

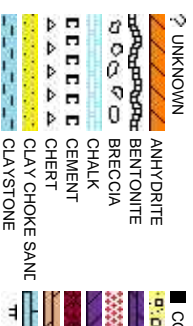


Scale: 5" / 100'
Measured Depth Log

Well Name	Guttersen State DD17-79-1HN(HORZ)		
Location	SEC17 T3N R63W		
State	COLORADO	County	WELD
Country	USA		
API Number	05-123-38013	Rig Number	H&P 322
Region	DJ BASIN	Field	WATTENBERG
Spud Date	12/8/2013		
Surface Coordinates	275' FSL 387' FWL LAT: 40.2188700° N LONG: -104.46967000° W		
Bottom Hole Coordinates	75' FNL 330' FWL		
Ground Elevation	4820'	K.B. Elevation	4844'
Logged Interval	1000'		
Formation	NIOBRARA B CHALK		
Type of Drilling Fluid	MUD:WATER;POLY		

Company Noble Energy Inc

Name JOHN T. READ
Company COLUMBINE LOGGING
Address 2385 S. LIPAN
DENVER, COLO
(303) 289-7764



Operator

10

Geologist

Y; BRAD WILSON

LOGGING, INC.

ST

CRADO 80223





























































Rock Types

Unit	Symbol	Color	Unit	Symbol	Color	Unit	Symbol	Color
DAL			SHALY SILTSTONE					
CONGLOMERATE			SILT SHALE					
DOLOMITE			SILTSTONE					
GRANITE			TILL					
GIPSUM			TUFF					
IGNEOUS			WEDDED TUFF					
SIDERITE or LIMONITE								
LIMESTONE								
MARLSTONE								
SANDSTONE								
SHALE								
SHALE COLORED								
SHALE GRAY								
SHALY SANDSTONE								

Accessories

[illegible]

Other Symbols

	Oil Show		MOLDIC		E EARTHY
	DEAD		ORGANIC		FX FINELYLN
	EVEN		P PINPOINT		GS GRAINSTONE
	QUESTIONABLE		VUGGY		L LITHOGRAPHIC
	SPOTTED STAINING	Engineering			
	BIT		NORMAL FAULT		A ANGULAR
	CONNECTION (LEFT)		OIL SHOW		R ROUNDED
	CONNECTION (RIGHT)		OVERTURNED STRATA		S SUBANG
	REVERSE FAULT		SUBREND	Textures	
	SIDEWALL CORE (LEFT)	Rounding			
	SIDEWALL CORE (RIGHT)		WIRELINE TESTED - LEFT		WIRELINE TESTED - RT
	CONNECTION GAS		FORMATION TOP		BS BOUNDSTONE
	SLIDE		GAS SHOW		FS GRAINSTONE
	SURVEY		MIN DEPTH		L LITHOGRAPHIC
	TRIP GAS		NORMAL FAULT		MX MICROXLN
	CORE - LOST		OIL SHOW		MS MUDSTONE
	CORE - RECOVERED		OVERTURNED STRATA		PS PACKSTONE
	DST INTERVAL		REVERSE FAULT		WS WACKESTONE
Porosity		Textures			
	E EARTHY		ANGULAR	Sorting	
	FENESTRAL		ROUNDED		
	FRACTURE		SUBANG		M MODERATE
	INTERCRYSTALLINE		SUBREND		P POOR
	INTERCOLLITIC	Sorting			

Slide/Rotate

ROP
ROF
Gamma

Began Build @ 5833' MD@
05:23 hrs, 12/11/2013

Total Gas & Chromatograph

GAS
C1
C2
C3
C4

COLUMBINE LOGGING INC. RIGGED
UP ON 12/11/2013 MANNED
2-PERSON LOGGING WITH
BLOODHOUND GAS
CHROMATOGRAPH UNIT #0315

Log Continues From Guttersen
Stated DD17-79-1HN(VERT).MPlot

1125u
C1: 71.1%
C2: 9.5%
C3: 13.7%
C4: 5.7%

MUD LINE TO
SHAKER FROZEN

MUD LINE
SHAKER T

Depth Labels

% Lith

100% SLTY SH: med gy - gy, occ dk gy,
mod sft - mod firm, sb ply - ply, shy - silty
tex, non calc

100% SLTY SH: med gy - gy, occ dk gy,
mod sft - mod firm, sb ply - ply, shy - silty
tex, non calc

100% SLTY MD: 5,974 yv - gy, occ
mod sft - mTVD: 5,951.76 - ply, s
tex, non calc
Inclination: 8.16 °
Azimuth: 11.2 °
VS: -211.82 °

Well Bore
TVD

BHA # 2
Bit Size: 8.750
Manufacturer: Schlumberger/Smith
Model: SDi611
Serial Number: JG3960
Nozzles: 6x14

Motor Number: 2
Manufacturer: Sperry Drilling
Model: Sperry Drill
Serial Number: 675-0160
Bend: 2.0

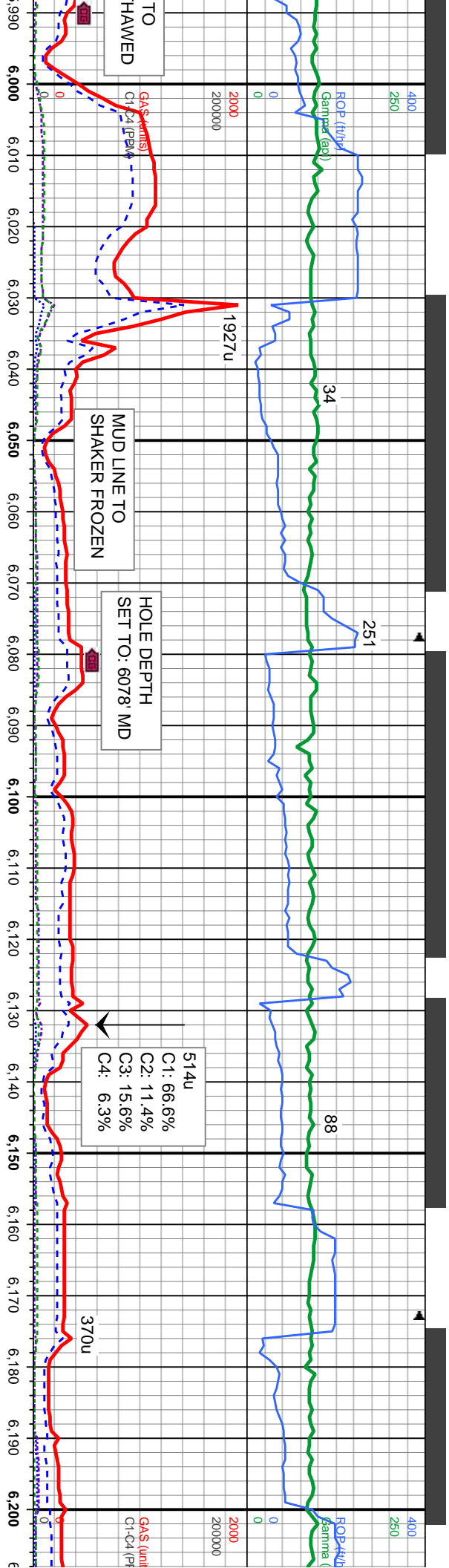
MD: 5,879
TVD: 5,857.2
Inclination: 2.56 °
Azimuth: 350.21 °
VS: -220.34 °

MD: 5,927
TVD: 5,905.08
Inclination: 5.14 °
Azimuth: 6.75 °
VS: -217.15 °

Oil Show

Images





5500	dk gy, hy - silty	100% SLTY SH: med gy - gy, occ dk gy, mod sft - mod firm, sb pty - pty, shy - silty tex, non calc	90% SLTY SH: med gy - gy, occ dk gy, mod sft - mod firm, sb pty - pty, shy - silty tex, non calc	10% SHY SS: lt gy, s&p ip, v f-f gr, sb rd-sb ang, mod srt, fri, mod por, arg cnt, scat biot	80% SLTY SH: med gy - gy, occ dk gy, mod sft - mod firm, sb pty - pty, shy - silty tex, non calc	20% SHY SS: lt gy, s&p ip, v f-f gr, sb rd-sb ang, mod srt, fri, mod por, arg cnt, scat biot	80% SLTY SH: med gy - gy, occ dk gy, mod sft - mod firm, sb pty - pty, shy - silty tex, non calc	20% SHY SS: lt gy, s&p ip, v f-f gr, sb rd-sb ang, mod srt, fri, mod por, arg cnt, scat biot
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TVD (ft)	MD: 6.022 TVD: 5.999.21 Inclination: 9.2 ° Azimuth: 11.76 ° VS: -204.77 '	MD: 6.069 TVD: 6.045.31 Inclination: 13.16 ° Azimuth: 10.15 ° VS: -195.87 '	MD: 6.117 TVD: 6.091.45 Inclination: 18.74 ° Azimuth: 6.14 ° VS: -182.88 '	MD: 6.164 TVD: 6.135.33 Inclination: 23.19 ° Azimuth: 3.51 ° VS: -166.18 '	TVD (ft)
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MUD WT 10.8 VIS 37

MUD WT 10.8 VIS 36

HOLE DEPTH
SET TO: 6457' MD

3568u
C1: 73.9%
C2: 14.9%
C3: 9.6%
C4: 1.6%

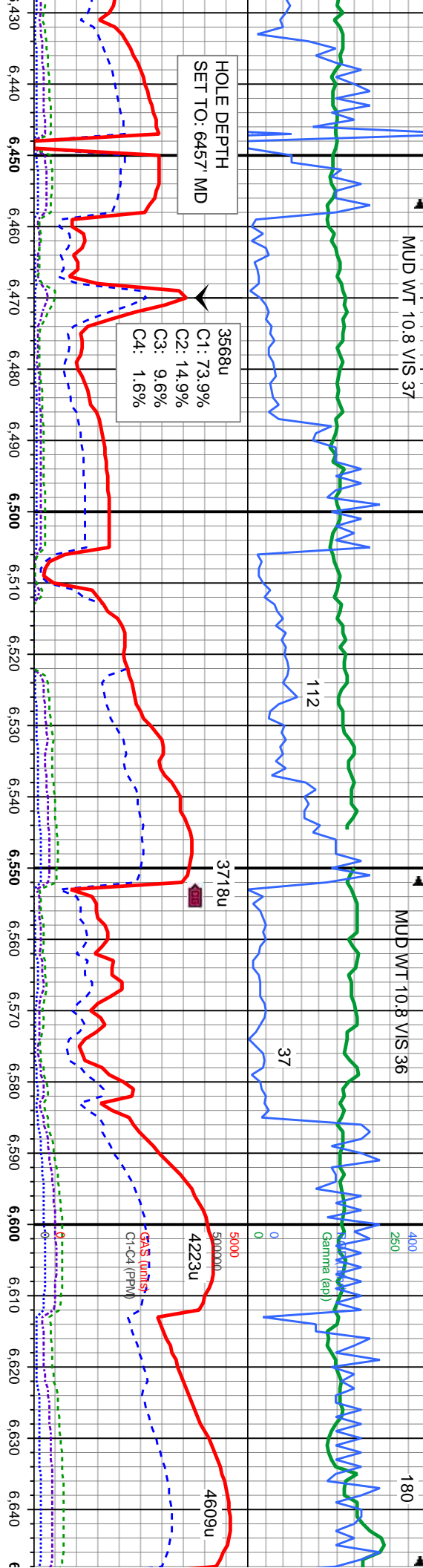
3718u

4223u

4609u

Gamma (cp)

GAS (unit)
C1-C4 (PPM)



- gy, tr dk gy, mod
- shty - silty tex,
100% SLTY SH: med-dk gy, firm, sb pily
- pily tr fis, sl silty tex, non calc, grdg - sh,
tr bent

100% SLTY SH: med-dk gy, firm, sb pily
- pily tr fis, sl silty tex, non calc, grdg - sh,
tr bent

100% SLTY SH: med-dk gy, firm, sb pily
- pily tr fis, sl silty tex, non calc, grdg - sh,
incr bent

100% SLTY SH: med-dk gy, firm, sb pily -
pily tr fis, sl silty tex, non calc, grdg - sh, abn
bent

MD: 6,448'
TVD: 6,373.14'
Inclination: 44.62°
Azimuth: 357.41°
VS: -15.01'

MD: 6,496'
TVD: 6,406.4'
Inclination: 47.65°
Azimuth: 356.71°
VS: 19.59'

MD: 6,543'
TVD: 6,436.72'
Inclination: 51.99°
Azimuth: 358.79°
VS: 55.48'

MD: 6,591'
TVD: 6,465.1'
Inclination: 55.49°
Azimuth: 0.09°
VS: 94.17'

MD: 6,638'
TVD: 6,491.42'
Inclination: 56.39°
Azimuth: 359.43°
VS: 133.09'

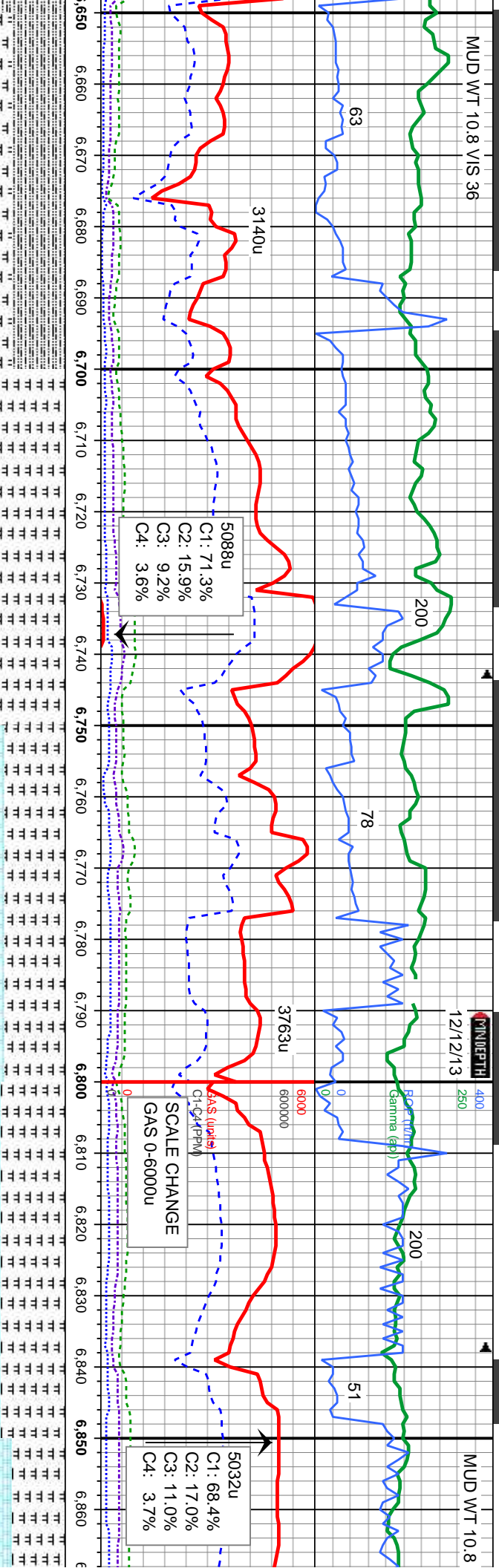
6700



MUD WT 10.8 VIS 36

12/12/13

MUD WT 10.8



75% SLTY SH: med-dk gy, firm, sb ply -
ply tr fis, sl silty tex, non calc, grdg - sh, tr
bent
25% MRL: m - dkgy, mod sft-sil firm,
sbbiky-sbbply, rthy-sily tex, sl mot, occ sl
vit lstr, v calc

100% MRL: m - dkgy, mod sft-sil firm,
sbbiky-sbbply, rthy-sily tex, mostly
mot, sl vit lstr, v calc, tr chl, tr pyr

85% MRL: m - dkgy, mod sft-sil firm,
sbbiky-sbbply, rthy-sily tex, mostly mot, sl
vit lstr, v calc
15% CHK: lt gy - brn, sft, occ mod firm, sb
biky - sb ply, sl wxy - rthy tex, occly sil lam,
v calc

90% MRL: m - dkgy, mod sft-sil firm,
sbbiky-sbbply, rthy-sily tex, occ mot, sl vit
lstr, v calc
10% CHK: lt gy, sft, occ mod firm, sb biky -
sb ply, sl wxy - rthy tex, occly sil lam, v calc

90% MRL: m -
sbbiky-sbbply,
lstr, v calc
10% CHK: lt gy
sb ply, sl wxy

MD: 6,686'
TVD: 6,516.08'
Inclination: 61.78°
Azimuth: 358.78°
VS: 174.25'

MD: 6,733'
TVD: 6,536.02'
Inclination: 67.98°
Azimuth: 357.71°
VS: 216.79'

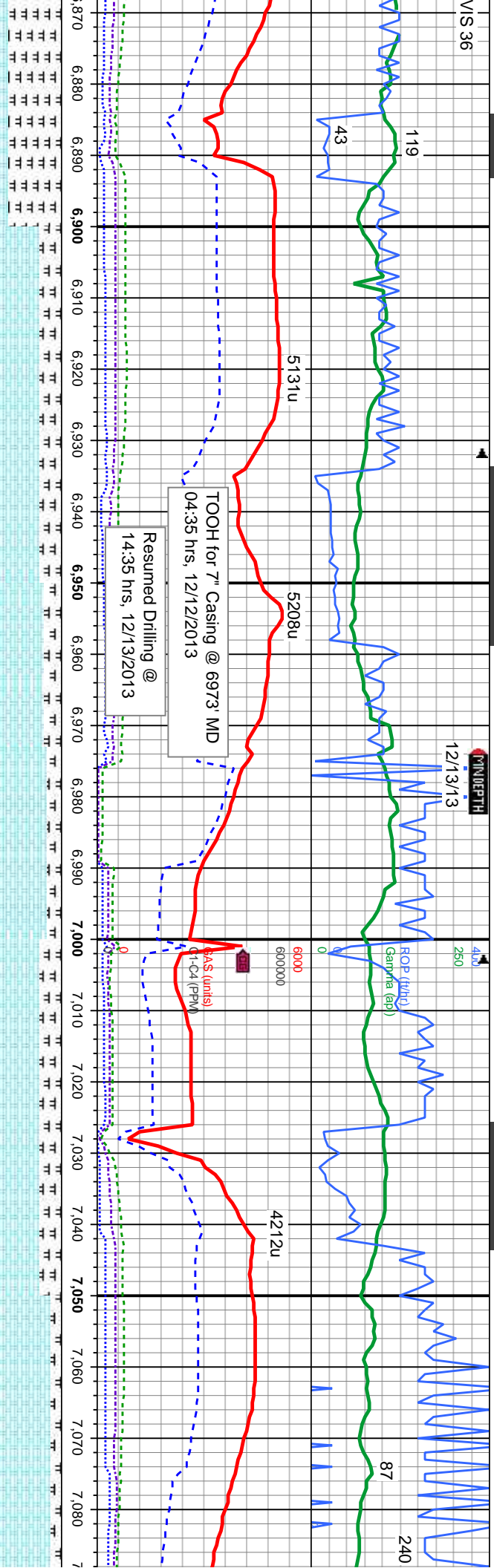
MD: 6,781'
TVD: 6,551.69'
Inclination: 73.88°
Azimuth: 356.93°
VS: 262.13'

MD: 6,828'
TVD: 6,563.55'
Inclination: 76.91°
Azimuth: 356.86°
VS: 307.59'

6700

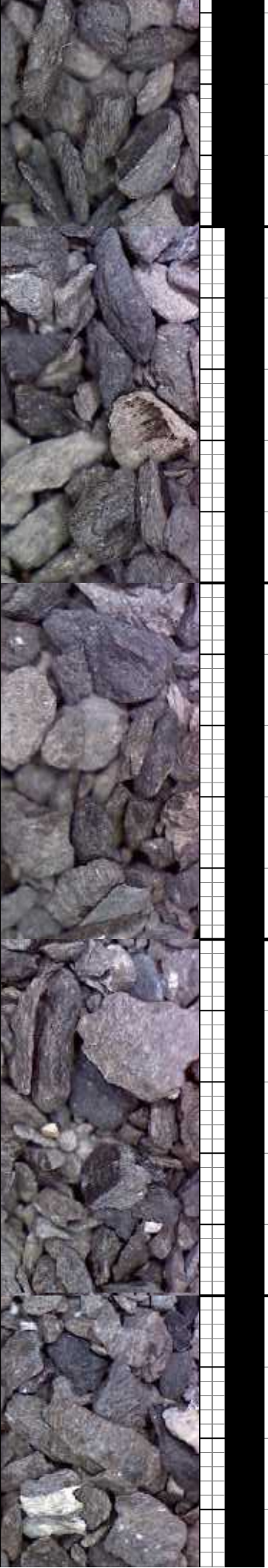


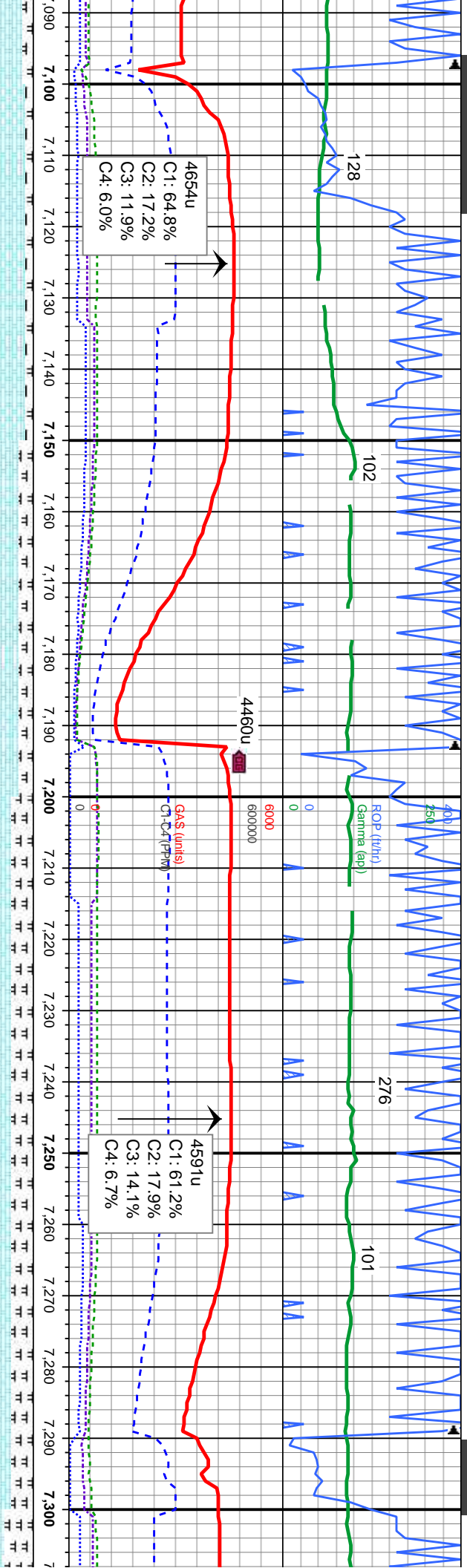
VS 36



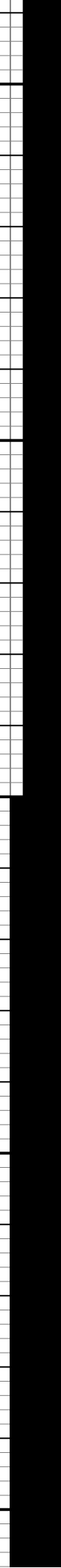
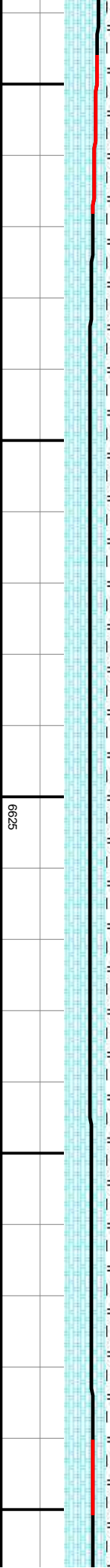
dkly, mod sft-sl firm, rthy-sily tex, occ mot, sl vit	70% CHK: lt-med gy, mostly sft-si firm, sb blkly- occ sb ply, wxy mot tex, occly lam, v calc	80% CHK: lt-med gy, mostly sft-si firm, sb blkly- occ sb ply, wxy mot tex, occly lam, v calc	70% CHK: lt-med gy, mostly sft-si firm, sb blkly- occ sb ply, wxy mot tex, occly lam, v calc	85% CHK: lt-med gy, mostly sft-si firm, sb blkly- occ sb ply, wxy mot tex, occly lam, v calc
, sft, occ mod firm, sb blkly - rthy tex, occly sl lam, v calc	30% MRL: m - dk gy, sl firm, sbbkly-sbbply, rthy-sily tex, occ sl vit lstr, v calc	20% MRL: m - dk gy, sl firm, sbbkly-sbbply, rthy-sily tex, occ sl vit lstr, v calc	30% MRL: m - dk gy, sl firm, sbbkly-sbbply, rthy-sily tex, occ sl vit lstr, v calc	15% MRL: m - dk gy, sl firm, sbbkly-sbbply, rthy-sily tex, occ s calc

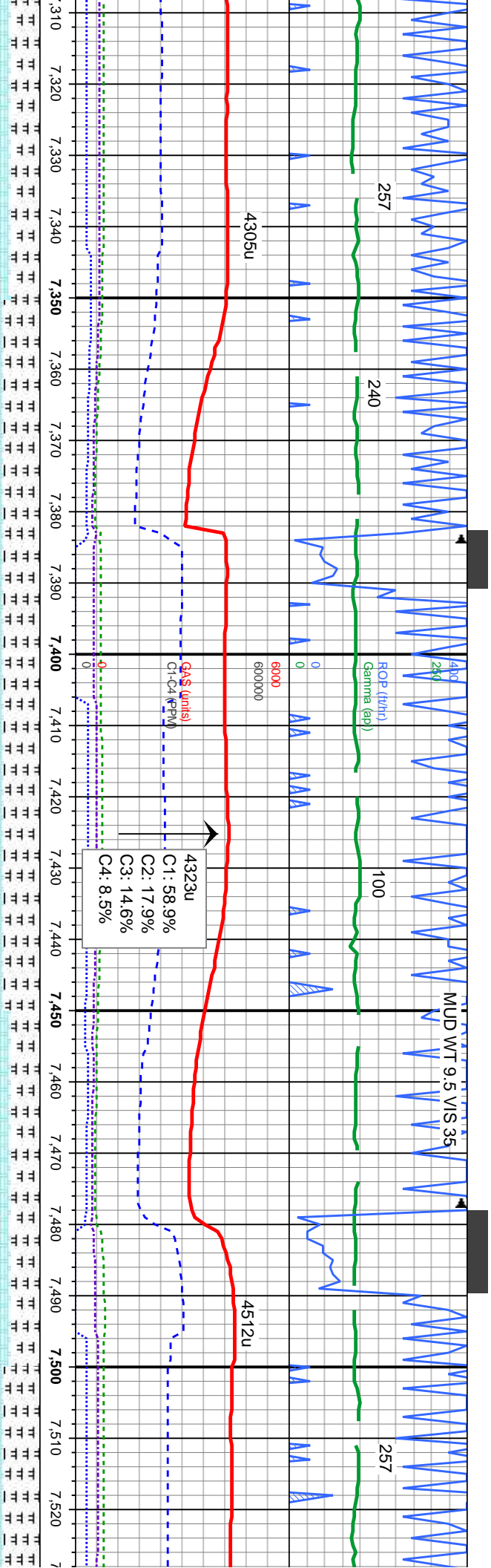
MD: 6.876 D: 6.573.76 Inclination: 78.51 ° Azimuth: 356.92 ° VS: 354.47 '	MD: 6.917 TVD: 6.581.53 Inclination: 79.66 ° Azimuth: 357.38 ° VS: 394.72 '	BHA # 3 Bit Size: 6.125 Manufacturer: Schlumberger/Smith Model: SD513 Serial Number: MDI513 Nozzles: 5x15	Motor Number: 3 Manufacturer: Sperry Drill Model: 475-143 Serial Number: 475-143 Bend: 1.5	SCALE CHANGE TVD 6525 - 6625 TVD	MD: 7.045 TVD: 6.598.03 Inclination: 85.53 ° Azimuth: 359.62 ° VS: 521.43 '
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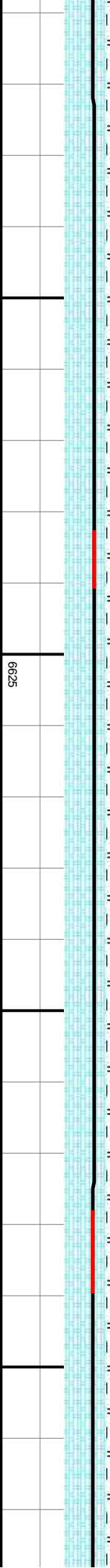


vit lstr, v	90% CHK: lt -med gy, mostly sft- sl firm, sb blkly- occ sb plty, wxy mot tex, occly lam, v calc 10% MRL: m - dk gy, sl firm, sbbkly-sbbply, rthy-slty tex, occ sl vit lstr, v calc	80% CHK: lt -med gy, mostly sft- sl firm, sb blkly- occ sb plty, wxy mot tex, occly lam, v calc 20% MRL: m - dk gy, sl firm, sbbkly-sbbply, rthy-slty tex, occ sl vit lstr, v calc	6525 70% CHK: lt -med occ med gy brn, mostly sft- sl firm, sb blkly- occ sb plty, wxy sl mot tex, occly lam, v calc 30% MRL: m - dk gy, sl firm, sbbkly-sbbply, rthy-sl slty tex, occ sl vit lstr, v calc	70% CHK: lt -med occ med gy brn, mostly sft- sl firm, sb blkly- occ sb plty, wxy sl mot tex, occly lam, v calc, tr mic fos 30% MRL: m - dk gy, sl firm, sbbkly-sbbply, rthy-sl slty tex, occ sl vit lstr, v calc, occ imbd xl cal	60% C sft- sl tex, oc 40% l rthy-sl
	MD: 7,140' TVD: 6,602.35' Inclination: 89.26 ° Azimuth: 358.99 ° VS: 616.3'		MD: 7,235' TVD: 6,602.14' Inclination: 90.99 ° Azimuth: 359.45 ° VS: 711.28'		

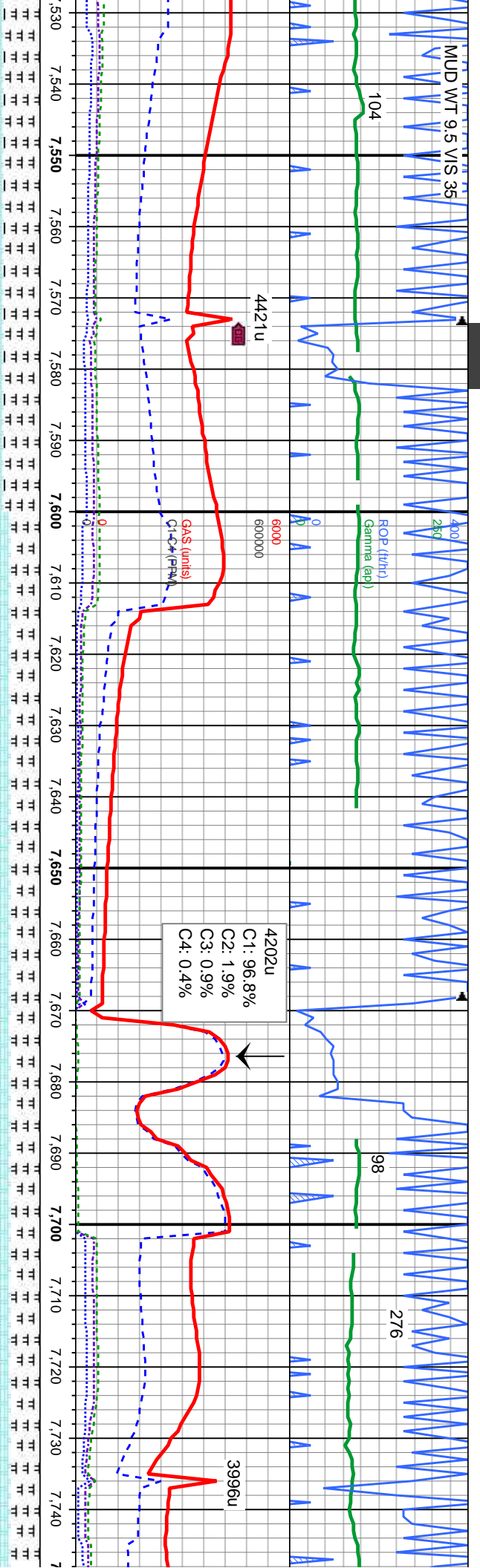




firm, sb blk- occ sb pty, wxy sl mot occy lam, v calc, tr mic fos	50% CHK: lt -med occ med gy brn, mostly sft- sl firm, sb blk- occ sb pty, wxy sl mot tex, occy lam, v calc, tr mic fos	50% CHK: lt -med occ med gy brn, mostly sft- sl firm, sb blk- occ sb pty, wxy sl mot tex, occhy lam, v calc, tr mic fos	60% CHK: lt -med occ med gy brn, mostly sft- sl firm, sb blk- occ sb pty, wxy sl mot tex, occhy lam, v calc, tr mic fos	50% CHK: lt -med occ med sft- sl firm, sb blk- occ sb tex, occhy lam, v calc, tr m
MRL: m - dk gy, sl firm, sbblk- sbppty, sily tex, occ sl vit lstr, v calc	50% MRL: m - dk gy, sl firm, sbblk- sbppty, rthy- sl sily tex, occ sl vit lstr, v calc, tr cal	50% MRL: m - dk gy, sl firm, sbblk- sbppty, rthy- sl sily tex, occ sl vit lstr, v calc, tr frac filled cal	40% MRL: m - dk gy, sl firm, sbblk- sbppty, rthy- sl sily tex, occ sl vit lstr, v calc	50% MRL: m - dk gy, sl firm rthy- sl sily tex, occ sl vit ls
MD: 7.331 TVD: 6,601.21 Inclination: 90.12 ° Azimuth: 358.83 ° VS: 807.27 '		MD: 7.425 TVD: 6,601.14 Inclination: 89.97 ° Azimuth: 358.81 ° VS: 901.26 '		MD: 7.520 TVD: 6,601.44 Inclination: 89.0 Azimuth: 0.68 ° VS: 996.22 '



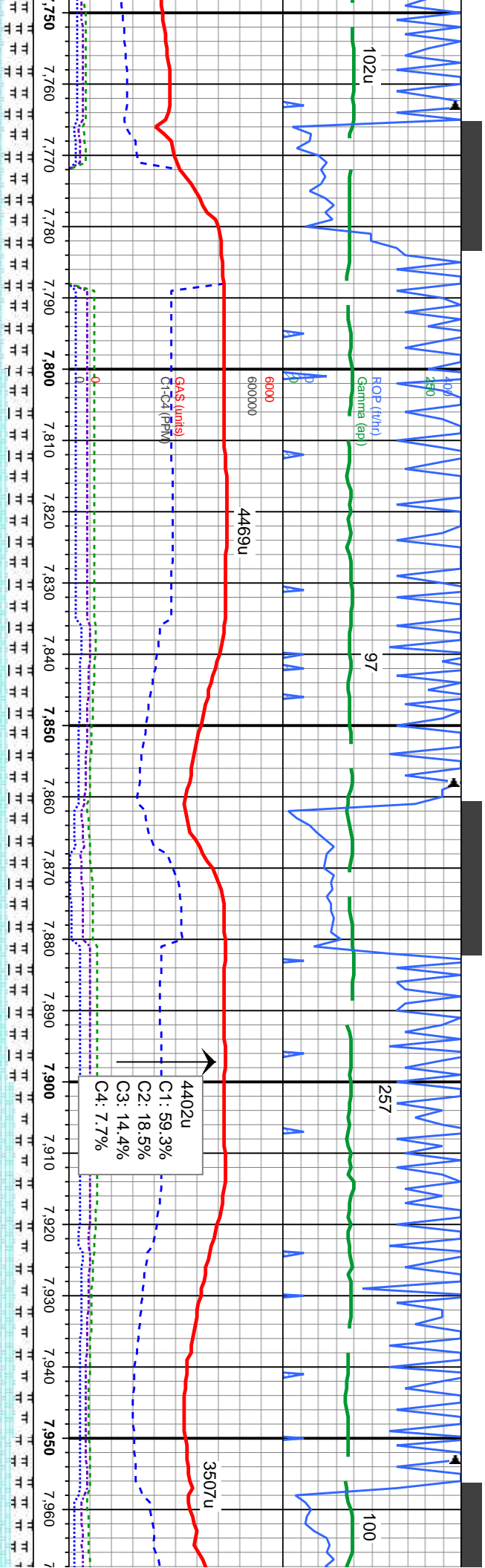
MUD WT 9.5 VIS 35



50% CHK: lt -med occ med gy brn, mostly sft- sl firm, sb blk- occ sb pty, wxy sl mot tex, occy lam, v calc, tr mic fos	60% CHK: lt -med occ med gy brn, mostly sft- sl firm, sb blk- occ sb pty, wxy sl mot tex, occy lam, v calc, tr mic fos	60% CHK: lt -med occ med gy brn, mostly sft- sl firm, sb blk- occ sb pty, wxy sl mot tex, occy lam, v calc, tr mic fos	60% CHK: lt -med occ med gy brn, mostly sft- sl firm, sb blk- occ sb pty, wxy sl mot tex, occy lam, v calc, tr mic fos
50% MRL: m - dk gy, sl firm, sbblk- sbppty, rthy- sl stly tex, occ sl vit lstr, v calc, tr frac filled cal	40% MRL: m - dk gy, sl firm, sbblk- sbppty, rthy- sl stly tex, occ sl vit lstr, v calc	40% MRL: m - dk gy, sl firm, sbblk- sbppty, rthy- sl stly tex, occ sl vit lstr, v calc	40% MRL: m - dk gy, sl firm, sbblk- sbppty, rthy- sl stly tex, occ sl vit lstr, v calc
	MD: 7,615 TVD: 6,602.01 Inclination: 89.66 ° Azimuth: 1.03 ° VS: 1,091.13 '		MD: 7,710 TVD: 6,602.75 Inclination: 89.44 ° Azimuth: 1.22 ° VS: 1,186.01 '

6625





60% CHK: lt.-med occ med gy brn, mostly
sft- sl firm, sb blkly- occ sb pily, wxy sl mot
tex, occly lam, v calc, tr mic fos
40% MRL: m - dk gy, sl firm, sbblkly-sbbply,
rthy-sl silty tex, occ sl vit lstr, v calc

65% CHK: lt.-med occ med gy brn, mostly
sft- sl firm, sb blkly- occ sb pily, wxy sl mot
tex, occly lam, v calc
35% MRL: m - dk gy, sl firm, sbblkly-sbbply,
rthy-sl silty tex, occ sl vit lstr, v calc

65% CHK: lt.-med occ med gy brn, mostly
sft- sl firm, sb blkly- occ sb pily, wxy sl mot
tex, occly lam, v calc
35% MRL: m - dk gy, sl firm, sbblkly-sbbply,
rthy-sl silty tex, occ sl vit lstr, v calc, occ lse
fos frag

75% CHK: lt.-med occ med gy brn, mostly
sft- sl firm, sb blkly- occ sb pily, wxy sl mot
tex, occly lam, v calc
25% MRL: m - dk gy, sl firm, sbblkly-sbbply,
rthy-sl silty tex, occ sl vit lstr, v calc, occ lse
fos frag

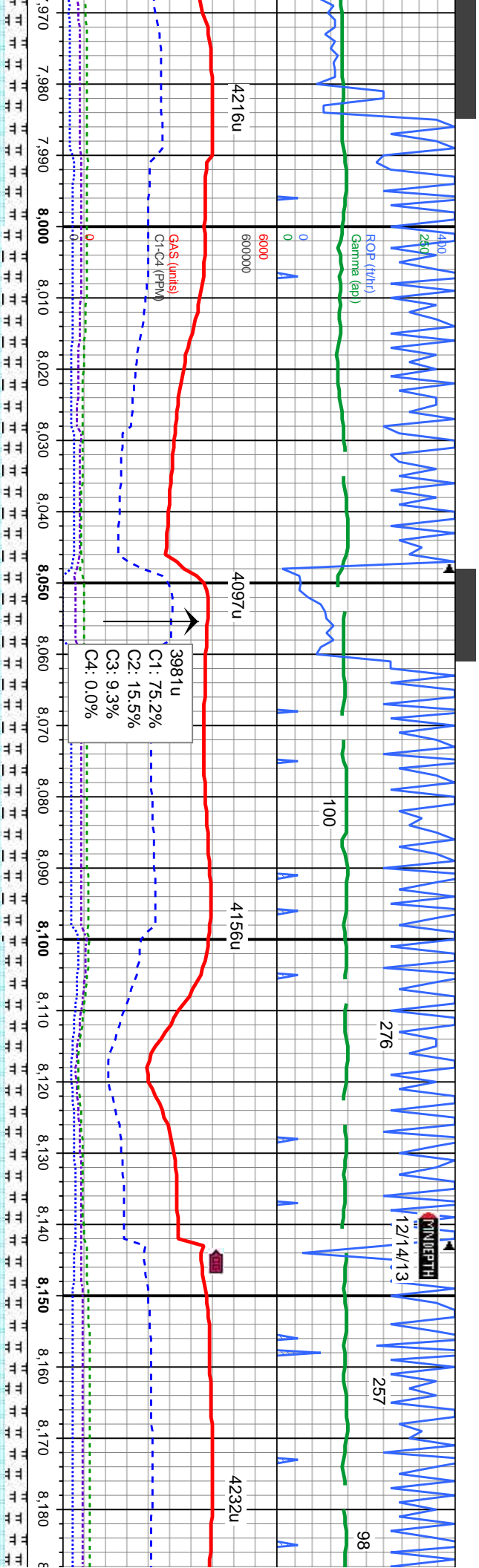
70% CHK: lt.-med
sft- sl firm, sb blkly-
tex, occly lam, v
30% MRL: m - dk
rthy-sl silty tex, o
fos frag

MD: 7,805
TVD: 6,603.31
Inclination: 89.88 °
Azimuth: 1.24 °
VS: 1,280.88'

MD: 7,900
TVD: 6,603.54
Inclination: 89.85 °
Azimuth: 359.86 °
VS: 1,375.8'

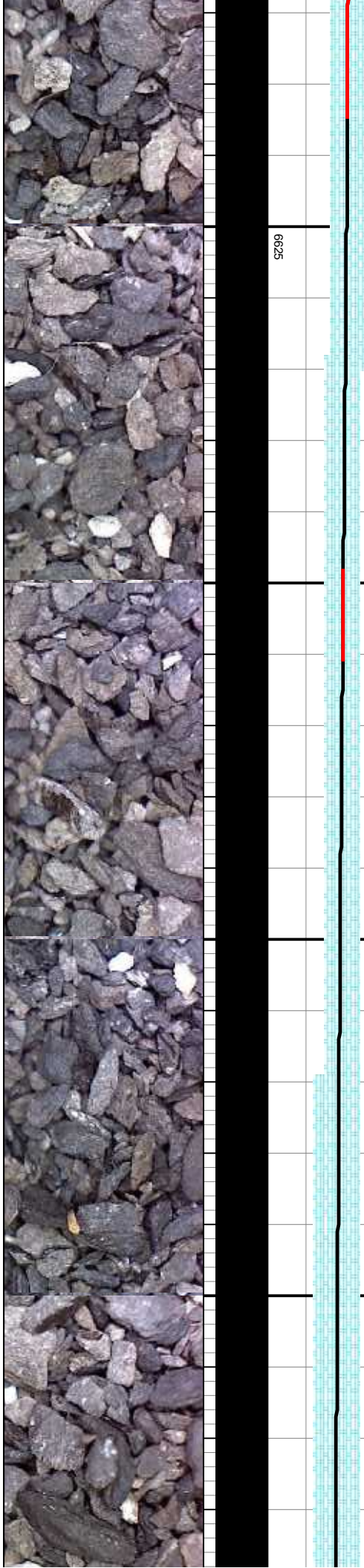
6625

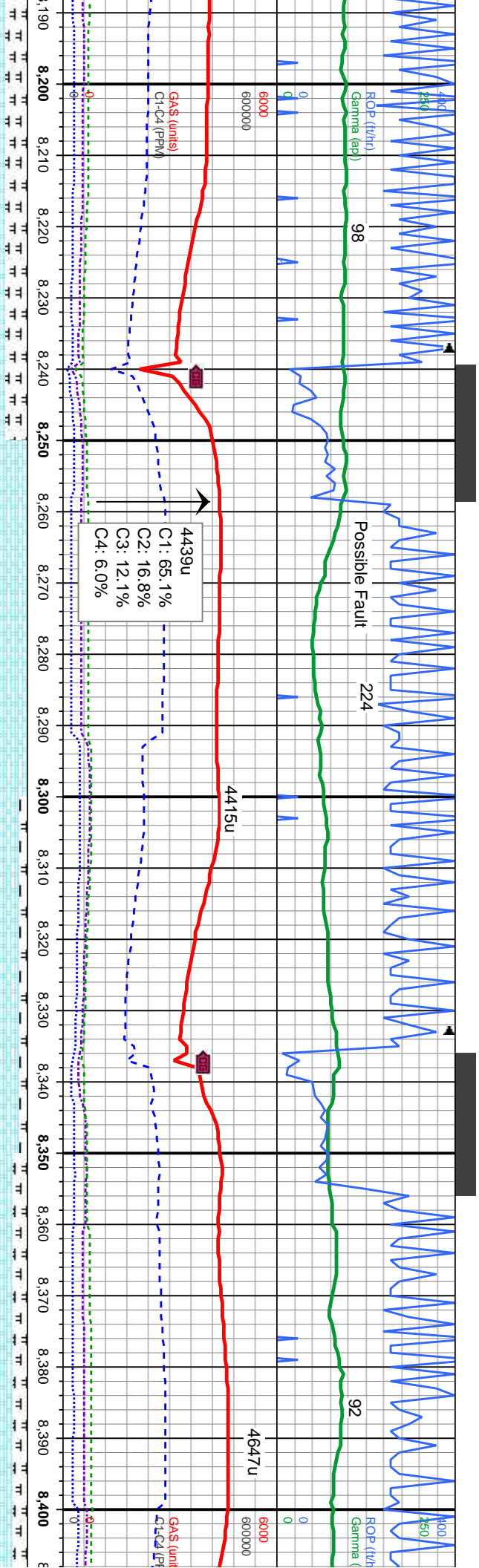




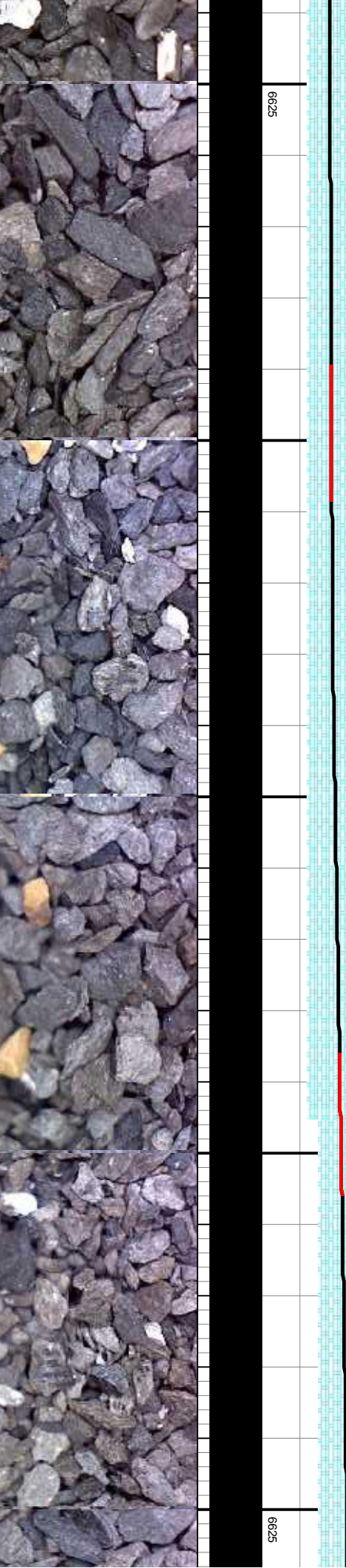
occ med gy brn, mostly occ sb pty, wxy sl mot calc	65% CHK: lt.-med occ med gy brn, mostly sft- sl firm, sb blk- occ sb pty, wxy sl mot tex, occly lam, v calc 35% MRL: m - dk gy, sl firm, sbblk- sbppty, rthy- sl silty tex, occ sl vit lstr, v calc, occ lse fos frag	65% CHK: lt.-med occ med gy brn, mostly sft- sl firm, sb blk- occ sb pty, wxy sl mot tex, occly lam, v calc 35% MRL: m - dk gy, sl firm, sbblk- sbppty, rthy- sl silty tex, occ sl vit lstr, v calc, occ lse fos frag	70% CHK: lt.-med occ med gy brn, mostly sft- sl firm, sb blk- occ sb pty, wxy sl mot tex, occly lam, v calc 30% MRL: m - dk gy, sl firm, sbblk- sbppty, rthy- sl silty tex, occ sl vit lstr, v calc, occ lse fos frag	70% CHK: lt.-med occ med gy brn, sft- sl firm, sb blk- occ sb pty, wxy tex, occly lam, v calc 30% MRL: m - dk gy, sl firm, sbblk- rthy- sl silty tex, occ sl vit lstr, v calc, fos frag
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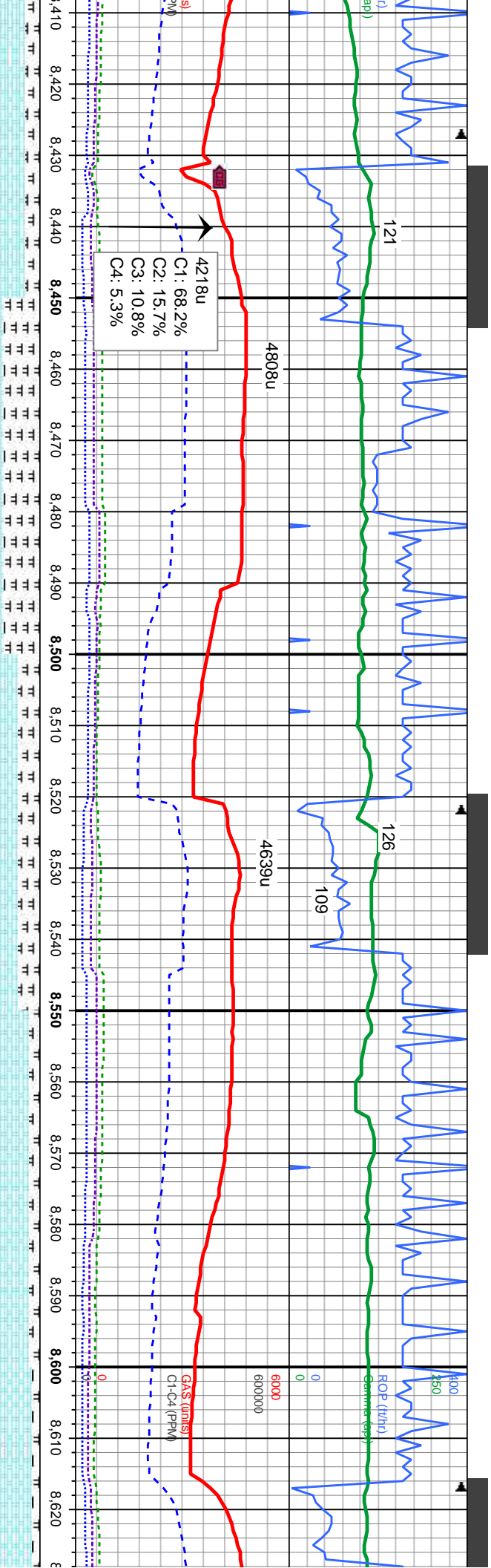
MD: 7,995 TVD: 6,604.54 Inclination: 88.95 ° Azimuth: 356.54 ° VS: 1,470.78	MD: 8,090 TVD: 6,606.15 Inclination: 89.11 ° Azimuth: 354.36 ° VS: 1,565.65	MD: 8,184 TVD: 6,607.44 Inclination: 89 Azimuth: 354. VS: 1,659.41
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6525	6525	MD: 8.279 TVD: 6,606.7 Inclination: 91.63 ° Azimuth: 356.52 ° VS: 1,754.26 '
mostly sl mot	6525	TVD (ft)
sbply, occ lse	70% CHK: lt-med occ med gy brn, mostly sft-sl firm, sb blkly- occ sb ply, wxy sl mot tex, occly lam, v calc 30% MRL: m - dk gy, sl firm, sbblkly-sbply, rthy-sl silty tex, occ sl vit lstr, v calc, occ lse fos frag	
	100% CHK: lt gy, mostly sft-sl firm, sb blkly- occ sb ply, wxy sl mot tex, occly lam, v calc	
	90% CHK: lt gy, mostly sft-sl firm, sb blkly- occ sb ply, wxy sl mot tex, occly lam, v calc 10% MRL: m - dk gy, sl firm, sbblkly-sbply, rthy-sl silty tex, occ sl vit lstr, v calc	
	80% CHK: med gy occ lgy - ltgy brn, mostly sft-sl firm, sb blkly- occ sb ply, wxy mot tex, v calc 20% MRL: m - dk gy, sl firm, sbblkly-sbply, rthy-sl silty tex, occ sl vit lstr, v calc	MD: 8.374 TVD: 6,603.68 Inclination: 92.01 ° Azimuth: 357.47 ° VS: 1,849.19 '





HL: med gy occ lgy - ltgy brn, mostly firm, sb blkly- occ sb plty, wxy mot tex, v silty tex, occ sl vit lstr, v calc	50% CHK: med gy occ ltgy - ltgy brn, mostly sft- sl firm, sb blkly- occ sb plty, wxy mot tex, v calc 50% MRL: m - dk gy, sl firm, sbbkly-sbplty, rthy-sl silty tex, occ sl vit lstr, v calc	70% CHK: med gy occ ltgy - ltgy brn, mostly sft- sl firm, sb blkly- occ sb plty, wxy mot tex, v calc 30% MRL: m - dk gy, sl firm, sbbkly-sbplty, rthy-sl silty tex, occ sl vit lstr, v calc	85% CHK: med gy occ ltgy - ltgy brn, mostly sft- sl firm, sb blkly- occ sb plty, wxy mot tex, v calc 15% MRL: m - dk gy, sl firm, sbbkly-sbplty, rthy-sl silty tex, occ sl vit lstr, v calc	6525 90% CHK: med gy occ lt mostly sft- sl firm, sb blk mot tex, v calc 10% MRL: m - dk gy, sl fi sbbkly-sbplty, rthy-sl silt lstr, v calc
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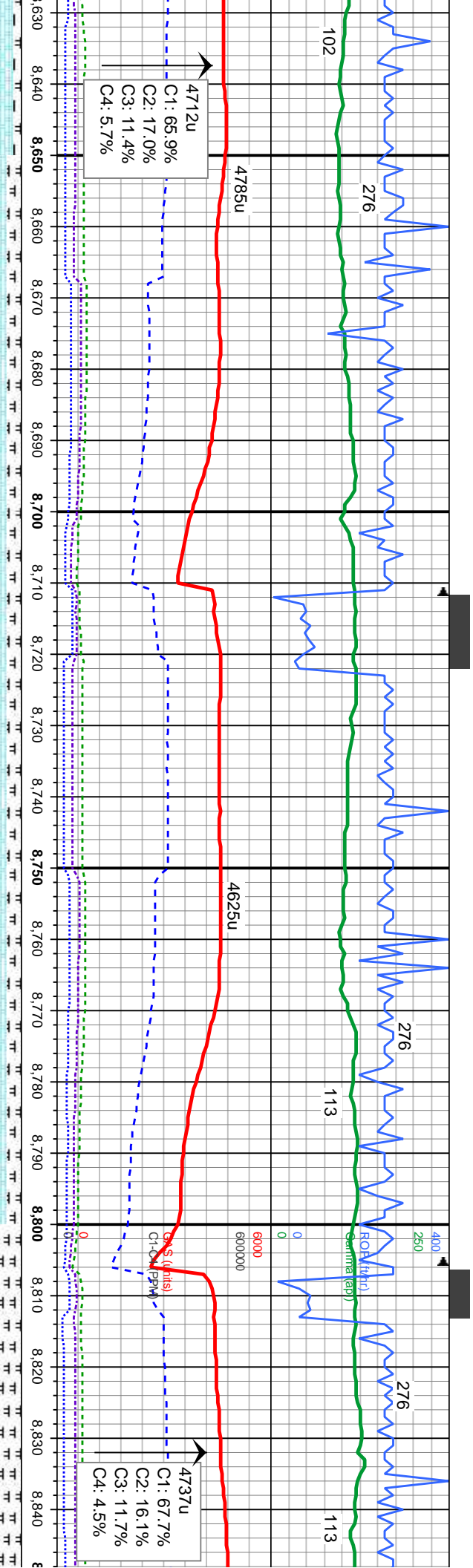
MD: 8,469
TVD: 6,601.25 '
Inclination: 90.93 °
Azimuth: 359.7 °
VS: 1,944.15 '

MD: 8,564
TVD: 6,600.35
Inclination: 90.15 °
Azimuth: 1.57 °
VS: 2,039.06 '

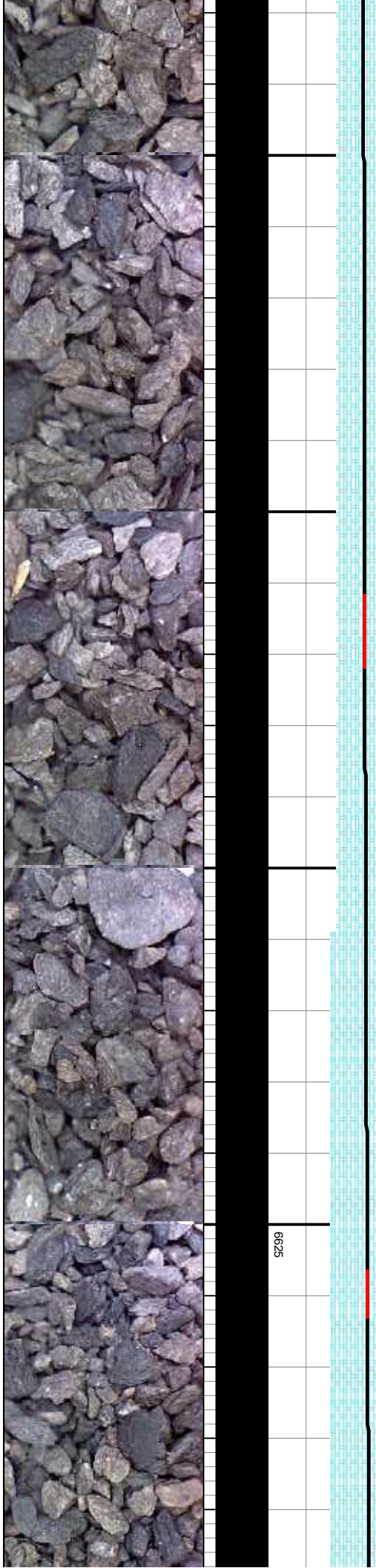
TVD (ft)

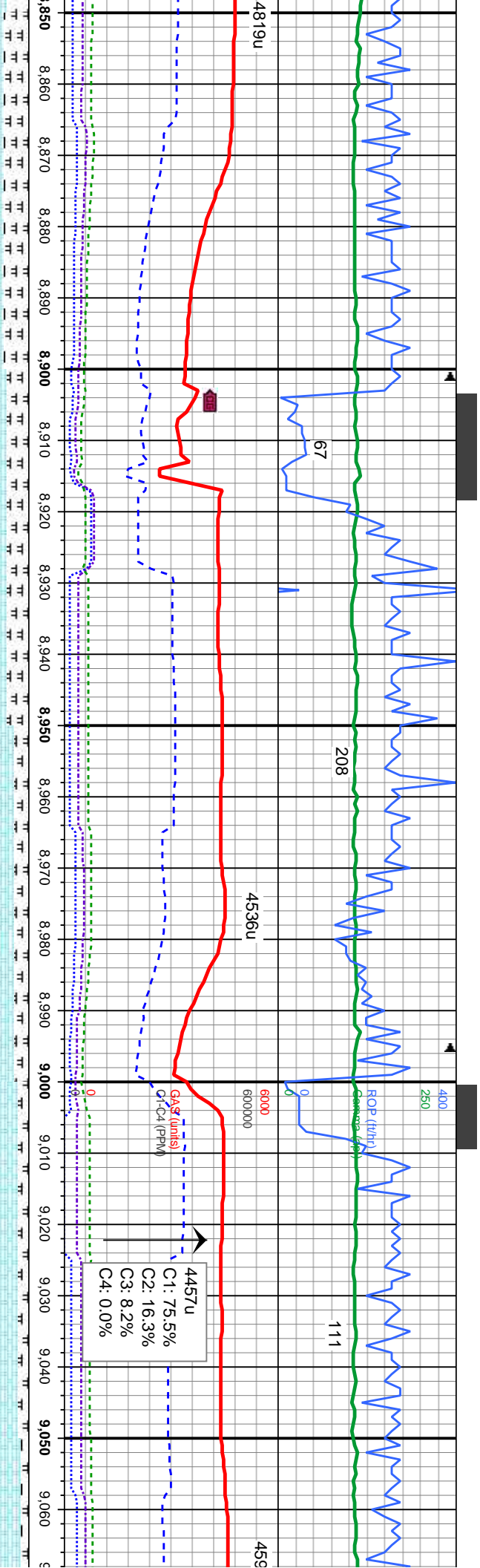
6625



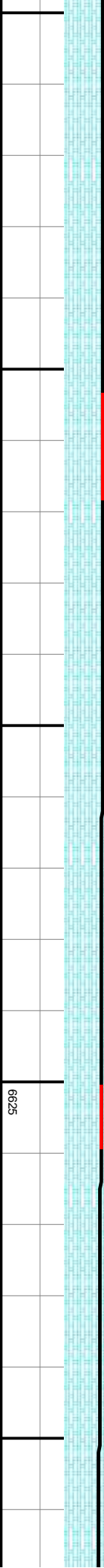


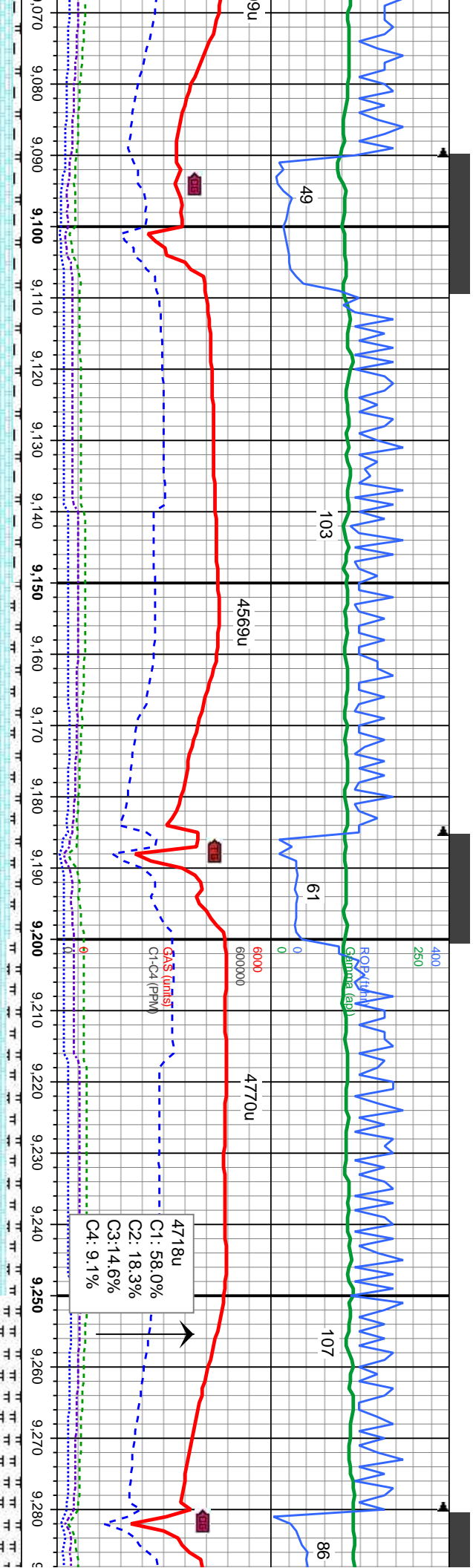
gy - ltgy brn, /- occ sb pfty, wxy m, m, y tex, occ sl vit	80% CHK: med gy occ ltgy - ltgy brn, mostly sft- sl firm, sb blk- occ sb pfty, wxy mot tex, v calc 20% MRL: m - dk gy, sl firm, sbbkly-sbbpfty, rthy-sl stly tex, occ sl vit lstr, v calc	80% CHK: med gy occ ltgy - ltgy brn, mostly sft- sl firm, sb blk- occ sb pfty, wxy mot tex, v calc 20% MRL: m - dk gy, sl firm, sbbkly-sbbpfty, rthy-sl stly tex, occ sl vit lstr, v calc	80% CHK: med gy occ ltgy - ltgy brn, mostly sft- sl firm, sb blk- occ sb pfty, wxy mot tex, v calc 20% MRL: m - dk gy, sl firm, sbbkly-sbbpfty, rthy-sl stly tex, occ sl vit lstr, v calc	6525	70% CHK: med gy occ ltgy - ltgy brn, mostly sft- sl firm, sb blk- occ sb pfty, wxy mot tex, v calc 30% MRL: m - dk gy, sl firm, sbbkly-sbbpfty, rthy-sl stly tex, occ sl vit lstr, v calc
	MD: 8,659 TVD: 6,600.17 Inclination: 90.06 ° Azimuth: 359.82 ° VS: 2,133.97	MD: 8,753 TVD: 6,599.74 Inclination: 90.46 ° Azimuth: 0.84 ° VS: 2,227.91	MD: 8,848 TVD: 6,59 Inclination: Azimuth: 1 VS: 2,322		



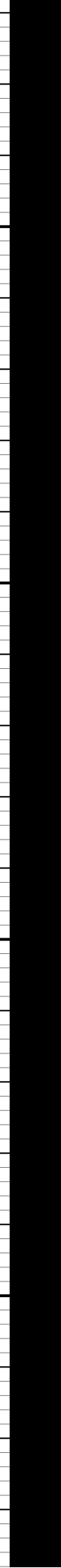
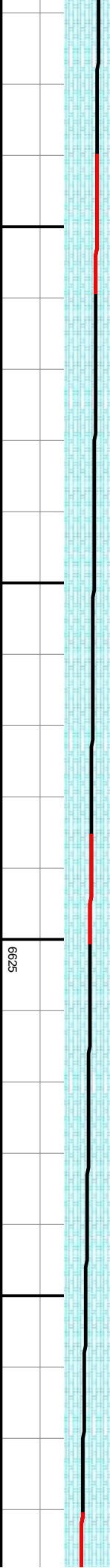


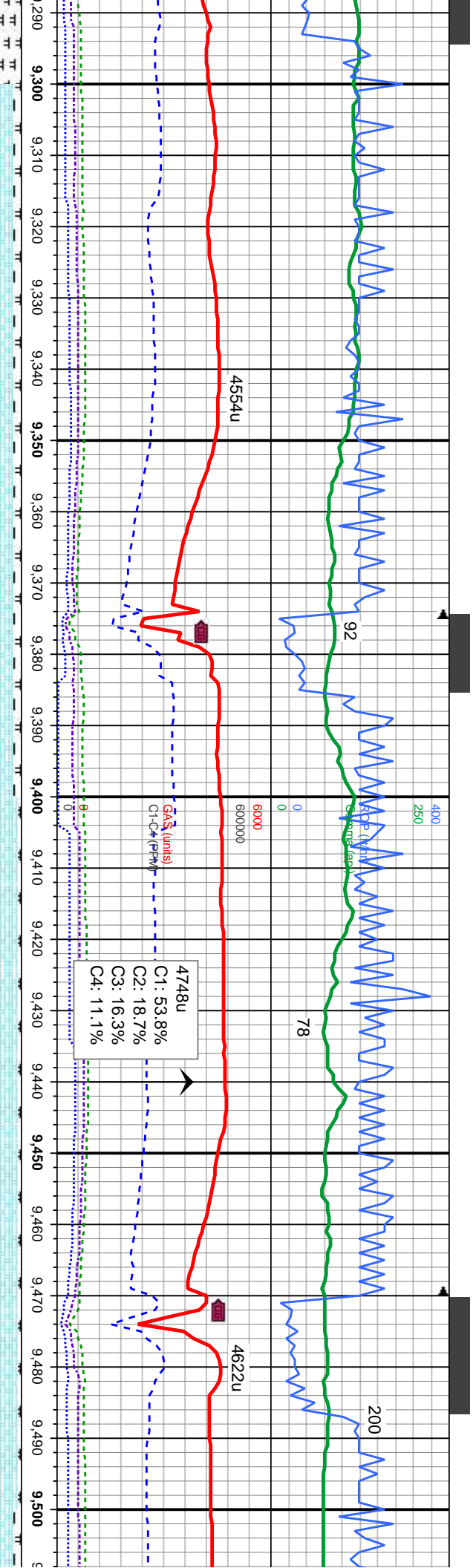
65% CHK: med gy occ ltgy - ltgy brn, mostly sft- sl firm, sb blk- occ sb pty, wxy mot tex, v calc 35% MRL: m - dk gy, sl firm, sbblk- sbppty, rthy- sl stly tex, occ sl vit lstr, v calc	70% CHK: med gy occ ltgy - ltgy brn, mostly sft- sl firm, sb blk- occ sb pty, wxy mot tex, v calc 30% MRL: m - dk gy, sl firm, sbblk- sbppty, rthy- sl stly tex, occ sl vit lstr, v calc	80% CHK: med gy occ ltgy - ltgy brn, mostly sft- sl firm, sb blk- occ sb pty, wxy mot tex, v calc 20% MRL: m - dk gy, sl firm, sbblk- sbppty, rthy- sl stly tex, occ sl vit lstr, v calc	85% CHK: med gy occ ltgy - ltgy brn, mostly sft- sl firm, sb blk- occ sb pty, wxy mot tex, v calc 15% MRL: m - dk gy, sl firm, sbblk- sbppty, rthy- sl stly tex, occ sl vit lstr, v calc	90% CHK: med gy occ ltgy - ltgy brn, mostly sft- sl firm, sb blk- occ sb pty, wxy mot tex, v calc 10% MRL: m - dk gy, sl firm, sbblk- sbppty, rthy- sl stly tex, occ sl vit lstr, v calc
MD: 8,943' TVD: 6,598.93' Inclination: 89.41° Azimuth: 0.32° VS: 2,417.71'	MD: 8,943' TVD: 6,598.93' Inclination: 89.41° Azimuth: 0.32° VS: 2,417.71'	MD: 8,943' TVD: 6,598.93' Inclination: 89.41° Azimuth: 0.32° VS: 2,417.71'	MD: 8,943' TVD: 6,598.93' Inclination: 89.41° Azimuth: 0.32° VS: 2,417.71'	MD: 8,943' TVD: 6,598.93' Inclination: 89.41° Azimuth: 0.32° VS: 2,417.71'



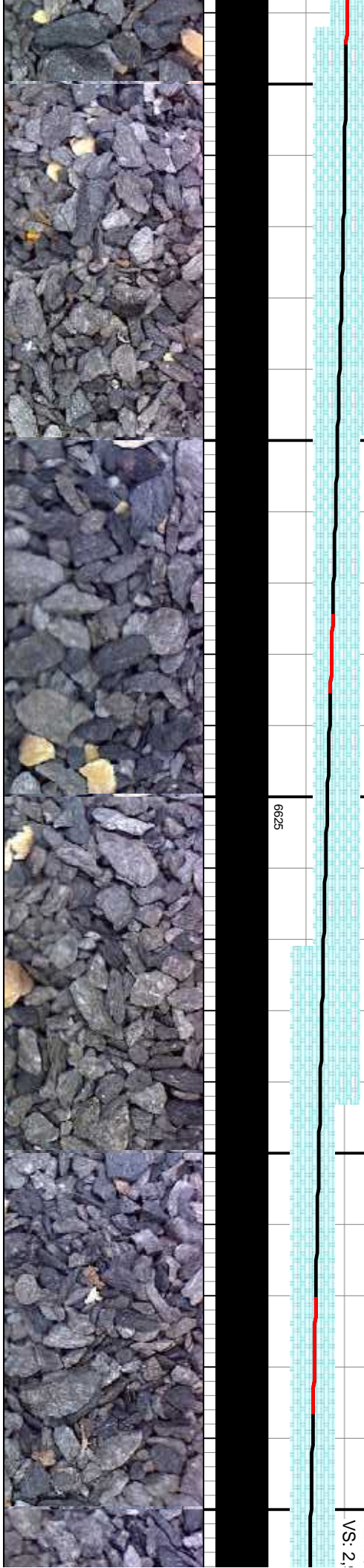


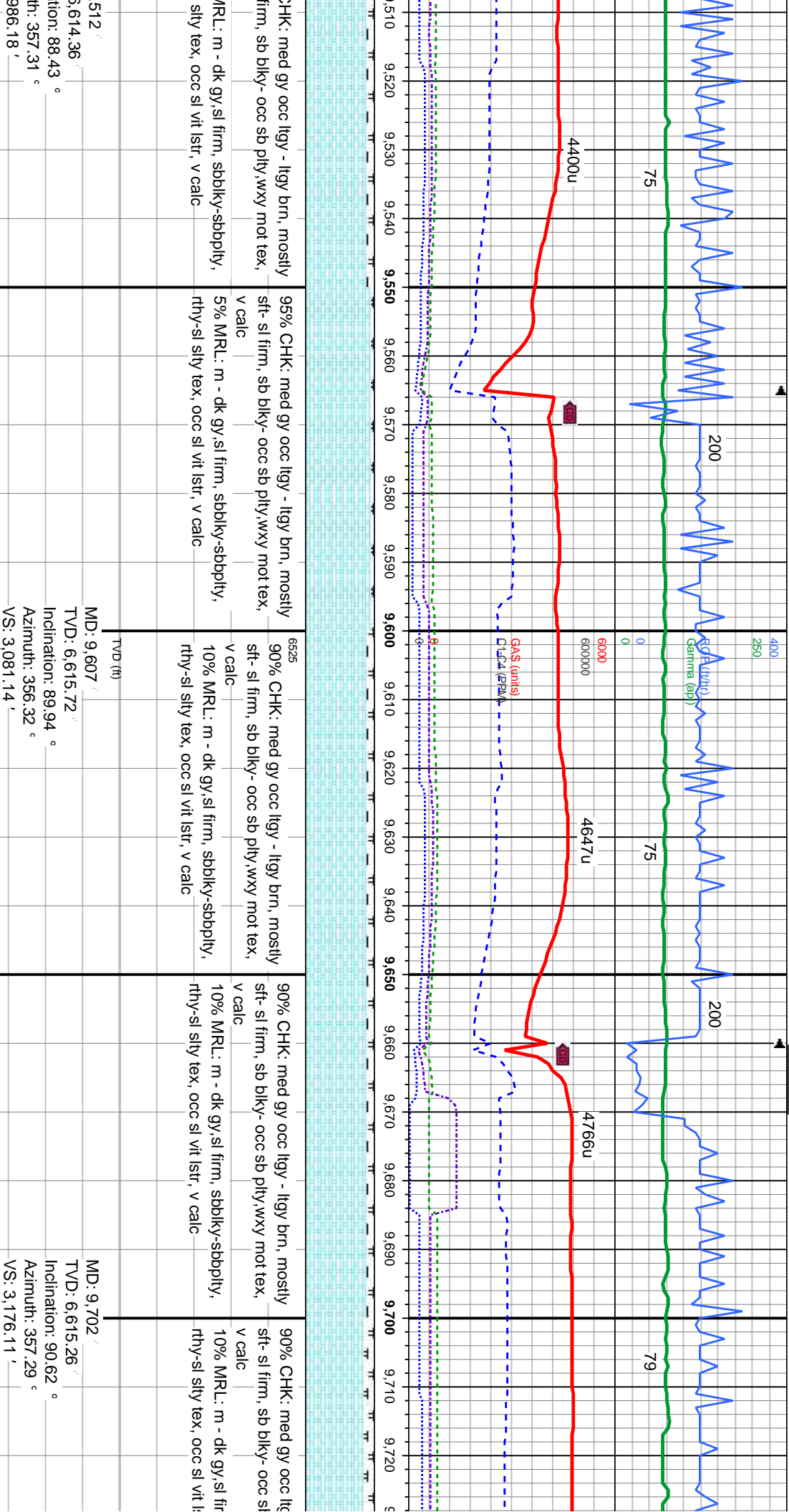
d gy occ ltgy - ltgy brn, m, sb blkly - occ sb plty, wxy	90% CHK: med gy occ ltgy - ltgy brn, mostly sft- sl firm, sb blkly- occ sb plty, wxy mot tex, v calc	85% CHK: med gy occ ltgy - ltgy brn, mostly sft- sl firm, sb blkly- occ sb plty, wxy mot tex, v calc	6525 80% CHK: med gy occ ltgy - ltgy brn, mostly sft- sl firm, sb blkly- occ sb plty, wxy mot tex, v calc	70% CHK: med gy occ ltgy - ltgy mostly sft- sl firm, sb blkly- occ sb mot tex, v calc
dk gy, sl firm, rthy-sl stly tex, occ sl vit	10% MRL: m - dk gy, sl firm, sbbkly-sbbply, rthy-sl stly tex, occ sl vit lstr, v calc	15% MRL: m - dk gy, sl firm, sbbkly-sbbply, rthy-sl stly tex, occ sl vit lstr, v calc	20% MRL: m - dk gy, sl firm, sbbkly-sbbply, rthy-sl stly tex, occ sl vit lstr, v calc	30% MRL: m - dk gy, sl firm, sbbkly-sbbply, rthy-sl stly tex, occ lstr, v calc
	MD: 9,132' TVD: 6,600.96' Inclination: 88.61 ° Azimuth: 0.58 ° VS: 2,606.52'		MD: 9,227' TVD (ft): 6,602.6' Inclination: 89.41 ° Azimuth: 358.91 ° VS: 2,701.47'	

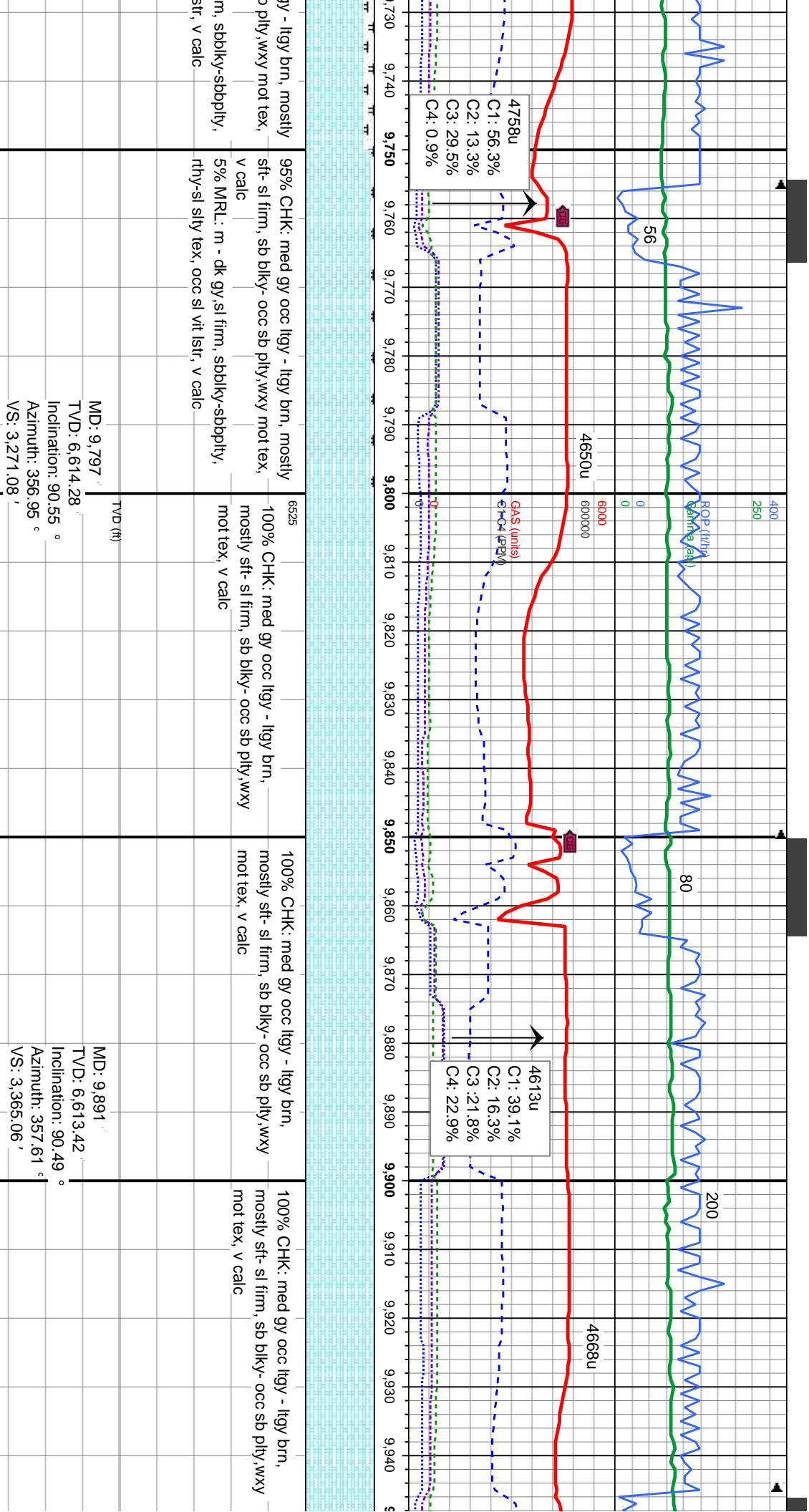




90% CHK: med gy occ ltgy - ltgy brn, mostly sft- sl firm, sb blk- occ sb pty, wxy mot tex, v calc	10% MRL: m - dk gy, sl firm, sbblk- sbppty, rthy- sl stly tex, occ sl vit lstr, v calc ; scat dism pyr	MD: 9.322 TVD: 6,605.49 Inclination: 87.1 ° Azimuth: 358.66 VS: 2,796.41 '
90% CHK: med gy occ ltgy - ltgy brn, mostly sft- sl firm, sb blk- occ sb pty, wxy mot tex, v calc	10% MRL: m - dk gy, sl firm, sbblk- sbppty, rthy- sl stly tex, occ sl vit lstr, v calc ; scat dism pyr	MD: 9.417 TVD: 6,610.47 Inclination: 86.88 ° Azimuth: 357.38 ° VS: 2,891.28 '
95% CHK: med gy occ ltgy - ltgy brn, mostly sft- sl firm, sb blk- occ sb pty, wxy mot tex, v calc	5% MRL: m - dk gy, sl firm, sbblk- sbppty, rthy- sl stly tex, occ sl vit lstr, v calc	MD: 9.417 TVD: 6,610.47 Inclination: 86.88 ° Azimuth: 357.38 ° VS: 2,891.28 '
95% CHK: med gy occ ltgy - ltgy brn, mostly sft- sl firm, sb blk- occ sb pty, wxy mot tex, v calc	5% MRL: m - dk gy, sl firm, sbblk- sbppty, rthy- sl stly tex, occ sl vit lstr, v calc	MD: 9.417 TVD: 6,610.47 Inclination: 86.88 ° Azimuth: 357.38 ° VS: 2,891.28 '

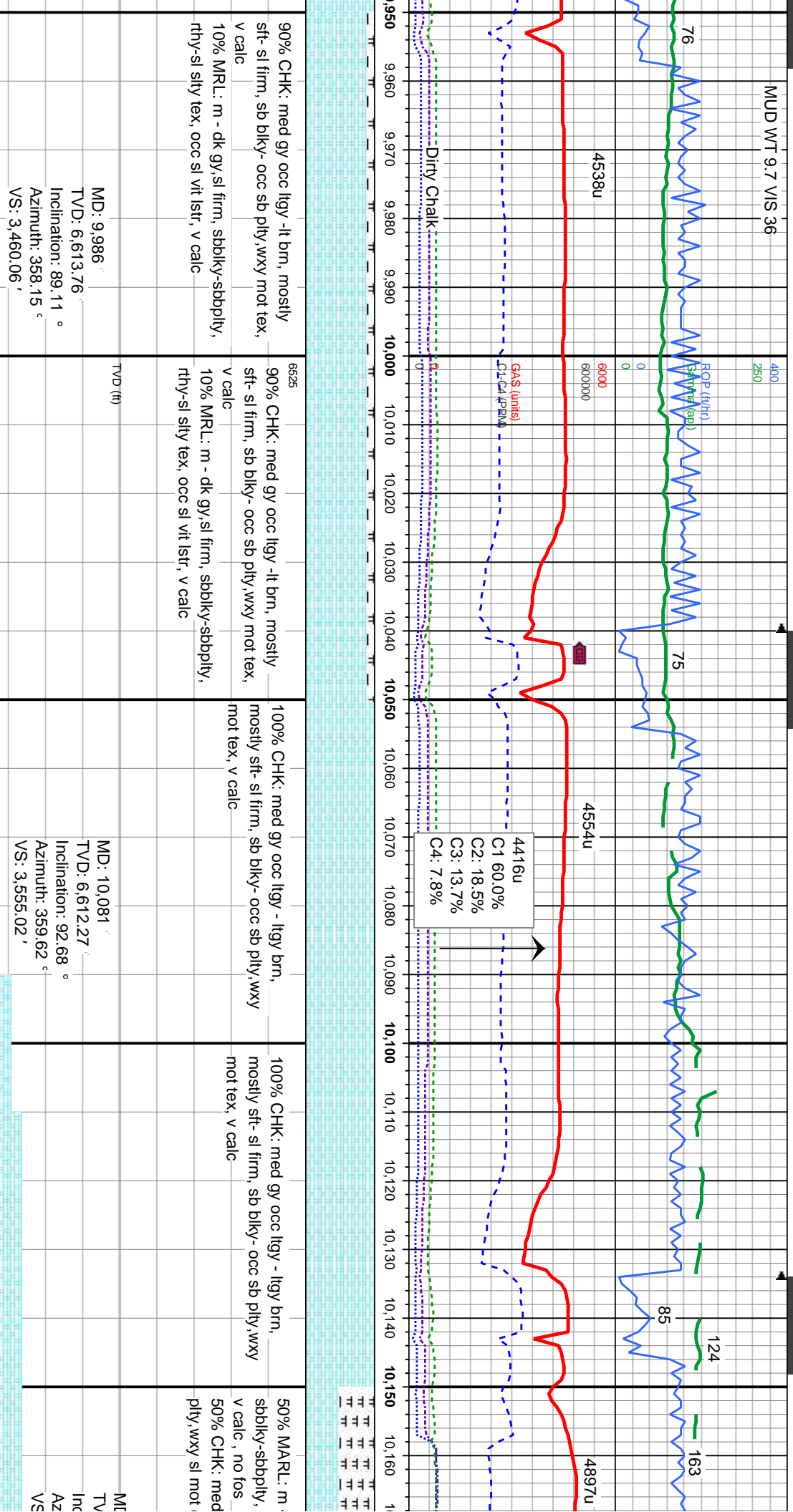


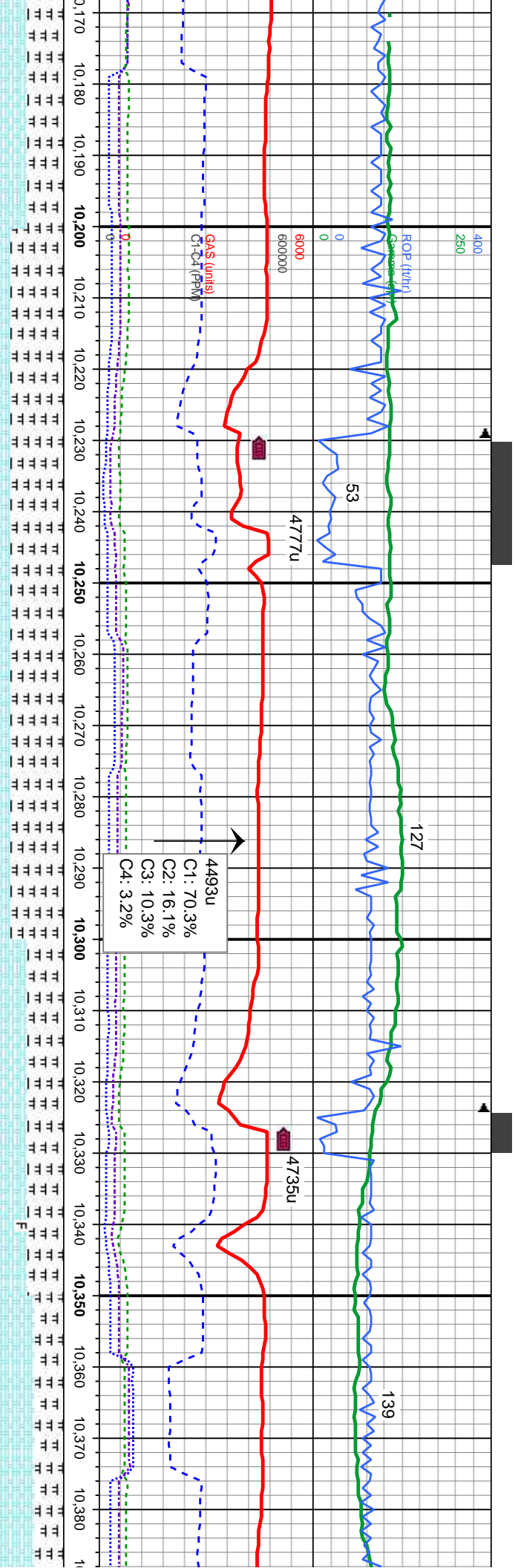




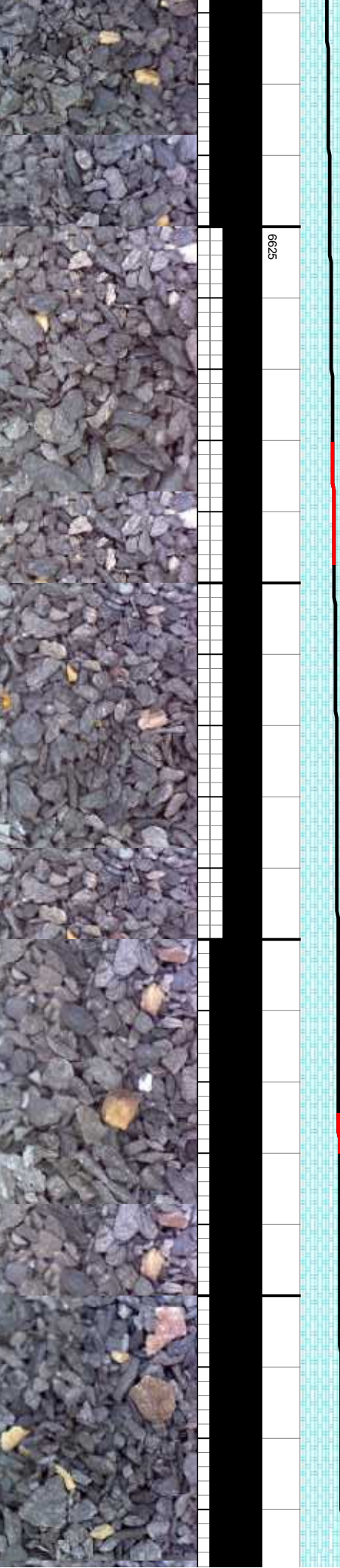
6625

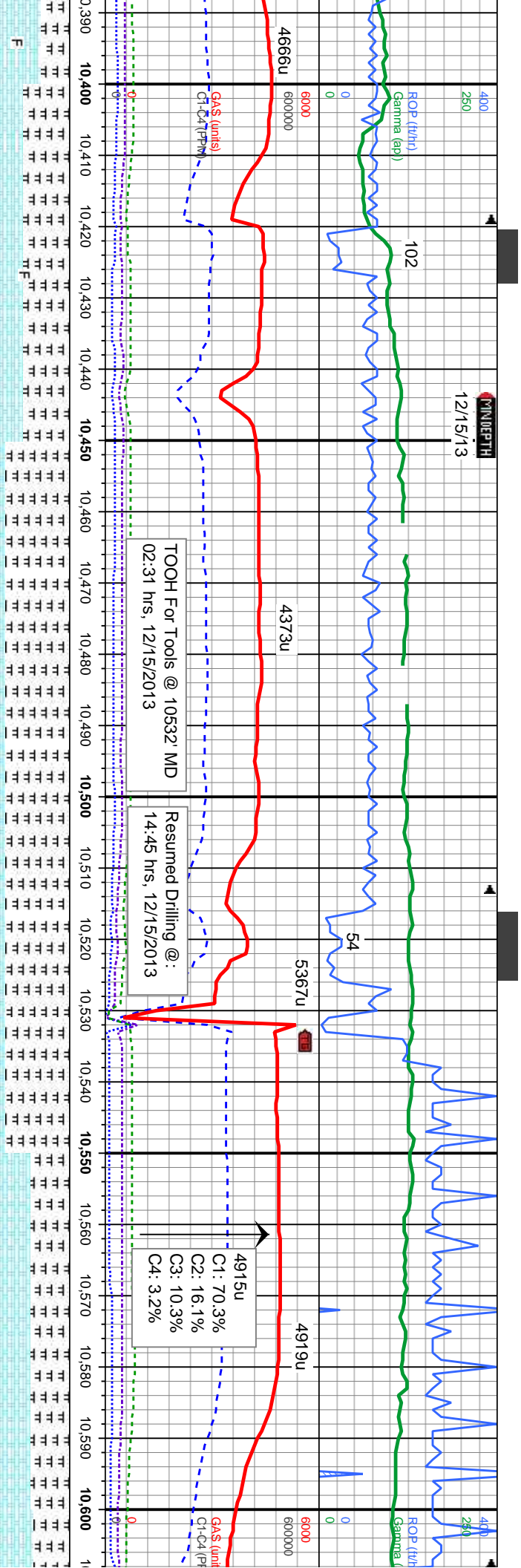




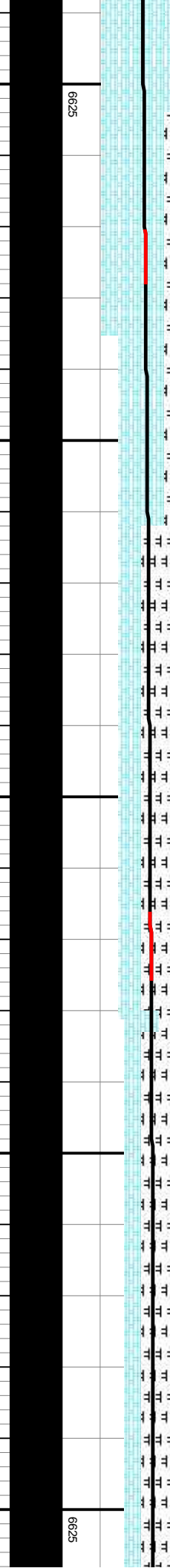


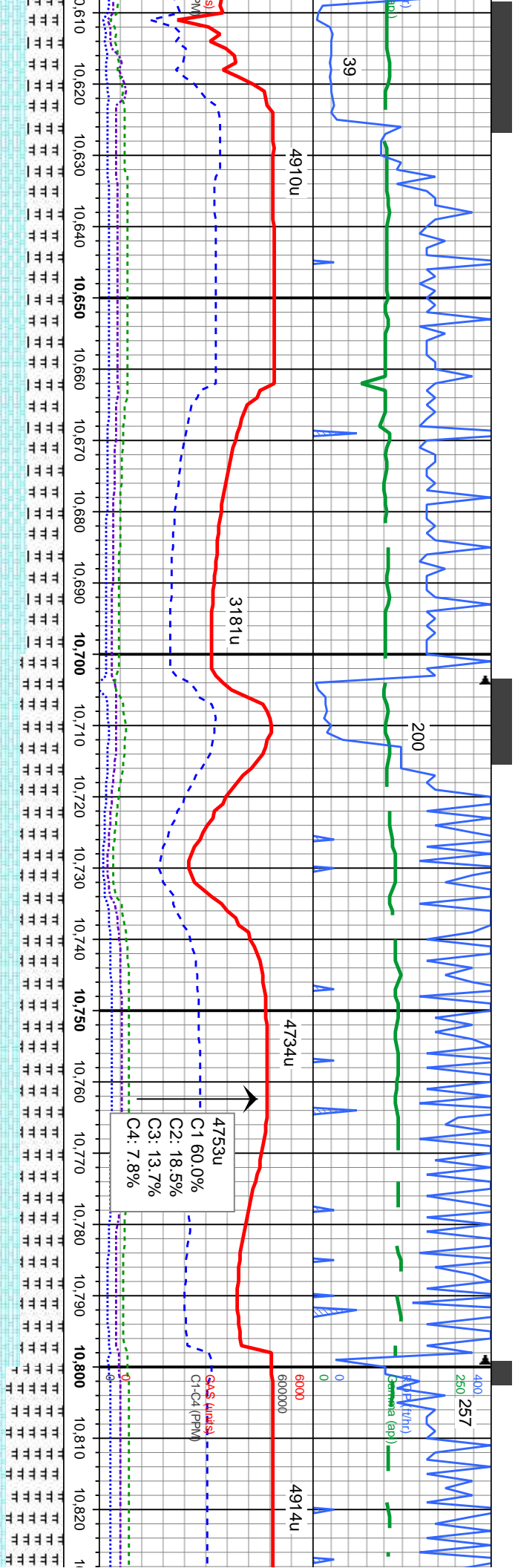
dk gy, sl firm, rthy-sl stly tex, occ sl vit lstr, v calc, no fos	75% MARL: m - dk gy, sl firm, sbblky-sbbply, rthy-sl stly tex, occ sl vit lstr, 25% CHK: med gy, sl firm, sb blky-sb ply, wxy sl mot occ bnd, v calc, grdg - mrl	75% MARL: m - dk gy, sl firm, sbblky-sbbply, rthy-sl stly tex, occ sl vit lstr, 25% CHK: med gy, sl firm, sb blky-sb ply, wxy sl mot occ bnd, v calc, grdg - mrl	50% MARL: m - dk gy, sl firm, sbblky-sbbply, rthy-sl stly tex, occ sl vit lstr, v calc 50% CHK: med-lt gy incr lt gy, sl firm, sb blky-sb ply, wxy sl mot occ bnd, v calc	60% CHK: med-lt gy incr lt gy, sl firm, sb blky-sb ply, wxy sl mot occ bnd, v calc 40% MARL: m - dk gy, sl firm, sbblky-sbbply, rthy-sl stly tex, occ sl vit lstr, v calc
MD: 10,176 TVD: 6,607.9 Inclination: 92.59 ° Azimuth: 0.27 ° VS: 3,649.88 '	MD: 10,271 TVD: 6,605.68 Inclination: 90.09 ° Azimuth: 0.94 ° VS: 3,744.77 '	MD: 10,271 TVD: 6,605.68 Inclination: 90.09 ° Azimuth: 0.94 ° VS: 3,744.77 '	MD: 10,366 TVD: 6,604.53 Inclination: 91.3 ° Azimuth: 0.37 ° VS: 3,839.68 '	MD: 10,366 TVD: 6,604.53 Inclination: 91.3 ° Azimuth: 0.37 ° VS: 3,839.68 '





65% MARL: m - dk gy, sl firm, sbbkly-sbbply, rthy-sl silty tex, occ sl vit lstr, v calc	90% MARL: m - dk gy, sl firm, sbbkly-sbbply, rthy-sl silty tex, occ sl vit lstr, v calc	90% MARL: m - dk gy, sl firm, sbbkly-sbbply, rthy-sl silty tex, occ sl vit lstr, v calc	55% MARL: m - dk gy, sl firm, sbbkly-sbbply, rthy-sl silty tex, occ sl vit lstr, v calc
35% CHK: med gy, sl firm, sb blkly-sb ply, wxy sl mot occ bnd, v calc, grdg - mrl	10% CHK: med gy, sl firm, sb blkly-sb ply, wxy sl mot occ bnd, v calc, grdg - mrl	10% CHK: med gy, sl firm, sb blkly-sb ply, wxy sl mot occ bnd, v calc, grdg - mrl	45% CHK: med gy, sl firm, sb blkly-sb ply, wxy sl mot occ bnd, v calc, grdg - mrl
MD: 10,460 TVD: 6,602.78 Inclination: 90.83 ° Azimuth: 359.64 ° VS: 3,933.62 '	BHA # 4 Bit Size: 6.125 Manufacturer: Schlumberger/Smith Model: MD1513 Serial Number: JH4686 Nozzles: 5x15 Motor Number: 4 Manufacturer: Sperry Drilling Model: SperryDrill Serial Number: 475-563 Bend: 1.5 MD: 10,555 TVD: 6,601.58 Inclination: 90.62 ° Azimuth: 359.5 ° VS: 4,028.58 '	MD: 10,555 TVD: 6,601.58 Inclination: 90.62 ° Azimuth: 359.5 ° VS: 4,028.58 '	MD: 10,555 TVD: 6,601.58 Inclination: 90.62 ° Azimuth: 359.5 ° VS: 4,028.58 '





MARL: m - dk gy, sl firm, sbblky-sbbply, rthy-sl silty tex, occ sl vit lstr, v calc	50% MARL: m - dk gy, sl firm, sbblky-sbbply, rthy-sl silty tex, occ sl vit lstr, v calc	60% MARL: m - dk gy, sl firm, sbblky-sbbply, rthy-sl silty tex, occ sl vit lstr, v calc	60% MARL: m - dk gy, sl firm, sbblky-sbbply, rthy-sl silty tex, occ sl vit lstr, v calc	80% MARL: m - dk gy, sl firm, sbblky-sbbply, rthy-sl silty tex, occ sl vit lstr, v calc
50% CHK: med gy, sl firm, sb blk- sb ply, wxy sl mot occ bnd, v calc, strong grdg - marl	40% CHK: med gy, sl firm, sb blk- sb ply, wxy sl mot occ bnd, v calc, strong grdg - marl, no fos	40% CHK: med gy, sl firm, sb blk- sb ply, wxy sl mot occ bnd, v calc, strong grdg - marl, no fos	40% CHK: med gy, sl firm, sb blk- sb ply, wxy sl mot occ bnd, v calc, strong grdg - marl, no fos	20% CHK: med gy, sl firm, sb blk- sb ply, wxy sl mot occ bnd, v calc, strong grdg - marl, no fos

MD: 10,650
TVD: 6,601.53
Inclination: 89.44 °
Azimuth: 359.59 °
VS: 4,123.56 '

MD: 10,746
TVD: 6,602.82
Inclination: 89.01 °
Azimuth: 358.34 °
VS: 4,219.54 '

TVD (ft)

6625



