

Scale: 5" / 100'  
Measured Depth Log

**Well Name** 1-14 Kadau Lotus Operating

**State** Kansas

**County** Cowley

**Country** USA

**Rig Number** Duke 8

**API Number** 15-035-24669

**Drilling Completed** 5/4/2017

**Geographic Region** Mid Cont

**Spud Date** 4/28/2017

**Surface Coordinates** Sec 14 Twp 33s Range 5e

**Ground Elevation** 1,163'

**K.B. Elevation** 1,171'

**Logged Interval** 330' To 3,446'

**Total Depth** 3,446'

**Formation** Mississippi Lime

**Type of Drilling Fluid** Water Base

## Operator

**Company** Lotus Operating

**Address** 100 S. Main, Ste 420  
Wichita, Ks 67202

## Geologist

**Name** Tim Hellman

**Company** Lotus Operating

**Address** 100 S. Main, Ste 420  
Wichita, Ks 67202

## Zone Color Coding

 Oil	 Condensate	 Gas
 Note	 Core	 Pressure
 Error	 Water	 Seal

## Other

**Loggers:** Chad Timkin and Amy Thrailkill

**Services Provided:** 2-Man 24-Hour Mudlogging

**Equipment:** ML-594

**Start Date:** 4/29/2017

**Release Date:** 5/04/2017

**Contractor:** ALS Oil & Gas  
6510 Guhn Road  
Houston, Texas 77010

## Rock Types

<ul style="list-style-type: none"> <li> UNKNOWN</li> <li> ANHYDRITE</li> <li> GYPSUM</li> <li> SALT</li> <li> SIDERITE or LIMONITE</li> <li> LIMESTONE</li> </ul>	<ul style="list-style-type: none"> <li> DOLOMITE</li> <li> CHERT</li> <li> COAL</li> <li> MARLSTONE</li> <li> CHALK</li> <li> SHALE</li> </ul>	<ul style="list-style-type: none"> <li> SHALE GRAY</li> <li> SHALE COLORED</li> <li> SILTSTONE</li> <li> SANDSTONE</li> <li> CONGLOMERATE</li> <li> BRECCIA</li> </ul>	<ul style="list-style-type: none"> <li> TILL</li> <li> BENTONITE</li> <li> TUFF</li> <li> IGNEOUS</li> <li> METAMORPHIC</li> <li> CEMENT</li> </ul>
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## Accessories

### Fossils

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

### F FOSSIL

- GASTROPOD
- 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
- F FENESTRAL
- F FRACTURE
- X INTERCRYSTALLINE
- O INTEROOLITIC
- M MOLDIC

- O ORGANIC
- P PINPOINT
- V VUGGY

### Engineering

- BIT
- CASING
- 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

- A ANGULAR
- R ROUNDED
- B SUBANG
- R SUBRND

### Textures

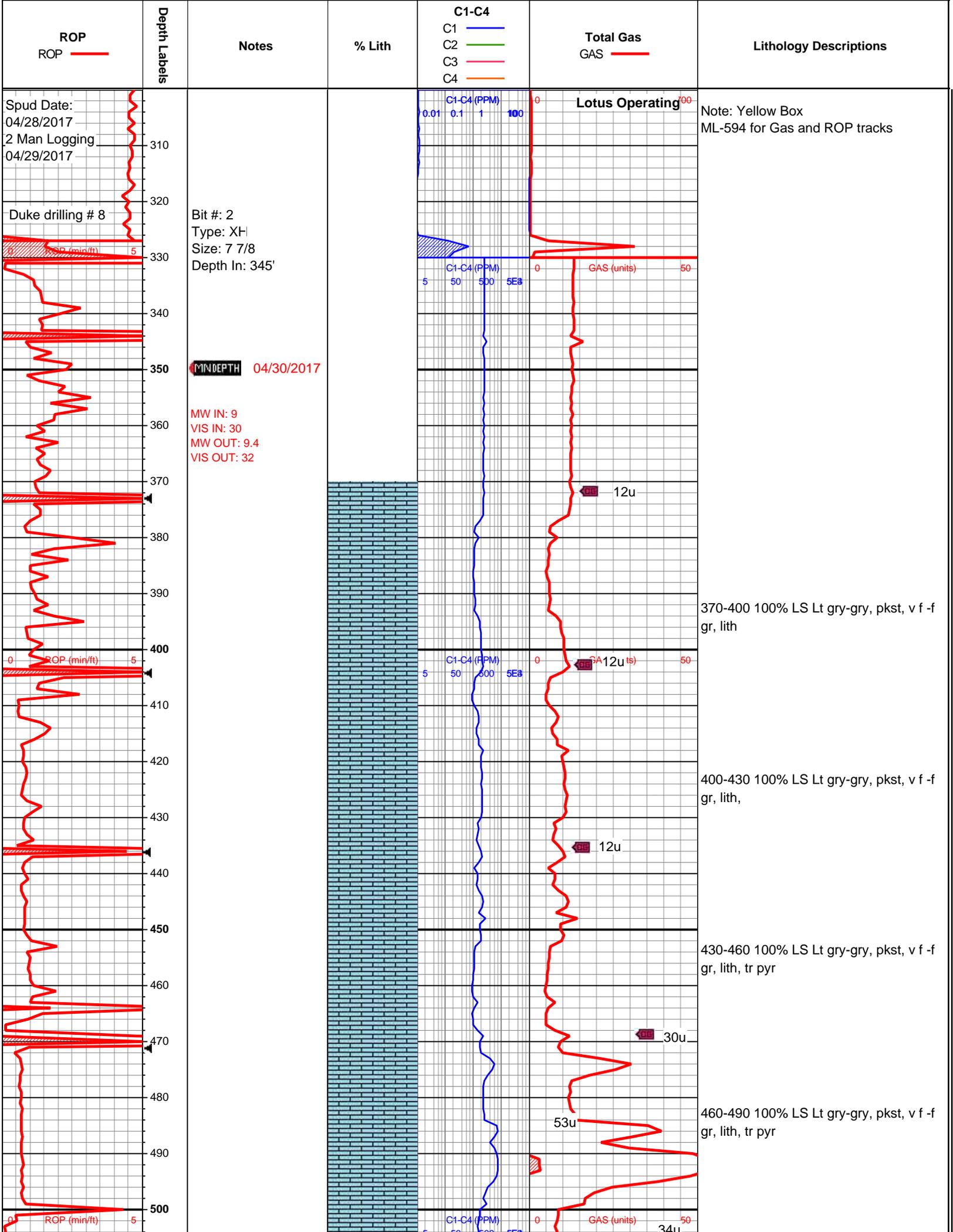
- BS BOUNDSTONE
- C CHALKY
- CX CRYPTOXLN
- E EARTHY
- FX FINELYXLN
- GS GRAINSTONE

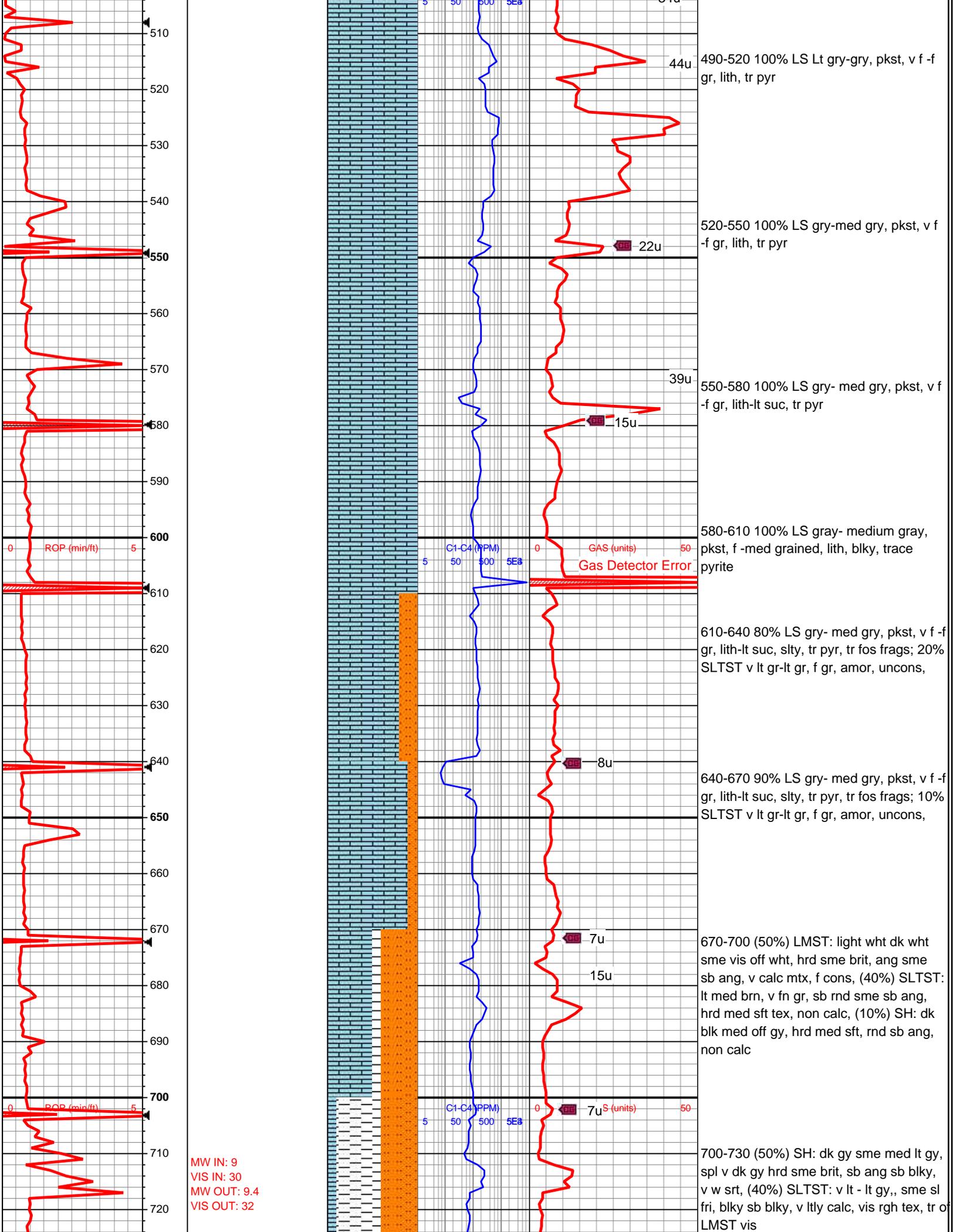
### L LITHOGRAPHIC

- MX MICROXLN
- MS MUDSTONE
- PS PACKSTONE
- WS WACKESTONE

### Sorting

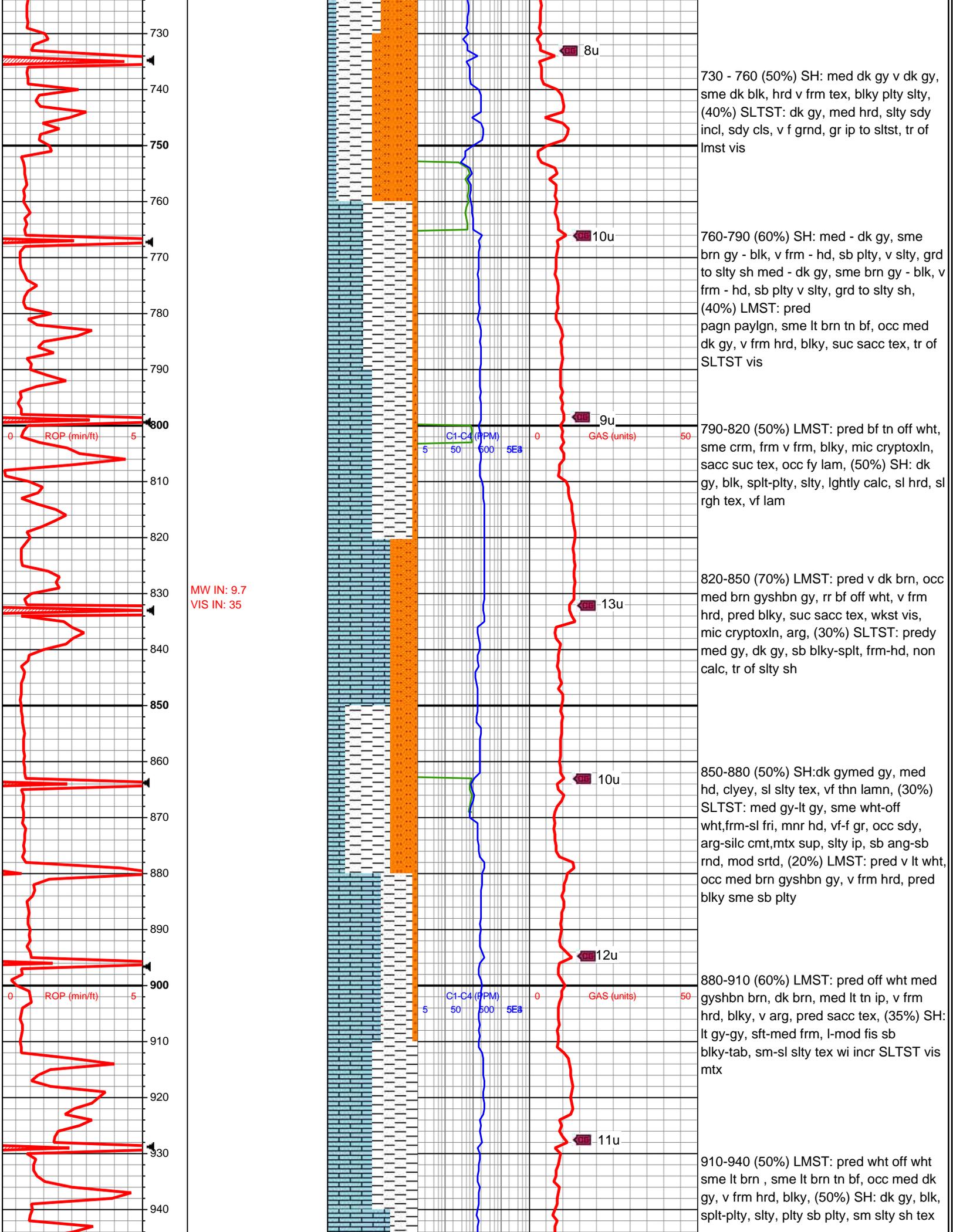
- M MODERATE
- P POOR
- W WELL

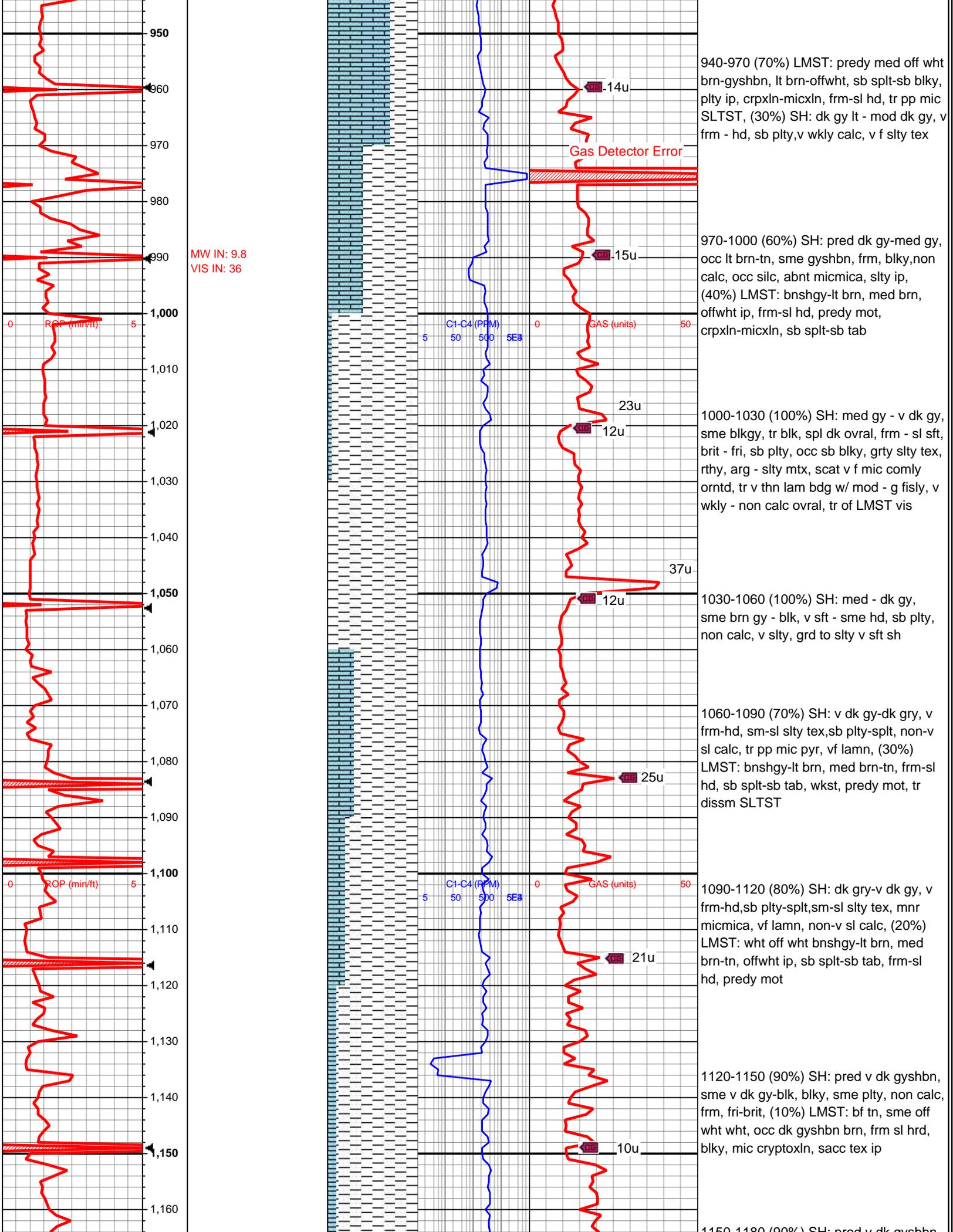


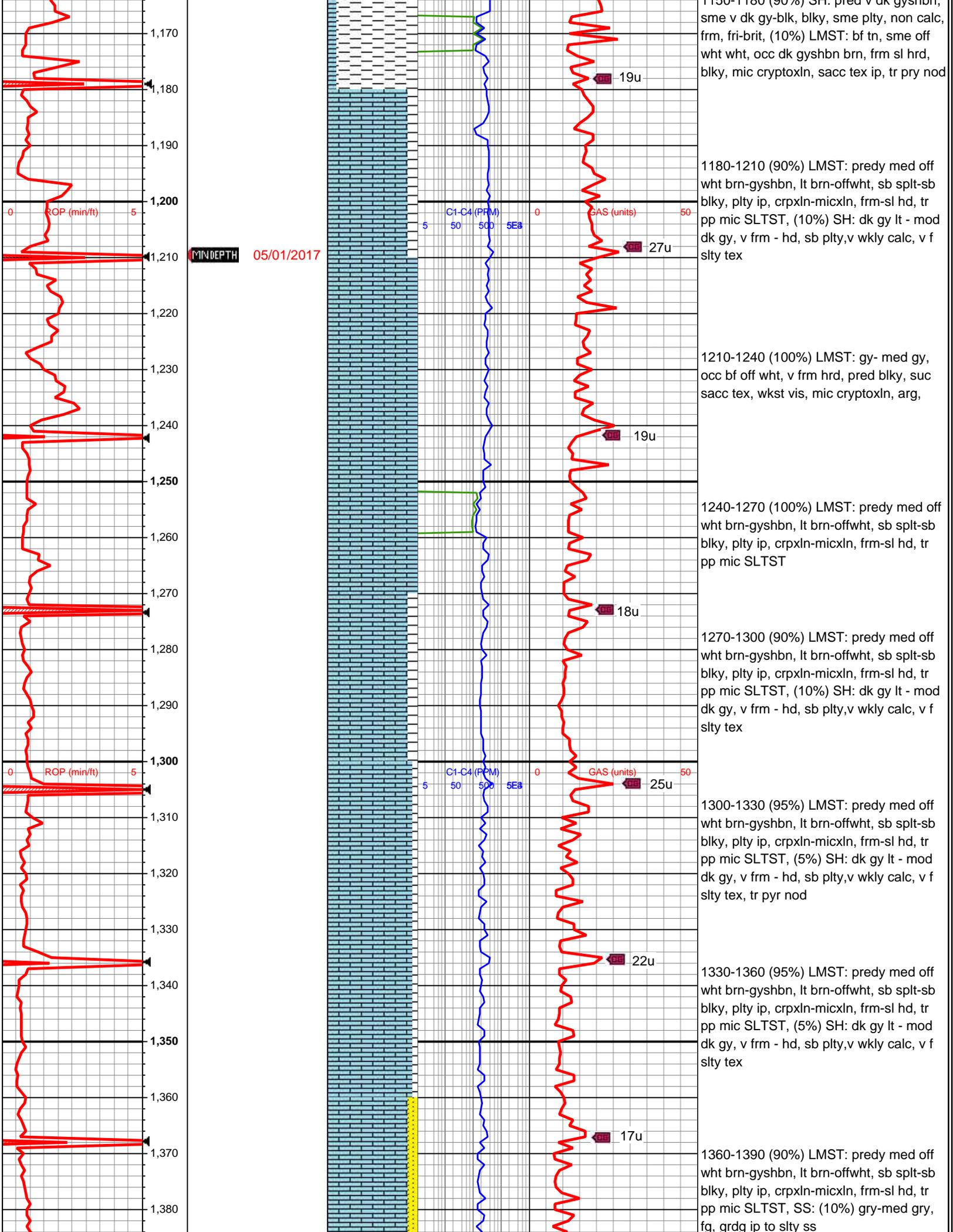


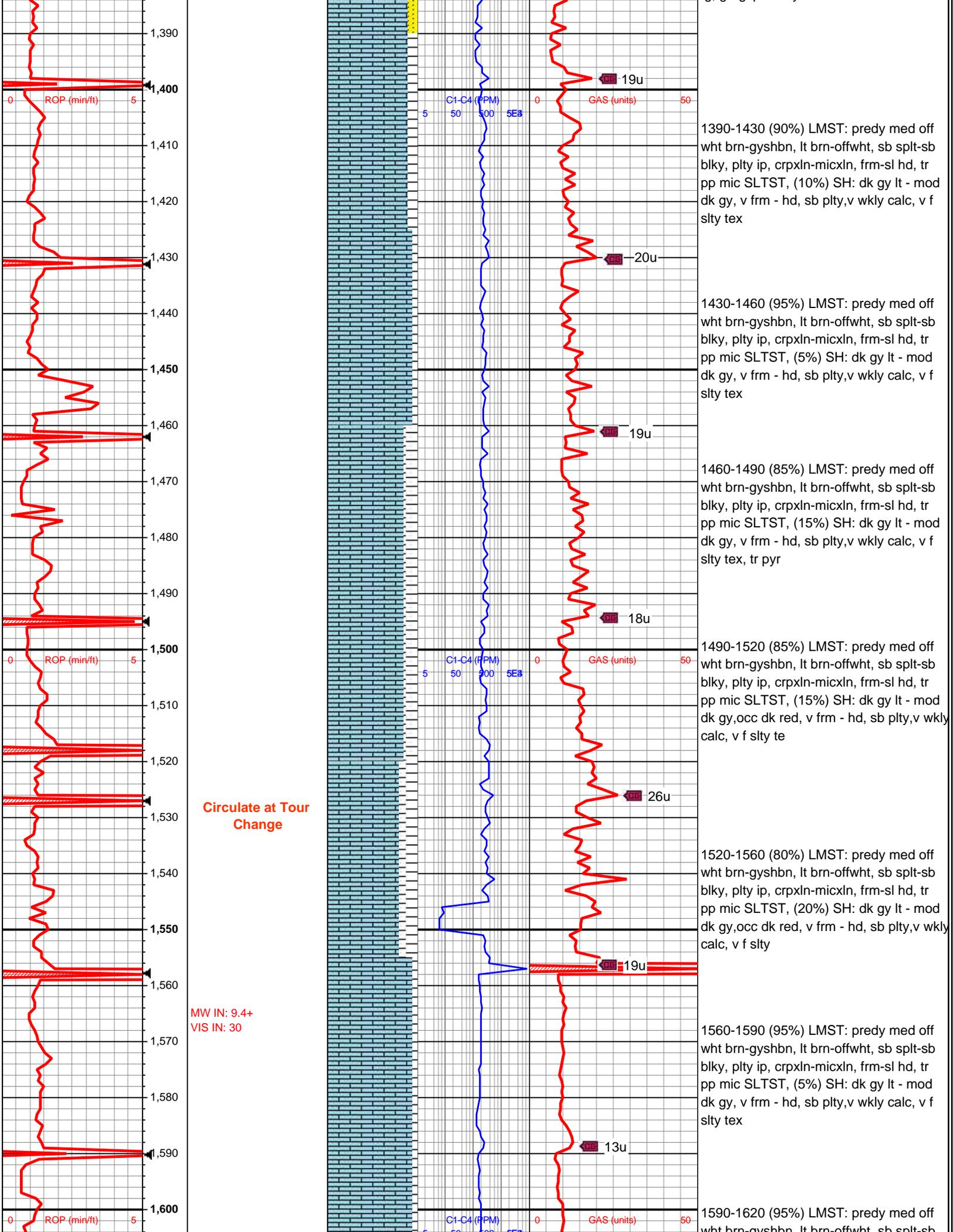
MW IN: 9  
 VIS IN: 30  
 MW OUT: 9.4  
 VIS OUT: 32

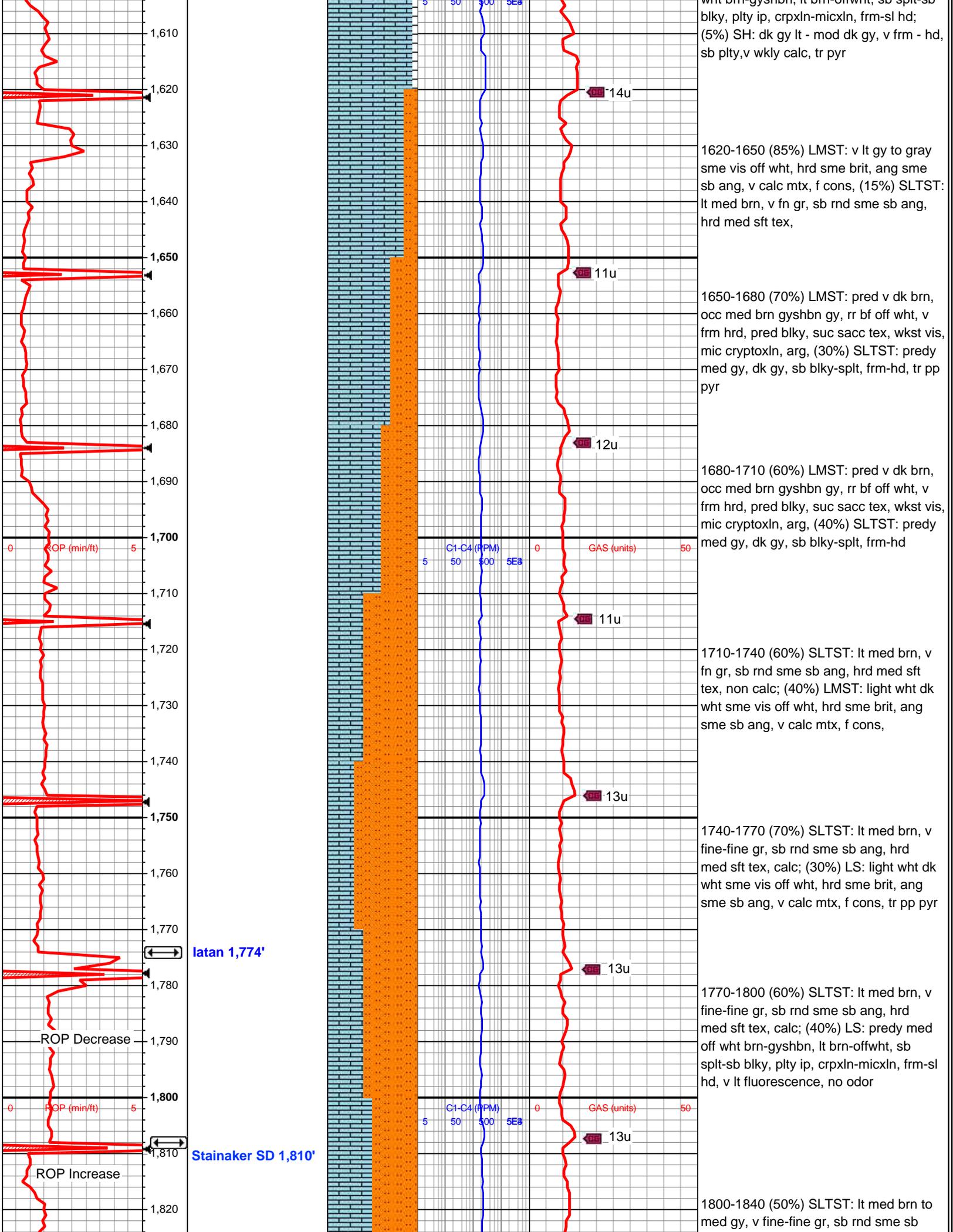
490-520 100% LS Lt gry-gry, pkst, v f -f gr, lith, tr pyr  
 44u  
 520-550 100% LS gry-med gry, pkst, v f -f gr, lith, tr pyr  
 22u  
 550-580 100% LS gry- med gry, pkst, v f -f gr, lith-lt suc, tr pyr  
 39u  
 15u  
 580-610 100% LS gray- medium gray, pkst, f -med grained, lith, blk, trace pyrite  
 Gas Detector Error  
 610-640 80% LS gry- med gry, pkst, v f -f gr, lith-lt suc, slty, tr pyr, tr fos frags; 20% SLTST v lt gr-lt gr, f gr, amor, uncons,  
 8u  
 640-670 90% LS gry- med gry, pkst, v f -f gr, lith-lt suc, slty, tr pyr, tr fos frags; 10% SLTST v lt gr-lt gr, f gr, amor, uncons,  
 7u  
 15u  
 7u  
 670-700 (50%) LMST: light wht dk wht sme vis off wht, hrd sme brit, ang sme sb ang, v calc mtx, f cons, (40%) SLTST: lt med brn, v fn gr, sb rnd sme sb ang, hrd med sft tex, non calc, (10%) SH: dk blk med off gy, hrd med sft, rnd sb ang, non calc  
 7u  
 700-730 (50%) SH: dk gy sme med lt gy, spl v dk gy hrd sme brit, sb ang sb blk, v w srt, (40%) SLTST: v lt - lt gy,, sme sl fri, blk sb blk, v ltly calc, vis rgh tex, tr o LMST vis

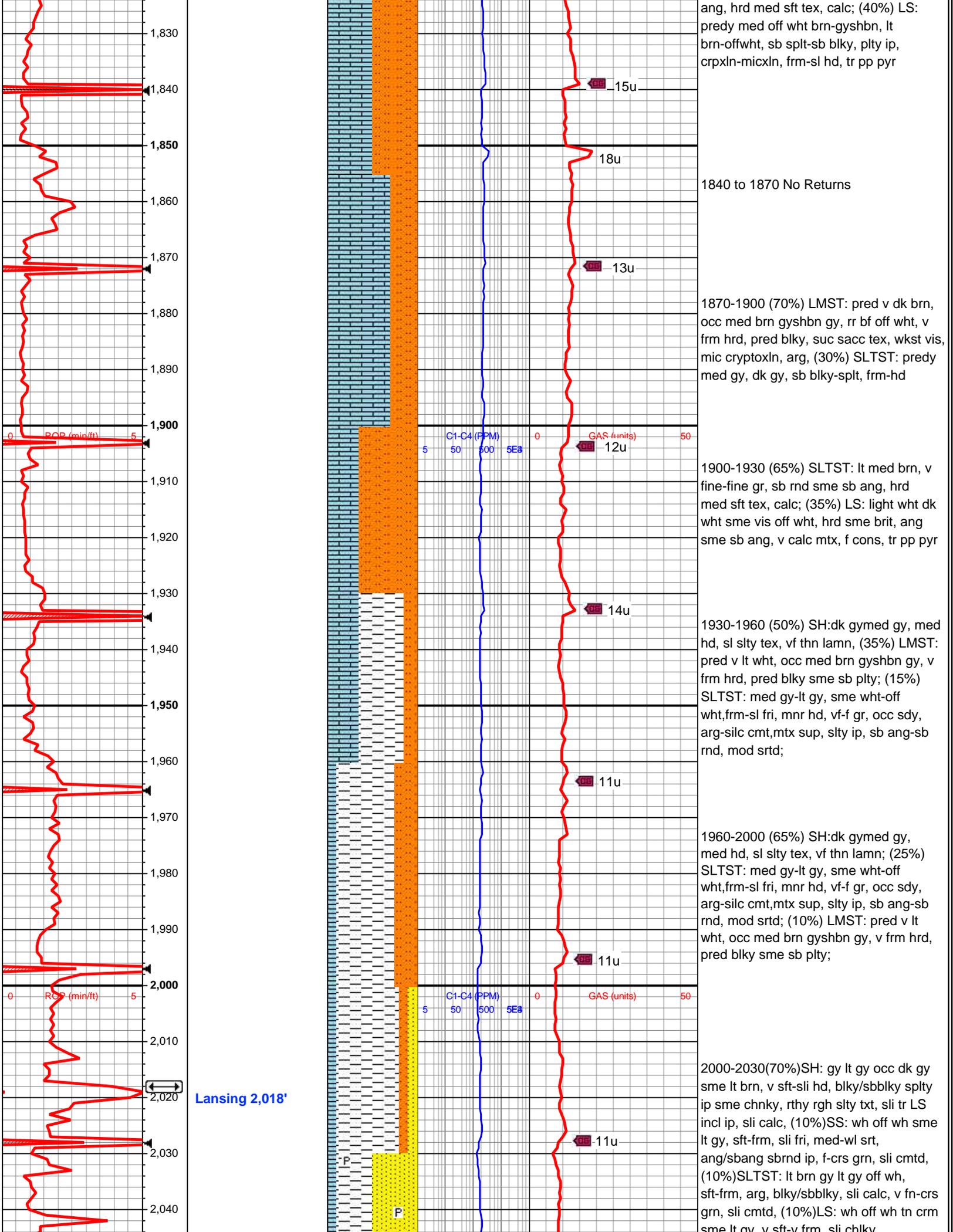


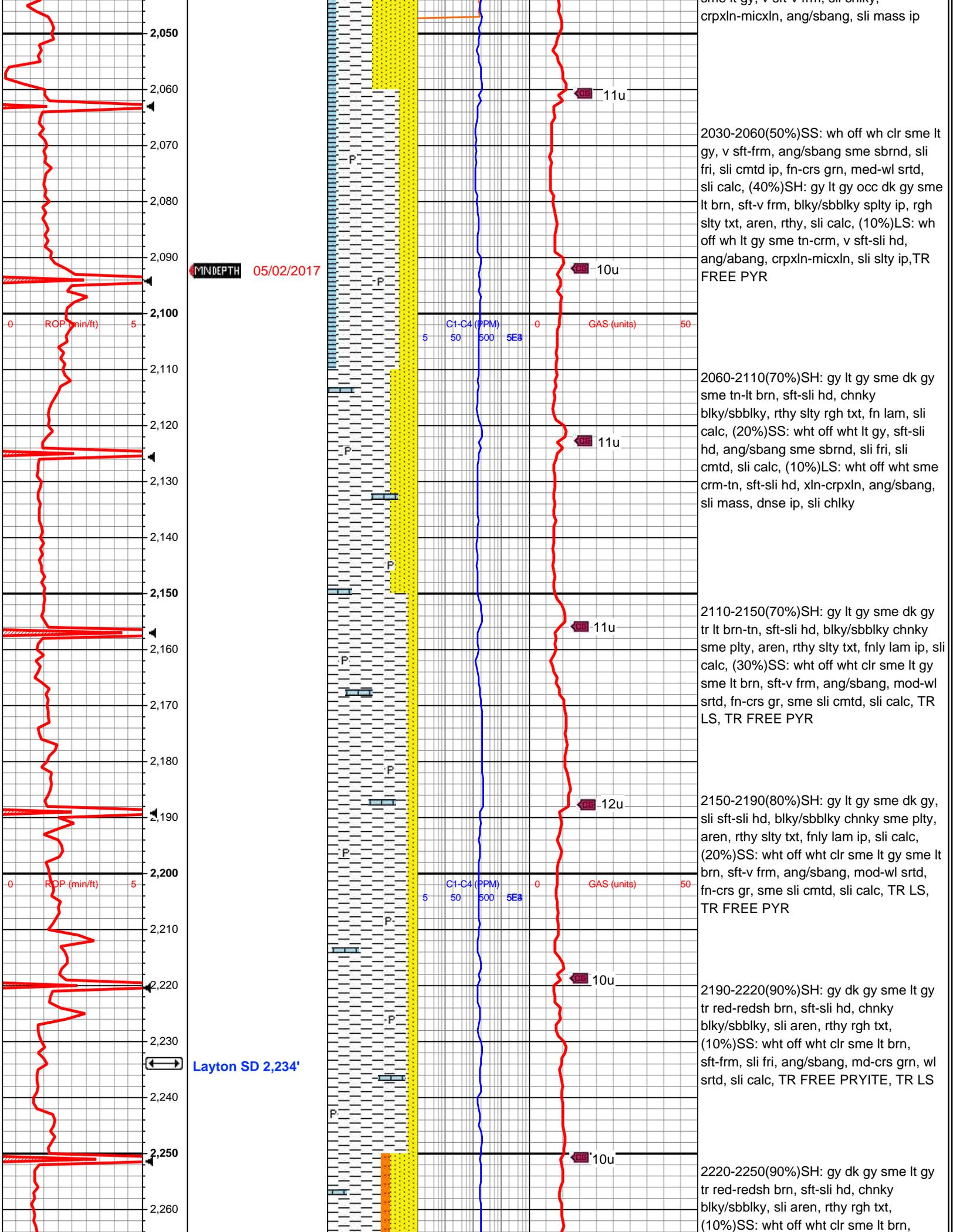


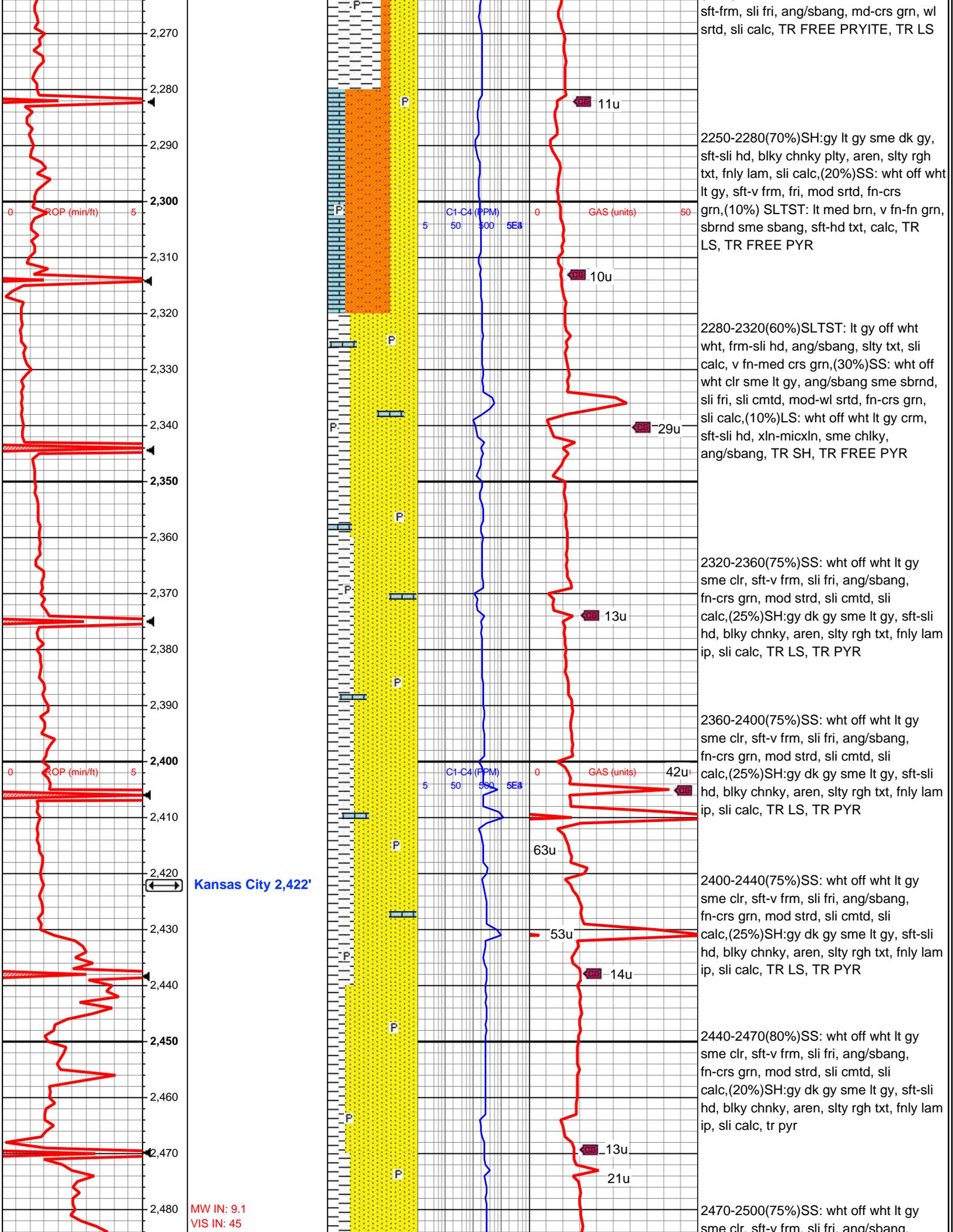


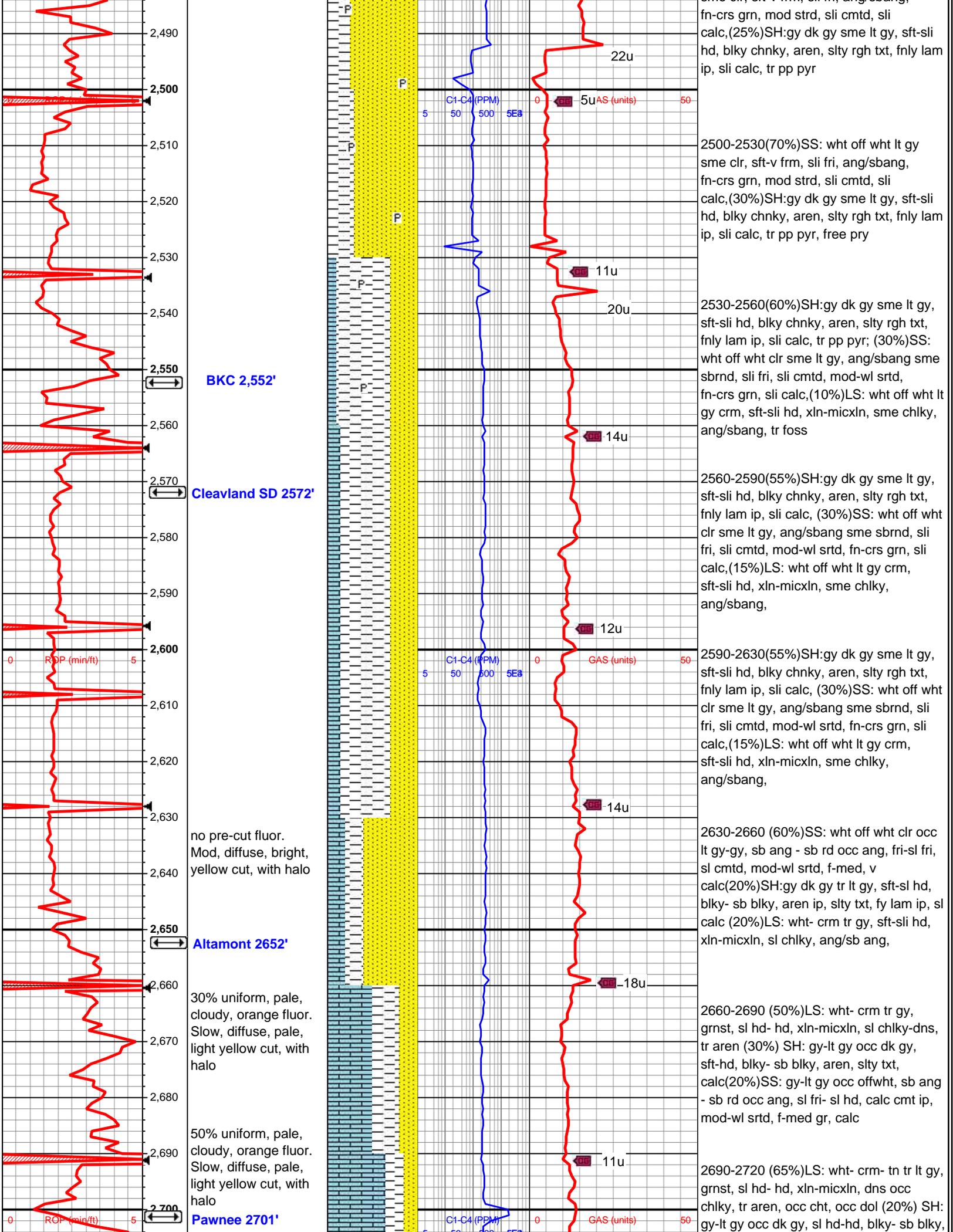


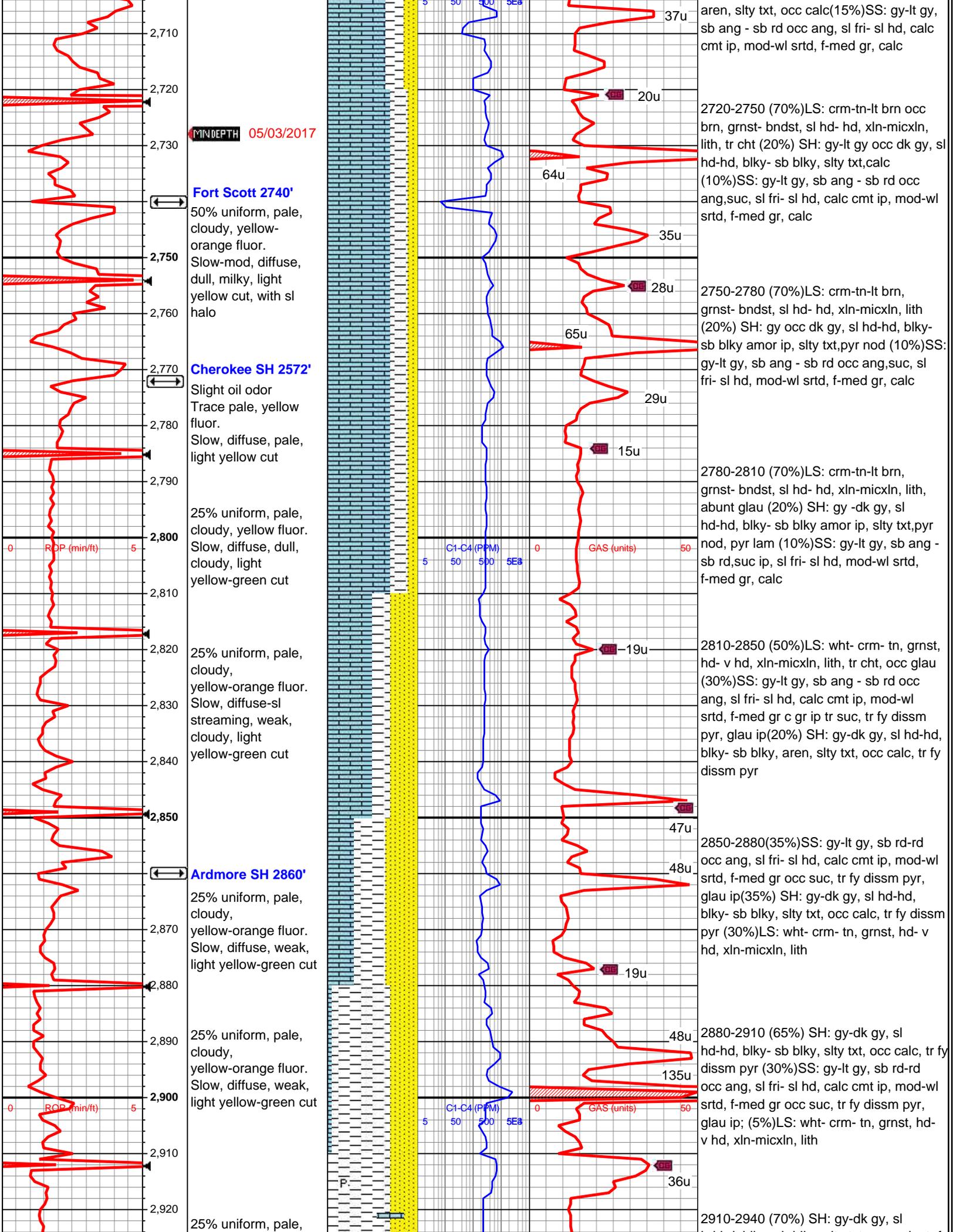


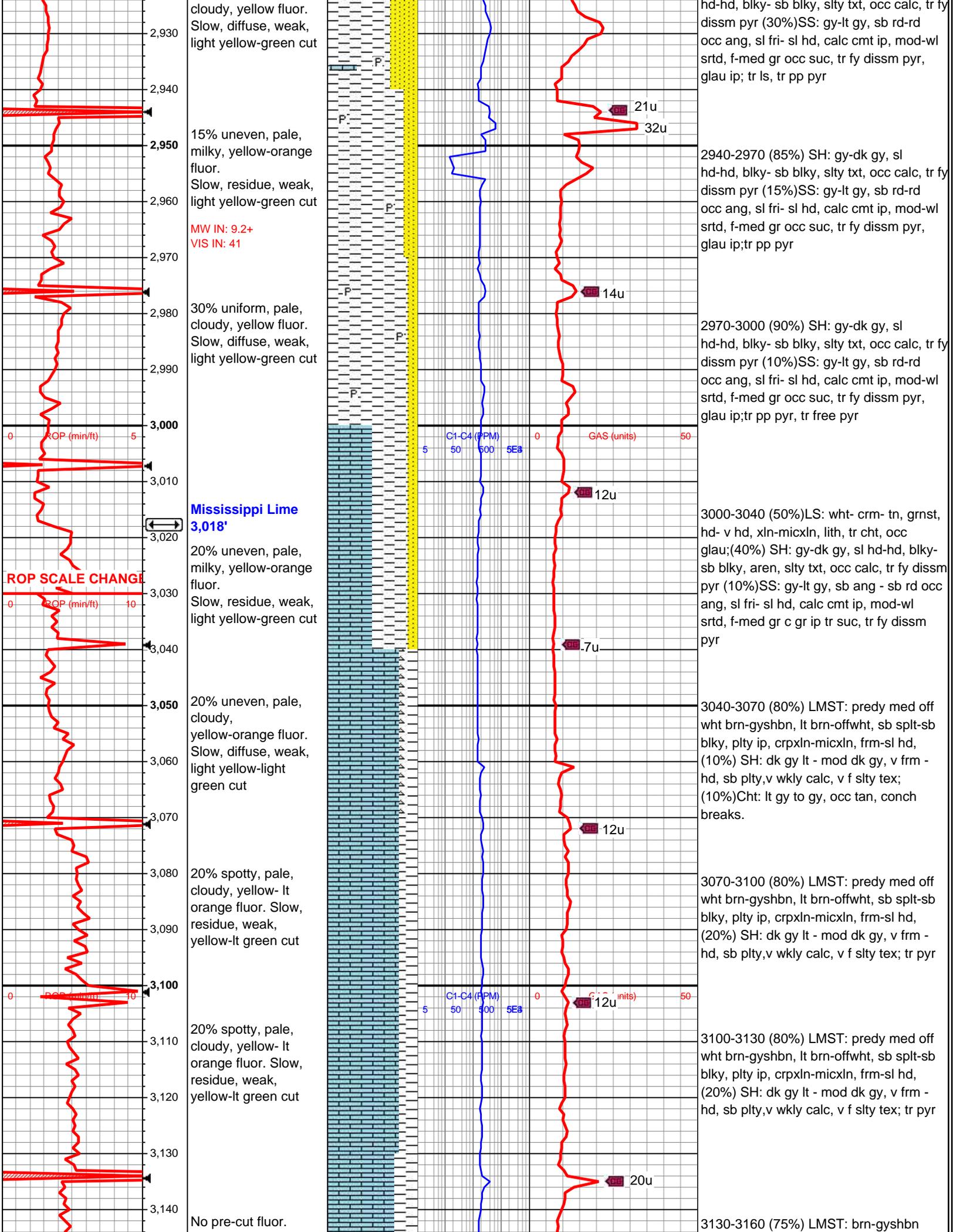


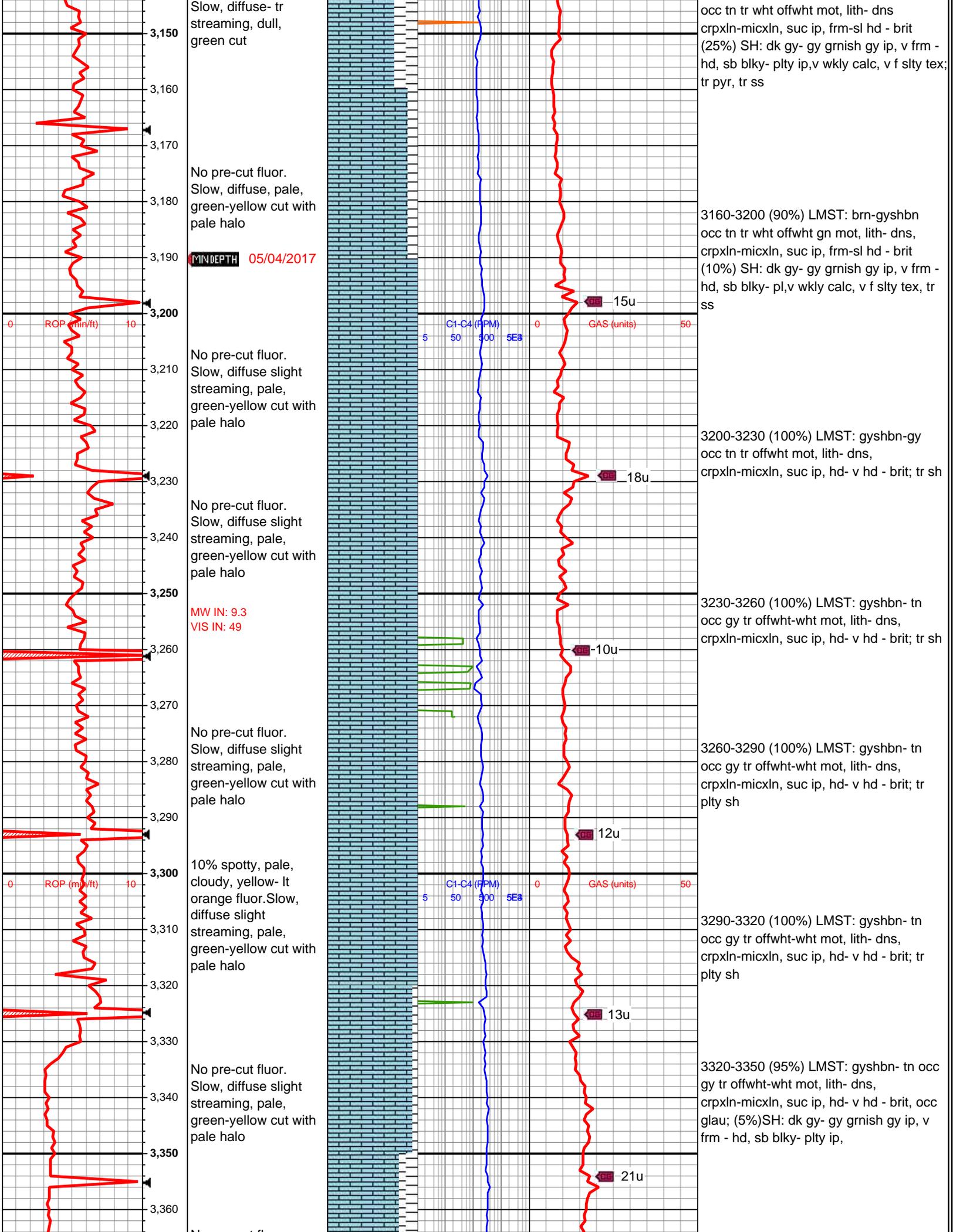












Slow, diffuse- tr streaming, dull, green cut

No pre-cut fluor. Slow, diffuse, pale, green-yellow cut with pale halo

**MINDEPTH** 05/04/2017

No pre-cut fluor. Slow, diffuse slight streaming, pale, green-yellow cut with pale halo

No pre-cut fluor. Slow, diffuse slight streaming, pale, green-yellow cut with pale halo

MW IN: 9.3  
VIS IN: 49

No pre-cut fluor. Slow, diffuse slight streaming, pale, green-yellow cut with pale halo

10% spotty, pale, cloudy, yellow-lt orange fluor. Slow, diffuse slight streaming, pale, green-yellow cut with pale halo

No pre-cut fluor. Slow, diffuse slight streaming, pale, green-yellow cut with pale halo

occ tn tr wht offwht mot, lith- dns crpxln-micxln, suc ip, frm-sl hd - brit (25%) SH: dk gy- gy grnish gy ip, v frm - hd, sb blkly- plty ip, v wkly calc, v f slty tex; tr pyr, tr ss

3160-3200 (90%) LMST: brn-gyshbn occ tn tr wht offwht gn mot, lith- dns, crpxln-micxln, suc ip, frm-sl hd - brit (10%) SH: dk gy- gy grnish gy ip, v frm - hd, sb blkly- plty ip, v wkly calc, v f slty tex, tr ss

3200-3230 (100%) LMST: gyshbn-gy occ tn tr offwht mot, lith- dns, crpxln-micxln, suc ip, hd- v hd - brit; tr sh

3230-3260 (100%) LMST: gyshbn-tn occ gy tr offwht-wht mot, lith- dns, crpxln-micxln, suc ip, hd- v hd - brit; tr sh

3260-3290 (100%) LMST: gyshbn-tn occ gy tr offwht-wht mot, lith- dns, crpxln-micxln, suc ip, hd- v hd - brit; tr plty sh

3290-3320 (100%) LMST: gyshbn-tn occ gy tr offwht-wht mot, lith- dns, crpxln-micxln, suc ip, hd- v hd - brit; tr plty sh

3320-3350 (95%) LMST: gyshbn-tn occ gy tr offwht-wht mot, lith- dns, crpxln-micxln, suc ip, hd- v hd - brit, occ glau; (5%)SH: dk gy- gy grnish gy ip, v frm - hd, sb blkly- plty ip,

ROP (min/ft)

C1-C4 (PPM)

GAS (units)

5 50 300 5E8

0 50

ROP (min/ft)

C1-C4 (PPM)

GAS (units)

5 50 300 5E8

0 50

15u

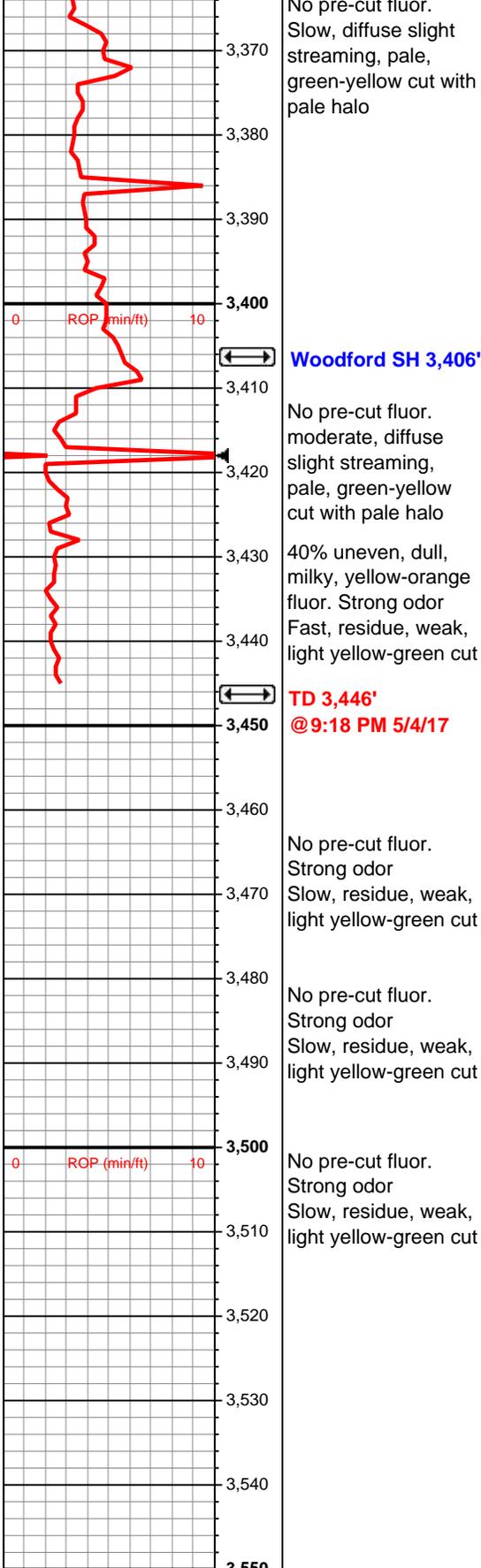
18u

10u

12u

13u

21u



No pre-cut fluor.  
Slow, diffuse slight streaming, pale, green-yellow cut with pale halo

**Woodford SH 3,406'**

No pre-cut fluor.  
moderate, diffuse slight streaming, pale, green-yellow cut with pale halo

40% uneven, dull, milky, yellow-orange fluor. Strong odor  
Fast, residue, weak, light yellow-green cut

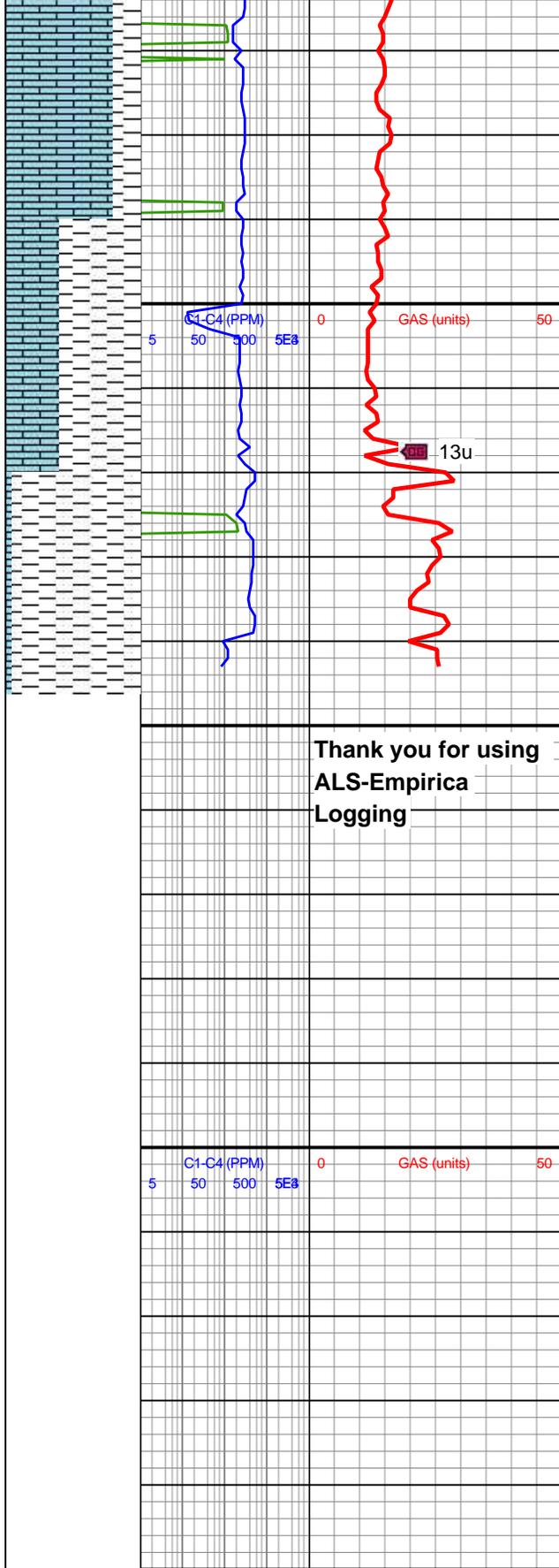
**TD 3,446'**  
**@9:18 PM 5/4/17**

No pre-cut fluor.  
Strong odor

Slow, residue, weak, light yellow-green cut

No pre-cut fluor.  
Strong odor  
Slow, residue, weak, light yellow-green cut

No pre-cut fluor.  
Strong odor  
Slow, residue, weak, light yellow-green cut



3350-3390 (80%) LMST: gyshbn- to gy, w/ offwht-wht mot, lith- dns, crpxln-micxln, hd- v hd - brit, occ glau; (20%)SH: dk gy- gy,grnsh gy ip, v frm - hd, sb blkly- plty ip,

3390-3420 (60%)SH: dk gy- gy,grnsh gy ip, v frm - hd, sb blkly- plty ip,(40%) LMST: gyshbn- to gy, w/ offwht-wht mot, lith- dns, crpxln-micxln, hd- v hd - brit, occ glau;

3420-3446 (95%)SH: dk gy- gy,grnsh gy ip, v frm - hd, sb blkly- plty ip, (5%) LS: gyshbn- to gy, w/ offwht-wht mot, lith- dns, crpxln-micxln, hd- v hd - brit, occ glau;

**Thank you for using ALS-Empirica Logging**

TD 3446 +15min (100%) SH; dk gy-v dk gy, frm-hd, sb blkly-plty

TD 3446 +30min (100%) SH; dk gy-v dk gy, frm-hd, sb blkly-plty

TD 3446 +60min (100%) SH; dk gy-v dk gy, frm-hd, sb blkly-plty