

# VIPER-SKIN™

## 10" OD REPAIR AND REINFORCEMENT, PERU



### Problem

A 10" OD carbon steel pipeline operating at 200 psi (14 bar), with a test pressure of 1,260 psi (87 bar), was located in the Amazon Rainforest of Peru and was experiencing 79% wall loss in several locations. The petroleum 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 petroleum pipeline was located in a moderately inaccessible area of the rainforest with 85% relative humidity and an ambient temperature of 95°F (35°C).

### Solution

In order to promote adhesion, the pipe was cleaned by removing rust, paint, and foreign matter in accordance with Sa2.5 or NACE 2. Syntho-Poxy™HC, an 8,000 psi (552 bar) high compression strength filler, was used to reconfigure the pitted pipe back to its original geometry before 30 mils of Syntho-SubSea™LV epoxy was applied over the entire circumference to provide corrosion protection over the bare steel, effectively locking out any atmospheric conditions from the surrounding rainforest. The Syntho-PoxyHC and Syntho-SubSeaLV work in unison to transfer the hoop load of the 200 psi (14 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 replace the defective sections of pipe, fully restored the pipe's hoop and axial strength enabling full pipeline operations and was completed cost effectively in only hours.



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