

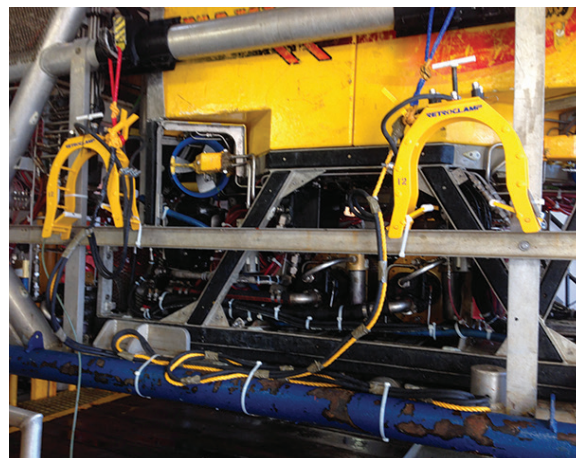
DEEPWATER

CATHODIC PROTECTION JUMPER SYSTEM INSTALLED ON PIPELINE: GULF OF MEXICO

Two RetroClamps™ installed on each side of an insulation joint.

The Cathodic Protection jumper system provides a CP bridge across the insulation joint installed on the 12" Cobia pipeline extension in the MP-290 field near the mouth of the Mississippi River. The jumper consists of a single RetroClamp™ installed on each side of the insulator flange. RetroClamps™ connected by a pair of 4/0 cables are used to provide electrical continuity across the flange. Before the subsea installation, a pre-retrofit CP survey was taken on the east and west sides of the isolation flange using a Polatrak ROV II probe. After the conclusion of the pre-retrofit survey, the ROV was deployed with the RetroClamps™ attached to the ROV cage. Once the ROV was in position, the clamps were then removed from the ROV cage and installed on each side of the pipeline isolation flange. The RetroClamps™ were installed, and post-retrofit potentials were taken on each RetroClamp™ and the adjacent pipeline using a Polatrak ROV II contact probe to confirm electrical continuity.

More info at www.stoprust.com



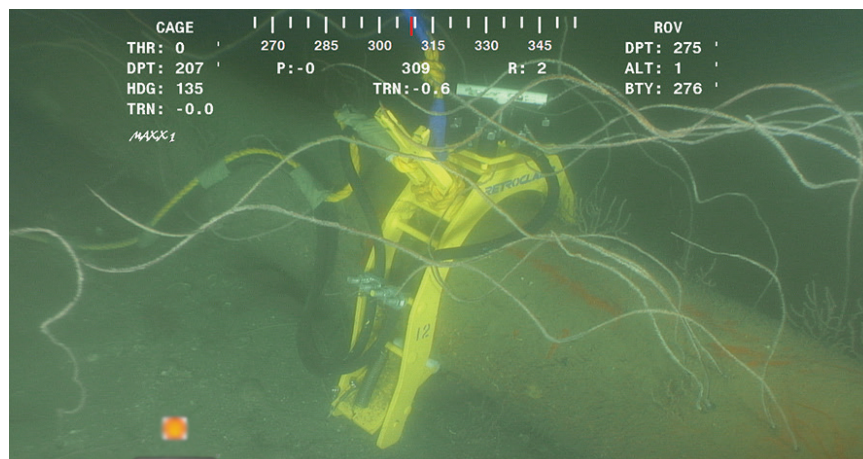
READY TO RETROCLAMP™
The clamps and cables are shown aboard the ROV before deployment.



THE INSULATOR FLANGE
Crude can pass through, but not cathodic protection. Deepwater's jumper system fixed that problem.



WEST CLAMP
The RetroClamp™ was able to squeeze into this spot just West of the flange.



EAST CLAMP
Here's the view from the East side of the flange after installation of the RetroClamp™.



CHECKING OUR WORK
A number of readings were taken to ensure continuity was achieved.