Public Executive Summary

Title: Composite Riser for Ultra-Deepwater High Pressure Wells

Name of Offeror: Lincoln Composites, Inc.

Project Manager: James Pappas
Principal Investigator: Don Baldwin

Additional participants: Stress Engineering Services

Solicitation Number: RFP2007DW1401 (07121-1401)

Project Start Date: December 5, 2008
Project End Date: September 30, 2011

Total Estimated Cost:	$ 2,708,895.00
RPSEA Maximum Share:	$ 1,678,411.00
Lincoln Composites Cost Share:	$ 1,030,574.00

Goal

This project will design a composite riser system which allows ultra-deepwater and high-pressure well capability using currently available industry standard tensioning capabilities, and construct full-diameter, sub-length specimens for comprehensive lab testing. The system must satisfy regulatory concerns, meet industry performance standards, and provide sufficient margins of safety to eliminate apprehension at the operator level. The result of this project will be a design solution that is ready for trial/use in the field with proven top-side tension leg platform (TLP) and seagoing platform for acoustic research (SPAR) applications under similar load conditions at water depths far exceeding current capabilities.

Background

Carbon fiber composite riser construction has long been recognized as having the potential to greatly reduce the weight of marine riser systems. However, before composite risers will be accepted for use in drilling applications, the issues of wear and abrasion of the riser bore must be addressed. Sliding contact occurs between the rotating drill string and the bore of the riser, and cuttings transported in drilling fluids from the well bore can impinge against the riser bore. Drilling activity can therefore result in abrasion erosion, tearing, and/or gouging of the relatively soft elastomers and thermoplastics typically used for lining composite risers.

Lincoln Composites will utilize previous experience in the hybrid riser field, state of the art finite element modeling software for hybrid composite structures, as well as collaboration with industry experts in large scale design and testing methods, to carry out this design project. Deliverables will include technical reports and presentations and a final report detailing all of the project results.

Potential Impacts

A hybrid composite riser that can safely perform all of the required functions of a drilling riser operation could be capable of more than a 50% reduction in riser weight compared to all steel risers. The weight reduction of a hybrid composite/steel riser system would enable access to ultra-deepwater high-pressure reservoirs that would otherwise prove to be cost prohibitive or technically impossible using conventional all steel means.

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