



RESERVOIR GROUP

Scale: 5" / 100'
Measured Depth Log

Well Name Herbers 1B-20H-B167

Location NWNE 20 1N 67W

State Colorado

County Weld

Country U.S.A.

Rig Number Ensign 153

API Number 05-123-49799

AFE # 16192315.1

Geographic Region Rockies

Field Wattenberg

Spud Date 10/14/2019

Drilling Completed 3/9/2020

Surface Coordinates NWNE Sec: 20 Twp: 1N 67W
Lat/Long: 40.041524/-104.913511

Planned Location 829' FNL 2,372' FEL

Bottom Hole Coordinates Sec: 29 Twp: 1N 67W

Planned Location 2,172' FNL 2,130' FEL

Ground Elevation 5,107

K.B. Elevation 5,130

Logged Interval 2,553' **To** 15,094'

Total Depth 15,094'

Formation Niobrara C Chalk

Type of Drilling Fluid Oil Based Mud

Operator

Company Creststone Peak Resources

Address 1801 California Street
Denver, CO 80202



CRESTONE PEAK RESOURCES

Geologist

Name John T. Ready

Company Crestone Peak Resources

Address 1801 California Street
Denver, CO 80202



CRESTONE PEAK
RESOURCES

Color Coding



Oil



Condensate



Gas



Note



Core



Pressure



Error



Water



Seal

Other

Services Provided 2-Man Logging, Gas Chromatography

Loggers: Micah Morgan / Greg Diefenbach

Equipment: ML-608 / ML-568

Address Reservoir Group
14103 Interdrive West
Houston, Texas 77032

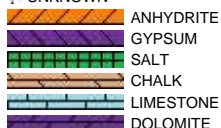
Service Start Date: 03/04/2020

Service End Date: 03/09/2020

JOB # 0145

Rock Types

? UNKNOWN



▲▲▲▲▲▲▲▲▲▲ CHERT



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

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

ORGANIC

- PINPOINT
- VUGGY

Engineering

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

FORMATION TOP

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

Rounding

- ANGULAR
- ROUNDED
- SUBANG
- SUBRND

Textures

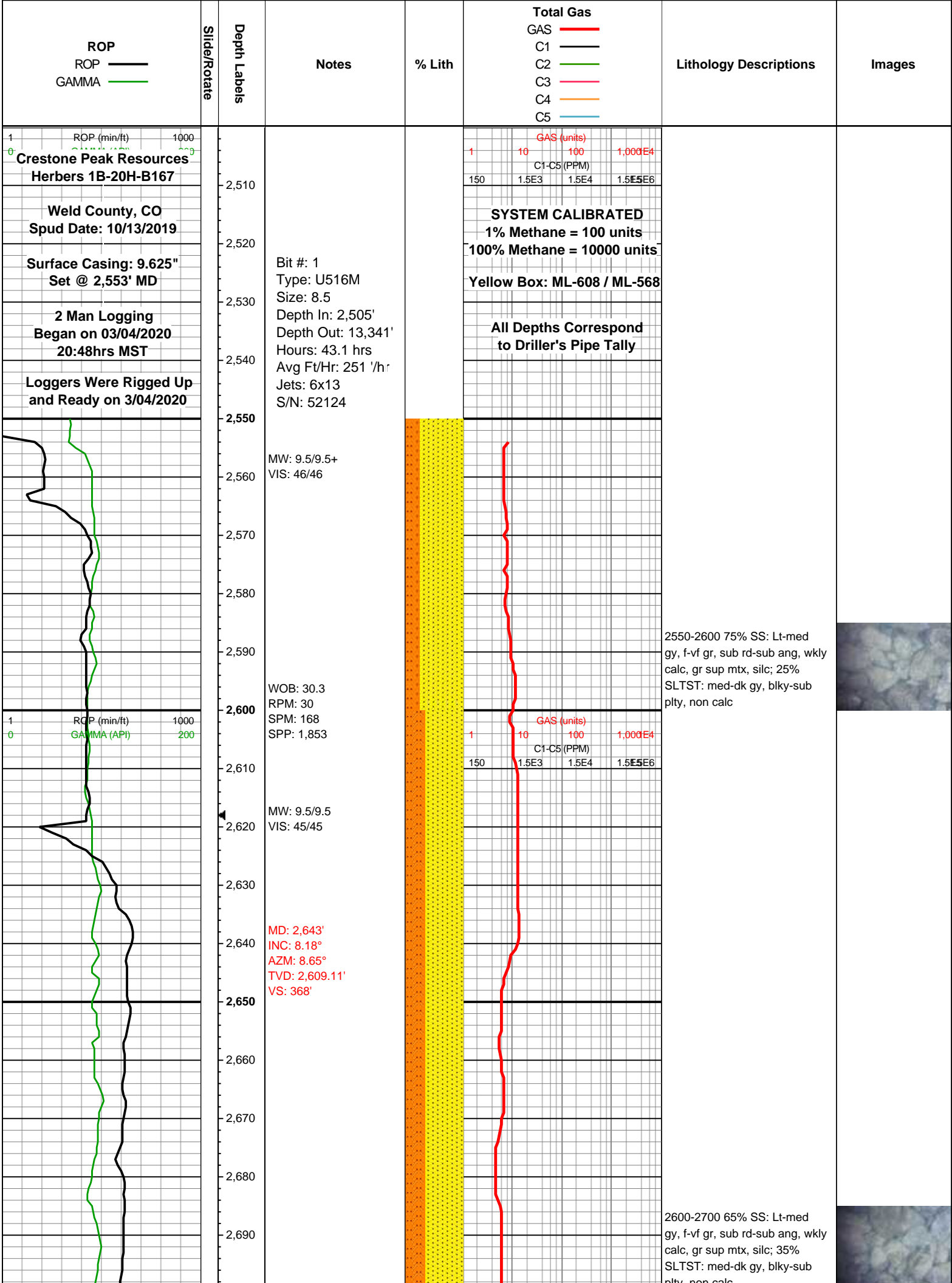
- BOUNDSTONE
- CHALKY
- CRYPTOXLN
- EARTHY
- FINELYXLN
- GRAINSTONE

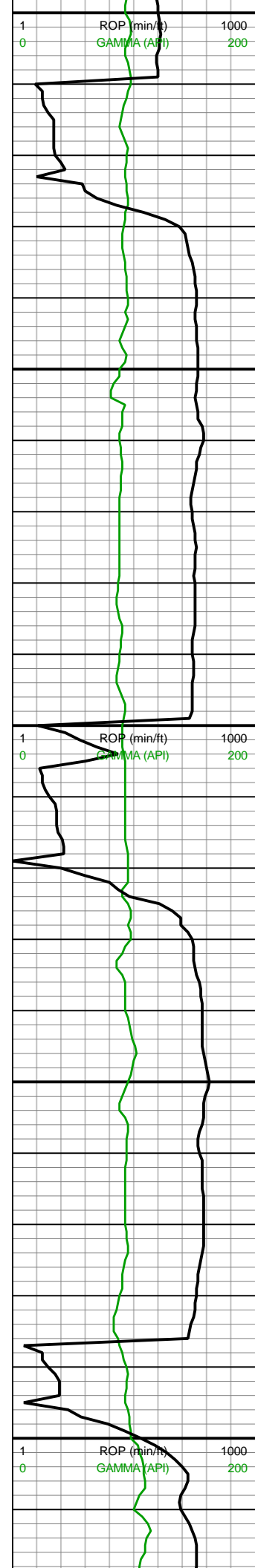
L LITHOGRAPHIC

- MICROXLN
- MUDSTONE
- PACKSTONE
- WACKESTONE

Sorting

- MODERATE
- POOR
- WELL





2,700
2,710
2,720
2,730
2,740
2,750
2,760
2,770
2,780
2,790
2,800
2,810
2,820
2,830
2,840
2,850
2,860
2,870
2,880
2,890
2,900
2,910

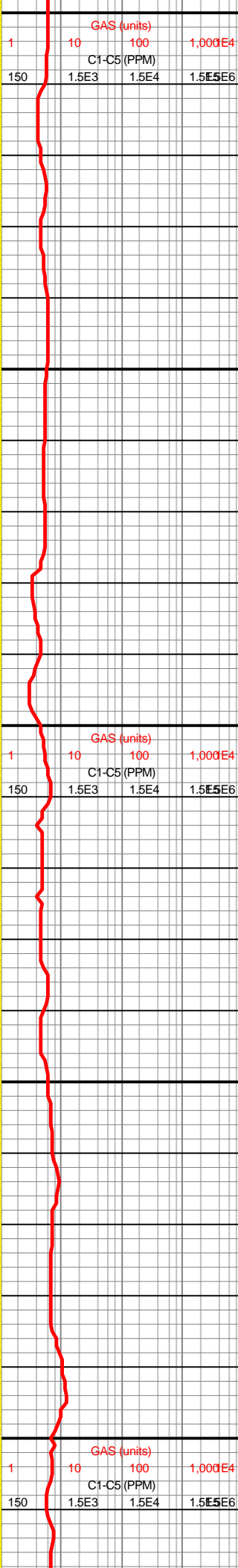
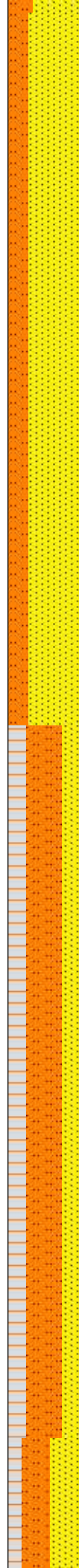
MD: 2,732'
INC: 9.06°
AZM: 6.19°
TVD: 2,697.11'
VS: 381.23'

WOB: 34.5
RPM: 50
SPM: 197
SPP: 2,482

MD: 2,821'
INC: 9.58°
AZM: 11.64°
TVD: 2,784.93'
VS: 395.45'

MW: 9.5/9.5
VIS: 45/44

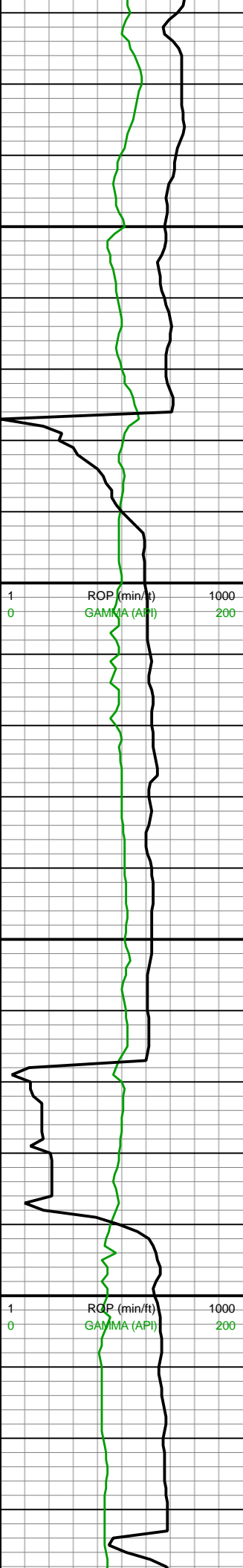
MD: 2,910'
INC: 9.67°
AZM: 12.16°
TVD: 2,872.68'
VS: 410.01'



2700-2800 70% SS: Lt-med gy, f-vf gr, sub rd-sub ang, wkly calc, gr sup mtx, silc; 30% SLTST: med-dk gy, blk-sub ply, non calc

2800-2900 50% SLTST: med-dk gy, blk-sub ply, frm-hd, fri ip, non calc; 25% SS: Lt-med gy, f-vf gr, sub rd-sub ang, hd-v hd wkly calc, gr sup mtx, silc; 25% SH: Dk gy, silc vns, rd-sub blk, frm-fri, ply fis, sm-slty tex





2,920
2,930
2,940
2,950
2,960
2,970
2,980
2,990
3,000
3,010
3,020
3,030
3,040
3,050
3,060
3,070
3,080
3,090
3,100
3,110
3,120
3,130

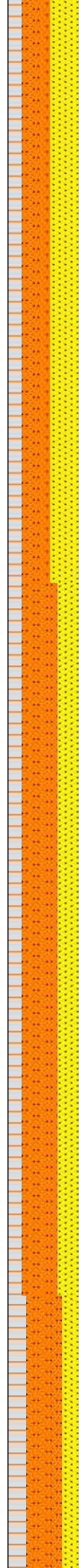
MINDEPTH 03/05/2020

MD: 2,999'
INC: 8.62°
AZM: 7.94°
TVD: 2,960.55'
VS: 423.93'

WOB: 31.2
RPM: 50
SPM: 196
SPP: 2,357

MD: 3,088'
INC: 9.94°
AZM: 12.87°
TVD: 3,048.38'
VS: 438.02'

MW: 9.5/9.5
VIS: 45/44



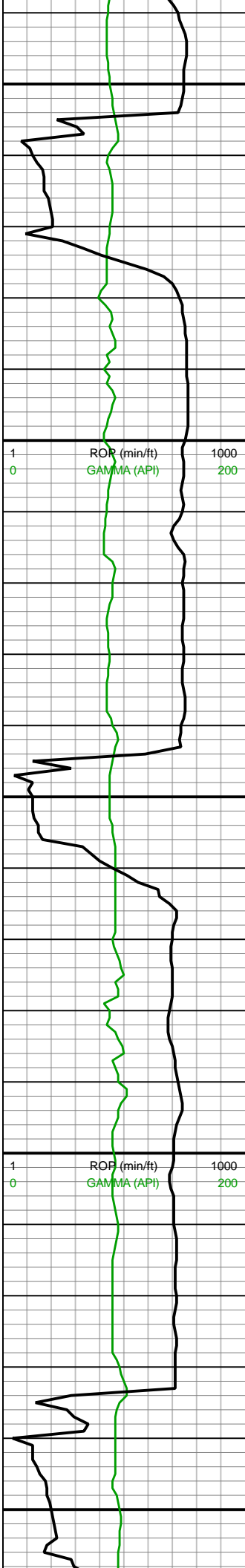
GAS (units)			
1	10	100	1,000E4
C1-C5 (PPM)			
150	1.5E3	1.5E4	1.5E5E6

GAS (units)			
1	10	100	1,000E4
C1-C5 (PPM)			
150	1.5E3	1.5E4	1.5E5E6

2900-3000 40% SLTST:
med-dk gy, blkly-sub plty,
frm-hd, fri ip, non calc; 40%
SS: Lt-med gy, f-vf gr, sub
rd-sub ang, hd-v hd wkly calc,
gr sup mtx, silc; 20% SH: Dk
gy, silc vns, rd-sub blkly, frm-fri,
ply fis, sm-sltly tex

3000-3100 50% SLTST:
med-dk gy, blkly-sub plty,
frm-hd, fri ip, non calc; 30%
SS: Lt-med gy, f-vf gr, sub
rd-sub ang, hd-v hd wkly calc,
gr sup mtx, silc; 20% SH: Dk
gy, silc vns, rd-sub blkly, frm-fri,
ply fis, sm-sltly tex





MD: 3,178'
INC: 10.64°
AZM: 12.16°
TVD: 3,136.94'
VS: 453.72'

WOB: 32.4
RPM: 50
SPM: 196
SPP: 2477+

MD: 3,267'
INC: 9.85°
AZM: 15.33°
TVD: 3,224.52'
VS: 469.09'

MD: 3,356'
INC: 10.55°
AZM: 16.56°



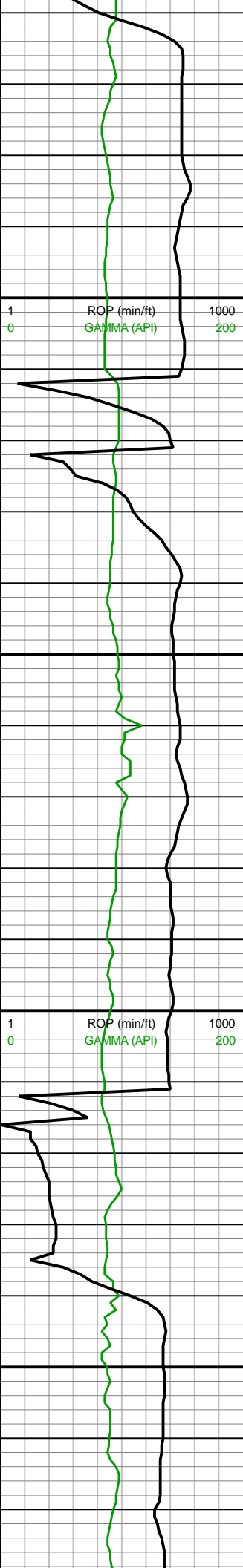
	GAS (units)			
	1	10	100	1,000E4
C1-C5 (PPM)				
150	1.5E3	1.5E4	1.5E5	1.5E6

3100-3200 50% SLTST:
med-dk gy, blkly-sub plty,
frm-hd, fri ip, non calc; 25%
SS: Lt-med gy, f-vf gr, sub
rd-sub ang, hd-v hd wkly calc,
gr sup mtx, silc; 25% SH: Dk
gy, silc vns, rd-sub blkly, frm-fri,
ply fis, sm-sltly tex



3200-3300 60% SLTST:
med-dk gy, blkly-sub plty,
frm-hd, fri ip, non calc; 20%
SS: Lt-med gy, f-vf gr, sub
rd-sub ang, hd-v hd wkly calc,
gr sup mtx, silc; 20% SH: Dk
gy, silc vns, rd-sub blkly, frm-fri,
ply fis, sm-sltly tex





TVD: 3,312.11'
VS: 484.24'

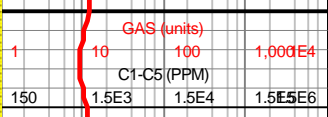
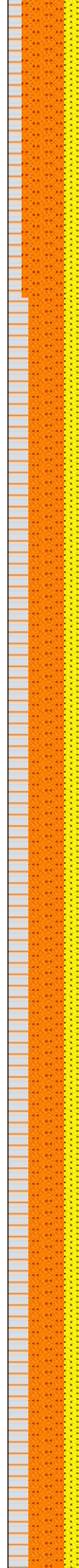
WOB: 35.2
RPM: 50
SPM: 197
SPP: 2,650

MW: 9.4/9.5
VIS: 45/44

MD: 3,445'
INC: 9.23°
AZM: 13.57°
TVD: 3,399.79'
VS: 498.99'

MD: 3,534'
INC: 9.85°
AZM: 19.02°
TVD: 3,487.56'
VS: 513.13'

MW: 9.4/9.4+
VIS: 45/44

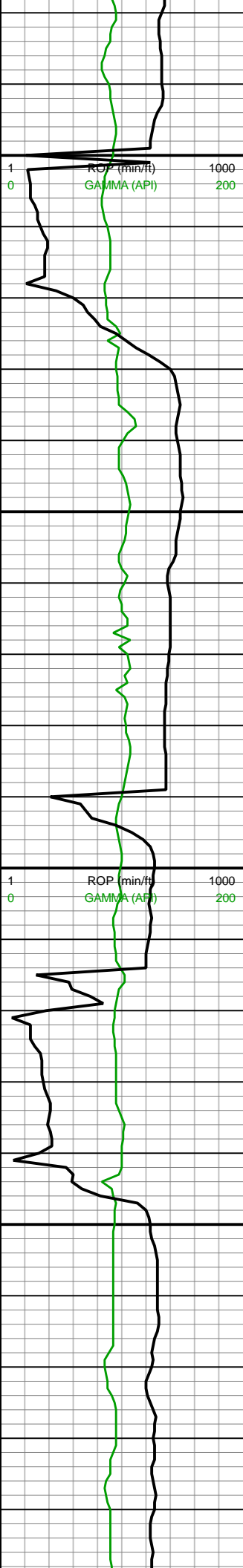


3300-3400 60% SLTST:
med-dk gy, blkly-sub plty,
frm-hd, fri ip, non calc; 20%
SS: Lt-med gy, f-vf gr, sub
rd-sub ang, hd-v hd wkly calc,
gr sup mtx, silc; 20% SH: Dk
gy, silc vns, rd-sub blkly, frm-fri,
ply fis, sm-sltly tex

3400-3500 50% SLTST:
med-dk gy, blkly-sub plty,
frm-hd, fri ip, non calc; 30%
SH: Dk gy, silc vns, rd-sub blkly,
frm-fri, ply fis, sm-sltly tex; 20%
SS: Lt-med gy, f-vf gr, sub
rd-sub ang, hd-v hd wkly calc,
gr sup mtx, silc

3500-3600 50% SLTST:





3,580
3,590
3,600
3,610
3,620
3,630
3,640
3,650
3,660
3,670
3,680
3,690
3,700
3,710
3,720
3,730
3,740
3,750
3,760
3,770
3,780
3,790

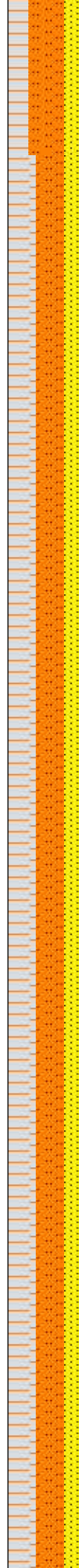
WOB: 32.7
RPM: 50
SPM: 196
SPP: 2,568

MD: 3,648'
INC: 9.76°
AZM: 14.98°
TVD: 3,599.89'
VS: 531.68'

MW: 9.4/9.4
VIS: 45/44

MD: 3,738'
INC: 10.46°
AZM: 18.14°
TVD: 3,688.49'
VS: 546.81'

WOB: 36



GAS (units)			
1	10	100	1,000E4
C1-C5 (PPM)			
150	1.5E3	1.5E4	1.5E5E6

Replace
Yellow Box
ML-568

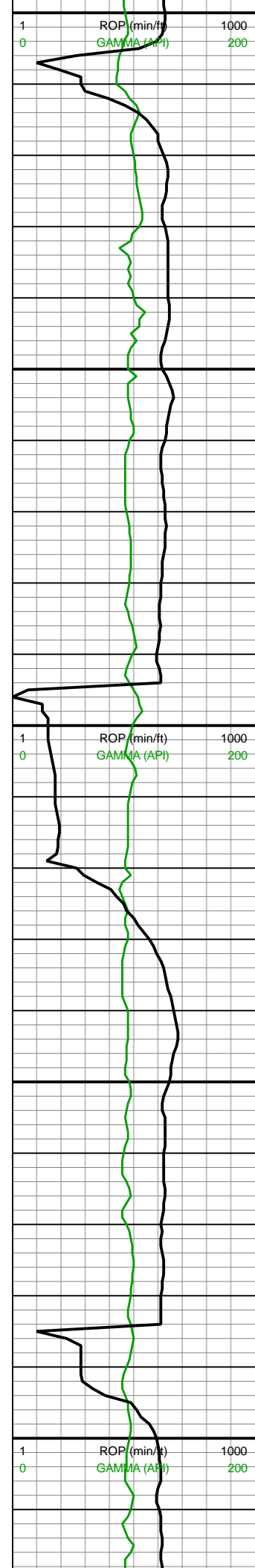
GAS (units)			
1	10	100	1,000E4
C1-C5 (PPM)			
150	1.5E3	1.5E4	1.5E5E6

21u

3500-3600 50% SLTST:
med-dk gy, blkly-sub plty,
frm-hd, fri ip, non calc; 30%
SH: Dk gy, silc vns, rd-sub blkly,
frm-fri, ply fis, sm-sltly tex; 20%
SS: Lt-med gy, f-vf gr, sub
rd-sub ang, hd-v hd wkly calc,
gr sup mtx, silc

3600-3700 40% SLTST:
med-dk gy, blkly-sub plty,
frm-hd, fri ip, non calc; 40%
SH: Dk gy, silc vns, rd-sub blkly,
frm-fri, ply fis, sm-sltly tex; 20%
SS: Lt-med gy, f-vf gr, sub
rd-sub ang, hd-v hd wkly calc,
gr sup mtx, silc

3700-3800 40% SLTST:
med-dk gy, blkly-sub plty,
frm-hd, fri ip, non calc; 40%
SH: Dk gy, silc vns, rd-sub blkly,
frm-fri, ply fis, sm-sltly tex; 20%
SS: Lt-med gy, f-vf gr, sub
rd-sub ang, hd-v hd wkly calc,
gr sup mtx, silc



RPM: 50
SPM: 169
SPP: 2,561

MD: 3,827'
INC: 9.32°
AZM: 16.21°
TVD: 3,776.17'
VS: 561.41'

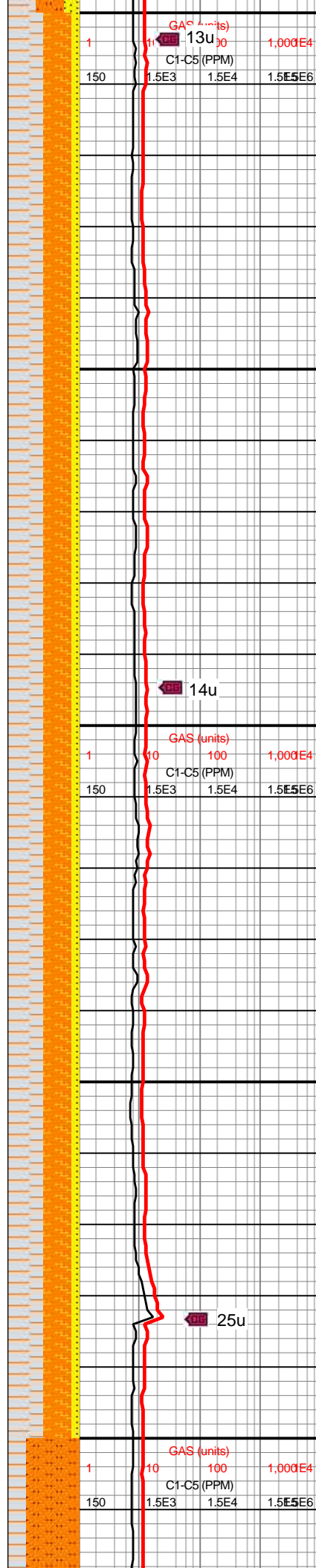
MW: 9.4/9.4
VIS: 45/44

MD: 3,916'
INC: 11.34°
AZM: 14.45°
TVD: 3,863.72'
VS: 576.81'

MW: 9.4+/9.5
VIS: 45/44

MD: 4,005'
INC: 9.94°
AZM: 12.51°
TVD: 3,951.19'
VS: 592.78'

WOB: 34
RPM: 50



GAS (units)
13u
C1-C5 (PPM)
1.5E3 1.5E4 1.5E5E6

GAS (units)
14u
C1-C5 (PPM)
1.5E3 1.5E4 1.5E5E6

GAS (units)
25u
C1-C5 (PPM)
1.5E3 1.5E4 1.5E5E6

gr sup mtx, silc

3800-3900 50% SH: Dk gy, silc vns, rd-sub blkly, frm-fri, ply fis, sm-sltly tex; 40% SLTST: med-dk gy, blkly-sub plty, frm-hd, fri ip, non calc; 10% SS: Lt-med gy, f-vf gr, sub rd-sub ang, hd-v hd wkly calc, gr sup mtx, silc

3900-4000 50% SH: Dk gy, silc vns, rd-sub blkly, frm-fri, ply fis, sm-sltly tex; 40% SLTST: med-dk gy, blkly-sub plty, frm-hd, fri ip, non calc; 10% SS: Lt-med gy, f-vf gr, sub rd-sub ang, hd-v hd wkly calc, gr sup mtx, silc

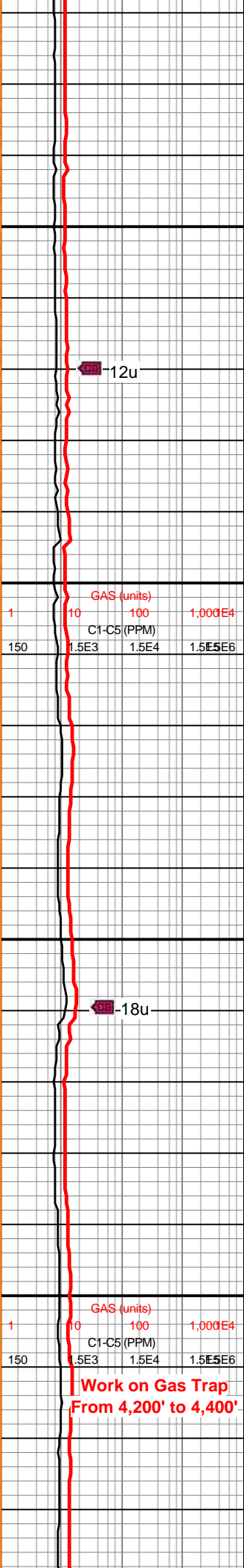
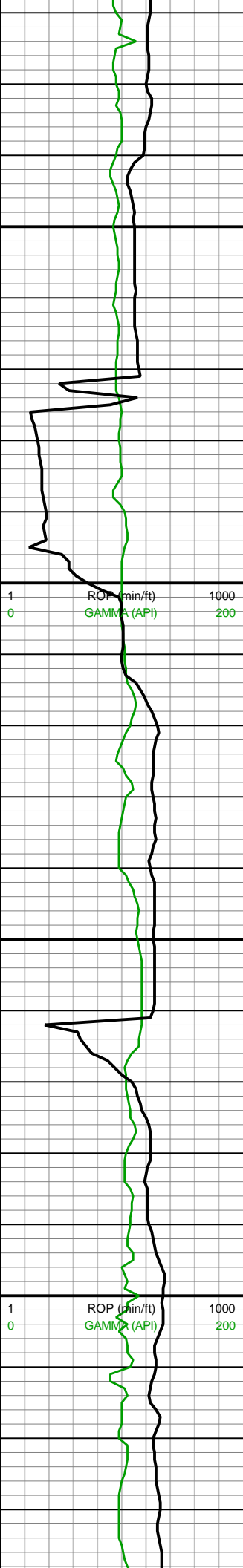


SPM: 196
SPP: 2,969

MM

MD: 4,094'
INC: 11.17°
AZM: 12.34°
TVD: 4,038.68'
VS: 608.7'

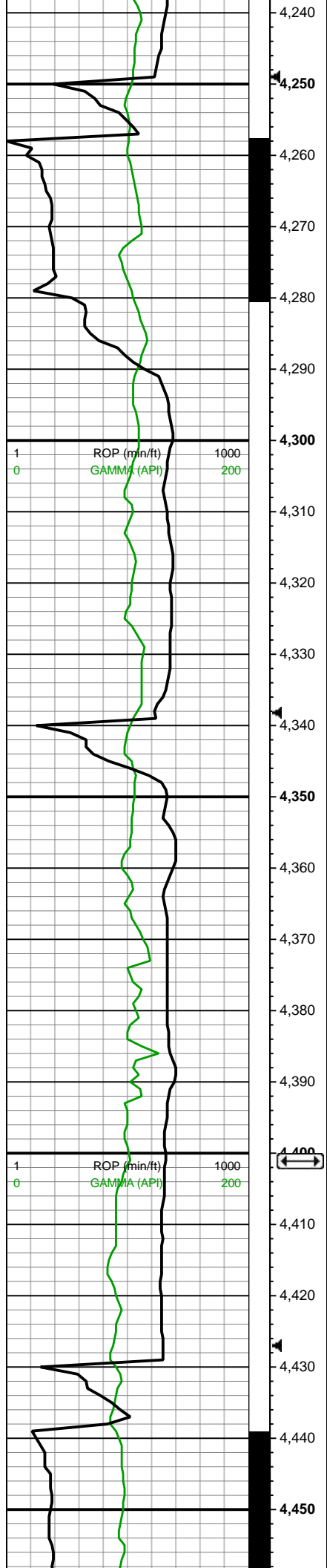
WOB: 33
RPM: 50
SPM: 197
SPP: 3,099



4000-4100 75% SLTST: lt gy, frm, wkly calc, blk-ymor, rthy lstr; 25%SH: Lt-med gy, frm-sl hrd, sb blk-ymor, amor, ply fis, wkly calc, dull-rthy lstr

4100-4200 100% SLTST: lt-med gy, sl fri-frm, wkly calc, sb blk-ymor, amor, dull-rthy lstr; tr SH

Work on Gas Trap
From 4,200' to 4,400'



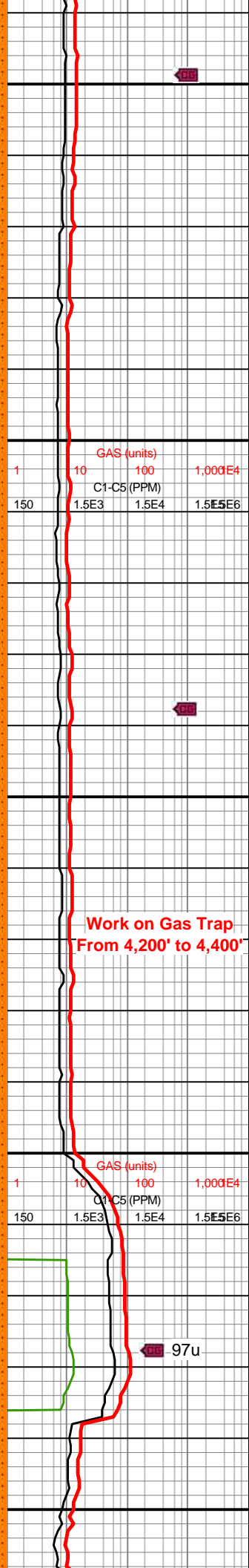
MD: 4,273'
INC: 10.99°
AZM: 8.12°
TVD: 4,214.78'
VS: 640.25'

MD: 4,362'
INC: 9.06°
AZM: 8.12°
TVD: 4,302.42'
VS: 655.59'

WOB: 35
RPM: 50
SPM: 196
SPP: 3,198

Larimer
4,340' TVD
4,401' MD

MD: 4,451'
INC: 10.46°
AZM: 13.04°
TVD: 4,390.13'
VS: 670.4'

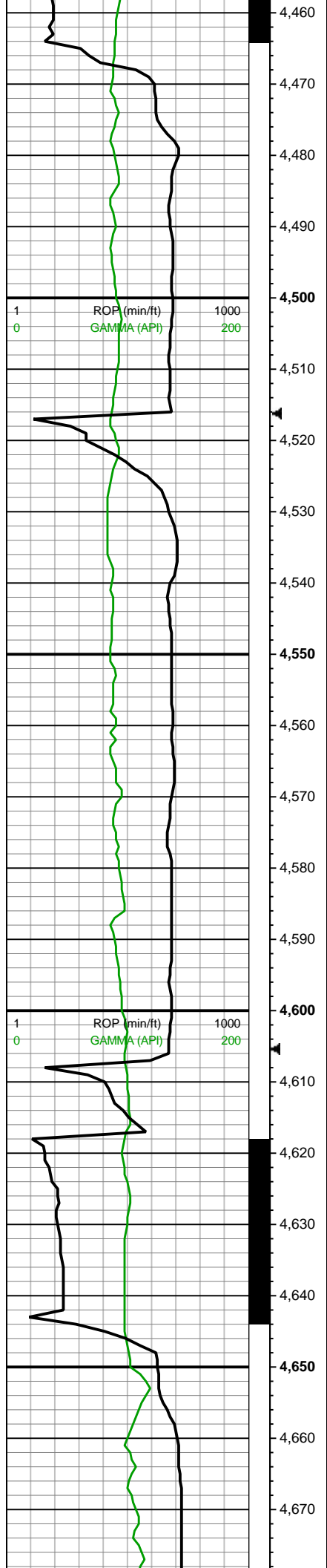


4200-4300 100% SLTST:
lt-med gy, sl fri-frm, sl hd ip,
wkly calc, sb blkly-blky-amor,
dull-rthy lstr; tr SH

Work on Gas Trap
From 4,200' to 4,400'

4300-4400 100% SLTST:
lt-med gy, sme dk gy ip,
frm-hd, wkly calc, sb
blkly-blky-amor, dull-rthy lstr



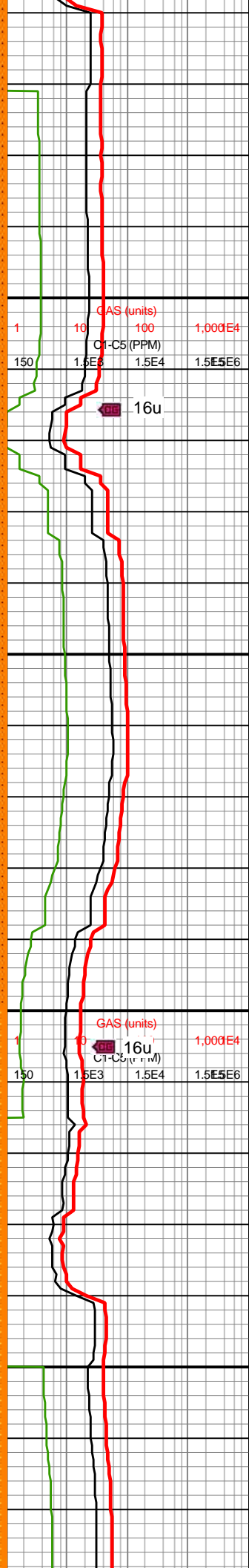


MD: 4,540'
INC: 9.15°
AZM: 11.46°
TVD: 4,477.83'
VS: 685.2'

WOB: 36
RPM: 50
SPM: 196
SPP: 3,270

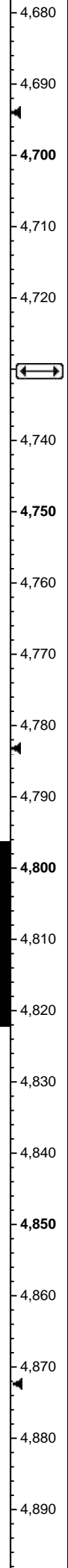
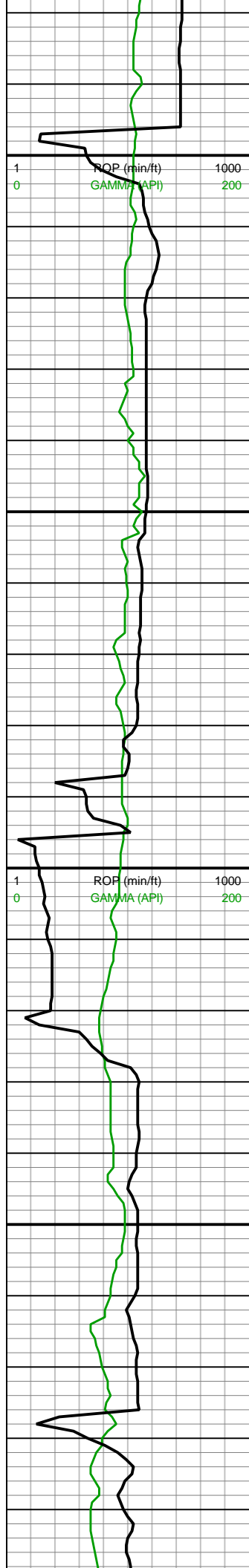
MD: 4,629'
INC: 10.64°
AZM: 23.76°
TVD: 4,565.51'
VS: 699.66'

MW: 9.4+/9.4+
VIS: 46/44



4400-4500 100% SLTST:
lt-med gy, frm-sl hd-hd, sl
calc, sb blkly-blky, amor ip,
dull-rthy lstr

4500-4600 100% SLTST:
lt-med gy, frm-hd, wkly calc,
sb blkly-blky, amor ip, dull-rthy
lstr; tr SS



MD: 4,718'
INC: 9.41°
AZM: 27.98°
TVD: 4,653.15'
VS: 713.61'

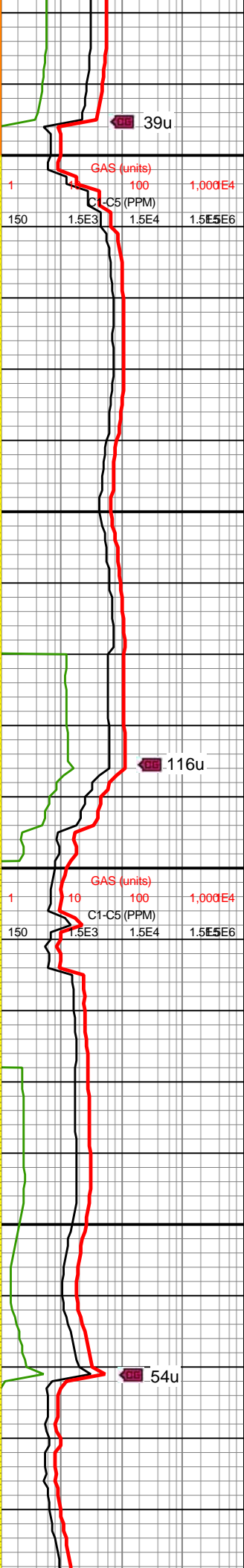
Sussex
4,660' TVD
4,725' MD

WOB: 9.3
RPM: 0
SPM: 184
SPP: 2,433

MD: 4,807'
INC: 10.46°
AZM: 19.02°
TVD: 4,740.82'
VS: 727.67'

MW: 9.5/9.5
VIS: 46/44

MD: 4,897'
INC: 9.85°
AZM: 15.5°

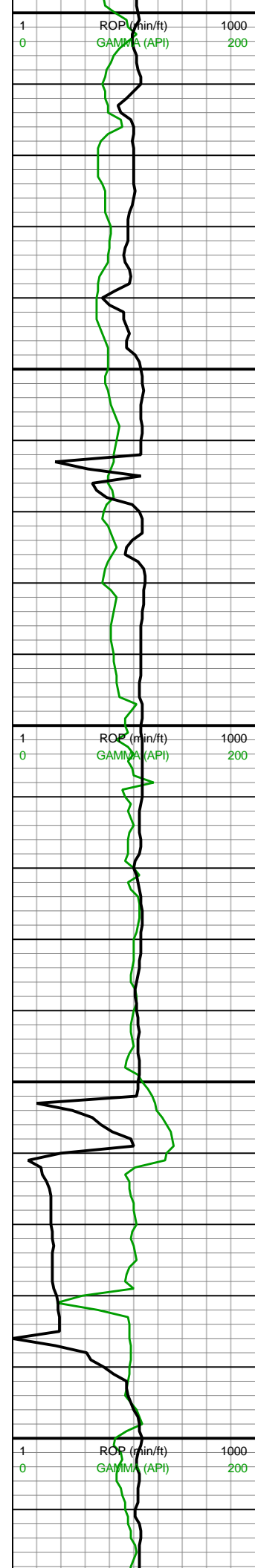


4600-4700 100% SLTST:
lt-med gy, frm-hd, wkly calc,
sb blkly-blky, amor ip, dull-rthy
lstr; tr SS

4700-4800 80% Sltly SS:
med-dk gy, vf gr, sb rnd-sb
ang, dull-sdy tex, sft-frm, w srt,
mod cons, v slty; 20% SLTST:
lt gy, frm-hd, wkly calc, sb
blkly-blky, dull-rthy lstr

4800-4900 85% Sltly SS:
med-dk gy, vf gr, tr f grs, sb
rnd-sb ang, dull-sdy tex,
sft-frm, w srt, mod cons, v slty;
15% SLTST: lt gy, frm-hd,





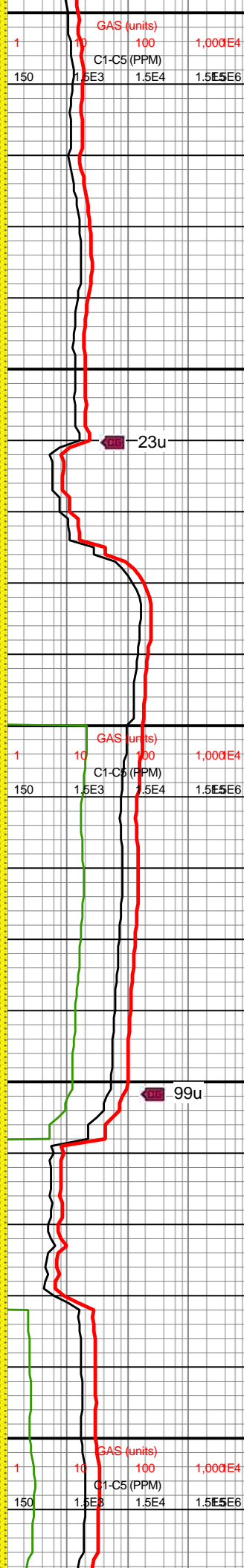
4,900
4,910
4,920
4,930
4,940
4,950
4,960
4,970
4,980
4,990
5,000
5,010
5,020
5,030
5,040
5,050
5,060
5,070
5,080
5,090
5,100
5,110

TVD: 4,829.41'
VS: 742.81'

MD: 4,986'
INC: 9.23°
AZM: 13.75°
TVD: 4,917.18'
VS: 757.08'

WOB: 30
RPM: 50
SPM: 186
SPP: 3,040

MD: 5,075'
INC: 10.99°
AZM: 16.91°
TVD: 5,004.79'
VS: 772.13'



1 10 100 1,000E4
150 1.5E3 1.5E4 1.5E5E6

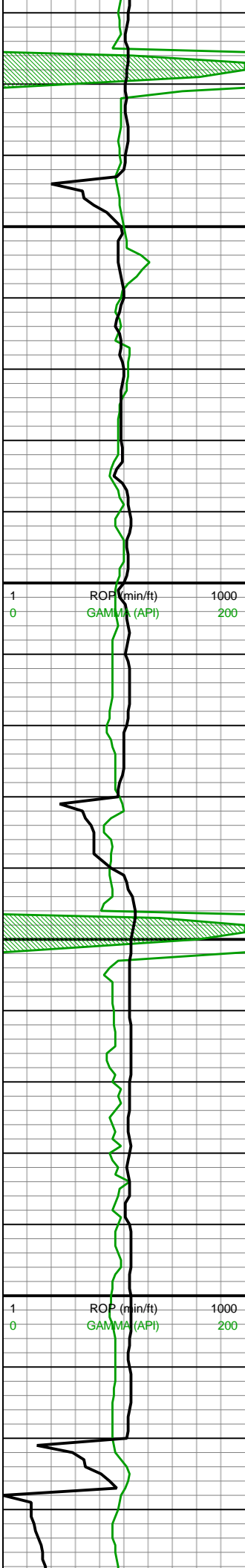
23u

99u

4900-5000 100% Sity SS:
med-dk gy, vf-f gr, sb rnd-sb
ang, dull-sdy tex, sft-frm-hd, w
srt, sl calc cmt, mod cons, v
sity

5000-5100 100% Sity SS:
med-dk gy, sm lt gy ip, vf-f gr,
sb rnd-sb ang, dull-sdy tex,
frm-hd, mod-w srt, sl calc cmt,
mod cons, v sity





5,120
5,130
5,140
5,150
5,160
5,170
5,180
5,190
5,200
5,210
5,220
5,230
5,240
5,250
5,260
5,270
5,280
5,290
5,300
5,310
5,320
5,330

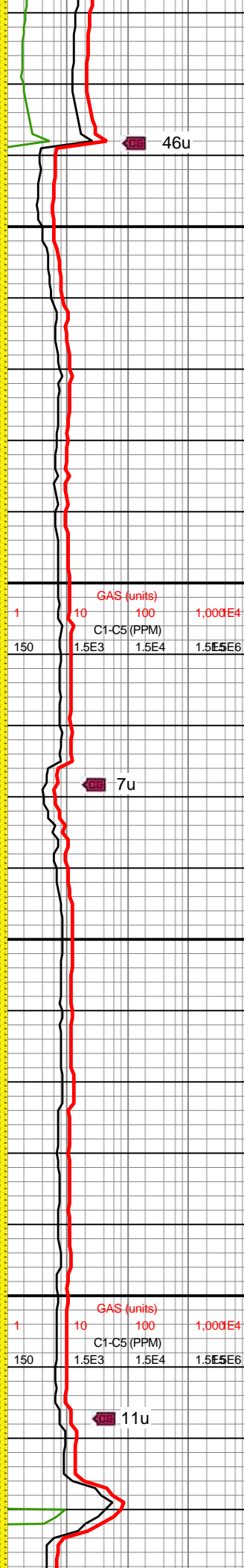
MD: 5,164'
INC: 9.58°
AZM: 17.61°
TVD: 5,092.36'
VS: 787.31'

WOB: 31
RPM: 50
SPM: 182
SPP: 2,871

MD: 5,253'
INC: 8.53°
AZM: 14.45°
TVD: 5,180.25'
VS: 800.76'

MW: 9.5/9.5
VIS: 46/44

Shannon
5,260' TVD
5,324' MD



46u

7u

11u

5100-5200 100% Sity SS:
med-dk gy, vf-f gr, sb rnd-sb
ang, dull-sdy tex, frm-hd,
mod-w srt, sl calc cmt, mod
cons, v slty

5200-5300 100% Sity SS:
lt-med-dk gy, vf-f gr, sb rnd-sb
ang, ang ip, dull-sdy tex,
frm-hd, mod-w srt, sl calc cmt,
mod-w cons, v slty

5,334 MD
MD: 5,343'
INC: 10.02°
AZM: 12.34°
TVD: 5,269.07'
VS: 814.87'

WOB: 30
RPM: 50
SPM: 182
SPP: 3,035

MD: 5,432'
INC: 9.67°
AZM: 13.39°
TVD: 5,356.76'
VS: 829.71'

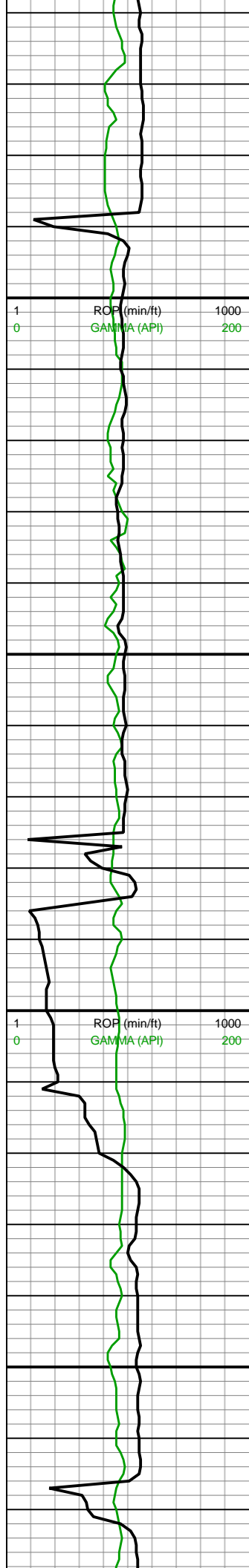
MD: 5,521'
INC: 10.55°
AZM: 10.41°
TVD: 5,444.38'
VS: 844.99'

MW: 9.5/9.5
VIS: 45/43

5300-5400 100% Silty SS:
med-dk gy, vf gr, sb rnd-sb
ang, dull-sdy tex, frm-hd, sl fri
ip, w srt, sl calc cmt, mod
cons, v slty

5400-5500 100% Silty SS:
lt-med-dk gy, vf gr, sb rnd-sb
ang, dull-sdy tex, frm-hd, w srt,
sl calc cmt, mod-w cons, v slty



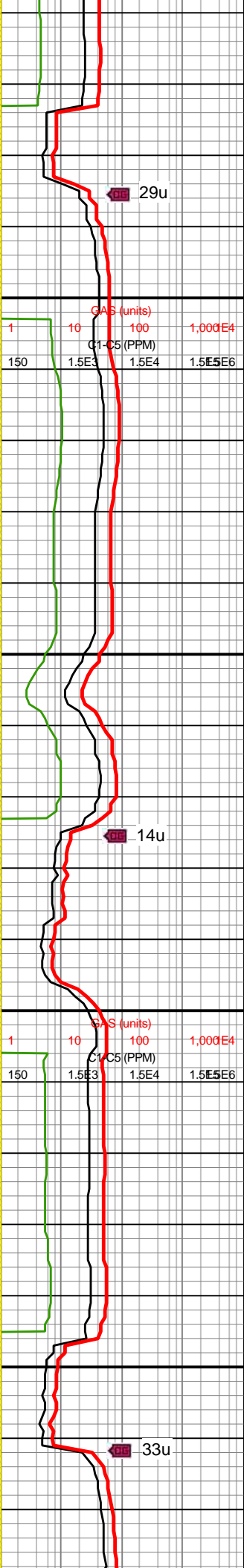
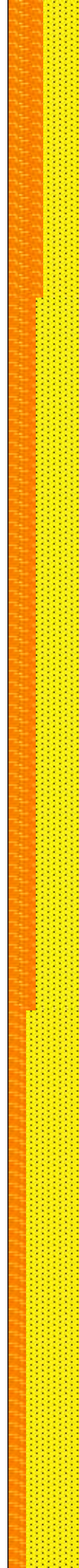


5,560
5,570
5,580
5,590
5,600
5,610
5,620
5,630
5,640
5,650
5,660
5,670
5,680
5,690
5,700
5,710
5,720
5,730
5,740
5,750
5,760
5,770

WOB: 31
RPM: 50
SPM: 182
SPP: 3,036

MD: 5,610'
INC: 9.32°
AZM: 8.47°
TVD: 5,532.04'
VS: 860.14'

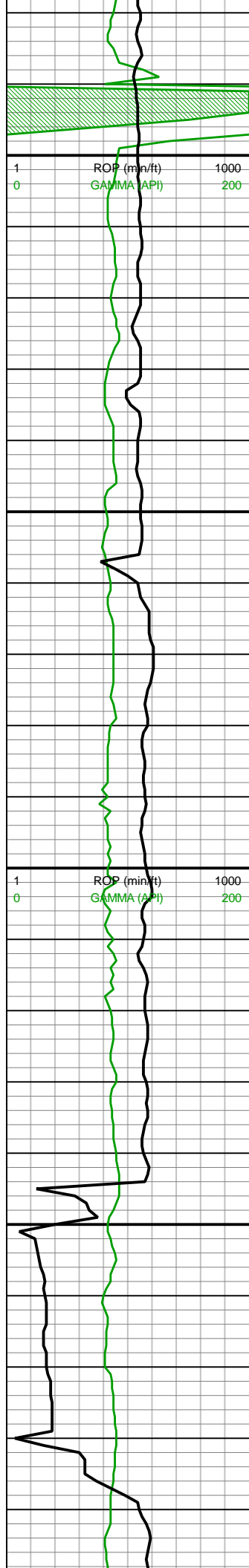
MD: 5,699'
INC: 10.73°
AZM: 9.88°
TVD: 5,619.68'
VS: 875.43'



5500-5600 50% SltY SS:
lt-med-dk gy, vf gr, sb rnd-sb
ang, dull-sdy tex, frm-hd, w srt,
sl calc cmt, mod-w cons, v
slty; 50% SDY SLTST: Lt gy,
dk gy ip, vf gr-sltY tex, suc ip,
sb rnd-sub ang, frm-hd, brit ip,
dull lstr, ply fiss, wkly-mod
calc, silc cmt

5600-5700 70% SltY SS:
lt-med-dk gy, vf gr, sb rnd-sb
ang, dull-sdy tex, frm-hd, w srt,
sl calc cmt, mod cons, v slty;
30% SDY SLTST: Lt gy, dk gy
ip, vf gr-sltY tex, suc ip, sb
rnd-sub ang, frm-hd, rthy lstr,
ply fiss, wkly-mod calc, silc
cmt





5,780
5,790
5,800
5,810
5,820
5,830
5,840
5,850
5,860
5,870
5,880
5,890
5,900
5,910
5,920
5,930
5,940
5,950
5,960
5,970
5,980
5,990

MD: 5,788'
INC: 9.23°
AZM: 11.28°
TVD: 5,707.33'
VS: 890.59'

WOB: 27
RPM: 50
SPM: 183
SPP: 3,026

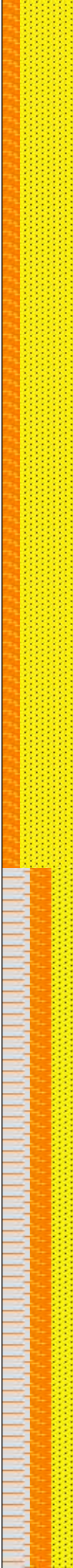
MW: 9.5+/9.5
VIS: 45/43

MD: 5,878'
INC: 7.91°
AZM: 9.17°
TVD: 5,796.33'
VS: 903.78'

MD: 5,967'
INC: 9.94°
AZM: 11.11°
TVD: 5,884.24'
VS: 917.37'

Mitten Top
5,900' TVD
5,983' MD

WOB: 34



GAS (units)
C1-C5 (PPM)
150 1.5E3 1.5E4 1.5E5 1.5E6

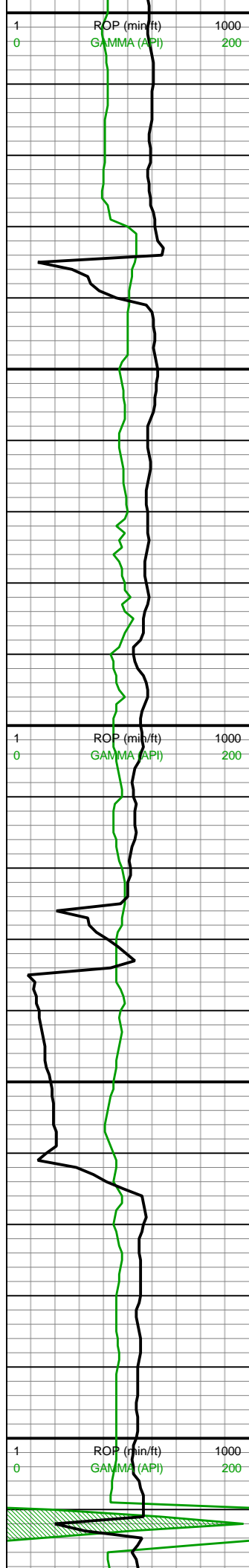
13u

23u

5700-5800 75% SltY SS:
lt-med-dk gy, vf gr, sb rnd-sb
ang, dull-sdy tex, frm-hd, w srt,
sl calc cmt, mod cons, v slty;
25% SDY SLTST: Lt-med gy,
vf gr-sltY tex, suc ip, sb rnd-sub
ang, frm-hd, dull-rthy lstr, ply
fiss, wkly-mod calc, silc cmt

5800-5900 75% SltY SS:
lt-med-dk gy, vf gr, sb rnd-sb
ang, dull-sdy tex, frm-hd, w srt,
sl calc cmt, mod cons, v slty;
25% SDY SLTST: Lt-med gy,
vf gr-sltY tex, sb rnd-sub ang,
frm-hd, dull lstr, ply fiss,
wkly-mod calc, silc cmt

5900-6000 40% SH: dk gy-blk,
suc, silc, hrd-v hrd, blkY-sub
blkY, wxy lstr, mod fiss, v slty;
30% SDY SLTST: Lt-med gy,
bnshgy ip, vf gr-sltY tex, suc ip,
sb rnd-sub ang, frm-hd, brit ip,
dull-wxy lstr, ply fiss, wkly-mod
calc; 30% SS: med-dk gy, f-vf
gr, s&p ip, sme free qtz, mod



6,000
6,010
6,020
6,030
6,040
6,050
6,060
6,070
6,080
6,090
6,100
6,110
6,120
6,130
6,140
6,150
6,160
6,170
6,180
6,190
6,200
6,210

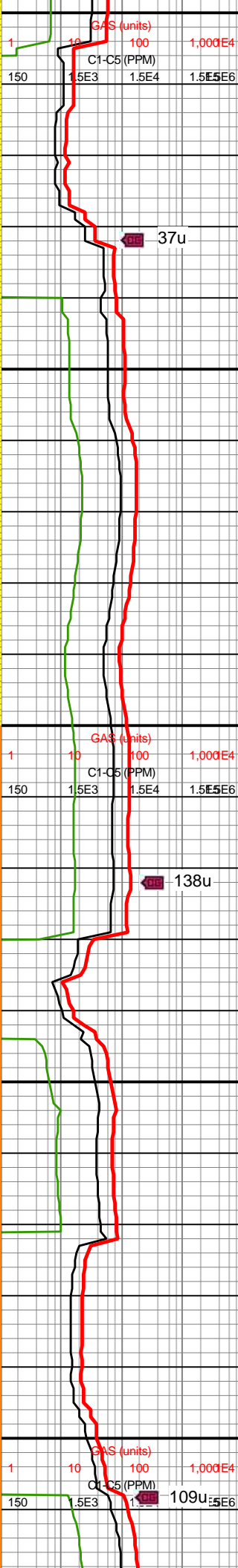
RPM: 50
SPM: 198
SPP: 3,455

MD: 6,056'
INC: 8.71°
AZM: 10.58°
TVD: 5,972.07'
VS: 931.53'

MW: 9.6/9.5+
VIS: 45/43

MD: 6,145'
INC: 9.41°
AZM: 10.93°
TVD: 6,059.96'
VS: 945.3'

WOB: 35
RPM: 50
SPM: 196
SPP: 3,436

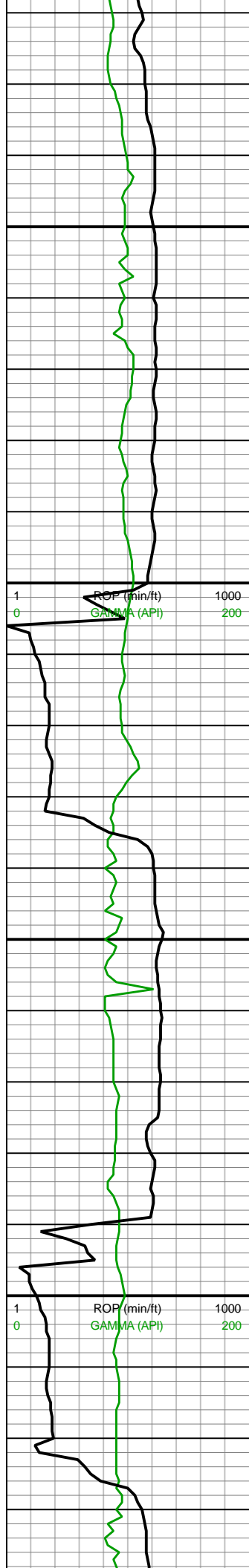


srt, silc cmt

6000-6100 45% SH: dk gy-blk, suc, silc, hrd-v hrd, blk-sub blk, wxy lstr, mod fiss, v slty; 35% SDY SLTST: Lt-med gy, vf gr-slty tex, suc ip, sb rnd-sub ang, frm-hd, brit ip, dull-wxy lstr, ply fiss, wkly-mod calc; 20% SS: med-dk gy, f-vf gr, s&p ip, mod srt, silc cmt

6100-6200 50% SLTY SH: Med-dk gy, suc, silc, hrd-v hrd, blk-sub blk, dull-rthy lstr, ply fiss, non calc; 50% SDY SLTST: Lt-med gy, vf gr-slty tex, sb rnd-sub ang, sl hd-hd, sl calc, silc cmt





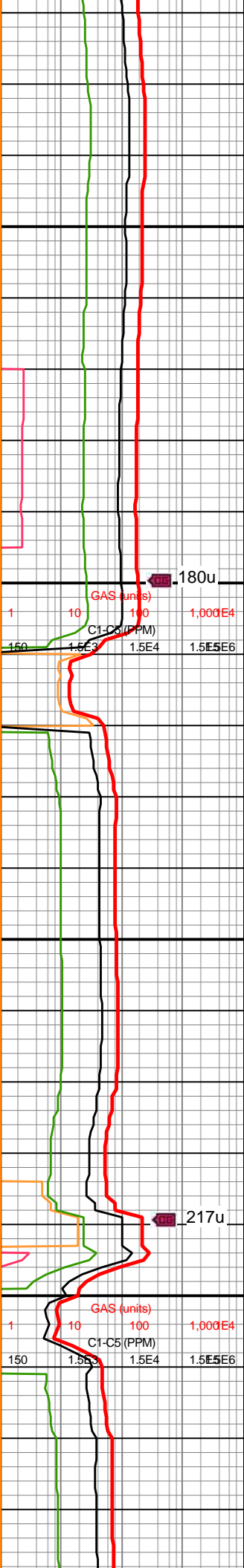
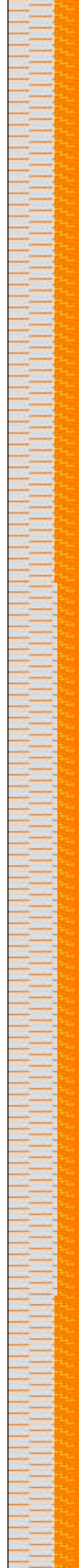
MD: 6,234'
INC: 7.83°
AZM: 10.05°
TVD: 6,147.95'
VS: 958.41'

MD: 6,324'
INC: 9.15°
AZM: 14.8°
TVD: 6,236.96'
VS: 971.37'

MW: 9.6/9.6
VIS: 44/43

WOB: 8
RPM: 0
SPM: 196
SPP: 2,734

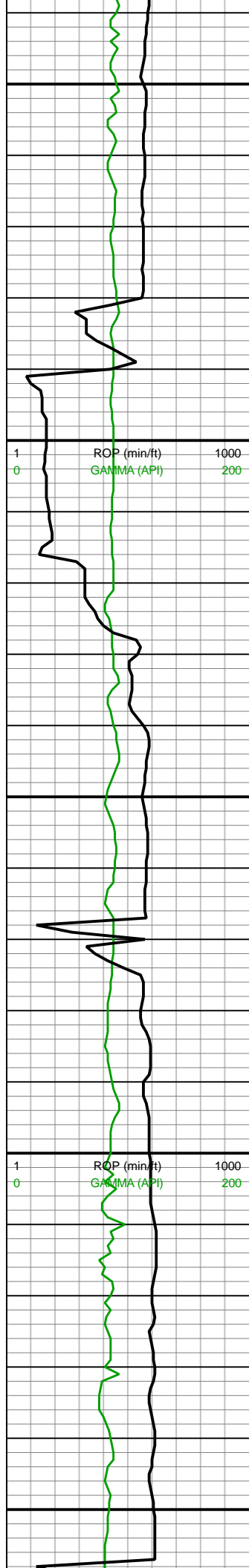
MD: 6,413'
INC: 10.82°
AZM: 13.92°
TVD: 6,324.61'
VS: 986.32'



6200-6300 65% SLTY SH:
Med-dk gy-blk suc, silc, sl
hrd-hrd, blk-sub blk, dull-rthy
lstr, ply fiss, non calc; 35%
SDY SLTST: Lt-med gy, vf gr,
sly tex, sb rnd-sub ang, sl
hd-hd, sl calc, silc cmt

6300-6400 70% SLTY SH:
Med-dk gy-blk, suc, silc, sl
hrd-hrd, blk-sub blk, dull-rthy
lstr, sl fiss ip, non calc; 30%
SDY SLTST: Lt-med gy, vf- gr,
sly tex, sb rnd-sub ang, sl
hd-hd, sl calc, silc cmt





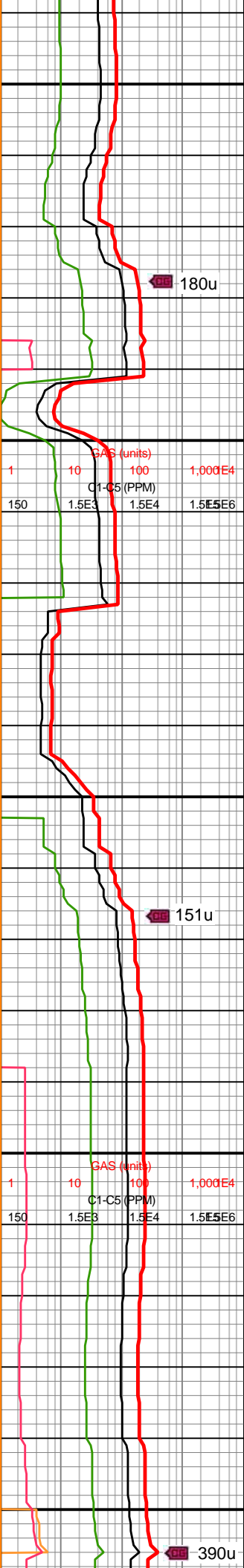
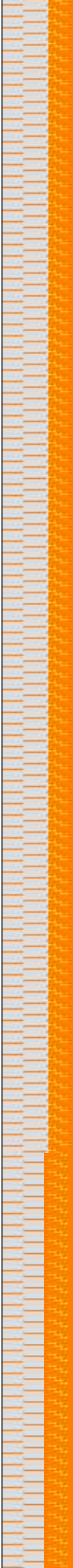
6,440
6,450
6,460
6,470
6,480
6,490
6,500
6,510
6,520
6,530
6,540
6,550
6,560
6,570
6,580
6,590
6,600
6,610
6,620
6,630
6,640
6,650

MD: 6,502'
INC: 11.43°
AZM: 15.15°
TVD: 6,411.94'
VS: 1,002.94'

MD: 6,591'
INC: 9.67°
AZM: 12.87°
TVD: 6,499.43'
VS: 1,018.74'

WOB: 34
RPM: 50
SPM: 196
SPP: 3,503

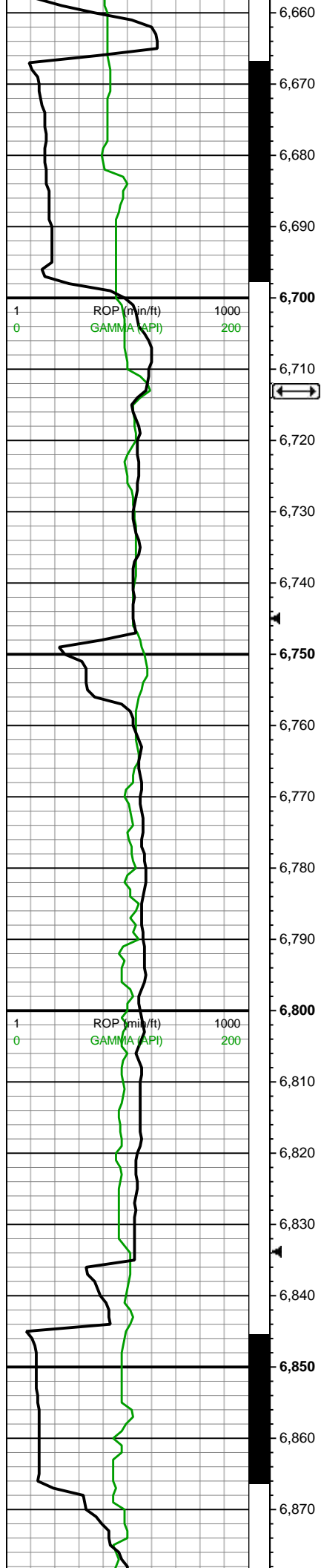
MW: 9.7+/9.7
VIS: 43/42



6400-6500 65% SLTY SH:
Med-dk gy-blk suc, silc, sl
hrd-hrd, blk-sub blk, dull-rthy
lstr, ply fiss, non calc; 35%
SDY SLTST: Lt-med gy, vf gr,
silty tex, sb rnd-sub ang, sl
hd-hd, sl calc, silc cmt

6500-6600 65% SLTY SH:
Med-dk gy, suc, silc, sl hrd-hrd,
sl fri ip, blk-sub blk, rthy lstr,
non calc; 35% SDY SLTST:
Lt-med gy, vf gr, silty tex, sb
rnd-sub ang, sl hd-hd, sl calc,
silc cmt





MD: 6,680'
INC: 10.2°
AZM: 13.22°
TVD: 6,587.09'
VS: 1,033.7'

Tepee Buttes
6,619' TVD
6,713' MD

MD: 6,769'
INC: 9.06°
AZM: 12.16°
TVD: 6,674.84'
VS: 1,048.22'

WOB: 34
RPM: 50
SPM: 197
SPP: 3,461

MW: 9.8/9.8
VIS: 43/42

KOP
6,476' TVD
6,841' MD

MD: 6,859'
INC: 5.54°
AZM: 25.17°
TVD: 6,764.1'
VS: 1,059.08'

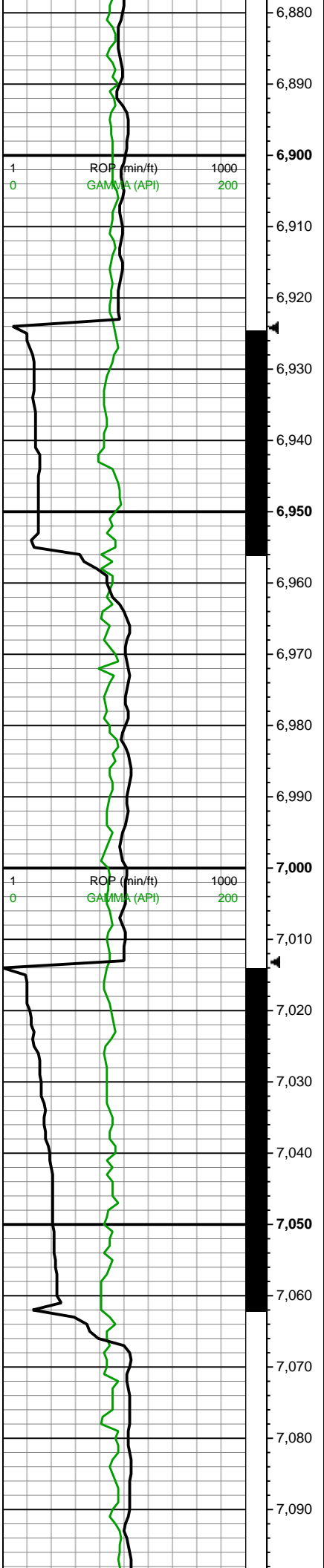


6600-6700 60% SLTY SH:
Med-dk gy, suc, silc, sl hrd-hrd,
blky-sub blky, rthy lstr, non
calc; 40% SDY SLTST:
Lt-med gy, vf gr, slty tex, sb
rnd-sub ang, sl hd-hd, sl calc,
silc cmt

6700-6800 100% SLTY SH:
Med-dk gy, suc, sm-slty, silc,
hrd-v hrd, brit ip, blky-sub blky,
amor ip, dull-rthy lstr, ply fiss,
non calc

6800-6850 100% SLTY SH:
Med-dk gy, suc, sm-slty, silc,
hrd-v hrd, brit ip, blky-sub blky,
amor ip, dull-rthy lstr, ply fiss,
non calc





MW: 9.8/9.8
VIS: 43/42

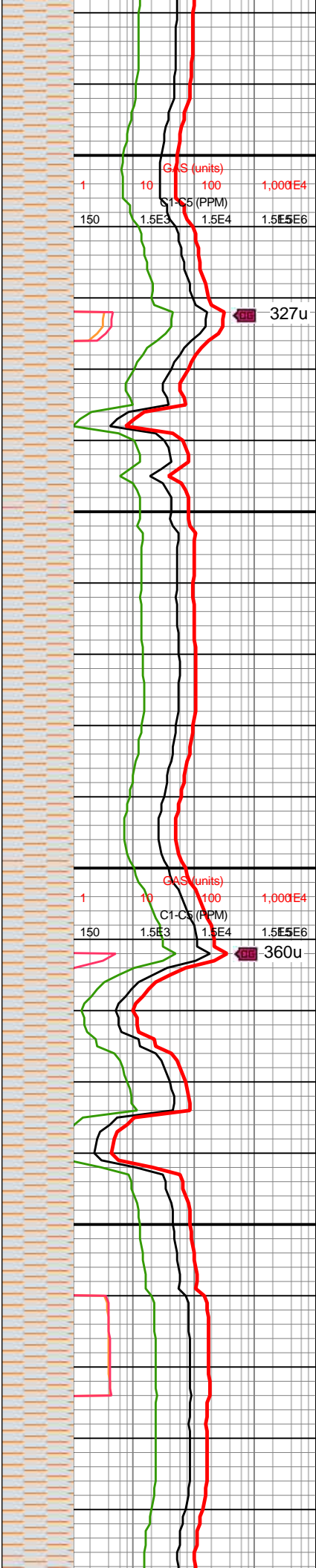
MD: 6,948'
INC: 2.81°
AZM: 90.39°
TVD: 6,852.9'
VS: 1,062.96'

WOB: 35.1
RPM: 31
SPM: 197
SPP: 3,535

MD: 7,037'
INC: 5.28°
AZM: 150.68°
TVD: 6,941.7'
VS: 1,059.37'

GD

MW: 9.8/9.8
VIS: 43/42



6800-6850 100% SLTY SH:
Med-dk gy, suc, sl sm-sltly tex,
silc, hrd-v hrd, blkly-sub blkly,
amor ip, dull-rthy lstr, ply fiss,
non calc

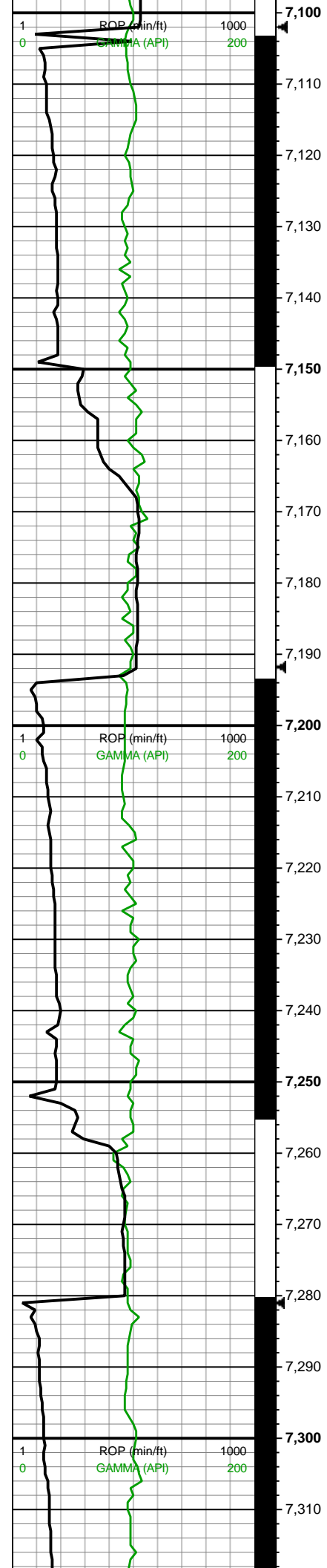
6850-6900 100% SLTY SH:
Med-dk gy, suc, sl sm-sltly tex,
silc, hrd-v hrd, blkly-sub blkly,
amor ip, dull-rthy lstr, ply fiss,
non calc

6950-7000 100% SLTY SH:
Med-dk gy, suc, sl sm-sltly tex,
silc, hrd-v hrd, blkly-sub blkly,
amor ip, dull-rthy lstr, ply fiss,
non calc

7000-7050 100% SLTY SH:
Med-dk gy, suc, sl sm-sltly tex,
silc, hrd-v hrd, blkly-sub blkly,
amor ip, dull-rthy lstr, ply fiss,
non calc

7050-7100 100% SLTY SH:
Med-dk gy, suc, sl sm-sltly tex,
silc, frm-hrd, occ sft, blkly-sub
blkly, amor ip, dull-rthy lstr, wxy
ip, ply fiss, non calc





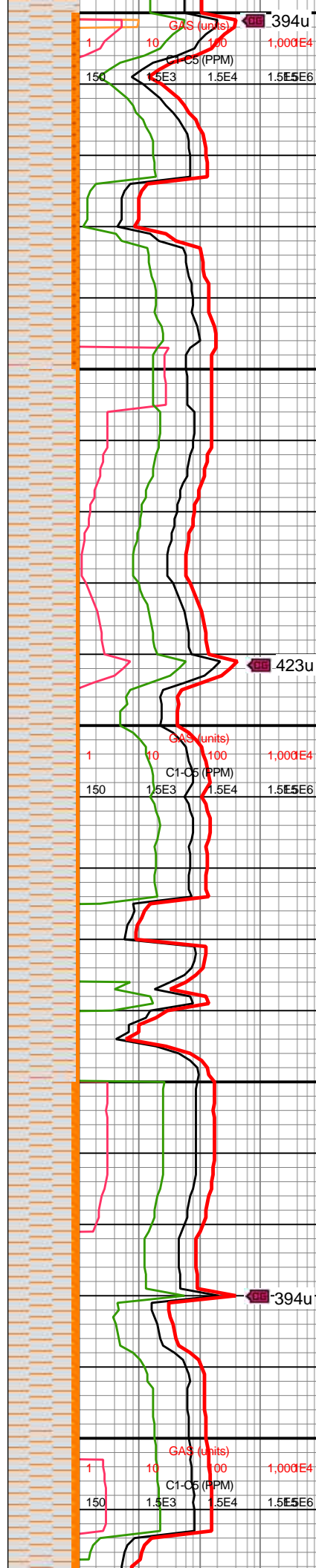
MD: 7,126'
INC: 10.99°
AZM: 164.21°
TVD: 7,029.78'
VS: 1,047.63'

WOB: 7.7
RPM: 0
SPM: 198
SPP: 2,824

MD: 7,215'
INC: 15.56°
AZM: 164.04°
TVD: 7,116.38'
VS: 1,027.98'

MW: 9.8/9.8
VIS: 43/42

MD: 7,304'
INC: 21.1°
AZM: 168.08°
TVD: 7,200.83'
VS: 1,000.8'



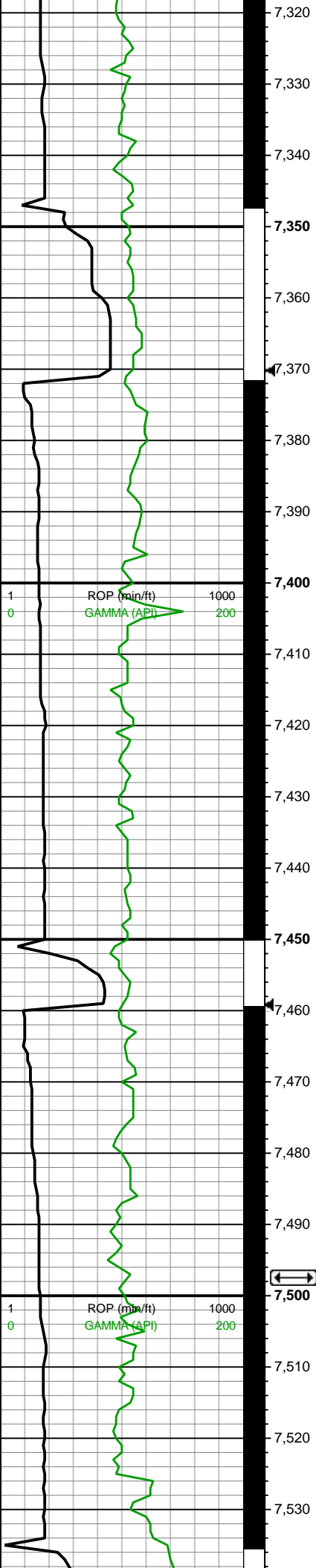
7100-7150 90% SLTY SH:
Med-dk gy, suc, sl sm-sltly tex,
silc, frm-hrd,occ sft, blkly-sub
blkly, amor ip, dull-rthy lstr, wxy
ip, ply fiss, non calc; 10%
SLTST: Lt-med gy, fri, rd, wkly
calc

7150-7200 95% SLTY SH:
Med-dk gy, suc, sl sm-sltly tex,
silc, frm-hrd,occ sft, blkly-sub
blkly, amor ip, dull-rthy lstr, wxy
ip, ply fiss, non calc; 5%
SLTST: Lt-med gy, fri, rd

7200-7250 95% SLTY SH:
Med-dk gy, suc, sl sm-sltly tex,
silc, frm-hrd,occ sft, blkly-sub
blkly, amor ip, dull-rthy lstr, wxy
ip, ply fiss, non calc; 5%
SLTST: Lt-med gy, fri, rd, grdg
to vf tt SS

7250-7300 90% SLTY SH:
Med-dk gy, suc, sl sm-sltly tex,
silc, frm-hrd,occ sft, blkly-sub
blkly, amor ip, dull-rthy lstr, wxy
ip, ply fiss, non calc; 10%
SLTST: Lt-med gy, fri, rd, grdg
to vf tt SS





MW: 9.8/9.8
VIS: 43/42

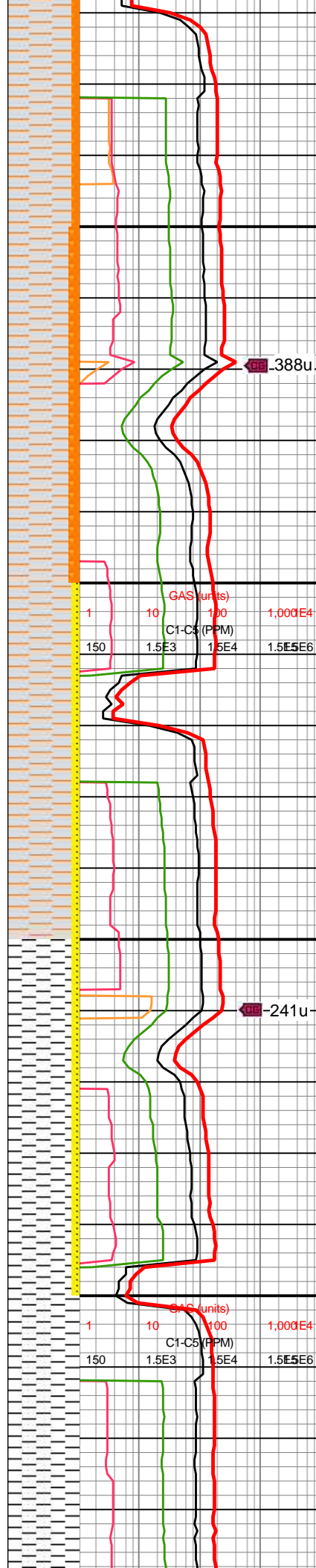
MD: 7,393'
INC: 28.23°
AZM: 170.72°
TVD: 7,281.66'
VS: 964.31'

WOB: 11.2
RPM: 0
SPM: 196
SPP: 2,853

MD: 7,483'
INC: 37.81°
AZM: 175.29°
TVD: 7,357.05'
VS: 915.68'

Sharon Springs
7,367' TVD
7,497' MD

MW: 9.8+/9.8
VIS: 43/42



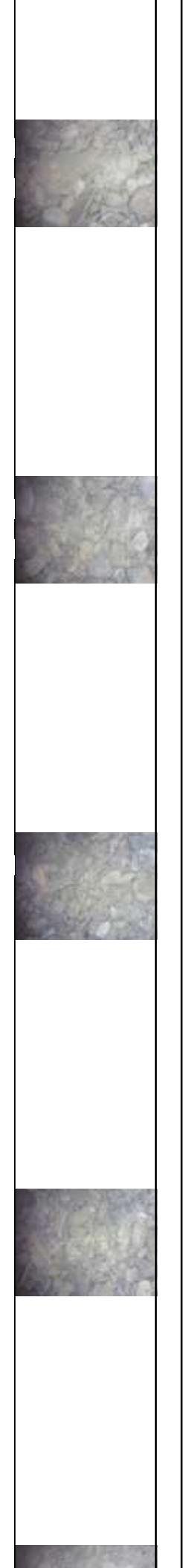
7300-7350 90% SLTY SH:
Med-dk gy, suc, sl sm-sltly tex,
silc, frm-hrd,occ sft, blkly-sub
blkly, amor ip, dull-rthy lstr, wxy
ip, ply fiss, non calc, mnrx;
10% SLTST: Lt-med gy, fri, rd,
grdg to vf tt SS

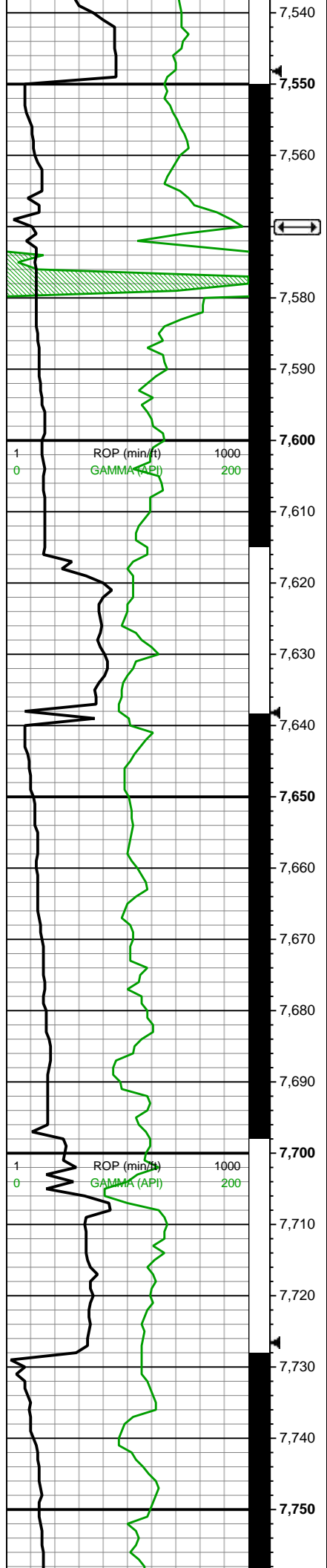
7350-7400 85% SLTY SH:
Med-dk gy, suc, sl sm-sltly tex,
silc, frm-hrd,occ sft, blkly-sub
blkly, amor ip, dull-rthy lstr, wxy
ip, ply fiss, non calc, mnrx;
15% SLTST: Lt-med gy, fri, rd,
grdg to vf tt SS

7400-7450 90% SLTY SH:
Med-dk gy, suc, sl sm-sltly tex,
silc, frm-hrd,occ sft, blkly-sub
blkly, amor ip, dull-rthy lstr, wxy
ip, ply fiss, non calc; 10% SS:
Off wht-lt bnshgy, f gr, fri, rd,
calc cmt

7450-7500 90% SH: Med-dk
gy, suc, sm-sl slty tex, silc,
frm-mod hrd, blkly-sub blkly,
amor ip, dull-rthy lstr, wxy ip,
ply fiss, non calc; 10% SS: Lt
gy-lt bnshgy, f gr, fri, rd, calc
cmt, v silc

7500-7550 100% SH: Med-dk





Niobrara A
7,421' TVD
7,570' MD

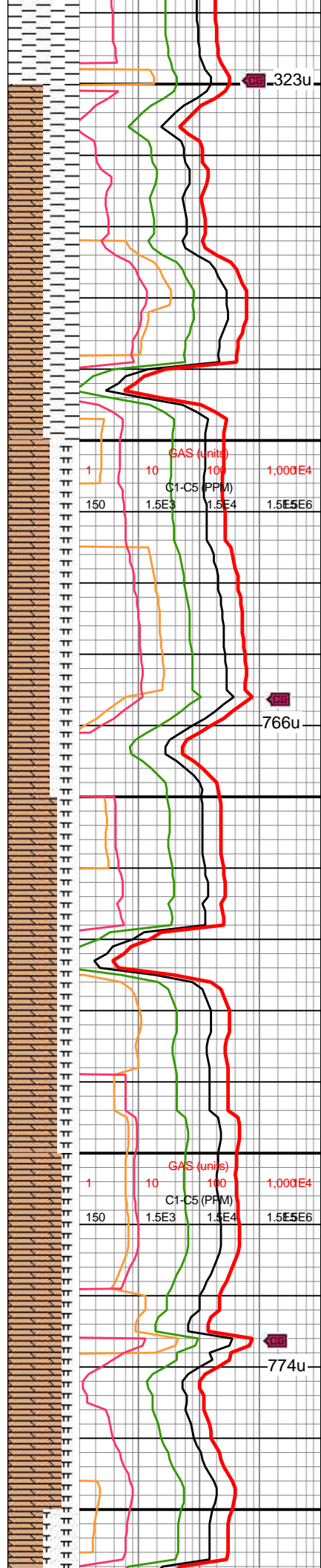
MD: 7,572'
INC: 46.6°
AZM: 175.99°
TVD: 7,422.91'
VS: 856.13'

WOB: 16.7
RPM: 8
SPM: 196
SPP: 2,975

MW: 9.8+/9.8+
VIS: 42/41

MD: 7,661'
INC: 53.64°
AZM: 178.63°
TVD: 7,479.95'
VS: 787.95'

MD: 7,750'
INC: 60.67°
AZM: 179.68°
TVD: 7,528.19'
VS: 713.24'



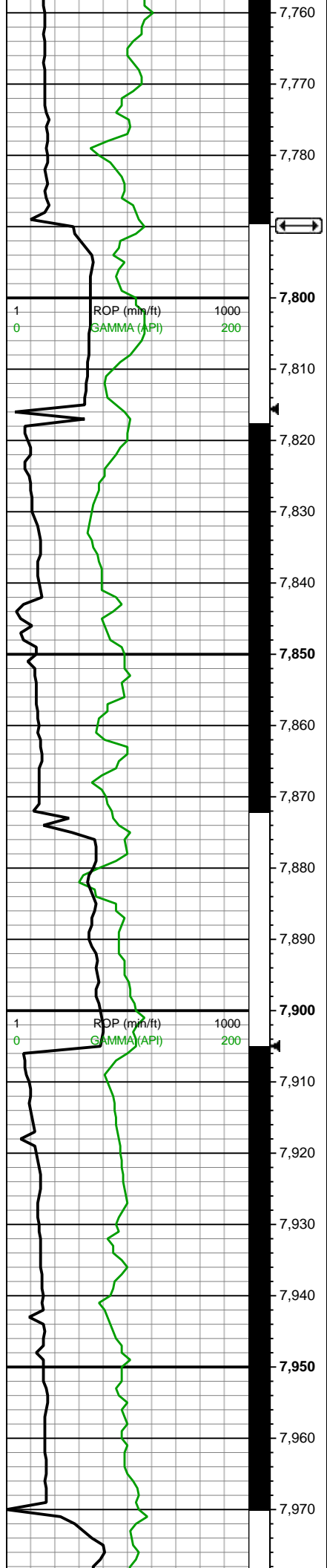
gy, suc, sm-sl slty tex, silc,
frm-mod hrd, blk-sub blk,
amor ip, dull-rthy lstr, wxy ip,
ply fiss, wky calc

7550-7600 50% SH: Med-dk
gy, suc, sm-sl slty tex, silc,
frm-mod hrd, blk-sub plty,
dull-rthy lstr, wxy ip, ply fiss,
wky calc; 50% CHK: Lt
gy-lt-bnshgy, vf, amor, sub
blk-blky, sft-frm, v calc

7600-7650 60% CHK: Lt
gy-lt-bnshgy, vf, amor, sub
blk-blky, sft-frm, v calc; 40%
MRLST: Dk gy-blk, sl hd-hd,
sub blk-sub plty, rthy, amor,
mod calc

7650-7700 70% CHK: Lt-med
gy, dk gy ip, vf, amor, sub
blk-blky, sft-frm, v calc; 30%
MRLST: Dk gy-blk, sl hd-hd,
sub blk-sub plty, rthy, amor,
mod calc

7700-7750 75% CHK: Lt-med
gy, dk gy ip, vf, amor, sub
blk-blky, sft-frm, v calc; 25%
MRLST: Dk gy-blk, sl hd-hd,
sub blk-sub plty, rthy, amor,
mod calc



Niobrara B
7,545' TVD
7,790' MD

WOB: 34.6
RPM: 31
SPM: 196
SPP: 3,461

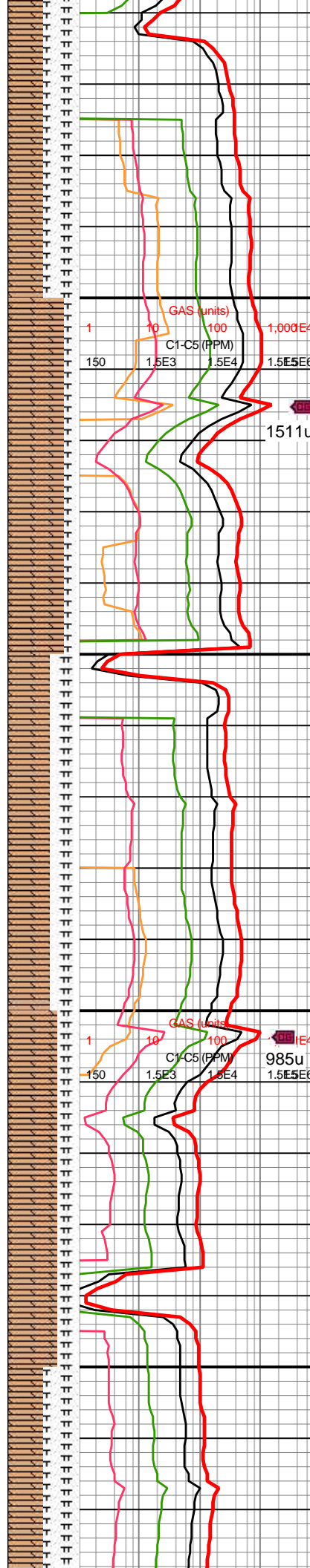
MINDEPTH 03/06/2020

MD: 7,839'
INC: 67.36°
AZM: 180.91°
TVD: 7,567.16'
VS: 633.28'

MW: 9.8+/9.8+
VIS: 42/41

MD: 7,928'
INC: 74.57°
AZM: 179.16°
TVD: 7,596.17'
VS: 549.21'

MW: 9.8+/9.8+
VIS: 42/41

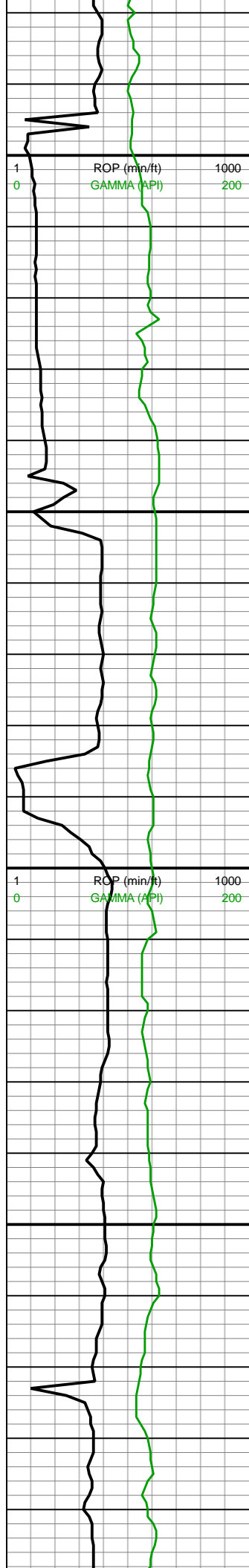


7750-7800 50% CHK: Lt-med
gy, dk gy ip, vf, amor, sub
blky-blky, sft-frm, v calc; 50%
MRLST: Dk gy-blk, sl hd-hd,
sub blky-sub plty, rthy, amor,
mod calc

7800-7850 80% CHK: Lt-med
gy, dk gy ip, vf, amor, sub
blky-blky, sft-frm, v calc; 20%
MRLST: Dk gy-blk, sl hd-hd,
sub blky-sub plty, rthy, amor,
mod calc

7850-7900 60% CHK: Lt-med
gy, dk gy ip, vf, amor, sub
blky-blky, sft-frm, v calc; 40%
MRLST: Dk gy-blk, sl hd-hd,
sub blky-sub plty, rthy, amor,
mod calc

7900-7950 70% CHK: Lt-med
gy, dk gy ip, vf, amor, sub
blky-blky, sft-frm, v calc; 30%
MRLST: Dk gy-blk, sl hd-hd,
sub blky-sub plty, rthy, amor,
mod calc



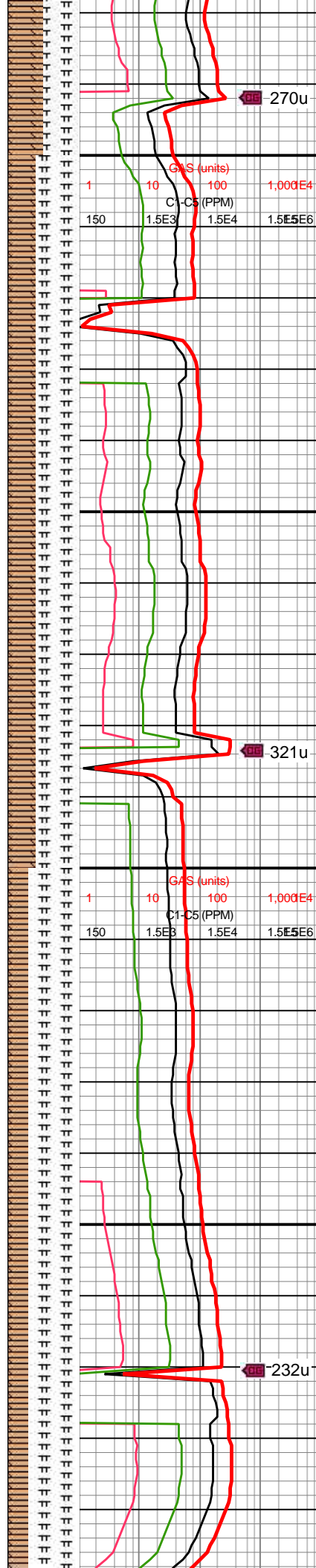
WOB: 14.3
RPM: 10
SPM: 198
SPP: 2,858

MD: 8,017'
INC: 83.54°
AZM: 180.03°
TVD: 7,613.05'
VS: 461.92'

MD: 8,106'
INC: 87.41°
AZM: 181.44°
TVD: 7,620.07'
VS: 373.22'

MW: 9.9/9.8+
VIS: 42/41

MD: 8,195'
INC: 87.14°
AZM: 181.09°
TVD: 7,624.3'
VS: 284.35'

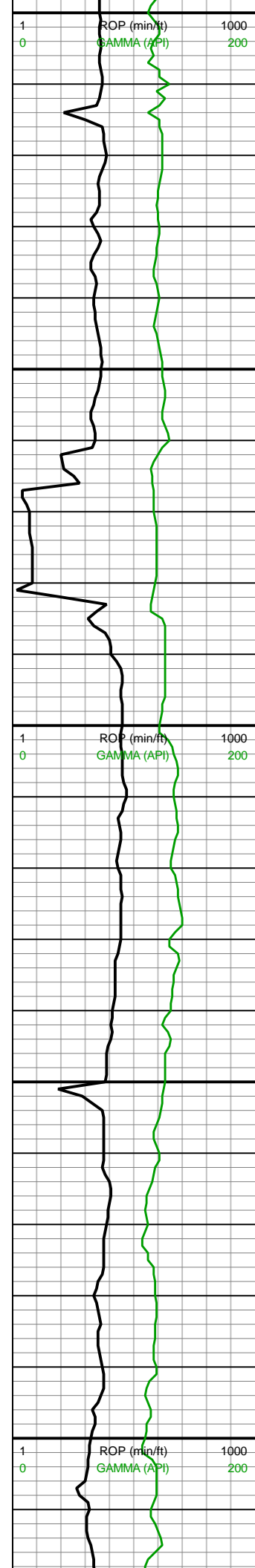


7950-8000 50% CHK: Lt-med gy, dk gy ip, vf, amor, sub blkly-blky, sft-frm, v calc; 50% MRLST: Dk gy-blk, sl hd-hd, sub blkly-sub plty, rthy, amor, mod calc

8000-8050 60% MRLST: Dk gy-blk, sl hd-hd, sub blkly-sub plty, rthy, amor, mod calc, pyr nod; 40% CHK: Lt-med gy, dk gy ip, vf, amor, sub blkly-blky, sft-frm, v calc, plty-brit free chk

8050-8100 60% MRLST: Dk gy-blk, sl hd-hd, sub blkly-sub plty, rthy, amor, mod calc, pyr nod; 40% CHK: Lt-med gy, dk gy ip, vf, amor, sub blkly-blky, sft-frm, v calc, plty-brit free chk

8100-8200 70% MRLST: Dk gy-blk, sl hd-hd, sub blkly-sub plty, rthy, amor, mod calc, pyr nod; 30% CHK: Lt-med gy, amor, sub blkly-blky, sft-frm, v

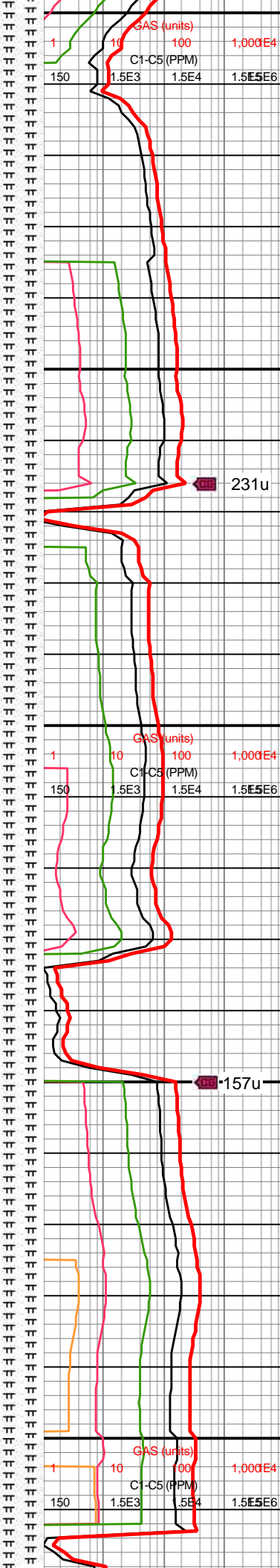


8,200
8,210
8,220
8,230
8,240
8,250
8,260
8,270
8,280
8,290
8,300
8,310
8,320
8,330
8,340
8,350
8,360
8,370
8,380
8,390
8,400
8,410

WOB: 32.5
RPM: 31
SPM: 189
SPP: 3,308

MD: 8,284'
INC: 88.81°
AZM: 180.21°
TVD: 7,627.45'
VS: 195.41'

WOB: 35.6
RPM: 61
SPM: 182
SPP: 3,298

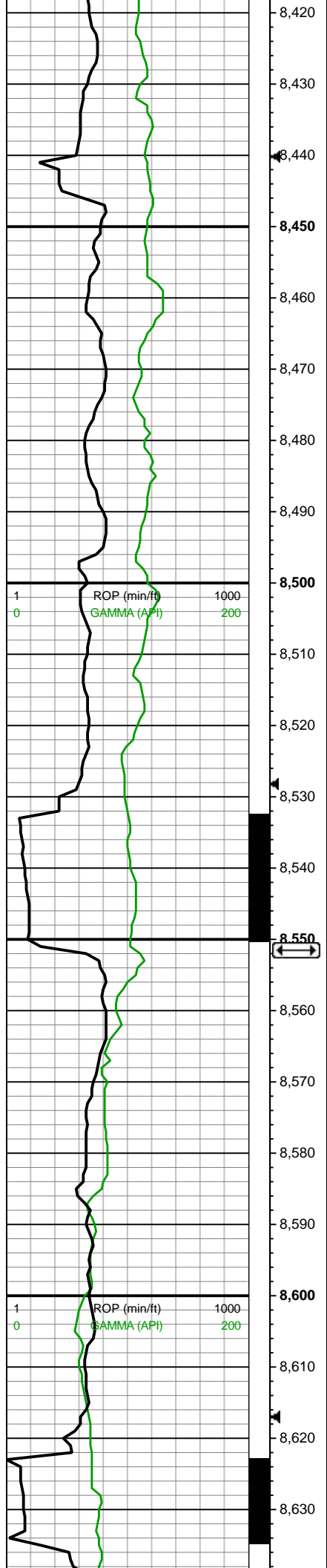


calc; LCM

8200-8300 80% MRLST: Dk gy-blk, sl hd-hd, sub blk-y-sub plty, rthy, amor, mod calc, pyr nod; 20% CHK: Lt-med gy, amor, sub blk-y-blky, sft-frm, v calc

8300-8400 75% MRLST: Dk gy-blk, sl hd-hd, sub blk-y-sub plty, rthy, amor, mod calc, pyr nod; 25% CHK: Lt-med gy, amor, sub blk-y-blky, sft-frm, v calc





MD: 8,463'
INC: 88.02°
AZM: 179.68°
TVD: 7,632.19'
VS: 16.48'

MW: 9.9/9.9
VIS: 42/41

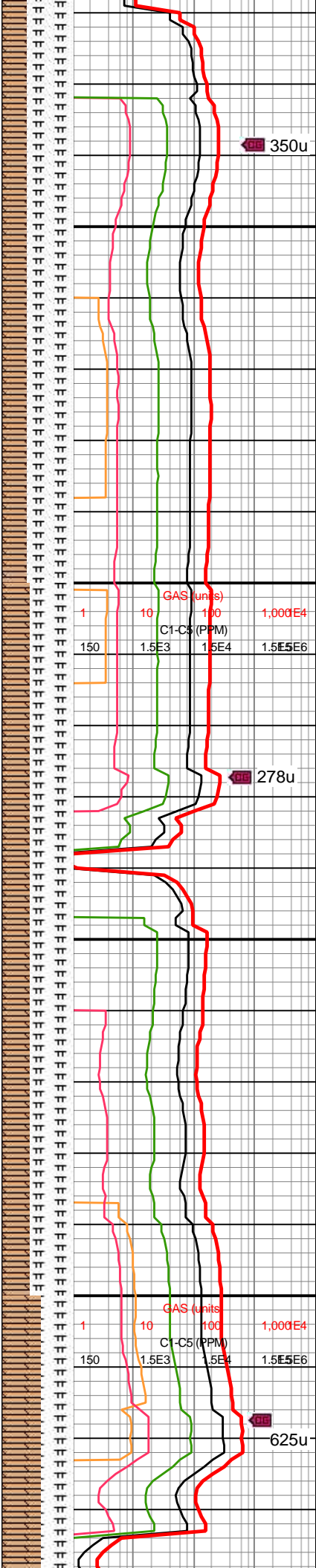
MM

MD: 8,552'
INC: 89.52°
AZM: 179.86°
TVD: 7,634.1'
VS: -72.5'

Nio C Chalk
7,634' TVD
8,553' MD

WOB: 35
RPM: 61
SPM: 184
SPP: 3,257

MD: 8,641'



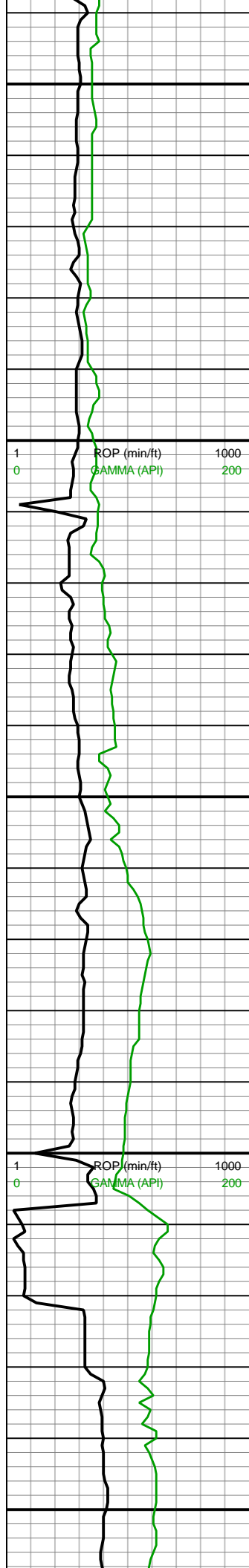
350u

8400-8500 65% MRLST: Dk
gy-blk, sl hd-hd, sub blk-sub
plty, rthy, amor, mod calc, pyr
nod; 35% CHK: Lt-med gy,
amor, sub blk-sub, sft-frm, v
calc, abnt free chk

278u

8500-8600 60% MRLST: Dk
gy-blk, sl hd-hd, sb blk-sub
plty, rthy, amor, mod calc, tr pyr
nod, tr chk incl ip; 40% CHK:
Lt-med gy, amor, sb blk-sub,
sft-frm, v calc, abnt free chk

625u



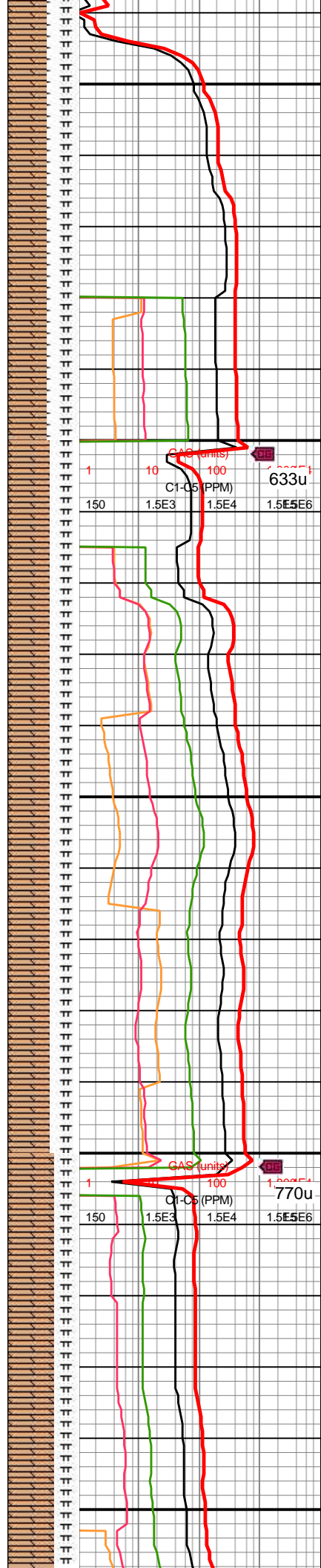
INC: 90.92°
AZM: 180.74°
TVD: 7,633.75'
VS: -161.49'

MW: 9.9/9.9
VIS: 42/41

MD: 8,730'
INC: 91.71°
AZM: 180.03°
TVD: 7,631.71'
VS: -250.47'

WOB: 26
RPM: 61
SPM: 180
SPP: 2,556

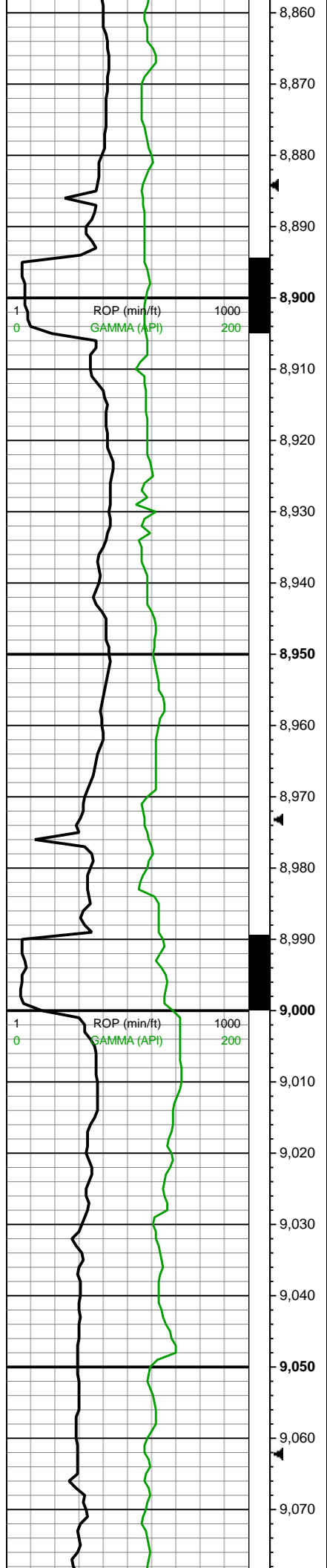
MD: 8,819'
INC: 91.45°
AZM: 181.44°
TVD: 7,629.26'
VS: -339.42'



8600-8700 55% CHK: Lt-med
gy, amor, sb blk-y-bkly, sft-frm, v
calc, abnt free chk; 45%
MRLST: Dk gy-blk, sl hd-hd, sb
blk-y-sb plty, rthy, amor, mod
calc, tr pyr nod, tr chk incl ip

8700-8800 60% CHK: Lt-med
gy, dull-chky tex, sb blk-y-bkly,
sft-frm, v calc, occ free chk;
40% MRLST: Dk gy-blk, sl
hd-hd, sb blk-y-sb plty, rthy tex,
amor, mod calc, tr chk incl ip



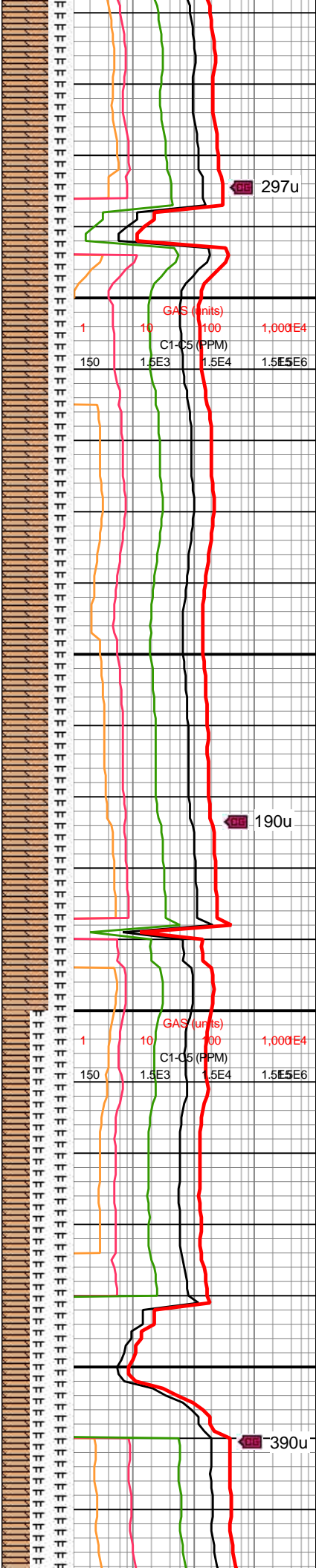


MD: 8,908'
INC: 88.9°
AZM: 180.03°
TVD: 7,628.99'
VS: -428.41'

MW: 10.0/10.0
VIS: 43/41

MD: 8,997'
INC: 90.04°
AZM: 179.16°
TVD: 7,629.81'
VS: -517.4'

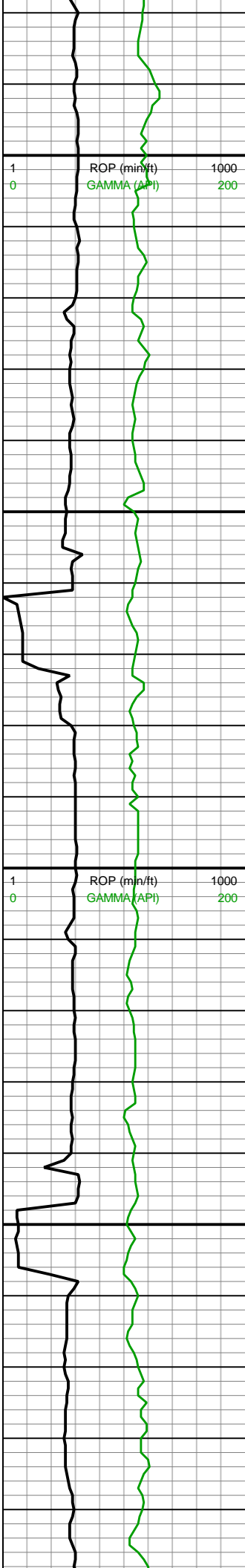
WOB: 19
RPM: 61
SPM: 184
SPP: 2,894



8800-8900 65% CHK: Lt-med
gy, dull-chky tex, sb blkly-blky,
sft frm, v calc, occ free chk;
35% MRLST: Dk gy-blk, sl
hd-hd, sb blkly-sb plty, rthy tex,
amor, mod calc, tr chk incl ip

8900-9000 65% CHK: Lt-med
gy, rthy-chky tex, sb blkly-blky,
sft frm, v calc, sme free chk;
35% MRLST: Dk gy-blk, sl
hd-hd, sb blkly-sb plty, dull tex,
amor, mod calc, tr chk incl ip





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
9,270
9,280
9,290

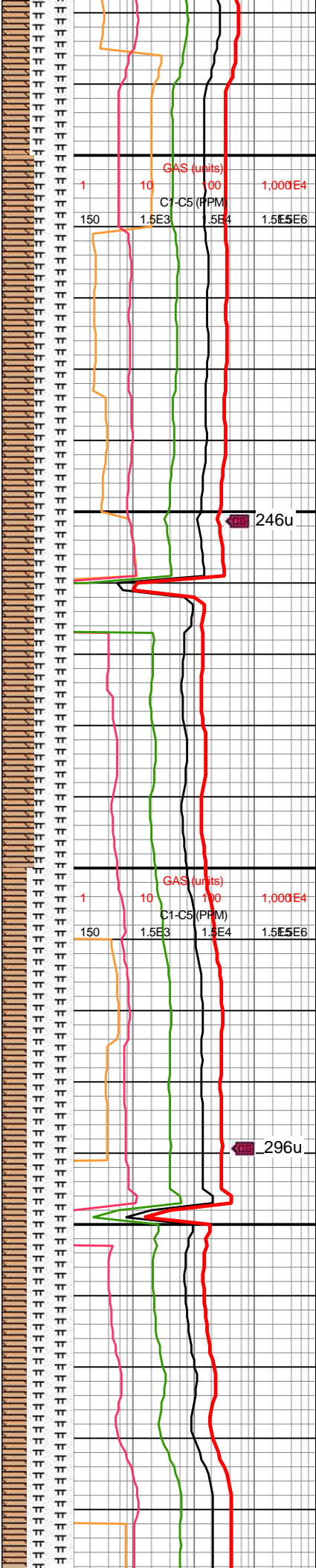
MD: 9,086'
INC: 90.4°
AZM: 179.16°
TVD: 7,629.47'
VS: -606.39'

MW: 10.0/10.0
VIS: 44/42

MD: 9,175'
INC: 91.63°
AZM: 181.09°
TVD: 7,627.89'
VS: -695.37'

WOB: 35
RPM: 61
SPM: 182
SPP: 3,236

MD: 9,265'
INC: 90.22°
AZM: 182.85°
TVD: 7,626.44'
VS: -785.3'

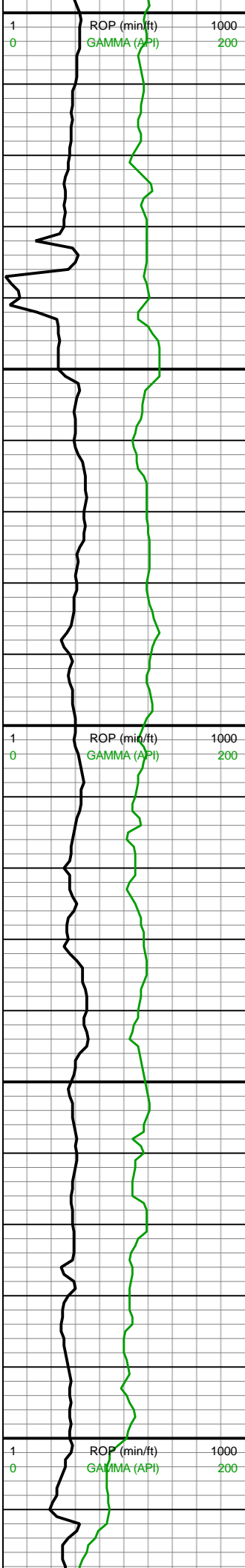


9000-9100 60% MRLST: Dk gy-blk, sl hd-hd, sb blk-y-sb plty, dull-rthy tex, amor, mod calc, tr chk incl ip; 40% CHK: Lt-med gy, rthy-chky tex, sb blk-y-blky, sft-frm, sl hd ip, v calc, occ free chk

9100-9200 55% MRLST: Dk gy-blk, sl hd-hd, sb blk-y-sb plty, dull-rthy tex, amor, mod calc, tr chk incl ip; 45% CHK: Lt-med gy, rthy-chky tex, sb blk-y-blky, sft-frm, sl hd ip, v calc, occ free chk

9200-9300 65% MRLST: Dk gy-blk, sl hd-hd, sb blk-y-sb plty, dull-rthy tex, amor, mod calc, tr chk incl ip; 35% CHK: Lt-med gy, rthy-chky tex, sb blk-y-blky, sft-frm, sl hd ip, v calc, occ free chk





9,300
9,310
9,320
9,330
9,340
9,350
9,360
9,370
9,380
9,390
9,400
9,410
9,420
9,430
9,440
9,450
9,460
9,470
9,480
9,490
9,500
9,510

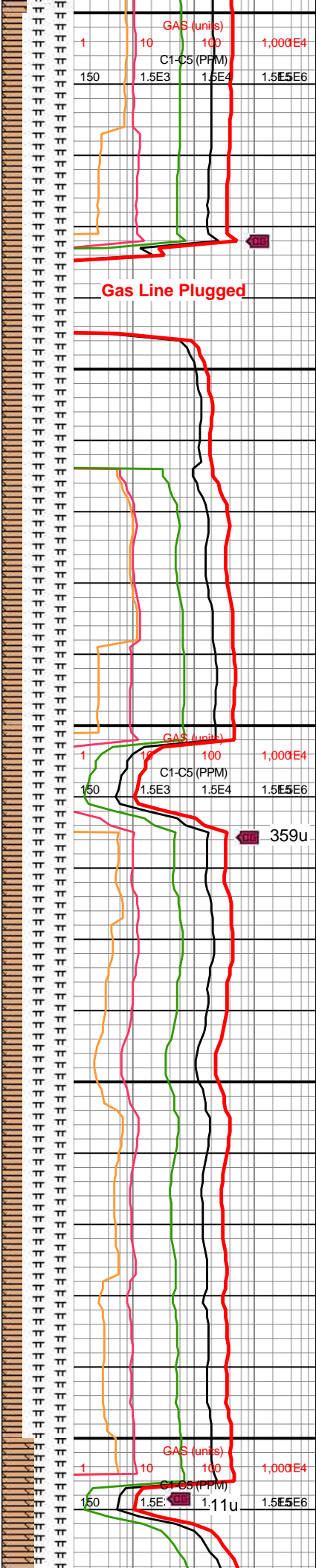
MW: 10.0/10.0
VIS: 44/42

MD: 9,354'
INC: 89.43°
AZM: 182.14°
TVD: 7,626.71'
VS: -874.21'

WOB: 34
RPM: 61
SPM: 182
SPP: 3,158

MD: 9,443'
INC: 89.25°
AZM: 181.79°
TVD: 7,627.73'
VS: -963.15'

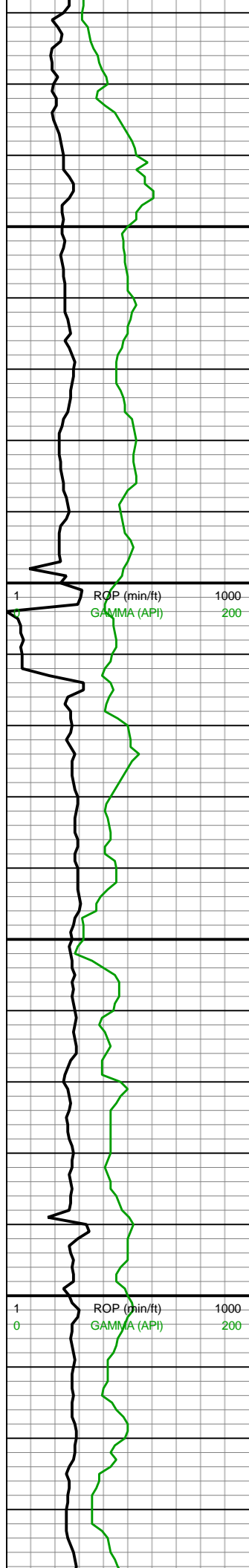
MW: 10.0/10.0
VIS: 44/42



9300-9400 75% MRLST: Dk gy-blk, sl hd-hd, sb blk-y-sb plty, dull-rthy tex, amor, mod calc, abnt chk incl; 25% CHK: Lt-med gy, rthy-chky tex, sb blk-y-blky, frm-sl hd, v calc, occ free chk

9400-9500 75% MRLST: Dk gy-blk, sl hd-hd, sb blk-y-sb plty, dull-rthy tex, amor, mod calc, abnt chk incl; 25% CHK: Lt-med gy, rthy-chky tex, sb blk-y-blky, frm-sl hd, v calc, occ free chk





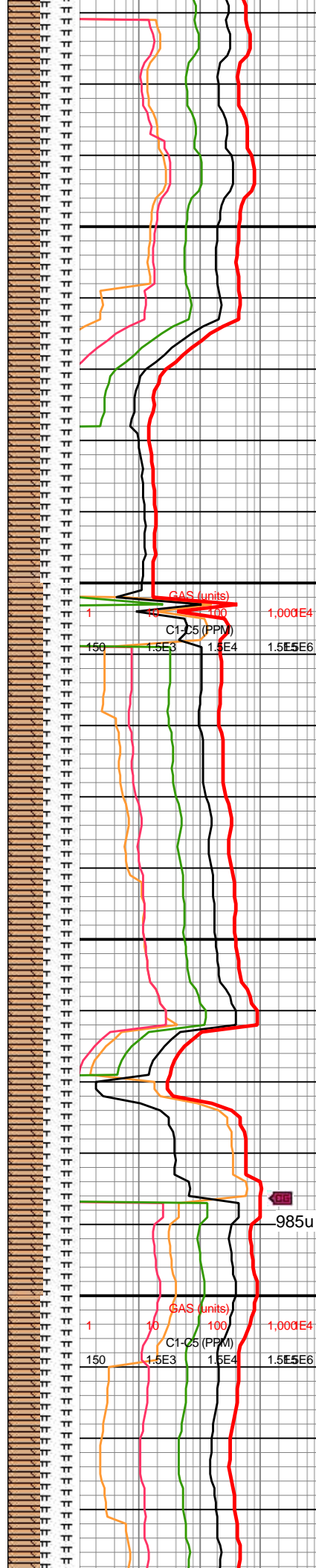
MD: 9,532'
INC: 88.29°
AZM: 181.09°
TVD: 7,629.64'
VS: -1,052.1'

WOB: 26
RPM: 61
SPM: 183
SPP: 2,847

MD: 9,621'
INC: 89.52°
AZM: 180.39°
TVD: 7,631.35'
VS: -1,141.08'

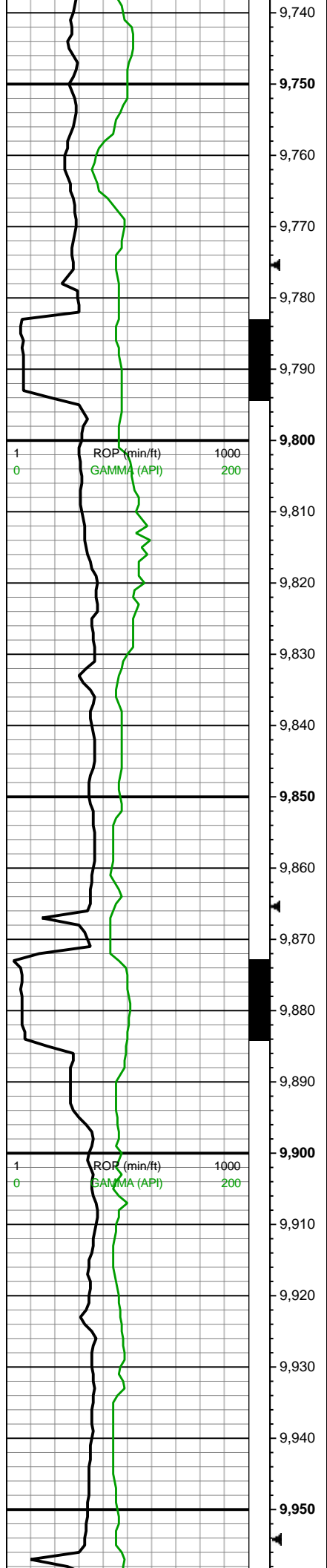
MW: 10.0/10.0
VIS: 44/42

MD: 9,710'
INC: 87.76°
AZM: 179.51°
TVD: 7,633.46'
VS: -1,230.05'



9500-9600 55% MRLST: Dk
gy-blk, sl hd-hd, sb blkly-sb plty,
rthy tex, amor, mod calc, abnt
chk incl; 45% CHK: Lt-med gy,
rthy-chky tex, sb blkly-blky,
sft frm, v calc, occ free chk

9600-9700 50% MRLST: Dk
gy-blk, sl hd-hd, sb blkly-sb plty,
dull tex, amor, mod calc, abnt
chk incl; 50% CHK: Lt-med gy,
rthy-chky tex, sb blkly-blky,
sft frm, sl hd ip, v calc, occ
free chk

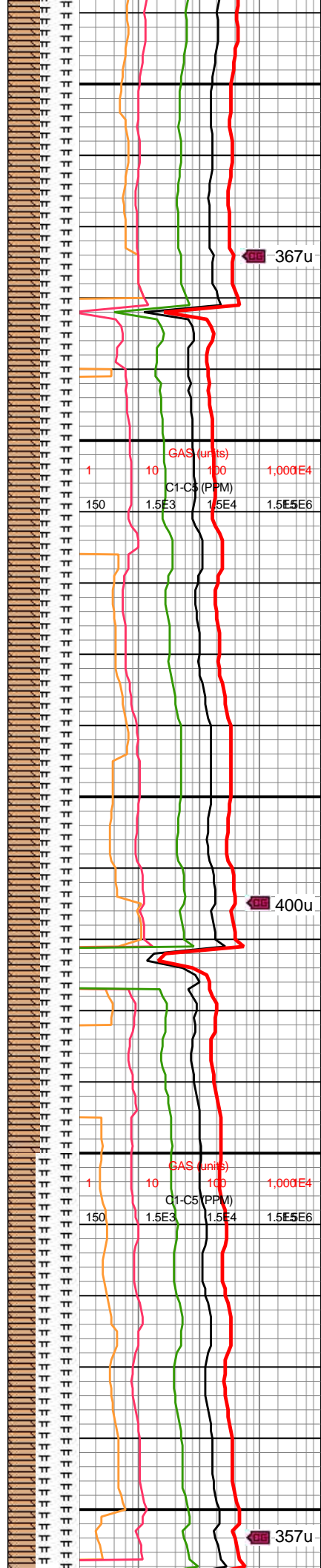


WOB: 32
RPM: 54
SPM: 183
SPP: 3,262

MD: 9,799'
INC: 88.37°
AZM: 178.98°
TVD: 7,636.46'
VS: -1,318.99'

MW: 10.0/10.0
VIS: 44/42

MD: 9,889'
INC: 89.6°
AZM: 178.98°
TVD: 7,638.06'
VS: -1,408.96'



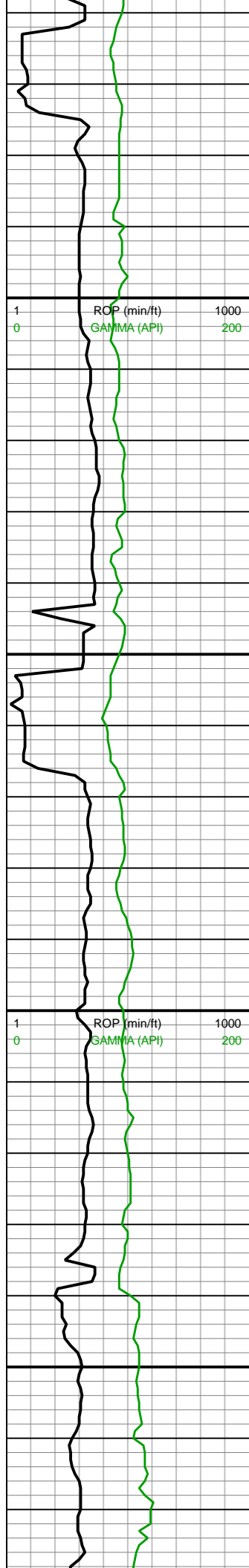
367u

9700-9800 55% MRLST: Dk
gy-blk, sl hd-hd, sb blkly-sb plty,
dull tex, amor, mod calc, abnt
chk incl; 45% CHK: Lt-med gy,
rthy-chky tex, sb blkly-blky,
sft frm, v calc, occ free chk

400u

9800-9900 55% MRLST: Dk
gy-blk, sl hd-hd, sb blkly-sb plty,
dull tex, amor, mod calc, abnt
chk incl; 45% CHK: Lt-med gy,
rthy-chky tex, sb blkly-blky,
sft frm, v calc, occ free chk

357u



MD: 9,978'
INC: 90.22°
AZM: 179.86°
TVD: 7,638.2'
VS: -1,497.95'

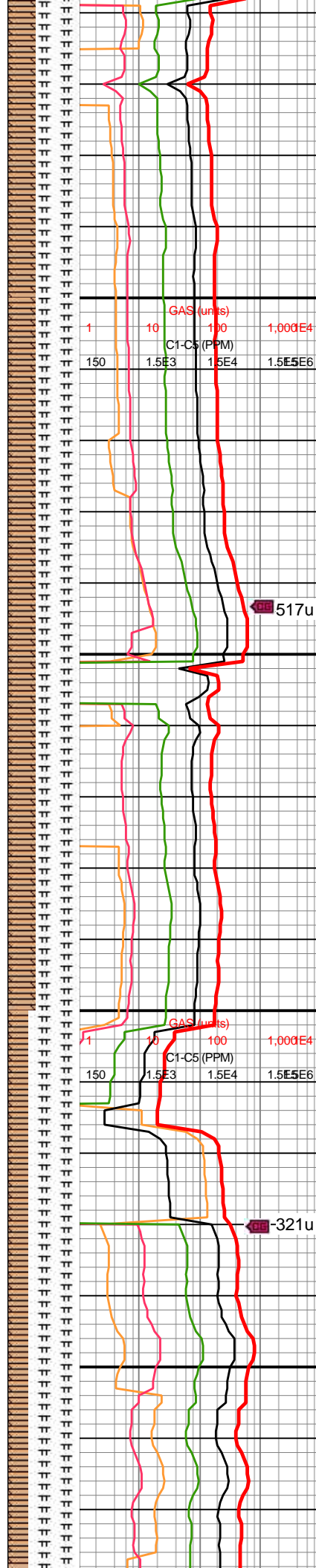
MW: 10.0/10.0
VIS: 43/42

WOB: 34
RPM: 32
SPM: 182
SPP: 3,318

MD: 10,067'
INC: 90.4°
AZM: 180.56°
TVD: 7,637.72'
VS: -1,586.95'

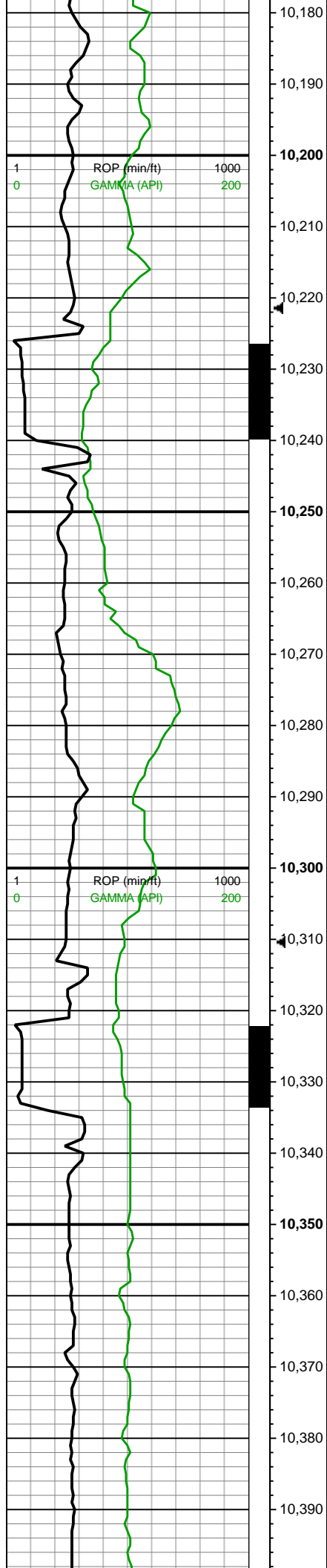
MD: 10,156'
INC: 89.6°
AZM: 179.86°
TVD: 7,637.72'
VS: -1,675.95'

MW: 10.0/10.0
VIS: 43/41



9900-10000 60% MRLST: Dk
gy-blk, sl hd-hd, sb blkly-sb plty,
dull-rthy tex, amor, mod calc,
occ chk incl; 40% CHK:
Lt-med gy, rthy-chky tex, sb
blkly-blky, sft-frm, v calc, tr free
chk

10000-10100 60% MRLST: Dk
gy-blk, sl hd-hd, sb blkly-sb plty,
dull-rthy tex, amor, mod calc,
occ chk incl; 40% CHK:
Lt-med gy, rthy-chky tex, sb
blkly-blky, sft-frm, sm hd ip, v
calc, tr free chk



WOB: 35
RPM: 61
SPM: 183
SPP: 3,314

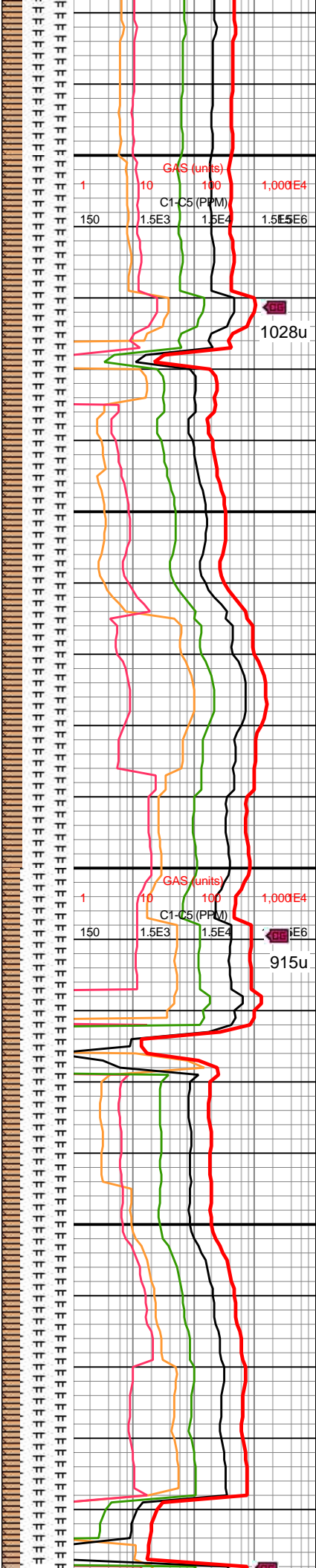
MD: 10,245'
INC: 90.66°
AZM: 180.39°
TVD: 7,637.51'
VS: -1,764.94'

MW: 10.0/10.0
VIS: 43/41

GD

MD: 10,334'
INC: 91.28°
AZM: 180.74°
TVD: 7,636.01'
VS: -1,853.93'

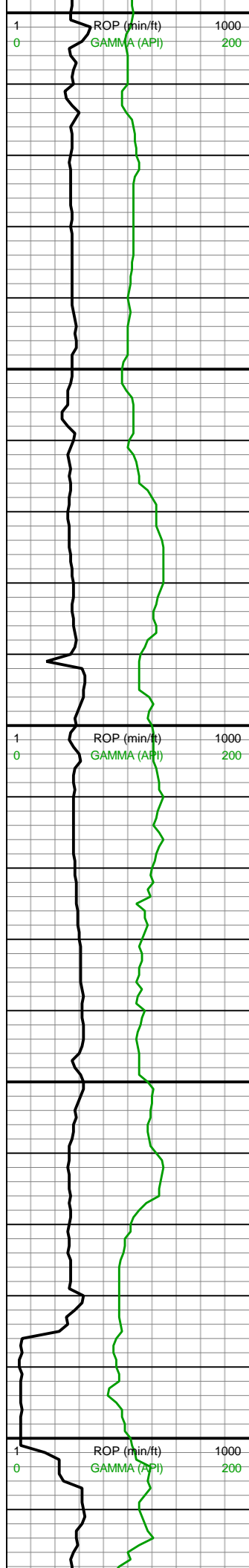
WOB: 34.6



10100-10200 70% MRLST: Dk
gy-blk, sl hd-hd, v hd ip, sb
blky-sb plty, dull-rthy tex,
amor, mod calc, occ chk incl;
30% CHK: Lt-med gy,
rthy-chky tex, sb blky-blky,
sft-frm, v calc, rr free chk

10200-10300 70% MRLST: Dk
gy-blk, sl hd-v hd, sb blky-sb
plty, rthy tex, amor, mod calc,
abnt chk incl; 30% CHK:
Lt-med gy, rthy-chky tex, sb
blky-blky, sft-frm, v calc, rr free
chk

10300-10400 75% MRLST: Dk
gy-blk, sl hd-v hd, sb blky-sb
plty, rthy tex, amor, mod calc,
abnt intbd chk; 25% CHK:
Lt-med gy, rthy-chky tex, sb
blky-blky, sft-frm, v calc, bri
free chk: ICM



RPM: 61
SPM: 180
SPP: 3,113

MD: 10,423'
INC: 91.45°
AZM: 179.68°
TVD: 7,633.89'
VS: -1,942.9'

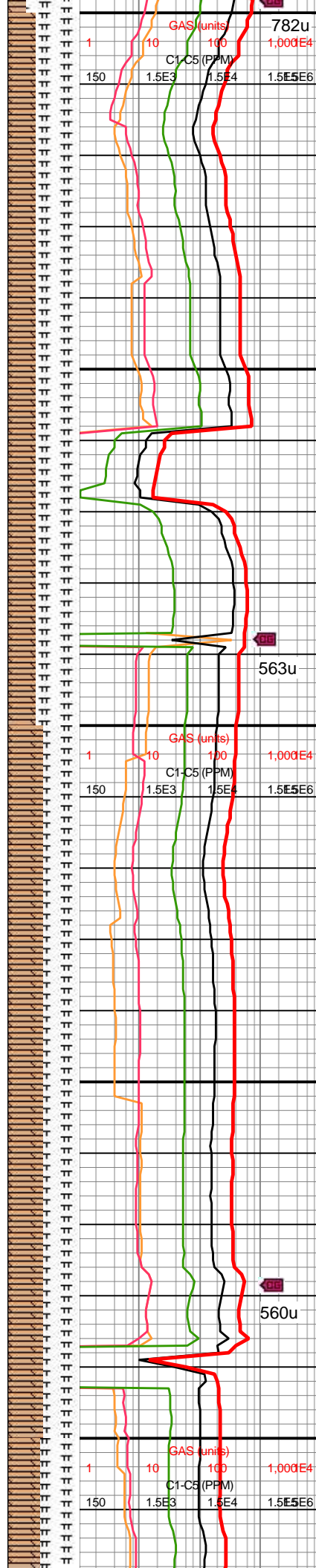
MW: 10/10
VIS: 43/41

MD: 10,512'
INC: 90.92°
AZM: 177.75°
TVD: 7,632.05'
VS: -2,031.85'

MW: 10/10
VIS: 42/40

WOB: 40.2
RPM: 43
SPM: 182
SPP: 2,753

MD: 10,602'
INC: 92.07°
AZM: 179.33°
TVD: 7,629.7'
VS: -2,121.79'



782u

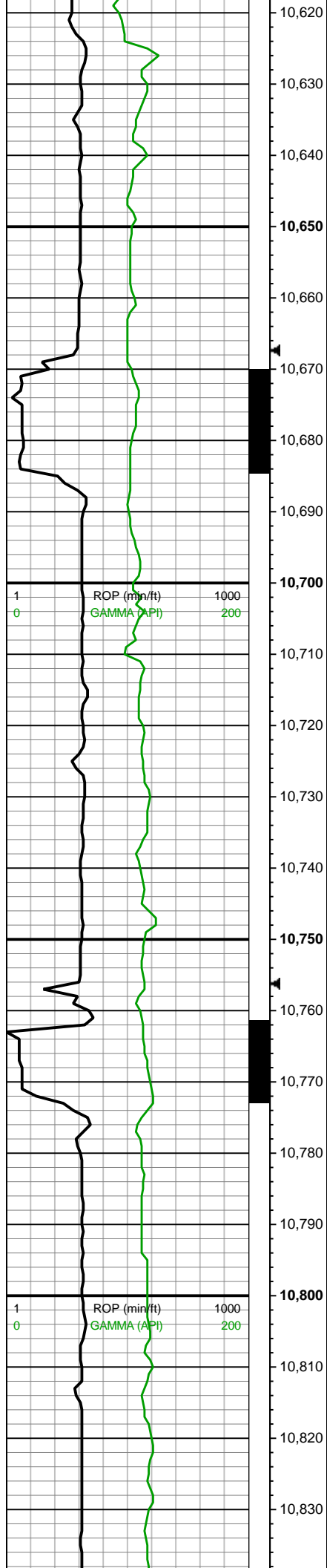
563u

560u

10400-10500 60% MRLST: Dk gy-blk, sl hd-v hd, sb blk-y-sb plty, rthy tex, amor, mod calc, abnt intbd chk; 40% CHK: Lt-med gy, rthy-chky tex, sb blk-y-blky, sft frm, v calc, bri free chk

10500-10600 50% MRLST: Dk gy-blk, sl hd-v hd, sb blk-y-sb plty, rthy tex, amor, mod calc, abnt intbd chk; 50% CHK: Lt-med gy, rthy-chky tex, sb blk-y-blky, sft frm, v calc, bri free chk



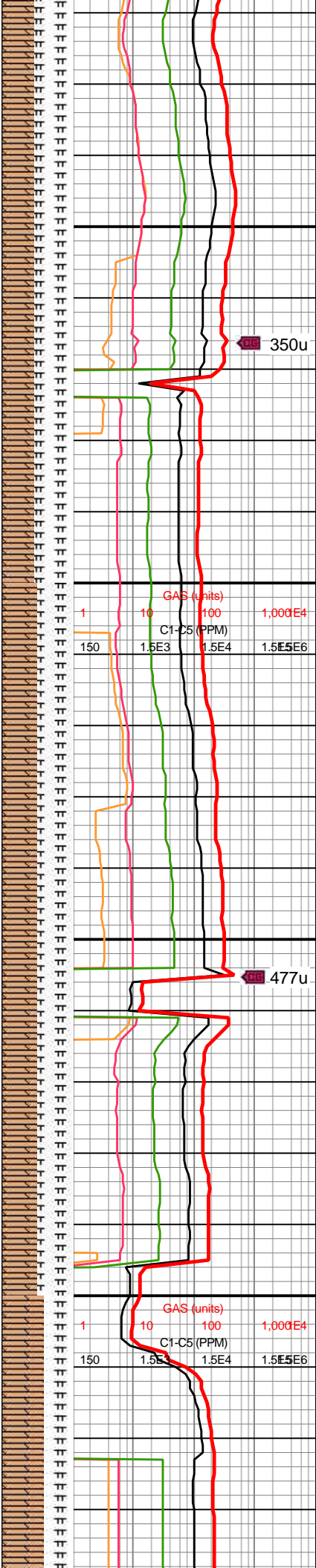


MD: 10,691'
INC: 92.77°
AZM: 181.62°
TVD: 7,625.94'
VS: -2,210.7'

MW: 10/10
VIS: 41/40

MD: 10,780'
INC: 91.19°
AZM: 182.32°
TVD: 7,622.86'
VS: -2,299.59'

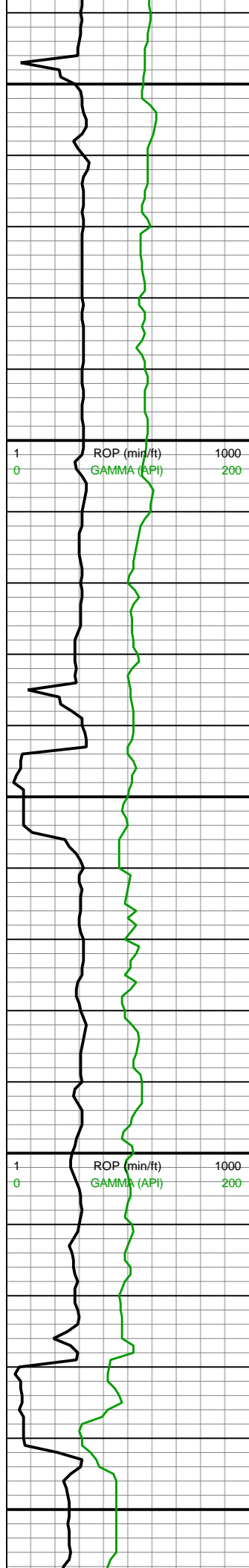
WOB: 33.4
RPM: 61
SPM: 182
SPP: 3,240



10600-10700 55% MRLST: Dk gy-blk, sl hd-v hd, sb blk-y-sb plty, rthy tex, amor, mod calc, abnt intbd chk; 45% CHK: Lt-med gy, rthy-chky tex, sb blk-y-blky, sft-frm, v calc, bri free chk

10700-10800 50% MRLST: Dk gy-blk, sl hd-v hd, sb blk-y-sb plty, rthy tex, amor, mod calc, abnt intbd chk; 50% CHK: Lt-med gy, rthy-chky tex, sb blk-y-blky, sft-frm, v calc, bri free chk





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
11,040
11,050

MD: 10,869'
INC: 91.01°
AZM: 182.14°
TVD: 7,621.16'
VS: -2,388.51'

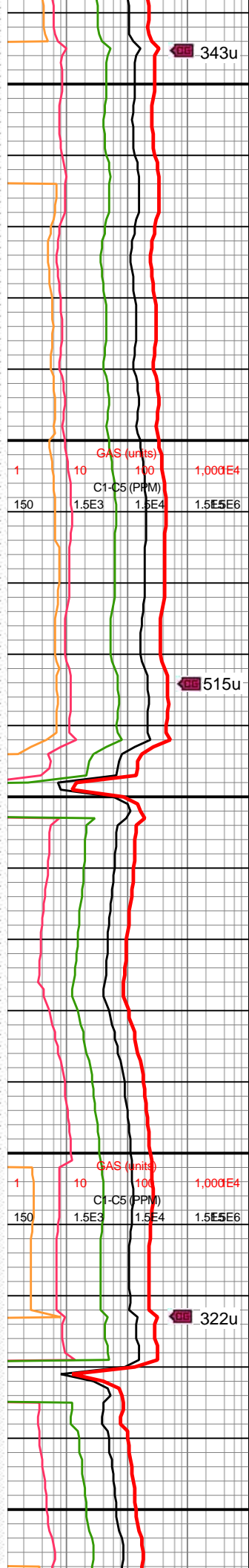
MW: 10/10
VIS: 41/40

MD: 10,958'
INC: 89.25°
AZM: 182.14°
TVD: 7,620.95'
VS: -2,477.44'

WOB: 35.5
RPM: 61
SPM: 184
SPP: 3,353

MW: 10/10
VIS: 41/40

MD: 11,047'
INC: 88.02°
AZM: 180.21°
TVD: 7,623.07'
VS: -2,566.39'



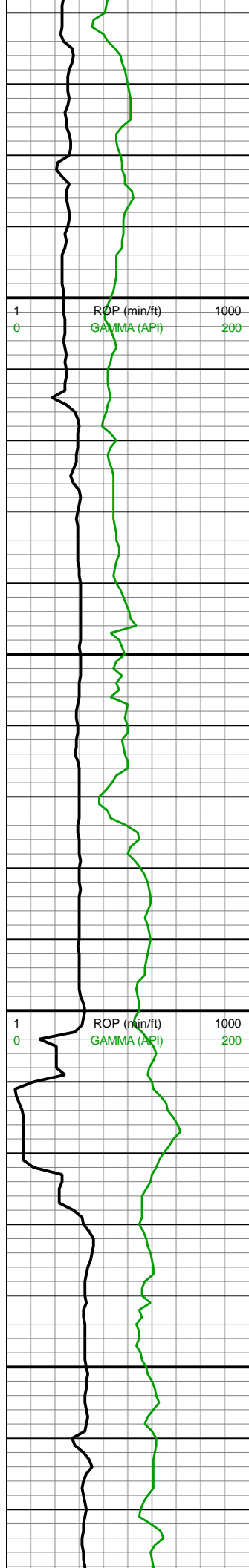
343u

10800-10900 60% CHK:
Lt-med gy, rthy-chky tex, sb
blky-blky, sft frm, v calc, sme
free chk; 40% MRLST: Dk
gy-blk, sl hd-v hd, sb blky-sb
plty, rthy tex, amor, mod calc,
abnt intbd chk

515u

10900-11000 70% CHK:
Lt-med gy, rthy-chky tex, sb
blky-blky, sft frm, v calc, sme
free chk; 30% MRLST: Dk
gy-blk, sl hd-v hd, sb blky-sb
plty, rthy tex, amor, mod calc,
abnt intbd chk

322u



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
11,260
11,270

MW: 10/10
VIS: 41/40

MD: 11,137'
INC: 87.14°
AZM: 179.68°
TVD: 7,626.87'
VS: -2,656.31'

WOB: 33.2
RPM: 61
SPM: 184
SPP: 3,318

MD: 11,226'
INC: 88.2°
AZM: 178.45°
TVD: 7,630.49'
VS: -2,745.22'

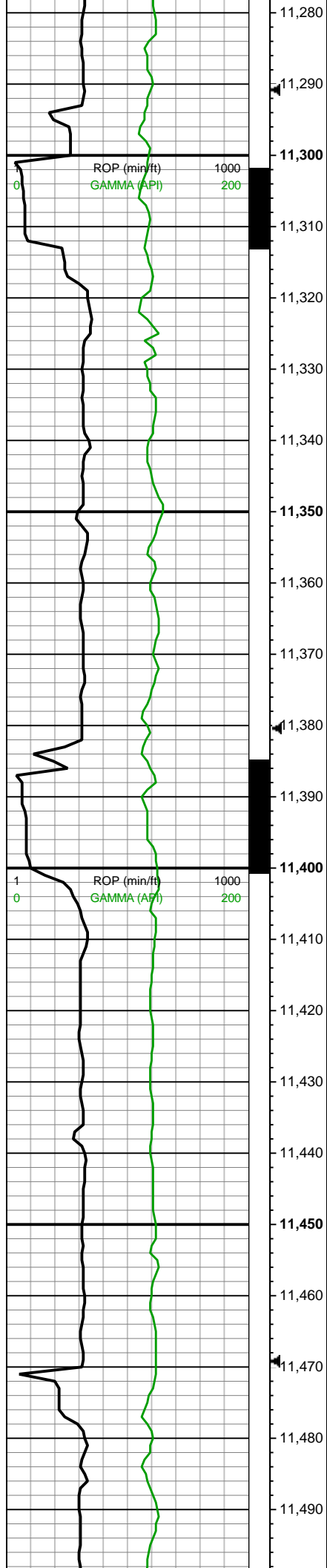
MW: 10.0+10.0
VIS: 41/40



11000-11100 80% CHK:
Lt-med gy, rthy-chky tex, sb
blky-blky, sft frm, v calc, sme
free chk; 20% MRLST: Dk
gy-blk, sl hd-v hd, sb blky-sb
plty, rthy tex, amor, mod calc,
abnt intbd chk

11100-11200 60% CHK:
Lt-med gy, rthy-chky tex, sb
blky-blky, sft frm, v calc, sme
free chk; 40% MRLST: Dk
gy-blk, sl hd-v hd, sb blky-sb
plty, rthy tex, amor, mod calc,
abnt intbd chk





MD: 11,315'
INC: 88.81°
AZM: 178.45°
TVD: 7,632.81'
VS: -2,834.16'

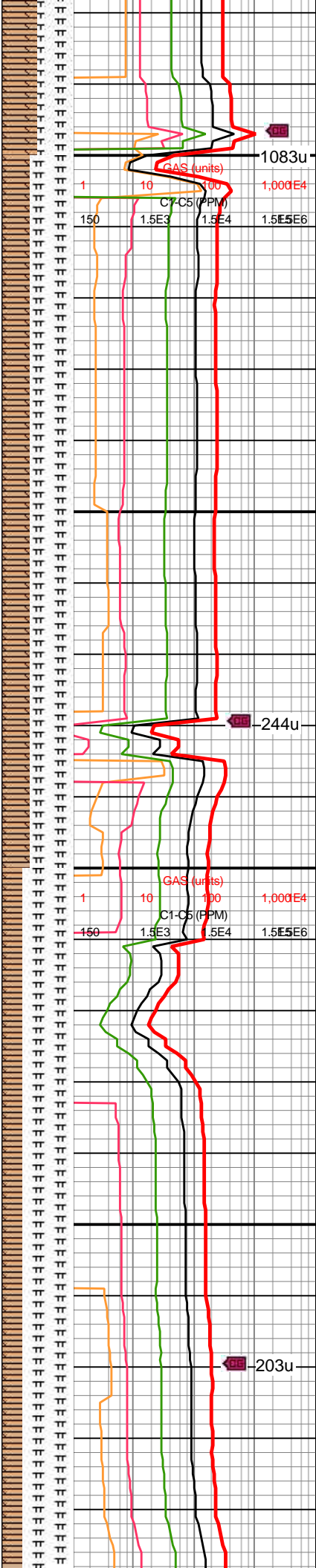
WOB: 14.8
RPM: 61
SPM: 184
SPP: 3,036

MINDEPTH 03/07/2020

MD: 11,404'
INC: 89.52°
AZM: 179.51°
TVD: 7,634.11'
VS: -2,923.13'

MW: 10.1/10.0+
VIS: 41/40

MD: 11,493'
INC: 88.9°
AZM: 178.8°
TVD: 7,635.34'
VS: -3,012.11'



11200-11300 50% CHK:
Lt-med gy, rthy-chky tex, sb
blky-blky, sft-frm, v calc, sme
free chk; 50% MRLST: Dk
gy-blk, sl hd-v hd, sb blky-sb
plty, rthy tex, amor, mod calc,
abnt intbd chk

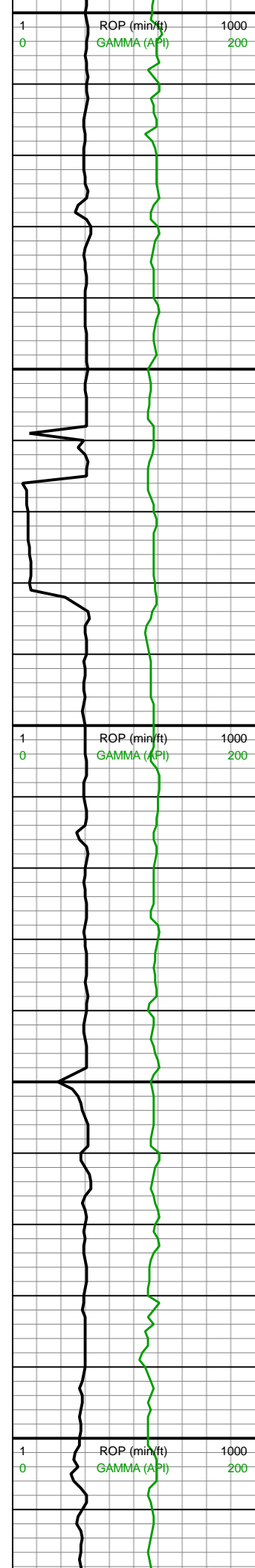
1083u

11300-11400 60% MRLST: Dk
gy-blk, sl hd-v hd, sb blky-sb
plty, rthy tex, amor, mod calc,
abnt intbd chk; 40% CHK:
Lt-med gy, rthy-chky tex, sb
blky-blky, sft-frm, v calc, sme
free chk

-244u

11400-11500 70% MRLST: Dk
gy-blk, sl hd-v hd, sb blky-sb
plty, rthy tex, amor, mod calc,
abnt intbd chk; 30% CHK:
Lt-med gy, rthy-chky tex, sb
blky-blky, sft-frm, v calc, sme
free chk

-203u



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
11,690
11,700
11,710

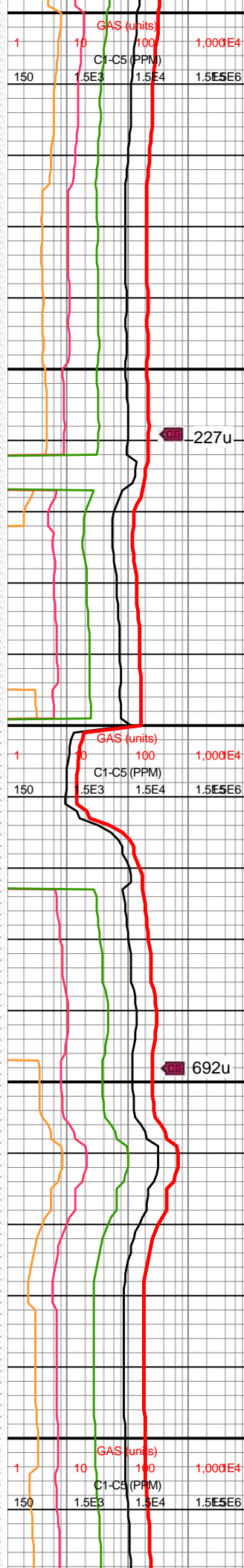
VS: -3,012.11'

MD: 11,582'
INC: 89.96°
AZM: 179.16°
TVD: 7,636.22'
VS: -3,101.09'

WOB: 33.9
RPM: 61
SPM: 184
SPP: 3,476

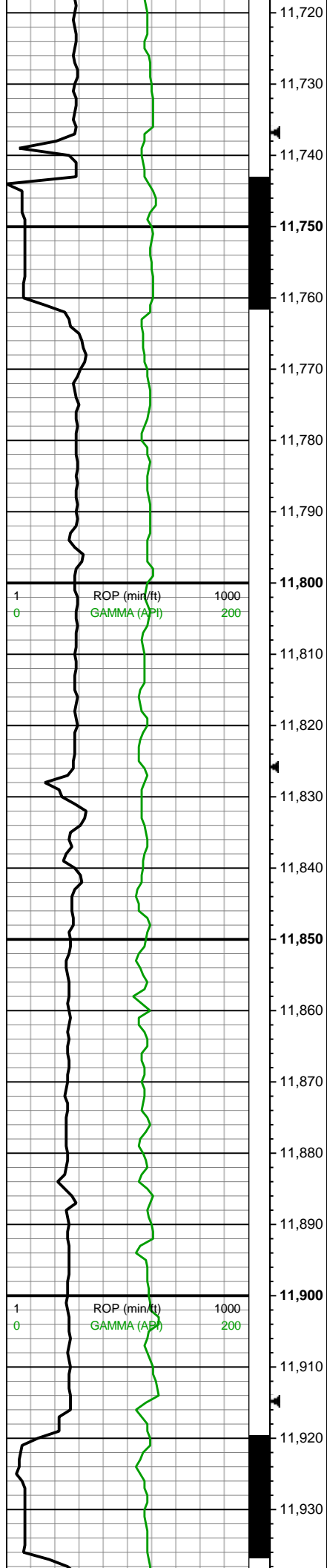
MW: 10.1/10.1
VIS: 41/39

MD: 11,671'
INC: 89.43°
AZM: 178.28°
TVD: 7,636.7'
VS: -3,190.07'



11500-11600 50% MRLST: Dk gy-blk, sl hd-v hd, sb blk-ly-sb plty, rthy tex, amor, mod calc, abnt intbd chk, tr pyr; 50% CHK: Lt-med gy, rthy-chky tex, sb blk-ly-blky, sft-frm, v calc, tr free chk

11600-11700 60% MRLST: Dk gy-blk, sl hd-v hd, sb blk-ly-sb plty, rthy tex, amor, mod calc, abnt intbd chk, tr pyr; 40% CHK: Lt-med gy, rthy-chky tex, sb blk-ly-blky, sft-frm, v calc, tr free chk



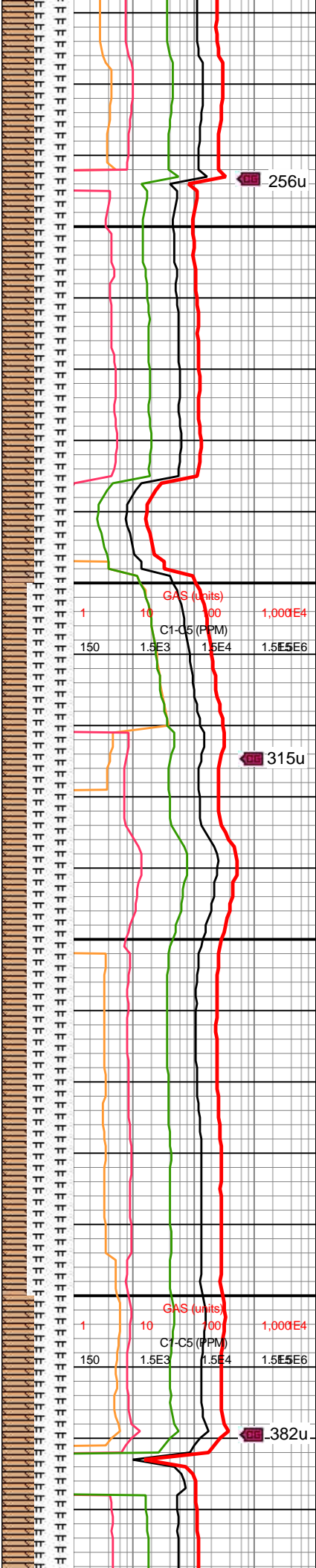
MD: 11,760'
INC: 90.04°
AZM: 179.86°
TVD: 7,637.11'
VS: -3,279.05'

WOB: 34.7
RPM: 61
SPM: 184
SPP: 3,430

MD: 11,849'
INC: 89.87°
AZM: 179.16°
TVD: 7,637.18'
VS: -3,368.05'

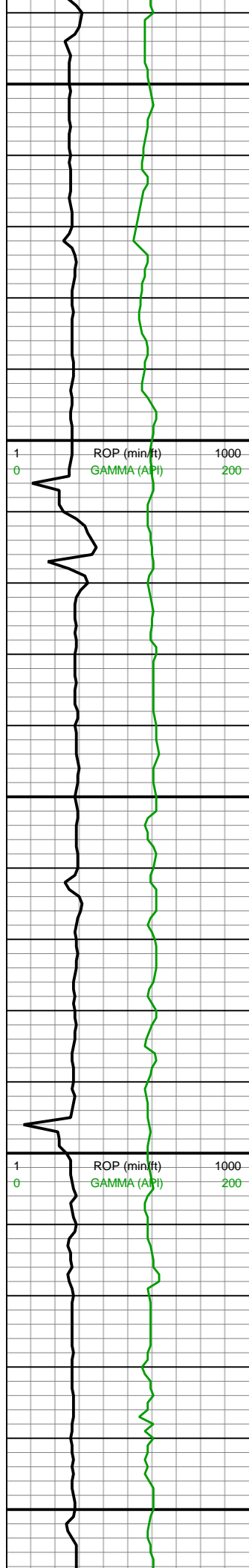
MW: 10.1/10.1
VIS: 41/39

MD: 11,939'
INC: 90.31°



11700-11800 55% MRLST: Dk
gy-blk, sl hd-v hd, sb blk-
sb plty, rthy tex, amor, mod calc,
abnt intbd chk, tr pyr; 45%
CHK: Lt-med gy, rthy-chky tex,
sb blk-blk, sft frm, v calc, tr
free chk

11800-11900 65% MRLST: Dk
gy-blk, sl hd-v hd, sb blk-
sb plty, rthy tex, amor, mod calc,
abnt intbd chk, tr pyr; 35%
CHK: Lt-med gy, rthy-chky tex,
sb blk-blk, sft frm, v calc, tr
free chk



AZM: 180.21°
TVD: 7,637.04'
VS: -3,458.05'

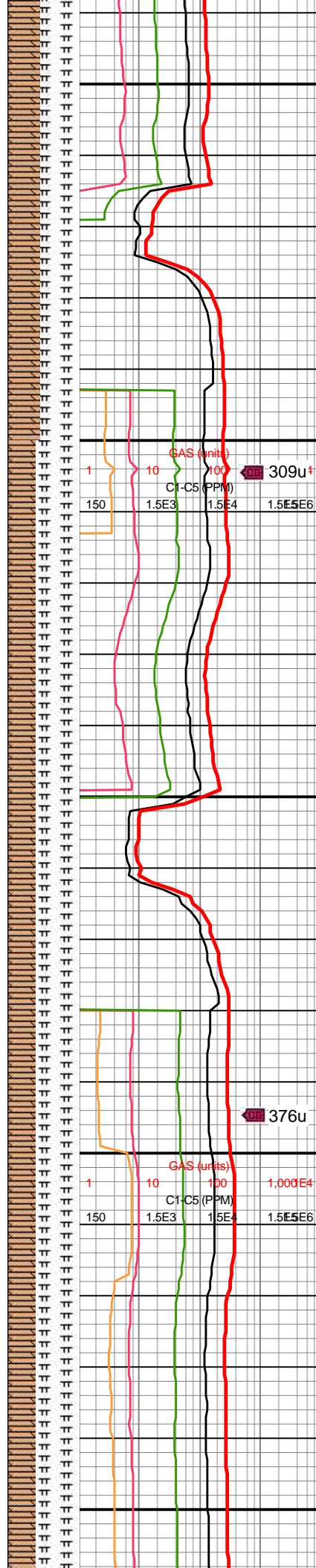
MW: 10.1/10.1
VIS: 42/41

WOB: 34.2
RPM: 61
SPM: 184
SPP: 3,384

MD: 12,028'
INC: 90.04°
AZM: 180.21°
TVD: 7,636.77'
VS: -3,547.05'

MD: 12,117'
INC: 89.52°
AZM: 179.33°
TVD: 7,637.11'
VS: -3,636.04'

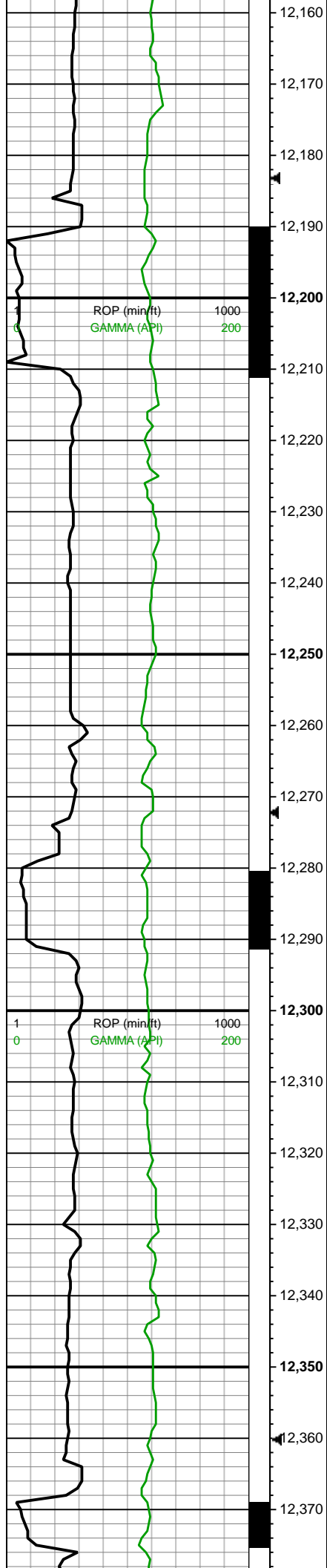
MW: 10.1/10.1



11900-12000 55% MRLST: Dk
gy-blk, sl hd-v hd, sb blk-
sb plty, rthy tex, amor, mod
calc, abnt intbd chk, tr pyr;
45%
CHK: Lt-med gy, rthy-chky tex,
sb blk-blk, sft frm, v calc, tr
free chk

12000-12100 60% MRLST: Dk
gy-blk, sl hd-v hd, sb blk-
sb plty, rthy tex, amor, mod
calc, abnt intbd chk, tr pyr;
40%
CHK: Lt-med gy, rthy-chky tex,
sb blk-blk, sft frm, v calc, tr
free chk





VIS: 42/40

WOB: 17.1
RPM: 0
SPM: 184
SPP: 2,914

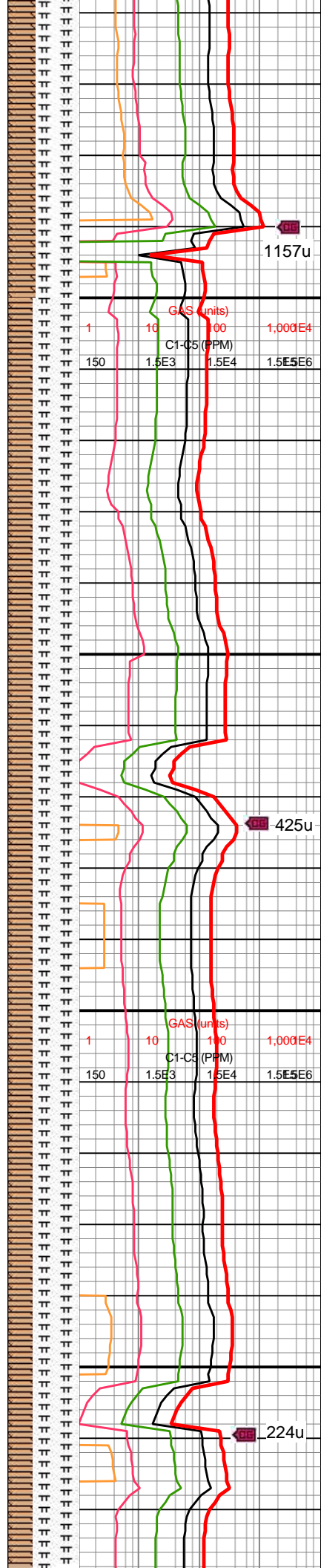
MD: 12,206'
INC: 90.22°
AZM: 180.03°
TVD: 7,637.31'
VS: -3,725.04'

MM

MW: 10.1/10.1
VIS: 42/40

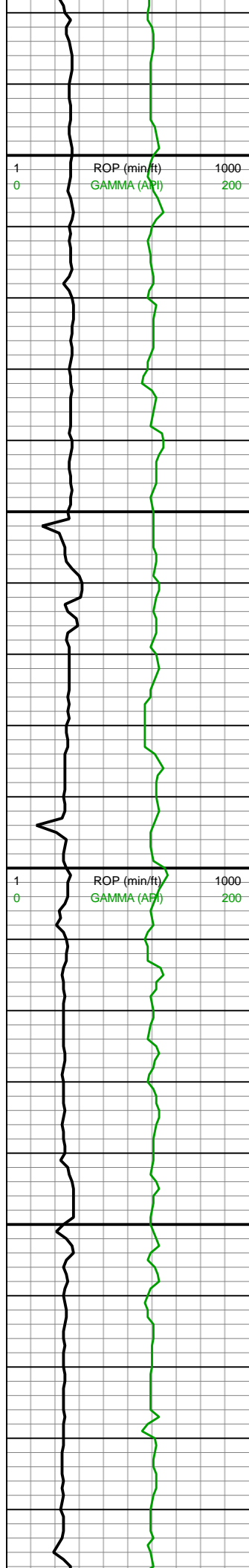
MD: 12,295'
INC: 89.43°
AZM: 181.26°
TVD: 7,637.58'
VS: -3,814.03'

MD: 12,384'



12100-12200 60% MRLST: Dk gy-blk, sl hd-v hd, sb blk-ly-sb plty, rthy tex, amor, mod calc, abnt intbd chk, tr pyr; 40% CHK: Lt-med gy, rthy-chky tex, sb blk-ly-blky, sft frm, v calc, tr free chk

12200-12300 65% MRLST: Dk gy-blk, sl hd-v hd, sb blk-ly-sb plty, rthy tex, amor, mod calc, abnt intbd chk; 35% CHK: Lt-med gy, rthy-chky tex, sb blk-ly-blky, sft frm, v calc, tr free chk



MD: 12,384'
INC: 88.55°
AZM: 181.44°
TVD: 7,639.15'
VS: -3,902.99'

WOB: 35
RPM: 61
SPM: 180
SPP: 3,403

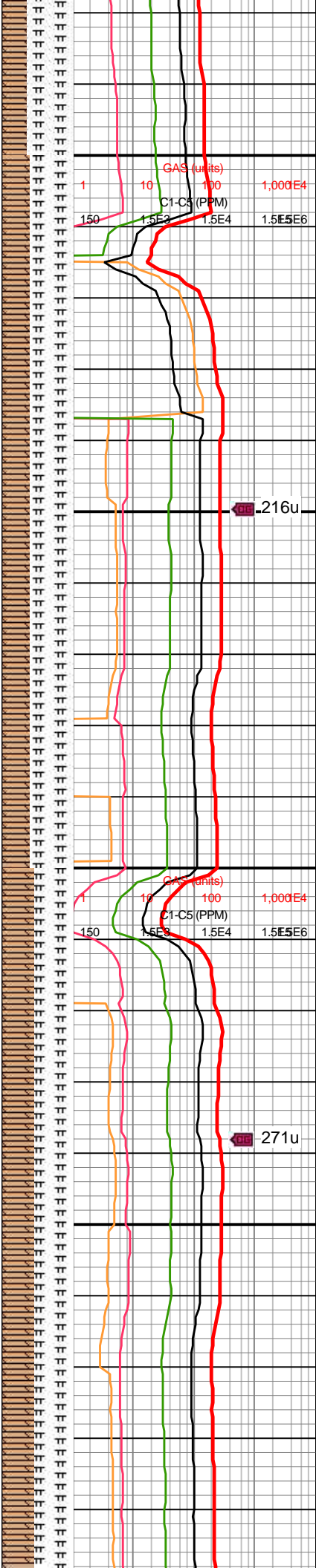
12,380
12,390
12,400
12,410
12,420
12,430
12,440
12,450
12,460
12,470
12,480
12,490
12,500
12,510
12,520
12,530
12,540
12,550
12,560
12,570
12,580
12,590

MD: 12,474'
INC: 88.02°
AZM: 181.26°
TVD: 7,641.84'
VS: -3,992.93'

MW: 10.1/10.1
VIS: 42/40

MD: 12,563'
INC: 87.58°
AZM: 180.39°
TVD: 7,645.26'
VS: -4,081.85'

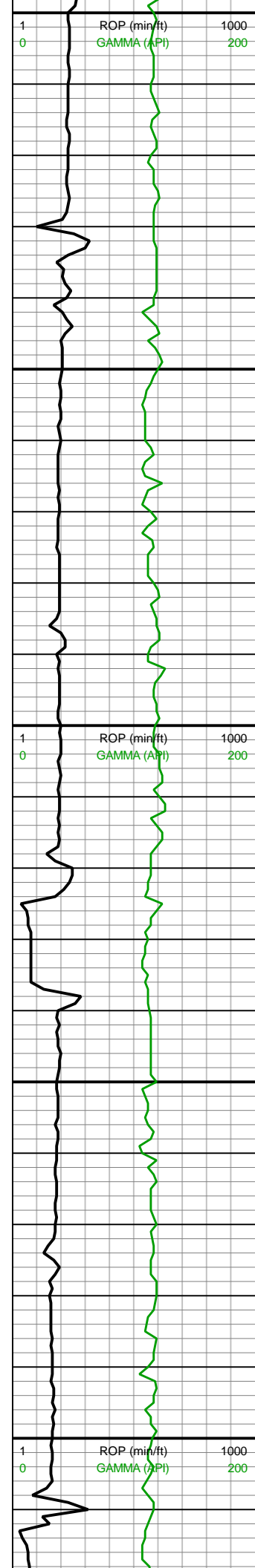
WOB: 35



12300-12400 65% MRLST: Dk
gy-blk, sl hd-v hd, sb blk-ly-sb
ply, dull-rthy tex, amor, mod
calc, occ-abnt intbd chk; 35%
CHK: Lt-med gy, rthy-chky tex,
sb blk-ly-blky, frm-sl hd, v calc,
tr free chk

12400-12500 60% MRLST: Dk
gy-blk, sl hd-v hd, sb blk-ly-sb
ply, dull tex, amor, mod calc,
occ intbd chk; 40% CHK:
Lt-med gy, rthy-chky tex, sb
blk-ly-blky, frm-sl hd, sft ip, v
calc, tr free chk

12500-12600 55% MRLST: Dk
gy-blk, sl hd-v hd, sb blk-ly-sb
ply, dull tex, amor, mod calc,
occ intbd chk; 45% CHK:
Lt-med gy, rthy-chky tex, sb



RPM: 61
SPM: 184
SPP: 3,450

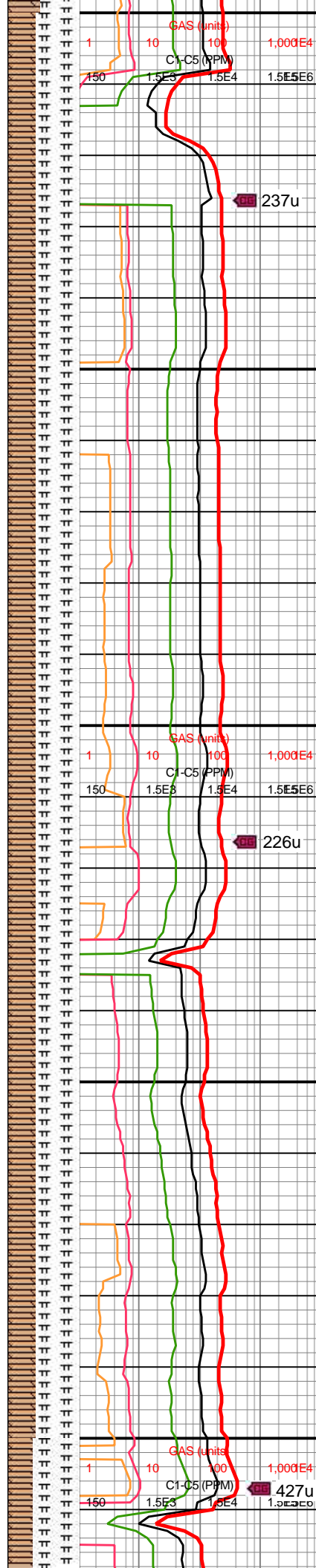
MD: 12,652'
INC: 87.05°
AZM: 179.86°
TVD: 7,649.43'
VS: -4,170.75'

MW: 10.1/10.1
VIS: 43/41

MD: 12,741'
INC: 87.41°
AZM: 180.56°
TVD: 7,653.73'
VS: -4,259.65'

WOB: 35
RPM: 61
SPM: 183
SPP: 3,291

MW: 10.1/10.1
VIS: 43/41



blkly-blky, frm-sl hd, v calc, tr
free chk

237u

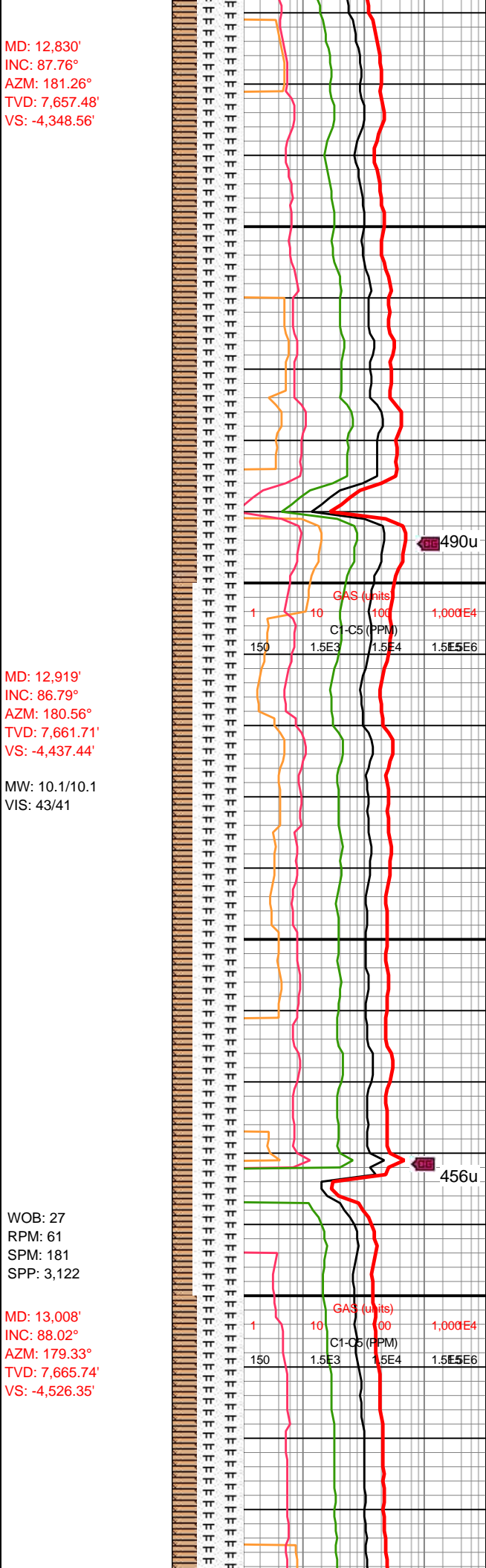
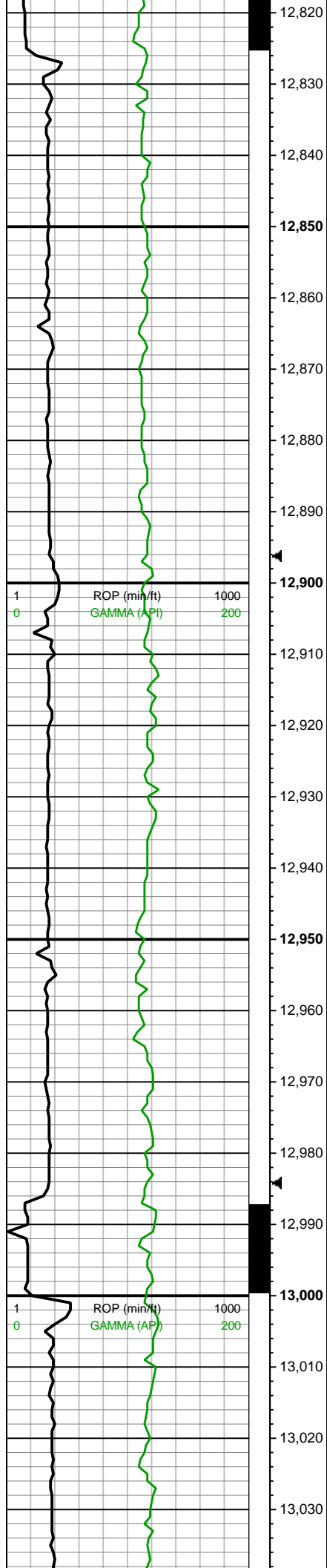
226u

427u

12600-12700 60% MRLST: Dk gy-blk, sl hd-v hd, sb blkly-sb plty, dull-rthy tex, amor, mod calc, occ chk incl; 40% CHK: Lt-med gy, rthy-chky tex, sb blkly-blky, frm-sl hd, v calc

12700-12800 60% MRLST: Dk gy-blk, sl hd-v hd, sb blkly-sb plty, rthy tex, amor, mod calc, occ chk incl, tr f pyr; 40% CHK: Lt-med gy, rthy-chky tex, sb blkly-blky, frm-sl hd, v calc



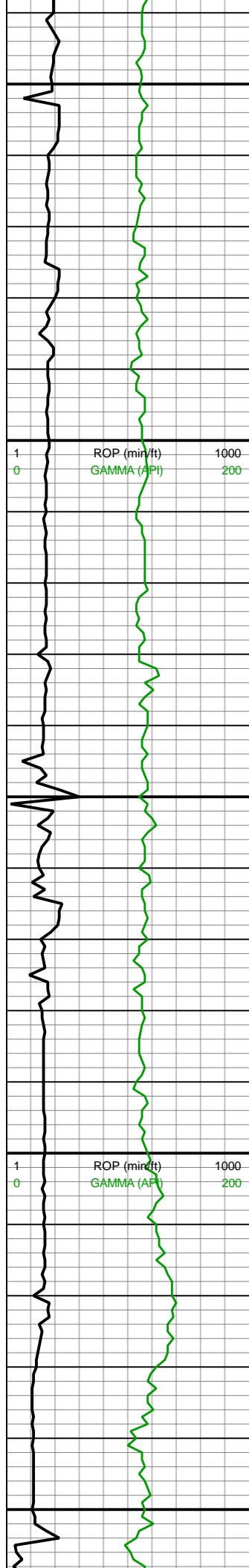


12800-12900 65% MRLST: Dk
gy-blk, sl hd-v hd, sb blk-
sb plty, rthy tex, amor, mod
calc, occ chk incl; 35% CHK:
Lt-med gy, rthy-chky tex, sb
blk-ylky, frm-sl hd, v calc



12900-13000 70% MRLST: Dk
gy-blk, hd-v hd, sb blk-
sb plty, dull-rthy tex, amor,
mod calc, occ chk incl; 30%
CHK: Lt-med gy, rthy-chky
tex, sb blk-ylky, frm-sl hd,
v calc





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
13,240
13,250

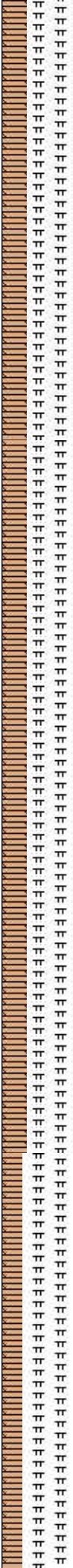
MW: 10.1/10.1
VIS: 43/41

MD: 13,097'
INC: 88.55°
AZM: 179.51°
TVD: 7,668.41'
VS: -4,615.3'

MW: 10.1/10.1
VIS: 43/41

MD: 13,187'
INC: 87.85°
AZM: 178.28°
TVD: 7,671.23'
VS: -4,705.24'

WOB: 35
RPM: 61
SPM: 180
SPP: 3,185



GAS (units)
C1-C5 (PPM)
1 10 100 1,000E4
150 1.5E3 1.5E4 1.5E5E6

912u

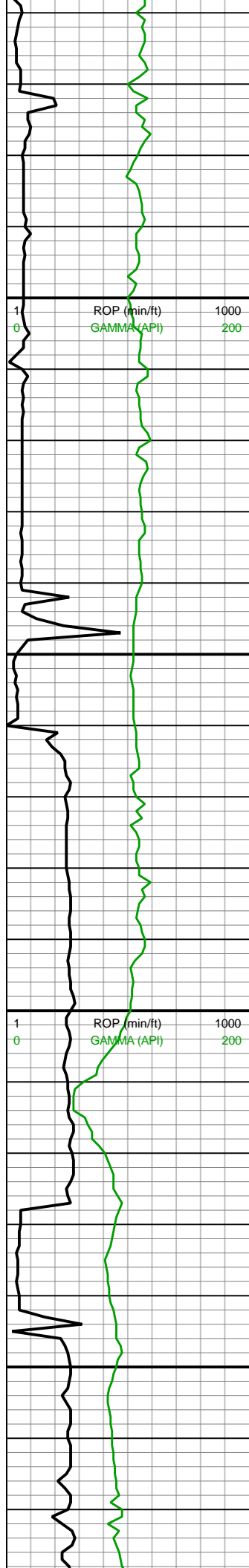
13000-13100 65% MRLST: Dk
gy-blk, hd-v hd, sb blk-ly-sb plty,
dull-rthy tex, amor, mod calc,
occ-abnt chk incl; 35% CHK:
Lt-med gy, rthy-chky tex, sb
blk-ly-blky, frm-sl hd, v calc

527u

13100-13200 65% MRLST: Dk
gy-blk, hd-v hd, sb blk-ly-sb plty,
rthy tex, amor, mod calc,
occ-abnt chk incl, tr pp pyr;
35% CHK: Lt-med gy,
rthy-chky tex, sb blk-ly-blky,
frm-sl hd, v calc

GAS (units)
C1-C5 (PPM)
1 10 100 1,000E4
150 1.5E3 1.5E4 1.5E5E6

481u



MW: 10.1/10.1
VIS: 43/41

MD: 13,278'
INC: 88.64°
AZM: 178.8°
TVD: 7,674.02'
VS: -4,796.17'

TOOH for Bit

MINDEPTH 3/8/2020

Bit #: 2
Type: U516M
Size: 8.5
Depth In: 13,341'
Depth Out: 15,094'
Hours: 8.9 hrs
Avg Ft/Hr: 197 '/hr
Jets: 6x13
S/N: 51010

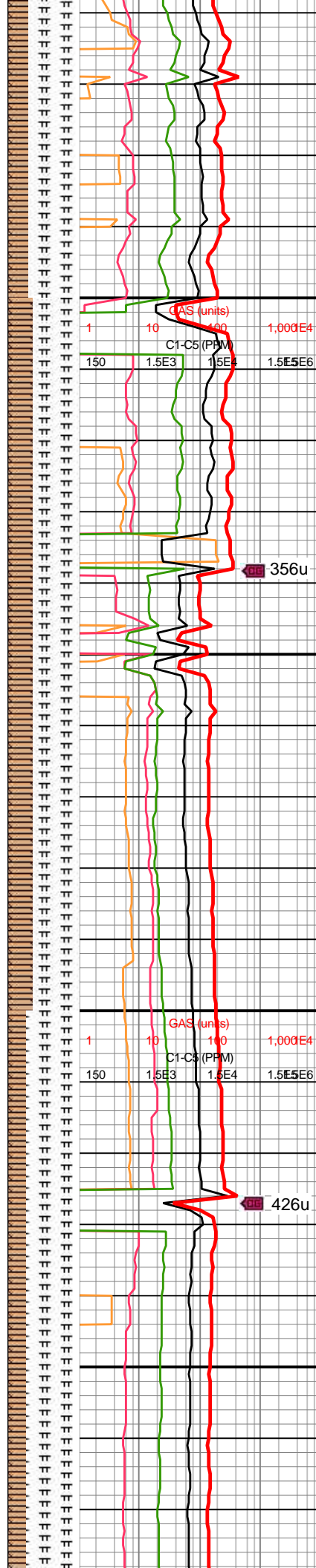
On Gas Buster

MD: 13,367'
INC: 92.42°
AZM: 180.74°
TVD: 7,673.2'
VS: -4,885.14'

WOB: 35
RPM: 0
SPM: 182
SPP: 3,717

MW: 10.3/10.2
VIS: 46/43

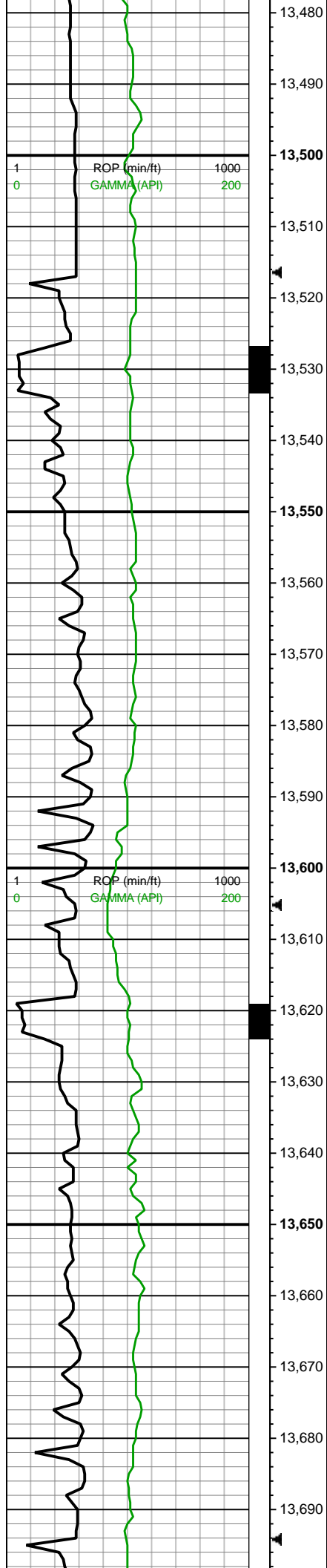
MD: 13,456'
INC: 90.22°
AZM: 181.44°
TVD: 7,671.15'
VS: -4,974.1'



13200-13300 70% MRLST: Dk gy-blk, hd-v hd, sb blkly-sb plty, dull-rthy tex, amor, mod calc, occ-abnt chk incl; 30% CHK: Lt-med gy, rthy-chky tex, sb blkly-blky, frm-sl hd, v calc

13300-13400 65% MRLST: Dk gy-blk, hd-v hd, sb blkly-sb plty, sl fiss, dull-rthy tex, amor, mod calc, abnt chk incl; 35% CHK: Lt-med gy-lt bnshgy, rthy-chky tex, sb blkly-blky, frm-sl hd, v calc, abnt free chk





MW: 10.3/10.3
VIS: 45/43

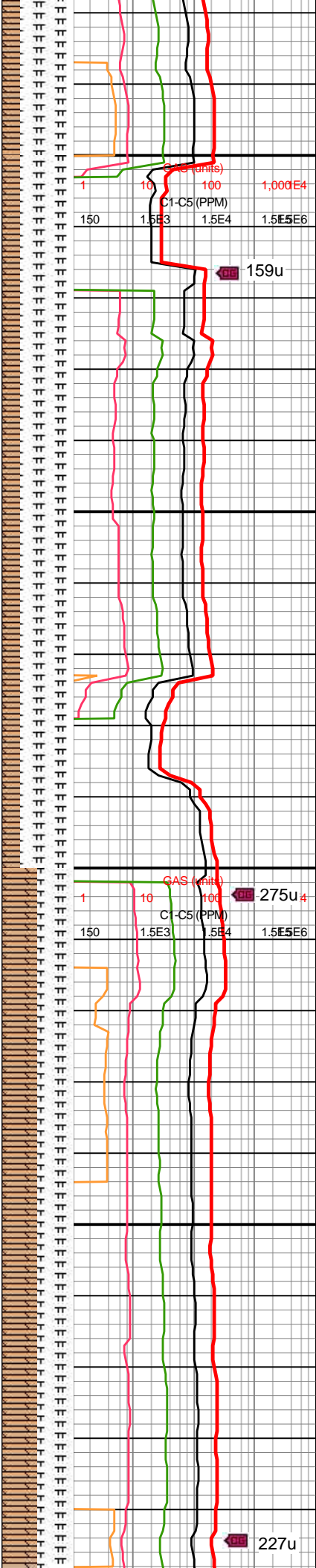
MD: 13,545'
INC: 88.99°
AZM: 180.91°
TVD: 7,671.76'
VS: -5,063.07'

MW: 10.3/10.3
VIS: 44/42

WOB: 31
RPM: 61
SPM: 180
SPP: 3,738

MD: 13,634'
INC: 88.72°
AZM: 181.26°
TVD: 7,673.54'
VS: -5,152.04'

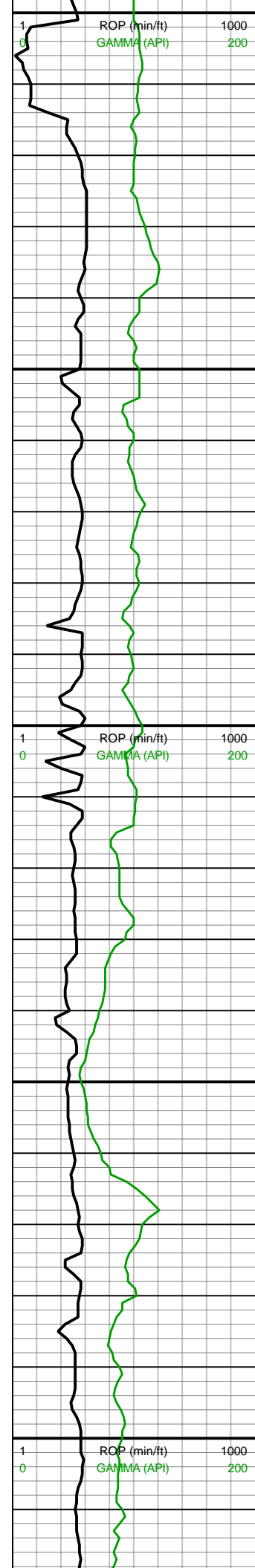
MW: 10.3/10.3
VIS: 44/42



13400-13500 75% MRLST: Dk
gy-blk, hd-v hd, sb blk-y-sb plty,
sl fiss, rthy tex, amor, mod
calc, occ chk incl, tr f pp pyr;
25% CHK: Lt-med gy-lt
bnshgy, rthy-chky tex, sb
blk-y-blky, frm-sl hd, v calc, occ
free chk

13500-13600 75% MRLST: Dk
gy-blk, hd-v hd, sb blk-y-sb plty,
sl fiss, dull-rthy tex, amor, mod
calc, occ chk incl, tr f pyr;
25% CHK: Lt-med gy-lt
bnshgy, rthy-chky tex, sb
blk-y-blky, frm-sl hd, sft ip, v
calc, occ free chk

13600-13700 60% MRLST: Dk
gy-blk, hd-v hd, sb blk-y-sb plty,
sl fiss, dull-rthy tex, amor ip,
mod calc, intbdd chk; 40%
CHK: Lt-med gy-lt bnshgy,
rthy-chky tex, sb blk-y-blky,
frm-sl hd, sft ip, v calc, occ
free chk



13,700
13,710
13,720
13,730
13,740
13,750
13,760
13,770
13,780
13,790
13,800
13,810
13,820
13,830
13,840
13,850
13,860
13,870
13,880
13,890
13,900
13,910

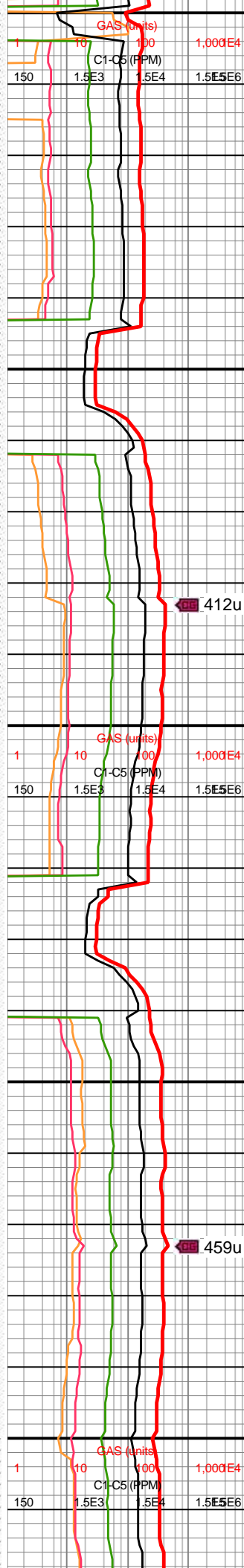
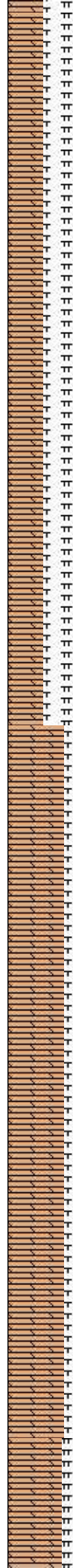
MD: 13,723'
INC: 87.41°
AZM: 182.5°
TVD: 7,676.54'
VS: -5,240.94'

WOB: 32.7
RPM: 61
SPM: 183
SPP: 3,871

MD: 13,812'
INC: 87.23°
AZM: 181.97°
TVD: 7,680.71'
VS: -5,329.77'

MW: 10.3/10.3
VIS: 44/42

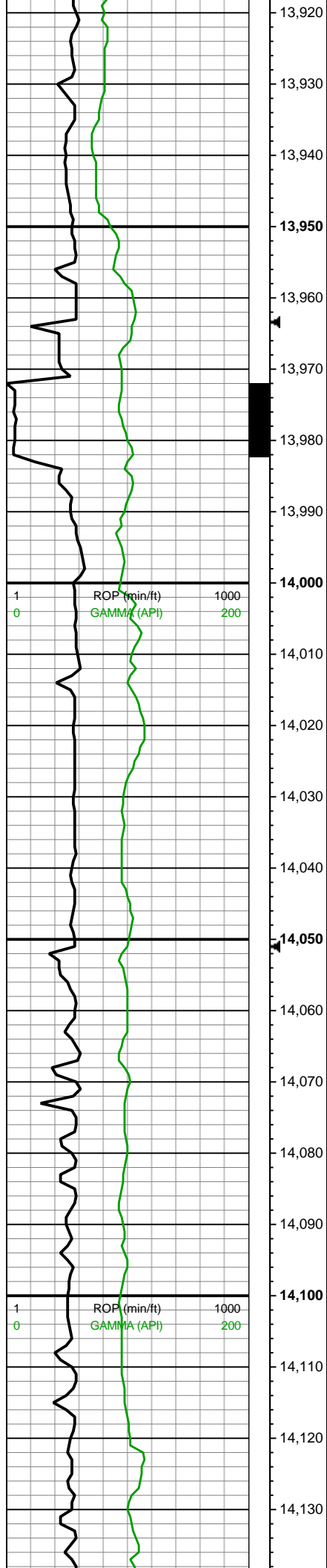
MD: 13,901'
INC: 87.32°
AZM: 181.62°
TVD: 7,684.94'
VS: -5,418.63'



13700-13800 50% CHK:
Lt-med gy-lt bnshgy, rthy-chky
tex, sb blkyl-blky, frm-sl hd, sft
ip, v calc, occ free chk; 50%
MRLST: Dk gy-blk, hd-v hd, sb
blkyl-sb plty, sl fiss, dull-rthy
tex, amor ip, mod calc, intbdd
chk

13800-13900 80% CHK:
Lt-med gy-lt bnshgy, rthy-chky
tex, sb blkyl-blky, frm-sl hd, sft
ip, v calc, abnt free chk; 20%
MRLST: Dk gy-blk, hd-v hd, sb
blkyl-sb plty, sl fiss, dull-rthy
tex, amor ip, mod calc, intbdd
chk





MW: 10.3/10.3
VIS: 43/41

MD: 13,990'
INC: 87.93°
AZM: 180.39°
TVD: 7,688.62'
VS: -5,507.53'

WOB: 31
RPM: 61
SPM: 183
SPP: 3,922

MW: 10.3/10.3
VIS: 43/41

MD: 14,080'
INC: 88.2°
AZM: 180.21°
TVD: 7,691.66'
VS: -5,597.48'



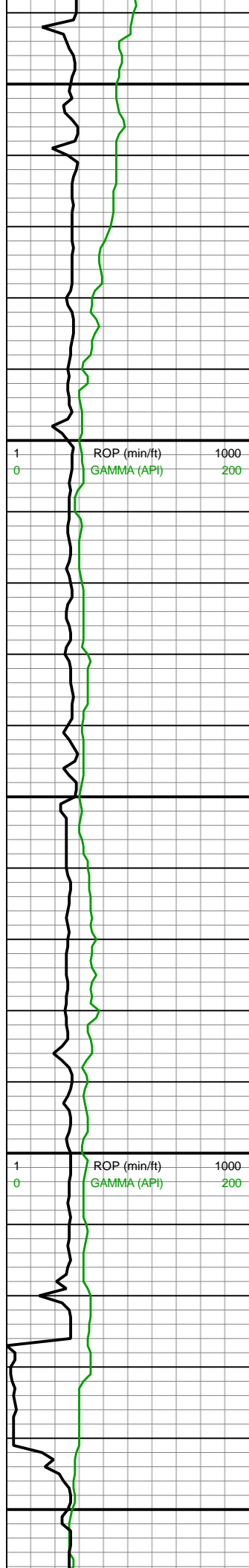
632u

13900-14000 75% CHK:
Lt-med gy-lt bnshgy, rthy-chky
tex, sb blkyl-blky, frm-sl hd, sft
ip, v calc, abnt free chk; 25%
MRLST: Dk gy-blk, hd-v hd, sb
blkyl-sb plty, sl fiss, dull-rthy
tex, amor ip, intbdd chk

499u

14000-14100 70% CHK:
Lt-med gy-lt bnshgy, rthy-chky
tex, sb blkyl-blky, frm-sl hd, sft
ip, v calc, abnt free chk; 30%
MRLST: Dk gy-blk, hd-v hd, sb
blkyl-sb plty, sl fiss, dull-rthy
tex, amor ip, intbdd chk





14,140
14,150
14,160
14,170
14,180
14,190
14,200
14,210
14,220
14,230
14,240
14,250
14,260
14,270
14,280
14,290
14,300
14,310
14,320
14,330
14,340
14,350

MD: 14,169'
INC: 88.46°
AZM: 179.51°
TVD: 7,694.26'
VS: -5,686.44'

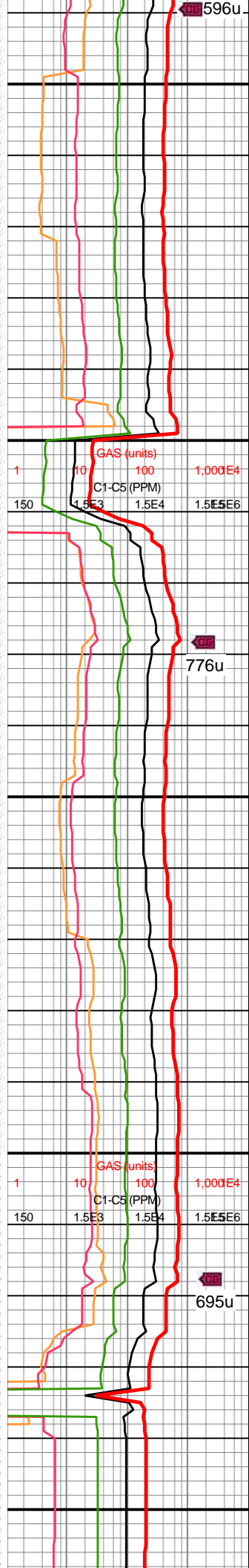
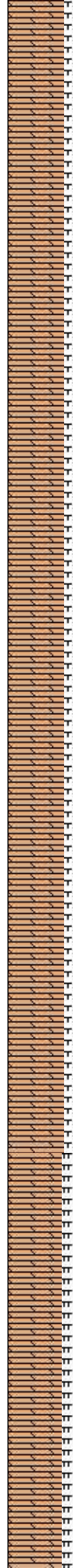
WOB: 32.8
RPM: 61
SPM: 182
SPP: 3,795

MW: 10.3/10.3
VIS: 43/41

MD: 14,258'
INC: 88.72°
AZM: 179.33°
TVD: 7,696.45'
VS: -5,775.41'

MW: 10.3+/10.3
VIS: 43/41

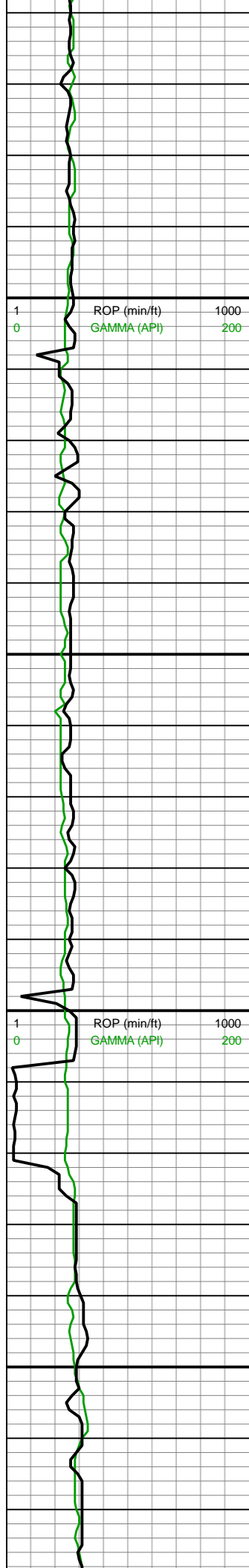
MD: 14,347'
INC: 88.55°
AZM: 180.39°
TVD: 7,698.57'
VS: -5,864.38'



14100-14200 80% CHK:
Lt-med gy-lt bnshgy, rthy-chky
tex, sb blkyl-bkly, frm-sl hd, sft
ip, v calc, abnt free chk; 20%
MRLST: Dk gy-blk, hd-v hd, sb
blkyl-sb plty, sl fiss, dull-rthy
tex, amor ip, intbdd chk

14200-14300 80% CHK:
Lt-med gy-lt bnshgy, rthy-chky
tex, sb blkyl-bkly, frm-sl hd, sft
ip, v calc, abnt free chk; 20%
MRLST: Dk gy-blk, hd-v hd, sb
blkyl-sb plty, sl fiss, dull-rthy
tex, amor ip, intbdd chk





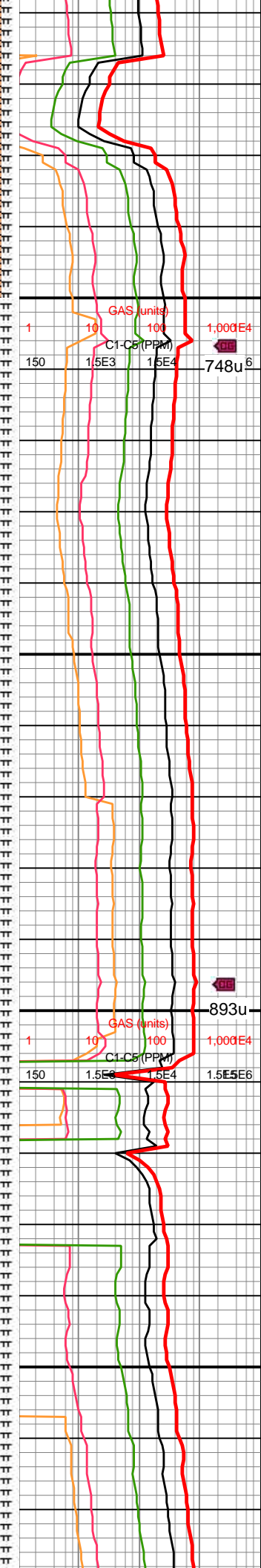
14,360
14,370
14,380
14,390
14,400
14,410
14,420
14,430
14,440
14,450
14,460
14,470
14,480
14,490
14,500
14,510
14,520
14,530
14,540
14,550
14,560
14,570

WOB: 31.2
RPM: 61
SPM: 182
SPP: 3,914

MD: 14,436'
INC: 89.34°
AZM: 180.56°
TVD: 7,700.21'
VS: -5,953.37'

MW: 10.3/10.3
VIS: 43/41

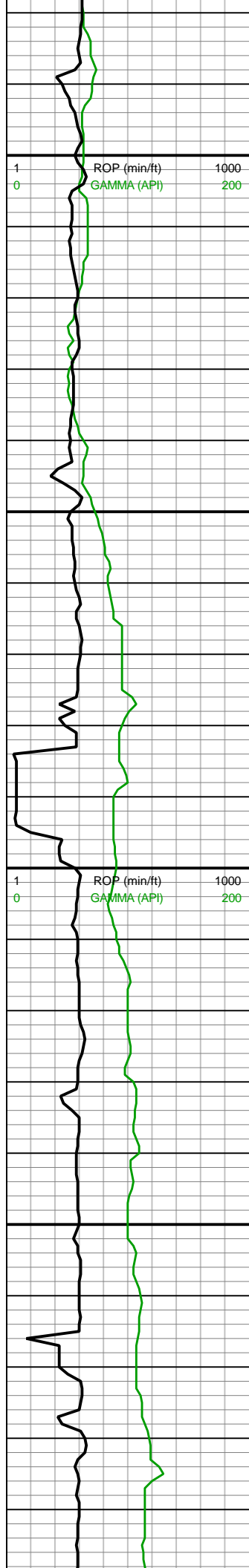
MD: 14,526'
INC: 87.76°
AZM: 180.91°
TVD: 7,702.48'
VS: -6,043.33'



14300-14400 75% CHK:
Lt-med gy-lt bnshgy, rthy-chky
tex, sb blk-y-blky, frm-sl hd, sft
ip, v calc, abnt free chk; 25%
MRLST: Dk gy-blk, hd-v hd, sb
blk-y-sb plty, sl fiss, dull-rthy
tex, amor ip, intbdd chk

14400-14500 65% CHK:
Lt-med gy-lt bnshgy, rthy-chky
tex, sb blk-y-blky, frm-sl hd, sft
ip, v calc, abnt free chk; 35%
MRLST: Dk gy-blk, hd-v hd, sb
blk-y-sb plty, sl fiss, dull-rthy
tex, amor ip, intbdd chk





14,580
14,590
14,600
14,610
14,620
14,630
14,640
14,650
14,660
14,670
14,680
14,690
14,700
14,710
14,720
14,730
14,740
14,750
14,760
14,770
14,780
14,790

MINDEPTH 03/09/2020

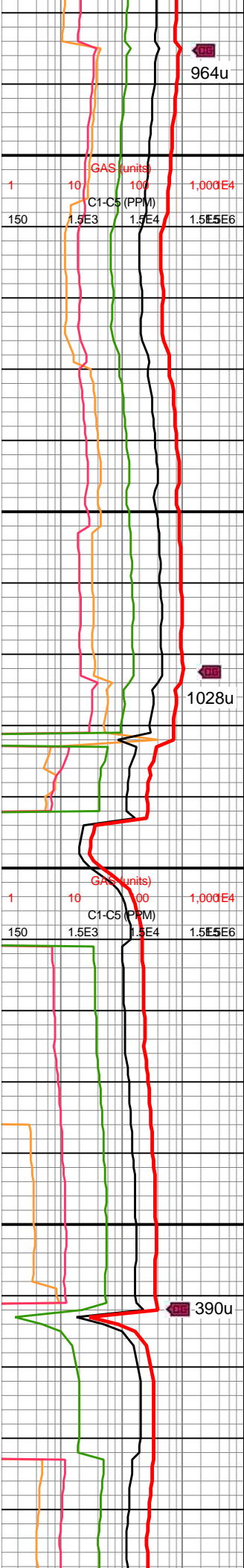
WOB: 33.2
RPM: 61
SPM: 184
SPP: 3,933

MD: 14,615'
INC: 87.93°
AZM: 180.74°
TVD: 7,705.83'
VS: -6,132.25'

MD: 14,704'
INC: 87.49°
AZM: 178.63°
TVD: 7,709.39'
VS: -6,221.18'

MW: 10.3+/10.3+
VIS: 43/41

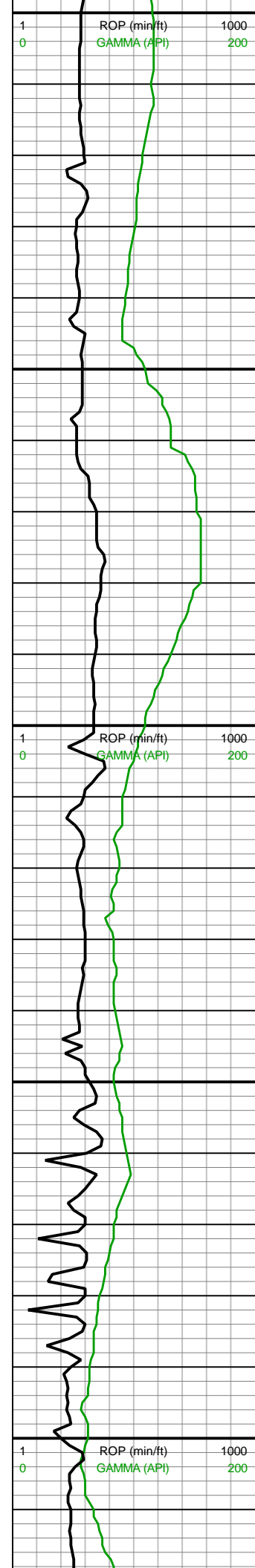
MD: 14,793'
INC: 87.58°
AZM: 178.28°
TVD: 7,713.21'
VS: -6,310.06'



14500-14600 70% CHK:
Lt-med gy-lt bnshgy, rthy-chky
tex, sb blkyl-blky, frm-sl hd, sft
ip, v calc, abnt free chk; 30%
MRLST: Dk gy-blk, hd-v hd, sb
blkyl-sb plty, sl fiss, dull-rthy
tex, amor ip, intbdd chk

14600-14700 60% CHK:
Lt-med gy-lt bnshgy, rthy-chky
tex, sb blkyl-blky, frm-sl hd, sft
ip, v calc, abnt free chk; 40%
MRLST: Dk gy-blk, hd-v hd, sb
blkyl-sb plty, sl fiss, dull-rthy
tex, amor ip, intbdd chk

14700-14800 60% MRLST: Dk
gy-blk, hd-v hd, sb blkyl-sb plty,
sl fiss, dull-rthy tex, amor ip,
intbdd chk; 40% CHK: Lt-med
gy-lt bnshgy, rthy-chky tex, sb
blkyl-blky, frm-sl hd, sft ip, v
calc, abnt free chk



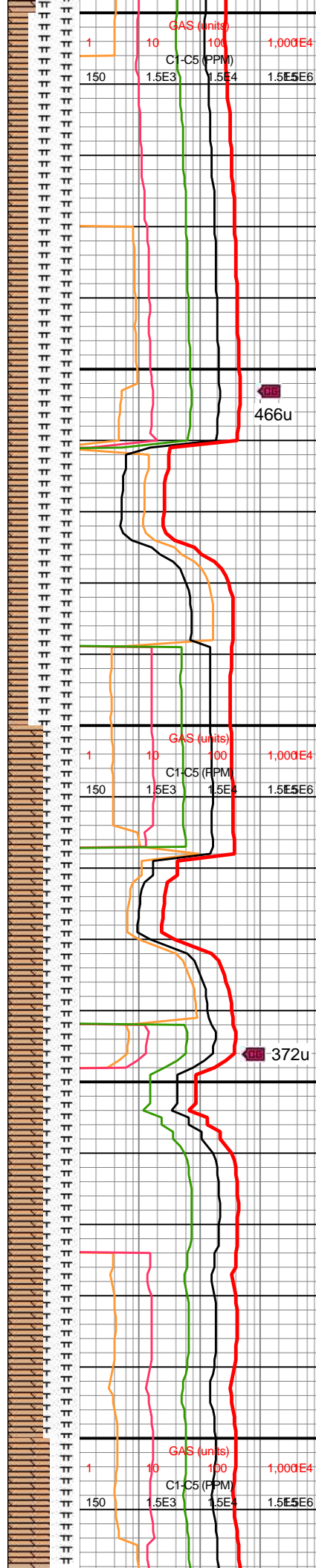
WOB: 33.4
RPM: 61
SPM: 182
SPP: 4,002

MD: 14,882'
INC: 87.41°
AZM: 177.4°
TVD: 7,717.1'
VS: -6,398.91'

MW: 10.3+/10.3+
VIS: 44/42

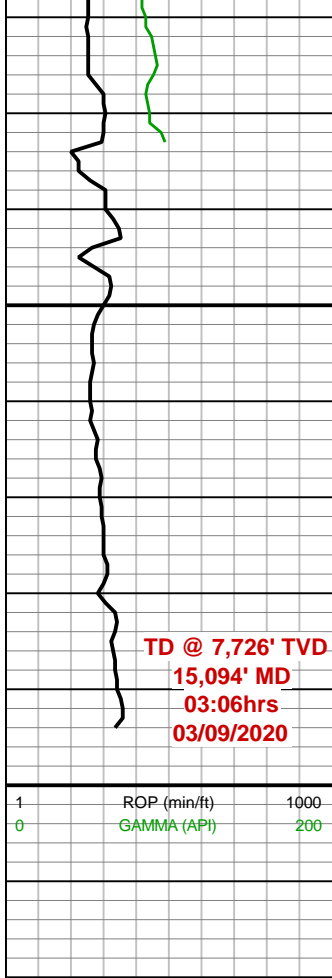
MD: 14,971'
INC: 87.58°
AZM: 177.05°
TVD: 7,720.99'
VS: -6,487.72'

WOB: 33.4
RPM: 61
SPM: 183
SPP: 4,042



14800-14900 70% MRLST: Dk gy-blk, hd-v hd, sb blk-ly-sb plty, sl fiss, dull-rthy tex, amor ip, intbdd chk; 30% CHK: Lt-med gy-lt bnshgy, rthy-chky tex, sb blk-ly-blky, frm-sl hd, sft ip, v calc, abnt free chk

14900-15000 50% MRLST: Dk gy-blk, hd-v hd, sb blk-ly-sb plty, sl fiss, dull-rthy tex, amor ip, intbdd chk; 50% CHK: Lt-med gy-lt bnshgy, rthy-chky tex, sb blk-ly-blky, frm-sl hd, sft ip, v calc, abnt free chk

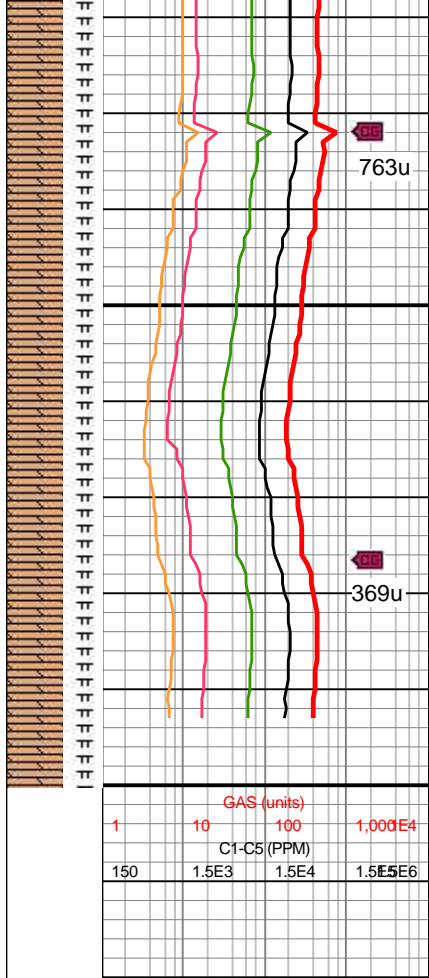


15,020
15,030
15,040
15,050
15,060
15,070
15,080
15,090
15,100
15,110
15,120

MD: 15,034'
INC: 87.67°
AZM: 176.34°
TVD: 7,723.61'
VS: -6,550.56'

Projection to Bit:

MD: 15,094'
INC: 87.67°
AZM: 176.34°
TVD: 7,726.04'
VS: -6,610.39'



GAS (units)			
1	10	100	1,000E4
C1-C5 (PPM)			
150	1.5E3	1.5E4	1.5E5E6