

**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: Chleborad #1-21  
 Location: Sec. 21 - T3S - R33W  
 API: 15-153-21086-0000  
 Pool: \_\_\_\_\_ Field: Wildcat  
 State: Kansas Country: USA



Scale 1:240 Imperial

Well Name: Chleborad #1-21  
 Surface Location: Sec. 21 - T3S - R33W  
 Bottom Location:  
 API: 15-153-21086-0000  
 License Number: 30606  
 Spud Date: 12/5/2014 Time: 2:00 PM  
 Region: Rawlins County  
 Drilling Completed: 12/12/2014 Time: 10:50 AM  
 Surface Coordinates: 1960' FSL & 660' FEL  
 Bottom Hole Coordinates:  
 Ground Elevation: 3011.00ft  
 K.B. Elevation: 3016.00ft  
 Logged Interval: 3650.00ft To: 4640.00ft  
 Total Depth: 4640.00ft  
 Formation: Mississippian  
 Drilling Fluid Type: Chemical/Fresh Water Gel

**SURFACE CO-ORDINATES**

Well Type: Vertical  
 Longitude:  
 Latitude:  
 N/S Co-ord: 1960' FSL  
 E/W Co-ord: 660' FEL

**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: 12/5/2014 Time: 2:00 PM  
 TD Date: 12/12/2014 Time: 10:50 AM  
 Rig Release: \_\_\_\_\_ Time: \_\_\_\_\_

**ELEVATIONS**

K.B. Elevation: 3016.00ft Ground Elevation: 3011.00ft  
 K.B. to Ground: 5.00ft

**NOTES**

Due to negative drill stem testing and electrical log evaluation, it was determined by the operator that the Chleborad #1-21 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
12/07/2014		Geologist Keith Reavis on location @ 2110 hrs, 3642 ft, bit trip
12/08/2014	3765	drilling ahead, Topeka, Deer Creek, Lecompton, Oread, Lansing A - D,
12/09/2014	4020	show in Lansing A - D warrants test, short trip, TOH for DST, in with tools, conduct DST #1, complete DST #1, successful test, back on bottom w/bit, resume drilling, show in G zone warrants test, TOH for DST #2, Lansing F-G and TIH w/tools
12/10/2014	4070	conduct and complete DST #2, successful test, TIH w/bit, resume drilling, show in J zone warrants test, TOH w/bit, in w/tools, conduct DST #3
12/11/2014	4181	complete DST #3, successful test, TIH w/bit, resume drilling, BKC, Marmaton, Pawnee, Cherokee
12/12/2014	4543	drilling ahead, Cherokee, Mississippian, TD @ 4640 ft 1050 hrs, short trip, ctch, TOH w/bit, conduct and complete logging operations, off loc 2200 hrs

**Murfin Drilling Company**  
**well comparison sheet**

DRILLING WELL					COMPARISON WELL				
MDC - Chleborad #1-21					Base Ent. - Chleborad #1				
1960' FSL & 660' FEL					C SW SE				
Sec 21-T3S-R33W					Sec 21-T3S-R33W				
3016 KB					3052 KB			Structural Relationship	
Formation	Sample	Sub-Sea	Log	Sub-Sea	Log	Sub-Sea	Sample	Log	
Topeka	3753	-737	3754	-738	3790	-738	1	0	
Deer Creek	3787	-771	3791	-775	3828	-776	5	1	
Lecompton	3856	-840	3855	-839	3894	-842	2	3	
Oread	3896	-880	3898	-882	3936	-884	4	2	
Heebner	3913	-897	3914	-898	3951	-899	2	1	
Lansing	3955	-939	3957	-941	3994	-942	3	1	
Lansing D	4002	-986	4004	-988	4040	-988	2	0	
Lansing H	4083	-1067	4084	-1068	4126	-1074	7	6	
Stark	4146	-1130	4144	-1128	4185	-1133	3	5	
Base KC	4196	-1180	4194	-1178	4234	-1182	2	4	
Marmaton	4246	-1230	4241	-1225	4286	-1234	4	9	
Pawnee	4320	-1304	4319	-1303	4368	-1316	12	13	
Cherokee	4396	-1380	4396	-1380	4438	-1386	6	6	
Mississippian	4564	-1548	4544	-1528	4594	-1542	-6	14	
Total Depth	4640	-1624	4642	-1626	4691	-1639	15	13	

**drill stem test #1**

**DRILL STEM TEST REPORT**

Murfin Drilling Co. Inc. **21-3S-33w Rawlins Co**

250 N Water STE 300 **Chleborad 1 21**  
 Wichita KS 67202  
 Job Ticket: 58555 **DST#: 1**

ATTN: Keith Reavis Test Start: 2014.12.09 @ 05:00:15

---

**GENERAL INFORMATION:**

Formation: **Lansing A-D**  
 Deviated: No Whipstock: \_\_\_\_\_ ft (KB)  
 Time Tool Opened: 07:29:45  
 Time Test Ended: 12:18:45  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Mike Roberts  
 Unit No: 65  
 Interval: **3912.00 ft (KB) To 4020.00 ft (KB) (TVD)**  
 Reference Elevations: 3016.00 ft (KB)  
 Total Depth: 4020.00 ft (KB) (TVD) 3011.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 5.00 ft

---

**Serial #: 8846** Inside

Press@RunDepth: 65.36 psig @ 3918.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.12.09 End Date: 2014.12.09 Last Calib.: 2014.12.09  
 Start Time: 05:00:15 End Time: 12:18:45 Time On Btm: 2014.12.09 @ 07:29:30  
 Time Off Btm: 2014.12.09 @ 10:30:15

---

**TEST COMMENT:** IF: Built to weak surface blow  
 IS: No return blow  
 FF: No blow  
 FS: No return blow

---

**PRESSURE SUMMARY**

Time (Mn.)	Pressure (psig)	Temp (deg F)	Annotation
0	2079.99	113.80	Initial Hydro-static
1	55.34	112.81	Open To Flow (1)
31	60.35	114.63	Shut-In(1)
91	825.87	116.52	End Shut-In(1)
91	62.38	116.21	Open To Flow (2)
120	65.36	116.81	Shut-In(2)
180	765.18	118.28	End Shut-In(2)
181	2043.09	118.54	Final Hydro-static

---

Recovery: \_\_\_\_\_ Gas Rates: \_\_\_\_\_

Length (ft)	Description	Volume (bbl)
5.00	mud w with oil spots 100% <sup>m</sup>	0.02

Choke (inches)	Pressure (psig)	Gas Rate (MMcf/d)

**drill stem test #2**

	<b>DRILL STEM TEST REPORT</b>	
	Murfin Drilling Co. Inc.	<b>21-3S-33w Rawlins Co</b>
	250 N Water STE 300 Wichita KS 67202	<b>Chleborad 1 21</b>
ATTN: Keith Reavis	Job Ticket: 58556	DST#: 2
	Test Start: 2014.12.09 @ 21:02:15	

**GENERAL INFORMATION:**

Formation: **Lansing F-G**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 23:16:15  
Time Test Ended: 04:21:45

Interval: **4018.00 ft (KB) To 4070.00 ft (KB) (TVD)**  
Total Depth: 4070.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Fair

Test Type: Conventional Bottom Hole (Reset)  
Tester: Mke Roberts  
Unit No: 65

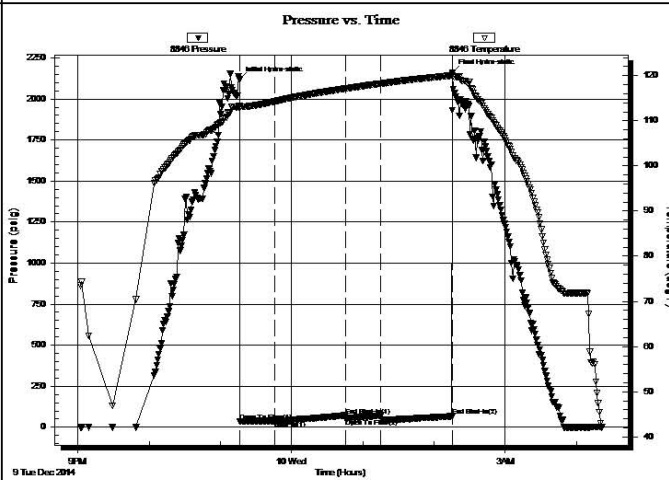
Reference Elevations: 3016.00 ft (KB)  
3011.00 ft (CF)  
KB to GR/CF: 5.00 ft

**Serial #: 8846 Inside**

Press@RunDepth: 71.79 psig @ 4024.00 ft (KB)  
Start Date: 2014.12.10  
Start Time: 21:02:15

Capacity: 8000.00 psig  
Last Calib.: 2014.12.10  
Time On Btm: 2014.12.09 @ 23:16:00  
Time Off Btm: 2014.12.10 @ 02:15:30

TEST COMMENT: IF: Built to 1" blow  
IS: No return blow  
FF: No blow  
FS: No return blow



Time (Mn.)	Pressure (psig)	Temp (deg F)	Annotation
0	2118.04	113.29	Initial Hydro-static
1	36.43	112.79	Open To Flow (1)
30	39.09	114.26	Shut-In(1)
90	71.48	117.13	End Shut-In(1)
90	52.53	117.13	Open To Flow (2)
120	71.79	118.24	Shut-In(2)
179	67.12	120.02	End Shut-In(2)
180	2160.96	120.43	Final Hydro-static

Length (ft)	Description	Volume (bbl)
5.00	mud w with oil spots	0.02

Choke (inches)	Pressure (psig)	Gas Rate (MMcf/d)

\* Recovery from multiple tests

**drill stem test #3**

	<b>DRILL STEM TEST REPORT</b>	
	Murfin Drilling Co. Inc.	<b>21-3S-33w Rawlins Co</b>
	250 N Water STE 300 Wichita KS 67202	<b>Chleborad 1 21</b>
ATTN: Keith Reavis	Job Ticket: 58557	DST#: 3
	Test Start: 2014.12.10 @ 15:57:15	

**GENERAL INFORMATION:**

Formation: **J**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 18:36:45  
Time Test Ended: 00:45:15

Interval: **4091.00 ft (KB) To 4149.00 ft (KB) (TVD)**  
Total Depth: 4149.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Fair

Test Type: Conventional Bottom Hole (Reset)  
Tester: Mke Roberts  
Unit No: 65

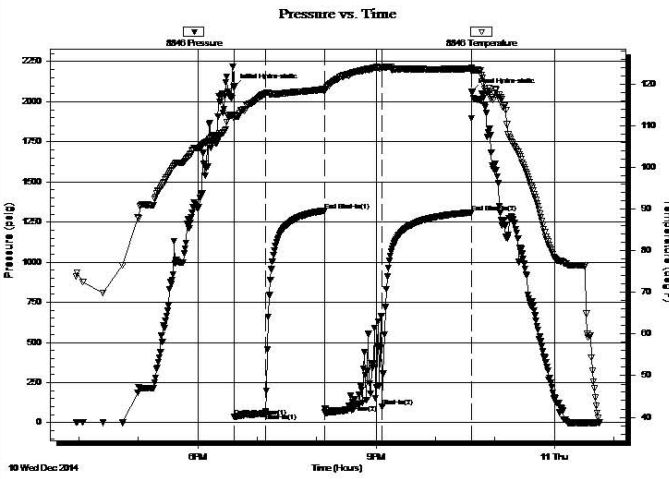
Reference Elevations: 3016.00 ft (KB)  
3011.00 ft (CF)  
KB to GR/CF: 5.00 ft

**Serial #: 8846 Inside**

Press@RunDepth: 101.82 psig @ 4095.00 ft (KB)  
Start Date: 2014.12.10  
Start Time: 15:57:15

Capacity: 8000.00 psig  
Last Calib.: 2014.12.11  
Time On Btm: 2014.12.10 @ 18:36:30  
Time Off Btm: 2014.12.10 @ 22:36:45

TEST COMMENT: IF: Built to 2" blow  
IS: No return blow  
FF: Built to 2" blow  
FS: No return blow



Time (Mn.)	Pressure (psig)	Temp (deg F)	Annotation
0	2094.13	112.60	Initial Hydro-static
1	36.68	111.81	Open To Flow (1)
32	58.06	117.74	Shut-In(1)
92	1319.81	118.75	End Shut-In(1)
92	62.85	118.22	Open To Flow (2)
150	101.82	123.95	Shut-In(2)
240	1309.66	123.65	End Shut-In(2)
241	2061.65	123.08	Final Hydro-static

Length (ft)	Description	Volume (bbl)
124.00	mud	0.61

Choke (inches)	Pressure (psig)	Gas Rate (MMcf/d)

\* Recovery from multiple tests

**ROCK TYPES**

Cht vari	shale, grn	shale, red	Siltst
Lmst fw<7	shale, gry	Shcol	
Lmst fw7>	Carbon Sh	Ss	

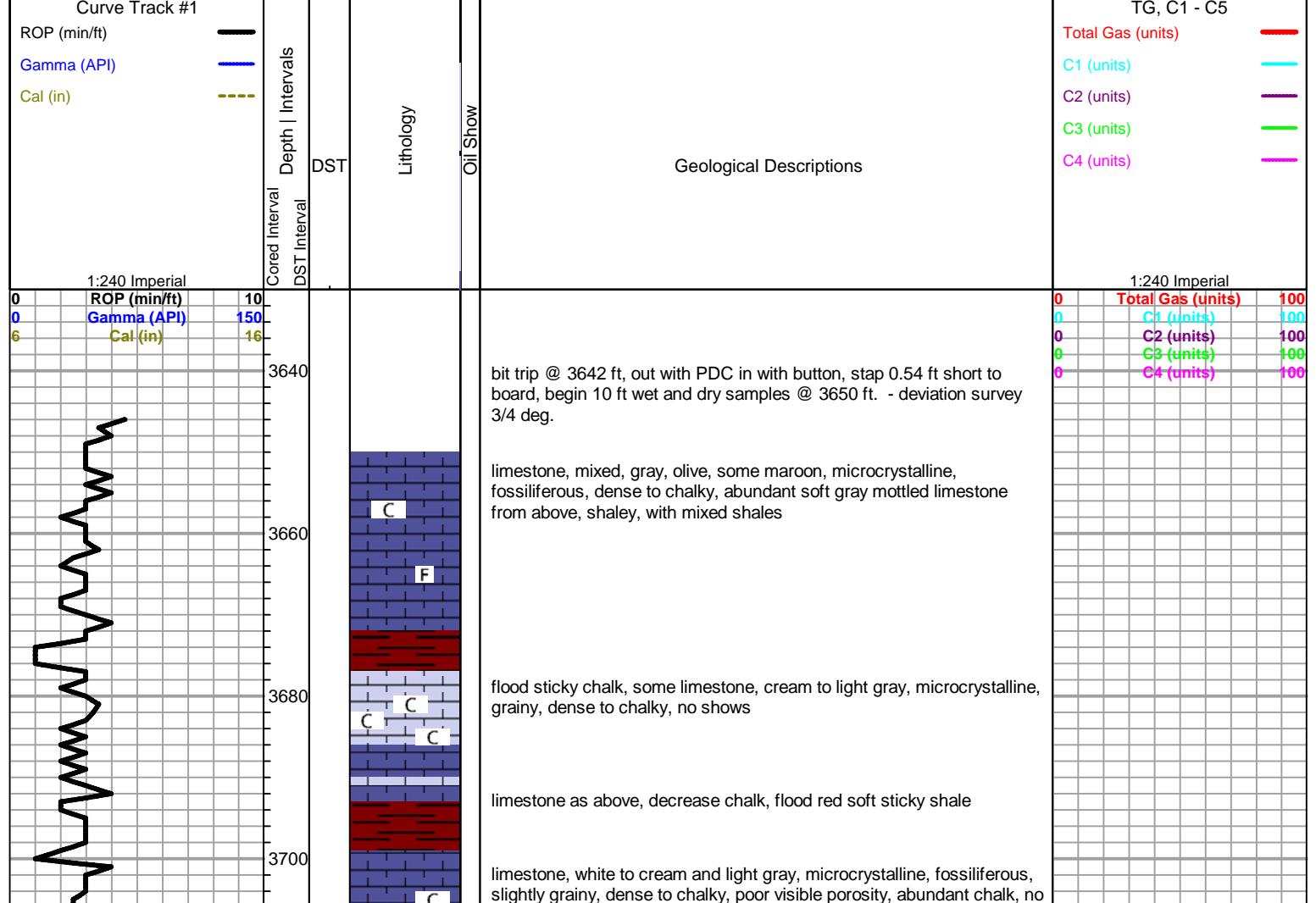
**ACCESSORIES**

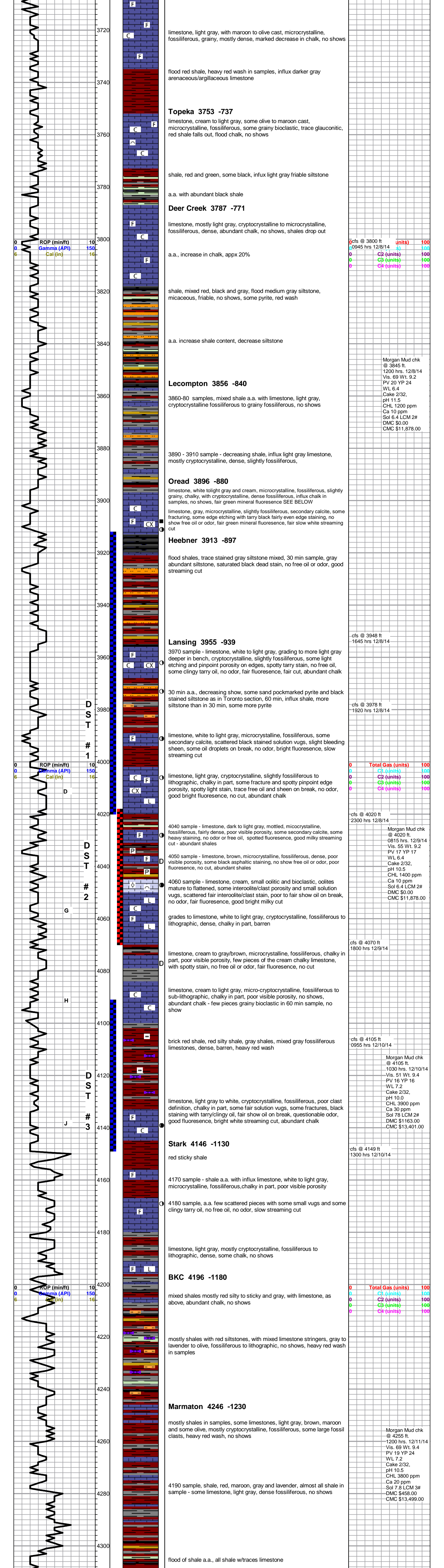
<b>MINERAL</b>	<b>FOSSIL</b>	<b>STRINGER</b>	<b>TEXTURE</b>
<ul style="list-style-type: none"> <li>∩ Glauconite</li> <li>P Pyrite</li> <li>• Silty</li> </ul>	<ul style="list-style-type: none"> <li>∩ Bioclastic or Fragmental</li> <li>F Fossils &lt; 20%</li> <li>∅ Oolite</li> </ul>	<ul style="list-style-type: none"> <li> Dolomite</li> <li> Limestone</li> <li> Sandstone</li> <li> Siltstone</li> <li> Shale</li> <li> red shale</li> </ul>	<ul style="list-style-type: none"> <li>C Chalky</li> <li>CX Cryptocrystalline</li> <li>L Lithogr</li> </ul>

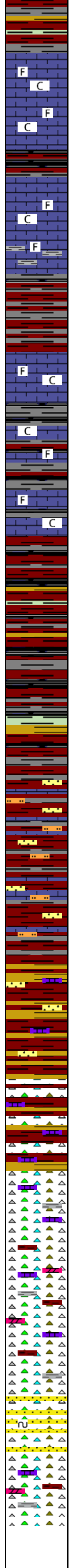
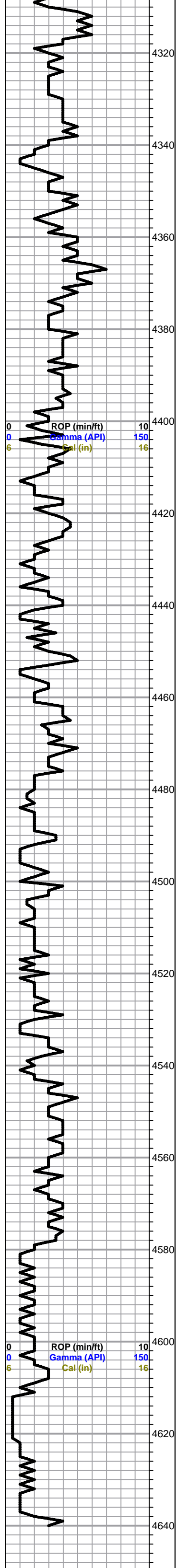
**OTHER SYMBOLS**

<b>Oil Show</b>	<b>DST</b>
<ul style="list-style-type: none"> <li>● Good Show</li> <li>● Fair Show</li> <li>● Poor Show</li> <li>○ Spotted or Trace</li> <li>○ Questionable Stn</li> <li>■ Dead Oil Stn</li> <li>■ Fluorescence</li> <li>* Gas</li> </ul>	<ul style="list-style-type: none"> <li> DST Int</li> <li> DST alt</li> <li> Core</li> <li> tail pipe</li> </ul>

Printed by GEOstrip VC Striplog version 4.0.8.15 (www.grsi.ca)







**Pawnee 4320 -1304**

4330 influx limestone, light gray, micro-cryptocrystalline, fossiliferous, dense, some secondary calcite, some associated chalk, no shows

4350 sample, influx shales, some cream chalky bioclastic limestone, no shows

4360 limestone, brown and gray mottled, microrystalline, fossiliferous, dense, no shows

4370 limestone, cream to light gray, micro-cryptocrystalline, fossiliferous, chalky in part, some fractures otherwise no visible porosity, no shows, 30 min sample, a.a., abundant light gray smooth limy shale to shaley limestone

4380-4390 samples flood shales, brick red, lavender, gray

4400 sample, limestone, light gray, mostly cryptocrystalline, fossiliferous, dense, no shows, flood chalk in samples, heavy chalky wash

**Cherokee 4396 -1380**

4410 flood black shale

limestone, mostly light gray, micro-cryptocrystalline, fossiliferous, chalky in part, some lithographic, poor visible porosity, with some scattered olive cherty limestone and maroon cryptocrystalline, compact dense lithographic, abundant shale, flood chalk, no shows

mixed gray, maroon, black, lavender, olive shales, with limestone a.a.

increase shales, limestone marked decrease

as above

shale as above, with limestone, light gray, microcrystalline, fossiliferous, some brittle/friable, some rust red dense argillaceous limestone, scattered sandstone, very fine to medium grain, white to quartz, fair rounded to angular, fair cementing, abundant very silty red shale

soft mushy red shale with flood soft mushy yellow shales, scattered mixed sandstones and some limestone a.a.

**Mississippian 4544 -1528 (Log Top)**

conglomerate? flood chert, yellow and yellow/white mottled, fossiliferous, some maroon, red, yellow and maroon shales, pale green and yellow cryptocrystalline limestones, no shows

**Mississppian 4564 Sample Top**

as above, decreasing shales

4590 sample grades to mostly white chert, fossiliferous, sharp fresh, to sub-tripolitic, still abundant yellow cherts, shales sharply decrease

as above, some light gray subsucrosic dolomite to cryptocrystalline lithographic limestone, still abundant shales from above

flood sandstone, light gray, very fine grain, silty, round to sub-angular, fair sorting, fair cementing, glauconitic, no shows

cherts, limestone, dolomite a.a. in final cfs sample

**Rotary TD 4640 ft @ 1050 hrs 12/12/14**  
**Pioneer Log TD 4642 ft**

cfs @ 4370 ft  
1955 hrs 12/11/14

0	<b>Total Gas (units)</b>	100
0	C1 (units)	100
0	C2 (units)	100
0	C3 (units)	100
0	C4 (units)	100

cfs @ 4430 ft  
0045 hrs 12/12/14

0	<b>Total Gas (units)</b>	100
0	C1 (units)	100
0	C2 (units)	100
0	C3 (units)	100
0	C4 (units)	100

Morgan Mud chk @ 4640 ft.  
1200 hrs. 12/12/14  
Vis. 62 Wt. 9.6  
PV 18 YP 21  
WL 8.4  
Cake 2/32,  
pH 10.5  
CHL 3600 ppm  
Ca 20 ppm  
Sol 9.2 LCM 2#  
DMC \$976.00  
CMC \$14,475.00