



Scale: 6.98" / 100'
Measured Depth Log

Well Name Sandau State K25-62-1HNL

Location Sec. 25 T4N R66W

State Colorado

Country USA

API Number 05-123-38087

Region DJ Basin

Spud Date 3/20/2014

Surface Coordinates 40.27661, 104.7337
320' FSL x 320' FWL

Bottom Hole Coordinates 40.27709, 104.69852
330' FSL x 535' FEL

Ground Elevation 4798'

Logged Interval 6398' **To** 16640'

Formation Nio C chalk

Type of Drilling Fluid FW LSND

County Weld

Rig Number Percision Drilling 829

AFE # 136989

Field Hambert

Drilling Completed 4/7/2014

K.B. Elevation 4814'

Total Depth 16640'

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
2022

Geologist

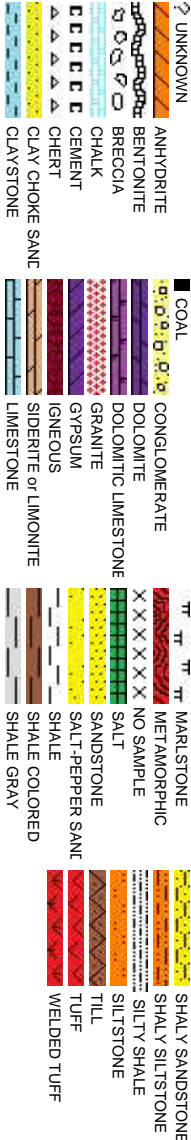
C.
AY
2022

Other

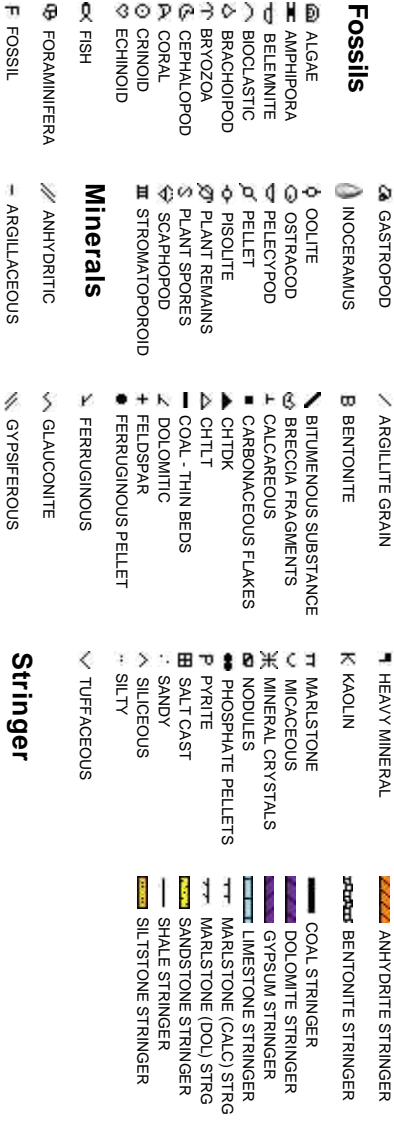
2385 S. LIPAN STREET
DENVER, CO 80223

Ryan Shilling
Jeramy Murray
Whitney Jacks

Rock Types



Accessories



Other Symbols

Oil Show	P PINPOINT V VUGGY	DST INTERVAL FAULT	WIRELINE TESTED - LEFT WIRELINE TESTED - RT	E EARTHY FX FINELYXLN
D DEAD	Engineering	FORMATION TOP	DRILL STEM TEST	GS GRAINSTONE
● EVEN	BIT	GAS SHOW OIL SHOW	MNDEPTH MN DEPTH	L LITHOGRAPHIC MX MICROXLN
○ QUESTIONABLE	SPOTTED STAINING	CONNECTION (UP)	Rounding	MS MUDSTONE
● SPOTTED STAINING	CONNECTION (UP)	MNDEPTH UP		
	CONNECTION (DOWN)	MNDEPTH (DOWN)	A ANGULAR	PS PACKSTONE
Porosity	CONNECTION GAS	NORMAL FAULT	R ROUNDED	WS WACKESTONE
E EARTHY	CONNECTION GAS (LEFT)	OVERTURNED STRATA	B SUBANG	
F FENESTRAL	TRIP GAS	REVERSE FAULT	P SUBRND	Sorting
F FRACTURE	TRIP GAS (LEFT)	CASING		M MODERATE
X INTERCRYSTALLINE	DOWN TIME GAS	SIDEWALL CORE (LEFT)	Textures	P POOR
Q INTEROOLITIC	DOWN TIME GAS (LEFT)	SIDEWALL CORE (RIGHT)	BS BOUNDSTONE	W WELL
M MOLDIC	CORE - LOST	SLIDE	C CHALKY	
O ORGANIC	CORE - RECOVERED	SURVEY	CX CRYPTOXLN	

Slide/Rotate

ROP
ROF
GAMMA

ROP Scale
0-500 ft/hr

Gamma Scale
0 - 200 API

Gas Scale
0 - 5000 units

Total Gas & Chromatograph

GAS
C1
C2
C3
C4

COLUMBINE LOGGING, INC. RIGGED
UP ON 03/21/2014 MANNED
2-PERSON LOGGING WITH
BLOODHOUND GAS
CHROMATOGRAPH UNIT # 0715

Depth Labels

% Lith

Well Bore
TVD

Oil Show

Images

exc
mod
7
1
st

Log Continues From
Sandau State K25-62-1HNL-VERT

Bit Data
Bit #: 3
Type: SD1611
Size: 8.75
Depth In: 6,398 '
Depth Out: 7,492 '
Jets: 3x13 3x14
S/N: JH9140

TVD SCALE
6300'-7300'

3/25/2014

MINDEPTH
500
200

3/26/2014

MINDEPTH
500
200

109

2404u

1333u

WT: 10.65 / VIS: 51

KOP=6398'

MD: 6,404
TVD: 6,402.87
Inclination: 1.1
Azimuth: 81.5
VS: -7.57

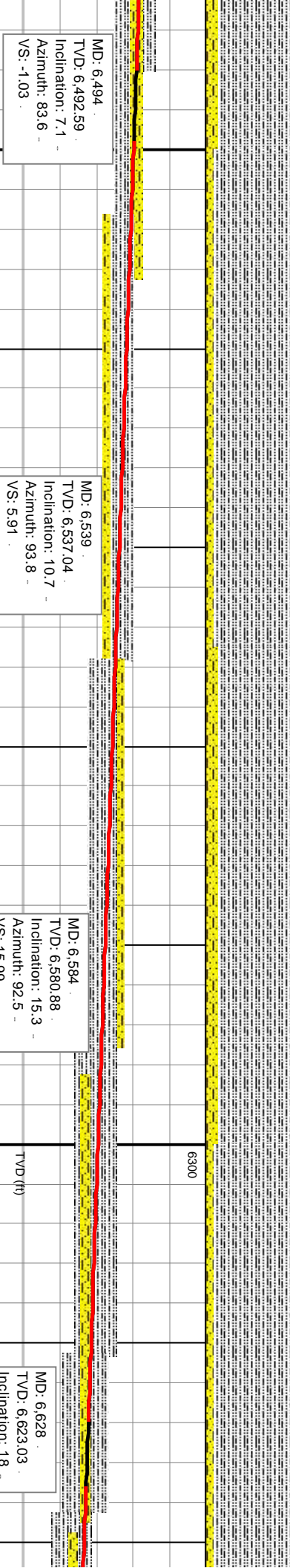
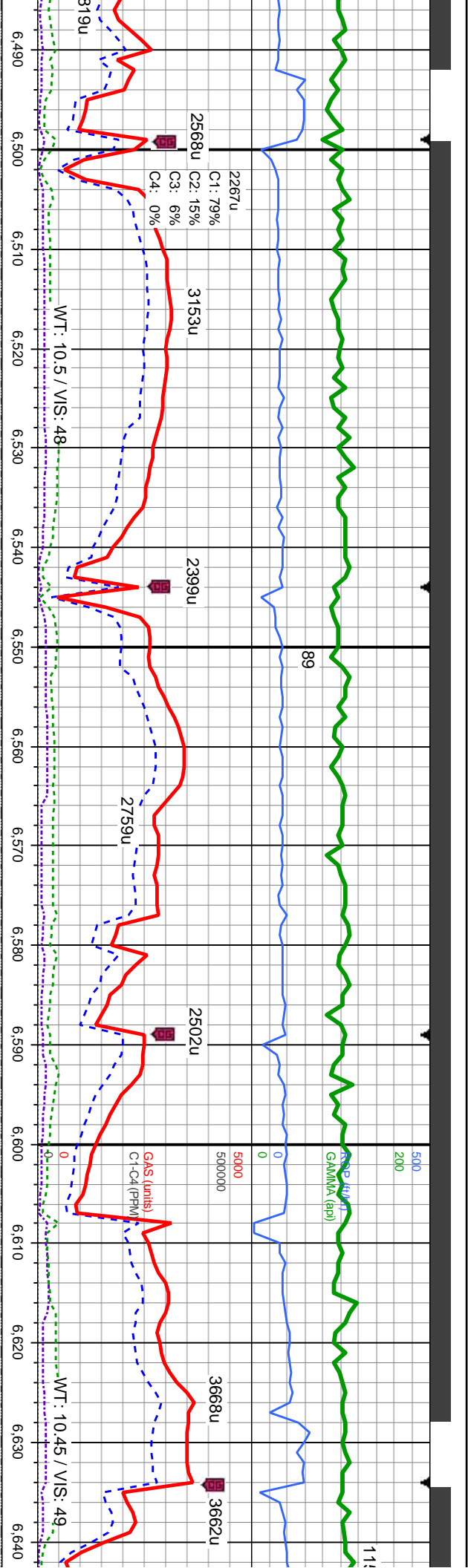
TVD (ft)

MD: 6,449
TVD: 6,447.81
Inclination: 4.3
Azimuth: 81.1
VS: -5.47

95% SLTY SH: lt-med gy, dk gy, sl frm- mod frm, sb ply-sb blk, v f gr,
sily tex, rthy lst, non calc, 5% SHY SS: wh-lt gy, s&p, blk, frm, v f f gr,
sb md-ang, mod-w srt, cl sup, cly cmt, non calc

85% SLTY SH: lt-med gy, dk gy, sl frm- mod frm, sl
sily tex, rthy lst, non calc, 15% SHY SS: wh-lt gy, s
gr, sb md-ang, mod-w srt, cl sup, cly cmt, non calc





p ply-sb blk, v f gr, s&g, blk, frm, v f f	90% SLTY SH: lt-med gy, dk gy, sl frm- mod frm, sb ply-sb blk, v f gr, silty tex, rthy lst, non calc, 10% SHY SS: wh-lt gy, s&g, blk, frm, v f f gr, sb md-ang, mod-w srl, cl sup, cly cnt, non calc	85% SLTY SH: lt-med gy, sl frm- mod frm, sb ply-sb blk, v f gr, silty tex, rthy lst, non calc, 15% SHY SS: wh-lt gy, s&g, blk, frm, v f f gr, sb md-ang, mod-w srl, cl sup, cly cnt, non calc	90% SLTY SH: lt-med gy, sl frm- mod frm, sb ply-sb blk, v f gr, silty tex, rthy lst, non calc, 10% SHY SS: wh-lt gy, s&g, blk, frm, v f f gr, sb md-ang, mod-w srl, cl sup, cly cnt, non calc
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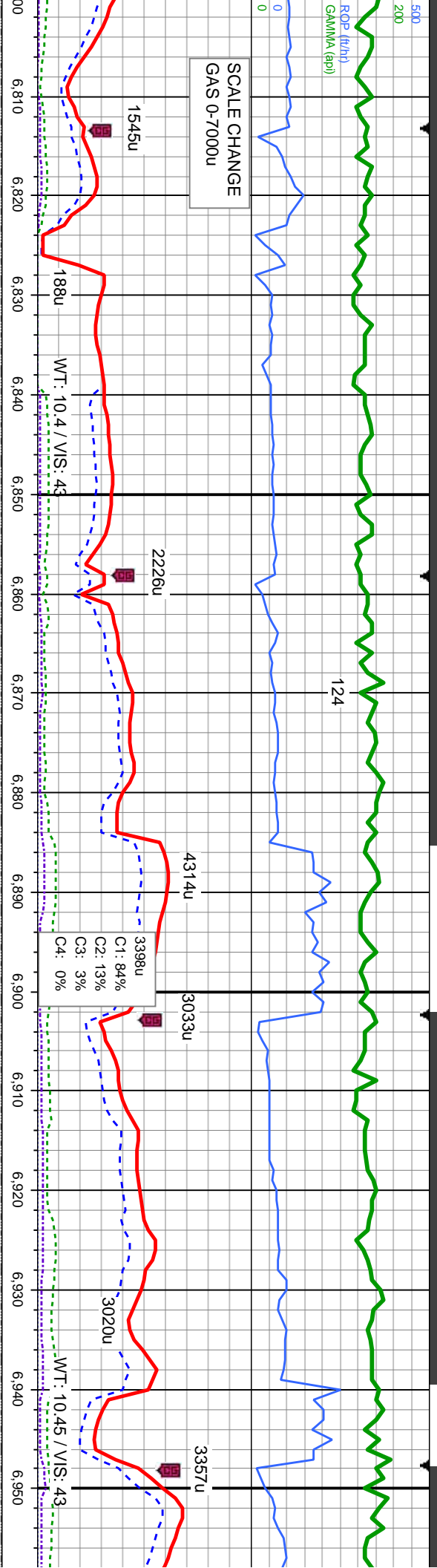




MD: 6,763
TVD: 6,749.12
Inclination: 25.9
Azimuth: 92
VS: 76.35

100% SLTY SH: lt-med gy, sl frm- mod frm, sb ply-sb blk, vt gr, stly
tex, rthy lstr, non calc, tr pyr cld, tr shy ss





MD: 6.808
TVD: 6.788.58
Inclination: 31.5
Azimuth: 91.5
VS: 97.91

MD: 6.852
TVD: 6.825.13
Inclination: 36.1
Azimuth: 91.7
VS: 122.35

MD: 6.897
TVD: 6.860.59
Inclination: 39.9
Azimuth: 89.7
VS: 150.02

MD: 6.942
TVD: 6.894.03
Inclination: 44.1
Azimuth: 87.1
VS: 180.12

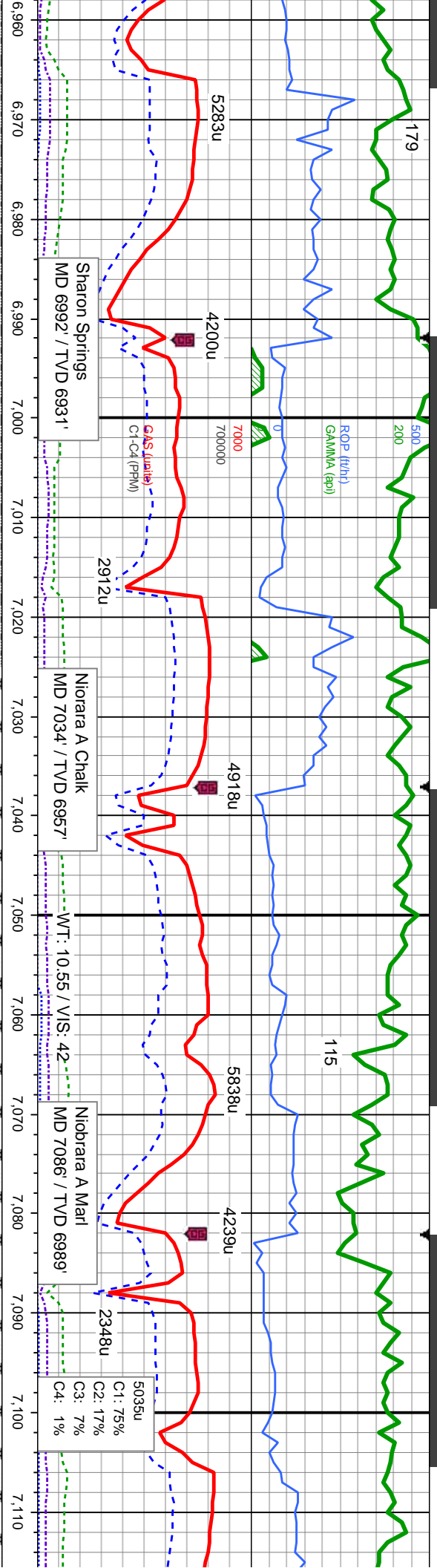
100% SLTY SH: lt-med gy, sl frm- mod frm, sb ply-sb blk, v/ gr. silty tex, rthy lst, non calc, tr pyr cld, tr shly ss

100% SLTY SH: lt-med gy, sl frm- mod frm, sb ply-sb blk, v/ gr. silty tex, rthy lst, non calc, tr pyr cld, tr shly ss

100% SLTY SH: lt-med gy, sl frm- mod frm, sb ply-sb blk, v/ gr. silty tex, rthy lst, non calc, tr pyr cld, tr shly ss

100% SLTY SH: lt-med gy, sl frm- mod frm, sb ply-sb blk, v/ gr. silty tex, rthy





MD: 6,987
TVD: 6,925.62
Inclination: 46.7
Azimuth: 86.7
VS: 212.15

MD: 7,032
TVD: 6,955.7
Inclination: 49.4
Azimuth: 88.3
VS: 245.61

MD: 7,077
TVD: 6,983.89
Inclination: 53
Azimuth: 89.5
VS: 280.67

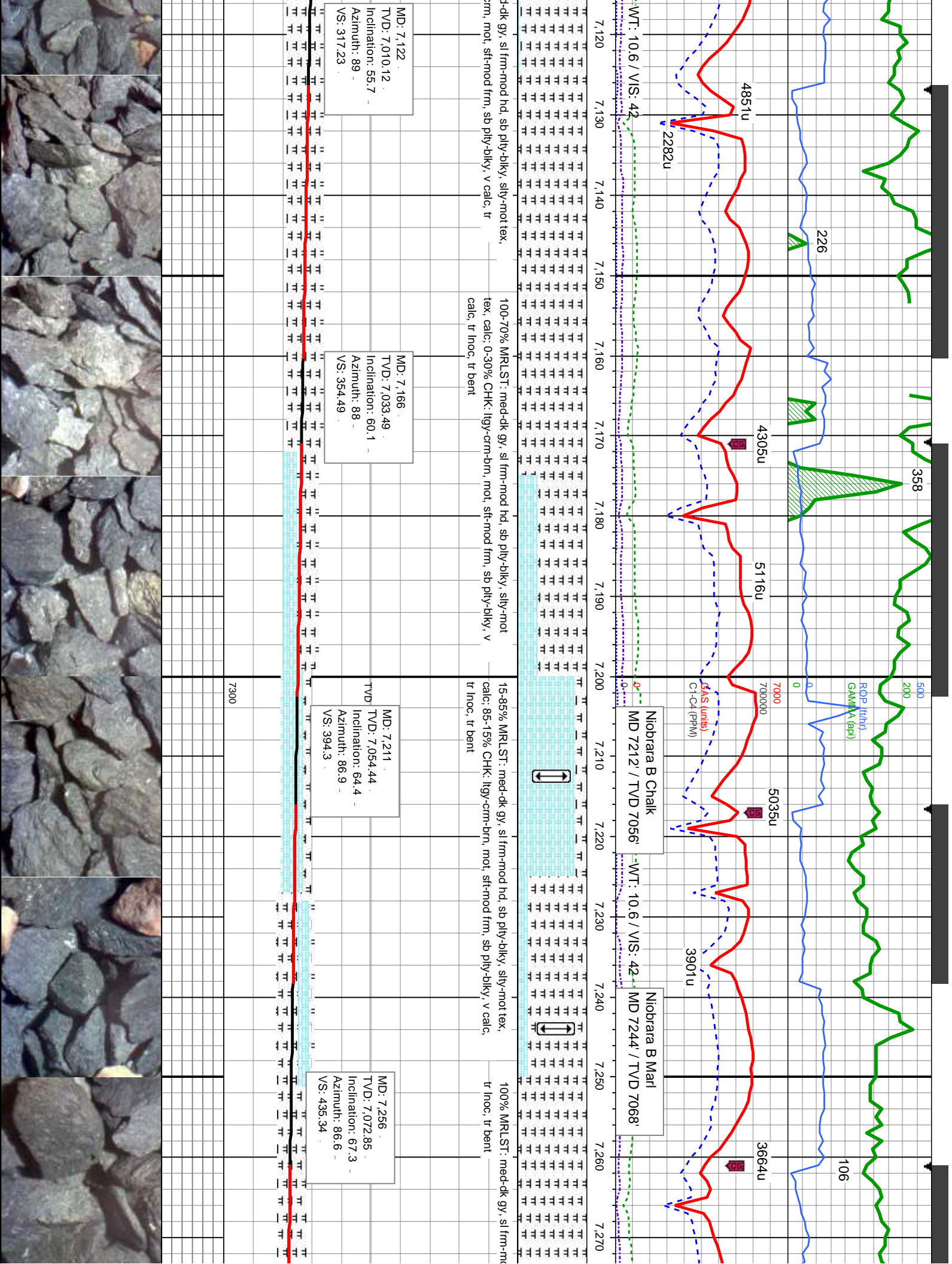
TY SH: lt-med gy, sl frm- mod frm, sb ply-sb blkly, vtr gr, silty
str, non calc, tr pyr cid, tr shy ss

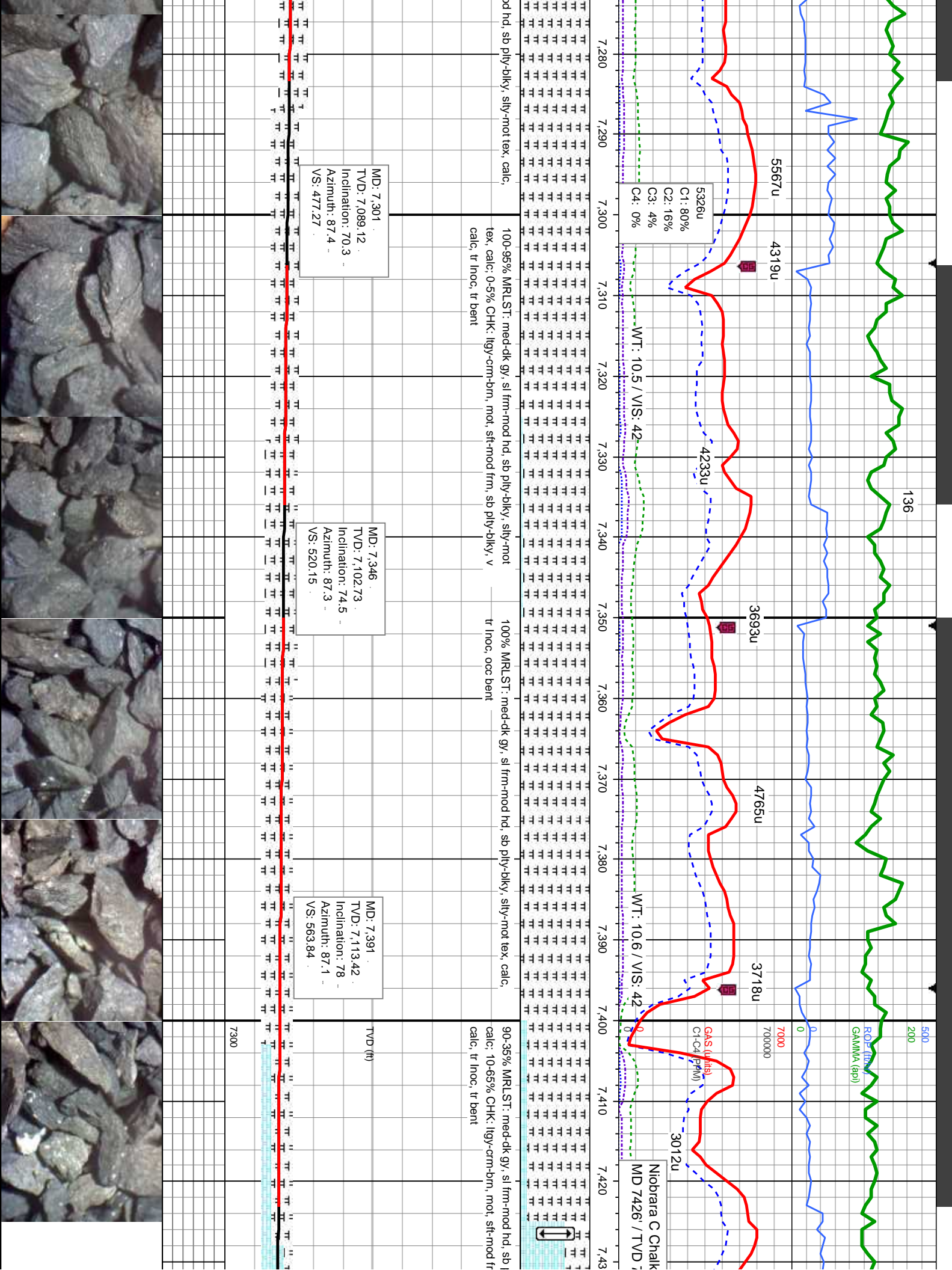
40-30% MRLST: med-dk gy, sl frm-mod hd, sb ply-blky, silty-not
tex, calc: 5-70% CHK: ltgy-crm, mot, sft-mod frm, sb ply-blky, v
calc: 55-0% SL TY SH: lt-med gy, sft-sl frm, fin, sb ply-blky, vtr gr,
silty tex, rthy lsir, sl calc, tr sh

15-80% MRLST: med-dk gy, sl frm-mod hd, sb ply-blky, silty-not tex,
calc: 85-20% CHK: ltgy-crm, mot, sft-mod frm, sb ply-blky, v calc, tr
Inoc, v tr bent

95-100% MRLST: med
calc: 5-0% CHK: ltgy-c



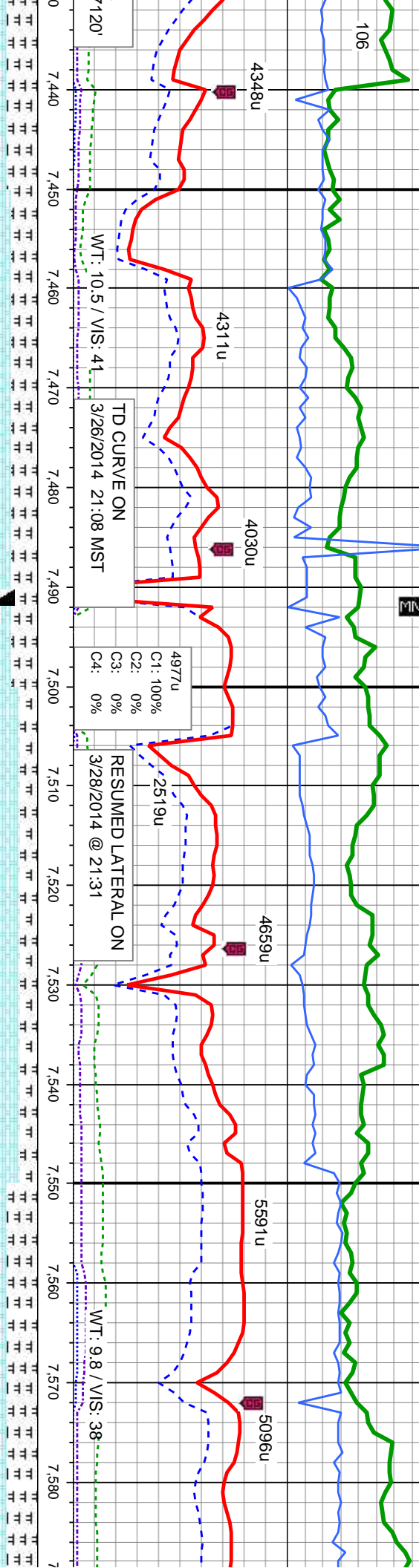




3/27-28/2014

MINDEPTH

139



ibly-biky, silty-mot tex, m, sb ply-biky, v
70% CHK: lgy-crm-brn, mot, sft-mod frm, sb ply-biky, v
calc: 30% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot tex, calc, tr inoc, tr bent

MD: 7.442
TVD: 7.123.24
Inclination: 79.8
Azimuth: 86.9
VS: 613.87

Bit Data
Bit #: 4
Type: SKIH 516 M
Size: 6.12
Depth In: 7.492 '
Depth Out: 15.448 '
Jets: 5x13
S/N: A192373

MD: 7.510
TVD: 7.132.94
Inclination: 83.8
Azimuth: 88.19
VS: 681.15

MD: 7.554
TVD: 7.136.66
Inclination: 86.5
Azimuth: 89.48
VS: 724.99

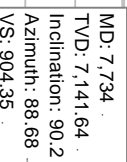
80% CHK: lgy-crm-brn, mot, sft-mod frm, sb ply-biky, v calc: 20%
MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot tex, calc, tr inoc, tr cal

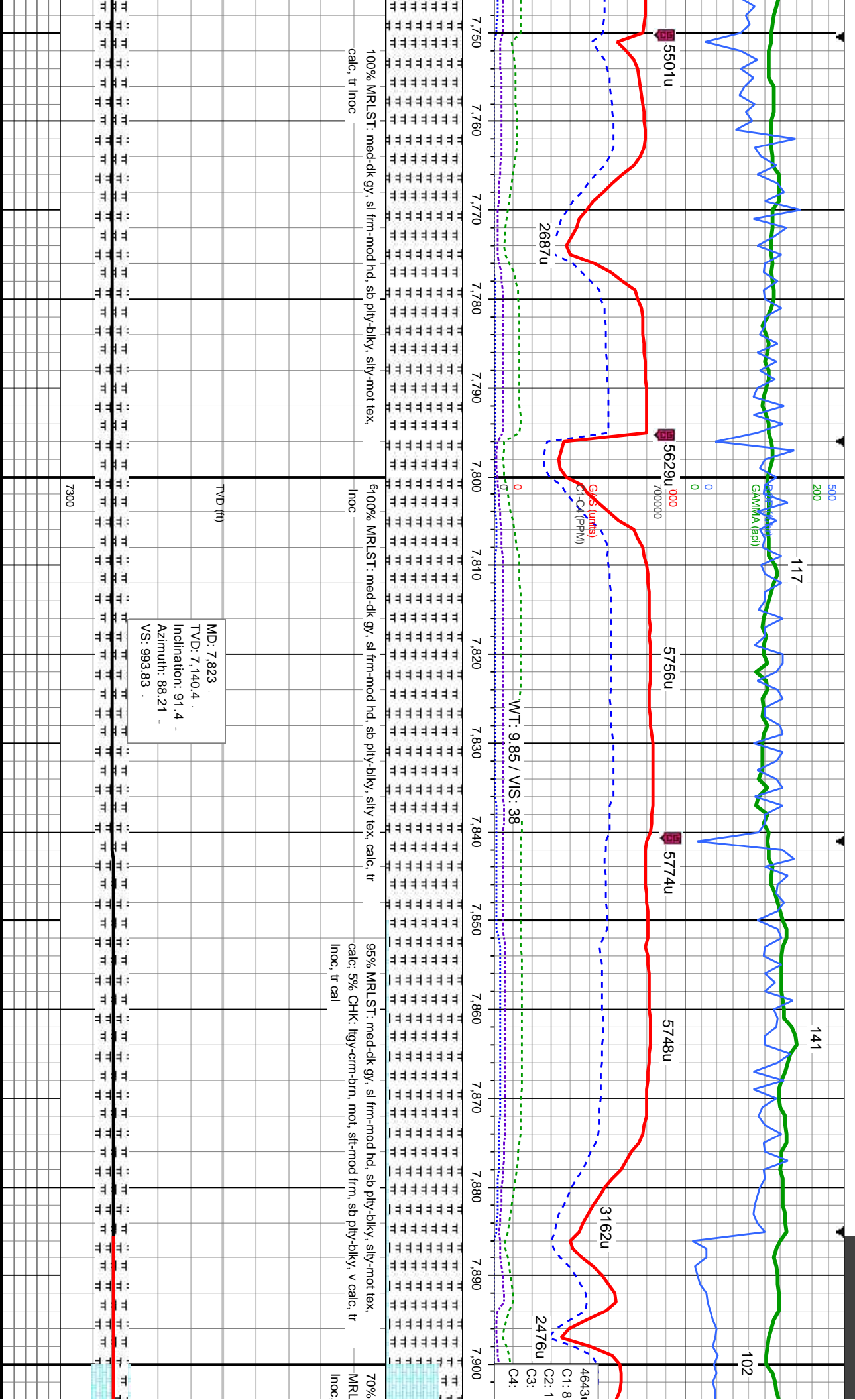
75% CHK: lgy-crm-brn, mot, sft-mod frm, sb ply-biky, v c
MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot t

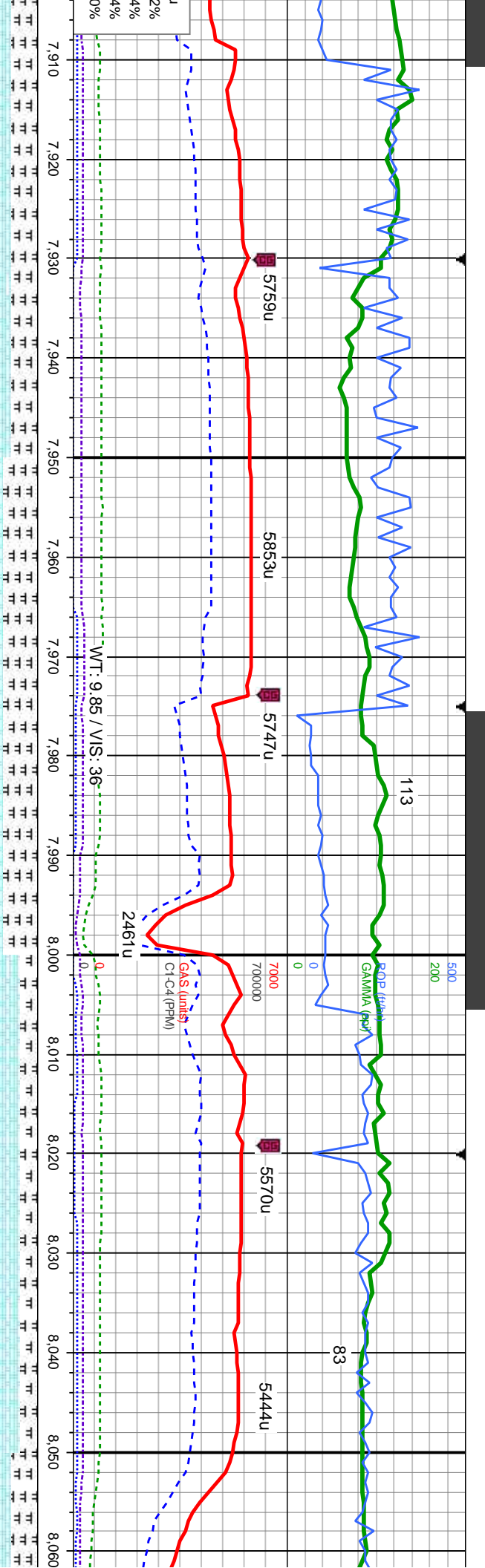
OIL SHOWS BEGIN



MN







MD: 7.913
TVD: 7,137.89
Inclination: 91.8
Azimuth: 88.38
VS: 1,083.79

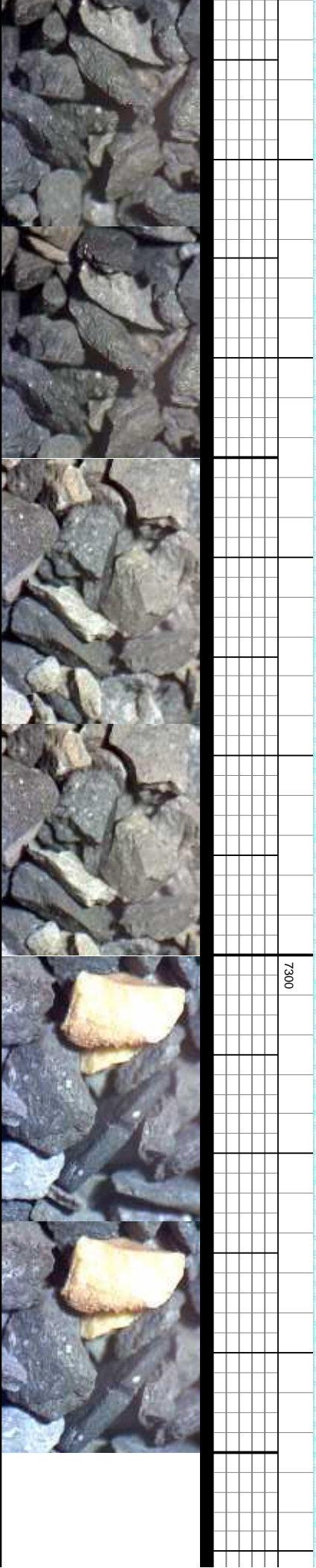
CHK: tan-brn, sl mot, sft-mod frm, sb ply-bkly, v calc: 30%
ST: med-dk gy, sl frm-mod hd, sb ply-bkly, silty-mot tex, calc, tr
tr cal

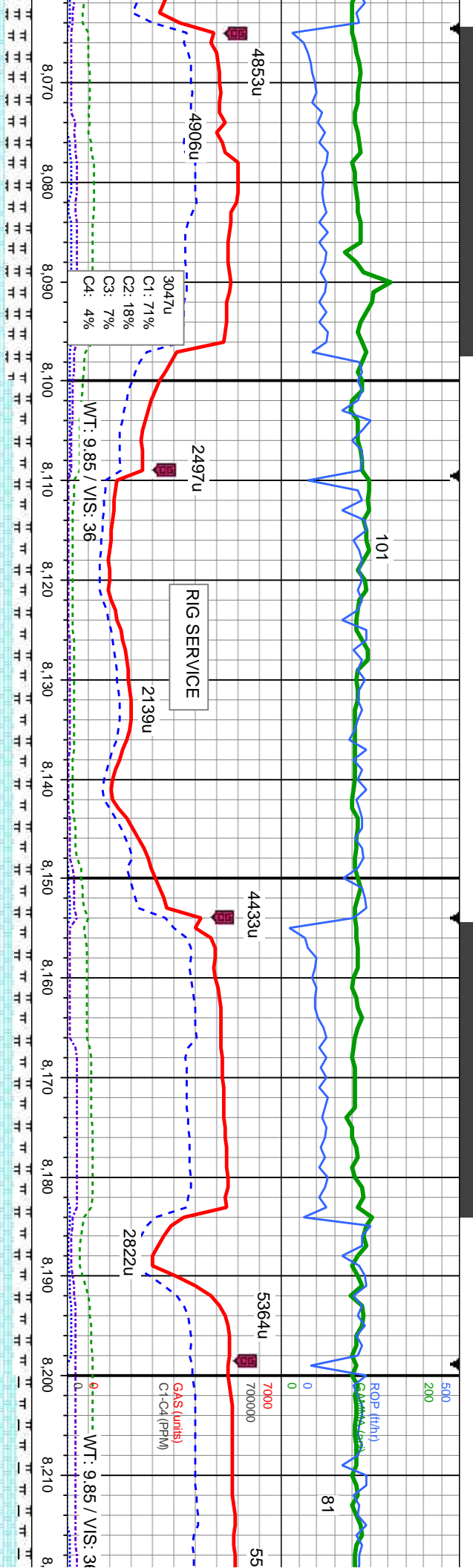
60% CHK: tan-brn, sl mot, sft-mod frm, sb ply-bkly, v calc: 40%
MRLST: med-dk gy, sl frm-mod hd, sb ply-bkly, silty-mot tex, calc, tr
Inoc, tr cal

MD: 8.002
TVD: 7,135.63
Inclination: 91.1
Azimuth: 88.44
VS: 1,172.76

60% CHK: lt gy-clm, ooc brn, sl mot, sft-mod frm, sb ply-bkly, v
calc: 20% MRLST: med-dk gy, sl frm-mod hd, sb ply-bkly, silty-mot
tex, calc, tr Inoc, tr cal

70% CHK: lt gy-
30% MRLST: m
calc, tr Inoc, tr c



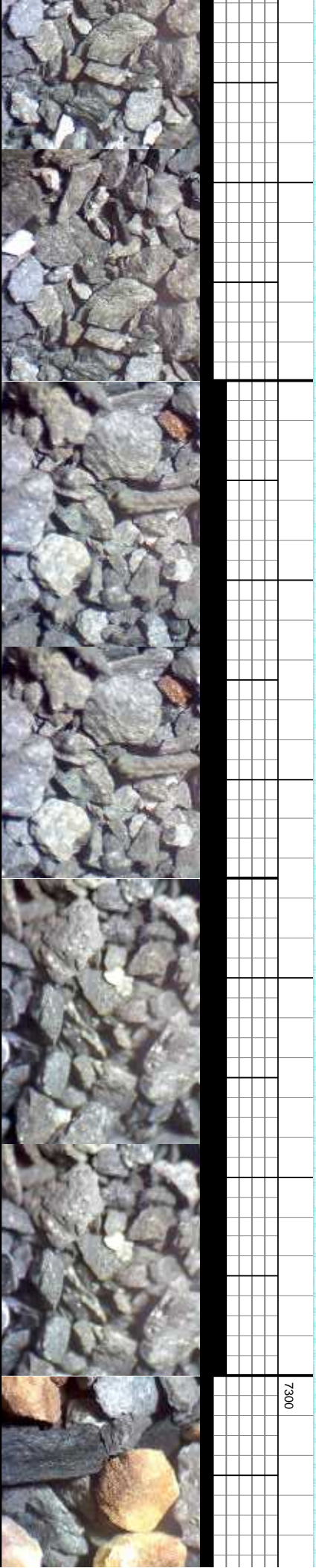


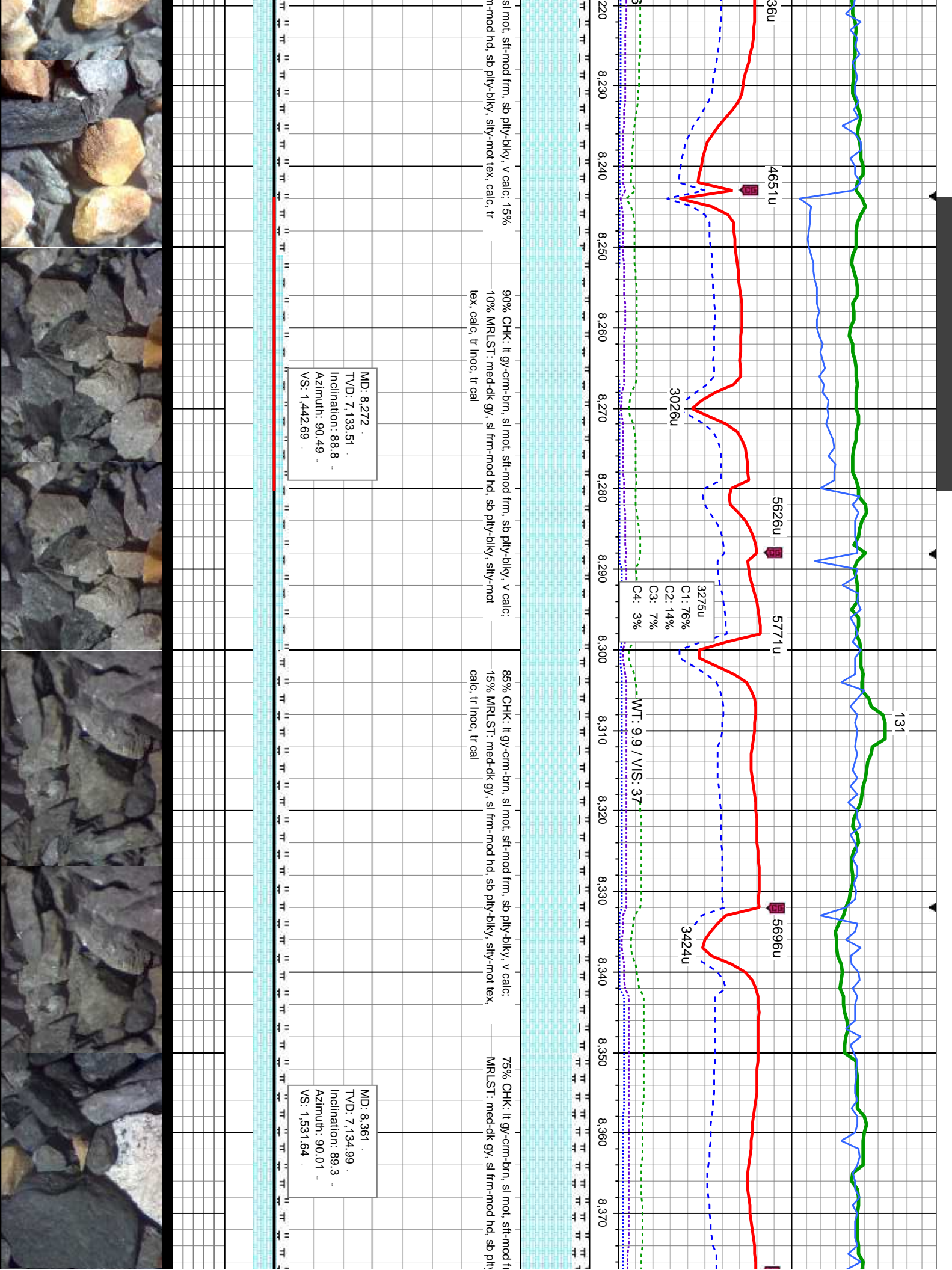
80% CHK: lt gy-cr, ooc brn, sl mot, sft-mod frm, sb ply-biky, v calc;
20% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot tex, calc;
tr inoc, tr cal

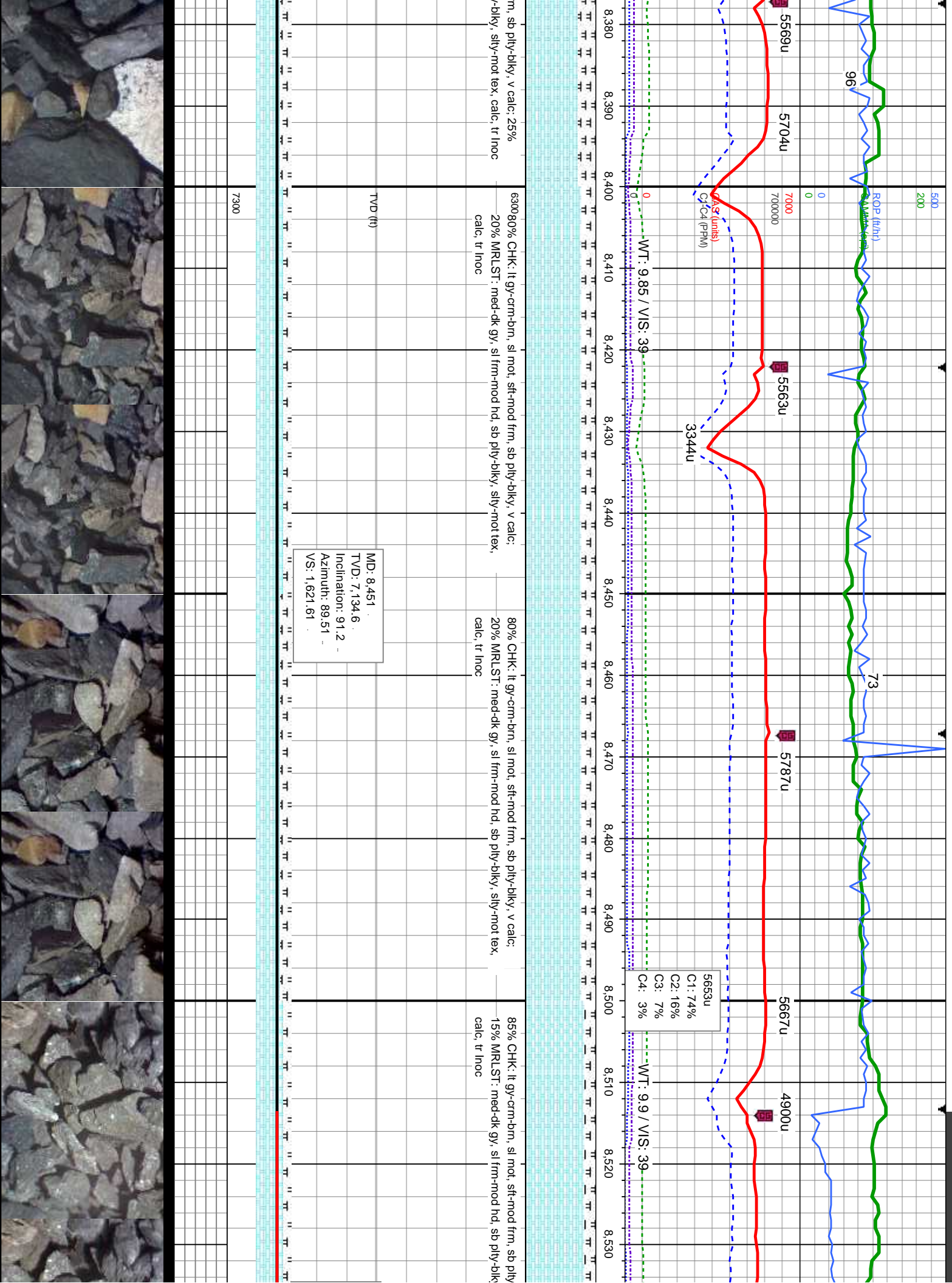
630085% CHK: lt gy-cr, ooc brn, sl mot, sft-mod frm, sb ply-biky, v calc;
MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot tex, calc;
tr inoc, tr cal

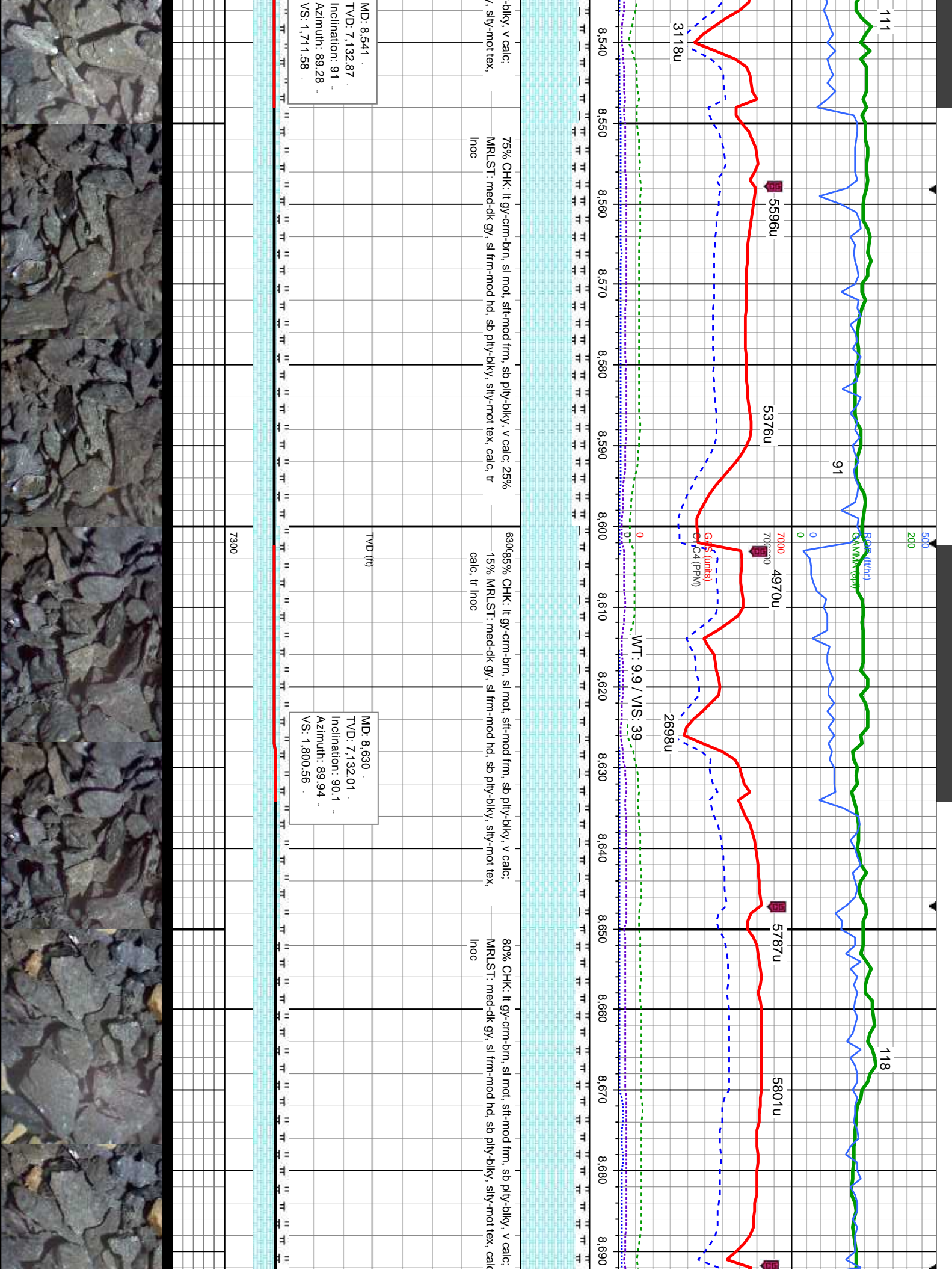
MD: 8,092
TVD: 7,134.22
Inclination: 90.7
Azimuth: 88.83
VS: 1,262.75

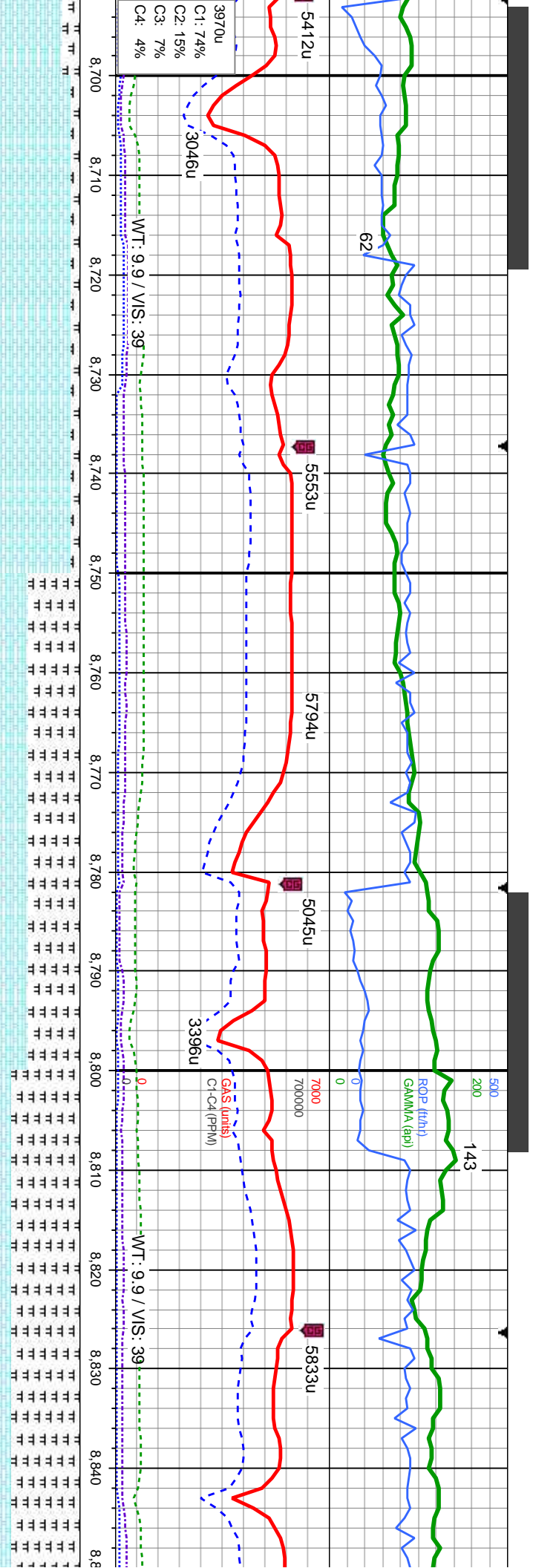
MD: 8,182
TVD: 7,133.12
Inclination: 90.7
Azimuth: 89.69
VS: 1,352.73





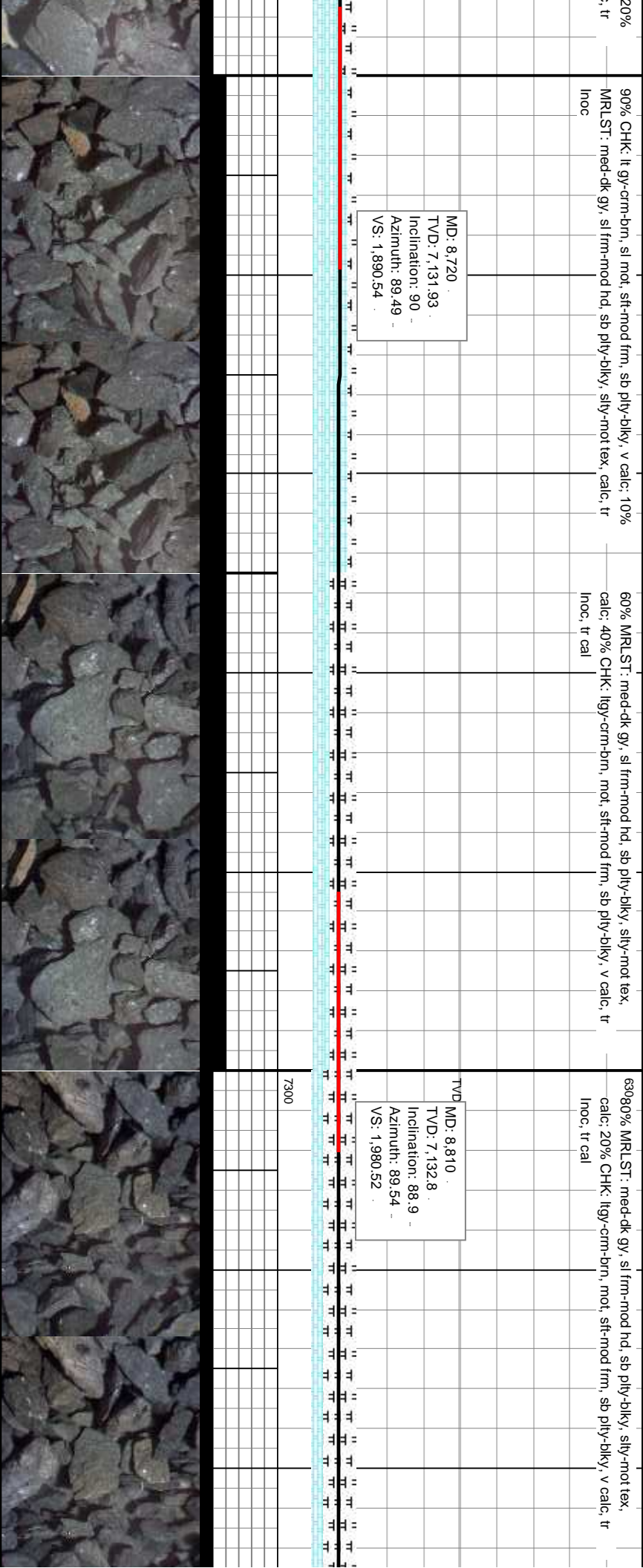


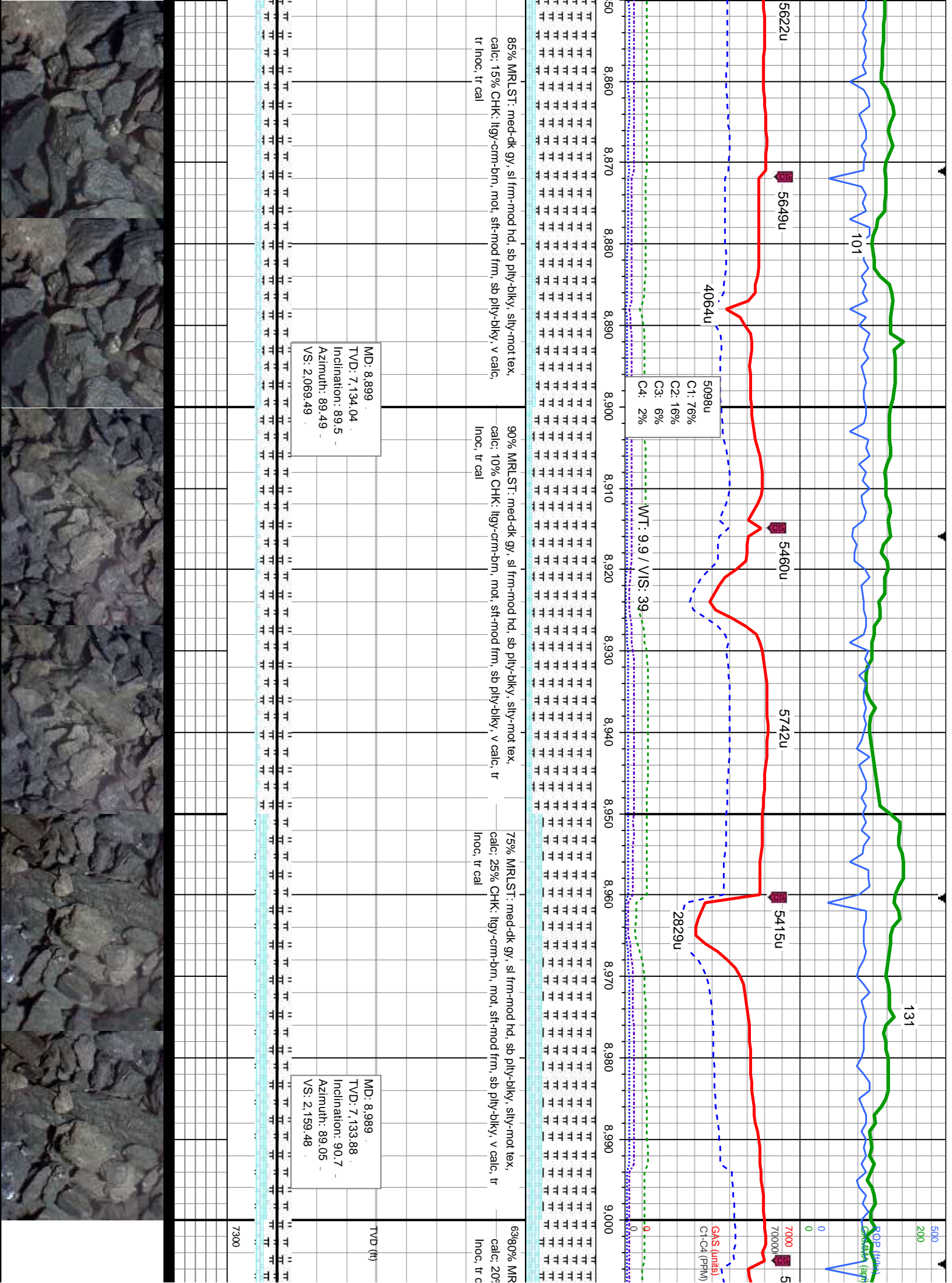


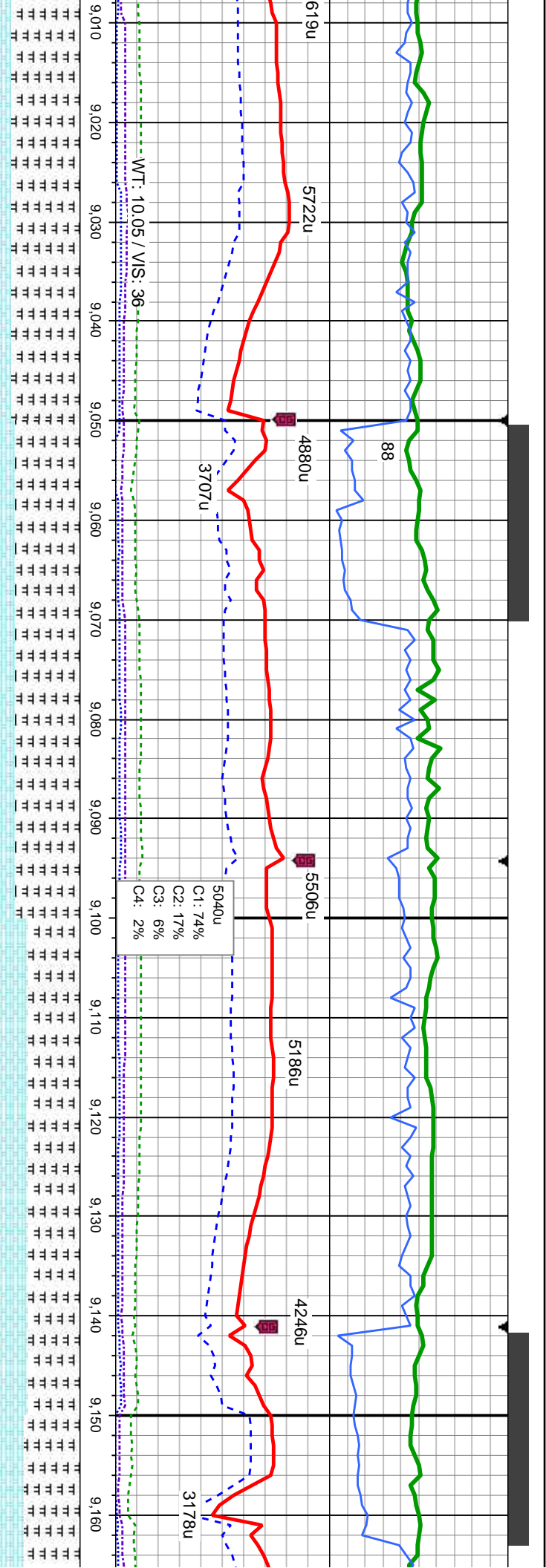


MD: 8,720
TVD: 7,131.93
Inclination: 90
Azimuth: 89.49
VS: 1,890.54

MD: 8,810
TVD: 7,132.8
Inclination: 88.9
Azimuth: 89.54
VS: 1,980.52







LST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot tex, calc: 25% CHK: lly-crm-brn, mot, sft-mod frm, sb ply-biky, v calc, tr al

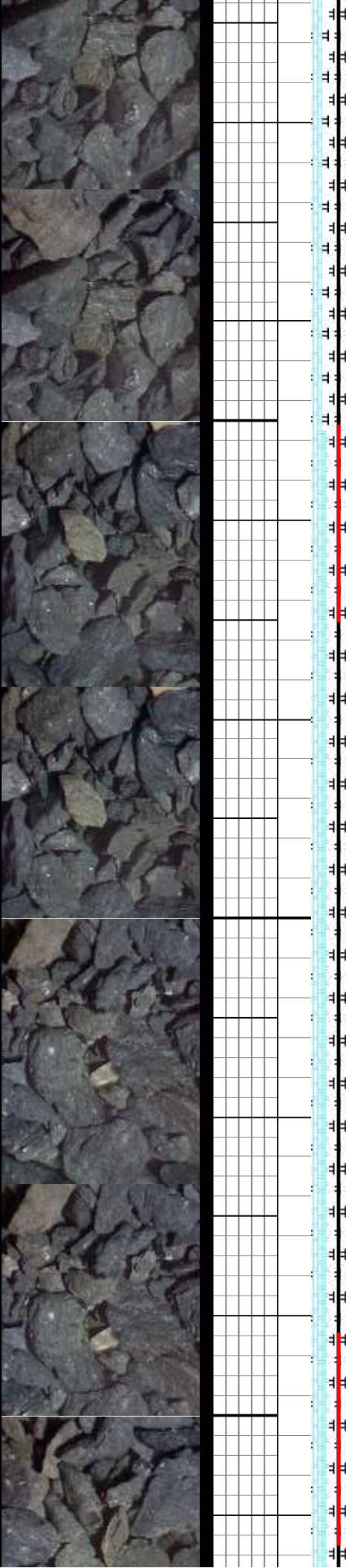
75% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot tex, calc: 25% CHK: lly-crm-brn, mot, sft-mod frm, sb ply-biky, v calc, tr al

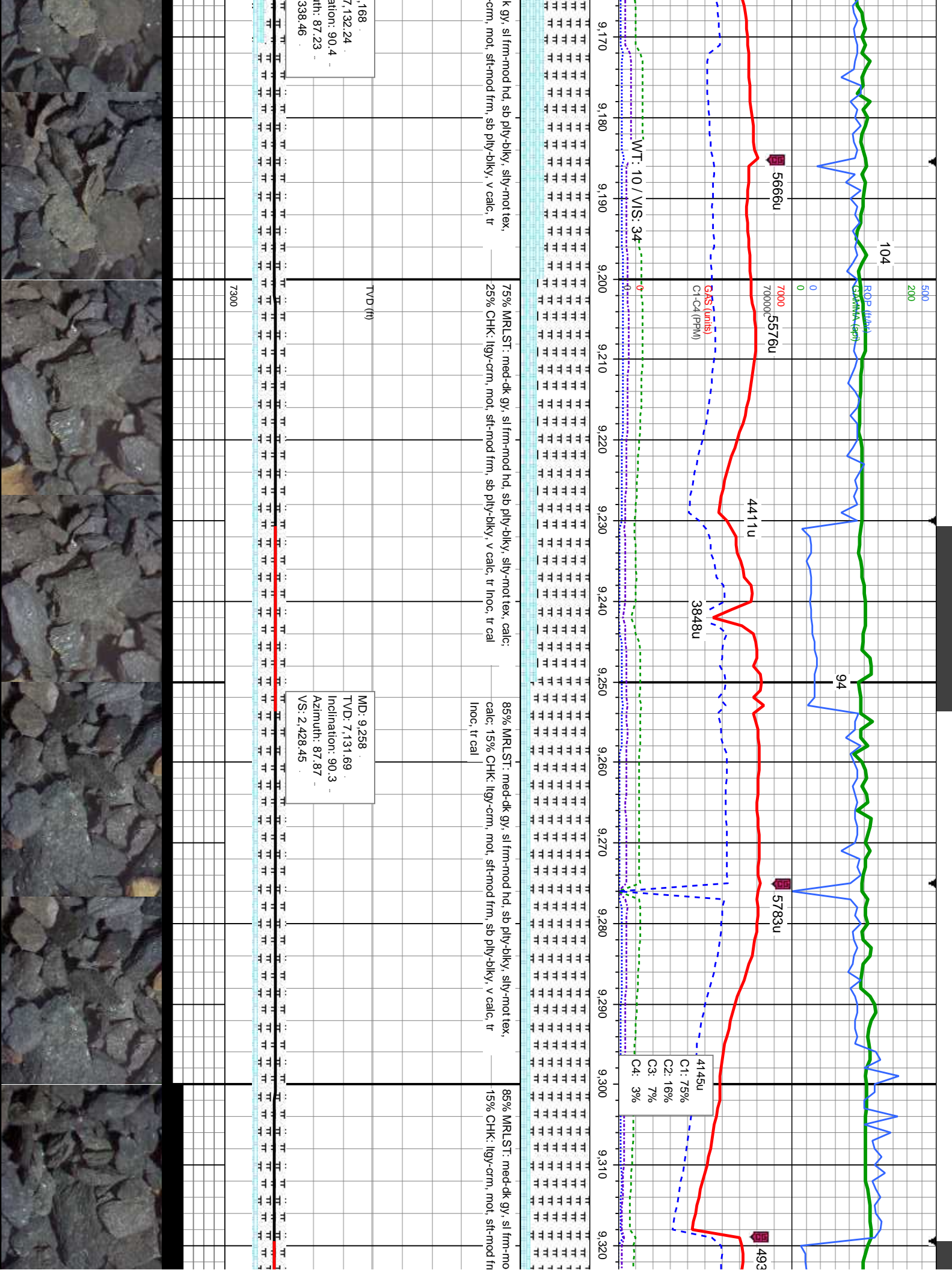
60% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot tex, calc: 40% CHK: lly-crm-brn, mot, sft-mod frm, sb ply-biky, v calc, tr al

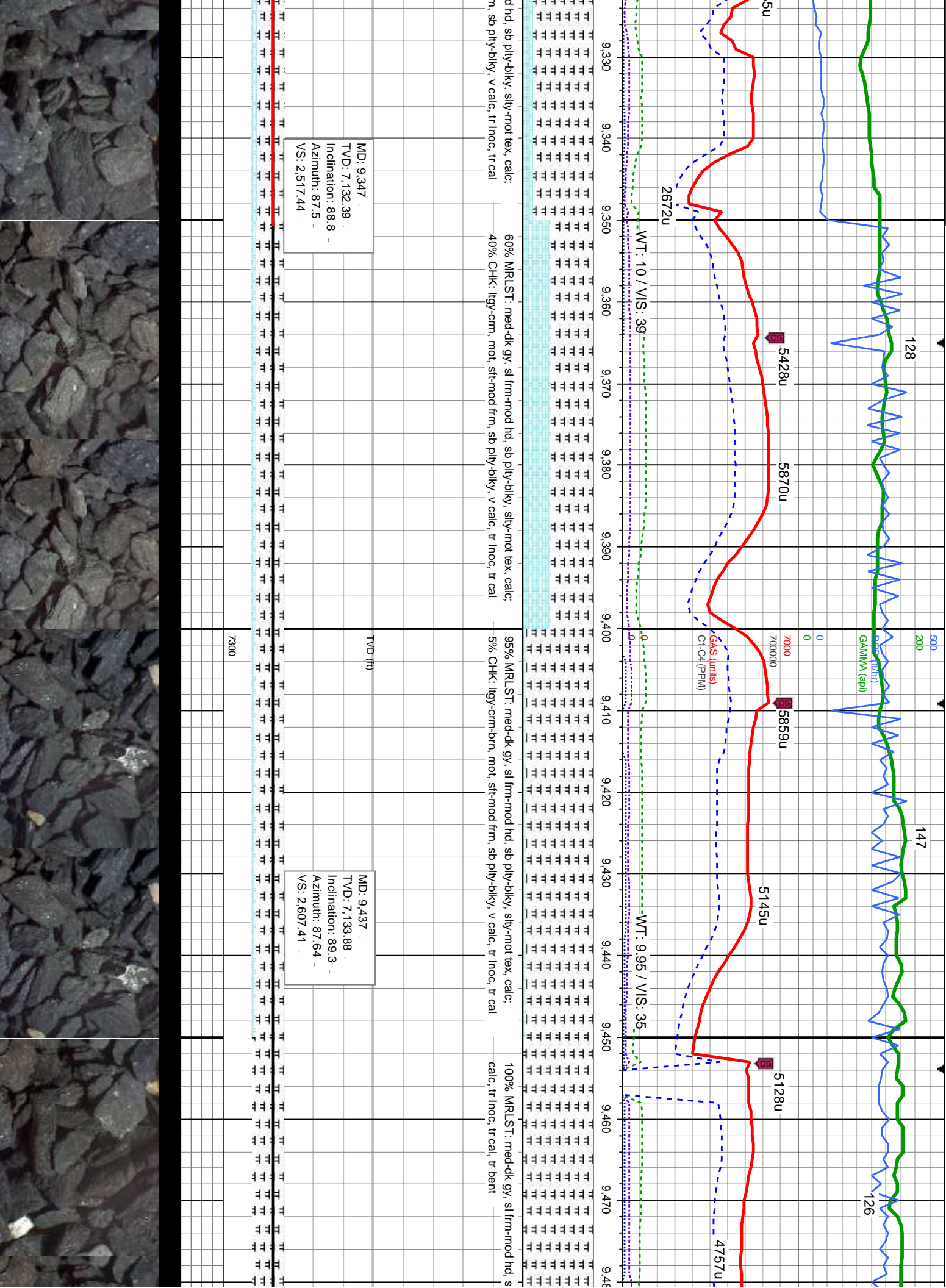
65% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot tex, calc: 35% CHK: lly-crm-brn, mot, sft-mod frm, sb ply-biky, v calc, tr al

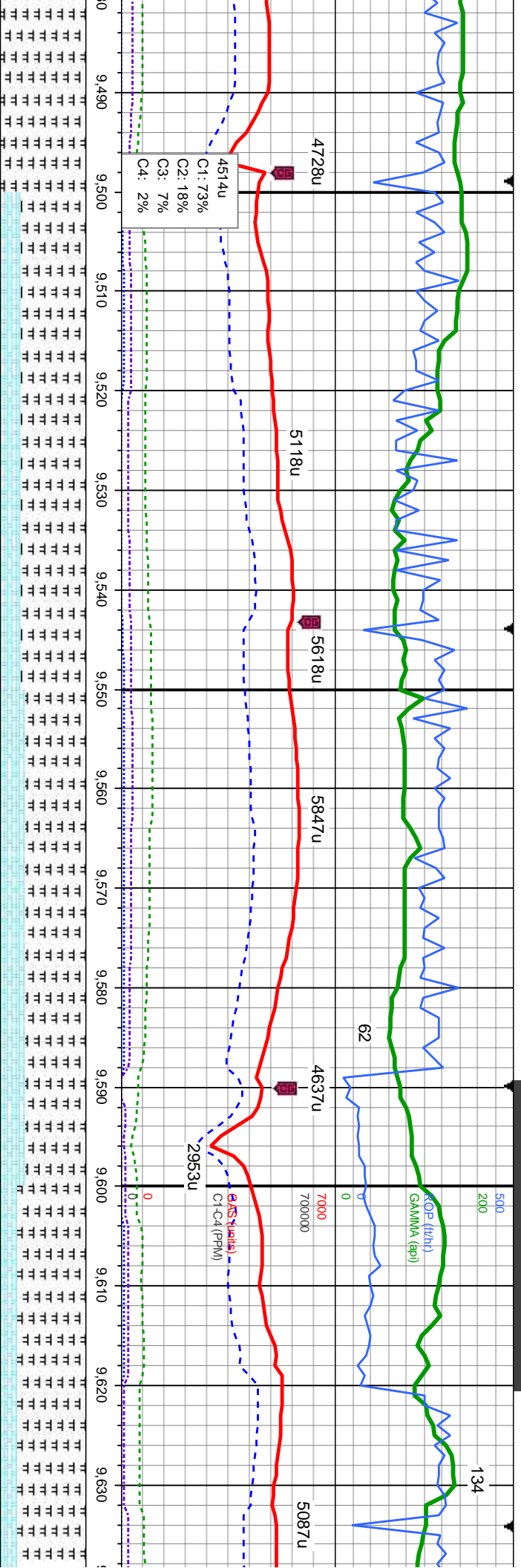
MD: 9.079
TVD: 7,132.94
Inclination: 90.5
Azimuth: 88.9
VS: 2,249.47

MD: 9
TVD: 7,132.94
Inclination: 90.5
Azimuth: 88.9
VS: 2,249.47







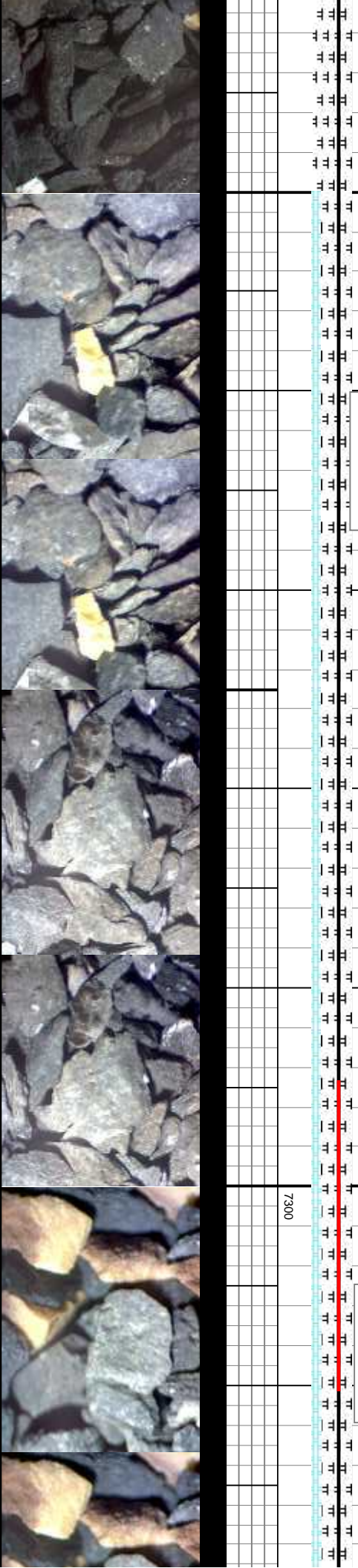


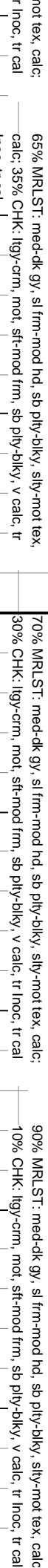
75% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot tex, calc; 25% CHK: ilgy-crm, mot, sft-mod frm, sb ply-biky, v calc, tr inoc, tr cal

70% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot tex, calc; 30% CHK: ilgy-crm, mot, sft-mod frm, sb ply-biky, v calc, tr inoc, tr cal

MD: 9.527
TVD: 7,133.73
Inclination: 90.9
Azimuth: 88.02
VS: 2.697.4

MD: 9.617
TVD: 7,133.41
Inclination: 89.5
Azimuth: 87.81
VS: 2.787.4





MD: 9,796
TVD: 7,13
Inclination
Azimuth:
VS: 2,966

3/30/2014

MINDEPTH

115

ROP (ft/h)
GAMMA (cp)

5293u

5671u

5483u

5047u

5911u

GAS (unb)
C1-C4 (P FM)

5333u
C1: 75%
C2: 17%
C3: 6%
C4: 2%

MW: 9.9 / VIS: 36

1467u

90% MRLST: med-dk gy, sl frm-mod hd, sb ply-blky, silty-mot tex, calc, tr inoc

10% MRLST: med-dk gy, sl frm-mod hd, sb ply-blky, silty-mot tex, calc, 10% CHK: llyy-crm, mot, sft-mod frm, sb ply-blky, v calc, tr inoc, tr cal

85% MRLST: med-dk gy, sl frm-mod hd, sb ply-blky, silty-mot tex, calc, 15% CHK: llyy-crm, mot, sft-mod frm, sb ply-blky, v calc, tr inoc

80% MRLST: m

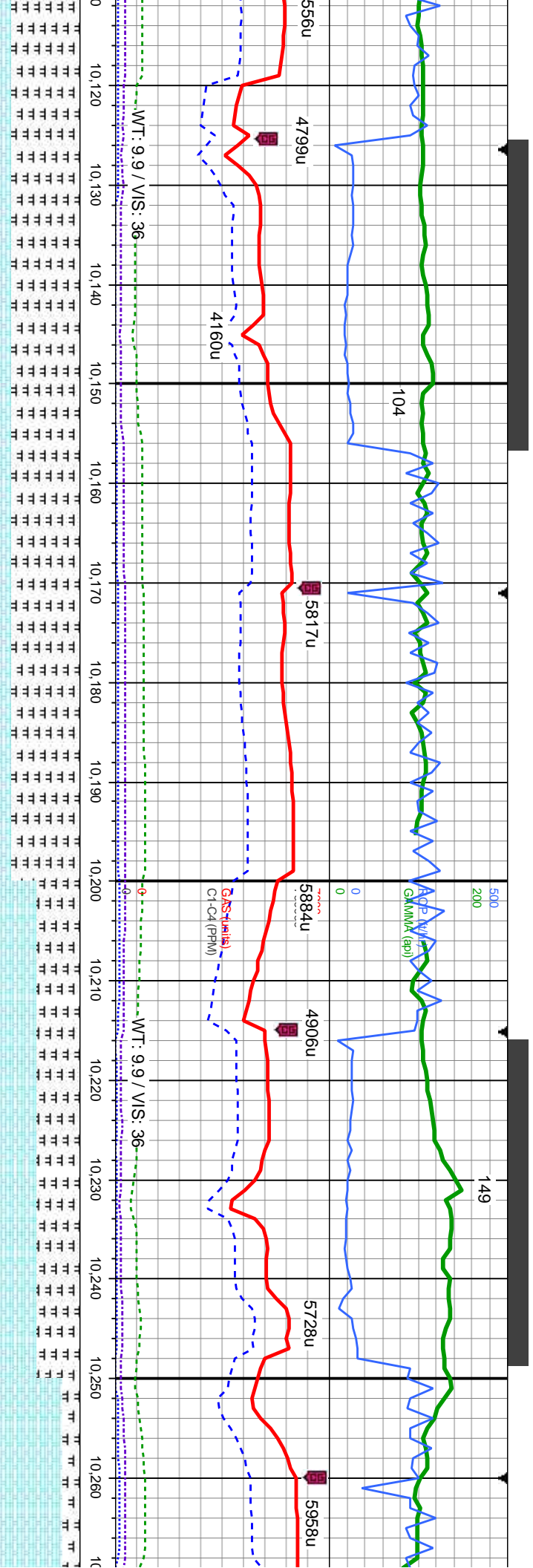
MD: 9.975
TVD: 7,136.63
Inclination: 91.8
Azimuth: 87.84
VS: 3,145.31

TVD (ft)

MD: 10.065
TVD: 7,134.43
Inclination: 91
Azimuth: 88.12
VS: 3,235.28

7300





WT: 9.9 / VIS: 36

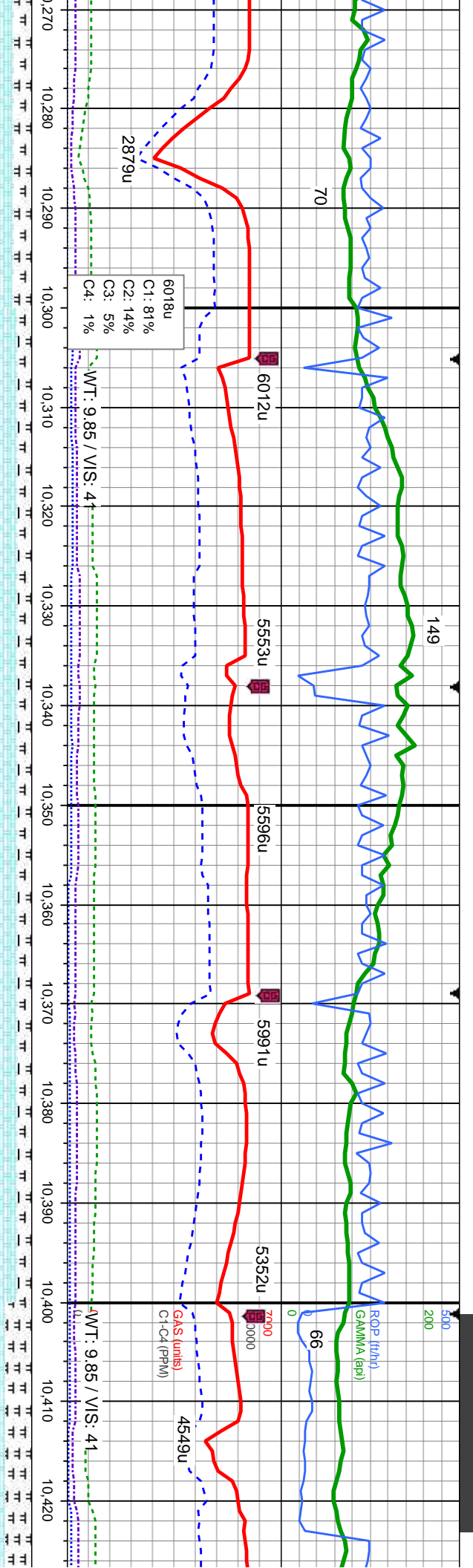
WT: 9.9 / VIS: 36

MD: 10,155
TVD: 7,133.02
Inclination: 90.8
Azimuth: 88.33
VS: 3,325.27

MD: 10,244
TVD: 7,132.55
Inclination: 89.8
Azimuth: 88.28
VS: 3,414.26

med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot tex, calc;	80% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot tex, calc;
frm, mot, sft-mod frm, sb ply-biky, v calc, tr inoc, tr cal	20% CHK: ilgy-crm, mot, sft-mod frm, sb ply-biky, v calc, tr inoc, tr cal
	50% CHK: ilgy-crm, occ brn, mot, sft-mod frm, sb ply-biky, v calc; 50%
	MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot tex, calc tr
	Inoc, tr cal
	80% CHK: ilgy-crm, occ t
	20% MRLST: med-dk gy,
	calc tr inoc, tr cal





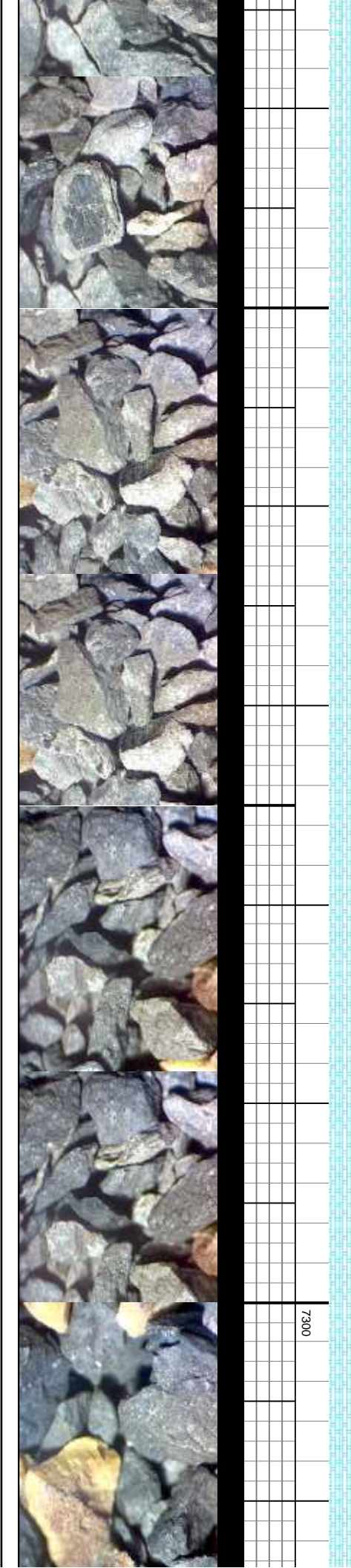
85% CHK: lgy-crm, occ brn, mot, sft-mod frm, sb ply-bkly, v calc;
MRLST: med-dk gy, sl frm-mod hd, sb ply-bkly, silty-mot tex, calc tr
Inoc, tr cal

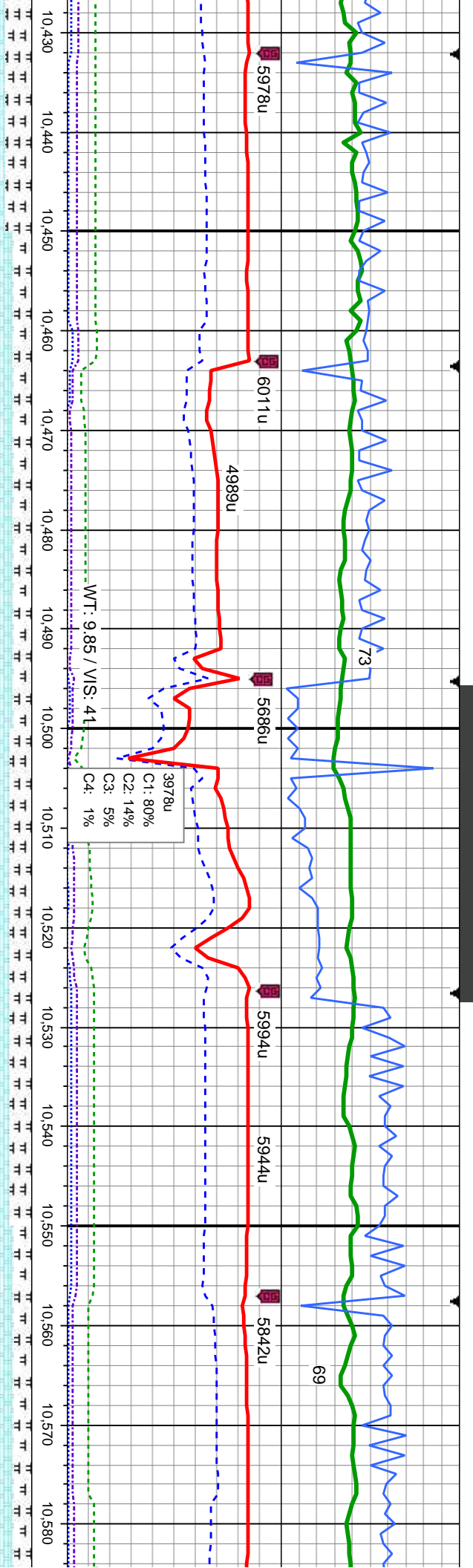
85% CHK: lgy-crm, occ brn, mot, sft-mod frm, sb ply-bkly, v calc;
15% MRLST: med-dk gy, sl frm-mod hd, sb ply-bkly, silty-mot tex,
calc, v tr inoc, v tr cal

6300 70% CHK: lgy-crm, occ brn, mot, s
calc: 30% MRLST: med-dk gy, sl frm
silty-mot tex, calc

MD: 10,339
TVD: 7,132.24
Inclination: 90.6
Azimuth: 88.21
VS: 3,509.26

TVD (ft)





MD: 10.433
TVD: 7,131.83
Inclination: 89.9
Azimuth: 87.44
VS: 3,603.25

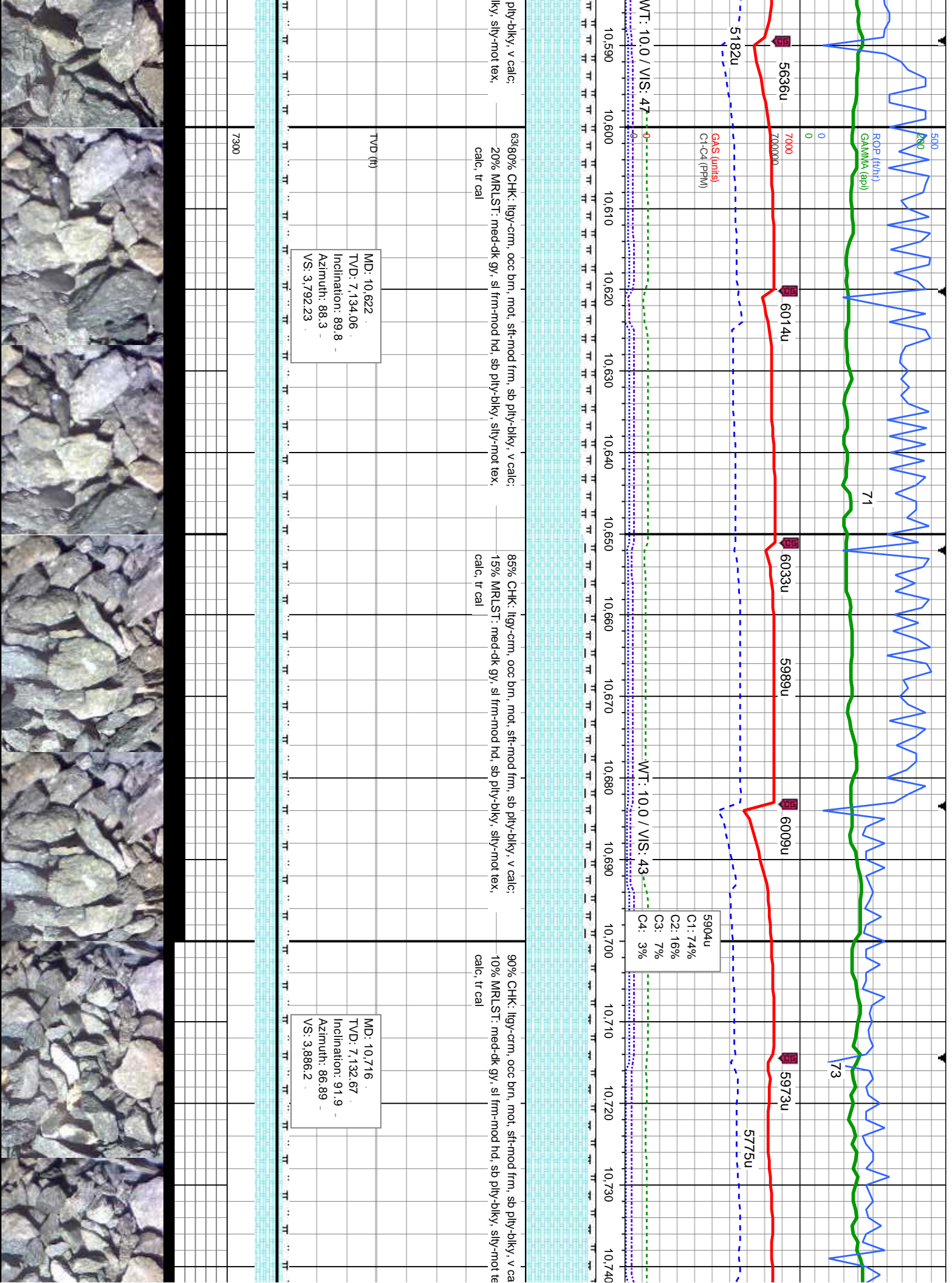
80% CHK: lgy-crm, occ brn, mot, sft-mod frm, sb pily-biky, v calc;
20% MRLST: med-dk gy, sl frm-mod hd, sb pily-biky, silty-mot tex,
calc, v tr lse foss

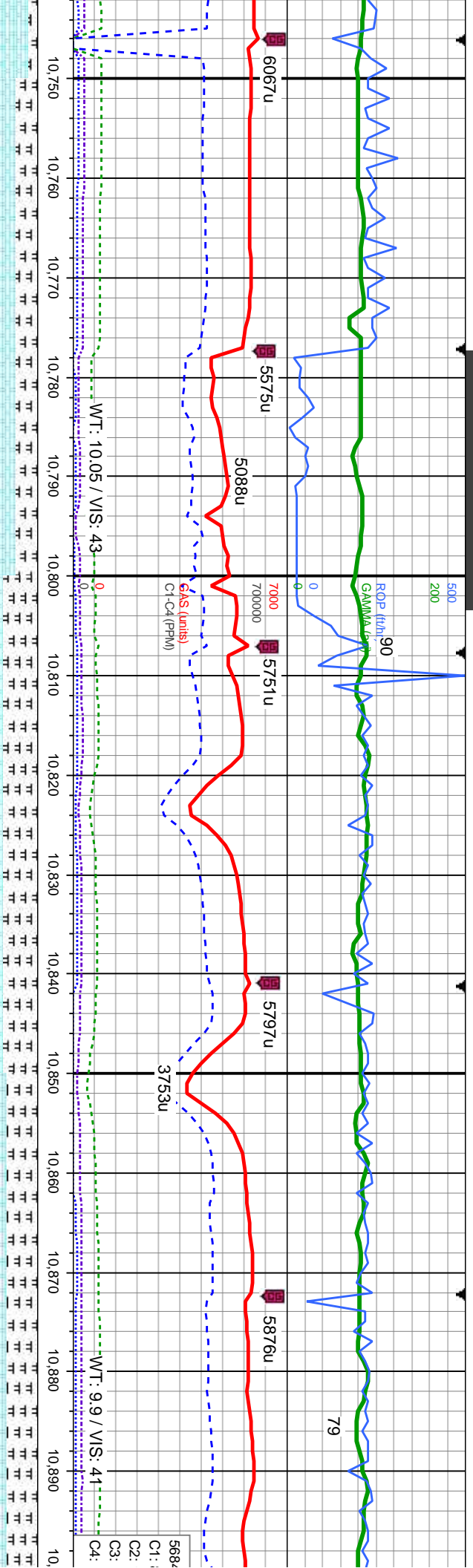
75% CHK: lgy-crm, occ brn, mot, sft-mod frm, sb pily-biky, v calc;
25% MRLST: med-dk gy, sl frm-mod hd, sb pily-biky, silty-mot tex,
calc, v tr lse foss

80% CHK: lgy-crm, occ brn, mot, sft-mod frm, sb
20% MRLST: med-dk gy, sl frm-mod hd, sb pily-b
calc

MD: 10.527
TVD: 7,132.9
Inclination: 88.8
Azimuth: 89.3
VS: 3,697.24







75% CHK: lgy-crm, ooc brn, mot, sft-mod frm, sb ply-biky, v calc;
25% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot tex,
calc, tr cal

63060% CHK: lgy-crm, ooc brn, mot, sft-mod frm, sb ply-biky, v calc;
40% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot tex,
calc, tr cal

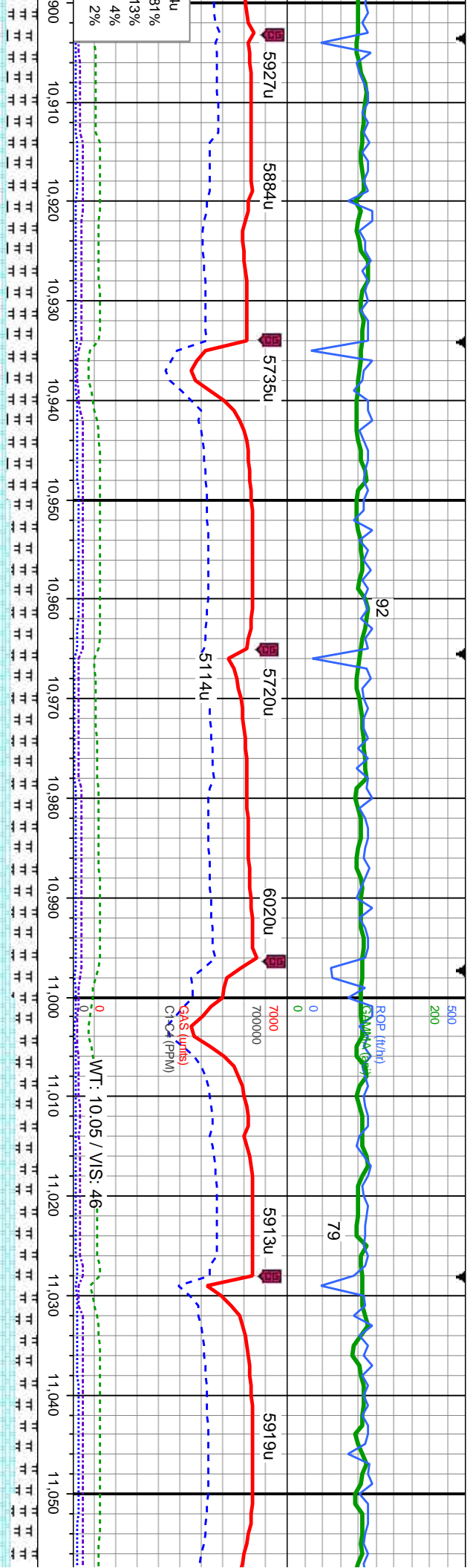
65% CHK: lgy-crm, ooc brn, mot, sft-mod frm, sb ply-biky, v calc;
35% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot tex,
calc, tr cal

TVD
MD: 10,810
TVD: 7,131.27
Inclination: 89.8
Azimuth: 86.77
VS: 3,980.15

7300



M
T
In
A
V



D: 10.905
VD: 7.130.86
Inclination: 90.7
Azimuth: 87.3
S: 4.075.12

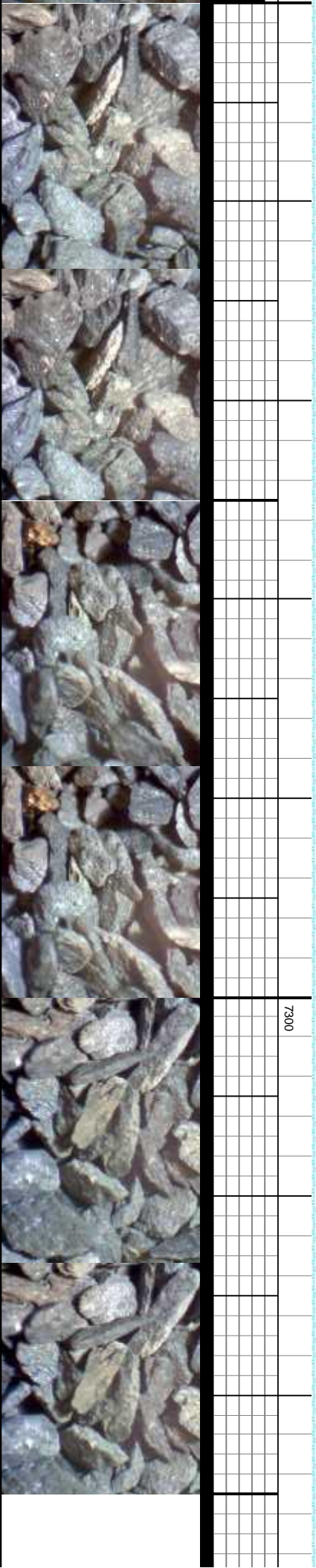
65% CHK: lty-crm, occ brn, mod, sft-mod frm, sb ply-biky, v calc;
35% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot tex,
calc, tr cal

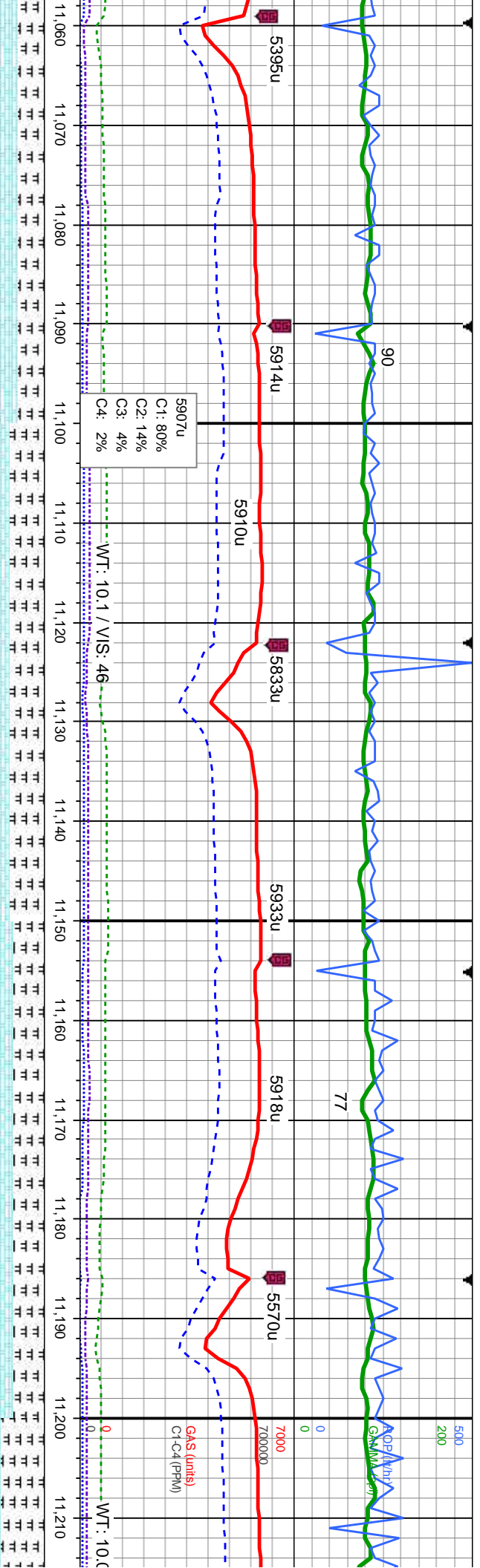
70% CHK: lty-crm, occ brn, mod, sft-mod frm, sb ply-biky, v calc; 30%
MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot tex, calc, tr
cal

MD: 10.999
TVD: 7.129.63
Inclination: 90.8
Azimuth: 87.9
VS: 4.169.1

630075% CHK: lty-crm, occ brn, mod, sft-mod frm, sb ply-biky, v calc;
25% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot tex,
calc, tr cal

70% CH
30% MF
calc, tr c





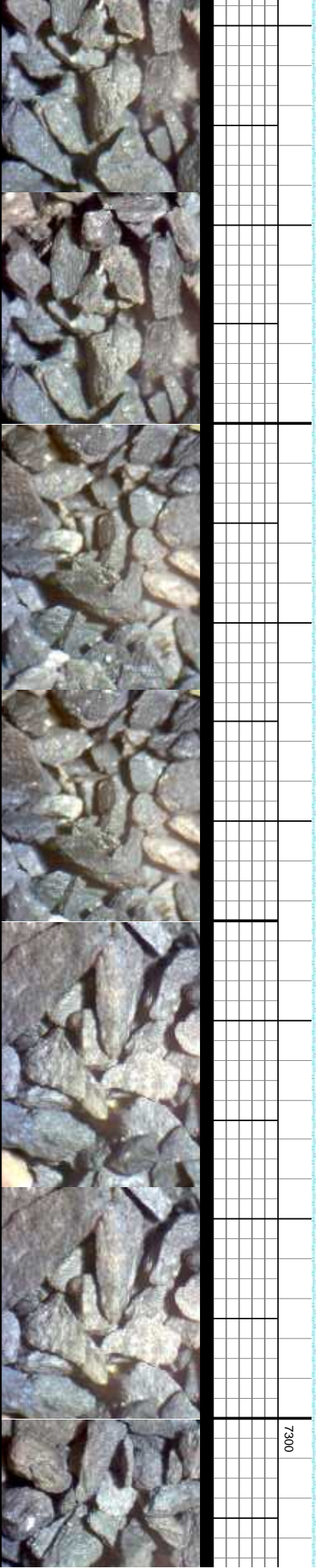
MD: 11,093
TVD: 7,128.64
Inclination: 90.4
Azimuth: 88.43
VS: 4,263.09

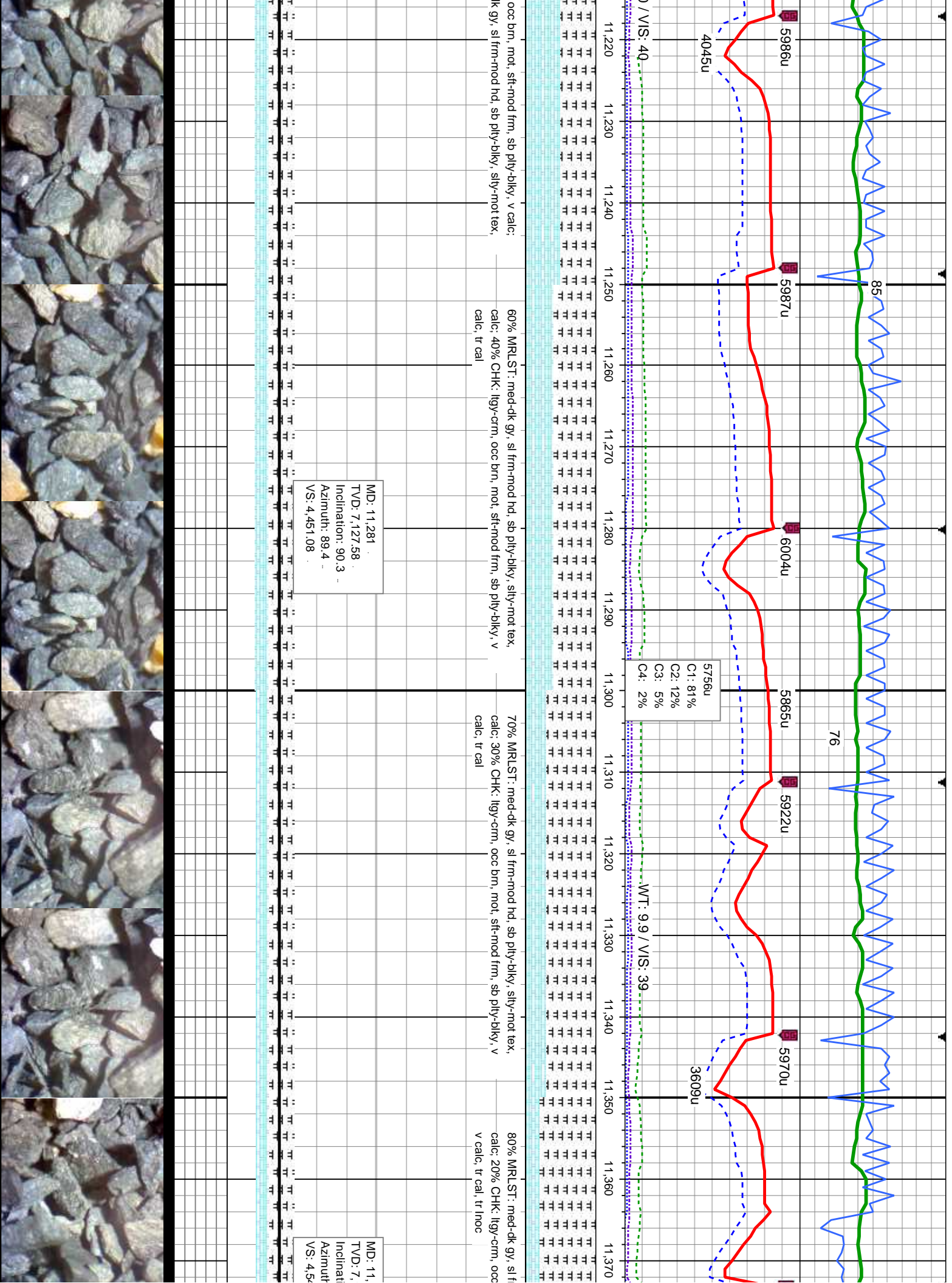
MD: 11,187
TVD: 7,128.07
Inclination: 90.3
Azimuth: 88.93
VS: 4,357.08

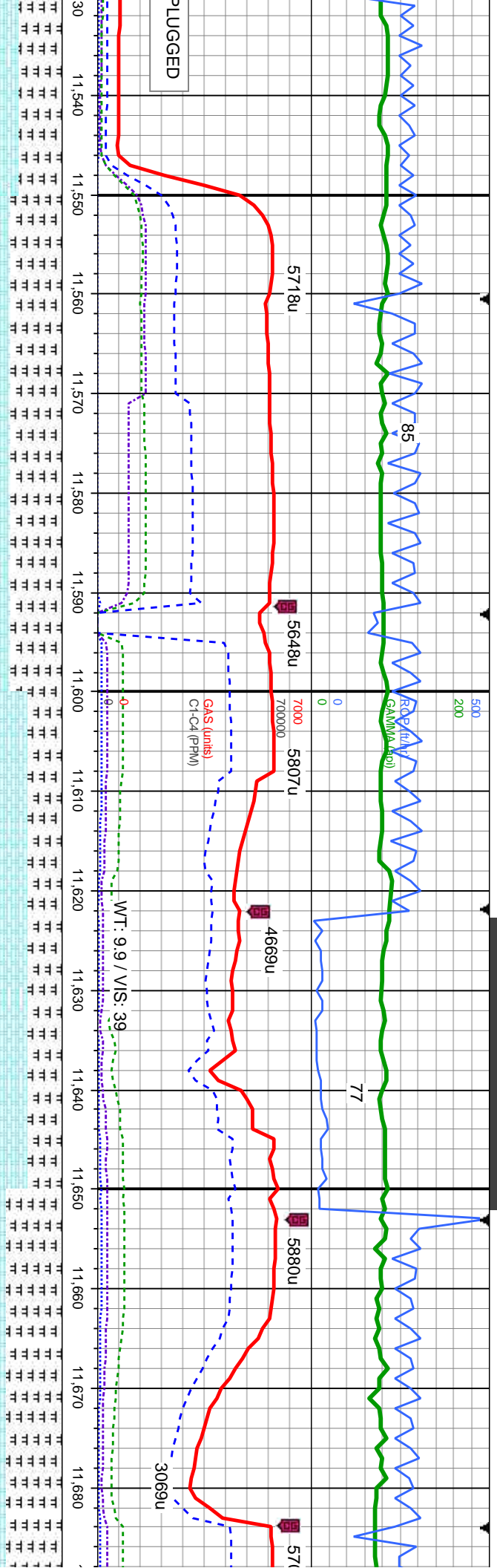
60% CHK: lgy-crm, occ brn, mot, sft-mod frm, sb pty-biky, v calc;
40% MRLST: med-dk gy, sl frm-mod hd, sb pty-biky, sily-mot tex,
calc, tr cal, tr inoc

65% CHK: lgy-crm, occ brn, mot, sft-mod frm, sb pty-biky, v calc;
35% MRLST: med-dk gy, sl frm-mod hd, sb pty-biky, sily-mot tex,
calc, tr cal

63% CHK: lgy-crm, occ brn, mot, sft-mod frm, sb pty-biky, v calc;
50% MRLST: med-dk gy, sl frm-mod hd, sb pty-biky, sily-mot tex,
calc, tr cal







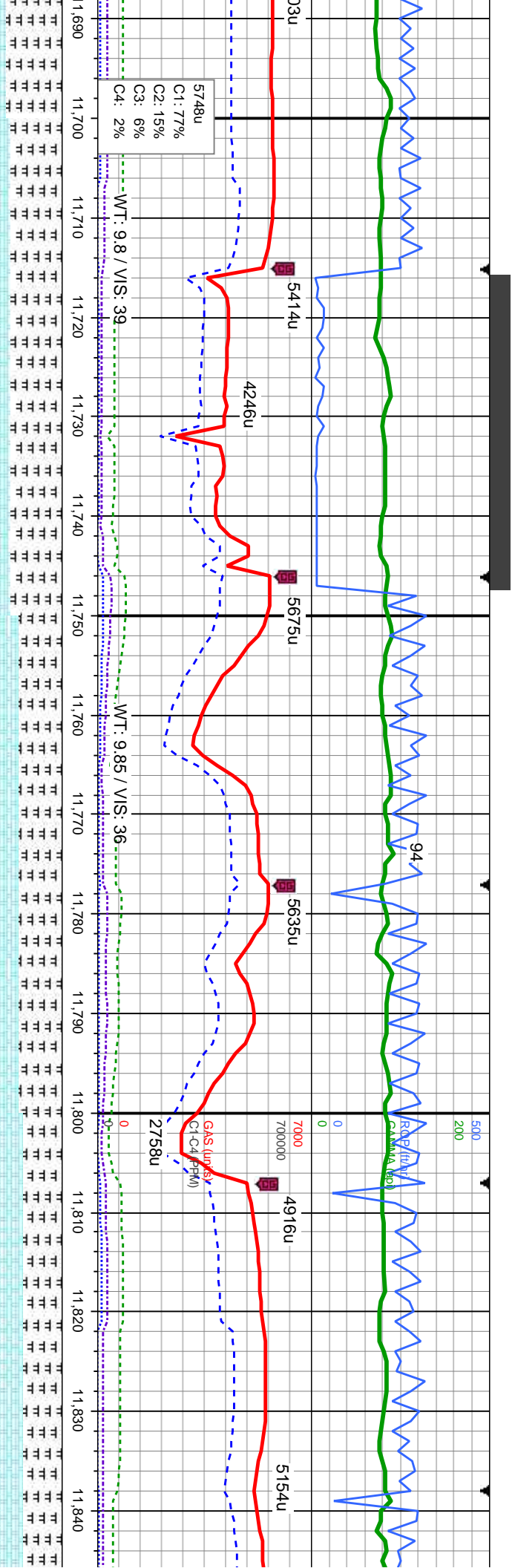
ply-biky, silty-mot tex, mod frm, sb ply-biky, v
60% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot tex, calc: 40% CHK: lgy-crm, occ brn, mot, sft-mod frm, sb ply-biky, v
cal, tr cal
60% CHK: lgy-crm, occ brn, mot, sft-mod frm, sb ply-biky, v calc: 40%
MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot tex, calc, tr cal
65% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-m
35% CHK: lgy-crm, occ brn, mot, sft-mod frm, sb ply-biky,

MD: 11,560
TVD: 7,125.79
Inclination: 90.5
Azimuth: 91.08
VS: 4,729.94

MD: 11,653
TVD: 7,125.55
Inclination: 89.8
Azimuth: 90.33
VS: 4,822.87

7300





5748u
C1: 77%
C2: 15%
C3: 6%
C4: 2%

WT: 9.8 / VIS: 39

WT: 9.85 / VIS: 36

GAS (ppm)
C1-C4 (ppm)
2758u

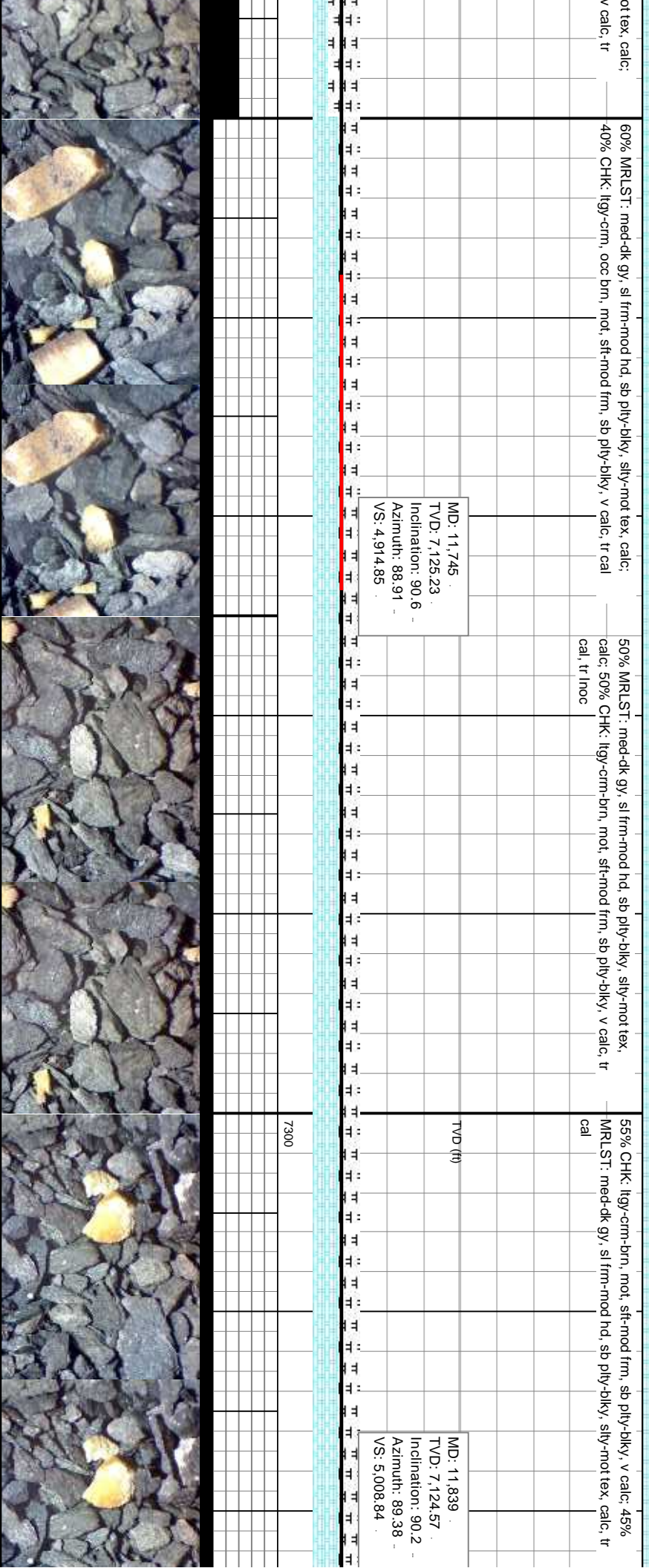
MD: 11,745
TVD: 7,125.23
Inclination: 90.6
Azimuth: 88.91
VS: 4,914.85

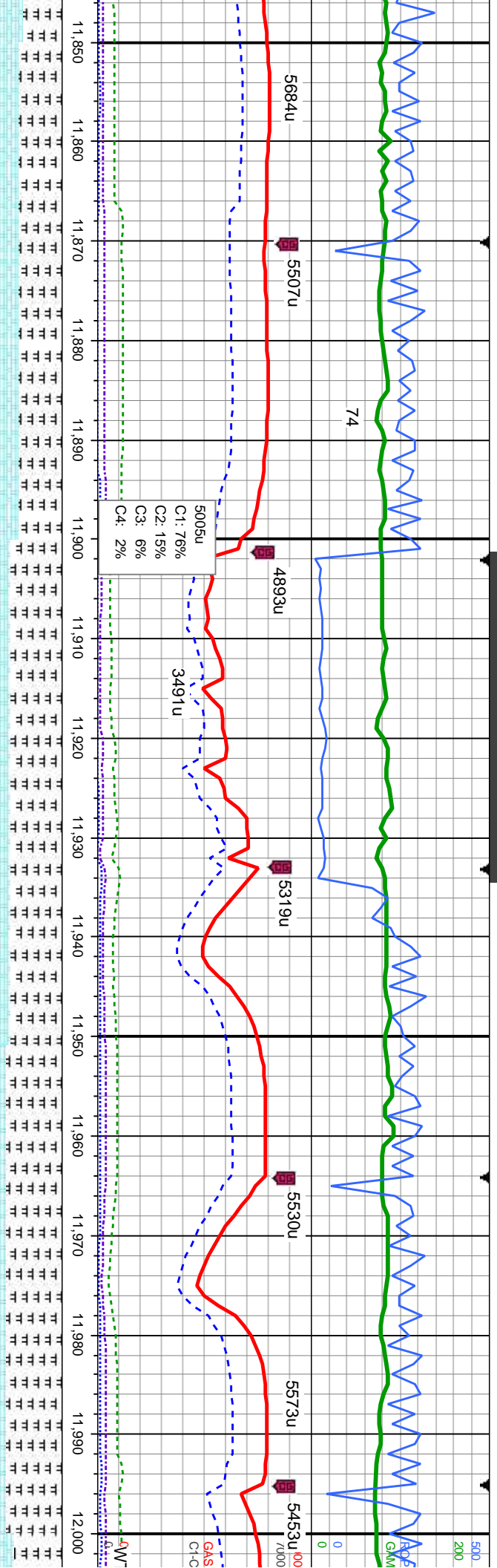
MD: 11,839
TVD: 7,124.57
Inclination: 90.2
Azimuth: 89.38
VS: 5,008.84

60% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot tex, calc;
40% CHK: ltgy-crm, occ brn, mot, sft-mod frm, sb ply-biky, v calc, tr cal

50% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot tex,
calc; 50% CHK: ltgy-crm-brn, mot, sft-mod frm, sb ply-biky, v calc, tr cal, tr inoc

55% CHK: ltgy-crm-brn, mot, sft-mod frm, sb ply-biky, v calc; 45%
MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot tex, calc, tr cal



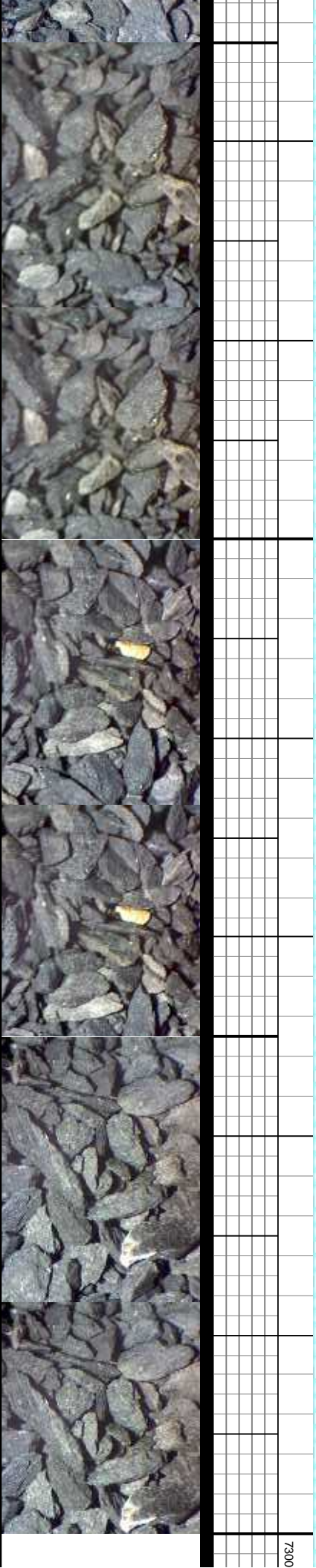


50% CHK: lly-crm-brn, mot, sft-mod frm, sb ply-biky, v calc, 50%
MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot tex, calc, tr cal

60% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot tex, calc,
40% CHK: lly-crm, occ brn, mot, sft-mod frm, sb ply-biky, v calc, tr cal, tr inoc

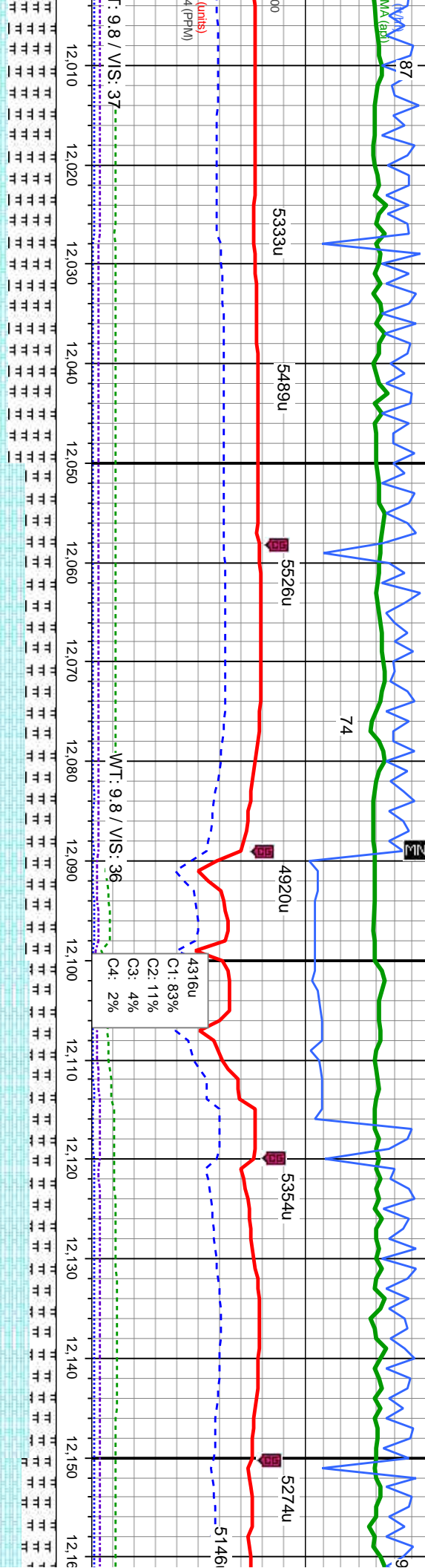
65% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot tex,
calc, 35% CHK: lly-crm, occ brn, mot, sft-mod frm, sb ply-biky, v
calc, tr cal

MD: 11,933
TVD: 7,124.32
Inclination: 90.1
Azimuth: 88.13
VS: 5,102.83



3/31/2014

MINDEPTH



65% CHK: lly-crm-brn, mot, sft-mod frm, sb ply-bkly, v calc; 35%
MRLST: med-dk gy, sl frm-mod hd, sb ply-bkly, stly tex, calc, tr cal

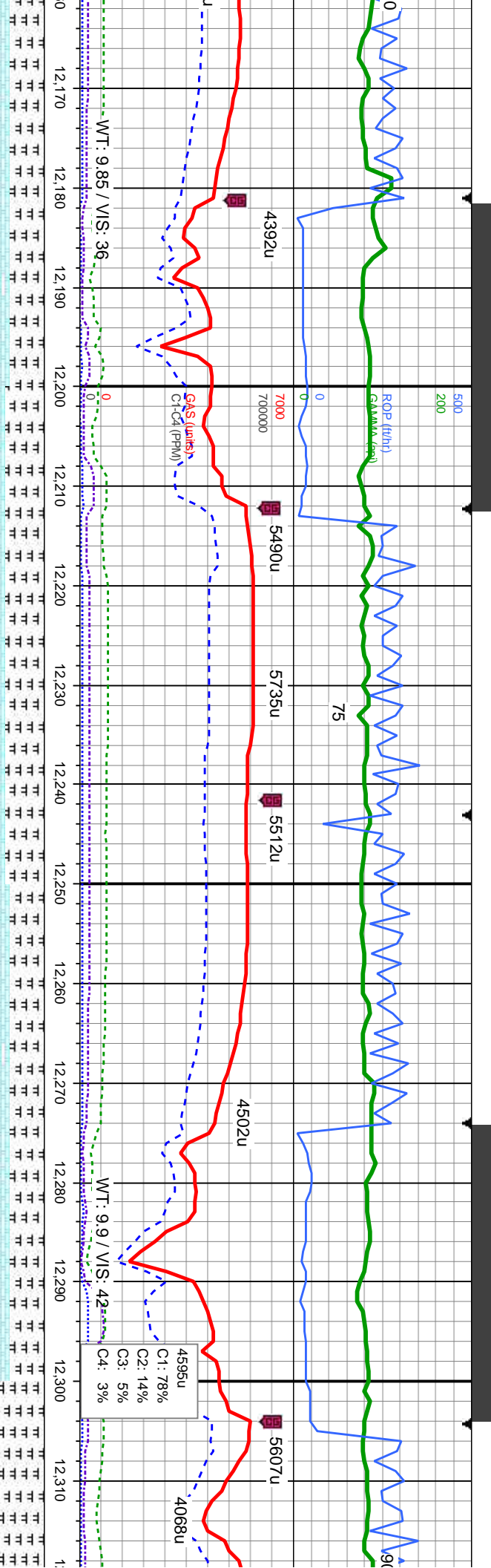
70% CHK: lly-crm-brn, mot, sft-mod frm, sb ply-bkly, v calc;
30% MRLST: med-dk gy, sl frm-mod hd, sb ply-bkly, stly tex,
calc, tr cal, tr inoc

60% CHK: lly-crm-brn, mot, sft-mod frm, sb ply-bkly, v calc;
MRLST: med-dk gy, sl frm-mod hd, sb ply-bkly, stly tex,
calc, tr inoc

MD: 12,027
TVD: 7,123.83
Inclination: 90.5
Azimuth: 88.95
VS: 5,196.83

MD: 12,119
TVD: 7,123.35
Inclination: 90.1
Azimuth: 89.11
VS: 5,288.82





gy-cr-m-bm, mot, sft-mod frm, sb pily-blky, v calc, 40%
-d-dk gy, sl frm-mod hd, sb pily-blky, silty tex, calc, tr

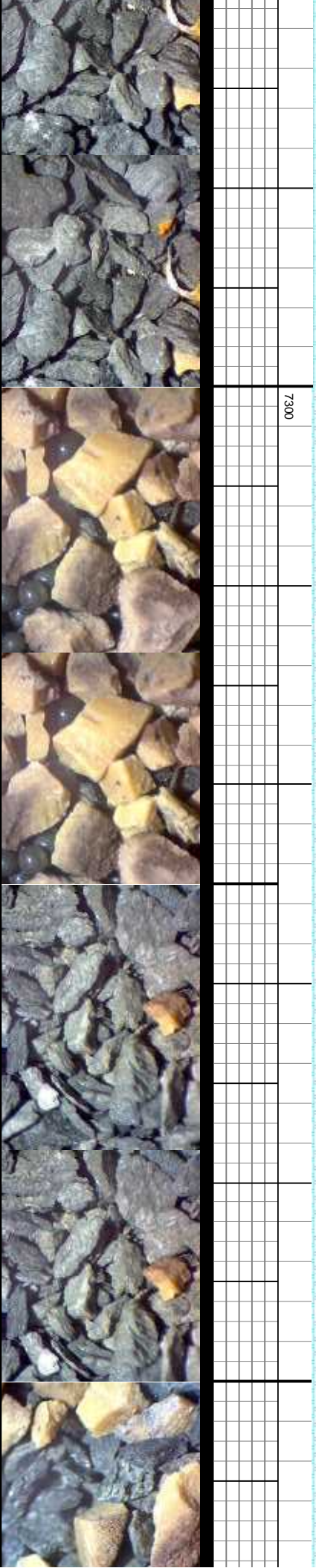
63055% CHK: lly-g-cr-m-bm, mot, sft-mod frm, sb pily-blky, v calc, 45%
MRLST: med-dk gy, sl frm-mod hd, sb pily-blky, silty tex, calc, tr cal, tr inoc

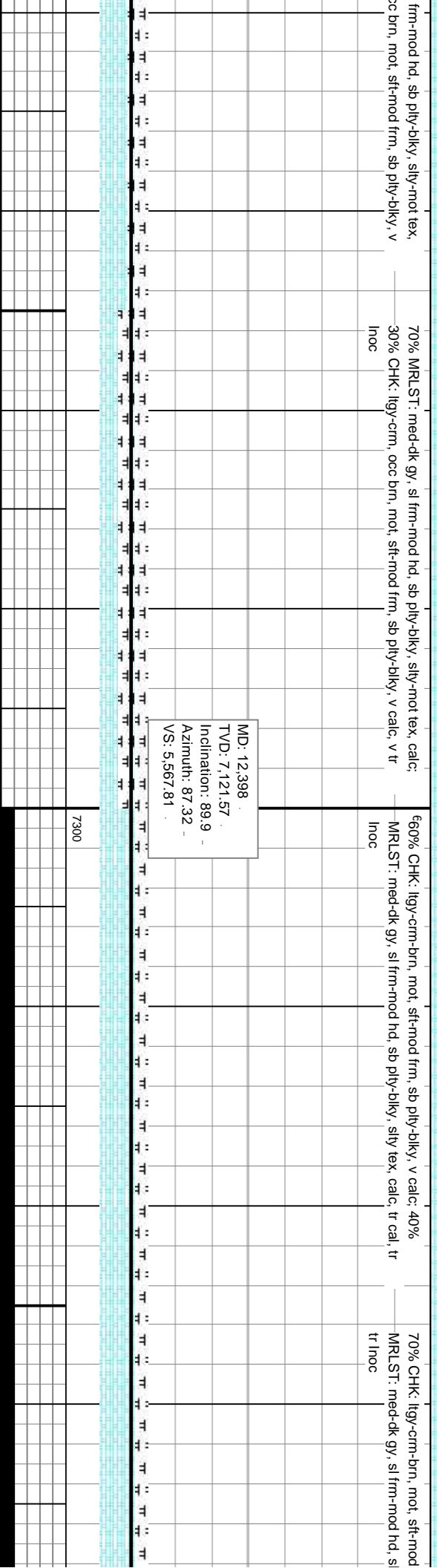
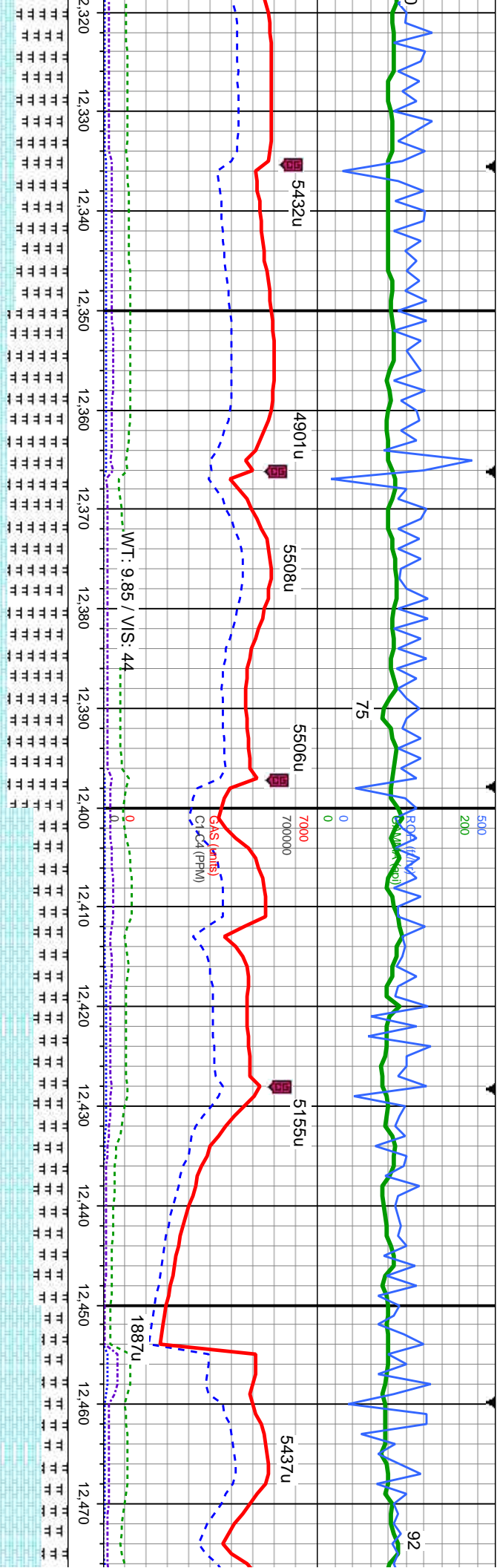
60% CHK: lly-g-cr-m-bm, mot, sft-mod frm, sb pily-blky, v calc, 40%
MRLST: med-dk gy, sl frm-mod hd, sb pily-blky, silty tex, calc, tr cal, tr inoc

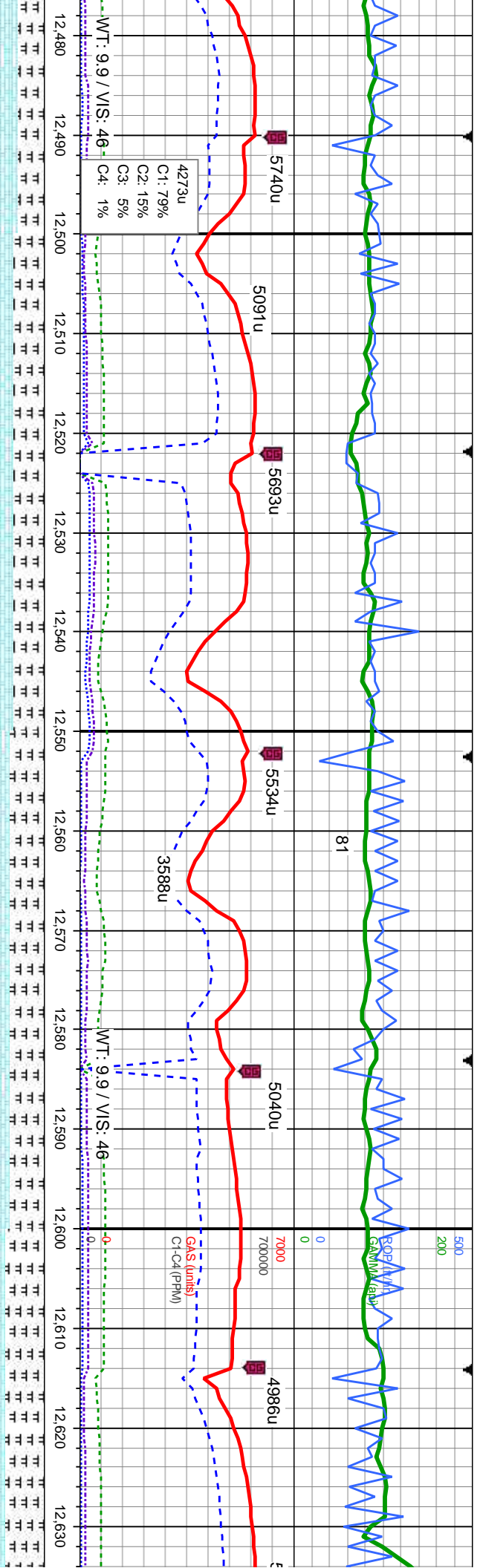
60% MRLST: med-dk gy, sl
calc, v tr inoc

TVD (ft)
MD: 12,212
TVD: 7,122.62
Inclination: 90.8
Azimuth: 88.28
VS: 5,381.82

MD: 12,304
TVD: 7,121.74
Inclination: 90.3
Azimuth: 88.17
VS: 5,473.81







frm, sb pily-blky, v calc; 30%
o pily-blky, silty tex, calc, tr cal

65% CHK: llyy-crm-brn, mot, sft-mod frm, sb pily-blky, v calc; 35%
MRLST: med-dk gy, sl frm-mod hd, sb pily-blky, silty tex, calc

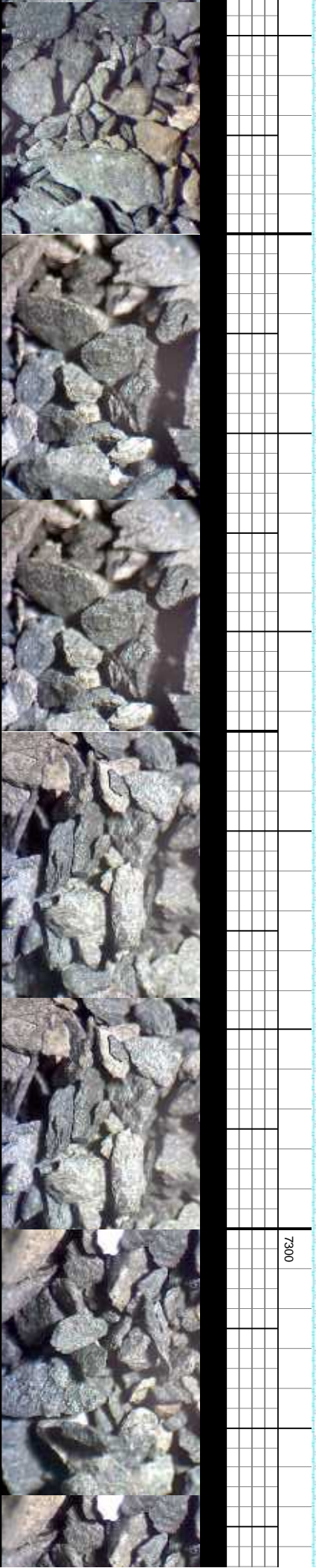
60% CHK: llyy-crm-brn, mot, sft-mod frm, sb pily-blky, v calc;
40% MRLST: med-dk gy, sl frm-mod hd, sb pily-blky, silty tex, calc

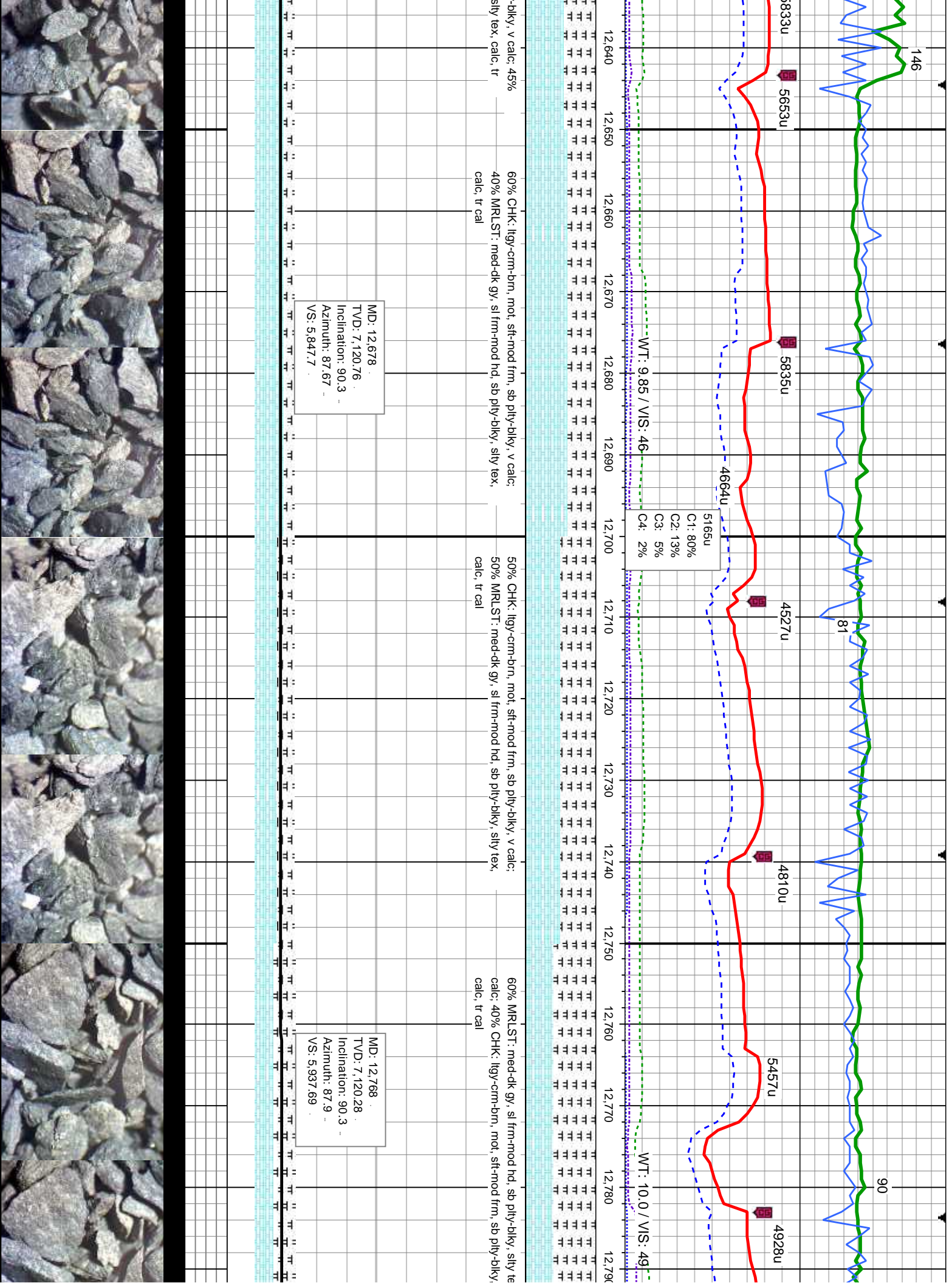
630055% CHK: llyy-crm-brn, mot, sft-mod frm, sb pily
MRLST: med-dk gy, sl frm-mod hd, sb pily-blky,
cal

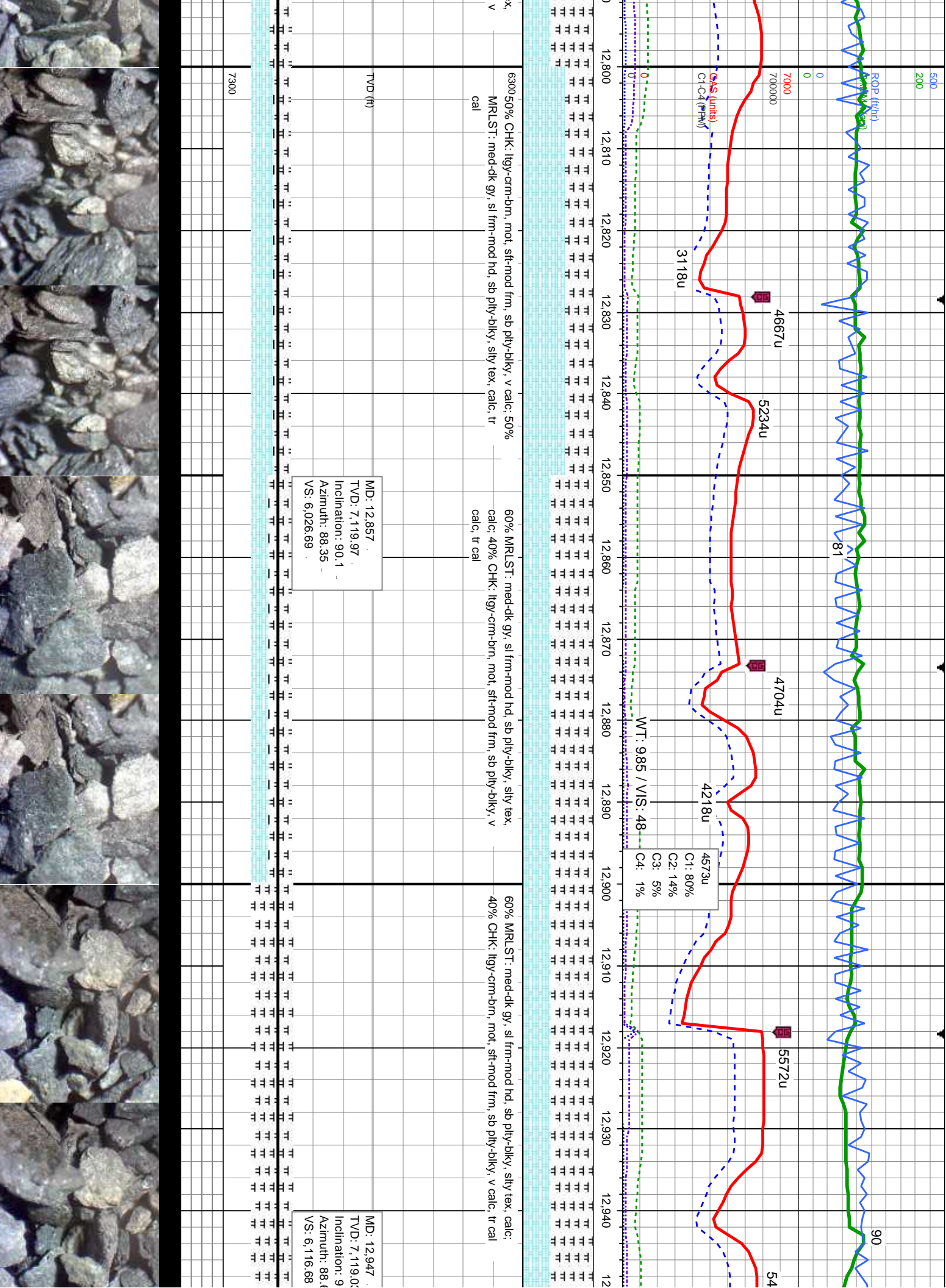
MD: 12,491
TVD: 7,121.49
Inclination: 90.2
Azimuth: 86.7
VS: 5,660.77

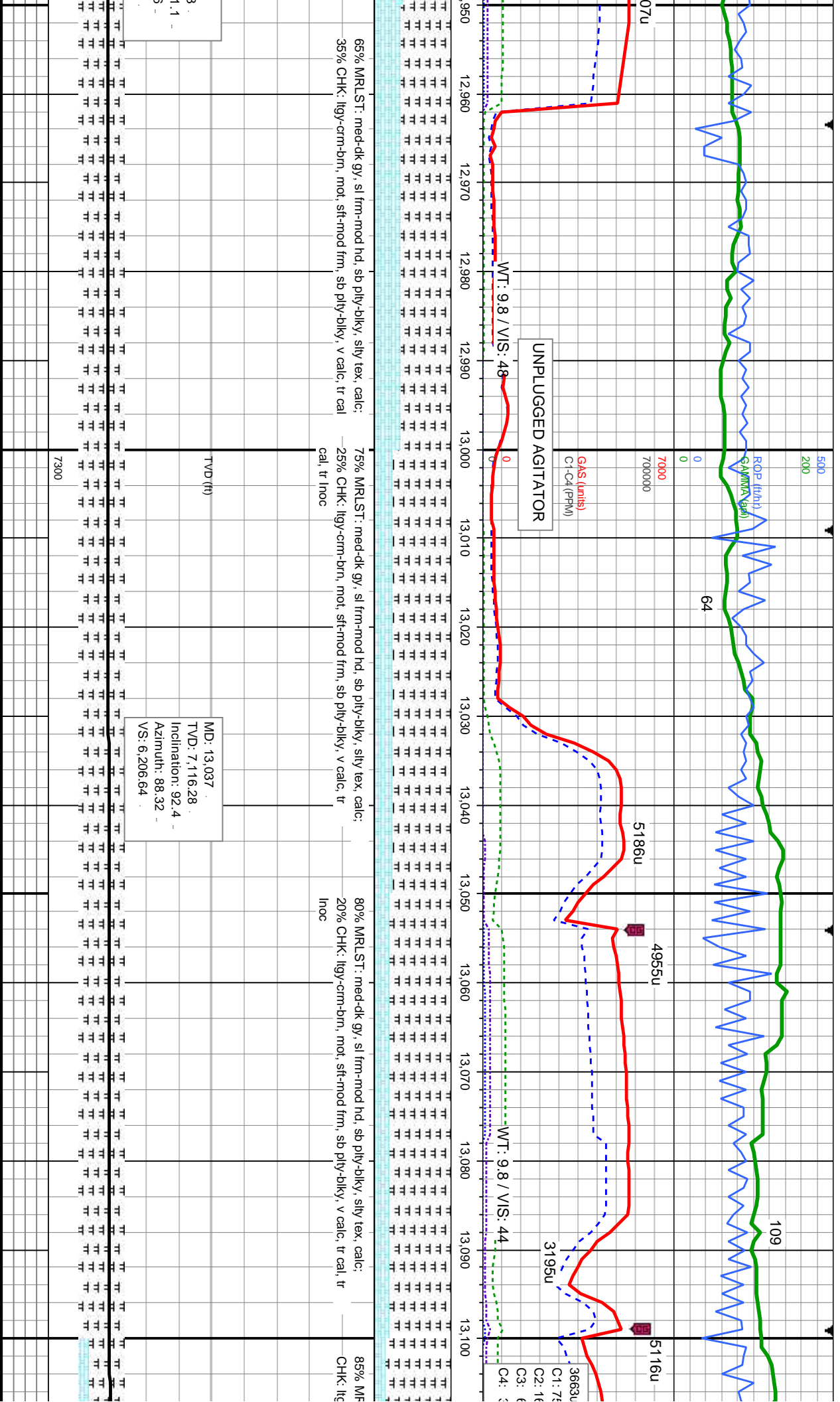
MD: 12,583
TVD: 7,121.17
Inclination: 90.2
Azimuth: 86.59
VS: 5,752.73

TVD (ft)



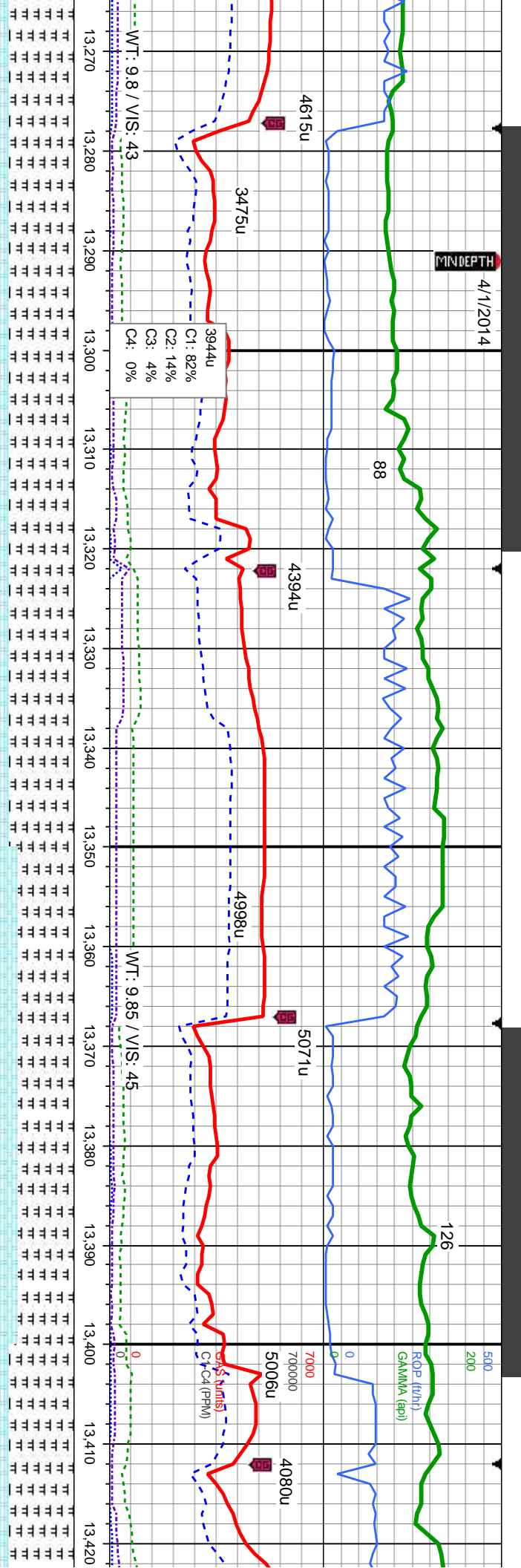






4/1/2014

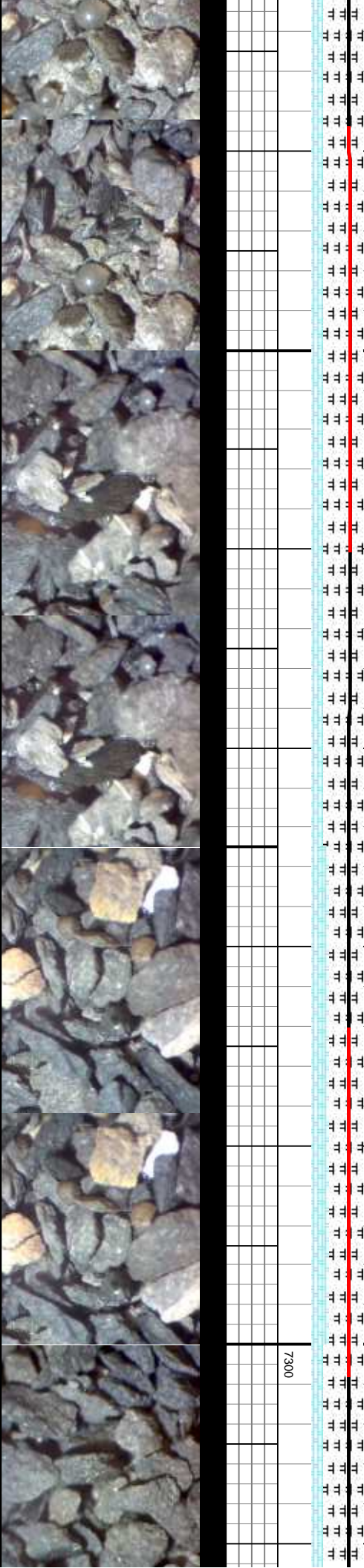
MINDEPTH

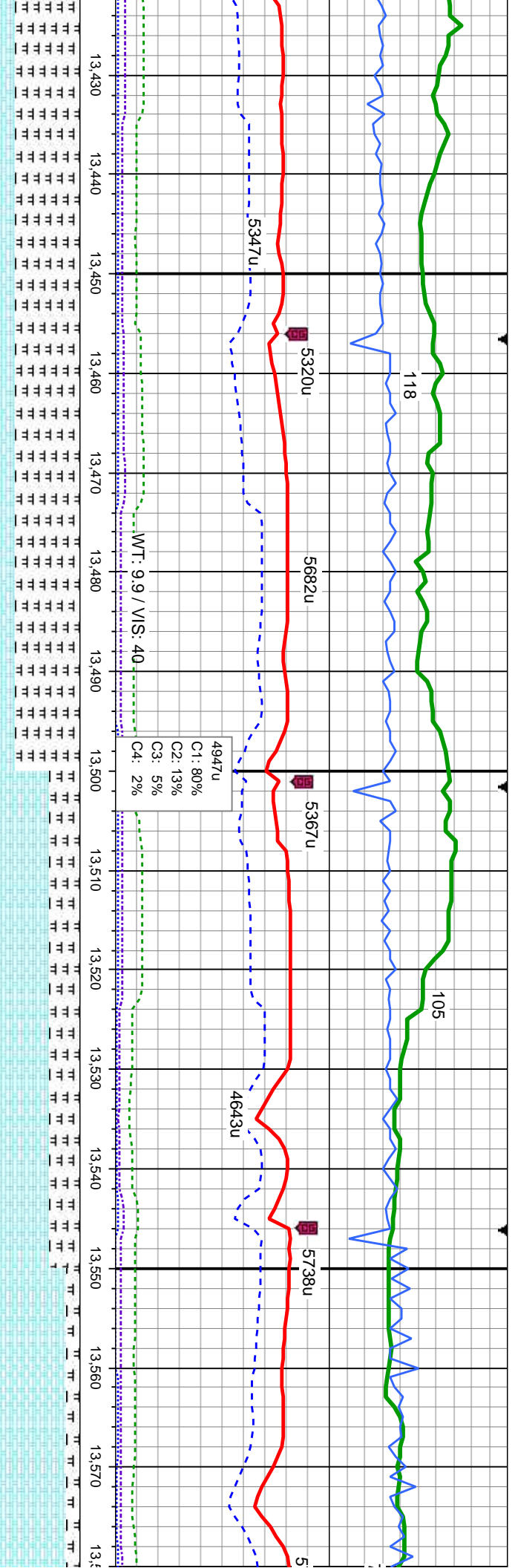


dk gy, sl frm-mod hd, sb ply-blky, silty tex, calc;
-brn, mot, sft-mod frm, sb ply-blky, v calc, tr cal, tr
75% MRLST: med-dk gy, sl frm-mod hd, sb ply-blky, silty tex, calc;
25% CHK: lgy-crm-brn, mot, sft-mod frm, sb ply-blky, v calc, tr inoc
65% MRLST: med-dk gy, sl frm-mod hd, sb ply-blky, silty tex, calc;
35% CHK: lgy-crm-brn, mot, sft-mod frm, sb ply-blky, v calc, mod
cal, tr inoc
63075% MRLST: med-dk gy, sl frm-mod hd, sb ply-blky, silty tex, calc;
25% CHK: lgy-crm-brn, mot, sft-mod frm, sb ply-blky, v calc, mod
cal, tr inoc

MD: 13,305
TVD: 7,104.12
Inclination: 90.2
Azimuth: 88.11
VS: 6,474.3

MD: 13,395
TVD: 7,105.76
Inclination: 87.7
Azimuth: 88.99
VS: 6,564.28





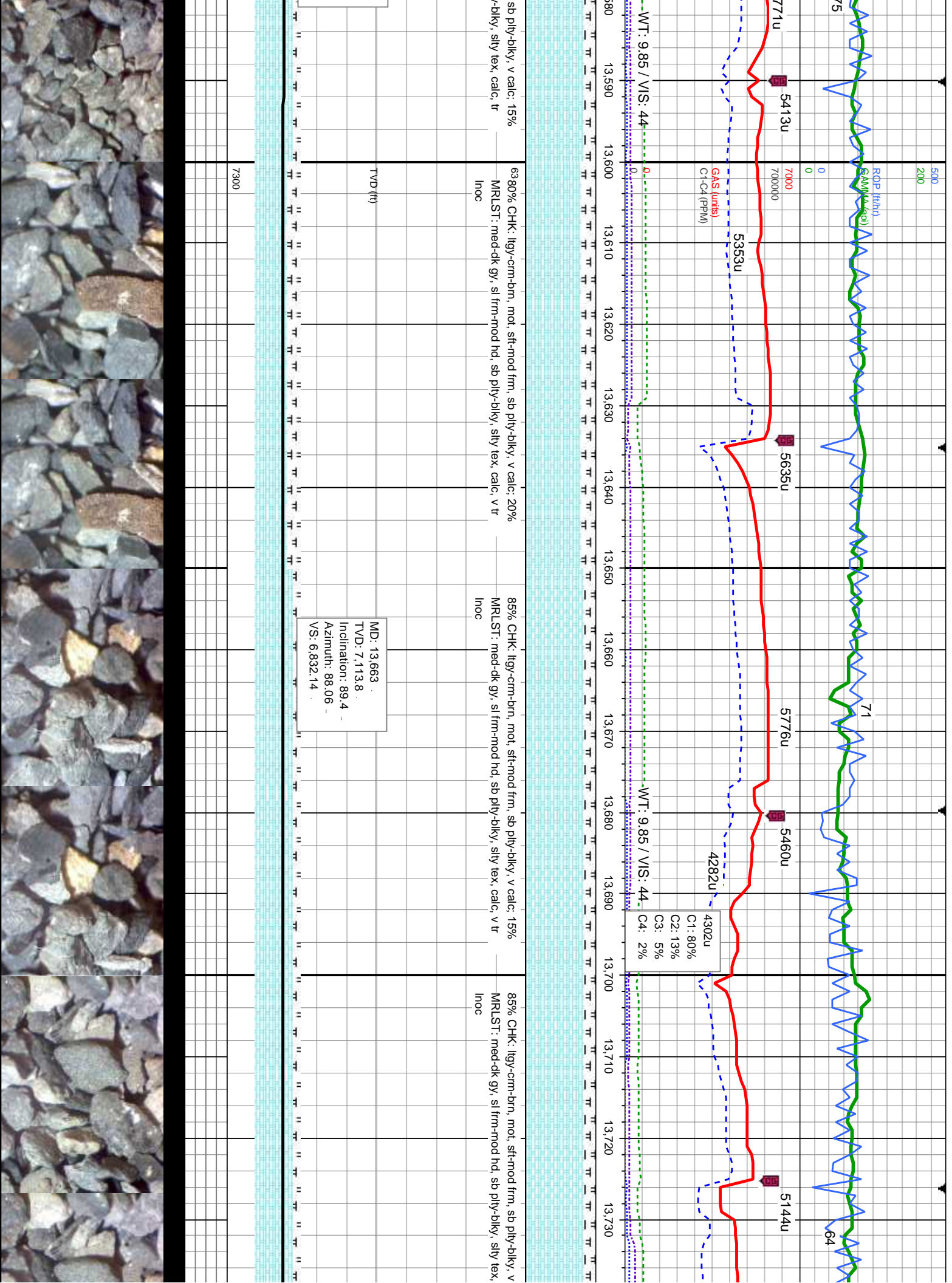
ft-mod hd, sb ply-blky, silty tex, calc;
ft-mod frm, sb ply-blky, v calc, tr cal,
75% MRLST: med-dk gy, sl frm-mod hd, sb ply-blky, silty tex, calc;
25% CHK: lgy-crm-brn, mot, sft-mod frm, sb ply-blky, v calc, tr cal,
tr inoc

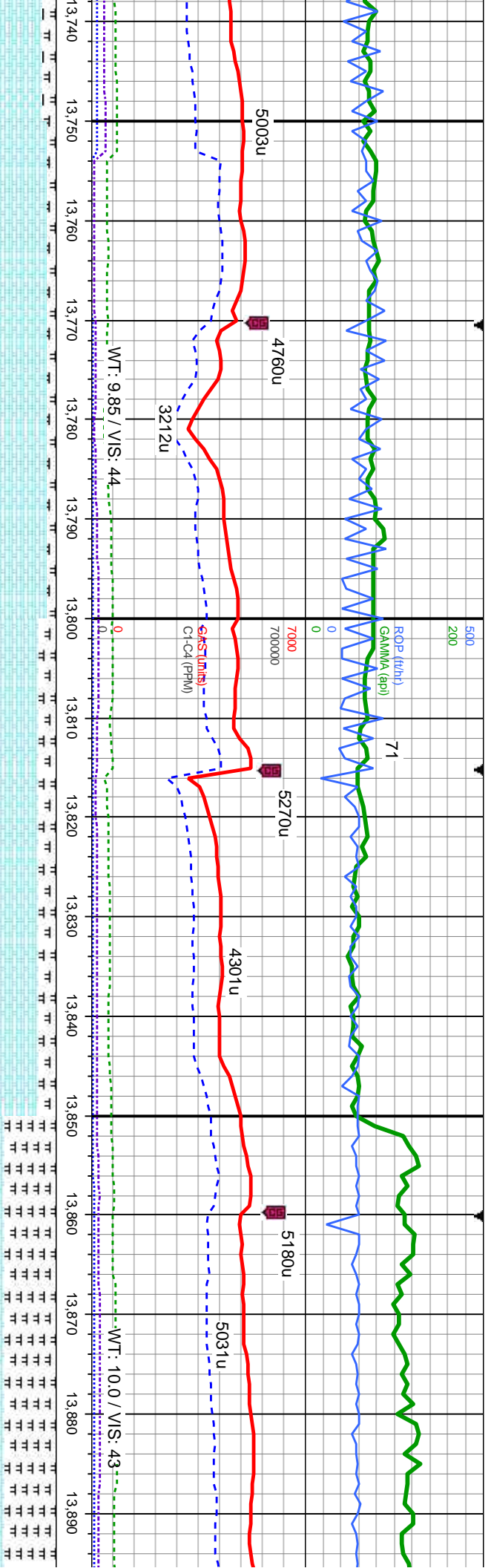
MD: 13,485
TVD: 7,109.3
Inclination: 87.8
Azimuth: 88.61
VS: 6,654.21

65% CHK: lgy-crm-brn, mot, sft-mod frm, sb ply-blky, v calc, 35%
MRLST: med-dk gy, sl frm-mod hd, sb ply-blky, silty tex, calc, tr cal, tr
inoc
85% CHK: lgy-crm-brn, mot, sft-mod frm,
MRLST: med-dk gy, sl frm-mod hd, sb ply
cal, v tr inoc

MD: 13,574
TVD: 7,112.17
Inclination: 88.5
Azimuth: 88.5
VS: 6,743.16







calc, 15%
calc, v tr
90% CHK: llyg-crm-bm, mot, sft-mod frm, sb ply-biky, v calc, 10%
MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty tex, calc, v tr
Inoc

MD: 13,753
TVD: 7,113.17
Inclination: 91.4
Azimuth: 89.4
VS: 6,922.13

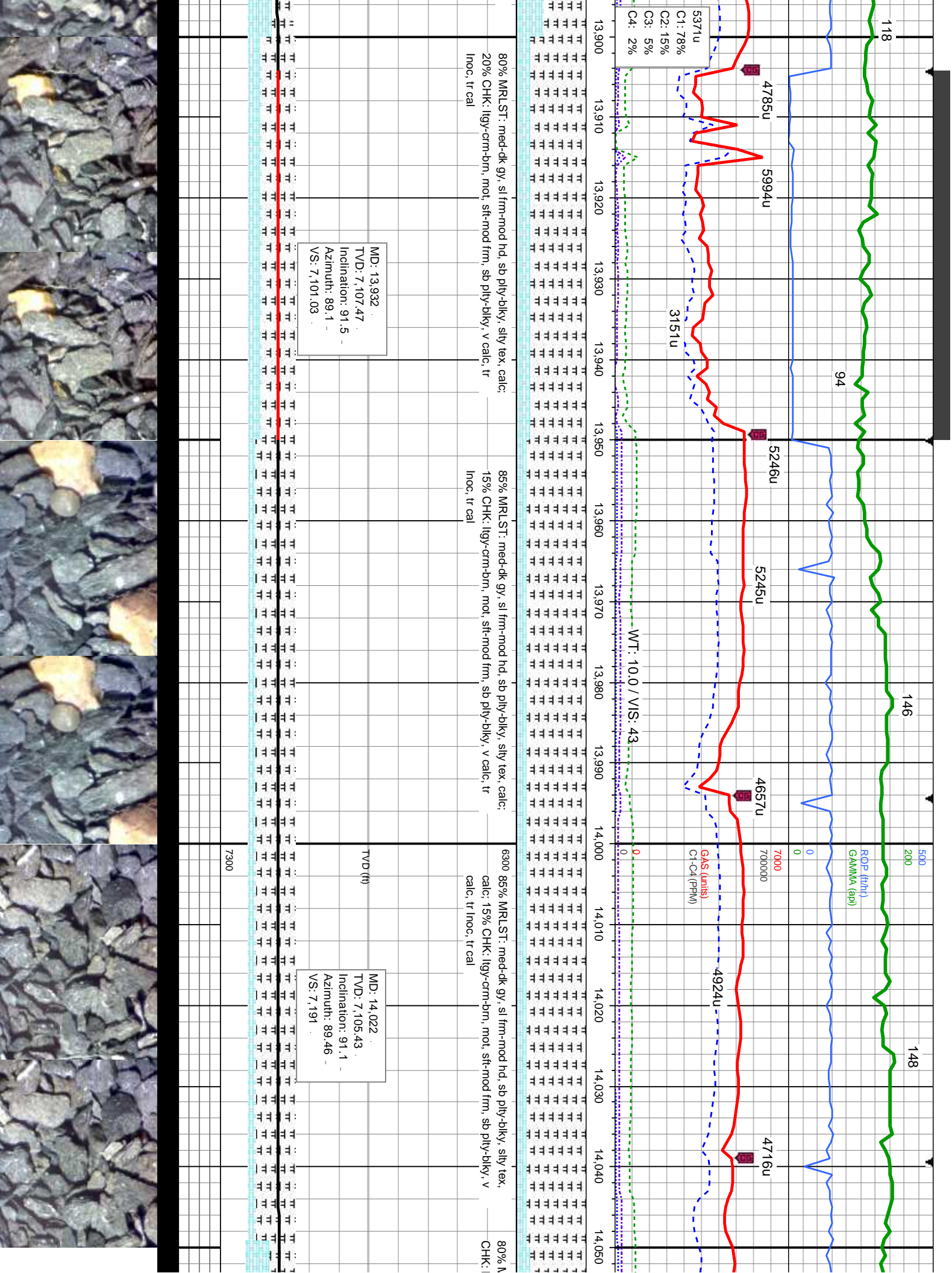
TVD (ft)

63% 90% CHK: llyg-crm-bm, mot, sft-mod frm, sb ply-biky, v calc, 20%
MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty tex, calc, v tr
Inoc
60% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty tex, calc,
40% CHK: llyg-crm-bm, mot, sft-mod frm, sb ply-biky, v calc, v tr
Inoc

MD: 13,843
TVD: 7,110.35
Inclination: 92.2
Azimuth: 88.9
VS: 7,012.08

7300





MINDEPTH

98

9

4527u



4890u

4874u



3246u

C1: 79%
C2: 16%
C3: 5%
C4: 1%

4634u



5041u

5060u



WT: 10.0 / VIS: 39

WT: 9.75 / VIS: 41



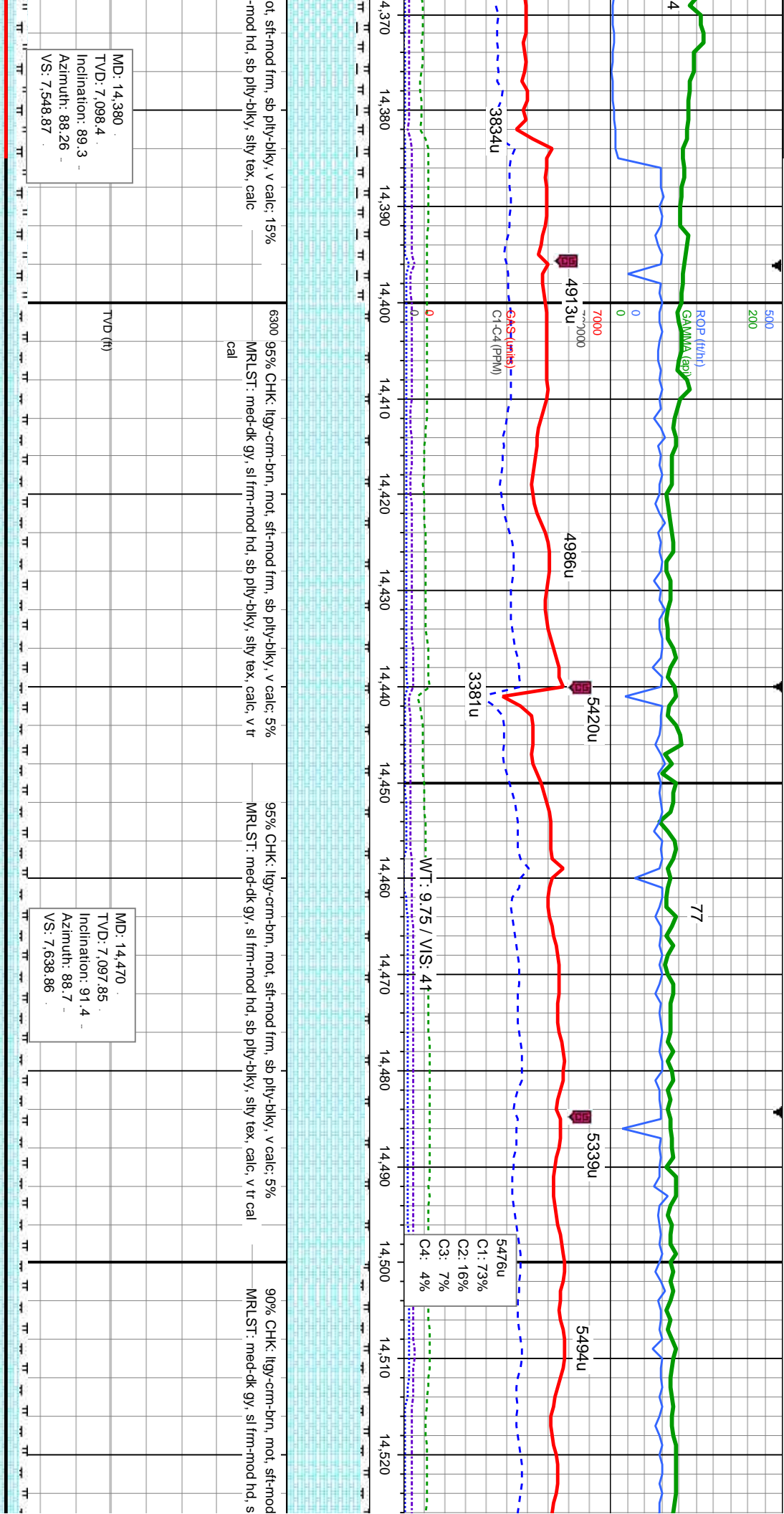
50% CHK: lly-crm-brn, mot, sft-mod frm, sb ply-blky, v calc; 50% MRLST: med-dk gy, sl frm-mod hd, sb ply-blky, silty tex, tr cal

60% CHK: lly-crm-brn, mot, sft-mod frm, sb ply-blky, v calc; 40% MRLST: med-dk gy, sl frm-mod hd, sb ply-blky, silty tex, calc, tr inoc, tr cal

85% CHK: lly-crm-brn, m MRLST: med-dk gy, sl frm

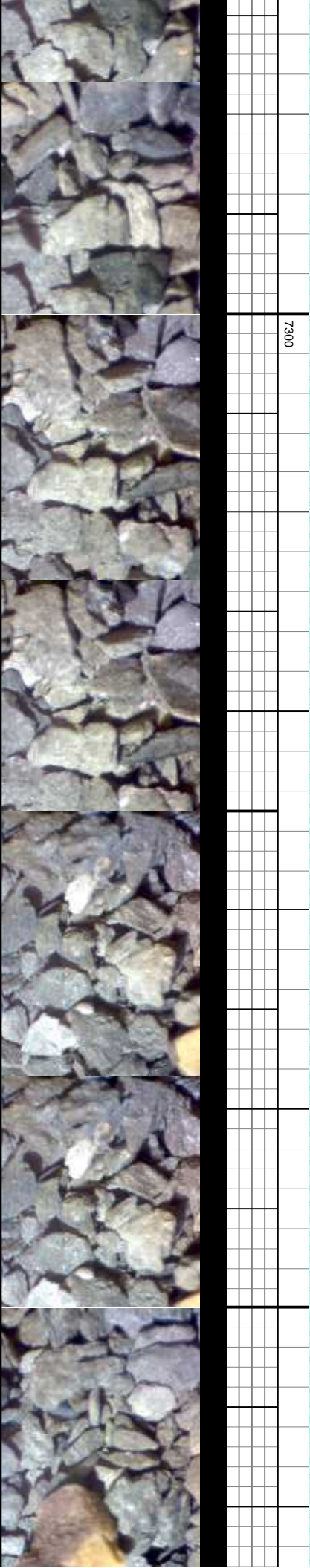
MD: 14,291
TVD: 7,098.32
Inclination: 90.6
Azimuth: 88.6
VS: 7,459.87

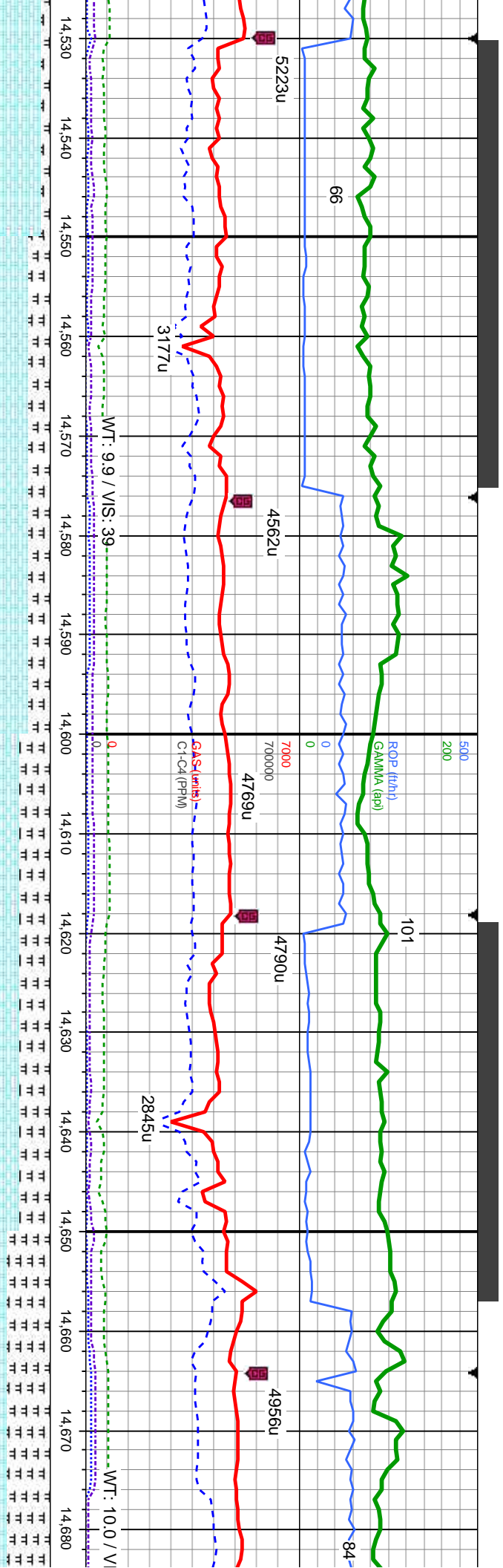




MD: 14,380
TVD: 7,098.4
Inclination: 89.3
Azimuth: 88.26
VS: 7,548.87

MD: 14,470
TVD: 7,097.85
Inclination: 91.4
Azimuth: 88.7
VS: 7,638.86





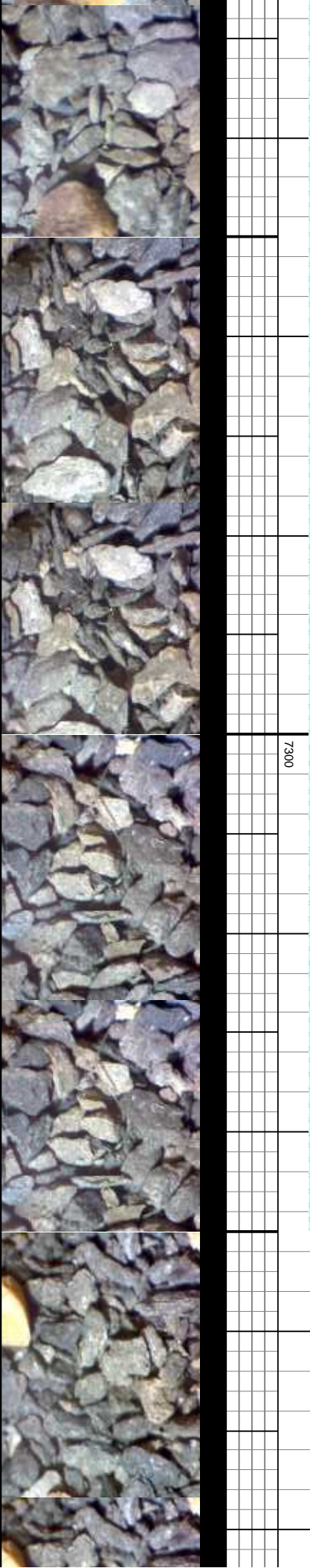
MD: 14.559
TVD: 7,096.53
Inclination: 90.3
Azimuth: 88.63
VS: 7,727.85

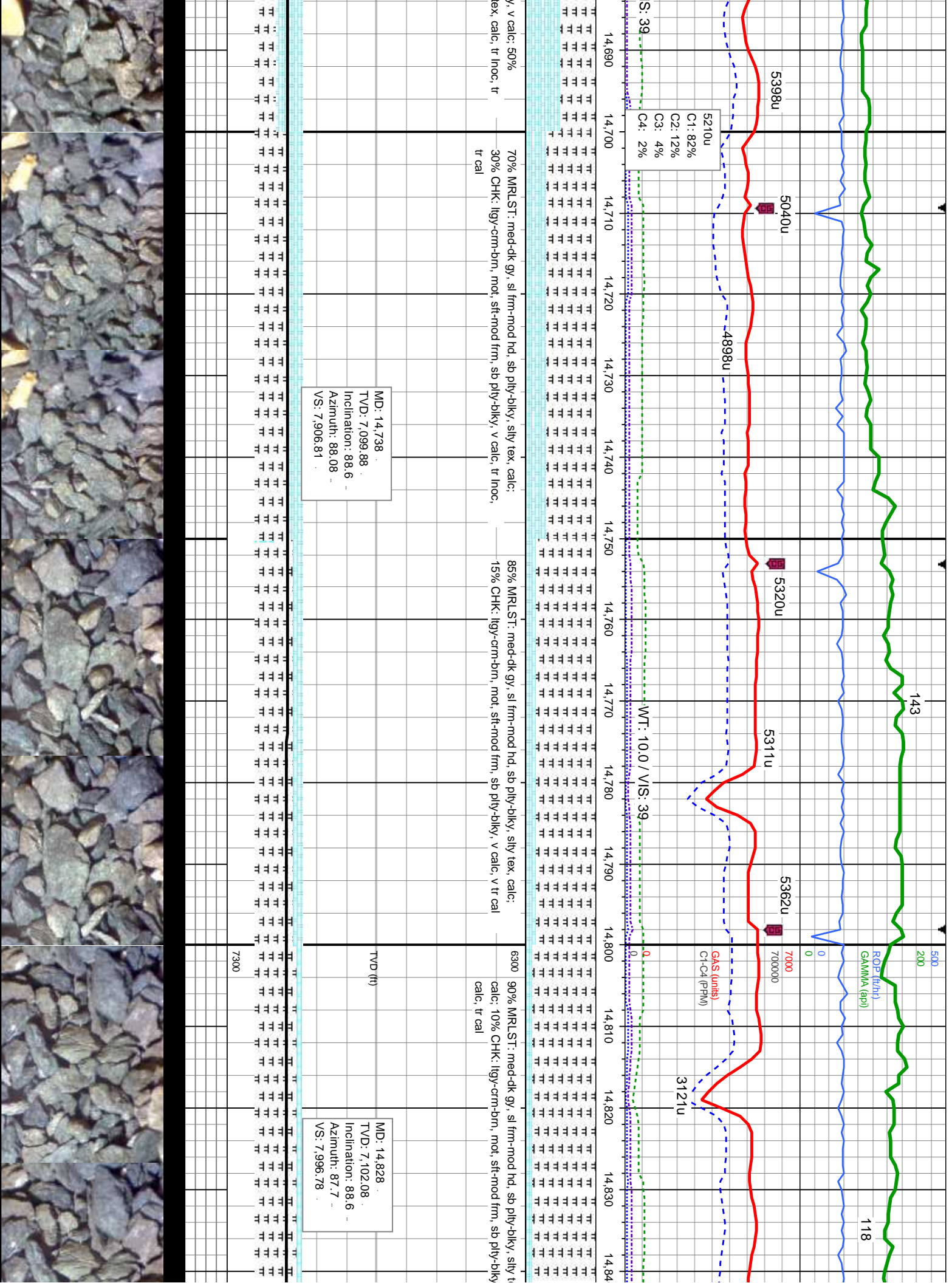
75% CHK: lgy-cr-m-brn, mot, sft-mod frm, sb ply-biky, v calc; 25%
MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, sily tex, calc, tr inoc, tr cal

6300 65% CHK: lgy-cr-m-brn, mot, sft-mod frm, sb ply-biky, v calc; 35%
MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, sily tex, calc, tr inoc, tr cal

50% CHK: lgy-cr-m-brn, mot, sft-mod frm, sb ply-biky
MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, sily cal

MD: 14.649
TVD: 7,097.55
Inclination: 88.4
Azimuth: 88.33
VS: 7,817.84





ROP (ft/h)

GAMMA (api)

GRS (units)

C1-C4 (PPM)

3121u

118

143

5398u

5040u

4898u

5320u

5311u

5362u

WT: 10.0 / VIS: 39

5210u

C1: 82%

C2: 12%

C3: 4%

C4: 2%

S: 39

70% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty tex, calc;
30% CHK: ligy-crm-brn, mot, sft-mod frm, sb ply-biky, v calc, tr inoc, tr cal

85% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty tex, calc;
15% CHK: ligy-crm-brn, mot, sft-mod frm, sb ply-biky, v calc, v tr cal

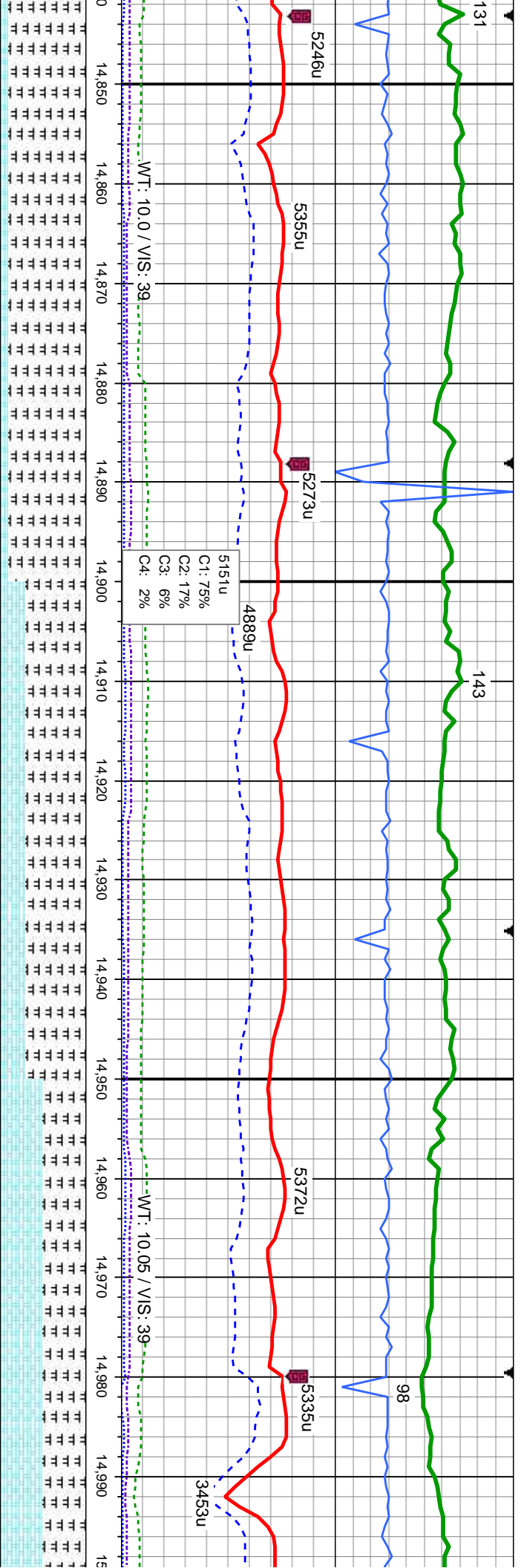
6300 90% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty tr
calc: 10% CHK: ligy-crm-brn, mot, sft-mod frm, sb ply-biky
calc, tr cal

MD: 14,738
TVD: 7,099.88
Inclination: 88.6
Azimuth: 88.08
VS: 7,906.81

MD: 14,828
TVD: 7,102.08
Inclination: 88.6
Azimuth: 87.7
VS: 7,996.78

TVD (ft)

7300



90% MRLST: med-dk gy, sl frm-mod hd, sb pily-biky, silty tex, calc;
10% CHK: ilgy-crm-brn, mot, sft-mod frm, sb pily-biky, v calc, tr cal

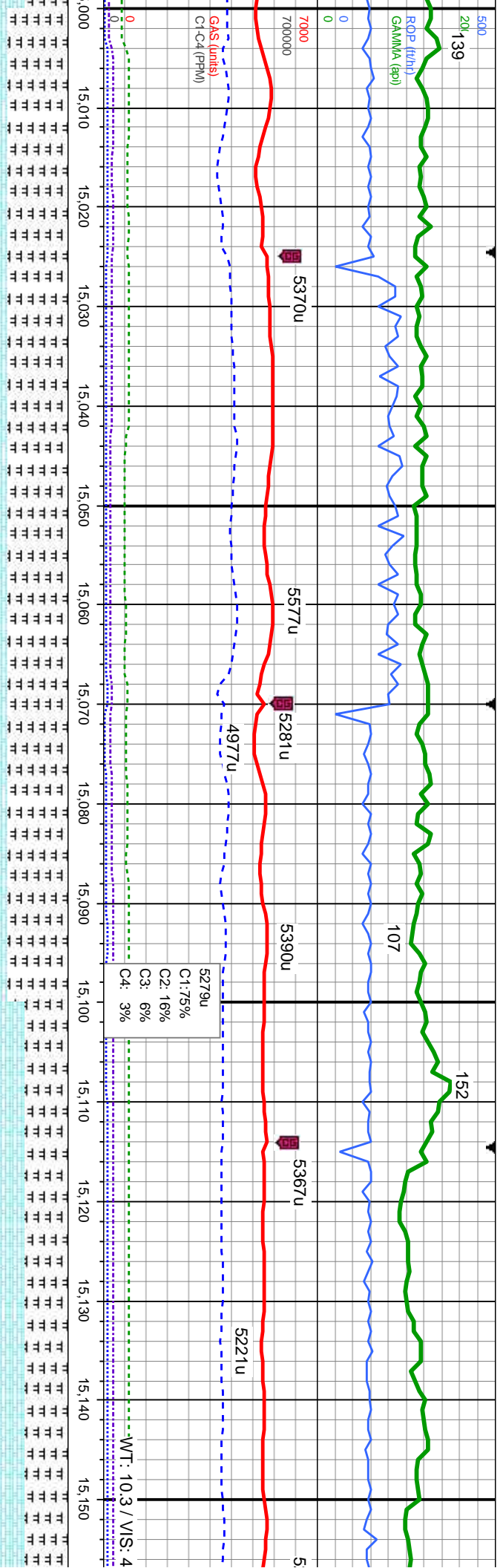
70% MRLST: med-dk gy, sl frm-mod hd, sb pily-biky, silty tex, calc;
30% CHK: ilgy-crm-brn, mot, sft-mod frm, sb pily-biky, v calc, tr cal

50% MRLST: med-dk gy, sl frm-mod hd, sb pily-biky, silty tex, calc;
50% CHK: ilgy-crm-brn, mot, sft-mod frm, sb pily-biky, v calc, tr cal

MD: 14.918
TVD: 7,104.43
Inclination: 88.4
Azimuth: 88.21
VS: 8.086,74

MD:
TVD
Incli
Azim
VS: 1





70% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty tex, calc: 30%
CHK: lgy-crm-brn, mot, sft-mod frm, sb ply-biky, v calc, tr cal

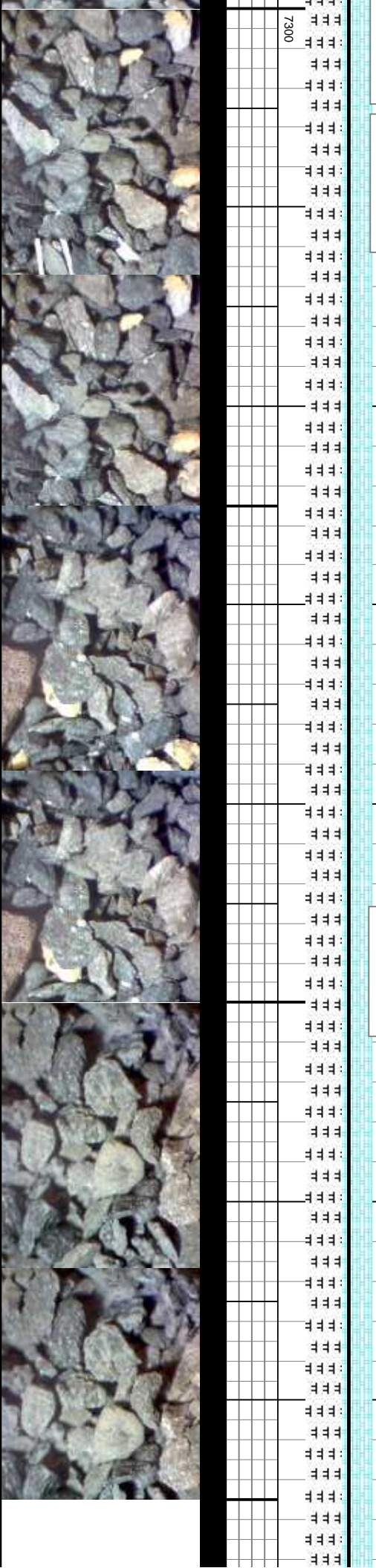
70% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty tex, calc: 30%
CHK: lgy-crm-brn, mot, sft-mod frm, sb ply-biky, v calc, tr cal

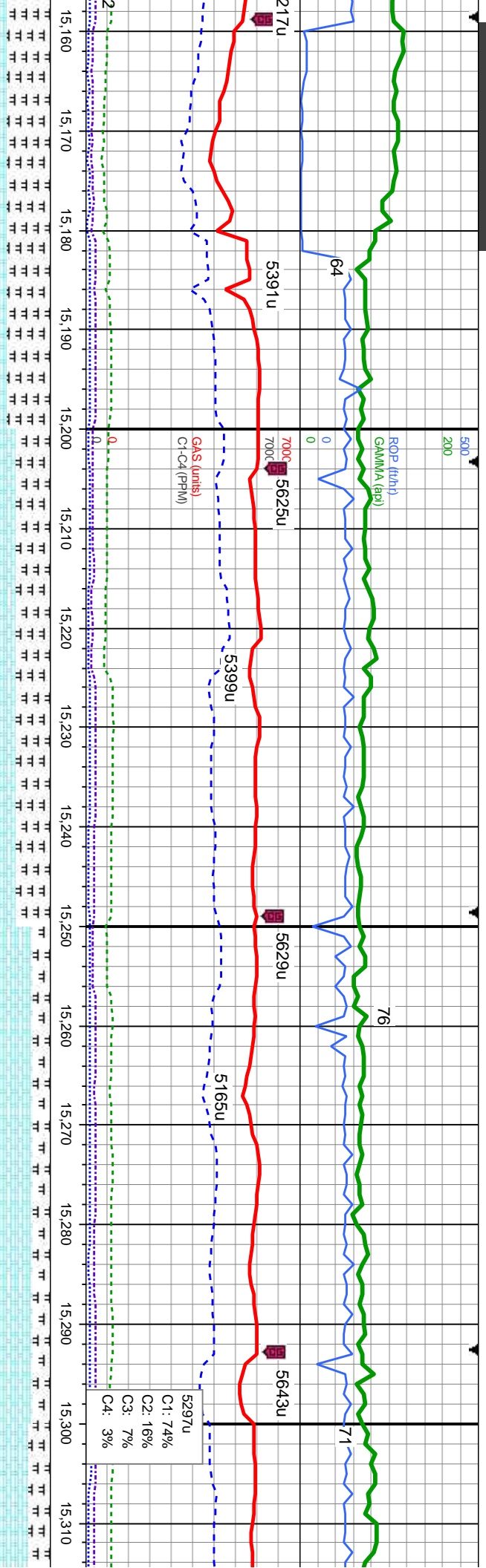
MD: 15,017.33
TVD: 7,105.85
Inclination: 89.8
Azimuth: 88.4
VS: 3,176.73

MD: 15,097
TVD: 7,105.22
Inclination: 91
Azimuth: 89.94
VS: 8,265.72

60% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty tex, calc:
40% CHK: lgy-crm-brn, mot, sft-mod frm, sb ply-biky, v calc, tr cal

50% MF
50% CH





MD: 15,187
TVD: 7,104.67
Inclination: 89.7
Azimuth: 89.91
VS: 8,355.68

TVD (ft)

7300

MD: 15,277
TVD: 7,103.1
Inclination: 92.3
Azimuth: 90.3
VS: 8,445.62

6300 60% CHK: ltgy-crm-brn, mot, sft-mod frm, sb ply-blky, v calc;
40% MRLST: med-dk gy, sl frm-mod hd, sb ply-blky, silty tex,
calc, tr cal

80% CHK: ltgy-crm-brn, mot, sft-mod frm, sb ply-blky, v calc;
20% MRLST: med-dk gy, sl frm-mod hd, sb ply-blky, silty tex,
calc, mod cal

75% CHK: ltgy-crm-
MRLST: med-dk gy,
cal



4/4/14

MINDEPTH

88

5518u

5382u

3825u

5860u

131

500
200
0
GAS (lunh)
GAIN (lunh)

5499u

7000
700000
GAS (lunh)
C1-C4 (PPM)

124

5438u

3488u

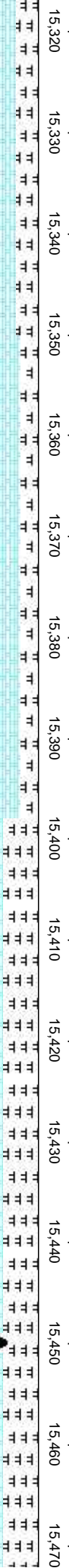
WT: 9.9 / VIS: 40

WT: 9.8 / VIS: 38

5909u

4/5-6/14

MINDEPTH



brn, mot, sft-mod frm, sb pty-biky, v calc; 25%
sl frm-mod hd, sb pty-biky, silty tex, calc, mod

80% CHK: lgy-crm-brn, mot, sft-mod frm, sb pty-biky, v calc; 20%
MRLST: med-dk gy, sl frm-mod hd, sb pty-biky, silty tex, calc

6300 60% CHK: lgy-crm-brn, mot, sft-mod frm, sb pty-biky, v calc
40% MRLST: med-dk gy, sl frm-mod hd, sb pty-biky, silty tex, calc, tr cal

60% CHK: lgy-crm-brn, mot, sft-mod frm, sb pty-biky, v calc
MRLST: med-dk gy, sl frm-mod hd, sb pty-biky, silty tex, calc

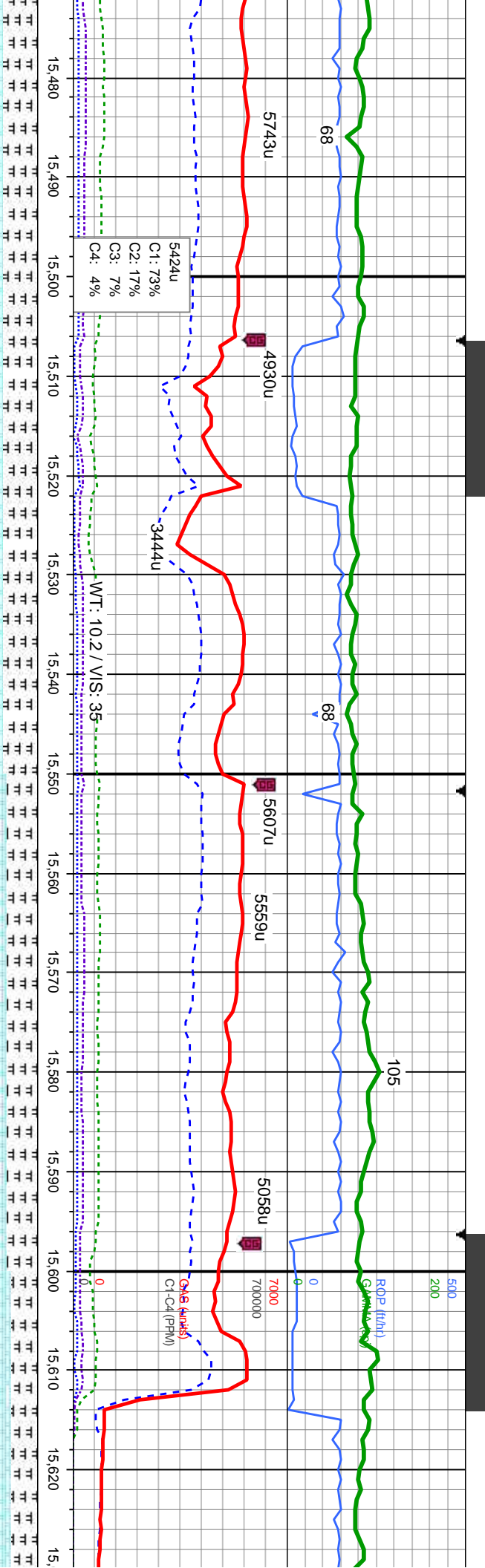
MD: 15,366
TVD: 7,100.77
Inclination: 90.7
Azimuth: 90.13
VS: 8,534.55

MD: 15,445
TVD: 7,100.29
Inclination: 90
Azimuth: 90
VS: 8,613.52

Bit Data
Bit #: 5
Type: SKIH 516 M
Size: 6.12
Depth In: 15,448 '
Depth Out: 16,640 '
Jets: 5x13
S/N: A192369

7300





mod frm, sb ply-bkly, v calc, 40%
4, sb ply-bkly, silty tex, calc

60% CHK: lgy-crm-brn, mot, sft-mod frm, sb ply-bkly, v calc, 40% MRLST:
med-dk gy, sl frm-mod hd, sb ply-bkly, silty tex, calc

65% CHK: lgy-crm-brn, mot, sft-mod frm, sb ply-bkly, v calc, 35%
MRLST: med-dk gy, sl frm-mod hd, sb ply-bkly, silty tex, calc

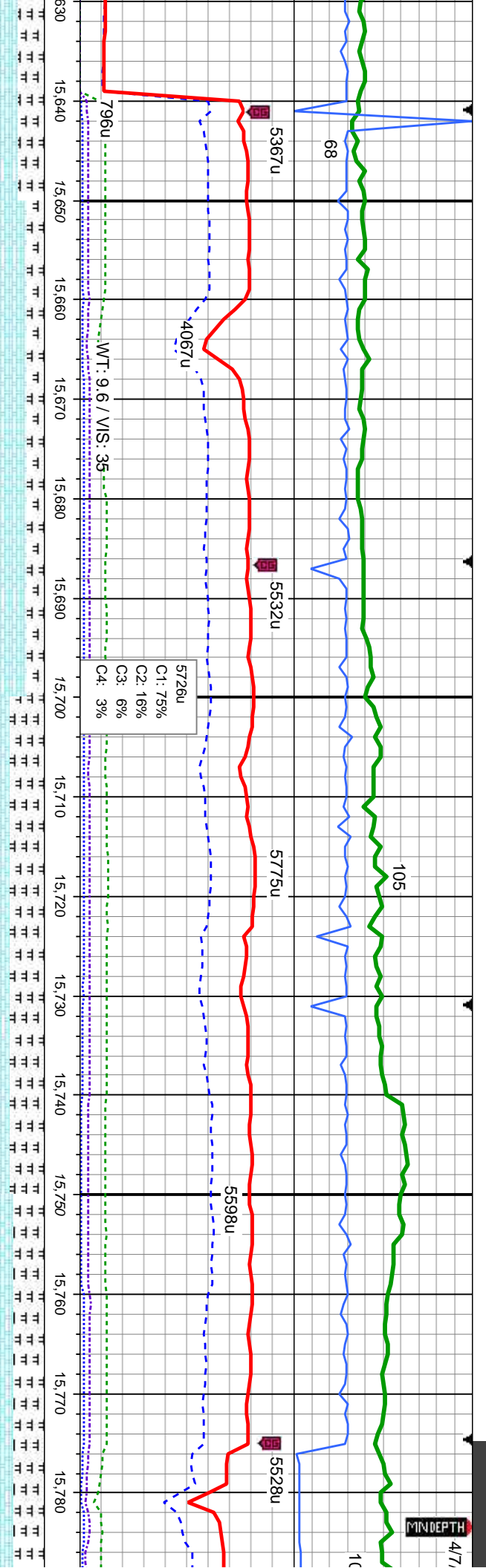
70% CHK: lgy-crm-brn, mot, sft-mod frm, sb p
MRLST: med-dk gy, sl frm-mod hd, sb ply-bkly

MD: 15,535
TVD: 7,100.28
Inclination: 90
Azimuth: 90.03
VS: 8,703.48

MD: 15,624
TVD: 7,100.52
Inclination: 89.7
Azimuth: 89.39
VS: 8,792.46

7300

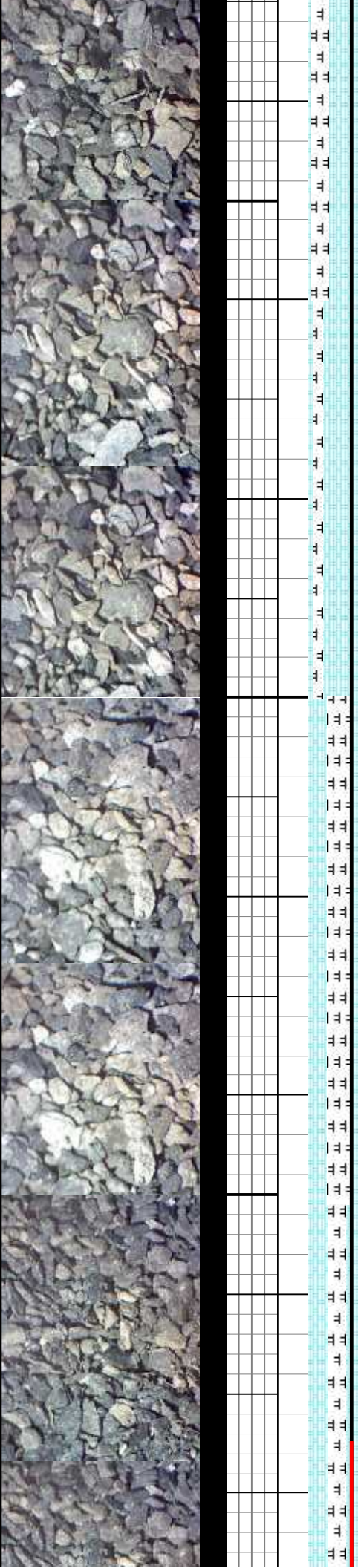


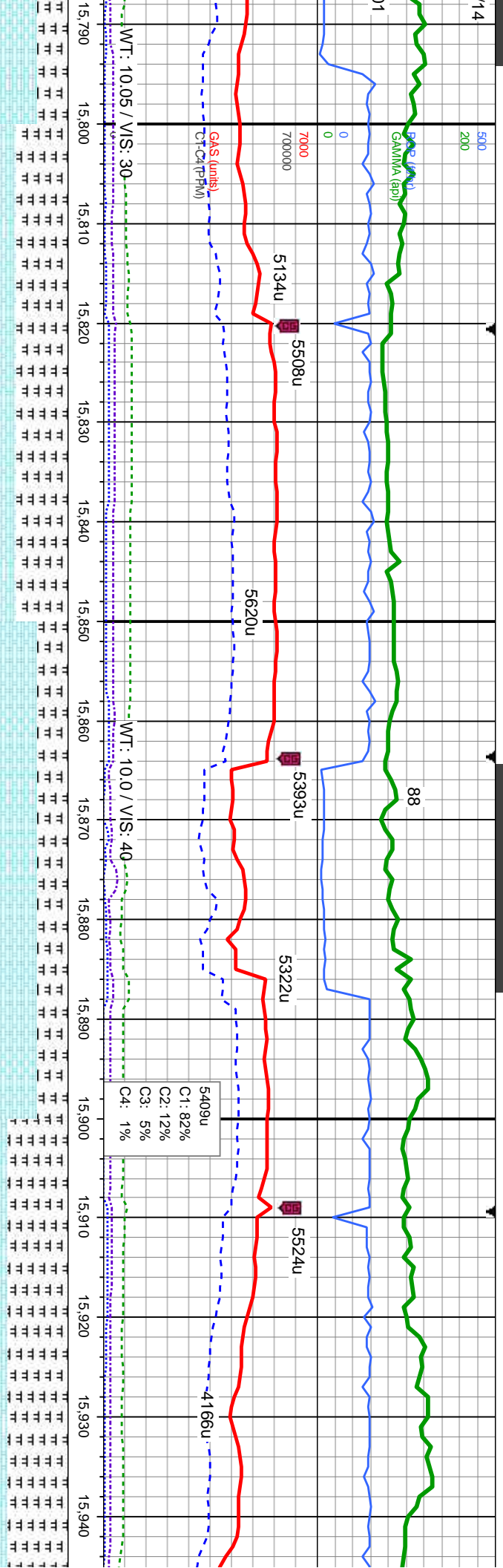


ply-bkly, v calc; 30%
y, silty tex, calc
80% CHK: lgy-crm-brn, mot, sft-mod frm, sb ply-bkly, v calc; 20%
MRLST: med-dk gy, sl frm-mod hd, sb ply-bkly, silty tex, calc

MD: 15,714 '
TVD: 7,099.65 '
Inclination: 91.4 °
Azimuth: 89.38 °
VS: 8,882.44 '

60% CHK: lgy-crm-brn, mot, sft-mod frm, sb ply-bkly, v calc; 40%
MRLST: med-dk gy, sl frm-mod hd, sb ply-bkly, silty tex, calc
65% CHK: lgy-crm-brn, mot, sft-mod frm, sb ply-bkly, v calc
MRLST: med-dk gy, sl frm-mod hd, sb ply-bkly, silty tex, calc



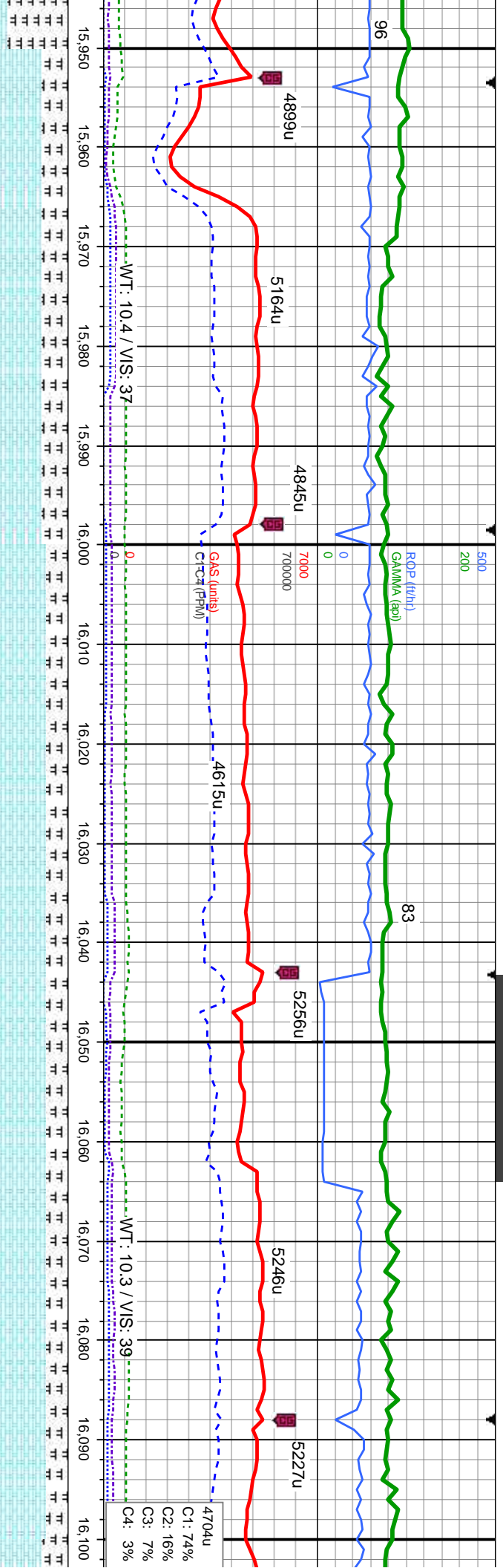


MD: 15.803
TVD: 7,098.18
Inclination: 90.5
Azimuth: 88.56
VS: 8.971.42

MD: 15.893
TVD: 7,098.49
Inclination: 89.1
Azimuth: 88.3
VS: 9.061.42

660% MRLST: med-dk gy, sl frm-mod hd, sb ply-bkly, silty tex, calc; 40% CHK: lgy-crm-brn, mot, sft-mod frm, sb ply-bkly, v calc	65% CHK: lgy-crm-brn, mot, sft-mod frm, sb ply-bkly, v calc; 35% MRLST: med-dk gy, sl frm-mod hd, sb ply-bkly, silty tex, calc; tr inoc	70% MRLST: med-dk gy, sl frm-mod hd, sb ply-bkly, silty tex, calc; 30% CHK: lgy-crm-brn, mot, sft-mod frm, sb ply-bkly, v calc; tr inoc
7300		





70% CHK: lgy-crm-brn, mot, sft-mod frm, sb ply-blky, v calc;
30% MRLST: med-dk gy, sl frm-mod hd, sb ply-blky, silty tex,
calc, tr lnoc

MD: 15,983
TVD: 7,099.04
Inclination: 90.2
Azimuth: 88.29
VS: 9,151.42

TVD (ft)

75% CHK: lgy-crm-brn, mot, sft-mod frm, sb ply-blky, v calc; 25%
MRLST: med-dk gy, sl frm-mod hd, sb ply-blky, silty tex, calc, tr
lnoc

75% CHK: lgy-crm-brn, mot, sft-mod frm, sb ply-blky, v calc;
25% MRLST: med-dk gy, sl frm-mod hd, sb ply-blky, silty tex,
calc

MD: 16,072
TVD: 7,097.95
Inclination: 91.2
Azimuth: 87.8
VS: 9,240.41

7300



