

VIPER-SKIN™

12"OD Dent Repair



Problem

A 12" OD carbon steel pipe operating at 900 psi (62 bar) located in the rainforest of Ecuador was impacted by a falling tree. The oil & gas company required an immediate solution that could be effectively and easily installed in the rainforest to prevent an unexpected shutdown or catastrophic rupture in the pipeline.

Conditions

The 900 psi (62 bar) 12" natural gas pipeline was forced to reduce pressure by 40% due to a 60 mm dent caused by a falling tree. The relative humidity at the work site was 98% requiring the working conditions to be confined within a wood framed tent.

Solution

In order to promote adhesion, the pipe was cleaned by removing rust, paint, and other foreign matter in accordance with Sa2.5 or NACE 2. A 12,000 psi (827 bar) high compression strength filler called Syntho-Steel™ was used to reconfigure the dented pipe back to its original circumference. 30 mils of Syntho-SubSea™LV epoxy was applied over the entire repair area to provide corrosion protective over the bare steel pipe effectively locking out any atmospheric conditions from the surrounding rainforest. The Syntho-Steel & Syntho-SubSeaLV work together to transfer the hoop loading of the 900 psi (62 bar) carbon steel pipe into the high tensile strength of the Viper Skin™ carbon fiber composite wrap, fully restoring the integrity of the pipeline.

Result

The Viper Skin composite repair system eliminated the need to immediately replace the defective section of pipe. The entire repair was completed inexpensively in a matter of hours. Viper Skin fully restored the pipe's hoop and axial strength to enable full pipeline operations.



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