

3X ENGINEERING reinforces subsea line

In February 2016 3X ENGINEERING and its local distributor CPS reinforced a damaged subsea 24 inch pipe section over 1.6m length, due to a dent defect situated at a depth of 4m depth (7.4 % dented depth). The pipeline was in Colombia.

Scope of work

- Following Finite Elements Analysis, 10 composite layers of REINFORCEKIT 4D SUBSEA (R4D-S) product were applied to perform the reinforcement.
- Underwater, several preliminary operations (surface cleaning to get a suitable free span, removal of concrete and existing coating, marking of the surface to be wrapped) have been performed before the essential step of surface preparation (sandblasting) to get a good surface roughness (60-micron surface profile).
- 3X wrapping reinforcement has been performed following several stages :
 - 1/ Primer (P3X32) application on the defect, using a dispensing gun, to provide a good adhesion of the composite materials.
 - 2/ Two rigid composite plates recovered with F3XSS filler positioned over the dent and strongly fixed with ratchet belts during curing time of 2.5 hours.
 - 3/ Second P3X32 application performed on the whole pipe surface to be repaired before wrapping.
 - 4/ Kevlar® tape pre-impregnated with R3X1050-S resin (using special 3X device called BOBIPREG) wrapped around the pipe. Ten layers were necessary to cover the dent (i.e. about 5 passes of 50% overlap).

Finally, a neoprene soft cover has been applied to protect the repair from shells and other sea elements.

After several subsea repairs conducted recently in Viet-Nam, 3X ENGINEERING confirms its know-how in pipeline maintenance in underwater environment. A special thanks to **ECOPETROL** representatives and CPS team for their precious help to complete this project successfully within one day and in the best conditions. ●

A.Hak's new 3 inch ultrasound Piglet®

A.Hak Industrial Services has recently launched its new 3" pipeline and furnace inspection systems, available for projects worldwide. This is part of a new range of faster tools with XYZ mapping possibilities.

The first pilot projects are already executed successfully. 'Which was fully as expected since our flexible design of our tools guarantees a smooth bi-directional inspection in every pipeline configuration', states Mr. Edwin Rosier, Sales Manager Inspection Services.

The new range of fast Ultrasound Inspection tools is an addition to the well proven High Resolution Piglet® tools which have already been renown for years and are available for diameter ranges between 4" and 46".

All A.Hak Industrial Services' tools are free swimming inspection pigs which can be used for all kinds of piggable and 'non-piggable' pipelines such as lines with mitered or back-to-back bends with radii (less than) 1.5D. Edwin Rosier adds: 'Even unbarred tees are not a problem for our intelligent tools'.

Due to the real time monitoring of the inspection data and the possibility of A.Hak Industrial Services executing its own cleaning works, a successful data collection is mostly guaranteed.

'On request we can report pipeline inspections with ultra high resolution and even report within 24 hours for furnace applications'. ●



A.Hak's new 3 inch ultrasound Piglet®



Ultrasonic In-Line Inspection Services



Obtain precise, quantitative data about cracking in your pipeline.

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