

COLUMBINE LOGGING

Scale: 5" / 100'
Measured Depth Log

Well Name Five Rivers K07-62-1HN

Location SESE SEC8 T4N R66W

State COLORADO

County WELD

Country USA

Rig Number PRECISION 828

API Number 05-123-38086

AFE # 142006

Region DENVER-JULESBURG BASIN

Field WATTENBERG

Spud Date 12/24/2013

Drilling Completed 1/11/2013

Surface Coordinates 884' FSL, 687' FEL

Lat/Long: 40.32138/-104.79468

Bottom Hole Coordinates SEC7 T4N R66W

330'FSL, 535' FWL

Ground Elevation 4702'

K.B. Elevation 4718'

Logged Interval 634'

To 6520'

Total Depth 16152'

Formation FOX HILLS, PIERRE, PARKMAN, SUSSIX, SHANNON, TEEPEE BUTTES

Type of Drilling Fluid WATER, LSND

Operator

Company Noble Energy Inc

Address 1625 Broadway
Denver, CO 80202

Geologist

Name CASSIDY MILLER

Company NOBLE ENERGY, INC.

Address 1625 Broadway
Denver, CO 80202

Other

Wellsite Geologists:

GARY MYERS, WHITNEY JACKS

WELLSITE GEOLOGICAL SERVICES PROVIDED BY COLUMBINE LOGGING INC.

LOG CONTINUES ON FILE: Five Rivers K07-62-1HN Horiz.mplot

Rock Types



SANDSTONE



SHALY SANDSTONE



SILTY SHALE

Accessories

Stringer



SANDSTONE STRINGER

Other Symbols

Engineering



BIT CHANGE



CONNECTION (RIGHT)

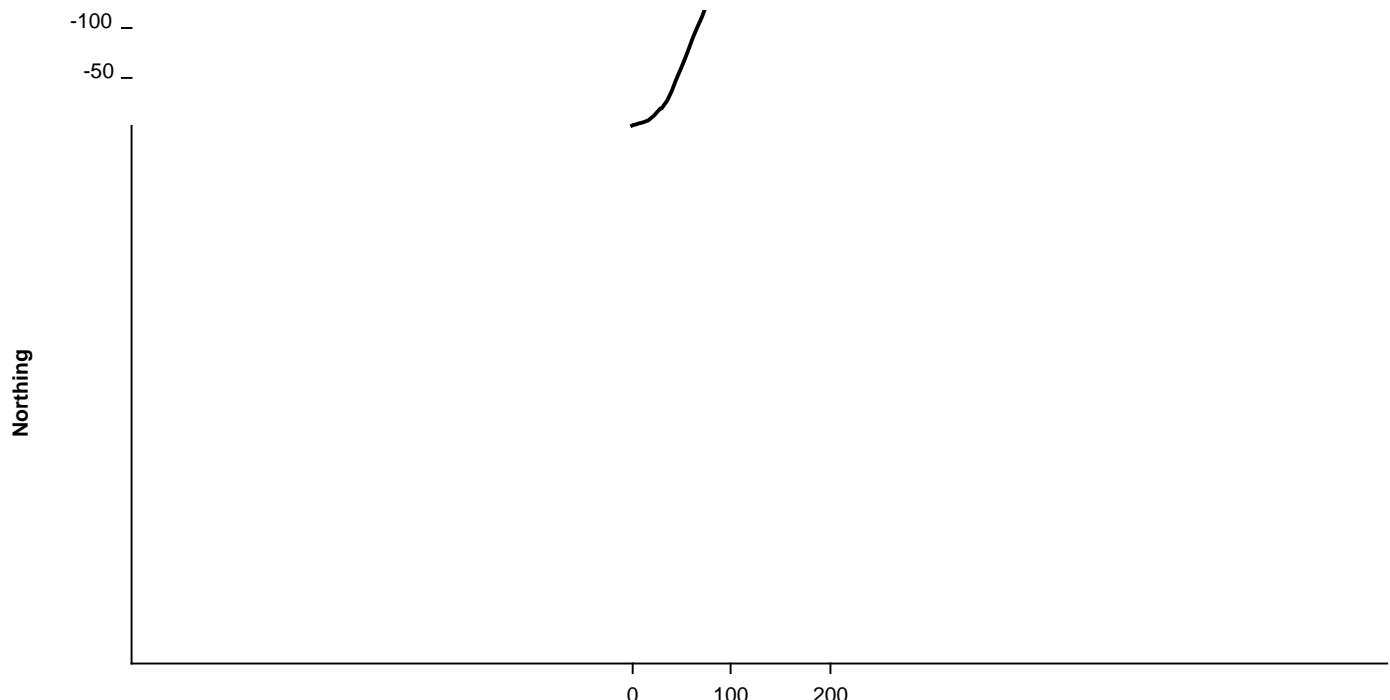


CONNECTION GAS



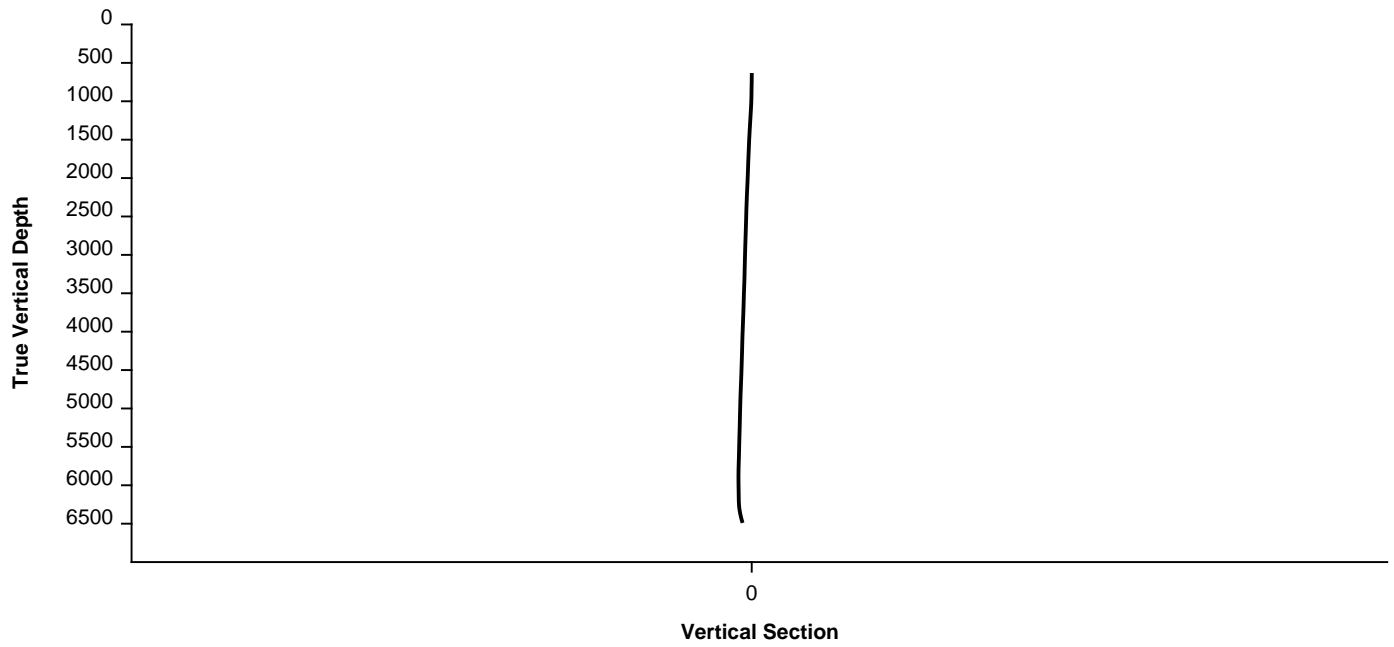
MN DEPTH

Survey Plan

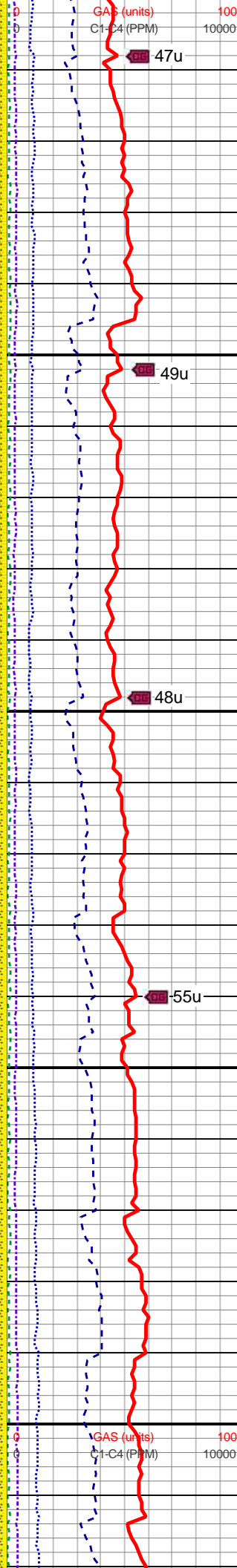
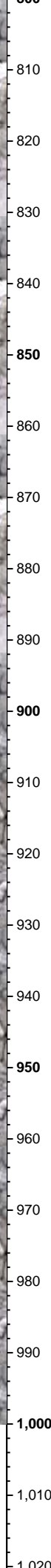
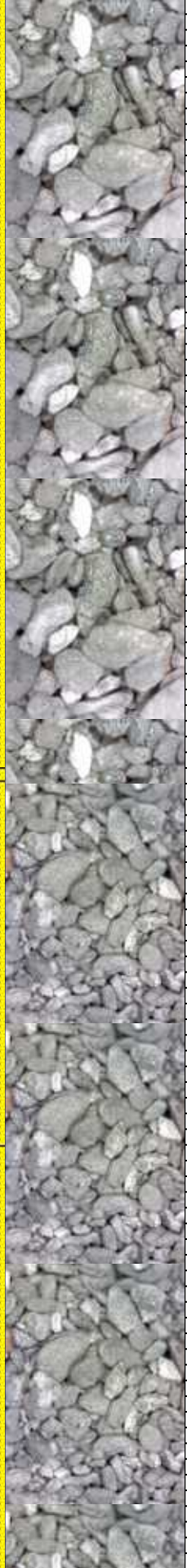
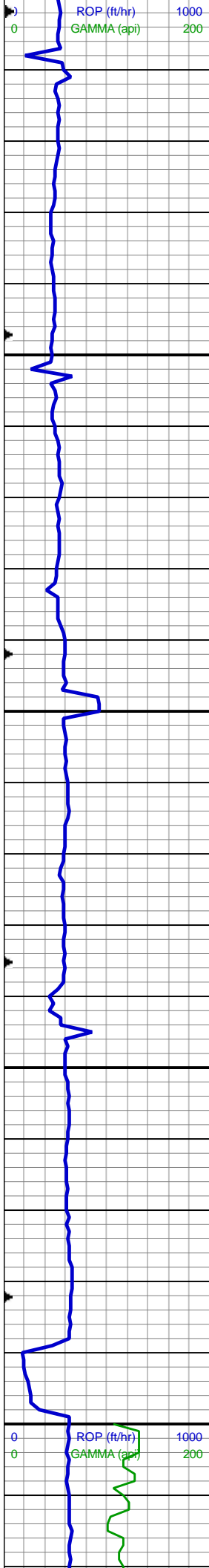


Easting

Survey Elevation



ROP		Slide/Rotate	Interp Lithology	Images	Depth Labels	% Lith	Total Gas & Chromatograph		Lithology Descriptions
ROP	ROF						GAS	C1-C4 (PPM)	
0	ROP (ft/hr)	1000					0	GAS (units)	100
0	GAMMA (api)	200					0	C1-C4 (PPM)	10000
Bit #: 2 Type: NOV PDC Size: 8.75 Depth In: 630 ' S/N: A188867									



MD: 837'
TVD: 836.97'
Inclination: 1.1 °
Azimuth: 108.1 °

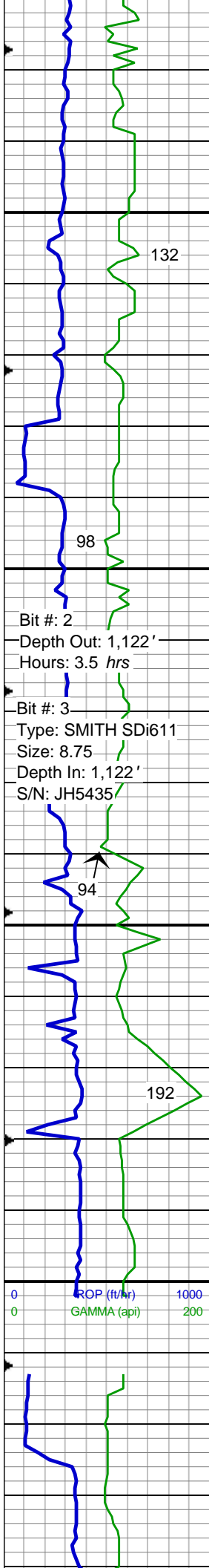
SS: lt to med gy, s&p, clr to trns, f to med gr, blk to sb blk, sb rndd to sb ang gr, mod to w srt, brit, p to mod cmt, arg to sil mtx, sl calc, occ mica, occ glau
SHY SS: med to dk gy, trns to op, vf-f gr, blk to sb blk, pred sbang, mod srt, mod sft, mod cmt, pred arg mtx, sl calc, tr mica

MD: 927'
TVD: 926.96'
Inclination: 0.8 °
Azimuth: 105.5 °

SS: lt to med gy, s&p, clr to trns, f to med gr, blk to sb blk, sb rndd to sb ang gr, mod to w srt, brit, p to mod cmt, arg to sil mtx, sl calc, occ mica, occ glau
SHY SS: med to dk gy, trns to op, vf-f gr, blk to sb blk, pred sbang, mod srt, mod sft, mod cmt, pred arg mtx, sl calc, tr mica

MD: 1,017'
TVD: 1,016.92'
Inclination: 2.5 °

Azimuth: 111°



132

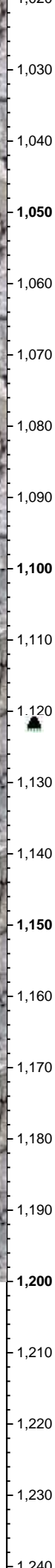
98

Bit #: 2
Depth Out: 1,122'
Hours: 3.5 hrs

Bit #: 3
Type: SMITH SDi611
Size: 8.75
Depth In: 1,122'
S/N: JH5435

94

192



Depth: 1122'
WT 8.5
VIS 28
YP 3
pH 8.7
Cl- 900
Ca++ 1360

61u

66u

81u

77u

SS: lt to med gy, s&p, clr to trnsl, f to med gr, blkly to sb blkly, sb rndd to sb ang gr, mod to w srt, brit, p to mod cmt, arg to sil mttx, sl calc, occ mica, occ glau
SHY SS: med to dk gy, trnsl to op,vf-f gr, blkly to sbbkly, pred sbang, mod srt, mod sft, mod cmt, pred arg mttx, sl calc, tr mica

MD: 1,093'
TVD: 1,092.81'
Inclination: 3.5 °
Azimuth: 97.8°

1217 HRS, MD 1122'
TOOH, X/O BIT
RESUMED DRILLING
1456 HRS

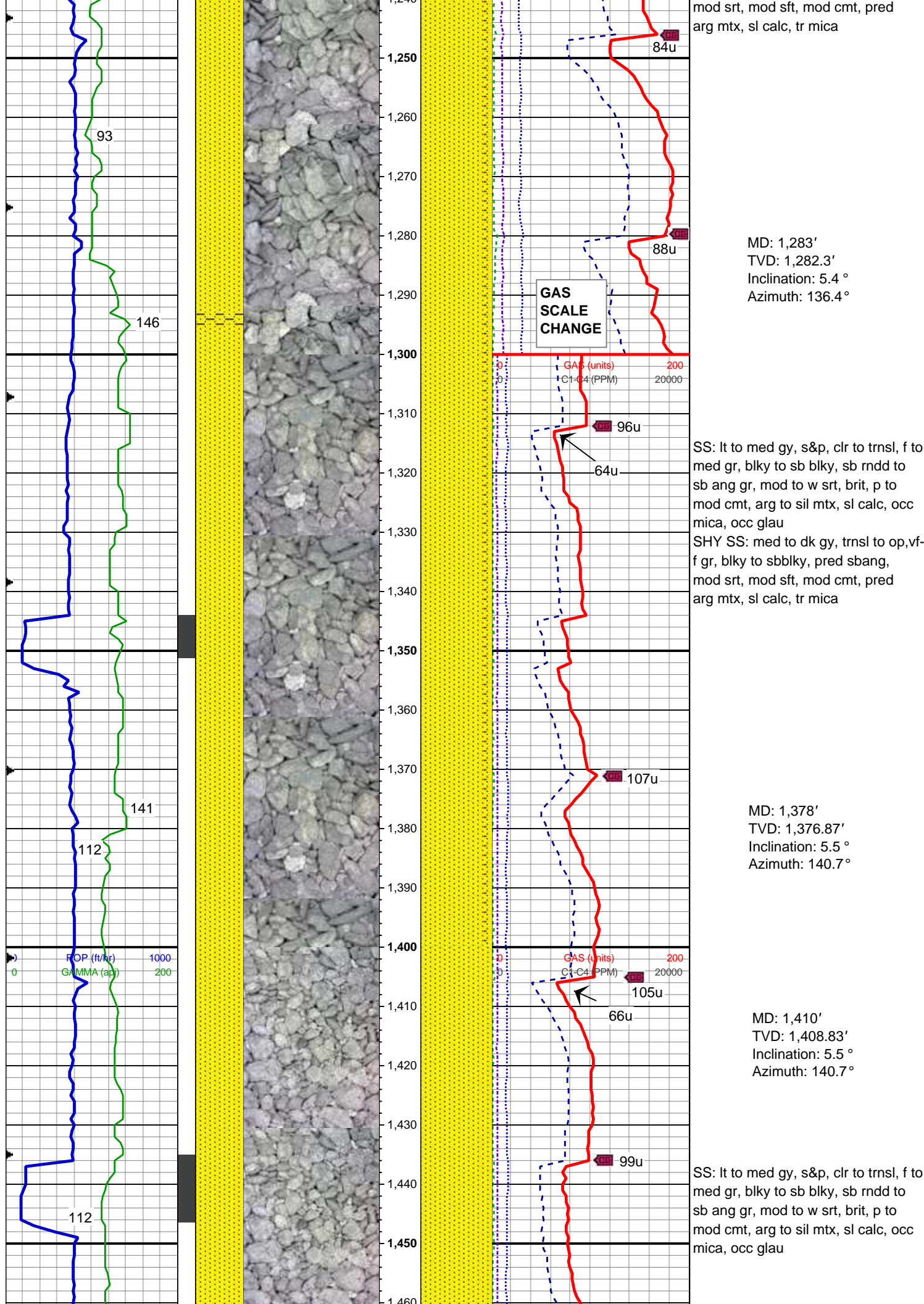
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SHY SS: med to dk gy, trnsl to op,vf-f gr, blkly to sbbkly, pred sbang, mod srt, mod sft, mod cmt, pred arg mttx, sl calc, tr mica

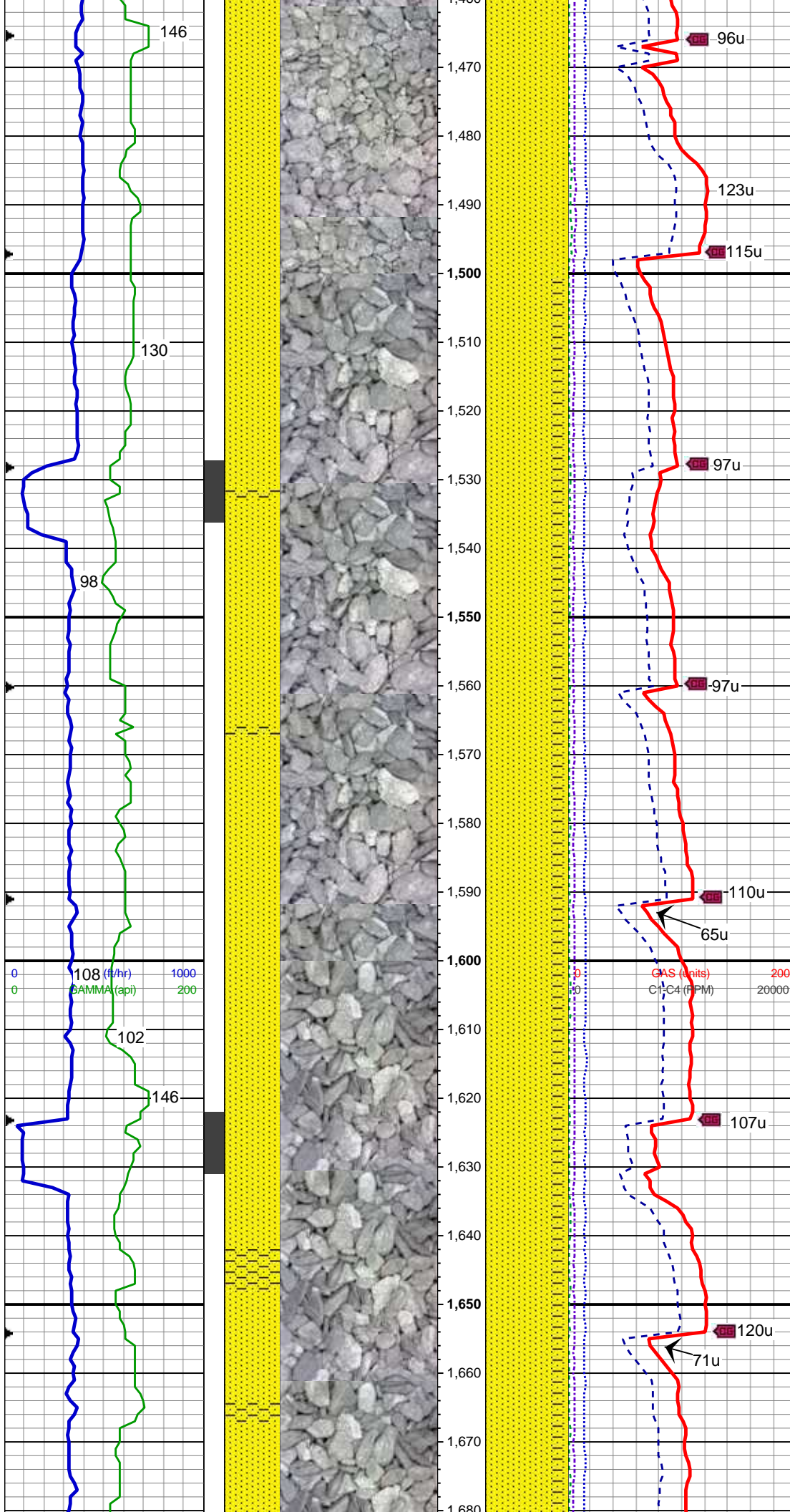
MD: 1,188'
TVD: 1,187.62'
Inclination: 4 °
Azimuth: 121.7°

GAS (units)
C1-C4 (PPM)

DRILLERS DEPTH CORRECTION

SS: lt to med gy, s&p, clr to trnsl, f to med gr, blkly to sb blkly, sb rndd to sb ang gr, mod to w srt, brit, p to mod cmt, arg to sil mttx, sl calc, occ mica, occ glau
SHY SS: med to dk gy, trnsl to op,vf-f gr, blkly to sbbkly, pred sbang,





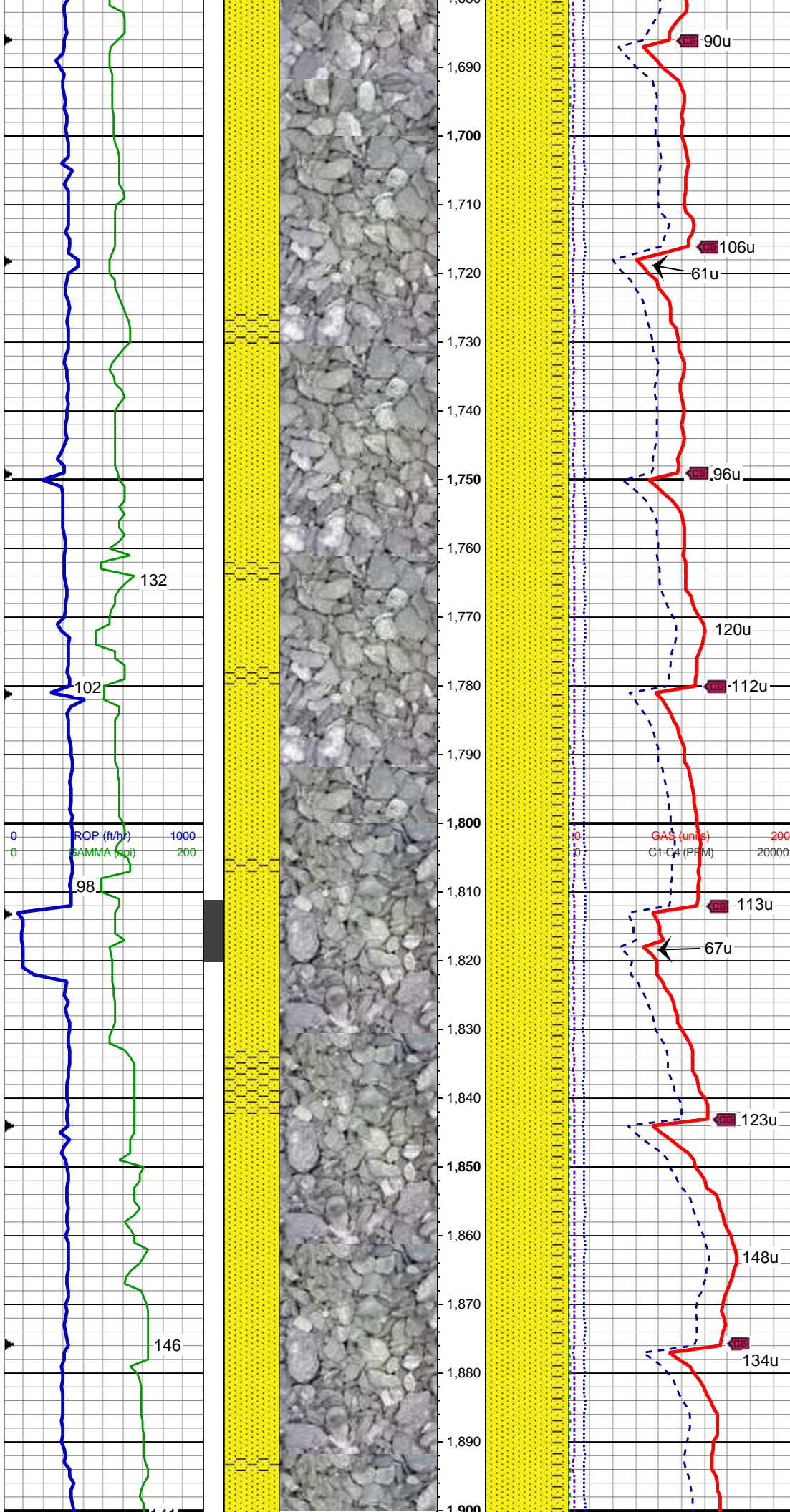
MD: 1,505'
TVD: 1,503.31'
Inclination: 6.5 °
Azimuth: 148.2°

SS: lt to med gy, s&p, clr to trnsl, f to med gr, blkly to sb blkly, sb rndd to sb ang gr, mod to w srt, brit, p to mod cmt, arg to sil mtx, sl calc, occ mica
SHY SS: med to dk gy, trnsl to op,vf-f gr, blkly to sbblkly, pred sbang, mod srt, mod sft, mod cmt, pred arg mtx, sl calc

MD: 1,599'
TVD: 1,596.68'
Inclination: 6.8 °
Azimuth: 161.6°

WT: 8.5 / VIS 27

SS: lt to med gy, s&p, clr to trnsl, f to med gr, blkly to sb blkly, sb rndd to sb ang gr, mod to w srt, brit, p to mod cmt, arg to sil mtx, sl calc, occ mica
SHY SS: med to dk gy, trnsl to op,vf-f gr, blkly to sbblkly, pred sbang, mod srt, mod sft, mod cmt, pred arg mtx, sl calc



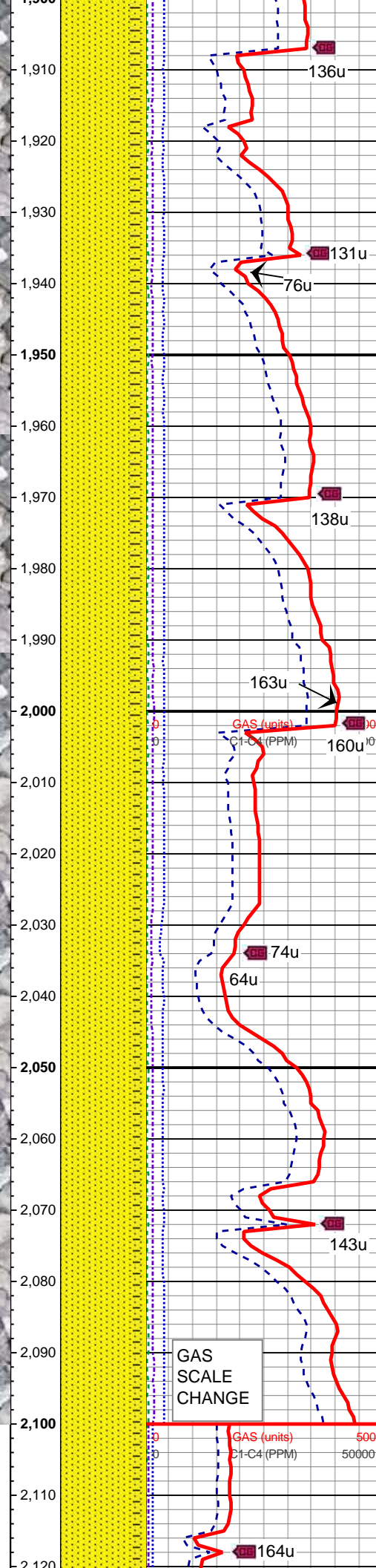
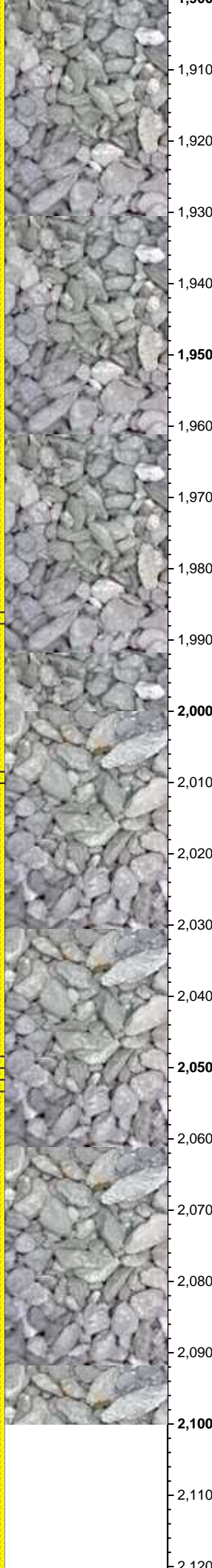
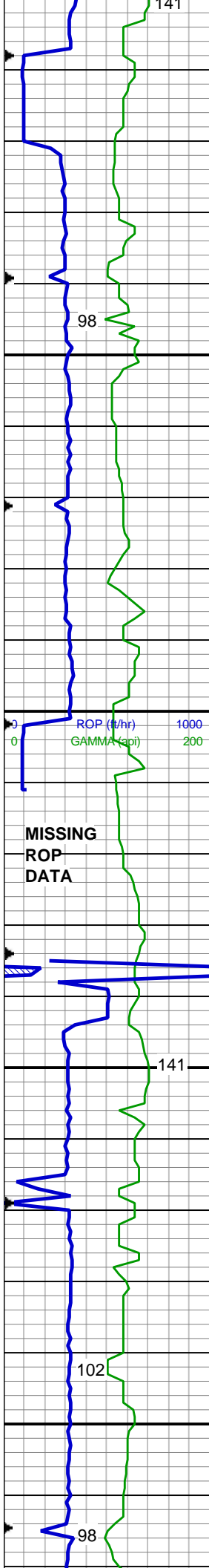
MD: 1,694'
TVD: 1,690.92'
Inclination: 7.7 °
Azimuth: 156.7°

SS: lt to med gy, s&p, clr to trnsl, f to med gr, blkly to sb blkly, sb rndd to sb ang gr, mod to w srt, brit, p to mod cmt, arg to sil mtx, sl calc, occ mica
SHY SS: med to dk gy, trnsl to op,vf-f gr, blkly to sbbkly, pred sbang, mod srt, mod sft, mod cmt, pred arg mtx, sl calc

MD: 1,789'
TVD: 1,785.19'
Inclination: 6.5 °
Azimuth: 156.3°

SS: lt to med gy, s&p, clr to trnsl, f to med gr, blkly to sb blkly, sb rndd to sb ang gr, mod to w srt, brit, p to mod cmt, arg to sil mtx, sl calc, occ mica
SHY SS: med to dk gy, trnsl to op,vf-f gr, blkly to sbbkly, pred sbang, mod srt, mod sft, mod cmt, pred arg mtx, sl calc

MD: 1,884'
TVD: 1,879.6'
Inclination: 6.3 °
Azimuth: 159.1°



WT: 8.5 / VIS 27

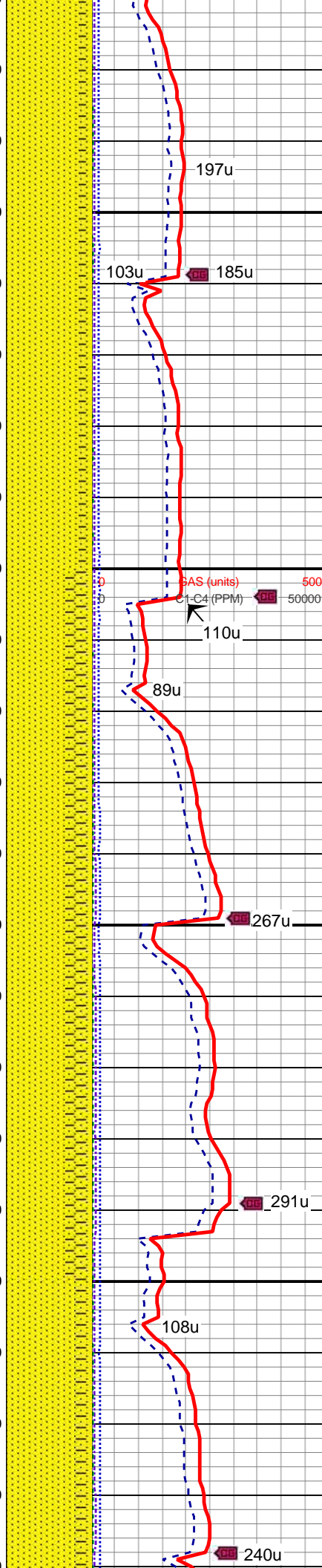
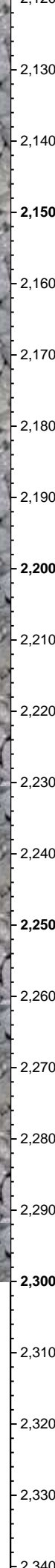
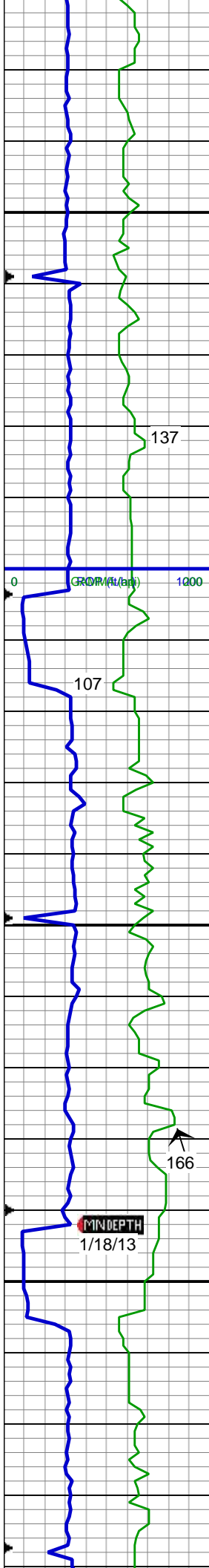
SS: lt to med gy, s&p, clr to trnsl, f to med gr, blkly to sb blkly, sb rndd to sb ang gr, mod to w srt, brit, p to mod cmt, arg to sil mtx, sl calc, occ mica
SHY SS: med to dk gy, trnsl to op,vf-f gr, blkly to sbblkly, pred sbang, mod srt, mod sft, mod cmt, pred arg mtx, sl calc

MD: 1,979'
TVD: 1,973.93'
Inclination: 7.3 °
Azimuth: 158.8°

SS: lt to med gy, s&p, clr to trnsl, f to med gr, blkly to sb blkly, sb rndd to sb ang gr, mod to w srt, brit, p to mod cmt, arg to sil mtx, sl calc, occ mica
SHY SS: med to dk gy, trnsl to op,vf-f gr, blkly to sbblkly, pred sbang, mod srt, mod sft, mod cmt, pred arg mtx, sl calc

MD: 2,059'
TVD: 2,053.19'
Inclination: 8.3 °
Azimuth: 160.9°

GAS SCALE CHANGE



MD: 2,148'
TVD: 2,141.39'
Inclination: 7 °
Azimuth: 152.6°

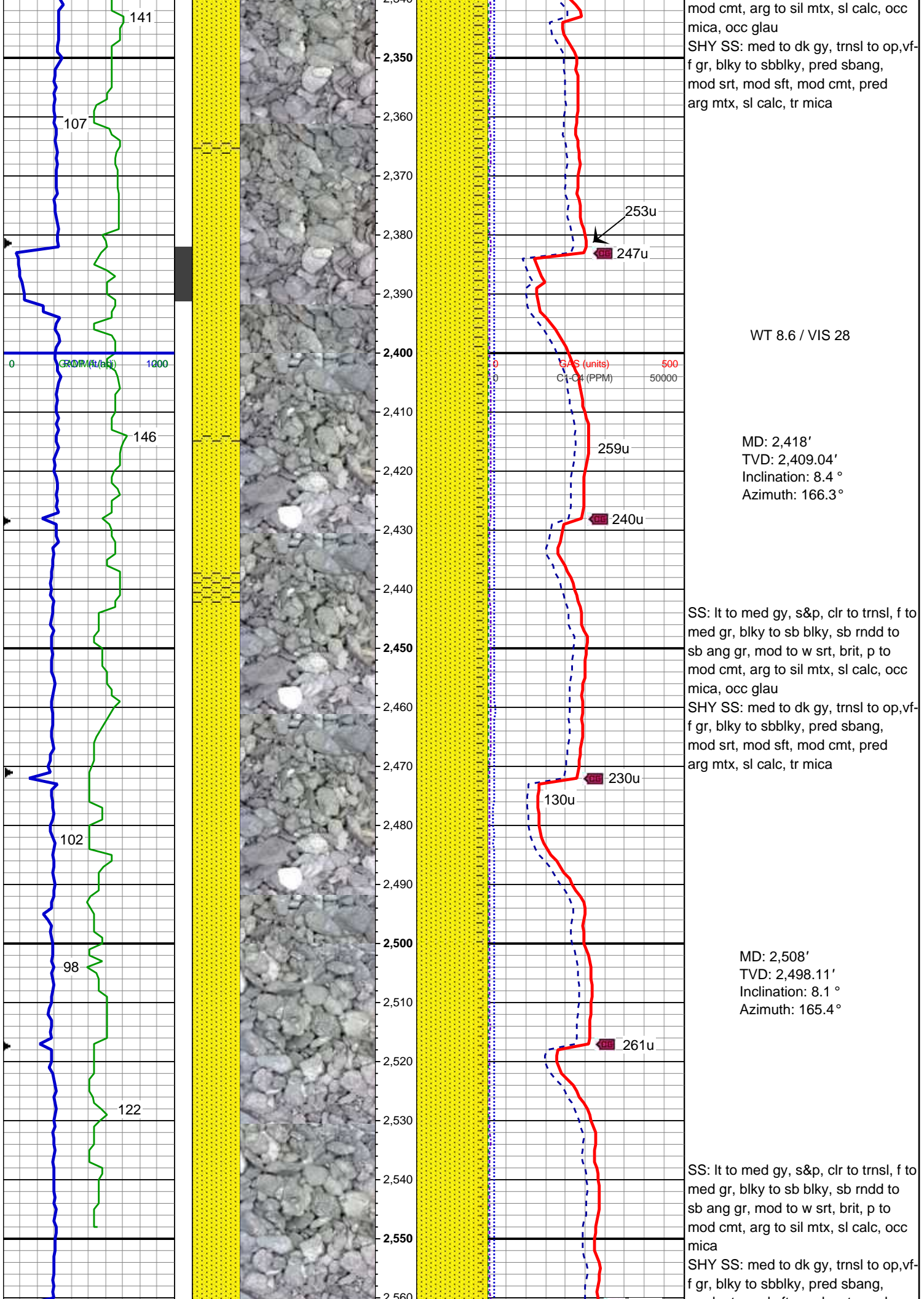
SS: lt to med gy, s&p, clr to trnsl, f to med gr, blkly to sb blkly, sb rndd to sb ang gr, mod to w srt, brit, p to mod cmt, arg to sil mtx, sl calc, occ mica
SHY SS: med to dk gy, trnsl to op,vf-f gr, blkly to sbbkly, pred sbang, mod srt, mod sft, mod cmt, pred arg mtx, sl calc

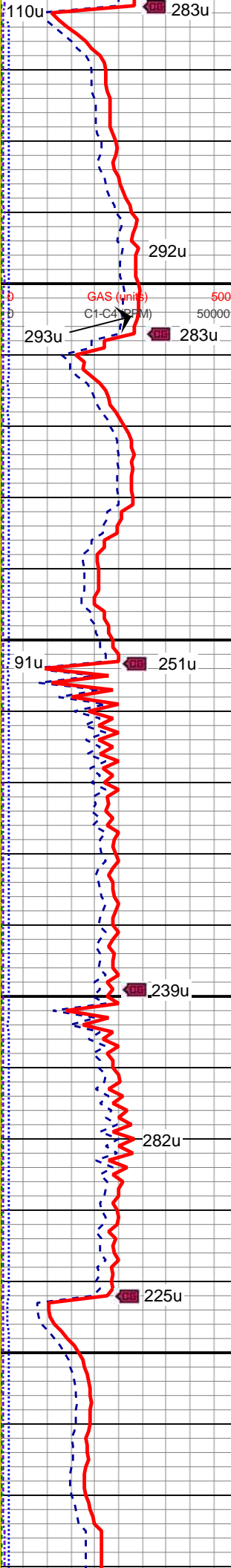
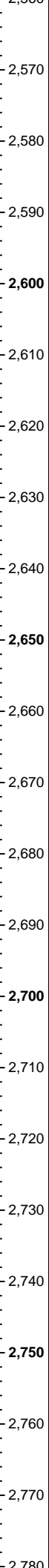
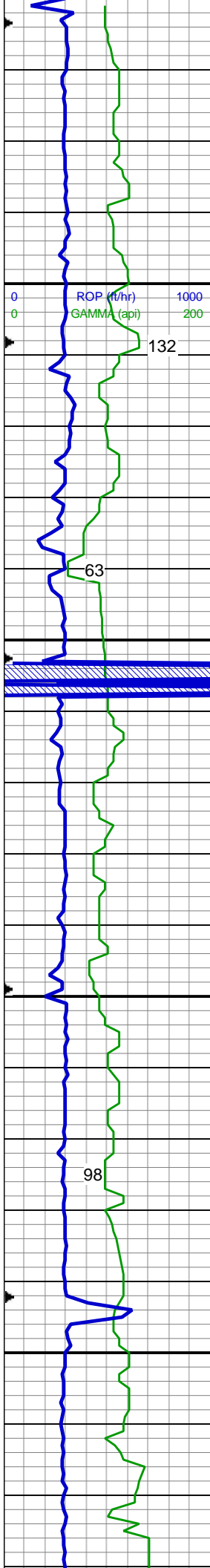
MD: 2,238'
TVD: 2,230.72'
Inclination: 7.1 °
Azimuth: 158.4°

SS: lt to med gy, s&p, clr to trnsl, f to med gr, blkly to sb blkly, sb rndd to sb ang gr, mod to w srt, brit, p to mod cmt, arg to sil mtx, sl calc, occ mica, occ glau
SHY SS: med to dk gy, trnsl to op,vf-f gr, blkly to sbbkly, pred sbang, mod srt, mod sft, mod cmt, pred arg mtx, sl calc, tr mica

MD: 2,328'
TVD: 2,319.94'
Inclination: 7.9 °
Azimuth: 160.5°

SS: lt to med gy, s&p, clr to trnsl, f to med gr, blkly to sb blkly, sb rndd to sb ang gr, mod to w srt, brit, p to





mod srt, mod srt, mod cmt, pred
arg mtx, sl calc, tr mica

MD: 2,597'
TVD: 2,586.22'
Inclination: 8.1 °
Azimuth: 163.9°

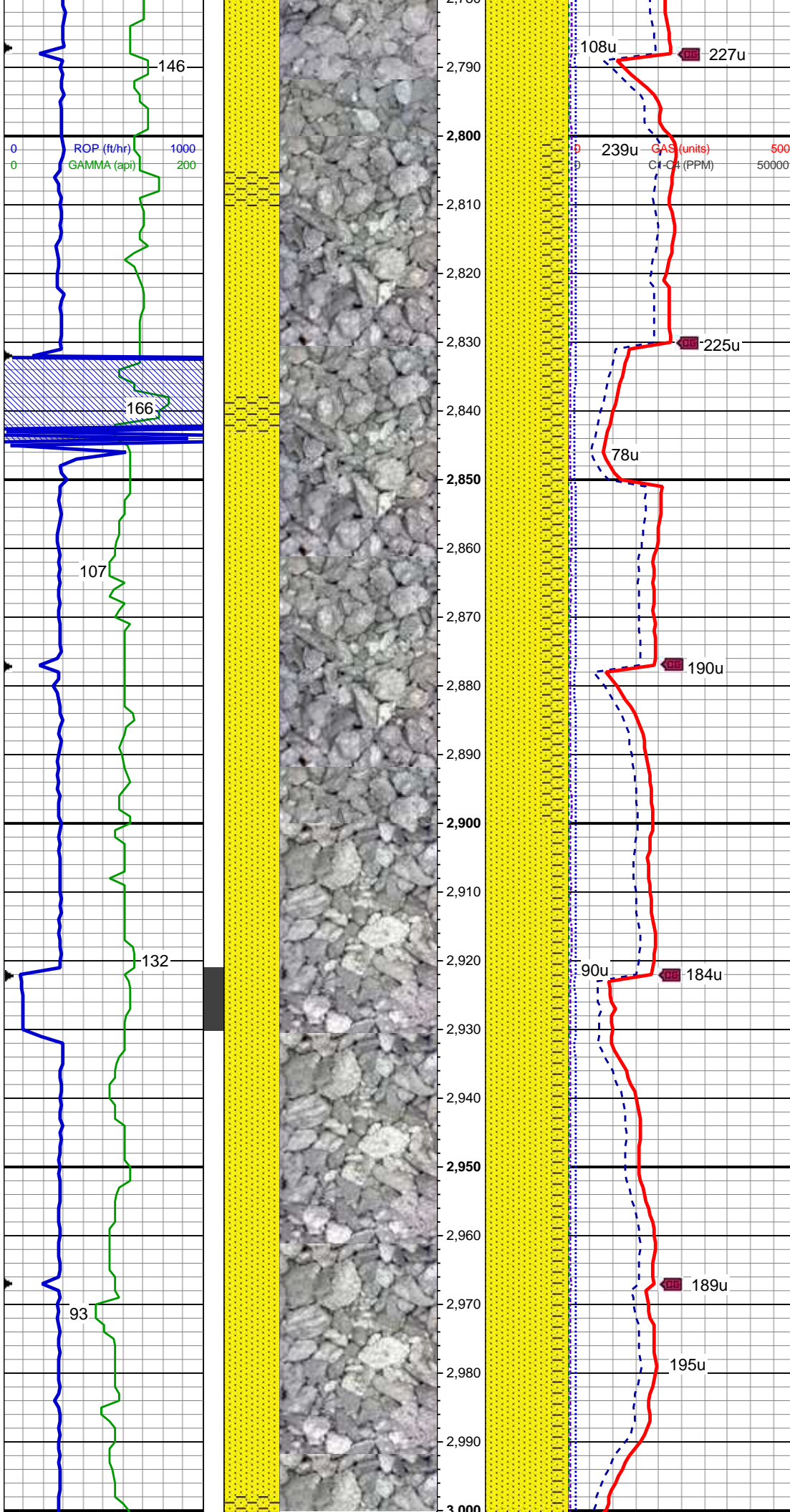
SS: lt to med gy, s&p, clr to trnsI, f to
med gr, blkly to sb blkly, sb rndd to
sb ang gr, mod to w srt, brit, p to
mod cmt, arg to sil mtx, sl calc, occ
mica
SHY SS: med to dk gy, trnsI to op,vf-
f gr, blkly to sbblkly, pred sbang,
mod srt, mod sft, mod cmt, pred
arg mtx, sl calc, tr mica

MD: 2,687'
TVD: 2,675.32'
Inclination: 8.1 °
Azimuth: 164.9°

SS: lt to med gy, s&p, clr to trnsI, f to
med gr, blkly to sb blkly, sb rndd to
sb ang gr, mod to w srt, brit, p to
mod cmt, arg to sil mtx, sl calc, occ
mica, tr shy ss

MD: 2,777'
TVD: 2,764.46'
Inclination: 7.8 °

Azimuth: 162.5°



Depth: 2795'

WT 8.55
VIS 28
YP 3
pH 8.6
Cl- 900
Ca++ 1360

SS: lt to med gy, s&p, clr to trnsl, f to med gr, blkly to sb blkly, sb rndd to sb ang gr, mod to w srt, brit, p to mod cmt, pred sil mtx, sl calc, occ mica

SHY SS: med to dk gy, trnsl to op,vf-f gr, blkly to sbblkly, pred sbang, mod srt, mod sft to sl frm, mod cmt, arg to sil mtx, sl calc, tr mica

MD: 2,867'

TVD: 2,853.65'

Inclination: 7.5 °

Azimuth: 161 °

SS: lt to med gy, s&p, clr to trnsl, sme op, f to med gr, blkly to sb blkly, pred sb ang gr, mod to w srt, brit, p to mod cmt, arg to sil mtx, wh cly, sl calc, occ mica

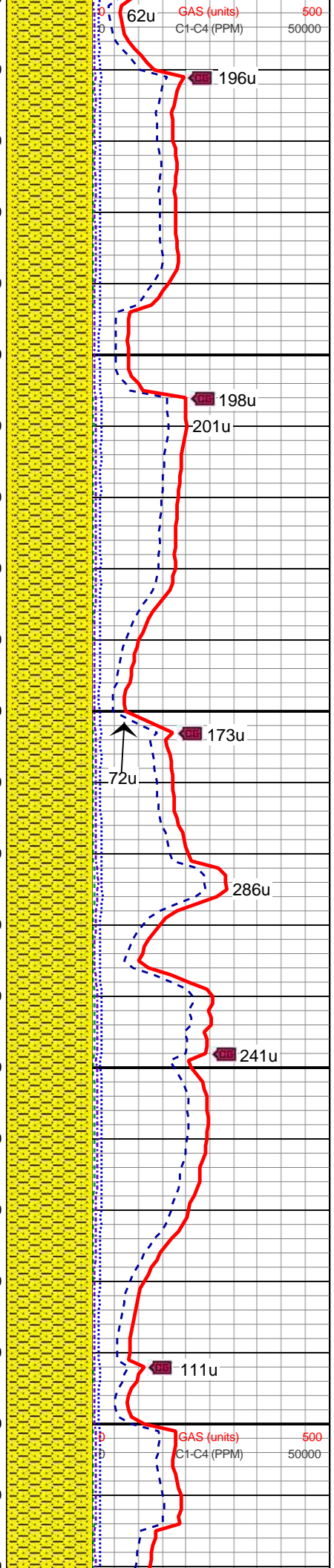
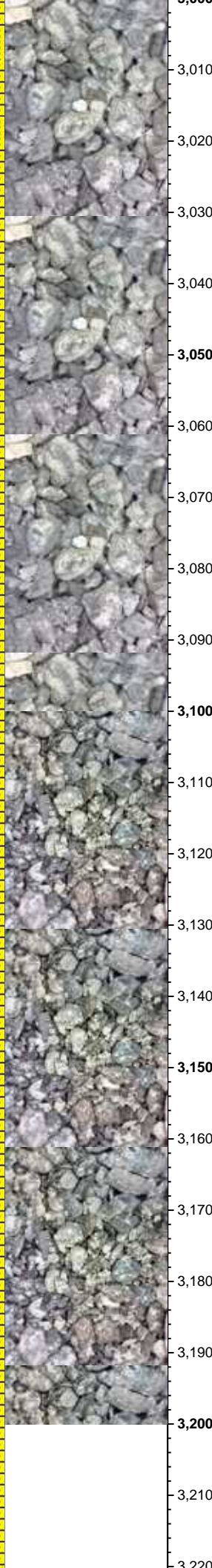
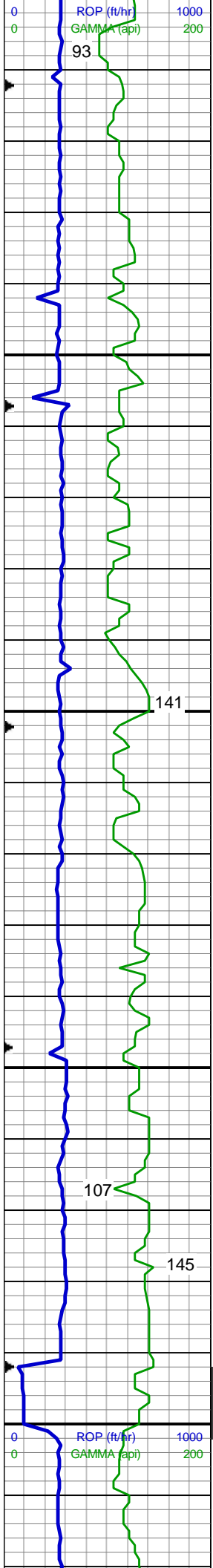
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MD: 2,957'

TVD: 2,942.79'

Inclination: 8.4 °

Azimuth: 167.7 °



MD: 3,047'
TVD: 3,031.84'
Inclination: 8.3 °
Azimuth: 166.5 °

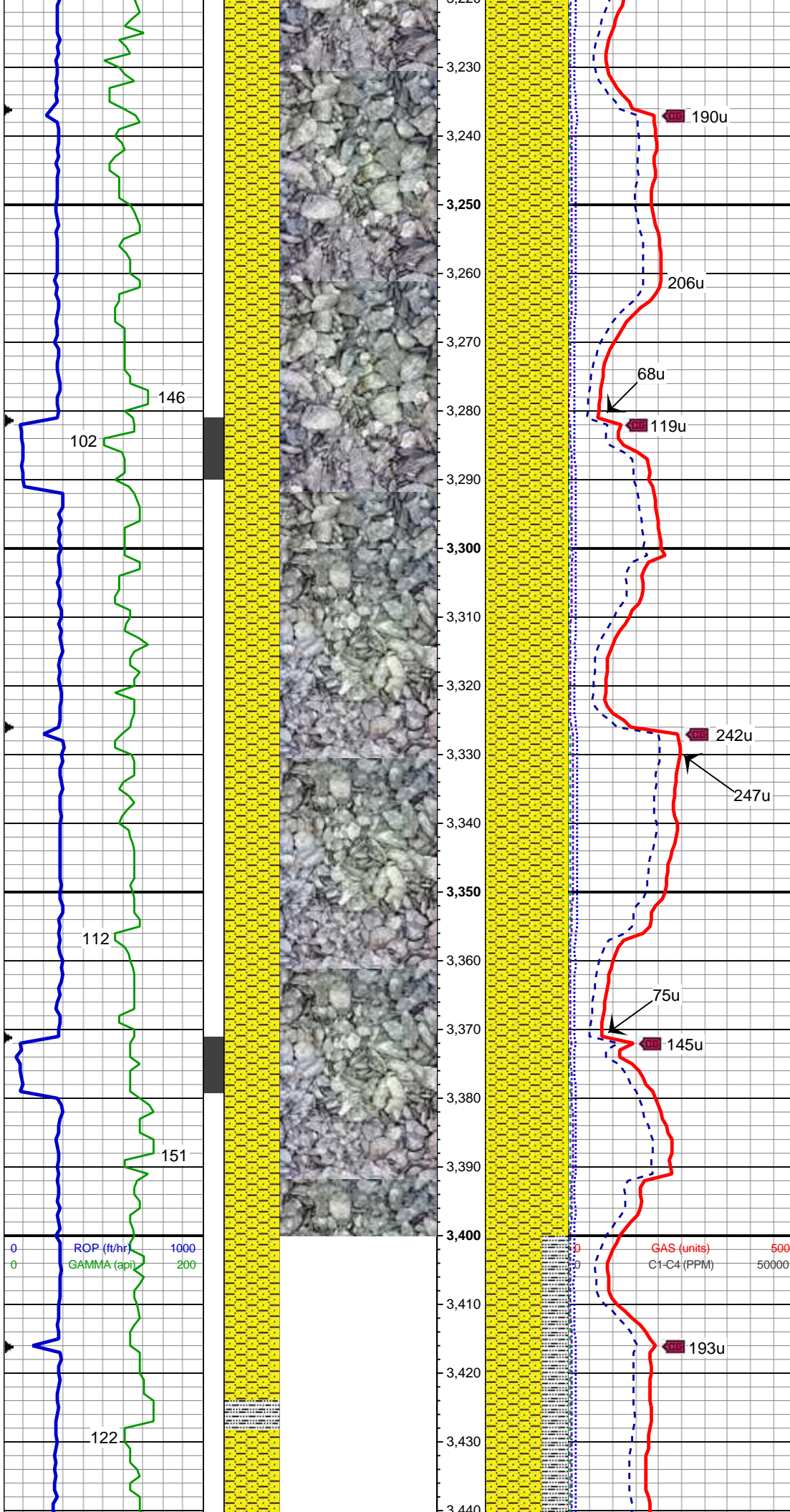
SHY SS: pred dk gy, trnsl to op,vf gr,
blky to sbbiky,occ sbply, w srt, mod
sft to sl frm, mod cmt, arg mtx, sl
calc, grd to shy sltst
SS: wh- mgy, s&p, clr- trnsl, lse,
brit, abnt lse cly

WT 8.6 / VIS 28

MD: 3,137'
TVD: 3,120.96'
Inclination: 7.7 °
Azimuth: 164.6 °

SHY SS: pred dk gy, trnsl to op,vf gr,
blky to sbbiky,occ sbply, w srt, mod
sft to sl frm, mod cmt, arg mtx, sl
calc, grd to shy sltst
SS: wh- mgy, s&p, clr- trnsl, lse,
brit, abnt lse cly

MD: 3,226'



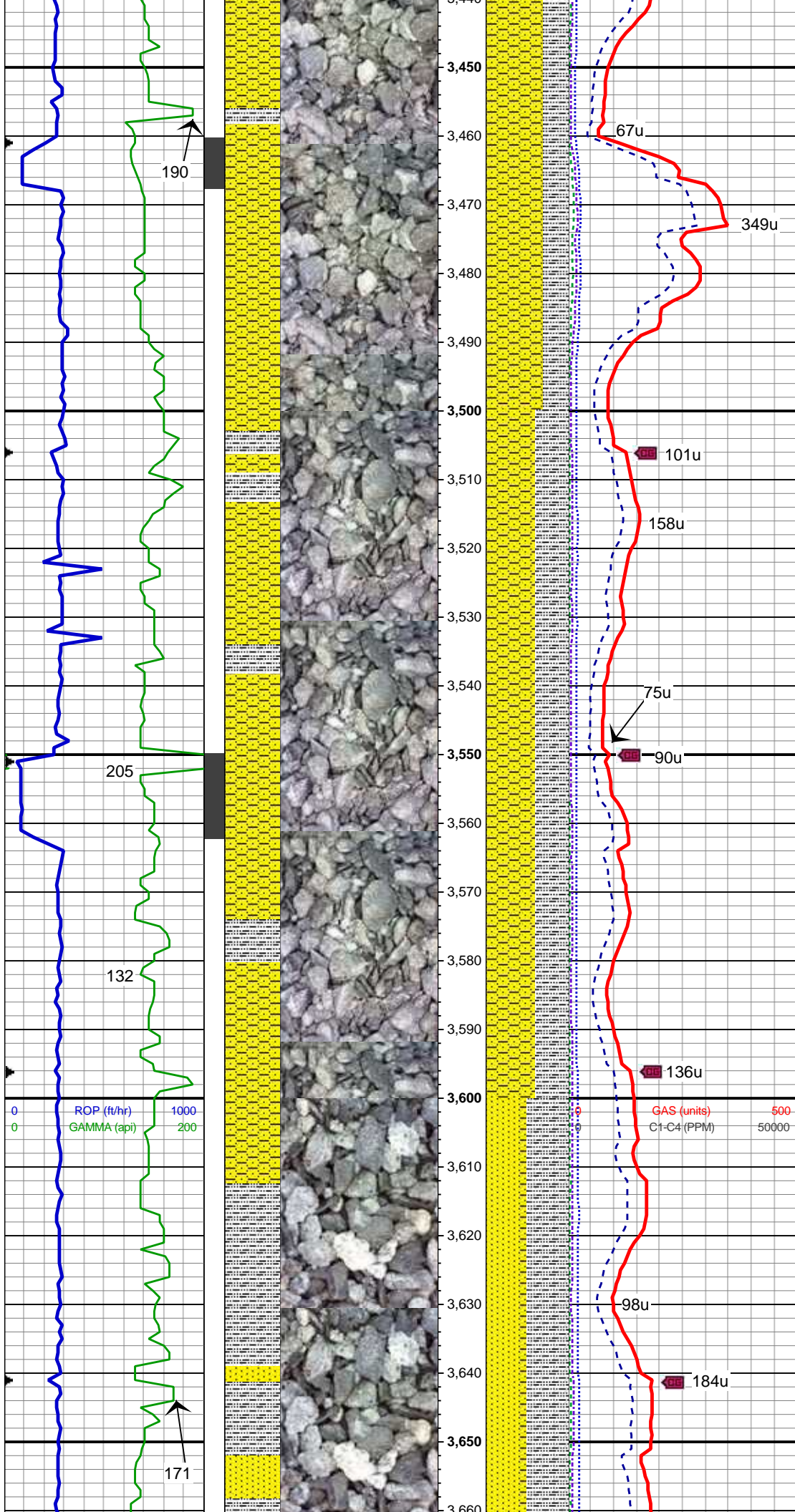
MD: 3,226'
TVD: 3,209.19'
Inclination: 7.4 °
Azimuth: 167.4 °

SHY SS: pred dk gy, trnsl to op,vf gr, blkly to sbblky,occ sbplty, w srt, mod sft to sl frm, mod cmt, arg mtx, sl calc, grd to shy sltst, occ SS: wh-mgy, s&p, clr- trnsl, lse, brit

MD: 3,316'
TVD: 3,298.41'
Inclination: 7.7 °
Azimuth: 167.2 °

SHY SS: pred dk gy, trnsl to op,vf gr, blkly to sbblky,occ sbplty, w srt, mod sft to sl frm, mod cmt, arg mtx, sl calc, grd to shy sltst, occ SS: wh-mgy, s&p, clr- trnsl, lse, brit

MD: 3,406'
TVD: 3,387.58'
Inclination: 7.9 °
Azimuth: 157.5 °



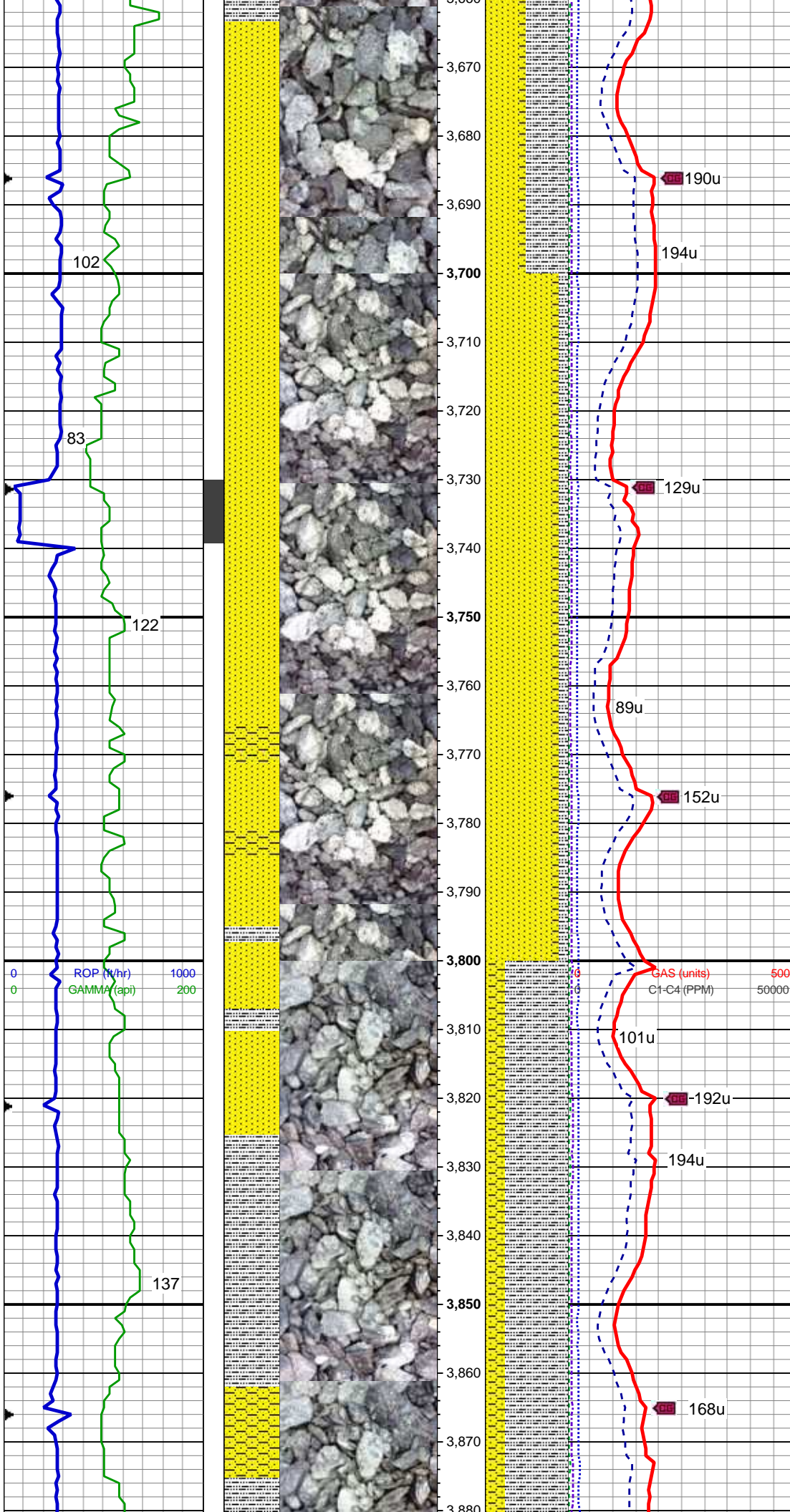
SHY SS: pred dk gy, trnsl to op, vf
gr, blkly to sbbkly, occ sbply, w srt,
mod sft to sl frm, mod cmt, arg mtx,
sl calc, grdg to slty sh

MD: 3,496'
TVD: 3,476.83'
Inclination: 6.9 °
Azimuth: 160.5 °

SHY SS: pred dk gy, trnsl to op, vf
gr, blkly to sbbkly, occ sbply, w srt,
mod sft to sl frm, mod cmt, arg mtx,
sl calc, grdg to slty sh

MD: 3,586'
TVD: 3,566.14'
Inclination: 7.3 °
Azimuth: 164.7 °

SLTYSH: mgy, sbbkly to sbply, occ
ply, sft to sl frm, mod srt, s, sl calc,
sdy ip, grdg to shy ss
SS: wh- mgy, s&p ip, clr- trnsl, brit,
p to mod cmt, arg to sil mtx, occ
mica



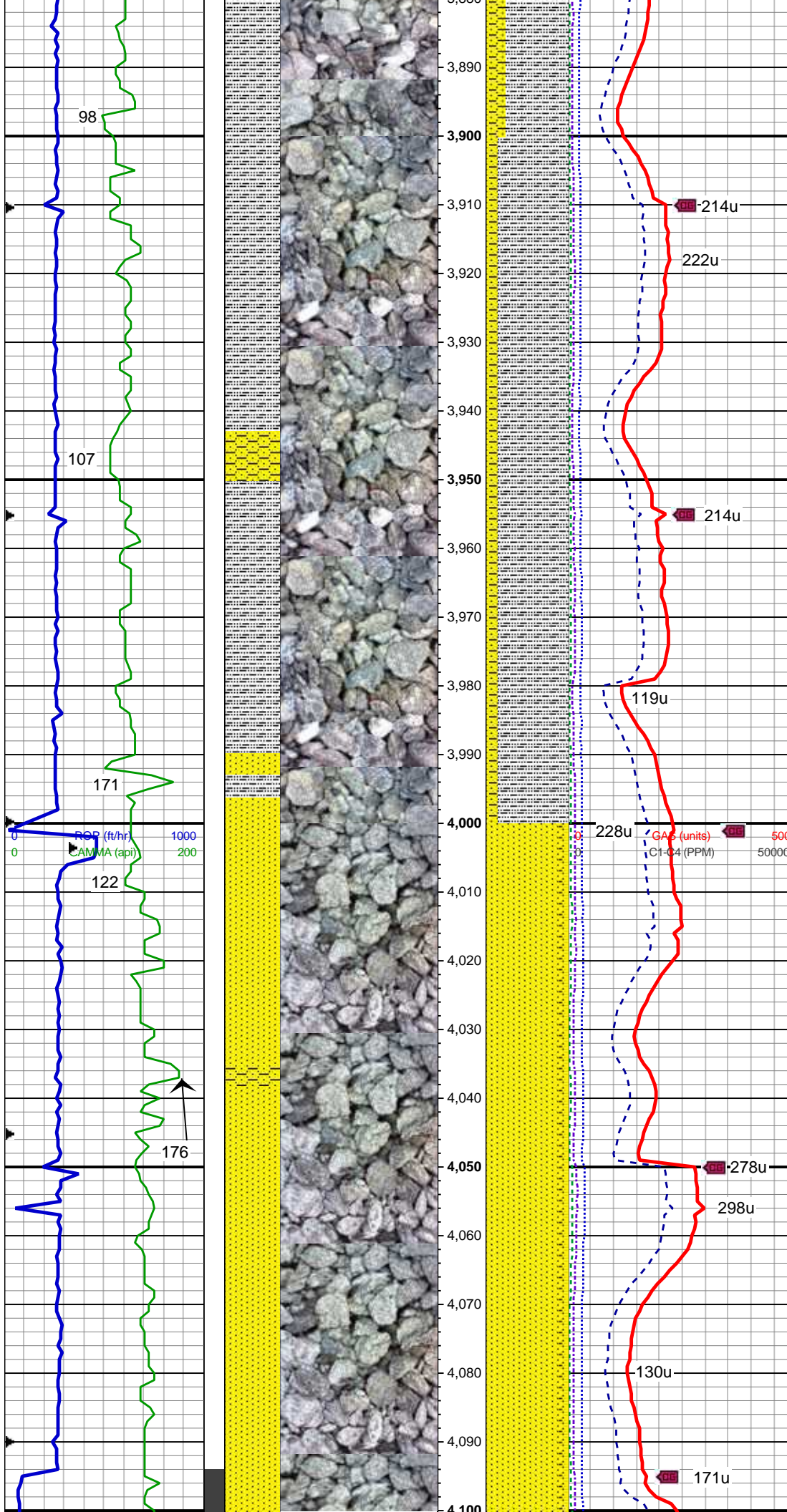
MD: 3,676'
TVD: 3,655.51'
Inclination: 6.2 °
Azimuth: 163.2 °

SS: wh- mgy, s&p ip, clr- trnsl, brit,
p to mod cmt, arg to sil mtx, occ
mica
SLTYSH: mgy, sbblky to sbply, occ
ply, sft to sl frm, mod srt, s, sl calc,
sdy ip, grdg to shy ss

MD: 3,766'
TVD: 3,744.86'
Inclination: 7.6 °
Azimuth: 160.2 °

SLTYSH: m gy to gy brn, sbblky to
sbply, occ ply, sft to sl frm, mod
srt, sl calc, sdy ip, grdg to shy ss,
occ wh s&p med gr ss

MD: 3,855'
TVD: 3,833.07'
Inclination: 7.7 °
Azimuth: 160.5 °



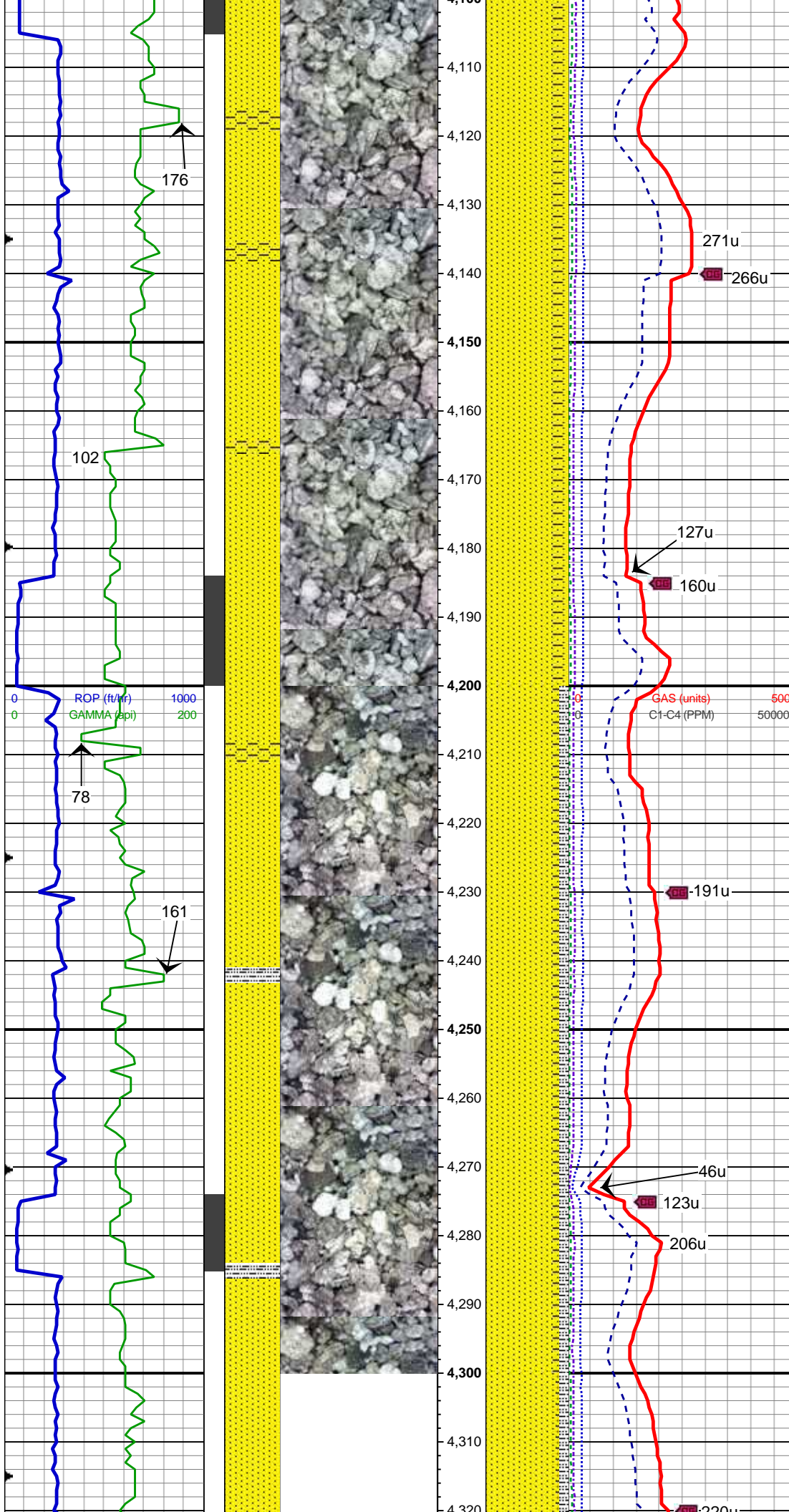
MD: 3,945'
 TVD: 3,922.26'
 Inclination: 7.7 °
 Azimuth: 160 °

SLTYSH: m gy to gy brn, sbblky to sbplty, occ plty, sft to sl frm, mod srt, sl calc, sdy ip, grd to shy ss, occ wh s&p med gr ss

WT 9.05 / VIS 35

MD: 4,035'
 TVD: 4,011.61'
 Inclination: 6 °
 Azimuth: 155.6 °

SS: lt to med gy, occ dk gy, s&p ip, clr to trns, f to med gr, blkly to sb blkly, sb rndd gr, mod to w srt, p to mod cmt, pred sil mtx, sl calc, tr mica, tr glau
 SHY SS: med to dk gy, trns to op, vf-f gr, blkly to sbblkly, mod srt, mod sft to sl frm, mod cmt, arg to sil mtx, sl calc, tr mica, slty, grd to slty sh



MD: 4,125'
TVD: 4,101.13'
Inclination: 5.9 °
Azimuth: 161 °

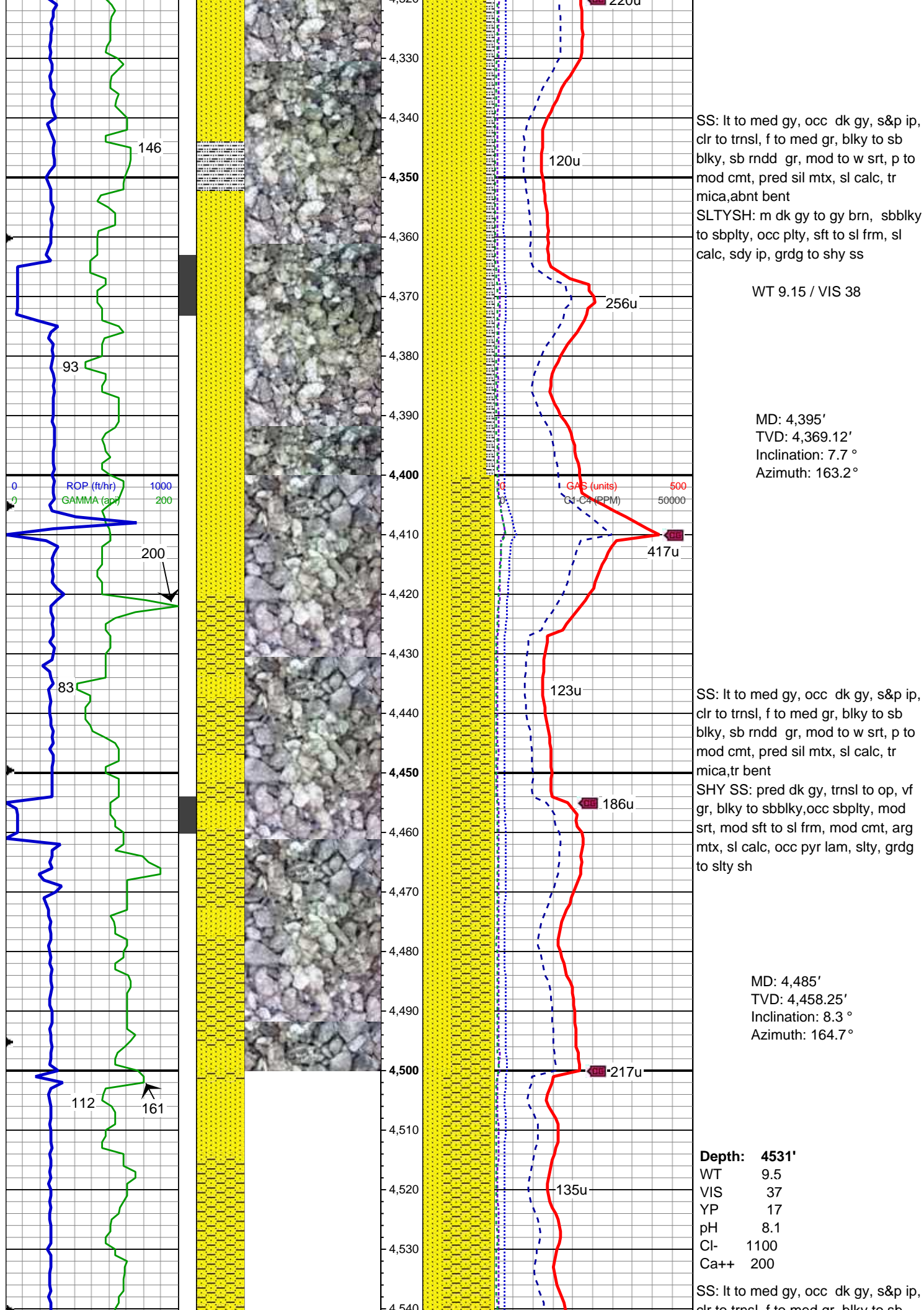
SS: lt to med gy, occ dk gy, s&p ip, cl to trnsl, f to med gr, blk to sb blk, sb rndd gr, mod to w srt, p to mod cmt, pred sil mtz, sl calc, tr mica, tr glau, tr bent
SHY SS: med to dk gy, trnsl to op,vf-f gr, blk to sbbkly, mod srt, mod sft to sl frm, mod cmt, arg to sil mtz, sl calc, tr mica, slty, grdg to slty sh

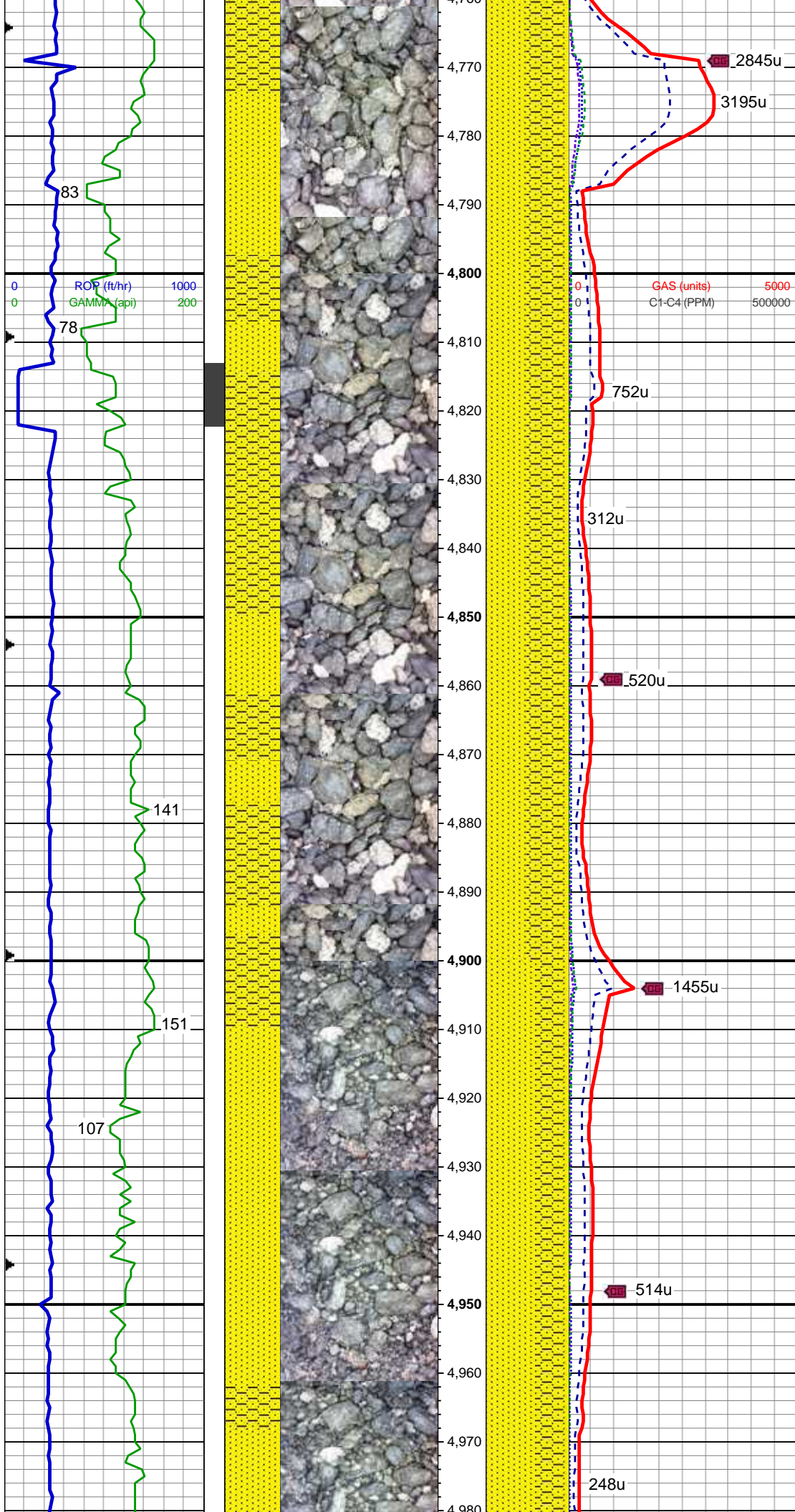
MD: 4,215'
TVD: 4,190.58'
Inclination: 6.8 °
Azimuth: 165.6 °

WT 9.15 / VIS 36

SS: lt to med gy, occ dk gy, s&p ip, cl to trnsl, f to med gr, blk to sb blk, sb rndd gr, mod to w srt, p to mod cmt, pred sil mtz, sl calc, tr mica, abnt bent
SLTYSH: m dk gy to gy brn, sbbkly to sbply, occ plty, sft to sl frm, sl calc, sdy ip, grdg to shy ss

MD: 4,305'
TVD: 4,279.89'
Inclination: 7.3 °
Azimuth: 163 °





Inclination: 6.7 °
Azimuth: 154.5 °

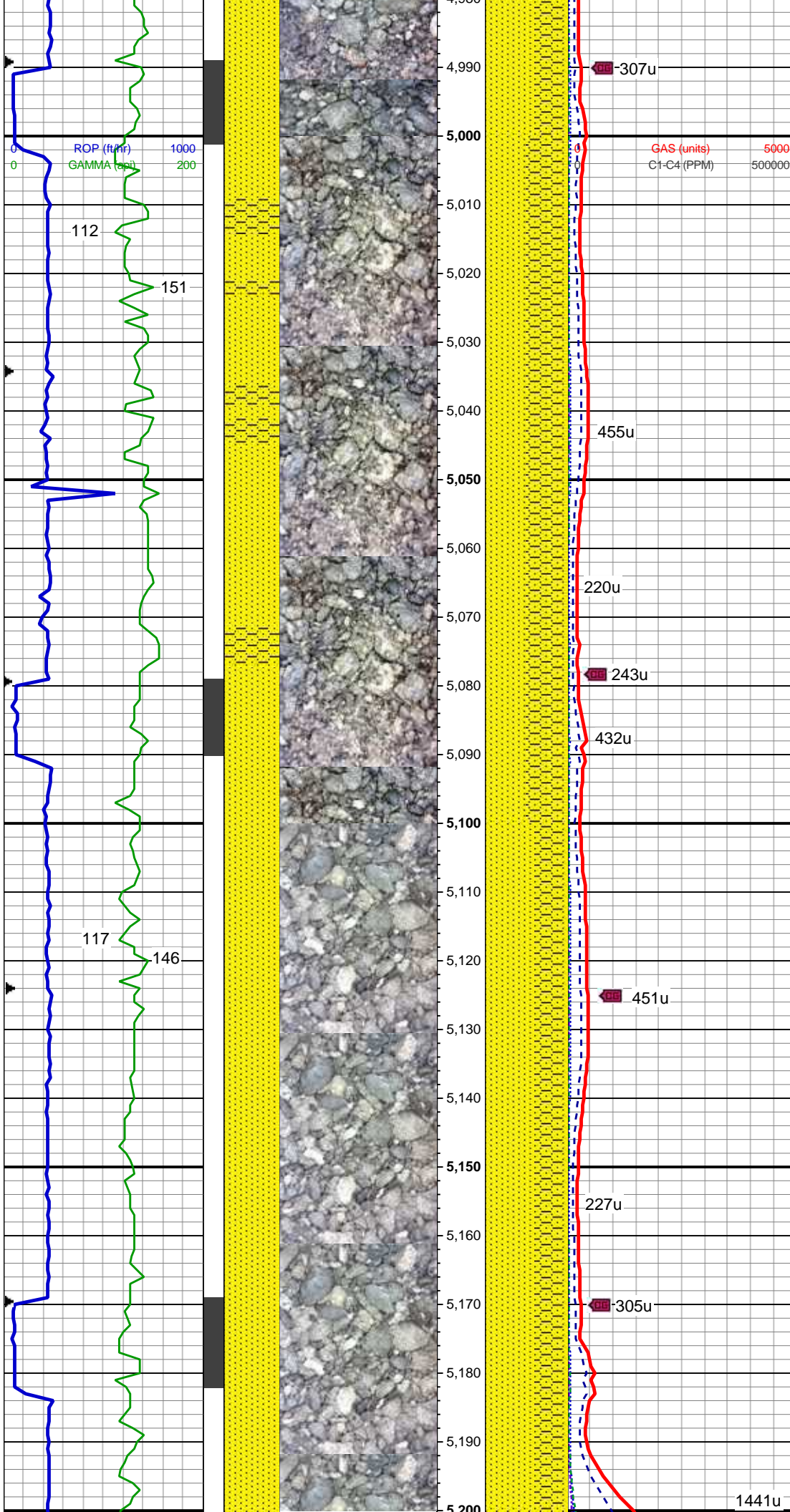
WT 9.6 / VIS 38

MD: 4,844'
TVD: 4,814.51'
Inclination: 7.4 °
Azimuth: 162.6 °

SS: wh, lt to med gy, occ dk gy, s&p ip, clr to trnsl, f to med gr, blkly to sb blkly, sb rndd gr, mod to w srt, p to mod cmt, pred sil mtx, sl calc, tr mica
SHY SS: pred dk gy, trnsl to op, vf gr, blkly to sbblkly, occ sbply, mod srt, mod sft to sl frm, mod cmt, arg mtx, sl calc, occ pyr lam, slty, grdg to slty sh, mod calc

MD: 4,934'
TVD: 4,903.87'
Inclination: 6.3 °
Azimuth: 161 °

SS: lt to med gy, occ dk gy, s&p ip, clr to trnsl, f to med gr, blkly to sb blkly, sb rndd gr, mod to w srt, p to mod cmt, pred sil mtx, sl calc, tr mica
SHY SS: pred dk gy, trnsl to op, vf gr, blkly to sbblkly, occ sbply, mod srt, mod sft to sl frm, mod cmt, arg mtx, sl calc, occ pyr lam, slty, grdg to slty sh, tr gvn



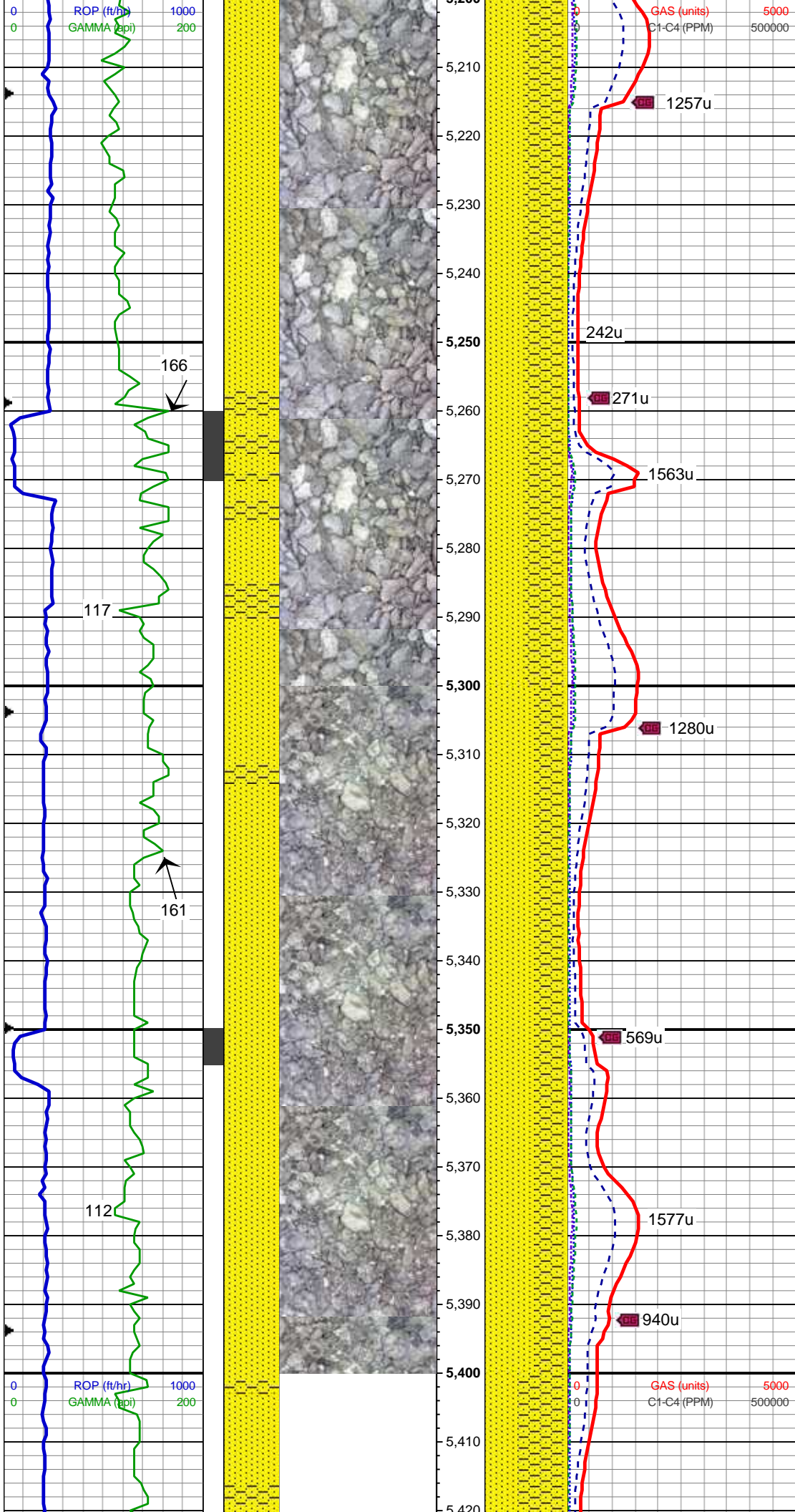
WT 9.8 / VIS 39

MD: 5,024'
TVD: 4,993.26'
Inclination: 7 °
Azimuth: 162.8°

SS: lt to med gy, occ dk gy, s&p ip, clr to trnsl, f to med gr, blkly to sb blkly, sb rndd gr, mod to w srt, p to mod cmt, pred sil mtx, sl calc, tr mica
SHY SS: pred dk gy, trnsl to op, vf gr, blkly to sbbkly, occ sbplty, mod srt, mod sft to sl frm, mod cmt, arg mtx, sl calc, occ pyr lam, slty, grdg to slty sh, tr gyp

MD: 5,114'
TVD: 5,082.6'
Inclination: 6.9 °
Azimuth: 165.3°

SS: wh, lt to med gy, occ dk gy, s&p ip, clr to trnsl, f to med gr, blkly to sb blkly, sb rndd gr, mod to w srt, p to mod cmt, pred sil mtx, sl calc, tr mica, tr glau
SHY SS: pred dk gy, trnsl to op, vf gr, blkly to sbbkly, occ sbplty, mod srt, mod sft to sl frm, mod cmt, arg mtx, sl calc, occ pyr lam, slty, grdg to slty sh, tr gyp



MD: 5,204'
TVD: 5,171.87'
Inclination: 7.7 °
Azimuth: 166.8 °

SS: wh, lt to med gy, occ dk gy, s&p
ip, clr to trnsl, f to med gr, blkly to sb
blkly, sb rndd gr, mod to w srt, p to
mod cmt, pred sil mtx, sl calc, tr
mica
SHY SS: pred dk gy, trnsl to op, vf
gr, blkly to sbbkly, occ sbplty, mod
srt, mod sft to sl frm, mod cmt, arg
mtx, sl calc, occ pyr lam, slty, grdg
to slty sh, tr gyp

WT 9.9 / VIS 39

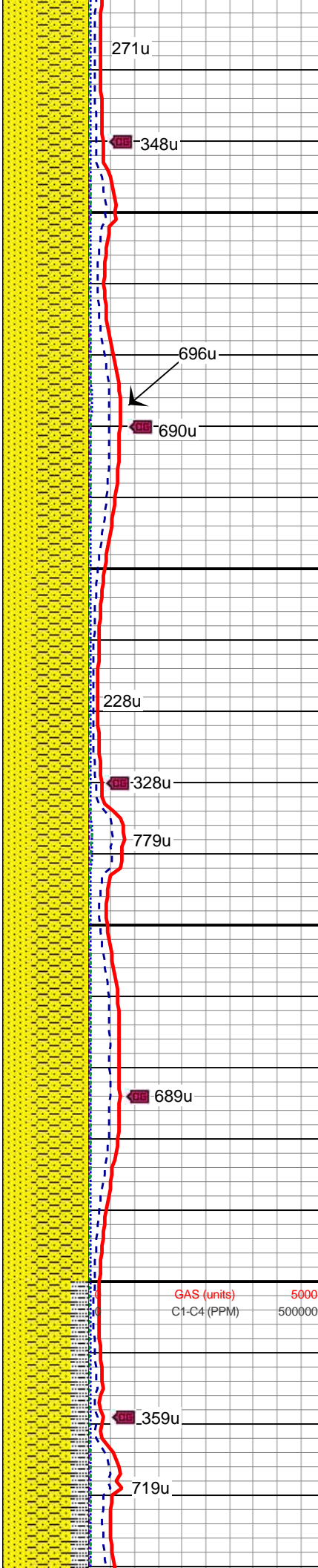
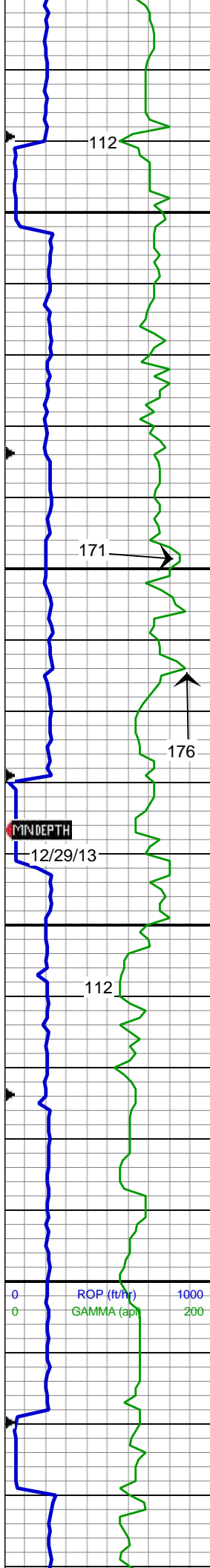
MD: 5,294'
TVD: 5,261.05'
Inclination: 7.8 °
Azimuth: 167 °

SS: wh, lt to med gy, occ dk gy, s&p
ip, clr to trnsl, f to med gr, blkly to sb
blkly, sb rndd gr, mod to w srt, p to
mod cmt, pred sil mtx, sl calc, tr
mica
SHY SS: pred dk gy, trnsl to op, vf
gr, blkly to sbbkly, occ sbplty, mod
srt, mod sft to sl frm, mod cmt, arg
mtx, sl calc, occ pyr lam, slty, grdg
to slty sh, tr gyp

MD: 5,384'
TVD: 5,350.35'
Inclination: 6.5 °
Azimuth: 159.4 °

WT 9.9 / VIS 39

SS: wh, lt to med gy, occ dk gy, s&p
ip, clr to trnsl, f to med gr, blkly to sb
blkly, sb rndd gr, mod to w srt, p to



mod cmt, pred sil mtx, sl calc, tr mica
SHY SS: pred dk gy, trnsf to op, vf gr, blkly to sbblkly, occ sbply, mod srt, mod sft to sl frm, mod cmt, arg mtx, sl calc, occ pyr lam, slty, grdg to slty sh

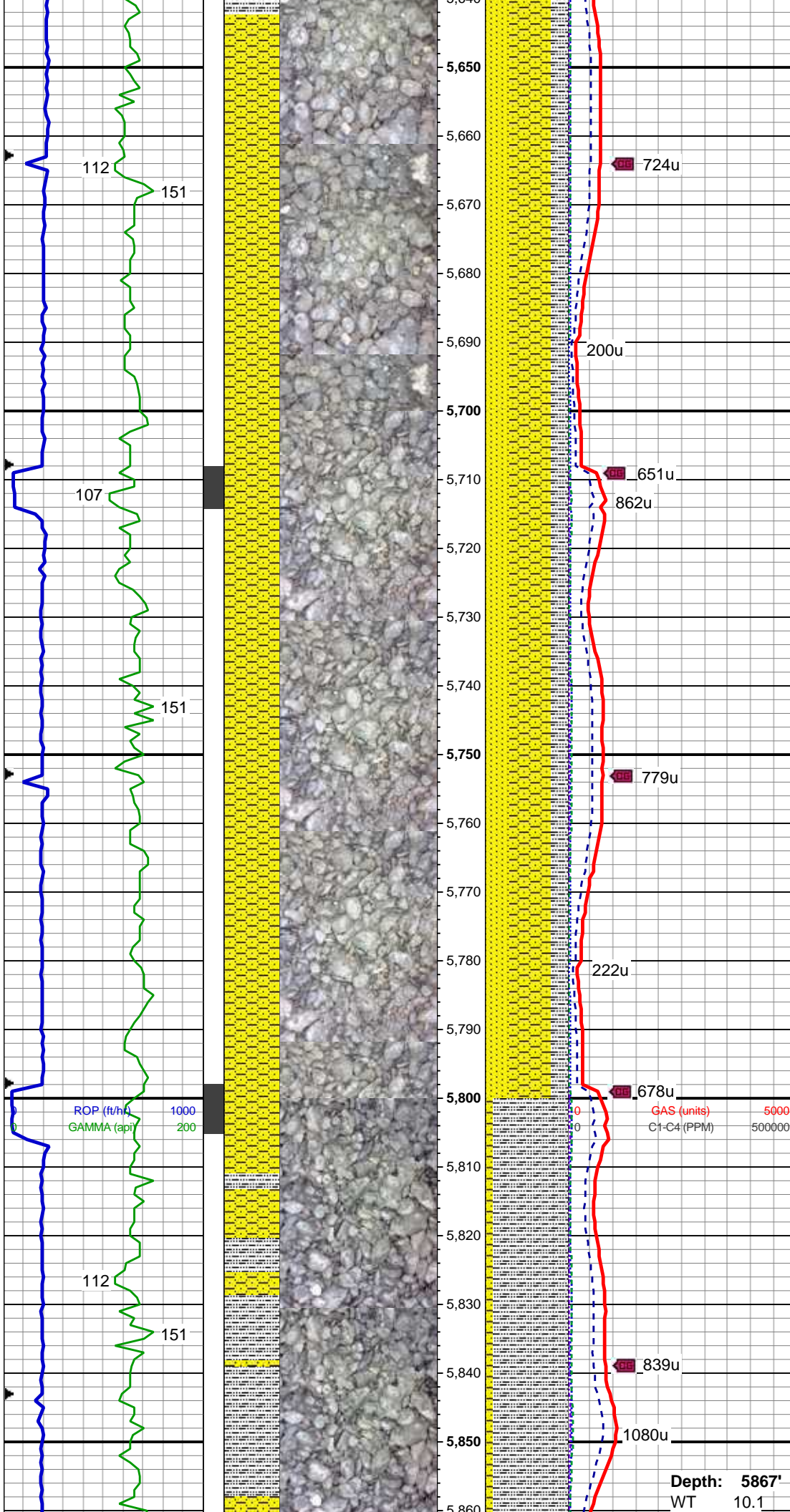
MD: 5,474'
TVD: 5,439.83'
Inclination: 5.8 °
Azimuth: 161.5 °

SS: wh, lt to med gy, occ dk gy, s&p ip, clr to trnsf, f to med gr, blkly to sb blkly, sb rndd gr, mod to w srt, p to mod cmt, pred sil mtx, sl calc, tr mica
SHY SS: pred dk gy, trnsf to op, vf gr, blkly to sbblkly, occ sbply, mod srt, mod sft to sl frm, mod cmt, arg mtx, sl calc, occ pyr lam, slty, grdg to slty sh, tr cal

MD: 5,564'
TVD: 5,529.39'
Inclination: 5.5 °
Azimuth: 167.3 °

WT 10.1 / VIS 39

SS: wh, lt to med gy, occ dk gy, s&p ip, clr to trnsf, f to med gr, blkly to sb blkly, sb rndd gr, mod to w srt, p to mod cmt, pred sil mtx, sl calc, tr mica
SHY SS: pred dk gy, trnsf to op, vf gr, blkly to sbblkly, occ sbply, mod srt, mod sft to sl frm, mod cmt, arg mtx, sl calc, occ pyr lam, slty, grdg to slty sh
SLTY SH: med to dk gy, occ lt gy, av



SLTY SH: med to dk gy, occ lt gy, gy
brn, sb blkly to sb plty, sft to sl firm,
arg, sl calc, sl sdy ip, grdg to shy ss

MD: 5,653'
TVD: 5,617.94'
Inclination: 6.1 °
Azimuth: 158.2°

SS: wh, lt to med gy, occ dk gy, s&p
ip, clr to trnsl, f to med gr, blkly to sb
blkly, sb rndd gr, mod to w srt, p to
mod cmt, pred sil mtx, sl calc, tr
mica

SHY SS: pred dk gy, trnsl to op, vf
gr, blkly to sbbkly, occ sbplty, mod
srt, mod sft to sl frm, mod cmt, arg
mtx, sl calc, occ pyr lam, slty, grdg
to slty sh

SLTY SH: med to dk gy, occ lt gy, gy
brn, sb blkly to sb plty, sft to sl firm,
arg, sl calc, sl sdy ip, grdg to shy ss

WT 10.1/ VIS 39

MD: 5,743'
TVD: 5,707.55'
Inclination: 4.5 °
Azimuth: 153.6°

ROP (ft/h)
GAMMA (api)

1000
200

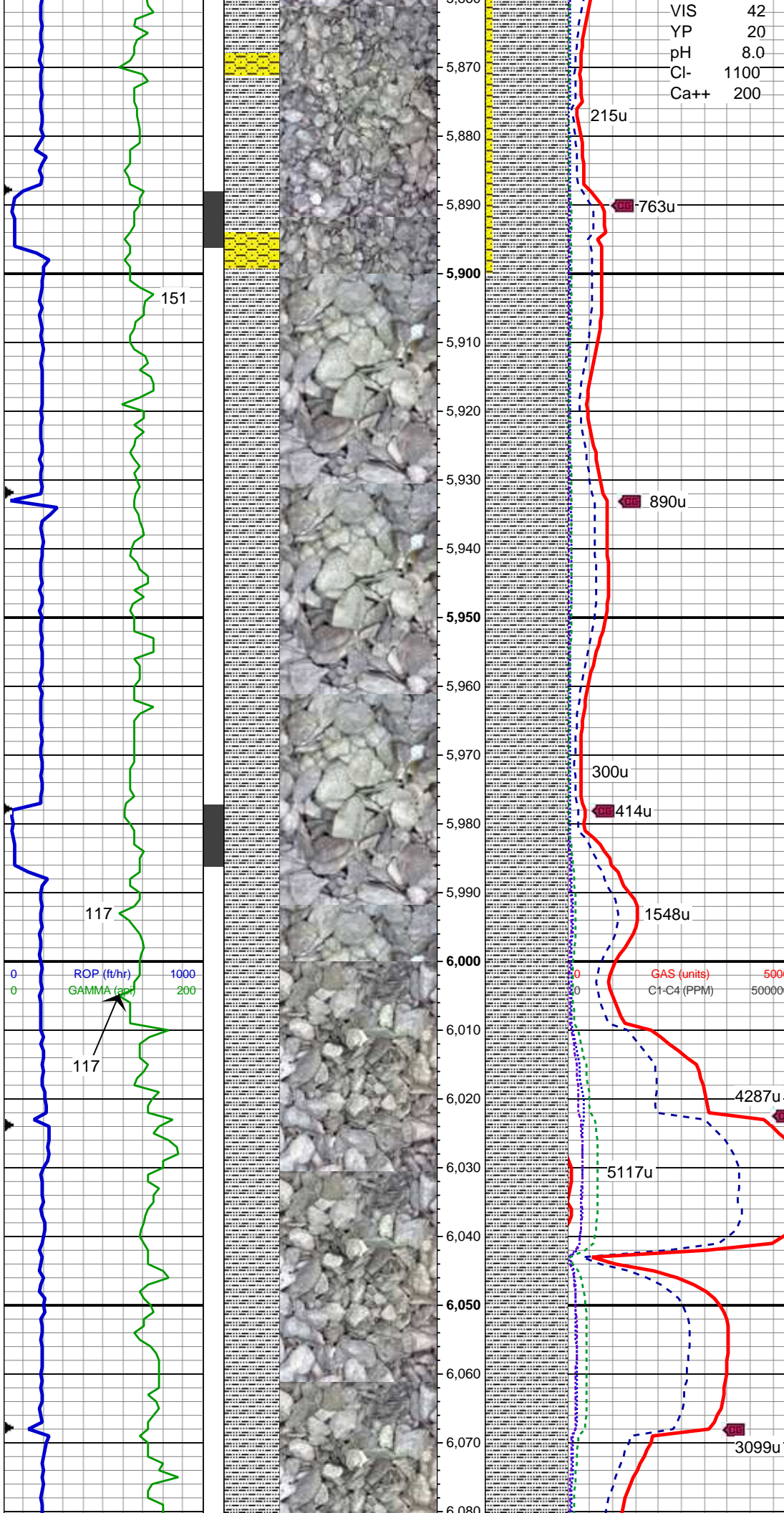
GAS (units)
C1-C4 (PPM)

5000
500000

MD: 5,833'
TVD: 5,797.37'
Inclination: 2.7 °
Azimuth: 150.5°

SLTY SH: med to dk gy, occ lt gy, gy
brn, sb blkly to sb plty, sft to sl firm,
arg, sl calc, , abnt pyr, sl sdy ip,
grdg to shy ss

Depth: 5867'
WT 10.1



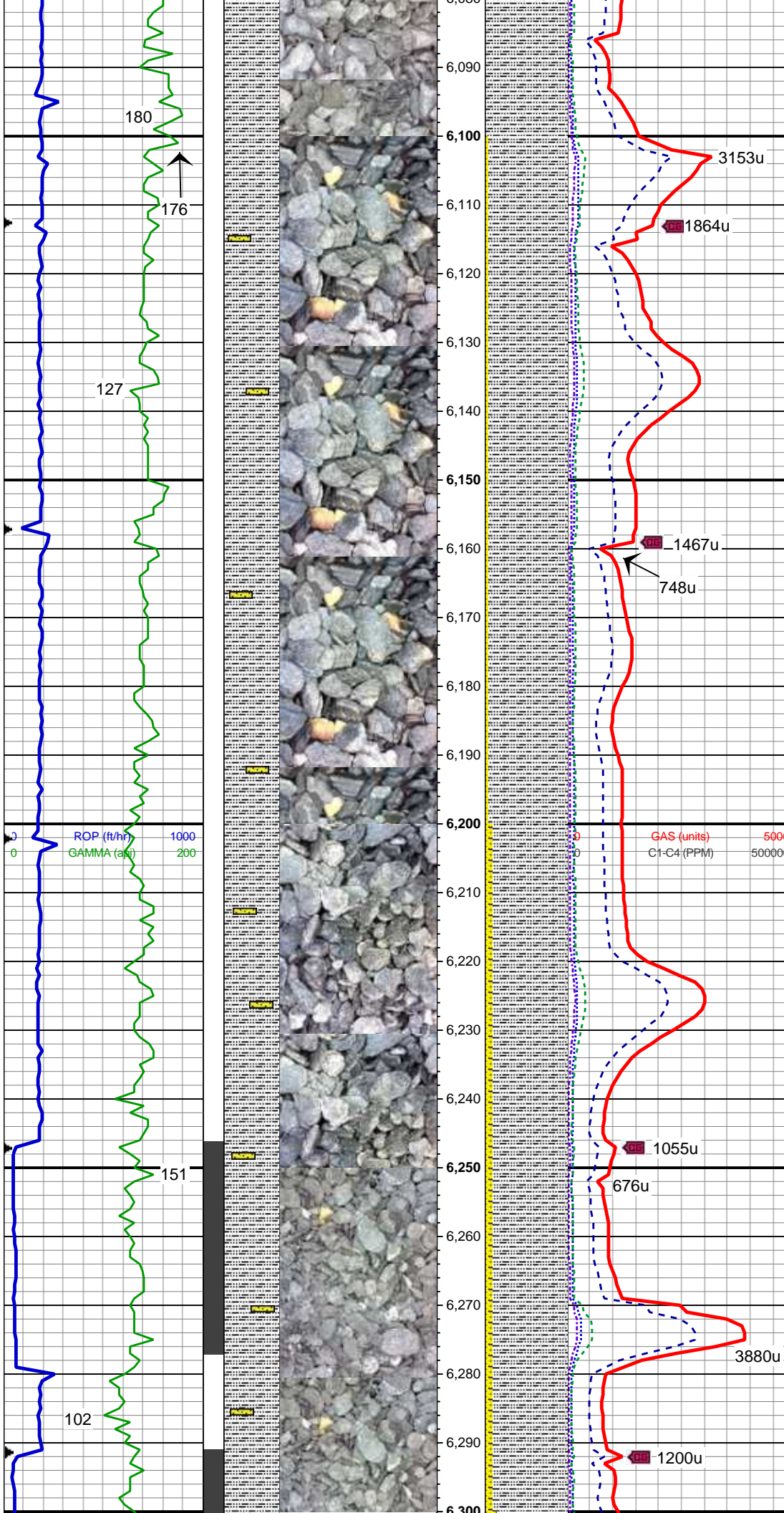
VIS 42
YP 20
pH 8.0
Cl- 1100
Ca++ 200

MD: 5,923'
TVD: 5,887.32'
Inclination: 1.1 °
Azimuth: 178.6°

SLTY SH: pred dk gy, to gy brn, sb
blk to sb plty, sl firm, arg, sl calc,
occ calc frag, sl sdy ip, grdg to shy
ss

MD: 6,013'
TVD: 5,977.31'
Inclination: 0.8 °
Azimuth: 261.6°

SLTY SH: pred dk gy to gy brn, sb
blk to sb plty, sl firm, arg, sl calc,
occ calc frag, sl sdy ip, grdg to shy
ss, occ clr to trns med gr ss



MD: 6,102'
TVD: 6,066.3'
Inclination: 0.9 °
Azimuth: 268.4 °

WT 10.1/ VIS 40

SLTY SH: pred dk gy to gy brn, sb
blky to sb plty, sl firm, arg, sl calc,
occ calc frag, sl sdy ip, grdg to shy
ss, occ clr to trnsl med gr ss

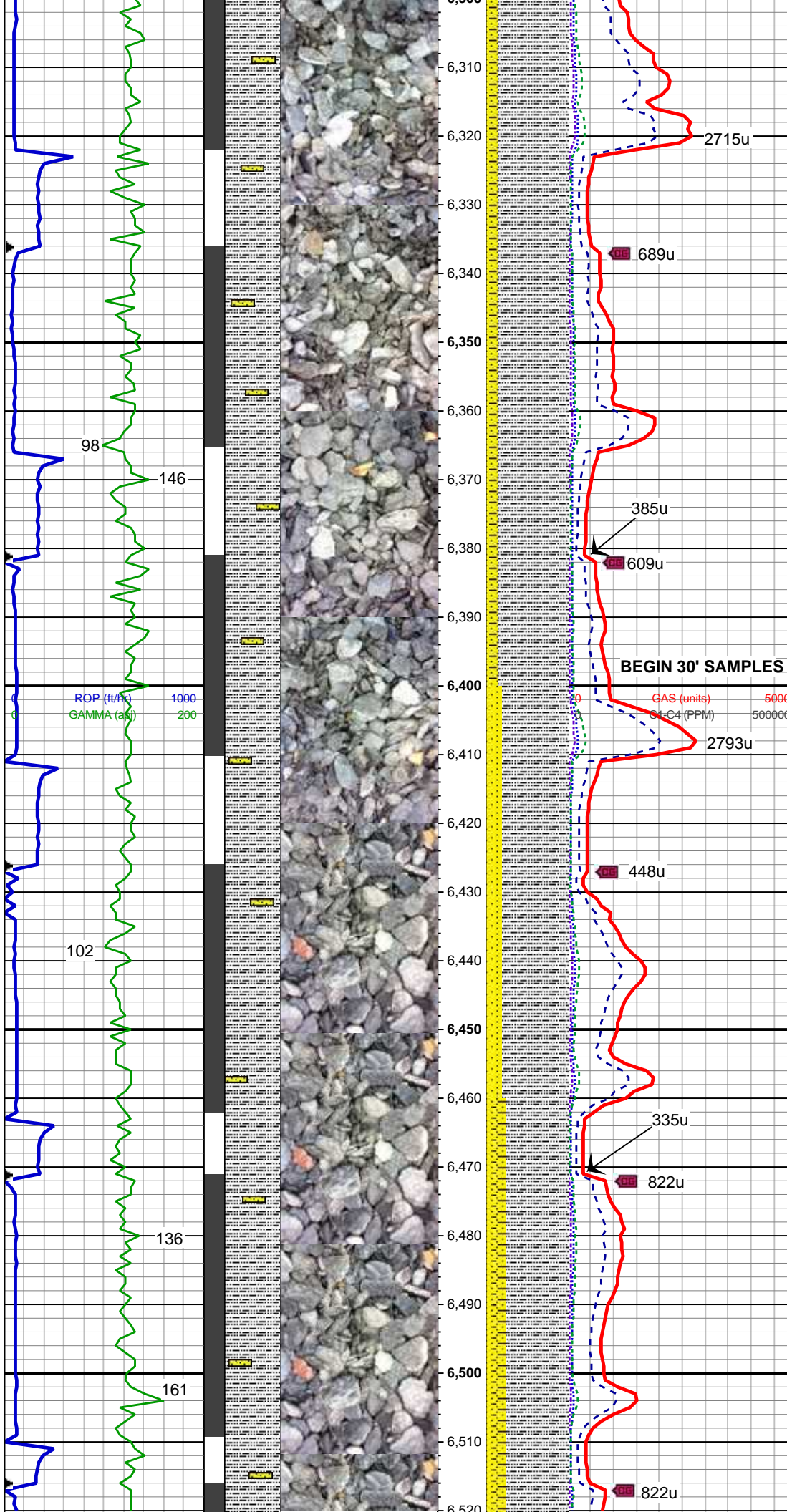
MD: 6,192'
TVD: 6,156.29'
Inclination: 0.7 °
Azimuth: 260.7 °

MD: 6,236'
TVD: 6,200.28'
Inclination: 1.2 °
Azimuth: 246.1 °

SLTY SH: pred dk gy to gy brn, sb
blky to sb plty, sl firm, arg, sl calc,
sl sdy ip, grdg to shy ss, occ clr to
trnsl med gr ss

WT 10.05 / VIS 44

MD: 6,282'
TVD: 6,246.23'
Inclination: 4.1 °
Azimuth: 275.8 °



MD: 6,326'
TVD: 6,290.03'
Inclination: 6.9 °
Azimuth: 283.7 °

SLTY SH: pred dk gy to gy brn, sb
blky to sb plty, sl firm, arg, sl calc,
sl sdy ip, grdg to shy ss, occ clr to
trnsl med gr ss

MD: 6,371'
TVD: 6,334.56'
Inclination: 9.6 °
Azimuth: 280.2 °

WT 10.1 / VIS 38

SLTY SH: md to dk gy, sme gy brn,
sb blky to sb plty, sl firm, sl calc, sl
sdyp ip, grdg to shy ss, occ clr to
trnsl med gr ss

MD: 6,416'
TVD: 6,378.77'
Inclination: 11.8 °
Azimuth: 276.7 °

SLTY SH: md to dk gy, sme gy brn,
sb blky to sb plty, sl firm, sl calc, sl
sdyp ip, grdg to shy ss, occ clr to
trnsl med gr ss

MD: 6,461'
TVD: 6,422.62'
Inclination: 14.1 °
Azimuth: 275.3 °

SLTY SH: md to dk gy, sme gy brn,
sb blky to sb plty, sl firm, sl calc, sl
tr bent, sdy ip, grdg to shy ss, occ
clr to trnsl med gr ss

MD: 6,506'
TVD: 6,465.96'
Inclination: 17.1 °
Azimuth: 273.3 °

