

GEOLOGICAL REPORT

Kern Drilling Co., Inc.
Purman #1

SE NE Sec. 26-16S-26W
Ness County, Kansas

Commencement Date:	4/6/67	Casing:	
Completion Date:	4/17/67	Surface:	8 5/8" @ 275'
Elevation:	2615 K.B. (Datum)	Production:	None
	2613 D.F.		
	2610 G.L.		
Total Depth:		Special Equipment:	None
Driller & Schlumberger:	4630		
Contractor:	Heller Drlg. Co., Inc.	Production:	D&A
Electrical Surveys:	Schlumberger, Dual Induction Laterolog, Gamma Ray Sonic- Caliper		

Drilling of this hole was witnessed from approximately 3800 feet to total depth.

FORMATION TOPS AND STRUCTURAL COMPARISONS

	Kern Drlg. Co., Inc. #1 Purman SE NE Sec. 26-16S-26W	Petroleum, Inc. #1 Peters NE NW Sec. 26-16S-26W	Relative Position
Base of Blaine			
Anhydrite	1416 (+1199)		
Top of Cimarron			
Anhydrite	1994 (+ 621)		
Base of Cimarron			
Anhydrite	2028 (+ 587)	2021 (+ 580)	7' low
Top Pennsylvania	3473 (- 858)	3470 (- 855)	3' low
Top Heebner Shale	3892 (-1277)	3886 (-1271)	6' low
Top Toronto	3912 (-1297)	3902 (-1287)	10' low
Top Lansing	3934 (-1319)	3926 (-1311)	8' low
Base Kansas City	4238 (-1623)	4234 (-1619)	4' low
Top Marmaton	4299 (-1684)	4292 (-1677)	7' low
Top Ft. Scott	4444 (-1829)	4436 (-1821)	8' low
Top Eroded Mississippian			
Cherty Conglomerate	4542 (-1927)	4532 (-1917)	10' low
Top Mississippian			
Limestone	4580 (-1965)	4550 (-1935)	30' low
Top Mississippian			
Dolomite	4586 (-1971)	4558 (-1943)	28' low

SAMPLE DESCRIPTIONS

Toronto Limestone

3912-3928 White and medium gray, slightly vuggy, fossiliferous, cherty limestone. White opaque, porcelaneous chert. No shows.

Lansing Limestones

A Zone

3934-3962 White to medium gray, fine crystalline, slightly chalky, fossiliferous limestone with a trace of poor visible fossiliferous porosity with a trace of dark black, dead oil stain in the top few feet.

B Zone

3975-3988 White to light gray dense, chalky, oolitic limestone with trace of fine vug and interoolitic porosity. No shows.

C Zone

3992-4008 Buff to white, dense, slightly chalky limestone with gray and buff sharp chert. No shows.

D Zone

4018-4042 White to light gray, fine crystalline, chalky, fossiliferous limestone. Oolitic in part. No shows.

E Zone

4044-4092 White, light gray and buff, fine crystalline to dense, very chalky, slightly oolitic limestone with zones and streaks of poorly developed oolitic porosity throughout. No shows.

F Zone

4095-4102 Medium gray, fine crystalline, dirty, chalky limestone. No shows.

G Zone

4105-4122 4105 to 4112 - Medium gray, very fine crystalline limestone with some pinpoint, small vug and crystalline porosity with questionable dark black oil stain which displayed no fluorescence or cut in carbon tetrachloride.

4114 to 4122 - Gray to brown micro-crystalline to dense limestone with no shows.

H Zone

4130-4156 Gray, fine crystalline, chalky, partly oolitic and oolitic limestone with some interbedded gray shale. No shows.

I Zone

4161-4180 White to light buff, fine crystalline to dense, chalky limestone with some oolites and oolite casts and fossiliferous-oolitic chert. No shows.

J Zone

4188-4212 Gray, very chalky, fine crystalline limestone with white and gray sharp chert. No shows.

K Zone

4223-4238 White, gray and buff, very chalky, very cherty limestone. Oolitic-oolite casts in part. No shows.

The limestones in the Pleasanton and Marmaton Groups between the Base of the Kansas City and the Ft. Scott were primarily white, gray and buff, fine crystalline to dense, chalky and fossiliferous, with some oolites and oolite casts porosity developed in part. No shows of oil were noted.

Ft. Scott

4444-4456 Gray and tan dense oolitic limestone. One or two pieces of cuttings with tiny pinpoints of visible porosity and spots of free oil were noted.

4459-4468 White, gray and tan microcrystalline to dense chalky limestone with white sharp chert. One or two pieces with slight stain but no visible porosity were noted.

Cherokee Limestone

4472-4528 White, light gray and tan very fine crystalline to dense, chalky, cherty and oolitic in part with very little to no visible porosity developed.

Basal Pennsylvanian

Conglomerate

4524-4536 This interval contained a conglomeration of fine crystalline gray and tannish tight limestone, white sharp and smooth to weathered rough textured cherts and interbedded varicolored shales and some dirty shaley, tight poorly sorted gray quartz sandstones. Some dark heavy oil was noted in some of the leached cherts.

Eroded Mississippian

4542-4580 This interval appeared very similar to that described above except for a very slight difference in the cherts contained and in an increase of light green subwaxy shale and claystone. It may well be that the complete interval from 4524 to 4580 represents Basal Pennsylvanian Conglomerate. The top of the Mississippian erosional

surface, however, is believed to be at 4542. This point corresponds, on electric log correlations, to the Mississippian top called at 4532 (-1917) in the Petroleum, Inc. #1 Peters. It is believed that the interval from 4532 to 4550 in the #1 Peters well has thickened in the #1 Furman to an interval of 38 feet extending from 4542 to 4580.

The section from 4542 to 4580 in the #1 Furman was a conglomeration of weathered leached cherts, some of which were saturated with heavy black dead oil, white to gray oolitic, fossiliferous, chalky limestones and in the lower portion, some pieces of fine sucrosic slightly vuggy dolomite with heavy staining of black dead oil, all intermixed and interbedded with vari-colored shales. Although some of the oil saturated pieces of weathered chert and the vuggy dolomite had considerable porosity, it is believed that none of this interval would have permeability. This belief is substantiated by the heavy dead appearance of the oil shows.

Mississippian Limestone

4580-4586 White to buff crystalline, very chalky, cherty, tight limestone with white sharp, oolitic and fossiliferous chert. This interval is believed to correspond to the interval of 4550-4558 in the Petroleum, Inc. #1 Peters.

Mississippian Dolomite

4586 to T.D.

Gray to tan very fine sucrosic, cherty, chalky dolomite with some small vug porosity, interbedded with minor amounts of gray shale and tight chalky limestone as described above. Scattered spotted staining and minor amounts of dark heavy free oil with no odor was noted in some of the vugular dolomite. Although some of the dolomite appeared to have fair vuggy porosity it is doubtful that permeability would have been effective. The intervening dolomite matrix between the vugs was void of porosity.

Conclusion:

Due to the lack of favorable shows of oil and poor electric log calculations, this hole was plugged and abandoned as a dry hole.

Original signed by
W. R. Atkinson

W. R. Atkinson
Geologist

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DRILLING TIME

Drilling time by 1 ft. intervals from 3700 ft. to total depth.

3700-3710	5	-	4	-	6	-	6	-	5	-	4	-	6	-	5	-	2	-	1
-3720	1	-	3	-	4	-	1	-	5	-	5	-	5	-	6	-	5	-	5
-3730	5	-	7	-	4	-	2	-	4	-	2	-	2	-	1	-	1	-	3
-3740	5	-	5	-	6	-	5	-	6	-	5	-	3	-	1	-	3	-	1
-3750	5	-	2	-	2	-	3	-	2	-	2	-	4	-	4	-	7	-	5
-3760	5	-	3	-	4	-	3	-	3	-	2	-	4	-	4	-	2	-	4
-3770	5	-	4	-	4	-	3	-	5	-	3	-	2	-	4	-	3	-	4
-3780	2	-	3	-	4	-	3	-	3	-	4	-	4	-	6	-	6	-	5
-3790	5	-	1	-	1	-	1	-	2	-	3	-	5	-	5	-	5	-	4
-3800	5	-	2	-	1	-	1	-	1	-	2	-	1	-	2	-	5	-	3
3800-3810	3	-	5	-	3	-	2	-	2	-	2	-	5	-	5	-	7	-	7
-3820	3	-	5	-	2	-	3	-	5	-	3	-	4	-	3	-	6	-	6
-3830	3	-	3	-	2	-	4	-	7	-	3	-	4	-	3	-	1	-	1
-3840	4	-	1	-	2	-	2	-	2	-	2	-	2	-	3	-	3	-	3
-3850	4	-	2	-	2	-	1	-	1	-	1	-	2	-	2	-	3	-	3
-3860	3	-	1	-	1	-	1	-	1	-	1	-	2	-	1	-	3	-	3
-3870	3	-	2	-	1	-	1	-	1	-	1	-	1	-	3	-	3	-	3
-3880	3	-	2	-	1	-	1	-	2	-	2	-	1	-	3	-	3	-	3
-3890	3	-	2	-	2	-	2	-	2	-	2	-	2	-	4	-	3	-	3
-3900	4	-	2	-	1	-	1	-	1	-	5	-	3	-	2	-	5	-	3
3900-3910	2	-	2	-	3	-	2	-	3	-	2	-	3	-	2	-	2	-	2
-3920	2	-	7	-	7	-	2	-	3	-	2	-	3	-	3	-	3	-	3
-3930	4	-	4	-	3	-	3	-	4	-	2	-	3	-	3	-	3	-	3
-3940	3	-	1	-	2	-	2	-	3	-	3	-	3	-	3	-	3	-	3
-3950	3	-	3	-	3	-	2	-	4	-	5	-	3	-	3	-	3	-	3
-3960	5	-	5	-	6	-	6	-	6	-	4	-	3	-	3	-	6	-	6
-3970	6	-	6	-	3	-	7	-	7	-	6	-	3	-	3	-	4	-	4
-3980	4	-	4	-	4	-	5	-	3	-	4	-	3	-	4	-	6	-	4
-3990	4	-	4	-	7	-	7	-	8	-	7	-	3	-	4	-	3	-	3
-4000	4	-	4	-	2	-	5	-	5	-	5	-	6	-	3	-	7	-	6
4000-4010	5	-	8	-	8	-	8	-	9	-	12	-	9	-	8	-	5	-	9
-4020	11	-	8	-	5	-	8	-	4	-	3	-	3	-	4	-	3	-	3
-4030	2	-	3	-	3	-	9	-	7	-	6	-	3	-	6	-	3	-	4
-4040	4	-	4	-	4	-	5	-	9	-	6	-	6	-	3	-	7	-	7
-4050	7	-	9	-	4	-	3	-	2	-	1	-	1	-	1	-	5	-	5
-4060	3	-	4	-	3	-	2	-	3	-	2	-	3	-	3	-	6	-	6
-4070	6	-	6	-	7	-	7	-	9	-	5	-	3	-	4	-	3	-	6
-4080	5	-	7	-	5	-	5	-	4	-	4	-	3	-	4	-	3	-	4
-4090	3	-	4	-	4	-	3	-	4	-	4	-	3	-	3	-	3	-	3
-4100	3	-	3	-	3	-	4	-	5	-	5	-	6	-	5	-	3	-	3

Trip @ 3821

Trip @ 4065

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Trip © 4320

Trip @ 4535

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Furman #1
SE NE Sec. 26-168-26W
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Drilling Time

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4540-4550	5	-	6	-	5	-	5	-	5	-	5	-	4	-	4	-	5
-4560	4	-	3	-	3	-	4	-	4	-	8	-	10	-	6	-	7
-4570	9	-	9	-	6	-	11	-	6	-	8	-	7	-	9	-	8
-4580	9	-	9	-	8	-	8	-	7	-	9	-	11	-	9	-	6
-4590	8	-	13	-	13	-	11	-	17	-	20	-	27	-	19	-	23
-4600	6	-	3	-	3	-	3	-	3	-	3	-	4	-	4	-	8

Trip 4590

4600-4610	4	-	3	-	2	-	3	-	5	-	11	-	8	-	1	-	1
-4620	2	-	2	-	2	-	2	-	2	-	2	-	5	-	7	-	10
-4630	3	-	4	-	5	-	7	-	9	-	3	-	10	-	5	-	4

T.D. 4630

FOUR STAR

ONION SKIN

FOUR STAR

ONION SKIN