



Scale: 5" / 100'
Measured Depth Log

Well Name Kugel 1L-18H-H267

Location Sec. 18 T2N R67W

State Colorado

County Weld

Country USA

Rig Number Ensign 153

API Number 05-123-49484

AFE # 16192099

Geographic Region Rockies

Field Wattenberg

Spud Date 7/8/2019

Drilling Completed 7/11/2019

Surface Coordinates Lat/Long (NAD83): 40.139523/-104.926457

SHL: Sec 18 T2N R67W
Footage: 2228 FNL 682 FEL

Bottom Hole Coordinates Proposed BHL: Sec 17 T2N R67W
Footage: 460 FSL 0 FEL

Ground Elevation 4,953'

K.B. Elevation 4,974'

Logged Interval 7,165' **To** 13,732'

Total Depth 13,732'

Formation Codell

Type of Drilling Fluid Synthetic Oil Based Mud (Neoflo Base Oil)

Operator

Company Crestone Peak Resources

Address 1801 California Street, Suite 2500
Denver, CO 80202



CRESTONE PEAK
RESOURCES

Geologist

Color Coding

Geologist

Name John Ready

Company Crestone Peak Resources

Address 1801 California Street, Suite 2500
Denver, CO 80202



Color Coding

| | | |
|-------|------------|----------|
| Oil | Condensate | Gas |
| Note | Core | Pressure |
| Error | Water | Seal |

Other

Loggers: Shana Swirin, Thomas Yull

Services Provided: 2-Man Mudlogging, Geosteering

Equipment: ML-558

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

Service Start Date: 07/08/2019

Service End Date: 07/11/2019

Job # 2324RK1907

Release Date: 07/12/2019

Rock Types

| | | | |
|----------------------|---------------|--------------|-------------|
| UNKNOWN | CHERT | SILTSTONE | IGNEOUS |
| ANHYDRITE | COAL | SANDSTONE | METAMORPHIC |
| GYPSUM | MARLSTONE | CONGLOMERATE | CEMENT |
| SALT | CHALK | BRECCIA | No Sample |
| SIDERITE or LIMONITE | SHALE | TILL | |
| LIMESTONE | SHALE GRAY | BENTONITE | |
| DOLOMITE | SHALE COLORED | TUFF | |

Accessories

Fossils

| |
|------------|
| ALGAE |
| AMPHIPORA |
| BELEMNITE |
| BIOCLASTIC |
| BRACHIOPOD |
| BRYOZOA |
| CEPHALOPOD |
| CORAL |

Fossil

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

ARGILLACEOUS

| |
|----------------------|
| ARGILLITE GRAIN |
| BENTONITE |
| BITUMENOUS SUBSTANCE |
| BRECCIA FRAGMENTS |
| CALCAREOUS |
| CARBONACEOUS FLAKES |
| CHTDK |
| CHTLT |
| COAL - THIN BEDS |

GLAUCONITE

| |
|-------------------|
| GYPSIFEROUS |
| HEAVY MINERAL |
| KAOLIN |
| MARLSTONE |
| MINERAL CRYSTALS |
| NODULES |
| PHOSPHATE PELLETS |
| PYRITE |
| SALT CAST |

Stringer

| |
|-----------------------|
| ANHYDRITE STRINGER |
| BENTONITE STRINGER |
| COAL STRINGER |
| DOLOMITE STRINGER |
| GYPSUM STRINGER |
| LIMESTONE STRINGER |
| MARLSTONE (CALC) STRG |
| MARLSTONE (DOL) STRG |

⊗ CRINOID
♥ ECHINOID
🐟 FISH
🔍 FORAMINIFERA

▮ STROMATOPOROID
Minerals
// ANHYDRITIC

⚡ DOLOMITIC
+ FELDSPAR
● FERRUGINOUS PELLET
🔍 FERRUGINOUS

⋄ SANDY
^ SILICEOUS
- SILTY
✓ TUFFACEOUS

▬ SANDSTONE STRINGER
— SHALE STRINGER
▬ SILTSTONE STRINGER

Oil Show

▮ DEAD
● EVEN
○ QUESTIONABLE
⦿ SPOTTED STAINING

Porosity

Ⓔ EARTHY
▮ FENESTRAL
F FRACTURE
X INTERCRYSTALLINE
⦿ INTEROOLITIC
X MOLDIC

□ ORGANIC
P PINPOINT
▽ VUGGY

Engineering

▲ BIT
▬ CASING
◀ CONNECTION (LEFT)
▶ CONNECTION (RIGHT)
🔍 CONNECTION GAS
↓ CORE - LOST
■ CORE - RECOVERED
⋮ DST INTERVAL
⚡ FAULT

Other Symbols

↔ FORMATION TOP
✳ GAS SHOW
MDEPTH MN DEPTH
↗ NORMAL FAULT
● OIL SHOW
⬆ OVERTURNED STRATA
↘ REVERSE FAULT
◀ SIDEWALL CORE (LEFT)
▶ SIDEWALL CORE (RIGHT)
▮ SLIDE
DS SURVEY
TG TRIP GAS
◀ WIRELINE TESTED - LEFT
▶ WIRELINE TESTED - RT

Rounding

△ ANGULAR
R ROUNDED
▮ SUBANG
r SUBRND

Textures

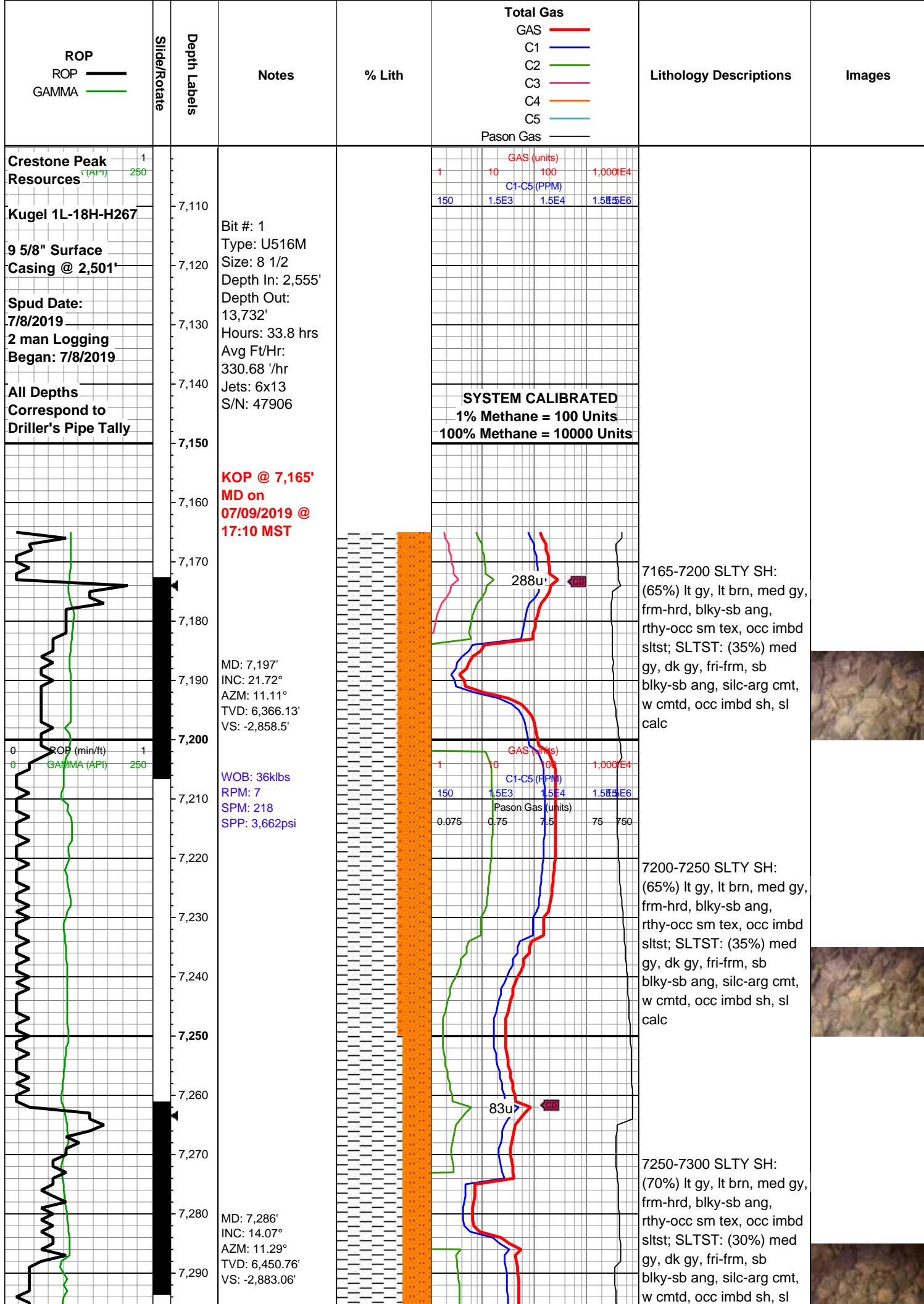
BS BOUNDSTONE
C CHALKY
CX CRYPTOXLN
E EARTHY
FX FINELYXLN
GS GRAINSTONE

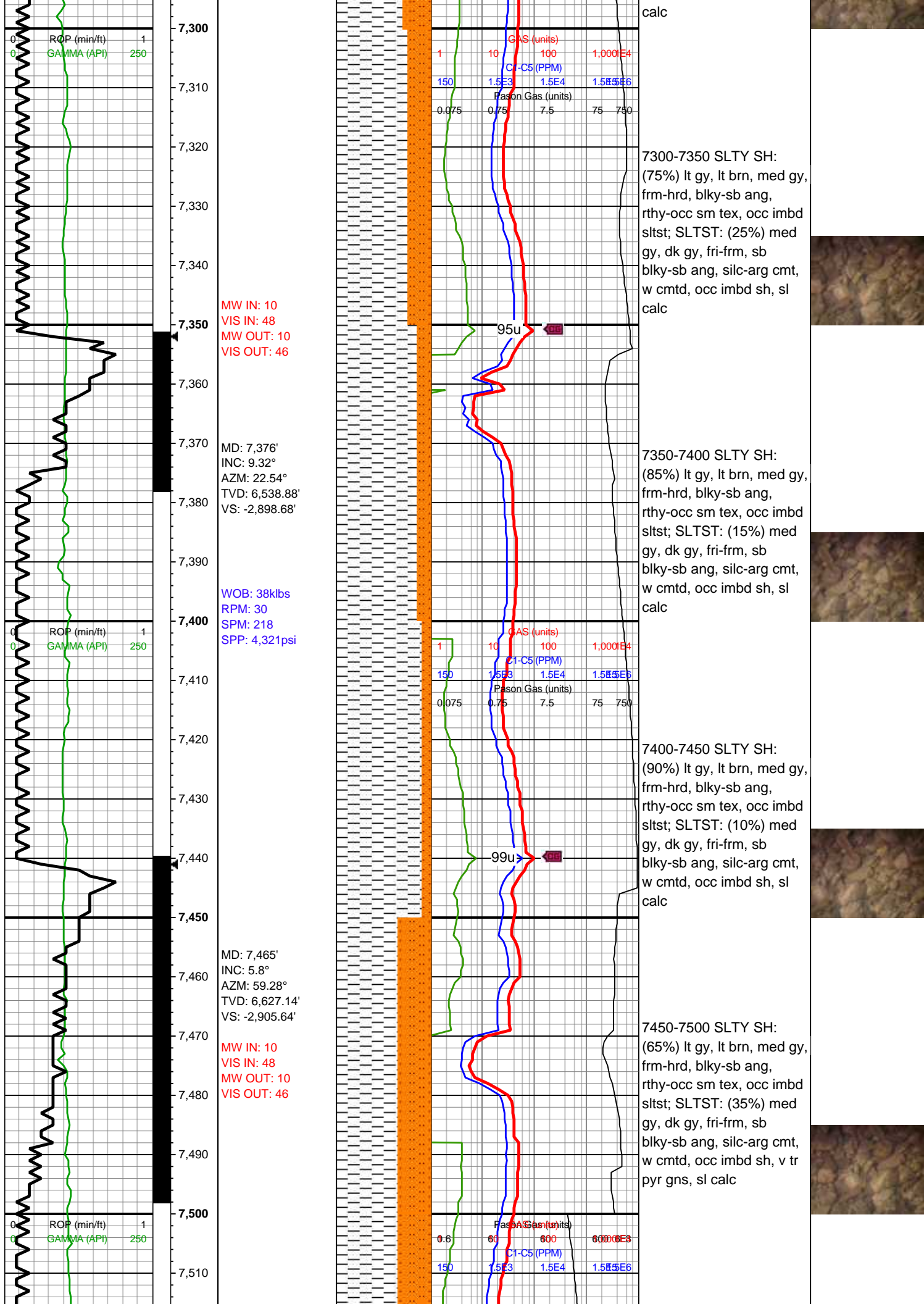
L LITHOGRAPHIC

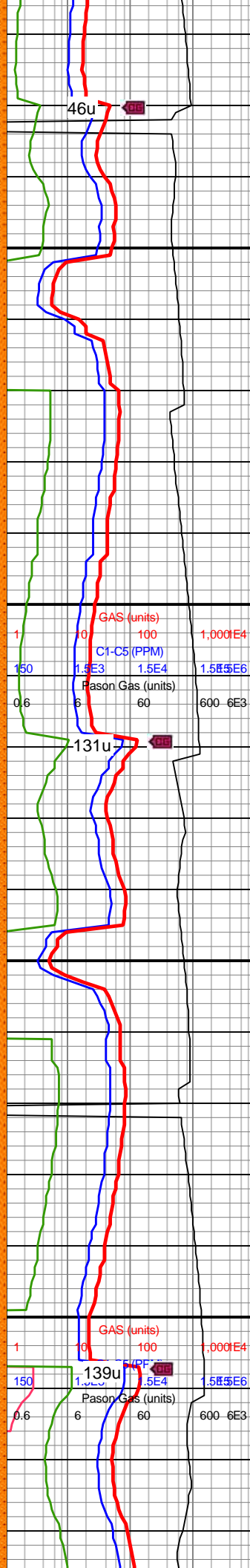
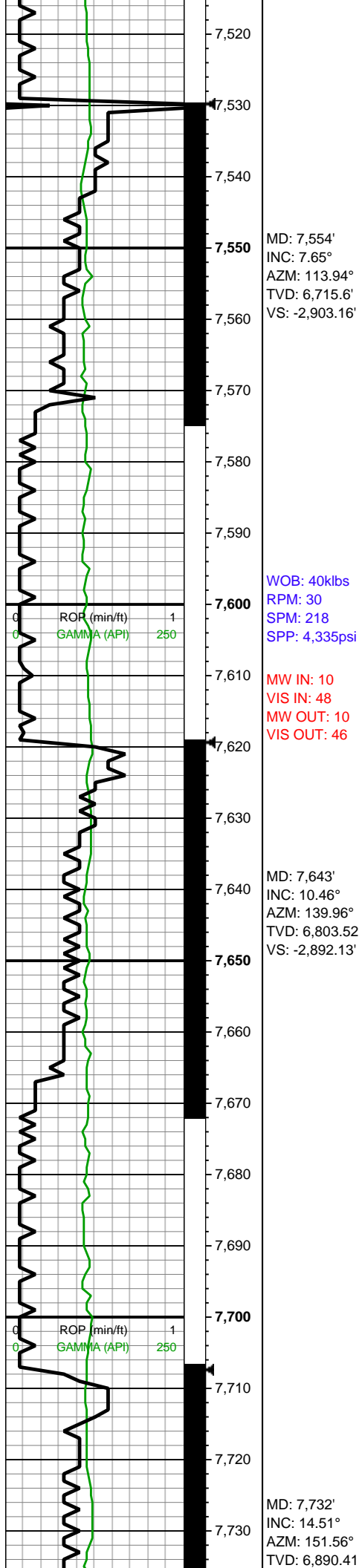
MX MICROXLN
MS MUDSTONE
PS PACKSTONE
WS WACKESTONE

Sorting

M MODERATE
P POOR
W WELL







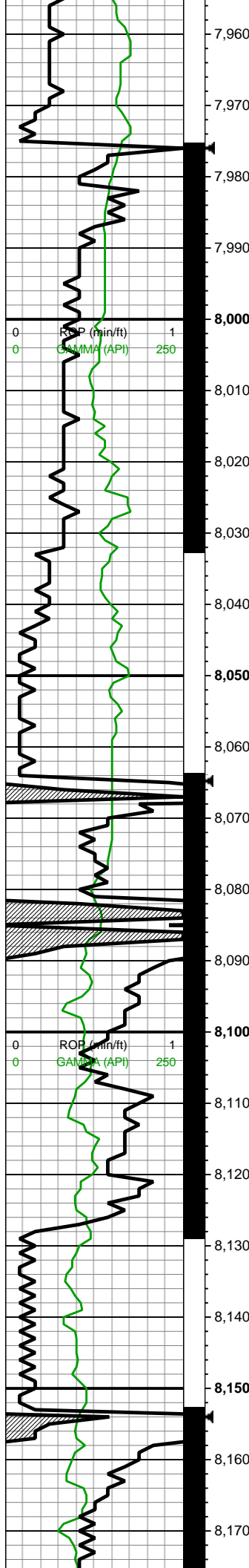
7500-7550 SLTY SH:
(65%) lt gy, lt brn, med gy,
frm-hrd, blk-y-sb ang,
rthy-occ sm tex, occ imbd
sltst; SLTST: (35%) med
gy, dk gy, fri-frm, sb
blk-y-sb ang, silc-arg cmt,
w cmtd, occ imbd sh, v tr
pyr gns, sl calc

7550-7600 SLTY SH:
(70%) lt gy, lt brn, med gy,
frm-hrd, blk-y-sb ang,
rthy-occ sm tex, occ imbd
sltst; SLTST: (30%) med
gy, dk gy, fri-frm, sb
blk-y-sb ang, silc-arg cmt,
w cmtd, occ imbd sh, v tr
pyr gns, sl calc

7600-7650 SLTST: (50%)
med gy, dk gy, fri-frm, sb
blk-y-sb ang, silc-arg cmt,
w cmtd, occ imbd sh, sl
calc; SLTY SH: (50%) lt
gy, lt brn, med gy,
frm-hrd, blk-y-sb ang,
rthy-occ sm tex, occ imbd
sltst

7650-7700 SLTST: (70%)
med gy, dk gy, fri-frm, sb
blk-y-sb ang, silc-arg cmt,
w cmtd, occ imbd sh, sl
calc; SLTY SH: (30%) lt
gy, lt brn, med gy,
frm-hrd, blk-y-sb ang,
rthy-occ sm tex, occ imbd
sltst

7700-7750 SLTST: (50%)
med gy, dk gy, fri-frm, sb
blk-y-sb ang, silc-arg cmt,
w cmtd, occ imbd sh, sl
calc; SLTY SH: (50%) lt



Sharon Springs
7957' MD/7098' TVD

MD: 7,999'
INC: 35.44°
AZM: 173.01°
TVD: 7,133.75'
VS: -2,768.88'

WOB: 24klbs
RPM: 8
SPM: 218
SPP: 3,712psi

Niobrara
8055' MD/7179' TVD

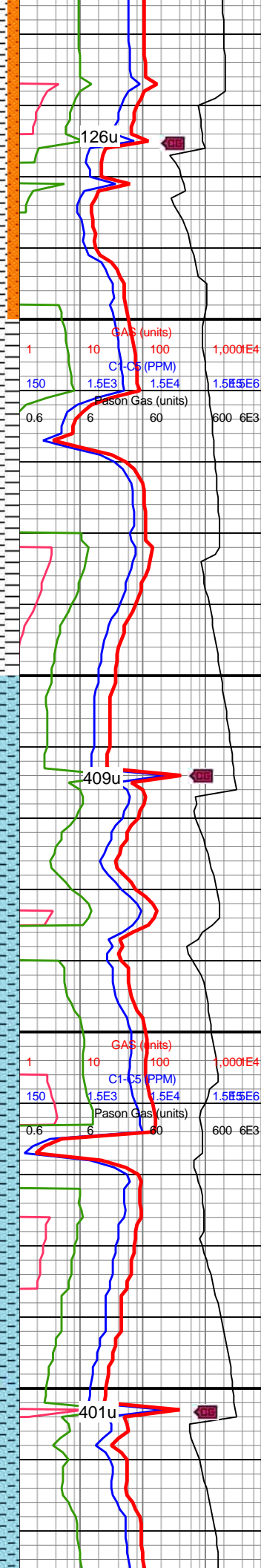
07/10/2019

MD: 8,088'
INC: 39.75°
AZM: 173.53°
TVD: 7,204.26'
VS: -2,715.14'

MW IN: 10.3
VIS IN: 49
MW OUT: 10.2
VIS OUT: 47

**Niobrara B
Chalk**
8123' MD/7231' TVD

MD: 8,178'
INC: 44.11°



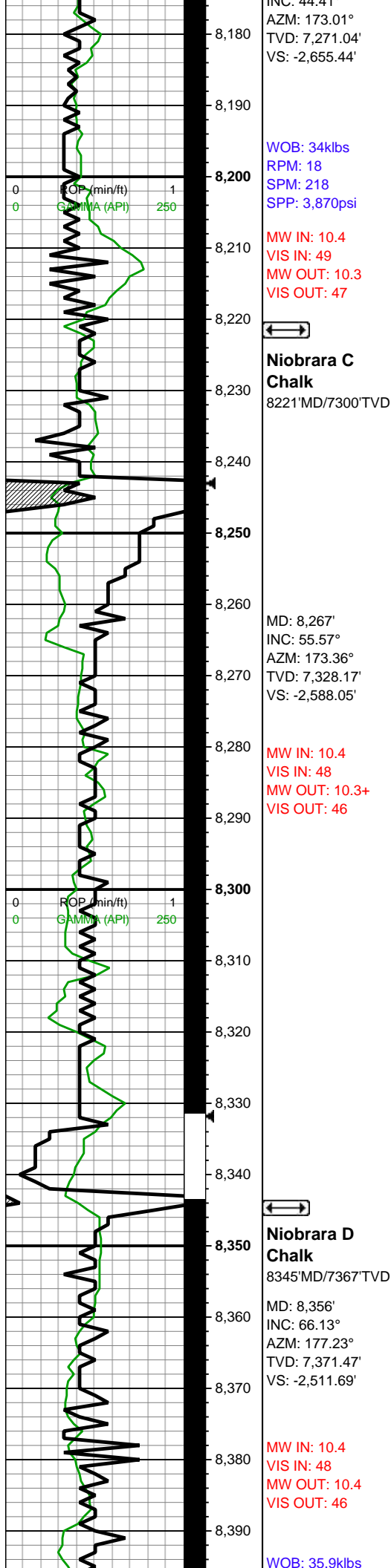
7950-8000 SLTY SH:
(90%) lt gy, lt brn, med gy,
frm-hrd, blkly-plty, rthy-occ
sm tex, occ imbd sltst;
SLTST: (10%) med gy, dk
gy, fri-frm, sb blkly-sb ang,
silc-arg cmt, w cmt, occ
imbd sh, sl calc

8000-8050 SLTY SH:
(100%) lt gy, lt brn, med
gy, frm-hrd, blkly-plty,
rthy-occ sm tex, occ imbd
sltst, sl calc

8050-8100 CHK: (85%)
Lt gy-gy, vf xln-f xln,
frm-hrd, lam ip, rthy-chky
tex, mod-v calc; MRLST:
(15%) dk gy, fri-frm,
blk-sb ang, silc-arg cmt,
w-v w cmt, sl calc

8100-8150 CHK: (75%)
Lt gy-gy, med gy, vf xln-f
xln, frm-hrd, lam ip,
rthy-chky tex, mod-v calc;
MRLST: (25%) dk gy,
fri-frm, blk-sb ang,
silc-arg cmt, w-v w cmt,
tr bent, tr foram, sl calc

8150-8200 CHK: (80%)



**Niobrara C
Chalk**
8221'MD/7300'TVD

**Niobrara D
Chalk**
8345'MD/7367'TVD

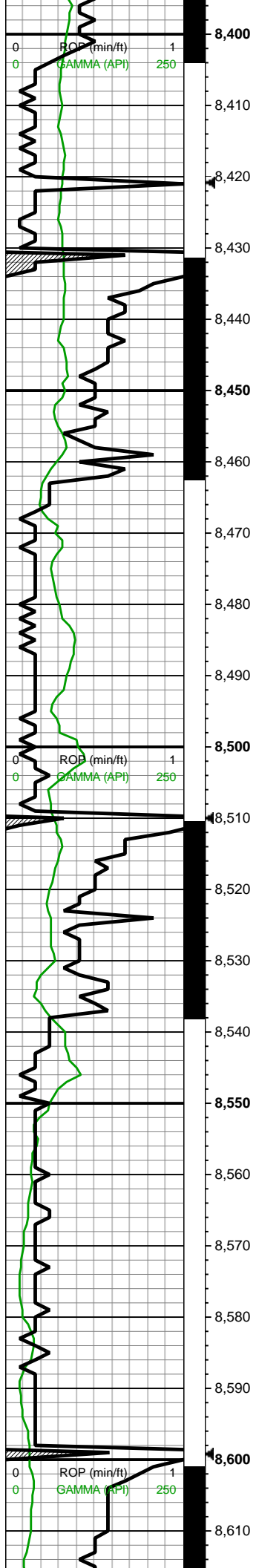
8150-8200 CHK: (80%):
Lt gy-gy, med gy, vf xln-f
xln, frm-hrd, lam ip,
rthy-chky tex, mod-v calc;
MRLST: (20%) dk gy,
fri-frm, blk-sb ang,
silc-arg cmt, w-v w cmted,
tr bent, tr foram, sl calc

8200-8250 CHK (90%):
mot med gy, sb blkgy-sb
ang-tr sb plty, frm-brit,
MRLST incl, chky tex, v
calc; MRLST (10%): v dk
gy-dk gy, mot, v hd, sb
blkgy-sb ang, intbd CHK,
mod calc, rr free pyr

8250-8300 CHK (80%):
mot lt gy-mot med gy, sb
blkgy-sb ang, frm-brit,
MRLST incl, chky tex, v
calc; MRLST (20%): v dk
gy-dk gy, mot, hd, sb
blkgy-sb ang, intbd CHK,
mod calc

8300-8350 CHK (85%):
mot med gyshbn, sb
blkgy-sb ang-sb plty,
frm-brit, MRLST incl, chky
tex, v calc; MRLST (15%):
v dk gy, mot, hd-frm, sb
blkgy-sb ang, intbd CHK,
mod calc

8350-8400 CHK (95%):
mot med gy-mot lt gy, sb
blkgy-sb ang-sb plty,
frm-brit, MRLST incl, chky
tex, v calc, sme imbd pyr
specs; MRLST (5%): v dk
gy, mot, hd-frm, sb
blkgy-sb ang, intbd CHK,



RPM: 19
SPM: 218
SPP: 3,907psi

MD: 8,445'
INC: 74.66°
AZM: 180.04°
TVD: 7,401.31'
VS: -2,430.25'

MW IN: 10.4
VIS IN: 48
MW OUT: 10.4
VIS OUT: 46

MD: 8,534'
INC: 79.05°
AZM: 180.39°
TVD: 7,421.55'
VS: -2,346.58'

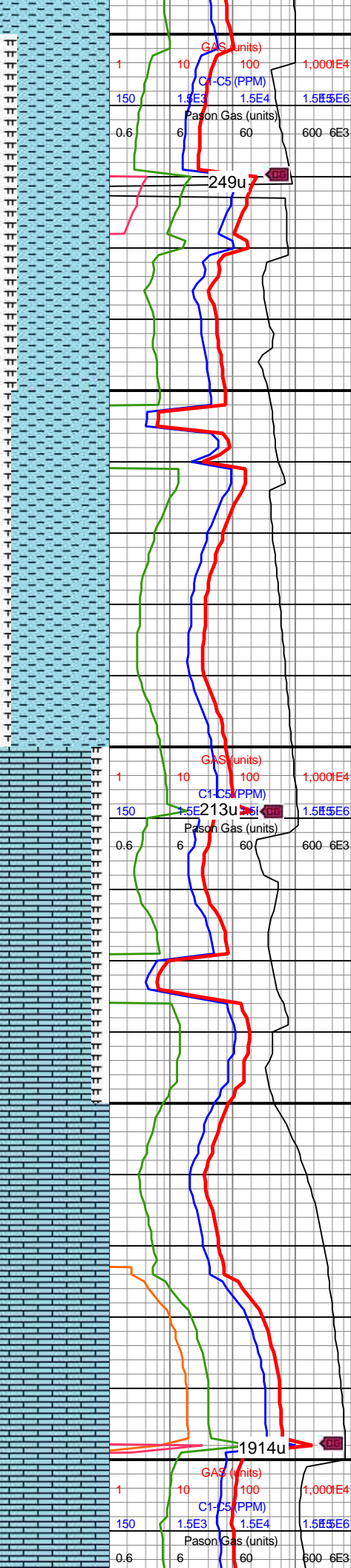


Ft Hays

8543'MD/7423'TVD

WOB: 43klbs
RPM: 19
SPM: 218
SPP: 3,777psi

ON GAS BUSTER



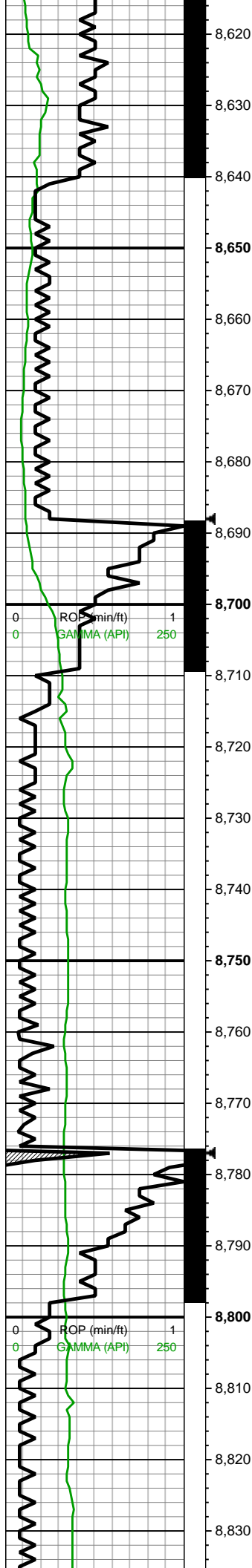
mod calc

8400-8450 CHK (80%):
mot lt gy-mot med lt gy,
sb blk-ang-sb plty,
frm-brit, MRLST incl, chky
tex, v calc; MRLST (20%):
v dk gy, mot, hd-frm, sb
blk-ang, intbd CHK,
mod calc, v rr free pyr

8450-8500 CHK (85%):
med lt gy, sb blk-ang-sb
plty, frm-brit,
MRLST incl, chky tex, v
calc; MRLST (15%): v dk
gy, mot, hd-frm, sb
blk-ang, intbd CHK,
mod calc

8500-8550 LS (85%):
med-dk tn, dirty mot crm,
sb tab-sb blk, pkst-wkst,
frm-sl frm, brit ip, vf
xln-micxln, hi calc;
MRLST (15%): v dk gy,
mot, hd-frm, sb blk-ang,
intbd CHK, mod calc

8550-8600 LS (100%):
med tn, dirty mot crm, dk
gy, sb tab-sb blk,
pkst-wkst, frm-sl frm, brit
ip, vf xln-micxln, hi calc, rr
free pyr



MD: 8,623'
INC: 83.01°
AZM: 179.16°
TVD: 7,435.42'
VS: -2,261.53'

MW IN: 10.4
VIS IN: 48
MW OUT: 10.4
VIS OUT: 46

Codell
8698'MD/7443'TVD

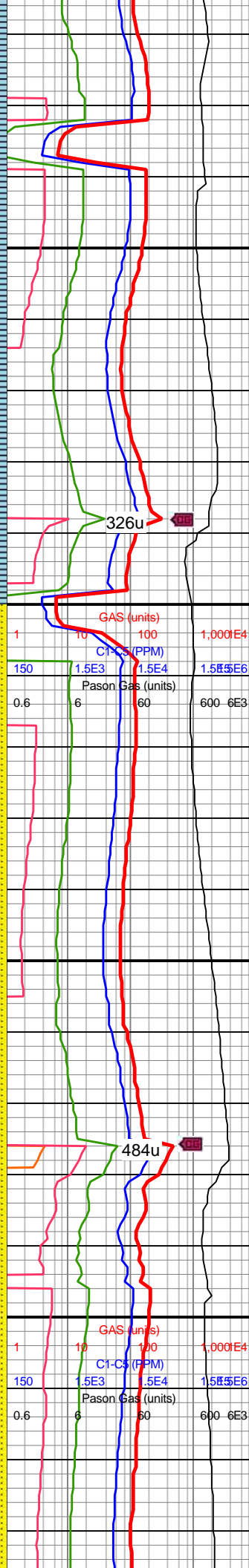
MD: 8,712'
INC: 86.17°
AZM: 178.28°
TVD: 7,443.81'
VS: -2,175.41'

**Land Curve @
8,708' MD on
07/10/2019 @
07:30 MST**

MW IN: 10.4
VIS IN: 48
MW OUT: 10.4
VIS OUT: 46

MD: 8,801'
INC: 87.67°
AZM: 179.34°
TVD: 7,448.59'
VS: -2,089.05'

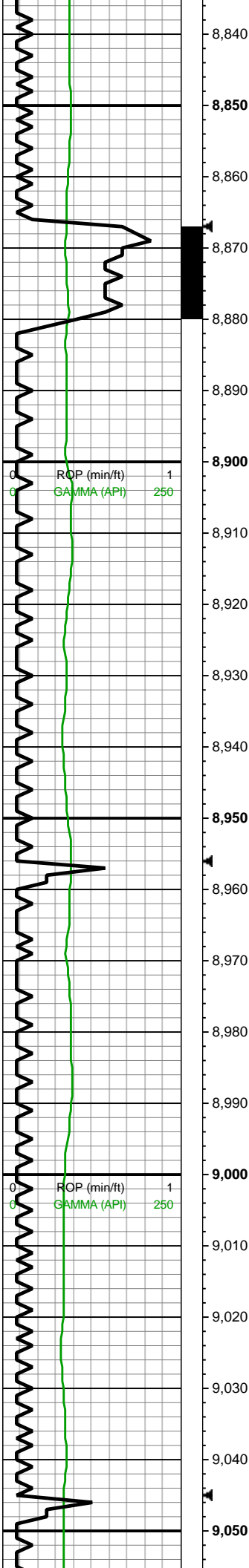
WOB: 18.8klbs
RPM: 60
SPM: 214
SPP: 3,892psi



8600-8650 LS (100%):
dirty mot crm, dk gy, sb
tab-sb blk, pkst-wkst,
frm-sl frm, brit ip, vf
xln-micxln, hi calc, rr
imbd cal

8650-8700 LS (100%):
dirty mot crm, dk gy, sb
tab-sb blk, pkst-wkst,
frm-sl hd, brit ip, vf
xln-micxln, hi calc

8700-8800 SST (95%):
dk gy, f gr, frm-hrd, brit ip,
fis ip, sb ang-sb rnd, rthy
tex, w srted, silc cmt, sl
calc; LS (5%): dirty mot
crm, sb tab-sb blk,
pkst-wkst, frm-sl hd, brit
ip, vf xln-micxln, hi calc

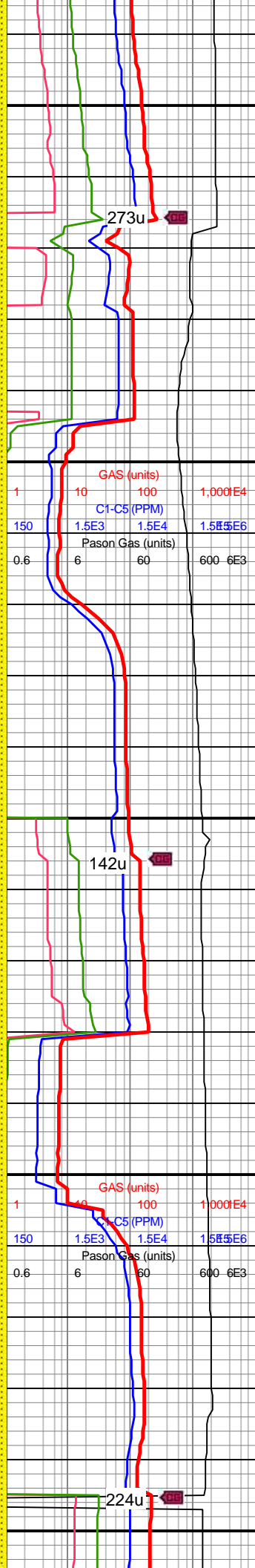


MD: 8,890'
INC: 89.08°
AZM: 180.04°
TVD: 7,451.12'
VS: -2,002.94'

MW IN: 10.4
VIS IN: 48
MW OUT: 10.4
VIS OUT: 45

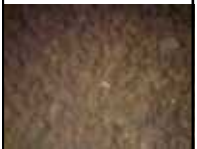
MD: 8,979'
INC: 89.25°
AZM: 179.69°
TVD: 7,452.41'
VS: -1,916.86'

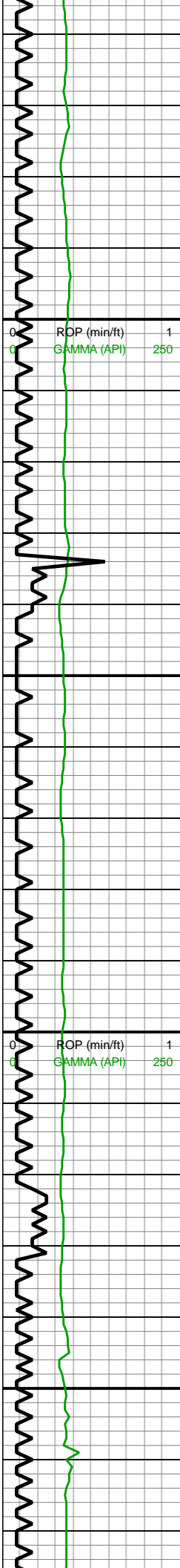
WOB: 44.6klbs
RPM: 60
SPM: 216
SPP: 4,590psi



8800-8900 SST (100%):
dk gy-dk gyshbn, f gr,
frm-sl hrd, brit ip, fis ip,
sb ang-sb rnd, rthy tex, w
srtd, silc cmt, sl calc, rr
SH frags

8900-9000 SST (100%):
dk gy-dk gyshbn, f gr,
frm-sl hrd, brit ip, fis ip,
sb ang-sb rnd, rthy tex, w
srtd, silc cmt, sl calc, rr
SH frags





MD: 9,068'
INC: 89.43°
AZM: 179.34°
TVD: 7,453.44'
VS: -1,830.64'

MD: 9,157'
INC: 89.87°
AZM: 178.28°
TVD: 7,453.98'
VS: -1,744.16'

WOB: 43.1klbs
RPM: 60
SPM: 214
SPP: 4,627psi

MD: 9,247'
INC: 90.31°
AZM: 177.93°
TVD: 7,453.84'
VS: -1,656.45'

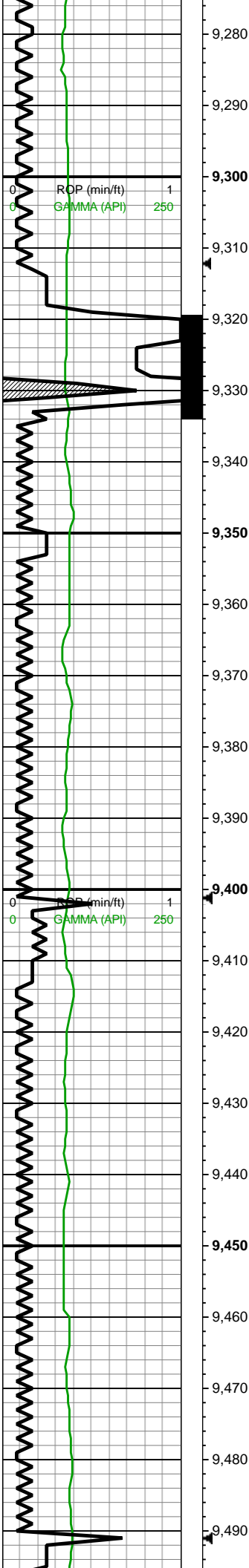
MW IN: 10.4
VIS IN: 47
MW OUT: 10.4
VIS OUT: 45



9000-9100 SST (100%):
dk gyshbn-med
gyshbn-dk gy, f gr, frm-sl
hrd, brit ip, fis ip, sb
ang-sb rnd, rthy tex, w
srted, silc cmt, sl calc, rr
SH frags, rr imbd pyr
specs

9100-9200 SST (100%):
dk gyshbn-med
gyshbn-dk gy, f gr, frm-sl
hrd, brit ip, fis ip, sb
ang-sb rnd, rthy tex, w
srted, silc cmt, sl calc

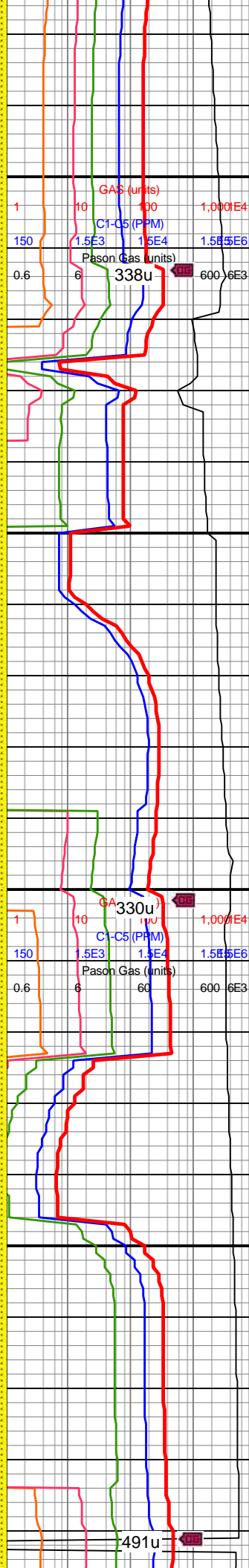




MD: 9,336'
INC: 88.99°
AZM: 178.63°
TVD: 7,454.38'
VS: -1,569.78'

WOB: 36klbs
RPM: 60
SPM: 202
SPP: 3,976psi

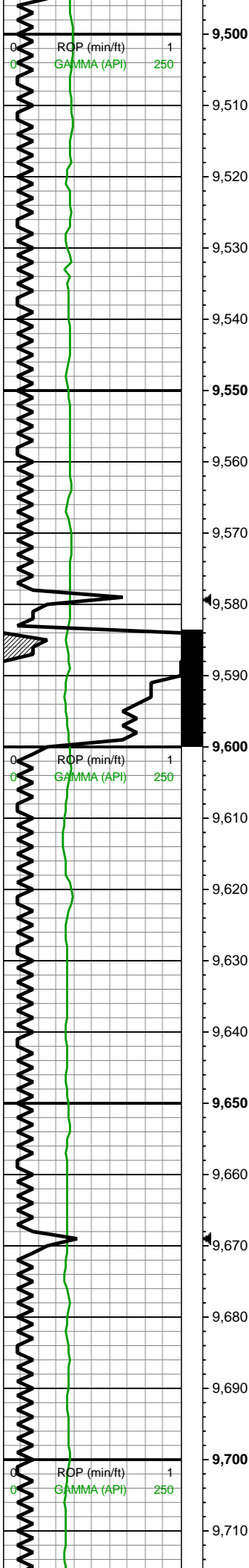
MD: 9,425'
INC: 89.78°
AZM: 178.81°
TVD: 7,455.34'
VS: -1,483.26'



9200-9300 SST (100%):
dk gyshbn-med gyshbn-lt
gy, f gr, frm-sl hrd, brit ip,
fis ip, sb ang-sb rnd, rthy
tex, w srtd, silc cmt, sl
calc, v rr SH frags

9300-9400 SST (100%):
dk gy-dk gyshbn-lt gy, f gr,
frm-sl hrd, brit ip, fis ip,
sb ang-sb rnd, rthy tex, w
srtd, silc cmt, sl calc, v rr
SH frags, v rr imbd pyr
specs

9400-9500 SST (100%):
predy dk gy-lt gy, f gr,
frm-sl hrd, brit ip, fis ip,
sb ang-sb rnd, rthy tex, w
srtd, silc cmt, sl calc, rr



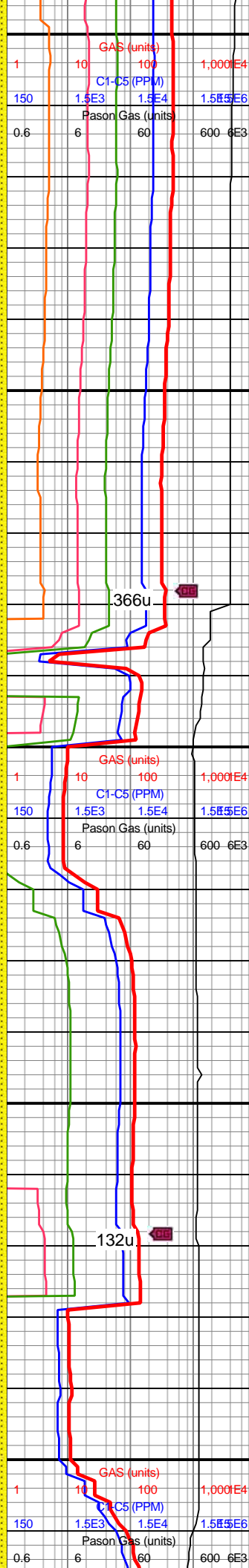
MD: 9,514'
INC: 90.22°
AZM: 178.28°
TVD: 7,455.34'
VS: -1,396.68'

MW IN: 10.4
VIS IN: 48
MW OUT: 10.4
VIS OUT: 46

WOB: 33.5klbs
RPM: 28
SPM: 204
SPP: 3,516psi

MD: 9,603'
INC: 89.16°
AZM: 180.04°
TVD: 7,455.82'
VS: -1,310.33'

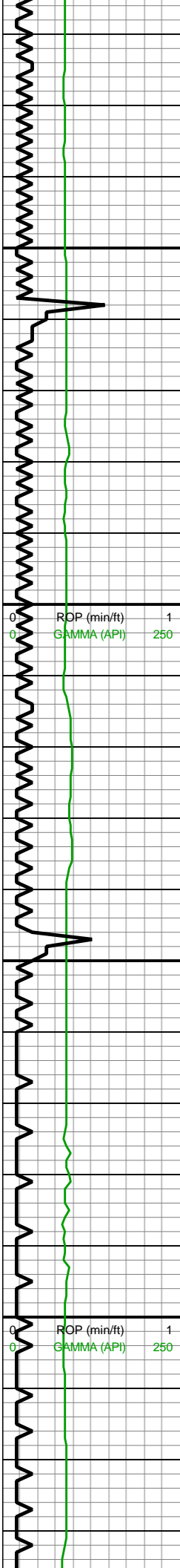
MD: 9,692'
INC: 89.43°
AZM: 179.69°
TVD: 7,456.92'
VS: -1,224.25'



SH frags

9500-9600 SST (100%):
predy dk gy-lt gy-med brn,
f gr, frm-sl hrd, brit ip, fis
ip, sb ang-sb rnd, rthy tex,
w srtd, silc cmt, sl calc, rr
SH frags

9600-9700 SST (100%):
dk gy, f gr, frm-sl hrd, brit
ip, fis ip, sb ang-sb rnd,
rthy tex, w srtd, silc cmt,
sl calc, tr SH frags



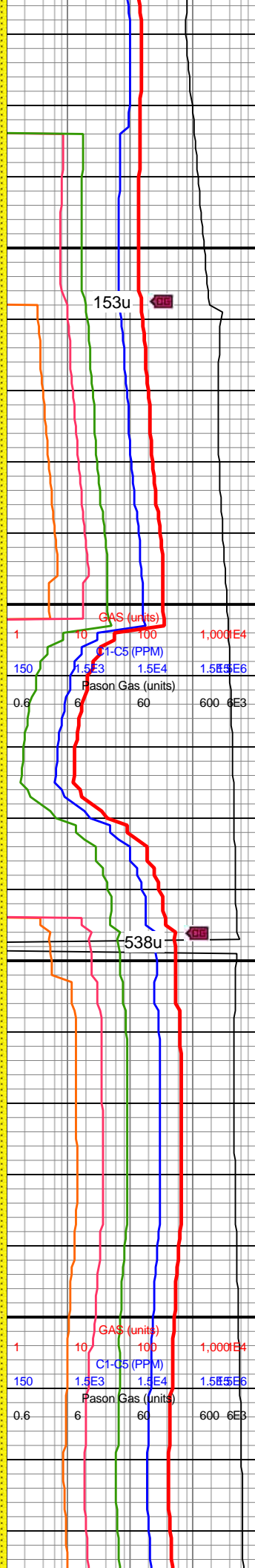
9,720
9,730
9,740
9,750
9,760
9,770
9,780
9,790
9,800
9,810
9,820
9,830
9,840
9,850
9,860
9,870
9,880
9,890
9,900
9,910
9,920
9,930

MW IN: 10.4
VIS IN: 49
MW OUT: 10.4
VIS OUT: 46

MD: 9,781'
INC: 89.96°
AZM: 179.34°
TVD: 7,457.39'
VS: -1,138.03'

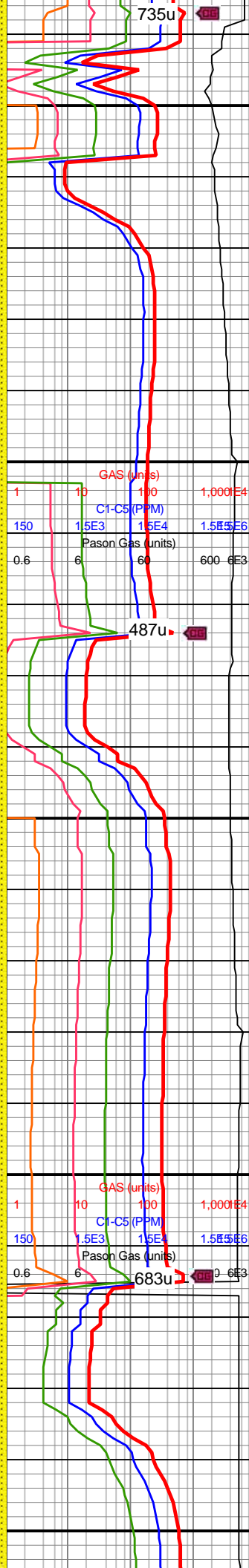
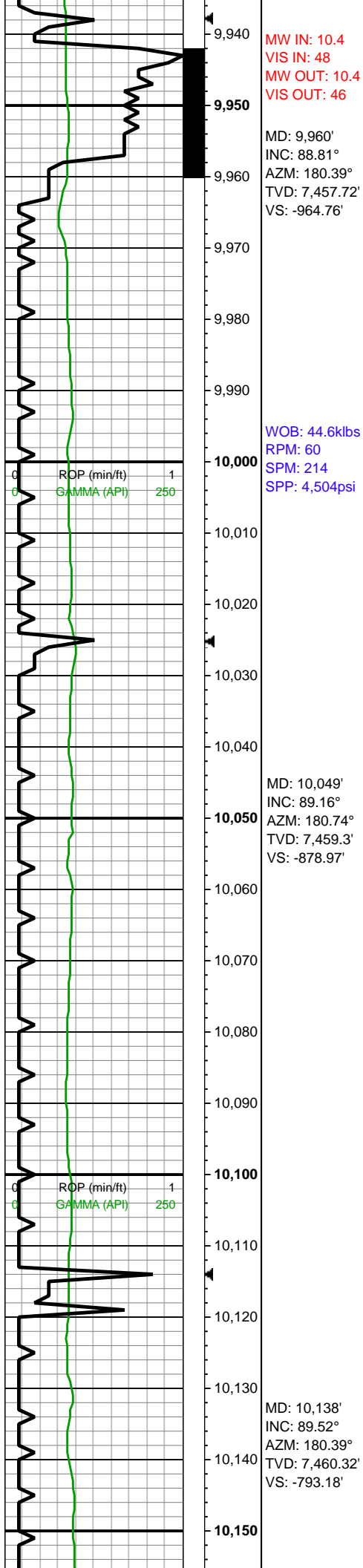
WOB: 40.3klbs
RPM: 60
SPM: 206
SPP: 4,199psi

MD: 9,871'
INC: 90.4°
AZM: 179.51°
TVD: 7,457.11'
VS: -1,050.81'



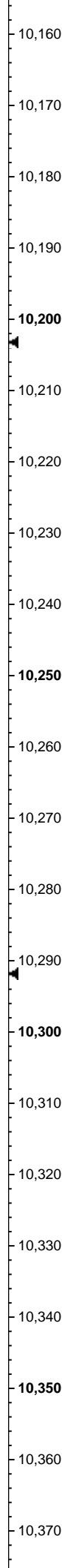
9700-9800 SST (100%):
dk gy, tr lt gyshbn, f gr,
frm-sl hrd, brit ip, fis ip,
sb ang-sb rnd, rthy tex, w
srted, silc cmt, sl calc, tr
free qtz

9800-9900 SST (100%):
dk gy-lt gyshbn, f gr,
frm-sl hrd, brit ip, fis ip,
sb ang-sb rnd, rthy tex, w
srted, silc cmt, sl calc, rr
free qtz, v rr free pyr



9900-10000 SST (100%):
dk gy, f gr, frm-sl hrd, brit
ip, fis ip, sb ang-sb rnd,
rthy tex, w srtd, silc cmt,
sl calc, v rr free pyr

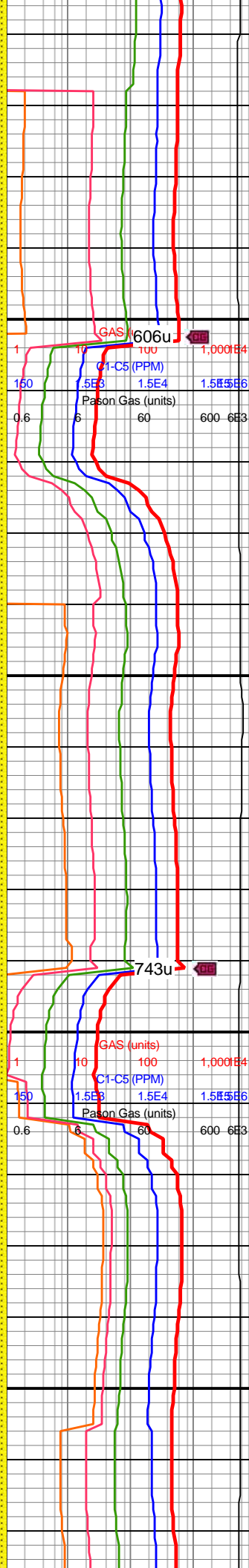
10000-10100 SST
(100%): dk gy, f gr, frm-sl
hrd, brit ip, fis ip, sb
ang-sb rnd, rthy tex, w
srtd, silc cmt, sl calc, tr
SH frags



MW IN: 10.4
VIS IN: 48
MW OUT: 10.4
VIS OUT: 46

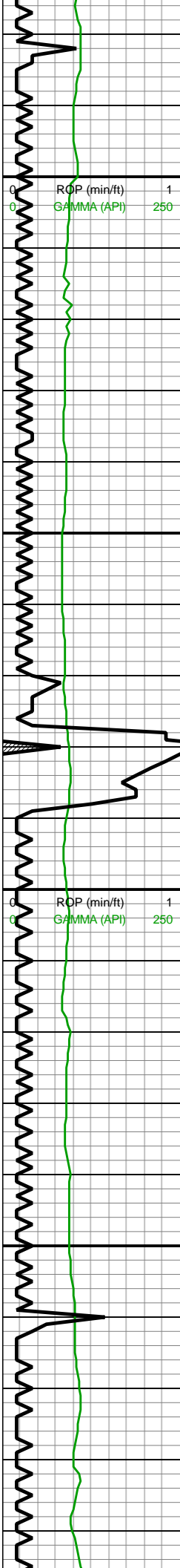
MD: 10,227'
INC: 89.87°
AZM: 180.57°
TVD: 7,460.8'
VS: -707.34'

MD: 10,316'
INC: 89.69°
AZM: 179.69°
TVD: 7,461.14'
VS: -621.36'



10100-10200 SST
(100%): dk gy, f gr, frm-sl
hrd, brit ip, fis ip, sb
ang-sb rnd, rthy tex, w
srtd, silc cmt, sl calc, tr
SH frags

10200-10300 SST
(100%): dk gy, f gr, frm-sl
hrd, brit ip, fis ip, sb
ang-sb rnd, rthy tex, w
srted, silc cmt, sl calc, tr
SH frags, v rr qtz



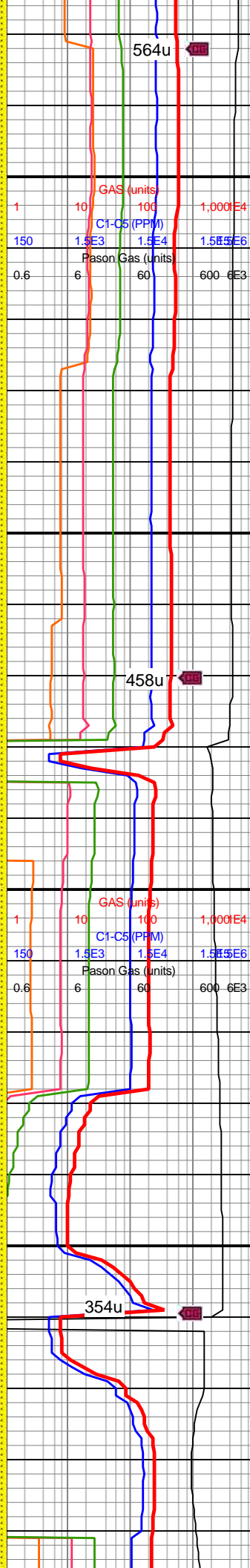
WOB: 44.9klbs
RPM: 60
SPM: 215
SPP: 4,609psi

MD: 10,405'
INC: 90.22°
AZM: 179.69°
TVD: 7,461.21'
VS: -535.21'

MW IN: 10.4
VIS IN: 48
MW OUT: 10.4
VIS OUT: 47

MD: 10,494'
INC: 88.9°
AZM: 180.21°
TVD: 7,461.89'
VS: -449.16'

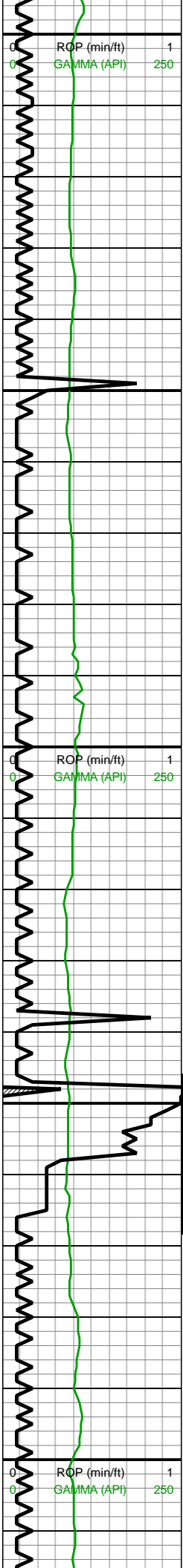
MD: 10,583'
INC: 89.6°
AZM: 179.16°
TVD: 7,463.06'
VS: -363.02'



10300-10400 SST
(100%): lt gy-brn, dk gy, f
gr, frm-hrd, rthy-chky tex,
w srtd, silc-arg cmt, mod
cmted, tr SH frags, non-sl
calc

10400-10500 SST
(100%): lt gy-brn, dk gy, f
gr, frm-hrd, rthy-chky tex,
w srtd, silc-arg cmt, mod
cmted, tr SH frags, non-sl
calc

10500-10600 SST
(100%): lt gy-brn, dk gy, f
gr, frm-hrd, rthy-chky tex,
w srtd, silc-arg cmt, mod
cmted, tr SH frags, non-sl
calc



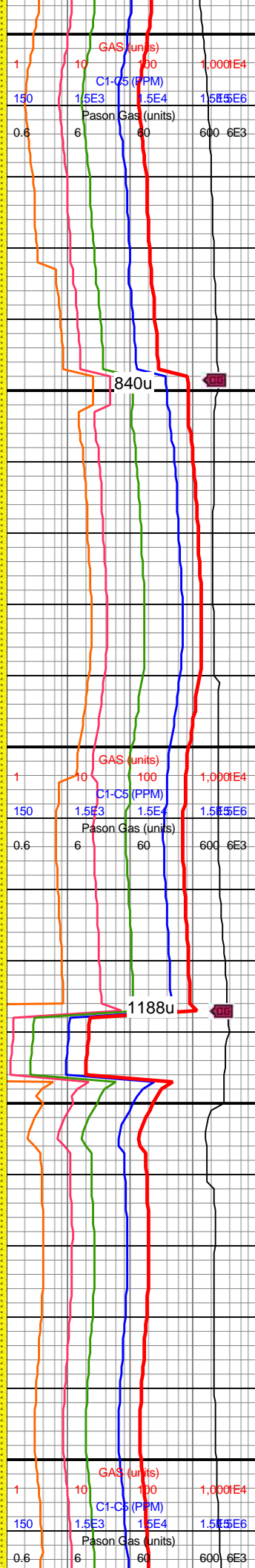
WOB: 42klbs
RPM: 60
SPM: 214
SPP: 4,671psi

MW IN: 10.4
VIS IN: 50
MW OUT: 10.4
VIS OUT: 48

MD: 10,673'
INC: 89.96°
AZM: 180.39°
TVD: 7,463.4'
VS: -275.93'

OFF GAS BUSTER

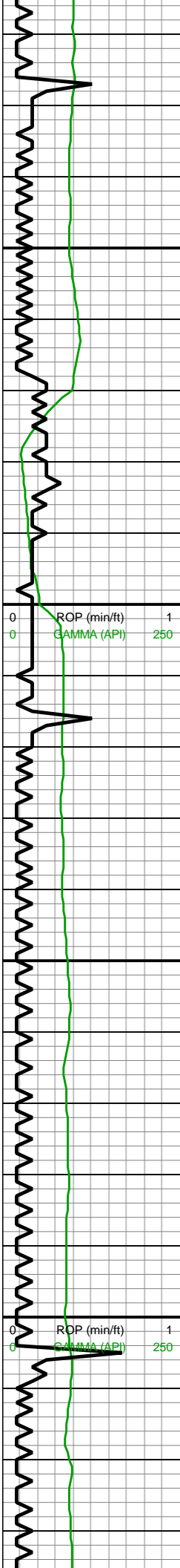
MD: 10,762'
INC: 88.64°
AZM: 180.39°
TVD: 7,464.49'
VS: -190.07'



calc

10600-10700 SST
(100%): dk gy, lt gy-brn, f
gr, frm-hrd, rthy-chky tex,
w srtd, silc-arg cmt, mod
cmtd, non-sl calc

10700-10800 SST
(100%): dk gy, lt gy-brn, f
gr, frm-hrd, rthy-chky tex,
w srtd, silc-arg cmt, mod
cmtd, non-sl calc



10,820
10,830
10,840
10,850
10,860
10,870
10,880
10,890
10,900
10,910
10,920
10,930
10,940
10,950
10,960
10,970
10,980
10,990
11,000
11,010
11,020
11,030

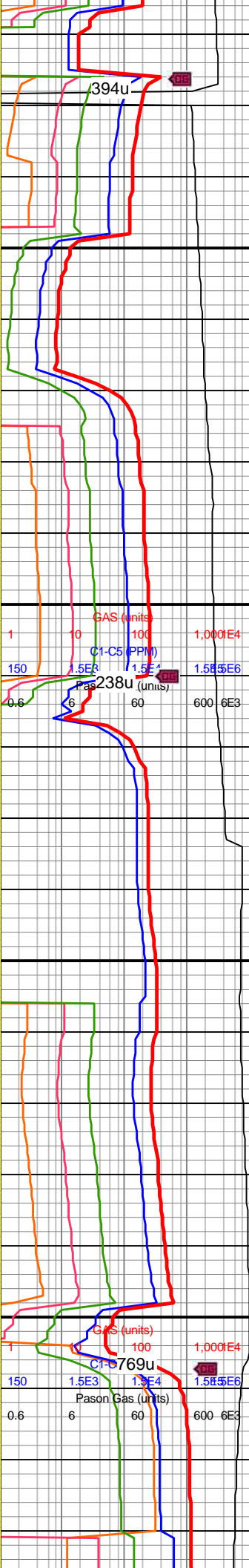
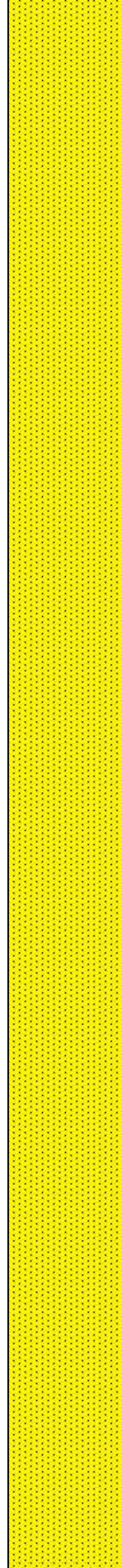
MD: 10,851'
INC: 88.37°
AZM: 180.04°
TVD: 7,466.81'
VS: -104.15'

MW IN: 10.4
VIS IN: 49
MW OUT: 10.4
VIS OUT: 47

MD: 10,940'
INC: 88.11°
AZM: 179.51°
TVD: 7,469.54'
VS: -18.07'

WOB: 42klbs
RPM: 60
SPM: 214
SPP: 4,610psi

MD: 11,029'
INC: 88.46°
AZM: 179.51°
TVD: 7,472.21'
VS: 68.11'

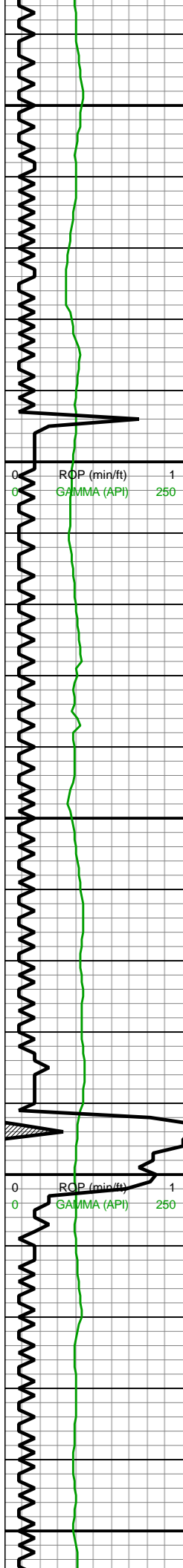


10800-10900 SST
(100%): lt gy-brn, dk gy, f
gr, frm-hrd, rthy-chky tex,
w srted, silc-arg cmt, mod
cmted, non-sl calc



10900-11000 SST
(100%): dk gy, lt gy-brn, f
gr, frm-hrd, rthy-chky tex,
w srted, silc-arg cmt, mod
cmted, v tr free qtz, non-sl
calc





11,040
11,050
11,060
11,070
11,080
11,090
11,100
11,110
11,120
11,130
11,140
11,150
11,160
11,170
11,180
11,190
11,200
11,210
11,220
11,230
11,240
11,250

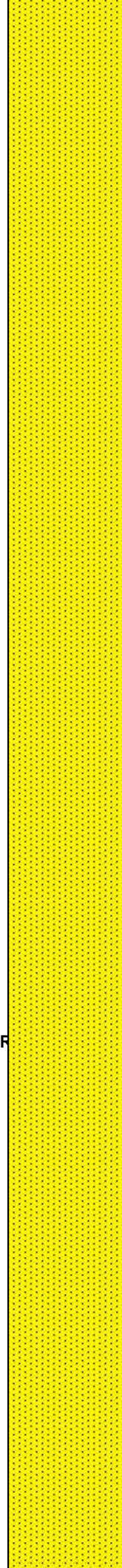
MD: 11,118'
INC: 88.11°
AZM: 179.34°
TVD: 7,474.87'
VS: 154.33'

MW IN: 10.4
VIS IN: 49
MW OUT: 10.4
VIS OUT: 47

ON GAS BUSTER

WOB: 37klbs
RPM: 29
SPM: 213
SPP: 4,096psi

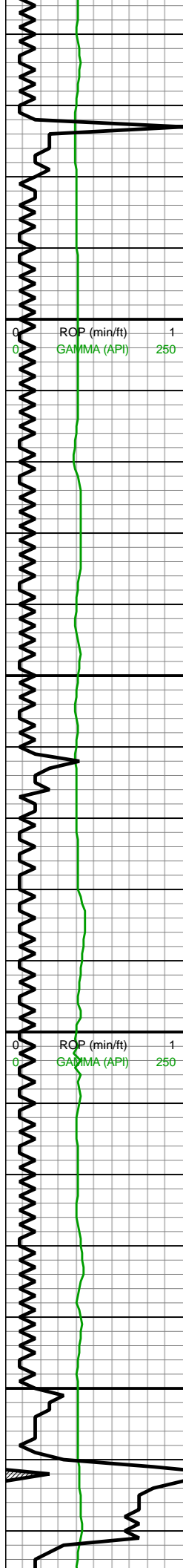
MD: 11,207'
INC: 89.16°
AZM: 179.69°
TVD: 7,476.99'
VS: 240.53'



11000-11100 SST
(100%): dk gy, lt gy-brn, f
gr, frm-hrd, rthy-chky tex,
w srtd, silc-arg cmt, mod
cmted, v tr free qtz, non-sl
calc

11100-11200 SST
(100%): dk gy, lt gy-brn, f
gr, frm-hrd, rthy-chky tex,
w srtd, silc-arg cmt, mod
cmted, tr SH frags, non-sl
calc





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
11,460
11,470

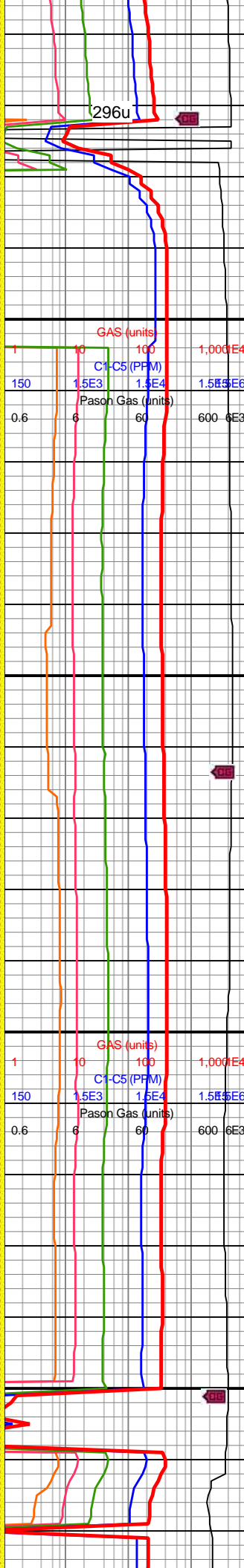
MD: 11,296'
INC: 89.08°
AZM: 178.98°
TVD: 7,478.36'
VS: 326.8'

MW IN: 10.4
VIS IN: 49
MW OUT: 10.4
VIS OUT: 47

MD: 11,386'
INC: 88.9°
AZM: 178.81°
TVD: 7,479.95'
VS: 414.22'

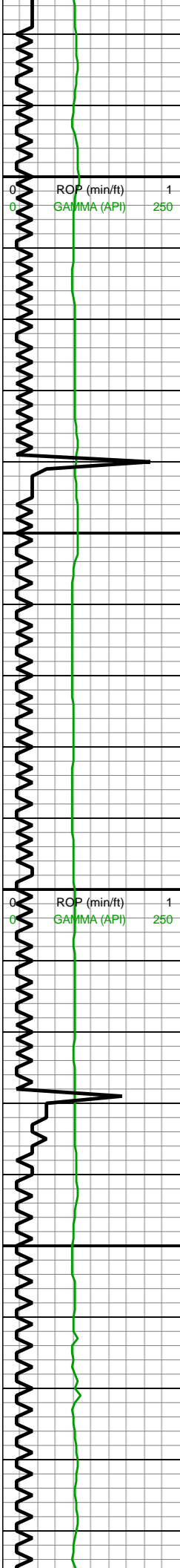
WOB: 42klbs
RPM: 60
SPM: 214
SPP: 4,784psi

MD: 11,475'
INC: 90.4°
AZM: 178.81°
TVD: 7,481.55'
VS: 414.22'



11200-11300 SST
(100%): dk gy, lt gy-brn, f
gr, frm-hrd, rthy-chky tex,
w srtd, silc-arg cmt, mod
cmtd, tr SH frags, non-sl
calc

11300-11400 SST
(100%): dk gy, lt gy-brn, f
gr, frm-hrd, rthy-chky tex,
w srtd, silc-arg cmt, mod
cmtd, tr SH frags, non-sl
calc



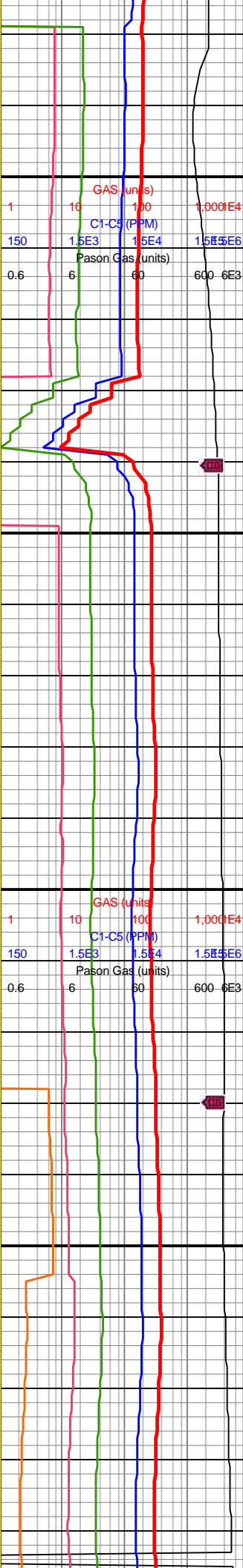
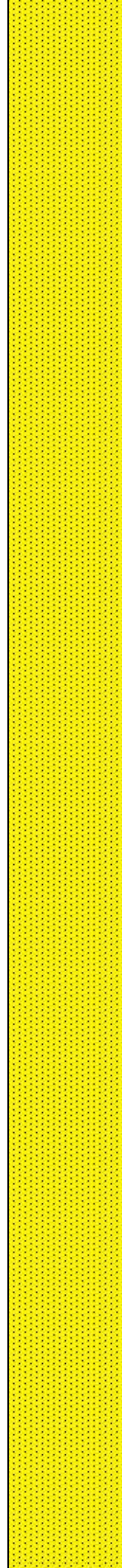
AZM: 179.51°
TVD: 7,480.49'
VS: 500.57'

MD: 11,564'
INC: 90.4°
AZM: 179.51°
TVD: 7,479.87'
VS: 586.79'

MW IN: 10.4
VIS IN: 48
MW OUT: 10.4
VIS OUT: 47

WOB: 37klbs
RPM: 60
SPM: 214
SPP: 4,799psi

MD: 11,653'
INC: 90.92°
AZM: 178.98°
TVD: 7,478.84'
VS: 673.11'

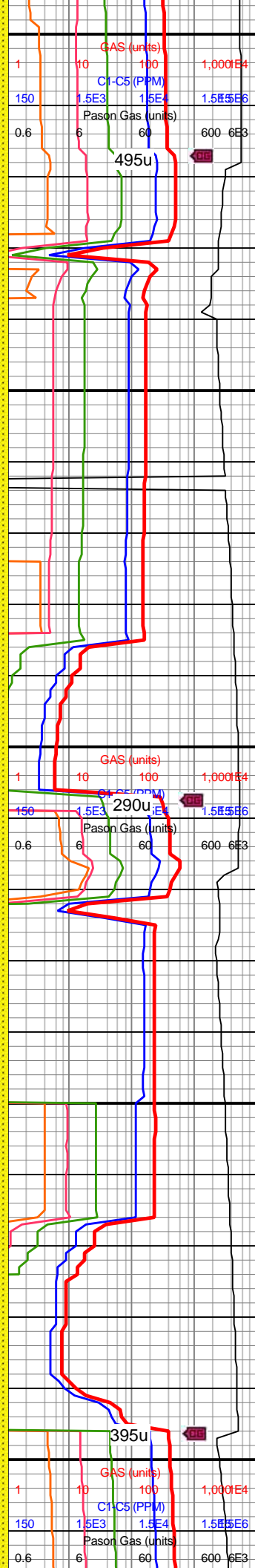
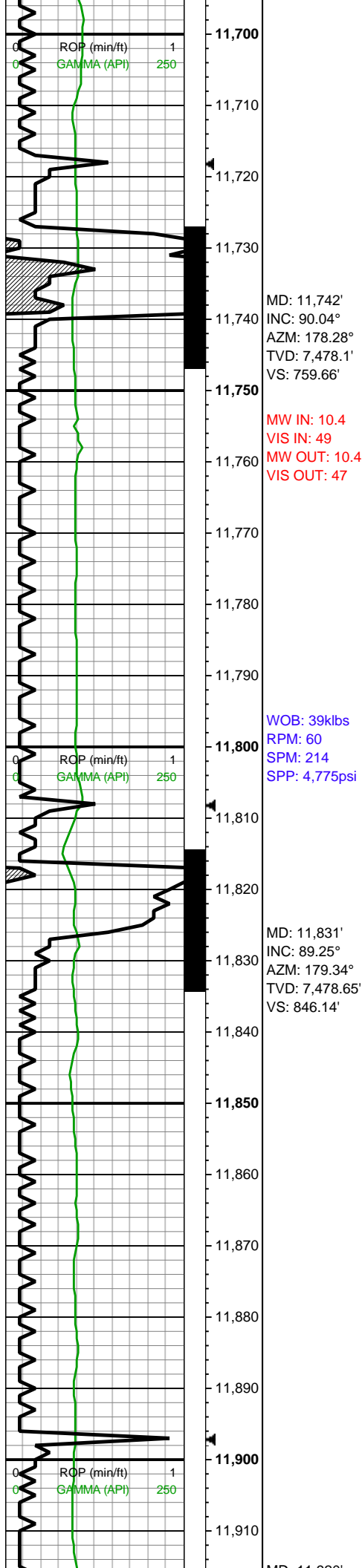


11400-11500 SST
(100%): dk gy, lt gy-brn, f
gr, frm-hrd, rthy-chky tex,
w srtd, silc-arg cmt, mod
cmtd, tr SH frags, non-sl
calc

11500-11600 SST
(100%): dk gy, lt gy-brn, f
gr, frm-hrd, rthy-chky tex,
w srtd, silc-arg cmt, mod
cmtd, tr SH frags, non-sl
calc

11600-11700 SST
(100%): dk gy, lt gy-brn, f
gr, frm-hrd, rthy-chky tex,
w srtd, silc-arg cmt, mod
cmtd, tr SH frags, non-sl

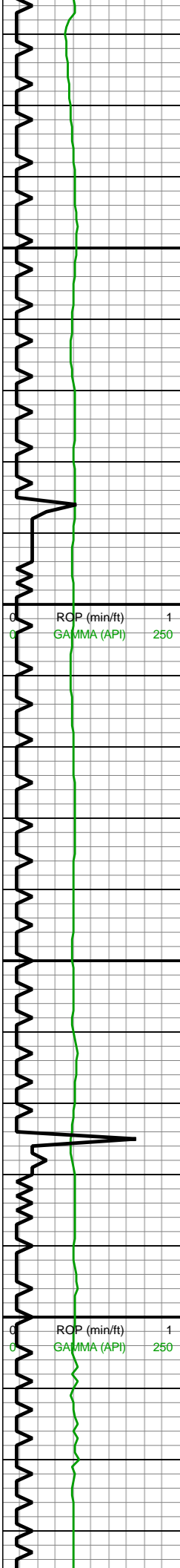




calc

11700-11800 SST
(100%): lt gy-brn, med gy,
dk gy, f gr, frm-hrd,
rthy-chky tex, w srtd,
silc-arg cmt, mod cmt, tr
SH frags, non-sl calc

11800-11900 SST
(100%): lt gy-brn, med gy,
dk gy, f gr, frm-hrd,
rthy-chky tex, w srtd,
silc-arg cmt, mod cmt, tr
SH frags, non-sl calc



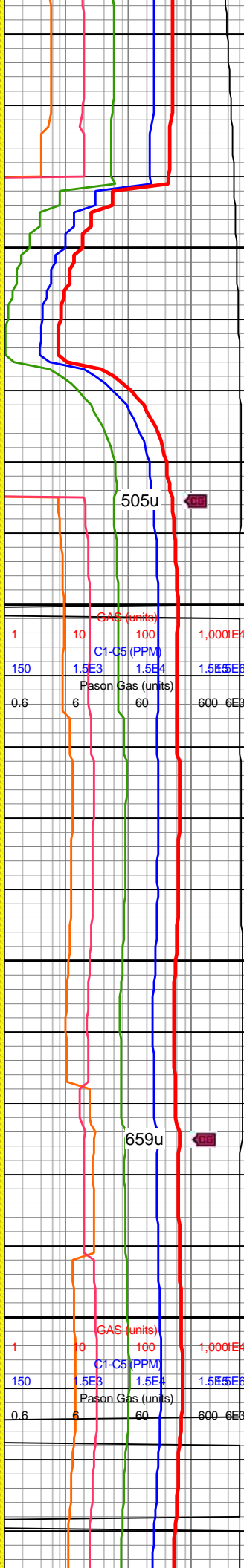
MD: 11,920'
INC: 89.16°
AZM: 179.16°
TVD: 7,479.88'
VS: 932.45'

WOB: 28klbs
RPM: 60
SPM: 212
SPP: 4,605psi

MD: 12,009'
INC: 89.87°
AZM: 179.16°
TVD: 7,480.64'
VS: 1,018.8'

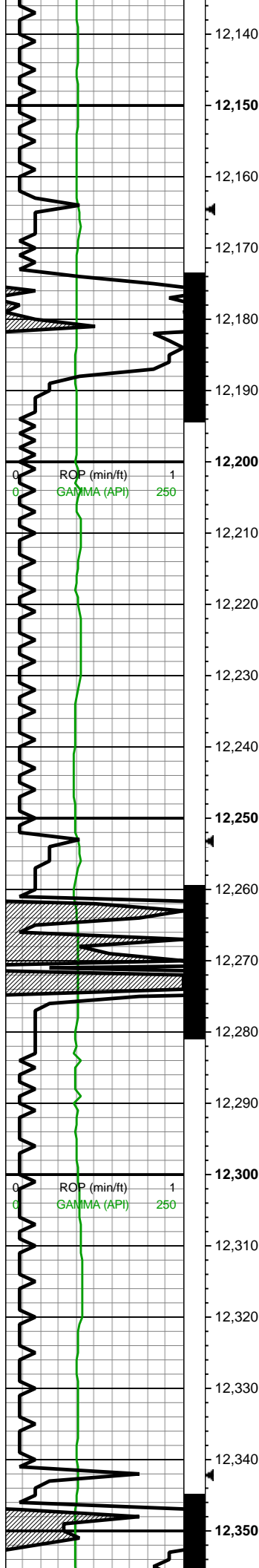
MW IN: 10.4
VIS IN: 49
MW OUT: 10.4
VIS OUT: 47

MD: 12,099'
INC: 89.96°
AZM: 178.46°
TVD: 7,480.77'
VS: 1,106.26'



11900-12000 SST
(100%): lt gy-brn, med gy,
dk gy, f gr, frm-hrd,
rthy-chky tex, w srtd,
silc-arg cmt, mod cmted,
non-sl calc

12000-12100 SST
(100%): lt gy-brn, med gy,
dk gy, f gr, frm-hrd,
rthy-chky tex, w srtd,
silc-arg cmt, mod cmted,
non-sl calc



MD: 12,188'
INC: 90.13°
AZM: 178.46°
TVD: 7,480.7'
VS: 1,192.87'

MINDEPTH
07/11/2019

WOB: 27klbs
RPM: 60
SPM: 214
SPP: 4,658psi

MW IN: 10.4
VIS IN: 49
MW OUT: 10.4
VIS OUT: 47

MW IN: 10.5
VIS IN: 50
MW OUT: 10.4
VIS OUT: 48

MD: 12,277'
INC: 90.13°
AZM: 179.16°
TVD: 7,480.5'
VS: 1,279.36'

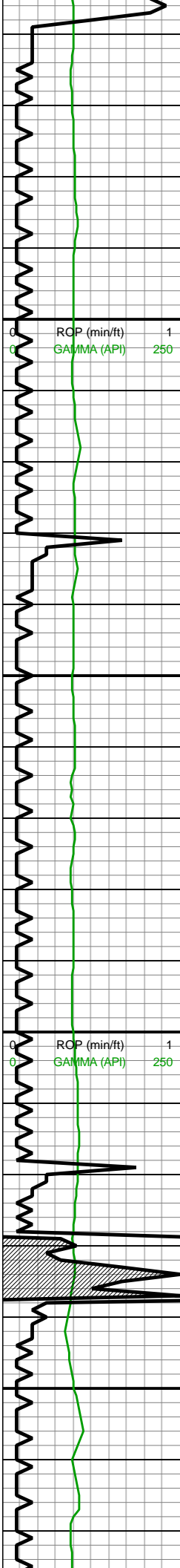
MW IN: 10.5
VIS IN: 50
MW OUT: 10.4+
VIS OUT: 48



12100-12200 SST
(100%): lt gy-brn, med gy,
dk gy, f gr, frm-hrd,
rthy-chky tex, w srtd,
silc-arg cmt, mod cmted,
non-sl calc

12200-12300 SST
(100%): lt gy-brn, med gy,
dk gy, f gr, frm-hrd,
rthy-chky tex, w srtd,
silc-arg cmt, mod cmted,
non-sl calc





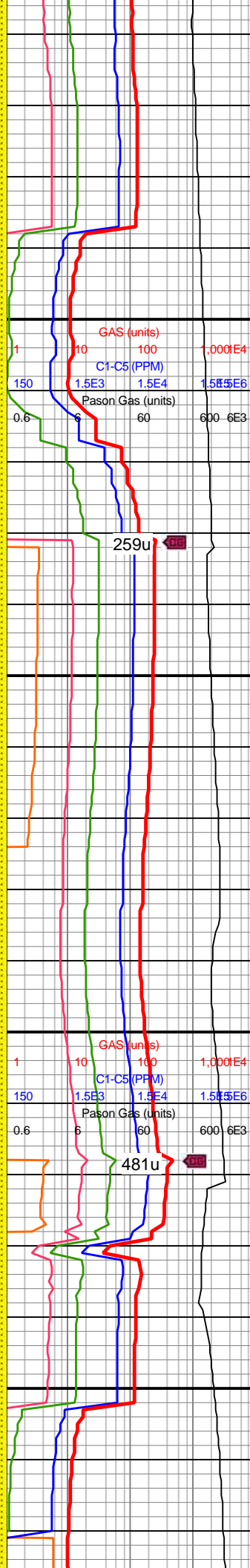
MD: 12,366'
INC: 89.78°
AZM: 180.04°
TVD: 7,480.57'
VS: 1,365.55'

WOB: 39.4klbs
RPM: 60
SPM: 213
SPP: 4,959psi

MD: 12,455'
INC: 90.22°
AZM: 179.69°
TVD: 7,480.57'
VS: 1,451.63'

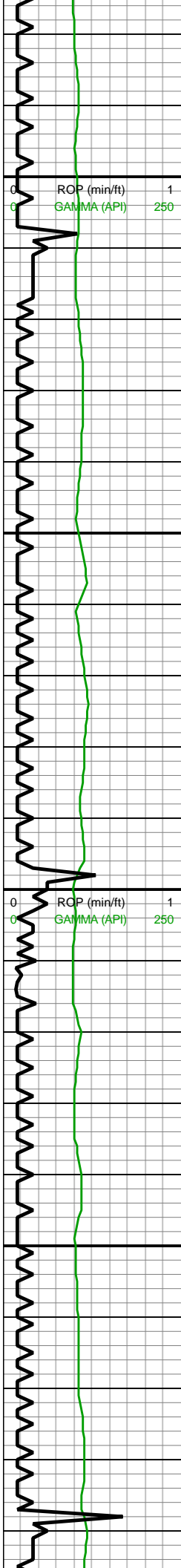
MW IN: 10.5
VIS IN: 50
MW OUT: 10.5
VIS OUT: 48

MD: 12,544'
INC: 89.69°
AZM: 180.04°
TVD: 7,480.64'
VS: 1,537.72'



12300-12400 SST
(100%): lt gy-med gy, f gr,
frm-sl hrd, brit ip, fis ip,
sb ang-sb rnd, rthy tex, w
srtd, silc cmt, sl calc, tr
SH frags

12400-12500 SST
(100%): lt brn-lt gy-med
gy, f gr, frm-sl hrd, brit ip,
fis ip, sb ang-sb rnd, rthy
tex, w srtd, silc cmt, sl
calc, tr SH frags



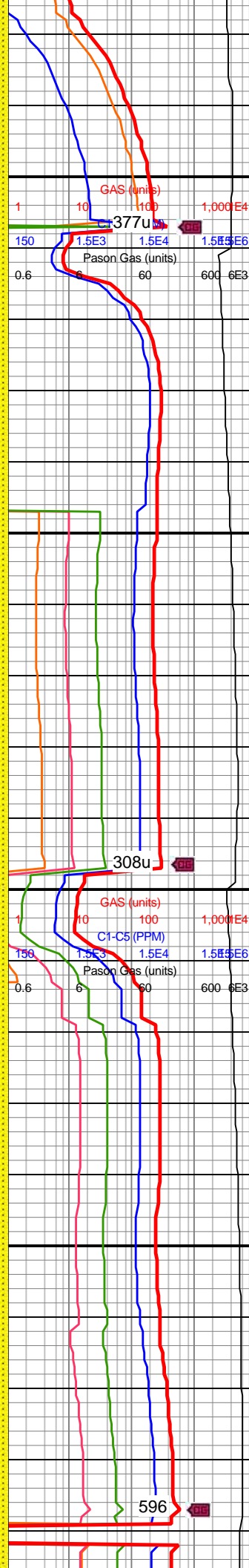
WOB: 43klbs
RPM: 60
SPM: 214
SPP: 4,882psi

MD: 12,633'
INC: 89.96°
AZM: 180.39°
TVD: 7,480.91'
VS: 1,623.66'

MW IN: 10.5
VIS IN: 50
MW OUT: 10.5
VIS OUT: 48

MD: 12,722'
INC: 89.96°
AZM: 180.04°
TVD: 7,480.97'
VS: 1,709.61'

WOB: 33.9klbs
RPM: 60

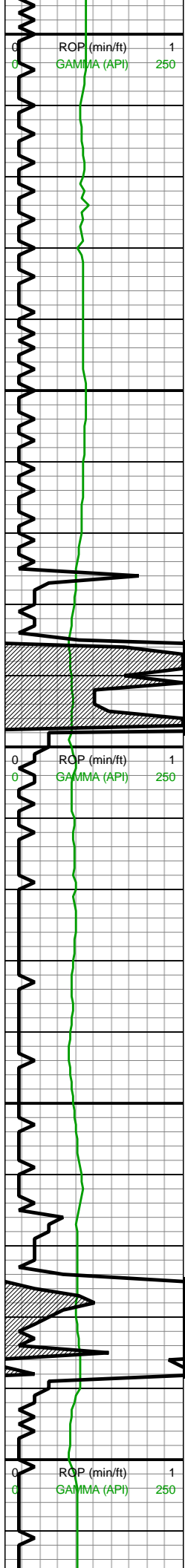


12500-12600 SST
(100%): med lt brn-med
gy, f gr, frm-sl hrd, brit ip,
fis ip, sb ang-sb rnd, rthy
tex, w srtd, silc cmt, sl
calc, rr SH frags

12600-12700 SST
(100%): med gy-dk gy, f
gr, frm-sl hrd, brit ip, fis
ip, sb ang-sb rnd, rthy tex,
w srtd, silc cmt, sl calc

12700-12800 SST
(100%): med gy-dk gy, f
gr, frm-sl hrd, brit ip, fis
ip, sb ang-sb rnd, rthy tex,
w srtd, silc cmt, sl calc, tr





RPM: 60
SPM: 213
SPP: 4,643psi

MD: 12,811'
INC: 90.22°
AZM: 179.34°
TVD: 7,480.83'
VS: 1,795.76'

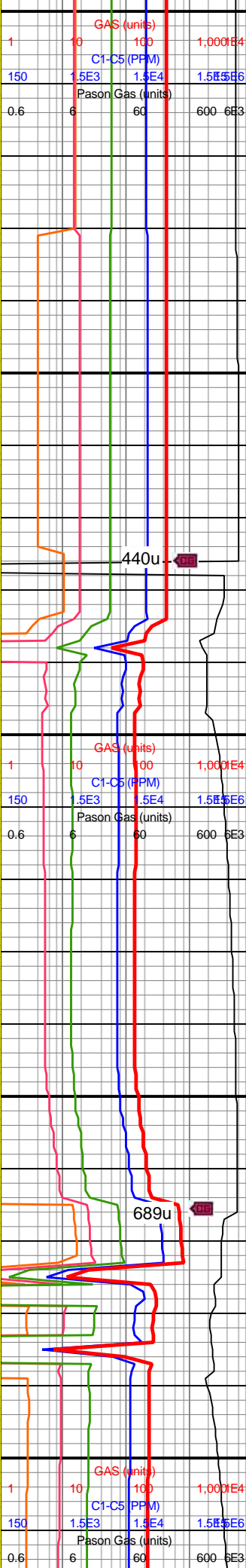
MW IN: 10.5
VIS IN: 50
MW OUT: 10.5
VIS OUT: 48

MD: 12,900'
INC: 91.28°
AZM: 180.39°
TVD: 7,479.67'
VS: 1,881.83'

MW IN: 10.5
VIS IN: 52
MW OUT: 10.5
VIS OUT: 50

MD: 12,989'
INC: 88.9°
AZM: 180.92°
TVD: 7,479.53'
VS: 1,967.59'

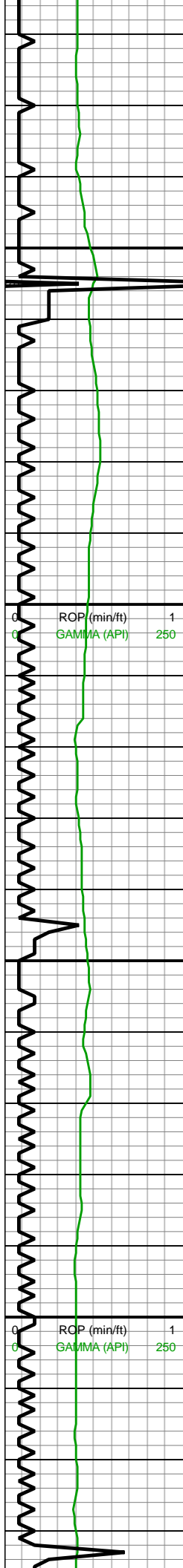
WOB: 37.7klbs
RPM: 60
SPM: 213
SPP: 4,801psi



SH frags

12800-12900 SST
(100%): med brn-dk gy, f
gr, frm-sl hrd, brit ip, fis
ip, sb ang-sb rnd, rthy tex,
w srtd, silc cmt, sl calc, rr
SH frags

12900-13000 SST
(100%): med brn-dk gy, f
gr, frm-sl hrd, brit ip, fis
ip, sb ang-sb rnd, rthy tex,
w srtd, silc cmt, sl calc, tr
SH frags

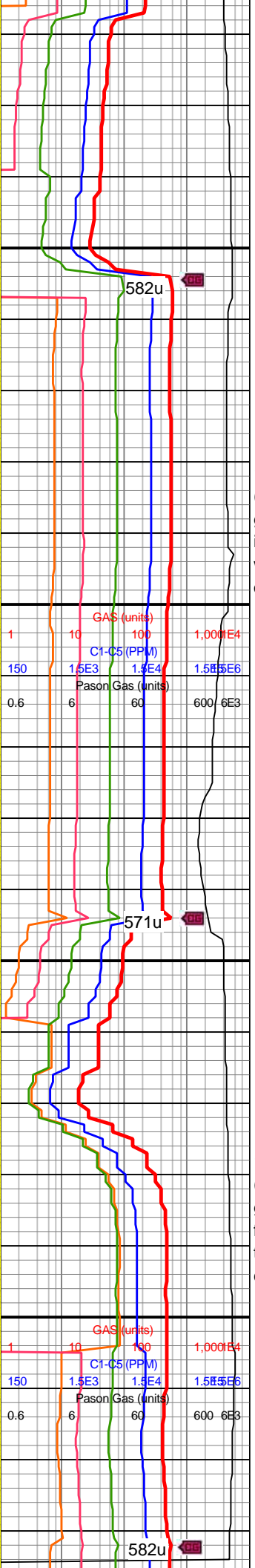
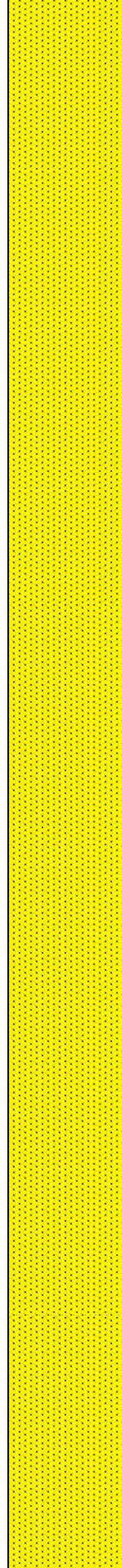


13,020
13,030
13,040
13,050
13,060
13,070
13,080
13,090
13,100
13,110
13,120
13,130
13,140
13,150
13,160
13,170
13,180
13,190
13,200
13,210
13,220
13,230

MD: 13,078'
INC: 89.08°
AZM: 180.04°
TVD: 7,481.1'
VS: 2,053.42'

MD: 13,168'
INC: 89.16°
AZM: 180.04°
TVD: 7,482.48'
VS: 2,140.39'

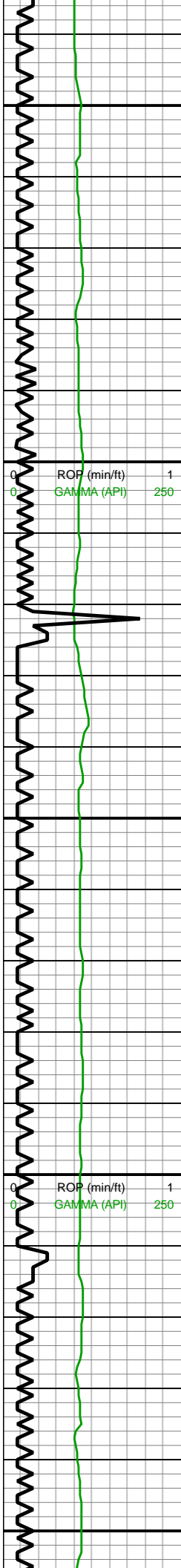
WOB: 44.6klbs
RPM: 60
SPM: 214
SPP: 4,906psi



13000-13100 SST
(100%): med brn-lt brn, f
gr, frm-sl hrd, brit ip, fis
ip, sb ang-sb rnd, rthy tex,
w srted, silc cmt, sl calc,
occ SH frags

13100-13200 SST
(100%): med brn-dk med
gy, f gr, frm-sl hrd, brit ip,
fis ip, sb ang-sb rnd, rthy
tex, w srted, silc cmt, sl
calc, abnt SH frags





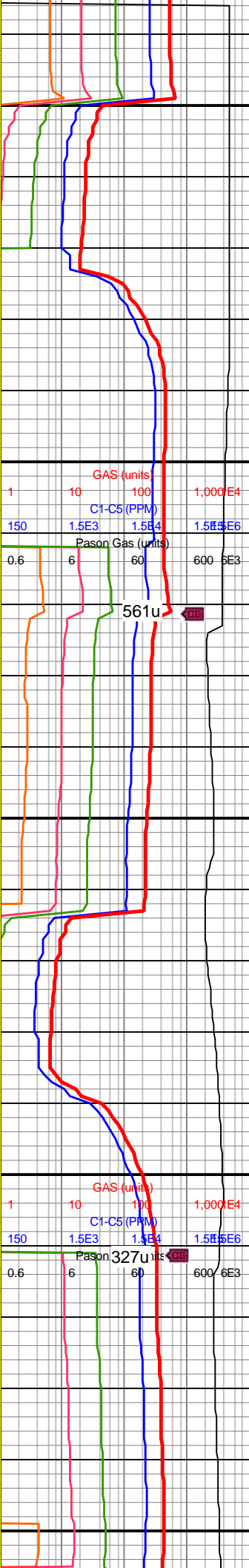
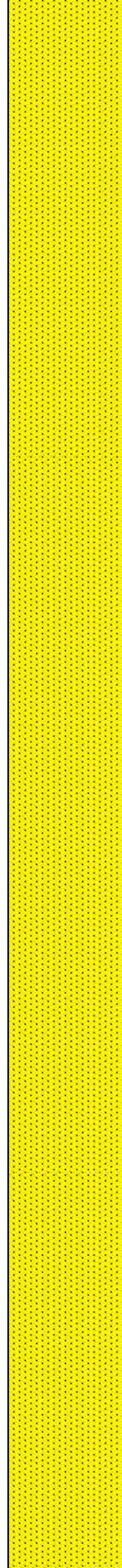
13,240
13,250
13,260
13,270
13,280
13,290
13,300
13,310
13,320
13,330
13,340
13,350
13,360
13,370
13,380
13,390
13,400
13,410
13,420
13,430
13,440
13,450

MD: 13,257'
INC: 89.16°
AZM: 179.51°
TVD: 7,483.78'
VS: 2,226.5'

MD: 13,346'
INC: 89.69°
AZM: 179.69°
TVD: 7,484.68'
VS: 2,312.68'

WOB: 44.2klbs
RPM: 60
SPM: 215
SPP: 5,169psi

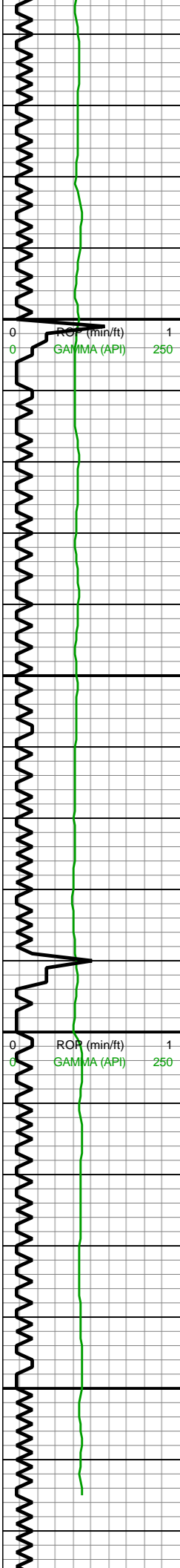
MD: 13,435'
INC: 89.96°
AZM: 179.86°
TVD: 7,484.95'
VS: 2,398.8'



13200-13300 SST
(100%): lt gyshbn-med
gy, f gr, frm-sl hrd, brit ip,
fis ip, sb ang-sb rnd, rthy
tex, w srted, silc cmt, sl
calc, sme SH frags

13300-13400 SST
(100%): predy lt
gyshbn-med gy, f gr,
frm-sl hrd, brit ip, fis ip,
sb ang-sb rnd, rthy tex, w
srted, silc cmt, sl calc, tr
SH frags





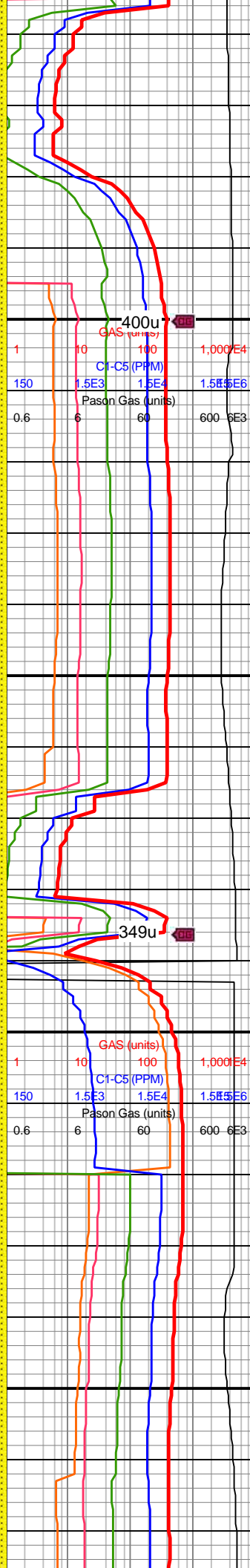
MW IN: 10.5
VIS IN: 52
MW OUT: 10.5
VIS OUT: 50

MD: 13,524'
INC: 90.4°
AZM: 179.51°
TVD: 7,484.67'
VS: 2,484.96'

WOB: 47.3klbs
RPM: 60
SPM: 216
SPP: 5,059psi

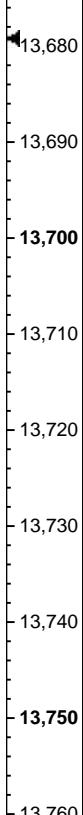
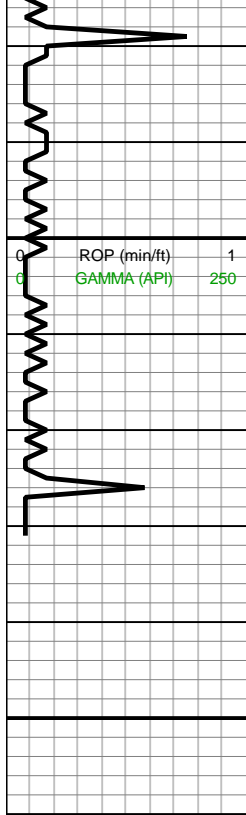
MD: 13,614'
INC: 90.75°
AZM: 179.34°
TVD: 7,483.77'
VS: 2,572.18'

MD: 13,667'
INC: 90.92°
AZM: 178.81°
TVD: 7,482.99'
VS: 2,623.62'



13400-13500 SST
(100%): predy med
gyshbn-dk gy-tr lt gy, f gr,
frm-sl hrd, brit ip, fis ip,
sb ang-sb rnd, rthy tex, w
srtd, silc cmt, sl calc,
sme SH frags

13500-13600 SST
(100%): predy med
gyshbn-dk gy, f gr, frm-sl
hrd, brit ip, fis ip, sb
ang-sb rnd, rthy tex, w
srtd, silc cmt, sl calc, rr
SH frags

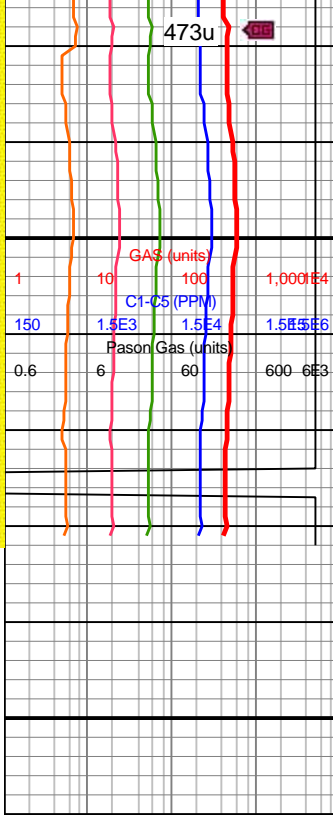
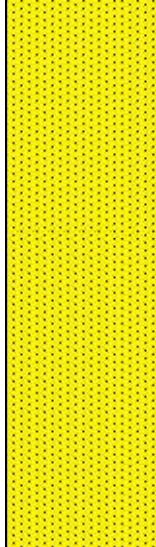


MW IN: 10.5
VIS IN: 52
MW OUT: 10.5
VIS OUT: 50

Projection to Bit

MD: 13,732'
INC: 90.92°
AZM: 178.81°
TVD: 7,481.95'
VS: 2,686.77'

**Reached a Total
Depth of 13,732'
MD on
07/11/2019 @
08:55 MST**



13600-13700 SST
(100%): med gyshbn-dk
gy-tr lt gy, f gr, frm-sl hrd,
brit ip, fis ip, sb ang-sb
rnd, rthy tex, w srted, silc
cmt, sl calc

13700-13732 SST
(100%): dk gyshbn-dk gy,
f gr, frm-sl hrd, brit ip, fis
ip, sb ang-sb rnd, rthy tex,
w srted, silc cmt, sl calc, tr
SH frags

