

15-033-20599



22-31-16W

State Geological Survey
WICHITA BRANCH

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GEOLOGICAL REPORT

LUFF EXPLORATION COMPANY

NO. K-22 LGK

100' S of C NE SW Sec 22-31S-16W
COMANCHE COUNTY, KANSAS



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GEOLOGICAL REPORT

Luff Exploration Company
NC. K-22 LGK
100' S of C NE SW Sec 22-31S-16W
COMANCHE COUNTY, KANSAS

ELEVATIONS: 1962 Kelly Bushing
1955 Ground Level

CONTRACTOR: H-30 Drilling, Inc., Rig #5

COMMENCED: August 3, 1983
COMPLETED: August 18, 1983

ROTARY TOTAL DEPTH: 5370 feet
LOGGED TOTAL DEPTH: 5365 feet

SURFACE PIPE: 16" Conductor @ 40'
13 Jts new 8 5/8" 24#, tally 523.88,
@ 528' w/200 sx Lite and 100 sx Class H,
3% cc, 2% Gel per sk. Cement did circ.
plug down @ 1800, 8-4-83.

PRODUCTION PIPE: D & A

LOGS: Welex
1. DIGL
2. DSN-DEN
3. AVL-Cal
4. CAL

DAILY PENETRATION PIPE:

August 4, 1983	0700	560 feet, Drlg.
August 5, 1983	"	1200 feet, Rig Repairs
August 6, 1983	"	2203 feet, Drlg.
August 7, 1983	"	2850 feet, Drlg.
August 8, 1983	"	3236 feet, Rig Repairs
August 9, 1983	"	3642 feet, Drlg.

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August 10, 1983	0700	4122 feet, Drlg.
August 11, 1983	"	4405 feet, Drlg.
August 12, 1983	"	4630 feet, Drlg.
August 13, 1983	"	4929 feet, DST #1
August 14, 1983	"	4929 feet, DST #1
August 15, 1983	"	5000 feet, DST #2
August 16, 1983	"	5295 feet, Drlg.
August 17, 1983	"	5370 feet, Logging
August 18, 1983	"	5370 feet, DST #3

REMARKS:

All measurements are from Kelly Bushing (1962). RTD was 5370. LTD was 5365 (-3403).

One foot drilling time was plotted from 4000 to TD. Ten foot samples were saved from 3200-4750, and five foot samples were saved from 4750 to TD.

Three drill stem tests were taken covering Mississippian and Viola zones.

Circulation was lost while drilling at 4294. Samples in some portions of the hole were difficult to read due to sloughing of shales from Cherokee to TD.

An Analytical Gas Detector was utilized from 3340-TD.

FORMATIONS:

The following are the depths and datums of formation tops encountered as determined by sample and electrical/nuclear log analysis.

<u>Formation</u>	<u>Sample</u>	<u>Log</u>	<u>Datum</u>
Chase	-	2351	- 389
Council Grove	-	2722	- 760
Cnaga Shale	-	3173	-1211
Howard	-	3571	-1609
Topeka	-	3736	-1774
Heebner	4103	4102	-2140
Lansing	4306	4304	-2342
Base Kansas City	4730	4727	-2765
Marmaton	4746	4742	-2780
Cherokee	4866	4861	-2899

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FORMATIONS (cont'd):

<u>Formation</u>	<u>Sample</u>	<u>Log</u>	<u>Datum</u>
Mississippian	4904	4899	-2937
Kinderhook Shale	5133	5127	-3165
Viola	5153	5148	-3186
Simpson Shale	5322	5315	-3353
TD	5370	5365	-3403

DRILL STEM TESTS:

A geological log is included with this report and is considered a part of it. Refer to it for sample descriptions. The following are drill stem test results.

Mississippian

DST No. 1
4920-29 feet

Sampler information:
17 P.S.I., 1600 cc
water (Cl = 120,000
ppm, Rw = .024 @
131°), .06 cubic
feet of gas.

Open 30 minutes. Strong blow in 1 minute, decreased throughout. Shut-in 60 minutes. Open 90 minutes, strong blow immediately, decreased throughout. Shut-in 120 minutes. Recovered 3250 feet total fluid--40' SL oil Spkd watery mud (10% W, 90% M), 120' SL oil Spkd mdy water (59% W, 40% M, 1% C) 3090' salt water.

Initial Hydrostatic Head 2392 psi
Initial Flow Pressure 970-1548 psi
Initial Shut-in Pressure 1548 psi
Final Flow Pressure 1548-1548 psi
Final Shut-in Pressure 1548 psi
Final Hydrostatic Head 2303 psi
Temperature 131° (?)

Mississippian

DST NO. 2
4935-64 feet
STRADDLE TEST

Sampler Information:
12 P.S.I., 870 cc
total fluid (50 cc
Oil, 520 cc Mud, 300
cc Water - Cl =
78,000 ppm, Rw = .055
@ 128°)

Open 15 minutes, surface blow increased throughout to 4". Shut-in 60 minutes. Open 90 minutes, Vy Wk ($\frac{1}{2}$ ") blow increased throughout to 8 $\frac{1}{2}$ ". Shut-in 120 minutes. Recovered 300 feet total fluid and 120' G.I.P.--60' SL oil cut mud (7% C, 92% M, 1% G), 120' SL oil & gas cut mud (7% C, 78% M, 15% G), 120' SL oil cut watery mud (2% C, 55% M, 43% wtr). *

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Mississippian DST #2 (cont'd)

Initial Hydrostatic Head	2376 psi
Initial Flow Pressure	90-90 psi
Initial Shut-in Pressure	1264 psi
Final Flow Pressure	120-160 psi
Final Shut-in Pressure	1284 psi
Final Hydrostatic Head	2316 psi
Temperature	128° (?)

* Due to the manner in which the recovery samples were caught and the long time interval from collection to analysis, I feel that the grind-out percentages are questionable.

Viola

DST NO. 3	Open 15 minutes, weak blow. Shut-in 60
5120-95 feet	minutes. Open 90 minutes, no blow.
Log Measurements	Shut-in 120 minutes.
STRADDLE TEST	Recovered 40' drilling mud.

Sampler Information:	Initial Hydrostatic Head	2584 psi
4 F.S.I., 850 cc	Initial Flow Pressure	89-89 psi
mud.	Initial Shut-in Pressure	1534 psi
	Final Flow Pressure	104-104 psi
	Final Shut-in Pressure	1296 psi
	Final Hydrostatic Head	2495 psi
	Temperature	130°

RECOMMENDATIONS AND CONCLUSIONS:

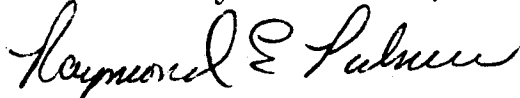
The following is a structural comparison of the K-22 LGK to the Barbara Oil Company No. 1-B Robbins C SW Sec 23-31S-16W.

<u>Formation</u>	<u>K-22 LGK</u>	<u>No. 1-B Robbins</u>
Heebner	-2140	-2125
Lansing	-2342	-2333
Base/Kansas City	-2765	-2752
Marmaton	-2780	-2767
Cherokee Shale	-2899	-2882
Mississippian	-2937	-2926
Kinderhook Shale	-3165	-3119
Viola	-3186	-3149
Simpson Shale	-3353	-3305
TD	-3403	-3424

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At a rotary total depth of 5370, the K-22 LGK was logged by Welex. Although oil and gas were recovered during DST #2, the formation is tight and the shut-in pressures are suspiciously low. Low structural position, lack of shows and negative DST results indicate this test should be plugged and abandoned.

Respectfully submitted,



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August 20, 1983