

COLUMBINE LOGGING

Scale: 5" / 100'
Measured Depth Log

Well Name Piceance 28-01W

Location SW NW SEC 28 T9S R93W 1537 FNL 1193 FWL

State Colorado

County Mesa

Country United States

Rig Number Patterson 306

API Number 05-077-10236

Field Vega

Region Piceance Basin

Drilling Completed 8/17/2015

Spud Date 9/14/2015

Surface Coordinates N 39.251125 W 107.779575

Bottom Hole Coordinates N 39.255011 W 107.780733

Ground Elevation 7556'

K.B. Elevation 7578'

Logged Interval 1594' **To** 8149'

Total Depth 8149'

Formation Rollins

Type of Drilling Fluid Water Based

Operator

Company Piceance Energy, LLC.

Address 1512 Larimer Street, Suite 1000
Denver, CO 80202


Geologist

Name Andy McCarthy

Company Laramie Energy II, LLC.

Address 1512 Larimer Street, Suite 1000
Denver, CO 80202

Zone Color Coding

 Oil	 Condensate	 Gas
 Note	 Core	 Pressure
 Error	 Water	 Seal

Other

Jordan Mccullugh Well Site Geologist

Columbine Logging Computer 14A

Rock Types

UNKNOWN	COAL	MARLSTONE	SHALY SANDSTONE
ANHYDRITE	CONGLOMERATE	METAMORPHIC	SHALY SILTSTONE
BENTONITE	DOLOMITE	NO SAMPLE	SILTSTONE
BRECCIA	DOLOMITIC LIMESTONE	SALT	SILTY SHALE
CEMENT	GRANITE	SALT- PEPPER SAND	TILL
CHALK	GYPHUM	SANDSTONE	TUFF
CHERT	IGNEOUS	SHALE	WELDED TUFF
CLAY CHOKE SAND	LIMESTONE	SHALE COLORED	
CLAYSTONE	SIDERITE or LIMONITE	SHALE GRAY	

Accessories

Fossils

ALGAE
AMPHIPORA
BELEMNITE
BIOCLASTIC
BRACHIOPOD
BRYOZOA
CEPHALPOD
CORAL
CRINOID
ECHINOID
FISH
FORAMINIFERA
FOSSIL

GASTROPOD
INOCERAMUS
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
GYPHIFEROUS

HEAVY MINERAL
KAOLIN
MARCASITE
MARLSTONE
MICACEOUS
MINERAL CRYSTALS
NODULES
PHOSPHATE PELLETS
PYRITE
SALT CAST
SANDY
SIDERITE
SILICEOUS
SILTY
TUFFACEOUS

Stringer

ANHYDRITE STRINGER
BENTONITE STRINGER
COAL STRINGER
DOLOMITE STRINGER
GYPHUM 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
Q INTEROOLITIC
M MOLDIC

ORGANIC
P PINPOINT
V VUGGY

Engineering

BIT CHANGE
CONNECTION (LEFT)
CONNECTION (RIGHT)
CONNECTION GAS
TRIP GAS
DOWN TIME GAS
CORE - LOST
CORE - RECOVERED
DST INTERVAL

FAULT
FORMATION TOP
GAS SHOW
OIL SHOW
MN DEPTH
MN DEPTH (RIGHT)
NORMAL FAULT
OVERTURNED STRATA
REVERSE FAULT
CASING
SIDEWALL CORE (LEFT)
SIDEWALL CORE (RIGHT)
SLIDE
SURVEY

DRILL STEM TEST
WIRELINE TESTED - LEFT
WIRELINE TESTED - RT

Rounding

ANGULAR
ROUNDED
SUBANG
SUBRND

Textures

BOUNDSTONE
CHALKY
CRYPTOXLN

E EARTHY
FX FINELYXLN
GS GRAINSTONE
L LITHOGRAPHIC
MX MICROXLN
MS MUDSTONE
PS PACKSTONE
WS WACKESTONE

Sorting

M MODERATE
P POOR
W WELL

ROP
ROP

One-Man Strip Logging
Rigged Up 9/14/15
Began Logging @ 1594'
@ 18:27 hrs MST on 9/14/15

WOB: 14.8 klbs
ROP: 124 ft/hr
SPP: 1316 psi
RPM: 50
Strokes: 48 spm

WOB: 7.6 klbs
ROP: 174 ft/hr

Slide/Rotate

Depth Labels

Total Gas & Chromatograph

GAS
C1
C2
C3
C4
C5

Bit #: 2
Type: MM55
Size: 7.875
Depth In: 1594
Depth Out: 8149
Hours: 56
Avg Ft/Hr: 117
Jets: 5x12
S/N: 12660208

MUD WT 8.55 VIS 27

MD: 1,602'

TVD: 1,557'

Inclination: 18.63°

Azimuth: 344.42°

250
250

17u

29u

4u

MD: 1,697'

TVD: 1,648'

Inclination: 17.49°

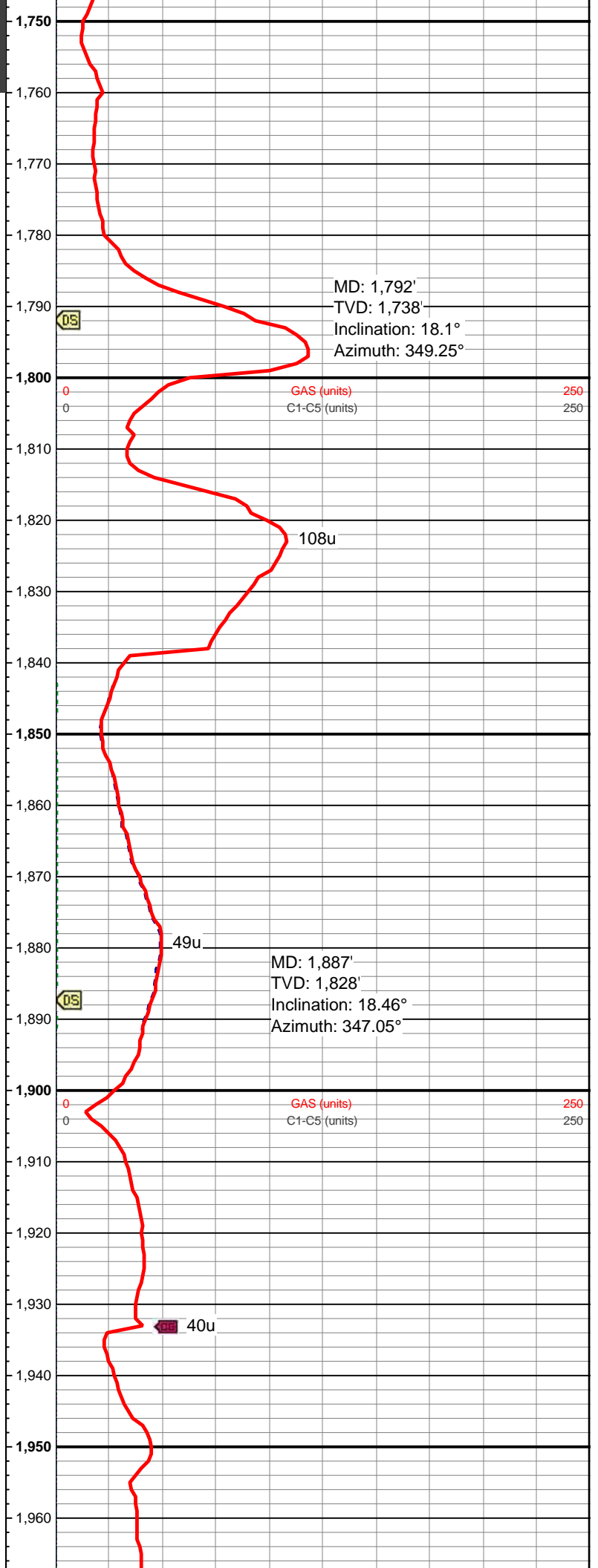
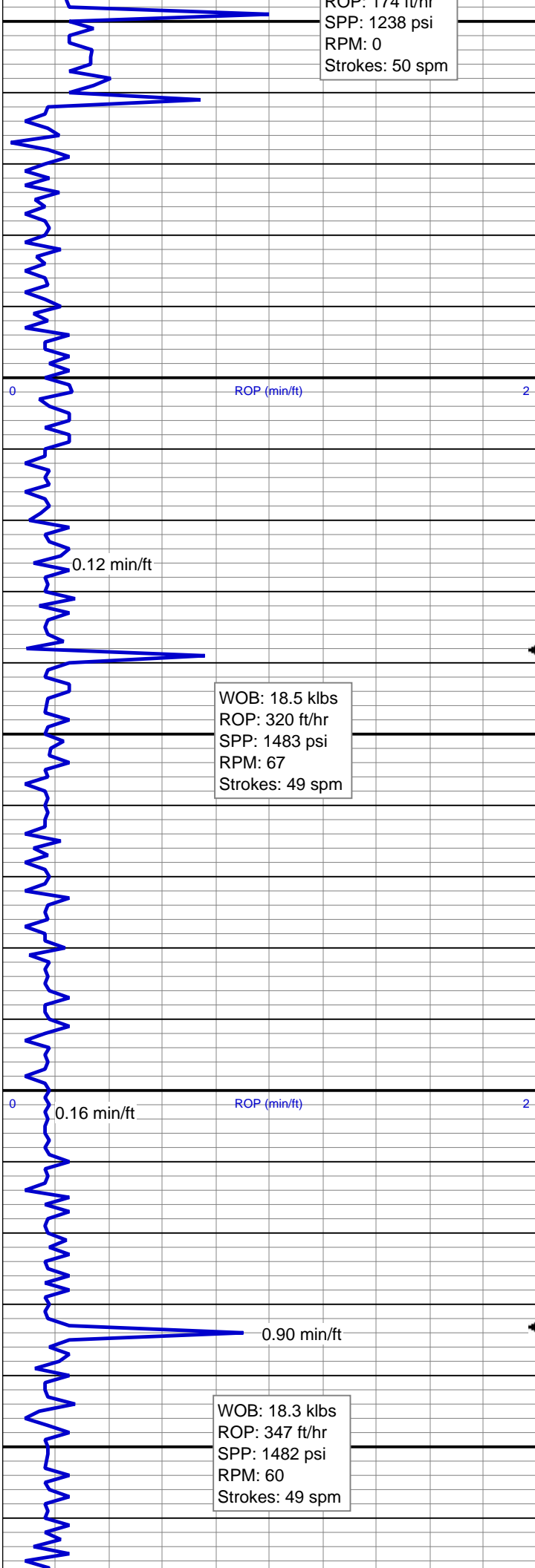
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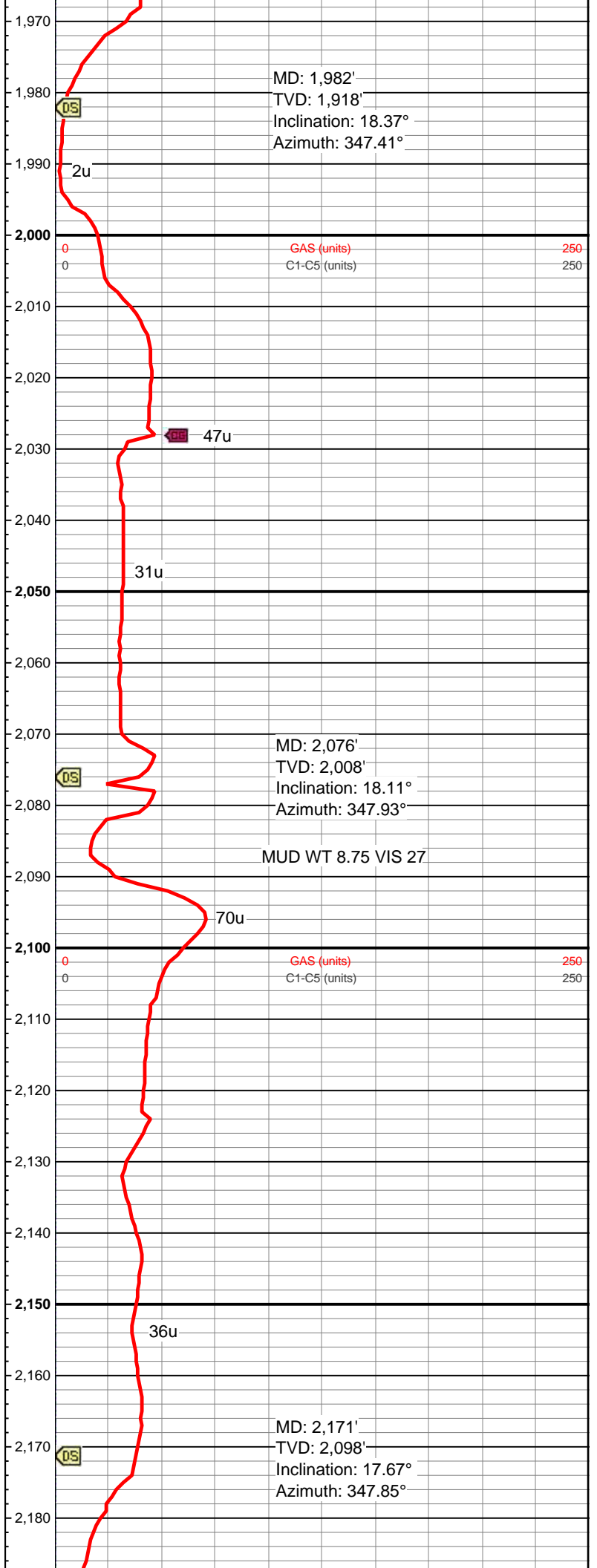
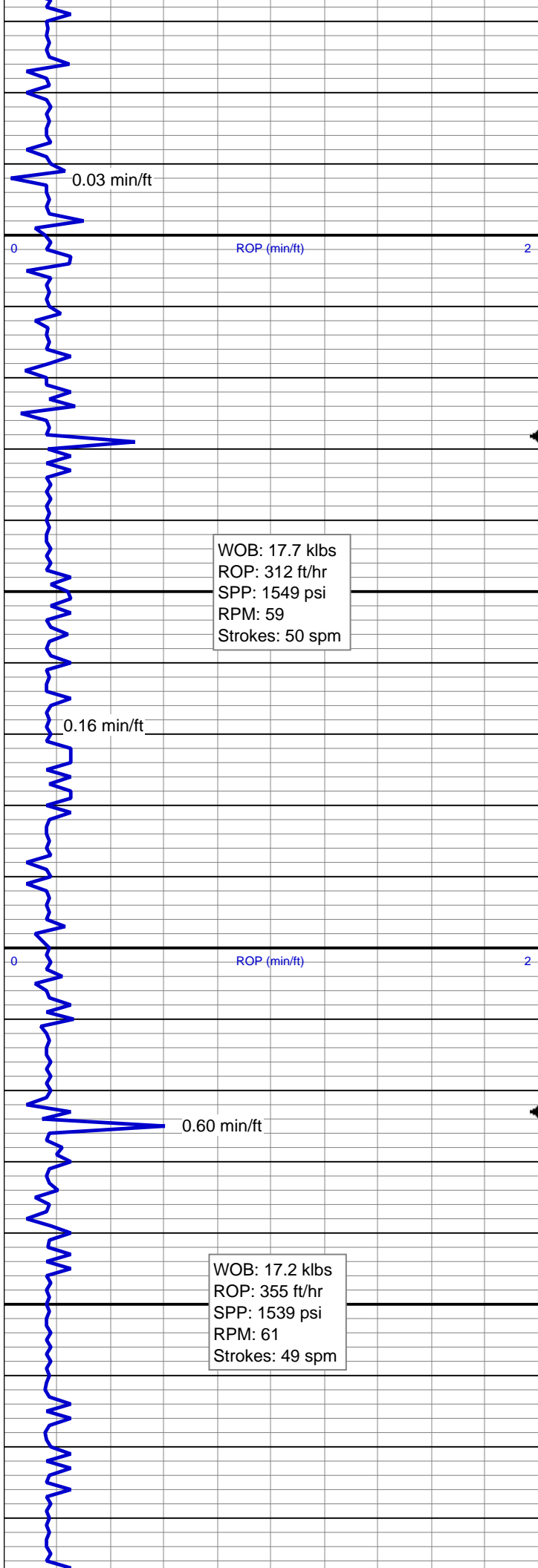
C1-C5 (units)

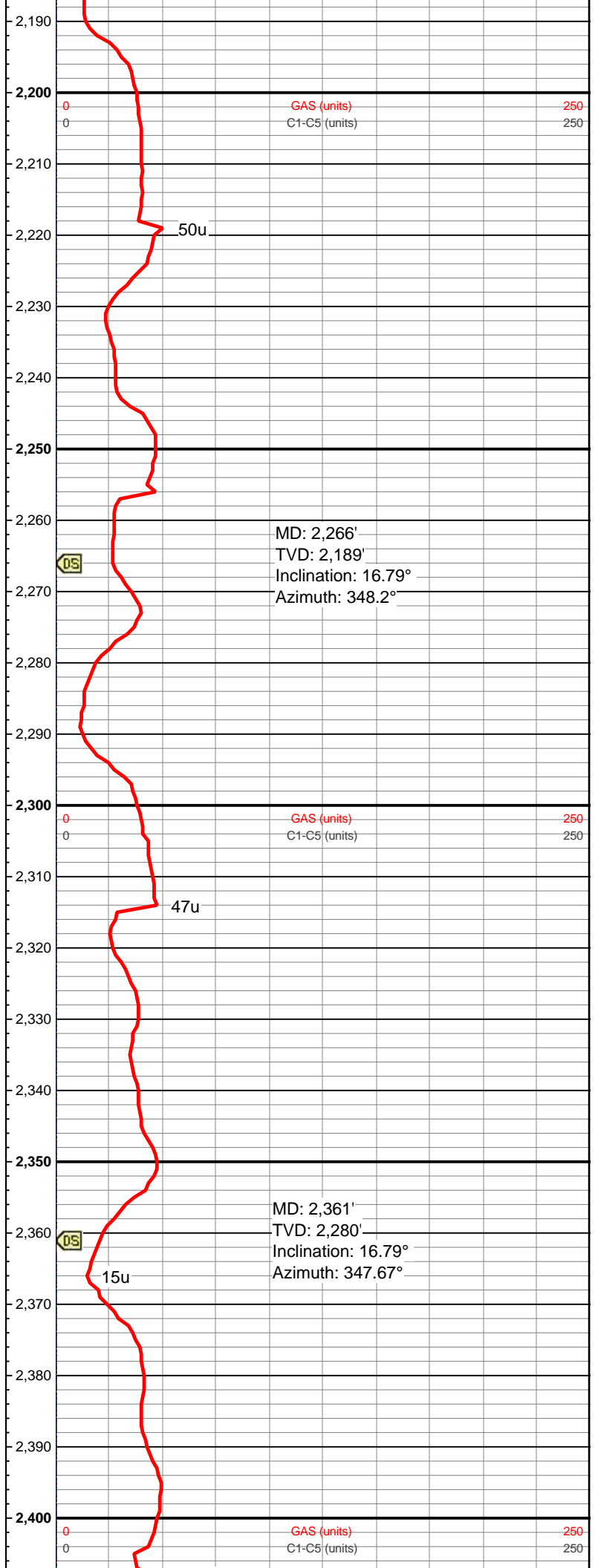
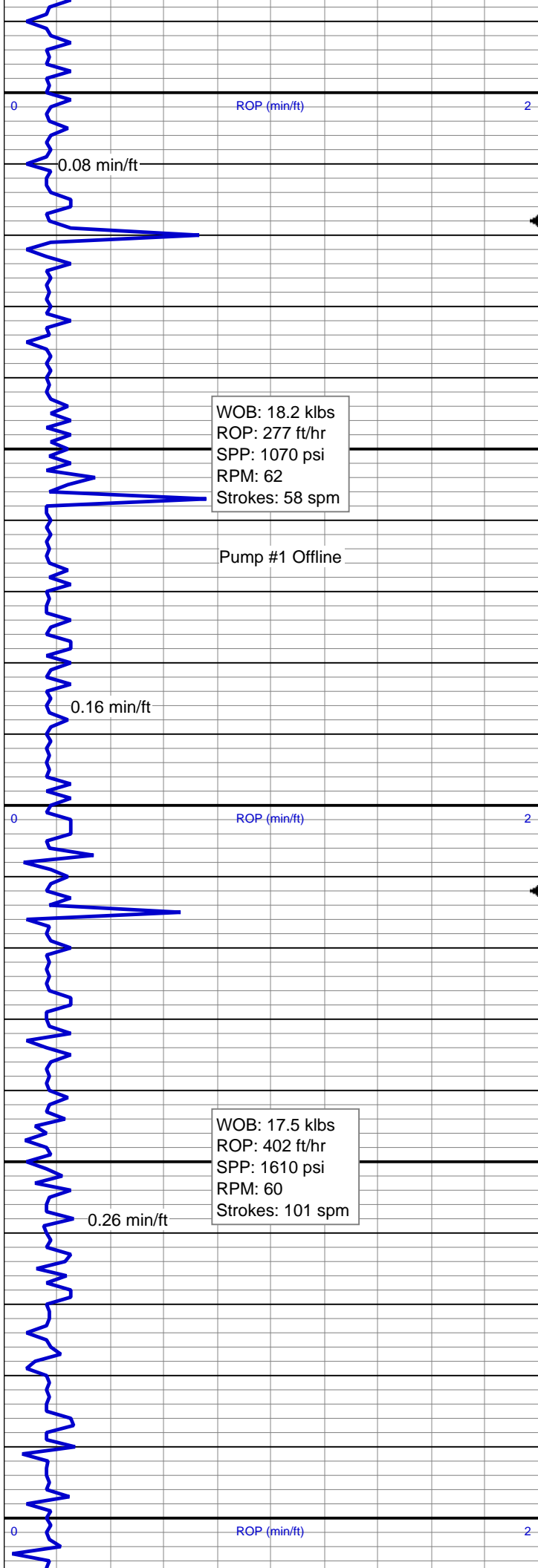
250
250

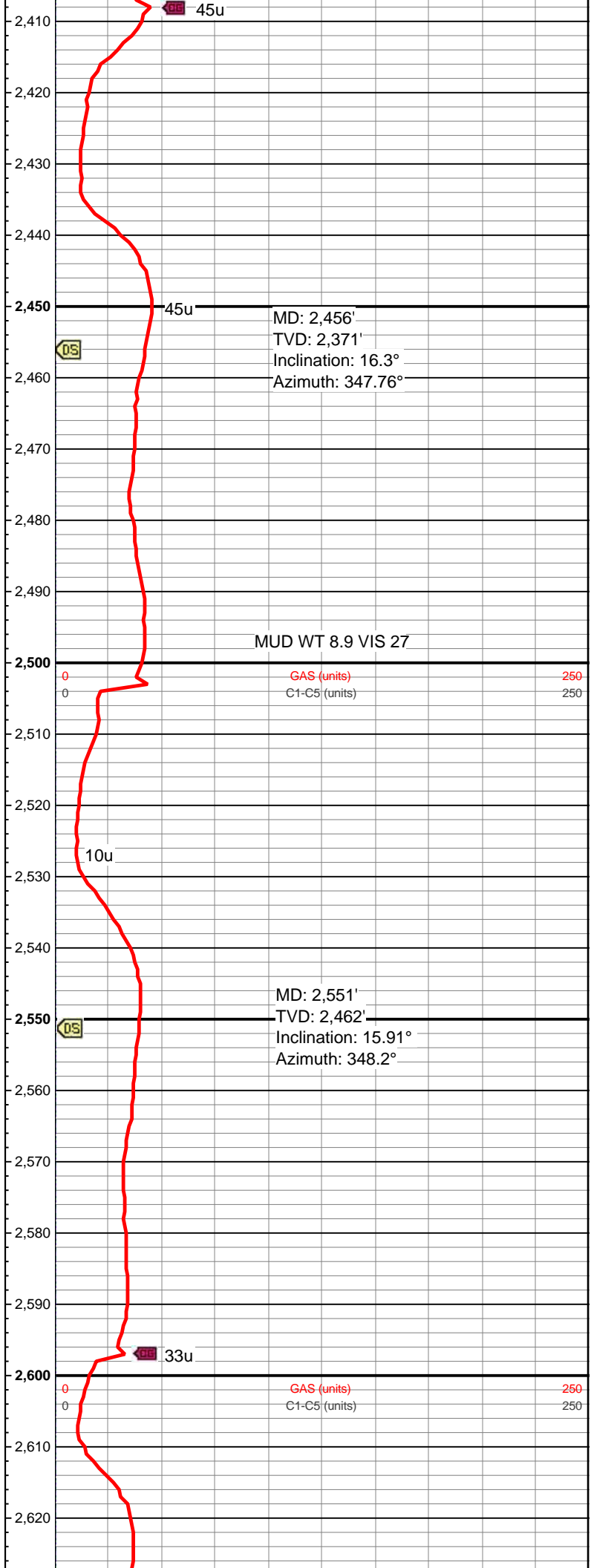
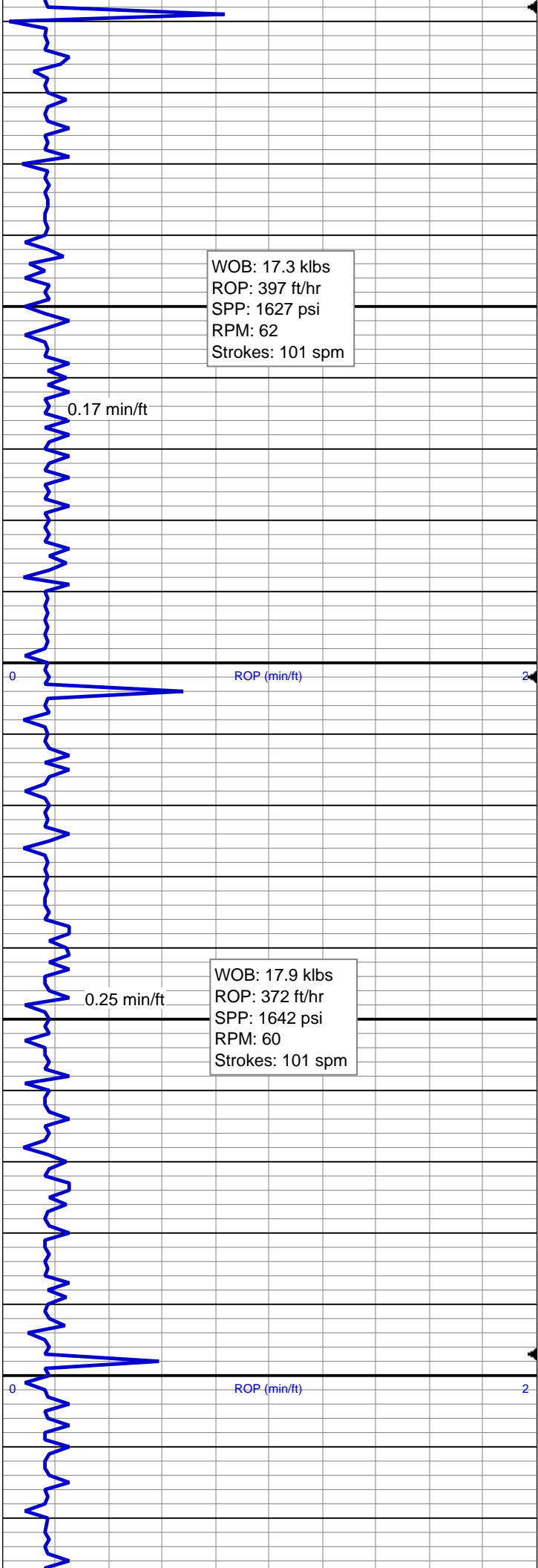
22u

ROP: 174 ft/hr
SPP: 1238 psi
RPM: 0
Strokes: 50 spm

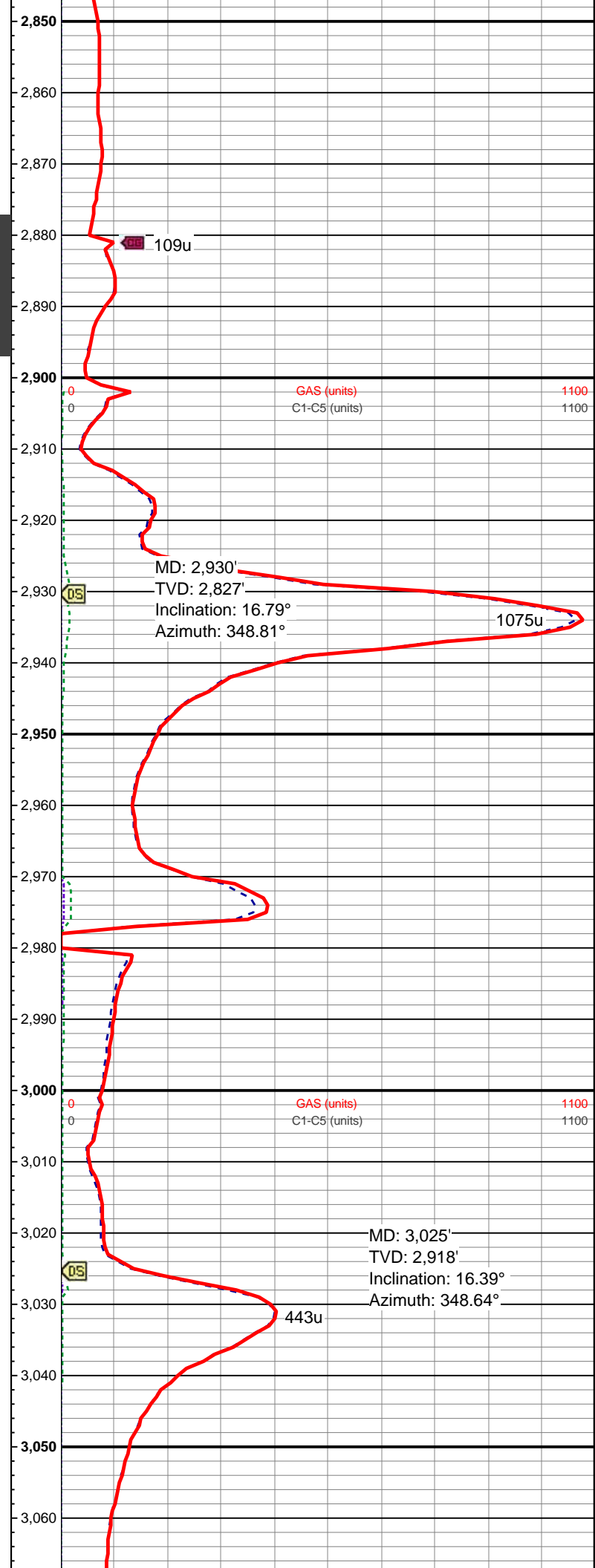
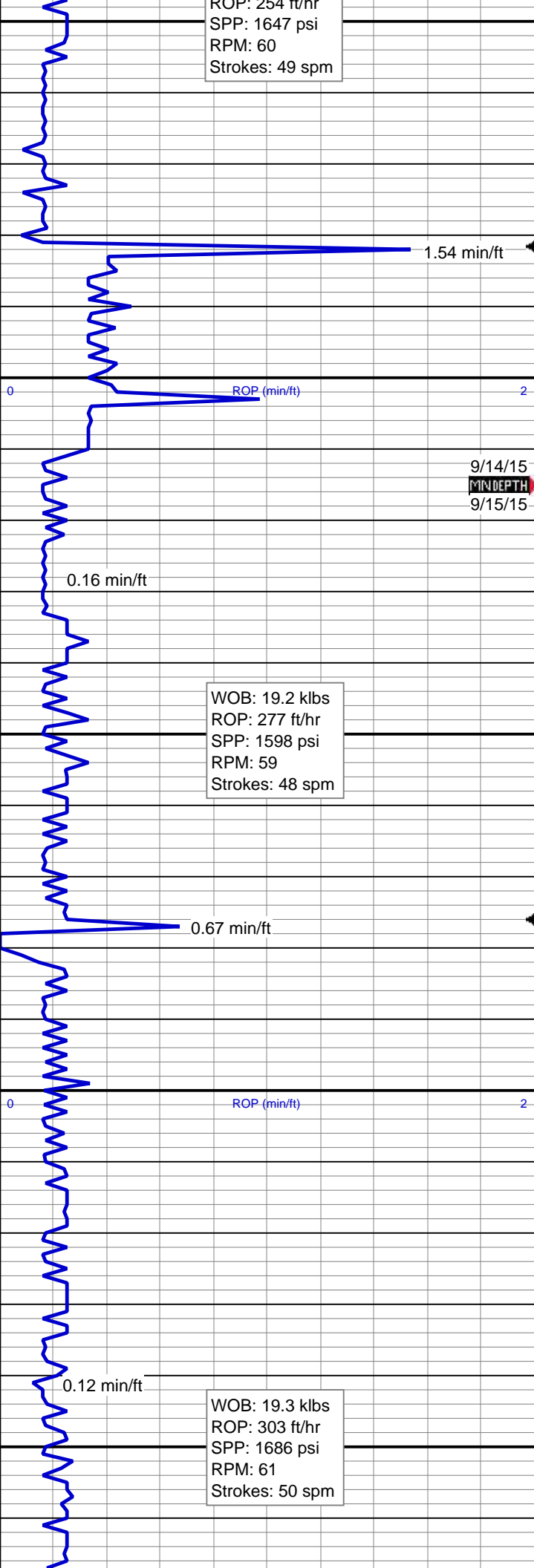


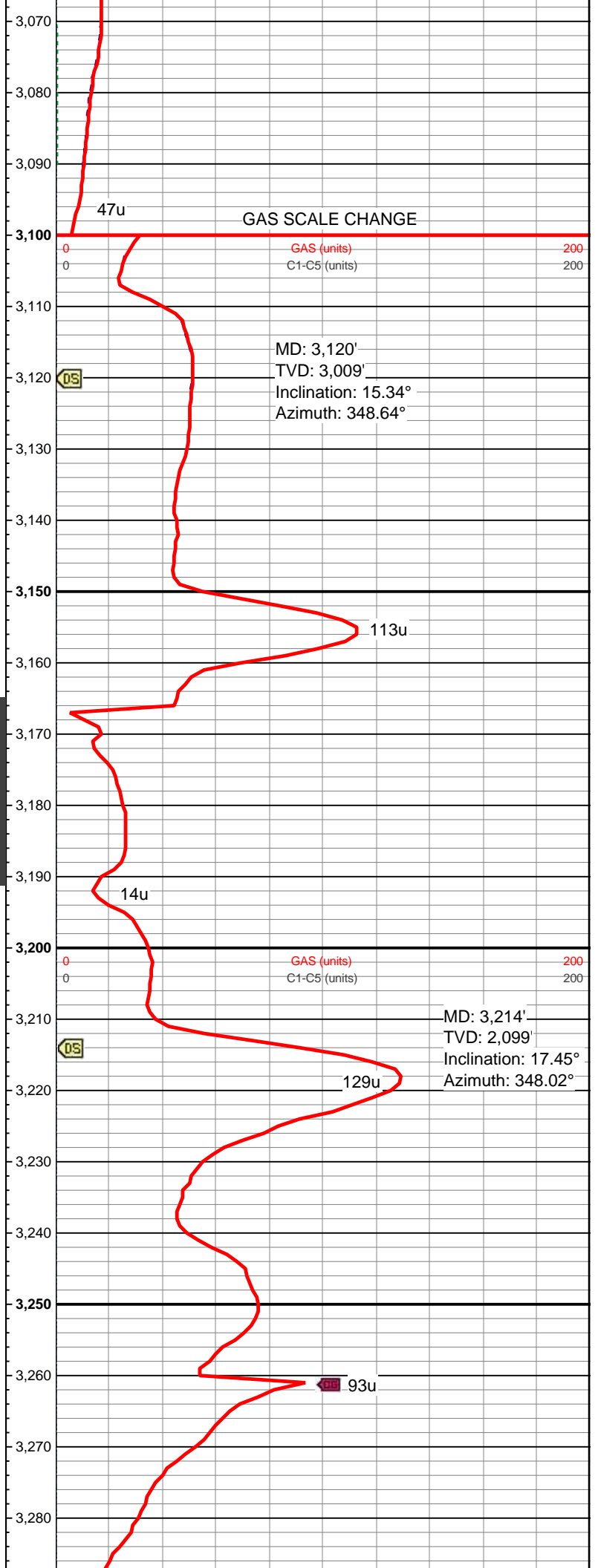
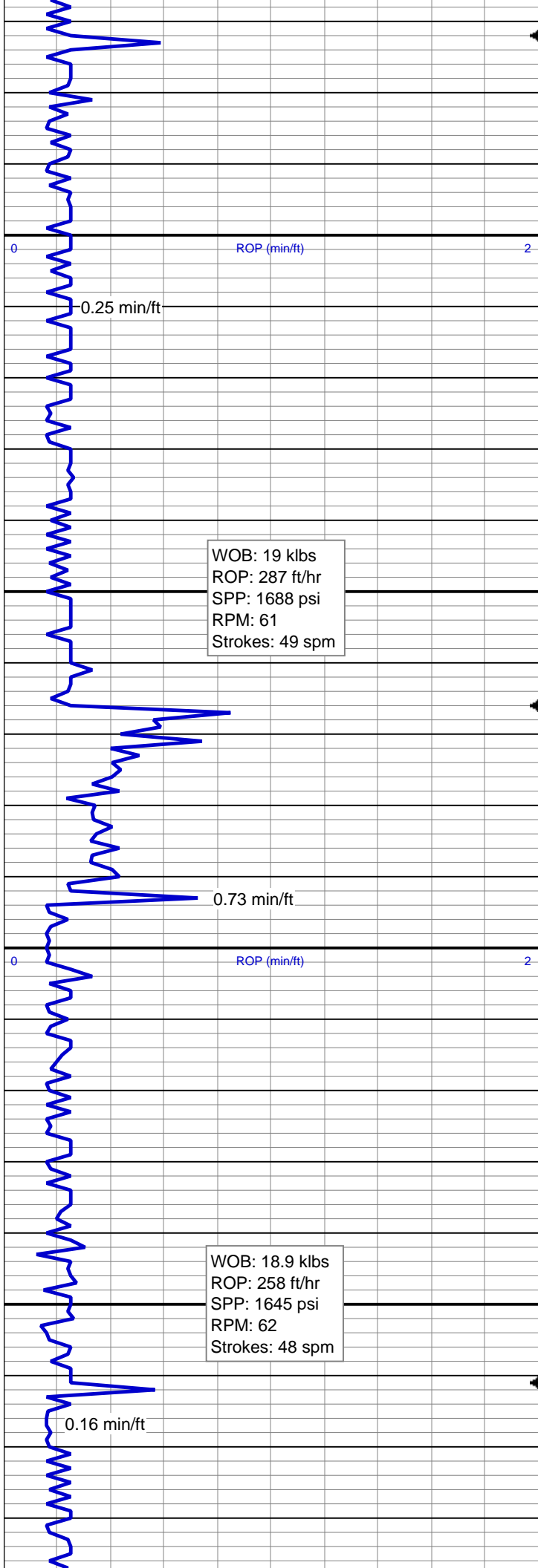


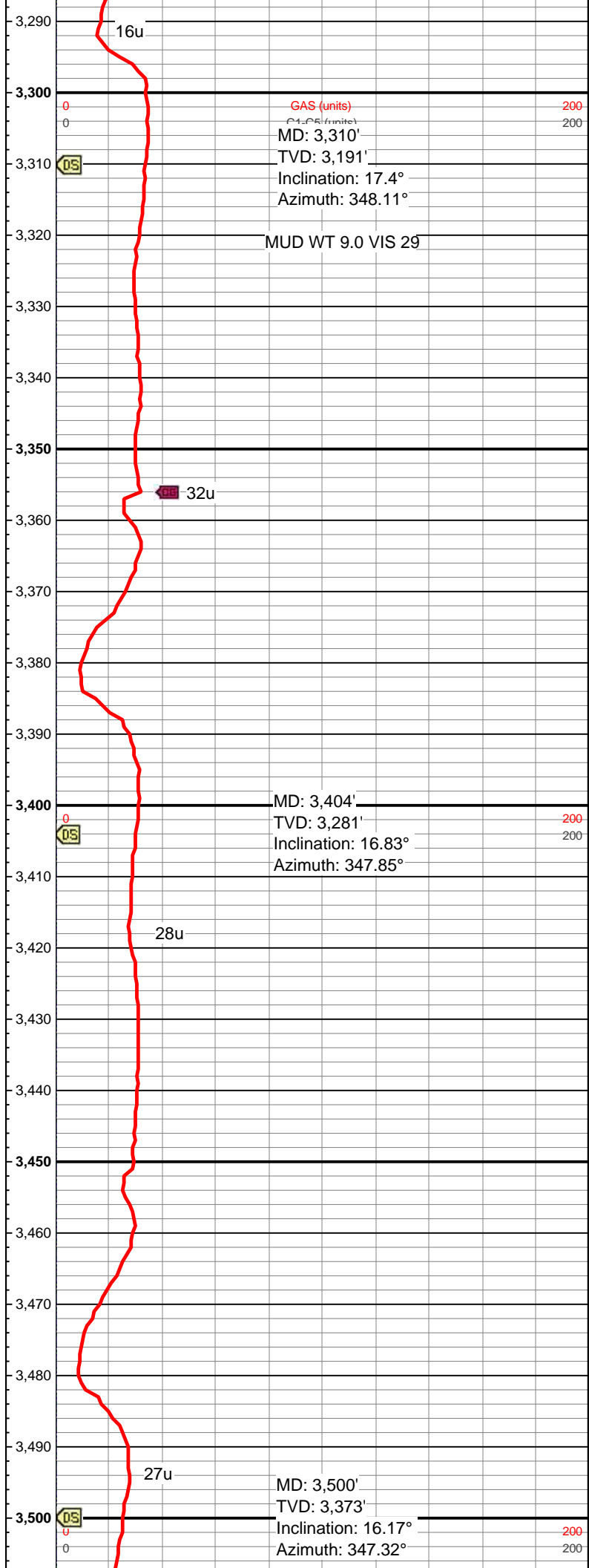
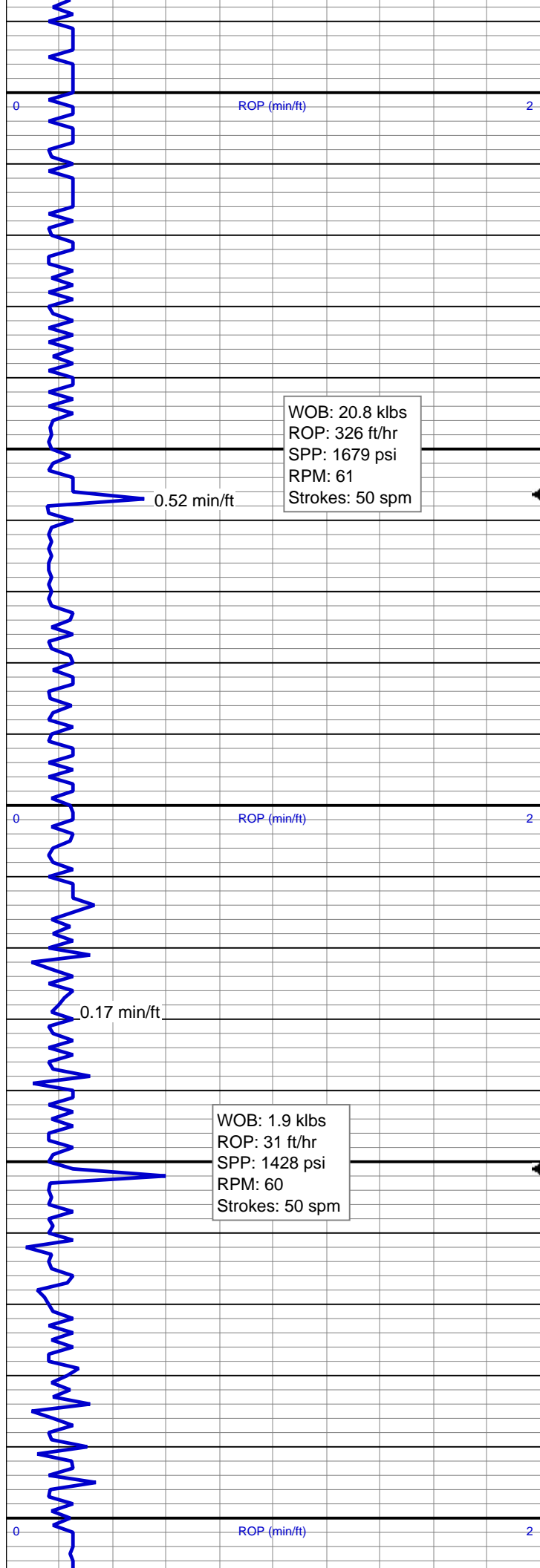


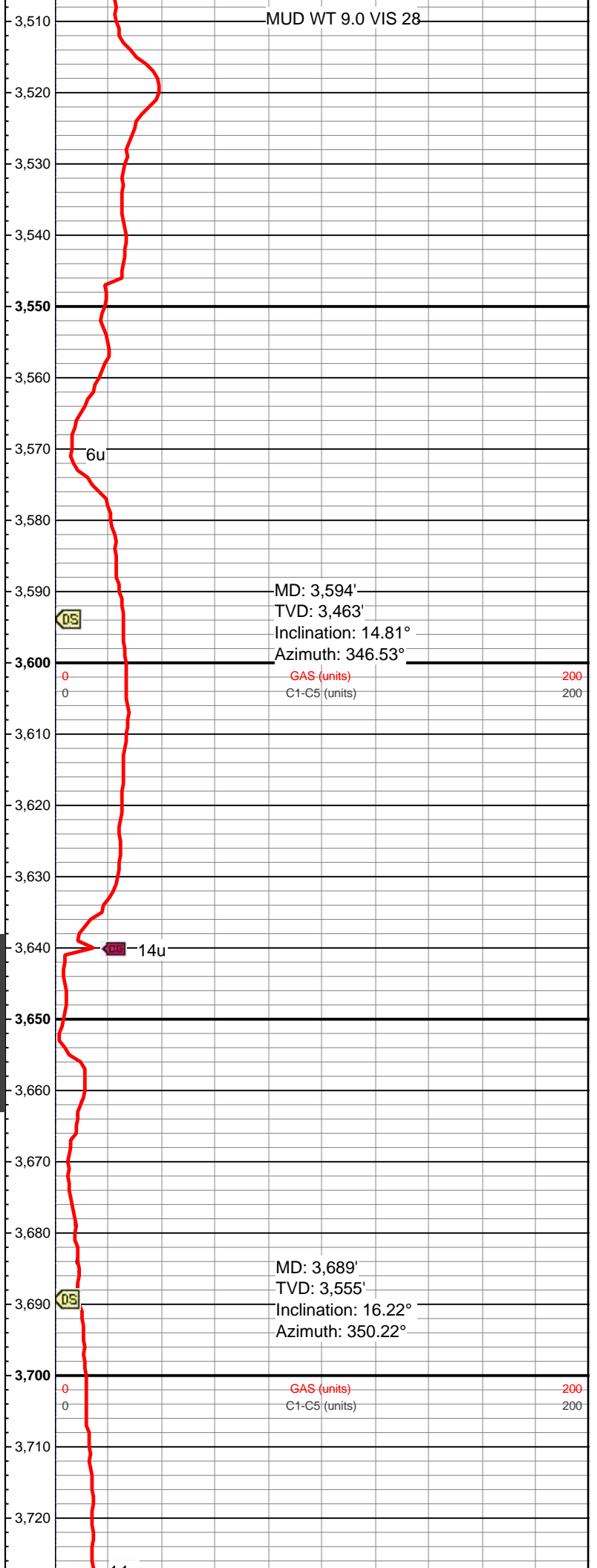
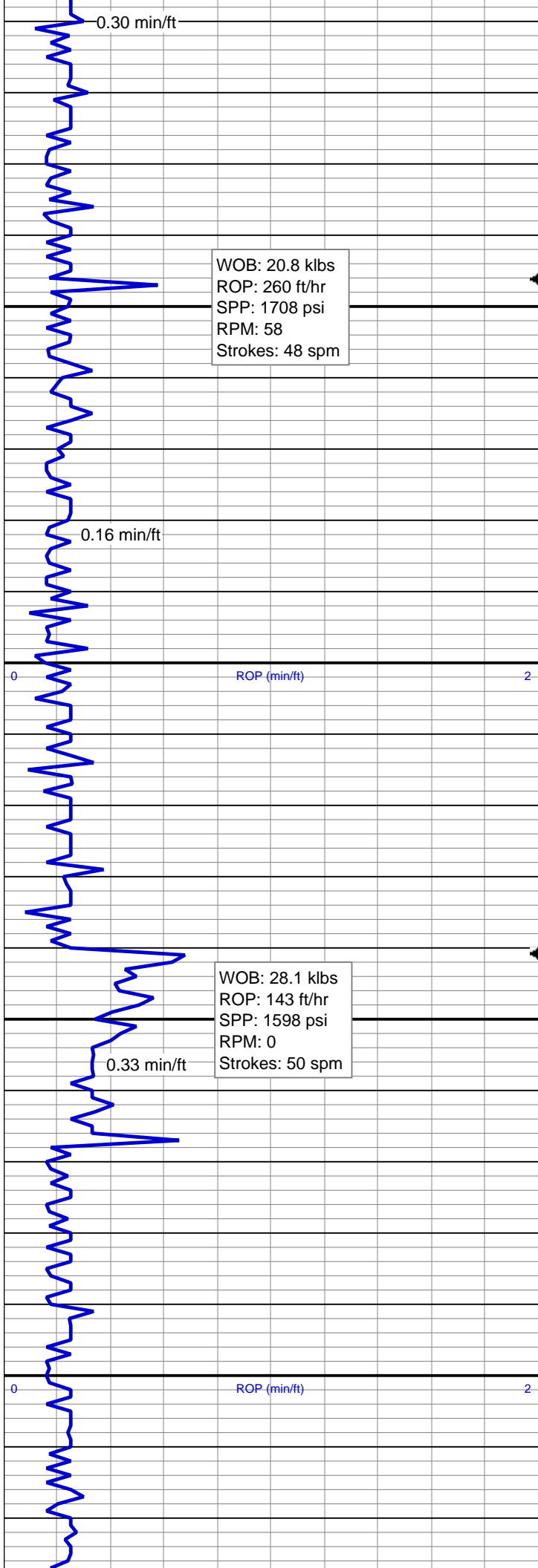


ROP: 254 ft/hr
SPP: 1647 psi
RPM: 60
Strokes: 49 spm









WOB: 29.1 klbs
ROP: 142 ft/hr
SPP: 1633 psi
RPM: 0
Strokes: 49 spm

1.00 min/ft

0.16 min/ft

ROP (min/ft)

WOB: 21 klbs
ROP: 282 ft/hr
SPP: 1685 psi
RPM: 58
Strokes: 48 spm

0.33 min/ft

ROP (min/ft)

WOB: 20.3 klbs
ROP: 212 ft/hr
SPP: 1633 psi
RPM: 58
Strokes: 48 spm

MUD WT 9.0 VIS 27

MD: 3,784'
TVD: 3,646'
Inclination: 17.71°
Azimuth: 348.72°

GAS (units)
C1-C5 (units)

200
200

MD: 3,879'
TVD: 3,736'
Inclination: 17.23°
Azimuth: 348.72°

GAS (units)
C1-C5 (units)

200
200

15u

ROP: 249 ft/hr
SPP: 1771 psi
RPM: 65
Strokes: 49 spm

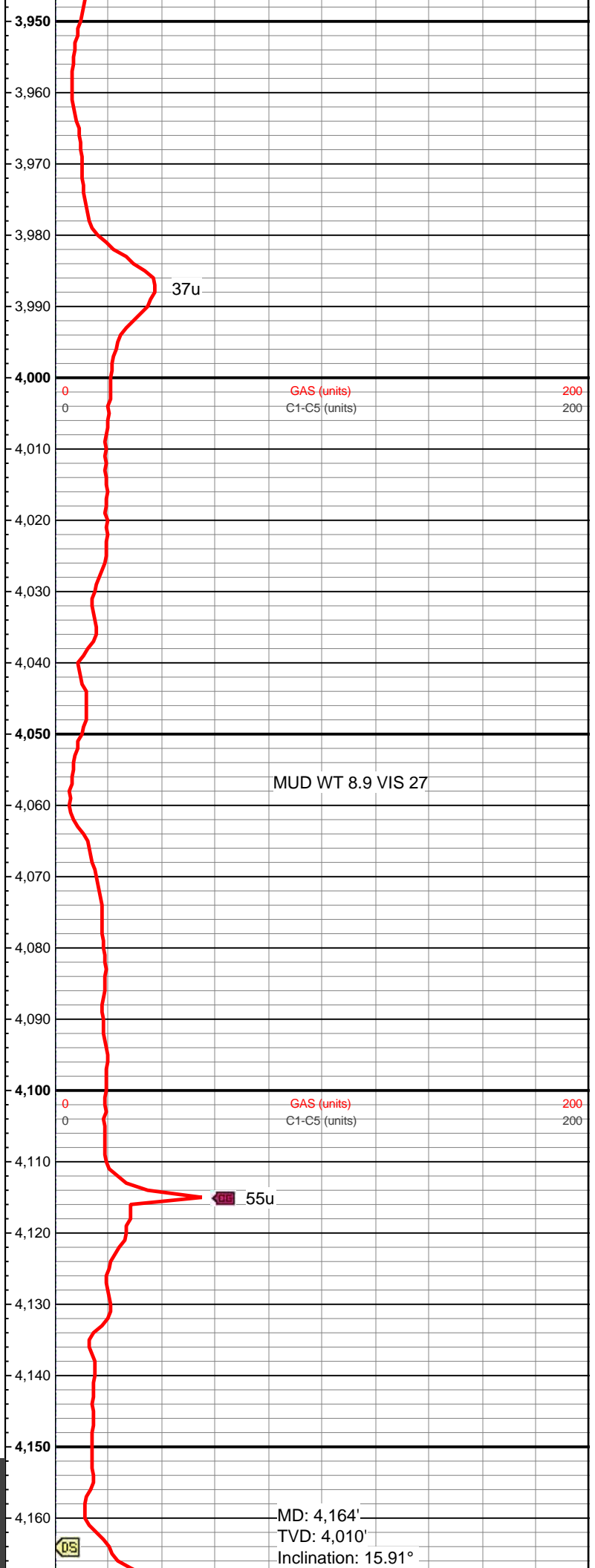
0.25 min/ft

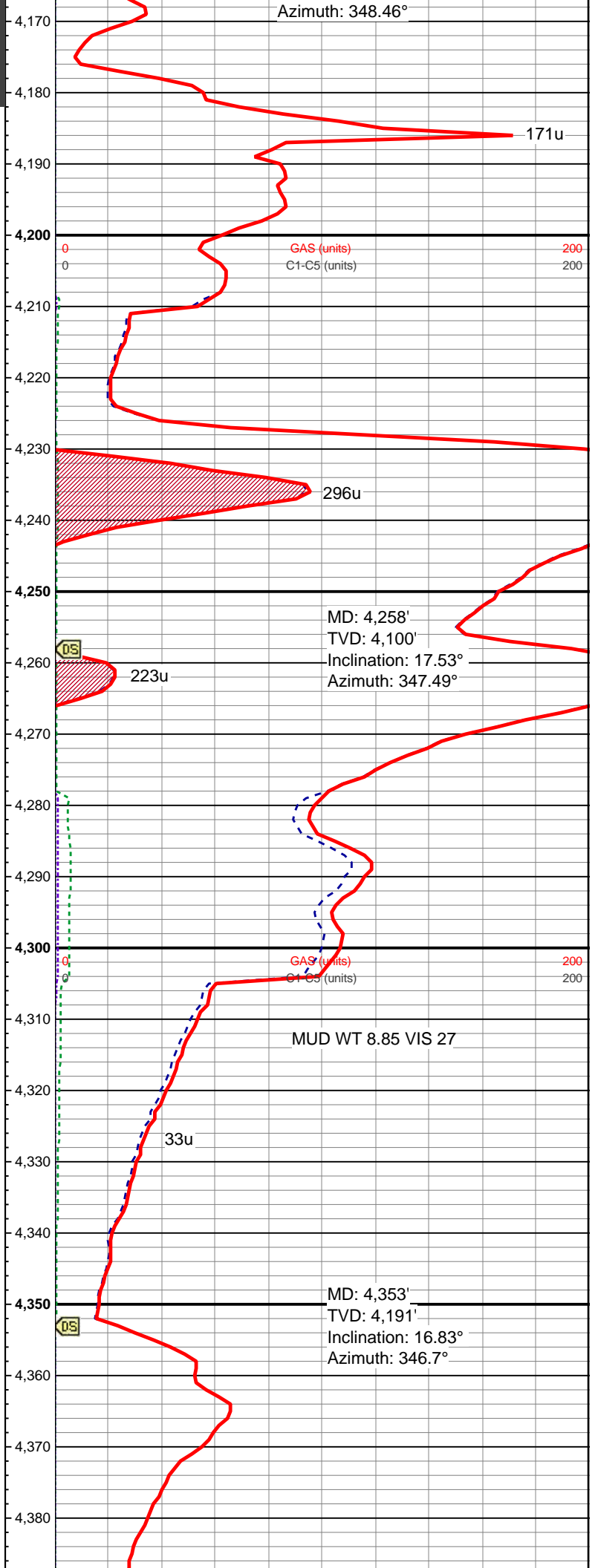
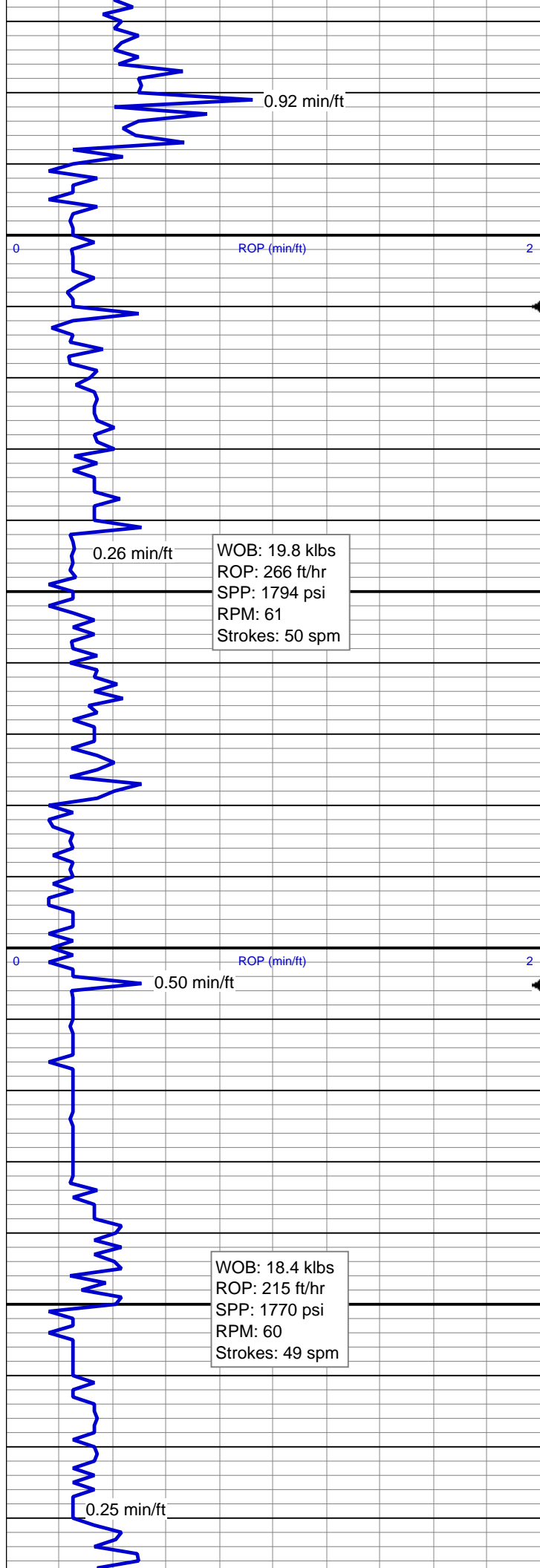
WOB: 20.4 klbs
ROP: 300 ft/hr
SPP: 1815 psi
RPM: 57
Strokes: 50 spm

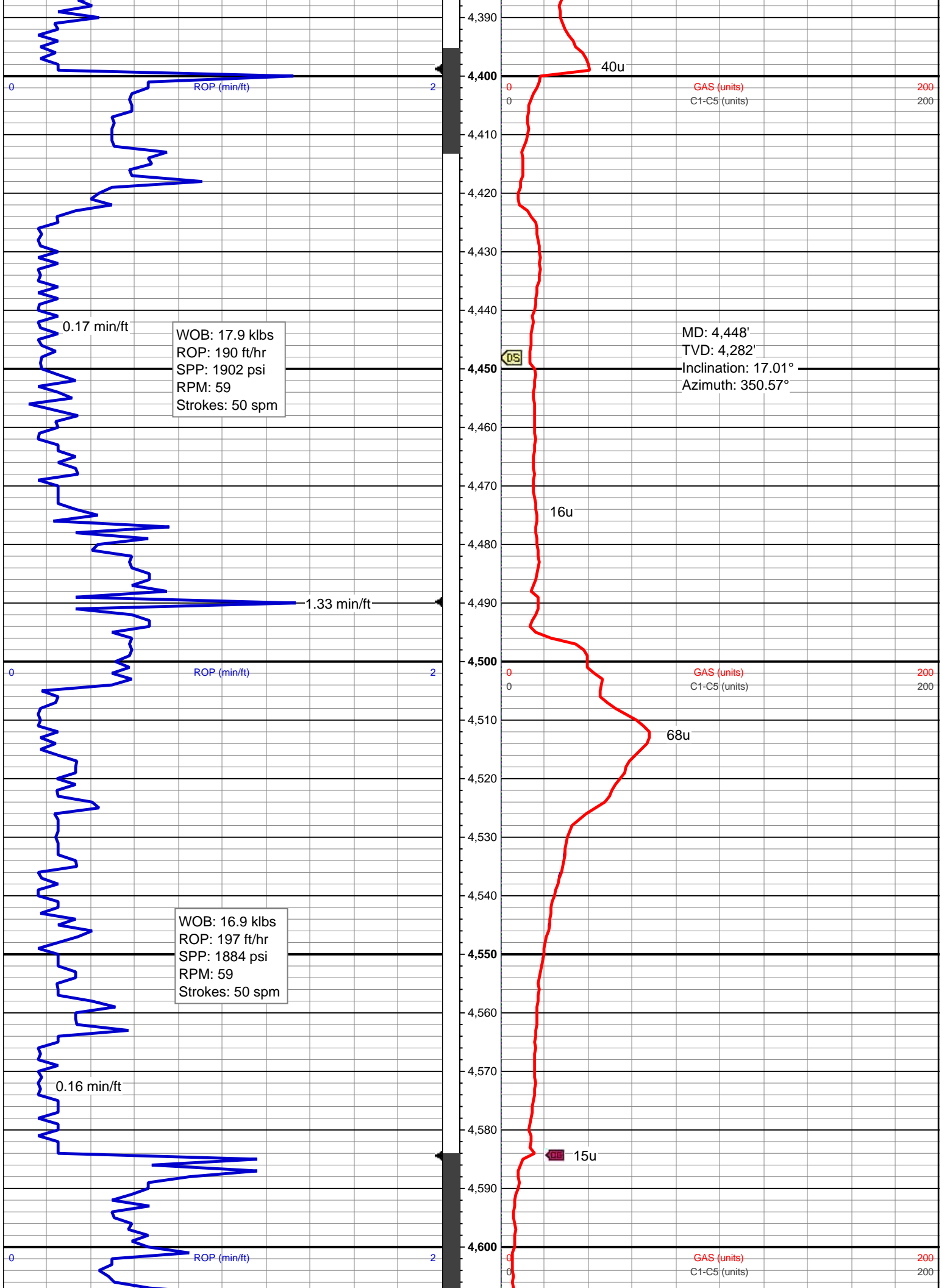
0.17 min/ft

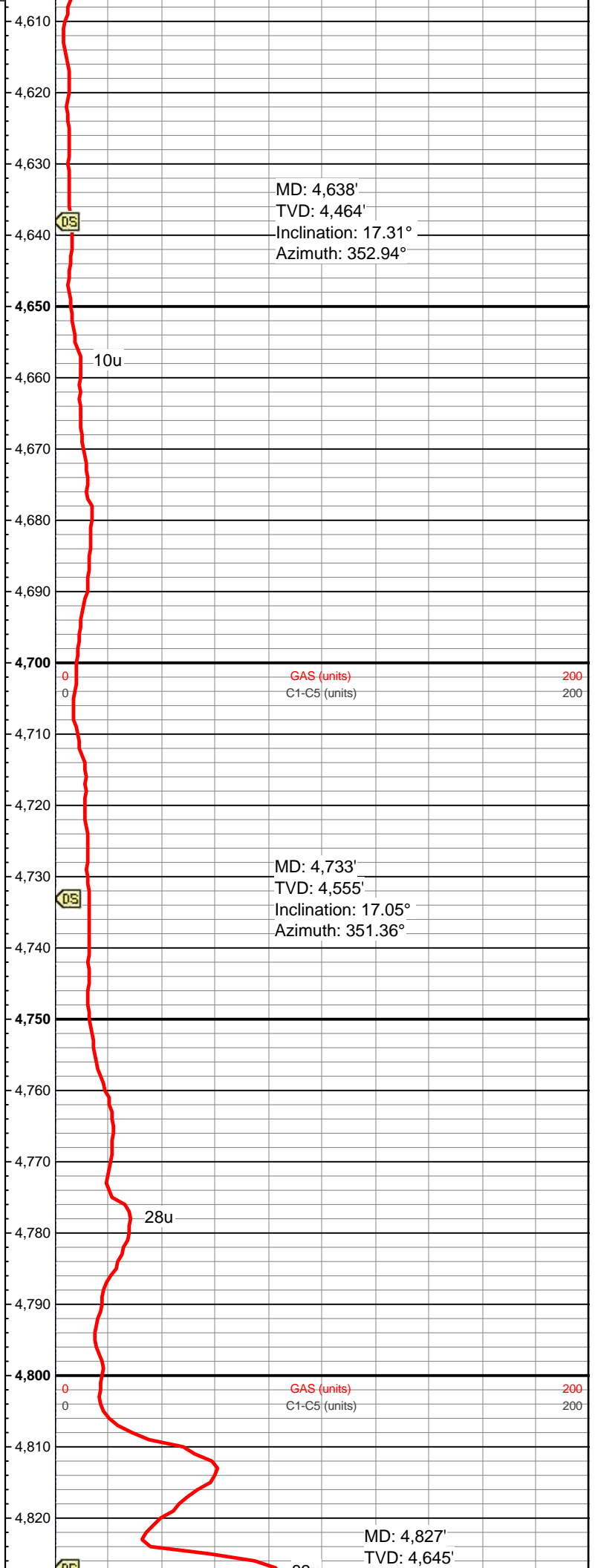
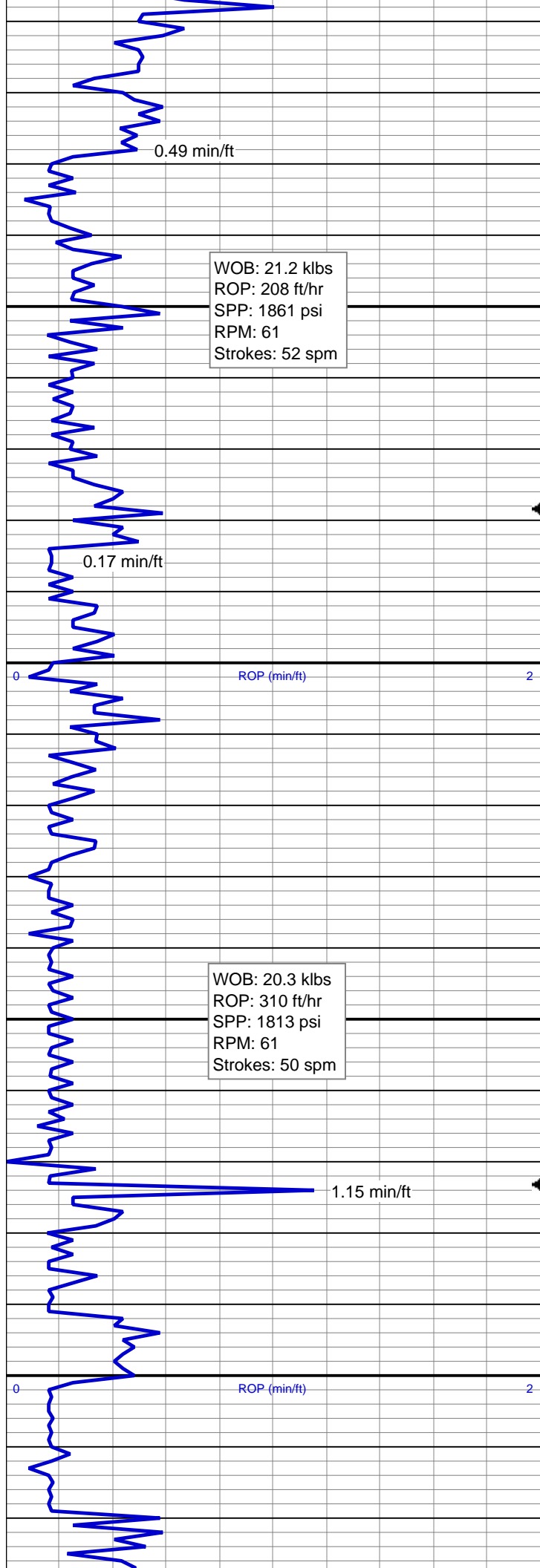
WOB: 20.4 klbs
ROP: 244 ft/hr
SPP: 1724 psi
RPM: 49
Strokes: 48 spm

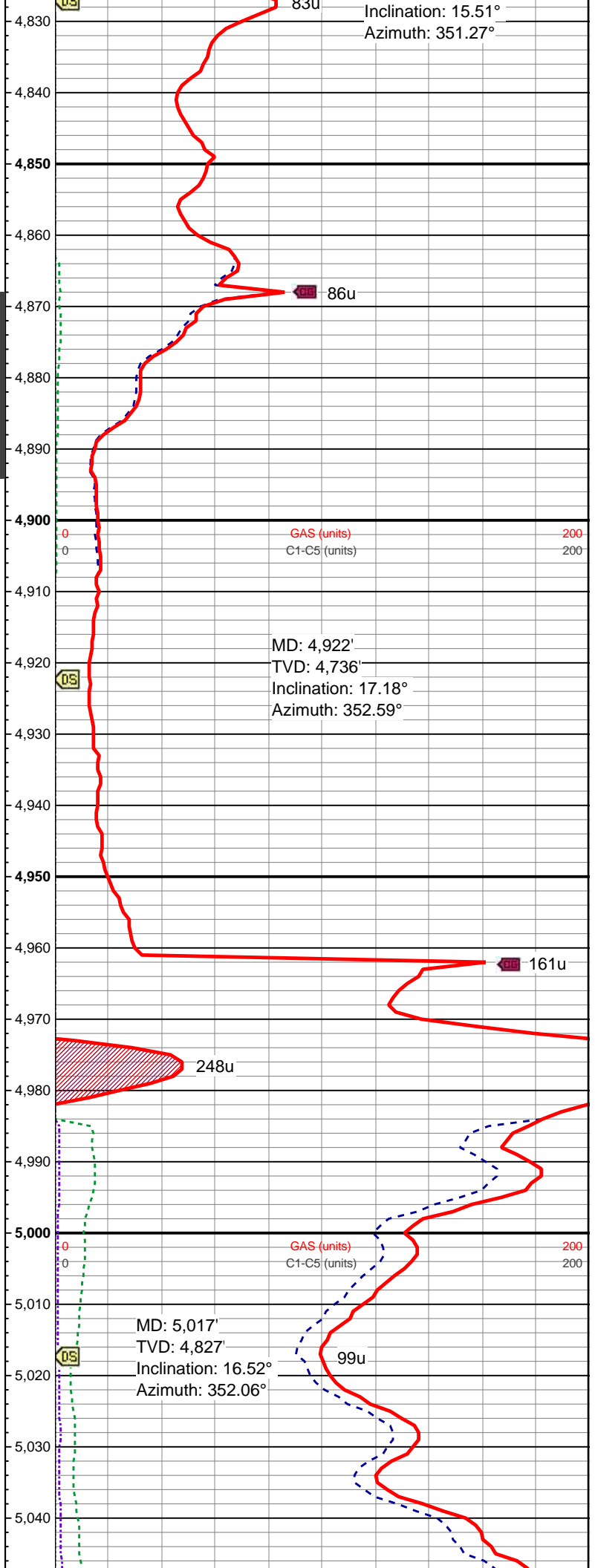
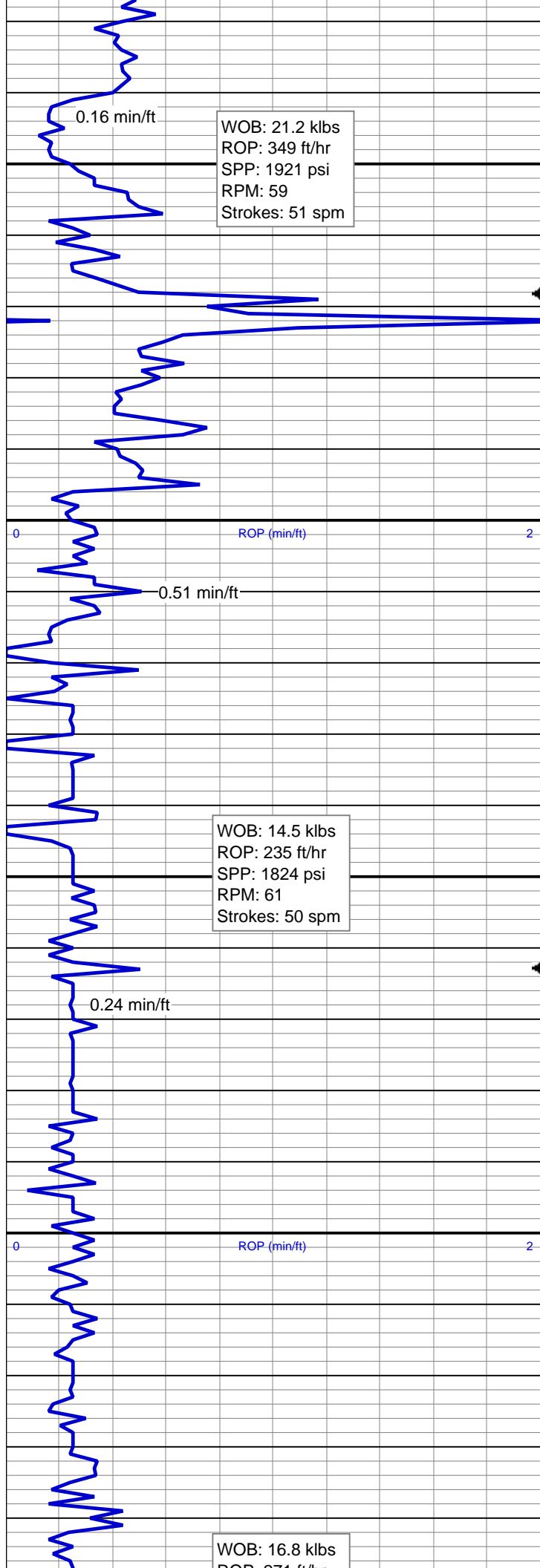
0.25 min/ft











ROP: 27.1 ft/hr
SPP: 1904 psi
RPM: 60
Strokes: 52 spm

0.16 min/ft

ROP (min/ft)

0.17 min/ft

WOB: 20.6 klbs
ROP: 135 ft/hr
SPP: 1849 psi
RPM: 62
Strokes: 49 spm

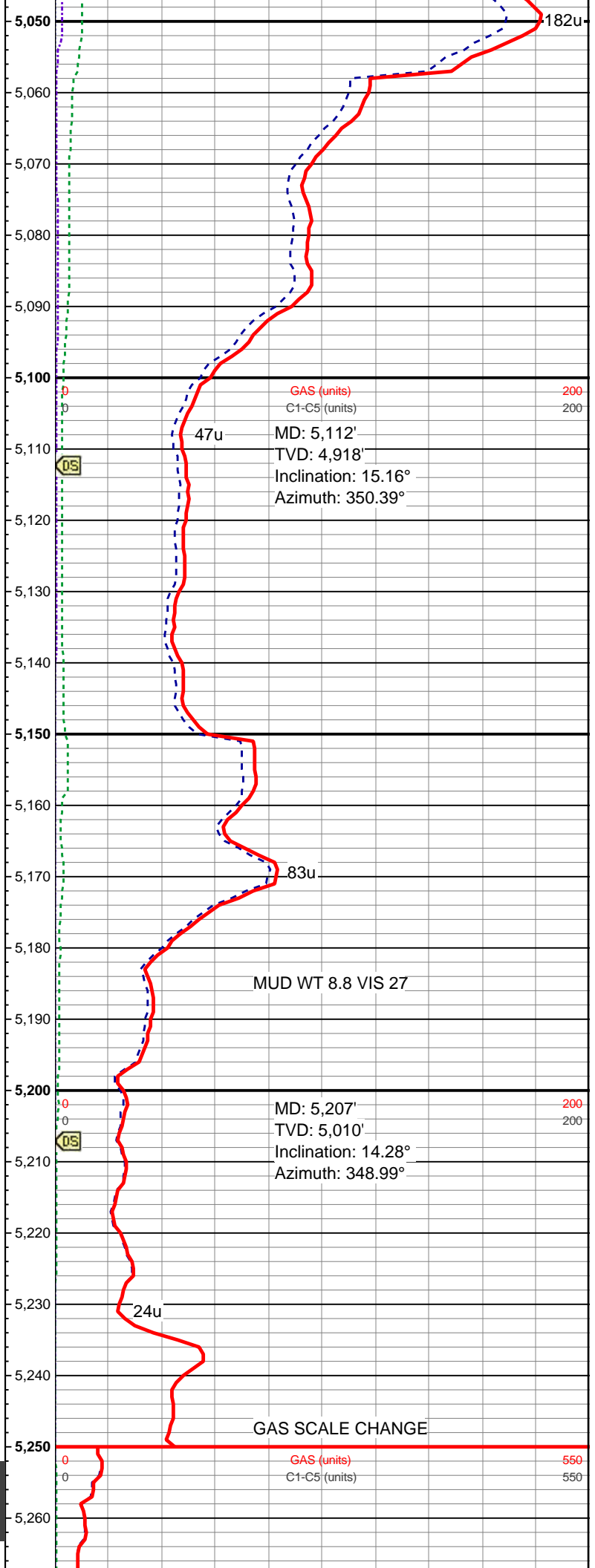
0.33 min/ft

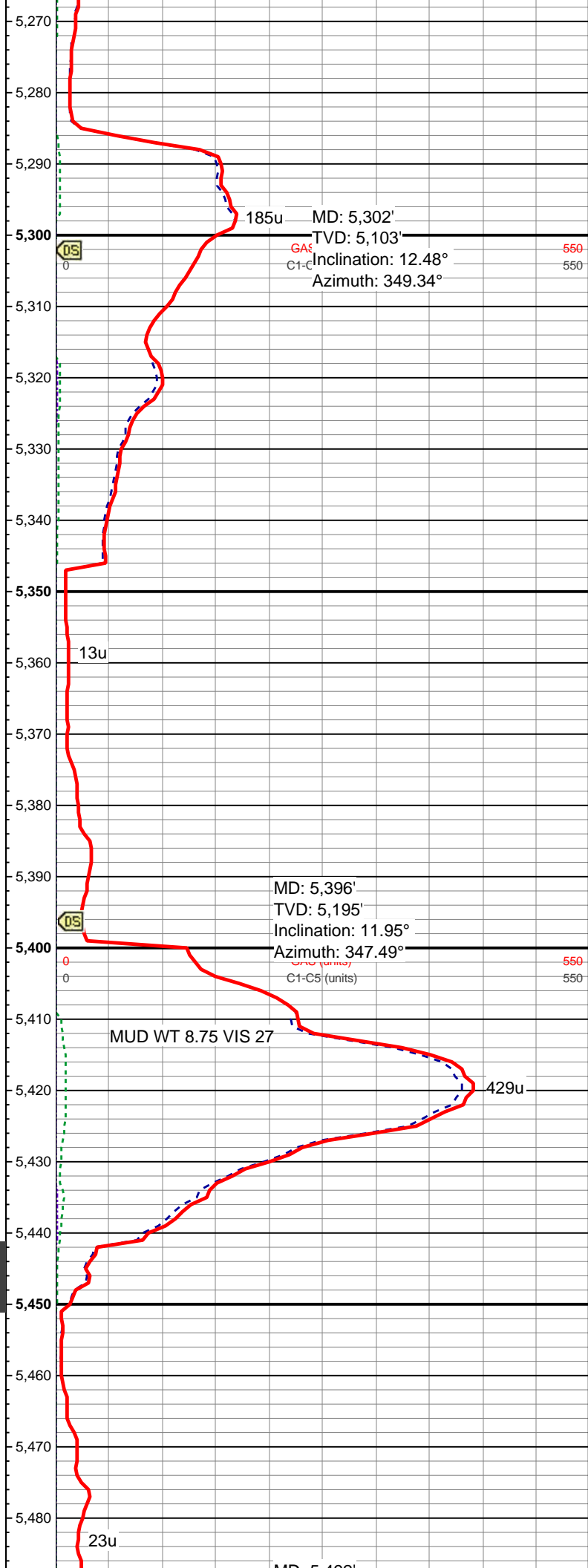
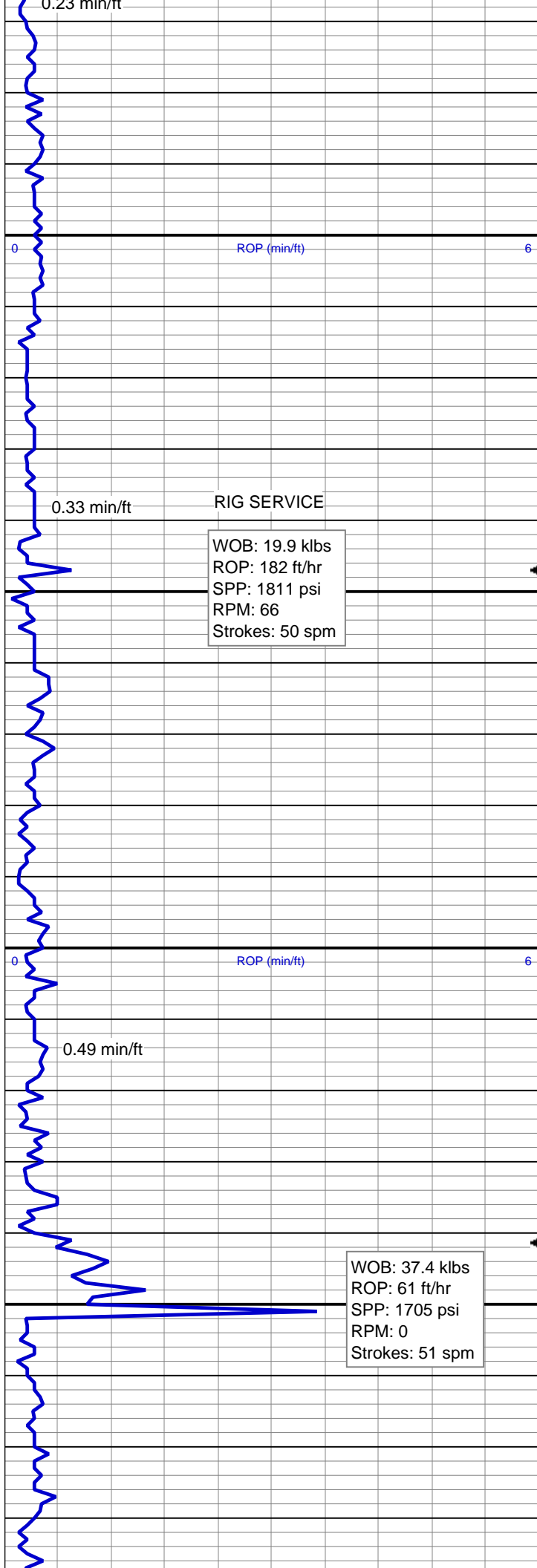
ROP SCALE CHANGE

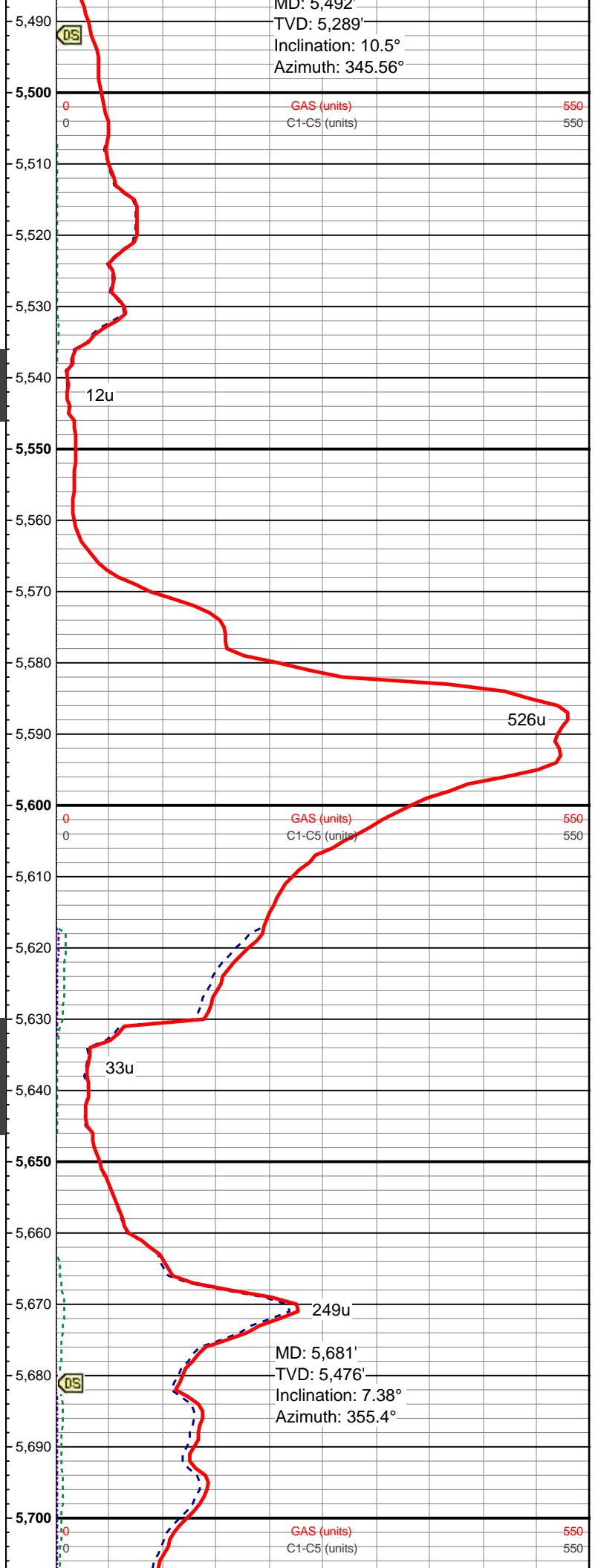
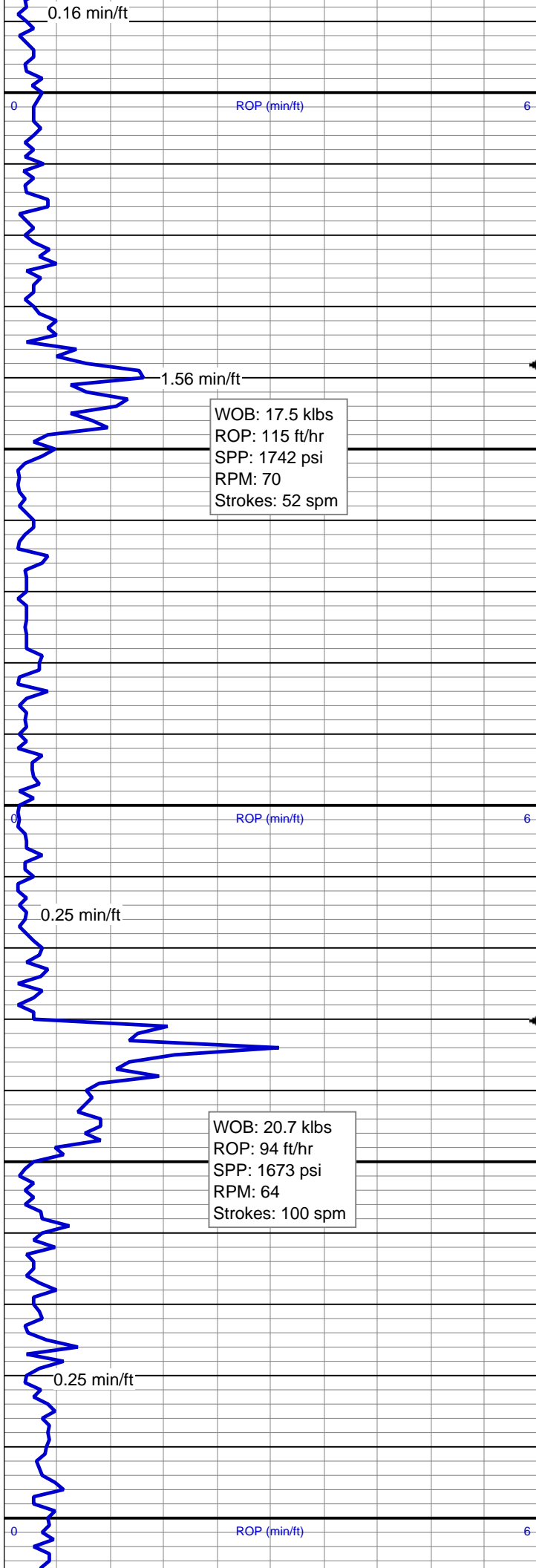
ROP (min/ft)

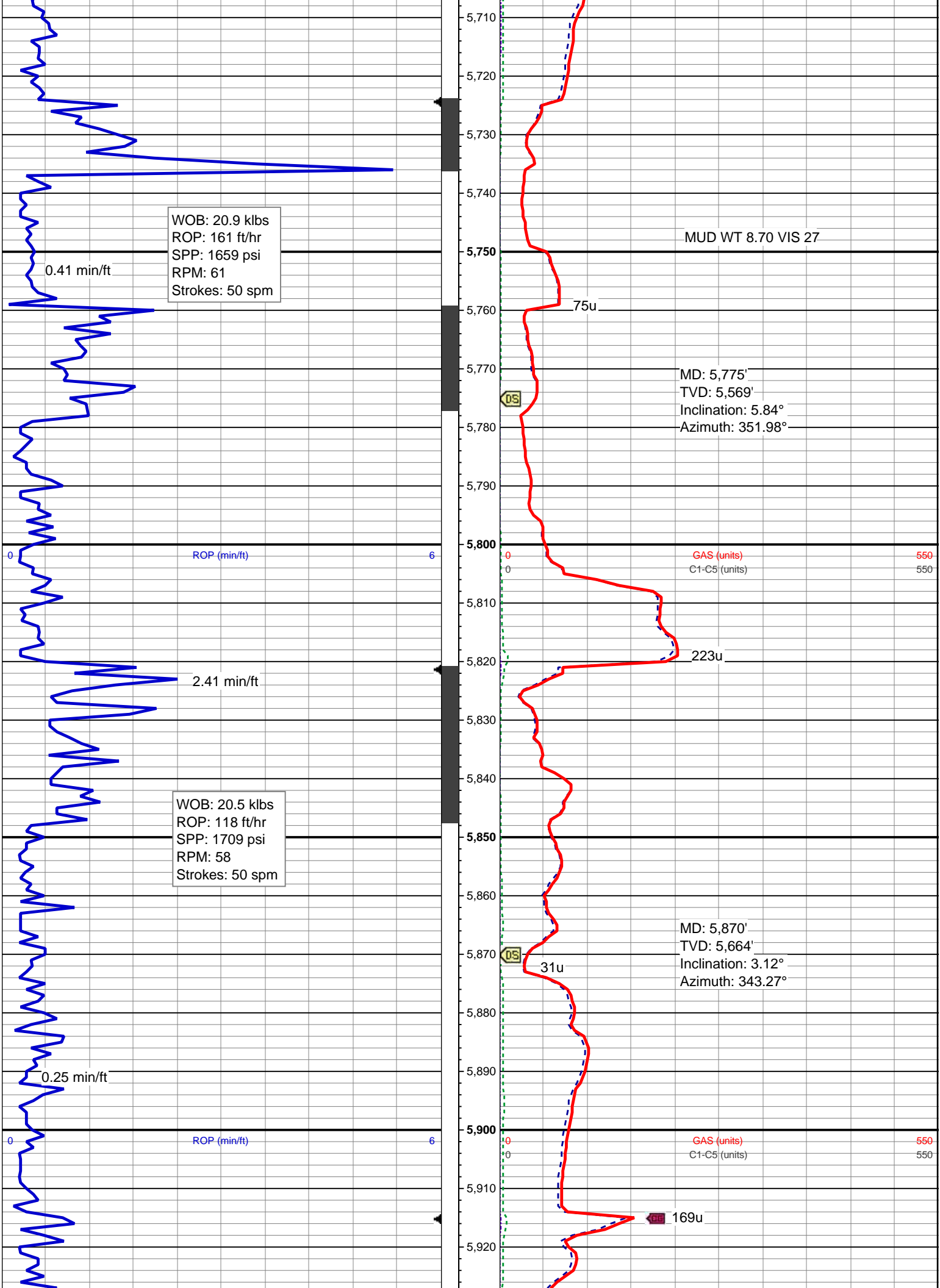
WOB: 22.5 klbs
ROP: 222 ft/hr
SPP: 1843 psi
RPM: 60
Strokes: 50 spm

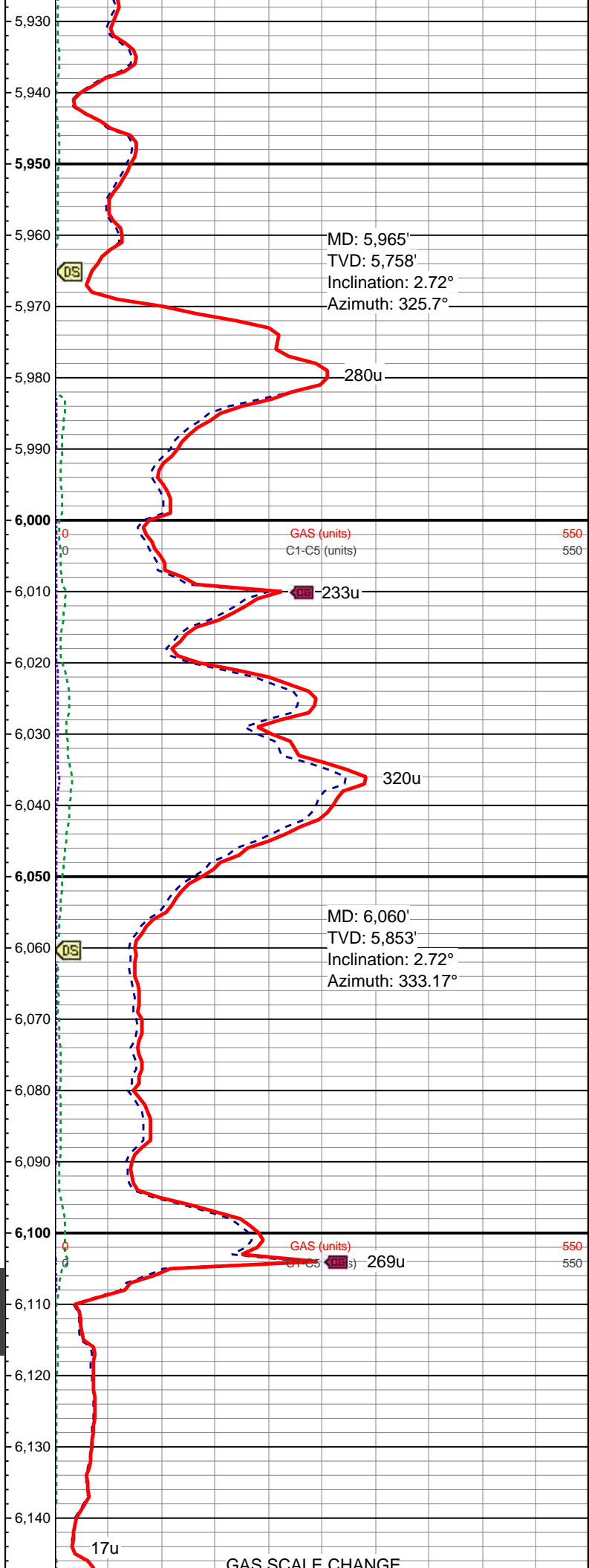
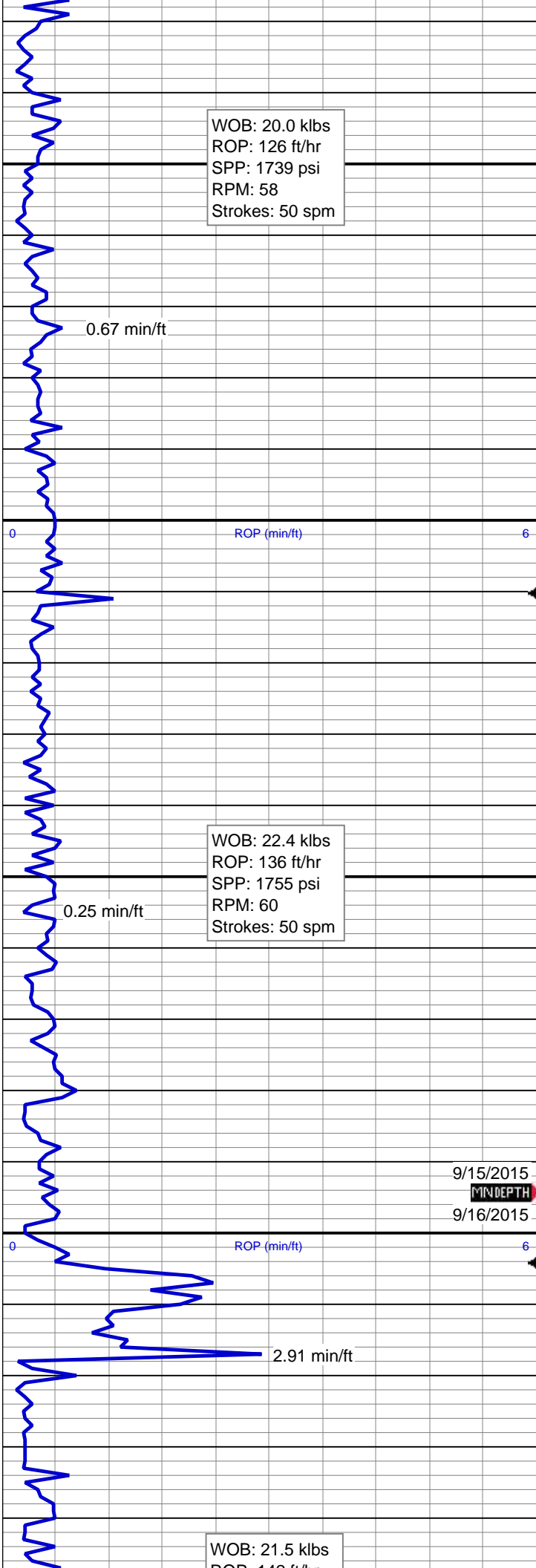
0.22 min/ft

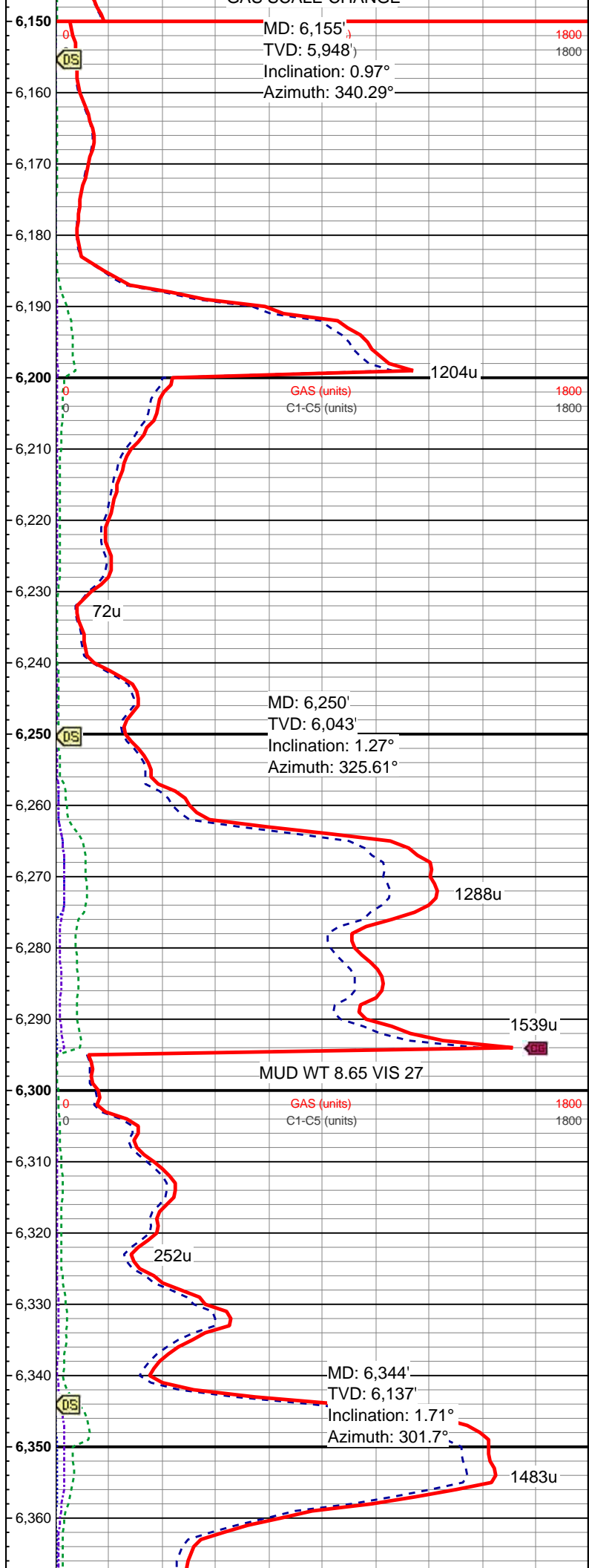
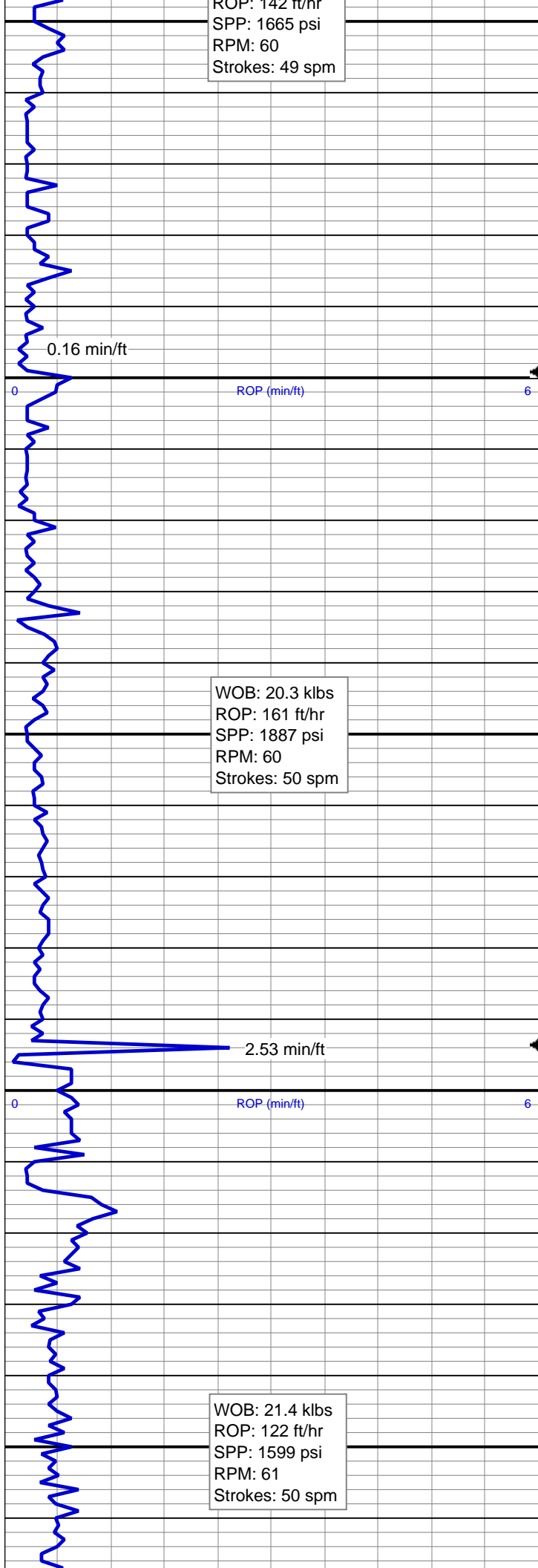


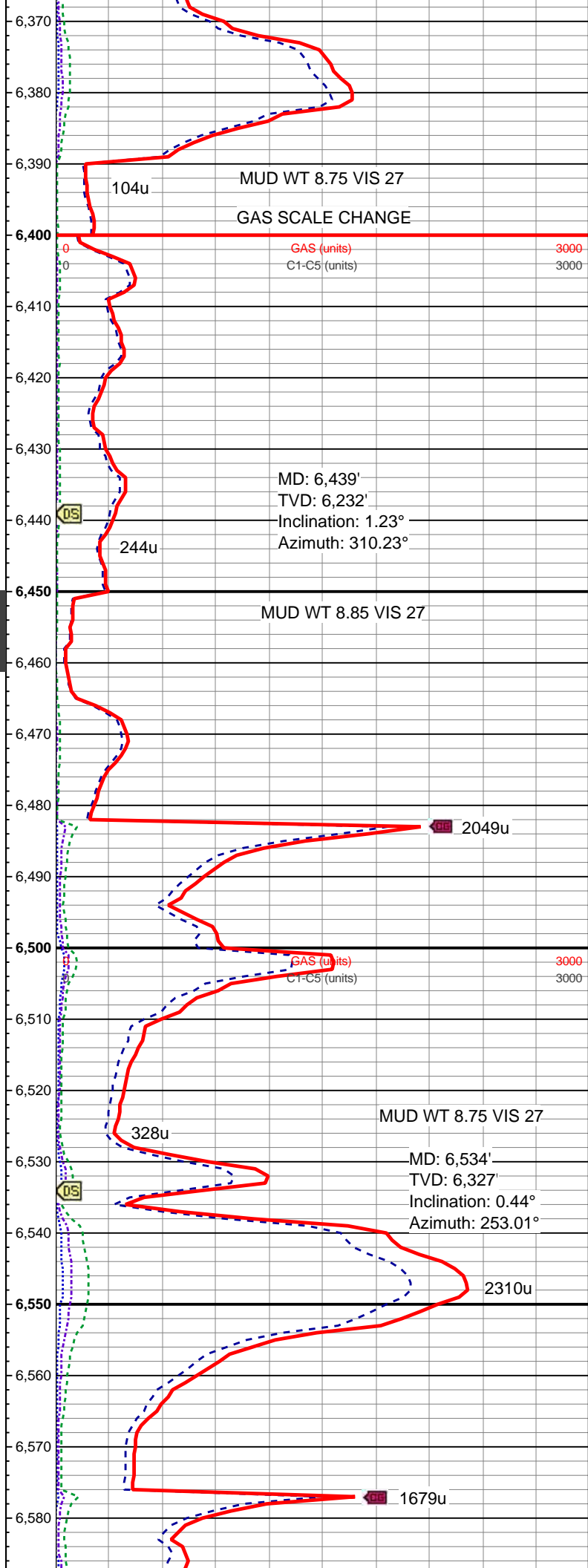
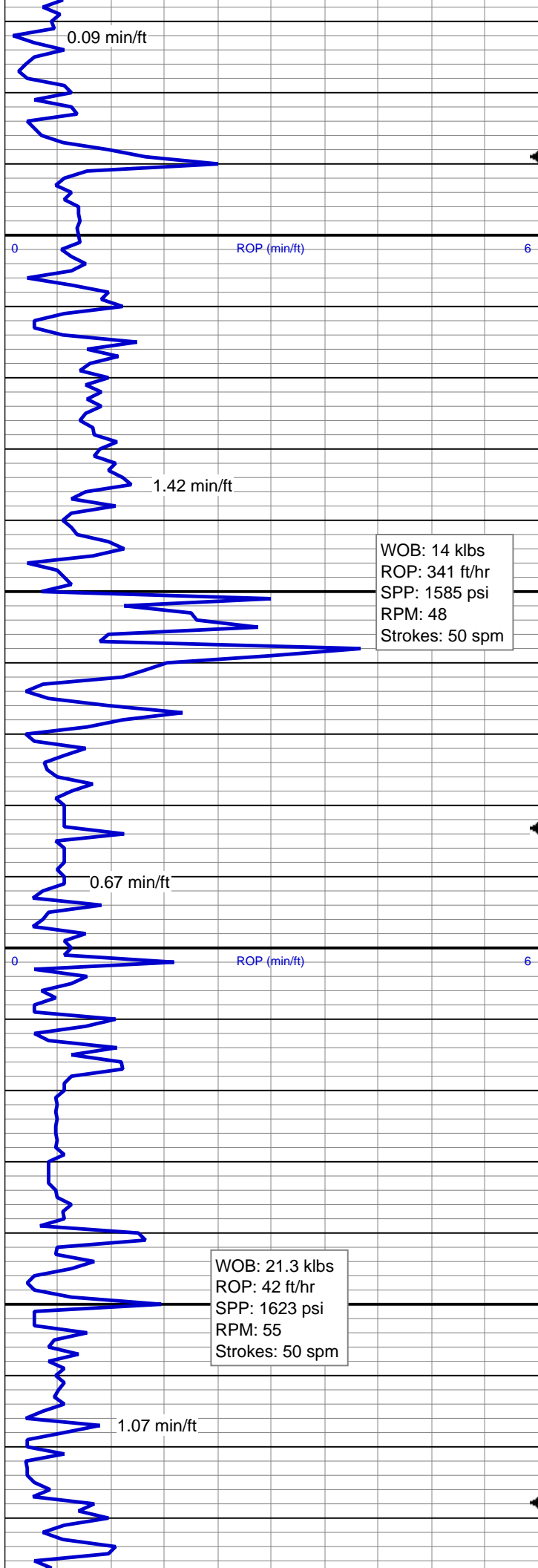


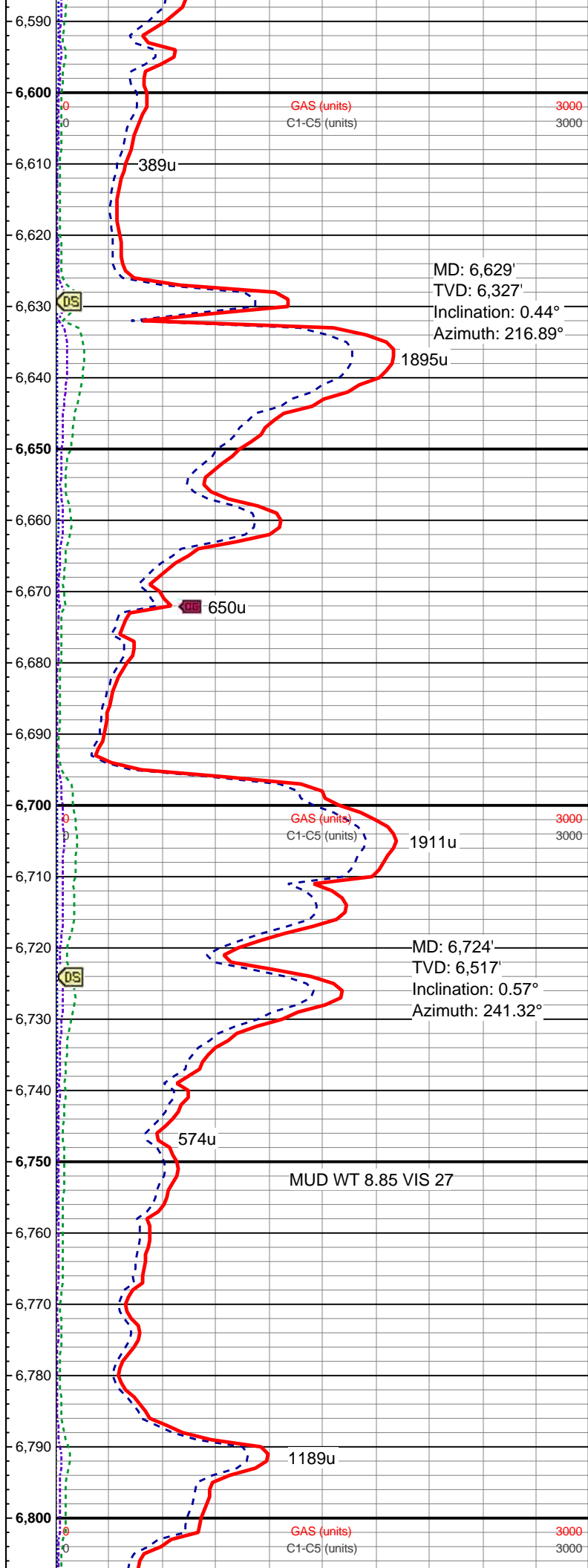
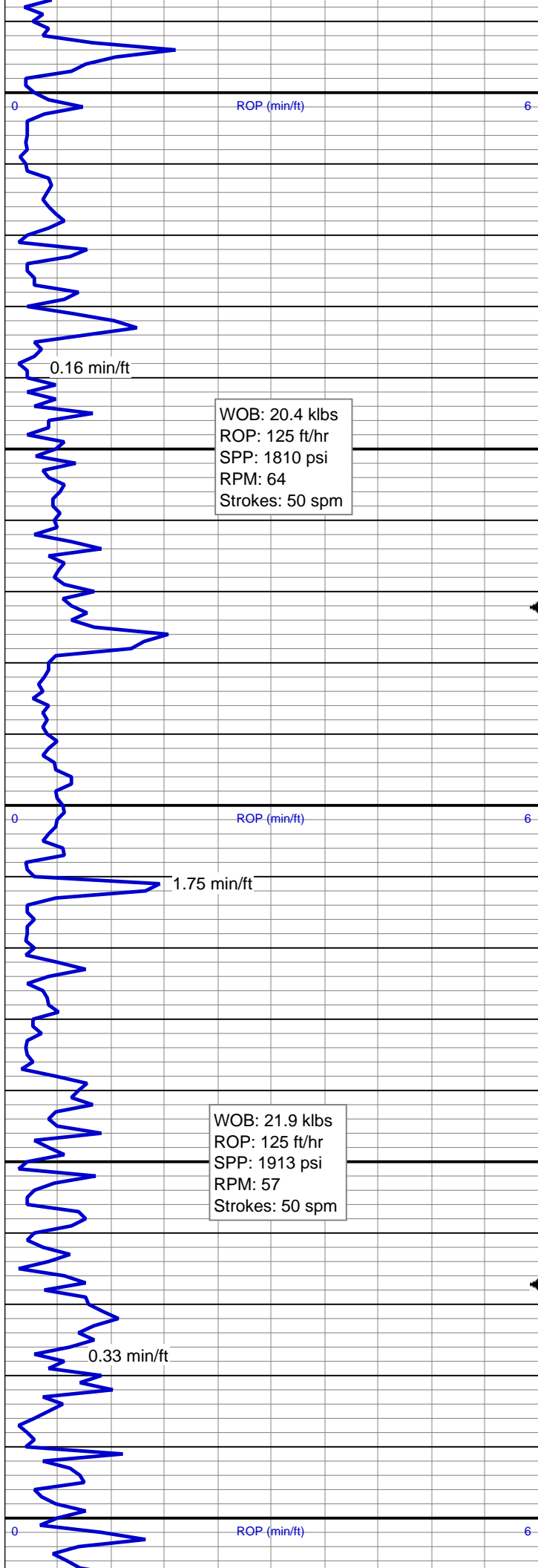


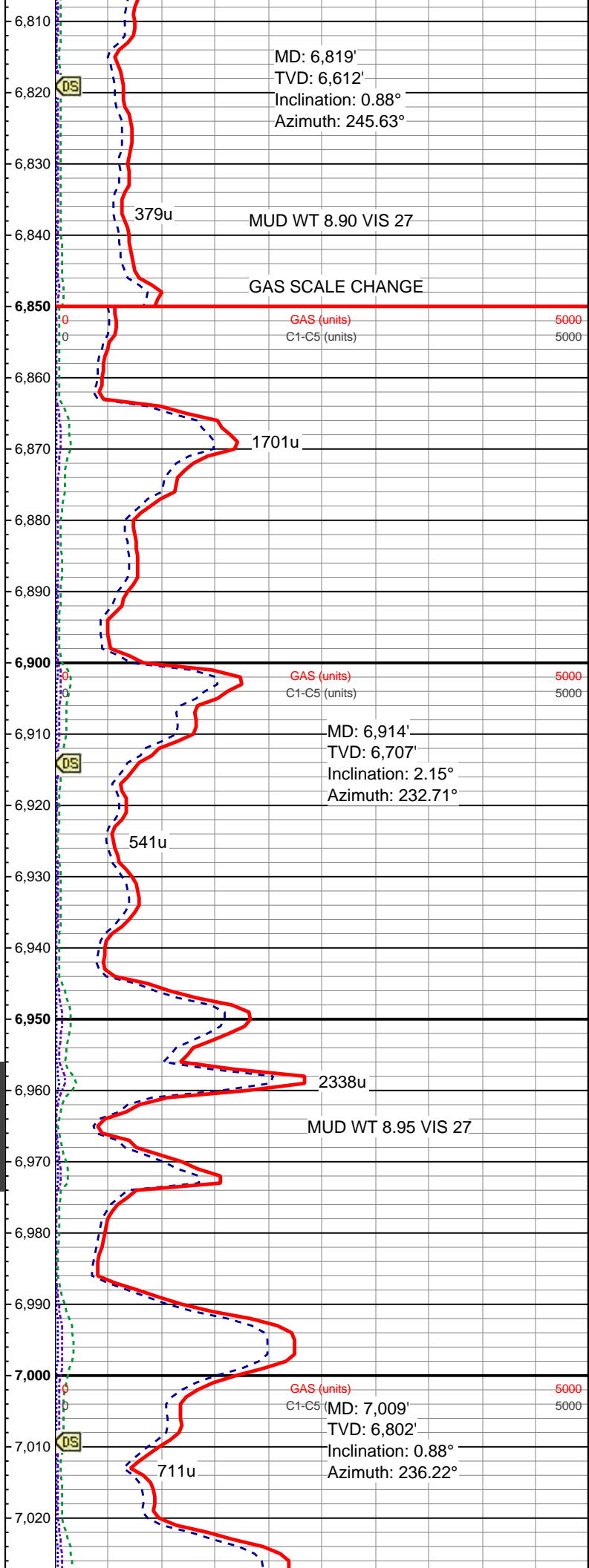
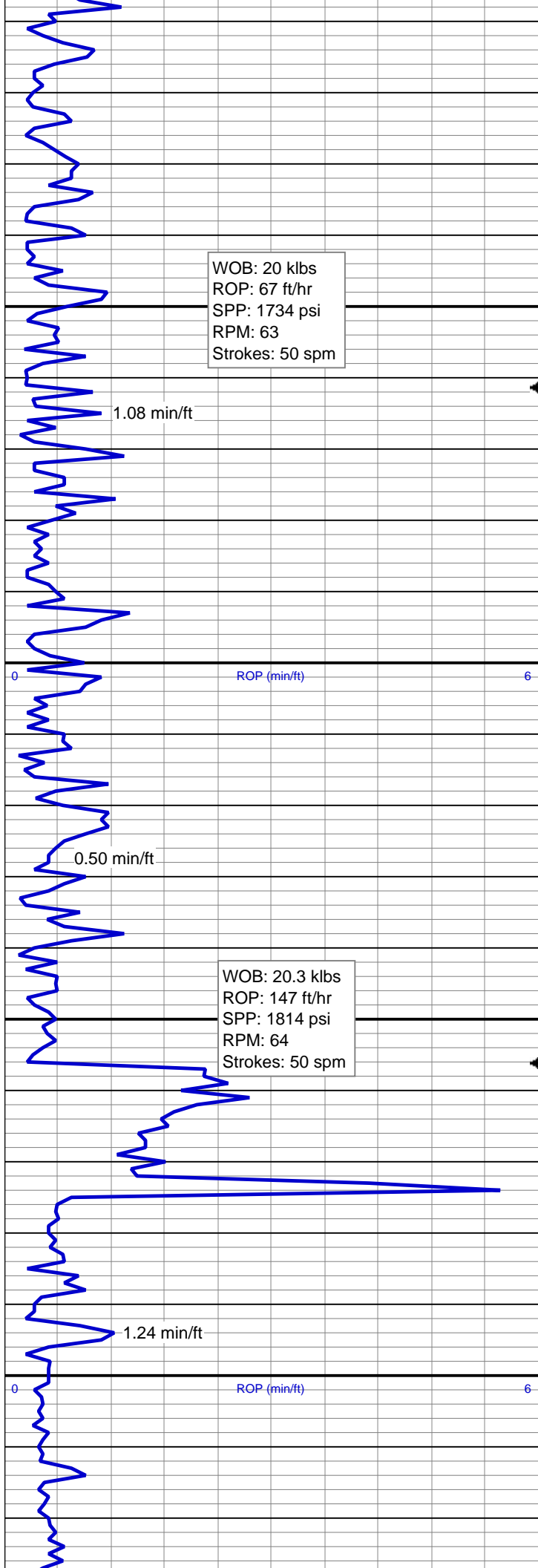


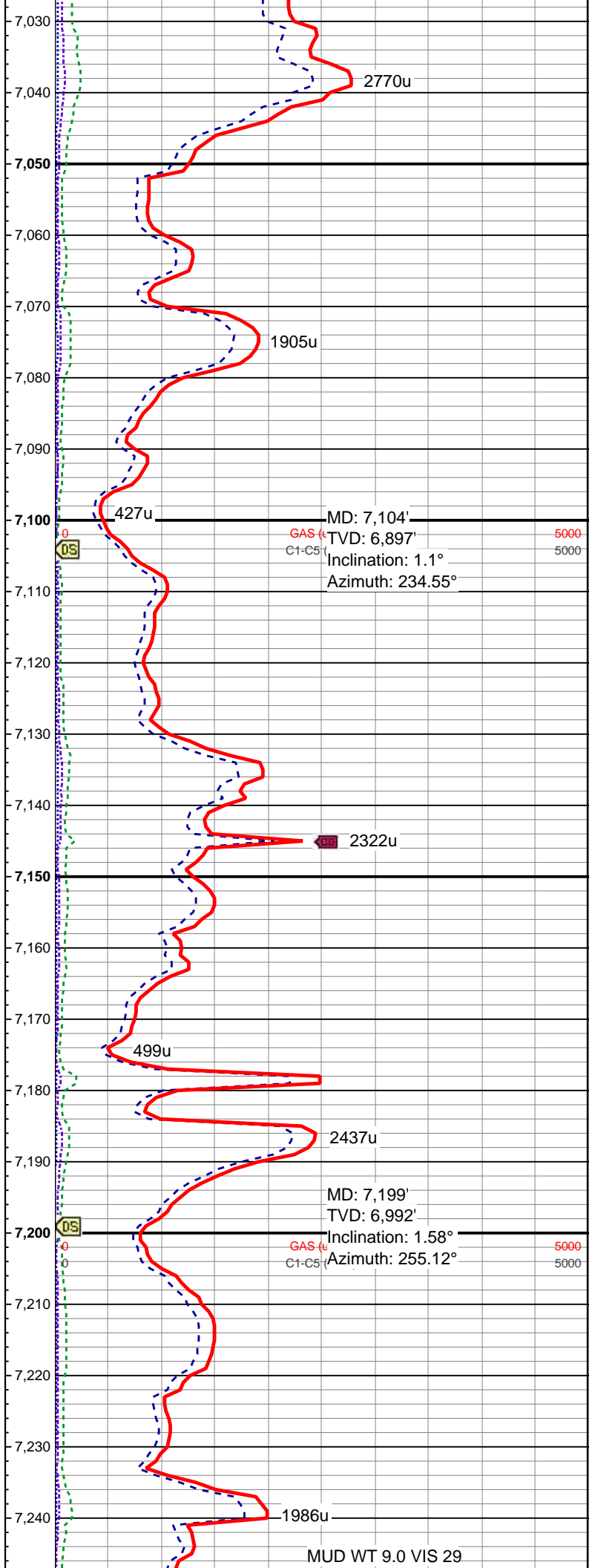
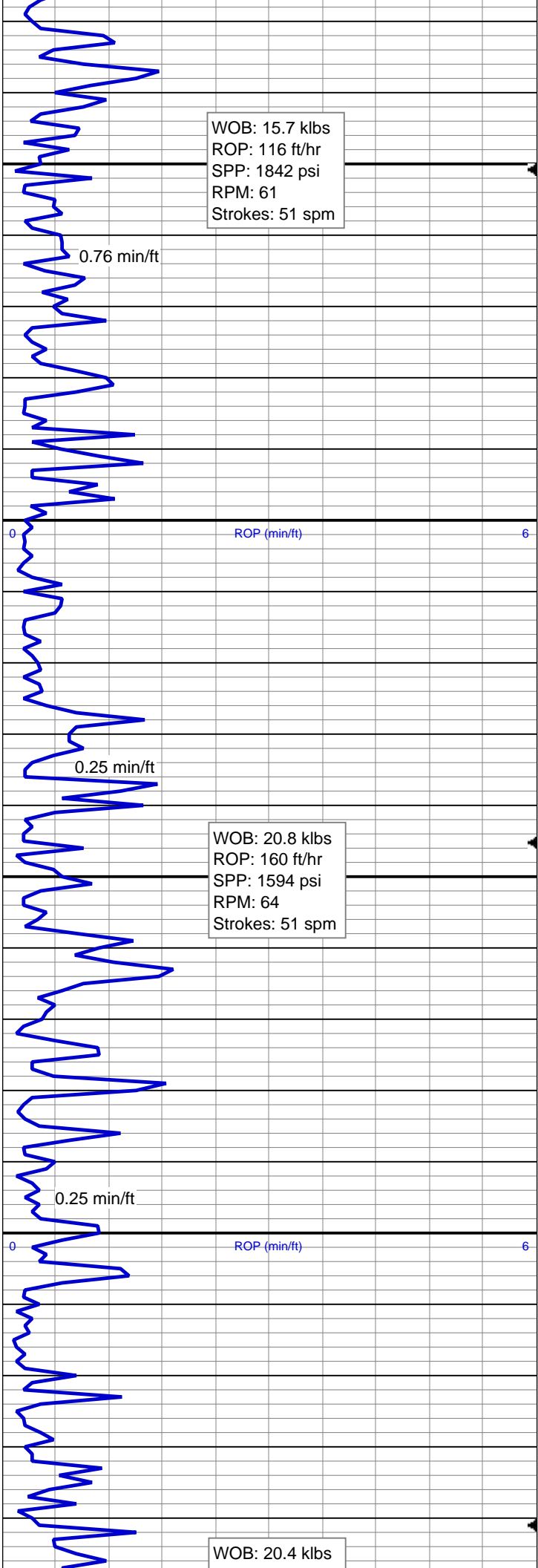












ROP: 92 ft/hr
SPP: 1647 psi
RPM: 56
Strokes: 50 spm

0.41 min/ft

WOB: 20.1 klbs
ROP: 145 ft/hr
SPP: 2277 psi
RPM: 61
Strokes: 50 spm

0.92 min/ft

0.25 min/ft

1.63 min/ft

WOB: 24.3 klbs
ROP: 61 ft/hr
SPP: 2142 psi
RPM: 59
Strokes: 51 spm

