

COLUMBINE LOGGING

Scale: 5" / 100'
Measured Depth Log

Well Name Wells Ranch AE32-620 (Vert)

Location SWSW 32 6N 62W

State COLORADO

County WELD

Country USA

Rig Number H&P #273

API Number 05-123-41785

Field WATTENBERG

Region DJ BASIN

Drilling Completed 9/25/2015

Spud Date 9/17/2015

Surface Coordinates Lat: 40.43785
Long: -104.35449
690' FSL
650' FWL

Bottom Hole Coordinates 660' FSL
535' FEL

Ground Elevation 4719'

K.B. Elevation 4743'

Logged Interval 800' To 16116'

Total Depth 16116'

Formation CODELL SANDSTONE

Type of Drilling Fluid H2O, LSND

Operator

Company NOBLE ENERGY, INC.

Address 1625 BROADWAY
DENVER, CO 80202
(303) 228-4000

Geologist

Name Bryan Kaproth-Gerecht

Company Noble Energy Inc.

Address 1625 BROADWAY
DENVER, CO 80202
(303) 228-4000



Other

Columbine Logging, Inc 602 S. Lipan St.
Denver, CO 80223

Loggers on location Michael Anderson
Andrew Martens

Equipment on Location Bloodhound #331
Computer #72A

Rock Types

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

Accessories

Fossils

ALGAE
AMPHIPORA
BELEMNITE
BIOCLASTIC
BRACHIOIPOD
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

MARCASITE

MARLSTONE

MICACEOUS

MINERAL CRYSTALS

NODULES

PHOSPHATE PELLETS

PYRITE

SALT CAST

SANDY

SIDERITE

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
F FENESTRAL
F FRACTURE
X INTERCRYSTALLINE
O INTEROOLITIC
M MOLDIC

ORGANIC

P PINPOINT

V VUGGY

Engineering

BIT CHANGE
CONNECTION (LEFT)
CONNECTION (RIGHT)
CONNECTION GAS
TRIP GAS
DOWN TIME GAS
CORE - LOST
CORE - RECOVERED
DST INTERVAL

FAULT

FORMATION TOP

GAS SHOW

OIL SHOW

MN DEPTH

MN DEPTH (RIGHT)

NORMAL FAULT

OVERTURNED STRATA

REVERSE FAULT

CASING

SIDEWALL CORE (LEFT)

SIDEWALL CORE (RIGHT)

SLIDE

SURVEY

DRILL STEM TEST

WIRELINE TESTED - LEFT

WIRELINE TESTED - RT

Rounding

A ANGULAR
R ROUNDED
S SUBANG
S SUBRND

Textures

B BOUNDSTONE
C CHALKY
C CRYPTOXLN

E EARTHY

F FINELYXLN

G GRAINSTONE

L LITHOGRAPHIC

M MICROXLN

M MUDSTONE

P PACKSTONE

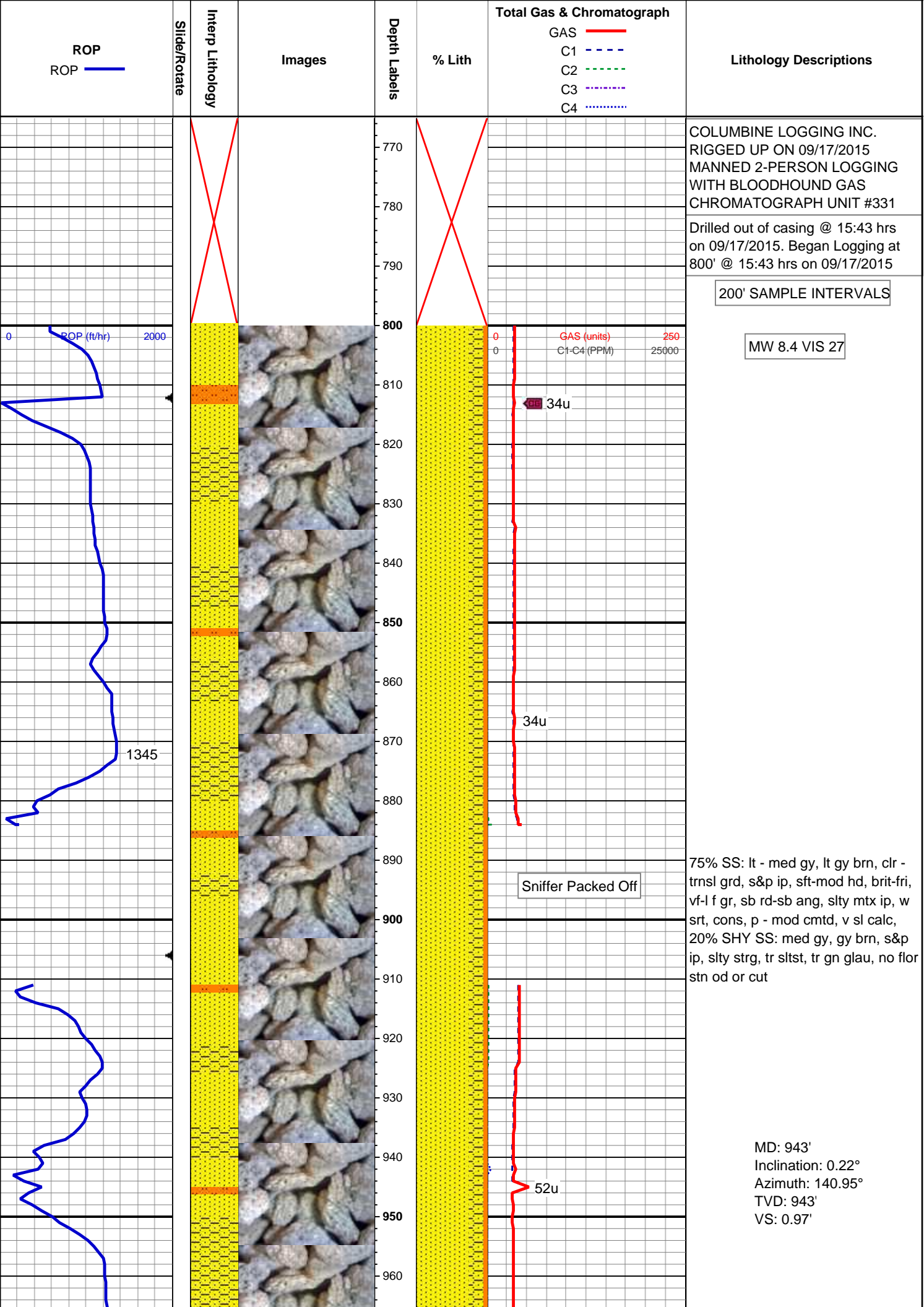
W WACKESTONE

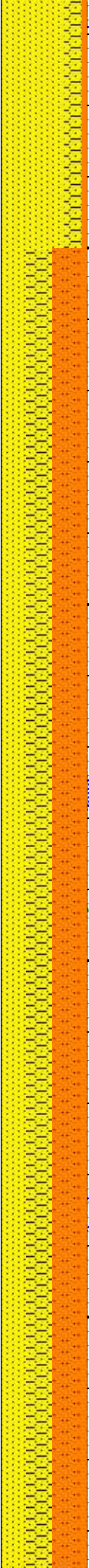
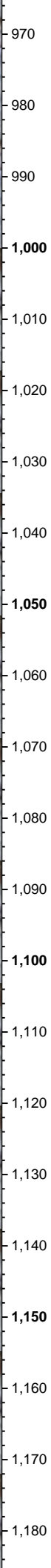
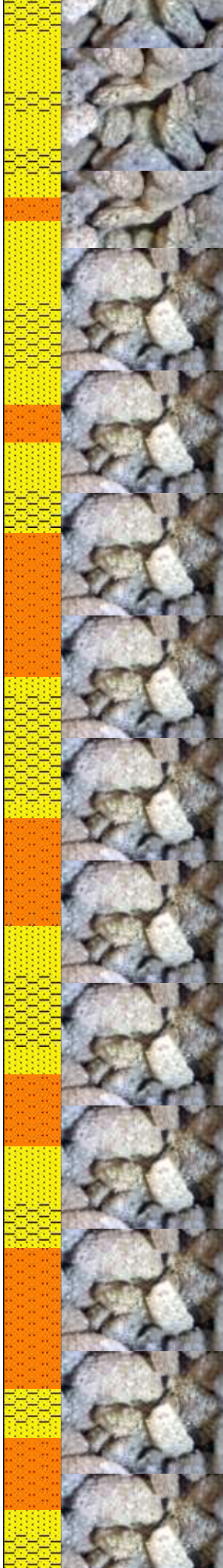
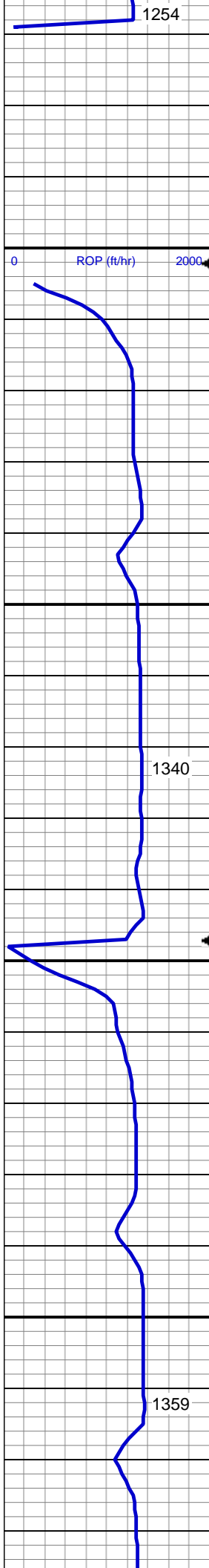
Sorting

M MODERATE
P POOR
W WELL

Zone Color Coding

Oil	Condensate	Gas
Note	Core	Pressure
Error	Water	Seal





Sniffer Packed Off

37u

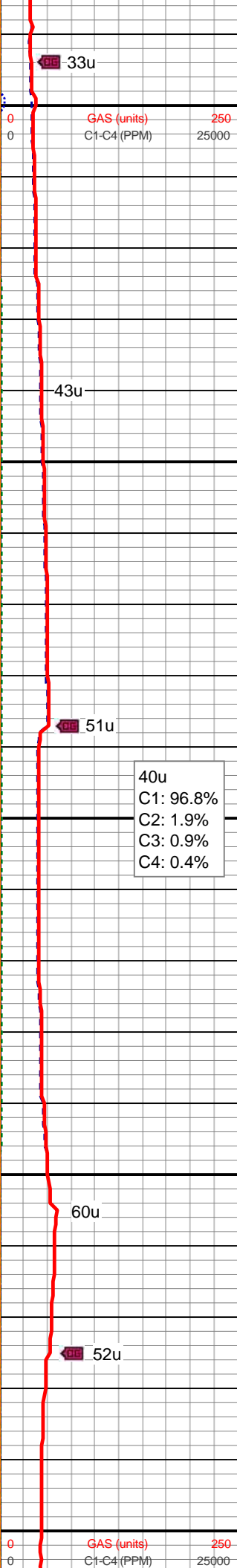
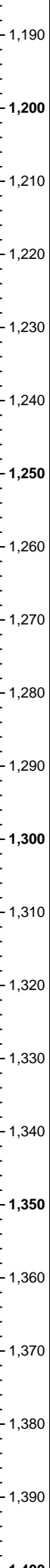
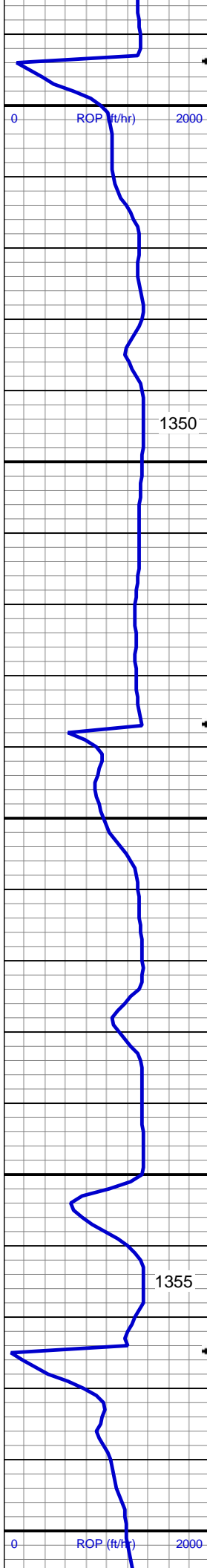
40u

31u
C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%

35u

MD: 1,037'
Inclination: 0.28°
Azimuth: 149.27°
TVD: 1,037'
VS: 1.19'

40% SLTST: lt gy, occ med gy, sl sdy ip, v-mod sft, fri, sb blk, gt tex, slty-v sl arg mtx, 30% SS: lt - med gy, lt gy brn, occ offwht, clr - trnsl grd, s&p, sft-mod hd, brit - fri, pred vf gr, occ l f grnd sd, sb rd-sb ang, occ slty mtx, w srt, cons, mod-w cmt, v sl calc, 30% SHY SS: med gy, gy brn, s&p ip, slty strg, vf gr, w srt, tr mics frag, rr gn glau, nfsoc

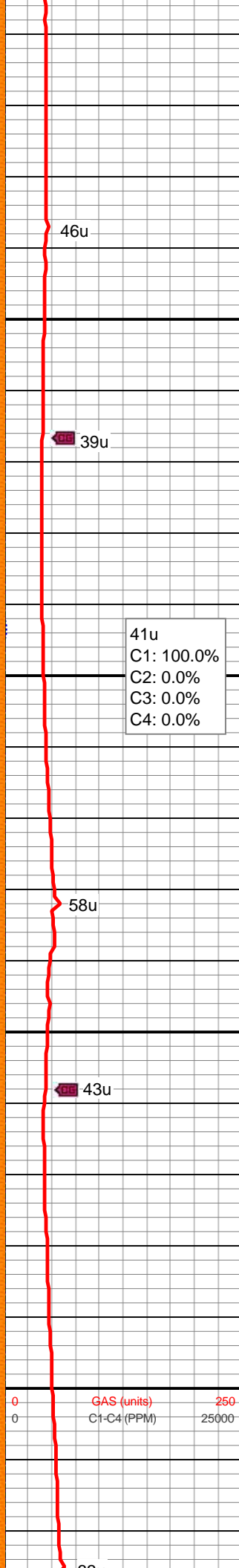
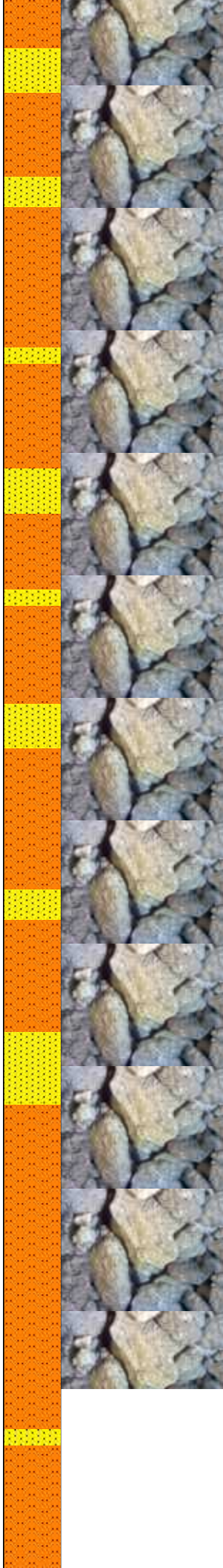
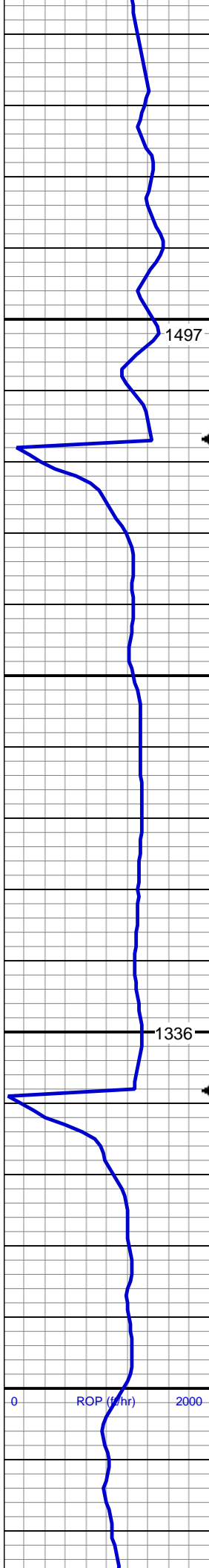


MD: 1,222'
Inclination: 0.22°
Azimuth: 147.5°
TVD: 1,222'
VS: 1.59'

40% SLTST: lt-med gy, pred v sft & fri, occ med frm, sb blkly, gt tex, slty-arg mtx, grdg to 50% SHY SS: lt - med gy, offwht - wh, clr - trnsl grd, s&p ip, sft, vf sb rd-sb ang, mod srt, cons, w cmted, sl-mod calc, tr SS 10%, tr mics frag, nfsoc

MD: 1,313'
Inclination: 0.16°
Azimuth: 144.61°
TVD: 1,313'
VS: 1.75'

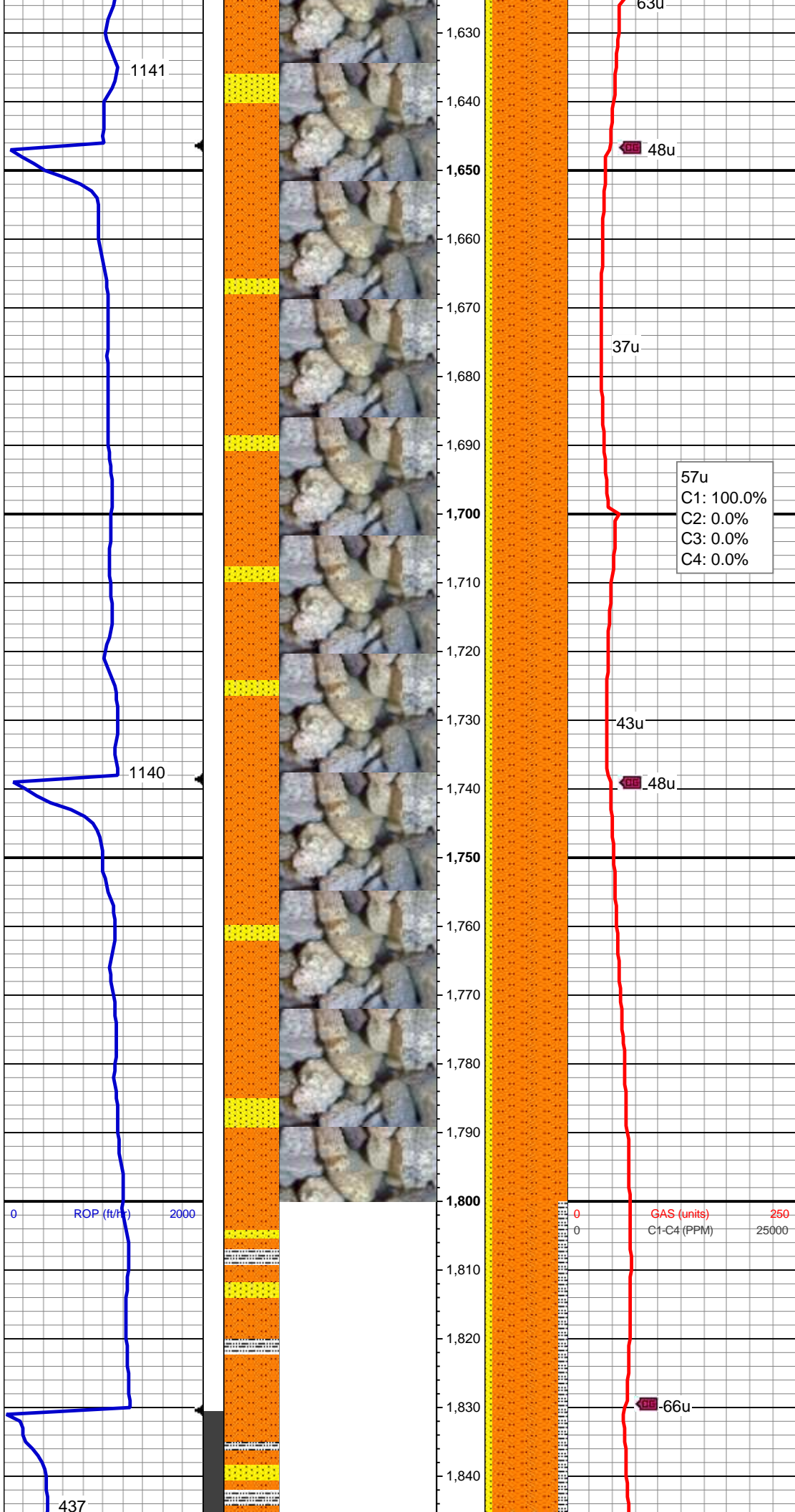
40u
C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%



MD: 1,496'
Inclination: 0.19°
Azimuth: 86.15°
TVD: 1,495.99'
VS: 2.19'

80% SLTST: lt-med gy, sft-mod frm, brit-fri, sb blk, gt tex, slty-arg mtx, grd to 20% SS: lt gy, offwht-wh, clr-trns grd, hd, brit, vf gr, sb rd-sb ang, w srt, cons, w cmt, mod calc, rr dul gn ss flr, no od stn or cut

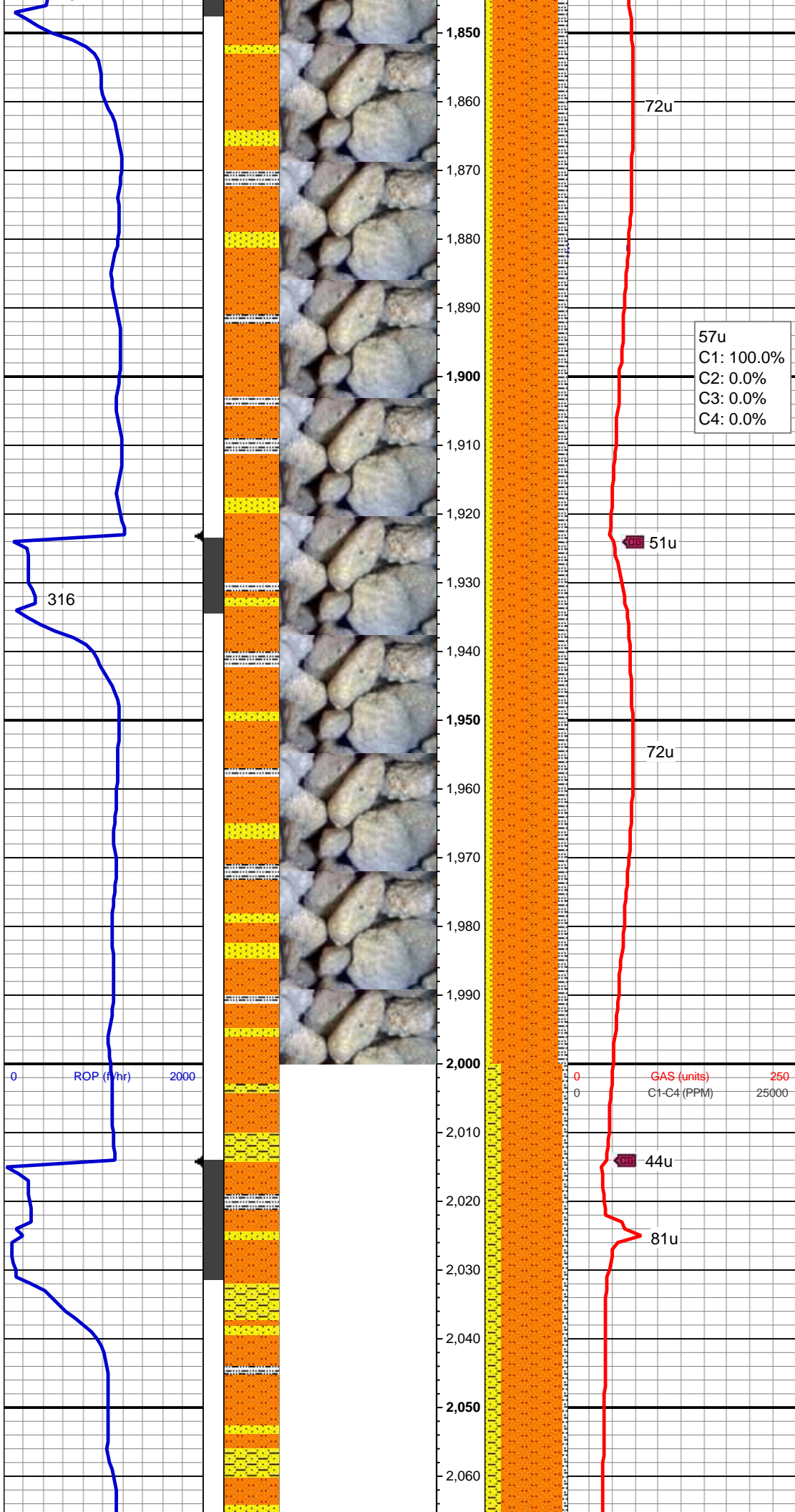
MD: 1,588'
Inclination: 0.21°
Azimuth: 103.88°
TVD: 1,587.99'
VS: 2.51'



MD: 1,680'
Inclination: 0.17°
Azimuth: 68.31°
TVD: 1,679.99'
VS: 2.79'

90% SLTST: lt-med gy, sdy ip, sft-mod frm, brit-fri, sb blk, gt tex, slty-arg mtx, fy intlam wi 10% SS: lt gy, offwht-wh, clr-trnsl grd, hd, brit, vf gr, sb rd-sb ang, w srt, cons, w cmt, v sl calc, rr gn glau, tr dul gn ss flor, no od stn or cut

MD: 1,770'
Inclination: 0.17°
Azimuth: 341.75°
TVD: 1,769.99'
VS: 2.87'



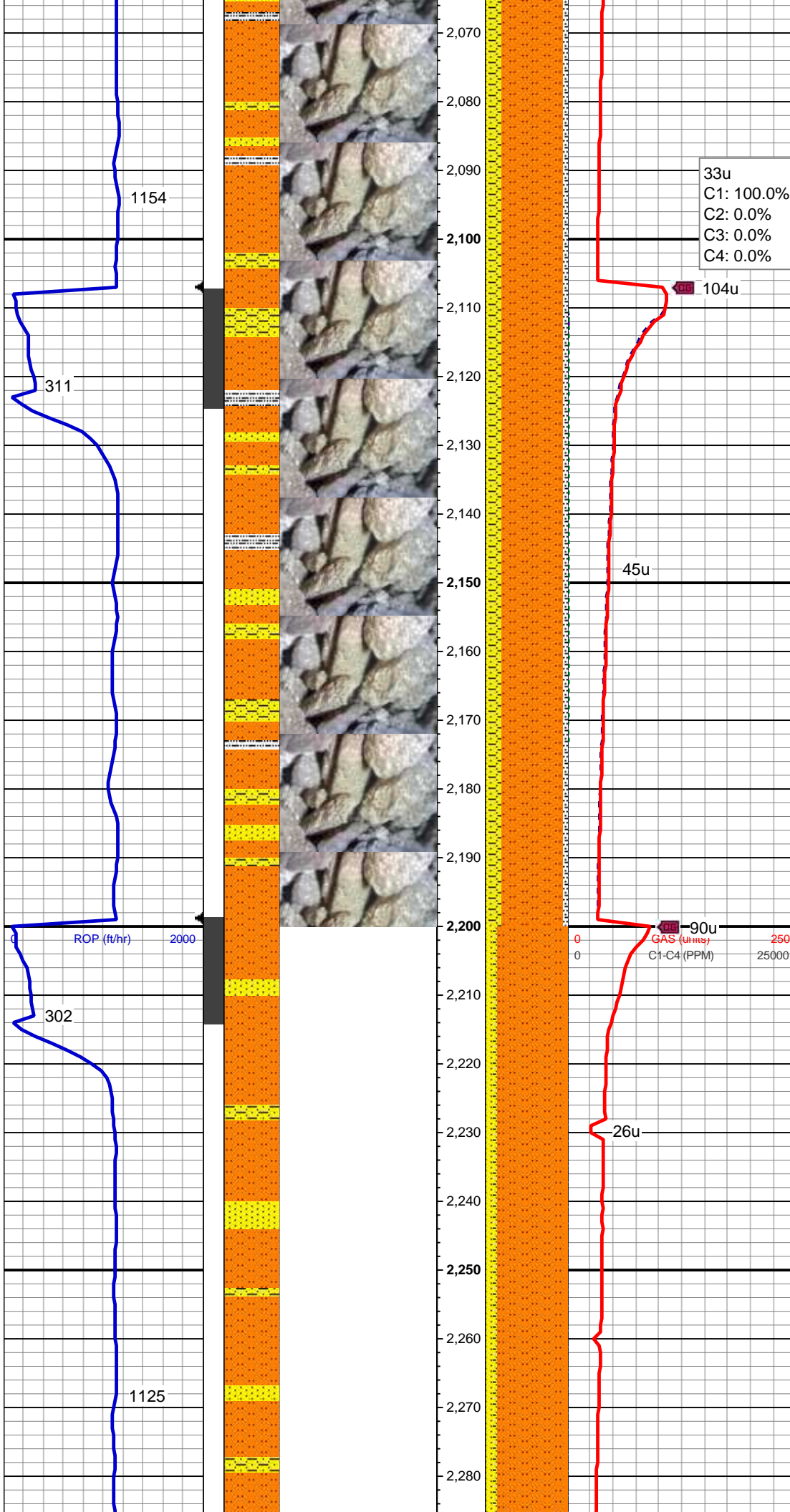
MD: 1,862'
Inclination: 3.17°
Azimuth: 288.82°
TVD: 1,861.95'
VS: 0.46'

80% SLTST: lt-med gy, sft-mod frm,
brit-fri, sb plty-sb blkly, gt tex, slty-arg
mtx, sl calc, occ fy intlam wi (10%)
ss, tr (10%) slty sh, rr gn glau, no
od stn or cut

MW 8.5 VIS 28

MD: 1,954'
Inclination: 4.6°
Azimuth: 293.28°
TVD: 1,953.73'
VS: -5.26'

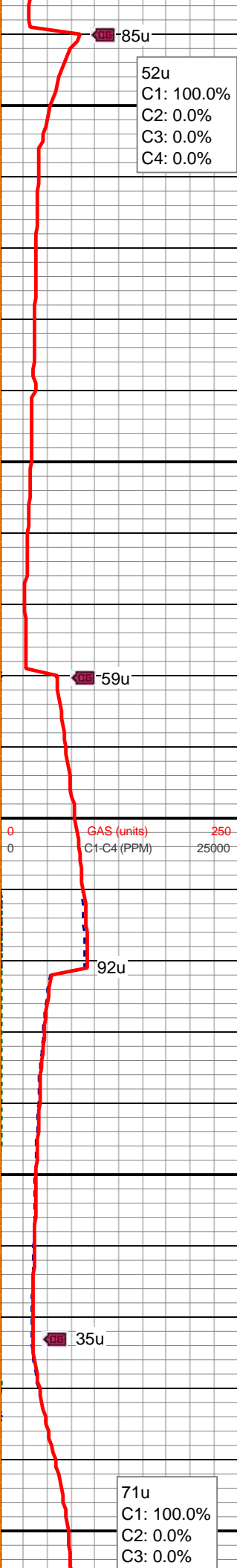
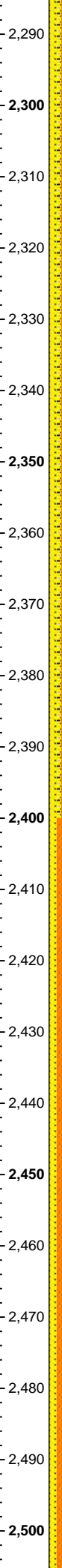
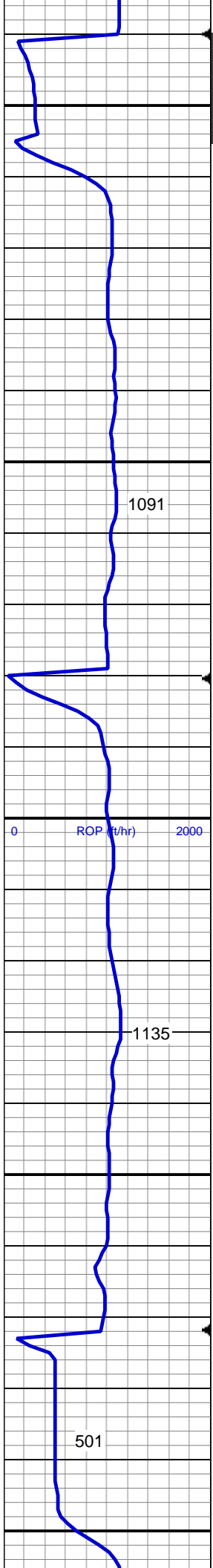
MD: 2,045'
Inclination: 5.76°
Azimuth: 292.14°
TVD: 2,044.36'
VS: -12.74'



75% SLTST: lt-med gy, sft-mod frm, brit-fri, sb plty-sb blkly, gt tex, slty-arg mtx, sl calc, occ fy intlam wi (15%) shy ss, tr (5%) ss, tr (5%) slty sh, rr gn glau, no od strn or cut

MD: 2,137'
Inclination: 8.29°
Azimuth: 287.29°
TVD: 2,135.66'
VS: -23.1'

MD: 2,228'
Inclination: 9.65°
Azimuth: 276.22°
TVD: 2,225.55'
VS: -36.85'



85% SLTST: lt-med gy, sft-mod frm, brit-fri, sb plty-sb blk, gt tex, slty-arg mtx, sl calc, occ fy intlam wi (5%) shy ss, tr (10%) ss, rr gn glau, no od stn or cut

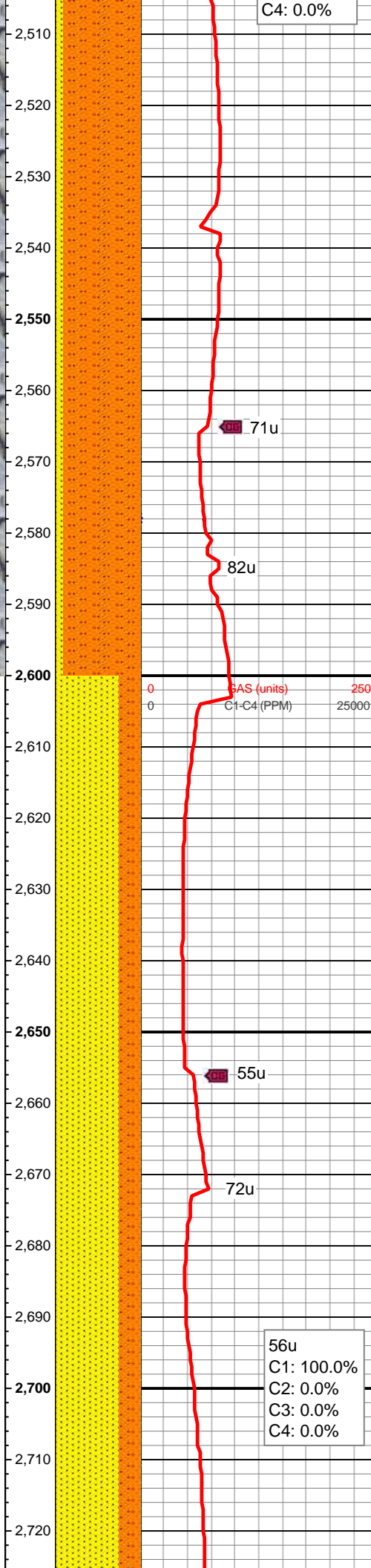
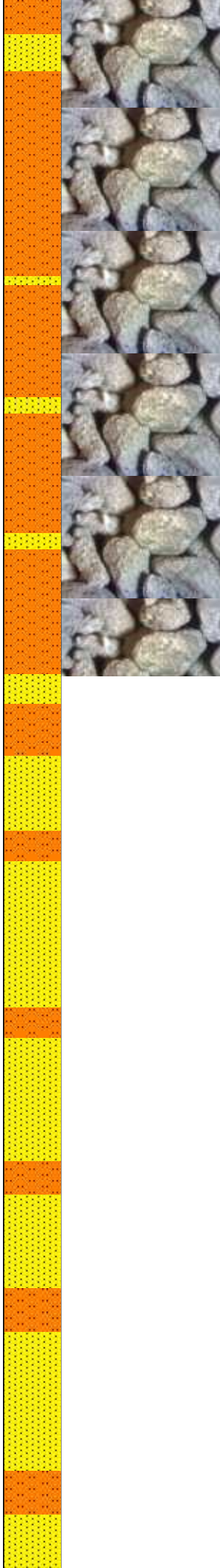
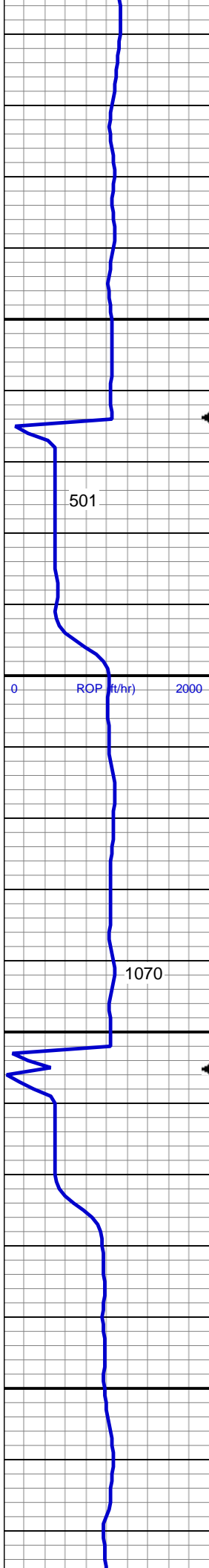
MD: 2,319'
Inclination: 10.95°
Azimuth: 260.71°
TVD: 2,315.1'
VS: -52.97'

MW 8.3 VIS 26

MD: 2,411'
Inclination: 10.26°
Azimuth: 258.55°
TVD: 2,405.53'
VS: -69.71'

90% SLTST: lt-med gy, sft-mod frm, brit-fri, sb plty-sb blk, gt tex, slty-arg mtx, sl calc, shy ss strg, tr (10%) ss, rr gn glau, rr cal, rr dul yel flor, no od stn or cut

MD: 2,502'
Inclination: 9.7°
Azimuth: 256.98°



7.21m: 250.00
TVD: 2,495.16'
VS: -85.21'

MD: 2,594'
Inclination: 9.19°
Azimuth: 256.2°
TVD: 2,585.91'
VS: -100'

MD: 2,685'
Inclination: 8.52°
Azimuth: 254.39°
TVD: 2,675.83'
VS: -113.65'

75% SS: offwht-wh, lt gy, clr-trnsl
grd, s&p ip, mod-v hd, brit, vf-f gr, sb
rd-sb ang, mod-w srt, cons, w
cmtd, 25% SLTST: lt-med gy, sdy
ip, sft-mod frm, brit-fri, sb blk, gt
tex, slty-arg mtx, v sl calc, occ glau,
occ dul gn, occ dul orng, v slow
difse, v sl stmg, v fnt bl wh mky cut,
n stn or od

56u
C1: 100.0%
C2: 0.0%
C3: 0.0%
C4: 0.0%

0 250
0 25000
GAS (units)
C1-C4 (PPM)

71u

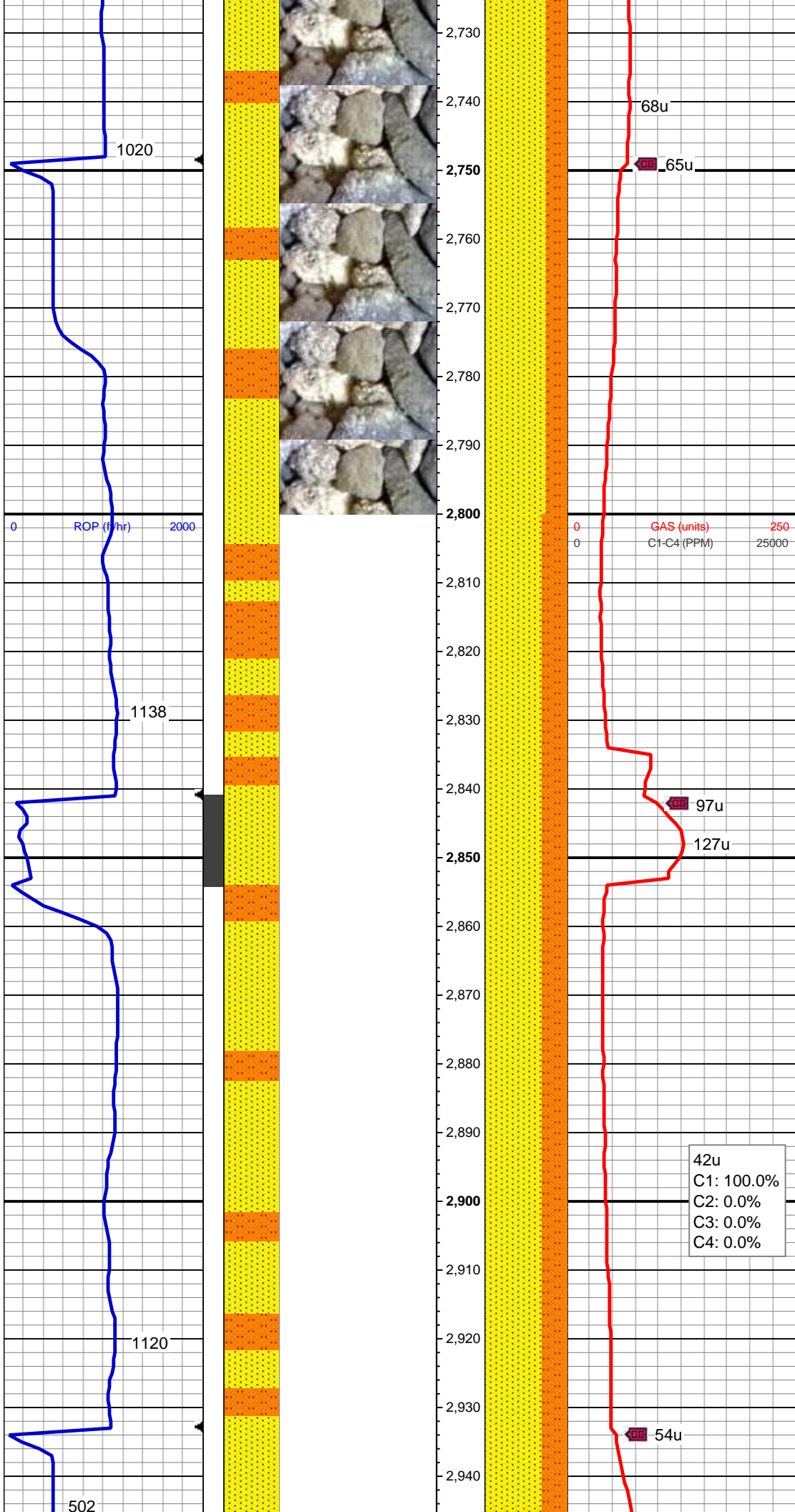
82u

55u

72u

1070

501



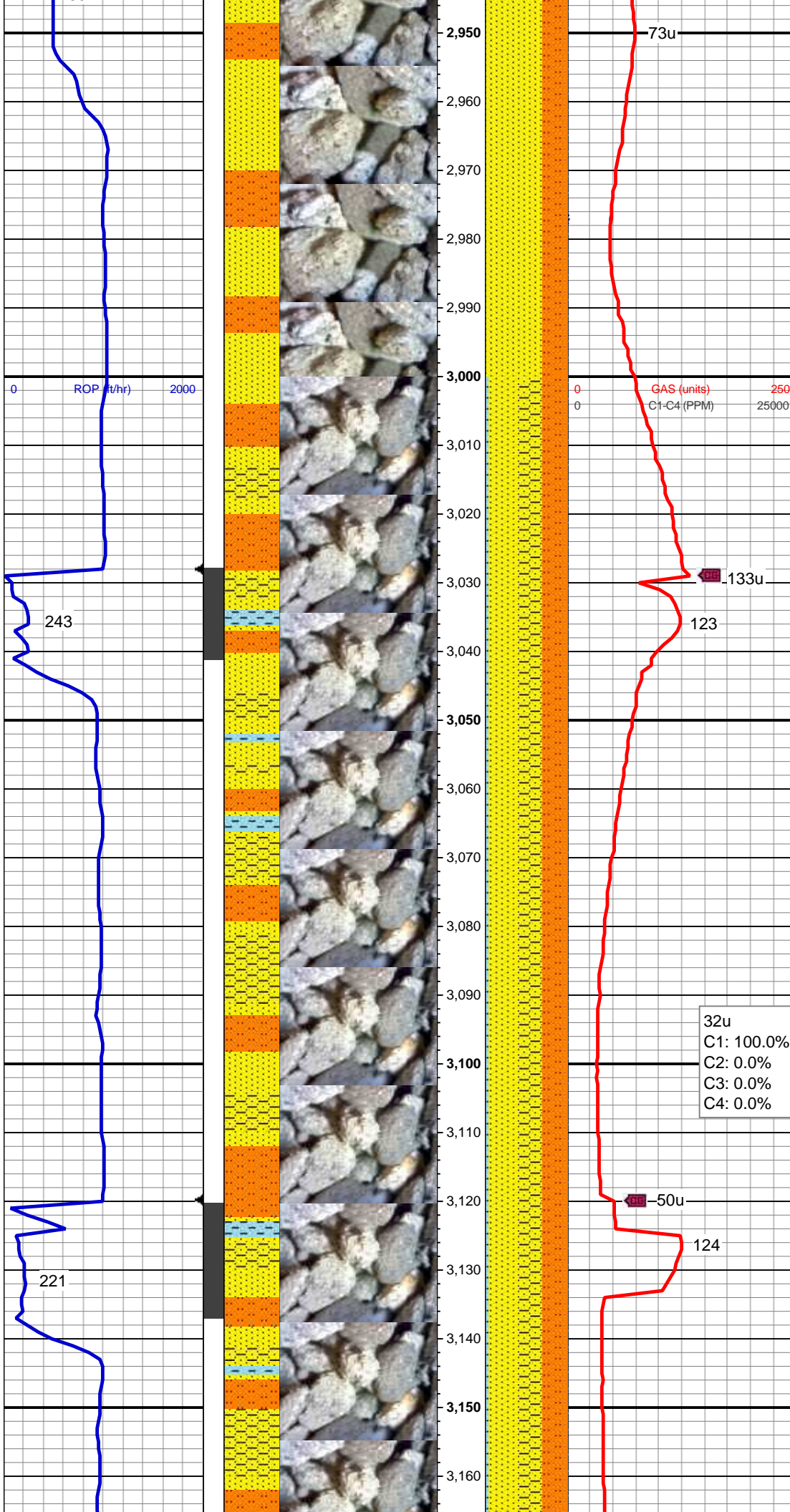
MD: 2,777'
Inclination: 8.04°
Azimuth: 252.9°
TVD: 2,766.87'
VS: -126.47'

MW 8.6 VIS 27

MD: 2,869'
Inclination: 8.58°
Azimuth: 257.5°
TVD: 2,857.9'
VS: -139.42'

42u
C1: 100.0%
C2: 0.0%
C3: 0.0%
C4: 0.0%

80% SS: offwht-wh, lt gy, clr-trnsl
grd, s&p ip, mod-v hd, brit, vf-f gr, sb
rd-sb ang, mod-w srt, cons, w
cmtd, 30% SLTST: lt-med gy, sdy
ip, sft-mod frm, brit-fri, sb blkly, gt
tex, slty-arg mtx, v sl calc, occ glau,
occ dul gn, occ dul orng, v slow
difse, v sl stmg, v fnt bl wh mky cut,
n stn or od



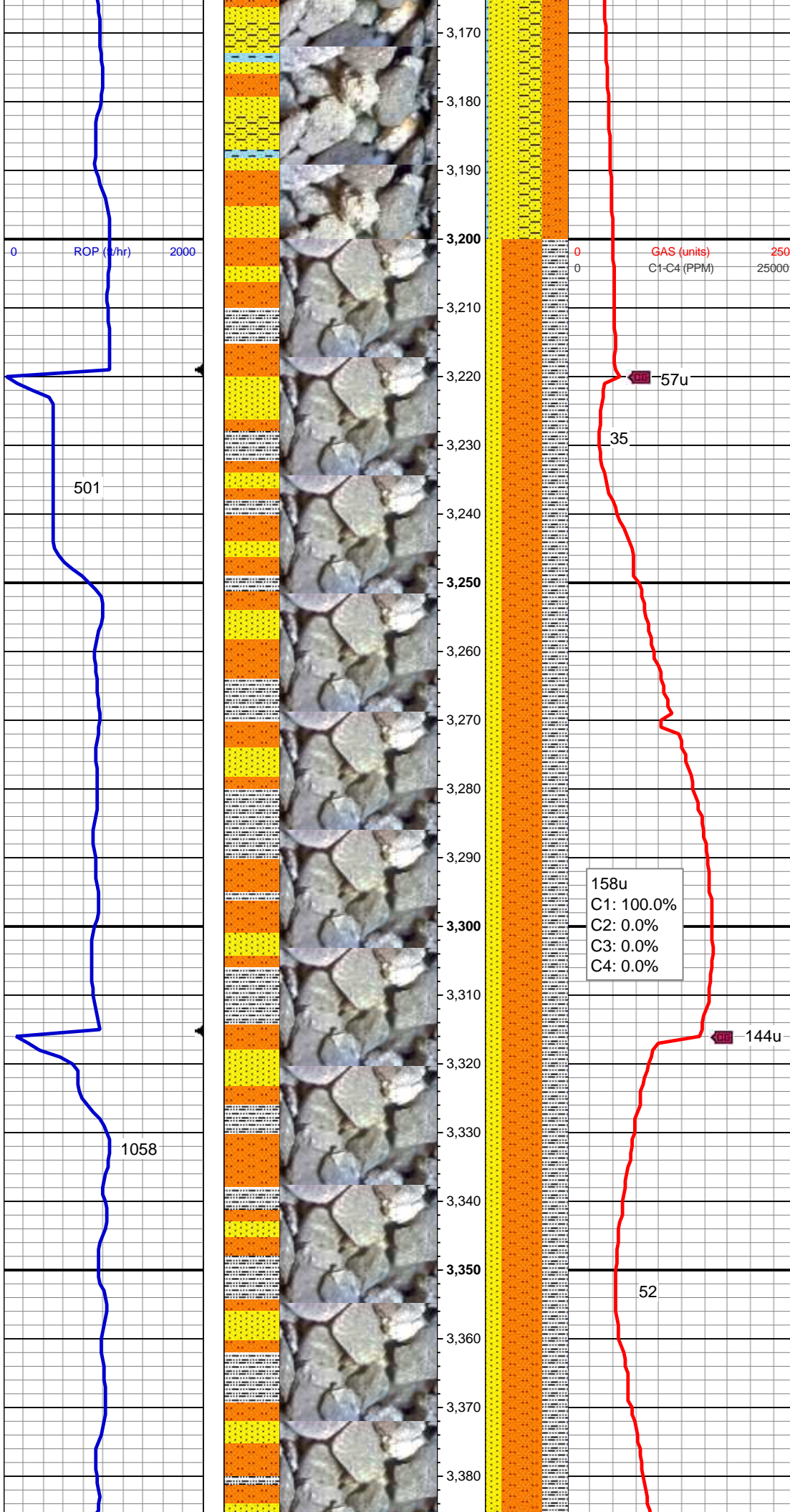
MD: 2,963'
Inclination: 8.03°
Azimuth: 257.95°
TVD: 2,950.91'
VS: -152.78'

MD: 3,057'
Inclination: 8.36°
Azimuth: 267.25°
TVD: 3,043.96'
VS: -166.08'

35% SS: offwht-wh, lt gy, clr-trnsl
grd, s&p ip, mod-v hd, brit, vf-f gr, sb
rd-sb ang, mod-w srt, cons, w
cmtd, 30% SHY SS: lt - med gy,
offwht - wh, clr - trnsl grd, s&p ip,
sft, vf sb rd-sb ang, mod srt, cons,
w cmtd, sl-mod calc, 30% SLTST:
lt-med gy, sdy ip, sft-mod frm,
brit-fri, sb blk, gt tex, slty-arg mtx, v
sl calc, occ glau, tr (5%) clyst, occ
dul gn, occ dul orng, v slow difse, v
sl strng, v fnt bl wh mky cut, n strn or
od

32u
C1: 100.0%
C2: 0.0%
C3: 0.0%
C4: 0.0%

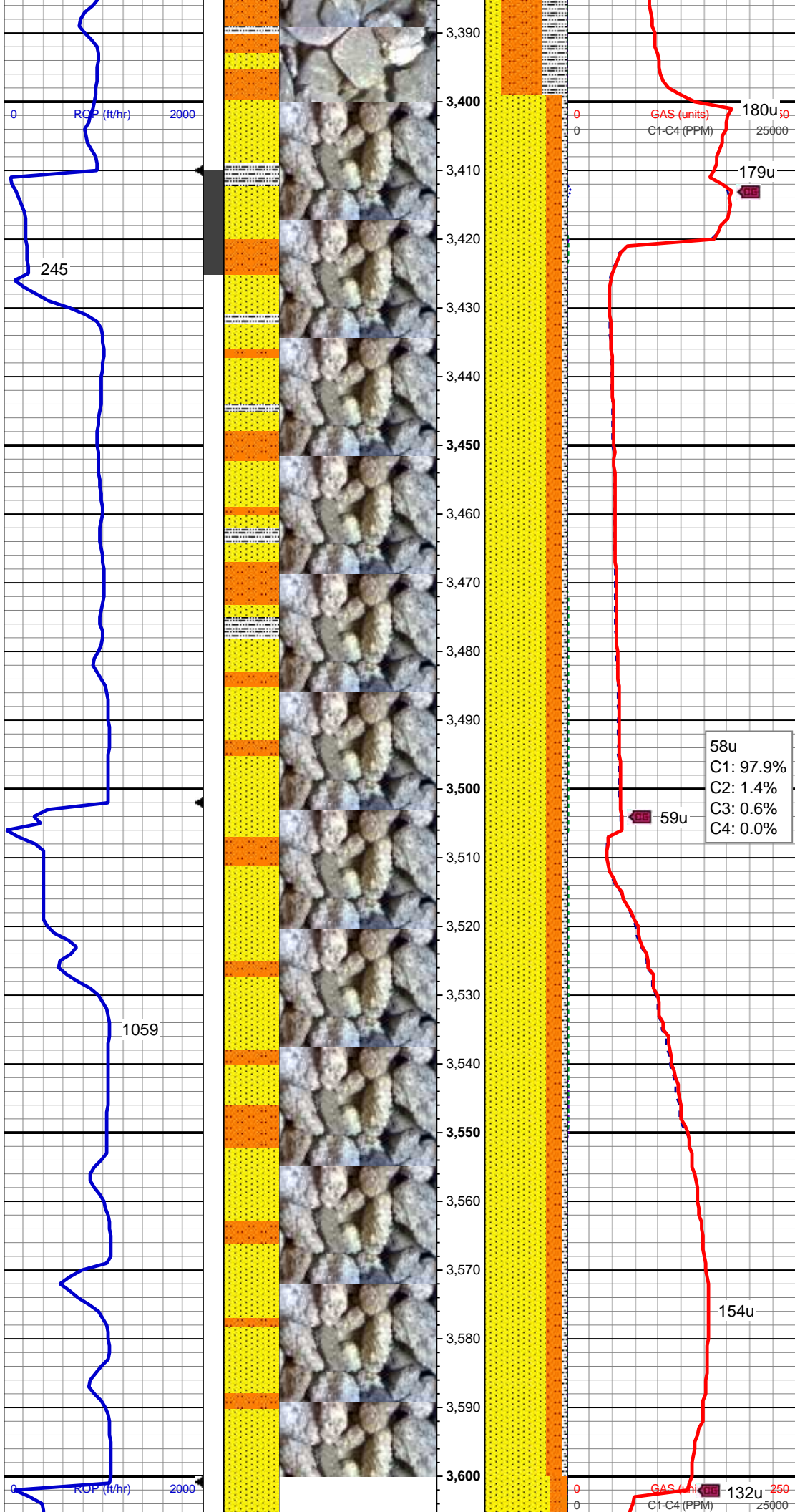
MD: 3,151'
Inclination: 9.32°
Azimuth: 267.91°
TVD: 3,136.84'
VS: -180.53'



MD: 3,246'
Inclination: 8.15°
Azimuth: 262.49°
TVD: 3,230.74'
VS: -194.92'

50% SLTST: lt - med gy, mod frm, brit, sb blkly, gt tex, slty - arg mtx, fy intlam; 30% SLTY SH: gy-med dk gy, mod - v frm, brit, sl fiss ip, plty-sb plty, slty mtx, 20% SS: offwht/lt gy, clr - trnsl grd, mod hd -hd, brit, vf-f gr, sb rd-sb ang, mod srt, cons, mod cmted, tr cal, nfsoc

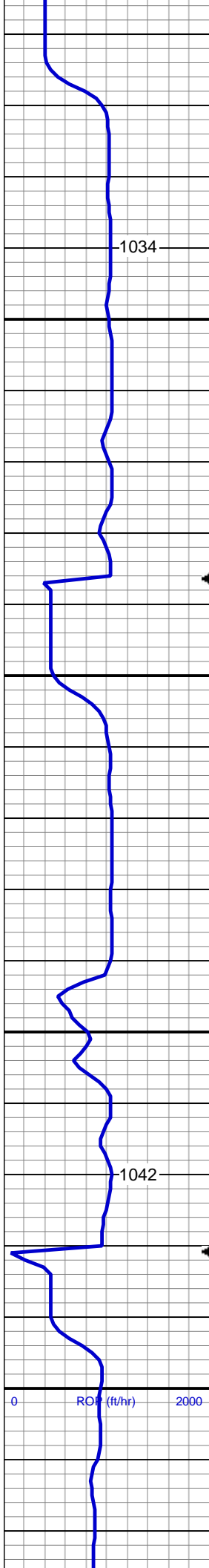
MD: 3,341'
Inclination: 7.09°
Azimuth: 260.74°
TVD: 3,324.9'
VS: -207.43'



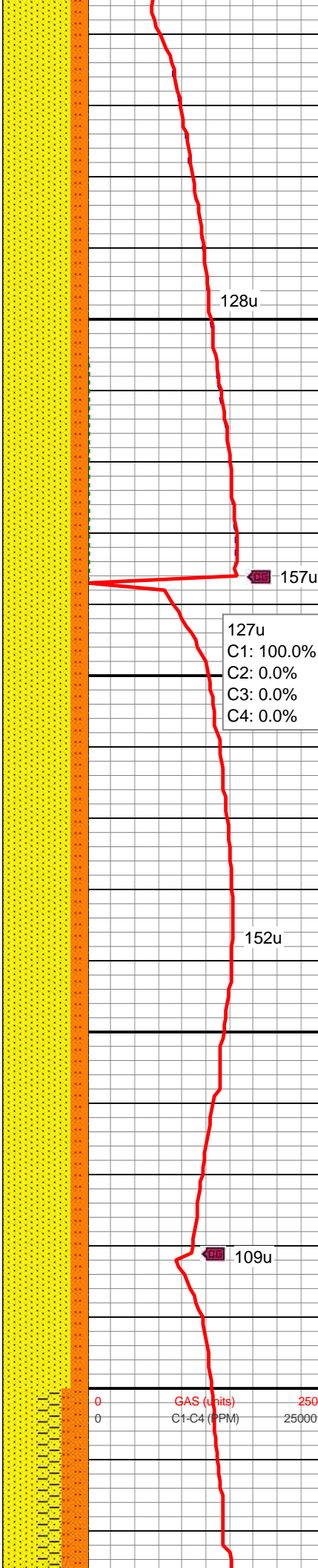
MD: 3,436'
Inclination: 8.95°
Azimuth: 268.69°
TVD: 3,418.97'
VS: -220.63'

75% SS: offwht-wh, com lt gy, clr-trnsl grd, mod-v hd, brit, vf-f gr, sb rd-sb ang, mod-w srt, cons, w cmted, 20% SLTST: lt-med gy, sdy ip, sft-mod frm, brit-fri, sb blk, gt tex, slty-arg mtx, v sl calc, tr (5%) slty sh, occ dul gn ss flor, v slow difse, v sl strng, dul bl wh mky cut, n stn or od

MD: 3,530'
Inclination: 8.99°
Azimuth: 267.62°
TVD: 3,511.82'
VS: -235.29'



3,610
3,620
3,630
3,640
3,650
3,660
3,670
3,680
3,690
3,700
3,710
3,720
3,730
3,740
3,750
3,760
3,770
3,780
3,790
3,800
3,810
3,820



MD: 3,625'
Inclination: 9.24°
Azimuth: 267.58°
TVD: 3,605.62'
VS: -250.34'

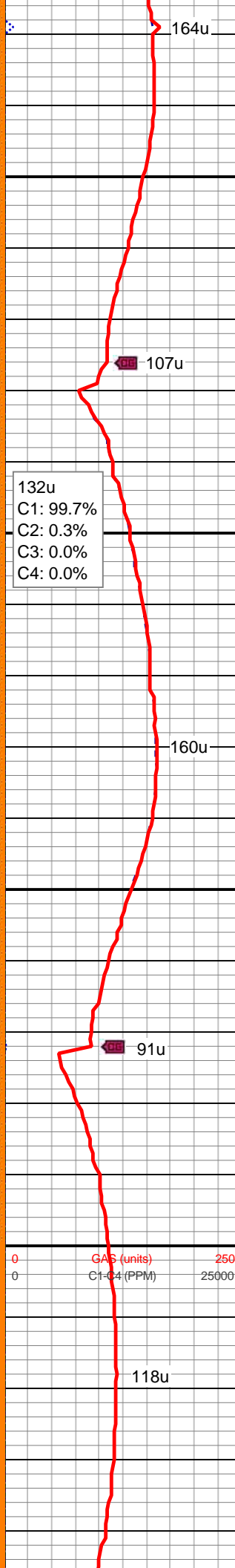
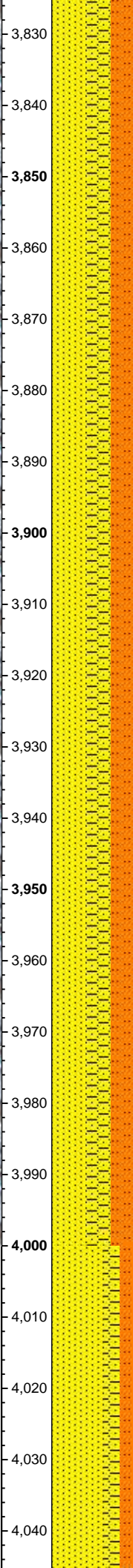
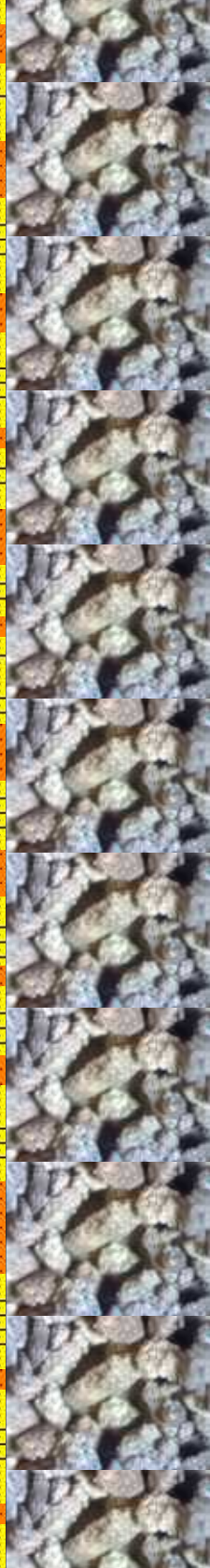
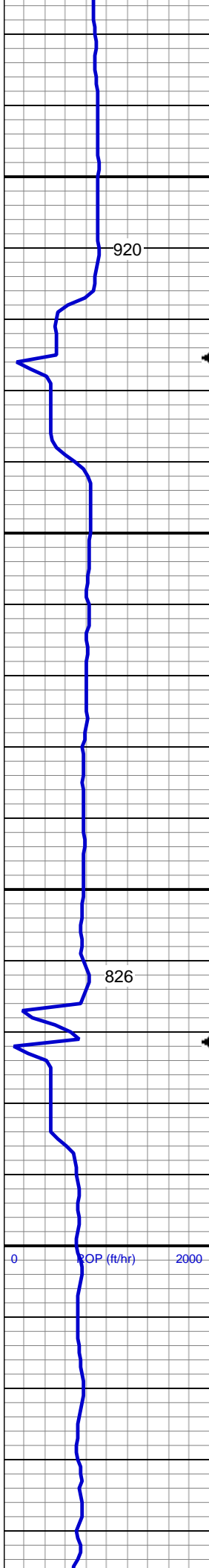
127u
C1: 100.0%
C2: 0.0%
C3: 0.0%
C4: 0.0%

80% SS: offwht-wh, com lt gy, clr-trnsl grd, s&p ip, mod-v hd, brit, vf-f gr, sb rd-sb ang, mod-w srt, cons, w cmtd, 20% SLTST: lt-med gy, sdy ip, sft-mod frm, brit-fri, sb blk, gt tex, slty-arg mtx, v sl calc, tr slty sh, occ dul gn ss flor, v slow difse, v sl strng, fnt bl wh mky cut, n stn or od

MD: 3,720'
Inclination: 9.74°
Azimuth: 267.79°
TVD: 3,699.32'
VS: -266'

MW 8.65 VIS 27

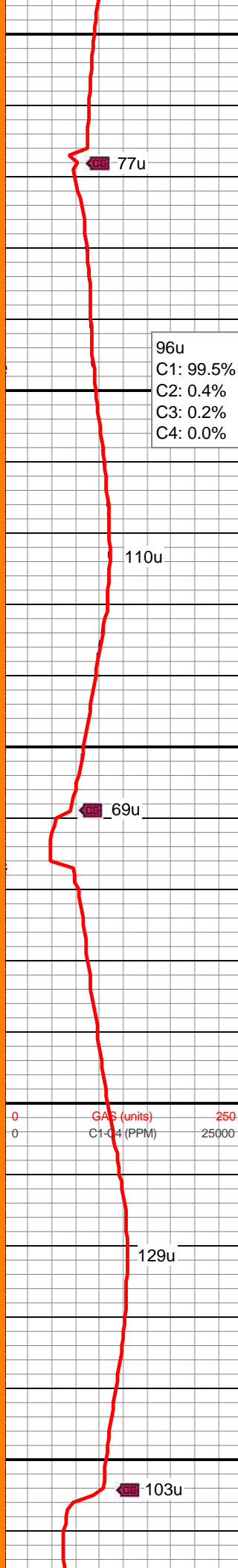
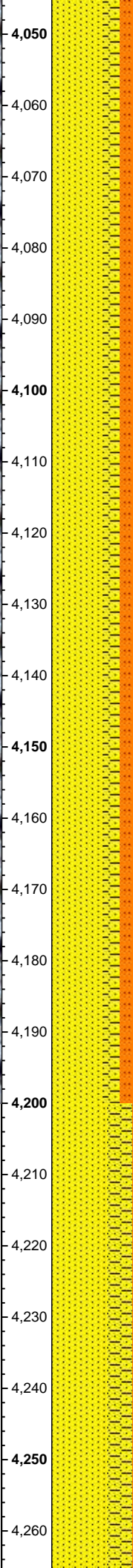
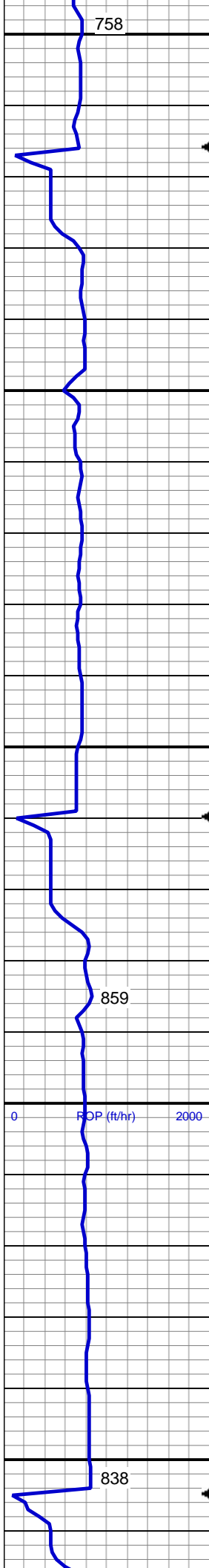
MD: 3,815'
Inclination: 9.96°
Azimuth: 268.28°
TVD: 3,792.92'
VS: -282.26'



40% SS: offwht-wh, com lt gy, clr-trnsl grd, s&p ip, mod-v hd, brit, vf-f gr, sb rd-sb ang, mod-w srt, cons, w cmtd, 30% SLTST: lt-med gy, sdy ip, sft-mod frm, brit-fri, sb blk, gt tex, slty-arg mtx, v sl calc, tr slty sh, 30% SHY SS: lt - med gy, offwht - wh, clr - trnsl grd, s&p ip, sft, vf sb rd-sb ang, mod srt, cons, w cmtd, sl-mod calc, occ dul gn ss flor, nfsoc

MD: 3,909'
Inclination: 9.46°
Azimuth: 267.19°
TVD: 3,885.57'
VS: -298.12'

MD: 4,004'
Inclination: 8.82°
Azimuth: 267.94°
TVD: 3,979.36'
VS: -313.21'

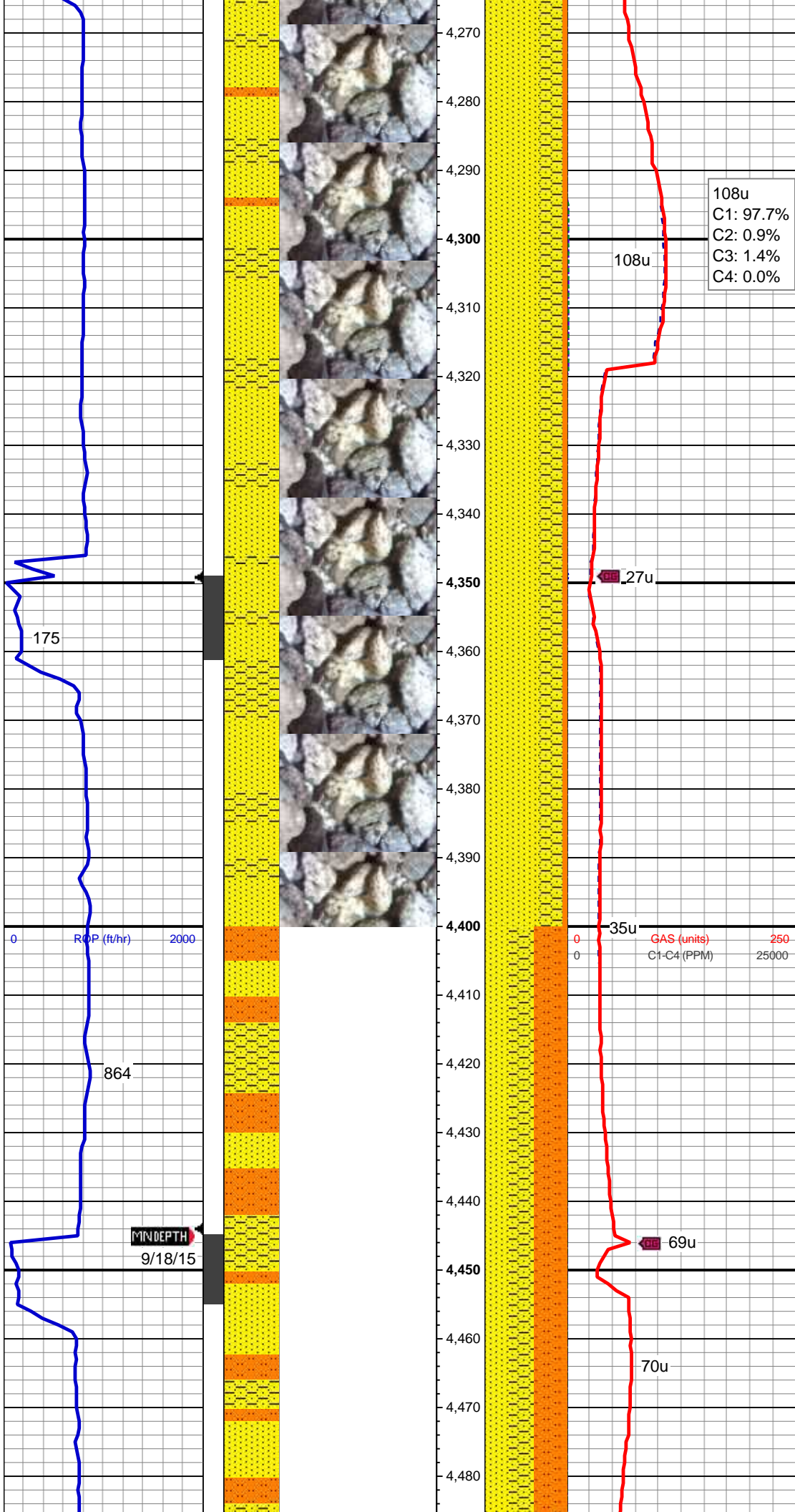


MW 8.8 VIS 27

MD: 4,099'
Inclination: 8.05°
Azimuth: 265.95°
TVD: 4,073.33'
VS: -327.15'

60% SS: offwht-wh, com lt gy, clr-trnsl grd, s&p ip, mod-v hd, brit, vf-f gr, sb rd-sb ang, mod-w srt, cons, w cmtd, 20% SLTST: lt-med gy, sdy ip, sft-mod frm, brit-fri, sb blk, gt tex, slty-arg mtx, v sl calc, tr slty sh, 20% SHY SS: lt - med gy, offwht - wh, clr - trnsl grd, s&p ip, sft, vf sb rd-sb ang, mod srt, cons, w cmtd, sl-mod calc, occ dul gn ss flor, nfsoc

MD: 4,194'
Inclination: 6.85°
Azimuth: 265.63°
TVD: 4,167.53'
VS: -339.46'



MD: 4,288'
Inclination: 6.36°
Azimuth: 264.25°
TVD: 4,260.9'
VS: -350.25'

108u
C1: 97.7%
C2: 0.9%
C3: 1.4%
C4: 0.0%

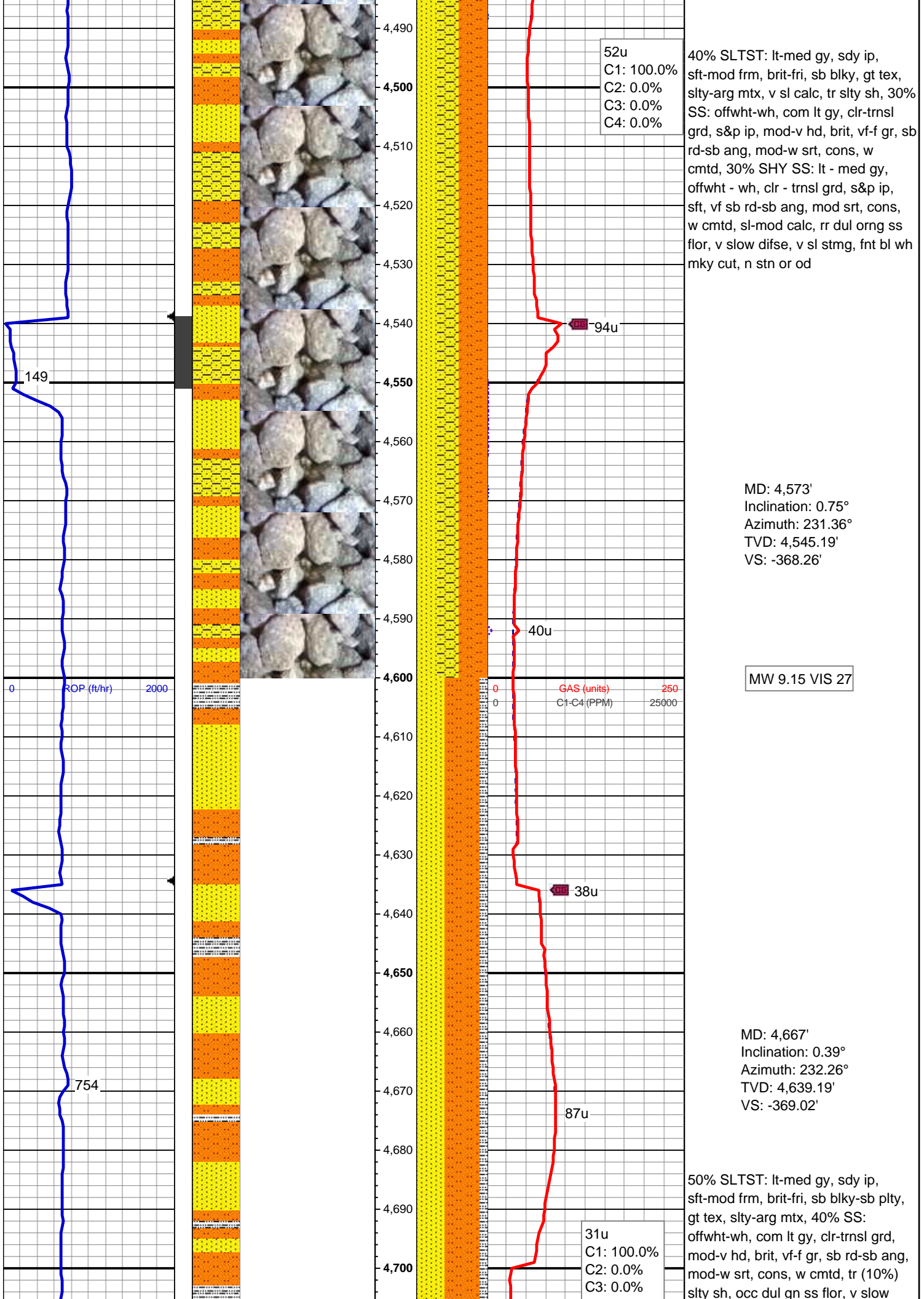
65% SS: offwht-wh, com lt gy, clr-trnsl grd, s&p ip, mod-v hd, brit, vf-f gr, sb rd-sb ang, mod-w srt, cons, w cmtd, 30% SHY SS: lt - med gy, offwht - wh, clr - trnsl grd, s&p ip, sft, vf sb rd-sb ang, mod srt, cons, w cmtd, sl-mod calc, tr (5%) sltst, rr dul gn ss flor, v slow difse, v sl stmg, fnt bl wh mky cut, n strn or od

MW 9.1 VIS 27

MD: 4,383'
Inclination: 4.72°
Azimuth: 259.83°
TVD: 4,355.46'
VS: -359.37'

GAS (units) 250
C1-C4 (PPM) 25000

MD: 4,478'
Inclination: 2.87°
Azimuth: 250.72°
TVD: 4,450.25'
VS: -365.5'



52u
C1: 100.0%
C2: 0.0%
C3: 0.0%
C4: 0.0%

40% SLTST: lt-med gy, sdy ip, sft-mod frm, brit-fri, sb blkly, gt tex, slty-arg mtx, v sl calc, tr slty sh, 30% SS: offwht-wh, com lt gy, clr-trnsl grd, s&p ip, mod-v hd, brit, vf-f gr, sb rd-sb ang, mod-w srt, cons, w cmt, 30% SHY SS: lt - med gy, offwht - wh, clr - trnsl grd, s&p ip, sft, vf sb rd-sb ang, mod srt, cons, w cmt, sl-mod calc, rr dul orng ss flor, v slow difse, v sl strng, fnt bl wh mky cut, n stn or od

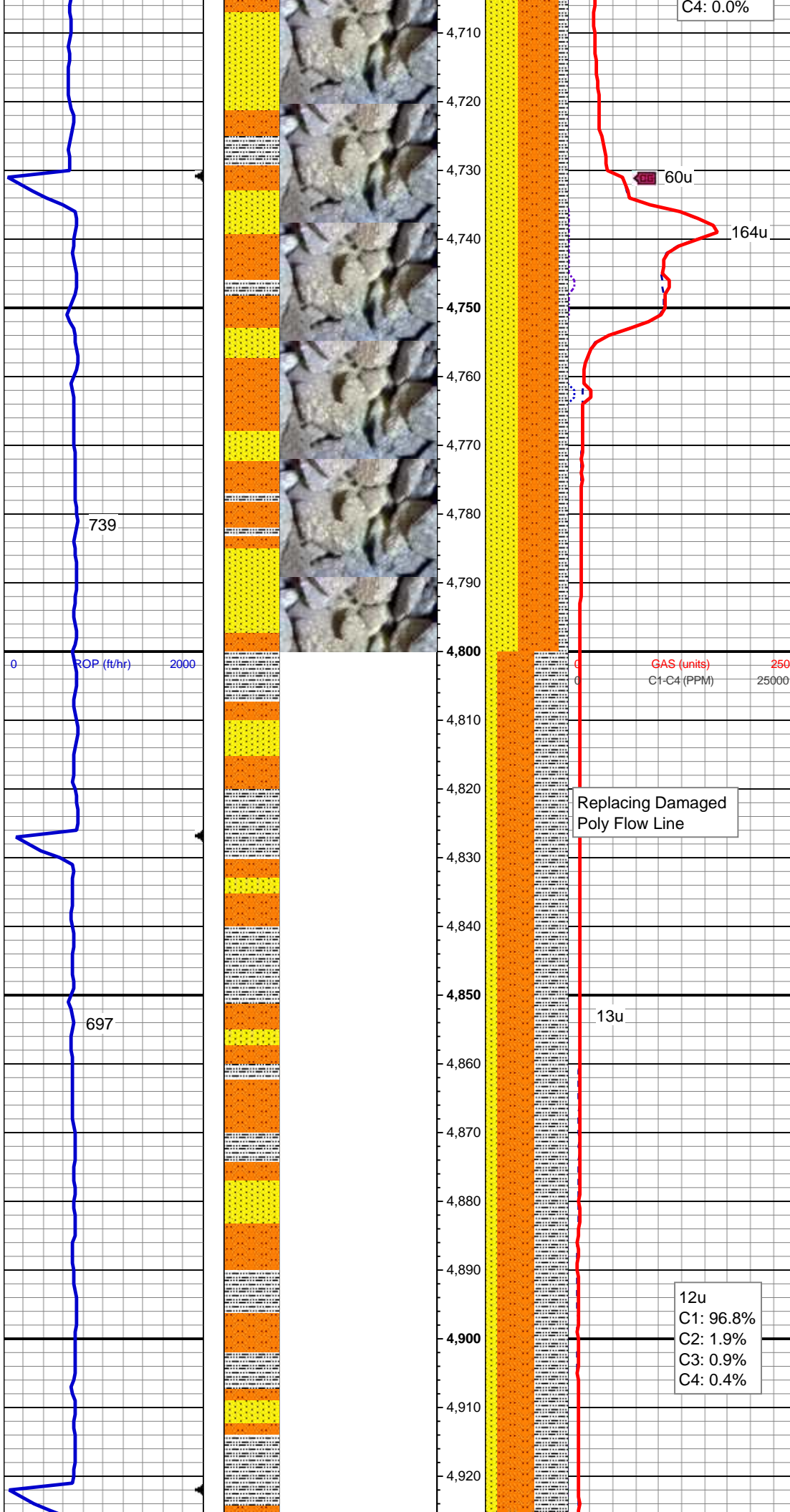
MD: 4,573'
Inclination: 0.75°
Azimuth: 231.36°
TVD: 4,545.19'
VS: -368.26'

MW 9.15 VIS 27

MD: 4,667'
Inclination: 0.39°
Azimuth: 232.26°
TVD: 4,639.19'
VS: -369.02'

50% SLTST: lt-med gy, sdy ip, sft-mod frm, brit-fri, sb blkly-sb plty, gt tex, slty-arg mtx, 40% SS: offwht-wh, com lt gy, clr-trnsl grd, mod-v hd, brit, vf-f gr, sb rd-sb ang, mod-w srt, cons, w cmt, tr (10%) slty sh, occ dul qn ss flor, v slow

31u
C1: 100.0%
C2: 0.0%
C3: 0.0%

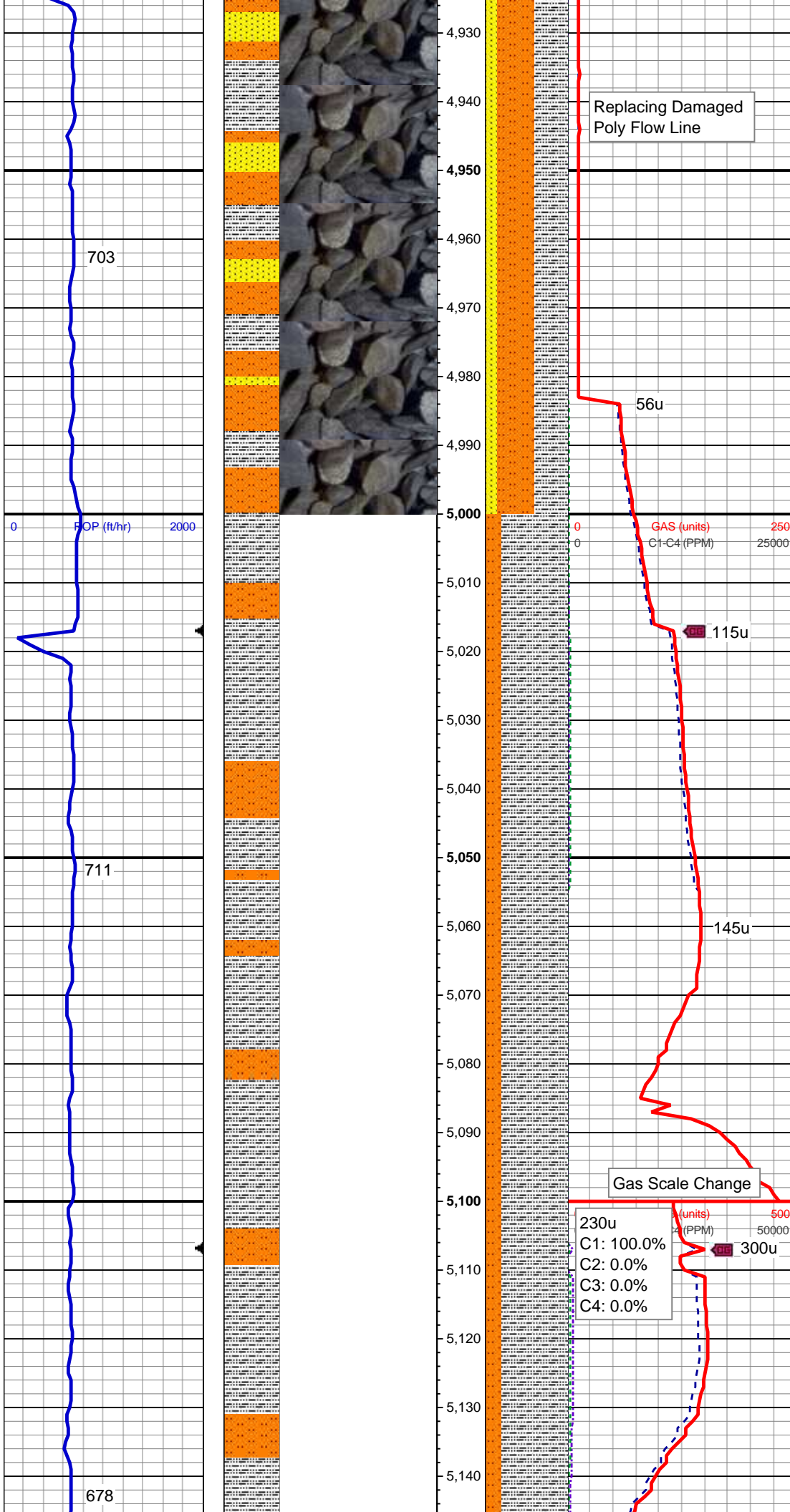


difse, v sl stmg, dul bl wh mky cut, n
stn or od

MD: 4,762'
Inclination: 0.24°
Azimuth: 263.31°
TVD: 4,734.19'
VS: -369.48'

MD: 4,857'
Inclination: 0.35°
Azimuth: 288.81°
TVD: 4,829.19'
VS: -369.94'

45% SLTST: lt-med gy, sdy ip,
sft-mod frm, brit-fri, sb blkly-sb plty,
gt tex, slty-arg mtx, occ glau, 40%
SLTY SH: med-dk gy, mod frm-brit,
sl fiss ip, sb blkly-plty, arg - slty mtx,
sl calc, 15% SS: offwht-wh, com lt
gy, clr-trnsl grd, mod-v hd, brit, vf-f
gr, sb rd-sb ang, mod-w srt, cons,
w cmtld, com dul gn ss flor, v slow
difse, v sl stmg, dul bl wh mky cut, n
stn or

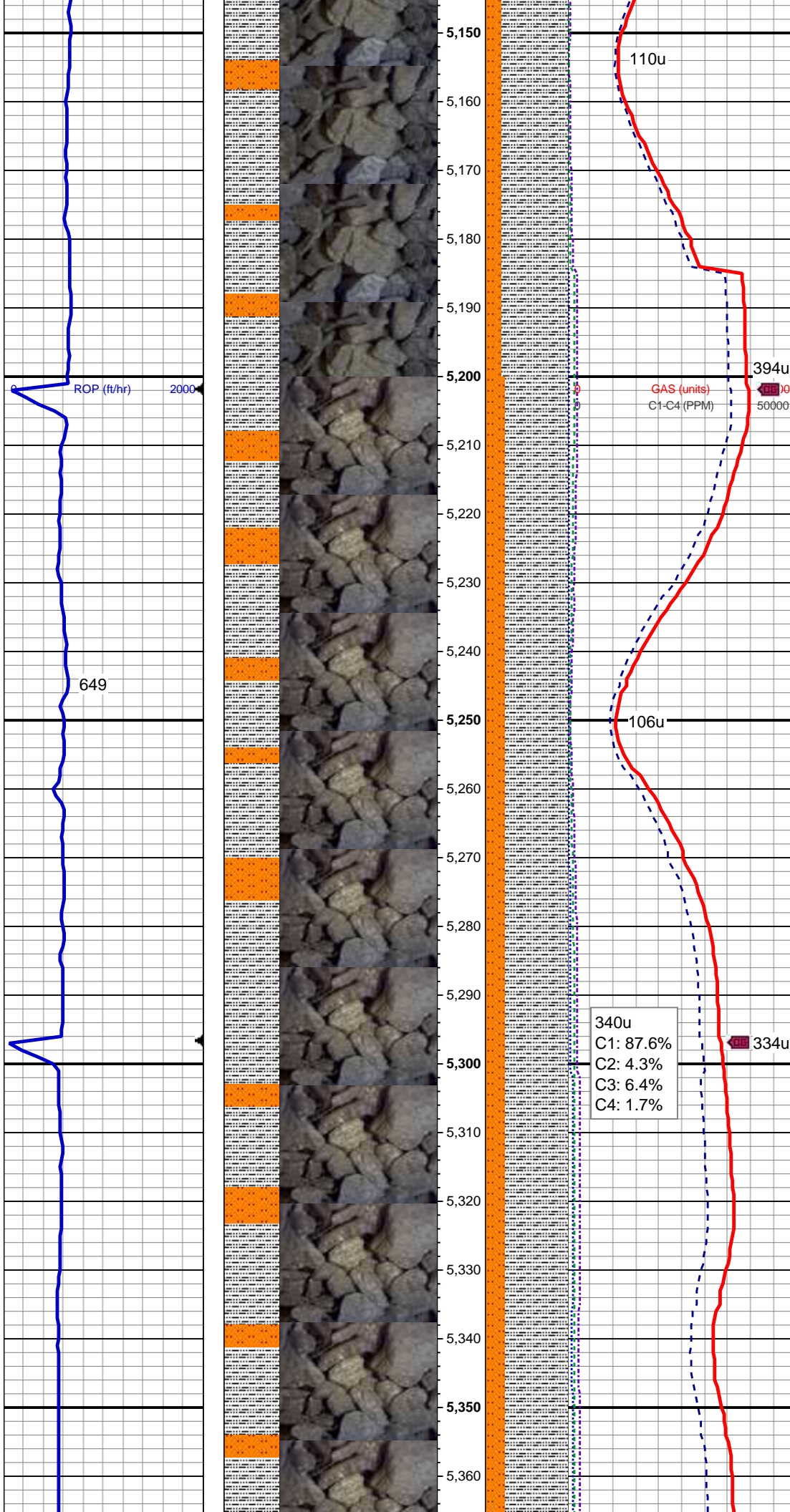


MD: 4,960'
Inclination: 0.3°
Azimuth: 294.4°
TVD: 4,932.18'
VS: -370.8'

MD: 5,046'
Inclination: 0.25°
Azimuth: 324.87°
TVD: 5,018.18'
VS: -370.79'

80% SLTY SH: med-dk gy, mod frm-brit, sl fiss ip, sb blkly-plty, arg - slty mtx, sl calc, 20% SLTST: lt-med gy, sdy ip, sft-mod frm, brit-fri, sb blkly-sb plty, gt tex, slty-arg mtx, occ ss, nsfoc

MD: 5,141'
Inclination: 0.33°
Azimuth: 357.34°
TVD: 5,113.18'



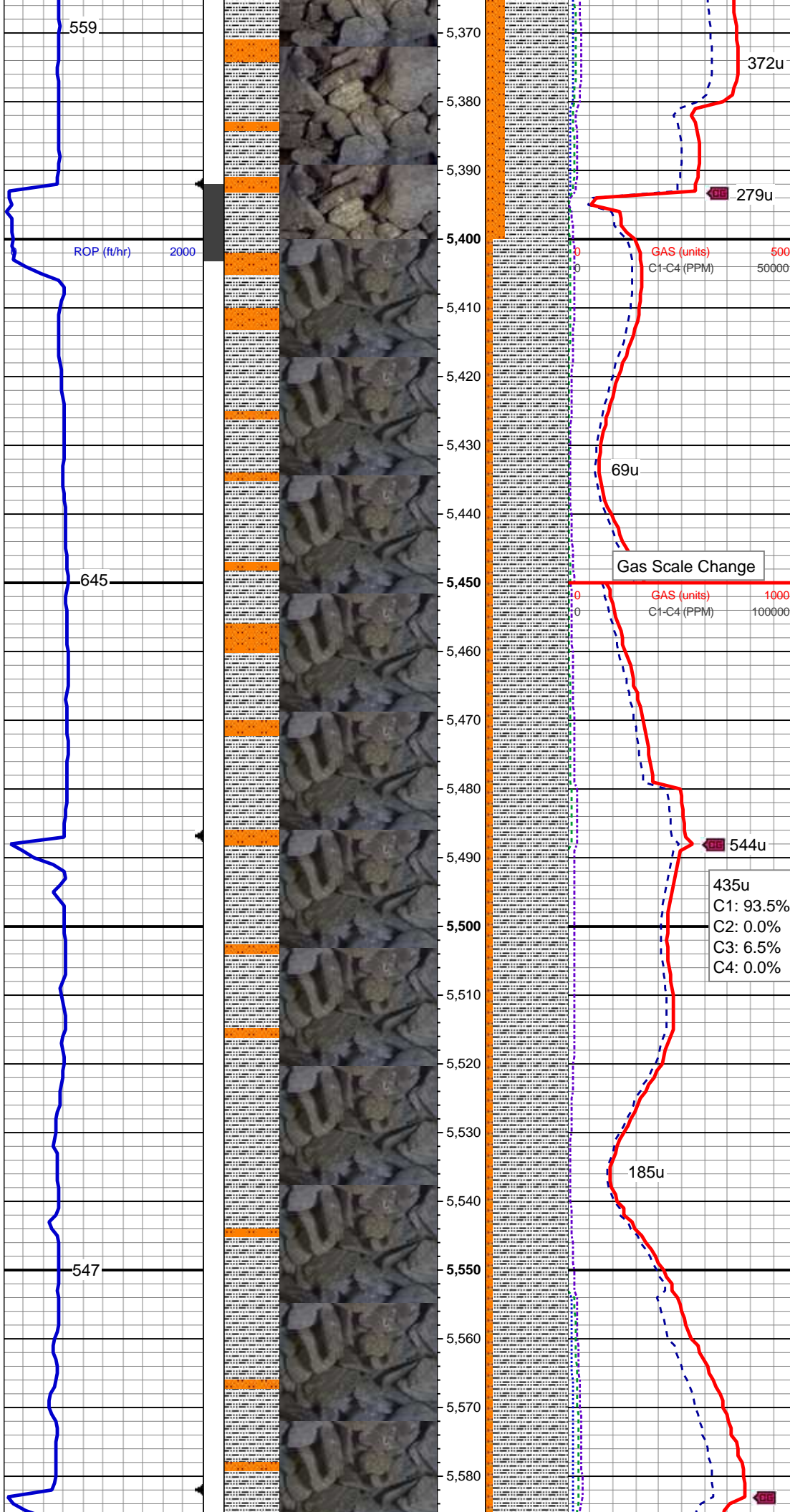
VS: -370.91'

MW 9.65 VIS 35

MD: 5,236'
Inclination: 0.7°
Azimuth: 12.28°
TVD: 5,208.18'
VS: -370.78'

75% SLTY SH: med-dk gy, mod
frm-brit, sl fiss ip, sb blk-pty, arg -
sly mtx, sl calc, 25% SLTST: lt-med
gy, sdy ip, sft-mod frm, brit-fri, sb
blk-sb pty, gt tex, sly-arg mtx, occ
glau, occ ss, nsfoc

MD: 5,330'
Inclination: 1.05°
Azimuth: 0.26°
TVD: 5,302.17'
VS: -370.6'

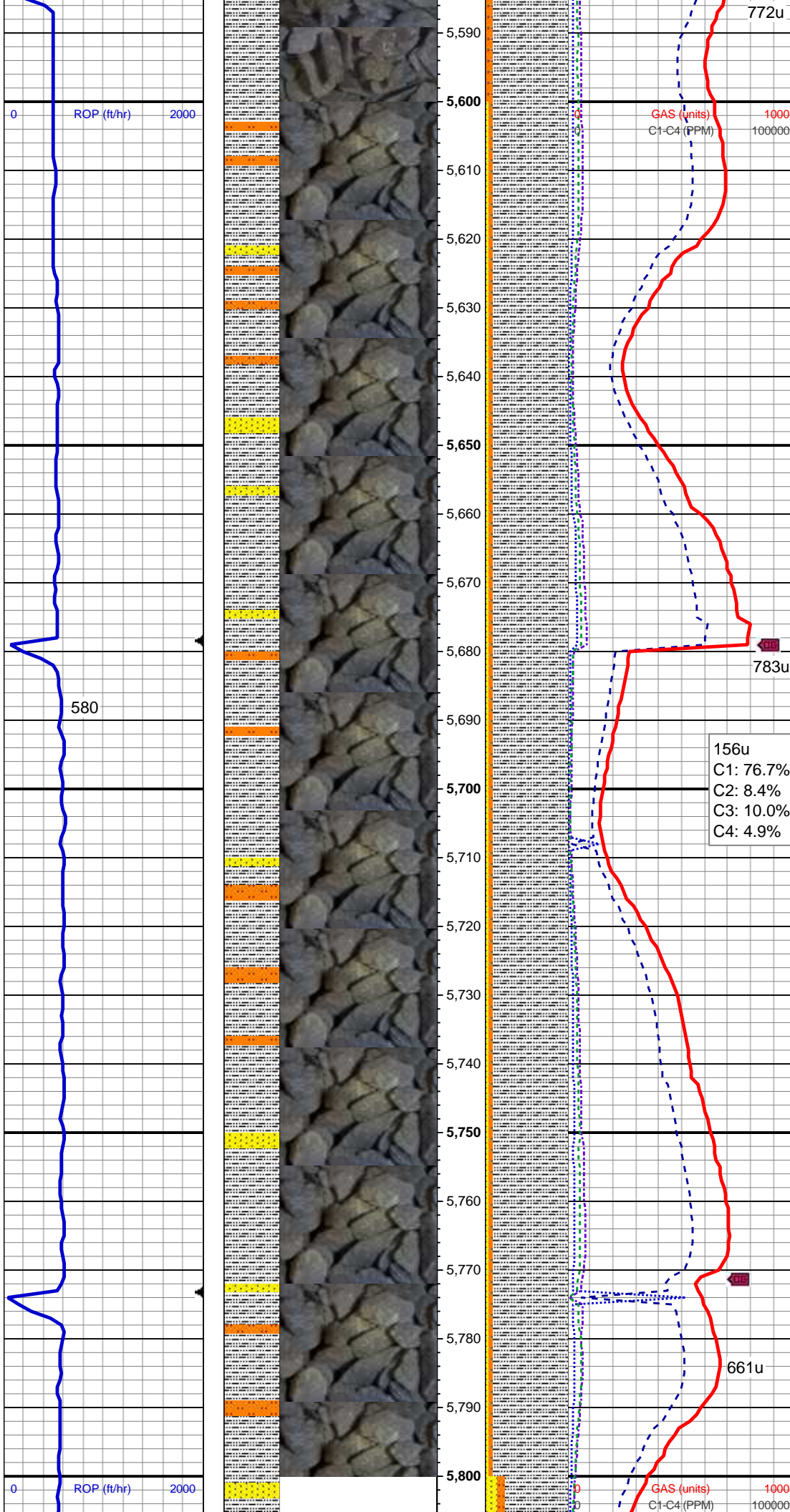


MD: 5,425'
Inclination: 1.27°
Azimuth: 262.94°
TVD: 5,397.15'
VS: -371.62'

90% SLTY SH: med-dk gy, mod
frm-brit, sl fiss ip, sb blkly-pty, arg -
slyt mtx, sl calc, 10% SLTST: lt-med
gy, sdy ip, sft-mod frm, brit-fri, sb
blkly-sb pty, gt tex, slyt-arg mtx,
nsfoc

MD: 5,520'
Inclination: 1.41°
Azimuth: 276.42°
TVD: 5,492.13'
VS: -373.82'

MW 9.9 VIS 37

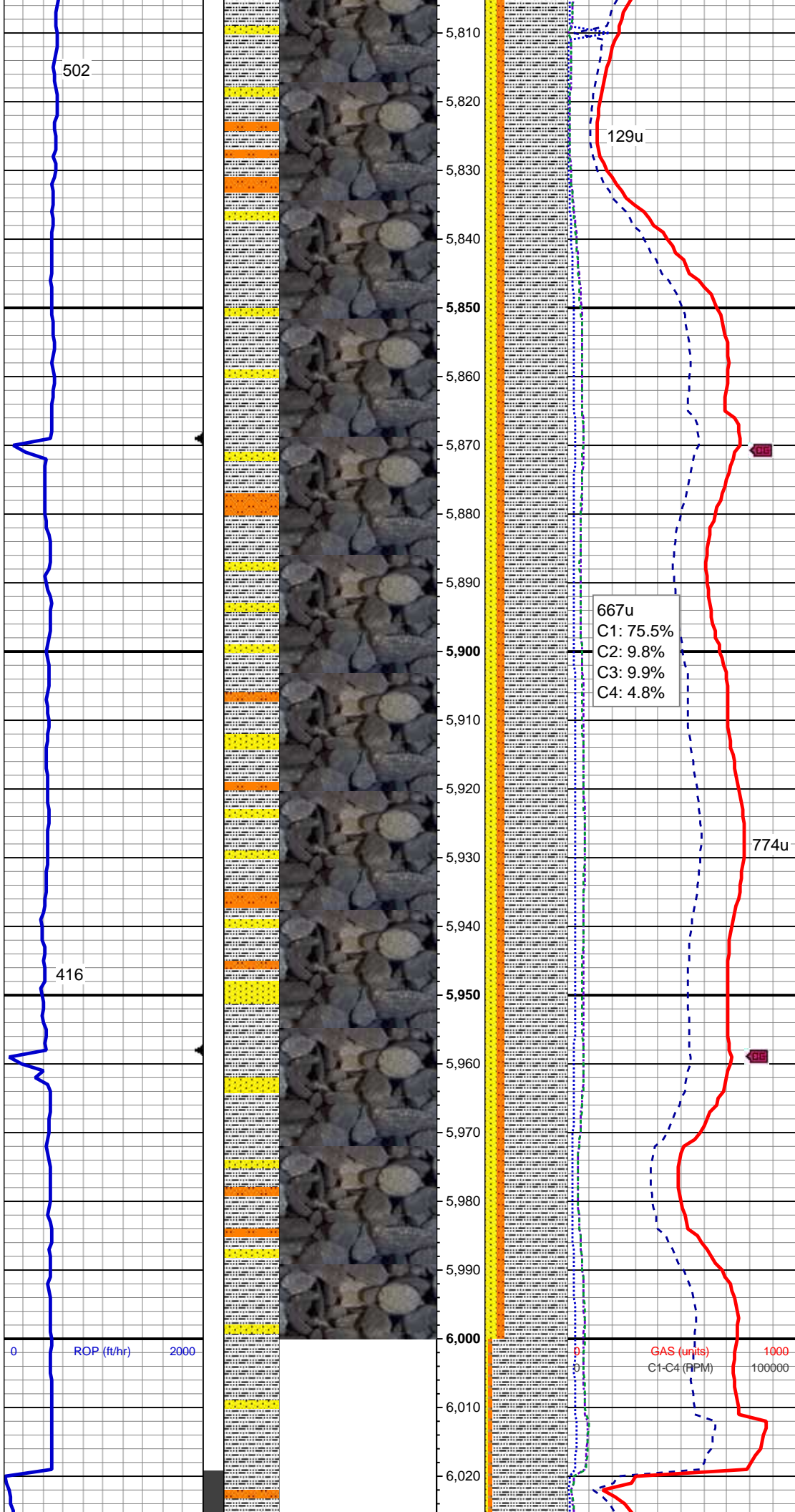


MD: 5,614'
Inclination: 0.94°
Azimuth: 254.88°
TVD: 5,586.11'
VS: -375.71'

90% SLTY SH: med-dk gy, mod
frm-brit, sb plty-sb blk, plty-sb fis
ip, arg - slty mtx, non calc, tr (5%)
sltst, tr (5%) fy intlam ss strg, rr dul
gn ss flor, slow difse, sl stmg, fnt bl
wh mky cut, no stn or od

MD: 5,709'
Inclination: 0.34°
Azimuth: 212.73°
TVD: 5,681.1'
VS: -376.63'

MD: 5,804'
Inclination: 0.54°
Azimuth: 175.74°



TVD: 5,776.1'
VS: -376.71'

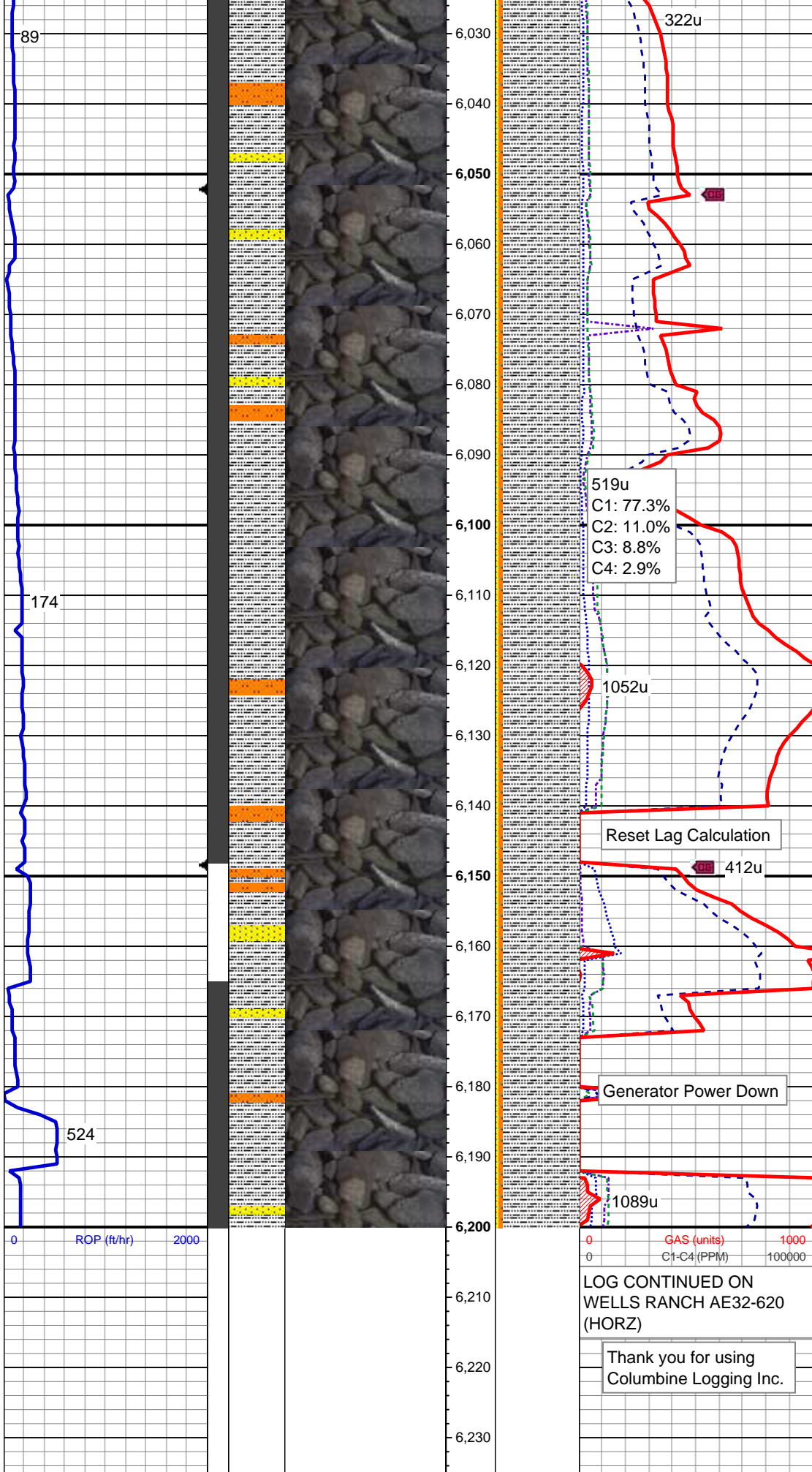
75% SLTY SH: med-dk gy, frm, brit,
pty-sb blk, arg - slty mtx, intlamm wi
15% SS: offwht, lt gy, clr-trnsl grd,
hd, brit, vf-l f gr, sb rd-sb ang, w srt,
cons, w cmted, non calc, occ (10%)
sltst, occ dissim pyr, rr gn glau, rr
dul gn ss flr, slow difse, sl strng,
fnt bl wh mky cut, no strn or od

MD: 5,898'
Inclination: 0.74°
Azimuth: 158.81°
TVD: 5,870.1'
VS: -376.49'

MD: 5,993'
Inclination: 0.53°
Azimuth: 147.11°
TVD: 5,965.09'
VS: -376.06'

MW 10.2 VIS 35

KOP @ 6019' MD



MW 10.5 VIS 35

MD: 6,088'
Inclination: 8.19°
Azimuth: 94.39°
TVD: 6,059.75'
VS: -369.09'

90% SLTY SH: med-dk gy, frm, brit,
pty-sb blk, sb fis ip, arg - slty mnt,
non calc, tr (5%) sltst & (5%) ss, tr
dissm pyr, rr bent, rr bri bl wh mnrl
flor, slow difse, sl stmg, fnt bl wh
mky cut, no stn or od

MD: 6,182'
Inclination: 16.49°
Azimuth: 93.71°
TVD: 6,151.5'
VS: -349.12'