

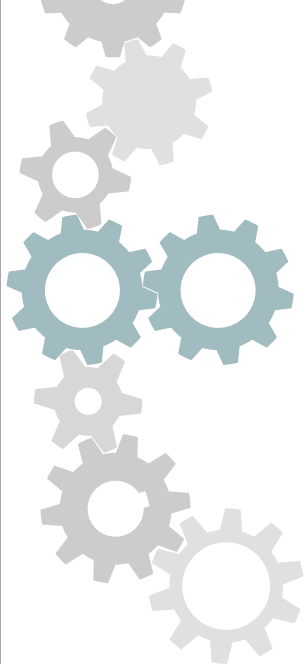
RISING

Section I

Sb

Subsea

A B O V E



INNOVATION OUTSMARTS MOTHER NATURE

When life throws you a curve ball ... or two ... or three, it takes skill and resilience to hit a home run. That's what the Riser Engineering team on the FloaTEC, LLC Papa Terra Tension Leg Wellhead Platform (TLWP) project offshore Brazil discovered after running into some rough waters.

"The currents offshore Brazil are normally extremely high, but at the Papa Terra location, these currents are even higher," said Jeff Measamer, McDermott Riser Delivery Manager on the project. "Plus, the currents are moving in three different directions at various water depths, causing extreme riser fatigue."

To work through this problem, McDermott is not using the conventional 2-D modeling of risers for the Papa Terra project. Instead, advanced 3-D technology will analyze current profiles at various water depths, along with associated riser offset.

"Typically, when you do riser analysis, it's with 2-D modeling. However, due to the extremely high current and directionality of the currents in this case, it would be very difficult to design a safe and cost-effective riser system using conventional 2D modeling," Measamer explained. "By modeling in 3-D, we are able to capture the entire length of the riser and current profiles, which improves the accuracy of the analysis."

"We will now be able to design a riser system that works for these unusual conditions."

The client has been gathering data on the ocean's currents, waves, wind and tides for several years. The FloaTEC team is now taking this data into its 3-D analysis model to produce a stronger TLWP.

By profiling the current's movements in a 3-D computer model, the project team is able to design a more robust riser system, while minimizing additional equipment cost.

Getting REEL

Another homerun for McDermott Subsea Engineering specialists is development of an improved method for analyzing and installing reeled pipelay systems on the company's new NO102 and newbuild NO105 (expected delivery mid-2012) subsea construction vessels. (See articles, pages 30 and 32.)

"We're looking at ways to improve our software routines in order to take advantage of the vessels' robust capabilities," said Measamer.

Reeled pipelay's main benefit is cost effectiveness. By allowing faster pipeline and other product installation, the vessels spend less time offshore, thus reducing their susceptibility to weather delays.



The Papa Terra TLWP for FloaTEC, LLC, the joint venture company between a McDermott subsidiary and Keppel FELS, showcases the integration of resources and strengths of three offshore specialists to bring an EPCI project from concept to reality.