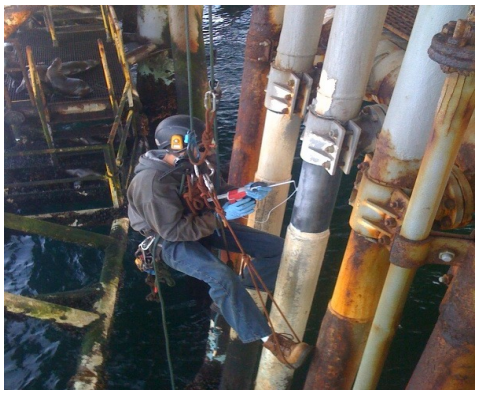
SYNTHO-GLASS® XT

OFFSHORE PIPELINE REHABILITATION



Problem

An offshore platform located in Southern California was performing routine inspection when they identified a dent in a high pressure oil riser. The cause of the mechanical damage was the result of a supply boat impacting the riser during rough seas. The severity of the damage would result in a shutdown of the pipeline, effectively stopping the production of oil and resulting in a enormous production revenue losses.

Conditions

With a substantial dent in the 6" OD riser and concerns of additional loads from wave and tidal action fears of a disaster were imminent. The damaged pipeline was also the oil rig's main space production feed line which would result in a very expensive unexpected shutdown if the riser was to be replaced. The unexpected shutdown would cost the offshore rig roughly $5,000 an hour, or more than $120,000 a day. Replacing the riser would require timely raw material logistics and origination of heavy equipment to perform the repair resulting in a very costly shutdown. NRI was immediately contacted to engineer an online solution to prevent disruption in production.

Solution

The pipe was cleaned by removing rust, paint, and other foreign matter using power tools and rope access. The dent was filled with a 17,000 psi high compression strength liquid epoxy called Syntho-Poxy™HC by rope access. The applicator friendly liquid epoxy was dispensed from a self mixing 50ml cartridge with a quick cure profile to reconfigure the dent to match the original geometry of the pipe. With the pipe back to it's original geometry the entire repair length was recoated with 30mils of an anticorrosion, adhesion promoting epoxy called Syntho-SubSea™LV. The two part epoxy effectively stops any future corrosion within the offshore environment while also providing a load transfer median engineered to cycle and work with the 2130 psi (147 bar) design pressure of the riser. Within a matter of an hour the dent was filled and the line was recoated before wrapping the entire repair length with Syntho-Glass® XT, a 54,000 psi (3723 bar) tensile strength fiberglass composite sleeve, which restores the structural integrity of the riser.

Result

In less than 2 hours, NRI was able to repair an offshore riser that otherwise could have taken a day to repair using traditional replacement methods. NRI completed the project without any loss in production. The gas field is now operating at full capacity.

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Innovative Composite Solutions

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