



Scale: 5" / 100'
Measured Depth Log

Well Name Ruegge 3C-4H-N165

Location Sec. 4 T1N R65W

State Colorado

County Weld

Country USA

Rig Number Ensign 140

API Number 05123465690000

AFE # 16190979

Geographic Region Rockies

Field Wattenberg

Spud Date 5/22/2018

Drilling Completed 5/26/2018

Surface Coordinates Lat/Long: 40.075225/-104.671056

SHL: Sec: 4 Twp: 1N 65W
Footage: 694 FSL 2057 FWL

Bottom Hole Coordinates Proposed BHL: Sec: 4 Twp: 1N 65W
Footages: 460 FNL 250 FWL

Ground Elevation 4,917'

K.B. Elevation 4,940'

Logged Interval 6,500' **To** 12,100'

Total Depth 12,100'

Formation B 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

Geologist

Name John Ready

Company Crestone Peak Resources

Address 370 17th Street #2170
Denver, CO 80202



CRESTONE PEAK
RESOURCES

Zone Color Coding



Oil



Condensate



Gas



Note



Core



Pressure



Error



Water



Seal

Other

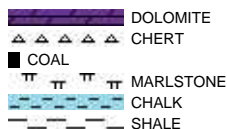
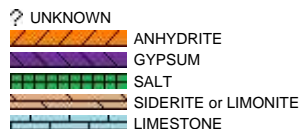
Loggers: Brian Ferwerda / Nick Watkins

Services Provided: 2-Man Mudlogging / Geosteering

Equipment: ML-533

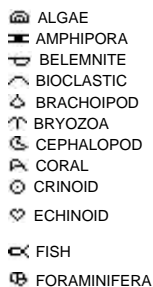
Contractor: Empirica, Reservoir Group
6360 West Sam Houston Pkwy N
Houston, Texas, 77041

Rock Types



Accessories

Fossils



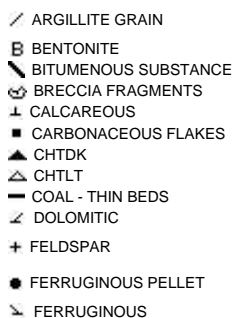
Fossil



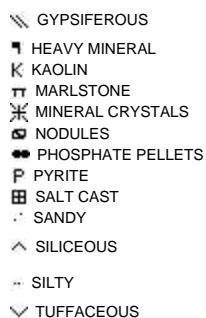
Minerals



ARGILLACEOUS



GLAUCONITE



Stringer



Other Symbols

Oil Show

- DEAD
- EVEN
- QUESTIONABLE
- SPOTTED STAINING

Porosity

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

- ORGANIC
- PINPOINT
- VUGGY

Engineering

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

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

Rounding

- ANGULAR
- ROUNDED
- SUBANG
- SUBRND

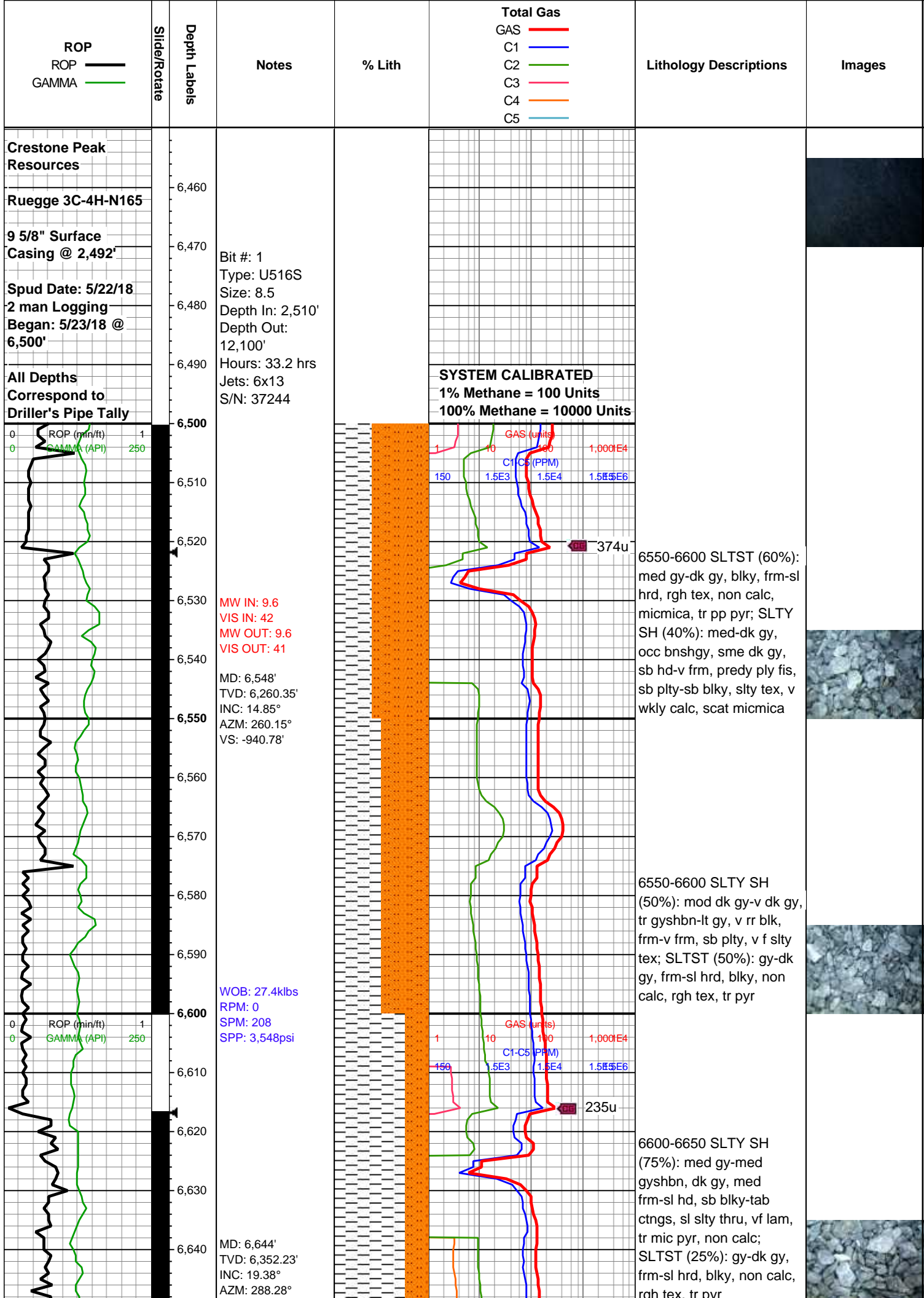
Textures

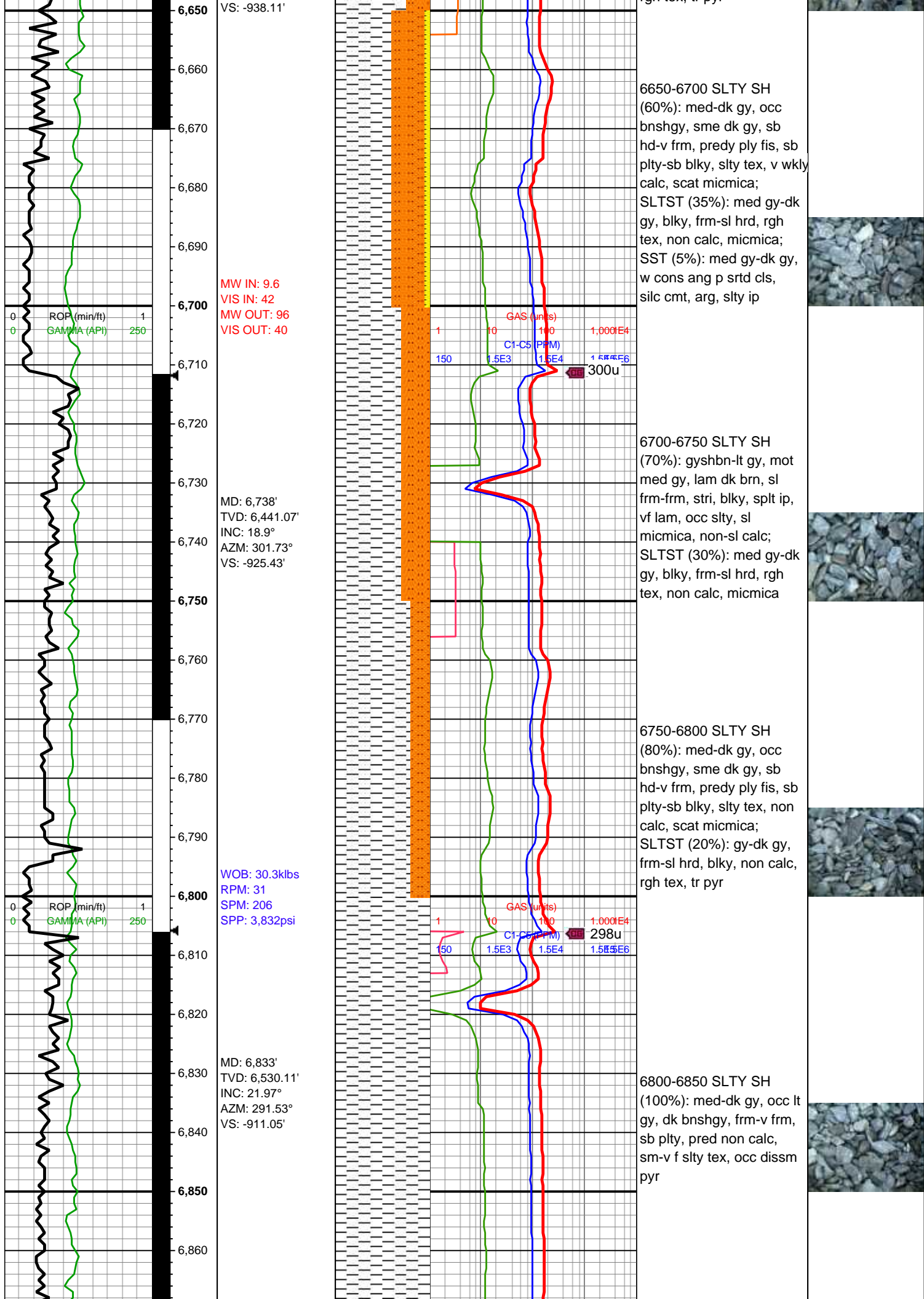
- BOUNDSTONE
- CHALKY
- CRYPTOXLN
- EARTHY
- FINELYXLN
- GRAINSTONE

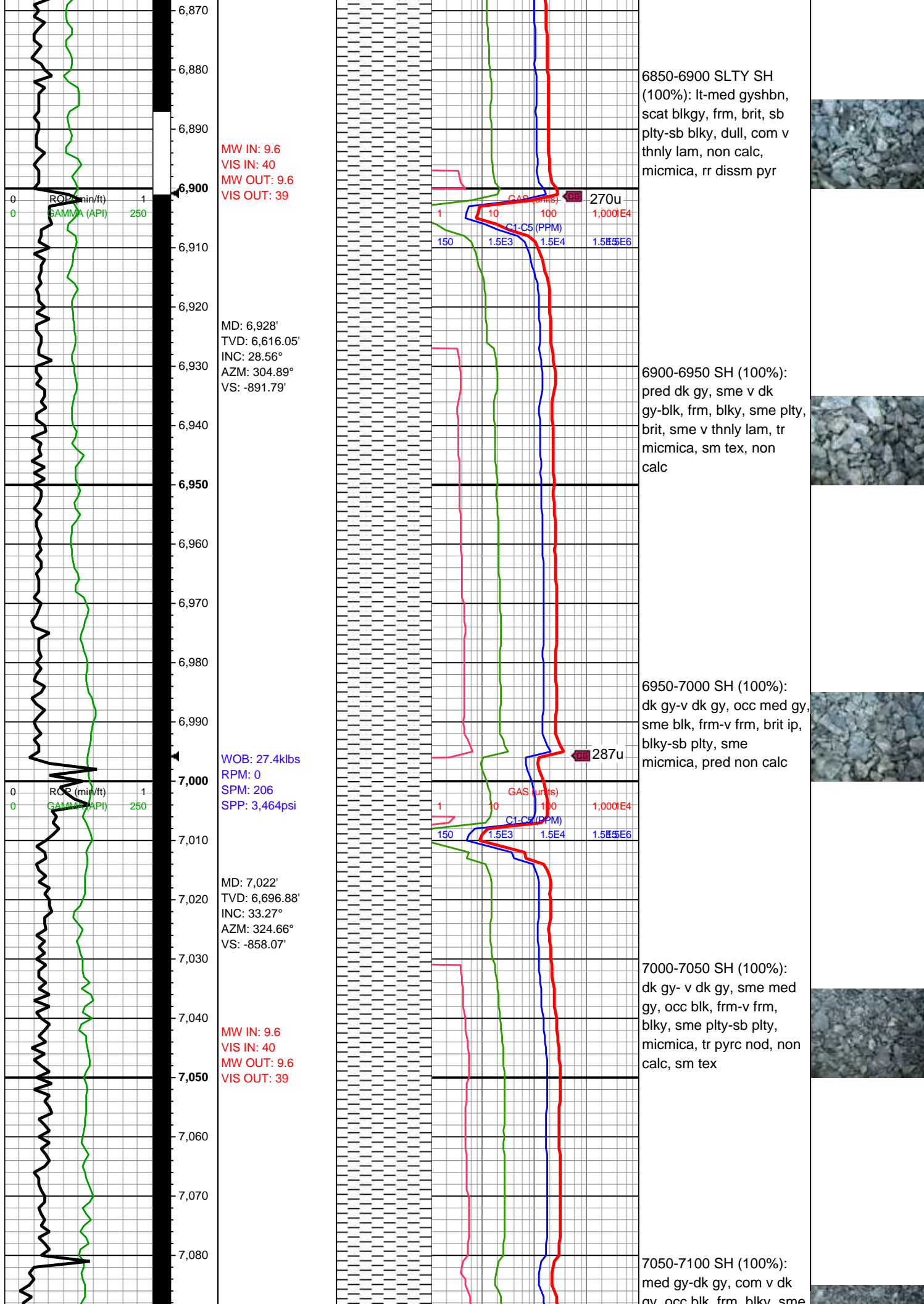
- LITHOGRAPHIC
- MICROXLN
- MUDSTONE
- PACKSTONE
- WACKESTONE

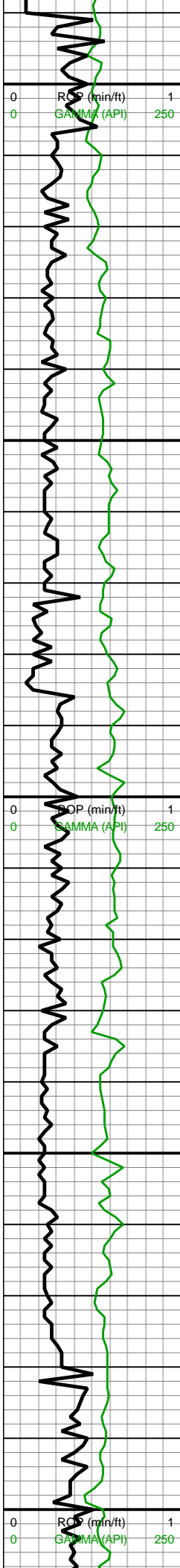
Sorting

- MODERATE
- POOR
- WELL









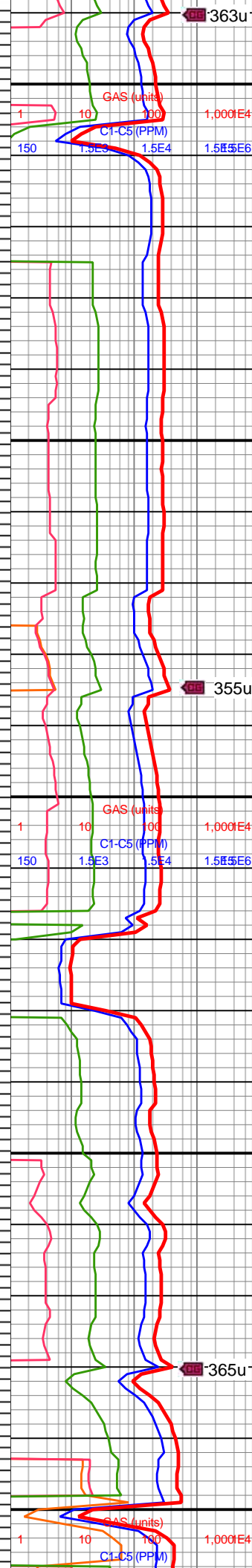
MD: 7,116'
TVD: 6,773.62'
INC: 37.53°
AZM: 338.99°
VS: -810.42'

WOB: 314klbs
RPM: 0
SPM: 208
SPP: 3,438psi

MD: 7,211'
TVD: 6,845.97'
INC: 43.24°
AZM: 343.74°
VS: -752.27'

MW IN: 9.6
VIS IN: 39
MW OUT: 9.6
VIS OUT: 38

MD: 7,306'
TVD: 6,910.81'
INC: 50.67°



gy, sct blk, frm, blk, sme
pty, com micmica, slty ip,
tr pyrc nod, non calc, sm
tex

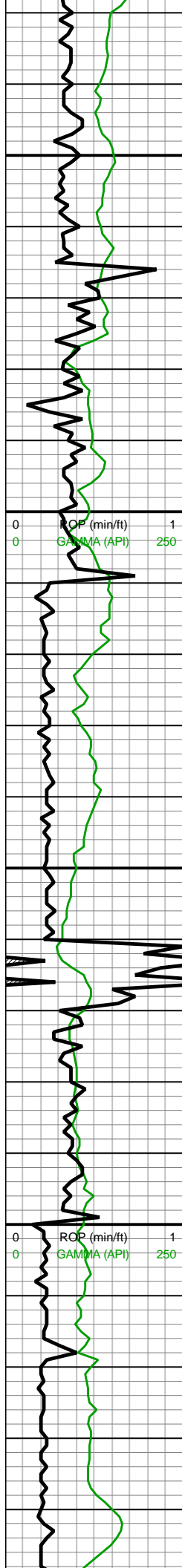
7100-7150 SH (100%):
gyshbn-med gy, mot lt gy,
lam dk brn, blk-sb tab
ctngs, sl frm-frm, stri, vf
lam, sl slty tex, sl
micmica, non-sl calc,
mnr imbd/dissm mic pyr

7150-7200 SLTY SH
(100%): lt-med gy, sme
gyshbn, scat blk, frm, brit,
sb pty-sb blk, dull, com
v thnly lam, v wkly calc,
micmica, rr dissm pyr

7200-7250 SH (100%):
lt-med gy, blk, sme pty,
frm, scat-pyrc pyr,
micmica, v wkly calc

7250-7300 SH (100%):
pred v dk gy, comly blk,
sme med-lt gy, blk, frm,
sme v frm-hrd, non calc,
micmica, scat imbd pyr





MW IN: 9.5+
VIS IN: 38
MW OUT: 9.6
VIS OUT: 38

MD: 7,590'
TVD: 7,043.01'
INC: 70.62°
AZM: 354.9°
VS: -435.59'

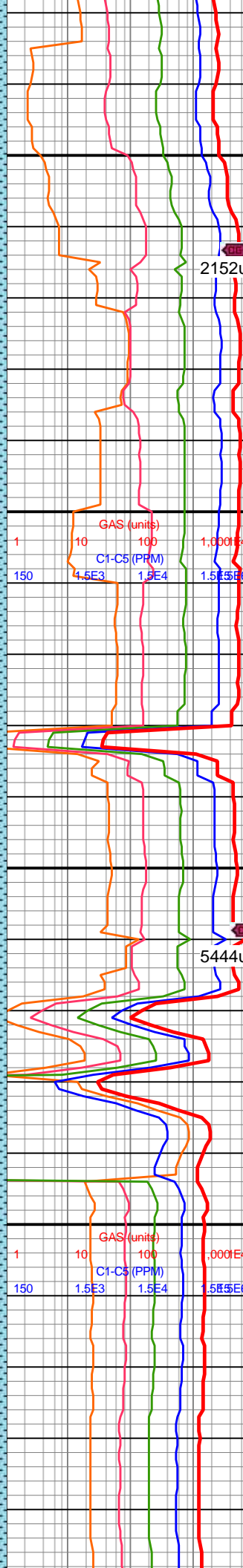
WOB: 38.8klbs
RPM: 0
SPM: 204
SPP: 3,611psi

←→
B Chalk
7622'MD/6951'TVD

MW IN: 9.6
VIS IN: 39
MW OUT: 9.6
VIS OUT: 38

MD: 7,685'
TVD: 7,065.8'
INC: 81.61°
AZM: 1.05°
VS: -343.64'

MW IN: 9.6
VIS IN: 38
MW OUT: 9.6
VIS OUT: 38



ctngs, tr CHK intbds,
mod calc; CHK (20%):
med brn, gyshbn, mot-sl
stri, blk-y-tab ctngs, sl
frm-brit, tr vf lam, sm-chky
tex, hi calc

2152u

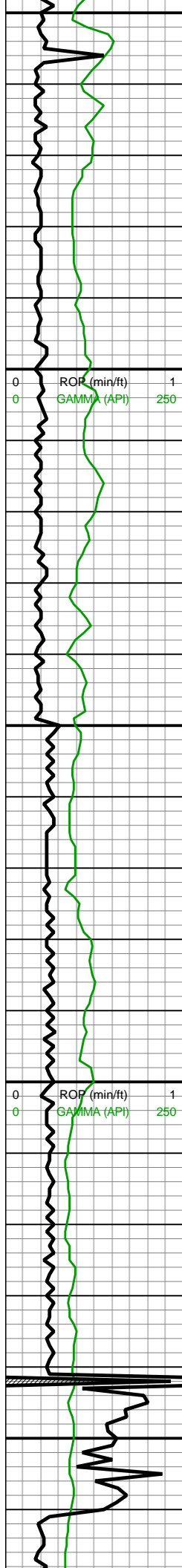
7550-7600 MRLST
(75%): dk gy, dk gyshbn,
mot, frm, sb blk-y-sb ang
ctngs, tr intbd CHK, calc;
CHK (25%): predy
gyshbn, mot-sl stri, sb
blk-y ctngs, sl frm-brit, tr vf
lam, sm-chky tex, calc

7600-7650 CHK (50%):
predy gyshbn, mot-sl stri,
sb blk-y ctngs, sl frm-brit,
tr MRLST incl, sm chky
tex, v calc; MRLST (50%):
dk gy-gyshbn, mot, sl
hd-frm, sb blk-y-sb ang
ctngs, tr intbd CHK, mod
calc

7650-7700 CHK (85%):
predy lt-med brn, sme lt
gy-offwht, mot, sft-frm,
chky tex, tr inoc fos frags,
scat euhed cal xls, scat
pyrc nod; MRLST (15%):
pred med gy-dk gy, blk-y,
sme pty, frm-v frm, mot
ip, v calc

7700-7750 CHK (90%):
predy gyshbn-med gy,
mot, sme lt gy, sb blk-y-sb
ang ctngs, fri-frm, tr intbd
MRLST, sm chky tex, com
inoc fos frags, calc;
MRLST (10%): dk
gyshbn-dk gy, frm-sl hd,
sb blk-y-ang ctngs, sl
sm-rgh tex, com intbd
CHK, scat pyrc nod, scat
frac flc, hi calc





On Buster

MD: 7,779'
TVD: 7,076.13'
INC: 85.78°
AZM: 1.49°
VS: -250.19'

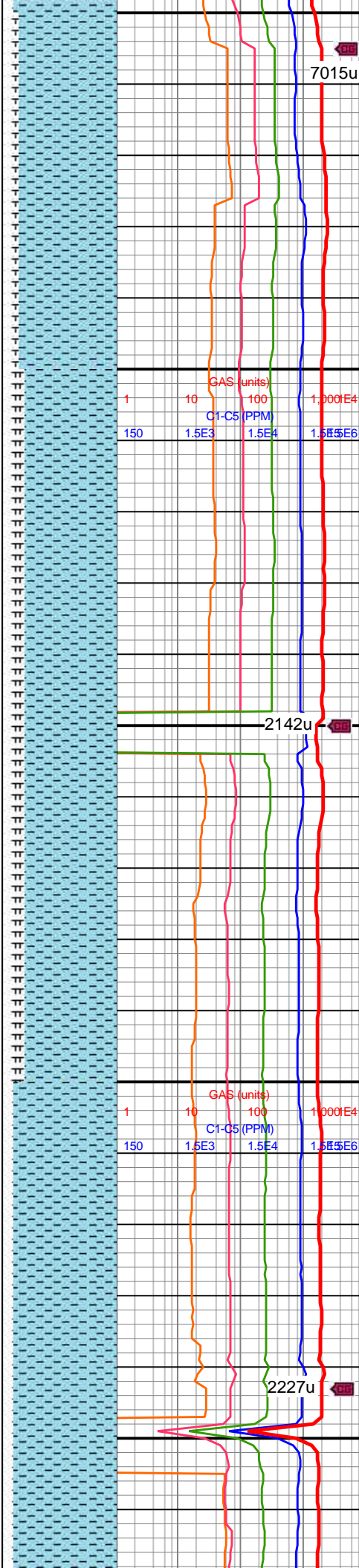
WOB: 45.4klbs
RPM: 0
SPM: 206
SPP: 3,712psi

MW IN: 9.7
VIS IN: 38
MW OUT: 9.6
VIS OUT: 38

MD: 7,874'
TVD: 7,082.36'
INC: 86.7°
AZM: 1.75°
VS: -155.41'

MW IN: 9.8
VIS IN: 38
MW OUT: 9.8
VIS OUT: 37

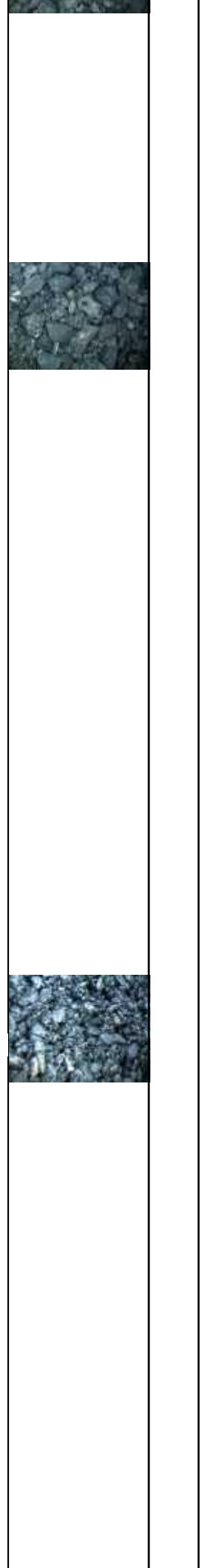
MD: 7,968'
TVD: 7,086.22'
INC: 88.59°

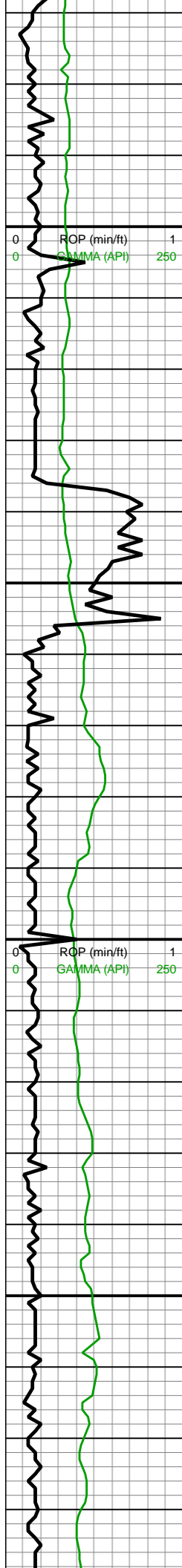


7750-7800 CHK (85%):
med gy-gyshbn, sb blk
ctngs, fri frm, tr MRLST
lam intbd, com inoc fos
frags, v calc; MRLST
(15%): dk gyshbn-dk gy,
frm-sl hd, sb blk ctngs,
sl sm tex, tr CHK incl,
scat pp pyr, hi calc

7800-7900 CHK(80%):
med gy-sl gyshbn, sub
blk-sub plty med fis
ctngs, frm, occ-com fos
frags, rr forams, tr vf-uf
pyr, hi calc; MRLST
(20%): dk gyshbn-dk gy,
frm-sl hd-brit, mod calc, tr
CHK incl

7900-8000 CHK(90%):
lt-med gy wi sl brn hue,
sb frm-frm-brit, l-mod fis





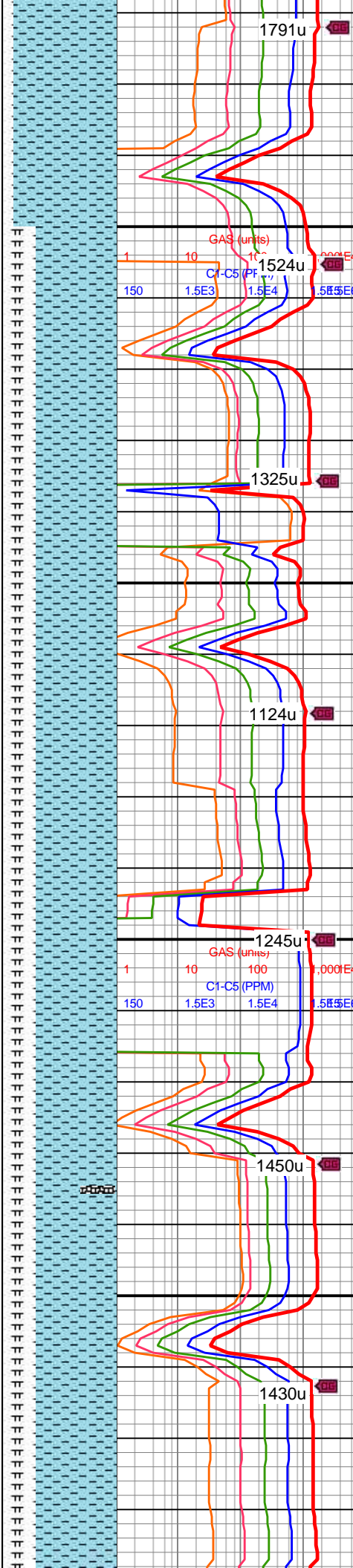
AZM: 359.82°
VS: -61.5'

WOB: 37klbs
RPM: 70
SPM: 206
SPP: 4,040psi

MW IN: 9.8
VIS IN: 37
MW OUT: 9.8
VIS OUT: 37

MD: 8,063'
TVD: 7,086.11'
INC: 91.54°
AZM: 0.7°
VS: 33.49'

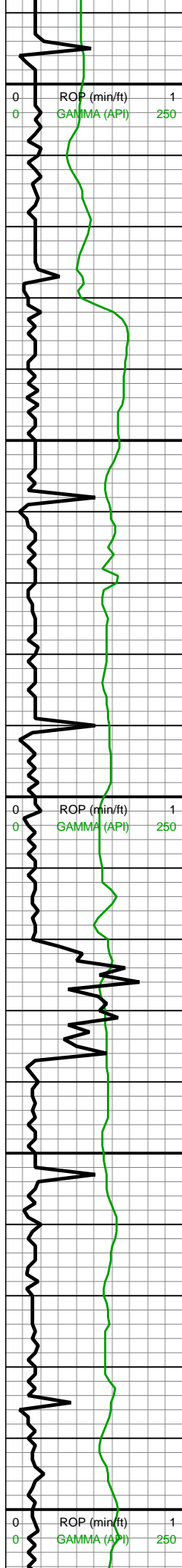
MD: 8,158'
TVD: 7,083.27'
INC: 91.89°
AZM: 0.44°
VS: 128.44'



sb blkly-blky ctngs,
silty-rgh tex wi com wh
calc fos frags & occ chky
forams, tr vf, mod-hi calc;
MRLST (10%): med gy-dk
gy-dk gyshbn, frm-sl
hd-brit, mod fis sb
blkly-blky ctngs, tr-rr vf-f
pyr, rr f chky incl ip, mod
calc wi brn mrly resdl

8000-8100 CHK (70%):
med gy wi sl brn hue,
ang-sb plty ctngs, frm-hd
wi sl rgh tex, rr calc fos
frags & rr chky forams,
rr-occ pyr,; MRLST (30%)
med gy-gyshbn, blkly-sub
plty, frm-sl brit, tr-rr vf-f pyr

8100-8200 70% CHK:
lt-med gy, sl brn hue ip,
sb frm-frm, l-mod fis sb
rd-sb blkly ctngs, sm-sl
silty tex, occ rgh tex wi rr-tr
fos frags & forams, tr vf
pyr, tr bent, hi calc;
MRI ST (30%): med av-dk



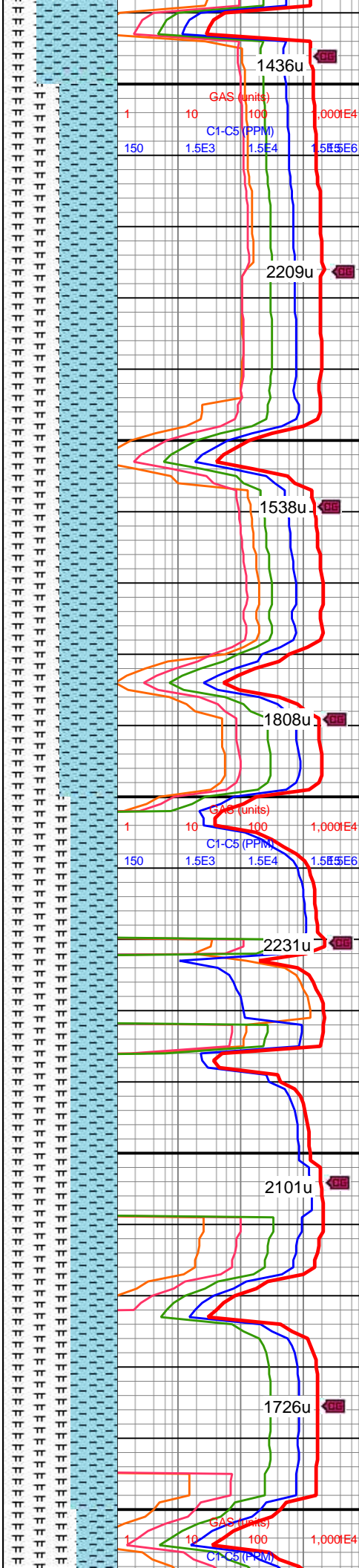
WOB: 40klbs
RPM: 71
SPM: 204
SPP: 4,020psi

MW IN: 9.8
VIS IN: 37
MW OUT: 9.8
VIS OUT: 37

MD: 8,252'
TVD: 7,079.66'
INC: 92.51°
AZM: 0.52°
VS: 222.37'

MD: 8,348'
TVD: 7,077.89'
INC: 89.6°
AZM: 359.73°
VS: 318.34'

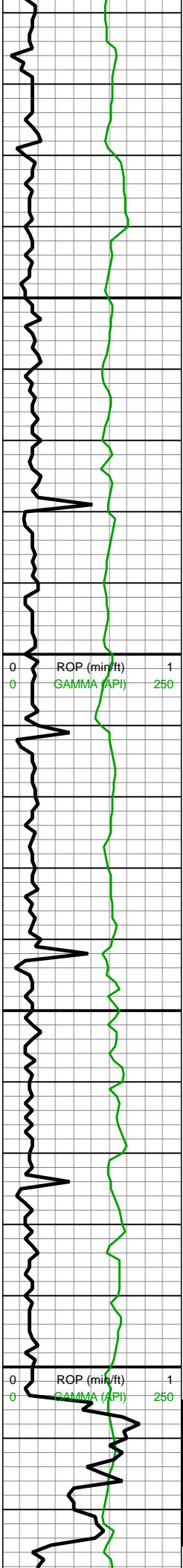
WOB: 39klbs
RPM: 71
SPM: 204
SPP: 4,170psi



gy, frm, brit, med-hi fis sb
blky-sb plty ctngs, tr bent,
mod calc

8200-8300 MRLST
(50%): med gy-dk gy, frm,
brit, med-hi fis sb blky-sb
plty ctngs, tr bent, mod
calc wi brn mrlly resdl;
CHK (50%): predy med
gy-gyshbn, occ thn wh
chky lamn ip, sb frm-frm,
l-mod fis sb rd-sb blky
ctngs, sm-sl slty bdd tex,
tr vf pyr, hi calc

8300-8400 MRLST
(60%): med gy-dk gy,
frm-brit sb blky-sb plty
med-hi fis ctngs wi occ
brn sp incl, tr vf-u f pyr
incl, mod calc wi brn mrlly
resdl; CHK (40%): predy
med gy-gyshbn, occ thn
wh chky lamn ip, sb
frm-frm, l-mod fis sb
rd-sb blky ctngs, sm-sl
slty bdd tex, tr vf pyr, hi
calc



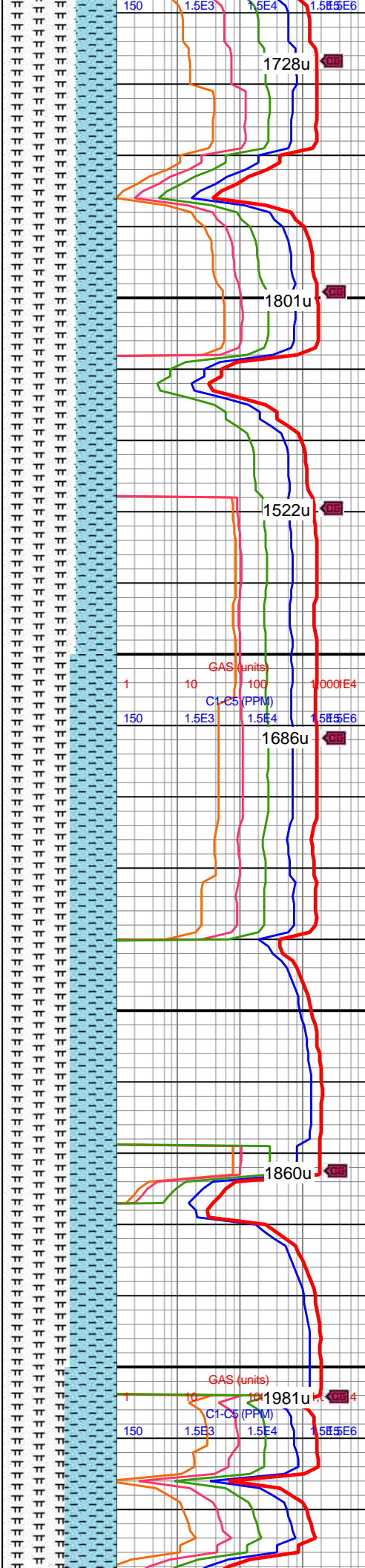
MD: 8,442'
TVD: 7,078.94'
INC: 89.12°
AZM: 359.91°
VS: 412.33'

MW IN: 9.8
VIS IN: 37
MW OUT: 9.85
VIS OUT: 36

MD: 8,537'
TVD: 7,080.69'
INC: 88.77°
AZM: 359.73°
VS: 507.31'

WOB: 40klbs
RPM: 71
SPM: 206
SPP: 4,280psi

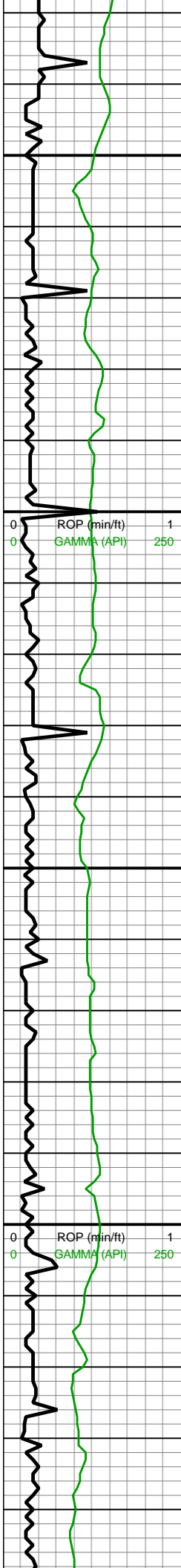
MD: 8,632'



8400-8500 MRLST
(65%): med gy-dk gy, frm, brit, med-hi fis sb blkly-sb plty ctngs, tr bent, mod calc wi brn mrly resdl; 35% CHK: med-dk gy wi f wh chky lamn thru, frm-brit, l-mod fis sb rd-sb blkly ctngs, sm-sl slty tex, tr vf pyr, tr fos frags, hi calc

8500-8600 MRLST
(60%): med gy-dk gy, frm-brit, sb blkly-blky mod-hi fis ctngs, rr u f-c tn bent, tr vf-u f pyr incl, mod calc wi brn mrly resdl; CHK (40%): predy med gy-gyshbn, occ thn wh chky lamn ip, rr lt gy, sb frm-frm, l-mod fis sb rd-sb blkly ctngs, sm-sl slty bdd tex, tr vf pyr, hi calc





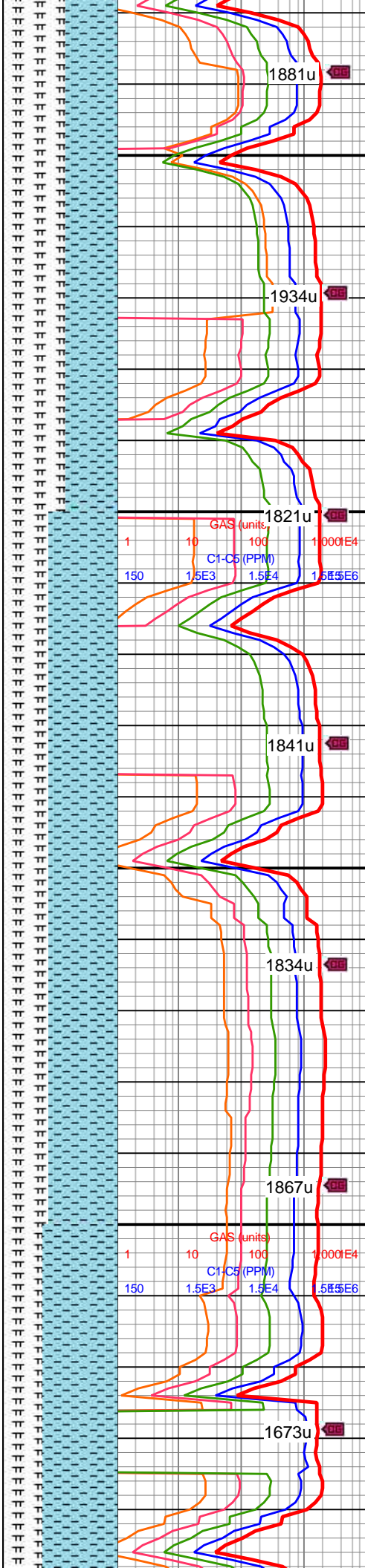
TVD: 7,080.29'
INC: 91.71°
AZM: 359.56°
VS: 602.29'

MW IN: 9.8
VIS IN: 38
MW OUT: 9.85
VIS OUT: 36

MD: 8,727'
TVD: 7,076.98'
INC: 92.29°
AZM: 359.03°
VS: 697.21'

WOB: 41kbs
RPM: 70
SPM: 206
SPP: 4,270psi

MD: 8,821'
TVD: 7,073.76'
INC: 91.63°
AZM: 357.8°
VS: 791.09'



1881u

1934u

1821u

1841u

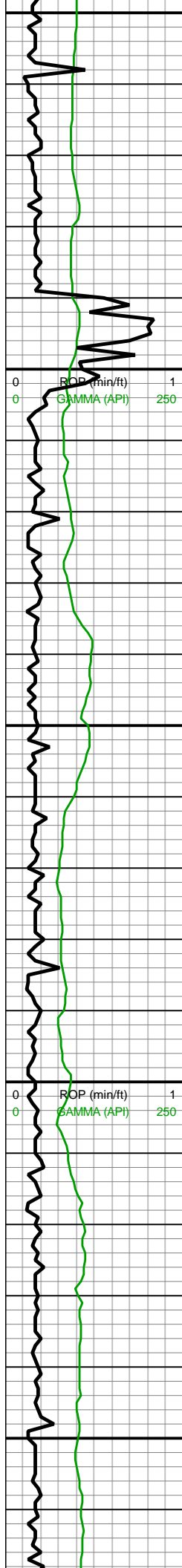
1834u

1867u

1673u

8600-8700 MRLST (55%): med gy-dk gy, frm, brit, med-hi fis sb blk-sb plty ctngs, rr tn u f-c bent, mod calc; CHK (45%): med-dk gy wi f wh chky lamn thru, frm-brit, l-mod fis sb rd-sb blk ctngs, sm-sl slty tex, tr vf pyr, tr fos frags, hi calc

8700-8800 CHK (60%): lt-med gy-gyshbn, sb frm-frm, l-mod fis sb rd-sb blk ctngs, sl slty-gt tex, rr-occ forams, rr-occ bent, tr fos frags & mict cal, tr vf-u f pyr, hi calc; MRLST (40%): med gy-dk gy, frm, brit, med-hi fis sb blk-sb plty ctngs, tr bent, mod calc



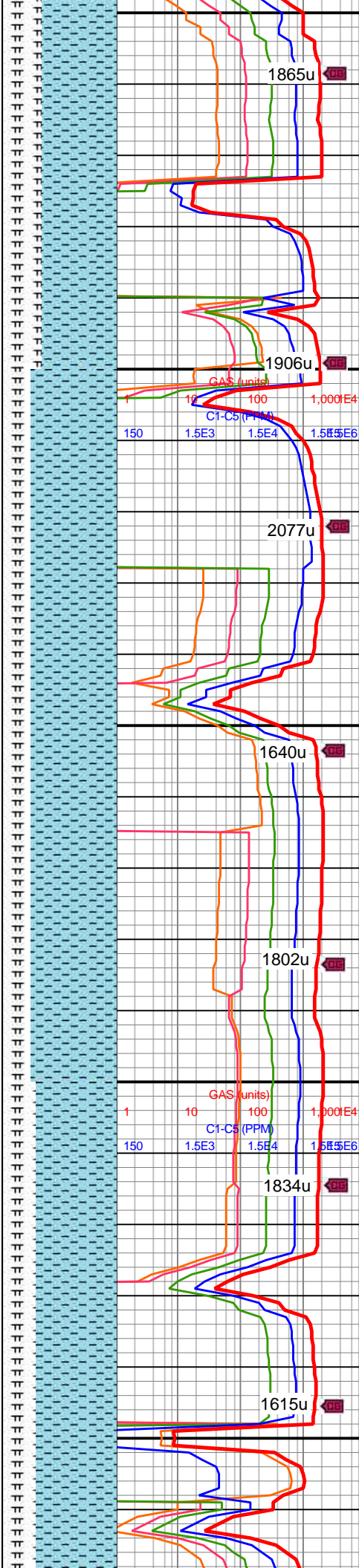
MINDEPTH 5/25/18

MD: 8,916'
TVD: 7,070.99'
INC: 91.71°
AZM: 359.38°
VS: 886'

WOB: 39klbs
RPM: 71
SPM: 206
SPP: 4,230psi

MD: 9,010'
TVD: 7,068.07'
INC: 91.85°
AZM: 358.68°
VS: 979.92'

MW IN: 9.8
VIS IN: 38
MW OUT: 9.85
VIS OUT: 37

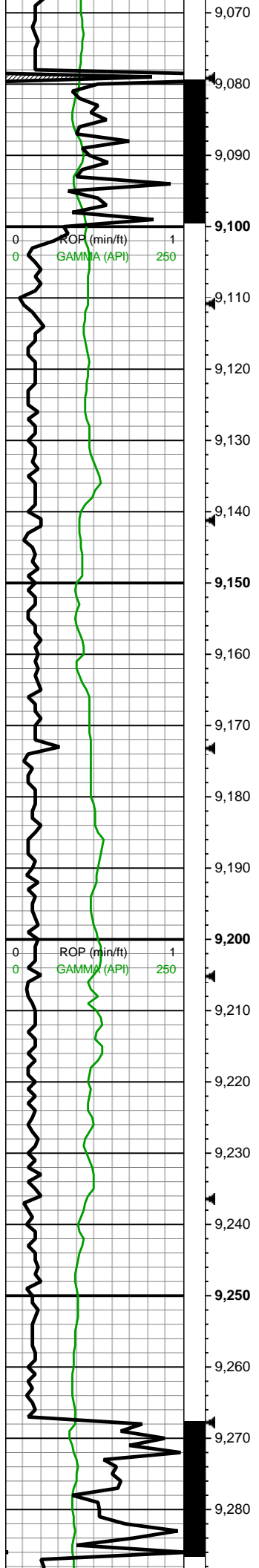


8800-8900 CHK (65%):
med gy-dk gy v arg
ls-calc sh wi occ vf thn
chky lamn & f wh-lt gy
chky incl, sb frm-frm-brit
ip, med fis sb blkyl-bkly
ctngs, sl slty-gt tex, occ
forams, rr-occ bent, tr fos
frags & mict cal, tr vf-u f
pyr, hi calc; MRLST
(35%): med gy-dk gy, frm,
brit, med-hi fis sb blkyl-sb
plty ctngs, tr bent, mod
calc wi brn mrly resdl

8900-9000 CHK (75%): It
gy-med gy, gyshbn-brn
hue thru, sb frm-frm-brit
ip, mod fis sb blkyl-bkly
ctngs, sm arg-sl slty tex,
sb wxy lstr, tr fos frags &
tr sp forams, tr vf pyr, hi
calc; MRLST (25%): med
gy-dk gy, frm, brit, med-hi
fis sb blkyl-sb plty ctngs,
mod calc wi brn mrly
resdl

9000-9100 CHK (70%):
med gy-gyshbn wi occ f
wh chky incl, gyshbn brn



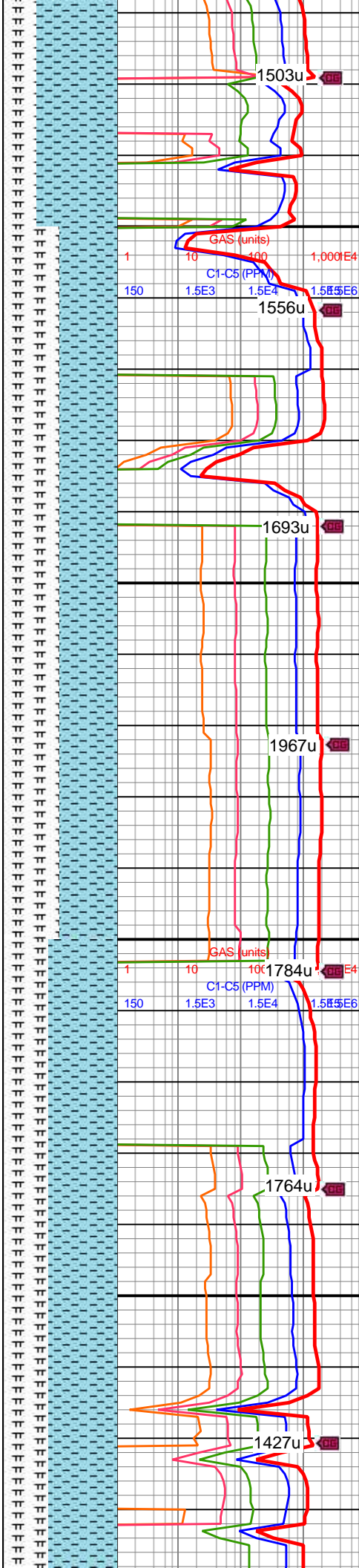


MD: 9,105'
TVD: 7,065.26'
INC: 91.54°
AZM: 0.17°
VS: 1,074.86'

MW IN: 9.8
VIS IN: 38
MW OUT: 9.85
VIS OUT: 37

MD: 9,199'
TVD: 7,063.13'
INC: 91.06°
AZM: 359.56°
VS: 1,168.83'

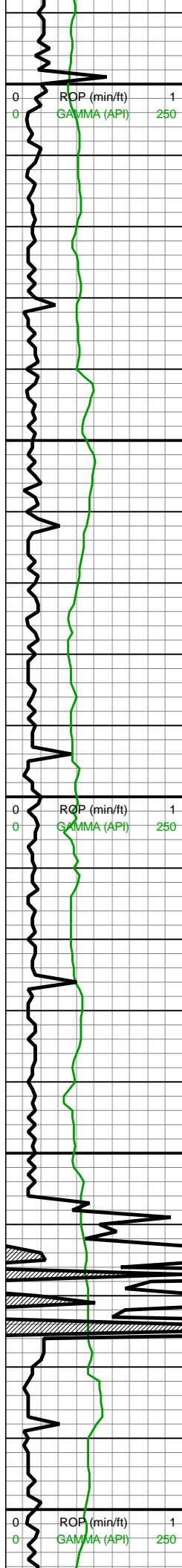
WOB: 36klbs
RPM: 70
SPM: 208
SPP: 4,400psi



wh chky incl, gys shn-brit, mod-hi fis sb blkylky ctngs, sm arg-sl slty tex, sb wxy lstr, tr fos frags & tr sp forams, tr vf pyr, hi calc; MRLST (30%): med gy-dk gy, frm, brit, hi fis blkylky-sb plty ctngs, mod calc wi brn mrly resdl

9100-9200 MRLST (50%): med gy-dk gy, frm, brit, med-hi fis sb blkylky-sb plty-plty ctngs, tr bent, mod calc wi brn mrly resdl; CHK (50%): predy med gy-gyshbn mot wi f wh chky incl, sb frm-frm, brit ip, mod fis sb blkylky-sb plty ctngs, v tr fos frags & forams, tr vf pyr, hi calc

9200-9300 CHK (60%): med gy-gyshbn wi occ f wh chky incl, rr-occ wh forams & rr-tr calc fos frags, sb frm-frm-brit, l-mod fis sb rd-sb blkylky-ctngs, sm arg-sl slty tex, rr tn bent wi occ pyr strg ip, tr vf pyr, hi



MD: 9,294'
TVD: 7,061.02'
INC: 91.49°
AZM: 2.28°
VS: 1,263.8'

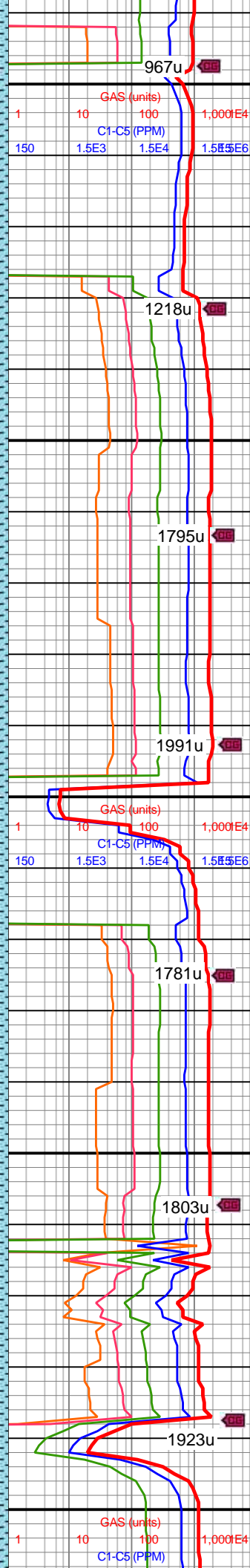
MW IN: 9.8
VIS IN: 39
MW OUT: 9.85
VIS OUT: 37

MD: 9,389'
TVD: 7,058.17'
INC: 91.93°
AZM: 1.14°
VS: 1,358.68'

WOB: 39klbs
RPM: 70
SPM: 206
SPP: 4,320psi

MW IN: 9.8
VIS IN: 39
MW OUT: 9.85
VIS OUT: 37

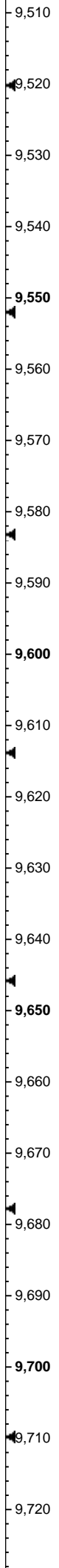
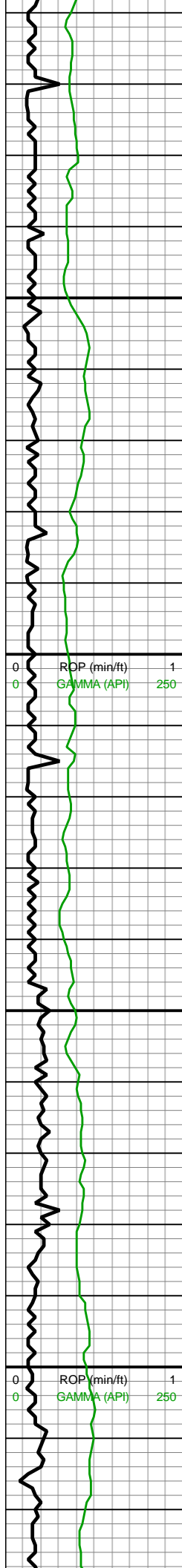
MD: 9,483'
TVD: 7,056.48'
INC: 90.13°
AZM: 2.28°
VS: 1,452.63'



calc; MRLST (40%): med gy-dk gy, frm, brit, med-hi fis blkly-sb plty ctngs, mod calc

9300-9400 CHK (65%): lt gy-med gy, gyshbn ip, frm-brit, l-mod sb rd-sb blkly-blky ctngs, sm arg-sl slty tex, gt rgh tex ip wi sp foram incl, rr-occ tn bent, tr acic fos frags, tr vf pyr, hi calc; MRLST (35%): med gy-dk gy, frm, brit, hi fis blkly-sb plty ctngs, mod calc wi brn mrly resdl

9400-9500 CHK (70%): lt-med gy, occ dk gy wi f wh chky incl, frm-brit, l-mod sb rd-sb blkly-blky ctngs, sm arg-sl slty tex, rr-occ tn bent, tr acic fos frags, tr vf pyr, hi calc; MRLST (30%): med gy-dk gy, frm, brit, hi fis blkly-sb plty ctngs, mod calc wi brn mrly resdl

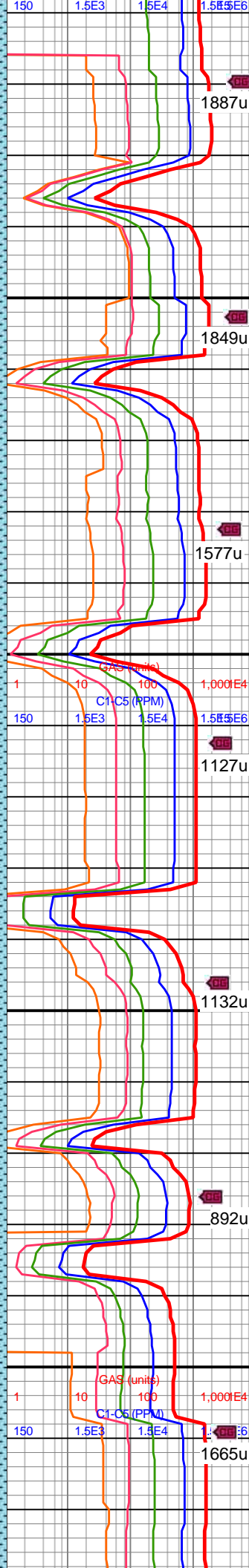
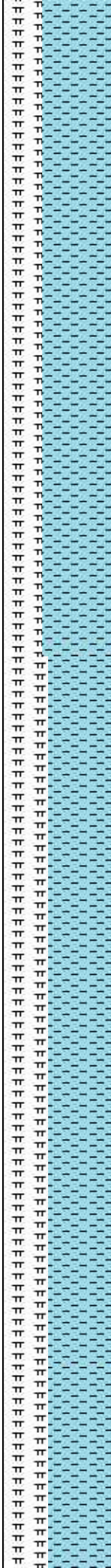


MD: 9,578'
TVD: 7,056.27'
INC: 90.13°
AZM: 2.72°
VS: 1,547.57'

WOB: 41.4klbs
RPM: 70
SPM: 207
SPP: 4,494psi

MD: 9,673'
TVD: 7,056.23'
INC: 89.91°
AZM: 2.11°
VS: 1,642.52'

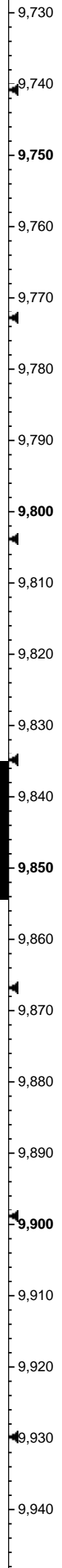
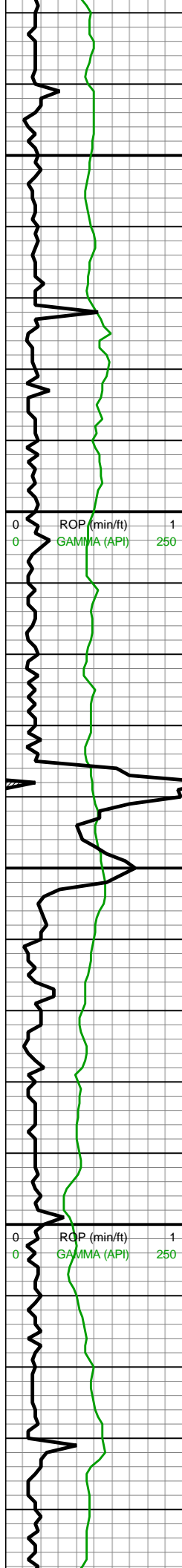
MW IN: 9.8
VIS IN: 39
MW OUT: 9.8
VIS OUT: 38



9500-9600 CHK (65%):
med brn, dk brn, sb
blky-sb splt ctngs, sl
frm-brit, chky tex, tr vf lam,
hi calc, com frac fl cal;
MRLST (35%): dk gy-dk
gyshbn, frm-sl hd, brit, sb
blky-splt ctngs, mnr CHK
intbds, tr pp mic pyr, mod
calc

9600-9700 CHK (60%):
med gy-gyshbn, sb blky
ctngs, fri-frm, tr MRLST
intbd, sm chky tex, v calc;
MRLST (40%): dk
gyshbn-dk gy, frm-sl hd,
sb blky-ang ctngs, sl sm
tex-rgh ip, com CHK
intbd, hi calc, tr diss
mic pyr



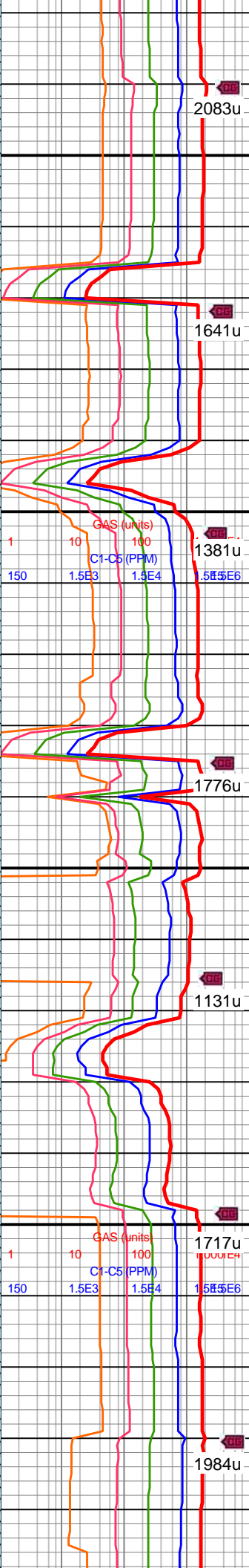
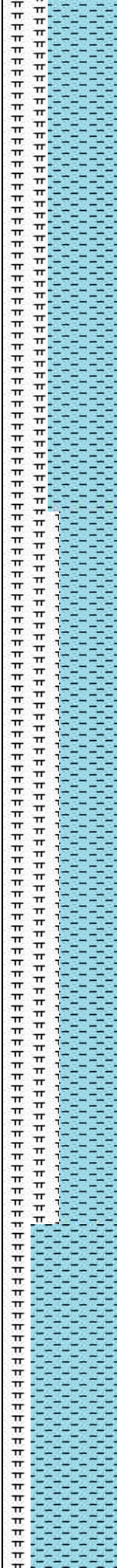


MD: 9,767'
TVD: 7,056.46'
INC: 89.82°
AZM: 2.19°
VS: 1,736.48'

WOB: 35.3klbs
RPM: 71
SPM: 206
SPP: 4,425psi

MW IN: 9.8
VIS IN: 39
MW OUT: 9.8
VIS OUT: 38

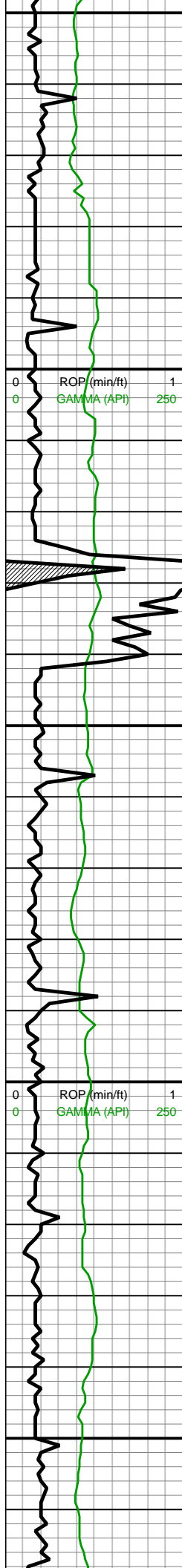
MD: 9,862'
TVD: 7,054.52'
INC: 92.51°
AZM: 2.37°
VS: 1,831.4'



9700-9800 CHK (50%):
med gy-gyshbn, sb blk
ctngs, fri frm, tr MRLST
lam intbd, v calc; MRLST
(40%): dk gyshbn-dk gy,
frm-sl hd, sb blk-ang
ctngs, sl sm tex, com
CHK incl, v hi calc

9800-9900 CHK (50%):
med gy, gyshbn, sb tab
ctngs, frm, brit, tr vf lam,
hi calc, tr inoc fos frags;
MRLST (50%): dk gy, dk
gyshbn, sb tab-blky
ctngs, brit, sl hd, tr CHK
intbds, tr pp mic pyr, mod
calc





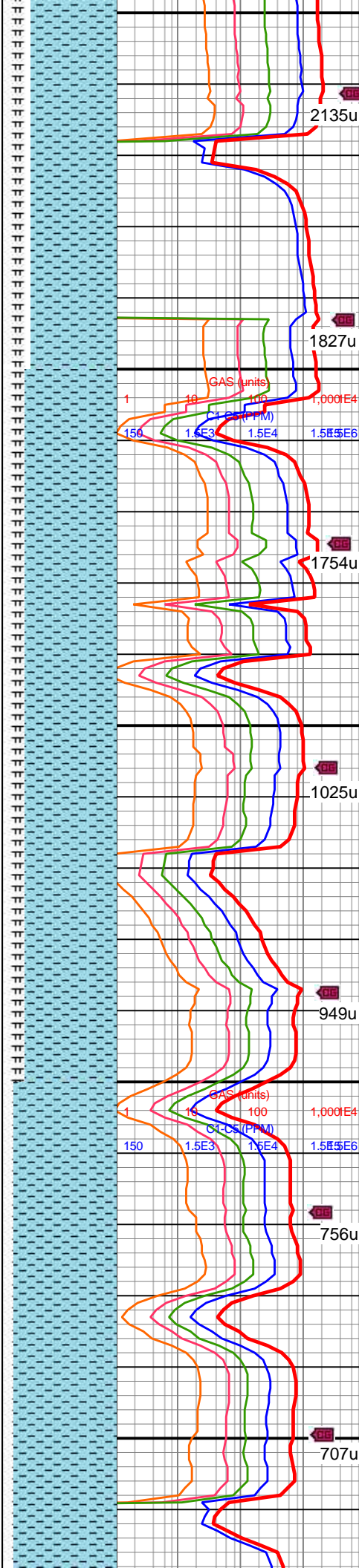
MD: 9,958'
TVD: 7,050.03'
INC: 92.86°
AZM: 2.19°
VS: 1,927.25'

WOB: 40klbs
RPM: 71
SPM: 206
SPP: 4,472psi

MD: 10,051'
TVD: 7,047.32'
INC: 90.48°
AZM: 1.14°
VS: 2,020.18'

MW IN: 9.8
VIS IN: 38
MW OUT: 9.8
VIS OUT: 38

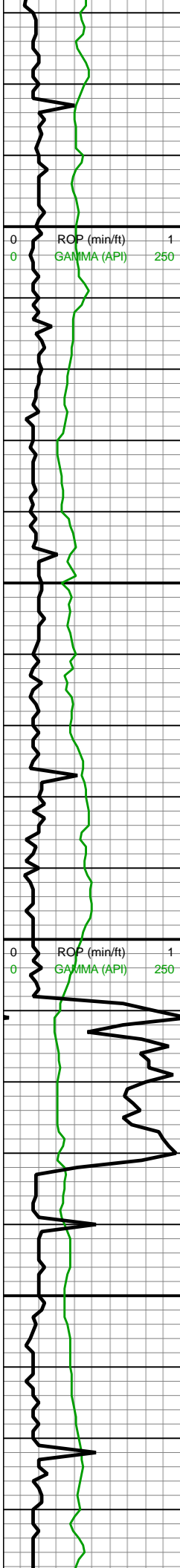
MD: 10,146'
TVD: 7,046.04'
INC: 91.06°
AZM: 1.05°
VS: 2,115.17'



9900-10000 CHK (75%):
predy gyshbn-med gy,
sme lt gy, sb blk-y-sb ang
ctngs, fri-frm, tr intbd
MRLST, sm chky tex,
calc; MRLST (25%): dk
gyshbn-dk gy, frm-sl hd,
sb blk-y-ang ctngs, sl
sm-rgh tex, com intbd
CHK, hi calc

10000-10100 CHK
(80%): med gy-gyshbn,
sb blk-y-ctngs, fri-frm, tr
MRLST lam intbd,
wk-mod calc; MRLST
(20%): dk gyshbn-dk gy,
frm-sl hd, sb blk-y-ctngs,
sl sm tex, tr CHK incl, hi
calc





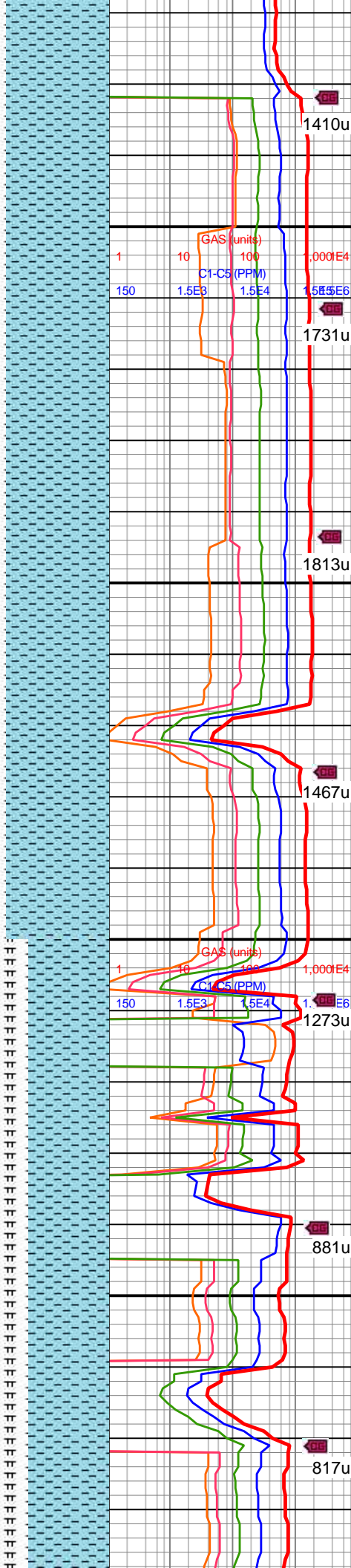
10,170
10,180
10,190
10,200
10,210
10,220
10,230
10,240
10,250
10,260
10,270
10,280
10,290
10,300
10,310
10,320
10,330
10,340
10,350
10,360
10,370
10,380

WOB: 26.3klbs
RPM: 71
SPM: 206
SPP: 4,380psi

MD: 10,241'
TVD: 7,043.88'
INC: 91.54°
AZM: 0.7°
VS: 2,210.14'

MW IN: 9.8
VIS IN: 38
MW OUT: 9.8
VIS OUT: 38

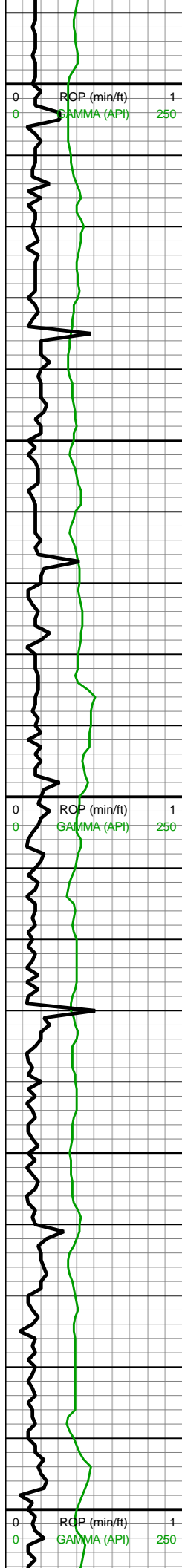
MD: 10,336'
TVD: 7,042.53'
INC: 90.09°
AZM: 0.7°
VS: 2,305.13'



10100-10200 CHK
(90%): predy lt gy-v lt gy, sme med gy, sme crm, frm-fis, blk-y-sb rd, chky tex, tr free offwht CHK, scat inco fos frags, tr lse cal; MRLST (10%): predy gy-dk gyshbn, sm tex-sl sity, frm-v frm, blk-y-sb ang, com CHK incl, v calc

10200-10300 CHK
(90%): med gy, gyshbn, sb tab ctngs, frm, brit, tr vf lam, hi calc, scat inoc fos frags; MRLST (10%): dk gy, dk gyshbn, sb tab-blky ctngs, brit, sl hd, tr CHK intbds, tr pp mic pyr, mod calc, scat lse cal

10300-10400 CHK
(75%): med brn-gyshbn, sb blk-y-tab ctngs, mod fis, frm-brit, tr mic pyr, sm-chky tex, hi calc; MRLST (25%): dk gy-dk



WOB: 24.7klbs
RPM: 71
SPM: 210
SPP: 4,301psi

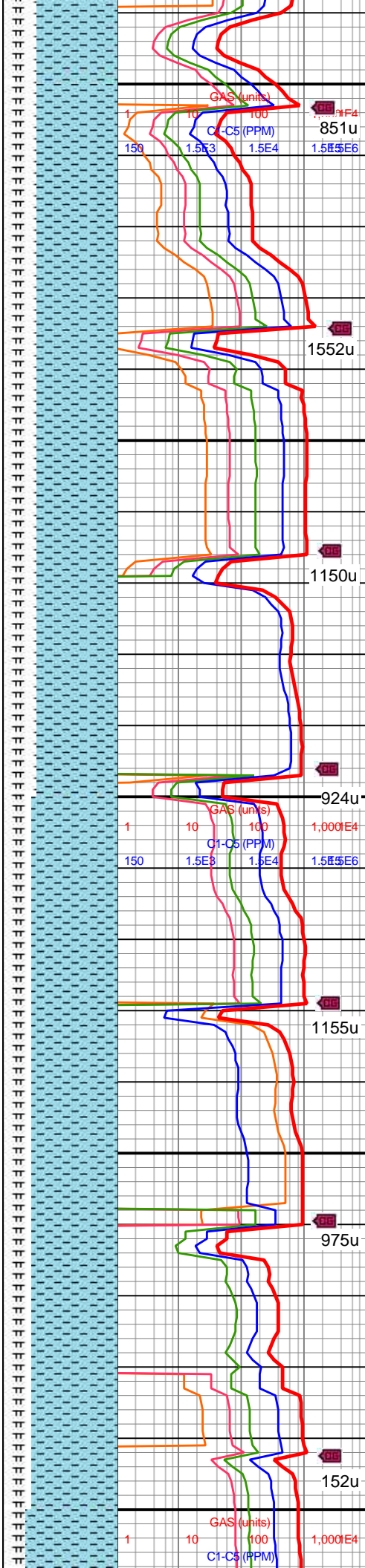
MD: 10,430'
TVD: 7,042.17'
INC: 90.35°
AZM: 0.26°
VS: 2,399.12'

MW IN: 9.8
VIS IN: 38
MW OUT: 9.8
VIS OUT: 38

MD: 10,525'
TVD: 7,041.67'
INC: 90.26°
AZM: 0.08°
VS: 2,494.12'

MW IN: 9.8
VIS IN: 38
MW OUT: 9.8
VIS OUT: 37

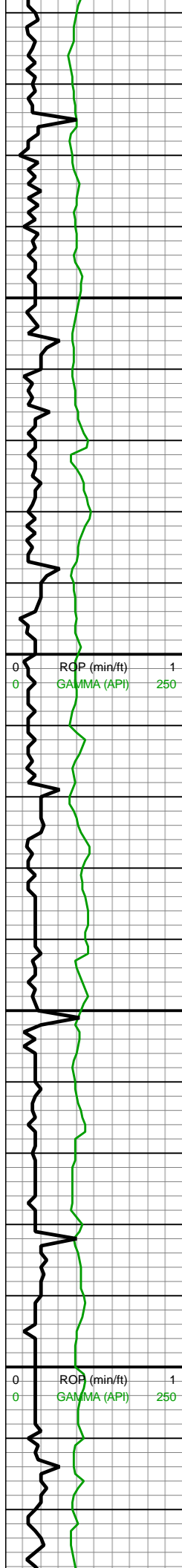
WOB: 33.7klbs
RPM: 71
SPM: 206
SPP: 4,572psi



gyshbn, mot dk brn,
ang-sb blk, frm-brit, mod
fis, sl sm-sl slty tex, mod
calc, tr imbd mic pyr

10400-10500 CHK
(70%): lt-med
gry-gyshbn, sub ang-sub
blk, frm-sub brit, calc-v
calc, rr-occ pyr-pyr nod;
MRLST (30%): med-dk
gry-sl gyshbn, sub blk, frm-hrd, calc-hi calc,

10500-10600 CHK
(75%): med gy-gyshbn,
ang-sub blk, sme plty,
frm-sub brit, v calc, tr pyr;
MRLST (25%) sl med-dk
gry, gran, blk-sub ang,
hrd, calc- v calc, micmica,



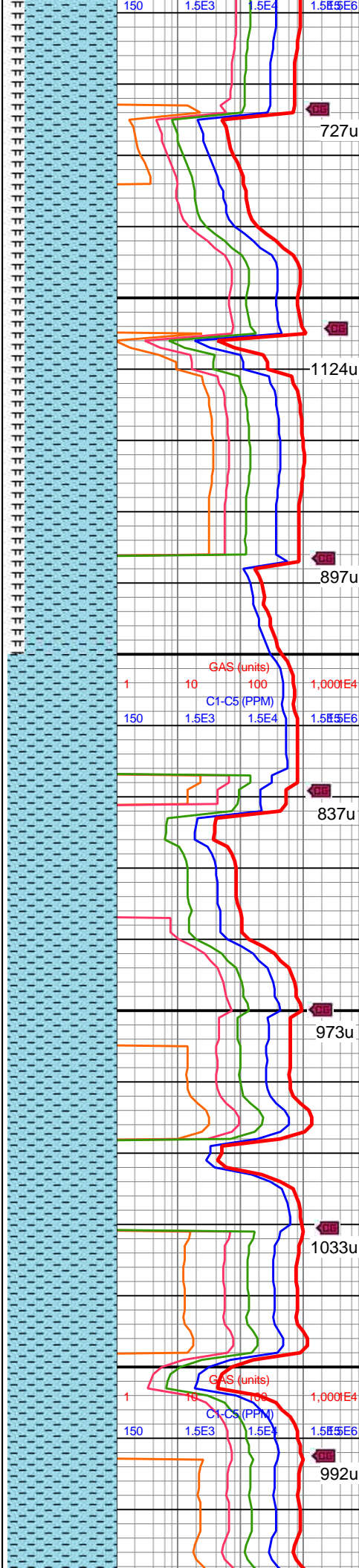
MD: 10,619'
TVD: 7,041.27'
INC: 90.22°
AZM: 359.38°
VS: 2,588.11'

MD: 10,713'
TVD: 7,040.7'
INC: 90.48°
AZM: 359.56°
VS: 2,682.1'

MW IN: 9.8
VIS IN: 38
MW OUT: 9.8
VIS OUT: 37

WOB: 36.4klbs
RPM: 71
SPM: 206
SPP: 4,574psi

MD: 10,808'
TVD: 7,040.38'
INC: 89.91°
AZM: 358.68°
VS: 2,777.07'



727u

1124u

897u

837u

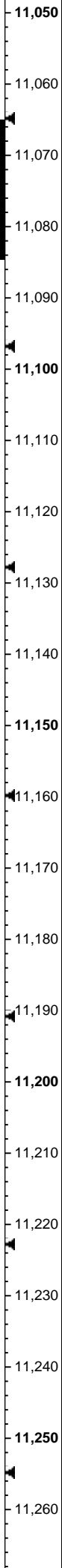
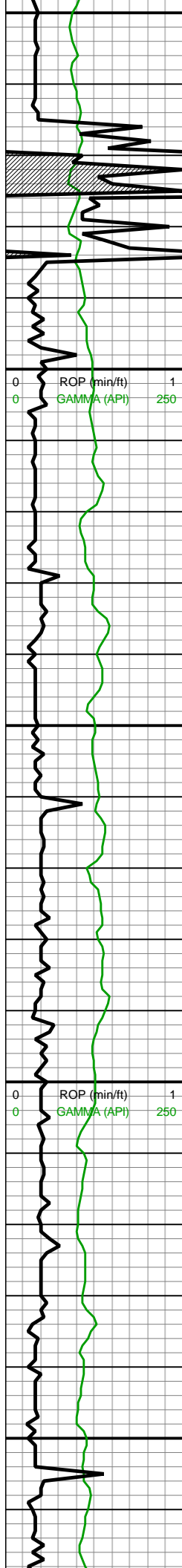
973u

1033u

992u

10600-10700 CHK (80%): gy-med gyshbn, sub blkly-sub plty-tab ctngs, frm-v brit, hily calc, rr- sp imbd pyr; MRLST (20%) med-dk gy, sub blkly, frm-sme hrd, sme cal, sl gran-sme micmica, rr lam

10700-10800 CHK (95%) It gry-med gyshbn, sub blkly wi sme plty, v sft- sl frm, v calc, tr-rr pyr, sme cal; MRLST (5%) dk gy, sme blkly, hrd-v hd, sl micmica, hily calc



Off Buster

On Buster

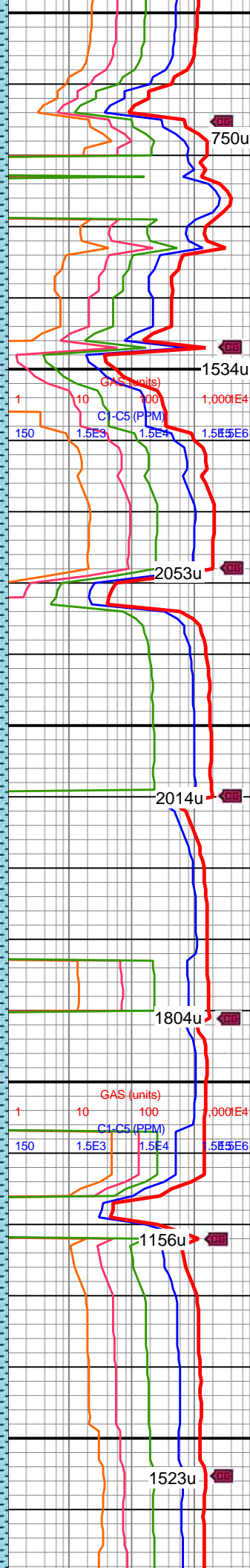
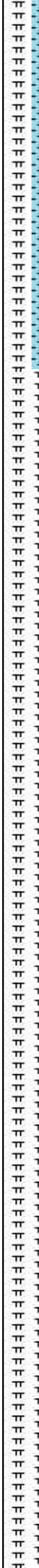
MD: 11,092'
TVD: 7,039.8'
INC: 90.79°
AZM: 359.47°
VS: 3,060.94'

MW IN: 9.7+
VIS IN: 37
MW OUT: 9.8
VIS OUT: 37

MD: 11,187'
TVD: 7,038.06'
INC: 91.32°
AZM: 359.65°
VS: 3,155.97'

WOB: 26.6klbs
RPM: 71
SPM: 206
SPP: 4,525psi

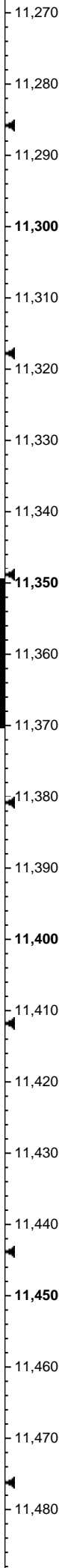
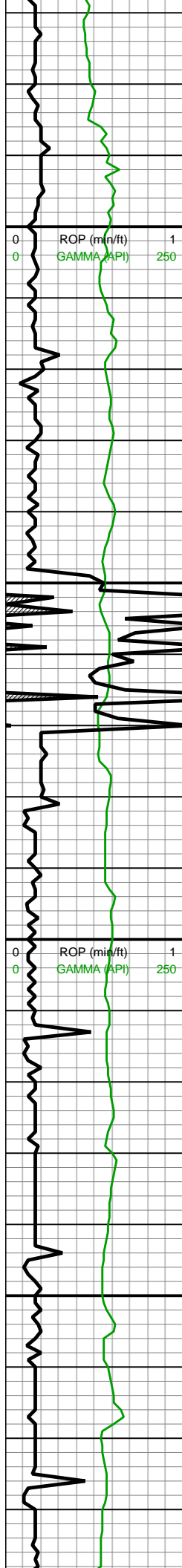
MW IN: 9.7+
VIS IN: 37
MW OUT: 9.8
VIS OUT: 37



11000-11100 CHK
(75%): med gy, gyshbn,
sb tab ctngs, frm, brit, tr vf
lam, hi calc, scat inoc fos
frags; MRLST (25%): dk
gy, dk gyshbn, sb tab-blky
ctngs, brit, sl hd, tr CHK
intbds, tr pp mic pyr, mod
calc

11100-11200 CHK
(60%): predy med gy-dk
gy wi com thn wh chky
lamn, occ lt gy, med
frm-brit, mod fis sb
blky-blky ctngs, sl slty
tex-bmpy tex ip, rr tn bent
wi occ c pyr strg ip, tr vf
pyr, hi calc; 40% MRLST:
dk gy mot wi brn mrly incl
ip, frm, brit, med-sl hi fis
sb blky-blky-sb plty, tr vf
pyr, mod calc wi brn mrly
resdl

11200-11300 CHK
(65%): med gy-dk gy wi



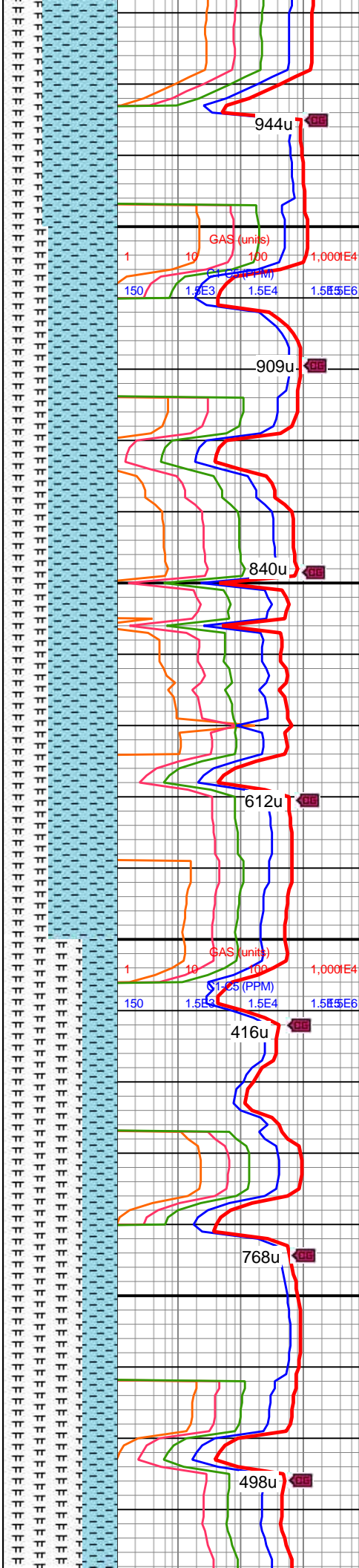
MD: 11,282'
TVD: 7,035.32'
INC: 91.98°
AZM: 359.56°
VS: 3,250.91'

MW IN: 9.7
VIS IN: 38
MW OUT: 9.75
VIS OUT: 37

MD: 11,377'
TVD: 7,034.59'
INC: 88.9°
AZM: 359.91°
VS: 3,345.89'

WOB: 31klbs
RPM: 70
SPM: 206
SPP: 4,720psi

MD: 11,471'
TVD: 7,036.58'
INC: 88.68°
AZM: 359.73°
VS: 3,439.87'

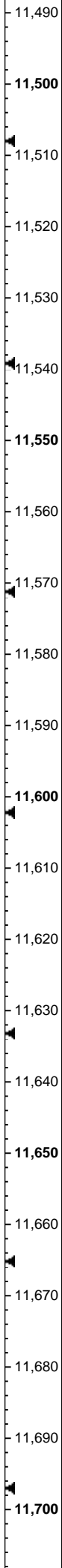
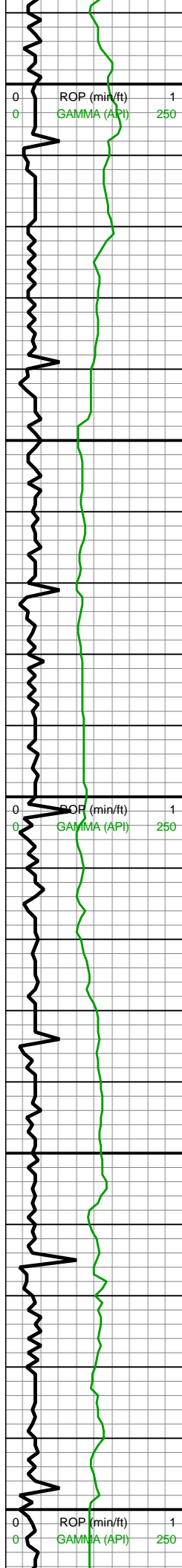


com thn wh chky lamn,
occ lt gy, med frm-brit,
mod fis sb blkly-blky
ctngs, slty tex, tr vf pyr, hi
calc; 35% MRLST: dk gy
mot wi brn mrly incl ip,
frm, brit, med-sl hi fis sb
blkly-blky-sb plty, tr vf pyr,
mod calc wi brn mrly
resdl

11300-11400 CHK
(60%): predy med gy-dk
gy wi com thn wh chky
lamn, occ lt gy, med
frm-brit, mod fis sb
blkly-blky ctngs, sl slty
tex-bmpy tex ip, rr tn bent
wi occ c pyr strg ip, tr vf
pyr, hi calc; 40% MRLST:
dk gy mot wi brn mrly incl
ip, frm, brit, med-sl hi fis
sb blkly-blky-sb plty, tr vf
pyr, mod calc wi brn mrly
resdl

11400-11500 CHK (30%)
pred ltgy-occ gyshbn wi
sme com lt thn chky
lamn, sub blkly-blky with
occ plty, v soft-ltly frm, rgh
tex wi rr-pp pyr, hily calc;
MRLST(70%): med-v dk



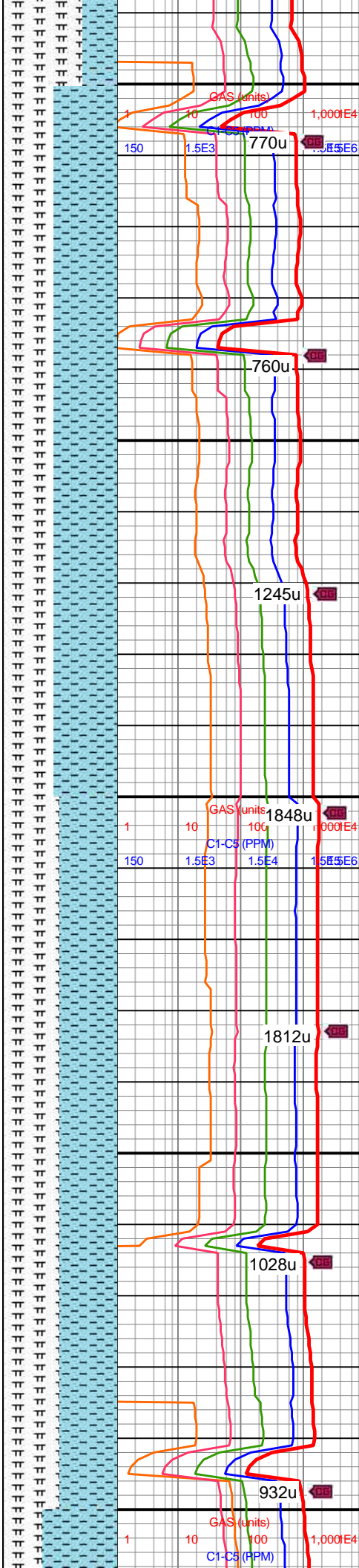


MD: 11,565'
TVD: 7,038.74'
INC: 88.68°
AZM: 359.65°
VS: 3,533.83'

WOB: 36klbs
RPM: 70
SPM: 205
SPP: 4,750psi

MW IN: 9.75
VIS IN: 38
MW OUT: 9.75
VIS OUT: 36

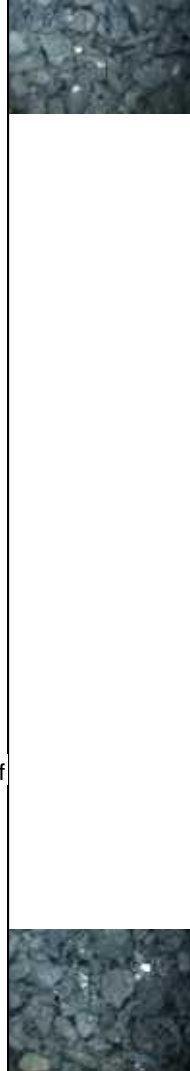
MD: 11,660'
TVD: 7,040.96'
INC: 88.64°
AZM: 359.82°
VS: 3,628.8'

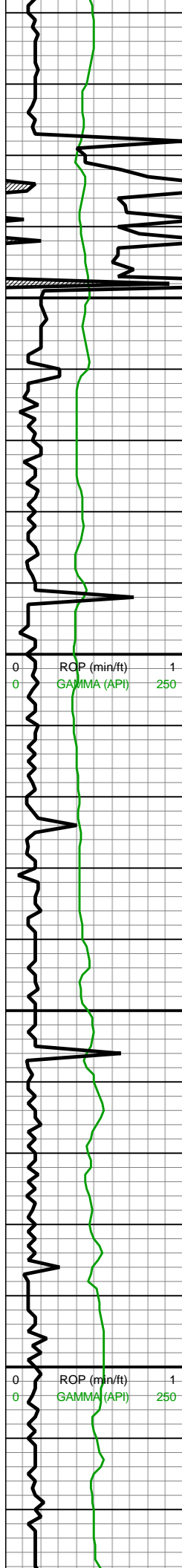


gry, predy blkly wi com
lamn, v brit-hrd, micmica,
hily calc

11500-11600 CHK
(55%): lt gy-med gy, occ
dk gy wi f wh chky lamn,
sb frm-frm-brit, mod fis
sb blkly ctngs, slty tex, rr vf
pyr, rr forams, tr bent, hi
calc; MRLST (45%): med
gy-dk gy-dk gyshbn,
frm-hd-brit med-hi fis sb
blkly-bkly ctngs, dk gy sh
mot wi brn mrlly incl &
lam wi marl, rr lt gy chky
intbs, rr-occ vf pyr, mod
calc

11600-11700 MRLST
(50%): med gy-dk gy-dk
gyshbn, thnly lam,
frm-hd-brit med-hi fis sb
blkly-bkly ctngs, rr-occ vf
pyr, mod calc wi brn mrlly
incl resdl; 50% CHK:
med gy-dk gy wi f wh chky
incl & thn wh chky lamn,
sb frm-frm-brit, mod fis
sb blkly-bkly ctngs, slty
tex, rr forams & rr-occ
bent, tr vf pyr & v tr f
euhed pyr clus, hi calc





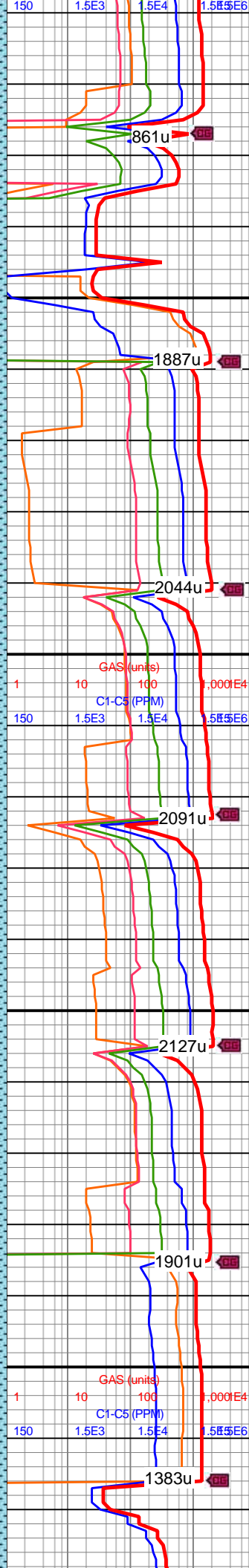
11,710
11,720
11,730
11,740
11,750
11,760
11,770
11,780
11,790
11,800
11,810
11,820
11,830
11,840
11,850
11,860
11,870
11,880
11,890
11,900
11,910
11,920

MD: 11,755'
TVD: 7,041.65'
INC: 90.53°
AZM: 1.58°
VS: 3,723.79'

MW IN: 9.8
VIS IN: 37
MW OUT: 9.8
VIS OUT: 36

WOB: 39klbs
RPM: 71
SPM: 208
SPP: 4,690psi

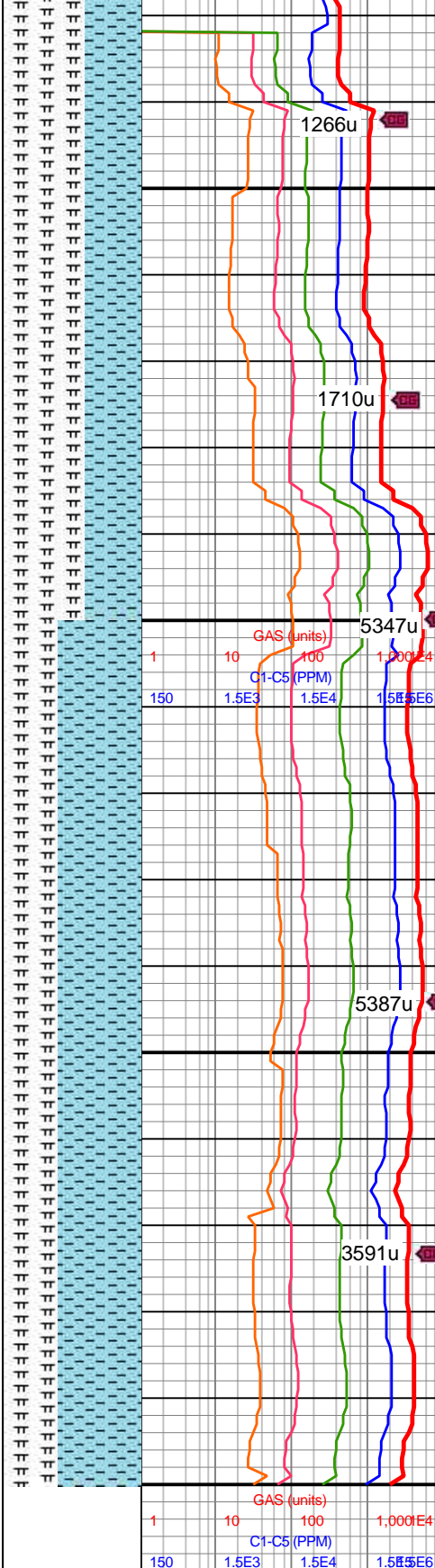
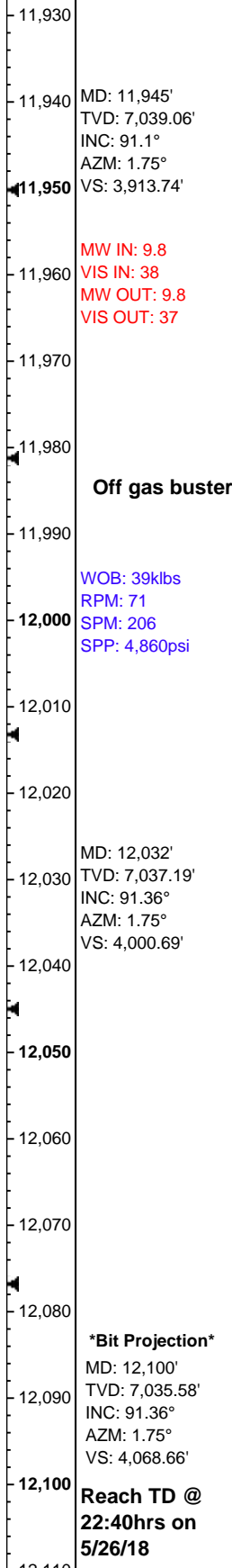
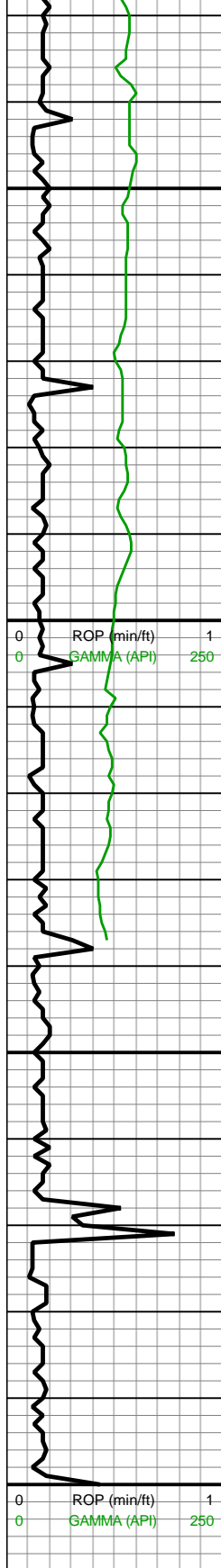
MD: 11,850'
TVD: 7,040.59'
INC: 90.75°
AZM: 1.4°
VS: 3,818.77'



11700-11800 CHK
(65%): med gy-dk gy wi f
wh chky incl & thn wh
chky lamn, sb
frm-frm-brit, mod fis sb
blky-blky ctngs, slty tex, rr
forams & rr-occ bent, tr vf
pyr & v tr f euhed pyr clus,
hi calc; MRLST (35%):
med gy-dk gy-dk gyshbn,
thnly lam, frm-hd-brit
med-hi fis sb blky-blky
ctngs, rr-occ vf pyr, mod
calc wi brn mrlly incl resdl

11800-11900 CHK
(60%): med gy-dk gy wi f
wh chky incl & thn wh
chky lamn, sb
frm-frm-brit, mod fis sb
blky-blky ctngs, sm-sl
slty-slty tex, tr forams & tr
vf pyr, rr-tr bent wi occ pyr
strg ip, tr vf pyr, hi calc;
MRLST (40%): med gy-dk
gy-dk gyshbn, thnly lam,
frm-hd-brit med-hi fis sb
blky-blky ctngs, rr-occ vf
pyr, mod calc wi brn mrlly
incl resdl





11900-12000 MRLST (60%): med gy-dk gy-v dk gy wi occ sp brn marl incl, frm-hd-brit, med-hi fis sb blkyl-blky ctngs, rr-occ vf pyr, tr acic calc fos frags, tr bent & forams, mod calc wi brn mrly resdl; CHK (40%): lt gy-med gy-dk gy wi f wh chky incl & thn wh chky lamn, sb frm-frm-brit, mod fis sb blkyl-blky ctngs, slty tex, tr vf pyr, hi calc

12000-12100 CHK (60%): predy lt gy, med gy-rr dk gy ip wi f wh chky incl & thn wh chky lamn, sb frm-frm-brit mod fis sb blkyl-blky ctngs, com thn wh chky lamn ip, sl slty-slty tex, rr forams, tr acic cal fos frags, rr-tr vf pyr strg, hi calc; MRLST (40%): dk gy-v dk gy, frm-hd blkyl-sb plty-plty ctngs, med-hi fis, tr-rr vf pyr, rr brn mrly incl, mod calc wi brn marl resdl

