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Abstract

The principal research effort for Year 2 of the project is the determination of the burial and thermal maturation histories and basin modeling and petroleum system identification of the North Louisiana Salt Basin. In the first six (6) to nine (9) months of Year 2, the research focus is on the determination of the burial and thermal maturation histories and the remainder of the year the emphasis is on basin modeling and petroleum system identification. 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”

Second Quarter Report for Year 2
August 1, 2004—October 31, 2004

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 2 of the project is the determination of the burial and thermal maturation histories and basin modeling and petroleum system identification of the North Louisiana Salt Basin. In the first six (6) to nine (9) months of Year 2, the research focus is on the determination of the burial and thermal maturation histories and the remainder of the year the emphasis is on basin modeling and petroleum system identification. No major problems have been encountered to date, and the project is on schedule.

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 (Table 1)

Burial History—The burial history profiles for the wells included in the cross sections (Figures 1-13) for the North Louisiana Salt Basin have been prepared. Examples of these profiles (Figures 14-22) are included in this report. Interpretation of these profiles has been completed.

Work Planned

Thermal History—The construction of the thermal maturation history profiles for the wells included in the cross sections for the North Louisiana Salt Basin will be completed. Examples of

these profiles (Figures 23-31) are included in this report. Interpretation of the thermal maturation history profiles will continue.

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 2

	M	J	J	A	S	O	N	D	J	F	M	A
Burial History	<div> <div></div> <div>xxxxxxxxxxxxxxxxxxxxxx</div> </div>											
Thermal History	<div> <div></div> <div>xxxxxxxxxx</div> </div>											
Basin Modeling & Petroleum System Identification	<div> <div></div> </div>											
Work Planned	<div> <div></div> </div>											
Work Accomplished	xx

Figure 1. Map illustrating location of basins and sub-basins.

Figure 2. Index map showing line of cross sections and location of wells for the North Louisiana Salt Basin.

Figure 3. Cross section A-A' for the North Louisiana Salt Basin. See Figure 2 for location of cross section.

Figure 4. Cross section B-B' for the North Louisiana Salt Basin. See Figure 2 for location of cross section.

Figure 5. Cross section C-C' for the North Louisiana Salt Basin. See Figure 2 for location of cross section.

Figure 6. Cross section D-D' for the North Louisiana Salt Basin. See Figure 2 for location of cross section.

Figure 7. Cross section E-E' for the North Louisiana Salt Basin. See Figure 2 for location of cross section.

Figure 8. Cross section F-F' for the North Louisiana Salt Basin. See Figure 2 for location of cross section.

Figure 9. Cross section G-G' for the North Louisiana Salt Basin. See Figure 2 for location of cross section.

Figure 10. Cross section H-H' for the North Louisiana Salt Basin. See Figure 2 for location of cross section.

Figure 11. Cross section I-I' for the North Louisiana Salt Basin. See Figure 2 for location of cross section.

Figure 12. Cross section J-J' for the North Louisiana Salt Basin. See Figure 2 for location of cross section.

Figure 13. Cross section K-K' for the North Louisiana Salt Basin. See Figure 2 for location of cross section.

1708520238 BURIAL HIST

Figure 14. Burial history for well 1708520238, North Louisiana Salt Basin. See Figure 2 for well location.

1701320275 BURIAL HIST

Figure 15. Burial history for well 1701320275, North Louisiana Salt Basin. See Figure 2 for well location.

1706920079 BURIAL HIST

Figure 16. Burial history for well 1706920079, North Louisiana Salt Basin. See Figure 2 for well location.

Figure 17. Burial history for well 1706100051, North Louisiana Salt Basin. See Figure 2 for well location.

1704920029 BURIAL HIST

Figure 18. Burial history for well 1704920029, North Louisiana Salt Basin. See Figure 2 for well location.

Figure 19. Burial history for well 1711520008, North Louisiana Salt Basin. See Figure 2 for well location.

1706100334 BURIAL HIST

Figure 20. Burial history for well 1706100334, North Louisiana Salt Basin. See Figure 2 for well location.

1706700182 BURIAL HIST

Figure 21. Burial history for well 1706700182, North Louisiana Salt Basin. See Figure 2 for well location.

1712300011 BURIAL HIST

Figure 22. Burial history for well 1712300011, North Louisiana Salt Basin. See Figure 2 for well location.

1708520238 MATURITY

Figure 23. Thermal maturation profile for well 1708520238, North Louisiana Salt Basin. See Figure 2 for well location.

Figure 24. Thermal maturation profile for well 1701320275, North Louisiana Salt Basin. See Figure 2 for well location.

1706920079 MATURITY

Figure 25. Thermal maturation profile for well 1706920079, North Louisiana Salt Basin. See Figure 2 for well location.

1706100051 MATURITY

Figure 26. Thermal maturation profile for well 1706100051, North Louisiana Salt Basin. See Figure 2 for well location.

1704920029 MATURITY

Figure 27. Thermal maturation profile for well 1704920029, North Louisiana Salt Basin. See Figure 2 for well location.

Figure 28. Thermal maturation profile for well 1711520008, North Louisiana Salt Basin. See Figure 2 for well location.

1706100334 MATURITY

Figure 29. Thermal maturation profile for well 1706100334, North Louisiana Salt Basin. See Figure 2 for well location.

1706700182 MATURITY

Figure 30. Thermal maturation profile for well 1706700182, North Louisiana Salt Basin. See Figure 2 for well location.

1712300011 MATURITY

Figure 31. Thermal maturation profile for well 1712300011, North Louisiana Salt Basin. See Figure 2 for well location.