

Composite liner for subsea oil and gas nears readiness

PETRONAS gives composite liner for subsea oil and gas lines a TRL of 7, paving the way for expanded use of the in-situ technology.



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EDITED BY [JEFF SLOAN](#) 

Editor-in-Chief

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Malaysian oil and gas multinational PETRONAS (Kuala Lumpur, Malaysia) reports that composite liners for deepsea oil and gas lines have been elevated to TRL 7 after being in continuous service for more than three years.

The liners, dubbed InField Liner (IFL) and manufactured by Anticorrosion Protective Systems (APS, Dubai, UAE), have diameters of 6 and 8 inches. Per PETRONAS qualification standards, the TRL 7 level means that the technology is field proven as it has been installed and operating for more than three years with acceptable reliability, demonstrating minimal risk of early failure in the field. IFL systems of 10 and 12 inches diameter are expected to reach PETRONAS' TRL 7 in the first quarter of 2018. The IFL diameter capability range will then be further extended up to 20 inches by the end of 2018.

The IFL liner matrix consists of a Solef PVDF inner layer, a Kevlar core and a thermoplastic PU outer layer, and is resistant to a range of aggressive hydrocarbon mixtures (gas, crude and multiphase) with temperatures up to 110°C. The IFL liner can be pulled into existing subsea pipelines over lengths of several kilometers in one single pulling operation, arresting corrosion and substantially increasing the service life of the pipeline.

APS says the InField Liner (IFL) technology is the world's first full-bore internal subsea pipeline rehabilitation system enabling a life extension of existing pipelines of more than 30 years. After a three-year technology development period from 2011-2013, 10 subsea

pipelines running from platform to platform have so far been rehabilitated using the IFL technology, reportedly saving PETRONAS more than US\$100 million.

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