled and retrieved, reducing the total number of trips needed to achieve the objectives.

Approximately 2,726 ft (831 m) of 13⅜-in. casing was cut and pulled out of the wellbore during the operation. No milling operations were required as the MASTODON tool demonstrated its exceptional reliability and extreme pulling force capabilities. This project recorded zero nonproductive time (NPT) as the tool was cycled over 60 times to pull the casing.

Without the Baker Hughes solution, the customer faced no feasible, cost-effective way to sidetrack this well. With the combined cut-and-pull capability of the MASTODON hydraulic pulling tool and the expertise of Baker Hughes engineers and field personnel, the customer successfully retrieved the 13⅜-in. casing and completed the slot recovery.

Challenges

- Cut and pull 13⅜-in. barite-stuck casing at sidetrack point
- Overcome rig's limited pulling capacity
- Avoid lengthy conventional milling operations

Results

- Cut and pulled approximately 2,726 ft (831 m) of 13⅜-in. casing
- Eliminated all milling operations
- Experienced zero NPT while cycling tool over 60 times