

MORCO GEOLOGICAL SERVICES, INC

P. O. BOX 2136
 CARLSBAD, NM 88221
 800-748-2340

COMPANY: MESQUITE SWD INC.
WELL: SALADO DRAW 13 SWD #1
FIELD: SALADO DRAW **COUNTY:** LEA **STATE:** NM
LOCATION: SEC 13, T26S, R32E
 290' FSL & 10' FWL
Interval Logged: 11519' **To:** 19460' **G.L.:** 3360.4' **K.B:** 3390.20'
Date Logged: 1-1-19 **To:** 2-16-19 **Spud Date:** 12-28-18
Rig: AKITA 44 **Unit No.:** 12
Loggers: J. NORRIS, M.C. RIVERA S. VAN GUILDER
Api No.: 30-025-42354
Filename: salado_draw_13_swd_1.mlw
Geologist:

Created By MainLog

Abbreviations

NB...New Bit	DST...Drill Stem Test
CO...Circ Out	DS...Directional Survey
NR...No Returns	CG...Connection gas
TG...Trip Gas	LAT...Logged After Trip
WOB...Wt on Bit	PP...Pump Pressure
RPM...Rev/Min	SPM...Strokes/Min
SG...Survey Gas	DTG...Down Time Gas

Mud Data

WT..Weight	V..Viscosity
PH..Acidity	F..Filtrate
CHL..Chlorides	SC..Solids Content
PV..Plastic Vis	YP..Yield Point

Lithology Symbols

Anhydrite	Salt	Granite
Siltstone	Chert	Sandstone
Dolomite	Conglomerate	Limestone
Coal	Shale	Bentonite
Carb Shale	Granite Wash	Quartz Wash
Red Sh	Org Sh	Green Sh
CL 1	CL 2	CL 3
CL 4	CL 6	Cust Sh6

Accessories

Glauconite	Pyrite	Fossils	Oolites
Fractures	Cement		

Accessories

Ammonoid	Bryzoans	Coal	Coral
Crinoid	Forams	Fossils	Fracture
Gastropod	Glauconite	Mollusk	Nautal
Oolites	Pyrite	Radiolaria	Trilobi
Worm Burrow			

Drilling Rate MIN/FT	Vis Por Tr / p f g	Lithology	% Oil Flu Tr / p f g	Cut Tr / pfg	GAS CURVES		Descriptions/Remarks
					TG C1 C2 C3 IC4 NC4 IC5 NC5	 	
1 2 3 4 5					100 200 300 400 500 1k 2k		
SET 13 3/8" CASING @ 4834'							COMMENCE TWO MAN LOGGING 1/1/19
SET 9 5/8" CASING @ 11495'							DRILLING W/ CLOSED LOOP SYSTEM
SET WHIPSTOCK @ 11505' 11500							SAMPLES AND GAS TAKEN FROM THE SHAKERS

NOTE SCALE CHANGE
MCR
5 10 15 20 25 JDN

1/3/19
1/4-5/19
FISH RETRIEVED ON 1ST RUN
BIT #1 8 1/2 2 5/8 10389 (PDC) & MM
IN @ 11525'

MCR
50

WOB 23K
RPM 50
MRPM 126
PP 1715
SPM 104

NOTE SCALE CHANGE
0.5 1.0 1.5 2.0 2.5 °C

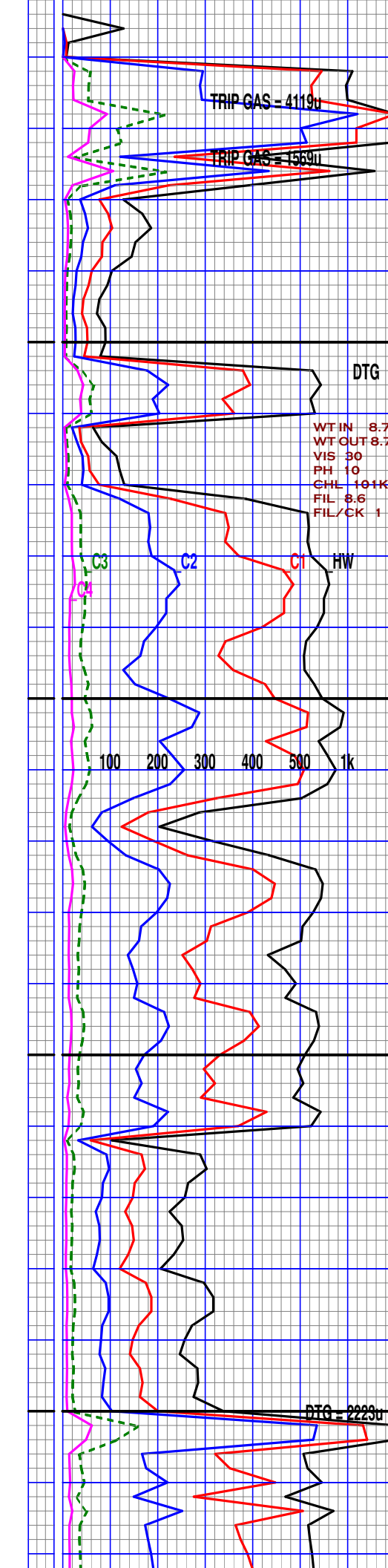
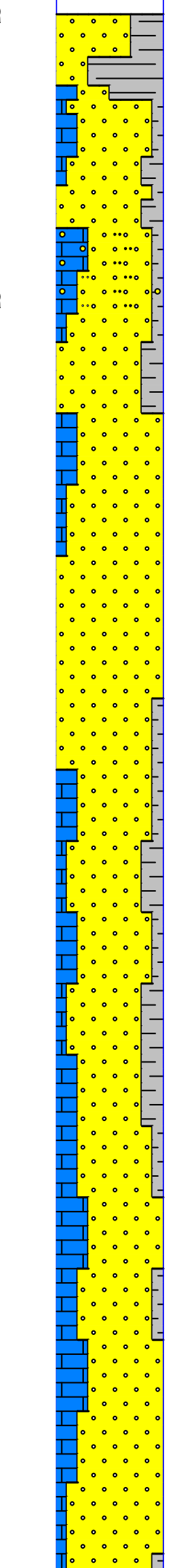
DEV. 5.71° @ 11623'

50

11600

11700

S



SS: mlky, clr, off wht, lt gry, gry, wht, vfn gr, tr fn gr, sbang-sbrnd, lsly consol w/calc/clly cmt frly-wll srted, sm slty ip, sm fria clstrs, sm fre gry/wht clys

LS: mott gry/off wht, drk gry, mlky, mcro-v/fn xln mod dns, frm-mod hrd, tr chlky, pred aren thru out, sm shly ip, sm silic ip

SH: blk, v/drk gry, v/drk brn, sbblkly-ft, sli frm rthy txt, tr lmy, pyr, no vis fluor or wt ct

DTG
LS: crm, tn, mott, off wht lt gry, lt brn, mcro xln sli frm-sme sft, dns v/sndy ip, sme thru, tr calc, pyr

C3 C2 C1 HW
SS: gry, lt gry, drk gry crm, off wht, mlky, vfn-fn gr, sb ang-sb rnd mod cndld, tr v/cnsld calc cmntd, cly-shly mtrx, mod srted, sme wht-gry fr cly, tr vfn pyr, mic, no vis fluor or wt ct

100 200 300 400 500 1k 2k
SH: blk, v/drk brn, v/drk gry, sbblkly, frm, rthy-sndy txt, tr pyr, lmy ip no wt ct

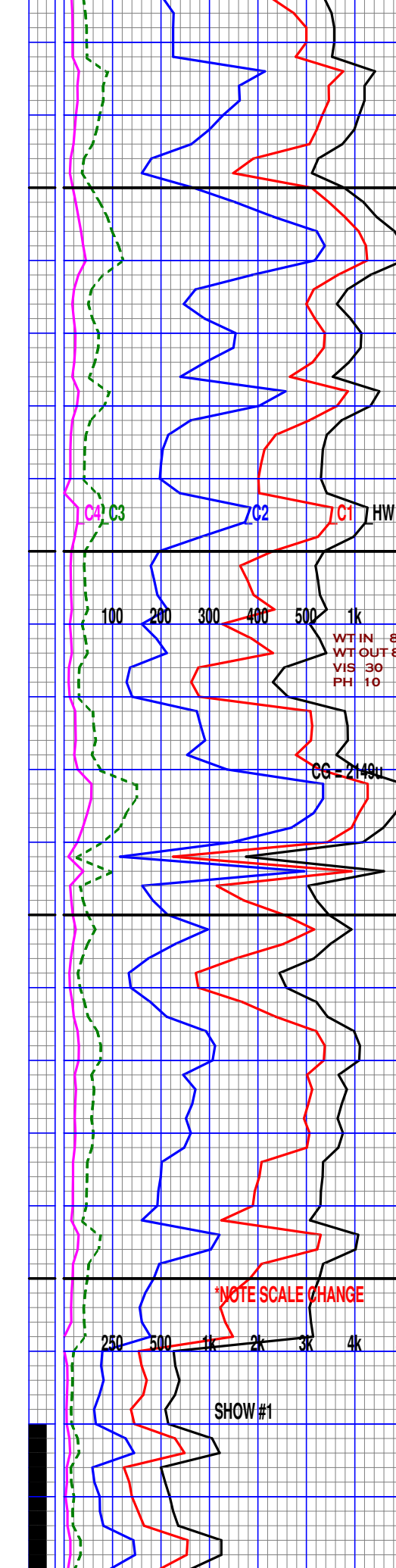
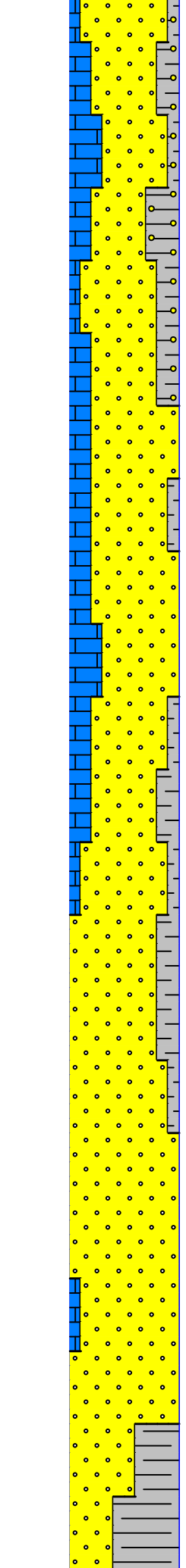
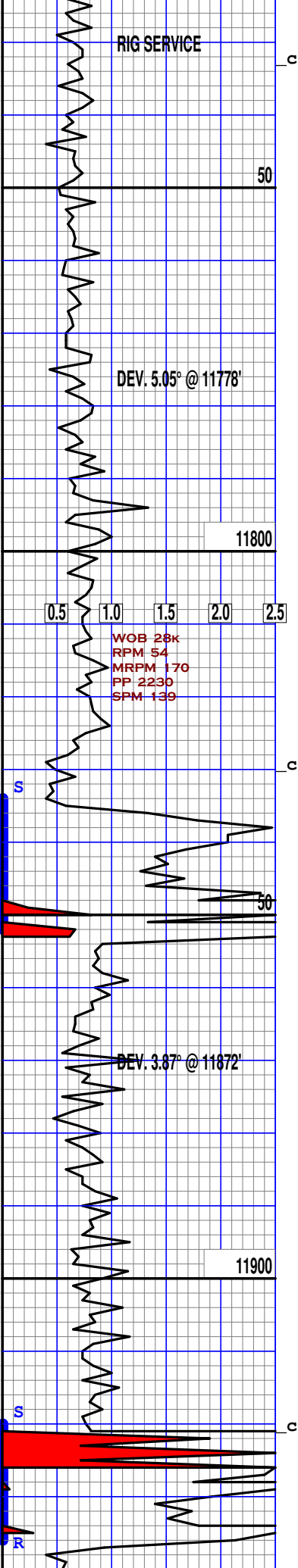
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SS: gry, lt gry, crm, tn, lt brn, mott, vfn-fn gr, sb ang-sb rnd, mod-sme wll cnsld, calc cmntd, argil mtrx, mod srted, mod lmy sme gry-wht fr cly, tr pyr, mic, no vis fluor or wt ct

LS: crm, tn, off wht, mott lt gry, wht, mcro xln sli frm-frm, dns-sme chlky, v/sndy, tr shly vfn pyr, calc incl

DTG - 2220u

SS: gry, lt gry, off wht crm, tn, mott, vfn-fn gr sb ang-sb rnd, mod cnsld, calc cmntd, cly-shly mtrx, mod-prly srted, mod gry-lt brn fr cly, tr calc, vfn imbd pyr, no vis fluor or wt ct



SH: gry, v/drk gry, sbblk
 sli frm-sme sft, rthy-
 sndy txt, tr lmy, mic, no
 vis fluor or wt ct

LS: crm, tn, mott, lt gry
 lt brn, mcro xln, sli
 frm-frm, dns, v/sndy
 tr shly, mic

SS: wht, crm, lt gry, gry
 off wht, mott, vfn-fn gr
 sb ang-sb rnd, mod-wll
 cnsld, calc cmntd, cly-
 argil mtrx, mod srted
 sme wht-gry fr cly, tr
 vfn imbd pyr, no vis
 fluor or wt ct

LS: crm, tn, off wht, mott
 lt gry, lt brn, mcro xln
 sli frm-frm, dns, v/sndy
 tr vfn imbd pyr ip
 calc

SH: blk, v/drk gry, v/drk
 brn, sbblk, sme fl, rthy-
 sndy txt, mod lmy, tr
 vfn pyr, no wt ct

SS: gry, lt gry, mott, lt
 brn, off wht, mlky, vfn-
 fn gr, sb ang-sb rnd
 mod-lsly cnsld, calc
 cmntd, cly-sme shly
 mtrx, wll srted, abndt
 gry-lt brn fr cly, tr
 lmy, tr imbd pyr, mic, no
 vis fluor or wt ct

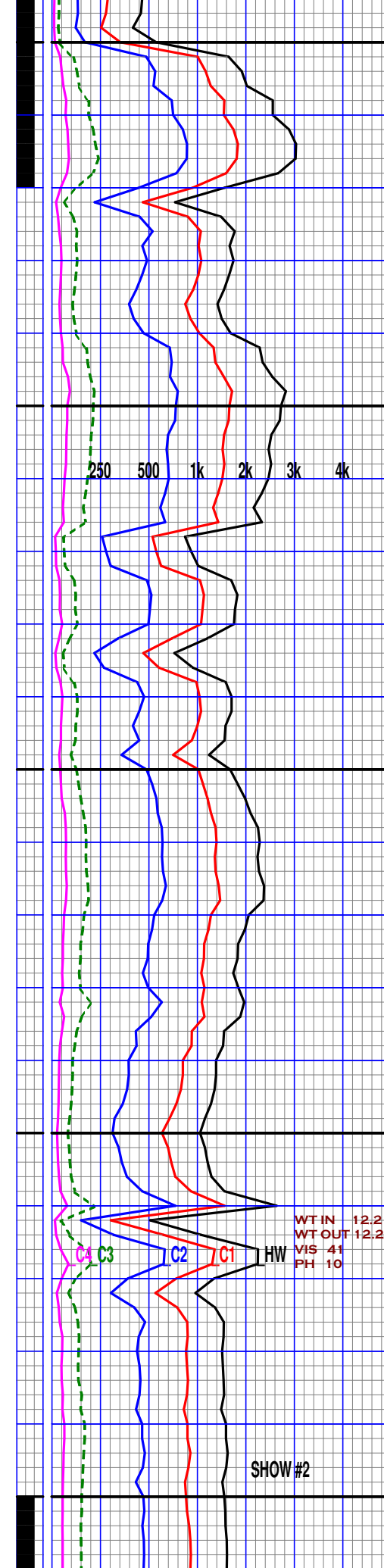
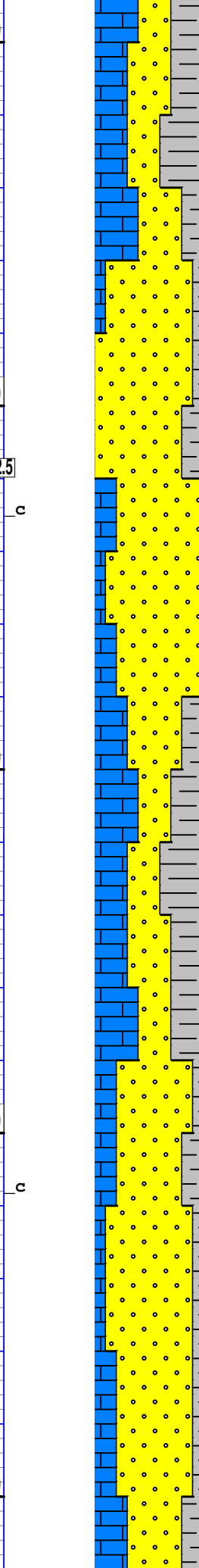
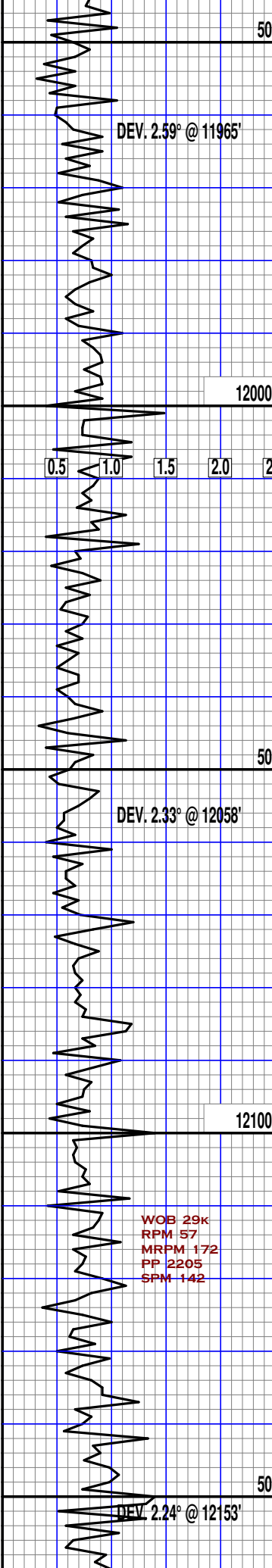
SS: wht, off wht, mlky, crm
 tn, vfn-fn gr, sb ang-sb
 rnd, mod cnsld, calc
 cmntd, cly-slty mtrx
 mod-wll srted, abndt
 wht fr cly, tr lmy, shly
 mic, no vis fluor or wt
 ct

SH: blk, v/drk gry, v/drk
 brn, sbblk, sli frm-
 sft, rthy-slty txt, mod
 sndy, tr imbd calc
 fr slw sli brt strrng
 mlky yll-grn wt ct, yll
 grn res rng

WTIN 8.7
 WTOUT 8.7
 VIS 30
 PH 10

NOTE SCALE CHANGE

SHOW #1



SH:blk,v/drk gry,v/drk brn,sbblkv-sme fl,sli frm-sme sft,rthy-slty txt,mod lmy,tr mic,fr sli slw sli brt strmg mlky yll-grn wt ct

SS:off wht,crm,tn,mlky wht,clr,vfn-fn gr,sb ang-sb rnd,mod-lsly cnsld,calc cmntd,cly-argil mtrx,mod srt'd abndt wht-gry,fr cly tr shly,lmy,mic,no vis fluor or wt ct

SS:crm,tn,mlky,clr,off wht,mott,vfn-fn gr,sb ang-sb rnd,mod cnsld calc cmntd,cly-argil mtrx,mod srt'd,abndt gry-brn fr cly,tr lmy calc incl,mic,no vis fluor or wt ct

LS:v/drk gry,v/drk brn,crm,micro xln,sli frm-sft,dns,mod sndy tr imbd pyr,imbd calc

SH:blk,v/drk gry,v/drk brn,sbblkv-fl,sli frm-sft,rthy-sndy txt,tr slty,vfn imbd pyr,calc no wt ct

SS:crm,off wht,clr,mlky lt gry,lt brn,vfn-fn gr,sb ang-sb rnd,mod cnsld,calc cmntd,cly-slty mtrx,mod-wll srt'd sme gry-brn fr cly,tr vfn pyr,mic,no vis fluor or wt ct

SS:crm,tn,clr,off wht mlky,mott,lt gry,gr vfn-fn gr,sb ang-sb rnd,mod-lsly cnsld calc cmntd,cly-slty mtrx,mod-wll srt'd,sme brn-gry fr cly,tr calc incl,mic,no vis fluor or wt ct

SH:blk,v/drk gry,v/drk brn,sbblkv-fl,sli frm-sft,dns,mod lmy,sndy tr slty,mic,fr slw sli brt strmg mlky yll-grn wt ct,no res rng

WOB 29k
RPM 57
MRPM 172
PP 2205
SPM 142

WT-IN 12.2
WT-OUT 12.2
VIS 41
PH 10

SHOW#2

1/6/19

12200

c

0.5 1.0 1.5 2.0 2.5

DEV. 2.24° @ 12247'

50

12300

c

DEV. 1.85° @ 12342'

50

SH:v/drk brn,blk,v/drk gry,sbblky-fl,sli frm-sme,sft,dns,mod lmy sndy,tr slty,mic,fr slw sli brt strmg mlky yll-grn wt ct

SH:blk,v/drk gry,v/drk brn,sbblky,sme blk sli frm-frm,rthy-lmy txt,sme slty,tr vfn imbd pyr,pr slw sli brt strmg mlky yll-grn wt ct

SH:blk,v/drk gry,v/drk brn,sbblky-sme fl,sli frm-frm,rthy-lmy txt tr slty,vfn imbd pyr mic,pr slw sli brt strmg mlky yll-grn wt ct

LS:crm,mott,tn,lt gry lt brn,mlky,mcro xln sli frm-frm-sme sft dns-sme chlky,tr shly slty

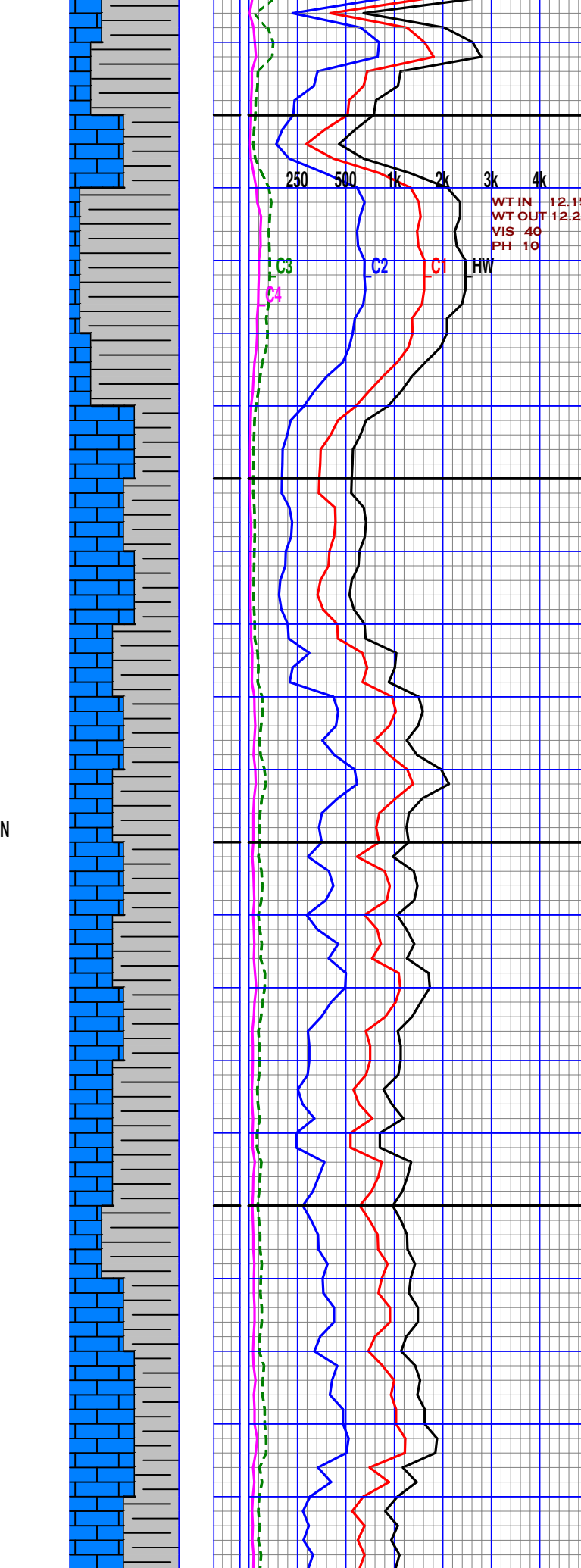
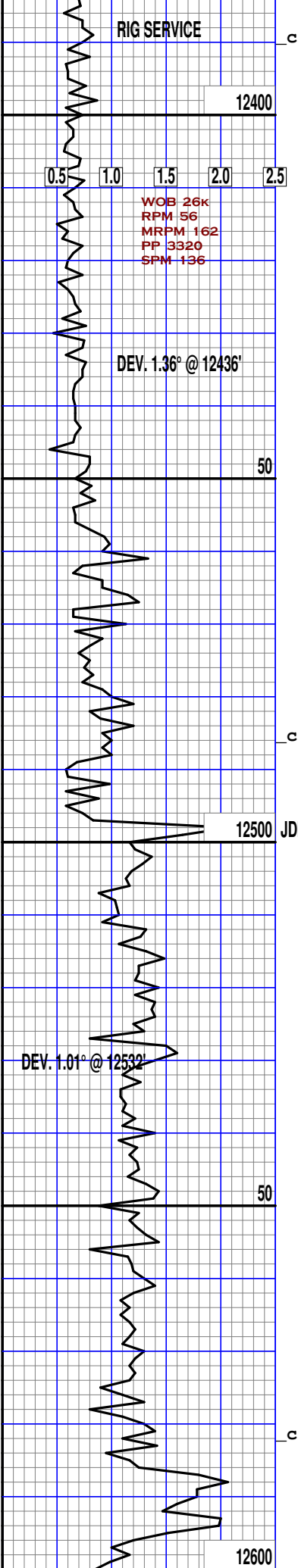
SH:blk,v.drk gry,v/drk brn,sbblky-sme blk sli frm-frm,rthy txt mod slty,lmy,no wt ct

LS:crm,tn,off wht,mott mlky,wht,mcro xln,sli frm-sme sft,dns-sme chlky,mod shly,tr imbd calc,mic

SH:blk,v/drk gry,v/drk brn,sbblky,sli frm-sme sft,rthy-lmy txt,tr imbd calc,mic,no wt ct

LS:gry,lt gry,crm,tn off wht,mlky,mcro xln sli frm-sme sft,dns-sme chlky,mod slty shly,tr imbd calc

250 500 1k 2k 3k 4k 5k



SH:blk,v/drk gry,v/drk brn,sbblky,sli frm-sme sft,rthy txt,mod lmy thru,tr mic,fr slw sli brt strmg mlky yll-grn wt ct,no res rng

SH:blk,v/drk gry,lt gry gry,sbblky-sme blk sli frm-sme sft,rthy slty txt,tr lmy thru mic,fr slw sli brt strmg mlky yll-grn wt ct,no res rng

SH:blk,v/drk gry,v/drk brn,sbblky-sme blk sli frm-sme sft,rthy lmy txt,sme calc incl tr vfn pyr,mic,pr slw sli brt strmg mlky yll-grn wt ct

LS:crm,tn,off wht,mlky wht,lt gry,lt brn,micro cln,sli frm-frm,sme sft,dns-sme chlky,mod shly thru,tr pyr,mic

SH:blk,drk gry,gry,drk brn,chrcl,blk,sm sbblky,mod frm,sm mod hrd,tr brttle,rthy txt,dll lustr,sm slty ip,sm calc incl,tr v/fnly pyrtc

LS:mott drk gry/off wht gry,mlky,micro-v/fn xln mod dns,frm,sm mod hrd sm chlky,sm silic ip sm shly ip

SH:drk gry,blk,gry,drk brn,blk-sbblky,mod frm sm mod hrd,rthy txt,sm slty txt,lmy ip,sm smth,tr pyrt incl

LS:off wht,lt gry,crm gry,bff,micro-v/fn xln mod dns,frm,sm mod hrd sm brttle,sm chlky silic ip,sm argill incl

SH:blk,drk gry,gry,drk

0.5 1.0 1.5 2.0 2.5

DEV. 1.1° @ 12628'

WOB 28K
RPM 60
MRPM 160
PP 3190
SPM 134

50

12700

DEV. 0.79° @ 12723'

RIG SERVICE

50

12800

0.5 1.0 1.5 2.0 2.5

DEV. 0.57° @ 12818'

DTG 250 500 1k 2k 3k 4k 5k

brn, chrcl, blk, sm
sbbkly, frm, sm mod hrd
tr gmm, rthy txt, dll
lustr, sm slty ip, sm
calc incl, tr v/fnly
pyrtc

LS: mott drk gry/off wht
gry, mlky, mcro-v/fn xln
mod dns, frm-v/frm, sm
brttle, sm silic ip
pred shly thru out

SH: blk, drk gry, gry, drk
brn, chrcl, blk, sm
sbbkly, frm, sm mod hrd
tr brttle, rthy txt, dll
lustr, tr grdng to slt
sm v/lmy ip, tr pyrt
incl

LS: mott off wht/gry, lt
gry, wht, mcro xln, sm
v/fn xln, mod dns, frm
sm mod hrd, sm chky
sm argill incl, sm
silic ip

SH: drk gry, blk, gry, drk
brn, chrcl, blk, sbbkly
frm, sm mod hrd, tr
brttle, rthy-sbrthy txt
sm slty txt, tr wxy txt
lmy ip, sm smth, tr
pyrt incl

LS: drk gry, off wht, gry
mlky, mcro xln, sm v/fn
xln, mod dns, v/frm-mod
hrd, sm silic ip, sm
v/shly ip

SH: drk gry, blk, gry, drk
brn, chrcl, blk, sm
sbbkly, frm, sm mod hrd
rthy-slty txt, dll
lustr, tr wxy txt, sm
v/lmy ip, tr pyrt incl

LS: mott drk gry/off wht
crm, gry, drk brn, mcro
xln, sm v/fn xln, mod
dns, frm-mod hrd, sm
shlky, v/shly ip, sm
silic ip, tr sli sucro
ip

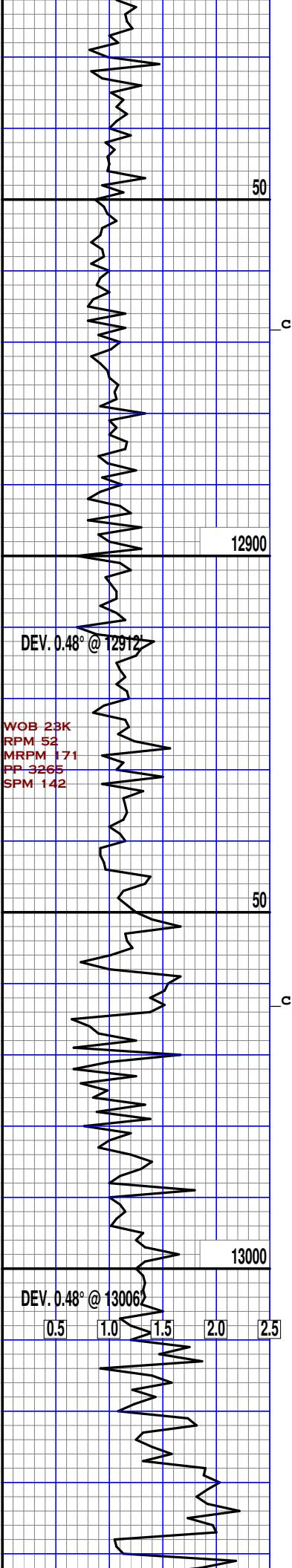
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gry, drk brn, blk, sm
sbbkly, frm-mod hrd, sm
brttle, rthy txt, dll
lustr, sm slty ip, tr
wxy txt, tr calc incl

WTIN 12.2
WTOUT 12.35
VIS 40
PH 10

C3 C2 C1 HW

DTG

250 500 1k 2k 3k 4k 5k



WOB 23K
RPM 52
MRPM 171
FP 3265
SPM 142

50

c

12900

DEV. 0.48° @ 12912

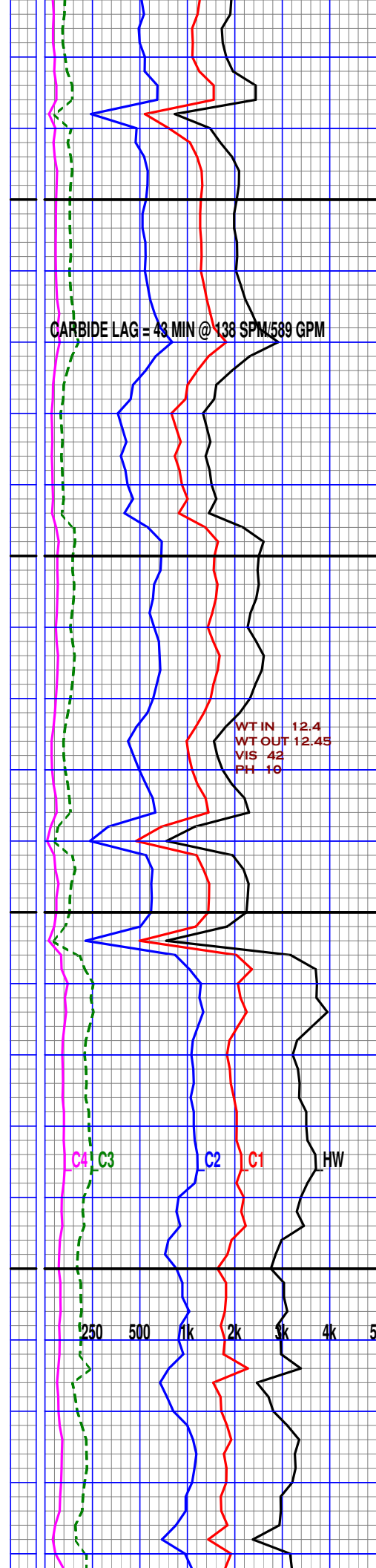
50

c

13000

DEV. 0.48° @ 13006

0.5 1.0 1.5 2.0 2.5



CARBIDE LAG = 43 MIN @ 138 SPM/589 GPM

250 500 1k 2k 3k 4k 5k

C4 C3 C2 C1 HW

sm v/fnly pyrtc

LS: drk gry, gry, off wht
mlky, mcro-v/fn xln, mod
dns, frm, sm mod hrd, sm
chlky, silic ip, shly ip

SH: blk, drk gry, chrcl
gry, drk brn, blk, sm
sbbkly, frm, sm mod hrd
rthy txt, dll lustr, sm
slty ip, tr wxy txt, sm
lmy ip, sm v/fnly-fnly
pyrtc

SH: drk gry, blk, chrcl
gry, blk, sbbkly, frm, sm
mod hrd, rthy-sbrthy
txt, dll lustr, tr calc
incl, tr wxy ip, sm
pyrt incl

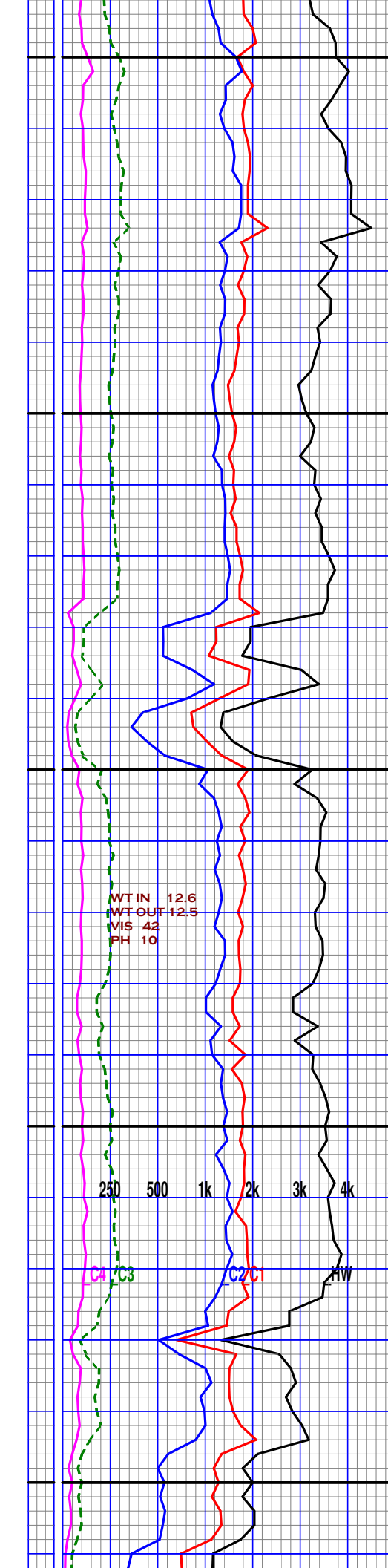
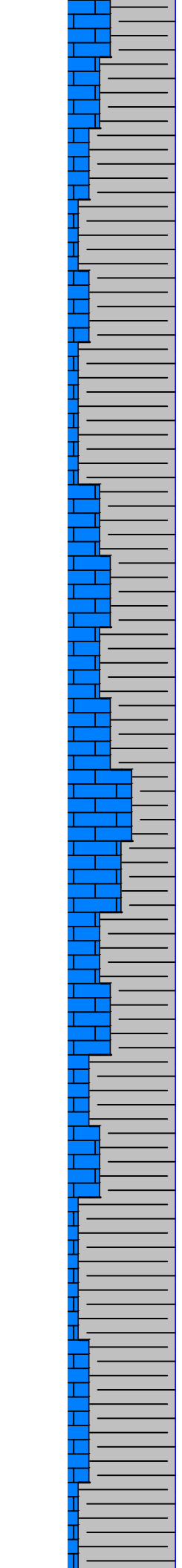
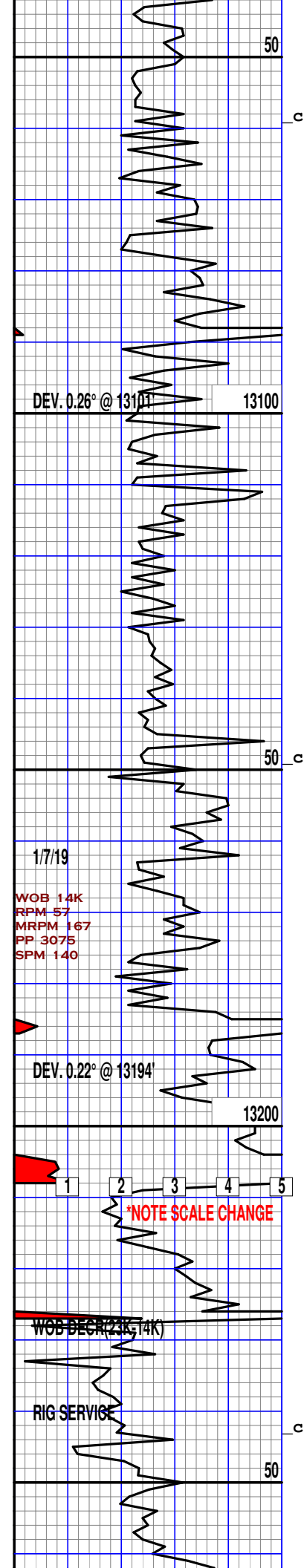
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brn, blk, frm-v/frm, sm
brttle, rthy txt, dll
lustr, sm gding to slt
tr smth, sm lmy ip, sm
v/fnly pyrtc

LS: mott off wht/drk gry
mlky, wht, gry, mcro-v/fn
xln, mod dns, frm, sm mod
hrd, sm brttle, chlky
silic ip, sm argill
incl, sm foss incl

SH: blk, drk gry, gry
chrcl, blk, sm sbbkly
frm, sm mod hrd, brttle
rthy txt, dll lustr, sm
slty ip, sm calc incl
sm v/fnly-fnly pyrtc

LS: wht, off wht, lt gry
gry, bff, crm, brn, mcro
xln, sm v/fn xln, mod
dns, frm, sm mod hrd
brttle, silic ip, sm sli
sucro ip, sm shly ip

SH: blk, drk gry, gry
chrcl, blk, sbbkly, frm
sm mod hrd, sm brttle
rthy-sbrthy txt, dll
lustr, sm slty ip, sm
lmy ip, tr frē blk clys
sm v/fnly pyrtc



SH: drk gry, blk, chrcl
gry, blk, sm sbblky, frm
sm hrd, sm brttle, rthy
txt, sm slty txt, dll
lustr, tr wxy txt, tr
calc incl, sm pyrt incl

LS: wht, mott gry/off wht
crm, brn, mcro xln, sm
v/fn xln, mod dns, frm
sm mod hrd, sm brttle
tr chlky, silic ip, sm
argill incl

SH: gry, drk gry, blk
chrcl, rthy-sbrthy txt
tr wxy txt, sm grndg to
slt ip, frm, sm brttle
dll lustr, sm v/lmy ip
tr fre blk clys, sm
v/fnly-fnly pyrtc

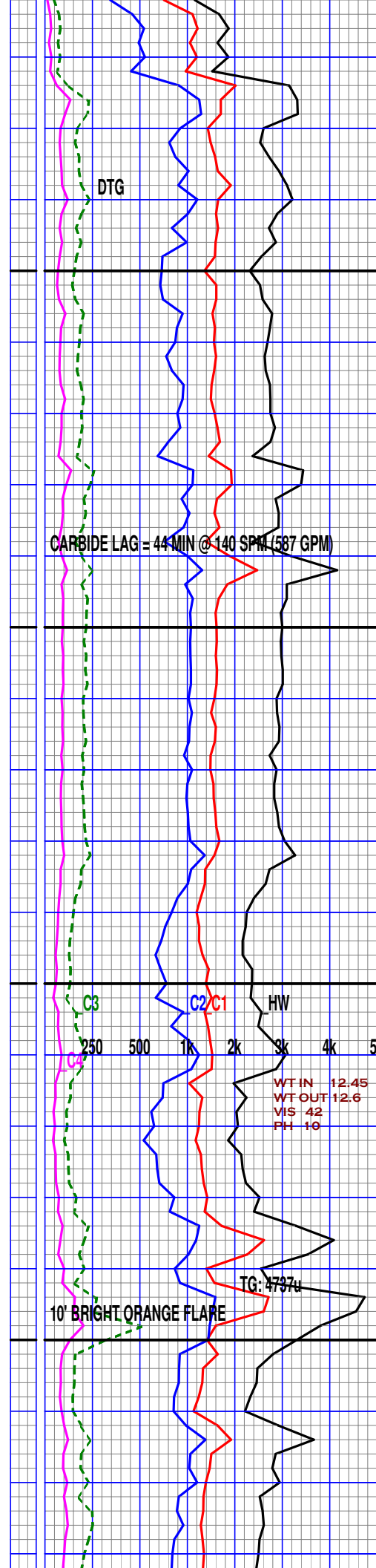
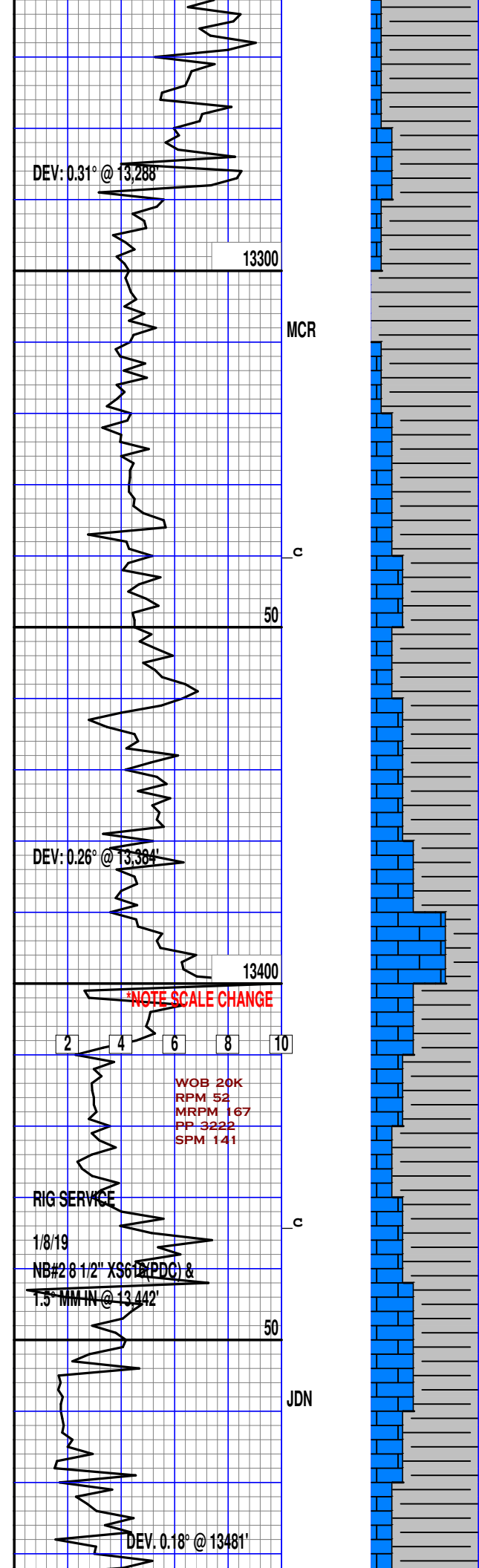
LS: mott wht/lt gry, off
wht, gry, brn, mcro-v/fn
xln, mod dns, frm-mod
hrd, sm brttle, sucro
ip, sm chrty ip, sm
shly ip

SH: drk gry, blk, gry
chrcl, blk-sbbiky
frm, sm mod hrd, sm
brttle, rthy-slty txt
tr wxy txt, sm calc
incl, sm pyrt incl

LS: mott gry/wht, off wht
drk gry, drk brn, mcro
xln, sm v/fn xln, dns
v/frm-mod hrd, sm
brttle, chrty ip, sm
shly ip, sm sucro ip

SH: blk, drk gry, chrcl
gry, blk-sbbiky, sft, sm
mod frm, tr gmm, rthy
txt, dll lustr, sm slty
ip, sm lmy ip, sm pyrt
incl

LS: off wht, crm, gry, brn
drk gry, mcro-v/fn xln
dns, v/frm-mod hrd, sm
brttle, pred silic thru
out, sm argill incl, sm
sucro ip



SH: gry, drk gry, blk
lt gry, chrcl, sbblky
sm blk, tr fssle, sft
sm frm-v/frm, rthy-slt
txt, dll lustr, lmy ip
tr v/fnly-fnly pyrct

LS: mott gry/off wht, drk
gry, drk brn, mcro-v/fn
xln, mod dns, frm, sm mod
hrd, sm chlky, sm silic
ip, sm shly ip

SH: blk, v/drk gry, v/drk
brn, lt gry, sbblky, sme
blk, sli frm-frm, sme
sft, rthy-tr gummy txt
tr pyr, tr imbd calc,
lmy, no wt ct

SH: drk gry, gry, blk
chrcl, blk-sbblky
frm-mod hrd, sm brttle
rthy txt, v/slt ip
sm lmy ip, sm v/fnly
pyrct

LS: crm, tn, off wht, mlky
lt gry, mott, lt brn
mcro xln, sli frm-sme
sft, dns-sme chlky, mod
sndy, shly, tr imbd pyr
mic

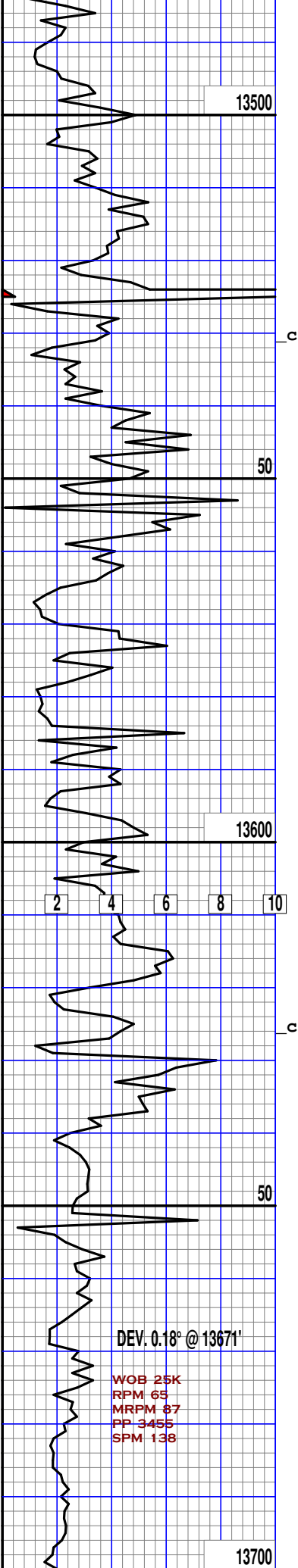
SH: blk, v/drk gry, lt gry
sli frm-sft, rthy-sndy
txt, mod slty, tr vfn
pyr, imbd calc ip, no
wt ct

SH: drk gry, gry, blk
blk, sm sbblky, tr
flky, frm, sm mod hrd
sm brttle, rthy-slt
txt, dll lustr, lmy ip
tr pyrct incl

LS: mott, crm, tn, off wht
gry, brn, mlky, mcro-vfn
xln, sli frm-frm, dns
mod shly, mod sndy, vfn
imbd pyr, mic

SH: drk gry, blk, chrcl
gry, sbblky, tr flky
sft-mod frm, tr brttle
rthy txt, dll lustr, sm
grdng to slt ip, tr
calc incl, sm v/fnly
pyrct

WFIN 12.45
WFOUT 12.6
VIS 42
PH 10



13500

c

50

13600

2 4 6 8 10

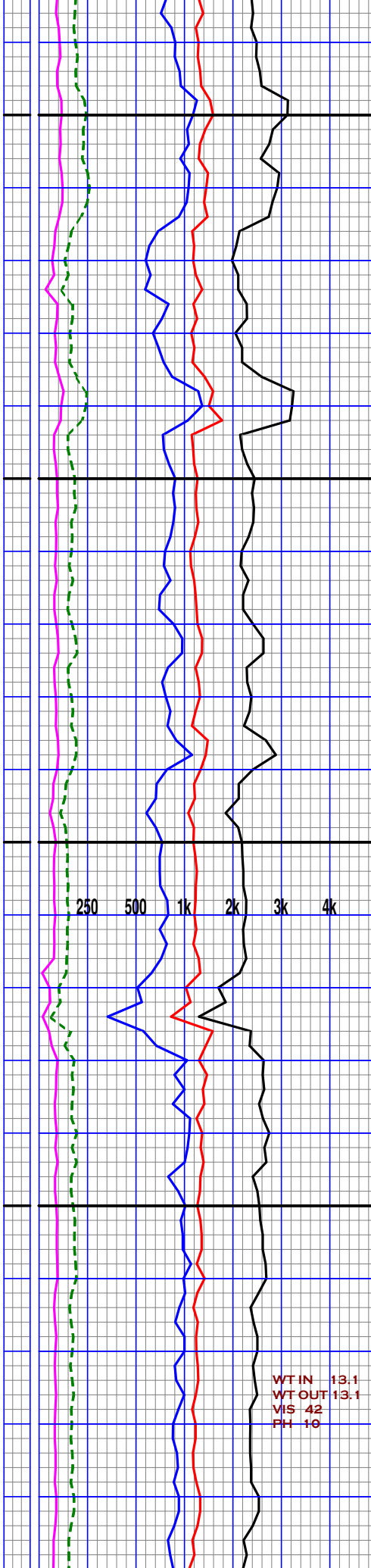
c

50

DEV. 0.18° @ 13671'

WOB 25K
RPM 65
MRPM 87
PP 3455
SPM 138

13700



250 500 1k 2k 3k 4k 5k

LS:mott off wht/brn, drk gry, crm, mcro-v/fn xln mod dns, frm-mod hrd, sm brttle, sm chlky, silic ip, sm argill incl, sm sli sucro ip

SH:drk gry, blk, chrcl gry, blk, sbblky, tr fssle, frm, sm sft, sm brttle, rthy-sbrthy txt tr wxy txt, sm grdng to slt ip, sm lmy ip, sm pyrt incl

LS:mott off wht, crm, tn drk gry, drk brn, mcro xln, sm v/fn xln, dns frm-mod hrd, sm brttle pred silic thru out sm shly ip, sm sli sucro ip

SH:drk gry, gry, blk chrcl, sbblky, sft-mod frm, tr gmy, rthy txt sm v/slty, lmy ip tr fssle, sm pyrt incl

LS:mott crm/off wht, drk gry, brn, mcro-v/fn xln mod dns, v/frm-hrd, tr brttle, sm chrty ip, sm argill incl, tr foss incl

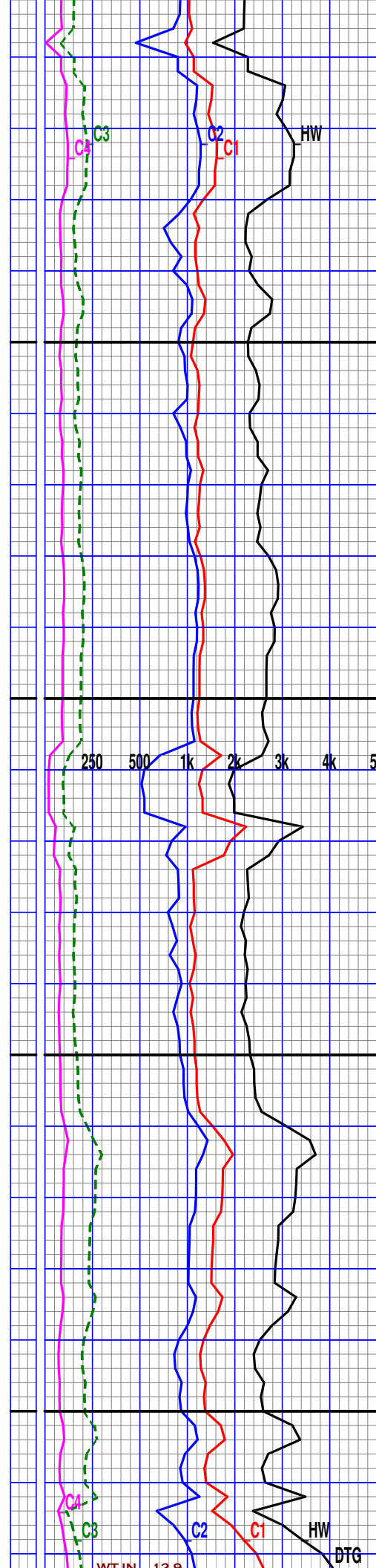
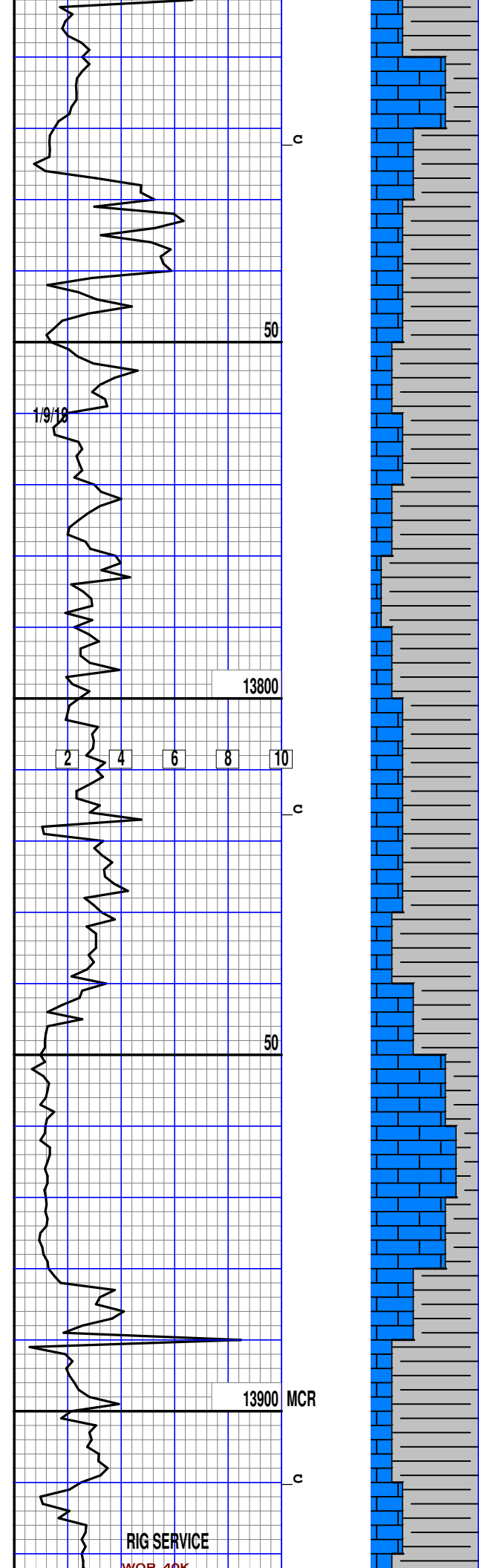
SH:drk gry, blk, gry chrcl, blk, sbblky, frm sm v/frm, tr gmy, rthy txt, v/slty ip, sm calc incl, tr fssle sm v/fnly pyrtc

LS:off wht, mlky, brn, crm drk gry, mcro-v/fn xln mod dns, frm-mod hrd sm brttle, tr chlky sm silic ip, sm argill incl

SH:drk gry, blk, gry chrcl, sbblky-blky, sft sm mod frm, tr gmy rthy-slty txt, dll lustr, sm v/lmy ip tr pyrt incl

LS:mott off wht/crm, brn drk gry, mcro-v/fn xln mod dns, frm-mod hrd, sm chlky, sm chrty ip, sm shly ip, sm sli sucro ip

WFIN 13.1
WFOUT 13.1
VIS 42
PH 10



SH: blk, drk gry, gry
 chrcl, blk, sm sbblk
 frm, sm sft, tr gmy
 rthy-sbrthy txt, tr
 wxy txt, sm grndg to
 slt, sm calc incl, sm
 v/fnly pyrtc

LS: off wht, mlky, crm, tn
 brn, drk gry, mcro xln
 sm v/fn xln, mod dns
 v/frm, sm mod hrd, sm
 chlky, silic ip, sm
 argill incl

SH: gry, drk gry, blk
 chrcl, sft-mod frm
 sm brttle, tr gmy
 rthy txt, sm slty txt
 tr wxy, sm lmy ip, tr
 pyrt incl

LS: mott brn/off wht, drk
 gry, crm, mcro-v/fn xln
 mod dns, frm-hrd, sm
 brttle, tr chlky, silic
 ip, sm shly ip, sm sli
 sucro ip

SH: drk gry, blk, gry
 chrcl, sbblk, sm blk
 frm, sm sft, sm gmy
 rthy-sbrthy txt, tr
 wxy txt, sm grndg to
 slt, sm calc incl, sm
 v/fnly-fnly pyrtc

LS: wht, lt gry, off wht
 gry, brn, mcro xln, sm
 v/fn xln, mod dns, frm
 sm mod hrd, brttle, sm
 silic ip, tr argill
 incl, sm sucro ip, cln

SH: gry, drk gry, blk
 chrcl, sbblk, tr fssle
 sft-mod frm, sm gmy
 rthy-slty txt, tr
 wxy txt, sm v/lmy ip
 sm pyrt incl

LS: crm, tn, off wht, mlky
 mott, lt brn, lt gry
 mcro-vfn xln, sli frm-
 frm, dns, cln, vfn imbd
 pyr, imbd shly ip

SH: gry, drk gry, v/dr
 gry, lt gry, sbblk, sli

RIG SERVICE

WOB 40K

WT IN 138

RPM 66
MRPM 88
PP 3400
SPM 140

WT 13.1
VIS 41
PH 10

frm-sft, rthy-v/slty
txt, tr lmy, vfn imbd
pyr ip, calc incl

50

SH: gry, drk gry, lt gry
blk, sbblky-tr blk
sli frm-sft, tr frm
rthy-v/slty txt, tr
lmy, tr calc, no wt ct

LS: crm, tn, off wht, mlky
mott, lt gry, lt brn
micro xln, sli frm-frm
dns, mod shly, tr vfn
imbd pyr, calc, mic
silic

SH: gry, lt gry, drk gry
char, sbblky-tr blk
rthy-v/slty txt, tr
lmy, calc, mic, no vis
fluor or wt ct

14000

CARBIDE LAG = 47 MIN @ 140 SPM (587 GPM)

LS: crm, tn, off wht, mlky
lt gry, mott, lt brn
micro-vfn xln, sli frm-
frm, dns, mod shly, tr
calc, mic

10°C

SH: lt gry, drk gry, gry
char, sbblky-tr blk
rthy-v/slty txt, tr
lmy, imbd calc, mic

50

LS: crm, tn, off wht, mott
lt gry, lt brn, micro xln
sli frm-frm, dns, mod
shly, cln, tr vfn imbd
pyr

LS: mott gry/off wht, drk
gry, mlky, micro xln, sm
v/fn xln, mod dns, frm
sm mod hrd, sm chky
silic ip, sm shly ip

SSV

1/10/19

14100

SH: blk, chrcl, drk gry
gry, blk, sm sbblky
frm, sm mod hrd, sm
brttle, rthy txt, dll
lustr, tr wxy txt
sm lmy ip, tr fssle
sm v/fnly pyrct

c

JDN

TRIP GAS: 3832u

RR BIT #2

SH: blk, drk gry, chrcl
gry, blk, sm sbblky, frm, sm
sft, brttle, rthy txt
dll lustr, sm slty ip
tr calc incl, tr wxy ip
sm pyrct incl

DEV. 0.4° @ 14145'

50

WOB 38K
RPM 65
MRPM 88
PP 3560
SPM 140

14200

2 4 6 8 10

DEV. 0.35° @ 14241'

50

14300

DEV. 0.18° @ 14335'

50

WFIN 12.99
WFOUT 13.1
VIS 41
PH 10

250 500 1k 2k 3k 4k 5k

C4
C3
C2
C1
HW

SH: blk, drk gry, chrcl
gry, blk, sm sbblky, frm
sm mod hrd, sm sft
brttle, rthy-sbrthy txt
dll lustr, tr wxy txt
sm slty ip, sm lmy ip
sm v/fnly pyrtc

SH: drk gry, blk, gry
chrcl, sbblky-blky, frm
sm sft, sm brttle, rthy
txt, tr wxy txt, sm
grdng to slt, tr calc
incl, sm smth, sm pyrtc
incl

SH: blk, drk gry, gry
chrcl, sbblky-blky, sft
sm v/frm, sm brttle
rthy-sbrthy txt, sm
slty txt, sm lmy ip
tr wxy, sm v/fnly-fnly
pyrtc

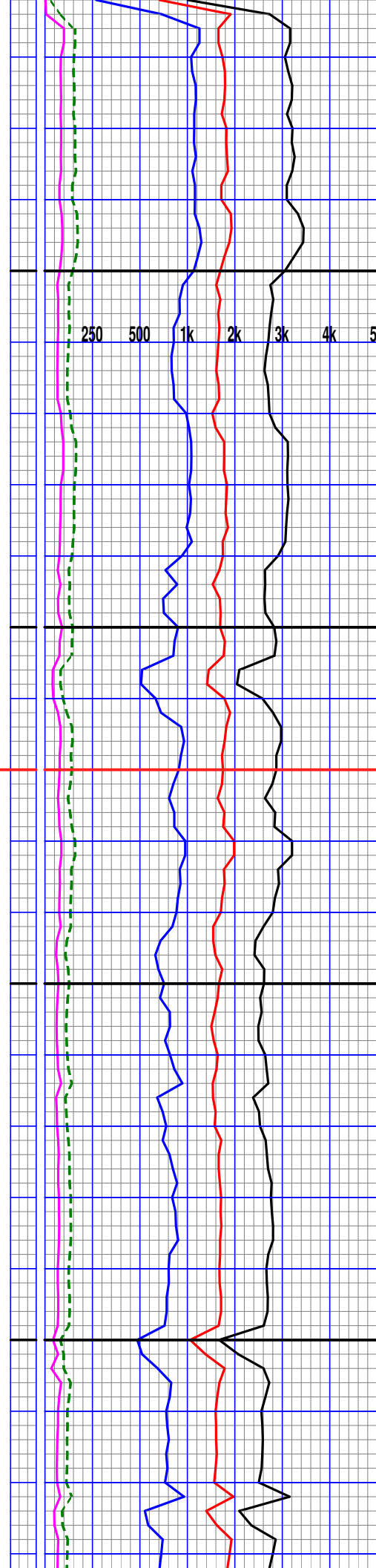
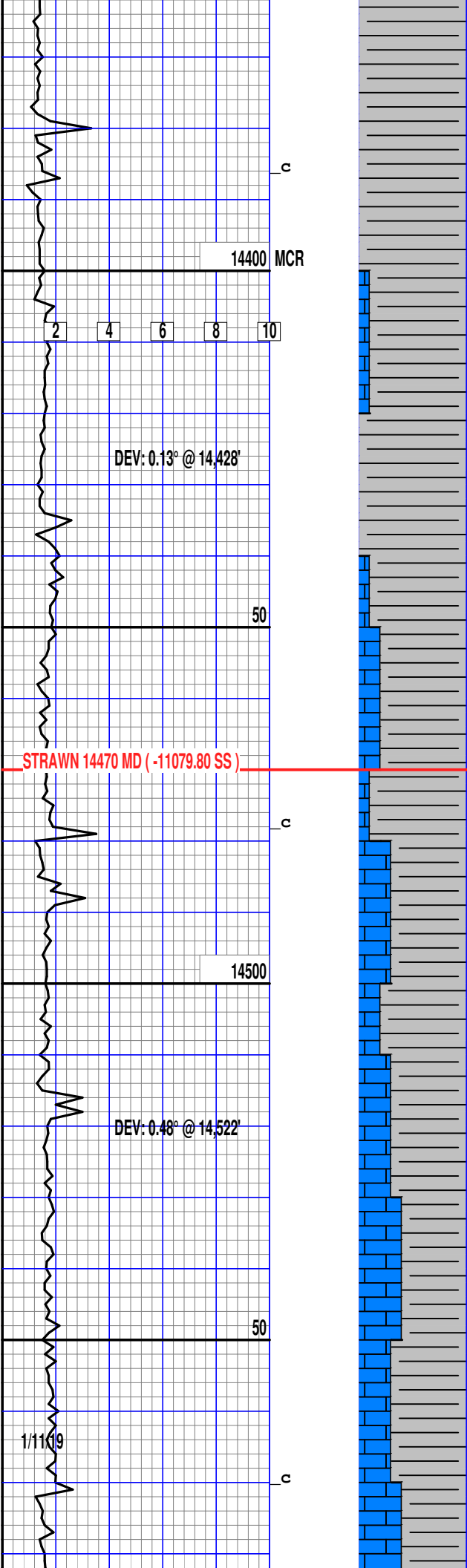
SH: drk gry, blk, chrcl
gry, sbblky, sm blk
frm-mod hrd, sm sft
brttle, rthy txt, dll
lustr, tr wxy txt, sm
grdng to slt, sm
pyrtc incl

SH: blk, drk gry, gry
chrcl, blk, sm sbblky
frms, sft, sm brttle
rthy txt, dll lustr
sm slty txt, sm calc
incl, sm v/fnly pyrtc

SH: drk gry, blk, chrcl
gry, blk-sbblky, frm
sm sft, brttle, rthy
txt, sm slty txt, dll
lustr, sm lmy ip, sm
pyrtc incl

SH: blk, drk gry, chrcl
gry, blk, sm sbblky
frm-sft, sm brttle
rthy-sbrthy txt, dll
lustr, sm grdng to slt
tr calc incl, sm
v/fnly-fnly pyrtc

SH: blk, drk gry, gry
chrcl, blk-sbblky
frm, sm sft, sm brttle
rthy-slty txt, dll
lustr, sm lmy ip, tr
wxy txt, sm pvrtc incl



SH: blk, drk gry, chrcl
 gry, sbblky-blky, sft
 sm frm, sm brttle, rthy
 txt, dll lustr, sm grdng
 to slt ip, tr calc, incl
 tr wxy ip, sm v/fnly
 pyrte

SH: blk, v/drk gry, v/drk
 brn, sbblky, sli frm-sft
 rthy-sity txt, tr lmy
 imbd calc

SH: v/drk gry, gry, lt gry
 sbblky, sli frm-sft
 rthy-sity txt, tr lmy
 imbd calc, mic

LS: crm, tn, off wht, mlky
 mott, lt gry, lt brn
 mcro xln, sli frm-frm
 dns, v/shly, tr calc

SH: blk, v/drk gry, lt gry
 gry, sbblky-sme blky
 rthy-lmy txt thru, tr
 imbd calc, mic

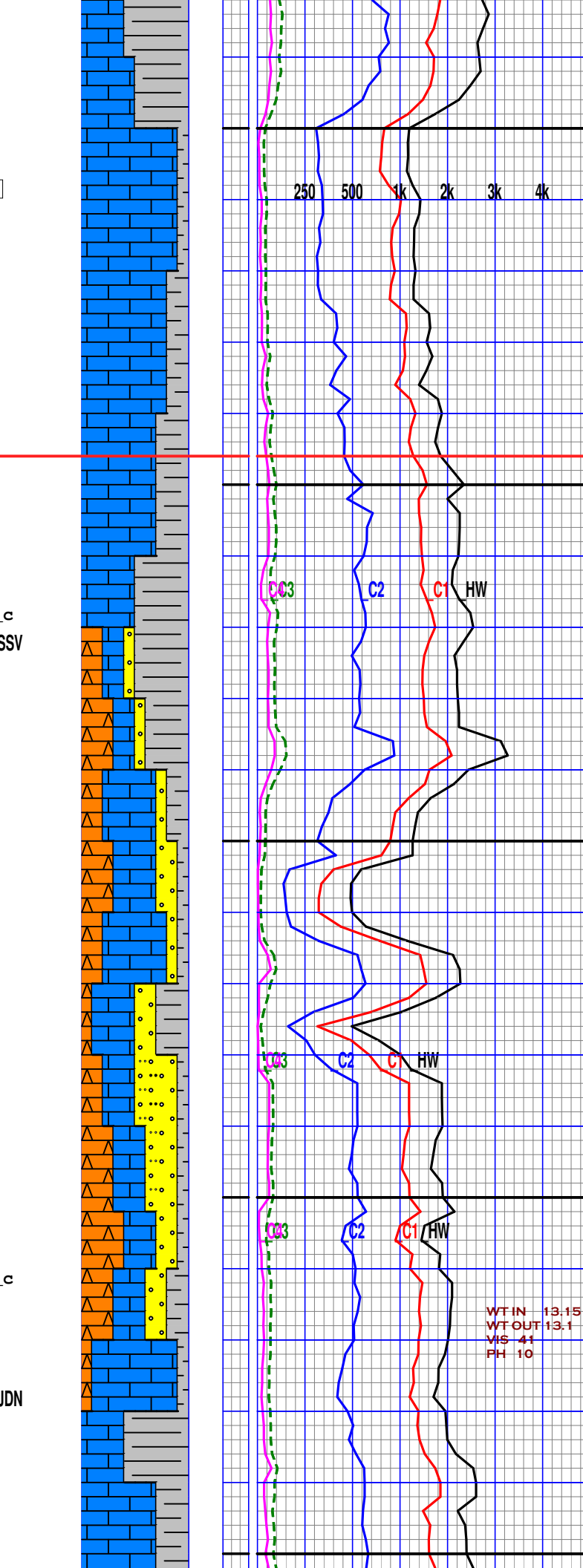
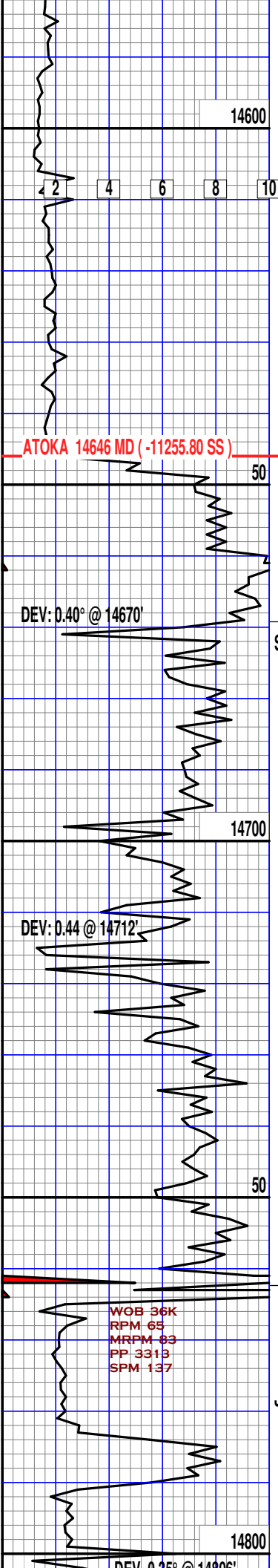
LS: wht, crm, tn, off wht
 mlky, mcro xln, sli frm-
 frm, dns, v/shly, tr imbd
 calc

SH: lt gry, drk gry, v/drk
 gry, sbblky, sli frm-sft
 rthy-lmy txt, mod imbd
 calc, mic

LS: crm, tn, off wht, mlky
 lt gry, mcro xln, sli
 frm-frm, dns, v/shly, mod
 imbd calc, mic

SH: blk, v/drk gry, drk
 gry, sbblky-sme blky
 sli frm-frm, v/lmy thru
 tr calc incl

LS: crm, tn, off wht, mlky
 mott, mcro xln, sli frm-
 frm, dns, mod shly, tr
 calc incl, vfn imbd pyr



SH: blk, v/drk gry, gry, lt gry, sbblkly-sme blkly rthy-lmy txt, lmy thru tr vfn imbd pyr, mic

LS: crm, tn, off wht, mott, mlky, lt gry, sli frm-frm, dns, mod shly, tr vfn imbd pyr, imbd calc mic

SH: blk, v/drk gry, gry, lt gry, sbblkly-blky, sli frm-frm, rthy-lmy txt mod calc incl thru, mod pyr, tr mic

LS: crm, tn, off wht, wht mlky, mott, mcro xln frm-sme hrd, dns, v/shly thru, tr pyr, mic, calc

CHRT: blk, dll blk, drk gry, opg, hrd, shrp, anglr abdnt lmy thru out sme vfn pyrt imbd

SS: clr, off wht, lt gry wht, wll cns1, wll cmnt w/calc cly mtrx, wll srt'd, trc vfn pyrt, trc vfn mica, incr chrt

SH: blk, dk brn, lt brn brn, sblkly, plty, fiss mstly frm/hd, rthy sndy tex, calc, trc vfn pyrt imbd, trc vfn mica sme chrt thru out

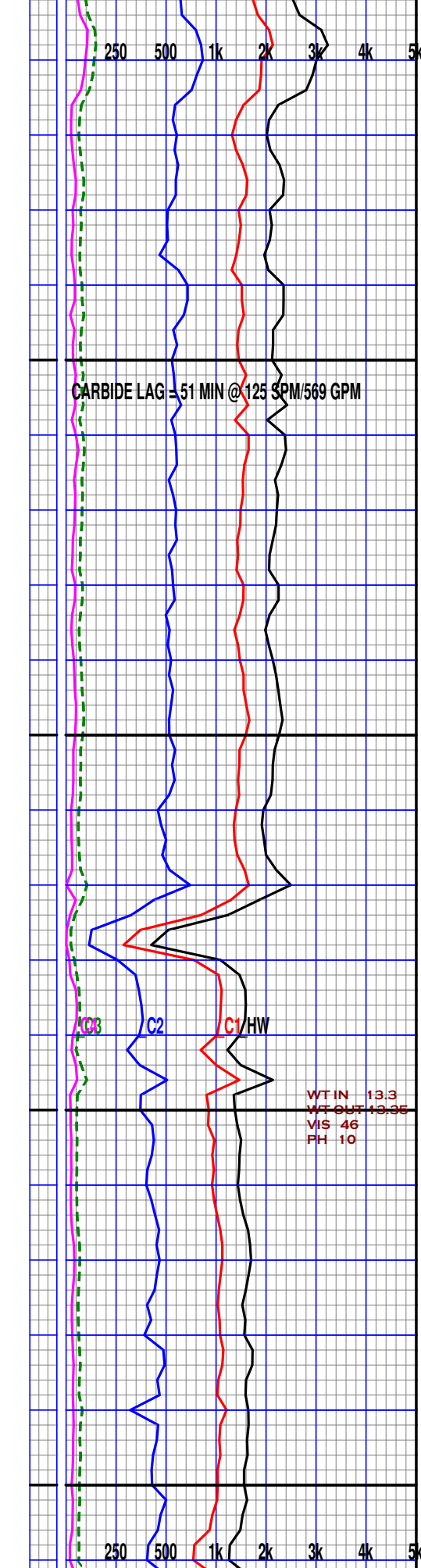
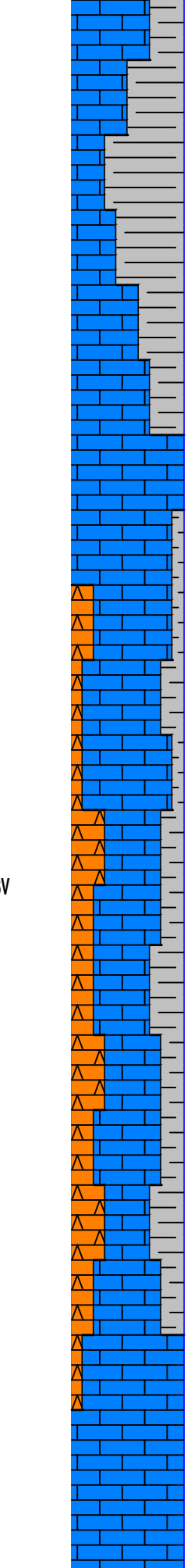
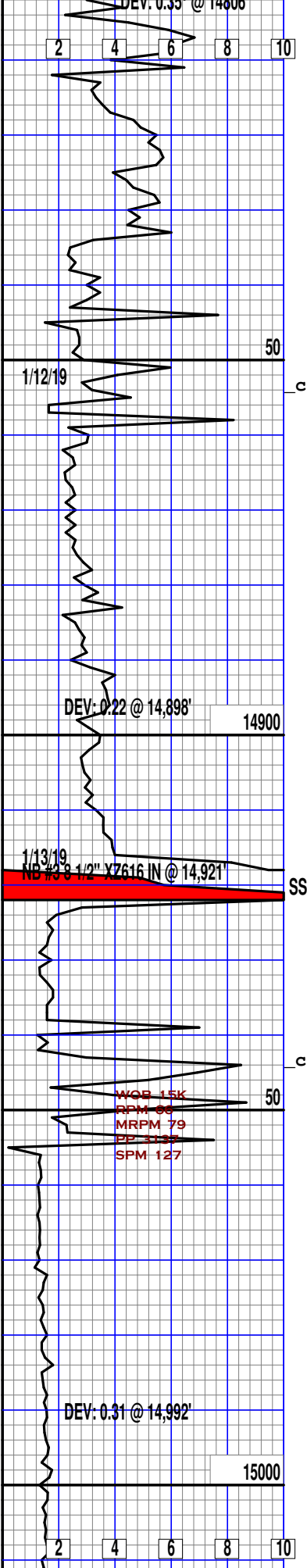
LS: lt brn, lt gry, sme sme blk, off wht, mcro xln, dns, mod brttl, occ chlky, aren, abdnt pyrt clstrs thru out, sme vfn mica

SS: clr, off wht, lt gry gry, wll cns1, wll cmnt w/calc cly mtrx, wll srt'd, abdnt slty thru out, trc vfn pyrt, trc

SH: blk, dk brn, lt brn brn, sblkly=blkly, plty fiss, mstly frm/hd, rthy tex, calc, sme vfn pyrt thru out, incr lmy

LS: mott gry/off wht, lt gry, drk brn, mcro xln dns, frm-mod hrd, sm brttle, tr chlky, silic

WTIN 13.15
WTOUT 13.1
VIS 41
PH 10



ip, sm argill incl

SH: drk gry, blk, chrcl
gry, blk, sbblk, frm
sm hrd, tr gmy, rthy
txt, dll lustr, sm grdng
to slt ip, sm lmy ip
sm v/fnly-fnly pyrtc

LS: gry, lt gry, off wht
mlky, brn, mcro xln, tr
v/fn xln, dns, v/frm-hrd
sm brttle, pred silic
thru out, sm lmy ip

LS: mott gry/off wht, lt
gry, drk brn, mcro xln
tr v. fn xln, mod dns
frm-mod hrd, tr v/hrd
sm brttle, chrtly ip
tr argill incl

CH: mott drk brn/gry, clr
transl, mlky, v/shrp-ang
v/hrd, tr brttle, sm
lmy ip, sm shly incl

SH: blk, dk brn, lt brn, br
sblky-blky, mod rnd, frm
hd thru out, rthy tex
calc, trc vfn pyrt, trc
mica, lmy ip

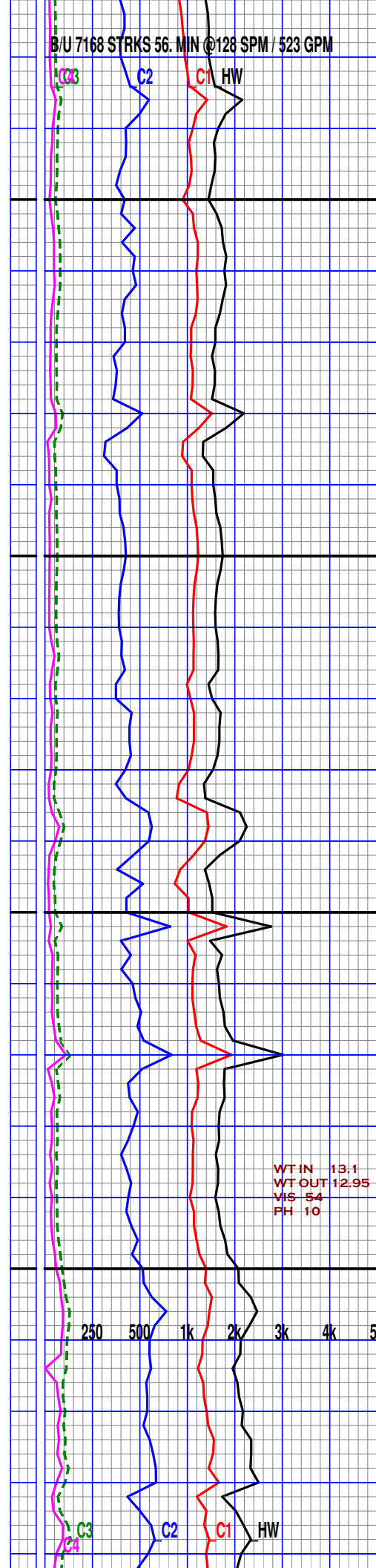
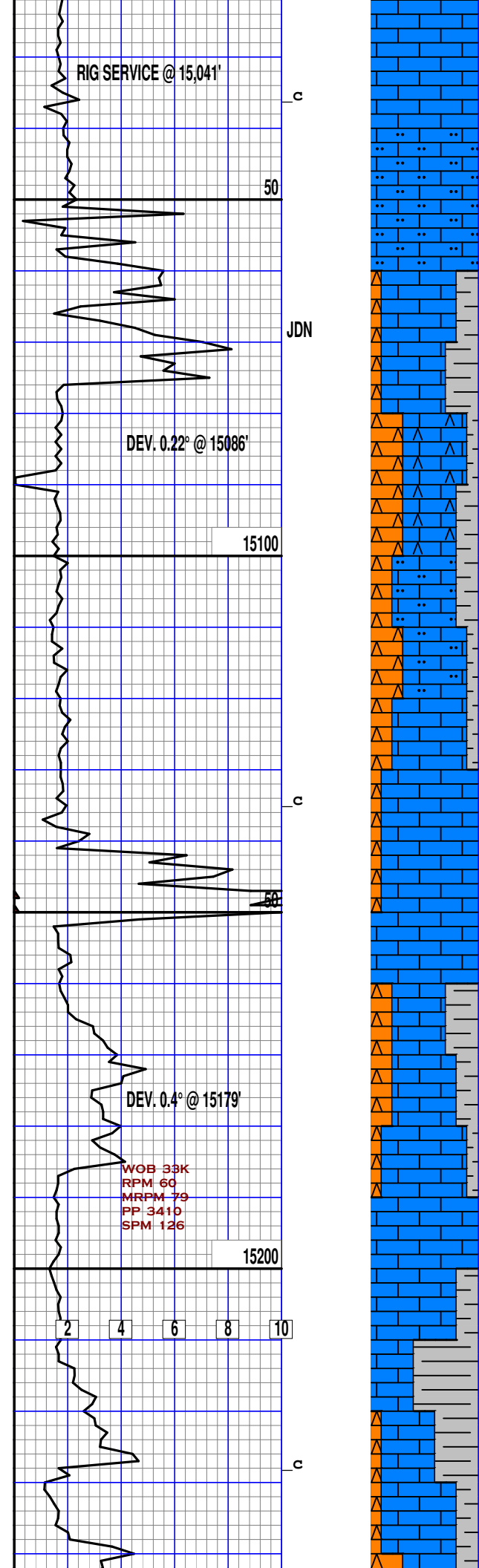
LS: gry, lt brn, mott, off
wht, lt gry, mcro-xln
dns, frm/hd, ang, brttl
mod chlky, sme vfn pyrt
imbd, sme sh incl

SH: blk, dk brn, lt brn
brn, blk, sme rnd, mod
fiss, pred sft/frm
rthy tex, calc, trc vfn
pyrt imbd, trc vfn mica

CHRT: blk, dll blk, dk gry
crpto-xln, clr, hd, shrp
ang, vfn pyrt imbd, incr
lmy thru out

LS: lt gry, dk gry, gry
mcro-xln, dns, frm/hd
mod brttl, sme chlky
trc vfn pyrt, trc chrt

LS: dk gry, gry, lt gry
mcro-xln, dns, fr/hd



sme chlky, sme brttl
trc vfn pyrt, trc chrt
trc sh

LS: gry, lt gry, dk gry
micro=xln, dns, sme hd
sme v-hd, mod chlky
sme brttl, trc chrt
trc sh

LS: gry, lt gry, sme dk
micro=xln, v-sft/sft
slty, sme clr, mstly
chlky, sbrnd/rnd, trc
vfn pyrt, trc sh

SH: blk, drk gry, gry
chrcl, blk, frm-mod hrd
sm brttle, rthy txt, dll
lustr, sm lmy ip, sm
chrt ip, sm v/fnly
pyrtc

CH: mott brn/crm, drk gry
off wht, opque, shrp-ang
v/hrd, tr brttle, sm
lmy ip, sm shly ip

LS: gry, lt gry, off wht
mlky, micro xln, sm v/fn
xln, mod dns, frm, sm
mod hrd, tr chlky, pred
silic thru out, tr
argill incl

CH: drk gry, opque, mlky
brn, shrp-ang, v/hrd, tr
brttle, lmy ip, sm shly
incl

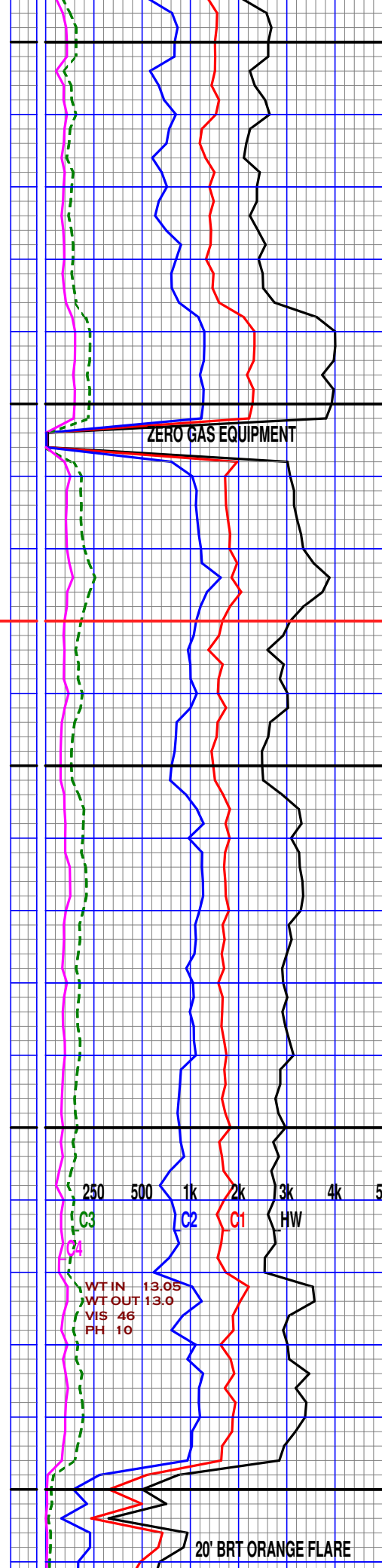
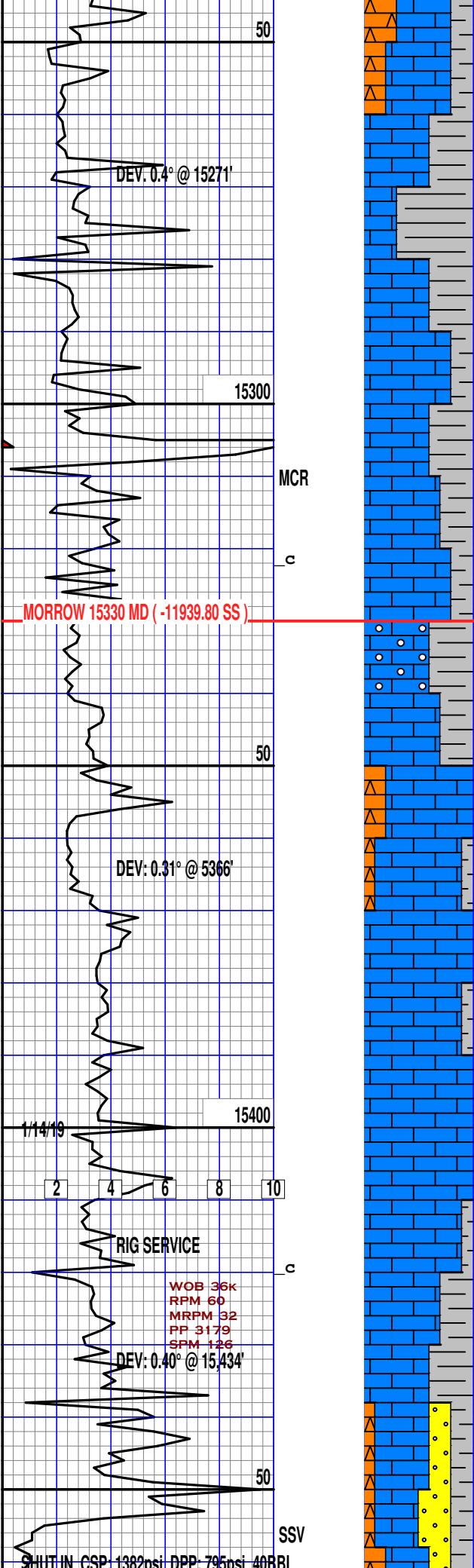
SH: drk gry, blk, chrcl
gry, sbblk, sm blk
sft-mod frm, sm gmy
rthy-slty txt, dll
lustr, sm lmy ip, sm
v/fnly-fnly pyrtc

LS: mott gry/off wht, lt
gry, mlky, micro xln, tr
v/fn xln, mod dns, frm
sm mod hrd, sm chlky
brttle, sm chrt ip, sm
shly ip

SH: blk, chrcl, drk gry
gry, sbblk-blky, sft
sm v/frm, tr gmy, rthy
txt, dll lustr, sm grng
to slit ip, sm lmy ip
sm v/fnly pyrtc

CH: clr, mlky, opque, off
wht, transl, shrp-ang
v/hrd, sm brttle, lmy
ip

WFIN 13.1
WTOUT 12.95
VIS 54
PH 10



LS: mott gry/off wht, gry mlky, mcro-v/fn xln, mod dns, frm-mod hrd, tr v/hrd, sm brttle, pred silic thru out, tr embd snd grs, sm argill incl tr pseudo ool

SH: drk gry, gry, blk chrcl, blk, sm sbblky sft-mod frm, sm hrd tr gmy, rthy-slty txt sm v/lmy ip, sm silic ip, sm v/fnly-fnly pyrct

LS: off wht, wht, crm, tn mlky, lt brn, mott, mcro-vfn xln, frm-sme hrd dns, tr shly, vfn pyr chrty

LS: wht, off wht, lt gry, vfn xln, frm, sme sft, mott, tr argil, sme vfn ool

CH: clr, wht, mott, mlky gry, drk gry, hrd, ang v/lmy, mod spk, imbd pyr

LS: crm, tn, off wht, mlky mott, mcro xln, sli frm-frm, dns-sme chlky, tr shly, calc, chrty

LS: off wht, mlky, wht, lt brn, mcro-vfn xln, sli frm-frm, dns-sme chlky tr shly, calc, chrty

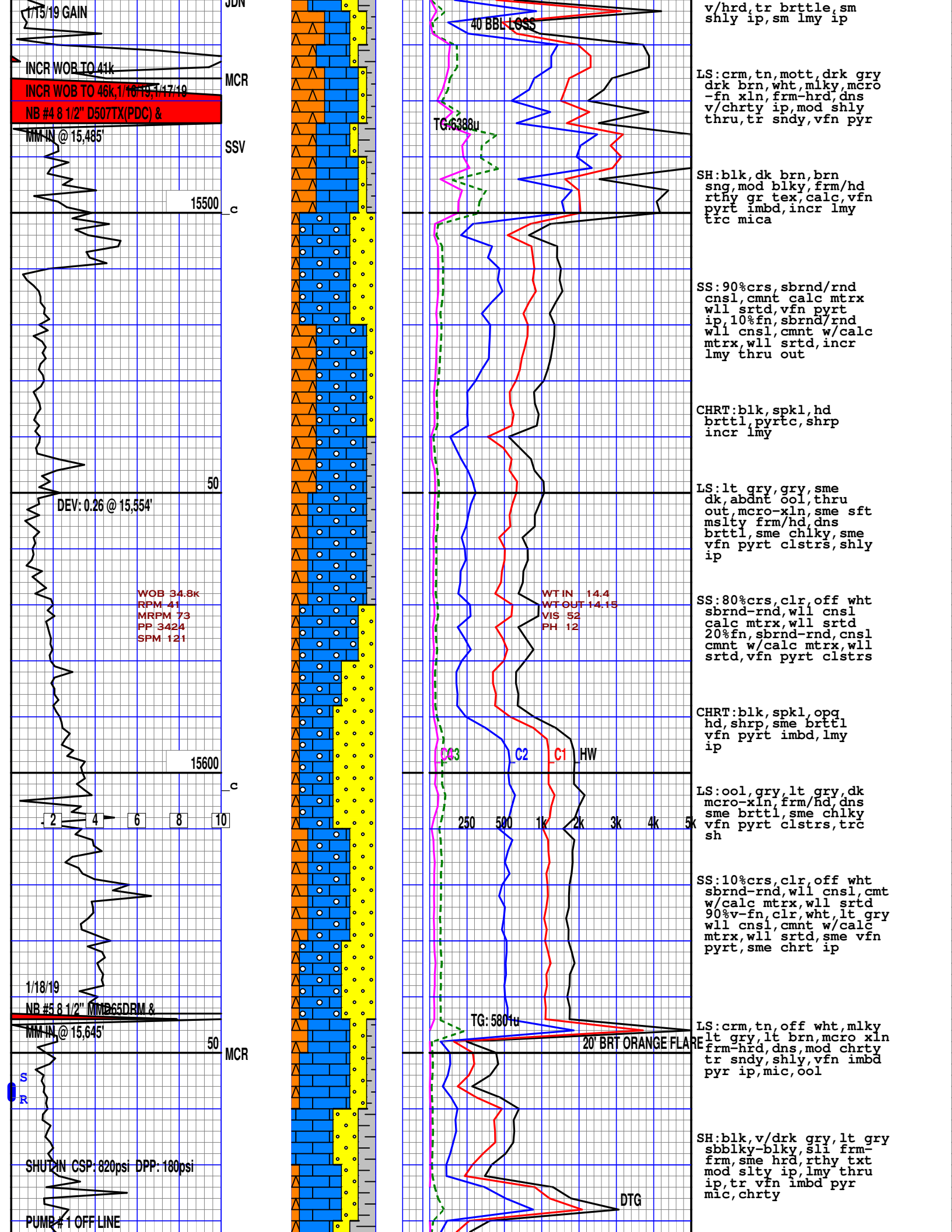
SH: blk, v/dr k gry, drk gry, sbblky-sme blk sli frm-frm, rthy-slty txt, v/lmy thruc, tr calc incl, mic

SS: clr, wht, 80% crs gr, subrnd-subangl, sme angl, unconsol, tr lmy ctng, 20% fn gr, subrnd-subangl, unconsol, tr lsly consol, fr cmt, calc cmt

CH: spckld, clr, opque mlky, smky, v/shrp-ang

SHUT IN CSP: 1382psi DPP: 795psi 40BBL

20' BRT ORANGE FLARE



PUMP #3 ONLINE @ 105spm(434gpm)

DEV: 0.44 @ 15,650'

SSV

15700

c

DEV: 0.35 @ 15,744'

50

1/19/19

WOB 28.5k
RPM 60
MRPM 72
PP 3492
SPM 116

WT IN 14.5
WT OUT 14.4
VIS 52
PH 12

B/U:7619 STRKS 66.3 MIN @116 SPM 481 GPM

15800

c

*NOTE SCALE CHANGE

2 4 6 8 10 12 14

250 500 1k 2k 3k 4k 5k

DEV: 0.35 @ 15838'

50 JDN

HOLE DEPTH DEPTH CHANGE FROM 15,935' TO

15,909'

c

SS:100%vfn gr, sbrnd=rnd
wll cnsl,wll cmnt
with calc clt mtrx
wll srtd,trc vfdn pyrt
incr sh

LS:off wht,lt gry,gry
micro-xln,frm/hd,dns
mod chlky,sme brttl
incr vfn pyrt,incr sh

CHRT:blk,sme clr,opg
sme spkld,hd,ang,shrp
vfn pyrt imbd,lmy ip

SS:30%crs,sbrnd-rnd
wllcnsl,wll cmnt w/
calc myrx,wll srtd
70%fn gr,sbrnd-rnd
wll cnsl,wll cmnt w/
calc mtrx,wll srtd
vfn pyrt imbd thru
out

LS:gry,dk gry,mott
micro=xln,frm/hd,
dns,mstly chlky,sme
brttl,abdnt slty,vfn
pyrt clstrs thru out
sme chrt ip

SH:blk,dk brn,brn,lt
brn,sblky,mod rnd
v-sft,rthy tex,calc
sme vfn pyrt imbd
thru out,incr lmy
abdnt sndy gr,trc
chrt

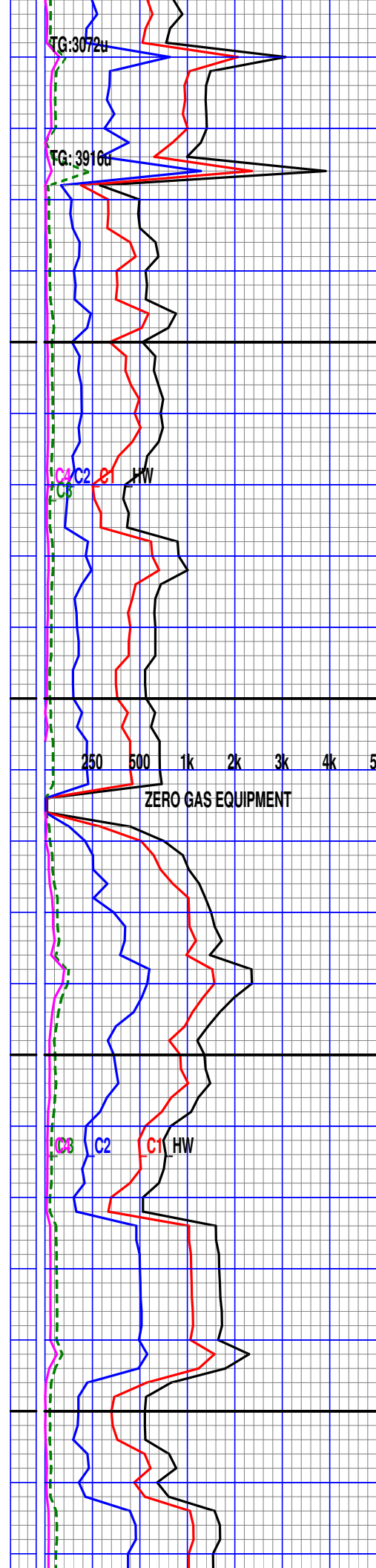
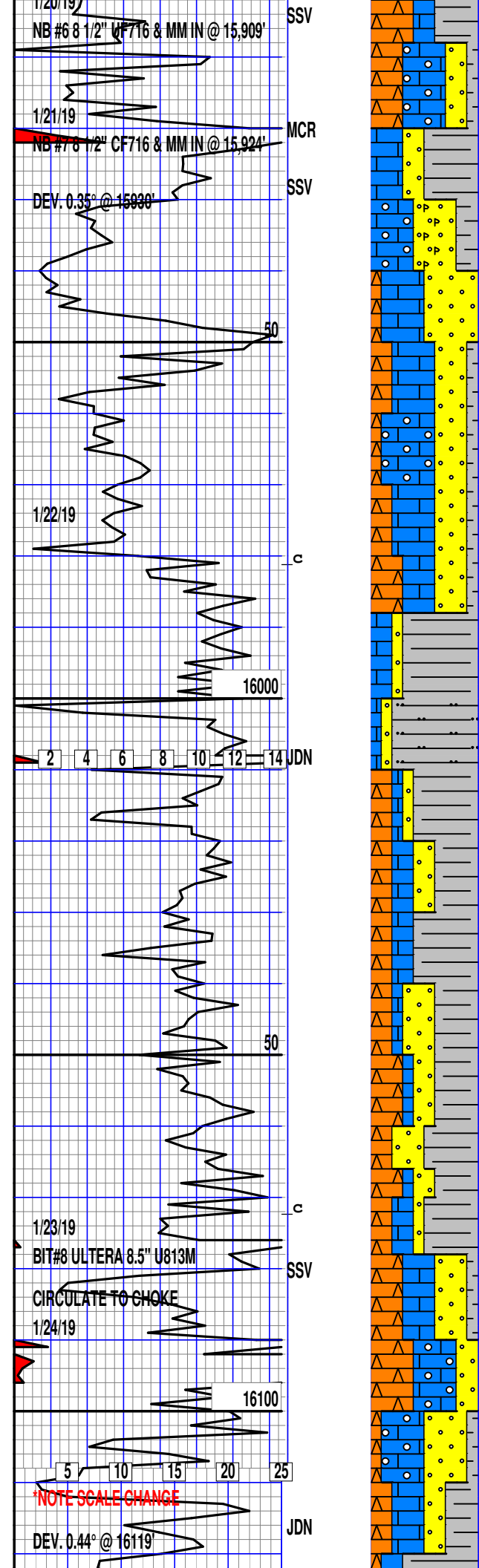
CHRT:blk,sme clr,opg
hd,crk,pyrtc,lmy

SS:80%crs gr,sbrnd-rnd
wll cnsl,wll cmnt w/
calc mtrx,wll srtd
trc vfn pyrt
20%fn gr,wll cnsl,cmnt
w/calc mtrx,wll srtd
sme v-fn pyrt imbd
thru out

LS:mott gry/off wht,crm
mlky,drk gry,micro xln
dns,frm-v/hrd,brttle
pred silic thru out,tr
chlky,sm embd snd grs
tr argill incl

SH:blk,drk gry,gry
chrcl,blky-sbbiky,frm
sm mod hrd,tr gmmy
rthy txt,dll lustr,sm
grdng to slt,sm v/lmy
ip,sm v/fnly-fnly
pyrtc

CH:spckld,clr,transl
smky,h/rhd,shrp-ang
tr brttle,lmy ip



SS: 20% crs gr, sbrnd-rnd
 wll cnsl, wll cmnt w/
 calc mtrx, wll srted
 80% fn gr, sbrnd-sbang
 wll cnsl, wll cmnt w/
 calc mtrx, wll srted, trc
 vfn pyrt, occ pyrtc

LS: lt gry, gry, sme
 mott, incr oolitic
 ls, mcro-xln, dns
 hd, sme brttl, sme
 chky, incr pyrt
 clstrs, trc chrt

SH: blk, dk brn, lt brn
 brn, sme rnd, sme blk
 fiss, v-sft/sft, mod
 slty, rthy tex, calc
 abndt pyrt imbd thru
 out, lmy ip, sme chrt
 incr sndy gr

CHRT: blk, spkld, opq
 clr, frctd, sme brttl
 vfn pyrt imbd

SS: 40% crs-gr, clr, off
 wht, lt gry, sbrnd-sbang
 wll cnsl, mod cmnt w/
 calc mtrx, prly srted
 60% fn-gr, sbrnd-sbang
 clr, off wht, wht, wll
 cnsl, wll cmnt w/calc
 mtrx, wll srted, trc vfn

LS: mott drk gry/off wht
 mlky, gry, mcro xln, tr
 v/fn xln, dns, frm-mod
 hrd, sm brttle, silic ip
 sm shly ip, tr aren
 incl

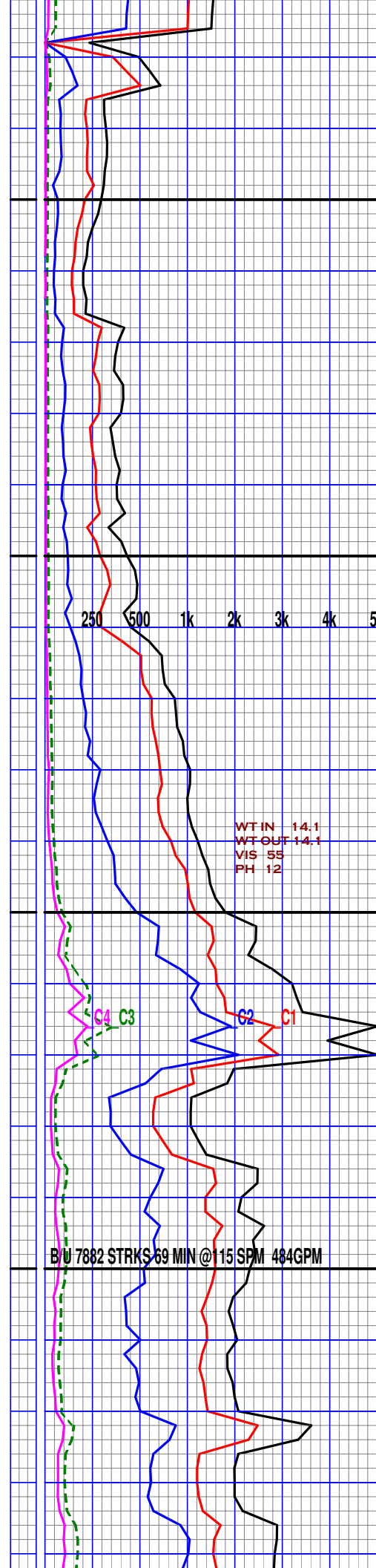
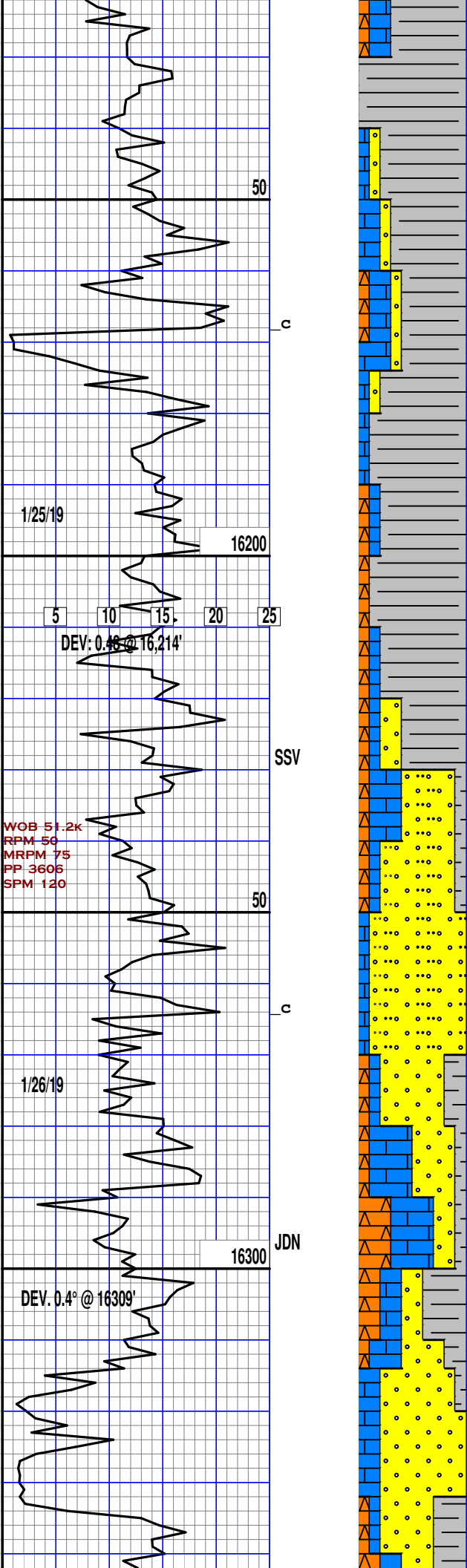
SH: blk, drk gry, gry, drk
 brn, chrcl, blk, sm
 sbblky, frm-mod hrd, tr
 gmm, rthy txt, dll
 lustr, sm grdng to slt
 sm v/lmy ip, sm chrt
 ip, sm v/fnly-fnly
 pyrtc

CH: smky, mlky, clr, opque
 spckld, shrp-ang, v/hrd
 tr brttle, sm lmy ip
 sm shly ip

SS: 40% crs gr, clr, off
 wht, mlky, sbrnd-sbang
 wll cnsl, prly cmnt w/
 calc mtrx, wll srted
 60% fn gr, clr, off wht
 mlky, sbrnd-sbang, wll
 cnsl, wll cmnt w/ calc
 mtrx, wll srted, incr
 pyrt clstrs, incr chrt

SH: blk, dk brn, lt brn
 brn, blk, plty, fiss
 mstly sft/frm thru out
 rthy tex, calc, vfn
 pyrt imbd thru out
 incr lmy, sme sndy gr
 thru out

LS: mott off wht/drk gry
 mlky, drk brn, mcro xln
 sm v/fn xln, mod dns



frm, sm hrd, tr chlky
sm aren incl, sm argill
incl, silic ip

SH: drk gry, gry, blk, drk
brn, chrcl, sbblky, sm
blky, pred gmm, sm
sft-mod frm, tr brittle
rthy-slty txt, sm lmy
ip, sm v/fnly-fnly
pyrtc

CH: smky, transl, opque
spckld, shrp-ang, v/hrd
tr brittle, tr lmy
ip

SS: clr, mlky, frstd, off
wht, 80% med gr, prly
cmt w/calc/shly cmt
sm unconsol, 20% fn gr
unconsol, sm shly ip
sm lmy ip

LS: mott gry/off wht, drk
gry, brn, crm, mcro xln
dns, frm-mod hrd, sm
chlky, sm brittle, silic
ip, tr aren incl, sm
shly ip

SH: blk, dk brn, brn
blky, sme rnd, v-sft
frm, rthy, sndy gr tex
calc, trc vfn pyrt, sme
lm, chrt thru out

SS: mlky, mstly slty, sme
mod clr, sbrnd-rnd, 90%
vfn gr, 10% crs gr, wll
cns1, wll cmnt w/calc
mtrx, wll srt, sme vfn
pyrt clstrs thru out
decrs chrt, sme sh, lmy

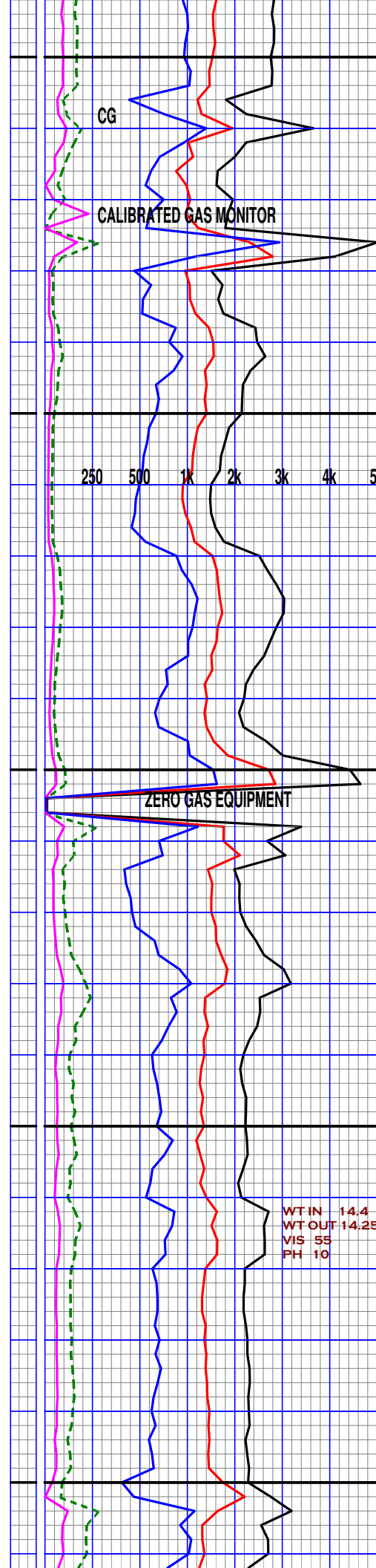
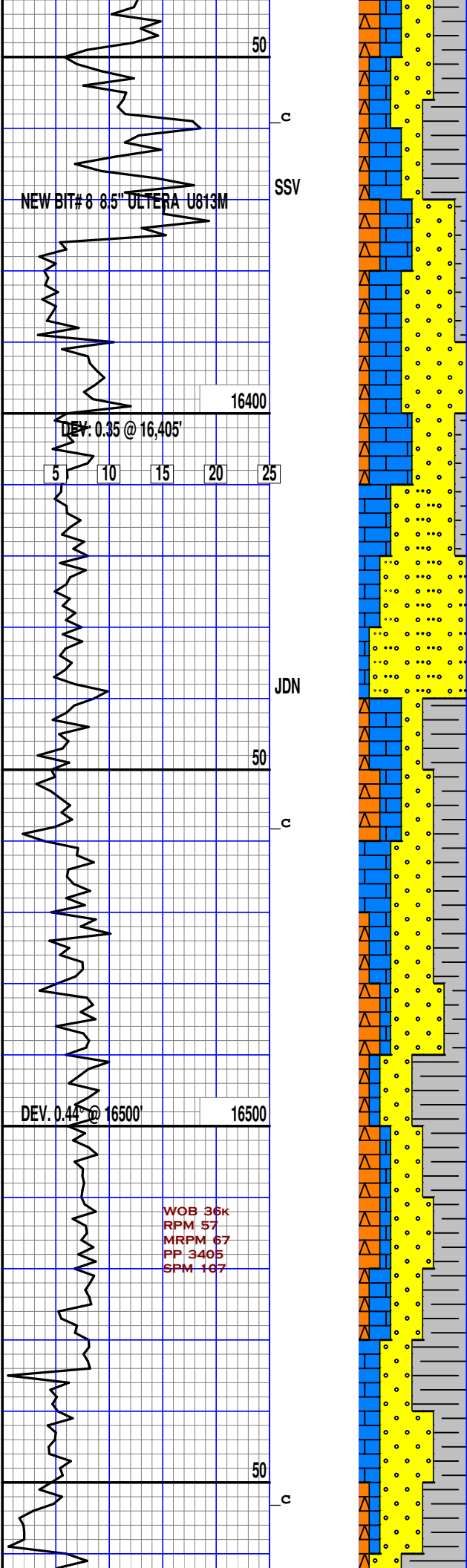
LS: gry, lt gry, mott
mcro-xln, frm/hd
dns, sme brttl, sme
chlky, vfn pyrt imbd
trc sh, trc chrt

CHRT: blk, spkld, opq
frct, sme brttl, trc
vfn pyrt imbd, lmy
ip

SH: gry, drk gry, blk, drk
brn, chrcl, sbblky-blky
sft-mod frm, sm brittle
gmm, rthy-sbrthy txt
sm slty txt, sm embd
snd grs, sm lmy ip, sm
v/fnly pyrtc

SS: clr, mlky, frstd, off
wht, lt gry, 90% fn fr
sbang-sbrnd, lsly
consol w/calc mtrx, sm
silic cmt, tr argill ip
sm grdng to slt, tr
fre wht/gry clys

BU 7882 STRKS 69 MIN @ 115 SPM 484GPM



LS:mott gry/off wht, crm
brn, mcro-v/fn xln, mod
dns, frm, sm mod hrd, sm
chlky, silic ip, sm
aren incl, sm shly ip

CH:transl, opque, mlky
smky, shrp-ang, v/hrd, tr
brttle, tr lmy ip

SH:blk, dk brn, brm
blky, rnd, v-sft, rthy
tex, calc, vfn pyrt
imbd, lmy, incr chrt

SS:20%crs gr, clr, off
wht, mlky, sbrnd-rnd
wll cnsl, wll cmnt
w/calc cly mtrx, wll
srted, 80%fn gr, clr, off
wht/wht, mlky, wll cnsl
wll cmnt w/calc mtrx
wll srted, sme vfn pyrt
thru out, lmy, chrt ip
mstly slty ss

LS:lt brn, lt gry, gry
mcro-xln, frm-hd, dns
mod brttl, mstly chlky
sme vfn pyrt imbd thru
out, trc sh, incr chrt
abdnt slty ss

CH:smky, opque, blk, mlky
transl, shrp-ang, v/hrd
tr lmy ip, tr shly incl

SH:drk gry, gry, blk
sbblky, sft-mod frm, sm
brttle, gmm, rthy-slty
txt, sm aren incl, sm
lmy ip, v/fnly-fnly
pyrtc

SS:clr, mlky, frstd, lt
gry, 60% vfn gr, 40% fn
gr, sbrnd, sm sbang, pred
unconsol, sm lsly
consol w/calc/shly cmt
prly srted, tr fre drk
gry/blk clys

LS:mott gry/off wht, drk
gry, crm, mcro xln, dns
frm-mod hrd, sm brttle
tr chlky, pred silic
thru out, sm embd snd
grs, sm shly ip

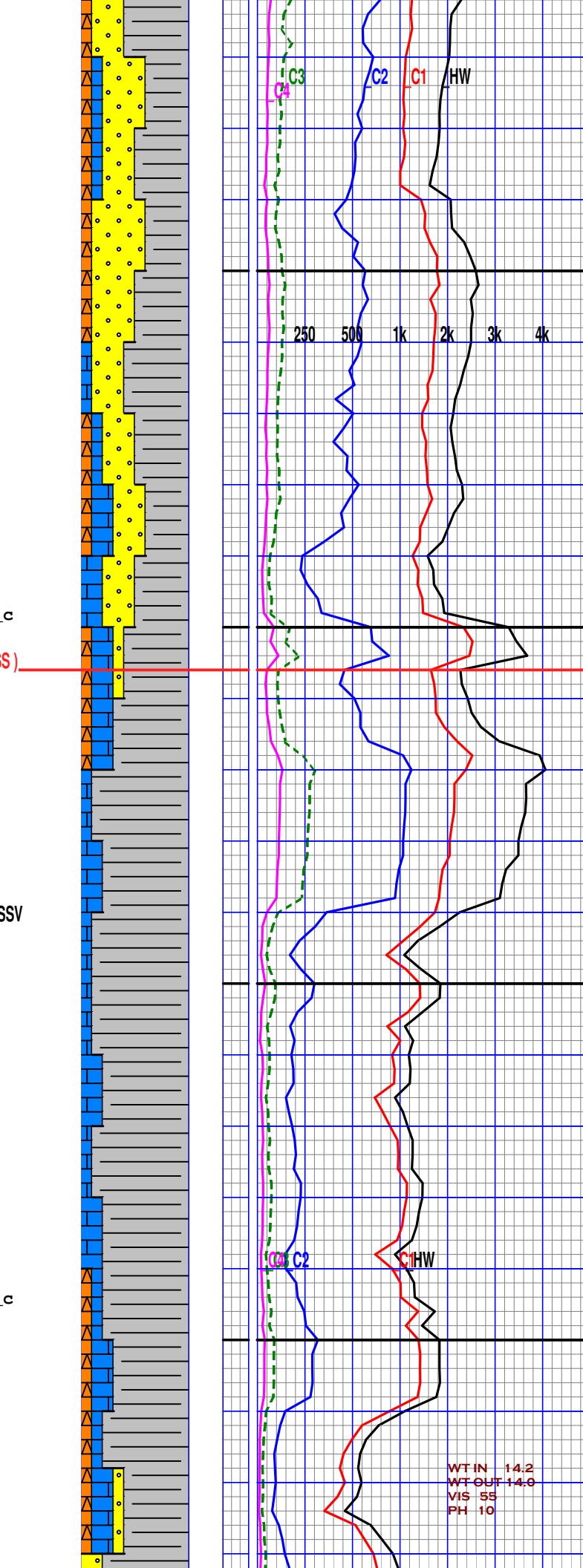
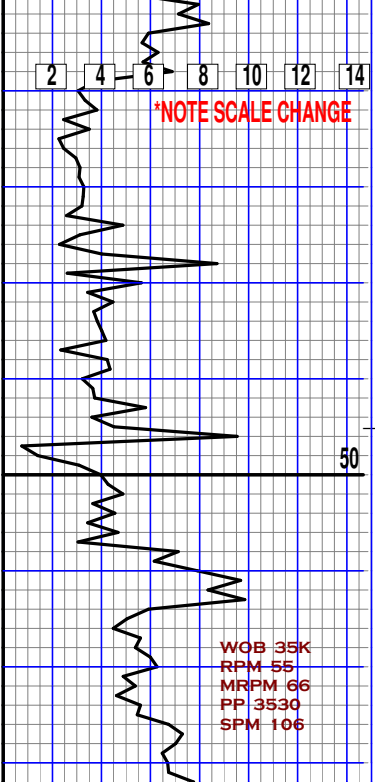
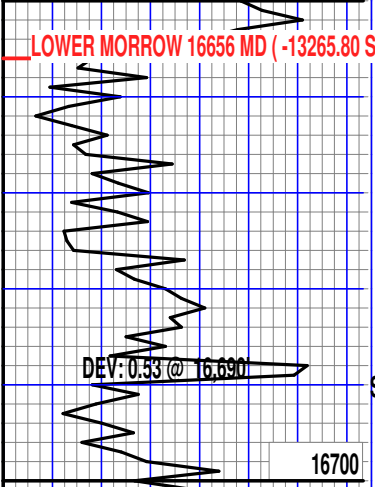
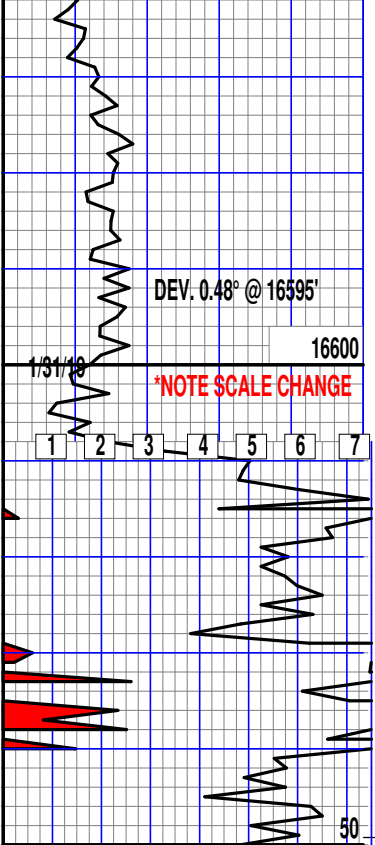
CH:transl, opque, mlky
smky, blk, prly sbrndd
sm shrp-ang, v/hrd, tr
lmy ip

SH:gry, drk gry, blk
chrcl, sbblky, sm blk
sft, sm mod frm, sm
gmm, rthy-slty txt
sm lmy ip, sm aren
incl, sm pyrt incl

SS:clr, off wht, lt grv

WOB 36k
RPM 57
MRPM 67
PP 3405
SPM 167

WTIN 14.4
WTOUT 14.25
VIS 55
PH 10



mlky, 60% fn gr, 40% med gr, pred unconsol tr lsly consol w/shly cmt, prly srted, sm lmy ip, tr fre blk clys

LS: mott gry/off wht, drk gry, crm, micro xln, tr v/fn xln, mod dns, frm sm mod hrd, tr chlky sm chrty ip, sm embd snd grs, sm argill incl

CH: smky, opque, transl spckld, sbrndd, sm shrp ang, v/hrd

SH: drk gry, blk, gry chrcl, sbblky-blky, frm sm sft, brttle, tr gmmly, rthy-sbrthy txt sm grdng to slt ip, sm aren incl, lmy ip, sm v/fnly-fnly pyrtc

SS: clr, mlky, frstd, off wht, lt gry, 40% fn gr 40% med gr, 20% crs gr sbrnd, unconsol, tr lsly consol w/argill mtrx, tr lmy ip, tr fre off wht/gry clys

LS: drk gry, gry, drk brn mlky, micro xln, mod dns frm-mod hrd, sm silic ip, sm shly ip, tr embd snd grs

SH: blk, chrcl, drk gry gry, drk brn, blk, sm sbblky, mod frm, sm mod hrd, brttle, rthy txt dll lustr, sm wxy txt sm slty ip, lmy ip, sm v/fnly pyrtc

LS: lt brn, brn, sme gry micro-xln, frm/hd, dns mod brttl, sme chlky sh thru out, incr vfn pyrtc

SH: blk, dk brn, brn, lt brn, blk, mod rnd, sft/frm thru out, rthy tex calc, trc vfn pyrtc, incr lmy imbd

LS: gry, lt gry, wht micro-xln, frm/hd, dns sme brttl, sme chlky incr vfn pyrtc clsters sme sndy gr thru out abdnt sh

SS: 20% crs gr, off wht wht, clr, mlky, sbrnd rnd, wll cnsl, wll cmnt w/calc cly mtrx, wll srted

WTIN 14.2
WTOUT 14.0
VIS 55
PH 10

DEV: 0.62 @ 16,786'

16800

2 4 6 8 10 12 14

c

50

2/1/19

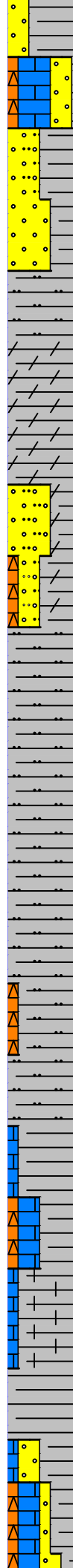
16900

c
JDN

50

DEV: 0.7 @ 16976'

17000



80%v-fn gr, clr, off wht
wht, sme mlky, sbrnd-rnd
wll cnsl, wll cmnt w/
calc mtrx, wll srtd, trc
vfn pyrt, sme sh, lmy

SH: blk, dk brn, gry, brn
blky, mstly rnd, sft/frm
rthy tex, calc, sme vfn
pyrt clstrs thru out
lmy ip, abdnt sndy gr

SH: blk, dk brn, lt brn
mstly rnd, v-sft/sft
rthy tex, calc, pred
slty sh, trc lmy, sme
vfn pyrt clstrs thru
out, sme vfn sndy gr

SS: clr, off wht, wht
mlky, vfn gr, sbrnd
sbang, wll cnsl, wll
cmnt w/calc cly mtrx
wll srtd, sme vfn pyrt
lmy ip, abdnt slty thru
shly ip

CHRT: blk, dk, shrp,
opq, mcro-xln, vfn
pyrt imbd, lmy thru
out

SH: blk, dk gry, lt gry
sme dk, blky, sme rnd
v-sft/sft, rthy tex
calc, trc vfn pyrt
lmy ip, trc chrt, pred
slty thru out

SH: blk, dk brn, gry,
lt gry, blky-sblky
sme rnd, v-sft/sft
rthy tex, calc, sme
vfn pyrt, abdnt slty
thru out, trc ch

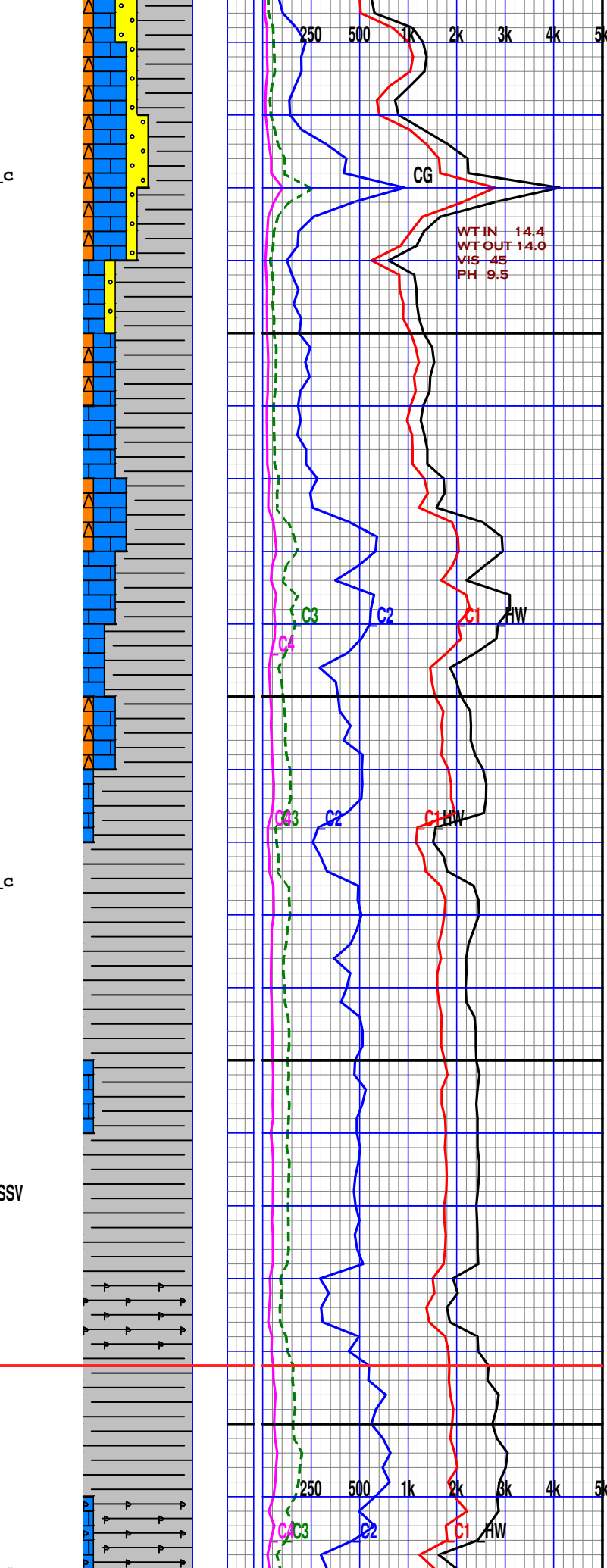
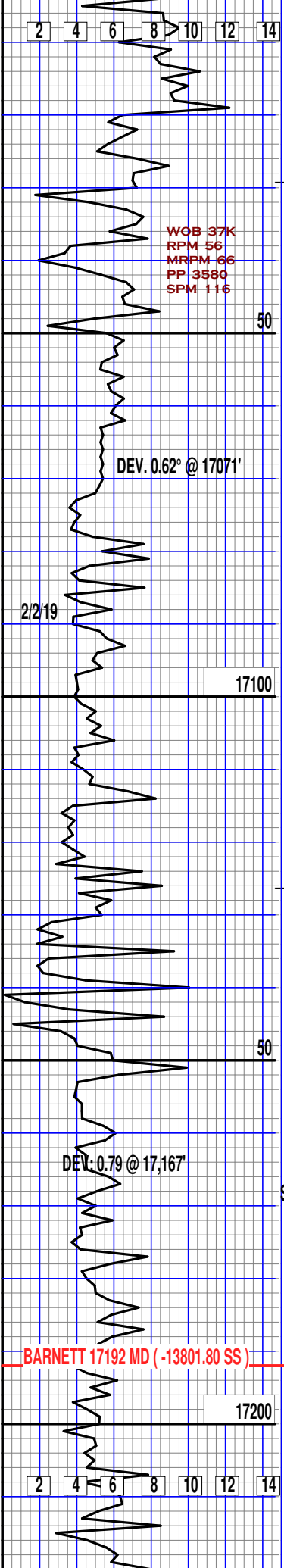
SH: blk, drk gry, gry
blky-sbblky, frm, sm
brttle, tr gummy, slty
txt, sm rthy txt, lmy
ip, sm v/fnly pyrtc

CARBIDE TRAP TEST

CH: blk, smky, transl
opque, shrp-ang, v/hrd
tr brttle, sm lmy ip, tr
shly ip

LS: mott drk gry/off wht
gry, drk brn, mcro xln
tr v/fn xln, mod dns
frm-mod hrd, tr chky
tr embd snd grs, sm
shly ip, sm silic ip

SS: clr, mlky, frstd, off
wht, vfn gr, sbang-sbrnd
mod consol w/silic cmt
wll srtd, sm pyrt incl
sm lmy ip, tr fre blk
clvs



SH:blk, drk gry, gry
chrcl, blk, sbblk, frm
sm sft, sm brtll, rthy
txt, dll lustr, sm slty
ip, tr wxy txt, pred lmy
thru out, sm aren incl
sm v/fnly-fnly pyrtc

CH:mlky, opque, transl
blk, smky, shrp-ang
v/hrd, tr brtll, sm
lmy ip

LS:mott off wht, gry, drk
gry, mlky, drk brn, mcro
xln, tr v/fn xln, mod
dns, frm-mod hrd, sm
chlky, sm chrty ip, sm
shly ip

SH:blk, chrcl, drk gry
gry, blk, sm sbblk, frm
sm v/frm, sm brtll
rthy-slty txt, dll
lustr, tr wxy txt, sm
v/lmy ip, sm pyrt incl

CH:smky, mlky, transl
opque, shrp-ang, v/hrd
tr brtll

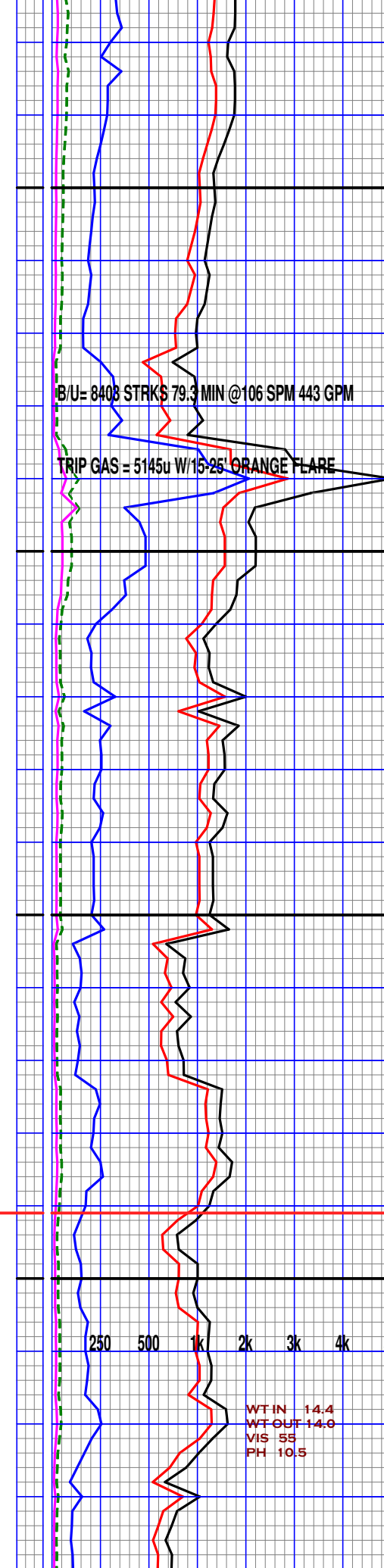
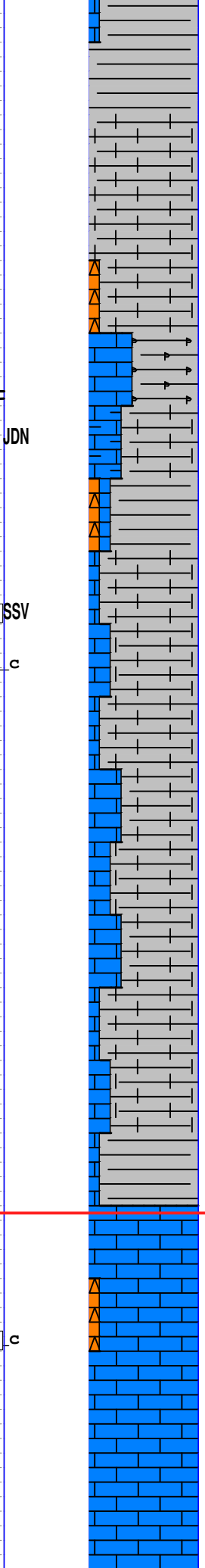
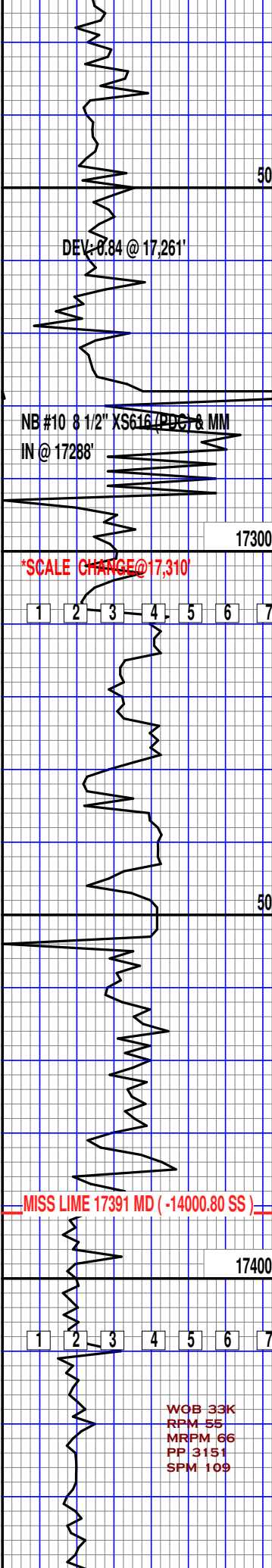
LS:mott gry/off wht, drk
gry, drk brn, mcro-v/fn
xln, mod dns, frm, sm mod
hrd, sm chlky, silic ip
sm shly ip, tr embd snd
grs

SH:blk, chrcl, drk gry
gry, blk, sm sbblk
v/frm, sm brtll, rthy
txt, dll lustr, tr wxy
txt, sm grng to slt ip
sm v/lmy ip, sm v/fnly
pyrtc

SH:blk, dk brn, lt
brn, brn, blk, mod rnd
flky, v-sft/sft, rthy
tex, calc, trc vfn pyrt
trc lmy, trc vfn sndy
gr, mod slty thru out

SH:blk, dk brn, lt brn
blk, pltyfiss, sft/frm
rthy, sndy tex, calc
abdnt vfn pyrt imbd
thru out, incr lmy

SH:blk, dk brn, lt brn
brn, blk, plty, fiss
sft/frm, rthy tex, calc
abdnt pyrt clstrs thru
out, incr lmy



LS: gry, lt gry, tn, off wht, mcro-xln, frm/hd dns, sme brttl, mod chlky, sme vfn pyrt imbd, sh thru out, trc chrt

SH: blk, dk brn, lt brn brn, blk, plty, fiss sft/frm, rthy tex, calc sme vfn pyrt imbd, incr lmy, chrt ip

LS: lt gry, gry, off wht wht, mcro-xln, frm/hd dns, brttl, sme chlky vfn pyrt imbd, chrt ip

SH: blk, dk brn, brn, blk, plty, fiss, pred frm/hd rthy, dll tex, calc, sme vfn pyrt thru out, incr lmy

LS: blk, brn, lt gry, gry mcro-xln, frm/hd, dns brttl, mod chlky, vfn pyrt imbd, mstly sh

SH: drk gry, blk, gry, blk, erthy, frm, sme sft, sme brttle, tr gmy, smth, sme lmy ip

LS: wht, off wht, lt gry, vfn xln, frm, sme mod hrd, mott, v/shly ip

SH: blk, drk gry, gry, lt gry, blk, erthy, smth, frm, sme sft, tr brttle, sme lmy ip

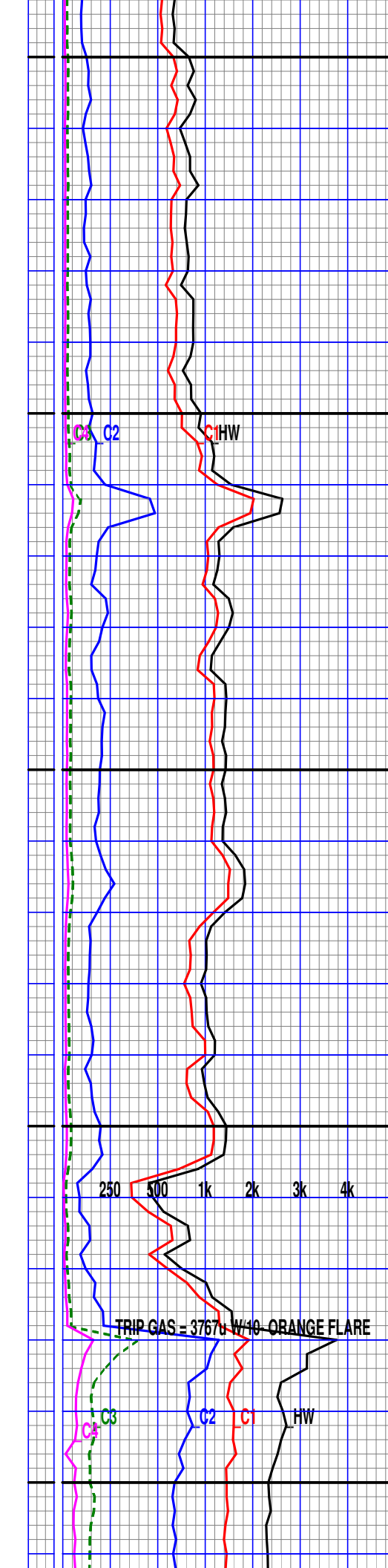
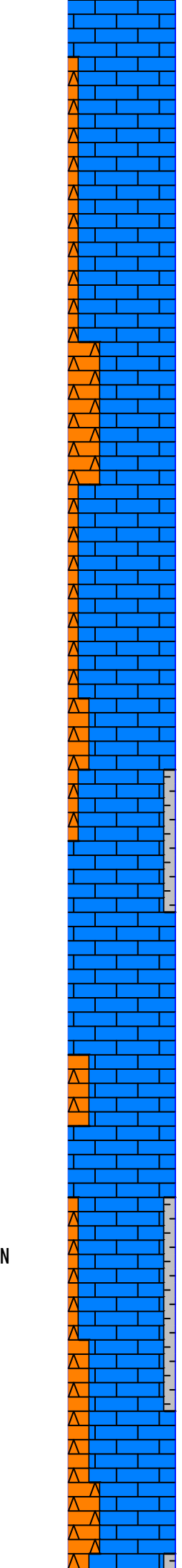
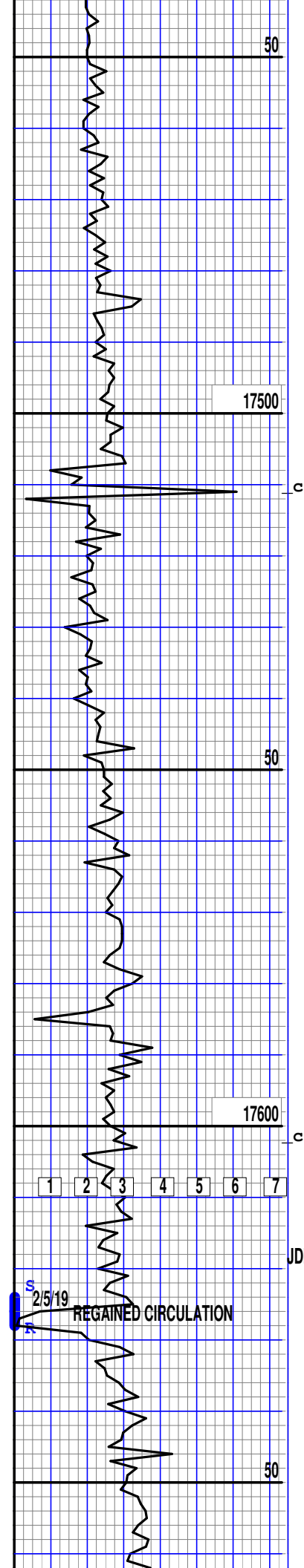
LS: gry, lt gry, off wht dk gry, mcro-xln, frm/hd dns, brttl, mod chlky, sh ip

SH: lt gry, gry, off wht blk, rnd, frm/hd, rthy tex, calc, incr lmy thru out

LS: gry, lt gry, wht, off wht, mcro-xln, frm/hd dns, brttl, mod chlky ip, trc sh

LS: off wht, wht, gry lt gry, mcro-xln, frm hd, dns, mod chlky, sme brttl, trc chrt

LS: gry, lt gry, sme dk mcro-xln, frm/hd, dns



mod brttl, trc chrt

CHRT: blk, spkld, opq
hd, frct, vfn pyrt
imbd

LS: gry, lt gry, off wht
wht, mcro-xln, frm/hd
mod brttl, sme mod
chlky, v-clean

CHRT: blk, dk gry, spkld
opq, hd, frctd, vfn pyrt
imbd, lmy ip

LS: gry, dk gry, lt
gry, mcro-xln, hd
dns, mod brttl, sme
chlky ip, abdnt chrt

CHRT: blk, spkld, dk gry
opq, frm/hd, frctr, trc
vfn pyrt, lmy

LS: gry, dk gry, lt gry
off wht, mcro-xln, frm
hd, dns, mod chlky, sme
brttl, trc vfn pyrt
incr chrt, clean

SH: blk, dk brn, brn
blky, plty, fiss, frm
hd, rthy tex, calc, lmy
thru out, trc vfn pyrt
trc chrt

LS: gry, dk gry, lt gry
mcro-xln, frm/hd, dns
chlky, sme brttl, trc
chrt, trc sh

LS: off wht, wht, gry, lt
gry, mcro-xln, frm/hd
dns, brttle, chlky ip
trc chrt

CH: smky, drk gry, opque
transl, shrp-ang, v/hrd
tr brttle, sm lmy ip

LS: mott gry/off wht, lt
gry, bff, brn, drk brn
mcro xln, tr v/fn xln
dns, v/frm-mod hrd, sm
brttle, tr chlky, pred
silic thru out, tr
argill incl

WOB 16K
RPM 55
MRPM 56
PP 2063
SRM 91

WTIN 14.4
WTOUT 14.3
VIS 60
PH 10.5

FLOW DIVERTED TO INACCESSIBLE POSSUM BELLY

SH:blk,chrcl,drk gry
gry,blky,sm sbblky,frm
sm mod hrd,sm brttle
rthy txt,dll lustr,tr
slty ip,sm lmy ip,sm
v/fnly pyrtc

CH:smky,drk gry,drk brn
transl,spckld,shrp-ang
v/hrd,tr brttle

LS:off wht,gry,drk gry
drk brn,mcro xln,tr
v/fn xln,dns,frm-mod
hrd,sm v/hrd,brttle
pred silic thru out

SH:blk,drk gry,chrcl
gry,blky,sm sbblky,frm
sm mod hrd,brttle,rthy
txt,dll lustr,tr wxy
txt,sm slty ip,sm lmy
sm v/fnly-inly pyrtc

CH:transl,opque,smky
drk gry,blk,spckld
shrp-ang,v/hrd,tr
brttle

LS:mott gry/off wht.lt
gry,drk brn,mlky,mcro
xln,dns,v/frm-mod hrd
sm brttle,chrty thru
out,sm shly ip

SH:blk,chrcl,drk gry
gry,blky,sm sbblky
frm,sm mod hrd,brttle
rthy txt,dll lustr
sm lmy ip,tr silic ip
sm pyrtc incl

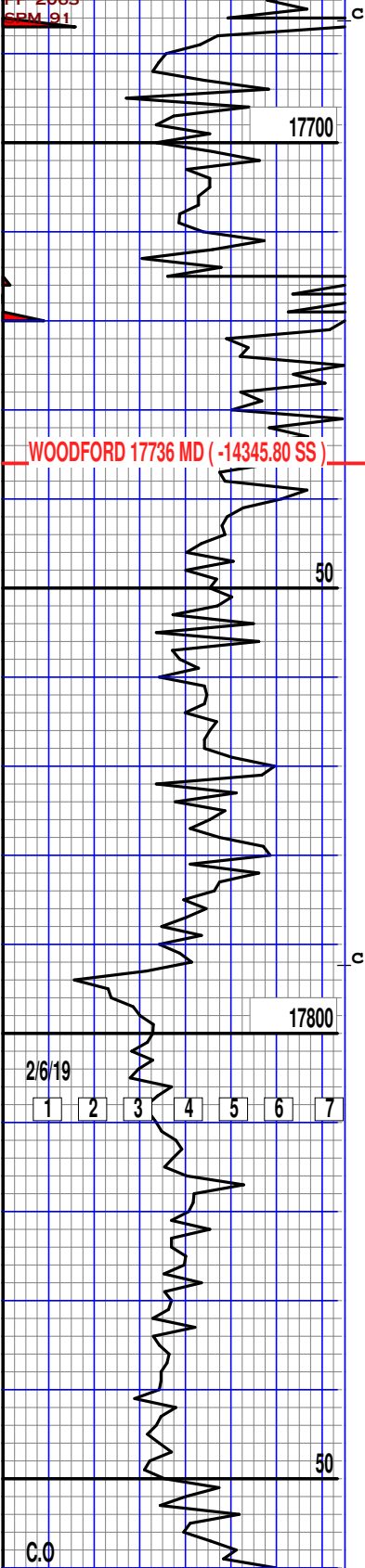
CH:transl,smky,opque
mlky,shrp-ang,v/hrd
tr brttle

SH:blk,chrcl,drk gry
gry,blky,sm sbblky,frm
sm mod hrd,brttle,rthy
txt,dll lustr,tr wxy
txt,sm lmy ip,tr
chrty incl,sm v/fnly
pyrtc

LS:wht,off wht,vfn xln
sft,sm chlky

DOLO:off wht,translu,tn
vfn xln,britt,frm

SH:blk,brn,dk gry,gry
sblky,plty,frm/hd,rthy
tex,calc,vfn pyrtc
clstrs,thru out,lmy ip



WOODFORD 17736 MD (-14345.80 SS)

DEVONIAN 17866 MD (-14475.80 SS)

SSV
JDN
2/7-13/19
7.5/8" LINER SET @ 17872'
NG #11 6 1/2" TXD713A7P(PDC)

250 500 1k 2k 3k 4k 5k

TRIP GAS:9160

&MM IN @ 17876'

c

17900

*NOTE SCALE CHANGE

1 2 3 4 5

WOB 19K
RPM 50
MRPM 40
PP 1610
SPM 64

DEV. 8.3° @ 17936'

50

c

18000

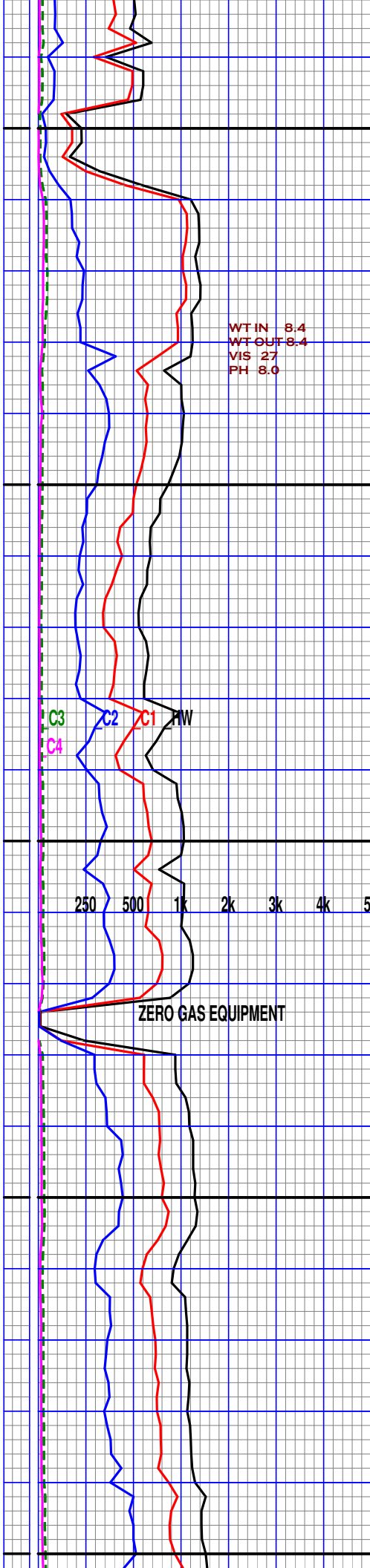
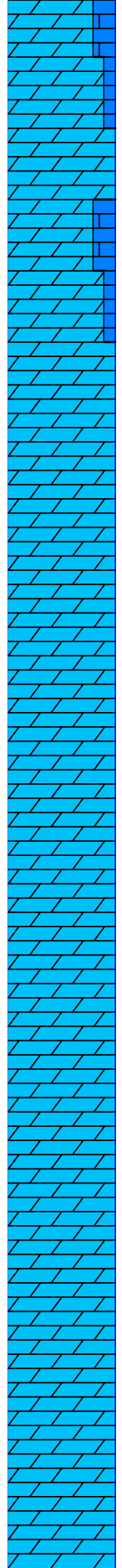
1 2 3 4 5

DEV. 0.7° @ 18025'

50

c

18100



DOLO:wht, mlky, transl
off wht, lt gry, v/fn
xln, sm mcro xln, mod
dns, frm, brittle, tr
silic ip

DOLO:wht, mlky, off wht
lt gry, opque, v/fn-mcro
xln, mod dns, frm, sm
mod hrd, sm brittle, sm
silic ip

LS: drk gry, gry, mlky, off
wht, mcro xln, tr v/fn
xln, mod dns, v/frm-mod
hrd, silic ip

DOLO:wht, off wht, transl
opque, mlky, v/fn-mcro
xln, mod dns, frm-v/frm
sm mod hrd, sm brittle
sm sli sucro ip

DOLO:wht, mlky, opque, off
wht, mcro-v/fn xln, mod
dns, v/frm, sm mod hrd
sm brittle, sm silic ip
sm sucro ip

DOLO:wht, mlky, off wht
opque, mcro xln, sm v/fn
xln, mod dns, frm-mod
hrd, sm brittle, sm
silic ip, sm sli sucro

DOLO:wht, off wht, mlky
opque, lt tn, mcro xln
tr v/fn xln, mod dns
frm-hrd, sm brittle, sm
silic ip

ZERO GAS EQUIPMENT

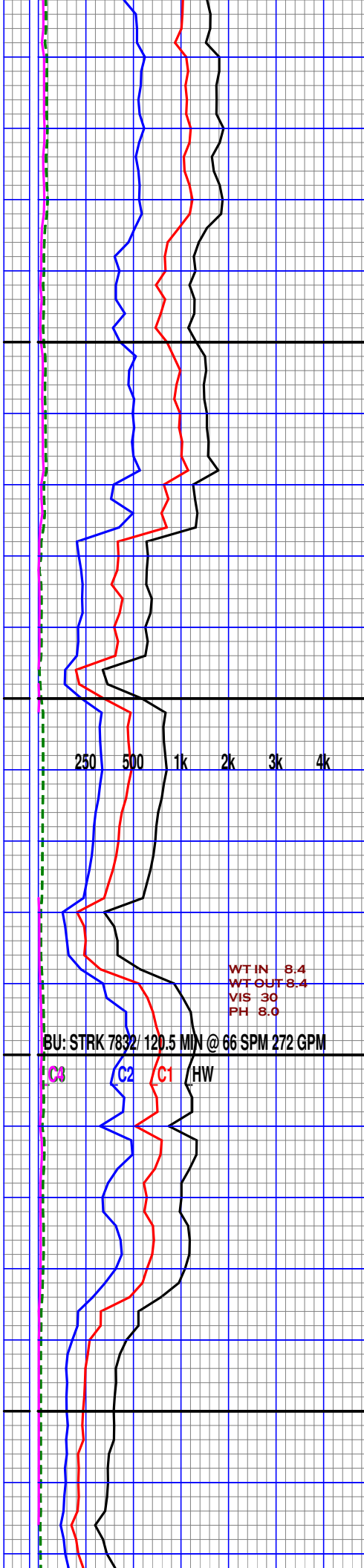
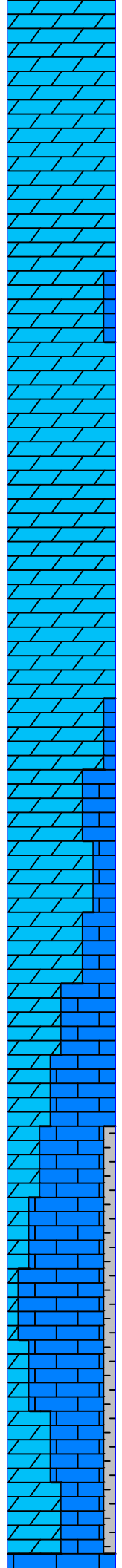
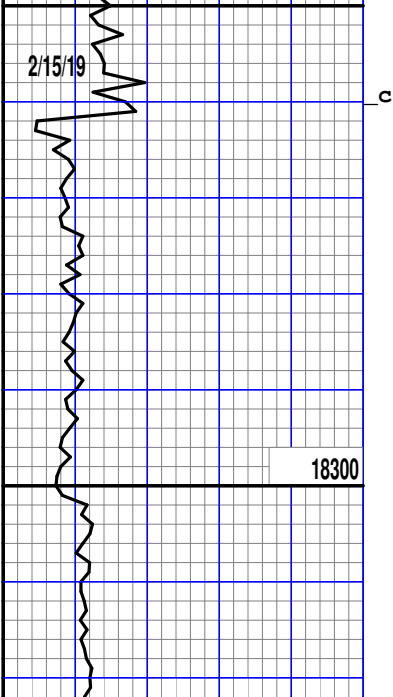
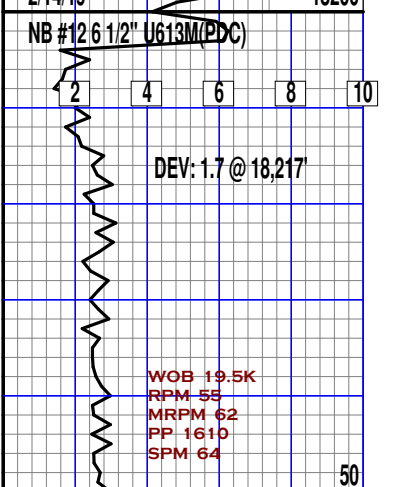
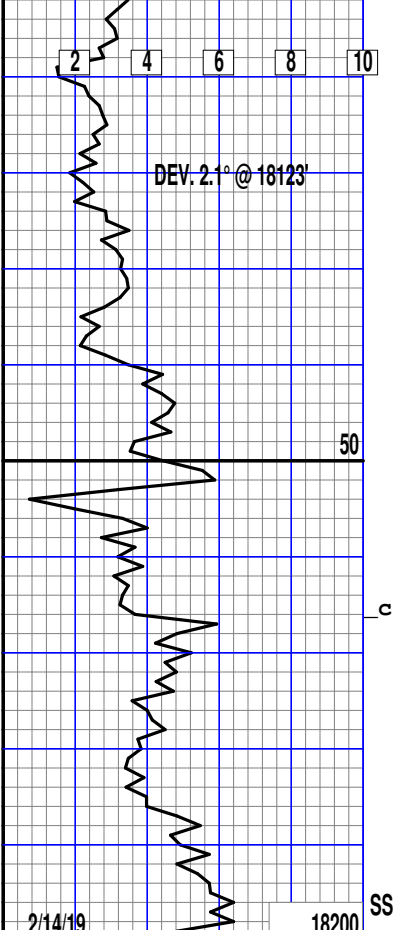
DOLO:wht, mlky, off wht
lt gry, opque, mcro-v/fn
xln, mod dns, hrd, sm
frm, sm brittle, sm silic
ip, sm sucro ip

DOLO:wht, opque, mlky, lt
gry, off wht, mcro-v/fn
xln, mod dns, v/frm, sm
mod hrd, sm brittle, sm
sucro ip

DOLO:wht, transl, opque
mlky, lt gry, mcro xln
tr v/fn xln, mod dns
v/frm-mod hrd, sm
brittle, sm silic ip
sm sli sucro ip

DOLO:wht, mlky, transl, lt
gry, opque, mcro-v/fn
xln, mod dns, frm, sm
mod hrd, sm brittle

WTIN 8.4
WTOUT 8.4
VIS 27
PH 8.0



sm silic ip, sucro ip

DOLO:wht,clr,off wht,lt gry,mlky,mcro xln,sm v/fn xln,mod dns,v/frm sm hrd,brttle,sucro ip sm lmy incl

LS:crm,tn,brn,off wht mcro xln,mod dns,frm sm brttle,silic ip sucro ip

DOLO:wht,mlky,frstd,off wht,opque,transl,mcro xln,sm v/fn xln,mod dns,frm-mod hrd,sm brttle,silic ip,sm sucro ip

DOLO:wht,transl,opque mlky,off wht,mcro-v/fn xln,mod dns,v/frm,sm mod hrd,sm brttle sucro ip

LS:off wht,lt gry,wht mlky,mcro-xln,vfn-xln frm/hd,dns,chlky,mod brttl,vfn pyrt clstrs thru out,mslty sucro

DOLO:wht,off wht,mlky vfn-xln,fn-xln,frm/hd chlky,dns,mstly sucro silic,vfn pyrt imbd lmy thru out

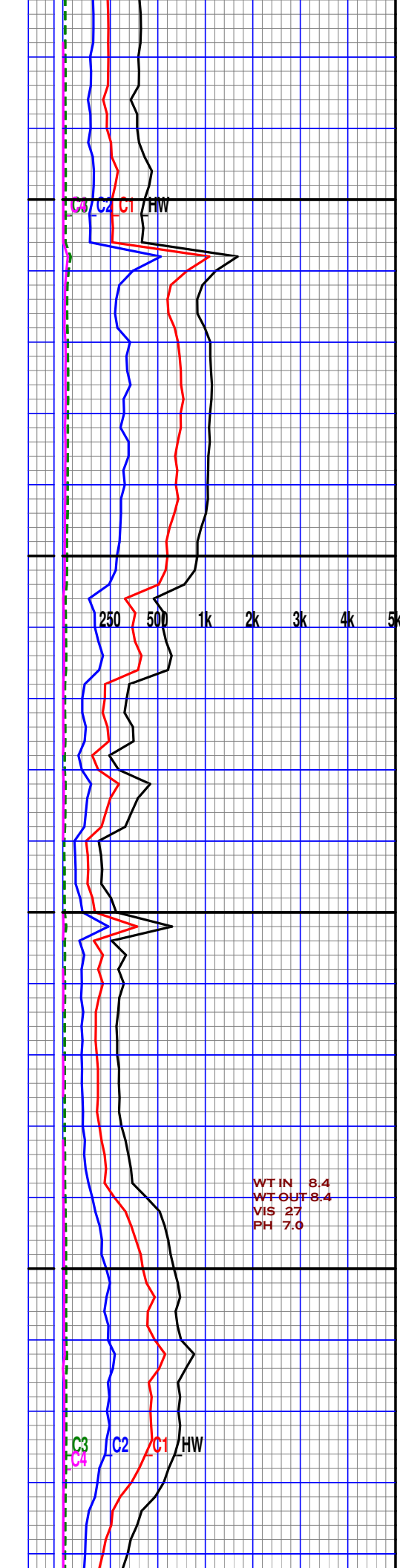
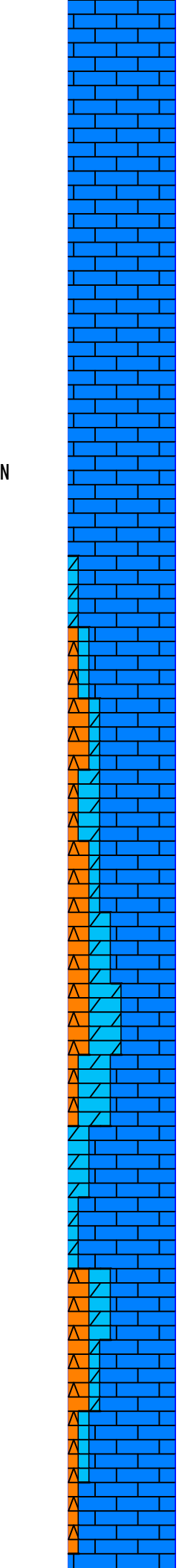
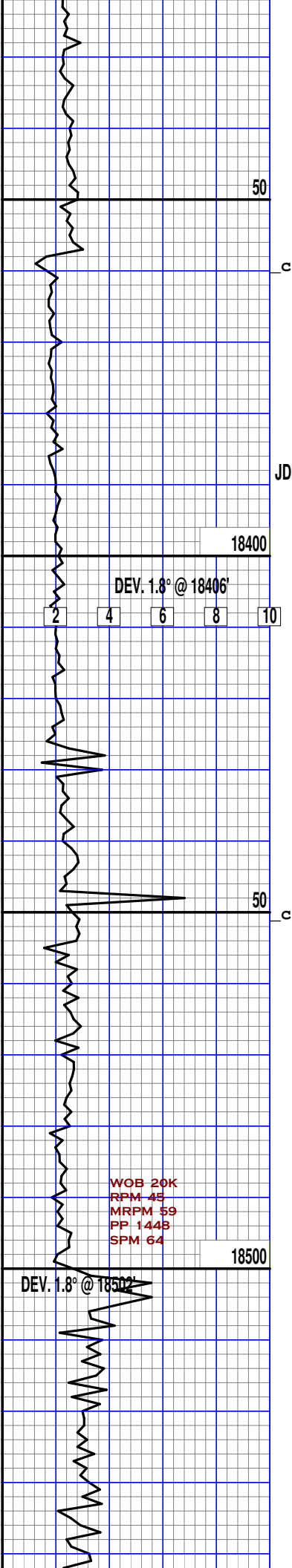
LS:lt brn,crme,off wht wht,mcro-xln,vf-xln sft/frm,dns,sme chlky brttl,trc chrt,sme vfn pyrt clstrs thru out mslty sucro

SH:blk,dk gry,gry,flky frm/hd,rthy tex,calc sme vfn pyrt imbd,lmy thru out

DOLO:wht,off wht,trnls mcro-xln,sft/frm,dns chlky,mod brttl,sucro ip,sme sh,abdnt lmy

LS:lt brn,crm,tn,off wht,mott,mcro-xln,sft frm,dns,chlky,mod brtt silic,vfn pyrt,sme sh sucro ip

SH:blk,dk gry,plty,flky frm/hd,rthy tex,calc



trc vfn pyrt imbd, lmy ip

LS: lt gry, wht, gry, off wht, mcro-xln, sft/frm dns, mod chlky, sme brttl, trc vfn pyrt, trc sh

LS: of wht, mlky, gry, lt gry, mcro-xln, sft/frm dns, chlky, brttl, mstly sucro, pyrtc ip

LS: lt gry, gry, off wht crm, mlky, mcr-xln, frm hd, dns, chlky, brttl, trc vfn pyrt, trc dolo

DOLO: off wht, lt gry, wht mlky, mcro-v/fn xln, mod dns, v/frm, sm brttle, tr chlky, sm silic ip, sm sli sucro ip

CH: brn, drk brn, spckld transl, frstd, shrp-ang v/hrd, sm brttle, sm lmy ip

LS: mott crm/off wht, brn lt gry, mlky, mcro-v/fn xln, mod dns, frm, sm mod hrd, sm brttle, sm chrty ip, sm sli sucro ip

DOLO: wht, mlky, transl opque, v/fn-mcro xln mod dns, frm-v/frm, sm brttle, sm sucro ip

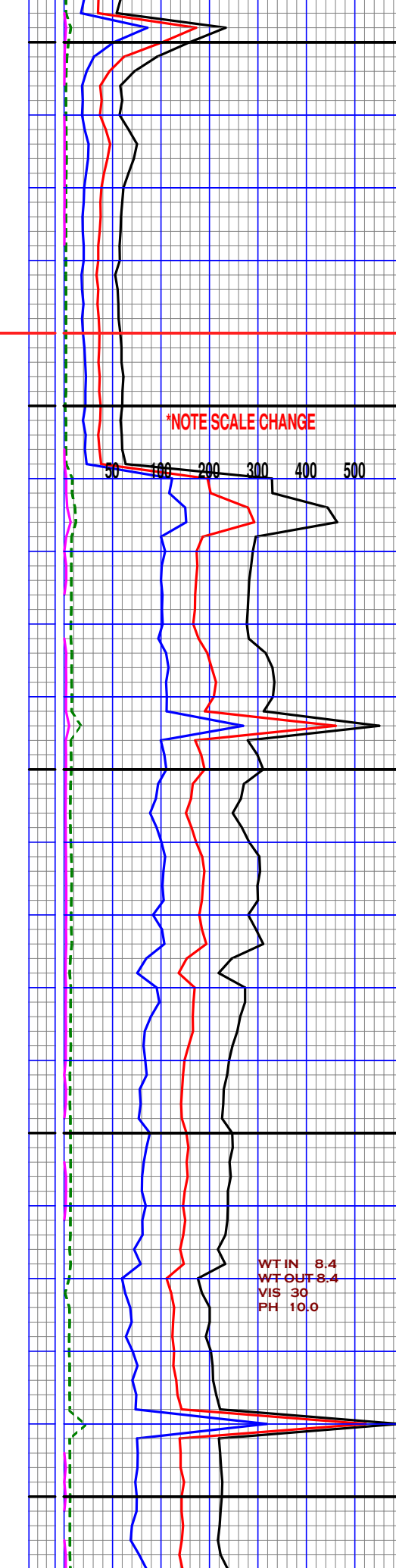
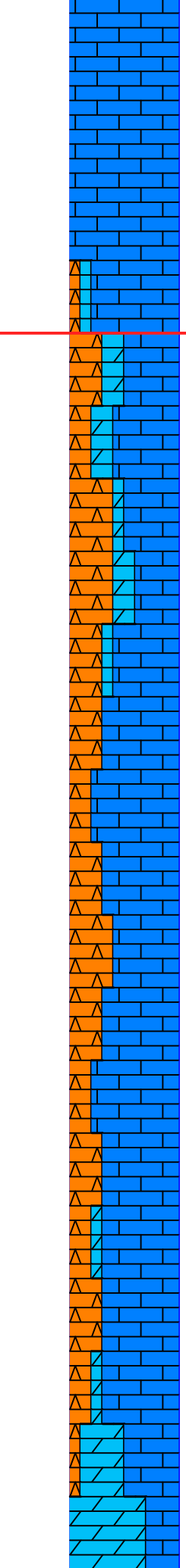
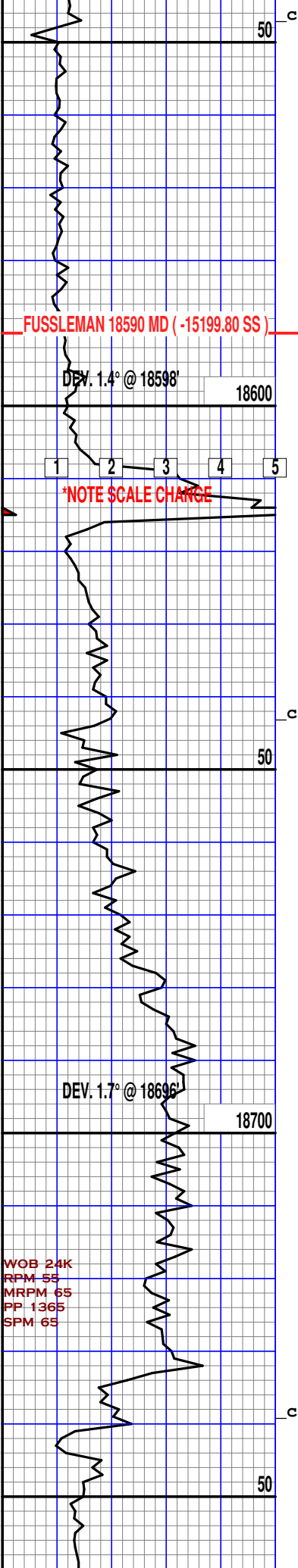
LS: brn, crm, gry, mlky, tn drk brn, mcro xln, sm v/fn xln, mod dns, v/frm sm hrd, sm brttle, sm silic ip

CH: drk brn, smky, mlky transl, spckld, shrp-ang v/hrd, tr brttle, sm lmy ip

DOLO: mlky, wht, off wht clr, transl, v/fn xln, sm mcro xln, mod dns, frm sm mod hrd, sm sli sucro ip

WOB 20K
RPM 45
MRPM 59
PP 144B
SPM 64

WTIN 8.4
WTOUT 8.4
VIS 27
PH 7.0



LS:wht, off wht, mlky, lt brn, crm, lt gry, mcro xln, sm v/fn xln, mod dns, frm, sm mod hrd, brttle, sm sucro ip tr chrty ip

LS:mott brn/off wht, crm tn, lt gry, mcro xln, sm v/fn xln, mod dns, frm sm mod hrd, sm brttle sm silic ip

CH:smky, opque, mlky, clr transl, spckld, shrp-ang v/hrd, tr brttle, sm lmy ip

*NOTE SCALE CHANGE

DOLO:wht, off wht, mlky clr, v/fn-mcro xln, mod dns, frm-v/frm, sm mod hrd, brttle, sm lmy ip

LS:lt brn, lt gry, mlky wht, off wht, crm, mcro xln, sm v/fn xln, mod dns, frm-mod hrd, sm brttle, sm chrty incl

CH:mlky, clr, opque, wht trnsal, shrp-ang, v/hrd tr brttle, tr lmy ip

LS:lt gry, mlky, off wht crm, wht, tn, mcro-v/fn xln, mod dns, v/frm, sm hrd, sm brttle, sm silic ip

CH:clr, mlky, opque, frstd transl, spckld, shrp-ang v/hrd, tr brttle, tr lmy ip

LS:off wht, mlky, lt gry frstd, wht, mcro xln, sm v/fn xln, mod dns, frm sm mod hrd, brttle, sm chrty ip

DOLO:wht, off wht, mlky clr, opque, v/fn xln, sm mcro xln, mod dns, frm sm mod hrd, sm brttle sm silic ip, sm sli sucro ip

LS:mlky, off wht, lt gry lt brn, crm, mcro xln dns, frm, sm mod hrd tr brttle, chrty ip

WOB 24K
RPM 55
MRPM 65
PP 1365
SPM 65

DEV. 1.8° @ 18789'

18800

1 2 3 4 5

2/16/19

c

50

DEV. 1.7° @ 18882'

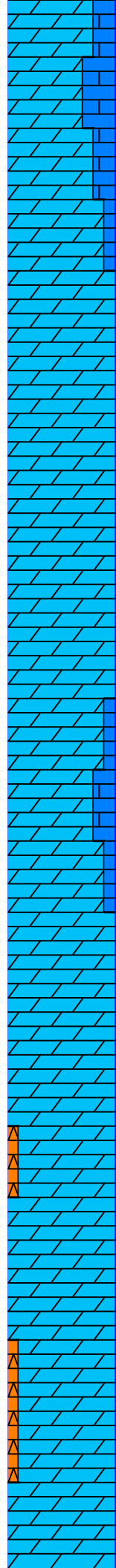
18900

c

50

DEV. 1.1° @ 18980'

SSV



C3
C4
C2
C1
FW

50 100 200 300 400 500 1k

DOLO:wht,mlky,clr,off
wht,opque,v/fn-mcro
xln,mod dns,v/frm,sm
hrd,sm brttle,sm silic
ip,sm sucro ip

LS:lt gry,off wht,wht
lt brn,mcro xln,dns
v/frm-mod hrd,sm
silic ip,sm sli sucro
ip

DOLO:wht,off wht,mlky
transl,opque,v/fn xln
sm mcro xln,mod dns
frm,sm mod hrd,sm
brttle,sm chrty ip

DOLO:mlky,wht,clr,off
wht,transl,v/fn-mcro
xln,md dns,v/frm-mod
hrd,sm brttle,sm
silic ip,sm sucro ip

LS:brn,gry,lt gry,tn
crm,mcro xln,dns,v/frm
sm hrd,pred silic thru
out,tr brttle

DOLO:wht,opque,mlky,clr
off wht,transl,v/fn
xln,sm mcro xln,mod
dns,frm-mod hrd,sm
brttle,sm chrty ip,sm
sli sucro ip

DOLO:mlky,wht,transl
opque,v/fn-mcro xln
mod dns,v/frm,sm mod
hrd,brttle,sm silic
ip

CH:brn,spckld,lt brn
crm,transl,shrp-ang
v/hrd,tr brttle,sm
lmy ip

DOLO:wht,opque,transl
clr,mlky,v/fn xln,sm
mcro xln,mod dns,frm
sm hrd,sm brttle,sm
chrty incl,sm sli
sucro ip

CHRT:blk,dk,gry,opq
cln,mod spkld,vfn
pyrt,mod lmy

RPM 59
MRPM 66
PP 1525
SPM 66

WT 8.4
VIS 29
PH 10.0

19000

1 2 3 4 5

c

50

DEV: 1.9 @ 19,073'

19100

c

50

DEV: 1.4 @ 19,169'

19200

50 100 200 300 400 500 1K

C3 C2 C1 HW

DOLO:clr,off wht,mlky
wht,mcro-xln,frm/hd
mod chky,brttl,trc
vfn pyrt,lmy ip

DOLO:wht,mlky,off wht
mcro-xln,frm/hd,mod
chlky,sme brttl,sucro
lmy ip,trc vfn pyrt

DOLO:wht,clr,sme mlky
mcro-xln,frm/hd,dns
sme chlky,sme brttl
lmy ip,trc chrt.trc
sh

DOLO:wht,clr,mlky
off wht,mcro-xln
frm/hd,dns,mod chlky
sme brttl,sucro,trc
vfn pyrt,trc chrt
lmy ip

DOLO:wht,off wht,mlky
mcro-xln,frm/hd,dns
brttl,sme chlky,trc
slty,lmy ip,trc vfn
pyrt

DOLO:clr,wht,off wht
mcro-xln,frm/hd,dns
brttl,mod chlky,sucro
vfn pyrt ip,trc lmy
trc pyrt

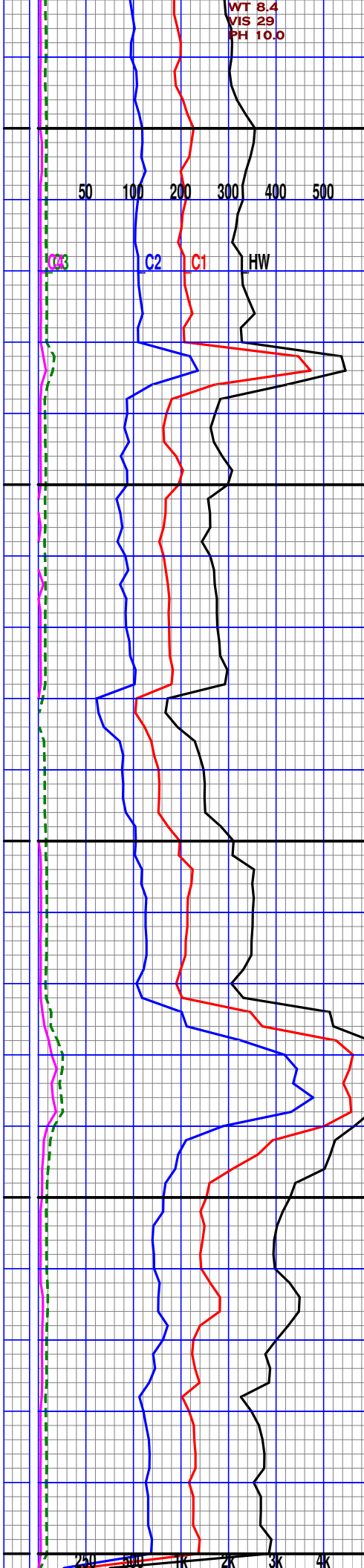
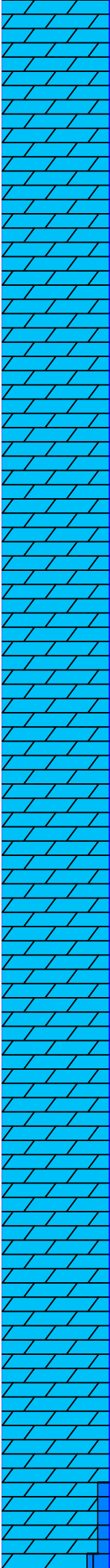
DOLO:off wht,wht,clr
mlky,mcro-xln,brttl
chlky,sucro,lmy ip
trc chrt,trc vfn pyrt

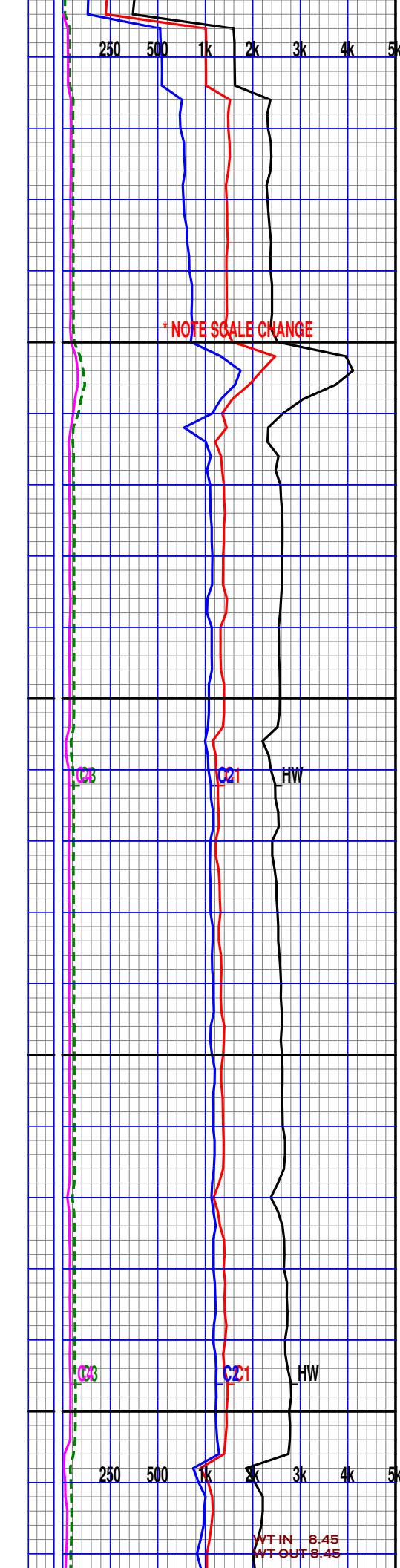
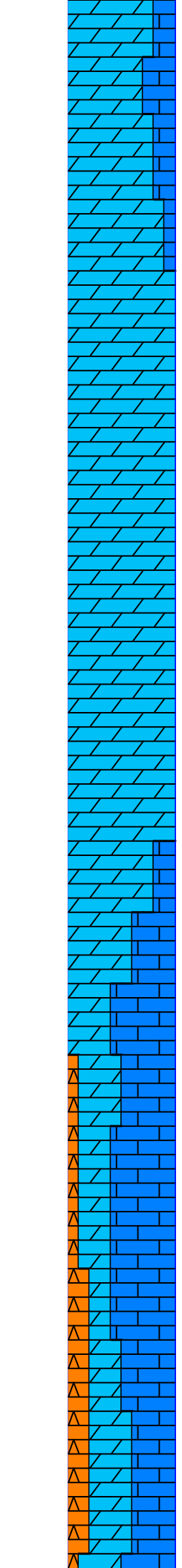
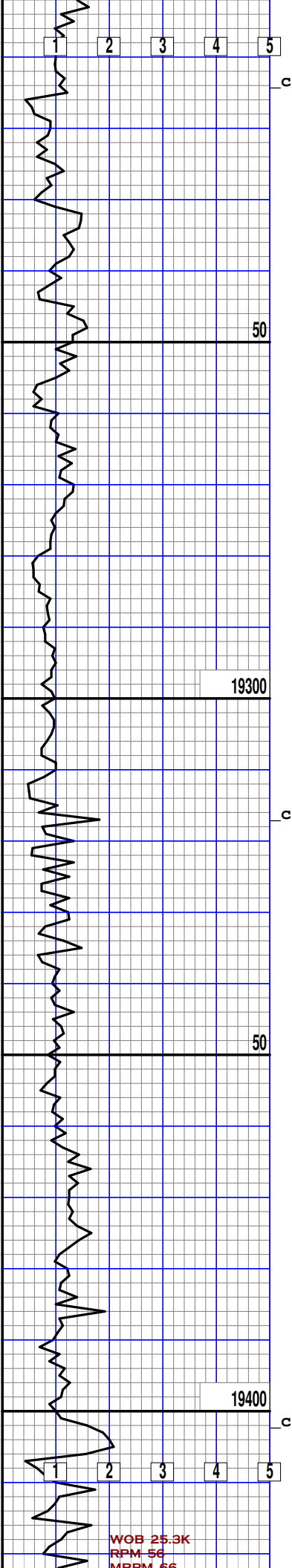
DOLO:wht,off wht,trns1
mcr-xln,frm/hd,dns
sucro thru out,trc
chrt,trc lmy

DOLO:wht,clr,off wht
mcro-xln,frm/hd,dns
sucro thru out,trc lmy
trc vfn pyrt,trc chrt

DOLO:off wht,trns1,wht
mlky,mcro-xln,frm/hd
dns,sucro,trc lmy,trc
chrt,vfn pyrt thru out

LS:ly brn,crm,lt gry
mcro-xln,frm/hd,dns





mod brttl, sme chlky
aren, vfn pyrt thru out
abdnt dolo, trc chrt

DOLO: off wht, wht, clr
mlky, mcro-xln, frm/hd
dns, sucro, lmy ip
trc vfn pyrt, trc chrt

DOLO: wht, off wht, mlky
trns1, mcro-xln, vfn
xln, frm/hd, dns, brttl
mod chlky, sucro, trc
lmy, trc chrt, vfn pyrt
thru out

DOLO: wht, off wht, trns1
sme mlky, mcro-xln, frm
hd, dns, mod chlky, sme
brttl, sucro, trc vfn
pyrt thru out, trc lmy
trc chrt

DOLO: wht, off wht, clr
sme mlky, mcro-xln, frm
hd, dns, mod chlky, sme
brttl, sucro, trc vfn
pyrt, trc chrt

LS: tn, crm, lt gry, trns1
mcro-xln, vfn-xln, frm
hd, dns, brttl, mod chlky
aren, trc vfn pyrt, abdnt
dolo thru out, trc chrt

DOLO: wht, off wht, clr,
mlky, mcro-xln, vfn-xln,
frm/hd, dns, brttl, sme
chlky, sucro, trc vfn
pyrt, trc chrt, abdnt
lmy thru out

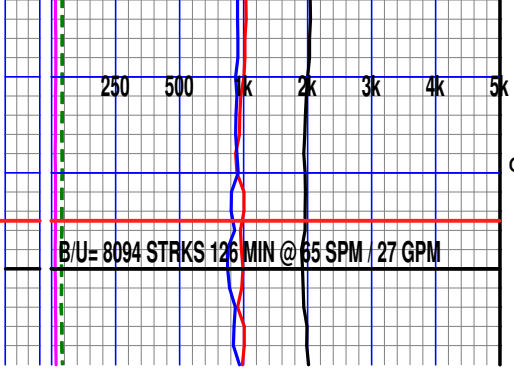
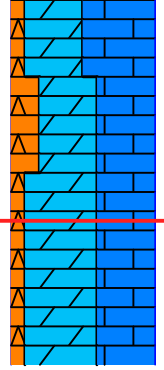
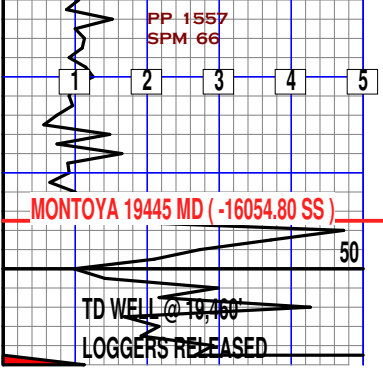
CHRT: lt brn, crm, trns1
blk, sme spkld, trc vfn
pyrt, lmy ip

DOLO: off wht, wht, lt gry
mcro-xln, fn-xln, frm/hd
dns, mod chlky, sme
brttl, sme vfn chrt
abdnt lm thru out, trc
vfn pyrt

LS: off wht, lt gry, gry
mcro-xln, frm/hd, dns
brttl, mod chlky, aren
trc vfn pyrt, abdnt

WOB 25.3K
RPM 56
MPRM 66

WTIN 8.45
WTOUT 8.45



dolo thru out

CHRT:tn,crme,trns1
blk,mod cin,sme spkld
lmy ip,vfn pyrt imbd