



**Woolsey Operating Company, LLC**

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

Well Name: **WARREN FEE #13**  
Location: **Section 19 - Township 32 South - Range 12 West**  
License Number: **15-007-24192-0000** Region: **Barber County, Kansas**  
Spud Date: **July 28, 2014** Drilling Completed: **August 5, 2014**  
Surface Coordinates: **1380 FSL and 1000' FWL**  
**App. SE SE NW SW**

Bottom Hole  
Coordinates:  
Ground Elevation (ft): **1637'** K.B. Elevation (ft): **1649'**  
Logged Interval (ft): **3600'** To: **4910'** Total Depth (ft): **4910'**  
Formation: **Lansing/Kansas City ----> Simpson Group**  
Type of Drilling Fluid: **Chemical Mud, displaced at 3419'**

Printed by MUD.LOG from WellSight Systems 1-800-447-1534 [www.WellSight.com](http://www.WellSight.com)

**OPERATOR**

Company: **Woolsey Operating Company, LLC**  
Address: **125 N. Market, Suite 1000**  
**Wichita, KS 67202**

**GEOLOGIST**

Name: **Bill Klaver**  
Company: **Woolsey Operating Co. LLC**  
Address: **125 N. Market, Wichita Kansas, 67202**

## COMMENTS

Surface Casing: Spud at 2:45 pm on July 28, 2014, Ran 5 joints of new 13 3/8" X 48#/ft casing to 235' KB (tally 220.7). Cemented with 235 sx Class A, 2% gel, 3% cc (by Allied). Plug down at 10:15 pm on July 28, 2014. Cement did circulate.

Production Casing: 4 1/2" X 10/5#/ft

Deviation Surveys: 1 at 235', 1/2 at 1012', 1 at 1518', 1/2 at 2027', 1/4 at 3038', 1 at 3514', 3/4 at 3992', 1 at 4480', 1/2 at 4910'

Pipe Strap @ 4480', Strap: 4498.02', Board: 4498.04'. Strap .02' short to the board, no corrections made to the board.

Fossil Drilling Rig #3 Bit Record:

1) 10 17 1/2" Smith RR in a 0' out at 235', 4 hours.

2) 7 7/8" Varel HE-21 in at 235' out at 4480', 92 3/4 hours

3) 7 7/8" Varel HE-29 RR in at 4480' out at 4910', 29 3/4 hours

Gas Detector: Woolsey Operating Company, Gas Shack #2

Mud System: Mud-Co., Brad Bortz, Engineer

DSTs: Trilobite Testing, Leal Cason, Tester

E-logs: Nabors Completion and Production Services, Dual Induction Laterolog w/SP, CNL/FDC w/PE, Gamma Ray and Caliper. Ian Mabb, Engineer.

## DSTs

DST #1 Mississippian, 4434'-4480', 30"-60"-60"-120", SB BOB in 1 minute. Rec: 504' GIP, 180' GCM (5%Gas, 95% Mud). IHP 2205, IFP 36-62, ISIP 760, FFP 53-96, FSIP 802, FHP 2191. BHT 129 degrees

## CREWS

Jim (when at the rig) Wenrich, Toolpusher

Daniel Orrantea, Days

Ron Burns, Evening

Jimmie Holt, Morning

Chris Statts, Relief

### ROCK TYPES

Anhy	Shy dolo	Sltst	Shale 3
Bent	Dol	Ss	Silty dol
Brec	Gyp	Black sh	Dol lmst
Cht	Sdy lmst	Gry sh	Dol 2
Clyst	Lmst	Shale	Granite wash
Coal	Mrst	Shysltst	Lmst
Congl	Salt	Sltyssh	Calc dol
Sdy dolo	Shale	Ss 2	Shale 3

### ACCESSORIES

#### FOSSIL

- Algae
- Amph
- Belm
- Bioclst
- Brach
- Bryozoa
- Cephal
- Coral
- Crin
- Echin
- Fish
- Foram
- Fossil
- Gastro
- Oolite
- Ostra
- Pelec
- Pellet
- Pisolite
- Plant
- Strom

- Fuss
- Oomoldic

#### MINERAL

- Anhy
- Arg
- Bent
- Bit
- Brecfrag
- Calc
- Carb
- Chtdk
- Chtlt
- Dol
- Ferrpel
- Ferr
- Glau
- Gyp
- Marl
- Nodule
- Phos
- Pyr

- Salt
- Sandy
- Silt
- Chlorite
- Dol
- Sand
- Sltly

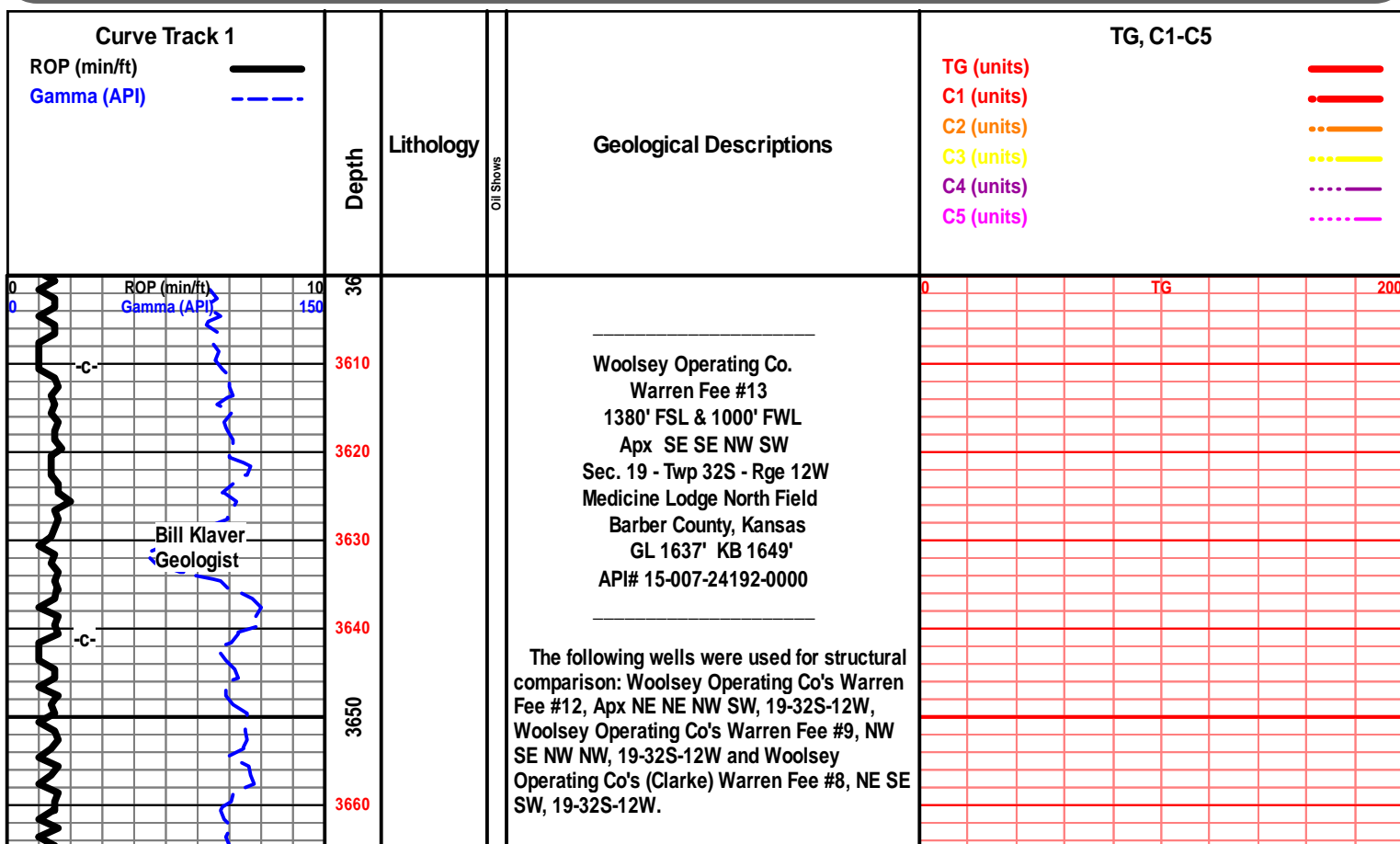
#### STRINGER

- Anhy
- Arg
- Bent
- Coal
- Dol
- Gyp
- Ls
- Mrst
- Sltstrg
- Ssstrg
- Carbsh
- Clystn
- Dol

- Grysh
- Gryslt
- Lms
- Sandylms
- Sh
- Sltstn

#### TEXTURE

- Boundst
- Chalky
- Cryxln
- Earthy
- Finexln
- Grainst
- Lithogr
- Microxln
- Mudst
- Packst
- Wackest



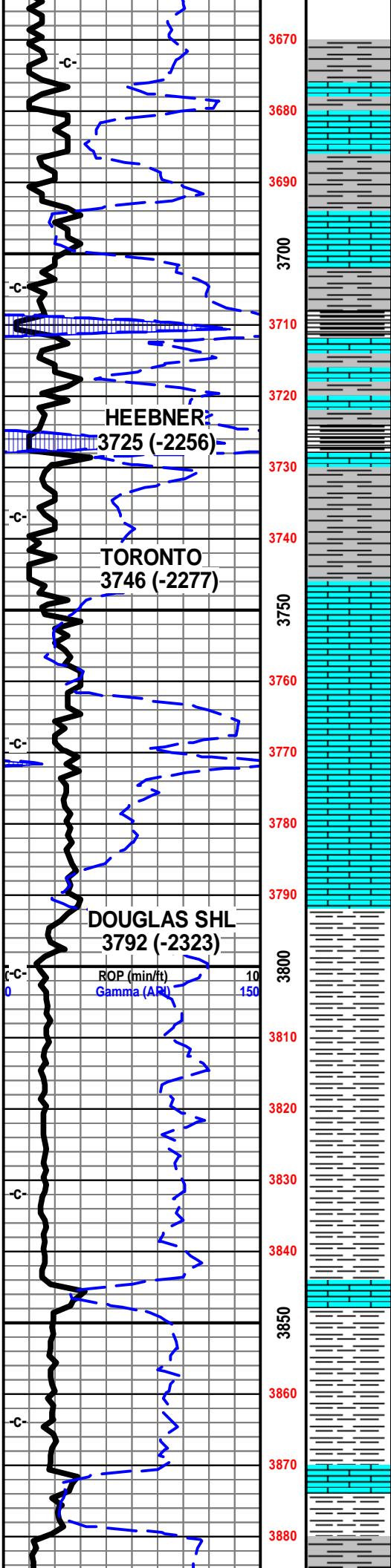
One minute drill time was recorded from 3600' to rotary total depth. Ten foot drilling and circulation samples were roughneck gathered from 4200' to rotary total depth. All samples were delivered to the Survey at the end of the test.

7 am Drilling Progress:

July 28, 2014 MIRT/SPUD  
 July 29, 2014 Drilling at 282'  
 July 30, 2014 Drilling at 1840'  
 July 31, 2014 Drilling at 2674'  
 August 1, 2014 Drilling at 3485'  
 August 2, 2014 Drilling at 4162'  
 August 3, 2014 DST #1 at 4880'  
 August 4, 2014 Drilling at 4625'  
 August 5, 2014 Drilling at 4890'  
 E-logs out 5 pm on August 5, 2014

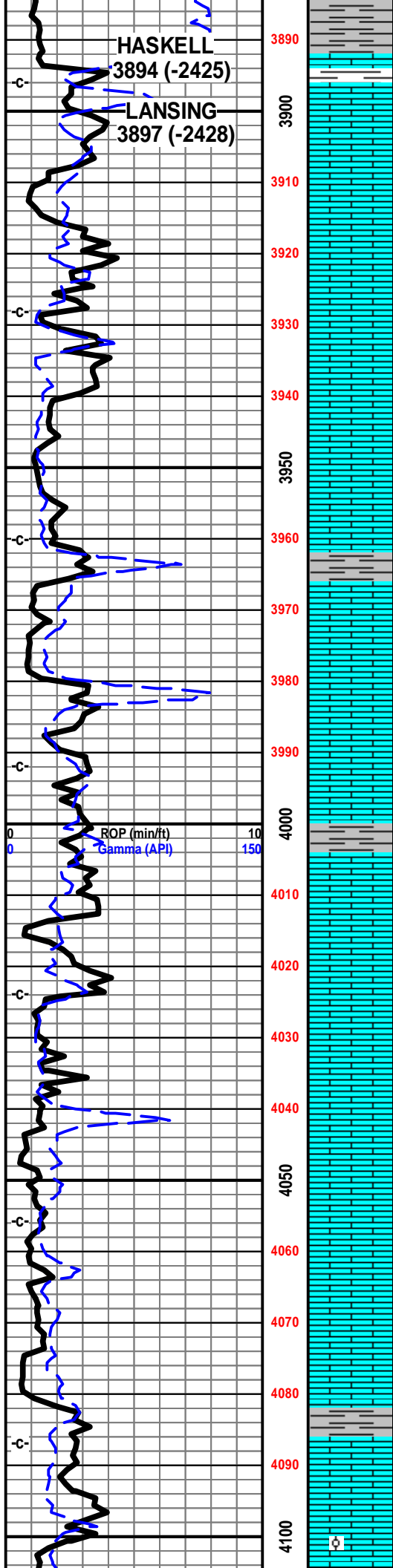
E-Log Tops:

Herrington 1963 (-314)  
 Onaga 2778 (-1129)  
 Wabaussee 2834 (-1185)  
 Stotler 2974 (-1325)  
 Topeka 3233 (-1584)  
 LeCompton 3500 (-1851)  
 Kanwaka 3538 (-1889)  
 Heebner 3722 (-2073)  
 Toronto 3754 (-2097)  
 Douglas Shl 3789 (-2140)  
 Haskell 3891 (-2242)  
 Lansing 3897 (-2248)  
 Iola 4152 (-2503)  
 Dennis 4241 (-2592)  
 Stark 4268 (-2619)  
 Swope 4275 (-2626)  
 Hushpuckney 4306 (-2657)  
 Hertha 4318 (-2669)  
 B/Kansas City 4363 (-2714)  
 Pawnee 4414 (-2765)  
 Mississippi 4430 (-2781)  
 Keokuk Porosity 4461 (-2812)  
 Keokuk Porosity Base 4487 (-2838)  
 Compton 4561 (-2912)  
 Kinderhook 4626 (-2977)  
 Woodford 4691 (-3042)  
 Viola 4723 (-3074)  
 Simpson Group 4818 (-3169)  
 Simpson 'D' Sand 4837 (-3188)  
 Wilcox 4850 (-3201)  
 McLish 4864 (-3215)  
 LTD 4908 (-3259)



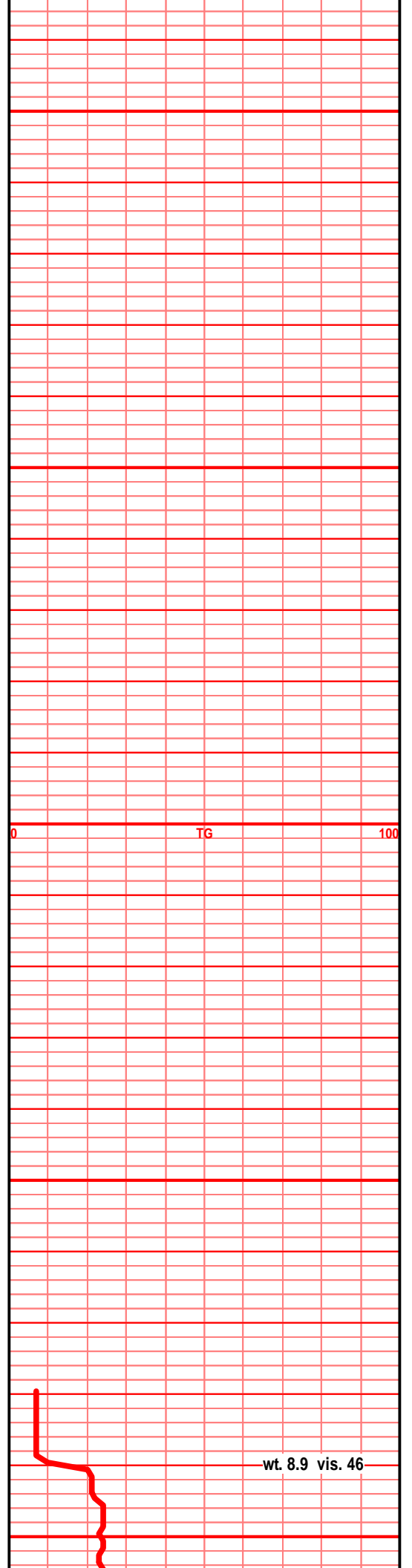
0 Scale Change TG 100

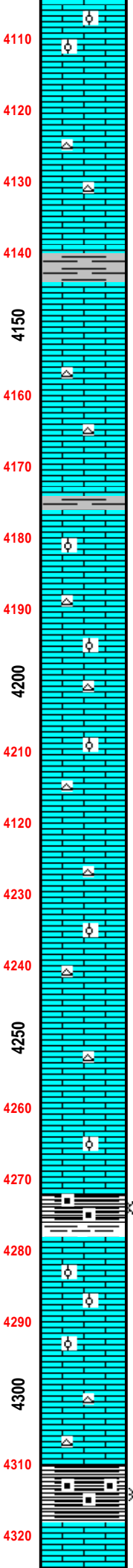
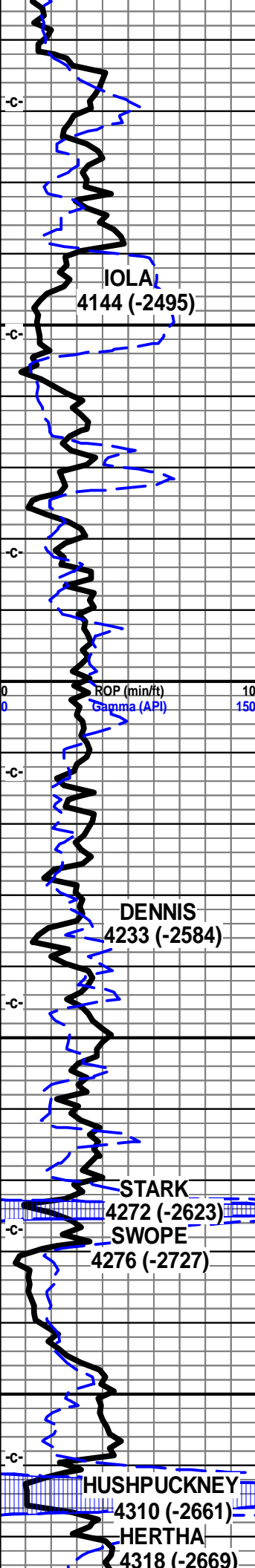
0 TG 100



1st crm off wht tan f xln gran foss frags, foss ool, pelletal, calc xln fill

1st crm off wth tan f xln gran soft sub chlky foss frags, foss ool pelletal calc xln fill





4110 Ist wht crm tan f xln gran soft sub chlky foss frags, foss ool, pelletal, inter xln por, calc xln fill

4120 It crm tan lt gry f xln gran sub chlky foss frags, calc xln fill, foss ool, pelletal, inter xln por

4130 Ist crm tan lt gry f xln blkly ang dns sub chlky foss frags, gran calc xln fill, foss ool, pelletal tr chrt wht lt gry shrp

4140 shl gry calc Ist wht tan f xln blkly ang sub chlky foss frags, foss ool, pelletal, calc xln fill, inter foss mold por, inter xln por

4150

4160 Isr crm wht off tan f xln gran soft sub chlky foss frags, foss ool, pelletal, inter xln, foss mold por, soft

4170 Ist crm tan lt gry f xln blkly ang bec hrd dns sub chlky foss frags micro foss, pelletal calc xln fill

4180 shl gr drk gry, Ist tan lt gry f xln gran arg sub chlky foss frags, calc xln fill

4190 Ist crm off wht buff f xln gran soft sub chky, foss frags, calc xln fill, inter xln por,

4200 Ist crm buff tan off wht f xln blkly ang sub chlky, foss frags, foss ool, pelletal, calc xln fill, inter xln por

4210 Ist crm buff tan f xln gran blkly ang sli sub chlky, foss frags, calc xln fill tr chrt gry shrp frsh opa

4220 Ist crm buff tan lt gry f xln gran soft sli arg, sub chlky foss frags, calc xln fill, tr chrt lt gry shrp frsh opa

4230 Ist crm gry buff tan f xln gran sub chikly soft, calc xln fill, foss frags, micro foss, inter xln por, chrt gry shrp frsh

4240 Ist crm buff tan tr lt gry f xln gran blkly dns soft sub chlky foss frags, calc fill, chrt dull gry shrp frsh

4250 Ist tan buff gry f xln dns blkly gran soft sub chlky foss frags calc xln fill, inter xln por

4260 Ist buff tan gry f xln gran soft sub chlky foss frags, foss ool, pelletal calc xln fill, foss ool pelletal, chrt lt gry shrp frsh

4270 shl drk gry blk, blik carb, wxy grsy text, blkly ang pcs, "spitting" gas, tr filmy cond

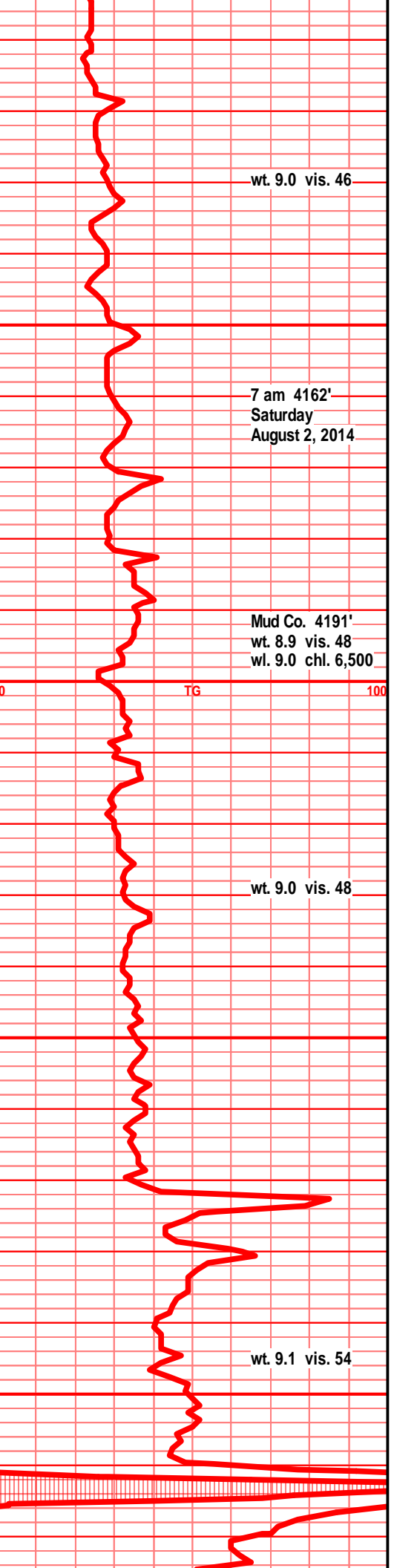
4280 Ist crm tan off wht, tr lt gry, f xln gran soft sub chlky foss frags, foss oo/pelletal, foss mold, inter xln por, much calc xln fill, NS

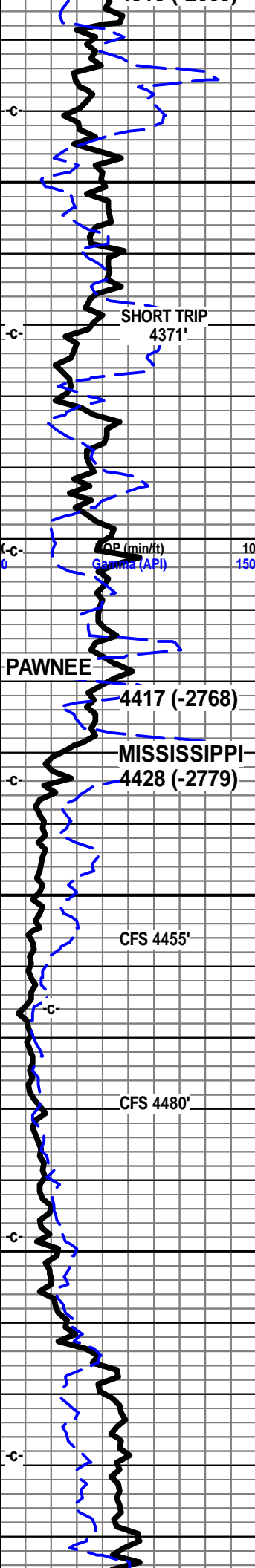
4290 Ist crm buff tan, tr off wht f xln gran soft sub chlky, foss frags, ool, pelletal, inter xln por, mstly vry chlky, pp por, calc xln fill

4300

4310 Ist crm buff tan lt gry f xln blkly dns hrd sub chlky foss frags, micro foss, and shl drk gry blk, blk carb, wxy grsy text, abun gas bubs

4320 Ist crm buff tan tr lt gry f vf xln dns hrd blkly ang sub chlky, foss frags, inter xln por.





ing, calc, tan, buff, sh, mstly soft chlky, calc xln fill, flood blk carb shl in this spl

1st crm gry tan mott f xln blkly ang dns hrd, sub chlky, mstly dns, foss frags micro foss calc xln fill

1st crm gry buff f xln dns hrd blkly ang, sub chlky micro foss frags, foss ool tr pelletal, tr chrt lt gry shrp frsh opa

lsr crm tan, gry tan mott, f xln dns hrd blkly sub chlky, micro foss frags, foss ool, micro pelletal, calc xln fill, chrt gry shrp frsh

1st drk gry brn f vf xln gran gritty vry arg silty, calc fill, shls gry drk brn silty calc inclu, gritty

1st drk gry brn f vf xln dns hrd blkly ang vry arg silty gritty, shl brn brn silty gritty calc, calc inclu

aa, 1st gry tan lt gry brn mott f vf xln dns hrd blkly ang tr arg, micro foss frags, shl gry drk gry blk silty gritty calc in prt

1st crm buff tan f vf xln blkly ang dns sub chlky in prt, foss frags, micro foss frag, ool, pelletal, calc xln fill

shl gry blk, brn blk, 1st tan buff crm f vf xln dns hrd blkly ang, tr sub chlky, micro foss frags, ool/pelletal calc xln fill

1st crm buff tan f vf xln dns hrd blkly ang dns, arg sub chlky, shl gry green silty gritty,

chrt wht, off wht, bone wht, tr lt gry, shrp frsh sub opa, blkly ang shards, w/ tr tan brn edge stain, sli odor, gas bubs, tr pp, sli frac por, mstly barren

chrt wht off wht, bone wht, tr lt smokey gry shrp frsh opa, blkly ang shrp shards, tr tan brns edge stain aa, chrt wht off wht tan mott, w/sli spongy weath sli trip text edge, moldic, pp por, tan brn stain, gas bubs, sli odor

chrt wht off wht bone wht, tr lt gry smokey tint, sub opa, shrp blkly ang sharp shards, 80% frsh, 20% with tan brn stained sli weath edge, pp por, chrt wht tan brn mott sli gran spongy text, weath sli trip text, tan brn stained, sli odor, SSFO, gas bubs, pp moldic por, vug por

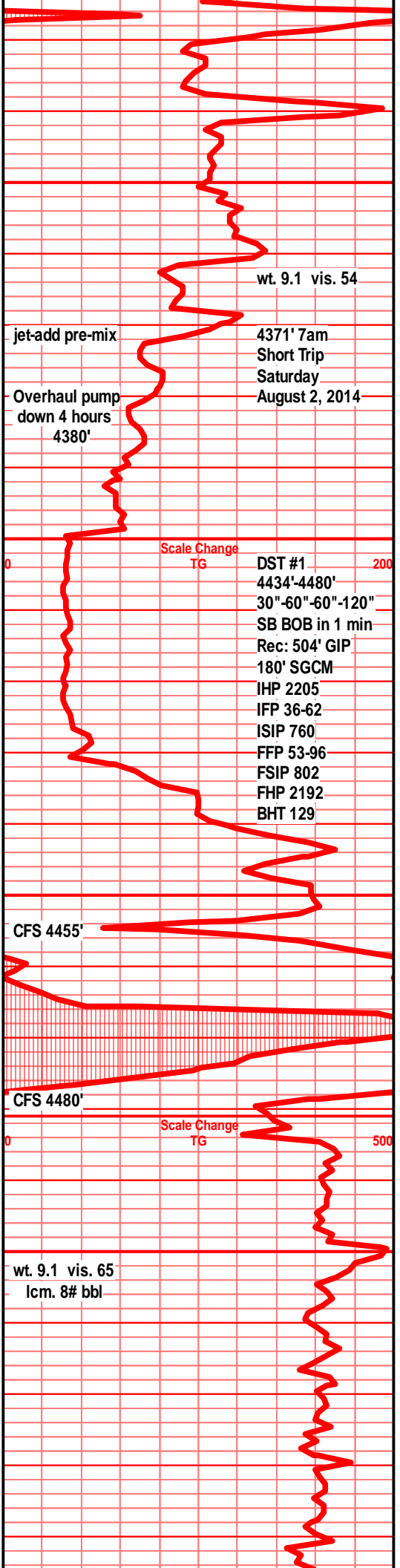
chrt wht off wht, tr lt gry smokey, tr tan, shrp, frsh sub opa, ang sharp shrds, w/tan brn sli weath edge stain, chrt wht tan lt brn mott, spongy weath gran sli trip text, pp moldic por, sli odor, ssfo, gas bubs

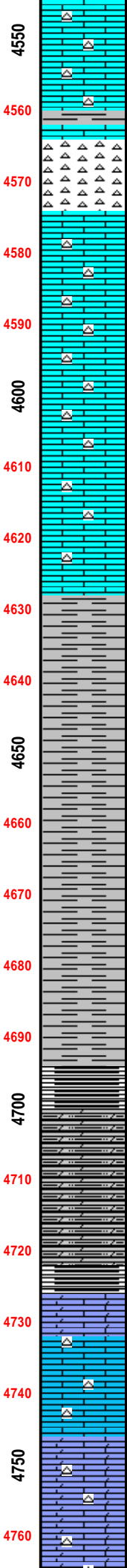
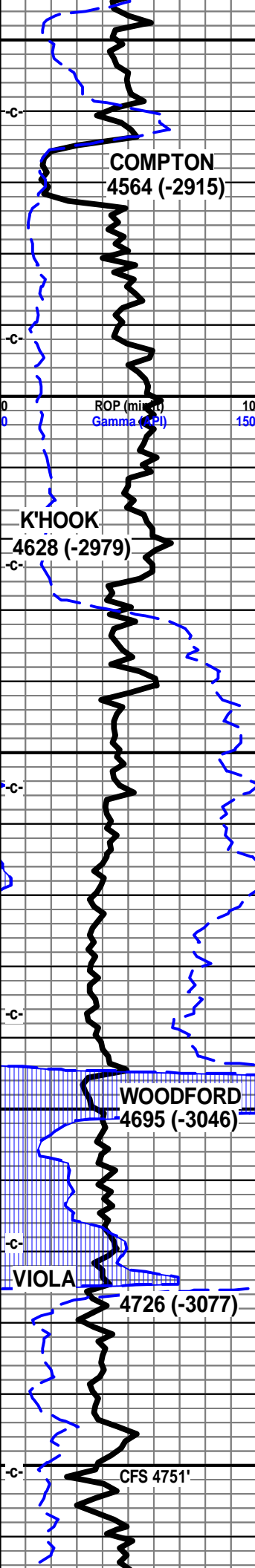
chrt aa bec wht off wht, frsh blkly shrp ang shrds, tr w/sli weath tan brn edge stain, tr pp moldic por, mstly wht off wht shrp frsh ang shrds, sub opa tr w/drck blk stain, tr hvly blk stain

1st crm tan lt gry/green tint, f vf xln blkly dns ang hrd, chrty, chrt wht shrp frsh opa, tr transl, tr sub opa

1st crm tan tr gry lt green f mic xln dns hrd blkly ang, tr sli sub chlky, fnly gran in prt, chrty, chrt wht shrp frsh sub opa

1st crm off wht tan, tr lt gry/green tint, f vf xln sli gran text, blkly ang dns hrd, sli chlky, chrt wht sub opa shrp frsh





chrt, chrt wht sub opa, shrp frsh

4550 Ist aa, lst drk brn reddish, f vf xln dns hrd blk ang gran arg silty gritty,

4560 Ist drk brn reddish, f vf xln blk ang dns gran gritty, arg silty, lst tan lt gry/green tint, f vf xln dns hrd blk chrt

4570 chrt wht off wht bone wht shrp frsh, sub opa, blk ang shrp shrd

4580 Ist off wht dull tan, tan f vf xln, tr micro xln dns hrd blk ang pcs, mstly dns, tr sub chlky, chrt dull tan shrp frsh sub opa

4590 Ist off wht crm f vf xln dns hrd, tr micro foss frags, chrt crm dull tan shrp frsh sub opa

4600 Ist off wht tan lt crm, f vf xln dns hrd blk micro foss frags, chrt tan dull tan shrp frsh, shl lt blue green silty, clays

4610 Ist off wht dull tan crm, f vf xln dn shrd blk, tr micro foss frags, sli tite sub chlky, chrt crm dull tan shrp frsh

4620 Ist crm tan dull tan f vf xln dns blk ang, micro foss frags, sli fnly chlky, chrt off wht dull tan shrp frsh opa

4630

4640 shl gry drk gry, gritty silty, bedded, fnly gran in prt, tr pyritic, tr gas bubs

4650 shl gry drk gry, tr gry blk, silty gritty, sli gran text, tr pyritic, tr gas bubs

4660 shl gry drk gry tr blk/reddish tint, silty gritty, gran/grain inclu, tr pyritic, tr gas bubs

4670 shl gry drk gry blk, tr blk/brn/reddish tint, silty gritty, pyritic in prt, gas bubs

4680 shl drk gry, gry blk, blk/reddish tint, silty gritty, bedded, pyritic, vry small rded snd grn inclu, gas bubs

4690 shl aa, no change, gry lt green, silty girty pyritic, bedded

4700 shl silty dolo shl in prt, blk carb text, blk ang pcs, brownish streak on break, silty gritty, pyritic, cupric in prt, abun gas bub break and "spitting" gas tr filmy cond

4710 shl, dolo shls, drk gry, med blk, silty fnly gritty gran, calc in prt, tr vry fn rded snd grain inclu

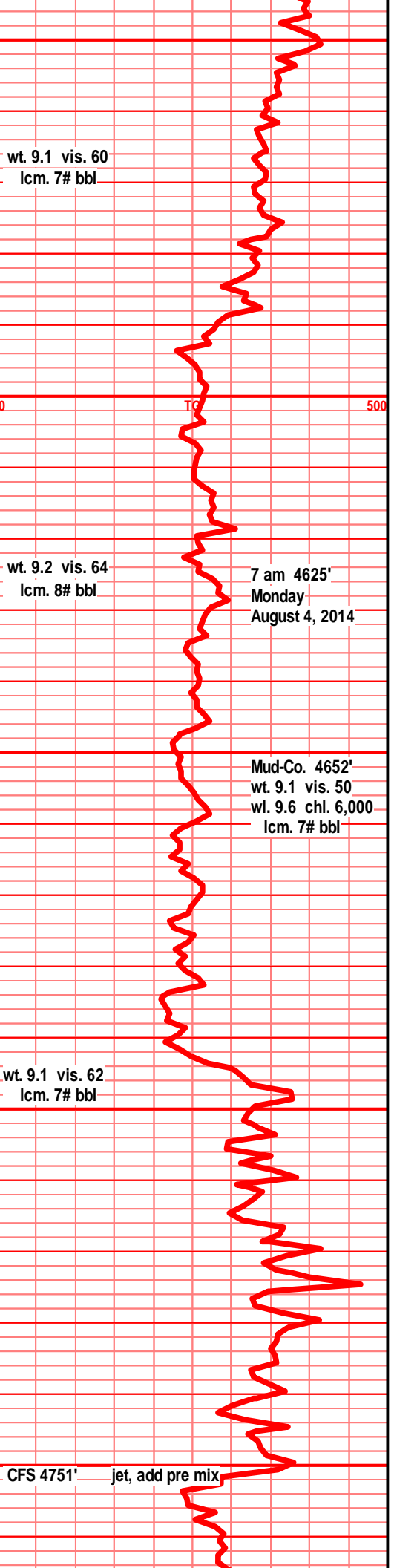
4720 shl, dolo shl, med gry, drk gry, lt blk, fnly silty/gran text, tr pyritic, tr calc tr gas bubs, tr sndy/gritty aa

4730 Ist crm wht tan buff f sli med xln, dolo suc text in prt, blk ang gran pcs, foss frags, foss mold, inter xln por, blk stain, tr filmy SFO on break, tr gas bub, nodor

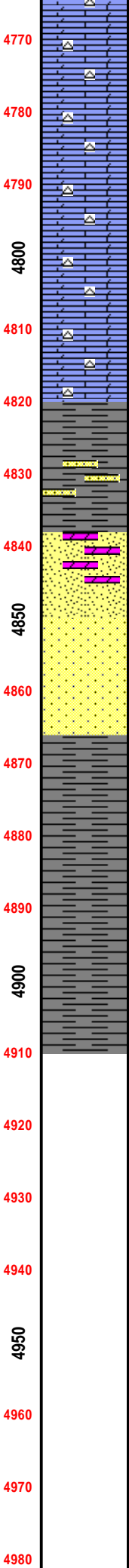
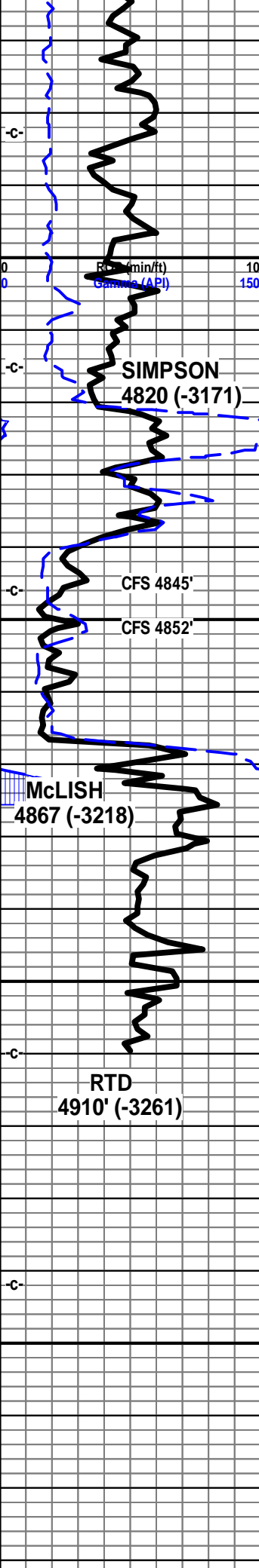
4740 Ist, dolo in prt, wht off wht crm tan, tr gry tan mott f sli med xln blk ang, foss frags, foss mold, inter xln por, drk blk stain, filmy SFO on break, tr gas nodor, poor slight show1

4750

4760 Ist/dolo dull tan brn f vf xln blk ang hrd dns, sli suc text, gran sndy gritty in part, chrt, chrt dull tan brn shrp frsh







dolo 1st tan dull tan brn f vf xln dns hrd blkly tr  
suc chlky, calc, sli suc text, gran sndy text  
chrty, chrt dull tan brn shrp frsh sub opa

dolo 1st tan brn bec drk brn f vf xln dns hrd  
blkly, sli suc text, sli chlky text, tr sndy, chrty,  
chrt dull tan brn shrp frsh

dolo 1st drk tan brn f mic xln hrd dns blkly ang  
sli suc pcs, chrty, much chrt dull tan msly  
brn shrp frsh sub opa

dolo 1st tan drk brn f micro xln gran blkly, tr sli  
chlky, sli suc text, gran sndy text, chrty, chrt  
dull tan brn shrp frsh sub opa

1st, dolo 1st drk tan msly brn f vf xln blkly ang  
dns hard,, sli chlky, gran gritty, sli snd suc  
text, chrty, much chrt-dull tan brn drk brn shrp  
frsh sub opa

shl gry, drk gry green, fnly silty, w/ gry green f  
grnd rded snd grn inclu, pyritic

sst clr, mstly gry green tint, f grnd, sub ang  
grns, well srtd, w/cem, very well cem, silic  
cem, non fria, pyritic, blkly ang hrd tite clstrs

sst clr tan clstrs f grnd, sub ang, sub rded  
grns, w srtd, pr to fairly cem, sub fria, silic  
cem, tr calc, inter gran por,  
sst off wht lt tan and clr semi frosted clstrs, f  
grnd, sub rded, tr sub ang, fair to well srtd,  
pr to fair cem, sub fria to fria, silic cem, tr min  
fill, tr dead gilson stain, NSFO, NODOR

shl drk gry green, fnly silty, tr with wxy grsy  
text, min snd grn inclu, pyritic

shl dry gry green, teal green, fnly silty, wxy  
grsy text, min snd grn inclu, tr glau, tr pyritic

shl drk gry green, tr teal green silty, fnly  
gritty, tr grsy wxy text, snd grn inclu, tr pyritic,  
tr glau

