

**OPERATOR**

Company: MULL DRILLING COMPANY, INC  
 Address: 1700 N WATERFRONT PKWY  
 BLDG 1200  
 WICHITA, KANSAS 67206-6637  
 Contact Geologist: TOBY ECK  
 Contact Phone Nbr: 316-264-6366  
 Well Name: GAYLE #1-2  
 Location: SW SW SW NE S2 T16S R38W  
 API: 15-203-20285-00-00  
 Pool: KANSAS  
 State: KANSAS  
 Field: WILDCAT  
 Country:



**DRILLING COMPANY, INC.**  
 WICHITA, KANSAS

Scale 1:240 Imperial

Well Name: GAYLE #1-2  
 Surface Location: SW SW SW NE S2 T16S R38W  
 Bottom Location:  
 API: 15-203-20285-00-00  
 License Number: 5144  
 Spud Date: 9/20/2014 Time: 3:00 PM  
 Region: WICHITA COUNTY  
 Drilling Completed: 10/1/2014 Time: 2:38 PM  
 Surface Coordinates: 2690 FSL & 2127 FEL  
 Bottom Hole Coordinates:  
 Ground Elevation: 3429.00ft  
 K.B. Elevation: 3438.00ft  
 Logged Interval: 3700.00ft To: 5100.00ft  
 Total Depth: 5100.00ft  
 Formation: LOWER MORROW SAND  
 Drilling Fluid Type: CHEMICAL / FRESH WATER GEL

**SURFACE CO-ORDINATES**

Well Type: Vertical  
 Longitude: -101.483683882  
 Latitude: 38.691913831  
 N/S Co-ord: 2690 FSL  
 E/W Co-ord: 2127 FEL

**LOGGED BY**

Company: SOLUTIONS CONSULTING, INC.  
 Address: 108 WEST 35TH  
 HAYS, KANSAS 67601  
 Phone Nbr: 785-650-4540 / 785-639-1337  
 Logged By: GEOLOGIST Name: STEVE REED

**CONTRACTOR**

Contractor: DUKE DRILLING COMPANY, INC.  
 Rig #: 4  
 Rig Type: MUD ROTARY  
 Spud Date: 9/20/2014 Time: 3:00 PM  
 TD Date: 10/1/2014 Time: 2:38 PM  
 Rig Release: 10/2/2014 Time: 12:00 PM

**ELEVATIONS**

K.B. Elevation: 3438.00ft Ground Elevation: 3429.00ft  
 K.B. to Ground: 9.00ft

**NOTES**

NOTES  
 BASED ON OVERALL LACK OF SHOWS, NEGATIVE RESULTS OF DST #2 AND LOG ANALYSIS THE DECISION WAS MADE TO PLUG AND ABANDON WELL

OPEN HOLE LOGGING PROVIDED BY: NABORS COMPLETION AND PRODUCTION SERVICES COMPANY  
 DUAL COMPENSATED POROSITY LOG, DUAL INDUCTION LOG, MICRORESISTIVITY LOG, PE LOG,  
 AND SONIC LOGS WERE COMPLETED

DRILL STEM TESTING PROVIDED BY: DIAMOND TESTING  
 ONE (1) MISRUN AND ONE (1) CONVENTIONAL TESTS WERE PERFORMED

### LOG TOPS COMPARISON AND DAILY ACTIVITY SUMMARY

	WELL NAME		COMPARISON WELL	COMPARISON WELL
	GAYLE # 1-2		BRADFORD #1-1	JOY # 1-1
	API: 15-203-20285		API: 15-203-20136	API: 15-203-20255
FORMATION	SAMPLE TOPS	LOG TOPS	LOG TOPS (DATUM)	LOG TOPS (DATUM)
<b>ANHYDRITE TOP</b>	2652' (+786')	2648' (+790')	+784'	+780'
<b>AHYDRITE BASE</b>	2674' (+764')	2668' (+770')	+767'	+766'
<b>TOPEKA</b>	3842 (-404')	3841' (-403')	-408'	-402'
<b>HEEBNER</b>	4081' (-643')	4081' (-643')	-647'	-640'
<b>LKC</b>	4128' (-690')	4130' (-692')	-697'	-690'
MUNCIE CREEK	4321' (-883')	4322' (-884')	-884'	-876'
STARK	4412' (-974')	4414' (-976')	-977'	-966'
<b>BKC</b>	4508' (-1070')	4516' (-1078')	-1073'	-1063'
<b>MARMATON</b>	4577' (-1139')	4578' (-1140')	-1140'	-1132'
<b>FORT SCOTT</b>	4685' (-1247')	4686' (-1248')	-1248'	-1252'
<b>CHEROKEE SHALE</b>	4735' (-1297')	4737' (-1299')	-1300'	-1286'
<b>ATOKA</b>	4789' (-1351')	4790' (-1352')	-1354'	-1335'
<b>MORROW SHALE</b>	4906' (-1468')	4904' (-1466')	-1463'	-1449'
UPPER SANDSTONE	4922' (-1484')	4914' (-1476')	-1474'	-1465'
BASAL SANDSTONE	5012' (-1574')	5014' (-1576')	-1562'	NA
<b>MISSISSIPPIAN</b>	5025' (-1587')	5024' (-1586')	-1584'	-1574'
<b>RTD</b>	5100' (-1662')	5098' (-1660')	-1665'	-1969'

### SUMMARY OF DAILY ACTIVITY

- 9-20-14** R.U., spud @ 3:00pm, 8 5/8" surface casing set at 216' w/165 sxs common, 2% gel, 3% cc
- 9-21-14** 220', WOC, drilling
- 9-22-14** 338', replace Kelly bushings, master bushing, and oil lines, drilling
- 9-23-14** 1300, drilling
- 9-24-14** 2665, drilling
- 9-25-14** 3419, drilling, replace clutch on mud pump
- 9-26-14** 3782, drilling, CFS @ 4270
- 9-27-14** 4270, drilling, replace gland rubbers on mud pump, CFS @ 4600
- 9-28-14** 4635, drilling, bit trip @ 4728, CFS @ 4745
- 9-29-14** 4836, drilling, CFS @4920, CFS @ 4927, CFS @ 4937, CFS @ 5017, CFS @ 5024, short trip, CTCH, TOWB for DST #1, DST #1 4952 to 5024
- 9-30-14** 5024, TIWT, DST misrun, TOWT, TIWB, CTCH, TOWB FOR DST #2, DST #2 4854 to 5024
- 10-1-14** 5024, drilling, TD 5100 @ 2:38 pm, CTCH, TOWB for logs, logging, prepare for plugging

**DST #1 SUMMARY**



**DIAMOND TESTING**  
 P.O. Box 157  
**HOISINGTON, KANSAS 67544**  
 (800) 542-7313  
**DRILL-STEM TEST TICKET**  
 FILE: gayle1dst1

TIME ON: 6:35 AM  
 TIME OFF: 11:33 AM

Company Mull Drilling Company Lease & Well No. Gayle #1-2  
 Contractor Duke #4 Charge to Mull Drilling Company  
 Elevation KB 3438 Formation Lower Morrow Sand Effective Pay \_\_\_\_\_ Ft. Ticket No. K176  
 Date 9-30-14 Sec. 2 Twp. 16 S Range 38 W County Wichita State KANSAS  
 Test Approved By Steve Reed Diamond Representative Jason McLemore

Formation Test No. 1 Interval Tested from 4952 ft. to 5024 ft. Total Depth 5024 ft.  
 Packer Depth 4947 ft. Size 6 3/4 in. Packer depth \_\_\_\_\_ ft. Size 6 3/4 in.  
 Packer Depth 4952 ft. Size 6 3/4 in. Packer depth \_\_\_\_\_ ft. Size 6 3/4 in.

Depth of Selective Zone Set \_\_\_\_\_

Top Recorder Depth (Inside) 4933 ft. Recorder Number 5513 Cap. 5000 P.S.I.  
 Bottom Recorder Depth (Outside) 4934 ft. Recorder Number 5588 Cap. 6000 P.S.I.  
 Below Straddle Recorder Depth \_\_\_\_\_ ft. Recorder Number \_\_\_\_\_ Cap. \_\_\_\_\_ P.S.I.  
 Mud Type Chemical Viscosity 57 Drill Collar Length 0 ft. I.D. 2 1/4 in.  
 Weight 9.4 Water Loss 9.6 cc. Weight Pipe Length 0 ft. I.D. 2 7/8 in.  
 Chlorides 7000 P.P.M. Drill Pipe Length 4919 ft. I.D. 3 1/2 in.  
 Jars: Make STERLING Serial Number 6 Test Tool Length 33 ft. Tool Size 3 1/2-IF in.  
 Did Well Flow? No Reversed Out No Anchor Length 72 ft. Size 4 1/2-FH in.  
 Main Hole Size 7 7/8 Tool Joint Size 4 1/2 XH in. 63' DP in Anchor Surface Choke Size 1 in. Bottom Choke Size 5/8 in.

Blow: 1st Open: Packer Failure, Pull Tool  
2nd Open:

Recovered <u>185</u> ft. of <u>Drilling Mud</u>	
Recovered <u>185</u> ft. of <u>TOTAL FLUID</u>	
Recovered _____ ft. of _____	
Recovered _____ ft. of _____	
Recovered _____ ft. of _____	Price Job
Recovered _____ ft. of _____	Other Charges
Remarks: <u>Shale Packer on Bottom</u>	Insurance
	Total

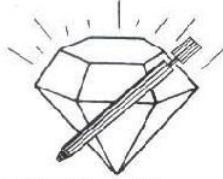
Time Set Packer(s) 9:32 AM A.M. P.M. Time Started Off Bottom 9:40 AM A.M. P.M. Maximum Temperature \_\_\_\_\_

Initial Hydrostatic Pressure..... (A) \_\_\_\_\_ P.S.I.  
 Initial Flow Period..... Minutes \_\_\_\_\_ (B) \_\_\_\_\_ P.S.I. to (C) \_\_\_\_\_ P.S.I.  
 Initial Closed In Period..... Minutes \_\_\_\_\_ (D) \_\_\_\_\_ P.S.I.  
 Final Flow Period..... Minutes \_\_\_\_\_ (E) \_\_\_\_\_ P.S.I. to (F) \_\_\_\_\_ P.S.I.

Final Closed In Period.....Minutes.....(G).....P.S.I.  
 Final Hydrostatic Pressure.....(H).....P.S.I.

Diamond Testing shall not be liable for damages of any kind to the property or personnel of the one for whom a test is made or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statement or opinion concerning the result of any test. Tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.

**DST #2 SUMMARY**



**DIAMOND TESTING**  
 P.O. Box 157  
**HOISINGTON, KANSAS 67544**  
 (800) 542-7313  
**DRILL-STEM TEST TICKET**  
 FILE: gayle1dst2

TIME ON: 6:10 PM  
 TIME OFF: 3:00 AM

Company Mull Drilling Company Lease & Well No. Gayle #1-2  
 Contractor Duke #4 Charge to Mull Drilling Company  
 Elevation KB 3438 Formation Morrow Sand Effective Pay \_\_\_\_\_ Ft. Ticket No. K177  
 Date 9-30-14 Sec. 2 Twp. 16 S Range 38 W County Wichita State KANSAS  
 Test Approved By Steve Reed Diamond Representative Jason McLemore

Formation Test No. 2 Interval Tested from 4854 ft. to 5024 ft. Total Depth 5024 ft.  
 Packer Depth 4849 ft. Size 6 3/4 in. Packer depth \_\_\_\_\_ ft. Size 6 3/4 in.  
 Packer Depth 4854 ft. Size 6 3/4 in. Packer depth \_\_\_\_\_ ft. Size 6 3/4 in.

Depth of Selective Zone Set \_\_\_\_\_

Top Recorder Depth (Inside) 4835 ft. Recorder Number 5513 Cap. 5000 P.S.I.  
 Bottom Recorder Depth (Outside) 4836 ft. Recorder Number 5588 Cap. 6000 P.S.I.  
 Below Straddle Recorder Depth \_\_\_\_\_ ft. Recorder Number \_\_\_\_\_ Cap. \_\_\_\_\_ P.S.I.

Mud Type Chemical Viscosity 57 Drill Collar Length 0 ft. I.D. 2 1/4 in.  
 Weight 9.4 Water Loss 9.6 cc. Weight Pipe Length 0 ft. I.D. 2 7/8 in.  
 Chlorides 7000 P.P.M. Drill Pipe Length 4821 ft. I.D. 3 1/2 in.  
 Jars: Make STERLING Serial Number 6 Test Tool Length 33 ft. Tool Size 3 1/2-IF in.  
 Did Well Flow? No Reversed Out No Anchor Length 170 ft. Size 4 1/2-FH in.  
 Main Hole Size 7 7/8 Tool Joint Size 4 1/2 XH in. 157' DP in Anchor Surface Choke Size 1 in. Bottom Choke Size 5/8 in.

Blow: 1st Open: Strong, BOB in 1 Min., No Blowback (Tool Slid 1' On Open)  
 2nd Open: Weak Blow, Built to 1/2", Died in 15 Min., No Blowback

Recovered 250 ft. of Drilling Mud  
 Recovered 250 ft. of TOTAL FLUID  
 Recovered \_\_\_\_\_ ft. of \_\_\_\_\_  
 Recovered \_\_\_\_\_ ft. of \_\_\_\_\_

Recovered _____ ft. of _____	Price Job
Recovered _____ ft. of _____	Other Charges
Remarks: <u>Shale Packer on Bottom</u>	Insurance
	Total

Time Set Packer(s) 9:11 PM A.M. P.M. Time Started Off Bottom 12:46 AM A.M. P.M. Maximum Temperature 118

Initial Hydrostatic Pressure.....(A) 2555 P.S.I.  
 Initial Flow Period..... Minutes (B) 135 P.S.I. to (C) 143 P.S.I.  
 Initial Closed In Period..... Minutes (D) 890 P.S.I.  
 Final Flow Period..... Minutes (E) 153 P.S.I. to (F) 159 P.S.I.  
 Final Closed In Period..... Minutes (G) 1062 P.S.I.

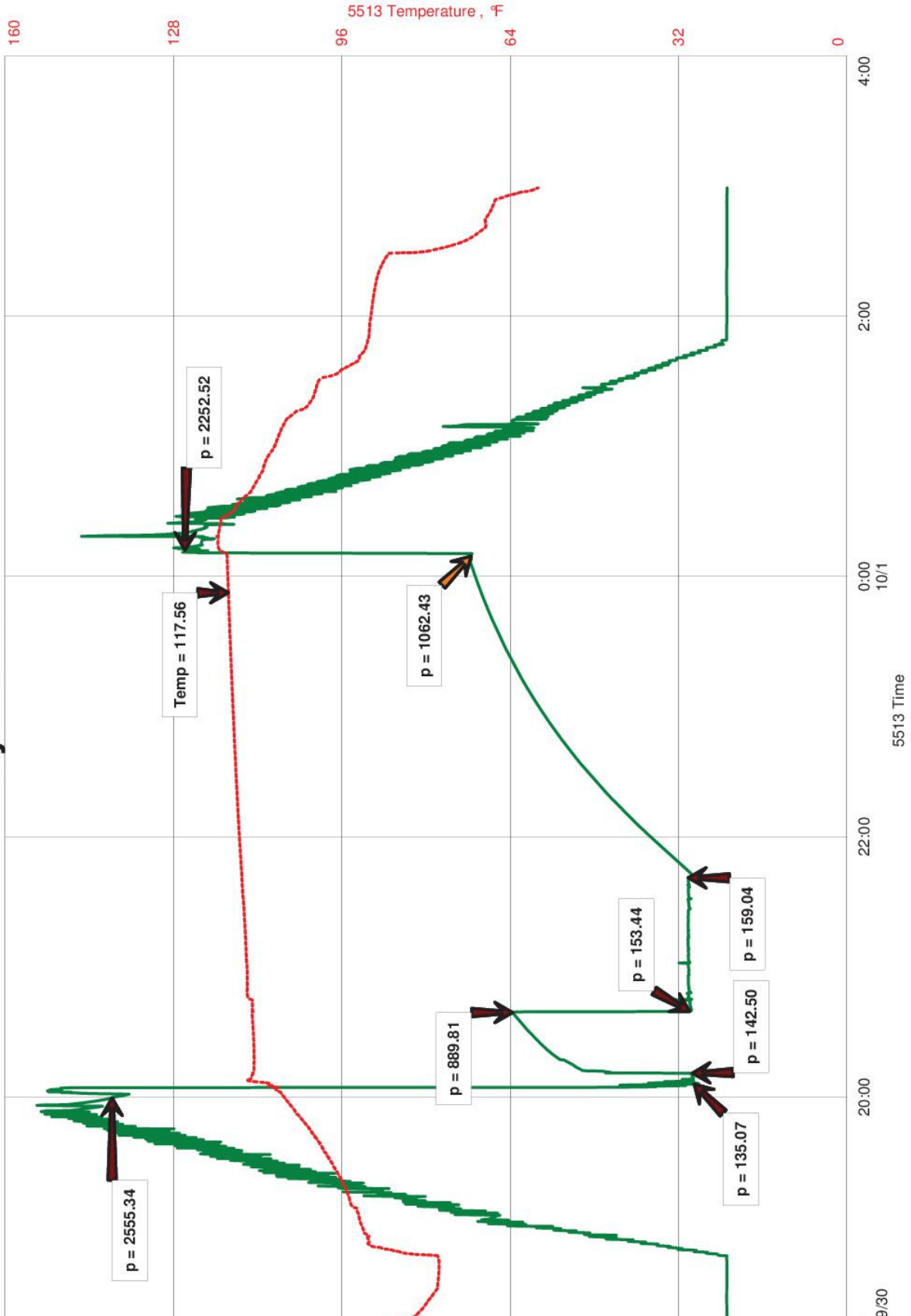
Diamond Testing shall not be liable for damages of any kind to the property or personnel of the one for whom a test is made or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statement or opinion concerning the result of any test. Tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.

### DST #2 PRESSURE VS TIME CHART

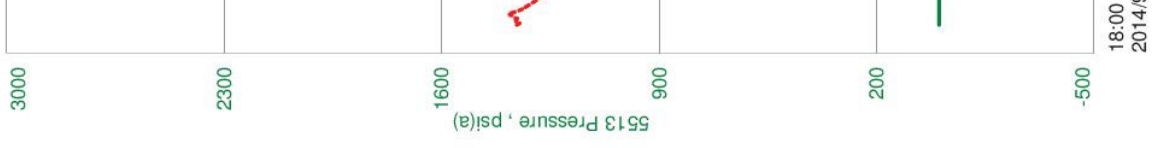
Gayle #1-2  
 Formation: Morrow Sand  
 Pool: Wildcat  
 Job Number: K177

## Gayle #1-2

Company  
 ow Sand 4854-5024  
 ite: 2014/09/30  
 ite: 2014/10/01



Mull Drilling C  
 DST #2 Morr  
 Start Test Da  
 Final Test Da



18:00  
 2014/

C:\Users\Roger.Friedly\Desktop

**ROCK TYPES**

sdy lmst	Lmst fw>7	shale, gry	shale, red
Lmst fw<7	shale, grn	Carbon Sh	Ss

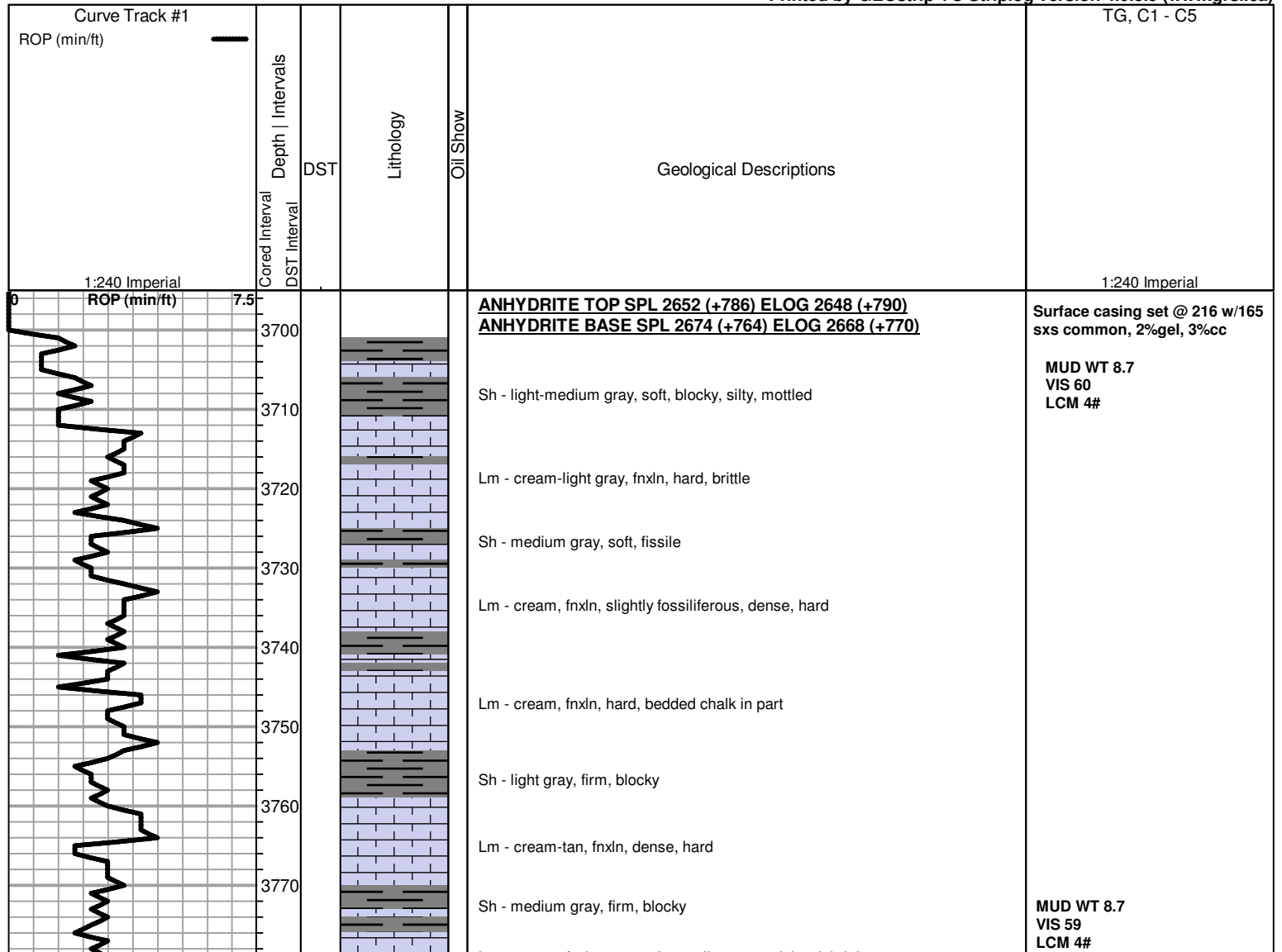
**ACCESSORIES**

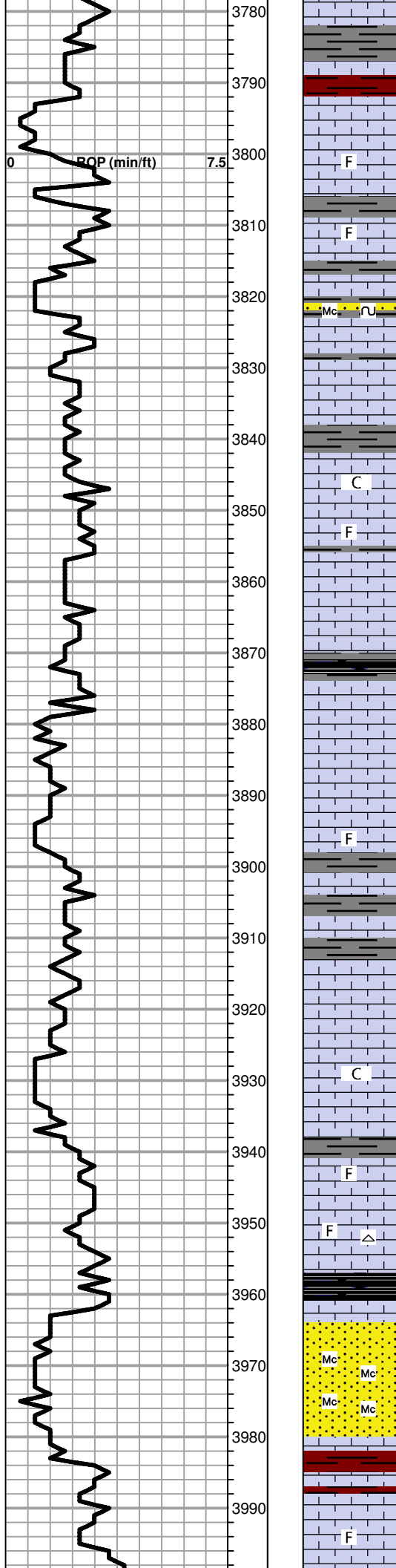
<b>MINERAL</b>	<b>FOSSIL</b>	<b>STRINGER</b>	<b>TEXTURE</b>
∩ Glauconite	F Fossils < 20%	~~~~ Chert	C Chalky
P Pyrite	φ Oolite	— green shale	L Lithogr
△ Chert White			
Mc Mica			

**OTHER SYMBOLS**

<b>Oil Show</b>	<b>DST</b>
● Good Show	■ DST Int
● Fair Show	■ DST alt
● Poor Show	■ Core
○ Spotted or Trace	■ tail pipe
○ Questionable Stn	■ DST
D Dead Oil Stn	■ DST
■ Fluorescence	■ DST
* Gas	

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Lm - cream, fnxn to granular, well cemented, hard, brittle

Sh - maroon / orange, soft, blocky

F

Lm - tan, vf-fnxln, slightly fossiliferous, dense, very hard

F

Lm - cream-medium gray, fnxn, slightly fossiliferous, dense, hard

Mc

Sh - light gray-brown, soft, blocky, very silty, some sandstone clusters in part, friable, well sorted angular, micaceous, glauconitic

Sh - light gray, soft, very silty, gritty, blocky

**TOPEKA SPL 3842 (-404) ELOG 3841 (-403)**

C

Lm - tan, fnxn, dense, hard, brittle, slightly chalky

F

Lm - cream, fnxn, slightly fossiliferous, moderate hardness, bedded chalk in part

Lm - cream, granular, soft, chalky

Lm - cream-tan, fnxn to granular, brittle, bedded chalk

Sh - black, carbonaceous, waxy

Lm - cream, granular, loaded with white sticky clumps, very chalky

Lm - cream-tan, granular, friable, very chalky

F

Lm - tan, fnxn, slightly fossiliferous, hard, chalky, white wash

Sh - medium gray, firm, fissile

Lm - tan, fine interxn porosity, brittle, bedded chalk

C

Lm - cream, granular, friable, chalky throughout

F

Lm - tan, fossiliferous with fine interxn matrix, well cemented, hard

F

Lm - cream-tan, slightly fossiliferous, fnxn, dense, hard, slightly chalky, white chert

Sh - black, carbonaceous, waxy

Mc

Mc

Mc

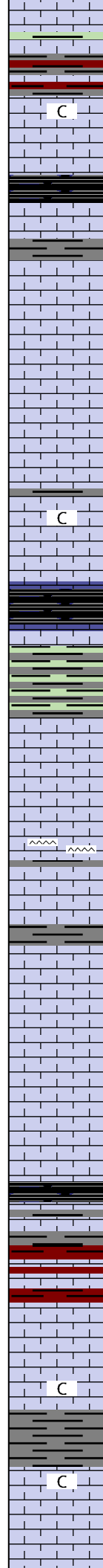
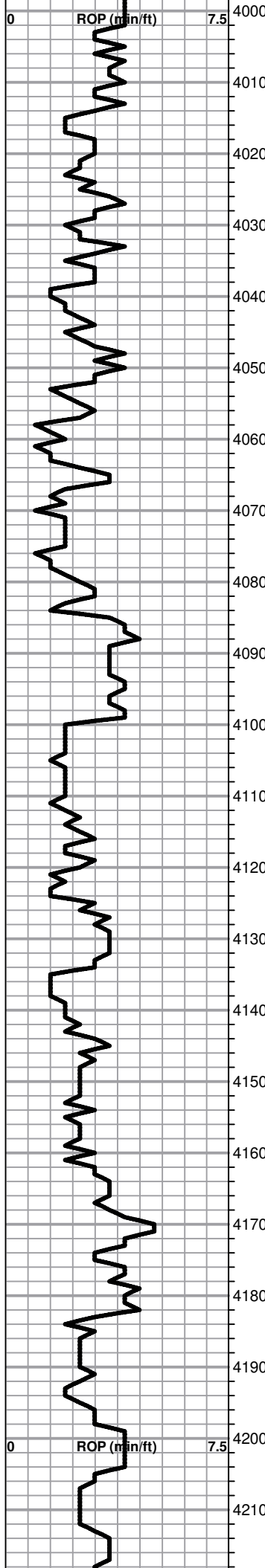
Mc

SS - light gray, fine grained, well sorted, well rounded, friable, slightly micaceous

Sh - maroon, soft, blocky

F

Lm - cream, granular, friable, slightly fossiliferous, no shows



Sh - light green / medium brown / maroon, soft, blocky

4010 C  
Lm - tan-cream, fnxn to granular, firm , chalky

4020  
Sh - black, carbonaceous, waxy, bronze specks

4030  
Lm - tan, vfxln, dense, hard, slightly chalky

4040  
Lm - tan, granular, medxln, friable, chalky

4050  
Lm - tan, fnxln, dense, hard

4060  
Lm - cream-light gray, fn-medxln, moderate hardness

4070 C  
Lm - cream-light brown, granular-medxln, soft on crush, chalky

4080 **HEEBNER SH SPL 4081 (-643) ELOG 4081 (-643)**  
Sh - black, carbonaceous, waxy

4090  
Lm - offwhitie, granular, hard, slightly chalky

Sh - light greenish gray, soft, blocky, some gritty

4100  
Lm - cream-tan, fn-medxln, brittle, bedded chalk in part

4110  
Lm - A/A with chert stringers

4120

4130 **LANSING SPL 4128 (-690) ELOG 4130 (-692)**  
Lm - cream, oolitic, fine interxln porosity, poorly developed, dense, hard, no shows

4140  
Lm - cream-tan, slightly fossiliferous with oolites, granular matrix, friable, no shows

4150  
Lm - cream-tan, slightly fossiliferous, fnxln, hard, brittle, bedded chalk

4160  
Sh - black, carbonaceous, fissile

4170  
Sh - medium gray, firm, blocky, gritty

Sh - maroon, firm, blocky

4180  
Lm - cream, fnxln to granular, soft on crush, bedded chalk, no shows

4190 C  
Lm - cream-tan, fnxln, hard, slightly chalky

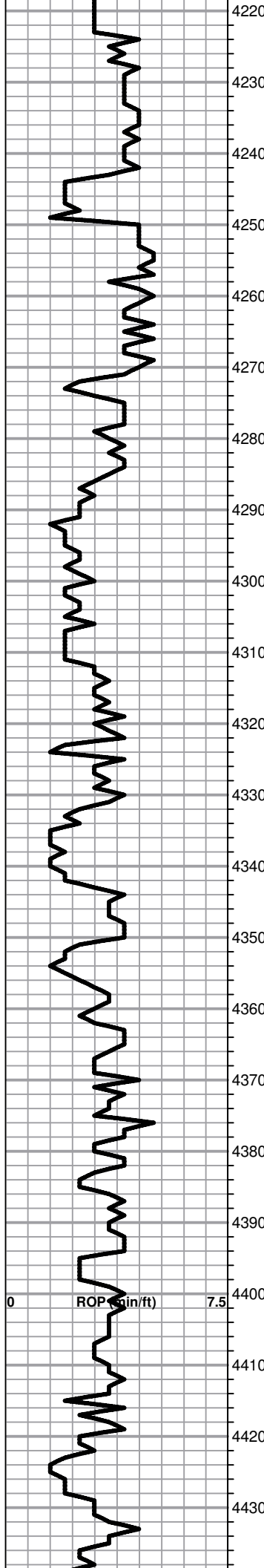
4200 C  
Lm - tan, fine interxln porosity, dense, hard, slightly chalky

4210

MUD WT 9.1  
VIS 53

MUD WT 9.2  
VIS 59  
LCM 3#





Lm - cream-tan, fnxn, brittle, slightly chalky

Sh - black, carbonaceous, waxy, soft

Lm - tan, fnxn to lithographic, dense, very hard, no shows

Lm - cream-tan, fossiliferous with granular matrix, friable, chalky

Lm - tan, vfxln, dense, very hard

Lm - tan, vfxln to lithographic in part, dense, very hard, bedded chalk, pyrite

Lm - tan, vfxln, dense, very hard

Lm - A/A with bedded chalk

Lm - cream-tan, fnxn to granular, brittle, chalky

Lm - cream, fn-medxln, brittle, bedded chalk

Lm - cream-offwhite, fnxn, dense, bedded chalk

**MUNCIE CREEK SH SPL 4321 (-883) ELOG 4322 (-884)**

Sh - black, carbonaceous, fissile

Sh - green-gray, soft, blocky

Lm - cream-tan, vfxln to lithographic in part, dense, very hard

Lm - tan, fossiliferous, granular, friable, good porosity, no shows

Sh - greenish gray, firm, blocky, silty to gritty

Lm - cream-light gray with dark fossil clasts in granular matrix, brittle, bedded chalk

Lm - tan-light gray, fossiliferous, brittle, chalky, no shows

Sh - greenish to medium gray, soft, blocky

Lm - tan, fnxn, dense, hard, slightly chalky, white chert

**STARK SH SPL 4412 (-974) ELOG 4414 (-976)**

Sh - black, carbonaceous, firm, waxy

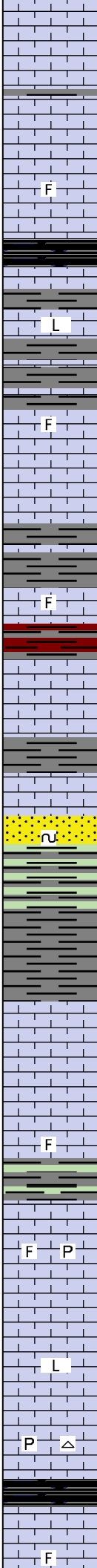
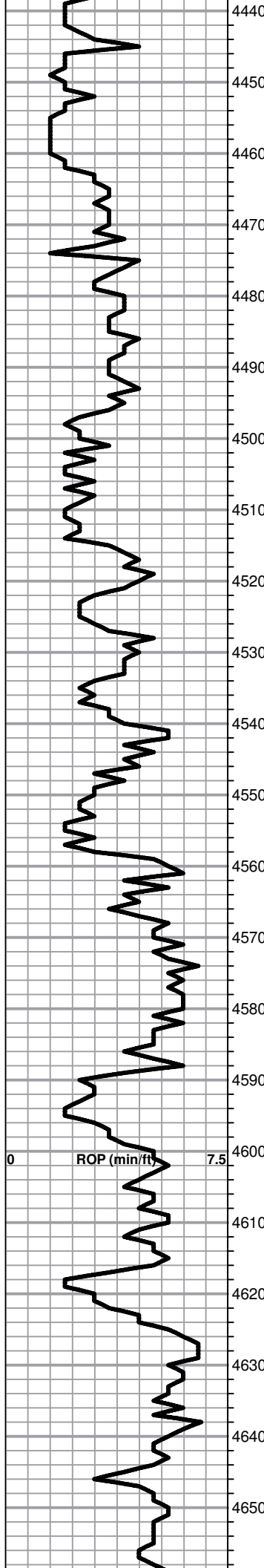
Lm - cream-tan, fn-medxln, friable, chalky, clean and barren

Lm - tan, fine interxln porosity, dense, very hard

Lm - tan, granular, friable, chalky, no shows

MUD WT 9.2  
VIS 59  
LCM 3#

MUD WT 9.2  
VIS 57  
LCM 4#



Lm - tan, granular, friable, chalky, no shows

Lm - tan-cream, granular, friable, bedded chalk, clean and barren

F Lm - cream, fossiliferous, dense, hard, bedded chalk

Sh - black, carbonaceous, waxy, firm

L Lm - tan-light brown, lithographic, very hard, brittle

F Lm - tan, vfxln, slightly fossiliferous, dense, very hard, bedded chalk

**BKC SPL 4508 (-1070) ELOG 4516 (-1078)**

Sh - light gray, soft, blocky, some sticky

F Lm - tan-light brown, fnxln, fossiliferous, dense, hard

Sh - light gray / maroon, soft, blocky

Sh - light-medium gray, soft, blocky

SS - light gray, fine grained, well sorted, well rounded, angular, well cemented clusters, firm, glauconitic specks, no shows

Sh - greenish gray, soft, blocky, gritty

Sh - medium-dark gray, firm, fissile

**MARMATON SPL 4577 (-1139) ELOG 4578 (-1140)**

Lm - offwhite, fnxln, dense, hard, no shows

Lm - tan, fnxln, hard, no shows

F Lm - cream, fossiliferous, well cemented, dense, hard

Sh - dark greenish gray, firm, blocky

F P Lm - light-medium brown, vfxln, slightly fossiliferous, dense, very hard pyritic

L Lm - cream-medium brown, fnxln to lithographic, dense, very hard

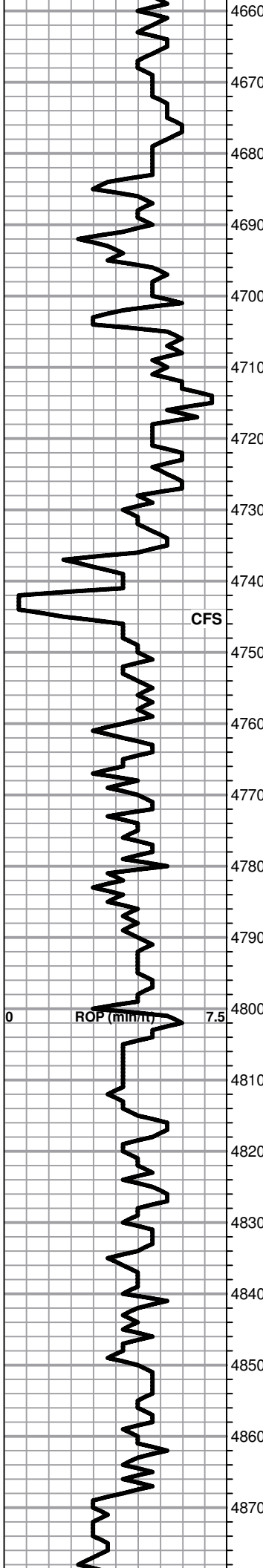
P Δ Lm - tan-light gray, vfxln, slightly fossiliferous, dense, very hard, pyrite, white chert

Sh - black, carbonaceous, firm, waxy

F Lm - light gray, slightly fossiliferous, dense, very hard, bedded chalk

MUD WT 9.3  
VIS 53  
LCM 4#

MUD WT 9.2  
VIS 53  
LCM 4#



C F

Lm - tan-medium brown, slightly fossiliferous, dense, very hard, slightly chalky

F

Lm - tan, fnxn with dark fossil fragments, dense, well cemented, very hard

Sh - black, carbonaceous, soft, fissile  
**FORT SCOTT SPL 4685 (-1247) ELOG 4686 (-1248)**

F C

Lm - cream, slightly fossiliferous, granular, soft on crush, chalky

F

Lm - cream-tan, fossiliferous, well cemented, dense, very hard

Sh - black, carbonaceous, soft, fissile

~ ~ ~ ~

Lm - cream-tan, vfxln, dense, very hard, slight bedded chalk, cherty

F

Lm - cream-tan, fossiliferous, dense, very hard, limited total porosity

**CHEROKEE SH SPL 4735 (-1297) ELOG 4737 (-1299)**

Sh - black, carbonaceous, soft, fissile

Lm - tan with dark oolites of various sizes, well cemented, limited porosity, hard, no shows

MUD WT 9.4  
 VIS 60  
 LCM 3#

Lm - light-medium brown, vfxln to lithographic in part, dense, very hard, bedded chalk

Sh - dark gray, firm, blocky

Sh - dark gray, firm, fissile

**ATOKA SPL 4789 (-1351) ELOG 4790 (-1352)**

Lm - light-medium brown, microxln, dense, very hard

Sh - dark gray, soft, blocky

Lm - tan-light brown, fnxn, hard, brittle

P

Sh - dark gray-black, carbonaceous, firm, fissile, pyrite

MUD WT 9.3  
 VIS 55  
 LCM 4#

L

Lm - tan-medium brown, lithographic in part, vfxln, dense, very hard

Lm - medium brown, oolitic, poorly developed, dense, hard

C

Lm - light brown, fnxn, some granular, slightly chalky

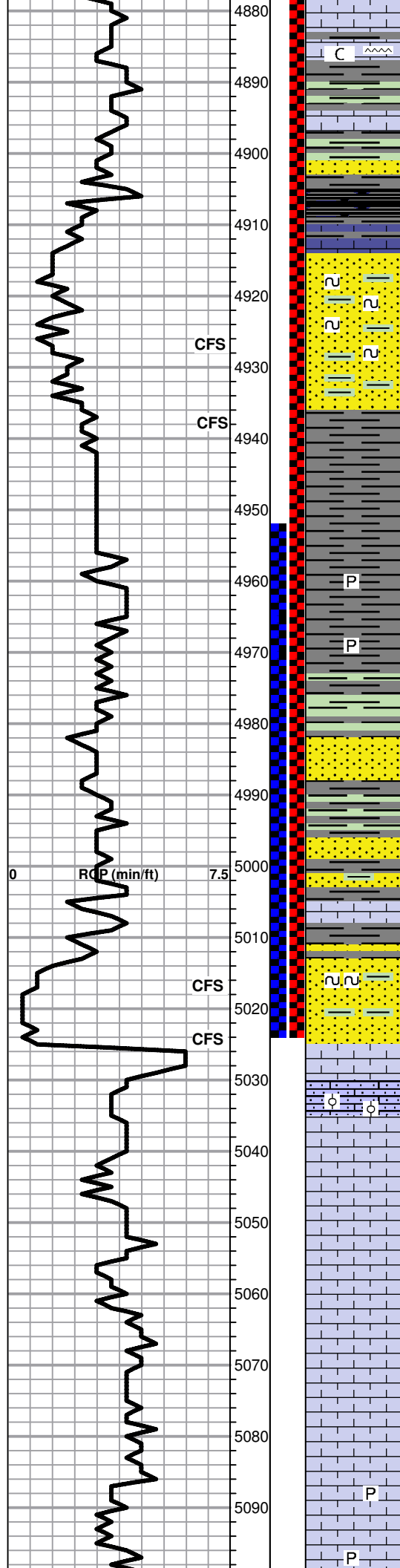
P

Sh - medium gray, firm, blocky, pyrite

Sh - dark gray/black, carbonaceous, some green, firm, blocky

Lm - light-medium brown, fnxn to litho in part, bedded chalk

DST #2 4854 TO 5024 SEE  
 HEADER FOR SUMMARY



Lm - medium brown-dark gray, fnxln, slightly chalky, cherty

Sh - dark green / gray, firm, blocky

Lm - dark gray, fnxln, dense, very hard

Sh - A/A

SS - white, sucrosic, friable clusters, clay matrix

**MORROW SH SPL 4906 (-1468) ELOG 4904 (-1466)**

Sh - black, carbonaceous, firm, waxy

**UPPER SAND SPL 4922 (-1484) ELOG 4914 (-1476)**

SS - light gray to dark green, very fine grained, well sorted, well rounded, glauconitic, well cemented, firm, white clay matrix, NSFO, no odor, no fluorescence, abundance of dark gray-green shales

Sh - dark gray, firm, gritty, fissile

Sh - dark gray, dense, firm to hard, fissile

Sh - dark gray, firm to hard, fissile, pyrite clusters

Sh - medium-dark gray, firm fissile, pyrite

Sh - lime green/dark gray, firm, fissile

SS - green-white clusters, medium grained, glauconitic, well sorted, angular, very well cemented, hard, no shows

Sh - gray/dark green, firm to hard, fissile

SS - white sucrosic clusters, friable, clay matrix, very fine grained, well sorted, well rounded clear quartz grains,

Lm - cream-tan, slightly oolitic, poorly developed, dense, hard

Sh - lime green-gray, firm, waxy

**BASAL SAND SPL 5012 (-1574) ELOG 5014 (-1576)**

SS - light to dark green, fine grained, well sorted, well rounded, friable clusters, white matrix, glauconitic, no shows

SS - snow white, sucrosic, white cement, friable, clean clear grains, no shows

**MISSISSIPPIAN SPL 5025 (-1587) ELOG 5024 (-1586)**

Lm - cream, fnxln with large quartz inclusions, dense, extremely hard

Lm - cream-offwhite, slightly oolitic, sandy, fine grained quartz inclusions, firm, clean and barren

Lm - tan, fnxln, dense, very hard, slight bedded chalk

Lm - cream-tan, granular, well cemented, hard, brittle

Lm - tan, fine interxln porosity, dense, hard

Lm - cream-tan, fnxln to granular in some, hard on crush, bedded chalk

Lm - cream-tan, slightly fossiliferous, moderate hardness, bedded chalk, cherty, pyrite

Lm - cream, granular, well cemented, dense, hard, slightly chalky, pyrite

**RTD 5100 (-1662) LTD 5098 (-1660)**

DST #1 4952 TO 5024 MISRUN  
PACKER FAILURE.  
RAN SHALE PACKER

SAMPLES THROUGH  
MISSISSIPPIAN CONTAINED  
ABUNDANT DARK GREEN  
AND GRAY SHALES  
SLOUGHING FROM ABOVE

MUD WT 9.2  
VIS 52  
LCM 4#

CFS 5100

RTD 5100 (-1002) LTD 5050 (-1000)