



Scale: 5" / 100'
Measured Depth Log

Well Name Ruegge 3K-4H-N165

Location Sec. 4 T1N R65W

State Colorado

County Weld

Country USA

Rig Number Ensign 140

API Number 051234656300000

AFE # 16190987

Geographic Region Rockies

Field Wattenberg

Spud Date 6/30/2018

Drilling Completed 7/2/2018

Surface Coordinates Lat/Long: 40.075257/-104.670774
SHL: Sec: 4 Twp: 1N 65W
Footage: 706 FSL 2136 FWL

Bottom Hole Coordinates Proposed BHL: Sec: 4 Twp: 1N 65W
Footages: 460 FNL 2570 FWL

Ground Elevation 4,915'

K.B. Elevation 4,938

Logged Interval 6,400' **To** 11,932'

Total Depth 11,932'

Formation C Chalk

Type of Drilling Fluid Synthetic Oil Based Mud

Operator

Company Crestone Peak Resources

Address 370 17th Street #2170
Denver, CO 80202



CRESTONE PEAK
RESOURCES

Geologist

Zone Color Coding

Name John Ready

Company Crestone Peak Resources

Address 370 17th Street #2170
Denver, CO 80202



Oil

Condensate

Gas

Note

Core

Pressure

Error

Water

Seal

Other

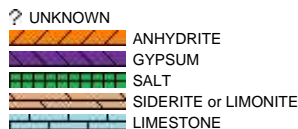
Loggers: Nicholas Watkins / Matthew Cox / Bruce Bennik

Services Provided: 2-Man Mudlogging / Geosteering

Equipment: ML-533

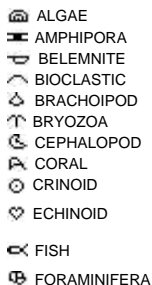
Contractor: Empirica, Reservoir Group
6360 West Sam Houston Pkwy N
Houston, Texas, 77041

Rock Types



Accessories

Fossils



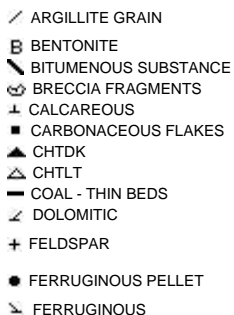
FOSSIL



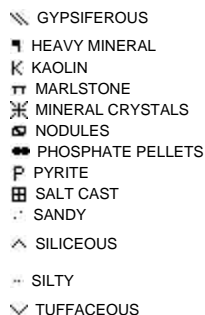
Minerals

ANHYDRITIC

ARGILLACEOUS



GLAUCONITE



Stringer



Other Symbols

Other Symbols

Oil Show

- DEAD
- EVEN
- QUESTIONABLE
- SPOTTED STAINING

Porosity

- E EARTHY
- F FENESTRAL
- F FRACTURE
- X INTERCRYSTALLINE
- Q INTEROOLITIC
- M MOLDIC

- ORGANIC
- P PINPOINT
- V 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

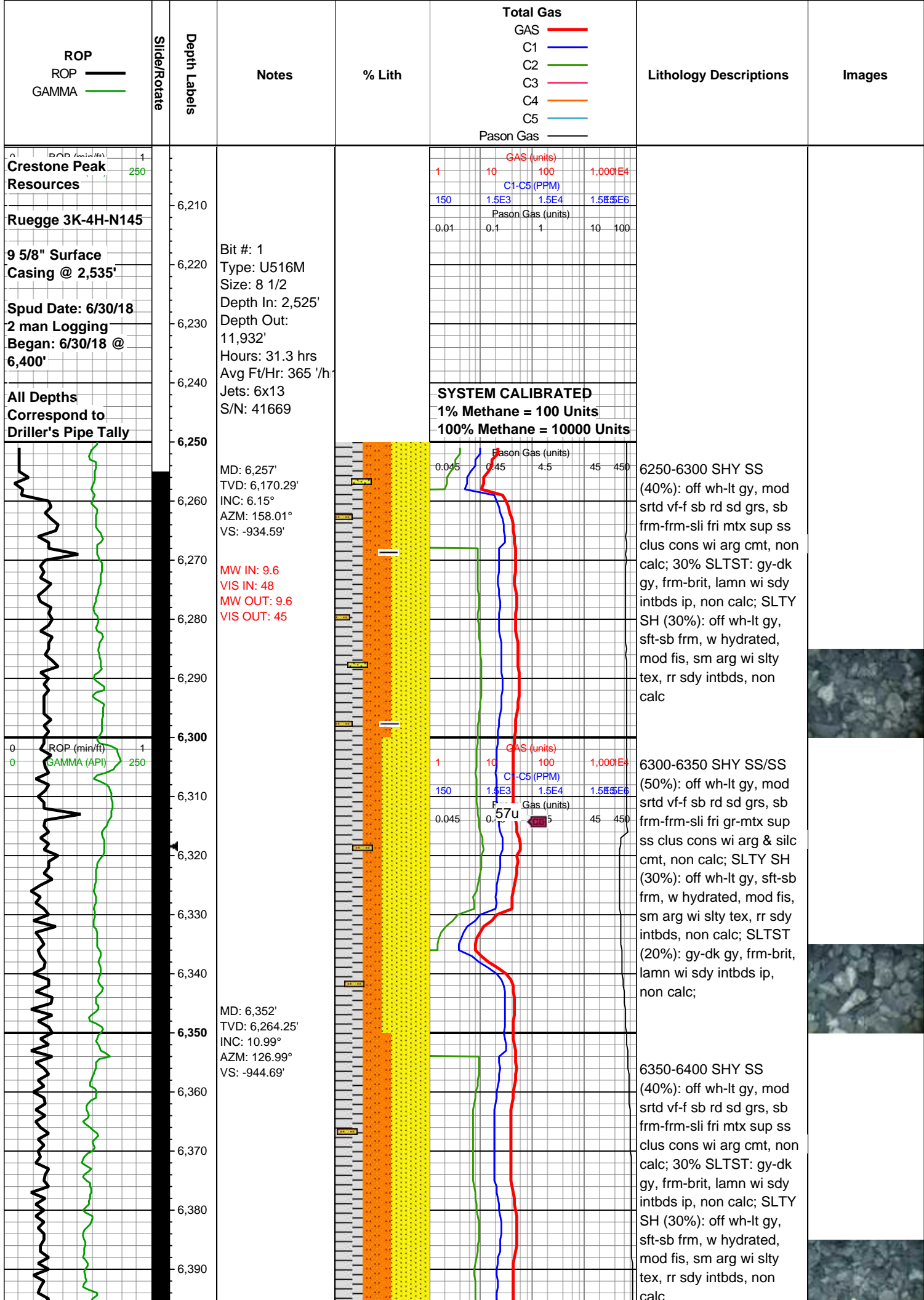
Textures

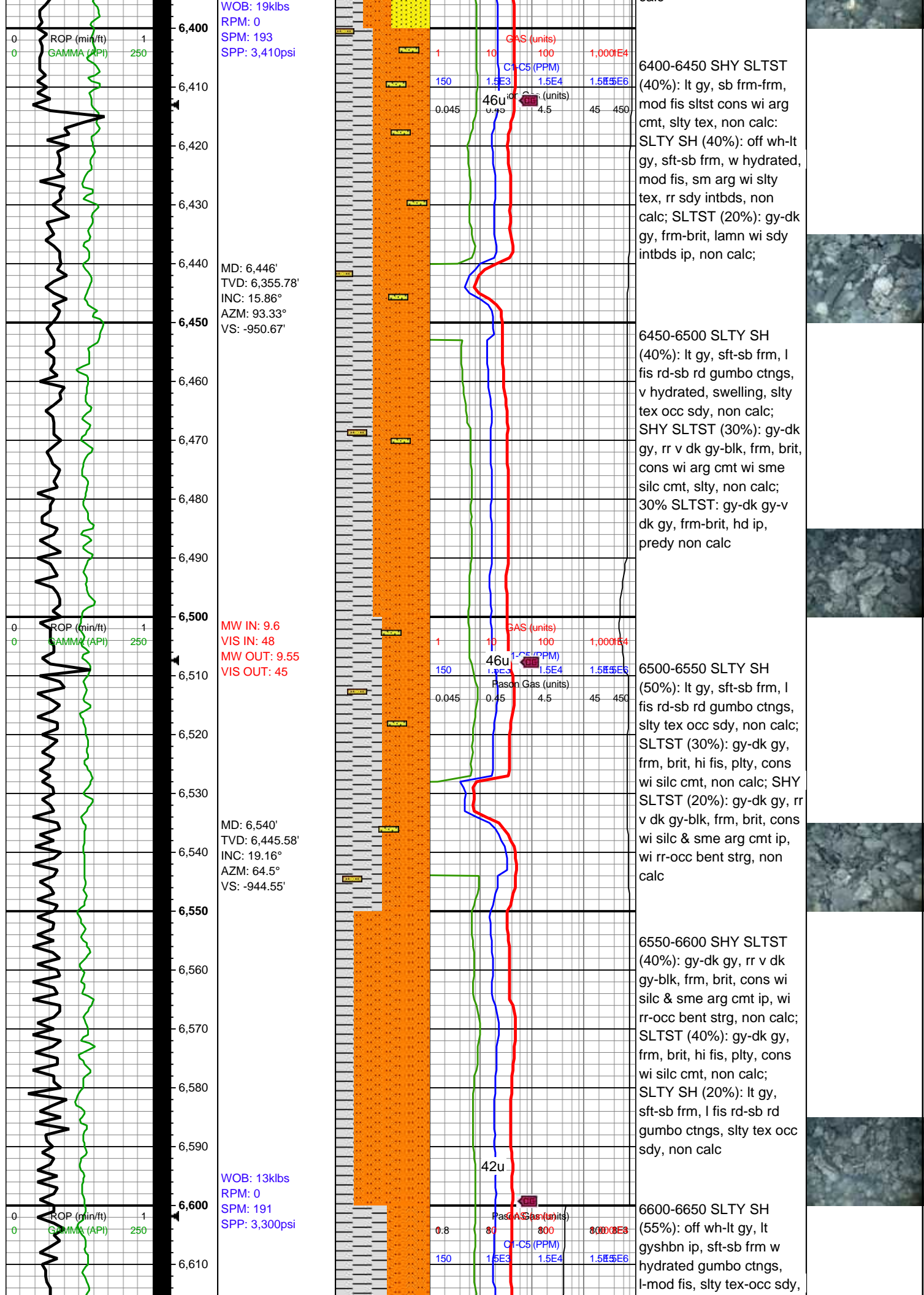
- BOUNDSTONE
- CHALKY
- CRYPTOXLN
- E EARTHY
- FINELYXLN
- GRAINSTONE

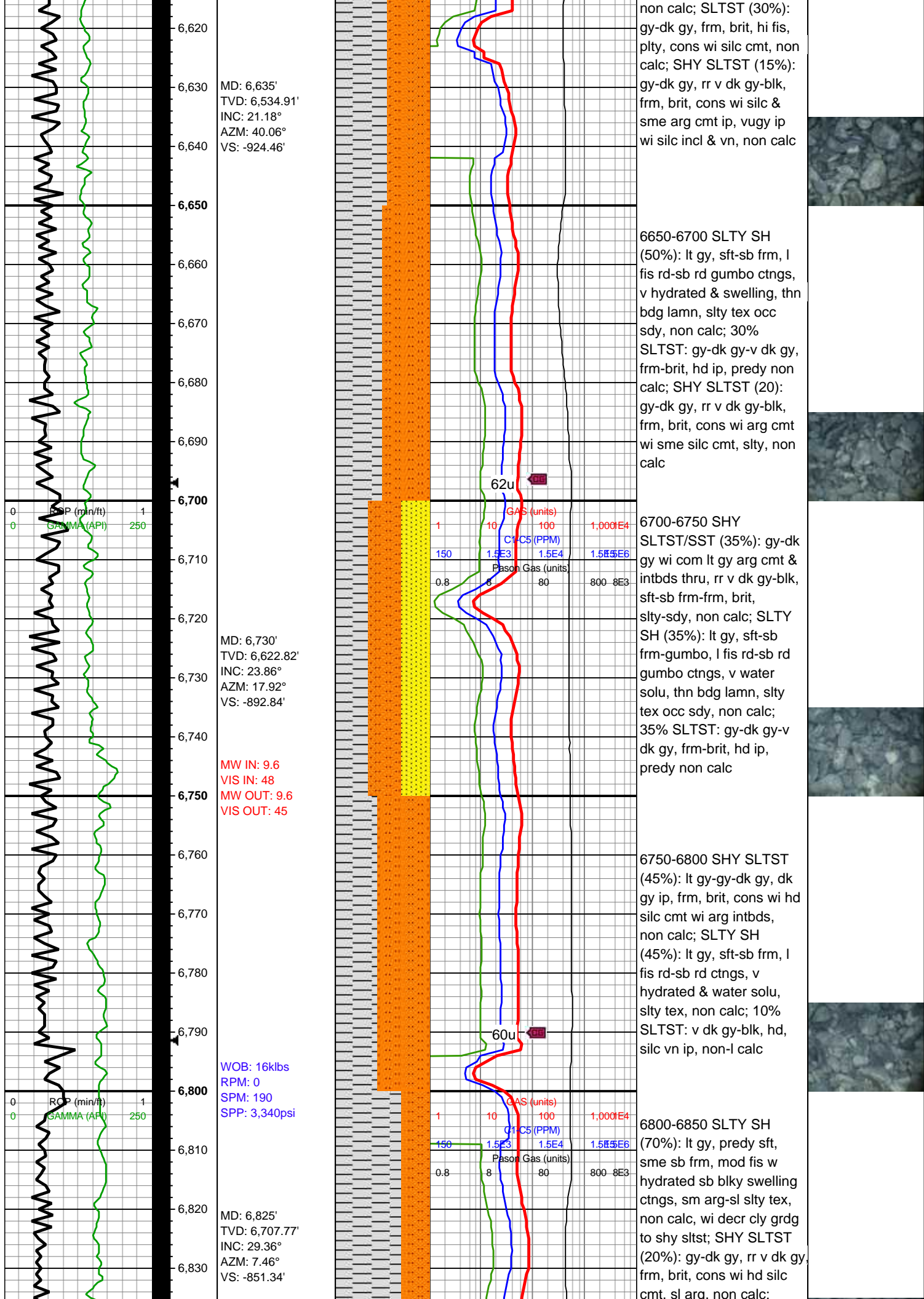
- L LITHOGRAPHIC
- MX MICROXLN
- MS MUDSTONE
- PS PACKSTONE
- WS WACKESTONE

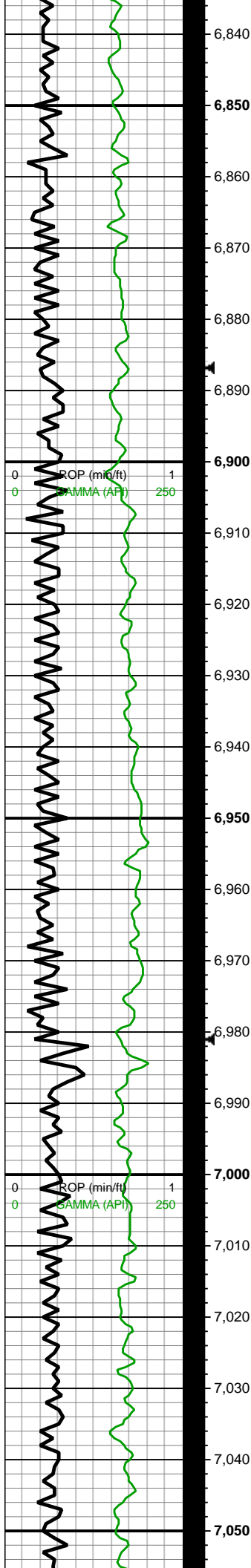
Sorting

- M MODERATE
- P POOR
- W WELL







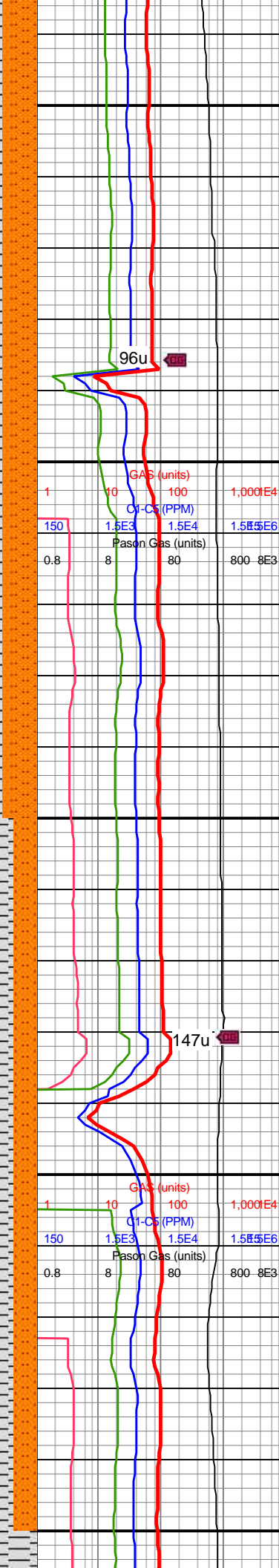


MD: 6,920'
TVD: 6,787.5'
INC: 36.39°
AZM: 5.96°
VS: -800.11'

WOB: 15klbs
RPM: 0
SPM: 191
SPP: 3,440psi

MD: 7,014'
TVD: 6,858.66'
INC: 45.09°
AZM: 5.79°
VS: -739.09'

MW IN: 9.65
VIS IN: 48
MW OUT: 9.6
VIS OUT: 44



SLTST (10%): v dk gy-blk, hd, lt gy silc vn ip, non-l calc

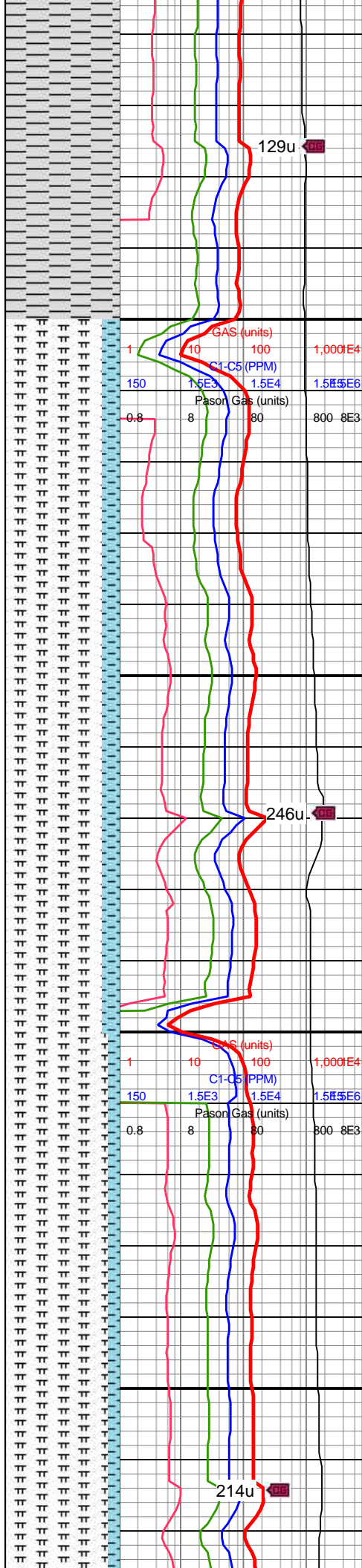
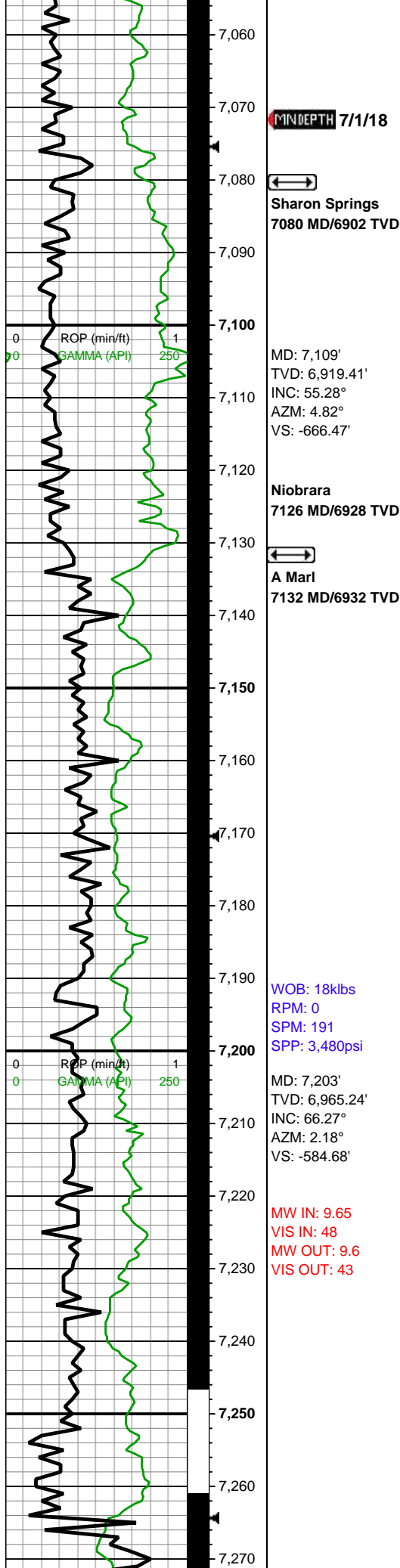
6850-6900 SLTY SH (70%): lt gy, predy sft, sme sb frm, mod fis sb blk cytns wi f lamn, w hydrated & swelling, sm arg-sl slty tex, non calc; SLTST (20%): gy-dk gy, occ v dk gy-blk, frm, brit, occ wvy vugy lt gy silc vn ip, non-l calc; SHY SLTST (10%): gy-dk gy, rr v dk gy, frm, brit, cons wi hd silc cmt, sl arg, non calc;

6900-6950 SLTY SH (70%): lt gy, predy sft, sme sb frm, mod fis w hydrated sb blk swelling ctngs, sm arg-sl slty tex, non calc, wi decr cly grd to shy sltst; SHY SLTST (20%): gy-dk gy, rr v dk gy, frm, brit, cons wi hd silc cmt, sl arg, non calc; SLTST (10%): v dk gy-blk, hd, lt gy silc vn ip, non-l calc

6950-7000 SLTY SH (80%): lt gy, predy sft, sme sb frm, mod fis sb blk cytns wi f lamn, w hydrated & swelling, sm arg-sl slty tex, non calc; SLTST (20%): gy-dk gy, occ v dk gy-blk, frm, brit, occ wvy vugy lt gy silc vn ip, non calc

7000-7050 SLTY SH (80%): lt gy, predy sft, sme sb frm, mod fis sb blk cytns wi f lamn, w hydrated & swelling, sm arg-sl slty tex, non calc; SLTST (20%): gy-dk gy, occ v dk gy-blk, frm, brit, occ wvy vugy lt gy silc vn ip, non calc, sl calc ip





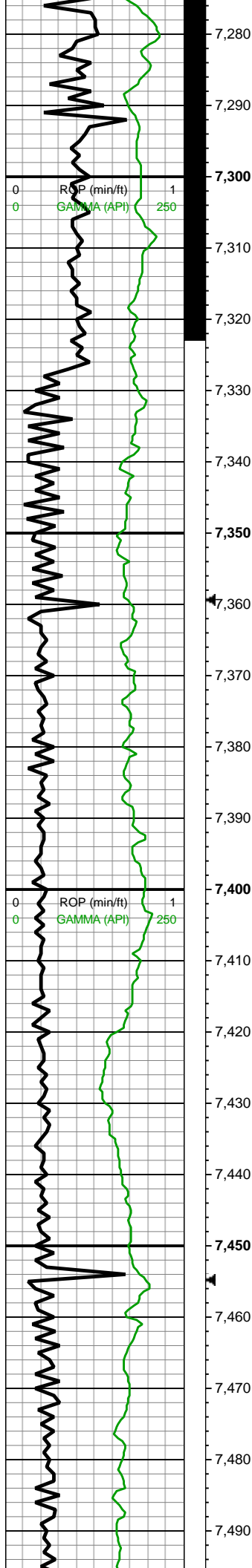
7050-7100 SLTY SH
(100%): gy-gyshbn wi sp
blk lith incl, frm, brit, sb
frm ip, med-hi fis blk-ly-tab
ctngs wi wxy lstr, slty arg
tex, tr tn bent, mod calc

7100-7150 MRLST
(85%): dk gyshbn-v dk gy,
sb frm-frm, mod fis sb
blk-ly ctngs, arg-sl slty-sl
sdy tex, occ c ptch pyr
strg, mod calc wi brn mrly
resdl; CHK (15%): gy-dk
gy wi f wh chky incl & thn
wh chky lamn, frm, brit,
l-mod fis sb rd-sb blk-ly
ctngs, sl slty tex, hi calc

7150-7200 MRLST
(85%): dk gyshbn-v dk gy,
sb frm-frm, mod fis sb
blk-ly ctngs, arg-sl slty-sl
sdy tex, occ c ptch pyr
strg, mod calc wi brn mrly
resdl; CHK (15%): gy-dk
gy wi f wh chky incl & thn
wh chky lamn, frm, brit,
l-mod fis sb rd-sb blk-ly
ctngs, sl slty tex, hi calc

7200-7300 MRLST
(90%): gyshbn-dk gy-dk
gyshbn, sb frm-frm,
l-mod fis sb rd-sb
blk-ly blk-ly ctngs, occ brn
sp marl incl & thn chky
lamn ip, tr bent, mod calc
wi brn mrly resdl; CHK
(10%): dk gy wi f-elong
wh chky incl, sb frm-frm,
brit, tr vf pyr, hi calc



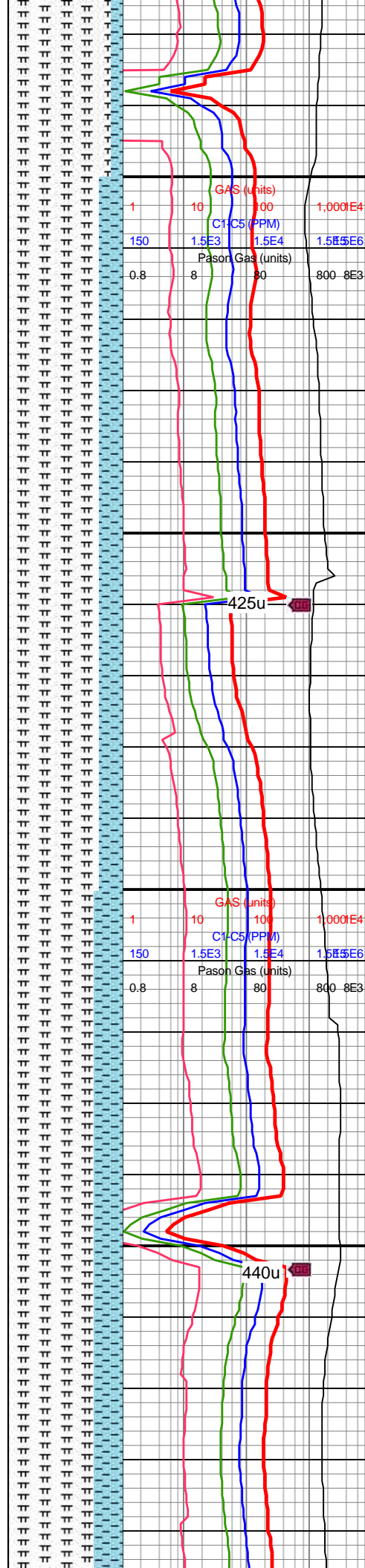


MD: 7,298'
TVD: 6,996.29'
INC: 75.54°
AZM: 358.4°
VS: -495.03'

MD: 7,393'
TVD: 7,017.46'
INC: 78.71°
AZM: 356.82°
VS: -402.55'

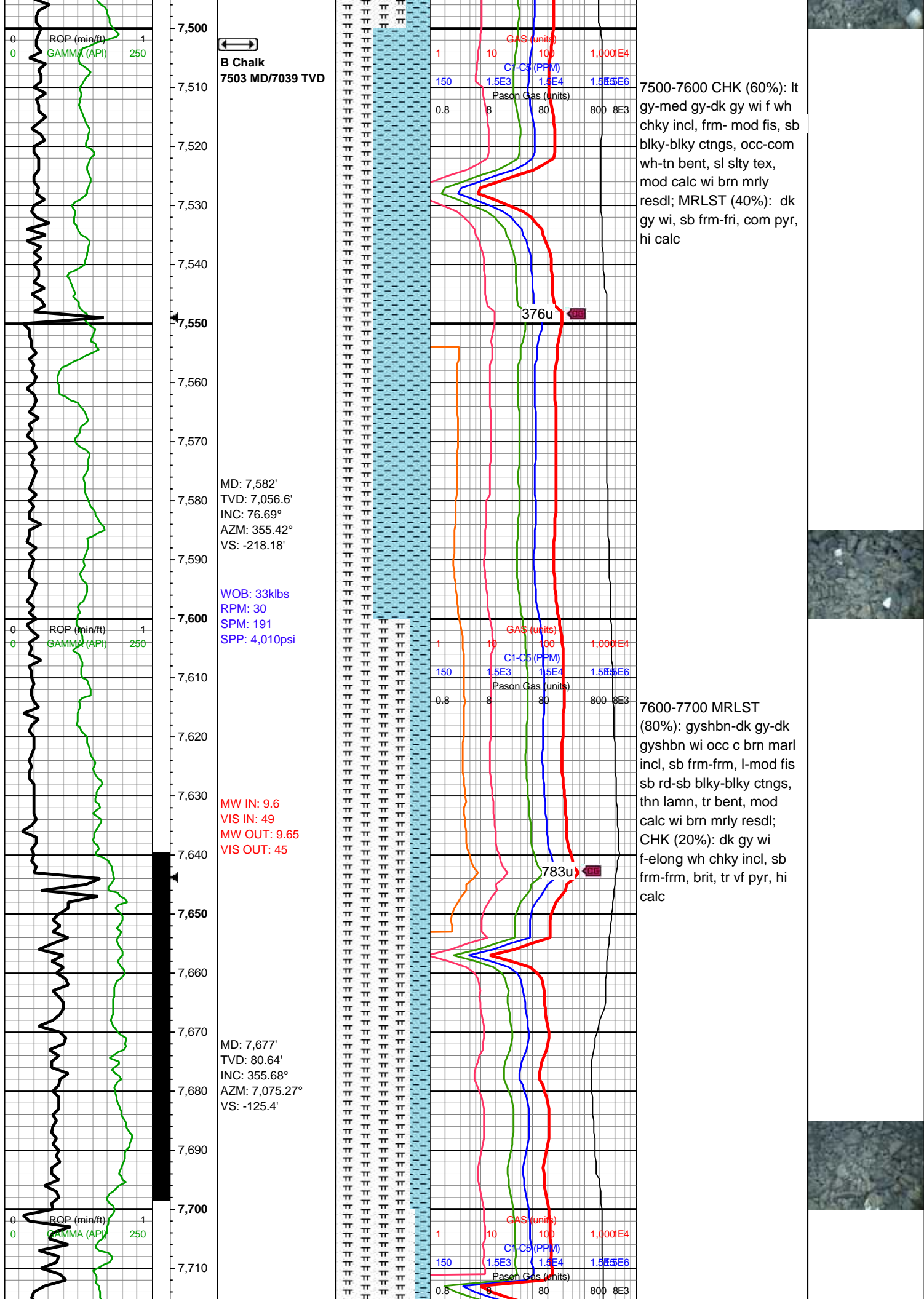
WOB: 24klbs
RPM: 31
SPM: 190
SPP: 3,790psi

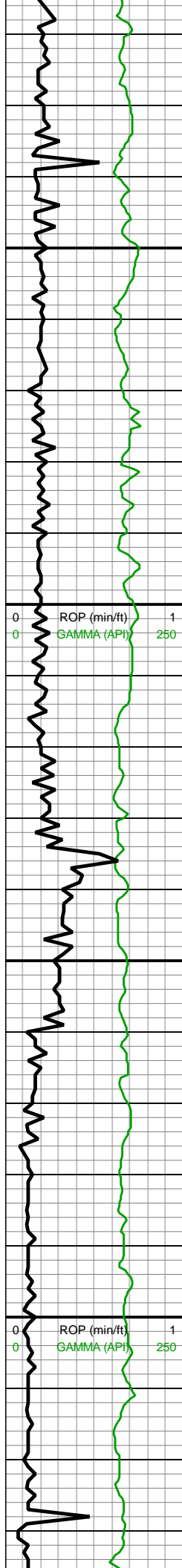
MD: 7,487'
TVD: 7,036.11'
INC: 78.4°
AZM: 356.21°
VS: -310.64'



7300-7400 MRLST
(80%): gyshbn-dk gy-dk
gyshbn wi occ c brn marl
incl, sb frm-frm, l-mod fis
sb rd-sb blkyl-blkyl ctngs,
thn lamn, tr bent, mod
calc wi brn mrly resdl;
CHK (20%): dk gy wi
f-elong wh chky incl, sb
frm-frm, brit, tr vf pyr, hi
calc

7400-7500 MRLST
(75%): gyshbn-dk gy-dk
gyshbn, sb frm-frm,
l-mod fis sb rd-sb
blkyl-blkyl ctngs, occ brn
sp marl incl & thn chky
lamn ip, tr bent, mod calc
wi brn mrly resdl; CHK
(25%): dk gy wi f-elong
wh chky incl, sb frm-frm,
brit, tr vf pyr, hi calc



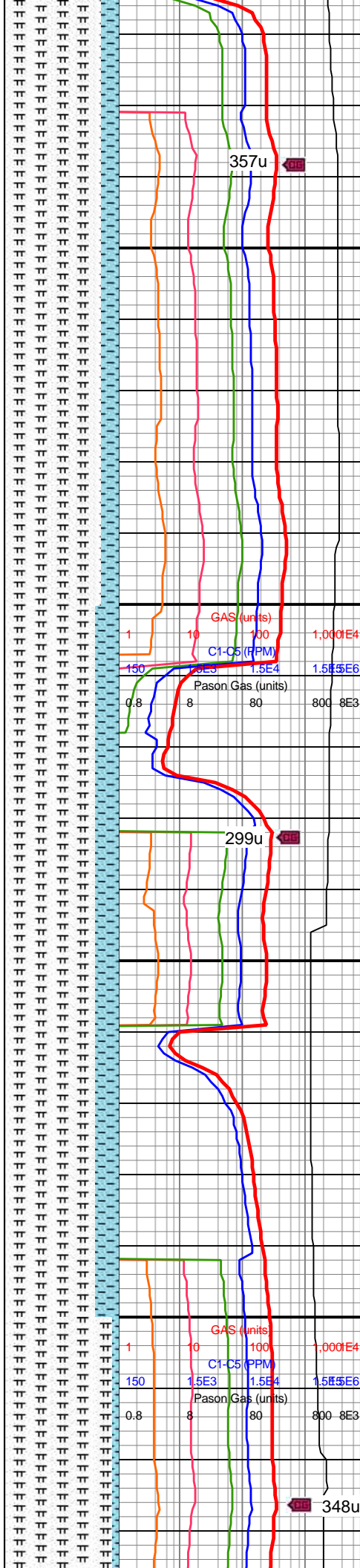


7,720
7,730
7,740
7,750
7,760
7,770
7,780
7,790
7,800
7,810
7,820
7,830
7,840
7,850
7,860
7,870
7,880
7,890
7,900
7,910
7,920
7,930

MD: 7,772'
TVD: 85.3'
INC: 356.3°
AZM: 7,086.89°
VS: -31.43'

WOB: 28klbs
RPM: 30
SPM: 190
SPP: 4,010psi

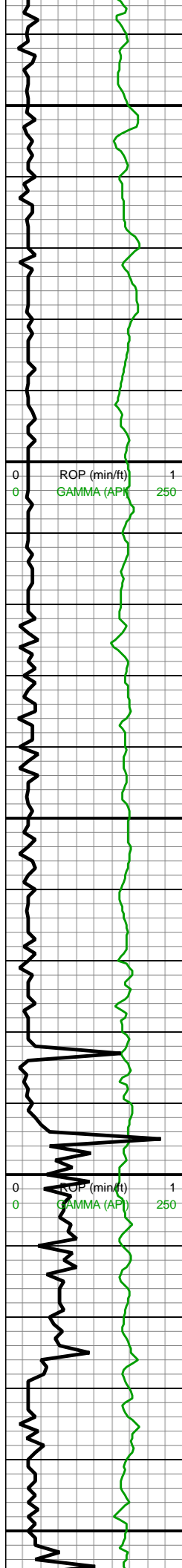
MD: 7,866'
TVD: 87.58'
INC: 357°
AZM: 7,092.73°
VS: 62.18'



7700-7800 MRLST
(85%): predy dk gy wi occ
gyshbn intbds, mod fis
frm-crunchy-brit sb
blky-blky-tab ctngs, rr-occ
wh-tn bent, sl slty tex,
mod calc wi brn mrlly
resdl; CHK (15%): dk gy
wi f-elong wh chky incl,
frm-brit mod fis sb
blky-blky ctngs, sl slty tex,
tr vf pyr, hi calc

7800-7900 MRLST
(80%): dk gy-gyshbn, frm,
crunchy-brit, mod fis sb
blky-blky ctngs, occ-com
wh-tn bent, sl slty tex,
mod calc wi brn mrlly
resdl; CHK (20%): dk gy
wi f-elong wh chky incl,
sb frm-frm, brit, tr vf pyr, hi
calc





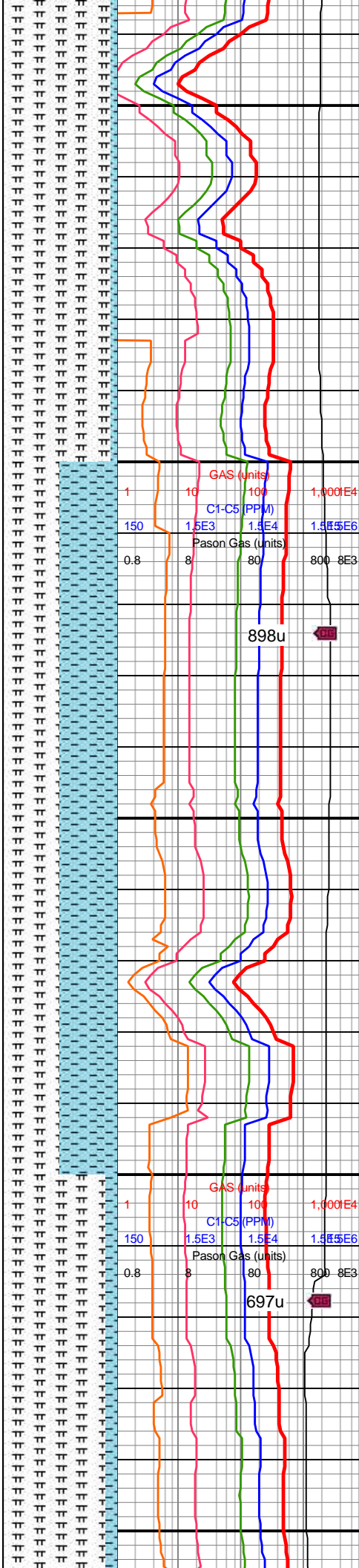
MD: 7,961'
TVD: 88.24'
INC: 359.72°
AZM: 7,096.19°
VS: 157.04'

WOB: 33klbs
RPM: 70
SPM: 202
SPP: 4,320psi

MW IN: 9.7
VIS IN: 49
MW OUT: 9.6+
VIS OUT: 45

MD: 8,055'
TVD: 87.5'
INC: 352.34°
AZM: 7,099.69°
VS: 250.63'

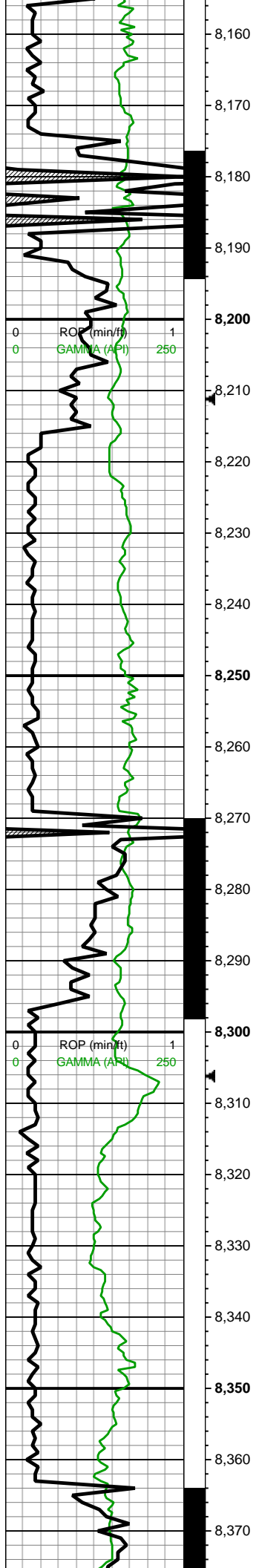
MD: 8,150'
TVD: 89.3'
INC: 355.33°
AZM: 7,102.35°
VS: 241.24'



7900-8000 MRLST
(95%): dk gy, frm- mod
fis, sb blkly-blky ctngs,
occ-com wh-tn bent, sl
silty tex, mod calc wi brn
mrly resdl; CHK (5%): dk
gy wi, sb frm-fri, tr vf pyr,
hi calc

8000-8100 MRLST
(50%): dk gy, frm- mod
fis, sb blkly-blky ctngs,
occ-com wh-tn bent, sl
silty tex, mod calc wi brn
mrly resdl; CHK (50%):
dk gy wi, sb frm-fri, com
pyr, hi calc





VS: 344.94
WOB: 36.4klbs
RPM: 70
SPM: 201
SPP: 4,355psi

MW IN: 9.7
VIS IN: 48
MW OUT: 9.7
VIS OUT: 44

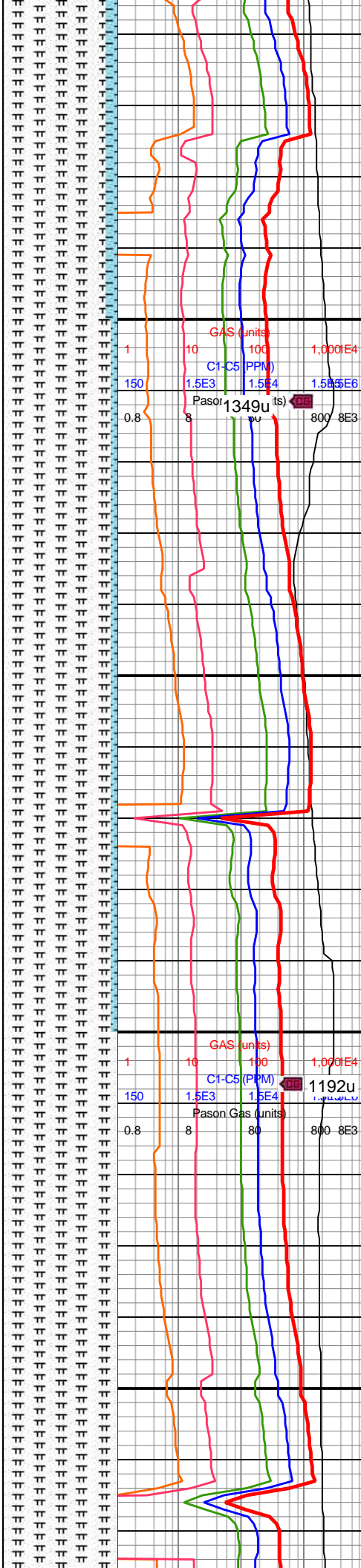
MD: 8,245'
TVD: 90.13'
INC: 356.12°
AZM: 7,102.82°
VS: 439.61'

12' DTS

C Chalk
8298 MD/7102 TVD

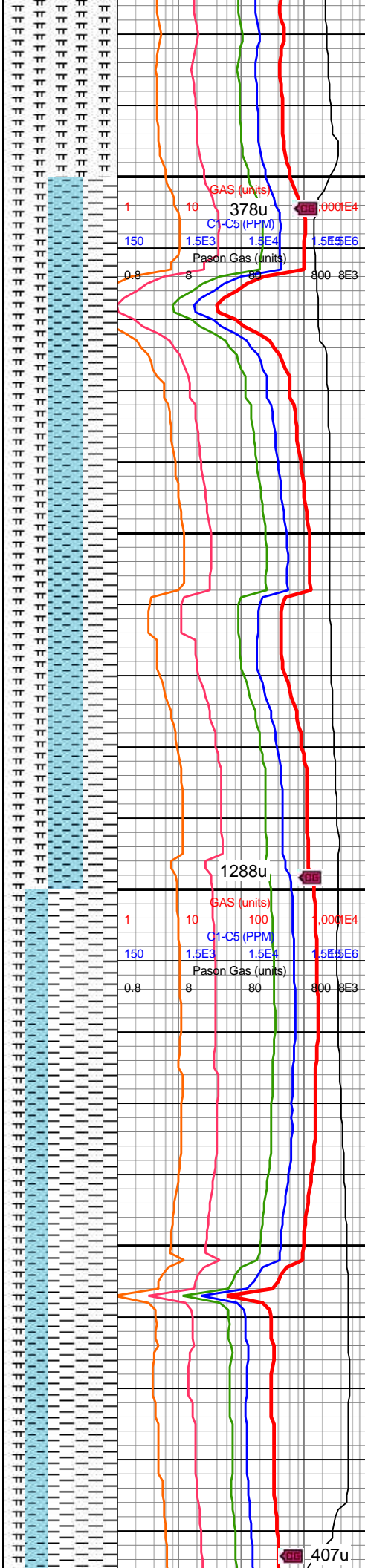
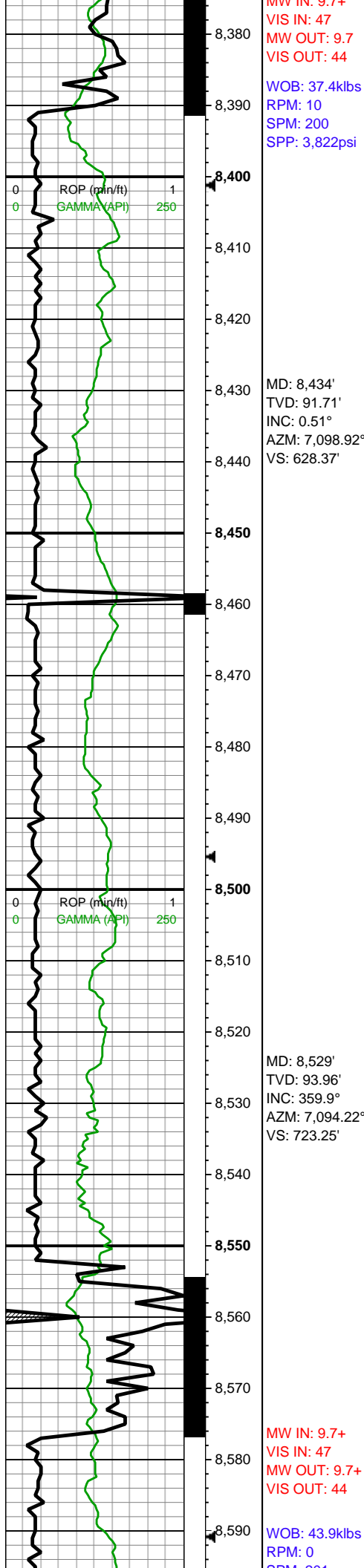
MD: 8,340'
TVD: 91.45'
INC: 358.14°
AZM: 7,101.51°
VS: 534.43'

MW IN: 9.7



8100-8200 MRLST
(90%): dk gy, frm-mod fis,
sb blkly-blky ctngs,
occ-com wh-tn bent, sl
silty tex, mod calc wi brn
mrly resdl; CHK (10%):
dk gy wi, sb frm-fri, com
pyr, hi calc

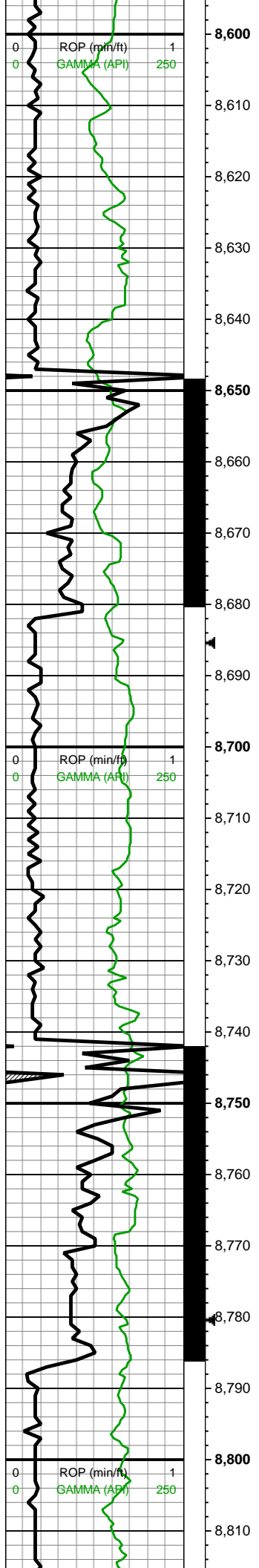
8200-8300 MRLST
(95%): dk gy, frm-mod fis,
sb blkly-blky ctngs,
occ-com wh-tn bent, sl
silty tex, mod calc wi brn
mrly resdl; CHK (5%): dk
gy wi, sb frm-fri, com pyr,
hi calc



8300-8400 MRLST
(100%): dk gy, frm-mod
fis, sb blkyl-blky ctngs,
occ-com wh-tn bent, sl
silty tex, mod calc wi brn
mrly resdl; CHK (tr): dk gy
wi, fri, pyr, hi calc

8400-8500 MRLST
(40%): dk gy, frm-mod fis,
sb blkyl-blky ctngs,
occ-com wh-tn bent, sl
silty tex, mod calc wi brn
mrly resdl; CHK (30%):
dk gy wi, fri, pyr, rthy tex, hi
calc; Sh (30%) dk gy,
hd-frm, silty tex, calc ip

8500-8600 Sh (60%) dk
gy, hd-frm, silty tex, calc
ip; MRLST (20%): dk gy,
frm-mod fis, sb blkyl-blky
ctngs, occ-com wh-tn
bent, sl silty tex, mod calc
wi brn mrly resdl; CHK
(20%): dk gy wi, fri,



SPM: 201
SPP: 3,839psi

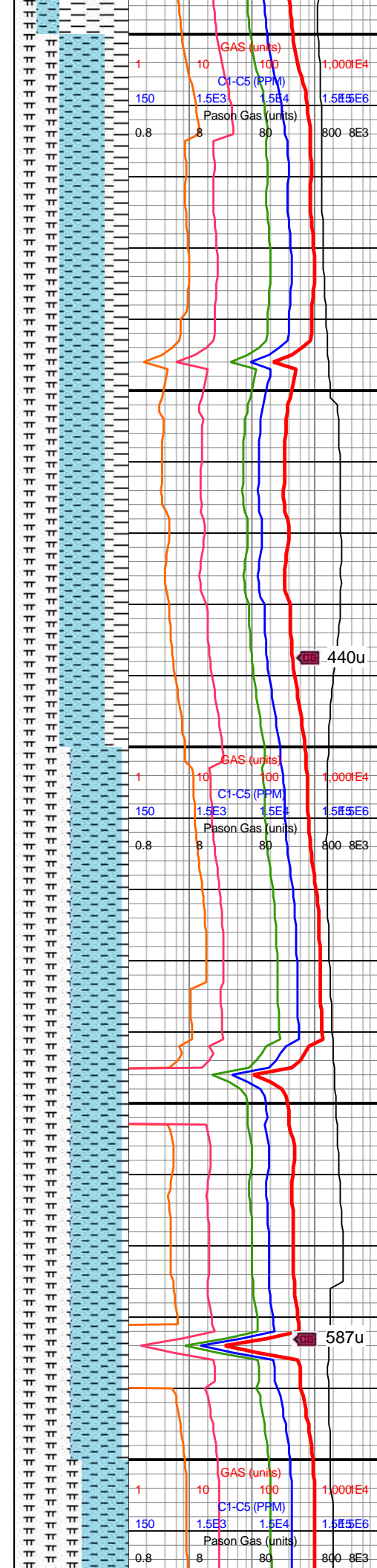
MD: 8,624'
TVD: 93.52'
INC: 0.78°
AZM: 7,088.02°
VS: 818.05'

MD: 8,719'
TVD: 91.63'
INC: 358.84°
AZM: 7,083.75°
VS: 912.93'

MW IN: 9.7+
VIS IN: 46
MW OUT: 7.9+
VIS OUT: 44

WOB: 47.2klbs
RPM: 0
SPM: 200
SPP: 3,921psi

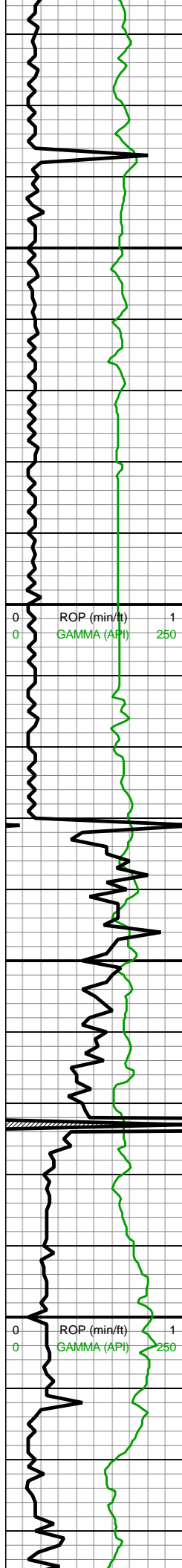
MD: 8,813'
TVD: 89.12'
INC: 359.81°



pyr,rthy tex, hi calc

8600-8700 MRLST
(40%): dk gy, frm-mod fis,
sb blk-sub rd ctngs, sl
silty tex, mod calc wi brn
mrly resdl; CHK (40%):
dk gy, fri, pyr,rthy tex, hi
calc; Sh (20%) dk gy,
hd-frm, silty tex,w cons,
calc ip

8700-8800 MRLST
(50%): dk gy, frm-mod fis,
sb blk-sub rd ctngs, sl
silty tex, mod calc wi brn
mrly resdl; CHK (45%):
dk gy, fri, pyr,rthy tex, hi
calc; Sh (5%) dk gy,
hd-frm, silty tex,w cons,
calc ip



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
8,990
9,000
9,010
9,020
9,030

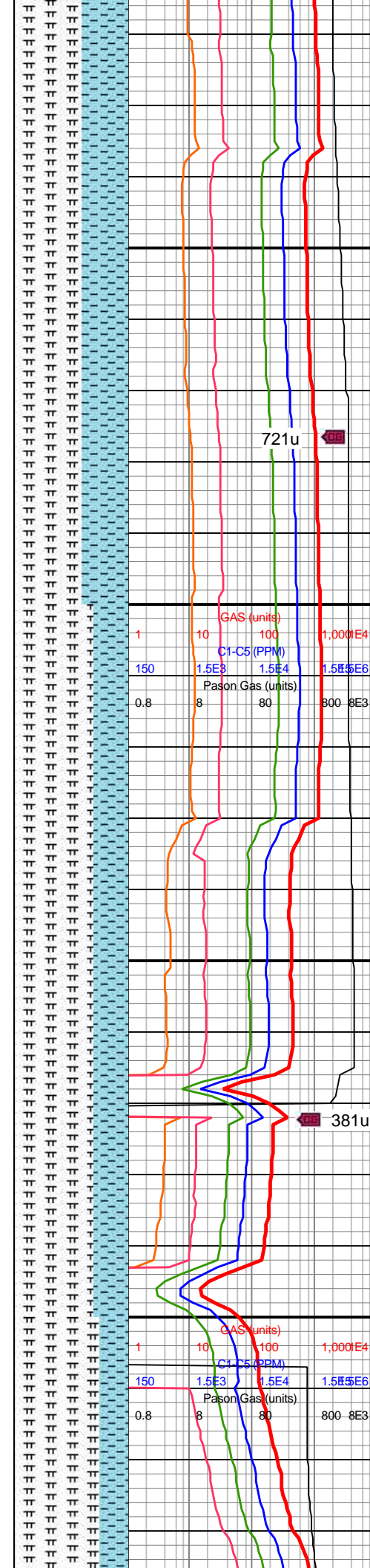
AZM: 7,083.14°
VS: 1,006.91'

MD: 8,908'
TVD: 88.07'
INC: 358.67°
AZM: 7,085.47°
VS: 1,101.85'

MW IN: 9.7+
VIS IN: 46
MW OUT: 9.7+
VIS OUT: 43

WOB: 8.8klbs
RPM: 31
SPM: 251
SPP: 3,675psi

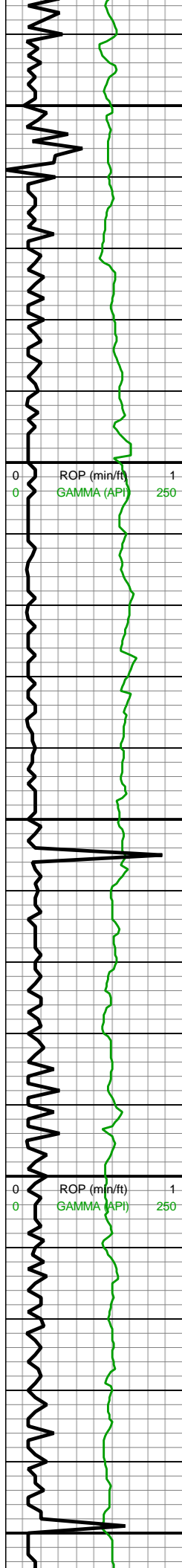
MD: 9,002'
TVD: 88.59'
INC: 1.13°
AZM: 7,088.21°
VS: 1,195.8'



8800-8900 MRLST
(60%): dk gy, frm-mod fis,
sb blkly-sub rd ctngs, sl
silty tex, mod calc wi brn
mrly resdl; CHK (40%):
dk gy-med gry-w, fri,
pyr,rthy tex, hi calc

8900-9000 MRLST
(70%): dk gy, frm-mod fis,
sb blkly-sub rd ctngs, sl
silty tex, mod calc wi brn
mrly resdl; CHK (30%):
dk gy-med gry-w, fri,
pyr,rthy tex, hi calc





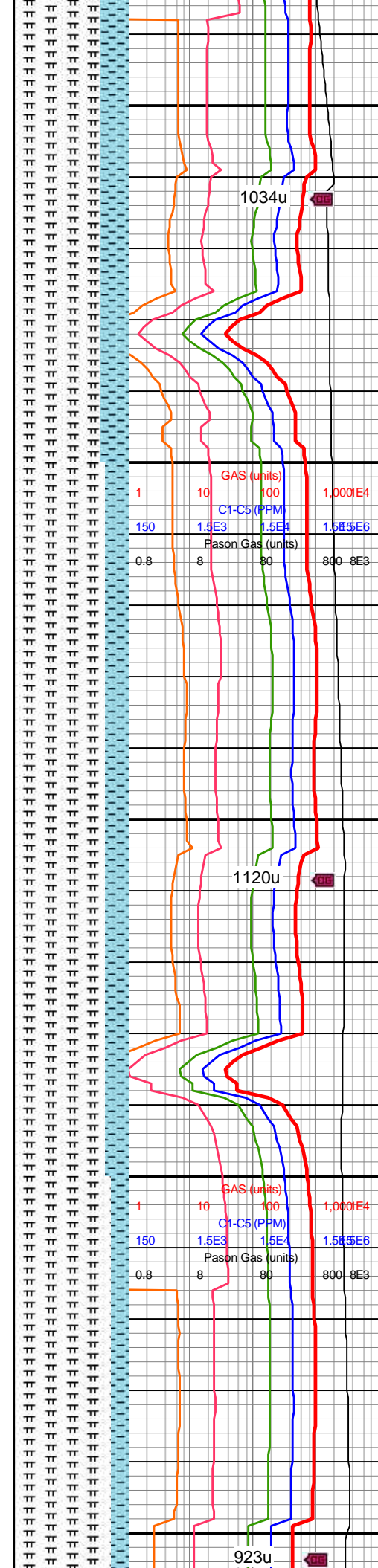
9,040
9,050
9,060
9,070
9,080
9,090
9,100
9,110
9,120
9,130
9,140
9,150
9,160
9,170
9,180
9,190
9,200
9,210
9,220
9,230
9,240
9,250

MW IN: 9.7+
VIS IN: 45
MW OUT: 9.7+
VIS OUT: 43

MD: 9,097'
TVD: 89.34'
INC: 0.95°
AZM: 7,089.92°
VS: 1,290.78'

MD: 9,191'
TVD: 89.47'
INC: 4.64°
AZM: 7,090.9°
VS: 1,384.68'

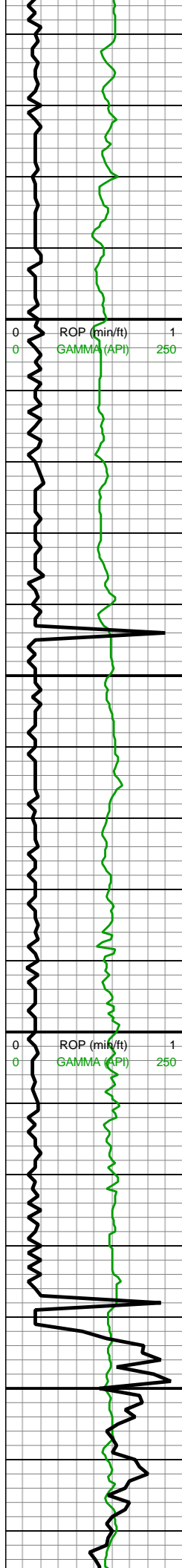
WOB: 36.7klbs
RPM: 70
SPM: 200
SPP: 4,467psi



9000-9100 MRLST
(75%): dk gy, frm-mod fis,
sb blkly-sub rd ctngs, sl
slyt tex, mod calc wi brn
mrly resdl; CHK (25%):
gy-med gry, fri,
pyr,rthy-chky tex, hi calc

9100-9200 MRLST
(80%): dk gy, frm-mod fis,
sb blkly-sub rd ctngs, sl
slyt tex, mod calc wi brn
mrly resdl; CHK (20%):
gy-med gry, fri,
pyr,rthy-chky tex, hi calc





9,260
9,270
9,280
9,290
9,300
9,310
9,320
9,330
9,340
9,350
9,360
9,370
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9,390
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9,410
9,420
9,430
9,440
9,450
9,460
9,470

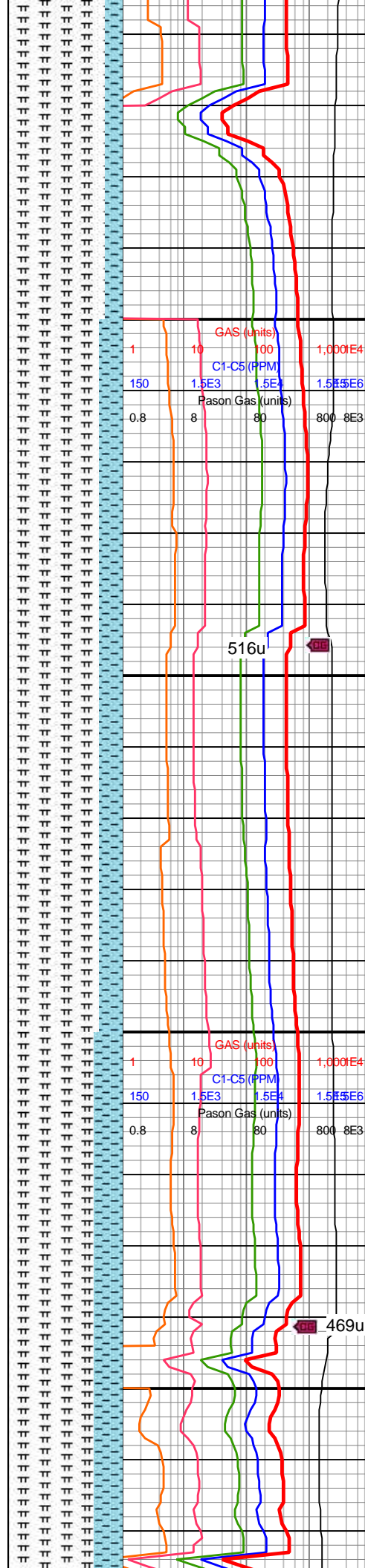
MD: 9,286'
TVD: 89.52'
INC: 4.03°
AZM: 7,091.74°
VS: 1,479.46'

MW IN: 9.7+
VIS IN: 44
MW OUT: 9.8
VIS OUT: 42

MD: 9,381'
TVD: 90.26'
INC: 4.03°
AZM: 7,091.92°
VS: 1,574.28'

WOB: 37.3klbs
RPM: 70
SPM: 200
SPP: 4,579psi

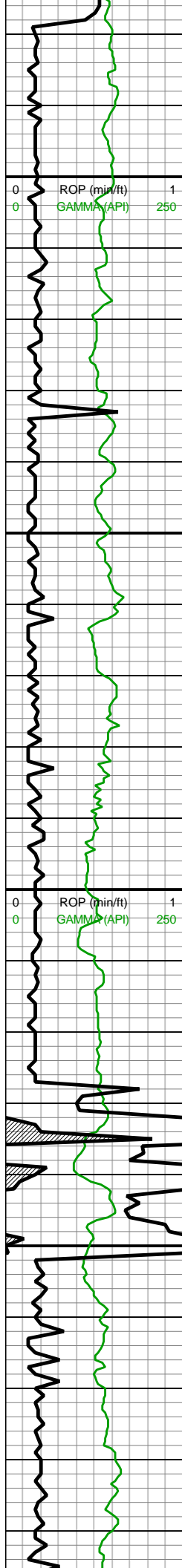
MW IN: 9.8
VIS IN: 44
MW OUT: 9.8
VIS OUT: 42



9200-9300 MRLST
(85%): dk gy, frm-mod fis,
sb blk-sub rd ctngs, sl
silty tex, mod calc wi brn
mrly resdl; CHK (15%):
gy-med gry, fri,
pyr,rthy-chky tex, hi calc

9300-9400 MRLST
(80%): dk gy, frm-mod fis,
sb blk-sub rd ctngs, sl
silty tex, mod calc wi brn
mrly resdl; CHK (20%):
gy-med gry, fri, pyr
ip,rthy-chky tex, hi calc

9400-9500 MRLST



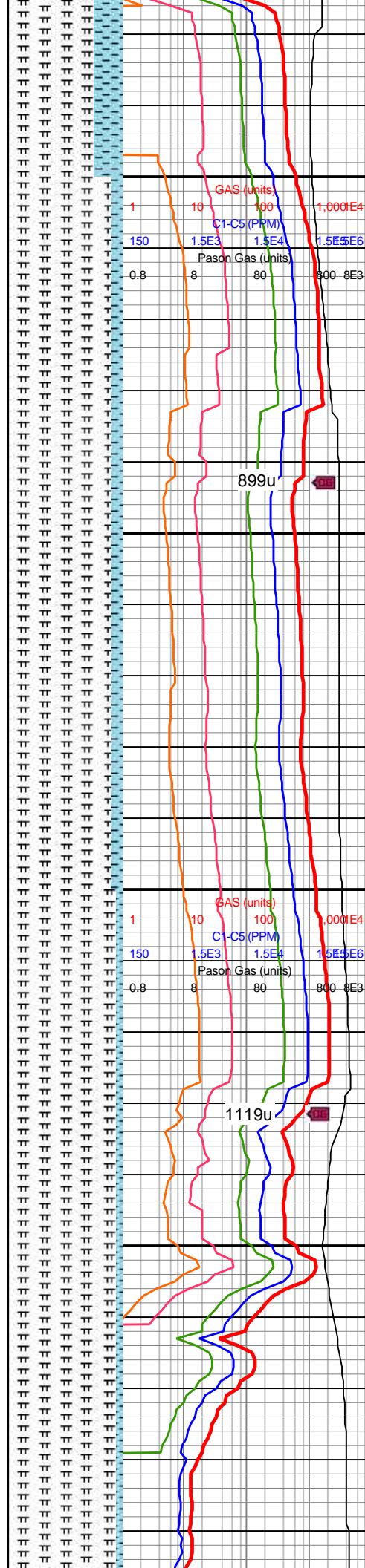
MD: 9,475'
TVD: 86.97'
INC: 1.04°
AZM: 7,094.19°
VS: 1,668.16'

MD: 9,570'
TVD: 86.44'
INC: 0.51°
AZM: 7,099.65°
VS: 1,763'

WOB: 39.9klbs
RPM: 70
SPM: 200
SPP: 4,657psi

MW IN: 9.8
VIS IN: 47
MW OUT: 9.8+
VIS OUT: 43

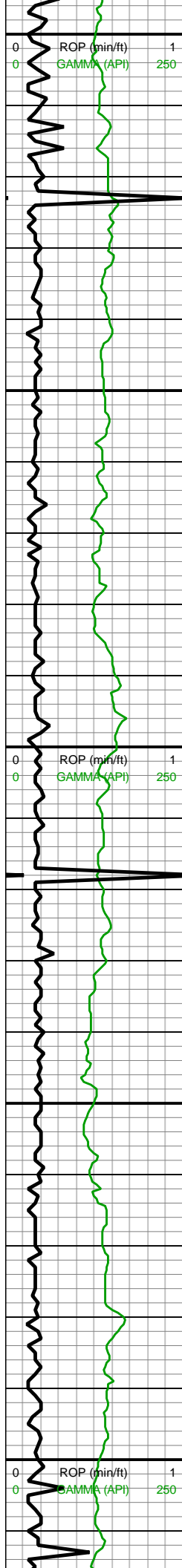
MD: 9,665'
TVD: 88.33'
INC: 2.1°
AZM: 7,103.99°
VS: 1,857.89'



9400-9500 MRLST
(75%): dk gy, frm-mod fis,
sb blkly-sub rd ctngs, sl
silty tex, mod calc wi brn
mrly resdl; CHK (25%):
gy-med gry, fri, pyr
ip,rthy-chky tex, hi calc

9500-9600 MRLST
(90%): dk gy, frm-mod fis,
sb blkly-sub rd ctngs, sl
silty tex, mod calc wi brn
mrly resdl; CHK (10%):
med gry-w ip, fri, gran
pyr,rthy-chky tex, hi calc

9600-9700 MRLST
(95%): dk gy, frm-mod fis,
sb blkly-sub rd ctngs, sl
silty tex, mod calc wi brn
mrly resdl; CHK (5%):
med gry-w, fri, gran pyr
ip,rthy-chky tex, hi calc



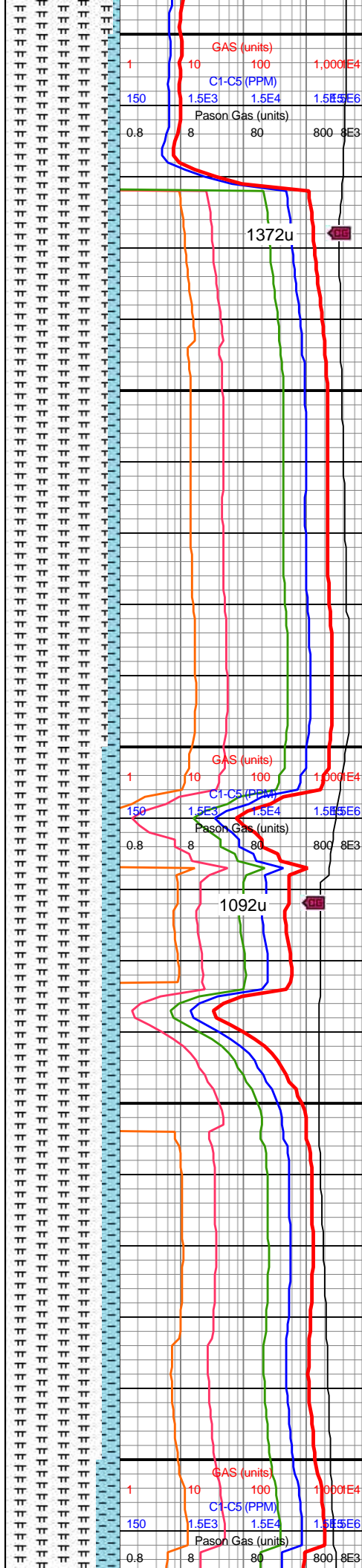
9,700
9,710
9,720
9,730
9,740
9,750
9,760
9,770
9,780
9,790
9,800
9,810
9,820
9,830
9,840
9,850
9,860
9,870
9,880
9,890
9,900
9,910

MD: 9,760'
TVD: 89.03'
INC: 2.27°
AZM: 7,106.17°
VS: 1,952.82'

WOB: 37.8klbs
RPM: 70
SPM: 200
SPP: 4,699psi

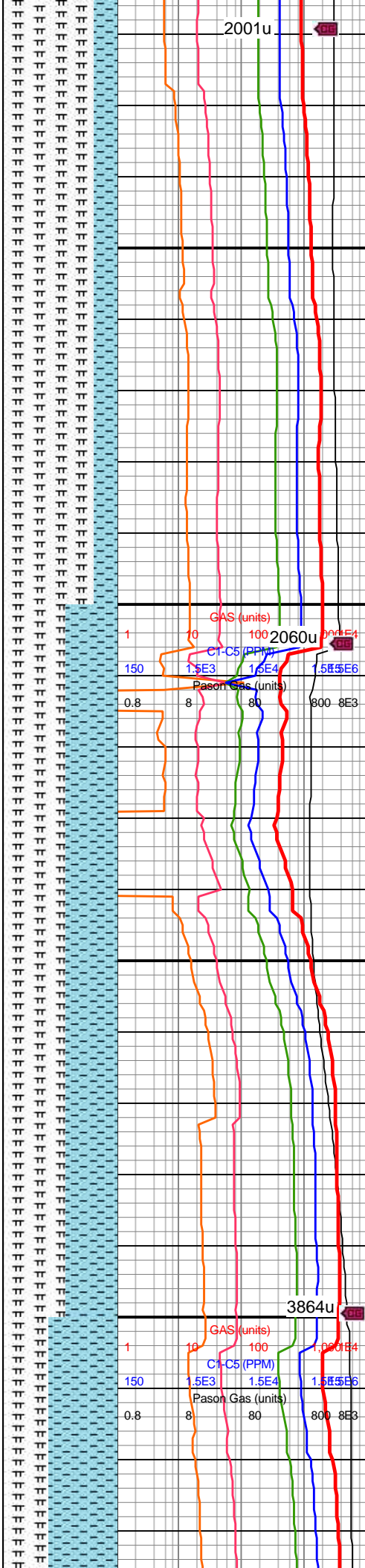
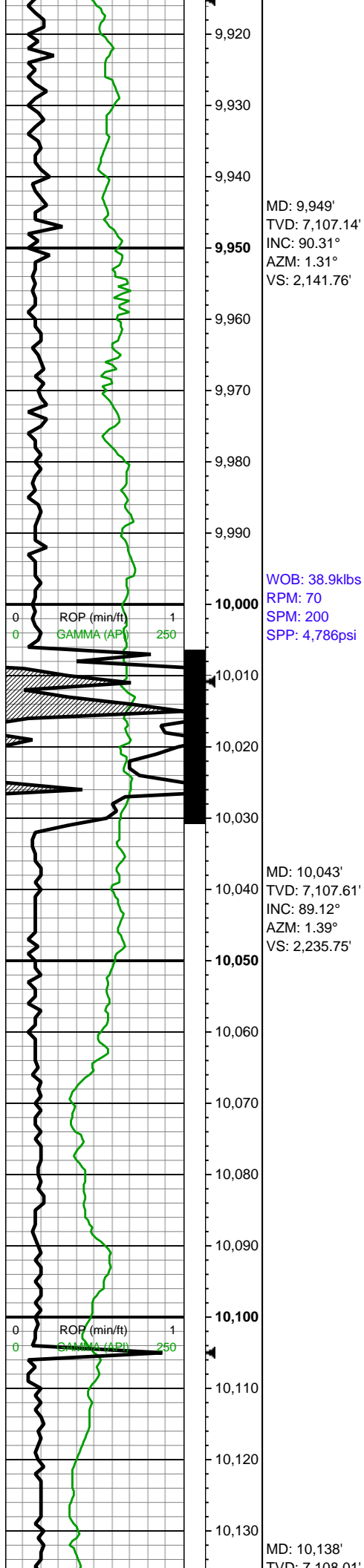
MD: 9,854'
TVD: 89.74'
INC: 1.74°
AZM: 7,107.18°
VS: 2,046.78'

MW IN: 9.8+
VIS IN: 47
MW OUT: 9.8+
VIS OUT: 43



9700-9800 MRLST
(90%): dk gy, frm-mod fis,
sb blkly-sub splt ctngs, sl
silty tex, mod calc wi brn
mrly resdl gran pyr; CHK
(10%): med gry-w, fri,
gran pyr ip,rthy-chky tex,
hi calc

9800-9900 MRLST
(85%): dk gy, frm-mod fis,
sb blkly-sub splt ctngs, sl
silty tex, mod calc wi brn
mrly resdl gran pyr; CHK
(15%): med gry-w, fri,
gran pyr ip,rthy-chky tex,
hi calc

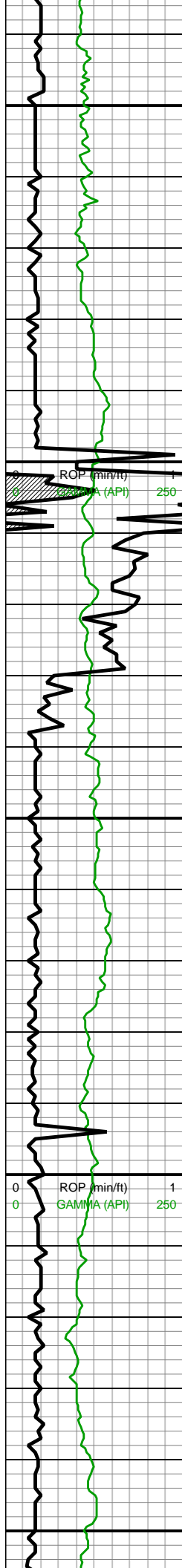


9900-10000 MRLST
(80%): gyshbn-dk gy-dk
gyshbn, occ brn sp marl
incl, frm-hd, mod fis sb
blky-blky ctngs, sm sl slty
tex, rr wh bent & forams,
tr vf pyr, mod calc; CHK
(20%): lt gy-gy-dk gy wi f
wh incl, sb frm-frm, brit
ip, l-mod fis sb rd-sb blky
ctngs, sm arg-sl slty tex,
hi calc

10000-10100 MRLST
(55%): gyshbn-dk gy-dk
gyshbn, frm-hd mod fis
sb blky-blky ctngs, sm sl
slty tex, dk gy sh sp wi
occ c brn marl incl, rr wh
bent & forams, tr vf pyr,
mod calc wi brn mrly
resdl; CHK (45%): lt
gy-gy-dk gy wi f wh incl,
sb frm-frm, brit ip, l-mod
fis sb rd-sb blky ctngs,
sm arg-sl slty tex, hi calc

10100-10200 CHK
(60%): lt gy-gy-dk gy wi f
wh incl, sb frm-frm, brit
ip, l-mod fis sb rd-sb blky
ctngs, sm arg-sl slty tex.





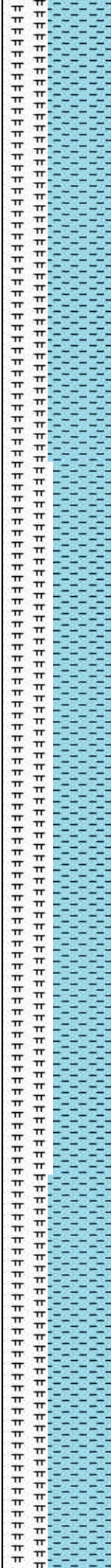
VD: 7,108.0'
INC: 90.4°
AZM: 1.31°
VS: 2,330.73'

WOB: 49klbs
RPM: 0
SPM: 200
SPP: 4,090psi

MW IN: 9.85
VIS IN: 44
MW OUT: 9.9
VIS OUT: 42

MD: 10,233'
TVD: 7,109.57'
INC: 87.72°
AZM: 1.31°
VS: 2,425.7'

MD: 10,327'
TVD: 7,112.88'
INC: 88.24°
AZM: 1.22°
VS: 2,519.64'



4196u
GAS (units)
C1-C5 (PPM)
Pason Gas (units)
1.5E3 1.5E4 1.5E6
0.8 8 80 800 8E3

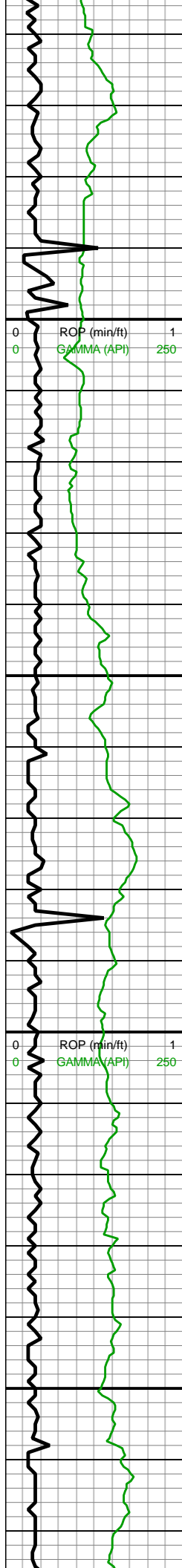
3810u
GAS (units)
C1-C5 (PPM)
Pason Gas (units)
1.5E3 1.5E4 1.5E6
0.8 8 80 800 8E3

hi calc; 40% MRLST:
gyshbn-dk gy-dk gyshbn,
occ brn sp marl incl,
frm-hd, mod fis sb
blky-blky ctngs, sm sl slty
tex, rr wh bent & forams,
tr vf pyr, mod calc

10200-10300 CHK
(55%): predy gy-dk gy wi f
wh incl, occ tn-lt brn-crm,
sb frm-frm-brit, sb
blky-blky ctngs, sm arg-sl
slty tex, hi calc; MRLST
(45%): gyshbn-dk gy-dk
gyshbn, occ brn sp marl
incl, frm-hd, mod fis sb
blky-blky ctngs, sm sl slty
tex, tr vf pyr, mod calc

10300-10400 CHK
(60%): gy-dk gy wi f wh
chky incl, occ tn-brn,
frm-hd-brit, mod fis sb
rd-sb blky-blky ctngs, sm
arg-sl slty tex, hi calc;
40% MRLST: gyshbn-dk



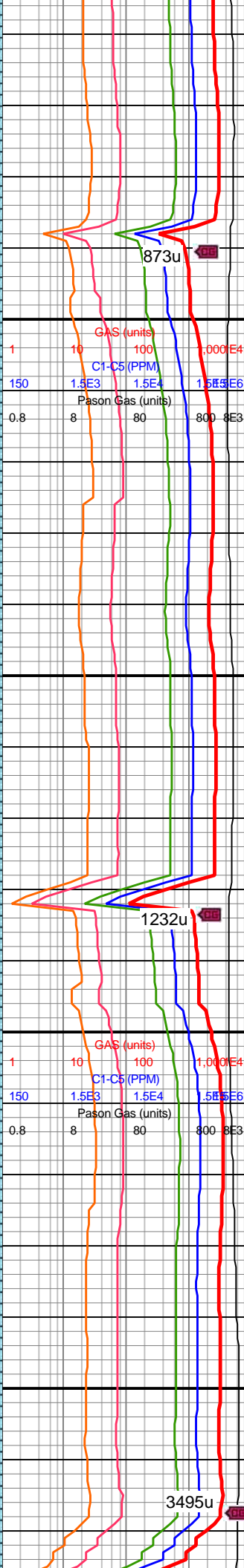
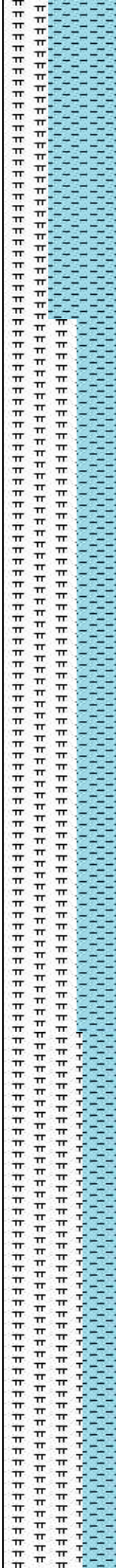


10,360
10,370
10,380
10,390
10,400
10,410
10,420
10,430
10,440
10,450
10,460
10,470
10,480
10,490
10,500
10,510
10,520
10,530
10,540
10,550
10,560
10,570

WOB: 38klbs
RPM: 70
SPM: 202
SPP: 4,900psi

MD: 10,422'
TVD: 7,115.72'
INC: 88.33°
AZM: 1.04°
VS: 2,614.59'

MD: 10,517'
TVD: 7,118.71'
INC: 88.07°
AZM: 0.69°
VS: 2,709.54'

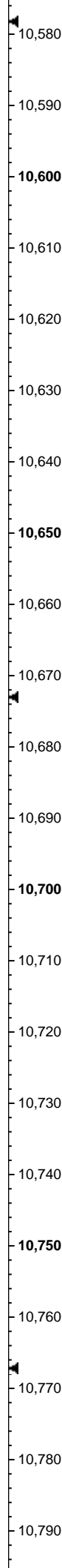
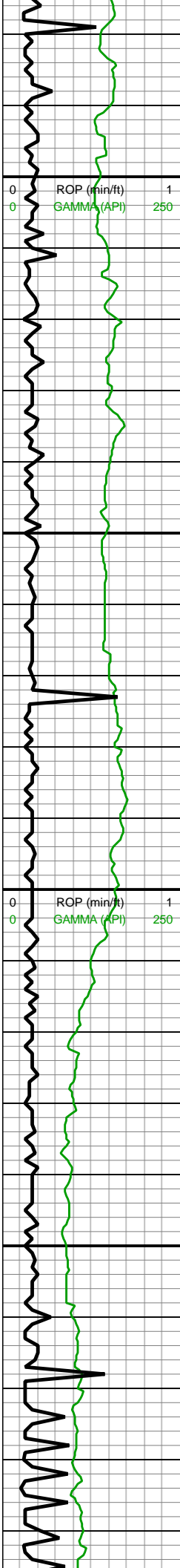


gy-dk gyshbn, occ brn sp
marl incl, frm-hd, mod fis
sb blkyl-bkly ctngs, sm sl
silty tex, tr vf pyr, mod calc
wi brn mrly resdl

10400-10500 MRLST
(65%): med
gy-gyshbn-dk gy,
frm-hd-brit, mod fis sb
blkyl-bkly ctngs, sm-sl silty
tex, tr vf pyr, mod calc wi
brn mrly resdl; CHK
(35%): med gy wi f wh
chky lamn, sb frm-frm-brit
ip, l-mod fis sb blkyl-bkly
ctngs, hi calc

10500-10600 MRLST
(70%): med
gy-gyshbn-dk gy-dk
gyshbn, frm-hd-brit, sb
blkyl-bkly mod fis ctngs,
sm-sl silty tex, tr vf pyr, tr
fos frags; CHK (30%):
med gy wi f wh chky
lamn, sb frm-frm, l-mod
fis sb blkyl-bkly ctngs, hi
calc





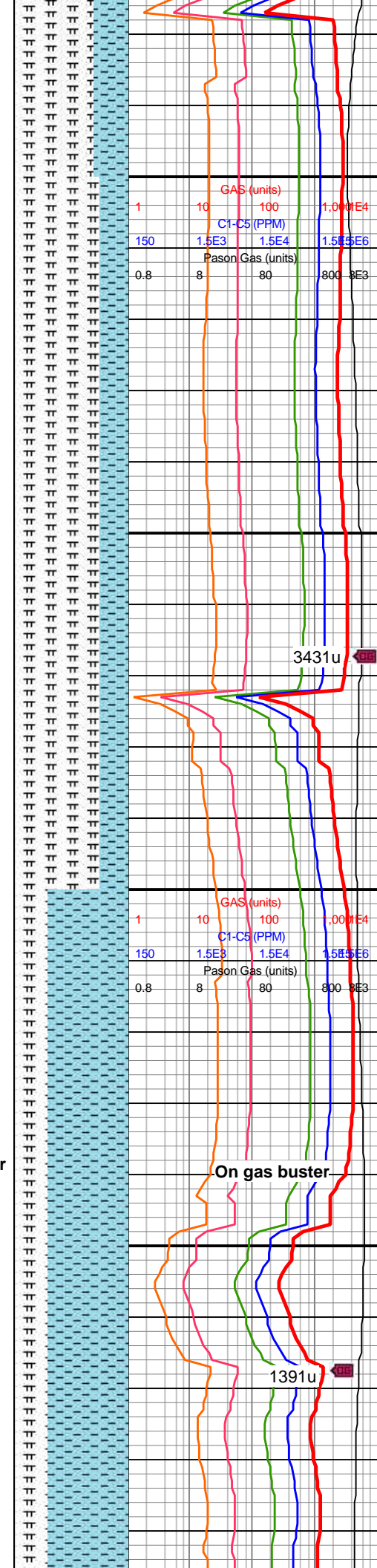
WOB: 37klbs
RPM: 70
SPM: 202
SPP: 4,920psi

MD: 10,612'
TVD: 7,121.8'
INC: 88.2°
AZM: 0.34°
VS: 2,804.49'

MD: 10,706'
TVD: 7,124.68'
INC: 88.29°
AZM: 0.07°
VS: 2,898.44'

On gas buster

WOB: 30klbs
RPM: 70
SPM: 202
SPP: 4,920psi

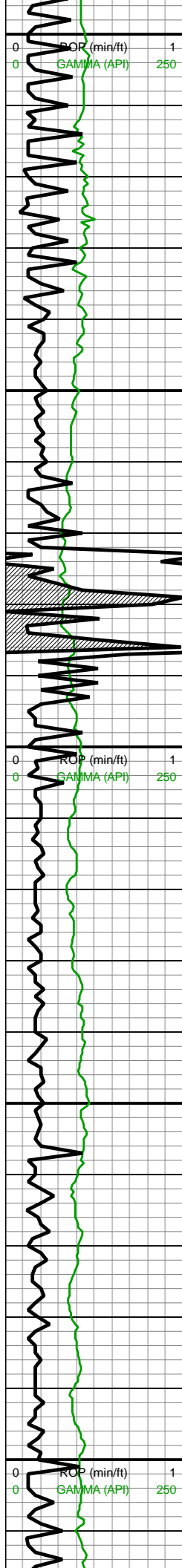


10600-10700 MRLST (75%): med gy-gyshbn-dk gy, frm-hd-brit, mod fis sb blkly-blky ctngs, sm-sl slty tex, rr fos frags & forams, tr vf pyr, mod calc wi brn mrly resdl; CHK (25%): med gy wi f wh chky lamn, sb frm-frm-brit ip, l-mod fis sb blkly-blky ctngs, hi calc

On gas buster

10700-10800 CHK (70%): lt gy-med gy wi f wh chky incl & lamn, frm-brit, mod fis sb blkly-blky ctngs, sl slty tex, tr bent & tr forams, tr bent wi pyr strg, hi calc; MRLST (30%): dk gy-dk gyshbn, frm-hd-brit, sb blkly-blky mod fis ctngs, sm-sl slty tex, mod calc wi brn mrly resdl





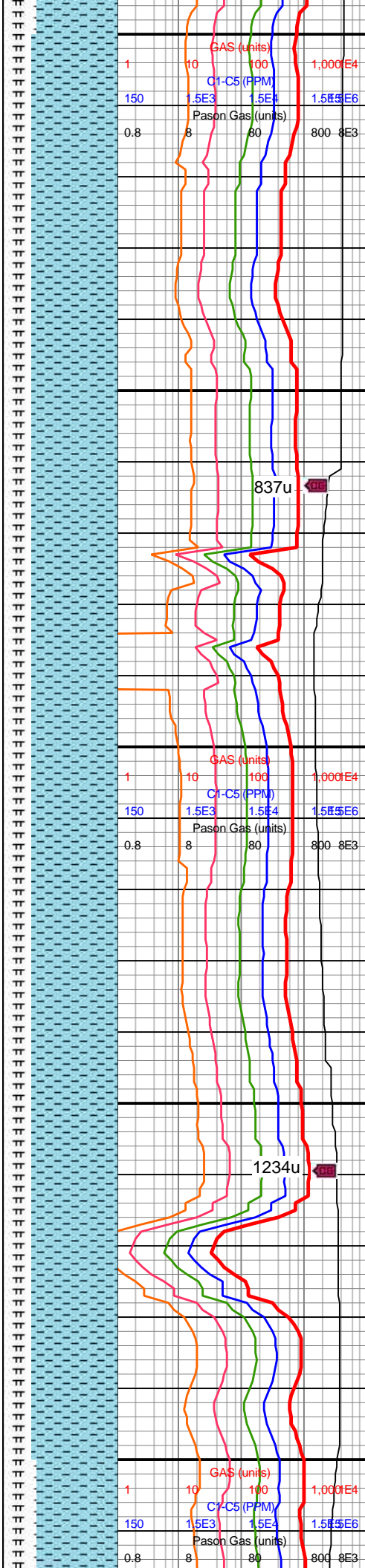
RPM: 70
SPM: 202
SPP: 4,830psi

MD: 10,801'
TVD: 7,127.45'
INC: 88.37°
AZM: 359.81°
VS: 2,993.4'

MW IN: 9.6
VIS IN: 46
MW OUT: 9.95
VIS OUT: 44

MD: 10,896'
TVD: 7,129.05'
INC: 89.69°
AZM: 1.04°
VS: 3,088.38'

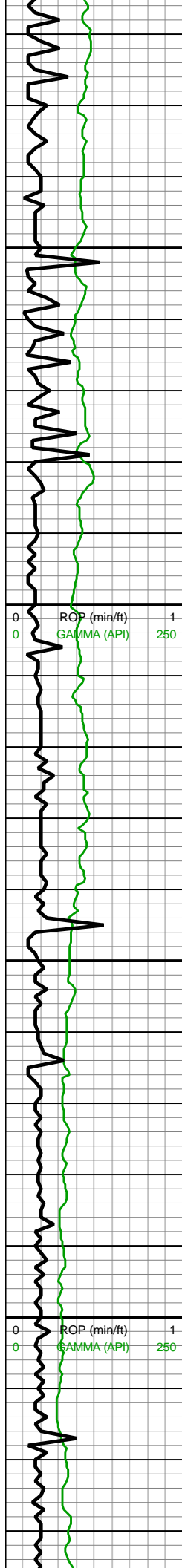
WOB: 23klbs
RPM: 70
SPM: 202
SPP: 4,850psi



10800-10900 CHK
(75%): lt gy-lt gyshbn-occ
med gy wi f wh chky incl
& lamn, frm-brit, mod fis
sb blkyl-blkyl ctngs, sl slty
tex, rr-tr forams, tr fos
frags & mict cal, rr vf pyr
strg, hi calc; MRLST
(25%): med gy-dk gy,
frm-hd, sb blkyl-blkyl mod
fis ctngs, sm-sl slty tex,
mod calc wi brn mrly
resdl

10900-11000 CHK
(75%): lt gy-lt gyshbn, occ
med gy, frm-brit, l-mod fis
sb rd-sb blkyl-blkyl ctngs,
sl slty tex, rr-tr forams, tr
fos frags & bent, hi calc;
25% MRLST: predy dk
gy-v dk gy, occ med gy,
frm-hd, mod fis sb
blkyl-blkyl-sb plty ctngs,
sm-sl slty tex, mod calc
wi brn mrly resdl

11000-11100 CHK

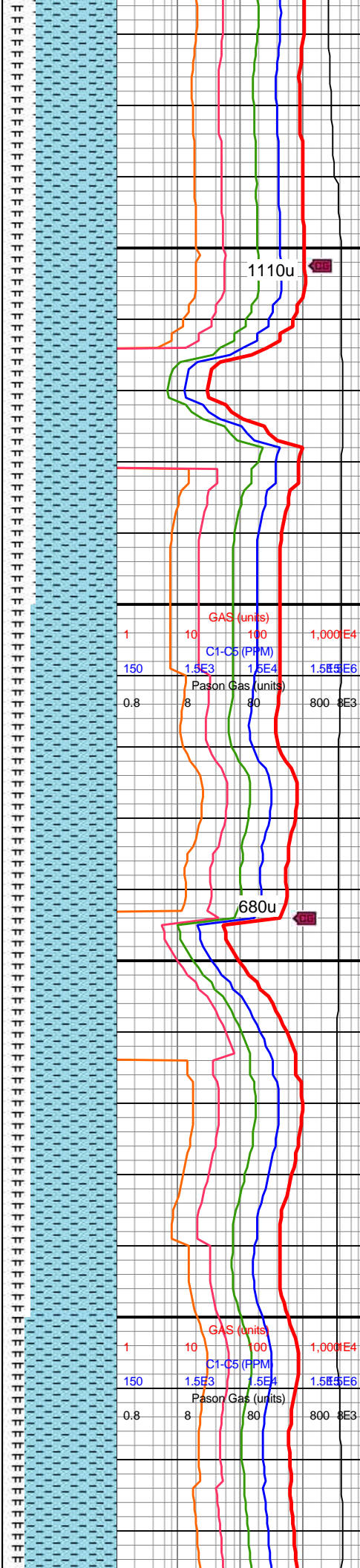


MW IN: 10
VIS IN: 46
MW OUT: 9.95
VIS OUT: 44

MD: 11,084'
TVD: 7,129.05'
INC: 90.31°
AZM: 359.64°
VS: 3,276.37'

MD: 11,179'
TVD: 7,127.89'
INC: 91.1°
AZM: 0.25°
VS: 3,371.36'

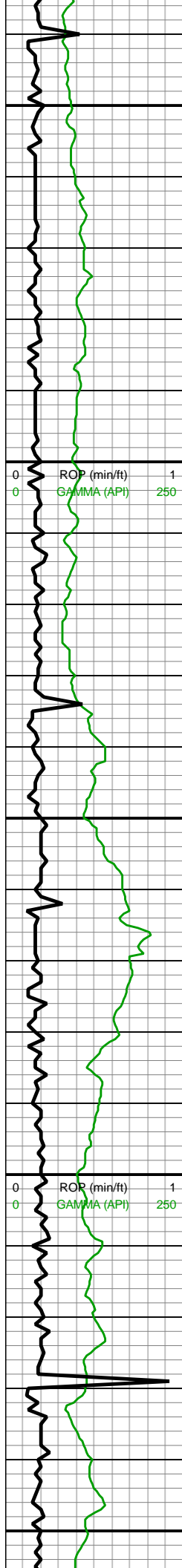
WOB: 33klbs
RPM: 70
SPM: 203
SPP: 5,050psi



(70%): lt gy-lt gyshbn-occ med gy wi f wh chky incl & lamn, frm-brit, mod fis sb blkylky-ctngs, sl slty tex, rr-tr forams, tr fos frags & mict cal, rr vf pyr strg, hi calc; MRLST (30%): med gy-dk gy, frm-hd, sb blkylky-ctngs, sm-sl slty tex, mod calc wi brn mrlly

11100-11200 CHK (75%): lt gy-lt gyshbn, occ med gy-rr brn, frm-brit, mod fis ang-sb blkylky-ctngs, sm-sl slty tex, rr-tr forams, tr fos frags & bent, hi calc; 25% MRLST: predy dk gy-v dk gy, occ med gy, frm-hd, mod fis sb blkylky-ctngs, sm-sl slty tex, mod calc wi brn mrlly resdl

11200-11300 CHK (80%): lt gy-med gy, frm-brit, mod fis sb



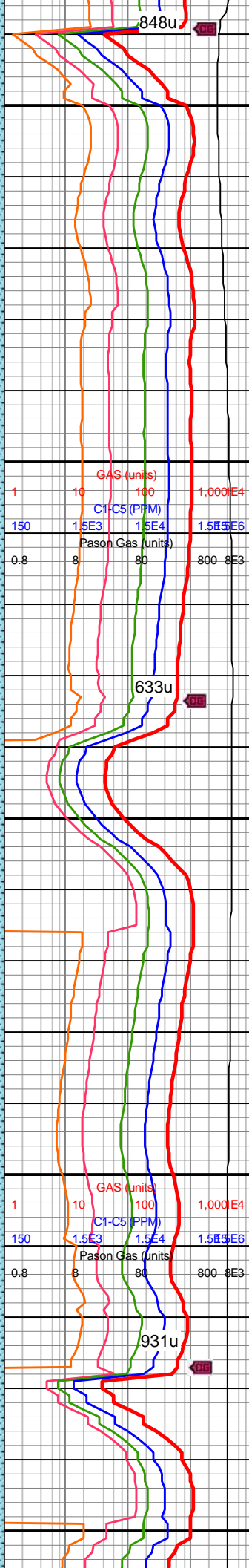
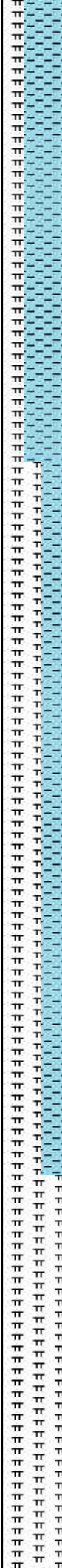
11,240
11,250
11,260
11,270
11,280
11,290
11,300
11,310
11,320
11,330
11,340
11,350
11,360
11,370
11,380
11,390
11,400
11,410
11,420
11,430
11,440
11,450

MD: 11,273'
TVD: 7,126.15'
INC: 91.01°
AZM: 359.9°
VS: 3,465.34'

MW IN: 10
VIS IN: 45
MW OUT: 10.0
VIS OUT: 44

MD: 11,368'
TVD: 7,125.47'
INC: 89.82°
AZM: 358.67°
VS: 3,560.32'

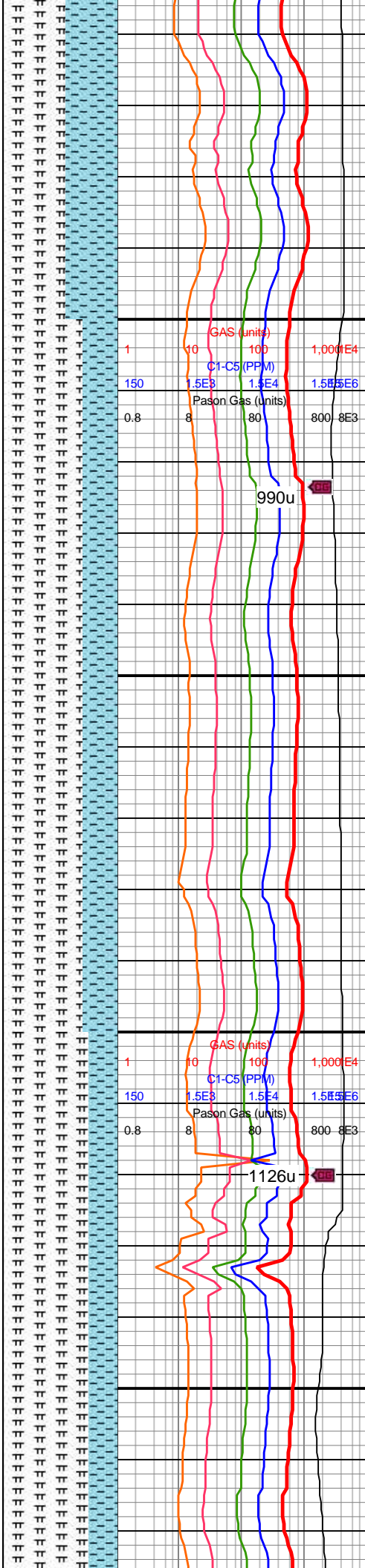
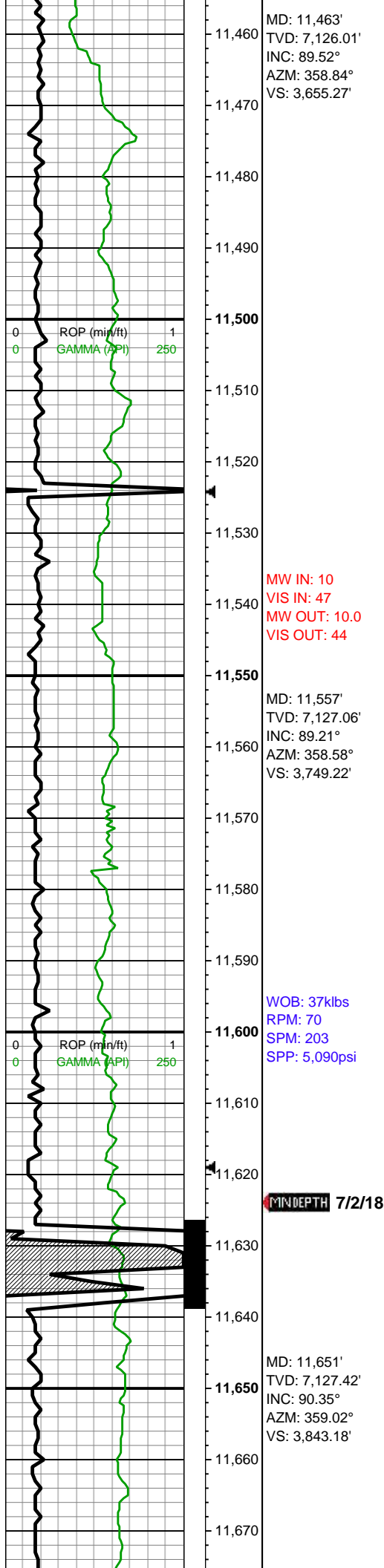
WOB: 32klbs
RPM: 70
SPM: 203
SPP: 5,010psi



blky-blky ctngs wi f wh
chky incl & lamn, sl slty
tex, rr vf-c pyr strg, hi calc;
MRLST (20%): med gy-dk
gy, frm-hd, sb blky-blky
mod fis ctngs, sm-sl slty
tex, mod calc

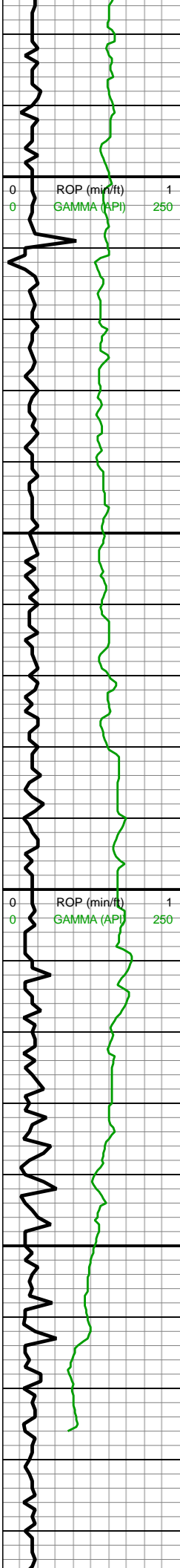
11300-11400 CHK
(65%): med gy-dk gy wi
occ f wh chky incl & thn
lamn, frm-brit, mod fis sb
blky-blky ctngs, sl slty tex,
rr tn bent, rr forams, tr vf
pyr, hi calc; MRLST
(35%): dk gy-dk gyshbn-v
dk gy, frm-hd, sb blky-blky
mod fis ctngs, sm-sl slty
tex, mod calc wi brn mrly
resdl

11400-11500 MRLST
(55%): dk gy-dk gyshbn-v
dk gy, frm-hd sb blky-blky
mod fis ctngs, sm-sl slty
tex, rr tn bent, tr acic fos
frags, tr vf pyr, mod calc
wi brn mrly resdl; CHK
(45%): med gy-dk gy,
frm-brit, mod fis sb
blky-blky ctngs wi occ f



wh chky incl & thn lamn,
sl slty tex, rr forams, tr vf
pyr, hi calc





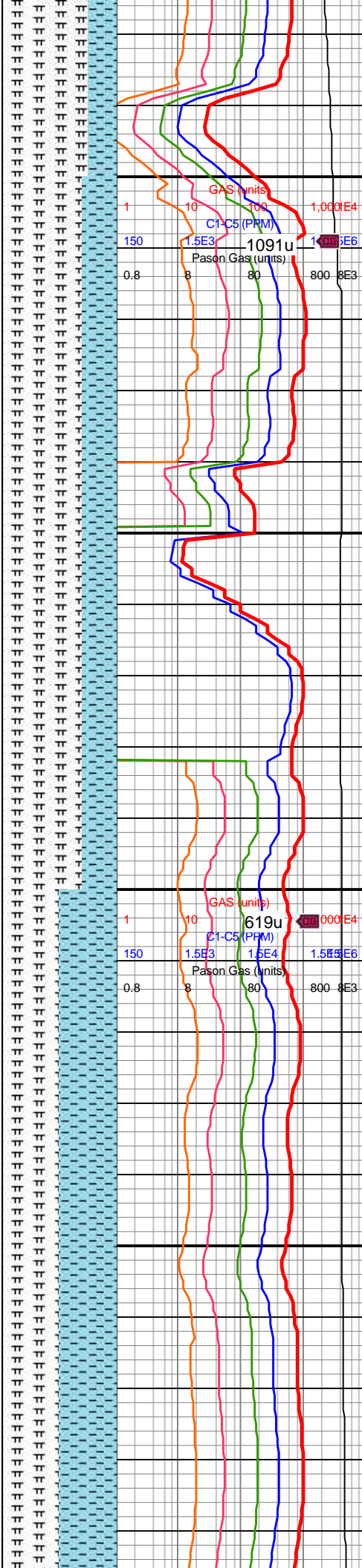
11,680
11,690
11,700
11,710
11,720
11,730
11,740
11,750
11,760
11,770
11,780
11,790
11,800
11,810
11,820
11,830
11,840
11,850
11,860
11,870
11,880
11,890

MD: 11,746'
TVD: 7,126.79'
INC: 90.4°
AZM: 359.11°
VS: 3,938.15'

WOB: 41klbs
RPM: 70
SPM: 202
SPP: 5,140psi

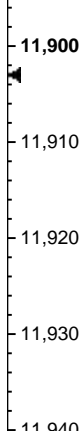
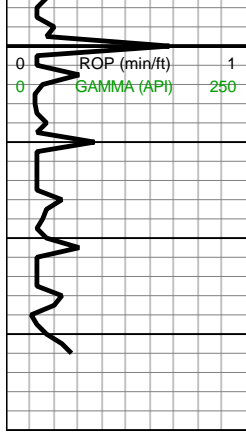
MD: 11,841'
TVD: 7,126.21'
INC: 90.31°
AZM: 359.02°
VS: 4,033.12'

MD: 11,871'
TVD: 7,125.95'
INC: 90.66°
AZM: 359.02°
VS: 4,063.11'



11700-11800 MRLST
(70%): dk gy-dk gyshbn-v
dk gy wi occ sp brn marl
incl, frm-v hd, l-mod fis
rd-sb rd-sb blkyl-blky
ctngs, sm-sl slty tex, tr tn
bent, tr vf pyr, mod calc wi
brn mrly resdl; 30% CHK:
med gy-dk gy, occ brn,
frm-brit, mod fis sb
blkyl-blky ctngs wi rr f wh
chky incl, sl slty tex, tr vf
pyr, hi calc

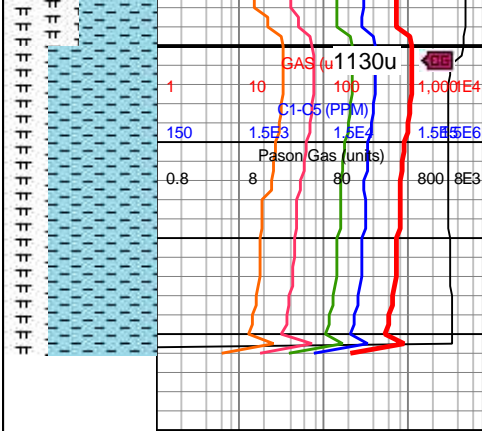
11800-11900 CHK
(50%): med gy-dk gy wi
occ elong-f wh chky incl &
rr wh forams, frm-brit, sb
blkyl-blky mod fis ctngs,
sm arg-sl slty tex, hi calc;
MRLST (50%): gyshbn-dk
gy-v dk gy wi sme brn sp
marl incl, frm-hd, mod fis
sb blkyl-blky ctngs, sm sl
slty tex, tr vf pyr, mod calc
wi brn mrly resdl



Reach TD @
01:25hrs on
7/2/18

Bit Projection

MD: 11,932'
TVD: 7,125.25'
INC: 90.66°
AZM: 359.02°
VS: 4,124.08'



11900-11932 CHK
(70%): gy-dk gy wi f wh
chky incl, frm-hd-brit,
mod fis sb rd-sb blkyl-blky
ctngs, sm arg-sl slty tex,
rr forams, hi calc; 30%
MRLST: gyshbn-dk gy-dk
gyshbn, occ brn sp marl
incl, frm-hd, mod fis sb
blkyl-blky ctngs, sm sl slty
tex, tr vf pyr, mod calc wi
brn mrly resdl

