

# COLUMBINE LOGGING

Scale: 5" / 100'  
Measured Depth Log

Well Name NCLP AA07-69HNA

Location SEC4-T6N-R63W

State COLORADO

County WELD

Country USA

Rig Number H&P 322

API Number 05-123-39160

AFE # 141128

Region DJ BASIN

Field WATTENBERG

Spud Date 5/31/2014

Drilling Completed 6/7/2014

Surface Coordinates 40.51017, -104.45086

Ground Elevation 4708'

K.B. Elevation 4732'

Logged Interval 1000' To 6200'

Total Depth 13228'

Formation NIOBRARA B CHALK

Type of Drilling Fluid WATER/POLY/MUD

## 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

MINDEPTH 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

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
- CORAL

F FOSSIL

GASTROPOD

INOCERAMUS

OOLITE

OSTRACOD

PELECYPOD

PELLET

PISOLITE

PLANT REMAINS

PLANT PRODES

ANHYDRITIC

ARGILLACEOUS

ARGILLITE GRAIN

BENTONITE

BITUMENOUS SUBSTANCE

BRECCIA FRAGMENTS

CALCAREOUS

CARBONACEOUS FLAKES

CHTDK

CLUTL

FERRUGINOUS

GLAUCONITE

GYPSIFEROUS

HEAVY MINERAL

KAOLIN

MARLSTONE

MINERAL CRYSTALS

NODULES

PHOSPHATE PELLETS

TYNITE

TUFFACEOUS

### Stringer

- ANHYDRITE STRINGER
- BENTONITE STRINGER
- COAL STRINGER
- DOLOMITE STRINGER
- GYPSUM 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  
ANHYDRITE  
BENTONITE  
BRECCIA  
CEMENT  
CHALK  
CHERT  
CLAY CHOKE SAND  
CLAYSTONE

COAL  
CONGLOMERATE  
DOLOMITE  
GRANITE  
GYPSUM  
IGNEOUS  
LIMESTONE  
SIDERITE or LIMONITE  
MARLSTONE

METAMORPHIC  
NO SAMPLE  
SALT  
SALT- PEPPER SAND  
SANDSTONE  
SHALE  
SHALE COLORED  
SHALE GRAY  
SHALY SANDSTONE

SHALY SILTSTONE  
SILTSTONE  
SILTY SHALE  
TILL  
TUFF  
WELDED TUFF

## Operator

**Company** Noble Energy Inc

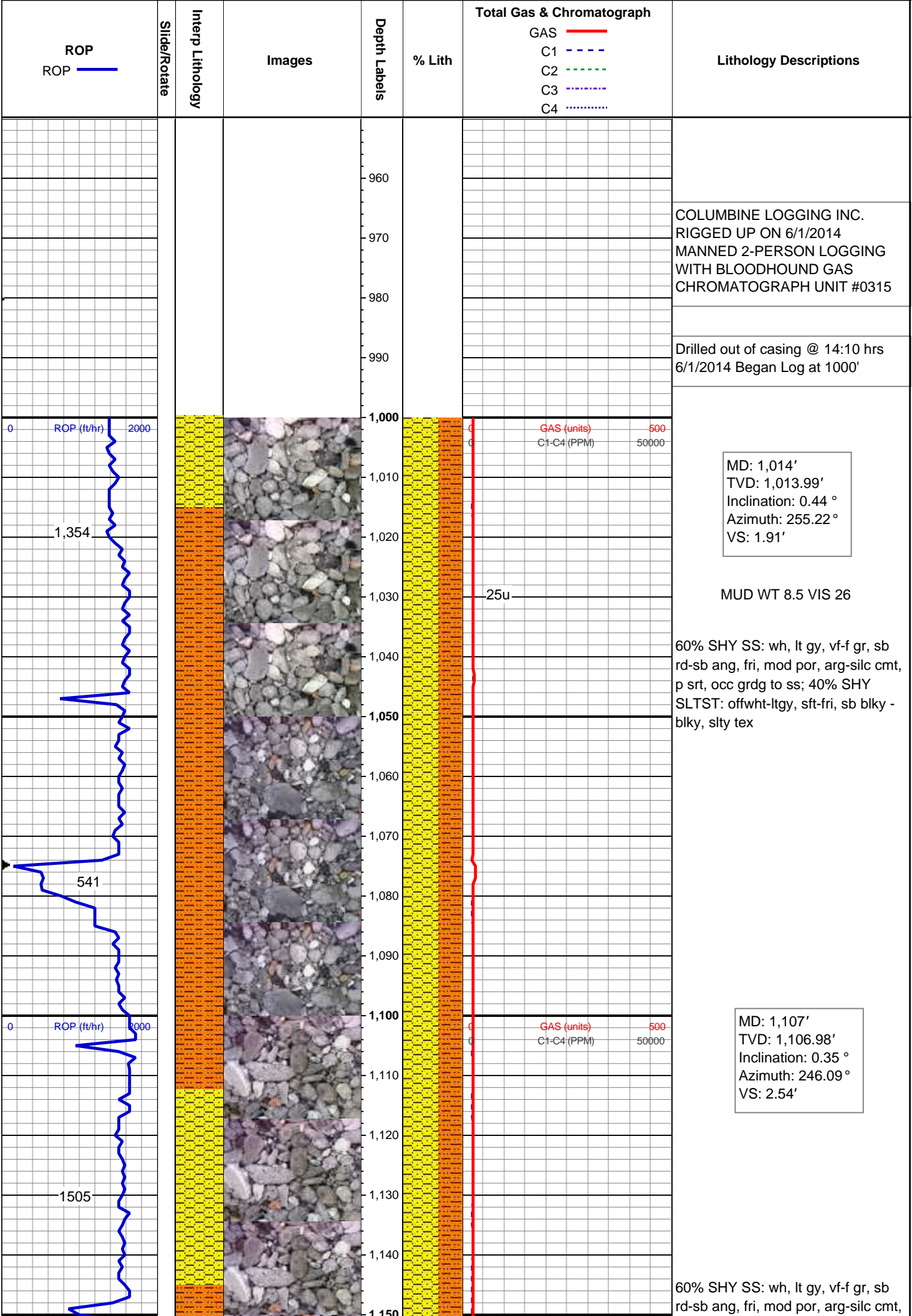
**Address** 1625 Broadway Suite 2200 Denver, CO 80202

## Geologist

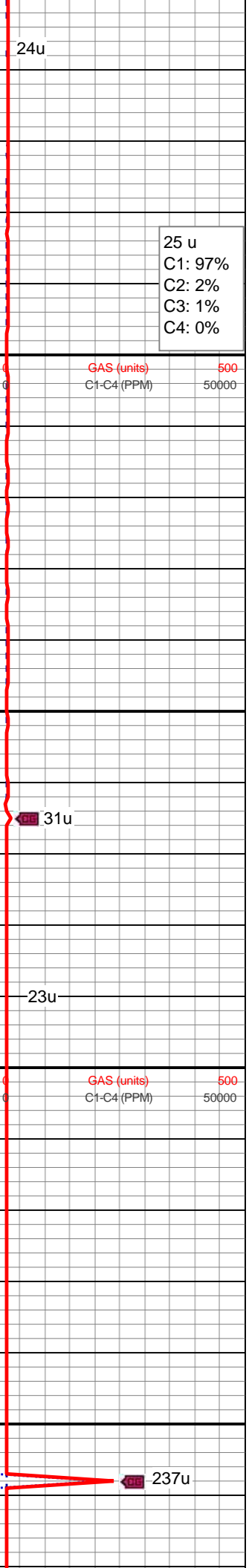
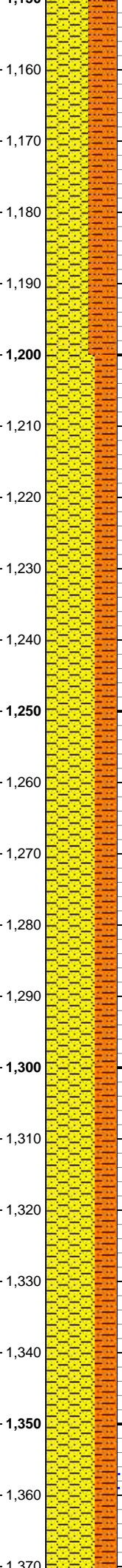
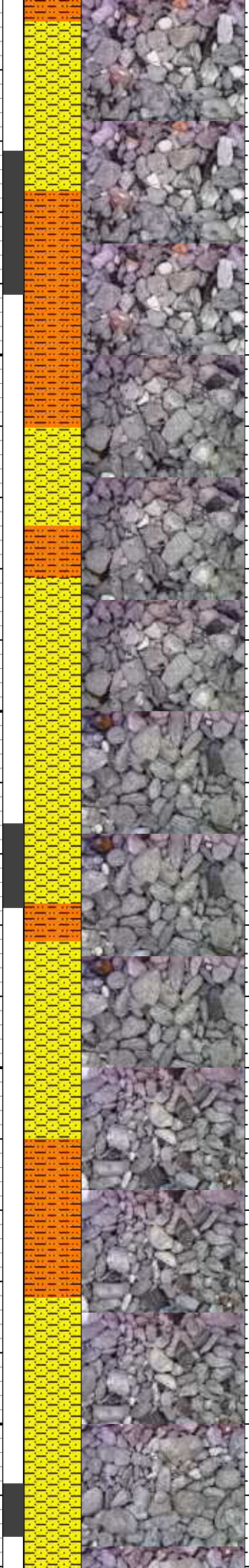
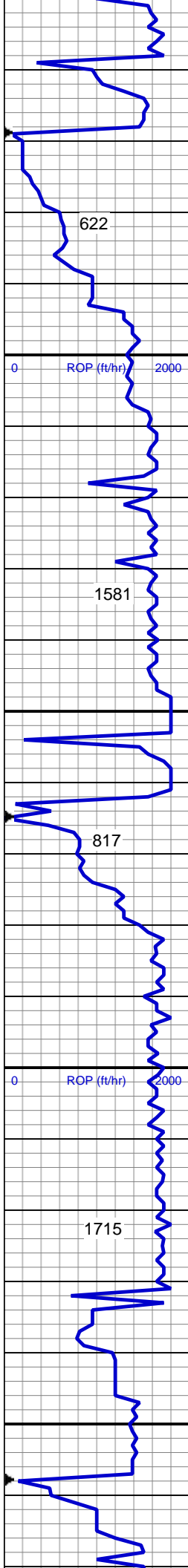
**Name** LIZ VAN DIEPEN, BRIAN SPITZMILLER

**Company** COLUMBINE LOGGING, INC.

**Address** 2385 S. LIPAN ST  
DENVER, COLORADO 80223  
(303) 289-7764







p srt, occ grd to ss; 40% SHY  
SLTST: offwht-ltgy, sft-fri, sb blkly -  
blkly, slty tex

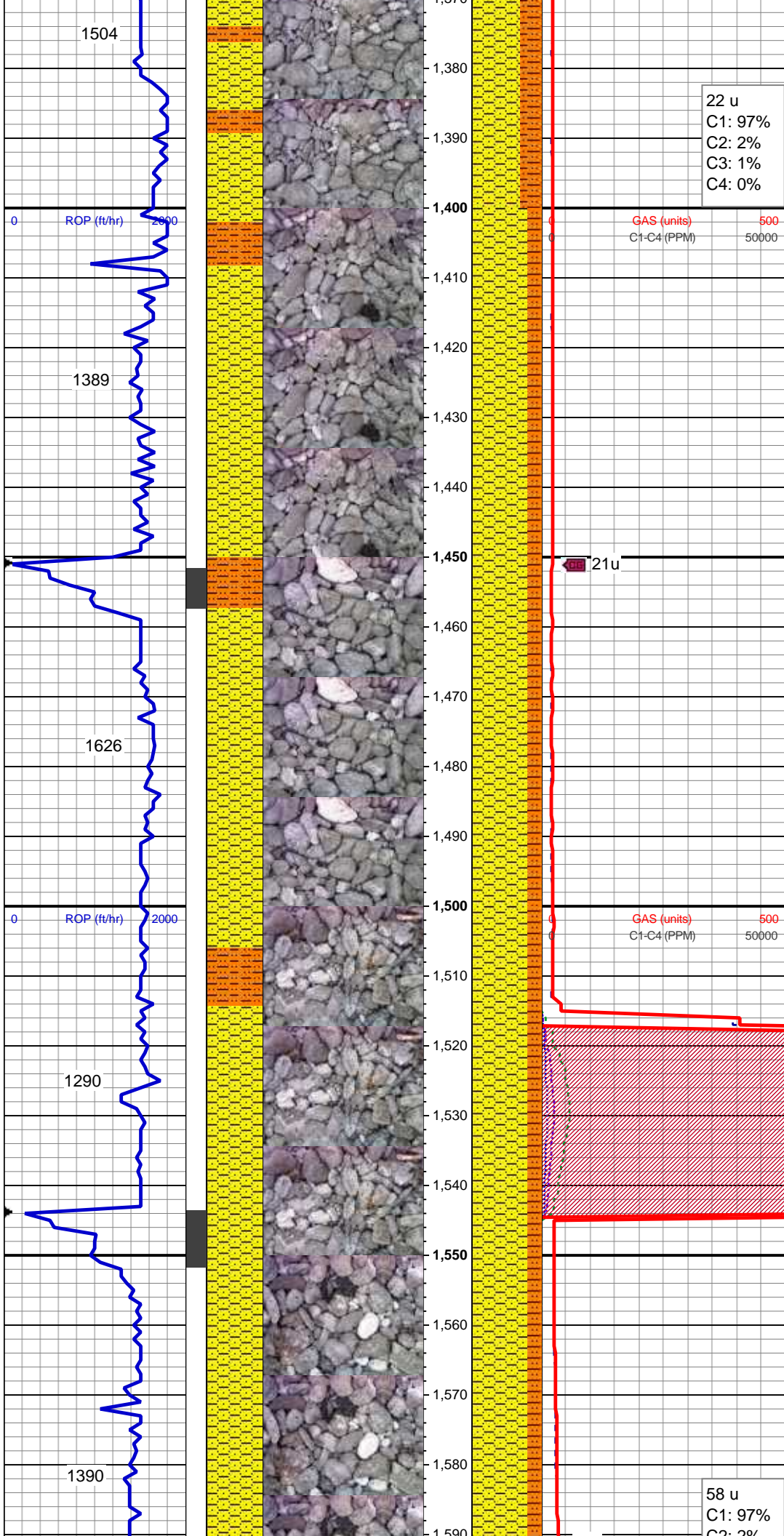
MD: 1,200'  
TVD: 1,199.96'  
Inclination: 1.92 °  
Azimuth: 201.03 °  
VS: 3.53'

MUD WT 8.5 VIS 26

70% SHY SS: wh, lt gy, vf-f gr, sb  
rd-sb ang, fri, mod por, arg-silc cmt,  
p srt, occ grd to ss 30% SHY  
SLTST: offwht-ltgy, sft-fri, sb blkly -  
blkly, slty tex

MD: 1,293'  
TVD: 1,292.91'  
Inclination: 1.9 °  
Azimuth: 202.88 °  
VS: 5.01'

70% SHY SS: wh, lt gy, vf-f gr, sb  
rd-sb ang, fri, mod por, arg-silc cmt,  
p srt, occ grd to ss 30% SHY  
SLTST: offwht-ltgy, sft-fri, sb blkly -  
blkly, slty tex



22 u  
C1: 97%  
C2: 2%  
C3: 1%  
C4: 0%

MD: 1,386'  
TVD: 1,385.85'  
Inclination: 2.09 °  
Azimuth: 203.65 °  
VS: 6.62'

MUD WT 8.5 VIS 26

80% SHY SLTST: offwht-ltgy, sft-fri,  
sb blkly - blkly, slty tex, 20% SHY SS:  
wh, lt gy, vf-f gr, sb rd-sb ang, fri,  
mod por, arg cmt, p srt

MD: 1,479'  
TVD: 1,478.8'  
Inclination: 1.8 °  
Azimuth: 204.96 °  
VS: 8.23'

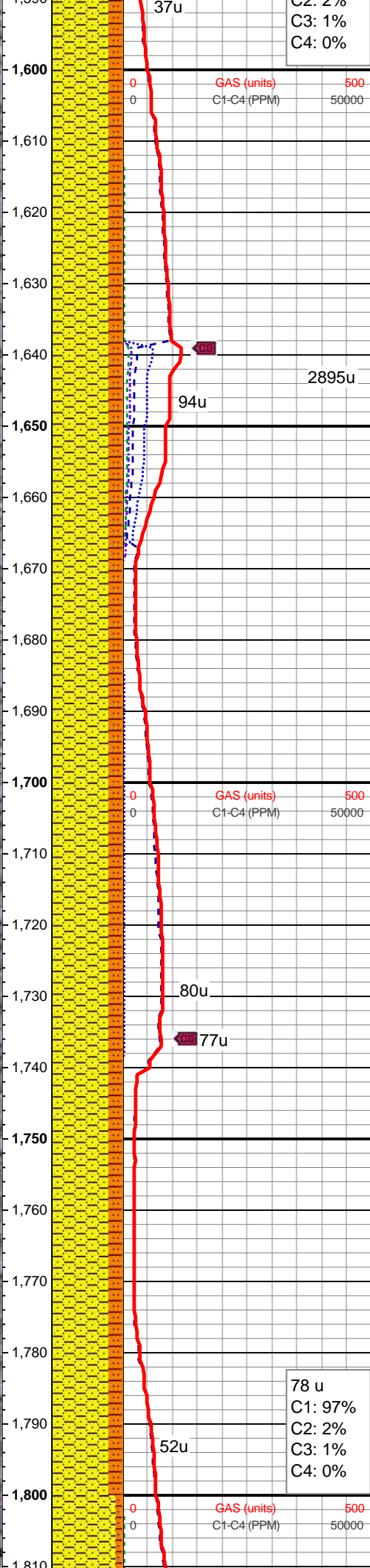
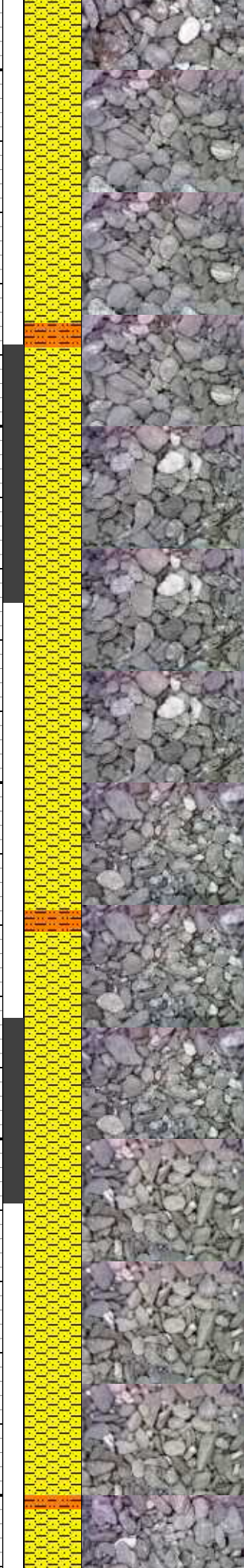
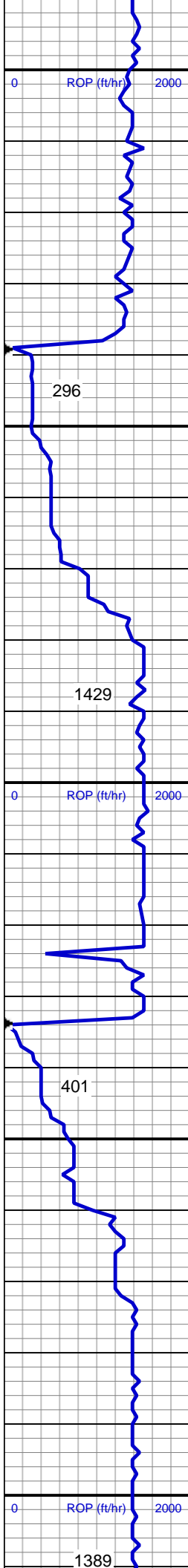
GAS TEST

80% SHY SS: wh, lt gy, mot, vf-f gr,  
sb rd-sb ang, fri, mod por, arg cmt,  
p srt 20% SHY SLTST: offwht-ltgy,  
sft-fri, sb blkly - blkly, slty tex

58 u  
C1: 97%  
C2: 2%

MD: 1,573'  
TVD: 1,572.75'  
Inclination: 1.86 °  
Azimuth: 207.01 °  
VS: 9.85'





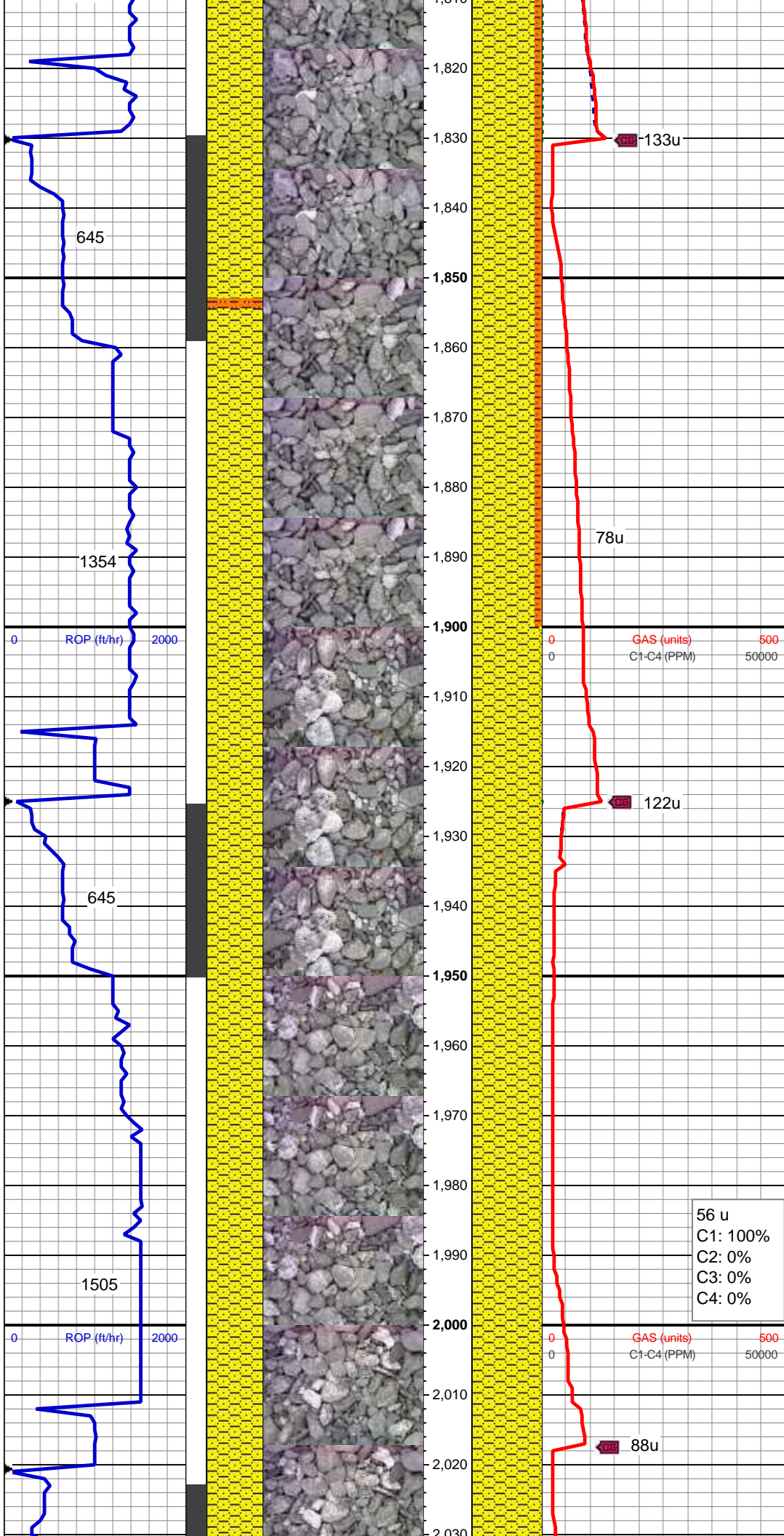
MUD WT 8.5 VIS 26

80% SHY SS: wh, lt gy, mot, vf-f gr, sb rd-sb ang, fri, mod por, arg cmt, p srt 20% SHY SLTST: offwht-ltgy, sft-fri, sb blkly - blkly, slty tex

MD: 1,668'  
TVD: 1,667.65'  
Inclination: 3.5 °  
Azimuth: 169.91 °  
VS: 10.52'

80% SHY SS: wh, lt gy, mot, vf-f gr, sb rd-sb ang, fri, mod por, arg cmt, p srt 20% SHY SLTST: offwht-ltgy, sft-fri, sb blkly - blkly, slty tex

MD: 1,763'  
TVD: 1,762.37'  
Inclination: 5.34 °  
Azimuth: 164.44 °  
VS: 9.65'



MUD WT 8.6 VIS 28

90% SHY SS: wh, lt gy, mot, vf-f gr, sb rd-sb ang, fri, mod por, arg cmt, p srt, 10% SHY SLTST: offwht-ltgy, sft-fri, sb blk - blk, slty tex

MD: 1,857'  
TVD: 1,855.86'  
Inclination: 6.6 °  
Azimuth: 180.22 °  
VS: 9.59'

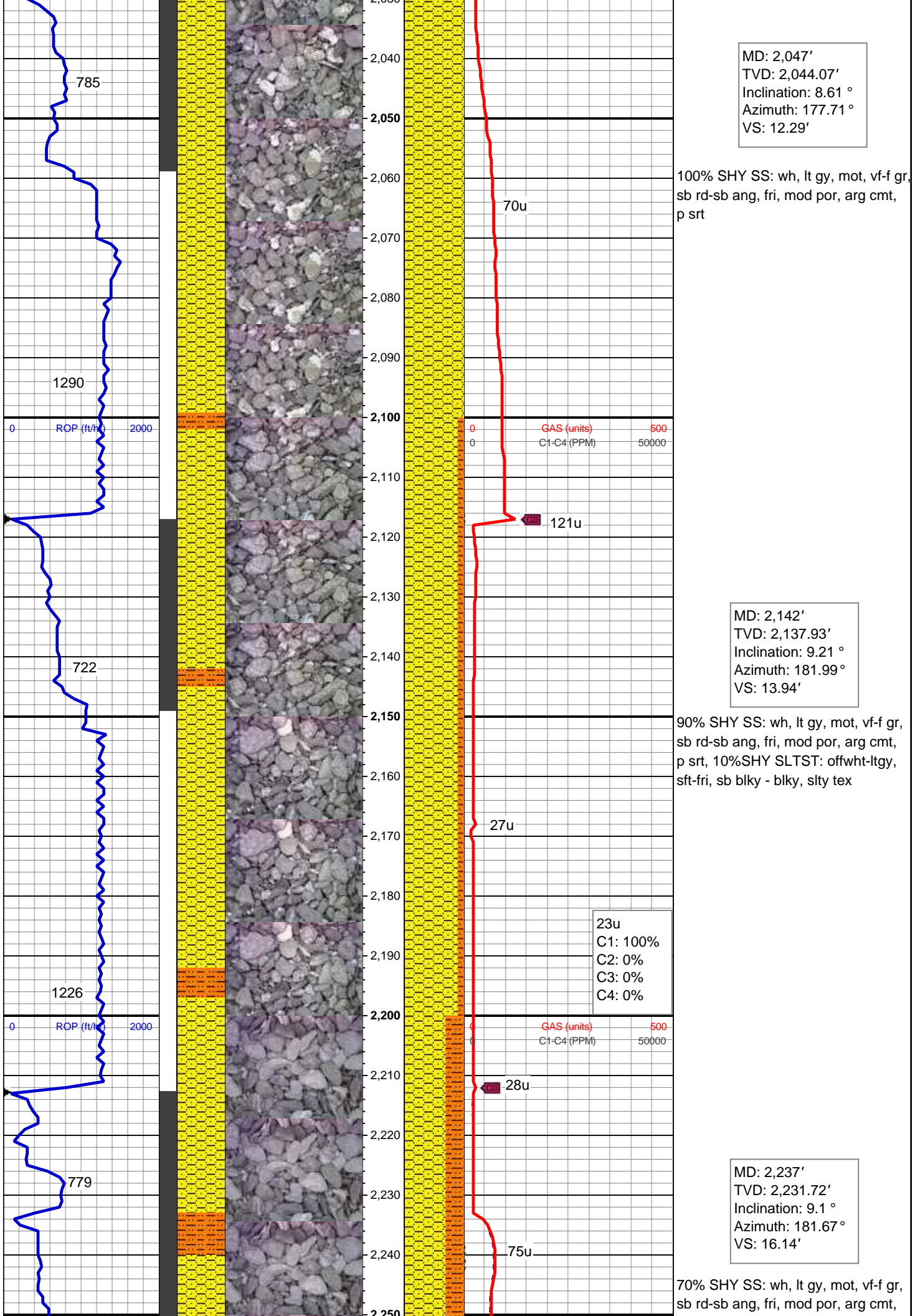
100% SHY SS: wh, lt gy, mot, vf-f gr, sb rd-sb ang, fri, mod por, arg cmt, p srt, tr glau

MD: 1,952'  
TVD: 1,950.08'  
Inclination: 8.09 °  
Azimuth: 180.02 °  
VS: 11'

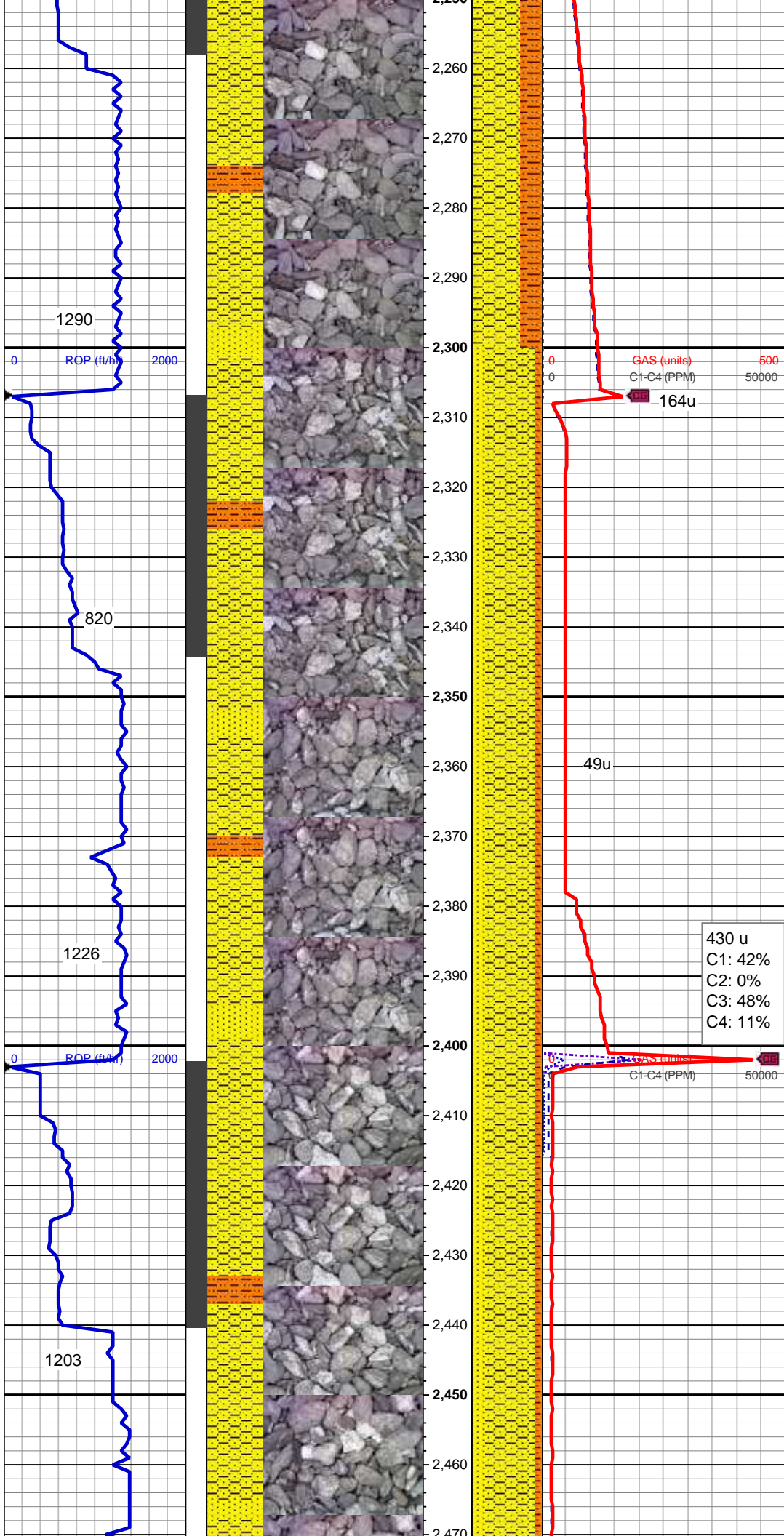
56 u  
C1: 100%  
C2: 0%  
C3: 0%  
C4: 0%

MUD WT 8.7 VIS 28









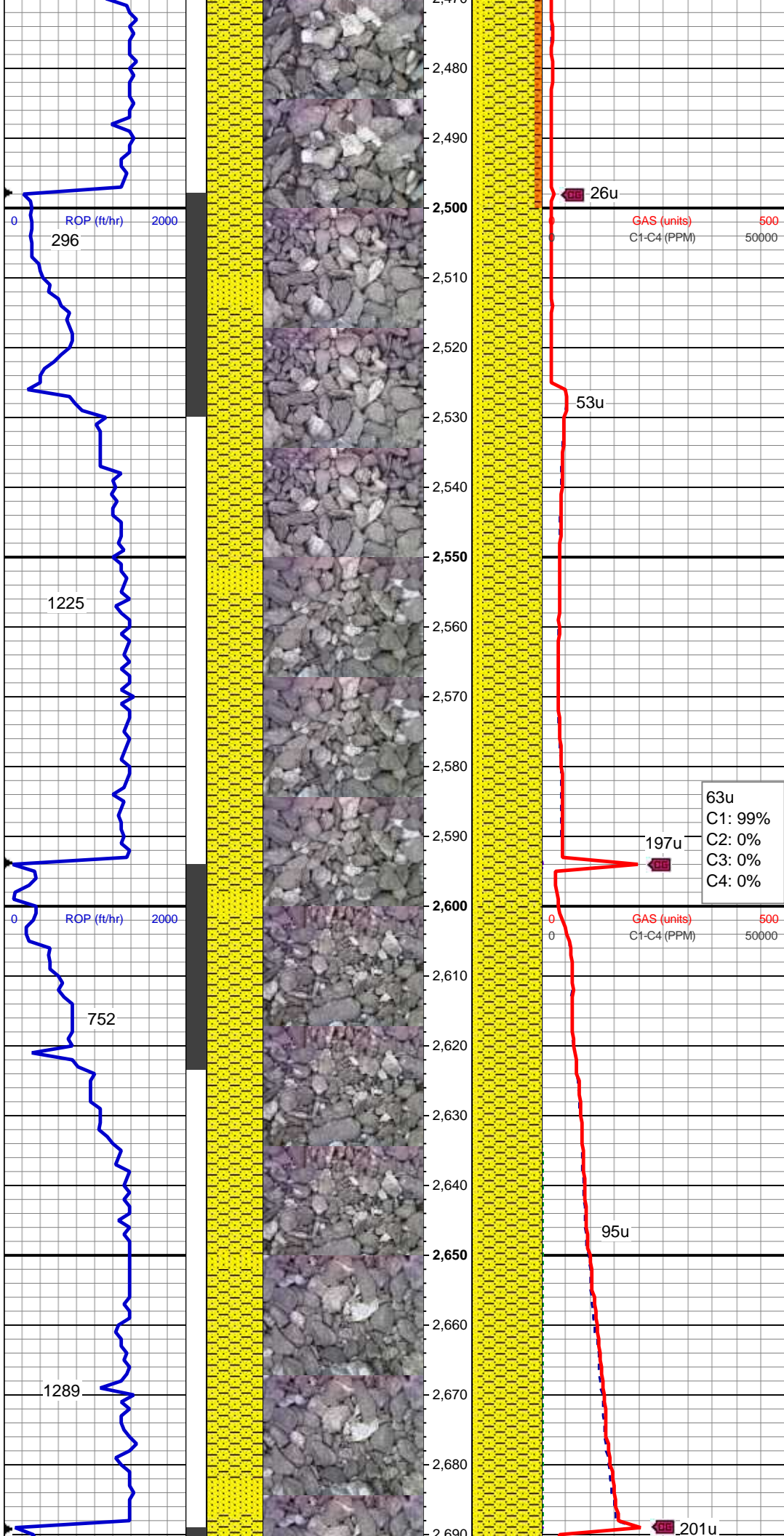
p srt 30% SHY SLTST: offwht-ltgy, sft-fri, sb blkly - blkly, slty tex

MD: 2,331'  
TVD: 2,324.39'  
Inclination: 10.22 °  
Azimuth: 191.02 °  
VS: 19.71'

70% SHY SLTST: offwht-ltgy, sft-fri, sb blkly - blkly, slty tex, 20% SS: op wh, lt-md gy, s&p, occ clr gr, mod hd, rd-sb ang, mod srt, mod por, f-med gr, silc cmt 10% SHY SS: wh, lt gy, mot, vf-f gr, sb rd-sb ang, fri, mod por, arg cmt, p srt

MD: 2,426'  
TVD: 2,417.83'  
Inclination: 10.58 °  
Azimuth: 193.18 °  
VS: 25.19'

70% SHY SS: wh, lt gy, mot, vf-f gr, sb rd-sb ang, fri, mod por, arg cmt, p srt 20% SS: op wh, lt-md gy, s&p, occ clr gr, mod hd, rd-sb ang, mod srt, mod por, f-med gr, silc cmt 10% SHY SLTST: offwht-ltgy, sft-fri, sb blkly - blkly, slty tex



MD: 2,521'  
TVD: 2,511.14'  
Inclination: 11.03 °  
Azimuth: 189.53 °  
VS: 30.65'

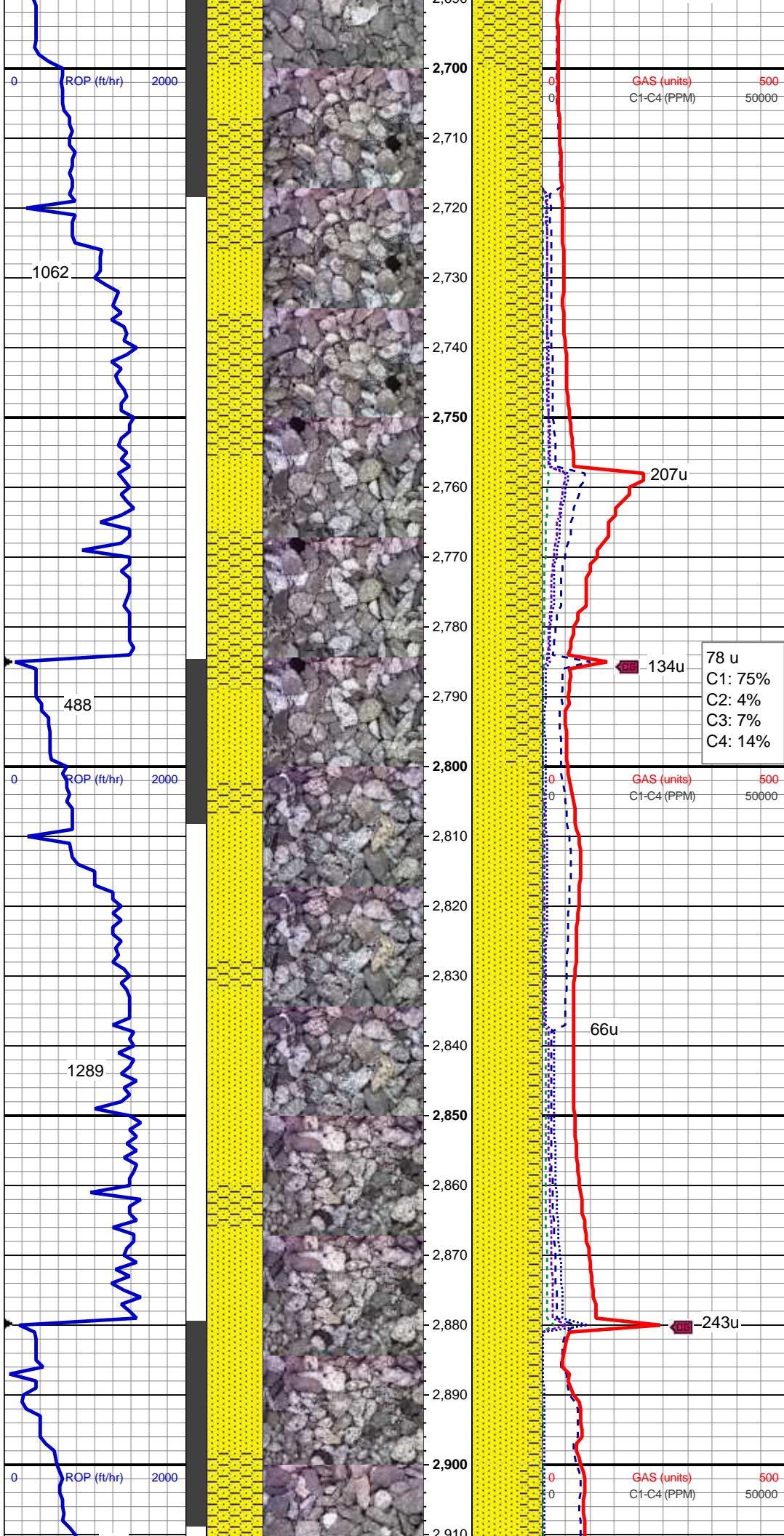
85% SHY SS: wh, lt gy, mot, vf-f gr, sb rd-sb ang, fri, mod por, arg cmt, p srt, 15% SS: op wh, lt-md gy, s&p, occ clr gr, mod hd, rd-sb ang, mod srt, mod por, f-med gr, silc cmt

63u  
C1: 99%  
C2: 0%  
C3: 0%  
C4: 0%

MD: 2,615'  
TVD: 2,603.41'  
Inclination: 11.02 °  
Azimuth: 185.06 °  
VS: 34.94'

90% SHY SS: wh, lt gy, mot, vf-f gr, sb rd-sb ang, fri, mod por, arg cmt, p srt, 10% SS: op wh, lt-md gy, s&p, occ clr gr, mod hd, rd-sb ang, mod srt, mod por, f-med gr, silc cmt





MD: 2,710'  
TVD: 2,696.63'  
Inclination: 11.21 °  
Azimuth: 184.09 °  
VS: 38.47'

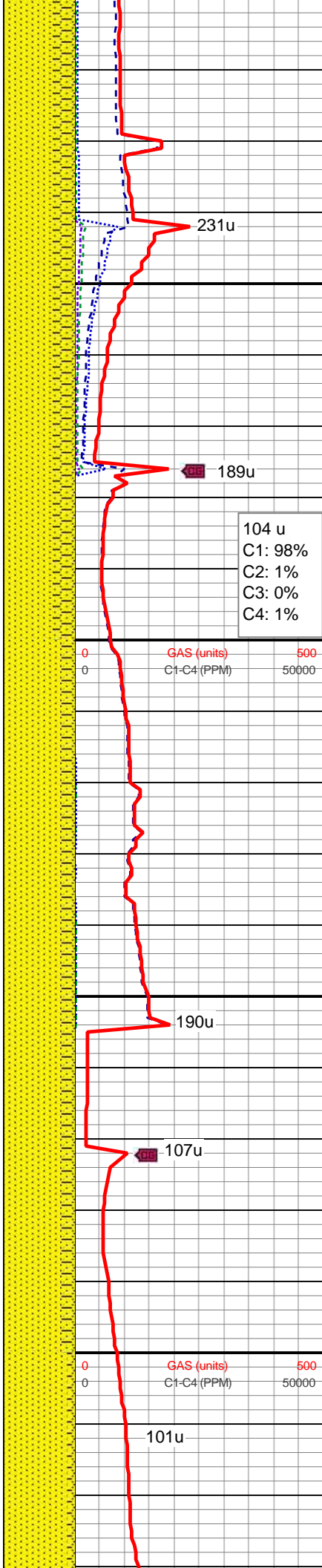
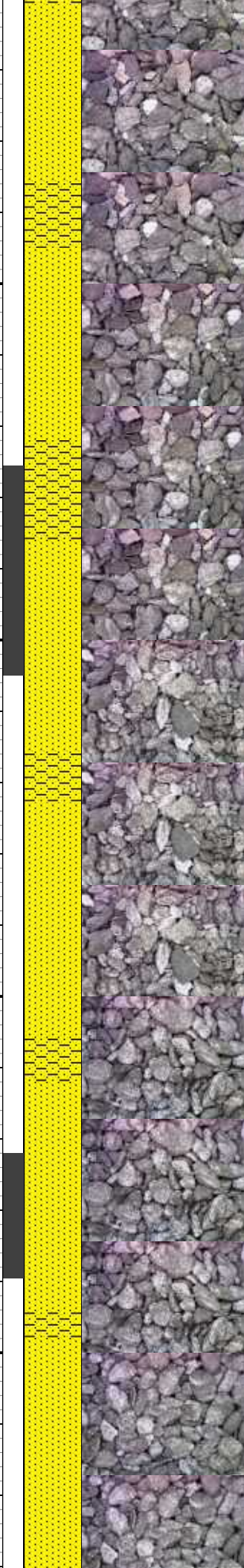
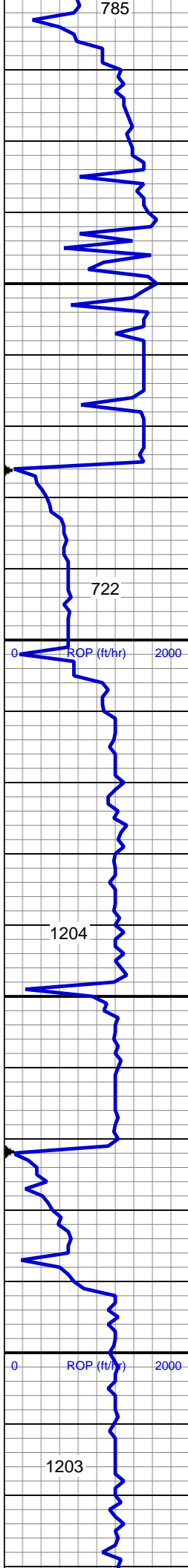
50% SHY SS: wh, lt gy, mot, vf-f gr, sb rd-sb ang, fri, mod por, arg cmt, p srt, 50% SS: op wh, lt-md gy, s&p, occ clr gr, mod hd, rd-sb ang, mod srt, mod por, f-med gr, silc cmt

78 u  
C1: 75%  
C2: 4%  
C3: 7%  
C4: 14%

MD: 2,804'  
TVD: 2,788.87'  
Inclination: 10.97 °  
Azimuth: 186.47 °  
VS: 42.16'

80% SS: op wh, lt-md gy, s&p, occ clr gr, mod hd, rd-sb ang, mod srt, mod por, f-med gr, silc cmt 20% SHY SS: wh, lt gy, mot, vf-f gr, sb rd-sb ang, fri, mod por, arg cmt, p srt

MD: 2,899'  
TVD: 2,881.99'  
Inclination: 11.86 °  
Azimuth: 188.66 °  
VS: 46.75'



70% SS: op wh, lt-md gy, s&p, occ  
clr gr, mod hd, rd-sb ang, mod srt,  
mod por, f-med gr, silc cmt 30%  
SHY SS: wh, lt gy, mot, vf-f gr, sb  
rd-sb ang, fri, mod por, arg cmt, p  
srt

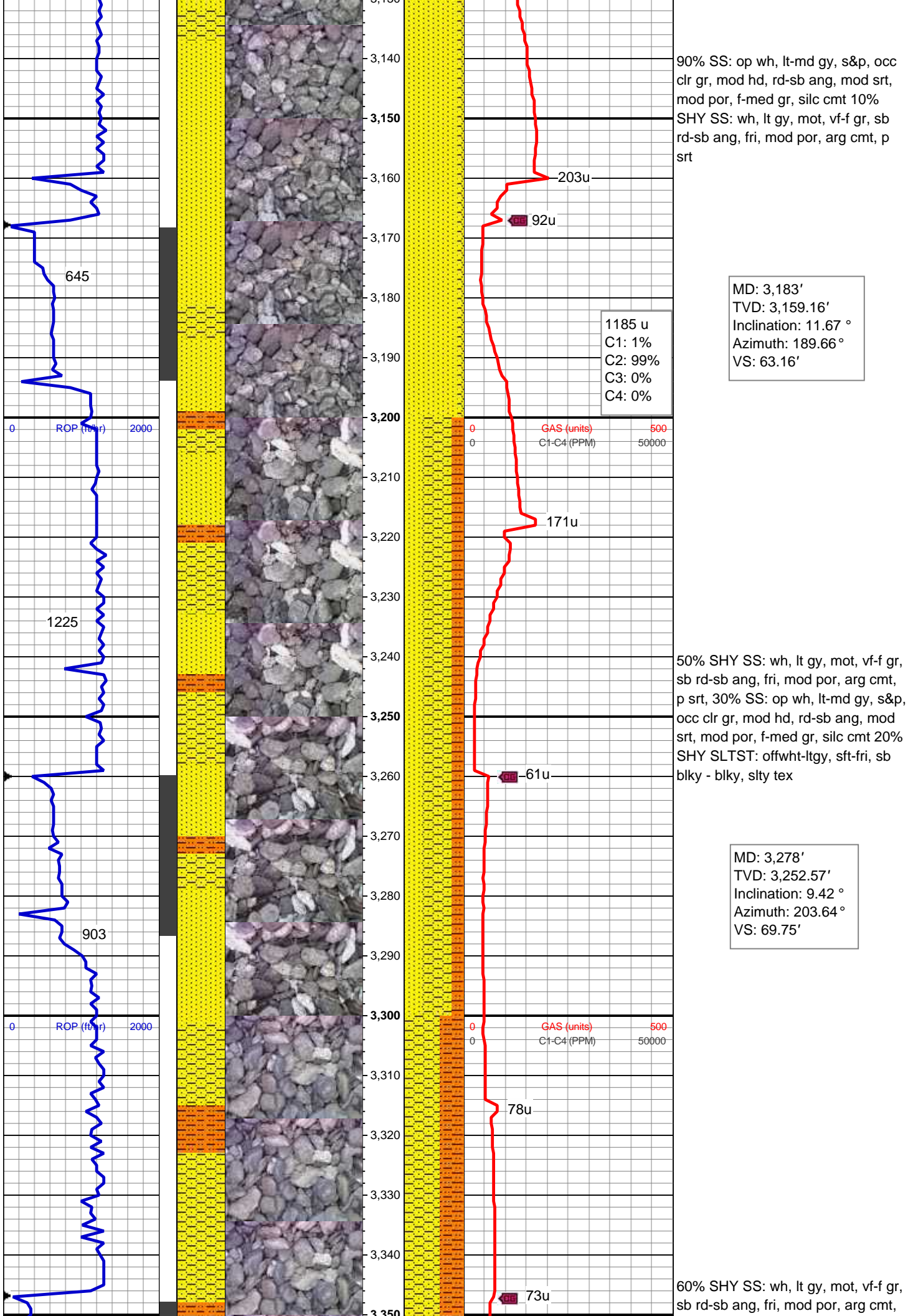
MUD WT 8.6 VIS 28

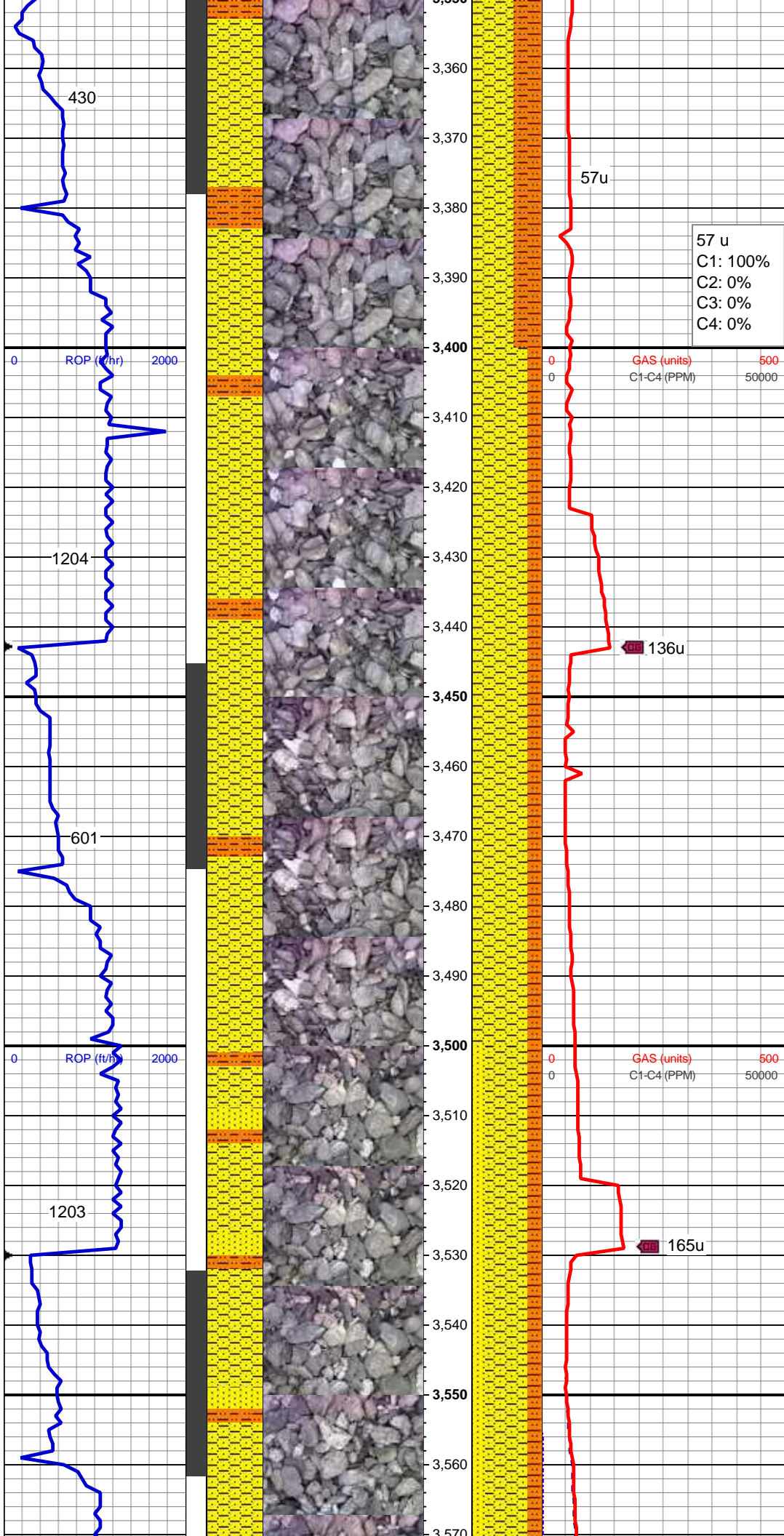
MD: 2,994'  
TVD: 2,974.57'  
Inclination: 14.05 °  
Azimuth: 190.43 °  
VS: 52.68'

80% SS: op wh, lt-md gy, s&p, occ  
clr gr, mod hd, rd-sb ang, mod srt,  
mod por, f-med gr, silc cmt 20%  
SHY SS: wh, lt gy, mot, vf-f gr, sb  
rd-sb ang, fri, mod por, arg cmt, p  
srt

MD: 3,088'  
TVD: 3,066.17'  
Inclination: 11.9 °  
Azimuth: 186.76 °  
VS: 58.23'







p srt, 40% SHY SLTST: offwht-ltgy, sft-fri, sb blkly - blkly, slty tex

MD: 3,373'  
TVD: 3,346.48'  
Inclination: 7.95 °  
Azimuth: 192.56 °  
VS: 75.81'

57 u  
C1: 100%  
C2: 0%  
C3: 0%  
C4: 0%

80% SHY SS: wh, lt gy, mot, vf-f gr, sb rd-sb ang, fri, mod por, arg cmt, p srt, 20% SHY SLTST: offwht-ltgy, sft-fri, sb blkly - blkly, slty tex

MD: 3,468'  
TVD: 3,440.64'  
Inclination: 7.52 °  
Azimuth: 213.88 °  
VS: 81.99'

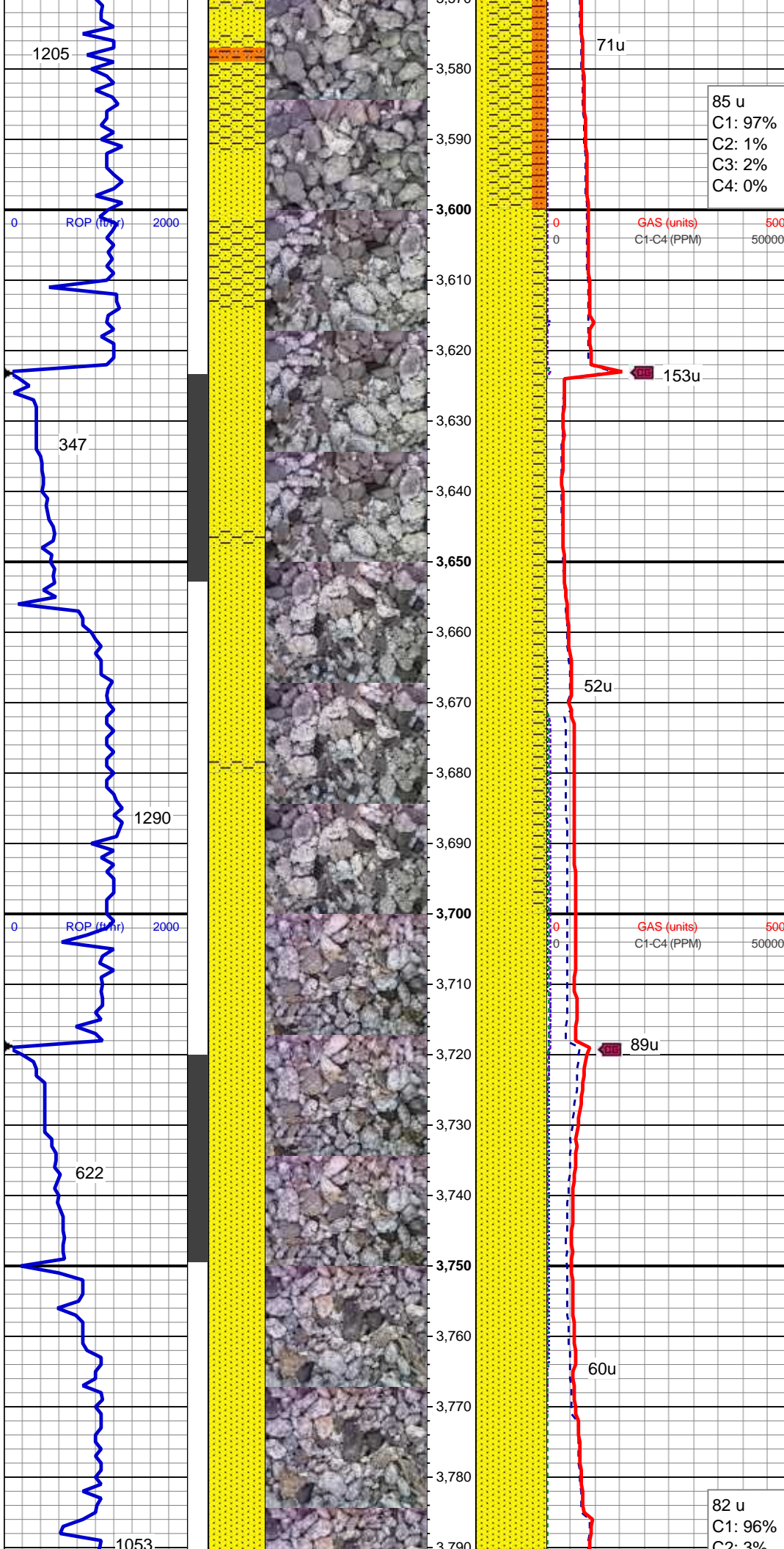
MUD WT 8.5 VIS 28

60% SHY SS: wh, lt gy, mot, vf-f gr, sb rd-sb ang, fri, mod por, arg cmt, p srt, 20% SS: op wh, lt-md gy, s&p, occ clr gr, mod hd, rd-sb ang, mod srt, mod por, f-med gr, silc cmt 20% SHY SLTST: offwht-ltgy, sft-fri, sb blkly - blkly, slty tex

MD: 3,563'  
TVD: 3,534.84'  
Inclination: 7.38 °  
Azimuth: 220.23 °



VS: 90.46'



85 u  
C1: 97%  
C2: 1%  
C3: 2%  
C4: 0%

GAS (units)  
C1-C4 (PPM)

80% SS: op wh, lt-md gy, s&p, occ  
clr gr, mod hd, rd-sb ang, mod srt,  
mod por, f-med gr, silc cmt 20%  
SHY SS: wh, lt gy, mot, vf-f gr, sb  
rd-sb ang, fri, mod por, arg cmt, p  
srt

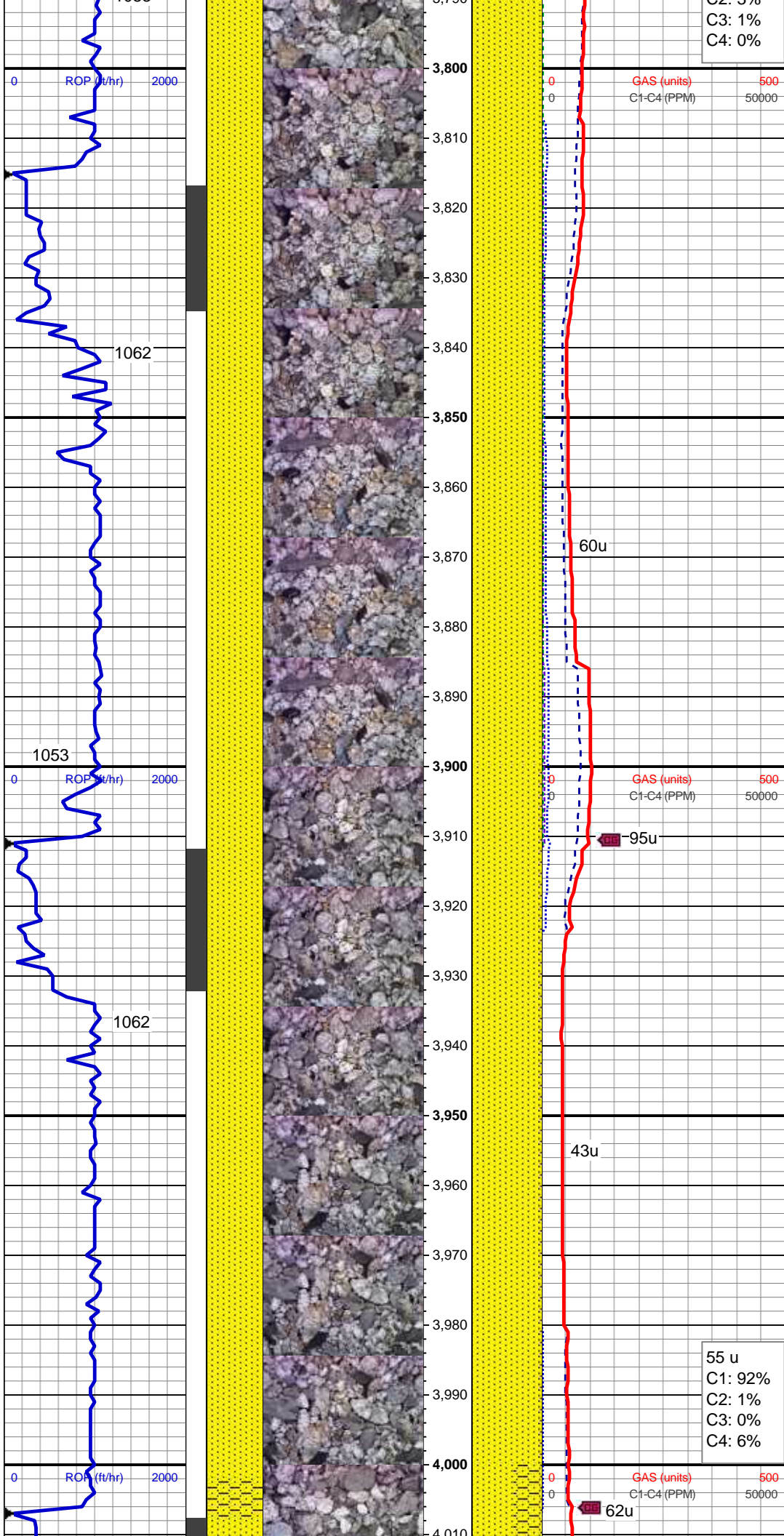
MD: 3,658'  
TVD: 3,628.84'  
Inclination: 9.21 °  
Azimuth: 212.87 °  
VS: 99.73'

GAS (units)  
C1-C4 (PPM)

100% SS: op wh, lt-md gy, s&p, occ  
clr gr, mod hd, rd-sb ang, mod srt,  
mod por, f-med gr, silc cmt, tr mas  
pyr

MD: 3,752'  
TVD: 3,721.42'  
Inclination: 10.74 °  
Azimuth: 209 °  
VS: 109.6'

82 u  
C1: 96%  
C2: 3%



C2: 5%  
C3: 1%  
C4: 0%

GAS (units)  
C1-C4 (PPM)

MD: 3,847'  
TVD: 3,814.52'  
Inclination: 12.26 °  
Azimuth: 202 °  
VS: 119.56'

100% SS: op wh, lt-md gy, s&p, occ  
clr gr, mod hd, rd-sb ang, mod srt,  
mod por, f-med gr, silc cmt, tr mas  
pyr

60u

GAS (units)  
C1-C4 (PPM)

95u

MD: 3,942'  
TVD: 3,907.05'  
Inclination: 13.88 °  
Azimuth: 203.47 °  
VS: 130.08'

95% SS: op wh, lt-md gy, s&p, occ  
clr gr, mod hd, rd-sb ang, mod srt,  
mod por, f-med gr, silc cmt, rr pyr  
5% SHY SS: wh, lt gy, mot, vf-f gr,  
sb rd-sb ang, fri, mod por, arg cmt,  
p srt

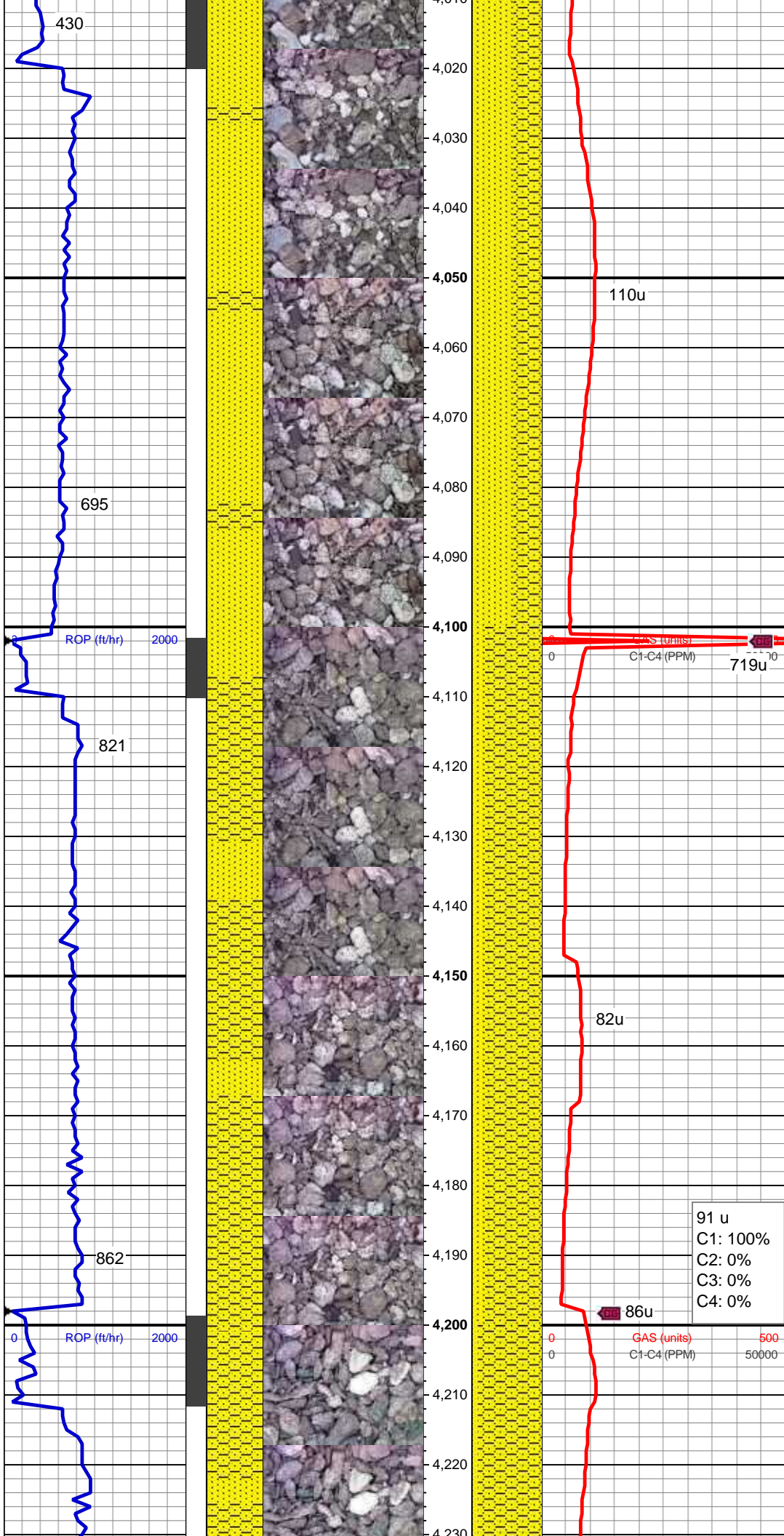
43u

55 u  
C1: 92%  
C2: 1%  
C3: 0%  
C4: 6%

GAS (units)  
C1-C4 (PPM)

62u





MD: 4,037'  
TVD: 3,999.37'  
Inclination: 13.44 °  
Azimuth: 198.32 °  
VS: 140.41'

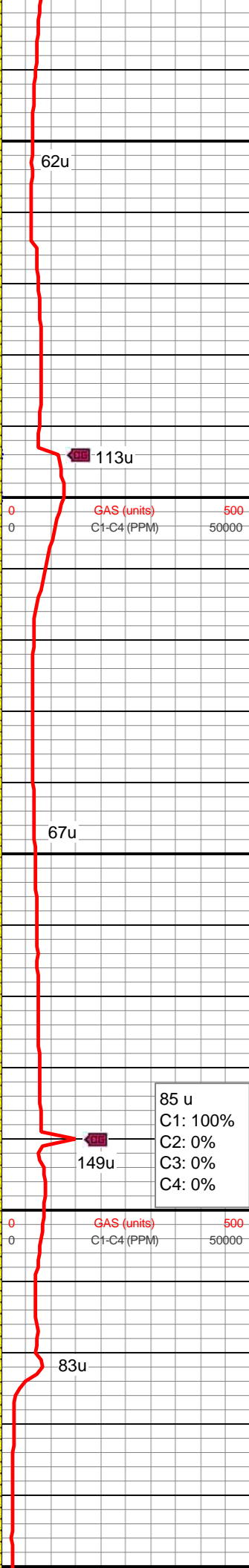
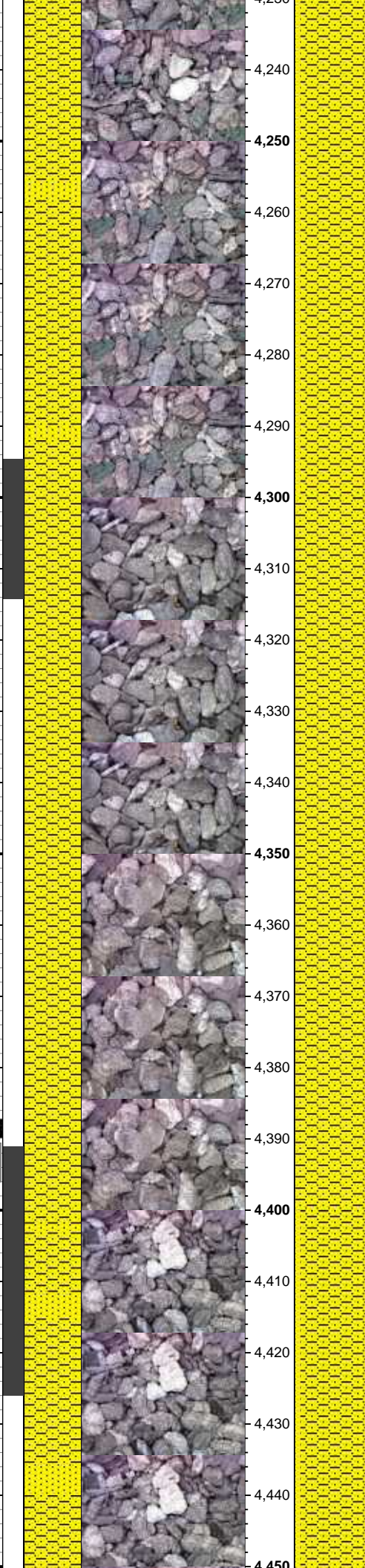
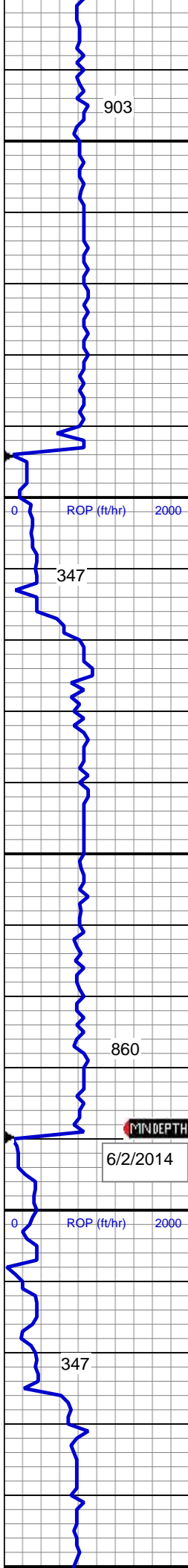
60% SS: op wh, lt-md gy, s&p, occ  
clr gr, mod hd, rd-sb ang, mod srt,  
mod por, f-med gr, silc cmt, rr pyr  
40% SHY SS: wh, lt gy, mot, vf-f gr,  
sb rd-sb ang, fri, mod por, arg cmt,  
p srt

MD: 4,132'  
TVD: 4,091.96'  
Inclination: 12.44 °  
Azimuth: 193.04 °  
VS: 148.48'

80% SHY SS: wh, lt gy, mot, vf-f gr,  
sb rd-sb ang, fri, mod por, arg cmt,  
p srt 20% SS: op wh, lt-md gy, s&p,  
occ clr gr, mod frm-hd, rd-sb ang,  
mod w srt, mod por, f-med gr, silc  
cmt, rr pyr por, arg cmt, p srt

91 u  
C1: 100%  
C2: 0%  
C3: 0%  
C4: 0%

MD: 4,226'  
TVD: 4,184.16'  
Inclination: 9.96 °  
Azimuth: 197.43 °



VS: 155.17'

90% SHY SS: wh, lt gy, mot, vf-f gr, sb rd-sb ang, fri, mod por, arg cmt, p srt 10% SS: op wh, lt-md gy, s&p, occ clr gr, mod frm-hd, rd-sb ang, mod w srt, mod por, f-med gr, silc cmt, mod por, arg cmt, p srt, com glau

MD: 4,321'  
TVD: 4,277.83'  
Inclination: 9.28 °  
Azimuth: 191.77 °  
VS: 160.92'

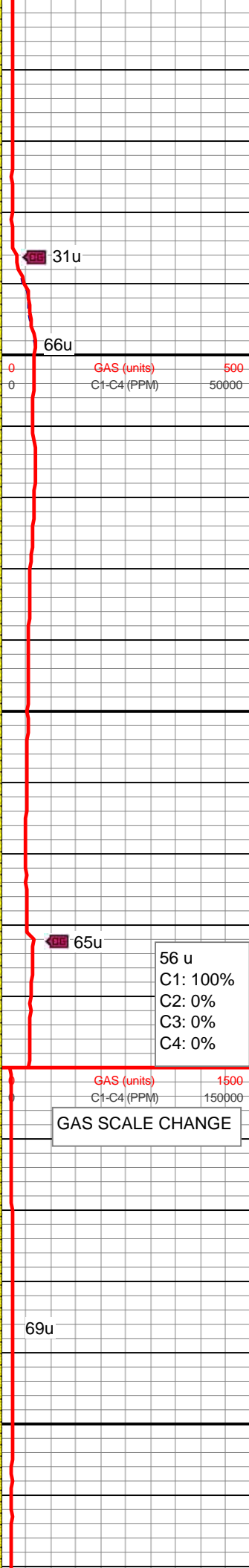
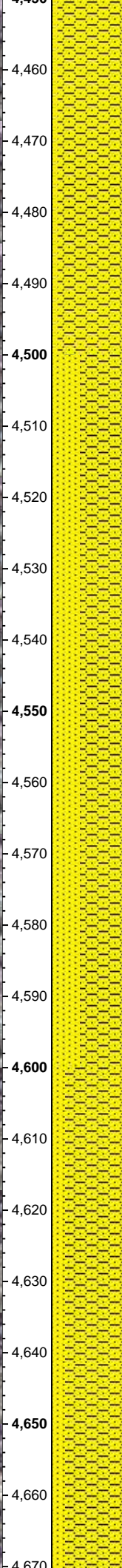
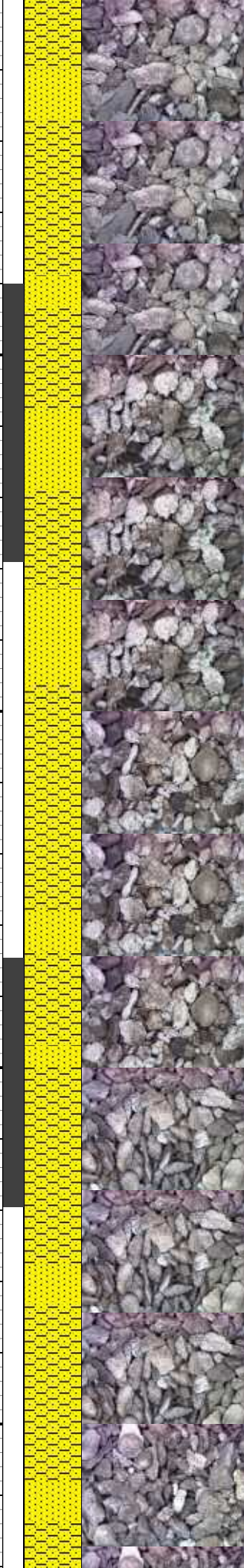
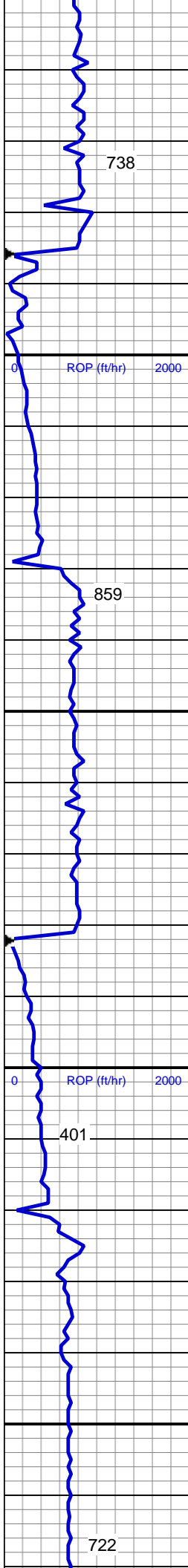
MUD WT 8.5 VIS 28

100% SHY SS: wh, lt gy, mot, vf-f gr, sb rd-sb ang, fri, mod por, arg cmt, p srt, tr slty sh

MD: 4,416'  
TVD: 4,371.65'  
Inclination: 8.85 °  
Azimuth: 182.93 °  
VS: 164.52'

90% SHY SS: wh, lt gy, mot, vf-f gr, sb rd-sb ang, fri, mod por, arg cmt, p srt 10% SS: op wh, lt-md gy, s&p, occ clr gr, mod frm-hd, rd-sb ang





occ clr gr, mod frm-hd, rd-sb ang, mod w srt, mod por, f-med gr, silc cmt,mod por, arg cmt, p srt, com glau

MD: 4,511'  
TVD: 4,465.47'  
Inclination: 9.24 °  
Azimuth: 191.13 °  
VS: 168.04'

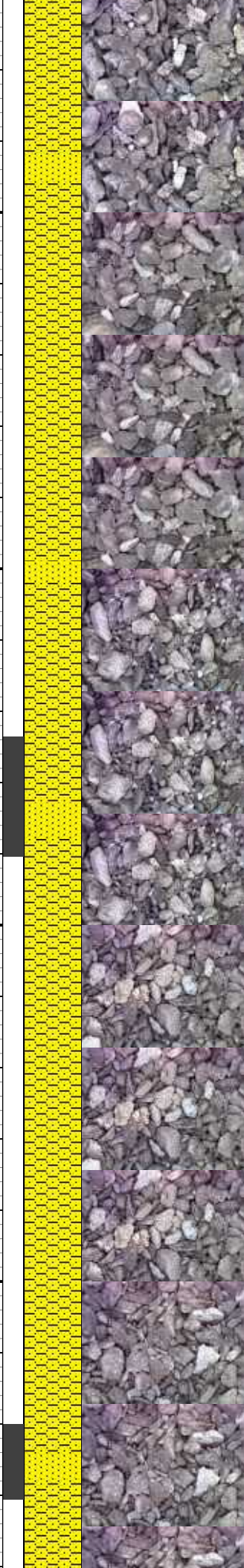
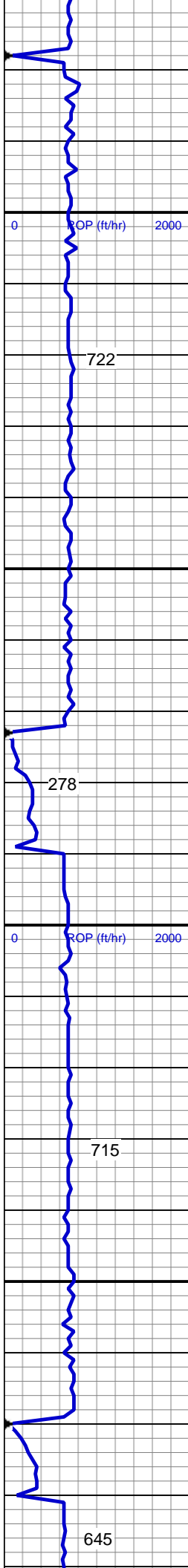
60% SHY SS: wh, lt gy, mot, vf-f gr, sb rd-sb ang, fri, mod por, arg cmt, p srt 40% SS: op wh, lt-md gy, s&p, occ clr gr, mod frm-hd, rd-sb ang, mod w srt, mod por, f-med gr, silc cmt,mod por, arg cmt, p srt, com glau

56 u  
C1: 100%  
C2: 0%  
C3: 0%  
C4: 0%

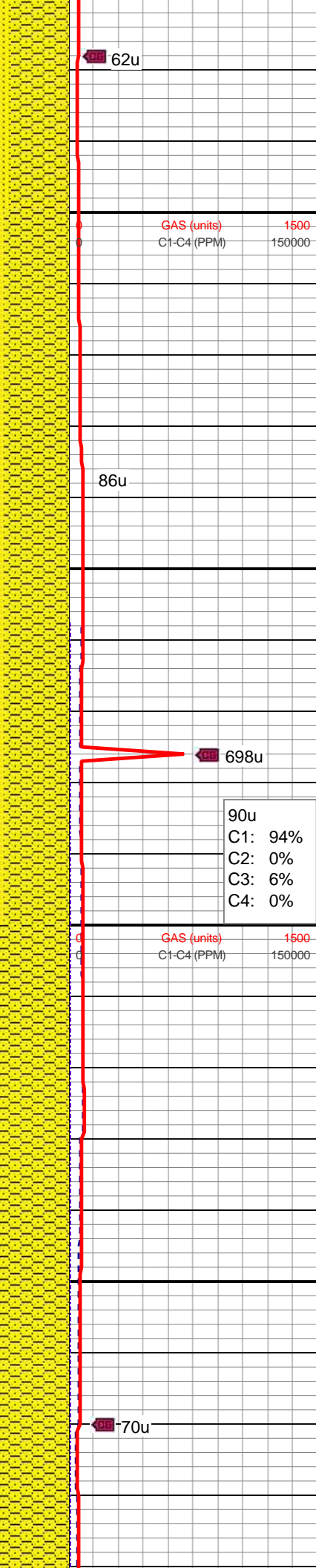
MUD WT 8.4 VIS 28

MD: 4,606'  
TVD: 4,558.95'  
Inclination: 11.27 °  
Azimuth: 198.22 °  
VS: 174.24'

80% SHY SS: wh, lt gy, mot, vf-f gr, sb rd-sb ang, fri, mod por, arg cmt, p srt, rr pyr 20% SS: op wh, lt-md gy, s&p, occ clr gr, mod frm-hd, rd-sb ang, mod w srt, mod por, f-med gr, silc cmt,mod por, arg cmt, p srt, com glau



4,680  
4,690  
4,700  
4,710  
4,720  
4,730  
4,740  
4,750  
4,760  
4,770  
4,780  
4,790  
4,800  
4,810  
4,820  
4,830  
4,840  
4,850  
4,860  
4,870  
4,880  
4,890



MD: 4,700'  
TVD: 4,651.39'  
Inclination: 9.68 °  
Azimuth: 188.59 °  
VS: 180.15'

90% SHY SS: wh, lt gy, mot, vf-f gr, sb rd-sb ang, fri, mod por, arg cmt, p srt, tr pyr 10% SS: op wh, lt-md gy, s&p, occ clr gr, mod frm-hd, rd-sb ang, mod w srt, mod por, f-med gr, silc cmt, mod por, arg cmt, p srt, occ glau

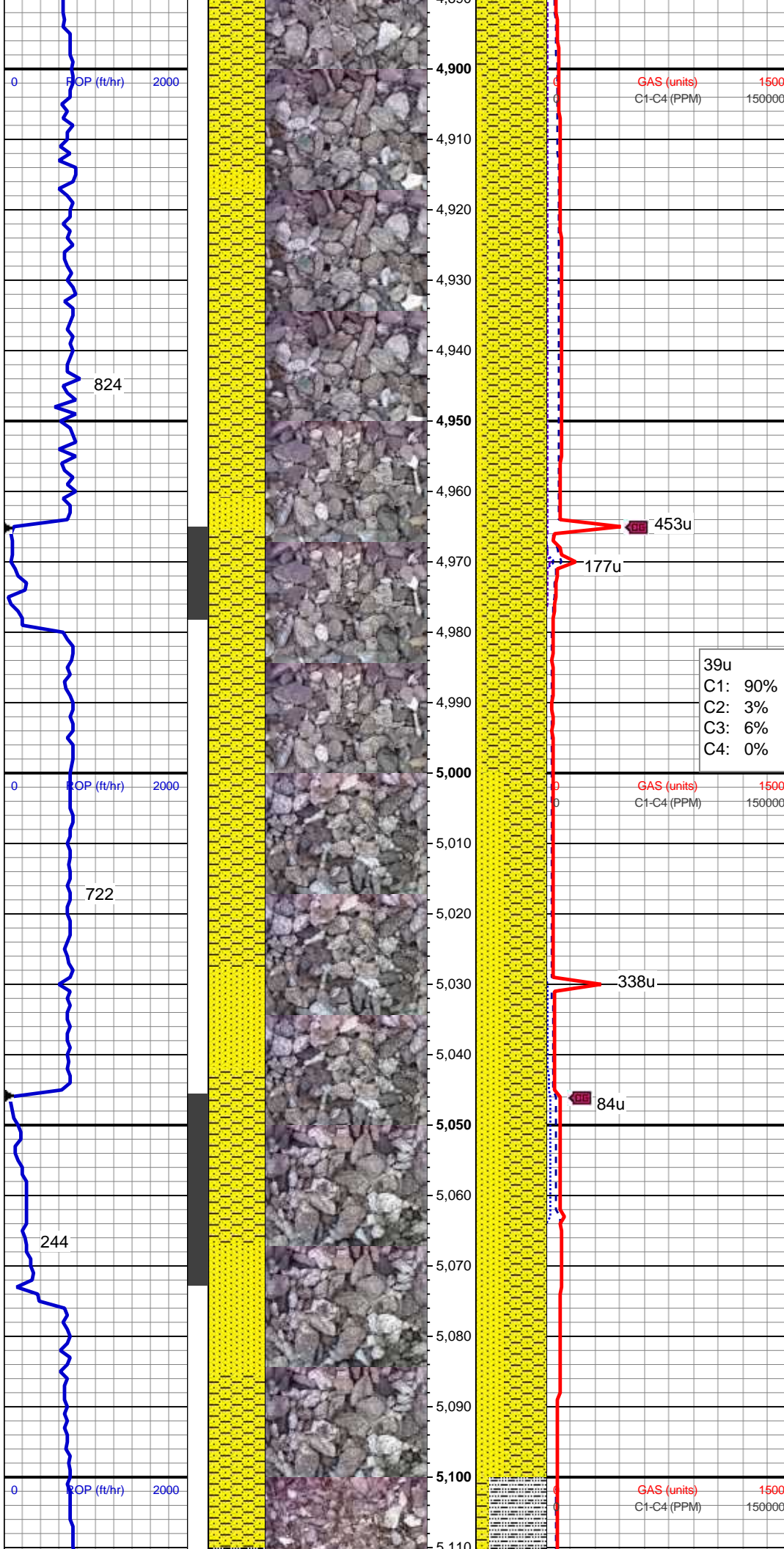
MD: 4,795'  
TVD: 4,745.34'  
Inclination: 7.5 °  
Azimuth: 207.98 °  
VS: 185.74'

100% SHY SS: wh, lt gy, mot, vf-f gr, sb rd-sb ang, fri, mod por, arg cmt, p srt, rr pyr

MD: 4,889'  
TVD: 4,838.68'  
Inclination: 5.99 °



Inclination: 3.93°  
Azimuth: 203.02°  
VS: 191.64'



90% SHY SS: wh, lt gy, mot, vf-f gr, sb rd-sb ang, fri, mod por, arg cmt, p srt, tr pyr 10% SS: op wh, lt-md gy, s&p, occ clr gr, mod frm-hd, rd-sb ang, mod w srt, mod por, f-med gr, silc cmt, mod por, arg cmt, p srt, occ glau

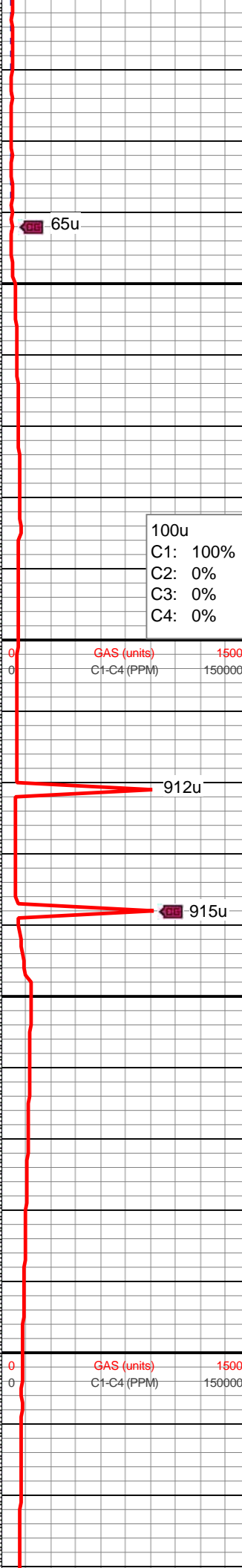
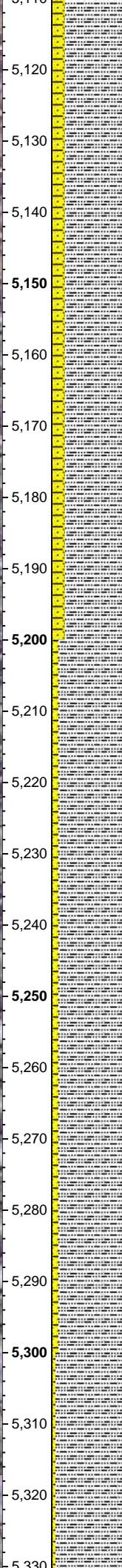
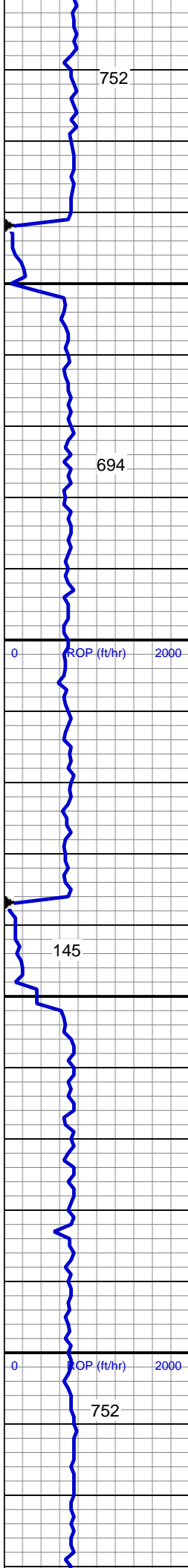
MD: 4,984'  
TVD: 4,933.13'  
Inclination: 6.36°  
Azimuth: 206.98°  
VS: 196.99'

39u  
C1: 90%  
C2: 3%  
C3: 6%  
C4: 0%

MUD WT 8.5 VIS 28

60% SHY SS: wh, lt gy, mot, vf-f gr, sb rd-sb ang, fri, mod por, arg cmt, p srt, tr pyr 40% SS: op wh, lt-md gy, s&p, occ clr gr, mod frm-hd, rd-sb ang, mod w srt, mod por, f-med gr, silc cmt, mod por, arg cmt, p srt, occ glau

MD: 5,079'  
TVD: 5,027.41'  
Inclination: 7.78°  
Azimuth: 203.3°  
VS: 203.09'



80% SLTY SH: lt-med gy, mod sft-mod frm, sb blkly-sb plty, slty tex, non calc,  
20% SHY SS: wh, lt gy, mot, f gr, sb rd-sb ang, fri, mod por, arg cmt, p srt, tr pyr

MD: 5,174'  
TVD: 5,121.64'  
Inclination: 6.77 °  
Azimuth: 202.9 °  
VS: 209.04'

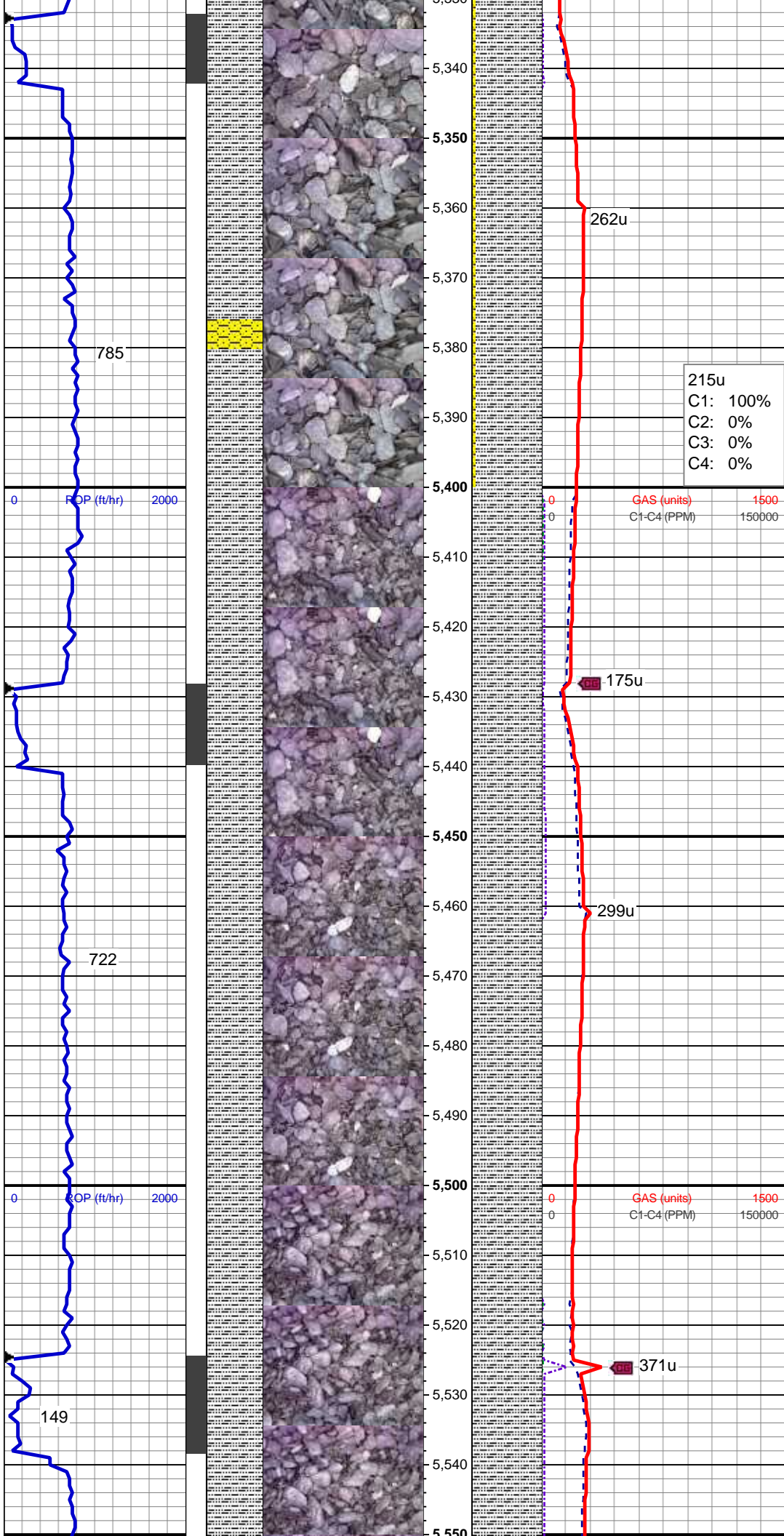
100u  
C1: 100%  
C2: 0%  
C3: 0%  
C4: 0%

912u  
915u

90% SLTY SH: lt-med gy, mod sft-mod frm, sb blkly-sb plty, slty tex, non calc,  
10% SHY SS: wh, lt gy, mot, f gr, sb rd-sb ang, fri, mod por, arg cmt, p srt, occ grd to SS, tr pyr

MD: 5,268'  
TVD: 5,215.04'  
Inclination: 6.17 °  
Azimuth: 198.3 °  
VS: 213.89'





95% SLTY SH: lt-med gy, mod sft-mod frm, sb blkly-sb plty, occ plty, slty tex, non calc,  
5% SHY SS: wh, lt gy, mot, f gr, sb rd-sb ang, fri, mod por, arg cmt, p srt, occ grd to SS, tr pyr

MD: 5,363'  
TVD: 5,309.7'  
Inclination: 3.51 °  
Azimuth: 187.58 °  
VS: 216.74'

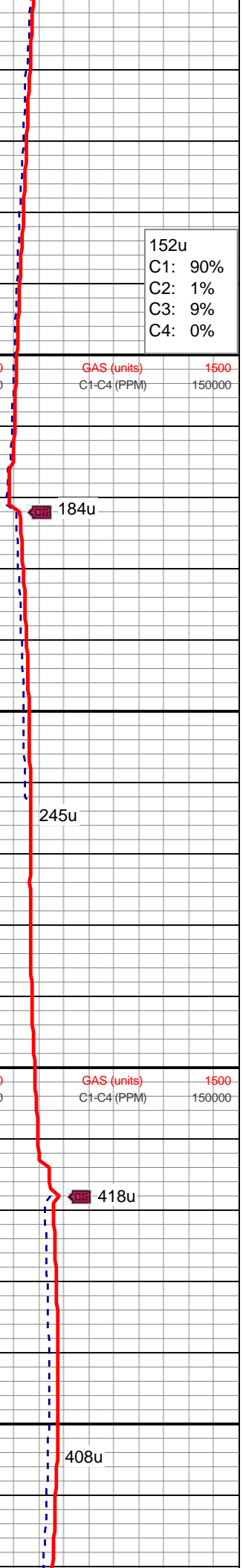
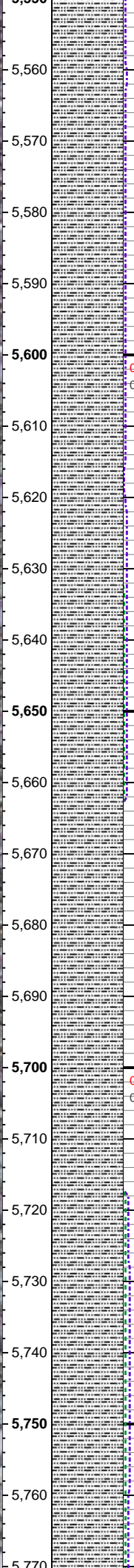
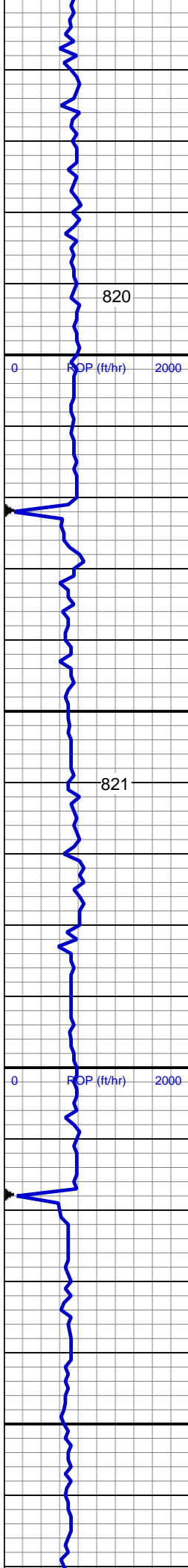
MUD WT 8.5 VIS 28

100% SLTY SH: lt-med gy, mod sft-mod frm, sb blkly-sb plty, occ plty, slty tex, non calc, tr pyr

MD: 5,458'  
TVD: 5,404.6'  
Inclination: 1.73 °  
Azimuth: 180.13 °  
VS: 217.61'

100% SLTY SH: lt-med gy, mod sft-mod frm, sb blkly-sb plty, occ plty, slty tex, non calc, tr pyr, tr ls

MD: 5,552'



MD: 5,552'  
TVD: 5,498.57'  
Inclination: 0.94 °  
Azimuth: 206.07 °  
VS: 218.19'

MD: 5,647'  
TVD: 5,593.56'  
Inclination: 0.9 °  
Azimuth: 208.3 °  
VS: 219.04'

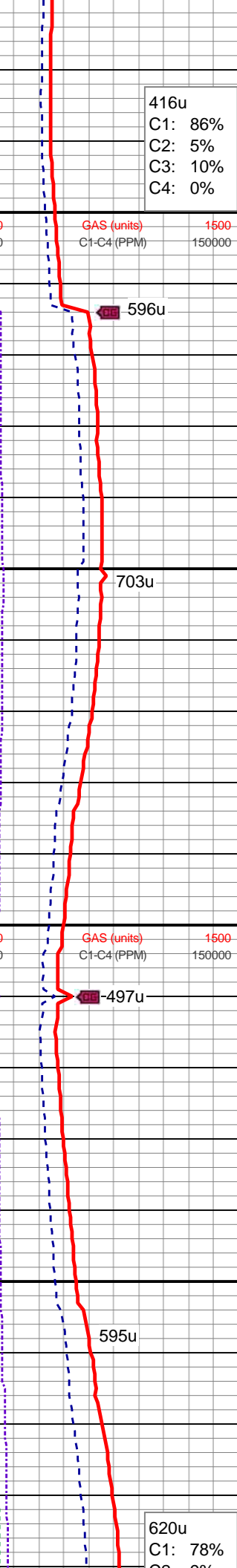
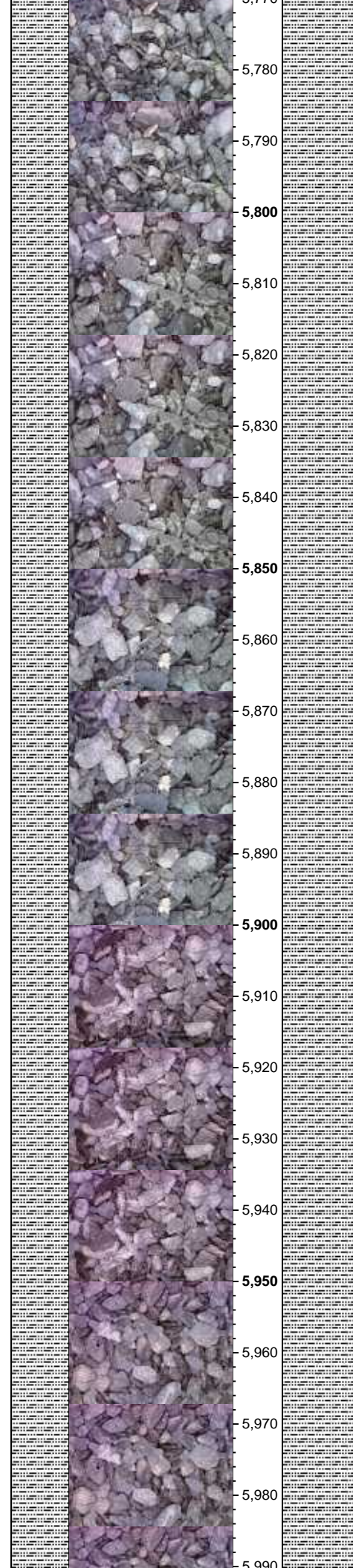
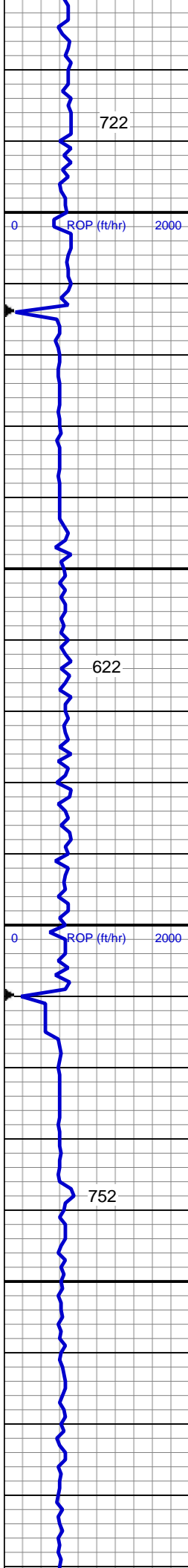
100% SLTY SH: lt-med gy, mod sft-mod frm, sb blkly-sb plty, occ plty, slty tex, non calc, tr pyr, tr ss, occ ls, tr bent

MUD WT 8.7 VIS 33

MD: 5,742'  
TVD: 5,688.55'  
Inclination: 0.34 °  
Azimuth: 237.57 °  
VS: 219.72'

100% SLTY SH: lt-med gy, mod sft-mod frm, sb blkly-sb plty, occ plty, slty tex, non calc, tr shy ss

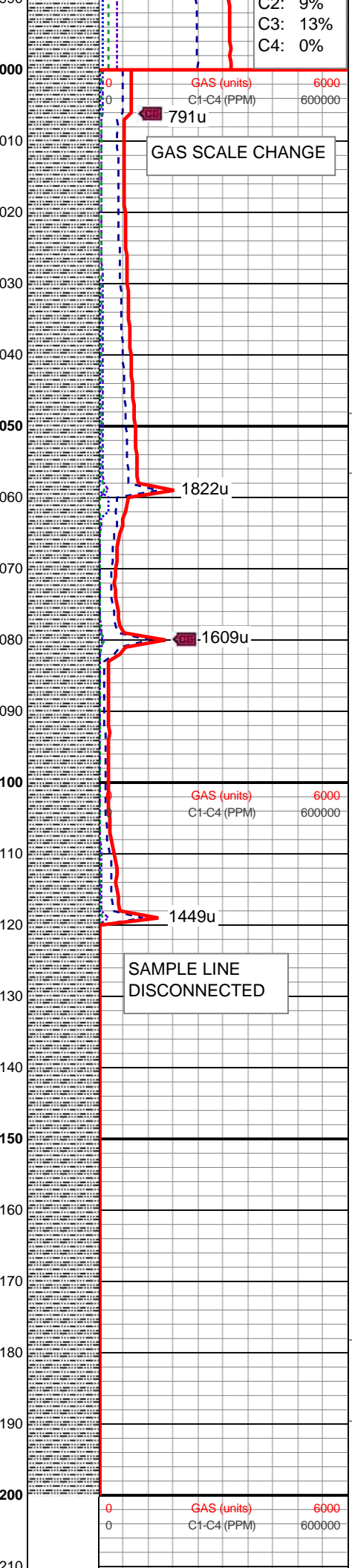
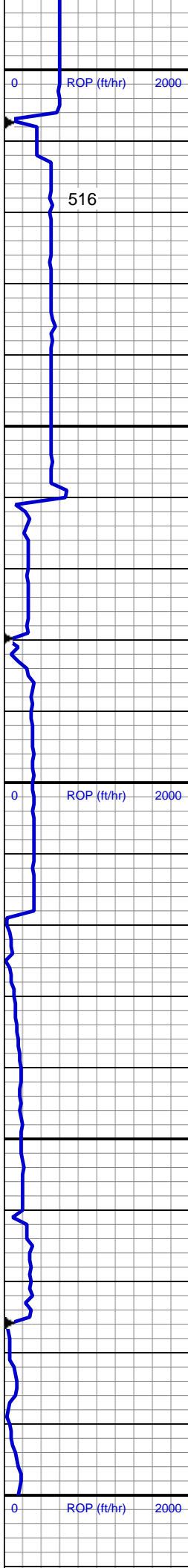




MD: 5,837'  
TVD: 5,783.55'  
Inclination: 0.31 °  
Azimuth: 337.8 °  
VS: 220.04'

100% SLTY SH: lt-med gy, mod sft-mod frm, sb blkly-sb plty, occ plty, slty tex, non calc, tr shy ss

100% SLTY SH: lt-med gy, mod sft-mod frm, sb blkly-sb plty, occ plty, slty tex, non calc, tr shy ss



MD: 5,999'  
TVD: 5,945.55'  
Inclination: 0.14 °  
Azimuth: 287.15 °  
VS: 220.34'

100% SLTY SH: lt-med gy, mod sft-mod frm, sb blkly-sb plty, occ plty, slty tex, non calc, tr shy ss

TOOH For Directional BHA at 6,058' MD

MUD WT 9.2 VIS 34

100% SLTY SH: lt-med gy, mod sft-mod frm, sb blkly-sb plty, occ plty, slty tex, non calc, tr shy ss

MUD WT 9.7 VIS 35

LOG CONTINUED ON:  
NCLP AA07-69HNA  
Horizontal.mplot

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