Caisson Inspection with High Density Corrosion Mapping by MEC-Combi PipeCrawler

As an inspection solution provider, Innospection works with the clients to fulfil their niche inspection requirements. Innospection has successfully completed an inspection of two caissons located in the North Sea where high density corrosion mapping data was required by the operator for the integrity assessment of the caissons.

To achieve the high density internal and external corrosion mapping data from the 24" and 48" caisson with wall thickness up to 22mm, the MEC-Combi PipeCrawler was customised with an ultrasonic sensor array in parallel to the MEC sensor array.

Based on the fast corrosion mapping Magnetic Eddy Current (MEC) technique that operates on high frequency magnetic field controlled Eddy Current with specially developed Eddy Current sensors, the MEC sensor array could detect internal and external defects such as corrosion, pitting and cracks while scanning on the external surface.

With the addition of an ultrasonic sensor array consisting of 16 UT probes distributed across a width of 100mm that enables a scan grid of 2mm in the axial direction and approx. 6mm in the circumferential direction, the detection of pitting corrosion and small defects was achieved.

Inspection with the MEC and ultrasonic technique provided the required high-density inspection results. The advantage of inspecting with a combination of NDT techniques is that each technique offers its strength and the results from both techniques are also verified. While the remaining marine growth on the caisson allowed limited ultrasound couplant, the corrosion mapping data by MEC was still ensure.

The MEC-Combi PipeCrawler was deployed by a work-class ROV operated from a vessel. A sophisticated self-crawling scanner, it crawled circumferentially and axially on its own upon being put into position at the caissons. The cleaning of the caissons was performed by the ROV prior to the start of the inspection.

The MEC-Combi PipeCrawler is a versatile scanner that enables supporting inspection technique such as high resolution Ultrasonic for absolute wall thickness mapping, Pulsed Eddy Current for average wall thickness mapping, laser triangulation system for geometry scan, high definition camera system for visual inspection, etc to provide a total and customised inspection solution.

The combination of different inspection techniques yields the advantage of collecting different sets of inspection data within the same deployment which eventually helps to save time, vessel costs as well as increasing the value of the operation.

MEC-Combi PipeCrawler with MEC & UT Sensor Array

Pipetech Deploys Novel Cleaning System for Subsea Pipelines

Pipetech, the independent pipe and process cleaning solutions specialist, has secured a second deployment of its novel Deep Water Cleaning System (DWCS).

Eric Doyle, Alan Brunnen, Pipetech

The campaign involves cleaning a blocked 2" pipeline in a West of Shetland asset. It follows a successful test run at Pipetech's facilities where the pipe's conditions were replicated and the blockage was safely removed using the DWCS.

The tool was previously deployed in a £1.2 million campaign by a major operator to clear a blockage in a subsea manifold in the Norwegian North Sea.

Eric Doyle, managing director of Pipetech said: "We have a new solution for tackling complex and costly subsea blockages and also bring an engineering approach to focus on solving an operator's specific problems with scale, wax or stuck objects.

> "Our technology can navigate numerous bends to locate and remove stuck pigs or clean pipelines and manifolds. Our team mobilises rapidly as we understand the cost drain involved in having pipelines and subsea equipment out of operation."

The DWCS comprises a range of topside and subsea equipment. A high-pressure water supply from topside, vessel or rig is routed via a downline to the DWCS and its unique hose and nozzle arrangements.

The DWCS hose is marked and feedback is given from topside to enable control of orientation and insertion length. The DWCS hose then enters the pipe spool via a customised entry flange. The entry flange is designed so that it can be connected for an ROV controlled subsea dredge. The DWCS is powered by an ROV and operated from the control room. This means there is total control of the velocity of the hose and speed of revolution for the hose drum, all depending on the subsea piping infrastructure and composition of the scale. A special designed subsea nozzle provides sufficient power for an effective clean and ensures safe and controlled removal of debris.

Pipetech, which launched in 2001 and has operations in Aberdeen and Stavanger, plans to further expand its subsea offering. Alan Brunnen, former executive vice president at Aker Solutions recently joined the company as non executive director and will be heavily involved in driving the company's subsea business.