

GEOLOGICAL REPORT

June 11, 1963

M. F. (Hap) PRYOR, *Geologist*

Seventeenth Street

GRIFFIN BEND, KANSAS

Telephone Gladstone 3-5701

SUBJECT WELL Western Petroleum Company, Inc.
#1 Brown "A"
SW NE NE 30-24S-14W
Stafford County, Kansas

Contractor Company tools

Elevation 1995 K.B.

Rotary commenced 5/26/63

Rotary completed 6/10/63

Surface casing 8 5/8" @ 271 (275 sx)

Oil String 5 1/2" @ 4200

Sample examination 3550 to TD

Drill Stem tests 1 - Mississippian

Electric Log Gamma - Laterolog - Sonic

Rotary total depth 4266

Note ** 2 cores: 4111-4137; 4137-4162
Mississippian

** ALL MEASUREMENTS FROM KELLY BUSHING

GEOLOGICAL FORMATION BY SAMPLE DETERMINATION

Anhydrite	952	+1043	Base Kansas City	3996	-2001
Topeka	3258	-1263	Mississippian	4130	-2135
Heebner Shale	3580	-1585	Kinderhook	4152	-2157
Iatan Lime	3720	-1725	Viola	4218	-2223
Lansing	3738	-1743	Rotary TD	4266	-2271

The above formation markers and all following data have been adjusted to Schlumberger Survey run at rotary total depth. (K.B.)

The electric log confirmed the rig measurements within reasonable limits.

Geological supervision was from 3700 to total depth, and all pertinent samples were examined both wet and dry.

LANSING - KANSAS CITY SERIES:

3808-3812: Schlumberger porosity, 12%; Sw 100%
No odor, no free oil.
Tan, fine crystalline to chalky lime. Spotted fracture and vugular porosity. No stain in dry sample.

3824-3828: Schlumberger porosity, 13%; Sw 98%
No odor, no free oil.
Tan, finely crystalline, highly oolitic lime. No stain in dry sample.

3868-3874: Schlumberger porosity, 13%; Sw 66%
No odor, no free oil.
Tan-white, finely crystalline, to part chalky,
medium oocastic lime. No stain in dry sample.

3904-3910: Schlumberger porosity, 12%; Sw 51%
3910-3914: Schlumberger porosity, 11%; Sw 52%
No free oil, no odor.
Tan, finely crystalline, highly oocastic lime-
stone, in part chalky. No stain in dry sample.

BASE KANSAS CITY: 3996

MARMATON: 4008

4060-4065: Schlumberger porosity, 17%; Sw 61%
Tan, medium grained, cherty lime, in part shaley.
Porosity not apparent. No stain in dry sample.

CHEROKEE: 4100

4100-4111: Drilling samples.
Grey, green and red shales.

4111-4137: Diamond Core #1
Well-bedded (Cherokee) shales, various colored,
mostly fissile. Few jasper type chert from 4124
to 4127.

4128-4129: Grey to grey-green, sandy to silty, slightly
micaceous shale. Quartz grains fine to medium,
rounded to sub-angular. Porosity not apparent.

4129-4130: Sandstone. Loosely cemented, fine grained,
rounded to sub-round, slightly frosted. In part
grey-green shale matrix. Dense. No microporosity.

MISSISSIPPIAN: 4130 (Electric log)

4130-4138: Tan-white to brown, medium size, angular chert
fragments. Smooth, opaque to dull tripolitic in
grey-green and black, clay type shale matrix with
abundant sand inclusions. Sand well rounded, med-
ium grained, slightly pitted and frosted.

4137-4162: Diamond Core #2
Porosity: interphase, shale-chert contact and in
shale-chert interphase having abundant sand deposi-
tion.
* Above section estimated 60% chert.

- 4138-4139: Pale, dark green, part waxy, clay type shale.
Traces of sand inclusions.
- 4139-4152: Chert fragments angular, tan-white, smooth, semi-translucent (smaller fragments than above) in grey-green, clay type shale matrix. Sand not apparent as in zone above.
*Above section estimated 80% chert.
- 4130-4138: Classified Mississippian "A" zone.
- 4139-4152: Classified Mississippian "B" zone.

KINDERHOOK: 4152

- 4152-4154: Grey-green, black, part fissile with diagonal fracture having slickenside effect.
- 4154-4158: Well-bedded, highly silty, reddish-brown to grey-green shale. Little associated fine mica.
- 4158-4162: Red and green, dull, slightly waxy shales.

DRILL STEM TEST #1: Covered entire Mississippian section.
4130 to 4162

Open 2 hours. Gas to surface in 6 minutes gauged

517,000 cu. ft. in 10 minutes
584,000 cu. ft. in 20 minutes
627,000 cu. ft. in 30 minutes

Leveled off at 627,000 cu. ft. for remainder of test.
Tool recovered 20 ft. of drilling mud, no shows.
IBHP = 1360#/30 min.; FBHP = 1350#/30 min.; IFP = 125#;
FFP = 125#; HH = 1880#.

U.S.E.M. calculated gas at 998 BTU.

SCHLUMBERGER LOG CALCULATIONS FOR MISSISSIPPIAN:

Depth	Porosity	Sw
4130-4136	20%	48%
4142-4146	13%	68%
4148-4151	10%	89%

*Core analysis enclosed.

KINDERHOOK Continued:

- 4158-4162: (Base of Core #2)
Well-bedded, slightly silty, reddish brown to grey-green shales.
- 4162-4180: Drilling samples.
Dull, red and green, part variegated shales.
- 4180-4200: Shales as above grading to clay type, in part silty with associated dull white, opaque to tan, translucent cherts.
- 4200-4218: Shaley. White, semi-opaque to tan and bluish semi-translucent, smooth chert.

*NOTE: Shaley chert above has been classified as Kinderhook. This classification is substantiated by electric log characteristics.


VIOLA: 4218

- 4218-4234: No free oil, no odor.
White-tan, medium grained, part translucent dolomitic lime with opaque to semi-translucent, smooth chert. Some chalky lime at base.
- 4234-4248: Abundant grey-white to slightly greenish, smooth, opaque and semi-opaque chert with little white, fine grained, chalky lime.
- 4248-4252: Pale green shale.
- 4252-4266: (RTD) White, fine to medium grained, crystalline to grey-tan, fine and medium grained dolomitic lime with white, translucent to opaque chert with spicules and spotted shows of gilsonite.

CONCLUSION: It is not the purpose of this report to evaluate the structural position of the #1 Brown "A".

Five and one-half inch ($5\frac{1}{2}$ ") casing was set at 4200 ft. to test the Mississippian on the basis of the gas recovery made in Drill Stem Test #1.

Yours very truly,


M. F. Pryor
Petroleum Geologist