UTEC

Autonomous Underwater Vehicle (AUV) Subsea Survey and Monitoring of Pipeline Trenching

Scope

UTEC was contracted to monitor trenching performance and do as-trenched surveys during post-lay jet-trenching for Saipem, on the Zohr Project, offshore Egypt.

The trenching was done from the Castoro 10 and Bautino on three parallel pipelines off the Egyptian coast in water depths from 2m to 20m.

Solution

As a cost-effective alternative to conventional monitoring and survey performed by a dedicated survey vessel, UTEC performed the workscope using three Gavia AUVs operated from Castoro 10 and supporting anchor handlers.

Because UTEC's Gavia AUVs do not require dedicated launch and recovery systems, the UTEC team were able to move the spread between five different construction support vessels over the course of the project to optimise vessel utilisation.

Such mobility proved an alternative to conventional methods, such as ROV or pole-mounted survey sensors, both of which require a dedicated survey vessel supplemented by a survey launch for survey work in very shallow water.

The project required the most intensive use of the AUVs in UTEC's eight-year ownership of the units, with 68 operational days comprising 401 missions with 185 AUV deployments covering 66km of pipeline.

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Solution Continued

The trenching was monitored, and the as-trenched surveys performed using the same acoustic sensors on the AUV as would be used on either an ROV or a survey vessel.

The trench immediately behind the trencher could be surveyed and the data processed quickly enough to give confirmation on trencher performance and permit optimisation of the trenching operations.

Multiple short sections of as-trenched survey data were combined to give georeferenced data for each pipeline and adjacent seabed/trench together with measurements of pipeline burial to client specifications.

Result

The client received high resolution data from low logistic equipment which gave them flexibility while carrying out successful trenching and survey of the pipelines, without the need for a specialist and dedicated support vessel.

Successful completion of the project proves the AUV's capability to support similar work scopes such as towed plough positioning and monitoring plus pipelay touchdown monitoring.

About UTEC

Since 2005, UTEC, an Acteon company, has grown to become one of the largest global surveying contractors in the offshore energy sector.

We provide a wide range of survey, positioning and data management services using the most advanced equipment and techniques. Our highly experienced team have more than 4000 years of combined survey experience and can find solutions for our clients' most complex challenges.