



RESERVOIR GROUP

Scale: 5" / 100'
Measured Depth Log

Well Name Bighorn 4Q-17H-P267

Location Sec. 17 T2N R67W

State Colorado

County Weld

Country USA

Rig Number Ensign 153

API Number 05-123-48760

AFE # 16191916

Geographic Region Rockies

Field Wattenberg

Spud Date 3/18/2019

Drilling Completed 3/21/2019

Surface Coordinates Lat/Long (NAD27): 40.1336973/-104.907059
Lat/Long (NAD83): 40.133681/-104.907590

SHL: Sec. 17 T2N R67W
Footage: 924 FSL 670 FEL

Bottom Hole Coordinates Proposed BHL: Sec. 8 T2N R67W
Footages: 2190 FSL 486 FEL

Ground Elevation 4,960'

K.B. Elevation 4,983'

Logged Interval 6,600' **To** 14,879'

Total Depth 14,879'

Formation Niobrara C Chalk

Type of Drilling Fluid Synthetic Oil Based Mud

Operator

Company Crestone Peak Resources

Address 1801 California Street, Suite 2500
Denver, CO 80202



CRESTONE PEAK RESOURCES

Geologist

Name John Ready

Company Crestone Peak Resources

Address 1801 California Street, Suite 2500
Denver, CO 80202



CRESTONE PEAK
RESOURCES

Zone Color Coding

Oil	Condensate	Gas
Note	Core	Pressure
Error	Water	Seal

Other

Loggers: Nicholas Watkins / Shana Swirin

Services Provided: 2-Man Mudlogging / Geosteering

Equipment: ML-522

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

Service Start Date: 3/18/2019

Release Date: 3/23/2019

Job Number: 2051RK1903

Rock Types

UNKNOWN	
ANHYDRITE	
GYPSUM	
SALT	
SIDERITE or LIMONITE	
LIMESTONE	

DOLOMITE	
CHERT	
COAL	
MARLSTONE	
CHALK	
SHALE	

SHALE GRAY	
SHALE COLORED	
SILTSTONE	
SANDSTONE	
CONGLOMERATE	
BRECCIA	

TILL	
BENTONITE	
TUFF	
IGNEOUS	
METAMORPHIC	
CEMENT	

Accessories

Fossils

- ALGAE
- AMPHIPORA
- BELEMNITE
- BIOCLASTIC
- BRACHIOIPOD
- BRYOZOA
- CEPHALOPOD
- CORAL
- CRINOID
- ECHINOID
- FISH
- FORAMINIFERA

F FOSSIL

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

Minerals

- ANHYDRITIC

ARGILLACEOUS

- ARGILLITE GRAIN
- BENTONITE
- BITUMENOUS SUBSTANCE
- BRECCIA FRAGMENTS
- CALCAREOUS
- CARBONACEOUS FLAKES
- CHTDK
- CHTLT
- COAL - THIN BEDS
- DOLOMITIC
- FELDSPAR
- FERRUGINOUS PELLET
- FERRUGINOUS

GLAUCONITE

- GYPSIFEROUS
- HEAVY MINERAL
- KAOLIN
- MARLSTONE
- MINERAL CRYSTALS
- NODULES
- PHOSPHATE PELLETS
- PYRITE
- SALT CAST
- SANDY
- SILICEOUS
- SILTY
- TUFFACEOUS

Stringer

- ANHYDRITE STRINGER
- BENTONITE STRINGER
- COAL STRINGER
- DOLOMITE STRINGER
- GYPSUM STRINGER
- LIMESTONE STRINGER
- MARLSTONE (CALC) STRG
- MARLSTONE (DOL) STRG
- SANDSTONE STRINGER
- SHALE STRINGER
- SILTSTONE STRINGER

Other Symbols

Oil Show

- DEAD
- EVEN
- QUESTIONABLE
- SPOTTED STAINING

Porosity

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

O 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

- A ANGULAR
- R ROUNDED
- S SUBANG
- S SUBRND

Textures

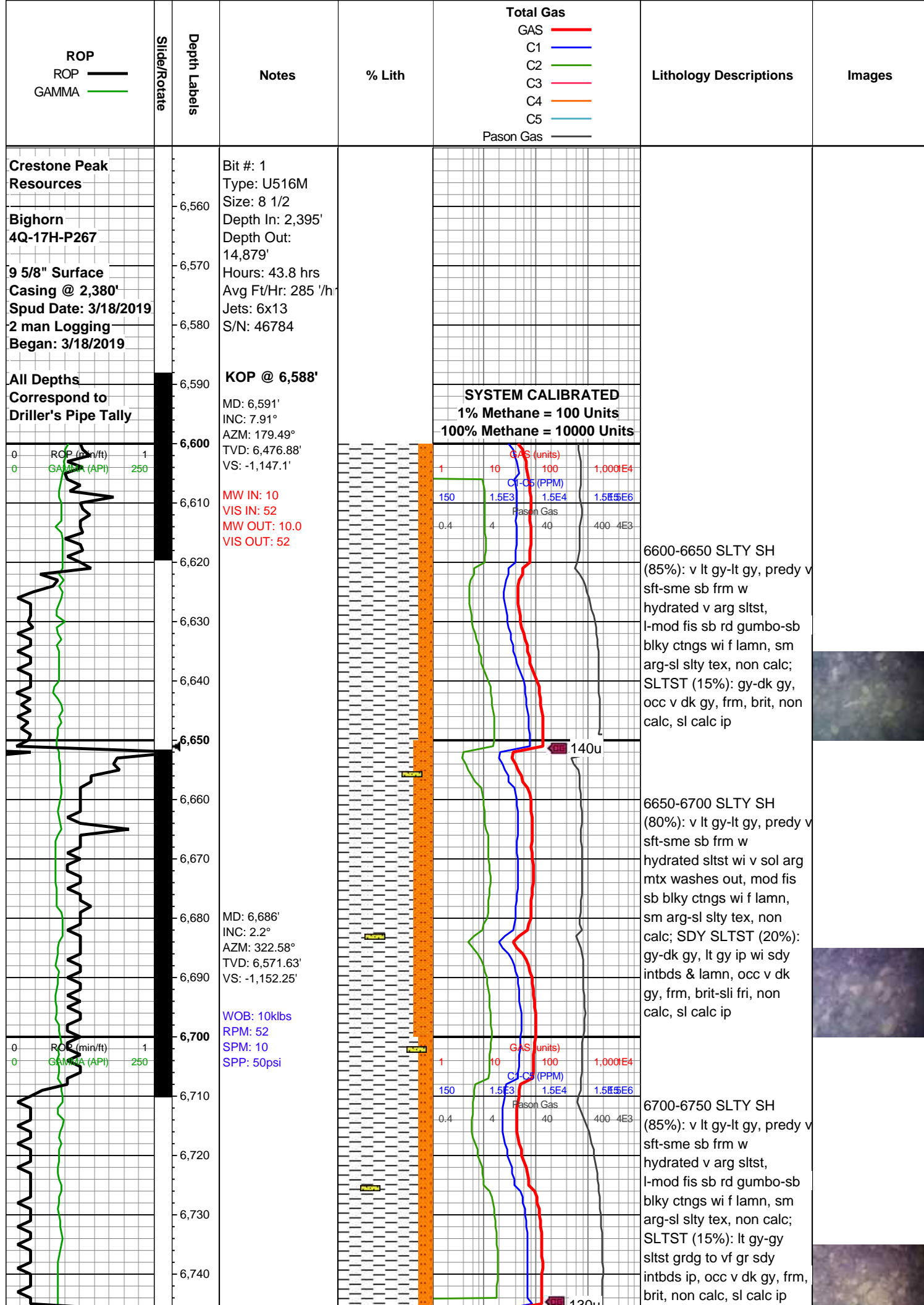
- B BOUNDSTONE
- C CHALKY
- C CRYPTOXLN
- E EARTHY
- F FINELYXLN
- G GRAINSTONE

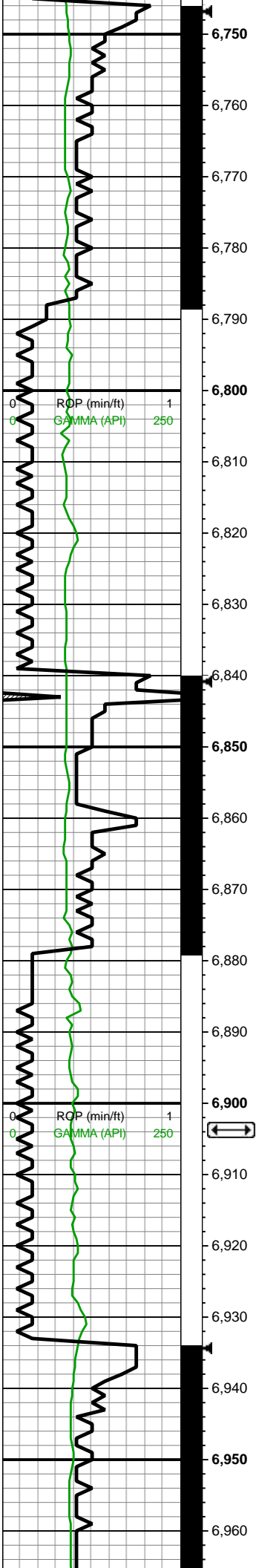
L LITHOGRAPHIC

- M MICROXLN
- M MUDSTONE
- P PACKSTONE
- W WACKESTONE

Sorting

- M MODERATE
- P POOR
- W WELL





MD: 6,780'
INC: 10.73°
AZM: 341.03°
TVD: 6,664.95'
VS: -1,142.75'

WOB: 34klbs
RPM: 29
SPM: 186
SPP: 4,970psi

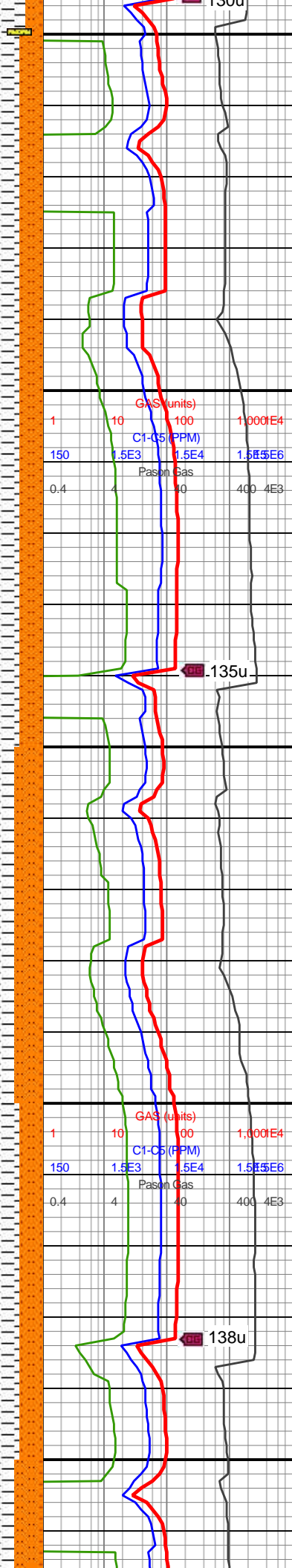
MW IN: 10
VIS IN: 52
MW OUT: 10.0
VIS OUT: 50

MD: 6,874'
INC: 14.33°
AZM: 354.57°
TVD: 6,756.71'
VS: -1,123.13'

Mitten Marker 2
6,904'MD/6,785'TVD

MW IN: 10
VIS IN: 50
MW OUT: 10.0
VIS OUT: 48

MD: 6,968'
INC: 19.52°



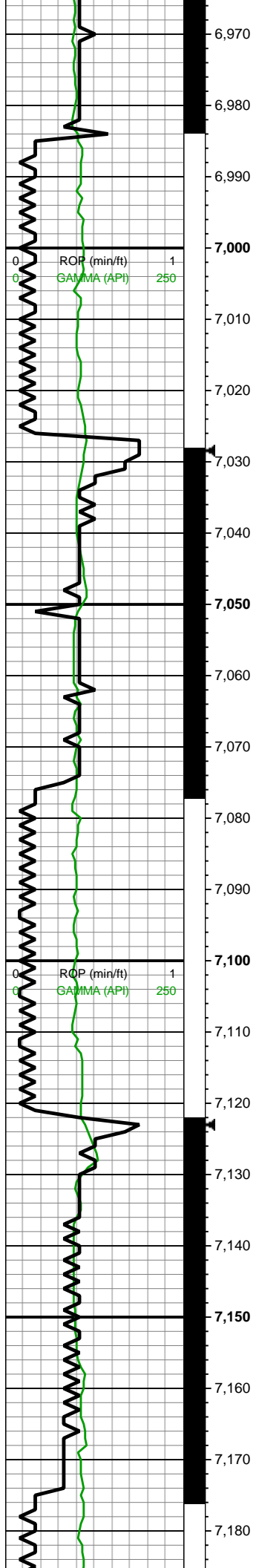
6750-6800 SLTY SH
(80%): v lt gy-lt gy, predy v
sft-sme sb frm w
hydrated sltst wi v sol arg
mtx, mod fis sb blk
ctngs wi f lamn, sm
arg-sl slty tex, non calc;
SLTST (20%): gy-dk gy,
occ v dk gy-blk, frm, brit,
non calc, sl calc ip

6800-6850 SLTY SH
(80%): v lt gy-lt gy intbdd
wi occ lt gy-gy sltst, predy
v sft-sme sb frm w
hydrated sltst wi v sol arg
mtx, sme mod fis sb blk
ctngs wi f lamn, sm
arg-sl slty tex, non calc;
SLTST (20%): lt gy-gy,
frm, brit, predy silc sltst,
arg ip, non calc-sl calc ip

6850-6900 SLTY SH
(75%): lt gy-gy, sft w
hydrated water solu
gumbo ctngs, slty arg tex
thru, non calc; SLTST
(25%): lt gy-gy, rr silc vugy
vns & lamn ip, occ v dk
gy-blk, frm, brit, rr vf pyr,
non calc

6900-6950 SLTY SH
(80%): v lt gy-lt gy, predy v
sft-sme sb frm w
hydrated sltst wi v sol arg
mtx, mod fis sb blk
ctngs wi f lamn, sm
arg-sl slty tex, non calc,
intbdd wi sltst; SLTST
(20%): predy gy, dk gy ip,
frm-brit silc sltst wi incr
cly ip grd to arg sltst-slty
sh, non calc, sl calc ip

6950-7000 SLTY SH
(75%): v lt gy-lt gy, lt



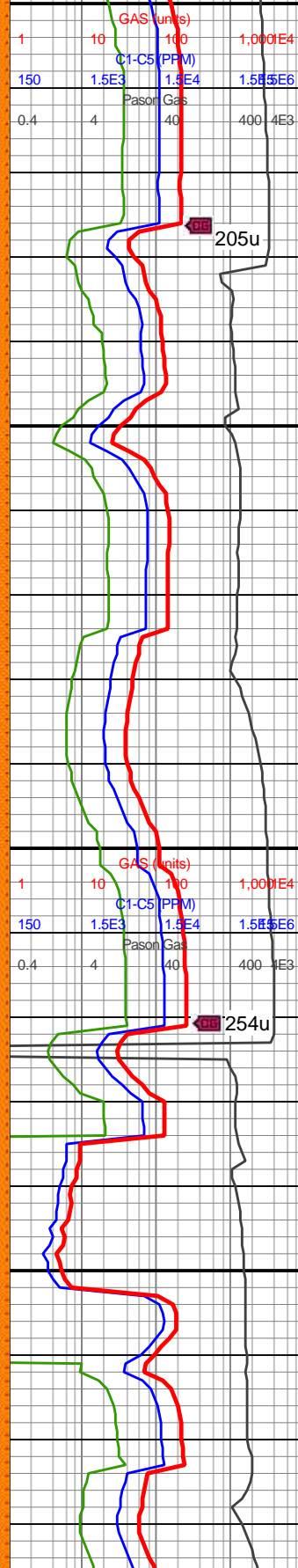
INC: 15.02°
AZM: 355.45°
TVD: 6,846.61'
VS: -1,096.04'

WOB: 33klbs
RPM: 30
SPM: 186
SPP: 2,930psi

MD: 7,062'
INC: 25.32°
AZM: 0.55°
TVD: 6,933.48'
VS: -1,060.36'

MW IN: 10
VIS IN: 50
MW OUT: 10.0
VIS OUT: 48

MD: 7,157'
INC: 31.3°
AZM: 359.14°
TVD: 7,017.08'
VS: -1,015.41'



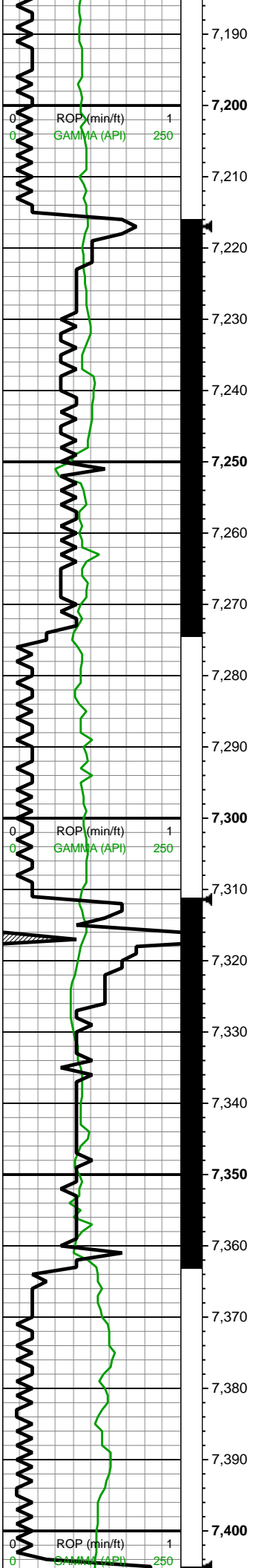
(75%): v lt gy-lt gy, lt
gyshbn-trn ip, v sft w
hydrated v arg sltst, sme
sb frm grdg to sltst,
slty-sdy ip, mod fis sb
blky ctngs wi f lamn, sm
arg-sl slty tex, non calc;
SLTST (25%): gy-dk gy,
occ v dk gy-blk, slty-sdy
ip, frm, brit, non calc, sl
calc ip

7000-7050 SLTY SH
(85%): v lt gy-lt gy-lt
gyshbn ip, v sft-sme sb
frm v w w hydrated arg
sltst wi v sol arg mtx,
mod fis sb blky ctngs wi f
lamn, sm arg-sl slty tex,
non calc; SLTST (15%):
gy-dk gy, occ v dk gy-blk,
frm, brit, predy non calc

7050-7100 SLTY SH
(90%): predy lt gy, gy-sl
gyshbn ip, sft-sb frm,
l-mod fis v w hydrated
water solu arg sltst, sdy
ip, sm arg tex, non calc;
SLTST (10%): gy, dk gy
ip, frm-brit mod-hi fis sb
plty-plty sltst intbdd wi slty
sh, silc, wi incr cly grdg to
slty sh, predy non calc

7100-7150 SLTY SH
(70%): gy-gyshbn, occ lt
gy lamn ip, v sft w
hydrated v arg sltst, mod
fis sb blky ctngs wi f
lamn, sm arg-sl slty tex,
non calc; SLTST (30%):
gy-dk gy, occ v dk gy-blk,
slty-sdy ip, frm, brit, non
calc, sl calc ip

7150-7200 SLTY SH
(25%): gy-gyshbn v sft w
hydrated water solu v arg
sltst, sme sb frm, mod fis
sb blky ctngs wi f wh
lamn ip, sm arg-sl slty



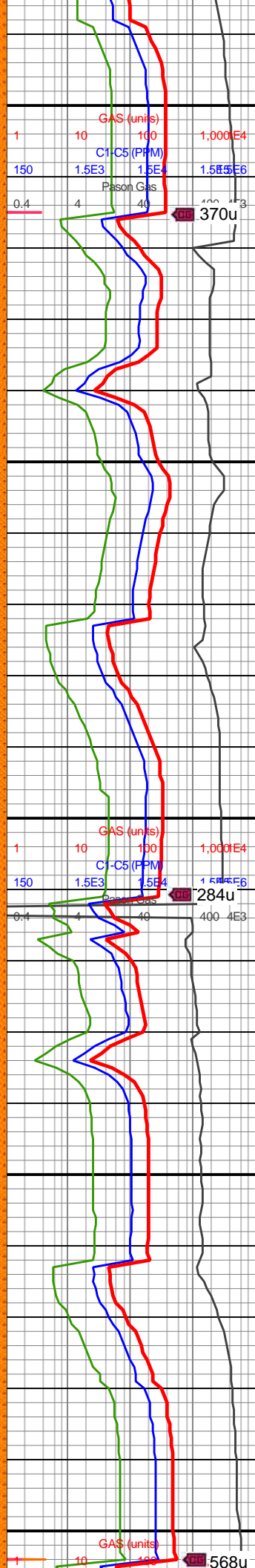
WOB: 33.4klbs
RPM: 30
SPM: 186
SPP: 4,630psi

MW IN: 10
VIS IN: 52
MW OUT: 10.0
VIS OUT: 49

MD: 7,251'
INC: 38.43°
AZM: 3.36°
TVD: 7,094.17'
VS: -961.76'

MD: 7,345'
INC: 45.46°
AZM: 3.89°
TVD: 7,164.04'
VS: -898.97'

WOB: 33.5klbs
RPM: 30
SPM: 186
SPP: 4,711psi



tex, non calc; SLTST (25%): gy-dk gy, frm-brit silc sltst, tr micmica, non calc, rr calc ip

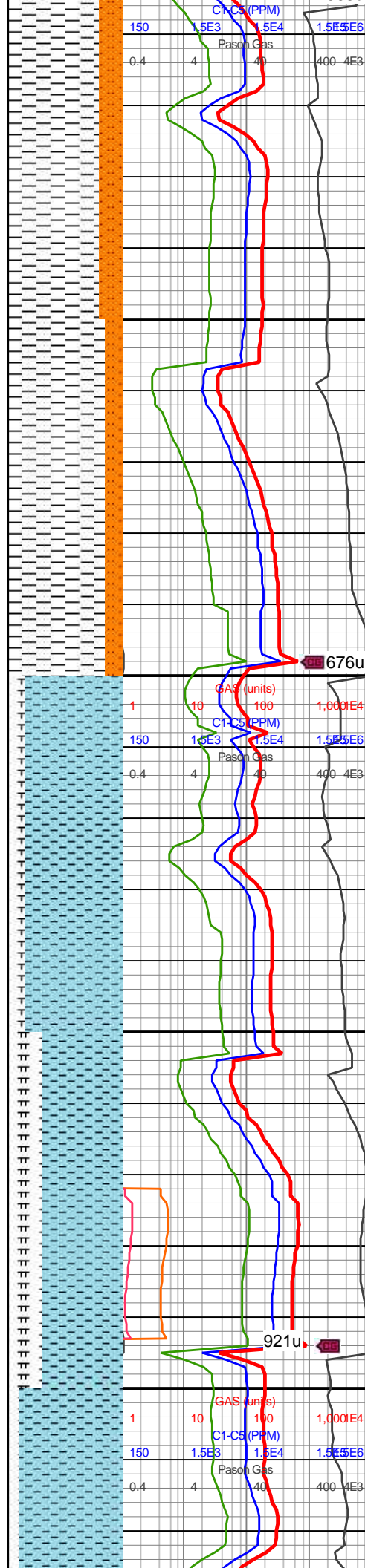
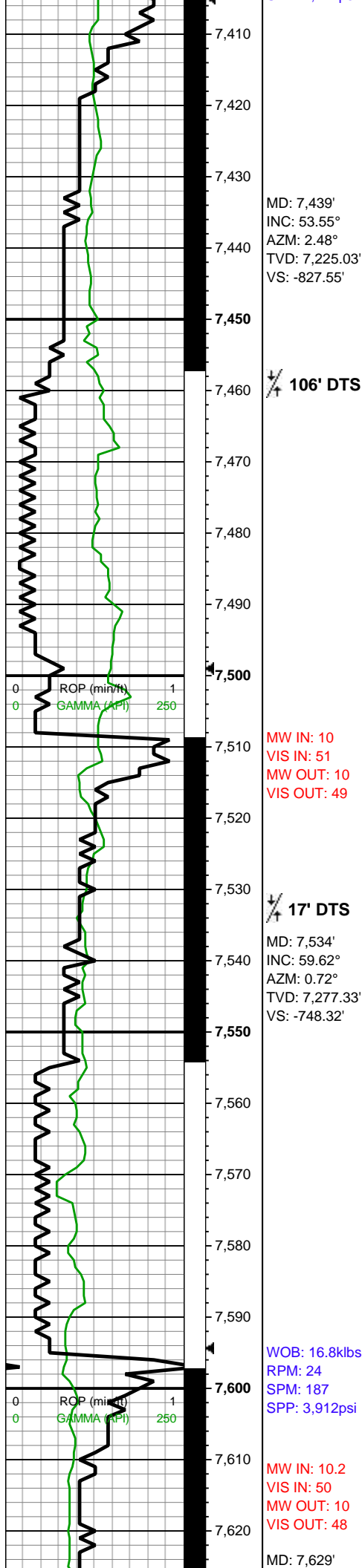
7200-7250 SLTY SH (65%): predy gy-gyshbn sft-sb frm-frm mod fis sb blk-y-sb plty ctngs, occ off wh-v lt gy sft w hydrated gumbo ctngs, water solu slty sh, thn lamn, slty arg tex, non calc; SLTST (35%): gy-dk gy, frm-brit, sb plty-plty, brit, rr-tr vf micmica, non calc

7250-7300 SLTY SH (60%): gy-dk gy, frm, brit ip, sb blk-y-blky, mod calc; SLTST (40%): gy-gyshbn, frm-brit, sb plty-plty, non calc

7300-7350 SLTY SH (70%): gy-dk gy, frm, brit ip, sb blk-y-blky, mod calc; SLTST (30%): gy-gyshbn, frm-brit, sb plty-plty, tr pp pyr, non calc

7350-7400 SLTY SH (65%): predy gy-dk gy, frm-brit, sb blk-y-blky, mod calc; SLTST (35%): gy-gyshbn, frm-brit, sb blk-y-sb plty, non calc





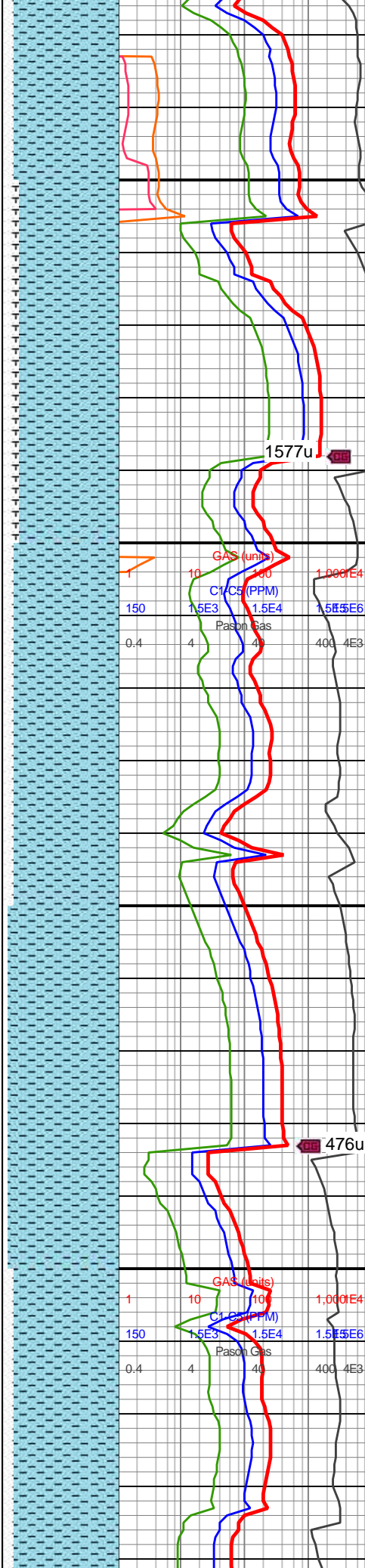
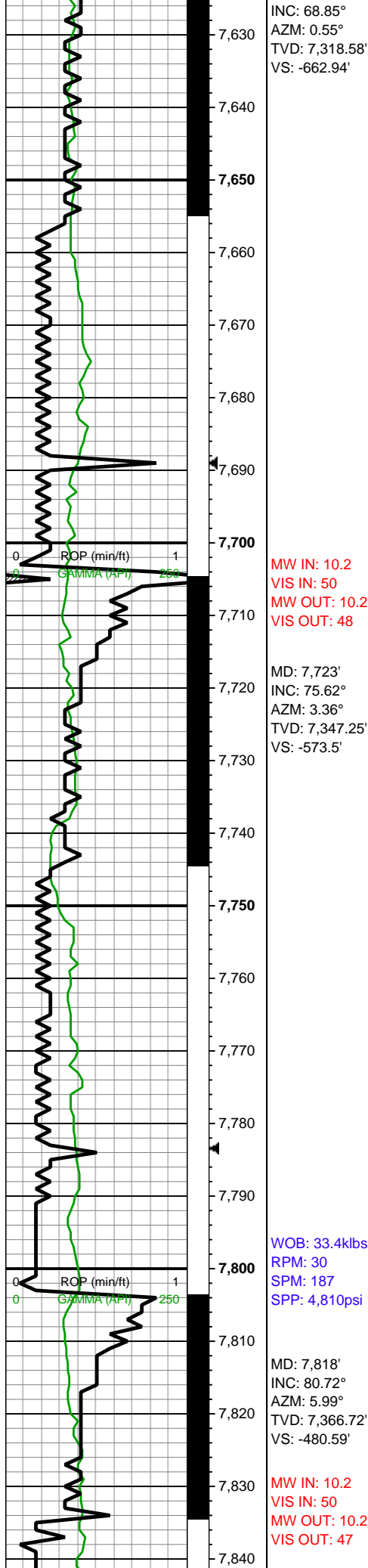
7400-7450 SLTY SH
(80%): gy, sme dk gy,
frm-brit, sb blkly-blky, mod
calc; SLTST (20%): med
gy-gyshbn, frm-brit, sb
blkly-sb plty, non calc

7450-7500 SLTY SH
(85%): gy, frm-brit, sb
blkly-blky, mod calc;
SLTST (15%): med gy,
sme gyshbn, frm-brit, sb
blkly-sb plty, non calc

7500-7550 CHK (80%):
med gy-lt gy, sb tab-sb
blkly-sb plty, frm-brit, tr
MRLST intbds, tr mic pyr,
hi calc; MRLST (20%): dk
gy, sb tab-blky, sl hd-frm,
tr CHK intbds, mod calc

7550-7600 CHK (70%):
med gy-gyshbn, sb
tab-sb blkly, frm-brit, tr
MRLST intbds, rr mic pyr,
hi calc; MRLST (30%): dk
gy, sb tab-blky, sl hd-frm,
CHK intbds, mod calc





med gy-gyshbn, tr lt gy, sb blky-sb plty, frm-brit, MRLST intbds, rr pp pyr, hi calc; MRLST (10%): dk gy, sb tab-blky, sl hd-frm, CHK intbds, mod calc, v rr free pyr

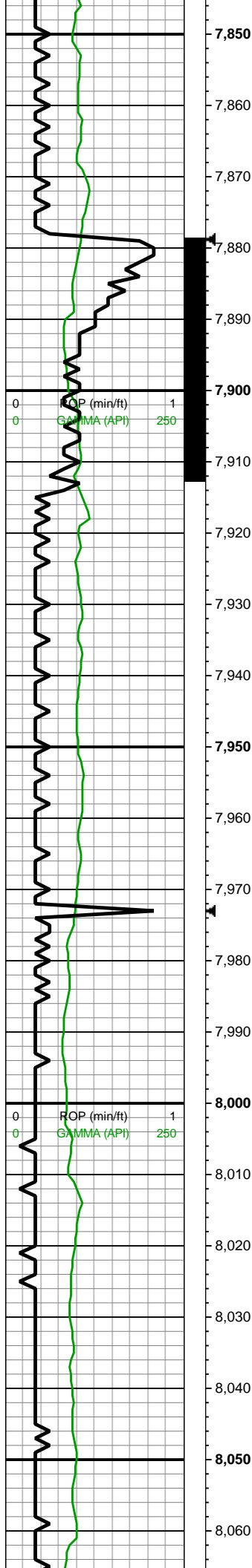
med gy-gyshbn-lt gy, sb blky-sb plty, frm-brit, MRLST intbds, tr pp pyr, hi calc; MRLST (15%): dk gy, sb tab-blky, sl hd-frm, CHK intbds, mod calc, v rr free cal

gyshbn-lt gy, sb blky-sb plty, frm-brit, MRLST intbds, rr imbd cal, hi calc; MRLST (10%): dk gy, sb tab-blky, sl hd-frm, CHK intbds, mod calc, v rr free pyr

gyshbn, sb blky-sb plty, frm-brit, MRLST intbds, hi calc; MRLST (5%): dk gy, sb tab-blky, sl hd-frm, CHK intbds, mod calc

gyshbn, sme lt gy, sb blky-sb plty, frm-brit, MRLST intbds, tr pp pyr, sme imbd cal, hi calc; MRLST (10%): dk gy-med





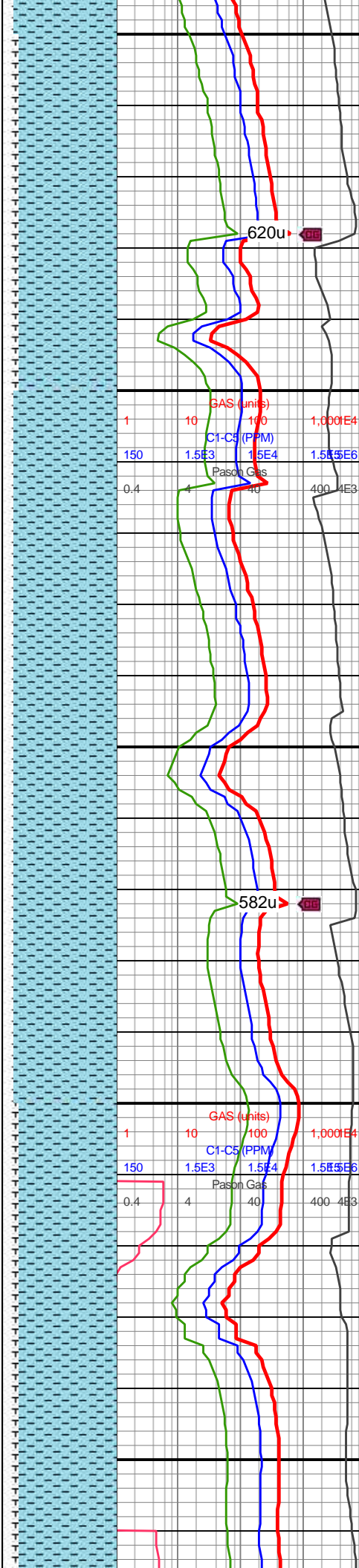
**Curve Landed
@ 7,913' MD**

MD: 7,913'
INC: 88.02°
AZM: 6.35°
TVD: 7,376.03'
VS: -386.25'

MW IN: 10.2
VIS IN: 50
MW OUT: 10.2
VIS OUT: 48

WOB: 32.1klbs
RPM: 60
SPM: 187
SPP: 4,695psi

MD: 8,007'
INC: 88.55°
AZM: 5.82°
TVD: 7,378.84'
VS: -292.42'



620u

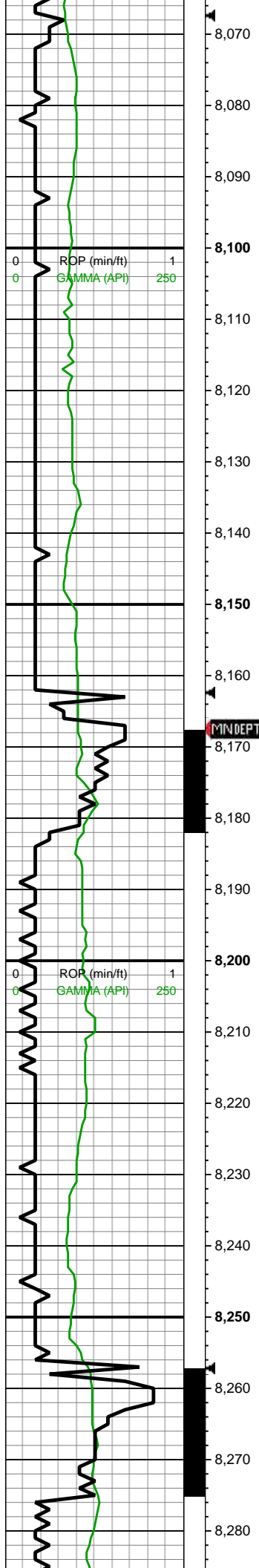
582u

gy, sb tab-biky, sl hd-frm, CHK intbds, mod calc

7850-7900 CHK (85%): lt gy-gyshbn, sb blk-y-sb plty, frm-brit, MRLST intbds, tr pp pyr, imbd cal, hi calc; MRLST (15%): dk gy, sb blk-y-sb plty, sl hd-frm, CHK intbds, tr imbd cal, mod calc

7900-8000 CHK (90%): gyshbn, sb blk-y-sb plty, frm-brit, MRLST intbds, imbd cal, hi calc; MRLST (10%): med gy, sb blk-y-sb tab, sl hd-frm, CHK intbds, mod calc

8000-8100 CHK (85%): gyshbn-lt gy, sb blk-y-sb plty, frm-brit, MRLST intbds, sme imbd cal, occ pp pyr, hi calc; MRLST (15%): med gy, sb blk-y-sb tab, sl hd-frm, CHK intbds, mod calc



MD: 8,102'
INC: 88.99°
AZM: 4.94°
TVD: 7,380.88'
VS: -197.52'

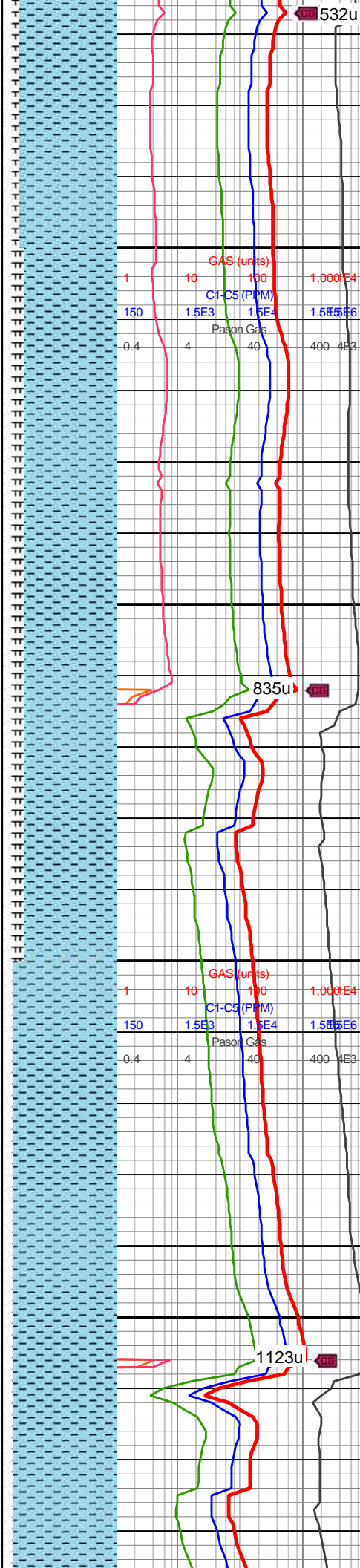
MW IN: 10.2
VIS IN: 50
MW OUT: 10.2
VIS OUT: 48

03/20/2019

MD: 8,197'
INC: 89.43°
AZM: 6.7°
TVD: 7,382.19'
VS: -102.64'

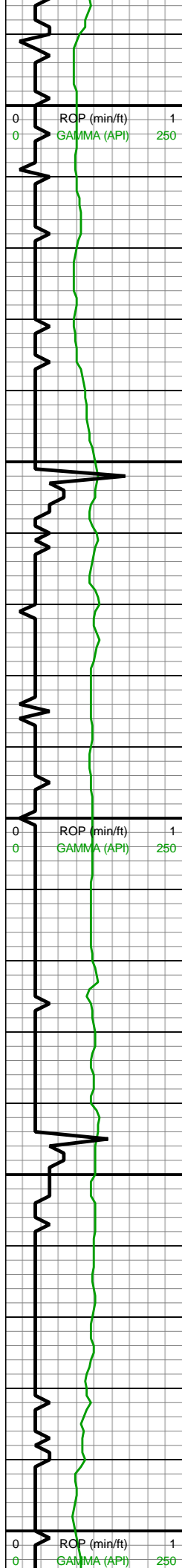
WOB: 33.8klbs
RPM: 60
SPM: 187
SPP: 4,842psi

40' DTS



8100-8200 CHK (80%):
predy lt gy-gyshbn, sb
blky-sb plty, frm-brit,
MRLST intbds, sme imbd
cal, occ pp pyr, hi calc;
MRLST (20%): dk gy, sb
blky-sb tab, sl hd-frm,
CHK intbds, mod calc, rr
free pyr

8200-8300 CHK (90%):
predy lt gy-med gy, sb
blky-sb plty, frm-brit,
MRLST intbds, sme imbd
cal, hi calc; MRLST
(10%): dk gy, sb blky-sb
tab, sl hd-frm, CHK
intbds, mod calc, rr free
cal



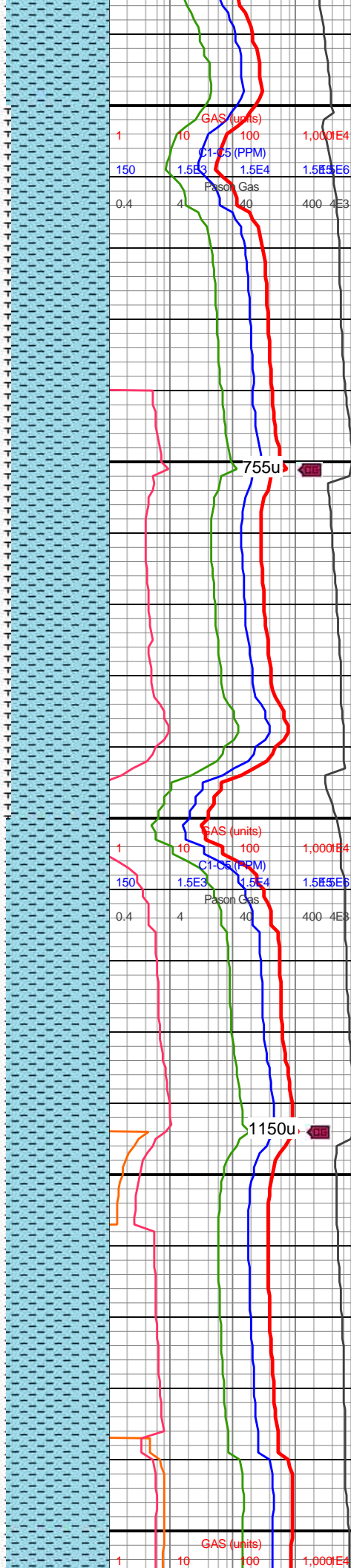
MD: 8,291'
INC: 90.75°
AZM: 8.81°
TVD: 7,382.05'
VS: -8.96'

MW IN: 10.2
VIS IN: 50
MW OUT: 10.2
VIS OUT: 48

MD: 8,384'
INC: 90.75°
AZM: 8.63°
TVD: 7,380.83'
VS: 83.59'

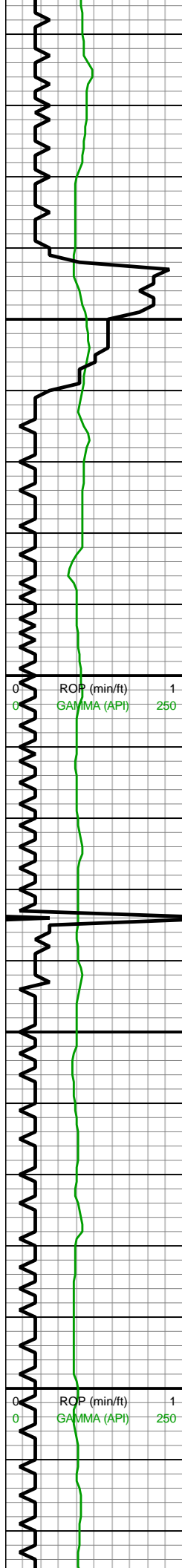
WOB: 35.4klbs
RPM: 60
SPM: 187
SPP: 4,787psi

MD: 8,479'
INC: 90.92°
AZM: 7.93°
TVD: 7,379.44'
VS: 178.19'



8300-8400 CHK (85%):
predy lt gy, sb blkgy-sb
plty, frm-brit, MRLST
intbds, sme imbd cal, hi
calc; MRLST (15%): dk
gy-med gy, sb blkgy-sb
tab, sl hd-frm, CHK
intbds, mod calc, sme
free cal, v rr free pyr

8400-8500 CHK (90%): lt
gy, tr gyshbn, sb blkgy-sb
plty, frm-brit, MRLST
intbds, hi calc; MRLST
(10%): med gy, sb
blkgy-sb tab, sl hd-frm,
CHK intbds, mod calc,
sme free cal



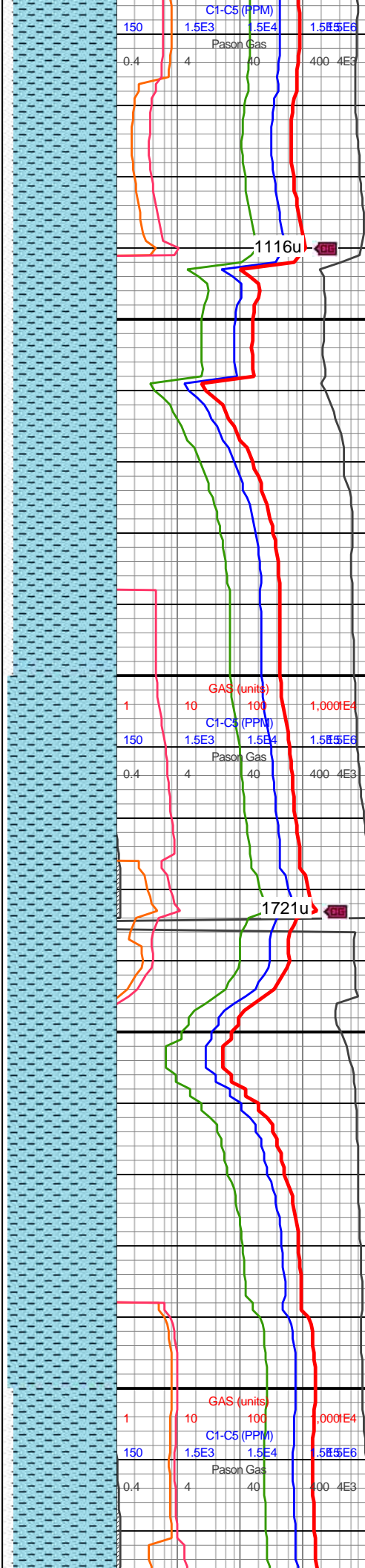
8,510
8,520
8,530
8,540
8,550
8,560
8,570
8,580
8,590
8,600
8,610
8,620
8,630
8,640
8,650
8,660
8,670
8,680
8,690
8,700
8,710
8,720

MW IN: 10.2
VIS IN: 50
MW OUT: 10.2
VIS OUT: 47

MD: 8,574'
INC: 91.63°
AZM: 9.86°
TVD: 7,377.33'
VS: 272.67'

WOB: 31.6klbs
RPM: 60
SPM: 187
SPP: 5,070psi

MD: 8,668'
INC: 91.36°
AZM: 8.63°
TVD: 7,374.88'
VS: 366.1'



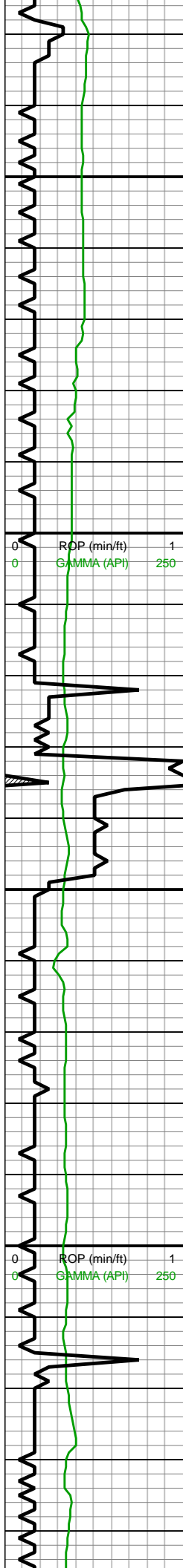
1116u

1721u

8500-8600 CHK (90%):
predy gyshbn-med gy, sb
blky-sb plty, frm-brit,
MRLST intbds, occ pp
pyr, hi calc; MRLST
(10%): dk med gy, sb
blky-sb tab, sl hd-frm,
CHK intbds, mod calc

8600-8700 CHK (95%):
gyshbn, sb blky-sb plty,
frm-brit, MRLST intbds, hi
calc; MRLST (5%): med
gy, sb blky-sb tab, sl
hd-frm, CHK intbds, mod
calc





MD: 8,762'
INC: 91.28°
AZM: 8.1°
TVD: 7,372.71'
VS: 459.68'

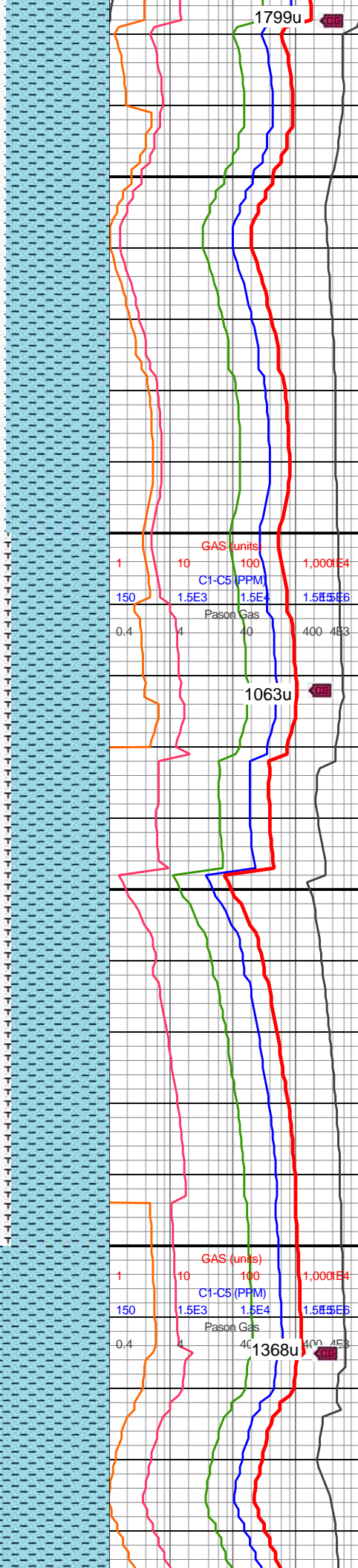
WOB: 36.2klbs
RPM: 60
SPM: 186
SPP: 5,140psi

MW IN: 10.3
VIS IN: 50
MW OUT: 10.2
VIS OUT: 48

On Gas Buster

MD: 8,856'
INC: 90.66°
AZM: 9.86°
TVD: 7,371.12'
VS: 553.17'

MD: 8,950'

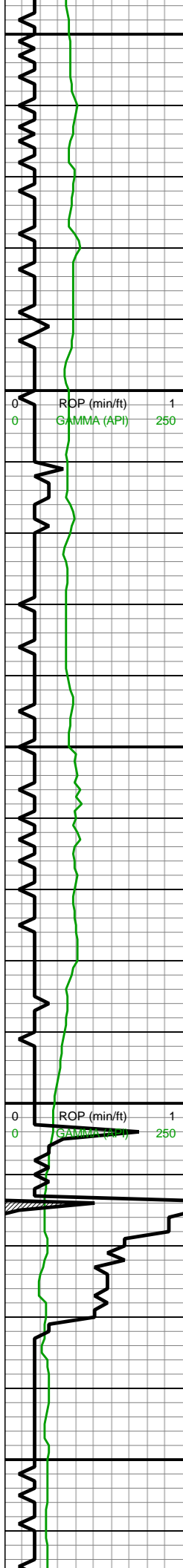


8700-8800 CHK (90%):
predy med gy-gyshbn, sb
blky-sb plty, frm-brit,
MRLST intbds, hi calc;
MRLST (10%): dk med
gy, sb blky-sb tab, sl
hd-frm, CHK intbds, mod
calc, tr free pyr

8800-8900 CHK (85%):
predy med gy-lt gy, sb
blky-sb plty, frm-brit,
MRLST intbds, tr imbd
cal, hi calc; MRLST
(15%): dk med gy-dk gy,
sb blky-sb tab, sl hd-frm,
CHK intbds, mod calc

8900-9000 CHK (95%):
predy lt gy-med gy, sb
blky-sb plty, frm-brit,
MRLST intbds, tr imbd
cal, hi calc; MRLST
(15%): dk med gy-dk gy,
sb blky-sb tab, sl hd-frm,
CHK intbds, mod calc





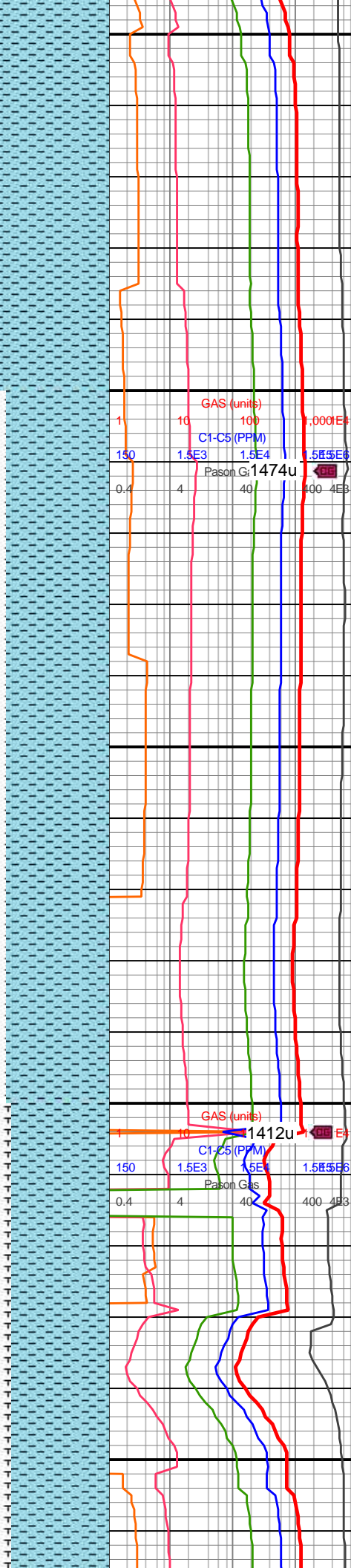
MD: 8,950'
INC: 91.01°
AZM: 9.69°
TVD: 7,369.75'
VS: 646.52'

MW IN: 10.3
VIS IN: 49
MW OUT: 10.3
VIS OUT: 48

WOB: 33.6klbs
RPM: 60
SPM: 187
SPP: 5,173psi

MD: 9,044'
INC: 90.92°
AZM: 8.63°
TVD: 7,368.17'
VS: 739.98'

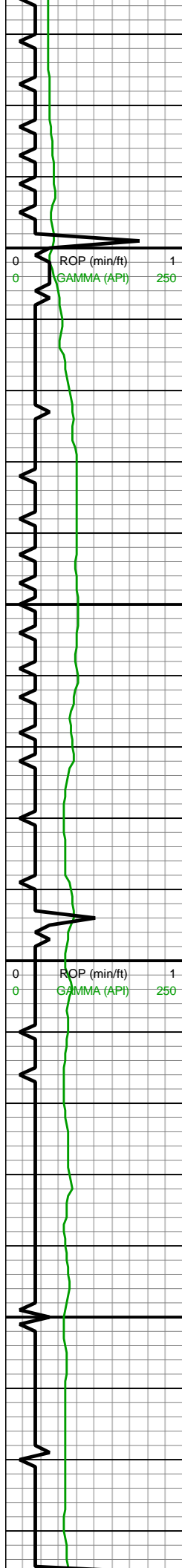
MD: 9,139'
INC: 89.34°
AZM: 9.69°
TVD: 7,367.95'
VS: 834.44'



blky-sb plty, frm-brit,
MRLST intbds, hi calc;
MRLST (5%): dk gy, sb
blky-sb tab, sl hd-frm,
CHK intbds, mod calc

9000-9100 CHK (90%):
predy lt gy-med gy, sb
blky-blky, frm-brit, MRLST
intbds, hi calc; MRLST
(10%): dk med gy, sb
blky-sb tab, sl hd-frm,
CHK intbds, mod calc

9100-9200 CHK (85%): lt
gy-gy-lt gyshbn, sb
frm-frm, sb rd-sb blky
l-mod fis ctngs, sl slty tex,
rr vf pyr, hi calc; MRLST
(15%): gy-dk gy wi occ
brn marl incl, frm-brit,
mod fis sb blky-sb plty
ctngs, slty tex, rr vf pyr,
mod calc



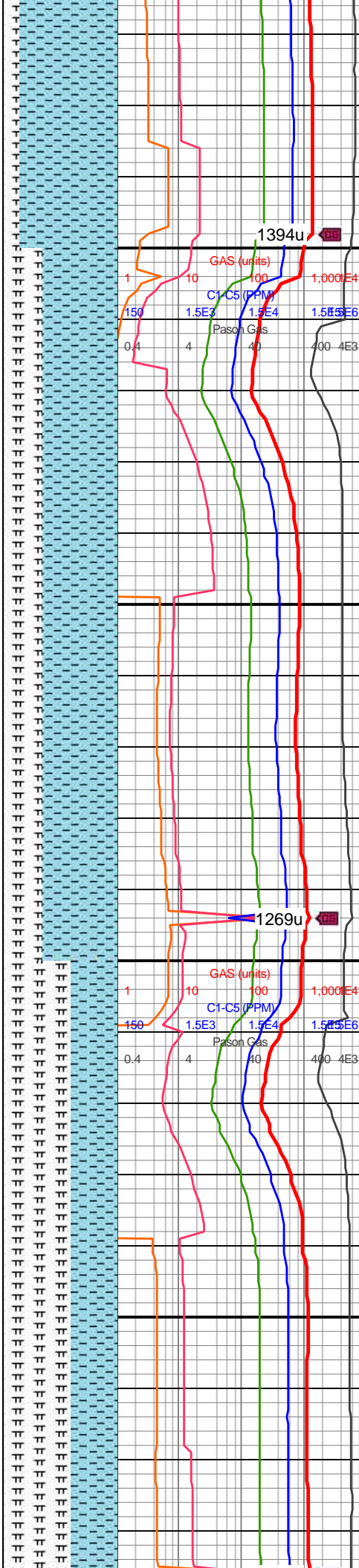
MW IN: 10.3
VIS IN: 50
MW OUT: 10.3
VIS OUT: 48

WOB: 13klbs
RPM: 60
SPM: 186
SPP: 4,160psi

MD: 9,233'
INC: 88.64°
AZM: 8.63°
TVD: 7,369.61'
VS: 927.9'

MD: 9,327'
INC: 88.37°
AZM: 8.63°
TVD: 7,372.06'
VS: 1,021.43'

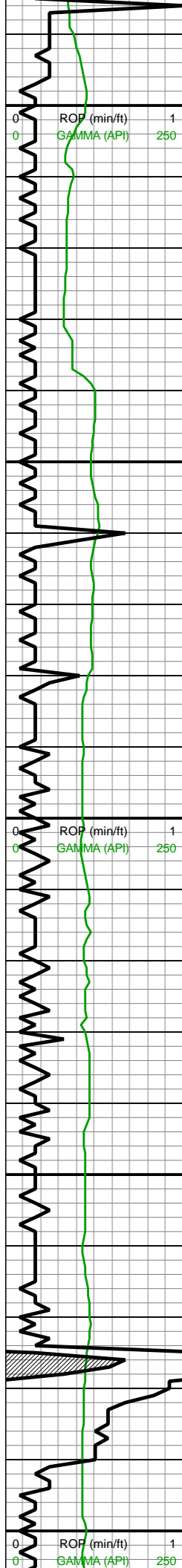
MW IN: 10.4
VIS IN: 54
MW OUT: 10.4
VIS OUT: 50



9200-9300 CHK (65%): lt gy-gy, gyshbn ip, sb frm-frm l-mod fis sb rd-sb blk cytns, sl slty tex, rr vf pyr, hi calc;
MRLST (35%): gy-dk gy wi occ brn marl incl, frm-brit, mod fis sb blk cytns, slty tex, rr vf pyr, mod calc

9300-9400 MRLST (60%): dk gy, frm-brit sb blk cytns, sb rd ip, slty tex, rr-tr vf-f pyr, mod calc wi brn mrly resdl;
CHK (40%): lt gy-gy-gyshbn, rr f-c sp forams ip, sb frm-frm, l-mod fis sb rd-sb blk cytns, sl slty tex, tr vf-f pyr, hi calc



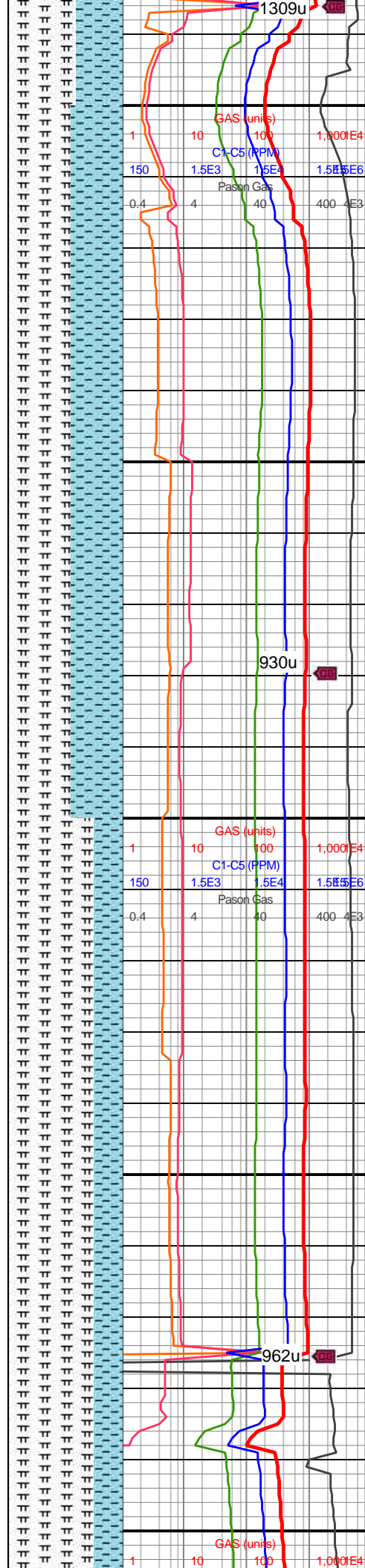


WOB: 25klbs
RPM: 60
SPM: 185
SPP: 4,830psi

MD: 9,422'
INC: 88.81°
AZM: 8.1°
TVD: 7,374.4'
VS: 1,116'

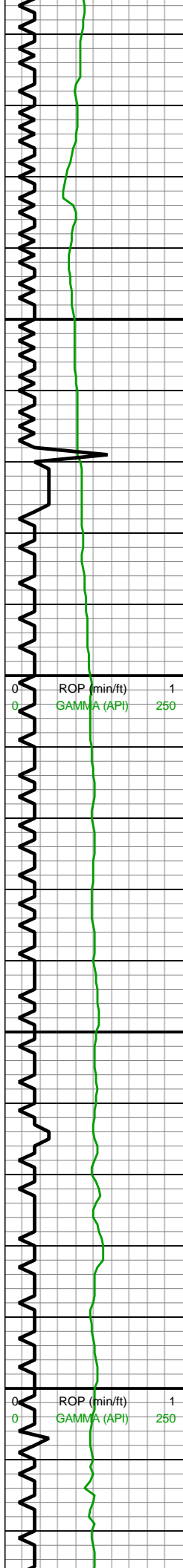
MD: 9,515'
INC: 88.55°
AZM: 7.58°
TVD: 7,376.54'
VS: 1,208.66'

WOB: 29klbs
RPM: 60
SPM: 186
SPP: 5,250psi



9400-9500 MRLST
(55%): dk gy, frm-brit sb
blky-blky ctngs, sb rd ip,
silty tex, rr-tr vf-f pyr, mod
calc wi brn mrly resdl;
CHK (45%): lt
gy-gy-gyshbn sp wi occ
off wh forams, sb
frm-frm, l-mod fis sb
rd-sb blky ctngs, sl silty
tex, tr vf-f pyr, hi calc

9500-9600 MRLST
(75%): dk gy-dk gyshbn,
frm-brit sb blky-blky mod
fis ctngs, sl silty-silty tex,
rr-tr vf-f pyr, mod calc wi
brn mrly resdl; CHK
(25%): lt gy-gy-gyshbn, tr
f-c sp forams ip, sb
frm-frm, l-mod fis sb
rd-sb blky ctngs, sl silty
tex, tr vf-f pyr, hi calc



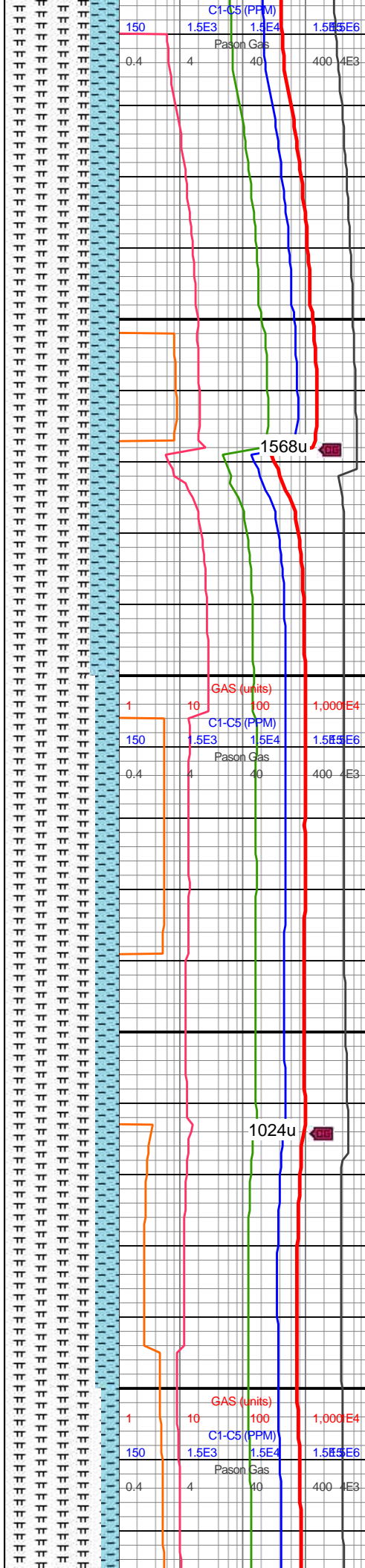
MD: 9,610'
INC: 90.75°
AZM: 8.46°
TVD: 7,377.12'
VS: 1,303.3'

MD: 9,704'
INC: 90.57°
AZM: 8.1°
TVD: 7,376.04'
VS: 1,396.91'

MW IN: 10.4
VIS IN: 54
MW OUT: 10.4
VIS OUT: 50

MD: 9,799'
INC: 90.22°
AZM: 7.93°
TVD: 7,375.38'
VS: 1,491.56'

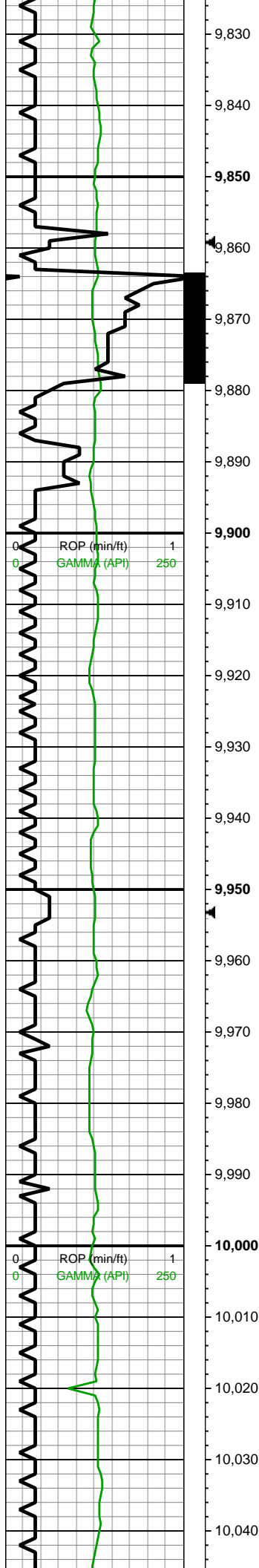
WOB: 33klbs
RPM: 60
SPM: 183
SPP: 5,310psi



9600-9700 MRLST
(75%): dk gy-dk gyshbn,
frm-brit, mod fis sb
blky-blky ctngs wi sl
silty-silty tex, rr-tr vf-f pyr,
mod calc; CHK (25%):
predy gy wi occ forams, lt
gyshbn ip, sb frm-frm,
l-mod fis sb rd-sb blky
ctngs, sl silty tex, tr vf-f pyr,
hi calc

9700-9800 MRLST
(80%): dk gy-dk gyshbn,
frm-brit sb blky-blky mod
fis ctngs, sl silty-silty tex,
rr-tr vf-f pyr, mod calc wi
brn mrly resdl; CHK
(20%): lt gy-gy-gyshbn, tr
f-c sp forams ip, sb
frm-frm, l-mod fis sb
rd-sb blky ctngs, sl silty
tex, tr vf-f pyr, hi calc



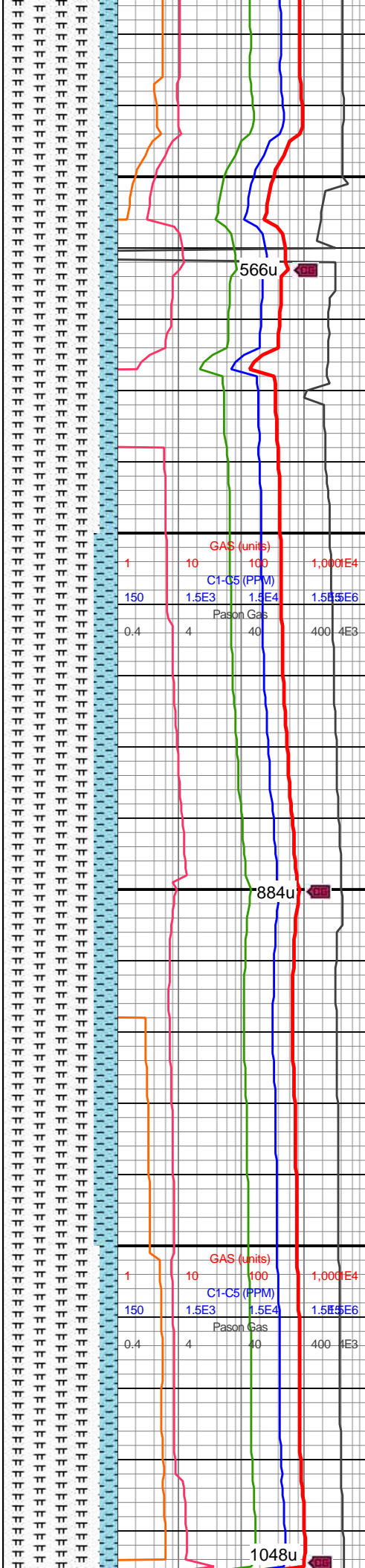


MD: 9,893'
INC: 90.84°
AZM: 10.74°
TVD: 7,374.51'
VS: 1,584.99'

MW IN: 10.4
VIS IN: 52
MW OUT: 10.4
VIS OUT: 56

MD: 9,987'
INC: 91.28°
AZM: 11.09°
TVD: 7,372.78'
VS: 1,678.1'

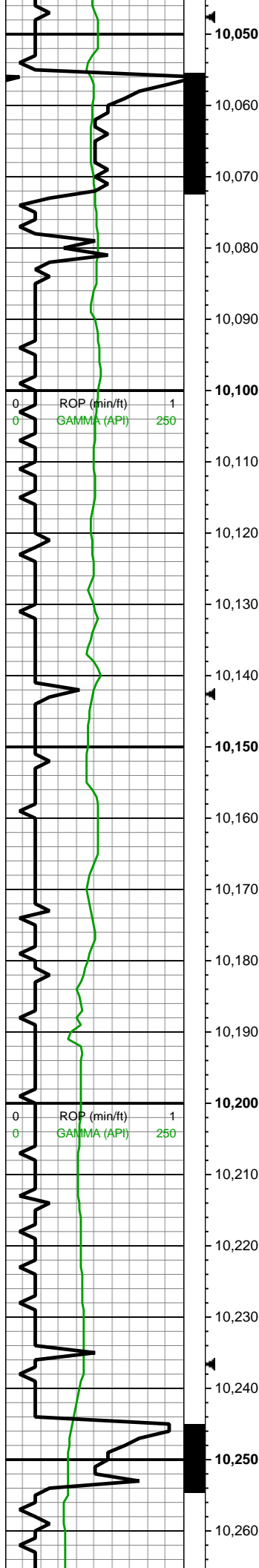
WOB: 31klbs
RPM: 60
SPM: 184
SPP: 5,230psi



9800-9900 MRLST
(85%): dk gy-dk gyshbn,
predy frm-crunchy, brit ip,
mod fis sb blkyl-blkyl
ctngs wi sl slty sm arg
tex, rr vf-f pyr, mod calc wi
brn mrly resdl; CHK
(15%): predy gy wi occ
forams, lt gyshbn ip, sb
frm-frm, l-mod fis sb
rd-sb blkyl ctngs, sl slty
tex, tr vf-f pyr, hi calc

9900-10000 MRLST
(80%): dk gy-dk gyshbn,
frm-crunchy, brit ip, mod
fis sb blkyl-blkyl ctngs wi
sl slty sm arg tex, rr vf-f
pyr, mod calc; CHK
(20%): gy-dk gy wi occ f
wh chky foram incl & thn
chky lamn, sb
frm-frm-brit, l-mod fis sb
rd-sb blkyl ctngs, sl slty
tex-occ bmpy mot tex wi
occ vf chky lamn, rr c off
wh sp forams, tr vf-f pyr,
hi calc

10000-10100 MRLST
(85%): dk gy-dk gyshbn,
frm-crunchy, brit ip, mod
fis sb blkyl-blkyl ctngs wi
sl slty sm arg tex, rr vf-f



MD: 10,082'
INC: 89.34°
AZM: 8.1°
TVD: 7,372.26'
VS: 1,772.47'

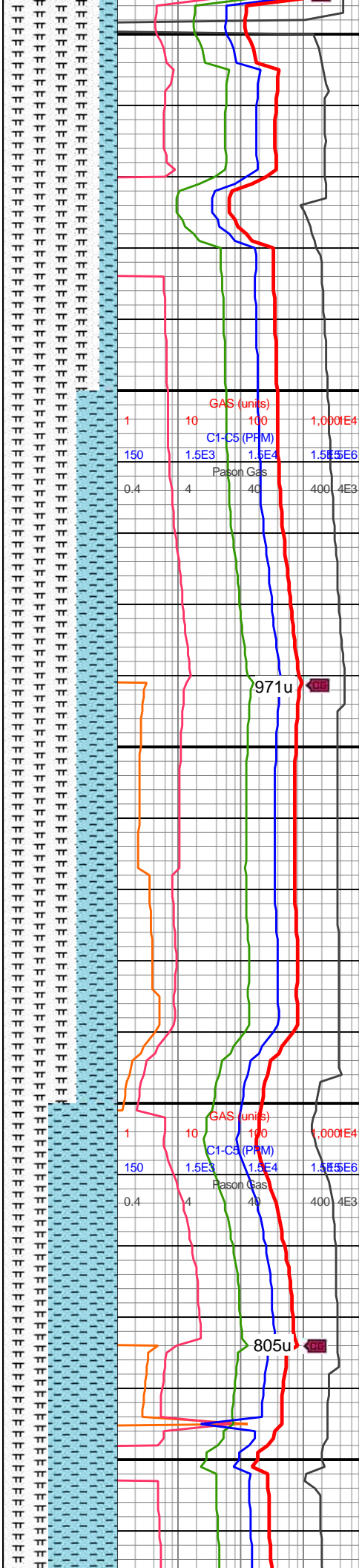
MW IN: 10.4
VIS IN: 53
MW OUT: 10.4
VIS OUT: 53

MD: 10,176'
INC: 88.72°
AZM: 7.4°
TVD: 7,373.85'
VS: 1,866.15'

WOB: 34klbs
RPM: 60
SPM: 185
SPP: 5,350psi

MW IN: 10.4
VIS IN: 53
MW OUT: 10.4
VIS OUT: 53

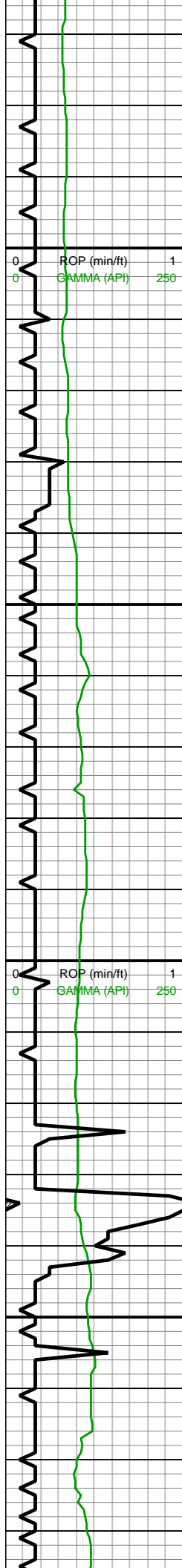
MD: 10,270'



pyr, tr bent, mod calc;
CHK (15%): gy-dk gy wi
occ f wh chky foram incl &
thn chky lamn, sb
frm-frm-brit, l-mod fis sb
rd-sb blk cyctngs, sl slty
tex-occ brmpy mot tex wi
occ vf chky lamn, tr vf-f
pyr, hi calc

10100-10200 MRLST
(65%): dk gy-dk gyshbn
wi brn mrlly lamn, frm,
brit, sb frm-crunchy ip,
l-mod fis sb rd-sb blk cy
ctngs, sl slty tex, rr vf pyr,
mod calc; CHK (35%): lt
gy, sb frm l fis sb rd
ctngs, sm-sl slty tex, thn
lamn, hi calc

10200-10300 CHK
(60%): predy lt gy sb frm l
fis sb rd ctngs, occ frm
mod fis sb blk cyctngs,
sm-sl slty tex, thn lamn,
hi calc; MRLST (65%): dk
gy-dk gyshbn, frm,
frm-crunchy-brit, l-mod fis
sb rd-sb blk cyctngs, sl
slty tex, rr vf pyr, mod calc

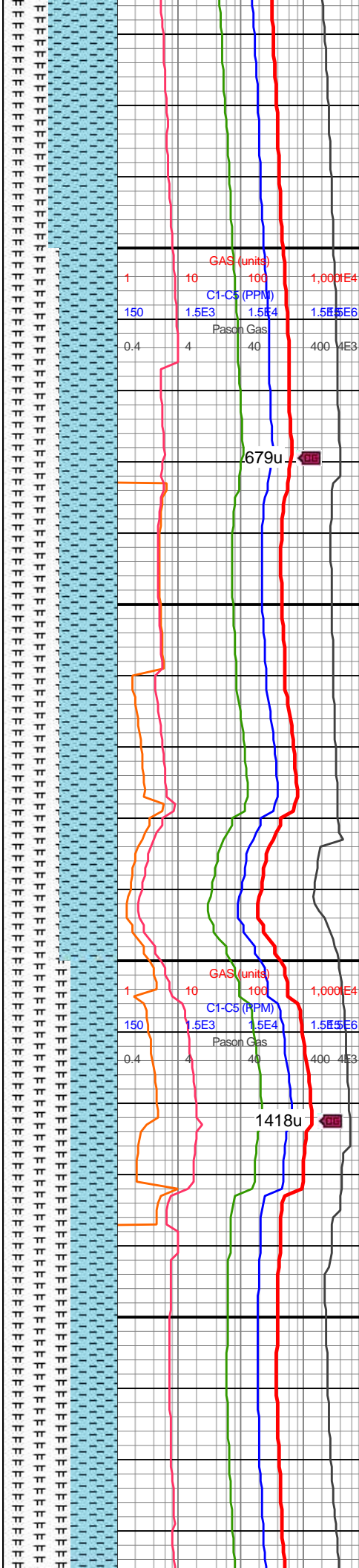


MD: 10,270'
INC: 89.43°
AZM: 5.47°
TVD: 7,375.37'
VS: 1,959.97'

MD: 10,365'
INC: 89.16°
AZM: 5.64°
TVD: 7,376.54'
VS: 2,054.88'

WOB: 34klbs
RPM: 60
SPM: 185
SPP: 5,440psi

MD: 10,459'
INC: 90.57°
AZM: 4.24°
TVD: 7,376.76'
VS: 2,148.83'

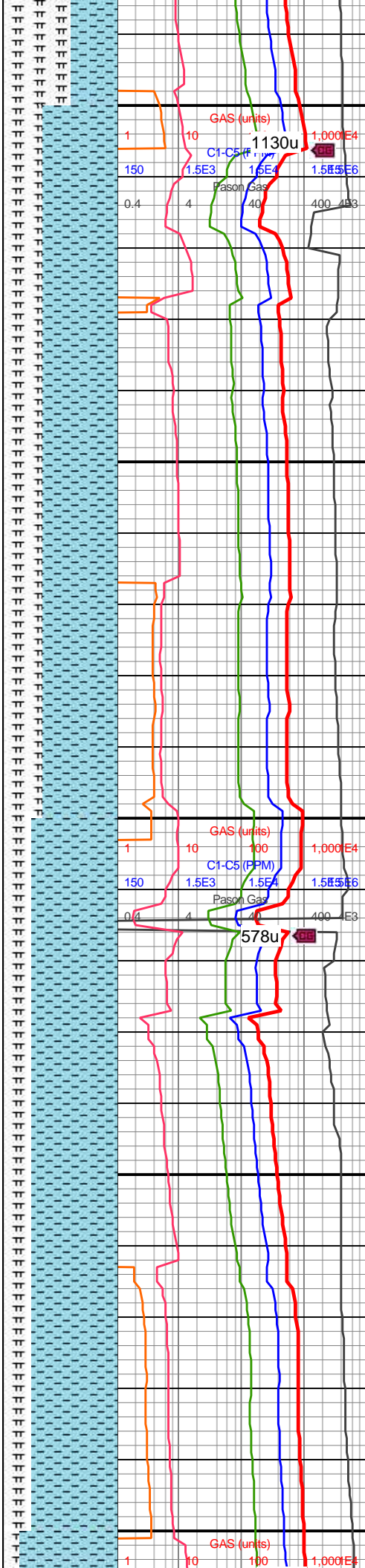
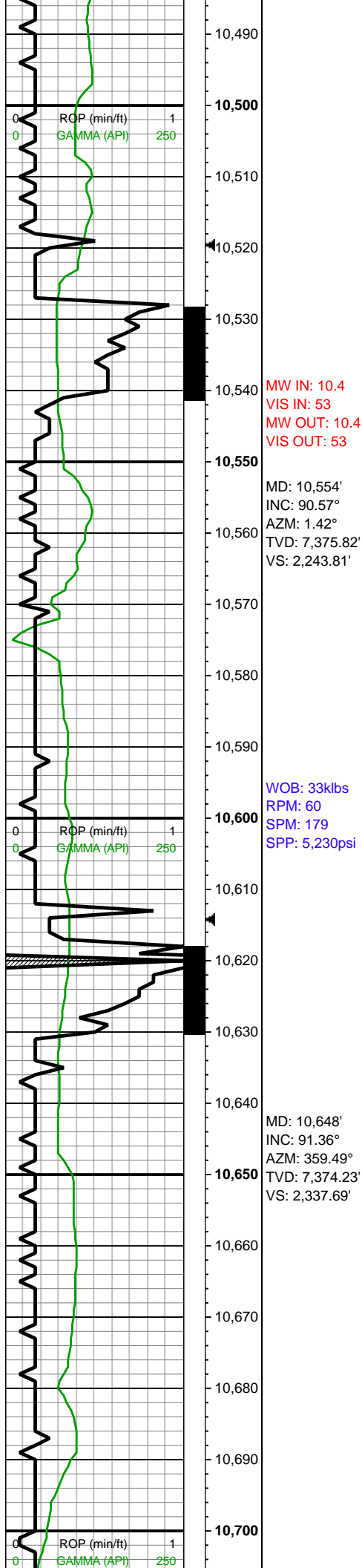


slty tex, tr vf pyr, mod calc
wi brn mrly resdl

10300-10400 CHK
(50%): lt gy, sb frm-frm,
l-mod fis sb rd-sb blk
ctngs, sm sl slty tex, tr vf-f
pyr, hi calc; MRLST
(50%): dk gy-dk gyshbn-v
dk gy, frm, mod fis sb
blk-blk ctngs wi sl slty
sm arg tex-slt tex, rr-occ
vf-f pyr-ptchy pyr strg,
mod calc wi brn mrly
resdl

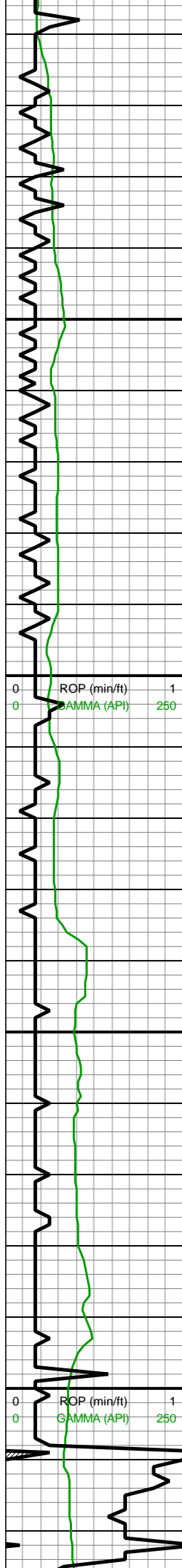
10400-10500 MRLST
(40%): dk gy-dk gyshbn-v
dk gy, frm, mod fis sb
blk-blk ctngs wi sl slty
sm arg tex-slt tex, rr-occ
vf-f pyr-ptchy pyr strg,
mod calc; CHK (40%): lt
gy, sb frm-frm, l-mod fis
sb rd-sb blk ctngs, sm
sl slty tex, tr vf-f pyr, hi
calc





10500-10600 CHK
(65%): predy lt gy sft-sb
frm l fis sb rd ctngs, occ
frm mod fis sb blkgy gy-dk
gy ctngs wi f wh chky &
foram incl, sm-sl slty tex,
thn lamn, rr vf-f pyr strg, hi
calc; MRLST (35%): dk
gy-dk gyshbn, frm,
frm-crunchy-brit, l-mod fis
sb rd-sb blkgy ctngs, sl
slty tex, rr vf pyr, mod calc

10600-10700 CHK
(75%): predy lt gy sb frm l
fis sb rd ctngs, occ frm
mod fis sb blkgy gy ctngs,
sm-sl slty tex, thn lamn,
hi calc; MRLST (25%): dk
gy-dk gyshbn, frm,
frm-crunchy-brit, l-mod fis
sb rd-sb blkgy ctngs, sl
slty tex, rr vf pyr, mod calc
wi brn mrly resdl



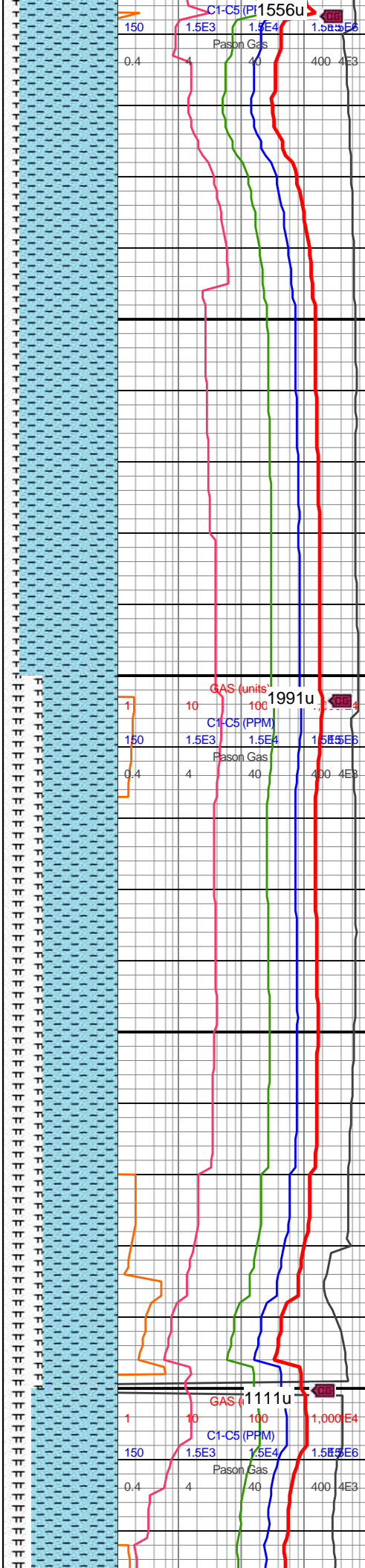
MD: 10,743'
INC: 91.45°
AZM: 358.44°
TVD: 7,371.9'
VS: 2,432.41'

WOB: 32klbs
RPM: 60
SPM: 176
SPP: 5,220psi

8' DTS

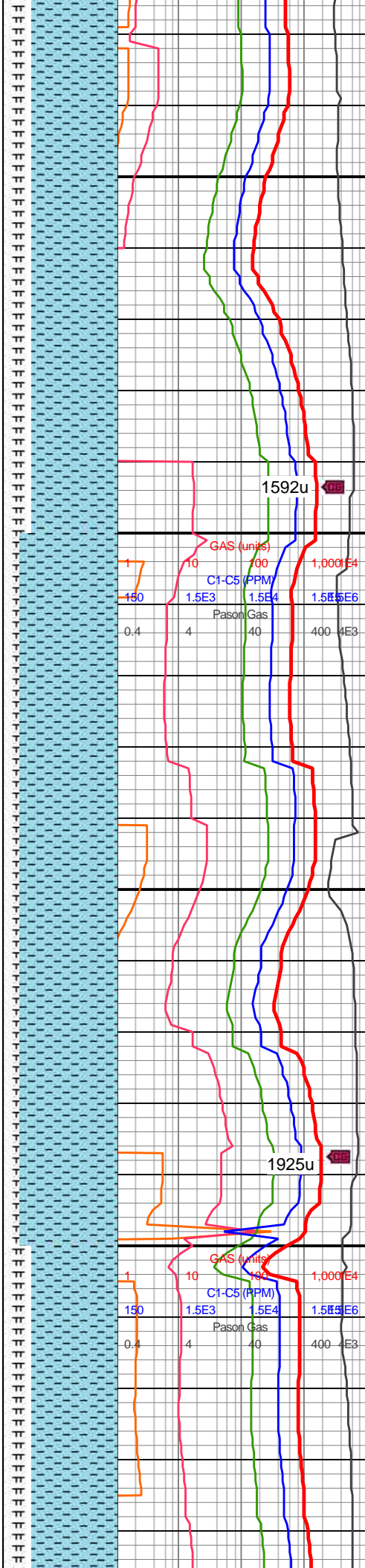
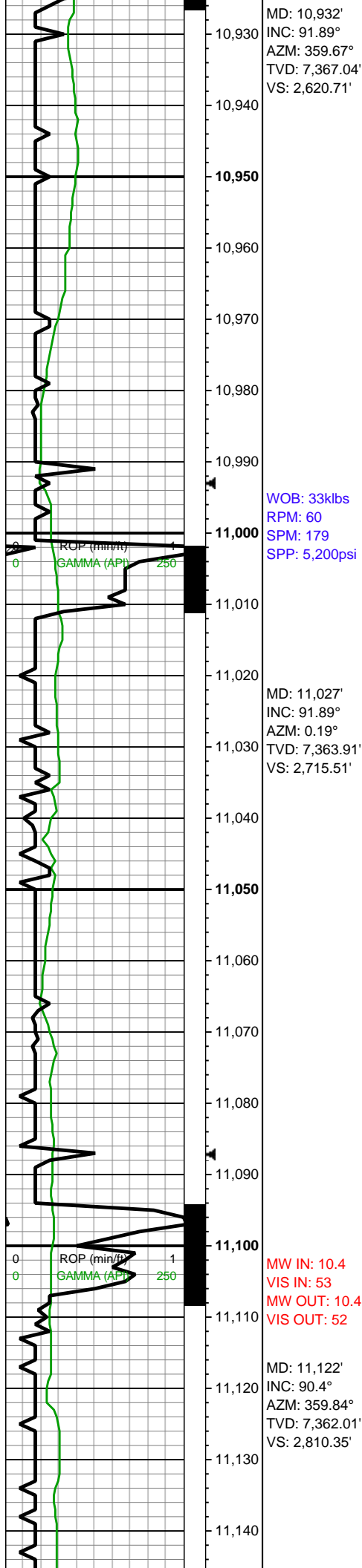
MD: 10,838'
INC: 91.28°
AZM: 357.73°
TVD: 7,369.64'
VS: 2,527.02'

MW IN: 10.4
VIS IN: 52
MW OUT: 10.4
VIS OUT: 50



10700-10800 CHK
(85%): lt gy-lt gyshbn, occ
dk gy wi f wh chky foram
incl, l-mod fis sb rd-sb
blky ctngs wi sm-sl slty
tex, sm-sl slty tex, thn
lamn ip, rr vf-f pyr strg, hi
calc; MRLST (15%): dk
gy-dk gyshbn, frm,
frm-crunchy-brit, l-mod fis
sb rd-sb blky ctngs, sl
slty tex, rr vf pyr-ptchy pyr
strg, mod calc

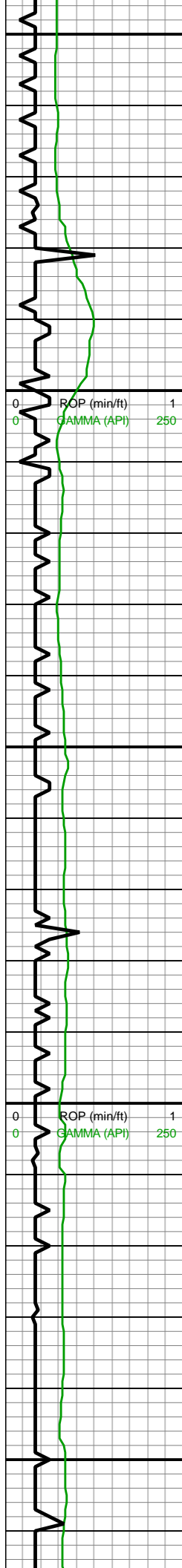
10800-10900 CHK
(65%): lt gyshbn-lt gy
l-mod fis sb rd-sb blky
ctngs wi sm-sl slty tex,
occ frm mod fis sb blky
gy-dk gy ctngs wi f wh
chky & foram incl, sm-sl
slty tex, thn lamn ip, rr vf-f
pyr strg, hi calc; MRLST
(35%): dk gy-dk gyshbn,
frm, frm-crunchy-brit,
l-mod fis sb rd-sb blky
ctngs, sl slty tex, rr vf pyr,
mod calc wi brn mrly
resdl



10900-11000 CHK
(75%): predy lt gy sb frm l
fis sb rd ctngs, occ frm
mod fis sb blkgy gy ctngs,
sm-sl slty tex, thn lamn,
hi calc; MRLST (25%): dk
gy-dk gyshbn, frm,
frm-crunchy-brit, l-mod fis
sb rd-sb blkgy ctngs, sl
slty tex, rr vf pyr, mod calc
wi brn mrly resdl

11000-11100 CHK
(85%): lt gy-lt gyshbn, occ
dk gy wi f wh chky foram
incl, l-mod fis sb rd-sb
blkgy ctngs wi sm-sl slty
tex, sm-sl slty tex, thn
lamn ip, rr vf-f pyr strg, hi
calc; MRLST (15%): dk
gy-dk gyshbn, frm,
frm-crunchy-brit, l-mod fis
sb rd-sb blkgy ctngs, sl
slty tex, rr vf pyr-ptchy pyr
strg, mod calc

11100-11200 CHK
(75%): predy lt gy sb frm l
fis sb rd ctngs, occ frm
mod fis sb blkgy gy ctngs,
sm-sl slty tex, thn lamn,
hi calc; MRLST (25%): dk
gy-dk gyshbn, frm,
frm-crunchy-brit, l-mod fis
sb rd-sb blkgy ctngs, sl
slty tex, rr vf pyr, mod calc
wi brn mrly resdl

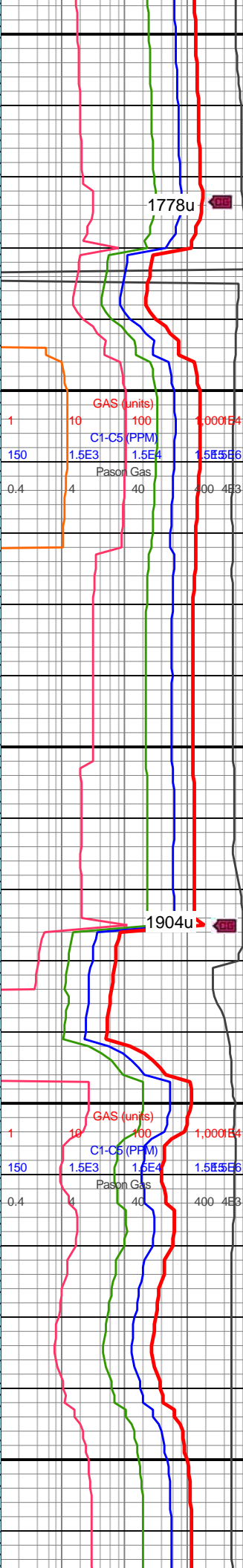


11,150
11,160
11,170
11,180
11,190
11,200
11,210
11,220
11,230
11,240
11,250
11,260
11,270
11,280
11,290
11,300
11,310
11,320
11,330
11,340
11,350
11,360

WOB: 30klbs
RPM: 60
SPM: 178
SPP: 5,220psi

MD: 11,216'
INC: 90.48°
AZM: 359.49°
TVD: 7,361.29'
VS: 2,904.18'

MD: 11,311'
INC: 90.48°
AZM: 359.14°
TVD: 7,360.49'
VS: 2,998.97'

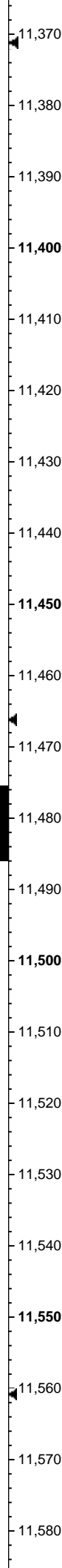
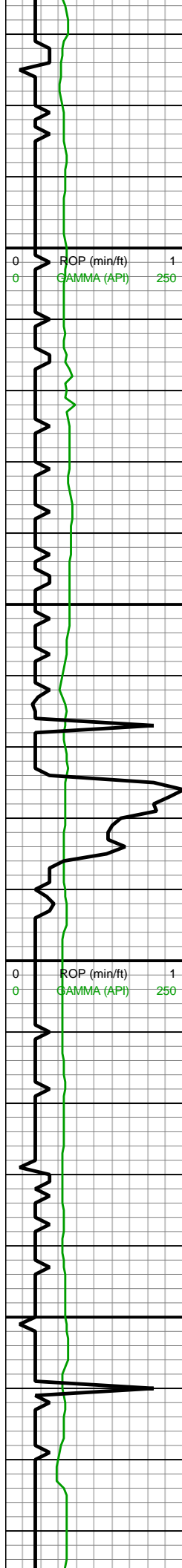


sm-sl slty tex, thn lamn,
hi calc; MRLST (25%): dk
gy-dk gyshbn, frm,
frm-crunchy-brit, l-mod fis
sb rd-sb blkly ctngs, sl
slty tex, rr vf pyr, mod calc
wi brn mrly resdl

11200-11300 CHK
(90%): lt gy, sb rnd-sb
blkly, sl frm-brit, sm-sl slty
tex, thn lamn, hi calc;
MRLST (10%): dk gy-med
gyshbn, sl hrd-frm, sb
rd-sb blkly, sl slty tex, mod
calc

11300-11400 CHK
(80%): lt gy-med gy, sb
rnd-sb blkly, sl frm-brit,
sm-sl slty tex, thn lamn,
hi calc; MRLST (20%): dk
gy, hrd-frm, sb rd-sb blkly,
sl slty tex, mod calc



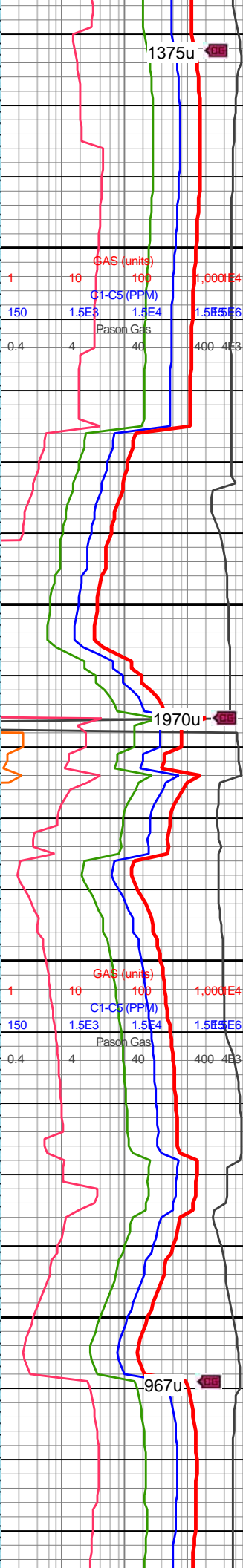
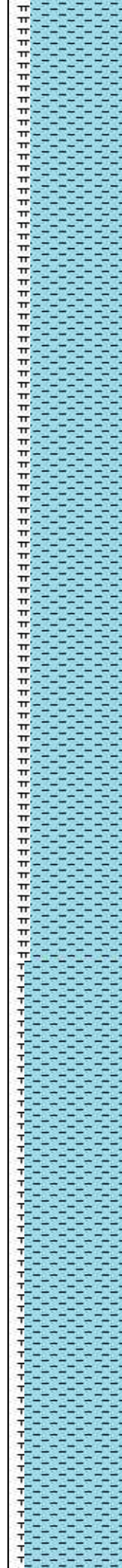


WOB: 32.1klbs
RPM: 60
SPM: 178
SPP: 5,247psi

MD: 11,405'
INC: 90.57°
AZM: 358.79°
TVD: 7,359.63'
VS: 3,092.72'

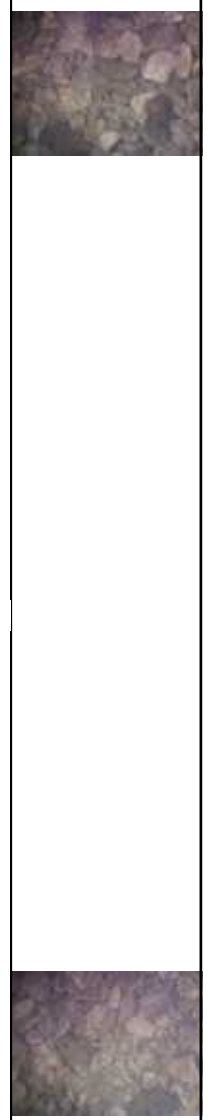
MW IN: 10.4
VIS IN: 52
MW OUT: 10.4
VIS OUT: 56

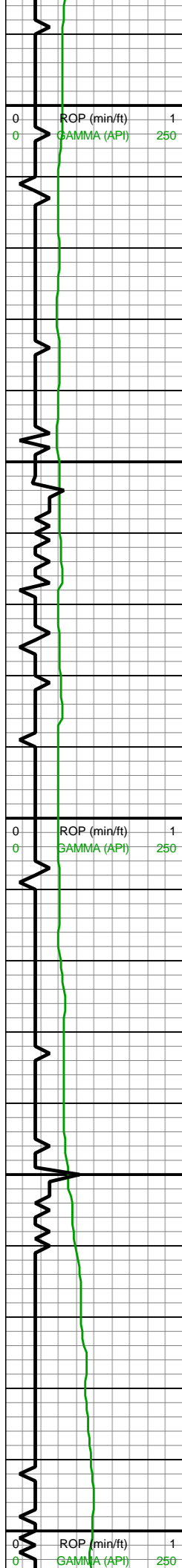
MD: 11,499'
INC: 89.6°
AZM: 0.55°
TVD: 7,359.49'
VS: 3,186.54'



11400-11500 CHK
(80%): lt gy-med gy, sb
rnd-sb blk, sl frm-brit,
sm-sl slty tex, thn lamn, tr
pp pyr, hi calc; MRLST
(20%): med gy-dk med
gy, hrd, sb rd-sb blk, sl
slty tex, mod calc, v rr fos

11500-11600 CHK
(85%): lt gy-med gy, sb
rnd-sb blk, frm-brit, tr
hrd, CHKY tex, MRLST
intbds, hi calc; MRLST
(15%): med gy-dk gy,
hrd-v hrd, sb rd-sb blk,
CHK intbds, mod calc





MD: 11,593'
INC: 89.78°
AZM: 0.9°
TVD: 7,360'
VS: 3,280.46'

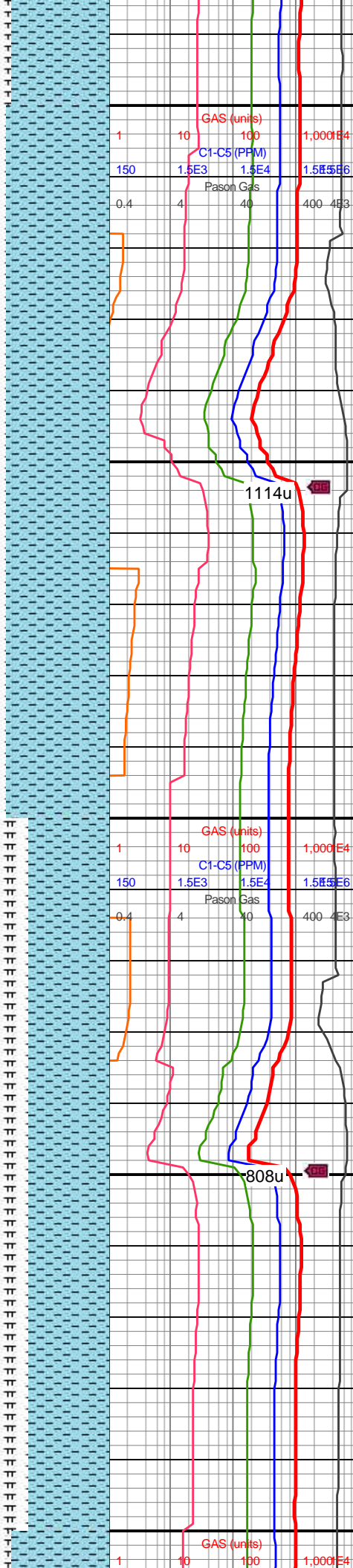
WOB: 32.5klbs
RPM: 60
SPM: 178
SPP: 5,410psi

MD: 11,688'
INC: 89.43°
AZM: 0.02°
TVD: 7,360.65'
VS: 3,375.36'

MW IN: 10.4
VIS IN: 52
MW OUT: 10.4
VIS OUT: 50

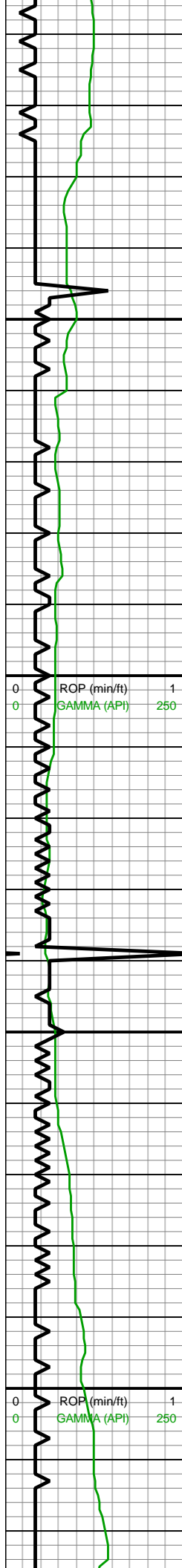
MD: 11,783'
INC: 89.34°
AZM: 359.32°
TVD: 7,361.67'
VS: 3,470.18'

WOB: 31.6klbs
RPM: 60
SPM: 176
SPP: 5,373psi



11600-11700 CHK
(90%): lt gy-med gy, sb
rnd-sb blk, frm-brit, sme
hrd, CHKY tex, MRLST
intbds, hi calc; MRLST
(10%): dk med gy-dk gy,
hrd-v hrd, sb rd-sb blk,
CHK intbds, mod calc, rr
free pyr

11700-11800 CHK
(70%): lt gy-med gyshbn,
sb rnd-sb blk, sl
hrd-frm-brit, CHKY tex,
sme imbd cal, MRLST
intbds, hi calc; MRLST
(30%): dk med gy-dk gy,
hrd-v hrd, sb rd-sb blk,
CHK intbds, mod calc



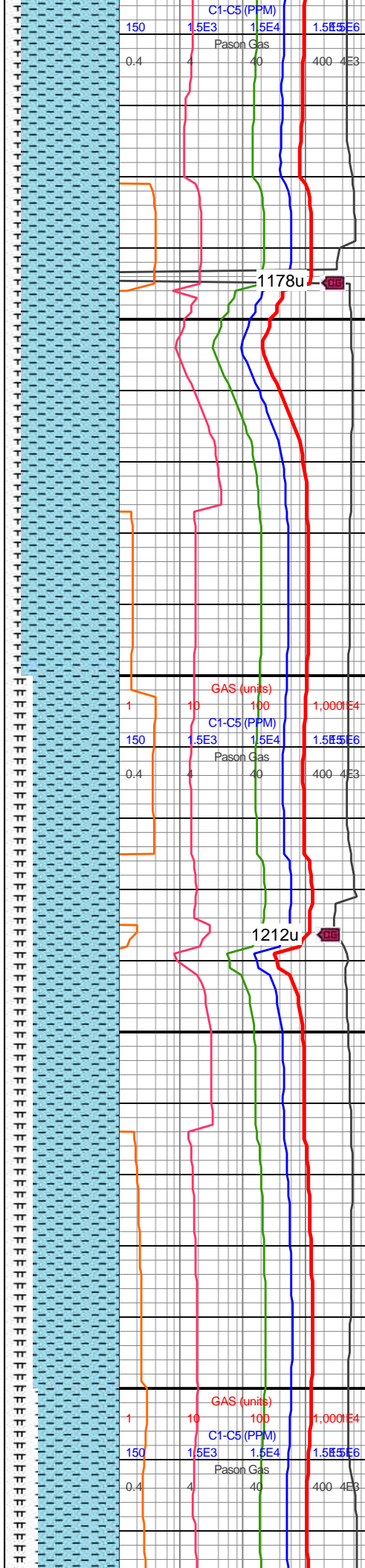
11,810
11,820
11,830
11,840
11,850
11,860
11,870
11,880
11,890
11,900
11,910
11,920
11,930
11,940
11,950
11,960
11,970
11,980
11,990
12,000
12,010
12,020

MD: 11,878'
INC: 88.99°
AZM: 359.32°
TVD: 7,363.06'
VS: 3,564.96'

MW IN: 10.4
VIS IN: 51
MW OUT: 10.4
VIS OUT: 49

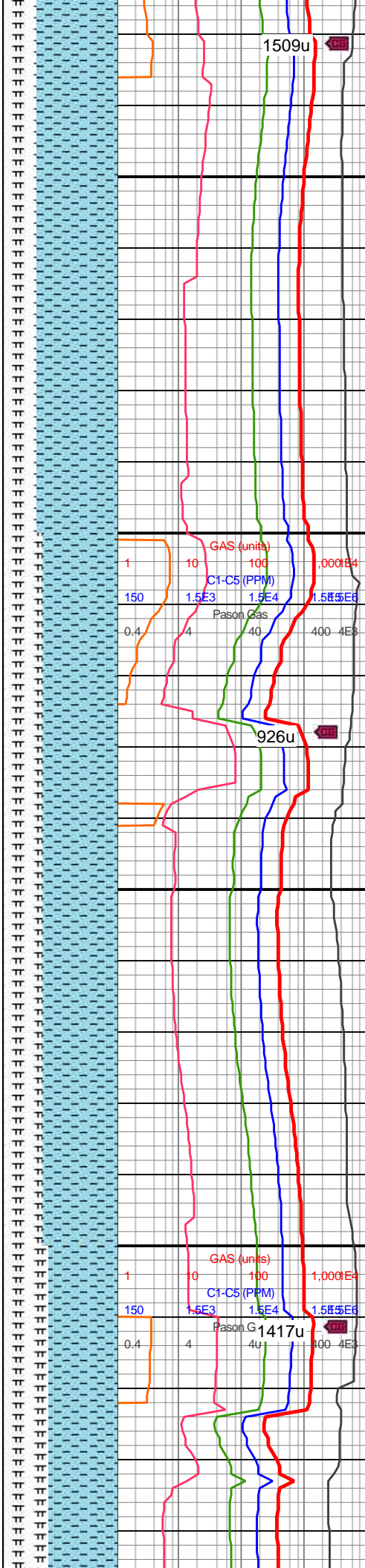
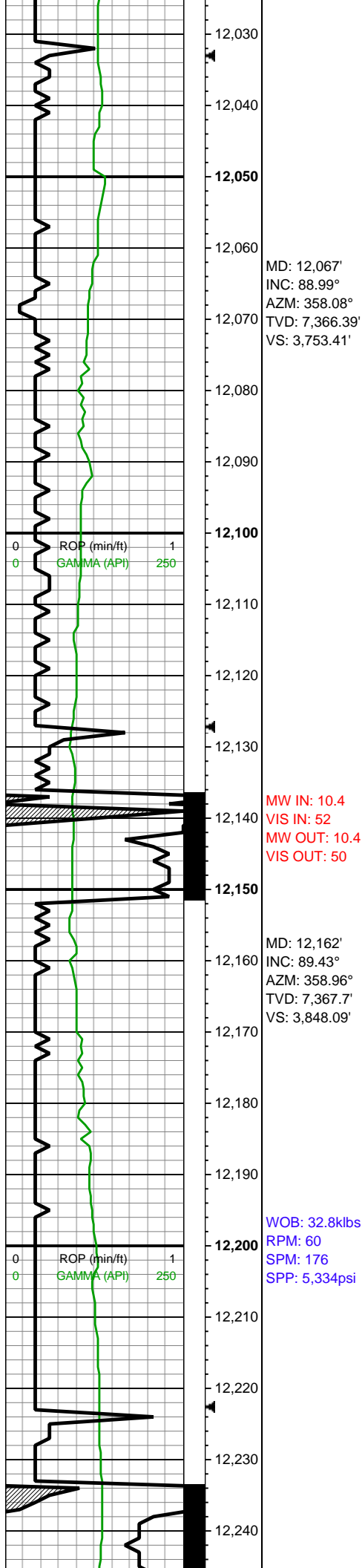
MD: 11,972'
INC: 88.99°
AZM: 358.96°
TVD: 7,364.71'
VS: 3,658.73'

WOB: 34.1klbs
RPM: 60
SPM: 176
SPP: 5,374psi



11800-11900 CHK
(85%): lt gy-gyshbn, sb
rnd-sb blk, sl
hrd-frm-brit, CHKY tex,
occ imbd cal, MRLST
intbds, hi calc; MRLST
(15%): dk med gy-dk gy,
hrd-v hrd, sb rd-sb blk,
CHK intbds, mod calc

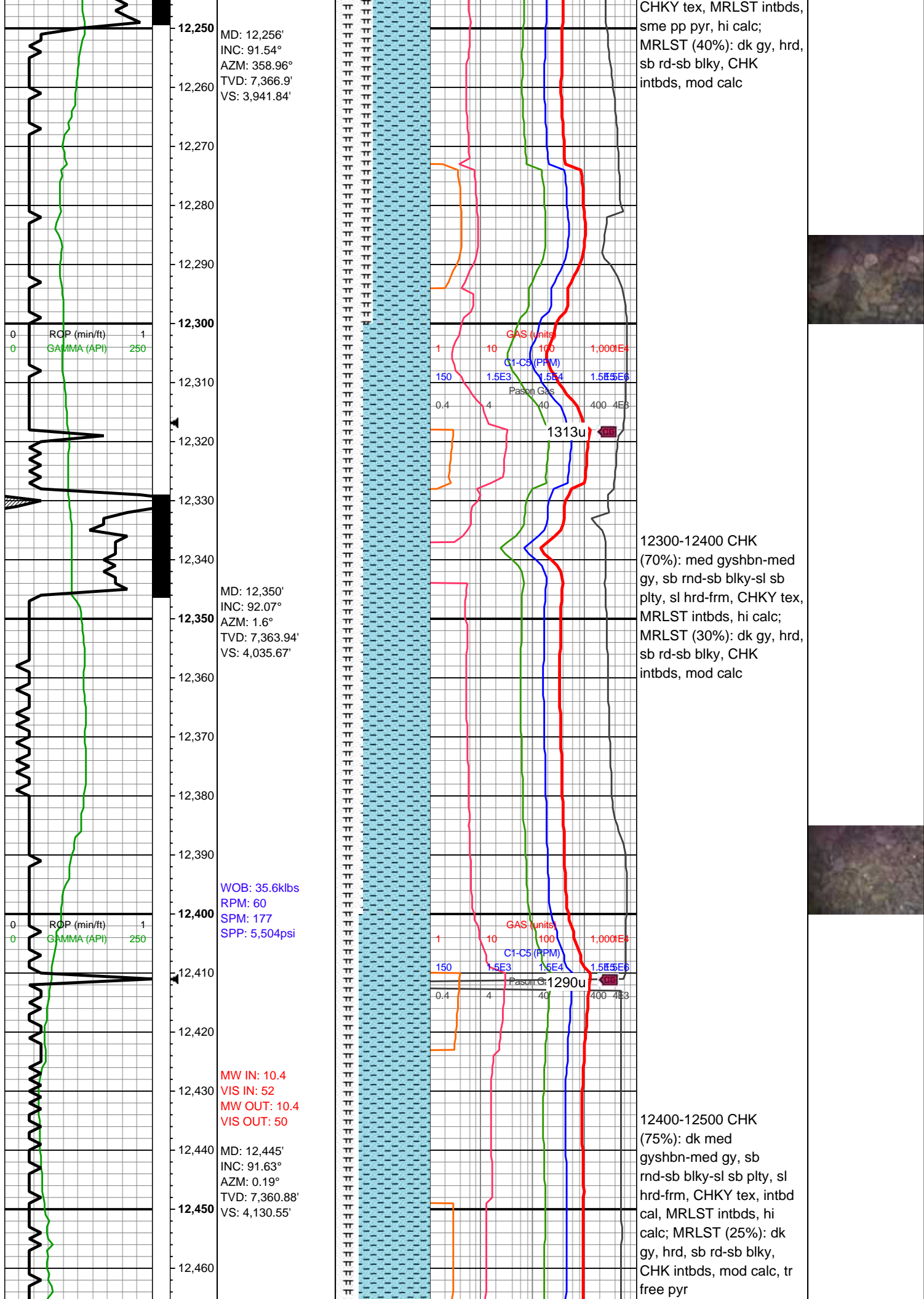
11900-12000 CHK
(75%): lt gy-gyshbn, sb
rnd-sb blk, sl
hrd-frm-brit, CHKY tex,
MRLST intbds, hi calc;
MRLST (25%): dk med
gy-dk gy-dk gyshbn, hrd-v
hrd, sb rd-sb blk, CHK
intbds, mod calc, v rr free
cal

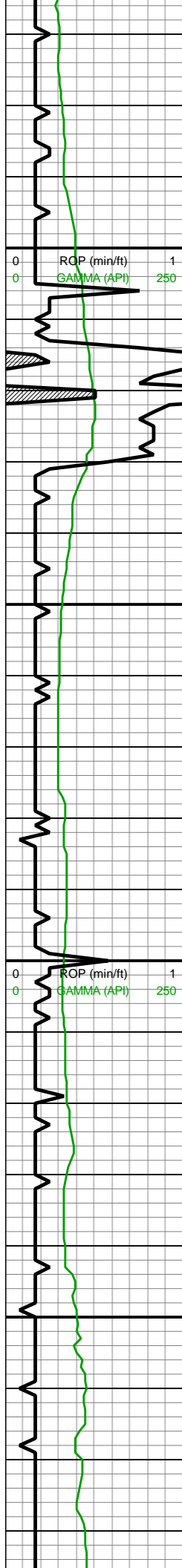


12000-12100 CHK
(70%): lt gy, sb rnd-sb
blky, sl hrd-frm-brit,
CHKY tex, MRLST intbds,
hi calc; MRLST (30%): dk
gy-dk gyshbn, hrd-v hrd,
sb rd-sb blky, CHK
intbds, mod calc, v rr free
pyr

12100-12200 CHK
(65%): lt gy-med gy, sb
rnd-sb blky, sl
hrd-frm-brit, CHKY tex,
MRLST intbds, hi calc;
MRLST (35%): dk gy, hrd,
sb rd-sb blky, CHK
intbds, mod calc

12200-12300 CHK
(60%): gyshbn-med gy,
sb rnd-sb blky, sl hrd-frm,





12,470
12,480
12,490
12,500
12,510
12,520
12,530
12,540
12,550
12,560
12,570
12,580
12,590
12,600
12,610
12,620
12,630
12,640
12,650
12,660
12,670
12,680

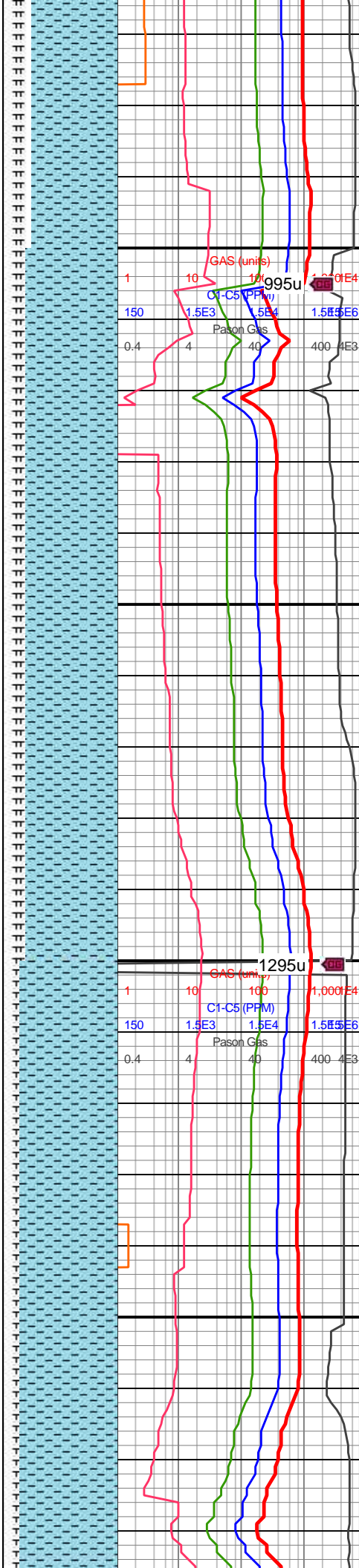
MD: 12,539'
INC: 92.59°
AZM: 2.3°
TVD: 7,357.41'
VS: 4,224.43'

MINDEPTH

03/21/2019

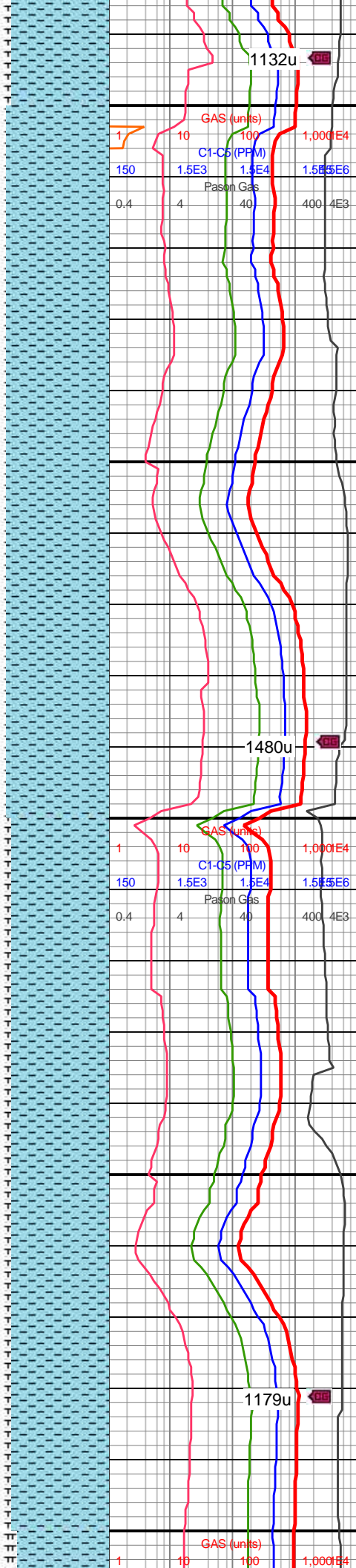
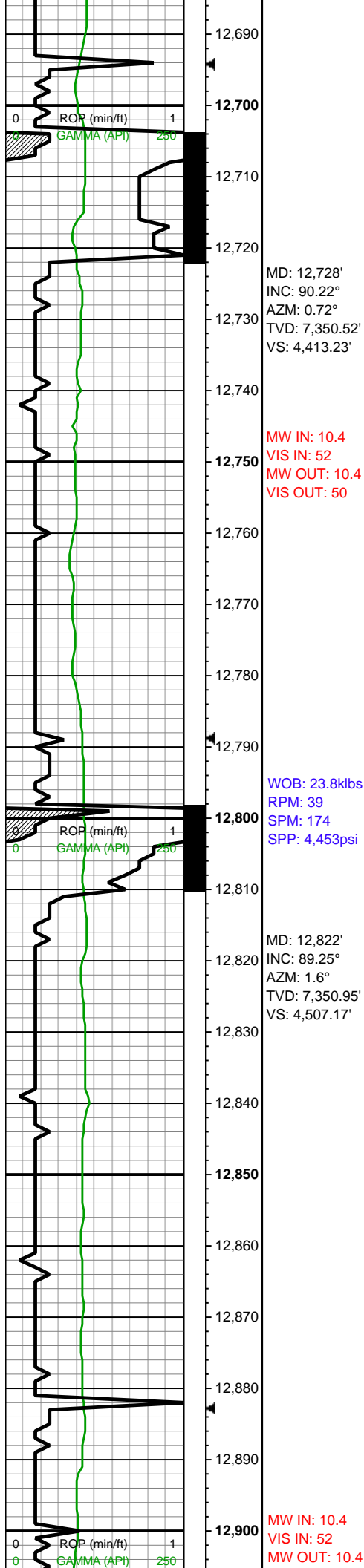
WOB: 7.1klbs
RPM: 60
SPM: 172
SPP: 3,984psi

MD: 12,634'
INC: 92.77°
AZM: 2.13°
TVD: 7,352.97'
VS: 4,319.31'



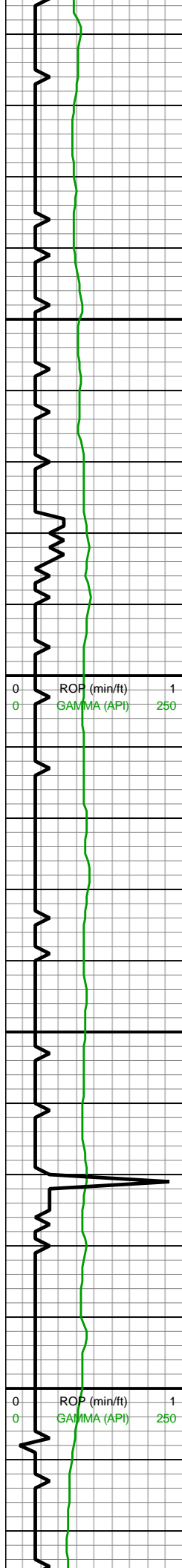
12500-12600 CHK
(80%): dk med
gyshbn-med gy, tr lt gy,
sb rnd-sb blkyl-sb plty,
hrd-frm, brit ip, CHKY tex,
MRLST intbds, hi calc;
MRLST (20%): dk gy-v dk
gy, hrd, sb rd-sb blkyl,
CHK intbds, mod calc

12600-12700 CHK
(85%): dk med gy-med
gy, tr lt gy, sb rnd-sb
blkyl-sb plty, hrd-frm,
brit ip, sme pyr specs,
CHKY tex, MRLST intbds,
hi calc; MRLST (15%): v
dk gy, hrd, sb rd-sb blkyl,
CHK intbds, mod calc, tr
free pyr



12700-12800 CHK
(90%): lt gy-med gy, sb
rnd-sb blkyl-sb plty, vf
thn lam, hrd-frm, brit ip,
CHKY tex, MRLST intbds,
hi calc; MRLST (10%): v
dk gy, hrd, sb rd-sb blkyl,
CHK intbds, mod calc

12800-12900 CHK
(85%): med gy-lt gy, sb
rnd-sb blkyl-sb plty, tr
imbd cal, sl hrd-frm, brit
ip, CHKY tex, MRLST
intbds, hi calc; MRLST
(15%): v dk gy-dk med gy,
hrd, sb rd-sb blkyl, CHK
intbds, mod calc

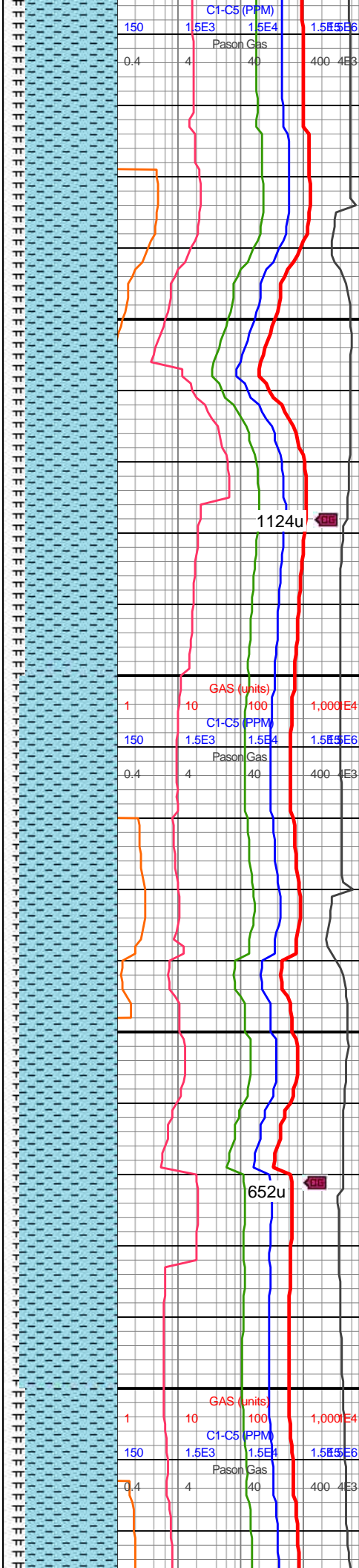


MD: 12,917'
INC: 89.16°
AZM: 1.07°
TVD: 7,352.27'
VS: 4,602.12'

WOB: 32.8klbs
RPM: 60
SPM: 173
SPP: 5,404psi

MD: 13,011'
INC: 88.99°
AZM: 0.9°
TVD: 7,353.79'
VS: 4,696.04'

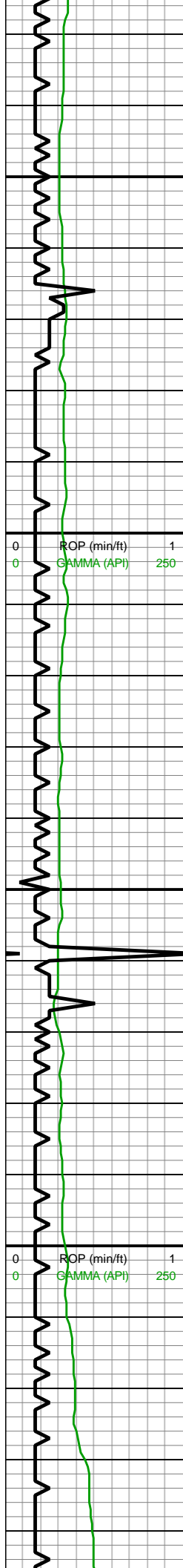
MD: 13,105'
INC: 89.08°
AZM: 0.19°
TVD: 7,355.37'
VS: 4,789.93'



12900-13000 CHK
(80%): med gy-lt
gy-gyshbn, sb rnd-sb
blky-sl sb plty, tr imbd cal,
v rr pp pyr, hrd-frm, brit ip,
CHKY tex, MRLST intbds,
hi calc; MRLST (20%): v
dk gy, v hrd, sb rd-sb blky,
CHK intbds, mod calc

13000-13100 CHK
(85%): med gy-med
gyshbn, sb rnd-sb blky-sl
sb plty, rr imbd cal,
hrd-frm, brit ip, CHKY tex,
MRLST intbds, hi calc;
MRLST (15%): v dk gy-dk
gy, v hrd, sb rd-sb blky,
CHK intbds, mod calc

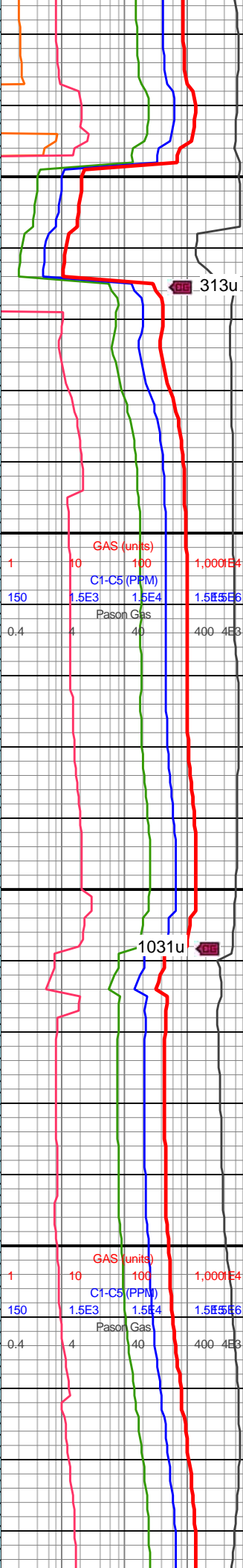




13,130
13,140
13,150
13,160
13,170
13,180
13,190
13,200
13,210
13,220
13,230
13,240
13,250
13,260
13,270
13,280
13,290
13,300
13,310
13,320
13,330
13,340

MD: 13,199'
INC: 89.08°
AZM: 0.02°
TVD: 7,356.88'
VS: 4,883.79'

WOB: 32.5klbs
RPM: 60
SPM: 173
SPP: 5,428psi

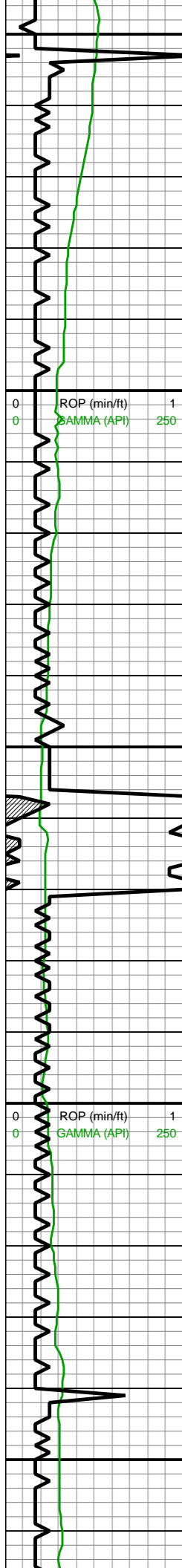


13100-13200 CHK
(80%): med gy-med
gyshbn, tr lt gy, sb rnd-sb
blky-sl sb plty, rr imbd
cal, hrd frm, brit ip, CHKY
tex, MRLST intbds, hi
calc; MRLST (20%): v dk
gy-dk med gy, v hrd, sb
rd-sb blky, CHK intbds,
mod calc, v rr free cal wt
pyr specs

13200-13300 CHK
(90%): predy lt gy-med
gy, sb rnd-sb blky-sl sb
tab, rr imbd cal, frm-brit,
CHKY tex, MRLST intbds,
hi calc; MRLST (10%): dk
gy, hrd frm, sb rd-sb blky,
CHK intbds, mod calc

13300-13400 CHK
(85%): predy lt gy-med
gy, rr wht, sb rnd-sb





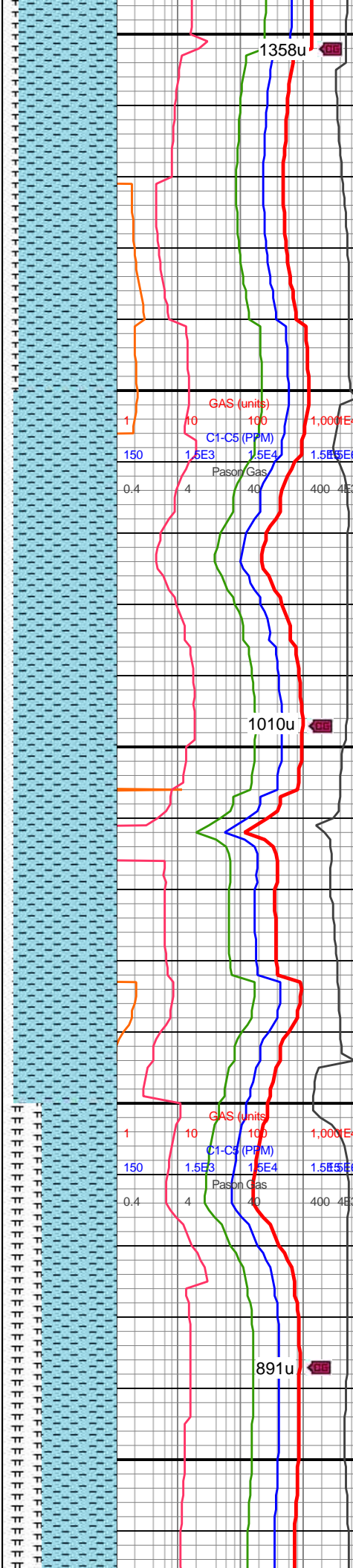
13,350
13,360
13,370
13,380
13,390
13,400
13,410
13,420
13,430
13,440
13,450
13,460
13,470
13,480
13,490
13,500
13,510
13,520
13,530
13,540
13,550
13,560

MD: 13,387'
INC: 89.16°
AZM: 358.96°
TVD: 7,359.7'
VS: 5,071.42'

WOB: 32.9klbs
RPM: 60
SPM: 170
SPP: 5,404psi

MW IN: 10.4
VIS IN: 54
MW OUT: 10.4
VIS OUT: 52

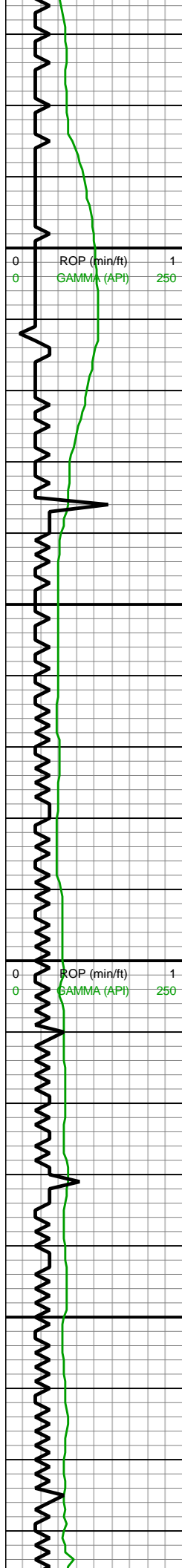
MD: 13,482'
INC: 90.75°
AZM: 1.07°
TVD: 7,359.78'
VS: 5,166.27'



blk-y-sl sb tab, rr imbd cal,
frm-brit, CHKY tex,
MRLST intbds, hi calc;
MRLST (15%): dk gy,
hrd-frm, sb rd-sb blk-y,
CHK intbds, mod calc

13400-13500 CHK
(90%): lt gy-lt gyshbn, occ
dk gy wi f wh chky foram
incl, l-mod fis sb rd-sb
blk-y ctngs wi sm-sl slty
tex, sm-sl slty tex, thn
lamn ip, rr vf-f pyr strg, hi
calc; MRLST (10%): dk
gy-dk gyshbn, frm,
frm-crunchy-brit, l-mod fis
sb rd-sb blk-y ctngs, sl
slty tex, rr vf pyr-ptchy pyr
strg, mod calc

13500-13600 CHK
(65%): lt gy-occ lt gyshbn,
sb frm mod fis sb blk-y
ctngs, sm arg-chky-sl slty
tex, thn lamn ip, rr vf-f pyr
strg, hi calc; MRLST
(35%): dk gy-v dk gy sp wi
occ brn marly incl &
lamn, frm, brit, mod fis sb
blk-y-blk-y-sb plty ctngs, sl
slty-slty tex, rr-tr vf pyr,



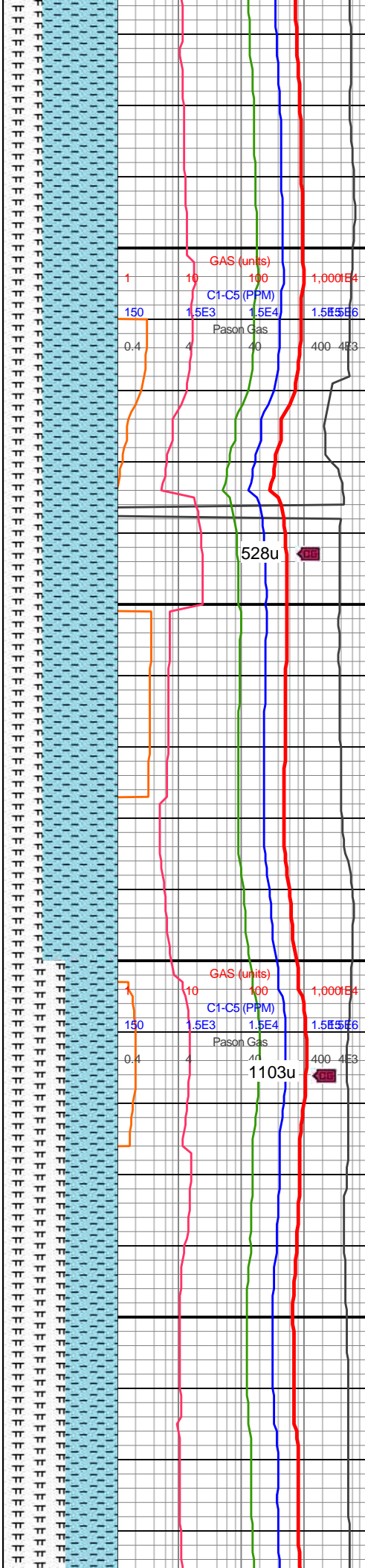
MD: 13,576'
INC: 90.92°
AZM: 0.9°
TVD: 7,358.41'
VS: 5,260.2'

WOB: 29klbs
RPM: 60
SPM: 170
SPP: 5,380psi

MW IN: 10.4
VIS IN: 53
MW OUT: 10.4
VIS OUT: 55

MD: 13,671'
INC: 90.84°
AZM: 0.19°
TVD: 7,356.95'
VS: 5,355.09'

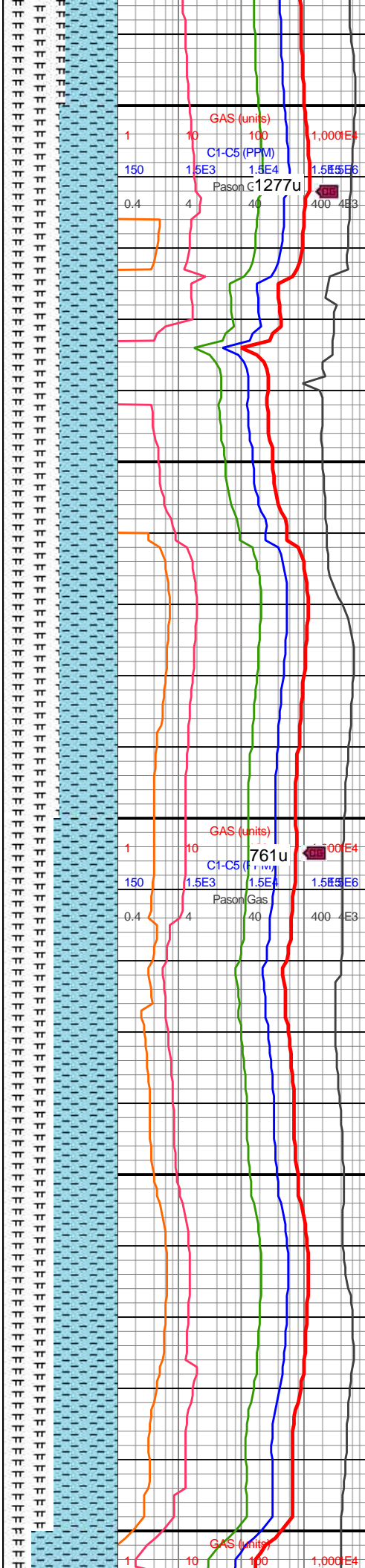
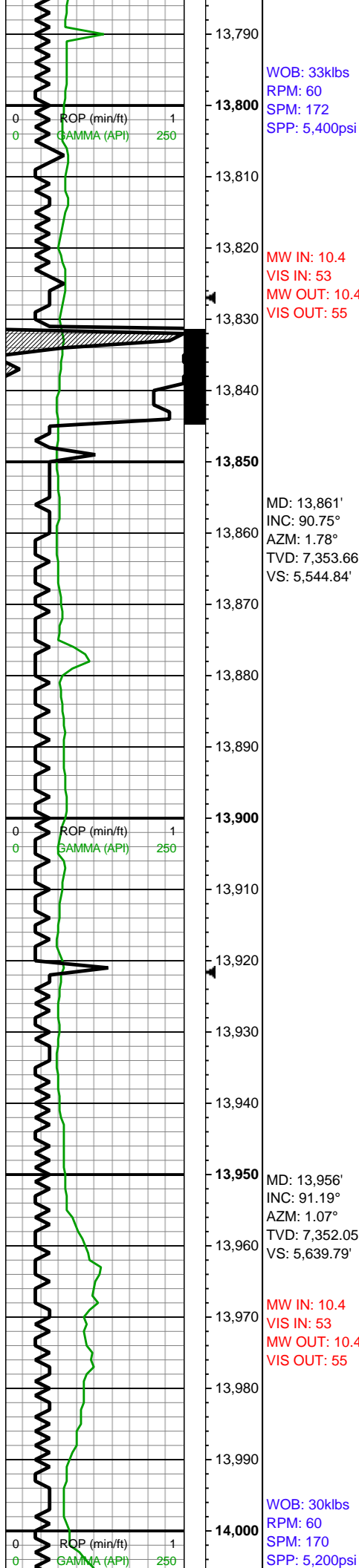
MD: 13,766'
INC: 91.19°
AZM: 359.84°
TVD: 7,355.27'
VS: 5,449.94'



mod calc wi brn mrlly resdl

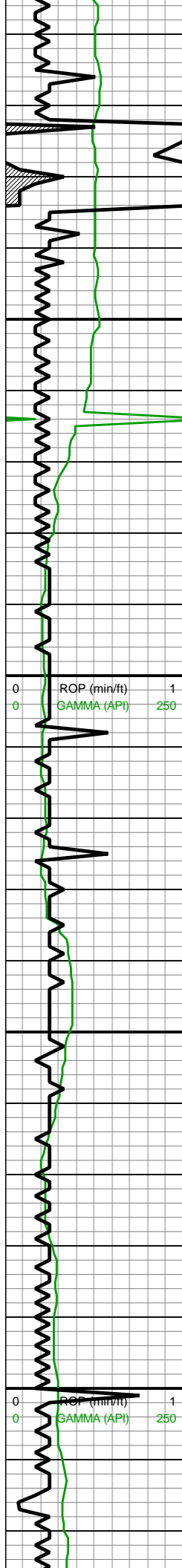
13600-13700 CHK
(65%): lt gy-lt gyshbn, occ dk gy wi f wh chky foram incl, l-mod fis sb rd-sb blk cytns, sm-sl slty tex, thn lamn ip, rr vf-f pyr strg, hi calc; MRLST (35%): dk gy-dk gyshbn-v dk gy, frm-crunchy-brit, l-mod fis sb rd-sb blk cytns, sl slty tex, rr vf pyr, mod calc wi brn mrlly resdl

13700-13800 MRLST
(55%): dk gy-dk gyshbn wi brn mrlly lamn, frm, brit, sb frm-crunchy ip, l-mod fis sb rd-sb blk cytns, sl slty tex, rr vf pyr, mod calc; CHK (45%): lt gy, sb frm l fis sb rd ctngs, sm-sl slty tex, thn lamn, hi calc



13800-13900 CHK
(50%): lt gy, lt gyshbn ip,
occ dk gy wi f wh chky
foram incl, sb
frm-crunchy, l-mod fis sb
rd-sb blkly ctngs wi sm-sl
silty tex, thn lamn ip, rr vf-f
pyr strg, rr c sp forams, hi
calc; MRLST (35%): dk
gy-dk gyshbn-v dk gy,
frm-crunchy-brit, l-mod fis
sb rd-sb blkly ctngs, sl
silty tex, rr vf pyr-ptchy pyr
strg, mod calc

13900-14000 CHK
(55%): lt gy-med gy wi
com thn lt gy chky lamn,
sb frm-frm, brit ip, l-mod
fis sb rd-sb blkly-blky
ctngs, sm-sl silty tex, rr vf
pyr-pyr strg, tr c forams,
hi calc; MRLST (45%): dk
gy-v dk gy sp wi occ c brn
marl incl & mot wi thn brn
mrly lamn ip, frm-brit,
mod-hif fis sb
blkly-blky-sb plty ctngs wi
sl silty-silty tex, rr ptchy pyr
strg, mod calc

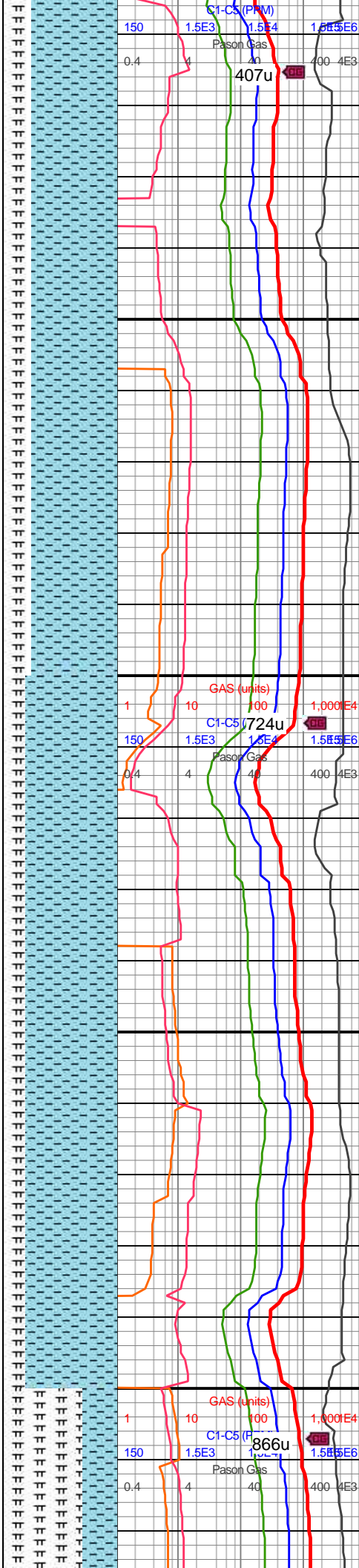


MD: 14,050'
INC: 89.16°
AZM: 359.84°
TVD: 7,351.76'
VS: 5,733.68'

MW IN: 10.4
VIS IN: 53
MW OUT: 10.4
VIS OUT: 55

MD: 14,144'
INC: 89.87°
AZM: 0.19°
TVD: 7,352.56'
VS: 5,827.54'

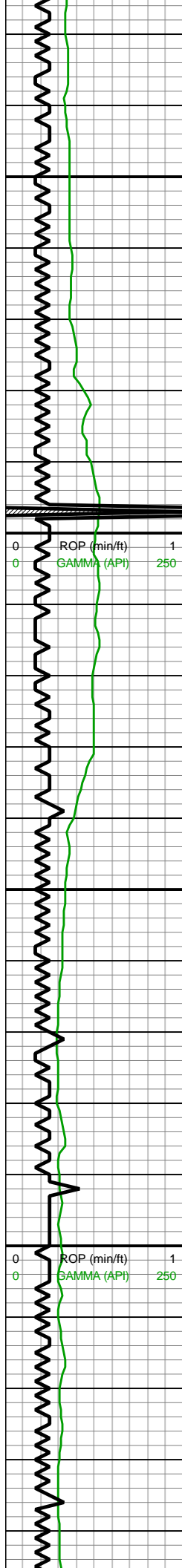
WOB: 28klbs
RPM: 60
SPM: 169
SPP: 5,330psi



14000-14100 CHK
(75%): lt gy-occ lt gyshbn,
sb frm mod fis sb blk
ctngs, sm arg-chky-sl slty
tex, thn lamn ip, rr vf-f pyr
strg, hi calc; MRLST
(25%): dk gy-v dk gy sp wi
occ brn marly incl &
lamn, frm, brit, mod fis sb
blk-bkly-sb plty ctngs, sl
slty-slty tex, rr-tr vf pyr,
mod calc

14100-14200 CHK
(80%): lt gy-gy, thn chky
lamn ip, sb frm mod fis
sb blk ctngs, sm
arg-chky-sl slty tex, rr vf-f
pyr strg, hi calc; MRLST
(20%): dk gy-v dk gy, frm,
brit, mod fis sb
blk-bkly-sb plty ctngs sp
wi occ c brn marl incl, sl
slty-slty tex, rr-tr vf pyr,
mod calc wi brn mrly
resd!





MD: 14,239'
INC: 90.13°
AZM: 359.84°
TVD: 7,352.56'
VS: 5,922.4'

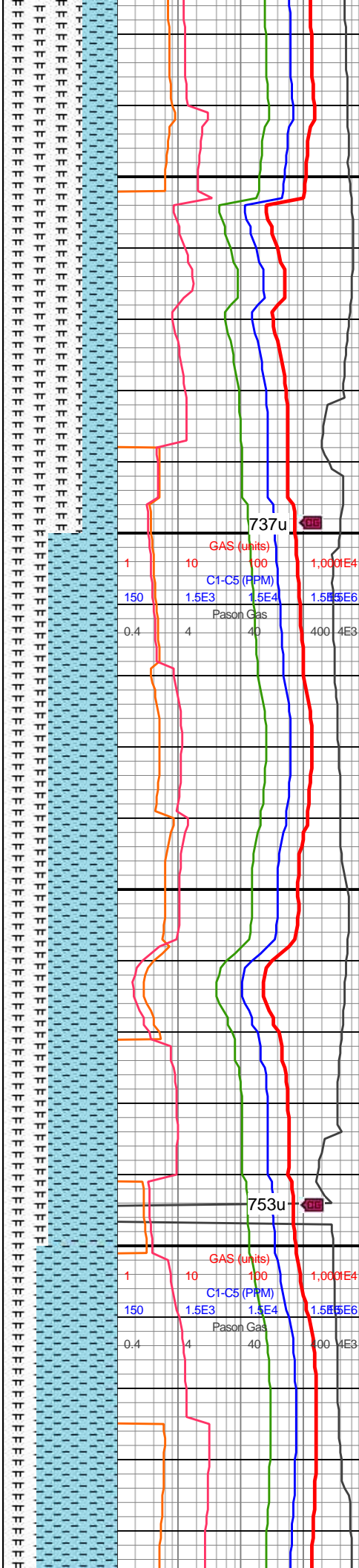
14,250 MW IN: 10.4
VIS IN: 53
MW OUT: 10.4
VIS OUT: 55

MD: 14,333'
INC: 90.04°
AZM: 359.32°
TVD: 7,352.42'
VS: 6,016.22'

WOB: 26klbs
RPM: 60
SPM: 171
SPP: 5,200psi

MD: 14,428'
INC: 89.96°
AZM: 358.96°
TVD: 7,352.42'
VS: 6,111'

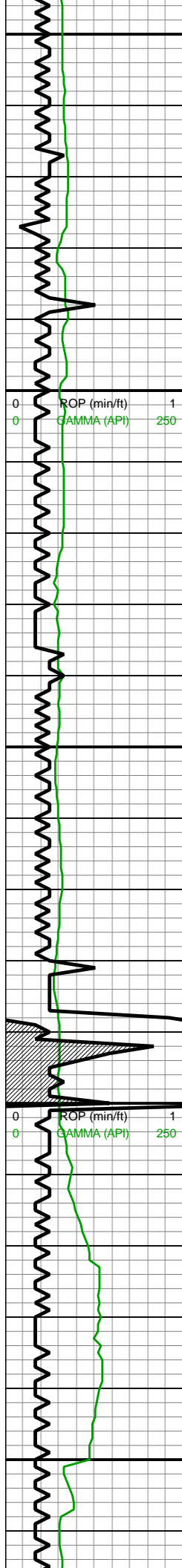
MW IN: 10.4



14200-14300 MRLST
(70%): predy v dk gy,
gy-dk gy ip, sp wi brn
marl incl, frm-brit mod fis
sb blk cytns wi slty tex, rr
vf pyr, mod calc wi brn
mrly resdl; CHK (30%): lt
gy-gy, occ dk gy mot wi
thn chky lamn ip, sb
frm-frm, l-mod fis sb
rd-sb blk cytns wi sm-sl
slty tex, occ f chky foram
incl, hi calc

14300-14400 CHK
(60%): lt gy-gy, occ dk gy
wi gy thn chky lamn thru,
sb frm-brit mod fis sb
blk cytns wi sl slty
tex, rr vf-f pyr-pyr strg ip, hi
calc; MRLST (40%): dk
gy-v dk gy, occ sp wi brn
mari incl, frm-brit, mod fis
sb blk cytns, sl
slty-slty tex, rr-tr vf pyr,
mod calc

14400-14500 CHK
(30%): lt gy-gy, occ dk gy
mot wi thn chky lamn &
occ f chky foram incl ip,
sb frm-frm, brit ip, l-mod
fis sb rd-sb blk cytns wi



14,450
14,460
14,470
14,480
14,490
14,500
14,510
14,520
14,530
14,540
14,550
14,560
14,570
14,580
14,590
14,600
14,610
14,620
14,630
14,640
14,650
14,660

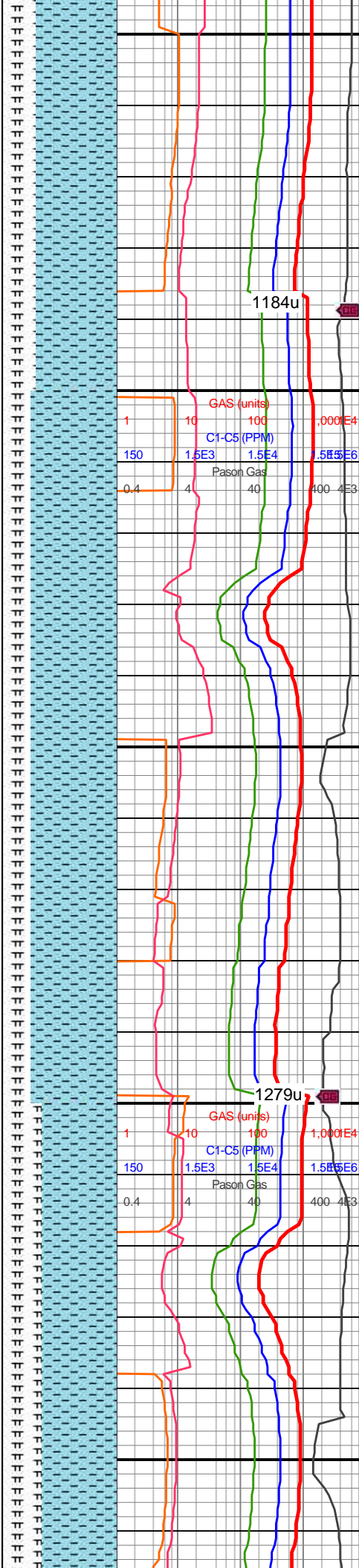
VIS IN: 54
MW OUT: 10.4
VIS OUT: 53

MD: 14,522'
INC: 90.04°
AZM: 358.79°
TVD: 7,352.42'
VS: 6,204.74'

MW IN: 10.4
VIS IN: 53
MW OUT: 10.4
VIS OUT: 55

WOB: 29klbs
RPM: 0
SPM: 170
SPP: 4,600psi

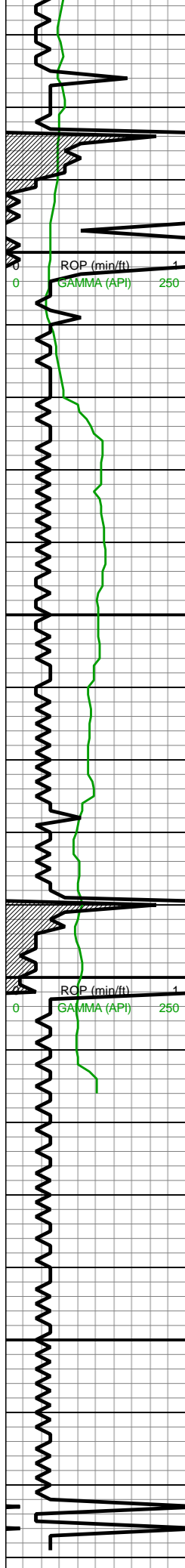
MD: 14,616'
INC: 89.96°
AZM: 355.98°
TVD: 7,352.42'
VS: 6,298.26'



sm-sl slty tex, rr vf-f
pyr-pyr strg ip, hi calc;
MRLST (30%): predy v dk
gy, dk gy ip sp wi brn
marl incl, frm-brit mod fis
sb blk cyctngs wi slty tex, rr
vf pyr, mod calc wi brn
mrly resdl

14500-14600 CHK
(75%): predy lt gy, lt
gyshbn-med gy ip, sb
frm-frm f lamn mod fis sb
blk cyctngs, sl slty tex,
tr c sp forams, tr vf pyr, hi
calc; MRLST (25%):
predy v dk gy, dk gy sp wi
brn marl incl & lamn ip,
frm, brit ip, mod fis sb
blk cyctngs wi slty tex,
rr vf pyr, mod calc wi brn
mrly resdl

14600-14700 CHK
(65%): lt gy-gy wi thn chky
lamn thru, lt gyshbn ip,
sb frm-frm, l-mod fis sb
rd-sb blk cyctngs, sl
slty tex, tr c sp forams, tr
vf pyr, hi calc; MRLST
(35%): dk gy-v dk gy
frm-brit mod fis sb
blk cyctngs wi slty tex,
sp wi brn marl ip, rr vf pyr,



MW IN: 10.4
VIS IN: 53
MW OUT: 10.4
VIS OUT: 55

MD: 14,711'
INC: 88.99°
AZM: 353.51°
TVD: 7,353.29'
VS: 6,392.24'

WOB: 22klbs
RPM: 60
SPM: 169
SPP: 5,030psi

Off Gas Buster

MD: 14,805'
INC: 88.72°
AZM: 351.58°
TVD: 7,355.17'
VS: 6,484.63'

On Gas Buster

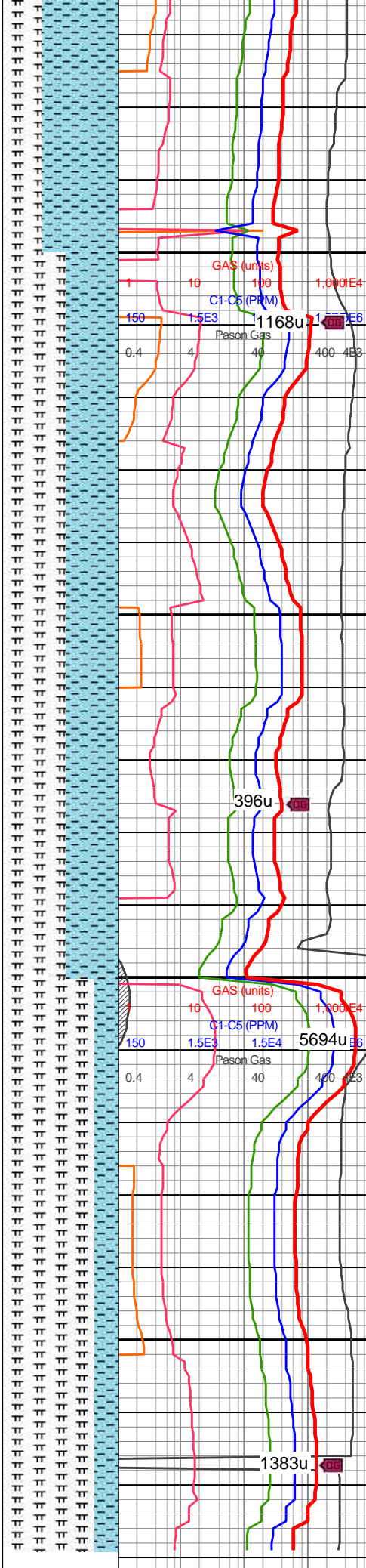
MD: 14,819'
INC: 88.55°
AZM: 351.76°
TVD: 7,355.5'
VS: 6,498.35'

MW IN: 10.4
VIS IN: 54
MW OUT: 10.4
VIS OUT: 53

Bit projection

MD: 14,879'
INC: 88.55°
AZM: 351°
TVD: 7,357.02'
VS: 6,557.08'

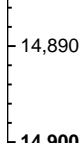
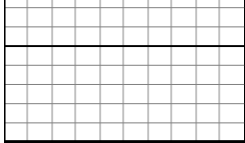
Total Depth of
14,879' MD



mod calc

14700-14800 MRLST
(70%): predy v dk gy,
gy-dk gy ip, sp wi brn
marl incl, frm-brit mod fis
sb blkly ctngs wi slty tex, rr
vf pyr, mod calc wi brn
mrly resdl; CHK (30%): lt
gy-gy, occ dk gy mot wi
thn chky lamn ip, sb
frm-frm, l-mod fis sb
rd-sb blkly ctngs wi sm-sl
slty tex, occ f chky foram
incl, hi calc

14800-14879 MRLST
(80%): v dk gy, dk gy ip,
frm, hd-brit, mod fis sb
blkly-bkly ctngs wi slty tex,
rr-occ f pyr, sp wi occ brn
marl incl, mod calc; CHK
(20%): lt gy-lt
gyshbn-med gy mot wi
abnt off wh thn chky
lamn, sb frm-frm, l-mod
fis, sb blkly-bkly, sl
slty-bmpyy mot tex, tr vf
pyr, tr c sp foram, hi calc



14,879' MD
Reached on
03/21/2019 @
14:00 MST

