

Robert L. Milford

PETROLEUM GEOLOGIST

Wichita, Kansas

GEOLOGISTS' REPORT

DRILLING TIME AND SAMPLE LOG

OPERATOR: **Murfin Drilling Company, Inc.**
 LEASE: **Emmeretia #1-23**
 LOC. SPOT: **140'E of C N2 NW SW**

LOC. FOOTAGE: **2,310' FSL 800' FWL**
 SEC: **23** TNSP: **15S** RNG: **19W**
 COUNTY: **Ellis** STATE: **Kansas**

API: **15-051-26472-00-00**
 CONTRACTOR: **Murfin Drilling Co., Inc.** RFD NO.: **16**
 DRILLING STARTED: **2-13-2013** COMPLETED: **2-25-2013**
 MUD DISPLACED: **2,540'** MUD TYPE: **Chemical**
 DRILLING TIME (KEPT FROM): **2,860'** TO: **RTD**
 SAMPLES SAVED FROM: **2,860'** TO: **RTD**
 SAMPLES EXAMINED FROM: **2,860'** TO: **RTD**
 GEOLOGICAL SUPERVISION FROM: **2,750'** TO: **RTD**

NEAREST TOWN: **WICHITA**
 CASING RECORD
 Conductor:
 Surface: **8.5/8" @ 1175'**
 w/ 600 sticks cement
 Production none

ELECTRICAL SURVEYS:
 Printer Wireline:
 Dual Induction Log
 Dual Compensated -

FORMATION NAME LOG
 Stone Corral 1174' +807
 Base Stone Corral 1218' +763
 Topeka 2,969' -988
 Heebner 3,233' -1252
 Lansing 3,279' -1298
 Stark 3,481' -1500
 B/KC 3,528' -1547
 Arbuckle 3,614' -1633
 Reagan 3,644' -1663
 Total Depth 3,698' -1717

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| DATE | 7:00 AM DEPTH | REMARKS |
|---------|---------------|--|
| 2-13-13 | 0' | Spud @ 4:00 pm. |
| 2-14-13 | 990' | Cut 990' in last 24 hrs. 14.75 hrs drlg. Dev. 0.25' @ 1176'. Set surface casing. Plug down @ 6:00 pm. Drilled out plug @ 6:00 am on 2-15-13. |
| 2-15-13 | 1,190' | Cut 200' in last 24 hrs; 5.25 hrs drlg. Lost circ @ 2056' (down 1 hr). Dev. 0.5' @ 2223'. |
| 2-16-13 | 2,415' | Cut 1,225' in last 24 hrs; 21.25 hrs drlg. |
| 2-17-13 | 3,120' | Cut 705' in last 24 hrs; 20.25 hrs drlg. DST #1 @ 3318' |
| 2-18-13 | 3,318' | Cut 198' in last 24 hrs; 6.5 hrs drlg. DST #2 @ 3372', DST #3 @ 3459' |
| 2-19-13 | 3,459' | Cut 141' in last 24 hrs; 6.75 hrs drlg. DST #4 @ 3507' |
| 2-20-13 | 3,507' | Cut 48' in last 24 hrs; 2.25 hrs drlg. Shut down 3602' @ 2:15 pm due to snow storm |
| 2-21-13 | 3,602' | Cut 95' in last 24 hrs; 4 hrs drlg. Shut down due to snow storm |
| 2-22-13 | 3,602' | Cut 0' in last 24 hrs. Shut down. Clean snow off location. |
| 2-23-13 | 3,602' | Cut 0' in last 24 hrs. Start up @ 7:00 am; started drlg @ 1:15 pm. DST #5 @ 3612' |
| 2-24-13 | 3,622' | Cut 20' in last 24 hrs; 0.5 hrs drlg. DST's #6 & #7 @ 3627'. RTD 3700' |
| 2-25-13 | 3,700' | Cut 78' in last 24 hrs; 2.75 hrs drlg. P&A |

Remarks

The electric log measurements correlate from 1' lower to 2' higher 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

