

Thomas J. Funk
Petrolem Geologist

Geologist's Report
Drilling Time and Sample Log

OPERATOR **Murfin Drilling Co., Inc**

LEASE **WWWM 'A'** WELL NO **#4-4**

FIELD **High Hat** API **15-109-21345**

LOCATION **990' FSL & 335' FEL**

SEC. **4** TWP. **13S** RGE. **32W**

COUNTY **Logan** STATE **Kansas**

CONTRACTOR **Murfin Dring Co** Reg #4

COMM **10/18/2014** COMP **10/30/2014**

RTD **4/50'** LOG TD **4748'**

SAMPLES SAVED FROM **3670'** TO **4750'**

DRILLING TIME KEPT FROM **3670'** TO **4750'**

SAMPLES EXAMINED FROM **3670'** TO **4750'**

GEOLOGICAL SUPERVISION FROM **3700'** TO **4750'**

MUD UP **3300'** TYPE MUD **Chemical**

PRODUCTION **5 1/2" at 4747KB w/175x**

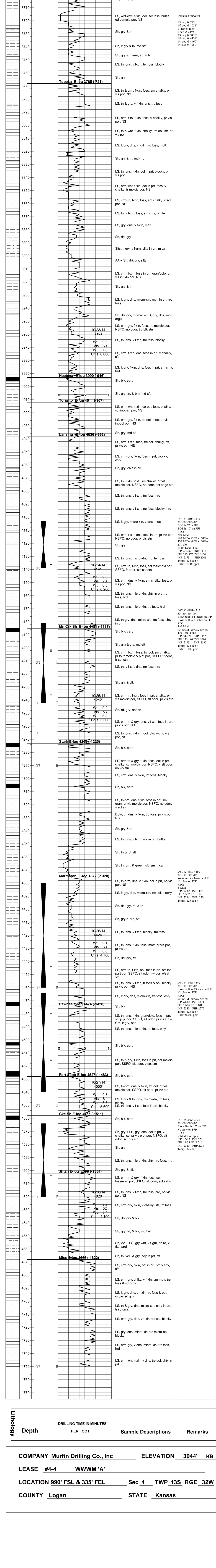
ELECTRICAL SURVEYS
Pioneer Energy Serv
DIL
MEI
DUQP
BHCS

| FORMATION | LOG | SAMPLE |
|---------------|--------------|--------------|
| Anhydrite | TOP DATUM | TOP DATUM |
| 2526 (+518) | 2528 (+516) | |
| 2549 (+495) | 2551 (+493) | |
| 3765 (-721) | 3768 (-724) | |
| 3990 (-946) | 3993 (-949) | |
| Lansing | 4036 (-992) | 4038 (-994) |
| Muncie Creek | 4181 (-1137) | 4185 (-1141) |
| Start Sh | 4263 (-1225) | 4273 (-1229) |
| Marmaton | 4372 (-1328) | 4376 (-1332) |
| Pawnee | 4474 (-1428) | 4474 (-1430) |
| Cherokee Sh | 4555 (-1511) | 4558 (-1514) |
| Johnson Zone | 4598 (-1554) | 4602 (-1558) |
| Mississippian | 4666 (-1622) | 4668 (-1624) |

| Date | Daily Progress | NO Strs | Make | Type | Depth | Out | Feet | Hours |
|----------|----------------|---------|-------------|-------|-------|-----|------|-------|
| 10/18/14 | Spud | 1 | 12 1/4' HTC | HTC-1 | 223 | | 223 | 3 |
| 10/19/14 | | 2 | 7 7/8' HTC | DP506 | 3253 | | 3030 | 42 |
| 10/20/14 | | 3 | 7 7/8' HTC | GX20c | 4750 | | 1497 | 98 |
| 10/21/14 | | | | | | | | |
| 10/22/14 | | | | | | | | |
| 10/23/14 | | | | | | | | |
| 10/24/14 | | | | | | | | |
| 10/25/14 | | | | | | | | |
| 10/26/14 | | | | | | | | |
| 10/27/14 | | | | | | | | |
| 10/28/14 | | | | | | | | |
| 10/29/14 | | | | | | | | |
| 10/30/14 | | | | | | | | |

Remarks and Recommendations:
Production casing was set to further evaluate the #4 WWWM 'A' for possible production or water injection.
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| | | |
|---|------------------------|-------------------------------|
| COMPANY Murfin Drilling Co., Inc | ELEVATION 3044' | KB |
| LEASE #4-4 | WWWM 'A' | |
| LOCATION 990' FSL & 335' FEL | Sec 4 | TWP 13S RGE 32W |
| COUNTY Logan | STATE Kansas | |

LEGEND

Anhydrite Salt Sandstone Shale Carb Shale Limestone Ool Limestone Chert Dolomite