

OPERATOR

Company: Murfin Drilling Company
 Address: 250 N. Water
 Suite 300
 Wichita, KS 67202
 Contact Geologist: Shauna Gunzelman
 Contact Phone Nbr: 316-267-3241
 Well Name: Makings #1-18
 Location: Sec. 18 - T4S - R33W
 API: 15-153-21072-0000
 Pool: _____ Field: Wildcat
 State: Kansas Country: USA



Scale 1:240 Imperial

Well Name: Makings #1-18
 Surface Location: Sec. 18 - T4S - R33W
 Bottom Location:
 API: 15-153-21072-0000
 License Number: 30606
 Spud Date: 10/23/2014 Time: 3:45 PM
 Region: Rawlins County
 Drilling Completed: 10/30/2014 Time: 5:10 PM
 Surface Coordinates: 1100' FSL & 330' FWL
 Bottom Hole Coordinates:
 Ground Elevation: 3098.00ft
 K.B. Elevation: 3103.00ft
 Logged Interval: 3740.00ft To: 4720.00ft
 Total Depth: 4720.00ft
 Formation: Mississippian
 Drilling Fluid Type: Chemical/Fresh Water Gel

SURFACE CO-ORDINATES

Well Type: Vertical
 Longitude:
 Latitude:
 N/S Co-ord: 1100' FSL
 E/W Co-ord: 330' FWL

LOGGED BY

Keith Reavis
Consulting Geologist

Company: Keith Reavis, Inc.
 Address: 3420 22nd Street
 Great Bend, KS 67530
 Phone Nbr: 620-617-4091
 Logged By: KLG #136 Name: Keith Reavis

CONTRACTOR

Contractor: Murfin Drilling Company
 Rig #: 7
 Rig Type: mud rotary
 Spud Date: 10/23/2014 Time: 3:45 PM
 TD Date: 10/30/2014 Time: 5:10 PM
 Rig Release: _____ Time: _____

ELEVATIONS

K.B. Elevation: 3103.00ft Ground Elevation: 3098.00ft
 K.B. to Ground: 5.00ft

NOTES

Due to negative results of DST's #1 - #4 and subsequent electrical log analysis, it was determined by the operator that the Makings #1-18 be plugged and abandoned as a dry test.

The samples were saved and will be available for review at the Kansas Geological Survey Well Sample Library located in Wichita, KS.

Respectfully submitted,
 Keith Reavis

Murfin Drilling Company
daily drilling report

DATE	7:00 AM DEPTH	REMARKS
10/25/2014		Geologist Keith Reavis on location @ 1900 hrs, 3730 ft, tripping bit, out with PDC and in with button, resume drilling
10/26/2014	3894	drilling ahead, Topeka, Deer Creek, Lecompton, Heebner, Toronto, Lansing shows in Toronto and Lansing A warrant test, short trip, TOH w/bit in w/tools
10/27/2014	4040	complete DST #1, successful test, TIH w/bit, resume drilling, B & D zones, show in B warrants test, TOH for DST #2, in w/tools, conduct and complete DST#2, successful test, TIH w/bit
10/28/2014	4126	resume drilling, run test across E, F and G, TOH w/bit, in w/tools, conduct DST #3, successful test, out w/tools, in w/bit, resume drilling, show in H and J warrant test, TOH w/bit
10/29/2014	4220	in hole w/tools, conducting DST #4, complete DST #4 successful test, back in hole w/bit, resume drilling, lower KC, Marmaton
10/30/2014	4482	drilling ahead, Pawnee, Ft. Scott, Cherokee, Mississippian, TD @ 4720 ft, 1710 hrs, short trip, ctch, TOH for logs, conducting logging operations
10/31/2014	4710	conduct and complete logging operations, geologist off location 0330 hrs

Murfin Drilling Company
well comparison sheet

DRILLING WELL					COMPARISON WELL				
MDC - Makings #1-18 1100' FSL & 330' FWL Sec 18-T4S-R33W					MDC - Morgan #1-17 660' FSL & 2310' FEL Sec 17-T4S-R33W				
3103 KB					3049 KB			Structural Relationship	
Formation	Sample	Sub-Sea	Log	Sub-Sea	Log	Sub-Sea	Sample	Log	
Topeka	3819	-716	3825	-722	3782	-733	17	11	
Lecompton	3923	-820	3928	-825	3884	-835	15	10	
Oread	3965	-862	3972	-869	3926	-877	15	8	
Heebner	3988	-885	3992	-889	3950	-901	16	12	
Toronto	4018	-915	4026	-923	3980	-931	16	8	
Lansing	4029	-926	4036	-933	3991	-942	16	9	
Lansing G	4119	-1016	4128	-1025	4080	-1031	15	6	
Stark	4219	-1116	4224	-1121	4179	-1130	14	9	
Base KC	4267	-1164	4271	-1168	4229	-1180	16	12	
Pawnee	4400	-1297	4403	-1300	4362	-1313	16	13	
Cherokee	4468	-1365	4474	-1371	4432	-1383	18	12	
Mississippian	4643	-1540	4642	-1539	4618	-1569	29	30	
Total Depth	4720	-1617	4728	-1625	4690	-1641	24	16	


Drill Stem Test #1

	DRILL STEM TEST REPORT																																					
	Murfin Drilling Co. Inc 250 N. Water Ste 300 Wichita KS 67202 ATTN: Keith Reavis	18-4s-33w Rawlins Co. KS Makings # 1-18 Job Ticket: 57748 DST#: 1 Test Start: 2014.10.26 @ 19:08:00																																				
GENERAL INFORMATION: Formation: Toronto / LKC " A Deviated: No Whipstock ft (KB) Time Tool Opened: 21:44:55 Time Test Ended: 03:32:09 Interval: 3986.00 ft (KB) To 4040.00 ft (KB) (TVD) Total Depth: 4040.00 ft (KB) (TVD) Hole Diameter: 7.88 inches-Hole Condition: Good Test Type: Conventional Bottom Hole (Initial) Tester: Will MacLean Unit No: 71 Reference Elevations: 3103.00 ft (KB) 3098.00 ft (CF) KB to GR/CF: 5.00 ft																																						
Serial #: 8674 Inside Press@RunDepth: 20.83 psig @ 3987.00 ft (KB) Start Date: 2014.10.27 Start Time: 19:08:00 End Time: 03:32:09 Capacity: 8000.00 psig Last Calib.: 2014.10.27 Time On Btm: 2014.10.26 @ 21:44:40 Time Off Btm: 2014.10.27 @ 00:49:39																																						
TEST COMMENT: IF- Weak Surface Blow 1/4" IS- No Blow FF- No Blow FS- No Blow																																						
	PRESSURE SUMMARY <table border="1"> <thead> <tr> <th>Time (Min.)</th> <th>Pressure (psig)</th> <th>Temp (deg F)</th> <th>Annotation</th> </tr> </thead> <tbody> <tr><td>0</td><td>2004.80</td><td>116.59</td><td>Initial Hydro-static</td></tr> <tr><td>1</td><td>16.66</td><td>115.42</td><td>Open To Flow (1)</td></tr> <tr><td>31</td><td>18.51</td><td>116.35</td><td>Shut-In(1)</td></tr> <tr><td>92</td><td>859.00</td><td>118.03</td><td>End Shut-In(1)</td></tr> <tr><td>92</td><td>19.92</td><td>117.64</td><td>Open To Flow (2)</td></tr> <tr><td>123</td><td>20.83</td><td>118.52</td><td>Shut-In(2)</td></tr> <tr><td>185</td><td>779.61</td><td>119.89</td><td>End Shut-In(2)</td></tr> <tr><td>185</td><td>1899.83</td><td>120.41</td><td>Final Hydro-static</td></tr> </tbody> </table>		Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation	0	2004.80	116.59	Initial Hydro-static	1	16.66	115.42	Open To Flow (1)	31	18.51	116.35	Shut-In(1)	92	859.00	118.03	End Shut-In(1)	92	19.92	117.64	Open To Flow (2)	123	20.83	118.52	Shut-In(2)	185	779.61	119.89	End Shut-In(2)	185	1899.83	120.41	Final Hydro-static
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185	779.61	119.89	End Shut-In(2)																																			
185	1899.83	120.41	Final Hydro-static																																			

Recovery		
Length (ft)	Description	Volume (bbl)
5.00	100% mud	0.02

Gas Rates		
Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)

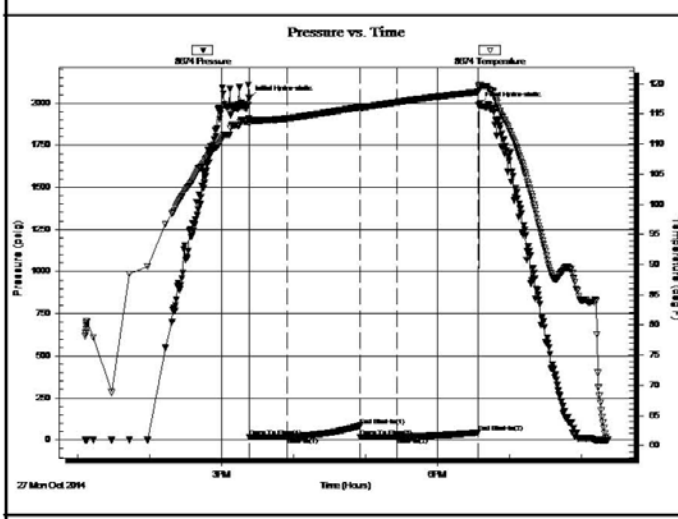
Drill Stem Test #2

	DRILL STEM TEST REPORT	
	Murfin Drilling Co. Inc 250 N. Water Ste 300 Wichita KS 67202 ATTN: Keith Reavis	18-4s-33w Rawlings Co. KS Makings # 1-18 Job Ticket: 57749 DST#: 2 Test Start: 2014.10.27 @ 13:06:00

GENERAL INFORMATION:
 Formation: **LKC "B-D"**
 Deviated: No Whipstock ft (KB)
 Time Tool Opened: 15:22:40
 Time Test Ended: 20:21:54
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Will MacLean
 Unit No: 71
 Interval: **4042.00 ft (KB) To 4080.00 ft (KB) (TVD)**
 Total Depth: 4080.00 ft (KB) (TVD)
 Reference Elevations: 3103.00 ft (KB)
 3098.00 ft (CF)
 Hole Diameter: 7.88 inches-Hole Condition: Good KB to GR/CF: 5.00 ft

Serial #: 8674 Inside
 Press@RunDepth: 19.64 psig @ 4046.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.10.27 End Date: 2014.10.27 Last Calib.: 2014.10.27
 Start Time: 13:06:00 End Time: 20:21:54 Time On Btm: 2014.10.27 @ 15:22:25
 Time Off Btm: 2014.10.27 @ 18:33:54

TEST COMMENT: IF- Weak Surface Blow
 IS- No Blow
 FF- No Blow
 FSI- No Blow




PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2027.78	114.34	Initial Hydro-static
1	18.39	113.31	Open To Flow (1)
33	19.44	114.25	Shut-In(1)
93	86.39	116.09	End Shut-In(1)
93	18.55	116.05	Open To Flow (2)
124	19.64	116.91	Shut-In(2)
191	44.89	118.64	End Shut-In(2)
192	1985.30	119.61	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
3.00	100% mud	0.01

Gas Rates		
Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)

* Recovery from multiple tests

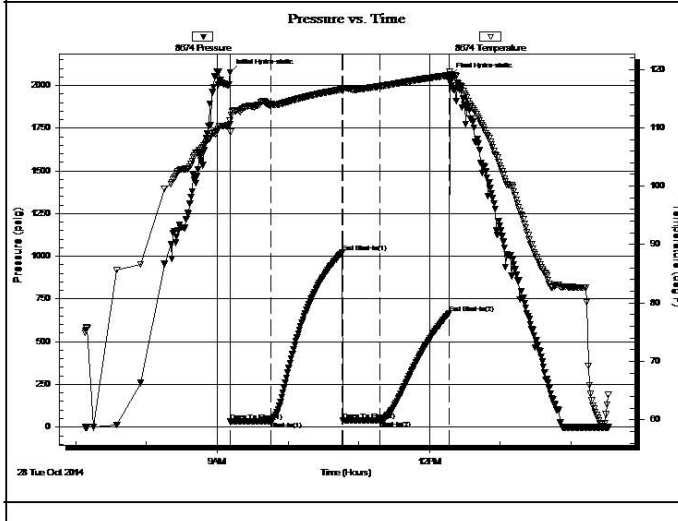
Drill Stem Test #3

	DRILL STEM TEST REPORT	
	Murfin Drilling Co. Inc 250 N. Water Ste 300 Wichita KS 67202 ATTN: Keith Reavis	18-4s-33w Rawlings Co. KS Makings # 1-18 Job Ticket: 57750 DST#: 3 Test Start: 2014.10.28 @ 07:08:00

GENERAL INFORMATION:
 Formation: **LKC "F-G"**
 Deviated: No Whipstock ft (KB)
 Time Tool Opened: 09:11:10
 Time Test Ended: 14:31:54
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Will MacLean
 Unit No: 71
 Interval: **4082.00 ft (KB) To 4126.00 ft (KB) (TVD)**
 Total Depth: 4126.00 ft (KB) (TVD)
 Reference Elevations: 3103.00 ft (KB)
 3098.00 ft (CF)
 Hole Diameter: 7.88 inches-Hole Condition: Good KB to GR/CF: 5.00 ft

Serial #: 8674 Inside
 Press@RunDepth: 38.50 psig @ 4083.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.10.28 End Date: 2014.10.28 Last Calib.: 2014.10.28
 Start Time: 07:08:00 End Time: 14:31:54 Time On Btm: 2014.10.28 @ 09:10:55
 Time Off Btm: 2014.10.28 @ 12:17:09

TEST COMMENT: IF- 1/2" Blow Died in 17min Slid 5' to Bottom
 IS- No Blow
 FF- No Blow
 FSI- No Blow




PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2077.77	110.61	Initial Hydro-static
1	32.07	109.25	Open To Flow (1)
35	36.00	113.96	Shut-In(1)
95	1021.72	116.55	End Shut-In(1)
96	37.22	116.25	Open To Flow (2)
127	38.50	117.09	Shut-In(2)
186	667.09	118.97	End Shut-In(2)
187	2053.61	119.64	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
10.00	100% mud	0.05

Gas Rates		
Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)

* Recovery from multiple tests

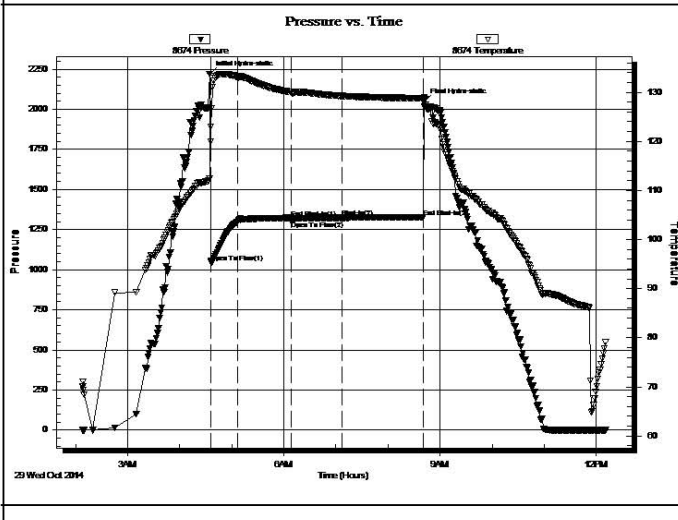
Drill Stem Test #4

	DRILL STEM TEST REPORT	
	Murfin Drilling Co. Inc 250 N. Water Ste 300 Wichita KS 67202 ATTN: Keith Reavis	18-4s-33w Rawlings Co. KS Makings # 1-18 Job Ticket: 58702 DST#: 4 Test Start: 2014.10.29 @ 02:08:00

GENERAL INFORMATION:
 Formation: **LKC "H-J"**
 Deviated: No Whipstock ft (KB)
 Time Tool Opened: 04:36:10
 Time Test Ended: 12:10:55
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Will MacLean
 Unit No: 71
 Interval: **4139.00 ft (KB) To 4220.00 ft (KB) (TVD)**
 Total Depth: 4220.00 ft (KB) (TVD)
 Reference Elevations: 3103.00 ft (KB)
 3098.00 ft (CF)
 Hole Diameter: 7.88 inches-Hole Condition: Good KB to GR/CF: 5.00 ft

Serial #: 8674 Inside
 Press@RunDepth: 1324.52 psig @ 4140.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.10.29 End Date: 2014.10.29 Last Calib.: 2014.10.29
 Start Time: 02:08:00 End Time: 12:10:55 Time On Btm: 2014.10.29 @ 04:34:25
 Time Off Btm: 2014.10.29 @ 08:41:39

TEST COMMENT: IF- Surface Blow 5" Built to BOB in 45sec Slid 8' to Bottom
 IS- No Blow
 FF- Weak Surface Blow Built to BOB in 5min Died Back to 3 1/4"
 FSI- No Blow



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2219.99	112.45	Initial Hydro-static
2	1046.51	123.01	Open To Flow (1)
33	1299.13	133.03	Shut-In(1)
94	1322.50	130.02	End Shut-In(1)
94	1304.45	129.97	Open To Flow (2)
153	1324.52	129.23	Shut-In(2)
247	1326.12	128.77	End Shut-In(2)
248	2044.62	129.01	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
1500.00	GMCW 3%g 4%w 93%w	19.43
630.00	GMCW 3%g 20%w 77%w	8.84
441.00	GWCW 3%g 45%w 52%w	6.19
257.00	WCM 33%w 67%w	3.61

Gas Rates		
Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)

* Recovery from multiple tests

ROCK TYPES

Cht	Lmst fw<7	shale, gry	Shool
Cht vari	Lmst fw7>	Carbon Sh	Ss
sdy lmst	shale, grn	shale, red	

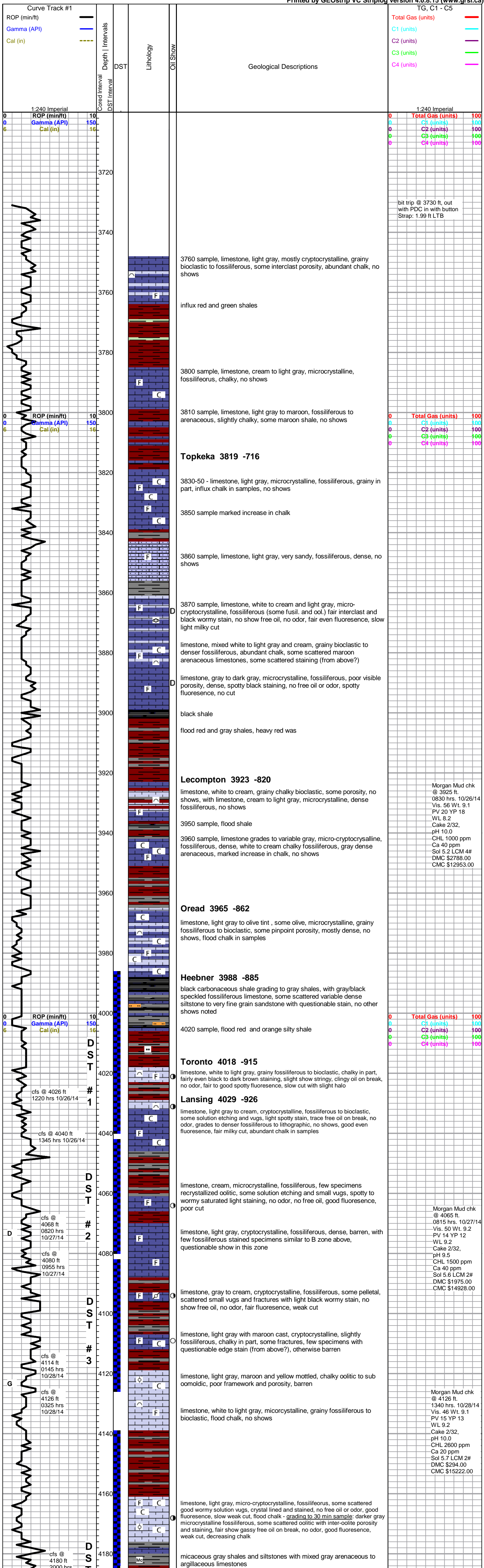
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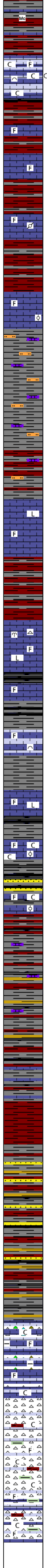
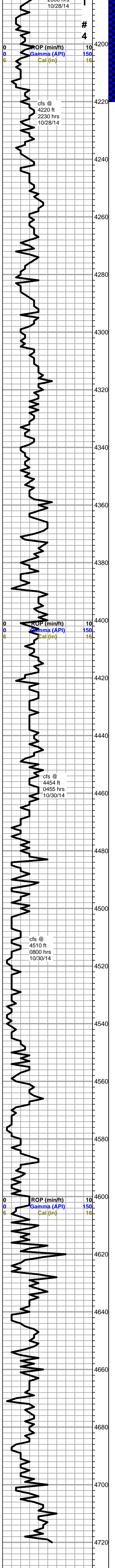
MINERAL — Argillaceous • Silty ▲ Chert White Mc Mica	FOSSIL ∪ Bioclastic or Fragmental † Bryozoa F Fossils < 20% ◊ Oolite ○ Pellets ⊗ Fusillioid	STRINGER ■ Limestone ■ Siltstone ■ green shale ■ red shale	TEXTURE C Chalky L Lithogr
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OTHER SYMBOLS

Oil Show ● Good Show ● Fair Show ● Poor Show ○ Spotted or Trace ○ Questionable Strn D Dead Oil Strn ■ Fluorescence * Gas	DST ■ DST Int ■ DST alt ■ Core tail pipe
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increase red shales, heavy red wash, with shales and limestones as above

limestone, light gray to cream, microcrystalline, fossiliferous to grainy chalky bioclastic, some fair porosity, mostly barren, samples flooded with chalk, found 2 small dark gray specimens with small small stained vugs, no free oil or odor, fair cut, even yellow fluorescence

Stark Shale

limestone, white to light gray, microcrystalline, fossiliferous, chalky in part, poor porosity, no shows

limestone, as above

limestone, as above, with some tan, chalky pelletal to fossiliferous, no shows

Base KC 4267 -1164

limestone, light gray, microcrystalline, fossiliferous, trace oolitic, chalky, poor visible porosity, no shows

shale, silty shale and siltstone, gray to lavender, some argillaceous limestone

as above

as above with flood red shales, heavy red wash in sample

limestone, variable gray, some maroon veins and tinting, mostly cryptocrystalline, fossiliferous to sub-lithographic, some calcite veins, mostly dense, no shows

influx some lavender limestone

red, gray, lavender and maroon shales, some silty

Pawnee 4400 -1297

limestone, light gray to cream, mostly cryptocrystalline, fossiliferous to lithographic, trace sub-oolitic, abundant bryozoa fans, frosted fossiliferous chert, no shows

4440 sample, flood black carbonaceous shale and dark brown mottled fossiliferous limestone, dense, no shows

limestone, light gray, micro-cryptocrystalline, fossiliferous, some slightly grainy bioclastic, dense to sub-chalky, poor visible porosity, barren

limestone, variable gray, mostly cryptocrystalline, fossiliferous to lithographic, dense, no shows

Cherokee 4468 -1365

limestone, gray/green, light gray, some olive, dense fossiliferous to oolitic, with limestone, gray to cream, flattened oolitic, chalky in part, poor visible porosity, flood chalk

4500 sample - limestone, quartz fine grain, poor sorted, rounded to angular, well cemented, some pyritic, no shows, abundant shales

4510 sample - sand drops out, limestone as above with influx limestone, white to cream, flattened oolitic, chalky in part, no visible porosity, no shows - decrease in chalk

30 min sample, flood red sticky shale

mixed shales, some scattered dark gray arenaceous to fossiliferous limestone

shales as above, some light gray to white fossiliferous and argillaceous limestones, chalky in part, no shows

starting 4580 sample, flood red and brick shales, heavy red wash

4600-4630 samples, as above, almost all shale with some limestones as above, shales grading to more reds and maroons, less red wash, with scattered sandstone, white, fine grain, round to sub angular, fair sorting, poor porosity, slightly glauconitic, no shows

a.a.

Mississippian 4643 -1540

4650 sample, limestone, gray mottled and yellow to yellow mottled, fossiliferous, cherty to argillaceous, with chert, gray mottled to yellow mottled, fossiliferous, weathered to tripolitic, no show

4660-4670 samples, a.a. with influx gray mottled argillaceous shaley limestone to limey shale

starting 4680 sample: chert, white to frosted gray, fossiliferous, sharp and fresh to slightly weathered, with limestone, white to cream to light gray, chalky fossiliferous, some grainy, poor visible porosity, no shows, mottled maroon/green and olive shales

as above, abundant mottled maroon/green and olive shales, with some olive argillaceous fossiliferous limestones, no shows

**Rotary TD 4720 ft. @ 1710 hrs 10/30/14
Pioneer Wireline TD 4728 ft
Complete logging operations 0315 hrs 10/31/14**

Total Gas (units) 100
C1 (units) 100
C2 (units) 100
C3 (units) 100
C4 (units) 100

Morgan Mud chk @ 4220 ft. 0930 hrs. 10/29/14
Vis. 53 Wt. 9.2
PV 17 YP 17
WL 6.4
Cake 2/32.
pH 11.5
CHL 2800 ppm
Ca 10 ppm
Sol 6.4 LCM 3#
DMC \$1949.00
CMC \$17171.00

Morgan Mud chk @ 4560 ft. 1025 hrs. 10/30/14
Vis. 50 Wt. 9.1
PV 16 YP 15
WL 6.4
Cake 2/32.
pH 11.5
CHL 3200 ppm
Ca 10 ppm
Sol 5.7 LCM 3#
DMC \$1821.00
CMC \$18992.00

Total Gas (units) 100
C1 (units) 100
C2 (units) 100
C3 (units) 100
C4 (units) 100