Completion Recorded

23-18-15W

LOG ANALYSIS By Rex B. Benway
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Operator Pan Western Energy Corporation Date Logged 12-13-85 Page 1 of 2

Lease Name #1-23 Nordman GJP Elev. K.B. 1927' D.F. 1925' G.L. 1917'

Legal Description SW NW NE 23-18S-15W County Barton State Kansas

Additional Information This report is prepared for Pan Western Energy Corporation Date of this Report 12-13-85

Abbreviations Below

GRAIN DENSITY = ρ_e	WATER SATURATION = Sw	CUT OFF POROSITY = C O P
MATRIX VELOCITY = Vm	MUD RESISTIVITY = Rm	BULK VOLUME WATER = BVW
INTERSTITIAL WTR. RESISTIVITY = Rw	MUD FILTRATE RESISTIVITY = Rmf	POROSITY = ø

Type of logs available for study Dual Guard - Dual Micro Guard - Density - Neutron (Welex) BHT = 112°F.

T.D. = 3612'

Rm = .14 @ 112°F. Rmf = .08 @ 112°F. (calculated) Rw = .12 (Arbuckle) Rw = .045 (Topeka-Lansing)

Formation and/or Depth	ø Sw BVW	REMARKS below as to Lithology, Reservoir Quality, Reservoir performance, water cut possibilities, net pay etc.
2925' (Top) - 3165' 3165' (Heebner Top) Topeka - Heebner	ø=11% max. Sw=65% BVW=.067	This interval has no oil or gas zones. The porosity is very low (less than 8%) over most of the footage except for depth 3110' - 3114' where ø = 11%, Sw = 65% and BVW = .067. It is a water zone. This
		four foot zone is probably oocastic. Completion here is not recommended.
3180' - 3197' Non productive Toronto - Douglas	ø=4% max Sw=90-100%	This footage is too tight for production.
3244' - 3474' Water zone Lansing - Kansas City	ø=11% max Sw=53-70% BVW=.067	The most porous footage is at 3260' - 3284' and at 3334' - 3346' (KC-G Zone). Both zones are oocastic and the 22% indicated porosity is actually 11% effective porosity. Both are water zones. The remaining footage is too
		tight for any type of production. (Porosity less than 6%). No oil or gas zones occur in this footage from 3244' - 3474'. The KC - H zone has 6% porosity at 3408' - 3414'. Sw = 79%. This 6' zone is non productive.
		Completion is not recommended.

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3500' - 3612' (TD) Non productive Arbuckle	Ø=4-12% Sw=90-100% BVW=.13	The porosity is very low (4-8%) from 3500' - 3535'. The porosity increases at depth 3535' - 3555' to about 12% and Sw = 90-100%, BVW =.11. In this zone a completion attempt would result in water production.
		From 3555' to 3612' the porosity is from 5-8%, Sw = 90 - 100%. A completion attempt in the Arbuckle is not recommended for three reasons--1. Low porosity
		2. Low permeability
		3. High water saturation
		Conclusion: A completion attempt is not recommended. There are no commercial oil or gas zones from 2925' (Topeka Top) to 3612' (T D).
		The foregoing interpretation is made from a telecopy recording transmitted on 12-13-85.
		Rex B. Benway 12-13-85