



Neptune Completes Third Repair in the Gulf of Mexico Using the Patented Dry Underwater Welding Technology

CHALLENGE

Numerous oil and gas assets in the Gulf of Mexico were in need of repair after the widespread damage caused by hurricanes *Katrina* and *Rita*. Neptune was consulted by a major operator in the Gulf to propose a timely and cost effective repair solution to a damaged platform.

OVERVIEW

A number of vertical and horizontal cross braces on the platform were severely damaged and in need of replacement. Neptune was approved to undertake the repair work following the approval and demonstration of the NEPSYS solution. A third party removed and replaced the damaged cross braces and the Neptune team, incorporating Neptune Underwater Services (USA), welded the new braces in place using scallop sleeve joints and approved wet welding procedures. The cross braces ranged in size from 18" (46cm) to 26" (66cm) in diameter and represented a total of 400ft (122m) of joint requiring welding.





OVERVIEW

Upon further inspection of the damage a critical k-node joint on the top cross brace was also found to be in need of repair. Due to the location of this joint a permanent, structurally sound repair was mandatory so Neptune's patented dry underwater welding technology – NEPSYS, was employed. Neptune fabricated a custom designed habitat at the Neptune Underwater Services (USA) premises in Dallas, Texas. The habitat was secured to the jacket leg using clamps, fully enclosing the damaged area and allowing the weld to be performed in a contained, dry environment. Using the NEPSYS technology Neptune performed a 360° full penetration weld joining a vertical diagonal to the jacket leg at the k-node.

OUTCOME

Prior to completion of the project all welds including the NEPSYS repair were assessed by a third party representative using magnetic particle inspection (NDT testing) and found to be 100% compliant. The wet welding was completed to the standards set by AWS 3.6 and the NEPSYS welding met the highest quality requirements of the original fabrication code AWS D1.1.

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CASE STUDY



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