Public Executive Summary

Title: Ultra Deepwater Dry Tree System for Drilling and Production

Name of Offeror: FloaTEC, LLC

Project Manager: James Pappas
Principal Investigator: Jing G. Kuang, Ph.D.

Additional participants: J. Ray McDermott Engineering; Keppel Offshore & Marine; Vetco Gray, Inc.; Seawell Americas, Inc.; OTRC

Solicitation Number: RFP2007DW1402a (07121-1402a)

Project Start Date: December 8, 2008
Project End Date: March 27, 2009

Total Estimated Cost:	$	394,515.00
RPSEA Maximum Share:	$	278,686.00
FloaTEC Cost Share:	$	115,829.00

Goal

This project will assess alternative dry tree semisubmersible (DTS) concept designs for two different payload cases in accordance with an agreed upon basis of design, and select one hull form option for model testing and further development in a Phase 2 project. The intent is to investigate the feasibility of developing this platform design and to identify any technical limits to areas where further qualification or testing will be required. (Note: This project is one of two parallel efforts being undertaken. The other, Project 07121-1402b, is being conducted by another team led by Houston Offshore Engineering.)

Background

As Gulf of Mexico field development is rapidly moving to deeper waters, the available alternative platform concepts for dry tree drilling and production operations are limited. Without dry tree access, oil and gas production becomes subject to the availability and high cost of mobile offshore subsea drilling units, which in the current market are difficult and expensive to contract. Currently, the deepest tension leg platform (TLP) installed to date (Conoco's Magnolia platform) is in 4,674 ft of water, whereas the Perdido Spar currently under fabrication is designed for installation in 8,000 ft water depth. As patent ownership for the Truss Spar limits the competition for spar platform developments to two companies, a competitive dry tree floating structure design (e.g. semisubmersible) is a needed option to provide greater flexibility for deepwater operators in making development decisions.

This project proposes to develop an ultra deepwater dry tree system concept for drilling and production in the GOM. The approach is to focus on an improved semisubmersible hull form that provides global

motions competitive with Spar and compatible with conventional riser tensioning equipment and systems. The proposed hull concept will be composed of conventional hull structural components, may require proven installation/integration methods and will have been shown through global performance analysis to provide acceptable motions.

This Phase 1 project will develop payload and platform configurations for two study cases. The objective is to develop the configuration and perform a high-level assessment in terms of global motions, riser strokes, and constructability to support the decision making necessary to determine which concepts will continue into Phase 2. The project will develop the floating system concept, validate the concept through engineering analysis and model testing, and focus on engineering that will lead to rapid commercialization of the concept.

Deliverables will include a basis of design document, a payload summary table, a plan for the workshop to shortlist options, an interim report of initial hull and riser sizing, a report on the outcome from the shortlist workshop and selection of the model test option, model test results, a Phase 2 work scope, and a final report.

Potential Impacts

This project will accelerate the development of an alternative dry tree semisubmersible design that can be cost competitive with the current Spar alternative. This floating structure will utilize existing technology to accommodate large payloads, be permanently moored in deeper waters, and provide the global performance characteristics required for successful operation of a dry tree unit. More rapid development of such a technology will provide deepwater operators with greater flexibility in making development decisions, and will lead to more rapid production of domestic deepwater offshore oil and gas resources.

Contact Information: James Pappas (jpappas@rpsea.org)