

# COLUMBINE LOGGING

Scale: 5" / 100'  
Measured Depth Log

**Well Name** Eagle E14-65-1HN

**Location** NWSW SEC14, T6N, R65W

**State** COLORADO

**County** WELD

**Country** USA

**Rig Number** H&P 330

**API Number** 05-123-38096

**Field** WATTENBERG

**Region** DJ BASIN

**Drilling Completed** 6/7/2014

**Spud Date** 6/5/2014

**Surface Coordinates** 2350' FSL, 364' FWL

**Ground Elevation** 4718'

**K.B. Elevation** 4748'

**Logged Interval** 700' To 6192'

**Total Depth** 6192'

**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
- 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
- CORD
- 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
- 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  
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

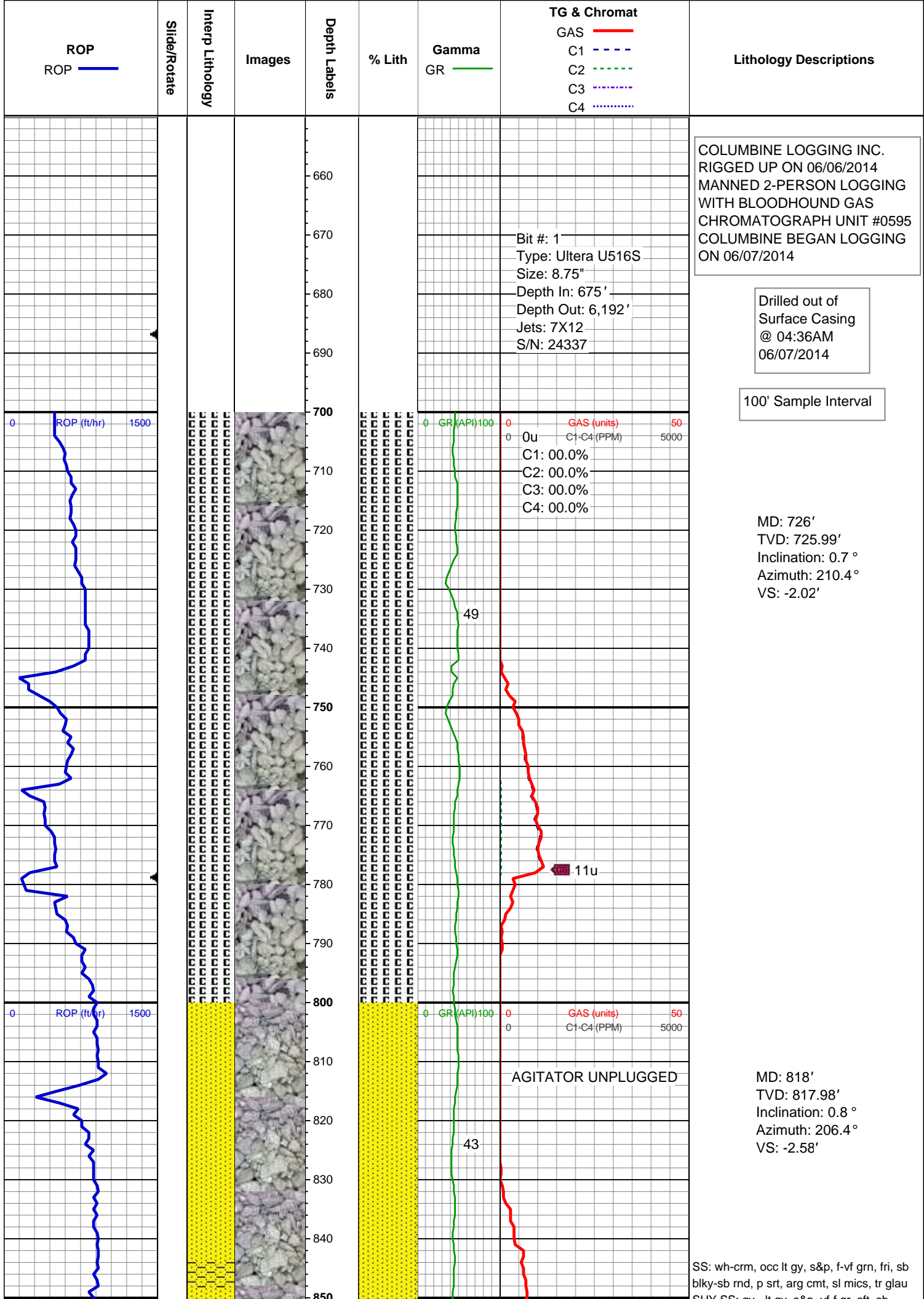
**Name** RENEE CLACKLER

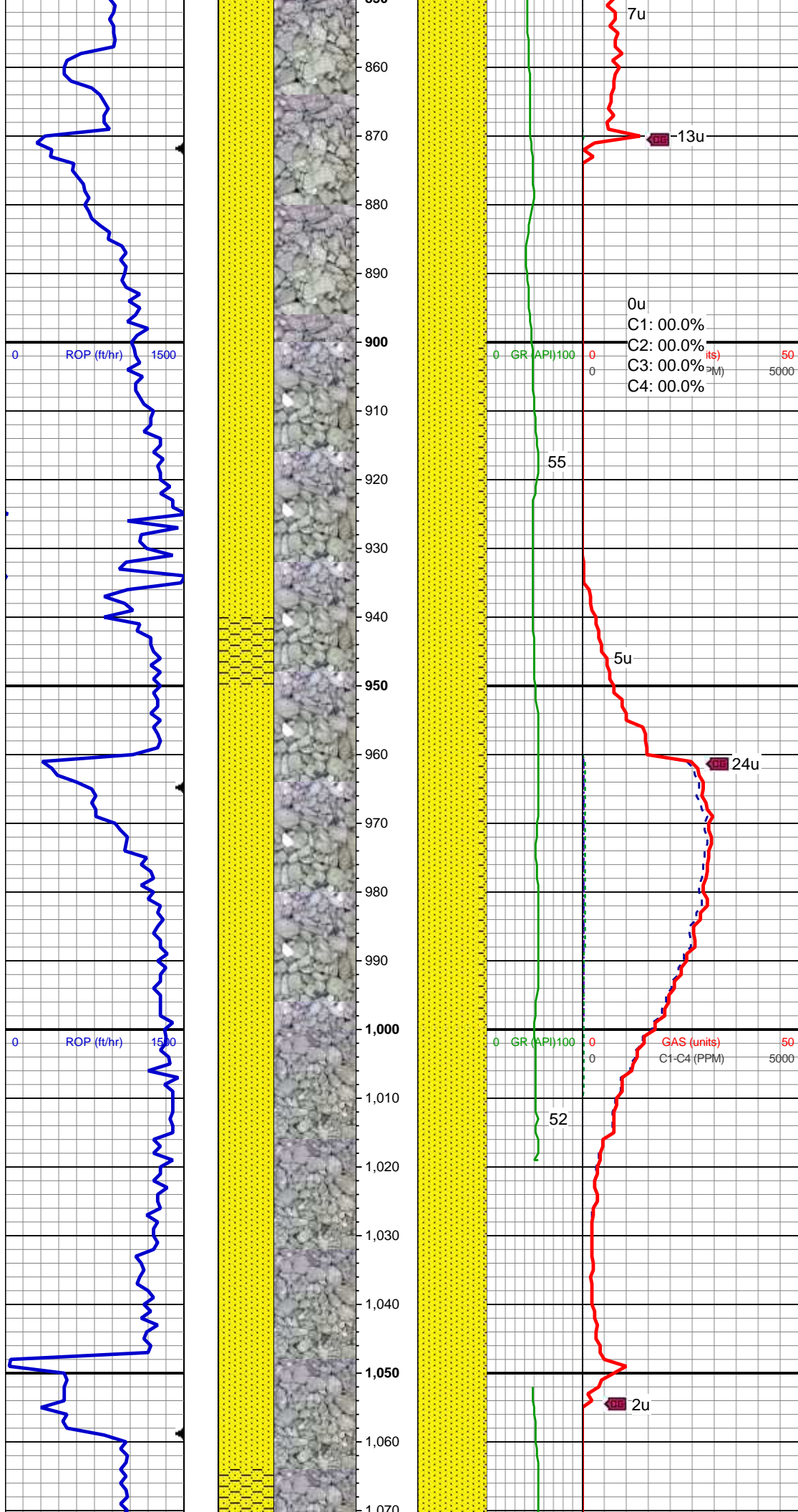
**Company** NOBLE ENERGY INC.

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

## Other

**WELLSITE GEOLOGIST** ANDREA ZUIDEMA  
JESSICA SIEBERG





SHY SS: gy - lt gy, s&p, vf-f gr, sft, sb  
rnd-sb blk, p srt, arg cmt

MD: 912'  
TVD: 911.97'  
Inclination: 0.6 °  
Azimuth: 208.5 °  
VS: -3.11'

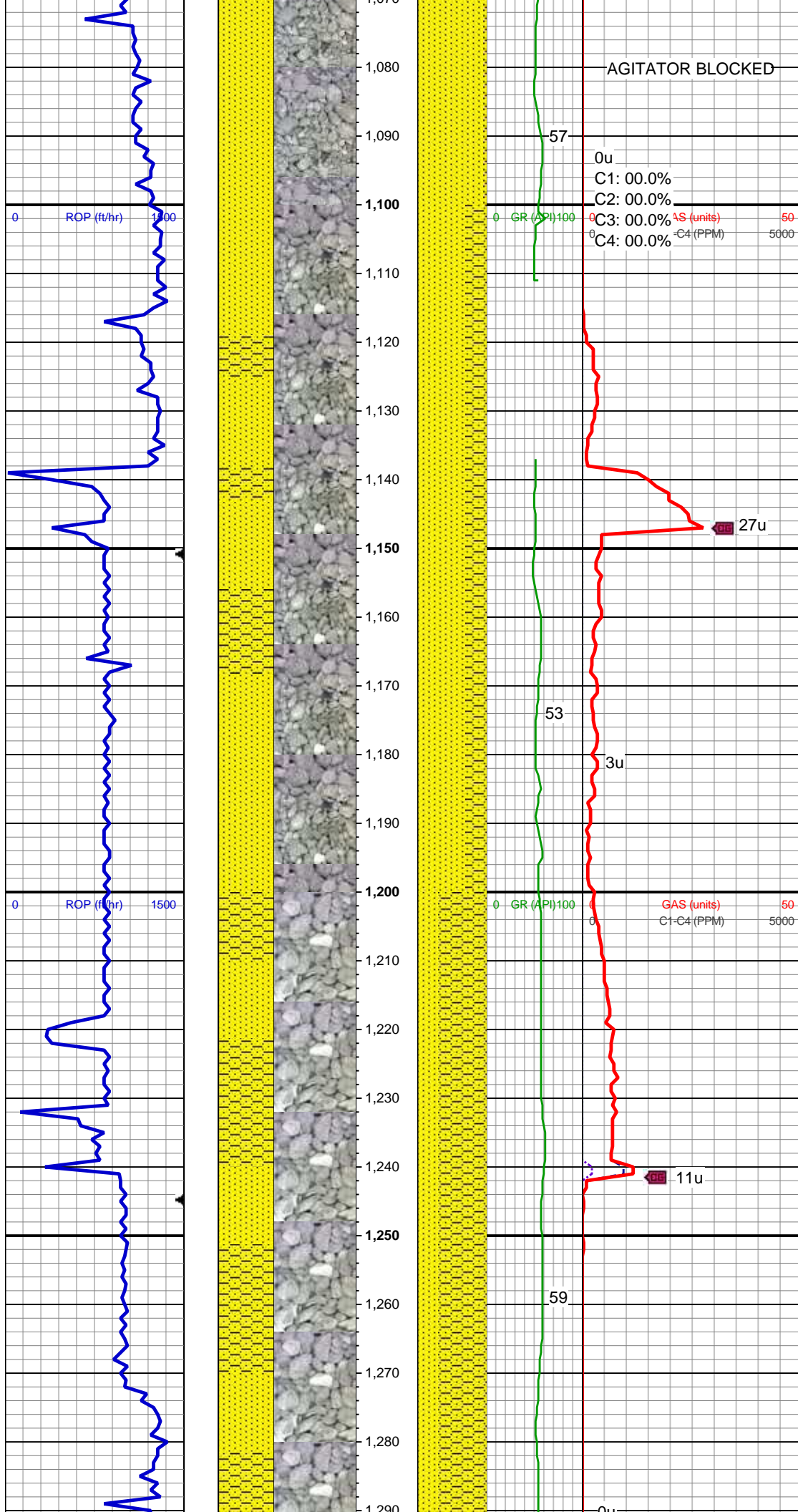
SS: wh-crm, occ lt gy, s&p, f-vf grn, fri, sb  
blk-sb rnd, p srt, arg cmt, sl mics, tr glau  
SHY SS: gy - lt gy, s&p, vf-f gr, sft, sb  
rnd-sb blk, p srt, arg cmt

MUD WT 8.70 VIS 27

MD: 1,006'  
TVD: 1,005.97'  
Inclination: 0.9 °  
Azimuth: 215.8 °  
VS: -3.78'

SS: wh-crm, occ lt gy, s&p, f-vf grn, fri, sb  
blk-sb rnd, p srt, arg cmt, sl mics, tr glau  
SHY SS: gy - lt gy, s&p, vf-f gr, sft, sb  
rnd-sb blk, p srt, arg cmt





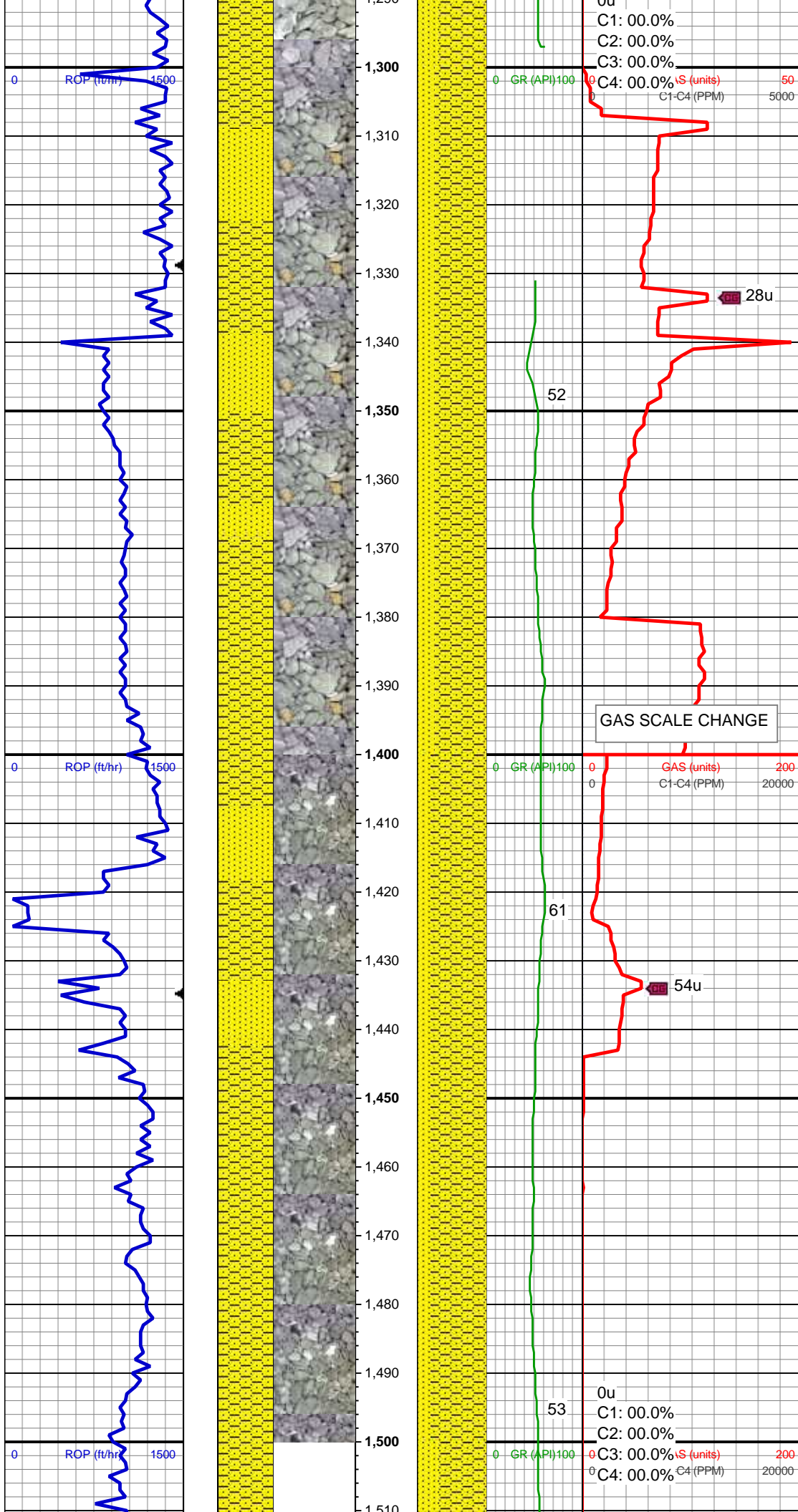
MD: 1,098'  
TVD: 1,097.96'  
Inclination: 0.7 °  
Azimuth: 205.1 °  
VS: -4.43'

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

MD: 1,192'  
TVD: 1,191.95'  
Inclination: 0.5 °  
Azimuth: 210.6 °  
VS: -4.89'

SHY SS: gy - lt gy, s&p, vf-f gr, sft, sb  
rnd-sb blky, p - mod srt, arg cmt, tr slty sh  
SS: wh-crm, occ lt gy, s&p, f-vf grn, fri, sb  
blky-sb rnd, p srt, arg cmt, sl mics, tr glau,  
tr pyr

MD: 1,286'  
TVD: 1,285.95'  
Inclination: 0.5 °  
Azimuth: 209 °



VS: -5.33'

C1: 00.0%  
C2: 00.0%  
C3: 00.0%  
C4: 00.0%

S (units)  
C1-C4 (PPM)

28u

SHY SS: gy - lt gy, s&p, vf-f gr, sft, sb  
rnd-sb blkly, p - mod srt, arg cmt, tr slty sh  
SS: wh-crm, occ lt gy, s&p, f-vf grn, fri, sb  
blkly-sb rnd, p srt, arg cmt, sl mics, tr glau,  
tr pyr

MD: 1,380'  
TVD: 1,379.94'  
Inclination: 0.4 °  
Azimuth: 201.3 °  
VS: -5.67'

GAS SCALE CHANGE

GAS (units)  
C1-C4 (PPM)

54u

MUD WT 8.80 VIS 30

SHY SS: gy - lt gy, s&p, vf-f gr, sft, sb  
rnd-sb blkly, p - mod srt, occ w srt, arg  
cmt, tr slty sh  
SS: wh-crm, occ lt gy, s&p, f-vf grn, fri, sb  
blkly-sb rnd, p srt, arg cmt, sl mics, tr glau

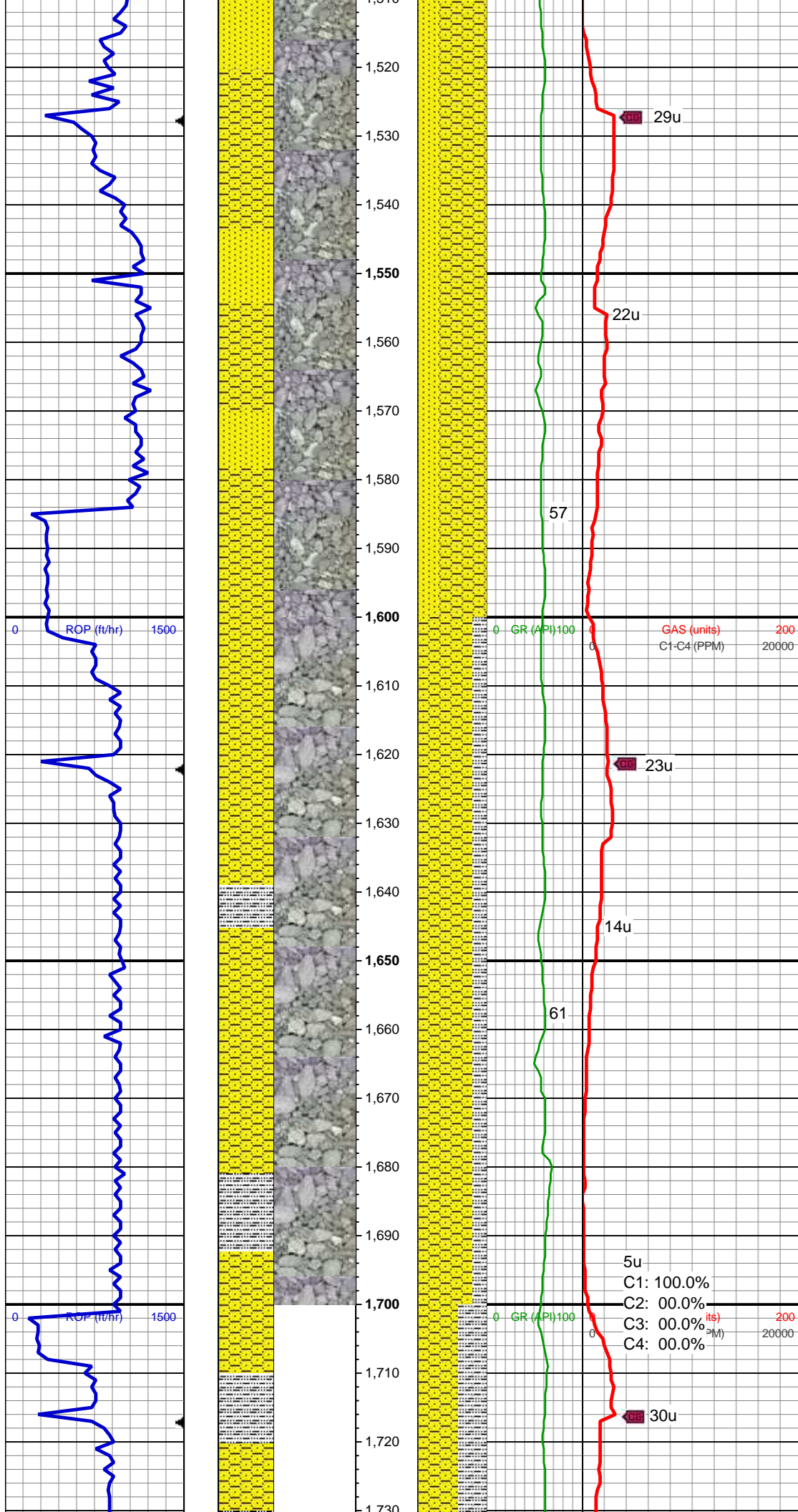
MD: 1,474'  
TVD: 1,473.94'  
Inclination: 0.5 °  
Azimuth: 223.4 °  
VS: -6.1'

C1: 00.0%  
C2: 00.0%  
C3: 00.0%  
C4: 00.0%

S (units)  
C1-C4 (PPM)

53





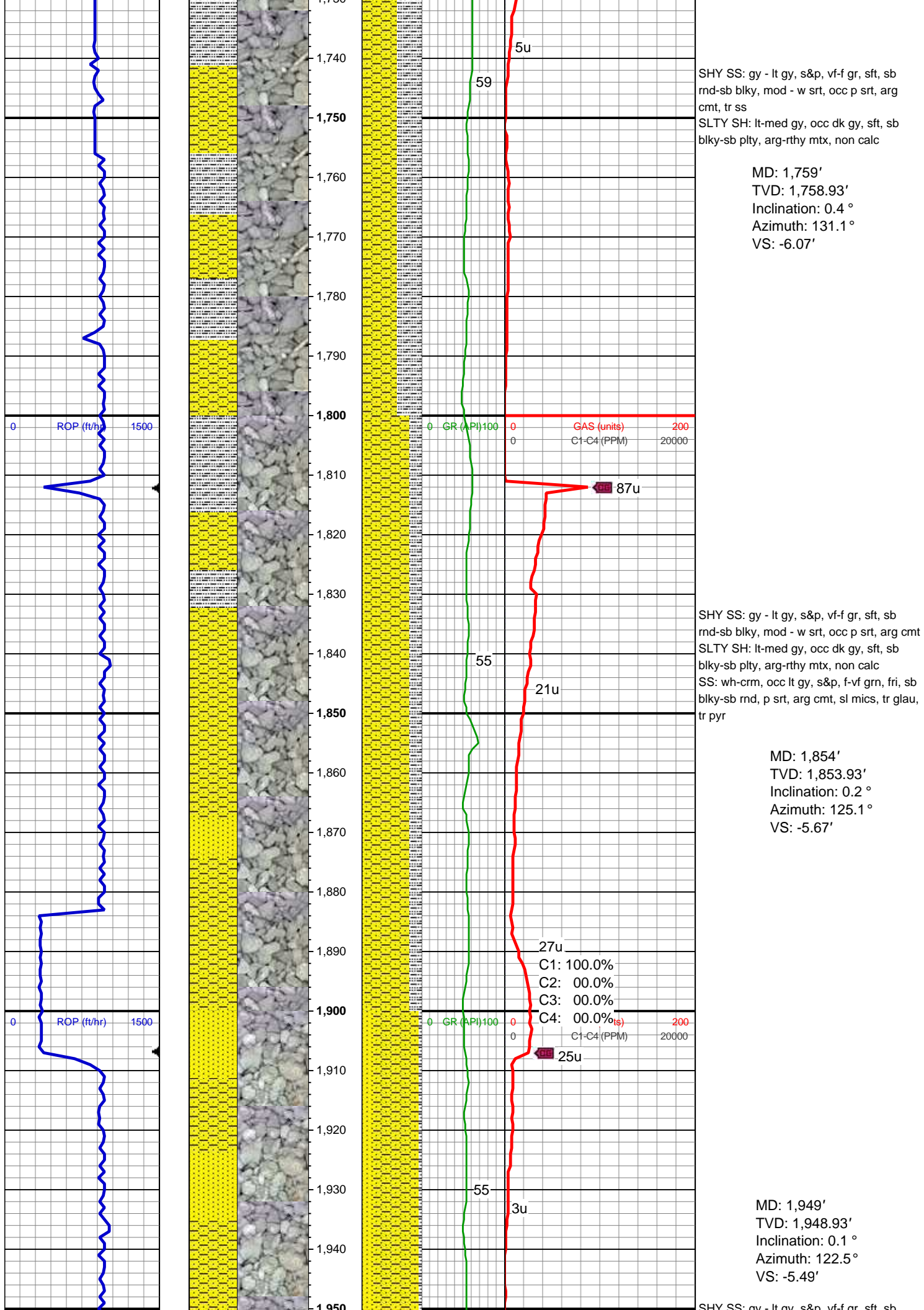
SHY SS: gy - lt gy, s&p, vf-f gr, sft, sb  
rnd-sb blk, p - mod srt, occ w srt, arg  
cmt, tr slty sh  
SS: wh-crm, occ lt gy, s&p, f-vf grn, fri, sb  
blk-sb rnd, p srt, arg cmt, sl mics, tr glau

MD: 1,569'  
TVD: 1,568.94'  
Inclination: 0.4 °  
Azimuth: 190.7 °  
VS: -6.47'

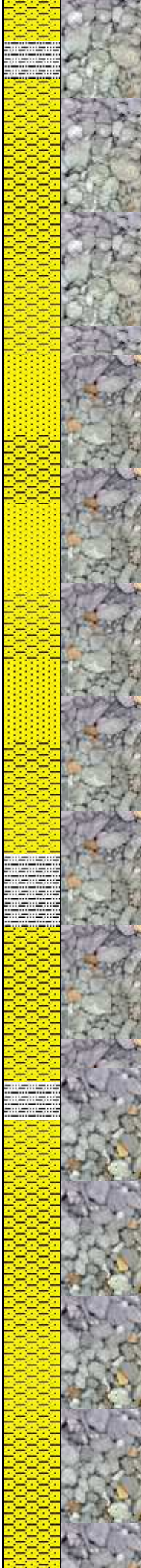
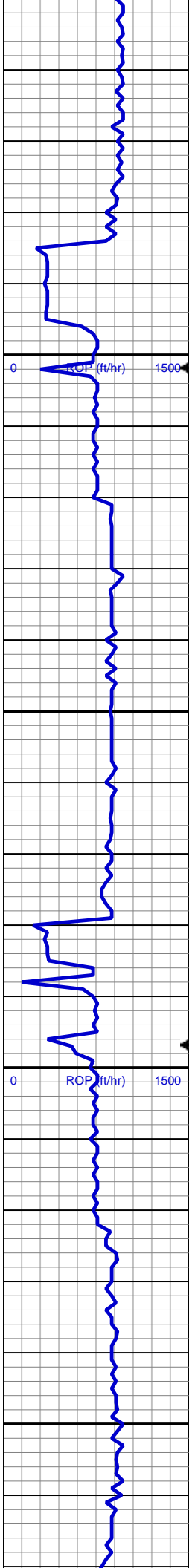
SHY SS: gy - lt gy, s&p, vf-f gr, sft, sb  
rnd-sb blk, p - mod srt, occ w srt, arg  
cmt, tr ss  
SLTY SH: lt-med gy, occ dk gy, sft, sb  
blk-sb pty, arg-rthy mtx, non calc

MD: 1,664'  
TVD: 1,663.93'  
Inclination: 0.3 °  
Azimuth: 161.1 °  
VS: -6.44'

5u  
C1: 100.0%  
C2: 00.0%  
C3: 00.0%  
C4: 00.0%







1,550  
1,560  
1,570  
1,580  
1,590  
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1,760  
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1,820  
1,830  
1,840  
1,850  
1,860  
1,870  
1,880  
1,890  
1,900  
1,910  
1,920  
1,930  
1,940  
1,950  
1,960  
1,970  
1,980  
1,990  
2,000  
2,010  
2,020  
2,030  
2,040  
2,050  
2,060  
2,070  
2,080  
2,090  
2,100  
2,110  
2,120  
2,130  
2,140  
2,150  
2,160  
2,170



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

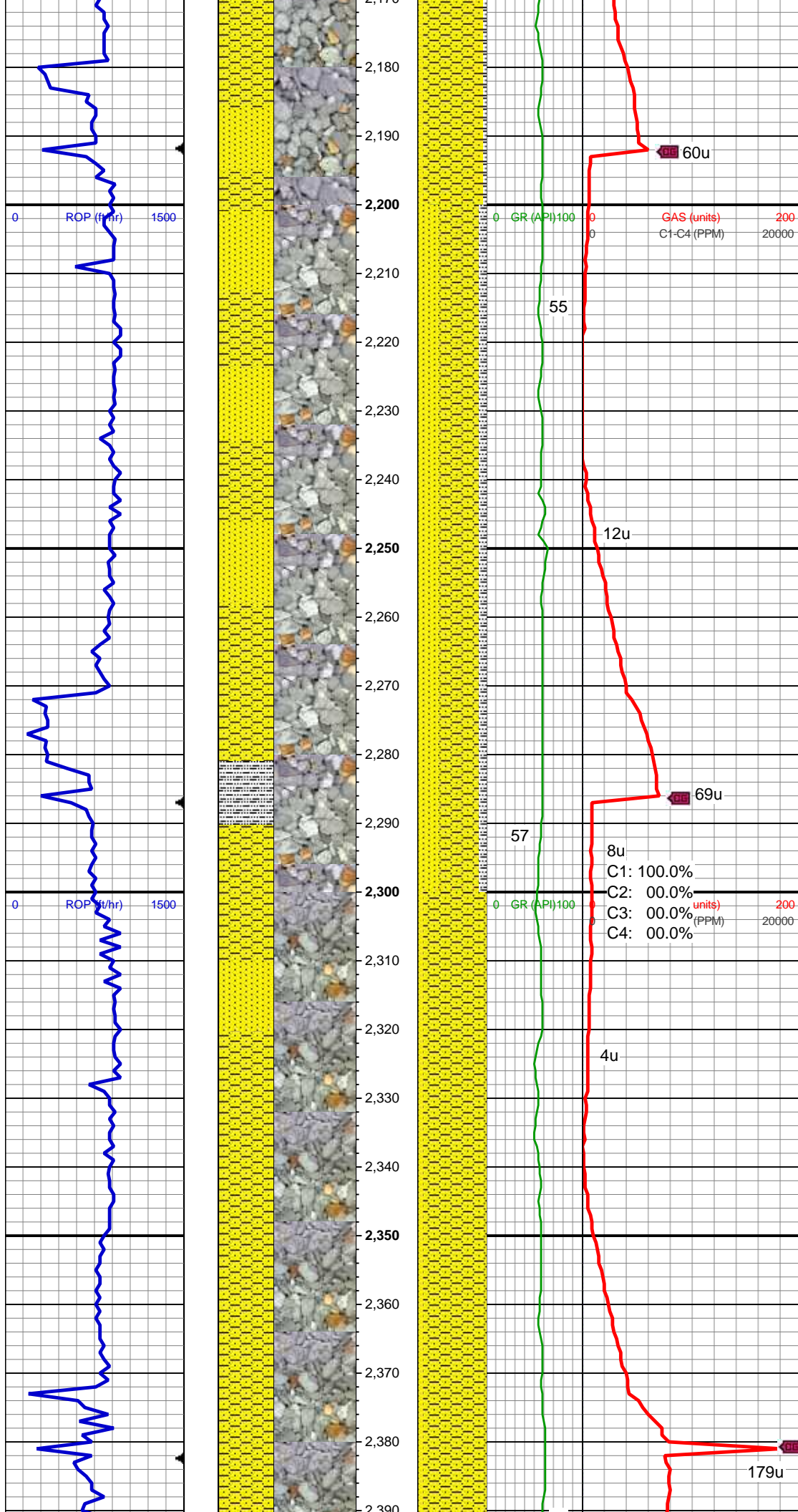
MUD WT 8.70 VIS 29

MD: 2,044'  
TVD: 2,043.93'  
Inclination: 0.3 °  
Azimuth: 211.5 °  
VS: -5.54'

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

MD: 2,139'  
TVD: 2,138.93'  
Inclination: 0.4 °  
Azimuth: 223.3 °  
VS: -5.9'

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



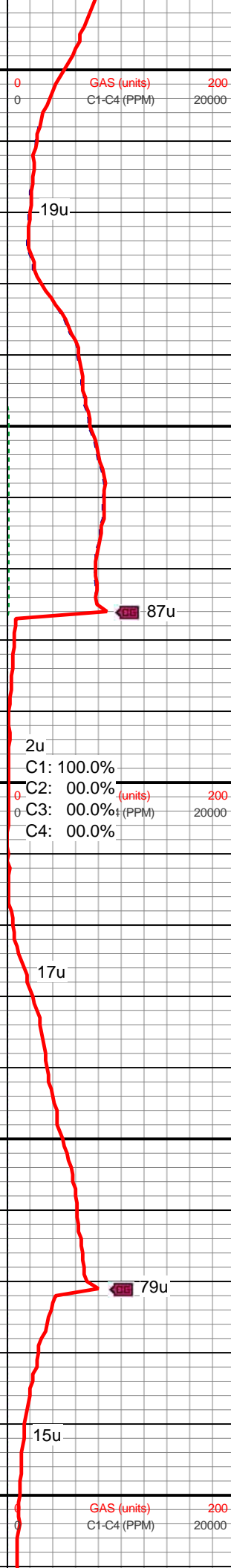
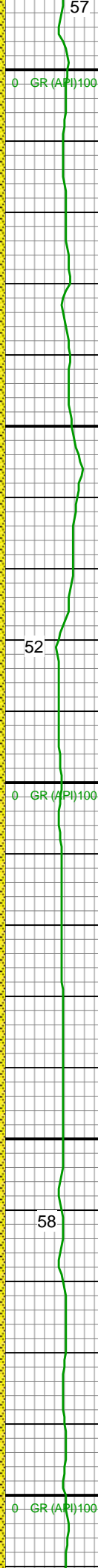
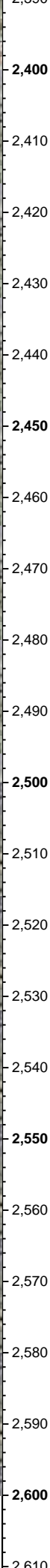
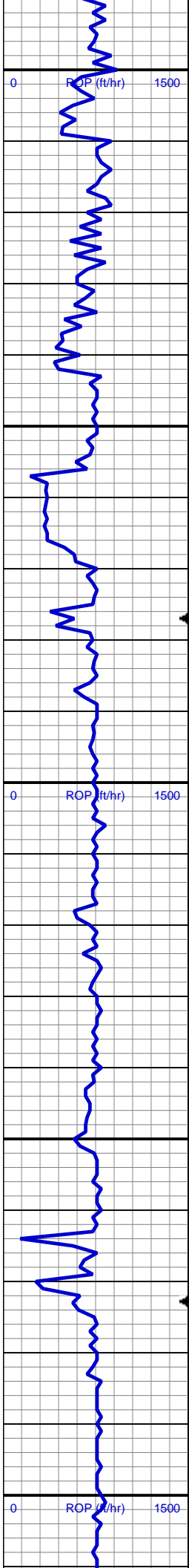
MD: 2,234'  
TVD: 2,233.92'  
Inclination: 0.6 °  
Azimuth: 224.4 °  
VS: -6.51'

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

MD: 2,329'  
TVD: 2,328.92'  
Inclination: 0.8 °  
Azimuth: 242.6 °  
VS: -7.45'

SHY SS: gy - lt gy, s&p, vf-f gr, sft, sb  
rnd-sb blk, mod - w srt, occ p srt, arg cmt  
SS: wh-crm, occ lt gy, s&p, f-vf grn, sft, sb  
blk-sb rnd, p srt, arg cmt, tr slty sh





MD: 2,424'  
TVD: 2,423.91'  
Inclination: 0.9 °  
Azimuth: 229.4 °  
VS: -8.59'

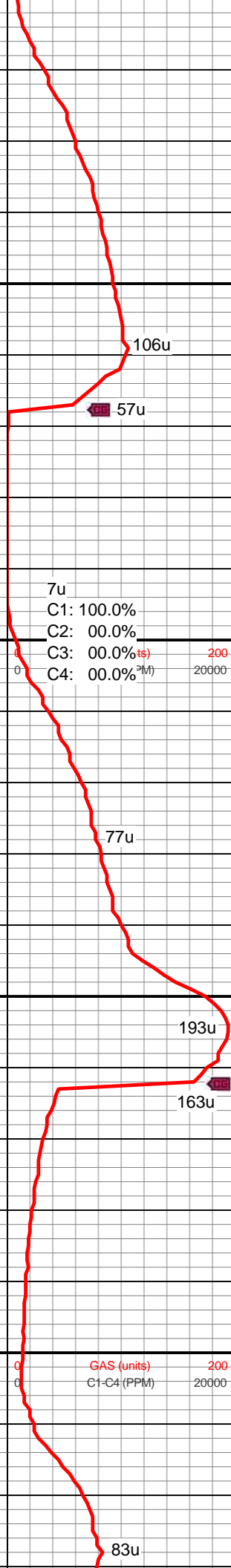
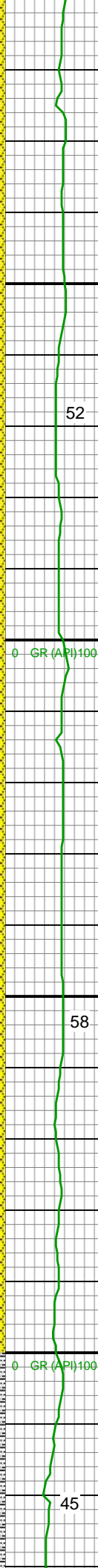
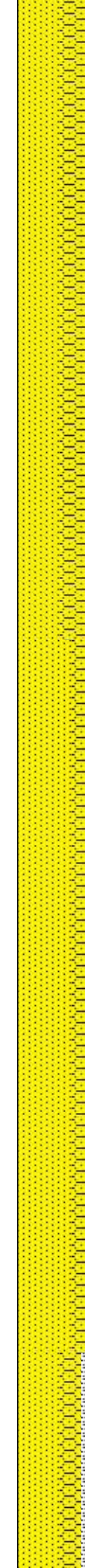
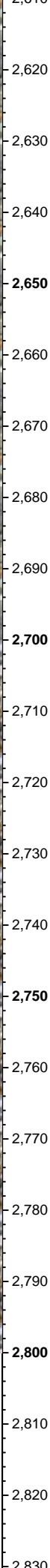
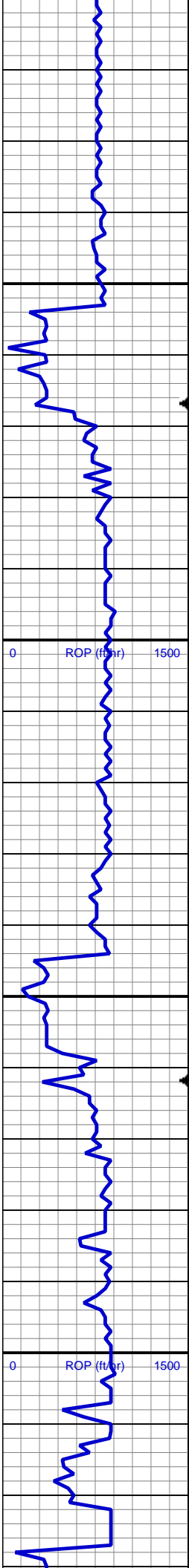
SHY SS: gy - lt gy, s&p, vf-f gr, sft, sb  
rnd-sb blkly, mod - w srt, occ p srt, arg cmt  
SS: wh-crm, occ lt gy, s&p, f-vf grn, sft, sb  
blkly-sb rnd, p srt, arg cmt, tr glau, sl mics  
frags, tr slty sh

MD: 2,519'  
TVD: 2,518.9'  
Inclination: 0.6 °  
Azimuth: 229.6 °  
VS: -9.53'

SHY SS: gy - lt gy, s&p, vf-f gr, sft, sb  
rnd-sb blkly, mod - w srt, occ p srt, arg cmt  
SS: wh-crm, occ lt gy, s&p, f-vf grn, sft, sb  
blkly-sb rnd, p srt, arg cmt, tr glau, sl mics  
frags, tr slty sh

MD: 2,614'  
TVD: 2,612.22'  
Inclination: 0.6 °  
Azimuth: 229.6 °  
VS: -9.53'





TVD: 2,613.89'  
Inclination: 0.7 °  
Azimuth: 238.2 °  
VS: -10.42'

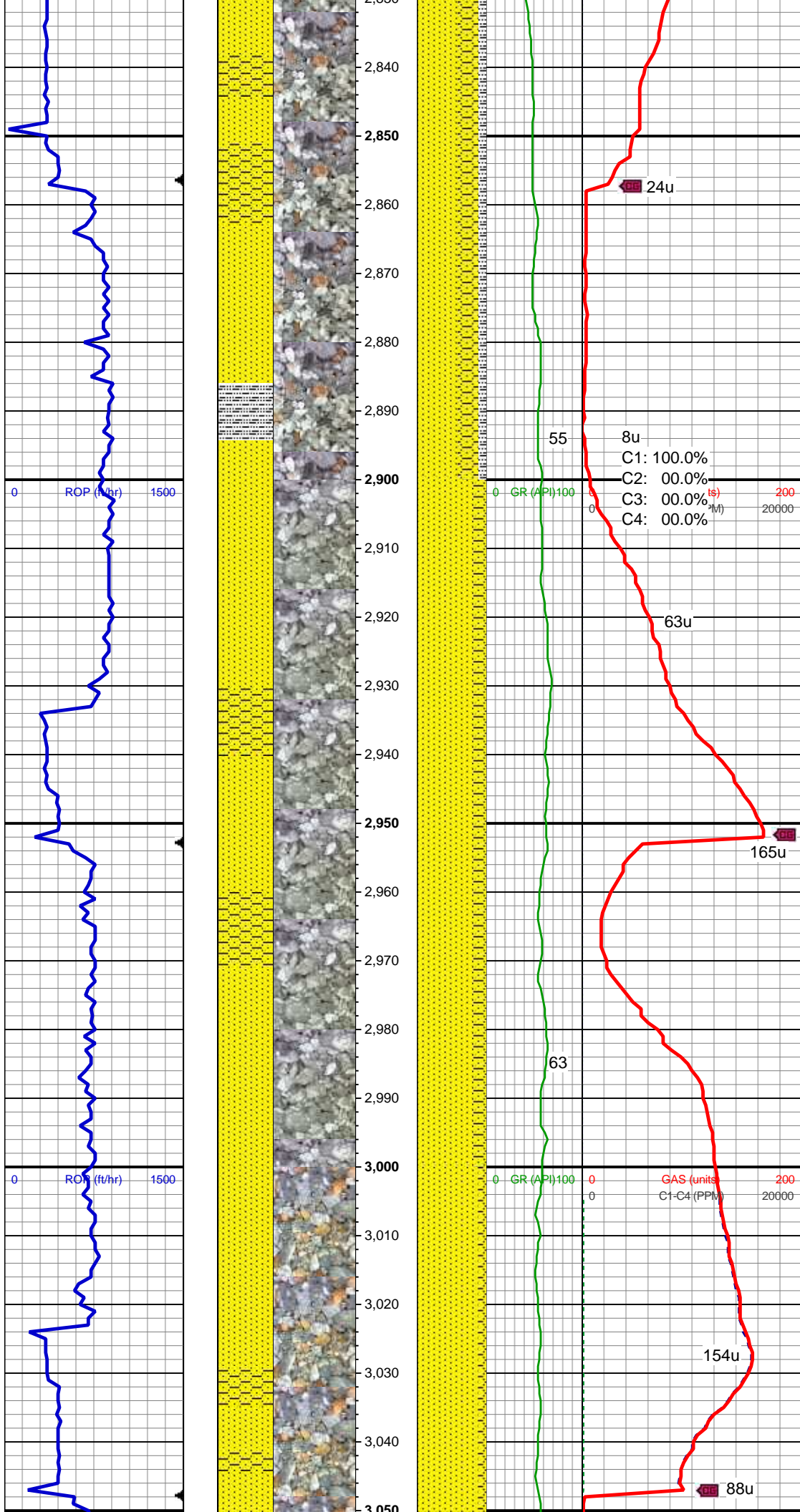
SS: wh-crm, occ lt gy, s&p, f-vf grn, sft, sb  
blky-sb rnd, p srt, arg cmt, tr glau, sl mics  
frags  
SHY SS: gy - lt gy, s&p, vf-f gr, sft, sb  
rnd-sb blky, mod - w srt, occ p srt, arg cmt

MD: 2,709'  
TVD: 2,708.89'  
Inclination: 0.7 °  
Azimuth: 227.5 °  
VS: -11.34'

SS: wh-crm, trnsl, s&p, f-vf grn, sft, sb  
blky-sb rnd, mod - w srt, arg cmt, tr glau,  
mostly uncon  
SHY SS: gy - lt gy, s&p, vf-f gr, sft, sb  
rnd-sb blky, mod - w srt, occ p srt, arg cmt

MUD WT 8.70 VIS 28

MD: 2,804'  
TVD: 2,803.88'  
Inclination: 0.6 °  
Azimuth: 226 °  
VS: -12.79'



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

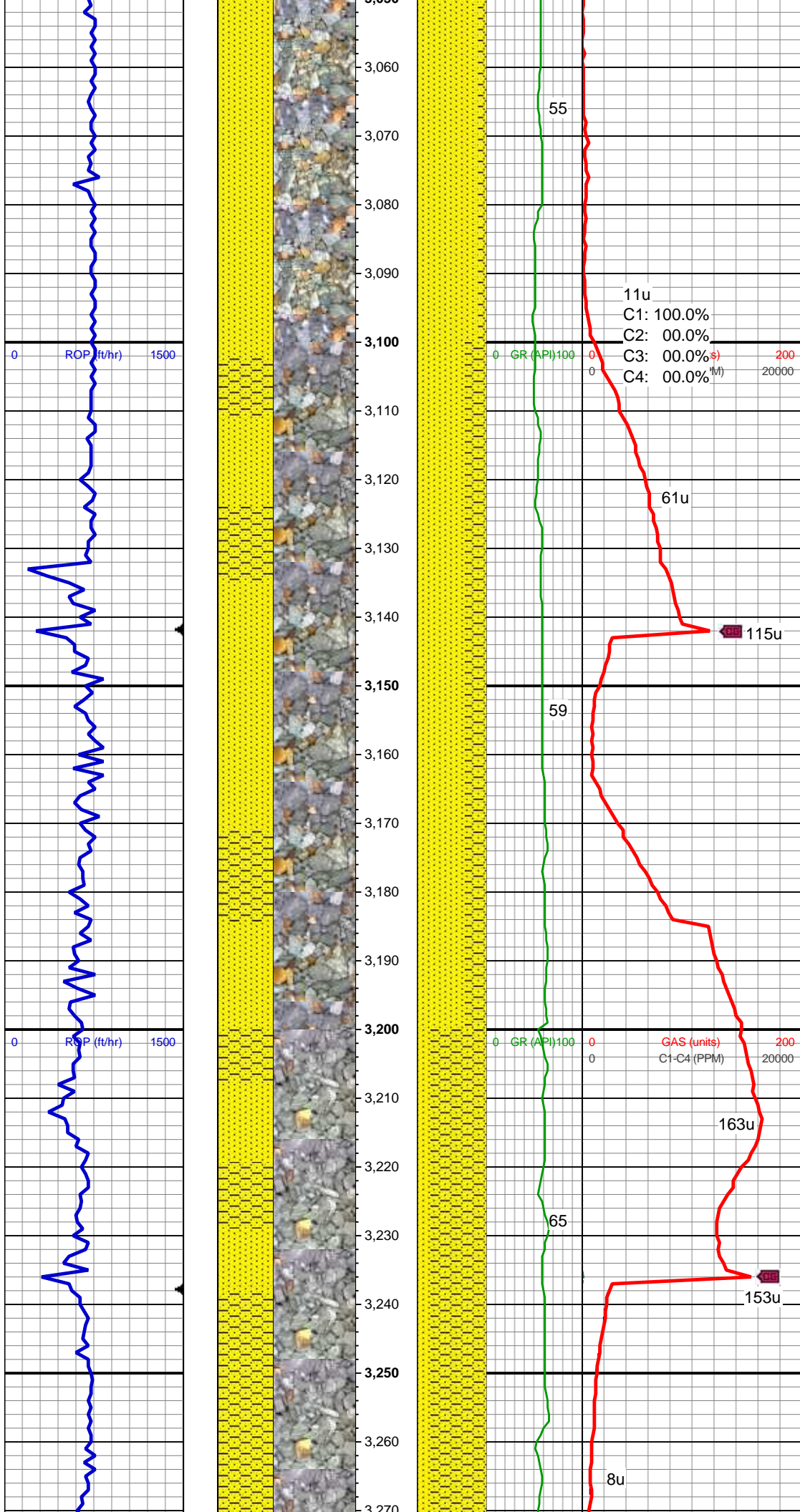
MD: 2,899'  
TVD: 2,898.87'  
Inclination: 0.7 °  
Azimuth: 232 °  
VS: -13.62'

SS: wh - crm, trnsl, s&p, f-vf grn, sft, sb  
blky - sb rnd, mod - p srt, tr w srt, arg cmt,  
tr glau, tr uncon  
SHY SS: gy - lt gy, s&p, vf - f gr, sft, sb  
rnd-sb blky, mod - w srt, occ p srt, arg  
cmt, tr slty sh

MD: 2,994'  
TVD: 2,993.87'  
Inclination: 0.3 °  
Azimuth: 233.5 °  
VS: -14.25'

SS: wh - crm, trnsl, s&p, f-vf grn, sft, sb  
blky - sb rnd, mod - p srt, tr w srt, arg cmt,  
tr glau, tr uncon  
SHY SS: gy - lt gy, s&p, vf - f gr, sft, sb





rnd-sb blkly, mod - w srt, occ p srt, arg  
cmt, tr slty sh

MD: 3,089'  
TVD: 3,088.87'  
Inclination: 0.2 °  
Azimuth: 281.4 °  
VS: -14.57'

11u  
C1: 100.0%  
C2: 00.0%  
C3: 00.0%  
C4: 00.0%

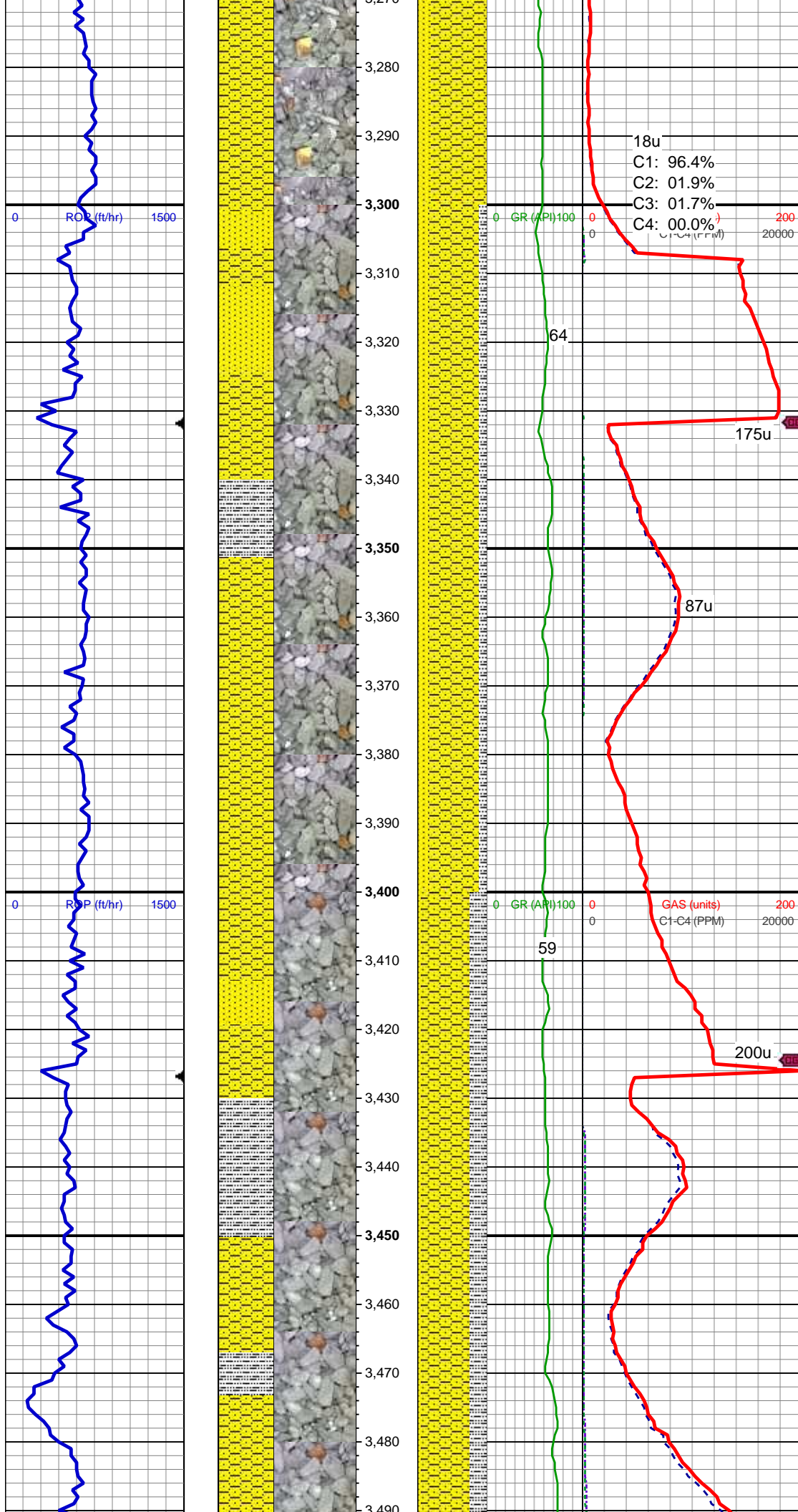
SS: wh - crm, trnsl, s&p, f-vf grn, sft, sb  
blkly - sb rnd, mod - p srt, arg cmt  
SHY SS: gy - lt gy, s&p, vf - f gr, sft, sb  
rnd-sb blkly, mod - w srt, occ p srt, arg  
cmt, tr slty sh

MD: 3,184'  
TVD: 3,183.87'  
Inclination: 0.3 °  
Azimuth: 111.8 °  
VS: -14.51'

MUD WT 8.60 VIS 28

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





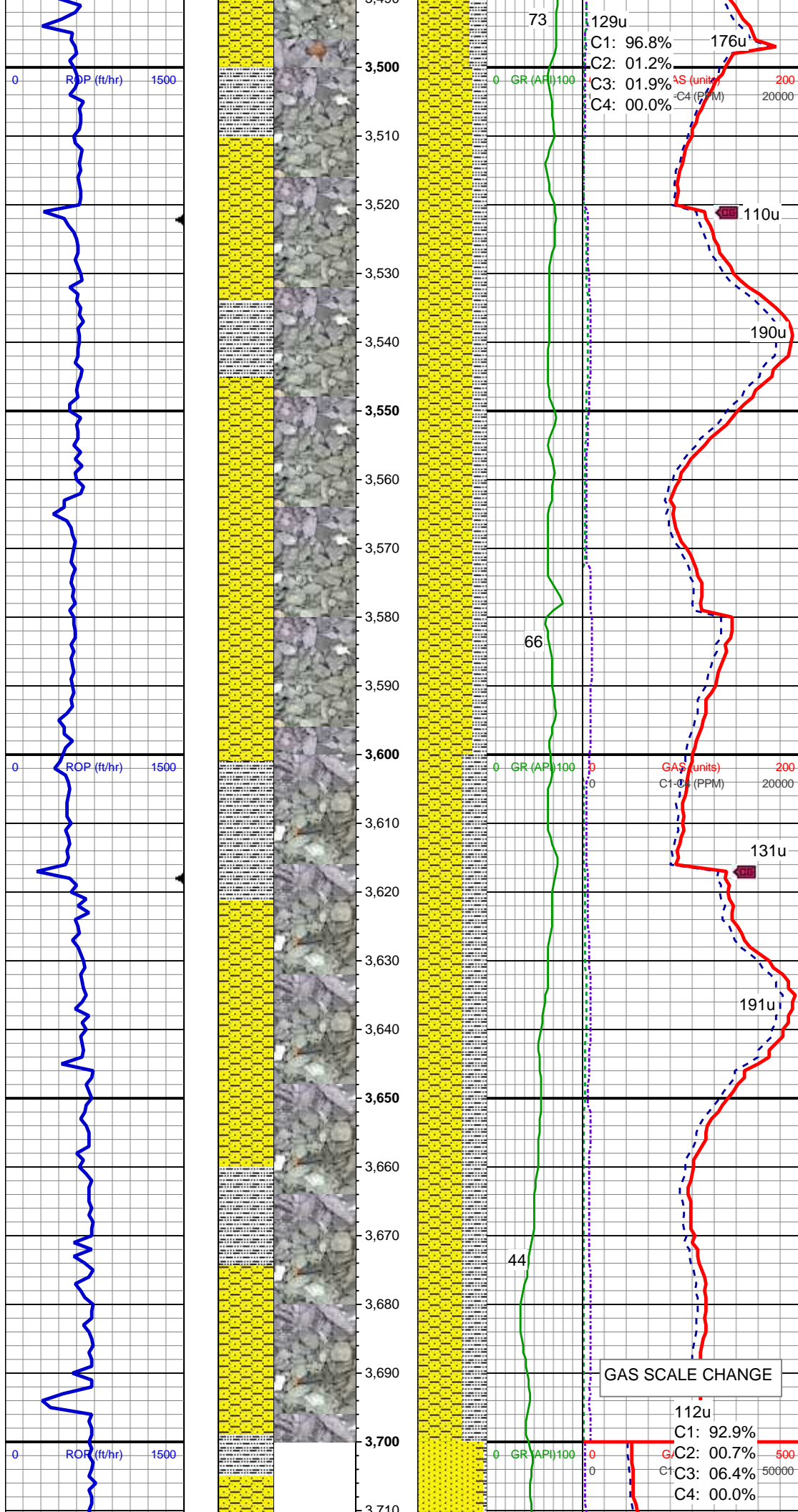
MD: 3,279'  
TVD: 3,278.87'  
Inclination: 0.4 °  
Azimuth: 172 °  
VS: -14.26'

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

MD: 3,374'  
TVD: 3,373.86'  
Inclination: 0.3 °  
Azimuth: 160.1 °  
VS: -14.14'

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

MD: 3,469'  
TVD: 3,468.86'  
Inclination: 0.5 °  
Azimuth: 71.9 °  
VS: -13.65'



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

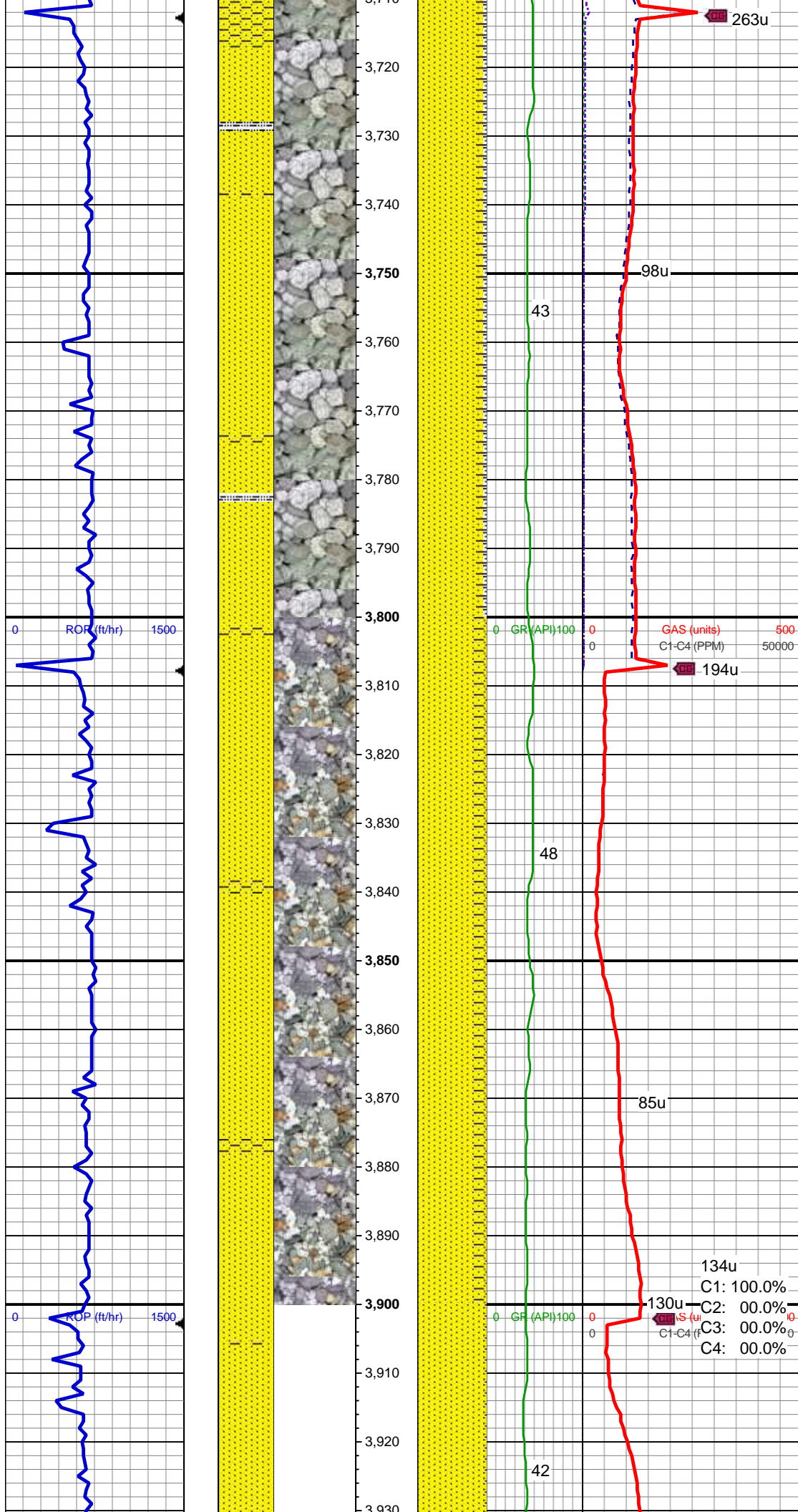
MD: 3,565'  
TVD: 3,564.86'  
Inclination: 0.6 °  
Azimuth: 90.4 °  
VS: -12.71'

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

MD: 3,660'  
TVD: 3,659.85'  
Inclination: 0.2 °  
Azimuth: 110.5 °  
VS: -12.05'

GAS SCALE CHANGE





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

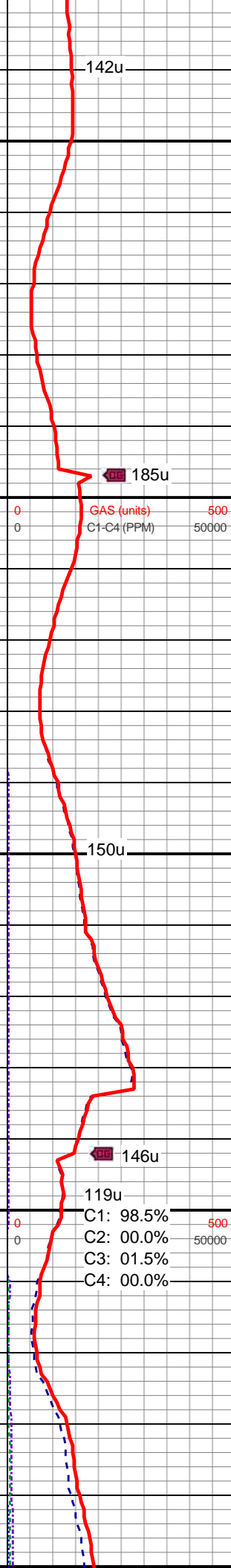
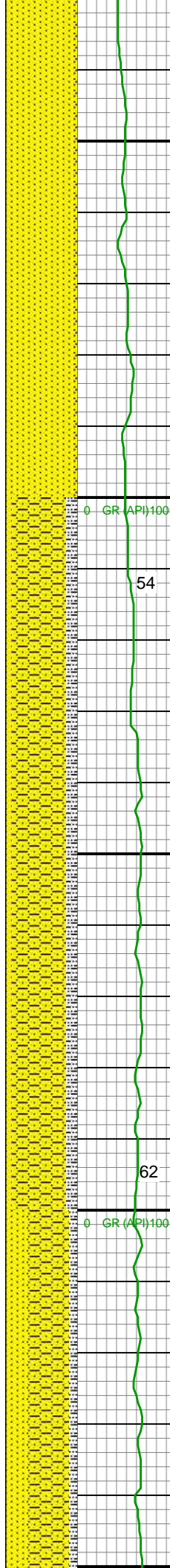
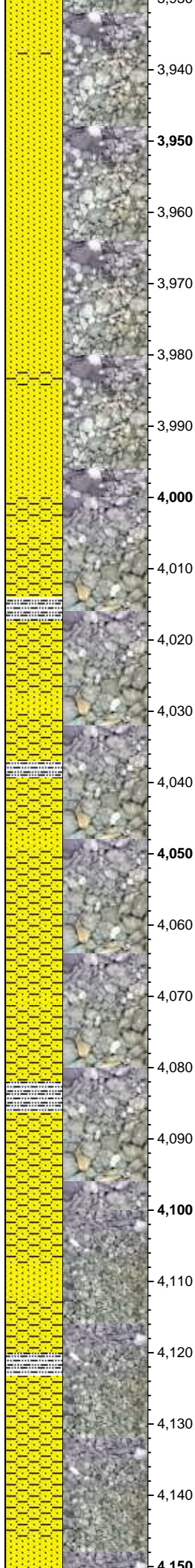
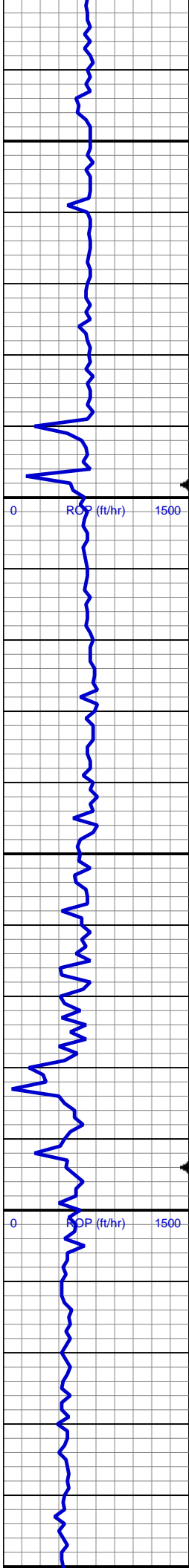
MD: 3,755'  
TVD: 3,754.85'  
Inclination: 0.6 °  
Azimuth: 104.7°  
VS: -11.42'

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

MD: 3,850'  
TVD: 3,849.85'  
Inclination: 0.3 °  
Azimuth: 117.8°  
VS: -10.66'

MD: 3,945'





TVD: 3,944.85'  
Inclination: 0.3 °  
Azimuth: 132.7 °  
VS: -10.25'

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

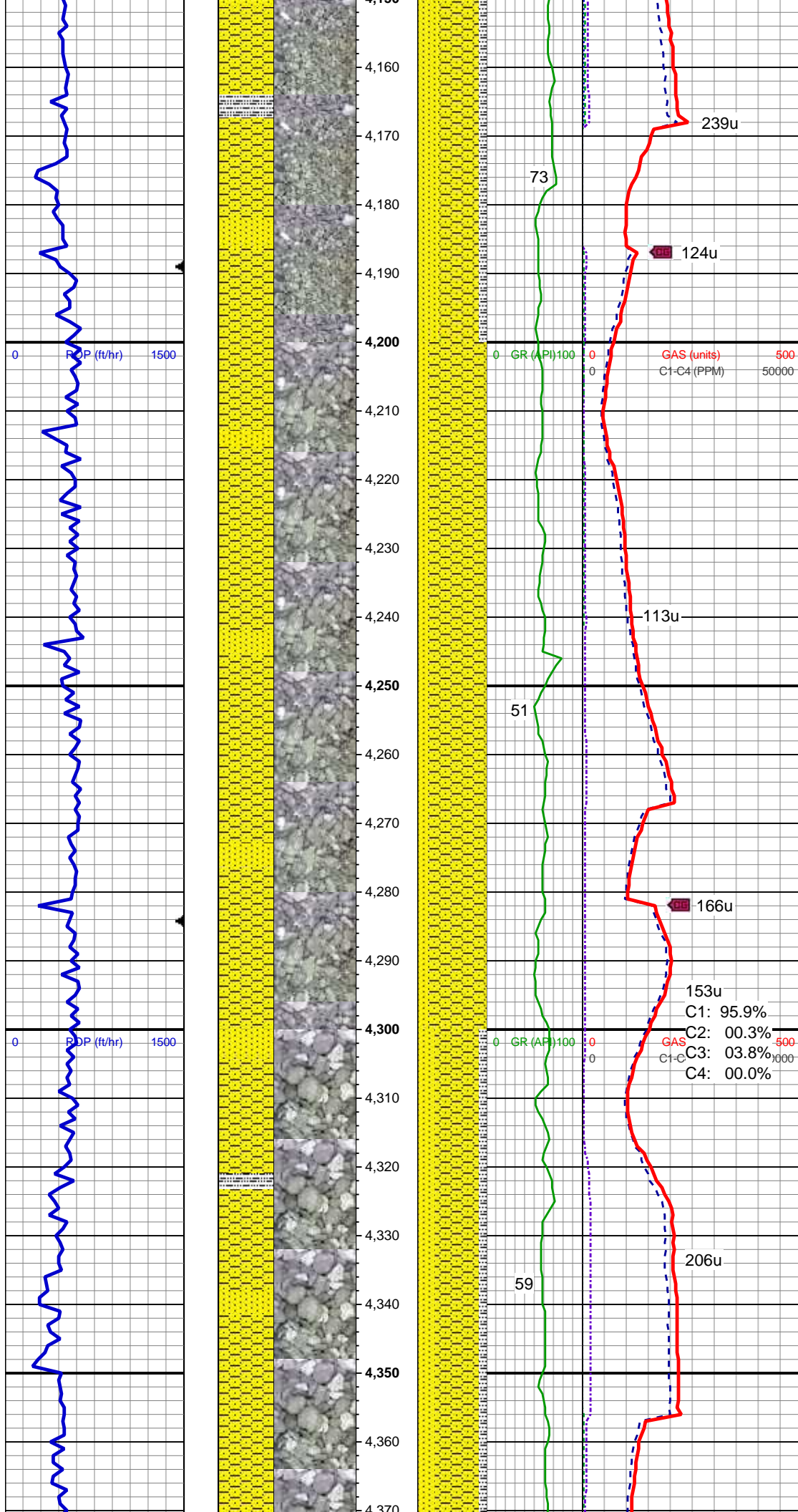
MUD WT 8.80 VIS 28

MD: 4,041'  
TVD: 4,040.85'  
Inclination: 0.3 °  
Azimuth: 213.3 °  
VS: -10.21'

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

MD: 4,136'  
TVD: 4,135.85'  
Inclination: 0.3 °  
Azimuth: 213.7 °  
VS: -10.44'

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



md-sb blk, p-mod srt, tr glau, arg cmt  
SLTY SH: med gy-gy, tr dk gy, sft, sb blk  
- sb plty, tr plty, arg - rthy mtx, non calc

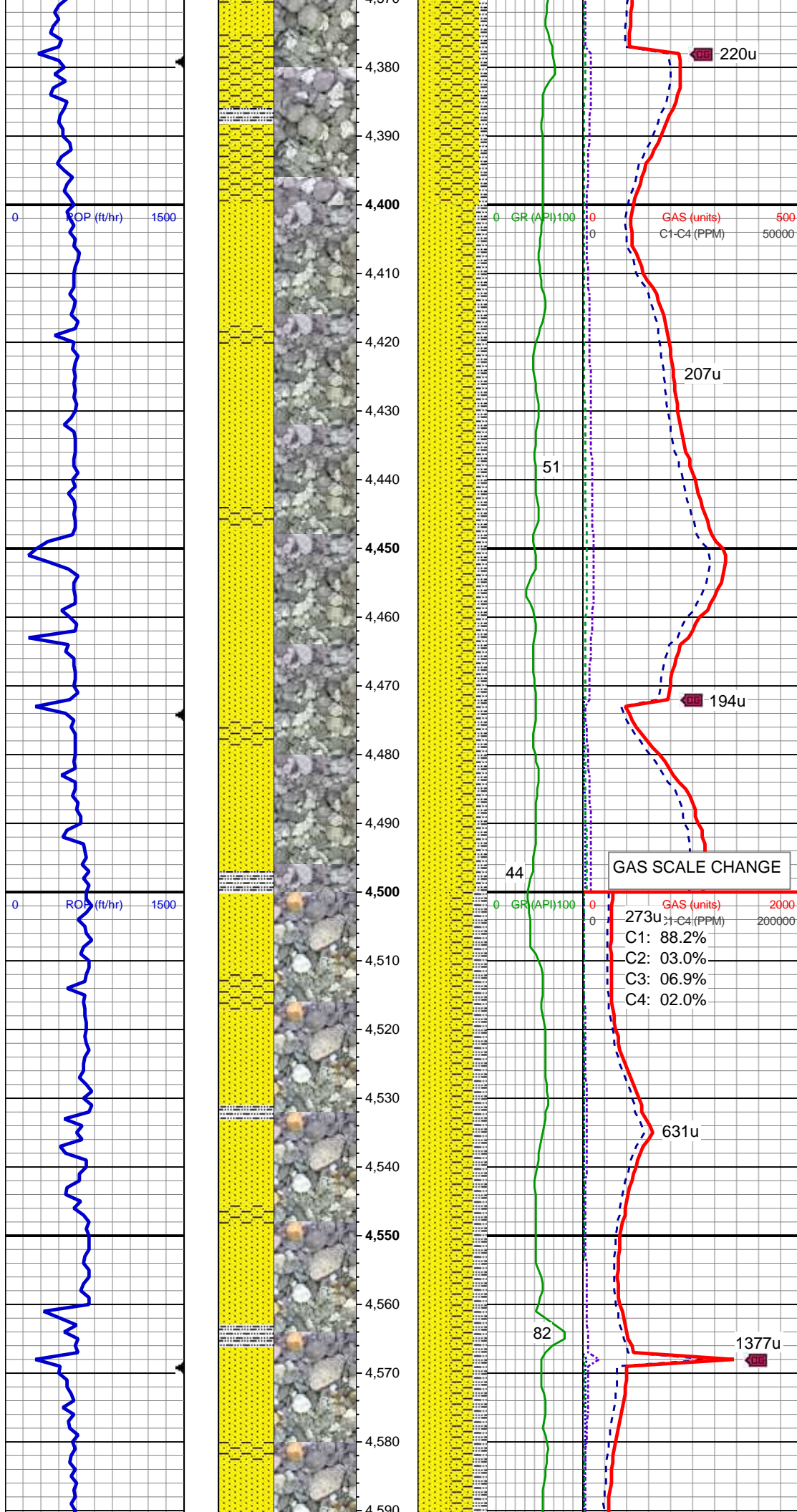
MD: 4,231'  
TVD: 4,230.84'  
Inclination: 0.7 °  
Azimuth: 209.7 °  
VS: -10.85'

SHY SS: gy - med gy, tr dk gy, s&p, vf - f  
gr, sft, sb rnd - sb blk, mod-w srt, arg cmt  
SS: lt gy - gy, tr trns, s&p, vf-f gr, sb  
rnd-sb blk, p-mod srt, tr glau, arg cmt

MD: 4,326'  
TVD: 4,325.84'  
Inclination: 0.5 °  
Azimuth: 229.5 °  
VS: -11.47'

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





MD: 4,421'  
TVD: 4,420.83'  
Inclination: 0.4 °  
Azimuth: 152.2 °  
VS: -11.63'

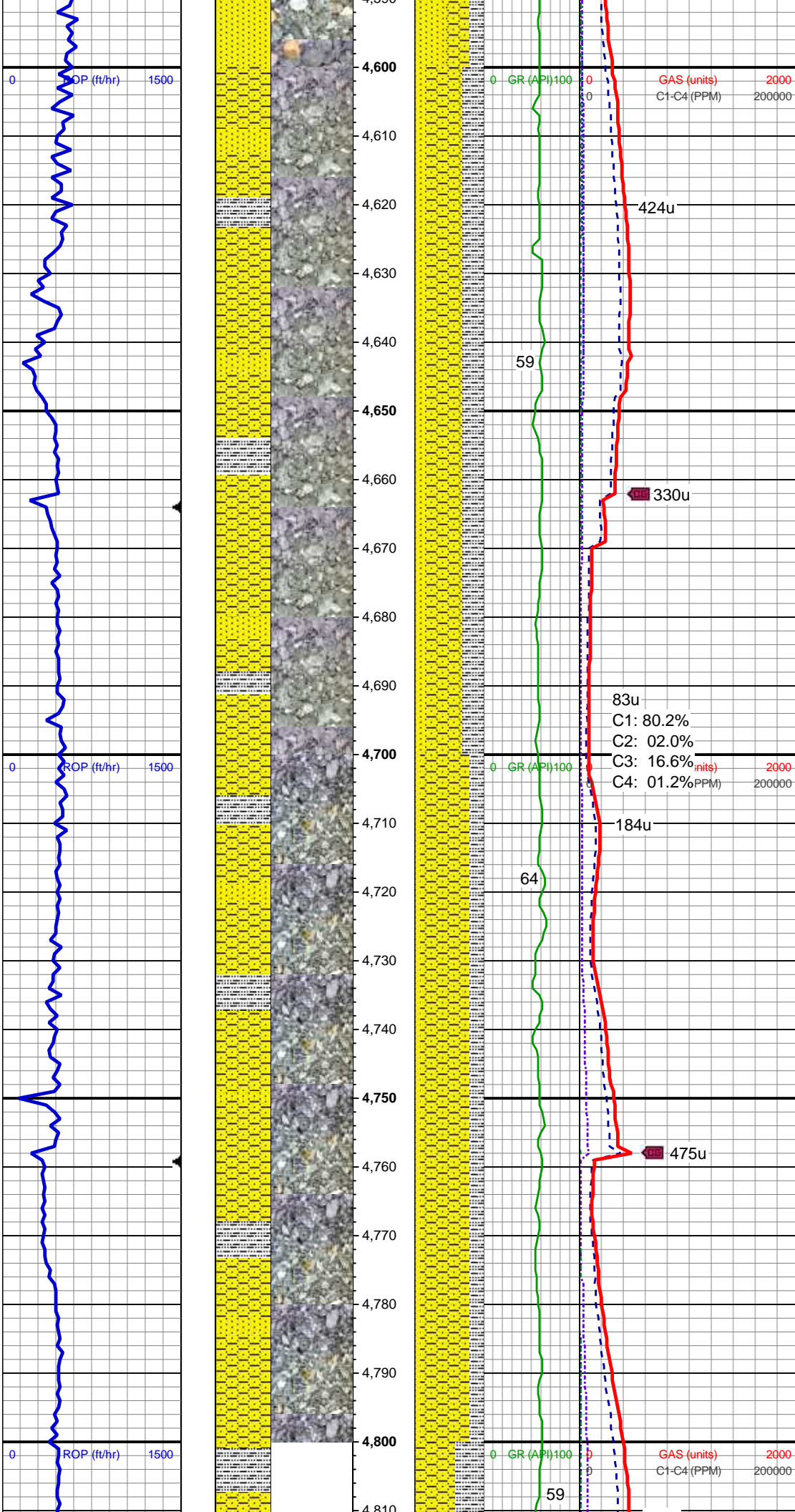
SS: lt gy - gy, tr trnsl, s&p, vf-f gr, sb  
rnd-sb blkly, p-mod srt, arg cmt  
SHY SS: gy - med gy, s&p, vf - f gr, sft, sb  
rnd - sb blkly, mod-w srt, arg cmt, sl mics  
SLTY SH: med gy-gy, tr drk gy, sft, sb blkly  
- sb plty, arg - rthy mtx, non calc

#### GAS SCALE CHANGE

MD: 4,516'  
TVD: 4,515.83'  
Inclination: 0.7 °  
Azimuth: 183.7 °  
VS: -11.5'

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





MD: 4,611'  
TVD: 4,610.83'  
Inclination: 0.2 °  
Azimuth: 147.6 °  
VS: -11.46'

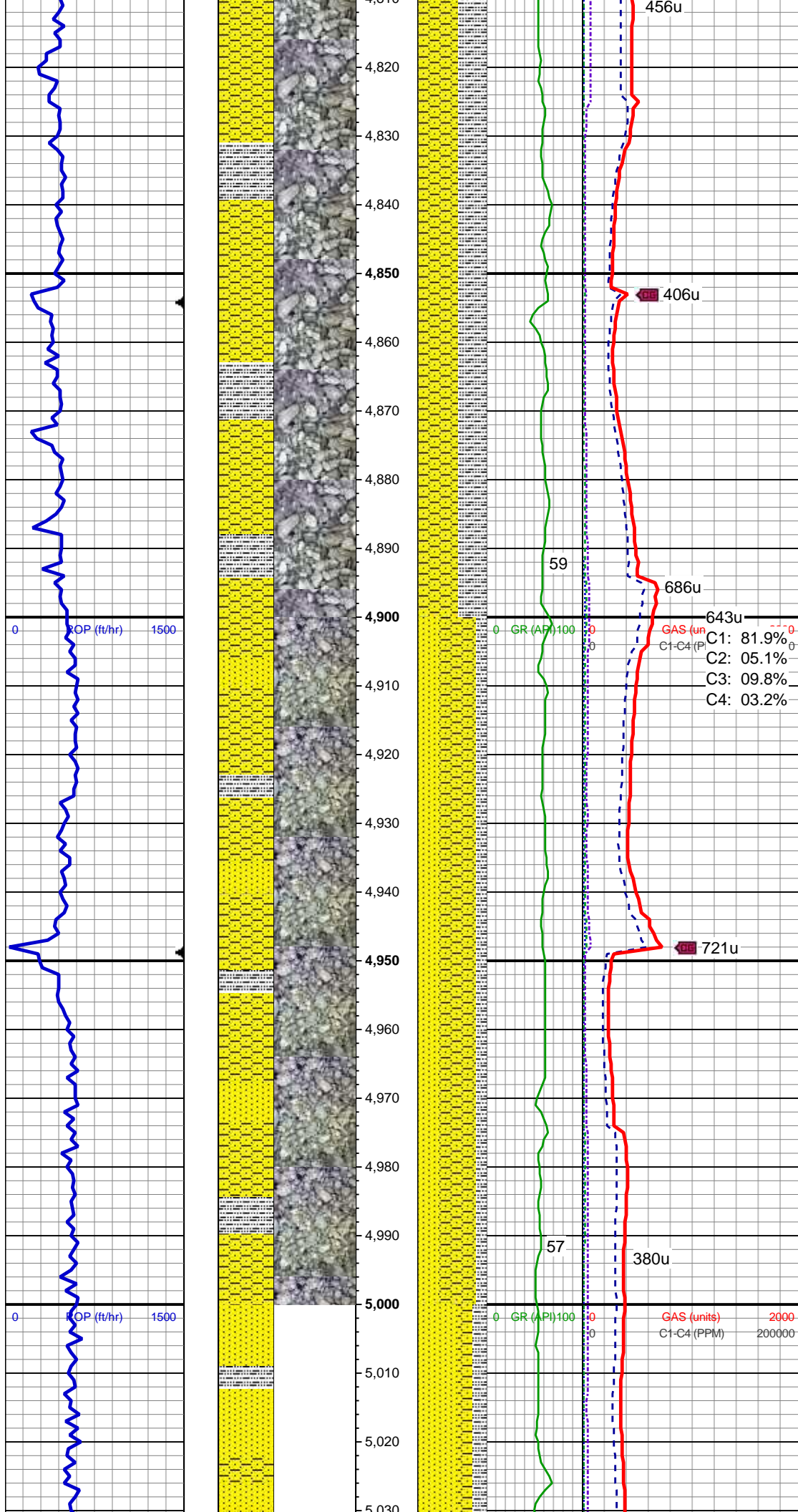
SHY SS: gy - med gy, tr lt gy, s&p, vf - f gr, sft, sb rnd - sb blk, mod srt, arg cmt, sl mics  
SLTY SH: med gy-gy, tr dk gy, sft, sb blk - sb plty, tr plty, arg - rthy mtx, non calc  
SS: lt gy - wh, tr trns, s&p, vf-f gr, sb rnd-sb blk, mod srt, arg cmt

MD: 4,706'  
TVD: 4,705.82'  
Inclination: 0.6 °  
Azimuth: 305.9 °  
VS: -11.79'

MUD WT 9.10 VIS 29

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

MD: 4,801'  
TVD: 4,800.82'  
Inclination: 0.4 °  
Azimuth: 302.6 °



VS: -12.52'

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

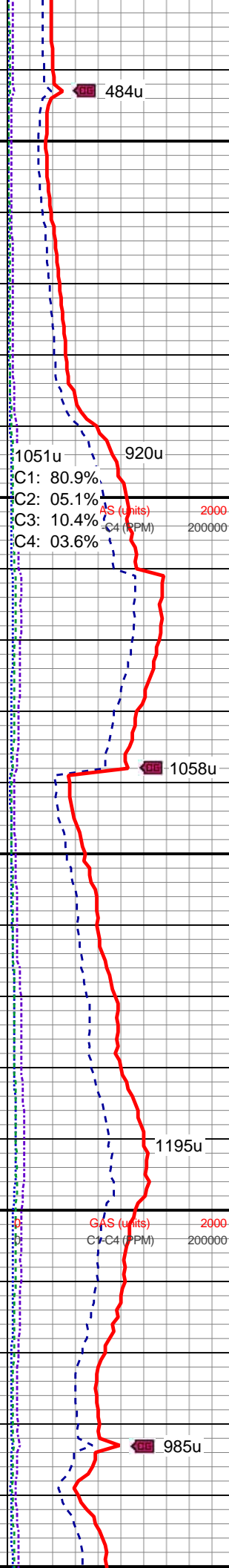
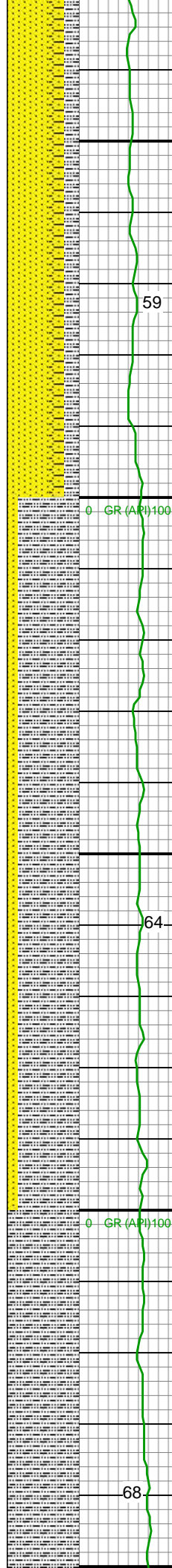
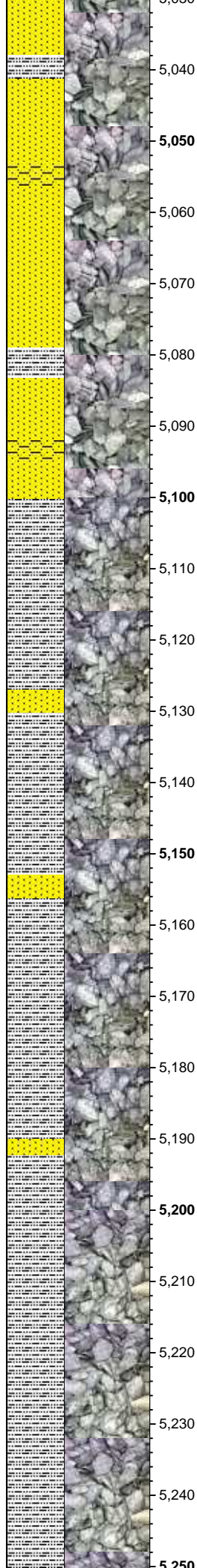
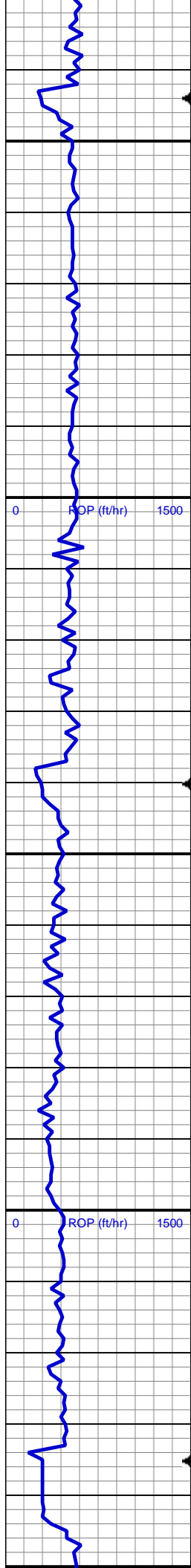
MD: 4,896'  
TVD: 4,895.81'  
Inclination: 1.1 °  
Azimuth: 329.8°  
VS: -13.3'

MUD WT 9.10 VIS 45

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

MD: 4,991'  
TVD: 4,990.79'  
Inclination: 1.4 °  
Azimuth: 323.6°  
VS: -14.47'





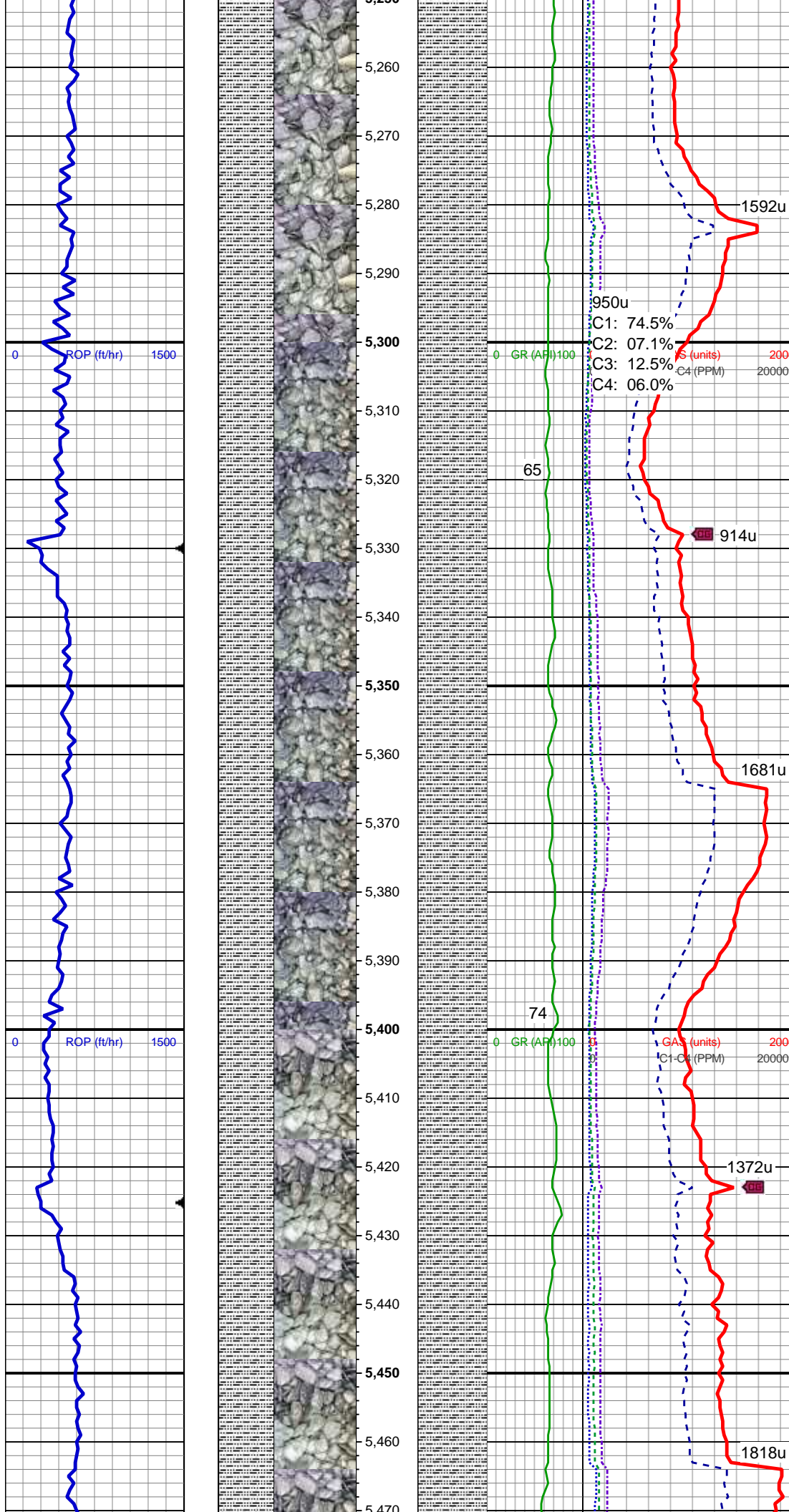
SS: lt gy - gy, tr trnsl, s&p, vf-f gr, sb  
rnd-sb blkly, mod srt, arg cmt, occ glau  
SHY SS: gy - med gy, s&p, vf - f gr, sft, sb  
rnd - sb blkly, mod srt, arg cmt  
SLTY SH: med gy-gy, tr dk gy, sft, sb blkly  
- sb plty, arg - rthy mtx, non calc

MD: 5,084.64'  
TVD: 5,084.4'  
Inclination: 1.3 °  
Azimuth: 320.9 °  
VS: -15.83'

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

MD: 5,182'  
TVD: 5,181.74'  
Inclination: 1.2 °  
Azimuth: 320.3 °  
VS: -17.21'

SLTY SH: med gy- lt gy, tr gy, sft, sb blkly  
sb plty, occ plty, arg - rthy mtx, non



- sb ply, occ ply, arg - rthy mtx, non calc, tr ss

MD: 5,277'  
TVD: 5,276.72'  
Inclination: 1.1 °  
Azimuth: 338.5 °  
VS: -18.21'

1592u  
950u  
C1: 74.5%  
C2: 07.1%  
C3: 12.5%  
C4: 06.0%  
S (units) 2000  
C4 (PPM) 200000

0 - GR (API) 100

65

914u

SLTY SH: med gy- lt gy, occ gy, sft, sb blkly - sb ply, tr ply, arg - rthy mtx, non calc, tr shy ss, tr ss

MD: 5,372'  
TVD: 5,371.7'  
Inclination: 1.1 °  
Azimuth: 335.6 °  
VS: -18.94'

1681u  
GAS (units) 2000  
C1-C4 (PPM) 200000

0 - GR (API) 100

74

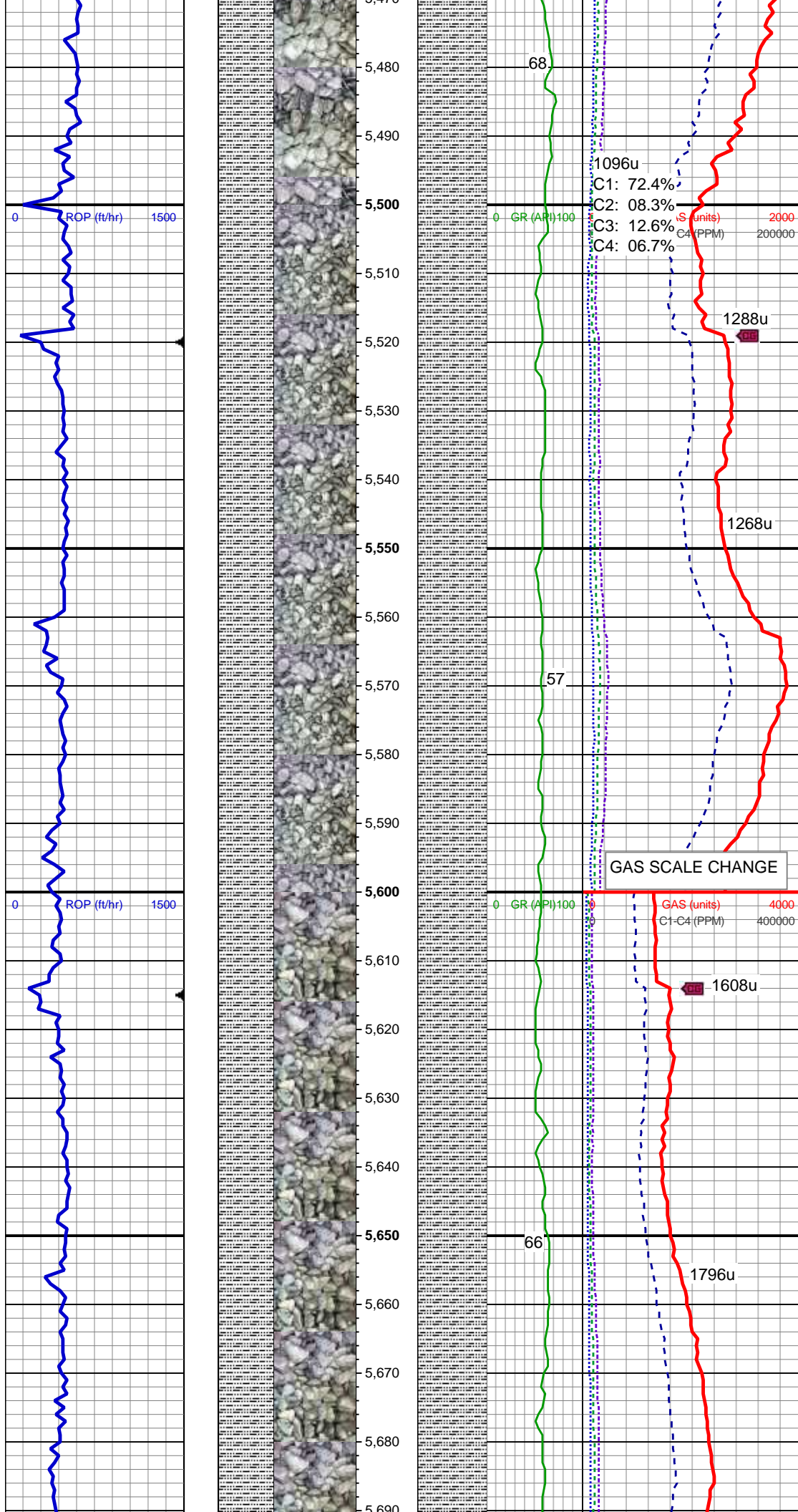
1372u

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

MD: 5,467'  
TVD: 5,466.68'

1818u





TVD: 5,466.66'  
Inclination: 1.3 °  
Azimuth: 1.4 °  
VS: -19.31'

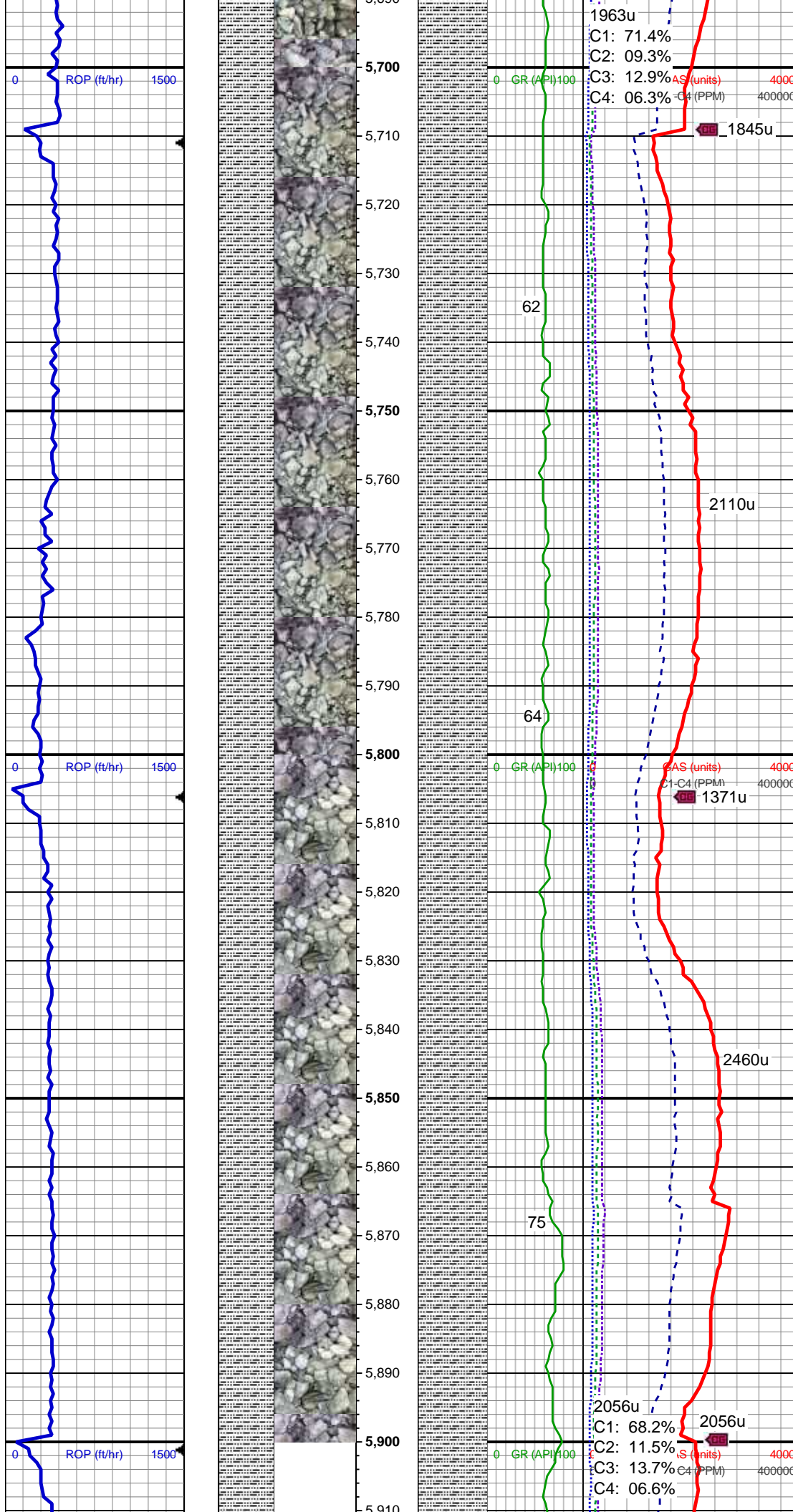
SLTY SH: med gy- lt gy, sft, sb blkly - sb  
ppty, tr ppty, arg - rthy mtx, non calc, tr shy  
ss, tr ss

MD: 5,562'  
TVD: 5,561.65'  
Inclination: 1.1 °  
Azimuth: 358.5 °  
VS: -19.31'

MUD WT 9.30 VIS 43

SLTY SH: med gy- lt gy, sft, sb blkly - sb  
ppty, occ ppty, arg - rthy mtx, non calc, tr  
shy ss, tr ss

MD: 5,658'  
TVD: 5,657.63'  
Inclination: 1.7 °  
Azimuth: 354.9 °  
VS: -19.46'



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

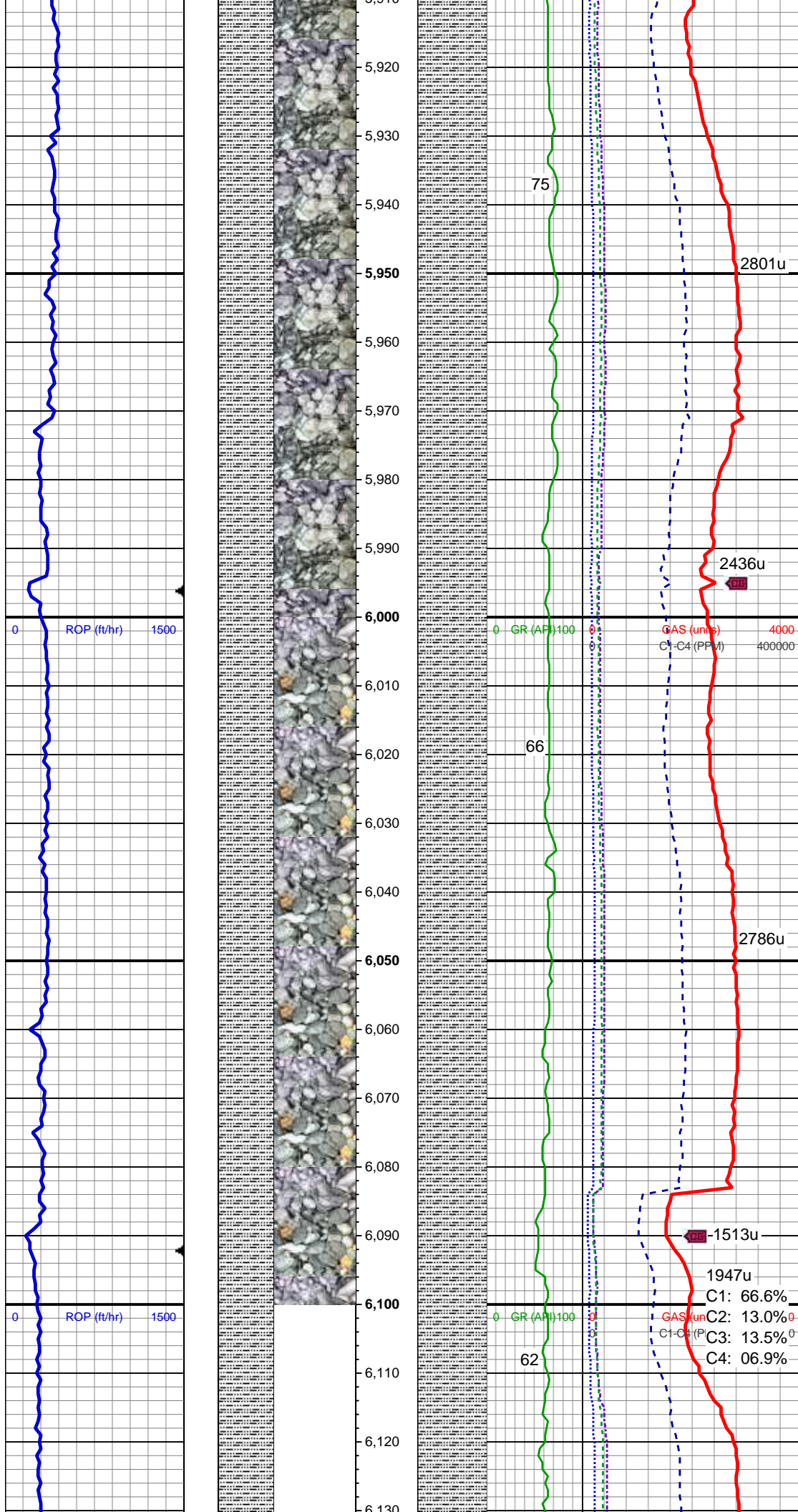
MD: 5,753'  
TVD: 5,752.6'  
Inclination: 1.1 °  
Azimuth: 356.5 °  
VS: -19.64'

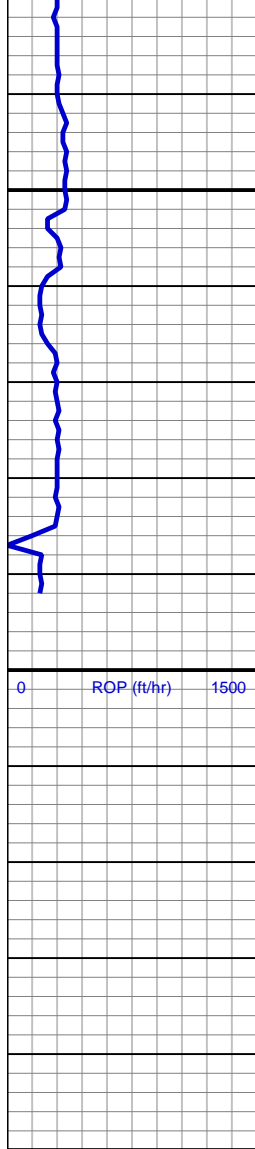
MUD WT 9.60 VIS 42

MD: 5,848'  
TVD: 5,847.58'  
Inclination: 1.2 °  
Azimuth: 354.2 °  
VS: -19.79'

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





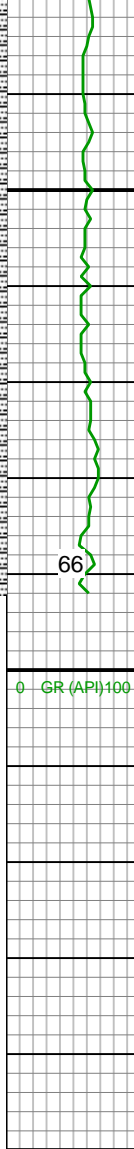


6,130  
6,140  
6,150  
6,160  
6,170  
6,180  
6,190  
6,200  
6,210  
6,220  
6,230  
6,240  
6,250

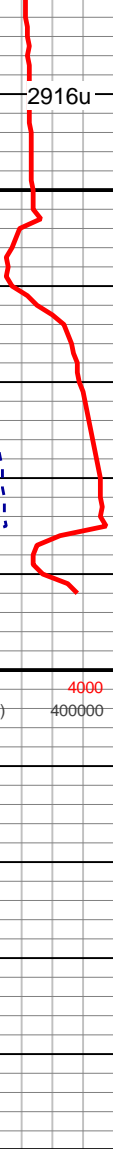
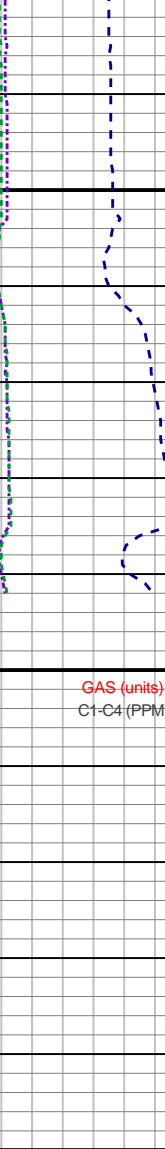


6,130  
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6,130  
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6,160  
6,170  
6,180  
6,190  
6,200  
6,210  
6,220  
6,230  
6,240  
6,250



TVD: 6,138.55'  
Inclination: 0.8 °  
Azimuth: 328.4 °  
VS: -21.39'

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

2916u

66

ROP (ft/hr) 1500

0 GR (API) 100 0 GAS (units) 4000  
0 C1-C4 (PPM) 400000

TD @ 6,192' MD  
06/07/2014 @ 11:23 PM

TOOH FOR CURVE BHA  
LOG CONTINUES ON M PLOT  
"EAGLE E14-65-1HN(HORZ)"

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Columbine Logging Inc.