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National Assessment of Oil and Gas Fact Sheet

2003 Assessment of Undiscovered Oil and Gas Resources in Upper Cretaceous Navarro and Taylor Groups, Western Gulf Province, Gulf Coast Region, Texas

Application of a geology-based assessment methodology by the U.S. Geological Survey resulted in estimated means of 1,682.8 billion cubic feet of undiscovered natural gas, 33.2 million barrels of undiscovered oil, and 34.3 million barrels of undiscovered natural gas liquids in the Upper Cretaceous Navarro and Taylor Groups in the Western Gulf Province of the Gulf Coast Region, Texas.

Introduction

The U.S. Geological Survey (USGS) recently completed an assessment of the undiscovered oil and gas potential of the Upper Cretaceous Navarro and Taylor Groups in the Western Gulf Province of the Gulf Coast Region (fig. 1) as part of a national oil and gas assessment effort. The assessment of the petroleum potential of the Navarro and Taylor Groups was based on the general geologic elements used to define a total petroleum system (TPS)— hydrocarbon source rocks (source rock maturation, 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 five assessment units (AU) in the Navarro and Taylor Groups as parts of a single TPS, the Smackover–Austin–Eagle Ford Composite TPS: Travis Volcanic Mounds Oil AU, Uvalde Volcanic Mounds Gas and Oil AU, Navarro-Taylor Updip Oil and Gas AU, Navarro-Taylor Downdip Gas and Oil AU, and Navarro-Taylor Slope-Basin Gas AU (table 1).

Resource Summary

The USGS assessed undiscovered conventional oil and gas for each of the AUs, resulting in estimated means of 1,682.8 billion cubic feet of nonassociated gas and associated gas in oil fields, 33.22 million barrels of oil, and 34.26 million barrels of natural gas liquids in the Smackover–Austin–Eagle Ford Composite TPS (table 1). All of the undiscovered gas is conventional. The Navarro-Taylor Slope-Basin Gas AU contains an estimated mean of 924.96 billion cubic feet of gas, representing about 55 percent of the total mean undiscovered gas resource (1,682.8 billion cubic feet) for the Navarro and Taylor Groups in the province.

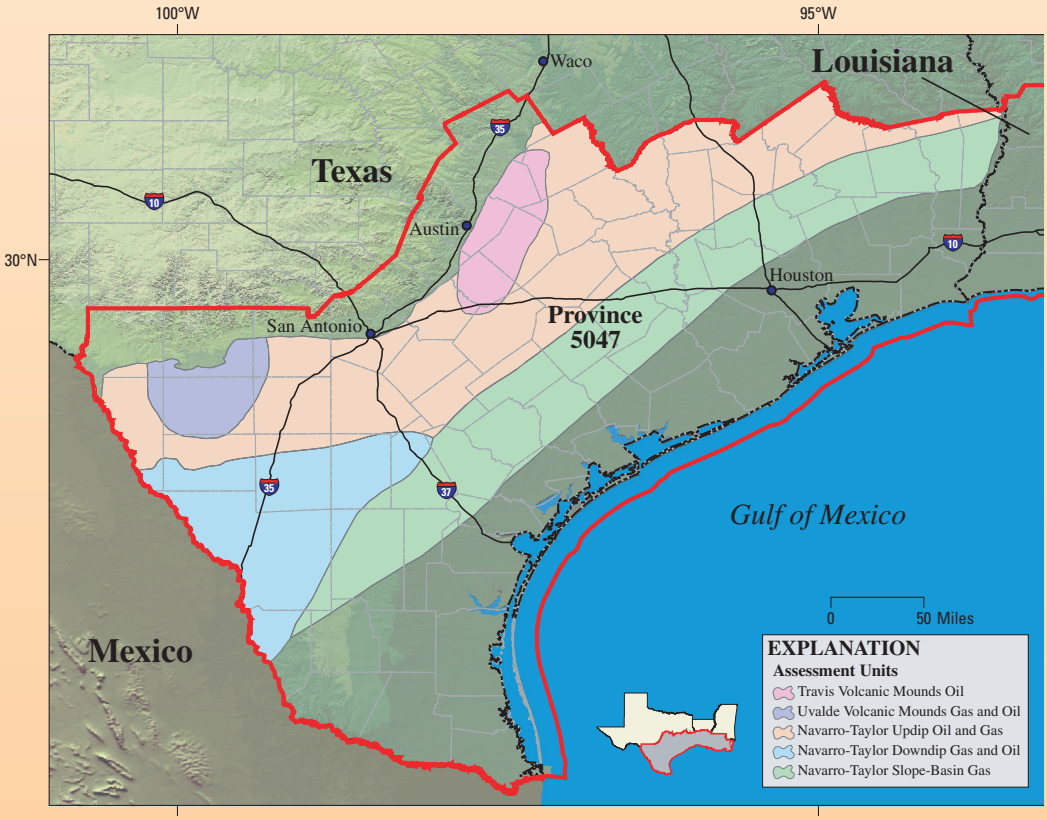

Figure 1. Map of the western part of the Western Gulf Province 5047 of the Gulf Coast Region (outlined in red), showing geographic distribution of assessment units in the Navarro and Taylor Groups of the Smackover–Austin–Eagle Ford Composite Total Petroleum System.

Table 1. Smackover–Austin–Eagle Ford Composite Total Petroleum System, 504702 Assessment Results Summary

[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 of 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 natural gas liquids (NGL). 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]

Code and accumulation type	MAS	Resources												
		Prob. (0-1)	Oil (MMBO)				Gas (BCFG)				NGL (MMBNGL)			
			F95	F50	F5	Mean	F95	F50	F5	Mean	F95	F50	F5	Mean
504702	Total: Conventional undiscovered resources in the Smackover–Austin–Eagle Ford Composite Total Petroleum System													
Oil Accums.	0.5	1.00	11.21	30.51	64.41	33.22	28.45	90.09	227.55	103.99	0.82	2.69	7.27	3.20
Gas Accums.	3.0						472.79	1,497.75	2,938.92	1,578.81	8.64	28.55	62.04	31.07
Total		1.00	11.21	30.51	64.41	33.22	501.24	1,587.84	3,166.47	1,682.80	9.45	31.25	69.31	34.26
50470201	Travis Volcanic Mounds Oil Assessment Unit													
Oil Accums.	0.5	1.00	1.25	2.73	4.81	2.85	0.28	0.66	1.30	0.71	0.01	0.03	0.07	0.04
Gas Accums.	3.0						0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		1.00	1.25	2.73	4.81	2.85	0.28	0.66	1.30	0.71	0.01	0.03	0.07	0.04
50470202	Uvalde Volcanic Mounds Gas and Oil Assessment Unit													
Oil Accums.	0.5	1.00	1.27	2.41	3.97	2.48	1.29	2.83	5.20	2.97	0.06	0.14	0.28	0.15
Gas Accums.	3.0						14.33	35.40	61.71	36.38	0.20	0.52	1.00	0.55
Total		1.00	1.27	2.41	3.97	2.48	15.62	38.23	66.91	39.35	0.25	0.65	1.28	0.69
50470203	Navarro-Taylor Updip Oil and Gas Assessment Unit													
Oil Accums.	0.5	1.00	6.78	19.41	40.58	21.02	9.43	28.37	64.58	31.58	0.26	0.83	2.02	0.95
Gas Accums.	3.0						60.96	167.86	342.17	180.56	1.01	2.93	6.57	3.25
Total		1.00	6.78	19.41	40.58	21.02	70.38	196.23	406.75	212.14	1.27	3.76	8.60	4.20
50470204	Navarro-Taylor Downdip Gas and Oil Assessment Unit													
Oil Accums.	0.5	1.00	1.91	5.95	15.06	6.88	17.44	58.22	156.48	68.72	0.48	1.70	4.90	2.06
Gas Accums.	3.0						158.43	425.92	749.36	436.91	2.95	8.26	16.30	8.76
Total		1.00	1.91	5.95	15.06	6.88	175.88	484.14	905.84	505.63	3.44	9.96	21.20	10.82
50470205	Navarro-Taylor Slope-Basin Gas Assessment Unit													
Oil Accums.	0.5	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gas Accums.	3.0						239.07	868.58	1,785.68	924.96	4.48	16.84	38.16	18.52
Total		1.00	0.00	0.00	0.00	0.00	239.07	868.58	1,785.68	924.96	4.48	16.84	38.16	18.52

For Further Information

Geologic studies of total petroleum systems and assessment units and reports on the methodology used in assessing resources in the Navarro and Taylor Groups in the Western Gulf Province of the Gulf Coast Region are available at the USGS Central Energy Team Web site: http://energy.cr.usgs.gov/oilgas/noga/

Navarro and Taylor Groups Assessment Team

T.S. Dyman (Task Leader: dyman@usgs.gov), S.M. Condon, R.R. Charpentier, T.A. Cook, T.R. Klett, M.D. Lewan, M.J. Pawlewicz, R.M. Pollastro, and C.J. Schenk.