



Scale: 5" / 100'
Measured Depth Log

Well Name Ruegge 3P-4H-N165

Location Sec. 4 T1N R65W

State Colorado

County Weld

Country USA

Rig Number Ensign 140

API Number 05123465570000

AFE # 16190992

Geographic Region Rockies

Field Wattenberg

Spud Date 7/19/2018

Drilling Completed 7/21/2018

Surface Coordinates Lat/Long: 40.075277/-104.670597
SHL: Sec: 4 Twp: 1N 65W
Footage: 714 FSL 2185 FWL

Bottom Hole Coordinates Proposed BHL: Sec: 4 Twp: 1N 65W
Footages: 460 FFNL 715 FFEL

Ground Elevation 4,915'

K.B. Elevation 4,938'

Logged Interval 6,700' **To** 12,300'

Total Depth 12,300'

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

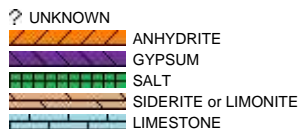
Loggers: Brian Ferwerda / Matthew Cox

Services Provided: 2-Man Mudlogging / Geosteering

Equipment: ML-533

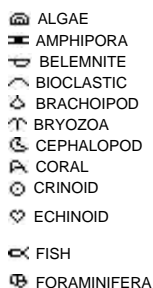
Contractor: Empirica, Reservoir Group
6360 West Sam Houston Pkwy N
Houston, Texas, 77041

Rock Types



Accessories

Fossils



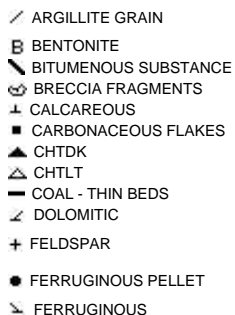
F FOSSIL



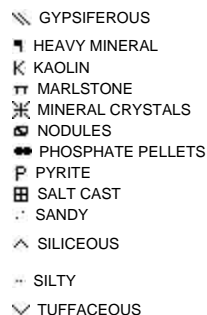
Minerals



A ARGILLACEOUS



G 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

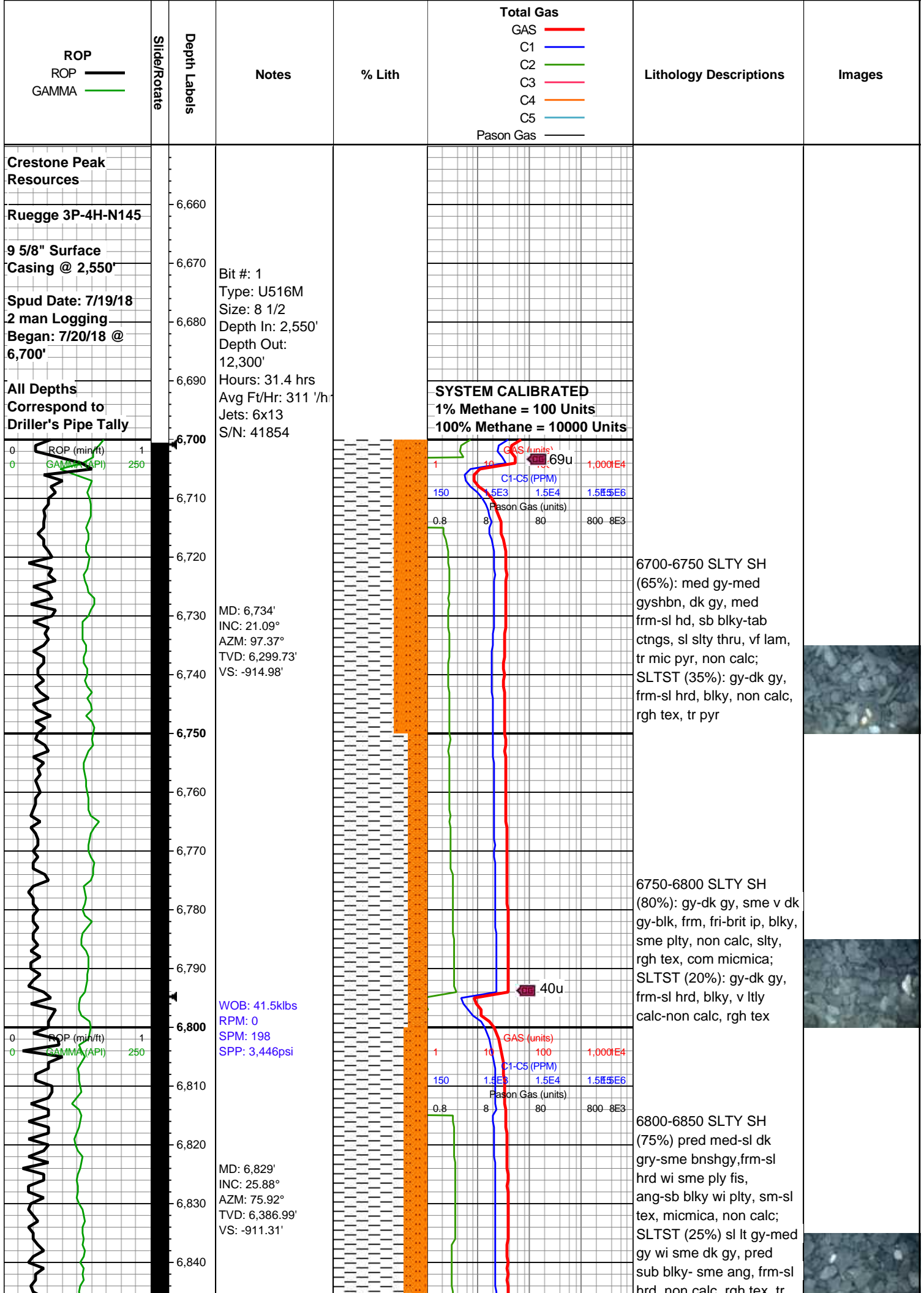
Textures

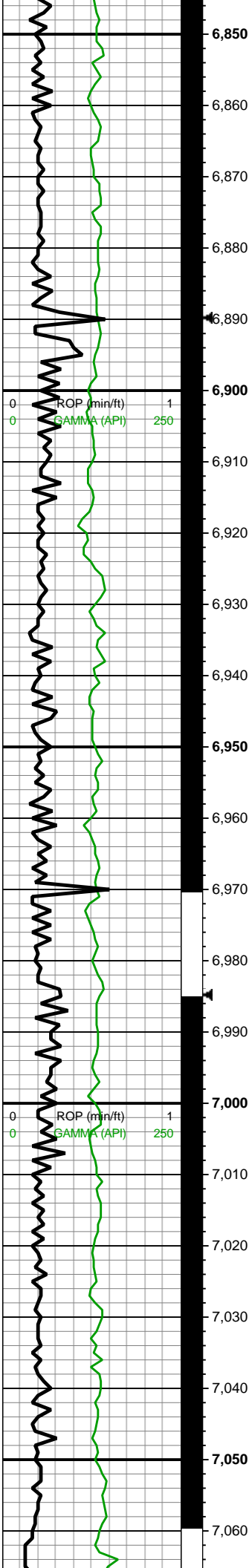
- BOUNDSTONE
- CHALKY
- CRYPTOXLN
- E EARTHY
- FINELYXLN
- GRAINSTONE

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

Sorting

- M MODERATE
- P POOR
- W WELL





MW IN: 9.6
VIS IN: 42
MW OUT: 9.6
VIS OUT: 41

MD: 6,924'
INC: 28.61°
AZM: 58.08°
TVD: 6,471.59'
VS: -893.35'

WOB: 40.1klbs
RPM: 0
SPM: 198
SPP: 3,516psi

MD: 7,018'
INC: 31.95°
AZM: 43.14°
TVD: 6,552.87'
VS: -862.47'

MW IN: 9.6
VIS IN: 41
MW OUT: 9.6
VIS OUT: 40



46u

45u

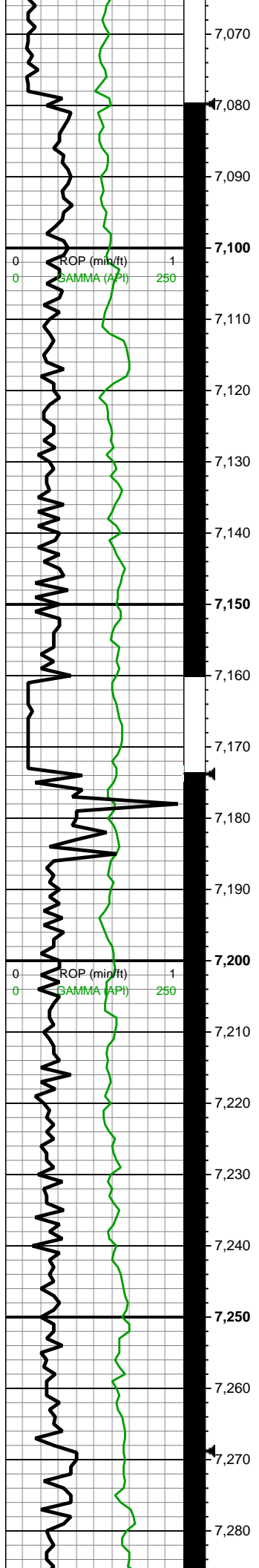
pyr

6850-6900 SLTY SH
(60%): med gy-lt gy, dk
gy, sb blkyltgy, frm-v frm,
sme sl sft, slty-sl sm tex,
sme SLTST intbds, mnr
dissm pyr, non-sl calc;
SLTST (40%): med gy-dk
gy, blkyltgy, frm-sl
hrd, slty-abrsv tex, non
calc, tr mic pyr

6900-6950 SLTY SH
(80%): med gy-med
gyshbn, dk gy, med
frm-sl hd, sb blkyltgy
ctngs, sl slty thru, vf lam,
tr mic pyr, non calc;
SLTST (20%): gy-dk gy,
frm-sl hrd, blkyltgy, non calc,
rgh tex, tr pyr

6950-7000 SLTY SH
(85%): med gy-gyshbn,
dk gy, mot lt gy, sb
blkyltgy, sb tab ctngs, vf lam,
frm-sl hd, sl slty thru, tr
pp mic pyr, non calc;
SLTST (15%): med gy-dk
gy, blkyltgy, frm-sl hrd,
tr mic pyr, non calc

7000-7050 SLTY SH
(75%): med gy-gyshbn, lt
gy ip, sb frm-frm, blkyltgy
ctngs, sm arg-slty tex, slty
ip wi incr silc slt grdg to
sltst, non calc; SLTST
(25%): predy med gy, occ
lt gy-dk gy, frm, brit, sb
blkyltgy, tr vf micmica,
non calc

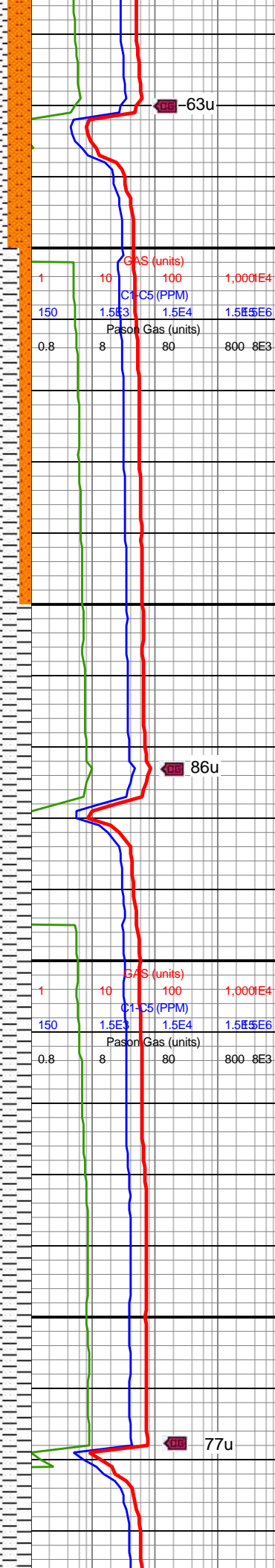


MD: 7,113'
INC: 30.94°
AZM: 31.63°
TVD: 6,633.99'
VS: -822.65'

WOB: 396klbs
RPM: 0
SPM: 198
SPP: 3,598psi

MD: 7,208'
INC: 34.41°
AZM: 24.42°
TVD: 6,713.97'
VS: -776.87'

MW IN: 9.8
VIS IN: 41
MW OUT: 9.7
VIS OUT: 39



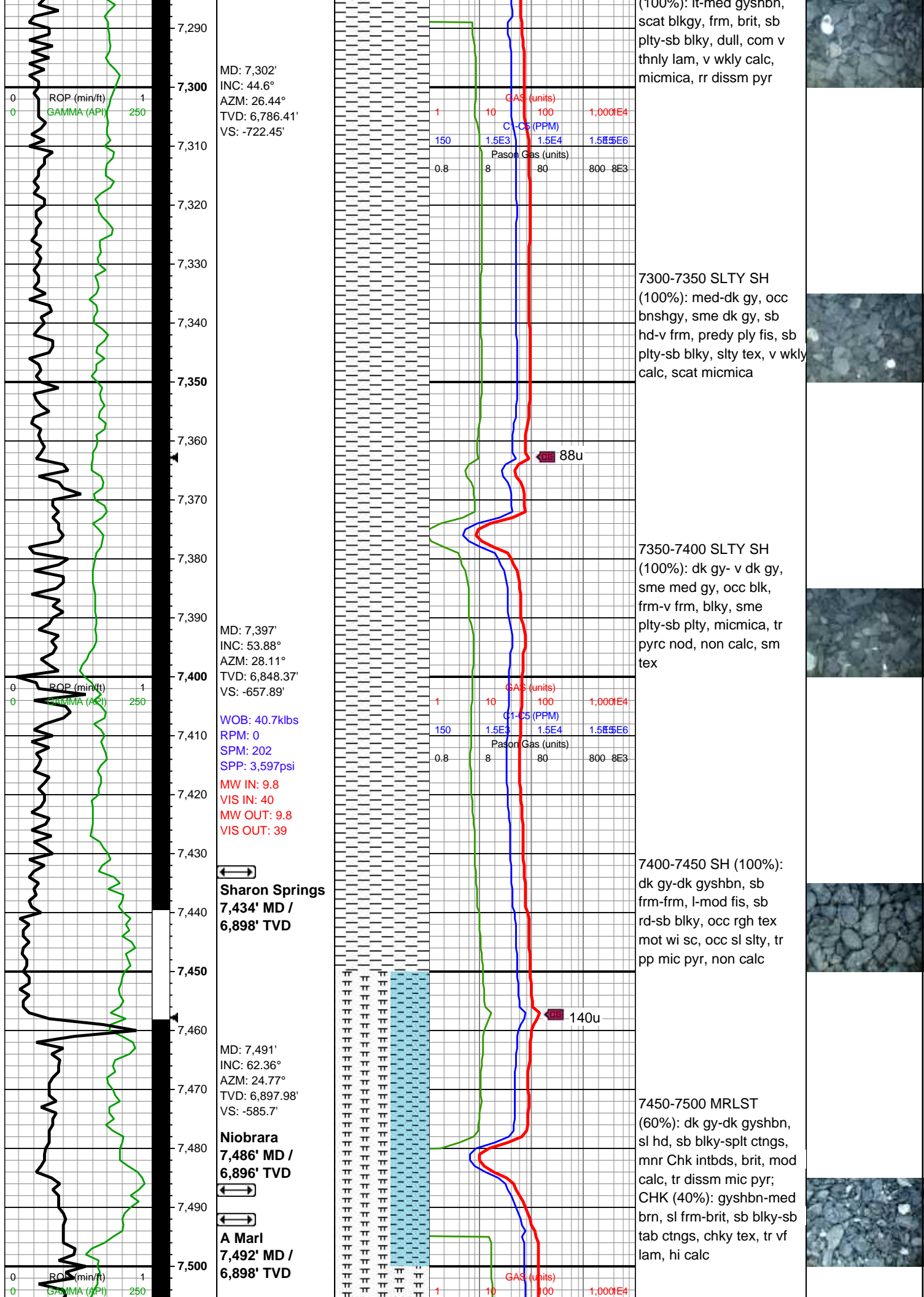
7050-7100 SLTY SH
(80%): dk gyshbn-dk gy, v
dk gy ip, rr blk, sme tn,
pred blk, non calc, v frm,
sme sl hrd, brit-fis,
micmica; SLTST (20%):
gy-dk gy, frm-sl hrd, blk,
v ltly calc-non calc, rgh
tex, tr pyr

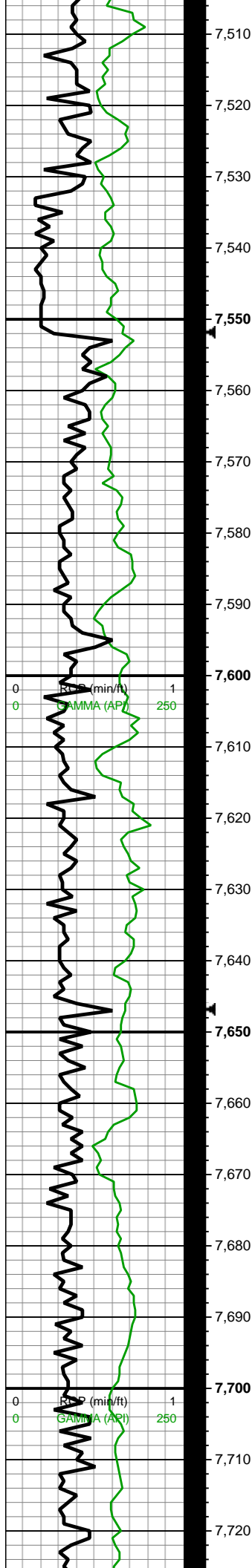
7100-7150 SLTY SH
(90%): pred med-sl dk
gry-sme bnshgy, v frm-sl
hrd wi sme ply fis,
ang-sb blk wi sme plty,
sm-sl tex, sl micmica,
non calc; SLTST (10%):
sl lt gy-pred med gy wi
sme dk gy, pred sub blk-
sme ang, frm-sl hrd, non
calc, sl rgh tex, tr pyr

7150-7200 SH (100%):
med gy-med gyshbn, dk
gy, med frm-sl hd, sb
blk-tab ctngs, sl slty thru,
vf lam, tr mic pyr, non calc

7200-7250 SLTY SH
(100%) pred gyshbn wi sl
med gy-occ scat dk gy, v
frm-sl brit wi sme fis,
pred plty-blk wi sl ang,
sm tex wi scat micmica,
non-sl calc,

7250-7300 SLTY SH
(100%) dk med gyshbn



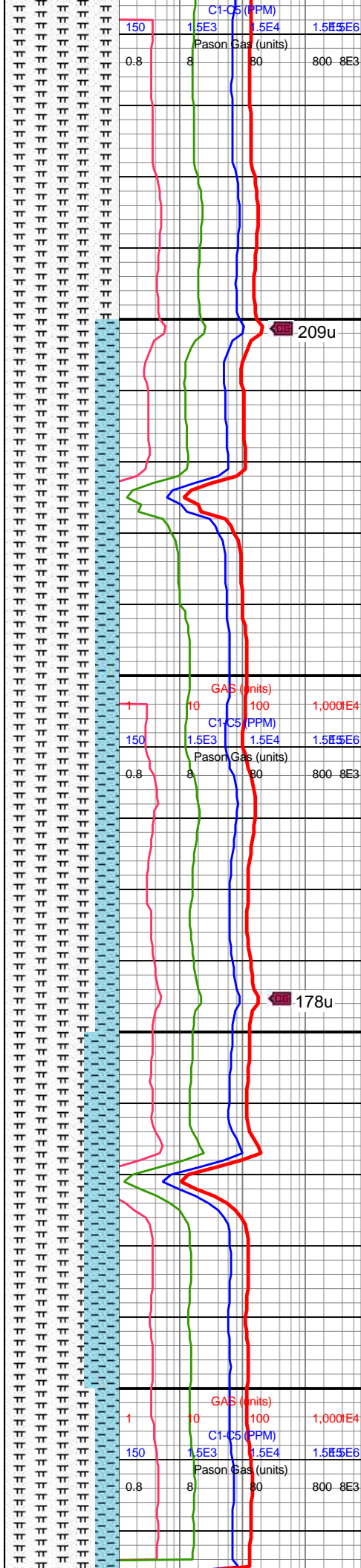


MD: 7,586'
INC: 67.19°
AZM: 18.44°
TVD: 6,938.49'
VS: -505.17'

WOB: 53.2klbs
RPM: 0
SPM: 202
SPP: 3,760psi

MW IN: 9.8
VIS IN: 40
MW OUT: 9.8+
VIS OUT: 39

MD: 7,680'
INC: 75.19°
AZM: 7.46°
TVD: 6,968.85'
VS: -418.23'



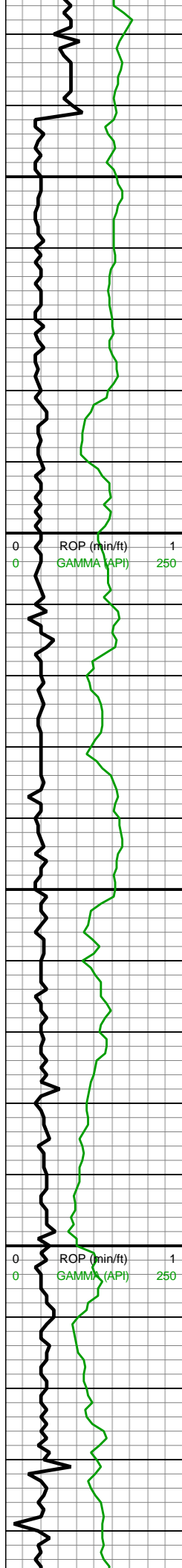
7500-7550 MRLST
(100%): dk gy-dk gyshbn,
sl hd, sb blk-y-splt ctngs,
mnr Chk intbds, tr diss
mic pyr, mod calc

7550-7600 MRLST
(80%): dk gy-dk gyshbn,
sl hd, sb blk-y-splt ctngs,
mnr Chk intbds, tr diss
mic pyr, mod calc; CHK
(20%): lt gy-gyshbn, sb
blk-y-sb tab ctngs, sl
frm-brit, tr vf lam, hi calc

7600-7650 MRLST
(80%): dk gy-dk gyshbn,
sl hd, sb blk-y-splt ctngs,
mnr Chk intbds, tr diss
mic pyr, mod calc; CHK
(20%): lt gy-gyshbn, sb
blk-y-sb tab ctngs, frm
-brit, vf lam, hi calc

7650-7700 MRLST
(70%): dk gy-dk gyshbn,
sb blk-y-splt ctngs, sl hd,
brit, mnr chk intbds, tr
dissm mic pyr, mod-hi
calc; CHK (30%): med
gy-gyshbn, mot, sb
blk-y-sb tab ctngs, sl
frm-frm, brit, mnr vf lam,
hi calc





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
7,940

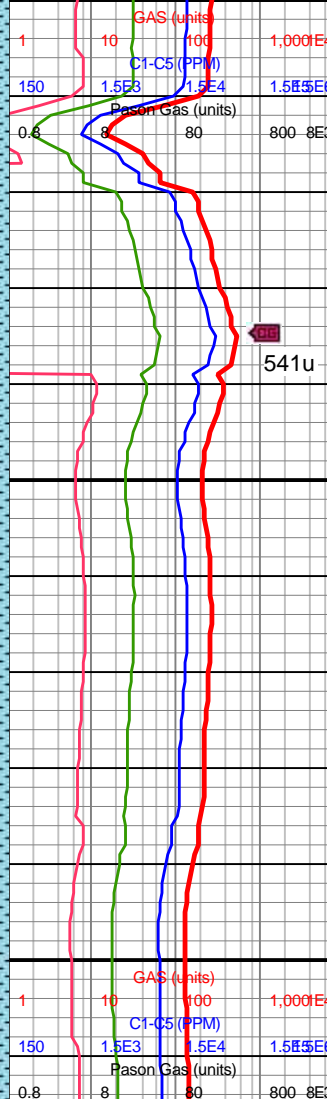
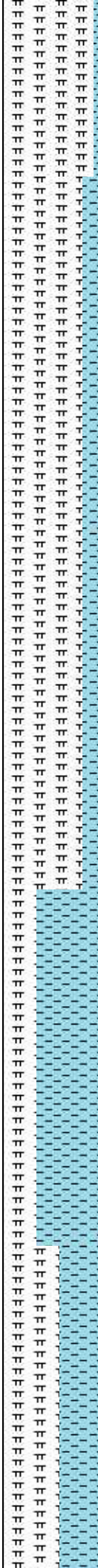
MD: 7,775'
INC: 78.09°
AZM: 0.07°
TVD: 6,990.83'
VS: -325.97'

WOB: 37.4klbs
RPM: 30
SPM: 201
SPP: 4,145psi

B Chalk
7,853' MD /
7,008' TVD

MD: 7,869'
INC: 76.6°
AZM: 0.16°
TVD: 7,011.42'
VS: -234.28'

MW IN: 9.8+
VIS IN: 40
MW OUT: 9.9
VIS OUT: 38



7700-7750 MRLST
(80%): dk gy-dk gyshbn,
sl hd, sb blk-y-splt ctngs,
mnr Chk intbds, tr diss
mic pyr, mod calc; CHK
(20%): lt gy-gyshbn, sb
blk-y-sb tab ctngs, sl
frm-brit, tr vf lam, hi calc

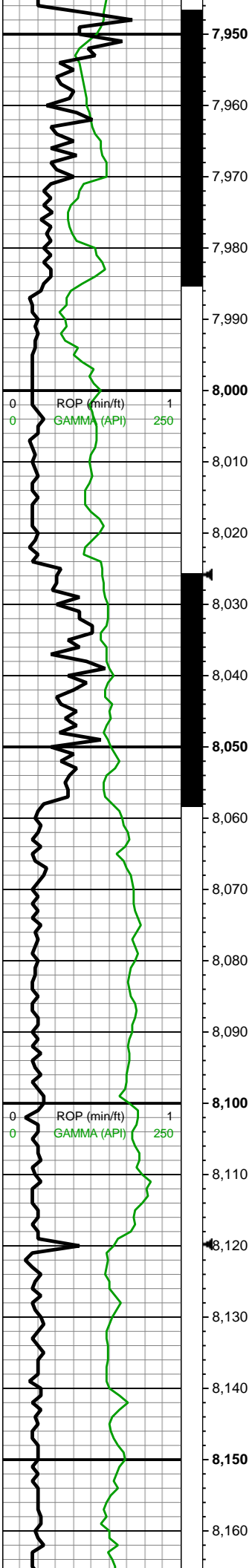
7750-7800 MRLST
(70%): dk gy-dk gyshbn,
sb blk-y-splt ctngs, sl hd,
brit, mnr chk intbds, tr
dissm mic pyr, mod-hi
calc; CHK (30%): med
gy-gyshbn, mot, sb
blk-y-sb tab ctngs, sl
frm-frm, brit, mnr vf lam,
hi calc

7800-7850 MRLST
(70%): dk gy-dk gyshbn,
sb blk-y-splt ctngs, sl hd,
brit, mnr chk intbds, tr
dissm mic pyr, mod-hi
calc; CHK (30%): med
gy-gyshbn, mot, sb
blk-y-sb tab ctngs, frm,
brit, mnr vf lam, hi calc

7850-7900 CHK (70%):
med gy-dk gy wi f wh chky
incl, sb frm-frm-brit, mod
fis sb blk-y ctngs, slty tex,
rr-occ vf pyr, rr-occ bent, tr
forams, hi calc; MRLST
(30%): gyshbn-dk gy,
frm-brit mod fis sb
blk-y-blky ctngs wi sm
arg-sl slty tex, brn mrly sp
incl thru, mod calc

7900-7950 MRLST
(60%): dk gy-v dk gy,
med-hi fis sb
blk-y-blky-pty ctngs, frm
wi arg tex-hd-brit wi sl slty
tex, sp brn marl incl ip, tr
vf pyr, tr bent, mod calc;
CHK (40%): predy med
gy, lt gy ip, frm-brit, mod
fis, slty arg tex, sb
blk-y-blky, tr forams, hi





MD: 7,965'
INC: 77.34°
AZM: 1.04°
TVD: 7,033.07'
VS: -140.75'

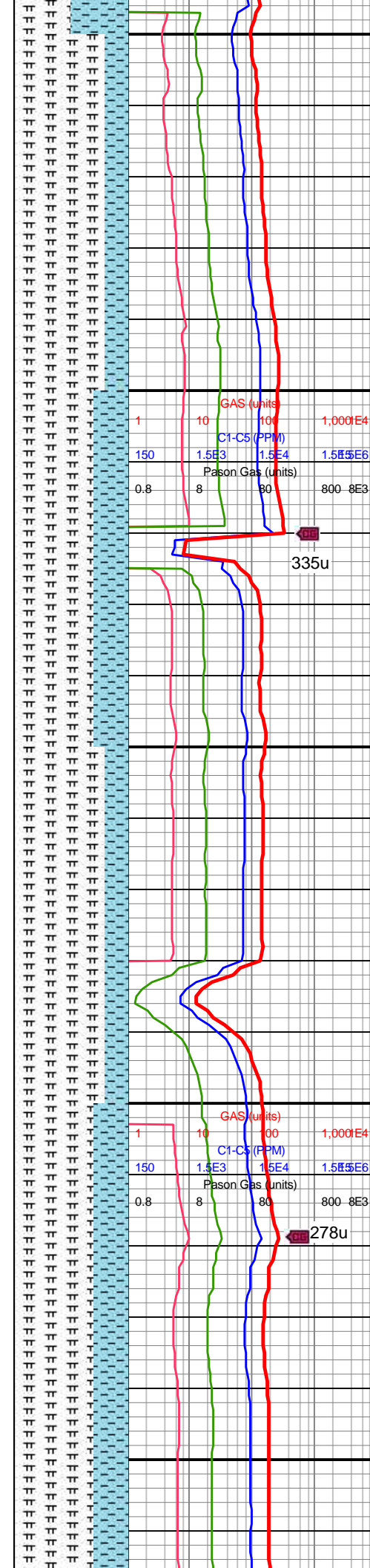
B Marl
7,982' MD /
7,037' TVD

WOB: 37.8klbs
RPM: 31
SPM: 200
SPP: 4,090psi

MD: 8,059'
INC: 81.74°
AZM: 2.1°
TVD: 7,050.13'
VS: -48.34'

MW IN: 9.8+
VIS IN: 41
MW OUT: 9.3
VIS OUT: 38

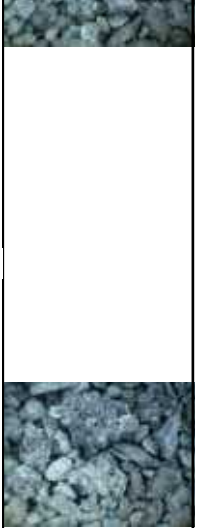
MD: 8,153'
INC: 81.04°
AZM: 2.36°
TVD: 7,064.2'
VS: 44.58'

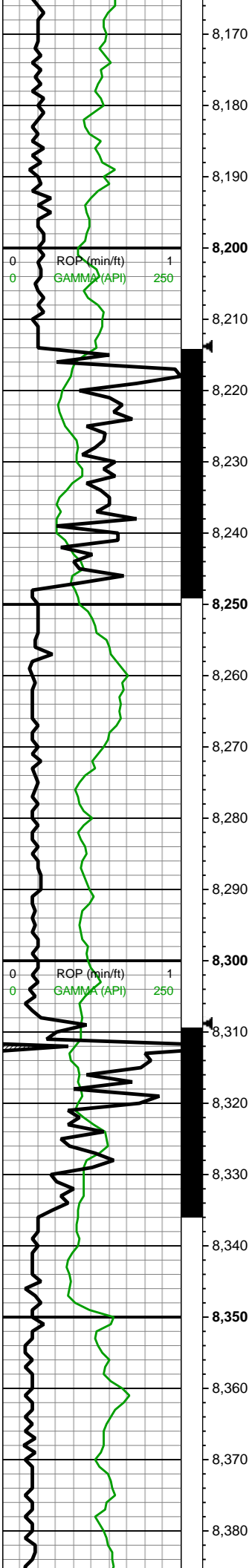


calc
7950-8000 MRLST
(80%): gyshbn-dk gy,
frm-brit mod fis sb
blky-blky ctngs, sm arg-sl
silty tex & brn mrly sp incl
thru, tr vf pyr, tr bent, mod
calc; CHK (20%) lt-med
gy-dk gy wi f wh chky incl,
sb frm-frm-brit, mod fis
sb blky ctngs, slty tex,
rr-occ vf pyr, tr forams, hi
calc

8000-8100 MRLST
(80%): med gy-dk gy,
frm-brit mod fis sb
blky-blky ctngs, sm arg-sl
silty tex & brn mrly sp incl
thru, tr vf pyr, mod calc;
CHK (20%) lt-med gy-dk
gy wi f wh chky incl, sb
frm-frm-brit, mod fis sb
blky ctngs, slty tex, rr-occ
vf pyr, tr forams, hi calc

8100-8200 MRLST



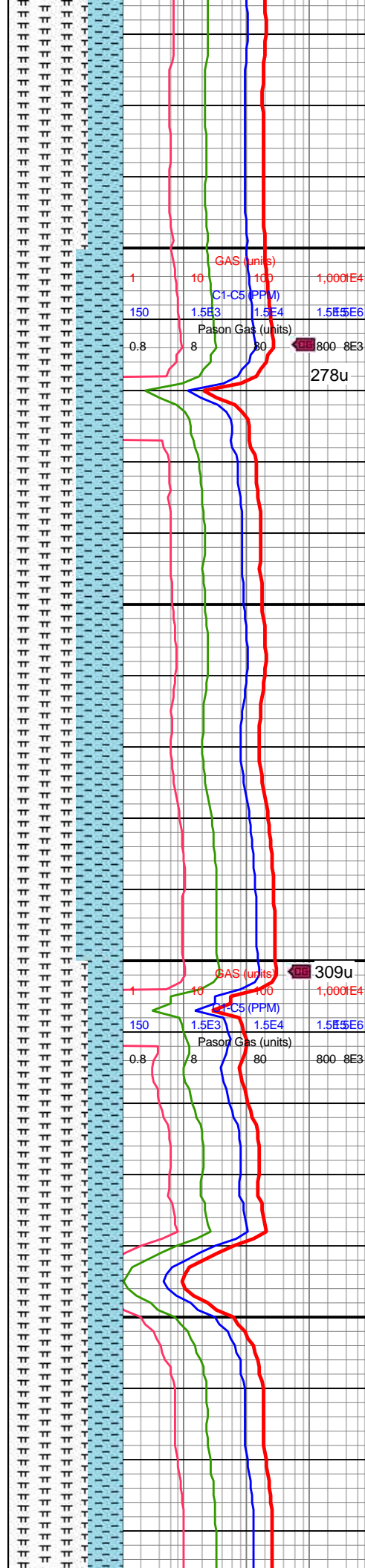


WOB: 38klbs
RPM: 31
SPM: 202
SPP: 4,120psi

↔
C Chalk
8,224' MD /
7,074' TVD

MD: 8,248'
INC: 84.42°
AZM: 0.51°
TVD: 7,076.22'
VS: 138.8'

MD: 8,343'
INC: 85.52°
AZM: 358.05°
TVD: 7,084.55'
VS: 233.37'

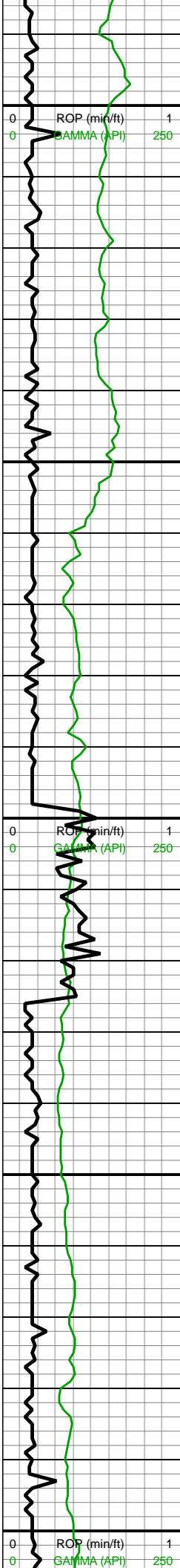


(70%): lt gy-v dk gy,
med-hi fis sb
blky-blky-pty ctngs, frm
wi arg tex-hd-brit wi sl slty
tex, sp brn marl incl ip, tr
vf pyr, tr bent, mod calc;
CHK (30%): predy med
gy, lt gy ip, frm-brit, mod
fis, slty arg tex, sb
blky-blky, tr forams, hi
calc

8200-8300 CHK (40%): lt
gy-med gy, sb frm-frm
l-mod fis sb rd-sb blky
ctngs wi sm arg-sl slty
tex, occ f-u f wh chky incl,
ptchy tr-rr vf pyr strg ip, rr
sdy forams, hi calc;
MRLST (60%): v dk
gy-blk, frm-hd-brit, sm
arg-sl slty tex, rr f wh chky
incl ip, mod calc

8300-8400 CHK (30%): v
lt gy-med gy, tn hue thru,
wxy lmst lstr, sb
frm-frm-brit, hi fis, blky-sb
plty-plty, sm tex, hi calc;





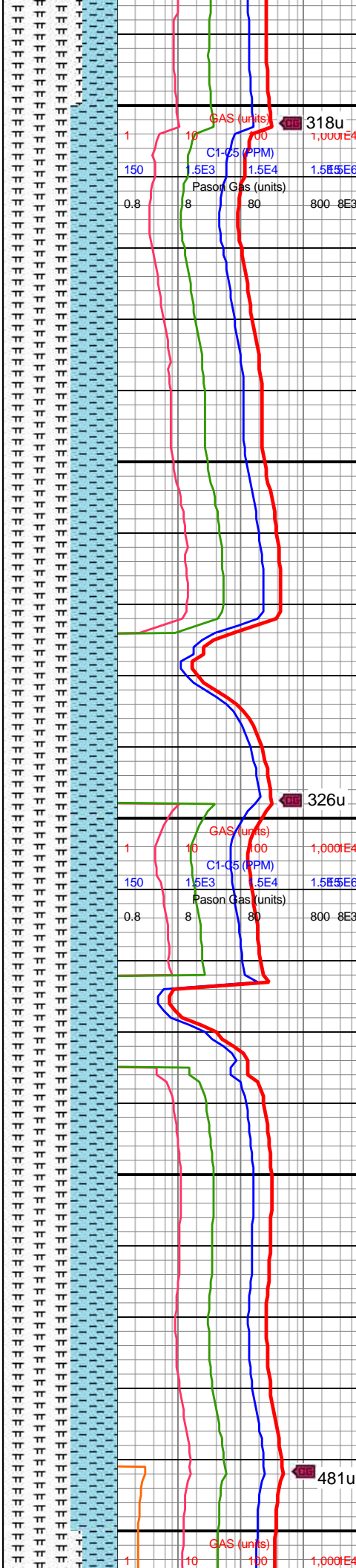
WOB: 38.5klbs
RPM: 51
SPM: 200
SPP: 4,125psi

MW IN: 9.8+
VIS IN: 40
MW OUT: 9.9
VIS OUT: 38

MD: 8,437'
INC: 85.12°
AZM: 358.12°
TVD: 7,092.22'
VS: 326.91'

MD: 8,532'
INC: 88.51°
AZM: 358.93°
TVD: 7,097.5'
VS: 421.65'

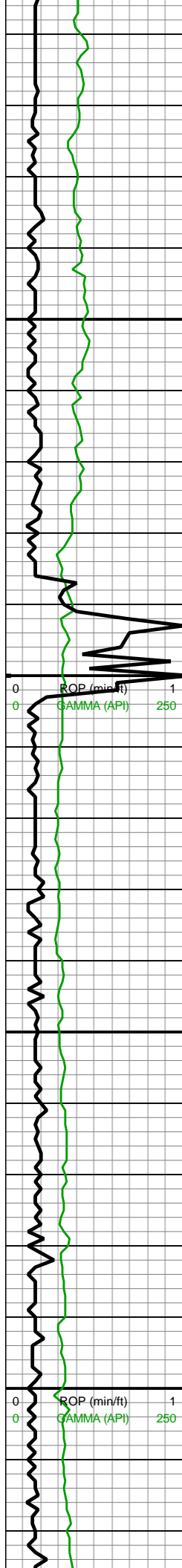
WOB: 40.7klbs
RPM: 61
SPM: 200
SPP: 4,130psi



pty pty, sm tex, m calc,
MRLST (70%): v dk
gy-blk, frm-hd-brit, med
fis sb blkly-blky, sm-sl slty
tex, mod calc

8400-8500 CHK (40%): lt
gy-med gy, sb frm-frm
l-mod fis sb rd-sb blkly
ctngs wi sm arg-sl slty
tex, occ f-u f wh chky incl,
ptchy tr-rr vf pyr strg ip, rr
sdy forams, hi calc;
MRLST (60%): v dk
gy-blk, frm-hd-brit, sm
arg-sl slty tex, rr f wh chky
incl ip, mod calc

8500-8600 CHK (40%): lt
gy-med gy, sb frm-frm
l-mod fis sb rd-sb blkly
ctngs wi sm arg-sl slty
tex, occ f-u f wh chky incl,
ptchy tr-rr vf pyr strg ip, rr
sdy forams, hi calc;
MRLST (60%): v dk
gy-blk, frm-hd-brit, sm
arg-sl slty tex, rr f wh chky
incl ip, mod calc



MD: 8,626'
INC: 88.51°
AZM: 88.51°
TVD: 7,100.6'
VS: 484.1'

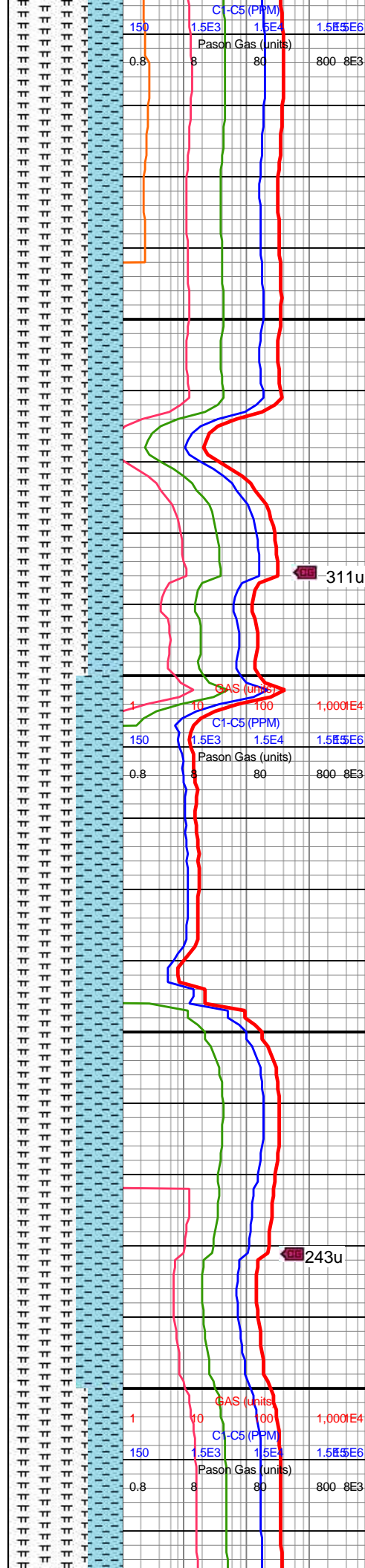
MW IN: 9.8
VIS IN: 40
MW OUT: 9.9
VIS OUT: 39

MINDEPTH 7/21/18

MD: 8,721'
INC: 90.84°
AZM: 359.02°
TVD: 7,101.29'
VS: 547.22'

WOB: 40.8klbs
RPM: 61
SPM: 202
SPP: 4,225psi

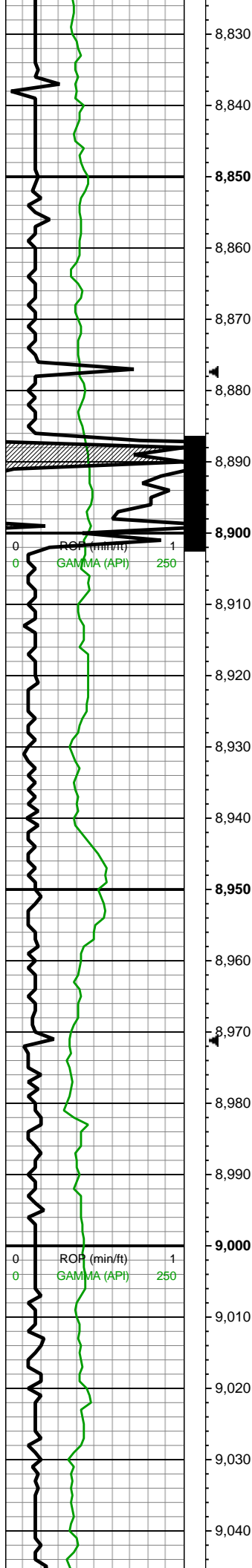
MD: 8,816'
INC: 91.93°
AZM: 359.81°
TVD: 7,098.99'
VS: 642.14'



8600-8700 CHK (30%): v
lt gy-dk gy, tn hue thru,
wxy lmst lstr, sb
frm-frm-brit, hi fis, blk-
sb plty-plty, sm tex, hi
calc; MRLST (70%): v dk
gy-blk, frm-hd-brit, med
fis sb blk-blk, sm-sl slty
tex, mod calc

8700-8800 CHK (40%): lt
gy-med gy, sb frm-frm
l-mod fis sb rd-sb blk
ctngs wi sm arg-sl slty
tex, occ f-u f wh chky
incl, ptchy tr-rr vf pyr
strg ip, rr sdy forams,
hi calc; MRLST (60%): v
dk gy-blk, frm-hd-brit, sm
arg-sl slty tex, rr f wh
chky incl ip, mod calc

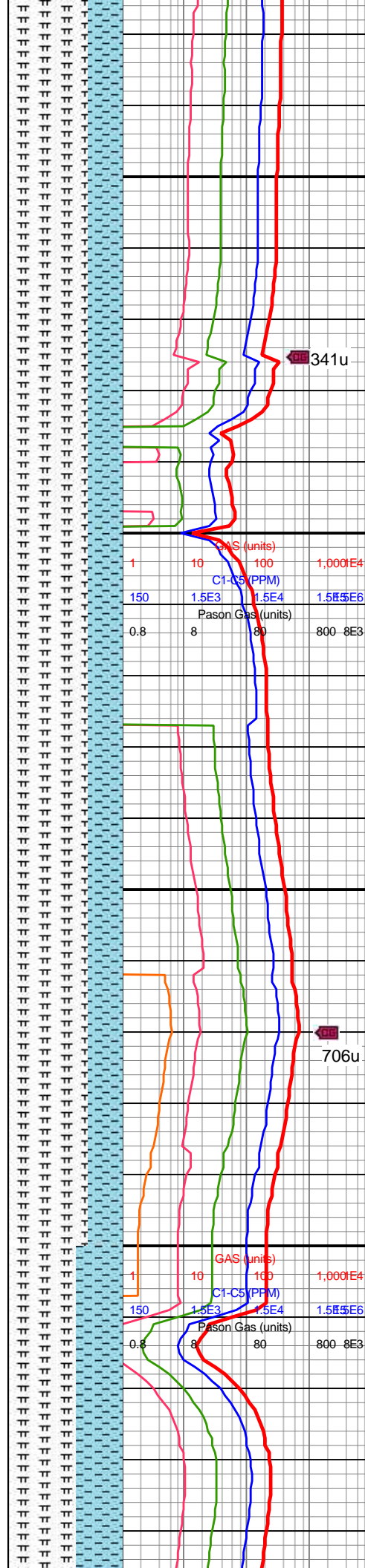




MD: 8,910'
INC: 90.44°
AZM: 359.64°
TVD: 7,097.05'
VS: 736.09'

WOB: 39.1klbs
RPM: 61
SPM: 202
SPP: 4,315psi

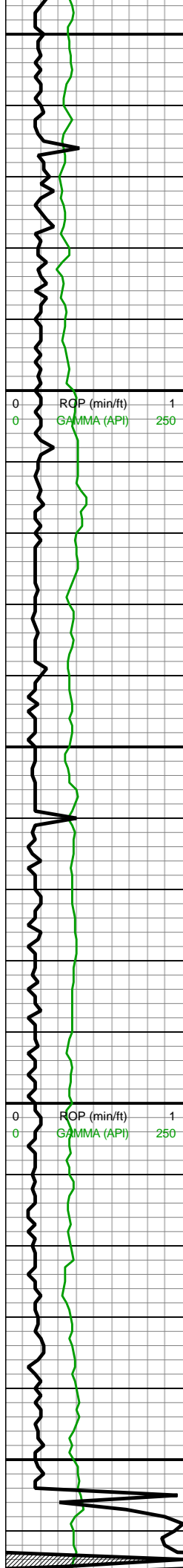
MD: 9,005'
INC: 89.96°
AZM: 359.46°
TVD: 7,096.72'
VS: 831.04'



8800-8900 CHK (30%): v
lt gy-dk gy, tn hue thru,
wxy lmst lstr, sb
frm-frm-brit, hi fis, blk-
sb plty-plty, sm tex, hi
calc; MRLST (70%): v dk
gy-blk, frm-hd-brit, med
fis sb blk-blky, sm-sl
sly tex, mod calc

8900-9000 MRLST
(70%): v dk gy-blk,
frm-hd-brit, med fis sb
blk-blky, sm-sl sly tex,
mod calc; CHK (30%): v
lt gy-dk gy, tn hue thru,
wxy lmst lstr, sb frm-
frm-brit, hi fis, blk-
sb plty-plty, sm tex,
hi calc





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

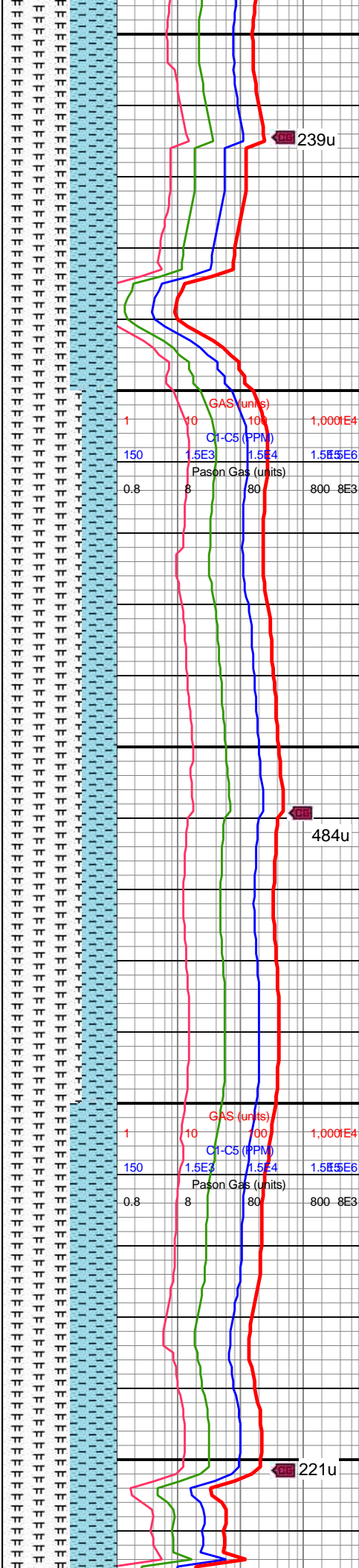
9,260

MD: 9,100'
INC: 90.53°
AZM: 359.46°
TVD: 7,096.31'
VS: 925.99'

MW IN: 9.8+
VIS IN: 40
MW OUT: 9.9+
VIS OUT: 38

MD: 9,195'
INC: 90.75°
AZM: 359.28°
TVD: 7,095.25'
VS: 1,020.94'

WOB: 37.3klbs
RPM: 61
SPM: 200
SPP: 4,225psi



239u

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

484u

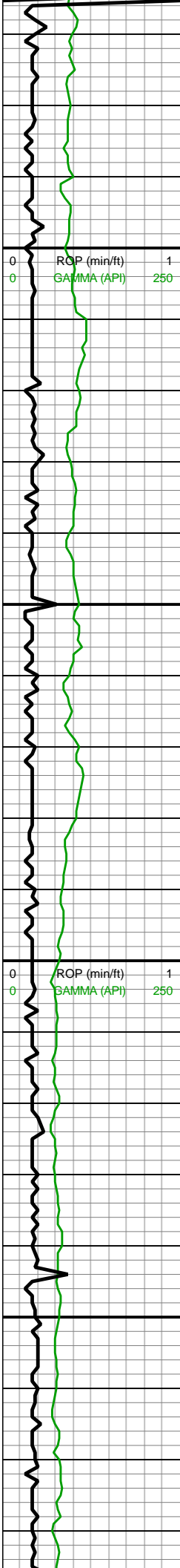
221u

9000-9100 MRLST
(60%): v dk gy-blk,
frm-hd-brit, sm arg-sl slty
tex, rr f wh chky incl ip,
mod calc; CHK (40%): lt
gy-med gy, sb frm-frm
l-mod fis sb rd-sb blk
ctngs wi sm arg-sl slty
tex, occ f-u f wh chky incl,
ptchy tr-rr vf pyr strg ip, rr
sdy forams, hi calc

9100-9200 MRLST
(30%): dk gy-blk,
frm-hd-brit, med fis sb
blk-blky, sm-sl slty tex,
mod calc; CHK (70%): v lt
gy-dk gy, tn hue thru, wxy
lmst lstr, sb frm-frm-brit,
hi fis, blk-sb plty-plty, sm
tex, hi calc

9200-9300 MRLST



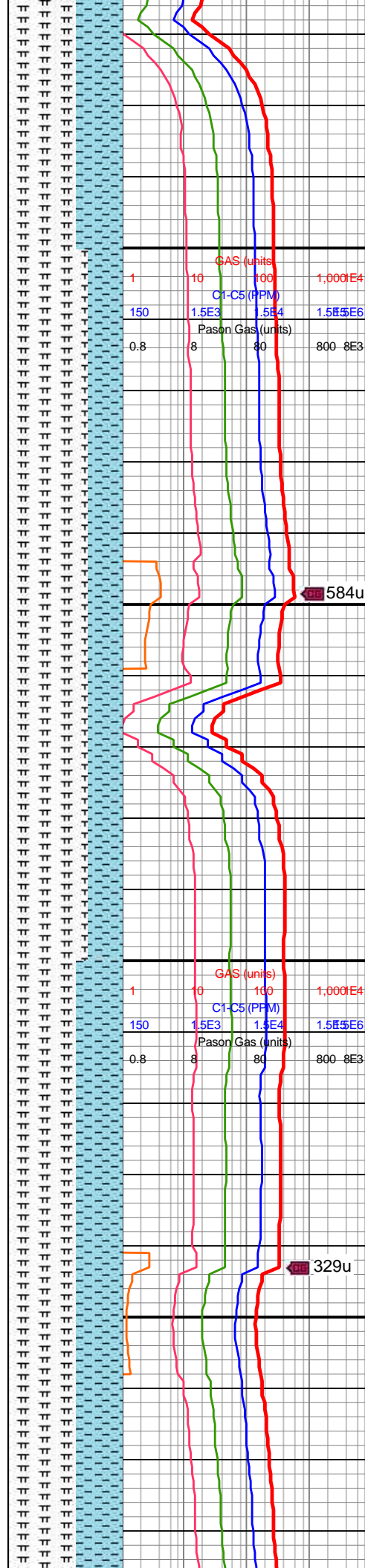


MD: 9,289'
INC: 88.99°
AZM: 358.93°
TVD: 7,095.46'
VS: 1,114.87'

MD: 9,383'
INC: 88.9°
AZM: 358.76°
TVD: 7,097.19'
VS: 1,208.77'

WOB: 38.6klbs
RPM: 61
SPM: 198
SPP: 4,250psi

MD: 9,479'
INC: 89.78°
AZM: 358.58°
TVD: 7,098.3'
VS: 1,304.66'

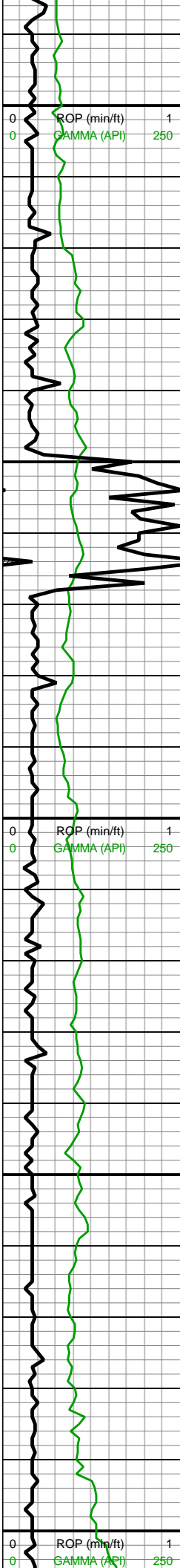


(60%): v dk gy-blk, frm-hd-brit, sm arg-sl slty tex, rr f wh chky incl ip, mod calc; CHK (40%): lt gy-med gy occ dk gy, sb frm-frm l-mod fis sb rd-sb blkly ctngs wi sm arg-sl slty tex, occ f-u f wh chky incl, ptchy tr-rr vf pyr strg ip, rr sdy forams, hi calc

9300-9400 MRLST
(70%): dk gy-blk, frm-hd-brit, med fis sb blkly-blky, sm-sl slty tex, mod calc; CHK (30%): lt gy-dk gy, tn hue thru, wxy lmst lstr, sb frm-frm-brit, hi fis, blkly-sb plty-plty, sm tex, hi calc

9400-9500 MRLST
(60%): v dk gy-blk, frm-hd-brit, sm arg-sl slty tex, rr f wh chky incl ip, mod calc; CHK (40%): lt gy-med gy occ dk gy, sb





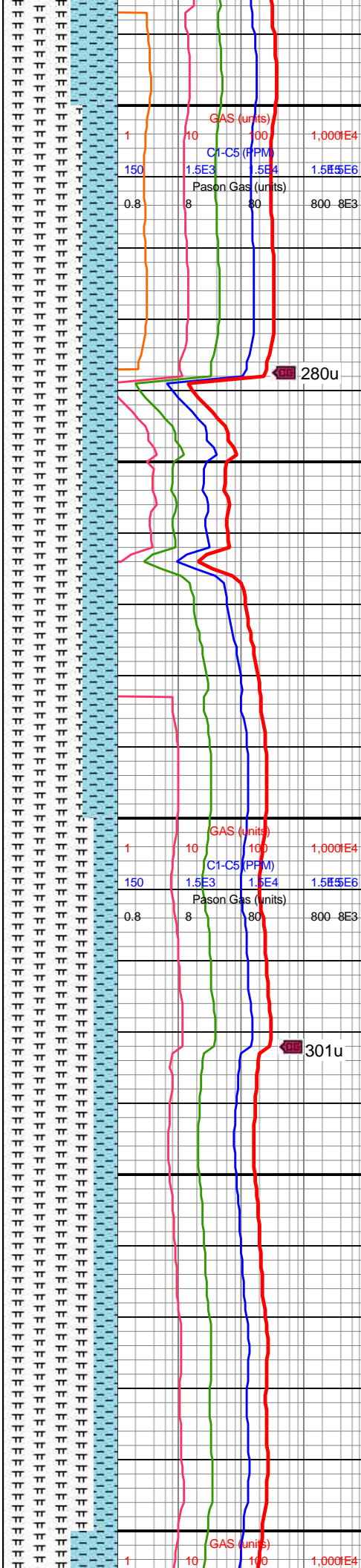
MW IN: 9.9
VIS IN: 41
MW OUT: 9.9+
VIS OUT: 38

MD: 9,573'
INC: 90.31°
AZM: 0.69°
TVD: 7,098.23'
VS: 1,398.62'

WOB: 36.2klbs
RPM: 61
SPM: 202
SPP: 4,350psi

MD: 9,668'
INC: 90.84°
AZM: 359.99°
TVD: 7,097.27'
VS: 1,493.6'

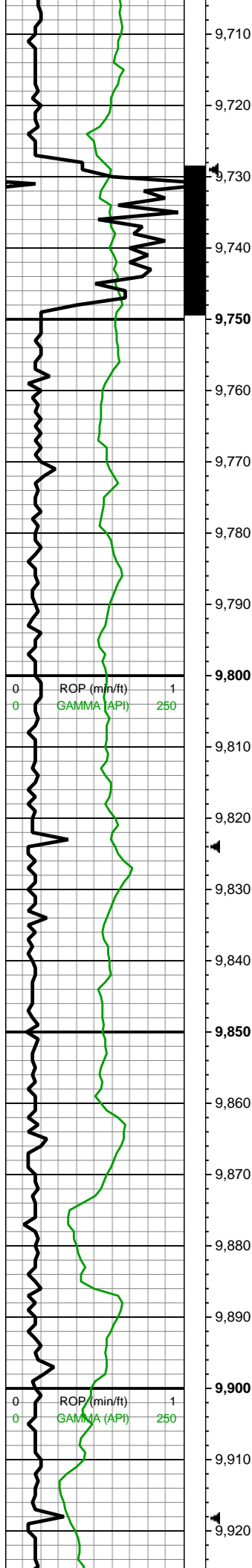
MW IN: 9.8
VIS IN: 41
MW OUT: 9.9
VIS OUT: 38



rd-sb blkly ctngs wi sm
arg-sl slty tex, occ f-u f wh
chky incl, tr-rr vf pyr strg
ip, rr sdy forams, hi calc

9500-9600 MRLST
(70%): med gy-dk gy-occ
blk, frm-hd-brit, med fis
sb blkly-blky, sm-sl slty
tex, mod calc; CHK
(30%): lt gy-dk gy, tn hue
thru, wxy lmst lstr, sb
frm-frm-brit, hi fis, blkly-sb
ply-pty, sm tex, hi calc

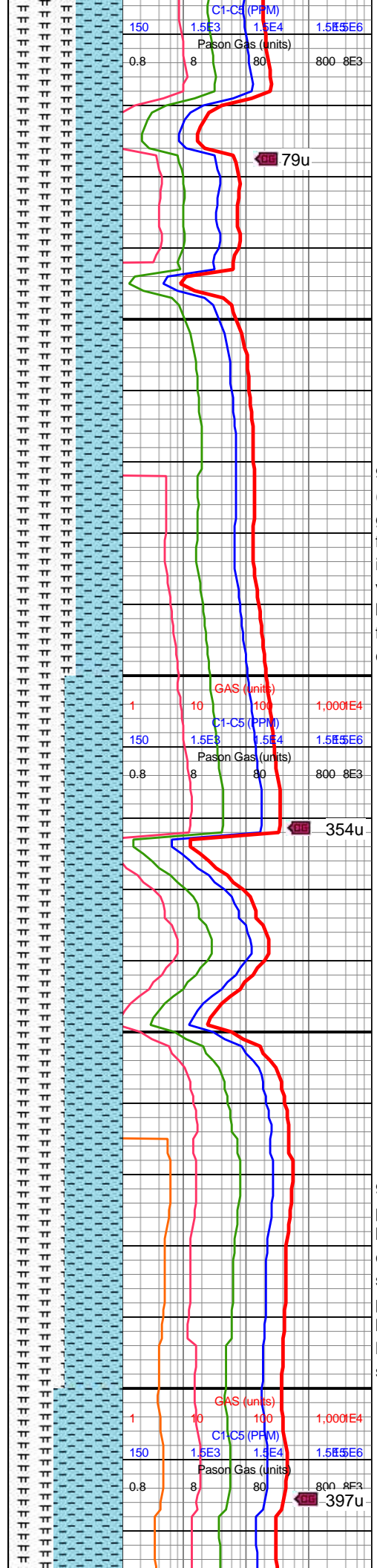
9600-9700 MRLST
(80%): lt gy-dk gy,
frm-hd-brit, med fis sb
blkly-blky, sm-sl slty tex,
mod calc; CHK (20%): lt
gy-gy, wxy lmst lstr, sb
frm-frm-brit, hi fis, blkly-sb
ply-pty, sm tex, calc



MD: 9,763'
INC: 90.13°
AZM: 2.01°
TVD: 7,096.47'
VS: 1,588.59'

WOB: 38.5klbs
RPM: 61
SPM: 200
SPP: 4,390psi

MD: 9,857'
INC: 90.84°
AZM: 1.74°
TVD: 7,095.67'
VS: 1,682.58'



79u

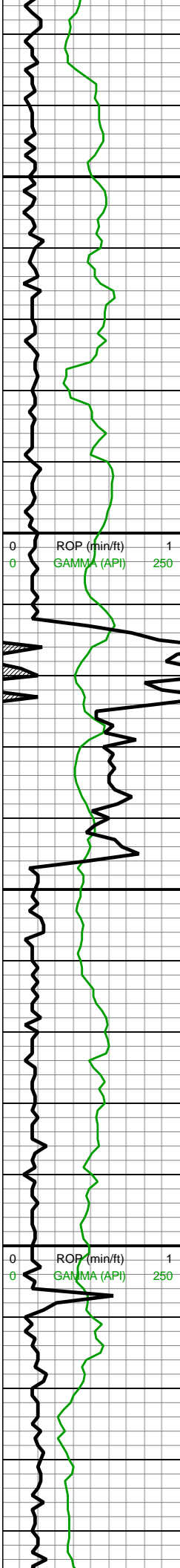
354u

397u

9700-9800 MRLST (60%): predy dk gy-dk gyshbn, sl slty-sm tex, frm-sl hrd, blky-sb tab, tr imbd/pp pyr, tr lam CHK, v calc; CHK (40%): med brn, dk gyshbn, mot, frm-sl sft, blky-sb splt, chky tex, v calc

9800-9900 CHK (50%): pred lt med gy-sme occ lt brn, sl sft-frm, blky, v-hi calc, v rr-occ pyrc nod wi sme tr pyr; MRLST (50%): pred med-sme dk gry, v blky-sb blky, brit-sl hrd, non calc, chky lam wi sme chky tex





9,930
9,940
9,950
9,960
9,970
9,980
9,990
10,000
10,010
10,020
10,030
10,040
10,050
10,060
10,070
10,080
10,090
10,100
10,110
10,120
10,130
10,140

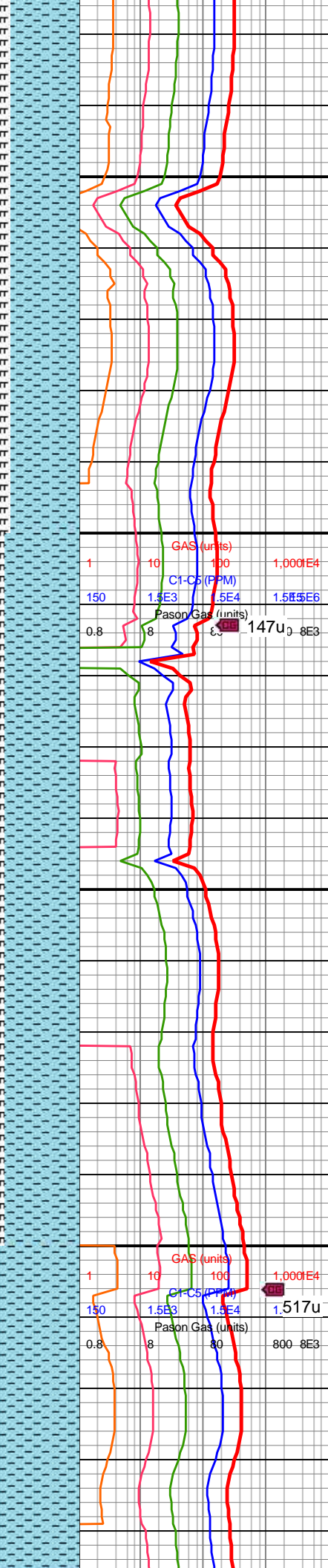
MD: 9,952'
INC: 92.11°
AZM: 1.04°
TVD: 7,093.23'
VS: 1,777.55'

MW IN: 9.8
VIS IN: 41
MW OUT: 9.9
VIS OUT: 39

WOB: 40.4klbs
RPM: 61
SPM: 200
SPP: 4,420psi

MD: 10,046'
INC: 89.96°
AZM: 1.39°
TVD: 7,091.53'
VS: 1,871.53'

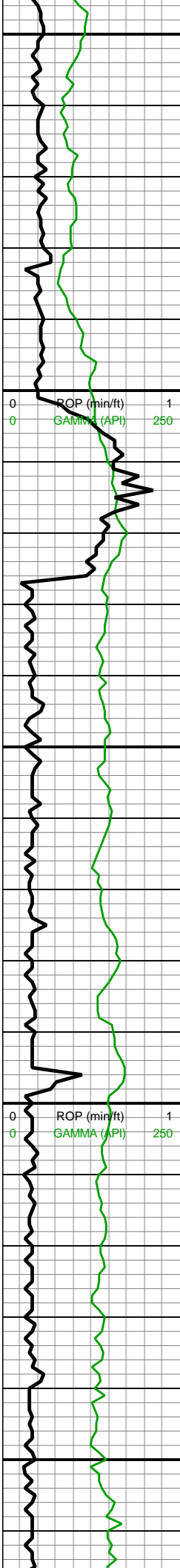
MD: 10,141'
INC: 90.53°
AZM: 1.04°
TVD: 7,091.12'



9900-10000 CHK (60%):
v lt gy-lt gy, med gy ip,
sft-sb frm-frm mod fis sb
blky-blky ctngs, sm
chky-sl slty arg tex, hi
calc; MRLST (40%): dk
gy-blk wi occ brn marl
incl, frm, brit, mod fis sb
blky-blky ctngs, sm sl slty
tex, mod calc

10000-10100 CHK
(65%); pred lt gy-gyshbn
wi occ med brn, sub
blky-blky wi rr plty, v
frm-frm, rr lam, scatt
pp-occ pyr; MRLST (35%)
pred med-dk gy wi sme v
dk gry, occ plty-blky, v hrd,
sme pp pyr, com
micmica





VS: 1,966.53'

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

10,310

10,320

10,330

10,340

10,350

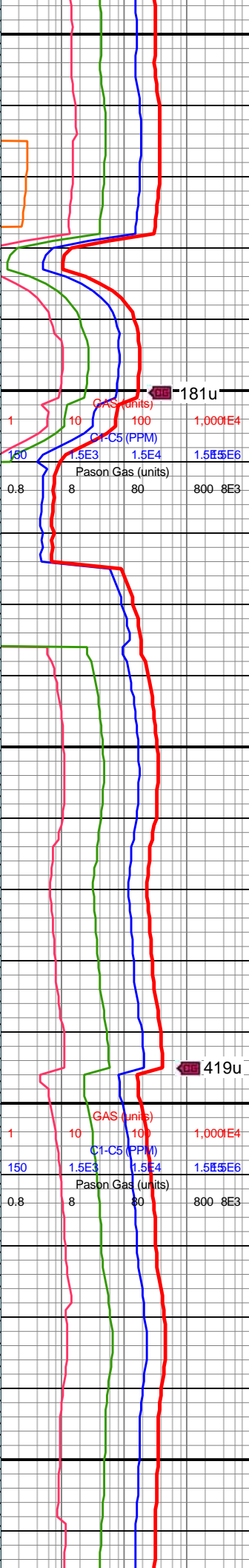
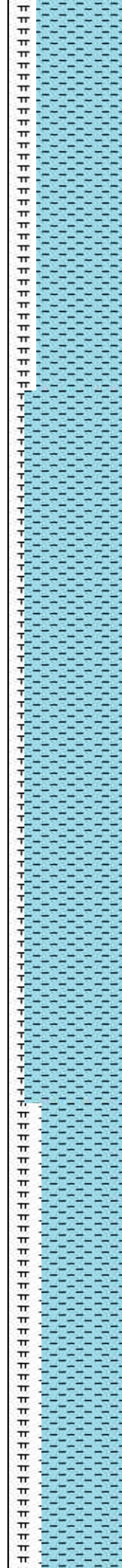
10,360

MW IN: 9.8
VIS IN: 41
MW OUT: 9.9
VIS OUT: 39

WOB: 40.4klbs
RPM: 61
SPM: 200
SPP: 4,342psi

MD: 10,235'
INC: 87.19°
AZM: 1.39°
TVD: 7,092.99'
VS: 2,060.5'

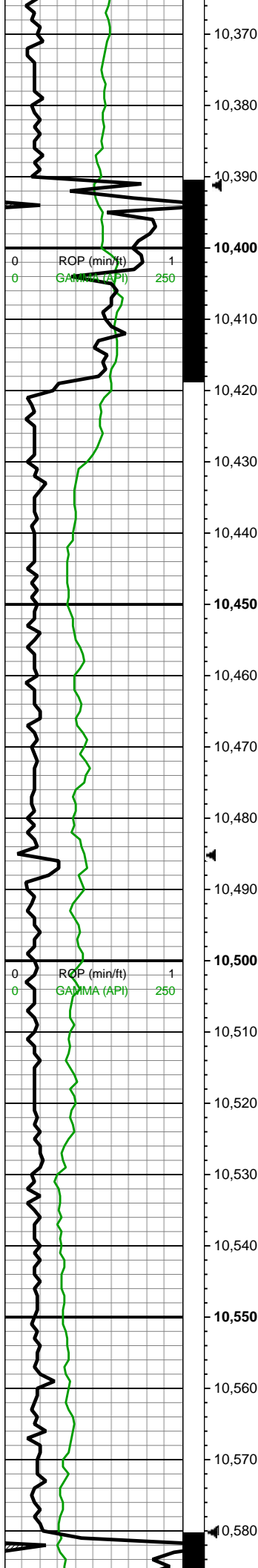
MD: 10,330'
INC: 86.79°
AZM: 0.16°
TVD: 7,097.98'
VS: 2,155.36'



10100-10200 CHK
(75%): predy gyshbn-lt
gy, mot, scat offwht, sb
blky-sb ang ctngs, fri-frm,
sm chky tex, com inoc fos
frags, calc; MRLST
(25%): dk gyshbn-dk gy,
frm-sl hd, sb blky-ang
ctngs, sl sm-rgh tex, com
intbd CHK, scat pyrc nod,
scat frac fl cal, hi calc

10200-10300 CHK (85%)
med gyshbn-lt gy, mot,
sb blky wi occ pty, v chky
tex, v sft-sl frm, scat-com
inoc fos frags, tr-rr pyr, v
calc; MRLST (15%)
med-dk gry wi sme lt gy,
sb-blky, sl lam-v
micmica, v calc, sme
scat cal





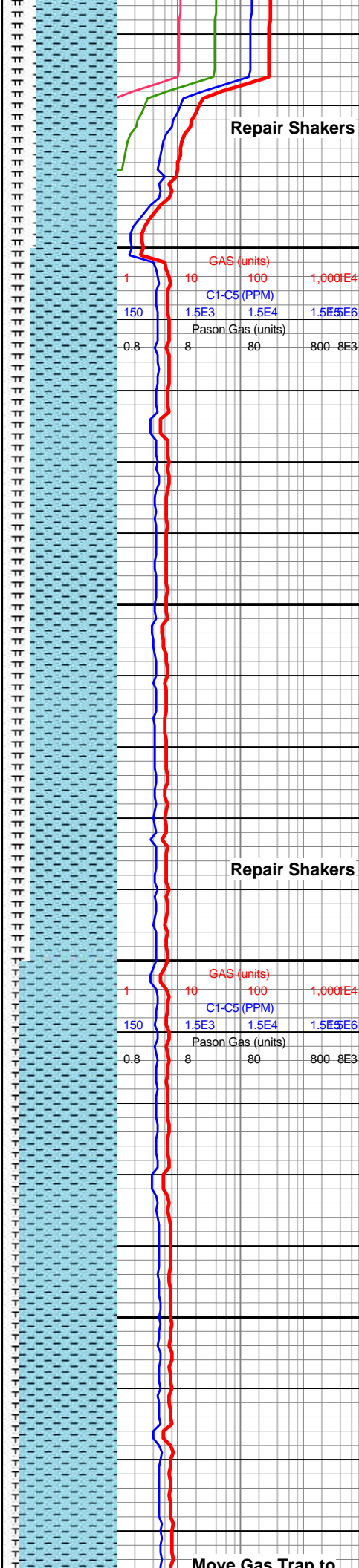
MW IN: 9.8
VIS IN: 40
MW OUT: 9.8
VIS OUT: 39

WOB: 50.5klbs
RPM: 0
SPM: 200
SPP: 4,047psi

MD: 10,424'
INC: 89.08°
AZM: 2.36°
TVD: 7,101.37'
VS: 2,249.29'

MD: 10,519'
INC: 88.9°
AZM: 1.3°
TVD: 7,103.04'
VS: 2,344.27'

MW IN: 9.8
VIS IN: 40



Repair Shakers

Repair Shakers

Move Gas Tran to

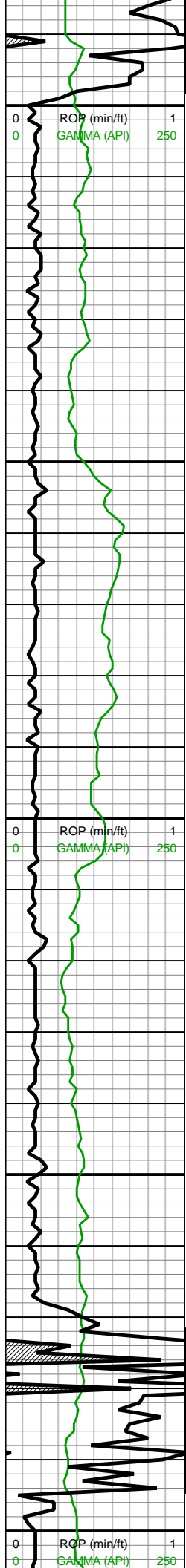
10300-10400 CHK
(70%): off wh-lt gy, predy
sft, occ sb frm w hydrated
ctngs, l-mod fis rd-sb
rd-sb blkly ctngs, rr vf pyr,
v hi calc; MRLST (30%):
dk gy-v dk gy, occ brn
marl incl, frm-brit, med-hi
fis blkly ctngs, rr vf pyr
strg, mod calc

10400-10500 CHK
(75%): gy-lt gy, sme
gyshbn, frm-brit, sb
blkly-blky, mod fis, mot wi
occ f wh chky incl, chky
rthy tex, hi calc; MRLST
(25%): dk gy-med gy,
frm-brit, sb blkly-blky, pred
sm-sl slty tex, com intbd
chk, mod calc

10500-10600 CHK
(85%): med-lt gy, thn bri
wh chky incl thru,
brit-mod fis, sb blkly-blky,
sb ang, sm arg-sl slty tex
ip, hi calc; MRLST (15%):
mod med-lt gy, mod med-lt

GAS (units)			
1	10	100	1,000E4
C1-C5 (PPM)			
150	1.5E3	1.5E4	1.5E5E6
Pason Gas (units)			
0.8	8	80	800 8E3

GAS (units)			
1	10	100	1,000E4
C1-C5 (PPM)			
150	1.5E3	1.5E4	1.5E5E6
Pason Gas (units)			
0.8	8	80	800 8E3



MW OUT: 9.8
VIS OUT: 39

WOB: 38.5klbs
RPM: 61
SPM: 200
SPP: 4,412psi

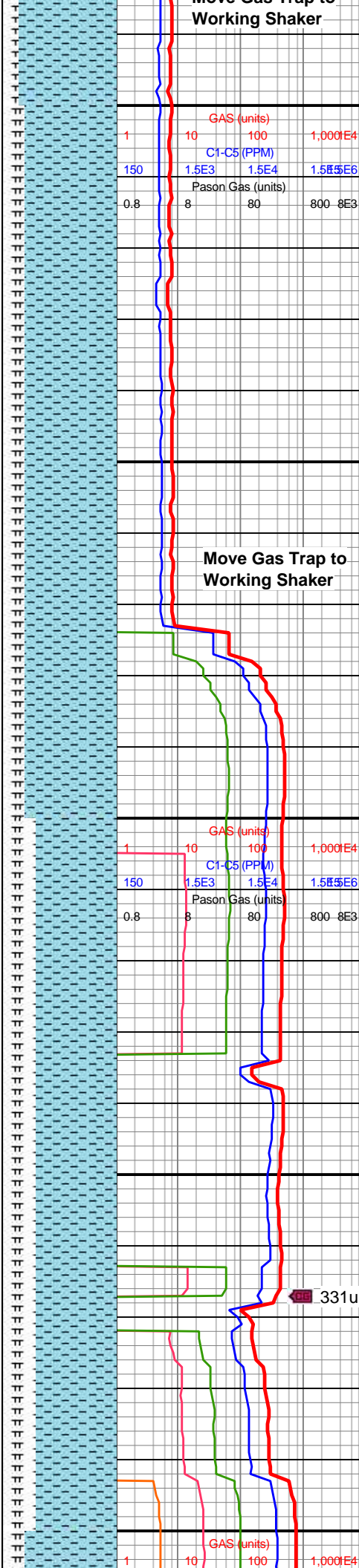
MD: 10,614'
INC: 92.51°
AZM: 3.5°
TVD: 7,101.87'
VS: 2,439.22'

MD: 10,708'
INC: 93.74°
AZM: 2.71°
TVD: 7,096.75'
VS: 2,533.03'

MW IN: 9.8
VIS IN: 40
MW OUT: 9.8
VIS OUT: 39

WOB: 38.5klbs
RPM: 61
SPM: 1,999
SPP: 4,467psi

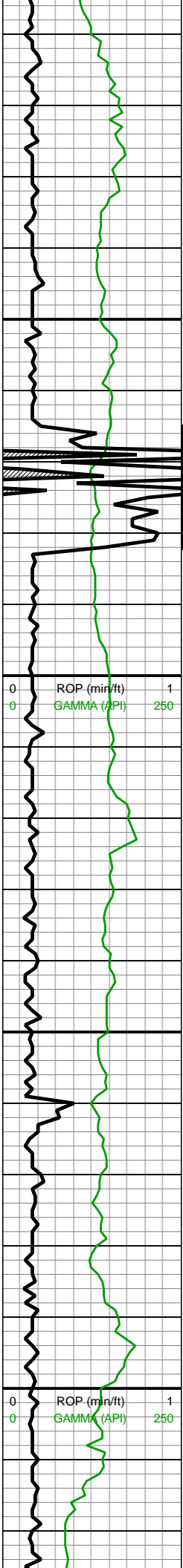
MD: 10,804'
INC: 92.33°
AZM: 2.01°



med gy-dk gy, mot wi brn
mrly incl ip, frm, brit,
l-mod fis, com chky lamn,
mod calc, tr-scat imbd
pyr, tr frac fl cal

10600-10700 CHK
(80%): med-lt gy, thn bri
wh chky incl thru,
brit-mod fis, sb blkly-blky,
sb ang, sm arg-sl slty tex
ip, hi calc; MRLST (20%):
med gy-dk gy, mot wi brn
mrly incl ip, frm, brit,
l-mod fis, com chky lamn,
mod calc, rr cal vns

10700-10800 CHK
(70%): pred lt gry wi lt
brn, sme sl med gy-brn,
frm-sl brit, sb blkly-sl plty,
sl sft ip, v calc, com innoc
fos frags, tr pyr, scat lse
cal; MRLST (20%): v dk
gy-blk, occ gysbhn, frm-v
frm, blkly, calc, sl rgh tex
wi com micmica



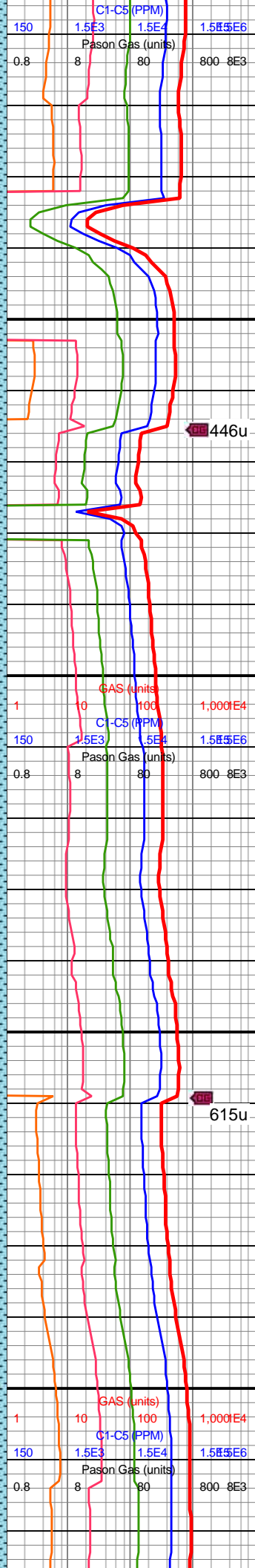
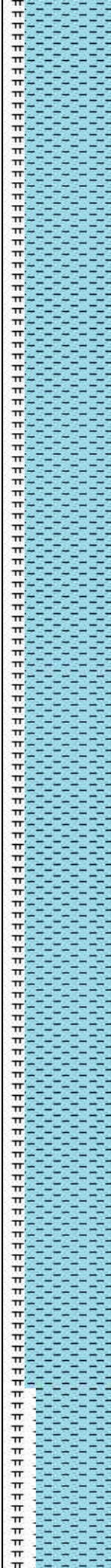
TVD: 7,091.67'
VS: 2,628.87'

MW IN: 9.8
VIS IN: 40
MW OUT: 9.8
VIS OUT: 39

MD: 10,898'
INC: 90.79°
AZM: 1.13°
TVD: 7,089.11'
VS: 2,722.83'

MD: 10,993'
INC: 91.63°
AZM: 1.22°
TVD: 7,087.1'
VS: 2,817.81'

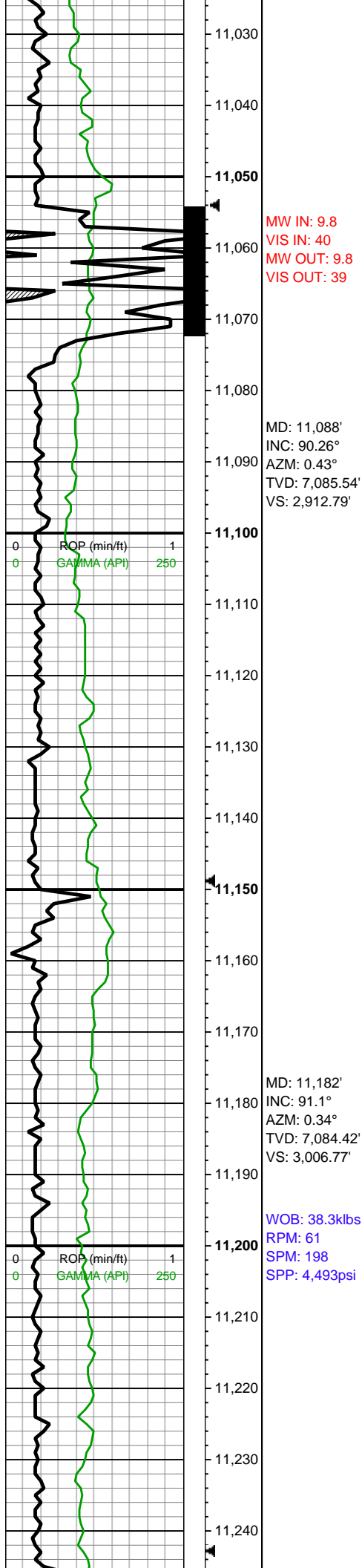
WOB: 39klbs
RPM: 61
SPM: 198
SPP: 4,500psi



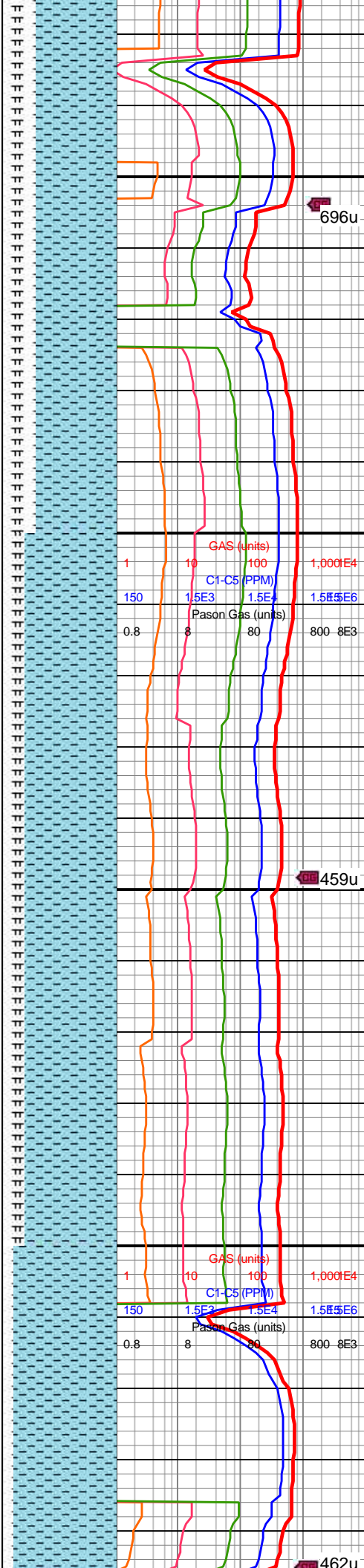
10800-10900 CHK
(80%): pred lt-med gry wi
lt brn, sme sl med gy-brn,
frm-sl brit, sb blkyl-sl plty,
sl sft ip, v calc, com inoc
fos frags; MRLST (20%):
v dk gy-blk, occ gyshbn,
frm-v frm, blkyl, calc, sl
rgh tex

10900-11000 CHK (80%)
med gyshbn-lt gy, mot,
sb blkyl wi occ plty, v chky
tex, v sft-sl frm, scat-com
inoc fos frags, tr-rr pyr, v
calc; MRLST (20%)
med-dk gry wi sme lt gy,
sb-blkyl, sl lam-v
micmica, v calc, sme
scat cal



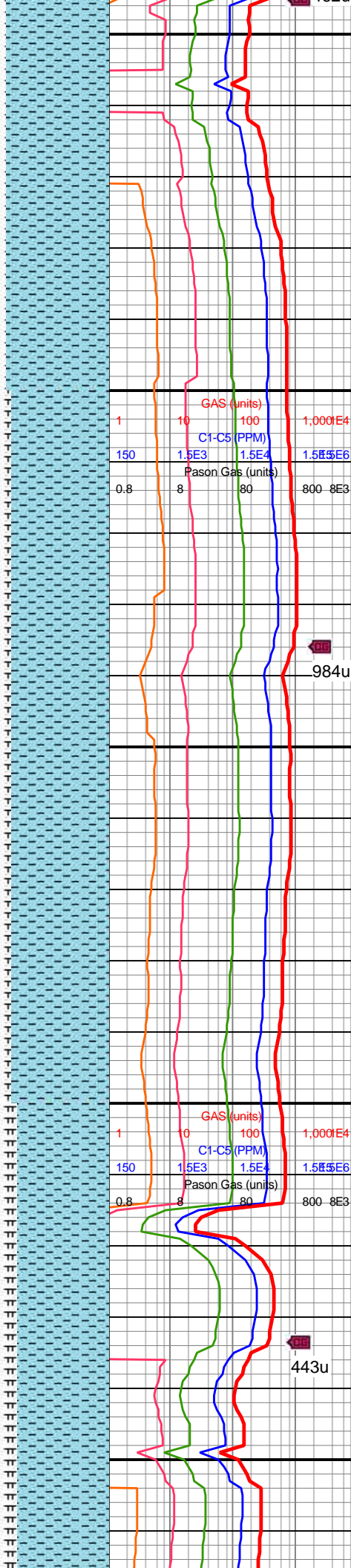
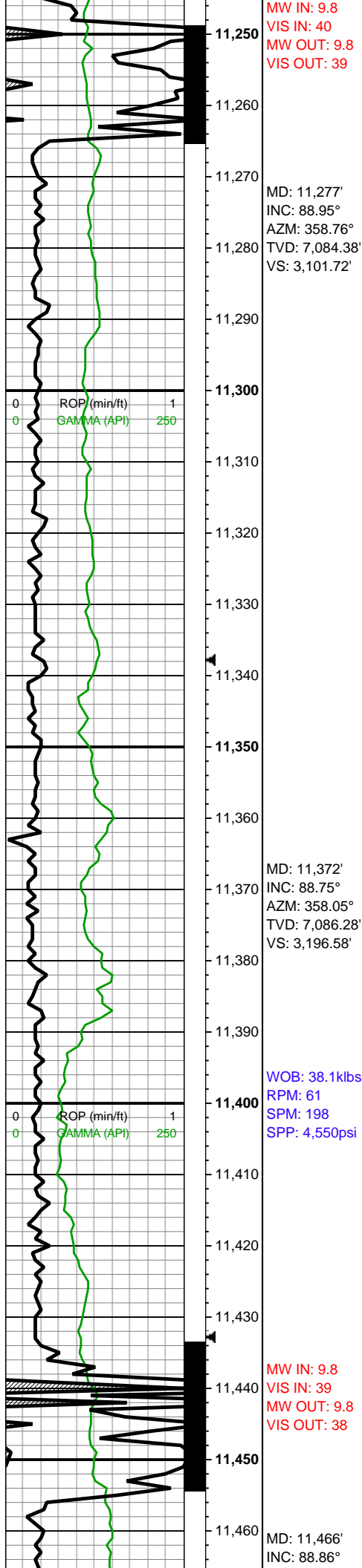


MW IN: 9.8
VIS IN: 40
MW OUT: 9.8
VIS OUT: 39



10900-11000 CHK
(70%): med gy-gyshbn,
mot lt gy-gy, frm-brit, sb
blky-blky mod fiss, mot
wi occ f wh chky incl, hi
calc; MRLST (30%): med
gy-dk gy, frm-brit, sb
blky-blky, pred sm-sl slty
tex, tr vf pyr, mod calc

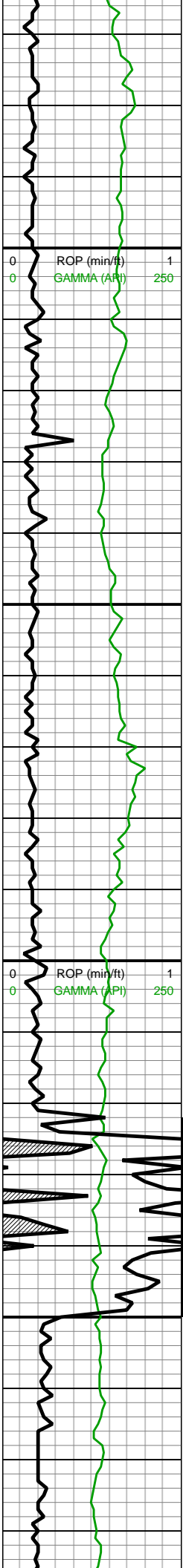
11000-11100 CHK
(80%): lt gy-gyshbn-med
gy wi occ f wh chky incl
thru, frm-brit l-mod fis sb
rd-sb blky-blky ctngs,
scat foram, tr fos frags, v
calc; MRLST (20%): med
gyshbn-dk gy, frm-brit,
blky-sb blky, sm arg-sl
slty tex, mod calc



11200-11300 CHK
(90%): med brn-lt
gyshbn, com lt gy-offwht,
tr free crm chk, mot,
frm-sl sft, blk-y-sb rd, chky
tex, com mic fos frags,
mod calc; MRLST (10%):
predy dk gy-dk gyshbn,
sm tex, frm-sl hrd,
blk-y-sb rd, tr imbd pp pyr,
tr lam CHK, calc

11300-11400 CHK
(85%): lt gy-gyshbn-med
gy wi occ f wh chky incl
thru, frm-brit sb blk-y-blky
ctngs, chky tex, occ
cryptoxln, rr-tr foram, tr
fos frags, v calc; MRLST
(15%): med gyshbn-dk
gy, frm-brit, blk-y-sb blk-y,
sm arg-sl slty tex, mod
calc





11,470
11,480
11,490
11,500
11,510
11,520
11,530
11,540
11,550
11,560
11,570
11,580
11,590
11,600
11,610
11,620
11,630
11,640
11,650
11,660
11,670
11,680

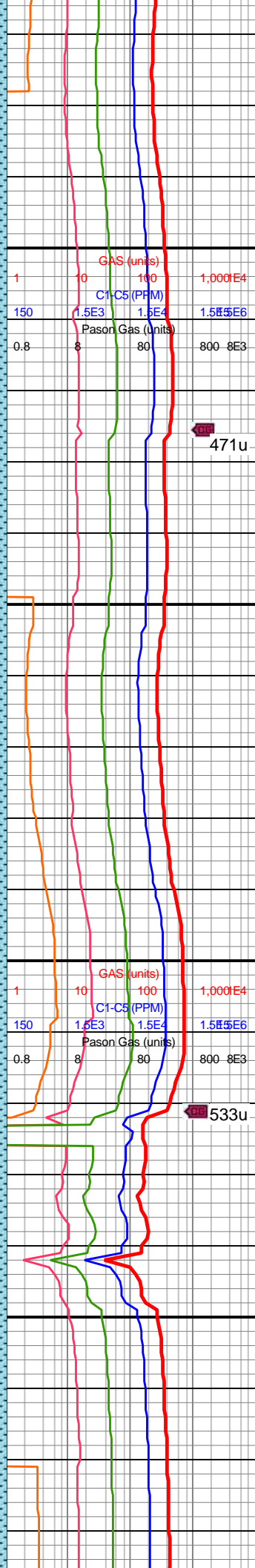
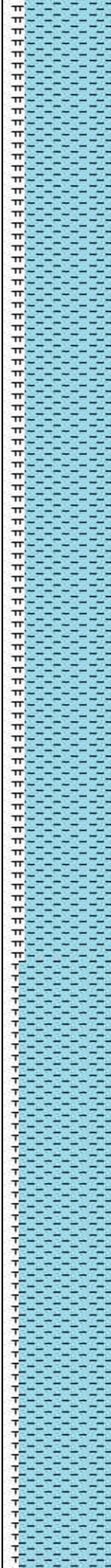
AZM: 358.84°
TVD: 7,088.25'
VS: 3,290.45'

MD: 11,561'
INC: 90.18°
AZM: 358.58°
TVD: 7,089.04'
VS: 3,385.35'

WOB: 37.1klbs
RPM: 61
SPM: 198
SPP: 4,596psi

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

MD: 11,656'
INC: 88.9°
AZM: 0.6°
TVD: 7,089.8'
VS: 3,480.3'

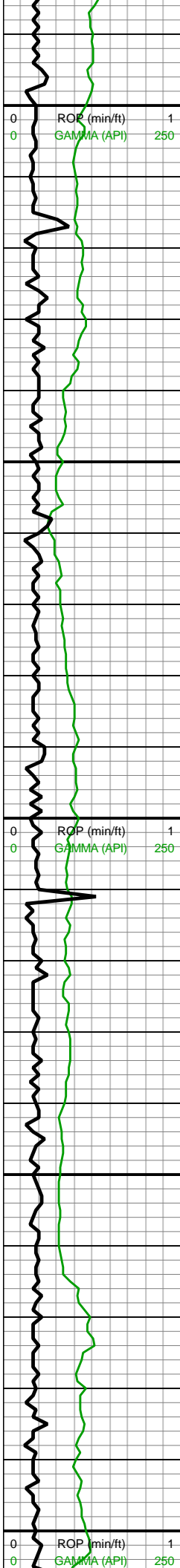


11400-11500 CHK
(80%): lt gy-gyshbn-med gy wi occ f wh chky incl thru, frm-brit l-mod fis sb rd-sb blkly-blky ctngs, scat foram, tr fos frags, v calc; MRLST (20%): med gyshbn-dk gy, frm-brit, blkly-sb blkly, sm arg-sl slty tex, mod calc

11500-11600 CHK
(80%): lt gy-med gy, med gyshbnip ip-occ dk gy wi f wh chky incl, frm, brit, mod fis sb ang-sb blkly ctngs, sl slty tex, hi calc; MRLST (20%): dk gy-dk gyshbn, frm, brit, mod fis sb blkly-blky ctngs, sm sl slty tex, rr-tr tn bent, mod calc wi brn mrly resdl

11600-11700 CHK
(85%): med brn-dk gyshbn, tr free chk, mot, frm-sl sft, blkly-sb rd, chky tex, scat-com mic fos frags, v calc; MRI ST





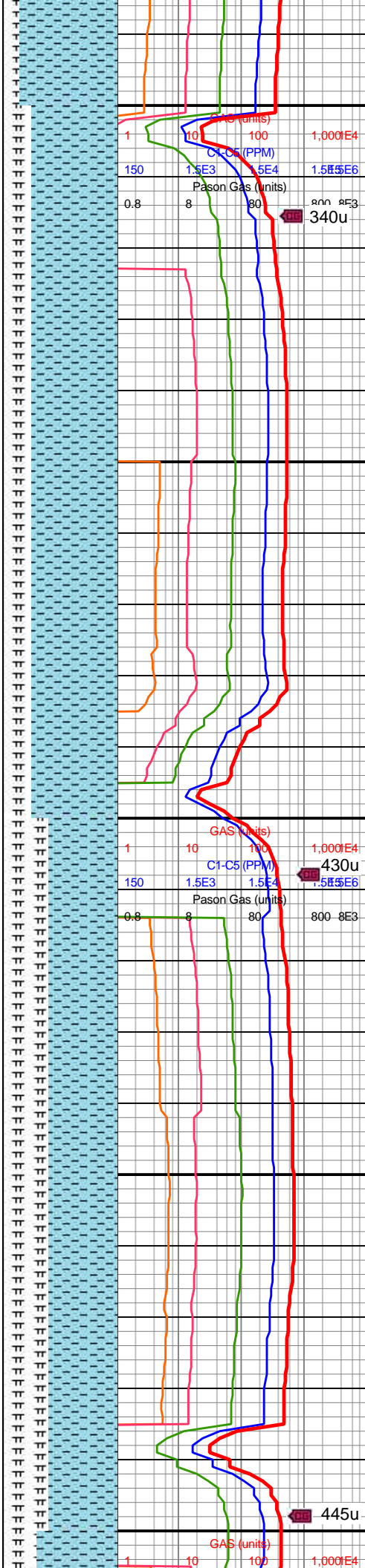
11,690
11,700
11,710
11,720
11,730
11,740
11,750
11,760
11,770
11,780
11,790
11,800
11,810
11,820
11,830
11,840
11,850
11,860
11,870
11,880
11,890
11,900

MD: 11,750'
INC: 89.56°
AZM: 0.34°
TVD: 7,091.07'
VS: 3,574.28'

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

WOB: 39.4klbs
RPM: 61
SPM: 200
SPP: 4,685psi

MD: 11,844'
INC: 90.35°
AZM: 359.81°
TVD: 7,091.14'
VS: 3,668.26'

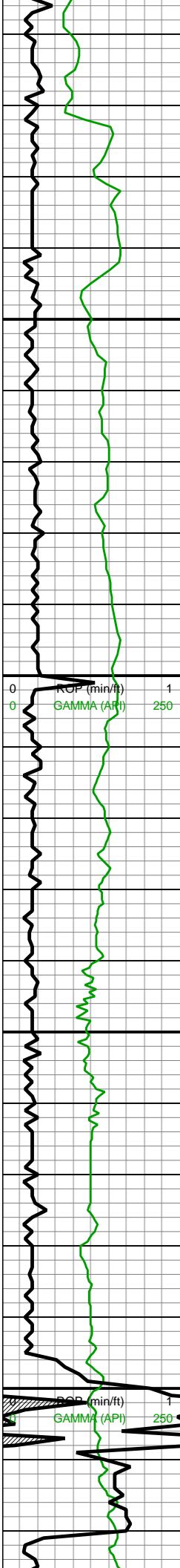


(15%): predy dk gy-dk
gyshbn, sm tex, frm-sl
hrd, blkly-sb rd, tr imbd pp
pyr, tr lam CHK, calc

11700-11800 CHK
(75%): med gy, frm, brit,
mod fis sb ang-sb blkly
ctngs, sm sl slty tex, v rr
forams, hi calc; MRSLT
(25%): brn-dk gyshbn-dk
gy, frm-hd, mod fis, sb
blkly, dul rthy-wxy lstr,
mod calc wi brn mrly
resdl

11800-11900 CHK
(60%): med gy, frm-brit,
mod fis sb ang-sb blkly
ctngs, sm sl slty tex, tr
forams, hi calc; MRLST
(40%): gyshbn-dk gy,
frm-hd, mod fis, sb blkly,
dul rthy lstr, mod calc wi
brn mrly resdl





11,910
11,920
11,930
11,940
11,950
11,960
11,970
11,980
11,990
12,000
12,010
12,020
12,030
12,040
12,050
12,060
12,070
12,080
12,090
12,100
12,110
12,120

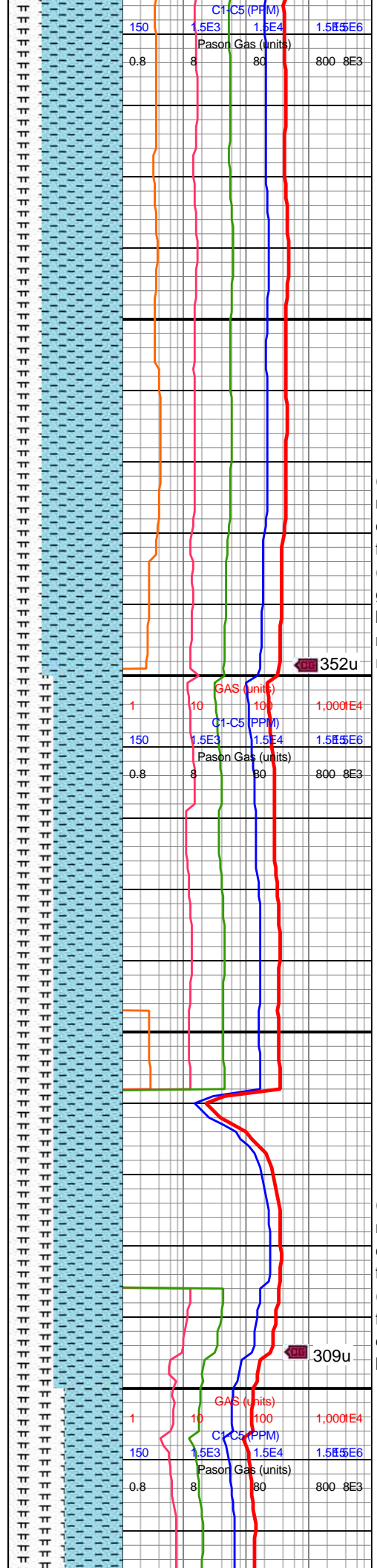
MD: 11,938'
INC: 90.75°
AZM: 359.72°
TVD: 7,090.24'
VS: 3,762.23'

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

WOB: 38.3klbs
RPM: 61
SPM: 200
SPP: 4,849psi

MD: 12,033'
INC: 91.67°
AZM: 358.93°
TVD: 7,088.23'
VS: 3,857.15'

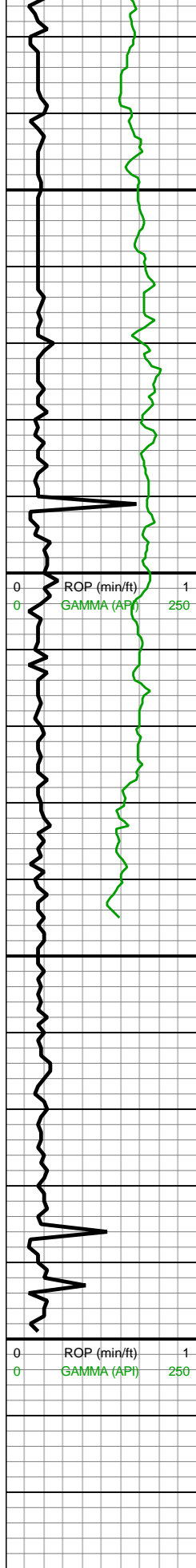
MD: 12,128'
INC: 89.34°



11900-12000 CHK
(70%): med gy, frm, brit,
mod fis sb ang-sb blk
ctngs, sm sl slty tex, v rr
forams, hi calc; MRSLT
(30%): brn-dk gyshbn-dk
gy, frm-hd, mod fis, sb
blk, dul rthy-wxy lstr,
mod calc wi brn mrly
resdl

12000-12100 CHK
(60%): med gy, frm-brit,
mod fis sb ang-sb blk
ctngs, sm sl slty tex, tr
forams, hi calc; MRLST
(40%): gyshbn-dk gy,
frm-hd, mod fis, sb blk,
dul rthy lstr, mod calc wi
brn mrly resdl





AZM: 358.58°
TVD: 7,087.4'
VS: 3,952.05'

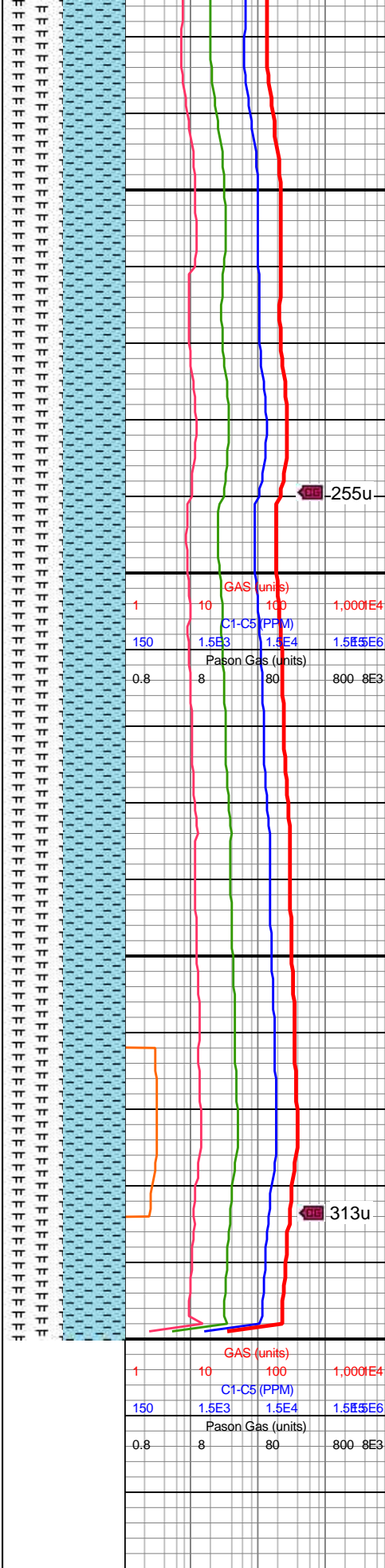
WOB: 33.3klbs
RPM: 61
SPM: 198
SPP: 4,660psi

MD: 12,239'
INC: 90.22°
AZM: 357.44°
TVD: 7,087.82'
VS: 4,062.87'

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

MD: 12,300'
INC: 90.22°
AZM: 357.44°
TVD: 7,087.59'
VS: 4,123.73'

TD @ 12,300'
MD on 7/21/18
@ 18:40hrs



12100-12200 CHK
(50%): pred lt med
gy-sme occ lt brn, sl
sft frm, blk, v-hi calc, v
rr-occ pyrc nod wi sme tr
pyr; MRLST (50%): pred
med-sme dk gry, v
blk-sb blk, brit-sl
hrd, non calc, chky lam wi
sme chky tex

12200-12300 CHK
(50%): pred lt med
gy-sme occ lt brn, sl
sft frm, blk, v-hi calc, v
rr-occ pyrc nod wi sme tr
pyr; MRLST (50%): pred
med-sme dk gry, blk-sb
blk, brit-sl hrd, non calc,
chky lam wi sme chky tex