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15-033-20602

819
26-31-16W

State Geological Survey
WICHITA BRANCH

RAYMOND E. PALMER
Consulting Geologist
2901 Wilmohr Drive
Wichita, Kansas 67223

GEOLOGICAL REPORT

LUFF EXPLORATION COMPANY

G-26 LGK

2026 FNL 1961 F&L, Sec 26-31S-16W
COMANCHE COUNTY, KANSAS

Wd1 -12 -J5

P1



raymond
palmer Consulting Geologist

2901 Wilmoir Drive
Wichita, Kansas 67223
Business 316 722-9091
Mobile 316 722-9090

GEOLOGICAL REPORT

Luff Exploration Company
G-26 LGK
2026 FNL 1961 FBL, Sec 26-31S-16W
COMANCHE COUNTY, KANSAS

ELEVATIONS: 2021 Kelly Bushing
2014 Ground Level

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

COMMENCED: July 20, 1983
COMPLETED: August 2, 1983

ROTARY TOTAL DEPTH: 4995 feet
LOGGED TOTAL DEPTH: 4994 feet

SURFACE PIPE: 8 5/8" 24# @ 499' w/200 sx Lite and 100
sx Class H, 3% cc, 2% Gel.

PRODUCTION PIPE: 118 Jts 5 1/2" 14# K-55 @ 4995' w/500 Gal
Flocher, 200 sx 50-50 Pozmix, 3/4% CFR-2,
10% salt, 10# Gilsnite per sk, plug
down @ 1545, 8-2-83.

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

DAILY PENETRATION RATE:

July 21, 1983	0700	835 feet, Drlg.
July 22, 1983	"	1170 feet, WCC
July 23, 1983	"	2259 feet, Drlg.
July 24, 1983	"	2725 feet, Drlg.
July 25, 1983	"	3256 feet, Drlg.
July 26, 1983	"	3712 feet, Drlg.
July 27, 1983	"	4212 feet, Drlg.
July 28, 1983	"	4528 feet, Drlg.
July 29, 1983	"	4695 feet, Drlg.
July 30, 1983	"	4939 feet, DST #1
July 31, 1983	"	4939 feet, Full DST #1
August 1, 1983	"	4995 feet, Logging
August 2, 1983	"	4995 feet, Run Prod. Csg

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G-26 LGK
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REMARKS:

All measurements are from Kelly Bushing (2021). RTD was 4995, LTD was 4994 (-2973).

One foot drilling time was plotted from 4000 to TD. Ten foot samples were saved from 3000 to TD.

Only one drill stem test was taken, that being in the Mississippian.

Circulation was lost three times in this well:

1. While drilling at 4267
2. While drilling at 4524
3. During trip in after DST #1

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	-	2401	- 380
Council Grove	-	2770	- 749
Cnaga Shale	-	3216	-1195
Howard	-	3628	-1607
Topeka	-	3788	-1767
Heebner	4128	4126	-2105
Lansing	4336	4335	-2314
Base/Kansas City	4752	4753	-2732
Marmaton	4766	4766	-2745
Cherokee Shale	4883	4883	-2862
Mississippian	4909	4910	-2889
TD	4995	4994	-2973

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 #1
4882-4939

Open 30 minutes, strong blow immediately, GTS in 2 minutes, gauge 7,120 mcfgpd. Shut-in 60 minutes. Open 30 minutes, gas immediately, spray of water in 15 minutes, heavy spray of oil in 19 minutes, gauge 9,010 mcfgpd. Shut-in 75 minutes.

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Recovered 220' free oil, 120' gas cut muddy oil (40% G, 30% C, 30% M), 180' slightly gas cut oil (15% G, 80% C, 5% M), total 520' of fluid.

Initial Hydrostatic Head	2478 psi
Initial Flow Pressure	950-980 psi
Initial Shut-in Pressure	1530 psi
Final Flow Pressure	1011-1067 psi
Final Shut-in Pressure	1517 psi
Final Hydrostatic Head	2332 psi

	Time	Choke	PSI	Flow Rate
Initial flow period	2 Min.	2"	5	517 mcf
	5 Min.	2"	26	3,880 mcf
	10 Min.	2"	45	5,690 mcf
	15 Min.	2"	50	6,160 mcf
	20 Min.	2"	60	7,120 mcf stabil.
Final flow period	5 Min.	2"	30	4,260 mcf
	10 Min.	2"	45	5,690 mcf
	15 Min.	2"	50	6,160 mcf
	20 Min.	2"	65	7,600 mcf
	25 Min.	2"	70	8,060 mcf
	30 Min.	2"	80	9,010 mcf

The following is a structural comparison of G-26 IGK to the Mesa Petroleum Company No. 1-27 Susan, 2450 FSL & 225 FLL, Sec 27-31S-16W.

Formation	G-26 IGK	1-27 Susan
Heebner	-2105	-2124
Lansing	-2314	-2337
Base/Kansas City	-2732	-2757
Marmaton	-2745	-2769
Cherokee Shale	-2862	-2882
Mississippian	-2889	-2907
TD	-2973	-3085

At a rotary total depth of 4995, the G-26 LGK was logged by Welex. As a result of the excellent Mississippian DST, 5½" casing was set on this test.

Respectfully submitted,

Raymond E. Palmer

RAYMOND E. PALMER
Consulting Geologist

August 20, 1983

WESTERN TESTING CO. INC.
SUBSURFACE PRESSURE SURVEY

26-31-16W

DATE: 7/30/83 TICKET #1239
CUSTOMER: LUFF EXPLORATION COMPANY LEASE: "G" LGK
WELL: 26 TEST: 1 GEOLOGIST: PALMER
ELEVATION (KB): 0 FORMATION: MISSISSIPPI
SECTION: 26 TOWNSHIP: 31S
RANGE: 16W COUNTY: COMANCHE STATE: KANSAS
GAUGE SN #1566 RANGE: 4300 CLOCK: 12

INTERVAL TEST FROM: 4882 FT TO: 4939 FT TOTAL DEPTH: 4939 FT
DEPTH OF SELECTIVE ZONE: FT
PACKER DEPTH: 4877 FT SIZE: 6 5/8 IN PACKER DEPTH: 4882 FT SIZE: 6 5/8 IN
PACKER DEPTH: FT SIZE: IN PACKER DEPTH: FT SIZE: IN

DRILLING CONTRACTOR: H-30
MUD TYPE: CHEMICAL VISCOSITY: 58
WEIGHT: 9.1 WATER LOSS (CC): 12.8
CHLORIDES (P.P.M.): 14000
JARS - MAKE: WTC SERIAL NUMBER: 422
DID WELL FLOW? YES REVERSED OUT? NO
DRILL COLLAR LENGTH: 489 FT I.D.: 2.2 IN
WEIGHT PIPE LENGTH: FT I.D.: IN
DRILL PIPE LENGTH: 4364 FT I.D.: 3.8 IN
TEST TOOL LENGTH: 29 FT TOOL SIZE: 5 1/2 IN
ANCHOR LENGTH: 26 FT SIZE: 5 1/2 IN
SURFACE CHOKE SIZE: 3/4 IN BOTTOM CHOKE SIZE: 3/4 IN
MAIN HOLE SIZE: 7 7/8 IN TOOL JOINT SIZE: 4 1/2 IN

BLOW: GAS TO SURFACE IN 2 MINUTES.
SEE ATTACHED GAS SHEET.

RECOVERED: 220	FT	OF: FREE OIL GRAVITY 35 @ 79 DEGREES F.
RECOVERED: 120	FT	OF: 40% GAS; 30% OIL; 30% DRILLING MUD
RECOVERED: 120	FT	OF: 15% GAS; 80% OIL; 5% DRILLING MUD
RECOVERED: 60	FT	OF: 15% GAS; 82% OIL; 3% DRILLING MUD
RECOVERED:	FT	OF:
RECOVERED:	FT	OF:
RECOVERED:	FT	OF:
RECOVERED:	FT	OF:
RECOVERED:	FT	OF:

REMARKS: DRILL PIPE LENGTH IN ANCHOR 31 FT. I.D. 3.8 IN.
WATER MIST 15 MINUTES INTO FINAL FLOW PERIOD.
FLOWING HEAVY OIL MIST IN 19 MINUTES
FINAL FLOW PERIOD.

TIME SET PACKER(S): 5:00 PM	TIME STARTED OFF BOTTOM: 8:15 PM
WELL TEMPERATURE: 0 °F	
INITIAL HYDROSTATIC PRESSURE:	(A) 2478 PSI
INITIAL FLOW PERIOD MIN: 30	(B) 950 PSI TO (C) 980 PSI
INITIAL CLOSED IN PERIOD MIN: 60	(D) 1530 PSI
FINAL FLOW PERIOD MIN: 30	(E) 1011 PSI TO (F) 1067 PSI
FINAL CLOSED IN PERIOD MIN: 81	(G) 1517 PSI
FINAL HYDROSTATIC PRESSURE	(H) 2332 PSI

Wdl-18-Jk

WESTERN TESTING CO. INC.
GAS FLOW REPORT

DATE: 7/30/83
CUSTOMER: LUFF EXPLORATION COMPANY
WELL: 26 TEST: 1
ELEVATION (KB): 0 FORMATION: MISSISSIPPI
SECTION: 26 TOWNSHIP: 31S
RANGE: 16W COUNTY: COMANCHE STATE: KANSAS
GAUGE SN #1566 RANGE: 4300 CLOCK: 12

TIME GAUGE (MIN)	TESTER TYPE	ORIFICE SIZE	PRESSURE (PSI)	FLOW DESCRIPTION
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PRE FLOW

2	MERLA	2	0.5 PSIG	517000 CFPD
5		2	26 PSIG	3880000 CFPD
10		2	45 PSIG	5690000 CFPD
15		2	50 PSIG	6160000 CFPD
20		2	60 PSIG	7120000 CFPD
25		2	60 PSIG	7120000 CFPD
30		2	60 PSIG	7120000 CFPD

SECOND FLOW

5	MERLA	2	30 PSIG	4260000 CFPD
10		2	45 PSIG	5690000 CFPD
15		2	50 PSIG	6160000 CFPD
20		2	65 PSIG	7600000 CFPD
25		2	70 PSIG	8060000 CFPD
30		2	80 PSIG	9010000 CFPD

GAS BOTTLE SN #:
DATE BOTTLE FILLED:
DATE TO BE INVOICED: 7/30/83