

# Robert L. Milford

PETROLEUM GEOLOGIST

Wichita, Kansas

## GEOLOGIST'S REPORT

DRILLING TIME AND SAMPLE LOG

OPERATOR **MurfIn Drilling Company, Inc.**

LEASE **HMZ #4-29**

LOC SPOT **NW NE NE**

LOC FOOTAGE **30' FNL 990' FEL**

SEC. **29** TWP. **1S** R. **36W**

COUNTY **Rauville** STATE **Kansas**

DATE **15-15-21004-00-00**

CONTRACTOR **MurfIn Drilling Co., Inc.** REG. NO. **8**

DRILLING STARTED **1-20-14** COMPLETED **4-16-2014**

MUD DISCHARGED **3.888** MUD TYPE **Chemical**

DRILLING TIME KEPT FROM **3.860** TO RTD

SAMPLES SAVED FROM **3.860** TO RTD

SAMPLES EXAMINED FROM **3.860** TO RTD

GEOLOGICAL SUPERVISION FROM **3.579** TO RTD

NEUTRON/FIS/GRAB

CONSIDER

Surface **8.5/8" @ 60'**  
w/ 240 sacks cement  
Production name

RECORD

ELEVATIONS

BL **3.008**

GL **3.003**

FORMATION

NAME TOP LOG DATUM TOP SAMPLE

Stone Corral 3.17' +91 3.15' +93

Neva 3.98' -90 3.98' -90

Forker 3.810' -502 3.810' -502

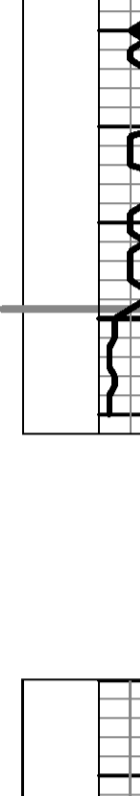
FORMATION NAME	TOP LOG	DATUM	TOP SAMPLE
Stone Corral	3.17'	+91	3.15' +93
Neva	3.98'	-90	3.98' -90
Forker	3.810'	-502	3.810' -502
Topeka	4.033'	-725	4.033' -725
Lansing	4.244'	-936	4.244' -936
Stark	4.463'	-1155	4.463' -1155
B/KC	4.914'	-1206	4.914' -1206
Pawnee	4.636'	-1328	4.636' -1328
Cherokee	4.715'	-1407	4.715' -1407
Total Depth	4.810'	-1502	4.810' -1502

Forcstly Log

Microstratigraphy Log

Sonic Log

Borehole Compartmented



DATE	7:00 AM DEPTH	REMARKS
4-8-14	0'	Spud @ 1:45 pm. Plug down @ 7:15 pm. Drilled out plug @ 3:15 am on 4-9-14 w/ PDC bit
4-9-14	570'	in last 24 hrs; 310' in 3.75 hrs w/ PDC bit.
4-10-14	2,951'	Cut 2.381' in last 24 hrs; 19 hrs drlg. Bit trips @ 2951' (cleaned) & 3579' (replaced)
4-11-14	3,825'	Cut 2.871' in last 24 hrs; 15.75 hrs drlg. DST #1 @ 4015'
4-12-14	4,040'	Cut 215' in last 24 hrs; 6.75 hrs drlg. DST #2 @ 4320'
4-13-14	4,320'	Cut 280' in last 24 hrs; 11.75 hrs drlg. DST #3 @ 4380'
4-14-14	4,380'	Cut 60' in last 24 hrs; 2.75 hrs drlg. DST #4 @ 4465'
4-15-14	4,465'	Cut 85' in last 24 hrs; 4 hrs drlg. RTD 4810' @ 4:50 am on 4-16-14
4-16-14	4,810'	Cut 345' in last 24 hrs; 17.75 hrs drlg. P&A

**Remarks**

The electric log measurements correlate 2' to 3' lower at the Stone Corral anhydrite but are about even in the sample portion of the report to the drilling measurements.

Formation tops and lithology on this report have been corrected to the electric log.

The drilling samples were deposited at the Kansas Geological Survey office in Wichita.

Respectfully submitted,

Robert L. Milford

