

# MASTODON hydraulic pulling tool removed stuck casing, saved operator more than \$1.5 MM USD

An operator working on the Norwegian Continental Shelf was performing a well abandonment operation and needed to remove 9-<sup>5</sup>/<sub>8</sub>-in. casing that was stuck in the wellbore due to the presence of barite and cement. The operator wanted to avoid the excess time and costs associated with conventional cut and pull operations—which typically require multiple trips to retrieve casing down to desired depth—so they reached out to Baker Hughes, a GE company (BHGE), for a solution.

BHGE recommended the **MASTODON™ hydraulic pulling tool**, which is capable of pulling stuck casing from a cased wellbore using hydraulic pump pressure. The tool anchors in the casing, exerts a pulling force on the fish below, and transmits force to the casing rather than the surface equipment. This approach helps reduce the number of trips downhole, saving the operator time and money.

The BHGE 13-<sup>3</sup>/<sub>8</sub>-in. MASTODON tool provides 24-in. stroke up to a 1.8 million lb (816,466 kg) force, only limited by the yield strength of the 9-<sup>5</sup>/<sub>8</sub>-in. casing or the compression strength of the 13-<sup>3</sup>/<sub>8</sub>-in. casing. The tool provides 300:1 pressure

versus pull ratio with a pressure capability of 6,000 psi (414 bar).

During the first pressure cycle, 3,000 psi (207 bar) was applied on the tool which provided a pulling force of 900,000 lb (408 233 kg). After 36 pressure cycles, the casing pulled free, resulting in successful retrieval of 300 ft (91 m) of the casing. This not only saved the operator three days of milling time, but also prevented the need for a swarf handling system and additional wellbore cleanout trips, saving the operator over \$1.5 million USD.

The operator opted to perform a second run to retrieve an additional 300 ft of casing where 71 pressure cycles were applied on the tool along with 58 jar impacts and an overpull of 240,000 lb (108,862 kg). But to avoid exceeding the 80% yield strength of the casing, it was decided to release and pull out of the hole.

Despite application of 107 pressure cycles and 58 jar impacts, the tool showed no signs of leakage or failure when inspected at surface. The tool's robust design allowed it to efficiently and reliably pull the stuck casing—saving the operator time and money—even after consecutive, heavy pulling operations, and multiple jar impacts.

## Challenges

- Well abandonment operation
- Retrieval of 9-<sup>5</sup>/<sub>8</sub>-in. casing with settled barite and cement behind casing

## Results

- Successfully retrieved 300 ft of stuck casing
- Avoided 300 ft of casing milling and swarf handling equipment
- Eliminated multiple downhole trips compared to conventional cut and pull operations
- Saved the operator three days of milling time and more than \$1.5 million USD

[bhge.com](http://bhge.com)

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