

COLUMBINE LOGGING

Scale: 5" / 100'
Measured Depth Log

Well Name Storis E24-79HN

Location SWSW SEC 24, T6N, R65W

State COLORADO

County WELD

Country USA

Rig Number H&P 330

API Number 05-123-38157

Region DJ BASIN

Field WATTENBERG

Spud Date 4/17/2014

Drilling Completed 4/20/2014

Surface Coordinates 350' FNL, 882' FEL

Ground Elevation 4692'

K.B. Elevation 4722'

Logged Interval 800' To 6224'

Total Depth 6224'

Formation NIOBRARA C CHALK

Type of Drilling Fl... LSND

Operator

Company NOBLE ENERGY INC.

Address 1625 Broadway Suite 2200
Denver, CO 80202

Geologist

Name RENEE CLACKLER

Company NOBLE ENERGY INC.

Address 1625 Broadway Suite 2200
Denver, CO 80202

Other

ANDREA ZUIDEMA

JESSICA SIEBERG

Rock Types

UNKNOWN	COAL	METAMORPHIC	SHALY SILTSTONE
ANHYDRITE	CONGLOMERATE	NO SAMPLE	SILTSTONE
BENTONITE	DOLOMITE	SALT	SILTY SHALE
BRECCIA	GRANITE	SALT- PEPPER SAND	TILL
CEMENT	GYPSUM	SANDSTONE	TUFF
CHALK	IGNEOUS	SHALE	WELDED TUFF
CHERT	LIMESTONE	SHALE COLORED	
CLAY CHOKE SAND	SIDERITE or LIMONITE	SHALE GRAY	
CLAYSTONE	MARLSTONE	SHALY SANDSTONE	

Accessories

Fossils

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

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

Other Symbols

Oil Show

DEAD
EVEN
QUESTIONABLE
SPOTTED STAINING

Porosity

E EARTHY
FENESTRAL
FRACTURE
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
SIDEWALL CORE (LEFT)
SIDEWALL CORE (RIGHT)
SLIDE
SURVEY
TRIP GAS

WIRELINE TESTED - LEFT
WIRELINE TESTED - RT

Rounding

ANGULAR
ROUNDED
SUBANG
SUBRND

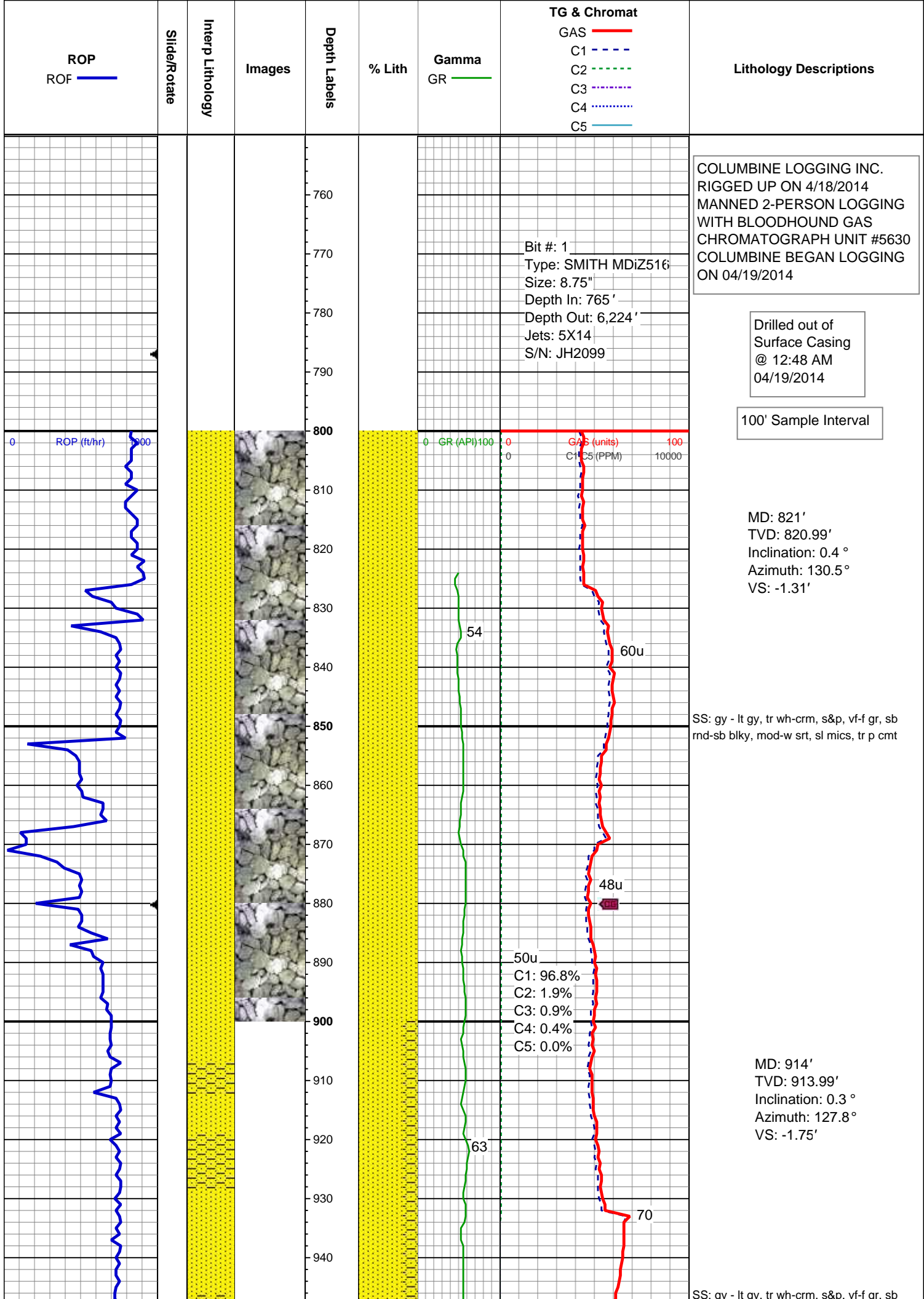
Textures

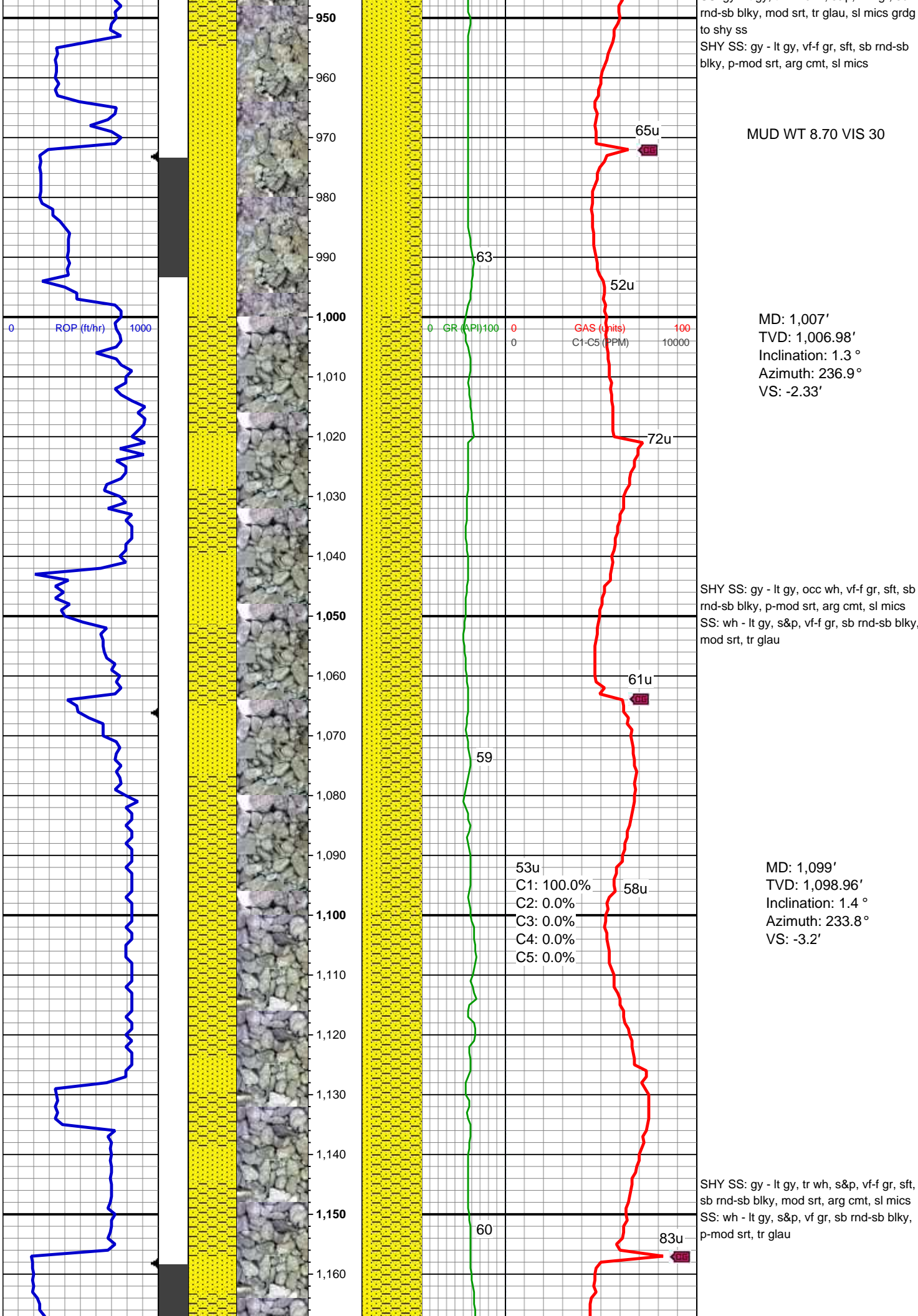
BOUNDSTONE
CHALKY
CRYPTOXLN

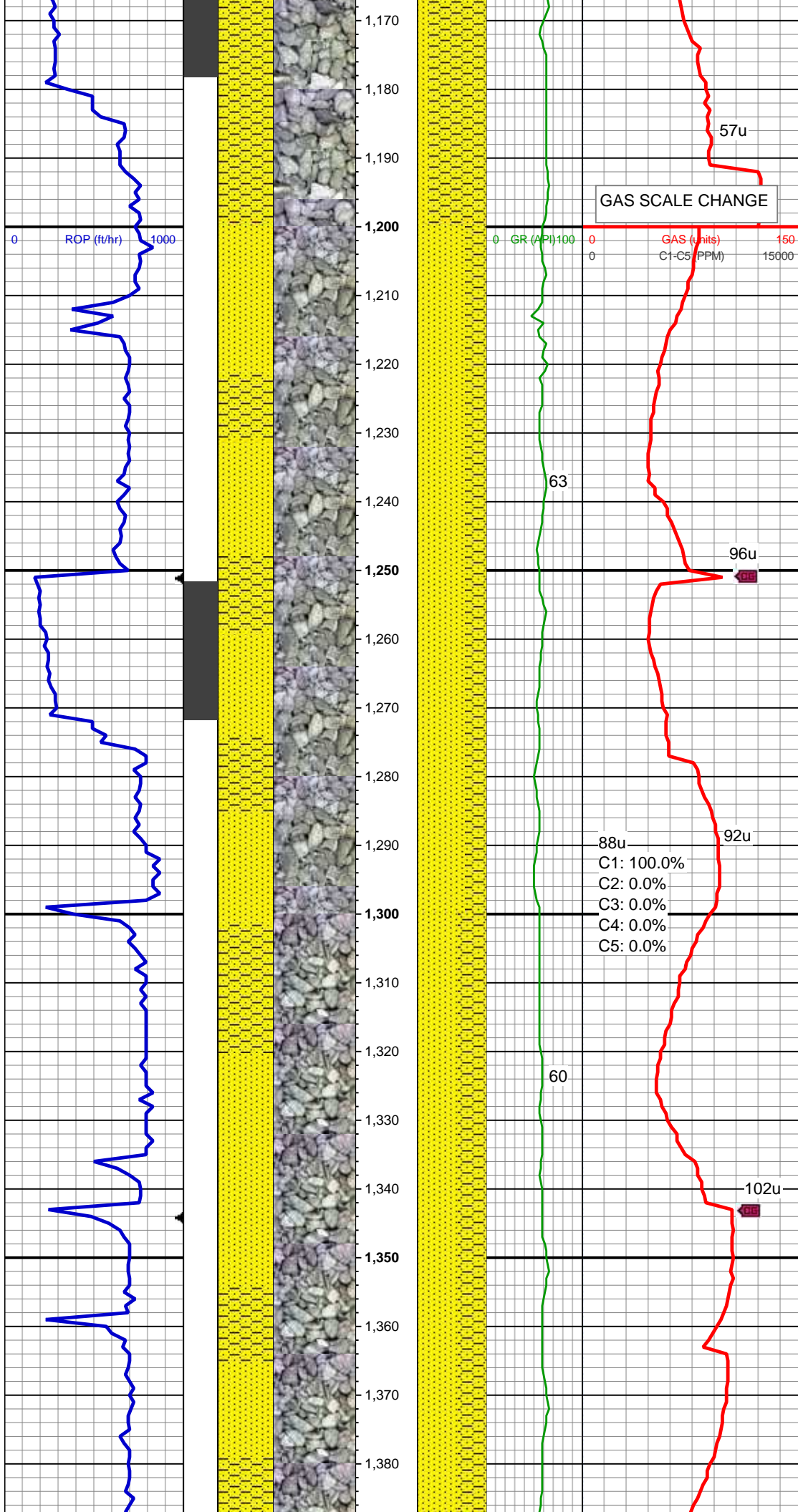
E EARTHY
FX FINELYXLN
GS GRAINSTONE
L LITHOGRAPHIC
MX MICROXLN
MS MUDSTONE
PS PACKSTONE
WS WACKESTONE

Sorting

M MODERATE
P POOR
W WELL







MD: 1,192'
TVD: 1,191.88'
Inclination: 3.1 °
Azimuth: 254.9°
VS: -3.87'

SS: wh - lt gy, tr trnsl, s&p, vf-f gr, sb
rnd-sb blk, p-mod srt, tr pyr, occ glau,
occ p cmt
SHY SS: gy - lt gy, s&p, vf-f gr, sft, sb
rnd-sb blk, tr rnd, p-mod srt, arg cmt

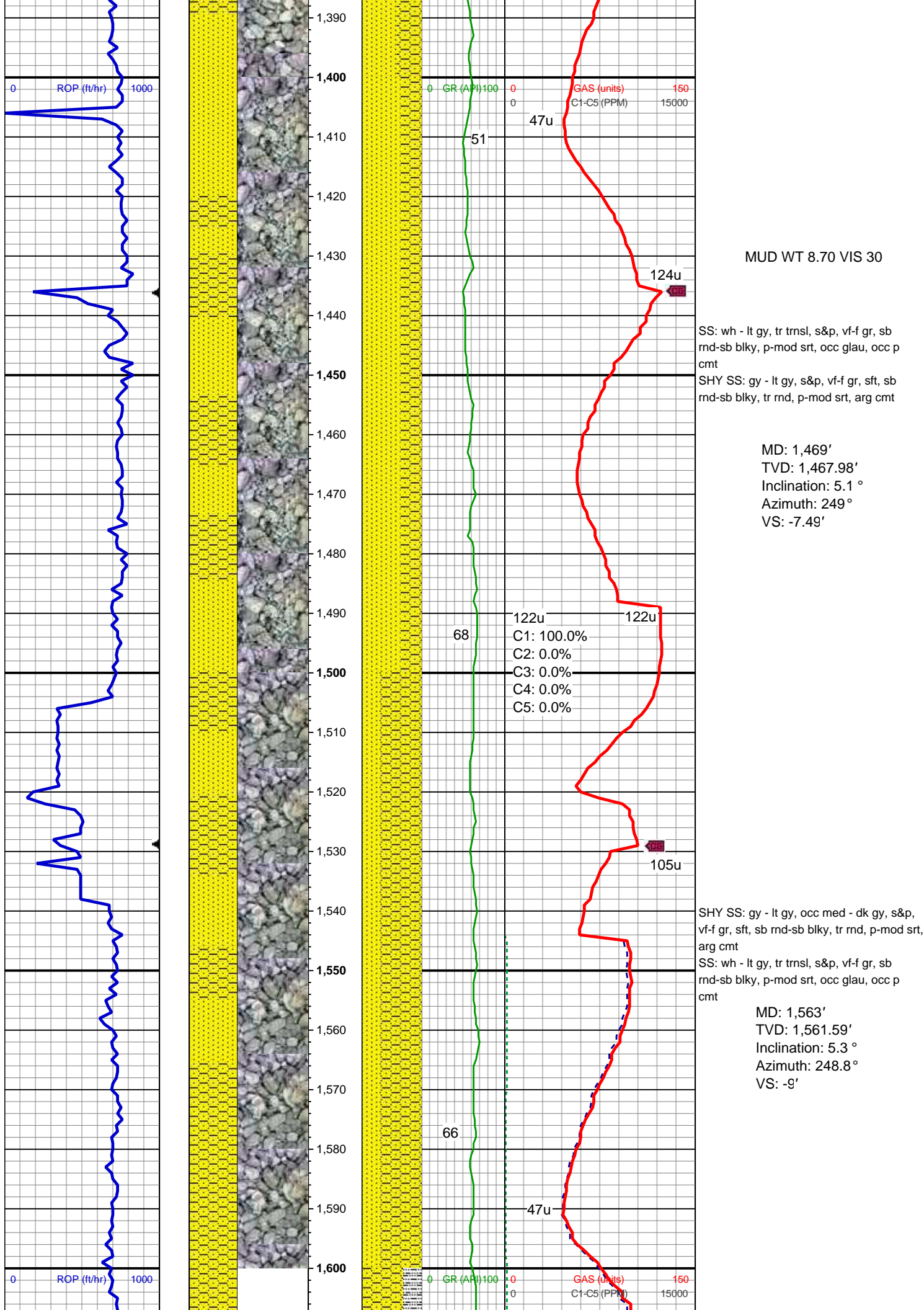
MD: 1,284'
TVD: 1,283.67'
Inclination: 4.7 °
Azimuth: 249.5°
VS: -4.69'

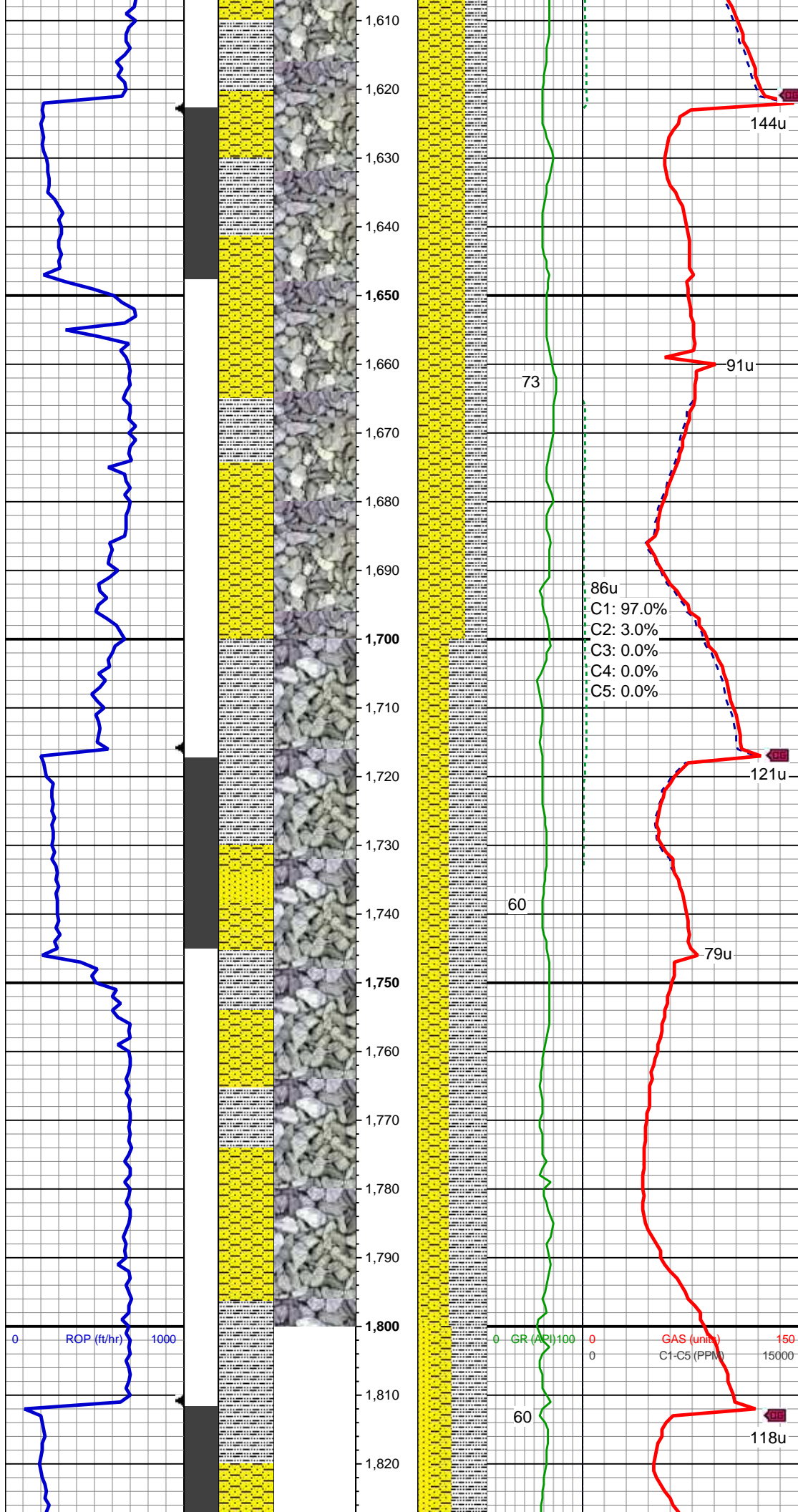
88u
C1: 100.0%
C2: 0.0%
C3: 0.0%
C4: 0.0%
C5: 0.0%

SS: wh - lt gy, tr trnsl, s&p, vf-f gr, sb
rnd-sb blk, p-mod srt, occ glau, occ p
cmt
SHY SS: gy - lt gy, s&p, vf-f gr, sft, sb
rnd-sb blk, tr rnd, p-mod srt, arg cmt

MD: 1,377'
TVD: 1,376.33'
Inclination: 5 °
Azimuth: 248.8°
VS: -6.05'

MUD WT 8.70 VIS 30





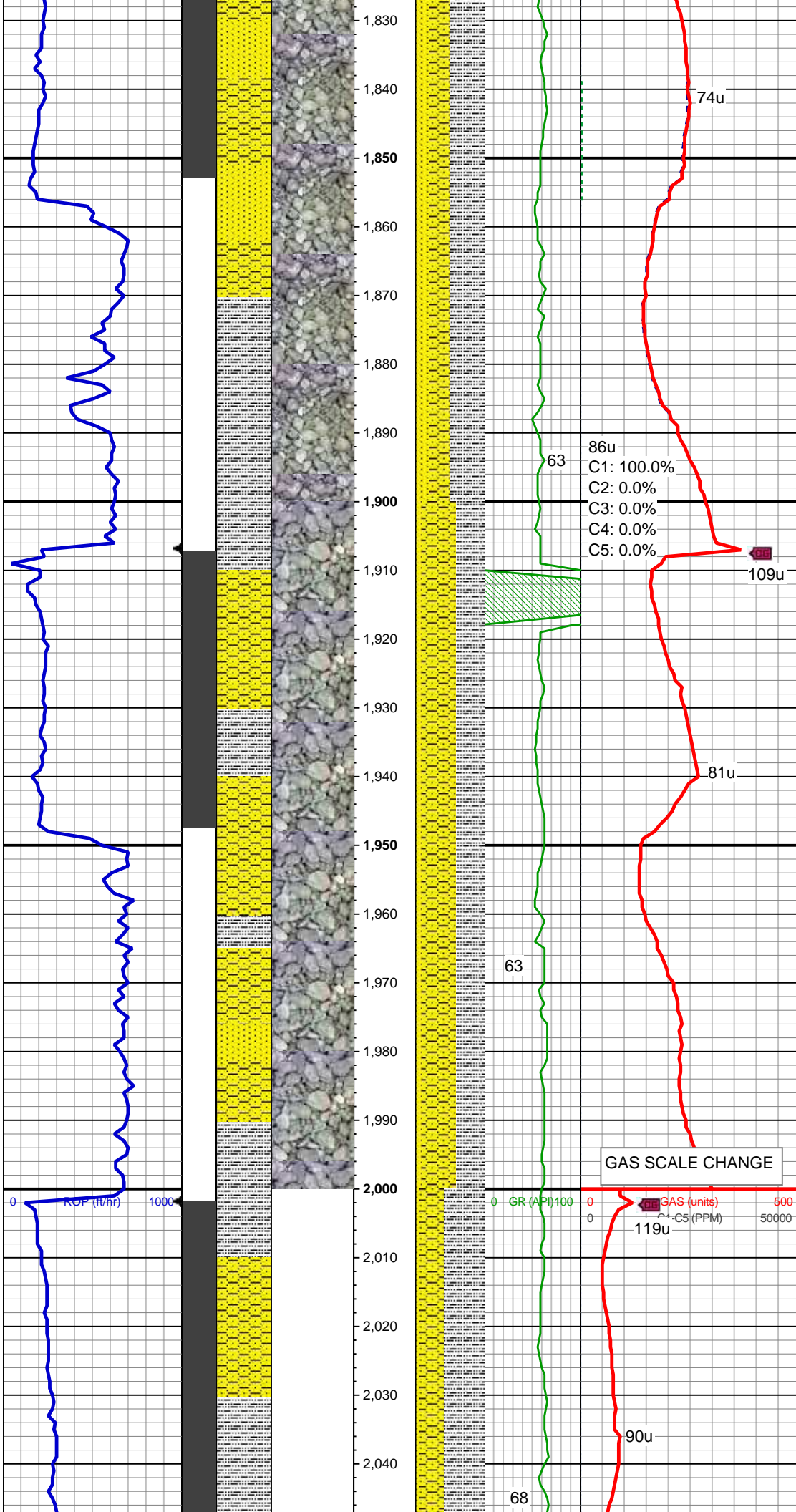
SHY SS: gy - lt gy, occ med - dk gy, s&p,
vf-f gr, sft, sb rnd-sb blk, tr rnd, p-mod srt,
arg cmt
SLTY SH: lt-med gy, sft, sb blk-sb plty,
arg-rthy mtx, non calc

MD: 1,658'
TVD: 1,656.07'
Inclination: 6.7 °
Azimuth: 255.8 °
VS: -10.11'

86u
C1: 97.0%
C2: 3.0%
C3: 0.0%
C4: 0.0%
C5: 0.0%

MD: 1,753'
TVD: 1,750.32'
Inclination: 7.7 °
Azimuth: 249.5 °
VS: -11.5'

SLTY SH: lt-med gy, sft, sb blk-sb plty,
arg-rthy mtx, non calc
SHY SS: gy - lt gy, occ med - dk gy, s&p,
vf-f gr, sft, sb rnd-sb blk, tr rnd, p-mod srt,
arg cmt
SS: wh - lt gy, tr trns, s&p, vf-f gr, sb
rnd-sb blk, p-mod srt, occ glau, occ p
cmt



MD: 1,848'
TVD: 1,844.26'
Inclination: 9.4 °
Azimuth: 257.5 °
VS: -12.78'

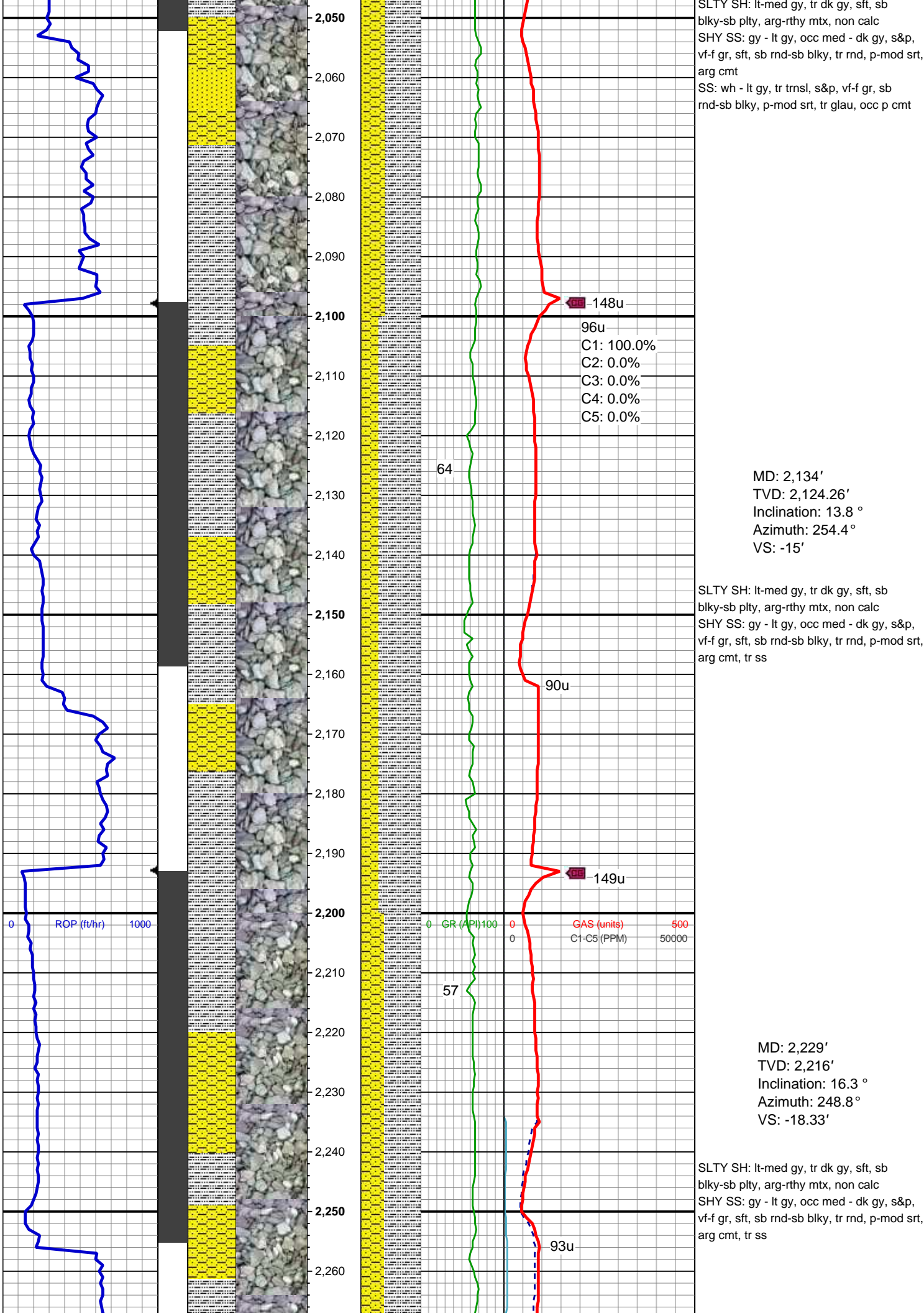
SLTY SH: lt-med gy, sft, sb blk-y-sb plty, arg-rthy mtx, non calc
SHY SS: gy - lt gy, occ med - dk gy, s&p, vf-f gr, sft, sb rnd-sb blk-y, tr rnd, p-mod srt, arg cmt
SS: wh - lt gy, tr trnsl, s&p, vf-f gr, sb rnd-sb blk-y, p-mod srt, tr glau, occ p cmt

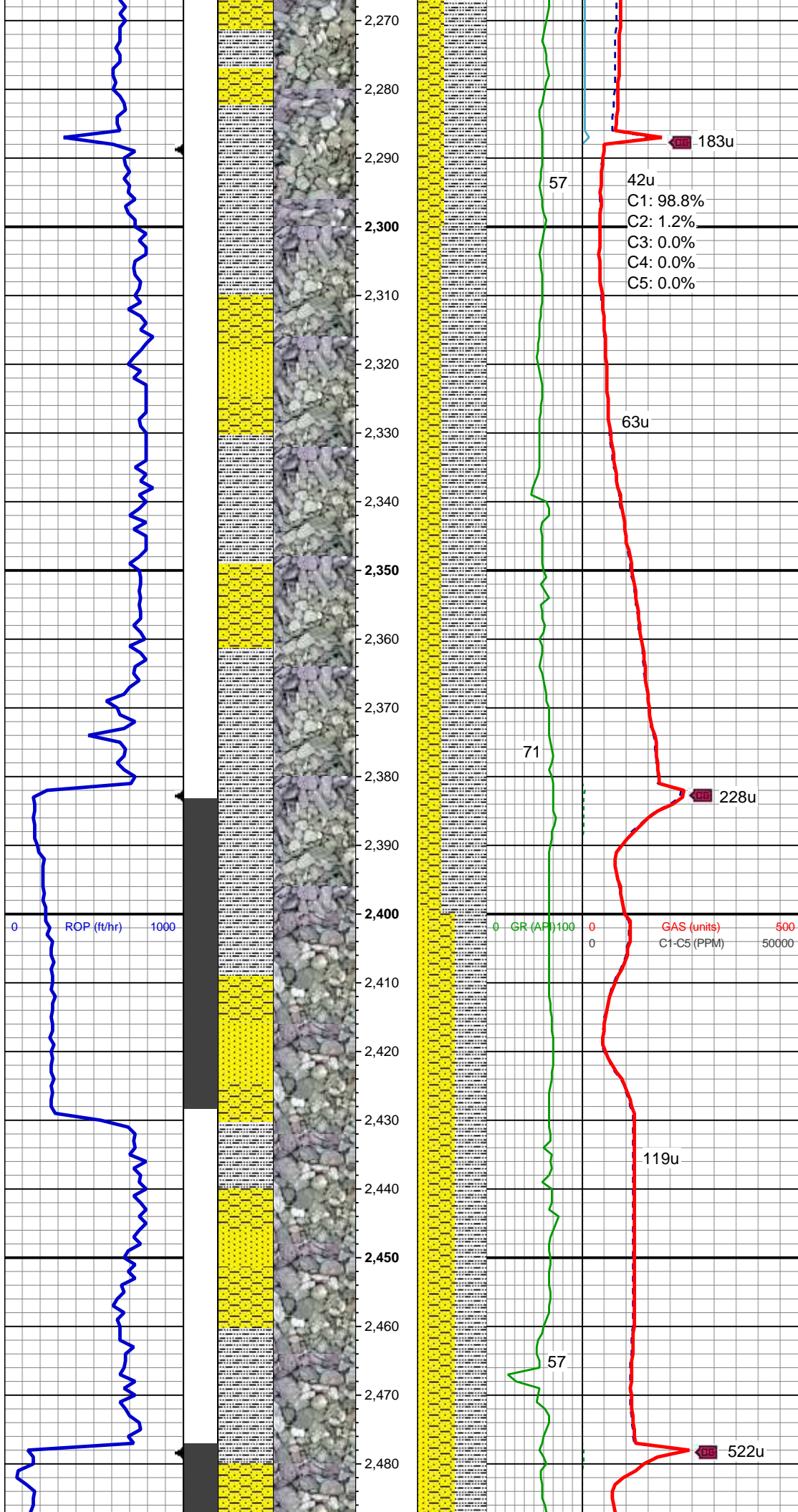
MD: 1,943'
TVD: 1,937.73'
Inclination: 11.2 °
Azimuth: 259.2 °
VS: -12.99'

SHY SS: gy - lt gy, occ med - dk gy, s&p, vf-f gr, sft, sb rnd-sb blk-y, tr rnd, p-mod srt, arg cmt
SLTY SH: lt-med gy, tr dk gy, sft, sb blk-y-sb plty, arg-rthy mtx, non calc
SS: wh - lt gy, tr trnsl, s&p, vf-f gr, sb rnd-sb blk-y, p-mod srt, tr glau, occ p cmt

MUD WT 8.80 VIS 30

MD: 2,038'
TVD: 2,030.74'
Inclination: 12.3 °
Azimuth: 256.1 °
VS: -13.52'



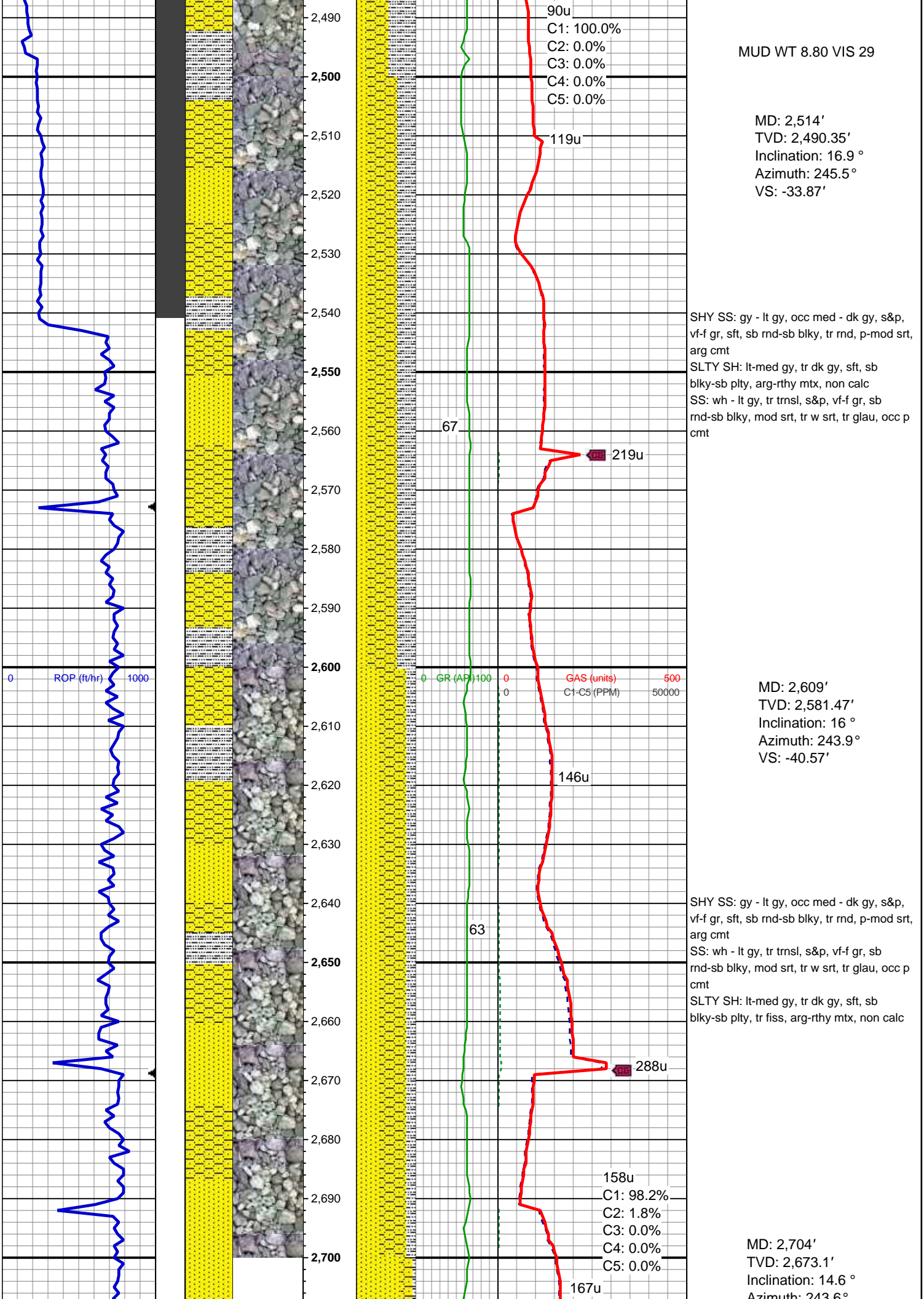


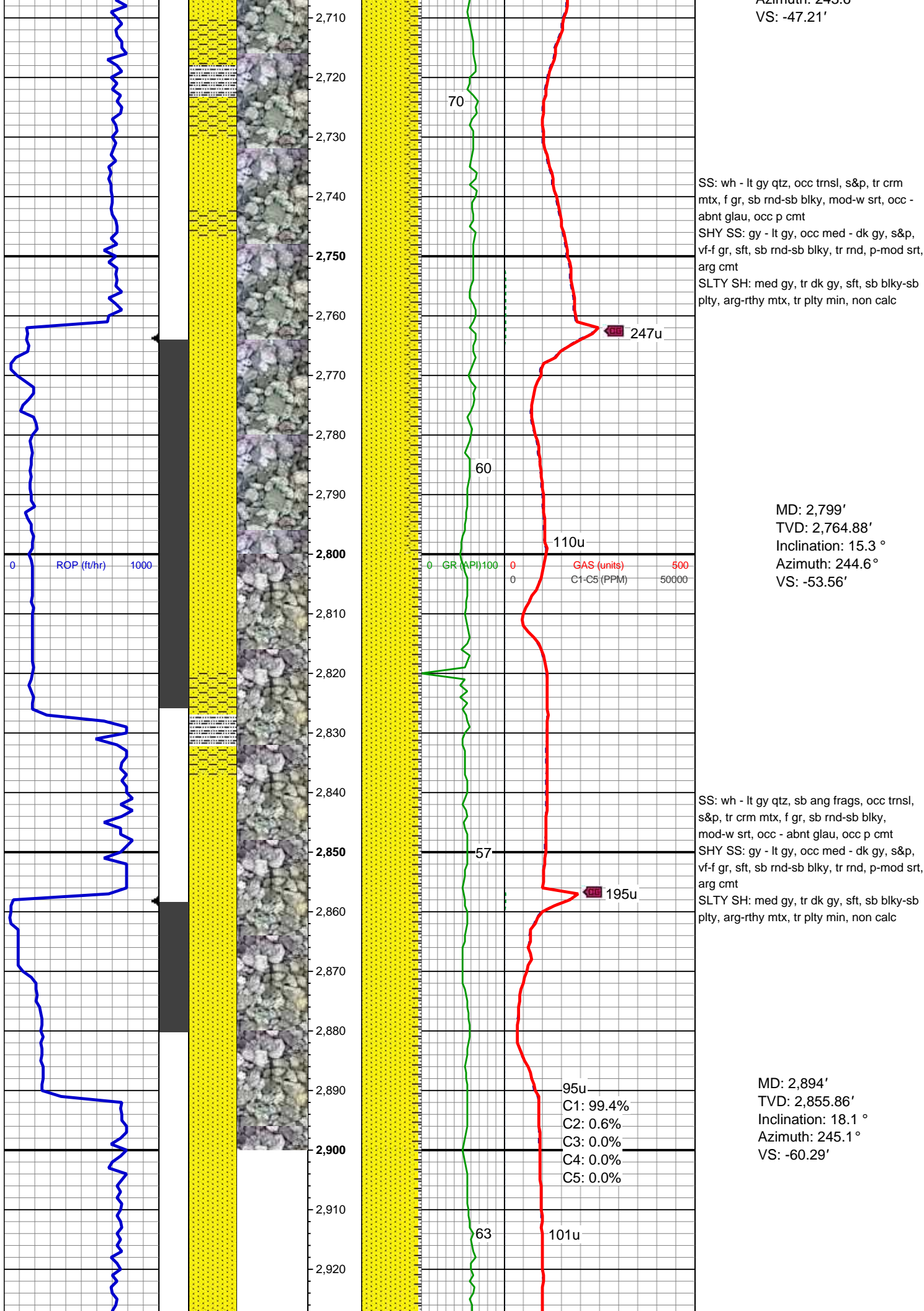
MD: 2,324'
TVD: 2,307.41'
Inclination: 15.3 °
Azimuth: 248.8 °
VS: -22.97'

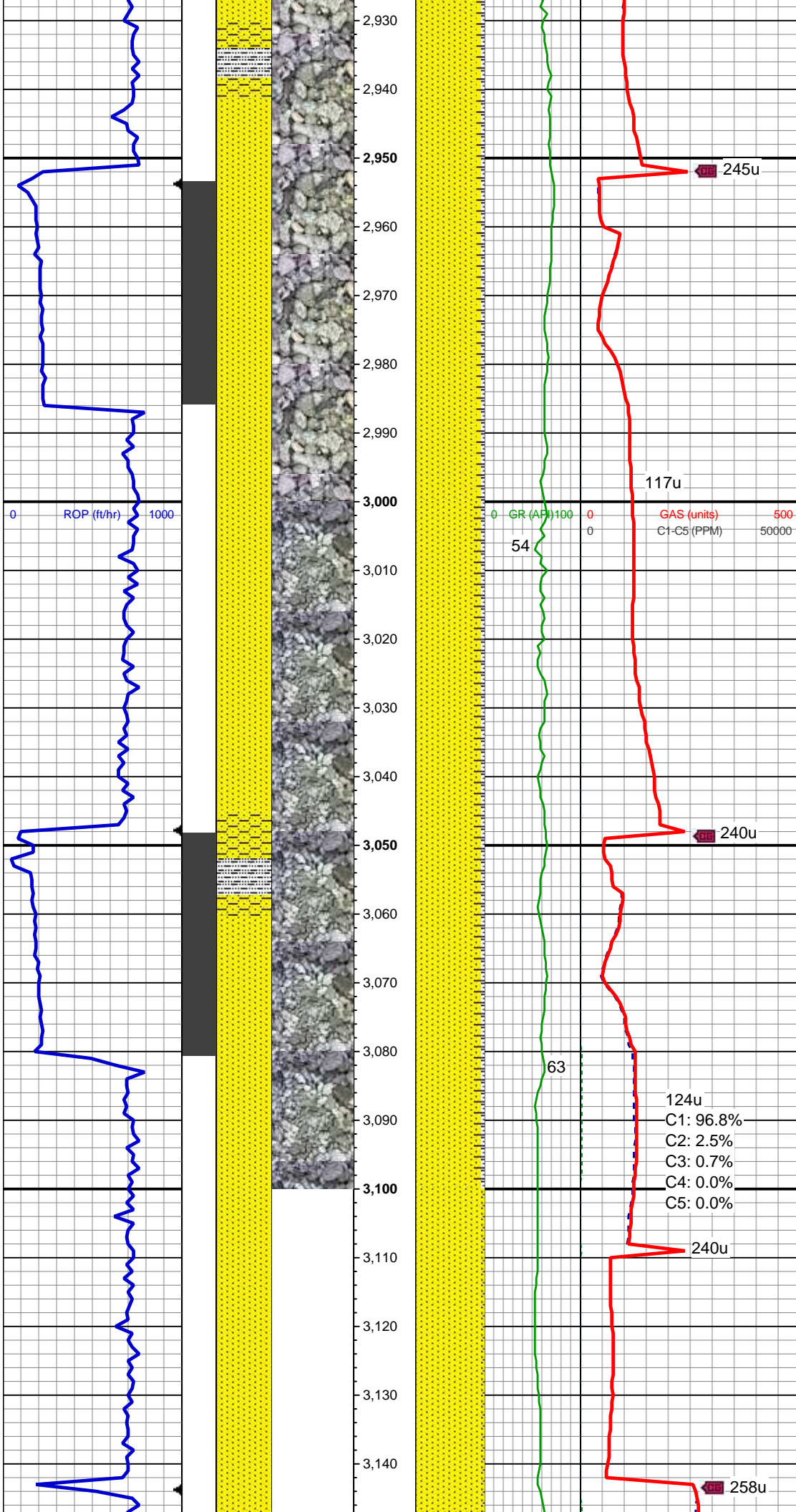
SLTY SH: lt-med gy, tr dk gy, sft, sb
blky-sb plty, arg-rthy mtz, non calc
SHY SS: gy - lt gy, occ med - dk gy, s&p,
vf-f gr, sft, sb rnd-sb blky, tr rnd, p-mod srt,
arg cmt
SS: wh - lt gy, tr trns, s&p, vf-f gr, sb
rnd-sb blky, p-mod srt, tr glau, occ p cmt

MD: 2,419'
TVD: 2,399.06'
Inclination: 15.2 °
Azimuth: 246.6 °
VS: -27.92'

SLTY SH: lt-med gy, tr dk gy, sft, sb
blky-sb plty, arg-rthy mtz, non calc
SHY SS: gy - lt gy, occ med - dk gy, s&p,
vf-f gr, sft, sb rnd-sb blky, tr rnd, p-mod srt,
arg cmt
SS: wh - lt gy, tr trns, s&p, vf-f gr, sb
rnd-sb blky, mod srt, tr w srt, tr glau, occ p
cmt







SS: wh - lt gy qtz, sb ang frags, occ trnsl, s&p, tr crm mtz, f gr, sb rnd-sb blk, mod-w srt, occ - abnt glau, occ p cmt
SHY SS: gy - lt gy, occ med - dk gy, s&p, vf-f gr, sft, sb rnd-sb blk, tr rnd, p-mod srt, arg cmt
SLTY SH: med gy, tr dk gy, sft, sb blk-sb plty, arg-rthy mtz, tr plty min, non calc

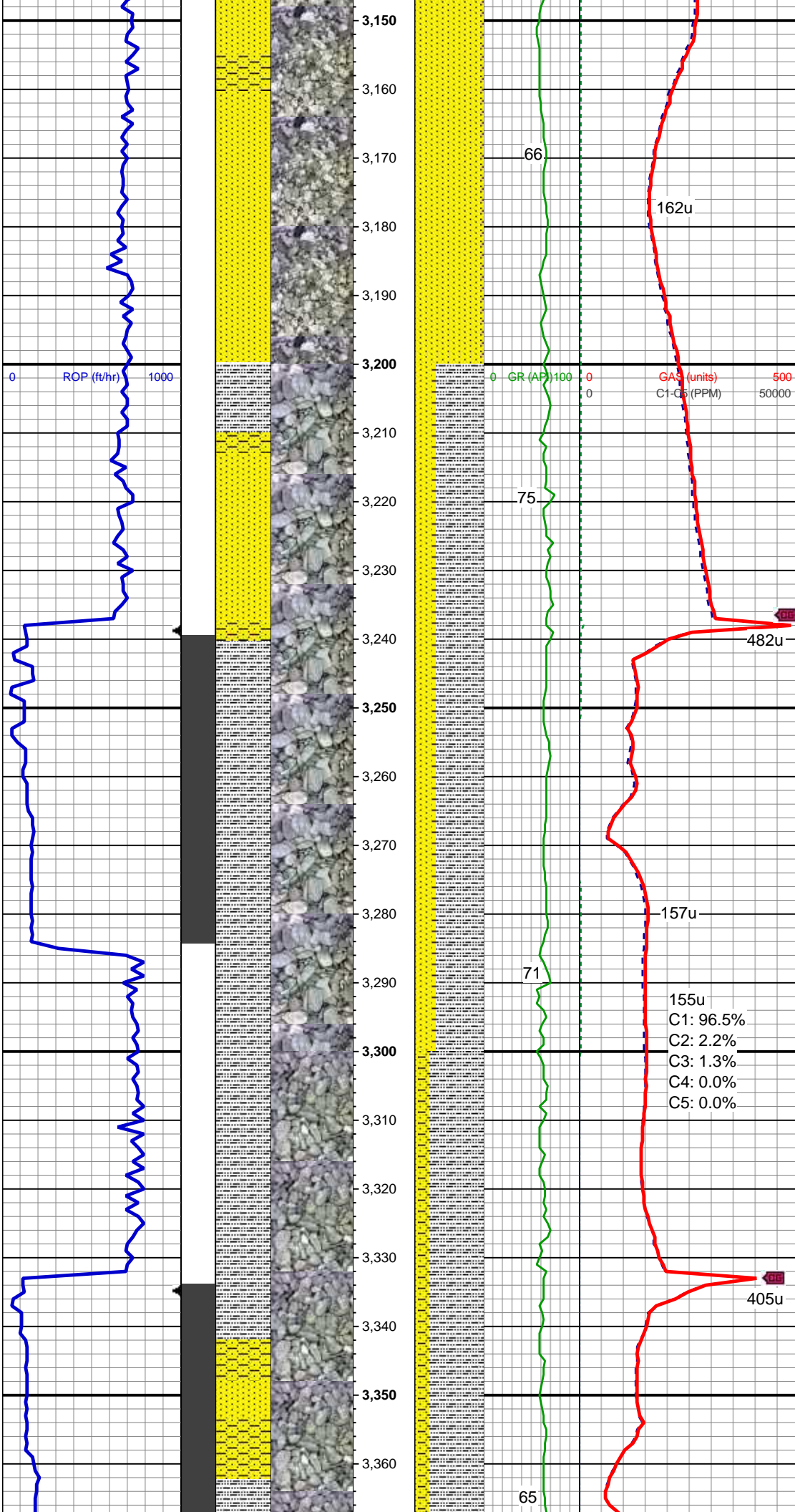
MD: 2,989'
TVD: 2,946.88'
Inclination: 15.2 °
Azimuth: 252.4 °
VS: -65.32'

SS: wh - lt gy qtz, sb ang frags, occ trnsl, s&p, tr crm mtz, f gr, sb rnd-sb blk, mod-w srt, occ - abnt glau, occ p cmt
SHY SS: gy - lt gy, occ med - dk gy, s&p, vf-f gr, sft, sb rnd-sb blk, tr rnd, p-mod srt, arg cmt
SLTY SH: med gy, tr dk gy, sft, sb blk-sb plty, arg-rthy mtz, tr plty min, non calc

MD: 3,085'
TVD: 3,039.37'
Inclination: 15.9 °
Azimuth: 255.4 °
VS: -67.65'

MUD WT 8.85 VIS 29

SS: wh - lt gy qtz, sb ang frags, occ trnsl, s&p, tr crm mtz, f gr, sb rnd-sb blk,



mod-w srt, occ - abnt glau, occ uncon
SHY SS: gy - lt gy, occ med - dk gy, s&p,
vf-f gr, sft, sb rnd-sb blkly, tr rnd, p-mod srt,
arg cmt, tr slty sh

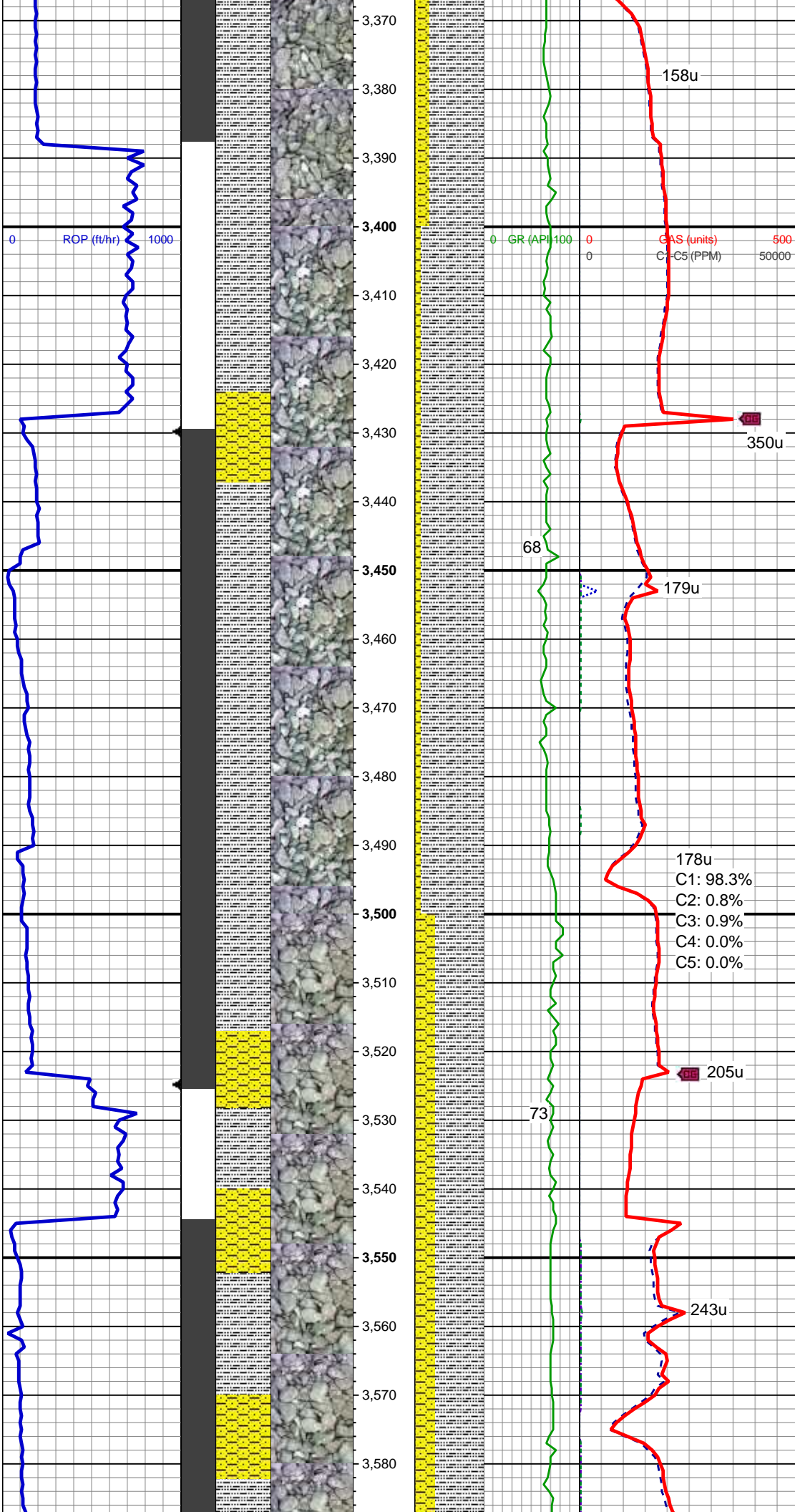
MD: 3,180'
TVD: 3,131.06'
Inclination: 14.4 °
Azimuth: 255.3 °
VS: -69.29'

SLTY SH: med gy - dk gy, sft, sb blkly-sb
ppty, arg-rthy mtx, tr ppty min, non calc
SS: wh - lt gy qtz, sb ang frags, occ trnsl,
s&p, tr crm mtx, f gr, sb rnd-sb blkly, mod -
w srt, occ - abnt glau, occ uncon
SHY SS: gy - lt gy, occ med - dk gy, s&p,
vf - f gr, sft, sb rnd-sb blkly, tr rnd, p - mod
srt, arg cmt

MD: 3,275'
TVD: 3,223.36'
Inclination: 13 °
Azimuth: 253.9 °
VS: -71.05'

SLTY SH: med gy - dk gy, sft, sb blkly-sb
ppty, arg-rthy mtx, tr ppty min, non calc
SHY SS: gy - lt gy, occ med - dk gy, s&p,
vf - f gr, sft, sb rnd-sb blkly, tr rnd, p - mod
srt, arg cmt
SS: wh - lt gy qtz, sb ang frags, occ trnsl,
s&p, tr crm mtx, f gr, sb rnd-sb blkly, mod -
w srt, occ glau

MD: 3,275'



MD: 3,370'
TVD: 3,315.94'
Inclination: 12.9 °
Azimuth: 252.7 °
VS: -73.21'

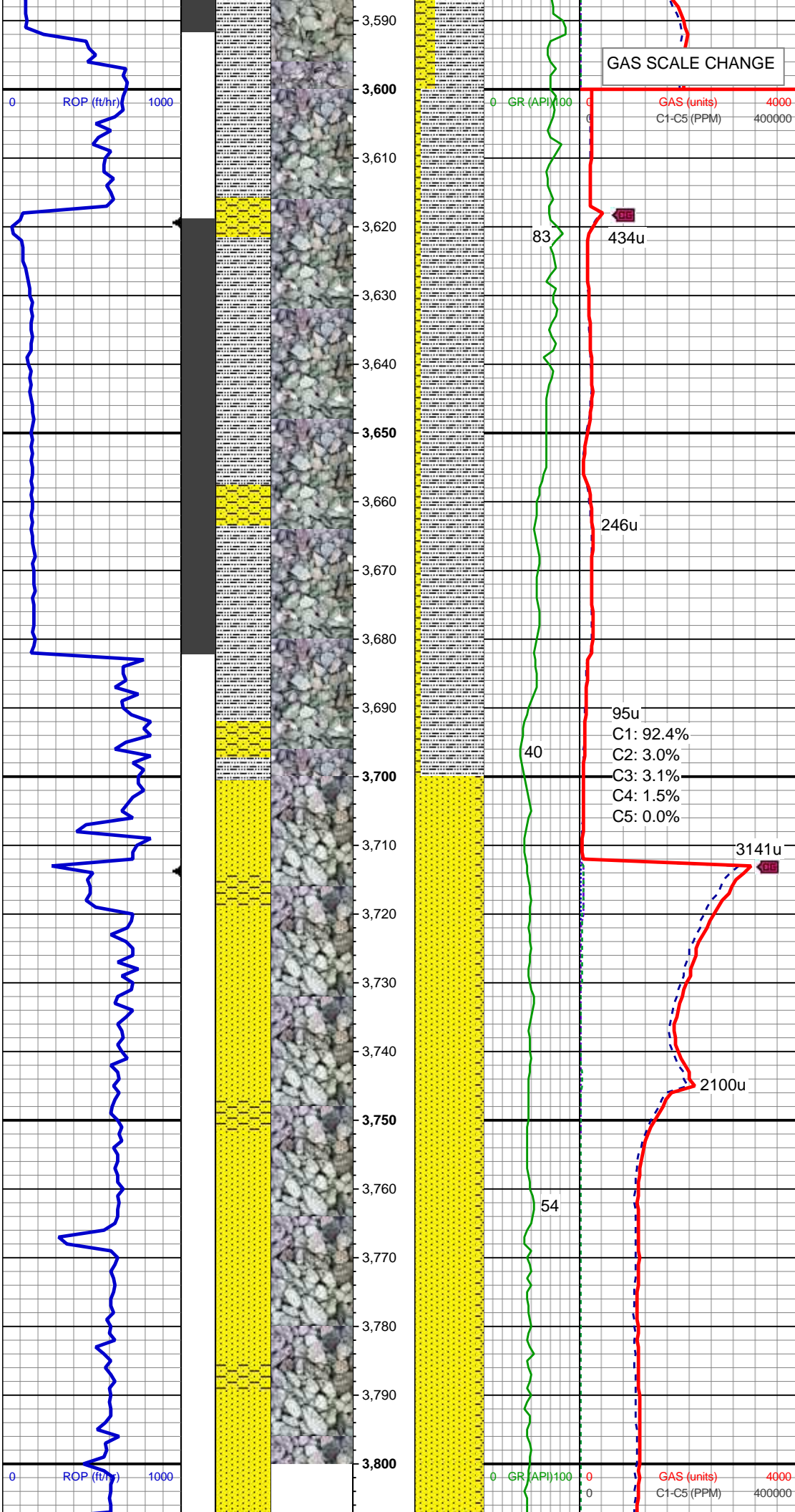
SLTY SH: med gy - dk gy, sft, sb blkly-sb
plty, arg-rthy mtx, tr plty min, non calc
SHY SS: gy - lt gy, occ med - dk gy, s&p,
vf - f gr, sft, sb rnd-sb blkly, tr rnd, p - mod
srt, arg cmt, tr ss

MD: 3,465'
TVD: 3,408.43'
Inclination: 13.5 °
Azimuth: 252.4 °
VS: -75.7'

MUD WT 8.85 VIS 28

SLTY SH: med gy - dk gy, sft, sb blkly-sb
plty, arg-rthy mtx, non calc
SHY SS: gy - lt gy, occ med - dk gy, s&p,
vf - f gr, sft, sb rnd-sb blkly, tr rnd, p - mod
srt, arg cmt, tr ss

MD: 3,560'
TVD: 3,500.36'
Inclination: 15.7 °
Azimuth: 249.5 °
VS: -79.15'



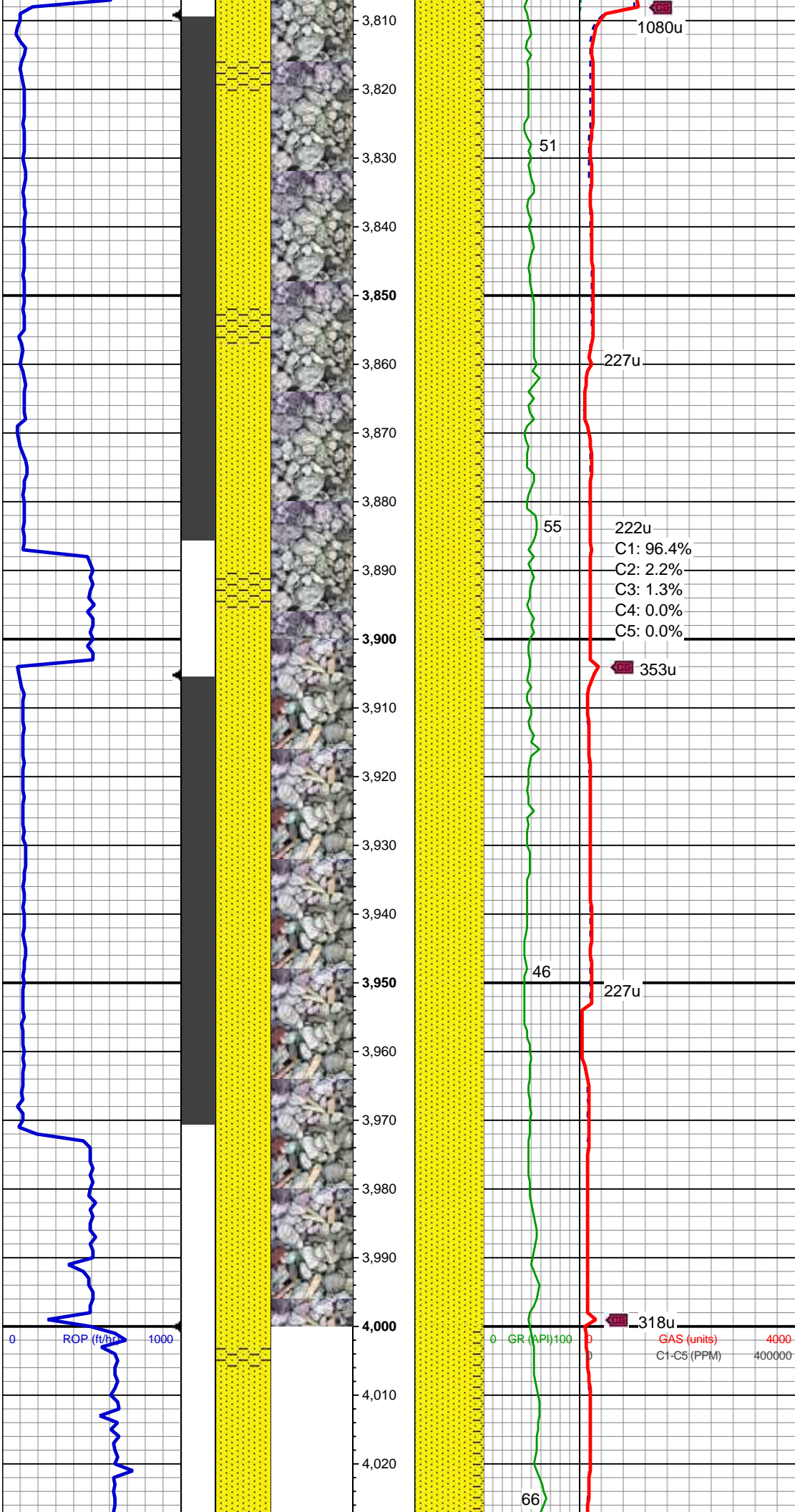
MD: 3,655'
TVD: 3,591.4'
Inclination: 17.5 °
Azimuth: 248.6 °
VS: -83.91'

SLTY SH: med gy - gy, tr dk gy, sft, sb
blky-sb plty, arg-rthy mtx, non calc
SHY SS: gy - lt gy, occ med, vf - f gr, sft,
sb rnd-sb blky, tr rnd, p - mod srt, arg cmt,
tr ss

MUD WT 8.70 VIS 28

SS: wh - lt gy, tr trns, s&p, vf-f gr, sb
rnd-sb blky, mod srt, occ glau
SHY SS: gy - med gy, vf-f gr, sft, sb rnd-sb
blky, p-mod srt, arg cmt, sl mics

MD: 3,750'
TVD: 3,681.29'
Inclination: 20.2 °
Azimuth: 248.2 °
VS: -89.63'



MD: 3,846'
TVD: 3,771.48'
Inclination: 19.9 °
Azimuth: 250.4 °
VS: -95.26'

SS: wh - lt gy, occ trnsl, s&p, vf-f gr, sb
rnd-sb blkly, mod srt, tr glau
SHY SS: gy - med gy, vf-f gr, sft, sb rnd-sb
blkly, tr rnd, p-mod srt, arg cmt, sl mics

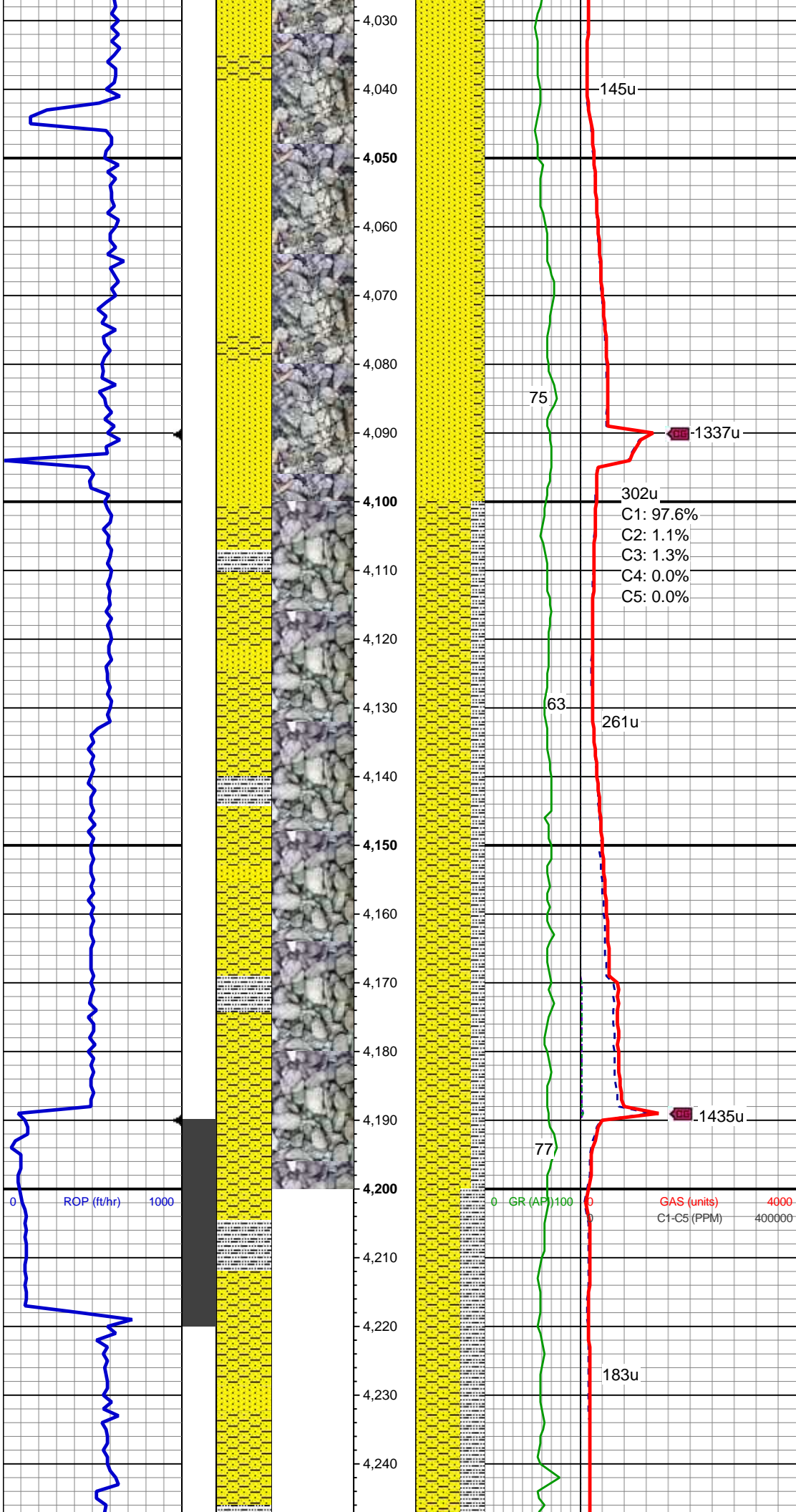
MUD WT 8.75 VIS 28

MD: 3,941'
TVD: 3,861.81'
Inclination: 16.1 °
Azimuth: 254.5 °
VS: -98.78'

SS: wh - lt gy, occ crm-trnsl, s&p, vf-f gr,
sb rnd-sb blkly, mod srt, tr glau, sl mics,
occ shy ss

MUD WT 8.65 VIS 29

MD: 4,036'



TVD: 3,953.27'
Inclination: 15.3 °
Azimuth: 255.4 °
VS: -100.65'

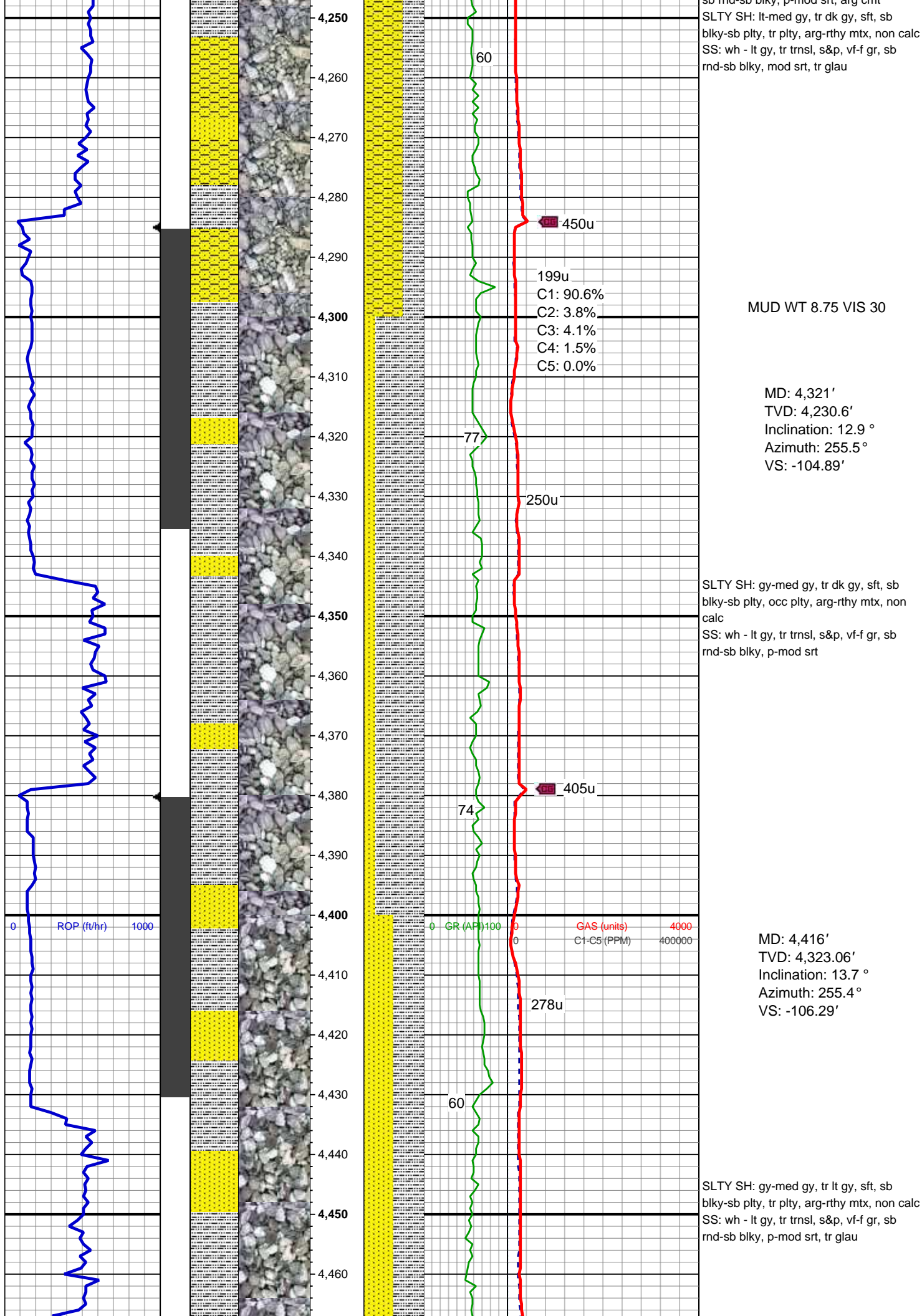
SS: wh - lt gy, occ trnsl, s&p, vf-f gr, sb
rnd-sb blkly, occ rnd, p-mod srt, tr glau
SHY SS: gy - med gy, vf-f gr, sft, sb rnd-sb
blkly, mod srt, arg cmt

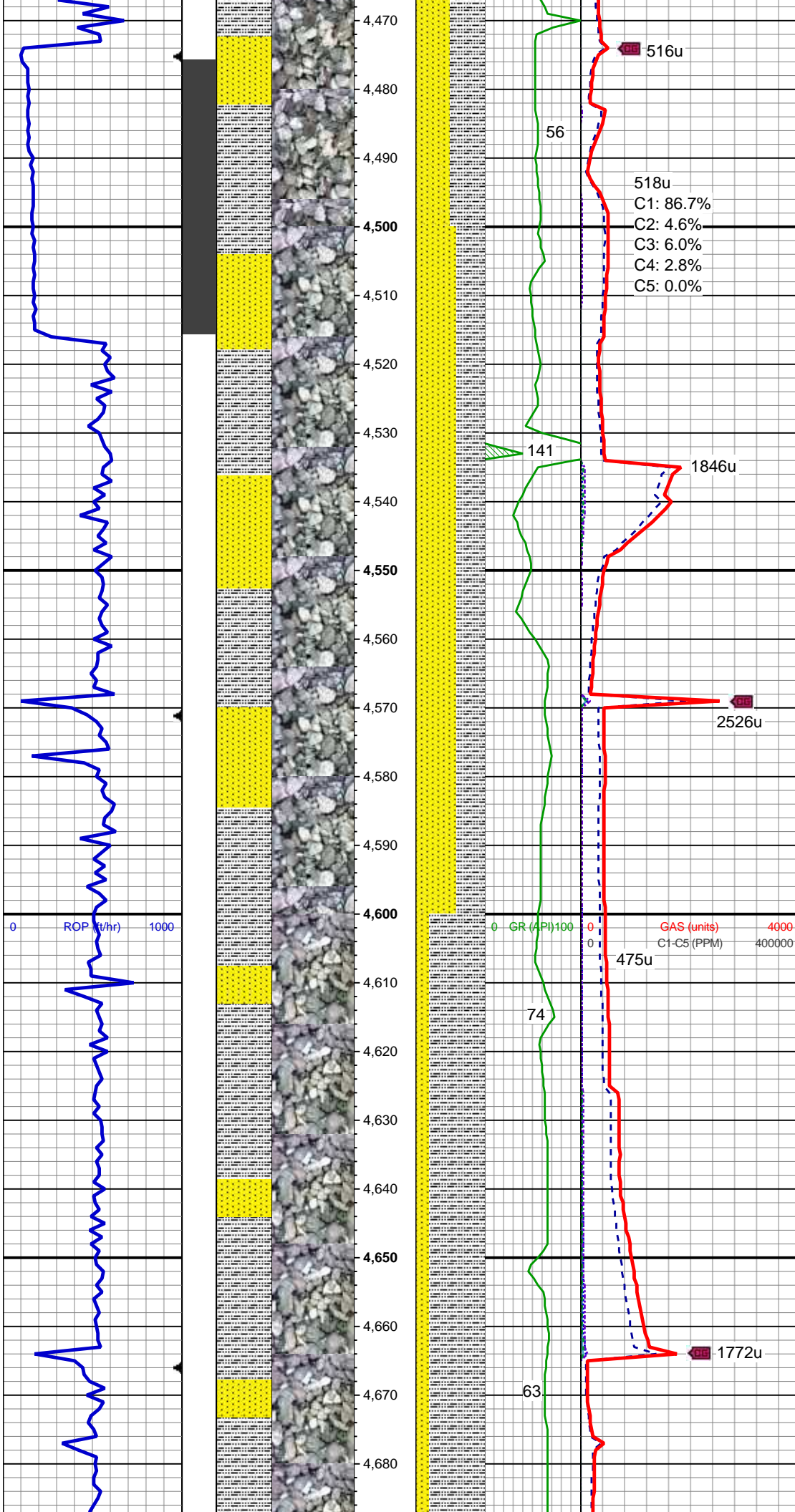
MD: 4,131'
TVD: 4,045.36'
Inclination: 13.1 °
Azimuth: 256.7 °
VS: -101.93'

SHY SS: gy - med gy, tr gy, vf-f gr, sft, sb
rnd-sb blkly, tr rnd, p-mod srt, arg cmt
SLTY SH: lt-med gy, sft, sb blkly-sb plty, tr
plty, arg-rthy mtx, non calc
SS: wh - lt gy, tr trnsl, s&p, vf-f gr, sb
rnd-sb blkly, mod srt

MD: 4,226'
TVD: 4,137.96'
Inclination: 12.7 °
Azimuth: 254.1 °
VS: -103.3'

SHY SS: gy - lt gy, tr med gy, vf-f gr, sft,
sb rnd-sb blkly, p-mod srt, arg cmt



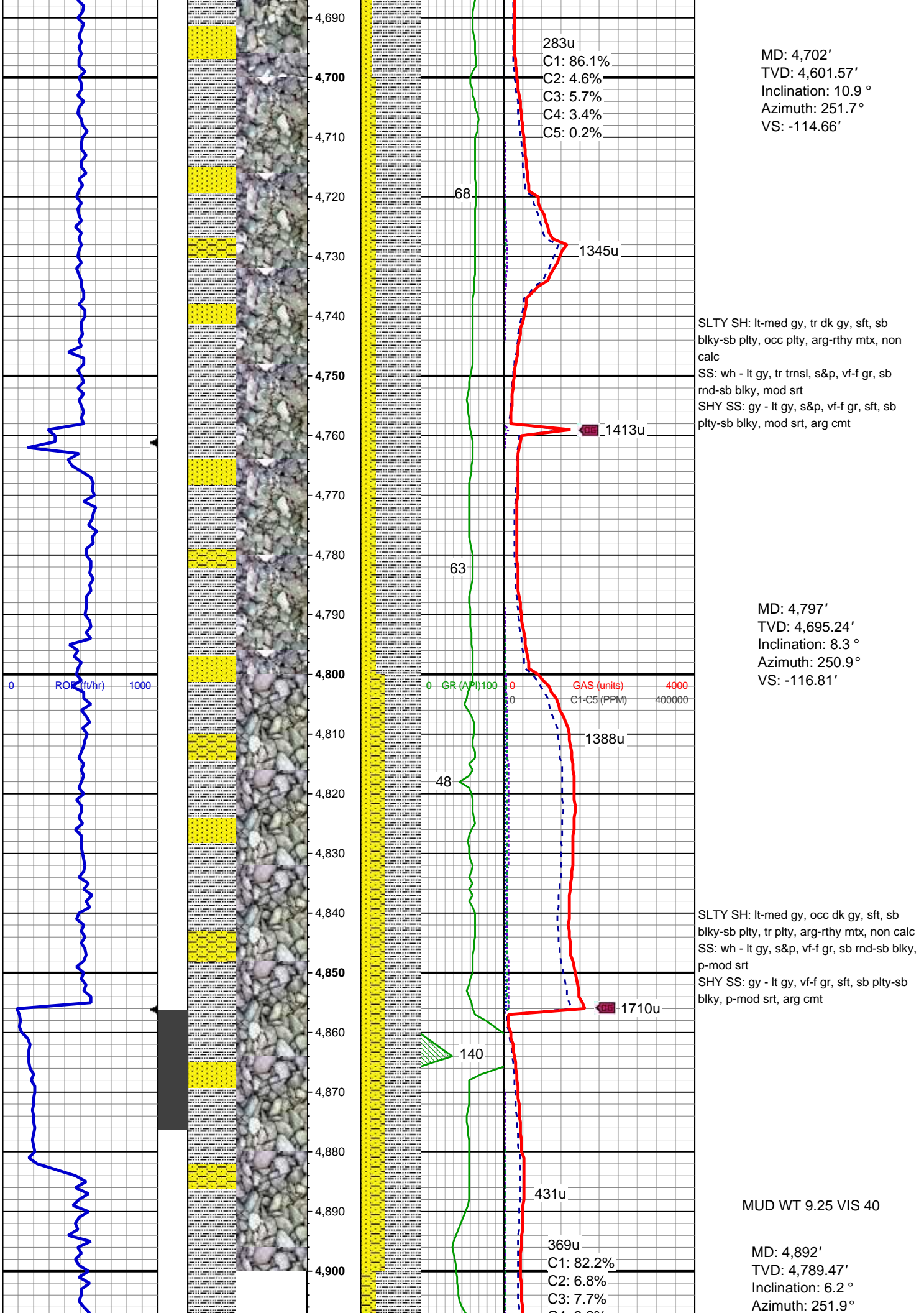


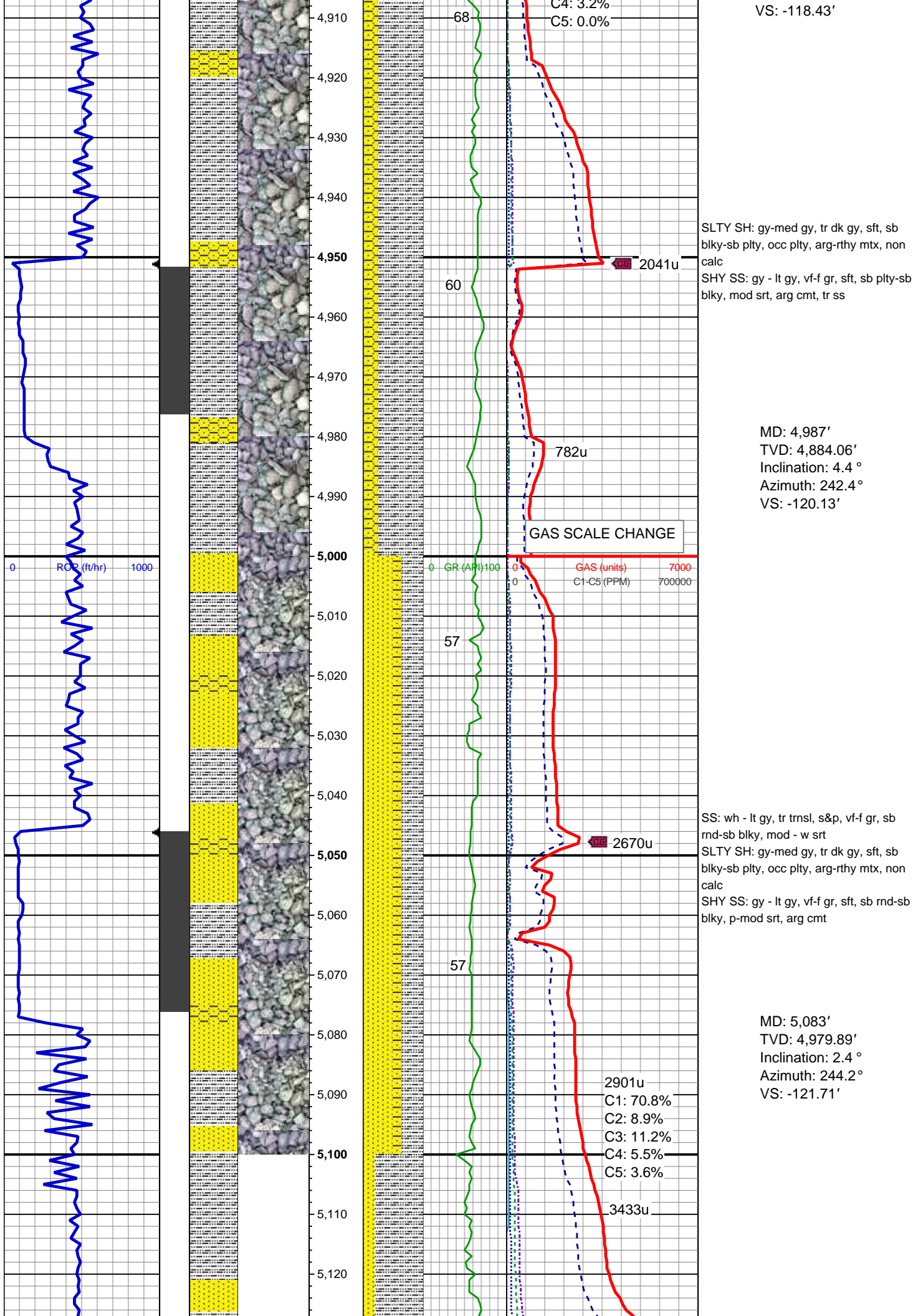
MD: 4,512'
TVD: 4,416.25'
Inclination: 14.1 °
Azimuth: 251 °
VS: -108.68'

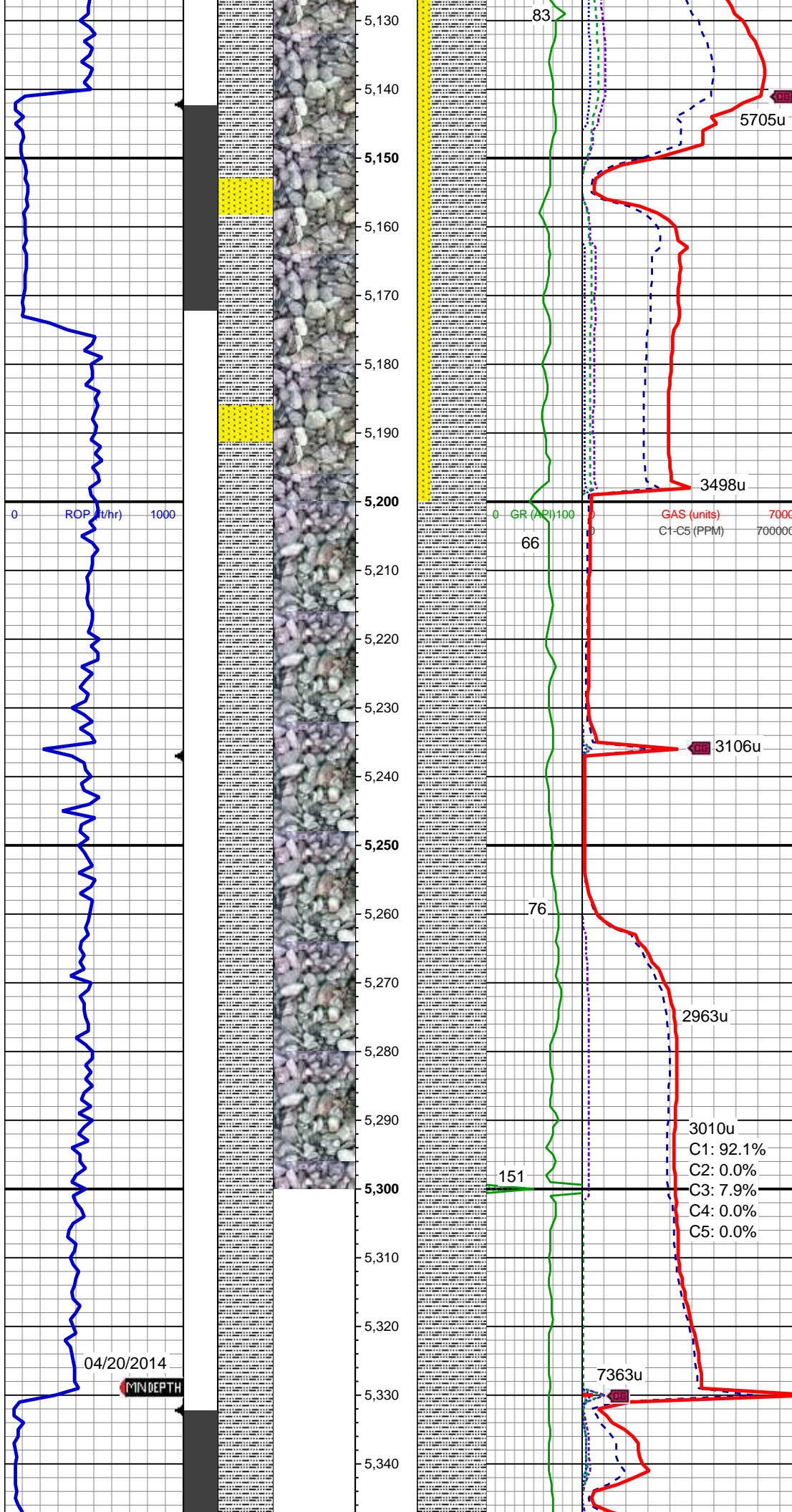
SS: wh - lt gy, tr crm-trnsl, s&p, vf-f gr, sb
rnd-sb blkly, mod - w srt, tr glau
SLTY SH: lt-med gy, tr dk gy, sft, sb
blkly-sb plty, occ plty, arg-rthy mtx, non
calc

MD: 4,607'
TVD: 4,508.62'
Inclination: 12.9 °
Azimuth: 250.5 °
VS: -111.91'

SLTY SH: gy-med gy, occ lt gy, sft, sb
blkly-sb plty, occ plty, arg-rthy mtx, non
calc
SS: wh - lt gy, tr trnsl, s&p, vf-f gr, sb
rnd-sb blkly, p-mod srt







SS: wh - lt gy, tr trns, vf-f gr, sb rnd-sb
blky, p-mod srt
SLTY SH: lt-med gy, tr dk gy, sft, sb
blky-sb plty, occ plty, arg-rthy mtx, non
calc

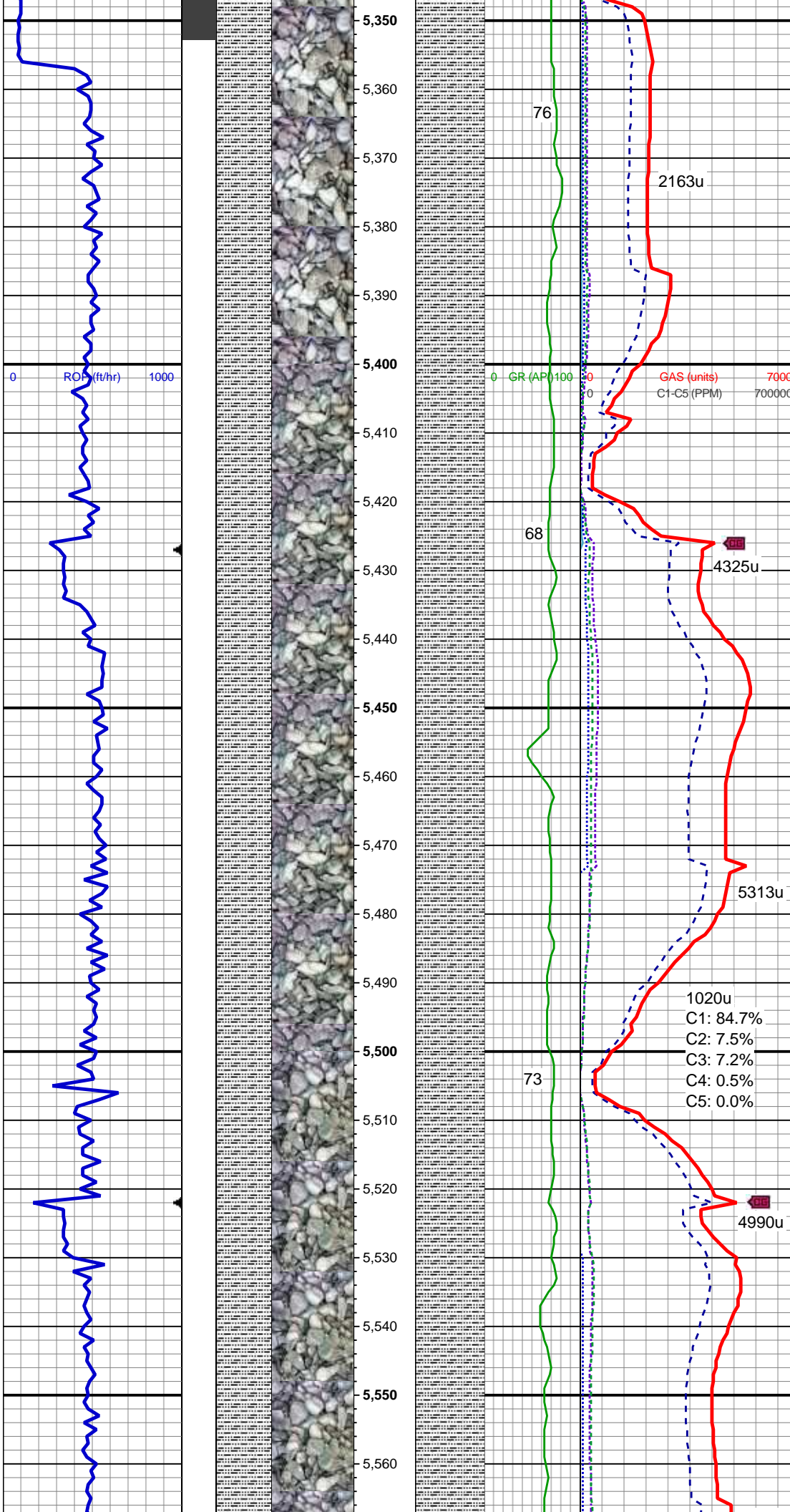
MD: 5,178'
TVD: 5,074.85'
Inclination: 0.9 °
Azimuth: 257.8 °
VS: -122.24'

SLTY SH: lt-med gy, tr dk gy, sft, sb
blky-sb plty, tr plty, arg-rthy mtx, non
calc, tr ss

MD: 5,273'
TVD: 5,169.83'
Inclination: 1.1 °
Azimuth: 253.9 °
VS: -122.34'

04/20/2014

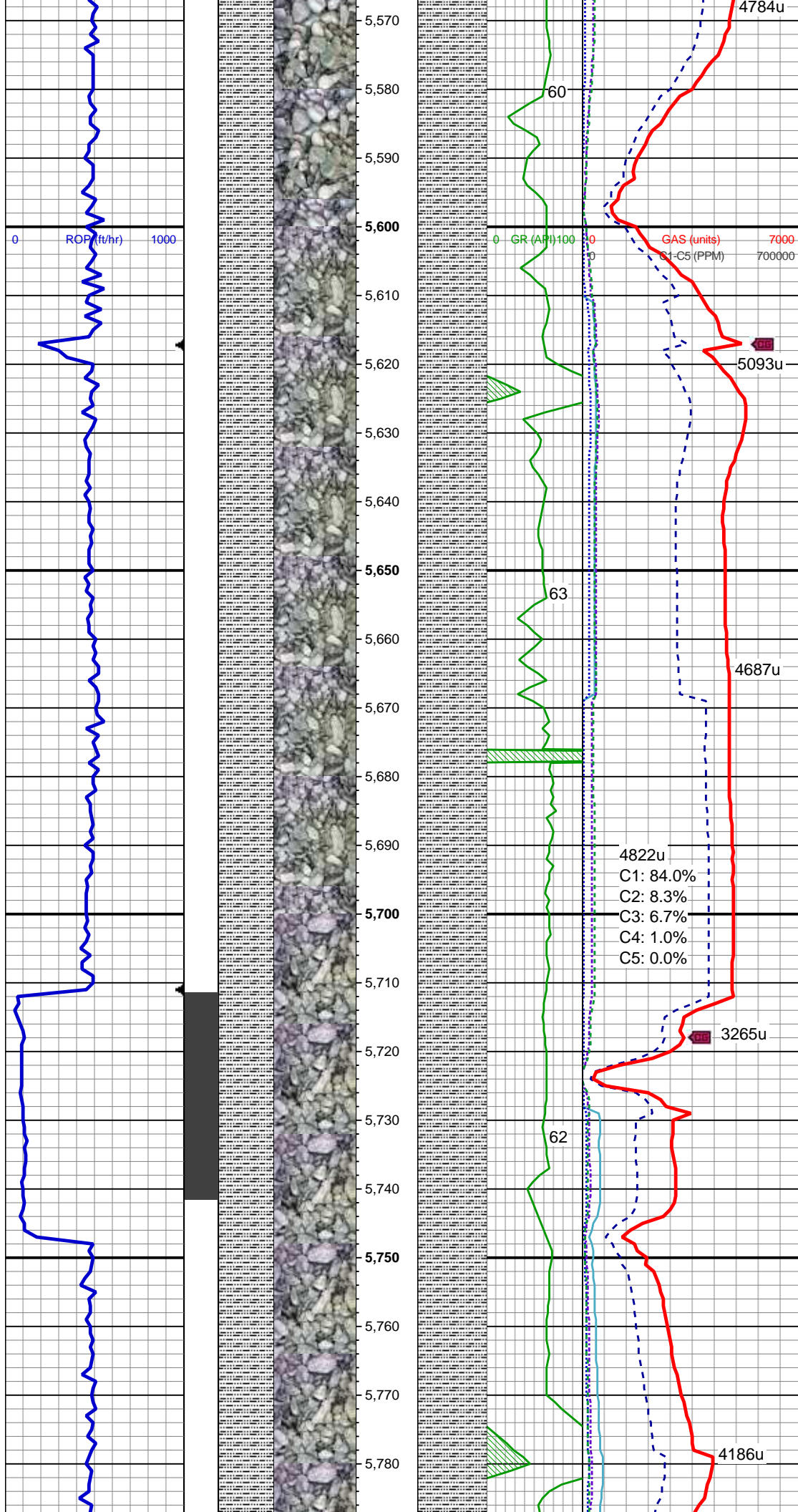
MINDEPTH



MD: 5,368'
TVD: 5,264.82'
Inclination: 0.3 °
Azimuth: 251.1 °
VS: -122.45'

MD: 5,463'
TVD: 5,359.82'
Inclination: 0.4 °
Azimuth: 276.3 °
VS: -122.39'

MD: 5,558'
TVD: 5,454.82'
Inclination: 0.7 °



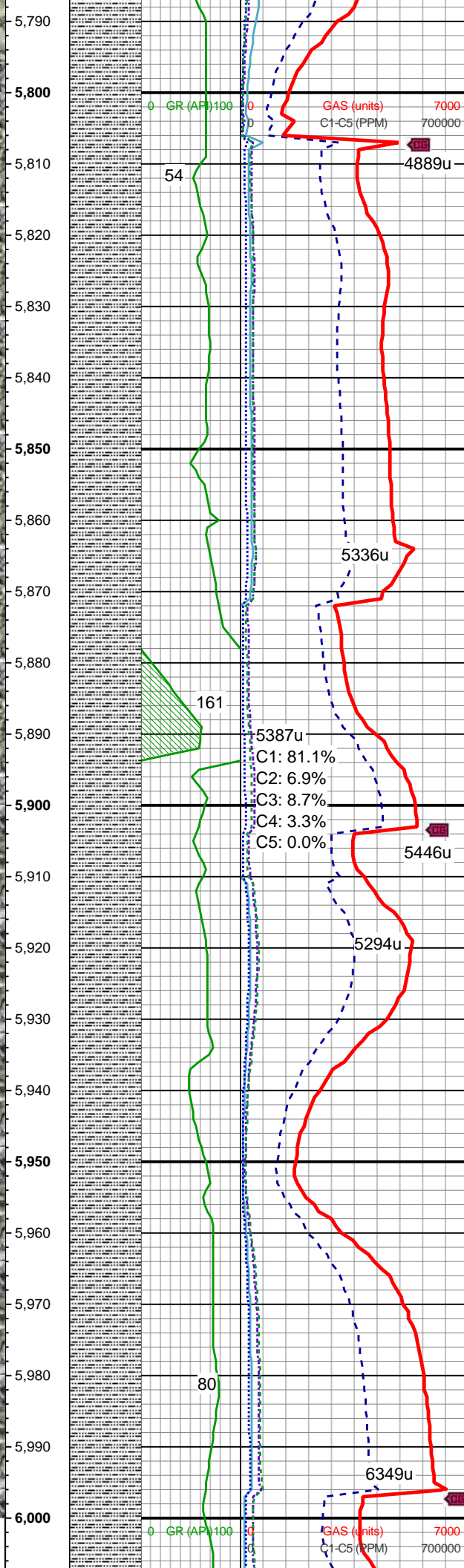
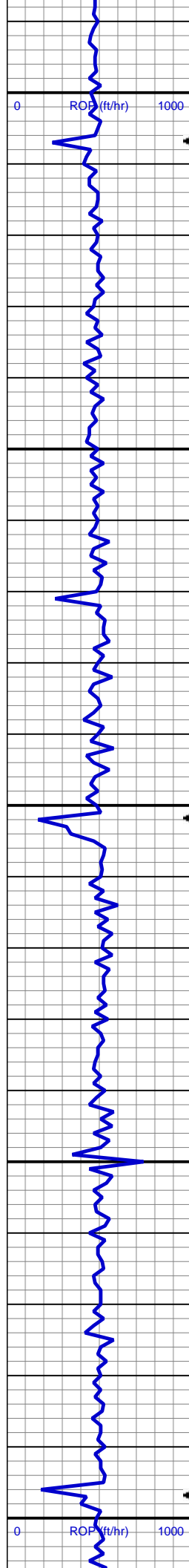
Azimuth: 300.2°
VS: -121.91'

MD: 5,652'
TVD: 5,548.8'
Inclination: 1.4 °
Azimuth: 331.5°
VS: -120.44'

SLTY SH: lt-med gy, tr dk gy, sft, sb
blky-sb plty, tr plty, arg-rthy mtx, non
calc, tr shy ss

MD: 5,747'
TVD: 5,643.79'
Inclination: 0.8 °
Azimuth: 84.6°
VS: -119.4'

SLTY SH: lt-med gy, occ dk gy, sft, sb
blky-sb plty, tr plty, arg-rthy mtx, non
calc, tr shy ss



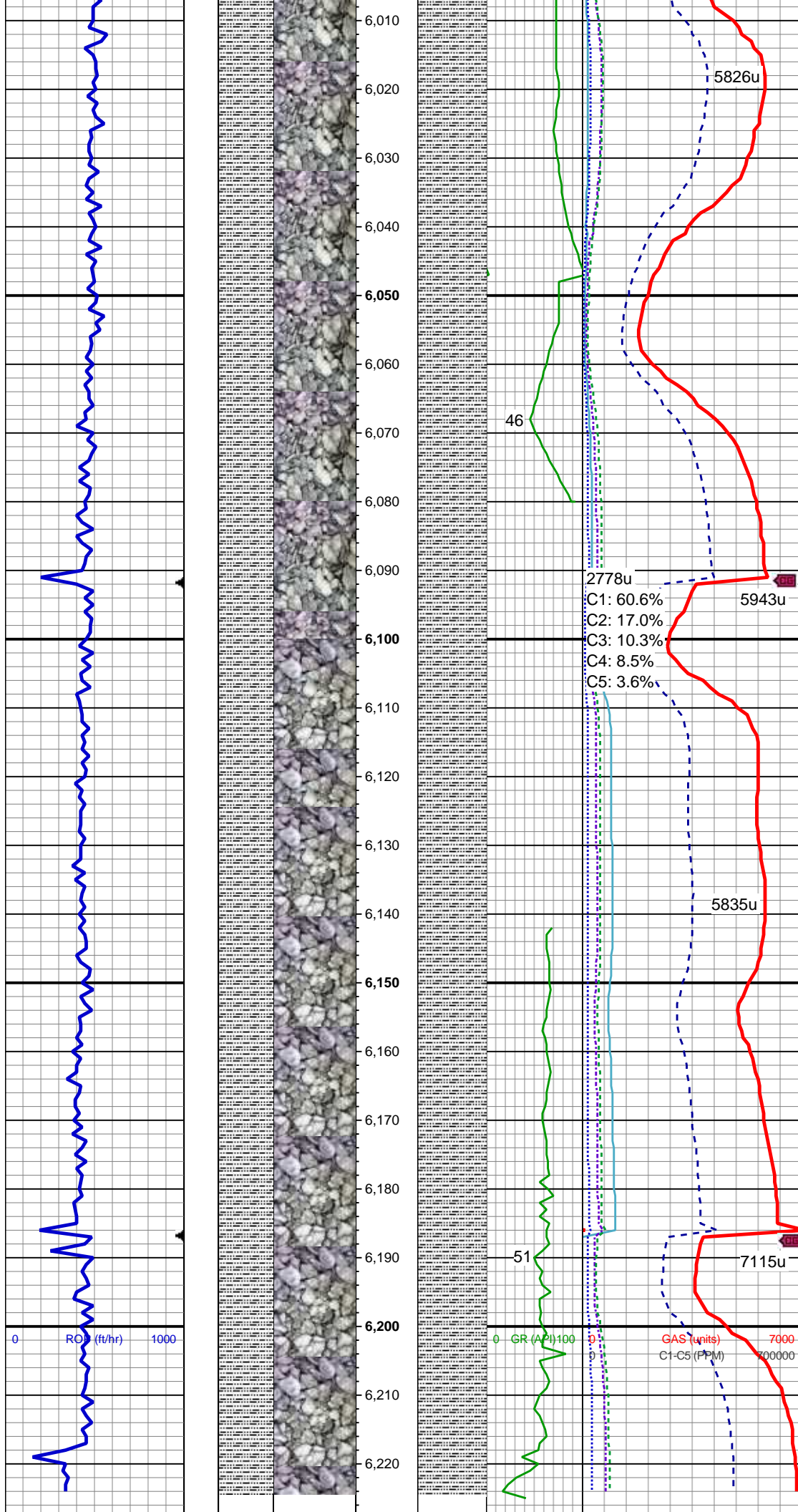
MUD WT 9.75 VIS 38

MD: 5,842'
TVD: 5,738.78'
Inclination: 1.2 °
Azimuth: 112.4 °
VS: -120.01'

SLTY SH: med gy, occ dk gy, sft, sb
blky-sb plty, tr plty, arg-rthy mtx, non calc

MD: 5,938'
TVD: 5,834.75'
Inclination: 1.4 °
Azimuth: 105.1 °
VS: -121.07'

SLTY SH: med gy, occ dk gy, sft, sb
blky-sb plty, tr plty, arg-rthy mtx, non calc



MD: 6,033'
TVD: 5,929.73'
Inclination: 1.2 °
Azimuth: 107.7 °
VS: -122.06'

SLTY SH: med gy, occ dk gy, sft, sb
blky-sb plty, tr plty, arg-rthy mtx, tr pyr,
non calc

SLTY SH: med gy, occ dk gy, sft, sb
blky-sb plty, tr plty, arg-rthy mtx, tr pyr,
non calc

TOOH FOR CURVE ASSEMBLY
LOG CONTINUES ON MLOT
"STORIS E24-79HN(HORZ)"

Thank you for choosing
Columbine Logging Inc.

6,230
6,240
6,250
6,260
6,270
6,280
6,290
6,300