



Scale: 5" / 100'
Measured Depth Log

Well Name Woolley Becky 2A-7H-E168

Location Sec. 7, T1N, R68W

State Colorado

County Weld

Country USA

Rig Number Ensign 140

API Number 05-123-38111

AFE # 13178954

Geographic Region Rockies

Field DJ Wattenberg

Spud Date 11/16/2016

Drilling Completed 11/28/2016

Surface Coordinates SWNW Sec. 7 T1N R68W
2242' FNL, 577' FWL

Bottom Hole Coordinates NWNW Sec. 6 T1N R68W
460' FNL, 60' FWL

Ground Elevation 4,998.3'

K.B. Elevation 5,021.3'

Logged Interval 1,750' **To** 14,830'

Total Depth 14,830'

Formation Codell

Type of Drilling Fluid Synthetic Oil Based Mud

Operator

Company Crestone Peak Resources

Address 370 17th Street #2170
Denver, CO 80202

Geologist

Name John Ready

Company Crestone Peak Resources

Address 370 17th Street #2170
Denver, CO 80202

Hole Profile

Bore Hole Records

Size	From	To
8.75	1755.0	14830.0

Casing Records

Size	Wgt	From	To	Test
9.625	53.5	0	1750	0

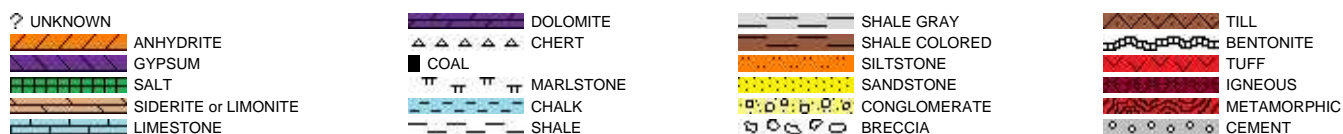
Other

Loggers: Russell Frommer / Brian Ferwerda

Services Provided: 2-Man Logging, On site Geosteering, Sample Catchers, Isotube sampling

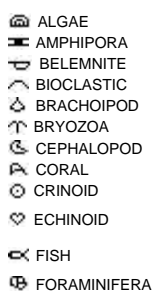
Equipment: ML-589

Rock Types



Accessories

Fossils



Fossil



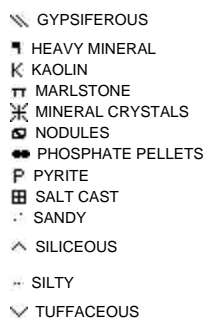
Minerals



ARGILLACEOUS



GLAUCONITE

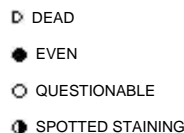


Stringer



Other Symbols

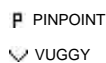
Oil Show



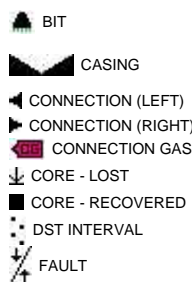
Porosity



ORGANIC



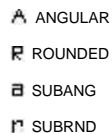
Engineering



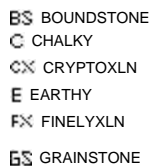
FORMATION TOP



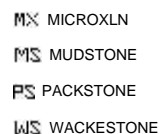
Rounding



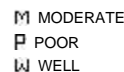
Textures



LITHOGRAPHIC

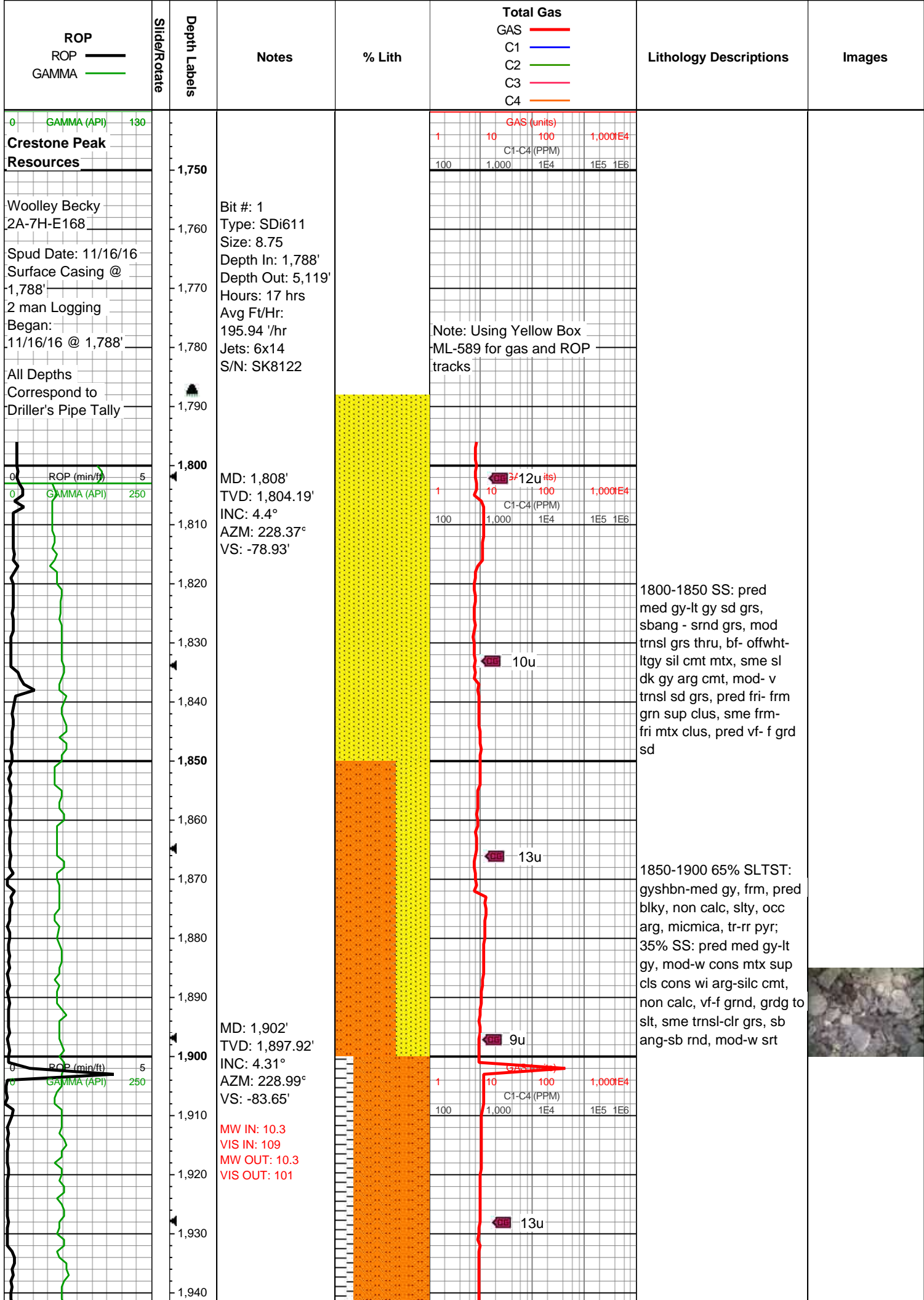


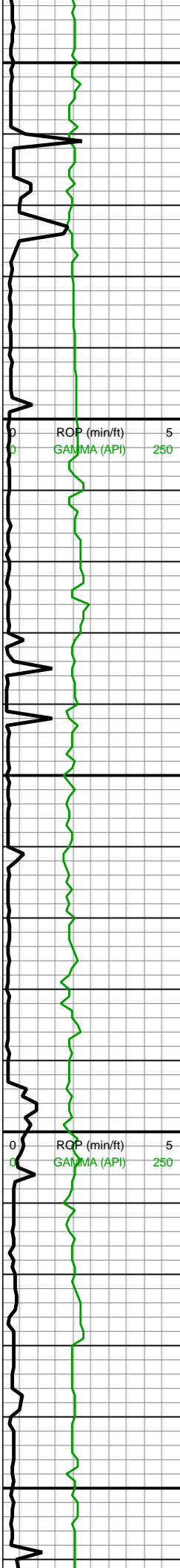
Sorting



Zone Color Coding







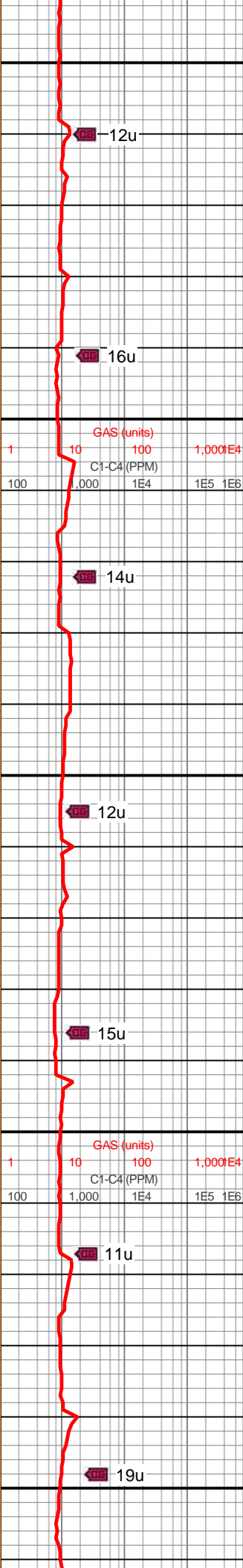
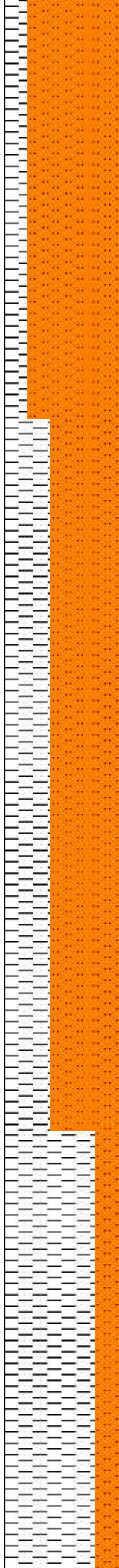
1,950
1,960
1,970
1,980
1,990
2,000
2,010
2,020
2,030
2,040
2,050
2,060
2,070
2,080
2,090
2,100
2,110
2,120
2,130
2,140
2,150
2,160

WOB: 13.5klbs
RPM: 80
SPM: 198
SPP: 2,260psi

MD: 2,028'
TVD: 2,023.54'
INC: 4.57°
AZM: 231.36°
VS: -89.89'

MW IN: 10.3
VIS IN: 93
MW OUT: 10.25
VIS OUT: 93

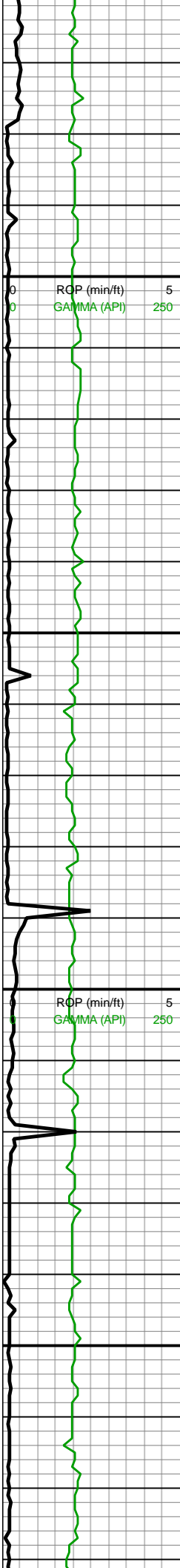
MD: 2,123'
TVD: 2,118.16'
INC: 5.71°
AZM: 238.75°
VS: -94.7'



1900-2000 80% SLTST:
med gy-gyshbn, com dk
gy; frm-sl hrd, blk, occ
sdy ip, tr imbd pyr, com
micmica; 20% SH: med
gy-lt gy, frm, sme sl hrd,
grdg to sltst, non calc,
occ silc, micmica

2000-2100 80% SLTST:
pred med gy-dk gy, sme
gyshbn-dk brn, frm-sl
hrd, blk, com micmica;
20% SH: med gy-lt gy,
frm, sme sl hrd, grdg to
sltst, non calc, occ silc,
micmica





2,170
2,180
2,190
2,200
2,210
2,220
2,230
2,240
2,250
2,260
2,270
2,280
2,290
2,300
2,310
2,320
2,330
2,340
2,350
2,360
2,370
2,380

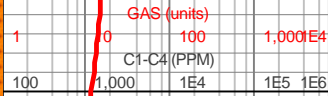
WOB: 13.2klbs
RPM: 80
SPM: 198
SPP: 2,396psi

MD: 2,217'
TVD: 2,211.71'
INC: 5.54°
AZM: 240.94°
VS: -99.33'

MW IN: 10.3
VIS IN: 92
MW OUT: 10.2
VIS OUT: 91

MD: 2,312'
TVD: 2,306.24'
INC: 5.89°
AZM: 227.85°
VS: -104.83'

MW IN: 10.3
VIS IN: 91
MW OUT: 10.2
VIS OUT: 92



17u

25u

25u

17u

18u

22u

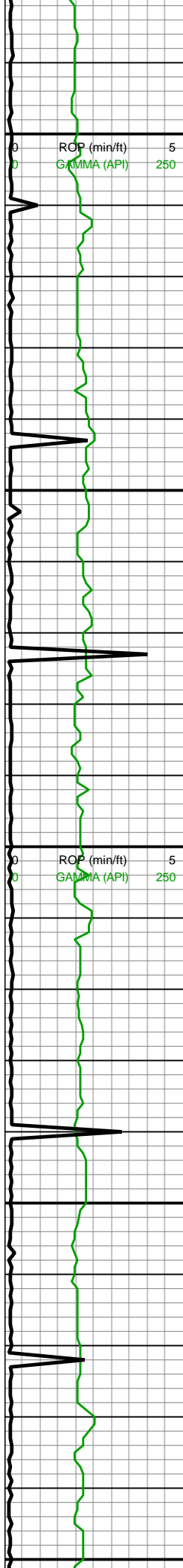
25u

2100-2200 80% SH: pred
gy-med gy, occ lt brn-tn,
sme gyshbn, frm, blk,
non calc, occ silc, abnt
micmica, slty ip; 20%
SLTST: dk gy-v dk gy, frm,
blk, non calc, occ sdy,
com micmica

2200-2300 65% SLTST:
pred med gy-lt gy, sme
dk gy-gyshbn, occ sl tn,
frm, blk, non calc, abnt
micmica, tr grdg to ss;
35% SH: med gy-lt gy,
non calc, blk, frm, occ sl
hrd, tr slty, micmica

2300-2400 90% SH: med
gy-lt gy, frm, sme sl hrd,
grdg to sltst, non calc





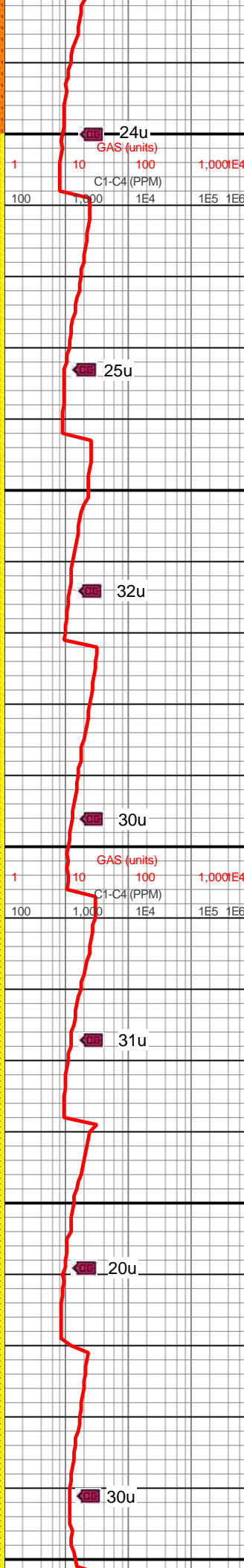
WOB: 17.2klbs
RPM: 87
SPM: 198
SPP: 2,325psi

MD: 2,407'
TVD: 2,400.79'
INC: 5.32°
AZM: 229.78°
VS: -110.95'

MD: 2,501'
TVD: 2,494.43'
INC: 4.66°
AZM: 230.04°
VS: -116.21'

MW IN: 10.3
VIS IN: 90
MW OUT: 10.2
VIS OUT: 91

MD: 2,596'
TVD: 2,589.16'
INC: 4.04°
AZM: 237.89°
VS: -120.47'

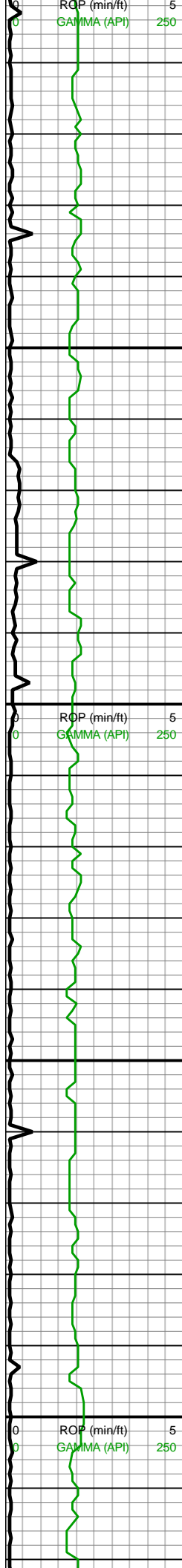


grdg to sltst, non calc,
occ silc, micmica; 10%
SLTST: pred med gy-dk
gy, sme gyshbn-dk brn,
frm-sl hrd, blkly, com
micmica

2400-2500 50% SLTST:
pred med gy-lt gy, sme
dk gy-gyshbn, occ sl tn,
frm, blkly, non calc, abnt
micmica, tr grdg to ss;
40% SH: med gy-lt gy,
non calc, blkly, frm, occ sl
hrd, tr slty, micmica; 10%
SS: med gy, mod-w cons
mtx sup cls cons wi
arg-silc cmt, non calc, vf-f
grnd, grdg to slt, sb
ang-sb rnd, mod-w srt

2500-2600 75% SLTST:
med gy-lt gy, sme lt
gyshbn, frm, blkly, non
calc, abnt micmica, tr
grdg to ss; 25% SS: med
gy, mod-w cons mtx sup
cls cons wi arg-silc cmt,
non calc, vf-f grnd, grdg to
slt, sb ang-sb rnd,
mod-w srt





WOB: 15.5klbs
RPM: 80
SPM: 200
SPP: 2,476psi

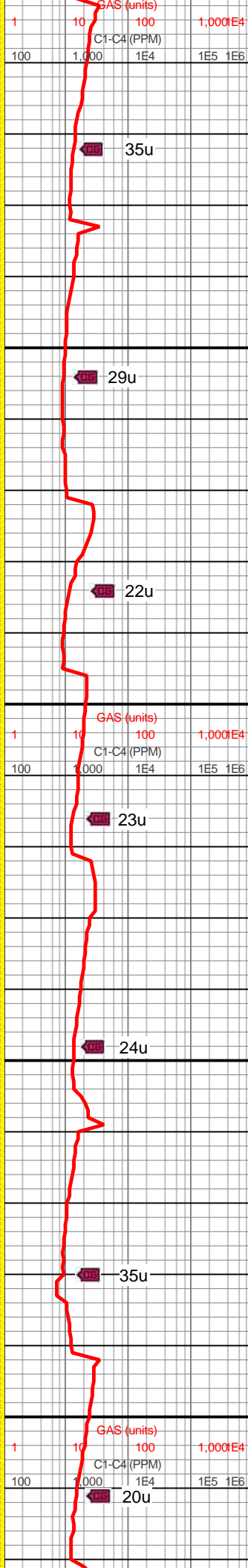
MINDEPTH 11/17/16

MD: 2,690'
TVD: 2,682.83'
INC: 5.45°
AZM: 225.03°
VS: -125.38'

MW IN: 10.3
VIS IN: 90
MW OUT: 10.2
VIS OUT: 90

MD: 2,785'
TVD: 2,777.4'
INC: 5.49°
AZM: 226.35°
VS: -131.71'

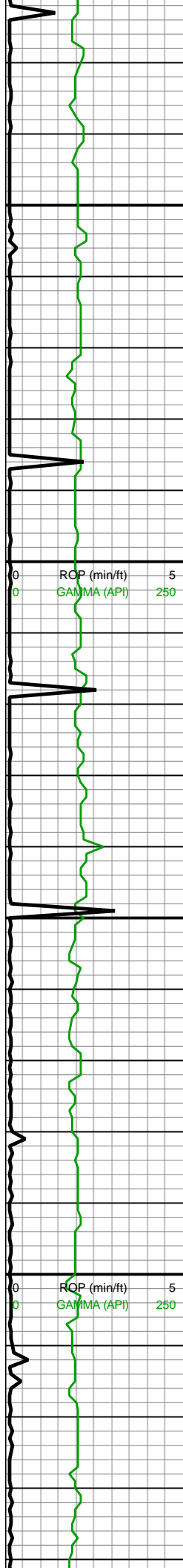
WOB: 14.4klbs
RPM: 80
SPM: 198
SPP: 2,525psi



2600-2700 90% SLTST:
lt brn-gy-tn, occ gyshbn,
frm, blk, rgh tex, non
calc, com micmica, grdg
to sst ip; 10% SST: med
gy-lt gy, pred w cons cls,
cons wi silc-arg cmt,
pred mtx sup, vf-f grnd,
grdg to slt, mod-w srt, sb
ang-ang

2700-2800: 70% SLTST:
med gy-dk gy, frm, blk,
occ sdy, sl calc, micmica;
30% SST: lt gy-v lt gy,
sme offwht, frm, w cons
cls cons wi arg-silc cmt,
pred mtx sup, vf grnd,
grdg to sil, sb ang,
mod-w srt



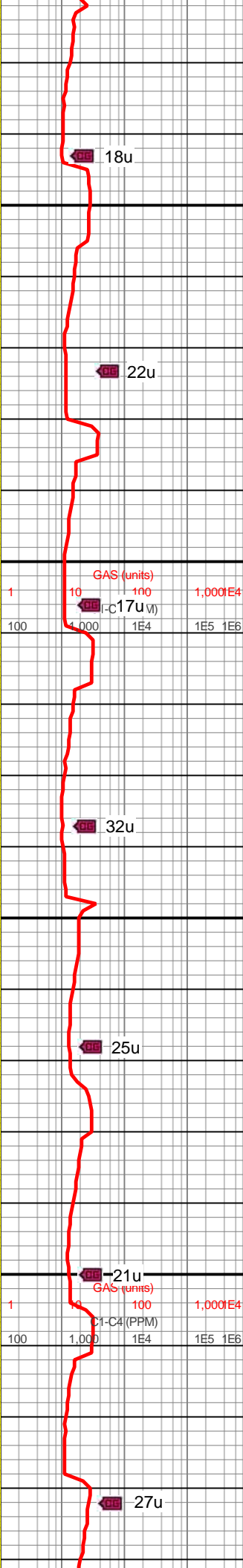
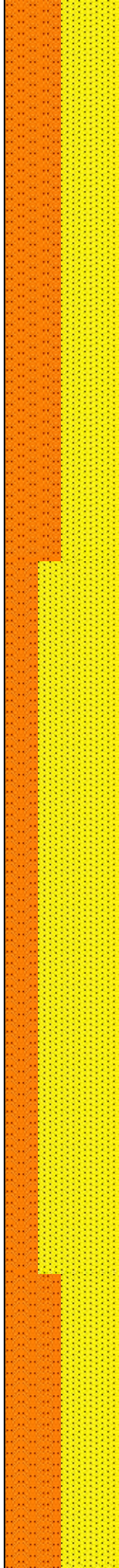


2,830
2,840
2,850
2,860
2,870
2,880
2,890
2,900
2,910
2,920
2,930
2,940
2,950
2,960
2,970
2,980
2,990
3,000
3,010
3,020
3,030
3,040

MD: 2,880'
TVD: 2,871.97'
INC: 5.45°
AZM: 227.41°
VS: -137.9'

MD: 2,975'
TVD: 2,966.57'
INC: 5.01°
AZM: 227.93°
VS: -143.73'

WOB: 16.2klbs
RPM: 81
SPM: 198
SPP: 2,534psi



18u

22u

17u

32u

25u

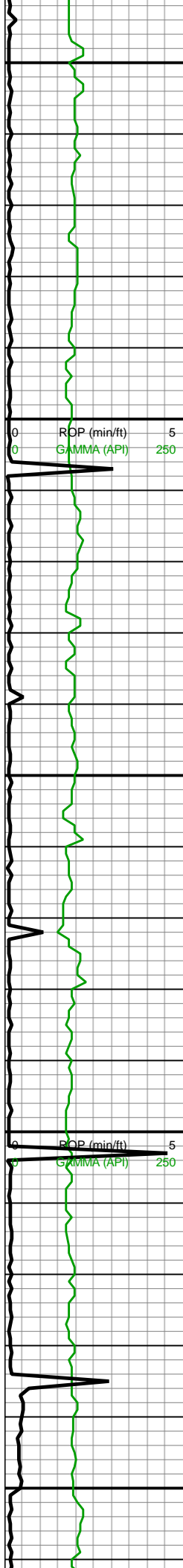
21u

27u

2800-2900 50% SLTST:
lt brn-gy, sme lt gy, frm,
blky, rgh tex, non calc,
com micmica, grdg to sst
ip; 50% SST: med gy-lt
gy, pred w cons cls, cons
wi silc-arg cmt, pred mtx
sup, vf-f grnd, grdg to slt,
mod-w srt, sb ang-ang

2900-3000 70% SST: lt
gy-wht-offwht, sme
med-dk gy, frm, w cons
cls cons wi arg-silc cmt,
non calc, mtx sup, vf
grnd, slty ip, sb ang,
mod-w srt; 30% SLTST:
gy-dk gy, sme gyshbn,
frm, blky, non-v sl calc,
sdy tex, com micmica





3,050
3,060
3,070
3,080
3,090
3,100
3,110
3,120
3,130
3,140
3,150
3,160
3,170
3,180
3,190
3,200
3,210
3,220
3,230
3,240
3,250
3,260

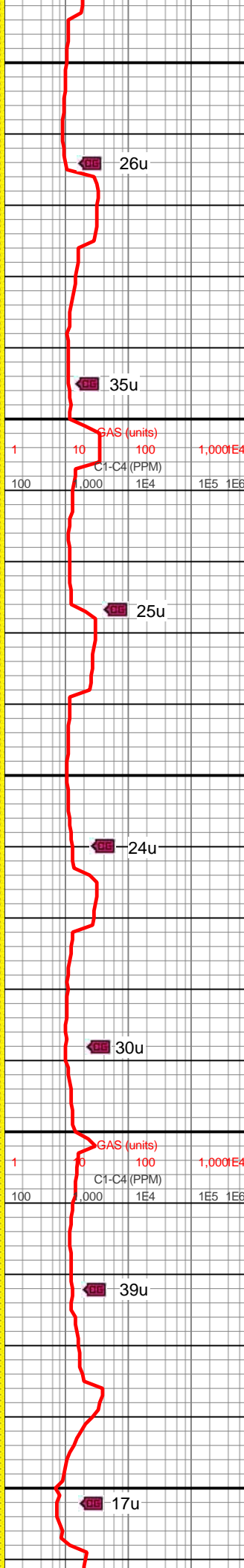
MD: 3,069'
TVD: 3,060.23'
INC: 4.84°
AZM: 229.25°
VS: -149.07'

MW IN: 10.25
VIS IN: 83
MW OUT: 10.2
VIS OUT: 82

MD: 3,164'
TVD: 3,154.91'
INC: 4.57°
AZM: 232.68°
VS: -153.98'

WOB: 18.3klbs
RPM: 80
SPM: 200
SPP: 2,524psi

MD: 3,259'
TVD: 3,249.52'
INC: 5.71°



26u

35u

25u

24u

30u

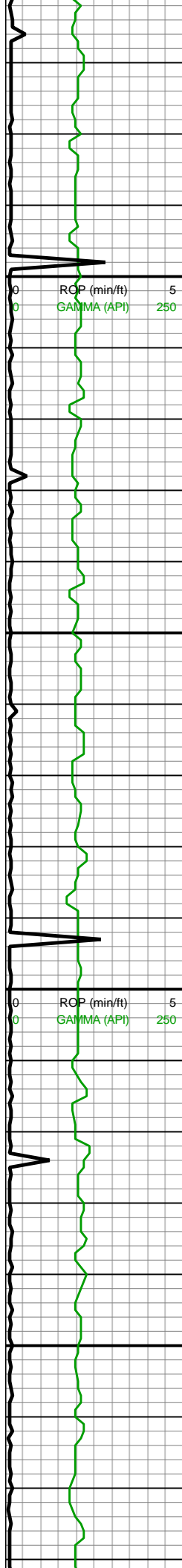
39u

17u

3000-3100 50% SST:
med gy-lt gy, pred w cons
cls, cons wi silc-arg cmt,
pred mtx sup, vf-f grnd,
grdg to slt, mod-w srt, sb
ang-ang; 50% SLTST: lt
brn-gy, sme lt gy, frm,
blky, rgh tex, non calc,
com micmica, grdg to sst
ip

3100-3200 70% SLTST:
med gyshbn-dk gy, sme v
dk gy, blky, frm, non-v sl
calc, com micmica, arg
ip, sdy tex, occ grdg to
30% SST: lt gy-offwht,
frm, w cons wi silc cmt,
occ arg cmt, pred gr sup,
vf grnd, grdg to slt,
mod-w srt, sb ang-ang
grns





AZM: 223.72°
VS: -159.69'

3,270

3,280

3,290

3,300

3,310

3,320

3,330

3,340

3,350

3,360

3,370

3,380

3,390

3,400

3,410

3,420

3,430

3,440

3,450

3,460

3,470

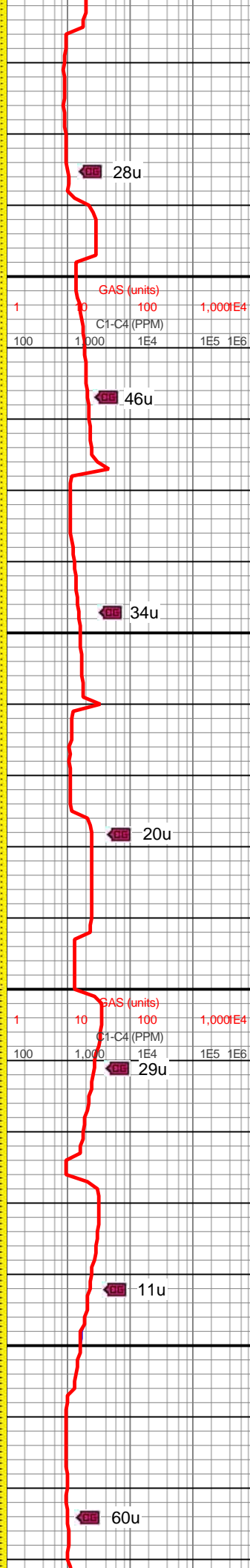
3,480

MD: 3,354'
TVD: 3,344.07'
INC: 5.49°
AZM: 226.27°
VS: -166.25'

WOB: 24.1klbs
RPM: 80
SPM: 200
SPP: 2,685psi

MD: 3,448'
TVD: 3,437.68'
INC: 4.92°
AZM: 228.29°
VS: -172.61'

MW IN: 10.45
VIS IN: 81
MW OUT: 10.0



28u

46u

34u

20u

29u

11u

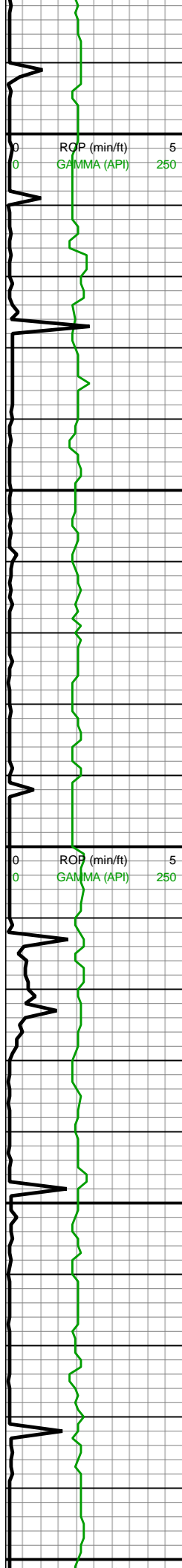
60u

3200-3300 85% SLTST:
gy-dk gy, sme gyshbn,
frm, blk, non-v sl calc,
sdy tex, com micmica;
15% SST: lt
gy-wht-offwht, sme
med-dk gy, frm, w cons
cls cons wi arg-silc cmt,
non calc, mtx sup, vf
grnd, slty ip, sb ang,
mod-w srt

3300-3400 90% SLTST:
med gy-dk gy, sme
gyshbn - lt gry, frm - sl fri,
blk, non-v sl calc, sdy
tex, com micmica; 10%
SST: lt gy-wht-offwht,
sme med-dk gy, frm, w
cons cls cons wi arg-silc
cmt, non calc, mtx sup, vf
grnd, slty ip, sb ang,
mod-w srt

3400-3500 95% SLTST:
med dk gy-dk gy, v frm - v
sl fri, blk, non calc, vf sdy
tex; 5% SST: lt - med
gy-offwht, sme med-dk gy
lt frm, frm, w cons cls





3,490
3,500
3,510
3,520
3,530
3,540
3,550
3,560
3,570
3,580
3,590
3,600
3,610
3,620
3,630
3,640
3,650
3,660
3,670
3,680
3,690
3,700

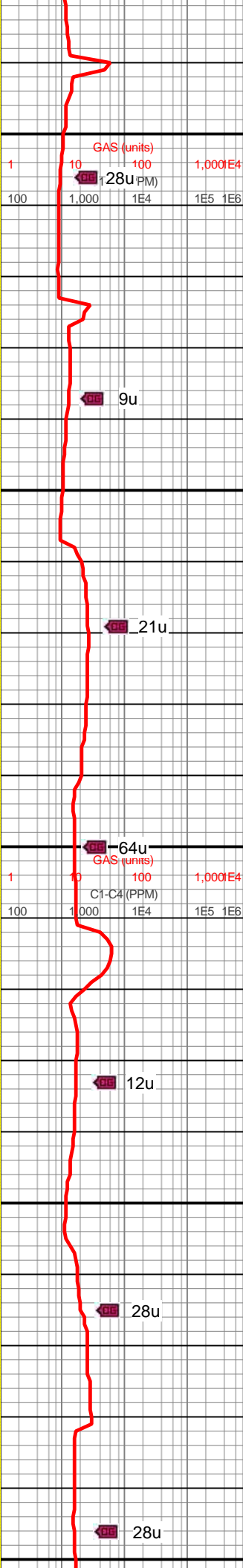
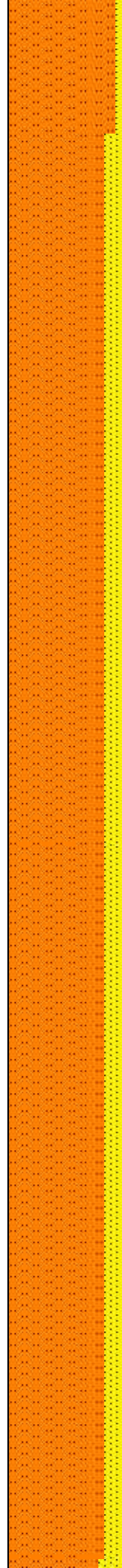
MW OUT: 10.3
VIS OUT: 79

MD: 3,543'
TVD: 3,532.38'
INC: 4.22°
AZM: 230.57°
VS: -177.54'

MW IN: 10.3
VIS IN: 86
MW OUT: 10.3
VIS OUT: 85

WOB: 26.5klbs
RPM: 80
SPM: 198
SPP: 2,545psi

MD: 3,638'
TVD: 3,627.14'
INC: 3.82°
AZM: 230.13°
VS: -181.79'

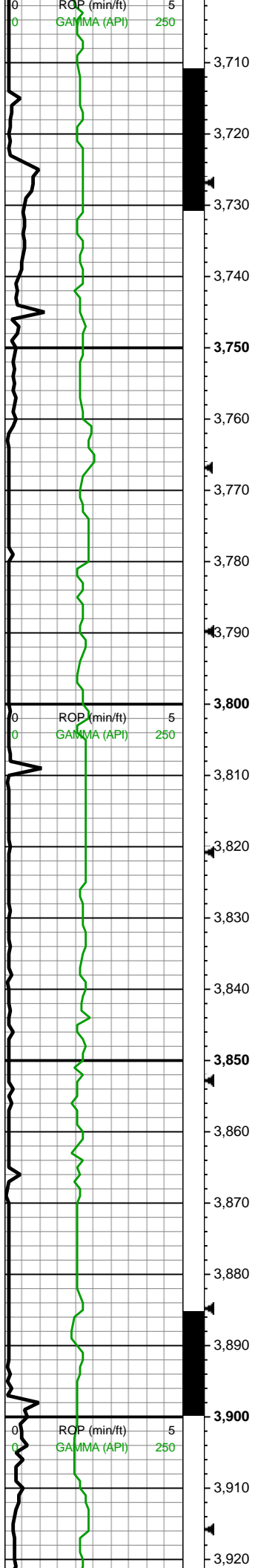


- lt brn, mnt, w cons cls,
cons wi arg-silc cmt, v sl
- non calc wi rr cal grns,
mtx sup, vf - f grnd, slty ip,
sb ang - sb rnd, mod-w
srt

3500-3600 85% SLTST:
pred med - dk gy, v frm,
blky - lclly plty, non calc, vf
sdy tex; 15% SST: lt -
med gy-lt brn, sme med
gy, frm, f - vf vrvd intbds w
rr pyr, w cons cls, cons wi
arg-silc cmt, v sl - non
calc wi rr cal grns, mtx
sup, vf - f grnd, slty ip, sb
ang - sb rnd, mod-w srt

3600-3700 85% SLTST:
pred med, dk gy, sl frm -
lclly fri, blky - plty, non
calc, vf sdy tex, v lcl pyr
clus; 15% SST: lt - med
gy-lt brn, sme med
gy-wht-offwht, frm, f - vf
vrvd intbds w rr pyr, rr
mic-mics ip, w cons cls,
cons wi arg-silc cmt, v sl
- non calc wi rr cal grns,
mtx sup, vf - f grnd, slty ip,
sb ang - sb rnd, mod-w
srt





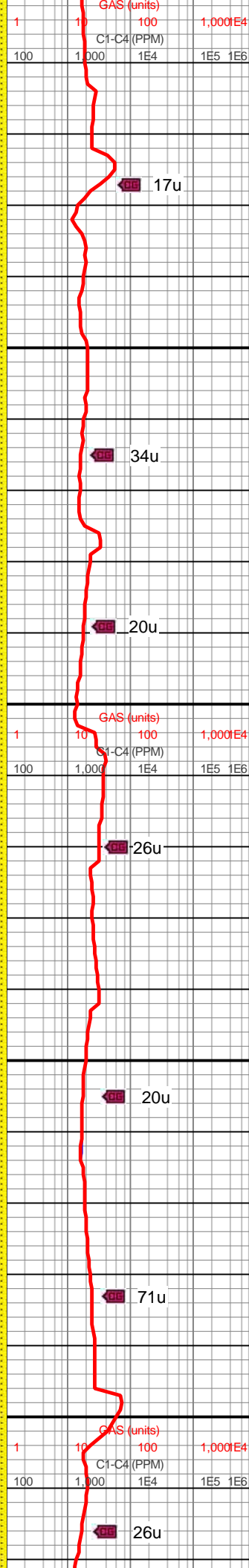
MD: 3,733'
TVD: 3,721.88'
INC: 4.7°
AZM: 222.22°
VS: -186.7'

MW IN: 10.3+
VIS IN: 80
MW OUT: 10.2+
VIS OUT: 75

WOB: 34.1klbs
RPM: 24
SPM: 198
SPP: 2,367psi

MD: 3,828'
TVD: 3,816.59'
INC: 4.22°
AZM: 228.99°
VS: -208.6'

MW IN: 10.4
VIS IN: 77
MW OUT: 10.3+
VIS OUT: 76



17u

34u

20u

26u

20u

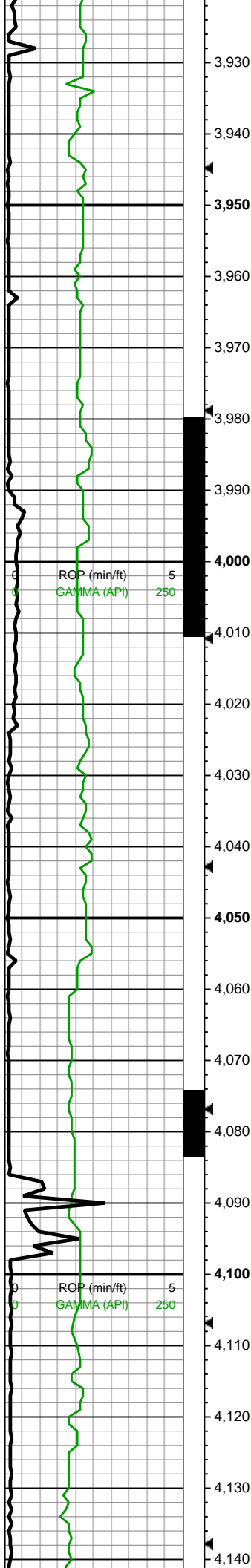
71u

26u

3700-3800 80% SLTST:
med - dk gy, sl frm - lcly
fri, blkly - plty, non calc - sl
calc ip, vf sdy tex, v rr pyr
clus; 20% SST: lt - med
gy-lt brn, sme wht-offwht,
frm, vf sl mics vrtd intbds,
mod - w cons cls, cons w
arg-silc cmt, v sl - non
calc wi rr cal grns, mtx
sup, vf - f grnd, slty ip, sb
ang - sb rnd, mod-w srt

3800-3900 85% SLTST:
med - dk gy, sl frm - lcly
fri, blkly - sl plty, non calc,
vf sdy tex; 15% SST: v lt -
med gy, lt brn ip, sme
wht-offwht, frm, vf mics
intbds, mod - w cons cls,
cons w arg-silc cmt, v sl -
non calc wi rr cal grns,
mtx sup, vf - f grnd, slty ip,
sb ang - sb rnd, mod-w
srt





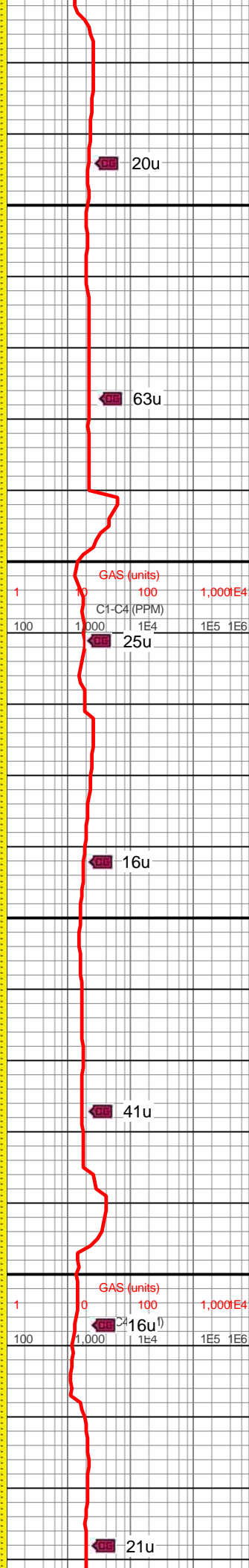
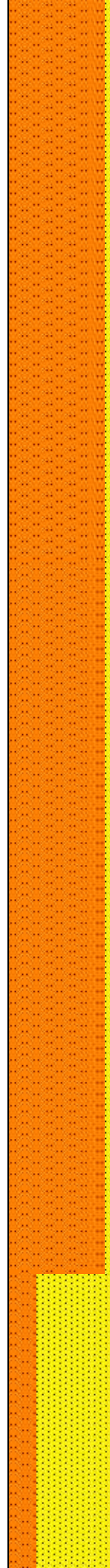
MD: 3,922'
TVD: 3,910.32'
INC: 4.57°
AZM: 237.78°
VS: -196.14'

WOB: 10.2klbs
RPM: 80
SPM: 198
SPP: 2,078psi

MD: 4,017'
TVD: 4,004.87'
INC: 6.51°
AZM: 225.65°
VS: -201.93'

MW IN: 10.5
VIS IN: 77
MW OUT: 10.4
VIS OUT: 76

MD: 4,112'
TVD: 4,099.31'
INC: 5.93°
AZM: 227.76°
VS: -208.99'



20u

63u

25u

16u

41u

16u

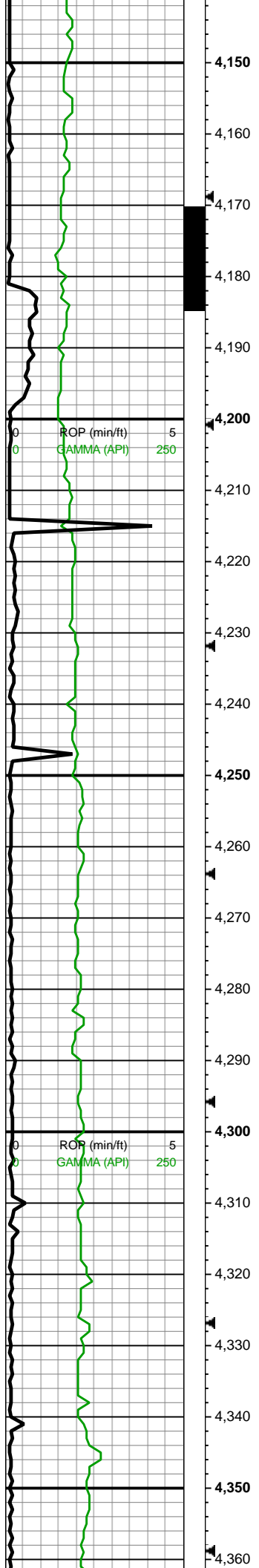
21u

3900-4000 85% SLTST:
med lt - med dk gy, sme
dk gry, sl frm - smewh fri,
blky - sl plty, sl calc ip, vf
sdy tex ip; 15% SST: v lt -
med gy, lt brn ip, sme
wht-offwht, frm - smewh
fri, vf mics intbds, v rr org
mat, mod - w cons cls,
arg-silc cmt, v sl - non
calc wi rr cal grns, mtx
sup, vf - f grnd, slty ip, sb
ang - sb rnd, mod - w srt



4000-4100 85% SLTST:
med - med dk gy, sme v
dk gry, sl frm - smewh fri,
blky - sl plty, sl calc ip, vf
sdy tex ip; 15% SST: v lt -
med gy, lt brn ip, sme
wht-offwht, frm - smewh
fri, vf mics intbds, v rr org
mat, mod - w cons cls,
arg-silc cmt, v sl - non
calc wi rr cal grns, mtx
sup, vf - f grnd, slty ip, sb
ang - sb rnd, mod - w srt





TOOH to shoe
for sound
mitigation
13:00 11/17/16

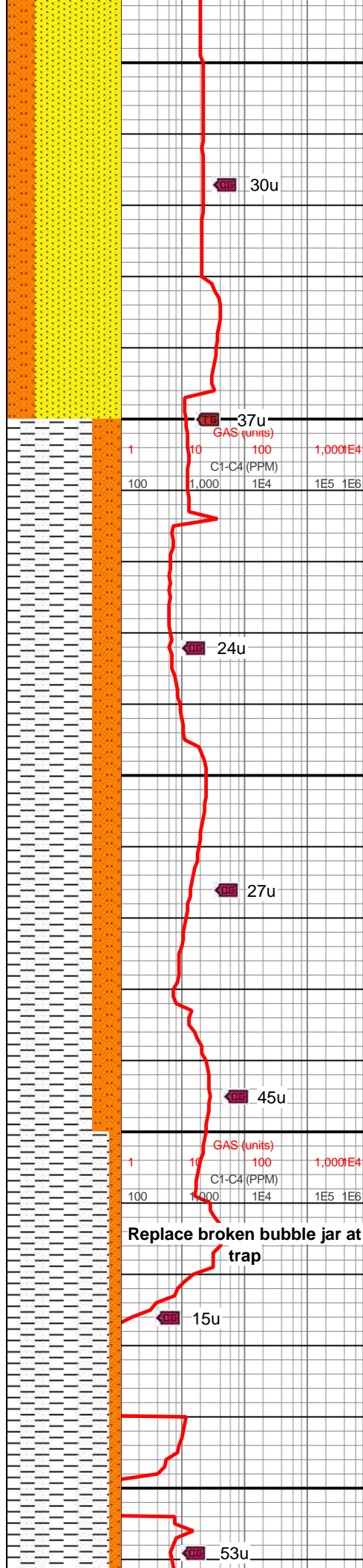
MINDEPTH 11/18/16

WOB: 15.5klbs
RPM: 81
SPM: 194
SPP: 2,172psi

Resumed
drilling 03:30
11/18/16

MD: 4,207'
TVD: 4,193.78'
INC: 6.37°
AZM: 208.42°
VS: -216.35'

MD: 4,301'
TVD: 4,287.25'
INC: 5.85°
AZM: 205.08°
VS: -225.28'



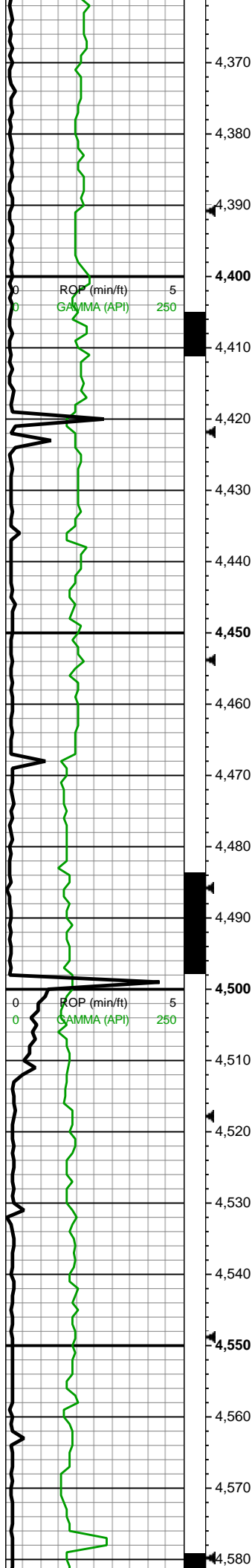
4100 - 4200 75% SST: v
lt - med gry, sme offwht -
wht, sb ang - sb rnd grs,
mod - w srt, silc cmted, sl -
mod calc, w cons cluss,
blky - sb blky cluss, sme
vis mic-intbds; 25%
SLTST: dk - med dk gry,
rr lt brn - tn, slty - v f gr, w
cons, non-calc - v sl calc
ip, frm - hd, blky - sb plty



4200-4300 75% SH: v dk
gy-blk, frm, sme v frm,
blky, sl rgh tex, occ slty,
com micmica, tr imbd
pyr; 25% SLTST: v dk gy,
sme dk gyshbn, frm-v
frm, blky, occ sl calc, pred
non calc, tr micmica,
sme intbdd wi sh



Replace broken bubble jar at
trap



MW IN: 10.3
VIS IN: 120
MW OUT: 10.2+
VIS OUT: 120

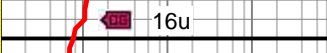
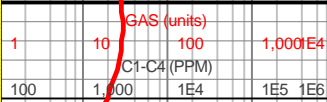
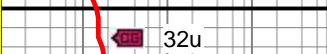
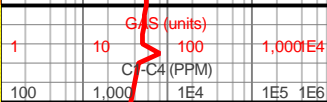
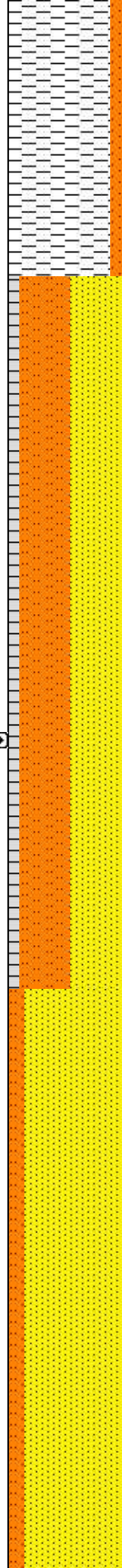
MD: 4,396'
TVD: 4,381.84'
INC: 4.7°
AZM: 204.64°
VS: -233.77'

WOB: 23.7klbs
RPM: 81
SPM: 198
SPP: 2,882psi

Sussex 
4465 MD/4450 TVD

MD: 4,491'
TVD: 4,476.53'
INC: 4.57°
AZM: 208.6°
VS: -240.63'

MW IN: 10.5+
VIS IN: 87
MW OUT: 10.5
VIS OUT: 77



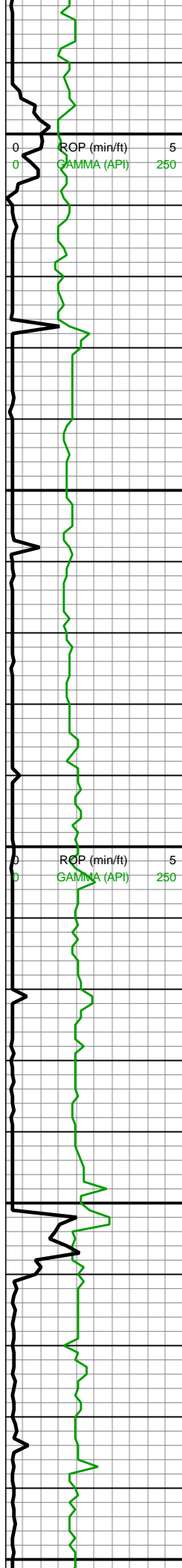
4300-4400 90% SH: v dk
gy-blk, sme med dk gry,
frm - smewh hd, blkly - sb
plty, sl rgh tex, occ slty,
com micmica, 10%
SLTST: v dk gy, sme dk
gyshbn, frm-v frm, blkly,
occ sl calc, pred non
calc, tr micmica, sme
intbdd wi sh



4400 - 4500 45% SST: v
lt - med gry, sme offwht,
sb ang - sb rnd grs, mod
- w srt, silc cmt, v sl
calc, w cons cluss, blkly -
sb blkly cluss, sme vis
mic-intbds; 45% SLTST:
dk - med dk gry, slty - v f
gr, w cons, sl calc ip, frm,
sb plty; 10% SH: v dk
gy-blk, sme med dk gry,
frm - smewh hd, blkly - sb
plty, sl rgh tex, occ slty,
sme micmica,



4500 - 4600 85% SST: v
lt - med gry, com offwht -
wht, sb ang grs, mod - w
srt, silc cmt, com hd - sl
fri ip, mod calc, w cons
cluss, blkly - sb blkly
cluss, com mic mica, r



MD: 4,586'
TVD: 4,571.18'
INC: 5.23°
AZM: 209.74°
VS: -247.71'

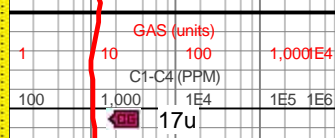
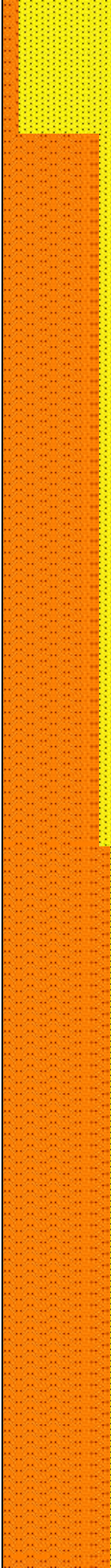
WOB: 20klbs
RPM: 80
SPM: 166
SPP: 1,885psi

MW IN: 10.5
VIS IN: 78
MW OUT: 10.5
VIS OUT: 77

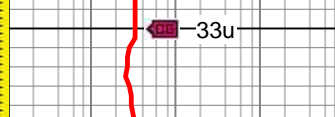
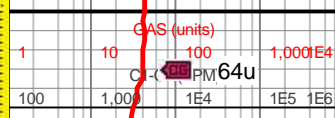
MD: 4,680'
TVD: 4,664.79'
INC: 5.27°
AZM: 211.15°
VS: -255.13'

MW IN: 10.5
VIS IN: 74
MW OUT: 10.5
VIS OUT: 74

MD: 4,775'
TVD: 4,759.36'
INC: 5.63°
AZM: 216.95°
VS: -262.59'



Clean Shakers

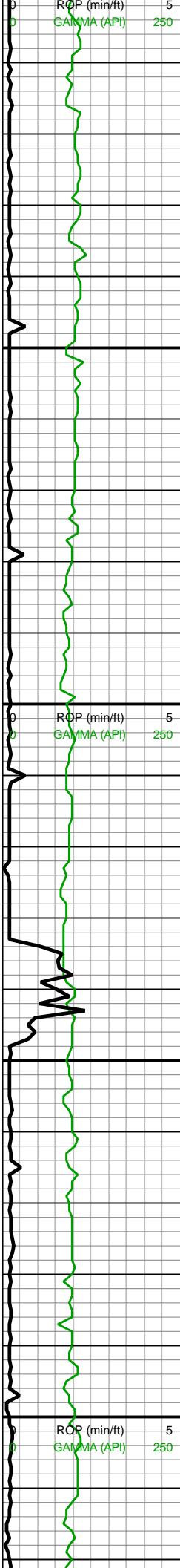


class, com mic-mics, r
vis mic-intbds; 15%
SLTST: dk - med-lt dk gry,
silty - v f gr, w cons, v sl
calc ip, frm - hd, blkly - sb
plty

4600-4700 85% SLTST:
med - dk gy, sme lt gry, sl
frm - smewh fri, blkly - sl
plty, sl calc ip, vf sdy tex;
15% SST: v lt - med gy,
sme wht-offwht, frm - sl
fri, vf mics intbds, mod -
w cons cls, arg-silc cmt, v
sl calc wi rr indv cal grns,
mtx sup, vf - f grnd, slty ip,
sb ang - sb rnd, mod - w
srt

4700-4800 95% SLTST:
med lt - dk gy, sl frm,
smewh fri, sb blkly - sl
plty, sl calc ip; 5% SST: lt
- med gy, sme offwht, sb
frm - sl fri, sl mics, mod -
w cons cls, arg-silc cmt, v
sl calc wi rr indv cal grns,
mod calc, mtx sup, vf - f
grnd, slty ip, sb ang - sb
rnd, mod - w srt





WOB: 19klbs
RPM: 80
SPM: 168
SPP: 1,845psi

MW IN: 10.5
VIS IN: 70
MW OUT: 10.5
VIS OUT: 67

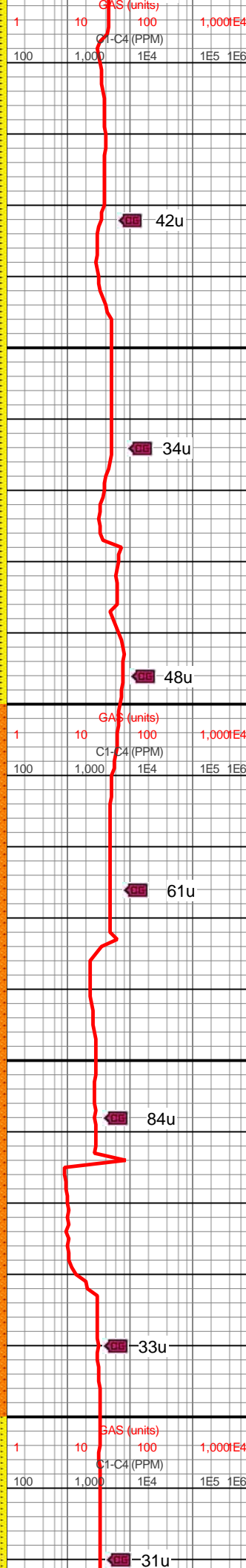
MD: 4,869'
TVD: 4,852.93'
INC: 5.26°
AZM: 216.6°
VS: -269.73'

MW IN: 10.5
VIS IN: 67
MW OUT: 10.5
VIS OUT: 64

MD: 4,964'
TVD: 4,947.53'
INC: 5.36°
AZM: 228.99°
VS: -276.14'

WOB: 19klbs
RPM: 80
SPM: 167
SPP: 1,896psi

MW IN: 10.5
VIS IN: 67
MW OUT: 10.5



42u

34u

48u

61u

84u

33u

31u

4800-4900 95% SLTST:
med lt - dk gy, frm,
smewh fri ip, blkly - sl plty,
sl calc ip; 5% SST: lt gy,
sme offwht, sb frm - sl fri,
sl mics, mod - w cons
cls, arg-silc cmt, v sl calc
wi rr indv cal grns, mod
calc, mtx sup, vf - f grnd,
sly ip, sb ang - sb rnd,
mod - w srt, v rr wh cly cls



4900-5000 100% SLTST:
med lt - dk gy, scat lt gy,
frm - v frm, lcly fri ip, v thn
v f sdy intbds, scat blkly -
sl plty, sl calc w slow rxn,
mnr scat lt - med gy sst
grs



VIS OUT: 66

5,030

5,040

5,050

5,060

5,070

5,080

5,090

5,100

5,110

5,120

5,130

5,140

5,150

5,160

5,170

5,180

5,190

5,200

5,210

5,220

5,230

5,240

Shannon

5046 MD/5030 TVD

MD: 5,059'
TVD: 5,042.14'
INC: 5.05°
AZM: 231.27°
VS: -281.67'

Bit #: 2
Type: SDi611
Size: 8.75
Depth In: 5,119'
Depth Out: 7,549'
Hours: 26.8 hrs
Avg Ft/Hr: 90.67
/hr
Jets: 6x14
S/N: JK8122

MW IN: 10.5

VIS IN: 62

MW OUT: 10.5

VIS OUT: 60

TOOH @ 1525

hrs 11/18/16 for
bit / motor

MINDEPTH 11/19/16

Resumed
drilling 1030
hrs. Lost
circulation.
Pump sweeps
and clean hole.
Resumed
drilling 1830 hrs

MD: 5,155'
TVD: 5,137.79'
INC: 4.7°
AZM: 231.63°
VS: -286.75'

MW IN: 9.6

VIS IN: 57

MW OUT: 9.5

VIS OUT: 55

WOB: 18.4klbs

RPM: 55

SPM: 160

SPP: 1,820psi

Replace frozen gas line

33u

155u

118u

1543u

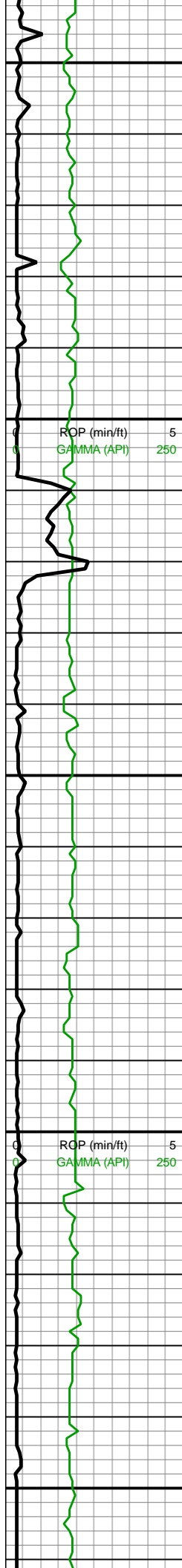
487u

313u

5000-5100 85% SLTST:
lt - med gy, sme dk gry, sl
frm - smewh fri, sb blk -
sl plty, mod calc, vf sdy
tex; 15% SST: v lt - lt gy,
sme gry-wht-offwht, sb
frm - sl fri, occ vf mics
intbds, mod - w cons cls,
arg-silc cmt, mtx sup, vf -
f grnd, slty ip, sb ang - sb
rnd, mod - w srt

5100-5200 60% SLTST:
pred v dk gy, sme blk,
frm, blk, rgh tex, non
calc, occ intbdd wi 40%
SST: pred gk gy, sme lt
gy-offwht, frm, blk, w
cons wi silc cmt, sme
calc, vf sb ang mod-w
srted grs, tr micmica





MD: 5,249'
TVD: 5,231.46'
INC: 4.97°
AZM: 229.17°
VS: -291.8'

MW IN: 9.5+
VIS IN: 60
MW OUT: 9.5
VIS OUT: 55

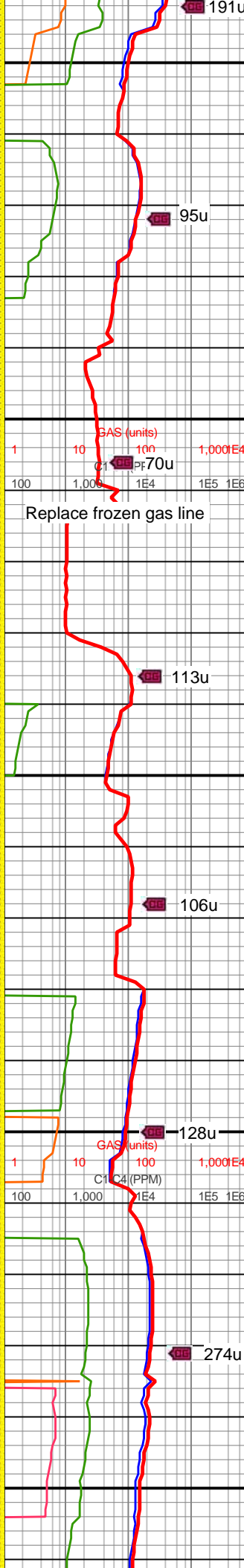
MD: 5,344'
TVD: 5,326.06'
INC: 5.49°
AZM: 227.32°
VS: -297.58'

MW IN: 9.5
VIS IN: 54
MW OUT: 9.5
VIS OUT: 55

WOB: 20.3klbs
RPM: 56
SPM: 170
SPP: 2,108psi

MW IN: 9.5
VIS IN: 54
MW OUT: 9.5+
VIS OUT: 56

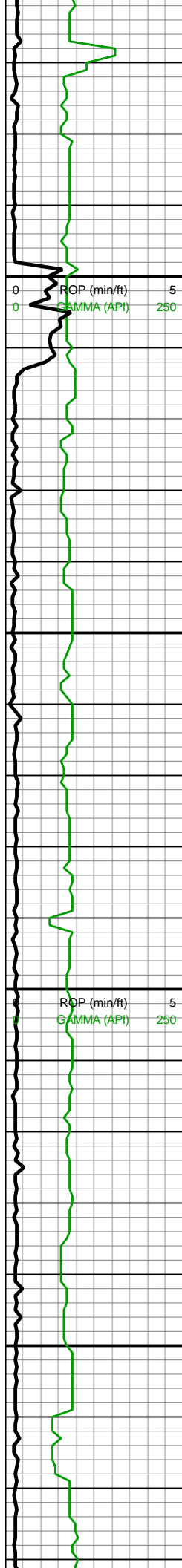
MD: 5,439'
TVD: 5,420.67'
INC: 4.92°
AZM: 227.32°
VS: -303.42'



5200-5300 85% SLTST: v
dk gy-dk gyshbn, frm-sl
hrd, blk, non calc, rgh
tex, com sdy, com
micmica, sme intbdd wi
15% SST: lt gy-med gy,
sme gyshbn, w cons wi
silc cmt, non calc, vf-f
grnd, mod srt, sb
ang-ang grs, occ arg

5300-5400 70% SLTST:
pred v dk gy, sme blk,
frm, blk, rgh tex, non
calc; 30% SST: pred gk
gy, sme lt gy-offwht, frm,
blk, w cons wi silc cmt,
sme calc, vf sb ang
mod-w srt grs





5,470
5,480
5,490
5,500
5,510
5,520
5,530
5,540
5,550
5,560
5,570
5,580
5,590
5,600
5,610
5,620
5,630
5,640
5,650
5,660
5,670
5,680

MINDEPTH 11/20/16

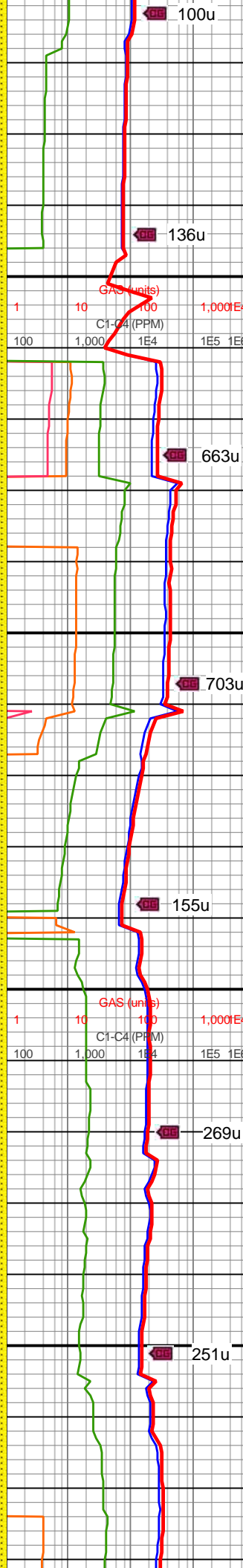
MW IN: 9.5
VIS IN: 55
MW OUT: 9.5
VIS OUT: 54

MD: 5,534'
TVD: 5,515.23'
INC: 6.07°
AZM: 227.41°
VS: -309.58'

WOB: 20.1klbs
RPM: 55
SPM: 170
SPP: 2,269psi

MW IN: 9.4+
VIS IN: 52
MW OUT: 9.5
VIS OUT: 54

MD: 5,628'
TVD: 5,608.75'
INC: 5.45°
AZM: 226.97°
VS: -315.99'



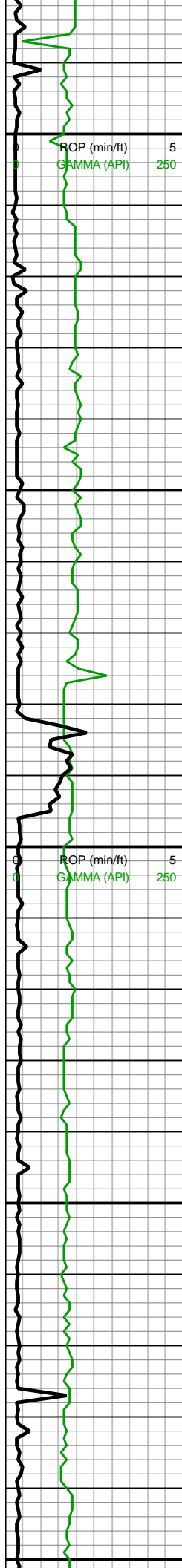
5400-5500 90% SLTST:
pred v dk gy, sme
gyshbn-blk, v frm, blk,
occ sl plty, non calc, occ
fy lam, rgh tex, tr sddy,
com micmica, tr imbd
pyr; 10% SST: med gy-lt
gy, frm, w cons wi silc
cmt, vf grnd, slty, mod-w
srt, sb ang, occ arg



5500-5600 75% SLTST:
dk gy-v dk gy, sme
gyshbn, frm-v frm, sb
blk-blky, non calc, sdy ip,
micmica, tr pp pyr, grdg
to 25% SST: med gy-dk
gy, sme lt gy, w cons cls
wi silc cmt, sme arg, vf
grnd, mod-w srt, sb ang
grs, sme s&p



5600-5700 70% SLTST:
med gyshbn-dk gy, sme
lt gy, frm, v frm ip, blk,
non calc, micmica; 30%



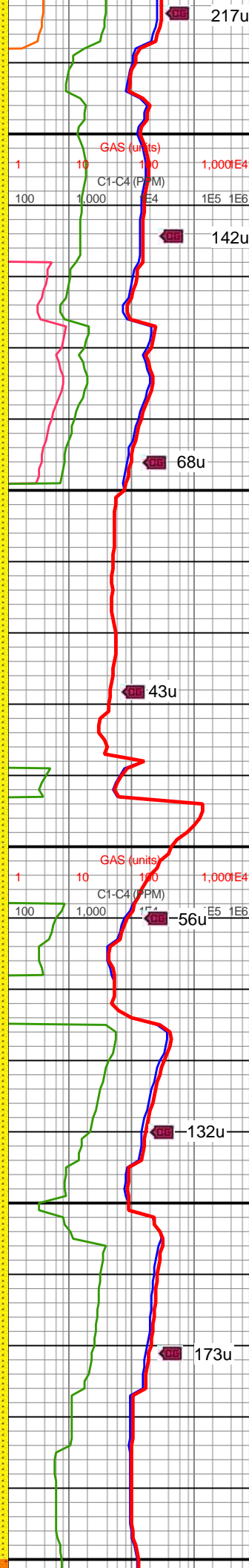
MD: 5,723'
TVD: 5,703.37'
INC: 4.79°
AZM: 226.53°
VS: -321.8'

MW IN: 9.4
VIS IN: 53
MW OUT: 8.4+
VIS OUT: 54

WOB: 21.8klbs
RPM: 56
SPM: 170
SPP: 2,266psi

MD: 5,817'
TVD: 5,797.05'
INC: 4.79°
AZM: 225.39°
VS: -327.25'

MW IN: 9.5
VIS IN: 53
MW OUT: 9.5
VIS OUT: 52

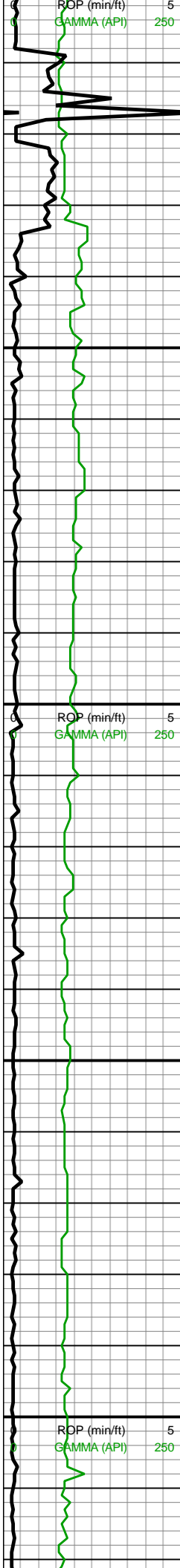


non calc, micmica, 30%
SST: med gy-lt gy, sme lt
tn-offwht, v frm, w cons wi
silc-arg cmt, slty ip,
mod-w srtd sb ang-ang
f-vf grns

5700-5800 80% SLTST:
pred gyshbn-dk gy, frm-v
frm, blkly, non calc-v sl
calc, com micmica, occ fy
lam, grdg to 20% SST: dk
gy, sme lt gy-med gy, w
cons cls, cons wi silc
cmt, non-sl calc occ, vf-f
sb ang-ang mod-w srt
grs, slty

5800-5900 90% SLTST:
dk gy-v dk gy, gyshbn,
sme lt gy, frm-v frm, blkly,
sme sb blkly, non calc,
occ micmica, tr pp pyr,
sdy tex; 10% SST: med
gy-lt gy, com dk gy, frm, w
cons cls cons wi silc -arg
cmt, slty, vf f grnd grdg to
sltst, mod-w srt sb ang
grns





MD: 5,912'
TVD: 5,891.71'
INC: 4.92°
AZM: 226.79°
VS: -332.79'

MW IN: 5.9
VIS IN: 53
MW OUT: 9.5
VIS OUT: 52

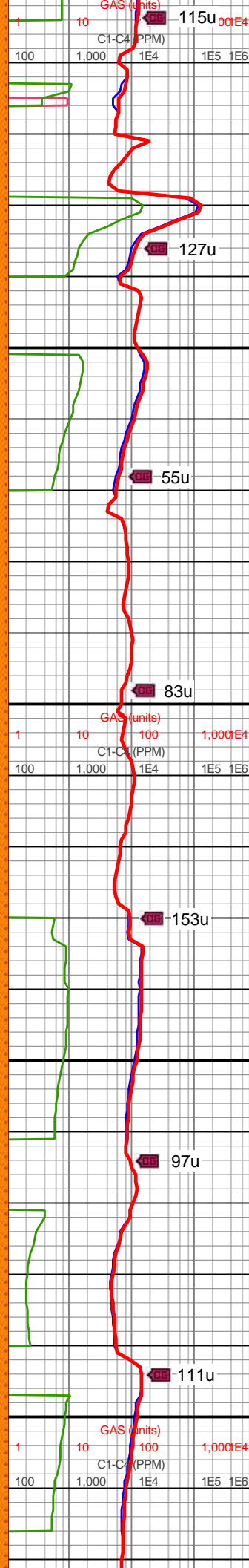
WOB: 30klbs
RPM: 55
SPM: 180
SPP: 2,595psi

MD: 6,007'
TVD: 5,986.34'
INC: 5.23°
AZM: 227.76°
VS: -338.49'

MW IN: 9.6
VIS IN: 52
MW OUT: 9.5
VIS OUT: 51

MW IN: 9.6
VIS IN: 52
MW OUT: 9.5
VIS OUT: 51

MD: 6,102'
TVD: 6,081'
INC: 4.44°
AZM: 224.95°
VS: -344'



115u

127u

55u

83u

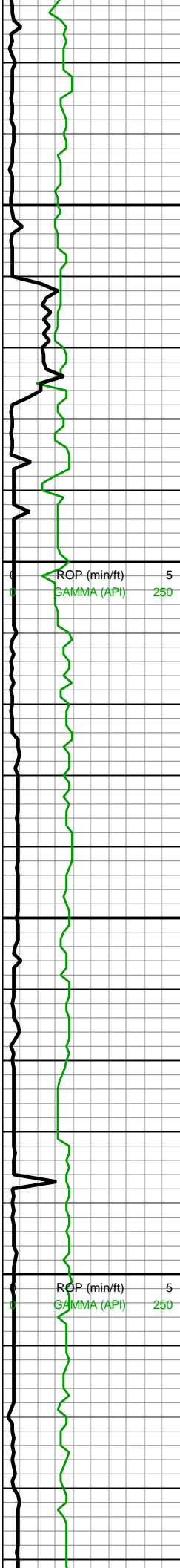
153u

97u

111u

5900-6000 90% SLTST:
mod dk gy - dk gy,
gyshbn, rr lt gy, frm, sb
blky, v ltly calc, slty tex, vf
f intbds, 10% SLTY SH: v
dk - dk gry, rr blk, v frm -
hd, sb plty, v ltly calc, occ
mic bot pyr vns, rr sst
cluss, rr indv cal grns, v rr
org frags

6000-6100 75% SLTST:
dk gy - dk gyshbn, frm-sl
hrd, blkly - sb plty, v ltly
calc - non calc, rgh tex,
com micmica; 25% SLTY
SH: mod dk gy - v dk gy,
gyshbn, rr lt gy, rr blk, frm
- v frm, sb blkly - sb plty, v
ltly calc, slty tex, vf - f
intbds, occ mic bot pyr
vns, rr sst cluss, rr indv
cal grns



MW IN: 9.6
VIS IN: 53
MW OUT: 9.6
VIS OUT: 50

MD: 6,197'
TVD: 6,175.68'
INC: 5.05°
AZM: 237.78°
VS: -348.83'

WOB: 19klbs
RPM: 72
SPM: 180
SPP: 2,654psi

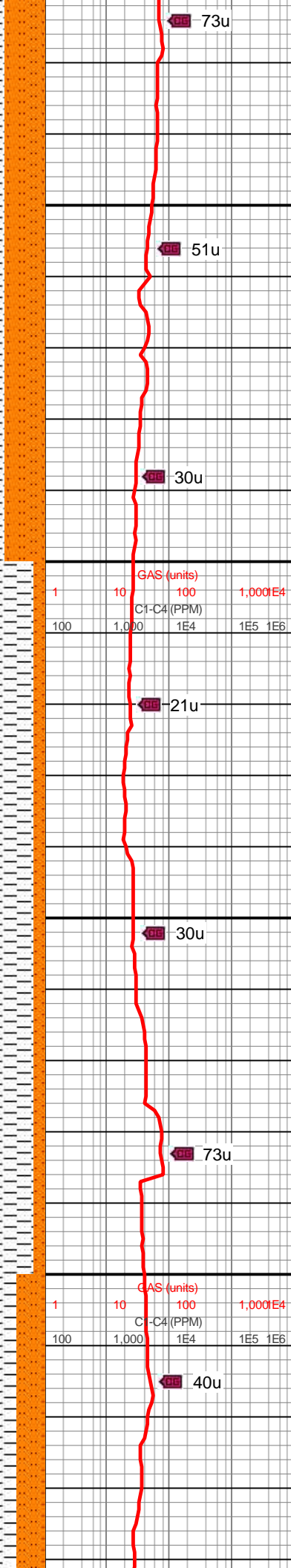
ROP (min/ft) 5
GAMMA (API) 250

MW IN: 9.6
VIS IN: 53
MW OUT: 9.6
VIS OUT: 50

MD: 6,291'
TVD: 6,269.36'
INC: 4.4°
AZM: 239.1°
VS: -352.89'

ROP (min/ft) 5
GAMMA (API) 250

MW IN: 9.6
VIS IN: 53



73u

51u

30u

21u

30u

73u

40u

GAS (units)
C1-C4 (PPM)
1 10 100 1,000E4
100 1,000 1E4 1E5 1E6

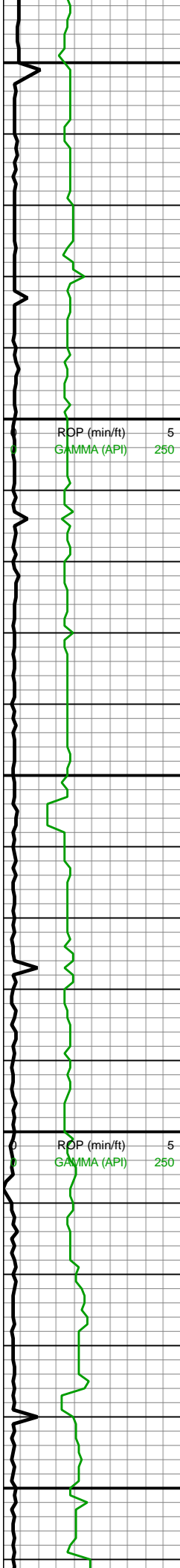
GAS (units)
C1-C4 (PPM)
1 10 100 1,000E4
100 1,000 1E4 1E5 1E6

6100-6200 65% SLTY
SH: mod dk gy - v dk gy, tr
gyshbn - lt gy, v rr blk, frm
- v frm, sb plty, v wkly calc,
v f slty tex, vf intbds, sme
mic bot pyr vns; 35%
SLTST: mod dk gy - dk
gyshbn, frm-sl hrd, blkly -
sb plty, v ltly calc - non
calc, rgh tex, com
micmica



6200-6300 90% SLTY
SH: mod dk gy - v dk gy, tr
lt gy, v frm - hd, sb plty, v
wkly calc, v f slty tex, sme
mic bot pyr vns; 10%
SLTST: gyshbn - lt gry,
frm- sl hrd, blkly - sb plty, v
ltly calc, rgh tex, tr
micmica





VIS IN: 50
MW OUT: 9.6
VIS OUT: 50

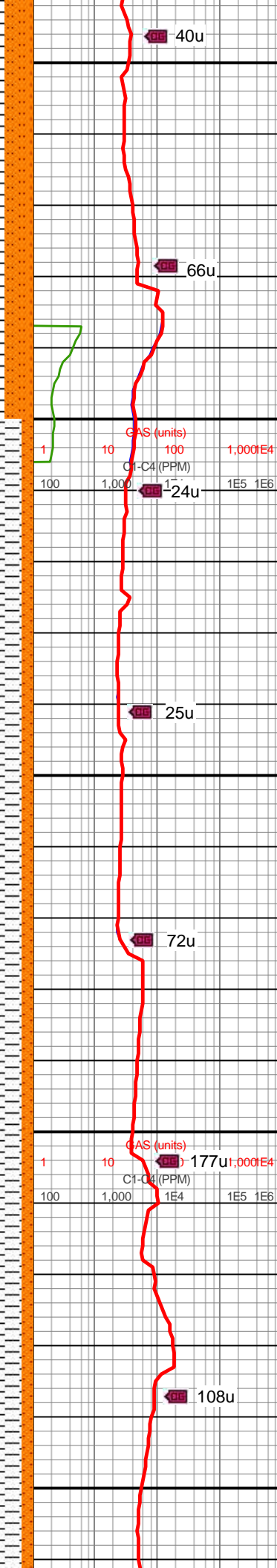
MD: 6,384'
TVD: 6,362.13'
INC: 3.6°
AZM: 239.54°
VS: -356.2'

WOB: 13klbs
RPM: 65
SPM: 180
SPP: 2,631psi

MW IN: 9.6
VIS IN: 52
MW OUT: 9.6
VIS OUT: 50

MD: 6,481'
TVD: 6,458.98'
INC: 2.81°
AZM: 239.62°
VS: -358.95'

MW IN: 9.6
VIS IN: 53
MW OUT: 9.5+
VIS OUT: 51

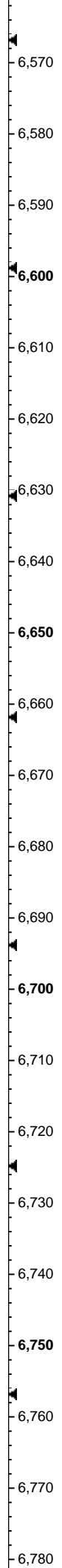
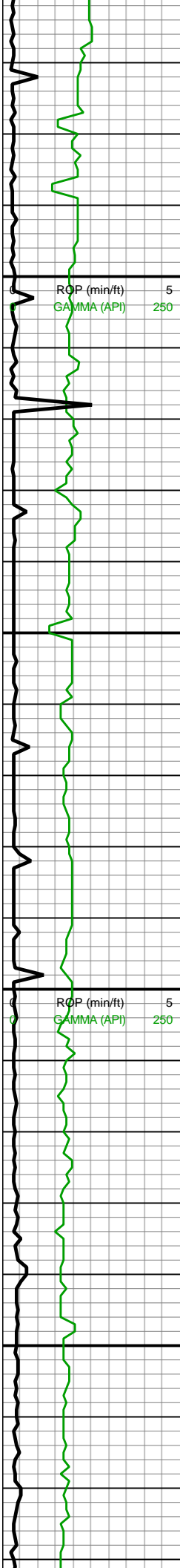


6300-6400 75% SLTY
SH: lt - mod dk gy, sme
dk gy, v frm - hd, sb plty, v
wkly calc, v f slty tex, scat
mic bot pyr vns thru; 25%
SLTST: v lt - lt gry, frm - sl
hrd, sme sl fri, blk - sb
blk, v ltly calc, rgh tex, tr
micmica, sme v f sdy strg



6400-6500 90% SLTY
SH: dk - v dk gy, sme
blkgy, v frm - hd, sb plty,
non calc, vf slty tex, scat
mnr bot pyr vns thru; 10%
SLTST: lt - med gry, frm,
sme sl fri, blk - sb blk, v
ltly calc, rgh tex, tr
micmica





MD: 6,576'
TVD: 6,553.88'
INC: 2.29°
AZM: 239.89°
VS: -361.08'

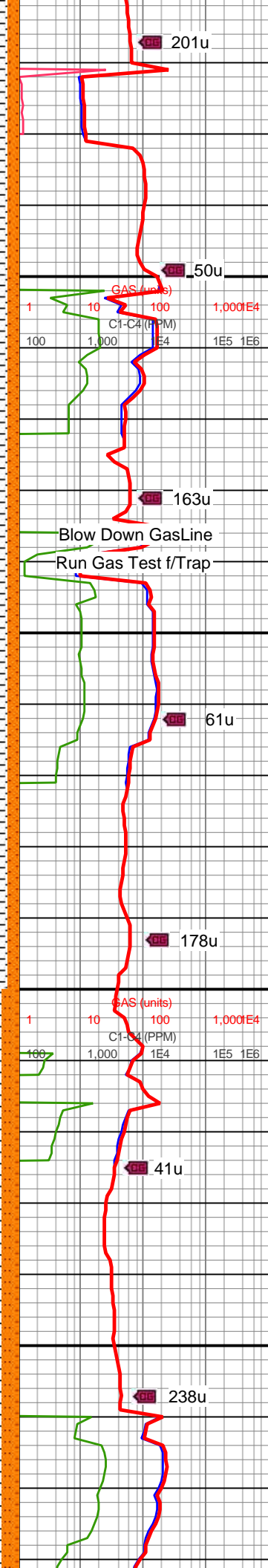
WOB: 17klbs
RPM: 64
SPM: 178
SPP: 2,605psi

MW IN: 9.7
VIS IN: 51
MW OUT: 9.6
VIS OUT: 50

MD: 6,670'
TVD: 6,647.83'
INC: 1.63°
AZM: 237.87°
VS: -362.73'

MW IN: 9.6+
VIS IN: 50
MW OUT: 9.7
VIS OUT: 50

MD: 6,765'
TVD: 6,742.79'
INC: 1.36°
AZM: 241.12°
VS: -364.01'

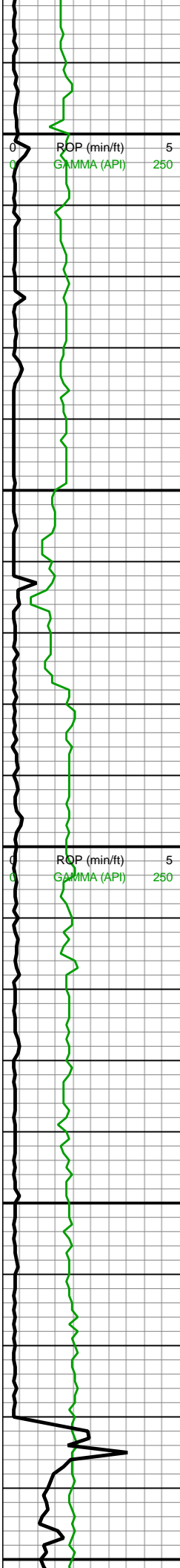


6500-6600 90% SLTY
SH: med - v dk gy, sme
blkgy, v frm - hd, sb plty,
non calc, vf slty tex, rr pyr
vns thru; 10% SLTST: lt -
med gry, frm - sl fri, blkly -
sb blkly, v ltly calc, mod
rgh tex, rr tr cal grns, v rr
blkly wht - offwht cly

6600-6700 90% SH: med
- v dk gy, sme blkgy - blk,
v frm - hd, sb plty, non
calc, vf slty tex; 10%
SLTST: lt - med gry, frm -
sl fri, blkly - sb blkly, v ltly
calc, mod rgh slty tex, rr tr
cal grns, v rr blkly wht -
offwht cly

6700-6800 85% SH: med





WOB: 10klbs
RPM: 69
SPM: 181
SPP: 2,672psi

MD: 6,860'
TVD: 6,837.77'
INC: 0.92°
AZM: 239.8°
VS: -364.94'

MW IN: 9.7+
VIS IN: 51
MW OUT: 9.8
VIS OUT: 49

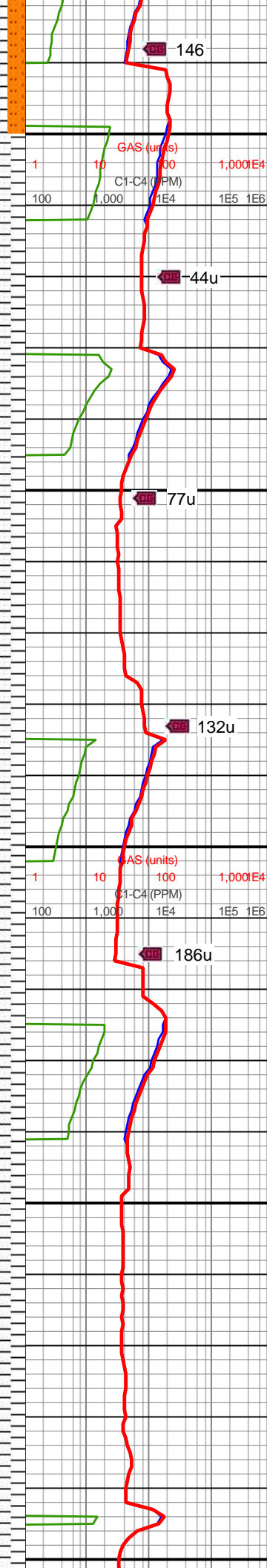
MW IN: 9.6
VIS IN: 49
MW OUT: 9.7
VIS OUT: 50

Begin Build

MD: 6,954'
TVD: 6,931.76'
INC: 0.79°
AZM: 249.29°
VS: -365.55'

WOB: 9klbs
RPM: 0
SPM: 158
SPP: 1,654psi

MD: 7,001'
TVD: 6,978.75'
INC: 2.24°



- v dk gy, sme blkgy, v
frm, sb plty, non calc, vf
silty tex; 15% SLTST: lt -
med gry, frm - sl fri, blkgy -
sb blkgy, v ltly calc, mod
rgh silty tex

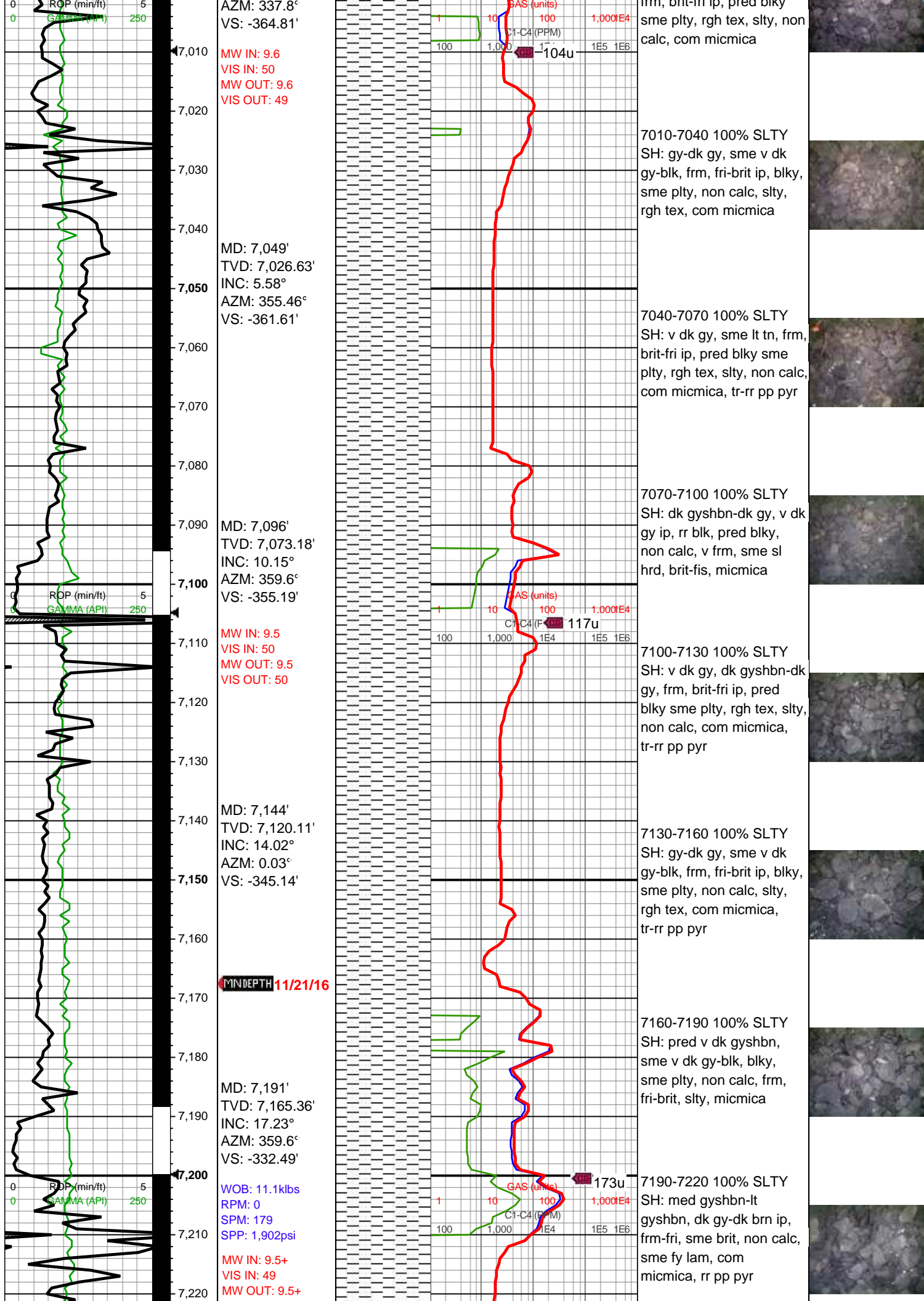
6800-6900 100% SLTY
SH: med - v dk gy, sme
blkgy, tr blk, spl dk ovral,
frm - sl sft, brit - fri, sb
plty, occ sb blkgy, grty silty
tex, rthy, arg - silty mtx,
scat v f mic comly orntd, tr
v thn lam bdg w/ mod - g
fisly, v lcl sacc tex, v wkly -
non calc ovral, scat rr tt
pyr cluss, rr indv trnsl cal
grns, tr sltst frags

6900-6950 100% SLTY
SH: med - v dk gy, sme
blkgy - grnsh gry, tr blk,
spl dk ovral, sb frm - sl
sft, brit - fri, sb plty, occ sb
blkgy, grty silty tex, rthy, tr v
thn lam bdg w/ mod - g
fisly, v lcl sacc tex, v wkly -
non calc ovral, tr sltst &
sst frags

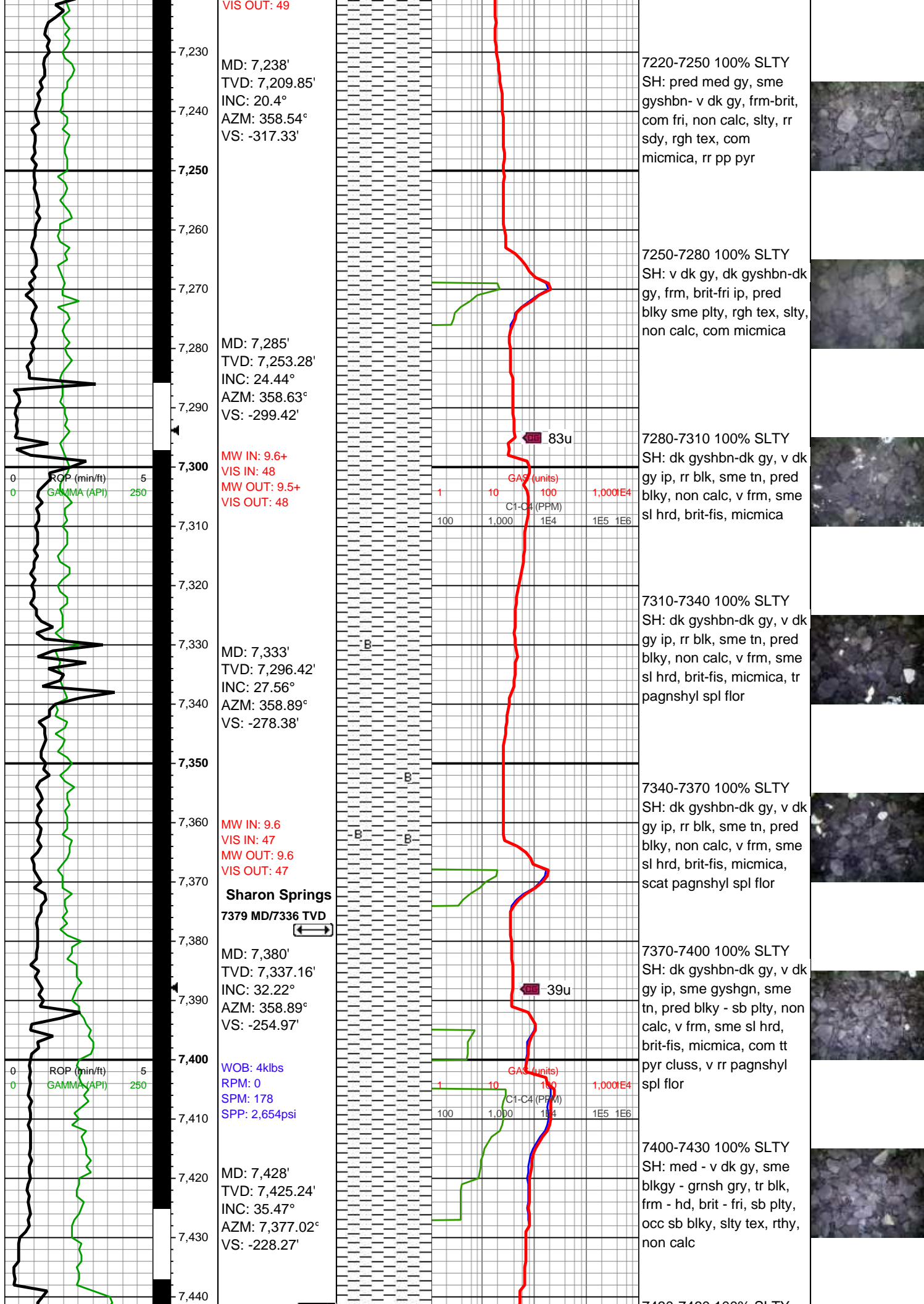
6950-6980 100% SLTY
SH: mod blkgy - lt grnsh
gry, tr blk, olvgry, sb frm,
brit - fri, sb plty, grty silty
tex, rthy, tr v thn lam bdg
w/ mod - g fisly, v lcl sacc
tex, non calc ovral

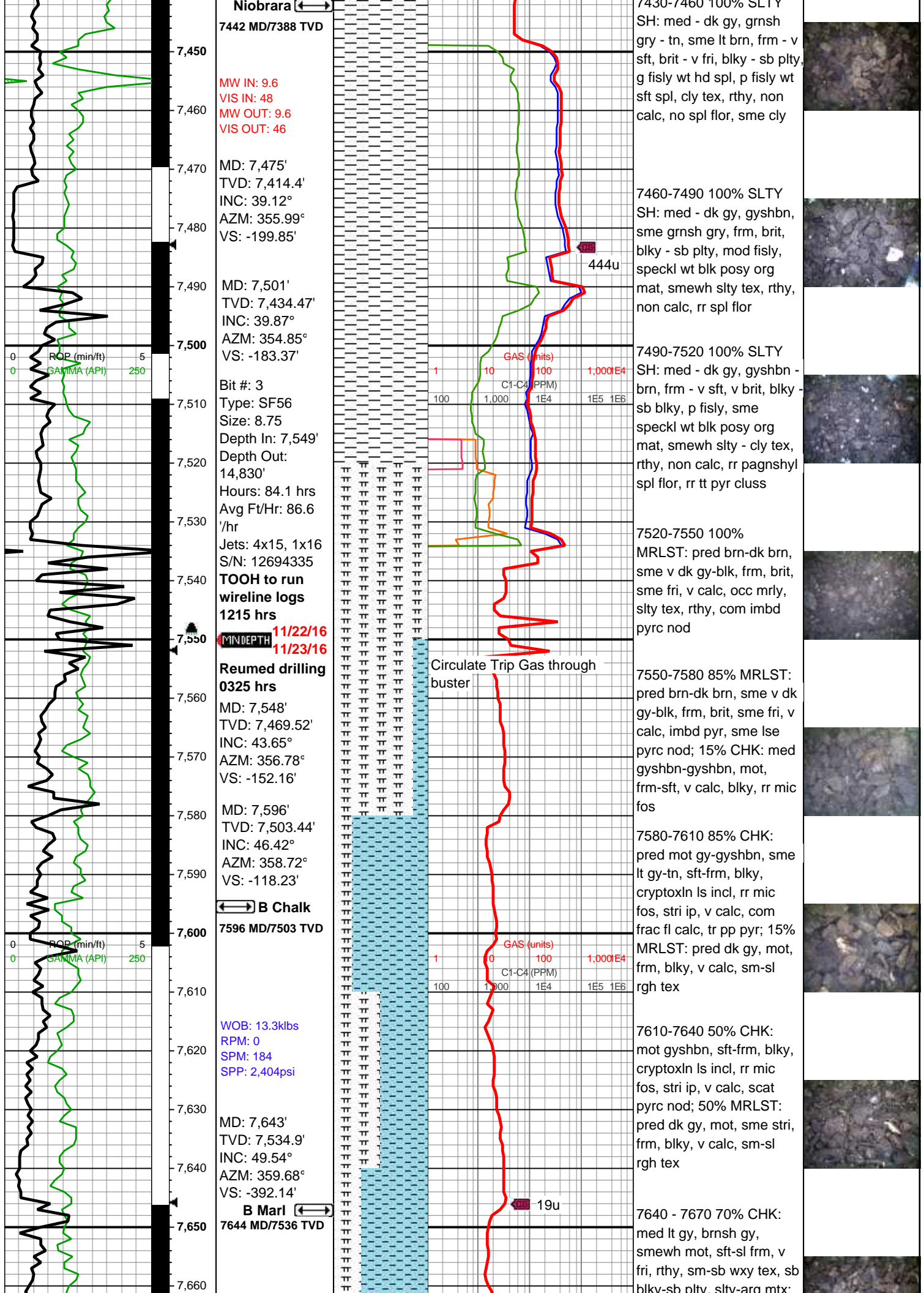
6980-7010 100% SLTY
SH: v dk gy, sme lt gy,
frm, brit fri in, mod blkgy

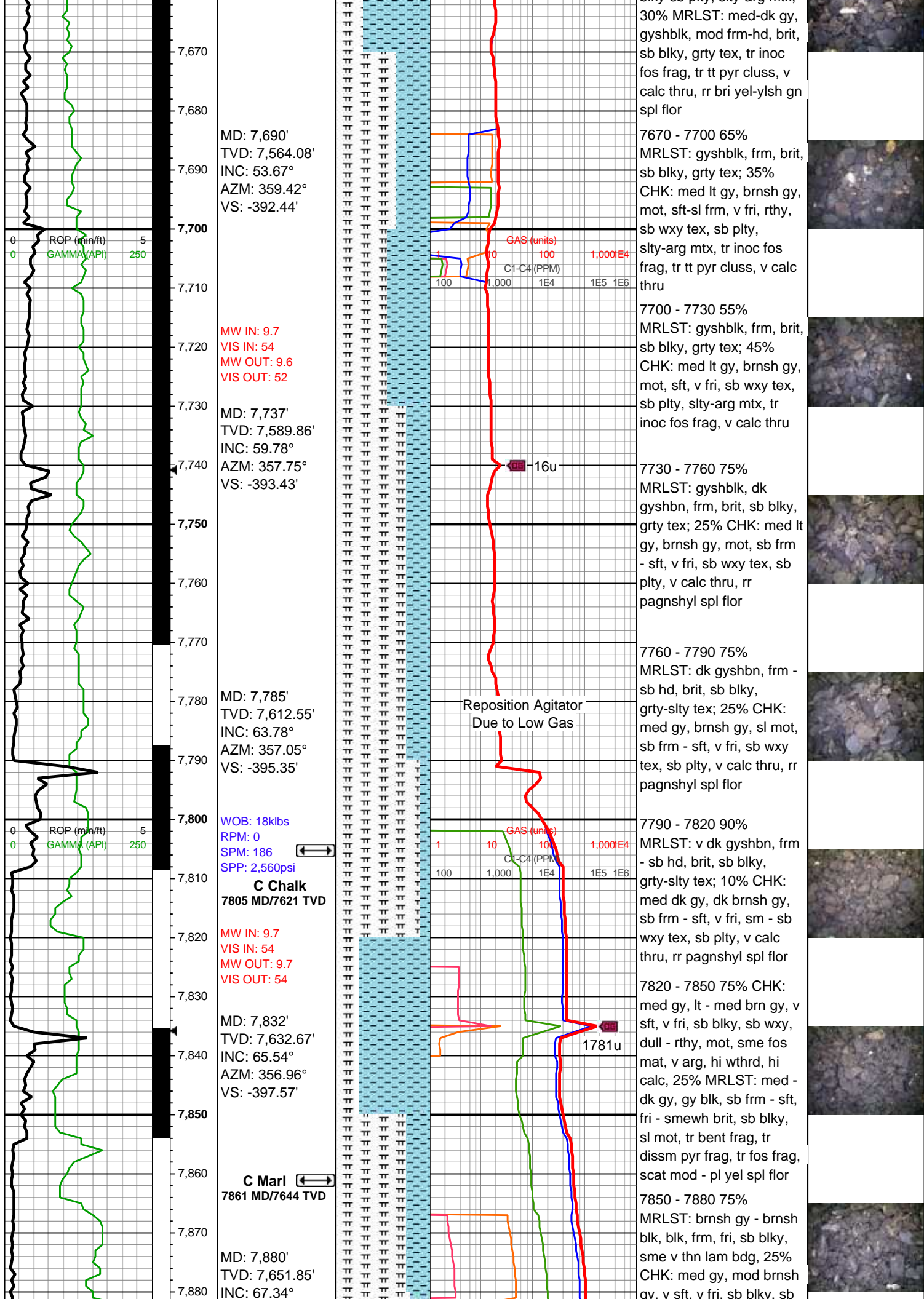


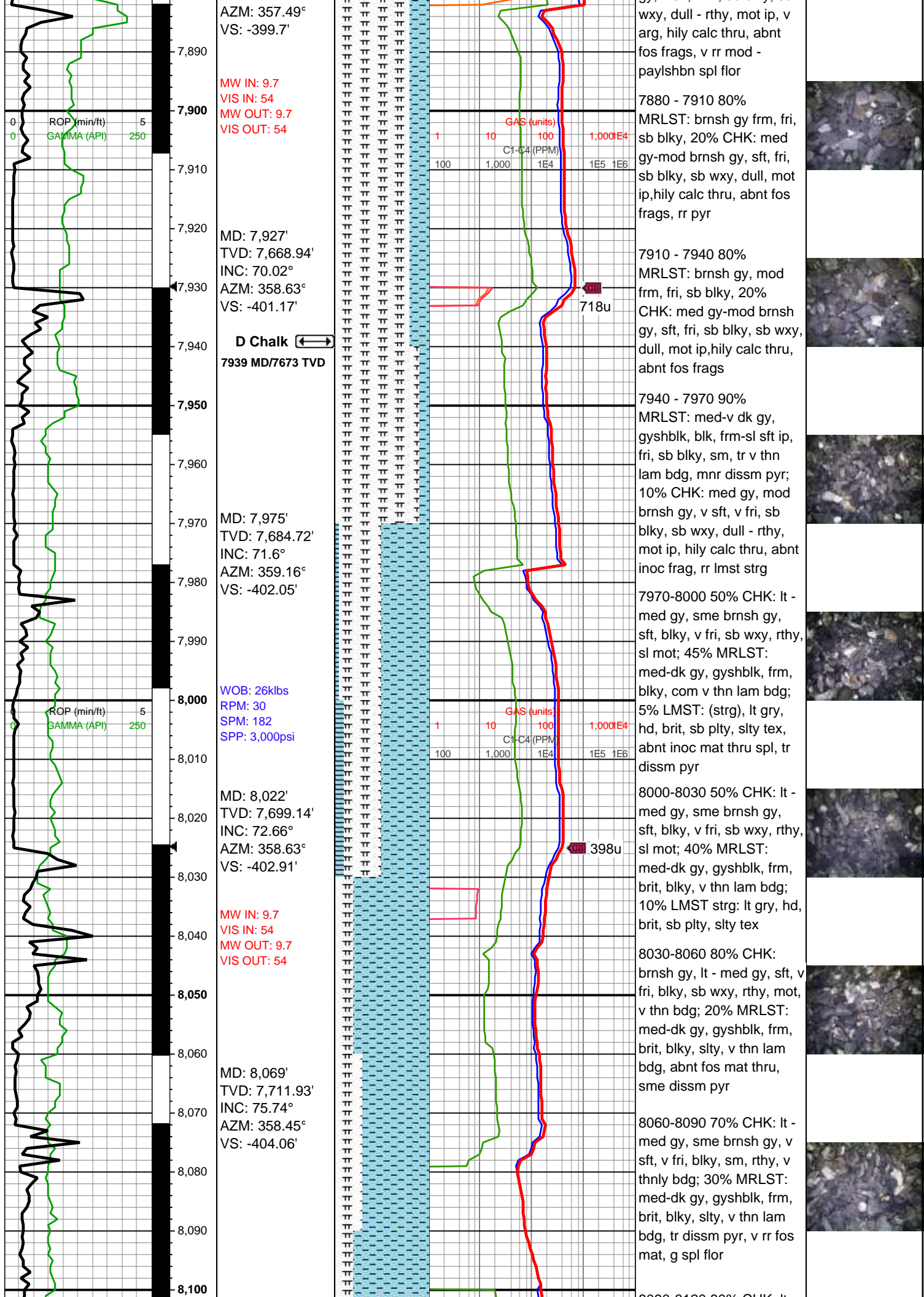


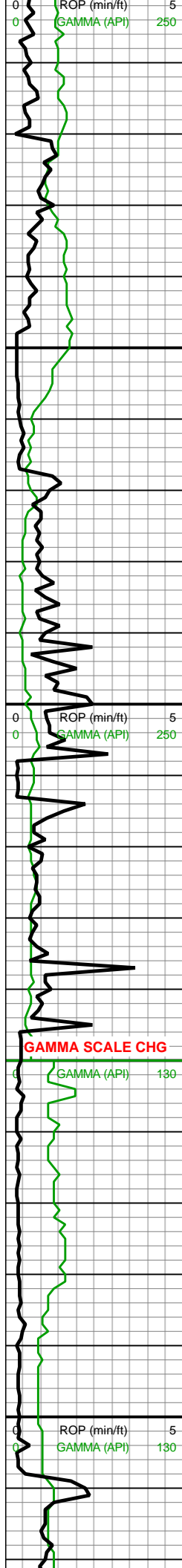
VIS OUT: 49











MD: 8,116'
TVD: 7,722.73'
INC: 77.71°
AZM: 1.35°
VS: -404.14'

Ft Hayes
8127 MD/7725 TVD

MW IN: 9.7
VIS IN: 54
MW OUT: 9.7
VIS OUT: 54

MD: 8,164'
TVD: 7,731.45'
INC: 81.36°
AZM: 2.93°
VS: -402.37'

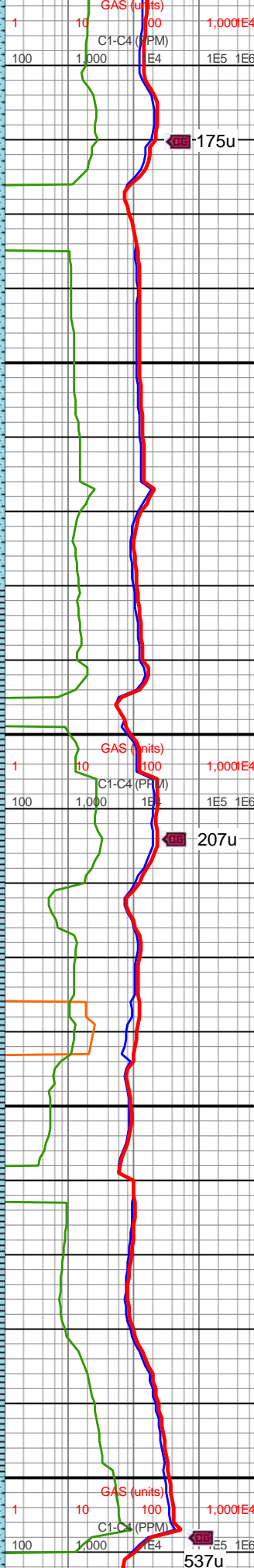
WOB: 33klbs
RPM: 0
SPM: 180
SPP: 2,455psi

MD: 8,211'
TVD: 7,737.34'
INC: 84.22°
AZM: 2.58°
VS: -400.13'

MD: 8,258'
TVD: 7,740.71'
INC: 87.56°
AZM: 2.06°
VS: -398.24'

MW IN: 9.7
VIS IN: 54
MW OUT: 9.7
VIS OUT: 53

CURVE LANDED
8309' MD
11/23/16
1600hrs



8090-8120 80% CHK: lt - med gy, brnsh gy, v sft, v fri, blk, wxy, rthy, v thnly bdg, v p fisly; 20% MRLST: dk gy, gyshblk, frm - sb frm, brit, blk, v slty, v thn lam bdg, tr dissim pyr, mod spl flor

8120-8150 60% CHK: lt - med gy, brnsh gy, v sft, v fri, blk, wxy, rthy, v thnly bdg, v p fisly; 30% LMST: lt grnsh gy, v lt gy, hd, brit, blk, slty tex, dull, 10% MRLST: dk gy, gyshblk, frm - sb frm, brit, blk, v slty, g spl flor

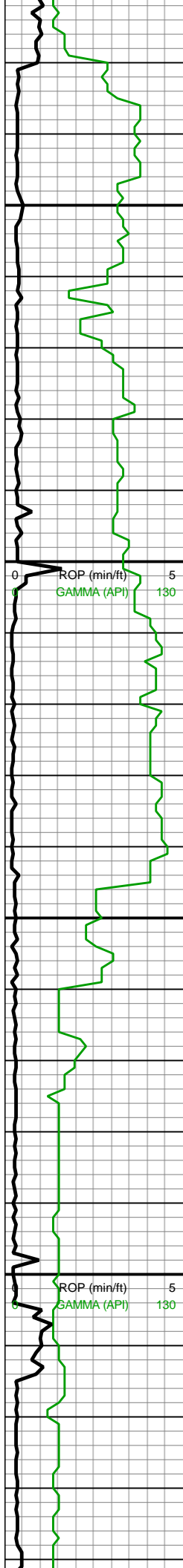
8150-8180 60% LMST: lt - med grnsh gy, lt gy, hd, brit, blk, sacc tex, dull, 30% CHK: lt - med gy, brnsh gy, v sft, v fri, blk, sm, rthy; 10% MRLST: dk gy, gyshblk, frm - sb frm, brit, blk, v slty, g spl flor

8180-8210 LS: pagn, crm - bf, sme paylgn, hd - v hd, bri, plty - sb blk ip, v calc, v cpc - sl mbl ip, microxln - sacc tex, lmy - sl dolmtc ip, mod spl flor

8210-8240 LS: pagn - paylgn, crm - bf, v hd, bri, blk - sb plty, v calc, sli mot - v cpc ip, microxln, sacc tex ip, lmy - sl dolmtc ip, mod - wk spl flor

8240-8270 LS: pagn - paylgn, crm - bf, sme lt brn - tn, v hd - v frm, bri, blk - sb plty, v calc, sl mot - v cpc ip, microxln, sacc tex ip, lmy - sl dolmtc ip, mod - wk spl flor

8270-8300 100% LS: pagn - paylgn, lt-dk brn, crm - bf, v hd - v frm, bri, blk - sb plty ip, v calc, cpc, microxln, sacc tex ip, lmy - sl dolmtc ip, mod - wk spl flor



8,330
8,340
8,350
8,360
8,370
8,380
8,390
8,400
8,410
8,420
8,430
8,440
8,450
8,460
8,470
8,480
8,490
8,500
8,510
8,520
8,530
8,540

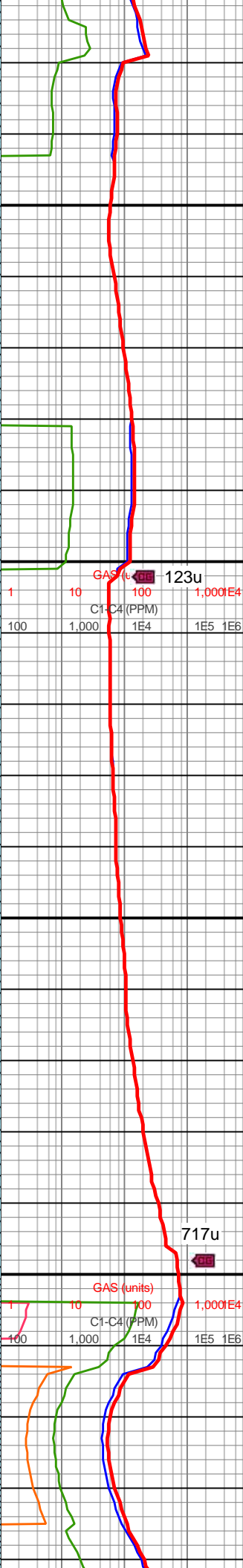
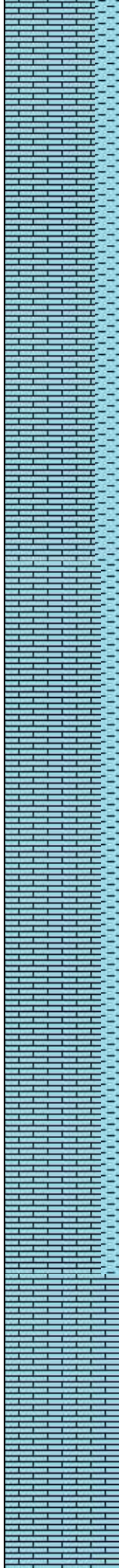
MD: 8,353'
TVD: 7,742.46'
INC: 90.33°
AZM: 358.1°
VS: -398.1'

MW IN: 9.7
VIS IN: 54
MW OUT: 9.7
VIS OUT: 54

WOB: 27klbs
RPM: 30
SPM: 180
SPP: 3,030psi

MD: 8,446'
TVD: 7,740.82'
INC: 91.69°
AZM: 358.19°
VS: 674.57'

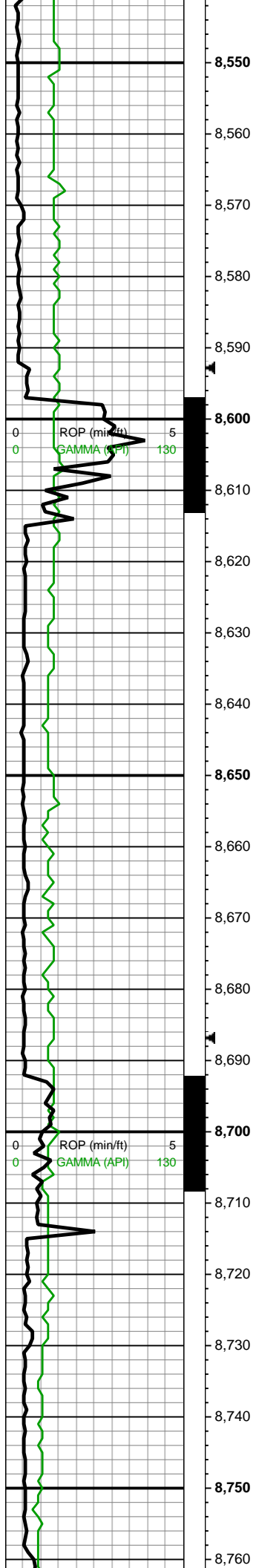
MD: 8,542'
TVD: 7,737.81'



8300-8400 80% LS: bf-tn, sme offwht-wht, occ dk gyshbn-brn, frm-sl hrd, blk, mic-cryptoxln, sacc tex ip, occ suc, fy lam ip; 20% CHK: med gy-dk gy, sme mot lt gy, calc, sft, fri, fy lam, tr mic fos, tr imbd pyr

8400-8500 85% LS: pred brn-lt tn, sme offwht-dk gyshbn, occ gn-crm, frm-sl hrd, blk, mic-cryptoxln, sacc tex, mod-wk spl flor; 15% CHK: pred mot gy-gyshbn, sft, blk, rr mic fos, stri





INC: 91.91°
AZM: 358.28°
VS: 770.48'

WOB: 31.8klbs
RPM: 0
SPM: 180
SPP: 2,332psi

MW IN: 9.8
VIS IN: 55
MW OUT: 9.8
VIS OUT: 56

MD: 8,637'
TVD: 7,734.9'
INC: 91.6°
AZM: 359.16°
VS: 865.41'

MD: 8,732'
TVD: 7,733.55'
INC: 90.02°
AZM: 357.84°
VS: 960.36'

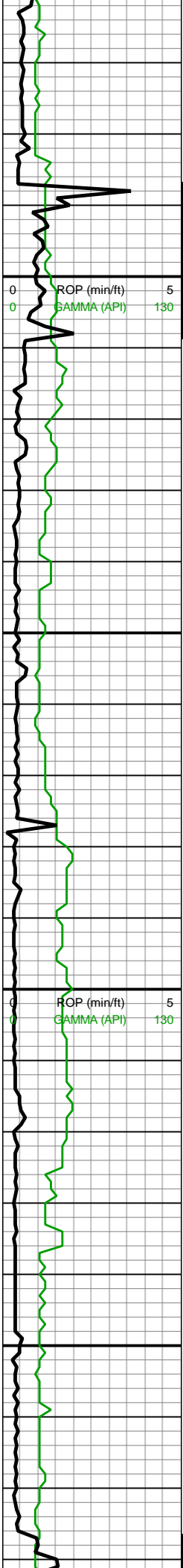


8500-8600 100% LS:
bf-tn, sme offwht-wht, occ
dk gyshbn-brn, frm-sl
hrd, blk, mic-cryptoxln,
sacc tex ip, occ suc, fy
lam ip



8600-8700 100% LS:
pred bf-tn-offwht, sme
crm, frm-v frm, blk,
mic-cryptoxln, sacc-suc
tex, occ fy lam





8,770
8,780
8,790
8,800
8,810
8,820
8,830
8,840
8,850
8,860
8,870
8,880
8,890
8,900
8,910
8,920
8,930
8,940
8,950
8,960
8,970
8,980

MW IN: 9.7
VIS IN: 58
MW OUT: 9.7+
VIS OUT: 56

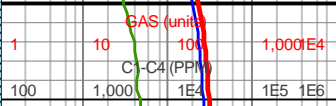
WOB: 39.4klbs
RPM: 0
SPM: 182
SPP: 2,552psi

MD: 8,826'
TVD: 7,734.71'
INC: 88.57°
AZM: 359.42°
VS: 1,054.32'

MW IN: 9.7
VIS IN: 55
MW OUT: 9.7
VIS OUT: 56

MINDEPTH: 11/24/16

MD: 8,921'
TVD: 7,736.35'
INC: 89.45°
AZM: 357.57°
VS: 1,149.27'



895u

8700-8800 100% LS:
pred bf, com lt tn-offwht,
sme lt gy, blk, y,
mic-cryptoxln, sacc-suc
tex, wkst, tr arg, sme fy
lam, rr SH

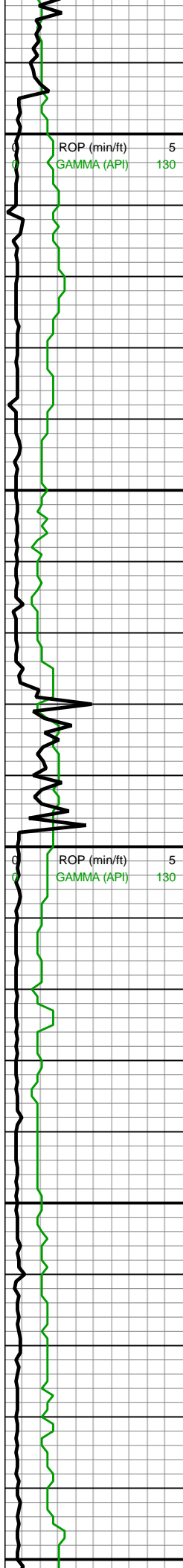


851u

8800-8900 100% LS:
pred mot brn-gyshbn,
blk, y, mic-cryptoxln, v arg,
v arg, wkst, pred suc tex,
sme sacc tex, rr fy lam, rr
cal



890u



8,990
9,000
9,010
9,020
9,030
9,040
9,050
9,060
9,070
9,080
9,090
9,100
9,110
9,120
9,130
9,140
9,150
9,160
9,170
9,180
9,190
9,200

WOB: 26.5klbs
RPM: 60
SPM: 182
SPP: 2,860psi

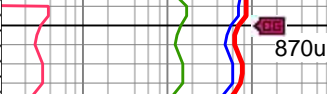
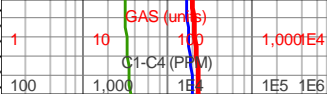
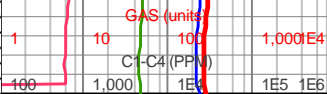
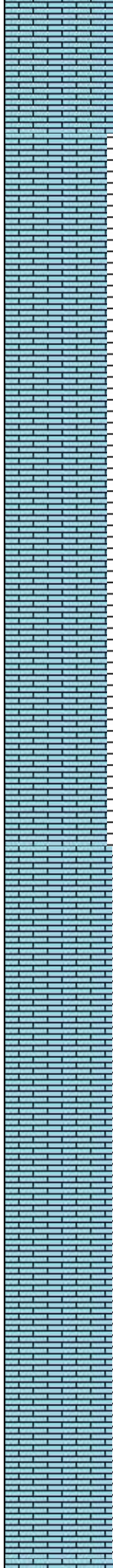
MD: 9,015'
TVD: 7,737.11'
INC: 89.63°
AZM: 358.8°
VS: 1,243.22'

MW IN: 9.7
VIS IN: 57
MW OUT: 9.7
VIS OUT: 55

MD: 9,110'
TVD: 7,738.38'
INC: 88.84°
AZM: 359.24°
VS: 1,338.19'

MW IN: 9.7
VIS IN: 56
MW OUT: 9.7
VIS OUT: 57

WOB: 30.6klbs
RPM: 67
SPM: 182
SPP: 2,860psi

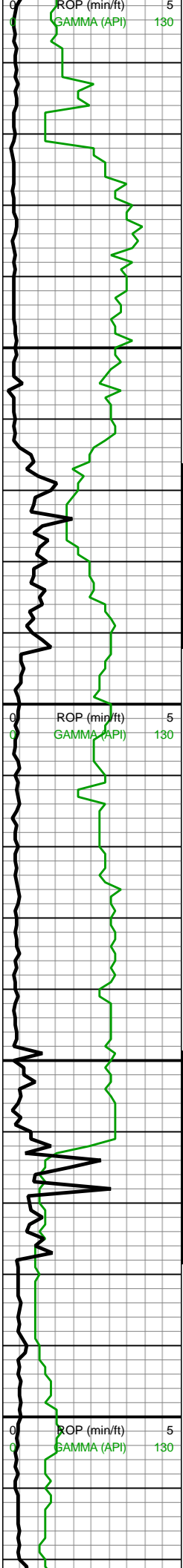


8900-9000 100% LS:
pred dk brn-gyshbn, mot,
sme lt brn, occ tn-bf, blk,
v frm-hrd, v arg, wkst,
mic-cryptoxln, tr fy lam, tr
pp pyr, suc-sacc tex

9000-9100 85% LS: mot
brn-lt brn, sme v dk
brn-gy, blk, v frm-sl hrd,
sme v hrd, mic-cryptoxln,
suc-sacc tex, arg; 15%
SH: v dk gy-blk, frm, blk,
sme pty, calc, sm tex, tr
pp-imbd pyr, tr frac fl cal

9100-9200 95% LS: bf-tn,
sme offwht-wht, occ dk
gyshbn-brn, frm-sl hrd,
blk, mic-cryptoxln, sacc
tex ip, occ suc; 5% SH: v
dk gy-blk, frm, blk, sme
pty, calc, sm tex, tr
pp-imbd pyr, tr frac fl cal





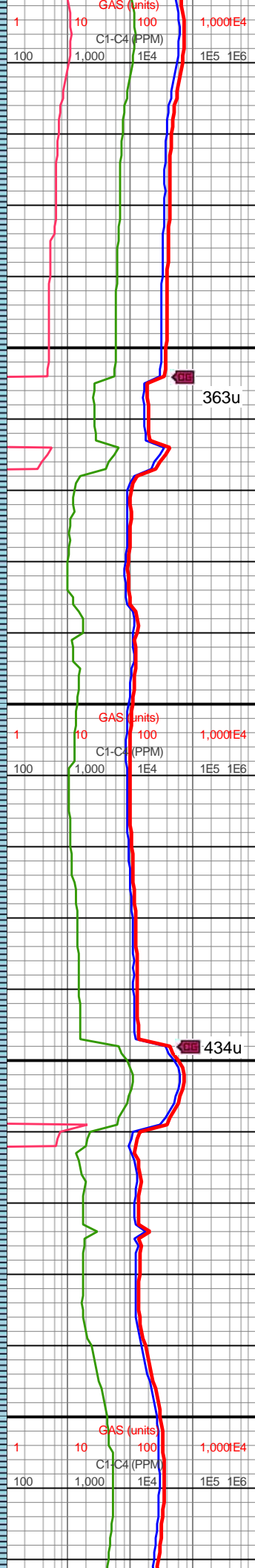
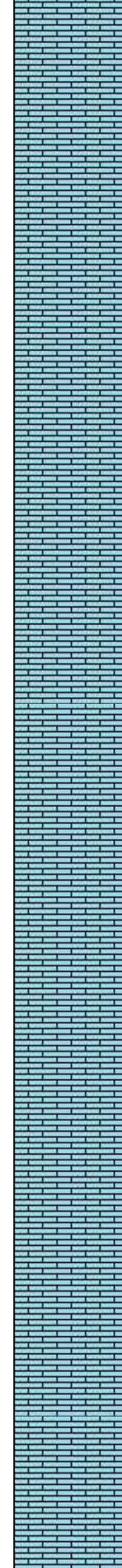
SPM: 182
SPP: 2,937psi

MW IN: 9.8
VIS IN: 56
MW OUT: 9.8
VIS OUT: 57

MD: 9,299'
TVD: 7,738.8'
INC: 89.54°
AZM: 359.95°
VS: 1,527.16'

MD: 9,393'
TVD: 7,739.33'
INC: 89.85°
AZM: 1.62°
VS: 1,621.15'

WOB: 25klbs
RPM: 59
SPM: 160
SPP: 2,600psi



363u

434u

9200-9300 100% LS:
pred lt brn-tn, sme bf, occ
med-dk gy, mot ip, v
frm-hrd, blk, suc-sacc
tex, mic-cryptoxln, rr xln, tr
cal vns, rr CHK

9300-9400 100% LS:
pred pagn-paylgn, sme lt
brn-tn-bf, occ med-dk gy,
v frm-hrd, blk, suc-sacc
tex, mic-cryptoxln, rr xln, rr
cal vns





9,430
9,440
9,450
9,460
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

MD: 9,488'
TVD: 7,738.24'
INC: 91.47°
AZM: 0.83°
VS: 1,716.12'

MW IN: 9.8
VIS IN: 58
MW OUT: 9.8
VIS OUT: 58

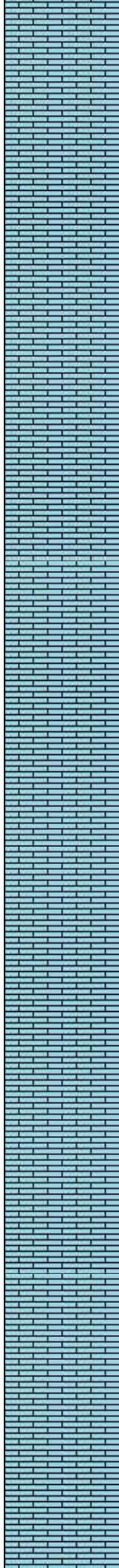
MW IN: 9.8
VIS IN: 58
MW OUT: 9.8
VIS OUT: 57

MD: 9,583'
TVD: 7,736.49'
INC: 90.64°
AZM: 359.77°
VS: 1,811.1'

WOB: 20klbs
RPM: 60
SPM: 144
SPP: 2,330psi

ROP (min/ft) 5
GAMMA (API) 130

ROP (min/ft) 5
GAMMA (API) 130



GAS (units) 1 10 100 1,000E4
C1-C4 (PPM) 100 1,000 1E4 1E5 1E6

GAS (units) 1 10 100 1,000E4
C1-C4 (PPM) 100 1,000 1E4 1E5 1E6

9400-9500 100% LS:
pred dsky brnsh gn - lt
brn, sme tn-bf, occ
med-dk gy, v frm-hrd,
blky, suc-sacc tex,
mic-cryptoxln, rr xln, rr cal
vns, rr -tr frags of mrlst &
chk.

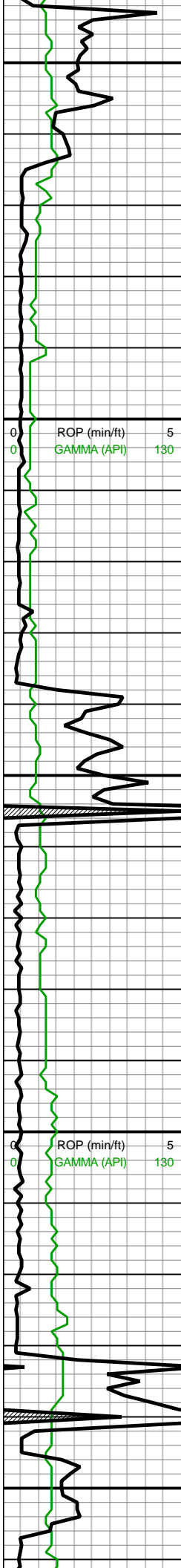
9500-9600 100% LS:
dsky brnsh gn - med
brnsh gn, sme tn-bf, occ
med-dk gy, v frm-hrd,
blky, suc-sacc tex, micxln,
rr xln



353u

376u

397u



MW IN: 9.8
VIS IN: 59
MW OUT: 9.8
VIS OUT: 58

MD: 9,677'
TVD: 7,735.72'
INC: 90.29°
AZM: 1°
VS: 1,905.09'

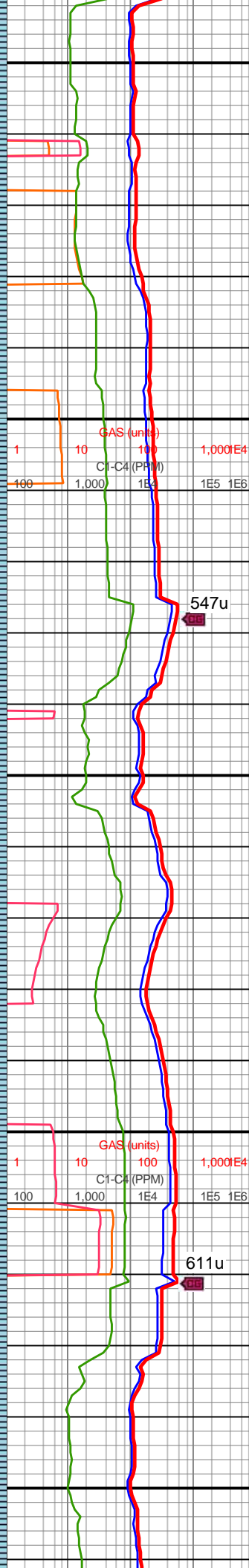
MD: 9,772'
TVD: 7,735.61'
INC: 89.85°
AZM: 1.35°
VS: 2,000.07'

MW IN: 9.7
VIS IN: 58
MW OUT: 9.7
VIS OUT: 58

WOB: 20.7klbs
RPM: 70
SPM: 80
SPP: 2,056psi

MW IN: 9.6
VIS IN: 58
MW OUT: 9.7
VIS OUT: 58

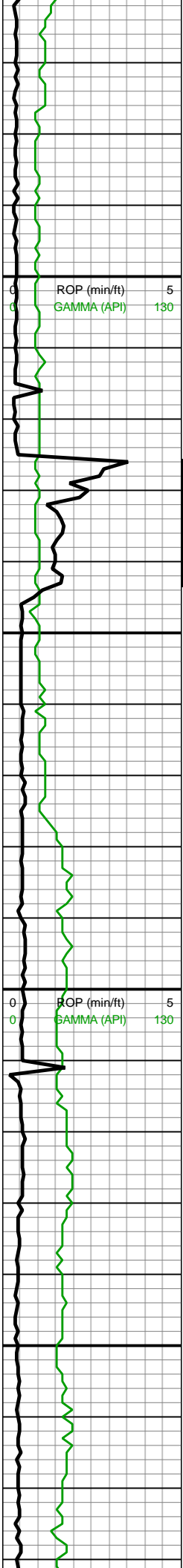
MD: 9,866'



9600-9700 100% LS:
pred pagn-paylgn, sme lt
brn-tn-bf, occ med-dk gy,
v frm-hrd, blk, suc-sacc
tex, mic-cryptoxln

9700-9800 100% LS:
pred bf-tn-offwht, sme
crm, frm-v frm, blk,
mic-cryptoxln, sacc-suc
tex, occ fy lam





TVD: 7,735.79'
INC: 89.93°
AZM: 0.03°
VS: 2,094.06'

MW IN: 9.6
VIS IN: 58
MW OUT: 9.6
VIS OUT: 58

MW IN: 9.7
VIS IN: 63
MW OUT: 9.65
VIS OUT: 59

MD: 9,961'
TVD: 7,735.86'
INC: 89.98°
AZM: 2.14°
VS: 2,189.04'

WOB: 20.9klbs
RPM: 67
SPM: 180
SPP: 2,749psi

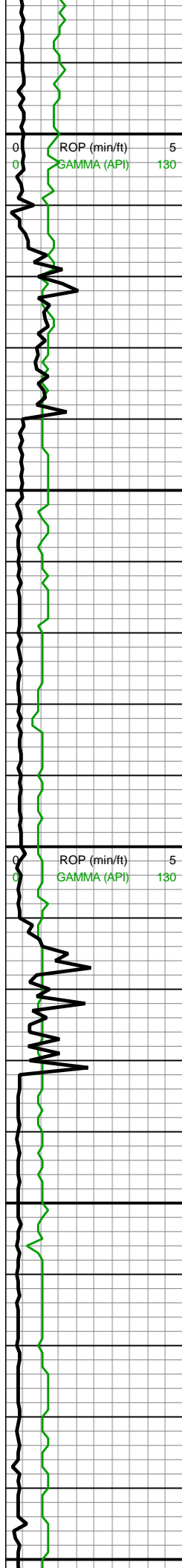
MD: 10,056'
TVD: 7,735.35'
INC: 90.64°
AZM: 0.12°
VS: 2,284.01'



9800-9900 100% LS:
pred bf-tn-offwht, sme
crm, frm-v frm, blkly,
mic-cryptoxln, sacc-suc
tex, occ fy lam

9900-10000 100% LS:
pred dk brn-gyshbn, mot,
sme lt brn, occ tn-bf, blkly,
v frm-hrd, v arg, wkst,
mic-cryptoxln, tr fy lam, tr
pp pyr, suc-sacc tex





10,090
10,100
10,110
10,120
10,130
10,140
10,150
10,160
10,170
10,180
10,190
10,200
10,210
10,220
10,230
10,240
10,250
10,260
10,270
10,280
10,290
10,300

MW IN: 9.65
VIS IN: 61
MW OUT: 9.6
VIS OUT: 59

MD: 10,151'
TVD: 7,734.18'
INC: 90.77°
AZM: 1.7°
VS: 2,378.99'

WOB: 27.7klbs
RPM: 65
SPM: 180
SPP: 2,875psi

MD: 10,246'
TVD: 7,734.03'
INC: 89.41°
AZM: 1.18°
VS: 2,473.96'

MW IN: 9.65
VIS IN: 63
MW OUT: 9.6
VIS OUT: 60

GAS (units)
C1-C4 (PPM)
100 1000 1E4
1 10 100
200E4
651u₃

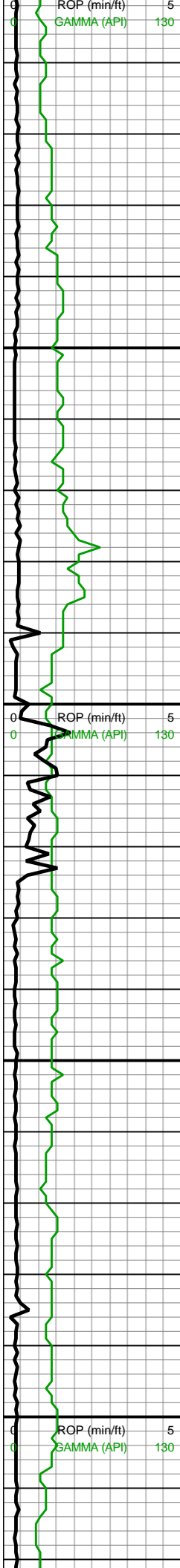
GAS (units)
C1-C4 (PPM)
100 1000 1E4
1 10 100
890u₄
1E5 1E6

10000-10100 100% LS:
dk bn-lt bn, sme bf, mot,
occ dk gy, pred hrd, blk,
suc-sacc tex, wkst, com v
arg, tr frac fl cal

10100-10200 90% LS:
bf-tn, sme offwht-wht, occ
dk gyshbn-brn, frm-sl
hrd, blk, mic-cryptoxln,
sacc tex ip, occ suc; 10%
SH: v dk gy-blk, frm, blk,
sme plty, calc, sm tex

10200-10300 100% LS:
pred v dk brn, occ med
brn-gyshbn-gy, rr bf, v
frm-hrd, pred blk,
suc-sacc tex, wkst,
mic-cryptoxln, arg, tr pp
pyr





10,310
10,320
10,330
10,340
10,350
10,360
10,370
10,380
10,390
10,400
10,410
10,420
10,430
10,440
10,450
10,460
10,470
10,480
10,490
10,500
10,510
10,520

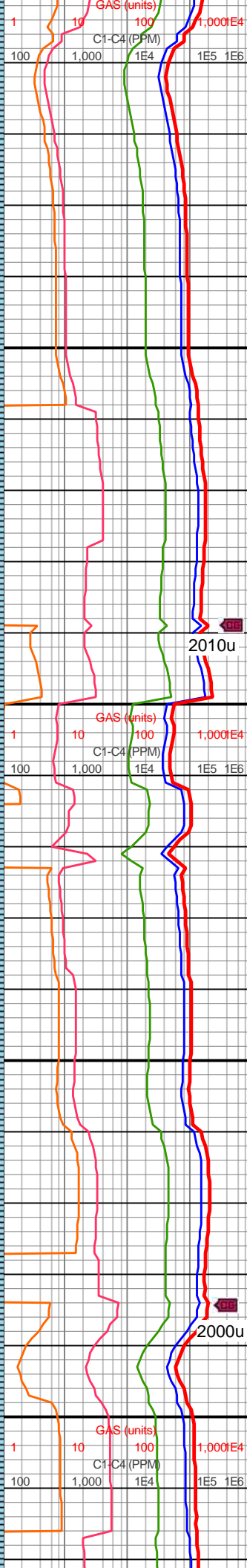
MD: 10,340'
TVD: 7,733.63'
INC: 91.08°
AZM: 0.56°
VS: 2,567.94'

WOB: 27.8klbs
RPM: 67
SPM: 180
SPP: 2,952psi

MINDEPTH 11/25/16

MW IN: 9.65
VIS IN: 61
MW OUT: 9.65
VIS OUT: 60

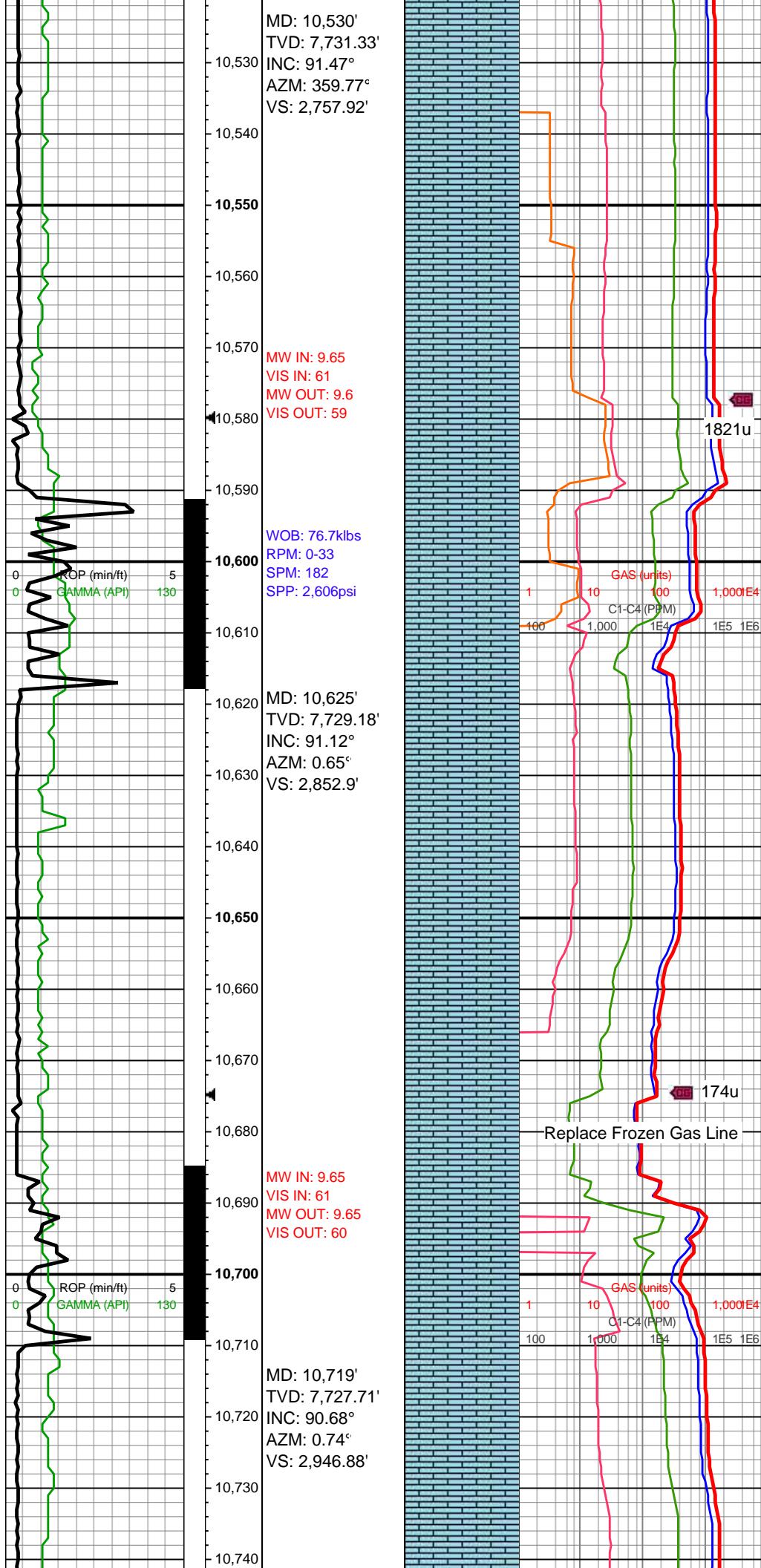
MD: 10,435'
TVD: 7,732.64'
INC: 90.11°
AZM: 0.3°
VS: 2,662.93'



10300-10400 100% LS:
pred gy-brn, com v dk
brn, occ med-lt brn, sme
bf, v frm-hrd, calc, wkst,
mic-cryptoxln, rr med xln,
pred sacc tex, sme suc, tr
pp pyr

10400-10500 100% LS:
pred dk brn-gyshbn, mot,
sme lt brn, occ tn-bf, blk,
v frm-hrd, v arg, wkst,
mic-cryptoxln, tr fy lam, tr
pp pyr, suc-sacc tex



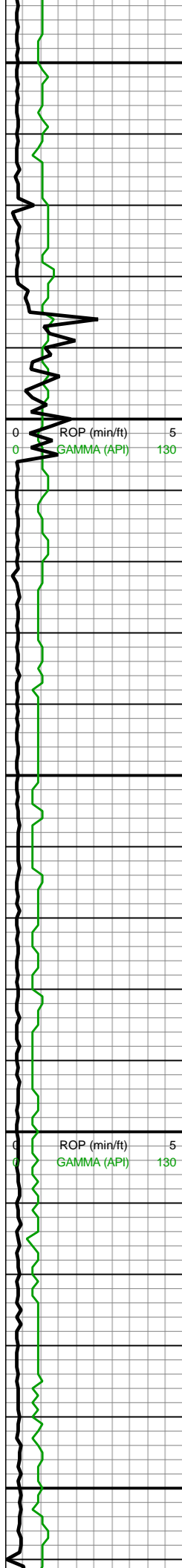


10500-10600 100% LS:
pred brn, mot, sme lt
brn-tn, occ bf, com gy-wht
spec, v frm-hrd, blk, pred
suc tex, mic-cryptoxln, rr f
xln, tr cal, rr-tr dk gy fy lam
sh



10600-10700 100% LS:
pred brn, sme lt brn-tn, v
frm-sl hrd, occ hrd-v hrd,
blk, pred cryptoxln, sme
micxln, suc-sacc tex, v
arg, rr pp pyr, tr-rr dk gy
SH





10,750
10,760
10,770
10,780
10,790
10,800
10,810
10,820
10,830
10,840
10,850
10,860
10,870
10,880
10,890
10,900
10,910
10,920
10,930
10,940
10,950
10,960

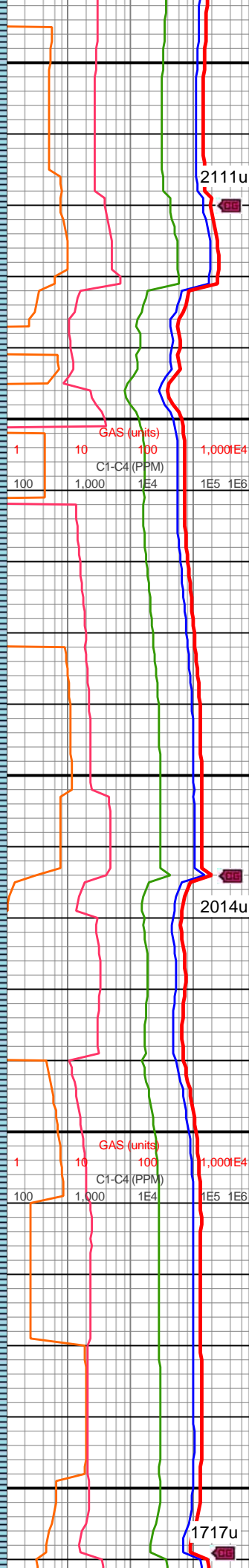
MW IN: 9.65
VIS IN: 62
MW OUT: 9.65
VIS OUT: 61

WOB: 82.2klbs
RPM: 0-33
SPM: 182
SPP: 2,649psi

MD: 10,814'
TVD: 7,727.31'
INC: 89.8°
AZM: 1°
VS: 3,041.87'

MW IN: 9.7
VIS IN: 62
MW OUT: 9.7
VIS OUT: 60

MD: 10,909'
TVD: 7,726.47'
INC: 91.21°
AZM: 359.77°
VS: 3,136.86'



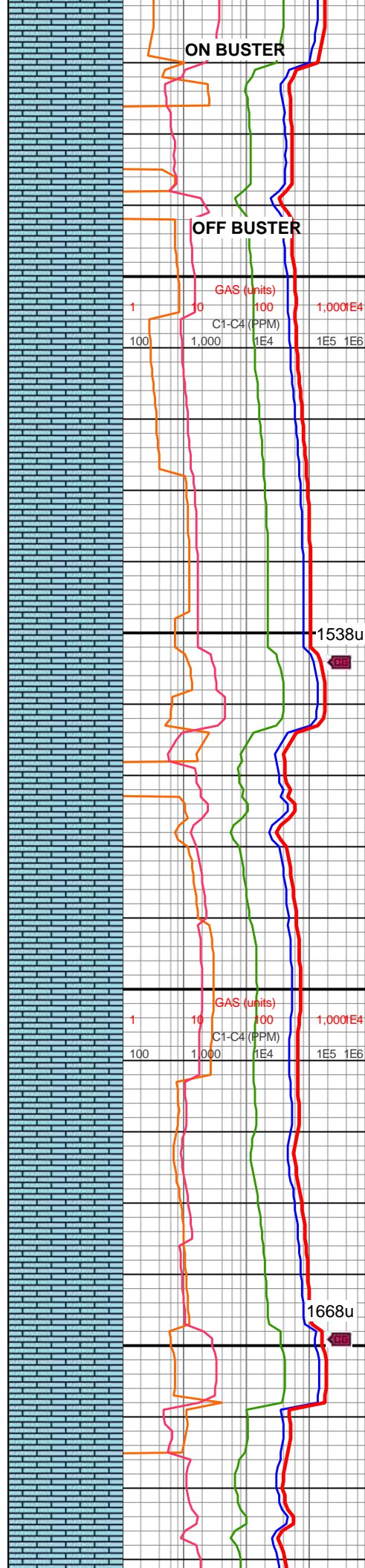
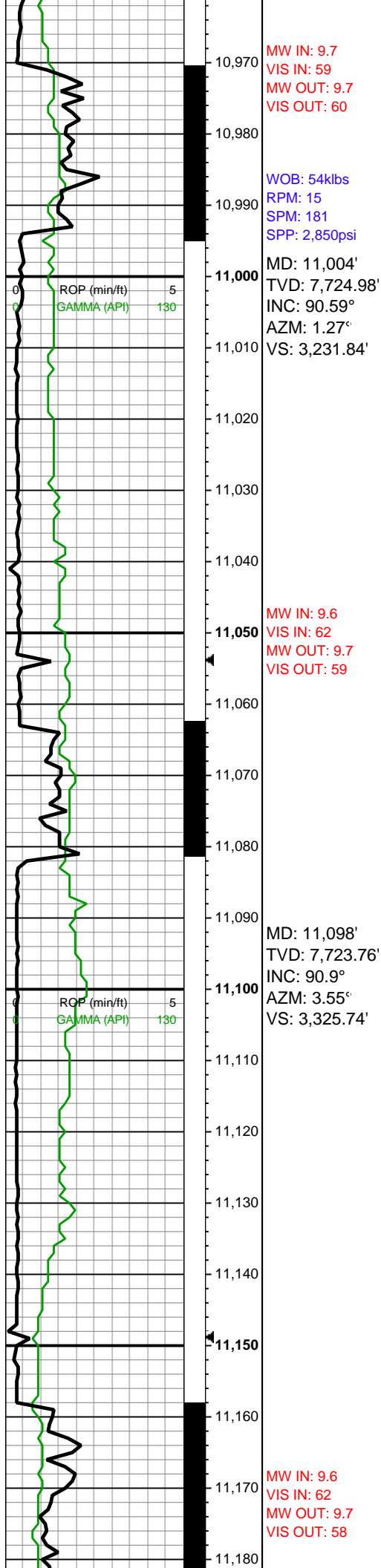
2111u

10700-10800 100% LS:
pred med gyshbn-brn, dk
brn, med-lt tn ip, v
frm-hrd, blk, v arg, pred
sacc tex, sme suc,
mic-cryptoxln, tr-rr dk gy
SH

2014u

10800-10900 100% LS:
dk brn, med gyshbn-brn, v
frm-hrd, brit, blk, v arg,
pred sacc tex, sme suc,
mic-cryptoxln, g reac to
Hcl, dull spl flor

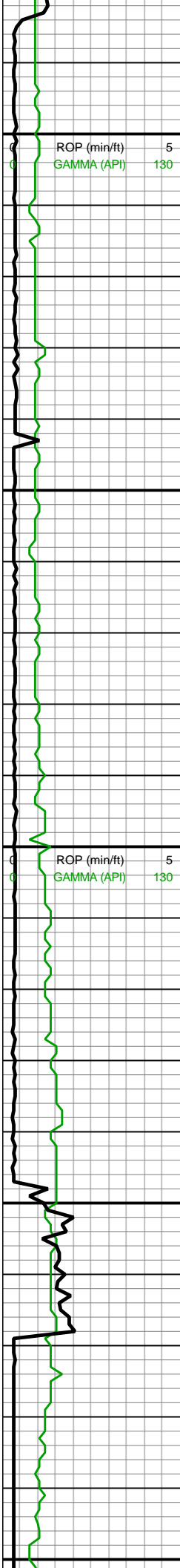
1717u



10900-11000 100% LS:
dk brn, med gyshbn-brn,
rr lt gry, v frm-hrd, brit,
blky, v arg, pred sacc tex,
sme suc, mic-cryptoxln, g
reac to Hcl, dull spl flor

11000-11100 100% LS:
dk brn, med gyshbn-brn,
rr lt gry, v frm - hrd, brit,
blky - sb plty ip, sacc tex,
sme suc tex, microxln, g
reac to Hcl

11100-11200 100% LS:
pred dk brn - dk rdshbr,
med gyshbn - brn, rr lt



MD: 11,193'
TVD: 7,723.32'
INC: 89.63°
AZM: 2.23°
VS: 3,420.61'

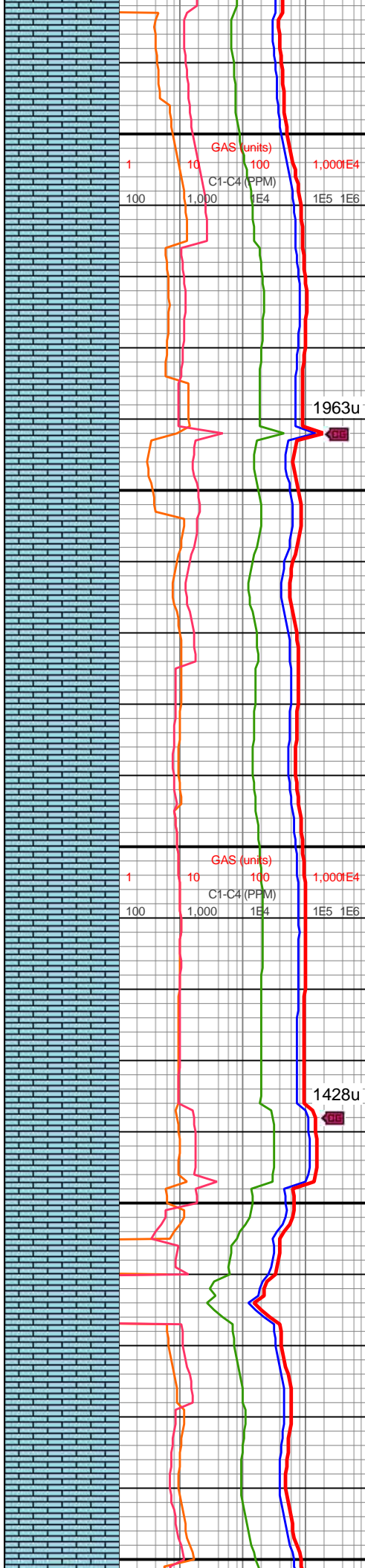
WOB: 43klbs
RPM: 24
SPM: 190
SPP: 3,100psi

MD: 11,288'
TVD: 7,722.37'
INC: 91.52°
AZM: 1.7°
VS: 3,515.55'

MW IN: 9.6
VIS IN: 59
MW OUT: 9.6
VIS OUT: 58

MD: 11,383'
TVD: 7,721.38'
INC: 89.67°
AZM: 0.39°
VS: 3,610.52'

WOB: 33klbs

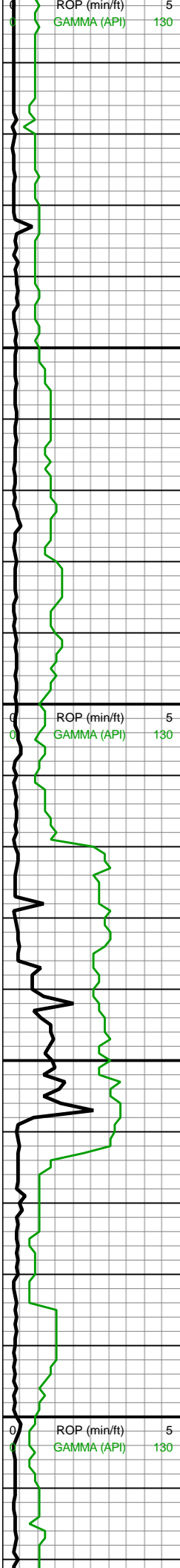


gry, v frm - hrd, brit, pred
blky, sme sb plty ip, sacc
tex, sme suc tex,
microxln, g reac to Hcl,
scat paylgn min flr thru
spl, v dull flr ovral

11200-11300 100% LS:
pred dk brn - dk rdshbr,
med gyshbn - brn, rr lt gry
- bf, v frm - hrd, brit, pred
blky, sacc tex, sme suc
tex, microxln - xln, tr
dissm pyr, scat paylgn
min flr thru spl, v dull flr
ovral

11300-11400 100% LS:
pred dk rdshbr - dk brn,
brn - sme brnsh gy, hd - v
hd, brit, pred blky, sacc
tex, sme suc tex, microxln
- xln, tr dissd pyr, v dull
flr ovral





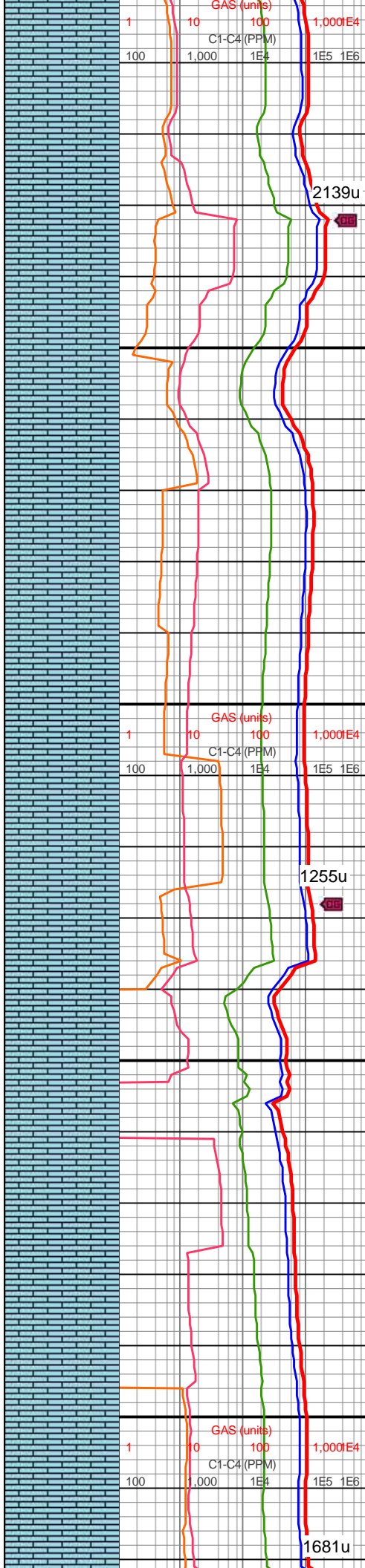
RPM: 24
SPM: 190
SPP: 3,245psi

MD: 11,478'
TVD: 7,720.47'
INC: 91.43°
AZM: 359.6°
VS: 3,705.51'

MW IN: 9.6
VIS IN: 58
MW OUT: 9.6
VIS OUT: 58

MD: 11,573'
TVD: 7,719.08'
INC: 90.24°
AZM: 359.68°
VS: 3,800.5'

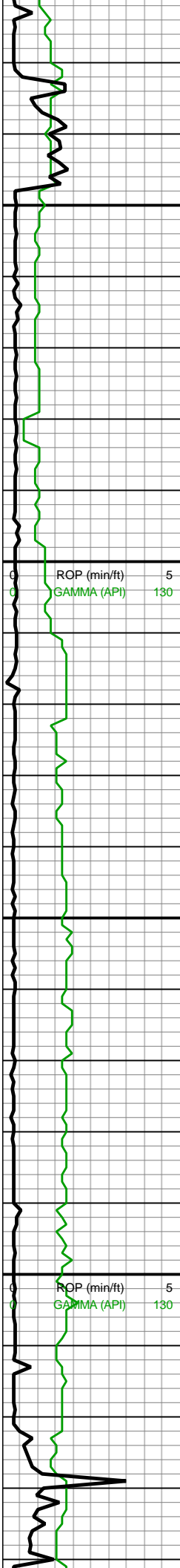
WOB: 25klbs
RPM: 60
SPM: 190
SPP: 3,145psi



11400-11500 100% LS:
pred dk rdshbr - dk brn,
brn - brnsh gy, tr bf - crm,
hd - v hd, brit, pred blkly,
sacc tex, sme suc tex,
microxln - xln, scat diss
pyr, tr - rr inoc foss, v dull
flor ovral

11500-11600 100% LS:
pred dk rdshbr - dk brn -
brn - brnsh gy, rr bf, v hd,
brit, pred blkly, suc tex,
microxln - xln, scat diss
pyr, rr inoc foss, v dull flor
ovral





MW IN: 9.6
VIS IN: 58
MW OUT: 9.6
VIS OUT: 58

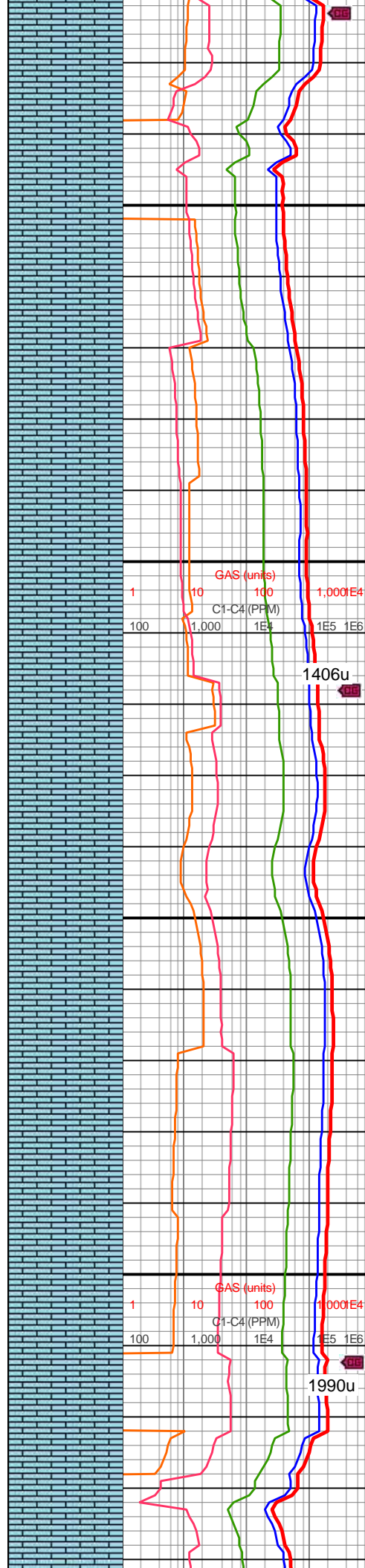
MD: 11,667'
TVD: 7,718.87'
INC: 90.02°
AZM: 0.39°
VS: 3,894.5'

MW IN: 9.6
VIS IN: 58
MW OUT: 9.6
VIS OUT: 58

MD: 11,762'
TVD: 7,717.82'
INC: 91.25°
AZM: 359.24°
VS: 3,989.49'

WOB: 17.9klbs
RPM: 70
SPM: 190
SPP: 2,683psi

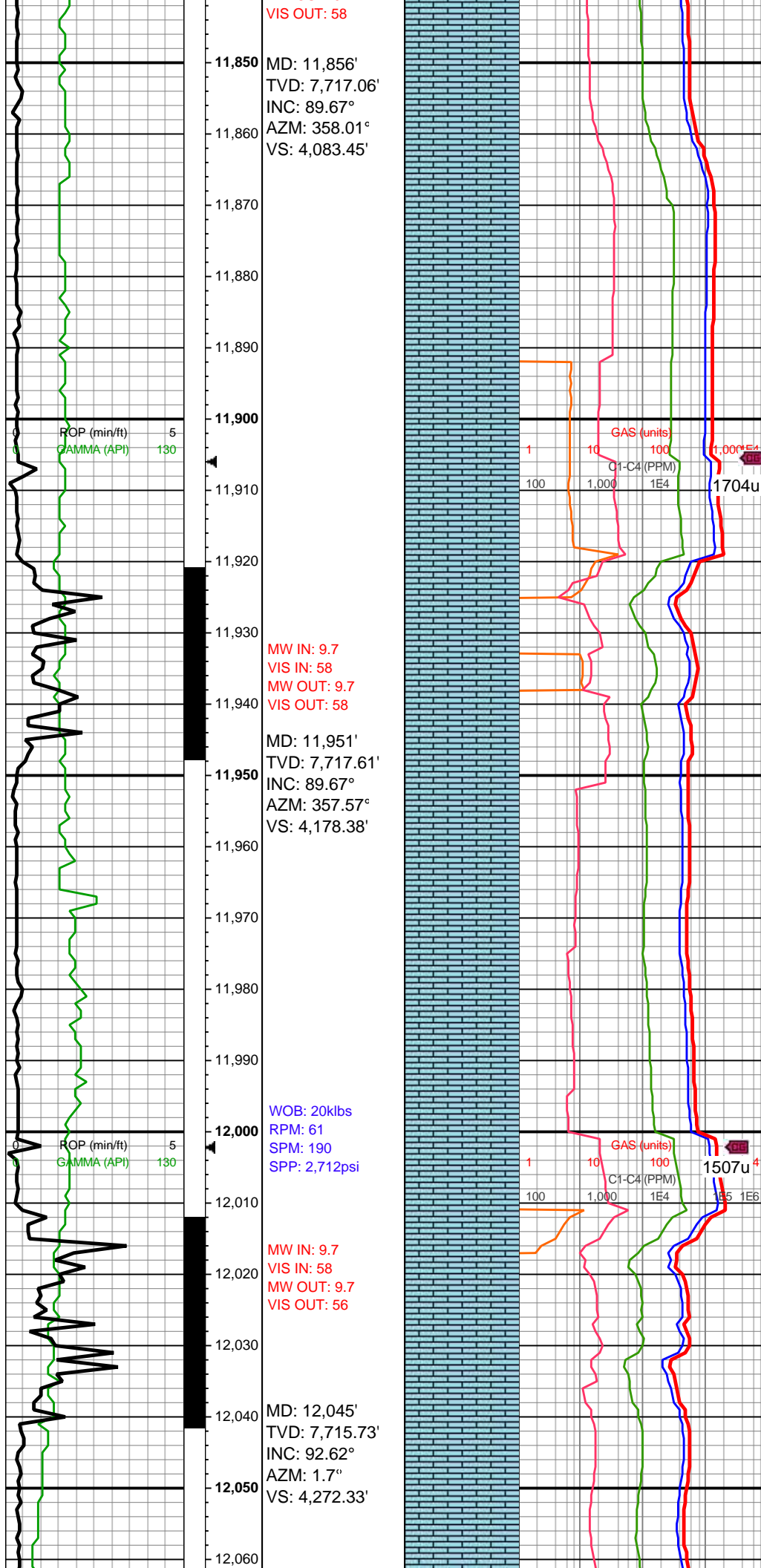
MW IN: 9.7
VIS IN: 58
MW OUT: 9.7

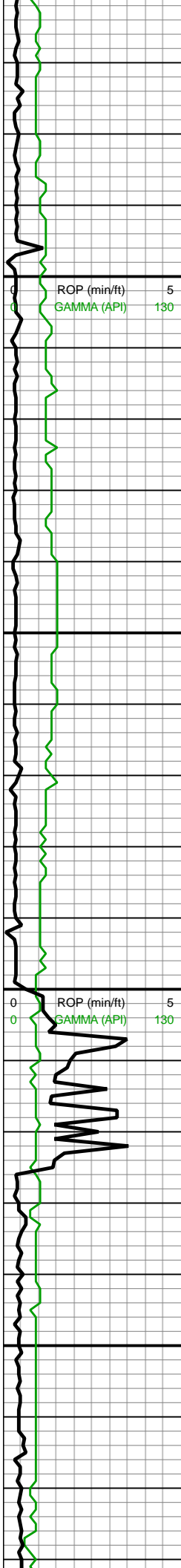


11600-11700 100% LS:
dk rdshbr, dk brn, brn,
brnsh gy, v hd, brit, blkly -
sb plty ip, suc tex,
microxln - xln, tr diss
pyr, v dull flr ovral

11700-11800 100% LS:
dk brn to brn wth red to
brn-gy col, hd to v hd, blkly
to plty, microxln, sub suc
to micsuc tex, occ pyr acc
min







12,070
12,080
12,090
12,100
12,110
12,120
12,130
12,140
12,150
12,160
12,170
12,180
12,190
12,200
12,210
12,220
12,230
12,240
12,250
12,260
12,270
12,280

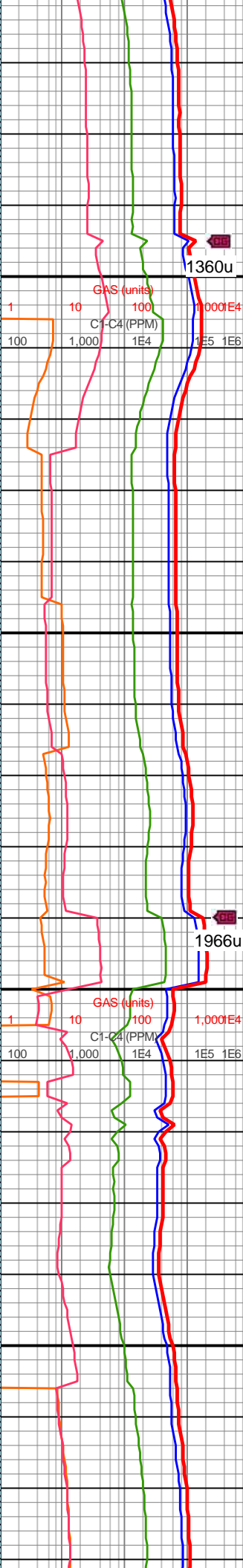
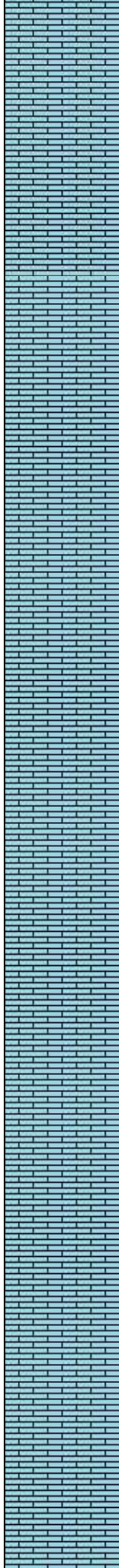
MD: 12,140'
TVD: 7,710.34'
INC: 93.89°
AZM: 0.65°
VS: 4,367.15'

WOB: 38.2klbs
RPM: 43
SPM: 190
SPP: 2,724psi

MINDEPTH 11/26/16

MD: 12,235'
TVD: 7,705.31'
INC: 92.18°
AZM: 359.24°
VS: 4,462.01'

MW IN: 9.6
VIS IN: 58
MW OUT: 9.7
VIS OUT: 60

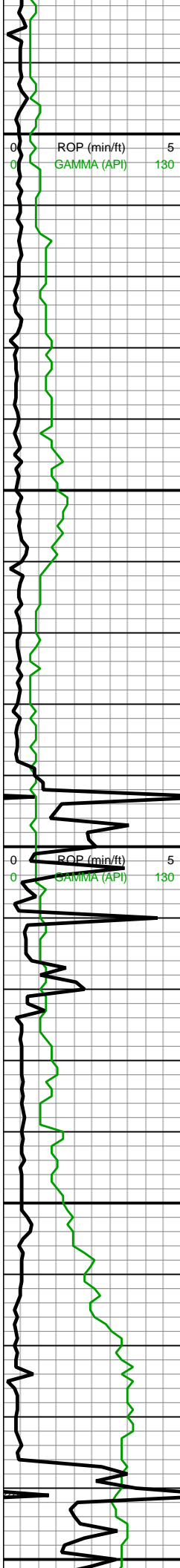


12000-12100 100% LS:
tan to brn w gry to dk gy,
grst, l crpxln to l vf xln, mic
xl, arg acc min ip

12100-12200 100% LS:
crm to tn and brn w gy,
grst, crpxln to mcr xl, mic
to sub suc, arg acc min
ip



12200-12300 100% LS:



12,290
12,300
12,310
12,320
12,330
12,340
12,350
12,360
12,370
12,380
12,390
12,400
12,410
12,420
12,430
12,440
12,450
12,460
12,470
12,480
12,490
12,500

MW IN: 9.6
VIS IN: 58
MW OUT: 9.6
VIS OUT: 56

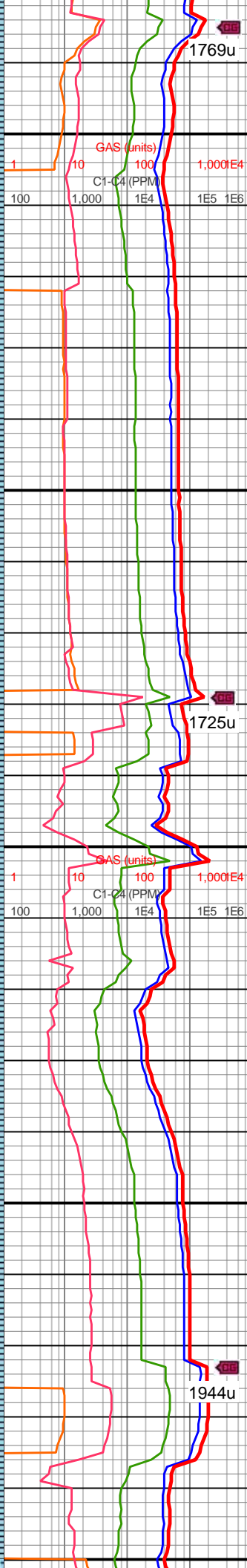
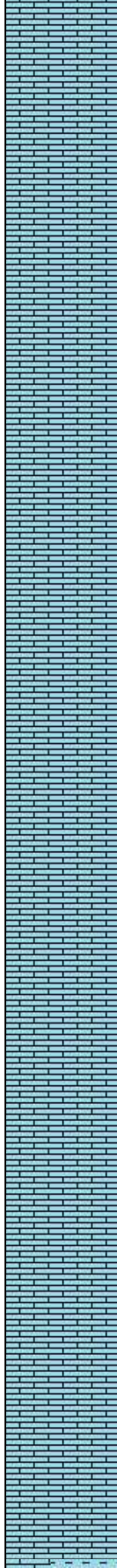
MD: 12,330'
TVD: 7,700.38'
INC: 93.76°
AZM: 358.98°
VS: 4,556.87'

MW IN: 9.6
VIS IN: 60
MW OUT: 9.6
VIS OUT: 56

WOB: 94.9klbs
RPM: 39
SPM: 190
SPP: 2,793psi

MD: 12,424'
TVD: 7,693.9'
INC: 94.15°
AZM: 358.36°
VS: 4,650.62'

MW IN: 9.5
VIS IN: 59
MW OUT: 9.5
VIS OUT: 56



12200-12300 100% LS:
tan buff brn and gy to dk
gy w occ brn-red col, grst
litho, crypto xl to l f xl, l
mic to sub suc, arg acc
min ip

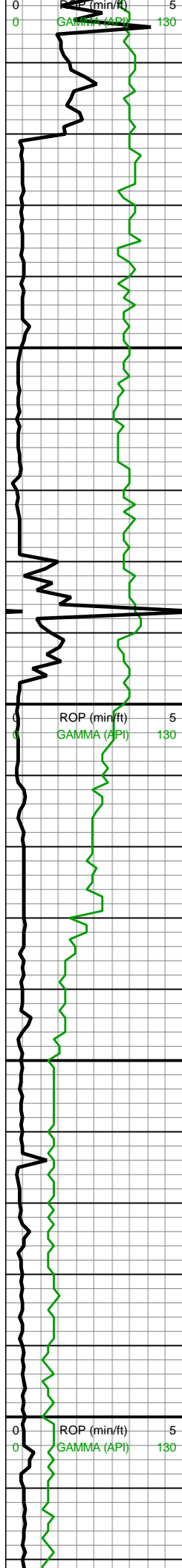


12300-12400 100% LS:
pred med-dk brn, sme lt
brn-bf, mot, v frm-hrd,
blky, pred mudst,
mic-cryptoxln, mas tex, rr
suc, occ arg, rr cal, rr mic
fos



12400-12500 100% LS:
bf-tn, sme offwht-wht,
com dk gysghn-dk gn,
frm-mod hrd, blky - sb
ply, mic-cryptoxln - xln ip,
pred sacc tex sme suc, tr
drsy & diss m pyr, rr inoc
fos mat, dull spl flor





MD: 12,519'
TVD: 7,689.17'
INC: 91.56°
AZM: 358.45°
VS: 4,745.46'

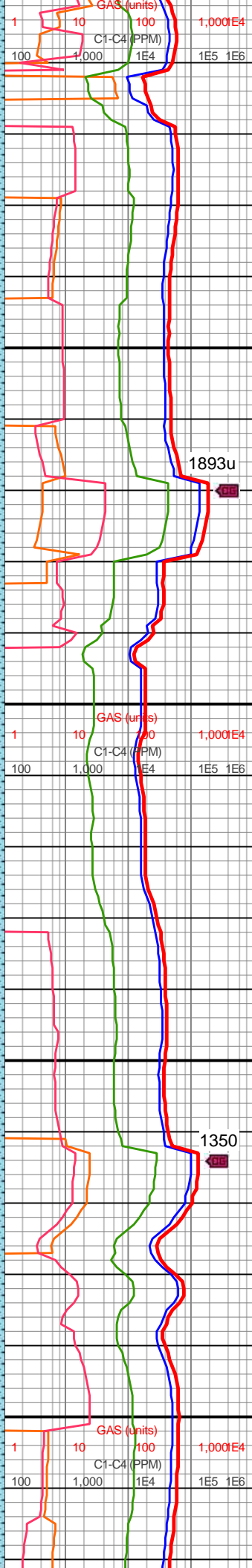
MW IN: 9.5+
VIS IN: 56
MW OUT: 9.5
VIS OUT: 56

WOB: 21klbs
RPM: 60
SPM: 190
SPP: 3,184psi

MD: 12,614'
TVD: 7,687.71'
INC: 90.2°
AZM: 359.68°
VS: 4,840.43'

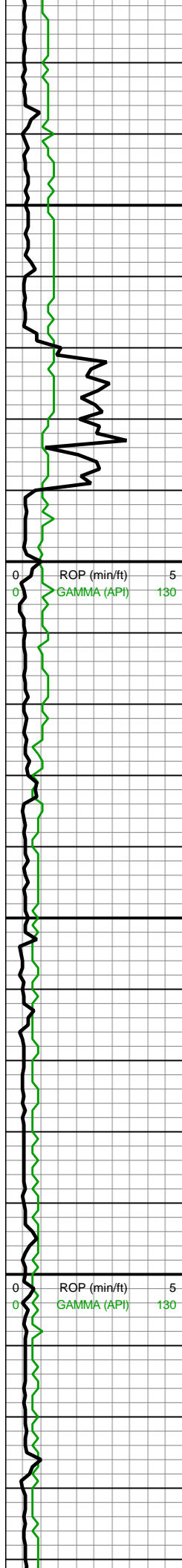
MW IN: 9.6+
VIS IN: 57
MW OUT: 9.6
VIS OUT: 55

MD: 12,709'
TVD: 7,685.74'
INC: 92.18°
AZM: 359.68°
VS: 4,935.4'



12500-12600 60% CHK:
lt gy - med lt gy, sme
offwht - v lt brnsh gy, v sft
- frm, v fri, p - g fisly, blkly,
wxy, rthy, v thnly lam ip;
40% LMST: lt grnsh gy,
tn-bf, v lt gy, hd - frm, brit,
blkly - sb plty, slty tex, dull,
microxln - xln, rr pyr, g spl
flor

12600-12700 50% CHK:
lt gy - med lt gy, sme
offwht - v lt brnsh gy, v sft
- frm, v fri, p - g fisly, blkly,
wxy, rthy, v thnly lam ip;
50% LMST: lt grnsh gy,
tn-bf, v lt gy, hd - frm, brit,
blkly - sb plty, slty tex, dull,
microxln, rr pyr



12,730
12,740
12,750
12,760
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

MW IN: 9.7+
VIS IN: 56
MW OUT: 9.6+
VIS OUT: 55

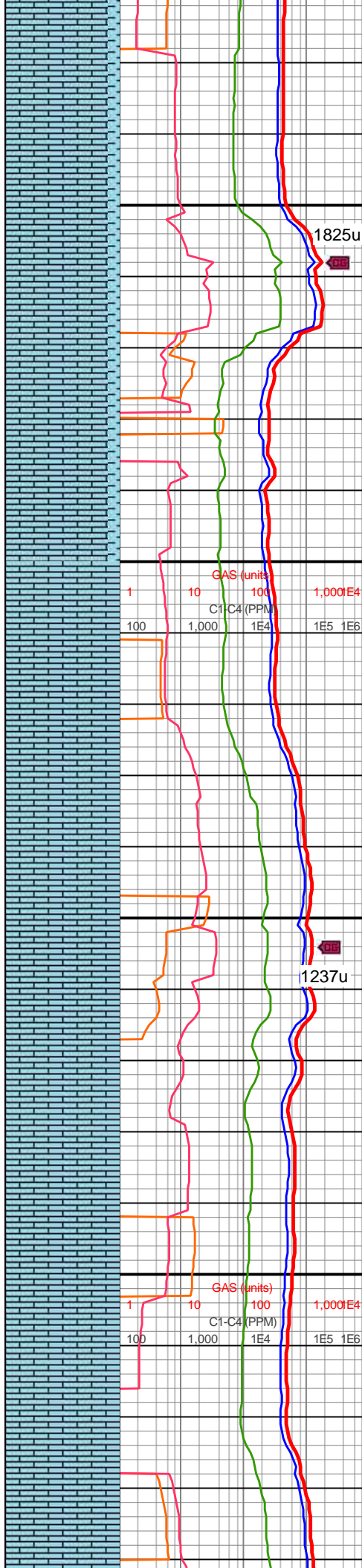
WOB: 22klbs
RPM: 59
SPM: 190
SPP: 3,190psi

MD: 12,803'
TVD: 7,683.53'
INC: 90.51°
AZM: 359.07°
VS: 5,029.37'

MW IN: 9.8
VIS IN: 57
MW OUT: 9.8
VIS OUT: 56

MD: 12,898'
TVD: 7,681.19'
INC: 92.31°
AZM: 359.24°
VS: 5,124.33'

MW IN: 9.8
VIS IN: 56
MW OUT: 9.8
VIS OUT: 56

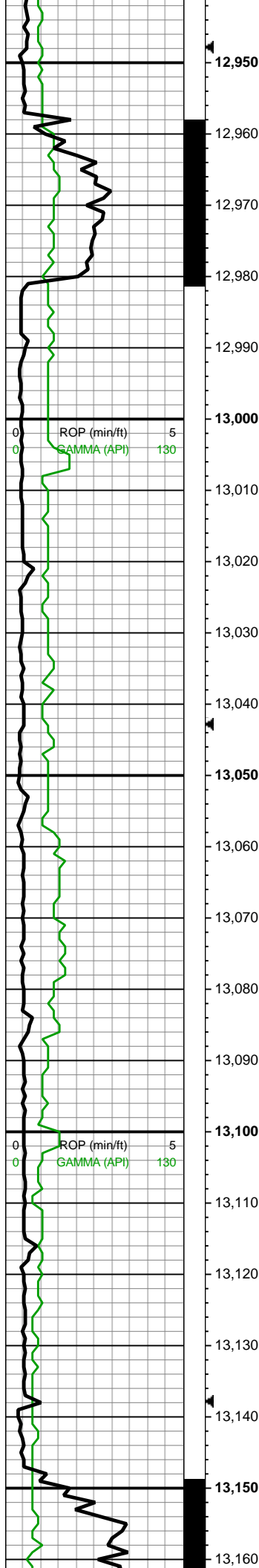


1825u

12700-12800 90% LS:
pred lt tn - crm - bf, sme
offwht-mod gyshgn, frm -
v hd, blkly, mic-cryptoxln,
sacc tex; 10% CHK: pred
mot gy-gyshbn, v sft - sft,
v fri, mod fis, blkly, rr mic
fos, v thnly lam

1237u

12800-12900 100% LS: lt
tn - crm - bf, offwht, wht,
mod gyshgn - dsky gn,
frm - v hd, pred blkly -
smewh sb plty, cryptoxln -
lcly microxln, pred sacc
tex - lcly slty ip, sl mot



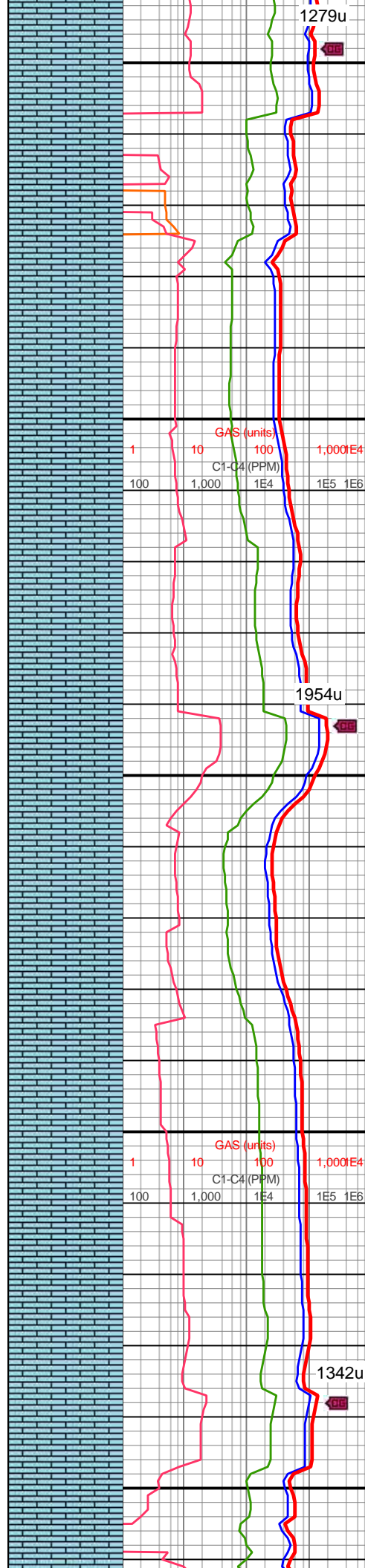
MD: 12,992'
TVD: 7,678.81'
INC: 90.59°
AZM: 358.45°
VS: 5,218.27'

WOB: 24klbs
RPM: 61
SPM: 190
SPP: 3,221psi

MW IN: 9.8
VIS IN: 56
MW OUT: 9.8
VIS OUT: 55

MD: 13,087'
TVD: 7,676.41'
INC: 92.31°
AZM: 358.36°
VS: 5,313.2'

MW IN: 9.8
VIS IN: 56
MW OUT: 9.8
VIS OUT: 55



1279u

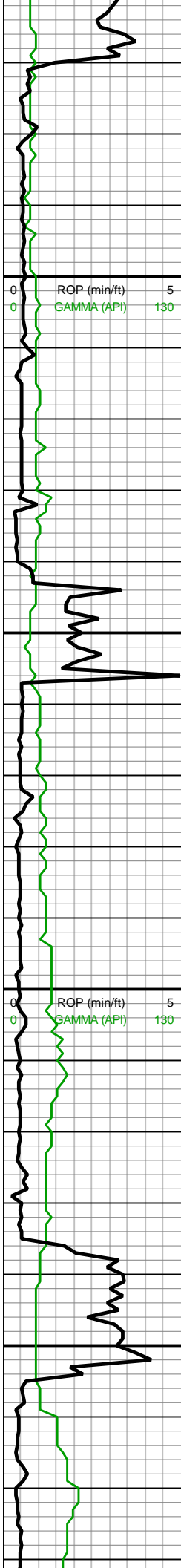
12900-13000 100% LS: lt
tn, crm, bf, offwht, dsky
gn, wht, mod gyshgn, frm
- v hd, pred blkly - smewh
sb plty, cryptoxln - lcly
microxln, pred sacc tex -
lcly suc ip, mot ip, scat
inoc fos mat, v rr dissm
pyr

1954u

13000-13100 100% LS: lt
tn, crm, bf, offwht, dsky
gn, wht, mod gyshgn, frm
- v hd, blkly - plty, cryptoxln
- lcly microxln, pred sacc
tex - lcly suc ip, dull, mot
ip

1342u





13,170
13,180
13,190
13,200
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

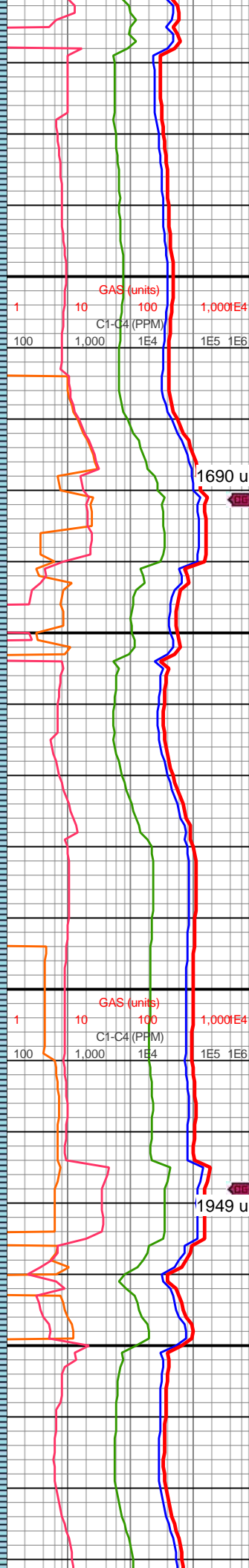
MD: 13,182'
TVD: 7,673.35'
INC: 91.38°
AZM: 358.72°
VS: 5,408.12'

WOB: 22.3klbs
RPM: 60
SPM: 190
SPP: 3,163psi

MW IN: 9.7
VIS IN: 56
MW OUT: 9.7+
VIS OUT: 55

MD: 13,277'
TVD: 7,671.2'
INC: 91.21°
AZM: 357.66°
VS: 5,503.05'

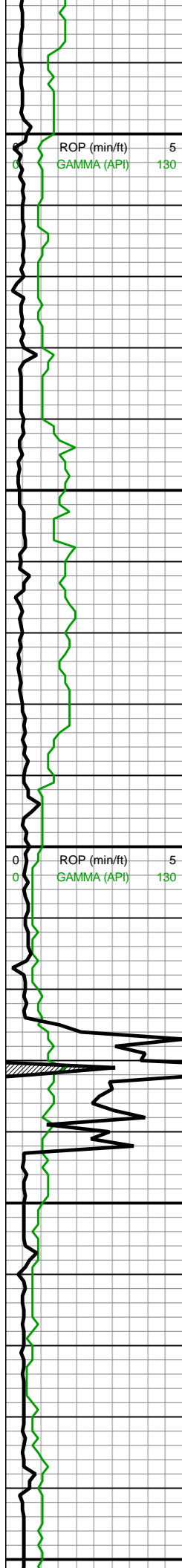
MD: 13,371'
TVD: 7,670.02'
INC: 90.24°
AZM: 358.19°
VS: 5,596.98'



13100-13200 100% LS: lt
tn, crm, bf, offwht, dsky
gn, dk gn, mod gyshgn,
frm - hd, plty - sb blkly,
cryptoxln - lcly microxln,
pred sacc tex - lcly suc ip,
dull, sme mot

13200 - 13300 100% LS:
crm, tan and wht col, grst
litho, crpxln to microxln xl
sz, mic suc to sub suc
tex, arg acc min ip pyrc.





13,390
13,400
13,410
13,420
13,430
13,440
13,450
13,460
13,470
13,480
13,490
13,500
13,510
13,520
13,530
13,540
13,550
13,560
13,570
13,580
13,590
13,600

WOB: 30.4klbs
RPM: 65
SPM: 190
SPP: 3,111psi

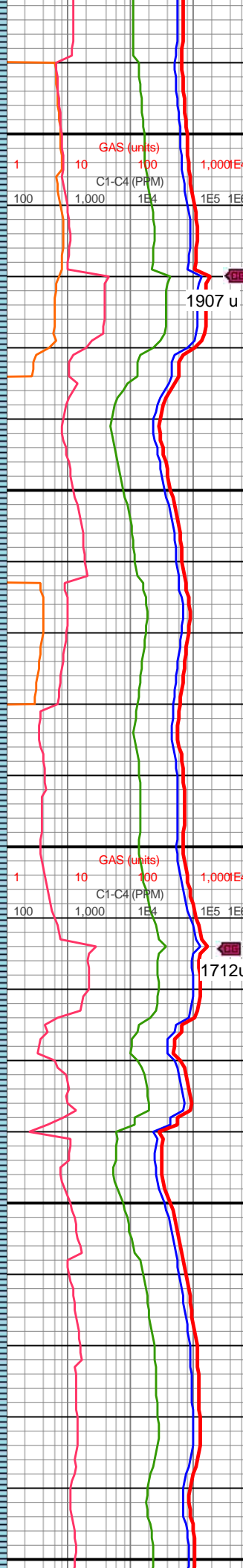
MW IN: 9.7
VIS IN: 56
MW OUT: 9.7
VIS OUT: 54

MD: 13,466'
TVD: 7,668.52'
INC: 91.56°
AZM: 357.05°
VS: 5,691.88'

MW IN: 9.7
VIS IN: 54
MW OUT: 9.7
VIS OUT: 57

MD: 13,561'
TVD: 7,665.72'
INC: 91.82°
AZM: 358.28°
VS: 5,786.76'

WOB: 27.8klbs
RPM: 60

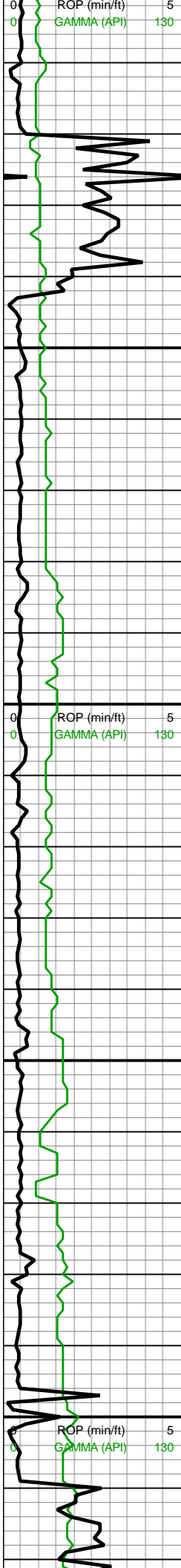


13300 - 13400 100% LS:
tan, lt brn and brn col,
grst litho, l crpxln to l
microxln sz, mic suc to
sub suc tex, arg acc min
ip pyrc.

13400 - 13500 100% LS:
tan, brn, buff and occ
mott gry to blk col, grst
litho, l crp xl to l mic xl sz,
sub suc tex, arg acc min
ip

13500-13600 100% LS:
pred tn-lt brn, sme bf, occ
offwht-lt gy, v frm-hrd,
blky, mot ip, grnst-lith,
occ arg, pred
cryptoxln-micxln, sacc tex,
sme dns





SPM: 190
SPP: 3,160psi

MINDEPTH 11/27/16

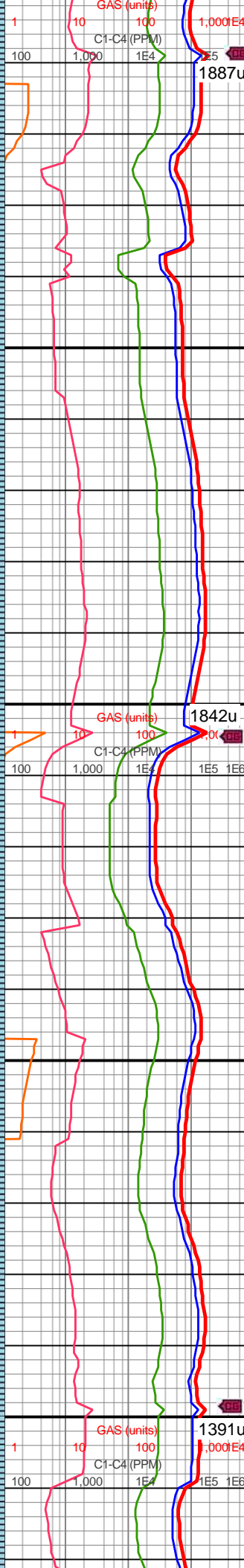
MD: 13,655'
TVD: 7,663.13'
INC: 91.34°
AZM: 358.45°
VS: 5,880.68'

MW IN: 9.6+
VIS IN: 55
MW OUT: 9.6+
VIS OUT: 52

MD: 13,750'
TVD: 7,659.63'
INC: 92.88°
AZM: 358.54°
VS: 5,975.58'

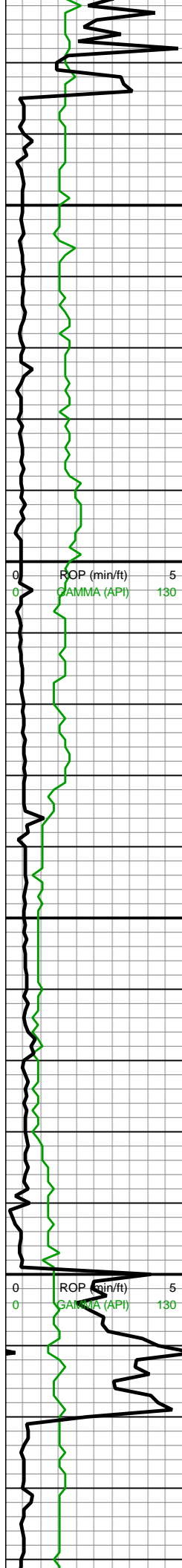
WOB: 32.2klbs
RPM: 55
SPM: 192
SPP: 3,164psi

MW IN: 9.6+



13600-13700 100% LS:
pred lt brn-bf, mot
crm-wht ip, occ dk brn, v
frm-hrd, blk, pred wkst,
mic-cryptoxln, mas tex, rr
suc, occ arg, rr cal

13700-13800 100%
LIMESTONE: brn-tn, sme
bf-offwht, occ gy, v frm,
blk, sme hrd, pred
mic-cryptoxln, dns tex,
occ mas, wkst-mudst,
sme arg



13,830
13,840
13,850
13,860
13,870
13,880
13,890
13,900
13,910
13,920
13,930
13,940
13,950
13,960
13,970
13,980
13,990
14,000
14,010
14,020
14,030
14,040

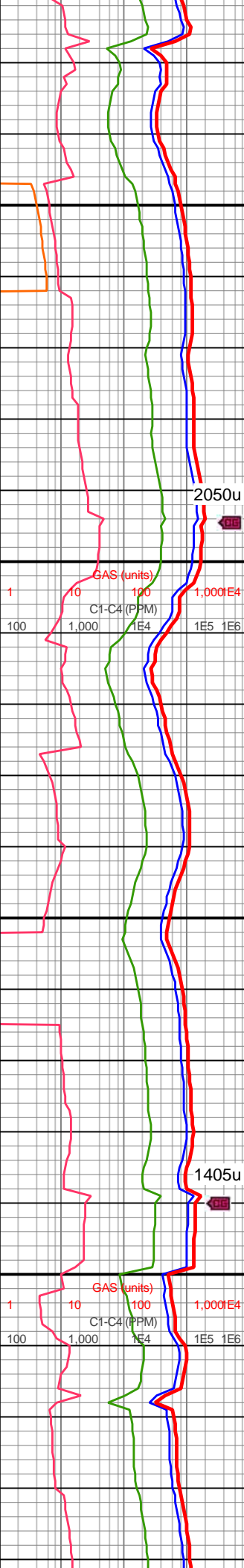
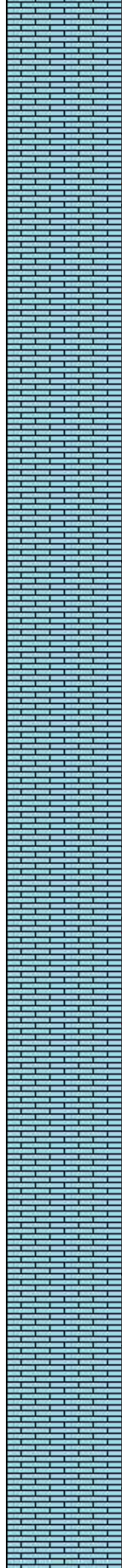
MD: 13,845'
TVD: 7,656.28'
INC: 91.16°
AZM: 357.66°
VS: 6,070.47'

MD: 13,939'
TVD: 7,653.08'
INC: 92.75°
AZM: 356.52°
VS: 6,164.29'

MW IN: 9.6
VIS IN: 54
MW OUT: 9.6
VIS OUT: 51

WOB: 31klbs
RPM: 0
SPM: 190
SPP: 2,743psi

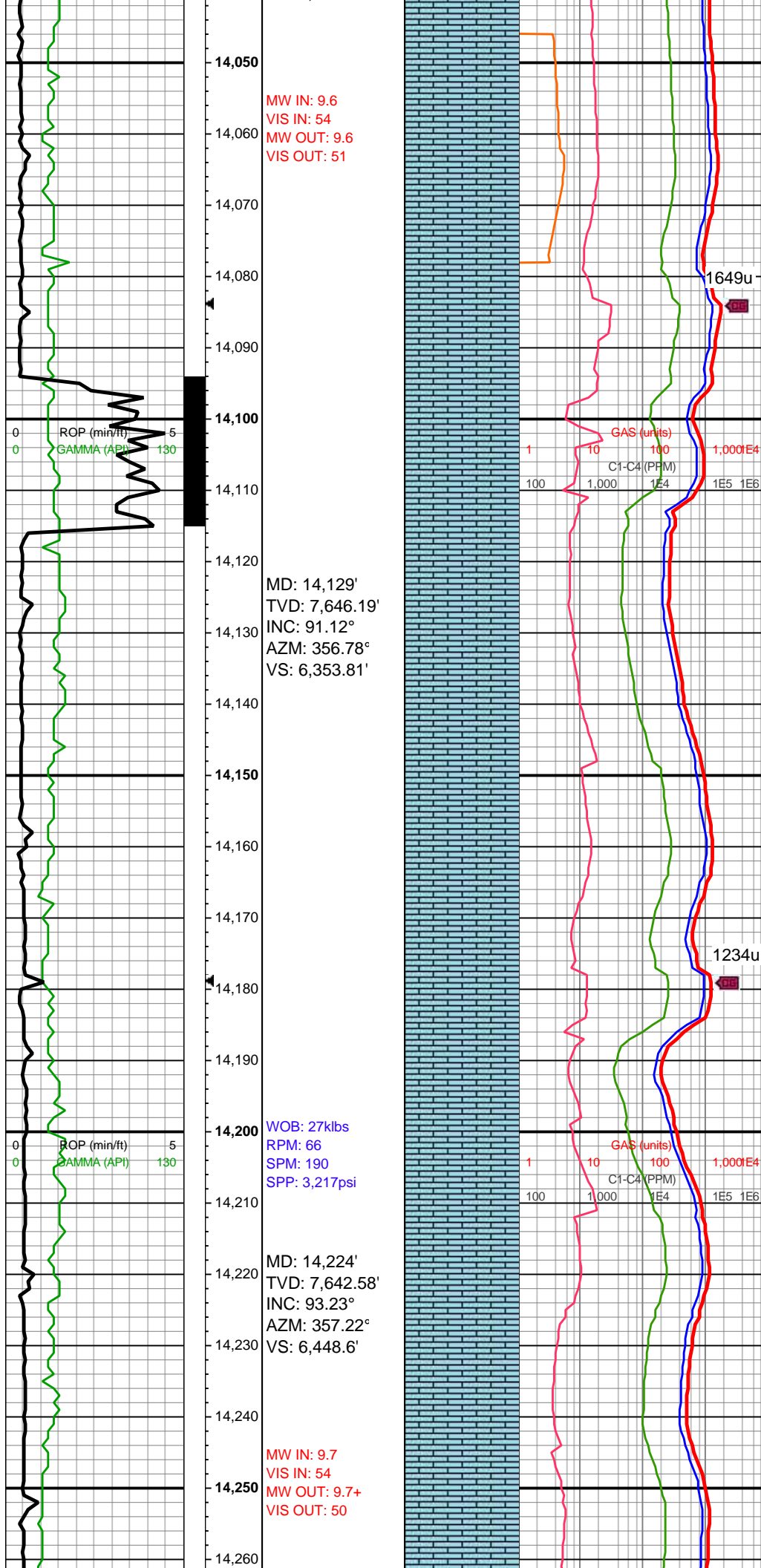
MD: 14,034'
TVD: 7,648.96'
INC: 92.22°
AZM: 356.43°
VS: 6,259.02'



13800-13900 100%
LIMESTONE: pred lt brn -
brn - tn, com bf-offwht,
occ gy, v frm - smewh hd,
blky - sb plty, pred
mic-cryptoxln, dns tex -
occ mas, withrd - dull,
scat cal vns thru, v rr pyr

13900-14000 100%
LIMESTONE: brn-lt
brn-tn, com bf-crm, occ
offwht-gy, v frm - smewh
hd, blky - sb plty, pred
mic-cryptoxln, dns tex -
occ mas, dull, tr cal vns,
rr fos frags, v rr pyr





MW IN: 9.6
VIS IN: 54
MW OUT: 9.6
VIS OUT: 51

MD: 14,129'
TVD: 7,646.19'
INC: 91.12°
AZM: 356.78°
VS: 6,353.81'

WOB: 27klbs
RPM: 66
SPM: 190
SPP: 3,217psi

MD: 14,224'
TVD: 7,642.58'
INC: 93.23°
AZM: 357.22°
VS: 6,448.6'

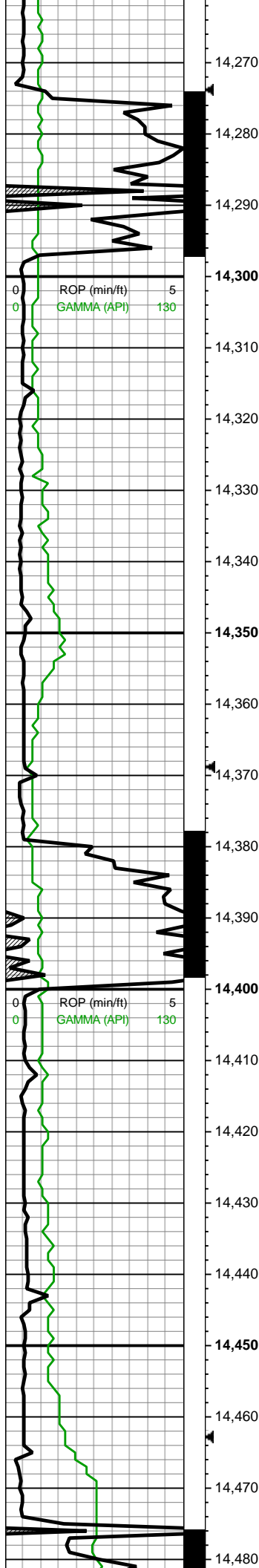
MW IN: 9.7
VIS IN: 54
MW OUT: 9.7+
VIS OUT: 50

14000-14100 100%
LIMESTONE: brn-tn, com
bf-crm, occ offwht-gy, v
frm - hd, sb plty - blkly,
mic-cryptoxln, dns tex -
sp mas - occ slty, dull, rr
cal vns



14100-14200 100%
LIMESTONE: lt brn-tn,
com brn-bf-crm-lt gry, frm
- hd, sb plty - sb blkly,
mic-cryptoxln, dns tex -
sp mas - occ slty, dull, rr
dissm pyr, v rr fos mat



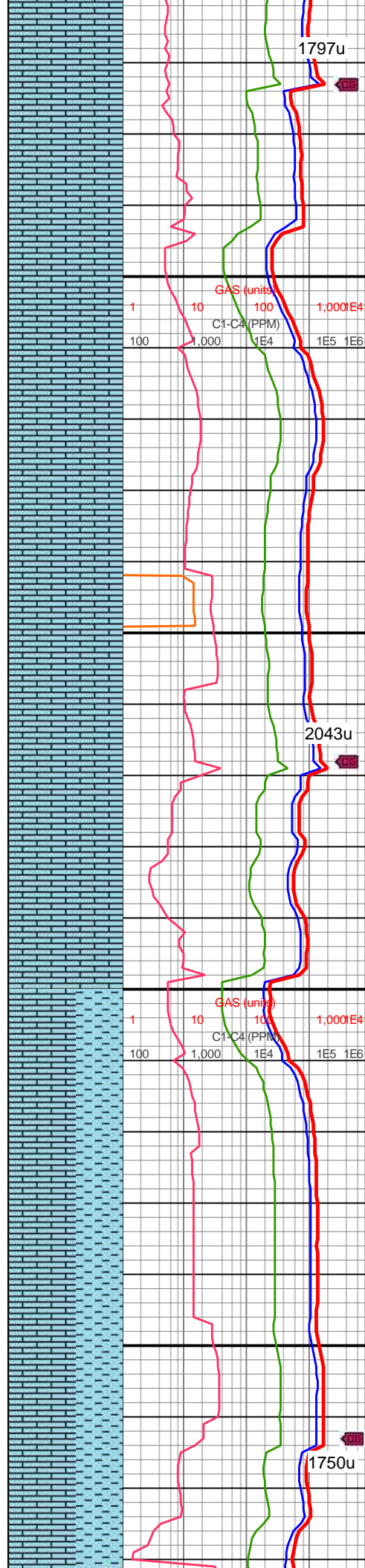


MD: 14,318'
TVD: 7,637.72'
INC: 92.7°
AZM: 356.69°
VS: 6,542.35'

MW IN: 9.7
VIS IN: 53
MW OUT: 9.7
VIS OUT: 51

WOB: 27.2klbs
RPM: 67
SPM: 192
SPP: 3,236psi
MD: 14,413'
TVD: 7,633.98'
INC: 91.82°
AZM: 355.64°
VS: 6,637.06'

MW IN: 9.7
VIS IN: 53
MW OUT: 9.7
VIS OUT: 51

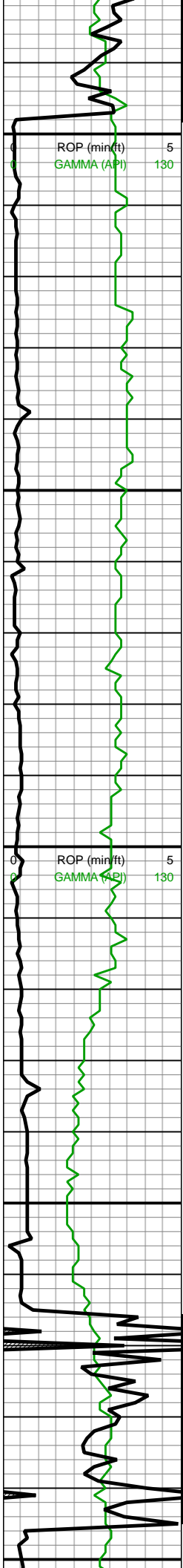


14200-14300 100%
LIMESTONE: v lt brn-tn,
com bf-crm-lt gry, frm -
hd, sb plty - sb blkly,
microxln, dns tex sme
silty, dull, scat dissd pyr

14300-14400 100%
LIMESTONE: bf-crm-lt
gnshgy, tn-lt brn, frm - hd,
brit, sb plty - sb blkly,
microxln, slty-sl sm txt,
dull, scat dissd pyr, rr
fos mat

14400-14500 60% LS:
pred lt brn-tn-bf, sme
crm, blkly, v frm-hrd, pred





14,490
14,500
14,510
14,520
14,530
14,540
14,550
14,560
14,570
14,580
14,590
14,600
14,610
14,620
14,630
14,640
14,650
14,660
14,670
14,680
14,690
14,700

MD: 14,508'
TVD: 7,631.54'
INC: 91.12°
AZM: 354.94°
VS: 6,731.7'

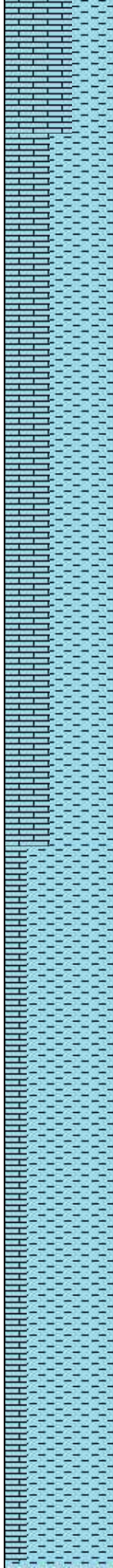
MW IN: 9.7
VIS IN: 53
MW OUT: 9.7
VIS OUT: 50

WOB: 25.3klbs
RPM: 65
SPM: 190
SPP: 3,251psi

MD: 14,602'
TVD: 7,628.87'
INC: 92.13°
AZM: 353.44°
VS: 6,825.18'

MW IN: 9.6+
VIS IN: 53
MW OUT: 9.7
VIS OUT: 50

MD: 14,697'
TVD: 7,624.75'
INC: 92.84°
AZM: 354.41°



GAS (units)
C1-C4 (PPM)
1 10 100 1,000E4
100 1,000 1E4 1E5 1E6

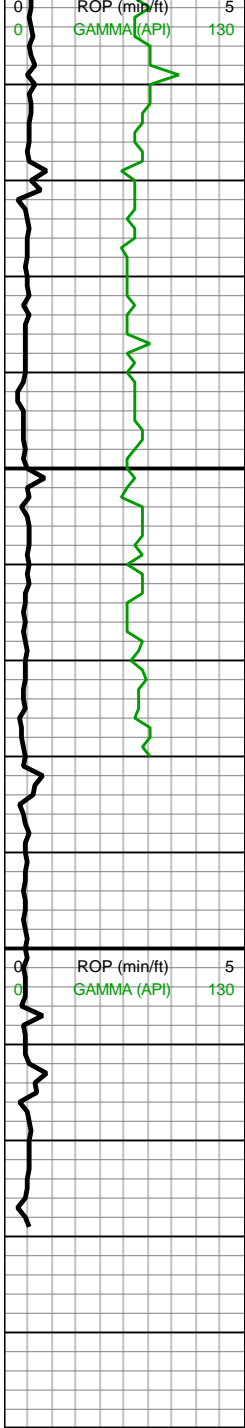
GAS (units)
C1-C4 (PPM)
1 10 100 1,000E4
100 1,000 1E4 1E5 1E6

dns tex, mudst-wkst,
sme arg, mic-cryptoxln, rr
pyr; 40% CHK: pred
med-lt gy-offwht, mot-stri,
frm, sme sft, blk, chky
tex, rr mic fos

14500-14600 60% CHK:
pred med-lt gy, mot-stri,
sme sft, blk, chky tex, rr
mic fos; 40% LS: lt brn-tn,
com brn-bf-crm-, frm-hd,
sb blk, mic-cryptoxln,
dns tex-sp mas, occ slty,
dull

14600-14700 80% CHK:
offwht-lt gy, pred mot,
sme med gy, sft-frm, com
stri, blk, chky tex, tr mic
fos; 20% LS: pred
bf-tn-offwht, sme crm,
frm-v frm, blk,
mic-cryptoxln, dns-mas
tex, pred mudst-wkst





VS: 6,919.56'

14,710

14,720

14,730

14,740

14,750

14,760

14,770

14,780

14,790

14,800

14,810

14,820

14,830

14,840

14,850

MD: 14,780'
TVD: 7,619.56'
INC: 94.33°
AZM: 354.85°
VS: 7,002.03'

WOB: 24.5klbs
RPM: 61
SPM: 190
SPP: 3,241psi

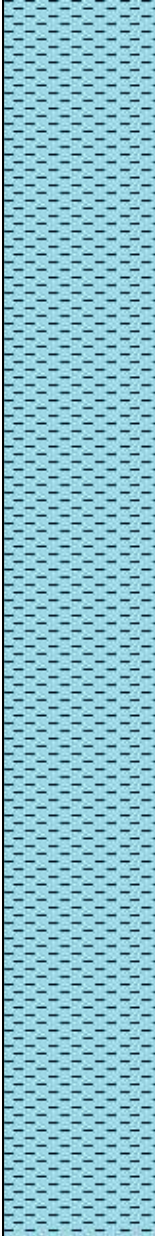
MINDEPTH 11/28/16

MW IN: 9.7
VIS IN: 52
MW OUT: 9.7
VIS OUT: 51

Projection to Bit

MD: 14,830'
TVD: 7,615.79'
INC: 94.33°
AZM: 354.85°
VS: 7,051.68'

TD Well @ 0:15 hrs



14700-14800 100%
CHK: med gyshbn-med
gy, sme lt gy-offwht, pred
mot-stri, frm-sft, blkly, v
calc, occ mrly, tr mic fos,
rr pyr

