

# Pipeline Repair

## Oceaneering® Smart Clamp repairs broken and leaking pipeline

### Project Overview

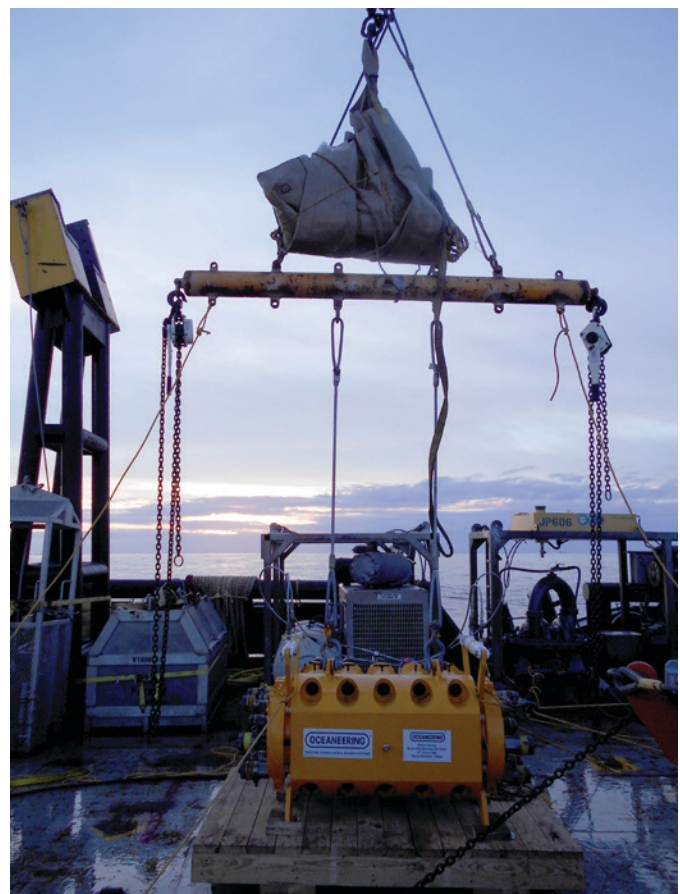
During a helicopter flyover in the Gulf of Mexico, a significant oil leak was spotted from a 12 inch oil carrying subsea pipeline. Oceaneering was notified and immediately mobilized the *Ocean Patriot* diving vessel equipped with a dynamic position system.

### Issue

This pipeline supports production from several operators in the GoM, bringing product to shore.

### The Oceaneering Execution Plan

After thorough investigation of the damaged area, Oceaneering detected the cause and location of the leak and also resolved the issue by installing an Oceaneering Smart Clamp over two broken pipe ends, in order to reconnect the pipeline and bring oil production back into service for all involved operators.



## Solution

The leak was located at a portion of the pipeline that was buried nearly 7 feet under the sea floor due to heavy shifting currents and underwater mudslides in the area. To assess the damage, Oceaneering divers used an Oceaneering 20Ksi water blaster to remove all the concrete and other coating from the pipeline with zero visibility and working in a 10 foot ditch created during dredging. Dredging was also carried out using an Oceaneering supplier dredging machine.

Rough weather stopped the activities from the dive vessel for two days. Once work resumed, the divers found that underwater currents had separated the pipe completely in two parts because the seafloor was no longer supporting the pipe. The pipeline lay was also off-center of alignment and the field joint was worse than first examined.

Oceaneering Engineers and expert divers determined through calculations and analysis that the crew would be able to pull the two pipe ends within 3 inches of each other and using an Oceaneering® structural Smart Clamp installed over the two loose pipeline ends to reconnect the broken pipeline. The Smart Clamp would then handle all applicable external and pressure loads of the parent pipeline.

The crew and divers then fixed rigging lines with two clamps at each end of the pipeline ends and were able to carefully line up both pipeline ends and hold position while the divers installed the Smart Clamp. Synthoglass protective pipe wrap was used on the exposed areas where coating was removed.

## Challenges

- » Leak originated from a pipeline that was buried nearly 7 feet under the sea floor
- » Zero visibility and working in a 10 foot ditch
- » Rough weather patterns
- » Underwater currents separated the pipe completely in two parts
- » Separated pipeline ends were off-center of alignment

## Results

This project was conducted safely without any recordable incidents or further impact to the environment. All producers were correctly followed and the team was able to re-connect the broken pipeline and bring production back quickly with no further issues.

Total duration from point of contact to bringing the pipeline back into operation was two weeks with three days of work stoppage due to weather.



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