

COLUMBINE LOGGING

Scale: 5" / 100'
Measured Depth Log

Well Name Trisha LC29-74HNB

Location SWSE SEC 29 T9N R59W

State COLORADO

County WELD

Country UNITED STATES

Rig Number H&P 273

API Number 05-123-38778

Field WILDCAT

Region DJ BASIN

Drilling Completed 5/23/2014

Spud Date 5/22/2014

Surface Coordinates 340' FSL; 2129' FEL

Ground Elevation 4872'

K.B. Elevation 4896'

Logged Interval 626' **To** 5459'

Total Depth 5459'

Formation NIOBRARA

Type of Drilling Fluid LSND

Other Symbols

Oil Show

- DEAD
- EVEN
- QUESTIONABLE
- SPOTTED STAINING

Porosity

- E EARTHY
- F FENESTRAL
- F FRACTURE
- X INTERCRYSTALLINE
- ◇ INTEROOLITIC

- MOLDIC
- ORGANIC
- PINPOINT
- VUGGY

Engineering

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

- FAULT
- FORMATION TOP
- GAS SHOW
- MN DEPTH
- NORMAL FAULT
- OIL SHOW
- OVERTURNED STRATA
- REVERSE FAULT
- 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
- MX MICROXLN
- MS MUDSTONE
- PS PACKSTONE
- WS WACKSTONE

Sorting

- M MODERATE
- P POOR
- W WELL

Zone Color Coding

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

Accessories

Fossils

- ALGAE
- AMPHIPORA
- BELEMNITE
- BIOCLASTIC
- BRACHIOPOD
- BRYOZOA
- CEPHALOPOD
- COBAN
- FOSSIL
- GASTROPOD
- INOCERAMUS
- OOLITE
- OSTRACOD
- PELECYPOD
- PELLET
- PISOLITE
- PLANT REMAINS
- PLANT PROPOG

- ANHYDRITIC
- ARGILLACEOUS
- ARGILLITE GRAIN
- BENTONITE
- BITUMENOUS SUBSTANCE
- BRECCIA FRAGMENTS
- CALCAREOUS
- CARBONACEOUS FLAKES
- CHTDK
- OUTLT

- FERRUGINOUS
- GLAUCONITE
- GYPSEFEROUS
- HEAVY MINERAL
- KAOLIN
- MARLSTONE
- MINERAL CRYSTALS
- NODULES
- PHOSPHATE PELLETS
- TYNITE

- TUFFACEOUS

Stringer

- ANHYDRITE STRINGER
- BENTONITE STRINGER
- COAL STRINGER
- DOLOMITE STRINGER
- GYPSE STRINGER
- LIMESTONE STRINGER
- MARLSTONE (OIL) STRINGER

CORAL
CRINOID
ECHINOID
FISH
FORAMINIFERA

PLANT SPORES
SCAPHOPOD
STROMATOPOROID

Minerals

CHERT
COAL - THIN BEDS
DOLOMITIC
FELDSPAR
FERRUGINOUS PELLET

PYRITE
SALT CAST
SANDY
SILICEOUS
SILTY

MARLSTONE (CALC) STRG
MARLSTONE (DOL) STRG
SANDSTONE STRINGER
SHALE STRINGER
SILTSTONE STRINGER

Rock Types

UNKNOWN
CHALK
MARLSTONE
SANDSTONE
SHALY SANDSTONE
SILTY SHALE
ANHYDRITE
BENTONITE
BRECCIA

CEMENT
CHERT
CLAY CHOKE SAND
CLAYSTONE
COAL
CONGLOMERATE
DOLOMITE
GRANITE
GYPSUM

IGNEOUS
LIMESTONE
SIDERITE or LIMONITE
METAMORPHIC
NO SAMPLE
SALT
SALT- PEPPER SAND
SHALE
SHALE COLORED

SHALE GRAY
SHALY SILTSTONE
SILTSTONE
TILL
TUFF
WELDED TUFF

Operator

Company NOBLE ENERGY INC.

Address 1625 Broadway Suite 2200
Denver, CO 80202

Other

Wellsite Geologist #1 LAURA KELLOGG

Wellsite Geologist #2 TIM BRIGHT

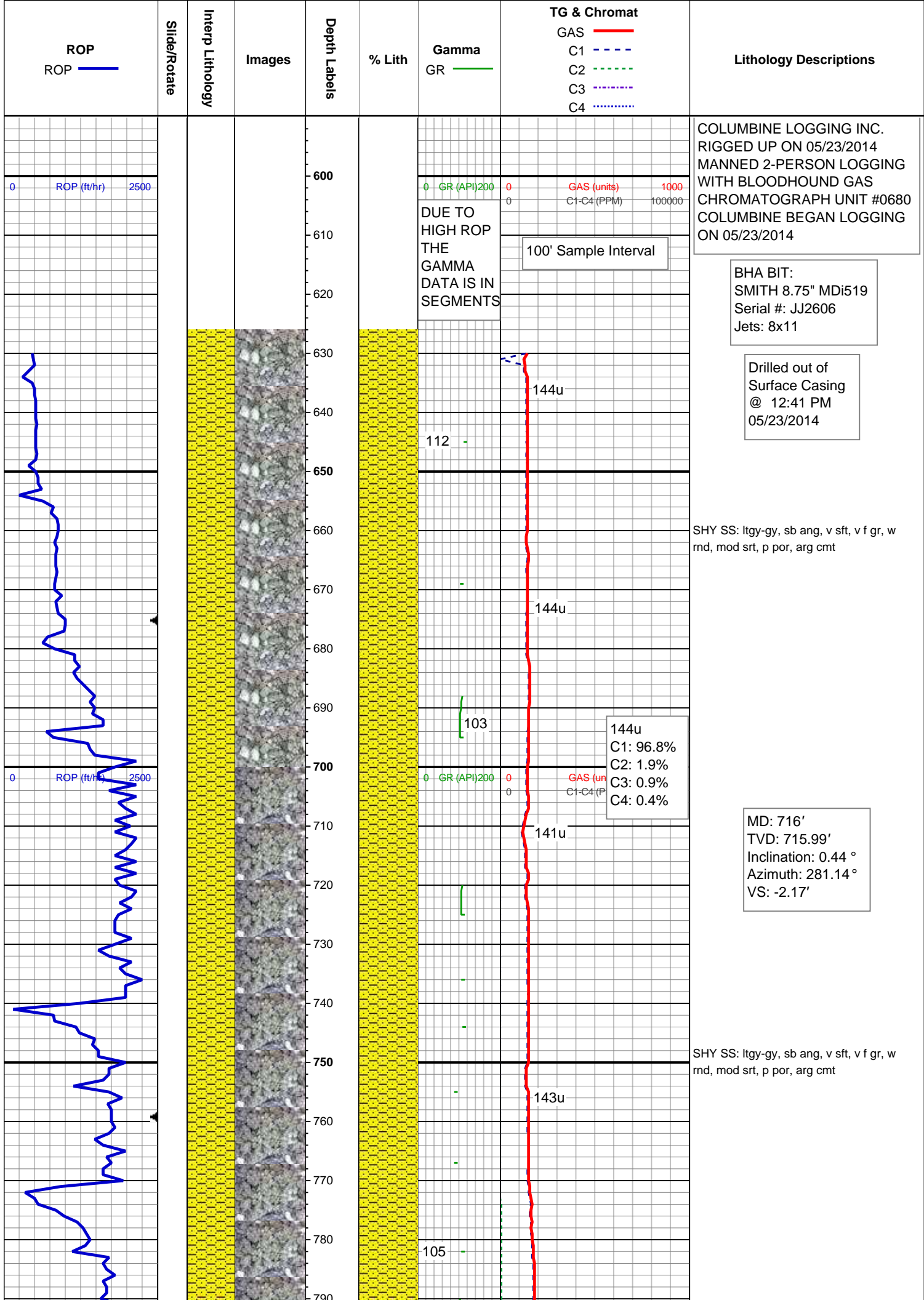
Wellsite Geological Services Provided By Columbine Logging Inc.

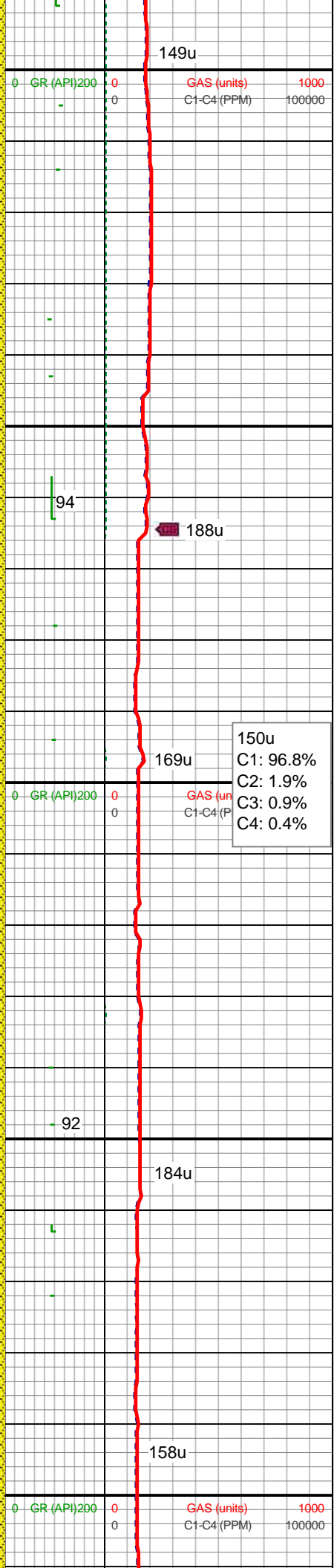
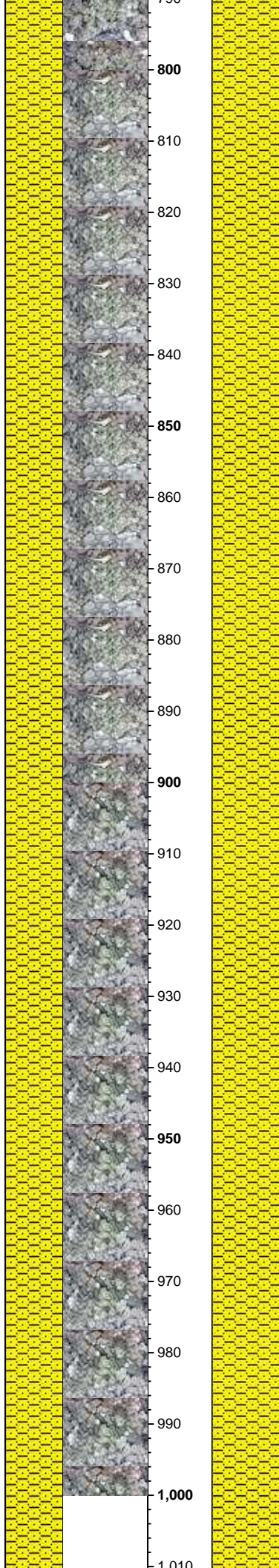
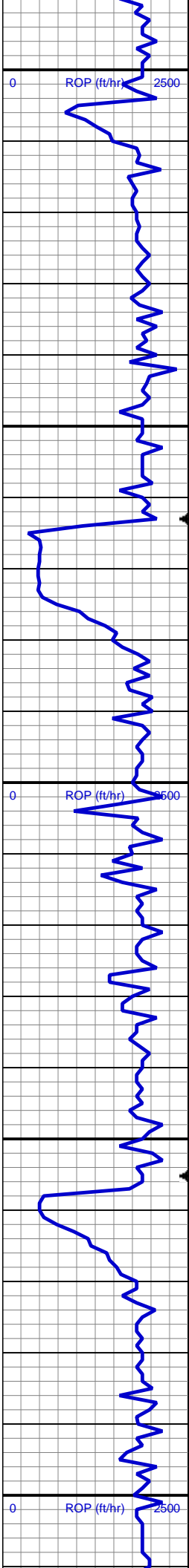
Geologist

Name SARAH COMPTON

Company NOBLE ENERGY INC.

Address 1625 Broadway Suite 2200
Denver, CO 80202



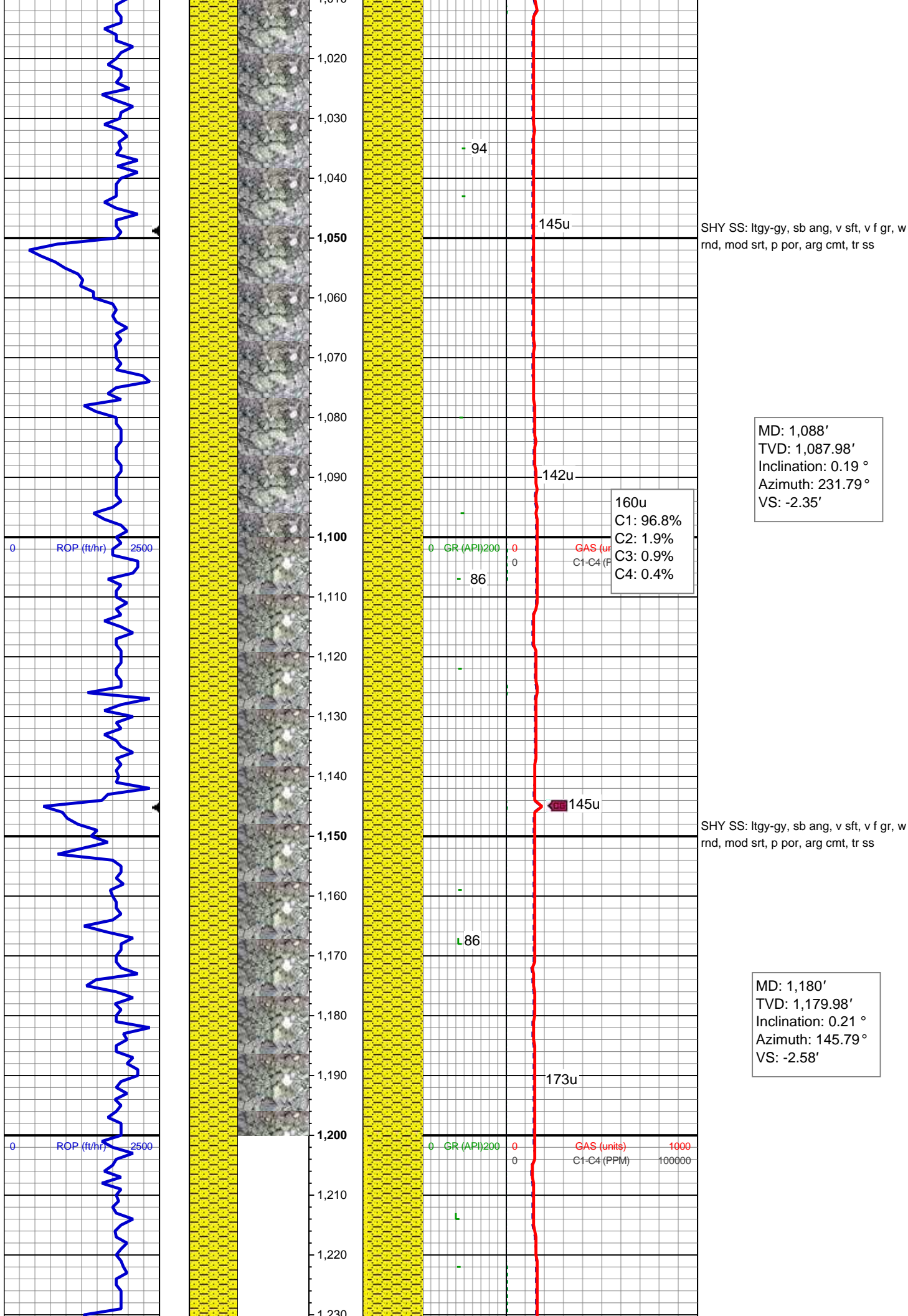


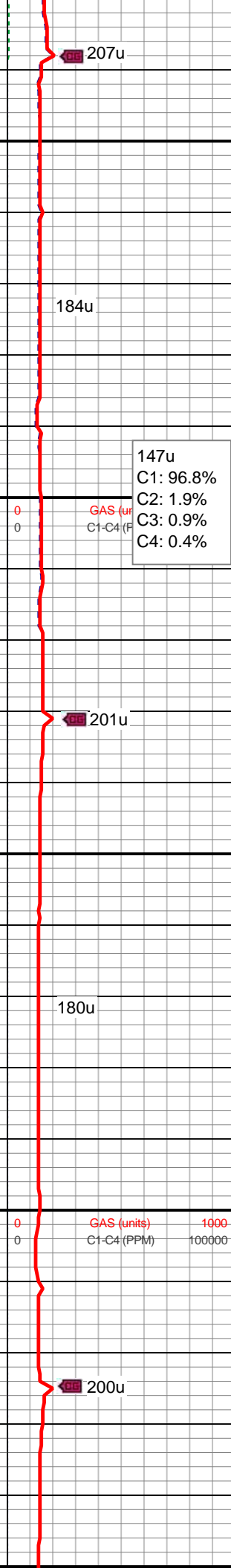
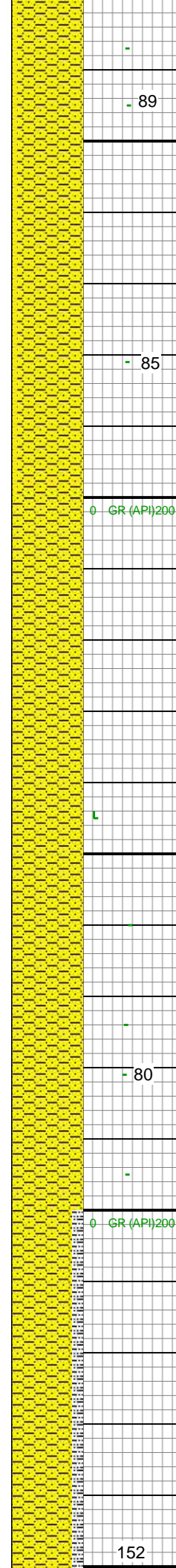
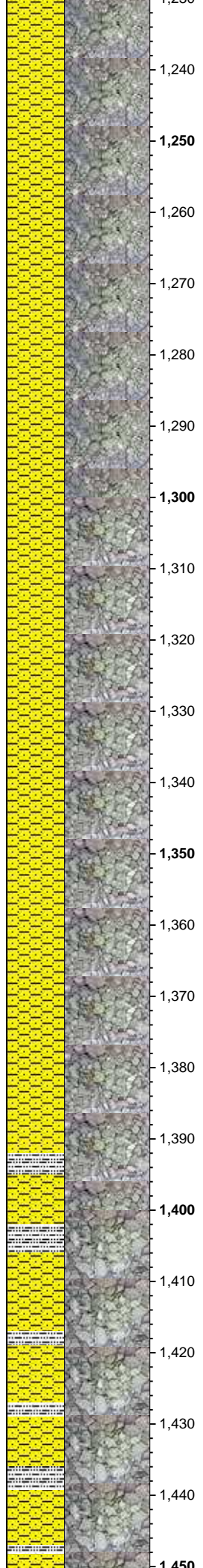
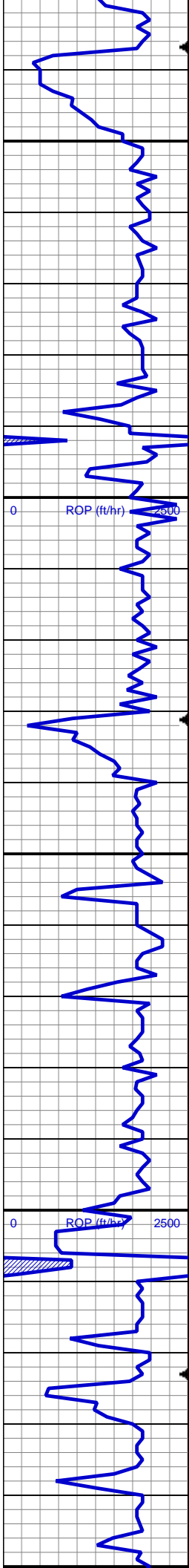
MD: 809'
TVD: 808.98'
Inclination: 0.38 °
Azimuth: 266.55 °
VS: -2.12'

SHY SS: ltgy-gy, sb ang, v sft, v f gr, w
rnd, mod srt, p por, arg cmt

MD: 902'
TVD: 901.98'
Inclination: 0.23 °
Azimuth: 266.97 °
VS: -2.14'

SHY SS: ltgy-gy, sb ang, v sft, v f gr, w
rnd, mod srt, p por, arg cmt, tr ss

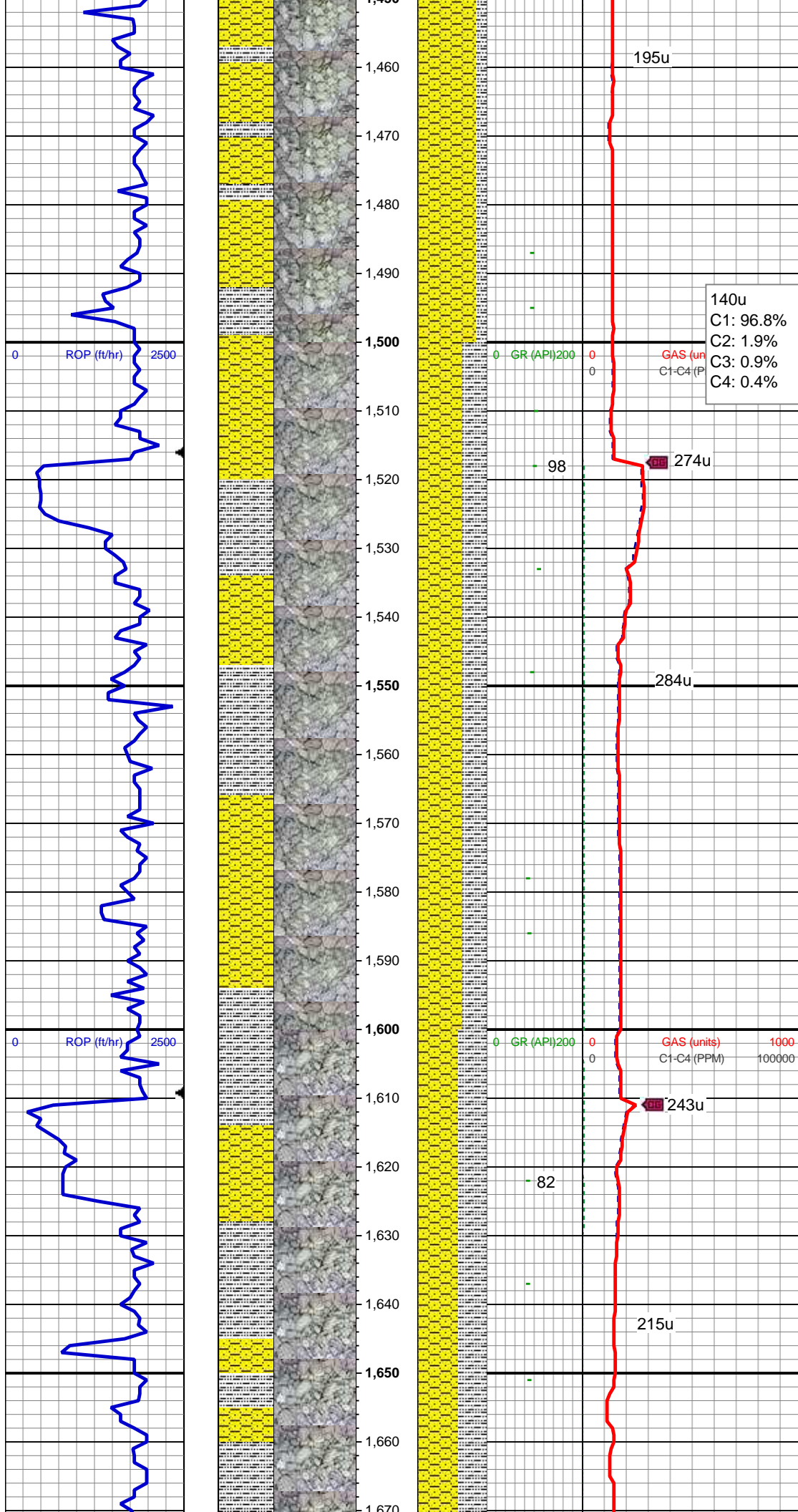




SHY SS: ltgy-gy, sb ang, v sft, v f gr, w
rnd, mod srt, p por, arg cmt
SS: ltgy-wh-op, sb ang, v fri, f gr - v f gr,
mod rnd, p srt, p por, arg cmt, occ glau,
tr lith frag

MD: 1,366'
TVD: 1,365.98'
Inclination: 0.15 °
Azimuth: 122.93 °
VS: -3'

SHY SS: ltgy-gy, sb ang, v sft, v f gr, w
rnd, mod srt, p por, arg cmt



SLTY SH: gy-dk gy, sb blkly-sb plty, v sft, slty tex, arg cmt

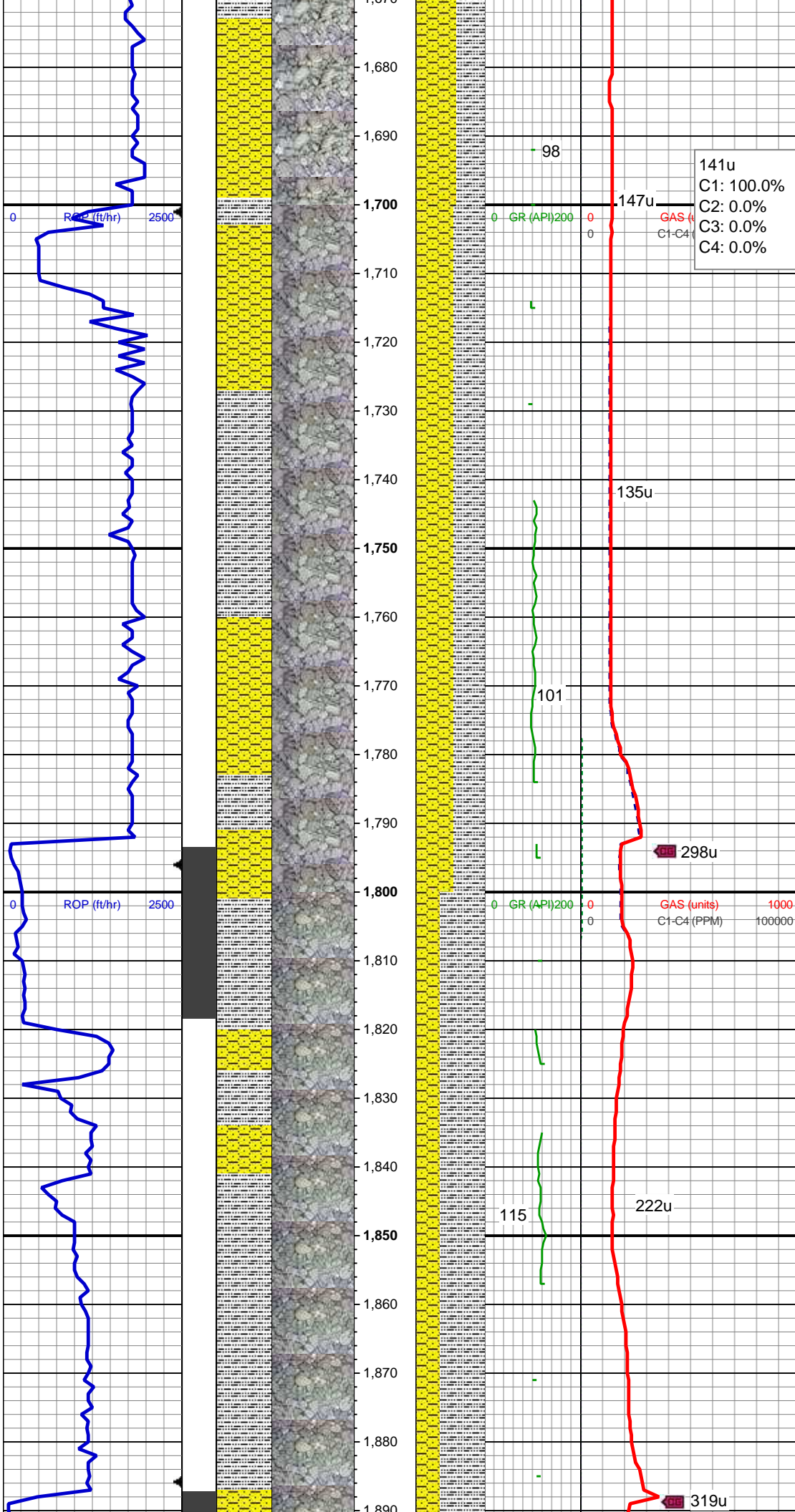
MD: 1,459'
TVD: 1,458.98'
Inclination: 0.4 °
Azimuth: 92.48 °
VS: -3.08'

MD: 1,551'
TVD: 1,550.98'
Inclination: 0.37 °
Azimuth: 85.03 °
VS: -3.08'

SHY SS: ltgy-gy, sb ang, v f gr, w rnd, mod srt, p por, arg cmt
SLTY SH: gy-dk gy, sb blkly-sb plty, v sft, slty tex, arg cmt

MD: 1,644'
TVD: 1,643.98'
Inclination: 0.22 °
Azimuth: 122.68 °
VS: -3.15'

SHY SS: ltgy-gy, sb ang, v f gr, w rnd, mod srt, p por, arg cmt
SLTY SH: gy-dk gy, sb blkly-sb plty, v sft, slty tex, arg cmt

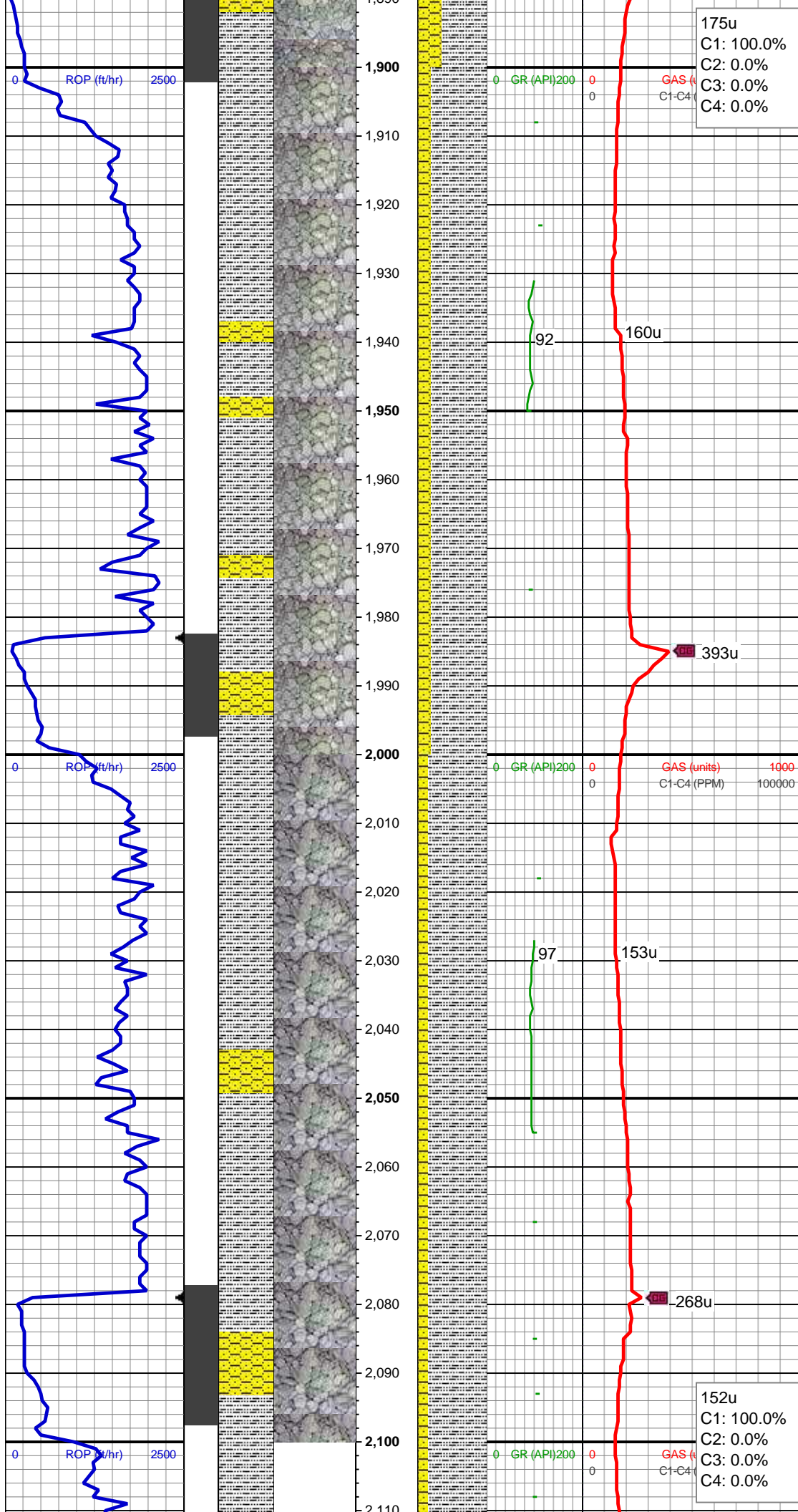


MD: 1,737'
TVD: 1,736.98'
Inclination: 0.19 °
Azimuth: 98.57 °
VS: -3.27'

SHY SS: ltgy-gy, sb ang, v sft, v f gr, w
rnd, mod srt, p por, arg cmt
SLTY SH: gy-dk gy, sb blkgy-sb plty, v sft,
sly tex, arg cmt

MD: 1,831'
TVD: 1,830.94'
Inclination: 2.47 °
Azimuth: 134.71 °
VS: -4.73'

SLTY SH: gy-dk gy, sb blkgy-sb plty, v sft,
sly tex, arg cmt
SHY SS: ltgy-gy, sb ang, v sft, v f gr, w
rnd, mod srt, p por, arg cmt



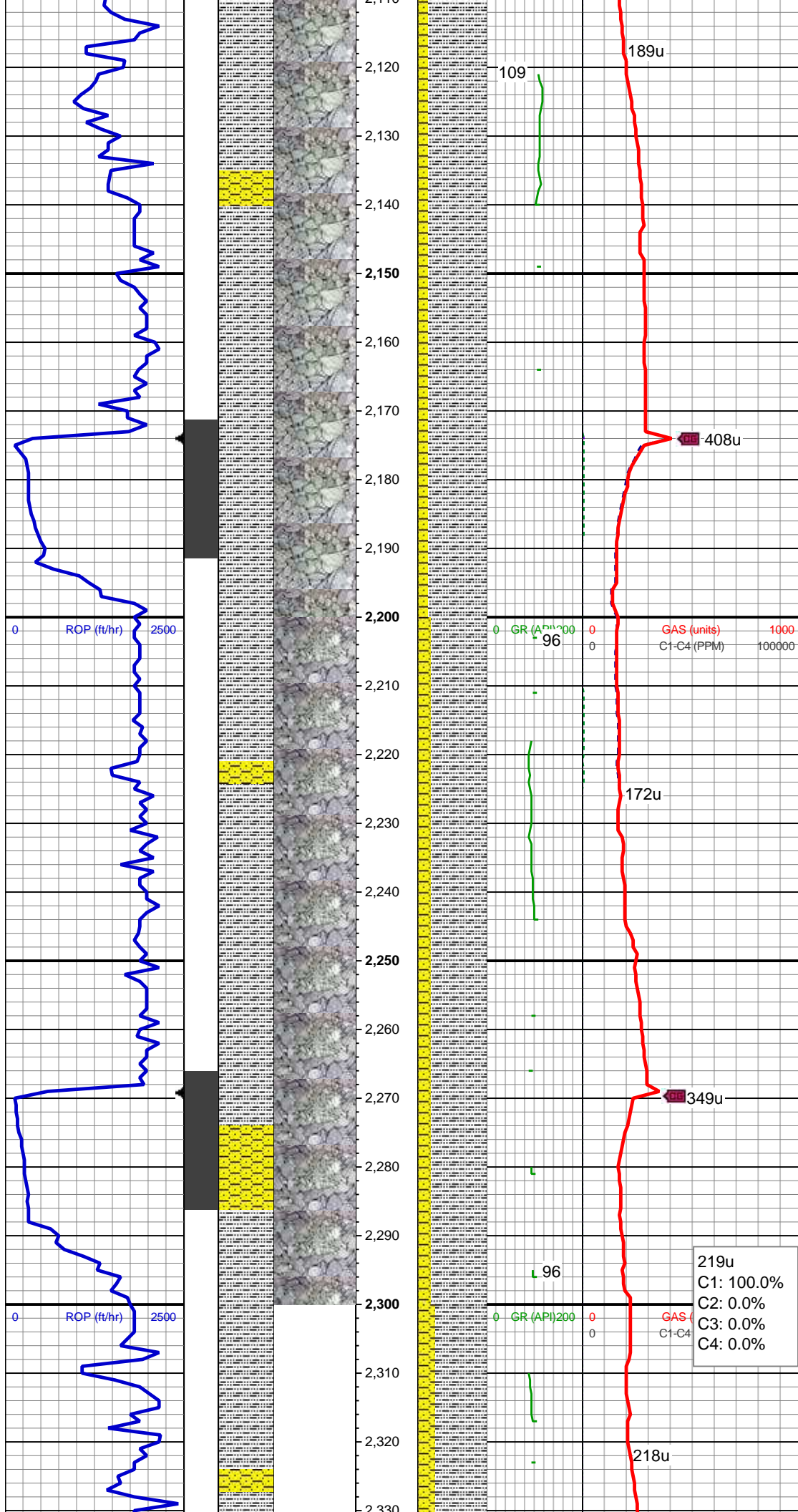
MD: 1,926'
TVD: 1,925.78'
Inclination: 4.21 °
Azimuth: 137.56 °
VS: -8.77'

SLTY SH: gy-dk gy, sb blkgy-sb plty, v sft,
silty tex, arg cmt
SHY SS: ltgy-gy, sb ang, v sft, v f gr, w
rnd, mod srt, p por, arg cmt

MD: 2,021'
TVD: 2,020.5'
Inclination: 4.72 °
Azimuth: 121.55 °
VS: -13.42'

SLTY SH: gy-dk gy, sb blkgy-sb plty, v sft,
silty tex, arg cmt
SHY SS: ltgy-gy, sb ang, v sft, v f gr, w
rnd, mod srt, p por, arg cmt

MD: 2,115'



TVD: 2,114.06'
Inclination: 6.25 °
Azimuth: 125.53 °
VS: -18.47'

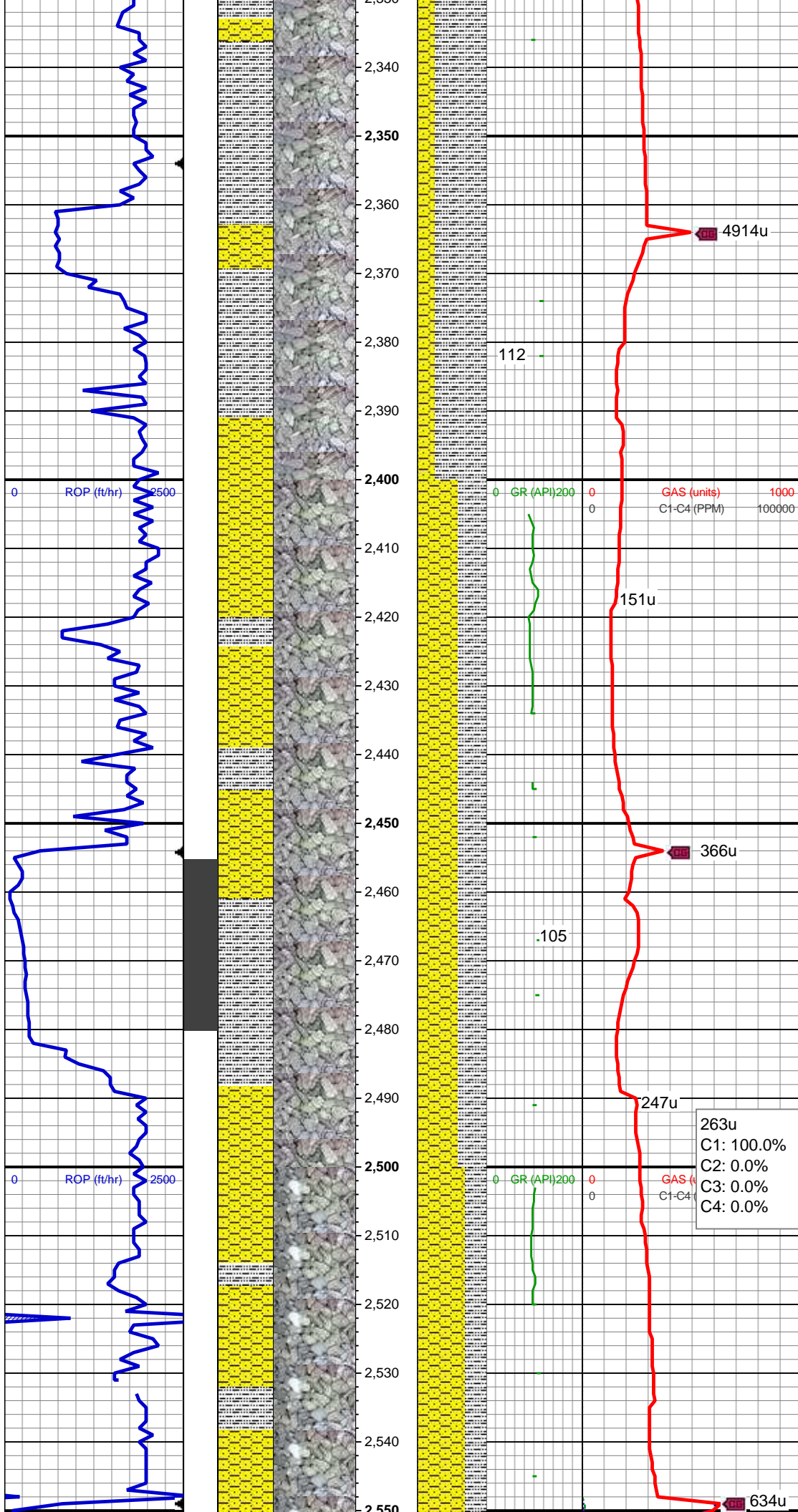
SLTY SH: gy-dk gy, sb blkly-sb plty, v sft, slty tex, arg cmt
SHY SS: ltgy-gy, sb ang, v sft, v f gr, w rnd, mod srt, p por, arg cmt, tr pyr

MD: 2,210'
TVD: 2,208.36'
Inclination: 7.66 °
Azimuth: 126.51 °
VS: -25.3'

SLTY SH: gy-dk gy, sb blkly-sb plty, v sft, slty tex, arg cmt
SHY SS: ltgy-gy, sb ang, v sft, v f gr, w rnd, mod srt, p por, arg cmt

219u
C1: 100.0%
C2: 0.0%
C3: 0.0%
C4: 0.0%

MD: 2,305'
TVD: 2,302.37'
Inclination: 8.91 °
Azimuth: 118.64 °
VS: -32.67'



SLTY SH: gy-dk gy, sb blkly-sb plty, v sft, slty tex, arg cmt
SHY SS: ltgy-gy, sb ang, v sft, v f gr, w rnd, mod srt, p por, arg cmt, tr pyr

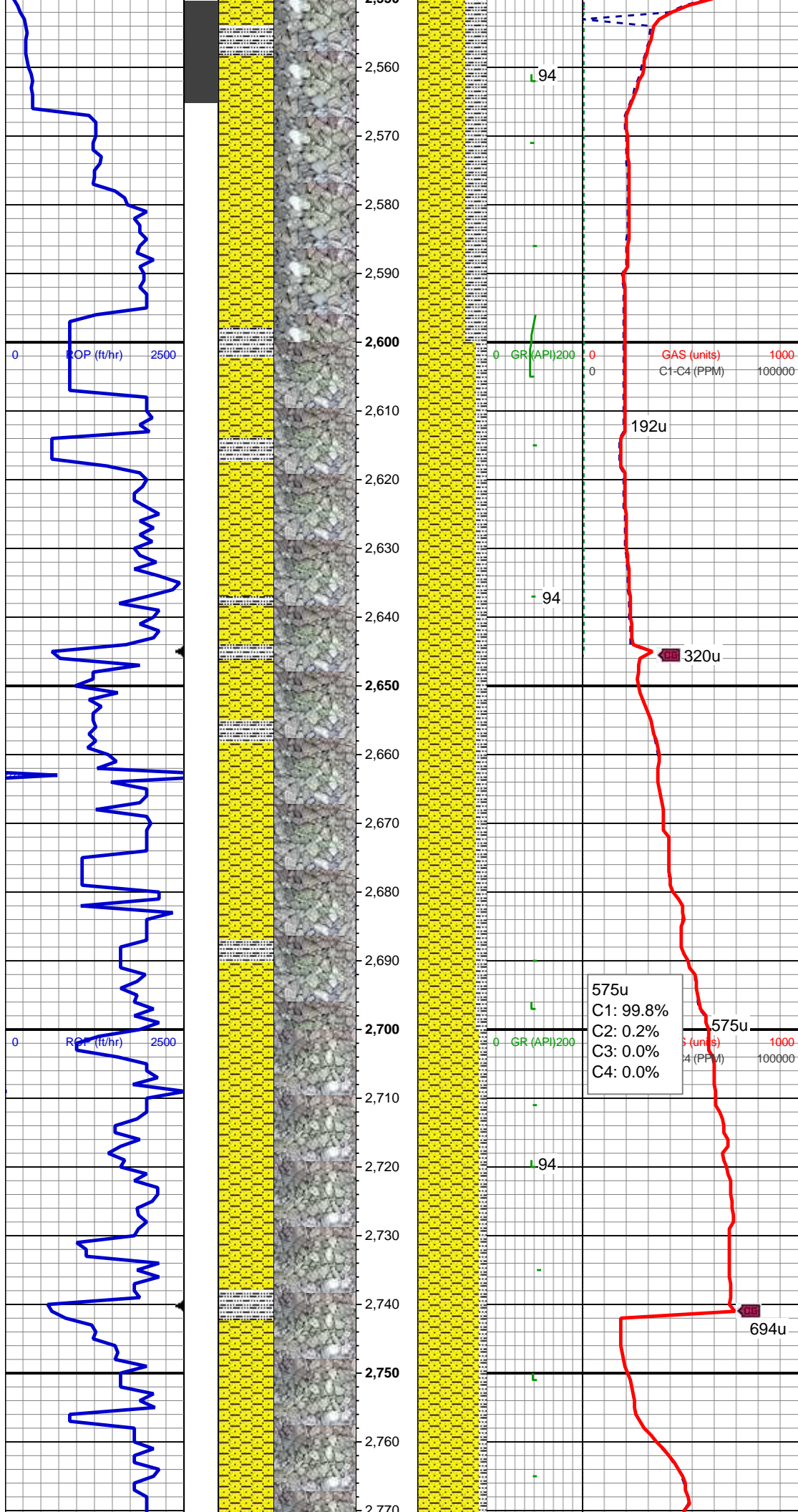
MD: 2,399'
TVD: 2,395.36'
Inclination: 7.91 °
Azimuth: 115.71 °
VS: -39.04'

SHY SS: ltgy-gy, sb ang, v sft, v f gr, w rnd, mod srt, p por, arg cmt
SLTY SH: gy-dk gy, sb blkly-sb plty, v sft, slty tex, arg cmt

WT IN 8.40/ OUT 8.70
VIS IN 29/ OUT 30

MD: 2,494'
TVD: 2,489.22'
Inclination: 9.8 °
Azimuth: 120.89 °
VS: -46.11'

SHY SS: ltgy-gy, sb ang, v sft, v f gr, w rnd, mod srt, p por, arg cmt



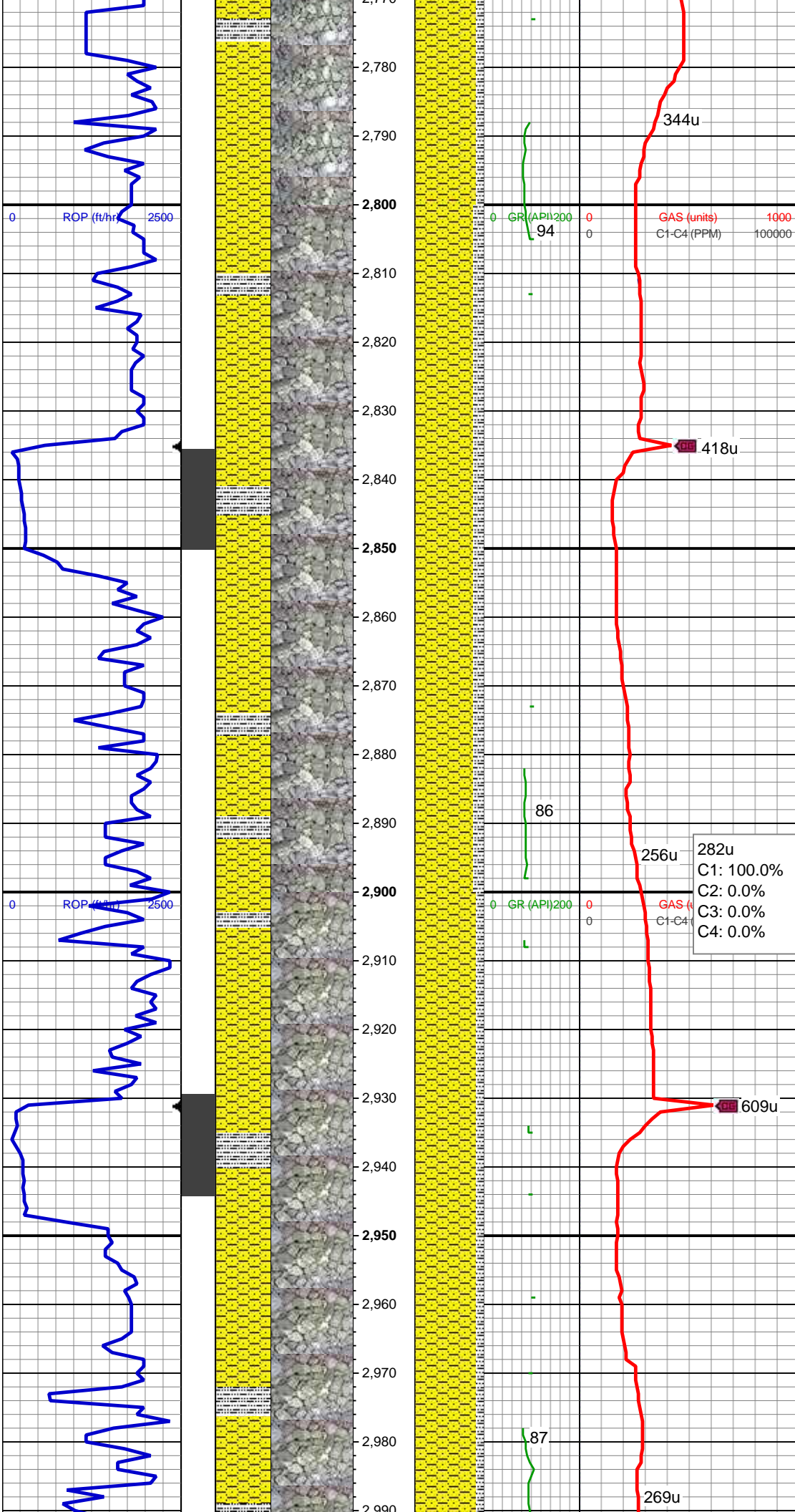
SLTY SH: gy-dk gy, sb blkly-sb plty, v sft, slty tex, arg cmt

MD: 2,589'
TVD: 2,582.71'
Inclination: 10.68 °
Azimuth: 117.81 °
VS: -54.47'

SHY SS: ltgy-gy, sb ang, v sft, v f gr, w rnd, mod srt, p por, arg cmt
SLTY SH: gy-dk gy, sb blkly-sb plty, v sft, slty tex, arg cmt

MD: 2,684'
TVD: 2,676.06'
Inclination: 10.68 °
Azimuth: 118.21 °
VS: -62.83'

SHY SS: ltgy-gy, sb ang, v sft, v f gr, w rnd, mod srt, p por, arg cmt
SLTY SH: gy-dk gy, sb blkly-sb plty, v sft, slty tex, arg cmt



MD: 2,779'
TVD: 2,769.4'
Inclination: 10.79 °
Azimuth: 116.31 °
VS: -71.04'

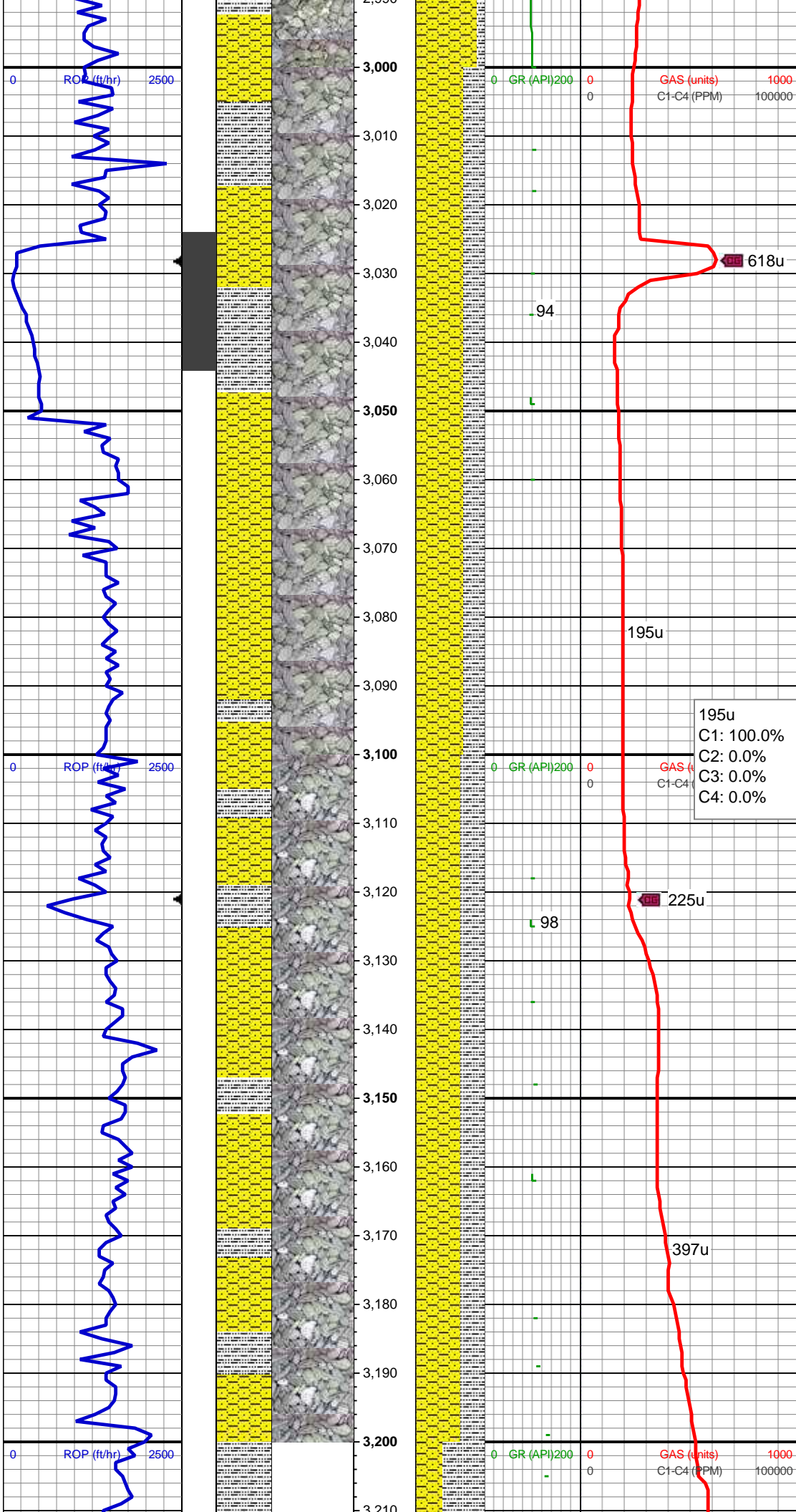
SHY SS: ltgy-gy, sb ang, v sft, v f gr, w
rnd, mod srt, p por, arg cmt
SLTY SH: gy-dk gy, sb blkgy-sb plty, v sft,
sfty tex, arg cmt

MD: 2,873'
TVD: 2,861.98'
Inclination: 9.17 °
Azimuth: 115.02 °
VS: -78.2'

282u
C1: 100.0%
C2: 0.0%
C3: 0.0%
C4: 0.0%

SHY SS: ltgy-gy, sb ang, v sft, v f gr, w
rnd, mod srt, p por, arg cmt
SLTY SH: gy-dk gy, sb blkgy-sb plty, v sft,
sfty tex, arg cmt

MD: 2,968'
TVD: 2,955.96'
Inclination: 7.59 °
Azimuth: 114.18 °
VS: -84.05'



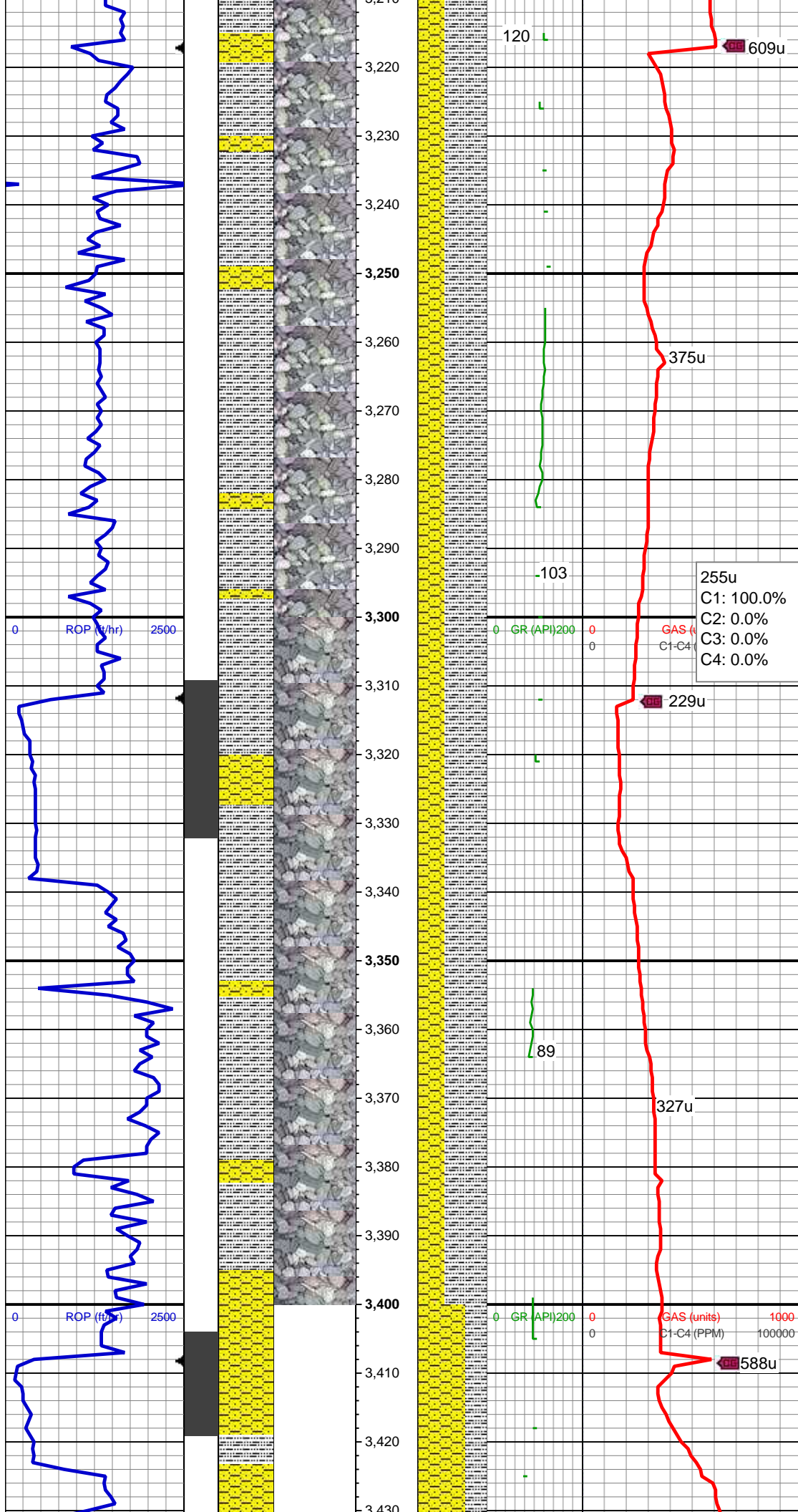
SHY SS: ltgy-gy, sb ang, v sft, v f gr, w
rnd, mod srt, p por, arg cmt
SLTY SH: gy-dk gy, sb blkly-sb plty, v sft,
sly tex, arg cmt

MD: 3,063'
TVD: 3,050.35'
Inclination: 5.37 °
Azimuth: 118.07 °
VS: -88.78'

195u
C1: 100.0%
C2: 0.0%
C3: 0.0%
C4: 0.0%

SHY SS: ltgy-gy, sb ang, v sft, v f gr, w
rnd, mod srt, p por, arg cmt
SLTY SH: gy-dk gy, sb blkly-sb plty, v sft,
sly tex, arg cmt

MD: 3,158'
TVD: 3,144.99'
Inclination: 4.65 °
Azimuth: 126.35 °
VS: -93.2'



SLTY SH: gy-dk gy, sb blkly-sb plty, v sft, slty tex, arg cmt
SHY SS: ltgy-gy, sb ang, v sft, v f gr, w rnd, mod srt, p por, arg cmt

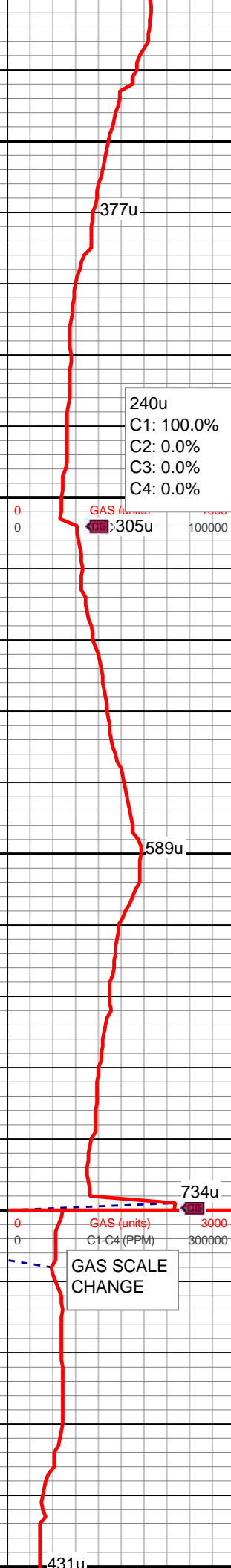
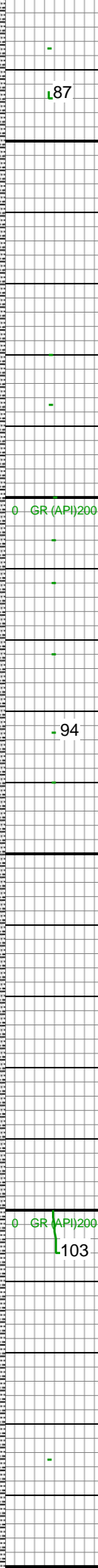
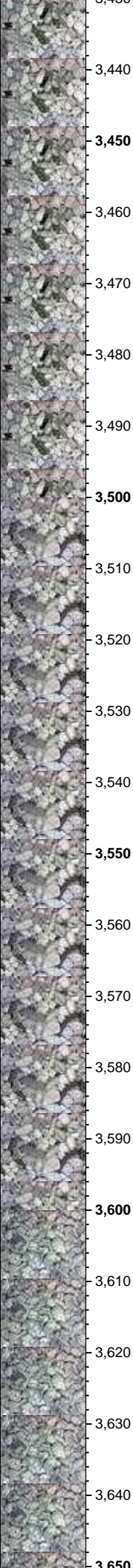
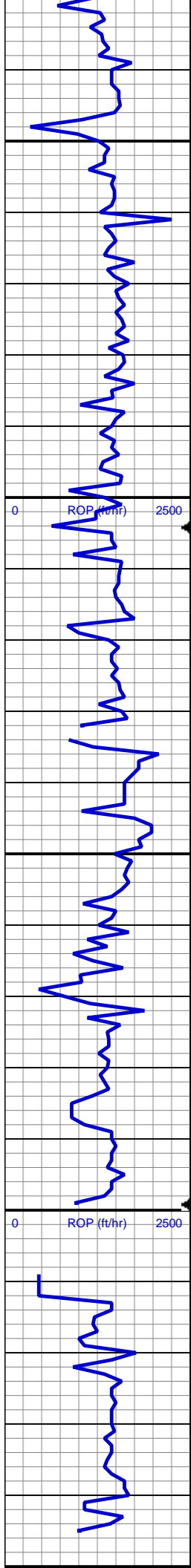
MD: 3,253'
TVD: 3,239.71'
Inclination: 4.07 °
Azimuth: 131.24 °
VS: -97.74'

255u
C1: 100.0%
C2: 0.0%
C3: 0.0%
C4: 0.0%

MD: 3,348'
TVD: 3,334.55'
Inclination: 2.53 °
Azimuth: 127.85 °
VS: -101.28'

SLTY SH: gy-dk gy, sb blkly-sb plty, v sft, slty tex, arg cmt
SHY SS: ltgy-gy, sb ang, v sft, v f gr, w rnd, mod srt, p por, arg cmt

MD: 3,442'
TVD: 3,428.40'



TVD: 3,428.49'
Inclination: 1.66 °
Azimuth: 108.69 °
VS: -103'

SHY SS: ltgy-gy, sb ang, v sft, v f gr, w
rnd, mod srt, p por, arg cmt
SLTY SH: gy-dk gy, sb blkly-sb plty, v sft,
silty tex, arg cmt

240u
C1: 100.0%
C2: 0.0%
C3: 0.0%
C4: 0.0%

MD: 3,537'
TVD: 3,523.44'
Inclination: 2.04 °
Azimuth: 109.46 °
VS: -104.03'

SHY SS: ltgy-gy, sb ang, v sft, v f gr, w
rnd, mod srt, p por, arg cmt
SLTY SH: gy-dk gy, sb blkly-sb plty, v sft,
silty tex, arg cmt

MD: 3,632'
TVD: 3,618.37'
Inclination: 2.32 °
Azimuth: 108.66 °
VS: -105.23'

SHY SS: ltgy-gy, sb ang, v sft, v f gr, w
rnd, mod srt, p por, arg cmt

87

377u

240u
C1: 100.0%
C2: 0.0%
C3: 0.0%
C4: 0.0%

GR (API) 200

GAS (units)
C1-C4 (PPM)

305u

94

589u

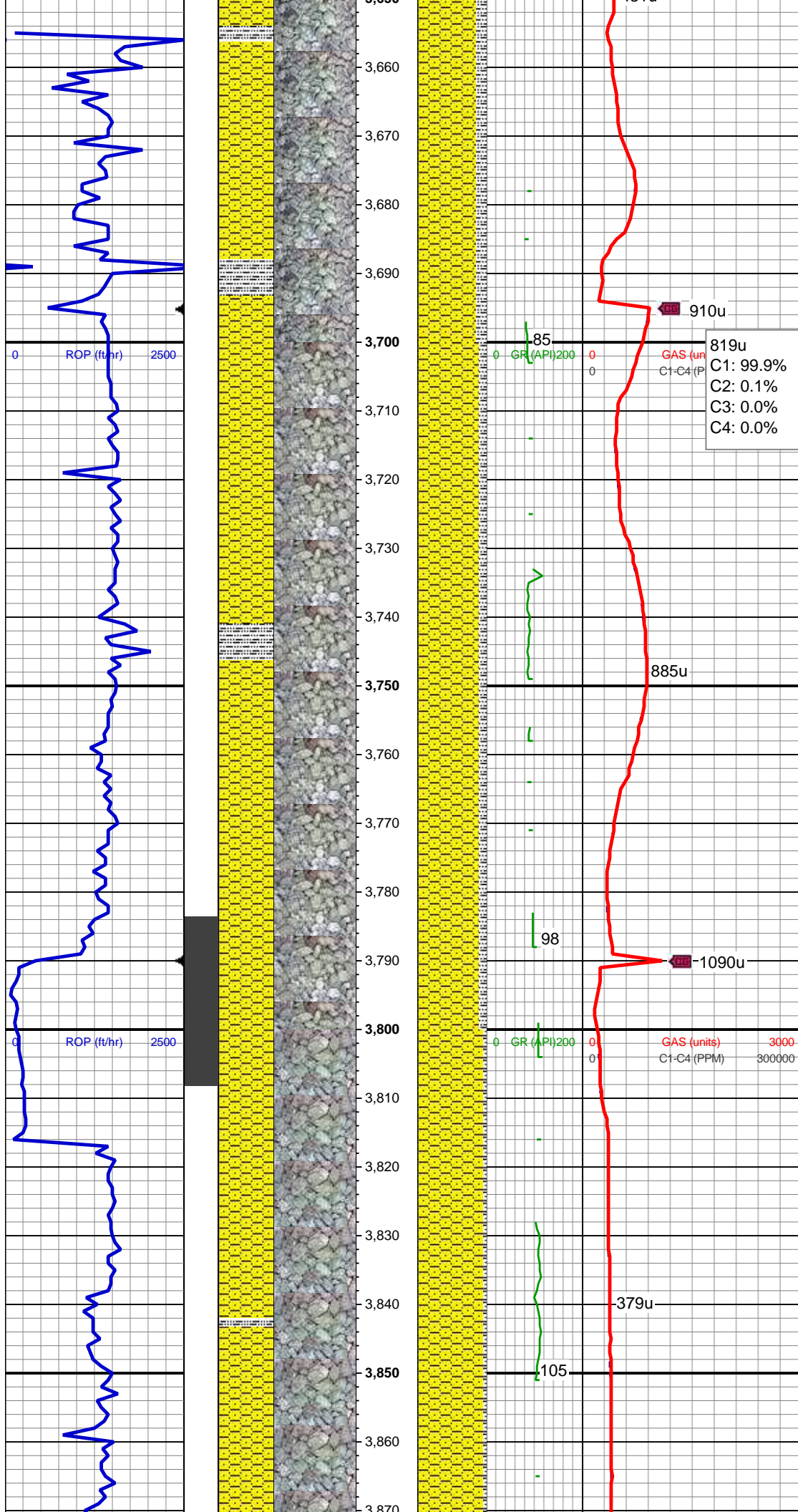
734u

GR (API) 200

GAS (units)
C1-C4 (PPM)

103

GAS SCALE
CHANGE



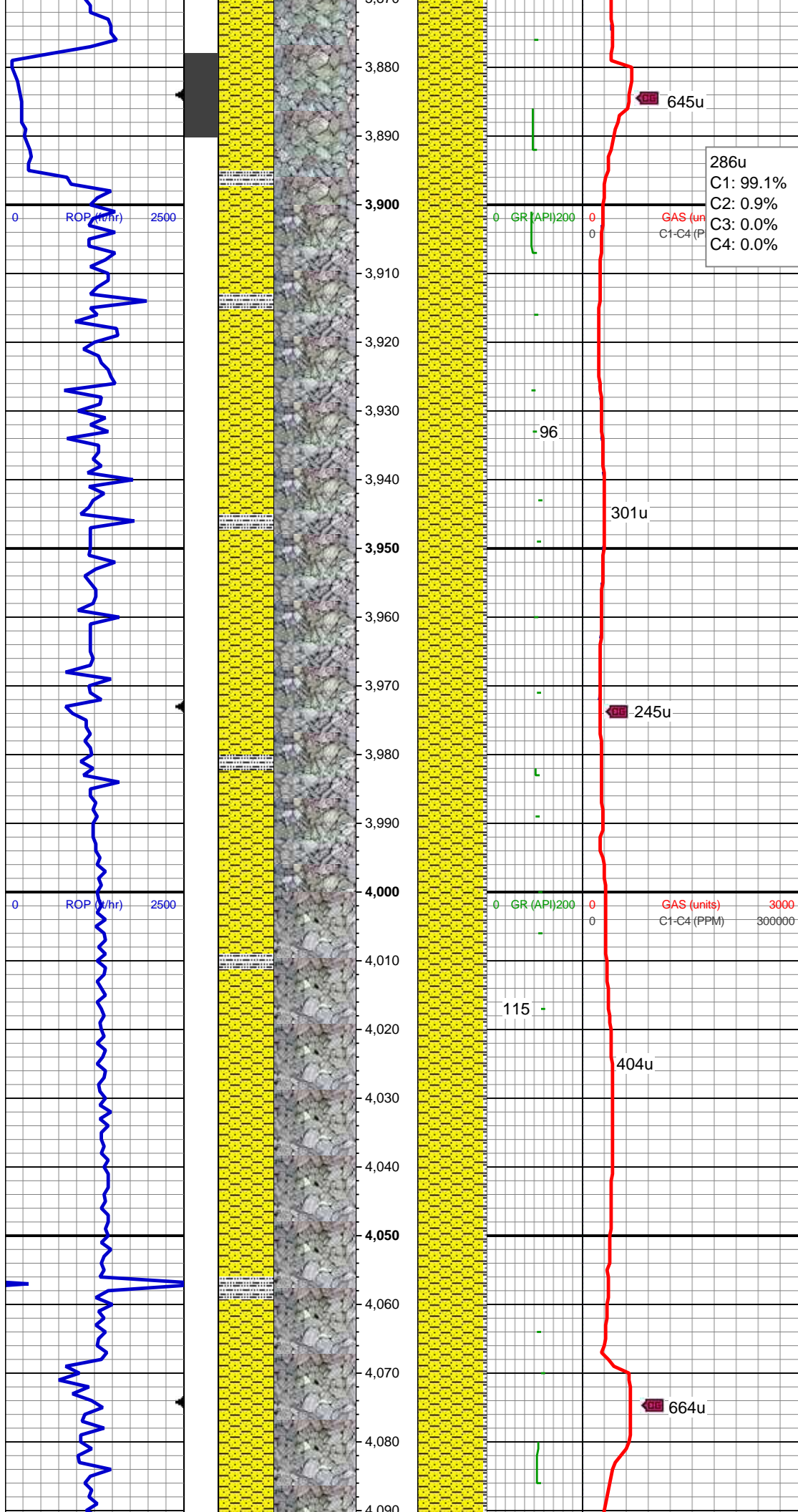
SLTY SH: gy-dk gy, sb blkly-sb plty, v sft, slty tex, arg cmt

MD: 3,727'
TVD: 3,713.29'
Inclination: 2.48 °
Azimuth: 110.73 °
VS: -106.59'

SHY SS: ltgy-gy, sb ang, v sft, v f gr, w rnd, mod srt, p por, arg cmt
SLTY SH: gy-dk gy, sb blkly-sb plty, v sft, slty tex, arg cmt

MD: 3,822'
TVD: 3,808.24'
Inclination: 0.87 °
Azimuth: 90.2 °
VS: -107.34'

SHY SS: ltgy-gy, sb ang, v sft, v f gr, w rnd, mod srt, p por, arg cmt
SLTY SH: gy-dk gy, sb blkly-sb plty, v sft, slty tex, arg cmt, tr fos frags, tr pyr

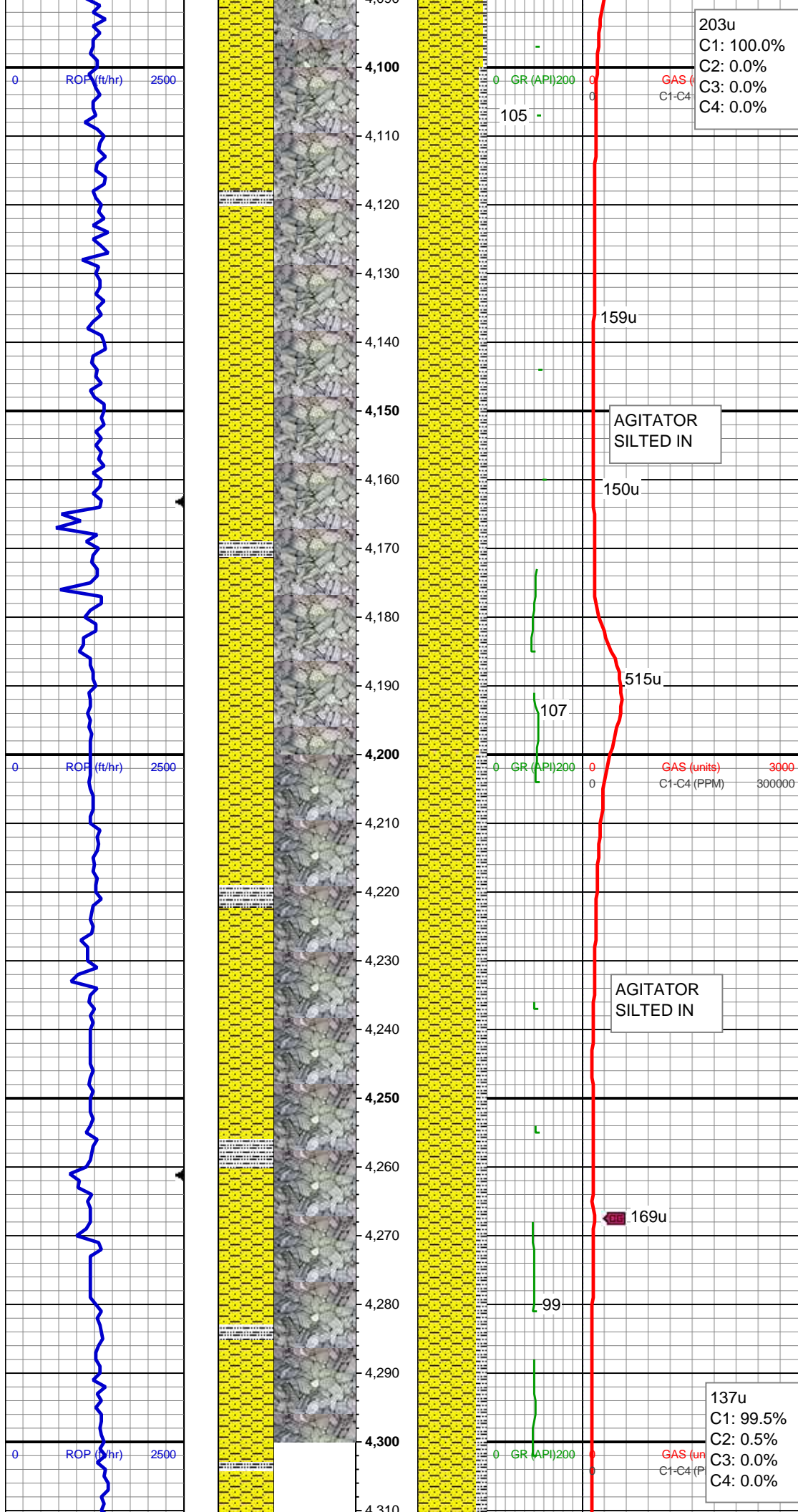


MD: 3,917'
TVD: 3,903.24'
Inclination: 1.25 °
Azimuth: 295.07 °
VS: -106.9'

SHY SS: ltgy-gy, sb ang, v sft, v f gr, w
rnd, mod srt, p por, arg cmt
SLTY SH: gy-dk gy, sb blkgy-sb plty, v sft,
sfty tex, arg cmt, tr fos frags, tr pyr

MD: 4,011'
TVD: 3,997.21'
Inclination: 1.23 °
Azimuth: 304.84 °
VS: -105.88'

SHY SS: ltgy-gy, sb ang, v sft, v f gr, w
rnd, mod srt, p por, arg cmt
SLTY SH: gy-dk gy, sb blkgy-sb plty, v sft,
sfty tex, arg cmt



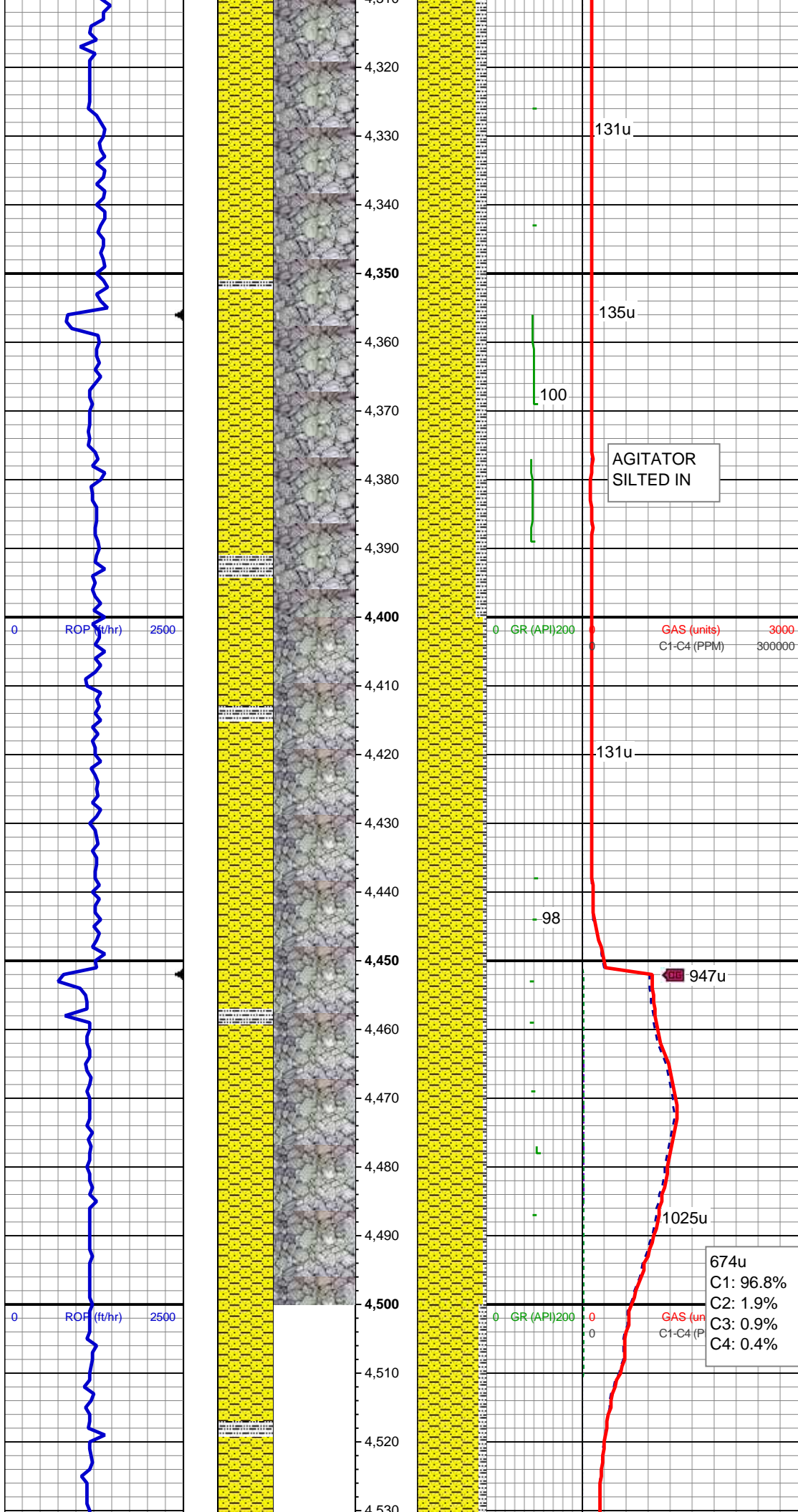
MD: 4,106'
TVD: 4,092.18'
Inclination: 1.75 °
Azimuth: 291.9 °
VS: -104.74'

SHY SS: ltgy-gy, sb ang, v sft, v f gr, w
rnd, mod srt, p por, arg cmt
SLTY SH: gy-dk gy, sb blkgy-sb plty, v sft,
sly tex, arg cmt

MD: 4,201'
TVD: 4,187.13'
Inclination: 2.16 °
Azimuth: 279.63 °
VS: -103.88'

SHY SS: ltgy-gy, sb ang, v sft, v f gr, w
rnd, mod srt, p por, arg cmt
SLTY SH: gy-dk gy, sb blkgy-sb plty, v sft,
sly tex, arg cmt

MD: 4,296'
TVD: 4,282.06'
Inclination: 2.19 °
Azimuth: 284.63 °
VS: -103.1'



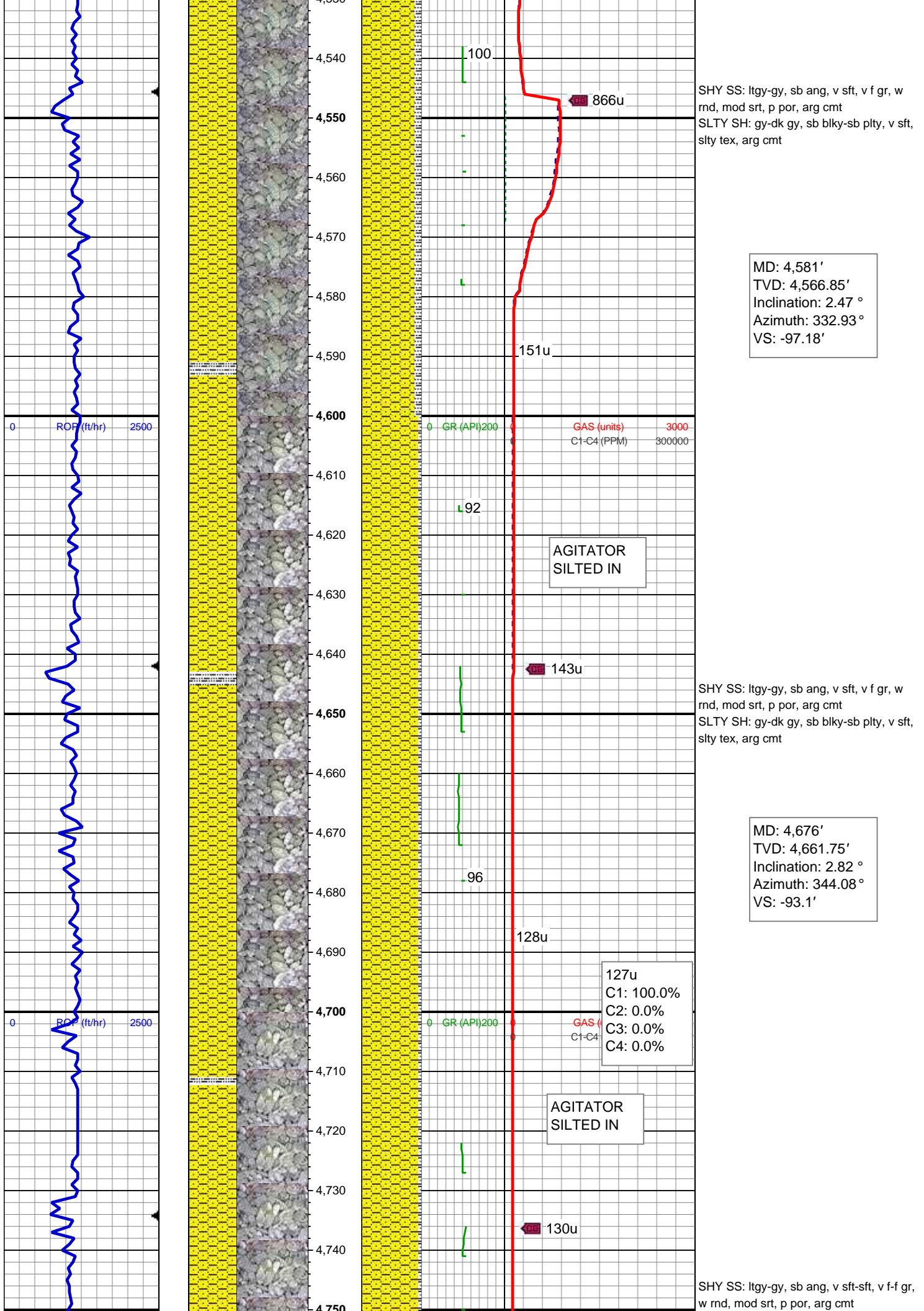
SHY SS: ltgy-gy, sb ang, v sft, v f gr, w
rnd, mod srt, p por, arg cmt
SLTY SH: gy-dk gy, sb blkgy-sb plty, v sft,
silty tex, arg cmt

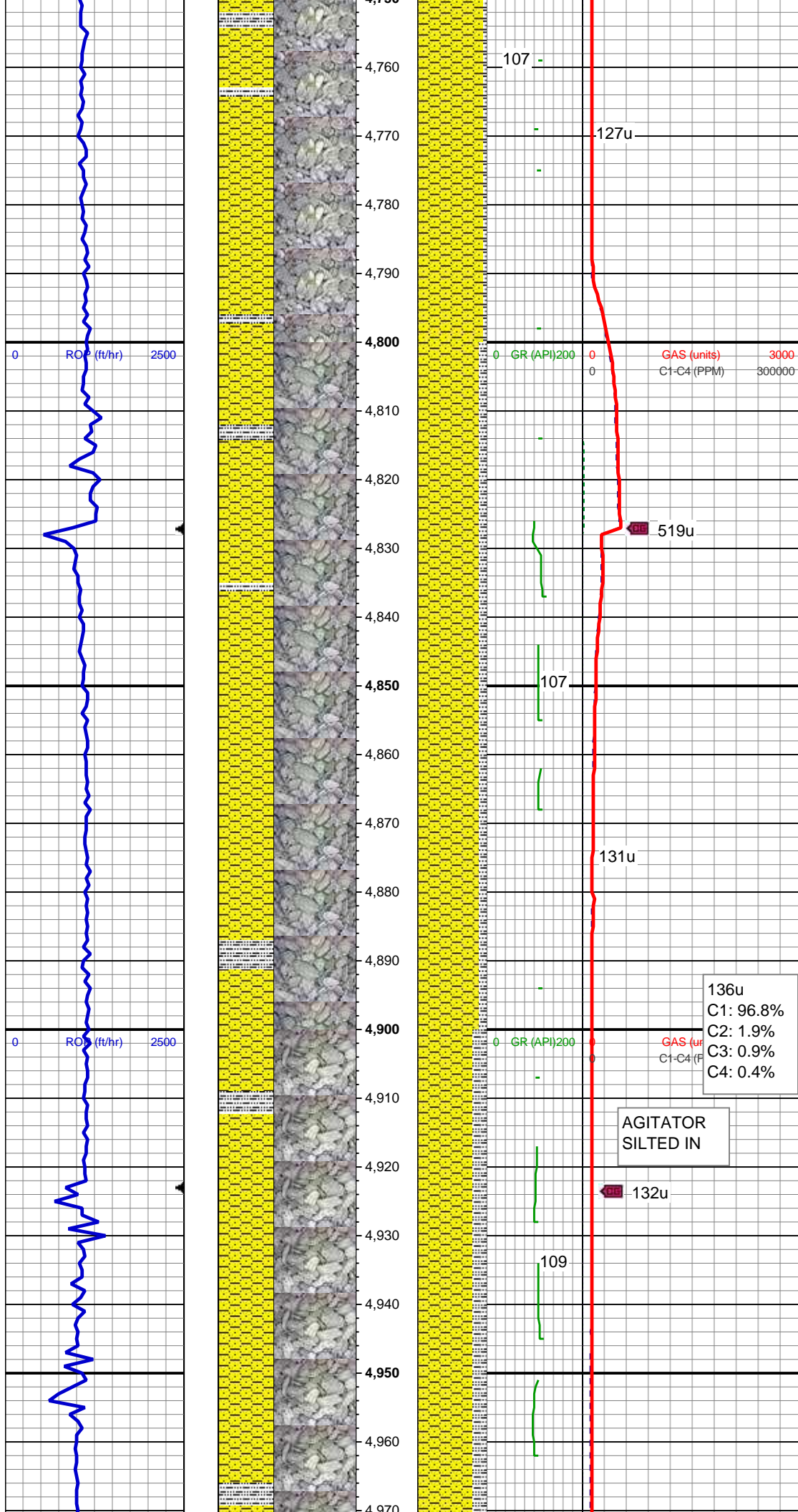
MD: 4,391'
TVD: 4,376.99'
Inclination: 2.15 °
Azimuth: 294.48 °
VS: -101.88'

SHY SS: ltgy-gy, sb ang, v sft, v f gr, w
rnd, mod srt, p por, arg cmt
SLTY SH: gy-dk gy, sb blkgy-sb plty, v sft,
silty tex, arg cmt

MD: 4,486'
TVD: 4,471.93'
Inclination: 2.06 °
Azimuth: 308.04 °
VS: -100.07'

674u
C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%





SLTY SH: gy-dk gy, sb blkly-sb plty, v sft, slty tex, arg cmt

MD: 4,770'
TVD: 4,755.62'
Inclination: 3.27 °
Azimuth: 4.19°
VS: -88.2'

SHY SS: ltgy-gy, sb ang, v sft-sft, v f-f gr, w rnd, mod srt, p por, arg cmt
SLTY SH: gy-dk gy, sb blkly-sb plty, v sft, slty tex, arg cmt

MD: 4,865'
TVD: 4,850.51'
Inclination: 2.26 °
Azimuth: 358.11 °
VS: -83.63'

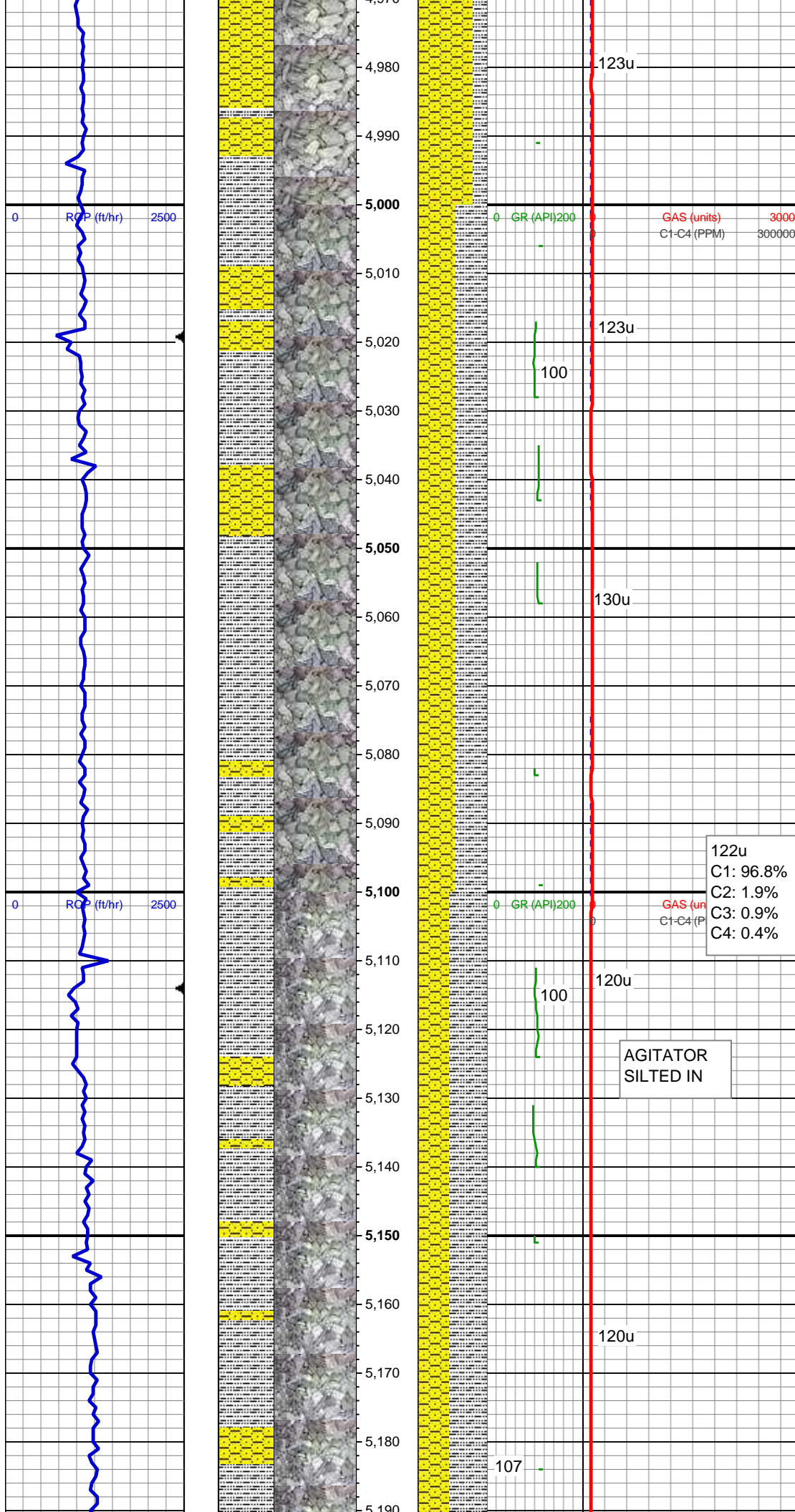
136u
C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%

AGITATOR
SILTED IN

SHY SS: ltgy-gy, sb ang, v sft-sft, v f-f gr, w rnd, mod srt, p por, arg cmt
SLTY SH: gy-dk gy, sb blkly-sb plty, v sft, slty tex, arg cmt

MD: 4,960'
TVD: 4,945.45'
Inclination: 1.8 °
Azimuth: 348.31°

VS: -80.3'



SLTY SH: gy-dk gy, sb blkly-sb plty, v sft, slty tex, arg cmt
SHY SS: ltgy-gy, sb ang, v sft, v f gr, w rnd, mod srt, p por, arg cmt

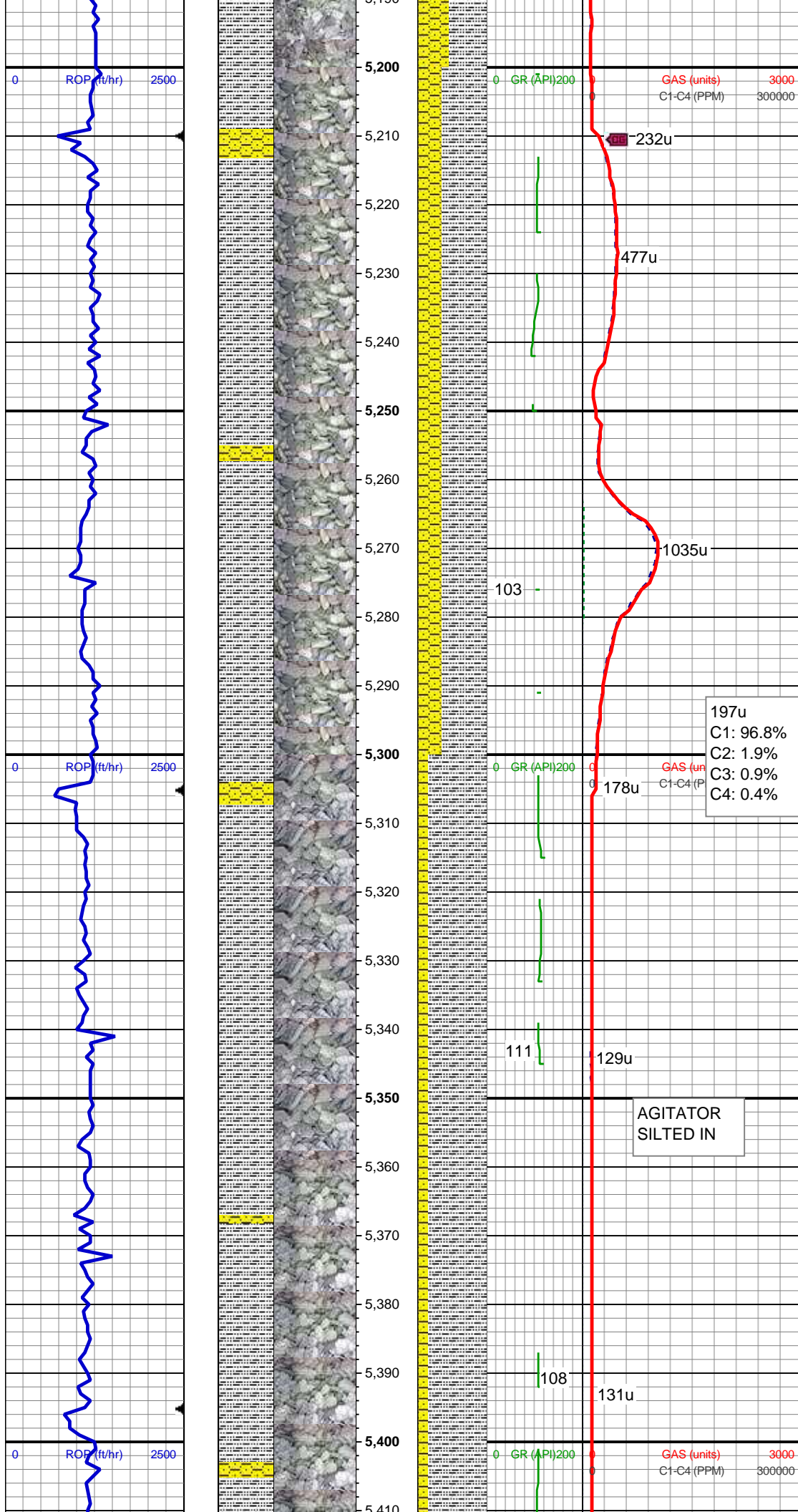
MD: 5,055'
TVD: 5,040.4'
Inclination: 2.19 °
Azimuth: 340.2 °
VS: -77.12'

122u
C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%

AGITATOR
SILTED IN

MD: 5,150'
TVD: 5,135.33'
Inclination: 1.95 °
Azimuth: 338.58 °
VS: -73.9'

SLTY SH: gy-dk gy, sb blkly-sb plty, v sft, slty tex, arg cmt
SHY SS: ltgy-gy, sb ang, v sft, v f gr, w rnd, mod srt, p por, arg cmt



MD: 5,245'
TVD: 5,230.28'
Inclination: 1.86 °
Azimuth: 329.27 °
VS: -71.06'

SLTY SH: gy-dk gy, sb blkly-sb plty, v sft, slty tex, arg cmt
SHY SS: ltgy-gy, sb ang, v sft, v f gr, w rnd, mod srt, p por, arg cmt, rr fos frags, tr pyr

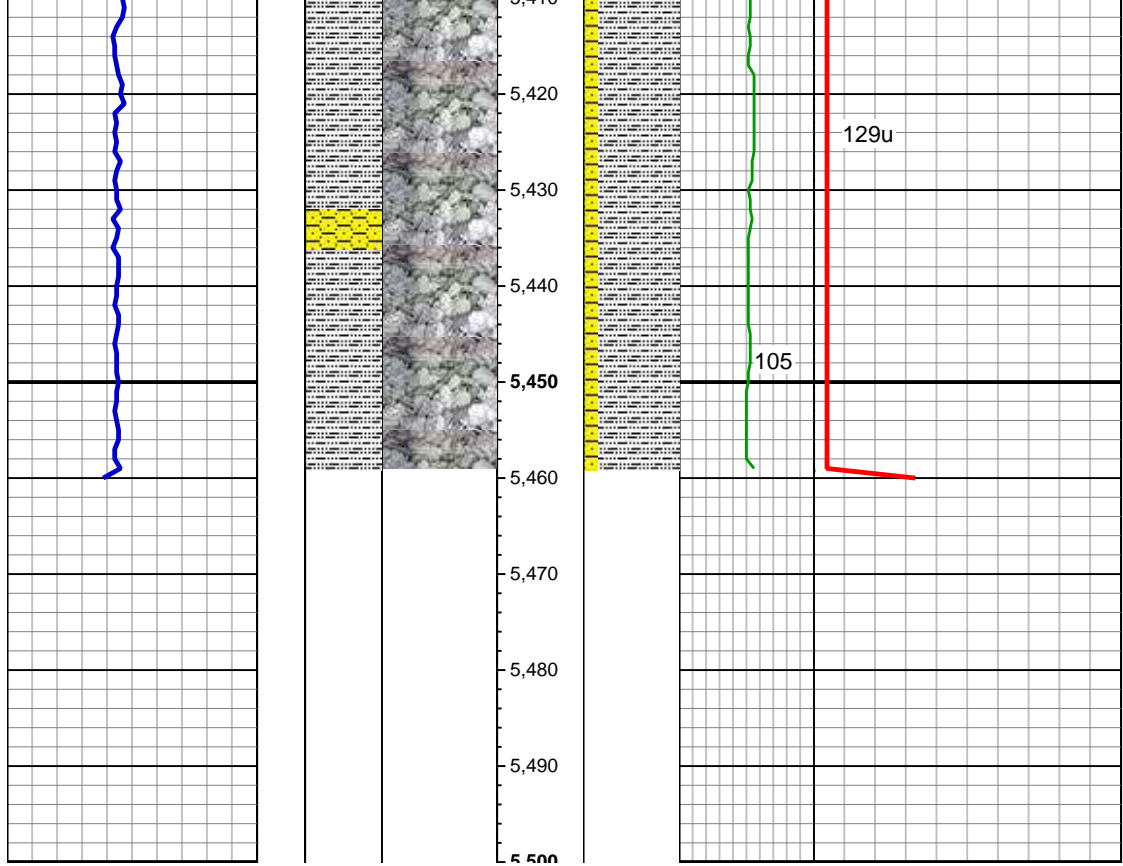
197u
C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%

MD: 5,339'
TVD: 5,324.23'
Inclination: 1.81 °
Azimuth: 329.45 °
VS: -68.46'

SLTY SH: gy-dk gy, sb blkly-sb plty, v sft, slty tex, arg cmt
SHY SS: ltgy-gy, sb ang, v sft, v f gr, w rnd, mod srt, p por, arg cmt, rr fos frags

AGITATOR
SILTED IN

MD: 5,403'
TVD: 5,388.2'
Inclination: 1.9 °
Azimuth: 323.79 °
VS: -66.73'



SLTY SH: gy-dk gy, sb blkly-sb plty, v sft,
slty tex, arg cmt
SHY SS: ltgy-gy, sb ang, v sft, v f gr, w
rnd, mod srt, p por, arg cmt

TD @ 5459' MD
05/23/2014 @ 10:43 PM

LOG CONTINUES ON MPLOT
"TRISHA LC29-74HNB HORZ"