



Scale: 6.98" / 100'
Measured Depth Log

Well Name Tahoma E22-69HC_HORZ

Location Sec. 14 T6N R65W

State Colorado

Country USA

API Number 05-123-38866

Region DJ Basin

Spud Date 6/6/2014

Surface Coordinates 293' FSL ; 530' FWL
40.4796 ; -104.63816

Bottom Hole Coordinates 75' FNL ; 75' FWL
40.47878 ; -104.65878

Ground Elevation 4739'

Logged Interval 6381'

Formation Codell

Type of Drilling Fluid FW LSND

County Weld

Rig Number PD 829

AFE # 139628

Field Wattenberg

Drilling Completed 6/14/2014

K.B. Elevation 4755'

Total Depth 11989'

Company Noble Energy Inc
Address 1625 BROADWAY
DENVER, CO 80202

Name Holly Duncan
Company Noble Energy, Inc
Address 1625 BROADWAY
DENVER, CO 80202

Columbine Logging, INC.
Well site Geologists

Operator

c
AY
202

Geologist

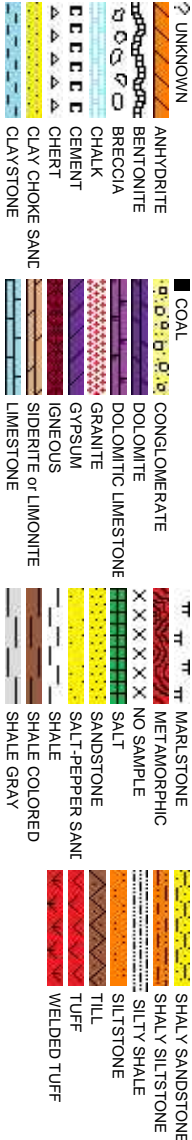
c.
AY
202

Other

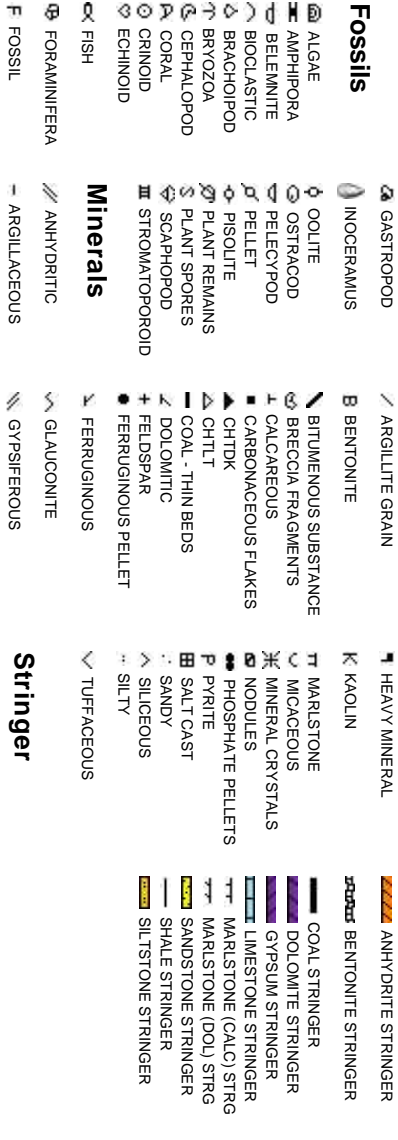
2385 S. LIPAN STREET
DENVER, CO 80223

Ryan Shilling
Aclam Kpekpasse

Rock Types



Accessories



Slide/Rotate

ROP
ROP
GAMMA

ROP Scale
0-700 ft/hr

Gamma Scale
0 - 200 API

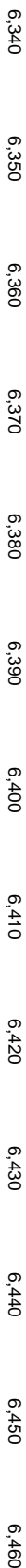
Total Gas & Chromatograph

Gas Scale
0 - 4000 units

GAS
C1
C2
C3
C4

COLUMBINE LOGGING, INC. RIGGED
UP ON 06/08/2014 MANNED
2-PERSON LOGGING WITH
BLOODHOUND GAS
CHROMATOGRAPH UNIT # 0715

Depth Labels



% Lith

TVD SCALE
6200'-7200'

BEGIN 50' SAMPLES

6200

Well Bore
TVD

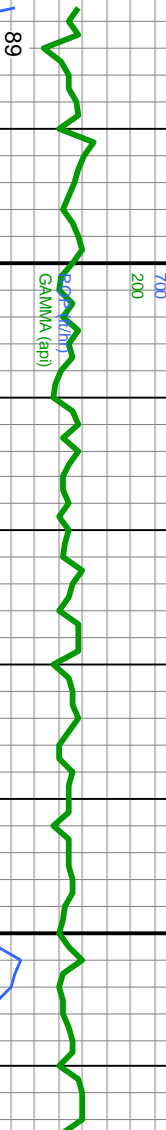
Bit Data
Bit #: 2
Type: MMMD55M
Size: 8.75
Depth In: 661 '
Depth Out: 7,560 '
Jets: 5x16
S/N: 12390328

Log Continued from Tahoma E22-69HC

Oil Show

exc
mod
tr
sl

Images



KOP = 6381'

WT: 9.2 / VIS: 33

680u

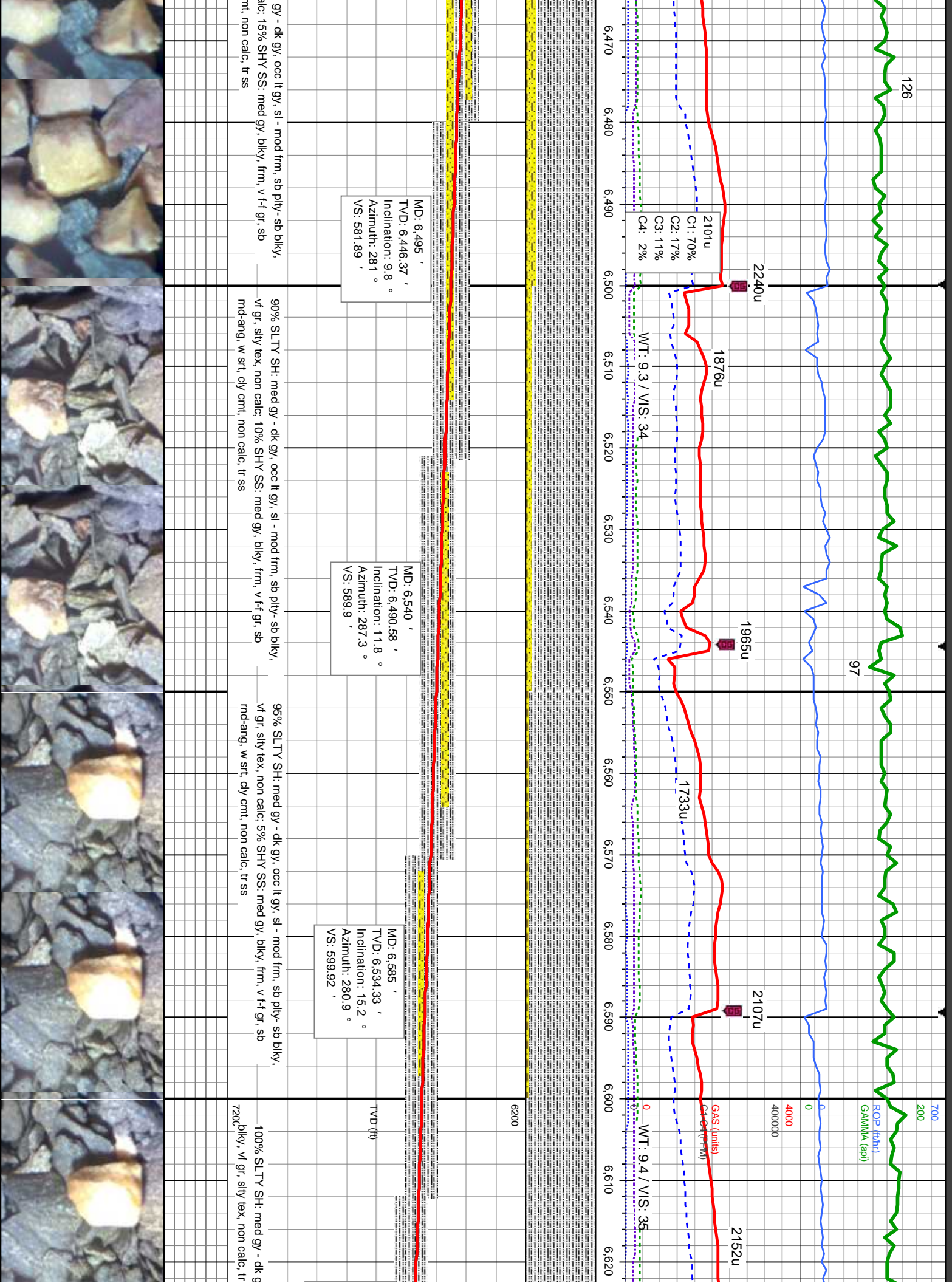


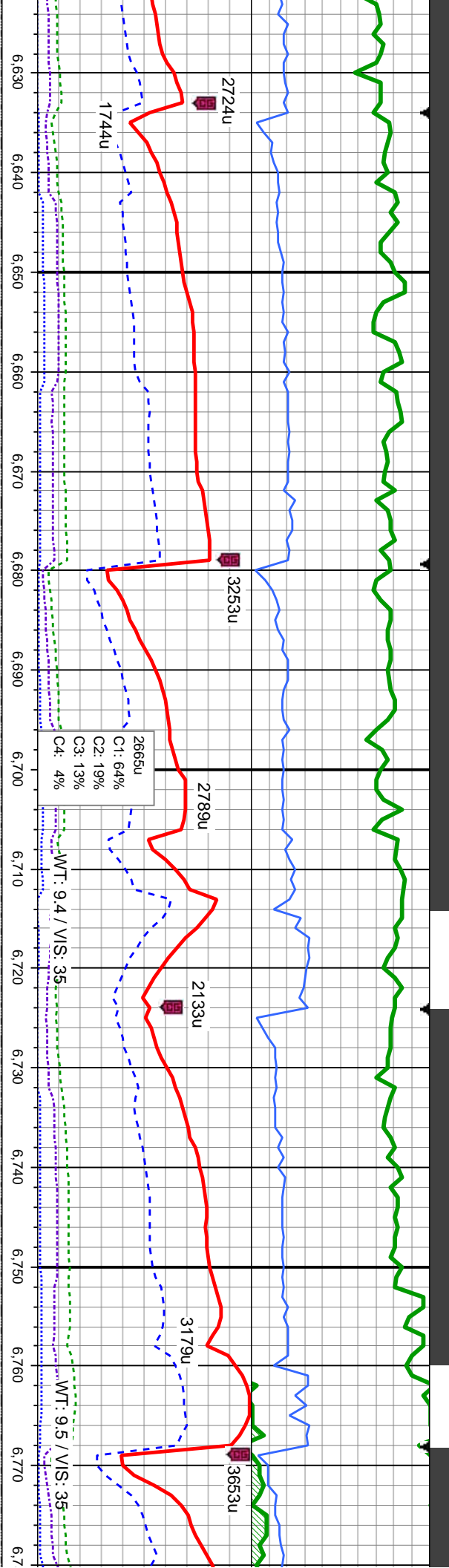
MD: 6,405 '
TVD: 6,356.98 '
Inclination: 2.8 °
Azimuth: 257.5 °
VS: 572.09 '

MD: 6,450 '
TVD: 6,401.83 '
Inclination: 6.4 °
Azimuth: 270 °
VS: 575.68 '

85% SLTY SH: med gy - dk gy, occ lt gy, sl - mod frm, sb pty- sb blk, v f gr, silty tex, non calc, 15% SHY SS: med gy, blk, frm, v f gr, sb md-ang, w srt, cly cntl, non calc, tr ss

85% SLTY SH: med v f gr, silty tex, non calc, md-ang, w srt, cly cntl





100% SLTY SH: med gy - dk gy, occ lt gy, sl - mod frm, sb ply- sb blkly,
vf gr, silty tex, non calc, tr silty ss

100% SLTY SH: med gy - dk gy, occ lt gy, sl - mod frm, sb ply- sb blkly,
vf gr, silty tex, non calc

100-90% SLTY SH: med gy - dk gy, occ lt gy,
blkly, vf gr, silty tex, non calc; 0-10% MRLST:
hd, sb ply- blkly, silty- mot tex, calc, mod bent

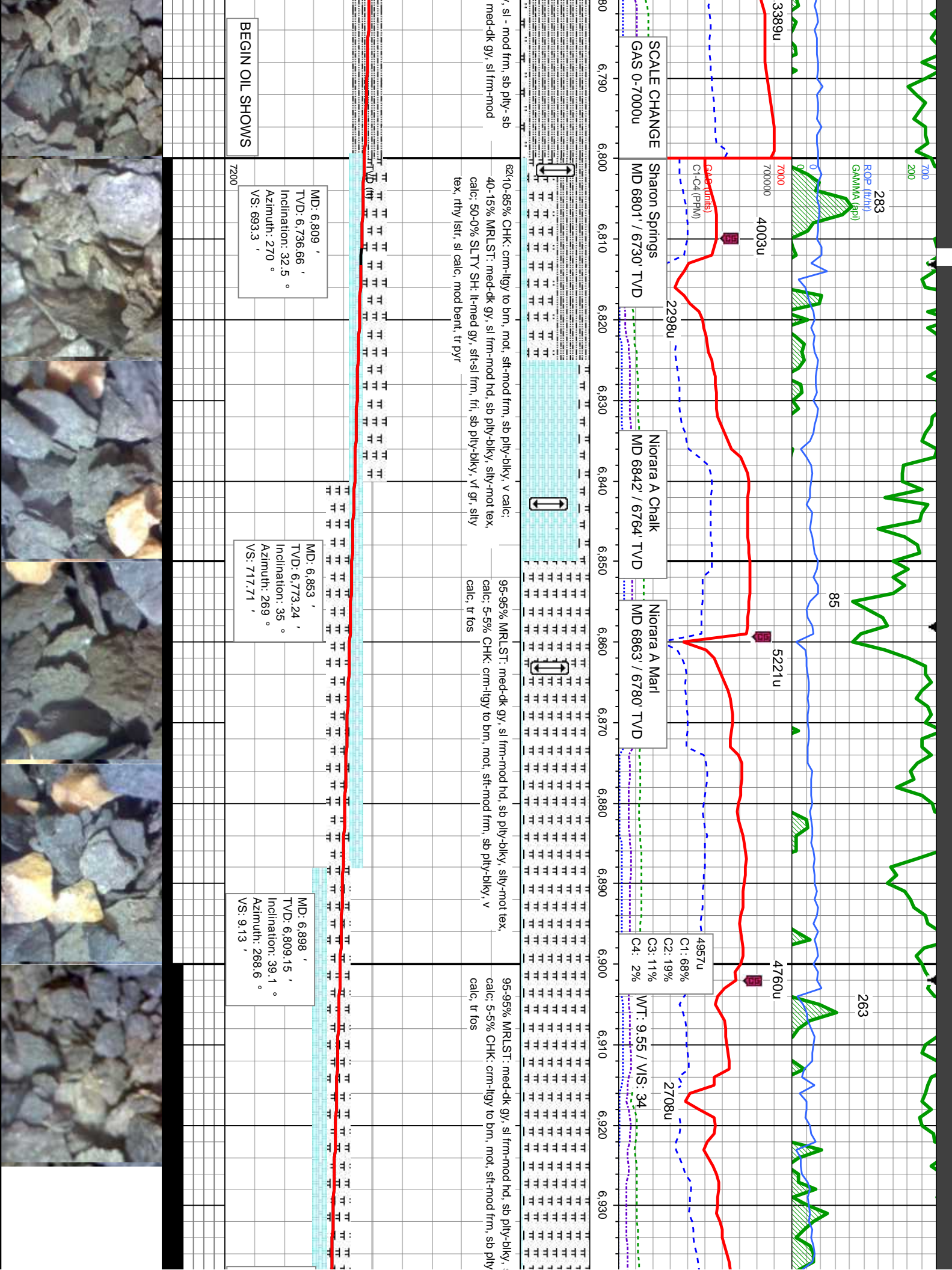
MD: 6,629 ' TVD: 6,576.29 ' Inclination: 19.7 ° Azimuth: 277.7 ° VS: 612.78 ' y, occ lt gy, sl - mod frm, sb ply- sb silty ss

MD: 6,674 ' TVD: 6,618.02 ' Inclination: 24.2 ° Azimuth: 274.2 ° VS: 629.37 ' y, occ lt gy, sl - mod frm, sb ply- sb silty ss

MD: 6,719 ' TVD: 6,658.55 ' Inclination: 27.3 ° Azimuth: 271.8 ° VS: 648.79 ' y, occ lt gy, sl - mod frm, sb ply- sb silty ss

MD: 6,764 ' TVD: 6,698.11 ' Inclination: 29.6 ° Azimuth: 271 ° VS: 670.15 ' y, occ lt gy, sl - mod frm, sb ply- sb silty ss





283
ROP (ft/min)
GAMMA (api)

85

263

SCALE CHANGE
GAS 0-7000u

Sharon Springs
MD 6801' / 6730' TVD

Niorara A Chalk
MD 6842' / 6764' TVD

Niorara A Marl
MD 6863' / 6780' TVD

WT: 9.55 / V/S: 34
C1: 68%
C2: 19%
C3: 11%
C4: 2%

BEGIN OIL SHOWS

MD: 6,809 '
TVD: 6,736.66 '
Inclination: 32.5 °
Azimuth: 270 °
VS: 693.3 '

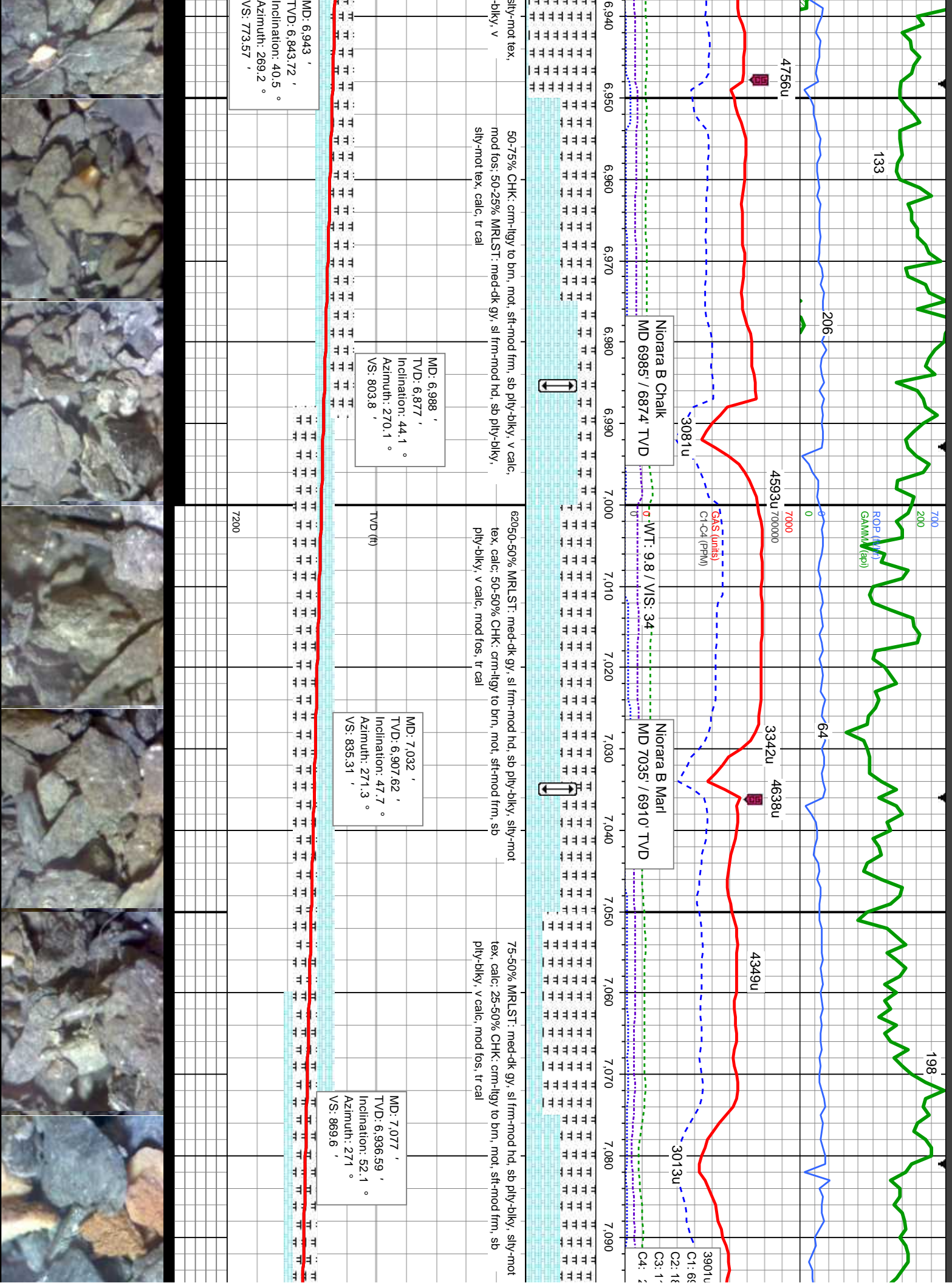
MD: 6,853 '
TVD: 6,773.24 '
Inclination: 35 °
Azimuth: 269 °
VS: 717.71 '

MD: 6,898 '
TVD: 6,809.15 '
Inclination: 39.1 °
Azimuth: 268.6 °
VS: 9.13 '

62-10-85% CHK: cm-llgy to brn, mot, sft-mod frm, sb ply-biky, v calc.
40-15% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot tex.
calc: 50-0% SLTY SH: lt-med gy, sft-sl frm, fri, sb ply-biky, v gr, silty
tex, rthy lsst, sl calc, mod bent, tr pyr

95-95% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot tex.
calc: 5-5% CHK: cm-llgy to brn, mot, sft-mod frm, sb ply-biky, v
calc, tr fos

95-95% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, v
calc: 5-5% CHK: cm-llgy to brn, mot, sft-mod frm, sb ply-biky, v
calc, tr fos



06/11/14

700
200

ROP (ft/hr)
GAMMA (api)

7000
700000

GAS (units)
C1-C4 (ppm)

WT: 10.40

0

2

0

0

0

0

0

0

0

0

0

0

0

57

48

81

226

2613u

2928u

3445u

4200u

1369u

WT: 10.40 / VS: 33

Ft Hayes
MD 7362 / 7047' TVD

3632u

C1: 69%

C2: 17%

C3: 11%

C4: 2%

2143u

Niorara D Chalk
7272' MD / 7024' TVD

7,260

7,270

7,280

7,290

7,300

7,310

7,320

7,330

7,340

7,350

7,360

7,370

7,380

7,390

7,400

7,41

7,260

7,270

7,280

7,290

7,300

7,310

7,320

7,330

7,340

7,350

7,360

7,370

7,380

7,390

7,400

7,41

7,42

7,43

7,44

7,45

7,46

7,47

7,48

7,49

7,50

7,51

7,52

7,53

7,54

7,55

MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot tex, calc;
S: wh-crm-tan, microxin, sm, sft-brit, sb ply-biky, lmy; 50-20%
cm-lyg to brn, mot, sft-mod frm, sb ply-biky, v calc, mod fos, tr cal,

40-75% LS: wh-crm-tan, microxin, sm, sft-brit, sb ply-biky, lmy; 40-15%
MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot tex, calc;
20-10% CHK: crm-lyg to brn, mot, sft-mod frm, sb ply-biky, v calc

75-90% LS: wh-crm-tan, microxin, sm, sft-brit, sb ply-biky, lmy;
15-5% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot tex,
calc; 10-0% CHK: crm-lyg to brn, mot, sft-mod frm, sb ply-biky, v
calc; 0-5% SLTY SH: med gy - dk gy, occ lt gy, sl - mod frm, sb
ply- sb biky, vt gr, silty tex, non calc

60-85% LS: wh
SLTY SH: med
silty tex, non ca
silty-mot tex, ca

7,256 '
MD: 7,019.36 '
TVD: 7,019.36 '
Inclination: 73.0 °
Azimuth: 269.2 °
VS: 1,026.66 '

MD: 7,301 '
TVD: 7,032.03 '
Inclination: 74.3 °
Azimuth: 269 °
VS: 1,069.8 '

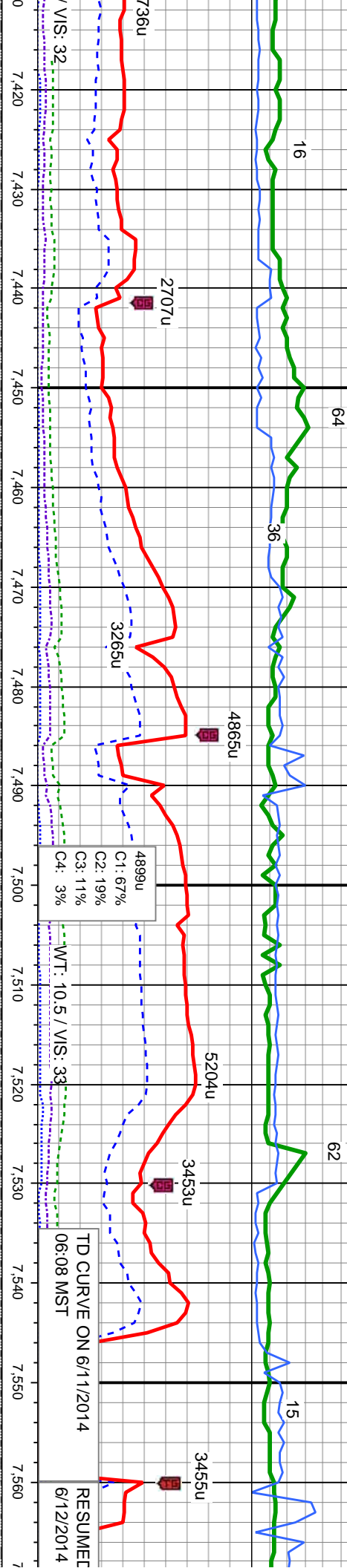
MD: 7,346 '
TVD: 7,043.68 '
Inclination: 75.7 °
Azimuth: 267.9 °
VS: 1,113.24 '

MD: 7,391 '
TVD: 7,053.03 '
Inclination: 80.3 °
Azimuth: 267.8 °
VS: 1,157.23 '

TVD (ft)

7200





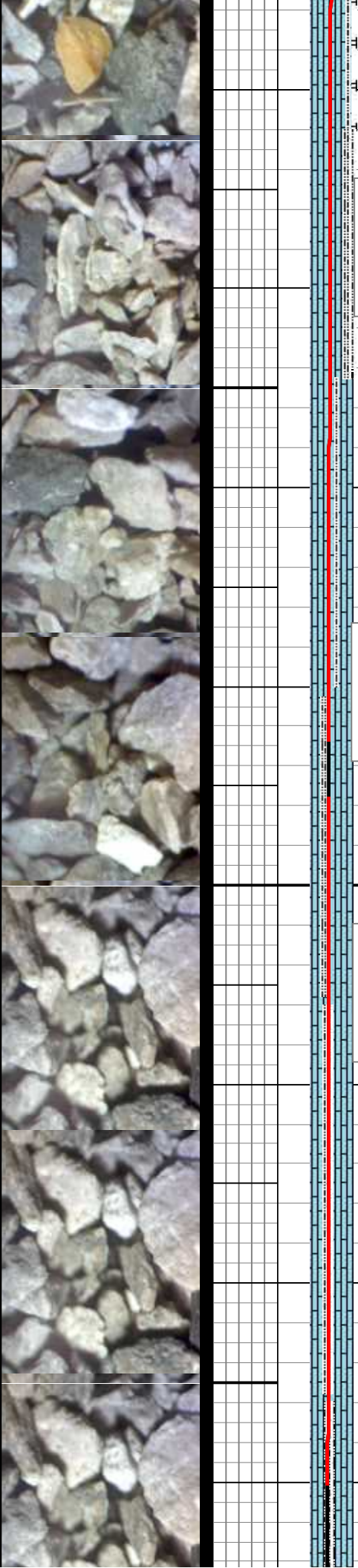
cm-tan, microxn, sm, sft-brt, sb ply-blky, lmy; 5-15%
gy - dk gy, occ lt gy, sl - mod frm, sb ply- sb blky, vf gr,
ic; 5-0% MRLST: med-dk gy, sl frm-mod hd, sb ply-blky,
95-95% LS: wh-crm-tan, microxn, sm, sft-brt, sb ply-blky, lmy; 5-5%
SLTY SH: med gy - dk gy, occ lt gy, sl - mod frm, sb ply- sb blky, vf gr,
sily tex, non calc
95% LS: wh-crm-tan, microxn, sm, sft-brt, sb ply-blky, lmy; 5% SLTY SH: med gy -
dk gy, occ lt gy, sl - mod frm, sb ply- sb blky, vf gr; sily tex, non calc
50% LS: 30% SLTY SH: med frm
arg, non
gy-blk, b
non calc

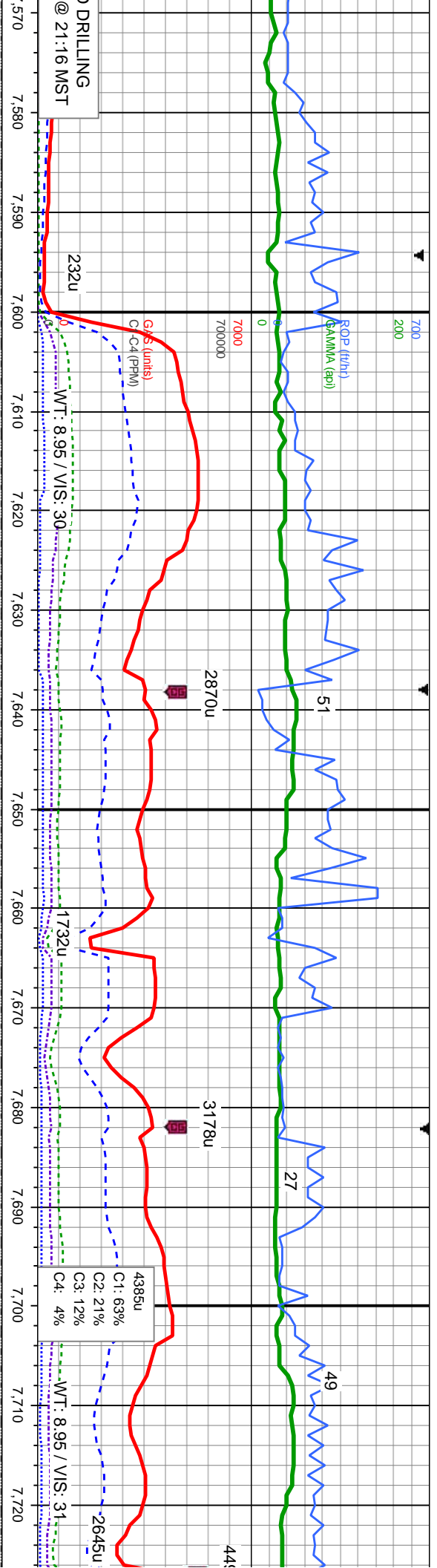
MD: 7,435 '
TVD: 7,058.24 '
Inclination: 86.1 °
Azimuth: 267.5 °
VS: 1,200.89 '

MD: 7,480 '
TVD: 7,060.71 '
Inclination: 87.6 °
Azimuth: 267.7 °
VS: 1,245.81 '

MD: 7,510 '
TVD: 7,061.97 '
Inclination: 87.6 °
Azimuth: 267.5 °
VS: 1,275.78 '

Bit Data
Bit #: 3
Type: PLD513SSU
Size: 6.12
Depth In: 7,560 '
Depth Out: 11,989 '
Jets: 5x15
S/N: S08966





wh-cr-m-tan, microxln, sm, sft-brlt, lmy;
Y SH: med gy - dk gy, brn, occ lt gy, sl -
sb plty - sb blk, v f gr, silty tex, rthy - gt, mt
calc; 20% SHY SS: cl-lt gy, s&p, med-dk
blk, frm, v f f gr, sb md-ang, w srt, cly cnt,

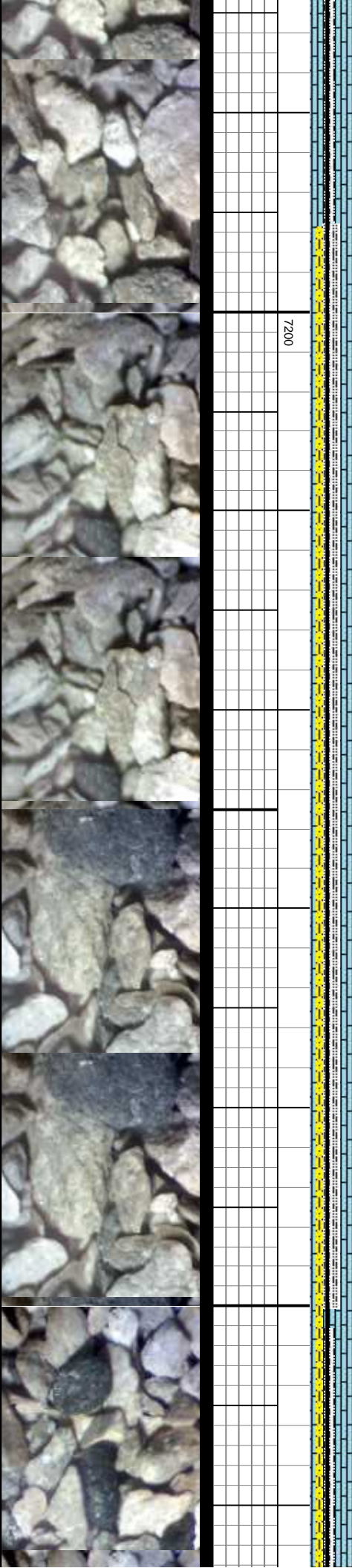
650% LS: wh-cr-m-tan, microxln, sm, sft-brlt, lmy; 30% SLTY SH: med
gy - dk gy, brn, occ lt gy, sl - mod frm, sb plty - sb blk, v f gr, silty tex, rthy
- gt, mt arg, non calc; 20% SHY SS: cl-lt gy, s&p, med-dk gy-blk,
blk, frm, v f f gr, sb md-ang, w srt, cly cnt, non calc

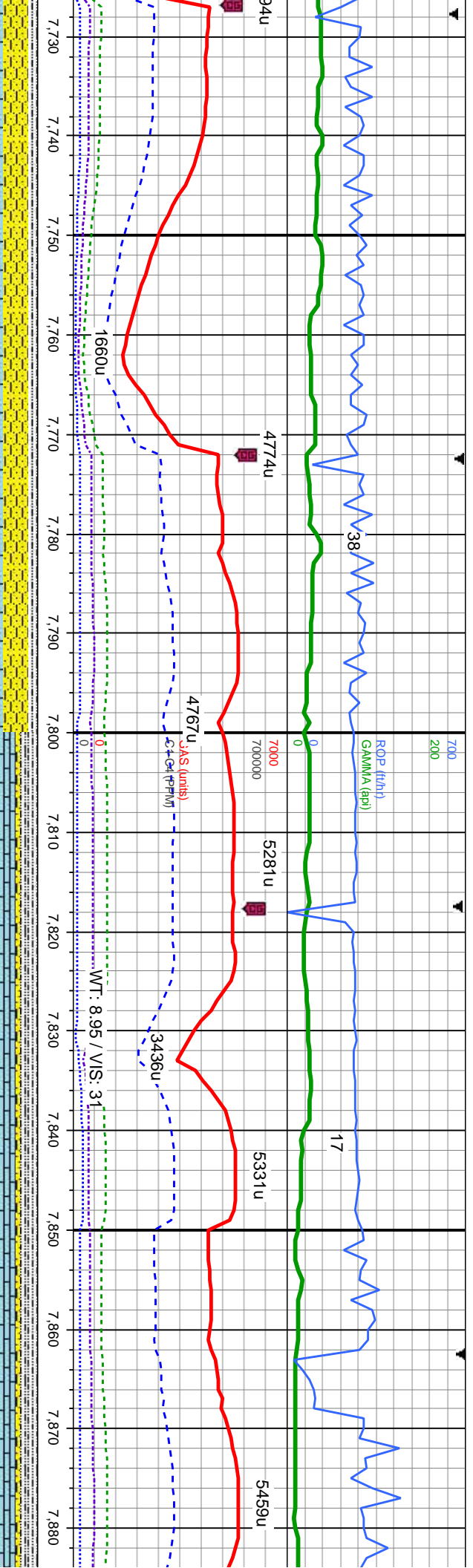
50% LS: wh-cr-m-tan, microxln, sm, sft-brlt, lmy; 25% SLTY SH: med
gy - dk gy, brn, occ lt gy, sl - mod frm, sb plty - sb blk, v f gr, silty tex, rthy
- gt, mt arg, non calc; 25% SHY SS: cl-lt gy, s&p, med-dk gy-blk,
blk, frm, v f f gr, sb md-ang, w srt, cly cnt, non calc

60% LS: wh-cr-m-tan, microxln, sm, sft-brlt, lmy;
s&p, med-dk gy-blk, blk, frm, v f f gr, s
calc; 10% SLTY SH: med gy - dk gy, bl
plty - sb blk, v f gr, silty tex, rthy - gt, mt

TVD (ft)
MD: 7,621 '
TVD: 7,065.16 '
Inclination: 89.1 °
Azimuth: 269.4 °
VS: 1,386.66 '

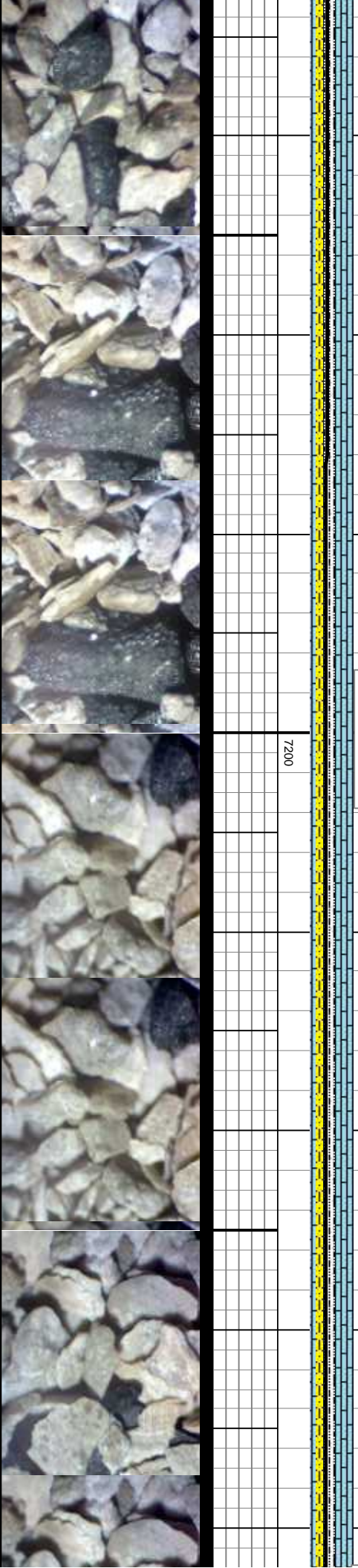
TVD (ft)
MD: 7,710 '
TVD: 7,066.48 '
Inclination: 89.2 °
Azimuth: 271.6 °
VS: 1,475.43 '





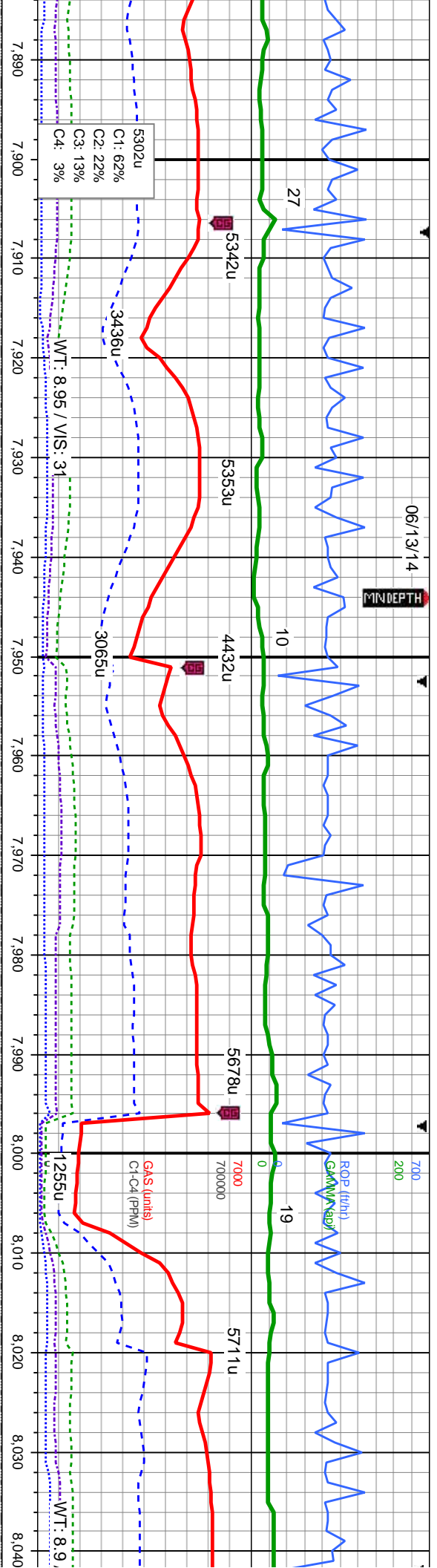
bit, lmy; 30% SHY SS: cl-it gy,
sb md-ang, w srt, cly cnt, non
n, occ lt gy, sl - mod frm, sb
ply- sb blk, v f gr, silty tex, rthy
- gt, mlt arg, non calc; 5% SHY SS: cl-it gy, s&p, med- dk gy-blk, blk, frm, v f f gr, sb md-ang, w srt, cly cnt, non calc

MD: 7,800 '
TVD: 7,067.5 '
Inclination: 89.5 °
Azimuth: 271.6 °
VS: 1,565.06 '



06/13/14

MINDEPTH



5302u
C1: 62%
C2: 22%
C3: 13%
C4: 3%

Gas (units)
C1-C4 (PPM)
1255u

WT: 8.95 / VIS: 31

SLTY SH: med
gy - dk gy, vf gr, silty tex, rthy
bd- dk gy-blk, blk, y.

60% LS: wh-crm-tan, microxln, sm, sft-brt, lmy; 20% SLTY SH: med
gy - dk gy, brn, ooc lt gy, sl - mod frm, sb pily- sb blk, vf gr, silty tex, rthy
- gt, mtx arg, non calc; 20% SHY SS: cl- lt gy, s&p, med- dk gy-blk,
blk, frm, v f f gr, sb md-ang, w srt, cly cnt, non calc

65% LS: wh-crm-tan, microxln, sm, sft-brt, lmy; 20% SLTY SH: med
gy - dk gy, brn, ooc lt gy, sl - mod frm, sb pily- sb blk, vf gr, silty tex, rthy
- gt, mtx arg, non calc; 15% SHY SS: cl- lt gy, s&p, med- dk gy-blk,
blk, frm, v f f gr, sb md-ang, w srt, cly cnt, non calc

60% LS: wh-crm-tan, microxln, sm, sft-brt, lmy; 20% SLTY SH: med
gy - dk gy, brn, ooc lt gy, sl - mod frm, sb pily- sb blk, vf gr, silty tex, rthy
- gt, mtx arg, non calc; 20% SHY SS: cl- lt gy, s&p, med- dk gy-blk,
blk, frm, v f f gr, sb md-ang, w srt, cly cnt, non calc

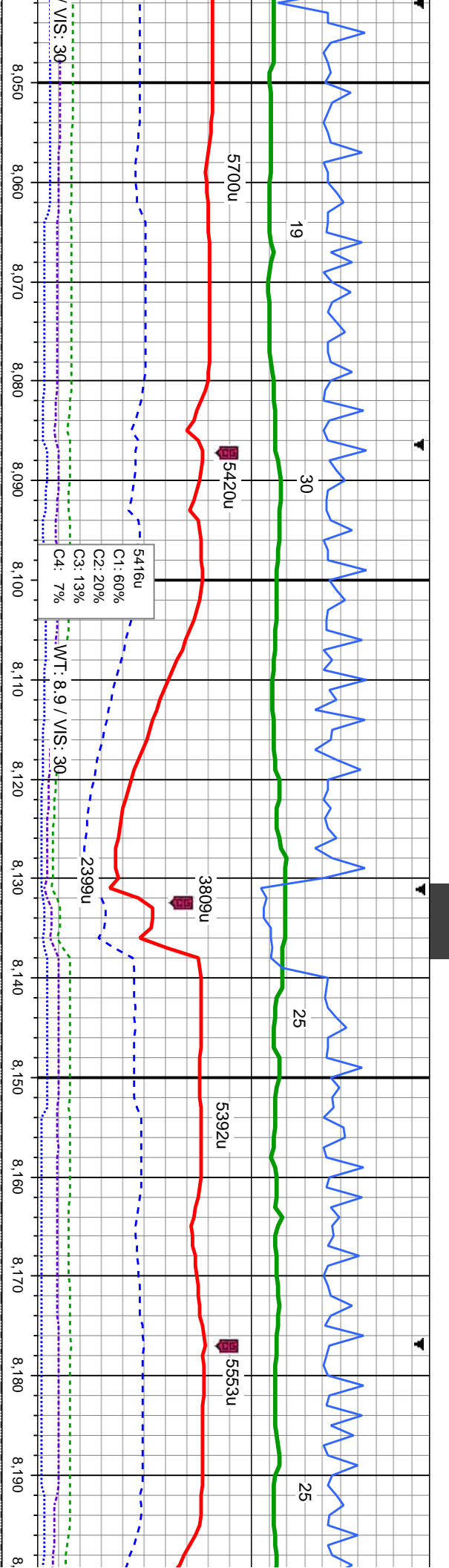
MD: 7,890 '
TVD: 7,069.31 '
Inclination: 88.2 °
Azimuth: 272.5 °
VS: 1,654.61 '

MD: 7,980 '
TVD: 7,071.9 '
Inclination: 88.5 °
Azimuth: 273.3 °
VS: 1,744.01 '

TVD (ft)

7200





med 60% LS: wh-crm-tan, microxh, sm, sft-brlt, lmy; 20% SLTY SH: med
tex,rthy — gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply- sb blk, v f gr, silty tex,rthy
blk, - gt, mtx arg, non calc; 20% SHY SS: clt-lt gy, s&p, med- dk gy-blk,
blk, frm, v f f gr, sb md-ang, w srl, cly cnt, non calc

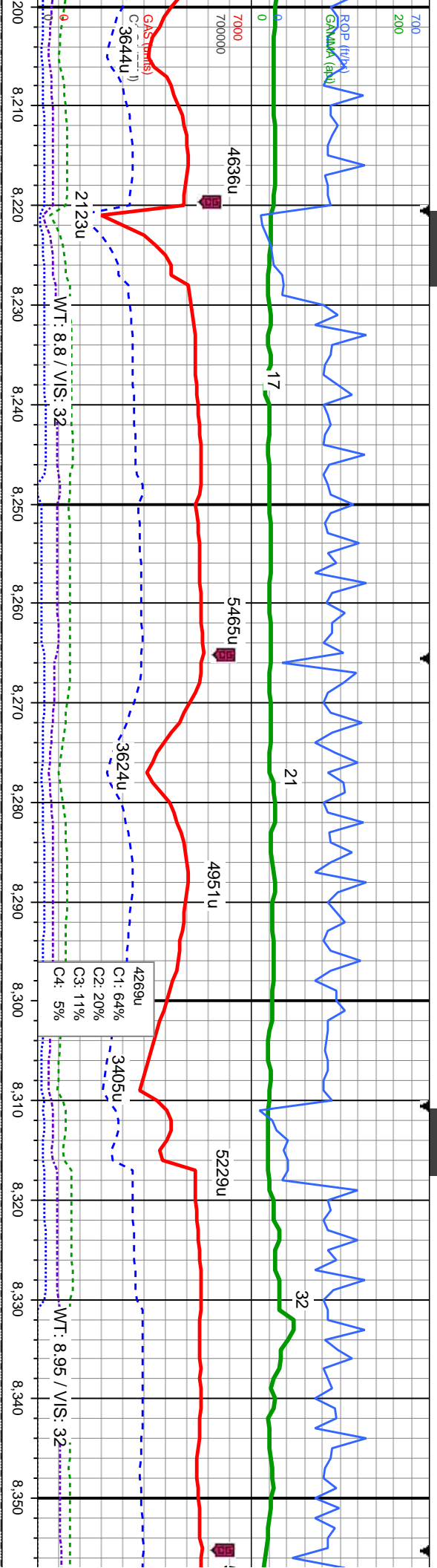
65% LS: wh-crm-tan, microxh, sm, sft-brlt, lmy; 25% SHY SS: med-
dk gy-blk, blk, frm, v f f gr, sb md-ang, w srl, cly cnt, non calc; 10%
SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply- sb
blk, v f gr, silty tex,rthy - gt, mtx arg, non calc

65% LS: wh-crm-tan, microxh, sm, sft-brlt, lmy; 20% SHY SS: med-
dk gy-blk, blk, frm, v f f gr, sb md-ang, w srl, cly cnt, non calc; 15%
SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply- sb
blk, v f gr, silty tex,rthy - gt, mtx arg, non calc

MD: 8,069 '
TVD: 7,074.54 '
Inclination: 88.1 °
Azimuth: 273.5 °
VS: 1,832.32 '

MD: 8,158 '
TVD: 7,076.72 '
Inclination: 89.1 °
Azimuth: 273.4 °
VS: 1,920.63 '





62% LS: wh-cm-tan, microxln, sm, sft-brt, lmy; 20% SHY SS: med-dk gy-blk, blk, frm, v f-f gr, sb md-ang, w srt, cly cnt, non calc; 10% SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply- sb blk, v f gr, silty tex, rthy - gt, mx arg, non calc

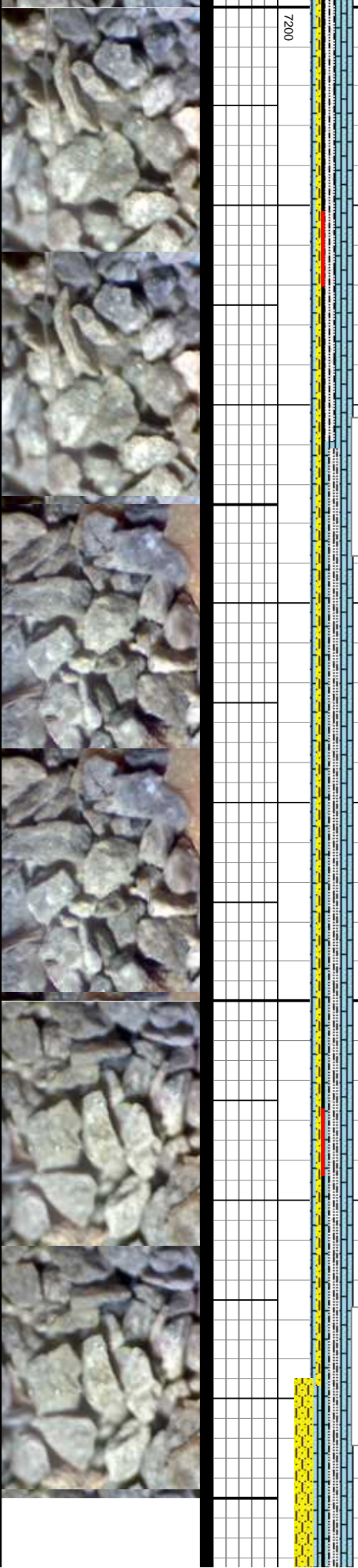
65% LS: wh-cm-tan, microxln, sm, sft-brt, lmy; 25% SHY SS: med-dk gy-blk, blk, frm, v f-f gr, sb md-ang, w srt, cly cnt, non calc; 10% SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply- sb blk, v f gr, silty tex, rthy - gt, mx arg, non calc

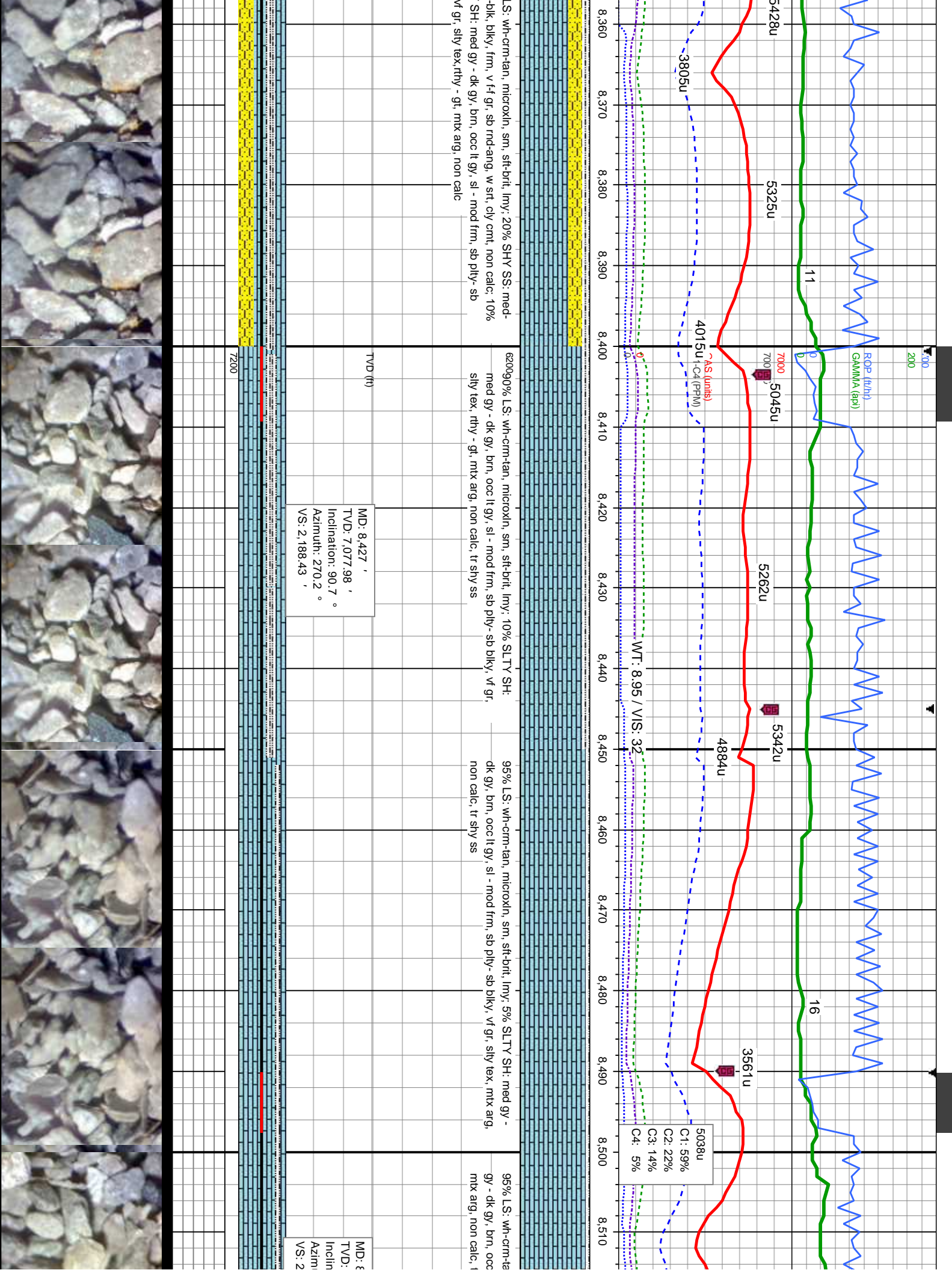
65% LS: wh-cm-tan, microxln, sm, sft-brt, lmy; 25% SHY SS: med-dk gy-blk, blk, frm, v f-f gr, sb md-ang, w srt, cly cnt, non calc; 10% SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply- sb blk, v f gr, silty tex, rthy - gt, mx arg, non calc

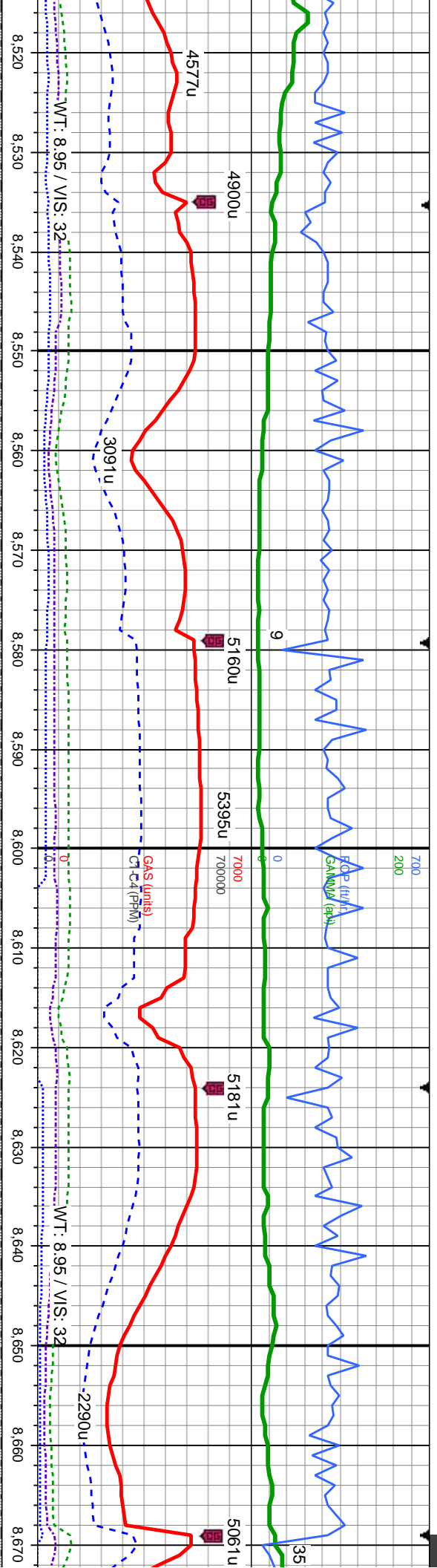
70%
dk gy
SLTY
blk,

MD: 8.248 '
TVD: 7,077.82 '
Inclination: 89.5 °
Azimuth: 272 °
VS: 2,010.09 '

MD: 8.338 '
TVD: 7,078.37 '
Inclination: 89.8 °
Azimuth: 271.6 °
VS: 2,099.7 '

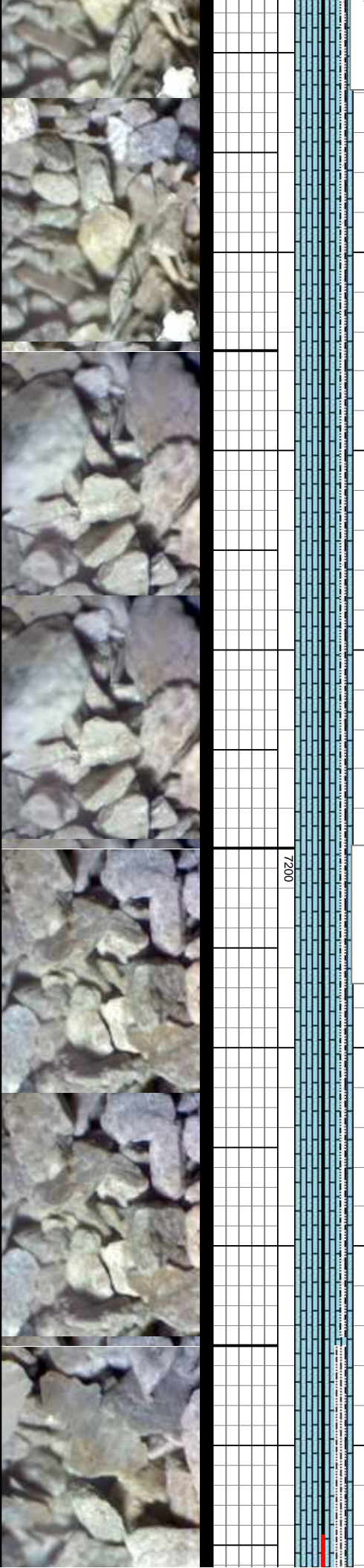


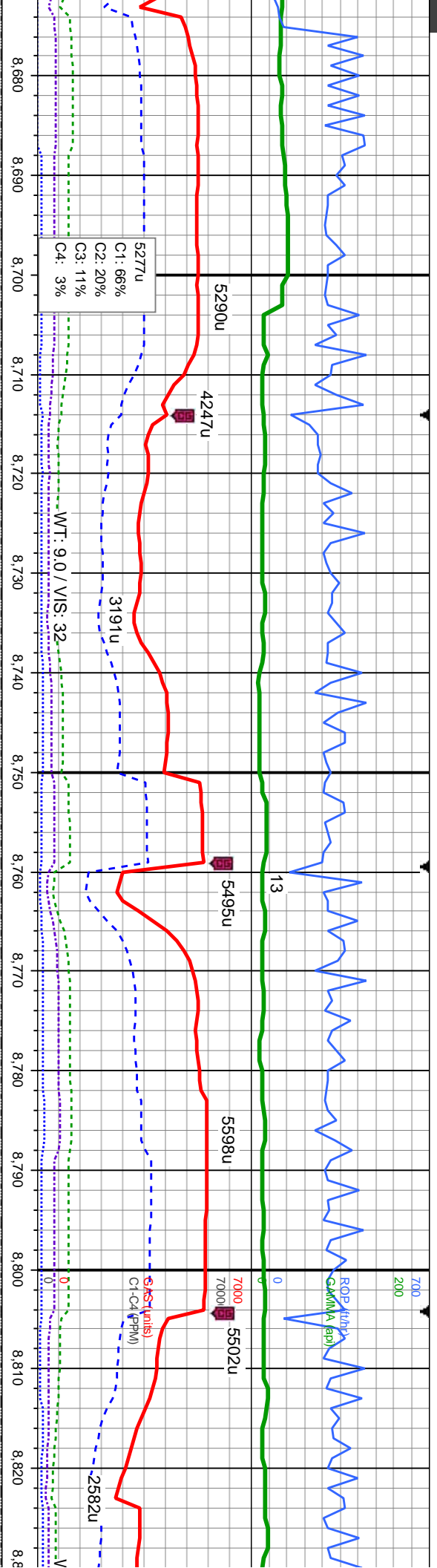




microxln, sm, sft-brit, lmy; 5% SLTY SH: med
lt gy, sl - mod frm, sb ply- sb blkly, vf gr, silty tex,
95% LS: wh-crm-tan, microxln, sm, sft-brit, lmy; 5% SLTY SH: med gy - dk
gy, brn, occ lt gy, sl - mod frm, sb ply- sb blkly, vf gr, silty tex, mix arg, non
calc, tr shly ss
62% 95% LS: wh-crm-tan, microxln, sm, sft-brit, lmy; 5% SLTY SH:
med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply- sb blkly, vf gr,
silty tex, mix arg, non calc, tr shly ss
90% LS: wh-crm-tan, microxln, sr
gy - dk gy, brn, occ lt gy, sl - mod
mix arg, non calc, tr shly ss

MD: 8,606 '
TVD: 7,077.35 '
Inclination: 90.1 °
Azimuth: 269.3 °
VS: 2,367.16 '
5,517 '
7,077.43 '
ation: 90 °
uth: 269.4 °
278.28 '





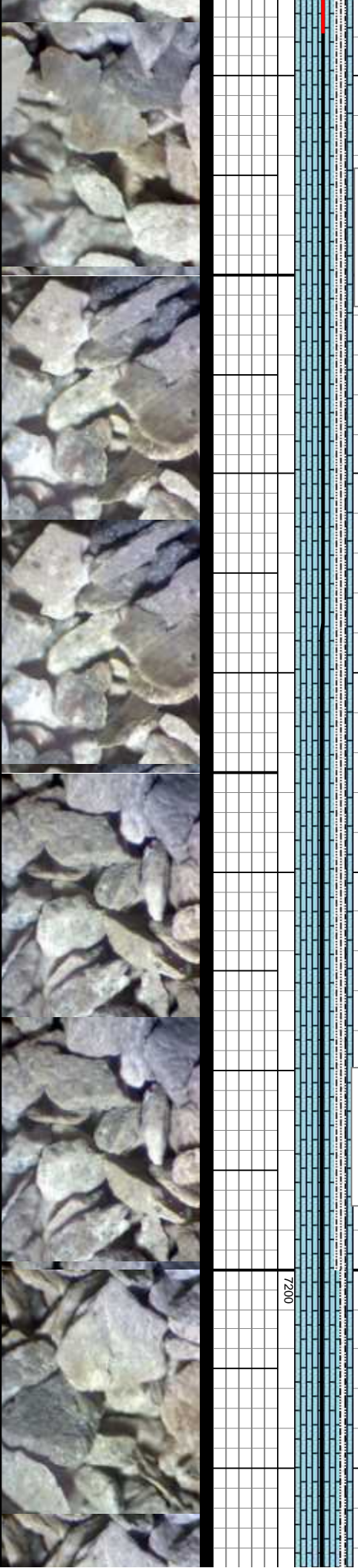
90% LS: wh-cr-m-tan, microxln, sm, sft-brt, lmy; 10% SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply- sb blk, vf gr, silty tex, mtx arg. arg, non calc, tr shy ss

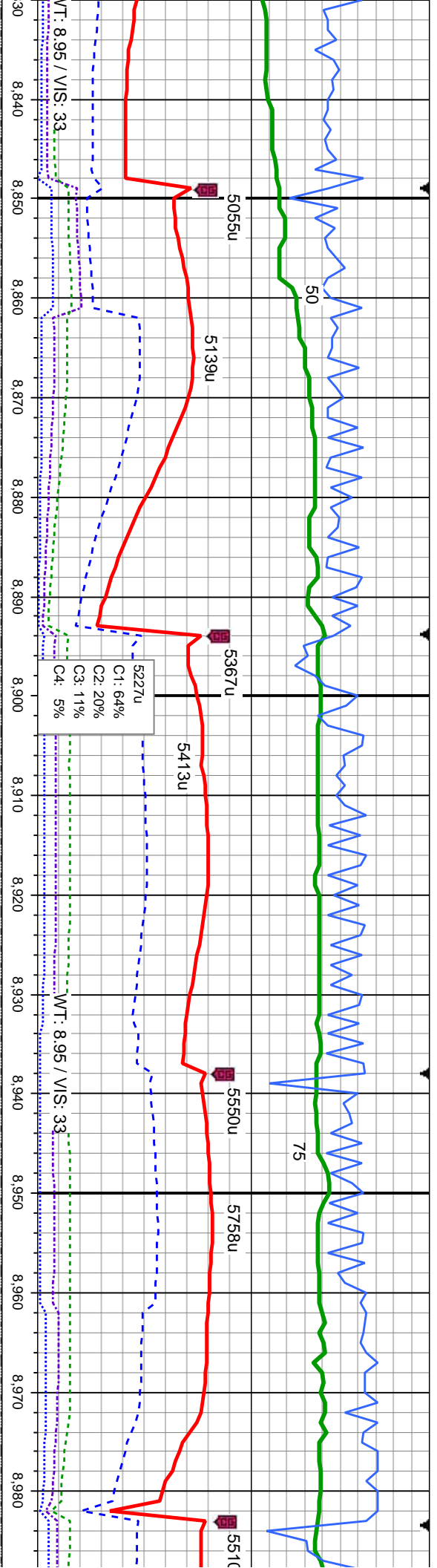
90% LS: wh-cr-m-tan, microxln, sm, sft-brt, lmy; 10% SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply- sb blk, vf gr, silty tex, mtx

62g5% LS: wh-cr-m-tan, microxln, sm, sft-brt, lmy - dk gy, brn, occ lt gy, sl - mod frm, sb ply mtx arg, non calc

MD: 8.686 '
TVD: 7.078.29 '
Inclination: 88.7 °
Azimuth: 269.4 °
VS: 2.457.04 '

MD: 8.786 '
TVD: 7.079.71 '
Inclination: 89.5 °
Azimuth: 268.5 °
VS: 2.546.94 '





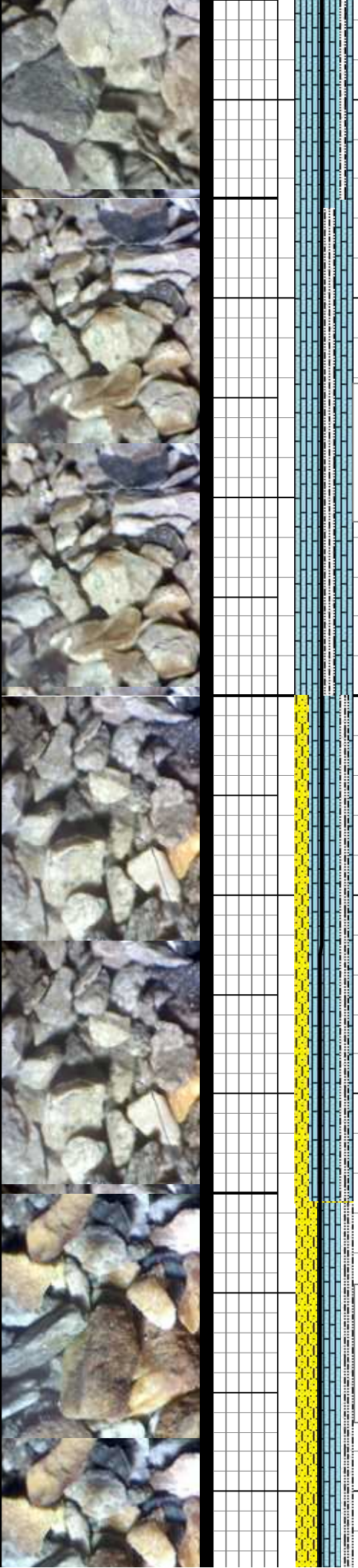
any; 5% SLTY SH: med
gy - sb blk; v f gr, silty tex,
85% LS: wh-cr-m-tan, microxln, sm, sft-brt, lmy; 15% SLTY SH: med
gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply-sb blk; v f gr, silty tex,
mtx arg, non calc, tr shy ss

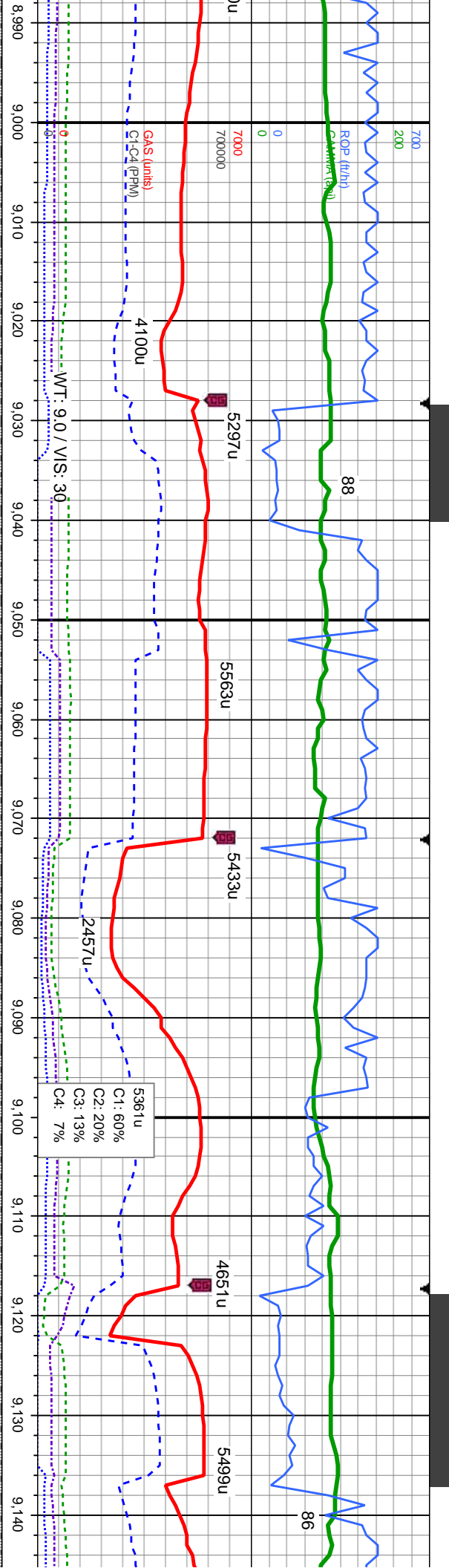
MD: 8,875 '
TVD: 7,081.18 '
Inclination: 88.6 °
Azimuth: 269.2 °
VS: 2,635.85 '

65% LS: wh-cr-m-tan, microxln, sm, sft-brt, lmy; 25% SHY SS: med - dk
gy-blk, blk; frm, v f f gr, sb rnd-ang, w srt, cly cnt, non calc; 10% SLTY
SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply-sb blk; v f gr,
silty tex, mtx arg, non calc

MD: 8,965 '
TVD: 7,084.09 '
Inclination: 87.7 °
Azimuth: 267.5 °
VS: 2,725.75 '

50% SHY SS: med - dk gy-blk, blk; frm, v f f gr, sb rnd-e
cnt, non calc; 40% LS: wh-cr-m-tan, microxln, sm, sft-brt
SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb
v f gr, silty tex, mtx arg, non calc

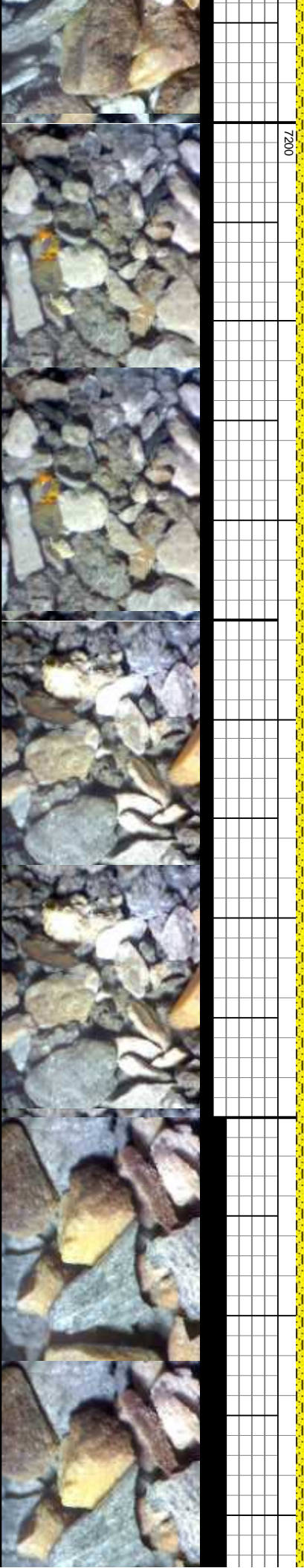


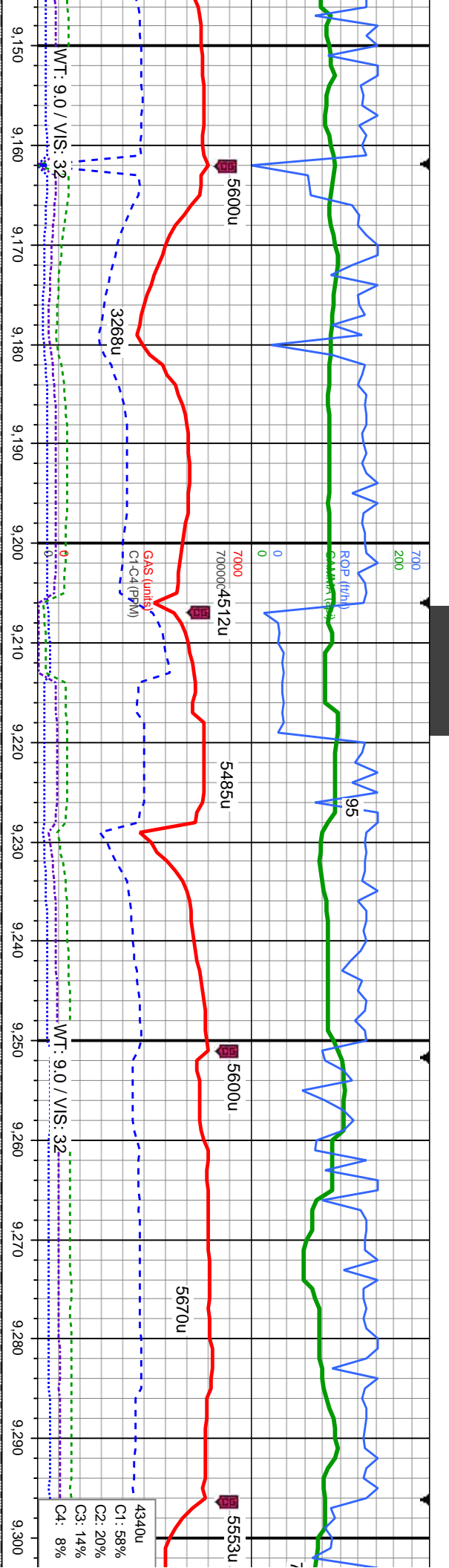


ing, w srt, cly i, lmy: 10% ply- sb blk,	6200 65% SHY SS: med- dk gy-blk, blk, frm, v f-f gr, sb md-ang, w srt, cly cmt, non calc: 25% LS: wh-crm-tan, microxln, sm, sft-brt, lmy: 10% SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply- sb blk, v f gr, silty tex, mtx arg, non calc	65% SHY SS: med- dk gy-blk, blk, frm, v f-f gr, sb md-ang, w srt, cly cmt, non calc: 25% LS: wh-crm-tan, microxln, sm, sft-brt, lmy: 10% SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply- sb blk, v f gr, silty tex, mtx arg, non calc	65% SHY SS: med- dk gy-blk, blk, frm, v f-f gr, sb md-ang, w srt, cly cmt, non calc: 25% LS: wh-crm-tan, microxln, sm, sft-brt, lmy: 10% SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply- sb blk, gr, silty tex, mtx arg, non calc
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MD: 9,055 '
TVD: 7,087.62 '
Inclination: 87.8 °
Azimuth: 268.5 °
VS: 2,815.65 '

MD: 9,144
TVD: 7,089
Inclination:
Azimuth: 26
VS: 2,904.5





70% SHY SS: med- dk gy-blk, blk, frm, v f-f gr, sb md-ang, w srt, cly
cnt, non calc; 15% LS: wh-crm-tan, microxln, sm, sft-brlt, lmy; 15%
SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb pily- sb blk, v f
gr, silty tex, mtx arg, non calc

62070% SHY SS: med- dk gy-blk, blk, frm, v f-f gr, sb md-ang, w srt, cly
cnt, non calc; 25% LS: wh-crm-tan, microxln, sm, sft-brlt, lmy; 5%
SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb pily- sb
blk, v f gr, silty tex, mtx arg, non calc

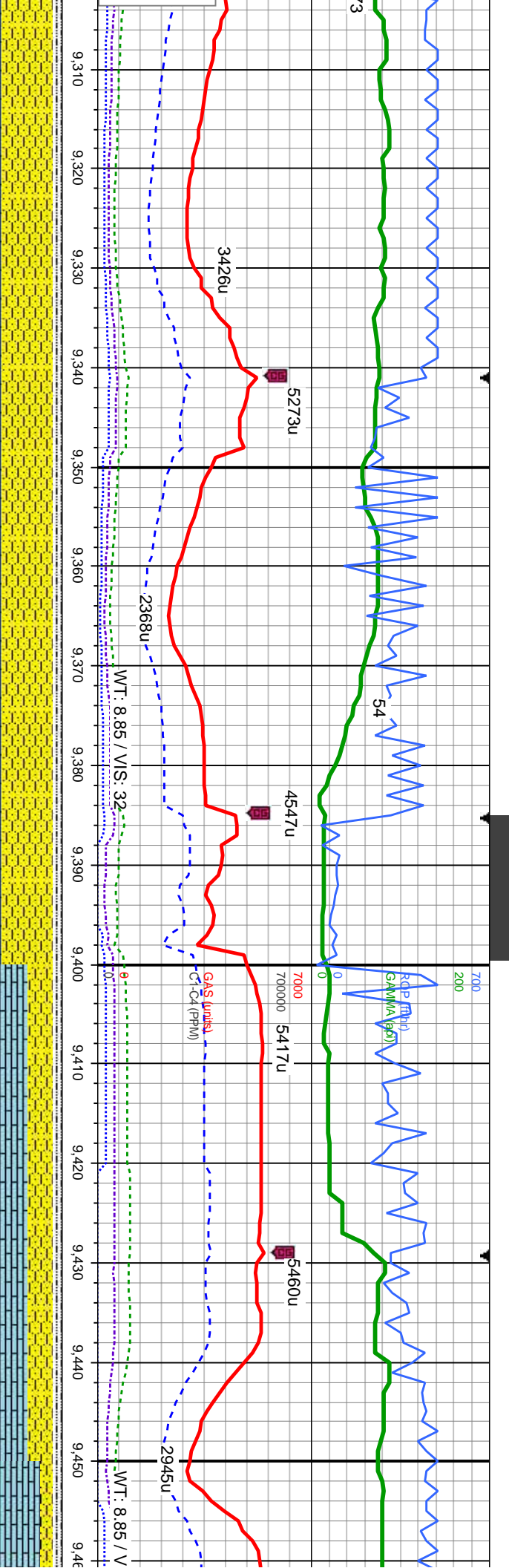
70% SHY SS: med- dk gy-blk, blk, frm, v f-f gr, sb md-ang, w srt, cly
cnt, non calc; 25% LS: wh-crm-tan, microxln, sm, sft-brlt, lmy; 5%
SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb pily- sb
blk, v f gr, silty tex, mtx arg, non calc

49' °
89.8 °
39.7 °
3'

TVD (ft)

MD: 9.234' °
TVD: 7.087.99' °
Inclination: 92.1 °
Azimuth: 270.6 °
VS: 2.994.33'





SHY SS: med-dk gy-blk, blk, frm, v f-f gr, sb md-ang, w srt, cly
non calc, 30% LS, wh-crm-tan, microxin, sm, sft-brt, lmy, 10%
SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply- sb blk, gr, silty tex, mx arg, non calc

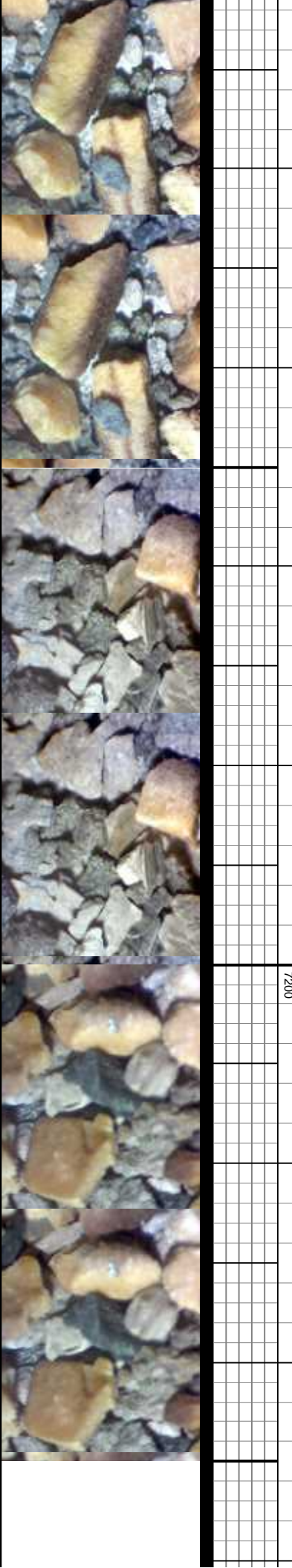
60% SHY SS: med-dk gy-blk, blk, frm, v f-f gr, sb md-ang, w srt, cly
cmt, non calc, 30% LS, wh-crm-tan, microxin, sm, sft-brt, lmy, 10%
SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply- sb blk, v f gr, silty tex, mx arg, non calc

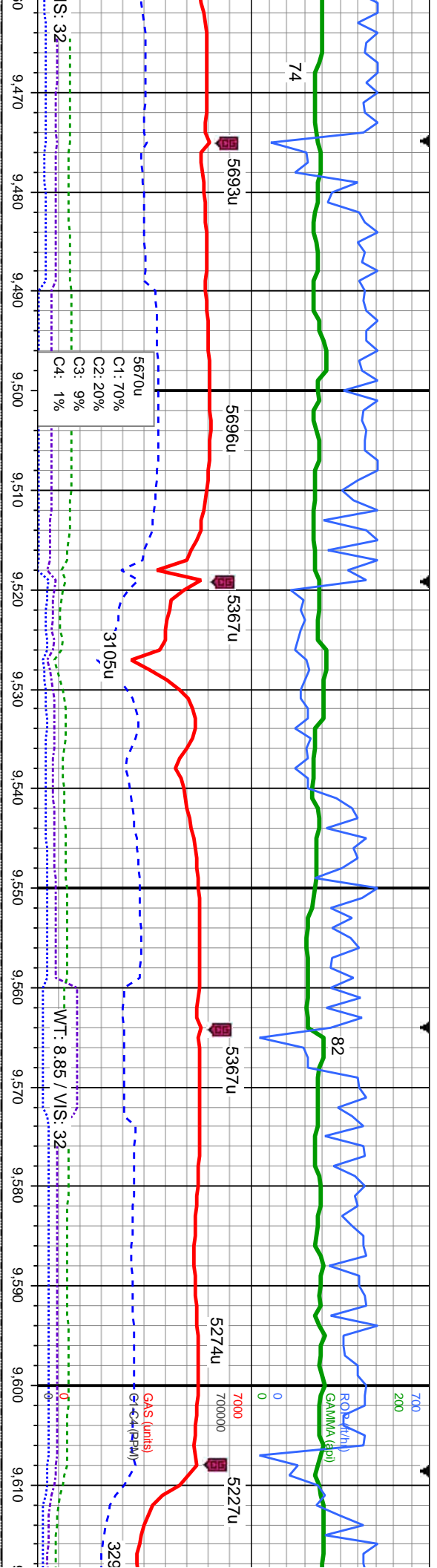
62-60% LS: wh-crm-tan, microxin, sm, sft-brt, lmy, 30% SHY SS: med-dk
gy-blk, blk, frm, v f-f gr, sb md-ang, w srt, cly cmt, non calc, 10%
SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply- sb blk, v f gr, silty tex, mx arg, non calc

75% LS: wh-c
gy-blk, blk, frm
SH: med

MD: 9,324 '
TVD: 7,084.54 '
Inclination: 92.3 °
Azimuth: 270.5 °
VS: 3,084.03 '

MD: 9,413 '
TVD: 7,082.75 '
Inclination: 90 °
Azimuth: 270.5 °
VS: 3,172.79 '





tan, microxl, sm, sft-brt, lmy; 15% SHY SS: med-dk
m, v f-f gr, sb md-ang, w srt, cly cnt, non calc; 10%
ntx arg, non calc

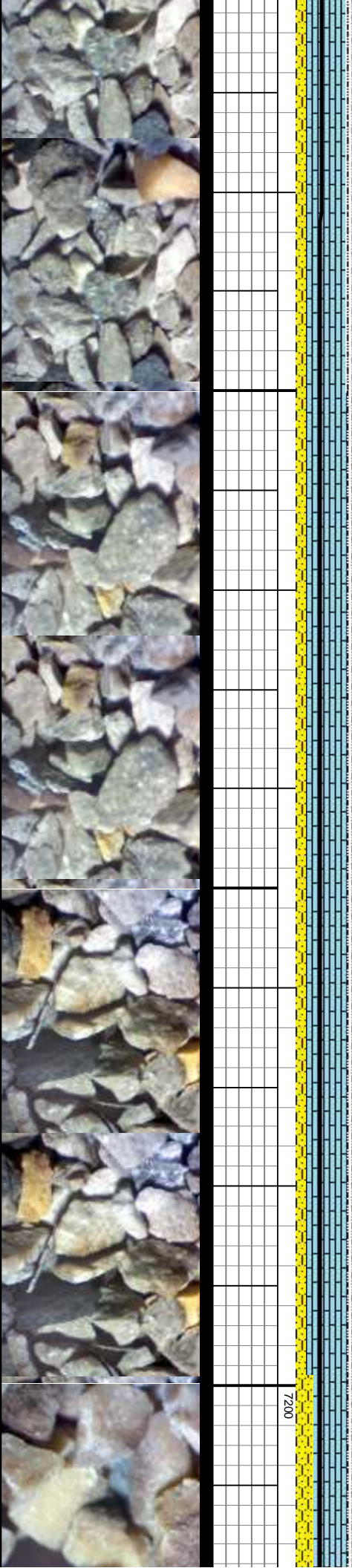
80% LS: wh-crm-tan, microxl, sm, sft-brt, lmy; 15% SHY SS:
med-dk gy-blk, blk, frm, v f-f gr, sb md-ang, w srt, cly cnt, non
calc; 5% SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm,
sb pily-sb blk, v f gr, silty tex, mtx arg, non calc

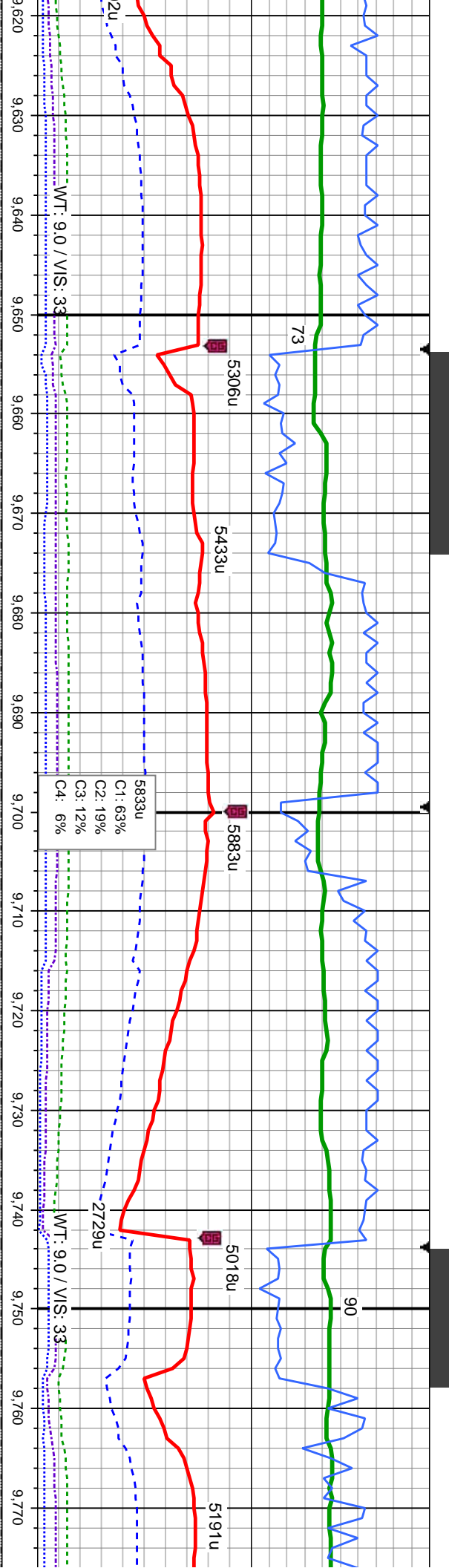
85% LS: wh-crm-tan, microxl, sm, sft-brt, lmy; 10% SHY SS: med-dk
gy-blk, blk, frm, v f-f gr, sb md-ang, w srt, cly cnt, non calc; 5% SLTY
SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb pily-sb blk, v f gr, silty
tex, mtx arg, non calc

620/70% LS: wh-crm-tan, m
dk gy-blk, blk, frm, v f-f
SLTY SH: med gy - dk g
v f gr, silty tex, mtx arg, n

MD: 9,503 '
TVD: 7,082.83 '
Inclination: 89.9 °
Azimuth: 269.5 °
VS: 3,262.62 '

MD: 9,593 '
TVD: 7,084.48 '
Inclination: 88 °
Azimuth: 266.9 °
VS: 3,352.55 '





microxln, sm, sft-brt, lmy: 25% SHY SS: med-
gr, sb md-ang, w srt, cly cnt, non calc: 5%
on calc

55% LS: wh-crm-tan, microxln, sm, sft-brt, lmy: 40% SHY SS: med- dk
gy-blk, blk, frm, v f f gr, sb md-ang, w srt, cly cnt, non calc: 5% SLTY
SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply- sb blk, v f gr,
sily tex, mxt aig, non calc

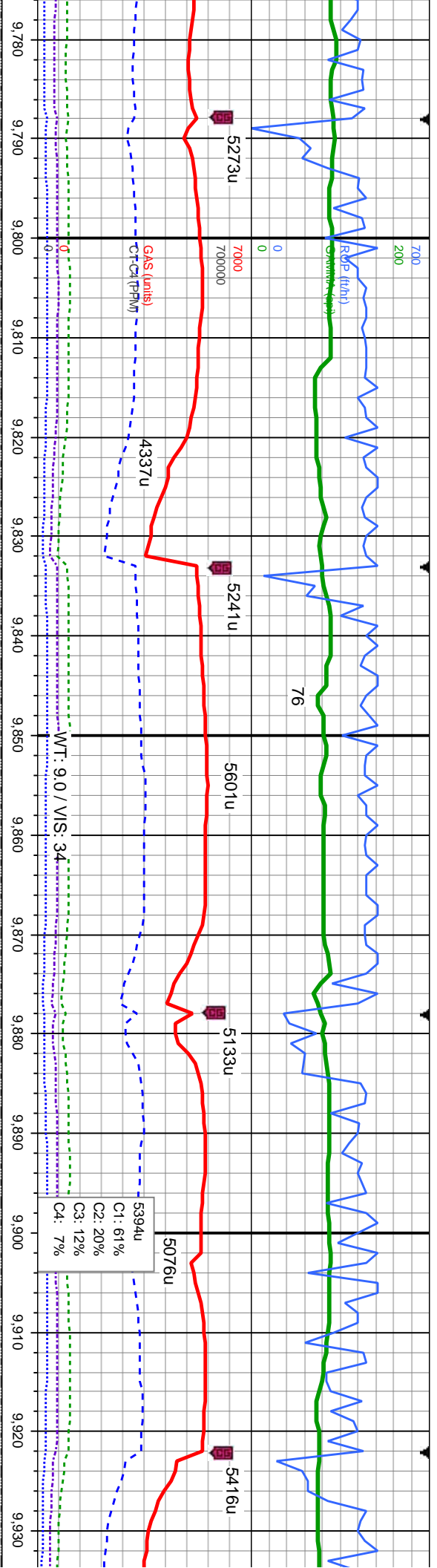
75% SHY SS: med- dk gy-blk, blk, frm, v f f gr, sb md-ang, w srt, cly
cnt, non calc: 20% LS: wh-crm-tan, microxln, sm, sft-brt, lmy: 5%
SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply- sb blk,
v f gr, sily tex, mxt aig, non calc

70% SHY SS: med- dk gy-blk, blk,
cly cnt, non calc: 25% LS: wh-crm-
5% SLTY SH: med gy - dk gy, brn,
sb blk, v f gr, sily tex, mxt aig, non

MD: 9,682 '
TVD: 7,086.81 '
Inclination: 89 °
Azimuth: 268 °
VS: 3,441.5 '

MD: 9,772 '
TVD: 7,087.28
Inclination: 90.
Azimuth: 269.1
VS: 3,531.44 '





frm, v f-f gr, sb md-ang, w srt, cly cmt, non calc; 35% LS: wh-crm-tan, microxln, sm, sft-brt, lmy; 5% SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply-cal

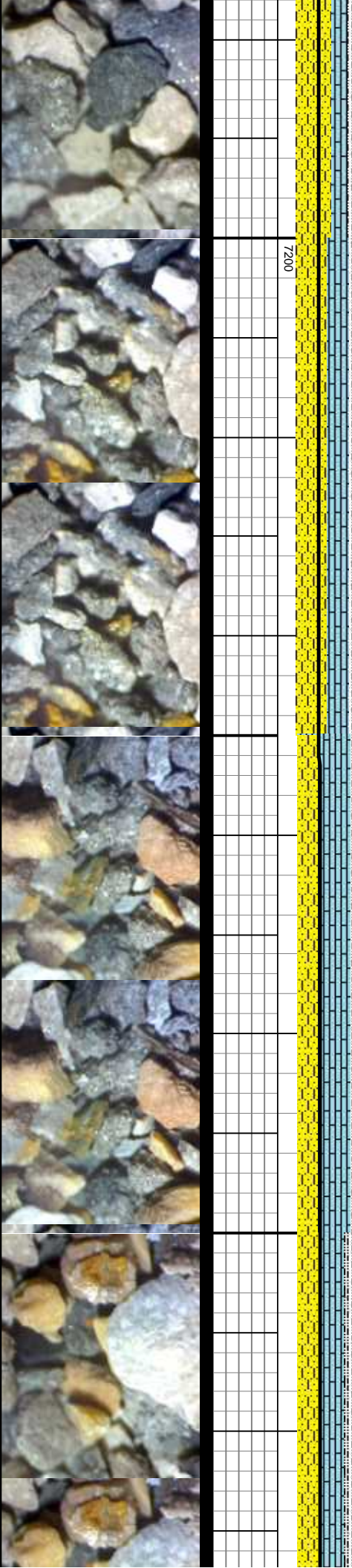
6200 60% SHY SS: med- dk gy-blk, blk, frm, v f-f gr, sb md-ang, w srt, cly cmt, non calc; 35% LS: wh-crm-tan, microxln, sm, sft-brt, lmy; 5% SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply-sb blk, v f gr, silty tex, mxt arg, non calc

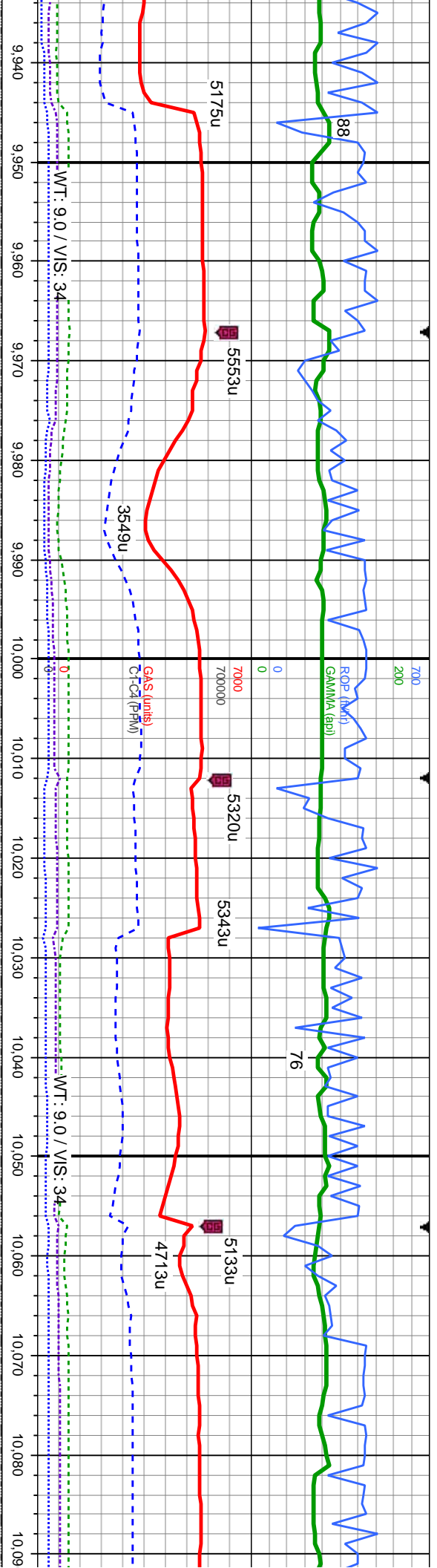
60% LS: wh-crm-tan, microxln, sm, sft-brt, lmy; 35% SHY SS: med- dk gy-blk, blk, frm, v f-f gr, sb md-ang, w srt, cly cmt, non calc; 5% SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply-sb blk, v f gr, silty tex, mxt arg, non calc

50% LS: wh-crm-tan, microxln, sm, sft-brt, lmy; 35% gy-blk, blk, frm, v f-f gr, sb md-ang, w srt, cly cmt, SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod fr v f gr, silty tex, mxt arg, non calc

MD: 9.862 ' TVD: 7.086.65 ' Inclination: 90.4 ° Azimuth: 268.7 ° VS: 3.621.36 '

TVD (ft)



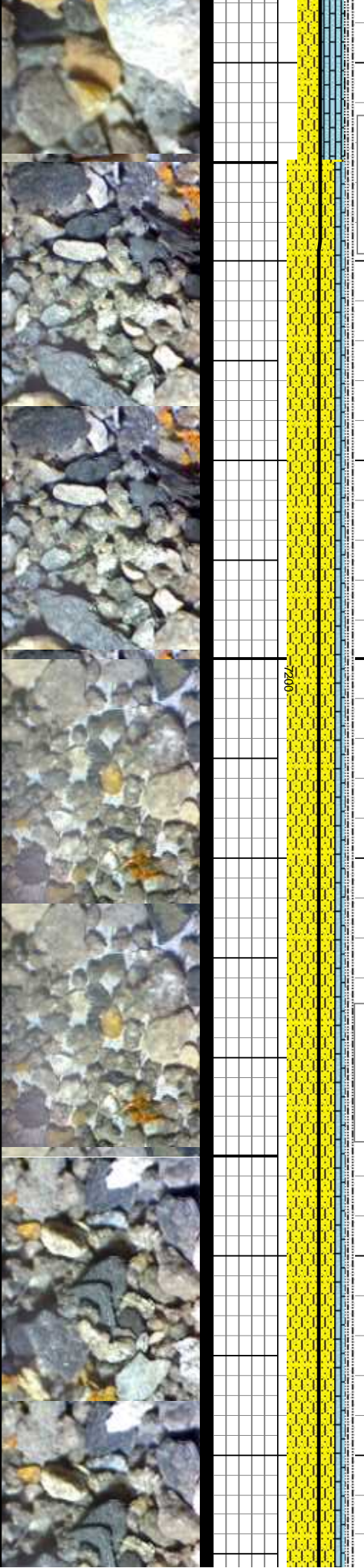


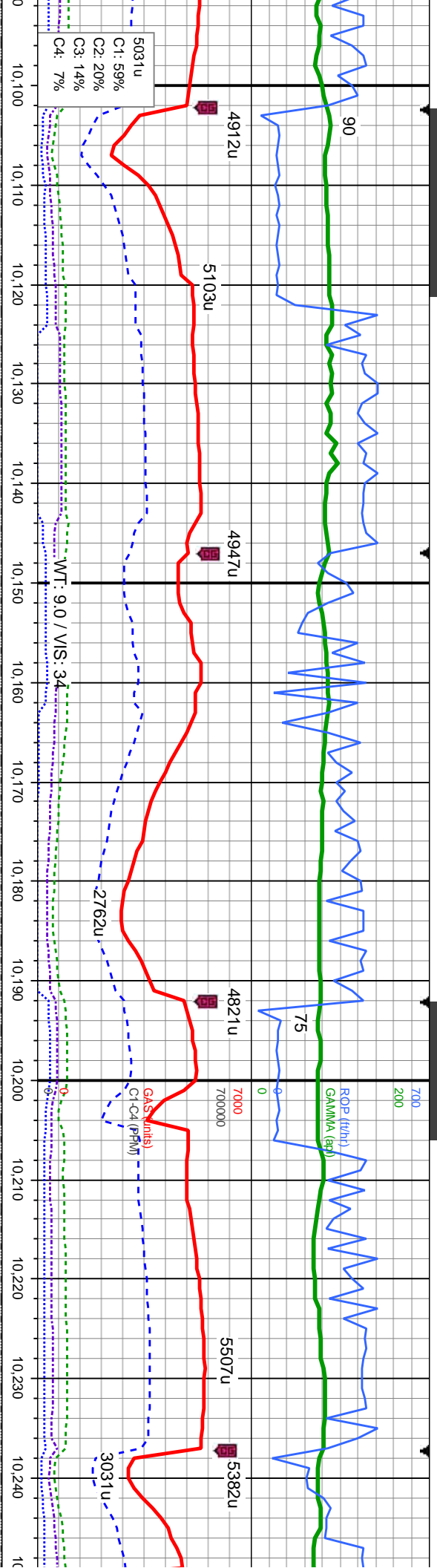
70% SHY SS: med-dk gy-blk, blkly, frm, v f⁺ gr, sb rnd-ang, w srt, cly
cmt, non calc: 15% LS: wh-crm-tan, microxln, sm, sft-brt, lmy; 15%
SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply-sb blkly,
v f gr, silty tex, mtx arg, non calc

75% SHY SS: med-dk gy-blk, blkly, frm, v f⁺ gr, sb rnd-ang, w
cmt, non calc: 15% LS: wh-crm-tan, microxln, sm, sft-brt, lmy;
SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply-s

MD: 9,962 '
TVD: 7,086.65 '
Inclination: 89.6 °
Azimuth: 267.2 °
VS: 3,711.32 '

MD: 10,041 '
TVD: 7,087.59 '
Inclination: 89.2 °
Azimuth: 266.8 °
VS: 3,800.31 '





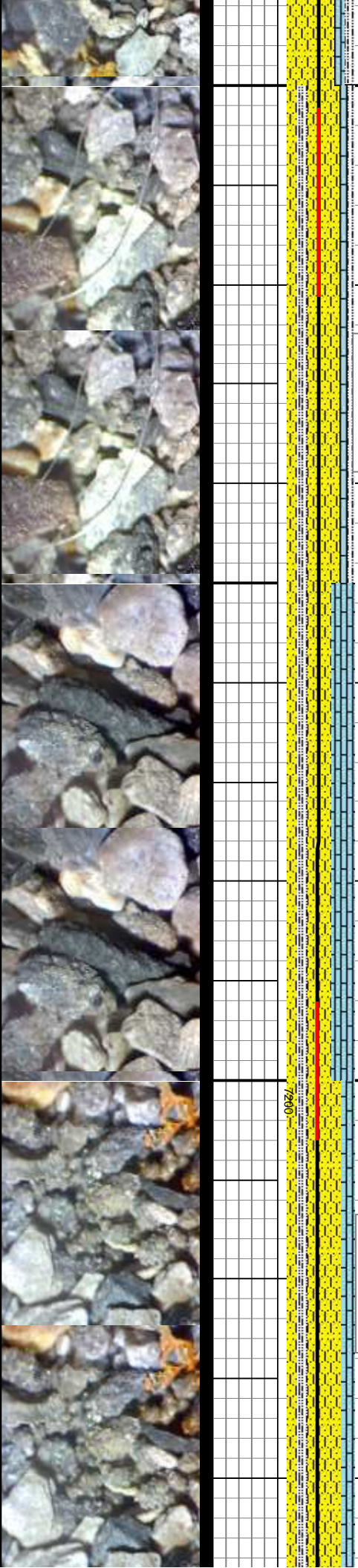
65% SHY SS: med-dk gy-blk, blkly, frm, v f⁺ gr, sb rnd-ang, w srt, cly cmt, non calc: 20% SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply- sb blkly, v⁺ gr, silty tex, m⁺x arg, non cal: 15% LS: wh-crm-tan, microxln, sm, sft-brt, lmy

50% LS: wh-crm-tan, microxln, sm, sft-brt, lmy; 40% SHY SS: med-dk gy-blk, blkly, frm, v f⁺ gr, sb rnd-ang, w srt, cly cmt, non calc: 10% SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply- sb blkly, v⁺ gr, silty tex, m⁺x arg, non cal

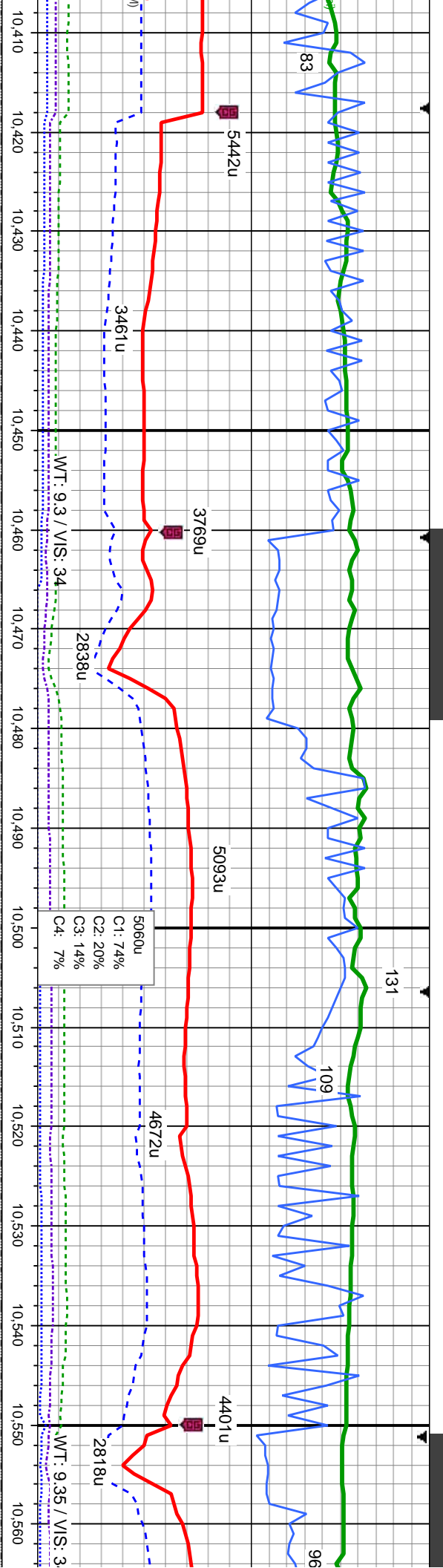
62-60% SHY SS: med-dk gy-blk, blkly, frm, v f⁺ gr, sb rnd-ang, w srt, cly cmt, non calc: 30% LS: wh-crm-tan, microxln, sm, sft-brt, lmy; 10% SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply- sb blkly, v⁺ gr, silty tex, m⁺x arg, non cal

MD: 10,131 '
TVD: 7,089.47 '
Inclination: 88.4 °
Azimuth: 269.3 °
VS: 3,890.25 '

MD: 10,220 '
TVD: 7,091.72 '
Inclination: 88.7 °
Azimuth: 270.5 °
VS: 3,979.06 '



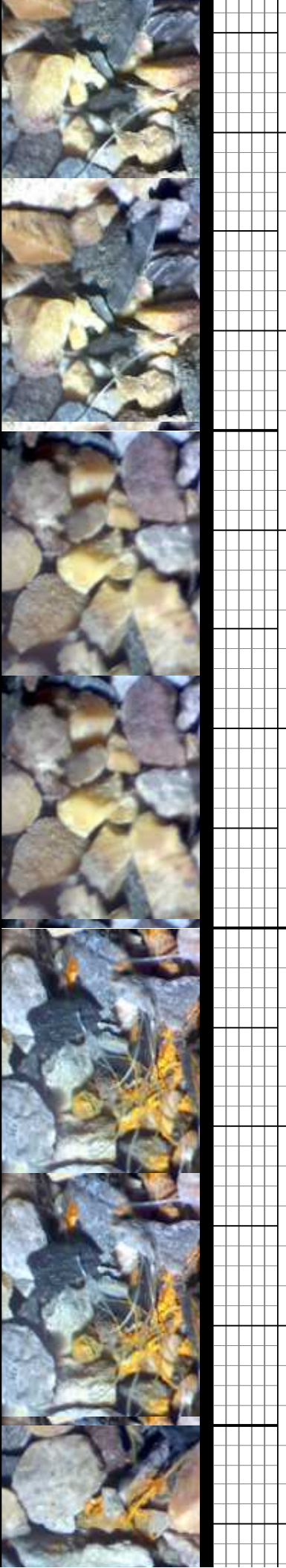
MD: 10,400 '
 TVD: 7,095.57 '
 Inclination: 88.8
 Azimuth: 269.2 °
 VS: 4,158.71 '

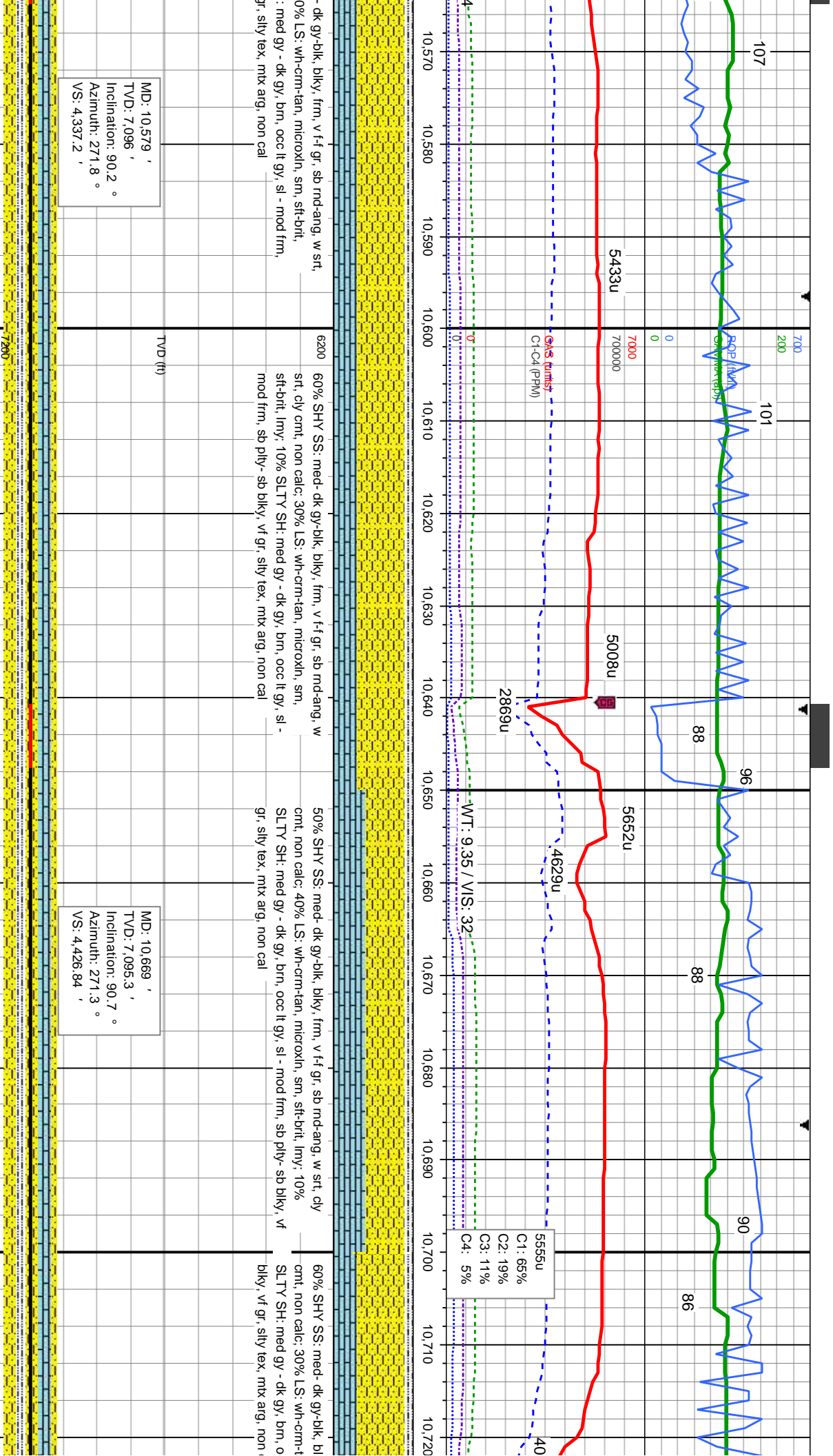


HY SS: med- dk gy-blk, blk, frm, v f f gr, sb md-ang, w srt, cly cm, non calc: 30% LS: wh- crm- tan, microxln, sm, sft- brt, lmy: 20% SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply- sb blk, v f gr, silty tex, mxt arg, non cal

60% SHY SS: med- dk gy-blk, blk, frm, v f f gr, sb md-ang, w srt, cly cm, non calc: 30% LS: wh- crm- tan, microxln, sm, sft- brt, lmy: 10% SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply- sb blk, v f gr, silty tex, mxt arg, non cal

MD: 10,489 '
TVD: 7,096.35 '
Inclination: 90.2 °
Azimuth: 270.9 °
VS: 4,247.53 '

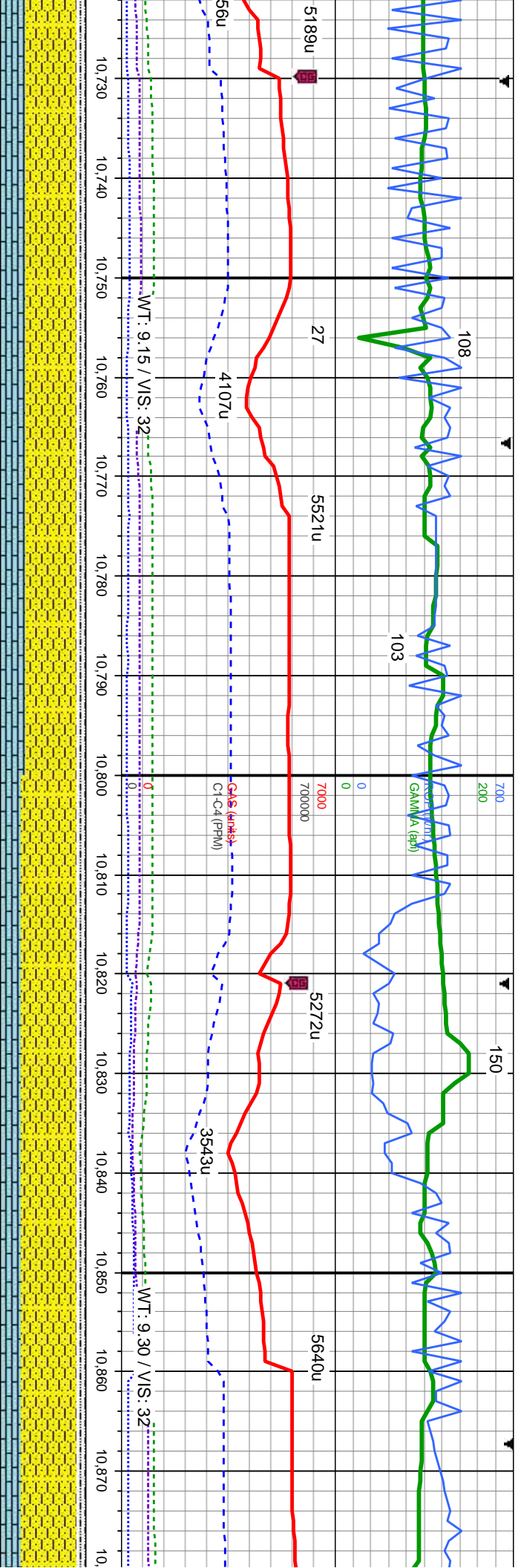




MD: 10,579 '
TVD: 7,096 '
Inclination: 90.2 °
Azimuth: 271.8 °
VS: 4,337.2 '

MD: 10,669 '
TVD: 7,095.3 '
Inclination: 90.7 °
Azimuth: 271.3 °
VS: 4,426.84 '

C1: 65%
C2: 19%
C3: 11%
C4: 5%



ky, frm, v f4 gr, sb md-ang, w srt, cly
an, microxln, sm, sft-brt, lmy; 10%
cc lt gy, sl - mod frm, sb ply- sb
cal

60% SHY SS: med- dk gy-blk, blkly, frm, v f4 gr, sb md-ang, w srt, cly
cmt, non calc; 30% LS: wh-crm-tan, microxln, sm, sft-brt, lmy; 10%
SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply- sb blkly,
v4 gr, sily tex, mtx arg, non cal

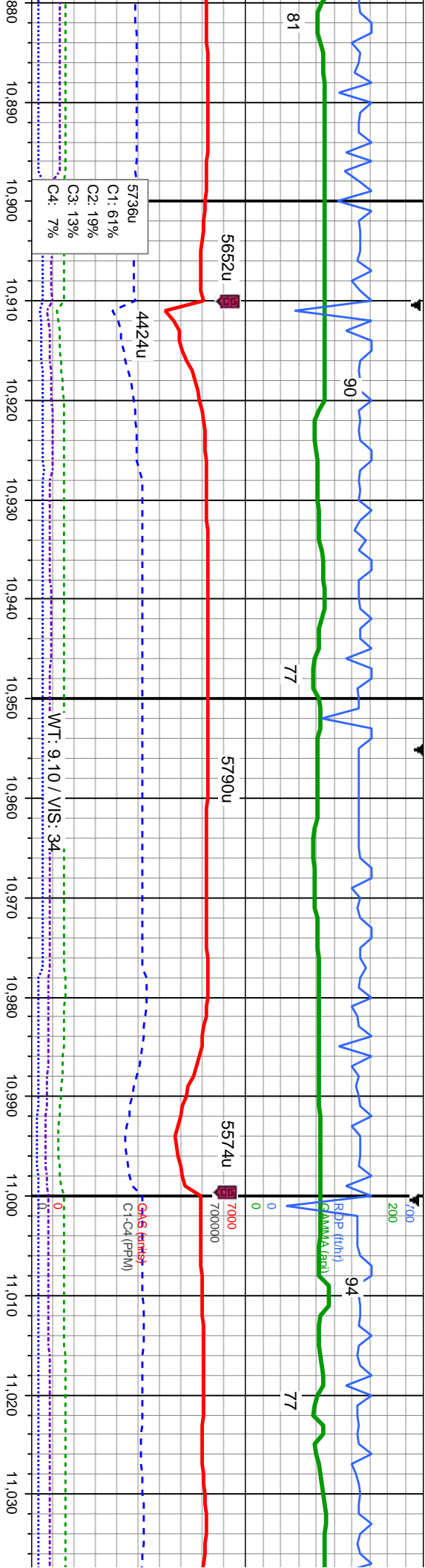
62% SHY SS: med- dk gy-blk, blkly, frm, v f4 gr, sb md-ang, w srt,
cly cmt, non calc; 25% LS: wh-crm-tan, microxln, sm, sft-brt, lmy;
10% SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply-
sb blkly, v4 gr, sily tex, mtx arg, non calc

65% SHY SS: med- dk gy-blk, blkly, frm, v f4 gr, sb md-ang, w srt,
cly cmt, non calc; 25% LS: wh-crm-tan, microxln, sm, sft-brt, lmy;
10% SLTY SH: med gy - dk gy, brn, occ lt g
sb blkly, v4 gr, sily tex, mtx arg, non calc

MD: 10,759 '
TVD: 7,094.12 '
Inclination: 90.8 °
Azimuth: 271 °
VS: 4,516.53 '

MD: 10,848 '
TVD: 7,092.95 '
Inclination: 90.7 °
Azimuth: 272 °
VS: 4,605.18 '





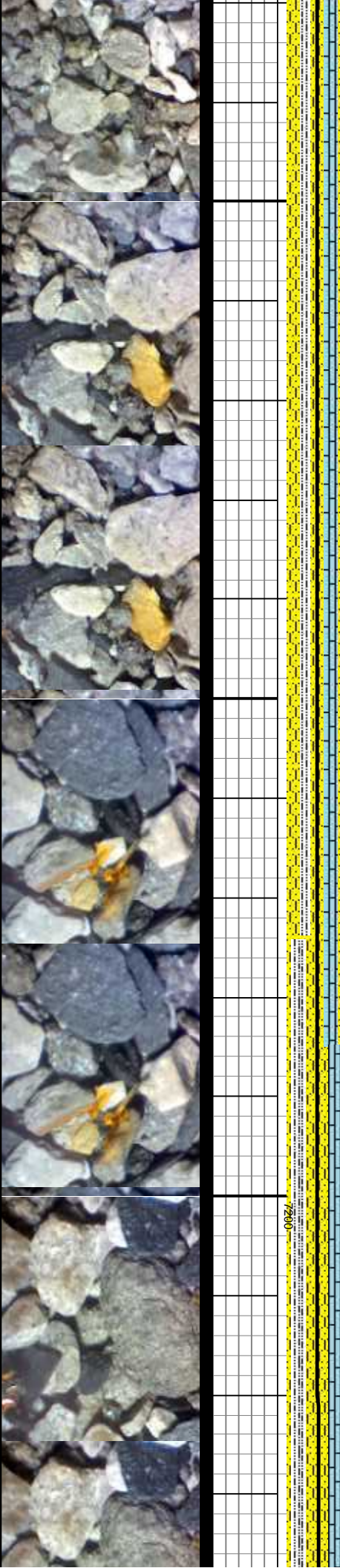
f gr, sb md-ang, w srt, cly cnt, non calc; 20% LS: wh-crm-tan, microxln, sm, sft-brft, lmy; y, sl - mod frm, sb pily-

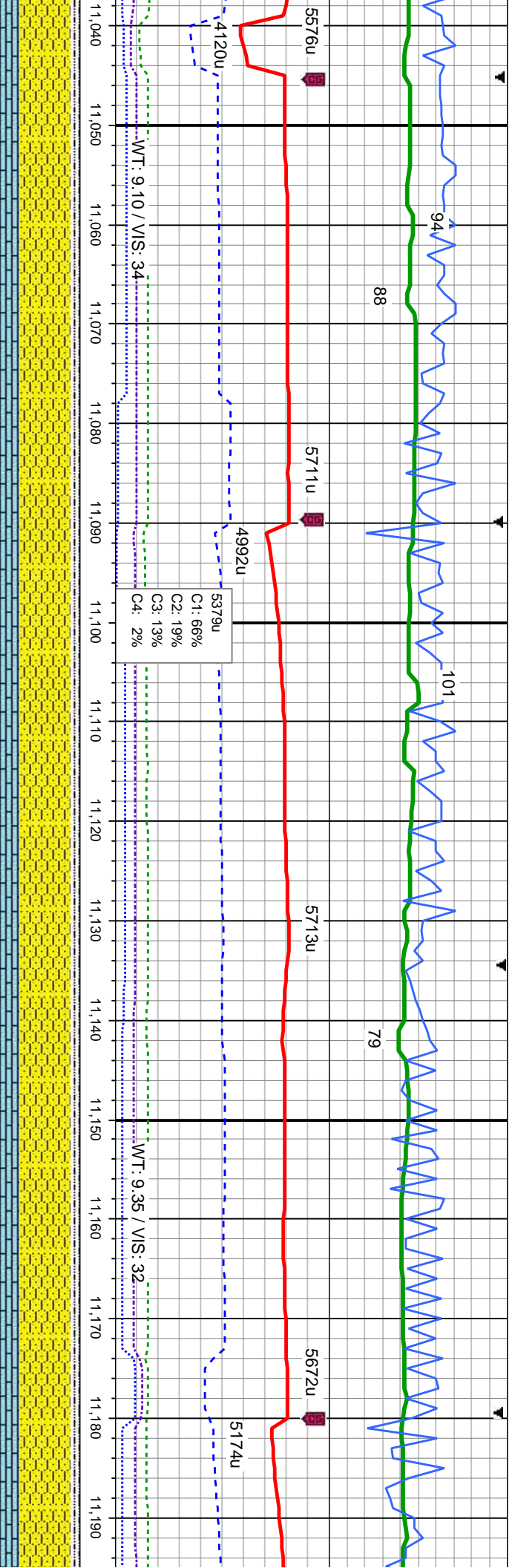
70% SHY SS: med- dk gy-blk, blkly, frm, v f f gr, sb md-ang, w srt, cly cnt, non calc; 20% LS: wh-crm-tan, microxln, sm, sft-brft, lmy; 10% SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb pily-sb blkly, v f gr, silty tex, mx arg, non calc

620%60% SHY SS: med- dk gy-blk, blkly, frm, v f f gr, sb md-ang, w srt, cly cnt, non calc; 30% LS: wh-crm-tan, microxln, sm, sft-brft, lmy; 10% SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb blkly, v f gr, silty tex, mx arg, non calc

MD: 10,938 '
TVD: 7,091.7 '
Inclination: 90.9 °
Azimuth: 271.5 °
VS: 4,694.79 '

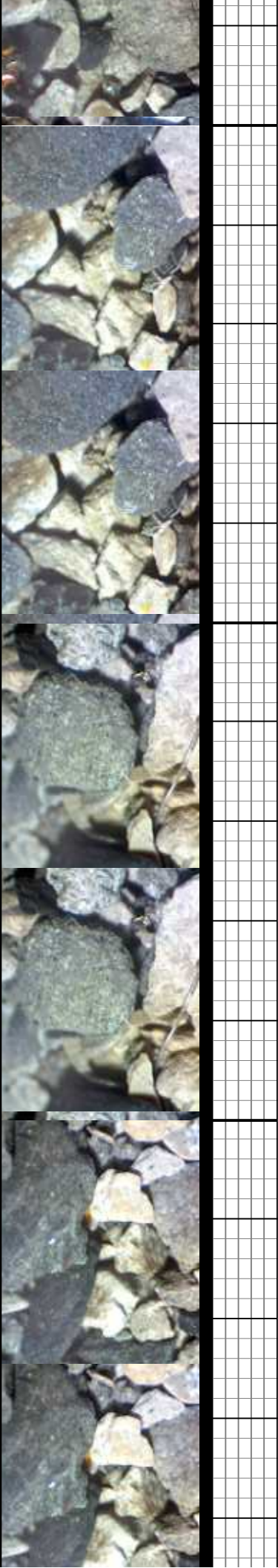
MD: 11,028 '
TVD: 7,090.52 '
Inclination: 90.6 °
Azimuth: 270.6 °
VS: 4,784.5 '

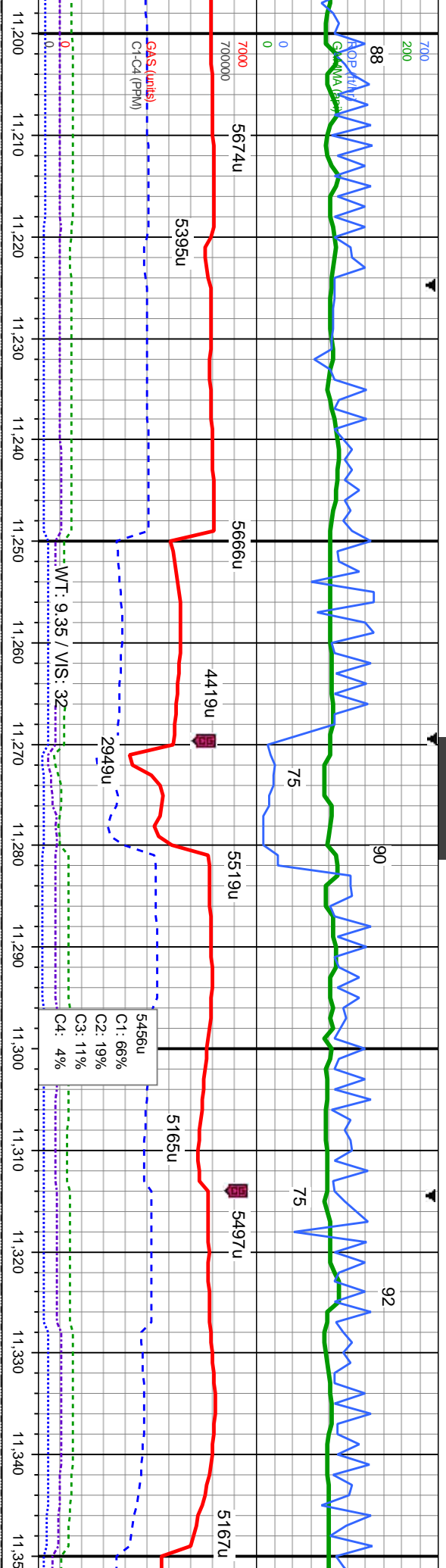




60% SHY SS: med-dk gy-blk, blk, frm, v f f gr, sb md-ang, w srt, cly cnt, non calc; 30% LS: wh-crm-tan, microxln, sm, sft-brt, lmy; 10% SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply-sb blk, v f gr, silty tex, mtx arg, non calc

MD: 11,117 '
TVD: 7,089.66 '
Inclination: 90.5 °
Azimuth: 270 °
VS: 4.873.29 '





62% 40% SHY SS: med- dk gy-blk, blk, frm, v f-f gr, sb md-ang, w srt, cly cnt, non calc; 40% LS: wh-crm-tan, microxln, sm, sft-brt, lmy; 20% SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply- sb blk, v f gr, silty tex, mlt arg, non calc

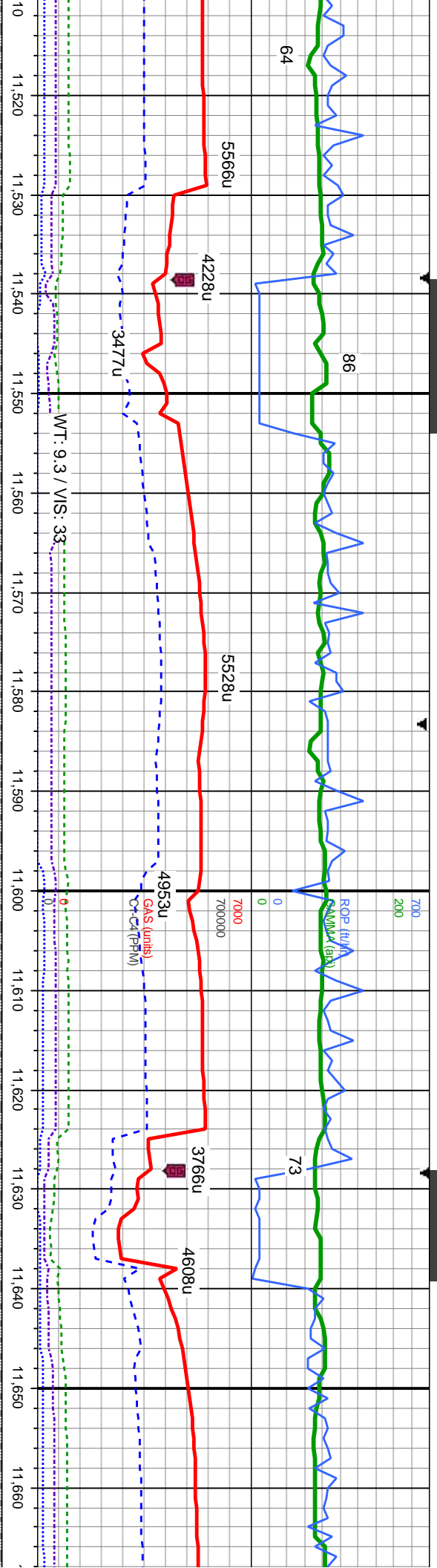
40% SHY SS: med- dk gy-blk, blk, frm, v f-f gr, sb md-ang, w srt, cly cnt, non calc; 40% LS: wh-crm-tan, microxln, sm, sft-brt, lmy; 20% SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply- sb blk, v f gr, silty tex, mlt arg, non calc

60% SHY SS: med- dk gy-blk, blk, frm, v f-f gr, sb md-ang, w srt, pred lse gr, cly cnt, non calc; 30% LS: wh-crm-tan, microxln, sm, sft-brt, lmy; 10% SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply- sb blk, v f gr, silty tex, mlt arg, non calc

MD: 11,207 '
TVD: 7,089.19 '
Inclination: 90.1 °
Azimuth: 269.6 °
VS: 4,963.14 '

MD: 11,296 '
TVD: 7,088.88 '
Inclination: 90.3 °
Azimuth: 270.6 °
VS: 5,051.96 '





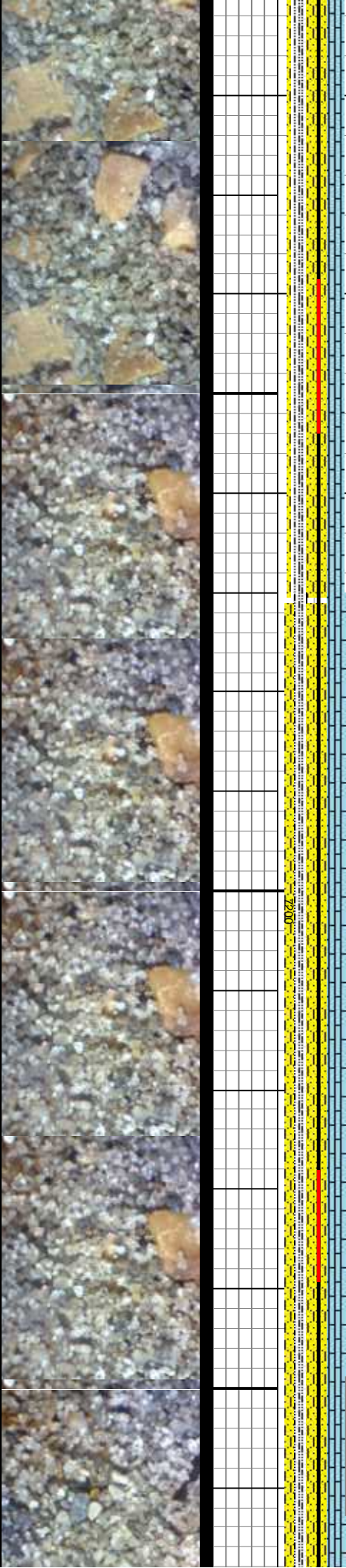
lt, med- dk gy-blk, blkly, frm, v f-f gr, sb md-ang, w
clly cmt, non calc; 20% LS: wh-crm-tan, microxin,
10% SLTY SH: med gy - dk gy, brn, occ lt gy, sl -
- sb blkly, v f gr, silty tex, mtx arg, non calc

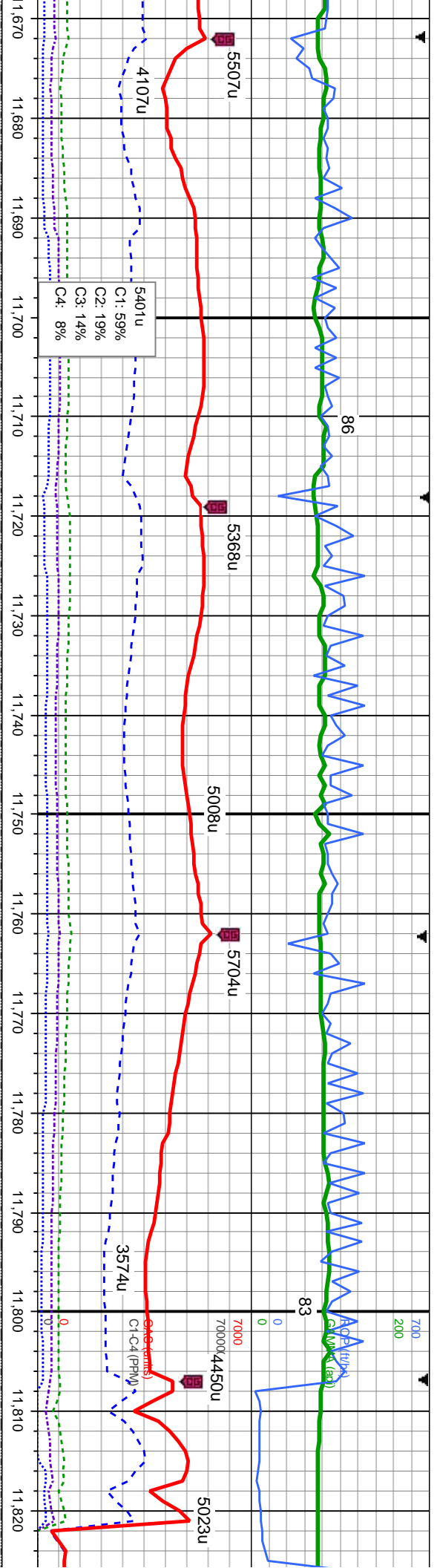
70% SHY SS: cl, med- dk gy-blk, blkly, frm, v f-f gr, sb md-ang, w
srt, pred lse gr, cly cmt, non calc; 20% LS: wh-crm-tan, microxin,
sm, sft-brt, lmy; 10% SLTY SH: med gy - dk gy, brn, occ lt gy, sl -
mod frm, sb ply- sb blkly, v f gr, silty tex, mtx arg, non calc

70% SHY SS: cl, med- dk gy-blk, blkly, frm, v f-f gr, sb md-ang, w
lse gr, cly cmt, non calc; 20%
10% SLTY SH: med gy - dk
blkly, v f gr, silty tex, mtx arg,

MD: 11,565 '
TVD: 7,088.33 '
Inclination: 90.2 °
Azimuth: 268.6 °
VS: 5,320.59 '

MD: 11,655 '
TVD: 7,088.65 '
Inclination: 89.4 °
Azimuth: 267.6 °
VS: 5,410.55 '





gy, blk, blk, frm, v f4 gr, sb md-ang, w srt, pried
pred lse gr, cly cmt, non calc; 30% LS: wh-crm-tan, microxln, sm, sft-brt, lmy;
st-brt, lmy; 10% SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply- sb
frm, sb ply- sb blk, v f4 gr, sily tex, mtx arg, non calc

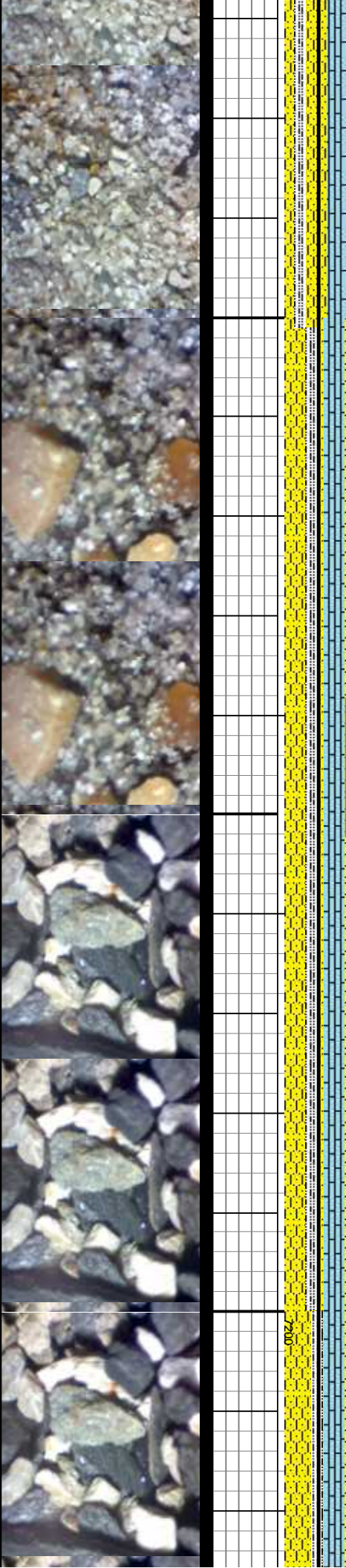
60% SHY SS: cl, med- dk gy-blk, blk, frm, v f4 gr, sb md-ang, w srt,
pred lse gr, cly cmt, non calc; 30% LS: wh-crm-tan, microxln, sm,
st-brt, lmy; 10% SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod
frm, sb ply- sb blk, v f4 gr, sily tex, mtx arg, non calc

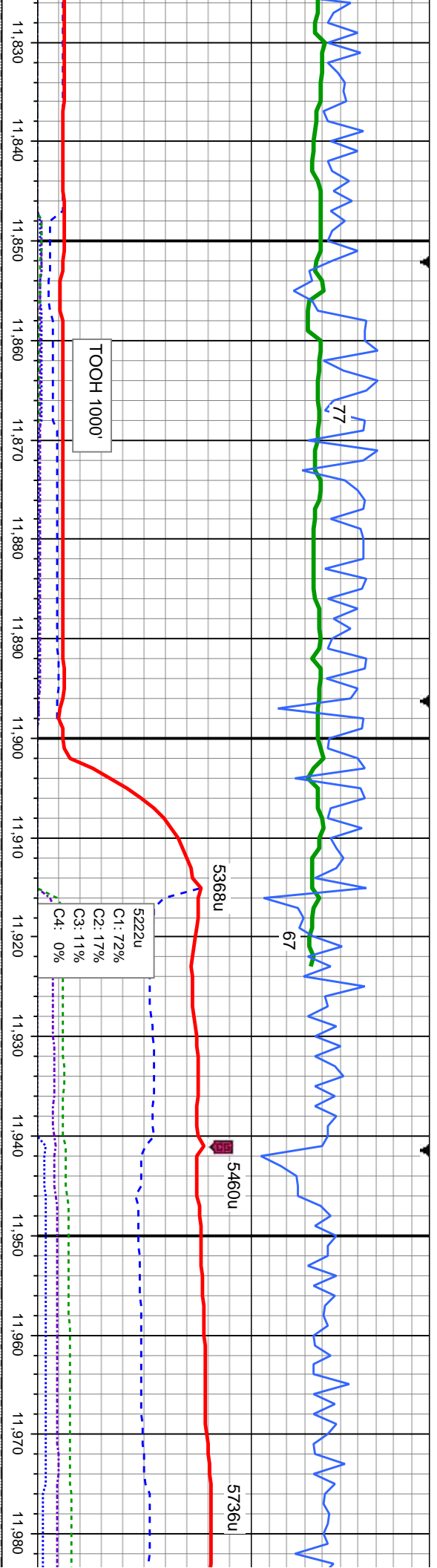
50% SHY SS: cl, med- dk gy-blk, blk, frm, v f4 gr, sb md-ang, w srt,
pred lse gr, cly cmt, non calc; 35% LS: wh-crm-tan, microxln, sm,
st-brt, lmy; 15% SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm,
sb ply- sb blk, v f4 gr, sily tex, mtx arg, non calc

62% SHY SS: cl, med- dk gy-blk, blk, frm, v f4 gr, sb md-ang, w srt,
pred lse gr, cly cmt, non calc; 35% LS: wh-crm-tan, microxln, sm,
st-brt, lmy; 15% SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm,
sb ply- sb blk, v f4 gr, sily tex, mtx arg, non calc

MD: 11,745 '
TVD: 7,089.98 '
Inclination: 88.9 °
Azimuth: 266 °
VS: 5,500.54 '

TVD (ft)





11,830 11,840 11,850 11,860 11,870 11,880 11,890 11,900 11,910 11,920 11,930 11,940 11,950 11,960 11,970 11,980

TOOH 1000'

5368u

5460u

5736u

77

67

5222u
C1: 72%
C2: 17%
C3: 11%
C4: 0%

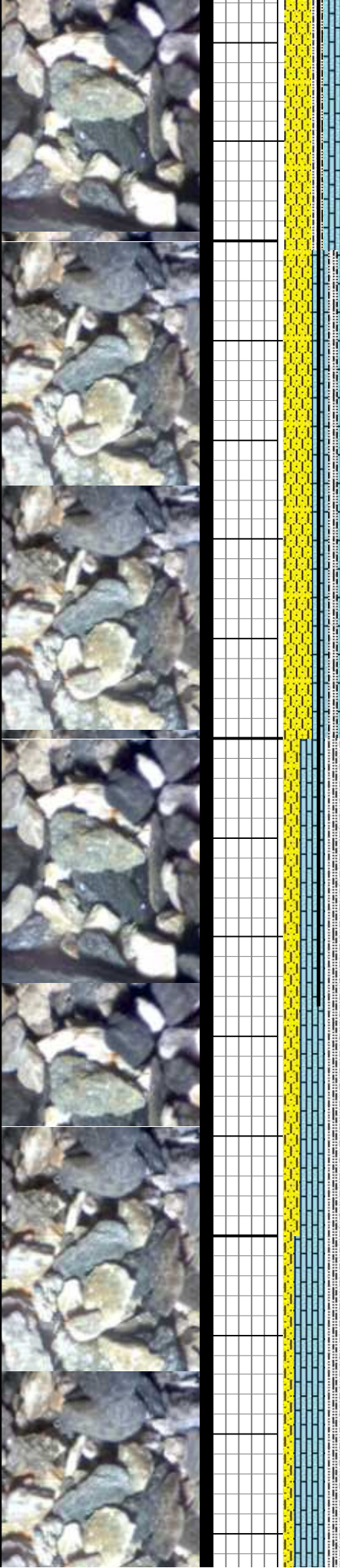
50% LS: wh-crm-tan, microxln, sm, sft-brlt, lmy; 35% SHY SS: clt, med- dk gy-blk, blk, frm, v f-f gr; sb md-ang, w srt, pred lse gr; cly cmt, non calc; 15% SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply- sb blk, v f gr, silty tex, mtx arg, non calc

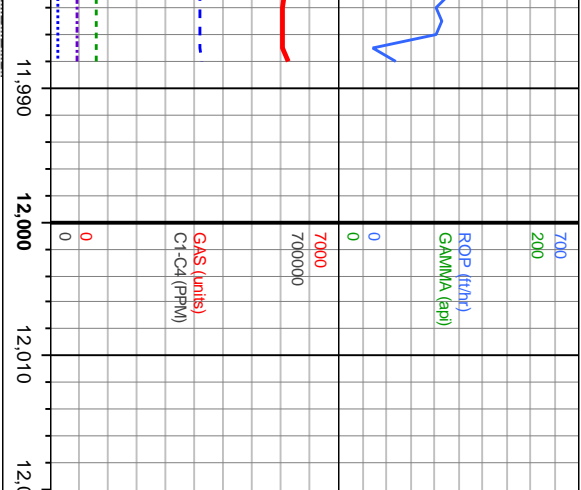
60% LS: wh-crm-tan, microxln, sm, sft-brlt, lmy; 20% SHY SS: clt, med- dk gy-blk, blk, frm, v f-f gr; sb md-ang, w srt, pred lse gr; cly cmt, non calc; 20% SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply- sb blk, v f gr; silty tex, mtx arg, non calc

70% LS: wh-crm-tan, microxln, sm, sft-brlt, lmy; 20% SLTY SH: med gy - dk gy, brn, occ lt gy, sl - mod frm, sb ply- sb blk, v f gr; silty tex, mtx arg, non calc; 10% SHY SS: clt, med- dk gy-blk, blk, frm, v f-f gr, sb md-ang, w srt, pred lse gr, cly cmt, non calc

MD: 11,834 '
TVD: 7,090.21 '
Inclination: 90.8 °
Azimuth: 266.4 °
VS: 5,589.53 '

MD: 11,927 '
TVD: 7,089.4 '
Inclination: 90.2 °
Azimuth: 265.3 °
VS: 5,682.52 '





Thank You for Choosing
Columbine Logging, Inc.

TD Well @ 11,989'
on 06/14/2014 - 06:28 MST

