



Woolsey Operating Company, LLC

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

Well Name: STERNBERGER B-3
Location: Section 12 - Township 35 South - Range 12 West
License Number: 15-007-24217-0000 Region: Barber County, Kansas
Spud Date: September 16, 2014 Drilling Completed: September 26, 2014
Surface Coordinates: 2310' FSL and 2310' FWL
NE 1/4 NE 1/4 SW 1/4

Bottom Hole
Coordinates:
Ground Elevation (ft): 1349' K.B. Elevation (ft): 1361'
Logged Interval (ft): 4000' To: 5410' Total Depth (ft): 5410'
Formation: Kansas City Group ----> Simpson Group
Type of Drilling Fluid: Chemical Mud

Printed by MUD.LOG from WellSight Systems 1-800-447-1534 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 1:45 pm on September 16, 2014, set 5 joints of 13 3/8" X 48#/ft new surface casing at 219' KB (tally 200'). Cemented with 300 sx Class A, 2% gel, 3% cc (by Allied). Plug down at 8:30 pm on September 16, 2014. Cement did circulate.

Production Casing: 5 1/2" X 16.5#/ft

Deviation Surveys: 1 3/4 at 250', 1/4 at 1012', 1/4 at 1992', 1 at 2501', 3/4 at 3010', 0 at 3550', 1/2 at 3993', 1/4 at 4247', 1/2 at 4836', 1/2 at 5410'.

Pipe Strap @ 4836', Strap: 4848.43', Board: 4849.98', Strap 1.65' short. No correction was made to the board.

Fossil Drilling Company Rig #3 Bit Record:

- 1) 17 1/2" Smith RR in at 0', out at 216'. 3 hours
- 2) 7 7/8" Varel HE-21 in at 216', out at 4836', 120 hours
- 3) 7 7/8" Varel HE-29 RR in at 4836', out at 5410', 42 hours

Gas Detector: Woolsey Operating Company, Gas Shack #2

Company Man: Mike Tharp, Woolsey Operating Company

Relief Geologist: Blake Miller, Woolsey Operating Company

Mud System: Mud-Co, Brad Bortz, Engineer

DSTs: Trilobite Testing, Gary Pevetaux, Tester

E-Logs: Nabors Production and Production Services, Dual Induction Laterolog w/SP, CNL/FDC w/PE, Gamma Ray and Caliper

DSTs

DST #1 4684'-4836', 30"-60"-60"-120", SB GTS in 23 minutes, IHP 2365, IFP 93-74, ISIP 995, FFP 66-78, FSIP 934, FHP 2336. BHT 128 degrees. Rec: 92' GCM w/oil specks (12% gas, 88% mud), 124' GCM w/oil specks (7% gas, 93% mud). Gas flow rates 2nd flow period: 10" - 36 MCF, 20" - 32 MCF, 30"-31 MCF, 40"-50" - 29 MCF, 60" 28 MCF.

DST #2 Misener Sand, 5026'-5132'. 30"-60"-30"-60". SB BOB 3 minutes into IFP, Recovered: 150' SGCM (3% gas, 97% mud), 125' GCWM w/oil specks (5% gas, 46% water, 49% mud), 190' GCMW w/oil specks (6% gas, 70% water 24% mud), 671' GCSW (5% gas, 95% water) Rw .08@87 deg, Chlorides 79,000 ppm. IHP 2551. IFP 104-344, ISIP 1821, FFP 350-544, FSIP 1819, FHP 2366. BHT 131 degrees.

CREWS

Jim Wenrich, Toolpusher (rarely seen)

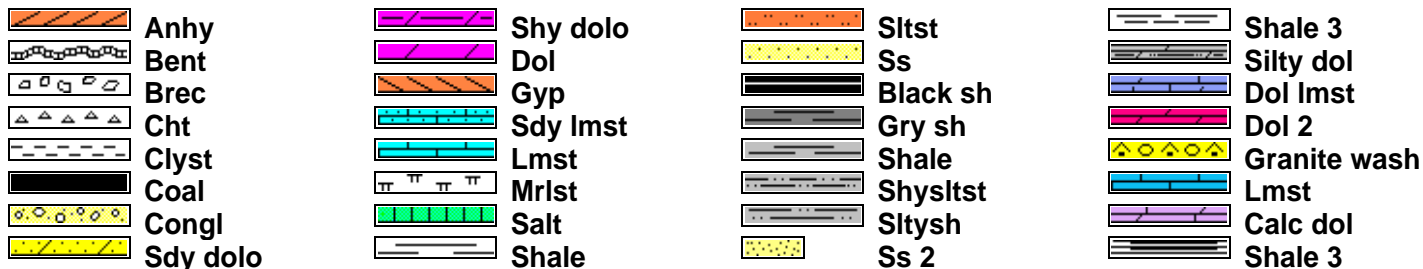
Daniel Orrantia, Days

Ron Burns, Evening

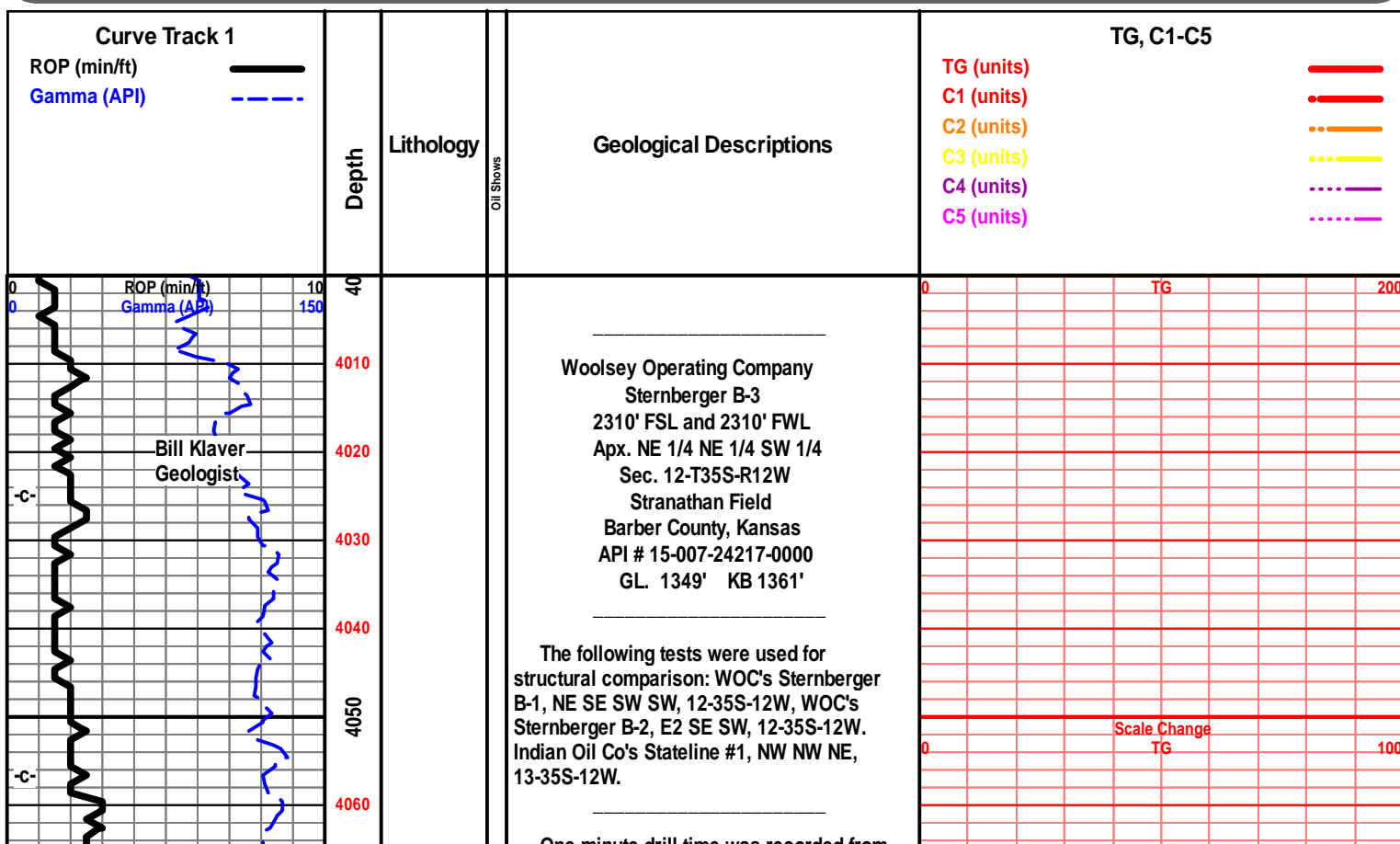
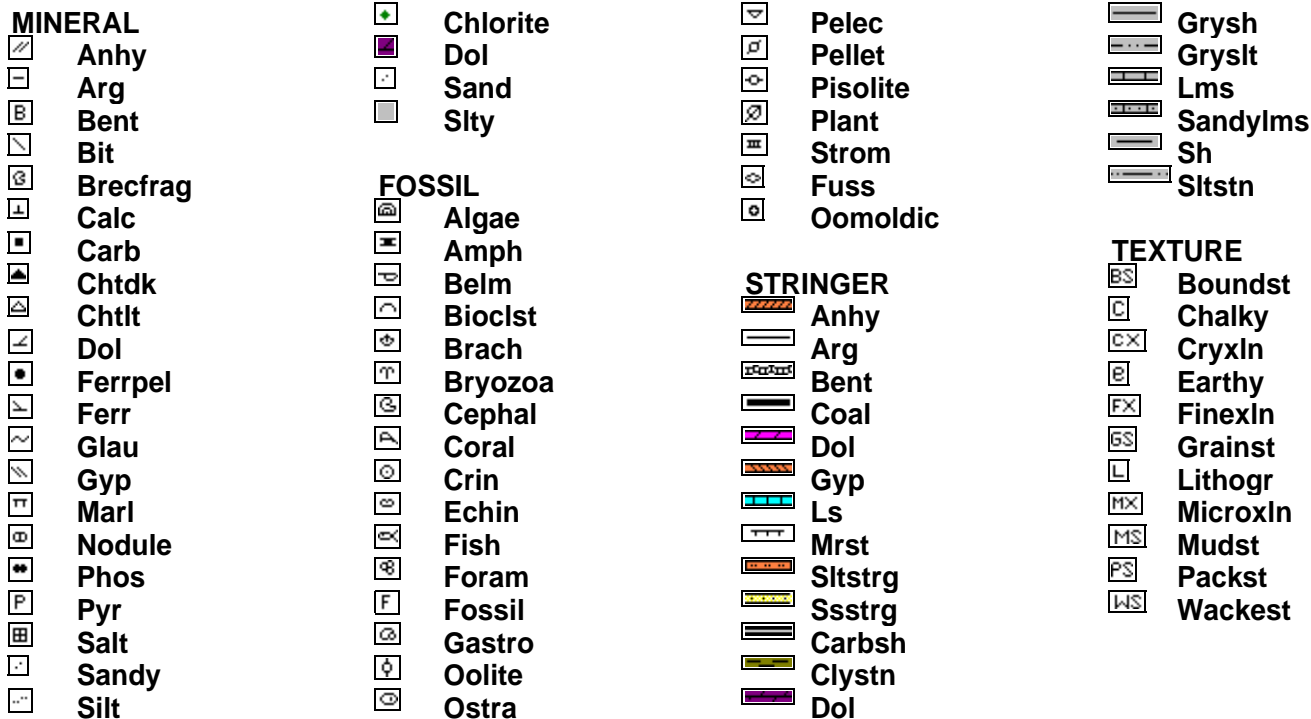
Kirk Shuman, Morning

Chris Slatts, Relief

ROCK TYPES



ACCESSORIES



One minute drill time was recorded from 4000' to rotary total depth. Ten foot drilling and circulating samples were rough neck gathered from 4500' to rotary total depth and delivered to the Survey at the completion of the test.

7 am Progress:

September 16, 2014 MIRT/SPUD
 September 17, 2014 Drilling at 250'
 September 18, 2014 Drilling at 1740'
 September 19, 2014 Drilling at 2590'
 September 20, 2014 Drilling at 3315'
 September 21, 2014 Drilling at 3950'
 September 22, 2014 Drilling at 4478'
 September 23, 2014 Drilling at 4764'
 September 24, 2014 Drilling at 4901'
 September 25, 2014 DST #2 at 5132'
 September 26, 2014 Drilling at 5292'
 September 27, 2014 E-logs out 3 am

Mud-Co. 4090'
 wt. 9.2 vis. 51
 wl. 9.0 chl. 4,000

wt. 9.2 vis. 43

E-Log Tops:

Herington 1855 (-494)
 Onaga 2731 (-1370)
 Wabaunsee 2789 (-1428)
 Stotler 2923 (-1562)
 Topeka 3238 (-1877)
 LeCompton 3576 (-2215)
 Kanwaka 3604 (-2243)
 Heebner 3789 (-2428)
 Toronto 3804 (-2443)
 Douglas Group 3827 (-2466)
 Douglas Shale 3901 (-2540)
 Brown Lime 4231 (-2870)
 Quindaro 4329 (-2968)
 Iola 4362 (-3001)
 Drum 4414 (-3053)
 Dennis 4447 (-3086)
 Stark 4485 (-3124)
 Swope 4496 (-3135)
 Hushpuckney 4515 (-3154)
 Hertha 4522 (-3161)
 B/Kansas City 4565 (-3204)
 Pawnee 4673 (-3312)
 Cherokee Group 4721 (-3360)
 Mississippi Unc. 4780 (-3419)
 C3 4780 (-3419)
 C2A 4790 (-3429)
 C2 4854 (-3493)
 Osage 5014 (-3653)
 Northview Shale 5018 (-3657)
 Compton 5021 (-3660)
 Kinderhook 5030 (-3669)
 Woodford 5107 (-3746)
 Misener 5129 (-3768)
 Viola 5144 (-3783)
 Simpson Group 5282 (-3921)
 Wilcox 5304 (-3943)
 McLish Shale 5361 (-4000)
 LTD 5411 (-4050)

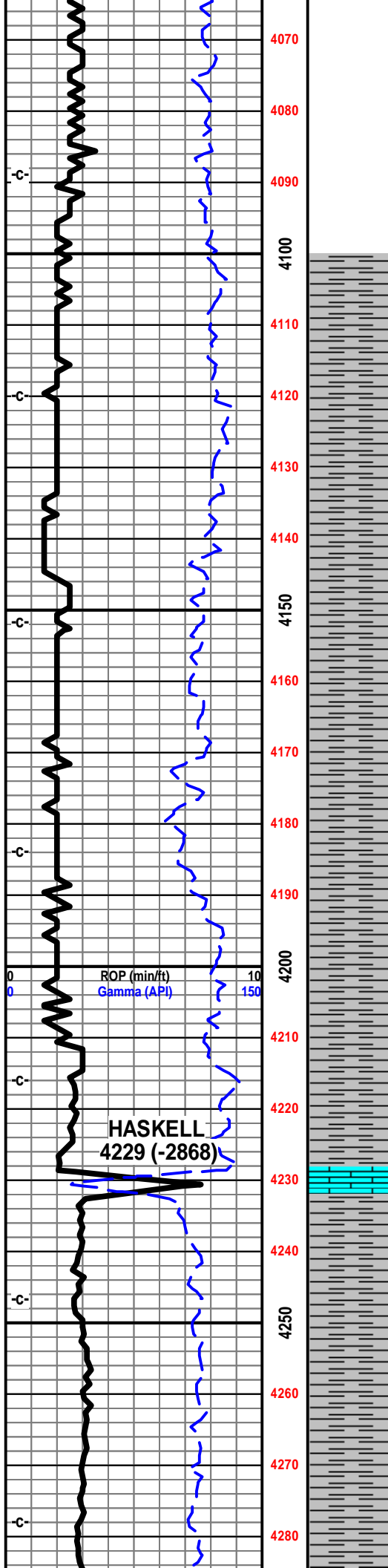
Geo on loc 4180'
 Rig up Gas Shack
 3 pm Sunday
 Sept. 21, 2014

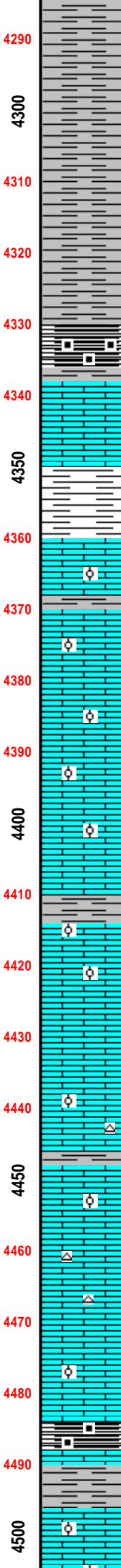
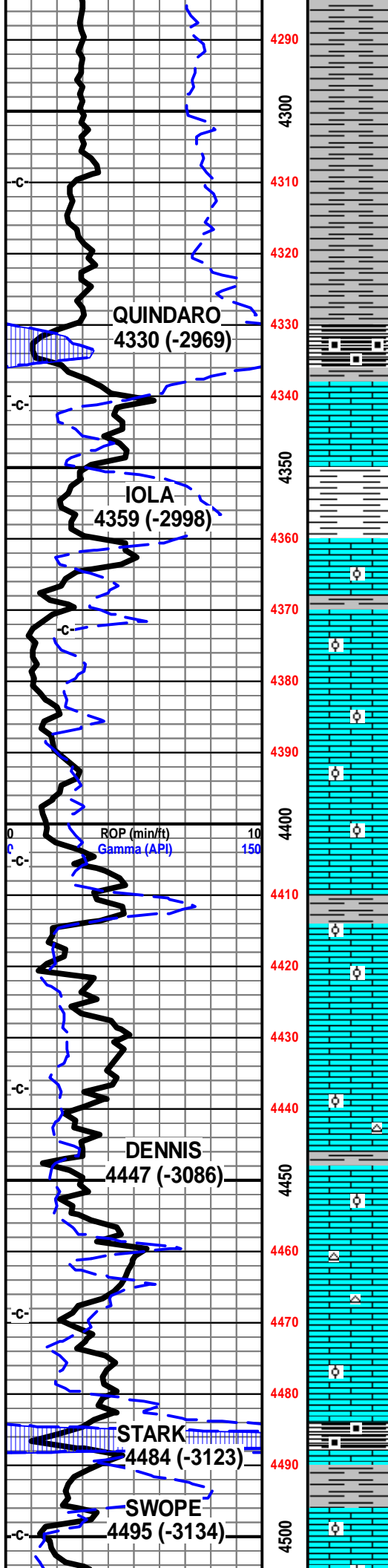
wt. 9.2 vis. 42

Drlr/Tooke 4217'

wt. 9.3 vis 43

Add Gas-O-Matic





4330-4340: Ist tan crm off wht f xln gran soft sub chlky
foss frags, pelletal/ool, calc xln fill

4340-4350: Ist crm off wht lt gry f xln gran blkly ang sub
chlky, foss frags, tr ool, calc xln fill, tr chrt lt
gry wht shrp frsh opa

4350-4360: Ist wht off wht lt gry f xln gran soft sub chlkiy
foss frags, calc xln fill,

4360-4370: Ist off wht tan lt gry f xln gran soft sub chlky
foss frags, pelletal/ool, inter xln por,

4370-4380: Isst crm lt gry f xln gran blkly ang dns hrd,
foss frags, foss ool, pelletal, mstly dns hrd,
calc xln fill

4380-4390: Ist crm tan lt gry f xln dns hrd sub chlky, foss
frags, calc xln fill,

4390-4400: shl gry calc, Ist crm tan lt gry f xln, hrd gran
blkly dns, sub chlky, foss frags, pelletal/ool,
inter xln por, calc xln fill

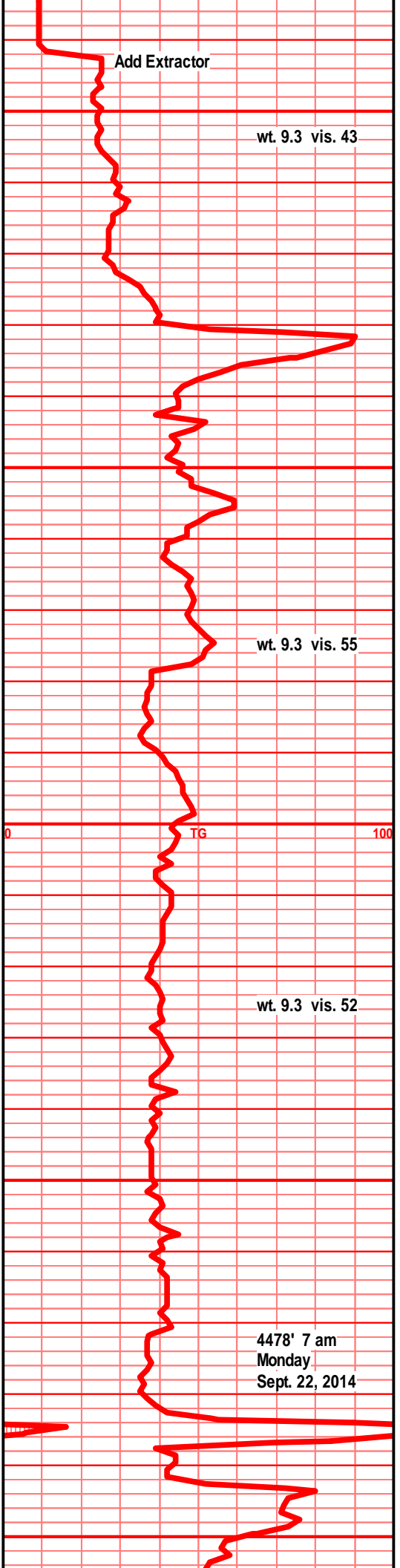
4400-4410: Ist crm tan lt gry f xln blkly dns hrd, sub chlky
to chlky, foss frags, calc xln fill, chrt wht lt gry
shrp frsh opa

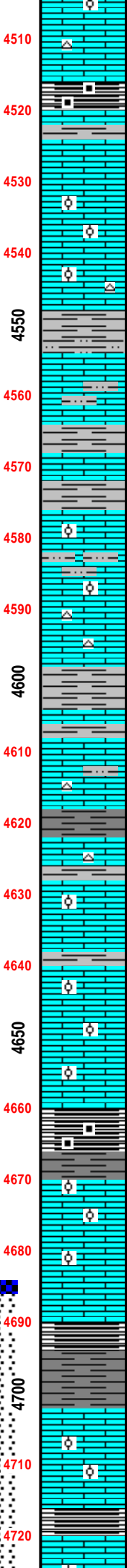
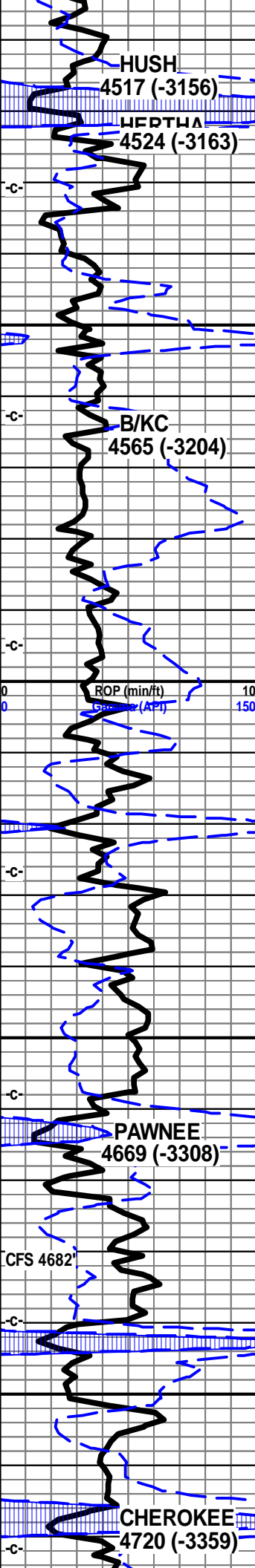
4410-4420: Ist crm lt gry f xln blkly ang dns hrd, sub chlky
foss frags, calc xln fill mstly dns hrd

4420-4430: Ist crm lt gry f vf xln dns hrd, blkly ang sub
chlky, calc xln fill, chrt wht lt gry shrp frsh
opa

4430-4440: shl gry blk, blk carb, wxy grsy blkly ang pcs,
abun gas bubs

4440-4450: Ist crm tan buff f xln gran blkly ang hrd dns,
foss frags, micro foss, chrt wht tan shrp frsh





Ist crm tan buff f xln gran blkly ang dns sub
chlky, foss frags, foss ool, pelletal, chrt tan
wht shrp frsh, micro foss frags

shl drk gry mstly blk, blk carb wxy grsy blkly
ang pcs, abun gas bubs

Ist crm buff tan f xln gran blkly ang dns, sub
chlky, micro foss, micro ool, pelletal, calc xln
fill

Ist crm buff tan f vf xln dns hrd, sub chlky in
prt, foss frags, micro ool/pelletal, calc xln fill,

Ist crm buff tan bec sli gry f xln dns hrd blkly
ang sub chlky micro ool, micro foss, tr chrt
wht shrp frsh opa

shl gry drk gry blk, silty gritty calc, Ist tan gry
lt brn f vf xln dns hrd arg silty sli sub chlky, tr
foss frags

Ist drk tan, mstly brn f vf xln dns hrd massive,
foss frags, micro ool, tr crs calc xln text, Ist
gry tan f xln dns arg silty, shls gry brn silty
calc

shl gry gry brn silty gritty calc, Ist tan gry brn
f vf xln dns hrd ang arg silty, chrt wht lt gry
shrp frsh opa

Ist gry blue green, f mic xln dns hrd blkly ang
silty gritty text, shl gry drk gry brn, silty gritty
calc text

Ist gry green, f mic xln silty gritty, tr sndy
texts, shl gry green silty gritty soft gran, calc

shl gry srk gry brn silty gritty, Ist tan gry brn f
vf xln dns hrd blkly ang arg, chrt tan brn shrp
frsh sub opa

shl gry dkr gry blk, Ist tan gry/gry brn f vf xln
dns hrd blkly ang arg, chrt tan shrp frsh blkly
sub opa

Ist tan buff crm f vf xln dns hrd blkly ang dns,
sli sub chlky, micro foss micro ool, calc xln
fill

Ist crm buff lt tan f xln blkly ang dns, sli sub
chlky, foss frags, micro ool, ool/pelletal, calc
xln fill tr soft gran

Ist crm buff lt tan f xln gran blkly ang, tr soft
gran, sli sub chlky, foss frags, micro foss,
ool/pelletal, inter xln por, mstly dns

Ist crm buff lt tan f xln gran blkly ang dns, sli
sub chlky, tr gran crumbly, micro foss
frags/ool/pelletal calc xln fill

shl gry drk gry blk, blk carb, wxy grsy text,
blkly ang pcs, abun gas bubs

Ist crm dull tan tr tan/buff f vf xln dns hrd blkly,
sub chlky in prt, foss frags, foss ool, calc xln
fill, chlky crumbly in prt, tr gas bubs, dull UV,
nsfo or odor

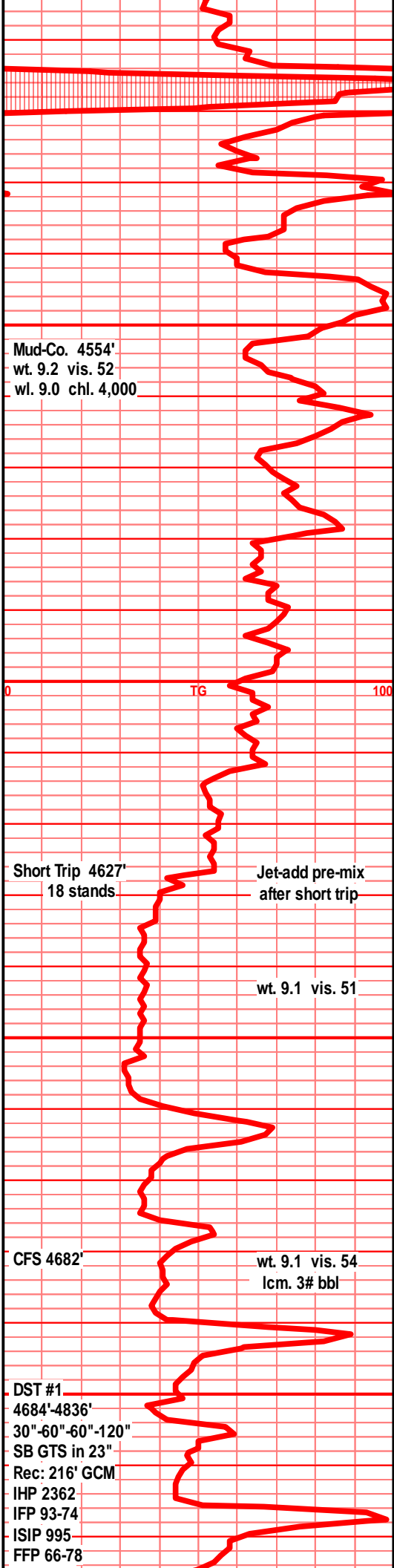
Ist crm dull tan buff f xln blkly ang dns sli sub
chlky, foss frags, crs xln fill, micro ool,

shl gry blk, blk carb text, wxy grsy text, blkly
ang pcs, sli gas bubs, shl gry drk gry silty
gritty, calc in prt

Ist crm buff tan/lt gry f vf xln dns hrd blkly ang,
sli chlky, tr micro foss frags, calc xln fill

Ist crm tan buff, lt gry/tan f vf xln dns hrd blkly
ang pcs, sli sub chlky, micro foss frags, calc
xln fill micro ool

shl gry blk, blk carb text, blkly ang carb pcs,
chlky drk gry silty gritty calc, Ist gry tan f vf



sli gry drk gry tan f v xln blkly ang dns, soft sub chlky sli arg,

1st crm tan lt gry f vf xln blkly dns, soft sub chlky in prt, foss frags, micro foss frags, calc xln fill

1st crm lt gry, f vf xln dns blkly ang sli chlky, sli arg, silty, micro foss frags tr calc xln fill

shl, gry gry/green/lt blue, reds/yellow to vari color, silty gritty, ratty, spintery, calc in prt, 1st drk gry brn f mic xln dns hrd blkly ang silty arg, tr sst drk tan brn, vf grd, sub ang grns prly srtd, vw cem, non fria, hrd blkly clstrs, (2-3 pieces only) no shows, calc cem, arg, clay filled,

shl gry green, blue/green, tr red/maroon, yellow, silty gritty, tr sndy, ratty, splintery in prt

chrt wht off wht, bone wht, shrp frsh sub opa, with lt tan brn stained edges, chrt wht bone wht lt gry/blue tint, shrp frsh sub opa, tan brn stain along spongy gran sli weath edge, drk brn/blk stain, gas, sli odor

chrt wht off wht, lt blue/gry shrp frsh sub opa w/gran sli spongy sli trip text weath edge, pp moldic por, tan brn stain, filmy SFO, gas bubs, fair odor

chrt wht off wht bone wht tr blue/lt gry tint, blkly ang shrp frsh shrds, tr with tan brn stained sli weath edge, tr w/blk stain, chrt tan off wht brn mott, sli chlky gran spongy trip weath text, soft, fair/gd pp moldic por, fair/good odor, SFO, RBSFO, gas bubs

chrt wht off wht bone wht, shrp frsh sub opa, blkly ang shrp shards, w/tan brn edge stain, tr spongy sli trip text edges, pp moldic por, tan brn stain, tr hvy blk stain, filmy SFO, gas bubs, chrt wth tan lt brn mott gran weath sli spongy sli trip text, SSFO sli odor

dolo, chrt dolo, tan lt gry f vf xln, gran, gritty, tr sndy text, fnly sucr in prt, tr inter xln por, tr tan brn stain, w/wht shrp frsh sub opa chrt inclu, tr w/weath tan brn stained edges, sli odor, VSSFO

dolo tan lt gry, gry, f vf xln dns hrd blkly ang pcs, sli gritty/sndy text, sli fnly sucr in prt, inter xln por, tr sli stain, chrt inclu, gry wht shrp frsh shrp with weath gran edges, tan brn stain, VSSFO, vsli odor, tr gas bubs

dolo drk tan lt gry, gry f vf xln blkly ang hrd dns, sli gritty sndy text, incr arg, chrt wht off wht lt gry shrp frsh sub opa,

dolo gry med gry, f vf xln gran blkly ang dns pcs, sub gran, incr silty gritty, arg in prt, chrt lt gry wht shrp frsh opa, blkly ang shrds

dolo lt-med gry, lsr tan, f vf xln gran blkly ang dns/hrd pcs, sub gran gritty text, silty/arg incl, partial & ful lt chrt-opaq, shrp/ang, hrd & tite, fesh frac

dolo med gry, lsr lt gry/tan, f vf xln gran blkly ang pcs, gritty text-silty incl, sub gran, arg cont in prt, full & partial xln lt chrt-opaq, fresh ang/shrp frac, hrd & tite

FSIP 934

FHP 2336

BHT 129

2nd Flow

10" 36 MCF

20" 32 MCF

30" 31 MCF

40" 29 MCF

50" 29 MCF

60" 28 MCF

wt. 9.2 vis. 54
lcm. 3# bbl

7 am 4764'
Tuesday
Sept. 23, 2014

CFS 4772'

wt. 9.2 vis 54
lcm. 4# bbl

TG

Mud-Co. 4834'

wt. 9.1 vis. 57
wl. 9.0 chl. 4,000
lcm. 4# bbl

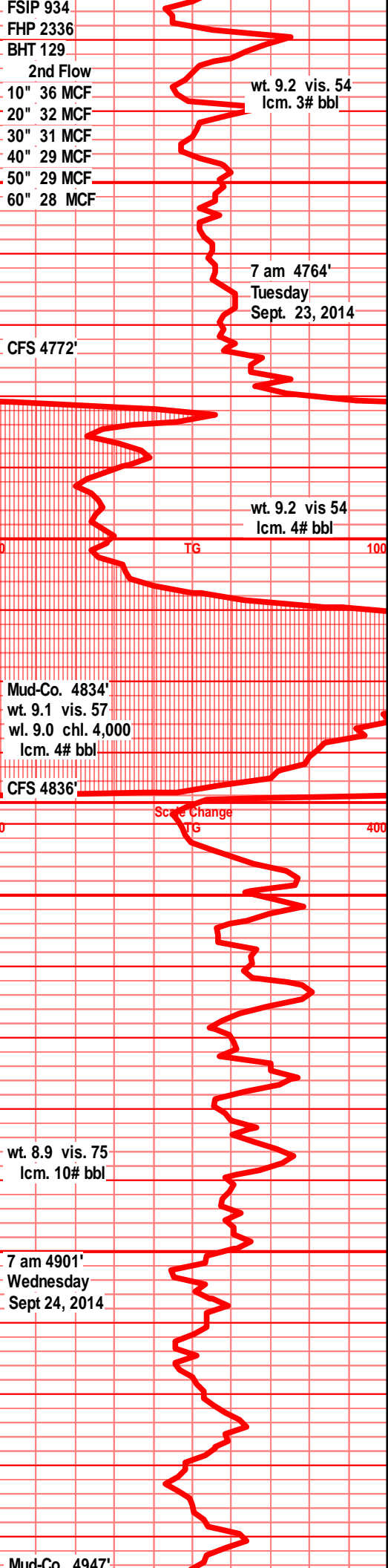
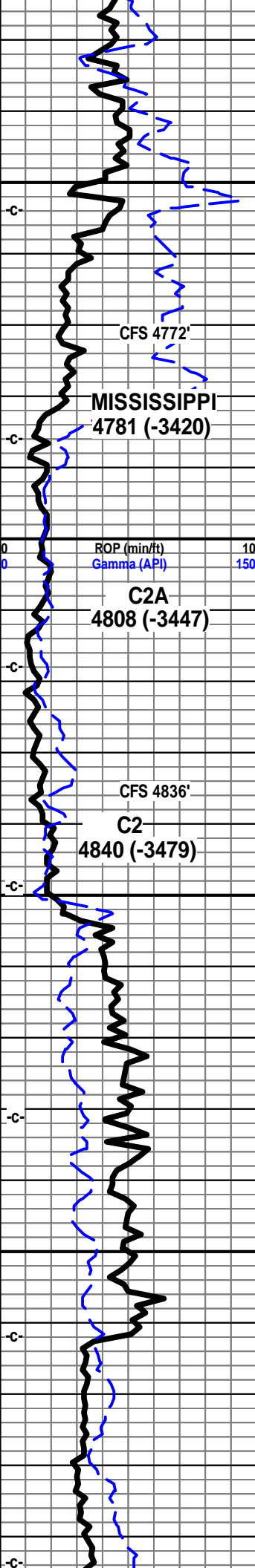
CFS 4836'

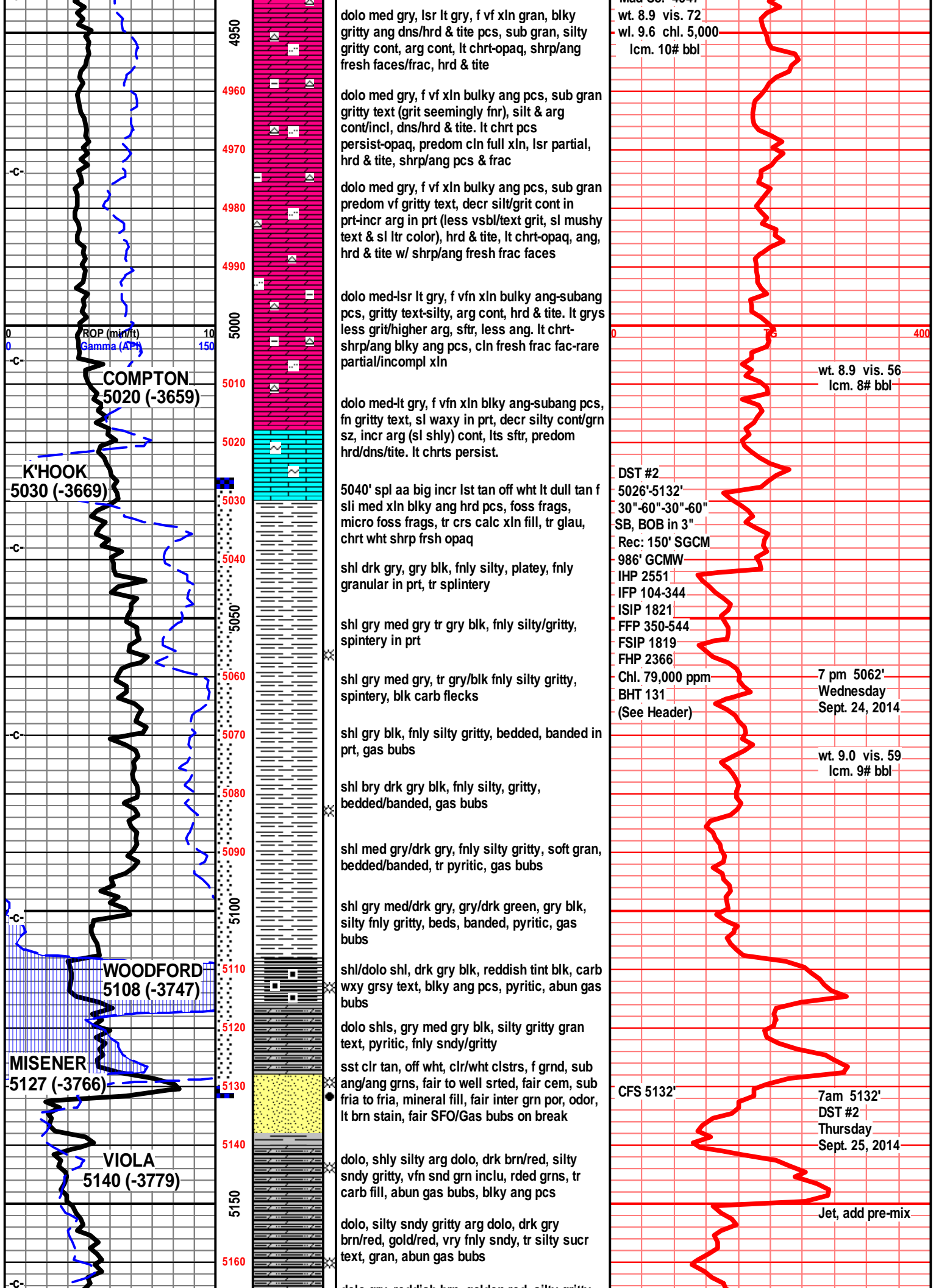
Scale Change

wt. 8.9 vis. 75
lcm. 10# bbl

7 am 4901'
Wednesday
Sept 24, 2014

Mud-Co. 4947'





dolo med gry, lsr lt gry, f vf xln gran, blk
 gritty ang dns/hrd & tite pcs, sub gran, silty
 gritty cont, arg cont, lt chrt-opaq, shrp/ang
 fresh faces/frac, hrd & tite

dolo med gry, f vf xln bulky ang pcs, sub gran
 gritty text (grit seemingly fnr), silt & arg
 cont/incl, dns/hrd & tite. lt chrt pcs
 persist-opaq, predom cln full xln, lsr partial,
 hrd & tite, shrp/ang pcs & frac

dolo med gry, f vf xln bulky ang pcs, sub gran
 predom vf gritty text, decr silt/grit cont in
 prt-incr arg in prt (less vsbl/text grit, sl mushy
 text & sl ltr color), hrd & tite, lt chrt-opaq, ang,
 hrd & tite w/ shrp/ang fresh frac faces

dolo med-lsr lt gry, f vfn xln bulky ang-subang
 pcs, gritty text-silty, arg cont, hrd & tite. lt gry
 less grit/higher arg, sft, less ang. lt chrt-
 shrp/ang blk ang pcs, cln fresh frac fac-rare
 partial/incompl xln

dolo med-lt gry, f vfn xln blk ang-subang pcs,
 fn gritty text, sl waxy in prt, decr silty cont/grn
 sz, incr arg (sl shly) cont, lts sft, predom
 hrd/dns/tite. lt chrts persist.

5040' spl aa big incr lst tan off wht lt dull tan f
 sli med xln blk ang hrd pcs, foss frags,
 micro foss frags, tr crs calc xln fill, tr glau,
 chrt wht shrp frsh opaq

shl drk gry, gry blk, fnly silty, platey, fnly
 granular in prt, tr splintery

shl gry med gry tr gry blk, fnly silty/gritty,
 spintery in prt

shl gry med gry, tr gry/blk fnly silty gritty,
 spintery, blk carb flecks

shl gry blk, fnly silty gritty, bedded, banded in
 prt, gas bubs

shl bry drk gry blk, fnly silty, gritty,
 bedded/banded, gas bubs

shl med gry/drk gry, fnly silty gritty, soft gran,
 bedded/banded, tr pyritic, gas bubs

shl gry med/drk gry, gry/drk green, gry blk,
 silty fnly gritty, beds, banded, pyritic, gas
 bubs

shl/dolo shl, drk gry blk, reddish tint blk, carb
 wxy grsy text, blk ang pcs, pyritic, abun gas
 bubs

dolo shls, gry med gry blk, silty gritty gran
 text, pyritic, fnly sndy/gritty

sst clr tan, off wht, clr/wht clstrs, f grnd, sub
 ang/ang grns, fair to well srtd, fair cem, sub
 fria to fria, mineral fill, fair inter grn por, odor,
 lt brn stain, fair SFO/Gas bubs on break

dolo, shly silty arg dolo, drk brn/red, silty
 sndy gritty, vfn snd grn inclu, rded grns, tr
 carb fill, abun gas bubs, blk ang pcs

dolo, silty sndy gritty arg dolo, drk gry
 brn/red, gold/red, vry fnly sndy, tr silty suc
 text, gran, abun gas bubs

wt. 8.9 vis. 72
 wl. 9.6 chl. 5,000
 lcm. 10# bbl

wt. 8.9 vis. 56
 lcm. 8# bbl

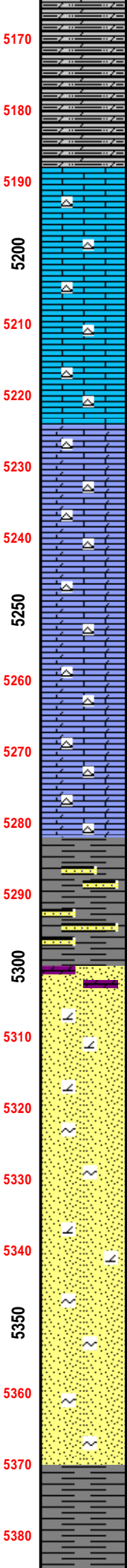
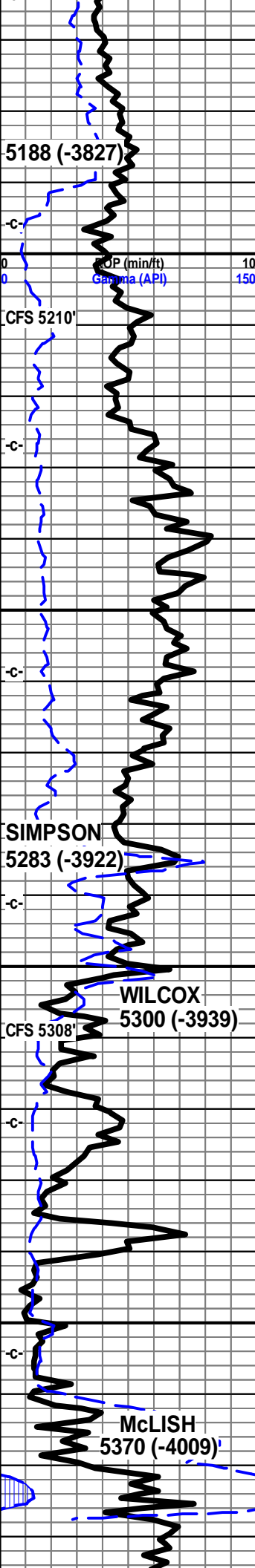
DST #2
 5026'-5132'
 30"-60"-30"-60"
 SB, BOB in 3"
 Rec: 150' SGCM
 986' GCMW
 IHP 2551
 IFP 104-344
 ISIP 1821
 FFP 350-544
 FSIP 1819
 FHP 2366
 Chl. 79,000 ppm
 BHT 131
 (See Header)

7 pm 5062'
 Wednesday
 Sept. 24, 2014

wt. 9.0 vis. 59
 lcm. 9# bbl

CFS 5132'
 7am 5132'
 DST #2
 Thursday
 Sept. 25, 2014

Jet, add pre-mix



shl gry drk, reddish brn, golden red, silty gritty, fny silty, fny silty sucr text, vry fn gry snd inclu, rded grns, arg, abun gas bubs

aa, bec dolo tan gry f xln gran silty gritty, fny sndy, vfn grn snd grn inclu, arg, dns

lst wht, crm f sli med xln gran soft vry chlky/mushy in prt, tr foss frags, lst wht lt gry mott f med xln blk ang, crs calc xln in prt, inter xln por, foss frags, crsly foss in prt, tr pyritic fill,

lst off wht lt gry/gry mott f sli med xln, blk ang pcs, crs calc xstls, foss frags, crsly foss in prt, tr chrt wht shrp frsh

lst off wht crm tan, off wht lt gry mott f sli med xln tr crs calc xstln, blk ang tr sub chlky, tr foss frags, chrt tan shrp frsh sub opa

lst/dolo crm tan lt brn, f bec vf xln dns hrd blk pcs, sli sub chlky, sli sucr text, chrty, chrt dull tan shrp frsh sub opa

lst, dolo in prt, tan crm lt brn/tan f vf xln dns hrd blk, tr sub chlky, tr sub sucr text, chrty, chrt dull tan shrp sub opa

lst, dolo in prt dull tan, crm, lt brn f vf xln dns hrd, sli chlky, sub sucr text, chrty, chrt dull tan lt brn shrp frsh sub opa

lst, dolo in prt, tan crm lt brn f vf xln dns hrd blk ang pcs, foss frags, gritty, sli sucr text, sub chlky in prt, chrty, chrt dull tan shrp frsh foss sub opa

lst, dolo in prt, tan crm lt brn, f vf xln gran tr sub chlky, dns hrd, sub sucr text in prt, chrty, chrt dull tan shrp frsh sub opa, foss

shl drk gry green, tr gry/blk, wxy grsy text, fny silty, pyritic, sst green f grnd sub ang grns, silty, hvy clay fill, pyritic, shl teal green, slick, wxy, grsy, pyritic fill, snd grn inclu

sst wht clr clstrs, tr frosted, f grnd, sub ang, mstly sub rded grns, w/srtd, sub fria, prly cem, inter grn por, tr min fill, tr drk brn SFO, brn oil smears, tr hvy blk stain, tr gas bub, nodor, no UV, 2-3 clstrs, loose snd grns in tray

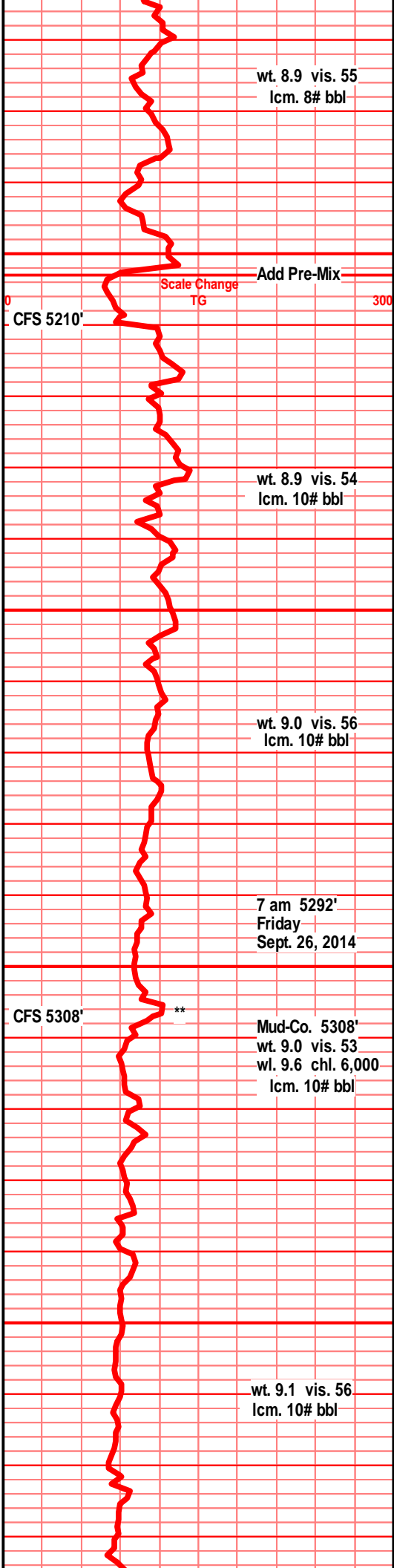
sst wht clr, tr frosted clstrs fn grnd, sub ang, mstly sub rded/rded grns, w/srtd, poor to well cem, silic cem, sub frai to soft fria gran, tr mineral fill, tr clay fill, tr pyritic, tr dolo text, tr dead gilson hvy blk stain, tr drk brn oil smears

sst clr wht, tr clr frosted clstrs, f grnd sub rded to rded grns w/srtd, poorly cem, silic cem, sug fria to fria, gran soft clstrs in prt, tr miner fill, tr glau, tr blk gilsonitic flakes

sst aa, sst tan/crm/vry lt brn clstrs, f vf grnd, sub ang/rded grain fair to poorly srtd, prly cem, fria, gran soft crumbly text, silic cem, dolomitic in prt, tr mineral fill, tr dead gilsonitic stain, nsfo/nodor

sst off wht lt tan clstrs, f vf grnd, sub rded/rded, fairly srtd, poorly cem, silic cem, dolo fill, sub fria, crumbly clstrs, tr clay fill, glau, dead gilsonitic stain

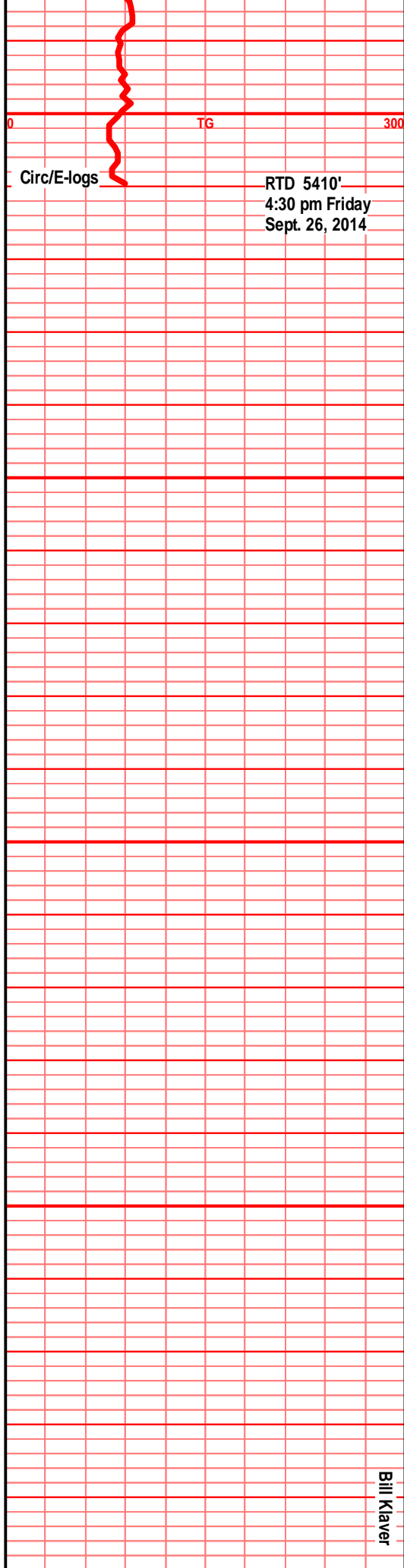
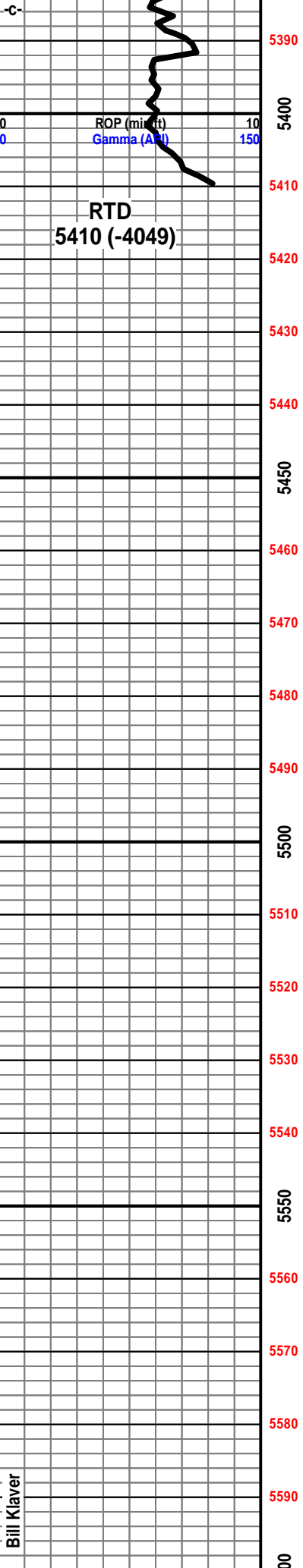
shl gry drk gry/green, drk teal green, fny silty, small rded snd grn inclu, pyritic, tr bedded



shl gry drk gry/green, deep teal green, fnly silty, slick wxy grsy text, aa

shl gry drk gry green, teal green, fnly silty, wxy grsy slick text, vry small rded snd grn inclu, tr pyritic, tr glau w/snd grn inclu

Woolsey Operating Company
Sternberger B-3
2310' FSL and 2310' FWL
Apx NE 1/4 NE 1/4 SW 1/4
Sec. 12-T35S-R12W
Stranathan Field
Barber County, Kansas
API # 15-007-24217-0000
GL 1349' KB 1361'



Bill Klaver

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