

LITHOLOGY STRIP LOG

WellSight Systems
Scale 1:240 (5"=100') Imperial
Measured Depth Log

Well Name: Murfin Drilling Company, Inc. Zola Unit #1-1
Location: Approx. NW NW SE NE Section 1-T5S-R31W
License Number: API: 15-153-20899
Spud Date: April 24, 2012
Surface Coordinates: 1400' FNL & 1200' FEL Section 1-T5S-R31W
Region: Rawlins Co, KS
Drilling Completed: May 3, 2012

Bottom Hole Coordinates: 2866 K.B. Elevation (ft): 2871
Ground Elevation (ft): 3600 To: 4490 Total Depth (ft): 4490
Logged Interval (ft): Mississippi RTD 4490(-1619), LTD 4492(-1621)
Formation: Displaced at 3086'
Type of Drilling Fluid: Chemical. Printed by WellSight Log Viewer from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR

Company: Murfin Drilling Company, Inc.
Address: 250 N Water STE 300
Wichita, KS 67202-1216

GEOLOGIST

Name: Mikeal K. Maune
Company: Petroleum Geologist - Kansas Licensed No. 210
Address: Wichita, Kansas
Office: 316-722-8173

COMMENTS

Surface Casing: 8 5/8" Csg set @ 220' w/190x3; Comm; (3%CC 2% Gel). PD @ 6:30 pm 4/24/2012. Cmt Circ.
Production Casing: 5 1/2" Csg set @ 4482'. Cement not available.
Deviation Surveys: 1/2 @ 220', 1/4 @ 217', 1 @ 3937', 1 @ 4490' RTD.
Pipe Strap @3937' DST #1. Strap 3936.76'. Board 3937.37'. Strap short to Board .61'.

Murfin Drilling Rig #8 Bit Record:
#1 12 1/4" GT-C1 RR in @ GL, out @ 220'.
#2 7 7/8" HC GX20cin @ 222', out @ RTD 4490'.

Mud System: Morgan Mud, Inc.
DSTs: Trilobite Testing Inc. (5 DSTs).

Correlation of the OH Log with the Rotary drilling time indicates the OH Log depths are approximately two to three feet deep to the Rotary drilling time depths. The Gamma Ray curve on this report was adjusted uphole two feet to correlate with the drilling time depths.

OH Log Formation Tops: Anhydrite 2606 (+265), Base Anhydrite 2642 (+229), Topeka 3688 (-817), Heebner 3858 (-987), Toronto 3891 (-1020), Lansing 3906 (-1035), "F" 3976 (-1105), "J" 4049 (-1188), Stark Sh 4070 (-1199), BKC 4122 (-1251), Lenapah 4144 (-1273), Pawnee (4233 (-1362), Fort Scott 4305 (-1434), Cherokee 4317 (-1446), Miss Cht 4430 (-1559), LTD 4492 (-1621), RTD 4490 (-1619).

DSTs

DST #1 (Toronto, LKC 'A' & 'B') 3854-3937/30-60-60-90. 1st Op: BOB/30 min. No RB. 2nd Op: BOB/33 min. No RB. Recover: Total Fluid 376'. 10' FO (100% Oil), 62' OCM (20% Oil, 80% Mud), 124' OCWM (10% Oil, 10% Wtr, 80% Mud), 180' MW (90% Wtr, 10% Mud). API RW .76 @ 71 F, Chl 9,000. IH 1907#, IFP 28-127#, ISIP 1239#, FFP 129-195#, FSIP 1216#, FH 1919#, BHT 117 F.

DST #2 (LKC 'F') 3958-3980/30-60-15-60. 1st Op: BOB/3 min. RB BOB/20 min. 2nd Op: BOB/5 min. RB BOB/40 min. Recover: 1260' GIP. Total Fluid 936'. 816' CGO (15% Gas, 85% Oil), Gly 43, 120' OCM (40% Oil, 60% Mud), IH 1961#, IFP 52-224#, ISIP 1316#, FFP 241-305#, FSIP 1316#, FH 1888#, BHT 125 F.

DST #3 (LKC 'J') 4020-4070/30-60-30-60. 1st Op: BOB/15 min. RB Build to 3 3/4". 2nd Op: BOB/8 min. RB BOB/22 min. Recover: 850' GIP. Total Fluid 460'. 280' FO (100% Oil) Gly 36, 120' MCO (80% Oil, 20% Mud), 60' MCO (60% Oil, 40% Mud), IH 2017#, IFP 36-113#, ISIP 1348#, FFP 122-164#, FSIP 1340#, FH 1968#, BHT 121 F.

DST #4 (LKC 'K' & 'L') 4066-4120/30-60-30-60. 1st Op: 3-1/4" Blow. 2nd Op: No Blow. Recover: 5' OSM (spots of Oil, 100% Mud), IH 2055#, IFP 19-21#, ISIP 53#, FFP 20-21#, FSIP 37#, FH 2026#, BHT 112 F.

DST #5 (Lower Pawnee, Ft Scott, Celia Sst) 4272-4340/30-60-30-30. 1st Op: Surf blow 1/8" died 25 min. 2nd Op: No Blow. Recover: 5' M (100% Mud), IH 2171#, IFP 19-20#, ISIP 42#, FFP 20-21#, FSIP 28#, FH 2143#, BHT 120 F.

ROCK TYPES

- | | | | |
|-------|----------|-------|---------|
| Anhy | Congly | Lmst | Grsh |
| Bent | Shy dolo | Mlmt | Blysh |
| Brec | Dol | Salt | Shale |
| Cht | Gyp | Shale | Shaltst |
| Clyst | Sdy lmst | Sltst | Sltsh |
| Coal | | Ss | |

ACCESSORIES

- | | | |
|----------|----------|----------|
| Chlorite | Pelec | Grysh |
| Dol | Peloidal | Grysit |
| Sand | Pisolite | Lms |
| Silt | Plant | Sandylms |
| | Strom | Sh |
| | Fuss | Sltstn |
| | Oomoldic | |

STRINGER

- | | | | | | | | | | |
|------|------|-----|-----|----|--------|-------|--------|--------|-----|
| Anhy | Bent | Dol | Gyp | Ls | Mlstrg | Sstrg | Carbsh | Clystn | Dol |
|------|------|-----|-----|----|--------|-------|--------|--------|-----|

TEXTURE

- | | | | | | | | | | | |
|---------|--------|-------|--------|---------|---------|---------|----------|-------|--------|---------|
| Boundst | Chalky | Crxln | Earthy | Finexln | Grainst | Lithogr | Microxin | Mudst | Packst | Wackest |
|---------|--------|-------|--------|---------|---------|---------|----------|-------|--------|---------|

MINERAL

- | | | | | | | | | | | | | | | | | | | | | |
|------|-----|------|-----|---------|------|------|-------|-------|-----|---------|------|------|-----|------|--------|------|-----|------|-------|------|
| Anhy | Arg | Bent | Bit | Brefrac | Calc | Carb | Chtdk | Chtlt | Dol | Ferrpel | Ferr | Glau | Gyp | Marl | Nodule | Phos | Pyr | Salt | Sandy | Silt |
|------|-----|------|-----|---------|------|------|-------|-------|-----|---------|------|------|-----|------|--------|------|-----|------|-------|------|

FOSSIL

- | | | | | | | | | | | | | | | |
|-------|------|------|---------|-------|---------|--------|-------|-------|------|------|--------|--------|--------|-------|
| Algae | Amph | Belm | Bioclst | Brach | Bryozoa | Cephal | Coral | Echin | Fish | Forn | Fossil | Gastro | Oolite | Ostra |
|-------|------|------|---------|-------|---------|--------|-------|-------|------|------|--------|--------|--------|-------|

Geological Descriptions

ROP (min/ft) Gamma (API) Depth Lithology Geological Descriptions Remarks

2580-2600 Anhy Conn

2600-2610 Anhy Conn

2610-2620 Conn

2620-2630 Conn

2630-2640 Conn

2640-2650 Conn

2650-2660 Conn

2660-2670 Conn

3570-3580 Conn

3580-3590 Conn

3590-3600 Conn

3600-3610 Conn

3610-3620 Conn

3620-3630 Conn

3630-3640 Conn

3640-3650 Conn

3650-3660 Conn

3660-3670 Conn

3670-3680 Conn

3680-3690 Conn

3690-3700 Conn

3700-3710 Conn

3710-3720 Conn

3720-3730 Conn

3730-3740 Conn

3740-3750 Conn

3750-3760 Conn

3760-3770 Conn

3770-3780 Conn

3780-3790 Conn

3790-3800 Conn

3800-3810 Conn

3810-3820 Conn

3820-3830 Conn

3830-3840 Conn

3840-3850 Conn

3850-3860 Conn

3860-3870 Conn

3870-3880 Conn

3880-3890 Conn

3890-3900 Conn

3900-3910 Conn

3910-3920 Conn

3920-3930 Conn

3930-3940 Conn

3940-3950 Conn

3950-3960 Conn

3960-3970 Conn

3970-3980 Conn

3980-3990 Conn

3990-4000 Conn

4000-4010 Conn

4010-4020 Conn

4020-4030 Conn

4030-4040 Conn

4040-4050 Conn

4050-4060 Conn

4060-4070 Conn

4070-4080 Conn

4080-4090 Conn

4090-4100 Conn

4100-4110 Conn

4110-4120 Conn

4120-4130 Conn

4130-4140 Conn

4140-4150 Conn

4150-4160 Conn

4160-4170 Conn

4170-4180 Conn

4180-4190 Conn

4190-4200 Conn

4200-4210 Conn

4210-4220 Conn

4220-4230 Conn

4230-4240 Conn

4240-4250 Conn

4250-4260 Conn

4260-4270 Conn

4270-4280 Conn

4280-4290 Conn

4290-4300 Conn

4300-4310 Conn

4310-4320 Conn

4320-4330 Conn

4330-4340 Conn

4340-4350 Conn

4350-4360 Conn

4360-4370 Conn

4370-4380 Conn

4380-4390 Conn

4390-4400 Conn

4400-4410 Conn

4410-4420 Conn

4420-4430 Conn

4430-4440 Conn

4440-4450 Conn

4450-4460 Conn

4460-4470 Conn

4470-4480 Conn

4480-4490 Conn

4490-4500 Conn

RTD 4490 (-1619)
LTD 4492 (-1621)