Submerged in production

by **Beatriz Cardoso**

With 28 manifolds and more than 300 christmas trees in the offshore operations of Brazil, **FMC Technologies** consolidates its position as a strategic partner of the Brazilian offshore oil & gas industry

When the Mexilhão platform (PMXL-1) starts production in the Santos basin in May or June of this year, FMC Technologies do Brasil will once again have another success story to claim in the offshore industry, but not without a special chapter: it was the first time Petrobras acquired a complete submarine system from one, sole supplier.

FMC supplied all the equipment for the development project of the Mexilhão field – two submarine manifolds, seven wet christmas trees (WCT), two Pipe Line End Terminators (PLET), and five spools, as well as the control systems and risers – located 160 km off the coast of São Paulo, where there will be the biggest fixed oil and gas platform on the continent at a water depth of 320m to 550m.

"Just three more to go to make a total of seven christmas trees", happily states **José Mauro Ferreira**, Sales and Marketing director of FMC Technologies do Brasil, a company firmly placed in the Brazilian market (with the acquisition of CBV Indústria Mecânica in 1998, a company that had already had a robust portfolio of projects with Petrobras).

Two manifolds for Mexilhão were delivered in the middle of January, and the company is running like clockwork to meet the other orders. Less than three weeks later on February 6th, the rest of the equipment left the Rio de Janeiro factory.

It was the second submarine manifold delivered to Petrobras for the purposes of Plangás, the Natural Gas Anticipated Production Plan, to be installed in the Roncador field in the Campos basin, located in the proximity of the other manifold that had been delivered in February.

An underwater display

These are just some of the items in the company's extensive underwater portfolio on the Brazilian coast. Since 1996, FMC has supplied nothing less than 28 submarine manifolds (19 for Petrobras and 9 for Shell), eleven of which have been supplied in the last five years.

FMC's christmas tree harvest has grown well at the bottom of the sea: the company celebrated its 300th tree in November and now has a total of 318 produced since 1978 – most of which have been for Petrobras (268). Chevron has 19 of these FMC equipment units in Frade (17 have already been delivered); Shell has 12 units; BG and BHP have seven each. Another seven wet christmas trees have gone to other operators.

The production line will be non-stop for the upcoming months, since FMC has got a full order book. According to the agreements signed with Petrobras, FMC will supply a complete submarine system for Tambaú (also in the Santos basin), besides the production system for the P-55 (11 wet christmas trees and four manifolds, besides other equipment).

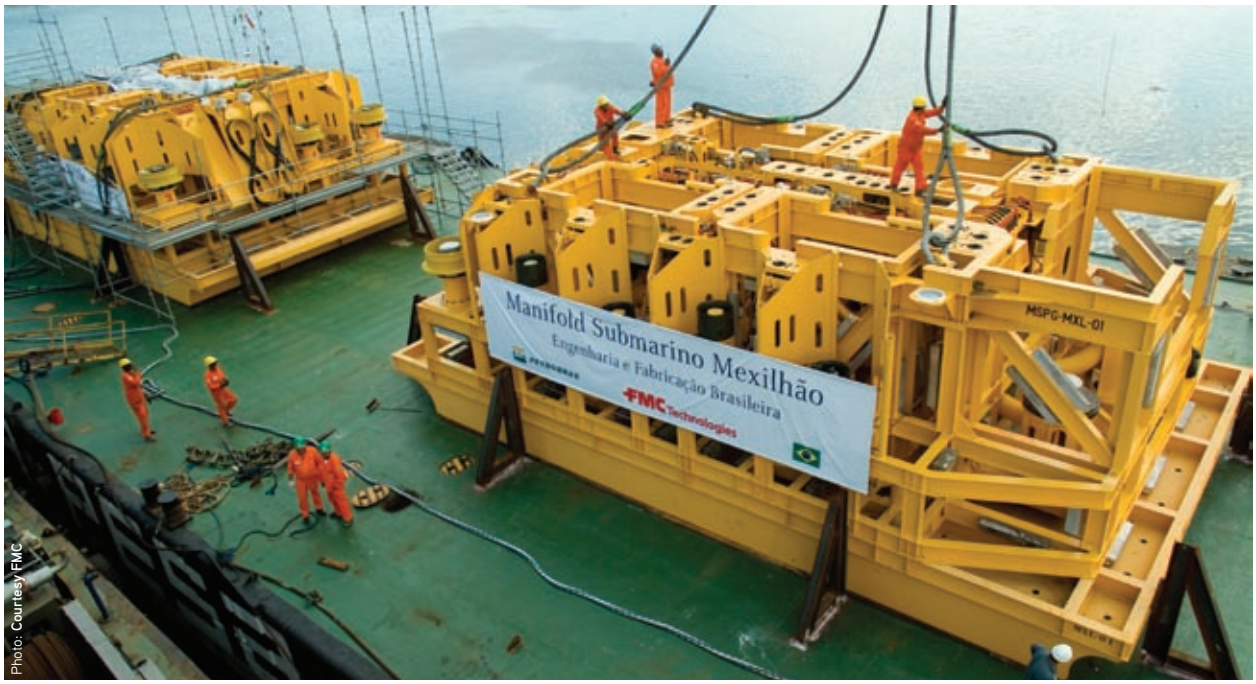

Photo: Courtesy FMC

The Petrobras orders include GLL9 christmas trees for pressure conditions of up to 5,000 psi. "The entire scope encompasses 29 trees; we've delivered 12, and there are another 17 on the way", states José Mauro Ferreira. The company also holds a 4-year Frame Agreement worth US$ 400m to supply wet christmas trees for depths of 2,000 meters.

FMC also has a technology cooperation agreement with Petrobras to supply the world's first submarine oil-water separator to be used for the heavy oil in deep waters, which will be implemented in the Marlim field, and another agreement for horizontal pumping in the Espadarte field.

The oil-water separator will significantly reduce the amount of water that reaches the platform, increasing the oil processing capacity, and consequently, the oil recuperation from the field.

A double dosage

FMC had started in 1880 in California and is headquartered today in Texas. The company has 25 production units in 15 countries, and has consolidated its position by winning two contracts to supply two complete submarine systems. "The Mexilhão project is the first for Petrobras in Brazil, which includes submarine christmas trees and High Pressure, High Temperature manifolds for, 10,000 psi and 300F (150º C)", highlights the Sales & Marketing director of FMC Technologies do Brasil.

The agreements include a multiplex-controlled submarine system with thermal insulation; Multi Phase Meters (MPM) and a High Integrity Pipeline Protection System (HIPPS), a high-integrity tube protection system; as well as hard pipe jumpers to connect manifolds with PLETs.

"The HIPPS is a submarine automation system that automatically identifies high-pressure and closes valves of the christmas trees and manifolds, protecting the submarine gas pipeline", explains José Mauro Ferreira.

Tambaú will have a similar project to that of Mexilhão, composed of four christmas trees with Subsea Control Modules, two manifolds, four PLETs, with hard pipe jumpers, HIPPS, a set of tools and spares, besides the Topside Master Control Station equipment.

"The submarine system for Tambaú, 160 km off the coast of the state of São Paulo and in waters of 1.500 m deep, are also HPHT of 10,000 psi and 300F, which requires advanced technological solutions equal to Mexilhão", explains the executive, stating that some of the equipment, such as the PLETs, have already been delivered. "Next will be the wet christmas trees and manifolds."

With such a full order book, FMC is investing in increasing its local capacity. "Due to the pre-salt, the trend will be to increase investments even more to anticipate the demand of the market. These investments are not concentrated in manufacturing resources, but mainly in creating job posts and the technical training of our professionals", concludes José Mauro Ferreira. ■