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“Basin Analysis and Petroleum System Characterization and Modeling, Interior Salt Basins, Central and Eastern Gulf of Mexico”

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## **Abstract**

The principal research effort for Year 1 of the project is data compilation and the determination of the tectonic and depositional histories of the North Louisiana Salt Basin. In the first three (3) to six (6) months of Year 1, the research focus is on data compilation and the remainder of the year the emphasis is on the tectonic and depositional histories of the basin. No major problems have been encountered to date, and the project is on schedule.

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# **“Basin Analysis and Petroleum System Characterization and Modeling, Interior Salt Basins, Central and Eastern Gulf of Mexico”**

First Quarter Report for Year 1  
May 1, 2003—July 31, 2003

## **Introduction**

The University of Alabama and Louisiana State University have undertaken a cooperative 5-year, fundamental research project involving sedimentary basin analysis and petroleum system characterization and modeling of the North Louisiana Salt Basin and Mississippi Interior Salt Basin. According to the USGS, the hydrocarbon volume of these basins ranks them in the top 8% of the most petroliferous basins of the world.

## **Executive Summary**

The principal research effort for Year 1 of the project is data compilation and the determination of the tectonic and depositional histories of the North Louisiana Salt Basin. In the first three (3) to six (6) months of Year 1, the research focus is on data compilation and the remainder of the year the emphasis is on the tectonic and depositional histories of the basin.

## **Project Objectives**

The principal objectives of the project are to develop through basin analysis and modeling the concept that petroleum systems acting in a basin can be identified through basin modeling and to demonstrate that the information and analysis resulting from characterizing and modeling of these petroleum systems in the North Louisiana Salt Basin and the Mississippi Interior Salt Basin can be used in providing a more reliable and advanced approach for targeting stratigraphic traps and specific reservoir facies within a geologic system and in providing a refined assessment of undiscovered and underdeveloped reservoirs and associated oil and gas resources.

## **Experimental**

### Work Accomplished

*Data Compilation*—The existing information on the North Louisiana Salt Basin is being evaluated and an electronic database of these data is under construction. The licenses to use Platte River software, Basinmod ID®, BasinView® and BasinFlow® have been renewed. The basin modeler on the project has been learning this software. The Research Team met in Baton Rouge on the LSU campus this quarter to discuss the project plan for Year 1. During this meeting the researchers identified 10 lines for cross sections, including 141 oil and gas wells, which will form the regional grid for the study of the North Louisiana Salt Basin. The majority of the well logs have been ordered from Geological Consulting Services and plans have been made for digitization of the well logs upon arrival. The remaining well logs will be ordered from another service company. Discussions have taken place with companies operating in the North Louisiana Salt Basin about the

acquisition of selective seismic profiles. Cores in the basin penetrating Jurassic strata have been located and are being described and sampled.

### Work Planned

*Data Compilation*—Digitization of the well logs and core description and sampling will continue and these data will be entered into the electronic database.

*Tectonic History*—The cross sections, well logs, core and sample data, and available seismic profiles, in conjunction with the literature, will be used to interpret the tectonic history of the North Louisiana Salt Basin.

*Depositional History*—The cross sections, well logs, core and sample data, and available seismic profiles, in conjunction with the literature, will be used to interpret the depositional history of the North Louisiana Salt Basin.

### **Results and Discussion**

No major problems have been encountered at this point. We are working with companies operating in the basin to acquire selective seismic profiles in this study.

### **Conclusions**

The project work is on schedule.

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**Table 1**  
**Milestone Chart** □ **Year 1**

|                      | M       | J    | J    | A    | S    | O    | N    | D    | J    | F    | M    | A    |
|----------------------|---------|------|------|------|------|------|------|------|------|------|------|------|
| Data Compilation     | ////    | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// |
|                      | xxxxxxx |      |      |      |      |      |      |      |      |      |      |      |
| Tectonic History     |         |      |      |      |      | //// | //// | //// | //// | //// | //// | //// |
| Depositional History |         |      |      |      |      | //// | //// | //// | //// | //// | //// | //// |
| Work Planned         |         |      |      |      |      | //// |      |      |      |      |      |      |
| Work Accomplished    |         |      |      |      |      | xx   |      |      |      |      |      |      |