

# COLUMBINE LOGGING

Scale: 5" / 100'  
Measured Depth Log

Well Name Rico LC29-73-1HNA(Horz)

Location SESE SEC 29, T9N, R59W 6 PM

State COLORADO

Country USA

API Number 05-123-38619

Region DJ BASIN

Spud Date 6/22/2014

Surface Coordinates

440' FSL 955' FEL  
40.71523 / -103.99584  
SESE SEC 29, T9N, R59W 6 PM

County WELD

Rig Number H&P 326

AFE # 140725

Field WILDCAT

Drilling Completed 6/28/2014

Ground Elevation 4865'

K.B. Elevation 4895'

Logged Interval 5386' To 10200'

Total Depth 10200'

Formation NIOBRARA, A MARL

Type of Drilling Fluid LSND

Company Noble Energy Inc

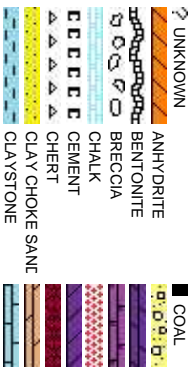
Address 1625 Broadway Suite  
Denver, CO 80202

Name EMERSON PALME

Company NOBLE ENERGY INC

Address 1625 Broadway Suite  
Denver, CO 80202

COLUMBINE LOGGING





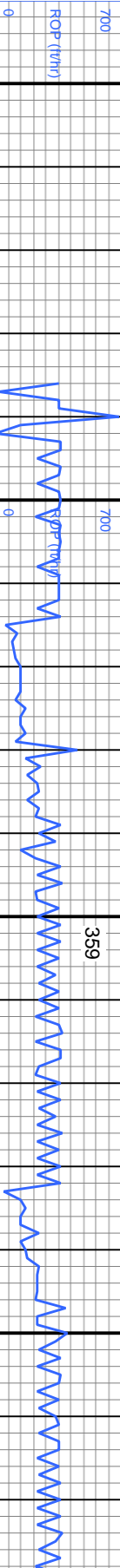




Slide/Rotate

ROP

ROP (ft/hr)



Total Gas & Chromatograph

GAS

C1

C2

C3

C4

COLUMBINE LOGGING INC.  
RIGGED UP ON 06/24/2014  
MANNED 2-PERSON LOGGING  
WITH BLOODHOUND GAS  
CHROMATOGRAPH UNIT #0570

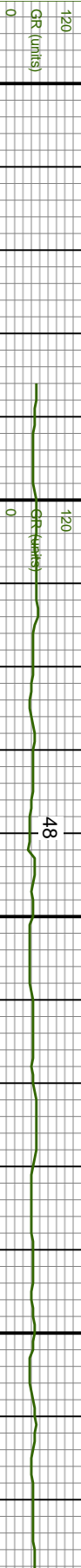
Began curve at 08:30 hrs on 6/26/2014

Depth Labels

% Lith

GAMMA

GR



50' Sample Interval

Bit Data

Bit #: 2

Type: SMITH MMD55M

Size: 8.75

Depth In: 5,386'

Depth Out: 6,523'

Jets: 5x15

S/N: 12447710

MD: 5,424'  
TVD: 5,352.96'  
Inclination: 0.62 °  
Azimuth: 357.25 °  
VS: -122.03'

TVD (ft)

SILT Y SHALE: light-medium gray, occasional slightly tan, soft-firm, sub blocky-sub platy, occasional platy, gritty, trace sandy in part, very slightly calcareous, slightly grading - siltstone, sme carbonaceous flakes, trace SHALY SANDSTONE

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SLTY SH: lt-med gy, occ blkly-sb ply, occ ply, gritty calc, sl grdg - slst, sme c SS

MD: 5,518'  
TVD: 5,445.8'  
Inclination: 15.3  
Azimuth: 341.51  
VS: -110.28'

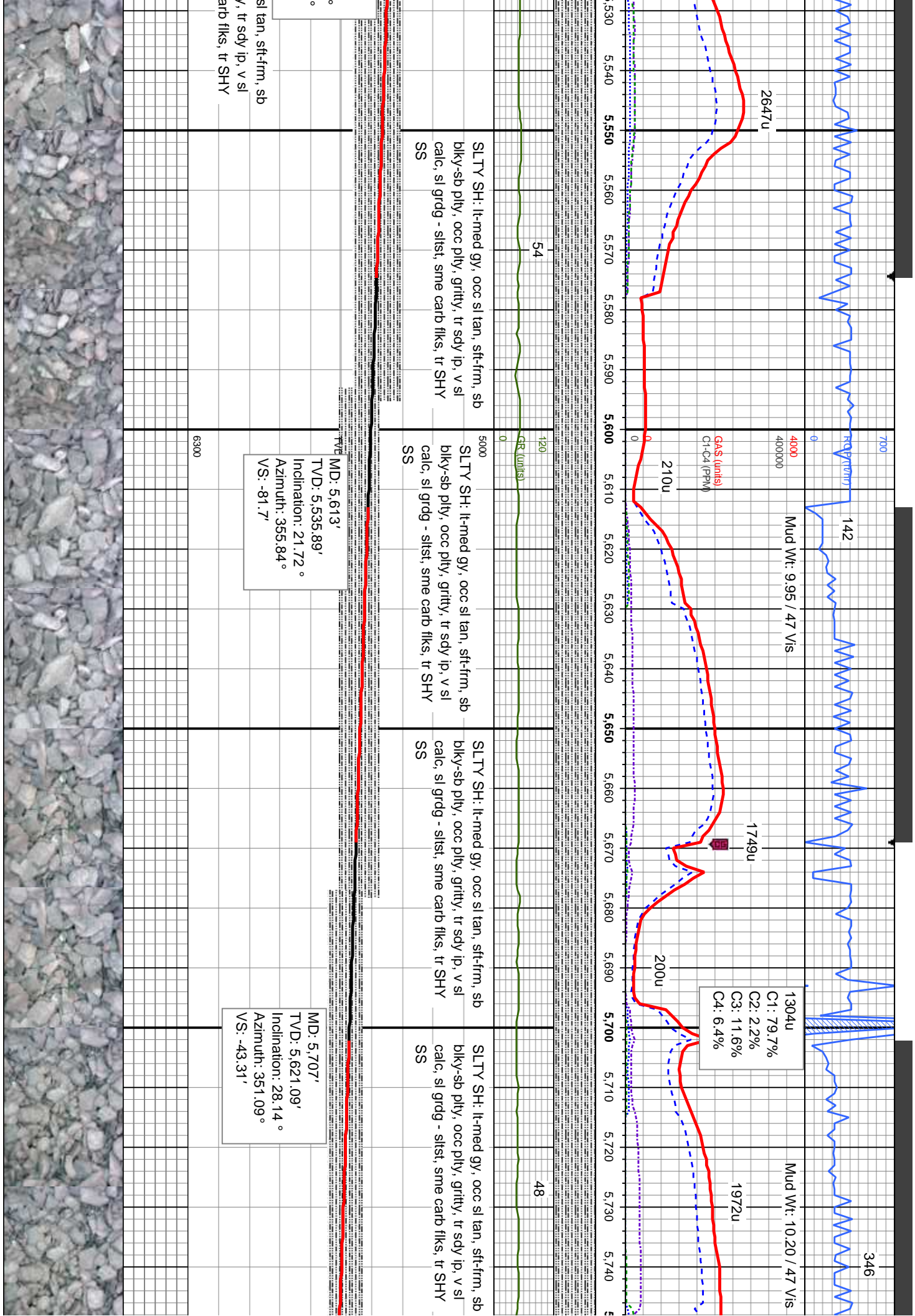
Oil Show

Oil Show

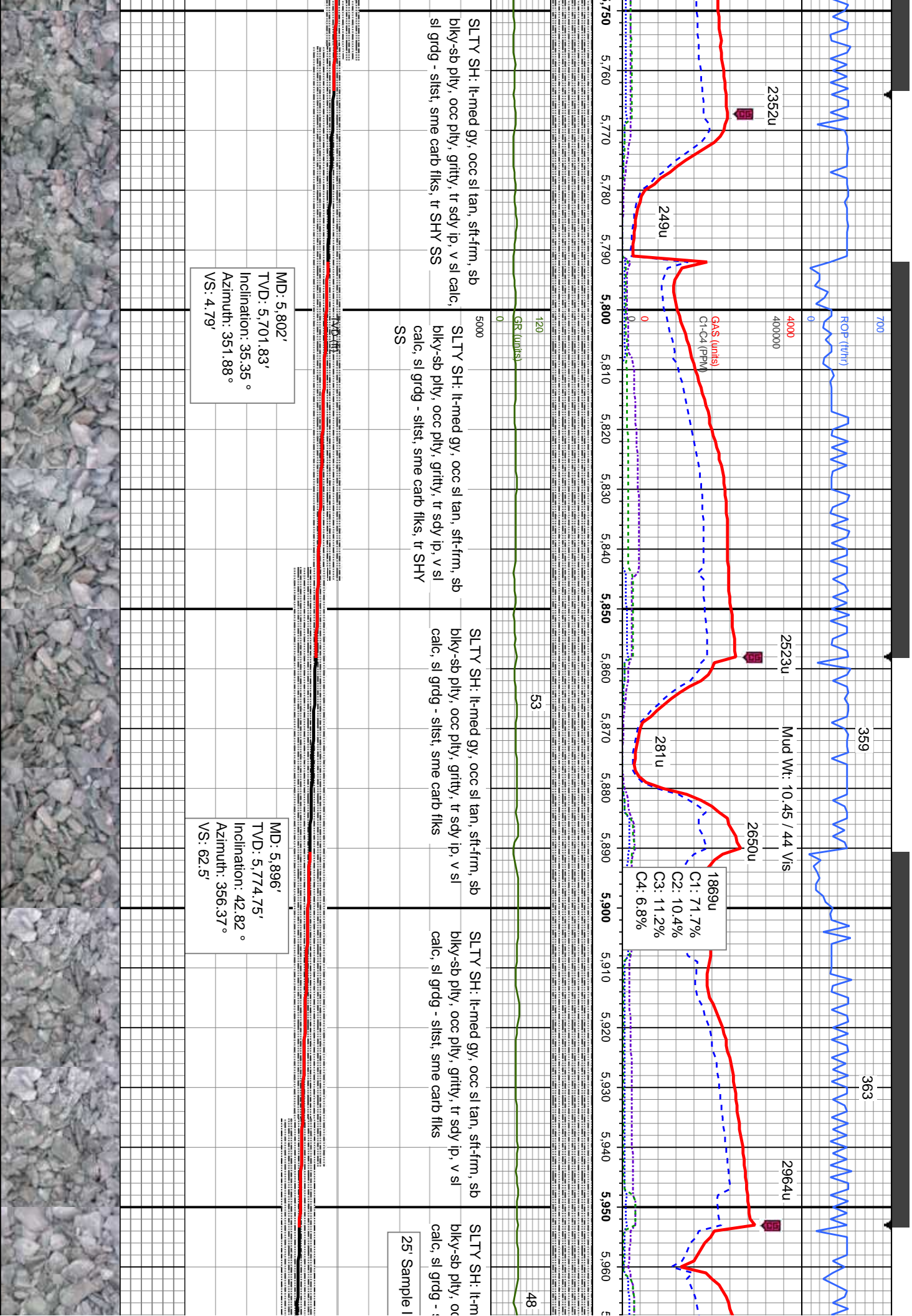
Images



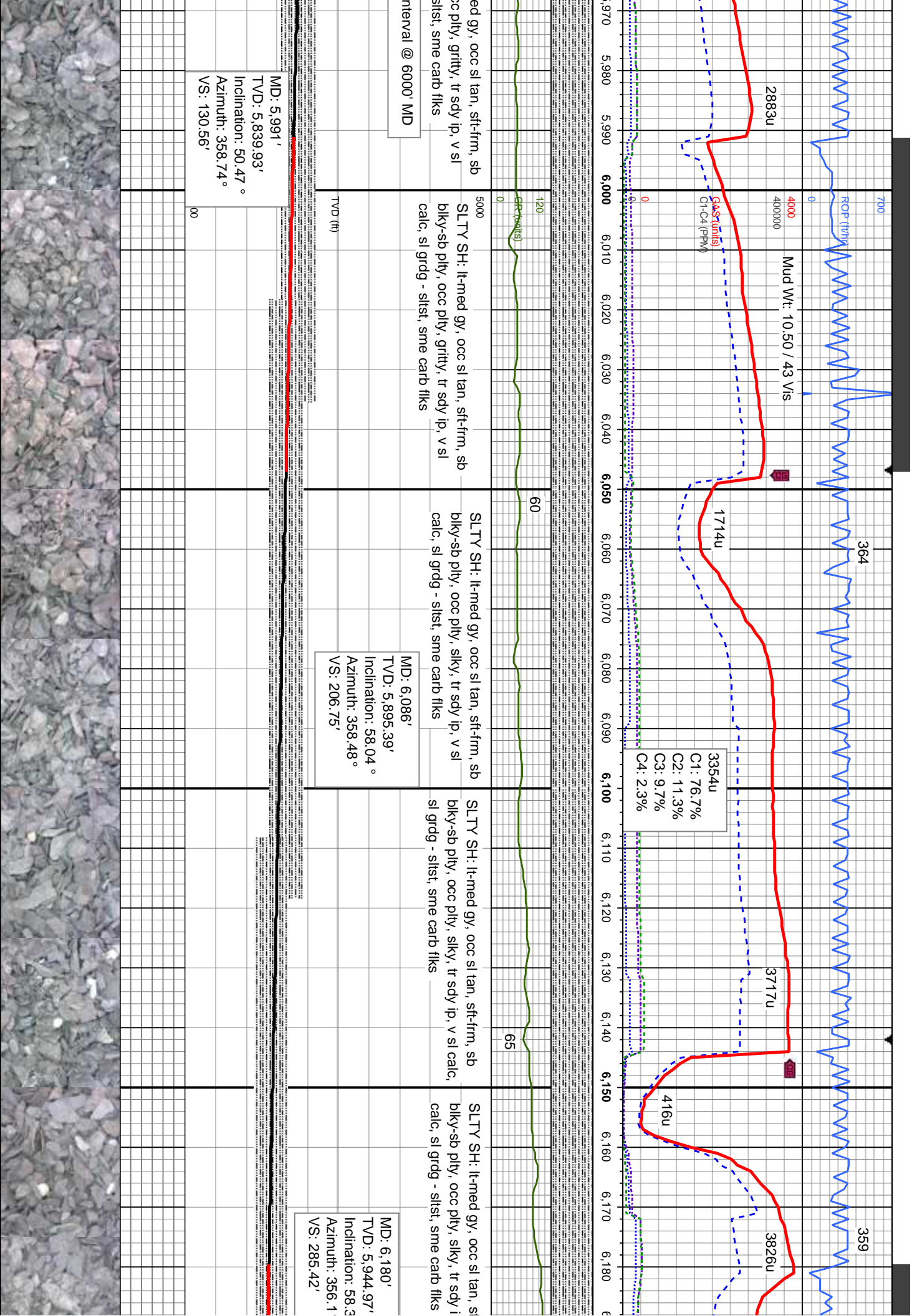




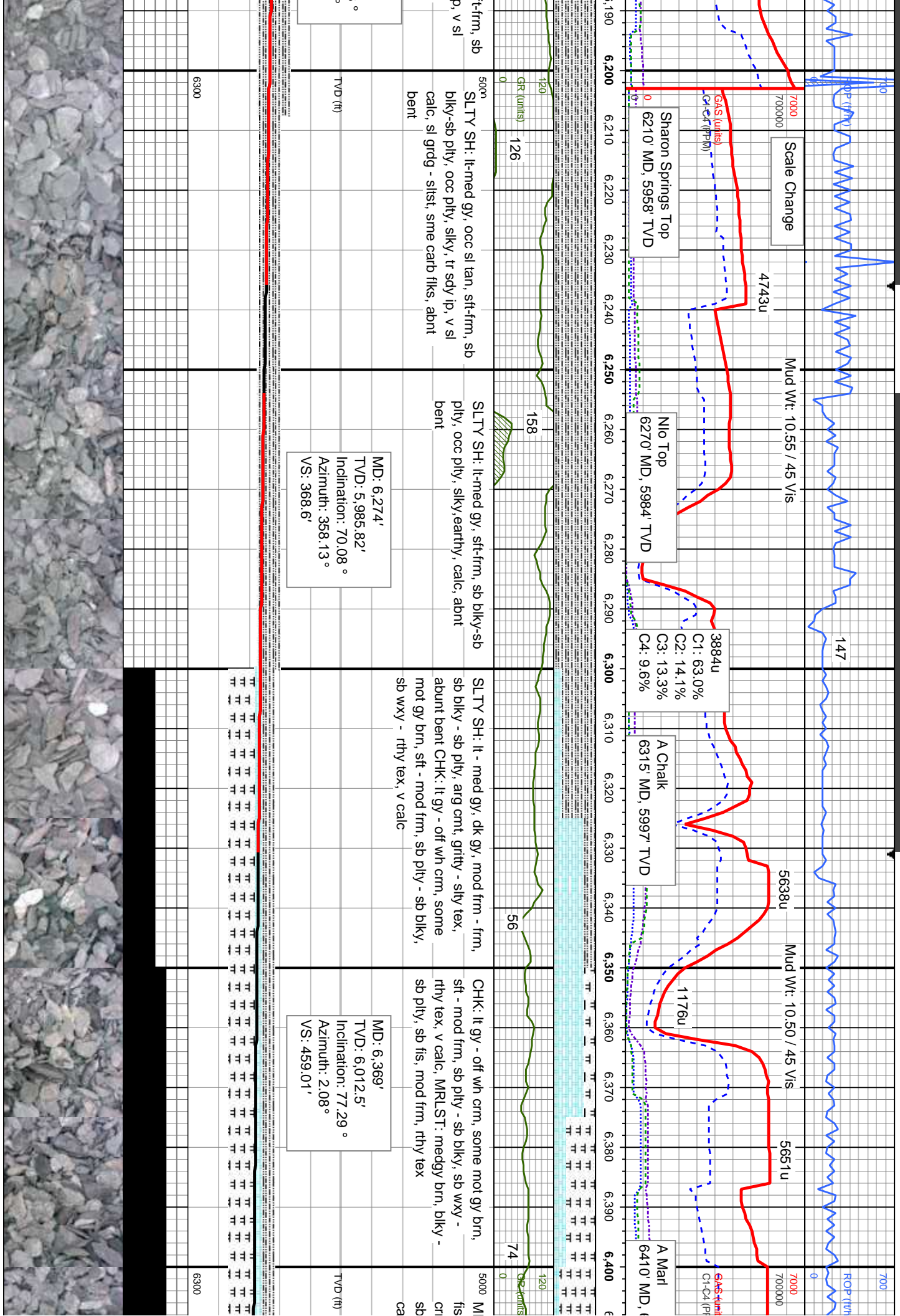




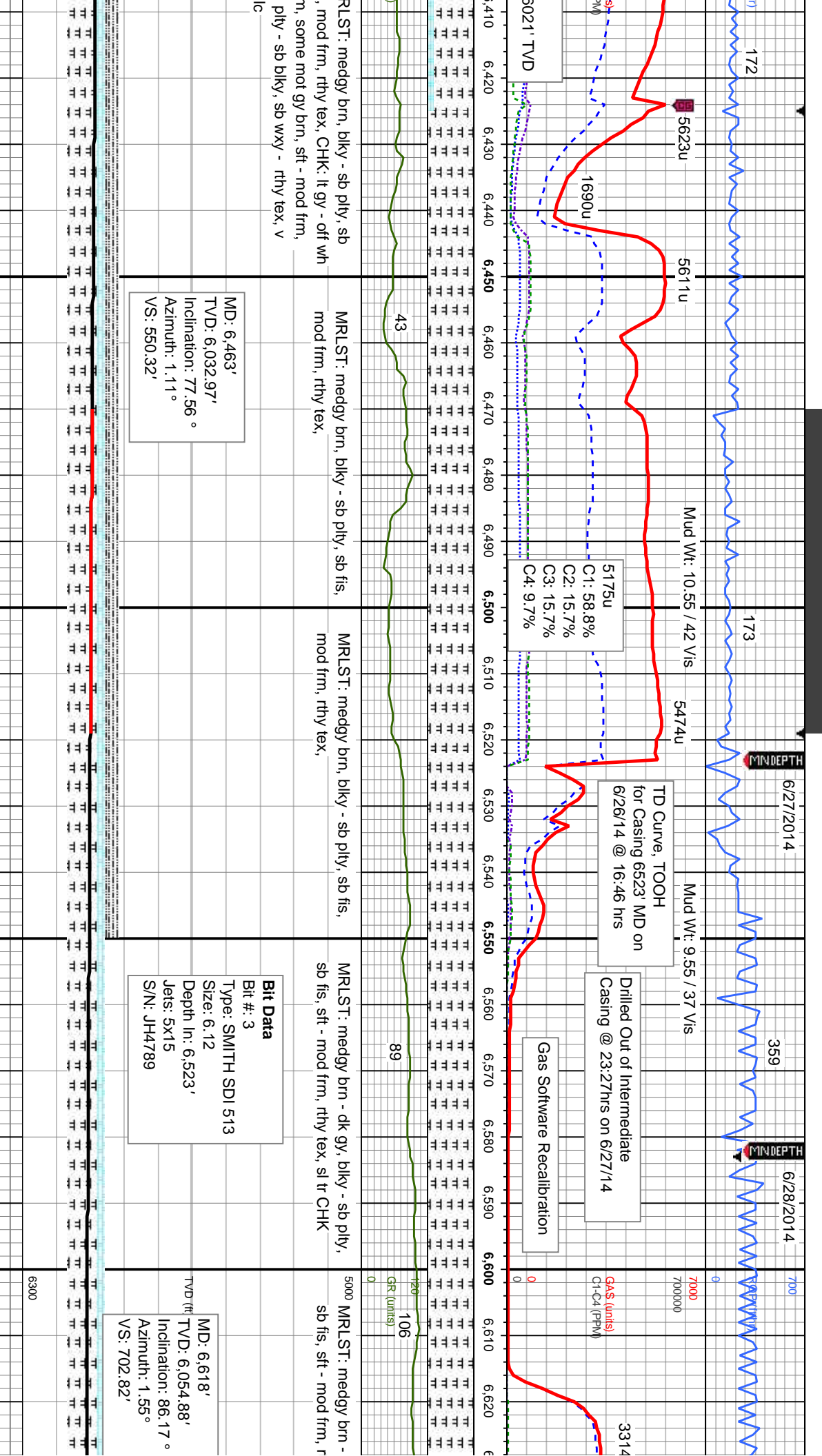












MD: 6,463'  
TVD: 6,032.97'  
Inclination: 77.56 °  
Azimuth: 1.11 °  
VS: 550.32'

**Bit Data**  
Bit #: 3  
Type: SMITH SDI 513  
Size: 6.12  
Depth In: 6,523'  
Jets: 5x15  
S/N: JH4789

MD: 6,618'  
TVD: 6,054.88'  
Inclination: 86.17 °  
Azimuth: 1.55 °  
VS: 702.82'

MR LST: medgy brn, blk y - sb plty, sb  
mod frm, rthy tex, CHK: lt gy - off wh  
n, some mot gy brn, sft - mod frm,  
plty - sb blk y, sb wxy - rthy tex, v

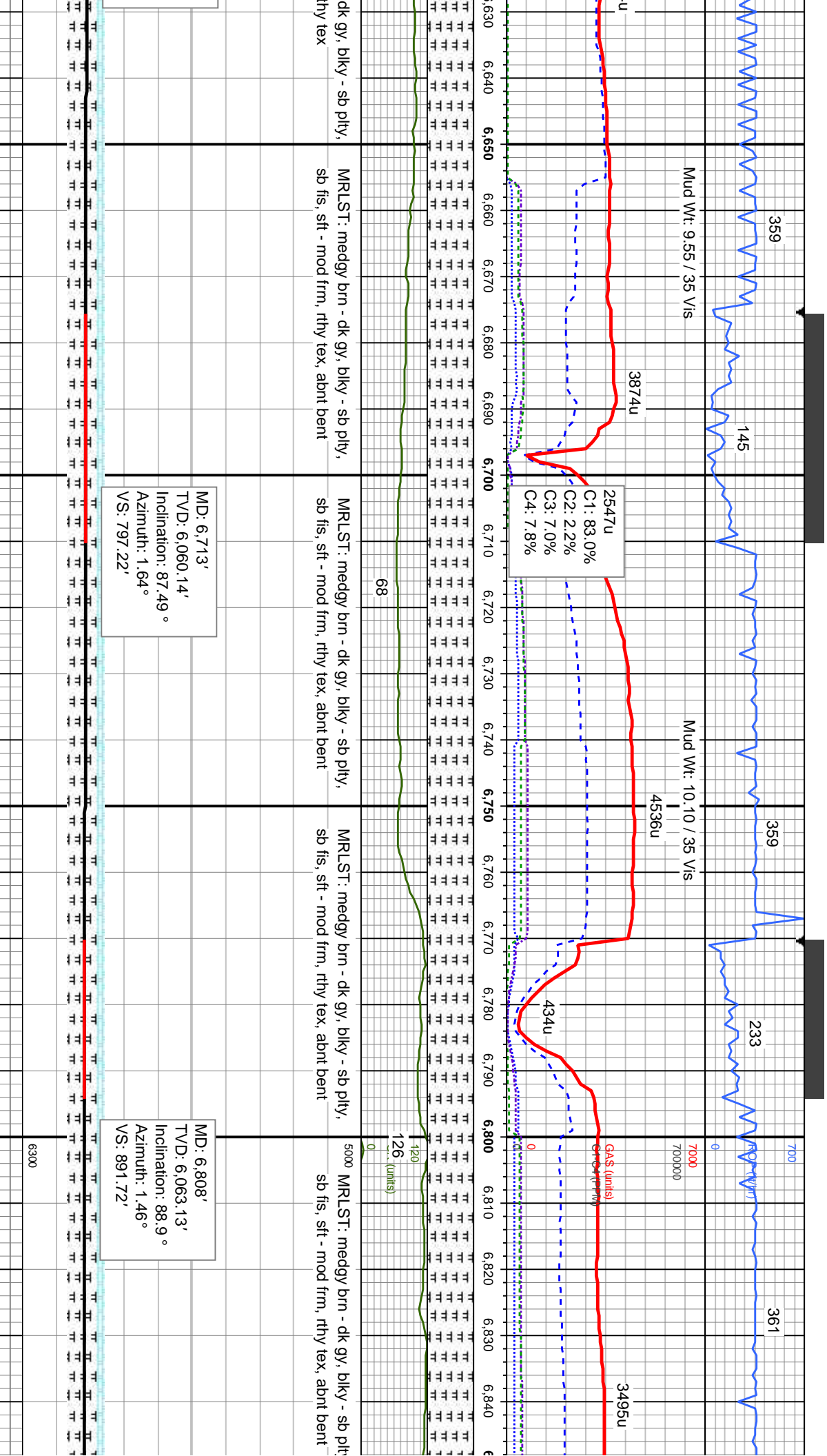
MR LST: medgy brn, blk y - sb plty, sb fis,  
mod frm, rthy tex,

MR LST: medgy brn, blk y - sb plty, sb fis,  
mod frm, rthy tex,

MR LST: medgy brn - dk gy, blk y - sb plty,  
sb fis, sft - mod frm, rthy tex, sl tr CHK

MR LST: medgy brn -  
sb fis, sft - mod frm, r



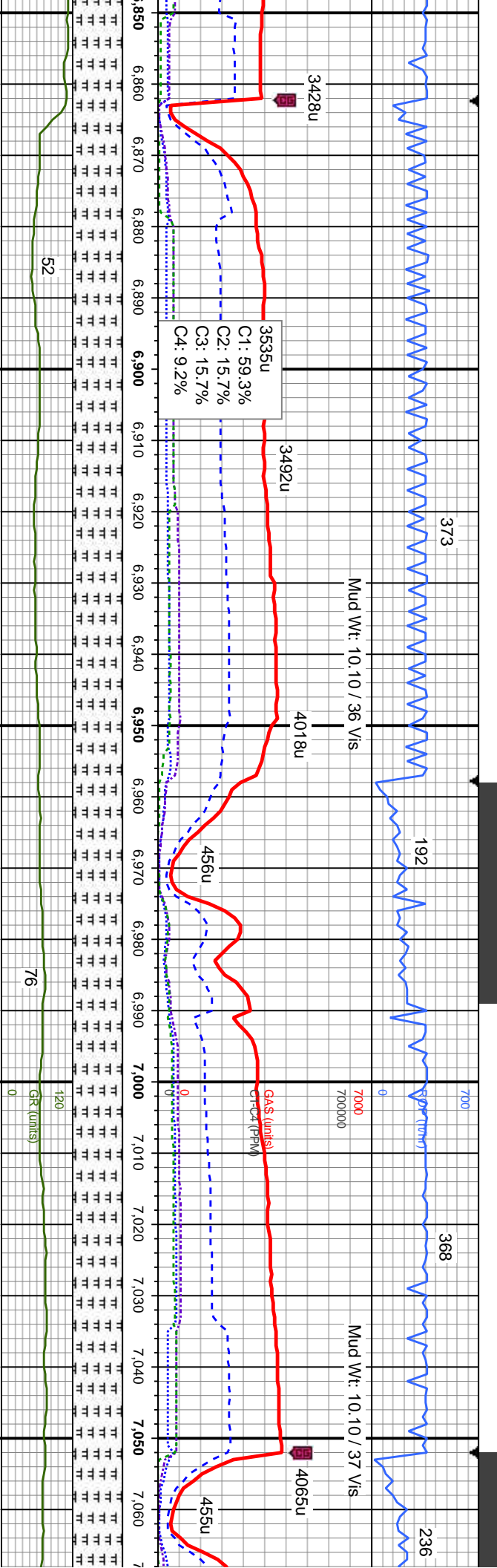


MD: 6,713'  
TVD: 6,060.14'  
Inclination: 87.49°  
Azimuth: 1.64°  
VS: 797.22'

MD: 6,808'  
TVD: 6,063.13'  
Inclination: 88.9°  
Azimuth: 1.46°  
VS: 891.72'







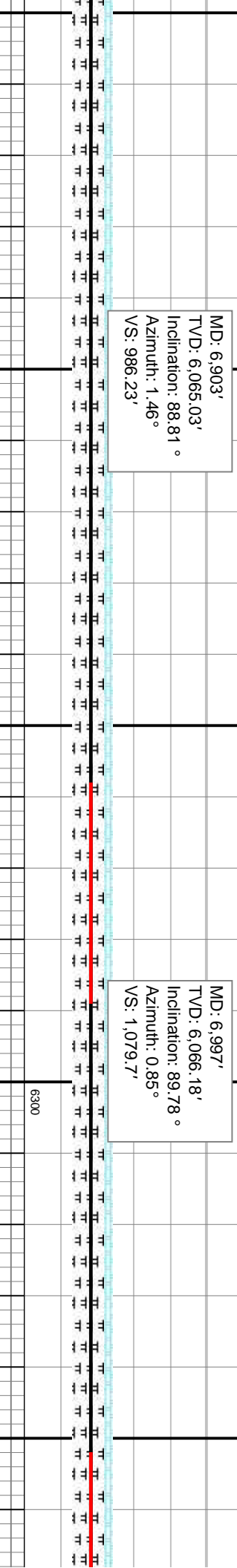
MRLST: medgy brn - dk gy, blkly - sb ply,  
sb fis, sft - mod frm, rthy tex, abnt bent

MRLST: medgy brn - dk gy, blkly - sb ply,  
sb fis, sft - mod frm, rthy tex, abnt bent

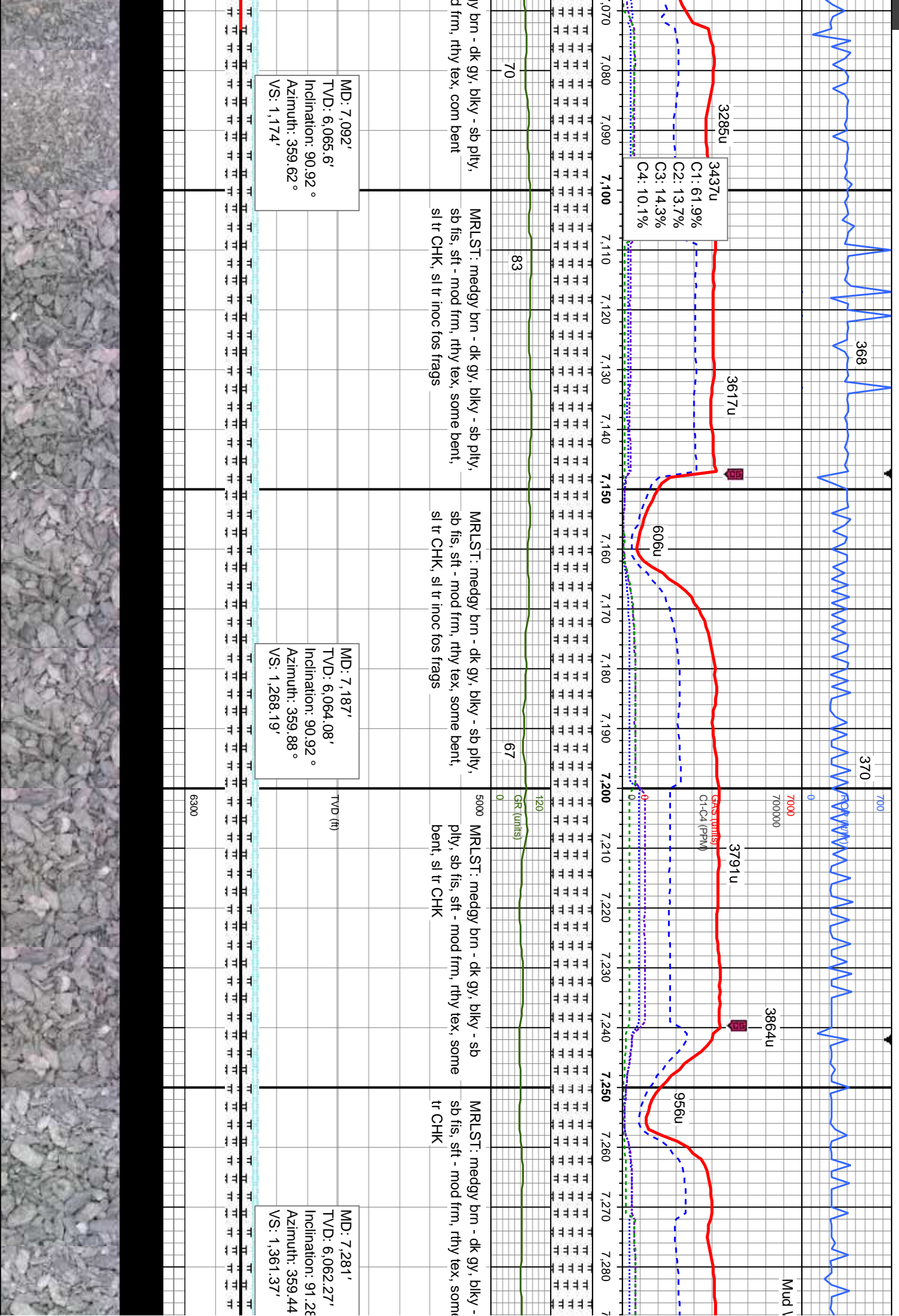
MRLST: medgy brn - dk gy, blkly - sb ply,  
sb fis, sft - mod frm, rthy tex, abnt bent

MRLST: medgy brn - dk gy, blkly - sb  
ply, sb fis, sft - mod frm, rthy tex, com  
bent

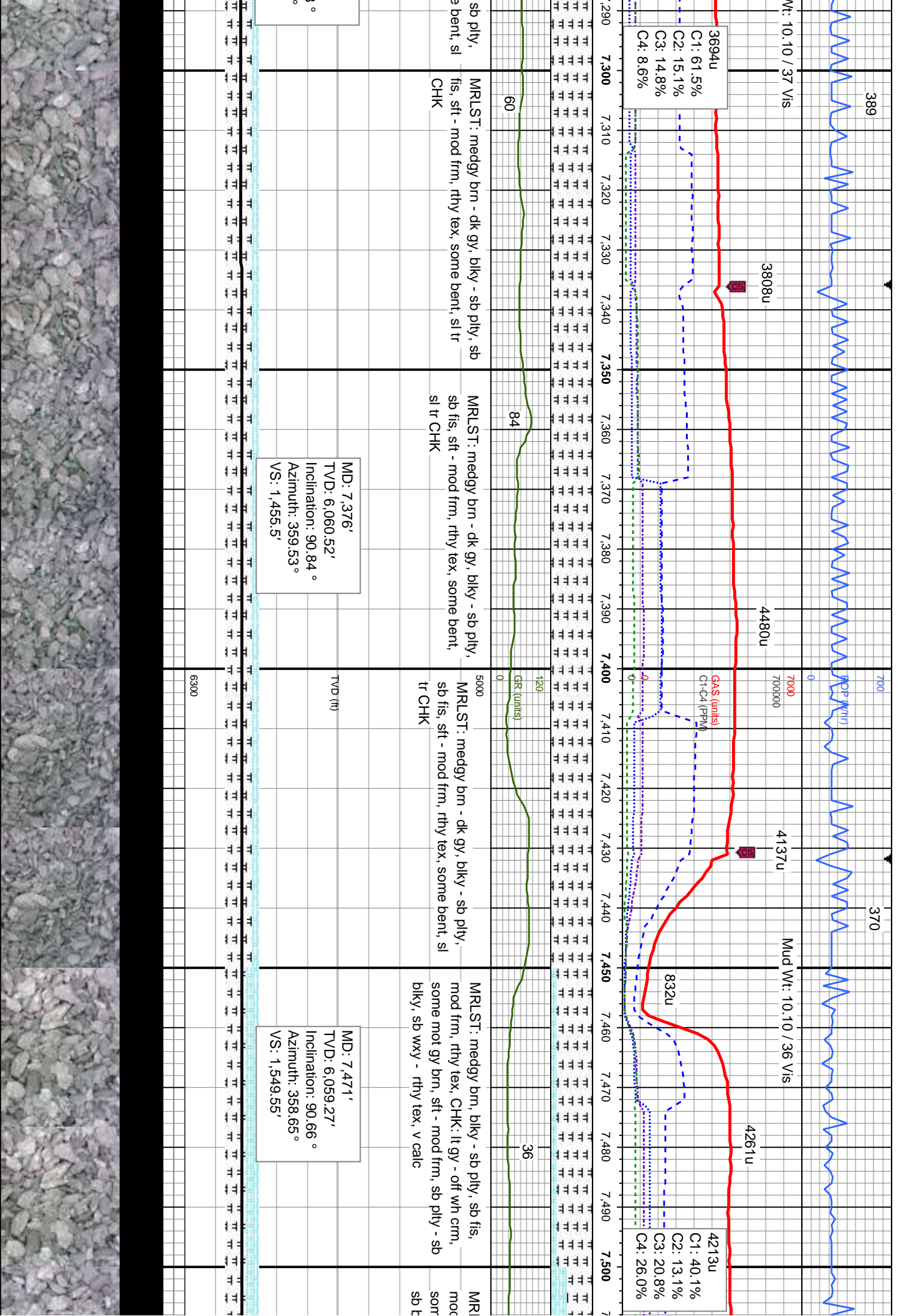
MRLST: medgy  
sb fis, sft - mo



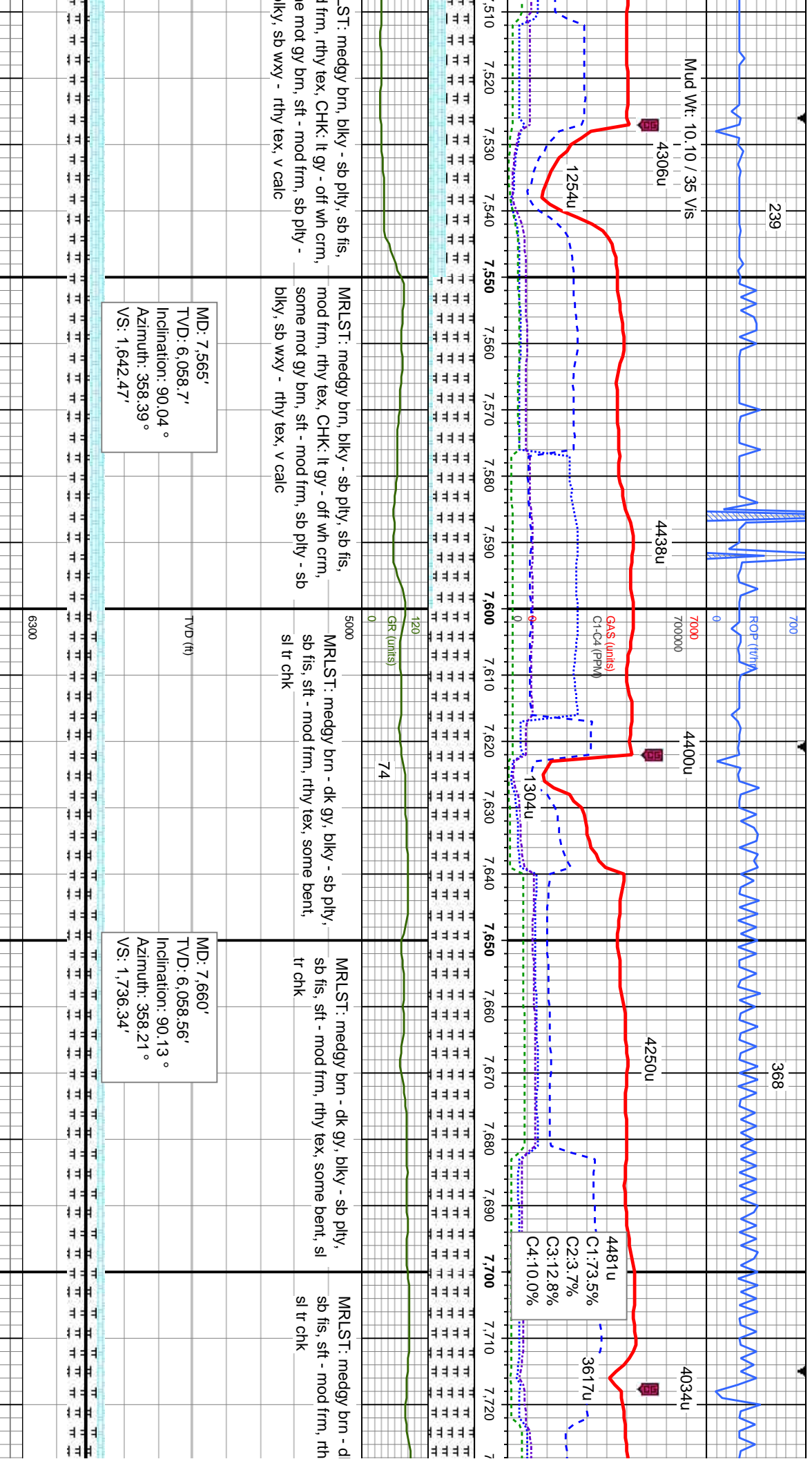




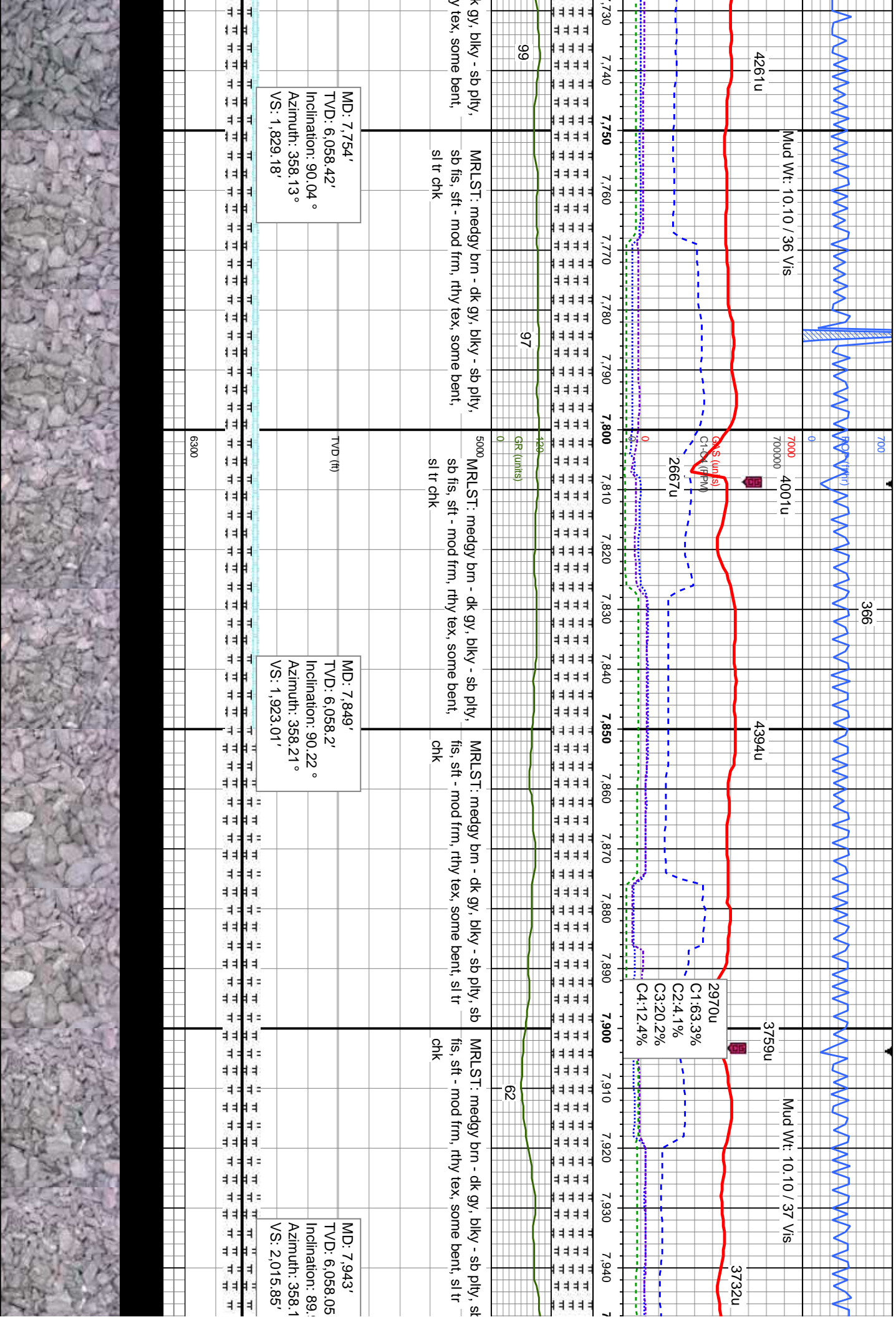




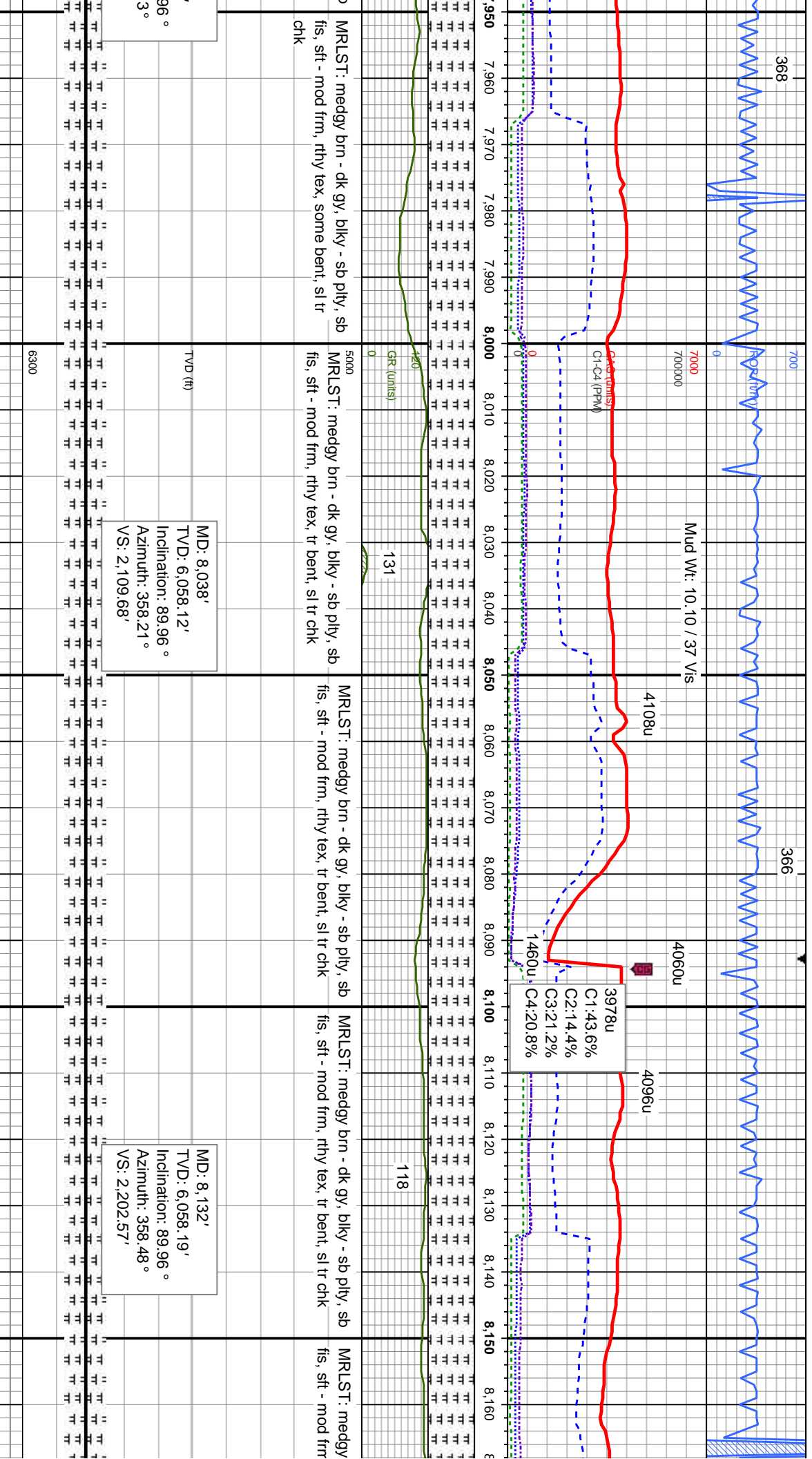




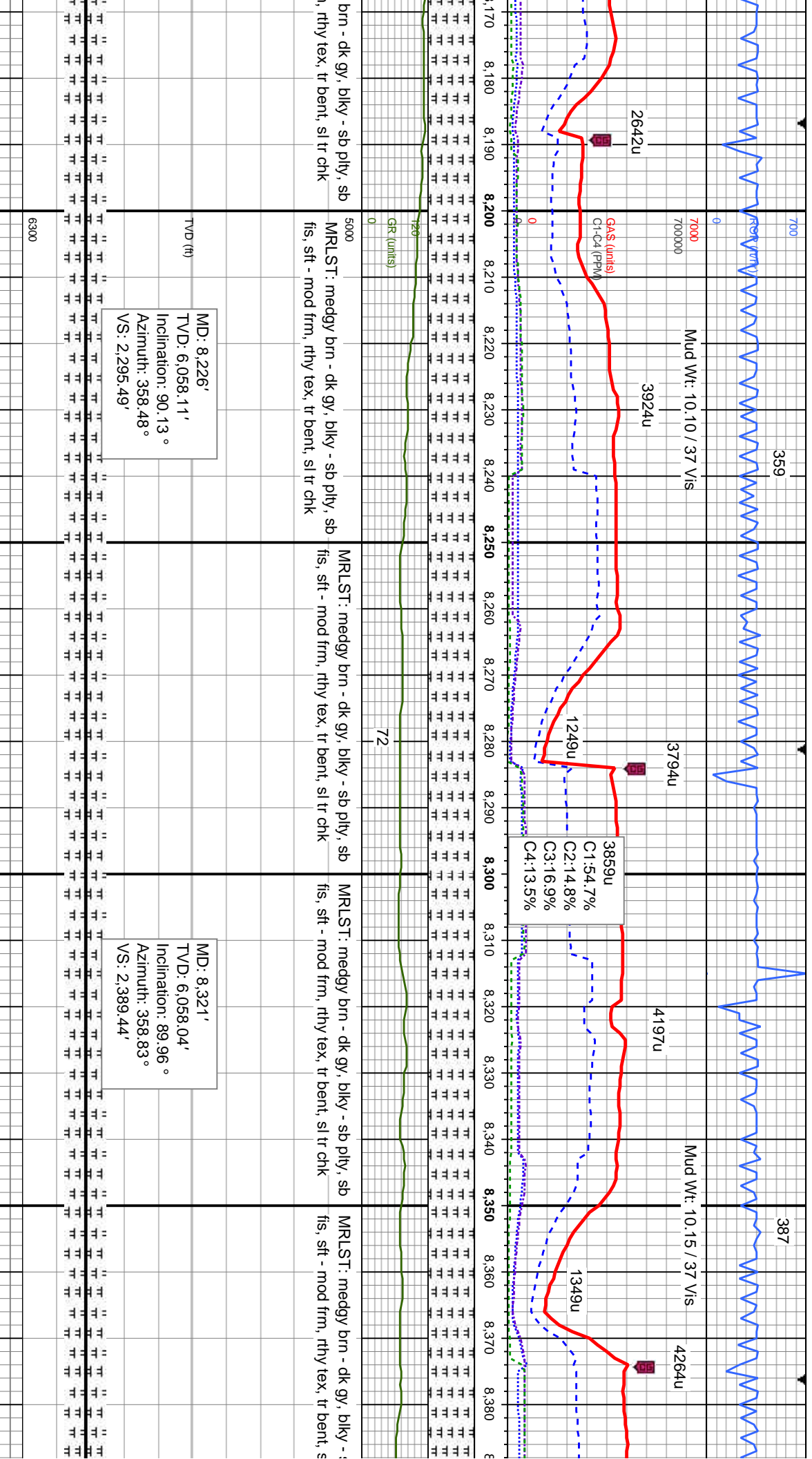








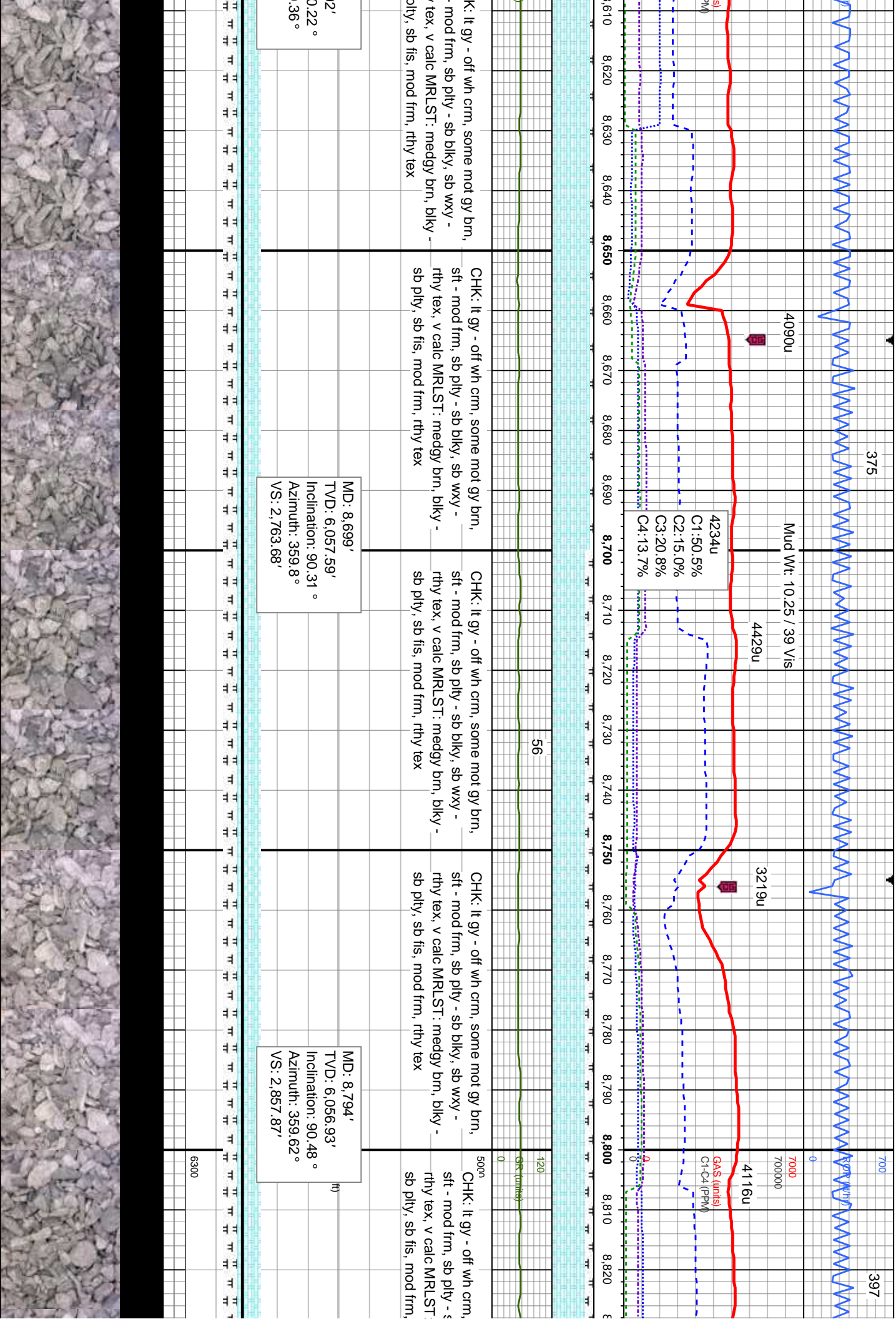




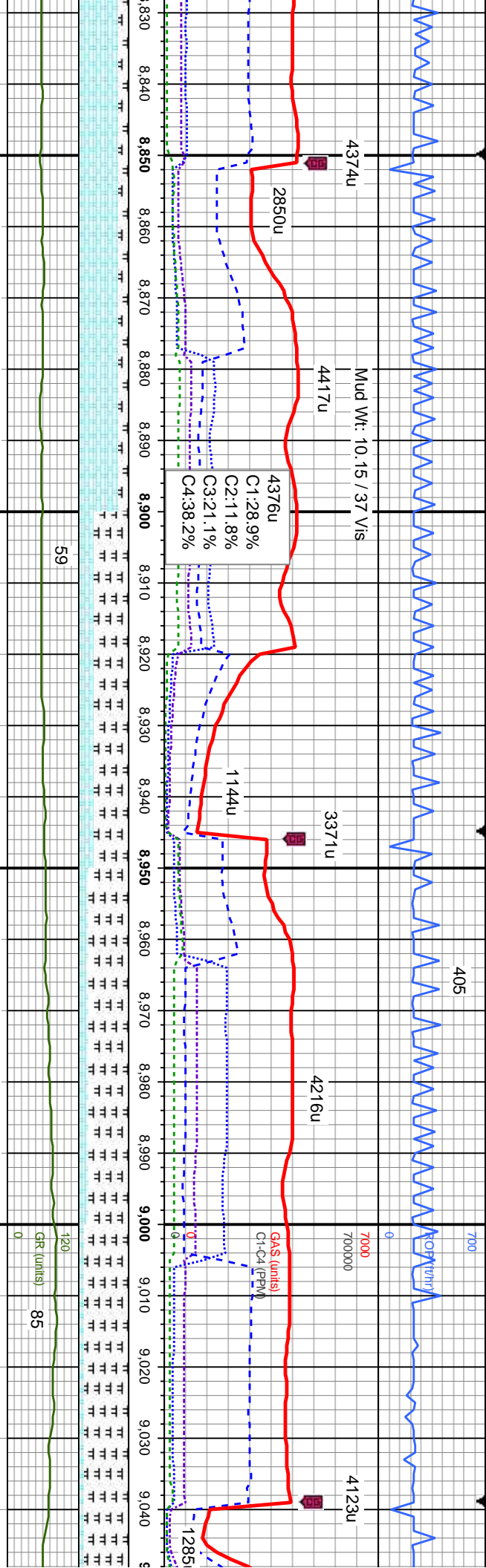












some mot gy brn, sb blkly, sb wxy - medgy brn, blkly - rthy tex

CHK: lt gy - off wh crm, some mot gy brn, sft - mod frm, sb ply - sb blkly, sb wxy - rthy tex, v calc MRLST: medgy brn, blkly - sb ply, sb fis, mod frm, rthy tex

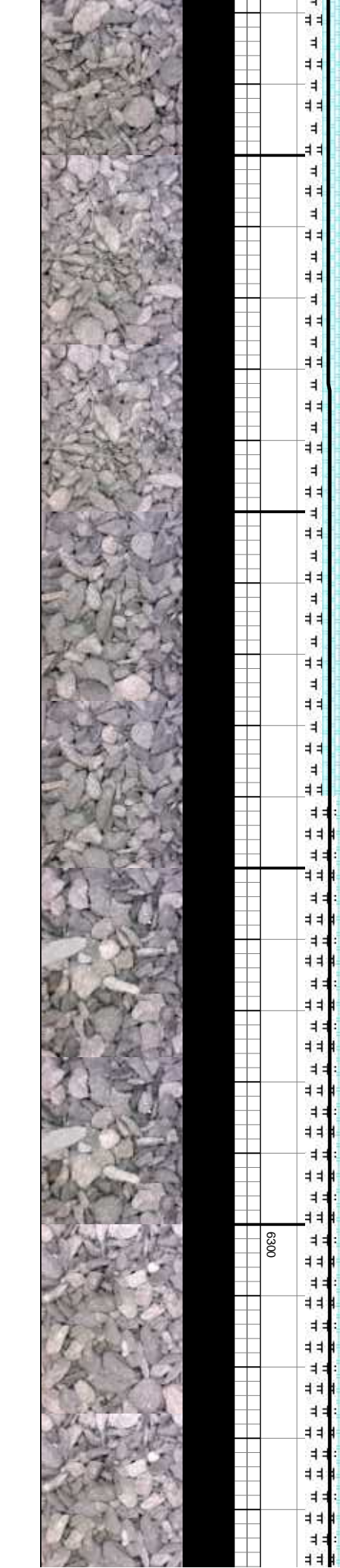
MRLST: medgy brn, blkly - sb ply, sb fis, mod frm, rthy tex CHK: lt gy - off wh crm, some mot gy brn, sft - mod frm, sb ply - sb blkly, sb wxy - rthy tex, v calc

MRLST: medgy brn, blkly - sb ply, sb fis, mod frm, rthy tex CHK: lt gy - off wh crm, some mot gy brn, sft - mod frm, sb ply - sb blkly, sb wxy - rthy tex, v calc

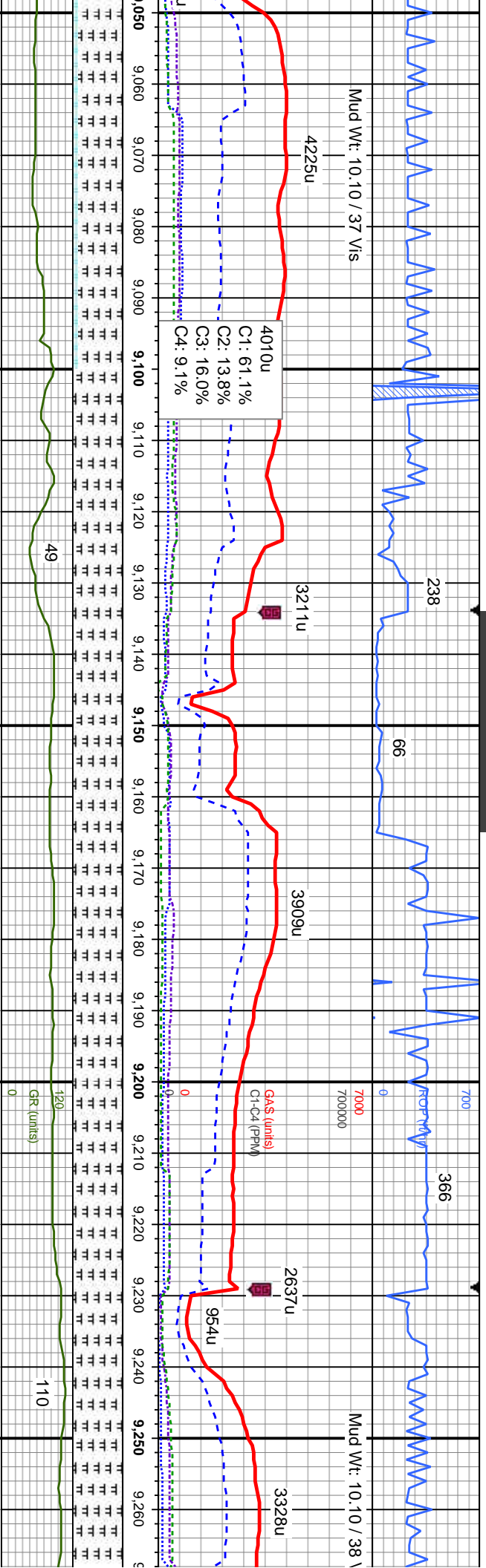
MRLST: medgy brn, blkly - sb ply, sb fis, mod frm, rthy tex CHK: lt gy - off wh crm, some mot gy brn, sft - mod frm, sb ply - sb blkly, sb wxy - rthy tex, v calc

MD: 8,888'  
TVD: 6,056.21'  
Inclination: 90.4 °  
Azimuth: 359.88 °  
VS: 2,951.08'

MD: 8,983'  
TVD: 6,055.33'  
Inclination: 90.66 °  
Azimuth: 359.88 °  
VS: 3,045.31'







MRLST: medgy brn, blkly - sb pily, sb fis,  
mod frm, rthy tex CHK: lt gy - off wh cm,  
some mot gy brn, sft - mod frm, sb pily -  
sb blkly, sb wxy - rthy tex, v calc

MRLST: medgy brn, blkly - sb pily, sb fis,  
mod frm, rthy tex, tr chk

MRLST: medgy brn, blkly - sb pily, sb fis,  
mod frm, rthy tex, tr bent, chk

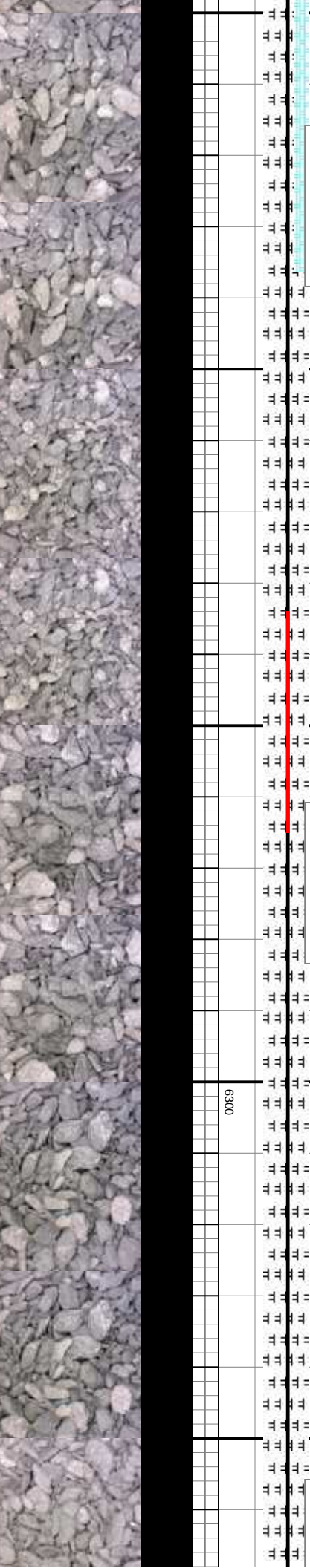
MRLST: medgy brn, blkly - sb pily, sb fis,  
mod frm, rthy tex, tr bent, chk

MRLST: mec  
mod frm, rthy

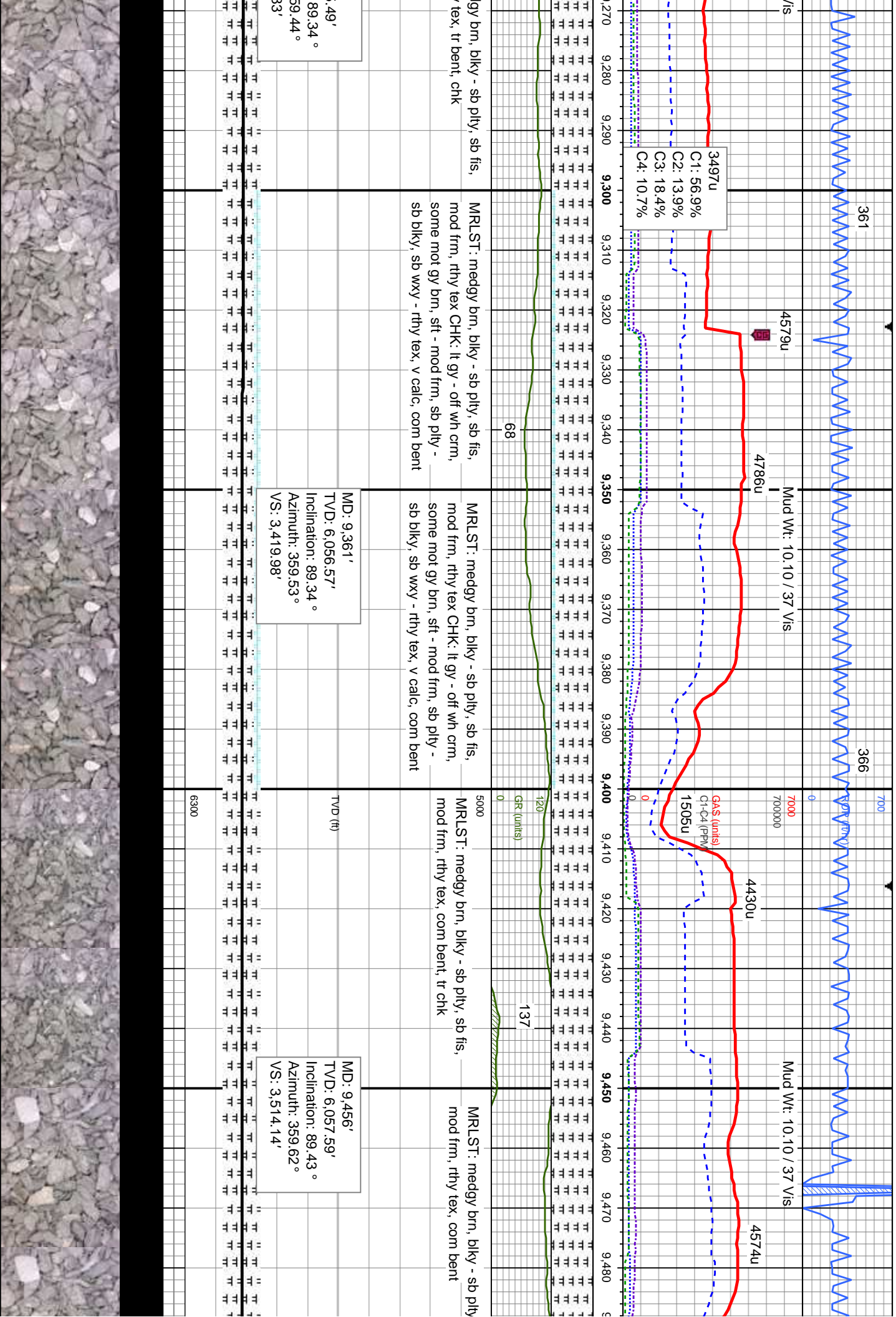
MD: 9.077'  
TVD: 6.054.25'  
Inclination: 90.66 °  
Azimuth: 359.97°  
VS: 3.138.55'

MD: 9.172'  
TVD: 6.054.32'  
Inclination: 89.25 °  
Azimuth: 359.27°  
VS: 3.232.72'

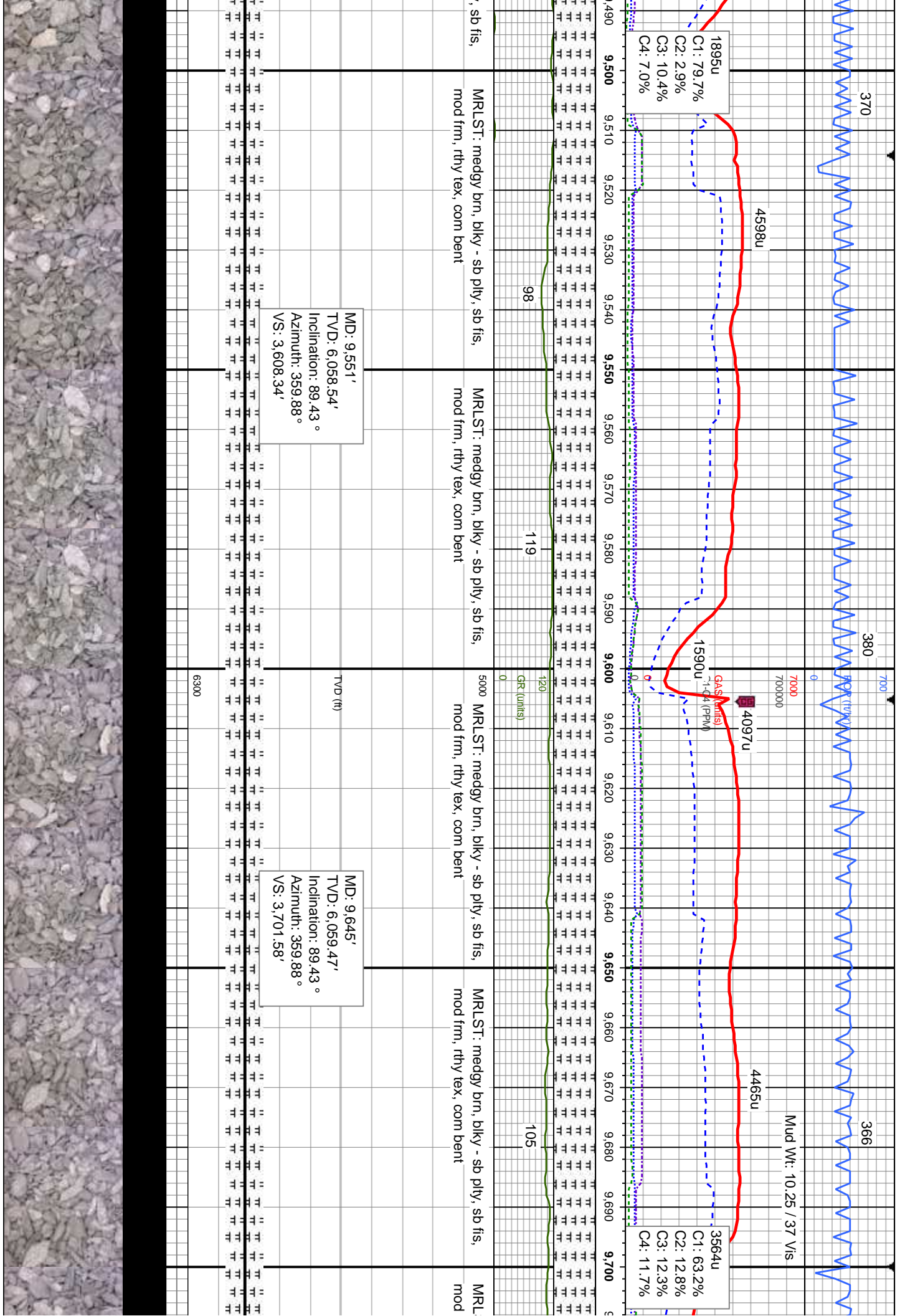
MD: 9.267'  
TVD: 6.055  
Inclination:  
Azimuth: 3  
VS: 3.326.8



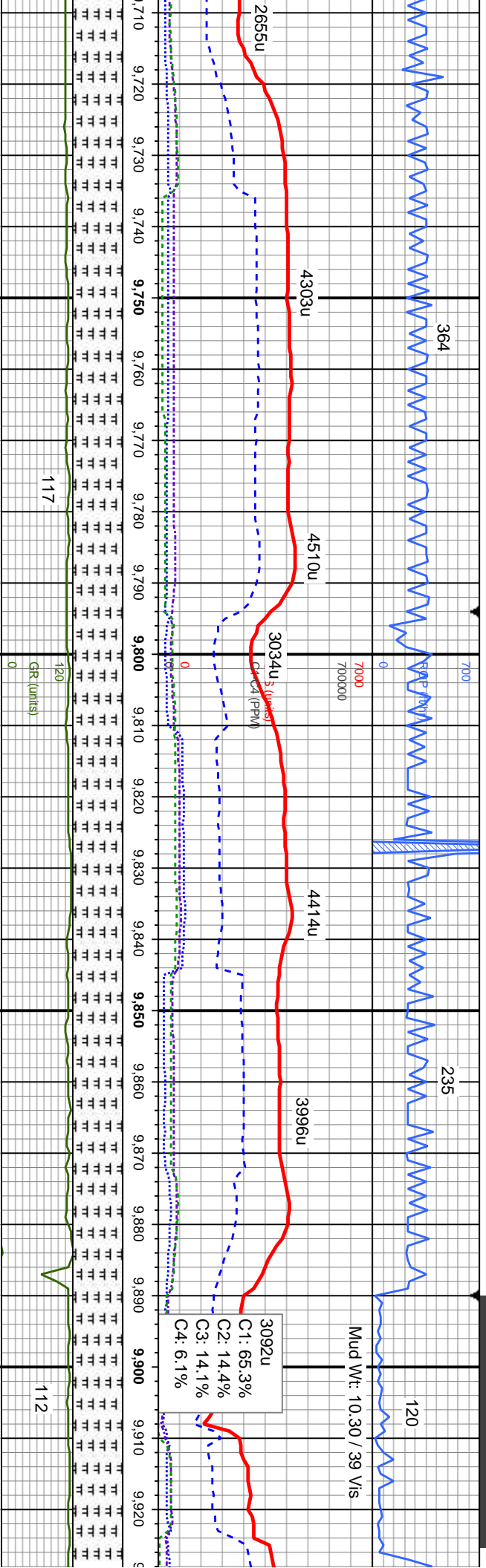












ST: medgy brn, blkly - sb pty, sb fis, mod frm, rthy tex, com bent

MRLST: medgy brn, blkly - sb pty, sb fis, mod frm, rthy tex, com bent

5000 MRLST: medgy brn, blkly - sb pty, sb fis, mod frm, rthy tex, tr bent

MRLST: medgy brn, blkly - sb pty, sb fis, mod frm, rthy tex, tr bent

MRLST: medgy brn, blkly - sb pty, sb fis, mod frm, rthy tex, tr bent

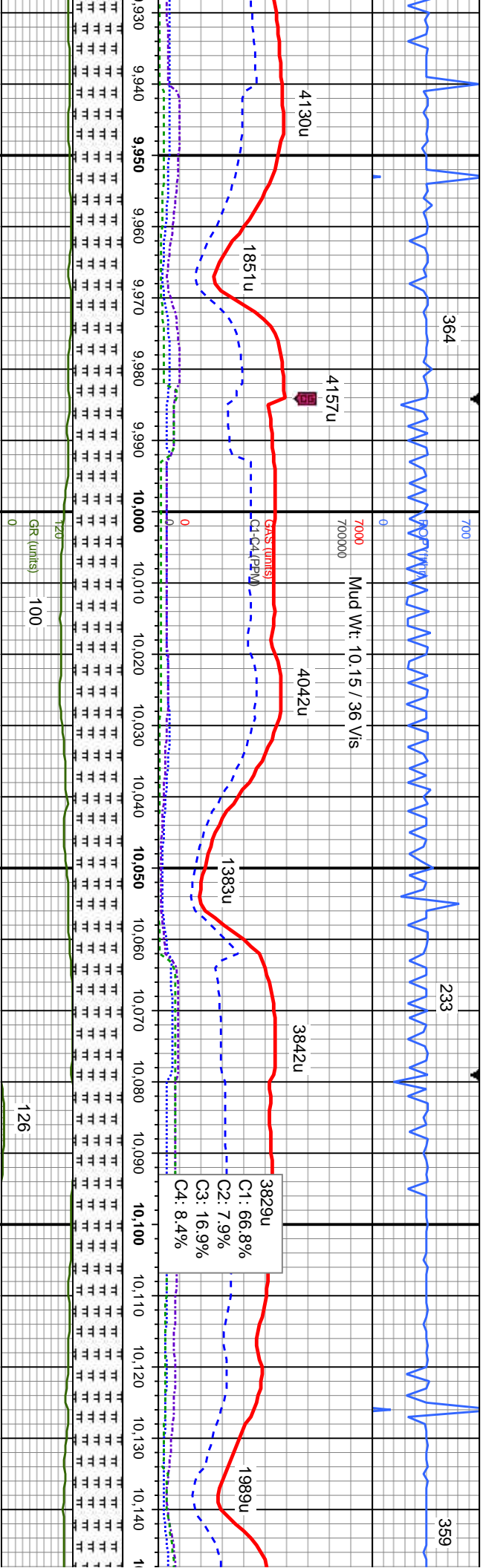
MD: 9,740'  
TVD: 6,059.91'  
Inclination: 90.04 °  
Azimuth: 0.32°  
VS: 3,795.86'

MD: 9,835'  
TVD: 6,059.85'  
Inclination: 90.04 °  
Azimuth: 0.23°  
VS: 3,890.17'

MD: 9,92  
TVD: 6.0  
Inclination: 90.04 °  
Azimuth: 0.32°  
VS: 3,98







Y - sb pty, sb fis, mod frm, rthy tex, tr bent

MD: 10,024'  
TVD: 6,059.57'  
Inclination: 90.22 °  
Azimuth: 359.36 °  
VS: 4.077.47'

MD: 10,118'  
TVD: 6,058.99'  
Inclination: 90.48 °  
Azimuth: 359.27 °  
VS: 4.170.59'

MD: 10,145'  
TVD: 6,058.7'  
Inclination: 90.48 °  
Azimuth: 359.33 °  
VS: 4.197.33'





