



Scale: 5" / 100'
Measured Depth Log

Well Name State North Platte K-O-36HC Sidetrack

Location NWNW Section 36, T5N, R63W

State Colorado

Country USA

API Number 05-123-37669

Region DJ Basin

Spud Date 8/13/2013

Surface Coordinates 350' FNL x 520' FWL

Bottom Hole Coordinates 600' FSL x 2539' FWL

County Weld

Rig Number Cade 22

Field Wattenberg

Drilling Completed 9/30/2013

Ground Elevation 4543'

K.B. Elevation 4558'

Logged Interval 7505' **To** 11360'

Total Depth 11360'

Formation Codell Sandstone

Type of Drilling Fluid FW LSND

Company Bonanza Creek

Address 410 17th Street
Denver, CO 80202

Name Paul McKay

Company Bonanza Creek

Address 410 17th Street
Denver, CO 80202

Columbine Logging, Inc.

Wellsite Geologists

Other Symbols

Oil Show

- MOLDIC
- ORGANIC
- PINPOINT
- VUGGY
- EVEN
- QUESTIONABLE
- SPOTTED STAINING

Engineering

- FAULT
- FORMATION TOP
- GAS SHOW
- MINDEPTH MN DEPTH
- NORMAL FAULT
- OIL SHOW
- OVERTURNED STRATA
- REVERSE FAULT
- SIDE WALL CORE (LEFT)
- SIDE WALL CORE (RIGHT)
- CONNECTION GAS
- CORE - LOST
- CORE - RECOVERED
- DST INTERVAL
- SLIDE
- SURVEY
- TRIP GAS

- WIRELINE TESTED - LEFT
- WIRELINE TESTED - RT
- FINELYXLN
- GRAINSTONE
- LITHOGRAPHIC
- MICROXLN
- MUDSTONE
- PACKSTONE
- WACKESTONE

Porosity

- EARTHLY
- FENESTRAL

- FRACTURE
- INTERCRYSTALLINE
- INTEROOLITIC

Textures

- BOUNDSTONE
- CHALKY
- CRYPTOXLN

Sorting

- MODERATE
- POOR
- WELL

Slide/Rotate

ROP Limit
0 to 500 ft/hr
Gamma Limit
0 to 200 API

ROP
ROF
GAMMA

Total Gas & Chromatograph
GAS
C1
C2
C3
C4
Total Gas Limit
0 to 2500 units

Bit Data
Bit #: 2
Type: UMS135
Size: 6.12
Jets: 5x16
S/N: 4005703

Depth Labels

% Lith

Log is a Sidetrack from
State North Platte K-O-36HC
Previously completed on 8/22/13

50' Sample Interval

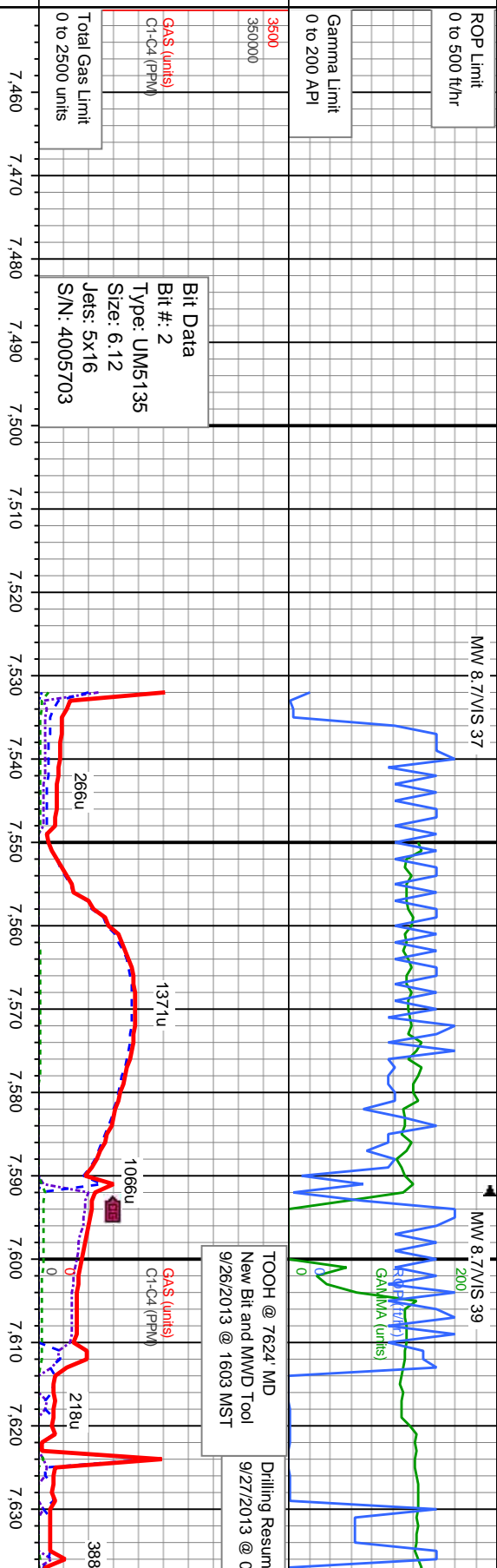
COLUMBINE LOGGING RIGGED UP ON
09/21/2013 MANNED 2-PERSON
LOGGING WITH BLOODHOUND GAS
CHROMATOGRAPH UNIT #0603 BEGAN
ON 09/26/2013 @ 0027 MST

Well Bore
TVD

Oil Show

SL
TR
F
M
G

Images



80% SLTY SH: med-dk gy, blk, sl sft-frm, sb
ply-blky, ply ip, rthy-grity lstr, mx, sly-arg, v
calc 20% CMT: plug: slw bl-gn string, no flor, thn
fnt gn ring, sl tr sn, no od

MD: 7.544
TVD: 6.466.2
Azimuth: 177.55 °
Inclination: 90.06 °
VS: 1.342.3

75% SLTY SH: med-dk gy, blk, sl sft-frm, sb
ply-blky, ply ip, rthy-grity lstr, mx, sly-arg, v
calc 25% CMT: plug: slw bl-gn string, no flor, thn
fnt gn ring, sl tr sn, no od

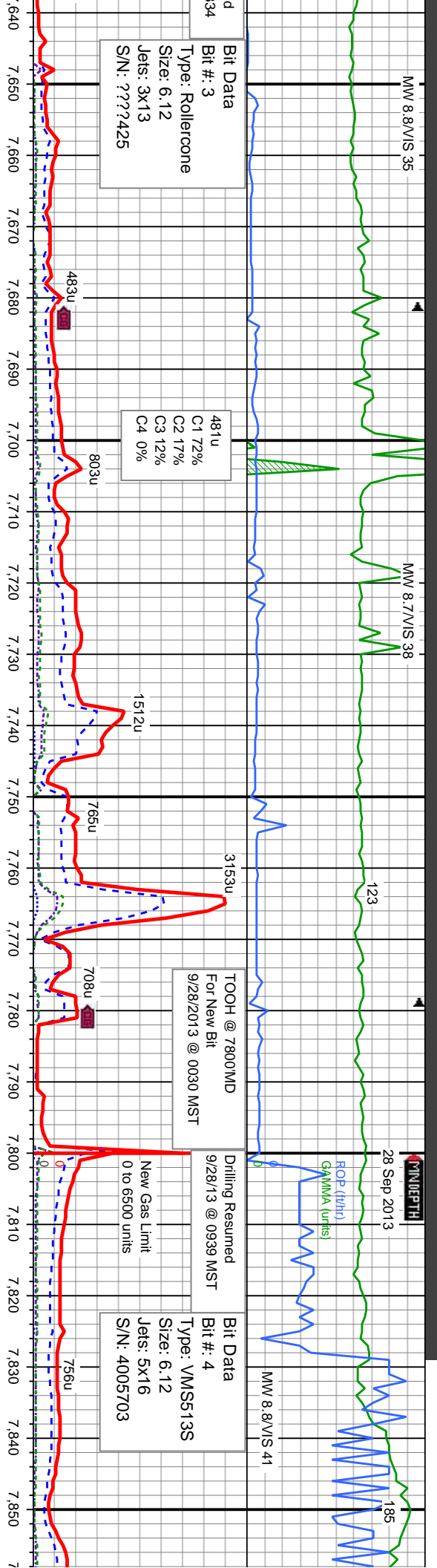
MD: 7.570
TVD: 6.466.39
Azimuth: 178.84 °
Inclination: 89.14 °
VS: 1.366.2

50% SLTY SH: med-dk gy, blk, sl sft-frm
ply-blky, ply ip, rthy-grity lstr, mx, sly-
calc 50% CMT: plug: slw bishwn string, 1
thn fnt dk gn ring, sl tr sn, no od

MD: 7.601
TVD: 6.466.82
Azimuth: 179.28 °
Inclination: 89.26 °
VS: 1.393.7
TVD (ft)

MD: 7.6
TVD: 6.
Azimuth:
Inclinat:
VS: 1.4





Bit Data
 Bit #: 3
 Type: Rollercone
 Size: 6.12
 Jets: 3x13
 S/N: ???2425

481u
 C1 72%
 C2 17%
 C3 12%
 C4 0%

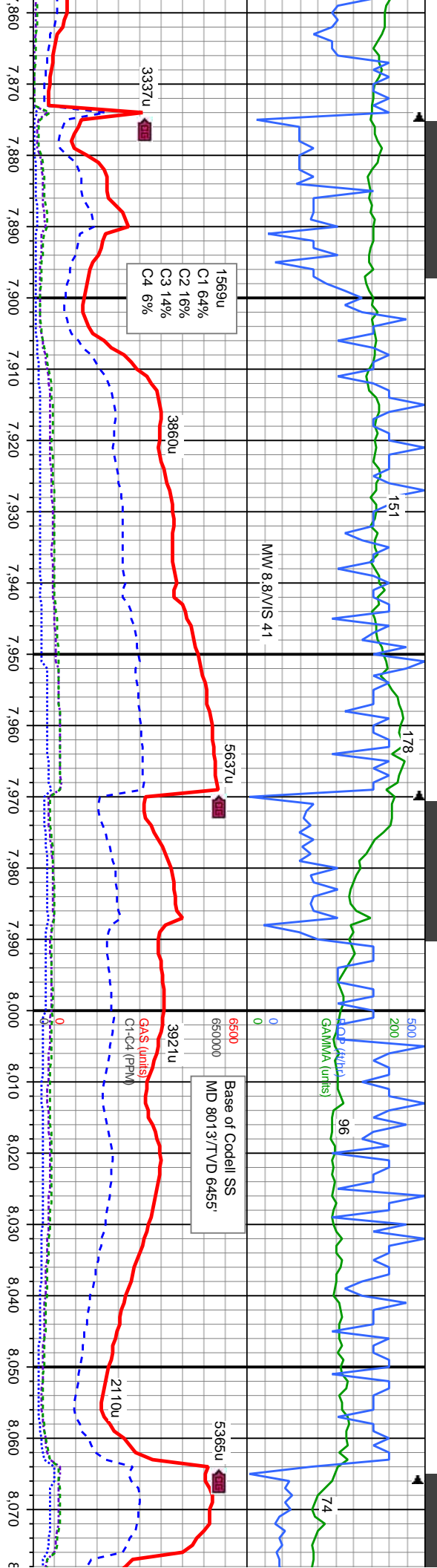
TOOH @ 7800MD
 For New Bit
 9/28/2013 @ 0030 MST

Drilling Resumed
 9/28/13 @ 0939 MST
 New Gas Limit
 0 to 6500 units

Bit Data
 Bit #: 4
 Type: VMSS513S
 Size: 6.12
 Jets: 5x16
 S/N: 4005703

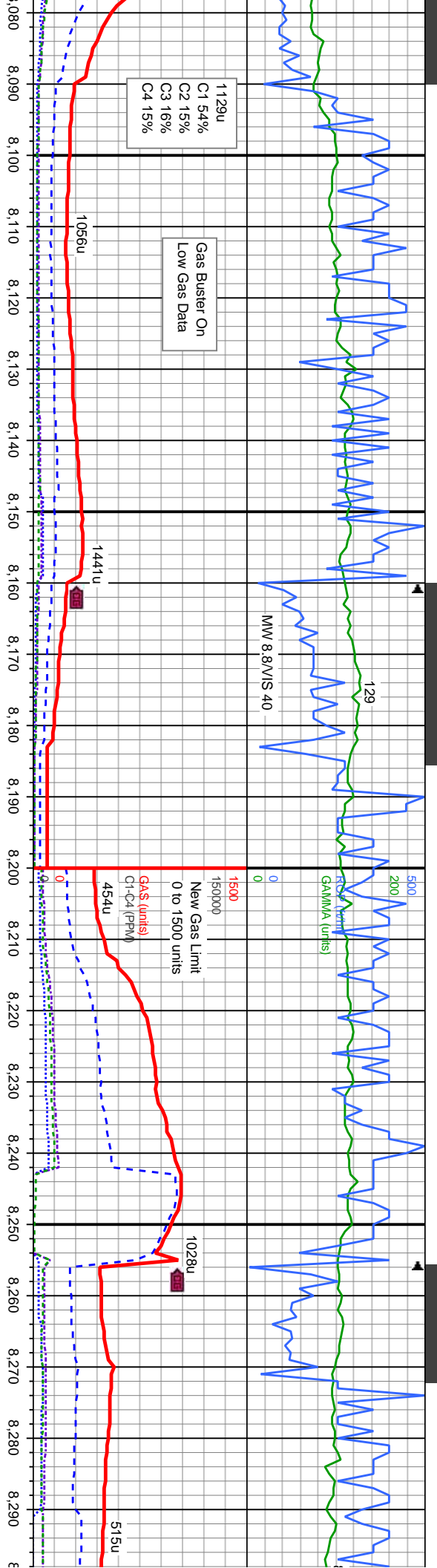
MD: 7.669 ' TVD: 6,467.4 ' Azimuth: 178.7 ° Inclination: 89.69 ° VS: 1,457.5 '	MD: 7.700 ' TVD: 6,468.02 ' Azimuth: 172.17 ° Inclination: 88.34 ° VS: 1,486.4 '	MD: 7.732 ' TVD: 6,468.36 ' Azimuth: 169.55 ° Inclination: 90.46 ° VS: 1,517.2 '	MD: 7.827 ' TVD: 6,464.83 ' Azimuth: 176.27 ° Inclination: 93.79 ° VS: 1,607.54 '
95% SLTY SH; med-dk gy, blk, sl sft-frm, sb ply-blky, ply ip, rthy-gritty lstr, mx, sly-arg, v calc; 5% CMT; plug: slw blshw stmng, no flor, v thin frt dk gn ring, sl tr sn, no od	100% SLTY SH; med-dk gy, blk, sl sft-frm, sb ply-blky, ply ip, rthy-gritty lstr, mx, sly-arg, v calc; slw bl stmng, no flor, thin frt gn-wh ring, sl tr sn, no od	85% SLTY SH; med-dk gy, blk, sl sft-frm, sb ply-blky, ply ip, rthy-gritty lstr, mx, sly-arg, v calc; 15% CMT; plug: slw bl stmng, no flor, thin frt gn-wh ring, sl tr sn, no od	95% SLTY SH; med-dk gy, blk, occ lt gy, sl sft-frm, sb ply-blky, ply ip, rthy-gritty lstr, mx, sly-arg, v calc; dissm pyr 5% CMT; plug: slw blshw stmng, no flor, thin gn-wh ring, sl tr sn, no od





<p>MD: 7.922 ' TVD: 6,459.65 ' Azimuth: 175.86 ° Inclination: 92.46 ° VS: 1,696.18 ' 100% SLTY SH: med-dk gy, blk, occ lt gy, sl sft-frn, sb pily-blky, pily ip, rthy-grity lstr, mtx, silv-arg, v calc, dissm pyr: slw bl strng, no flr, thn gn-wh ring, sl tr stn, no od</p>	<p>MD: 8.017 ' TVD: 6,456.31 ' Azimuth: 177.15 ° Inclination: 91.57 ° VS: 1,784.64 ' 85% SLTY SH: med-dk gy, blk, occ lt gy, sl sft-frn, sb pily-blky, pily ip, rthy-grity lstr, mtx, silv-arg, v calc, dissm pyr 15% SS: wh-lt gy, cil-trnsl, brn-amb, sl frm-hd, bril, v-f gr, med gr ip, ang-sr, p-mod strg, arg: slw bl-gn strng, no flr, thn ht gn-wh ring, sl tr stn, no od</p>
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MD: 8,112'
TVD: 6,453.12'
Azimuth: 179.12°
Inclination: 92.28°
VS: 1,872.08'

80% SLTY SH: med-dk gy, blk, sl stf-firm, sb
ply-biky, ply ip, rthy-gritty istr, mx, silv-arg, v
calc, dissm pyr 20% SS: wh-it gy, cl-trnsl
brn-amb, sl frm-hd, brt, vf-f gr, med gr ip, ang-sr,
p-mod strg, arg, slw bl stmg, no flor, thn blshwh
pitch ring, sl tr stn, no od

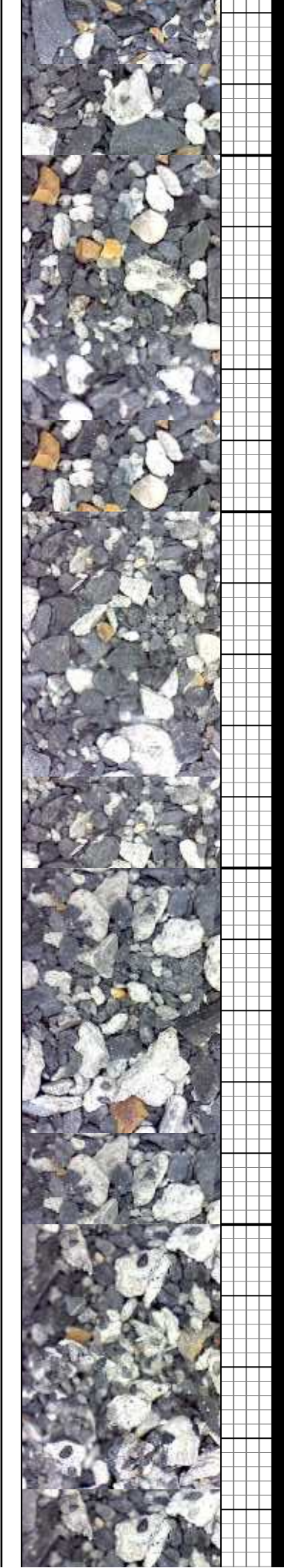
75% SLTY SH: med-dk gy, blk, sl stf-firm, sb
ply-biky, ply ip, rthy-gritty istr, mx, silv-arg, v
calc, dissm pyr 25% SS: wh-it gy, cl-trnsl
brn-amb, sl frm-hd, brt, vf-f gr, med gr ip, ang-sr,
p-mod strg, arg, slw bl stmg, no flor, thn blshwh
pitch ring, sl tr stn, no od

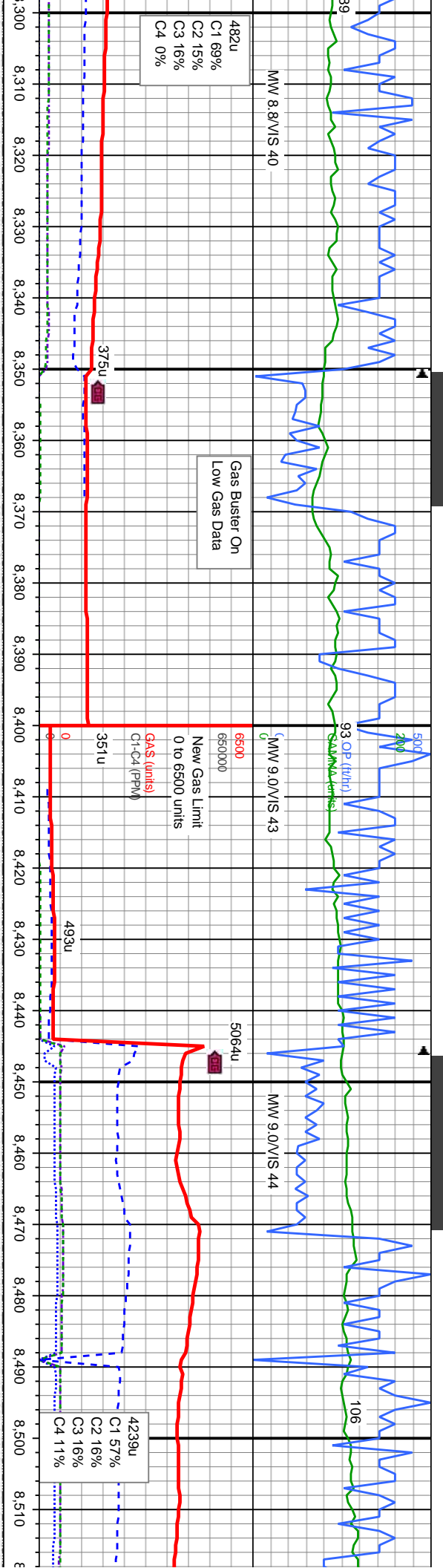
MD: 8,207'
TVD: 6,450.69'
Azimuth: 181.37°
Inclination: 90.65°
VS: 1,958.12'

70% SLTY SH: med-dk gy, blk, sl stf-firm, sb
ply-biky, ply ip, rthy-gritty istr, mx, silv-arg, v
calc, dissm pyr 30% SS: wh-it gy, cl-trnsl
brn-amb, sl frm-hd, brt, vf-f gr, med gr ip, ang-sr,
p-mod strg, arg, mod-slw bl stmg, no flor, thn
blshwh pitch ring, sl tr stn, fr od

MD: 8,207'
TVD: 6,450.69'
Azimuth: 181.37°
Inclination: 90.65°
VS: 1,958.12'

65% SLTY SH: med-dk gy, blk, sl stf-firm, sb
ply-biky, ply ip, rthy-gritty istr, mx, silv-arg, v
calc, dissm pyr 35% SS: wh-it gy, cl-trnsl
brn-amb, sl frm-hd, brt, vf-f gr, ang-sr, p-mod
strg, arg, mod-slw bl stmg, no flor, thn blshwh
pitch ring, sl tr stn, fr od





8,301 ' MD: 8,396 ' TVD: 6,448.33 '
 : 6,448.48 ' Azimuth: 179.01 °
 nuth: 180.74 ° Inclination: 88.15 °
 nation: 92.04 ° VS: 2,129 '
 2,042.69 '

60% SLTY SH: med-dk gy, blk, sl st-frm, sb
 ply-bkly, ply ip, rthy-gritty lstr, mx, sily-arg, v
 calc, dissm pyr 40% SS: wh-lt gy, cl-trnsl,
 brn-amb, sl frm-hd, brit, vf-f gr, ang-sr, p-mod
 strg, arg; mod-slw bl-gn string, no flor, thn blshwh
 pch ring, sl str, fr od

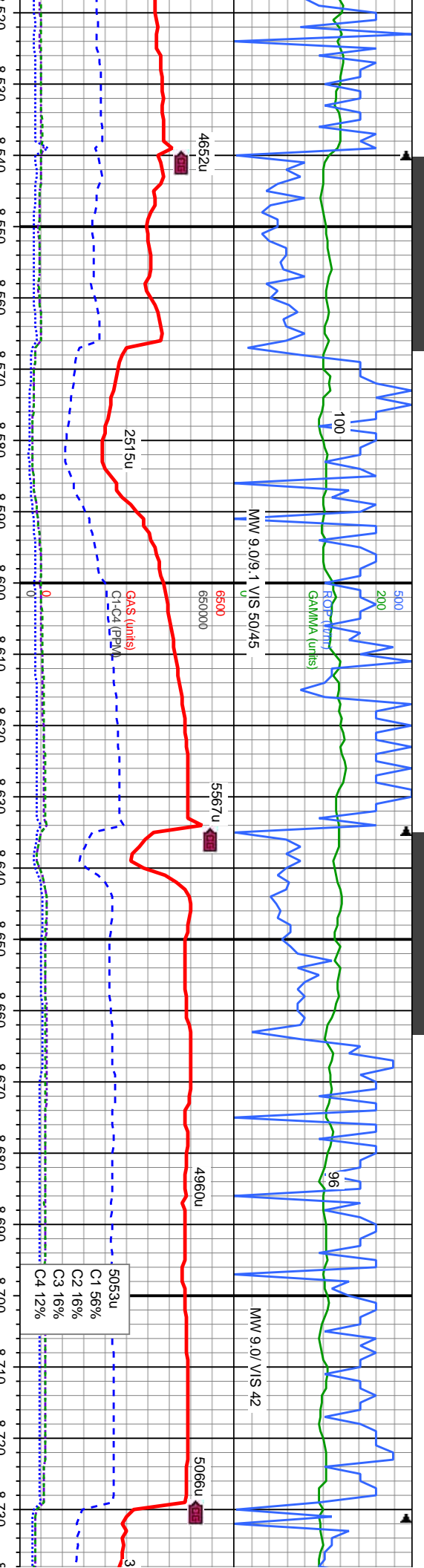
60% SLTY SH: med-dk gy, blk, sl st-frm, sb
 ply-bkly, ply ip, rthy-gritty lstr, mx, sily-arg, v
 calc, dissm pyr 40% SS: wh-lt gy, cl-trnsl,
 brn-amb, sl frm-hd, brit, vf-f gr, ang-sr, p-mod
 strg, arg; mod-slw bl-gn string, no flor, thn blshwh
 pch ring, sl str, fr od

60% SLTY SH: med-dk gy, blk, sl st-frm, sb
 ply-bkly, ply ip, rthy-gritty lstr, mx, sily-arg, v
 calc, dissm pyr 40% SS: wh-lt gy, cl-trnsl,
 brn-amb, sl frm-hd, brit, vf-f gr, ang-sr, p-mod
 strg, arg; mod-slw brl blshwh string, no flor, mod
 brl brl sp ring, tr str, fr od

60% SS: wh-lt gy, cl-trnsl, brn-amb, sl frm-hd,
 brit, vf-f gr, ang-sr, p-mod strg, arg, tr glauc incl
 40% SLTY SH: med-dk gy, blk, sl st-frm, sb
 ply-bkly, ply ip, rthy-gritty lstr, mx, sily-arg, v
 calc, dissm pyr; mod-slw brl blshwh string, no flor,
 mod brl brl sp ring, tr str, fr od

50% SS: wh-lt gy,
 vf-f gr, ang-sr, p-m
 med-dk gy, blk, sl s
 rthy-gritty lstr, mx,
 bl string, no flor, thr





6900

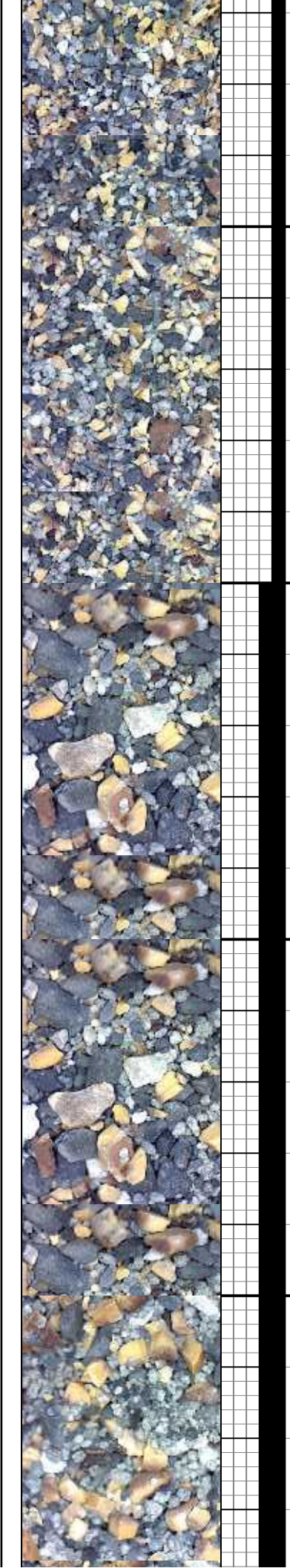
MD: 8.586
 TVD: 6.449.7
 Azimuth: 180.69 °
 Inclination: 90.19 °
 VS: 2.302.12

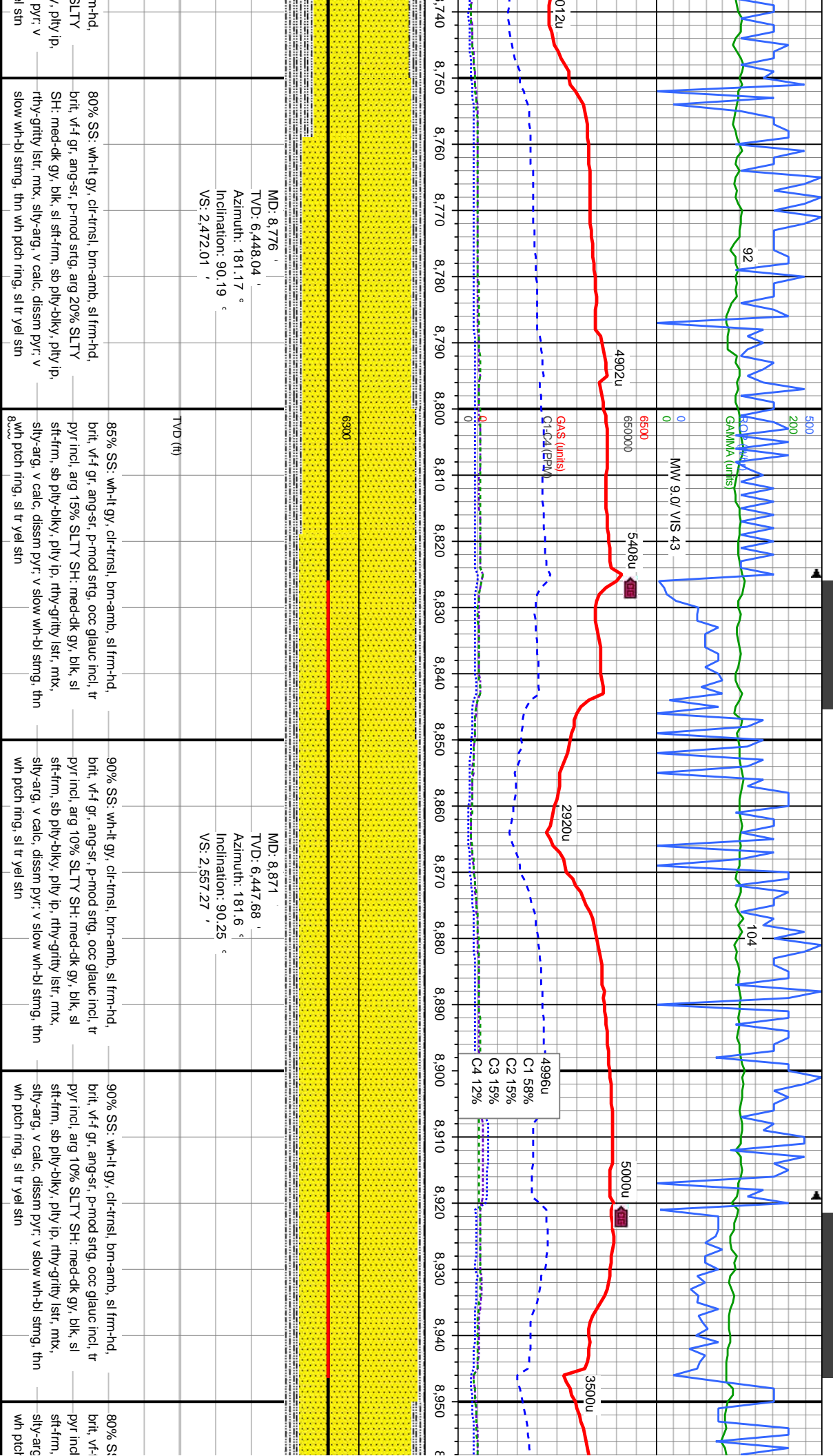
50% SS: wh-lt gy, cl-trnsl, brn-amb, sl frm-hd, brit, v-f gr, ang-sr, p-mod strg, arg 50% SLTY SH: med-dk gy, blk, sl st-frm, sb pily-dlky, pily ip, rthy-gritly lstr, mtx, sily-arg, v calc, dissm pyr; v slw bl stmg, no flor, thn frt bl-gn ring, sl tr stn, fr od

MD: 8.681
 TVD: 6.448.87
 Azimuth: 182.67 °
 Inclination: 90.81 °
 VS: 2.387.15

70% SS: wh-lt gy, cl-trnsl, brn-amb, sl frm-hd, brit, v-f gr, ang-sr, p-mod strg, arg 30% SLTY SH: med-dk gy, blk, sl st-frm, sb pily-dlky, pily ip, rthy-gritly lstr, mtx, sily-arg, v calc, dissm pyr; v slw bl stmg, no flor, thn frt gn-vel ring, sl stn, fr od

75% SS: wh-lt gy, cl-trnsl, brn-amb, sl frm-hd, brit, v-f gr, ang-sr, p-mod strg, arg 25% SH: med-dk gy, blk, sl st-frm, sb pily-dlky, rthy-gritly lstr, mtx, sily-arg, v calc, dissm slow wh-bl stmg, thn wh pch ring, sl tr yel





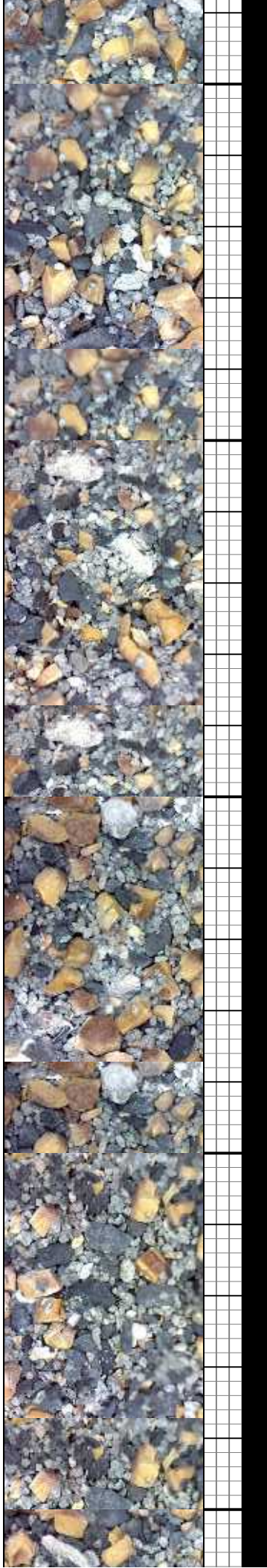
80% SS: wh-lt gy, cl-trnsl, brn-amb, sl frm-hd,
 brit, v-f gr, ang-sr, p-mod strg, avg 20% SLTY
 SH: med-dk gy, blk, sl st-frm, sb pily-diky, pily ip,
 rthy-grity lstr, mtx, silty-arg, v calc, dissm pyr, v
 slow wh-bl smng, thn wh pch ring, sl tr yel stn

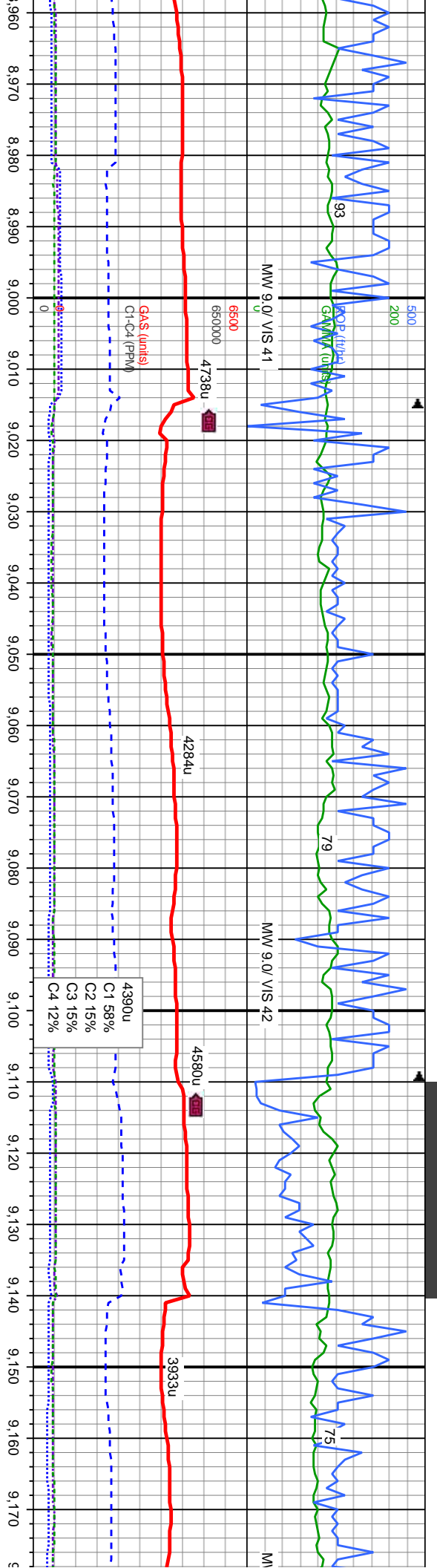
85% SS: wh-lt gy, cl-trnsl, brn-amb, sl frm-hd,
 brit, v-f gr, ang-sr, p-mod strg, ooc glauc incl, tr
 pyr incl, avg 15% SLTY SH: med-dk gy, blk, sl
 st-frm, sb pily-diky, pily ip, rthy-grity lstr, mtx,
 silty-arg, v calc, dissm pyr, v slow wh-bl smng, thn
 wh pch ring, sl tr yel stn

90% SS: wh-lt gy, cl-trnsl, brn-amb, sl frm-hd,
 brit, v-f gr, ang-sr, p-mod strg, ooc glauc incl, tr
 pyr incl, avg 10% SLTY SH: med-dk gy, blk, sl
 st-frm, sb pily-diky, pily ip, rthy-grity lstr, mtx,
 silty-arg, v calc, dissm pyr, v slow wh-bl smng, thn
 wh pch ring, sl tr yel stn

90% SS: wh-lt gy, cl-trnsl, brn-amb, sl frm-hd,
 brit, v-f gr, ang-sr, p-mod strg, ooc glauc incl, tr
 pyr incl, avg 10% SLTY SH: med-dk gy, blk, sl
 st-frm, sb pily-diky, pily ip, rthy-grity lstr, mtx,
 silty-arg, v calc, dissm pyr, v slow wh-bl smng, thn
 wh pch ring, sl tr yel stn

80% SS: wh-lt gy, cl-trnsl, brn-amb, sl frm-hd,
 brit, v-f gr, ang-sr, p-mod strg, ooc glauc incl, tr
 pyr incl, avg 10% SLTY SH: med-dk gy, blk, sl
 st-frm, sb pily-diky, pily ip, rthy-grity lstr, mtx,
 silty-arg, v calc, dissm pyr, v slow wh-bl smng, thn
 wh pch ring, sl tr yel stn





MD: 8.965
 TVD: 6,446.51
 Azimuth: 181.33
 Inclination: 91.18
 VS: 2.641.56

MD: 9.060
 TVD: 6,445.35
 Azimuth: 180.13
 Inclination: 90.22
 VS: 2.727.29

MD: 9.155
 TVD: 6,444.83
 Azimuth: 179.51
 Inclination: 90.4
 VS: 2.813.82

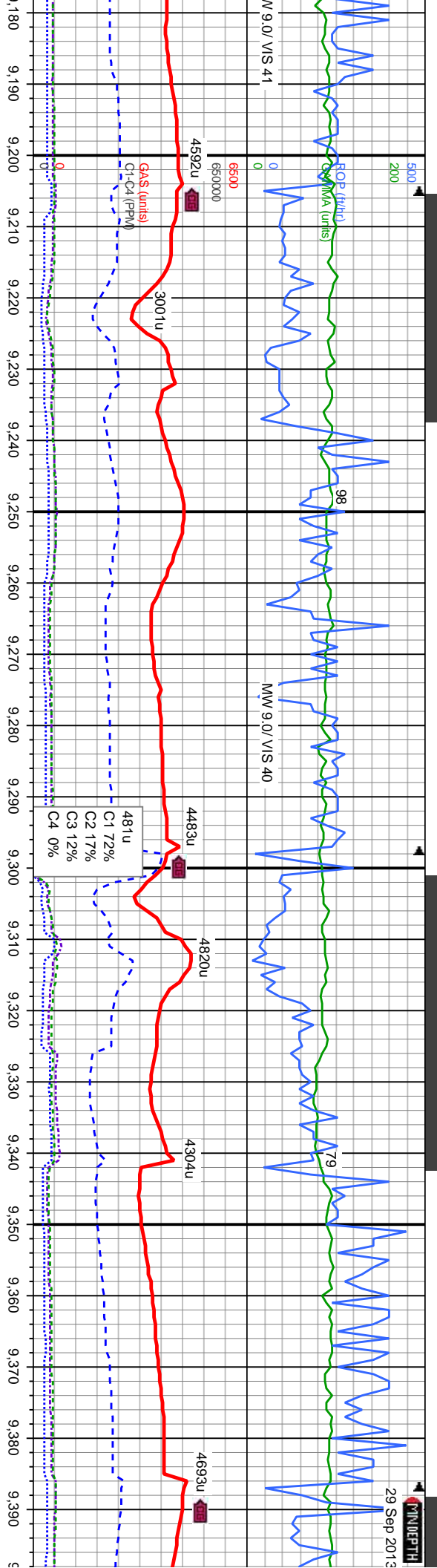
wh-it gy, cl-trnsl, brn-amb, sl frm-hd, brit, vf-f gr, ang-sr, p-mod strg, occ glauc incl, tr pyr incl, arg 10% SLTY SH: med-dk gy, blk, sl sft-frm, sb pily-dlky, pily ip, rthy-gritty/istr, mx, sily-arg, v calc, dissm pyr, v slow wh-bl stmg, thn wh pch ring, sl tr yel stn

90% SS: wh-it gy, cl-trnsl, brn-amb, sl frm-hd, brit, vf-f gr, ang-sr, p-mod strg, occ glauc incl, tr pyr incl, arg 10% SLTY SH: med-dk gy, blk, sl sft-frm, sb pily-dlky, pily ip, rthy-gritty/istr, mx, sily-arg, v calc, dissm pyr, v slow wh-bl stmg, thn wh pch ring, sl tr yel stn

90% SS: wh-it gy, cl-trnsl, brn-amb, sl frm-hd, brit, vf-f gr, ang-sr, p-mod strg, occ glauc incl, tr pyr incl, arg 10% SLTY SH: med-dk gy, blk, sl sft-frm, sb pily-dlky, pily ip, rthy-gritty/istr, mx, sily-arg, v calc, dissm pyr, v slow wh-bl stmg, thn wh pch ring, sl tr yel stn

90% SS: wh-it gy, cl-trnsl, brn-amb, sl frm-hd, brit, vf-f gr, ang-sr, p-mod strg, occ glauc incl, tr pyr incl, arg 10% SLTY SH: med-dk gy, blk, sl sft-frm, sb pily-dlky, pily ip, rthy-gritty/istr, mx, sily-arg, v calc, dissm pyr, v slow wh-bl stmg, thn wh pch ring, sl tr yel stn





MD: 9,250'
 TVD: 6,444.01'
 Azimuth: 180.91°
 Inclination: 90.59°
 VS: 2,899.75'

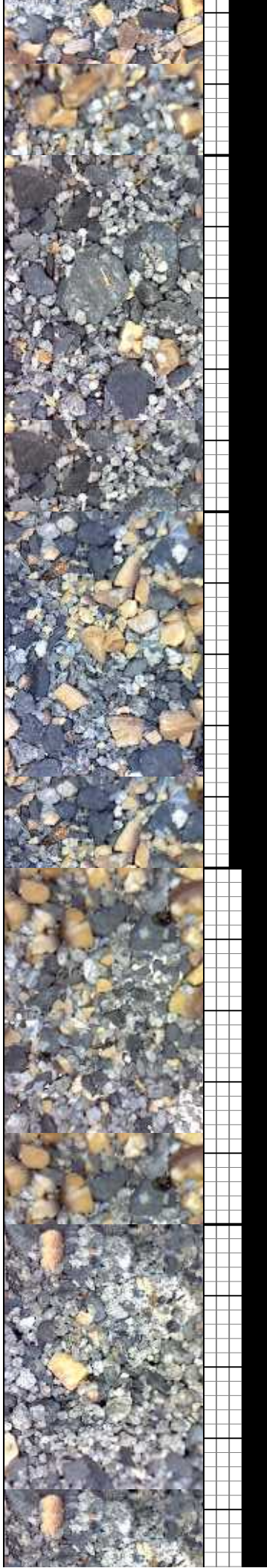
MD: 9,345'
 TVD: 6,443.83'
 Azimuth: 182.38°
 Inclination: 89.63°
 VS: 2,984.81'

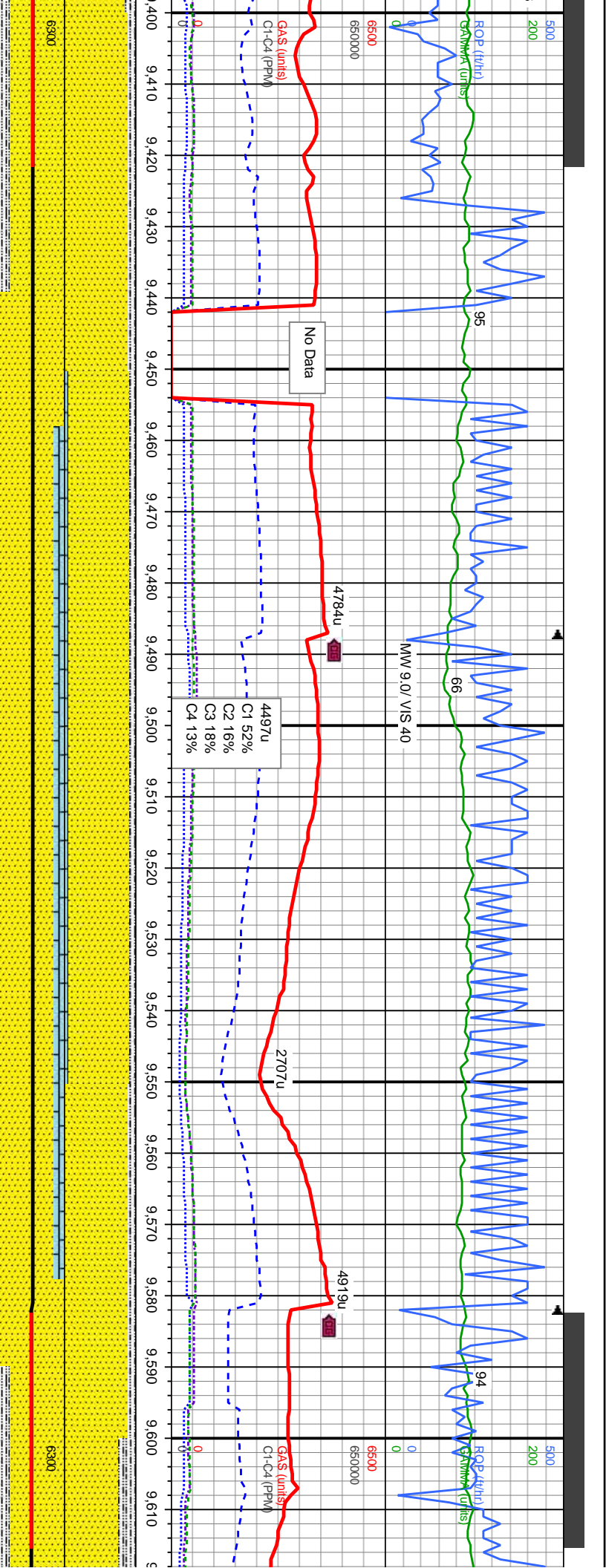
85% SS: wh-it gy, cl-trnsl, brn-amb, sl frm-hd, brit, vf-f gr, ang-sr, p-mod strg, tr pyr incl, arg incl, arg 15% SLTY SH: med-dk gy, blk, sl sft-frm, sb sft-frm, sb pily-blky, pily ip, rthy-gritty lstr, mtx, sily-arg, v calc, dissm pyr, slow wh-bl stmg, thn wh pitch ring, tr yel stn

75% SS: wh-it gy, cl-trnsl, brn-amb, sl frm-hd, brit, vf-f gr, ang-sr, p-mod strg, tr pyr incl, arg 25% SLTY SH: med-dk gy, blk, sl sft-frm, sb pily-blky, pily ip, rthy-gritty lstr, mtx, sily-arg, v calc, dissm pyr, slow wh-bl stmg, thn wh pitch ring, tr yel stn

90% SS: wh-it gy, cl-trnsl, brn-amb, sl frm-hd, brit, vf-f gr, ang-sr, p-mod strg, tr pyr incl, arg 10% SLTY SH: med-dk gy, blk, sl sft-frm, sb pily-blky, pily ip, rthy-gritty lstr, mtx, sily-arg, v calc, dissm pyr, slow wh-bl stmg, mod wh pitch ring, sl tr yel stn

85% SS: wh-it gy, cl-trnsl, brn-amb, sl frm-hd, brit, vf-f gr, ang-sr, p-mod strg, tr pyr incl, arg 15% SLTY SH: med-dk gy, blk, sl sft-frm, sb pily-blky, pily ip, rthy-gritty lstr, mtx, sily-arg, v calc, dissm pyr, slow wh-bl stmg, mod wh pitch ring, sl tr yel stn





MD: 9.440
 TVD: 6,443.32
 Azimuth: 184.9 °
 Inclination: 90.99 °
 VS: 3,068.34

90% SS: wh-tt gy, cl-trnsl, brn-amb, sl frm-hd, brit, vf-f gr, ang-sr, p-mod strg, tr pyr incl, arg 10% SLTY SH: med-dk gy, blk, sl sft-frm, sb pily-blky, pily ip, rthy-grity istr, mx, sily-arg, v calc, dissm pyr; slow wh-bl string, mod wh pitch 80°ring, sl tr yel sin

85% SS: wh-tt gy, cl-trnsl, brn-amb, sl frm-hd, brit, vf-f gr, ang-sr, p-mod strg, tr pyr incl, arg 10% SLTY SH: med-dk gy, blk, sl sft-frm, sb pily-blky, pily ip, rthy-grity istr, mx, sily-arg, v calc, dissm pyr 5% LMST: wh, beige, frm-hd, brit, sbpily-sb blky, occ pily, sm wxy tex, mckln; slow wh-bl string, mod wh pitch ring, sl tr yel sin

MD: 9.535
 TVD: 6,443.43
 Azimuth: 182.24 °
 Inclination: 88.88 °
 VS: 3,151.93

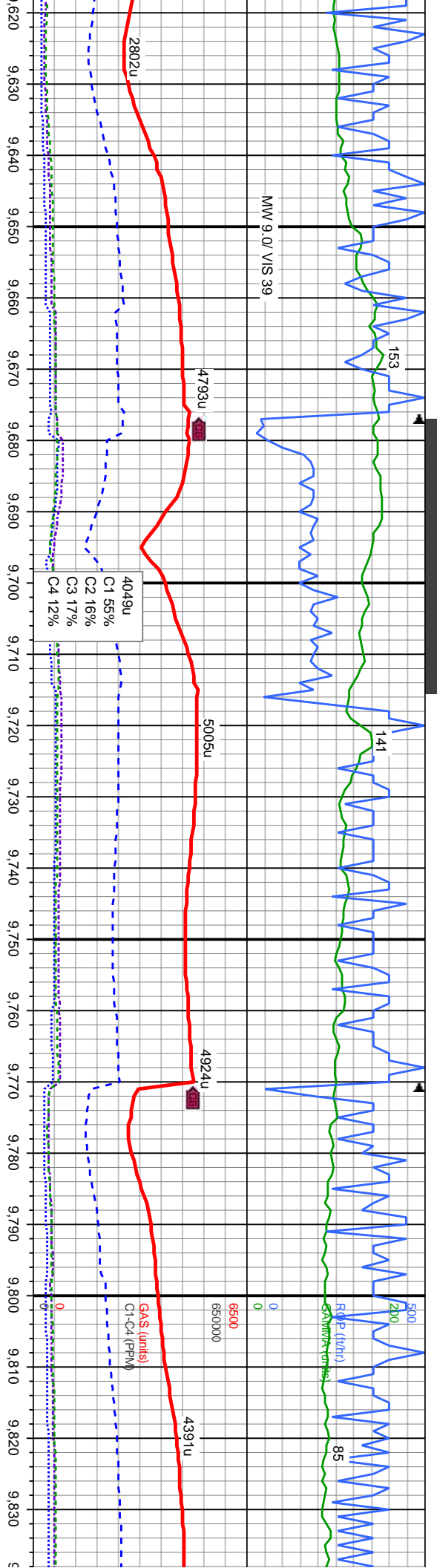
85% SS: wh-tt gy, cl-trnsl, brn-amb, sl frm-hd, brit, vf-f gr, ang-sr, p-mod strg, tr pyr incl, arg 10% SLTY SH: med-dk gy, blk, sl sft-frm, sb pily-blky, pily ip, rthy-grity istr, mx, sily-arg, v calc, dissm pyr 5% LMST: wh, beige, frm-hd, brit, sbpily-sb blky, occ pily, sm wxy tex, mckln; slow-mod wh-bl string, mod wh pitch ring, tr yel sin

90% SS: wh-tt gy, cl-trnsl, brn-amb, sl frm-hd, brit, vf-f gr, ang-sr, p-mod strg, tr pyr incl, arg 10% SLTY SH: med-dk gy, blk, sl sft-frm, sb pily-blky, pily ip, rthy-grity istr, mx, sily-arg, v calc, dissm pyr; slow-mod wh-bl string, mod wh pitch ring, tr yel sin

MD: 9.610
 TVD: 6,443.54
 Azimuth: 184.9 °
 Inclination: 90.99 °
 VS: 3,068.34

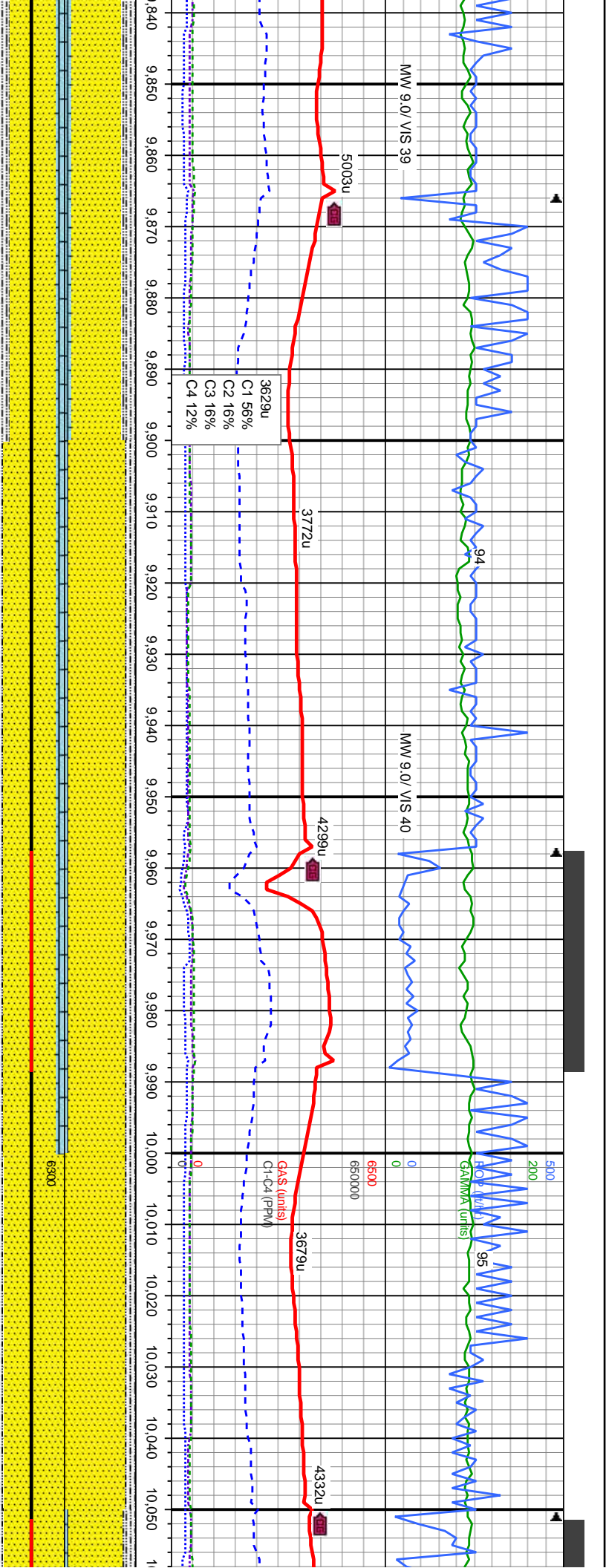
75% SS: wh-tt gy, brit, vf-f gr, ang-sr, 25% SLTY SH: med-dk gy, blk, sl sft-frm, sb pily-blky, pily ip, rthy-grity istr, mx, sily-arg, v calc, dissm pyr; slow-mod wh-bl string, mod wh pitch ring, tr yel sin





MD: 9.630 TVD: 6,446.26 Azimuth: 182.39 Inclination: 87.71 VS: 3,236.46	70% SS: wh-lt gy, cl-trnsl, brn-amb, sl frm-hd, brit, vf-f gr, ang-sr, p-mod strg, tr pyr incl, arg 30% SLTY SH: med-dk gy, blk, sl st-frm cmtid, fri, sb pily-dlky, pily ip, rthy-gritty lstr, mx, silty-arg, v calc, dissm pyr, slow wh-bl stmg, mod wh pch ring, tr yel sn	MD: 9.725 TVD: 6,447.64 Azimuth: 183.28 Inclination: 90.62 VS: 3,320.61	75% SS: wh-lt gy, cl-trnsl, brn-amb, sl frm-hd, brit, vf-f gr, ang-sr, p-mod strg, tr pyr incl, arg 25% SLTY SH: med-dk gy, blk, sl st-frm cmtid, fri, sb pily-dlky, pily ip, rthy-gritty lstr, mx, silty-arg, v calc, dissm pyr, slow wh-bl stmg, mod wh pch ring, tr yel sn	MD: 9.819 TVD: 6,446.98 Azimuth: 182.13 Inclination: 90.19 VS: 3,403.99	70% SS: wh-lt gy, cl-trnsl, brn-amb, sl fr brit, vf-f gr, ang-sr, p-mod strg, tr pyr incl 20% SLTY SH: med-dk gy, blk, sl st-frm sb pily-dlky, pily ip, rthy-gritty lstr, mx, sil calc, dissm pyr 10% LMST: wh, crn, frm sb pily-sb blkly, occ pily, sm wxy tex, slow stmg, mod wh pch ring, tr yel sn
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70% SS: wh-it gy, cl-trnsl, brn-amb, sl frm-hd, brit, vf-f gr, ang-sr, p-mod strg, tr pyr incl, arg 20% SLTY SH: med-dk gy, blk, sl sft-frm cmtd, fri, sb ply-blky, ply ip, rthy-gritty lstr, mx, sily-arg, v calc, dissm pyr 10% LMST: wh, crm, frm-hd, brit, sb ply-sb blky, occ ply, sm wxy tex; slow wh-bl stmg, mod wh pch ring, tr yel stn

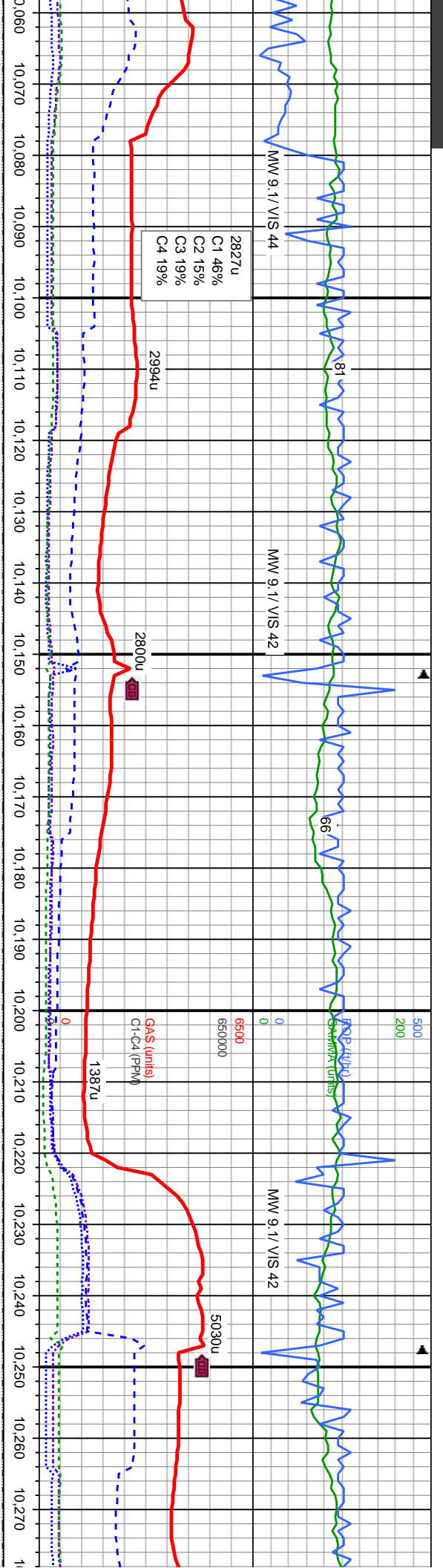
80% SS: wh-it gy, cl-trnsl, brn-amb, sl frm-hd, brit, vf-f gr, ang-sr, p-mod strg, tr pyr incl, arg 15% SLTY SH: med-dk gy, blk, sl sft-frm cmtd, fri, sb ply-blky, ply ip, rthy-gritty lstr, mx, sily-arg, v calc, dissm pyr 5% LMST: wh, crm, frm-hd, brit, sb ply-sb blky, occ ply, sm wxy tex; mod-slw bl-gn stmg, tr flor, thn frt gn ring, sl tr stn

80% SS: wh-it gy, cl-trnsl, brn-amb, sl frm-hd, brit, vf-f gr, ang-sr, p-mod strg, tr pyr incl, arg 15% SLTY SH: med-dk gy, blk, sl sft-frm cmtd, fri, sb ply-blky, ply ip, rthy-gritty lstr, mx, sily-arg, v calc, dissm pyr 5% LMST: wh, crm, frm-hd, brit, sb ply-sb blky, occ ply, sm wxy tex; mod-slw bl-gn stmg, tr flor, thn frt gn ring, sl tr stn

85% SS: wh-it gy, cl-trnsl, brn-amb, sl frm-hd, brit, vf-f gr, ang-sr, p-mod strg, tr pyr incl, arg 15% SLTY SH: med-dk gy, blk, sl sft-frm cmtd, fri, sb ply-blky, ply ip, rthy-gritty lstr, mx, sily-arg, v calc, dissm pyr; mod-slw bl-gn stmg, tr flor, thn frt dk-gn ring, sl tr stn

75% SS: wh-it gy, cl-trnsl, brn-amb, sl frm-hd, brit, vf-f gr, ang-sr, p-mod strg, tr pyr incl, arg 15% SLTY SH: med-dk gy, blk, sl sft-frm cmtd, fri, sb ply-blky, ply ip, rthy-gritty lstr, mx, sily-arg, v calc, dissm pyr; mod-slw bl-gn stmg, tr flor, thn frt dk-gn ring, sl tr stn





2827u
 C1 46%
 C2 15%
 C3 19%
 C4 19%

500
 200
 0
 65000
 650000
 Gases (units)
 Gamma (units)
 C1-C4 (PPM)

MD: 10,104
 TVD: 6,447.48
 Azimuth: 184.19 °
 Inclination: 90.62 °
 VS: 3,657.41

MD: 10,199
 TVD: 6,446
 Azimuth: 182.31 °
 Inclination: 91.17 °
 VS: 3,741.25

wh-it gy, clr-trnsl, brn-amb, sl frm-hd, brit, ang-sr, p-mod strng, tr pyr incl, arg 20% i: med-dk gy, blk, sl sft-frm cmtid, fri, sb ply ip, rthy-gritty lstr, mx, sily-arg, v calc, r 5% LMST: wh, crm, frm-hd, brit, sb ply, occ ply, sm wxy tex, mod-slw bl-gn flr, thn fnt dk-gn ring, sl tr stn

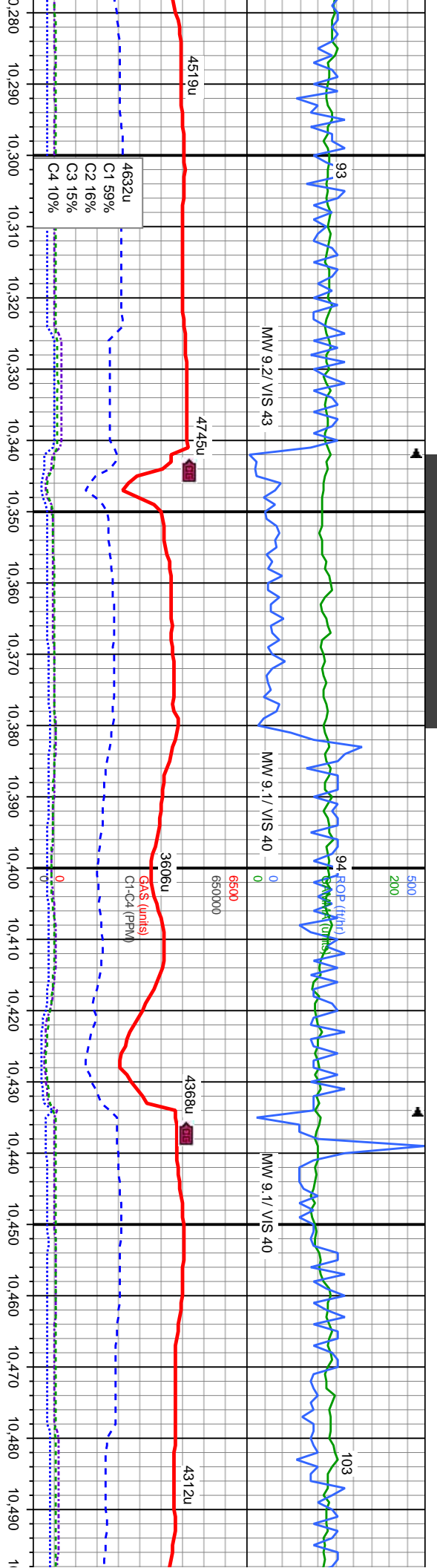
75% SS: wh-it gy, clr-trnsl, brn-amb, sl frm-hd, brit, v-f gr, ang-sr, p-mod strng, tr pyr incl, arg 20% SLTY SH: med-dk gy, blk, sl sft-frm cmtid, fri, sb ply-blky, ply ip, rthy-gritty lstr, mx, sily-arg, v calc, dissim pyr 5% LMST: wh, crm, frm-hd, brit, sb ply-sb blky, occ ply, sm wxy tex, slw bl-gn stmg, tr flr, thn fnt dk-gn ring, tr stn

70% SS: wh-it gy, clr-trnsl, brn-amb, sl frm-hd, brit, v-f gr, ang-sr, p-mod strng, tr pyr incl, arg 20% SLTY SH: med-dk gy, blk, sl sft-frm cmtid, fri, sb ply-blky, ply ip, rthy-gritty lstr, mx, sily-arg, v calc, dissim pyr 10% LMST: wh, crm, v sft-mod hd, brit, ply-sb blky, sm wxy tex, slw bl-gn stmg, tr flr, thn fnt dk-gn ring, tr stn

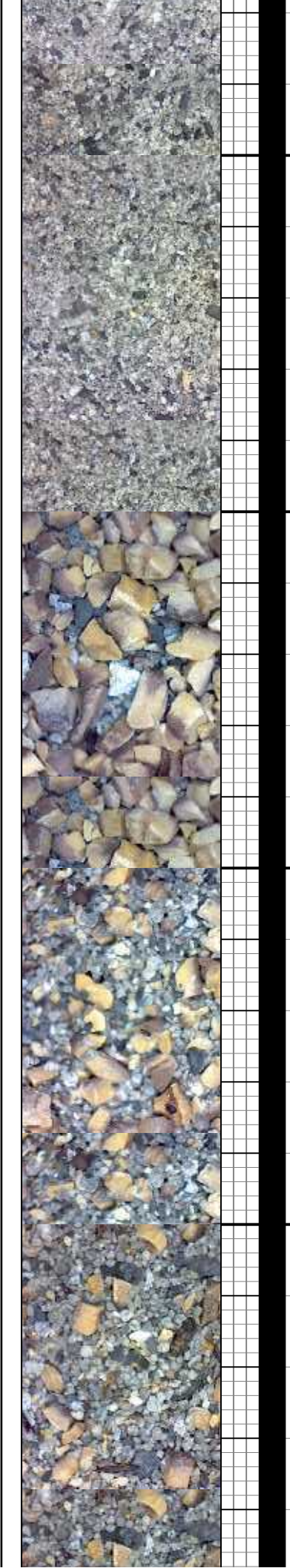
70% SS: wh-it gy, clr-trnsl, brn-amb, sl frm-hd, brit, v-f gr, ang-sr, p-mod strng, tr pyr incl, arg 20% SLTY SH: med-dk gy, blk, sl sft-frm cmtid, fri, sb ply-blky, ply ip, rthy-gritty lstr, mx, sily-arg, v calc, dissim pyr 10% LMST: wh, crm, v sft-mod hd, brit, ply-sb blky, sm wxy tex, mod-slw bl-gn stmg, tr flr, thn fnt dk-gn ring, sl tr stn

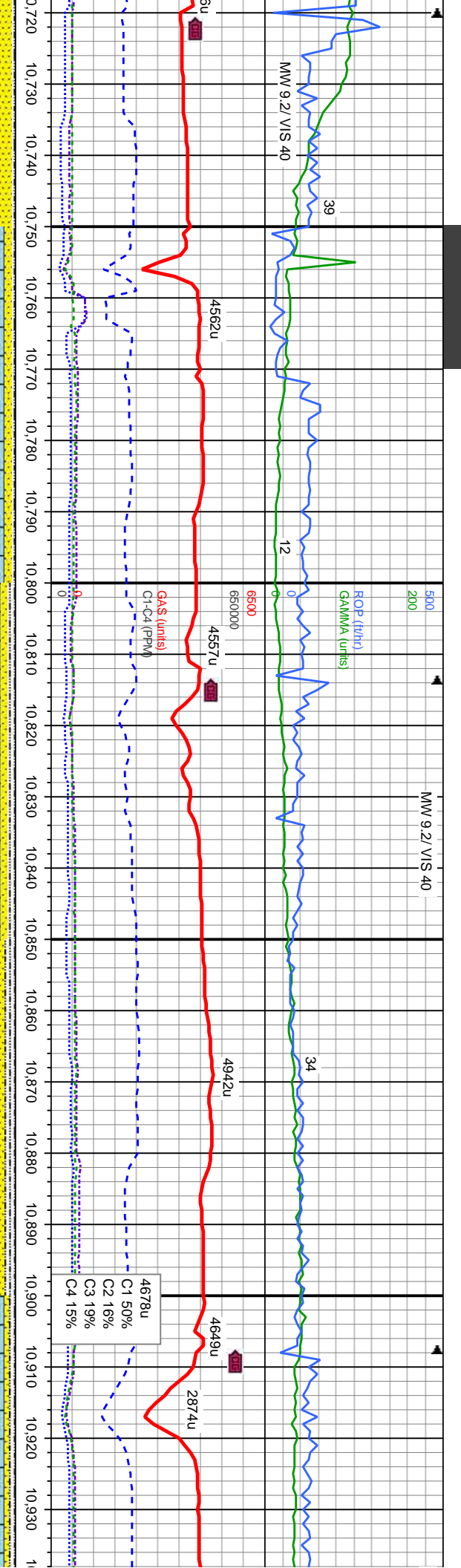
90% SS: wh-it gy, clr-trnsl, re frm-hd, brit, v-f gr, ang-sr, p 10% SLTY SH: med-dk gy, blk, sb ply-blky, ply ip, rthy-gritty calc, dissim pyr, mod-slw bl-gn fnt dk-gn ring, sl tr stn





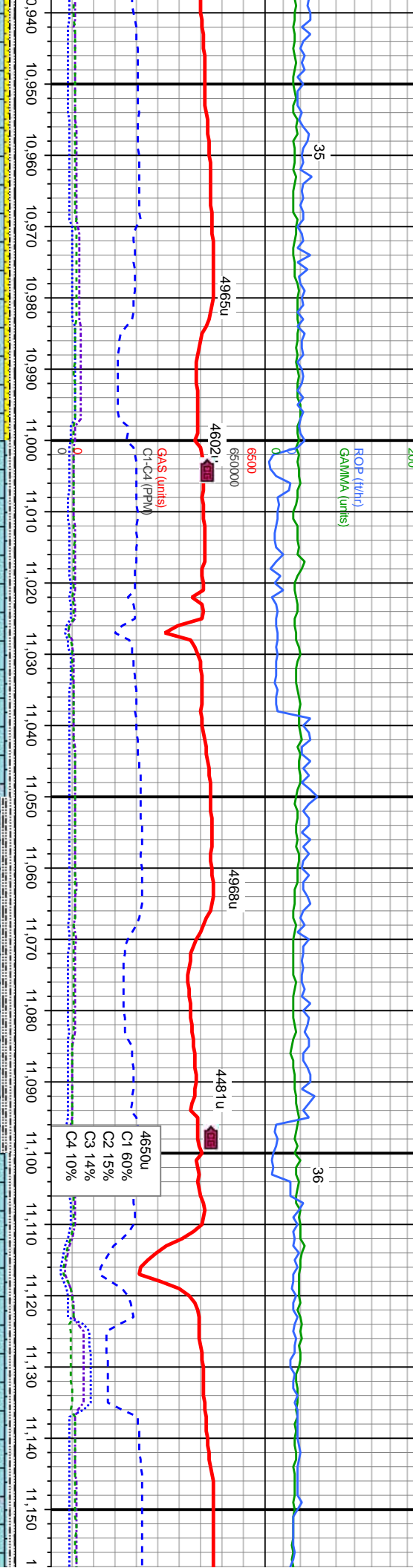
<p>MD: 10,294 TVD: 6,446.1 Azimuth: 182.01 ° Inclination: 88.71 ° VS: 3,825.93</p>	<p>90% SS: wh-it gy, clr-trnsl, brn-amb, sl frm-hd, brit, v-f gr, ang-sr, p-mod strng, tr pyr incl, arg 10% SLTY SH: med-dk gy, blk, sl st-frm cmd, fri, sb ply-blky, ply ip, rthy-gritty lstr, mtx, sly-arg, v calc, dissm pyr slw bl-gn stmg, tr flor, thn frt dk-gn ring, sl tr stn</p>
<p>MD: 10,389 TVD: 6,446.53 Azimuth: 183.31 ° Inclination: 90.77 ° VS: 3,910.22</p>	<p>85% SS: wh-it gy, clr-trnsl, brn-amb, sl frm-hd, brit, v-f gr, ang-sr, p-mod strng, tr pyr incl, arg 10% SLTY SH: med-dk gy, blk, sl st-frm cmd, fri, sb ply-blky, ply ip, rthy-gritty lstr, mtx, sly-arg, v calc, dissm pyr 5% LMST: wh, crn, v st-mod hd, brit, ply-sb blky, sm wxy tex, slw bl-gn stmg, tr flor, thn frt dk-gn ring, sl tr stn</p>
<p>MD: 10,483 TVD: 6,448.09 Azimuth: 181.71 ° Inclination: 87.33 ° VS: 3,993.73</p>	<p>80% SS: wh-it gy, clr-trnsl, brn-amb, sl frm-hd, brit, v-f gr, ang-sr, p-mod strng, tr pyr incl, arg 10% SLTY SH: med-dk gy, blk, sl st-frm cmd, fri, sb ply-blky, ply ip, rthy-gritty lstr, mtx, sly-arg, v calc, dissm pyr 10% LMST: wh, crn, v st-mod hd, brit, ply-sb blky, sm wxy tex, mod-slw bl-gn stmg, tr flor, thn frt dk-gn ring, sl tr stn</p>





<p>MD: 10,767 TVD: 6,451.84 Azimuth: 182.77 ° Inclination: 90.25 ° VS: 4,244.3</p>	<p>MD: 10,862 TVD: 6,451.91 Azimuth: 182.16 ° Inclination: 89.66 ° VS: 4,328.75</p>
<p>86% LMST: wh, crm, v sft-mod hd, brit, pily-sb blkly, sm wxy tex 10% SS: wh-it gy, cl-trnsl, brn-gy brn, sl frm-hd, brit, vf-f gr, ang-sr, p-mod srtg, tr pyr incl, avg 5% SLTY SH: med-dk gy, blk, sl sft-frm cmd, fri, sb pily-blky, pily ip, rthy-gritty lstr, mx, sily-arg, v calc: mod-slw bl-gn stmg, no flr, thn frt gn-wh ring, tr stn</p>	<p>80% LMST: wh, crm, v sft-mod hd, brit, pily-sb blkly, sm wxy tex 10% SS: wh-it gy, cl-trnsl, brn-gy brn, sl frm-hd, brit, vf-f gr, ang-sr, p-mod srtg, tr pyr incl, avg 10% SLTY SH: med-dk gy, blk, sl sft-frm cmd, fri, sb pily-blky, pily ip, rthy-gritty lstr, mx, sily-arg, v calc: mod-slw bl-gn stmg, no flr, thn frt gn-wh ring, tr stn</p>
<p>85% LMST: wh, crm, v sft-mod hd, brit, pily-sb blkly, sm wxy tex 10% SLTY SH: med-dk sl sft-frm cmd, fri, sb pily-blky, pily ip, rth lstr, mx, sily-arg, v calc 5% SS: wh-it gy, brn-gy brn, sl frm-hd, brit, vf-f gr, ang-sr, srtg, tr pyr incl, avg: mod-slw frt bl-gn stn flr, thn frt gn-wh ring, sl tr stn</p>	<p>85% LMST: wh, crm, v sft-mod hd, brit, pily-sb blkly, sm wxy tex 10% SLTY SH: med-dk sl sft-frm cmd, fri, sb pily-blky, pily ip, rth lstr, mx, sily-arg, v calc 5% SS: wh-it gy, brn-gy brn, sl frm-hd, brit, vf-f gr, ang-sr, srtg, tr pyr incl, avg: mod-slw frt bl-gn stn flr, thn frt gn-wh ring, sl tr stn</p>





MD: 10.956
TVD: 6,453.16'
Azimuth: 181.57°
Inclination: 88.82°
VS: 4,412.75'

MD: 11.051
TVD: 6,455.8'
Azimuth: 181.93°
Inclination: 88°
VS: 4,497.71'

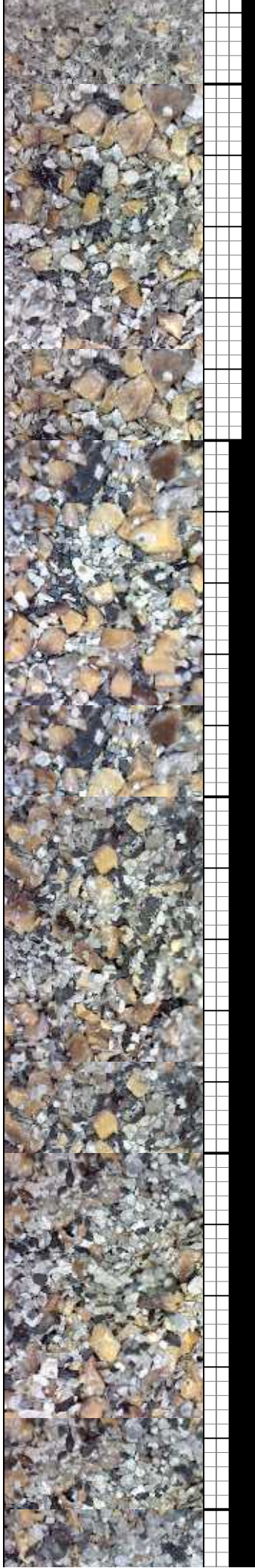
MD: 11.145
TVD: 6,460.21'
Azimuth: 181.31°
Inclination: 86.62°
VS: 4,581.8'

85% LMST: wh, crm, v sft-mod hd, brt, pily-sb
biky, sm wxy tex 10% SLTY SH: med-dk gy, blk,
sl sft-frm cmd, fri, sb pily-biky, pily ip, rthy-gritty
lstr, mtx, sily-arg, v calc 5% SS: wh-lt gy, cl-trnsl,
brn-gy brn, sl frm-hd, brt, vf-f gr, ang-sr, p-mod
strg, tr pyr incl, arg, mod-slw frt bl-gn smng, no
flor, thn frt gn-wh ring, sl tr stn

90% LMST: wh, crm, v sft-mod hd, brt, pily-sb
biky, sm wxy tex 10% SLTY SH: med-dk gy, blk,
sl sft-frm cmd, fri, sb pily-biky, pily ip, rthy-gritty
lstr, mtx, sily-arg, v calc: mod-slw bl-gn smng, no
flor, thn frt gn-wh ring, tr stn

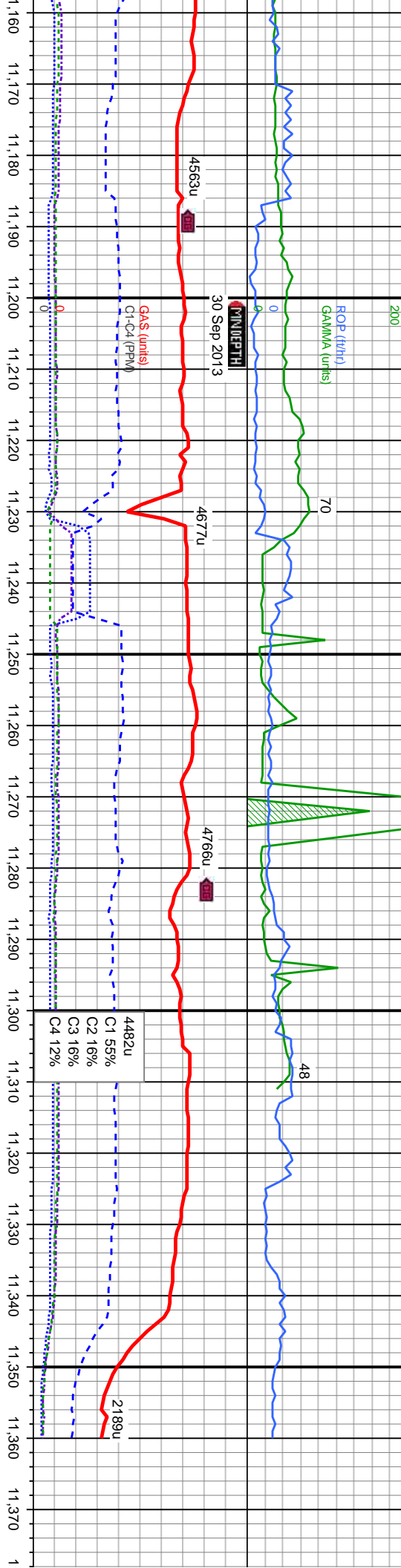
80% LMST: wh, crm, v sft-mod hd, brt, pily-sb
biky, sm wxy tex 20% SLTY SH: med-dk gy, blk,
sl sft-frm cmd, fri, sb pily-biky, pily ip, rthy-gritty
lstr, mtx, sily-arg, v calc: mod-slw bl-gn smng, no
flor, thn frt gn-wh ring, tr stn

90% LMST: wh, crm, v sft-mod hd, brt, pily-sb
biky, sm wxy tex 10% SLTY SH: med-dk gy, blk,
sl sft-frm cmd, fri, sb pily-biky, pily ip, rthy-gritty
lstr, mtx, sily-arg, v calc: slw dk bl-gn smng, no
flor, thn frt gn-wh ring, tr stn



MMW 8.9' VIS 39

MMW 9.0' VIS 39



MD: 11,240'
TVD: 6,462.2'
Azimuth: 185.21°
Inclination: 90.98°
VS: 4,676.8'

MD: 11,310'
TVD: 6,461.07'
Azimuth: 185.08°
Inclination: 90.86°
VS: 4,746.8'

ST: wh, crm, v sft-mod hd, brit, ply-sb
wxy tex 10% SLTY SH: med-dk gy, blk,
frt, sb ply-blky, ply ip, rthy-gritty
sily-arg, v calc; slw dk bl-gn string, no
gn-wh ring, tr sn

70% LMST: wh, crm, v sft-mod hd, brit, ply-sb
blky, sm wxy tex 30% SLTY SH: med-dk gy, blk,
sl sft-fm crmd, frt, sb ply-blky, ply ip, rthy-gritty
lstr, mtx, sily-arg, v calc; slw dk bl-gn string, no
flor, thn gn-wh ring, sl tr sn

90% LMST: wh, crm ip, v sft-mod hd, brit, ply-sb
blky, sm wxy tex 10% SLTY SH: med-dk gy, blk,
sl sft-fm crmd, frt, sb ply-blky, ply ip, rthy-gritty
lstr, mtx, sily-arg, v calc; slw dk bl-gn string, no
flor, thn gn-wh ring, sl tr sn

90% LMST: wh, crm ip, v sft-mod hd, brit, ply-sb
blky, sm wxy tex 10% SLTY SH: med-dk gy, blk,
sl sft-fm crmd, frt, sb ply-blky, ply ip, rthy-gritty
lstr, mtx, sily-arg, v calc; slw dk bl-gn string, no
flor, thn gn-wh ring, sl tr sn

TD Reached
09/30/2013

Thank you for
Columbine L



