

COLUMBINE LOGGING

Scale: 5" / 100'
Measured Depth Log

Well Name Oscar Y10-75-1HN

Location SEC 10 T2N R64W

State COLORADO

County WELD

Country USA

Rig Number H&P 315

API Number 05-123-38200

AFE # 200201

Region DJ BASIN

Field WATTENBERG

Spud Date 10/23/2014

Drilling Completed 10/27/2014

Surface Coordinates NWSE SEC 10 T2N R64W
2,380' FSL; 2,060' FEL

LAT/LON: 40.15223/-104.53547

Bottom Hole Coordinates NWNE SEC 3 T2N R64W
75' FNL; 2,310' FEL

Ground Elevation 4,924'

K.B. Elevation 4,948'

Logged Interval 2,000' To 6,318'

Total Depth 14,437'

Formation NIOBRARA C CHALK

Type of Drilling Fluid LSND

Other Symbols

Oil Show

- DEAD
- EVEN
- QUESTIONABLE
- SPOTTED STAINING

Porosity

- E EARTHY
- F FENESTRAL
- F FRACTURE
- INTERCRYSTALLINE
- INTEROOLITIC
- MOLDIC

- ORGANIC
- PINPOINT
- VUGGY

Engineering

- BIT
- CONNECTION (LEFT)
- CONNECTION (RIGHT)
- CONNECTION GAS
- CONNECTION GAS DOWN...
- CONNECTION GAS DOWN
- CORE - LOST
- CORE - RECOVERED
- DST INTERVAL

- FAULT
- FORMATION TOP
- GAS SHOW
- MN DEPTH
- NORMAL FAULT
- OIL SHOW
- OVERTURNED STRATA
- REVERSE FAULT
- SIDEWALL CORE (LEFT)
- SIDEWALL CORE (RIGHT)
- SLIDE
- SURVEY
- TRIP GAS
- WIRELINE TESTED - LEFT

- WIRELINE TESTED - RT

Rounding

- ANGULAR
- ROUNDED
- SUBANG
- SUBRND

Textures

- BOUNDSTONE
- CHALKY
- CRYPTOXLN
- E EARTHY
- FINELYXLN

- GRAINSTONE
- L LITHOGRAPHIC
- MIX MICROXLN
- MS MUDSTONE
- PS PACKSTONE
- WS WACKSTONE

Sorting

- M MODERATE
- P POOR
- W WELL

Accessories

Fossils

- ALGAE
- AMPHIPORA
- BELEMNITE
- BIOCLASTIC
- BRACHIOPOD
- BRYOZOA
- CEPHALOPOD
- CORAL
- CRINOID
- ECHINOID
- FISH
- FORAMINIFERA

F FOSSIL

- GASTROPOD
- INOCERAMUS
- OOLITE
- OSTRACOD
- PELECYPOD
- PELLET
- PISOLITE
- PLANT REMAINS
- PLANT SPORES
- SCAPHOPOD
- STROMATOPOROID

Minerals

// ANHYDRITIC

- ARGILLACEOUS
- ARGILLITE GRAIN
- BENTONITE
- BITUMENOUS SUBSTANCE
- BRECCIA FRAGMENTS
- CALCAREOUS
- CARBONACEOUS FLAKES
- CHTDK
- CHTLT
- COAL - THIN BEDS
- DOLOMITIC
- FELDSPAR
- FERRUGINOUS PELLET

⚡ FERRUGINOUS

- GLAUCONITE
- GYPSIFEROUS
- HEAVY MINERAL
- KAOLIN
- MARLSTONE
- MINERAL CRYSTALS
- NODULES
- PHOSPHATE PELLETS
- PYRITE
- SALT CAST
- SANDY
- SILICEOUS
- SILTY

⚡ TUFFACEOUS

Stringer

- ANHYDRITE STRINGER
- BENTONITE STRINGER
- COAL STRINGER
- DOLOMITE STRINGER
- GYPSUM STRINGER
- LIMESTONE STRINGER
- MARLSTONE (CALC) STRG
- MARLSTONE (DOL) STRG
- SANDSTONE STRINGER
- SHALE STRINGER
- SILTSTONE STRINGER

Rock Types

- SHALY SILTSTONE
- SHALY SANDSTONE
- SANDSTONE
- SILTY SHALE
- LIMESTONE
- CHALK
- MARLSTONE
- UNKNOWN
- ANHYDRITE

- BENTONITE
- BRECCIA
- CEMENT
- CHERT
- CLAY CHOKESAND
- CLAYSTONE
- COAL
- CONGLOMERATE
- DOLOMITE

- GRANITE
- GYPSUM
- IGNEOUS
- SIDERITE or LIMONITE
- METAMORPHIC
- NO SAMPLE
- SALT
- SALT- PEPPER SAND
- SHALE

- SHALE COLORED
- SHALE GRAY
- SILTSTONE
- TILL
- TUFF
- WELDED TUFF

Operator

Company Noble Energy Inc

Address 1625 BROADWAY SUITE 2200
DENVER, CO 80202

Geologist

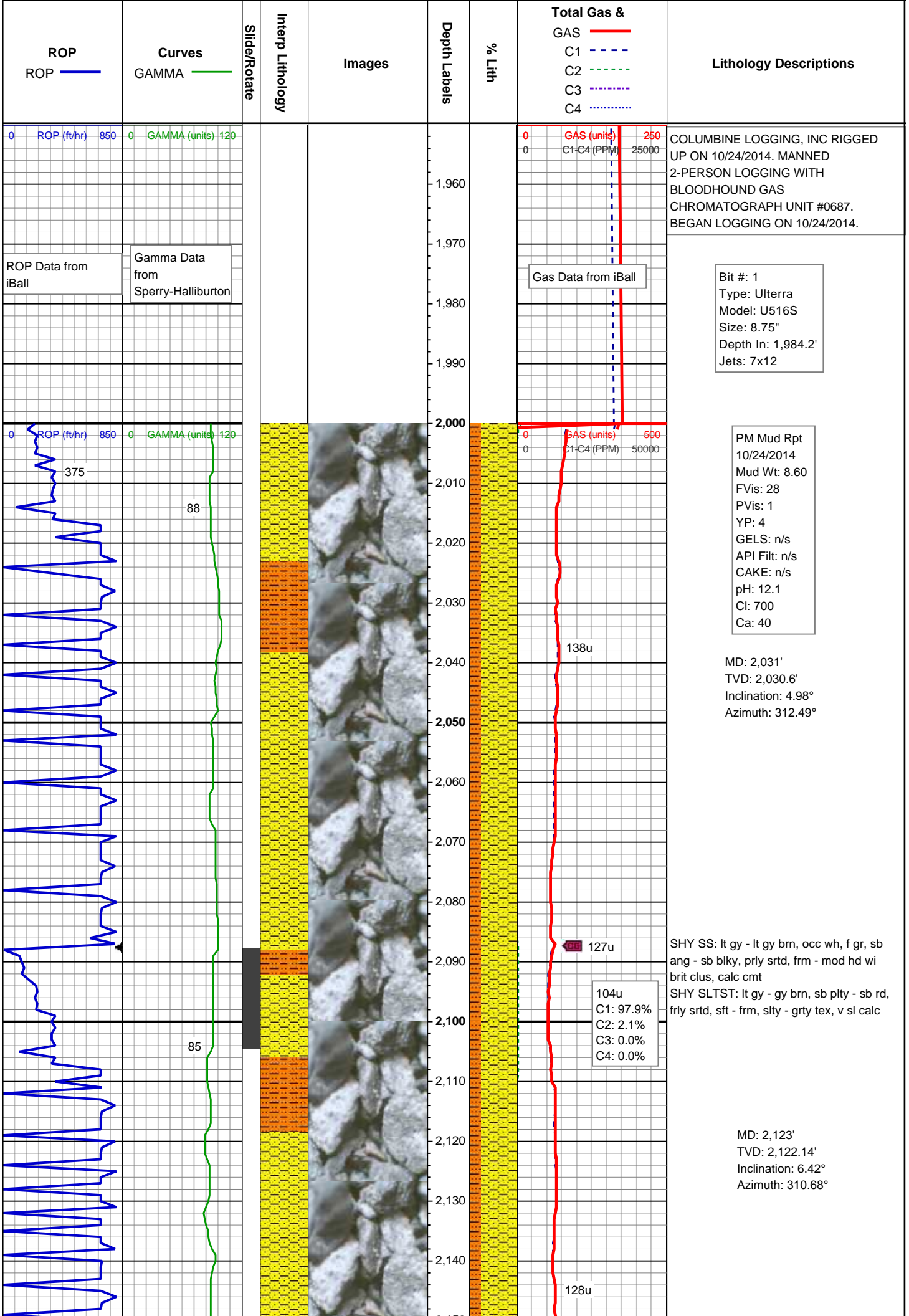
Name NATHAN MURPHY; ZACH UBER

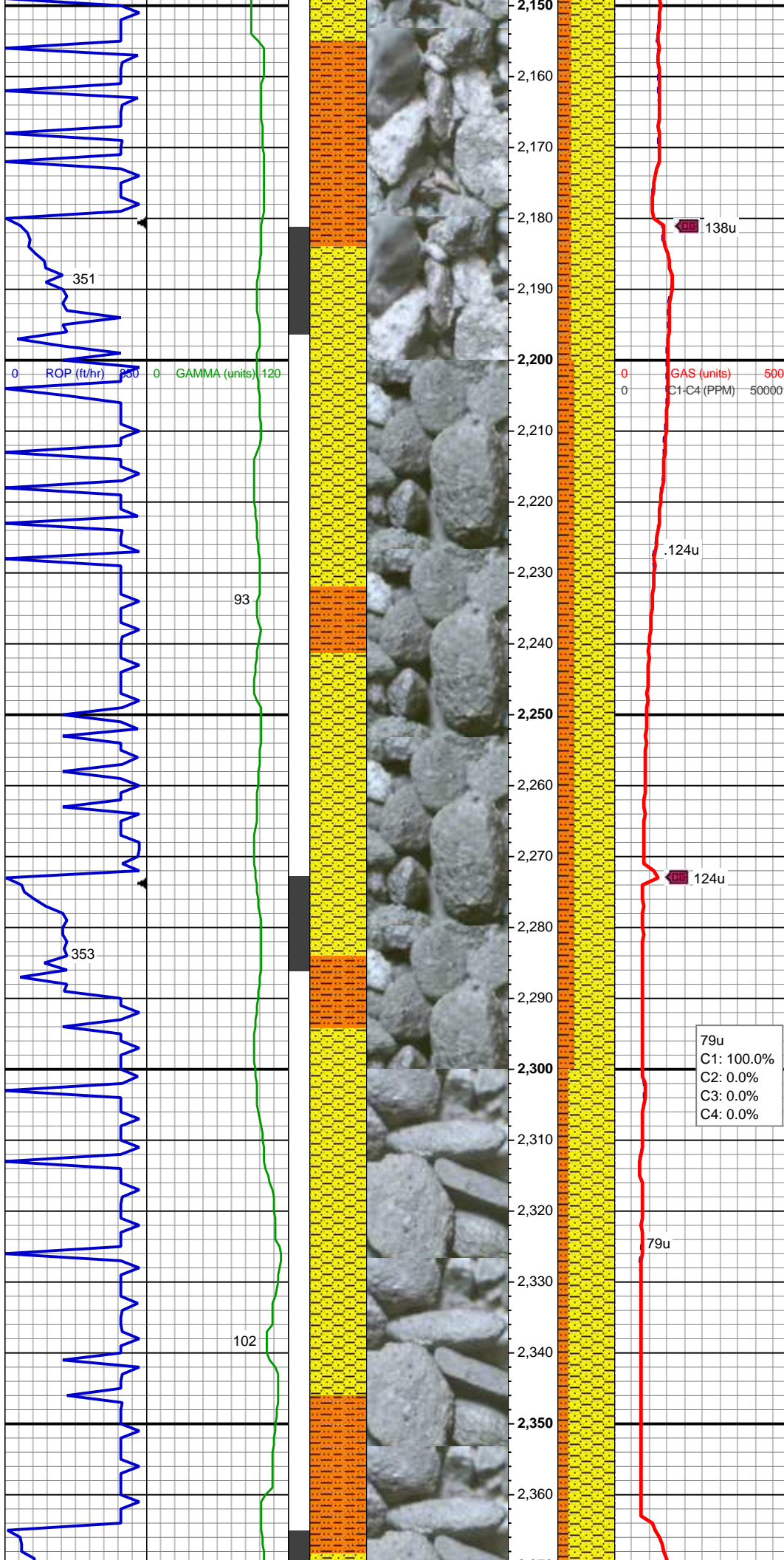
Company COLUMBINE LOGGING, INC

Address 2385 S LIPAN ST
DENVER, CO 80223

Zone Color Coding

- Oil
- Condensate
- Gas
- Note
- Core
- Pressure
- Error
- Water
- Seal





SHY SS: lt gy - lt gy brn, occ wh, f gr, sb
ang - sb blk, prly srt, frm - mod hd wi
brit clus, calc cmt
SHY SLTST: lt gy - gy brn, sb plty - sb rd,
frly srt, sft - frm, slty - grty tex, v sl calc

MUD WT: 8.6/8.8
VIS: 28/31 IN/OUT

MD: 2,216'
TVD: 2,214.42'
Inclination: 7.86°
Azimuth: 310.27°

SHY SS: lt gy - lt gy brn, occ wh, f gr, sb
ang - sb blk, prly srt, frm - mod hd wi
brit clus, calc cmt
SHY SLTST: lt gy - gy brn, sb plty - sb rd,
frly srt, sft - frm, slty - grty tex, v sl calc

MD: 2,309'
TVD: 2,306.49'
Inclination: 8.39°
Azimuth: 307.07°

79u
C1: 100.0%
C2: 0.0%
C3: 0.0%
C4: 0.0%

10/25/2014 MINDEPTH

ROP (ft/hr)

GAMMA (units)

93

698

98

104

2,370
2,380
2,390
2,400
2,410
2,420
2,430
2,440
2,450
2,460
2,470
2,480
2,490
2,500
2,510
2,520
2,530
2,540
2,550
2,560
2,570
2,580

178u

138u

164u

88u
C1: 100.0%
C2: 0.0%
C3: 0.0%
C4: 0.0%

100u

98u

SHY SS: lt gy - lt gy brn, occ wh, f gr, sb
ang - sb blk, prly srt, frm - mod hd wi
brit clus, calc cmt
SHY SLTST: lt gy - gy brn, sb plty - sb rd,
frly srt, sft - frm, slty - grty tex, v sl calc

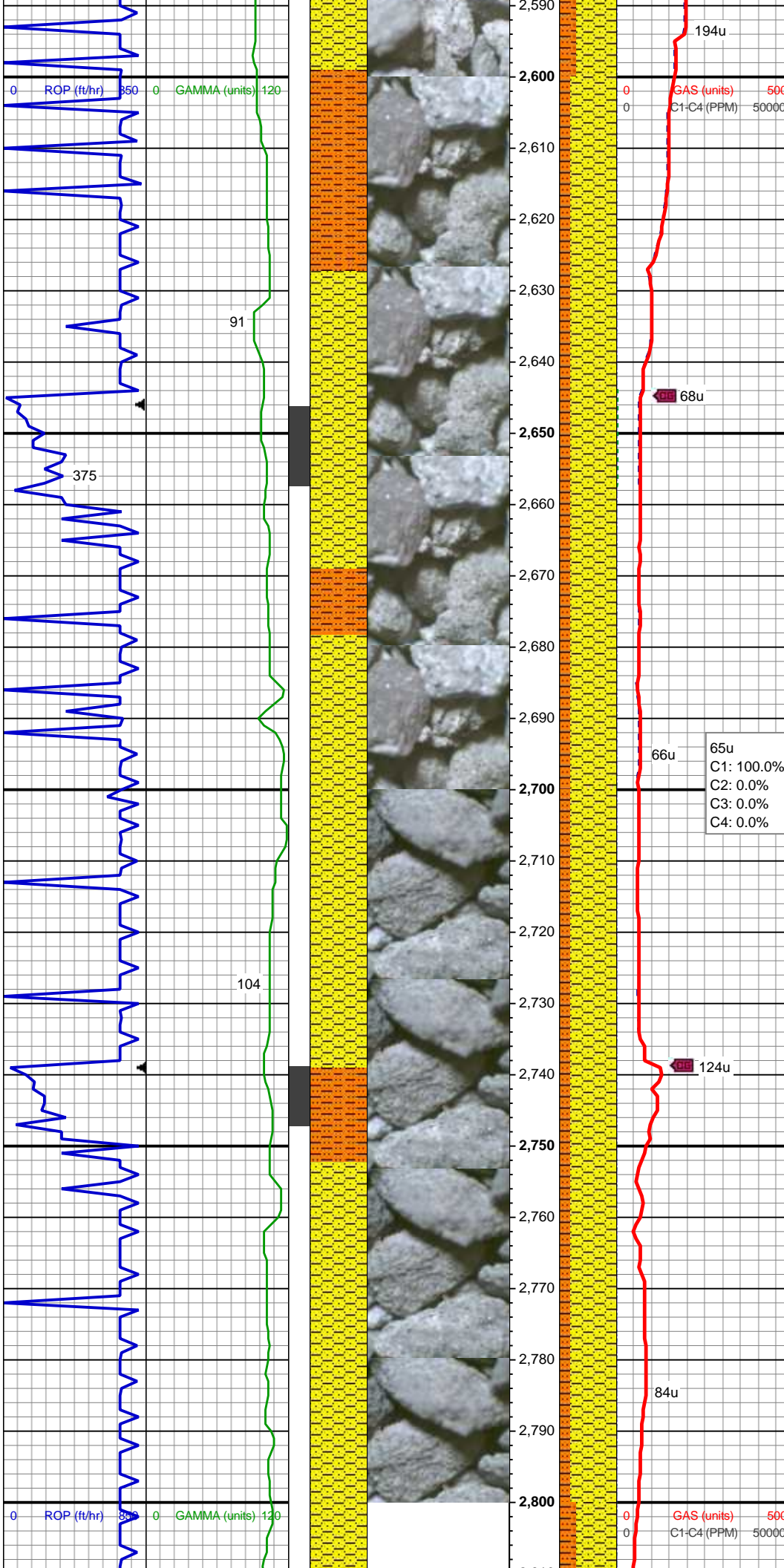
MD: 2,402'
TVD: 2,398.6'
Inclination: 7.45°
Azimuth: 309.48°

SHY SS: lt gy - lt gy brn, occ wh, f gr, sb
ang - sb blk, prly srt, frm - mod hd wi
brit clus, calc cmt
SHY SLTST: lt gy - gy brn, sb plty - sb rd,
frly srt, sft - frm, slty - grty tex, v sl calc

MD: 2,495'
TVD: 2,490.78'
Inclination: 7.8°
Azimuth: 313.86°

SHY SS: lt gy - lt gy brn, occ wh, f gr, sb

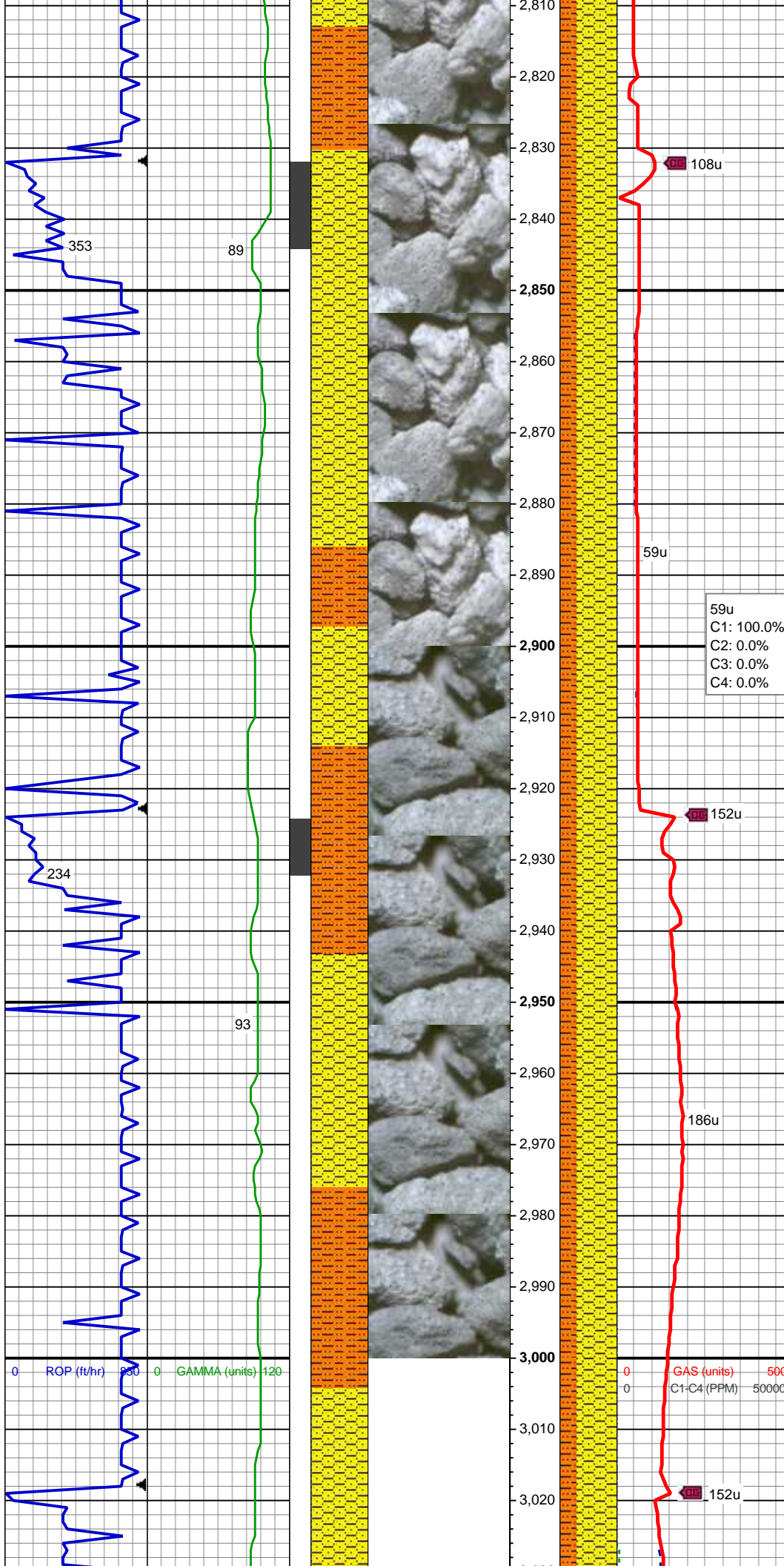
MD: 2,589'
TVD: 2,583.89'
Inclination: 7.97°
Azimuth: 319.1°



ang - sb blk, prly srt, frm - mod hd wi
brit clus, calc cmt
SHY SLTST: lt gy - gy brn, sb plty - sb rd,
frly srt, sft - frm, slty - grty tex, v sl calc

MD: 2,681'
TVD: 2,674.92'
Inclination: 8.71°
Azimuth: 319.04°
SHY SS: lt gy - lt gy brn, occ wh, f gr, sb
ang - sb blk, prly srt, frm - mod hd wi
brit clus, calc cmt
SHY SLTST: lt gy - gy brn, sb plty - sb rd,
frly srt, sft - frm, slty - grty tex, v sl calc

MD: 2,773'
TVD: 2,765.96'
Inclination: 7.84°
Azimuth: 321.72°
SHY SS: lt gy - lt gy brn, occ wh, f gr, sb
ang - sb blk, prly srt, frm - mod hd wi
brit clus, calc cmt
SHY SLTST: lt gy - gy brn, sb plty - sb rd,
frly srt, sft - frm, slty - grty tex, v sl calc



MUD WT: 8.7/9.0
VIS: 30/35 IN/OUT

MD: 2,865'
TVD: 2,857.04'
Inclination: 8.32°
Azimuth: 322.11°

SHY SS: lt gy - lt gy brn, occ wh, f gr, sb
ang - sb blk, prly srt, frm - mod hd, calc
cmt

SHY SLTST: lt gy - gy brn, sb plty - sb rd,
frly srt, sft - frm, slty - grty tex, sl calc

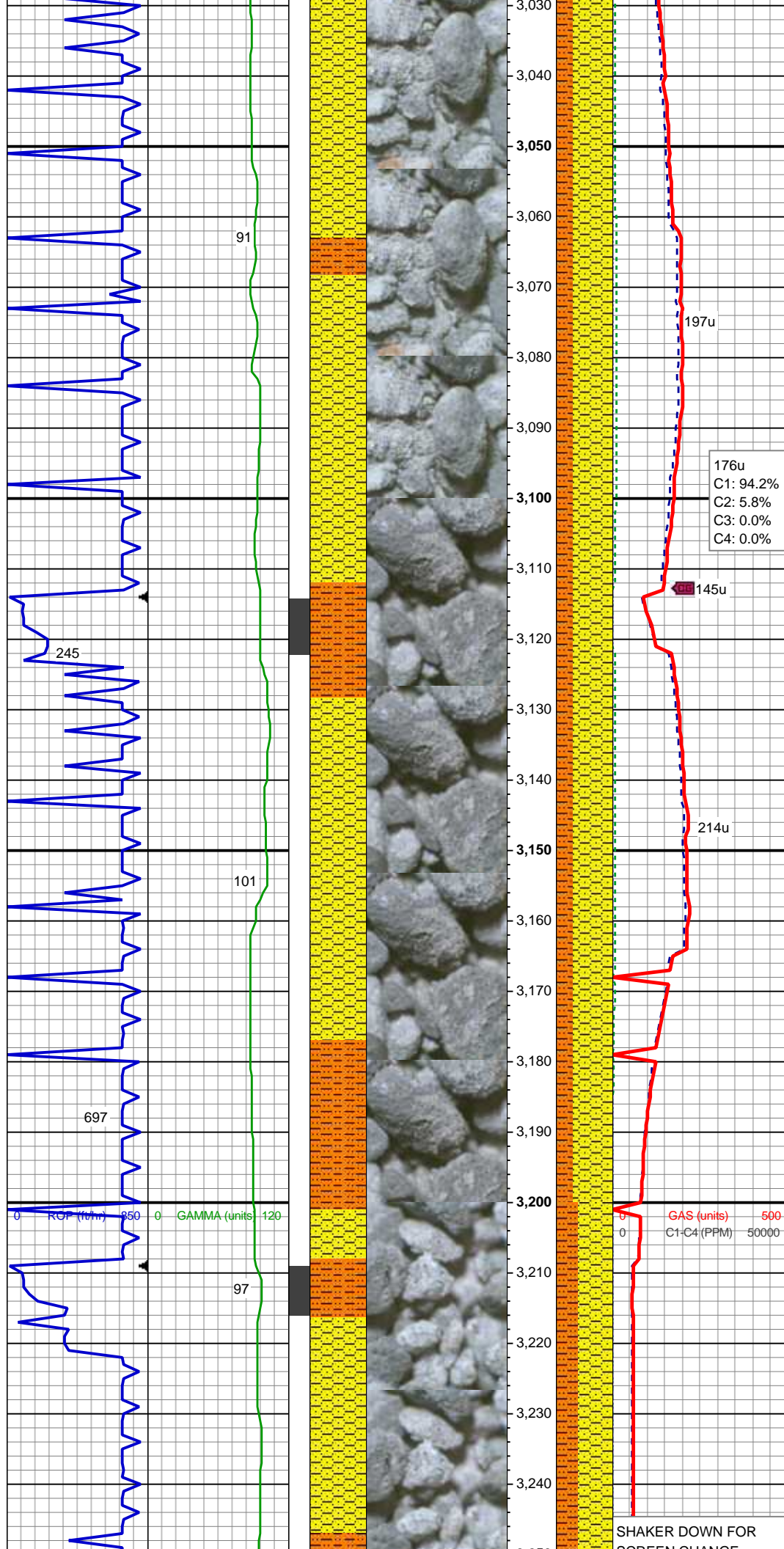
59u
C1: 100.0%
C2: 0.0%
C3: 0.0%
C4: 0.0%

MD: 2,960'
TVD: 2,950.97'
Inclination: 8.92°
Azimuth: 324.74°

SHY SS: lt gy - lt gy brn, occ wh, f gr, sb
ang - sb blk, prly srt, frm - mod hd, calc
cmt

SHY SLTST: lt gy - gy brn, sb plty - sb rd,
frly srt, sft - frm, slty - grty tex, sl calc

0 GAS (units) 500
0 C1-C4 (PPM) 50000



MD: 3,055'
TVD: 3,044.92'
Inclination: 8.14°
Azimuth: 323.5°

SHY SS: lt gy - lt gy brn, occ wh, f gr, sb
ang - sb blk, prly srt, frm - mod hd wi
brit clus, calc cmt
SHY SLTST: lt gy - gy brn, sb plty - sb rd,
frly srt, sft - frm, slty - grty tex, v sl calc

176u
C1: 94.2%
C2: 5.8%
C3: 0.0%
C4: 0.0%

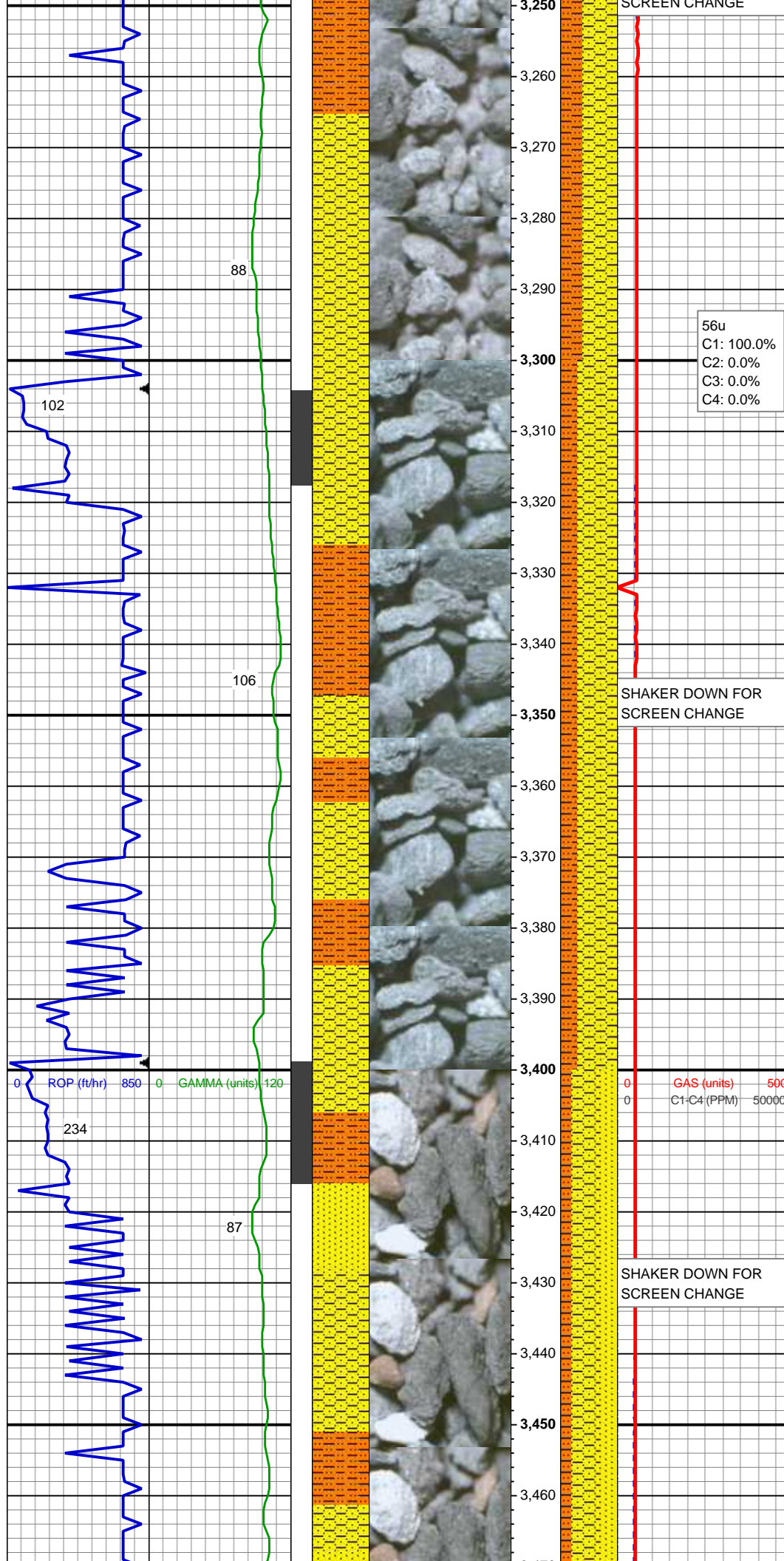
MD: 3,150'
TVD: 3,138.95'
Inclination: 8.26°
Azimuth: 320.31°

SHY SS: lt gy - lt gy brn, occ wh, f gr, sb
ang - sb blk, prly srt, frm - mod hd wi
brit clus, calc cmt
SHY SLTST: lt gy - gy brn, sb plty - sb rd,
frly srt, sft - frm, slty - grty tex, v sl calc

GAS (units) 500
C1-C4 (PPM) 50000

MD: 3,245'
TVD: 3,233.04'
Inclination: 7.6°
Azimuth: 321.18°

SHAKER DOWN FOR
SCREEN CHANGE



SHY SS: lt gy - lt gy brn, occ wh, f gr, sb ang - sb blk, prly srt, frm - mod hd wi brit clus, calc cmt

SHY SLTST: lt gy - gy brn, sb plty - sb rd, frly srt, sft - frm, slty - grty tex, v sl calc

MD: 3,340'

TVD: 3,327.26'

Inclination: 7.18°

Azimuth: 309.78°

SHAKER DOWN FOR
SCREEN CHANGE

SHY SS: lt gy - lt gy brn, occ wh, f gr, sb ang - sb blk, prly srt, frm - mod hd wi brit clus, calc cmt

SHY SLTST: lt gy - gy brn, sb plty - sb rd, frly srt, sft - frm, slty - grty tex, v sl calc

MD: 3,435'

TVD: 3,421.43'

Inclination: 7.94°

Azimuth: 306.56°

AM Mud Rpt

10/25/2014

Mud Wt: 8.90

FVis: 36

PVis: 4

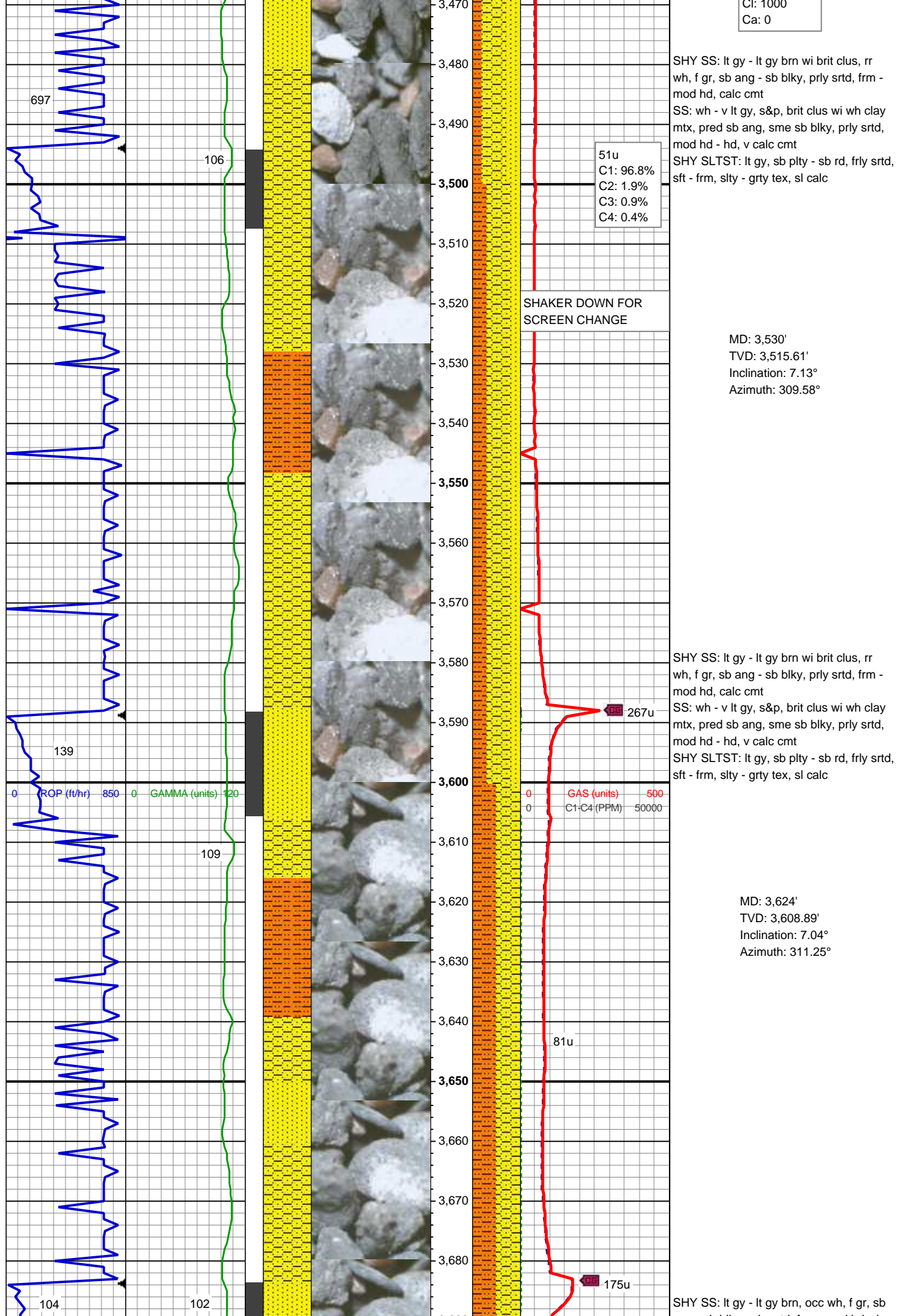
YP: 8

GELS: n/s

API Filt: n/s

CAKE: 1/0

pH: 10.5



Cl: 1000
Ca: 0

SHY SS: lt gy - lt gy brn wi brit clus, rr wh, f gr, sb ang - sb blkly, prly srted, frm - mod hd, calc cmt
SS: wh - v lt gy, s&p, brit clus wi wh clay mtx, pred sb ang, sme sb blkly, prly srted, mod hd - hd, v calc cmt
SHY SLTST: lt gy, sb plty - sb rd, frly srted, sft - frm, slty - grty tex, sl calc

51u
C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%

SHAKER DOWN FOR
SCREEN CHANGE

MD: 3,530'
TVD: 3,515.61'
Inclination: 7.13°
Azimuth: 309.58°

SHY SS: lt gy - lt gy brn wi brit clus, rr wh, f gr, sb ang - sb blkly, prly srted, frm - mod hd, calc cmt
SS: wh - v lt gy, s&p, brit clus wi wh clay mtx, pred sb ang, sme sb blkly, prly srted, mod hd - hd, v calc cmt
SHY SLTST: lt gy, sb plty - sb rd, frly srted, sft - frm, slty - grty tex, sl calc

267u

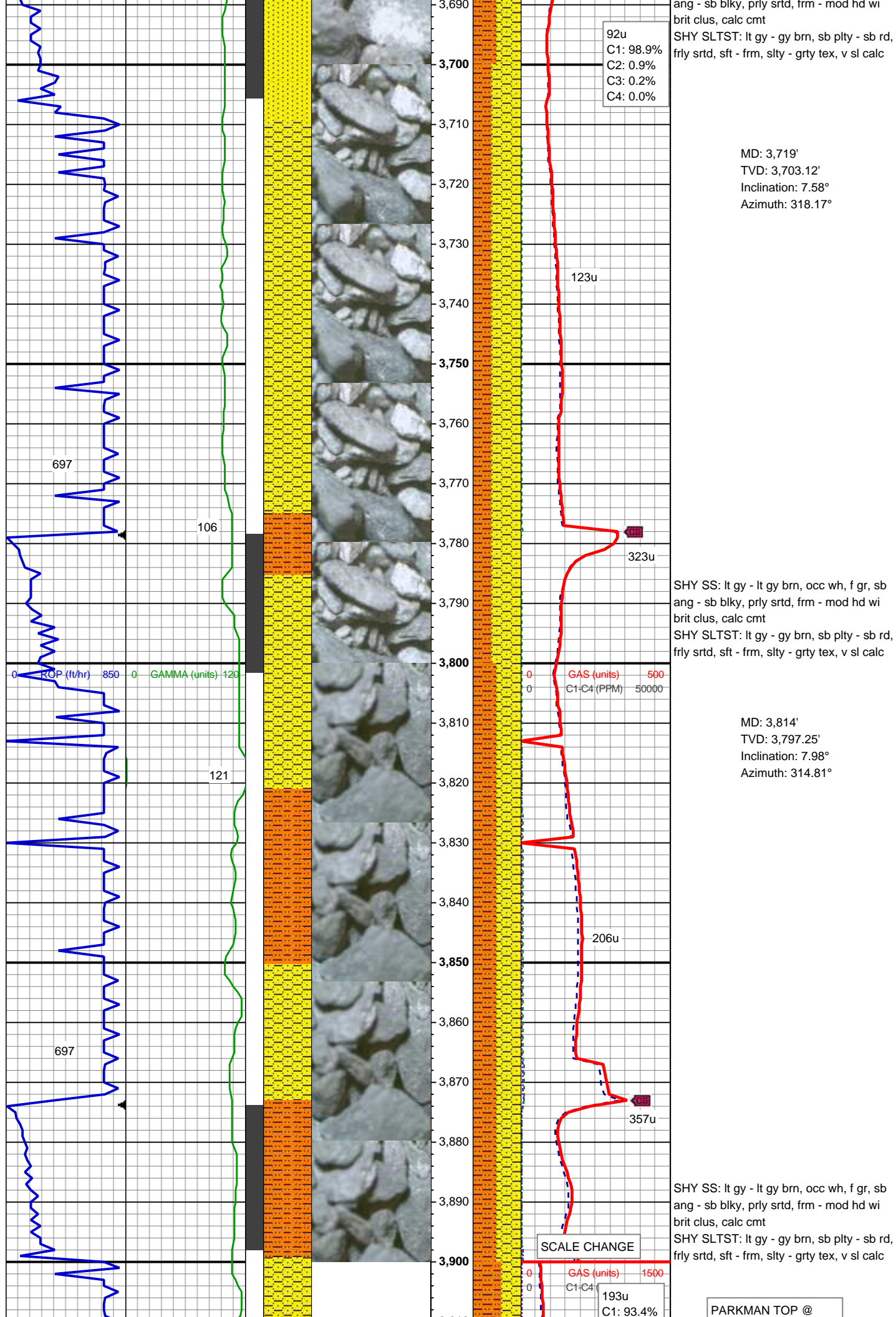
0 GAS (units) 500
0 C1-C4 (PPM) 50000

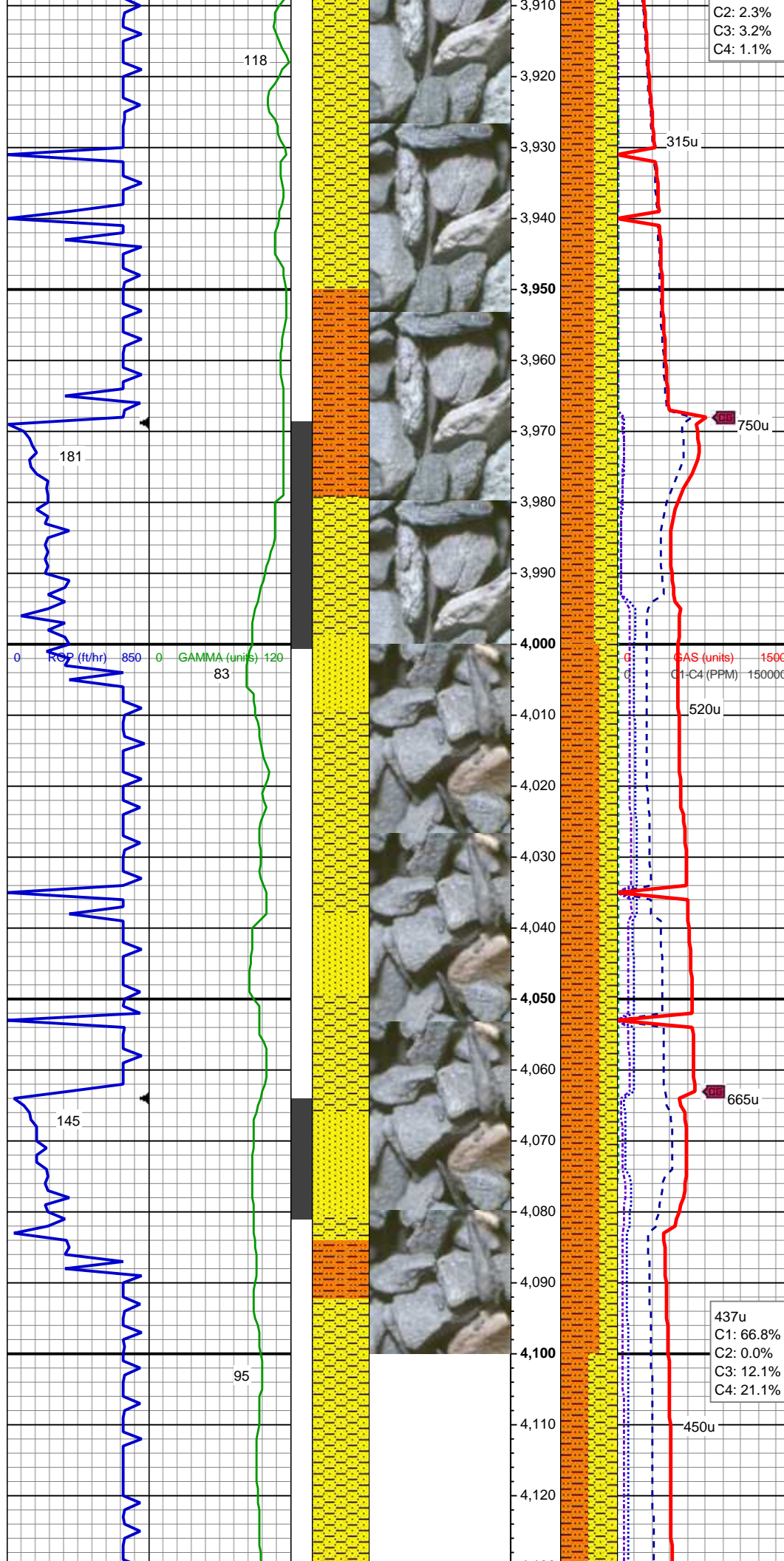
MD: 3,624'
TVD: 3,608.89'
Inclination: 7.04°
Azimuth: 311.25°

81u

175u

SHY SS: lt gy - lt gy brn, occ wh, f gr, sb





3,902' MD; 3,881' TVD

MD: 3,909'
TVD: 3,891.28'
Inclination: 8.38°
Azimuth: 322.13°

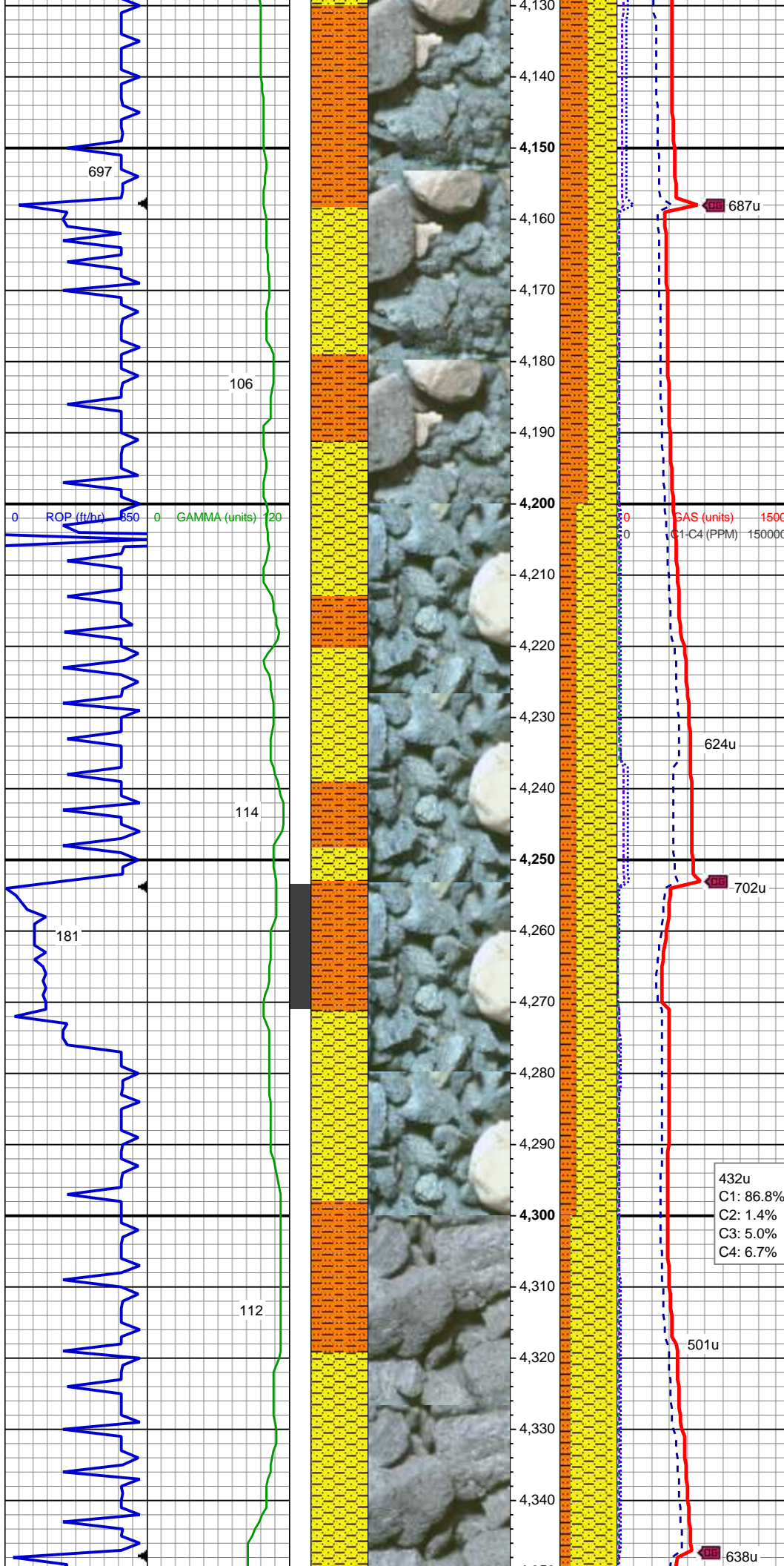
SHY SLTST: lt gy - gy brn, sb plty - sb rd,
frly srted, sft - frm, slty - grty tex, v sl calc
SHY SS: lt gy - lt gy brn, occ wh, f gr, sb
ang - sb blkly, prly srted, frm - mod hd wi
brit clus, calc cmt

MD: 4,004'
TVD: 3,985.22'
Inclination: 8.75°
Azimuth: 328.53°

SHY SLTST: lt gy - gy brn, sb plty - sb rd,
frly srted, sft - frm, slty - grty tex, v sl calc
SHY SS: lt gy - lt gy brn, occ wh, f gr, sb
ang - sb blkly, prly srted, frm - mod hd wi
brit clus, calc cmt

MD: 4,099'
TVD: 4,078.96'
Inclination: 10°
Azimuth: 333.95°

MUD WT: 8.85/8.85
VIS: 29/30 IN/OUT



SHY SLTST: lt gy - gy brn, sb plty - sb rd,
frly srted, sft - frm, slty - grty tex, v sl calc
SHY SS: lt gy - lt gy brn, occ wh, f gr, sb
ang - sb blk, prly srted, frm - mod hd wi
brit clus, calc cmt

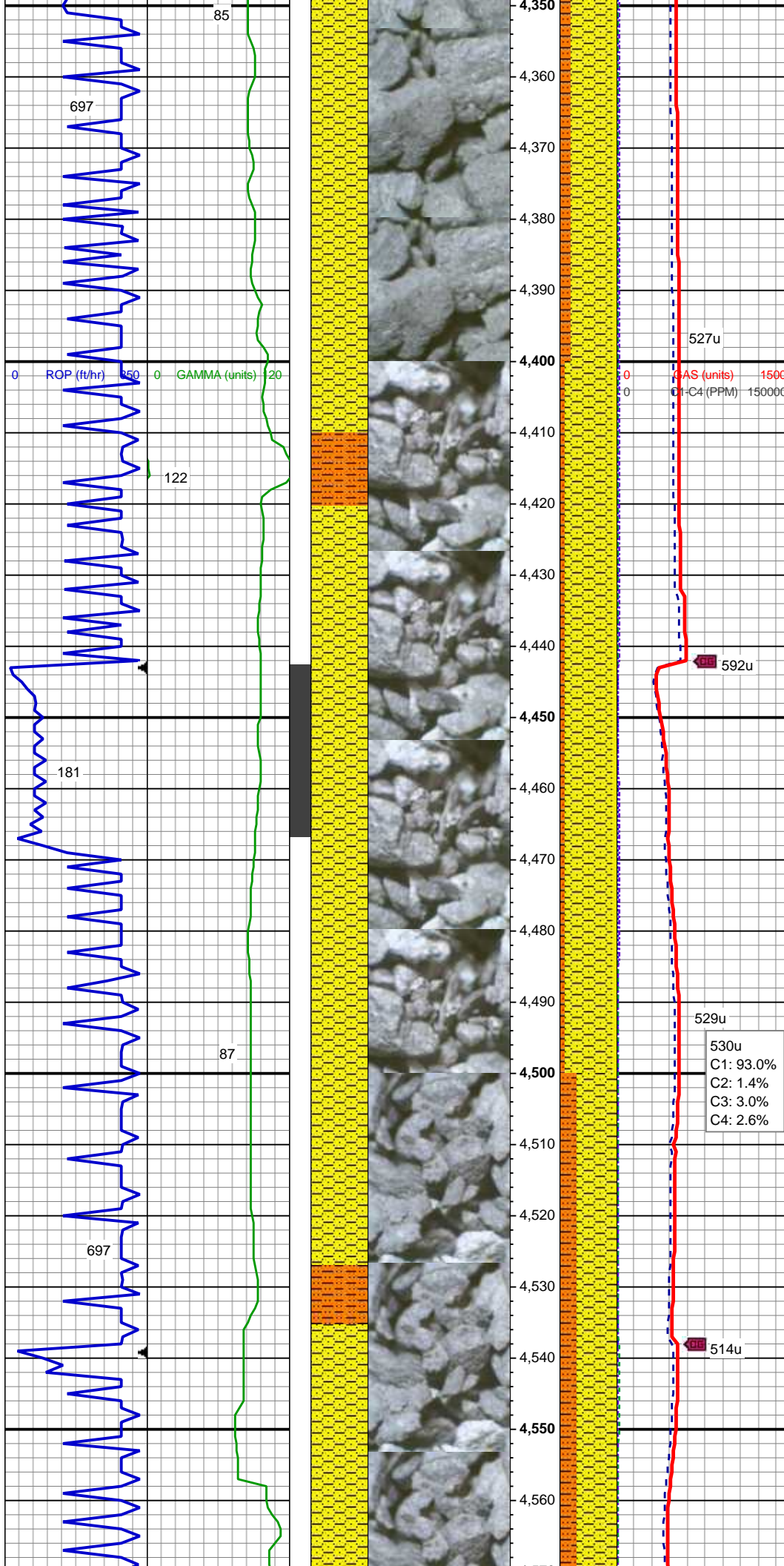
MD: 4,194'
TVD: 4,172.62'
Inclination: 9.2°
Azimuth: 331.92°

SUSSEX TOP @
4,244' MD; 4,222' TVD

SHY SS: lt gy - lt gy brn, occ wh, f gr, sb
ang - sb blk, prly srted, frm - mod hd wi
brit clus, calc cmt

SHY SLTST: lt gy - gy brn, sb plty - sb rd,
frly srted, sft - frm, slty - grty tex, v sl calc

432u
C1: 86.8%
C2: 1.4%
C3: 5.0%
C4: 6.7%



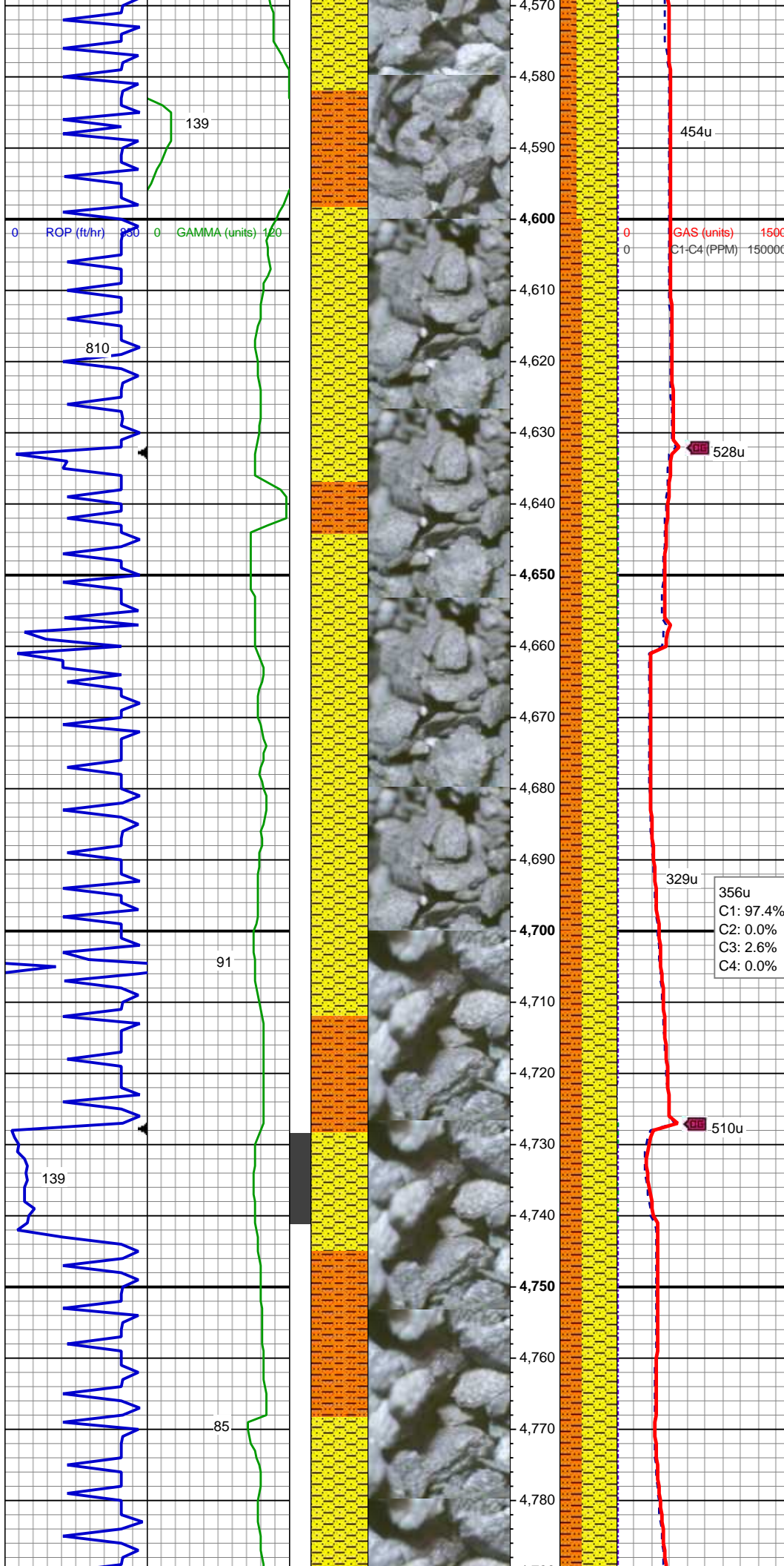
MD: 4,383'
TVD: 4,359.41'
Inclination: 8.35°
Azimuth: 326.05°

SHY SS: lt gy - lt gy brn wi brit clus, rr
wh, f gr, sb ang - sb blk, prly srt, frm -
mod hd, calc cmt
SHY SLTST: lt gy, sb plty - sb rd, frly srt, sft - frm, slty - grty tex, sl calc
SS: wh - v lt gy, s&p, brit clus wi wh clay
mtx, pred sb ang, sme sb blk, prly srt, mod hd - hd, v calc cmt

MD: 4,478'
TVD: 4,453.32'
Inclination: 9.1°
Azimuth: 334.82°

SHY SS: lt gy - lt gy brn wi brit clus, rr
wh, f gr, sb ang - sb blk, prly srt, frm -
mod hd, calc cmt
SS: wh - v lt gy, s&p, brit clus wi wh clay
mtx, pred sb ang, sme sb blk, prly srt, mod hd - hd, v calc cmt
SHY SLTST: lt gy, sb plty - sb rd, frly srt, sft - frm, slty - grty tex, sl calc

530u
C1: 93.0%
C2: 1.4%
C3: 3.0%
C4: 2.6%



MD: 4,573'
TVD: 4,547.21'
Inclination: 8.41°
Azimuth: 332.11°

SHY SS: lt gy - lt gy brn, occ wh, f gr, sb
ang - sb blk, prly srt, frm - mod hd wi
brit clus, calc cmt
SHY SLTST: lt gy - gy brn, sb plty - sb rd,
frly srt, sft - frm, slty - grty tex, v sl calc

MUD WT: 8.85/8.90
VIS: 30/29 IN/OUT

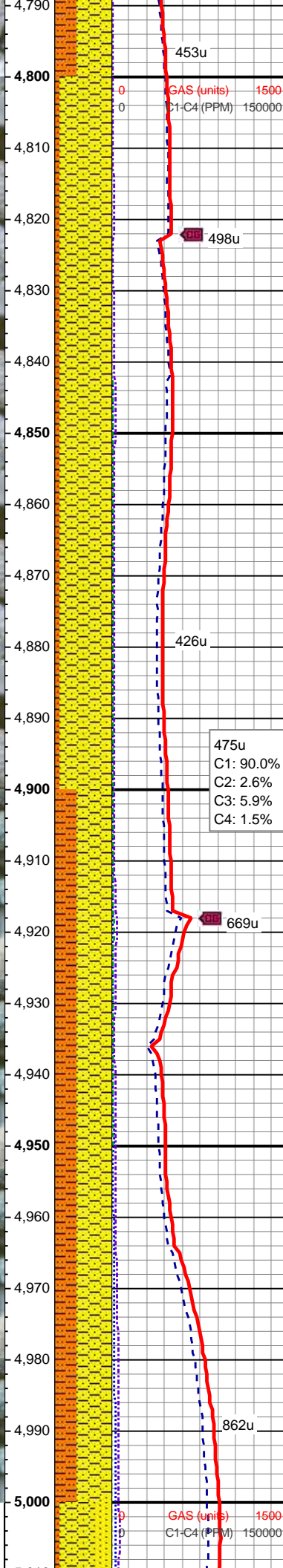
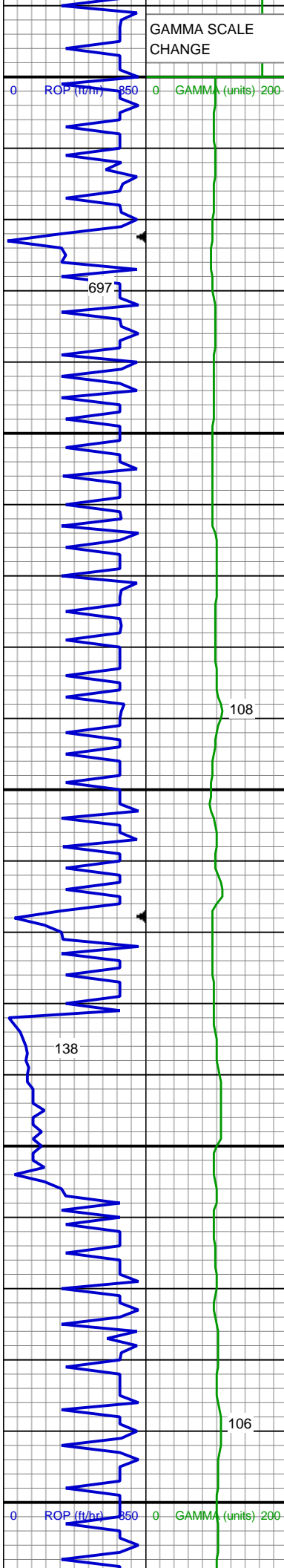
MD: 4,668'
TVD: 4,641.23'
Inclination: 8.1°
Azimuth: 329.51°

SHY SS: lt gy - lt gy brn, occ wh, f gr, sb
ang - sb blk, prly srt, frm - mod hd wi
brit clus, calc cmt
SHY SLTST: lt gy - gy brn, sb plty - sb rd,
frly srt, sft - frm, slty - grty tex, v sl calc

356u
C1: 97.4%
C2: 0.0%
C3: 2.6%
C4: 0.0%

MD: 4,763'
TVD: 4,735.6'
Inclination: 4.95°
Azimuth: 319.45°

SHY SS: lt gy - lt gy brn, occ wh, f gr, sb



ang - sb blkly, prly srted, frm - mod hd wi
brit clus, calc cmt
SHY SLTST: lt gy - gy brn, sb plty - sb rd,
fryl srted, sft - frm, slty - grty tex, v sl calc

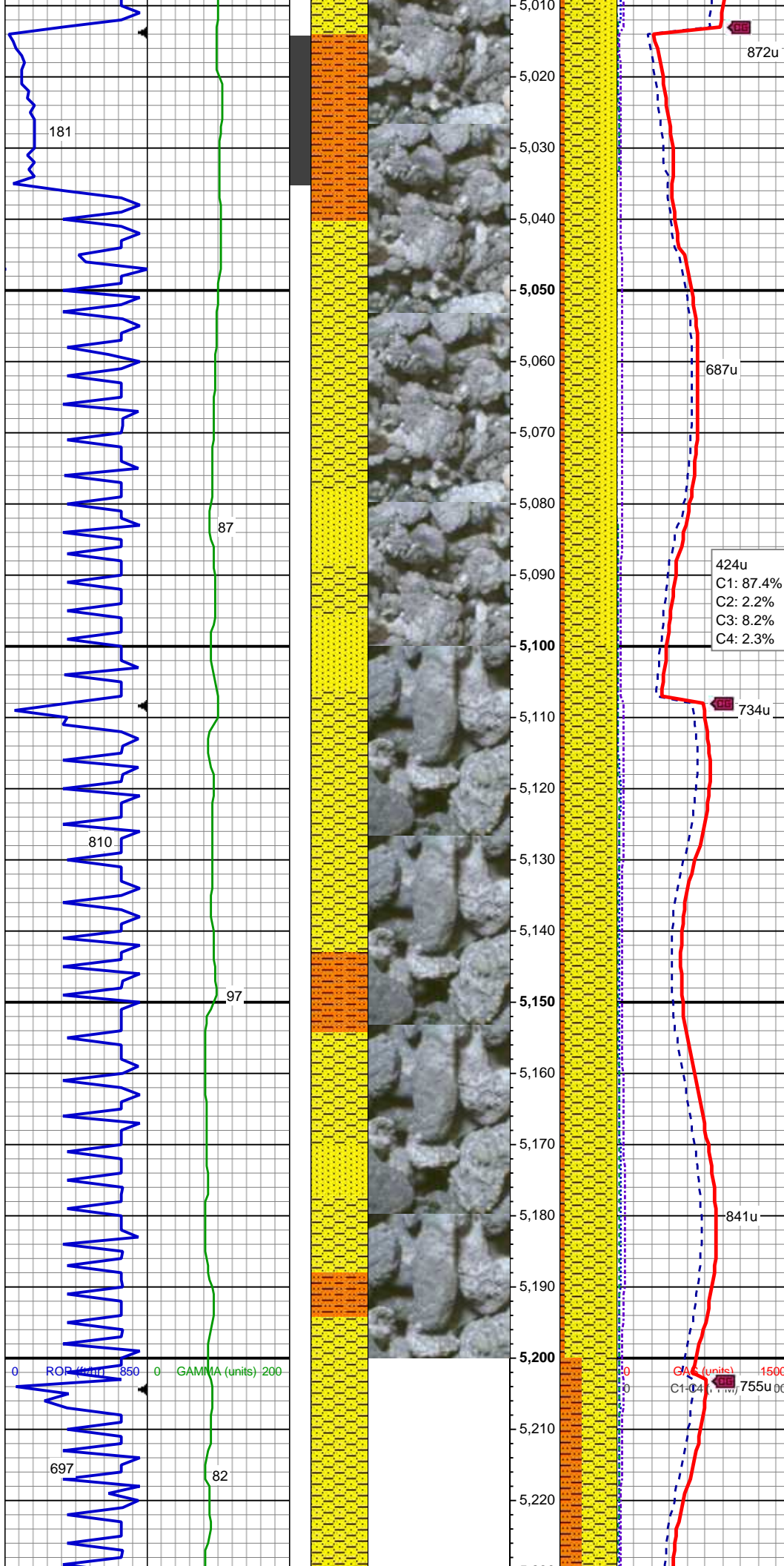
MD: 4,858'
TVD: 4,830.29'
Inclination: 4.4°
Azimuth: 309.36°

SHY SS: lt gy - lt gy brn, occ wh, f gr, sb
ang - sb blkly, prly srted, frm - mod hd wi
brit clus, calc cmt
SHY SLTST: lt gy - gy brn, sb plty - sb rd,
fryl srted, sft - frm, slty - grty tex, v sl calc

MUD WT: 8.75/8.70
VIS: 28/29 IN/OUT

MD: 4,953'
TVD: 4,925.09'
Inclination: 3.11°
Azimuth: 329.32°

SHY SS: lt gy - lt gy brn, occ wh, f gr, sb
ang - sb blkly, prly srted, frm - mod hd wi
brit clus, calc cmt
SHY SLTST: lt gy - gy brn, sb plty - sb rd,
fryl srted, sft - frm, slty - grty tex, v sl calc



SHANNON TOP @
5,048' MD; 5,020' TVD

MD: 5,048'
TVD: 5,020.03'
Inclination: 0.69°
Azimuth: 350.49°

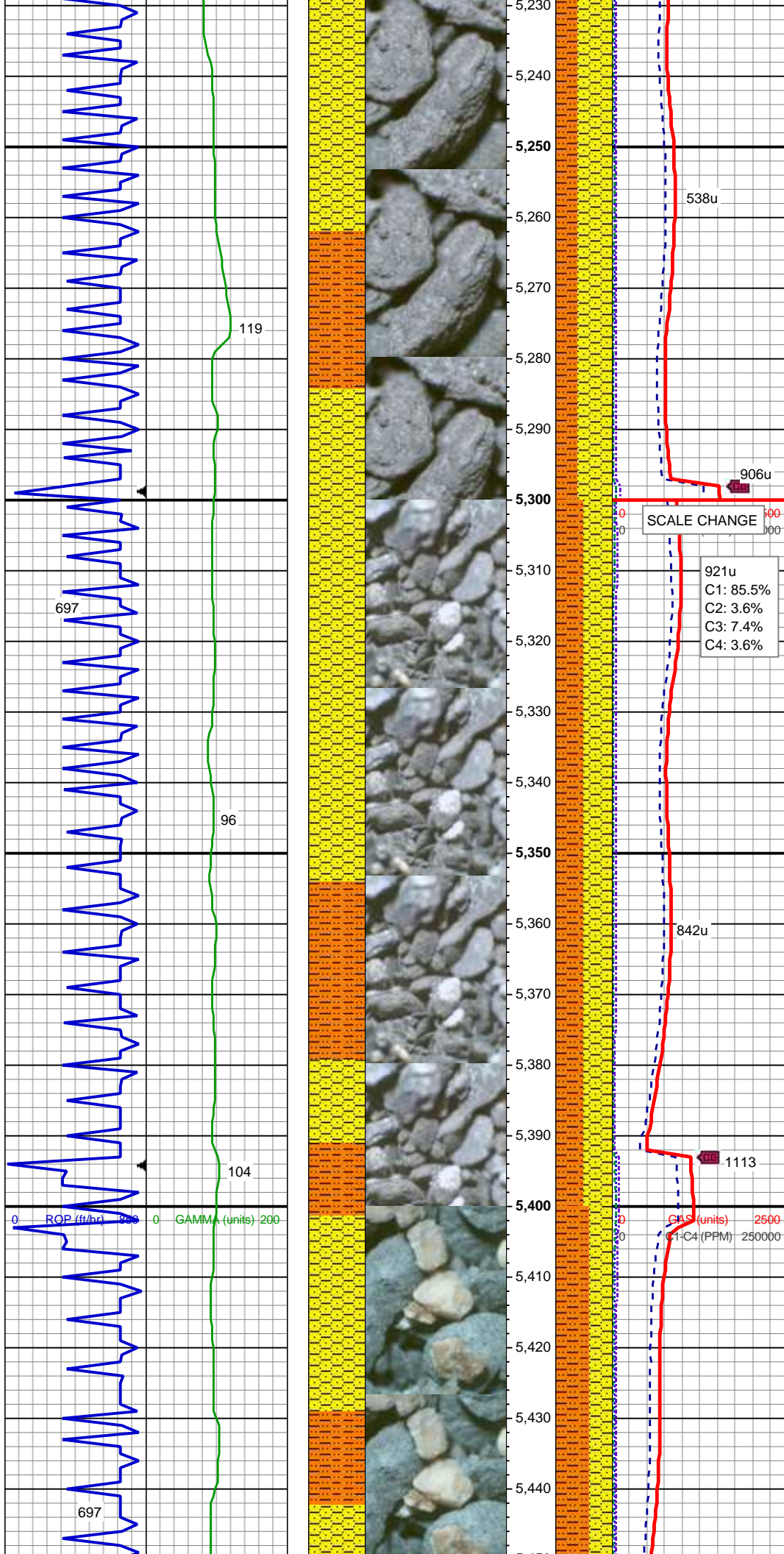
SHY SS: lt gy - lt gy brn wi brit clus, rr
wh, f gr, sb ang - sb blk, prly srt, frm -
mod hd, calc cmt
SS: wh - v lt gy, s&p, brit clus wi wh clay
mtx, pred sb ang, sme sb blk, prly srt,
mod hd - hd, v calc cmt
SHY SLTST: lt gy, sb ply - sb rd, frly srt,
sft - frm, slty - grty tex, sl calc

MD: 5,143'
TVD: 5,115.02'
Inclination: 0.86°
Azimuth: 329.44°

SHY SS: lt gy - lt gy brn wi brit clus, rr
wh, f gr, sb ang - sb blk, prly srt, frm -
mod hd, calc cmt
SS: wh - v lt gy, s&p, brit clus wi wh clay
mtx, pred sb ang, sme sb blk, prly srt,
mod hd - hd, v calc cmt
SHY SLTST: lt gy, sb ply - sb rd, frly srt,
sft - frm, slty - grty tex, sl calc

ROP (feet) 850
GAMMA (units) 200

ROP (feet) 1600
GAMMA (units) 200



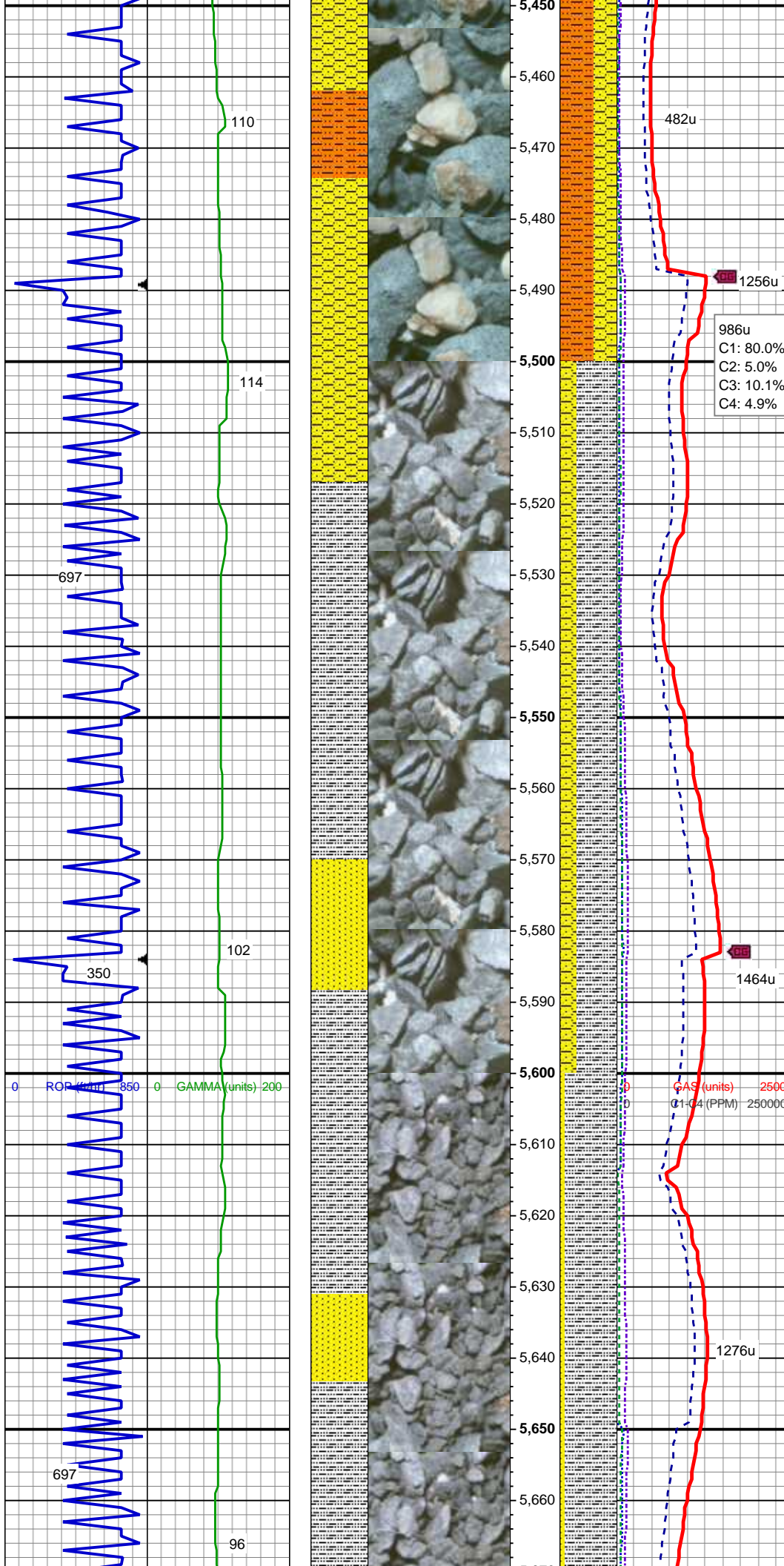
MD: 5,238'
TVD: 5,210.01'
Inclination: 0.34°
Azimuth: 307.7°

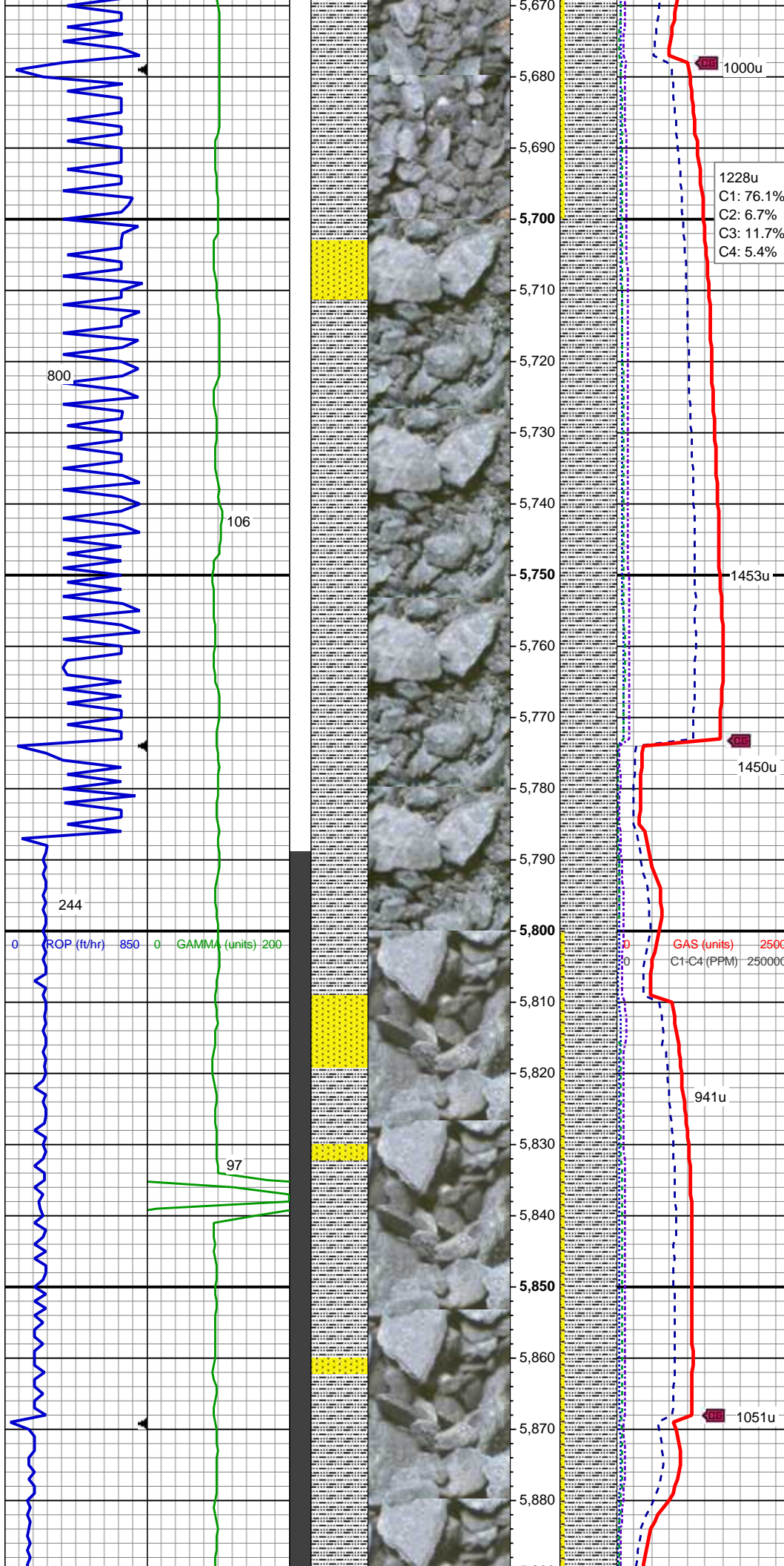
SHY SS: lt gy - lt gy brn, occ wh, f gr, sb
ang - sb blk, prly srt, frm - mod hd wi
brit clus, calc cmt
SHY SLTST: lt gy - gy brn, sb plty - sb rd,
frly srt, sft - frm, slty - grty tex, v sl calc

MD: 5,333'
TVD: 5,305.01'
Inclination: 1.07°
Azimuth: 299.81°

SHY SS: lt gy - lt gy brn, occ wh, f gr, sb
ang - sb blk, prly srt, frm - mod hd wi
brit clus, calc cmt
SHY SLTST: lt gy - gy brn, sb plty - sb rd,
frly srt, sft - frm, slty - grty tex, v sl calc

0 2500
0 250000
C1-C4 (PPM)





SLTY SH: lt - med gy, frm, pred plty - sb
plty, occ sb blkly, slty - grty tex, v sl calc
SHY SS: lt gy - lt gy brn, occ wh, f gr, sb
ang - sb blkly, prly srtd, frm - mod hd wi
brit clus, calc cmt

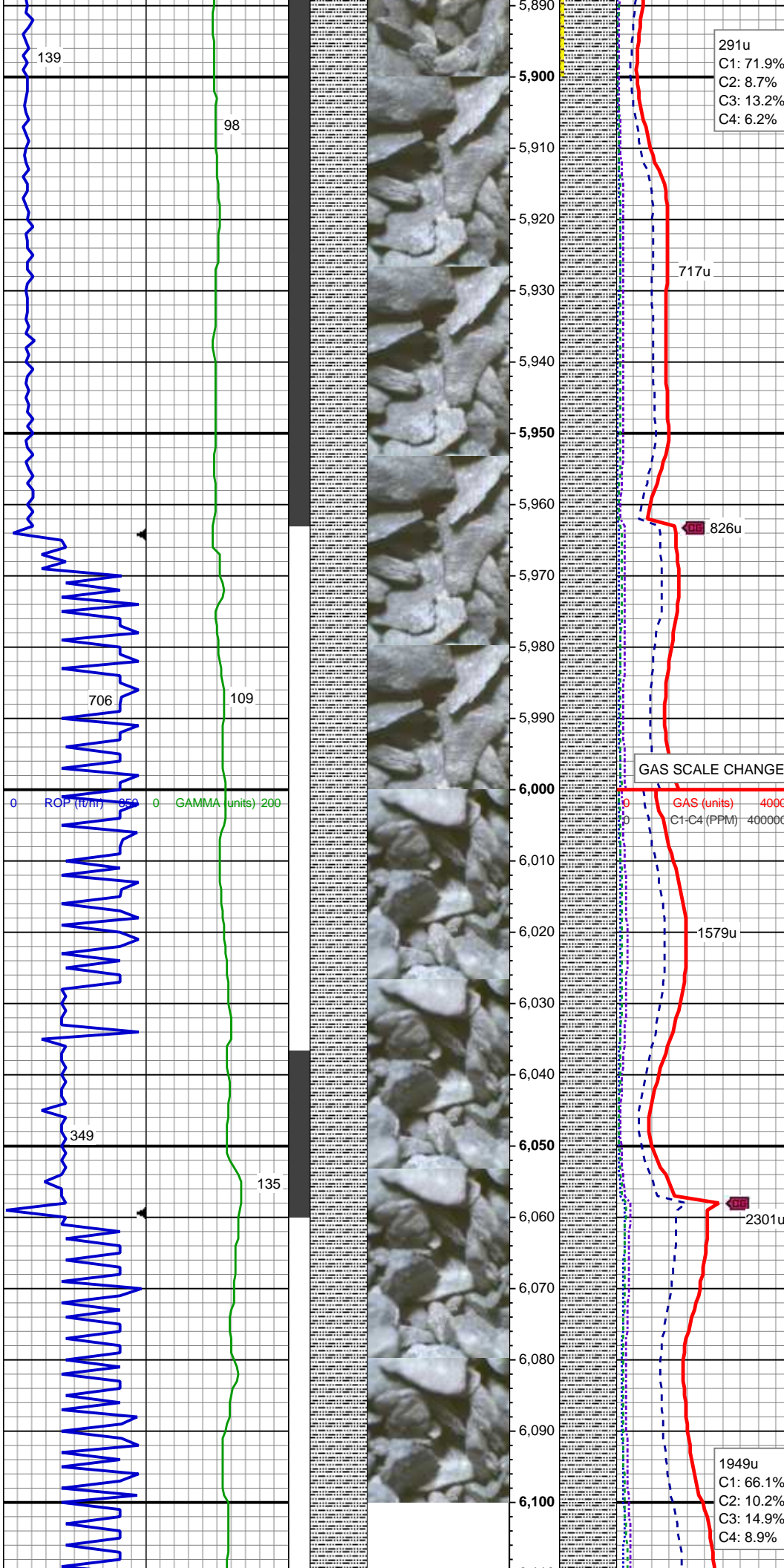
MD: 5,712'
TVD: 5,683.96'
Inclination: 0.48°
Azimuth: 294.95°

MUD WT: 9.05/8.95
VIS: 32/28 IN/OUT

SLTY SH: lt - med gy, frm, pred plty - sb
plty, occ sb blkly, slty - grty tex, v sl calc

MD: 5,807'
TVD: 5,778.95'
Inclination: 0.59°
Azimuth: 317.78°

SLTY SH: lt - med gy, frm, pred plty - sb
plty, occ sb blkly, slty - grty tex, v sl calc



SHY SS: lt gy - lt gy brn, f gr, pred sb
ang, occ sb blk, prly srtd, frm - mod hd
wi brit clus, calc cmt

MD: 5,902'
TVD: 5,873.95'
Inclination: 0.59°
Azimuth: 328.41°

MD: 5,997'
TVD: 5,968.94'
Inclination: 0.96°
Azimuth: 328.7°

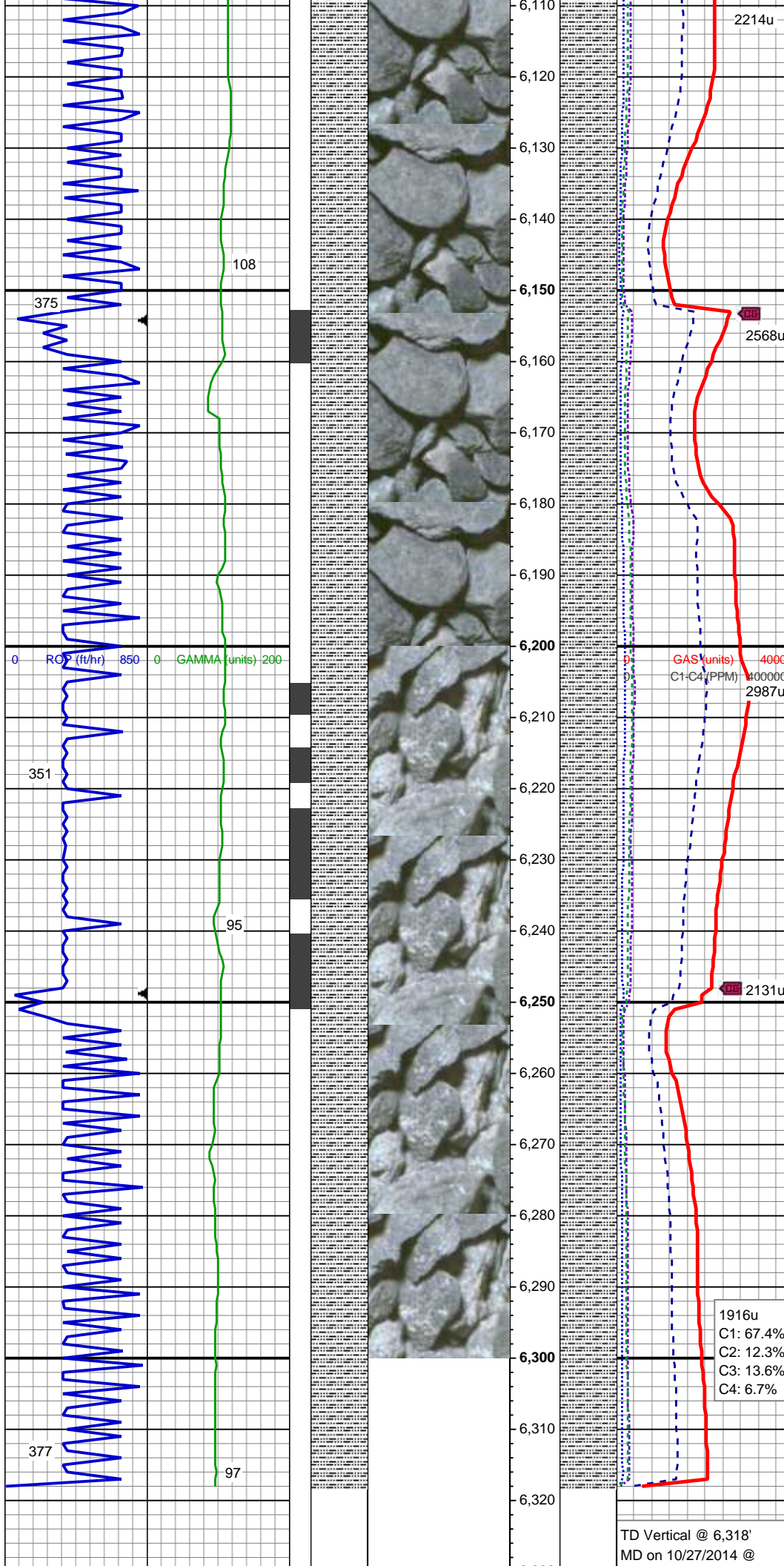
SLTY SH: lt - med gy, frm, pred plty - sb
plty, occ sb blk, slty - grty tex, v sl calc

MUD WT: 9.15/9.15
VIS: 32/32 IN/OUT

TEEPEE BUTTES TOP @
6,059' MD; 6,030' TVD

MD: 6,091'
TVD: 6,062.93'
Inclination: 0.93°

SLTY SH: lt - med gy, frm, pred plty - sb
plty, occ sb blk, slty - grty tex, v sl calc



MD: 6,186'
TVD: 6,157.9'
Inclination: 1.63°
Azimuth: 347.96°
SLTY SH: lt - med gy, frm, pred plty - sb
plty, occ sb blk, slty - grty tex, v sl calc

MD: 6,259'
TVD: 6,230.86'
Inclination: 2.14°
Azimuth: 335.17°

SLTY SH: lt - med gy, frm, pred plty - sb
plty, occ sb blk, slty - grty tex, v sl calc

TD Vertical @ 6,318'
MD on 10/27/2014 @

See Corresponding Horizontal Log

