



RESERVOIR GROUP

Scale: 5" / 100'
Measured Depth Log

Well Name Cosslett 1D-22H-B168

Location Sec. 22 T1N R68W

State Colorado

County Weld

Country USA

Rig Number Ensign 140

API Number 05123476770000

AFE # 16191459

Geographic Region Rockies

Field Wattenberg

Spud Date 1/17/2018

Drilling Completed 1/22/2019

Surface Coordinates Lat/Long: 40.041391/-104.987976
SHL: Sec. 22 T1N R68W
Footage: 925 FNL 2220 FEL

Bottom Hole Coordinates Proposed BHL: Sec. 27 T1N R68W
Footages: 460 FFSLL 1950 FFELL

Ground Elevation 5,174'

K.B. Elevation 5,197'

Logged Interval 6,900' **To** 17,524'

Total Depth 17,524'

Formation B Chalk

Type of Drilling Fluid Synthetic Oil Based Mud

Operator

Company Crestone Peak Resources

Address 1801 California Street, Suite 2500
Denver, CO 80202



CRESTONE PEAK

CRESTONE PEAK RESOURCES

Geologist

Name John Ready

Company Crestone Peak Resources

Address 1801 California Street, Suite 2500
Denver, CO 80202



CRESTONE PEAK
RESOURCES

Zone Color Coding

Oil	Condensate	Gas
Note	Core	Pressure
Error	Water	Seal

Other

Loggers: Nicholas Watkins / Brian Ferwerda

Services Provided: 2-Man Mudlogging / Geosteering

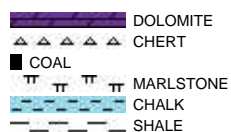
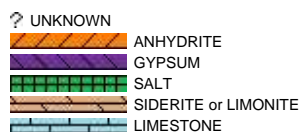
Equipment: ML-522

Contractor: Empirica, Reservoir Group
6360 West Sam Houston Pkwy N
Houston, TX 77041

Service Start Date: 1/18/2019

Release Date: 1/24/2019

Rock Types



Accessories

Fossils

- ALGAE
- AMPHIPORA
- BELEMNITE
- BIOCLASTIC
- BRACHIOPOD
- BRYOZOA
- CEPHALOPOD
- CORAL
- CRINOID
- ECHINOID
- FISH
- FORAMINIFERA

F FOSSIL

- GASTROPOD
- OOLITE
- OSTRACOD
- PELECYPOD
- PELLET
- PISOLITE
- PLANT REMAINS
- PLANT SPORES
- SCAPHOPOD
- STROMATOPOROID

Minerals

- ANHYDRITIC

ARGILLACEOUS

- ARGILLITE GRAIN
- BENTONITE
- BITUMENOUS SUBSTANCE
- BRECCIA FRAGMENTS
- CALCAREOUS
- CARBONACEOUS FLAKES
- CHTDK
- CHTLT
- COAL - THIN BEDS
- DOLOMITIC
- FELDSPAR
- FERRUGINOUS PELLET
- FERRUGINOUS

GLAUCONITE

- GYPSIFEROUS
- HEAVY MINERAL
- KAOLIN
- MARLSTONE
- MINERAL CRYSTALS
- NODULES
- PHOSPHATE PELLETS
- PYRITE
- SALT CAST
- SANDY
- SILICEOUS
- SILTY
- TUFFACEOUS

Stringer

- ANHYDRITE STRINGER
- BENTONITE STRINGER
- COAL STRINGER
- DOLOMITE STRINGER
- GYPSUM STRINGER
- LIMESTONE STRINGER
- MARLSTONE (CALC) STRG
- MARLSTONE (DOL) STRG
- SANDSTONE STRINGER
- SHALE STRINGER
- SILTSTONE STRINGER

Other Symbols

Oil Show

- DEAD
- EVEN
- QUESTIONABLE
- SPOTTED STAINING

Porosity

- EARTHY
- FENESTRAL
- FRACTURE
- INTERCRYSTALLINE
- INTEROOLITIC
- MOLDIC

- ORGANIC
- PINPOINT
- VUGGY

Engineering

- BIT
- CASING
- CONNECTION (LEFT)
- CONNECTION (RIGHT)
- CONNECTION GAS
- CORE - LOST
- CORE - RECOVERED
- DST INTERVAL
- FAULT

- FORMATION TOP
- GAS SHOW
- MN DEPTH
- NORMAL FAULT
- OIL SHOW
- OVERTURNED STRATA
- REVERSE FAULT
- SIDEWALL CORE (LEFT)
- SIDEWALL CORE (RIGHT)
- SLIDE
- SURVEY
- TRIP GAS
- WIRELINE TESTED - LEFT
- WIRELINE TESTED - RT

Rounding

- ANGULAR
- ROUNDED
- SUBANG
- SUBRND

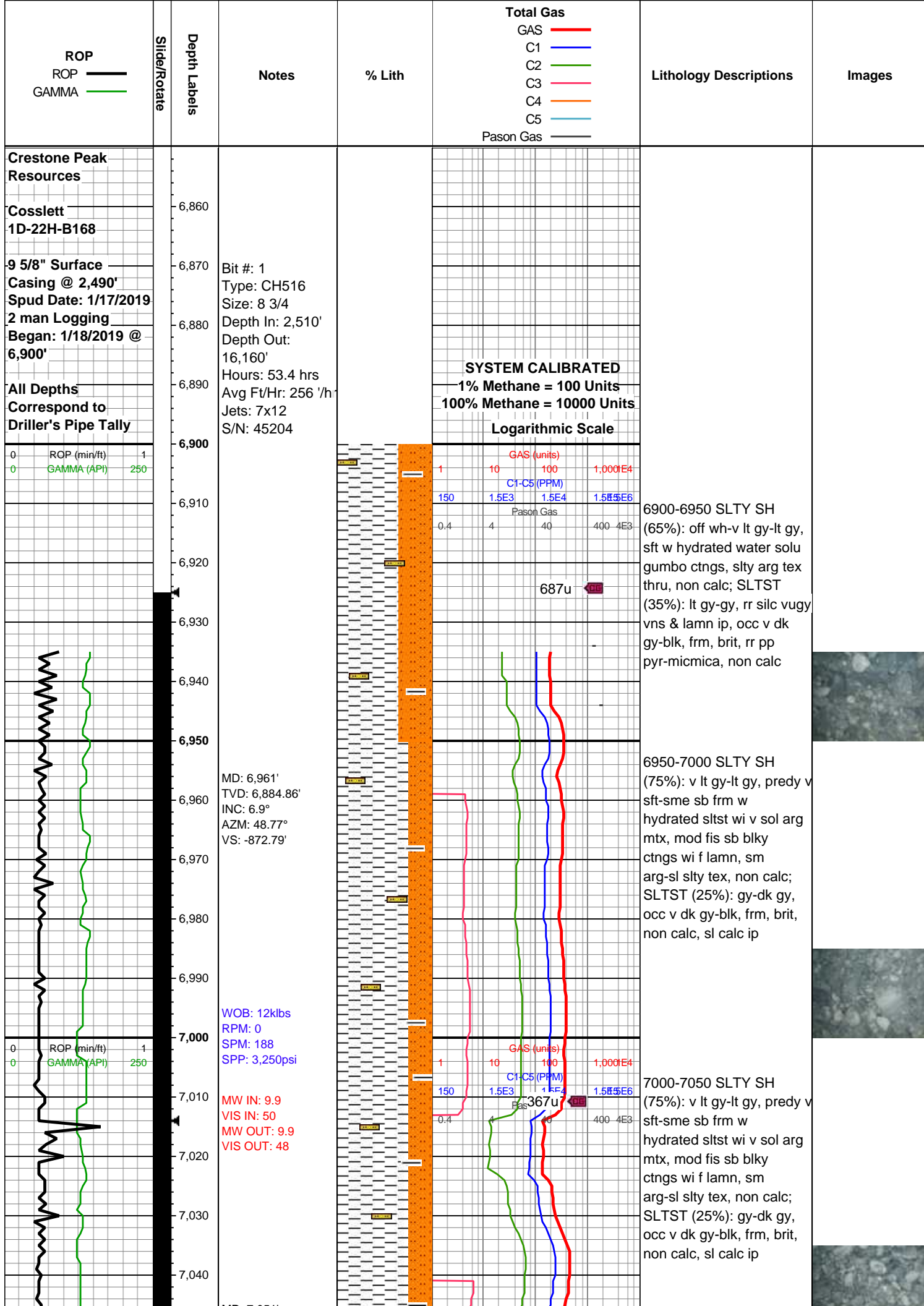
Textures

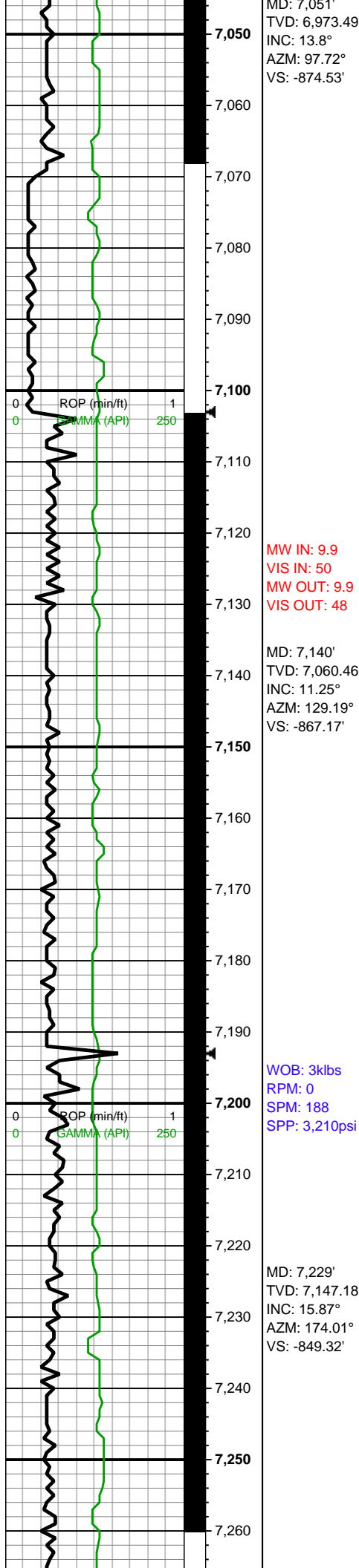
- BOUNDSTONE
- CHALKY
- CRYPTOXLN
- EARTHY
- FINELYXLN
- GRAINSTONE

- LITHOGRAPHIC
- MICROXLN
- MUDSTONE
- PACKSTONE
- WACKESTONE

Sorting

- MODERATE
- POOR
- WELL





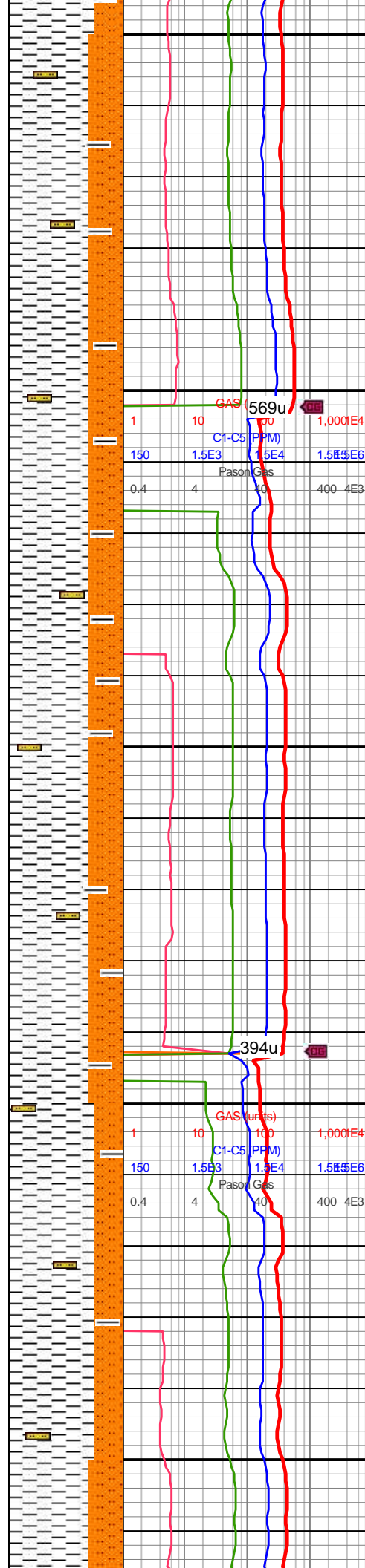
MW IN: 9.9
VIS IN: 50
MW OUT: 9.9
VIS OUT: 48

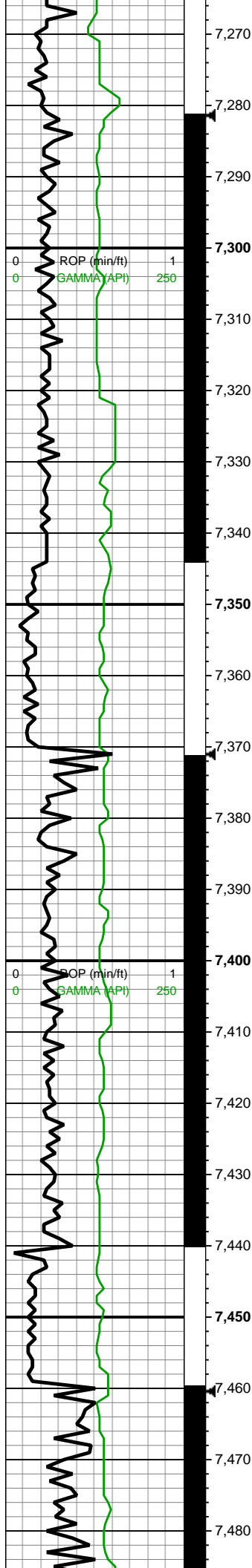
7050-7100 SLTY SH
(70%): v lt gy-lt gy, predy v
sft w hydrated v arg sltst,
sme sb frm, mod fis sb
blky ctngs wi f lamn, rr
bent, sm arg-sl slty tex,
non calc; SLTST (30%):
gy-dk gy, occ v dk gy-blk,
frm, brit, non calc, sl calc
ip

7100-7150 SLTY SH
(70%): off wh-v lt gy-lt gy,
sft w hydrated water solu
gumbo ctngs, slty arg tex
thru, non calc; SLTST
(30%): lt gy-gy, occ v dk
gy, frm, brit, rr pp
pyr-micmica, non calc

7150-7200 SLTY SH
(70%): v lt gy-lt gy, lt
gyshbn-tn ip, v sft w
hydrated v arg sltsy, sme
sb frm grdg to sltst,
slty-sdy ip, mod fis sb
blky ctngs wi f lamn, sm
arg-sl slty tex, non calc;
SLTST (30%): gy-dk gy,
occ v dk gy-blk, slty-sdy
ip, frm, brit, non calc, sl
calc ip

7200-7250 SLTY SH
(75%): v lt gy-lt gy-lt
gyshbn, predy v sft-sme
sb frm w hydrated sltst wi
v sol arg mtx, mod fis sb
blky ctngs wi f lamn, sm
arg-sl slty tex, non calc;
SLTST (25%): gy-dk gy,
occ v dk gy-blk, frm, brit,
non calc, sl calc ip



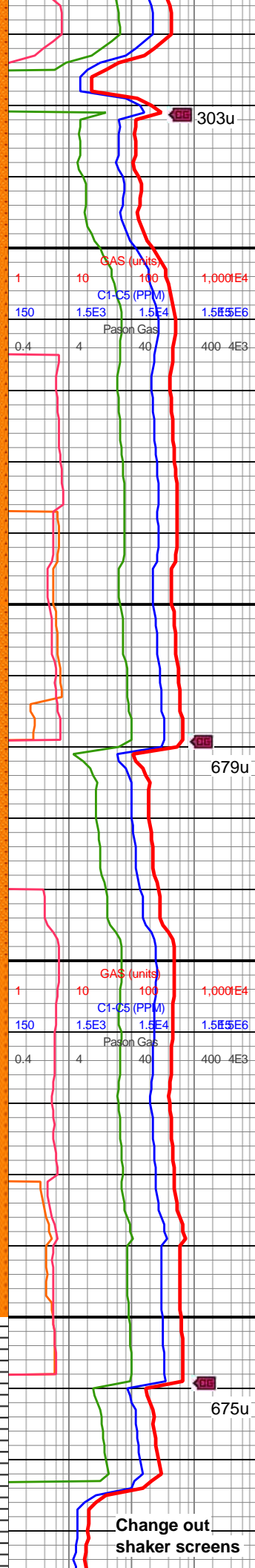


MW IN: 9.9
VIS IN: 50
MW OUT: 9.85
VIS OUT: 48

MD: 7,318'
TVD: 7,231.21'
INC: 22.55°
AZM: 185.09°
VS: -820.19'

WOB: 9.3klbs
RPM: 0
SPM: 187
SPP: 3,239psi

MD: 7,408'
TVD: 7,312.55'
INC: 28.04°
AZM: 186.67°
VS: -782.08'



7250-7300 SLTY SH
(70%): lt gy-gy, predy v sft
w hydrated v arg sltst,
sme sb frm, mod fis sb
blky ctngs wi f lamn, sm
arg-sl slty tex, non calc;
SLTST (30%): gy-dk gy,
occ v dk gy-blk, frm, brit,
non calc, rr calc ip

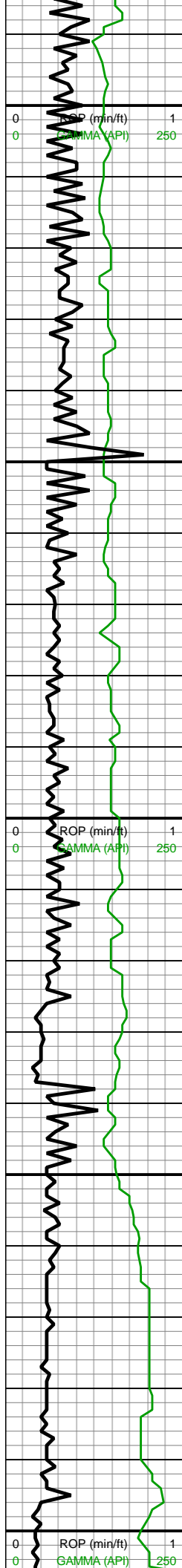
7300-7350 SLTY SH
(65%): med gy-lt gy,
gyshbn ip, mot lt gy,
frm-sl brit, sb plty-sb blky,
thnly lam, non calc;
SLTST (35%): dk gy-med
gy, blky-sb tab, frm, slty-sl
sm tex, non calc

7350-7400 SLTY SH
(80%): med gy-gyshbn,
com lt gy, frm-sl brit, sb
plty-sb blky, v f lam, non
calc; SLTST (20%): dk
gy-med gy, blky-sb tab,
frm, slty-sl abrsv tex, non
calc

7400-7450 SLTY SH
(85%): gy-dk gy, frm, brit,
mod fis, sb blky-blky, wh
silc vn ip, rr tn bent, mod
calc; SLTST (15%): gy-dk
gy, frm-brit, sb plty-plty,
occ v dk gy wi vugy silc
vn, tr vf pyr, non calc

7450-7500 SLTY SH
(100%): gyshbn-med gy,
mot lt gy, lam dk brn,
blky-sb tab ctngs, sl

Change out
shaker screens



MD: 7,497'
TVD: 7,388.31'
INC: 35.16°
AZM: 183.77°
VS: -735.79'

MW IN: 9.9
VIS IN: 50
MW OUT: 9.9
VIS OUT: 49

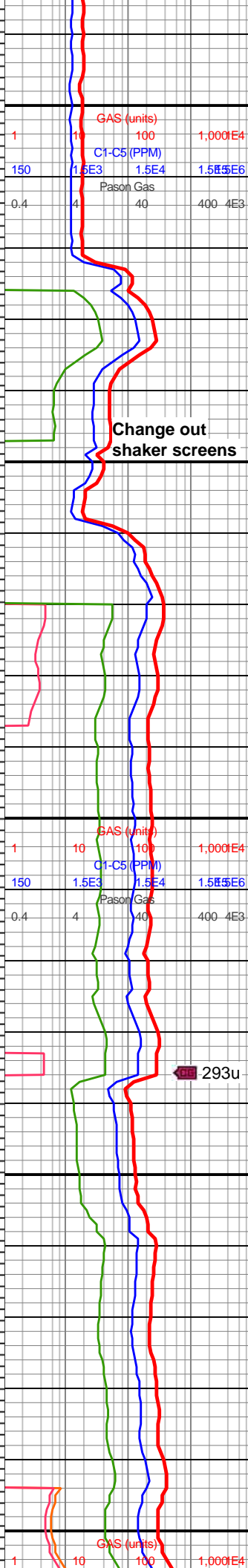
MD: 7,586'
TVD: 7,456.15'
INC: 45.36°
AZM: 179.9°
VS: -678.46'

WOB: 23.6klbs
RPM: 0
SPM: 187
SPP: 3,119psi

MD: 7,675'
TVD: 7,513.28'
INC: 54.68°
AZM: 184.47°
VS: -610.52'

MW IN: 9.8
VIS IN: 50
MW OUT: 9.8
VIS OUT: 47

Sharon Springs
7652'MD/7500'TVD



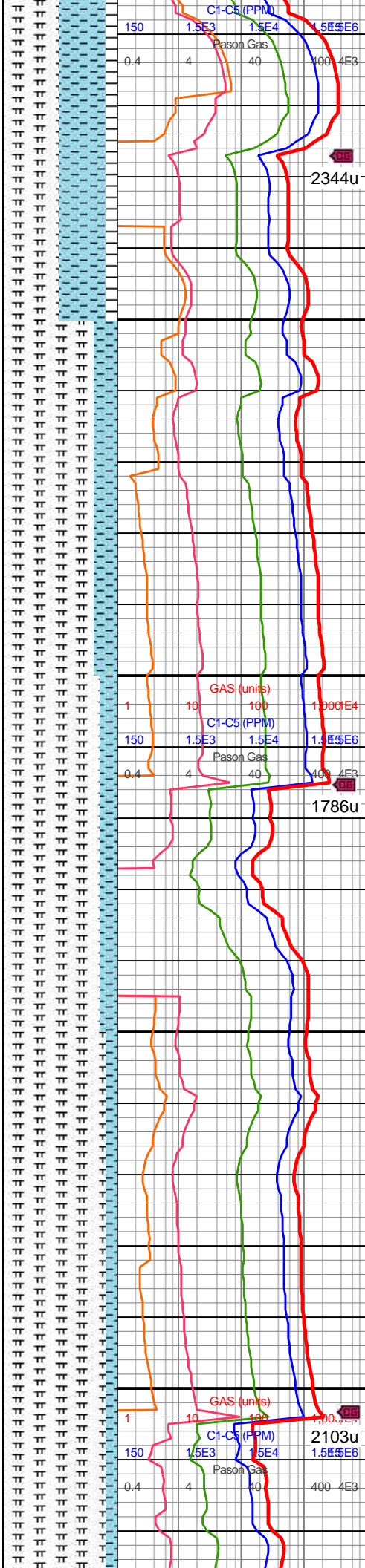
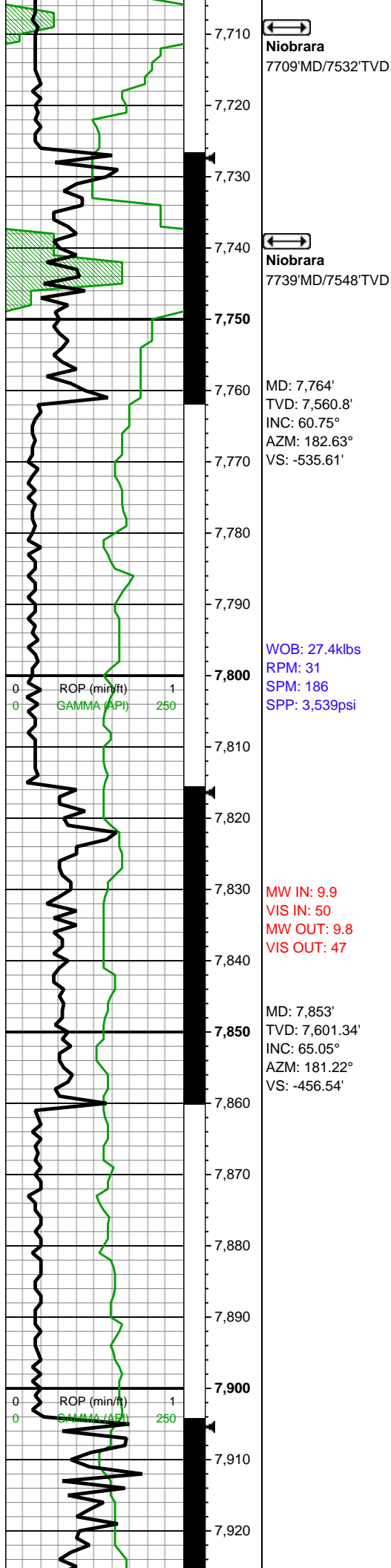
frm-frm, stri, vf lam, sl slty
tex, sl micmica, non-sl
calc, mn timerbd/dissm
mic pyr

7500-7550 SLTY SH
(100%): med gy-gyshbn,
mot lt gy, frm-v frm, brit ip,
sm-sl slty tex, sb plty-sb
blky, non calc

7550-7600 SLTY SH
(100%): gyshbn-med gy,
mot lt gy, lam dk brn,
blky-sb tab ctngs, sl
frm-frm, stri, vf lam, sl slty
tex, sl micmica, non-sl
calc, mn timerbd/dissm
mic pyr

7600-7650 SLTY SH
(100%): med gy-gyshbn,
occ lt gy thn lamn, sb
frm-frm, mod fis sb rd-sb
blky-blky-tab ctngs, sm
arg-slty tex, wxy lstr, non
calc

7650-7700 SLTY SH
(100%): med-dk gy, occ lt
gy, dk bnshgy, frm-v frm,
sb plty, pred non calc,
sm-v f slty tex, occ diss
pyr



7700-7750 MRLST
(50%): dk gy-dk gyshbn, sb blk-y-splt ctngs, sl hd, brit, mn'r chk intbds, tr diss mic pyr, sl calc; CHK (40%): med gy-gyshbn, mot, sb blk-y-sb tab ctngs, sl frm-frm, brit, mn'r vf lam, sl calc; SH (10%): gy-dk gy, frm, brit, mod fis, sb blk-y-blky, wh silc vn ip, sl calc

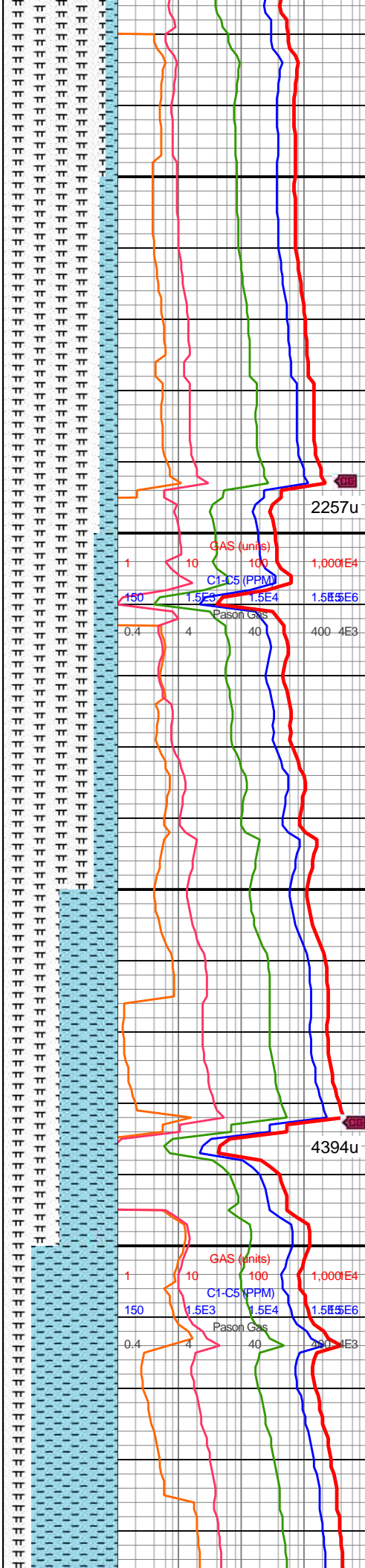
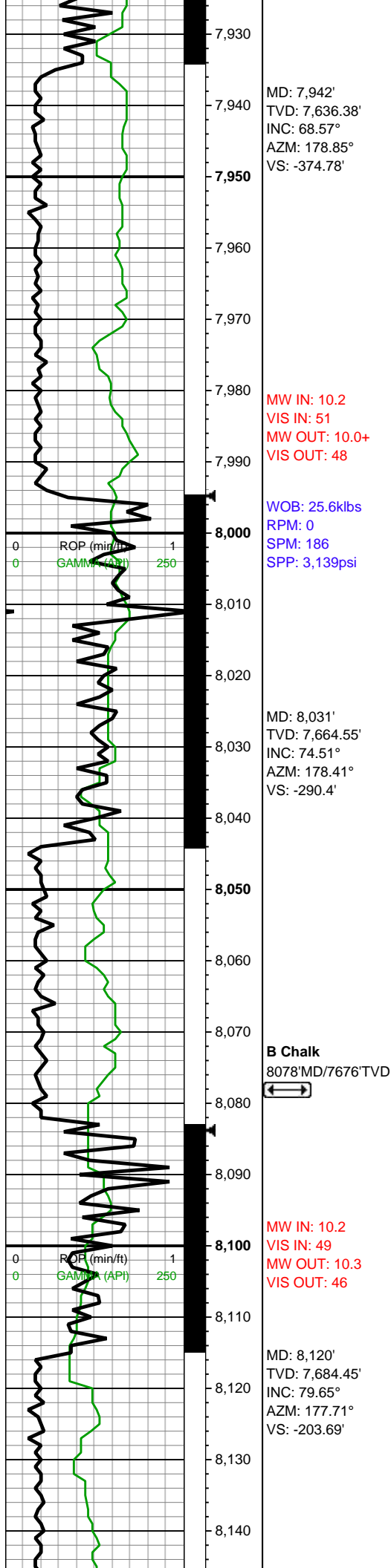
77750-7800 MRLST
(80%): dk gy, frm, brit, mod fis sb blk-y-blky-sb plty ctngs, sl slty tex, rr-occ vf pyr, mod calc wi brn mrly resdl' CHK (20%): dk gy wi f wh chky incl, occ lt gy, sb frm-frm, sb rd-sb blk-y l-mod fis ctngs, hi calc

7800-7850 MRLST
(85%): dk gy-dk gyshbn, sb frm-frm-brit mod fis sb blk-y-blky ctngs, sl hd, brit, tr bent, tr vf pyr, mod calc; CHK (15%): med gy-gyshbn, mot, sb blk-y-sb tab ctngs, sl frm-frm, hi calc

7850-7900 MRLST
(90%): v dk gy-dk gyshbn ip, frm-v frm, blk-y, v calc, rgh tex, mot-stri, sme fy lam, tr pp pyr; CHK (10%): dk gy-brn, com lt gy-mot, blk-y, sft, fri, chky tex, occ stri

7900-7950 MRLST
(90%): dk gy-dk gyshbn





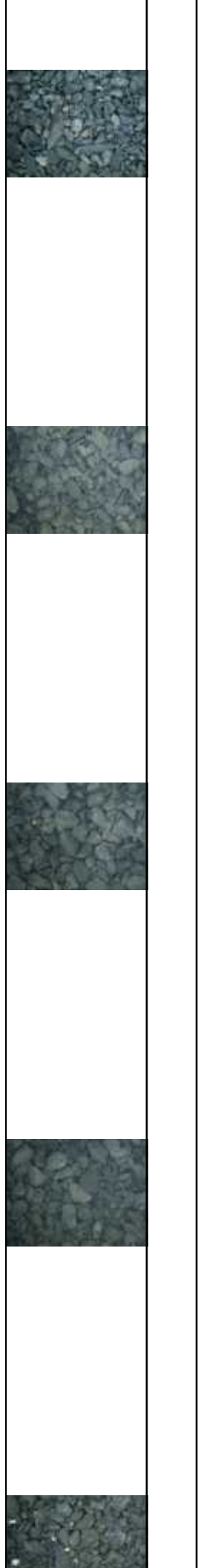
sl hd-v frm, mod fis, sb
blky-tab ctngs, sm arg
tex, mod calc, tr pp mic
pyr; CHK (10%): med
brn-gyshbn, frm-sft, mod
fis, tab-sb blky, tr free
CHK, v calc

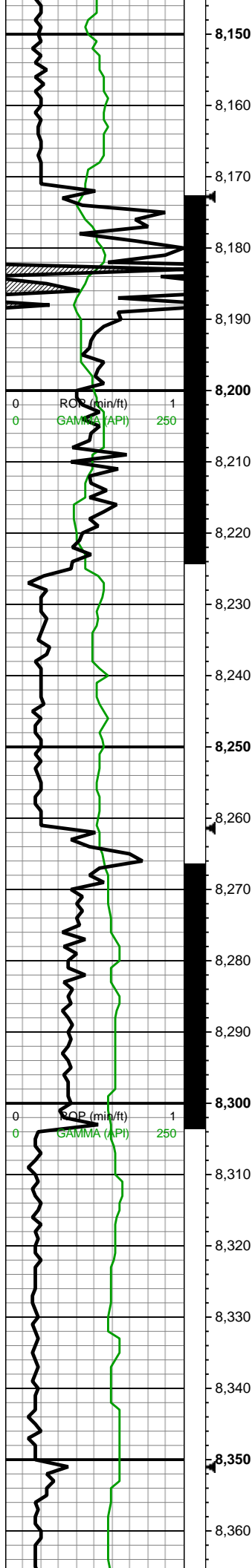
7950-8000 MRLST
(85%): dk gy, frm-hd, brit,
mod fis sb ang-sb blky
ctngs, sm arg-sl slty tex,
tr vf pyr, mod calc; CHK
(15%): med gy, rr f-elong
wh chky incl, frm-brit,
mod fis sb blky-blky
ctngs, hi calc

8000-8050 MRLST
(80%): dk gy-v dk gy,
predy frm-brit, sb frm, sb
ang-sb blky-sb plty mod
fis ctngs, rr-occ vf pyr,
pyrc bent ip, mod calc;
CHK (20%) med gy-dk gy
wi f-u f wh chky incl,
frm-brit, mod fis, hi calc

8050-8100 CHK (50%):
predy gyshbn-med gy,
sme lt gy, sb blky-sb ang
ctngs, fri-frm, tr intbd
MRLST, sm chky tex,
calc; MRLST (35%): dk
gyshbn-dk gy, frm-sl hd,
sb blky-ang ctngs, sl
sm-rgh tex, com intbd
CHK, hi calc

8100-8150 CHK (75%):lt
gy-med gy wi f chky incl &
thn lt gy chky lamn, sb
frm-frm, sb rd-sb blky
l-mod fis ctngs, rr
forams, rr fos frags, hi
calc; MRLST (25%): dk
gy, frm, brit, mod fis sb
blky-blky-sb plty ctngs, sl
slty tex, rr-occ vf pyr, hi





MW IN: 10.2
VIS IN: 49
MW OUT: 10.3
VIS OUT: 46

WOB: 21.4klbs
RPM: 0
SPM: 186
SPP: 3,078psi

B Marl
8205' MD/7697' TVD



MD: 8,209'
TVD: 7,697.78'
INC: 83.12°
AZM: 178.14°
VS: -115.71'

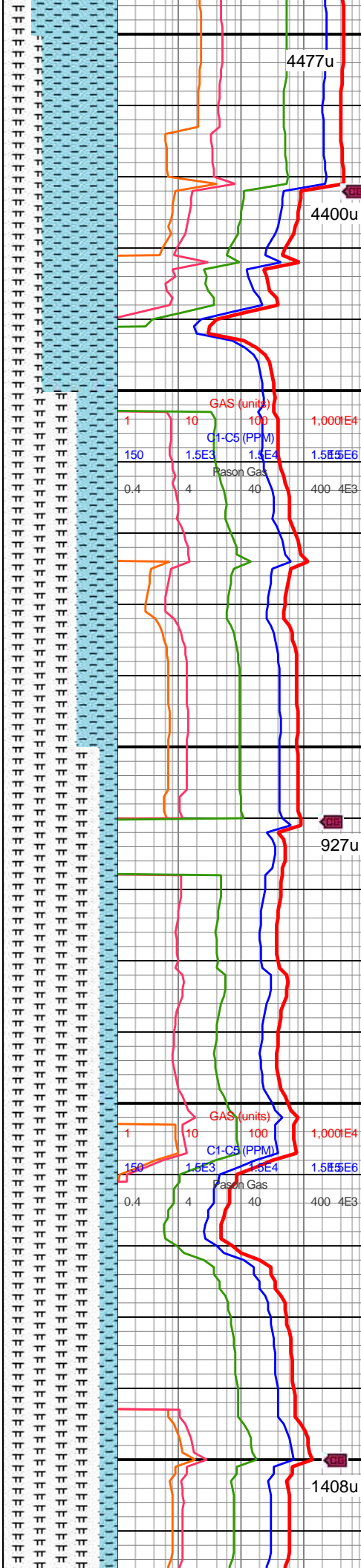
MINDEPTH 1/19/19

MD: 8,298'
TVD: 7,702.45'
INC: 90.86°
AZM: 178.23°
VS: -26.9'

62' DTS

MW IN: 10.2
VIS IN: 48
MW OUT: 10.2+
VIS OUT: 45

On Buster

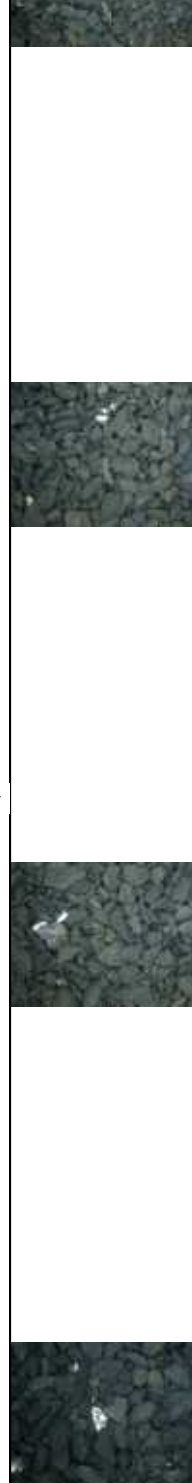


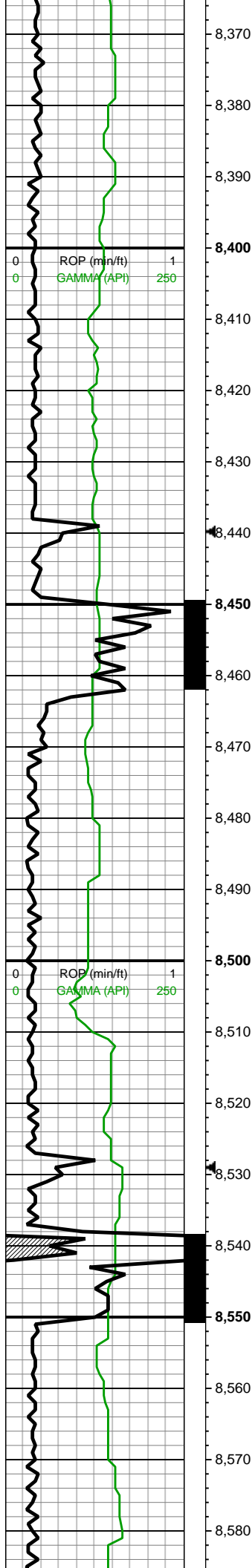
slty tex, m ss w pyr, m calc

8150-8200 CHK (65%):
predy lt gy, med gy ip, sb
frm-frm, l-mod fis rd-sb
rd-sb blkly ctngs, sl
hydrated, sm arg-sl slty
tex ip, hi calc; MRLST
(35%): v dk gy-blk, frm,
brit, sb blkly mod fis
ctngs, slty tex, mod calc

8200-8250 MRLST
(65%): med-v dk gry,
predy blkly wi com lamn, v
brit-hrd, micmica, hily
calc; CHK (35%) pred
ltgy-occ gyshbn wi sme
com lt thn chky lamn, sb
blkly-blky, v sft-sl frm, rgh
tex wi rr-pp pyr, hily calc

8250-8300 MRLST
(85%): dk gy-dk gyshbn,
sb frm-frm, med-hi fis sb
blkly-blky-tab ctngs, sm
arg-sl slty tex, rr-tr vf pyr,
mod calc; CHK (15%): dk
gy mot wi f wh chky incl,
sb frm-frm, brit, mod fis
sb blkly-blky ctngs, hi calc





MD: 8,387'
TVD: 7,700.29'
INC: 91.91°
AZM: 177.18°
VS: 62.06'

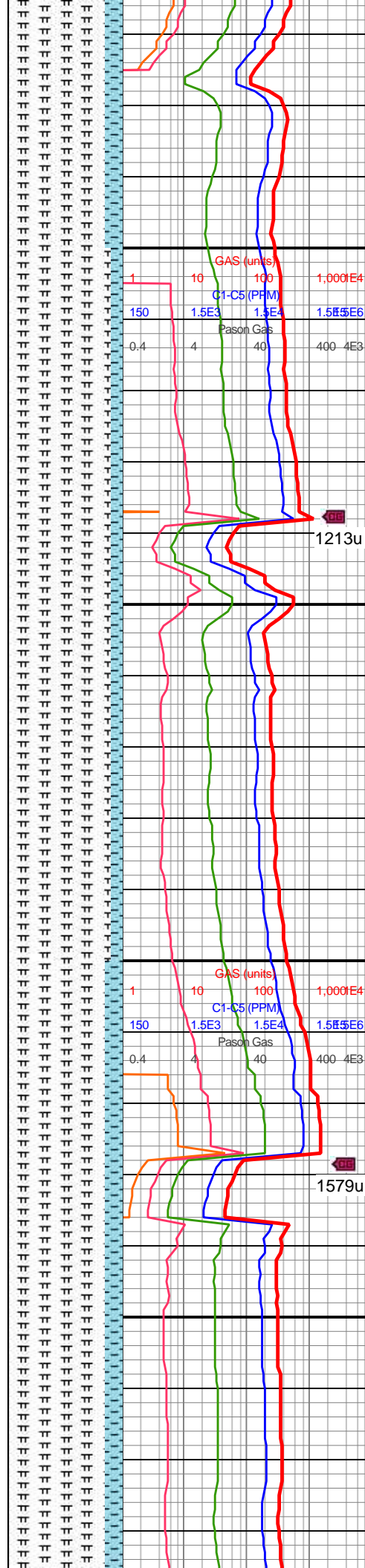
WOB: 10.2klbs
RPM: 48
SPM: 10.2+
SPP: 45psi

MD: 8,476'
TVD: 7,698.59'
INC: 90.29°
AZM: 176.47°
VS: 151'

MW IN: 10.1
VIS IN: 48
MW OUT: 10.2
VIS OUT: 47

120' DTS

MD: 8,566'
TVD: 7,698.3'
INC: 90.07°
AZM: 177.44°
VS: 240.97'

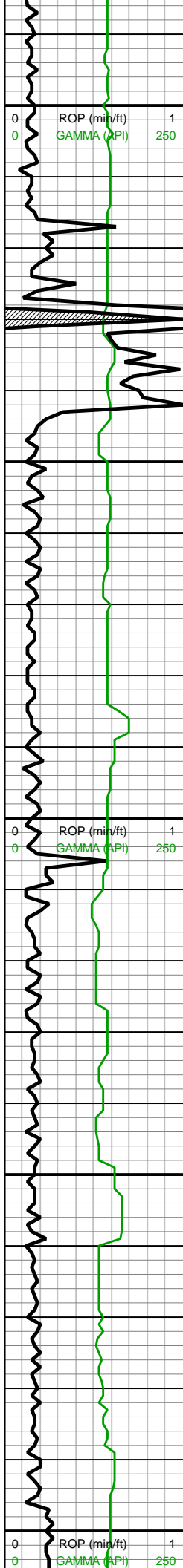


8300-8400 MRLST
(85%): med gy-dk gy wi
sp brn marl, frm-brit, sb
frm ip, l-mod fis sb rd-sb
blky ctngs, sm arg-sl slty
tex, tr vf pyr, rr-occ bent, hi
calc; CHK (15%): med gy,
lt gy ip, frm, brit, l-mod fis
sb rd-sb blky-blky ctngs,
hi calc

8400-8500 MRLST
(90%): dk gy, dk gyshbn
ip, frm-brit, mod hi fis sb
blky-blky ctngs, sm arg-sl
slty tex, tr pyr, mod calc;
CHK (10%): lt gy-lt
gyshbn, sp wi f wh chky
incl, frm-brit l-mod fis
rd-sb rd-sb blky ctngs, hi
calc

8500-8600 MRLST
(85%): med gy-dk gy,
mod fis sb frm-frm sb
blky ctngs, sm arg-sl slty





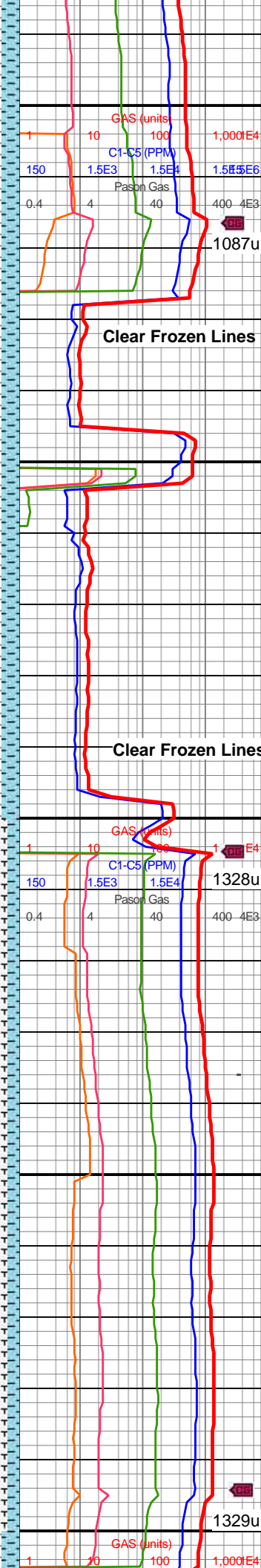
WOB: 28.5klbs
RPM: 55
SPM: 184
SPP: 3,658psi

MW IN: 10.1
VIS IN: 52
MW OUT: 10.1
VIS OUT: 48

MD: 8,655'
TVD: 7,699.12'
INC: 88.88°
AZM: 179.11°
VS: 329.96'

MD: 8,744'
TVD: 7,701.37'
INC: 88.22°
AZM: 178.76°
VS: 418.93'

WOB: 19.4klbs
RPM: 55
SPM: 185
SPP: 3,436psi



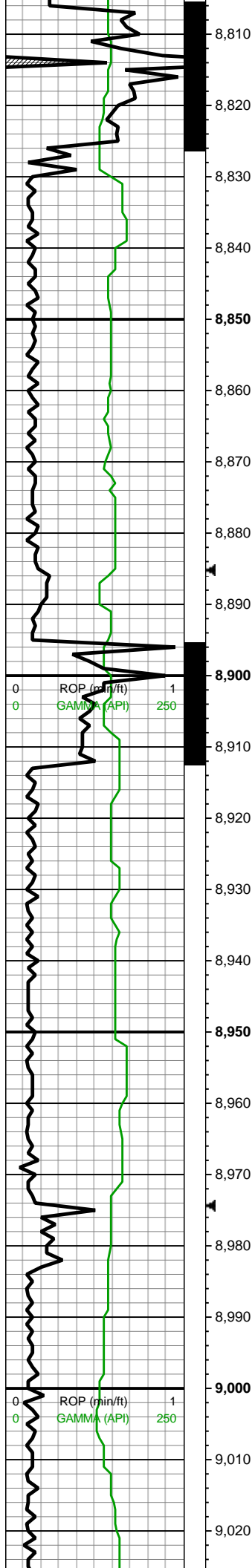
Clear Frozen Lines

Clear Frozen Lines

tex, tr vf pyr, mod calc;
CHK (15%): lt gy-med gy,
frm-brit, mod fis sb
blky-blky ctngs wi thn
chky lamn, hi calc

8600-8700 MRLST
(85%): gysh bn-dk gy-v dk
gy, brit mod fis ctngs, sb
blky-blky, sl slty tex, tr vf
pyr, mod calc; CHK
(15%): med gy-occ dk gy
mot wi f wh chky incl,
frm-brit, mod fis sb blky
ctngs, hi calc

8700-8800 MRLST
(90%): predy dk gyshbn,
rr dk gy, sb frm-frm mod
fis sb blky-blky ctngs, tab
ip, sm arg-sl slty-mot
bmpy tex, tr vf pyr, tr chky
incl grdg to chk, mod
calc; CHK (10%): dk
gy-dk gyshbn, frm, brit, f
wh chky incl & lamn, tr vf
pyr, hi calc



MD: 8,833'
TVD: 7,704.58'
INC: 87.65°
AZM: 180.61°
VS: 507.85'

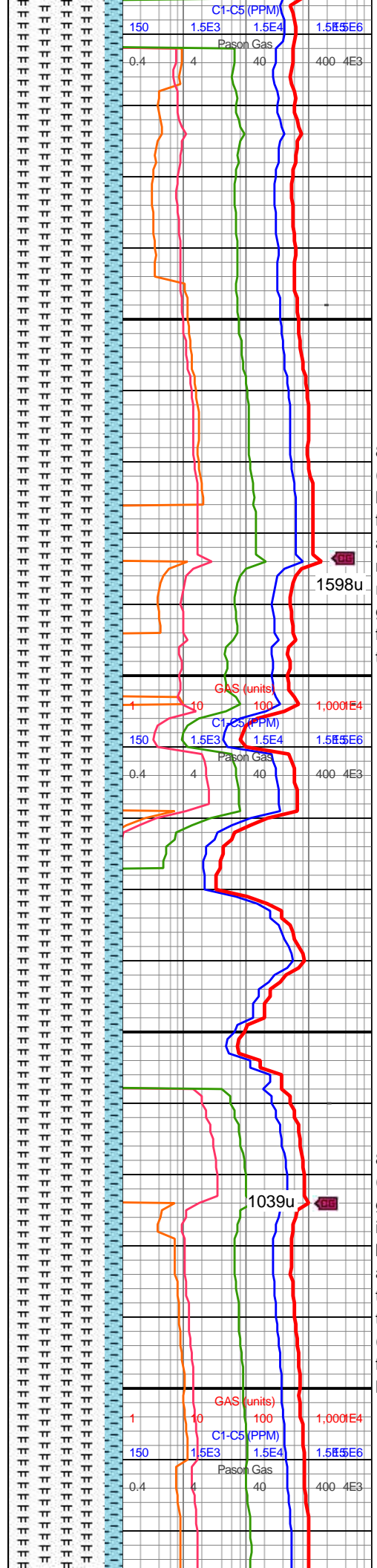
MW IN: 10.1
VIS IN: 51
MW OUT: 10.1
VIS OUT: 47

MD: 8,922'
TVD: 7,707.41'
INC: 88.7°
AZM: 182.1°
VS: 596.69'

MW IN: 10.0+
VIS IN: 48
MW OUT: 10.1
VIS OUT: 48

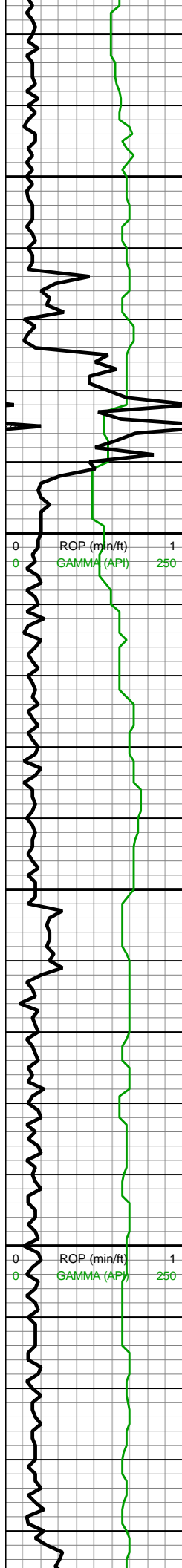
WOB: 36klbs
RPM: 55
SPM: 185
SPP: 3,827psi

MD: 9,011'
TVD: 7,709.77'
INC: 88.26°
AZM: 182.1°
VS: 685.48'



8800-8900 MRLST
(85%): med gy-dk gy, brn hue ip, mod fis sb frm-frm sb blkly ctngs, sm arg-sl slty tex, tr vf pyr, mod calc wi brn mrly resdl; CHK (15%): lt gy-med gy, frm-brit, mod fis sb blkly-blky ctngs wi thn chky lamn, hi calc

8900-9000 MRLST
(85%): dk gyshbn, rr dk gy sh wi brn marly lamn ip, sb frm-frm mod fis sb blkly-blky ctngs, tab ip, sm arg-sl slty-mot bmpy tex, tr vf pyr, tr chky incl grdg to chk, mod calc; CHK (15%): dk gy-dk gyshbn, frm, brit, f wh chky incl & lamn, tr vf pyr, hi calc

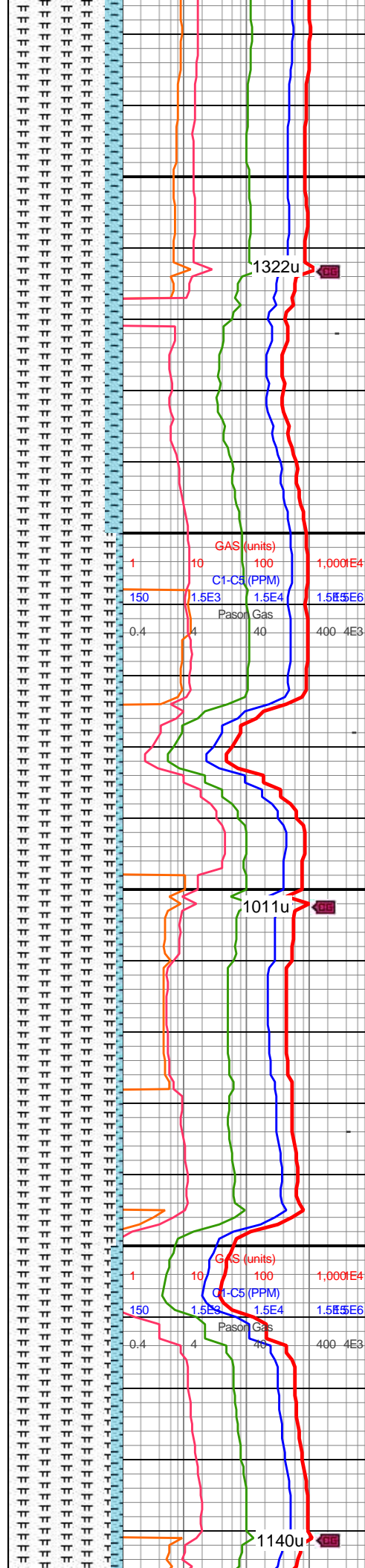


MW IN: 10.05
VIS IN: 48
MW OUT: 10.15
VIS OUT: 47

MD: 9,100'
TVD: 7,711.41'
INC: 89.63°
AZM: 181.22°
VS: 774.33'

MD: 9,189'
TVD: 7,712.2'
INC: 89.36°
AZM: 180.69°
VS: 863.25'

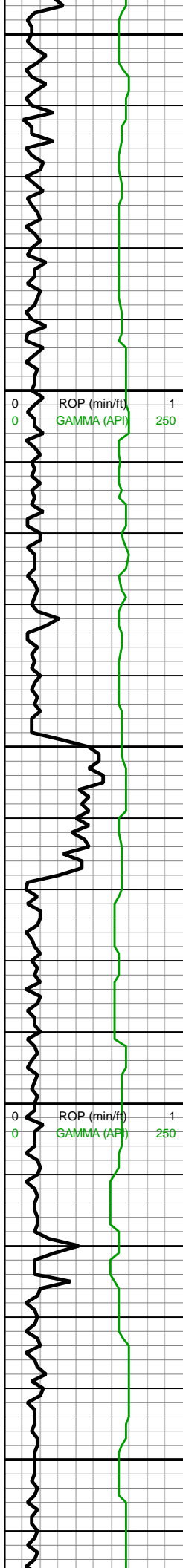
WOB: 26klbs
RPM: 55
SPM: 184
SPP: 3,690psi



9000-9100 MRLST
(85%): dk gy-v dk gy ip,
predy frm-brit, sb frm ip,
mod-hi fis blk-y-tab ctngs
wi dull rthy lstr, sl slty tex,
mod calc; CHK (15%): dk
gy spec wi wh chky-foram
incl, l-mod fis sb rd-sb
blk-y ctngs, sl slty tex, hi
calc

9100-9200 MRLST
(95%): dk gy-v dk gy, sb
frm-frm-brit, med-hi fis
blk-y-tab ctngs wi dull rthy
lstr, sl slty tex, mod calc
wi brn mrly resdl; CHK
(rr): dk gy spec wi wh
chky-foram incl, l-mod fis
sb rd-sb blk-y ctngs, sl
slty tex, hi calc





9,250
9,260
9,270
9,280
9,290
9,300
9,310
9,320
9,330
9,340
9,350
9,360
9,370
9,380
9,390
9,400
9,410
9,420
9,430
9,440
9,450
9,460

MW IN: 10.1
VIS IN: 48
MW OUT: 10.1
VIS OUT: 46

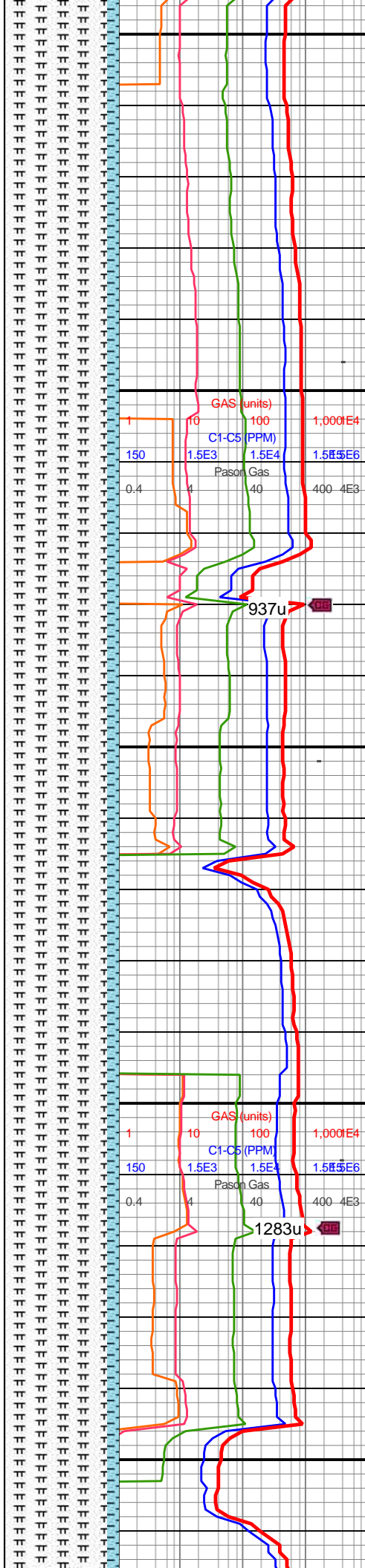
MD: 9,278'
TVD: 7,713.32'
INC: 89.19°
AZM: 180.25°
VS: 952.19'

MD: 9,367'
TVD: 7,713.32'
INC: 90.81°
AZM: 180.25°
VS: 1,041.14'

WOB: 27klbs
RPM: 55
SPM: 186
SPP: 3,710psi

MW IN: 10.1
VIS IN: 48
MW OUT: 10.1
VIS OUT: 46

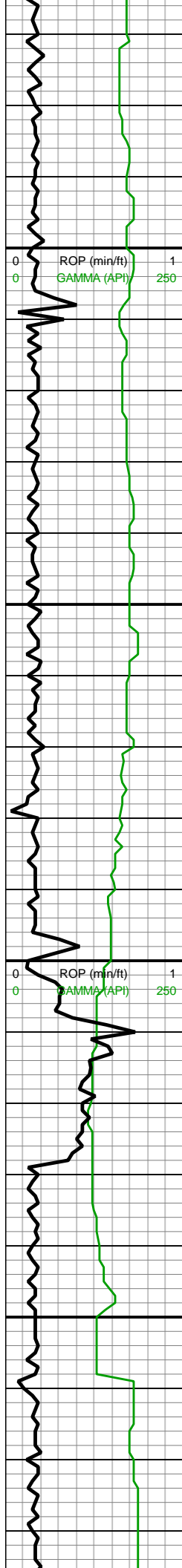
MD: 9,456'
TVD: 7,711.68'
INC: 91.3°
AZM: 179.81°
VS: 1,130.1'



9200-9300 MRLST
(90%): dk gy-v dk gy ip,
predy frm-brit, sb frm ip,
mod-hi fis blk-tab ctngs
wi dull rthy lstr, sl slty tex,
rr-tr vf-f pyr, mod calc;
CHK (10%): dk gy spec
wi wh chky-foram incl,
l-mod fis sb rd-sb blk
ctngs, sl slty tex, hi calc

9300-9400 MRLST
(90%): dk gy-v dk gy, sb
frm-frm-brit, med-hi fis
blk-tab ctngs wi dull rthy
lstr, sl slty tex, mod calc
wi brn mrly resdl; CHK
(10): dk gy wi thn wh chky
lamn ip, l-mod fis sb
rd-sb blk ctngs, sl slty
tex, hi calc

9400-9500 MRLST

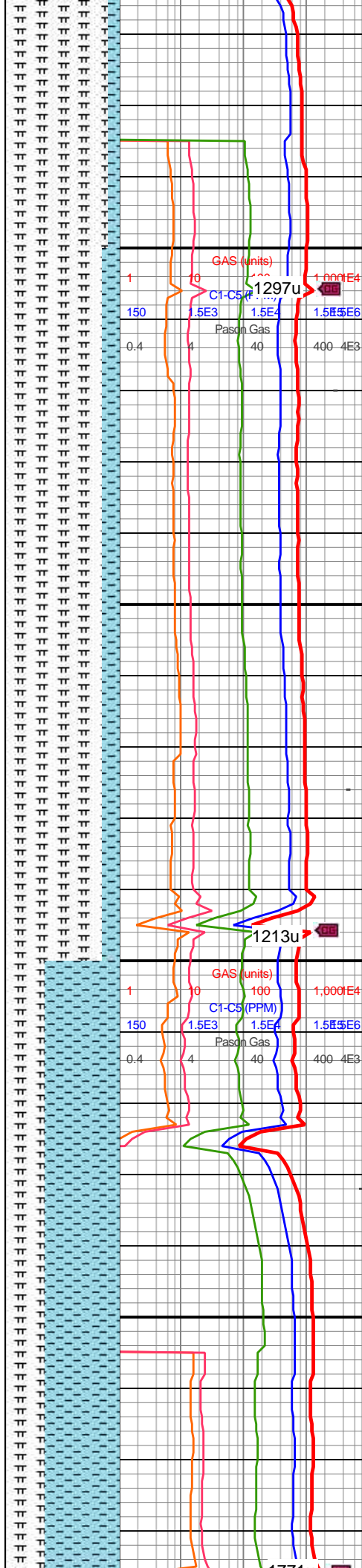


9,470
9,480
9,490
9,500
9,510
9,520
9,530
9,540
9,550
9,560
9,570
9,580
9,590
9,600
9,610
9,620
9,630
9,640
9,650
9,660
9,670
9,680

MD: 9,545'
TVD: 7,709.56'
INC: 91.43°
AZM: 179.02°
VS: 1,219.06'

WOB: 21kibs
RPM: 55
SPM: 185
SPP: 3,310psi

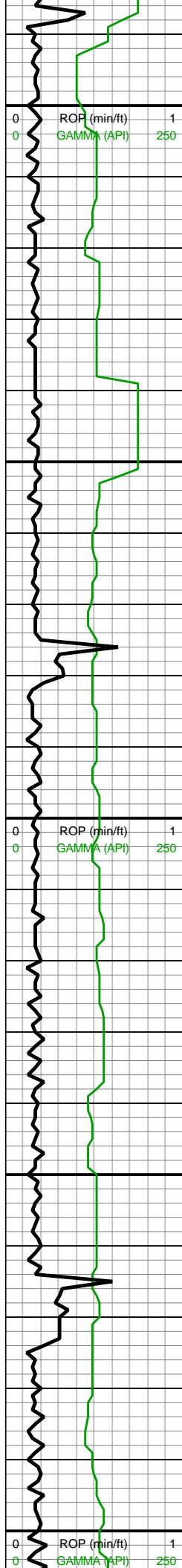
MD: 9,634'
TVD: 7,707.61'
INC: 91.08°
AZM: 180.78°
VS: 1,308.01'



9400-9500 MRLS I
(90%): dk gy-dk gyshbn-v
dk gy ip, sb frm-frm-hd,
mod fis blky-blky tab
ctngs, sm arg tex wi dul
rthy lstr, rr-tr vf-f pyr, mod
calc; CHK (10%): dk gy wi
thn chky lamn ip, l-mod
fis sb rd-sb blky ctngs, sl
sly tex, rr-tr bent wi pyrc
strg ip, hi calc

9500-9600 MRLST
(85%): dk gy-dk gyshbn-v
dk gy ip, sb frm-frm-hd,
mod fis blky-blky tab
ctngs, sm arg tex wi dul
rthy lstr, rr-tr vf-f pyr, mod
calc; CHK (15%): dk gy wi
thn chky lamn ip, l-mod
fis sb rd-sb blky ctngs, sl
sly tex, rr-tr bent wi pyrc
strg ip, hi calc

9600-9700 CHK (65%): lt
gy-lt gyshbn-med-dk gy
wi occ sp foram incl, sb
frm-frm, brit ip, l-mod fis
sb rd-sb blky ctngs, sl
sly tex, tr pyrc bent, hi
calc; MRI ST (35%): dk



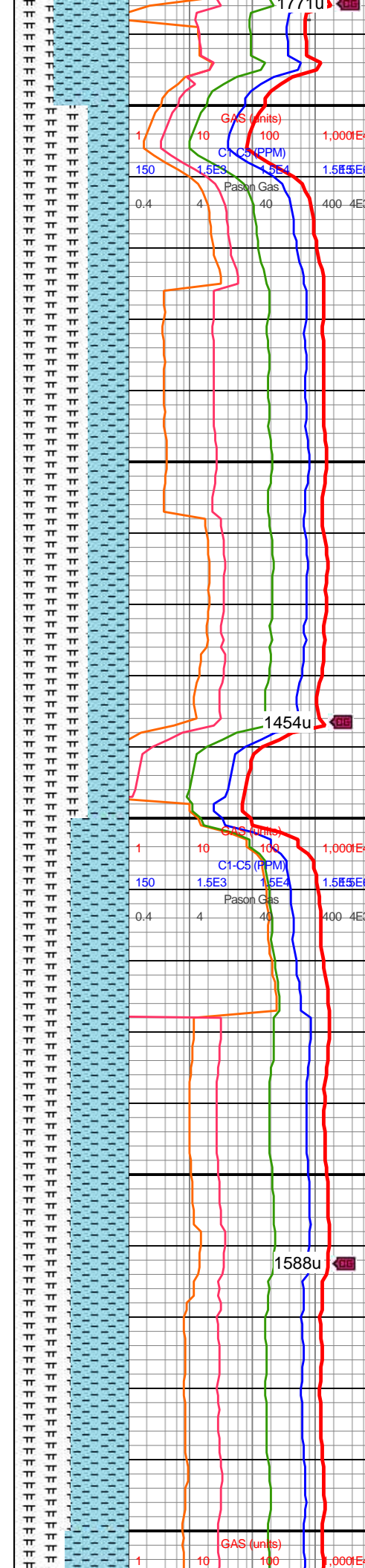
9,690
9,700
9,710
9,720
9,730
9,740
9,750
9,760
9,770
9,780
9,790
9,800
9,810
9,820
9,830
9,840
9,850
9,860
9,870
9,880
9,890
9,900

22' DTN

MD: 9,723'
TVD: 7,706.04'
INC: 90.95°
AZM: 180.17°
VS: 1,396.94'

MD: 9,812'
TVD: 7,704.77'
INC: 90.68°
AZM: 179.81°
VS: 1,485.9'

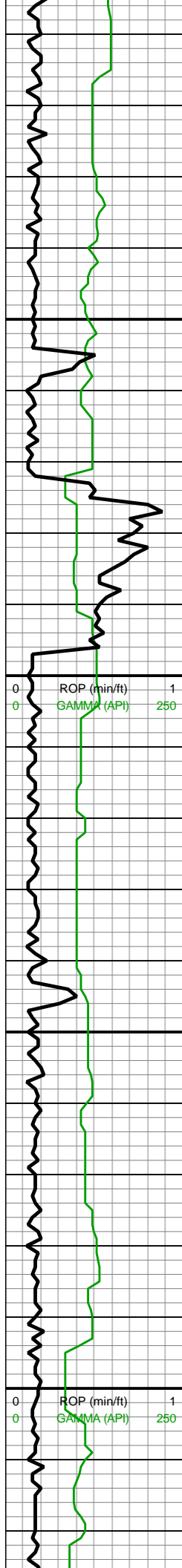
MD: 9,901'
TVD: 7,703.92'
INC: 90.42°
AZM: 179.29°
VS: 1,576.94'



calc; MRLST (50%): dk
gy-dk gyshbn-v dk gy, sb
frm-frm-brit, mod fis sb
blky-blky ctngs, sm arg-sl
silty tex, mod calc

9700-9800 MRLST
(65%): dk gy-dk gyshbn-v
dk gy ip, sb frm-frm-hd,
mod fis blky-blky tab
ctngs, sm arg tex wi dul
rthy lstr, rr-tr vf-f pyr, mod
calc; CHK (35%): lt gy-lt
gyshbn-med-dk gy wi occ
sp foram incl, sb frm-frm,
brit ip, l-mod fis sb rd-sb
blky ctngs, sl silty tex, tr
pyrc bent, hi calc

9800-9900 CHK (50%): lt
gy-med gy-occ dk gy wi
occ f wh chky-elong incl,
l-mod fis sb ang-sb rd-sb
blky ctngs, sl silty tex, rr
forams, tr vf-f pyr, hi calc;
MRLST (50%): dk gy-v dk
gy, frm, brit ip, sb rd-sb
blky-blky l-mod fis ctngs,
sm arg-sl silty tex, sp wi
brn marl incl ip, rr bent,
mod calc wi brn mrly
resdl



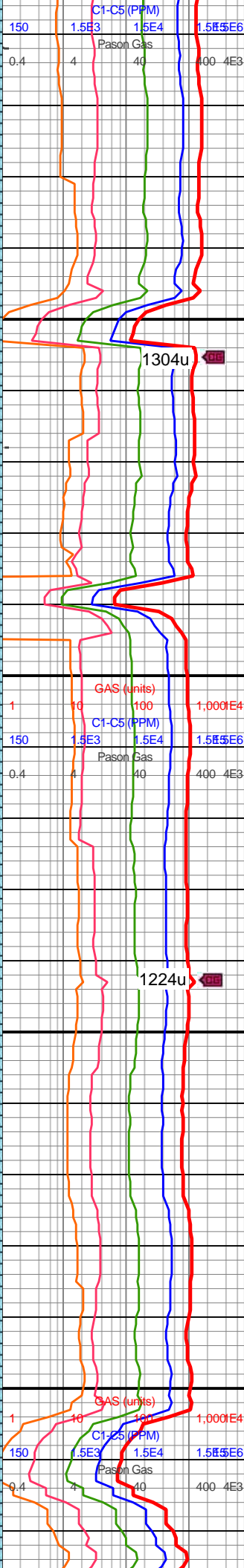
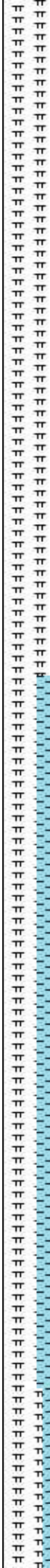
9,910
9,920
9,930
9,940
9,950
9,960
9,970
9,980
9,990
10,000
10,010
10,020
10,030
10,040
10,050
10,060
10,070
10,080
10,090
10,100
10,110
10,120

VS: 1,574.88'
MD: 9,990'
TVD: 7,703.26'
INC: 90.42°
AZM: 181.92°
VS: 1,663.81'

WOB: 33klbs
RPM: 55
SPM: 186
SPP: 3,680psi

MW IN: 10.1
VIS IN: 42
MW OUT: 10.1
VIS OUT: 40

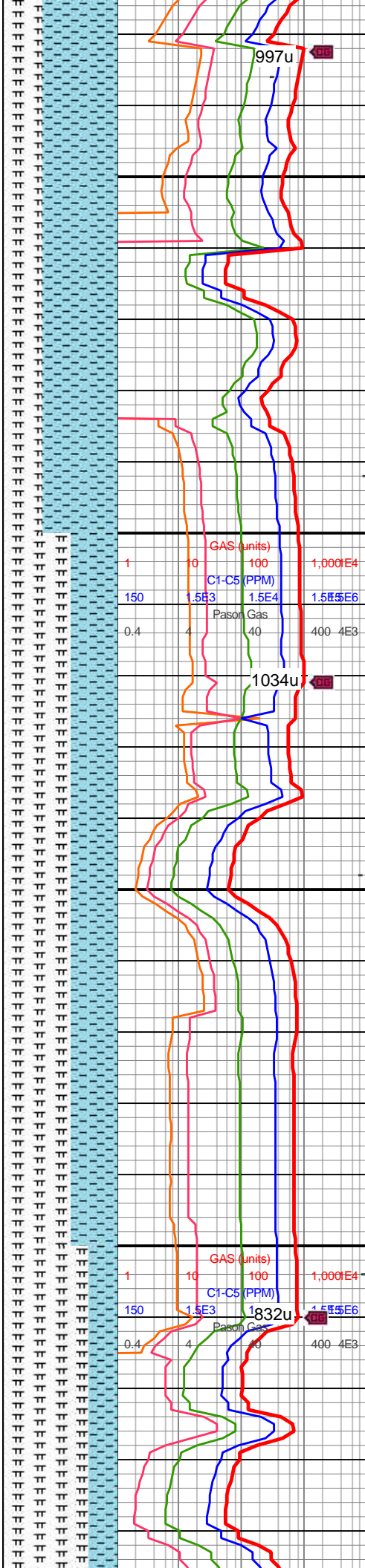
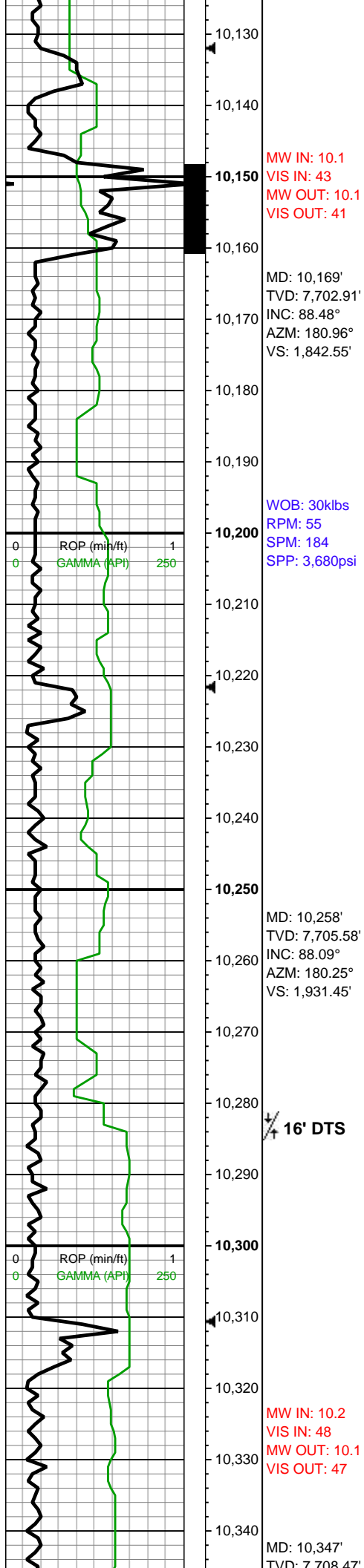
MD: 10,080'
TVD: 7,702.33'
INC: 90.77°
AZM: 181.66°
VS: 1,753.66'



9900-10000 CHK (55%):
lt gy-med gy-occ dk gy,
occ f wh chky & foram
incl, l-mod fis sb ang-sb
rd-sb blkly ctngs, sl slty
tex, rr forams, tr vf-f pyr, hi
calc; MRLST (45%): dk
gy-v dk gy, frm, brit ip, sb
rd-sb blkly-blky l-mod fis
ctngs, sm arg-sl slty tex,
tr bent, sp wi brn marl
incl ip, mod calc

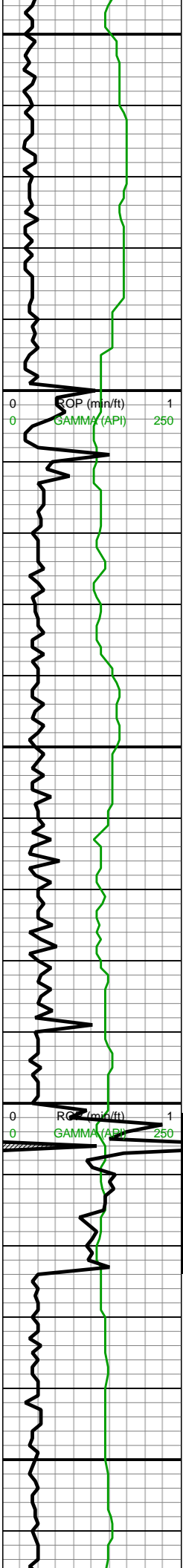
10000-10100 CHK
(70%): lt gy-med gy-occ
dk gy, l-mod fis sb
ang-sb rd-sb blkly ctngs,
sl slty tex, rr-occ forams,
rr bent, tr vf-f pyr, hi calc;
MRLST (30%): dk gy-v dk
gy, frm, brit ip, sb rd-sb
blkly-blky l-mod fis ctngs,
sm arg-sl slty tex, sp wi
brn marl incl ip, mod calc





10100-10200 CHK
(65%): lt gy-med gy, dk gy
ip, l-mod fis sb ang-sb
rd-sb blkly ctngs, sl slty
tex, occ-com forams, tr
fos frags, tr vf pyr, hi calc;
MRLST (35%): dk gy-v dk
gy, frm, brit ip, sb rd-sb
blkly-blky l-mod fis ctngs,
sm arg-sl slty tex, sp wi
brn marl incl ip, rr wh-th
bent, mod calc wi brn
mrly resdl

10200-10300 MRLST
(60%): dk gy-dk gyshbn-v
dk gy ip, sb frm-frm-hd,
mod fis blkly-blky tab
ctngs, sm arg tex wi dul
rthy lstr, rr-tr vf-f pyr, mod
calc; CHK (40%): lt gy-lt
gyshbn wi occ sp foram
incl, sb frm-frm, brit ip,
l-mod fis sb rd-sb blkly
ctngs, sl slty tex, tr pyrc
bent, hi calc



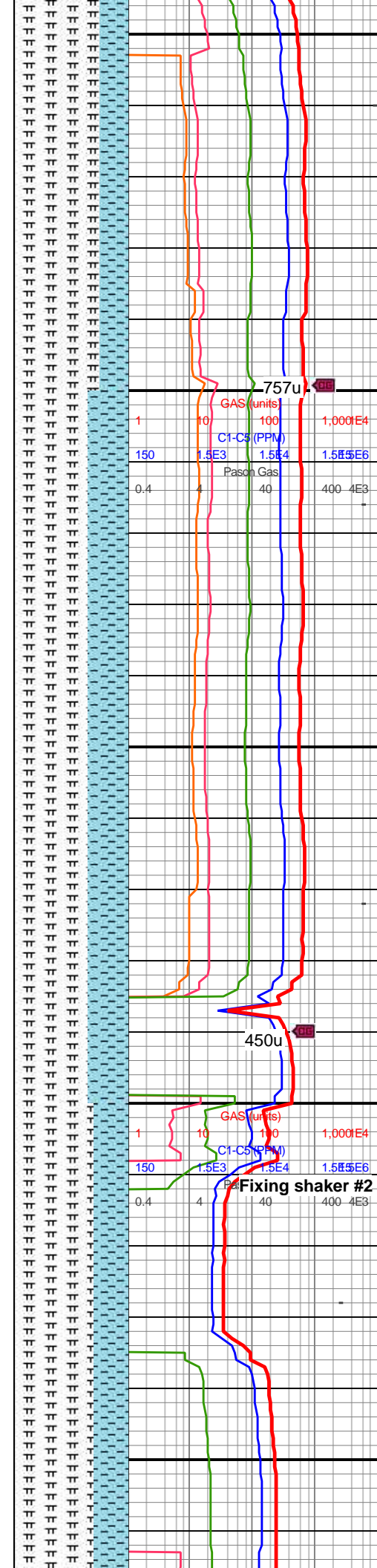
V.D: 7,700.47'
INC: 88.18°
VS: 2,020.38'

WOB: 11klbs
RPM: 55
SPM: 189
SPP: 3,380psi

MD: 10,436'
TVD: 7,711.44'
INC: 88°
AZM: 178.67°
VS: 2,109.32'

Fix shaker #2

MD: 10,525'
TVD: 7,713.22'
INC: 89.71°
AZM: 179.38°
VS: 2,198.3'

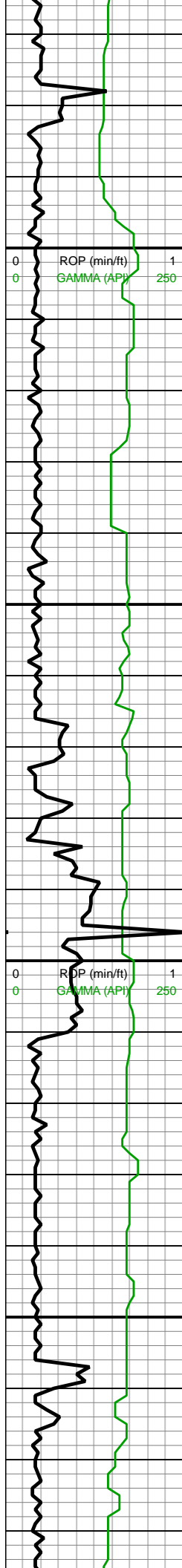


10300-10400 MRLST
(75%): dk gy-dk gyshbn-v
dk gy ip, sb frm-frm-hd,
mod fis blk-y-blky tab
ctngs, sm arg tex wi dul
rthy lstr, rr-tr vf-f pyr, mod
calc; CHK (25%): lt gy,
com sp foram incl thru,
sb frm-frm, brit ip, l-mod
fis sb rd-sb blk-y ctngs, sl
silty tex, tr pyrc bent, hi
calc

10400-10500 MRLST
(65%): gy-gyshbn-dk gy,
sb frm-frm-hd, mod fis sb
blk-y ctngs, sm-sl
silty-bmpy mot tex, dul rthy
lstr rr-tr vf-f pyr, mod calc;
CHK (35%): lt gy-lt
gyshbn-med wi vf thn
chky lamn, sb frm-frm,
brit ip, l-mod fis sb rd-sb
blk-y ctngs, sl silty tex, tr
pyrc bent, hi calc

10500-10600 MRLST
(70%): gy-gyshbn-dk gy





MW IN: 10.35
VIS IN: 45
MW OUT: 10.3
VIS OUT: 43

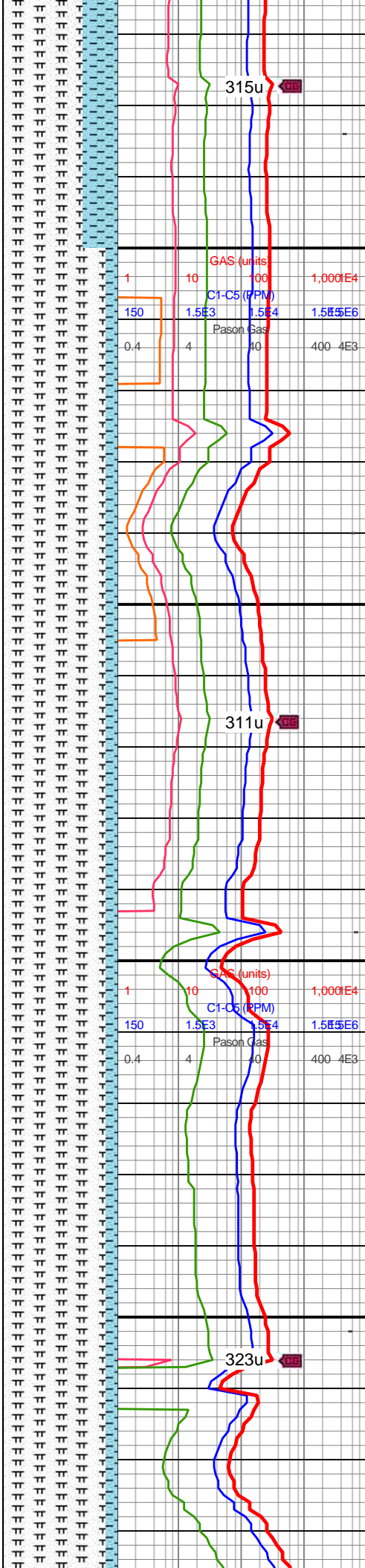
WOB: 33klbs
RPM: 55
SPM: 188
SPP: 3,860psi

60' DTS

MD: 10,614'
TVD: 7,713.39'
INC: 90.07°
AZM: 178.85°
VS: 2,287.29'

MD: 10,704'
TVD: 7,713.49'
INC: 89.8°
AZM: 180.17°
VS: 2,377.27'

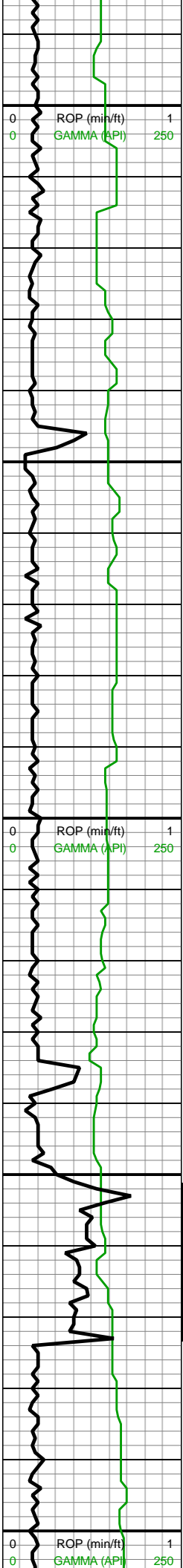
MD: 10,793'
TVD: 7,713.97'



(70%): gy-gyshbn-dk gy,
sb frm-frm-hd, mod fis sb
blky ctngs, sm-sl
slty-bmpy mot tex, dul rthy
lstr rr-tr vf-f pyr, mod calc;
CHK (30%): lt gy-lt
gyshbn-med wi vf thn
chky lamn, sb frm-frm,
brit ip, l-mod fis sb rd-sb
blky ctngs, sl slty tex, tr
pyrc bent, hi calc

10600-10700 MRLST
(90%): med
gy-gyshbn-dk gy-dk
gyshbn, sb frm-frm-brit,
med-hi fis blky-tab ctngs
wi dull rthy lstr, sl
slty-bmpy mot tex, mod
calc wi brn mrly resdl;
CHK (10): lt gy-med gy wi
thn wh chky lamn ip,
l-mod fis sb rd-sb blky
ctngs, sl slty tex, hi calc

10700-10800 MRLST
(90%): med gy-dk gy, mot
ip wi brn mrly lamn, sb
frm-frm-hd, mod fis
blky-blky tab ctngs, sm
arg tex wi dul rthy lstr, rr-tr



INC: 89.58°
AZM: 179.99°
VS: 2,466.24'

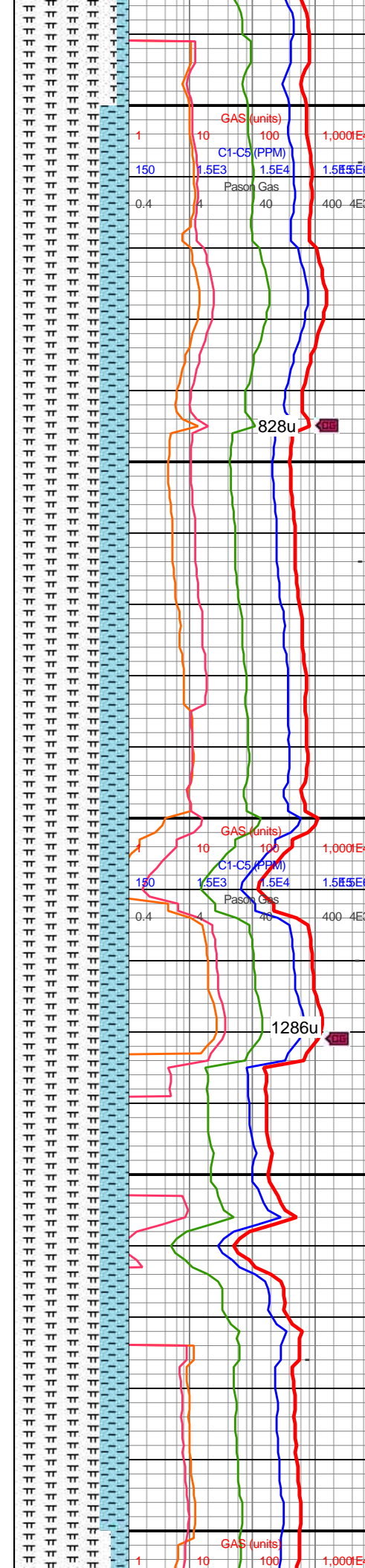
WOB: 32klbs
RPM: 55
SPM: 188
SPP: 3,810psi

MW IN: 10.35
VIS IN: 45
MW OUT: 10.35
VIS OUT: 43

MD: 10,882'
TVD: 7,715.1'
INC: 88.97°
AZM: 179.2°
VS: 2,555.22'

MD: 10,971'
TVD: 7,716.22'
INC: 89.58°
AZM: 180.52°
VS: 2,644.18'

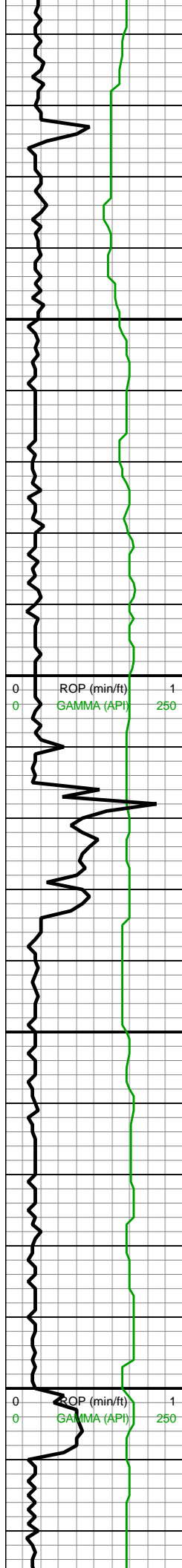
WOB: 34klbs
RPM: 55
SPM: 184
SPP: 3,620psi



vi-f pyr, mod calc; CHK (10%): med gy-dk gy wi thn chky lamn ip, l-mod fis sb rd-sb blk cytns, sl slty tex, hi calc

11800-11900 MRLST (75%): dk gy-dk gyshbn-v dk gy ip, sb frm-frm-hd, mod fis sb ang-sb blk cytns, sm arg-sl slty tex tex wi dul rthy lstr, rr-occ tn bent wi occ pyrc strg ip, rr-tr vf-f pyr, mod calc; CHK (25%): med gy-dk gy wi thn chky lamn ip, l-mod fis sb rd-sb blk cytns, sl slty tex, hi calc

10900-11000 MRLST (75%): dk gy-dk gyshbn-v dk gy ip, sb frm-frm-hd, mod fis blk cytns, sm arg tex wi dul rthy lstr, rr-tr vf-f pyr, mod calc; CHK (25%): dk gy wi thn chky lamn ip, l-mod fis sb rd-sb blk cytns, sl slty tex, rr-tr bent wi pyrc strg ip, hi calc



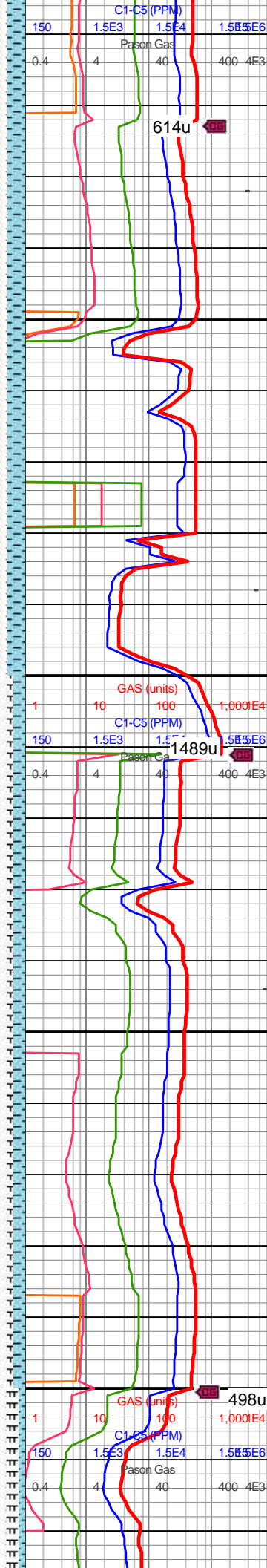
MW IN: 10.35
VIS IN: 45
MW OUT: 10.35
VIS OUT: 43

MD: 11,060'
TVD: 7,717.01'
INC: 89.41°
AZM: 180.08°
VS: 2,733.13'

MW IN: 10.35
VIS IN: 45
MW OUT: 10.35
VIS OUT: 43

WOB: 14klbs
RPM: 55
SPM: 184
SPP: 3,030psi

11,010
11,020
11,030
11,040
11,050
11,060
11,070
11,080
11,090
11,100
11,110
11,120
11,130
11,140
11,150
11,160
11,170
11,180
11,190
11,200
11,210
11,220



614u

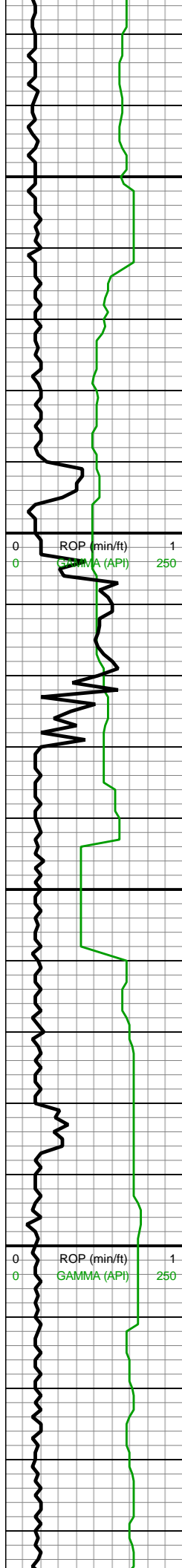
1489u

498u

11000-11100 MRLST
(85%): dk gy-dk gyshbn-v
dk gy ip, sb frm-frm-hd,
mod fis sb ang-sb blk
ctngs, sm arg-sl slty tex
tex wi dul rthy lstr, rr-occ
tn bent wi occ pyrc strg ip,
rr-tr vf-f pyr, mod calc;
CHK (15%): med gy-dk
gy wi thn chky lamn ip,
l-mod fis sb rd-sb blk
ctngs, sl slty tex, hi calc

11100-11200 MRLST
(90%): dk gy-v dk gy, sb
frm-frm-brit, med-hi fis
blk-tab ctngs wi dull rthy
lstr, sl slty tex, mod calc
wi brn mrly resld; CHK
(10%): dk gy spec wi wh
chky incl, l-mod fis sb
rd-sb blk ctngs, hi calc



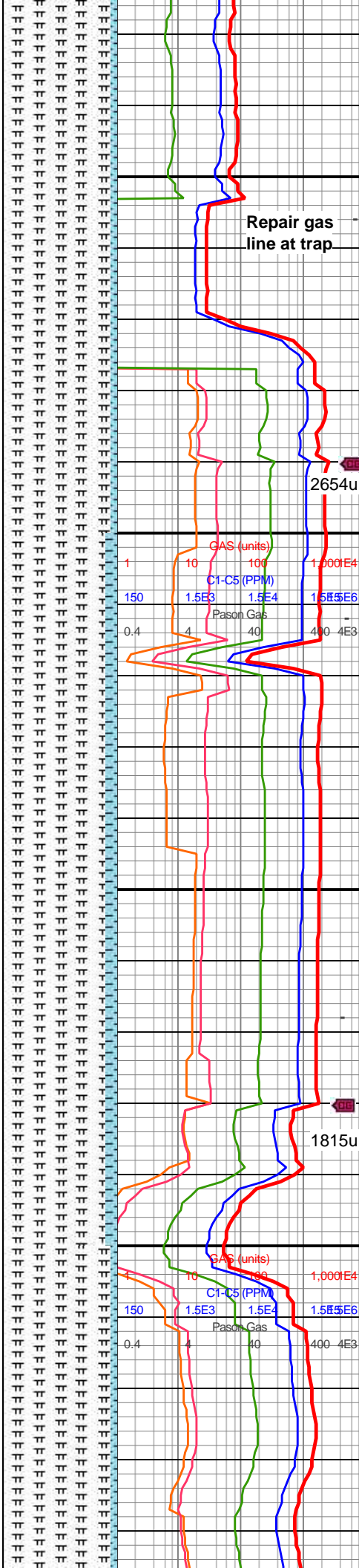


MD: 11,238'
TVD: 7,715.42'
INC: 90.73°
AZM: 180.43°
VS: 2,910.99'

MD: 11,327'
TVD: 7,714.63'
INC: 90.29°
AZM: 181.66°
VS: 2,999.89'

WOB: 39klbs
RPM: 55
SPM: 186
SPP: 3.825psi

MD: 11,416'
TVD: 7,714.39'
INC: 90.02°
AZM: 181.05°
VS: 3,088.78'



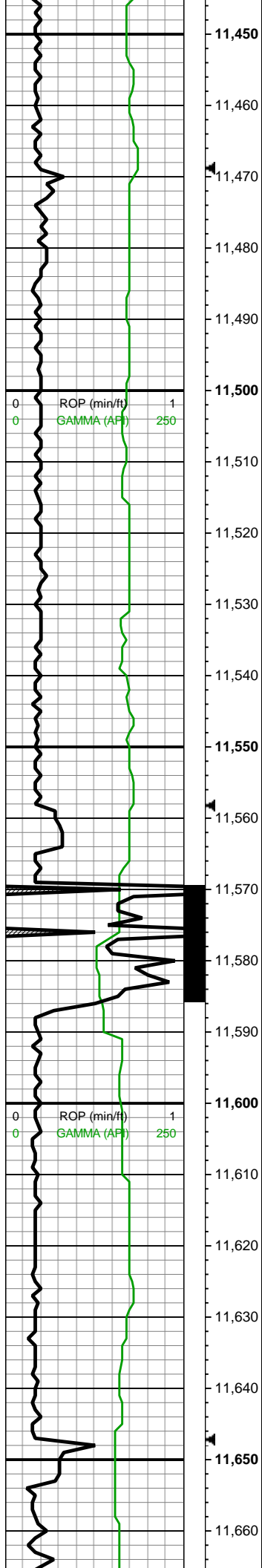
Repair gas
line at trap

11200-11300 MRLST
(95%): predy dk gyshbn,
rr dk gy, sb frm-frm mod
fis sb blkyl-blky ctngs, tab
ip, sm arg-sl slty-mot
bmpy tex, tr vf pyr, mod
calc; CHK (5%): dk gy-dk
gyshbn, frm, brit, f wh
chky incl & lamn, tr vf pyr,
hi calc

2654u

11300-11400 MRLST
(90%): dk gyshbn wi brn
marly lamn ip, sb frm-frm
mod fis sb blkyl-blky
ctngs, tab ip, sm arg-sl
slty-mot bmpy tex, tr vf
pyr, tr chky incl, mod calc;
CHK (10%): dk gy-dk
gyshbn, frm, brit, f wh
chky incl & lamn, tr vf pyr,
hi calc

1815u

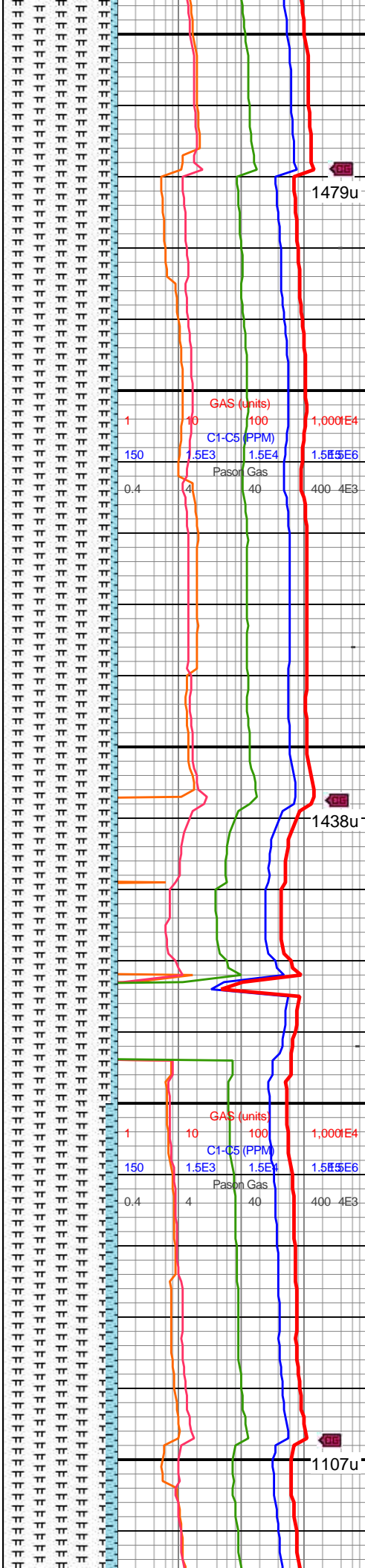


MD: 11,506'
TVD: 7,714.74'
INC: 89.54°
AZM: 180.43°
VS: 3,178.71'

MW IN: 10.4
VIS IN: 43
MW OUT: 10.4+
VIS OUT: 43

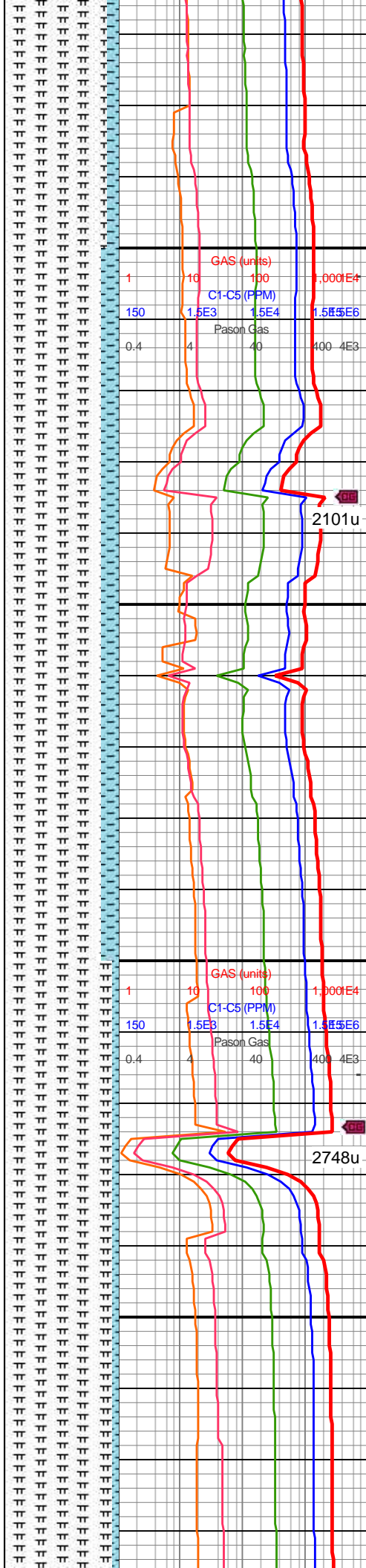
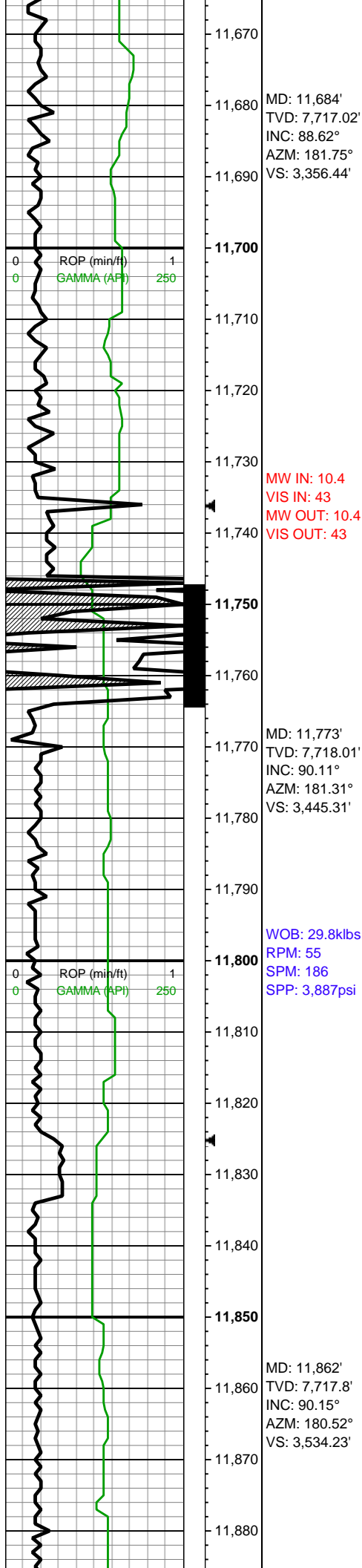
MD: 11,595'
TVD: 7,715.52'
INC: 89.45°
AZM: 182.01°
VS: 3,267.61'

WOB: 26klbs
RPM: 55
SPM: 186
SPP: 3,785psi



11400-11500 MRLST
(95%): dk gy, frm-brit,
mod fis sb blk cy ctngs, slty
tex, tr vf pyr, mod calc wi
brn mrly resdl; CHK (5%):
med gy-occ dk gy, f
wh-elong chky incl &
lamn thru, predy frm-brit,
sb frm ip, l-mod fis sb
rd-sb blk cy ctngs, hi calc

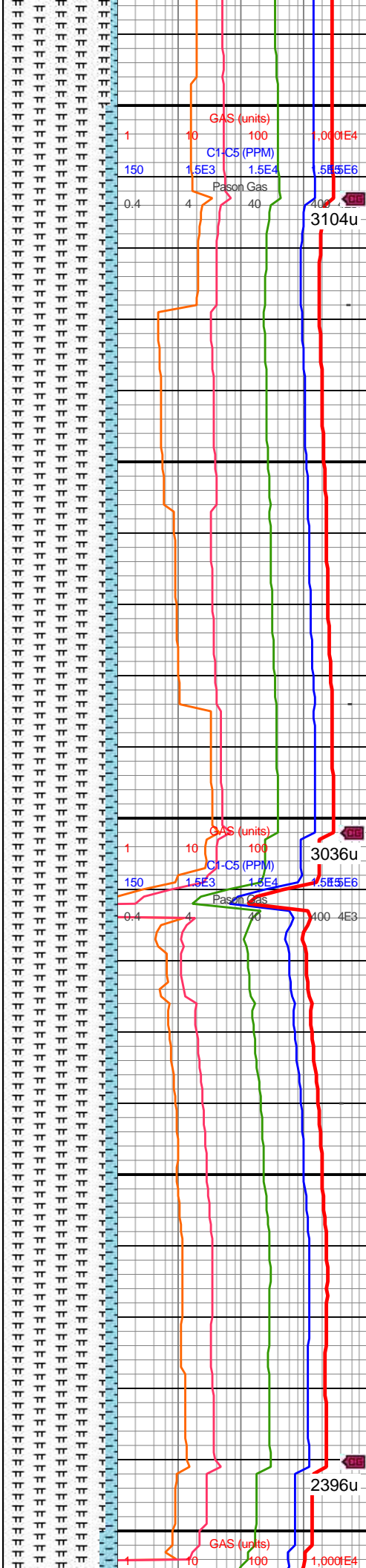
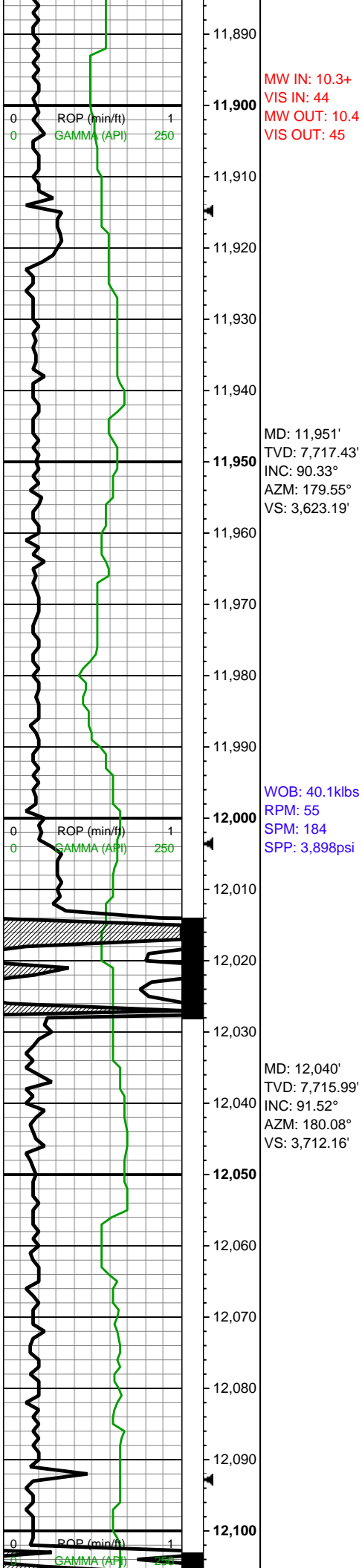
11500-11600 MRLST
(95%): dk gy-v dk gy, frm,
mod fis ang-sb ang-sb
blk cy ctngs, slty brit tex,
rr-tr vf pyr, tr bent, mod
calc; CHK (5%): lt gy-med
gy- wi f wh-elong chky
incl & lamn thru, predy
frm-brit, sb frm ip, l-mod
fis sb rd-sb blk cy ctngs, hi
calc



11600-11700 MRLST
(90%): dk gyshbn, rr dk gy sh wi brn marly lamn ip, sb frm-frm mod fis sb blkly-blky ctngs, tab ip, sm arg-sl slty-mot bmpy tex, tr vf pyr, tr chky incl grdg to chk, mod calc; CHK (10%): dk gy-dk gyshbn, frm, brit, f wh chky incl & lamn, tr vf pyr, hi calc

11700-11800 MRLST
(85%): med gy-dk gy, brn hue ip, mod fis sb frm-frm sb blkly ctngs, sm arg-sl slty tex, tr vf pyr, mod calc wi brn mrlly resdl; CHK (15%): lt gy-med gy, frm-brit, mod fis sb blkly-blky ctngs wi thn chky lamn, hi calc

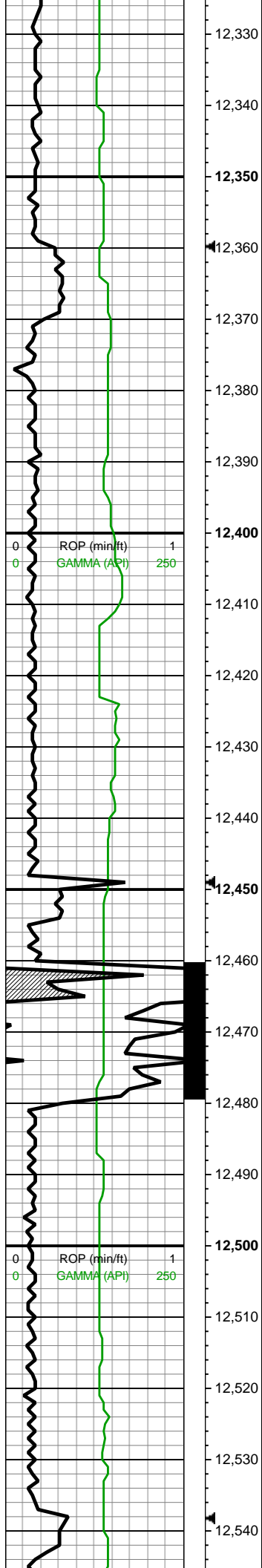
11800-11900 MRLST
(95%): med-v dk gry, predy blkly wi com lamn, v brit-hrd, micmica, hily calc; CHK (5%) pred ltav-occ avshbn wi sme



gy, ss gyshbn dk
com lt thn chky lamn, sb
blky-blky, v sft-sl frm, rgh
tex wi rr-pp pyr, hily calc,
rr cal

11900-12000 MRLST
(90%): gyshbn-dk gy-v dk
gy, brit mod fis ctngs, sb
blky-blky, sl slty tex, tr vf
pyr, mod calc; CHK
(10%): med gy-occ dk gy
mot wi f wh chky incl,
frm-brit, mod fis sb blky
ctngs, tr mict cal vn, hi
calc

12000-12100 MRLST
(90%): med gy-dk gy wi
sp brn marl, frm-brit, sb
frm ip, l-mod fis sb rd-sb
blky ctngs, sm arg-sl slty
tex, tr vf pyr, rr-occ bent,
mod calc; CHK (10%):
med gy, lt gy ip, frm, brit,
l-mod fis sb rd-sb
blky-blky ctngs, chky tex,
hi calc

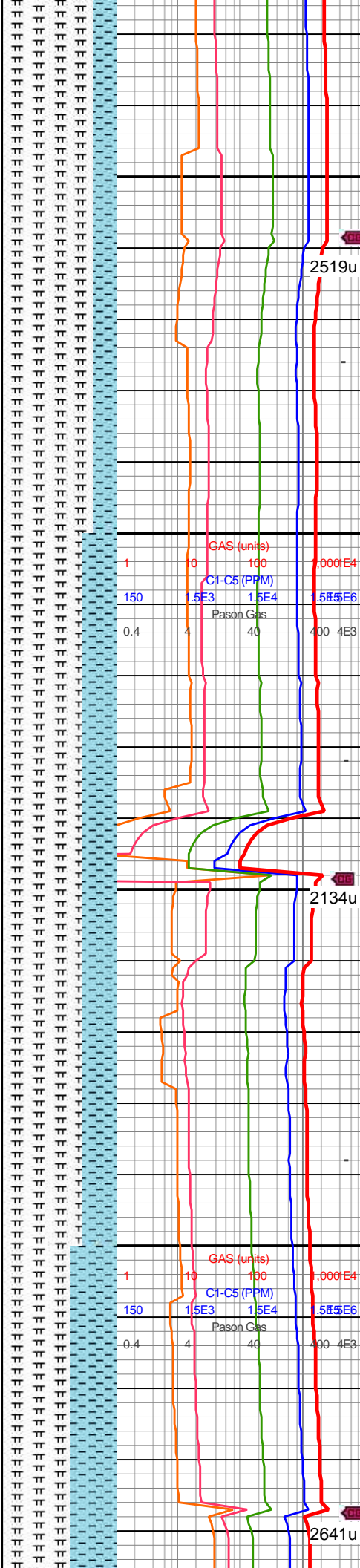


MD: 12,396'
TVD: 7,718.81'
INC: 88.57°
AZM: 178.14°
VS: 4,067.97'

WOB: 33.6klbs
RPM: 55
SPM: 184
SPP: 3,860psi

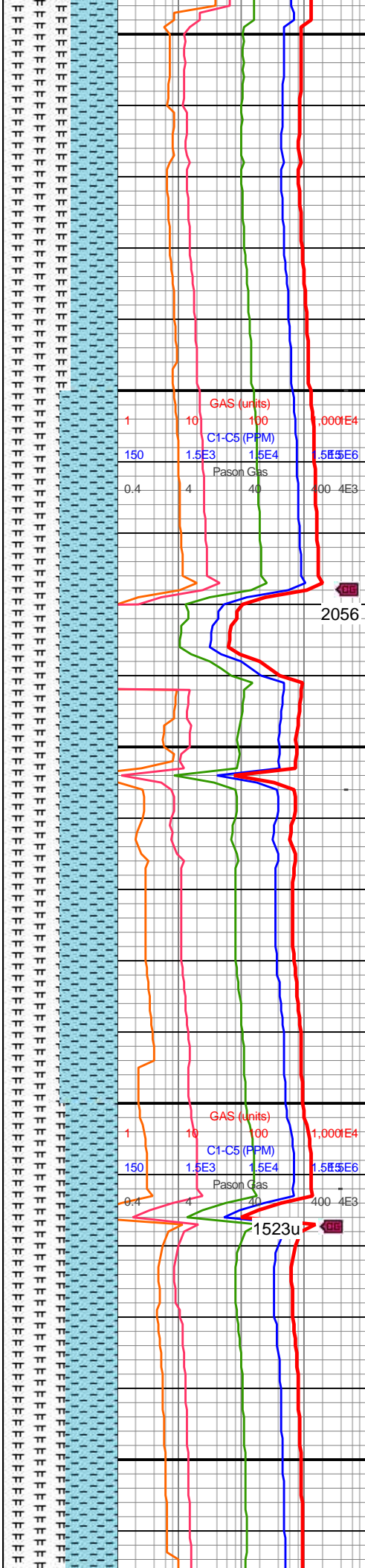
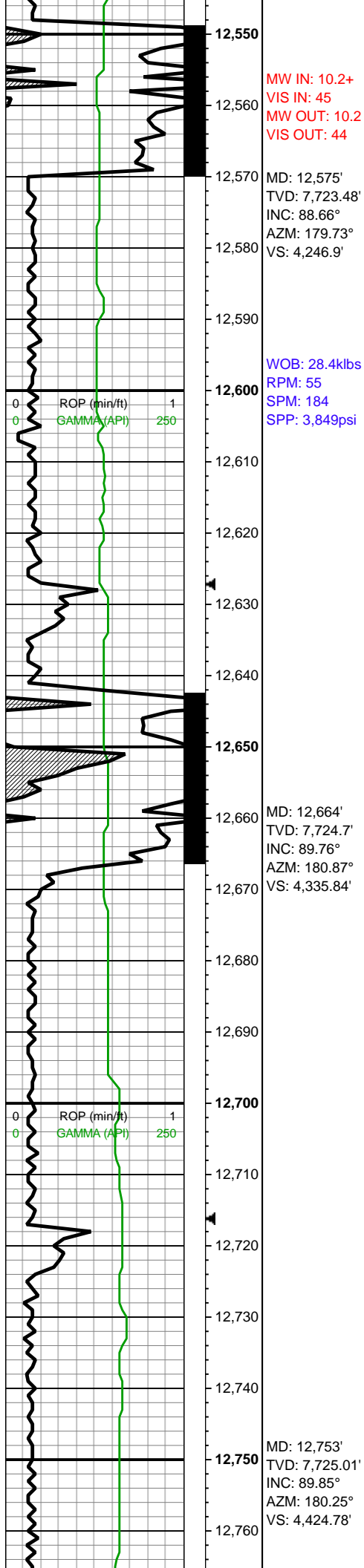
MW IN: 10.3
VIS IN: 45
MW OUT: 10.2+
VIS OUT: 44

MD: 12,486'
TVD: 7,721.19'
INC: 88.4°
AZM: 179.29°
VS: 4,157.94'



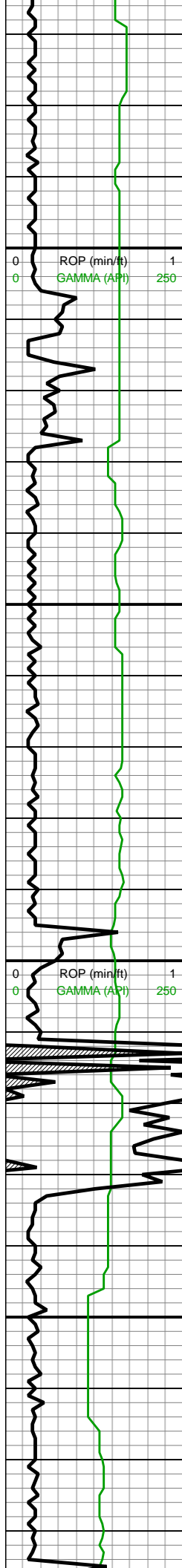
12300-12400 MRLST
(80%): med-v dk gry,
predy blky wi com lamn, v
brit-hrd, micmica, hily
calc; CHK (20%) pred
ltgy-occ gyshbn wi sme
com lt thn chky lamn, sb
blky-blky, v sft-sl frm, rgh
tex wi rr-pp pyr, hily calc,
rr cal

12400-12500 MRLST
(70%): med gy-dk gy, frm,
brit, sb ang-sb blky-blky
ctngs, sl slty tex, com vf
pyr, hi calc; CHK (30%): lt
gy-med gy, frm, brit, mod
fis sb blky-blky ctngs,
slty-sl gt tex wi forams, vf
pyr, hi calc;



12500-12600 MRLST
(60%): dk gy-dk gyshbn,
sb frm-frm, med-hi fis sb
blky-blky-tab ctngs, sm
arg-sl slty tex, rr-tr vf pyr,
hi calc; CHK (40%): med
gy-dk gy, sb frm-frm, brit,
l-mod fis sb rd-sb
blky-blky ctngs wi occ
lamn, scat inoc fos frags,
hi calc

12600-12700 CHK
(50%): gy-lt gy, sme
gyshbn, frm-brit, sb
blky-blky, mod fis, mot wi
occ f wh chky incl, chky
rthy tex, hi calc; MRLST
(50%): dk gy-med gy,
frm-brit, sb blky-blky, pred
sm tex, com intbd chk,
scat inoc fos frags, hi
calc, tr calc vns



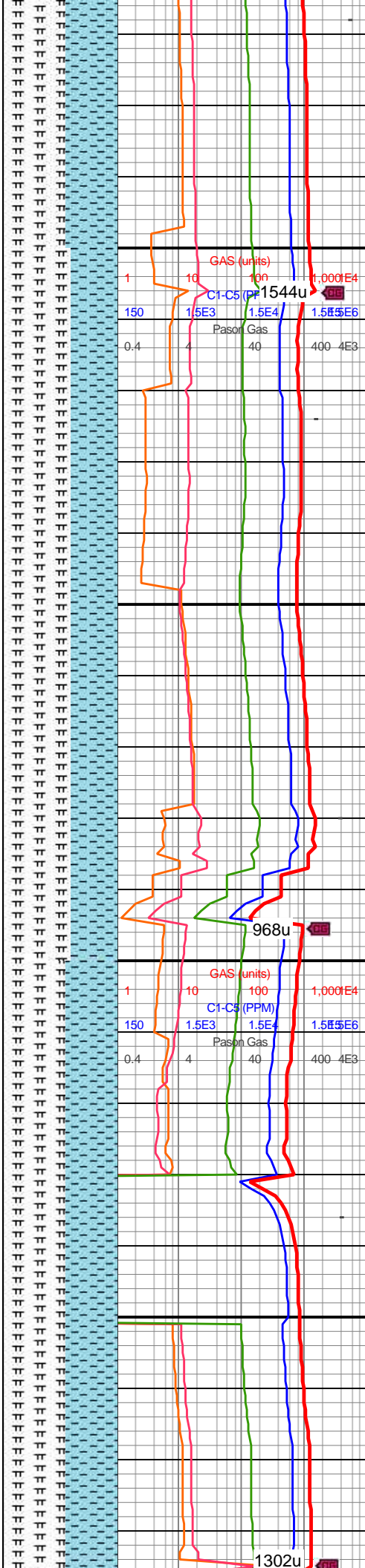
12,770
12,780
12,790
12,800
12,810
12,820
12,830
12,840
12,850
12,860
12,870
12,880
12,890
12,900
12,910
12,920
12,930
12,940
12,950
12,960
12,970
12,980

WOB: 34.8klbs
RPM: 55
SPM: 186
SPP: 3,841psi

MD: 12,842'
TVD: 7,725.58'
INC: 89.41°
AZM: 178.06°
VS: 4,513.77'

MW IN: 10.3+
VIS IN: 44
MW OUT: 10.2+
VIS OUT: 43

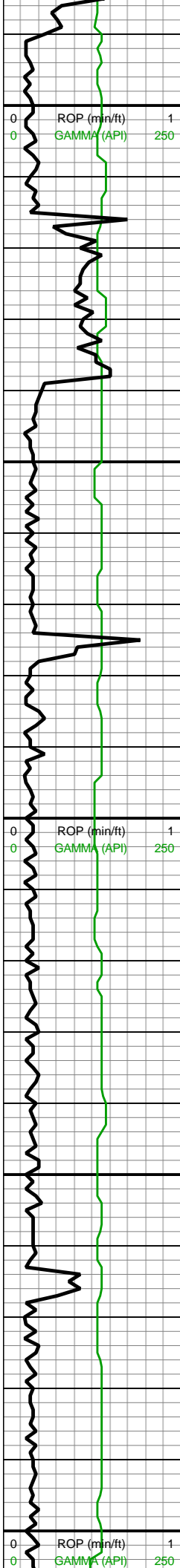
MD: 12,931'
TVD: 7,727.11'
INC: 88.62°
AZM: 180.34°
VS: 4,602.74'



12700-12800 MRLST
(55%): dk gy-v dk gy, occ
brn marl incl, frm-brit,
med-hi fis blkly ctngs, rr vf
pyr strg, mod calc; CHK
(45%): lt gy-med gyshbn,
predy sft, occ sb frm w
hydrated ctngs, l-mod fis
rd-sb rd-sb blkly ctngs, rr
vf pyr, v hi calc

12800-12900 MRLST
(60%): med gyshbn-dk
gy, frm-brit, blkly-sb blkly,
sm arg-sl slty tex, mod
calc; CHK (40%): lt
gy-gyshbn-med gy wi occ
f wh chky incl thru,
frm-brit sb blkly-blky
ctngs, chky tex, occ
cryptoxln, rr-tr foram, tr
fos frags, v calc

12900-13000 MRLST
(55%): gy-gyshbn-dk gy,
mot ip, sb frm-frm l-mod
fis sb rd-sb blkly ctngs, sl
slty tex, tr vf pyr, mod calc
wi brn mrlv readl; CHK

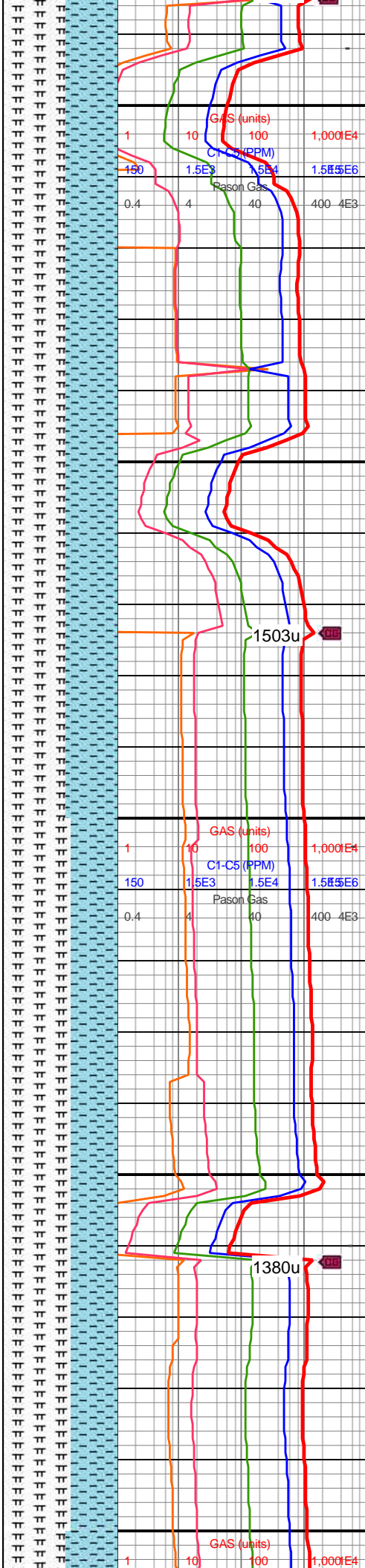


WOB: 34klbs
RPM: 55
SPM: 186
SPP: 3,870psi

MD: 13,020'
TVD: 7,729.05'
INC: 88.88°
AZM: 181.57°
VS: 4,691.64'

MD: 13,109'
TVD: 7,730.35'
INC: 89.45°
AZM: 181.84°
VS: 4,780.49'

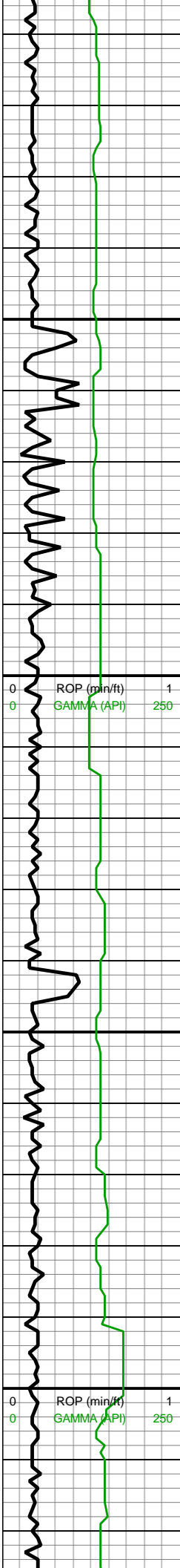
MD: 13,199'
TVD: 7,731.04'
INC: 89.67°
AZM: 181.75°
VS: 4,870.34'



w/brn mrlly resdl; CHK
(45%): lt gy-med gy, sb
frm-frm sb rd-sb blkly
l-mod fis ctngs, sl slty tex,
rr forams, tr bent, hi calc

13000-13100 MRLST
(55%): gy-gyshbn-dk gy,
sb frm-frm-hd, l-mod fis
sb rd-sb blkly ctngs, sl
slty tex, sh mot wi thn brn
marl lamn, tr vf pyr, mod
calc; CHK (45%): lt
gy-med gy, sb frm-frm sb
rd-sb blkly l-mod fis
ctngs, sl slty tex, rr
forams, tr bent, hi calc

13100-13200 MRLST
(60%): gy-gyshbn-dk gy,
mot ip, sb frm-frm l-mod
fis sb rd-sb blkly ctngs, sl
slty tex, tr vf-c pyr, mod
calc wi brn mrlly resdl;
CHK (40%): lt gy-med gy,
sb frm-frm sb rd-sb blkly
l-mod fis ctngs, sl slty tex,
tr c forams, tr tn bent, hi
calc



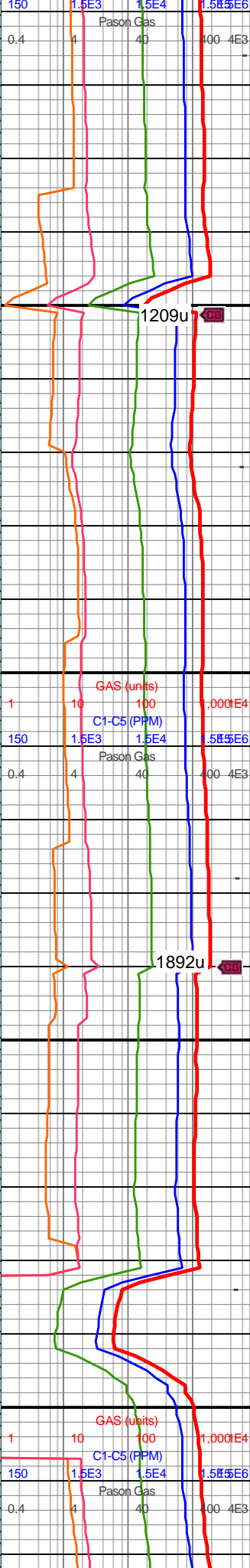
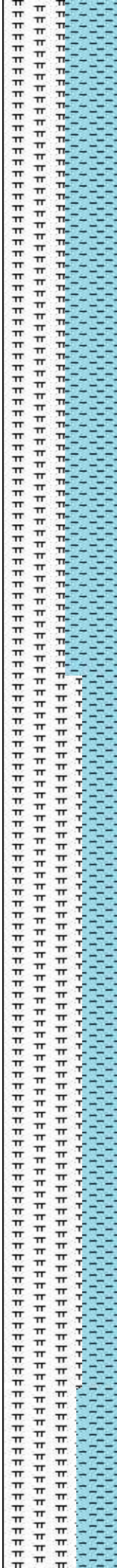
13,210
13,220
13,230
13,240
13,250
13,260
13,270
13,280
13,290
13,300
13,310
13,320
13,330
13,340
13,350
13,360
13,370
13,380
13,390
13,400
13,410
13,420

MW IN: 10.25
VIS IN: 46
MW OUT: 10.2
VIS OUT: 45

MD: 13,288'
TVD: 7,731.48'
INC: 89.76°
AZM: 180.87°
VS: 4,959.23'

MD: 13,377'
TVD: 7,731.79'
INC: 89.85°
AZM: 179.99°
VS: 5,048.18'

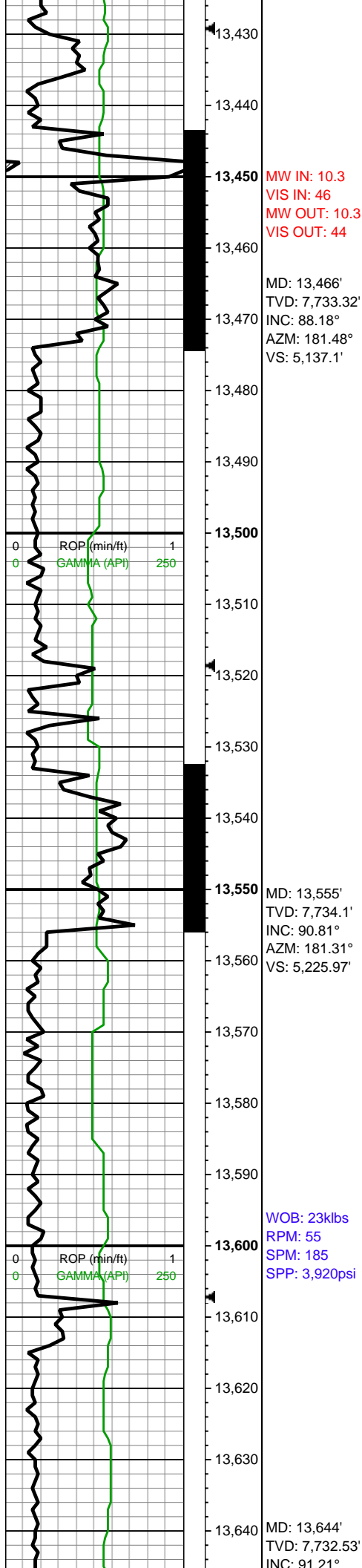
WOB: 24klbs
RPM: 55
SPM: 186
SPP: 3,870psi



13200-13300 MRLST
(55%): gy-gyshbn-dk gy,
sb frm-frm-hd, l-mod fis
sb rd-sb blkly ctngs, sl
slty tex, sh mot wi thn brn
marl lamn, tr vf pyr, mod
calc; CHK (45%): lt
gy-med gy, sb frm-frm sb
rd-sb blkly l-mod fis
ctngs, sl slty tex, tr c
forams, tr bent, hi calc

13300-13400 MRLST
(70%): gy-gyshbn-dk gy,
sb frm-frm-hd l-mod fis
sb rd-sb blkly ctngs, sl
slty-bmpy mot tex, thn
marl lamn & incl, tr vf-c
pyr, mod calc; CHK
(30%): lt gy-med gy wi
com vf thn chky lamn, sb
frm-frm sb rd-sb blkly
l-mod fis ctngs, sl slty tex,
tr c forams, tr tn bent, hi
calc





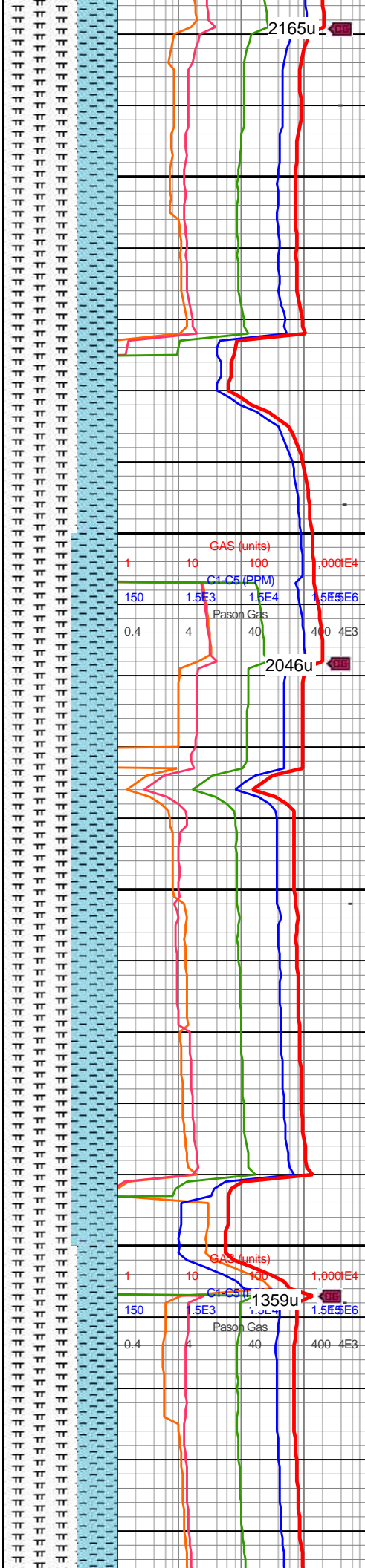
MW IN: 10.3
VIS IN: 46
MW OUT: 10.3
VIS OUT: 44

MD: 13,466'
TVD: 7,733.32'
INC: 88.18°
AZM: 181.48°
VS: 5,137.1'

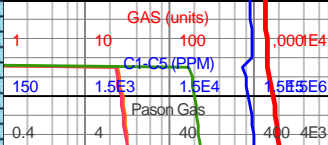
MD: 13,555'
TVD: 7,734.1'
INC: 90.81°
AZM: 181.31°
VS: 5,225.97'

WOB: 23klbs
RPM: 55
SPM: 185
SPP: 3,920psi

MD: 13,644'
TVD: 7,732.53'
INC: 91.21°

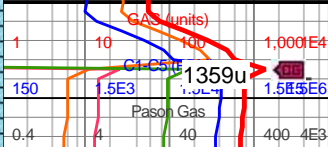


2165u



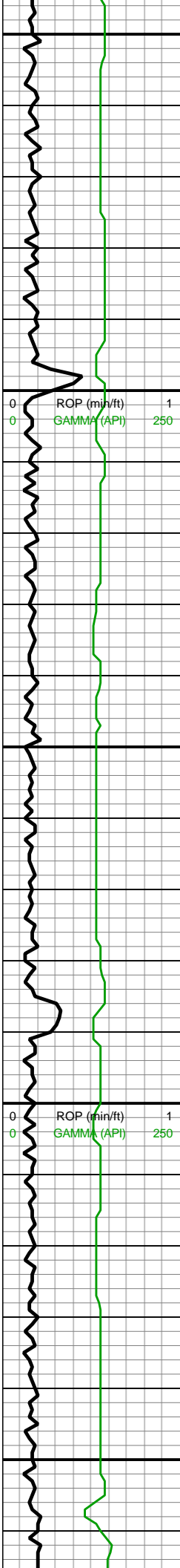
13400-13500 MRLST
(65%): gy-gyshbn-dk gy,
mot ip, sb frm-frm l-mod
fis sb rd-sb blk cy ctngs, sl
sly tex, tr vf-c pyr, mod
calc wi brn mrly resdl;
CHK (35%): lt gy-med gy,
sb frm-frm sb rd-sb blk cy
l-mod fis ctngs, sl sly tex,
tr c forams, tr tn bent, hi
calc

2046u



13500-13600 MRLST
(60%): gy-gyshbn-dk gy,
thn brn marl lamn, sb
frm-frm-hd l-mod fis sb
rd-sb blk cy ctngs, sl
sly-bmpy mot tex, tr vf-c
pyr, mod calc; CHK
(40%): lt gy-med gy wi
com vf thn chky lamn, sb
frm-frm sb rd-sb blk cy
l-mod fis ctngs, sl sly tex,
rr-occ forams, tr tn bent, tr
mict cal-fos frags, hi calc

1359u



AZM: 180.78°
VS: 5,314.87'

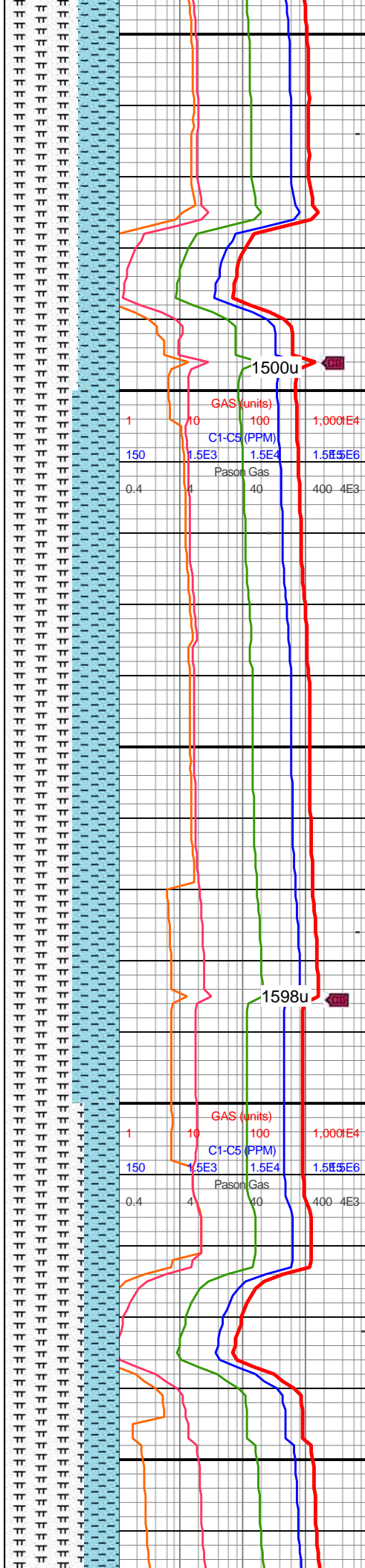
MW IN: 10.3
VIS IN: 46
MW OUT: 10.3
VIS OUT: 44

MD: 13,733'
TVD: 7,730.65'
INC: 91.21°
AZM: 180.08°
VS: 5,403.8'

WOB: 29klbs
RPM: 55
SPM: 184
SPP: 3,810psi

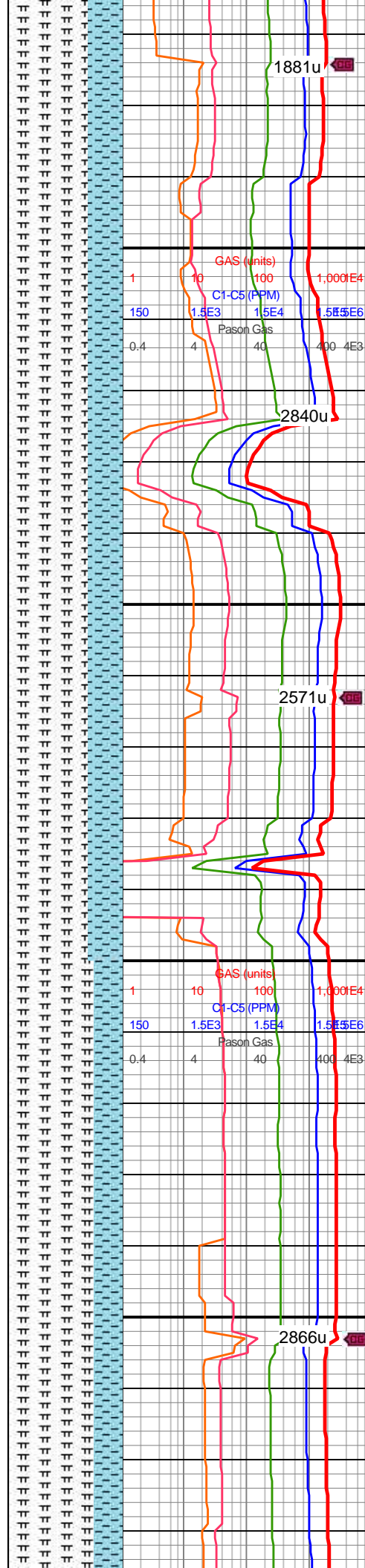
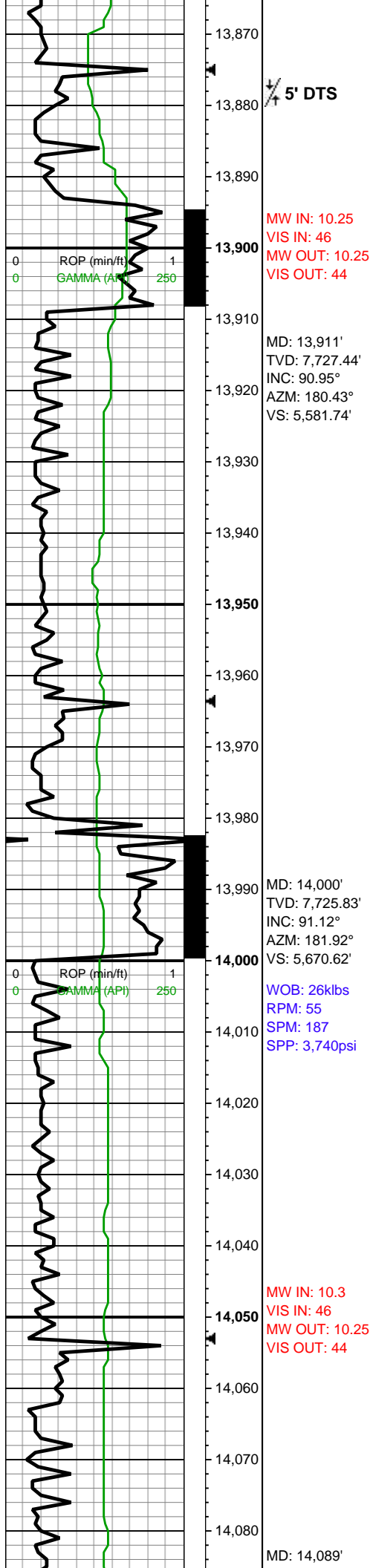
MD: 13,822'
TVD: 7,728.94'
INC: 90.99°
AZM: 178.76°
VS: 5,492.77'

MW IN: 10.3
VIS IN: 46
MW OUT: 10.3
VIS OUT: 44



13600-13700 MRLST
(65%): gy-gyshbn-dk gy,
mot ip, sb frm-frm l-mod
fis sb rd-sb blkly ctngs, sl
silty tex, tr vf-c pyr, mod
calc wi brn mrly resdl;
CHK (35%): lt gy-med gy,
sb frm-frm sb rd-sb blkly
l-mod fis ctngs, sl silty tex,
tr c forams, tr tn bent, hi
calc

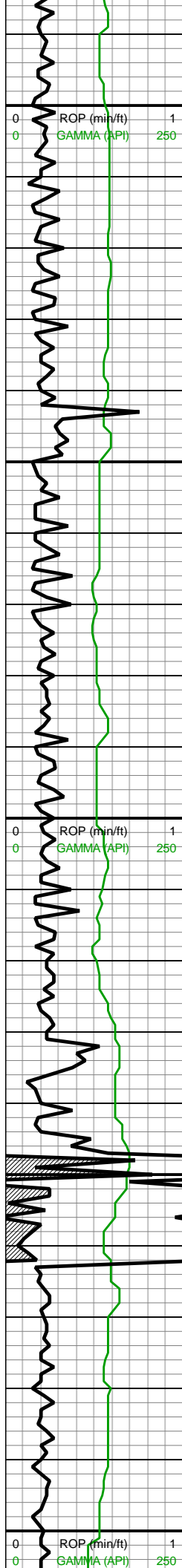
13700-13800 MRLST
(60%): gy-gyshbn-dk gy,
sb frm-frm-hd l-mod fis
sb rd-sb blkly ctngs, sl
silty-bmpy tex, tr vf-c pyr,
mod calc wi brn mrly
resdl; CHK (40%): lt
gy-med gy, sb frm-frm sb
rd-sb blkly l-mod fis
ctngs, sl silty tex, tr c
forams, tr tn bent, hi calc



13800-13900 MRLST
(70%): gy-gyshbn-dk gy,
mot ip, sb frm-frm l-mod
fis sb rd-sb blk cy ctngs, sl
sly tex, tr vf-c pyr, mod
calc wi brn mrlly resdl;
CHK (30%): lt gy-med gy,
sb frm-frm sb rd-sb blk
l-mod fis ctngs, sl sly tex,
tr c forams, tr tn bent, hi
calc

13900-14000 MRLST
(70%): gy-gyshbn-dk gy,
sb frm-frm-hd l-mod fis
sb rd-sb blk cy ctngs, sl
sly-bmpy mot tex, thn
marl lamn & incl, tr vf-c
pyr, mod calc; CHK
(30%): lt gy-med gy wi
com vf thn chky lamn, sb
frm-frm sb rd-sb blk
l-mod fis ctngs, sl sly tex,
tr forams, tr tn bent, hi
calc

14000-14100 MRLST
(75%): gy-gyshbn-dk gy,
mot ip, sb frm-frm l-mod
fis sb rd-sb blk cy ctngs, sl
sly tex, mod calc; CHK



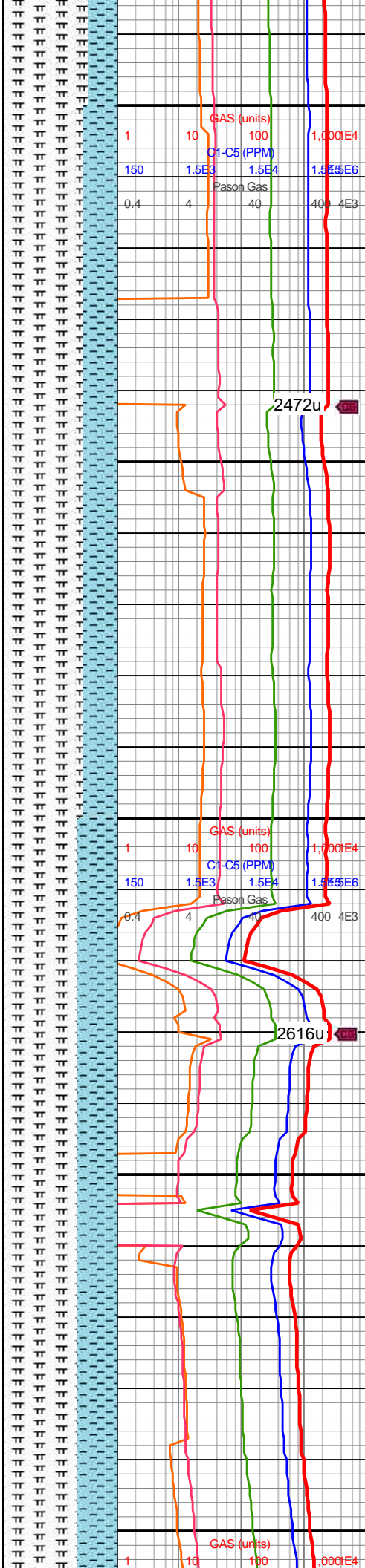
TVD: 7,724.26'
INC: 90.9°
AZM: 181.4°
VS: 5,759.48'

MD: 14,178'
TVD: 7,722.69'
INC: 91.12°
AZM: 180.78°
VS: 5,848.37'

WOB: 25klbs
RPM: 55
SPM: 186
SPP: 3,900psi

MW IN: 10.35
VIS IN: 46
MW OUT: 10.3
VIS OUT: 44

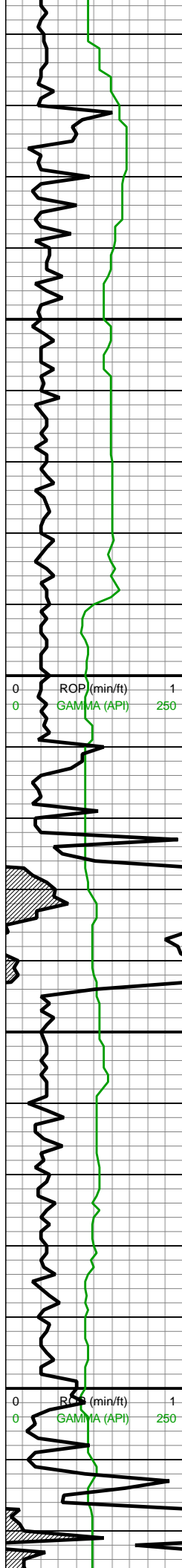
MD: 14,268'
TVD: 7,721.8'
INC: 90.02°
AZM: 180.43°
VS: 5,938.31'



(25%): lt gy-med gy, sb
frm-frm sb rd-sb blk
l-mod fis ctngs, sl slty tex,
tr c forams, hi calc

14100-14200 MRLST
(70%): gy-gyshbn-dk gy,
sb frm-frm-hd, sb rd-sb
blk l-mod fis ctngs, sm
arg-sl slty tex, thn marl
lamn & incl, mod calc wi
brn mrly resdl; CHK
(30%): lt gy-med gy wi thn
lt gy chky lamn, sb
frm-frm-brit, sb rd-sb blk
l-mod fis ctngs, sl slty tex,
tr forams, hi calc

14200-14300 MRLST
(65%): gy-gyshbn-dk gy,
mot ip, sb frm-frm l-mod
fis sb rd-sb blk ctngs, sl
slty tex, tr vf-c pyr, mod
calc wi brn mrly resdl;
CHK (35%): lt gy-med gy,
sb frm-frm sb rd-sb blk
l-mod fis ctngs, sl slty tex,
tr c forams, tr tn bent, hi
calc



14,310
14,320
14,330
14,340
14,350
14,360
14,370
14,380
14,390
14,400
14,410
14,420
14,430
14,440
14,450
14,460
14,470
14,480
14,490
14,500
14,510
14,520

MW IN: 10.35
VIS IN: 46
MW OUT: 10.3
VIS OUT: 44

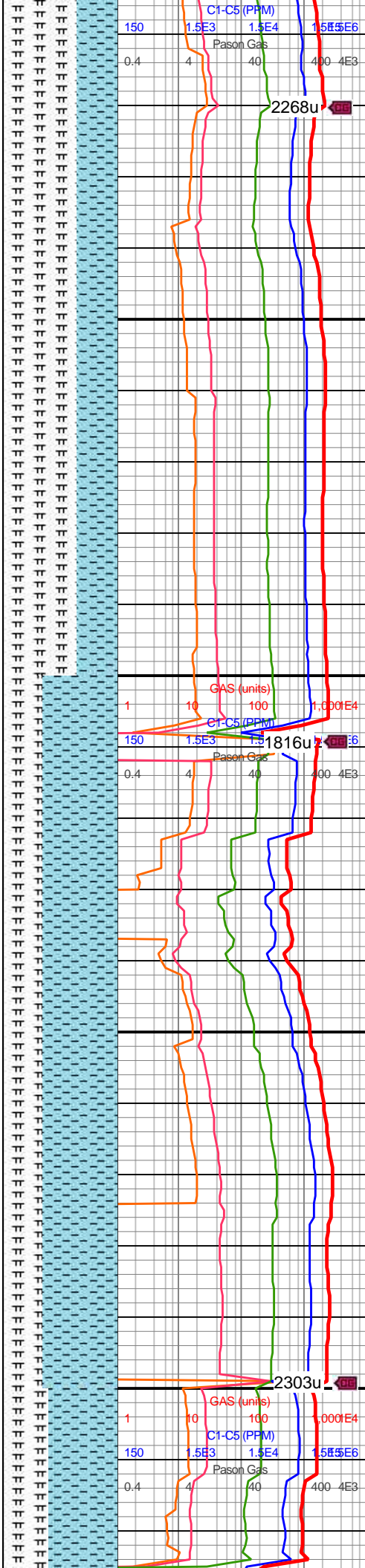
MD: 14,357'
TVD: 7,721.18'
INC: 90.77°
AZM: 179.73°
VS: 6,027.27'

11' DTN

WOB: 34klbs
RPM: 55
SPM: 184
SPP: 3,890psi

MD: 14,446'
TVD: 7,720.47'
INC: 90.15°
AZM: 179.38°
VS: 6,116.25'

MW IN: 10.55
VIS IN: 46
MW OUT: 10.4
VIS OUT: 44



2268u

GAS (units)
C1-C5 (PPM)
Pason Gas

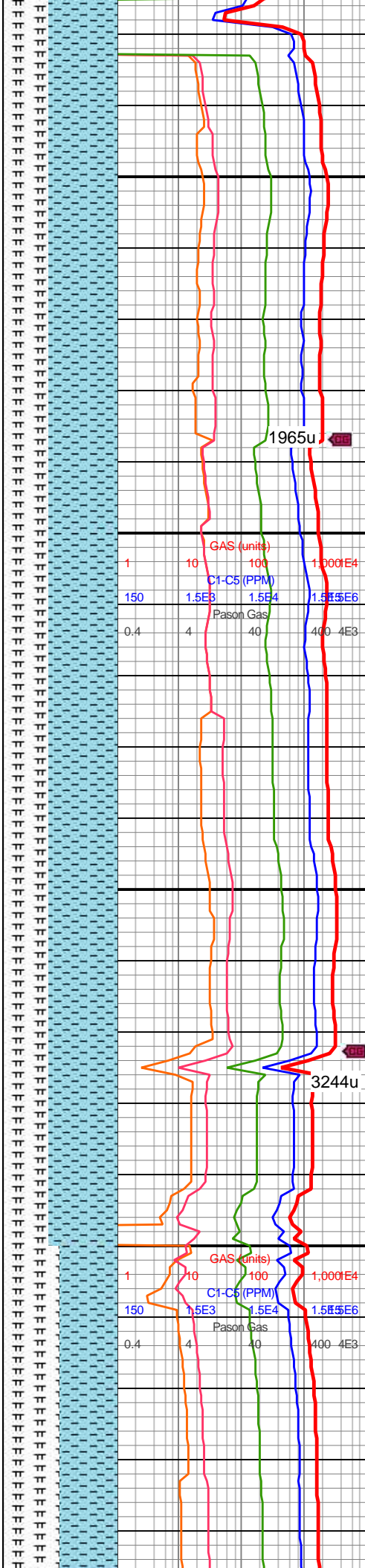
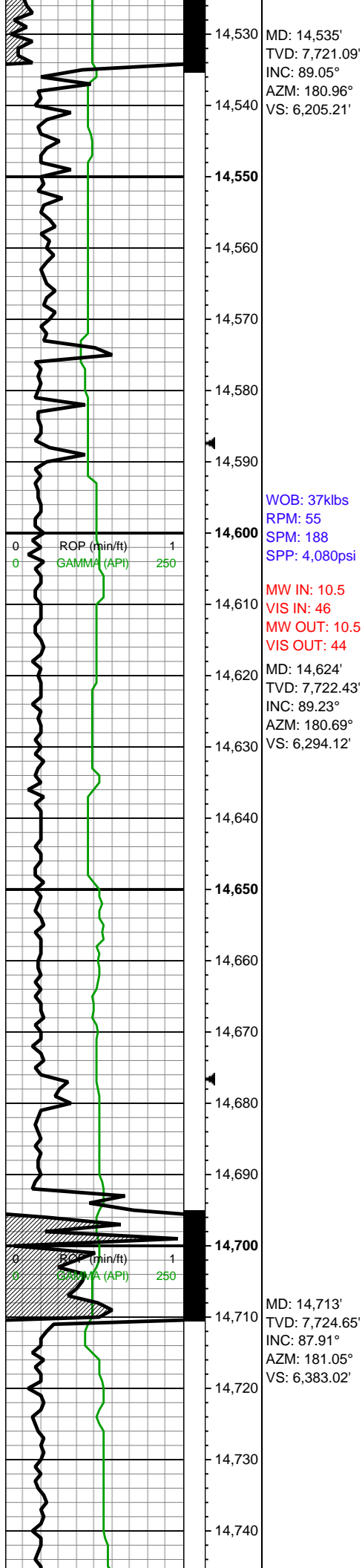
1816u

GAS (units)
C1-C5 (PPM)
Pason Gas

2303u

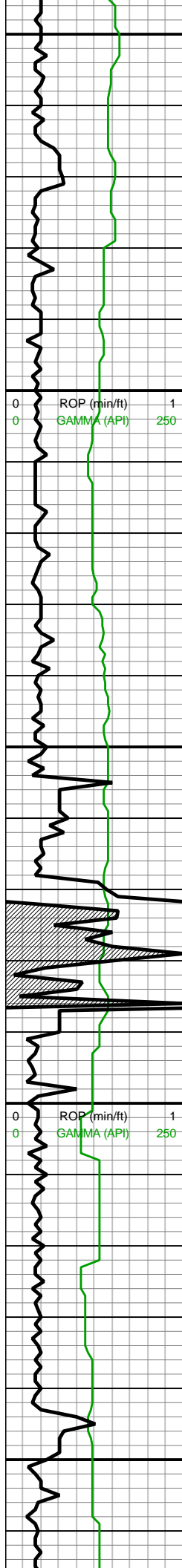
14300-14400 MRLST
(65%): gy-gyshbn-dk gy,
mot ip, sb frm-frm-hd
l-mod fis sb rd-sb blk
ctngs, sl slty tex, tr tn
bent, tr vf-c pyr strg, mod
calc wi brn mrly resdl;
CHK (35%): lt
gy-gyshbn-med gy wi f
wh-lt gy chky lamn &
foram incl, sb
frm-frm-brit, sb rd-sb blk
l-mod fis ctngs, sl slty tex,
tr c forams, hi calc

14400-14500 CHK
(65%): med gy-dk gy wi f
wh chky incl & foram thru,
mod fis sb ang-sb blk
ctngs, sl slty tex, rr-occ
forams, tr tn bent, tr vf pyr,
hi calc; MRLST (35%): dk
gy-v dk gy, frm, brit ip, sb
rd-sb blk-bkly l-mod fis
ctngs, sm arg-sl slty tex,
sp wi brn marl incl ip, rr
wh-th bent, mod calc wi
brn mrly resdl



14500-14600 CHK
(60%): lt gy-med gy, sb
frm-frm sb rd-sb blk
l-mod fis ctngs, sl slty tex,
rr forams, tr tn bent, hi
calc; MRLST (40%):
gy-gyshbn-dk gy, mot ip,
sb frm-frm l-mod fis sb
rd-sb blk ctngs, sl slty
tex, tr vf-c pyr, mod calc wi
brn mrly resdl

14600-14700 CHK
(60%): lt gy-med gy, dk gy
ip, l-mod fis sb ang-sb
rd-sb blk ctngs, sl slty
tex, occ-com forams, tr
fos frags, tr vf pyr, hi calc;
MRLST (40%): dk gy-v dk
gy, frm, brit ip, sb rd-sb
blk-blky l-mod fis ctngs,
sm arg-sl slty tex, sp wi
brn marl incl ip, rr wh-th
bent, mod calc wi brn
mrly resdl



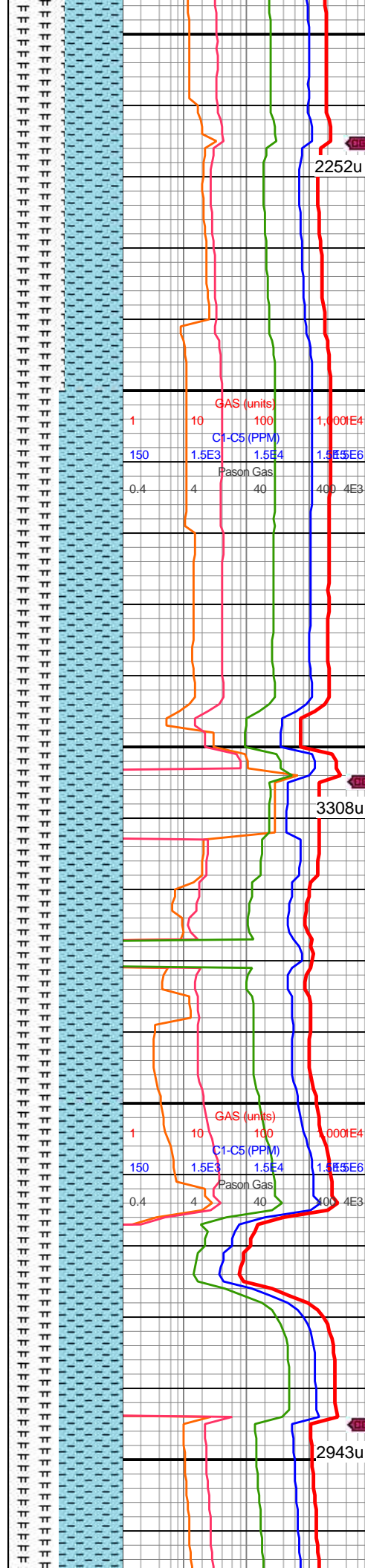
MW IN: 10.5+
VIS IN: 46
MW OUT: 10.5
VIS OUT: 44

WOB: 42.2klbs
RPM: 55
SPM: 182
SPP: 4,099psi

MD: 14,802'
TVD: 7,727.99'
INC: 87.78°
AZM: 180.69°
VS: 6,471.88'

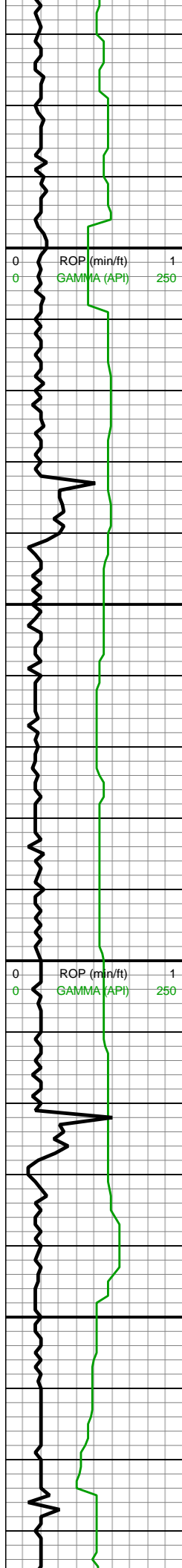
MW IN: 10.5
VIS IN: 44
MW OUT: 10.5
VIS OUT: 43

MD: 14,892'
TVD: 7,731.86'
INC: 87.3°
AZM: 182.19°
VS: 6,561.68'



14700-14800 MRLST
(50%): dk gy-v dk gy, sb
frm-frm-brit, mod fis sb
blky-blky-sb plty ctngs, sl
silty tex, occ vf pyr thru,
mod calc; CHK (50%):
gy-dk gy wi f wh chky incl
& forams, frm, brit ip,
l-mod fis sb rd-sb blky
ctngs, rr forams, tr vf pyr,
hi calc

14800-14900 CHK
(55%): predy
gyshbn-med gy, sme lt
gy, sb blky-sb ang ctngs,
fri-frm, tr intbd MRLST,
sm chky tex, scat mic fos
frags, calc; MRLST
(45%): dk gyshbn-dk gy,
frm-sl hd, sb blky-ang
ctngs, sl sm-rgh tex, com
intbd CHK, hi calc



14,970
14,980
14,990
15,000
15,010
15,020
15,030
15,040
15,050
15,060
15,070
15,080
15,090
15,100
15,110
15,120
15,130
15,140
15,150
15,160
15,170
15,180

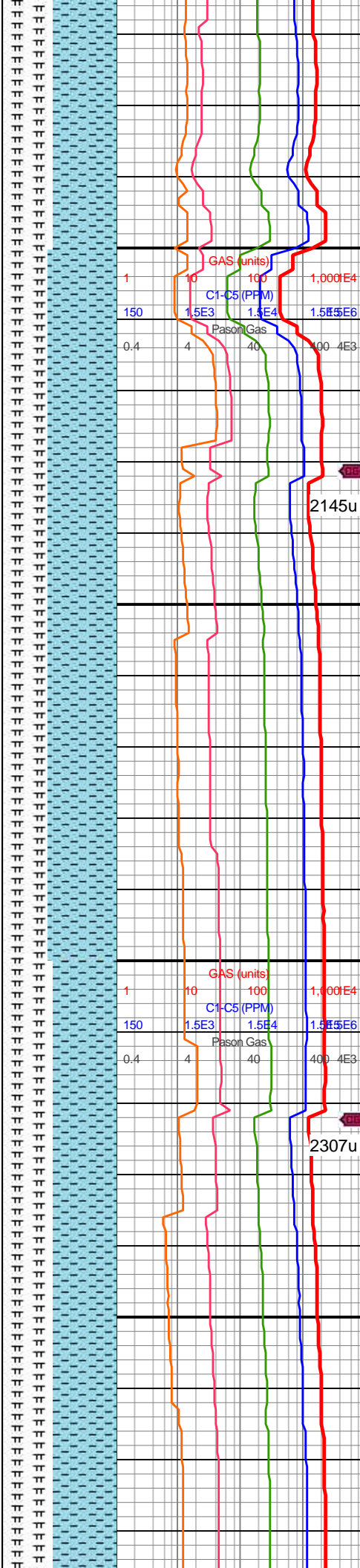
MD: 14,981'
TVD: 7,736.16'
INC: 87.16°
AZM: 181.66°
VS: 6,650.41'

WOB: 35.8klbs
RPM: 55
SPM: 184
SPP: 4,046psi

MW IN: 10.5
VIS IN: 45
MW OUT: 10.5
VIS OUT: 44

MD: 15,070'
TVD: 7,740.53'
INC: 87.21°
AZM: 181.05°
VS: 6,739.2'

MD: 15,159'
TVD: 7,744.76'
INC: 87.34°
AZM: 180.96°
VS: 6,828.01'

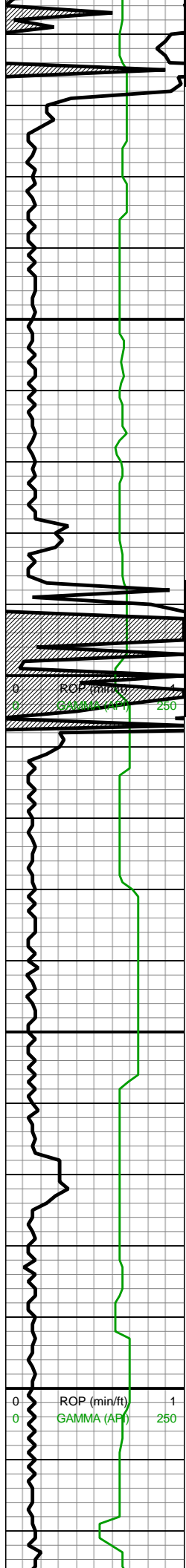


14900-15000 CHK (55%)
med gyshbn-lt gy, mot,
sb blkly wi occ plty, v chky
tex, v sft-sl frm, scat-com
inoc fos frags, tr-rr pyr, v
calc; MRLST (45%)
med-dk gry wi sme lt gy,
sb-blky, sl lam-rr
micmica, v calc, sme
scat cal

15000-15100 CHK (60%)
med gyshbn-lt gy, mot,
sb blkly wi occ plty, v chky
tex, v sft-sl frm, scat-com
inoc fos frags, tr-rr pyr, v
calc; MRLST (40%)
med-dk gry wi sme lt gy,
sb-blky, sl lam-rr
micmica, v calc, sme
scat cal

15100-15200 CHK
(55%): med gy-dk
gyshbn, sb blkly ctngs,
fri-frm, tr MRLST intbd,
sm chky tex, mod-hi calc;
MRLST (45%): dk





MD: 15,426'
TVD: 7,753.8'
INC: 88.84°
AZM: 182.45°
VS: 7,094.38'

MW IN: 10.5
VIS IN: 45
MW OUT: 10.6
VIS OUT: 43

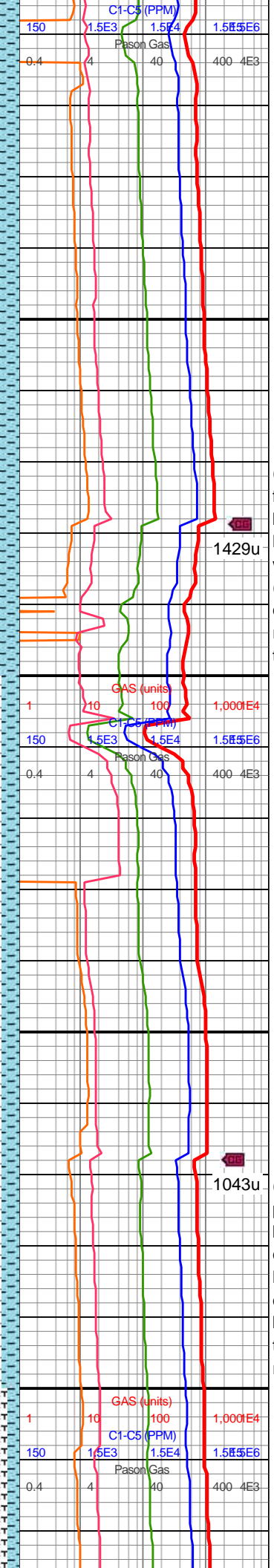
MW IN: 10.5
VIS IN: 46
MW OUT: 10.5+
VIS OUT: 44

MD: 15,515'
TVD: 7,755.33'
INC: 89.19°
AZM: 182.71°
VS: 7,183.14'

MINDEPTH 1/21/19

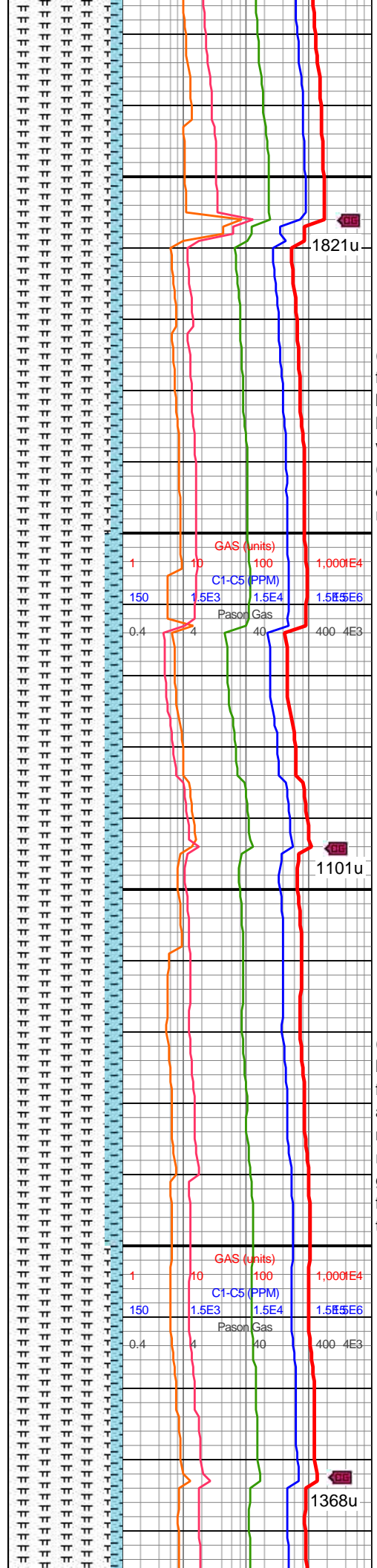
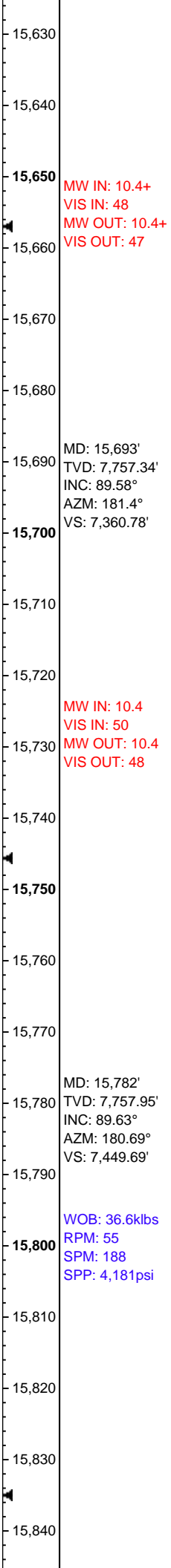
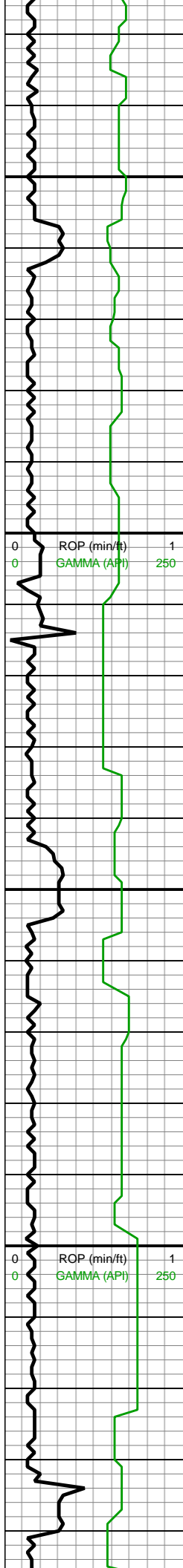
WOB: 36.8klbs
RPM: 55
SPM: 184
SPP: 4,161psi

MD: 15,604'
TVD: 7,756.49'
INC: 89.32°
AZM: 182.1°
VS: 7,271.93'



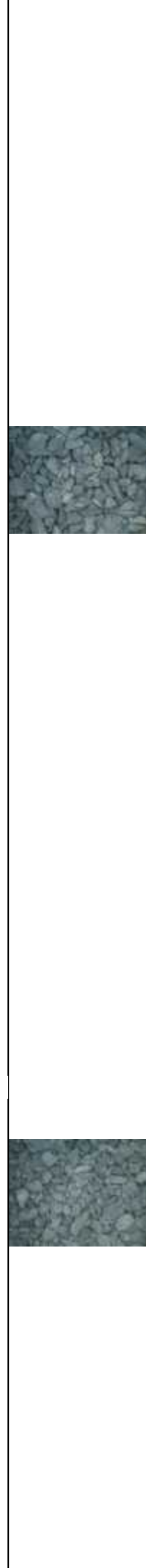
15400-15500 MRLST
(80%): dk gy-v dk gy, sb
frm-frm-brit, med-hi fis
blky-tab ctngs wi dull rthy
lstr, sl slty tex, mod calc
wi brn mrly resdl; CHK
(20%): dk gy wi thn wh
chky lamn ip, l-mod fis sb
rd-sb blky ctngs, sl slty
tex, hi calc

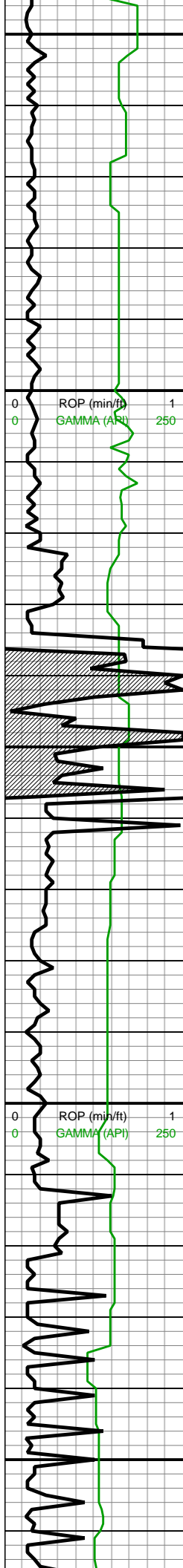
15500-15600 MRLST
(85%): med-v dk gry,
predy blky wi com lamn, v
brit-hrd, micmica, hily
calc; CHK (15%) pred
ltgy-occ gyshbn wi sme
com lt thn chky lamn, sb
blky-blky, v sft-sl frm, rgh
tex wi rr-pp pyr, hily calc,
rr cal



15600-15700 MRLST (90%): dk gy-v dk gy, sb frm-frm-brit, med-hi fis blkly-tab ctngs wi dull rthy lstr, sl slty tex, mod calc wi brn mrly resdl; CHK (10%): dk gy spec wi wh chky incl, l-mod fis sb rd-sb blkly ctngs, hi calc

15700-15800 MRLST (85%): med gy-dk gy, brn hue ip, mod fis sb frm-frm sb blkly ctngs, sm arg-sl slty tex, tr vf pyr, mod calc wi brn mrly resdl; CHK (15%): lt gy-med gy, frm-brit, mod fis sb blkly-bkly ctngs wi thn chky lamn, hi calc





15,850
15,860
15,870
15,880
15,890
15,900
15,910
15,920
15,930
15,940
15,950
15,960
15,970
15,980
15,990
16,000
16,010
16,020
16,030
16,040
16,050
16,060

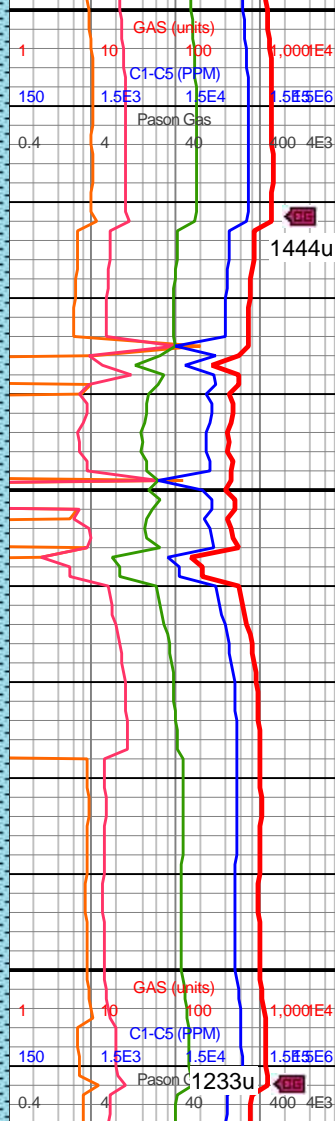
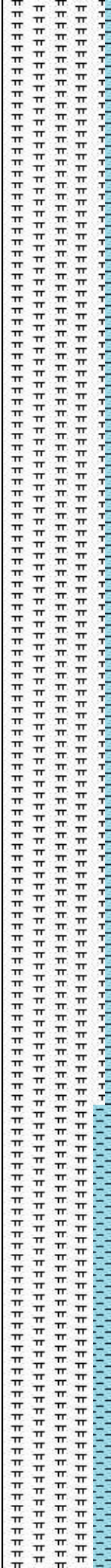
MD: 15,871'
TVD: 7,758.87'
INC: 89.19°
AZM: 180.17°
VS: 7,538.64'

MW IN: 10.4
VIS IN: 49
MW OUT: 10.4
VIS OUT: 49

MD: 15,960'
TVD: 7,758.49'
INC: 91.3°
AZM: 180.08°
VS: 7,627.6'

WOB: 25.9klbs
RPM: 55
SPM: 186
SPP: 4,227psi

MD: 16,050'
TVD: 7,756.1'
INC: 91.74°
AZM: 179.29°
VS: 7,717.54'

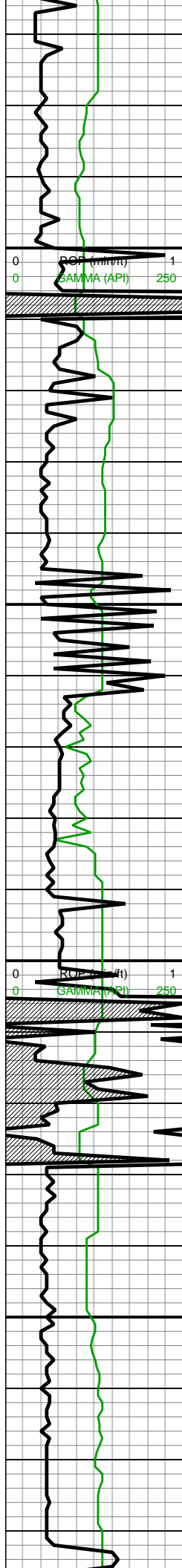


15800-15900 MRLST
(90%): v dk gy-dk gyshbn
ip, frm-v frm, blk, v calc,
rgh tex, mot-stri, sme fy
lam, tr pp pyr; CHK
(10%): dk gy-brn, com lt
gy-mot, blk, sft, fri, chky
tex, occ stri

15900-16000 MRLST
(90%): dk gy, frm-brit,
mod fis sb blk ctngs,
am-sl slty tex, tr vf pyr,
mod calc wi brn mrlly
resd; CHK (10%): med
gy-occ dk gy, f wh-elong
chky incl & lamn thru,
predy frm-brit, sb frm ip,
l-mod fis sb rd-sb blk
ctngs, rr forams, rr bent,
tr fos frags/mict cal, hi
calc

16000-16100 MRLST
(80%): dk gy, frm-brit, sb





16,070
16,080
16,090
16,100
16,110
16,120
16,130
16,140
16,150
16,160
16,170
16,180
16,190
16,200
16,210
16,220
16,230
16,240
16,250
16,260
16,270
16,280

MD: 16,133'
TVD: 7,753.08'
INC: 92.44°
AZM: 178.32°
VS: 7,800.49'

**TOOH for BHA
@ 07:00hrs on
1/21/19**

MINDEPTH 1/22/19

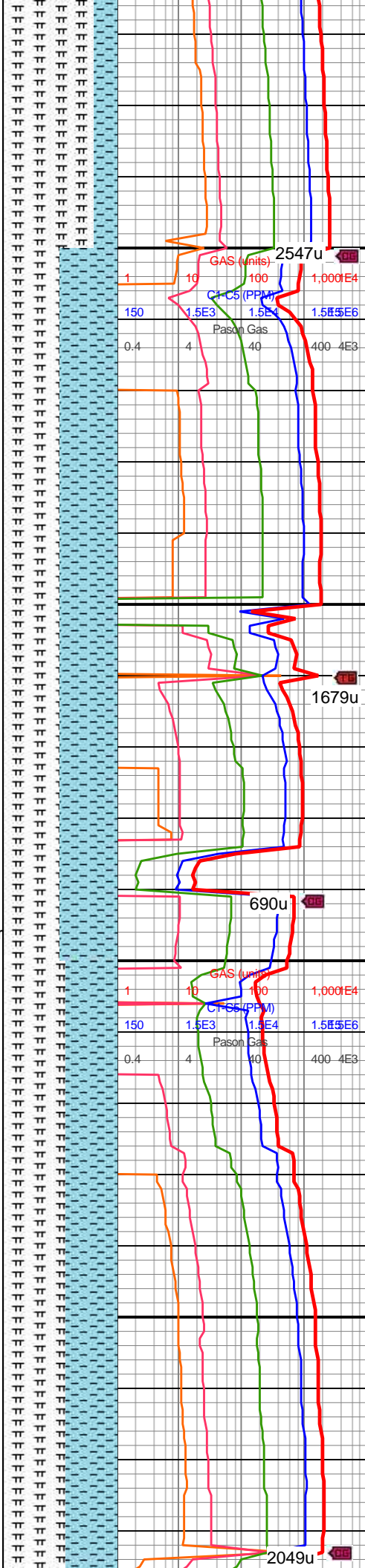
**Resumed
drilling @
03:40hrs on
1/22/19**
Bit #: 2
Type: U516M
Size: 8 1/2
Depth In: 16,160'
Depth Out:
17,524'
Hours: 8.1 hrs
Avg Ft/Hr: 168 '/hr
Jets: 6x13
S/N: 44337

WOB: 24klbs
RPM: 55
SPM: 182
SPP: 4,060psi

MD: 16,222'
TVD: 7,750.38'
INC: 91.03°
AZM: 177.18°
VS: 7,889.43'

MW IN: 10.8
VIS IN: 85
MW OUT: 10.6
VIS OUT: 69

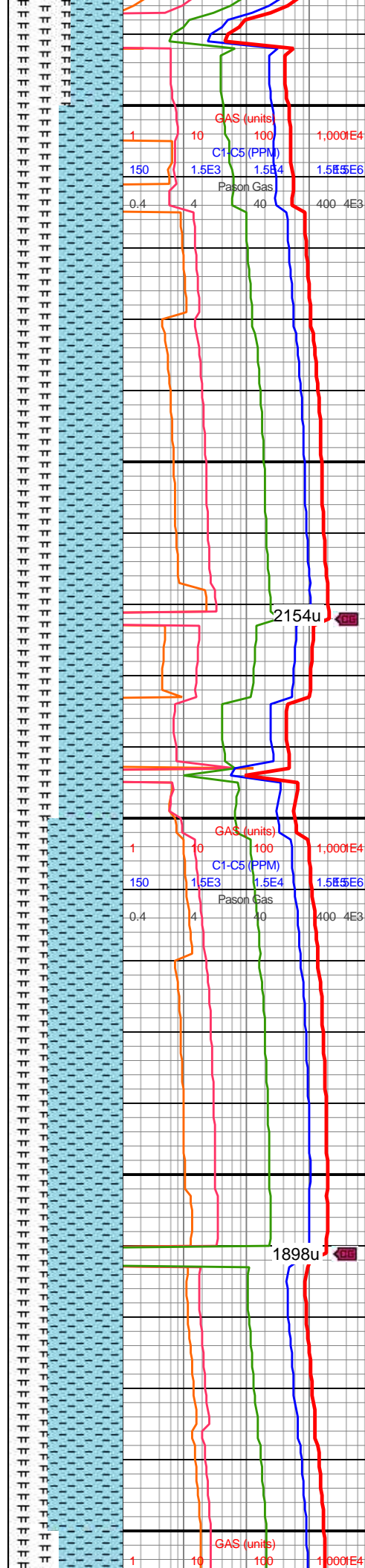
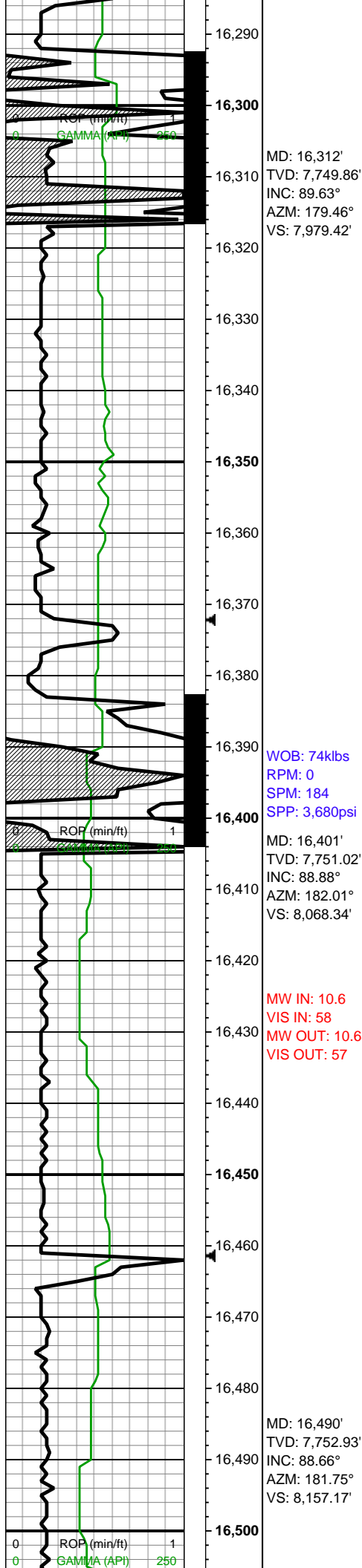
MW IN: 10.65
VIS IN: 63
MW OUT: 10.65
VIS OUT: 61



rd-sb blkly l-mod fis ctngs
wi sm arg-sltly tex, tr vf
pyr, mod calc; CHK
(20%): med gy-occ dk gy
lt gy wi f wh chky lamn
thru, f wh-elong chky
foram incl ip, frm-brit,
l-mod fis sb rd-sb blkly
ctngs, rr forams, rr bent,
tr fos frags/mict cal, hi
calc

16100-16200 CHK
(50%): gy-gyshbn-dk gy
wi com wh chky foram
incl, frm, brit, mod fis sb
ang-sb blkly ctngs, sl slty
tex, com-abnt forams,
com acic fos frags, rr vf-f
pyr, hi calc; MRLST
(50%): dk gy-v dk gy,
frm-brit sb rd-sb blkly
mod fis ctngs, slty tex,
mod calc wi brn mrly
resdl

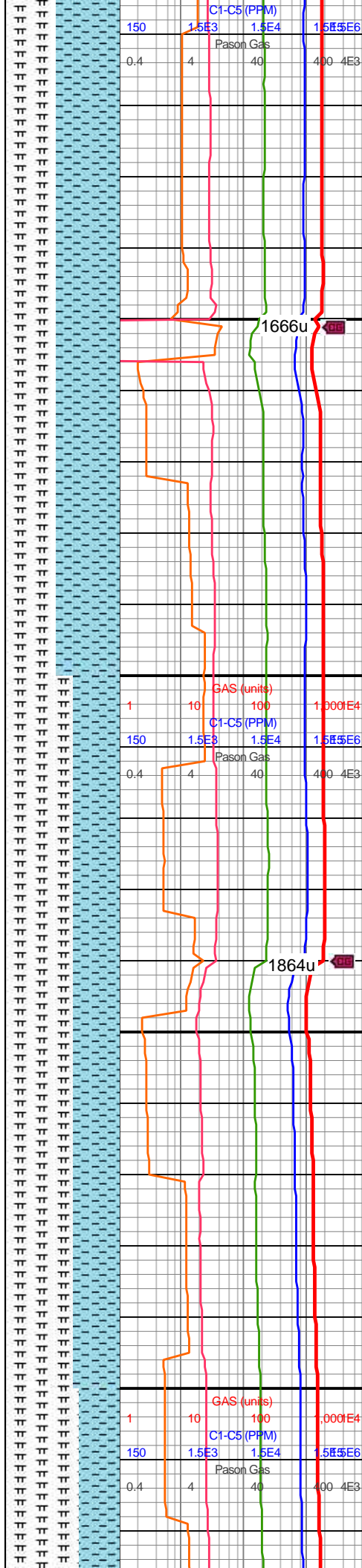
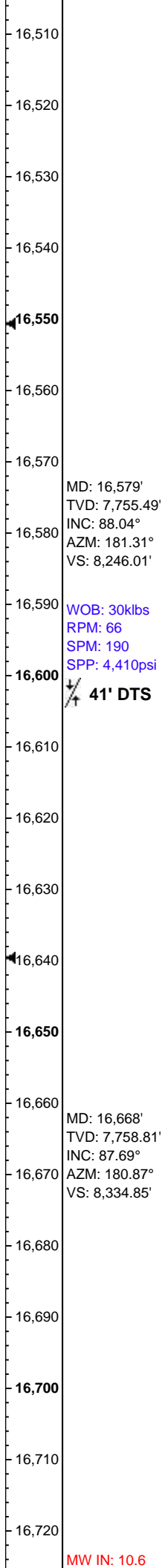
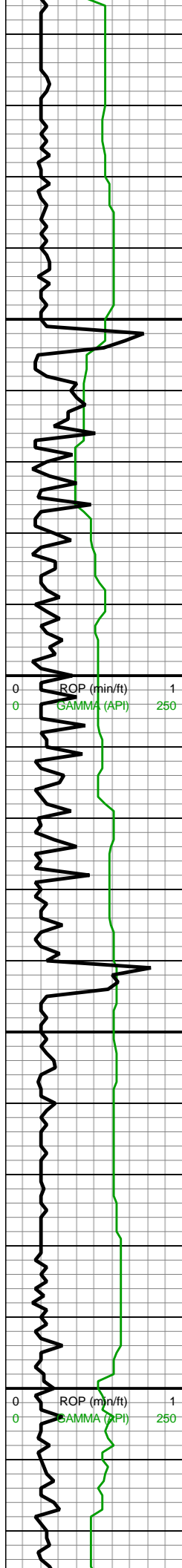
16200-16300 MRLST
(55%): dk gy, occ dk
gyshbn, sb frm-frm-brit,
sb rd-sb blkly l-mod fis
ctngs wi sm arg-sltly tex,
tr vf pyr, mod calc; CHK
(45%): med gy-dk gy wi
wh chky foram incl & f



wh chky foram incl & f
chky lamn thru, frm-brit,
l-mod fis sb rd-sb blk
ctngs, occ-com forams, tr
acic fos frags, hi calc

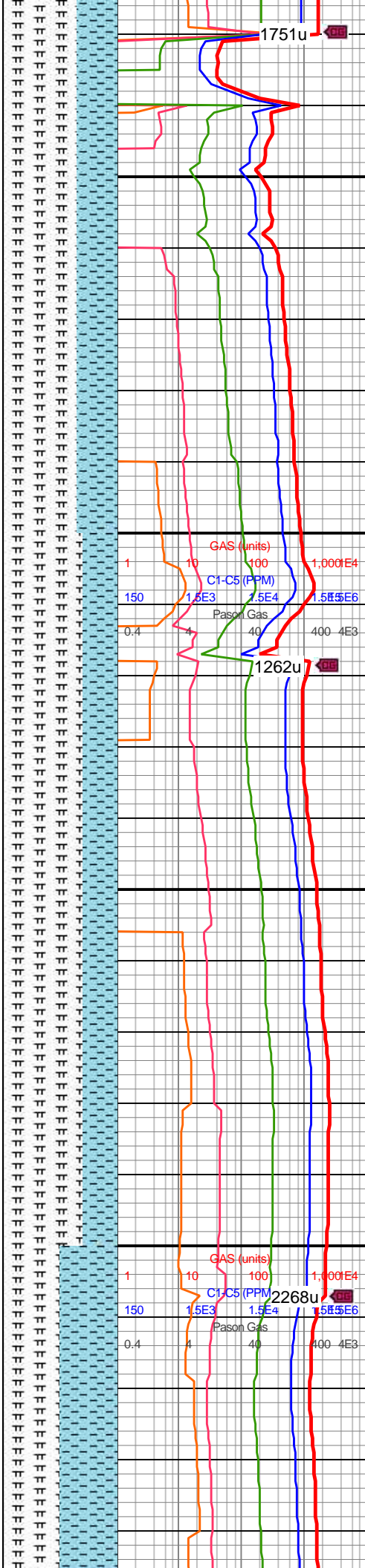
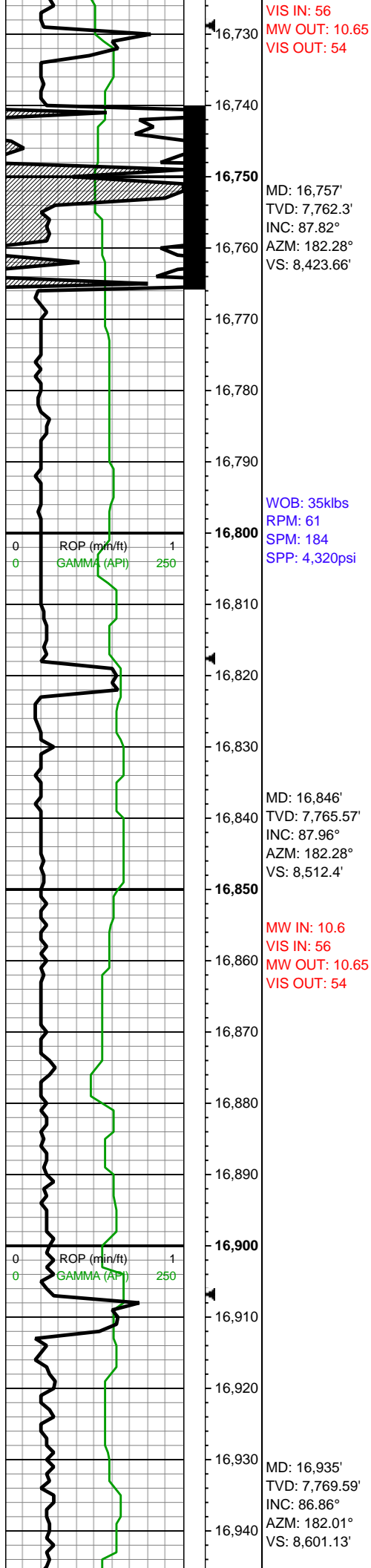
16300-16400 CHK
(55%): gy-dk gy wi com
wh chky foram incl, frm,
brit, mod fis sb ang-sb
blk cytns, sl slty tex, com
forams, rr fos frags, rr vf-f
pyr, hi calc; MRLST
(45%): dk gy-v dk gy,
frm-brit sb rd-sb blk
mod fis cytns, slty tex,
mod calc wi brn mrlly
resdl

16400-16500 CHK
(65%): med gy-dk gy wi
wh chky foram incl & f
chky lamn thru, frm-brit,
l-mod fis sb rd-sb blk
cytns, occ-com forams,
occ tn bent, rr-tr acic fos
frags, hi calc; MRLST
(35%): dk gy, occ dk
gyshbn, sb frm-frm-brit,
sb rd-sb blk l-mod fis
cytns wi sm arg-slty tex,
tr vf pyr, mod calc



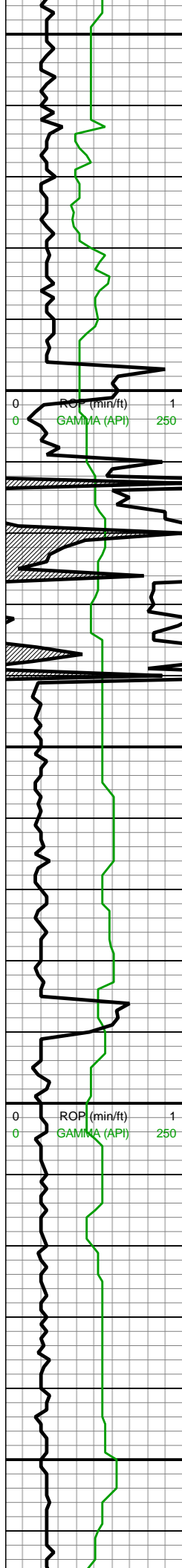
16500-16600 CHK
(55%): med gy-dk gy wi
wh chky foram incl & f
chky lamn thru, frm-brit,
l-mod fis sb rd-sb blk
ctngs, occ-com forams,
occ tn bent, rr-tr acic fos
frags, hi calc; MRLST
(45%): dk gy, occ dk
gyshbn, sb frm-frm-brit,
sb rd-sb blk l-mod fis
ctngs wi sm arg-sltly tex,
tr vf pyr, mod calc

16600-16700 MRLST
(60%): dk gy-dk gyshbn,
sb frm-frm sb rd-sb blk
l-mod fis ctngs wi sm
arg-sl slty tex, tr vf pyr,
mod calc wi brn mrlly
resdl; CHK (40%): med
gy-dk gy wi vf-f wh chky
foram incl, frm-brit, l-mod
fis sb rd-sb blk ctngs,
occ-com forams, occ tn
bent, hi calc



16700-16800 MRLST
(65%): dk gy-dk gyshbn
sh sp wi brn marl incl, sb
frm-frm, l-mod fis sb
rd-sb blkly fis ctngs wi sm
arg-sl slty tex, tr vf pyr,
mod calc wi brn resdl;
CHK (35%): med gy-dk
gy wi vf-f wh chky foram
incl, frm-brit, l-mod fis sb
rd-sb blkly ctngs, occ-com
forams, occ tn bent, hi
calc

16800-16900 MRLST
(70%): predy dk gy, dk
gyshbn ip, sb frm-frm sb
rd-sb blkly l fis ctngs, sm
arg-sl slty tex, tr vf pyr,
mod calc wi brn mrly
resdl; CHK (30%): med
gy-dk gy wi occ vf thn chky
lamn, frm-brit, l-mod fis
sb rd-sb blkly ctngs, rr vf-f
wh chky foram incl, rr-tr
fos frags, tr tn bent, hi
calc



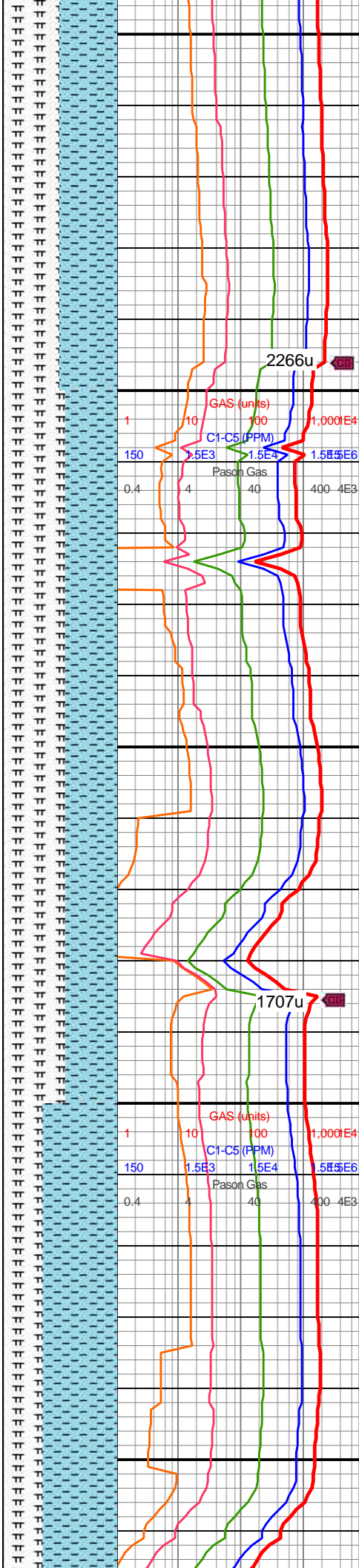
16,950
16,960
16,970
16,980
16,990
17,000
17,010
17,020
17,030
17,040
17,050
17,060
17,070
17,080
17,090
17,100
17,110
17,120
17,130
17,140
17,150
17,160

WOB: 32klbs
RPM: 60
SPM: 188
SPP: 3,950psi

MW IN: 10.65
VIS IN: 54
MW OUT: 10.65
VIS OUT: 52

MD: 17,025'
TVD: 7,773.11'
INC: 88.66°
AZM: 182.19°
VS: 8,690.88'

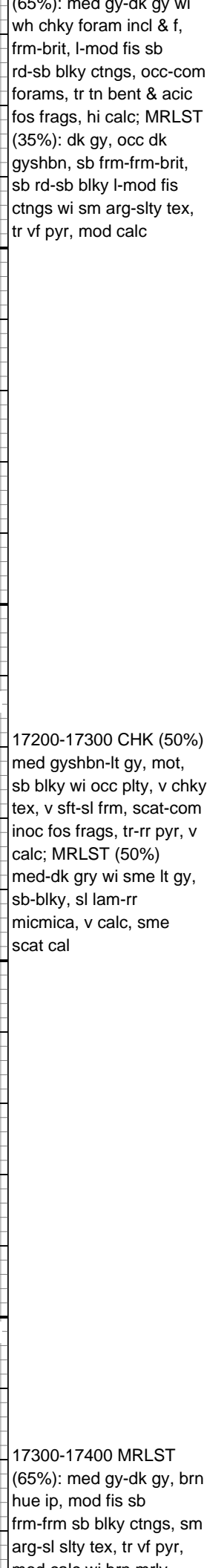
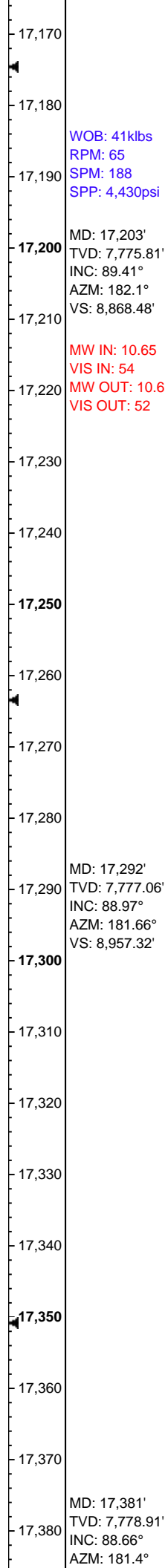
MD: 17,114'
TVD: 7,774.75'
INC: 89.23°
AZM: 182.36°
VS: 8,779.68'



16900-17000 CHK
(50%): med gy-dk gy,
frm-brit, l-mod fis sb
rd-sb blkly ctngs wi occ vf
thn chky lamn, rr vf-f wh
chky foram incl, tr acic fos
frags, hi calc; MRLST
(50%): dk gy, dk gyshbn
ip, sb frm-frm sb rd-sb
blkly l fis ctngs, sm arg-sl
silty tex, tr vf pyr, mod calc
wi brn resdl

17000-17100 MRLST
(55%): dk gy, sb frm-frm
sb rd-sb blkly l fis ctngs,
sm arg-sl slty tex, tr vf pyr,
mod calc wi brn resdl;
CHK (45%): med gy-dk
gy wi occ vf-f-elong chky
incl, frm-brit, l-mod fis sb
rd-sb blkly ctngs, occ vf-f
wh chky foram incl, tr fos
frags, tr tn bent, hi calc

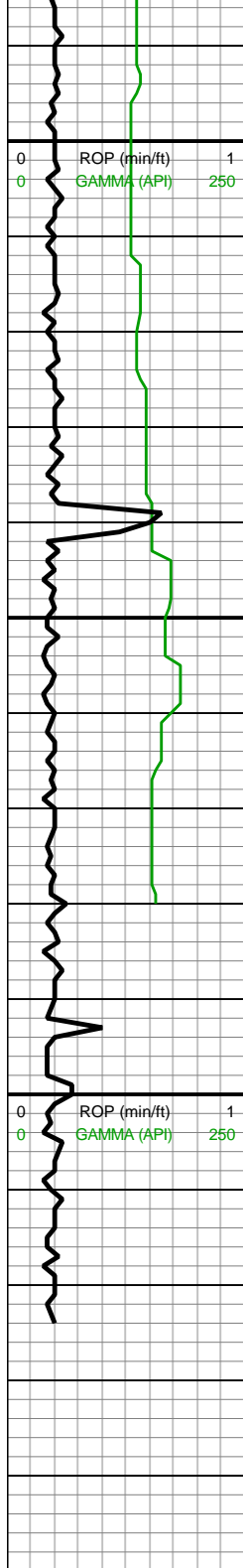
17100-17200 CHK
(25%): med gy-dk gy,
frm-brit, l-mod fis sb



(65%): med gy-dk gy wi
wh chky foram incl & f,
frm-brit, l-mod fis sb
rd-sb blk cytns, occ-com
forams, tr tn bent & acic
fos frags, hi calc; MRLST
(35%): dk gy, occ dk
gyshbn, sb frm-frm-brit,
sb rd-sb blk l-mod fis
cytns wi sm arg-sltly tex,
tr vf pyr, mod calc

17200-17300 CHK (50%)
med gysbhn-lt gy, mot,
sb blky wi occ plty, v chky
tex, v sft-sl frm, scat-com
inoc fos frags, tr-rr pyr, v
calc; MRLST (50%)
med-dk gry wi sme lt gy,
sb-blky, sl lam-rr
micmica, v calc, sme
scat cal

17300-17400 MRLST
(65%): med gy-dk gy, brn
hue ip, mod fis sb
frm-frm sb blk cytns, sm
arg-sl slty tex, tr vf pyr,
mod oale w/ brn mshy



VS: 9,046.18'

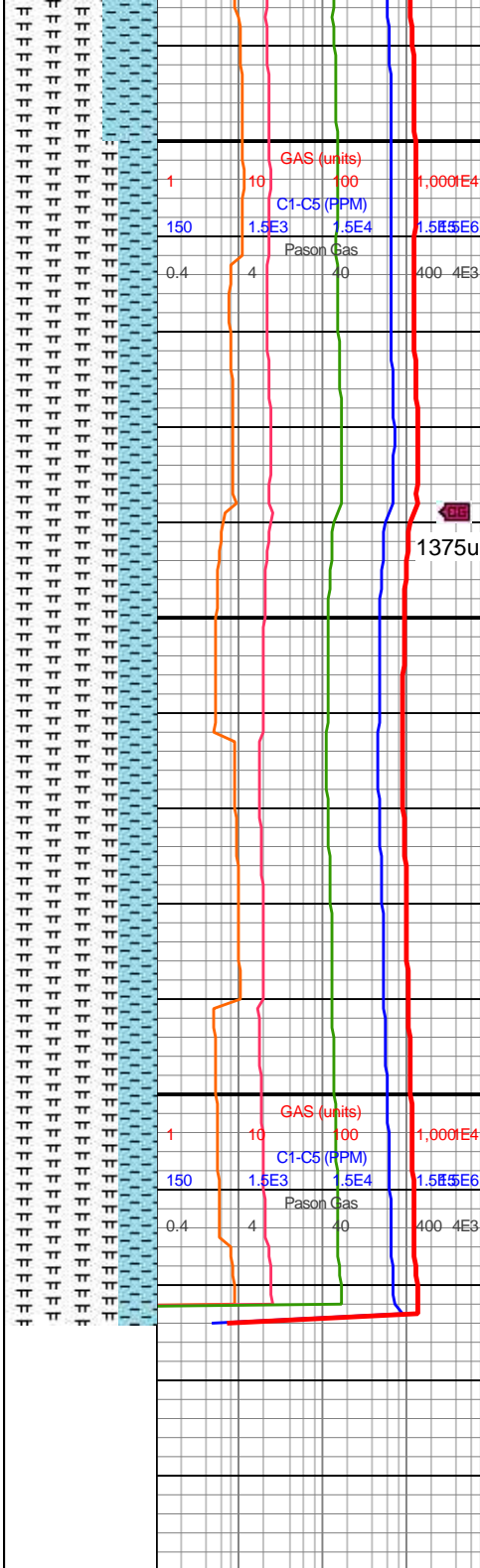
WOB: 41kbs
RPM: 60
SPM: 187
SPP: 4,460psi

MW IN: 10.6
VIS IN: 54
MW OUT: 10.6
VIS OUT: 52

MD: 17,464'
TVD: 7,781.01'
INC: 88.44°
AZM: 181.13°
VS: 9,129.05'

Bit Projection
MD: 17,524'
TVD: 7,782.64'
INC: 88.44°
AZM: 181.13°
VS: 9,188.97'

TD Well @
17:50 1/22/2019



mod calc w/ brn min
resdl; CHK (35%): lt
gy-med gy, frm-brit, mod
fis sb blkyl-blky ctngs wi
thn chky lamn, hi calc

17400-17524 MRLST
(75%): dk gy-v dk gy, sb
frm-frm-brit, mod fis sb
blkyl-blky-sb plty ctngs, sl
silty tex, occ vf pyr thru,
mod calc; CHK (25%):
gy-dk gy wi f wh chky incl
& forams, frm, brit ip,
l-mod fis sb rd-sb blkyl
ctngs, rr forams, tr vf pyr,
hi calc