

GEOLOGISTS' REPORT

OPERATOR: **MURFIN DRILLING COMPANY, INC.**
 LEASE: **JAMES 'B' # 1-23**

LOCATION: **1320 FNL & 2310 FWL**
 SEC. **23** TWPSP **10S** RGE **34W**
 COUNTY: **THOMAS** STATE **KANSAS**

FIELD: **JIMMY**
 CONTRACTOR: **Murfin Drilling Company**
 COMMENCED: **8 January 2015**
 WMD DISPLACED: **3201**
 DRILLING TIME (EFT FROM SAMPLER): **3770**
 SAMPLER EXAMINED FROM: **3770 TO 4845**

GEOLOGICAL SUPERVISION FROM: **3765 TO 4845**
 GEOLOGIST ON WELL: **Paul Gutzlerman**

| FORMATION NAME | LOG TOP | DATE/TIME | SAMPLE TOP | DATE/TIME |
|-----------------|---------|-----------|------------|-----------|
| Stone Corral | 4738 | +486 | 2715 | +491 |
| Basal Anhydrite | 4738 | +488 | 2740 | +466 |
| Topeka | 3876 | -670 | 3874 | -668 |
| Heebner Shale | 4093 | -887 | 4089 | -883 |
| Lansing | 4134 | -928 | 4127 | -921 |
| Stark Shale | 4384 | -1188 | 4389 | -1183 |
| Pamree | 4586 | -1350 | 4580 | -1344 |
| Cherokee | 4642 | -1438 | 4637 | -1431 |
| Mississippian | 4773 | -1567 | 4766 | -1560 |
| Total Depth | 4851 | -1645 | 4845 | -1639 |

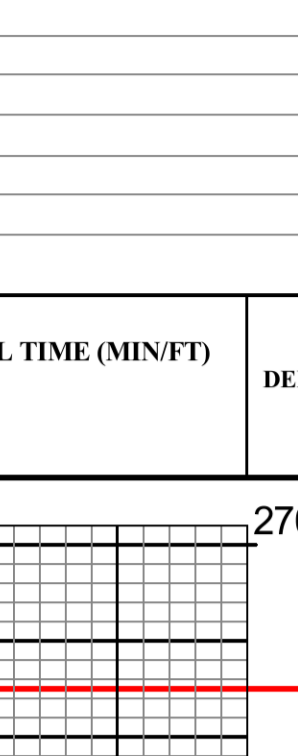
FORMER LOG NAME: **TOP**

LOG DATE/TIME: **2715**

SAMPLE DATE/TIME: **+491**

GL: **3195 Ft.**
 ALL MEASUREMENTS FROM N.B.
CASING RECORD
 CONDUIT: **None**
 MUD TYPE: **Chemical**
 TO: **4845**
 TO: **3770**
 TO: **4845**
 TO: **3770**

ELECTRICAL SURVES:
 Pioneer Energy Services
 Comp. Neutron Density
 Dual Induction
 Micro-resistivity
 Comp. Sonic



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REMARKS: API 15-193-20945-00-00
 Drilling Fluids: Morgan Mud, Inc. (David Lines, engineer)
 Drill Stem Testing: Tribolite Testing, Inc. (Will MacClean, tester)
 Gas Trailer: No Gas Trailer
 Reserve Pit Chlorides: 29,800 PPM.

| DEPTH | LITHOLOGY | SAMPLE DESCRIPTIONS | REMARKS |
|-------|-----------|---------------------|---------|
|-------|-----------|---------------------|---------|

STONE CORRAL
 2715 (+491)

BASE/ANHYDRITE
 2740 (+466)

11:02 AM, 11 January 2015

Morgan Mud check @ 3780'
 Vis: 53, Wt: 9.2, WL: 6.0
 Chlor: 8,400 ppm, LCM: 4 #

TOPEKA
 3874 (-668)

Morgan Mud check @ 4145'
 Vis: 55, Wt: 9.2, WL: 6.4
 Chlor: 8,900 ppm, LCM: 5 #

HEEBNER SHALE
 4089 (-883)

Morgan Mud check @ 4228'
 Vis: 62, Wt: 9.2, WL: 6.8
 Chlor: 9,900 ppm, LCM: 6 #

LANSING
 4129 (-923)

Morgan Mud check @ 4359'
 Vis: 64, Wt: 9.3, WL: 7.2
 Chlor: 12,300 ppm, LCM: 4 #

STARK SHALE
 4359 (-1153)

Morgan Mud check @ 4501'
 Vis: 58, Wt: 9.3, WL: 7.6
 Chlor: 10,100 ppm, LCM: 4 #

MARMATON
 4448 (-1242)

Morgan Mud check @ 4628'
 Vis: 74, Wt: 9.3, WL: 8.4
 Chlor: 9,600 ppm, LCM: 6 #

PAWNEE
 4550 (-1344)

Morgan Mud check @ 4718'
 Vis: 69, Wt: 9.3, WL: 7.6
 Chlor: 10,300 ppm, LCM: 6 #

MISSISSIPPIAN
 4770 (-1564)

Morgan Mud check @ 4845'
 Vis: 61, Wt: 9.3, WL: 7.2
 Chlor: 9,600 ppm, LCM: 6 #

TOTAL DEPTH
 4845 (-1639)
 9:52 PM, 17 January 2015

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 County: **THOMAS** State: **KANSAS**