

Robert L. Milford

PETROLEUM GEOLOGIST
Wichita, Kansas

GEOLOGISTS REPORT

DRILLING TIME AND SAMPLE LOG

OPERATOR **Murfin Drilling Company, Inc.**
LEASE **Jean #4-8**
LOC SPOT **C SE SW**

ELEVATIONS
BK **3 216'**
CL **3 211'**

MEASUREMENTS
LOC FOOTAGE **660' FSL 1 980' FWL**
SEC. **8** TWP **15** RANG **37W**
COUNTY **Cheyenne** STATE **KANSAS**

CASING RECORD
CONTRACTOR **Murfin Drilling Co., Inc.** RIG NO. **8**
DRILLING STARTED **6-23-2014** COMPLETED **7-1-2014**
MUD DISPLAY/CEED **3 995** MUD TYPE **Chemical**
DRILLING TIME KEPT FROM **3 320** TO RTD
SAMPLES SAVED FROM **3 320** TO RTD
SAMPLES EXAMINED FROM **3 320** TO RTD
GEOLOGICAL SUPERVISOR FROM **3 350** TO RTD

FORMATION NAME LOG SAMPLE
TOP DATUM TOP DATUM
Stone Corral 3173' +43 3170' +46
Neva 3623' -407 3621' -405
Topeka 3954' -738 3952' -736
Oread 4090' -874 4088' -872
Lansing 4167' -951 4165' -949
Stark 4388' -1172 4386' -1170
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Pawnee 4561' -1345 4559' -1343
Cherokee 4653' -1437 4650' -1434
Total Depth 4765' -1549 4760' -1544

PAROSITY LOG
MICROSTRENGTH LOG
Borehole Compensated

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| DATE | 7:00 AM DEPTH | REMARKS |
|---------|---------------|---|
| 6-23-14 | 0' | Spud @ 2:30 pm. Plug down @ 6:30 pm. Drilled out plug @ 2:30 am on 6-24-14 w/ PDC bit |
| 6-24-14 | 560' | Cut 560' in last 24 hrs. |
| 6-25-14 | 3,015' | Cut 2,455' in last 24 hrs; 21 hrs drlg. Bit trip @ 3518' (ran bottom bit) |
| 6-26-14 | 3,755' | Cut 740' in last 24 hrs; 14.25 hrs drlg. DST #1 @ 3955' |
| 6-27-14 | 3,955' | Cut 200' in last 24 hrs; 9.25 hrs drlg. |
| 6-28-14 | 4,230' | Cut 275' in last 24 hrs; 15.75 hrs drlg. DST #2 @ 4242' |
| 6-29-14 | 4,335' | Cut 105' in last 24 hrs; 6 hrs drlg. DST #3 @ 4386' |
| 6-30-14 | 4,495' | Cut 160' in last 24 hrs; 8.75 hrs drlg. DST #4 @ 4585' |
| 7-1-14 | 4,590' | Cut 95' in last 24 hrs; 6.75 hrs drlg. RTD 4760' @ 4:01 pm |
| 7-2-14 | 4,760' | Cut 170' in last 24 hrs; 7.75 hrs drlg. Ran production casing. |

Remarks

The electric log measurements correlate from 2' to 3' lower 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

