



Scale: 5" / 100'
Measured Depth Log

Well Name Lateral/State Bierstadt 4-65 35-34 1 DH

Location 1250' FNL & 650' FEL SEC 35 T4S-R65W

State COLORADO

County ARAPAHOE

Country USA

Rig Number H&P 448

API Number 05-005-07295

AFE # WAY.CDR.7002

Geographic Region DJ BASIN

Field WILDCAT

Spud Date 8/5/2017

Drilling Completed 8/23/2017

Surface Coordinates 1250' FNL & 650' FEL SEC 35 T4S-R65W

Bottom Hole Coordinates Proposed BHL:

1049' FNL & 1140' FWL SEC 34 T4S-R65W

Ground Elevation 5872.3

K.B. Elevation 5898.5

Logged Interval 6000' To 16826'

Total Depth 16826'

Formation Niobrara

Type of Drilling Fluid OBM

Operator

Company Conoco Phillips

Address 600 N. Dairy Ashford Rd.
Houston, TX 77079-1175



Geologist

Name Dave Aldridge

Company Conoco Phillips Central Rockies Implementation

Address Dave.E.Aldridge@conocophillips.com
Office:(832)486-3983
600 N Dairy Ashford EC3 14-W134
Houston, TX 77079



Other

Columbine Logging Inc. Mud Logging Company

Geologists/Geosteers on Location: Todd Thiesse, James Averill

Gas Detection: Bloodhound chromatograph gas unit #0316

DD/MWD: Baker Hughes

Columbine Computer 87A

Color Coding

- Oil
- Ndle
- Error
- Condensate
- Core
- Water
- Gas
- Pressure
- Seal

Rock Types

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

Fossils

- GASTROPOD
- INOCERAMUS
- OOLITE
- OSTRACOD
- PELECYPOD
- PELLET
- PISOLITE
- PLANT REMAINS
- PLANT SPORES
- SCAPHOPOD
- STROMATOPOROID
- ECHINOID
- FISH
- FORAMINIFERA
- FOSSIL
- ANHYDRITIC
- ARGILLACEOUS

Minerals

Oil Show

- P PINPOINT
- V VUGGY

Engineering

- DEAD
- EVEN
- QUESTIONABLE
- BIT
- SPOTTED STAINING
- CONNECTION (UP)

Porosity

- CONNECTION (DOWN)
- CONNECTION GAS
- CONNECTION GAS
- TRIP GAS
- TRIP GAS (LEFT)
- INTERCRYSTALLINE
- DOWN TIME GAS
- INTEROOLITIC
- DOWN TIME GAS (L)
- MOLDIC
- CORE - LOST
- CORE - RECOVERED

Accessories

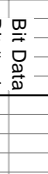
ARGILLITE GRAIN	HEAVY MINERAL	
BENTONITE	KAOLIN	
BITUMENOUS SUBSTANCE	MARCASTITE	
BRECCIA FRAGMENTS	MARLSTONE	ANHYDRITE STRINGER
CALCAREOUS	MICACEOUS	BENTONITE STRINGER
CARBONACEOUS FLAKES	MINERAL CRYSTALS	COAL STRINGER
CHITDK	NODULES	DOLomite STRINGER
COAL - THIN BEDS	PHOSPHATE PELLETS	GYPSUM STRINGER
DOLOMITIC	PYRITE	LIMESTONE STRINGER
ELDSPAR	SALT CAST	MARLSTONE (CALC) STRG
FERRUGINOUS PELLET	SANDY	MARLSTONE (DOL) STRG
FERRUGINOUS	SIDERITE	SANDSTONE STRINGER
GLAUCONITE	SILICEOUS	SHALE STRINGER
GYPSIFEROUS	SILTY	SILTSTONE STRINGER
	TUFFACEOUS	

Stringer

Other Symbols

DST INTERVAL	WIRELINE TESTED - LEFT	E EARTHY
FAULT	WIRELINE TESTED - RT	FX FINELYXLN
FORMATION TOP	DRILL STEM TEST	GS GRAINSTONE
GAS SHOW	MNDEPTH MN DEPTH	L LITHOGRAPHIC
OIL SHOW		MX MICROXLN
Rounding		
MN DEPTH UP		MS MUDSTONE
MN DEPTH (DOWN)	A ANGULAR	PS PACKSTONE
NORMAL FAULT	R ROUNDED	WS WACKESTONE
OVERTURNED STRATA	S SUBANG	
REVERSE FAULT	n SUBRND	
CASING		
Textures		
SIDEWALL CORE (LEFT)		M MODERATE
SIDEWALL CORE (RIGHT)	B3 BOUNDSTONE	P POOR
SLIDE	C CHALKY	W WELL
SURVEY	CX CRYPTOXLN	
Sorting		

100



Size: 8.5
Depth In: 2297'
Depth Out: 16826'

Jets: 5x14	
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S/N: 7163817

③

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Bit Data
Bit #: 1
Type: HCC AT50
Size: 8.5
Depth In: 2297
Depth Out: 16826
Jets: 5x14

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[illegible][illegible]ROP: 658ft/h
RPM: 61

STRK 2: 98 S
WOB: 24klb

SIR: 2: 98 S
WOB: 24Klb

260u

ROP: 658ft/hr
RPM: 61
SPP: 4440PSI
STRK 1: 98 SPM
STRK 2: 98 SPM
WOB: 24klbs

MUD WT IN: 9.3 VIS: 60
MUD WT OUT: 9.3 VIS: 54

232 U	
C1 50.0%	
C2 48.3%	
C3 1.1%	
C4 0.6%	

GAS (units)
C1-C4 (units)

10	6,020	6
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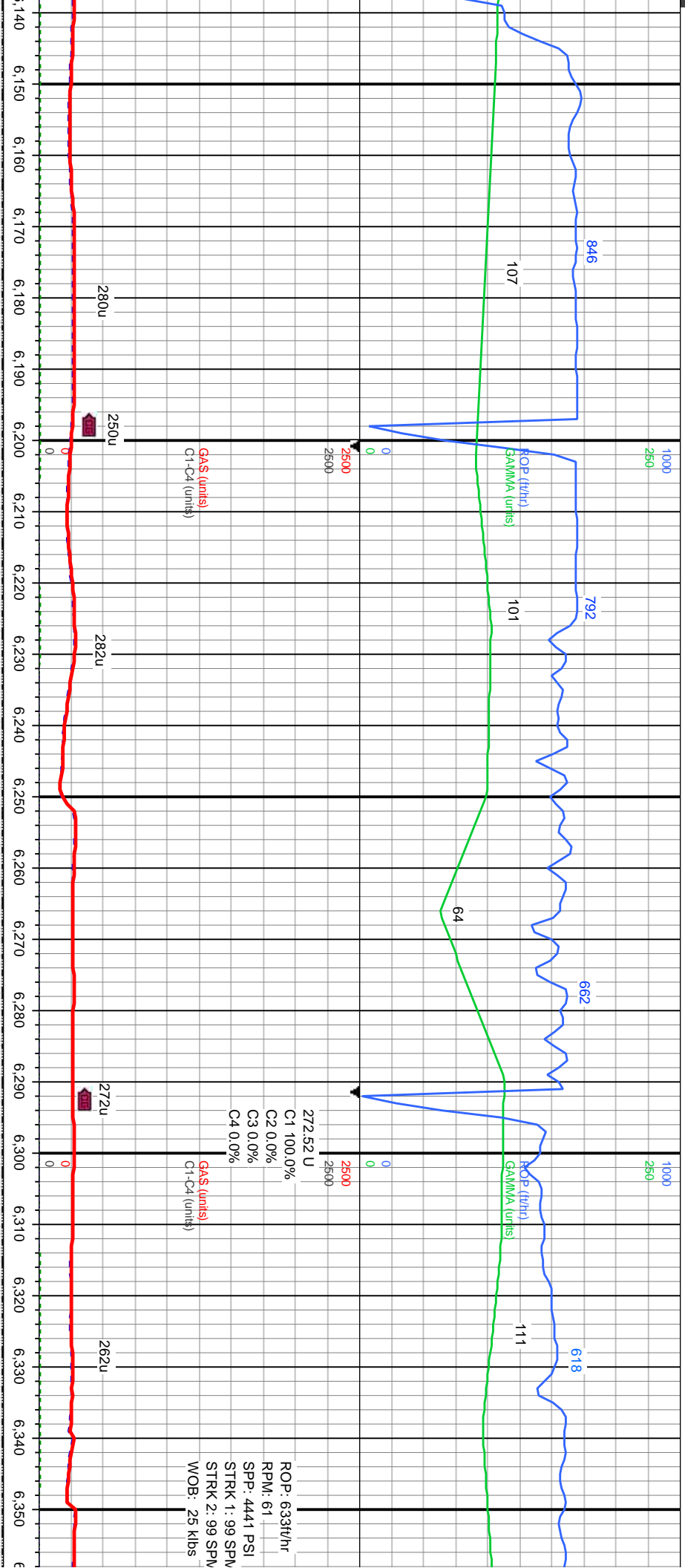
[illegible]

SLTY SH: gy-d

SLTY SH: gy-dk gy, dk brn ip, v sft-sft, sb plty-plty, slty-rthy tex, non calc, slty ip

SLTY SH: gy-dk gy, sme dk brn,
non calc with some tr SLTST: me
calc.

[illegible][illegible]



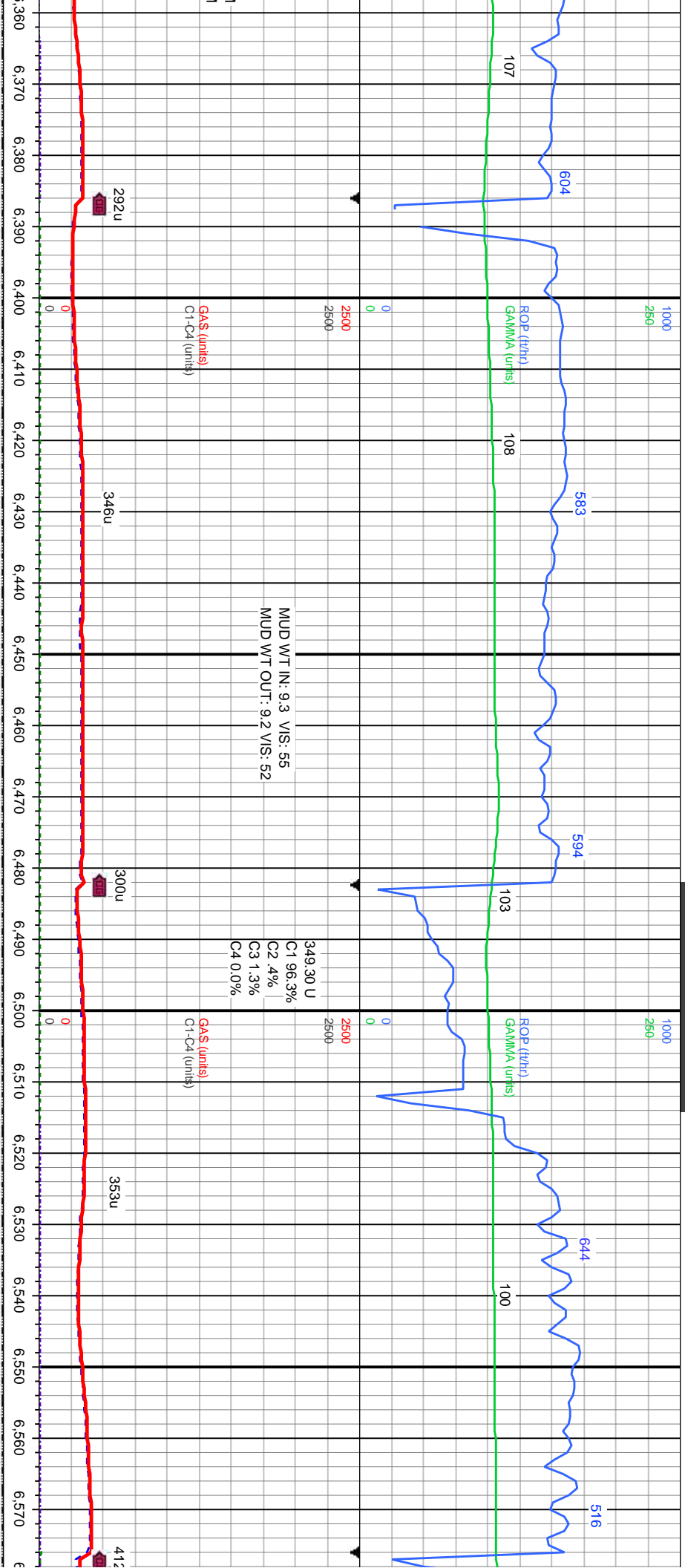
v sft - sft, sb pily-pily, silty to rthy tex, grdg to slst in pt,
d gy- gy, sl frm, sb blk- occ sb pily, rthy-sily tex, non

SLTY SH: gy-dk gy, sme dk brn, v sft - sft, sb pily-pily, silty to rthy tex, grdg to slst in pt, non
calc with some tr SLTST: med gy- gy, sl frm, sb blk- occ sb pily, rthy-sily tex, non calc.

SLTY SH: gy-dk gy, sme dk brn, v sft - sft, sb pily-p
pt, non calc with some tr SLTST: med gy, sl frm, st
calc.

MD: 6,149'
Inclination: 10.25°
Azimuth: 50.32°
TVD: 6,139.1'
VS: -149.1'

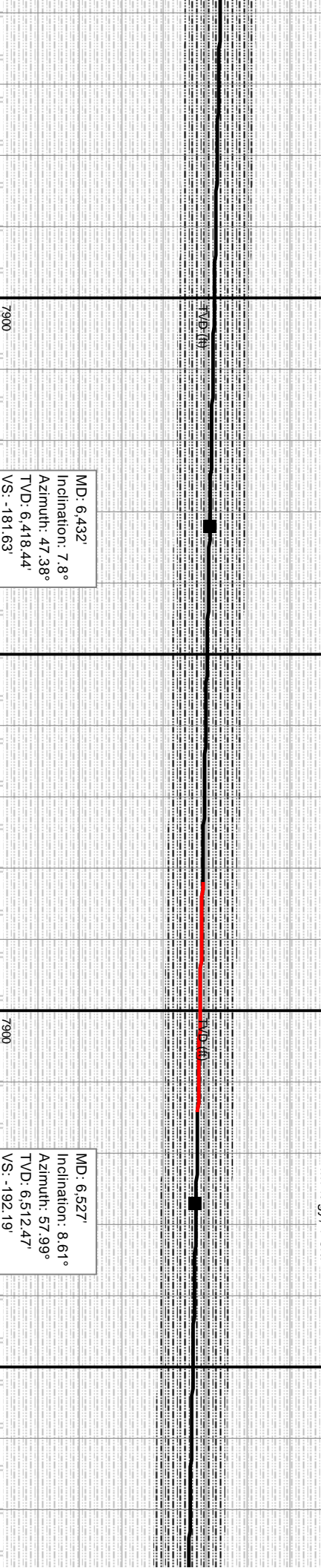
MD: 6,338'
Inclination: 8.69°
Azimuth: 45.7°
TVD: 6,325.41'
VS: -172.11'



slty, silty to rthy tex, grdg to silst in
biky- occ sb ply, rthy tex, non

SLTY SH: gy-dk gy, v sft - sft, sb ply-ply, silty to rthy tex, grdg to silst in pt,
non calc with some tr SLTST: med gy, sl frm, sb biky- occ sb ply, rthy tex,
non calc.

SLTY SH: gy-dk gy, v sft - sft, sb ply-ply, silty to rthy tex, g
non-sl calc with some tr SLTST: med gy, sl frm, sb biky- oc
tex, non-sl calc. with tr BENT:
wh-ll gy, v sft.



MD: 6.432'
Inclination: 7.8°
Azimuth: 47.38°
TVD: 6.418.44'
VS: -181.63'

MD: 6.527'
Inclination: 8.61°
Azimuth: 57.99°
TVD: 6.512.47'
VS: -192.19'

8/20/2017

MINDEPTH

1000
250

801

112

ROP (ft/hr)
GAMMA (units)

103

120

522

109

111

254

156

2500
2500

ROP: 300 ft/hr
RPM: 61
SPP: 4024
STRK 1: 99 SPM
STRK 2: 99 SPM
WOB: 15.4kbs

MUD WT IN: 9.2 VS: 54
MUD WT OUT: 9.2 VS: 52

GAS (units)
C1-C4 (units)

GAS (units)
C1-C4 (units)

350u

366u

372u

401u

SLTY SH: gy-dk gy, v sft - sft, sb ply-pty, silty to rthy tex, grdg to slst in pt, non-sl calc with some tr SLTST: med gy, sl frm, sb biky- occ sb ply, rthy tex, non-sl calc. with tr BENT: wh-lt gy, v sft.

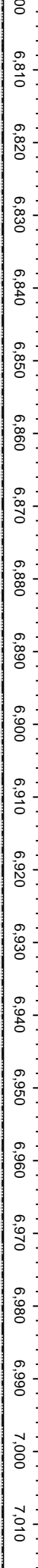
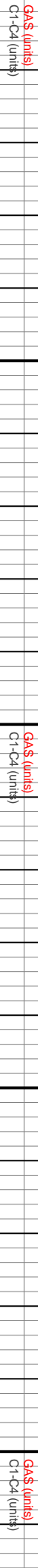
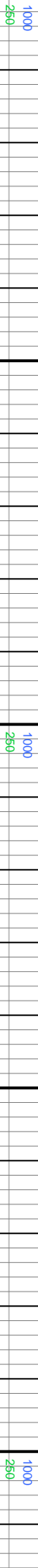
SLTY SH: gy-dk gy, v sft - sft, sb ply-pty, silty to rthy tex, grdg to slst in pt, non-sl calc with some tr SLTST: med gy, sl frm, sb biky- occ sb ply, rthy tex, non-sl calc.

TVD (ft)

TVD (ft)

MD: 6,621'
Inclination: 7.2°
Azimuth: 63.33°
TVD: 6,605.57'
VS: -203.24'

MD: 6,716'
Inclination: 8.67°
Azimuth: 64.12°
TVD: 6,699.66'
VS: -214.84'



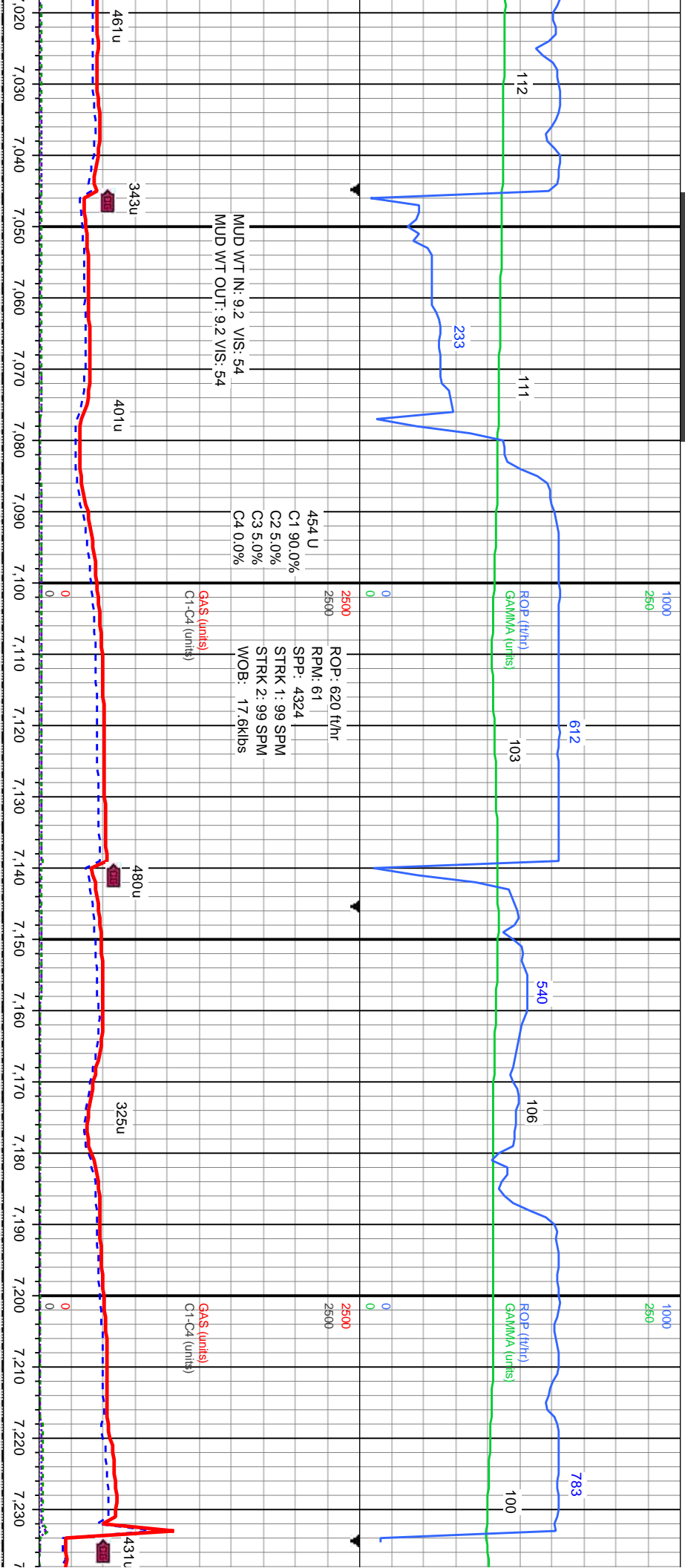
SLTY SH: dk gy-gy, v sft, sb ply, slty-rthy tex, sily in pt, non-sl calc with
occ tr SLTST: m gy, sft-frm, sb blkly, rthy tex, non-sl calc.

SLTY SH: dk gy-gy, v sft, sb ply, slty-rthy tex, sily in pt, non-sl calc with occ
tr SLTST: m gy, sft-frm, sb blkly, rthy tex, non-sl calc.

MD: 6,905'
Inclination: 9.31°
Azimuth: 65.29°
TVD: 6,886.52'
VS: -240.79'

MD: 6,999'
Inclination: 8.44°
Azimuth: 65.96°
TVD: 6,979.39'
VS: -253.84'





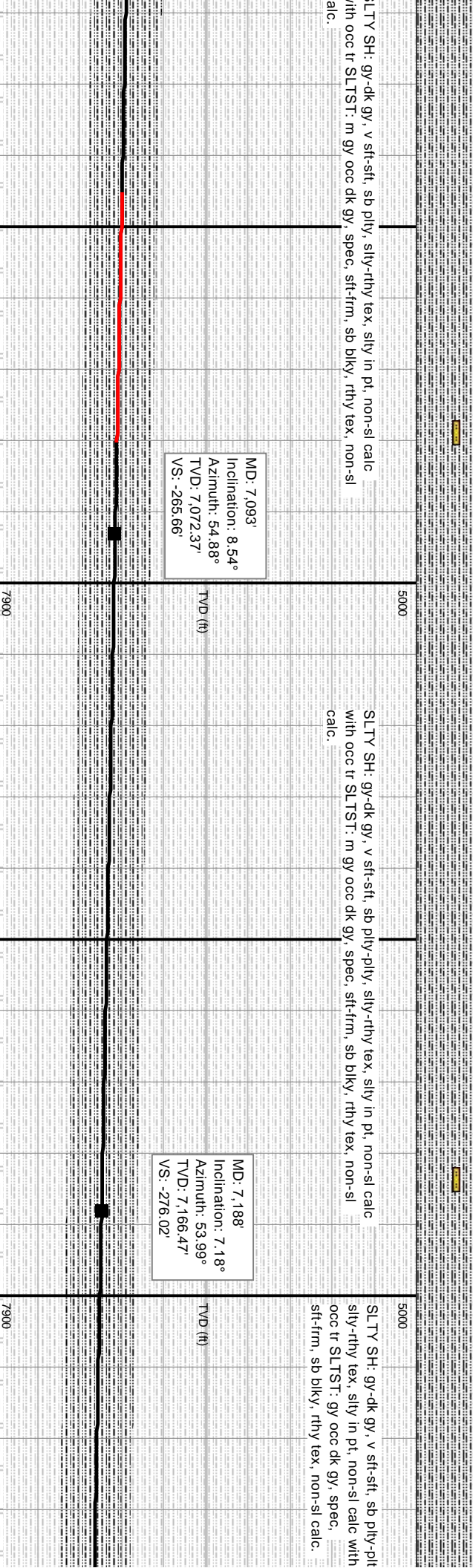
SLTY SH: gy-dk gy, v sft-sft, sb pily, silty-rthy tex, silty in pt, non-sl calc
with occ tr SLTST: m gy occ dk gy, spec, sft-frm, sb blkly, rthy tex, non-sl
alc.

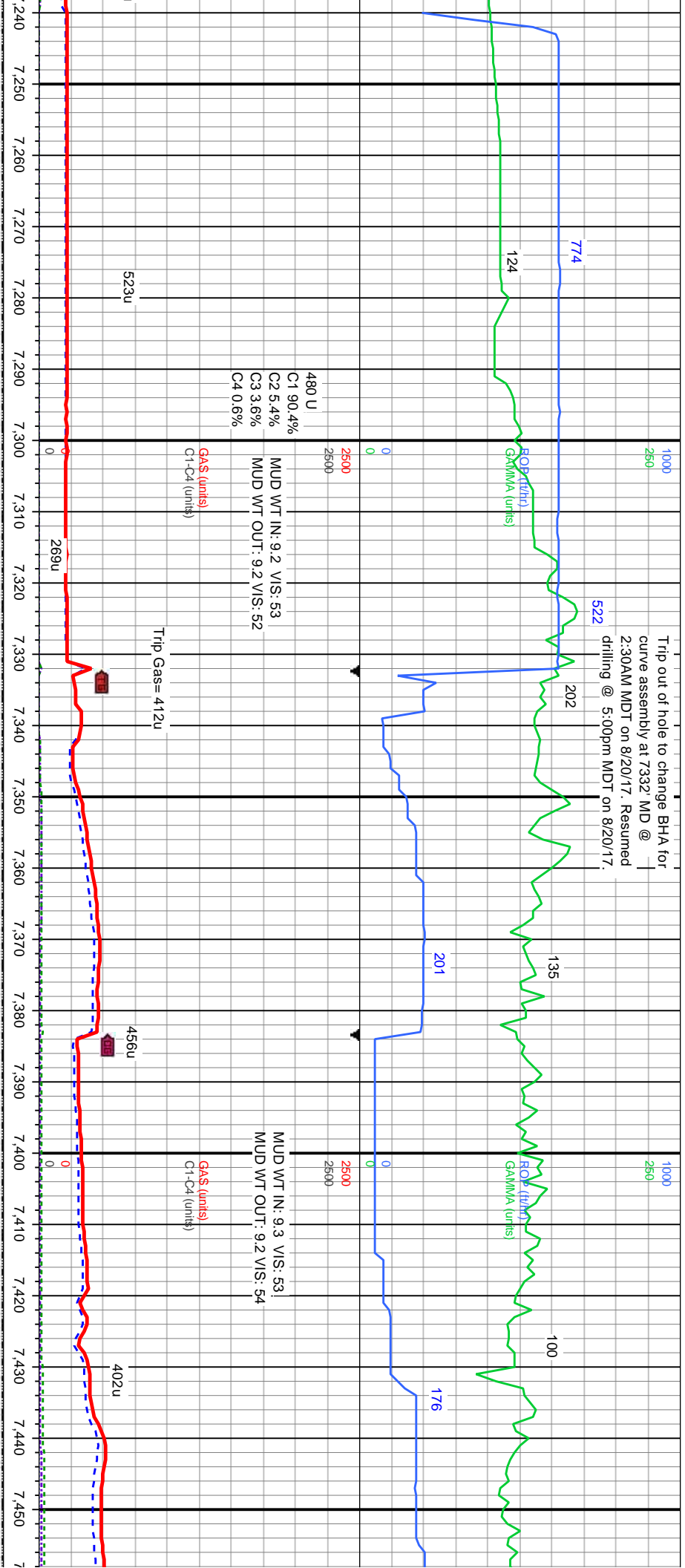
MD: 7.093'
Inclination: 8.54°
Azimuth: 54.88°
TVD: 7.072.37'
VS: -265.66'

SLTY SH: gy-dk gy, v sft-sft, sb pily-pily, silty-rthy tex, silty in pt, non-sl calc
with occ tr SLTST: m gy occ dk gy, spec, sft-frm, sb blkly, rthy tex, non-sl
calc.

MD: 7.188'
Inclination: 7.18°
Azimuth: 53.99°
TVD: 7.166.47'
VS: -276.02'

SLTY SH: gy-dk gy, v sft-sft, sb pily-pily
silty-rthy tex, silty in pt, non-sl calc with
occ tr SLTST: gy occ dk gy, spec,
sft-frm, sb blkly, rthy tex, non-sl calc.





SLTY SH: gy-dk gy, v sft-sft, sb pily-plty, silty-rthy
tex, silty in pt, non-si calc with decr tr SLTST: m
gy occ dk gy, spec, sft-frm, sb blkly, rthy tex,
non-si calc.

MD: 7,282'
Inclination: 5.91°
Azimuth: 53.2°
TVD: 7,259.86'
VS: -284.47'

5000
SLTY SH: gy-dk gy, v sft-sft, sb pily-plty, silty-rthy
tex, silty in pt, non-si calc with decr tr SLTST: m
gy occ dk gy, spec, sft-frm, sb blkly, rthy tex,
non-si calc.

TVD (ft)

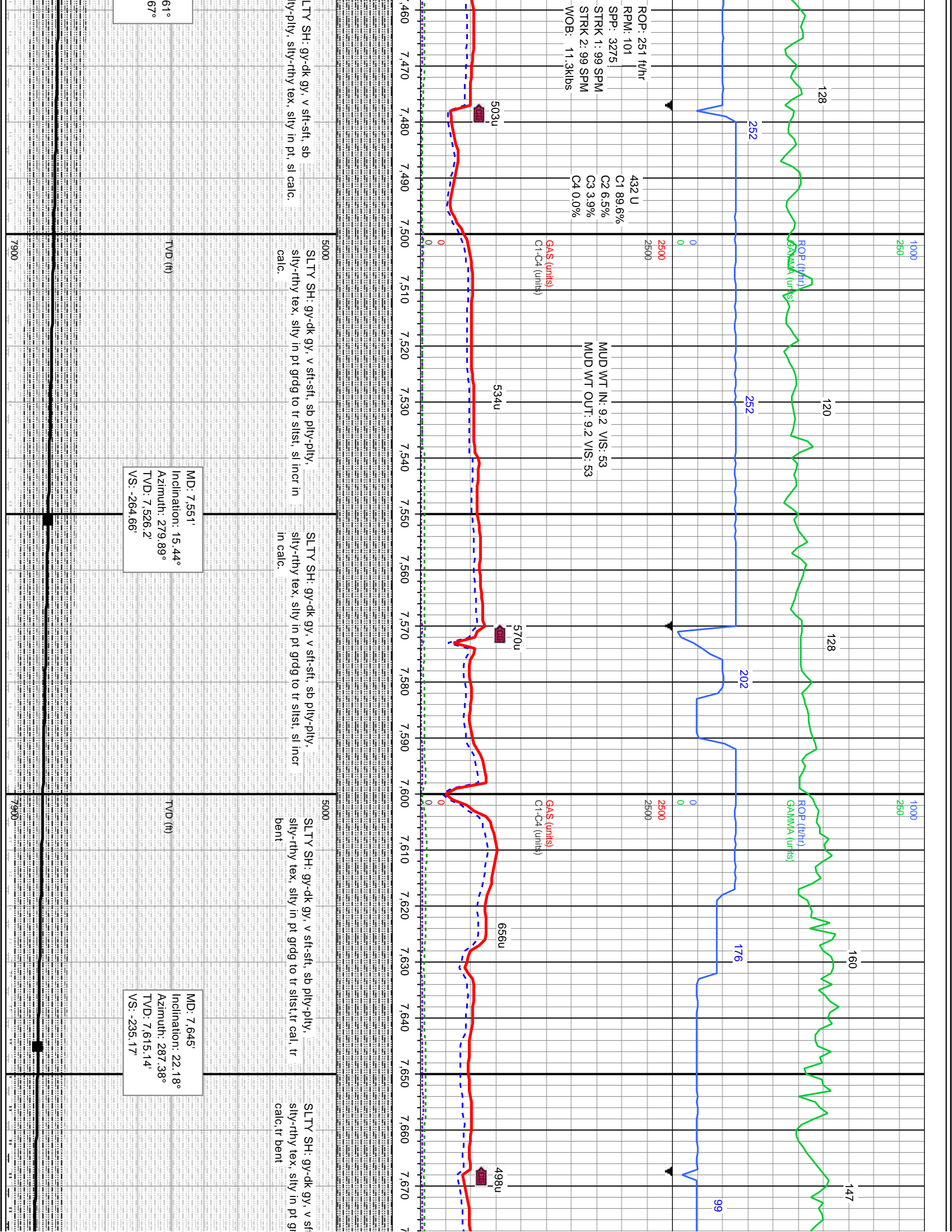
5000
SLTY SH: gy-dk gy, v sft-sft, sb pily-plty, silty-rthy
tex, silty in pt, non-si calc with decr tr SLTST: m
gy occ dk gy, spec, sft-frm, sb blkly, rthy tex,
non-si calc.

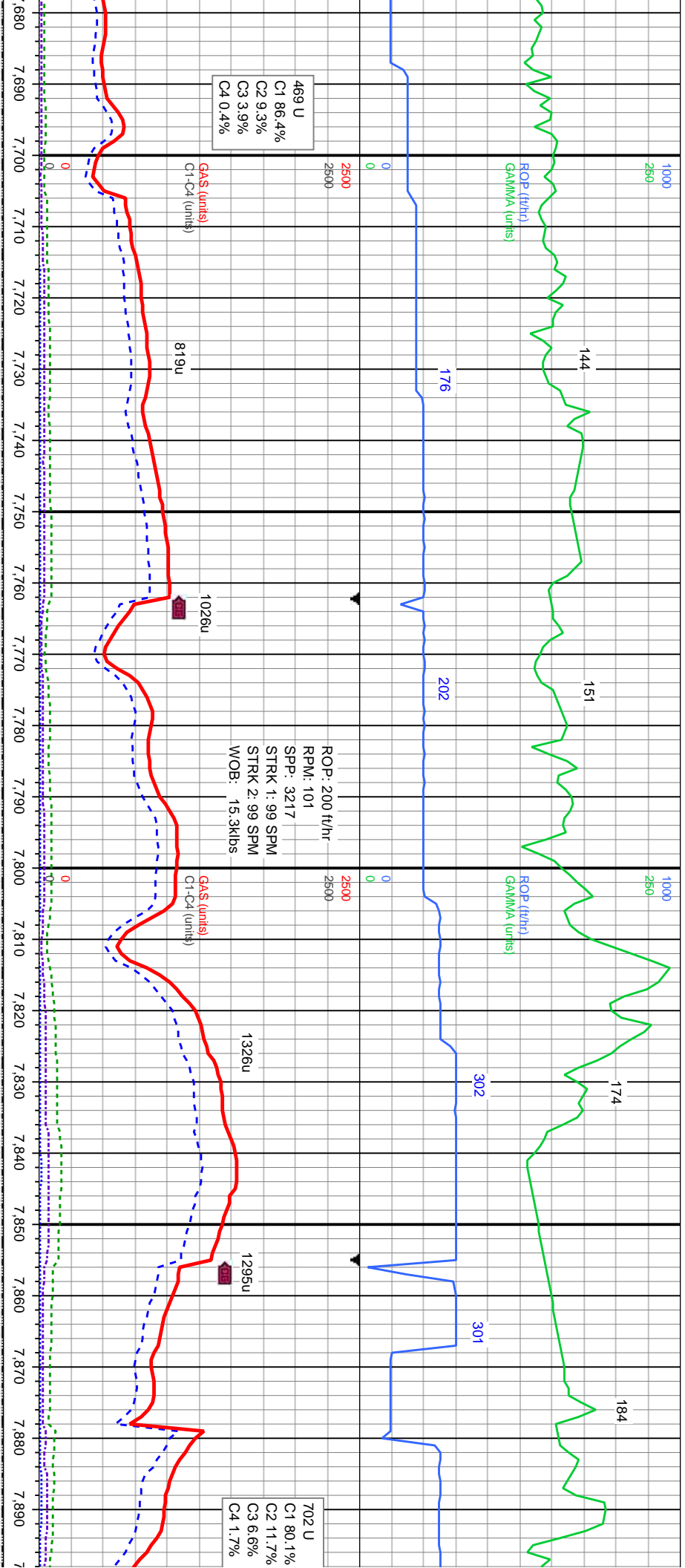
MD: 7,362'
Inclination: 3.26°
Azimuth: 43.47°
TVD: 7,339.59'
VS: -289.22'

TVD (ft)

5000
SLTY SH: gy-dk gy, v sft-sft, sb
pily-plty, silty-rthy tex, silty in pt, si calc.

MD: 7,456'
Inclination: 8.
Azimuth: 258.
TVD: 7,433.3'
VS: -284.13'





sft, sb pily-pily, sldg to tr slst, sl

SLTY SH: gy-dk gy, v sft-sft, sb pily-pily, sily-rthy tex, sily in pt grdg to tr slst, sl calc.

SLTY SH: gy-dk gy, v sft-sft, sb pily-pily, sily-rthy tex, sily in pt grdg to tr slst, sl calc. with tr BENT: tan-wh, lt gy, spec, sft.

SLTY SH: gy-dk gy, v sft-sft, sb pily-pily, sily-rthy tex, occ sily, sl incr calc. with BENT: tan-wh, lt gy, spec, sft.

SLTY SH: gy-dk gy, v sft-sft, sb pily-pily, sily-rthy tex, sily in pt grdg to tr slst, sl calc. with BENT: tan-wh, lt gy, spec, sft.

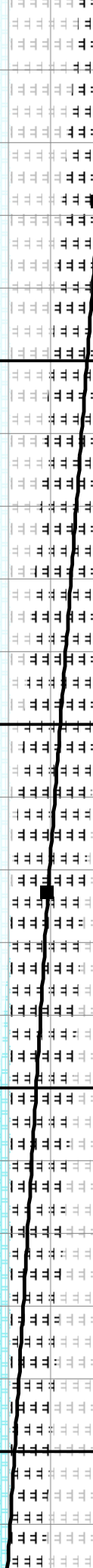
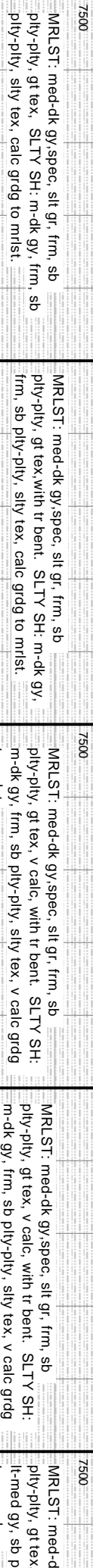
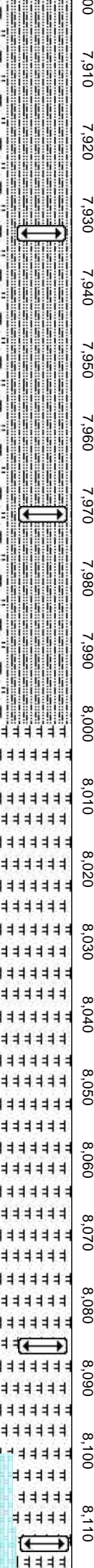
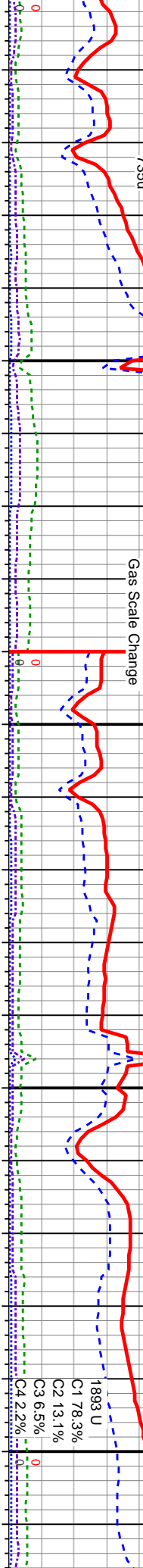
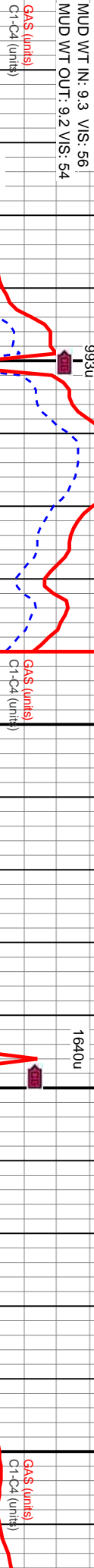
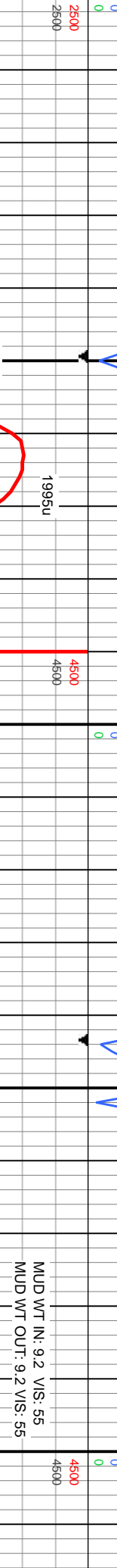
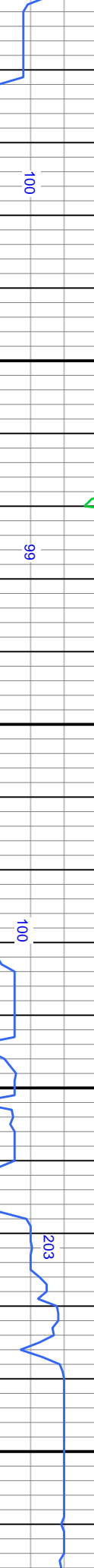
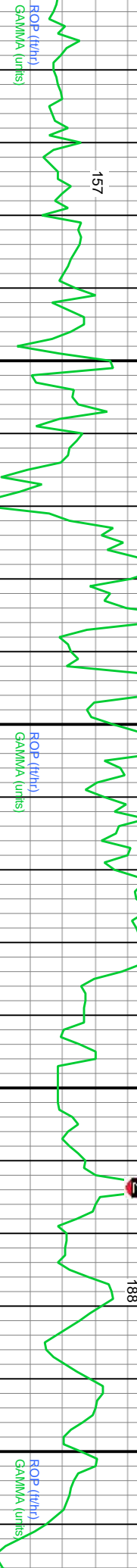
MD: 7,740'
Inclination: 32.16°
Azimuth: 284.28°
TVD: 7,699.56'
VS: -193.15'

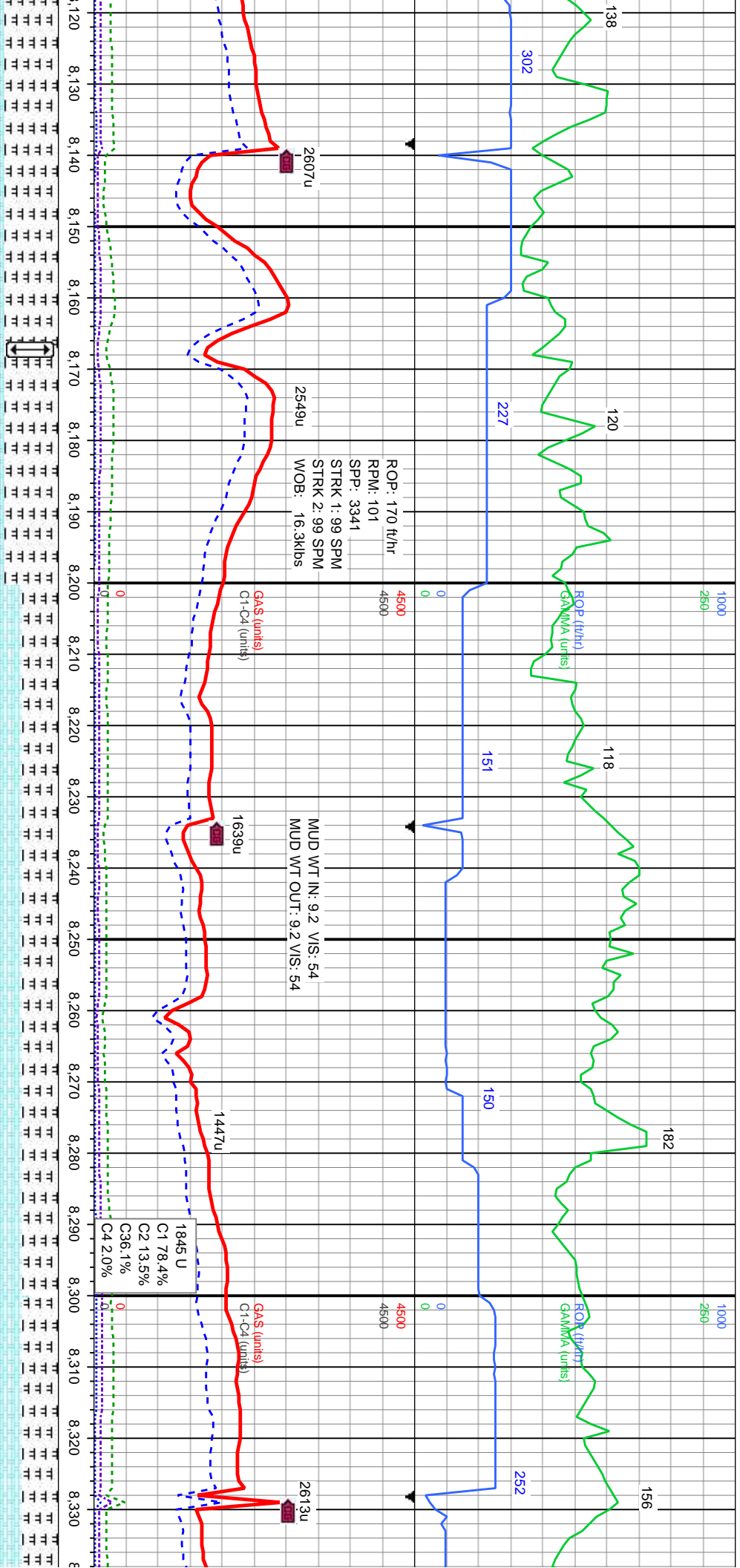
MD: 7,834'
Inclination: 40.3°
Azimuth: 285.35°
TVD: 7,775.32'
VS: -139.13'

Niobrara
7932 MD 7846' TVD

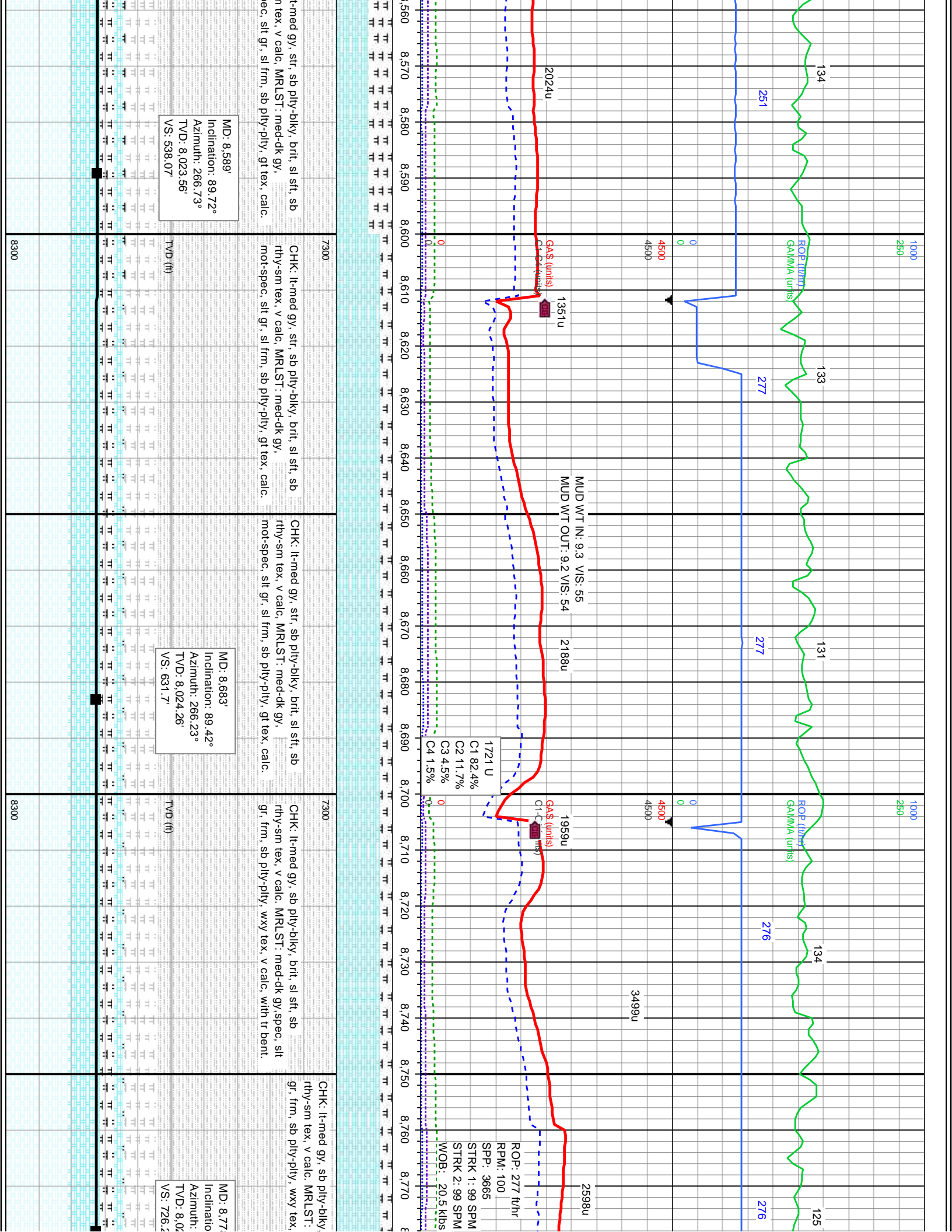
8/21/2017

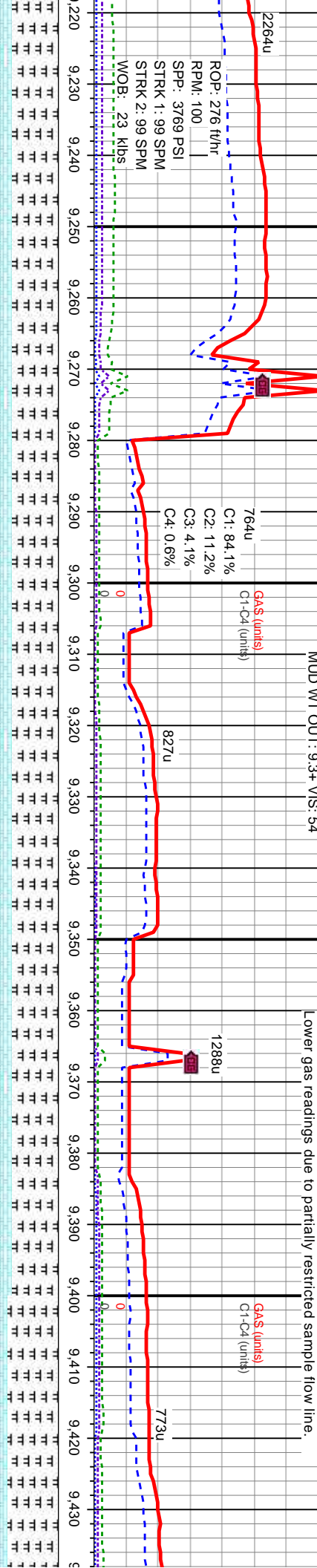
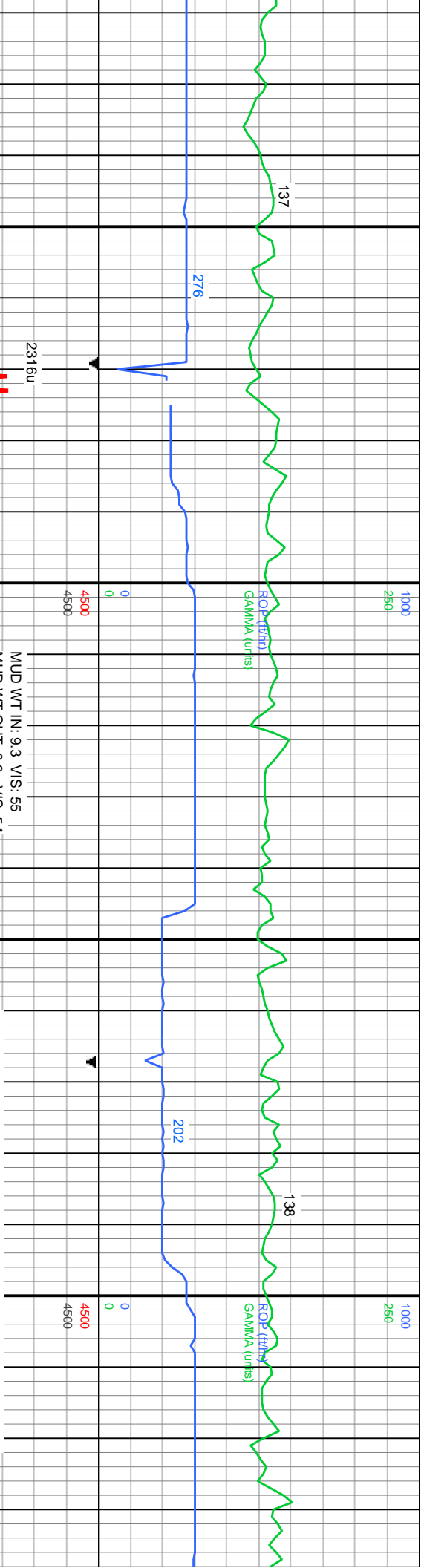
1000
250





<p>gy.spec, slt gr, frm, sb calc, with tr bent. CHK: -biky, brit, sl sft, sb rthy-sm</p>	<p>MRLST: med-dk gy.spec, slt gr, frm, sb pily-pily, gt tex, v calc, with tr bent. CHK: lt-med gy, sb pily-biky, brit, sl sft, sb rthy-sm tex, v calc.</p>	<p>MRLST: med-dk gy.spec, slt gr, frm, sb pily-pily, gt tex, v calc, with tr bent. CHK: lt-med gy, sb pily-biky, brit, sl sft, sb rthy-sm tex, v calc.</p>	<p>MRLST: med-dk gy.spec, slt gr, frm, sb pily-pily, gt tex, v calc, with tr bent. CHK: lt-med gy, sb pily-biky, brit, sl sft, sb rthy-sm tex, v calc.</p>	<p>MRLST: med-dk gy.spec, slt gr, frm, s wxy tex, v calc, with tr bent. CHK: lt-m pily-biky, brit, sl sft, sb rthy-sm tex, v</p>
<p>n: 63.34° 269.4° 50.56'</p>	<p>MD: 8.212' Inclination: 69.14° Azimuth: 271.3° TVD: 7.988.82' VS: 165.37'</p>	<p>MD: 8.306' Inclination: 80.41° Azimuth: 270.36° TVD: 8.013.47' VS: 255.91'</p>		





occ dk brn, sme spec, silty gr
ly-pty, v calc. CHK: gy-med
oi, sme spec, sb pty-biky,
x, v calc. with tr pyr.

MR LST: gy-dk gy, occ dk brn, sme spec, silty gr
inpt, fri-frn, sb pty-pty, v calc. CHK: gy-med
gy, occ off wh, mot, sme spec, sb pty-biky,
fri-occ frm, rthy tex, v calc. with tr pyr.

7300
MR LST: gy-dk gy, occ dk brn, sme spec, silty
gr inpt, fri-frn, sb pty-pty, v calc. CHK:
gy-med gy, occ off wh, mot, sme spec, sb
pty-biky, fri-occ frm, rthy tex, v calc. with tr
pyr.

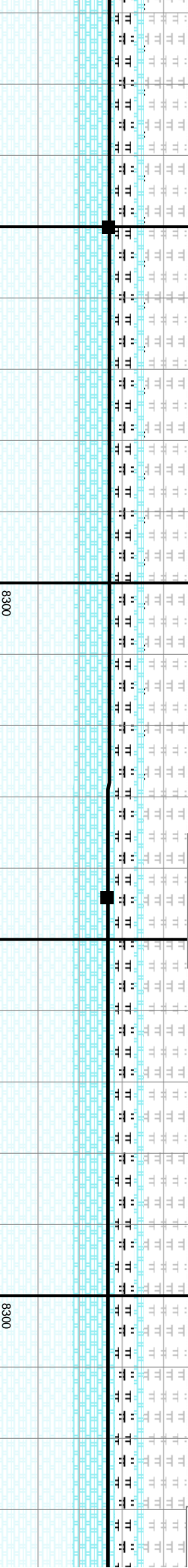
7300
MR LST: gy-dk gy, occ dk brn, sme spec, silty gr
inpt, fri-frn, sb pty-pty, v calc with tr PYR and
BENT- lt gy, silty, sft. CHK: dk gy-gy, occ off wh,
sme spec, sb pty-biky, fri-occ frm, rthy tex, v
calc.

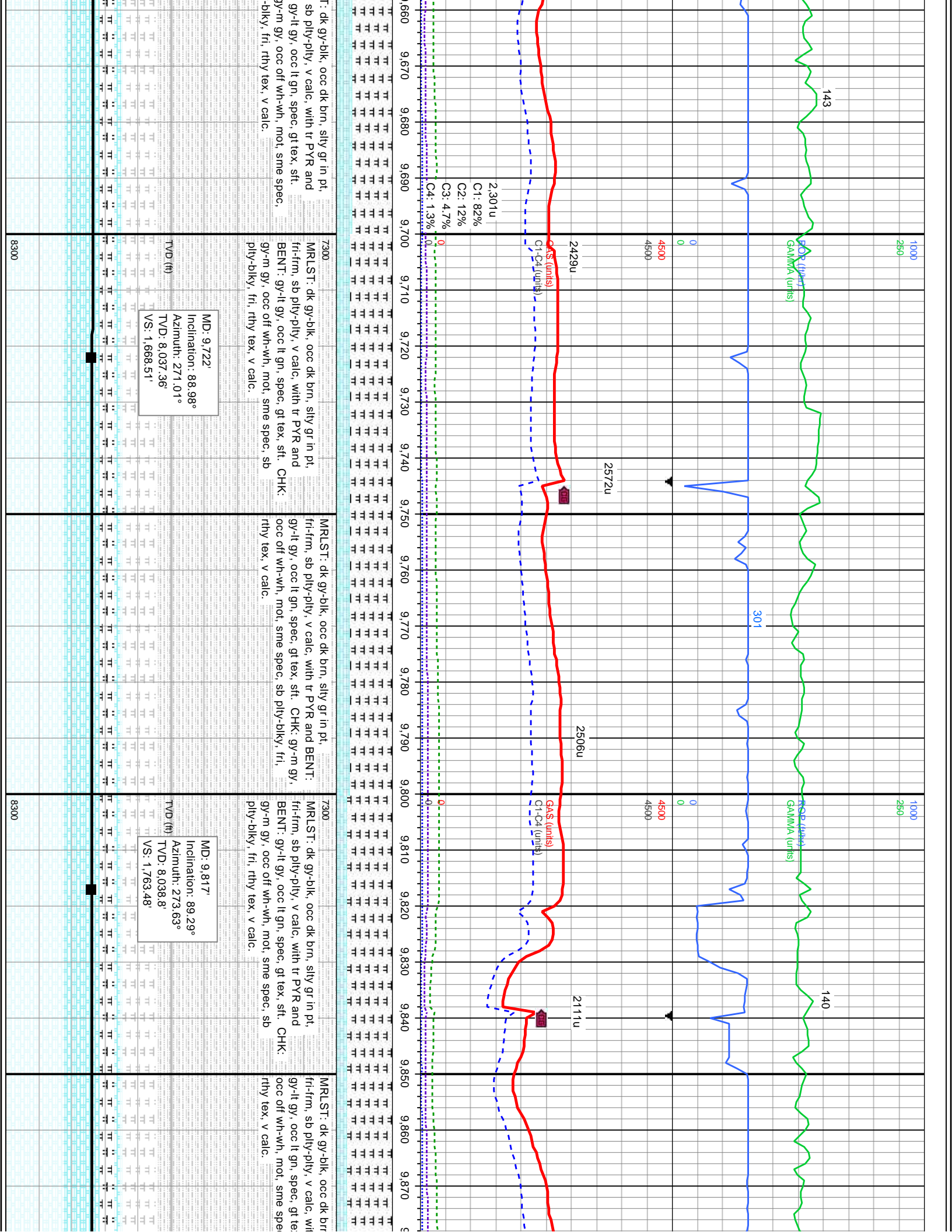
7300
MR LST: gy-dk gy, occ dk brn, sme spec, silty
inpt, fri-frn, sb pty-pty, v calc with tr
BENT- lt gy, silty, sft. CHK: dk gy-gy, o
sme spec, sb pty-biky, fri-occ frm, rth
calc.

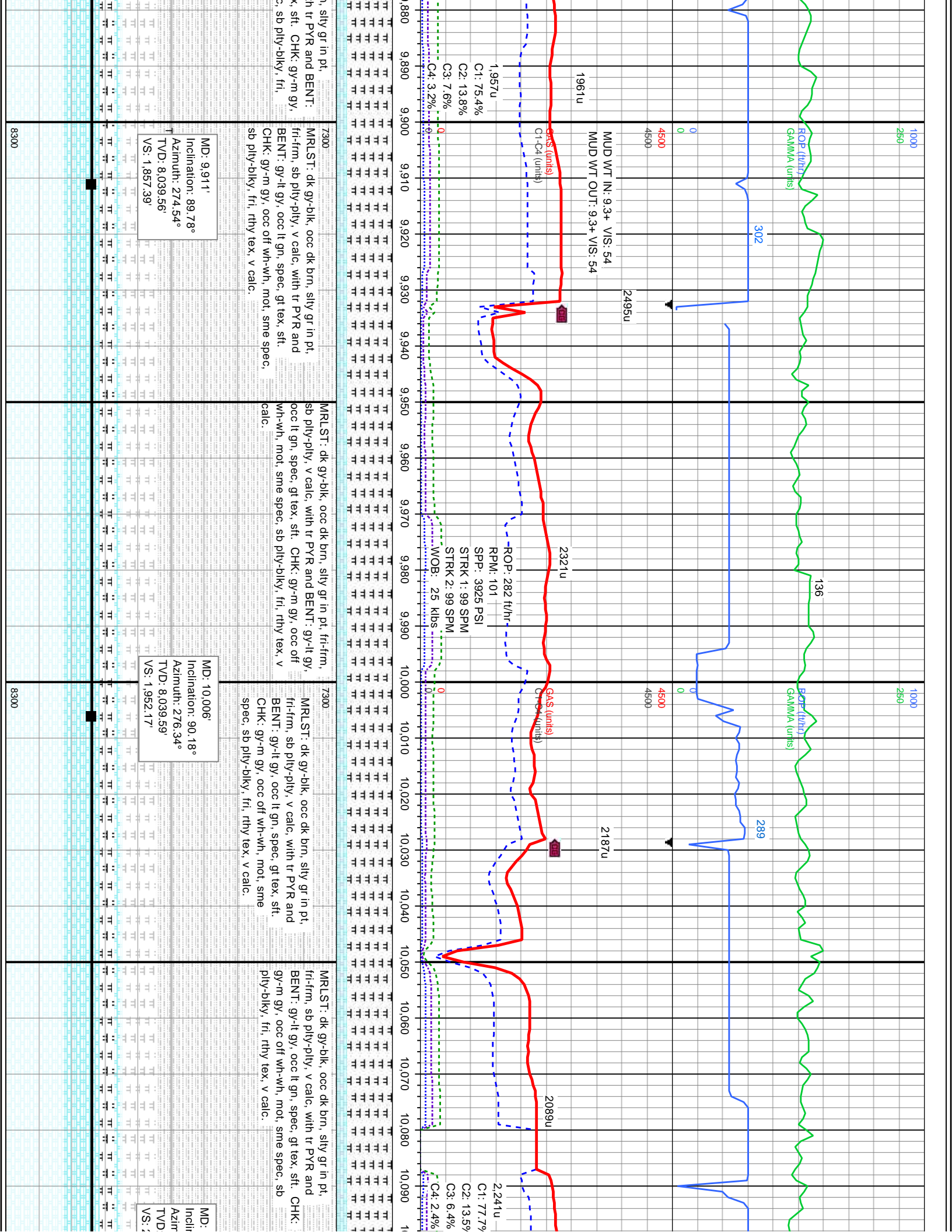
MD: 9,250'
Inclination: 89.11°
Azimuth: 269.8°
TVD: 8,029.18'
VS: 1,197.06'

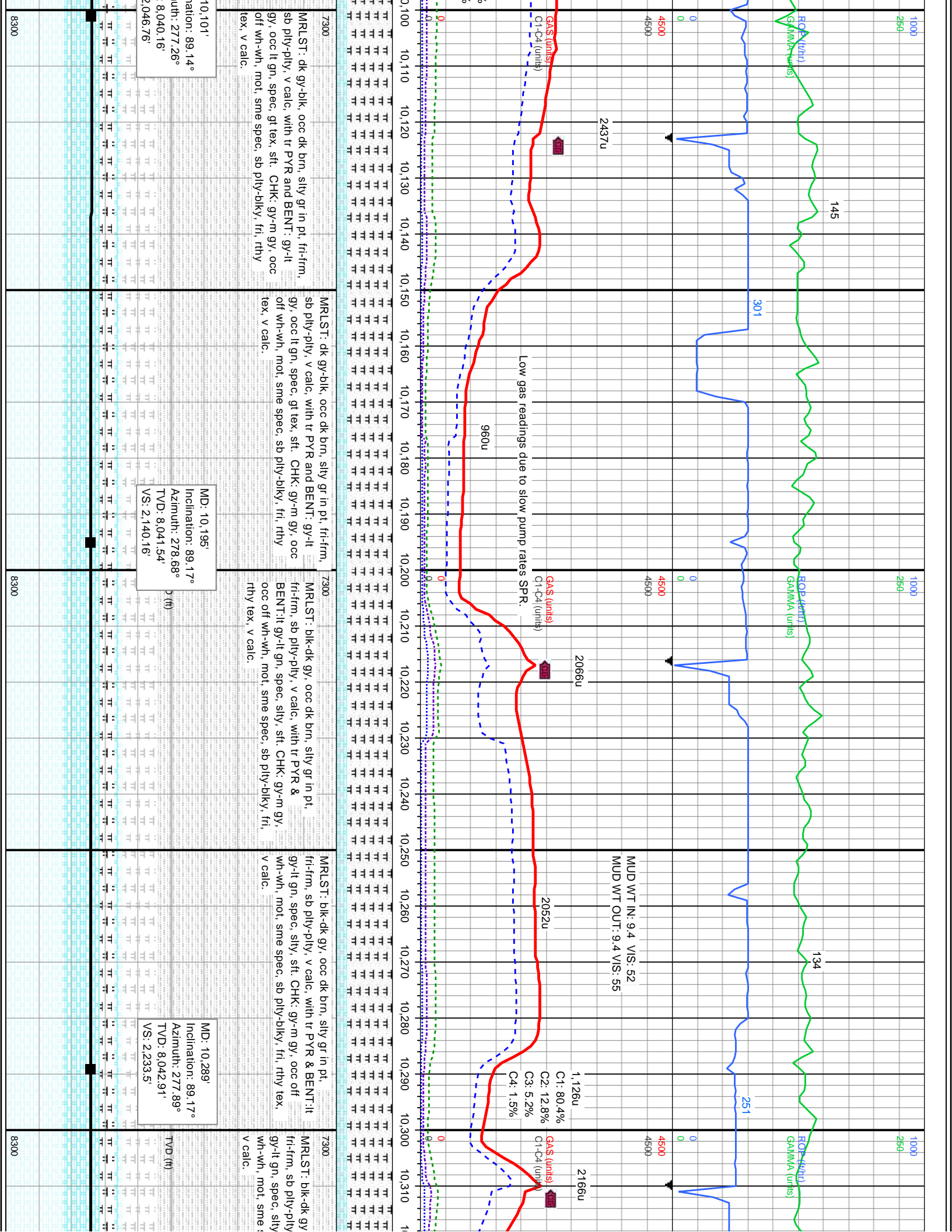
MD: 9,344'
Inclination: 88.95°
Azimuth: 269.51°
TVD: 8,030.77'
VS: 1,291'

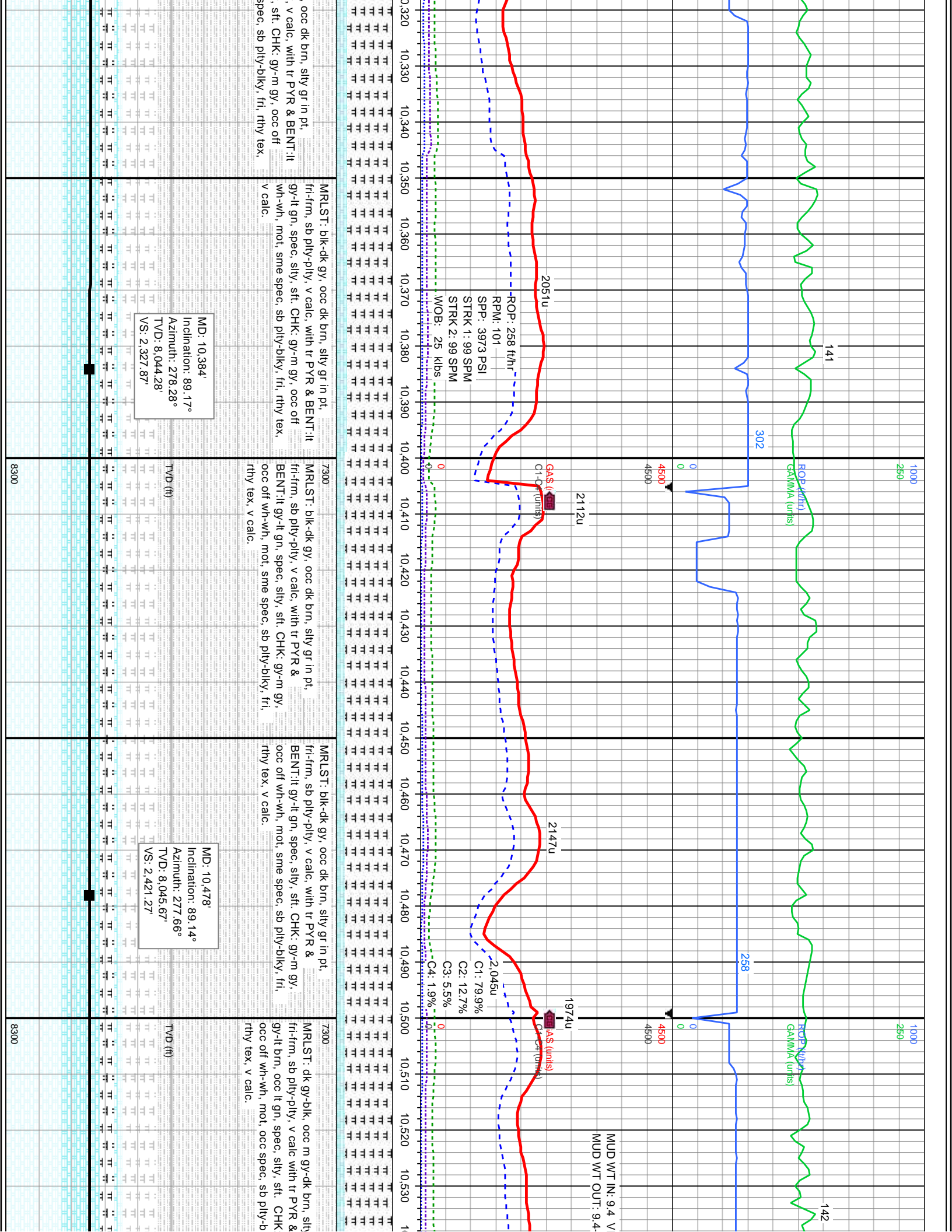
MD: 9,430'
Inclination: 88.95°
Azimuth: 269.51°
TVD: 8,030.77'
VS: 1,291'

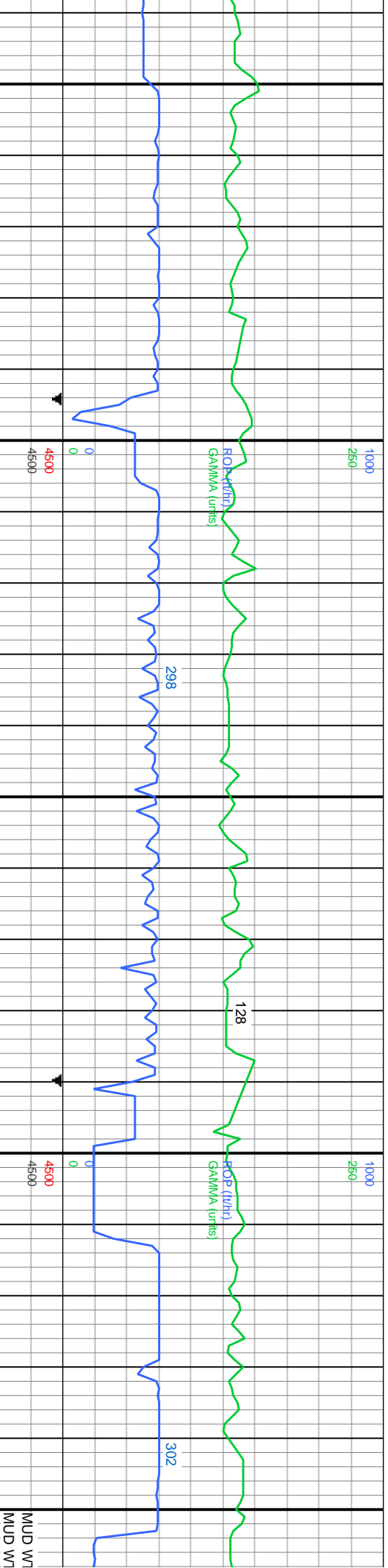












S: 57
V: 54

2151u

2107u

GAS (units)
C1-C4 (units)

2008u

1813u

GAS (units)
C1-C4 (units)

2821u

MUD WT
MUD WT

10,540 10,550 10,560 10,570 10,580 10,590 10,600 10,610 10,620 10,630 10,640 10,650 10,660 10,670 10,680 10,690 10,700 10,710 10,720 10,730 10,740 10,750

gr in pt,
BENT: lt
gy-m gy,
ky, fri,
rthy tex, v calc.

MRLST: dk gy-blk, occ m gy-dk brn, silty gr in pt,
fri-frn, sb pily-pily, v calc with tr PYR & BENT: lt
gy-it brn, occ lt gn, spec, silty, sft. CHK: gy-m gy,
occ off wh-wh, mot, occ spec, sb pily-blky, fri,
rthy tex, v calc.

7300

MRLST: dk gy-blk, occ m gy-dk brn, silty gr in
pt, fri-frn, sb pily-pily, v calc with tr PYR &
BENT: lt gy-it brn, occ lt gn, spec, silty, sft.
CHK: gy-m gy, occ off wh-wh, mot, occ spec,
sb pily-blky, fri, rthy tex, v calc.

MRLST: dk gy-blk, occ m gy-dk brn, silty gr in
pt, fri-frn, sb pily-pily, v calc with tr PYR &
BENT: lt gy-it brn, occ lt gn, spec, silty, sft.
CHK: gy-m gy, occ off wh-wh, mot, occ spec,
sb pily-blky, fri, rthy tex, v calc.

7300

MRLST: dk gy-blk, occ m gy-dk brn, silty gr in
pt, fri-frn, sb pily-pily, v calc with tr BENT: lt
gy-it brn, occ lt gn, spec, silty, sft. si decr in
CHK: gy-m gy, occ off wh-wh, mot, occ spec,
sb pily-blky, fri, rthy tex, v calc.

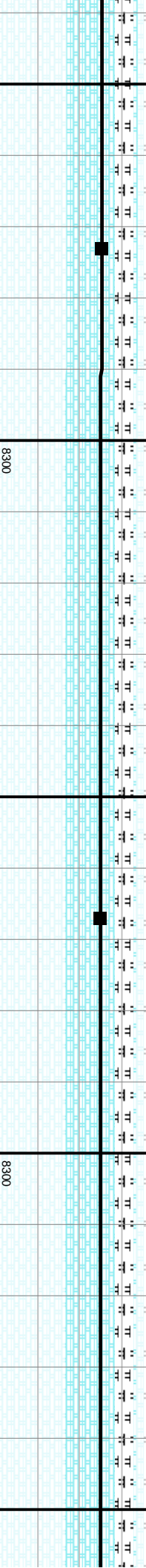
MD: 10,573'
Inclination: 89.05°
Azimuth: 275.78°
TVD: 8,047.17'
VS: 2,515.87'

TVD (ft)

MD: 10,667'
Inclination: 89.05°
Azimuth: 273.24°
TVD: 8,048.73'
VS: 2,609.73'

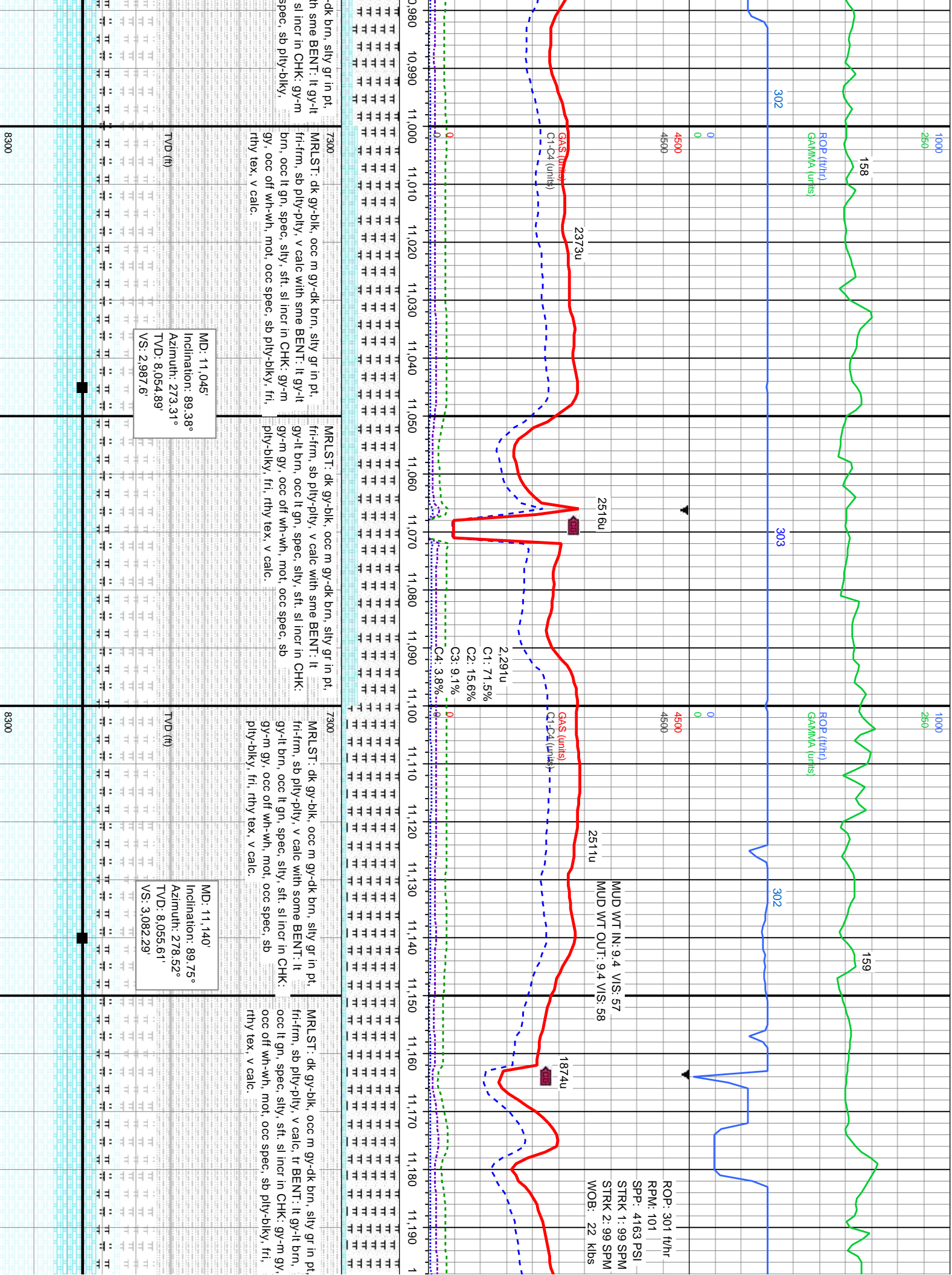
TVD (ft)

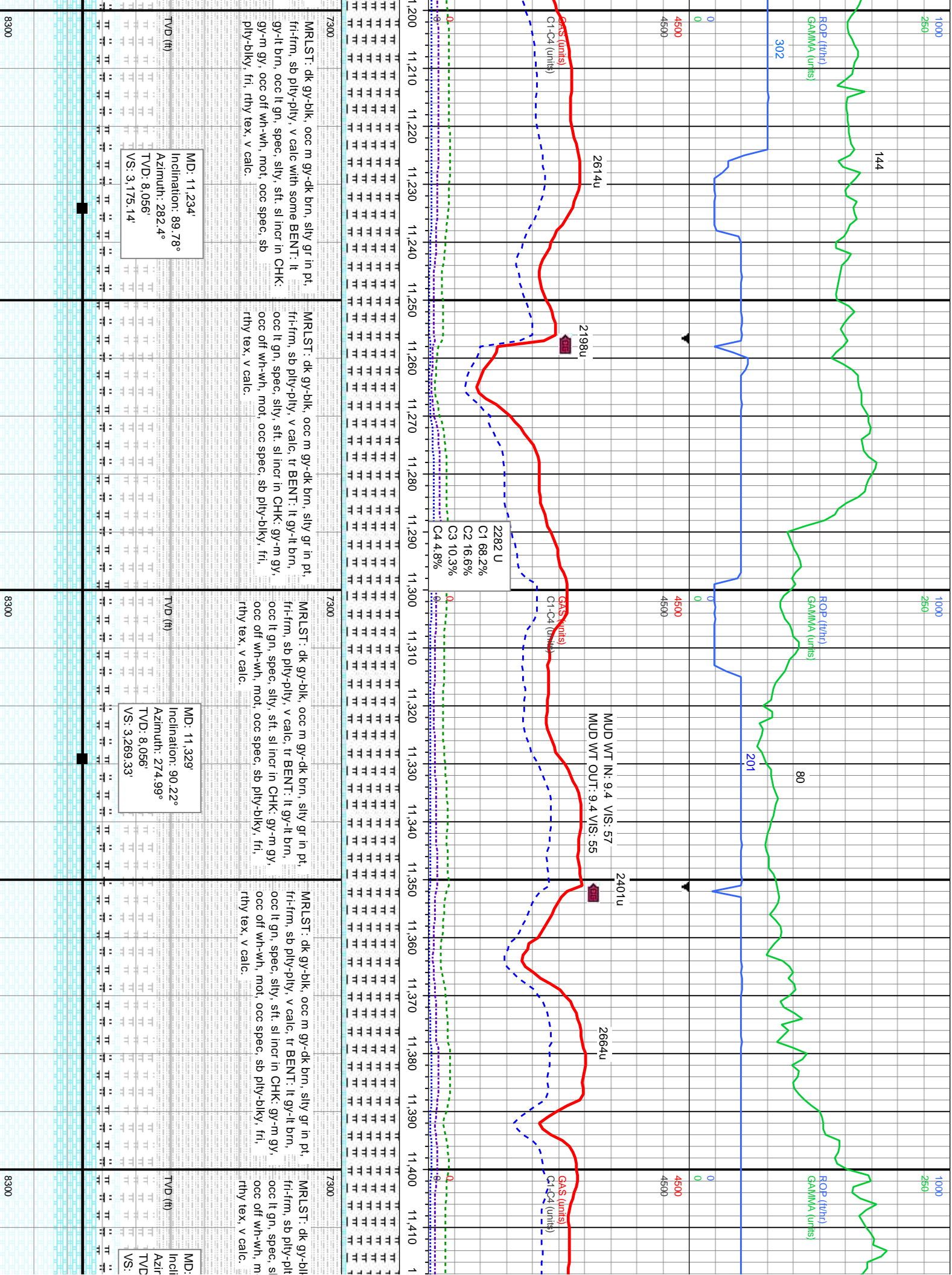
MD:
Incl
Azir
TVD
VS:

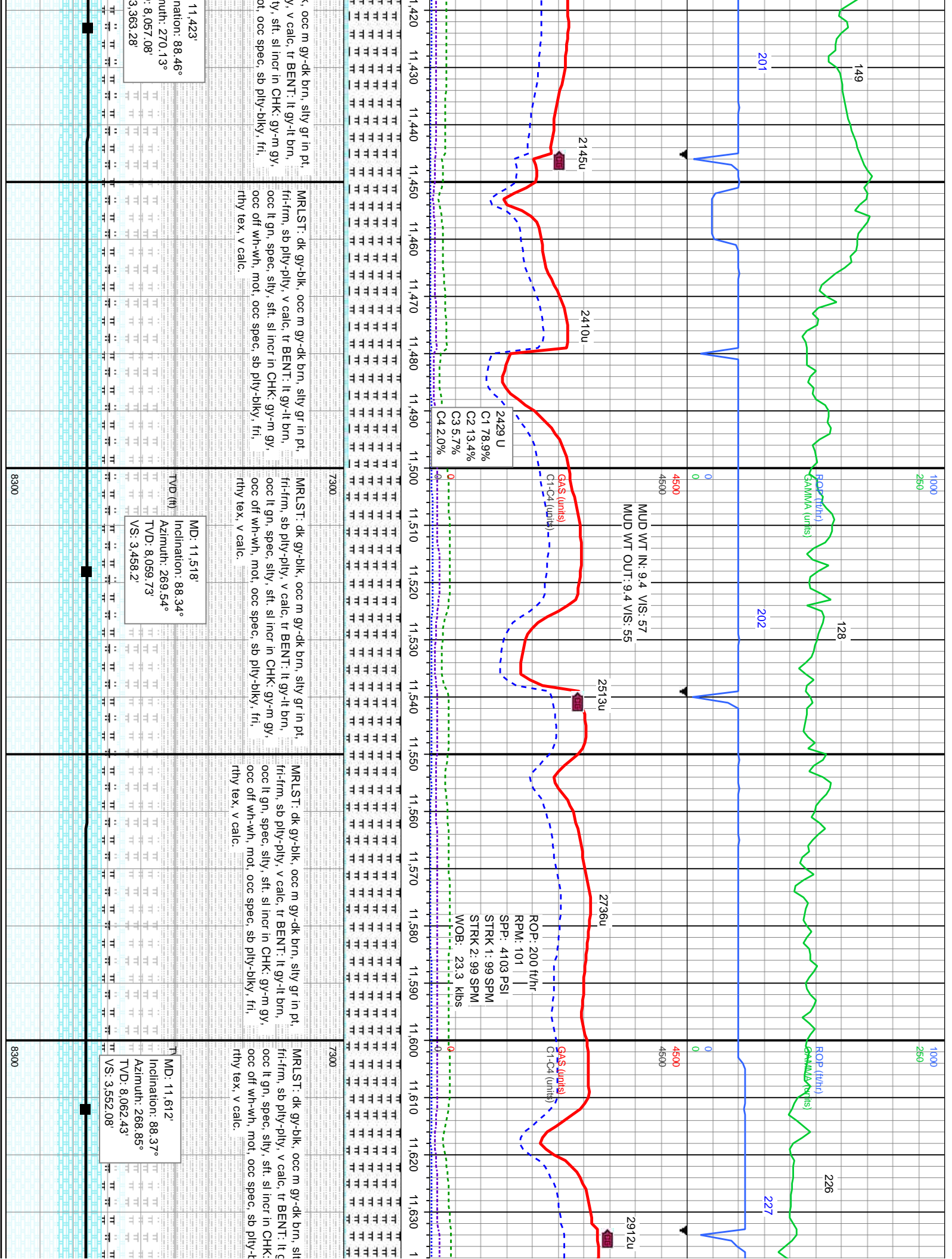


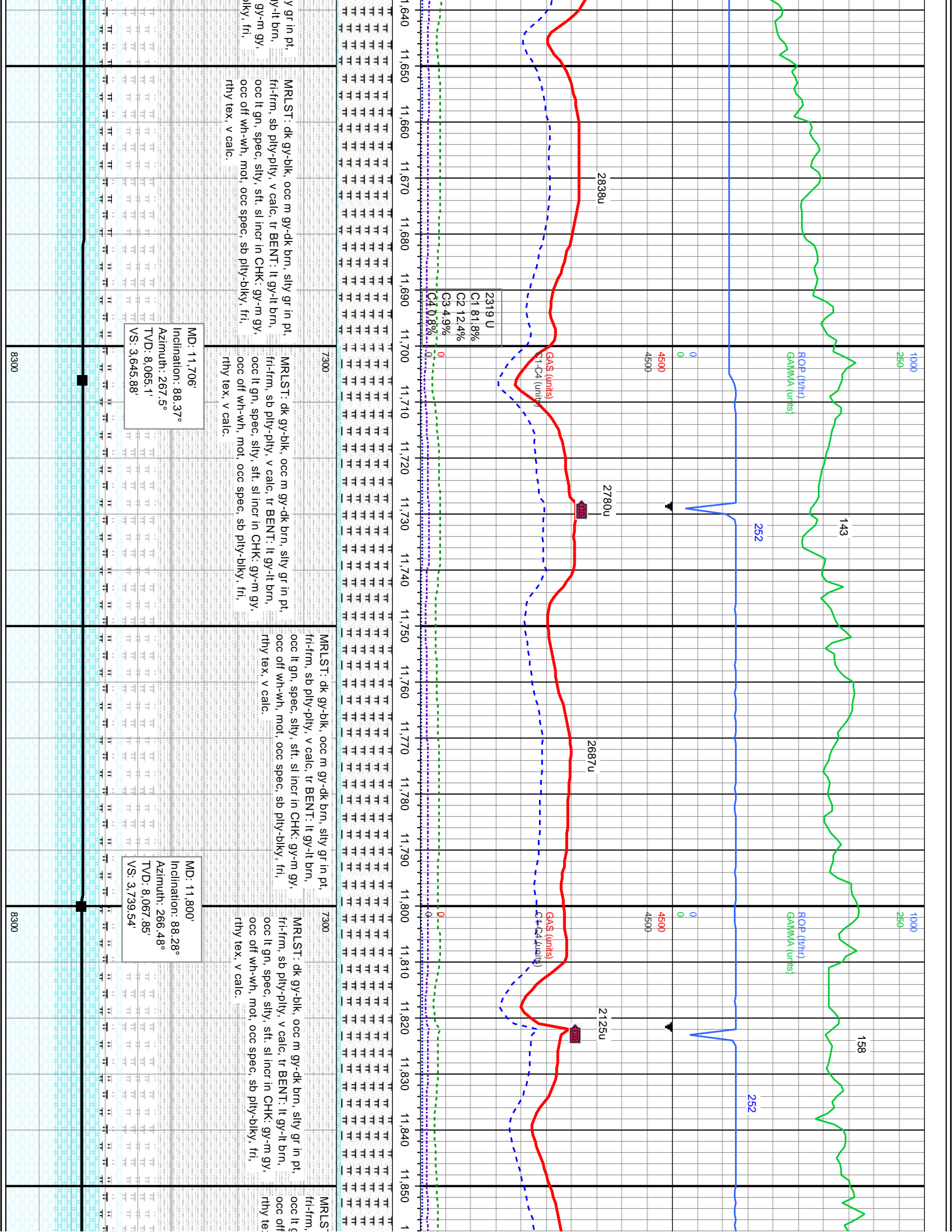
8300

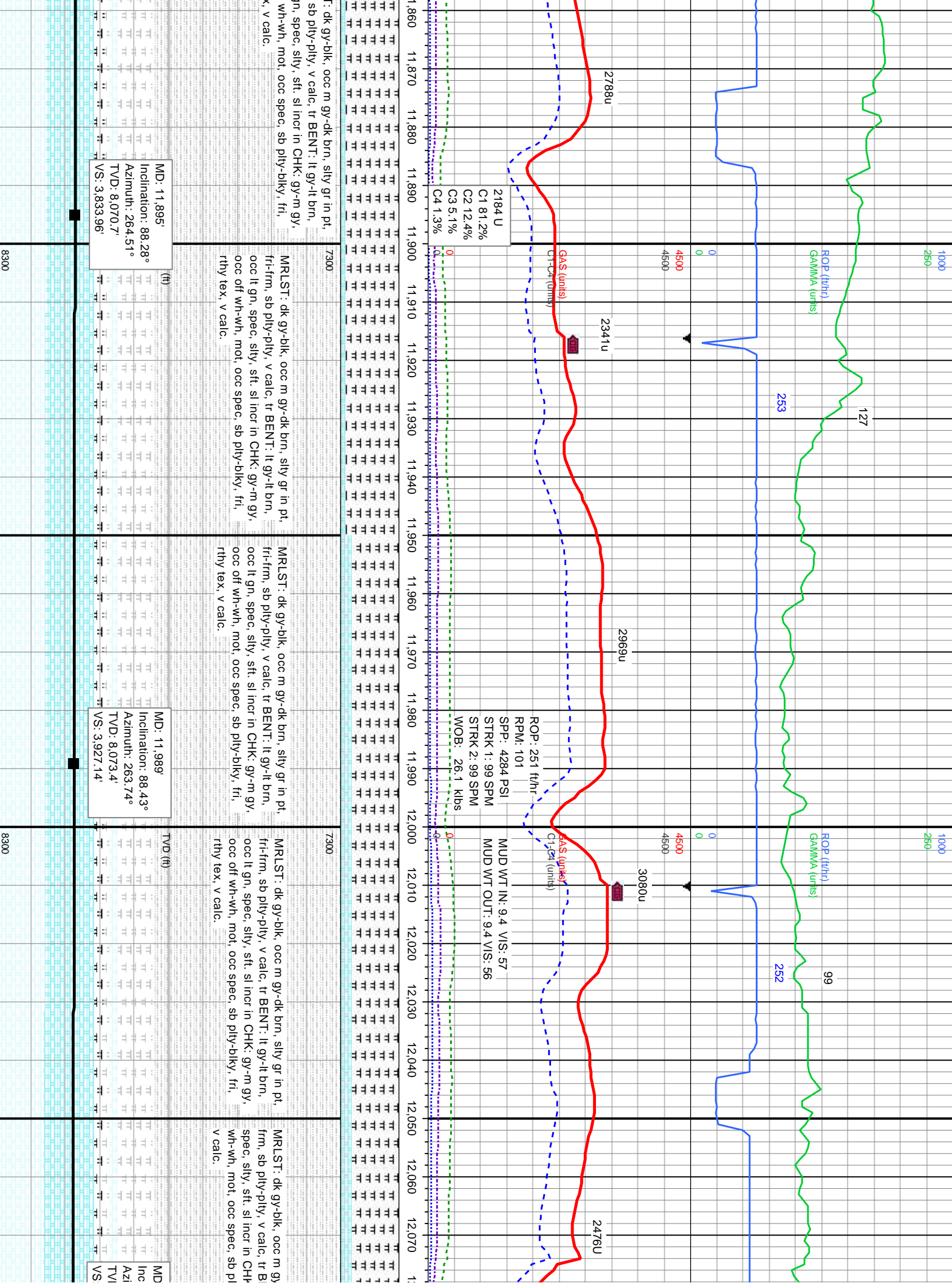
8300











MD: 11,895'
Inclination: 88.28°
Azimuth: 264.51°
TVD: 8,070.7'
VS: 3,833.96'

MD: 11,989'
Inclination: 88.43°
Azimuth: 263.74°
TVD: 8,073.4'
VS: 3,927.14'

MD
Inc
Azi
TVD
VS

1000
250

1000
250

ROP (ft/hr)
GAMMA (units)

ROP (ft/hr)
GAMMA (units)

95

102

226

100

0
4500
4500

0
4500
4500

MUD WT IN: 9.4 VIS: 56
MUD WT OUT: 9.4 VIS: 55

2883u

3209u

3124u

3003u

Gas (units)
C1-C4 (units)

Gas (units)
C1-C4 (units)

2729U
C1 79.9%
C2 12.7%
C3 5.5%
C4 1.9%

3048 U
C1 80.4%
C2 12.8%
C3 5.3%
C4 1.5%



7300

7300

MRSLT: dk gy-blk, occ m gy-dk brn, silty gr in pt, frm, sb pily-pily, v calc, tr BENT: lt gy-lt brn, spec, silty, sft, sl incr in CHK: gy-m gy, occ off wh-wh, mot, occ spec, sb pily-blky, fri, rthy tex, v calc.

MRSLT: dk gy-blk, occ m gy-dk brn, silty gr in pt, frm, sb pily-pily, v calc, tr BENT: lt gy-lt brn, spec, silty, sft, sl incr in CHK: gy-m gy, occ off wh-wh, mot, occ spec, sb pily-blky, fri, rthy tex, v calc.

MRSLT: dk gy-blk, occ m gy-dk brn, silty gr in pt, frm, sb pily-pily, v calc, tr BENT: lt gy-lt brn, spec, silty, sft, sl incr in CHK: gy-m gy, occ off wh-wh, mot, occ spec, sb pily-blky, fri, rthy tex, v calc.

MRSLT: dk gy-blk, occ m gy-dk brn, silty gr in pt, frm, sb pily-pily, v calc, tr BENT: lt gy-lt brn, spec, silty, sft, sl incr in CHK: gy-m gy, occ off wh-wh, mot, occ spec, sb pily-blky, fri, rthy tex, v calc.

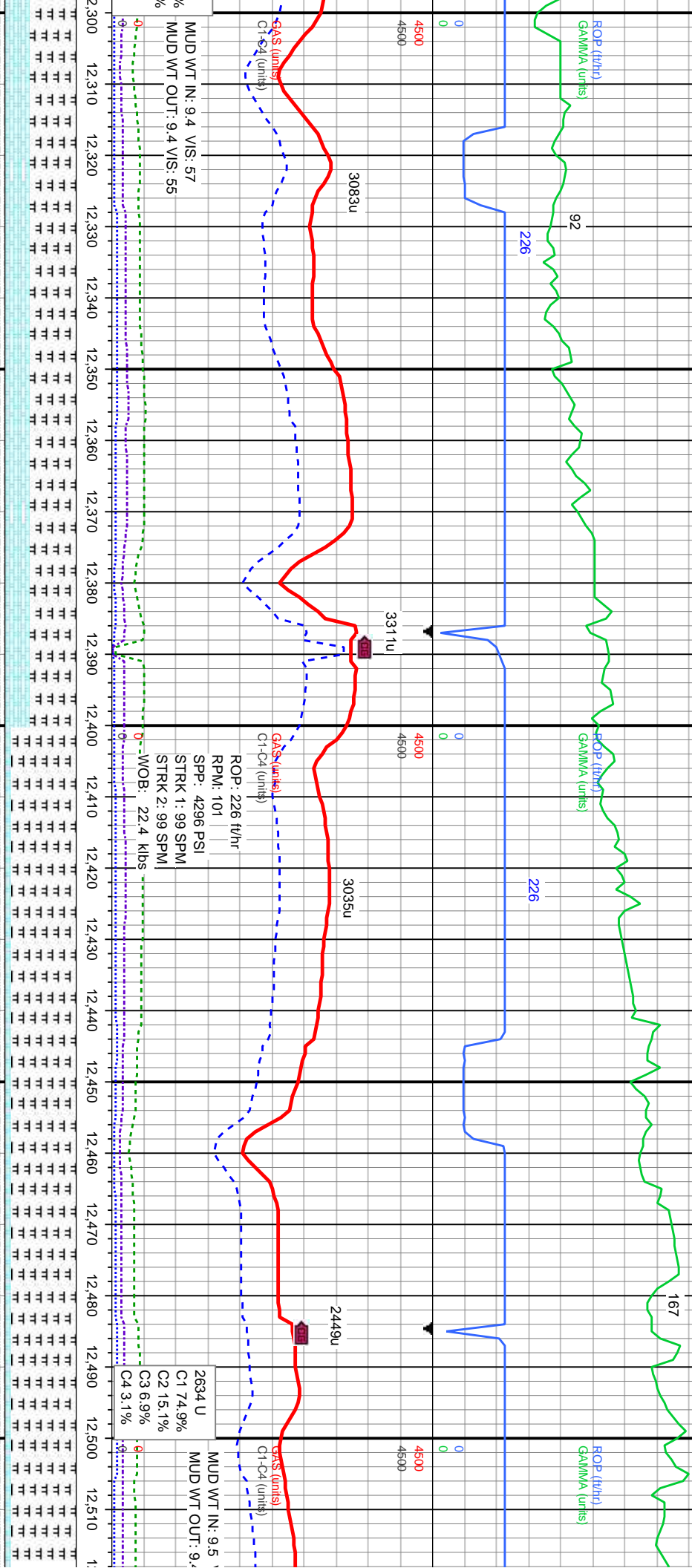
MD: 12.084'
Inclination: 88.37°
Azimuth: 262.01°
TVD: 8.076.05'
VS: 4.021.01'

MD: 12.178'
Inclination: 88.21°
Azimuth: 261.71°
TVD: 8.078.86'
VS: 4.113.63

MD: 12.273'
Inclination: 89.78°
Azimuth: 264.44°
TVD: 8.080.53'
VS: 4.207.56'

8300

8300



MUD WT IN: 9.4 VIS: 57
MUD WT OUT: 9.4 VIS: 55

ROP: 226 ft/hr
RPM: 101
SPR: 4296 PSI
STRK 1: 99 SPM
STRK 2: 99 SPM
WOB: 22.4 klbs

MUD WT IN: 9.5
MUD WT OUT: 9.4

MR LST: dk gy-blk, occ m gy-dk brn, silty gr in pt, frm, sb pily-pily, v calc, tr BENT: lt gy-it brn, spec, silty, sft, sl incr in CHK: gy-m gy, occ off wh-wh, mot, occ spec, sb pily-blky, fri, rthy tex, v calc.

MR LST: dk gy-blk, occ m gy-dk brn, silty gr in pt, frm, sb pily-pily, v calc, tr BENT: lt gy-it brn, spec, silty, sft, sl incr in CHK: gy-m gy, occ off wh-wh, mot, occ spec, sb pily-blky, fri, rthy tex, v calc.

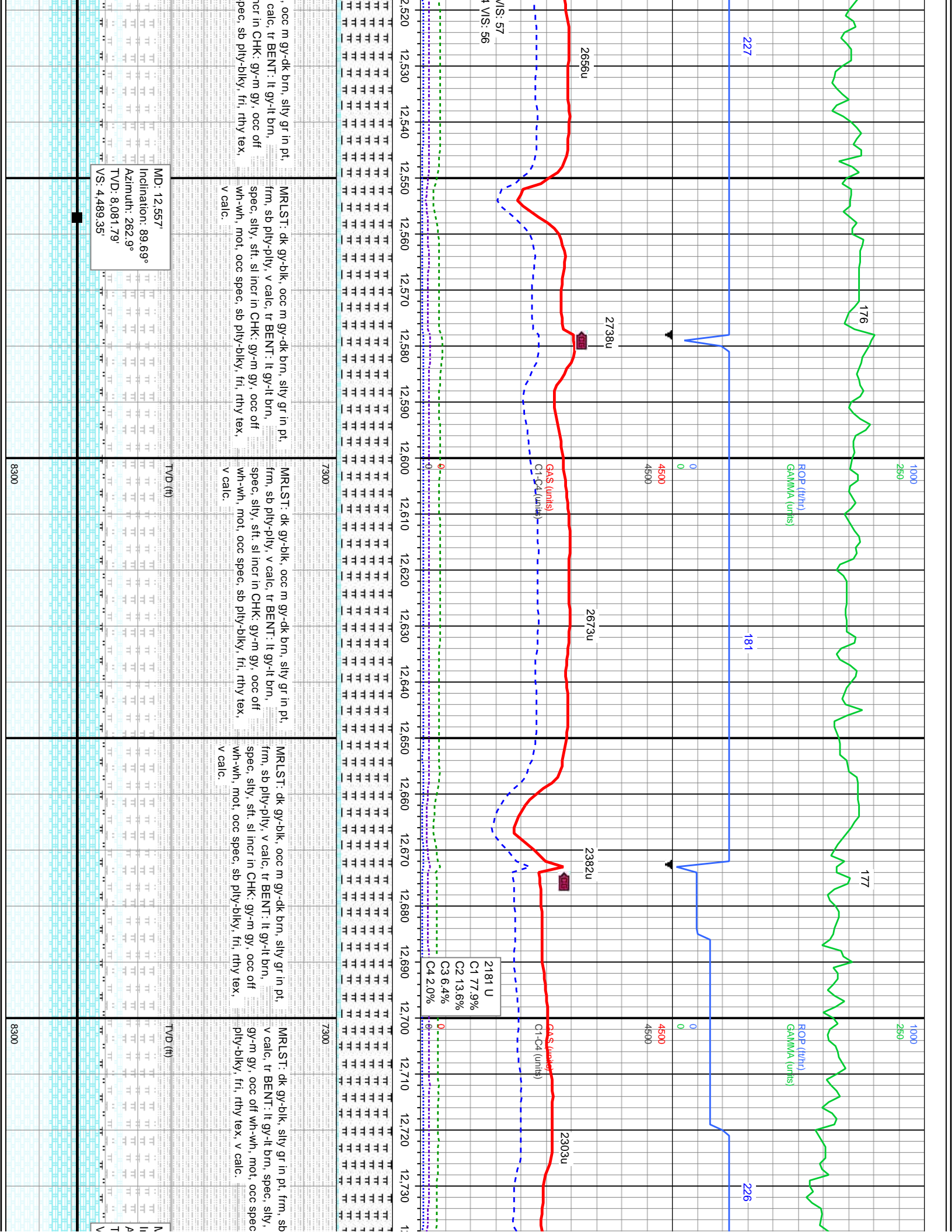
MR LST: dk gy-blk, occ m gy-dk brn, silty gr in pt, frm, sb pily-pily, v calc, tr BENT: lt gy-it brn, spec, silty, sft, sl incr in CHK: gy-m gy, occ off wh-wh, mot, occ spec, sb pily-blky, fri, rthy tex, v calc.

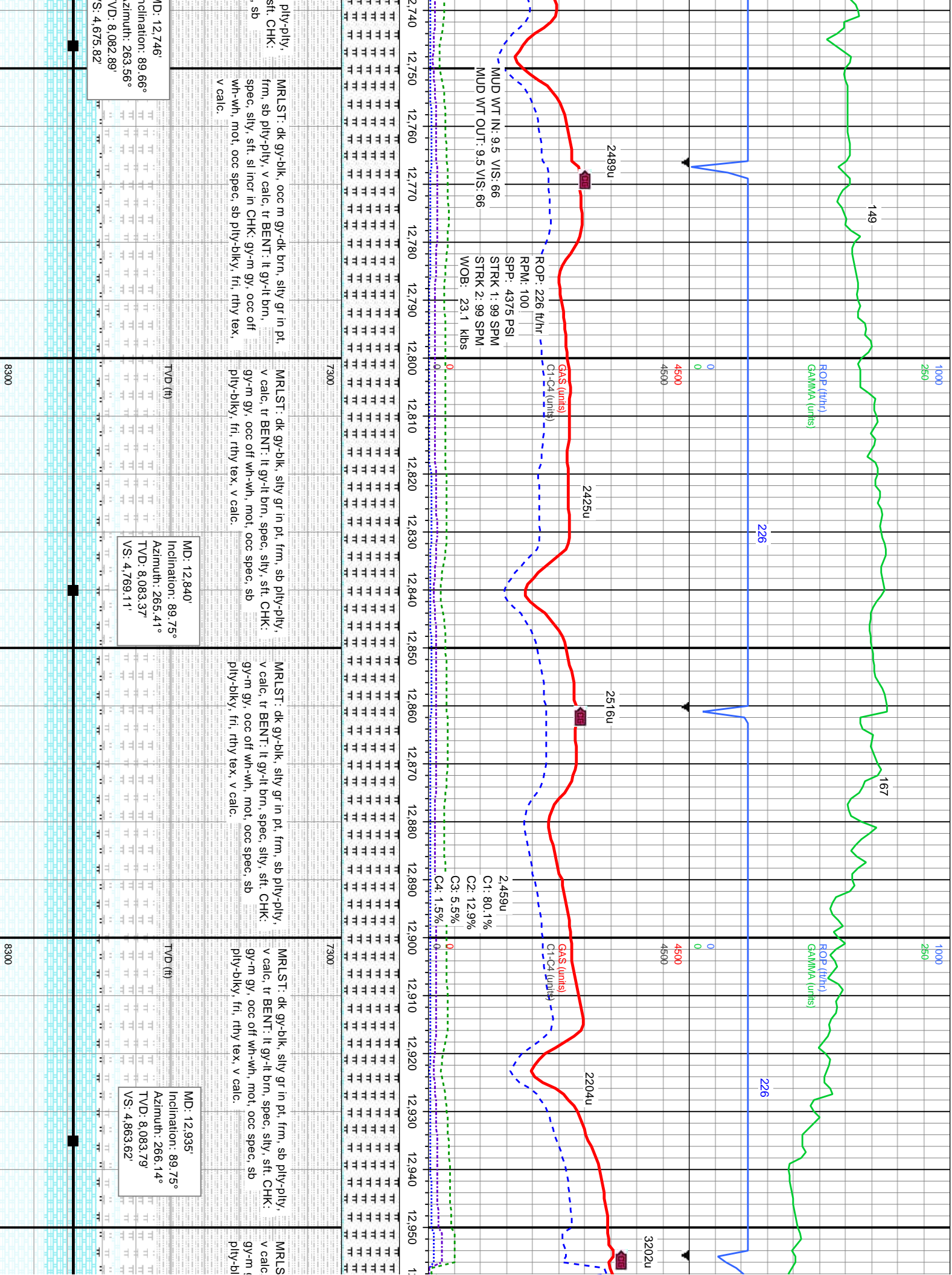
MR LST: dk gy-blk, occ m gy-dk brn, silty gr in pt, frm, sb pily-pily, v calc, tr BENT: lt gy-it brn, spec, silty, sft, sl incr in CHK: gy-m gy, occ off wh-wh, mot, occ spec, sb pily-blky, fri, rthy tex, v calc.

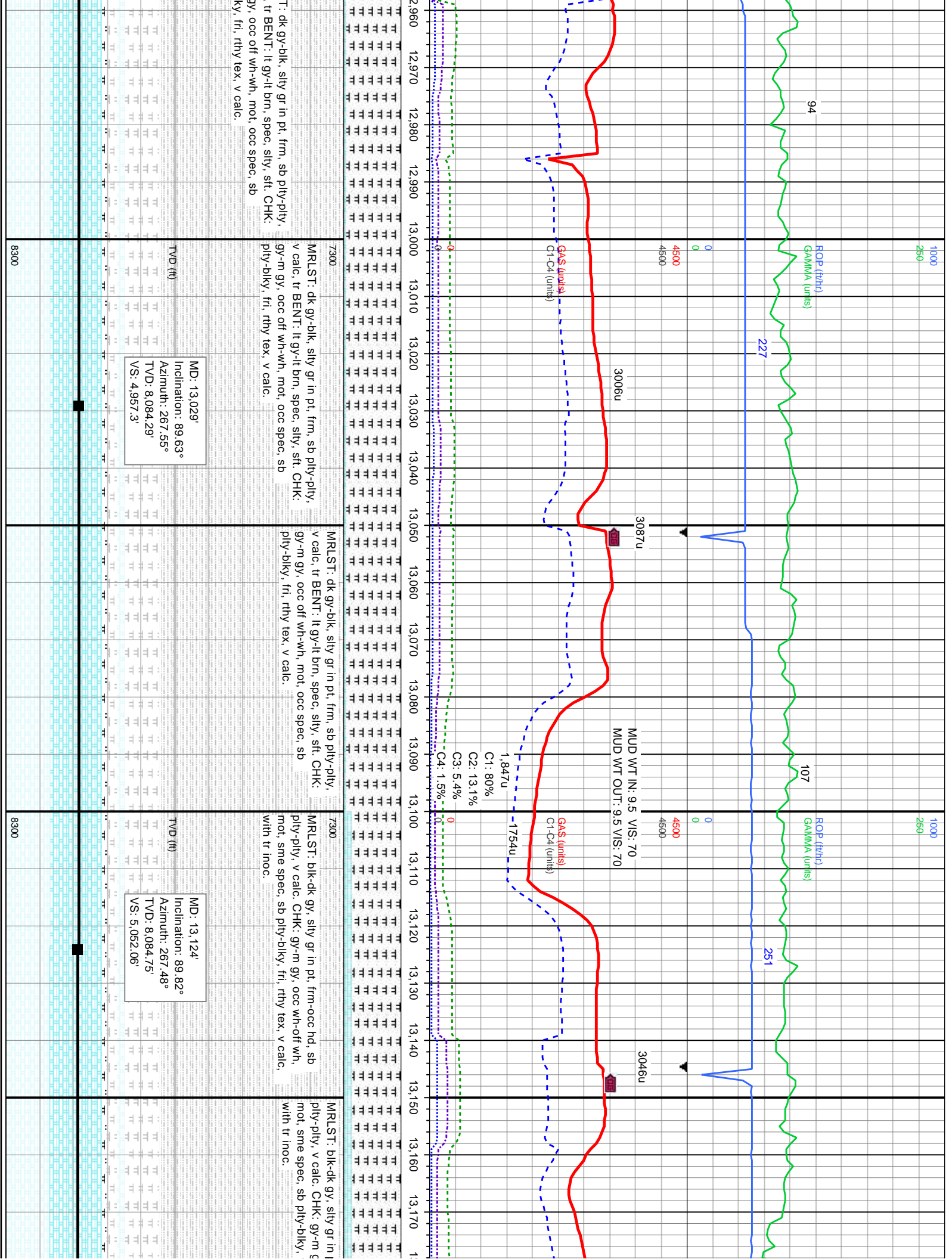
MR LST: dk gy-blk, occ m gy-dk brn, silty gr in pt, frm, sb pily-pily, v calc, tr BENT: lt gy-it brn, spec, silty, sft, sl incr in CHK: gy-m gy, occ off wh-wh, mot, occ spec, sb pily-blky, fri, rthy tex, v calc.

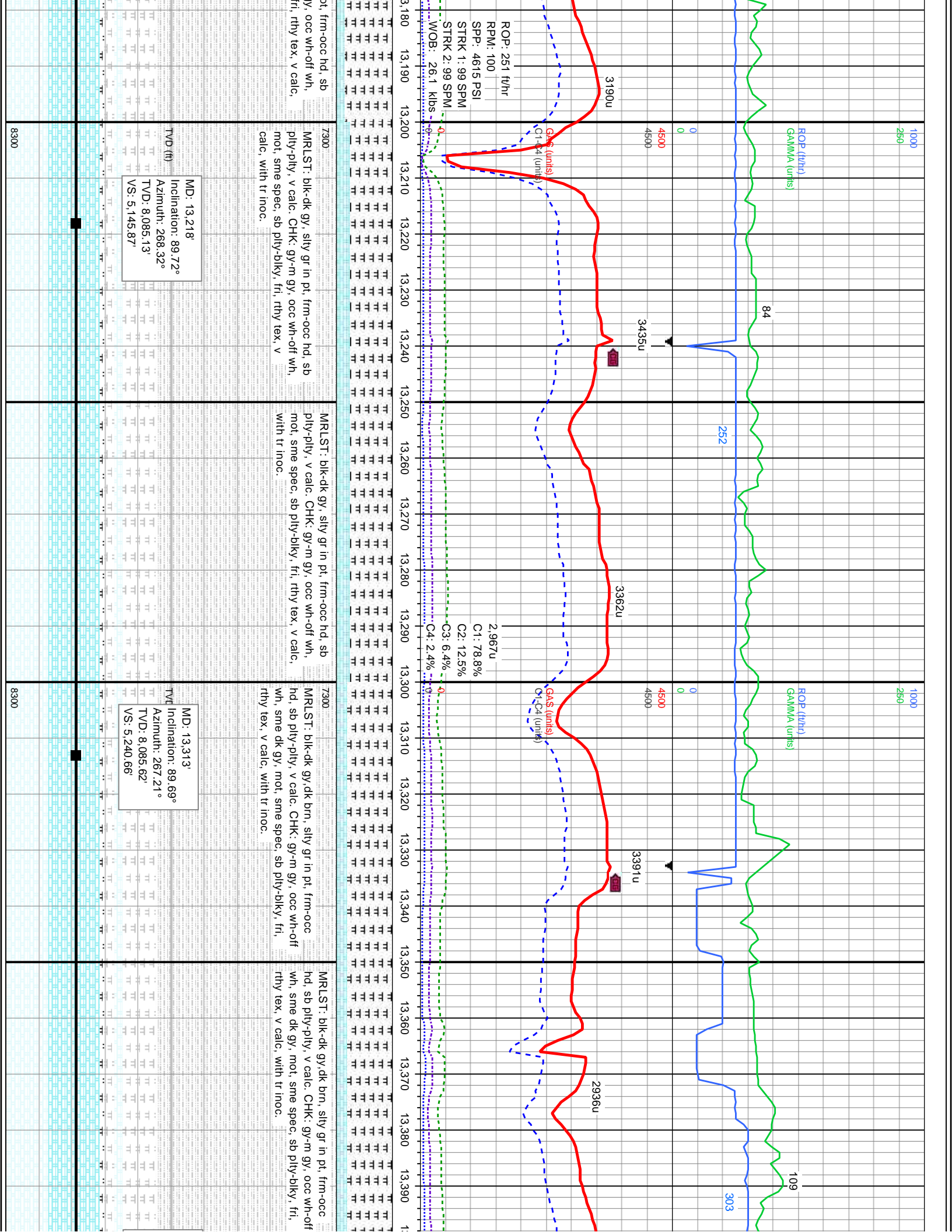
MD: 12,368'
Inclination: 89.78°
Azimuth: 265.53°
TVD: 8,080.89'
VS: 4,301.94'

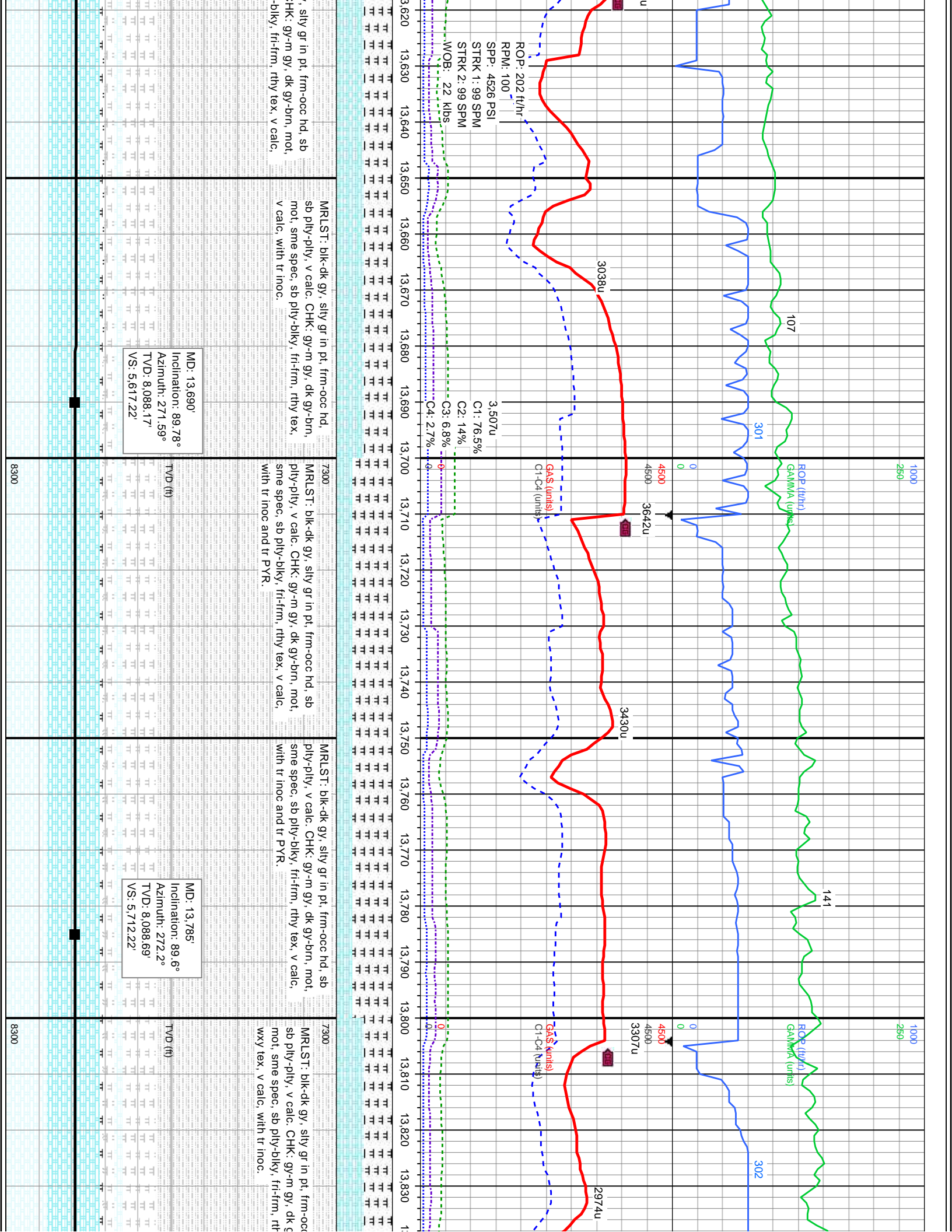
MD: 12,462'
Inclination: 89.72°
Azimuth: 264.1°
TVD: 8,081.3'
VS: 4,395.29'

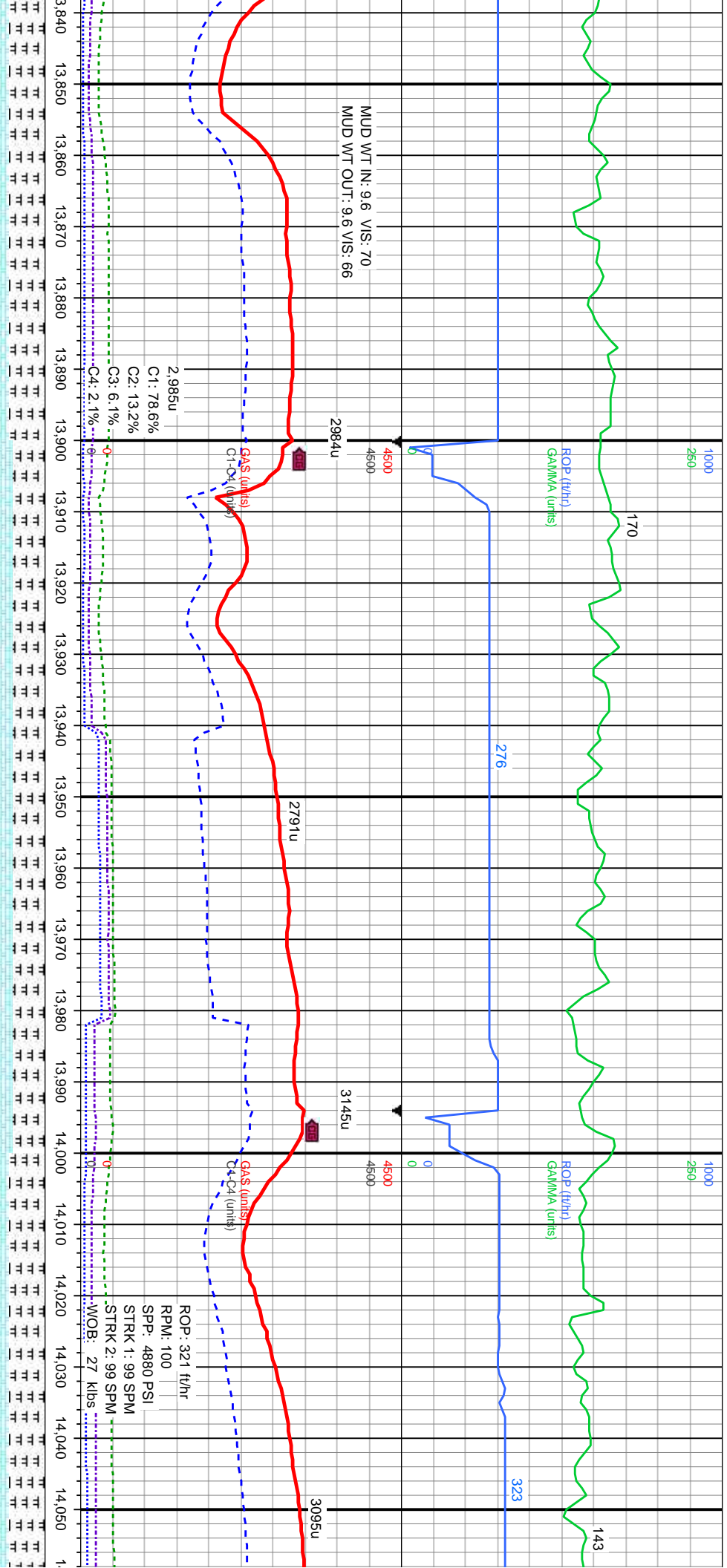




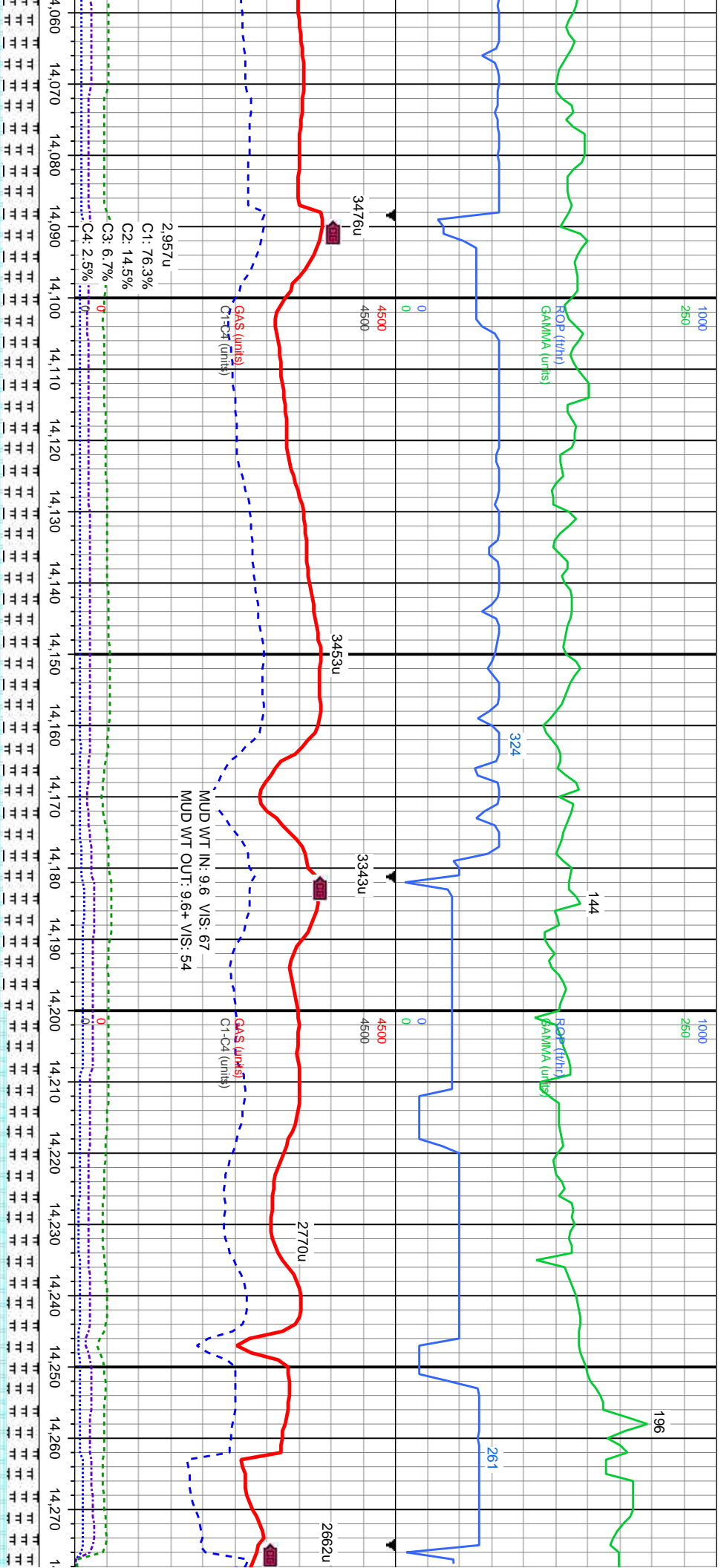








MD: 13.879' Inclination: 89.63° Azimuth: 270.34° TVD: 8.089.32' VS: 5.806.21'		MD: 13.974' Inclination: 89.69° Azimuth: 272.8° TVD: 8.089.88' VS: 5.901.2'	
MRLST: blk-dk gy, silty gr in pt, frm-occ hd, sb ply-pty, v calc. CHK: gy-m gy, dk gy-brn, mot, sme spec, sb ply-blky, fri-frm, rthy-sb wxy tex, v calc, with tr inoc.		MRLST: blk-dk gy, silty gr in pt, frm-occ hd, sb ply-pty, v calc. CHK: gy-m gy, dk gy-brn, mot, sme spec, sb ply-blky, fri-frm, rthy-sb wxy tex, v calc, with tr inoc.	
TVD (ft)		TVD (ft)	
8300		8300	



dk gy-blk, silty gr in pt, frm-occ hd, sb
, rthy tex, v calc. CHK: gy-m gy, dk gy-brn,
e spec, sb ply-blky, fri-frm, rthy-sb wxy
rthy-sb wxy tex, v calc, with tr inoc and tr PYR.

7300
MRLST: dk gy-blk, silty gr in pt, frm-occ hd, sb
ply-pty, rthy tex, v calc. CHK: gy-m gy, dk
gy-brn, mot, sme spec, sb ply-blky, fri-frm,
rthy-sb wxy tex, v calc, with tr inoc and tr PYR.

dk gy-blk, silty gr in pt, frm-occ hd, sb
ply-pty, rthy tex, v calc. CHK: gy-m gy, dk gy-brn,
mot, sme spec, sb ply-blky, fri-frm, rthy-sb wxy
tex, v calc, with tr inoc and tr PYR.

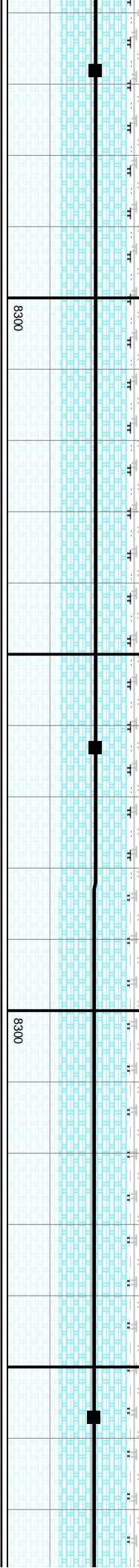
7300
MRLST: dk gy-blk, silty gr in pt, frm-occ hd, sb
ply-pty, rthy tex, v calc. CHK: gy-m gy, dk
gy-brn, mot, sme spec, sb ply-blky, fri-frm,
rthy-sb wxy tex, v calc, with tr inoc.

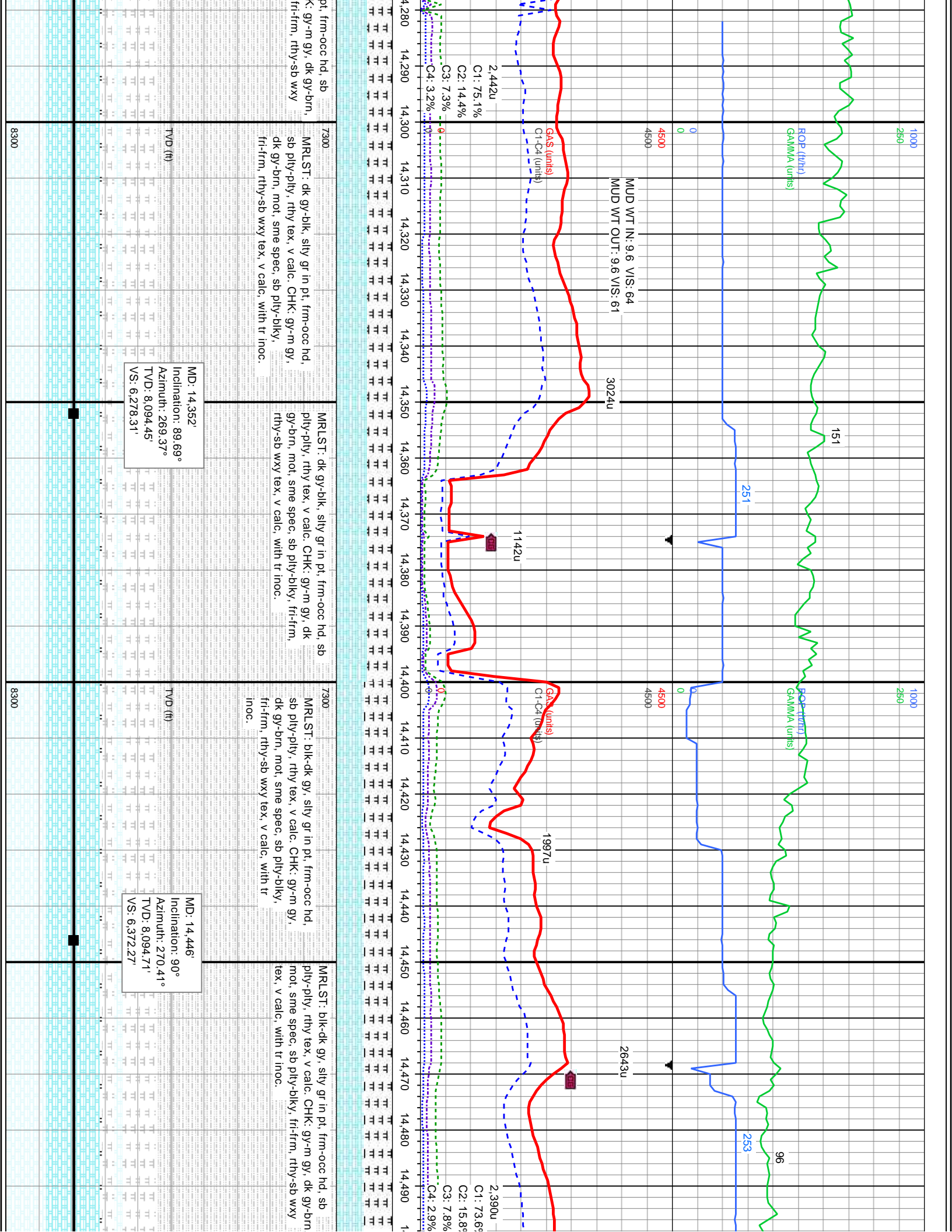
dk gy-blk, silty gr in
ply-pty, rthy tex, v calc. CH
mot, sme spec, sb ply-blky,
tex, v calc, with tr inoc.

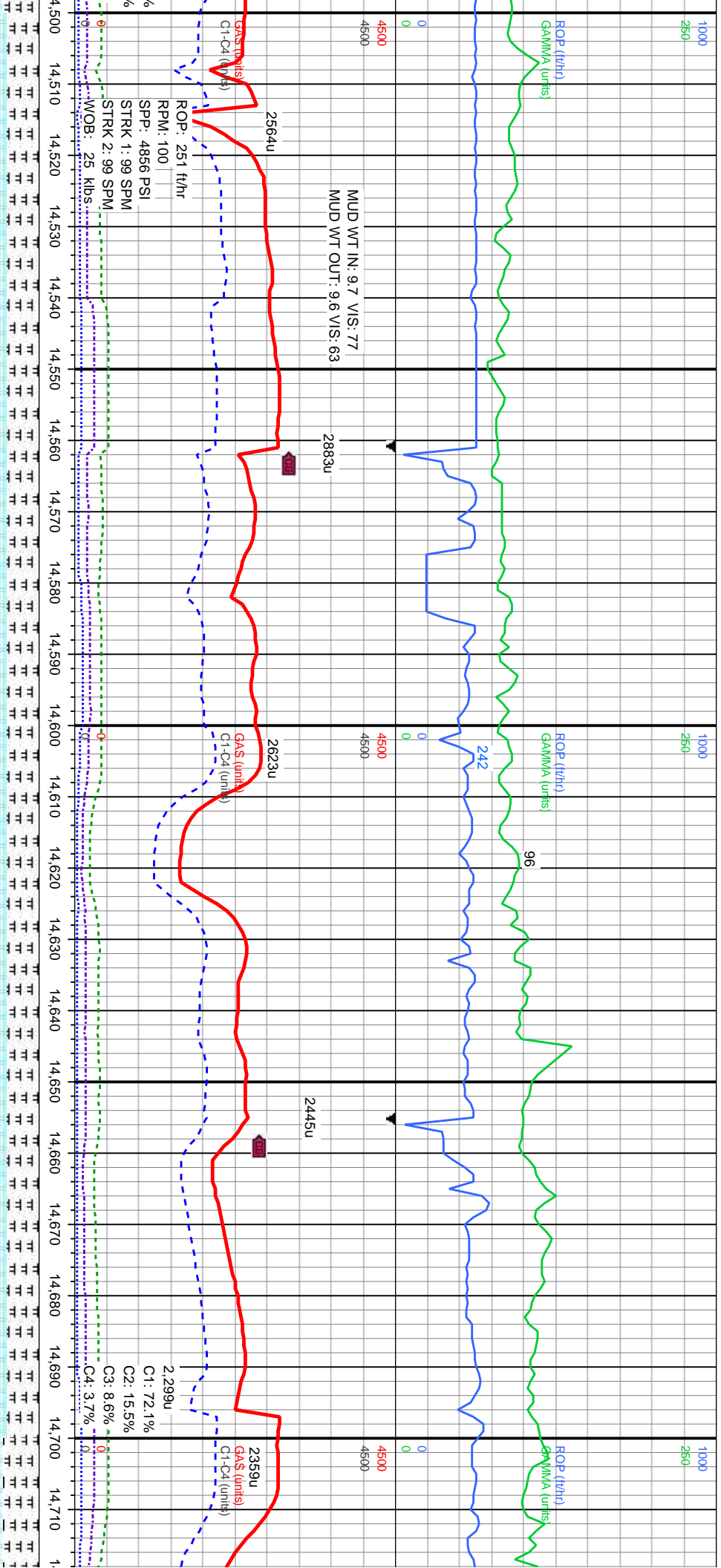
MD: 14.068'
Inclination: 89.6°
Azimuth: 271°
TVD: 8.090.47'
VS: 5.995.19'

MD: 14.163'
Inclination: 89.54°
Azimuth: 265.7°
TVD: 8.091.18'
VS: 6.090.01'

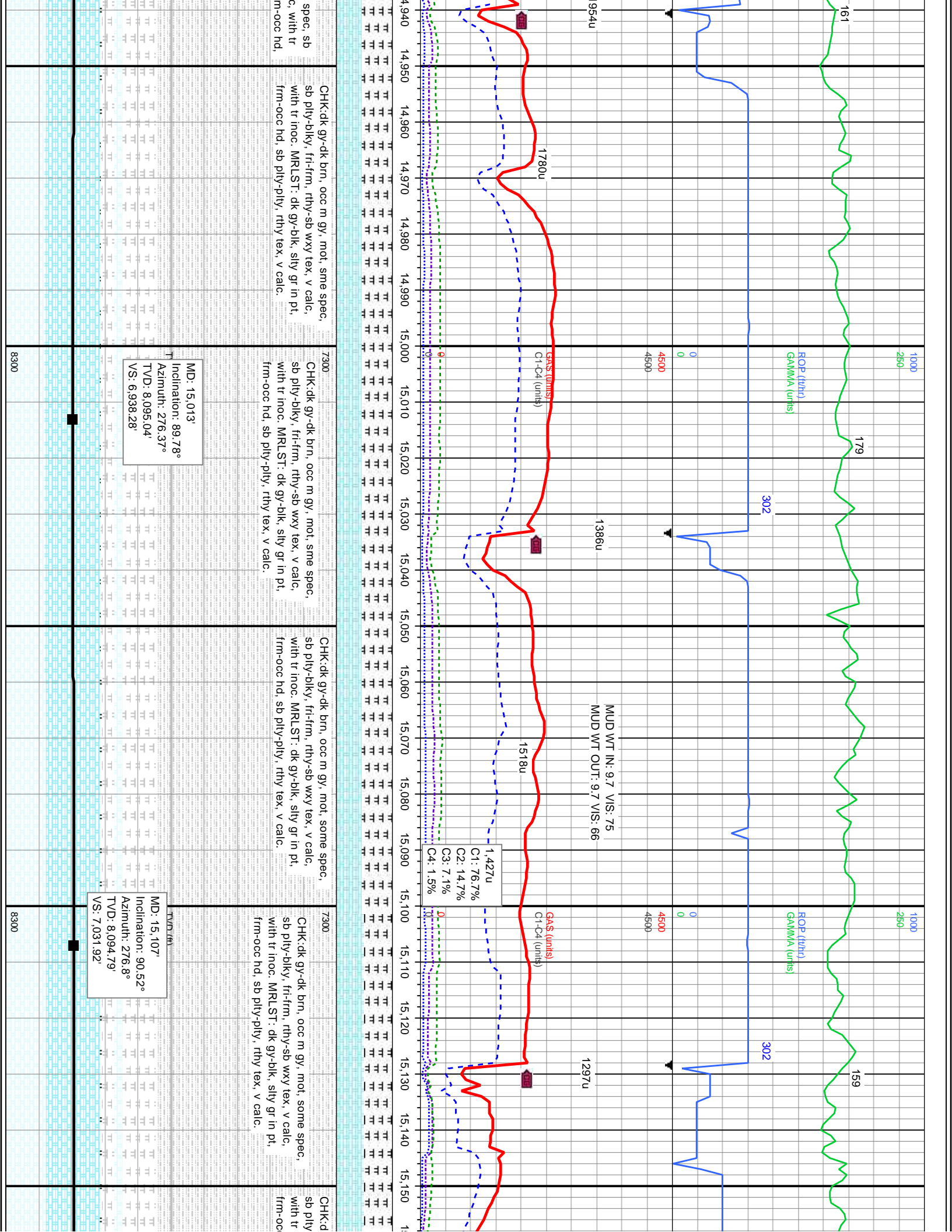
MD: 14.257'
Inclination: 88.4°
Azimuth: 266.19°
TVD: 8.092.87'
VS: 6.183.54'

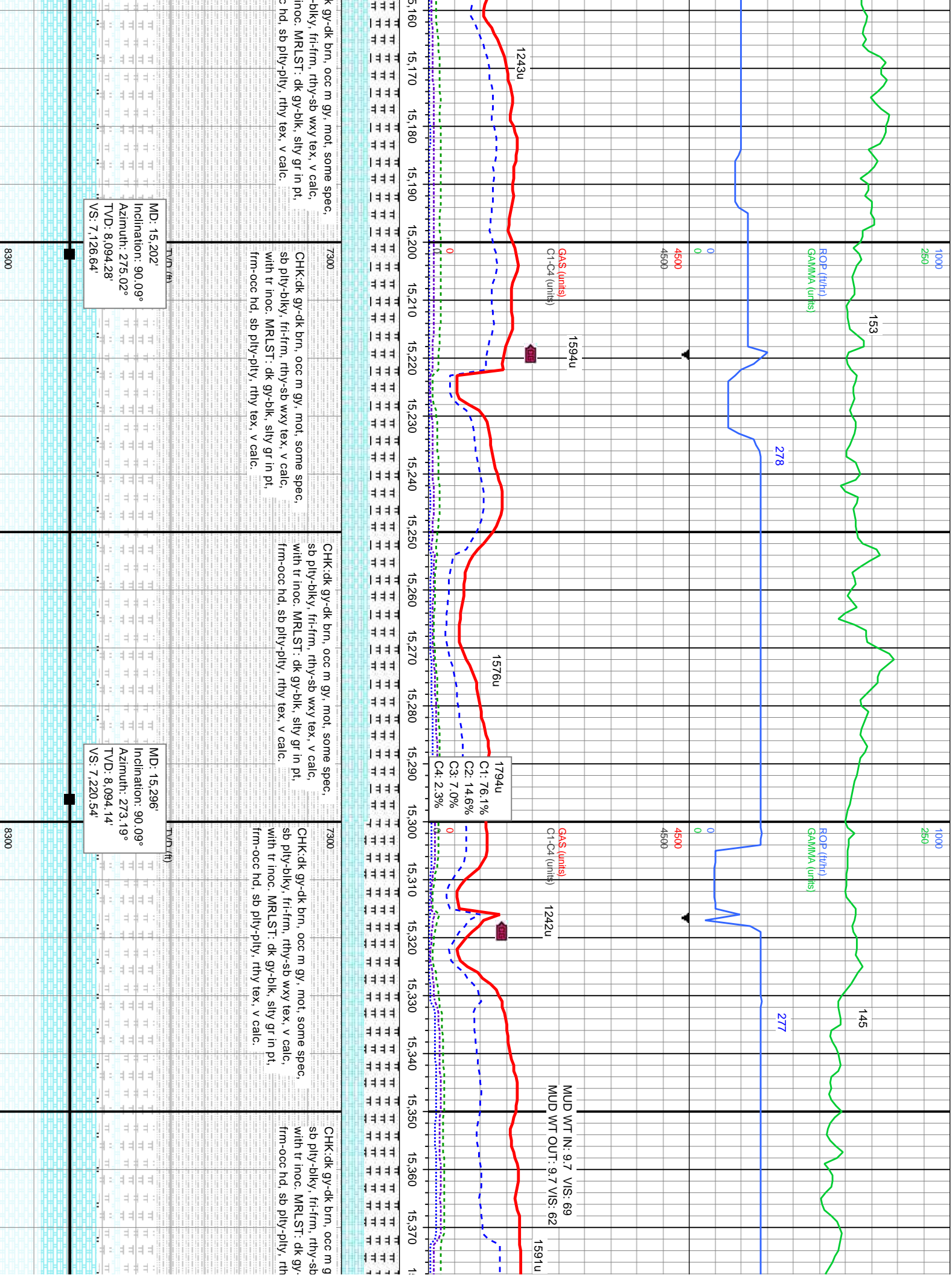


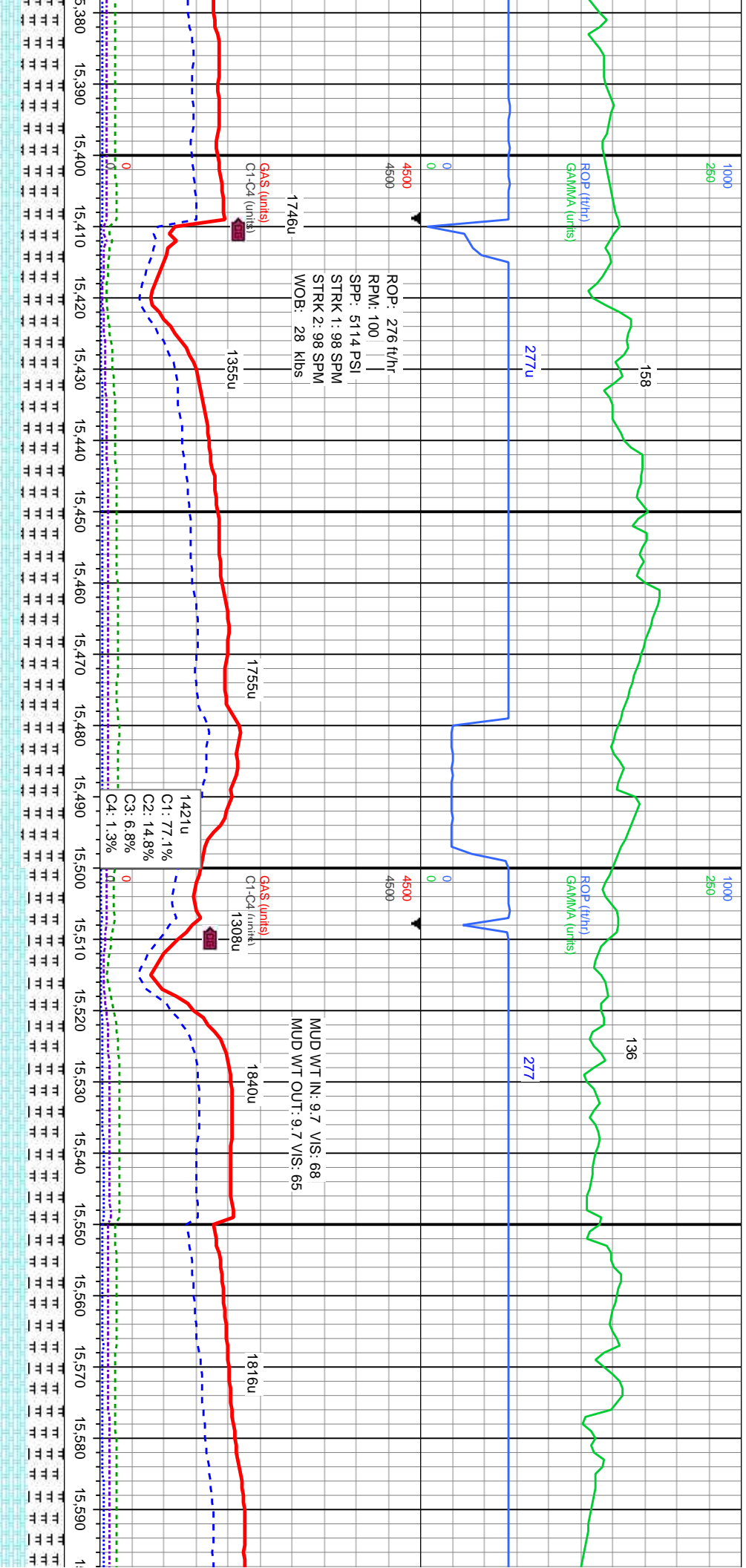




7300		MR.LST: blk-dk gy, silty gr in pt, frm-occ hd, sb ply-ply, rthy tex, v calc. CHK: dk gy-dk brn, occ m gy, mot, sme spec, sb ply-biky, fri-frm, rthy-sb wxy tex, v calc, with tr inoc.	7300		MR.LST: blk-dk gy, silty gr in pt, frm-occ hd, sb ply-ply, rthy tex, v calc. CHK: dk gy-dk brn, occ m gy, mot, sme spec, sb ply-biky, fri-frm, rthy-sb wxy tex, v calc, with tr inoc.	7300		CHK:dk gy-dk brn, occ m gy, mot, sme spec, sb ply-biky, fri-frm, rthy-sb wxy tex, v calc, with tr inoc. MR.LST: dk gy-blk, silty gr in pt, frm-occ hd, sb ply-ply, rthy tex, v calc.	7300		CHK:dk gy-dk brn, occ m gy, mot, sme spec, sb ply-biky, fri-frm, rthy-sb wxy tex, v calc, with tr inoc. MR.LST: dk gy-blk, silty gr in pt, frm-occ hd, sb ply-ply, rthy tex, v calc.	7300		CHK:dk gy-dk brn sb ply-biky, fri-frm, rthy-sb wxy tex, v calc, with tr inoc. MR.LST: dk gy-blk, silty gr in pt, frm-occ hd, sb ply-ply, rthy tex, v calc.
TVD (ft)		MD: 14,541' Inclination: 89.97° Azimuth: 271.63° TVD: 8,094.73' VS: 6,467.26'	TVD (ft)		MD: 14,635' Inclination: 90.09° Azimuth: 272.78° TVD: 8,094.68' VS: 6,561.26'	TVD (ft)			TVD (ft)			TVD (ft)		
8300			8300			8300			8300			8300		







Y, mot, some spec,
wxy tex, v calc,
blk, slty gr in pt,
y tex, v calc.

7300

CHK:dk gy-dk brn, occ m gy, mot, some spec,
sb ply-bkly, fri-frn, rthy-sb wxy tex, v calc,
with tr inoc. MRLST: dk gy-blk, slty gr in pt,
frm-occ hd, sb ply-pty, rthy tex, v calc.

MD: 15,390'
Inclination: 89.85°
Azimuth: 273.56°
TVD: 8,094.19'
VS: 7,314.49'

TVD (ft)

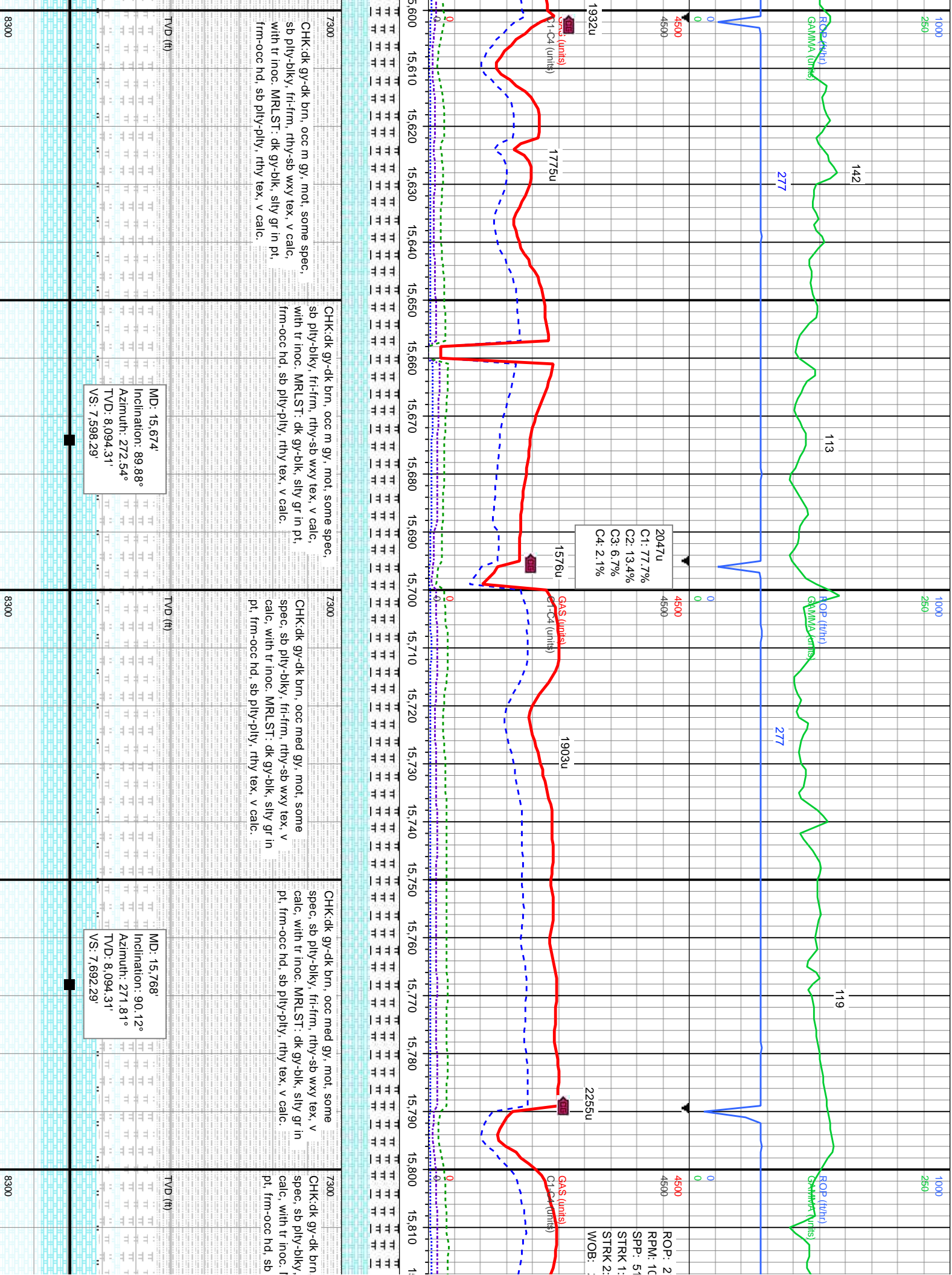
8300

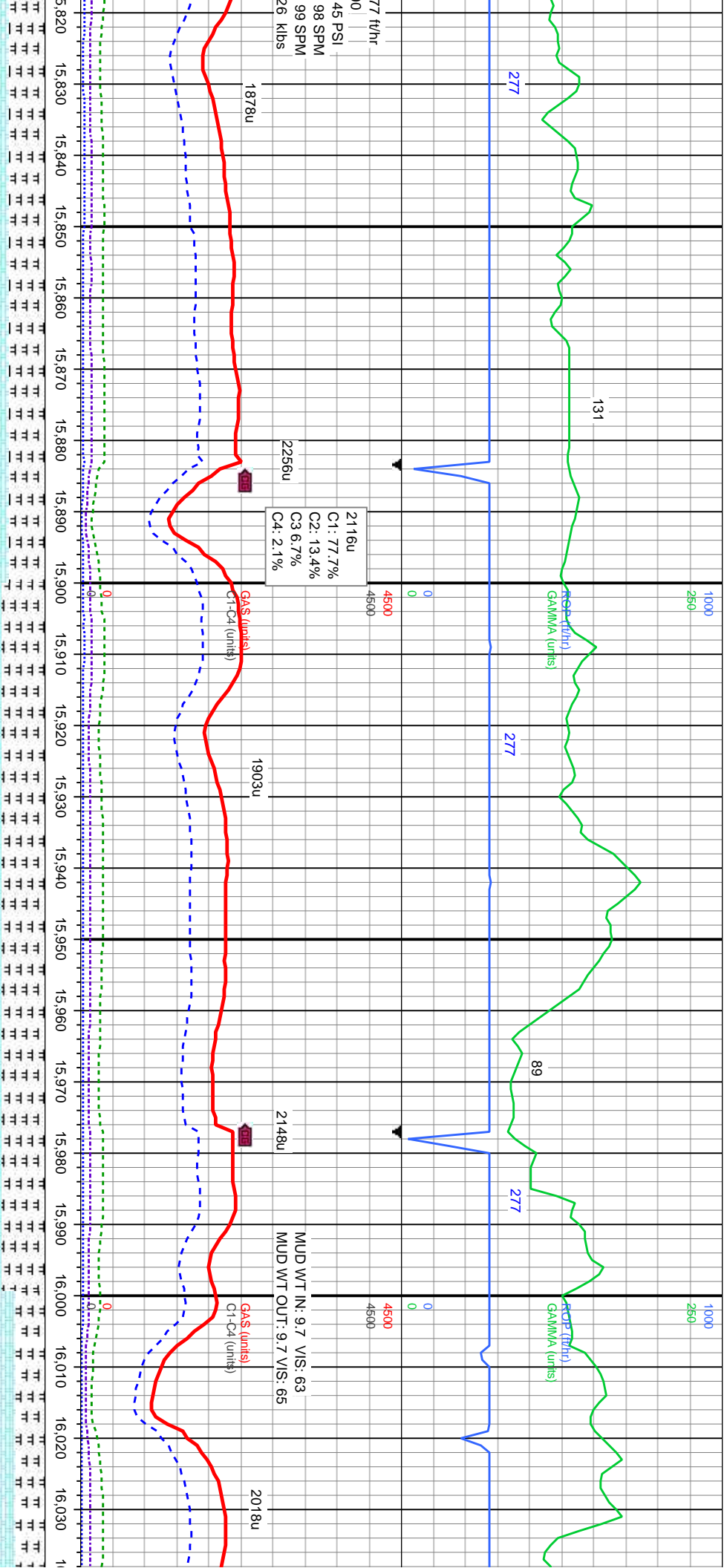
MD: 15,485'
Inclination: 90.09°
Azimuth: 274.13°
TVD: 8,094.24'
VS: 7,409.41'

TVD (ft)

8300

MD: 15,579'
Inclination: 89.97°
Azimuth: 273.77°
TVD: 8,094.19'
VS: 7,503.33'





occ med gy, mot, some
fri-firm, rthy-sb wxy tex, v
MRST: dk gy-blk, silty gr in
pity-plty, rthy tex, v calc.

CHK:dk gy-dk brn, occ med gy, mot, some
spec, sb pity-blky, fri-firm, rthy-sb wxy tex, v
calc, with tr inoc. MRST: dk gy-blk, silty gr in
pt, firm-occ hd, sb pity-plty, rthy tex, v calc.

7300
CHK:dk gy-dk brn, occ med gy, mot, some
spec, sb pity-blky, fri-firm, rthy-sb wxy tex, v
calc, with tr inoc. MRST: dk gy-blk, silty gr in
pt, firm-occ hd, sb pity-plty, rthy tex, v calc.

CHK:dk gy-dk brn, occ med gy, mot, some
spec, sb pity-blky, fri-firm, rthy-sb wxy tex, v
calc, with tr inoc. MRST: dk gy-blk, silty gr in
pt, firm-occ hd, sb pity-plty, rthy tex, v calc.

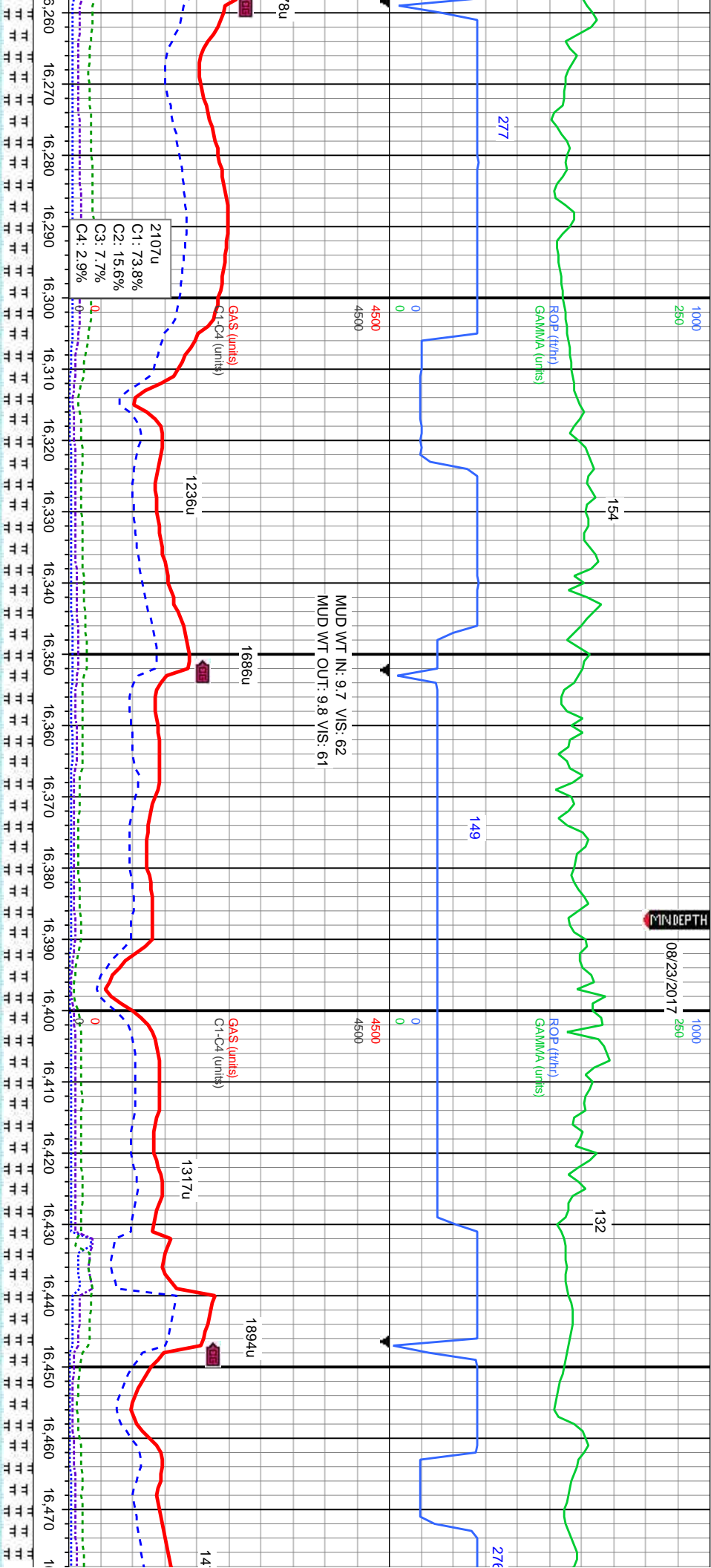
7300
CHK:dk gy-dk brn, occ med gy, mot, some
spec, sb pity-blky, fri-firm, rthy-sb wxy tex, v
calc, with tr inoc. MRST: dk gy-blk, silty gr in
pt, firm-occ hd, sb pity-plty, rthy tex, v calc.

MD: 15,863'
Inclination: 89.97°
Azimuth: 270.9°
TVD: 8,094.24'
VS: 7,787.28'

MD: 15,958'
Inclination: 90.06°
Azimuth: 270°
TVD: 8,094.21'
VS: 7,882.27'

TVD (ft)

TVD (ft)



dk gy-dk brn, occ med gy, mot, some
sb pily-biky, fri-frn, rthy-sb wxy tex, v
with tr inoc. MRLST: dk gy-blk, silty gr in
n-occ hd, sb pily-pily, rthy tex, v calc.

7300
CHK:dk gy-dk brn, occ med gy, mot, some
spec, sb pily-biky, fri-frn, rthy-sb wxy tex, v
calc, with tr inoc. MRLST: dk gy-blk, silty gr in
pt, frm-occ hd, sb pily-pily, rthy tex, v calc.

CHK:dk gy-dk brn, occ med gy, mot, some
spec, sb pily-biky, fri-frn, rthy-sb wxy tex, v
calc, with tr inoc. MRLST: dk gy-blk, silty gr in
pt, frm-occ hd, sb pily-pily, rthy tex, v calc.

7300
CHK:dk gy-dk brn, occ med gy, mot, some
spec, sb pily-biky, fri-frn, rthy-sb wxy tex, v
calc, with tr inoc. MRLST: dk gy-blk, silty gr in
pt, frm-occ hd, sb pily-pily, rthy tex, v calc.

CHK:dk gy-dk brn, occ me
spec, sb pily-biky, fri-frn,
calc, with tr inoc. MRLST:
pt, frm-occ hd, sb pily-pily

TVD (ft)
MD: 16,335'
Inclination: 89.63°
Azimuth: 265.09°
TVD: 8,094.67'
VS: 8,257.61'

TVD (ft)
MD: 16,429'
Inclination: 89.88°
Azimuth: 268.67°
TVD: 8,095.07'
VS: 8,351.28'

