

COLUMBINE LOGGING

Scale: 5" / 100'
Measured Depth Log

Well Name B & D Land 4-64 4-5 4BH

Location Section 4, T4S, R64W

State COLORADO

Country USA

API Number 05-005-07245000C

Geographic Region DJ BASIN

Spud Date 6/28/2017

Surface Coordinates Section 4 T4S R64W

810' FSL & 350' FEL

Latitude 39 72'66.94"N

Longitude -104 54'70.81"W

Bottom Hole Coordinates Section 5 T4S R64W

' FSL & ' FWL

Latitude 39 ""N

Longitude 104 ""W

Ground Elevation 5617.7

K.B. Elevation 5644.2

Logged Interval 6000 **To** 15341'

Total Depth 15341'

Formation Niobrara C Chalk

Type of Drilling Fluid OBM

County ARAPAHOE

Rig Number H&P 448

AFE # WAY.CDR.0046

Field WILDCAT

Drilling Completed 7/6/2017

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: Robert Davis, Todd Thiesse, Zac Lewis

Gas Detection: Bloodhound chromatograph gas unit #0316

DD/MWD: Baker Hughes

Columbine Computer 87A

Zone 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
- ORGANIC
- 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		

Slide/Rotate

ROP

ROP
GAMMA

Columbine Logging Inc. Rigged Up 2 man logging 7/1/2017 Chromatograph Gas Unit #0316, began logging from 6000' MD at 7:25 PM, MDT on 7/1/2017

Total Gas & Chromatograph

GAS
C1
C2
C3
C4

Depth Labels

% Lith

Well Bore
TVD

Target Formation/Member:
Niobrara Chalk

SLTY SH: gy-dk gy, occ dk brn, v sft - sft, sb pty-pty, silty to rthy tex, grgd to slst, non- v sl calc with some SLTST: med gy- gy, sl frm, sb blk- occ sb pty, rthy-silty tex, non calc.

SLTY SH: gy-dk gy, occ dk brn, v sft - s - some SLTST: med gy- gy, sl frm, sb blk

MD: 6,048'
Inclination: 3.19°
Azimuth: 65.98°
TVD: 6,046.97'

MD: 6
Inclin
Azimut
TVD:
VS: -3

COLUMBINE LOGGING

Bit Data
Bit #: 2
Type: HCC AT505F

Size: 8.5
Depth In: 1980'
Depth Out: '
Jets: 5x14
S/N: 7163817

Mud Motor is 1.3°
Survey is 46.46' behind bit.
Gamma is 39.24' behind bit.

MUD WT IN: 9.1
VIS: 56
MUD WT OUT: VIS:

ROP: 706 ft/hr
RPM: 61 rpm
SPP: 4449 PSI
STRK 1: 98 SPM
STRK 2: 98 SPM
WOB: 25 klbs

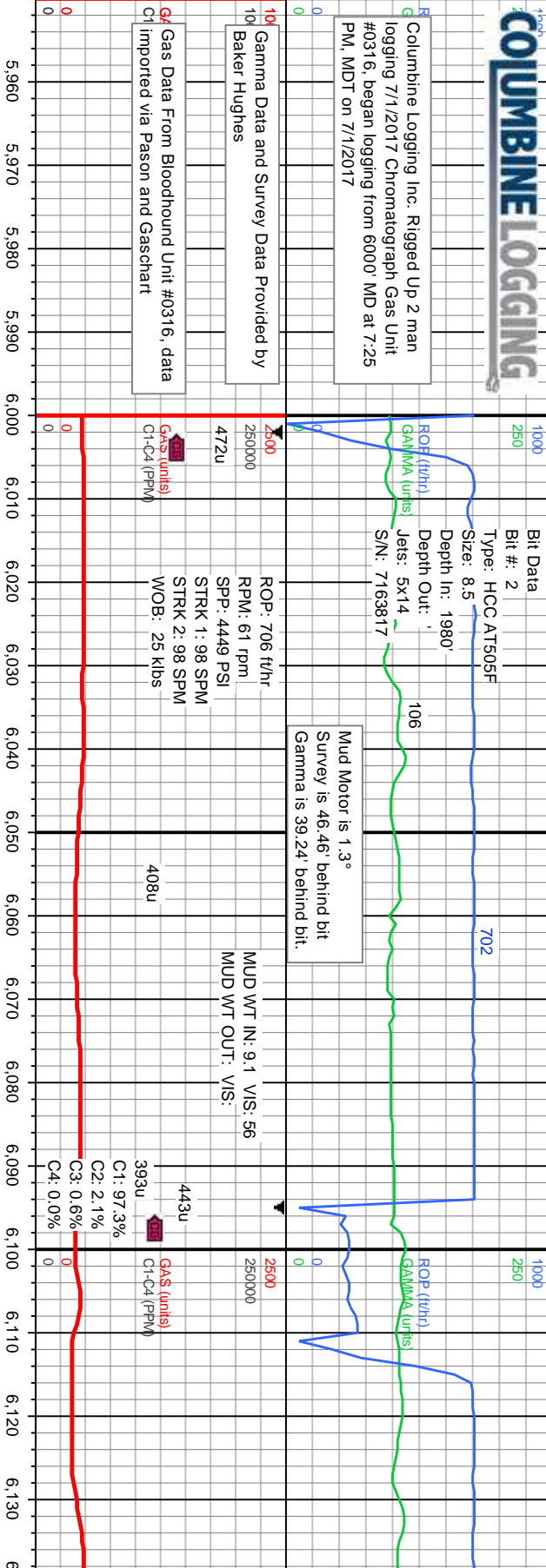
Gamma Data and Survey Data Provided by Baker Hughes

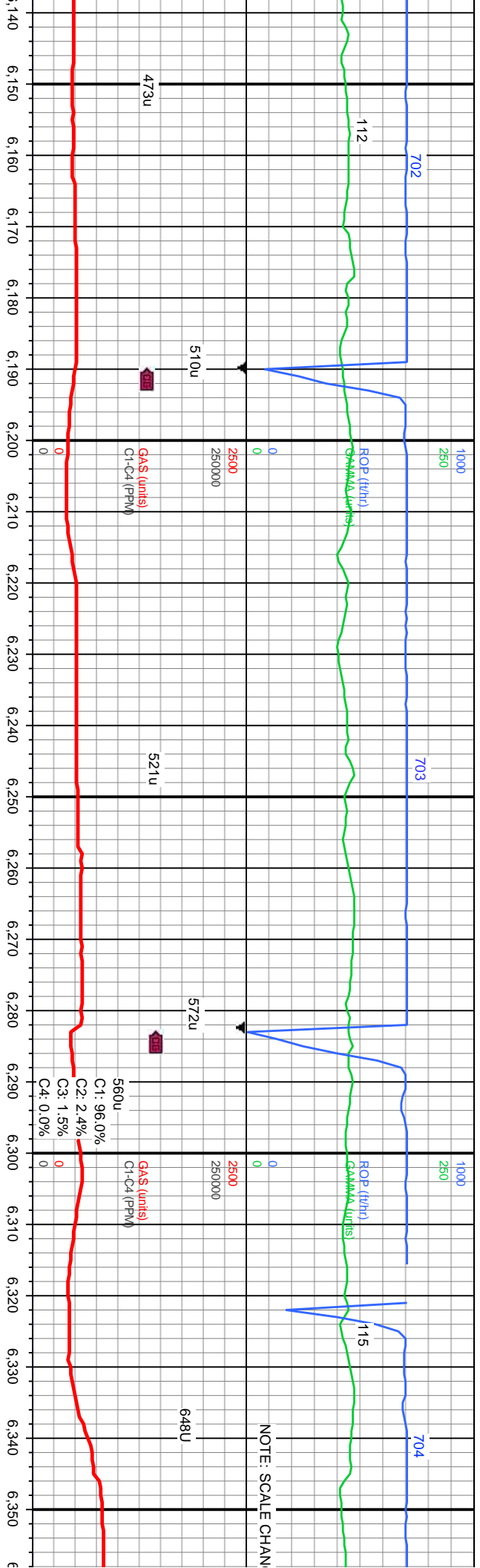
Gas Data From Bloodhound Unit #0316, data C1 imported via Pason and Gaschart

Gas (units)
C1-C4 (PPM)

Gas (units)
C1-C4 (PPM)

Gas (units)
C1-C4 (PPM)





ft, sb ply-pty, sly to rthy tex, grdg to slst, non - v sl calc with
y - occ sb ply, rthy-sly tex, non calc.

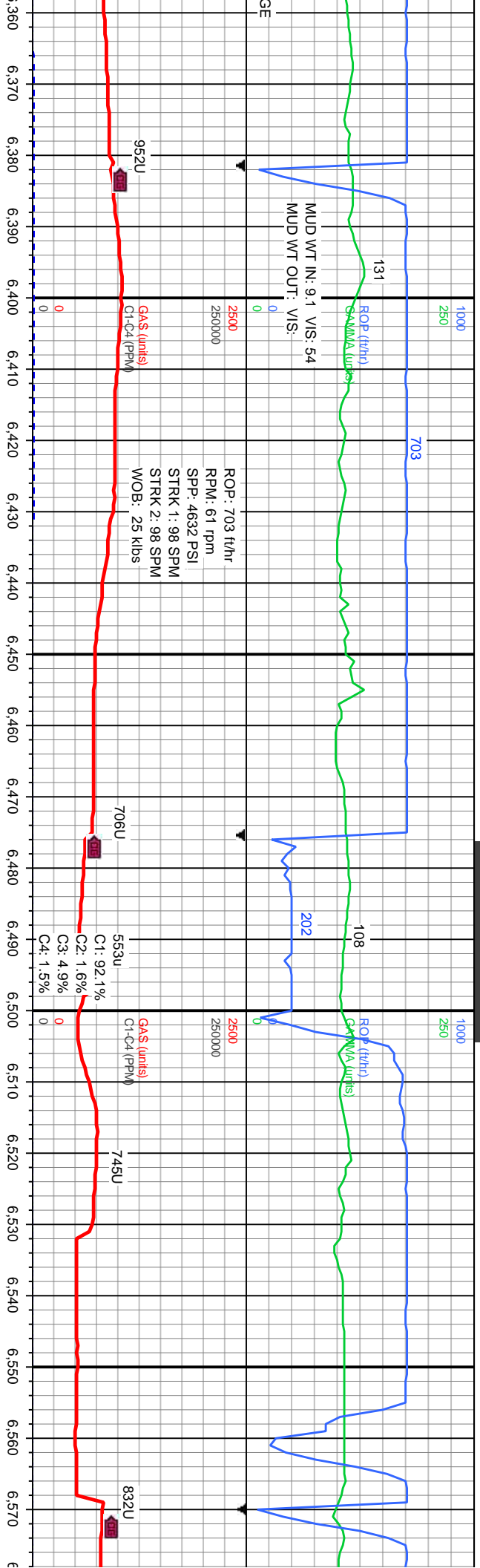
SLTY SH: gy-dk gy, occ dk brn, v sft - sft, sb ply-pty, sly to rthy tex, grdg to
slst, non - v sl calc with some SLTST: med gy - gy, sl frm, sb biky - occ sb ply,
rthy-sly tex, non calc.

SLTY SH: dk gy-med gy, sme dk brn, v sft-sft, sb ply
non - v sl calc with tr SLTST: m gy-gy, fri, sb biky, rth



MD: 6,237'
Inclination: 3.4°
Azimuth: 60.47°
TVD: 6,235.61'
VS: -39.82'

MD: 6,331'
Inclination: 3.01°
Azimuth: 67.59°
TVD: 6,329.46'
VS: -44.46'

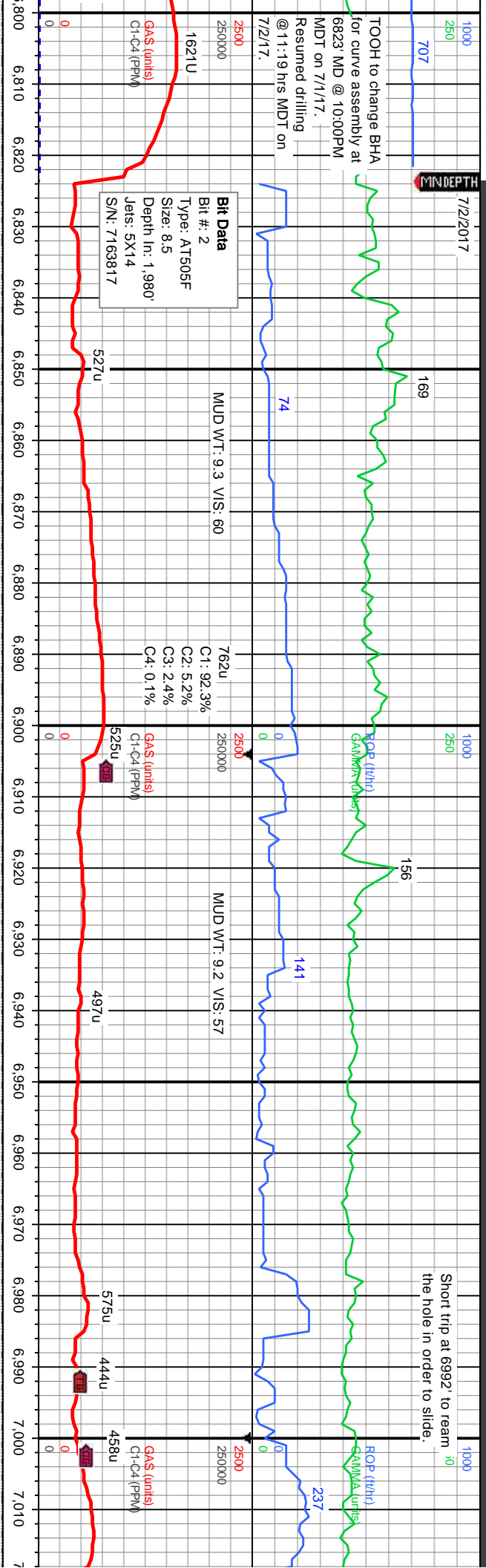


-sb blkly, silty tex, occ grgd to slst, y tex, non calc.

SLTY SH: dk gy-med gy, sme dk brn, v sft-sft, sb pily-sb blkly, silty tex, occ grgd to slst, non - v sl calc with tr SLTST: m gy-gy, fri, sb blkly, rthy tex, non calc.

MD: 6,425'
Inclination: 2.63°
Azimuth: 75.64°
TVD: 6,423.35'
VS: -48.78'

MD: 6,520'
Inclination: 2.95°
Azimuth: 37.59°
TVD: 6,518.24'
VS: -52.3'



5000

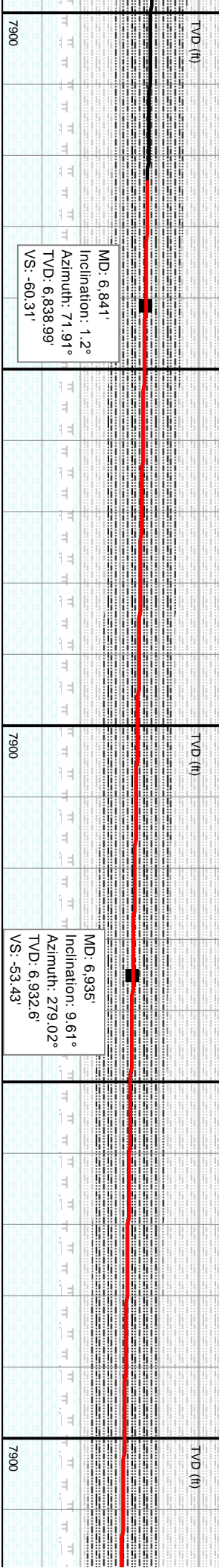
SLTY SH: dk gy-med gy, tr dk brn, v sft-sft, sb pily-sb blkly, slty tex, sl calc with tr SLTST: m gy-gy, fri, sb blkly, rthy tex, non calc

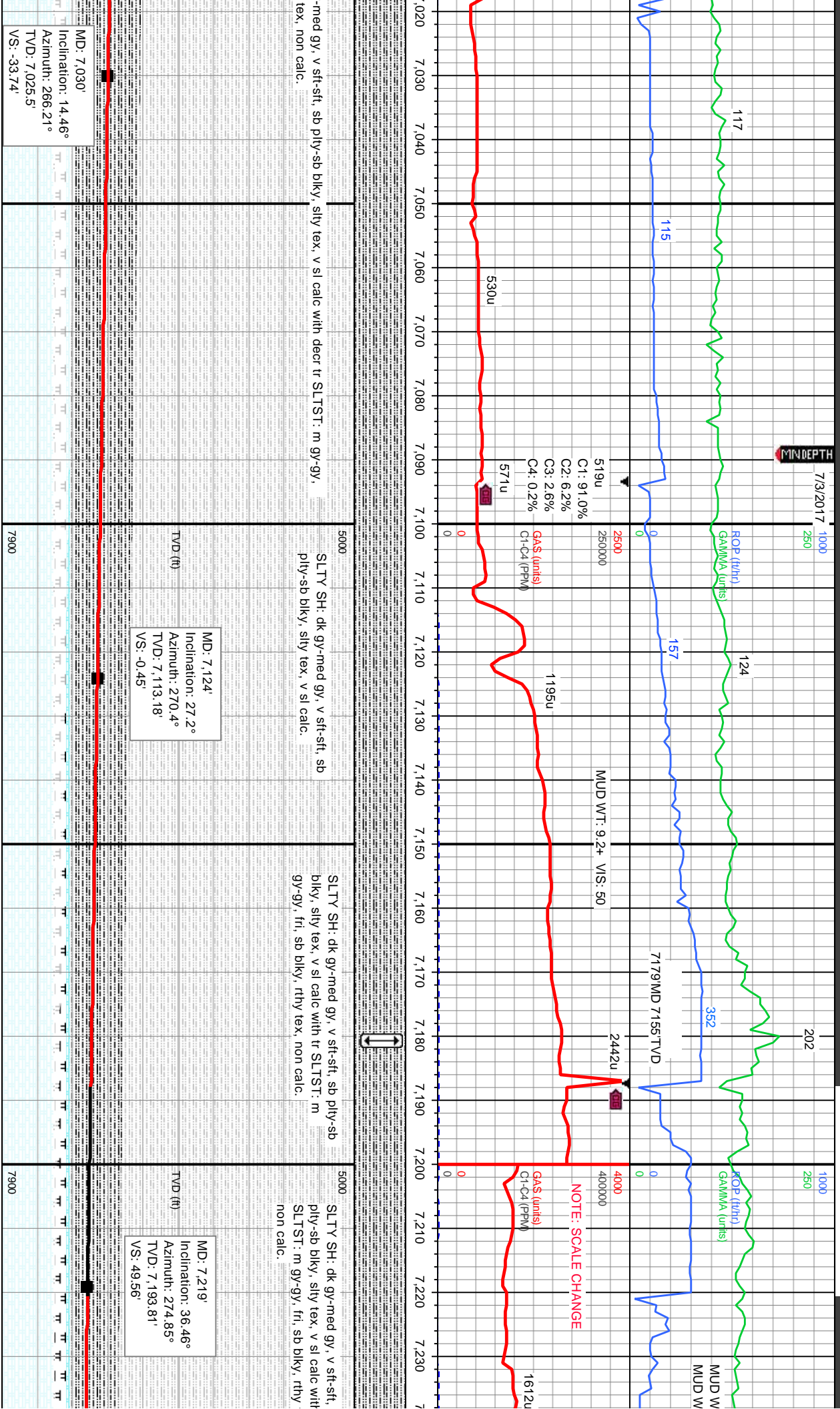
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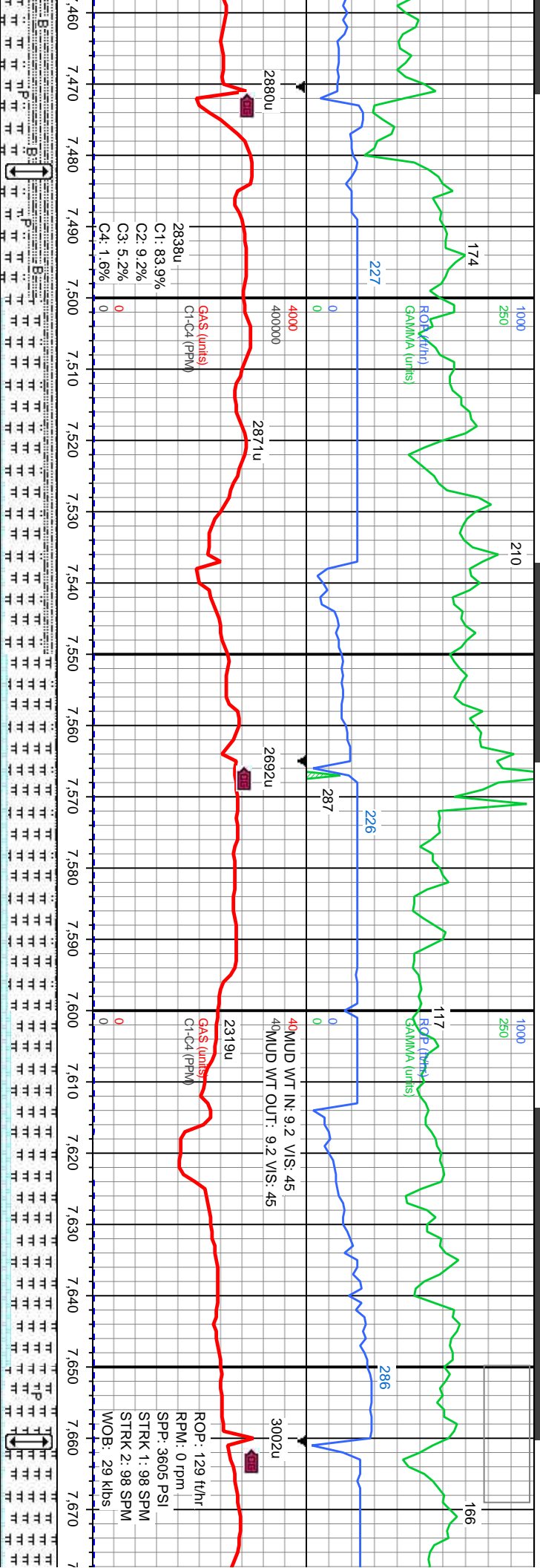
SLTY SH: dk gy-med gy, v sft-sft, sb pily-sb blkly, slty tex, v sl calc with decr tr SLTST: m gy-gy, fri, sb blkly, rthy tex, non calc.

5000

SLTY SH: dk gy fri, sb blkly, rthy







ST: med-dk gy, spec, slt gr, frm, sb
sly, gt tex, v calc, with tr bent, tr pyr.
SH: m-dk gy, frm, sb ply-pty, sly tex,
a grid to mlst.

MRLST: med-dk gy, spec, slt gr, frm, sb ply-pty,
gt tex, v calc, with tr bent. SLTY SH: m-dk gy,
frm, sb ply-pty, sly tex, v calc grid to mlst.
CHK: lt-med gy, sb ply-biky, brt, sl sft, sb rthy-sm
tex, v calc.

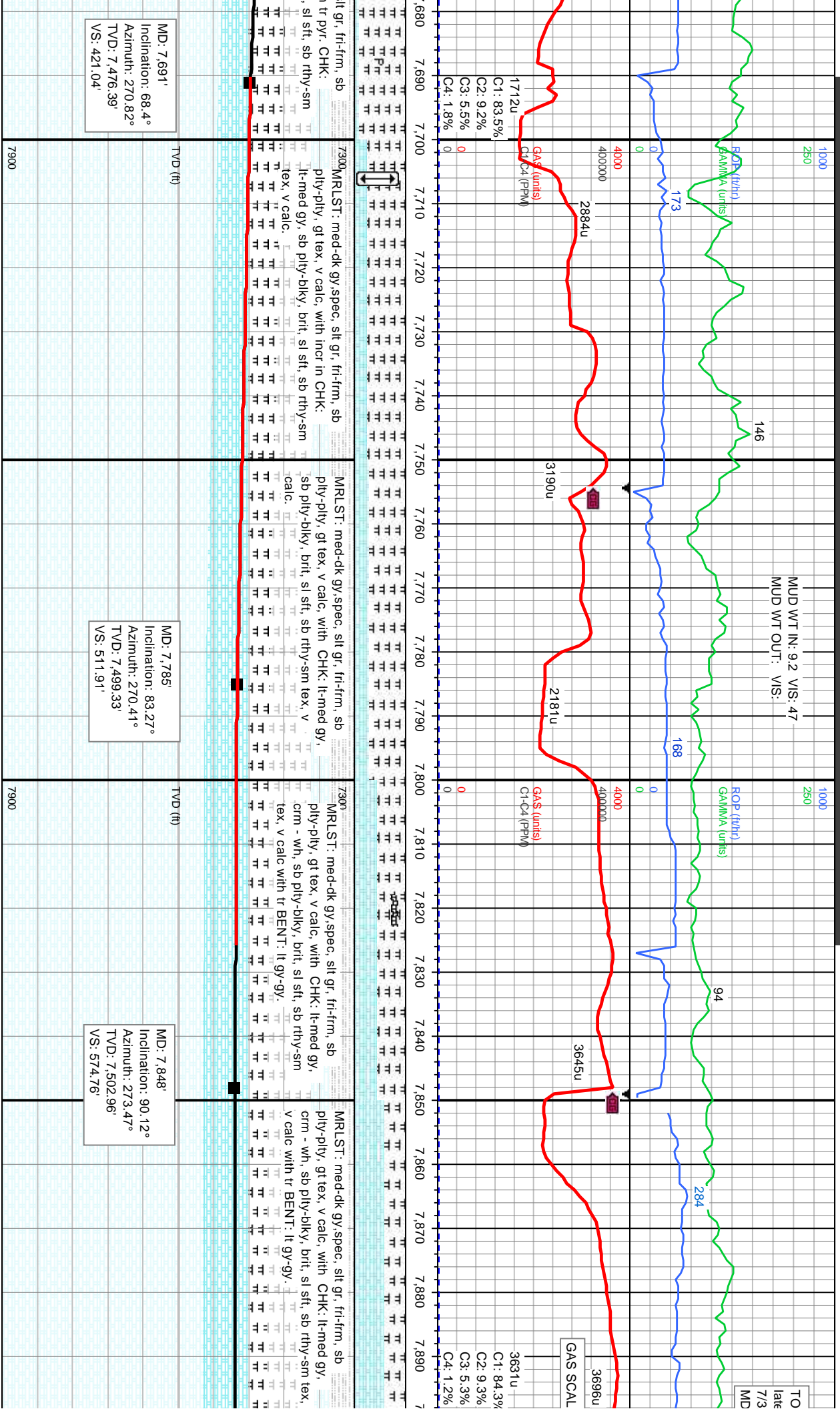
MRLST: med-dk gy, spec, slt gr, frm, sb ply-pty,
gt tex, v calc, with tr bent. SLTY SH: m-dk
gy, frm, sb ply-pty, sly tex, v calc grid to
mlst. CHK: lt-med gy, sb ply-biky, brt, sl sft,
sb rthy-sm tex, v calc.

MRLST: med-dk gy, spec, slt gr, frm, sb ply-pty,
gt tex, v calc, with tr bent. CHK: lt-med gy, sb
ply-biky, brt, sl sft, sb rthy-sm tex, v calc.
TVD (ft)

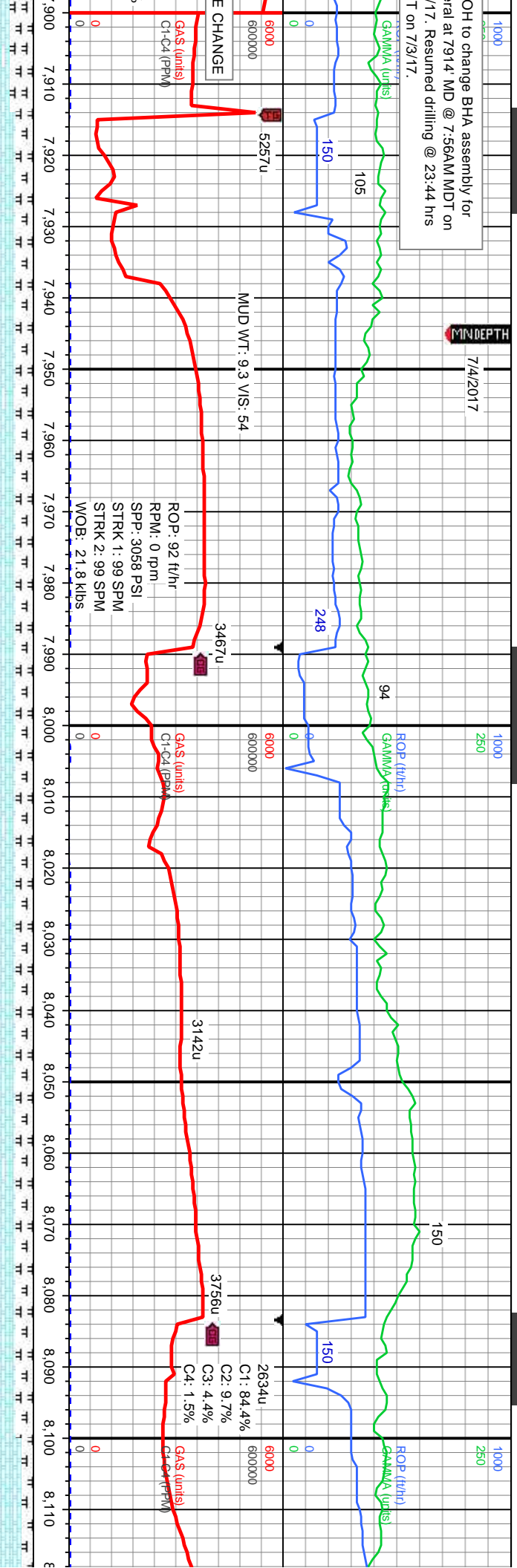
MRLST: med-dk gy, spec, s
ply-pty, gt tex, v calc, with
lt-med gy, sb ply-biky, brt
tex, v calc.

MD: 7.502'
Inclination: 55.58°
Azimuth: 273.63°
TVD: 7.385.35'
VS: 255.9'

MD: 7.596'
Inclination: 60.25°
Azimuth: 272.77°
TVD: 7.435.26'
VS: 335.5'

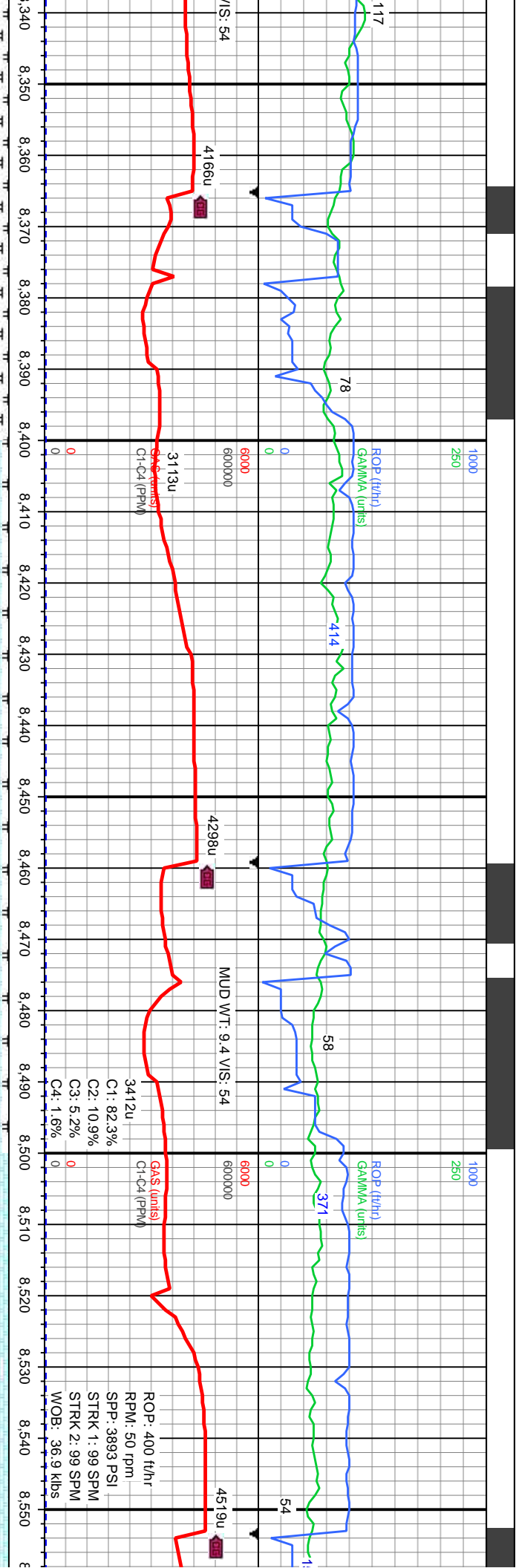


OH to change BHA assembly for
trial at 7914 MD @ 7:56AM MDT on
7/17. Resumed drilling @ 23:44 hrs
T on 7/3/17.

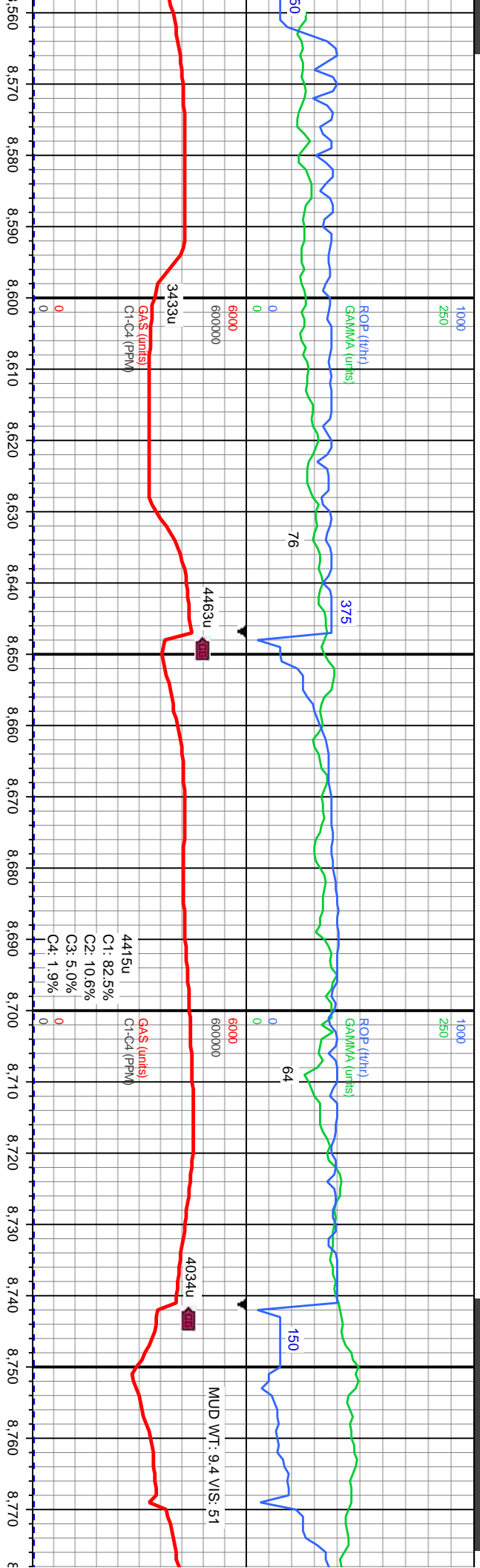


7300	7300	7300	7300
CHK: It-med gy, str, sb pily-blky, brit, sl sft, sb rthy-sm tex, v calc, MRLST: med-dk gy, mot-spec, slt gr, sl frm, sb pily-pily, gt tex, calc, tr pyr	CHK: It-med gy, str, sb pily-blky, brit, sl sft, sb rthy-sm tex, v calc, MRLST: med-dk gy, mot-spec, slt gr, sl frm, sb pily-pily, gt tex, calc, tr pyr	CHK: It-med gy, str, sb pily-blky, brit, sl sft, sb rthy-sm tex, v calc, MRLST: med-dk gy, mot-spec, slt gr, sl frm, sb pily-pily, gt tex, calc, tr pyr	CHK: It-med gy, str, sb pily-blky, brit, sl sft, sb rthy-sm tex, v calc, MRLST: med-dk gy, mot-spec, slt gr, sl frm, sb pily-pily, gt tex, calc, tr pyr

TVD (ft)	MD: 7.928' Inclination: 90.93° Azimuth: 273.69° TVD: 7.502.23' VS: 654.71'	TVD (ft)	MD: 8.023' Inclination: 89.35° Azimuth: 274.59° TVD: 7.502' VS: 749.63'	TVD (ft)	MD: 8.117' Inclination: 89.35° Azimuth: 274.59° TVD: 7.502' VS: 843.4'



i sft, sb rthy-sm tex, v calc, MRLST: med-dk gy, mot-spec, slt gr, sl frm, sb pily-pily, gt tex, calc	CHK: lt-med gy, str, sb pily-biky, brit, sl sft, sb rthy-sm tex, v calc, MRLST: med-dk gy, mot-spec, slt gr, sl frm, sb pily-pily, gt tex, calc	7300	TVD (ft)	MD: 8.400' Inclination: 88.83° Azimuth: 273.7° TVD: 7,510.13' VS: 1,126.1'	7900
i sft, sb rthy-sm tex, v calc, MRLST: med-dk gy, mot-spec, slt gr, sl frm, sb pily-pily, gt tex, calc	CHK: lt-med gy, str, sb pily-biky, brit, sl sft, sb rthy-sm tex, v calc, MRLST: med-dk gy, mot-spec, slt gr, sl frm, sb pily-pily, gt tex, calc	7300	TVD (ft)	MD: 8.494' Inclination: 89.32° Azimuth: 273.25° TVD: 7,511.65' VS: 1,220.05'	7900
i sft, sb rthy-sm tex, v calc, MRLST: med-dk gy, mot-spec, slt gr, sl frm, sb pily-pily, gt tex, calc	CHK: lt-med gy, str, sb pily-biky, brit, sl sft, sb rthy-sm tex, v calc, MRLST: med-dk gy, mot-spec, slt gr, sl frm, sb pily-pily, gt tex, calc	7300	TVD (ft)	MD: 8.494' Inclination: 89.32° Azimuth: 273.25° TVD: 7,511.65' VS: 1,220.05'	7900



med gy, str, sb pily-diky, brit, sl sft, sb	med gy, str, sb pily-diky, brit, sl sft, sb	med gy, str, sb pily-diky, brit, sl sft, sb	med gy, str, sb pily-diky, brit, sl sft, sb
CHK: It-med gy, str, sb pily-diky, brit, sl sft, sb rthy-sm tex, v calc, tr MRLST	CHK: It-med gy, str, sb pily-diky, brit, sl sft, sb rthy-sm tex, v calc, tr MRLST	CHK: It-med gy, str, sb pily-diky, brit, sl sft, sb rthy-sm tex, v calc, tr MRLST	CHK: It-med gy, str, sb pily-diky, brit, sl sft, sb rthy-sm tex, v calc, tr MRLST
7300	7300	7300	7300
7900	7900	7900	7900

MD: 8.589'
Inclination: 90.22°
Azimuth: 274.19°
TVD: 7.512.03'
VS: 1.314.99'

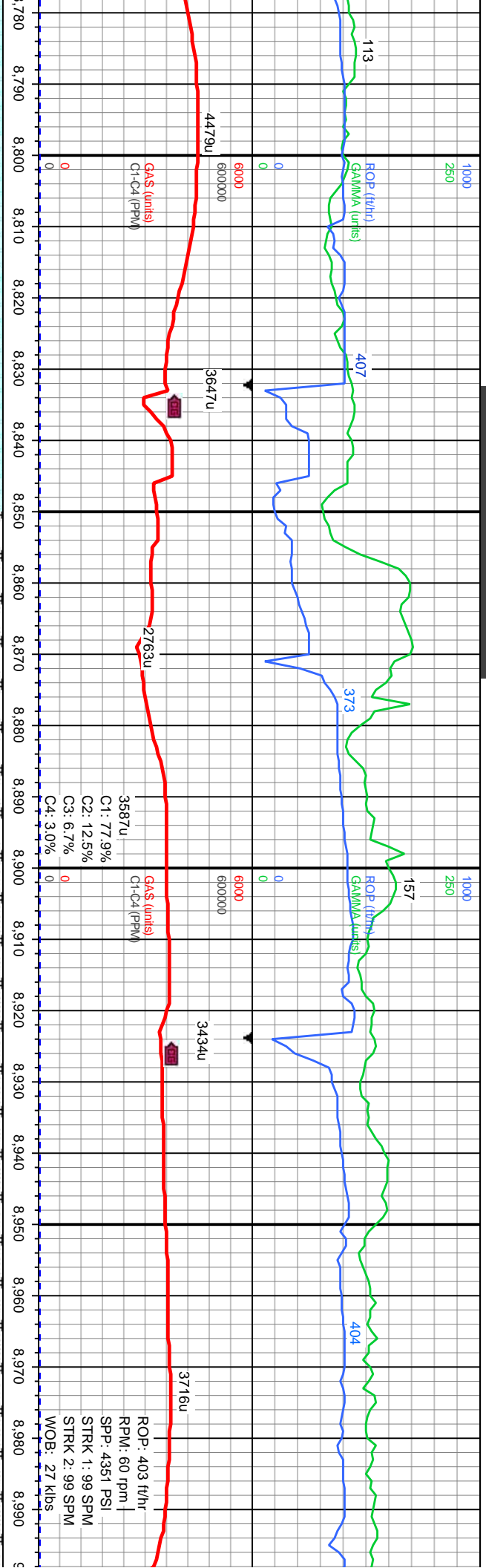
TVD (ft)

MD: 8.683'
Inclination: 90.4°
Azimuth: 274.93°
TVD: 7.511.52'
VS: 1.408.87'

TVD (ft)

MD: 8.774'
Inclination: 27°
Azimuth: 27°
TVD: 7.510.
VS: 1.499.7'

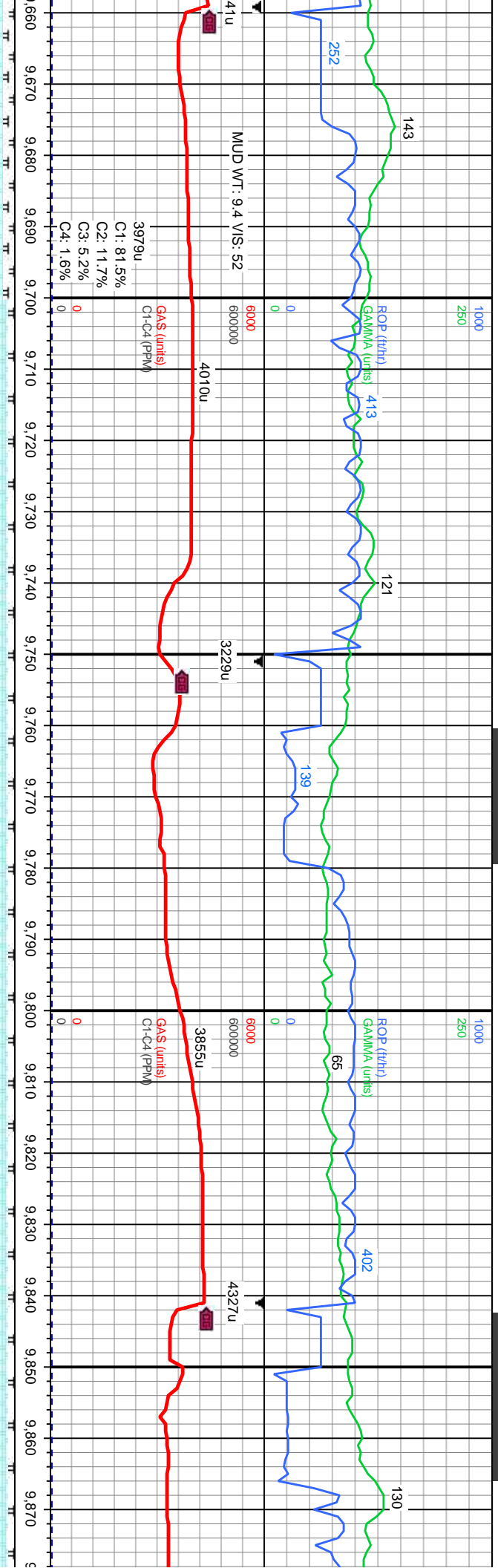
TVD (ft)



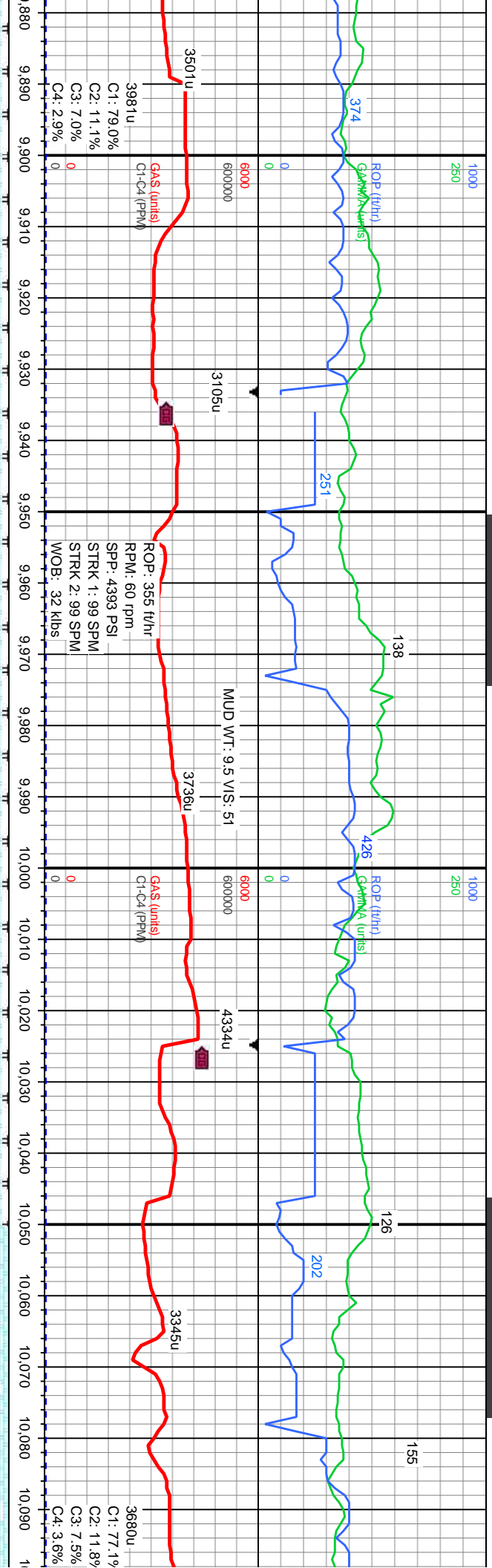
biky, brlt, sl sft, sb		7300	CHK: lt-med gy, str, sb plty-biky, brlt, sl sft, sb rthy-sm tex, v calc, tr MRLST	7300	CHK: lt-med gy, str, sb plty-biky, brlt, sl sft, sb rthy-sm tex, v calc, tr MRLST	7300	CHK: lt gy-m gy,crm-wh, bnd, sb plty-biky, fri-firm, rthy tex, v calc, MRLST: med-dk gy, spec, slty gr in pt, fri-firm,sb plty-plty, v calc.	7300	CHK: lt gy-m gy,crm-wh, bnd, sb plty-biky, fri-firm, rthy tex, v calc, MRLST: med-dk gy, spec, slty gr in pt, fri-firm,sb plty-plty, v calc.
TVD (ft)		7900							

MD: 8,866'
Inclination: 89.57°
Azimuth: 273.25°
TVD: 7,510.67'
VS: 1,591.7'

MD: 8,967'
Inclination: 89.11°
Azimuth: 272.91°
TVD: 7,511.72'
VS: 1,682.67'



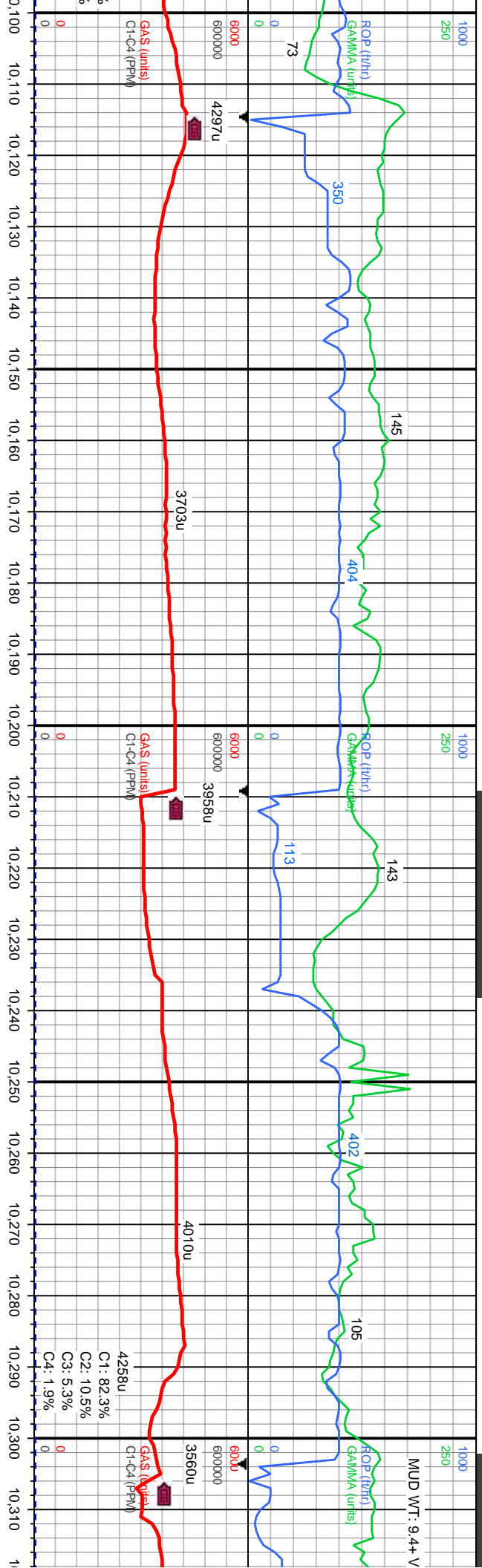
: m-dk gy, occ spec, silty gr in pt, fri-frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb ply-biky, v calc. with tr PYR.		7300	CHK: It gy-m gy, crm-wh, bnd, sb ply-biky, fri-frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb ply-biky, v calc. with tr PYR.	
MD: 9.689' Inclination: 90.28° Azimuth: 273.61° TVD: 7.523.43' VS: 2.414.39'				TVD (ft)
		7900		
: m-dk gy, occ spec, silty gr in pt, fri-frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb ply-biky, v calc. with tr PYR.		7300	CHK: It gy-m gy, crm-wh, bnd, sb ply-biky, fri-frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb ply-biky, v calc. with tr PYR.	
MD: 9.781' Inclination: 89.63° Azimuth: 273.72° TVD: 7.523.5' VS: 2.506.34'				TVD (ft)
		7900		
: m-it gy, occ crm-wh, fri-occ frm, rthy tex, v calc. CHK: m-it gy, occ crm-wh, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb ply-biky, v calc. with tr PYR.		7300	CHK: m-it gy, occ crm-wh, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb ply-biky, v calc. with tr PYR.	
MD: 9.873' Inclination: 88.2° Azimuth: 272.8° TVD: 7.525.18' VS: 2.598.29'				TVD (ft)
		7900		



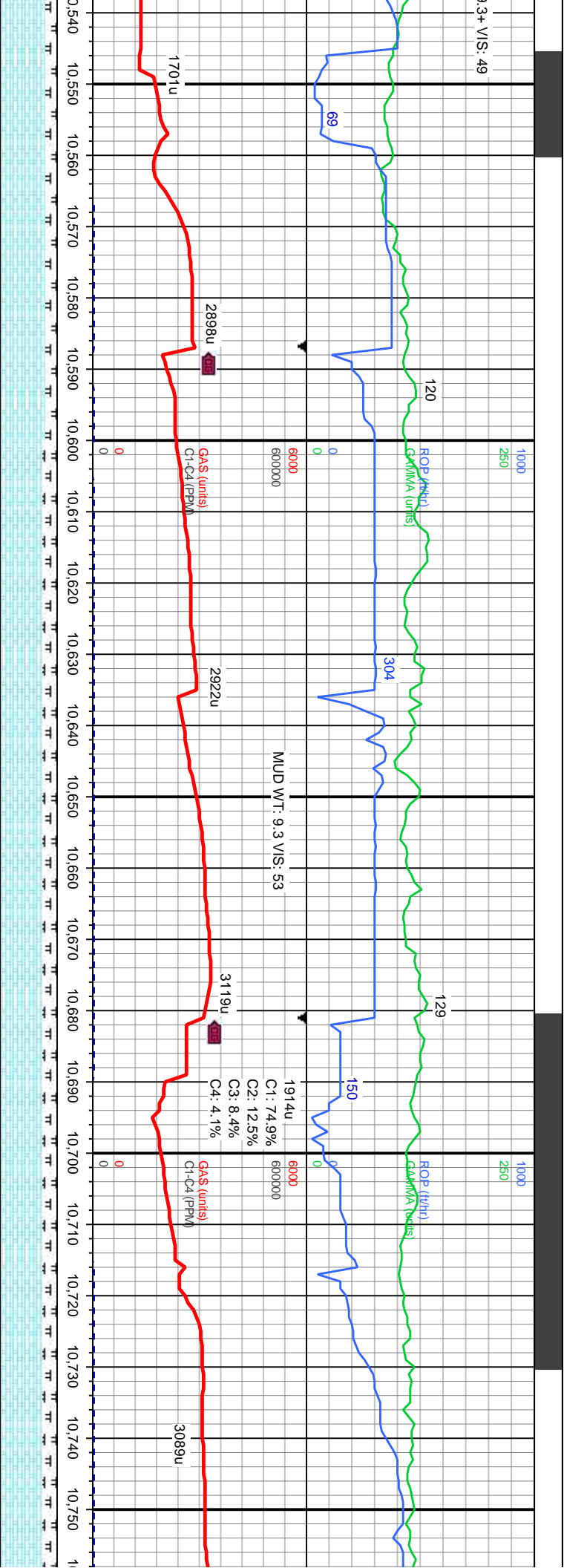
bnd, sb pily-biky, MRLST: dk gy- m sb biky, v calc with	7300	CHK: It gy-m gy, occ crm-wh, bnd, sb pily-biky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb pily-pily, v calc. with tr PYR.	7300	CHK: It gy-m gy, occ crm-wh, bnd, sb pily-biky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb pily-pily, v calc. with tr PYR.	7300	CHK: It gy-m gy, occ crm-wh, bnd, sb pily-biky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb pily-pily, v calc. with tr PYR.	7300	CHK: It gy-m gy, occ crm-wh, bnd, sb pily-biky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb pily-pily, v calc. with tr PYR.
	TVD (ft)		TVD (ft)		TVD (ft)		TVD (ft)	

MD: 9.963'
Inclination: 87.44°
Azimuth: 272.4°
TVD: 7.528.54'
VS: 2.688.22'

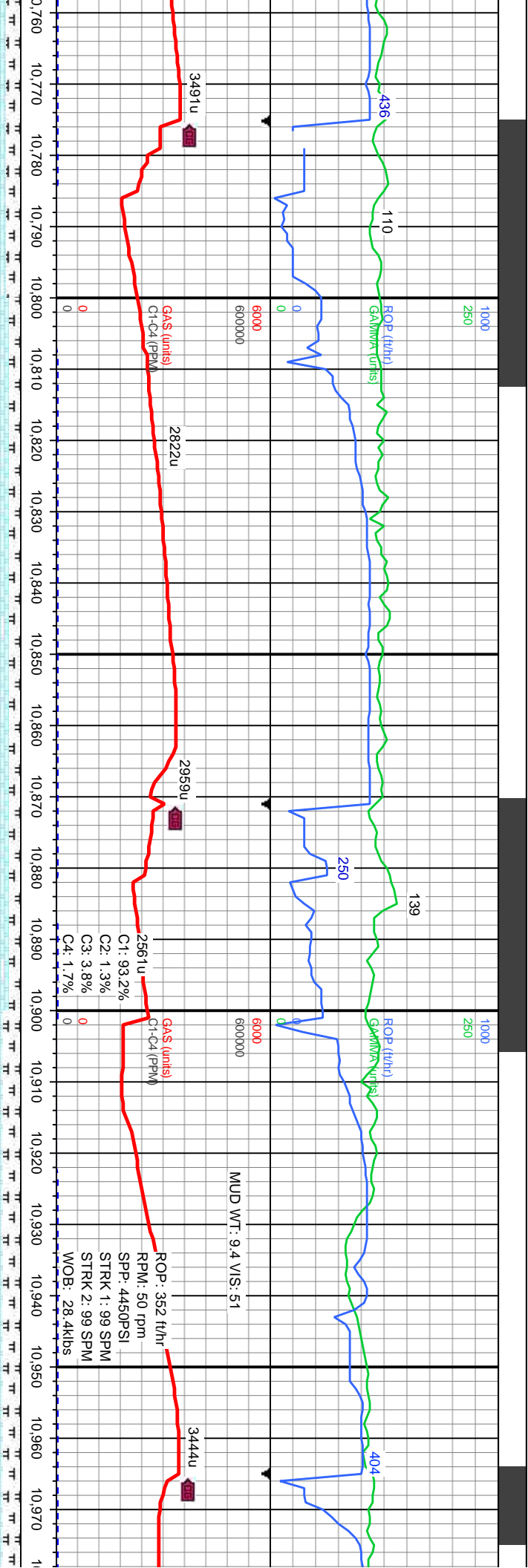
MD: 10.054'
Inclination: 86.92°
Azimuth: 271.65°
TVD: 7.533.02'
VS: 2.779.1'



P		P		P	
7300	CHK: It gy-m gy, occ crm-wh, bnd, sb ply-biky, fri-occ frm, rthy tex, v calc. with tr BENT: It gy-it gn, and tr PYR.	7300	CHK: It gy-m gy, occ crm-wh, bnd, sb ply-biky, fri-occ frm, rthy tex, v calc. with tr BENT: It gy-it gn, and tr PYR.	7300	CHK: It gy-m gy, occ crm-wh, bnd, sb ply-biky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, sily gr in pt, fri-frm, sb ply-pty, v calc. with tr BENT: It gy-it gn, sft, spec, rthy.
TVD (ft)		TVD (ft)		TVD (ft)	
7900		7900		7900	



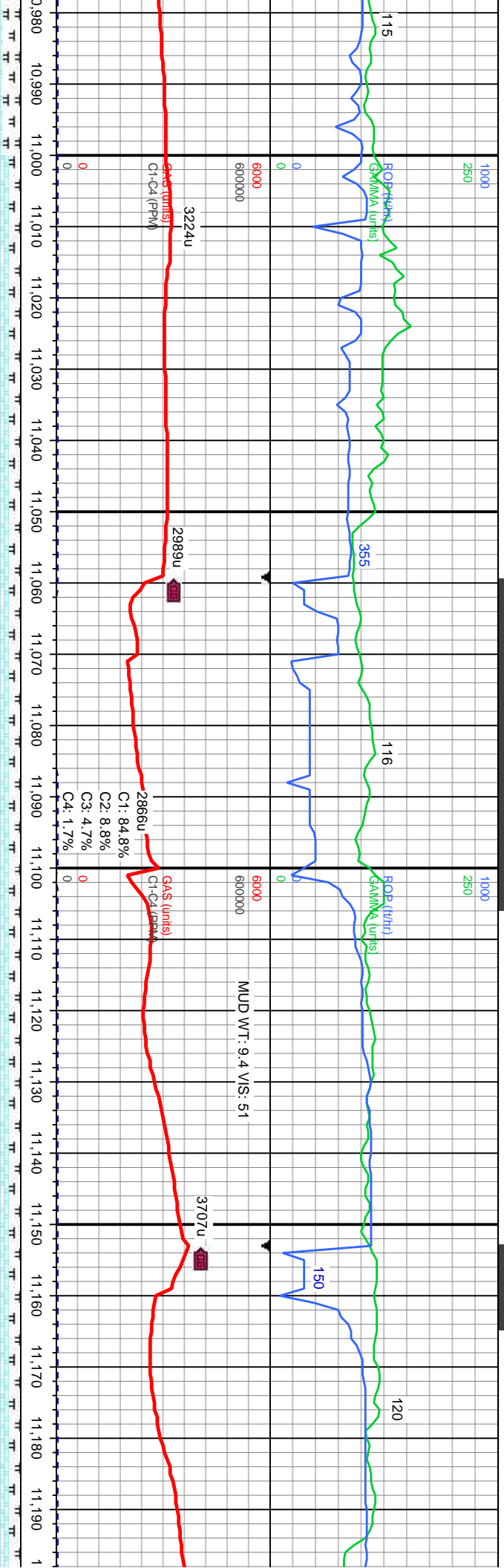
CHK: It gy-m gy, occ crm-wh, bnd, sb ply-biky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb ply-pty, v calc, tr BENT	7300	CHK: It gy-m gy, occ crm-wh, bnd, sb ply-biky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb ply-pty, v calc, tr BENT	7300	CHK: It gy-m gy, occ crm-wh, bnd, sb ply-biky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb ply-pty, v calc, tr BENT	7300	CHK: It gy-m gy, occ crm-wh, bnd, sb ply-biky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb ply-pty, v calc, tr BENT	7300
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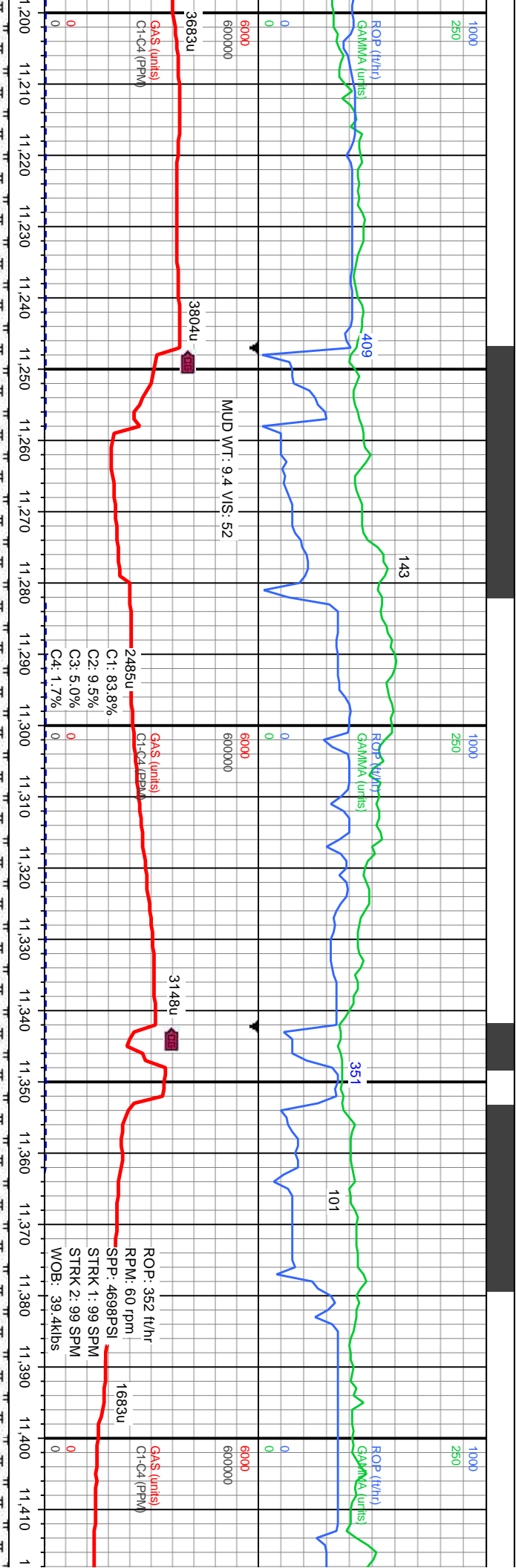
t gy-m gy, occ crm-wh, bnd, sb pty-blky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb pty-pty, v calc, tr	7300	CHK: It gy-m gy, occ crm-wh, bnd, sb pty-blky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb pty-pty, v calc, tr BENT, tr pyr	7300	CHK: It gy-m gy, occ crm-wh, bnd, sb pty-blky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb pty-pty, v calc, tr BENT, tr pyr	7300	CHK: It gy-m gy, occ crm-wh, bnd, sb pty-blky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb pty-pty, v calc, tr BENT, tr pyr	7300	CHK: It gy-m gy, occ crm-wh, bnd, sb pty-blky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb pty-pty, v calc, tr BENT, tr pyr
TVD (ft)								

MD: 10,810'
Inclination: 89.91°
Azimuth: 267.1°
TVD: 7,562.83'
VS: 3,532.48'

MD: 10,905'
Inclination: 91.54°
Azimuth: 268.7°
TVD: 7,561.63'
VS: 3,627.25'



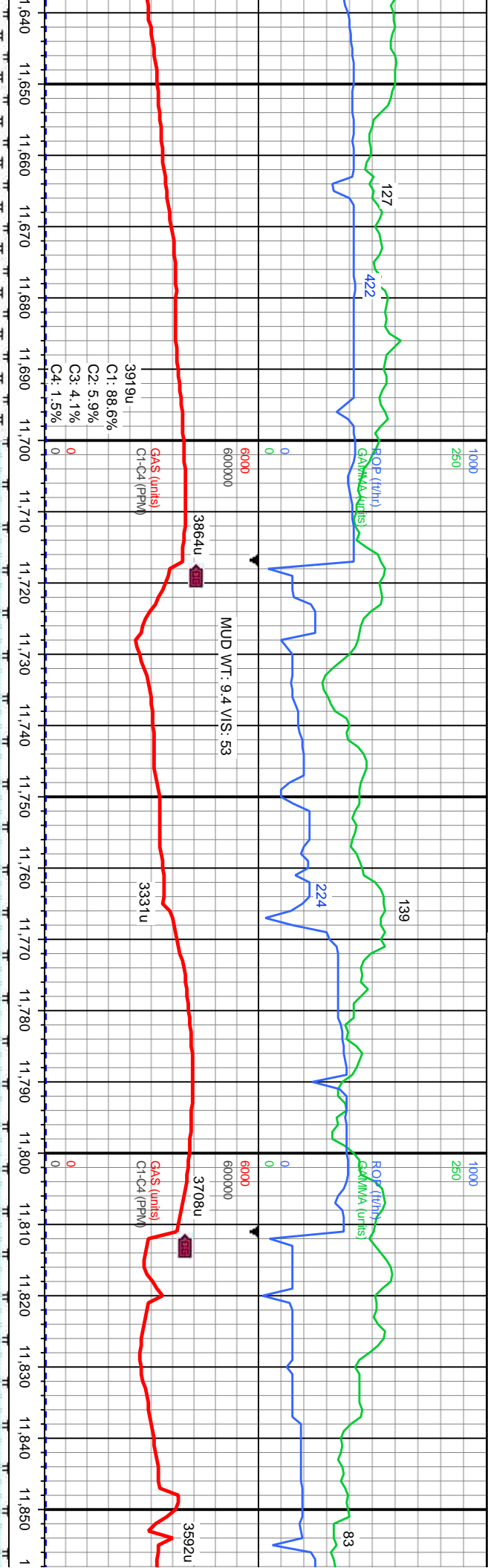
h. bnd, sb pty-biky, MRLST: med-dk gy, pty-pty, v calc, tr		7300		CHK: It gy-m gy, occ crm-wh, bnd, sb pty-biky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, slty gr in pt, fri-frm, sb pty-pty, v calc		7300		CHK: It gy-m gy, occ crm-wh, bnd, sb pty-biky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, slty gr in pt, fri-frm, sb pty-pty, v calc		7300		CHK: It gy-m gy, occ crm-wh, bnd, sb pty-biky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, slty gr in pt, fri-frm, sb pty-pty, v calc		7300		CHK: It gy-m gy, occ crm-wh, bnd, sb pty-biky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, slty gr in pt, fri-frm, sb pty-pty, v calc	
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TT																	



7300	CHK: It gy-m gy, occ crm-wh, bnd, sb pily-blky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb pily-pily, v calc	7300	CHK: It gy-m gy, occ crm-wh, bnd, sb pily-blky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb pily-pily, v calc	7300	CHK: It gy-m gy, occ crm-wh, bnd, sb pily-blky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb pily-pily, v calc	7300	CHK: It gy-m gy, occ crm-wh, bnd, sb pily-blky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb pily-pily, v calc
TVD (ft)		TVD (ft)		TVD (ft)		TVD (ft)	
7900		7900		7900		7900	

MD: 11.282
Inclination: 91.72°
Azimuth: 270.2°
TVD: 7.547.45'
VS: 4.003.55'

MD: 11.376
Inclination: 90.8°
Azimuth: 270.85°
TVD: 7.545.39'
VS: 4.097.5'

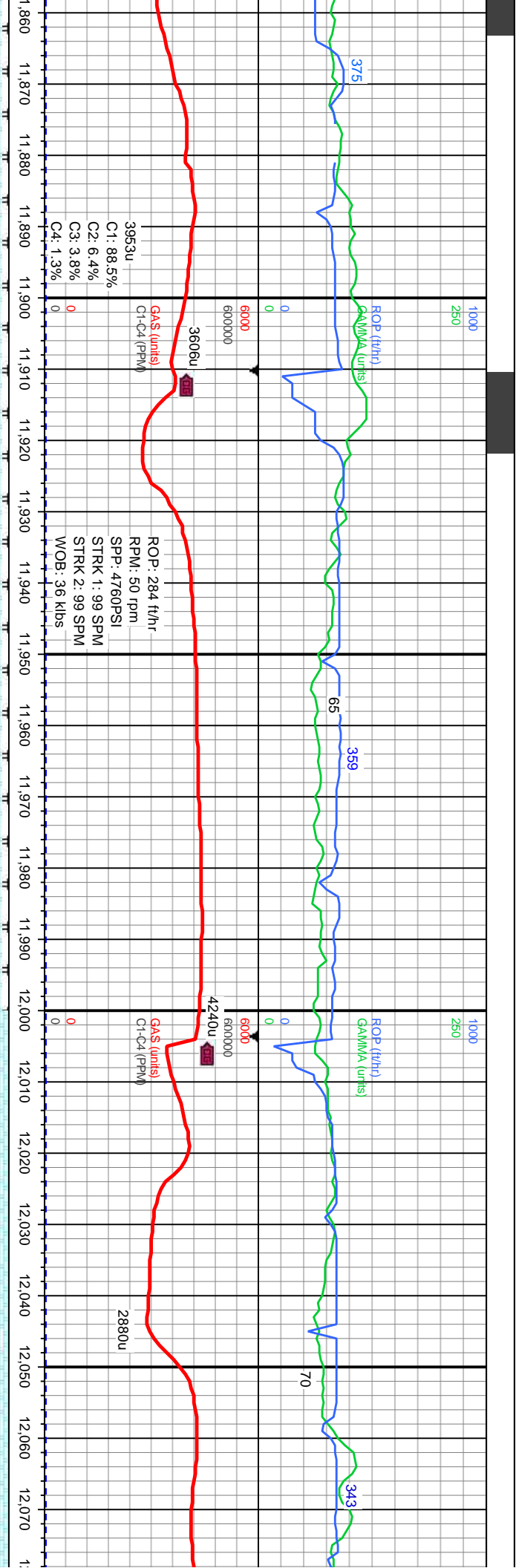


CHK: It gy-m gy, occ crm-wh, bnd, sb ply-blky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb ply-pty, v calc		7300	CHK: It gy-m gy, occ crm-wh, bnd, sb ply-blky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb ply-pty, v calc		7300	CHK: It gy-m gy, occ crm-wh, bnd, sb ply-blky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb ply-pty, v calc		7300	CHK: It gy-m gy, occ crm-wh, bnd, sb ply-blky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb ply-pty, v calc		7300
It gy-m gy, occ crm-wh, bnd, sb ply-blky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb ply-pty, v calc	It gy-m gy, occ crm-wh, bnd, sb ply-blky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb ply-pty, v calc	It gy-m gy, occ crm-wh, bnd, sb ply-blky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb ply-pty, v calc	It gy-m gy, occ crm-wh, bnd, sb ply-blky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb ply-pty, v calc	It gy-m gy, occ crm-wh, bnd, sb ply-blky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb ply-pty, v calc	It gy-m gy, occ crm-wh, bnd, sb ply-blky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb ply-pty, v calc	It gy-m gy, occ crm-wh, bnd, sb ply-blky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb ply-pty, v calc	It gy-m gy, occ crm-wh, bnd, sb ply-blky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb ply-pty, v calc	It gy-m gy, occ crm-wh, bnd, sb ply-blky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb ply-pty, v calc	It gy-m gy, occ crm-wh, bnd, sb ply-blky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb ply-pty, v calc	It gy-m gy, occ crm-wh, bnd, sb ply-blky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb ply-pty, v calc	It gy-m gy, occ crm-wh, bnd, sb ply-blky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, silty gr in pt, fri-frm, sb ply-pty, v calc

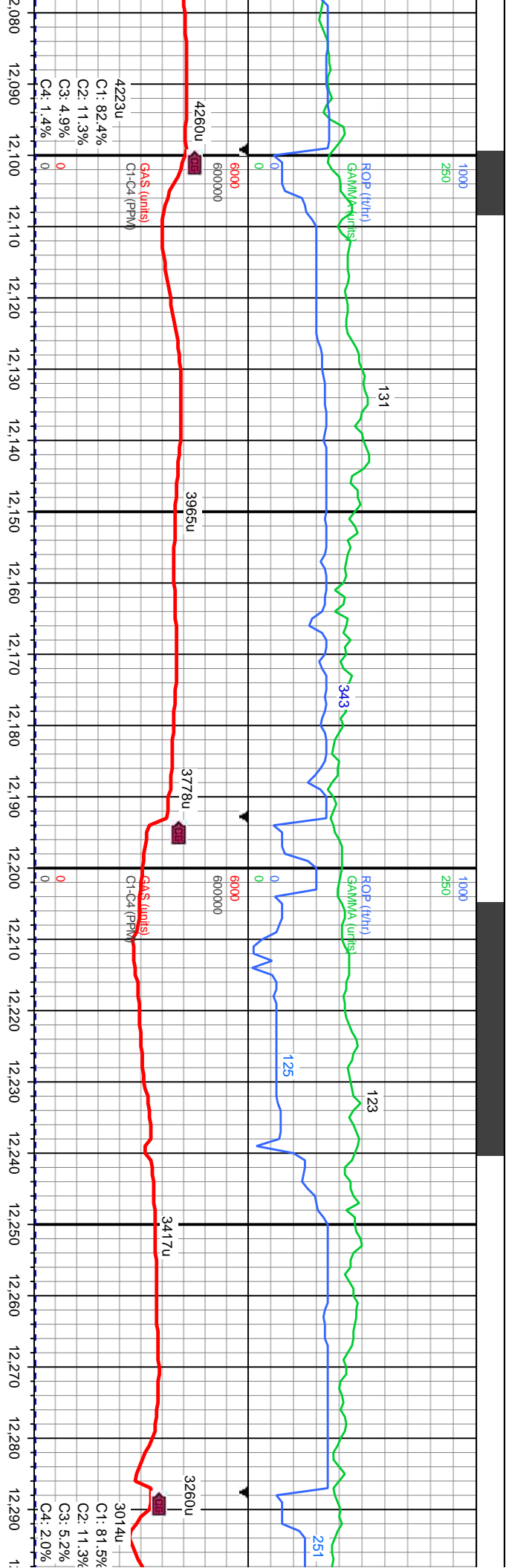
MD: 11,659'
Inclination: 87.72°
Azimuth: 272.56°
TVD: 7,548.62'
VS: 4,380.42'

MD: 11,754'
Inclination: 87.81°
Azimuth: 272.38°
TVD: 7,552.33'
VS: 4,475.34'

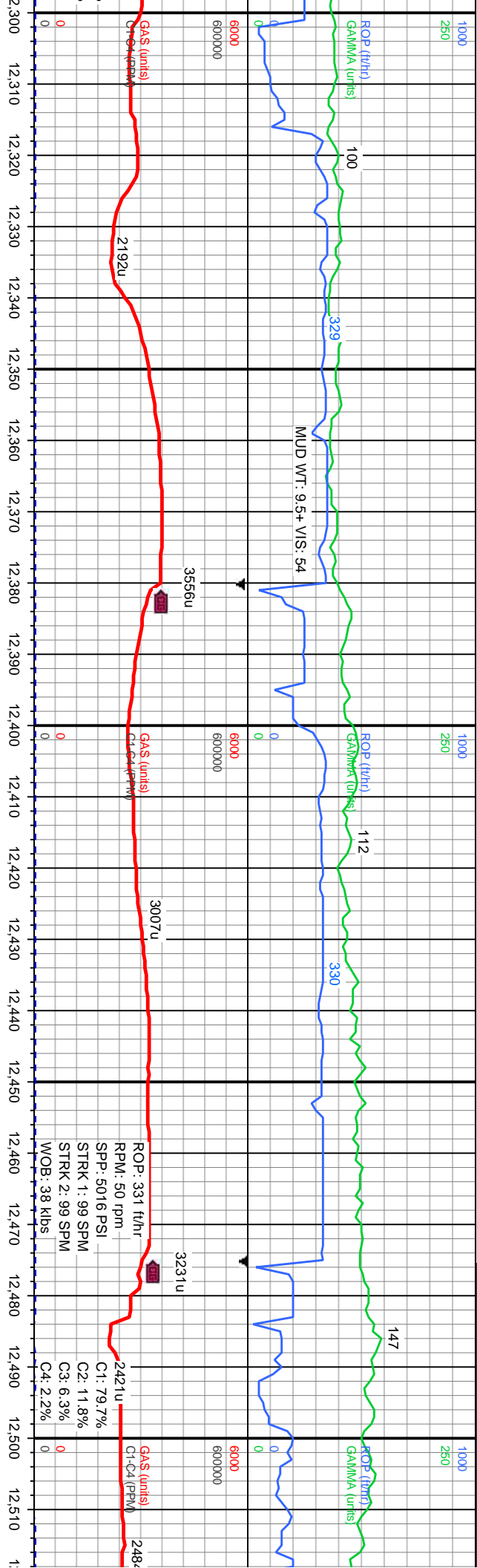
MD: 11,848'
Inclination: 89.08°
Azimuth: 271.15°
TVD: 7,554.88'
VS: 4,569.31'



gy-m gy, occ crm-wh, bnd, sb ply-blky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, sily gr in pt, fri-frm, sb ply-ply, v calc	7300	CHK: lt gy-m gy, occ crm-wh, bnd, sb ply-blky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, sily gr in pt, fri-frm, sb ply-ply, v calc	7300	CHK: lt gy-m gy, occ crm-wh, bnd, sb ply-blky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, sily gr in pt, fri-frm, sb ply-ply, v calc	7300	CHK: lt gy-m gy, occ crm-wh, bnd, sb ply-blky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, sily gr in pt, fri-frm, sb ply-ply, v calc	7300	CHK: lt gy-m gy, occ crm-wh, bnd, sb ply-blky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, sily gr in pt, fri-frm, sb ply-ply, v calc	7300
MD: 11.943' Inclination: 89.42° Azimuth: 271.62° TVD: 7.556.12' VS: 4.664.3'	TVD (ft)	MD: 12.037' Inclination: 89.08° Azimuth: 272.04° TVD: 7.557.35' VS: 4.758.29'	TVD (ft)						

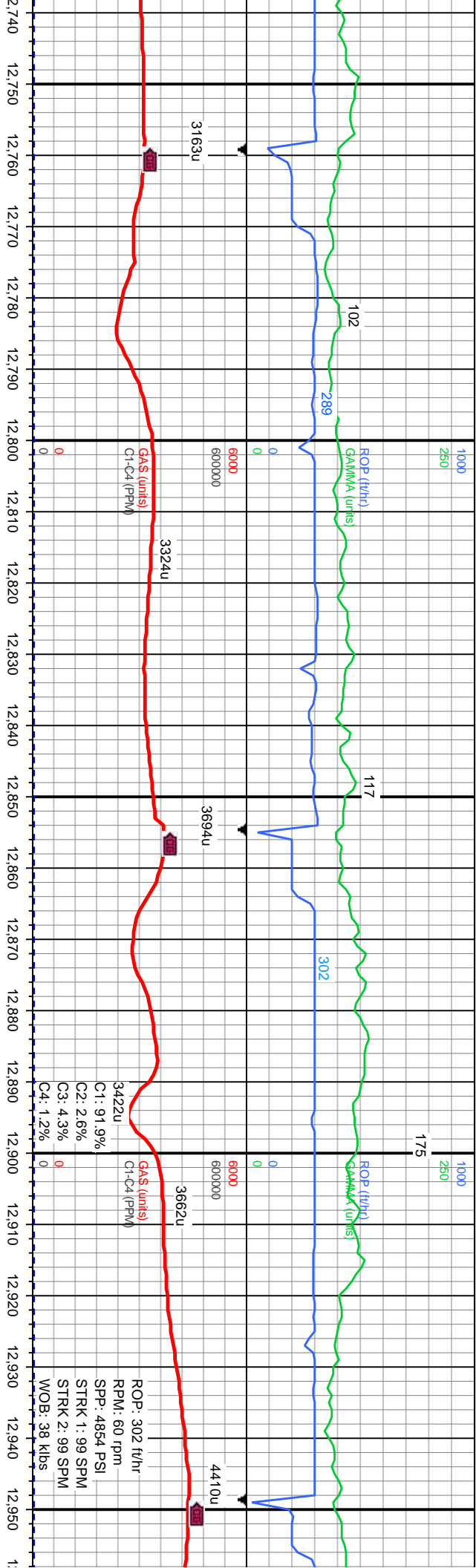


wh, bnd, sb ply-bkly, tr MRLST		7300	CHK: It gy-m gy, occ crm-wh, bnd, sb ply-bkly, fri-occ frm, rthy tex, v calc, tr MRLST	7300	CHK: It gy-m gy, occ crm-wh, bnd, sb ply-bkly, fri-occ frm, rthy tex, v calc, tr MRLST	7300	CHK: It gy-m gy, sme crm-wh, bnd, sb ply-bkly, fri-occ frm, rthy tex, v calc with BENT: It gy-off wh, v sft, silty, spec.	7300	CHK: It gy-m gy, sme crm-wh, bnd, sb ply-bkly, fri-occ frm, rthy tex, v calc with BENT: It gy-off wh, v sft, silty, spec.
TVD (ft)									
MD: 12,132' Inclination: 88.49° Azimuth: 272.07° TVD: 7,569.37' VS: 4,853.26'									
TVD (ft)									
MD: 12,226' Inclination: 88.92° Azimuth: 271.37° TVD: 7,561.49' VS: 4,947.24'									

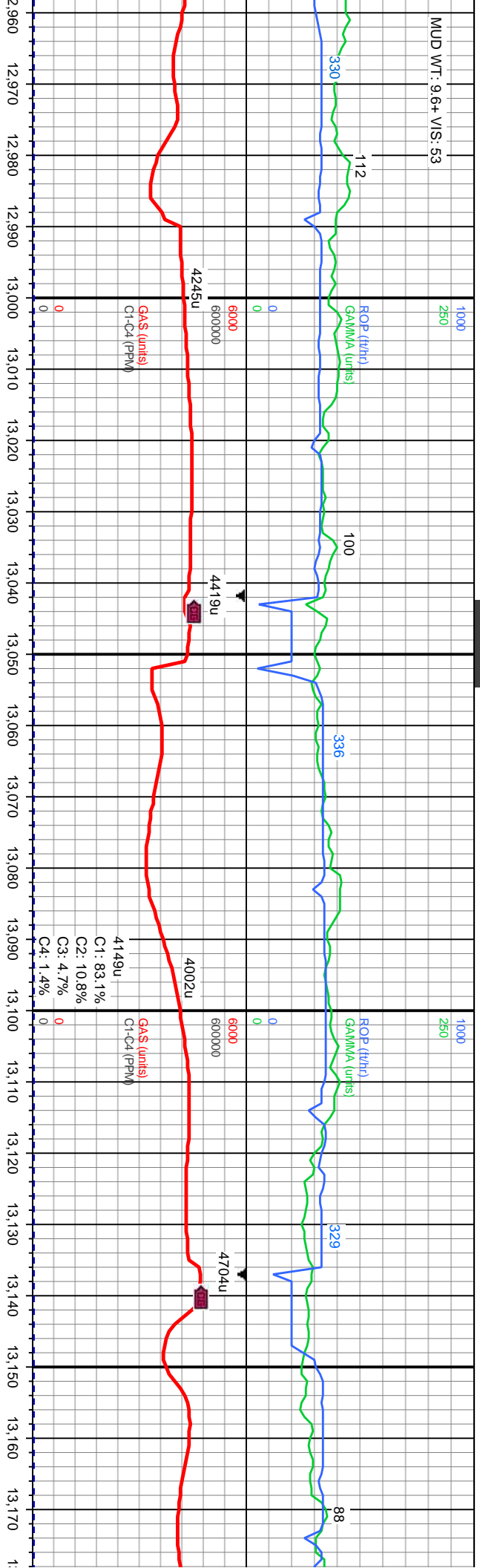


7300		CHK: It gy-m gy, sme crm-wh, bnd, sb pily-blky, fri-occ frm, rthy tex, v calc with BENT: It gy-off wh, v sft, sily, spec.	7300	CHK: It gy-m gy, sme crm-wh, bnd, sb pily-blky, fri-occ frm, rthy tex, v calc with BENT: It gy-off wh, v sft, sily, spec.	7300	CHK: gy-It gy-wh, occ crm, bnd, sb pily-blky, fri-frm, rthy tex, v calc with BENT: off wh-It gy, sily, v sft, spec.	7300	CHK: gy-It gy-wh, occ crm, bnd, sb pily-blky, fri-frm, rthy tex, v calc with BENT: off wh-It gy, sily, v sft, spec.	7300	CHK: gy-It gy-wh, occ crm, bnd, sb pily-blky, fri-frm, rthy tex, v calc with BENT: off wh-It gy, sily, v sft, spec.
TVD (ft)										
MD: 12.320' Inclination: 89.78° Azimuth: 270.06° TVD: 7.562.56' VS: 5.041.22'										
7900										

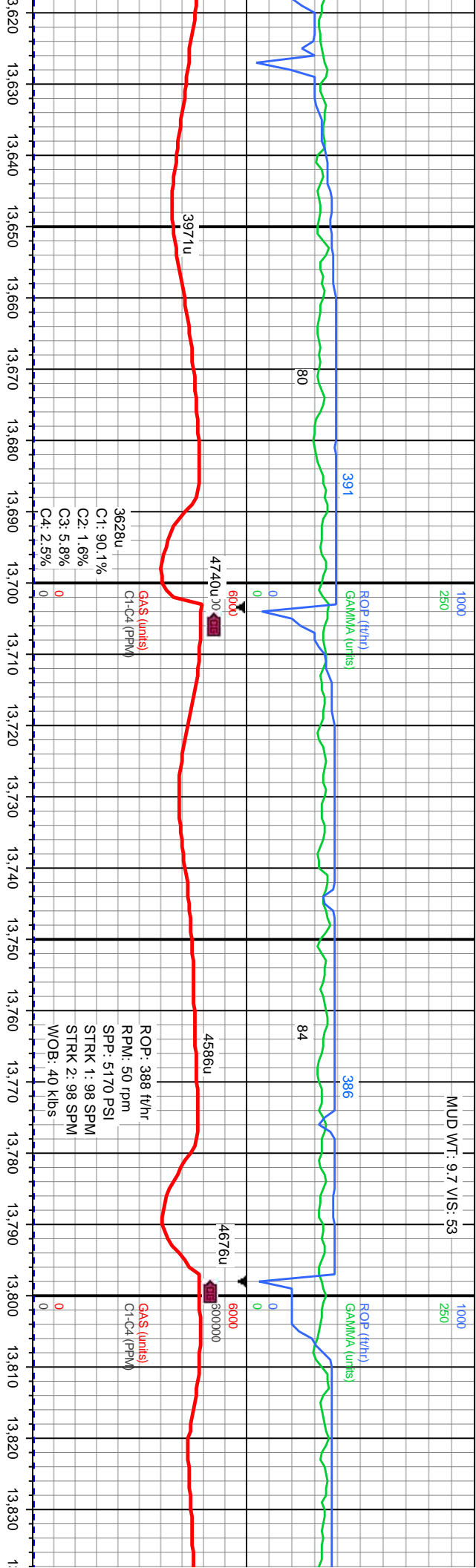
MD: 12.510'
Inclination: 88.77°
Azimuth: 270.05°
TVD: 7.566.41'
VS: 5.231.06'



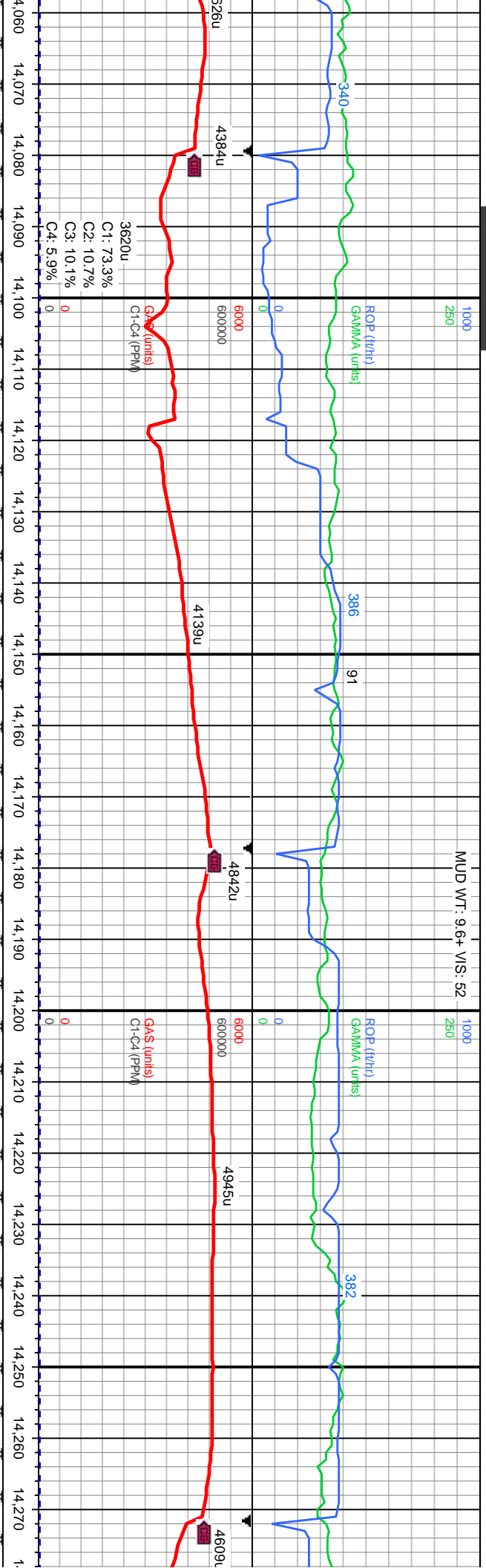
CHK: wh-frm, lt gy-gy, bnd, sb pty-blky, fri-frm, rthy tex, v calc with BENT: off wh-lt gy, slty, spec v sft.		7300	CHK: gy-wh, frm, lt gy, sb pty-blky, bnd, fri-frm, rthy tex, v calc with BENT: lt gy, frm, slty, spec, v sft.	7300	CHK: gy-wh, frm, lt gy, sb pty-blky, bnd, fri-frm, rthy tex, v calc with BENT: lt gy, frm, slty, spec, v sft.	7300	CHK: gy-wh, frm, lt gy, sb pty-blky, bnd, fri-frm, rthy tex, v calc with BENT: lt gy, frm, slty, spec, v sft.	7300	CHK: gy-wh, frm, lt gy, sb pty-blky, bnd, fri-frm, rthy tex, v calc with BENT: lt gy, frm, slty, spec, v sft.	7300
MD: 12,794'			MD: 12,868'			MD: 12,868'			MD: 12,868'	
Inclination: 90.74°			Inclination: 90.92°			Inclination: 90.92°			Inclination: 90.92°	
Azimuth: 269.61°			Azimuth: 270.25°			Azimuth: 270.25°			Azimuth: 270.25°	
TVD: 7,566.51'			TVD: 7,565.15'			TVD: 7,565.15'			TVD: 7,565.15'	
VS: 5,514.88'			VS: 5,608.82'			VS: 5,608.82'			VS: 5,608.82'	



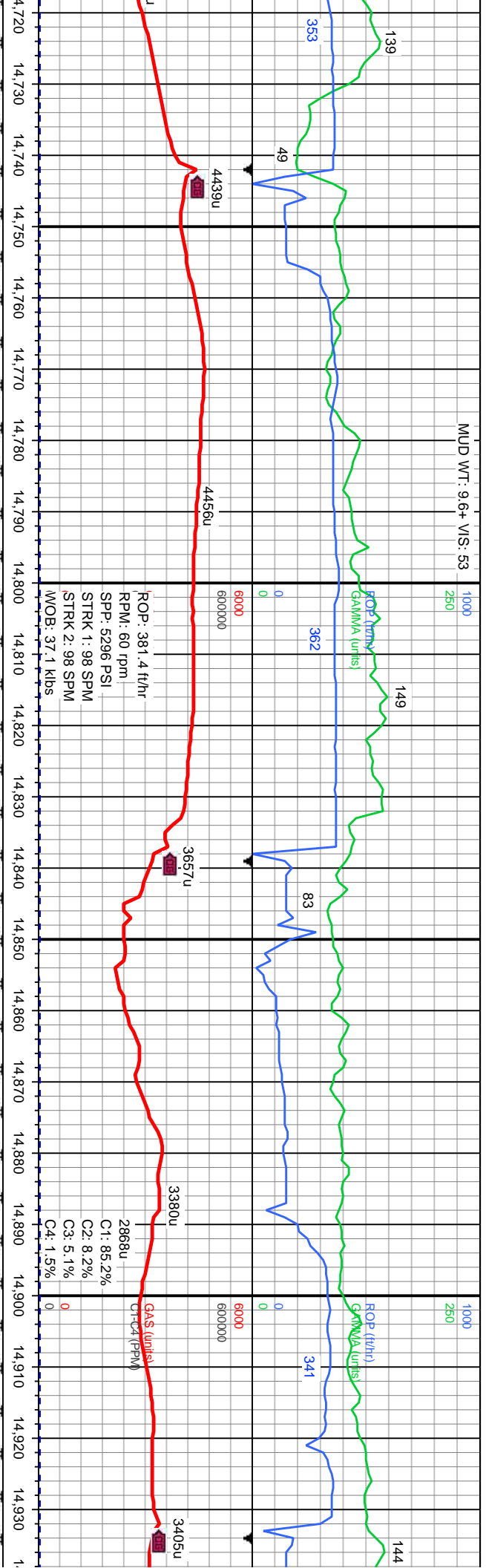
gy-wh, crm, lt gy, sb ply-blky, bnd, fri-frn, rthy tex, v calc with BENT: lt gy, crm, silty, spec, fri-frn, rthy tex, v calc with decr BENT: lt gy, crm, silty, spec, v sft.		7300	CHK: wh-lt gy, crm sb ply-blky, bnd, fri-frn, rthy tex, v calc with decr BENT: lt gy, crm, silty, spec, v sft.	7300	CHK: wh-lt gy, crm sb ply-blky, bnd, fri-frn, rthy tex, v calc with decr BENT: lt gy, crm, silty, spec, v sft.	7300	CHK: wh-lt gy, crm sb ply-blky, bnd, fri-frn, rthy tex, v calc with decr BENT: lt gy, crm, silty, spec, v sft.	7300	CHK: wh-lt gy, crm sb ply-blky, bnd, fri-frn, rthy tex, v calc with decr BENT: lt gy, crm, silty, spec, v sft.
MD: 12.982' Inclination: 90.92° Azimuth: 270.31° TVD: 7,563.64' VS: 5,702.77'		TVD (ft)		TVD (ft)		TVD (ft)		TVD (ft)	
7900				7900		7900		7900	



Depth (ft)		Depth (ft)		Depth (ft)		Depth (ft)	
13,620		13,630		13,640		13,650	
13,660		13,670		13,680		13,690	
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		13,920		13,930	
13,940		13,950		13,960		13,970	
13,980		13,990		14,000		14,010	
14,020		14,030		14,040		14,050	
14,060		14,070		14,080		14,090	
14,100		14,110		14,120		14,130	
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		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	
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		14,800		14,810	
14,820		14,830		14,840		14,850	
14,860		14,870		14,880		14,890	
14,900		14,910		14,920		14,930	
14,940		14,950		14,960		14,970	
14,980		14,990		15,000		15,010	
15,020		15,030		15,040		15,050	
15,060		15,070		15,080		15,090	
15,100		15,110		15,120		15,130	
15,140		15,150		15,160		15,170	
15,180		15,190		15,200		15,210	
15,220		15,230		15,240		15,250	
15,260		15,270		15,280		15,290	
15,300		15,310		15,320		15,330	
15,340		15,350		15,360		15,370	
15,380		15,390		15,400		15,410	
15,420		15,430		15,440		15,450	
15,460		15,470		15,480		15,490	
15,500		15,510		15,520		15,530	
15,540		15,550		15,560		15,570	
15,580		15,590		15,600		15,610	
15,620		15,630		15,640		15,650	
15,660		15,670		15,680		15,690	
15,700		15,710		15,720		15,730	
15,740		15,750		15,760		15,770	
15,780		15,790		15,800		15,810	
15,820		15,830		15,840		15,850	
15,860		15,870		15,880		15,890	
15,900		15,910		15,920		15,930	
15,940		15,950		15,960		15,970	
15,980		15,990		16,000		16,010	
16,020		16,030		16,040		16,050	
16,060		16,070		16,080		16,090	
16,100		16,110		16,120		16,130	
16,140		16,150		16,160		16,170	
16,180		16,190		16,200		16,210	
16,220		16,230		16,240		16,250	
16,260		16,270		16,280		16,290	
16,300		16,310		16,320		16,330	
16,340		16,350		16,360		16,370	
16,380		16,390		16,400		16,410	
16,420		16,430		16,440		16,450	
16,460		16,470		16,480		16,490	
16,500		16,510		16,520		16,530	
16,540		16,550		16,560		16,570	
16,580		16,590		16,600		16,610	
16,620		16,630		16,640		16,650	
16,660		16,670		16,680		16,690	
16,700		16,710		16,720		16,730	
16,740		16,750		16,760		16,770	
16,780		16,790		16,800		16,810	
16,820		16,830		16,840		16,850	
16,860		16,870		16,880		16,890	
16,900		16,910		16,920		16,930	
16,940		16,950		16,960		16,970	
16,980		16,990		17,000		17,010	
17,020		17,030		17,040		17,050	
17,060		17,070		17,080		17,090	
17,100		17,110		17,120		17,130	
17,140		17,150		17,160		17,170	
17,180		17,190		17,200		17,210	
17,220		17,230		17,240		17,250	
17,260		17,270		17,280		17,290	
17,300		17,310		17,320		17,330	
17,340		17,350		17,360		17,370	
17,380		17,390		17,400		17,410	
17,420		17,430		17,440		17,450	
17,460		17,470		17,480		17,490	
17,500		17,510		17,520		17,530	
17,540		17,550		17,560		17,570	



14,060 - 14,100		14,100 - 14,150		14,150 - 14,200		14,200 - 14,250		14,250 - 14,270	
gy-m gy, occ crm-wh, bnd, sb ply-biky, fri-m rthy tex, v calc. MRLST: med-dk gy, ply-gr in pt, fri-firm, sb ply-pty, v calc	7300	CHK: It gy-m gy, occ crm-wh, bnd, sb ply-biky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, sm tex, fri-firm, sb ply-pty, v calc with BENT: it gy, gy, spec, sily, v sft.	7300	CHK: It gy-m gy, occ crm-wh, bnd, sb ply-biky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, sm tex, fri-firm, sb ply-pty, v calc with BENT: it gy, gy, spec, sily, v sft.	7300	7300	CHK: It gy-m gy, occ crm-wh, bnd, sb ply-biky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, sm tex, fri-firm, sb ply-pty, v calc with BENT: it gy, gy, spec, sily, v sft.	CHK: It gy-m gy, occ crm-wh, bnd, sb ply-biky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, sm tex, fri-firm, sb ply-pty, v calc with BENT: it gy, gy, spec, sily, v sft.	7300
TVD (ft)		TVD (ft)		TVD (ft)		TVD (ft)		TVD (ft)	
MD: 14,116' Inclination: 88.71° Azimuth: 275.73° TVD: 7,565.32' VS: 6,835.46'		MD: 14,210' Inclination: 88.34° Azimuth: 276.13° TVD: 7,567.74' VS: 6,929.18'							



gy, occ crm-wh, mot, sb occ frm, rthy tex, v calc. -dk gy, spec, sm tex, fri-frm, sb ic with BENT: lt gy, gy, spec,	CHK: lt gy-m gy, occ crm-wh, mot, sb ply-biky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, sm tex, fri-frm, sb ply-ply, v calc with BENT: lt gy, gy, spec, sily, v sft.	7300 CHK: lt gy-m gy, occ crm-wh, mot, sb ply-biky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, sm tex, fri-frm-hrd, sb ply-ply, v calc tr BENT: lt gy, gy, spec, sily, v sft.	CHK: lt gy-m gy, occ crm-wh, mot, sb ply-biky, fri-occ frm, rthy tex, v calc. MRLST: med-dk gy, spec, sm tex, fri,frm-hrd, sb ply-ply, v calc tr BENT: lt gy, gy, spec, sily, v sft.	7300 CHK: lt gy-m gy, occ crm-wh, mot, sb sb-ply, frm-hrd, rthy tex, v calc. M med-dk gy, spec, sm tex, fri,mod f sb ply-ply, calc
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MD: 14,777'
Inclination: 88.65°
Azimuth: 272.89°
TVD: 7,591.32'
VS: 7,495.18'

MD: 14,871'
Inclination: 88.77°
Azimuth: 271.92°
TVD: 7,593.44'
VS: 7,589.15'

