

CASE STUDY

GYROGUIDE COMBINED WITH CUSTOM CENTROLLER DESIGN HELPS OPERATOR NAVIGATE LARGE DIAMETER CHANGES

► TECHNOLOGY

- GyroGuide™ system
- Custom centroller

► APPLICATION

- Conductor surveying
- Variable casing diameter

► LOCATION

- Norwegian Continental Shelf

INDUSTRY CHALLENGE + OBJECTIVE

When surveying large-diameter casing/conductor pipes, the industry standard is to use a Drexel centroller to keep the survey tool centered. While these centrollers work in many situations, they have a maximum range of change in diameter of 3.38 inches.

An operator in Norway set 24-in. casing with an internal diameter of 21.50 inches and a starter head with a 17.74-in. restriction. With diameter changes outside the capability of a Drexel centroller, the operator needed a way of keeping a survey tool centered in the hole to provide accurate surveys.

TECHNOLOGY + SERVICE SOLUTION

- The GyroGuide system was used due to its long history of conductor surveys and ability to acquire survey information within 0.05° inclination and 0.10° azimuth.
- With the input of the client, Gyrodata designed and developed a centroller with a range of change in diameter of 14 to 27 inches, as well as a larger arm with a range of 17 to 36 inches. While the new tool was extremely flexible for varying hole sizes, it was also able to maintain rigidity and centralization.
- After passing through the starter head, the GyroGuide system surveyed down to 1,860 feet. Surveys were taken on both the inrun and outrun to provide extra quality control and ensure the centroller performed as designed.



RESULTS + VALUE DELIVERED

- The centroller created by Gyrodata with the help of the operator allowed the conductor pipe to be successfully surveyed despite the large range of change in diameter. The correlation between inrun and outrun surveys showed the centroller was flexible enough for varying diameters but rigid enough to keep the survey tool centered.
- Without the unique centroller, the survey tool could have been off-center, causing variations between inrun and outrun surveys. Had this been the case, the operator would have had to perform another wireline run, resulting in an estimated \$75,000 in additional rig time and personnel costs. Since developing the centrollers, we have performed 47 jobs with this operator.
- Misalignment is the largest error term in the vertical section of the well, making the new centroller critical in eliminating gross errors. Our centroller is the only one of its type now on the market.

