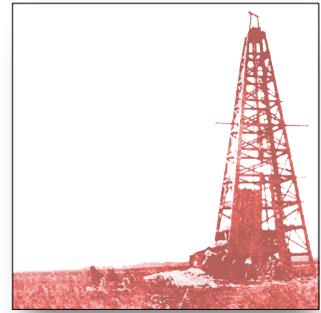


Chapter 4

# **Executive Summary—2002 Assessment of Undiscovered Oil and Gas Resources of the Cretaceous Travis Peak and Hosston Formations, Jurassic Smackover Interior Salt Basins Total Petroleum System, in the East Texas Basin and Louisiana-Mississippi Salt Basins Provinces**



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By U.S. Geological Survey Gulf Coast Region Assessment Team

Chapter 4 of

**Petroleum Systems and Geologic Assessment of Undiscovered Oil and Gas, Cotton Valley Group and Travis Peak–Hosston Formations, East Texas Basin and Louisiana-Mississippi Salt Basins Provinces of the Northern Gulf Coast Region**

By U.S. Geological Survey Gulf Coast Region Assessment Team

U.S. Geological Survey Digital Data Series DDS–69–E

U.S. Department of the Interior  
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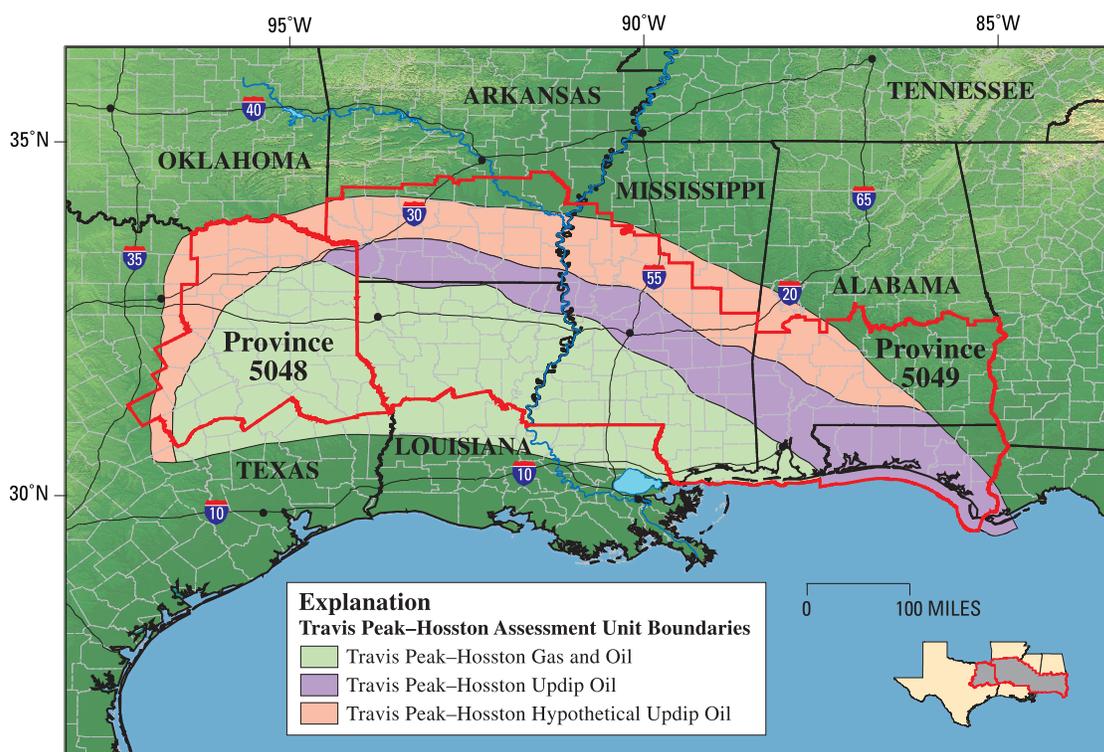
# Executive Summary—2002 Assessment of Undiscovered Oil and Gas Resources of the Cretaceous Travis Peak and Hosston Formations, Jurassic Smackover Interior Salt Basins Total Petroleum System, in the East Texas Basin and Louisiana-Mississippi Salt Basins Provinces

By U.S. Geological Survey Gulf Coast Region Assessment Team

## Introduction

The U.S. Geological Survey (USGS) recently completed an assessment of the undiscovered oil and gas potential of the Lower Cretaceous Travis Peak and Hosston Formations in the East Texas Basin and Louisiana-Mississippi Salt Basins Provinces of the northern Gulf Coast region (fig. 1) as part of a national oil and gas assessment effort. The assessment of the petroleum potential of the Travis Peak and Hosston Formations was based on the general geologic elements used to define a total petroleum system (TPS), which include

hydrocarbon source rocks (source-rock maturation, and hydrocarbon generation and migration), reservoir rocks (sequence stratigraphy and petrophysical properties), and hydrocarbon traps (trap formation and timing). Using this geologic framework, the USGS defined three assessment units (AU)—Travis Peak–Hosston Gas and Oil AU, Travis Peak–Hosston Updip Oil AU, and Travis Peak–Hosston Hypothetical Updip Oil AU—that combine to form a single TPS, the Jurassic Smackover Interior Salt Basins TPS. A fourth AU, Hosston Hypothetical Slope-Basin Gas, was not quantitatively assessed because of a lack of geologic data.



**Figure 1.** Map of Louisiana-Mississippi Salt Basins Province 5049 and East Texas Basin Province 5048 of the northern Gulf Coast region, showing geographic distribution of the Travis Peak and Hosston Formations assessment units in the Jurassic Smackover Interior Salt Basins Total Petroleum System.

## Resource Summary

The USGS assessed undiscovered conventional oil and gas for each of the AUs, resulting in total estimated means of 1,135.72 billion cubic feet of nonassociated gas and associated gas in oil fields, 28.92 million barrels of oil, and 21.54 million barrels of natural gas liquids in the Jurassic Smackover Interior

Salt Basins TPS of these two provinces (table 1) [USGS Travis Peak–Hosston Assessment Team (2003)]. All of the undiscovered resources are conventional. The Travis Peak–Hosston Gas and Oil AU contains 1,085.35 billion cubic feet of gas, representing about 95 percent of the total mean undiscovered gas resource (1,135.72 billion cubic feet) estimated for the Travis Peak and Hosston Formations in these two provinces.

**Table 1.** Travis Peak–Hosston Formations assessment results for the Jurassic Smackover Interior Salt Basins Total Petroleum System.

[MMBO, million barrels of oil. BCFG, billion cubic feet of gas. MMBNGL, million barrels of natural gas liquids. MAS, minimum accumulation size assessed (MMBO or BCFG). Prob., probability (including both geologic and accessibility probabilities) of at least one accumulation equal to or greater than the MAS or, for continuous-type resources, at least one additional cell equal to or greater than the minimum estimated ultimate recovery. Accum., accumulation. Results shown are fully risked estimates. For gas accumulations, all liquids are included as NGL (natural gas liquids). F95 represents a 95 percent chance of at least the amount tabulated. Other fractiles are defined similarly. Fractiles are additive under the assumption of perfect positive correlation. Shading indicates not applicable]

Accumulation Type	MAS	Prob. (0-1)	Oil (MMBO)				Gas (BCFG)				NGL (MMBNGL)			
			F95	F50	F5	Mean	F95	F50	F5	Mean	F95	F50	F5	Mean
Travis Peak-Hosston Gas and Oil Assessment Unit														
Oil Gas	0.5	1.00	1.25	3.77	9.09	4.28	9.20	29.24	76.28	34.26	0.21	0.72	1.97	0.86
	3.0						395.49	1007.23	1854.68	1051.08	6.55	17.60	35.86	18.93
<b>Total</b>	<b>1.00</b>	<b>1.25</b>	<b>3.77</b>	<b>9.09</b>	<b>4.28</b>	<b>404.69</b>	<b>1,036.47</b>	<b>1,930.96</b>	<b>1,085.35</b>	<b>6.76</b>	<b>18.32</b>	<b>37.83</b>	<b>19.78</b>	
Travis Peak-Hosston Updip Oil Assessment Unit														
Oil Gas	0.5	1.00	6.18	19.74	39.49	20.97	5.76	19.24	42.23	21.01	0.21	0.75	1.78	0.84
	3.0						7.74	22.40	55.02	25.71	0.21	0.66	1.73	0.77
<b>Total</b>	<b>1.00</b>	<b>6.18</b>	<b>19.74</b>	<b>39.49</b>	<b>20.97</b>	<b>13.50</b>	<b>41.64</b>	<b>97.25</b>	<b>46.72</b>	<b>0.42</b>	<b>1.40</b>	<b>3.51</b>	<b>1.61</b>	
Travis Peak-Hosston Hypothetical Updip Oil Assessment Unit														
Oil Gas	0.5	0.76	0.00	3.13	9.72	3.66	0.00	3.01	10.14	3.66	0.00	0.12	0.42	0.15
	3.0						0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.76</b>	<b>0.00</b>	<b>3.13</b>	<b>9.72</b>	<b>3.66</b>	<b>0.00</b>	<b>3.01</b>	<b>10.14</b>	<b>3.66</b>	<b>0.00</b>	<b>0.12</b>	<b>0.42</b>	<b>0.15</b>	
Hosston Hypothetical Slope-Basin Gas Assessment Unit														
Not quantitatively assessed														
<b>Total conventional undiscovered resources in Travis Peak-Hosston Reservoirs of the Jurassic Smackover Interior Salt Basins Total Petroleum System</b>														
Oil Gas	0.5	1.00	7.44	26.63	58.29	28.92	14.96	51.50	128.65	58.93	0.43	1.58	4.17	1.85
	3.0						403.24	1,029.63	1,909.70	1,076.79	6.75	18.25	37.58	19.70
<b>Total</b>	<b>1.00</b>	<b>7.44</b>	<b>26.63</b>	<b>58.29</b>	<b>28.92</b>	<b>418.19</b>	<b>1,081.13</b>	<b>2,038.35</b>	<b>1,135.72</b>	<b>7.18</b>	<b>19.83</b>	<b>41.76</b>	<b>21.54</b>	

## For Further Information

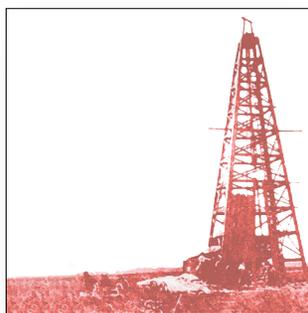
Supporting geologic studies of total petroleum systems and assessment units and reports on the methodology used in the Travis Peak–Hosston assessment in the East Texas Basin and Louisiana–Mississippi Salt Basins Provinces of the northern Gulf Coast region are available at the USGS Central Energy Team Web site: <http://energy.cr.usgs.gov/oilgas/noga/>

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