

New Mexico Bureau of Mines and Mineral Resources
Open File Report No. OF 197

HYDROCARBON SOURCE-ROCK EVALUATION STUDY,
COCKRELL NO. 1 STATE-1,349 WELL
LUNA COUNTY, NEW MEXICO

by L. Paul Tybor
GeoChem Laboratories, Inc.
Houston, Texas
May 17, 1982



GEOCHEMICAL ANALYSES
SOURCE ROCK EVALUATION

CRUDE OIL—SOURCE ROCK CORRELATION

CRUDE OIL CHARACTERIZATION
GEOCHEMICAL PROSPECTING

1143-C BRITTMOORE ROAD • HOUSTON, TEXAS 77043-5094 • 713/467-7011

May 17, 1982

Mr. Clayton S. Valder
Marshall R. Young Oil Co.
750 West Fifth Street
Fort Worth, Texas 76102

Dear Mr. Valder:

Enclosed please find the results of the organic geochemical analyses performed on well cutting samples from the Cockrell #1 State well, located in Luna County, New Mexico.

Upon arrival at the lab, the samples were assigned the GeoChem Job Number 2288, and were submitted to the following analytical program:

<u>Type of Analysis</u>	<u>Table</u>
Total organic carbon determination and brief lithological description.....	I
Visual kerogen assessment.....	II

Due to the organic-lean nature of these rocks, as determined from the organic carbon screen analyses performed, pyrolysis analysis was not carried out on any of these samples.

DISCUSSION OF THE RESULTS

A. Thermal Maturity

The thermal maturity of the sediments from the analyzed well interval ranges from an immature Maturation Index Stage 1+ to 2- at 6000+ feet, within the Lobo, to a moderately mature Maturation Index Stage 2 to 2+ at 6760+ feet, within the El Paso. Kerogen assessment was performed on the sample from the underlying Bliss Sandstone, however it appears that this sample is comprised predominantly of thermally immature cavings. Consequently, no maturity data is available for this unit, however by extrapolating from the overlying moderately mature rocks, it can be safely assumed that these Cambrian rocks have attained at least a moderately mature maturation level.

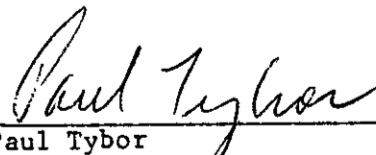
The sediments at 6000+ feet are thermally immature and prospective for only biogenic methane gas. From 6510+ feet to 7120+ feet, the rocks are moderately mature and considered to be within the oil window.

B. Hydrocarbon Source Characterization

The rocks analyzed from well interval 5990+ feet to 7120+ feet are organic-lean with poor hydrocarbon source characteristics. If the moderately mature rocks analyzed in this well were encountered at an organically-rich position elsewhere in the basin, then significant hydrocarbon generation could have occurred.

Should you have any questions concerning this data or if we can be of further assistance to you, please feel free to contact us.

Yours truly,



Paul Tybor
Project Coordinator
GEOCHEM LABORATORIES, INC.

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Enclosures



Table I

SCREEN ANALYSIS SUMMARY

GeoChem Sample Number	Well Interval (Feet)	Brief Lithological Description	Total Organic Carbon (% of Rock)
2288-001	5990-6000	Shale, grayish red.	0.08
2288-002	6190-6200	Shale, grayish red.	0.09
2288-003	6500-6510	Composite: Shale and siltstone, pale red.	0.09
2288-004	6550-6560	Limestone, pinkish gray.	0.10/0.09
2288-005	6650-6660	Limestone, brownish gray.	0.05
2288-006	6750-6760	Limestone, light gray.	0.06
2288-007	6850-6860	Dolomite, light gray.	0.03
2288-008	6950-6960	Limestone, light gray.	0.03
2288-009	7020-7030	Limestone, pinkish gray.	0.03/0.03
2288-010	7060-7070	Dolomite, pinkish gray.	0.04
2288-011	7110-7120	Composite: Limestone and sandstone.	0.05

TABLE .11
VISUAL KEROGEN ASSESSMENT WORKSHEET

Cockrell #1 State		INDIGENOUS POPULATION (INTERPRETED)				GENERAL CHARACTERISTICS				CAVED AND/OR REWORKED POPULATION(S)				SUMMARY ORGANIC MATTER TYPE					
		TYPE OF ORGANIC MATTER		MATURATION INDEX		COLOR OF ORGANIC MATTER		STATE OF ORGANIC MATTER		%		TYPE OF ORGANIC MATTER			MATURATION INDEX				
		W	Am	I	Am	W	Am	I	Am	W	Am	I	Am		W	Am			
GEOCHEM No	DEPTH	W		Am		I		Am		W		Am		I		Am		REMARKS	
2288-001	6000	W		Am		I		Am		W		Am		I		Am			
2288-003	6510	W		Am		I		Am		W		Am		I		Am			VLOM
2288-006	6760	W		Am		I		Am		W		Am		I		Am			VLOM
2288-011	7120	W		Am		I		Am		W		Am		I		Am		caved	

VLOM = Very little organic material.

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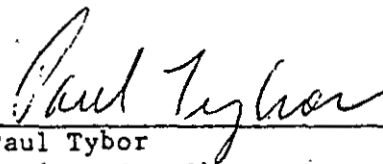
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