



Geologist's Report

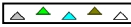







Company: Robert F. HembreeLease: H & S #1Field: McDonald NortheastSurface Location: SE/4 (2457' FSL & 1998' FEL)Sec: 34 Twp: 18S Rge: 24WCounty: Ness State: KansasGL: 2335' KB: 2342'Contractor: Pickrell Drilling Rig #10Spud: 8/8/14 Comp: 8/18/14RTD: 4364' LTD: 4363'Mud Up: +/- 3400' Mud Type: Chemical DisplacedDrilling Time Kept From: 3650' to RTDSamples Saved From: 3650' to RTDSamples Examined: 3700' to RTDGeological Supervision: 3950' to RTDGeologist on Well: Kurt TalbottSurface Casing: 8 5/8" @ 223'Production Casing: 5 1/2" @ 4351'Wireline Logs: By Pioneer: CNL/CDL, DIL, MEL

Well Comparison

	WELL BEING DRILLED		OFFSET		OFFSET	
	HEMBREE		HEMBREE		HEMBREE	
	H & S #1		SCHWARTZKOPF A 1		SCHWARTZKOPF K 1	
	2342 KB		2336 KB		2320 KB	
FORMATION	Log	Log SS	Log	SS	MD	SS
ANHYDRITE	1597	745	1591	745		
BASE ANHY	1633	3716	1627	709		
HEEBNER	3716	-1374	3713	-1377	3699	-1379
LANSING	3760	-1422	3757	-1421	3741	-1421
BASE KC	4052	-1710	4047	-1711	4052	-1732
MARMATON	4094	-1752	4086	-1750	4082	-1762
PAWNEE	4174	-1840	4171	-1835	4159	-1839

FORT SCOTT	4252	-1910	4247	-1911	4236	-1916
CHEROKEE	4274	-1932	4271	-1935		
MISSISSIPPI	4353	-2011	4346	-2010	4331	-2011
TOTAL DEPTH	4063	-2021	4359	-2022	4343	-2023

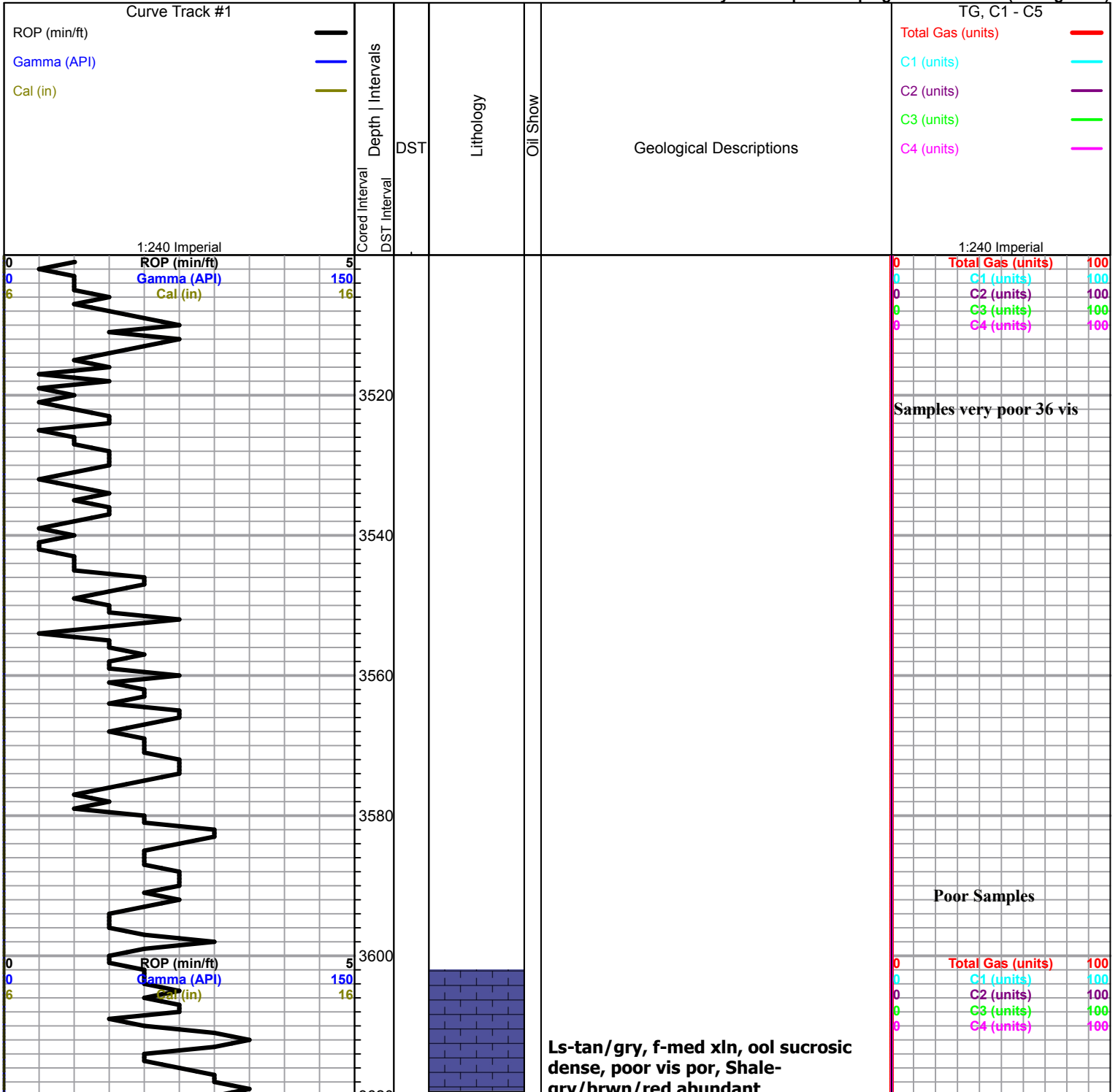
ROCK TYPES

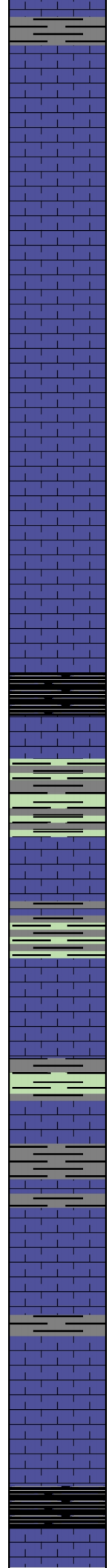
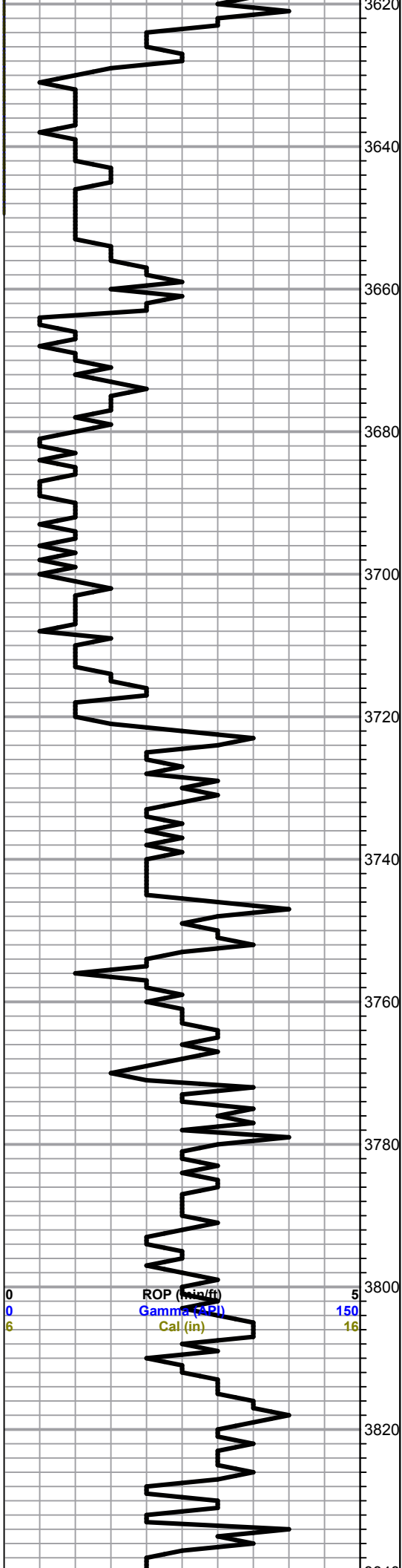
 Cht vari	 Lmst fw<7	 shale, gry	 shale, red
 Dolprim	 shale, gm	 Carbon Sh	 Shcol

OTHER SYMBOLS

EVENTS	INTERVALS	DST
<ul style="list-style-type: none"> ⌋ Casing Shoe ▷ RTF ▷ Sidewall ▲ Left Casing Shoe ▼ Right Casing Shoe 	<ul style="list-style-type: none"> ■ Core ⋅ DST 	<ul style="list-style-type: none"> ■ DST Int ■ DST alt

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Ls-crm/tan, fossils, fair iner xln por,
no vis shows, cherty in part

Ls-crm/tan, granular in part, fair por,
no vis shows, cherty

Ls-crm/wht, f-med xln, fossils, fair
iner part por,

A/A chert-tan/boney wht

Ls-crm/tan/wht, fxln, dense, few
fossils, poor vis por, chert A/A

**Heebner 3719.0 (-1377.0) -
1374.0**
Black carbon shale

Poor Samples 40 vis

Shale gry/grn

**Toronto 3739.0 (-1397.0) -
1393.0**

Ls-wht/lt gry, f-med xln, granular,
chalky, poor vis por,

**Lansing 3762.0 (-1420.0) -
1422.0**

Ls-wht, chalky, ool, poor scatt por,
chert-gry/boney wht
Shale-gry/grn/red/brwn abundant

Shale Abundant
Trace Ls Crm/tan, fxln, slightly ool,
poor vis por, slightly chalky

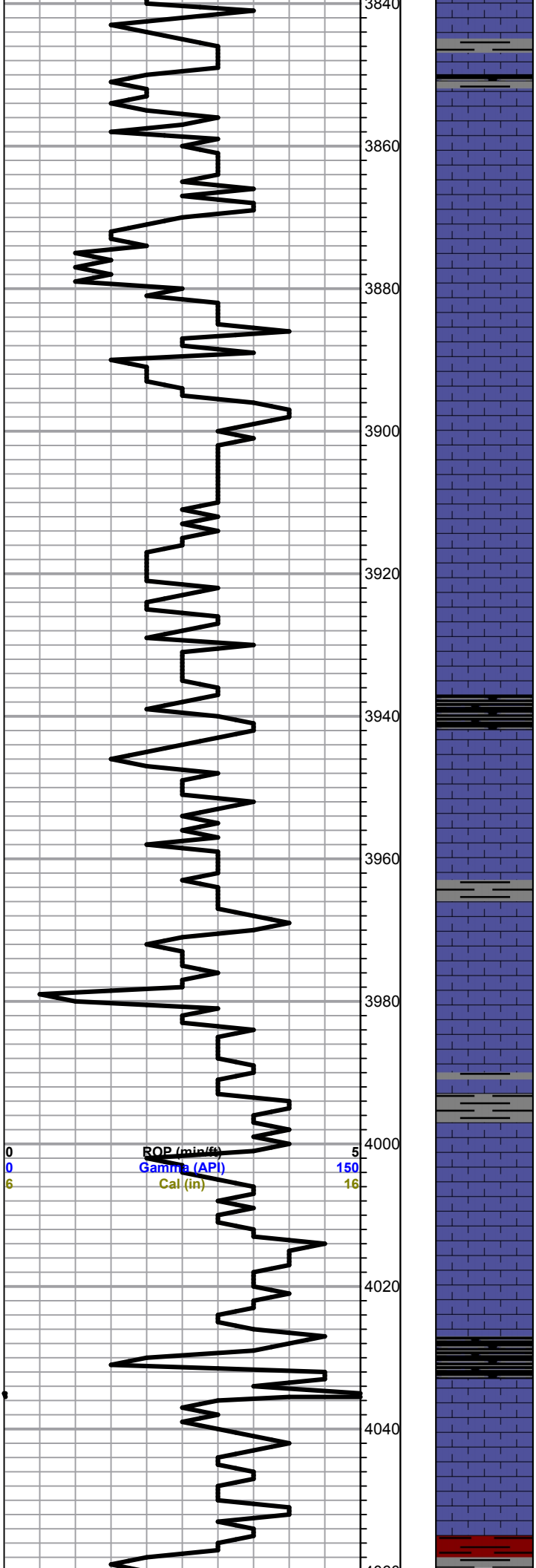
A/A

Ls- lt gry/crm fxln ,poor vis por,
chalky

Trace black carbon shale

0 ROP (min/ft) 5
0 Gamma (API) 150
6 Cal (in) 16

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



Ls-tan/gry, fxln, dense, poor vis por,

Ls-crm/tan, fxln, slightly sucrosic, poor vis por,

Ls- crm/tan, fxln, sucrosic, poor scattered por, chalky, chert-boney wht/gry
Coffee brown shale

A/A

Ls-wht/crm/lt gry, fxln, ool, poor vis por, chalk, chert-boney wht

A/A

Ls-wht/lt gry, fxln, dense, poor vis por, chert-gry/tan, Pyrite

Ls- A/A

Ls-wht/crm/wht, flxn, ool, oom, fair oom por, barren, slightly chalky

Ls-wht/ta, fxln, scattered oom por, chalky, cherty AA

Ls-wht/tan, flxn, dense, poor vis por, slightly chalky, cherty in part

A/A

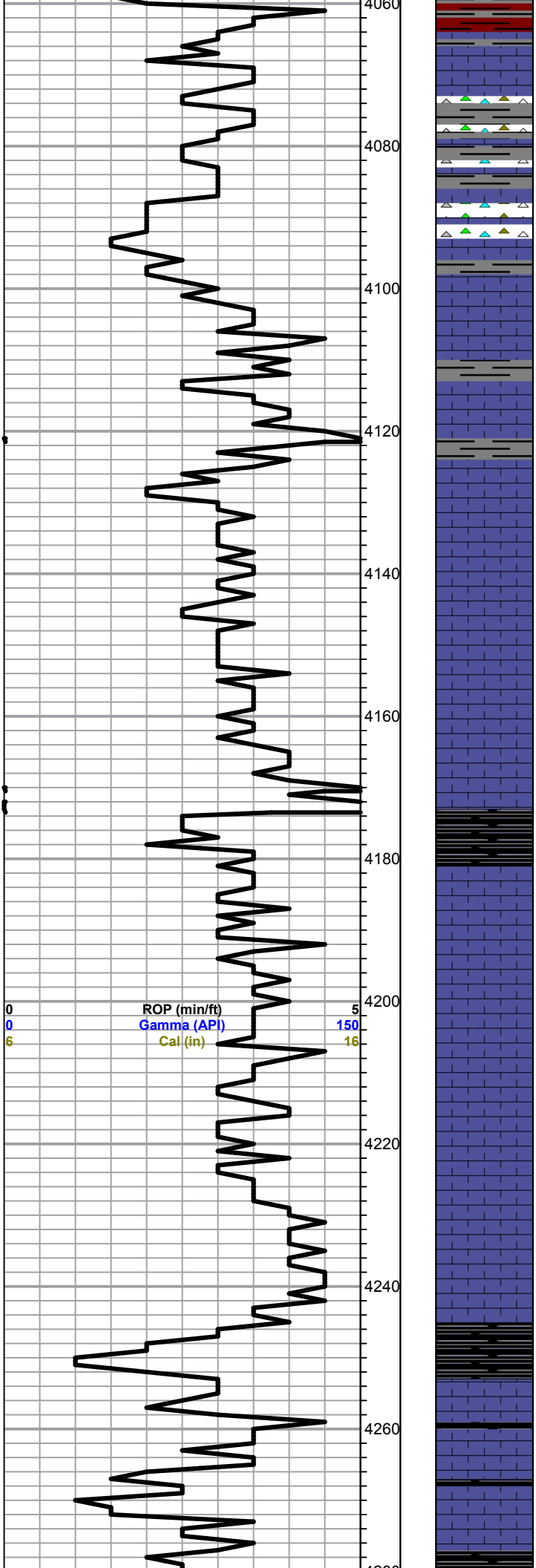
Black carbon shale

Ls-tan/crm, fxln, dense, poor vis por, chert-boney wht-ool/tan

Base KC 4054.0 (-1712.0) - 1710.0

Black carbon sahle

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



Shale-gry/grn/brwn

Ls-tan/gry, few fossils, chert-gry/tan, shale-gry/grn

Shale-gry/grn, LS A/A chert-gry/tan

Marmaton 4095.0 (-1753.0) - 1752.0

Ls-tan/gry, fxln, few fossils, poor vis por,

Ls-tan/buff, poor scattered por, trace stains,NSFO

Ls-tan/buff, fxln, few fossils, poor vis por, slightly chalky

A/A

Ls-tan/buff/crm, fxln, dense, poor vis por, cherty in part

Shale-gry/blk carbon

Pawnee 4178.0 (-1836.0) - 1840.0

Ls-lt gry/wht, fxln, dense, poor vis por,

A/A Slightly chalky

Ls-gry/wht, fxln, dense, poor vis por, chalky in part

Ls-gry/tan, fxln, dense, poor vis por, cherty in part, slightly chalky

Fort Scott 4252.0 (-1910.0) - 1910.0

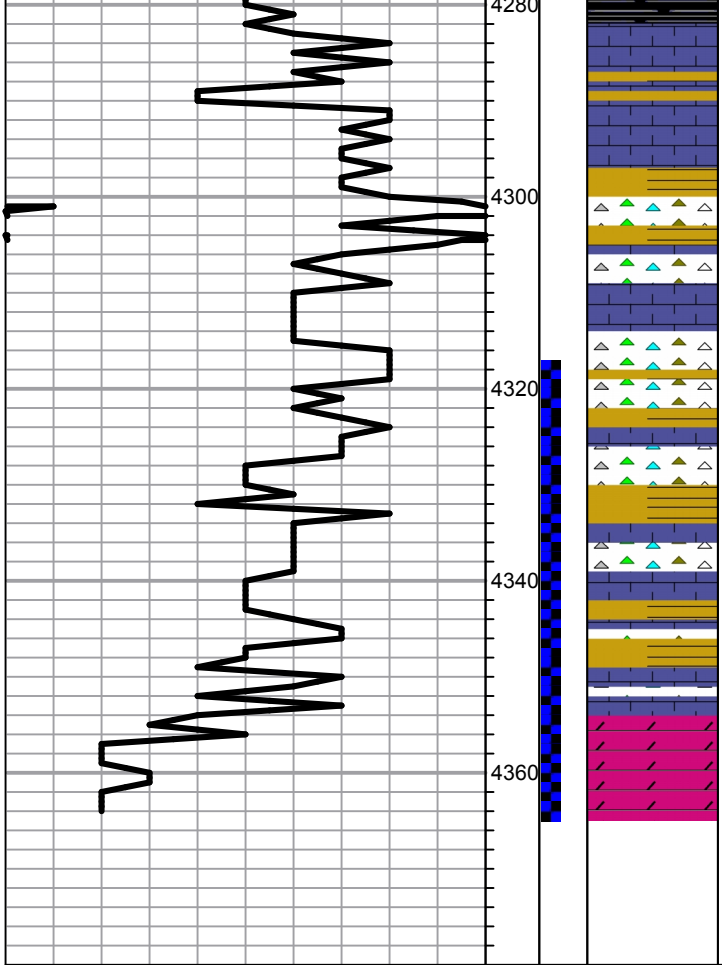
Black carbon shale

Ls-tan/lt gry, fxln, slightly ool, poor vis por, cherty in part

Ls-crm/tan, fxln, fair to good iner xln to vuggy por, light brown to golden brown stains, TrSFO, faint odor

Cherokee 4278.0 (-1936.0) - 1932.0

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



Black carbon shale

Ls-tan/buff, fxln, cherty in part, poor vis por

Shale-gry/grn

Shale-A/A Chert-gry/tan

**Shale-brown/gry/grn
Chert-A/A**

Shale- A/A slightly silty

Chert-gry/tan/wht,

Mississippian 4353.0 (-2011.0) 0.0

Dol-tan/crm, fxln, sucrosic, fair iner xln to vug por, stain/sat, SFO, odor

Total Depth 4364.0 (-2022.0) - 2021.0

DST #1 4317-4364
30-45-45-60
IF: BOB 7 min
ISI: 2" return

Recovery:
230' Gas In Pipe
450' Gassy Oil
(30g 70o)
370' Gas Mud Cut Oil
(35g 25m 40o)

Pressures:
ISIP 1199 psi
ESIP 1176 psi
HFP 33-159 psi
FFP 170-299 psi
HSH 2140-2129 psi