

Total Deploys LBL Network in Record-breaking Time



Following on from the installation of a Long BaseLine (LBL) acoustic positioning network at the giant Egina oil field off the coast of Nigeria, French oil major Total and its project partners have repeated their success using the same Sonardyne Fusion 6G technology offshore Angola at the larger and deeper Kaombo oil field. The campaign to deploy, calibrate and make ready for work the field-wide array of transponder frames was completed in 31 days using the seabed component of a Fusion 6G system. This was half the time budgeted for, a figure that is thought to have set a new unofficial record for this scale of operation.

Covering an area of around 1,300 square kilometres, Kaombo lies in water depths up to 1,750 metres. Development of the field will involve the drilling of 59 subsea wells, connected by over 290 kilometres of subsea lines leading to two floating production, storage and offloading (FPSO) vessels. The majority of subsea construction work is scheduled for 2016-2017, which will be supported by the permanent transponder frame network. First oil for the initial FPSO is expected in 2017, with production from the other two FPSOs likely to reach an average of 230,000 barrels per day in normal operating conditions out of an estimated reserve of 660 million barrels.

Efficient Deployment

[Fusion](#) is Sonardyne's sixth-generation (6G) LBL technology platform. Its Wideband 2 digital signal architecture, enables tasks such as template installation, touch-down monitoring and spool piece metrologies to be completed quickly, efficiently and precisely regardless of the water depth.

The deployment of Fusion 6G at Kaombo has been attributed in part to the extensive project planning workshops hosted by project partner Technip in France. Attended by teams from Total, Technip and Fugro, together with personnel from Sonardyne's Survey Support Group (SSG), the sessions were used to review the full scale of the operation and consider the most efficient and cost-effective configuration of the LBL transponder frame network.

Focus on Transponder Planning

Deciding the quantity, specification and location for each transponder within a seabed array is crucial to the success of any LBL project. As the contractor for the Kaombo SURF (Subsea, Umbilicals, Risers and Flowlines) package, Technip conducted the LBL array planning themselves, a process that involved confirming that there was clear line of sight between neighbouring transponders and modelling acoustic network coverage at specific locations. By using the same specialist software as the SSG, Technip survey team was able to then share their proposed array design with Sonardyne for verification, thereby further increasing confidence in the plan prior to mobilisation.

At Kaombo, the investment in time spent planning acoustic operations onshore was rewarded with a highly successful offshore LBL campaign. Commenting on this, Regis Mortier, Senior Survey Consultant at Technip, France said that the use of stackable frames optimised deck space, saving time as they only had to use one vessel and make one trip out to the field. In addition, the innovative spreader bar meant five frames could be deployed in one sequence, thereby speeding up overall frame and Compatt deployment.

Simultaneous Deployment

Steven Tonneman, project coordinator at Fugro Survey B.V. said the use of Technip's two work-class ROVs operating concurrently in the field meant that Compatts could simultaneously be deployed, calibrated and moved on the fly. Starfix.Acoustics, a Fugro specific variant of Fusion 6G, batched simultaneous baseline collection feature, allowed data to be gathered during deployment operations and win back vessel time. Post-deployment, the sound velocity data gathered by the Compatts meant that the calibration results met Total's very stringent specifications.