



**Scale: 5" / 100'**  
**Measured Depth Log**

**Well Name** Doe Canyon #14 Vertical (DC-14)

**Location** 35.4 Mi. North of Cortez, CO

**State** CO

**County** Delores

**Country** US

**Rig Number** NABORS 405

**API Number** 05-033-06177-01

**AFE #** 63728

**Region** Colorado

**Field** Doe Canyon Project

**Spud Date** 20JUL2013

**Surface Coordinates** SHL: 987'FSL, 2384' FEL, SEC. 14, T40N, R18W NMPM

**Bottom Hole Coordinates** BHL: 2284' FNL, & 2376' FEL, SEC. 14 T40N, R18W, NMPM, 0 deg Azimuth from SHL (2000' max lateral extension)

**Ground Elevation** 7105'

**K.B. Elevation** 7130.5

**Logged Interval** 106' **To** 8502'

**Total Depth** 8502'

**Formation** Leadville Base

**Type of Drilling Fluid** Fresh Water

## Operator

**Company** KINDER MORGAN CO2 CO., LP

**Address** 17801 HWY 4881  
Colorado

## Geologist

**Name** Leon Walters

**Company** Above Enterprise

510 Old Lubbock HWY  
Snyder, TX 79549

### Rock Types

UNKNOWN	DOLOMITE	SHALE GRAY	TILL
ANHYDRITE	CHERT	SHALE COLORED	BENTONITE
GYPSUM	COAL	SILTSTONE	TUFF
SALT	MARLSTONE	SANDSTONE	IGNEOUS
SIDERITE or LIMONITE	CLAYSTONE	CONGLOMERATE	METAMORPHIC
LIMESTONE	SHALE	BRECCIA	

### 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

#### MOLDIC

- O ORGANIC
- P PINPOINT
- V 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

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

#### Textures

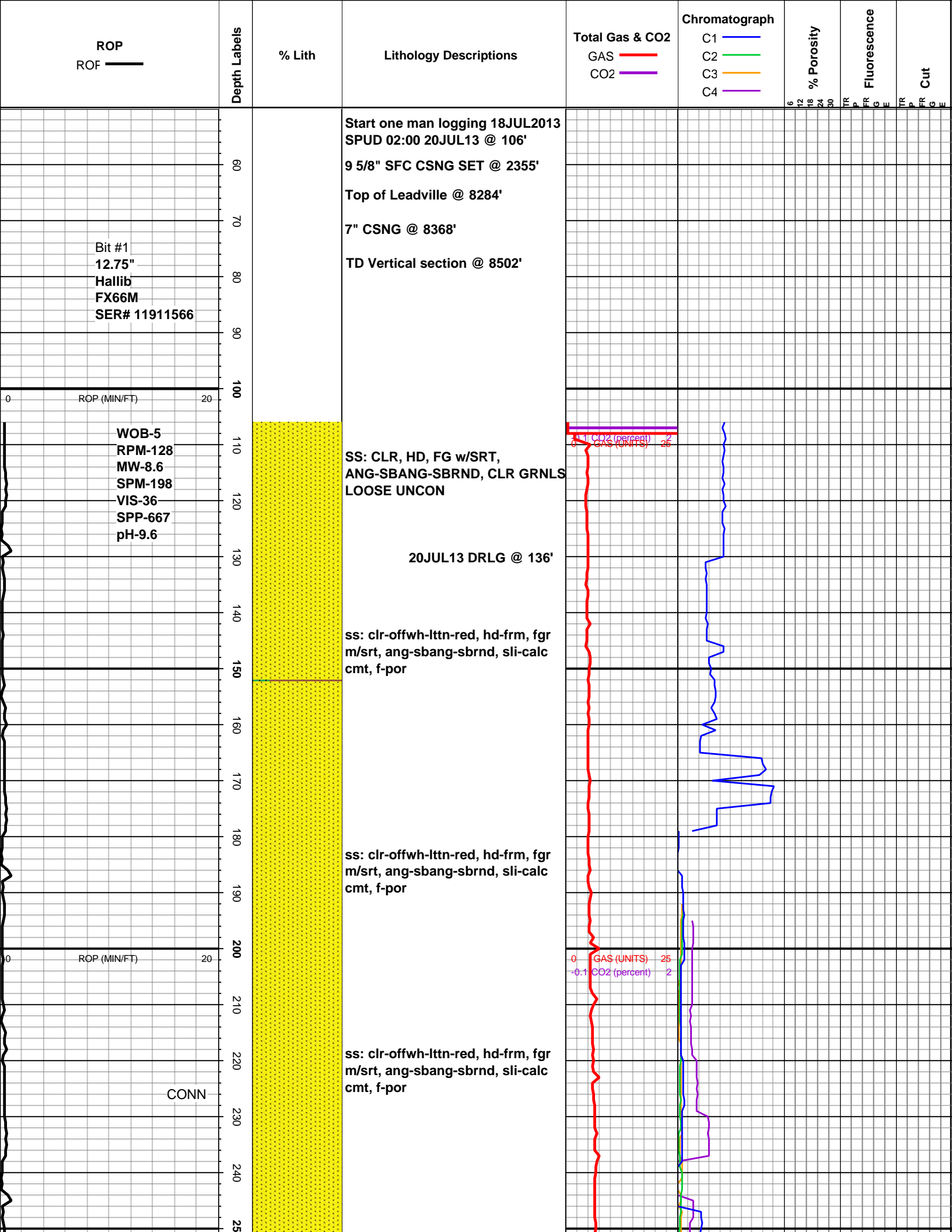
- BS BOUNDSTONE
- C CHALKY
- CX CRYPTOXLN

#### E EARTHY

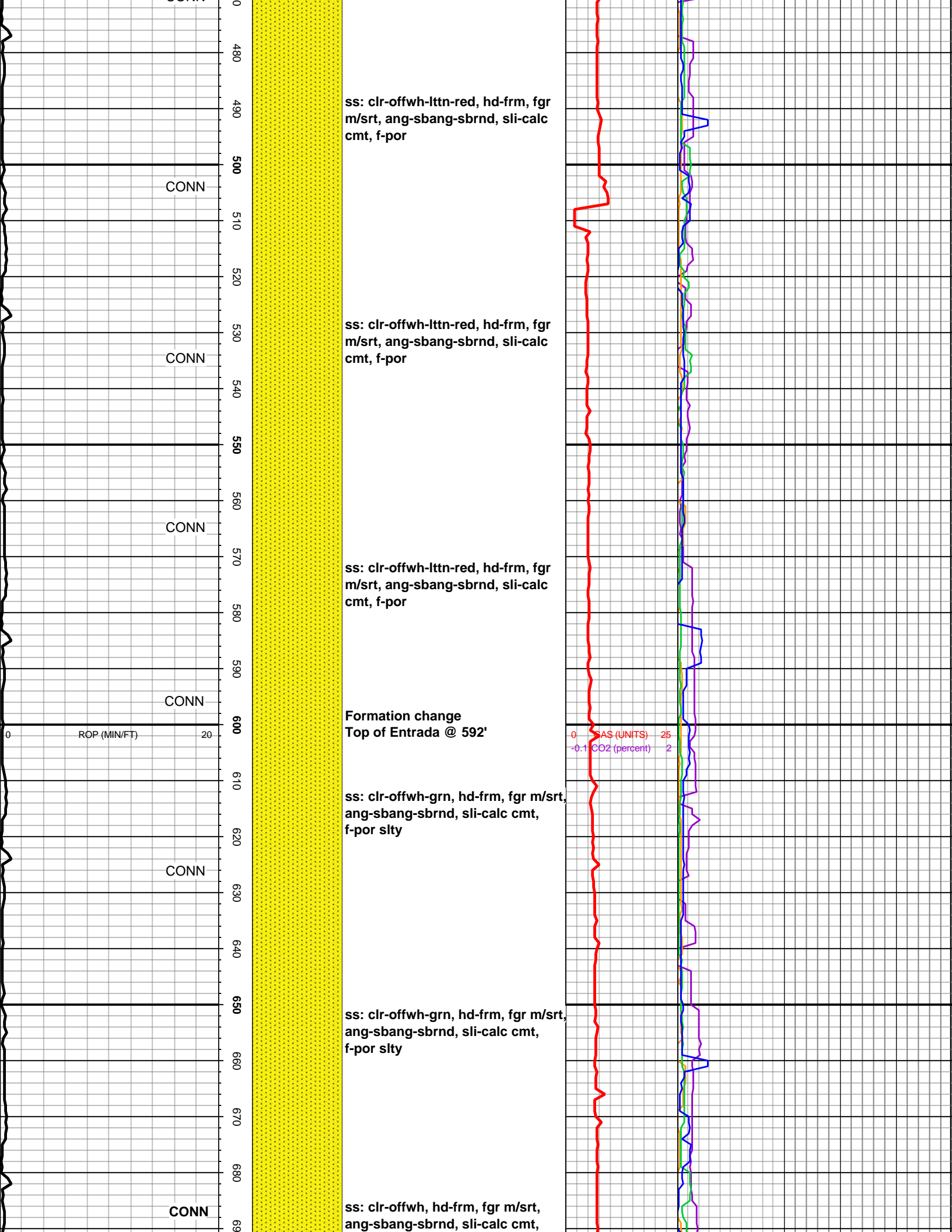
- FX FINELYXLN
- GS GRAINSTONE
- L LITHOGRAPHIC
- MX MICROXLN
- MS MUDSTONE
- PS PACKSTONE
- WS WACKESTONE

#### Sorting

- M MODERATE
- P POOR
- W WELL







0  
480  
490  
500  
510  
520  
530  
540  
550  
560  
570  
580  
590  
600  
610  
620  
630  
640  
650  
660  
670  
680  
690

CONN

CONN

CONN

CONN

CONN

CONN

ss: clr-offwh-lttn-red, hd-frm, fgr m/srt, ang-sbang-sbrnd, sli-calc cmt, f-por

ss: clr-offwh-lttn-red, hd-frm, fgr m/srt, ang-sbang-sbrnd, sli-calc cmt, f-por

ss: clr-offwh-lttn-red, hd-frm, fgr m/srt, ang-sbang-sbrnd, sli-calc cmt, f-por

Formation change  
Top of Entrada @ 592'

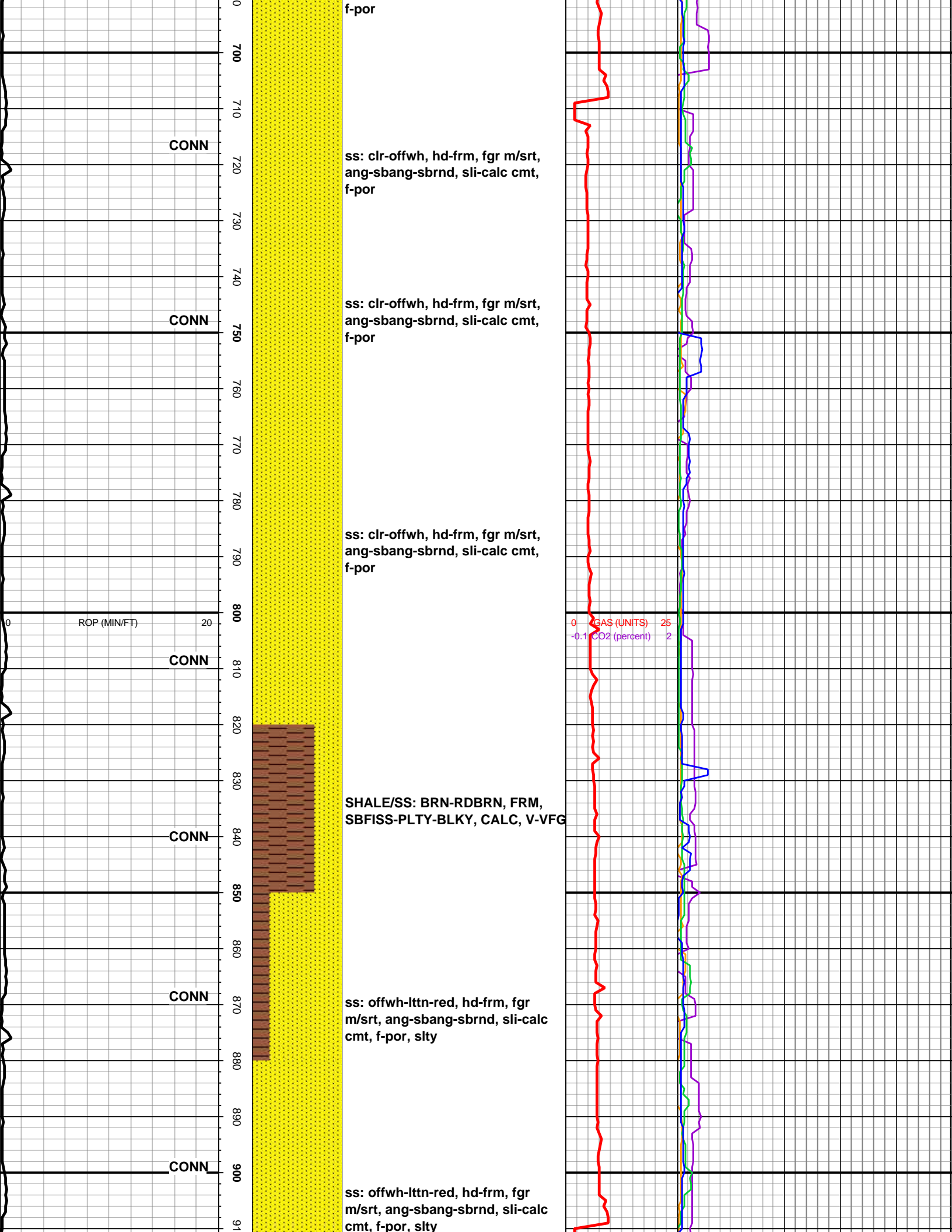
ss: clr-offwh-grn, hd-frm, fgr m/srt, ang-sbang-sbrnd, sli-calc cmt, f-por slty

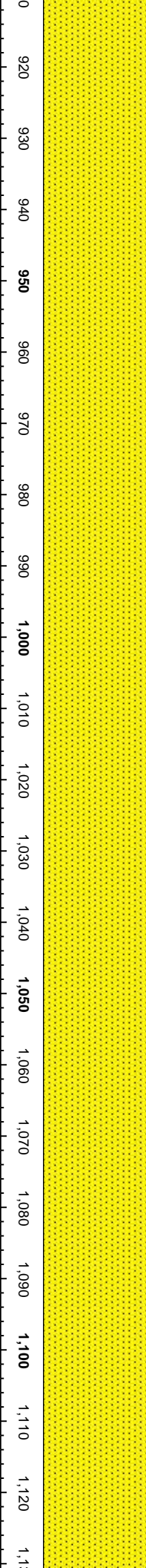
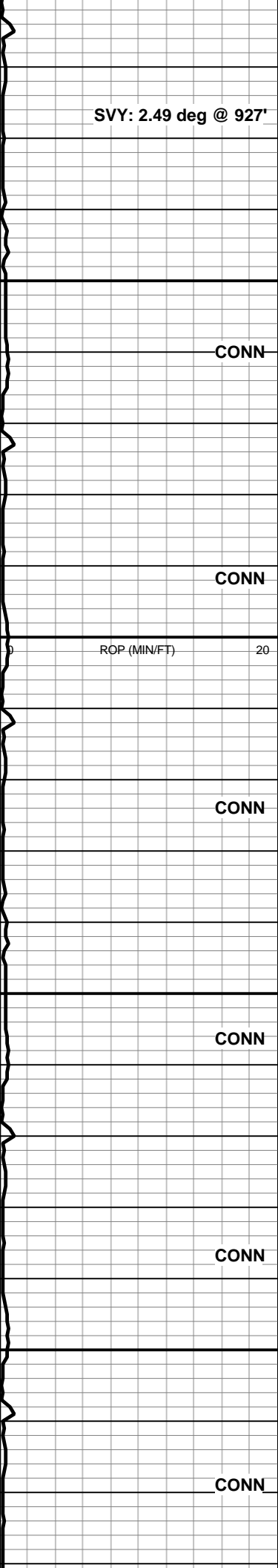
ss: clr-offwh-grn, hd-frm, fgr m/srt, ang-sbang-sbrnd, sli-calc cmt, f-por slty

ss: clr-offwh, hd-frm, fgr m/srt, ang-sbang-sbrnd, sli-calc cmt,

0 SAS (UNITS) 25  
-0.1 CO2 (percent) 2

ROP (MIN/FT) 20





ss: offwh-lttn-red, hd-frn, fgr  
m/srt, ang-sbang-sbrnd, sli-calc  
cmt, f-por, slty

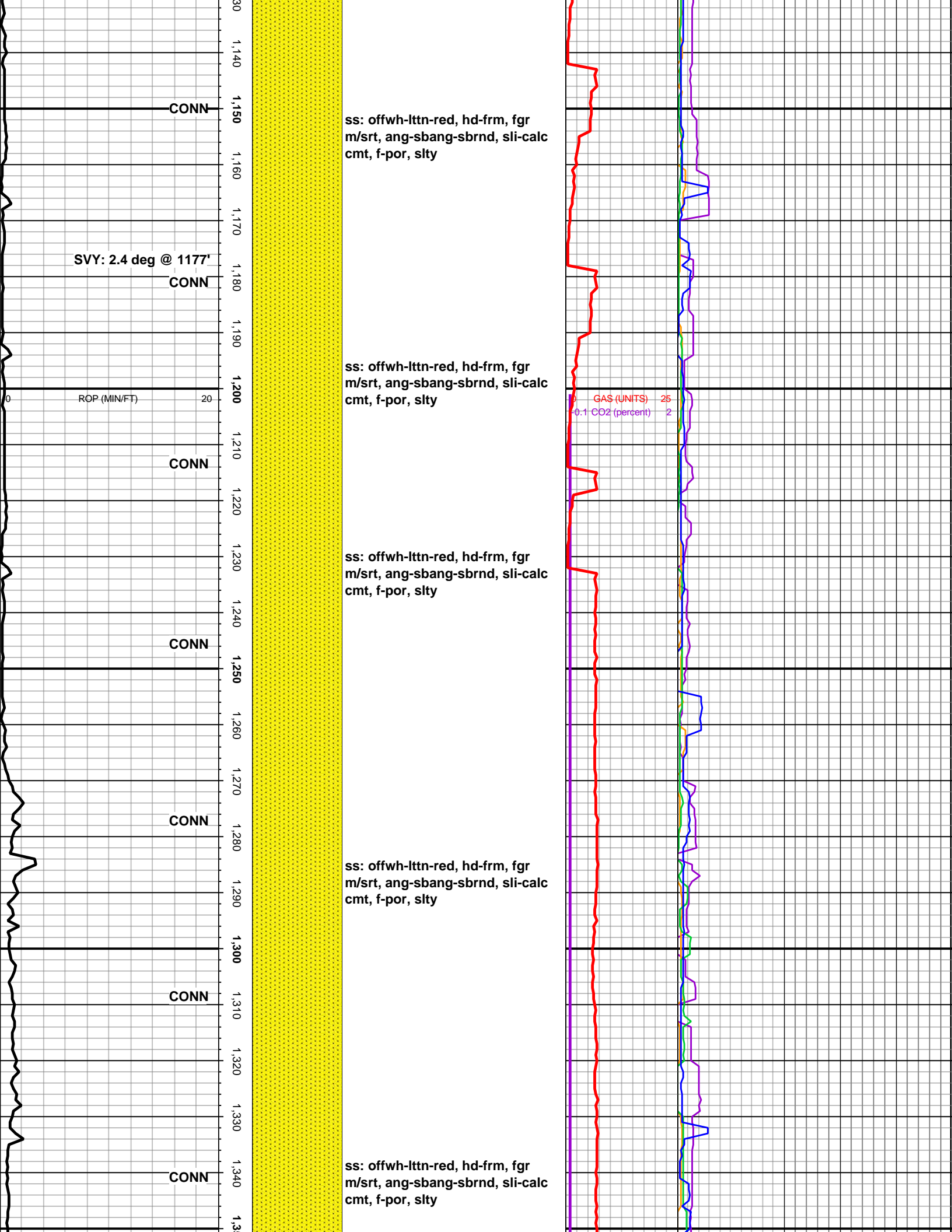
ss: offwh-lttn-red, hd-frn, fgr  
m/srt, ang-sbang-sbrnd, sli-calc  
cmt, f-por, slty

ss: offwh-lttn-red, hd-frn, fgr  
m/srt, ang-sbang-sbrnd, sli-calc  
cmt, f-por, slty

ss: offwh-lttn-red, hd-frn, fgr  
m/srt, ang-sbang-sbrnd, sli-calc  
cmt, f-por, slty

ss: offwh-lttn-red, hd-frn, fgr  
m/srt, ang-sbang-sbrnd, sli-calc  
cmt, f-por, slty





CONN

ss: offwh-lttn-red, hd-frm, fgr  
m/srt, ang-sbang-sbrnd, sli-calc  
cmt, f-por, slty

SVY: 2.4 deg @ 1177'

CONN

ss: offwh-lttn-red, hd-frm, fgr  
m/srt, ang-sbang-sbrnd, sli-calc  
cmt, f-por, slty

ROP (MIN/FT) 20

CONN

ss: offwh-lttn-red, hd-frm, fgr  
m/srt, ang-sbang-sbrnd, sli-calc  
cmt, f-por, slty

CONN

CONN

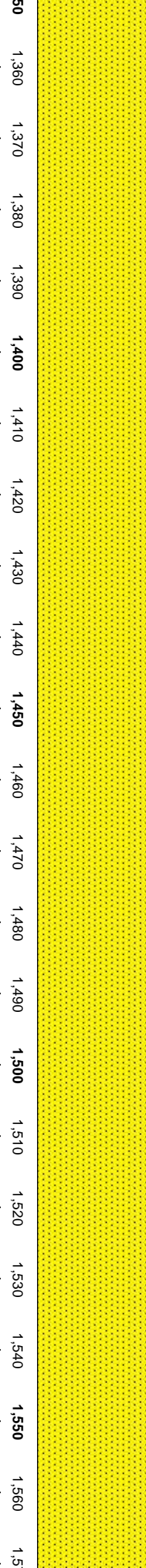
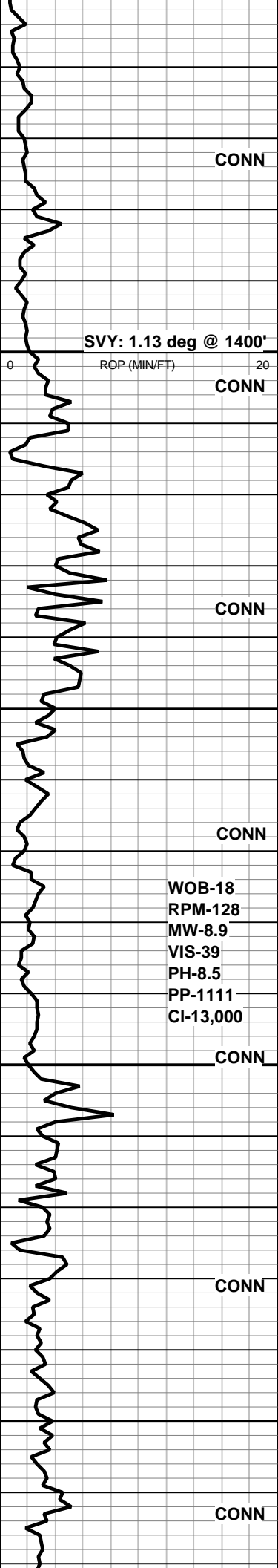
ss: offwh-lttn-red, hd-frm, fgr  
m/srt, ang-sbang-sbrnd, sli-calc  
cmt, f-por, slty

CONN

CONN

ss: offwh-lttn-red, hd-frm, fgr  
m/srt, ang-sbang-sbrnd, sli-calc  
cmt, f-por, slty

GAS (UNITS) 25  
0.1 CO2 (percent) 2



ss: offwh-lttn-red, hd-frm, fgr  
m/srt, ang-sbang-sbrnd, sli-calc  
cmt, f-por, slty

SVY: 1.13 deg @ 1400'

ss: offwh-lttn-red, hd-frm, fgr  
m/srt, ang-sbang-sbrnd, sli-calc  
cmt, f-por, slty

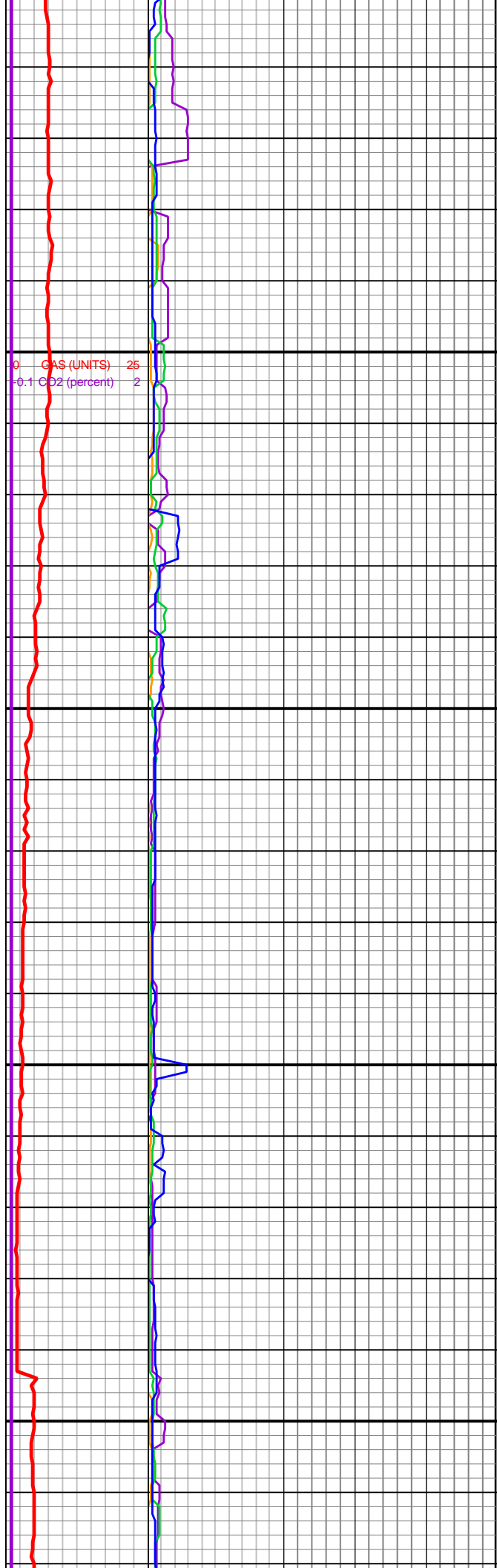
ss: offwh-lttn-red, hd-frm, fgr  
m/srt, ang-sbang-sbrnd, sli-calc  
cmt, f-por, slty

WOB-18  
RPM-128  
MW-8.9  
VIS-39  
PH-8.5  
PP-1111  
CI-13,000

22JUL13 DRLG @ 1490'

ss: offwh-lttn-red, hd-frm, fgr  
m/srt, ang-sbang-sbrnd, sli-calc  
cmt, f-por, slty

ss: offwh-lttn-red, hd-frm, fgr  
m/srt, ang-sbang-sbrnd, sli-calc  
cmt, f-por, slty



CONN

CONN

CONN

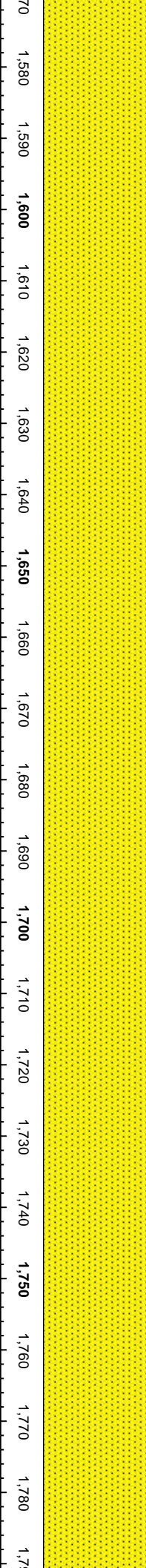
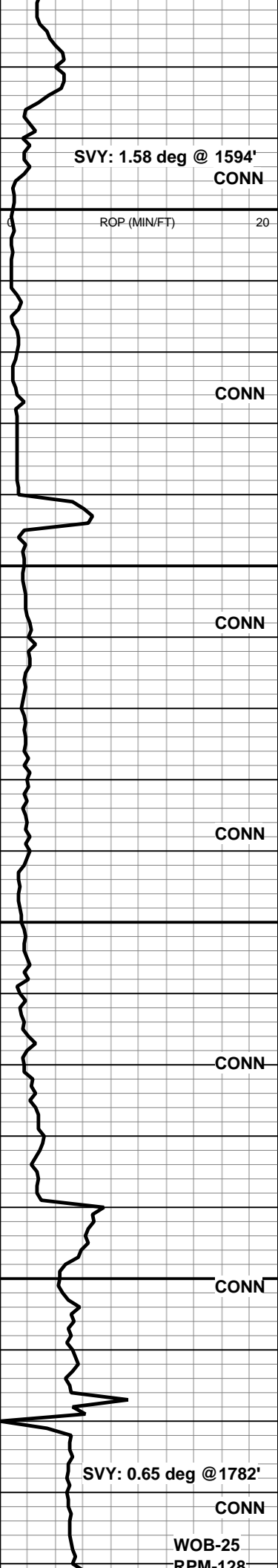
CONN

CONN

CONN

CONN

1,360  
1,370  
1,380  
1,390  
1,400  
1,410  
1,420  
1,430  
1,440  
1,450  
1,460  
1,470  
1,480  
1,490  
1,500  
1,510  
1,520  
1,530  
1,540  
1,550  
1,560  
1,5



ss: offwh-lttn-red, hd-frm, fgr  
m/srt, ang-sbang-sbrnd, sli-calc  
cmt, f-por, slty

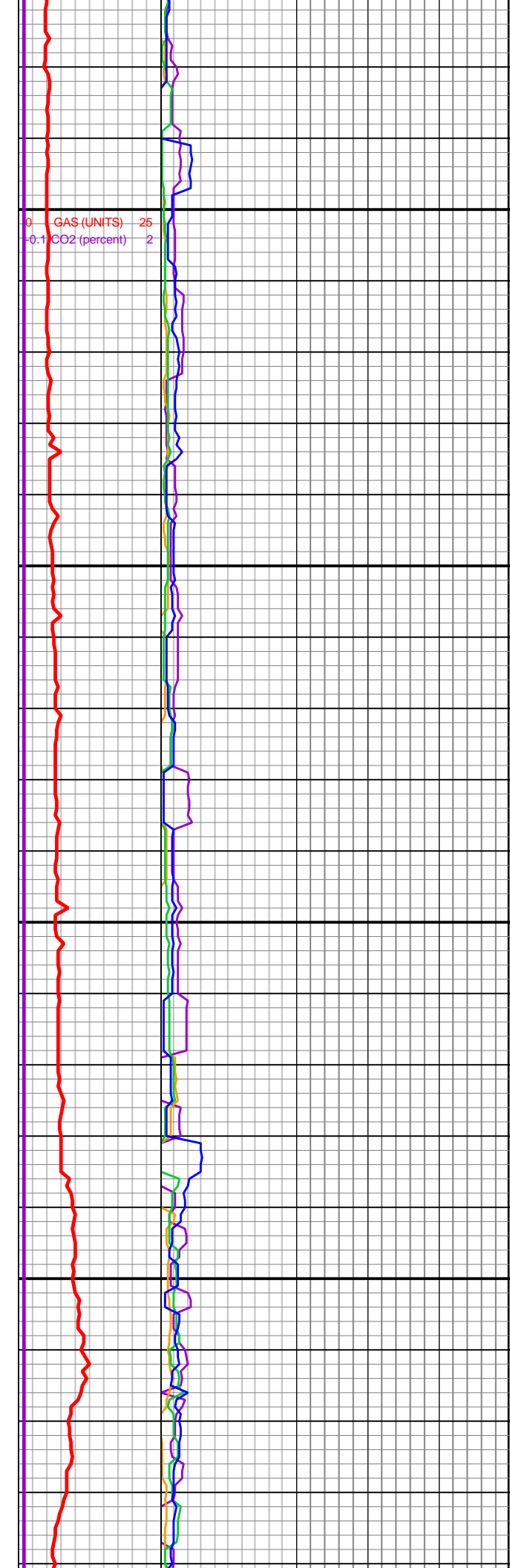
ss: offwh-lttn-red, hd-frm, fgr  
m/srt, ang-sbang-sbrnd, sli-calc  
cmt, f-por, slty

ss: offwh-lttn-red, hd-frm, fgr  
m/srt, ang-sbang-sbrnd, sli-calc  
cmt, f-por, slty

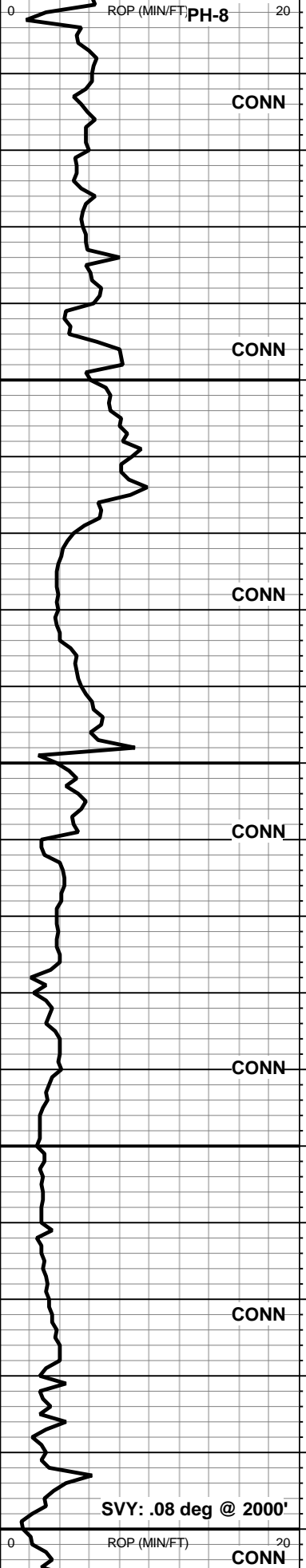
ss: offwh-lttn-red, hd-frm, fgr  
m/srt, ang-sbang-sbrnd, sli-calc  
cmt, f-por, slty

ss: offwh-lttn-red, hd-frm, fgr  
m/srt, ang-sbang-sbrnd, sli-calc  
cmt, f-por, slty

ss: offwh-lttn-red, hd-frm, fgr  
m/srt, ang-sbang-sbrnd, sli-calc  
cmt, f-por, slty



RT M-120  
MW-8.7  
VIS-34  
SPP-1171  
PH-8



ss: offwh-lttn-red, hd-frm, fgr  
m/srt, ang-sbang-sbrnd, sli-calc  
cmt, f-por, slty

ss: offwh-lttn-red, hd-frm, fgr  
m/srt, ang-sbang-sbrnd, sli-calc  
cmt, f-por, slty

ss: offwh-lttn-red, hd-frm, fgr  
m/srt, ang-sbang-sbrnd, sli-calc  
cmt, f-por, slty

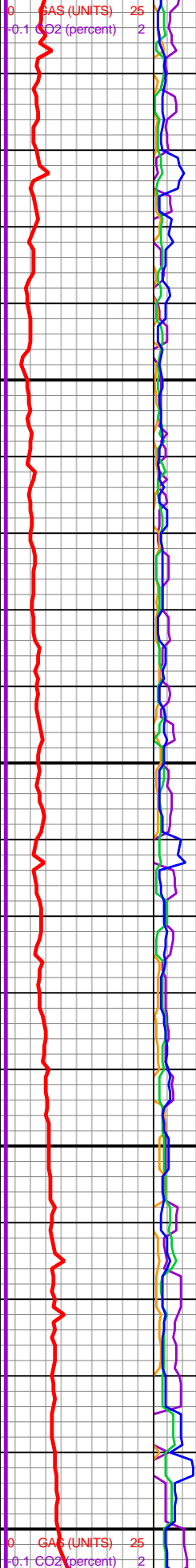
ss: offwh-lttn-red, hd-frm, fgr  
m/srt, ang-sbang-sbrnd, sli-calc  
cmt, f-por, slty

ss: offwh-lttn-red, hd-frm, fgr  
m/srt, ang-sbang-sbrnd, sli-calc  
cmt, f-por, slty

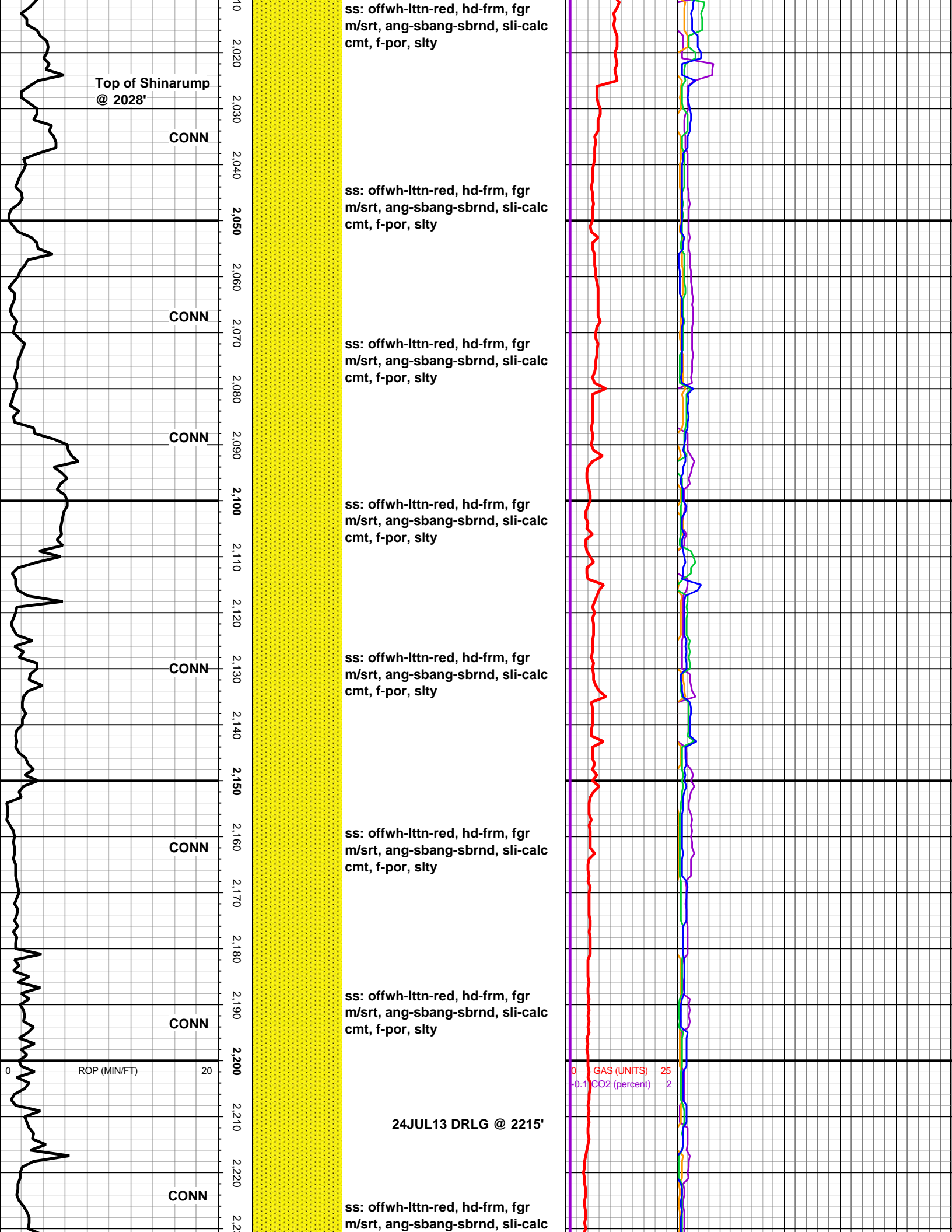
ss: offwh-lttn-red, hd-frm, fgr  
m/srt, ang-sbang-sbrnd, sli-calc  
cmt, f-por, slty

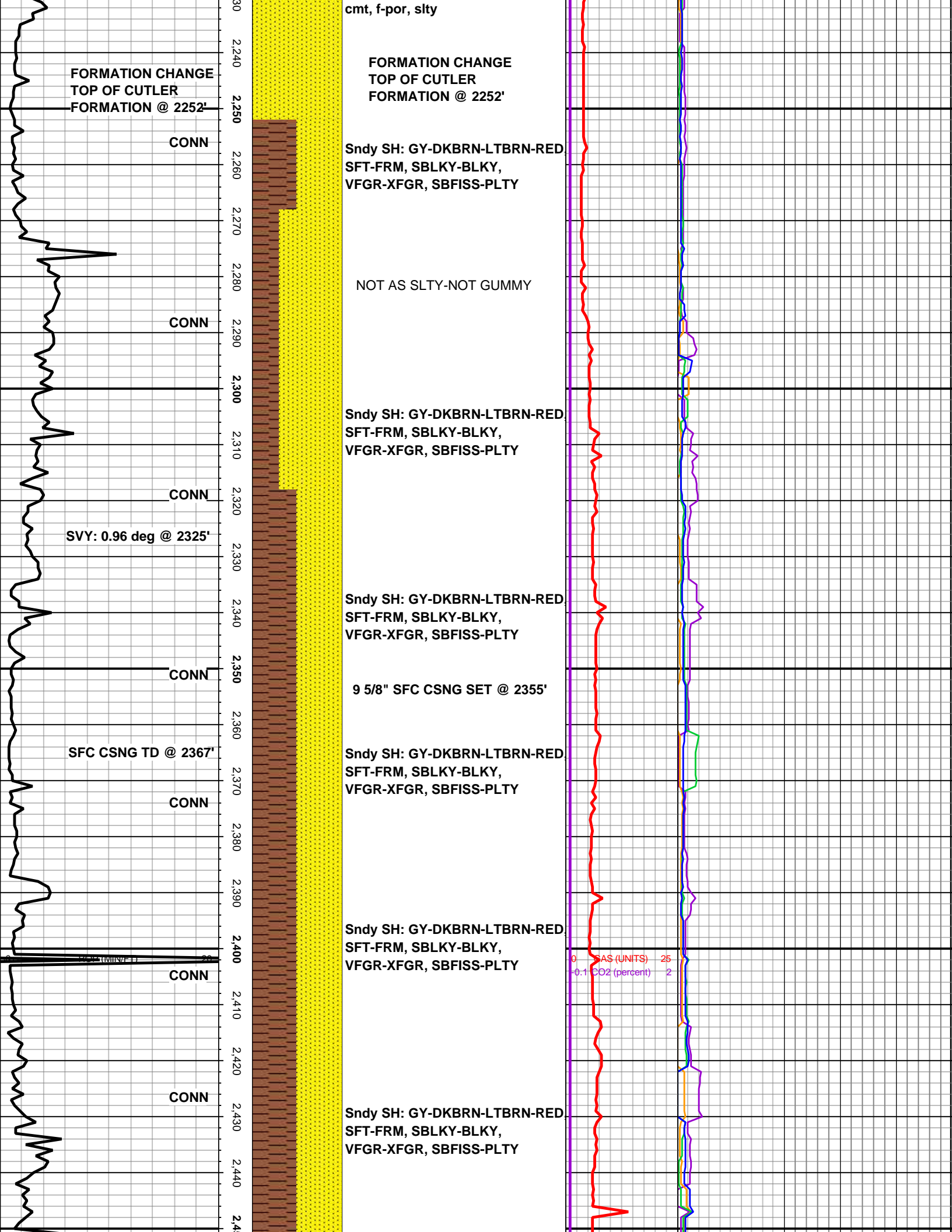
SVY: .08 deg @ 2000'

ROP (MIN/FT) scale: 0 to 20  
CONN label at 2000 ft.



GAS (UNITS) scale: 0 to 25  
CO2 (percent) scale: 0 to 2





cmt, f-por, slty

FORMATION CHANGE  
TOP OF CUTLER  
FORMATION @ 2252'

FORMATION CHANGE  
TOP OF CUTLER  
FORMATION @ 2252'

CONN

Sndy SH: GY-DKBRN-LTBRN-RED  
SFT-FRM, SBLKY-BLKY,  
VFGR-XFGR, SBFISS-PLTY

NOT AS SLTY-NOT GUMMY

CONN

Sndy SH: GY-DKBRN-LTBRN-RED  
SFT-FRM, SBLKY-BLKY,  
VFGR-XFGR, SBFISS-PLTY

CONN

SVY: 0.96 deg @ 2325'

Sndy SH: GY-DKBRN-LTBRN-RED  
SFT-FRM, SBLKY-BLKY,  
VFGR-XFGR, SBFISS-PLTY

CONN

9 5/8" SFC CSNG SET @ 2355'

SFC CSNG TD @ 2367'

Sndy SH: GY-DKBRN-LTBRN-RED  
SFT-FRM, SBLKY-BLKY,  
VFGR-XFGR, SBFISS-PLTY

CONN

Sndy SH: GY-DKBRN-LTBRN-RED  
SFT-FRM, SBLKY-BLKY,  
VFGR-XFGR, SBFISS-PLTY

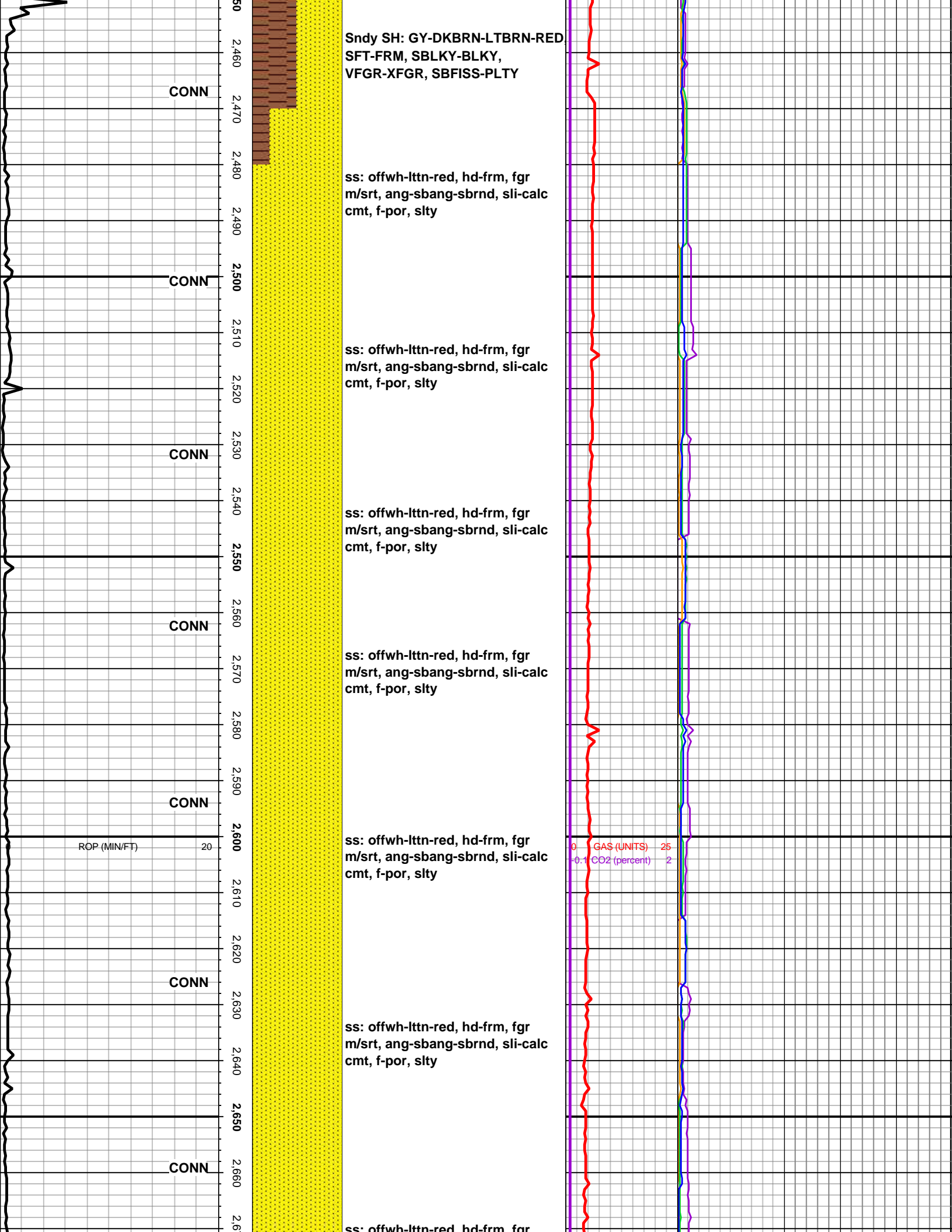
CONN

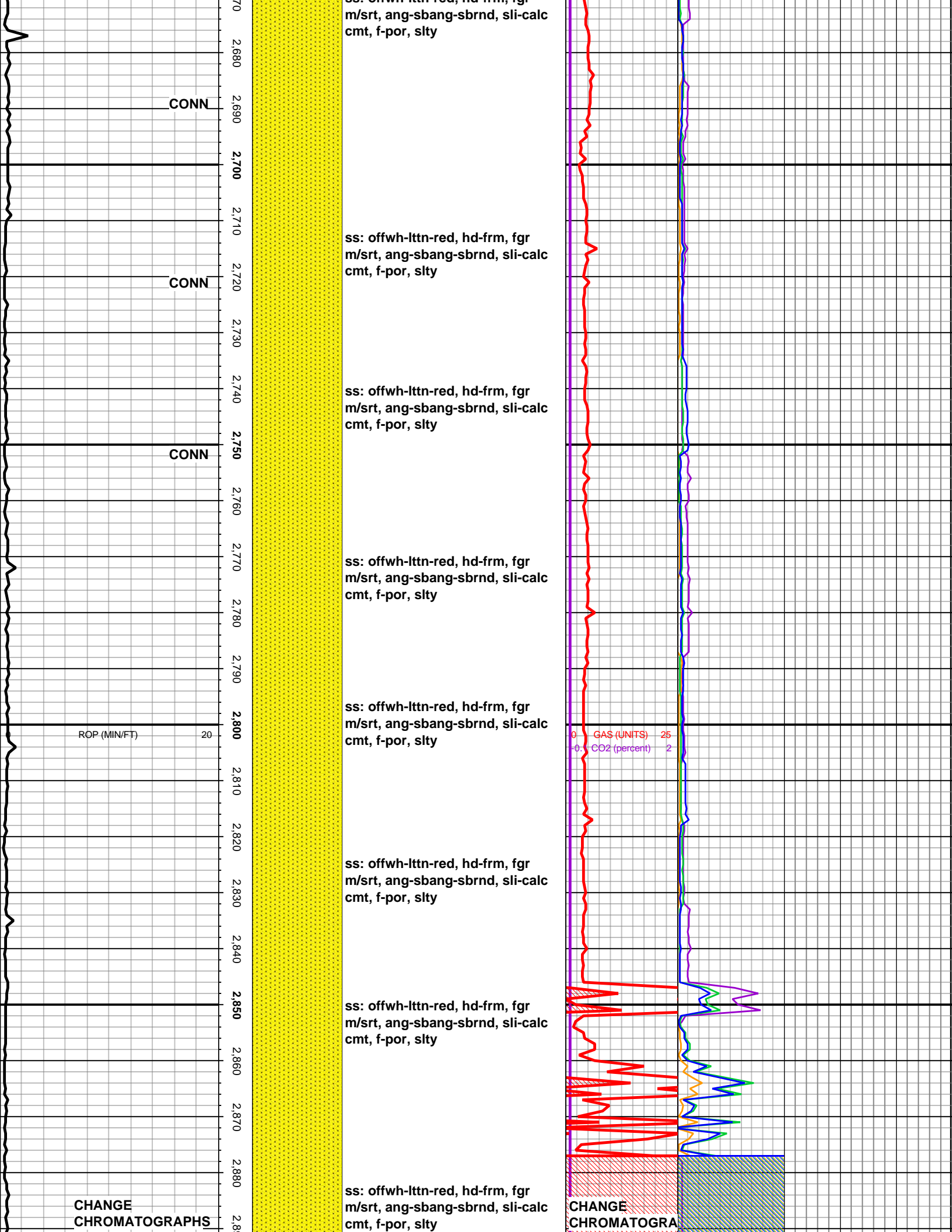
0 GAS (UNITS) 25  
-0.1 CO2 (percent) 2

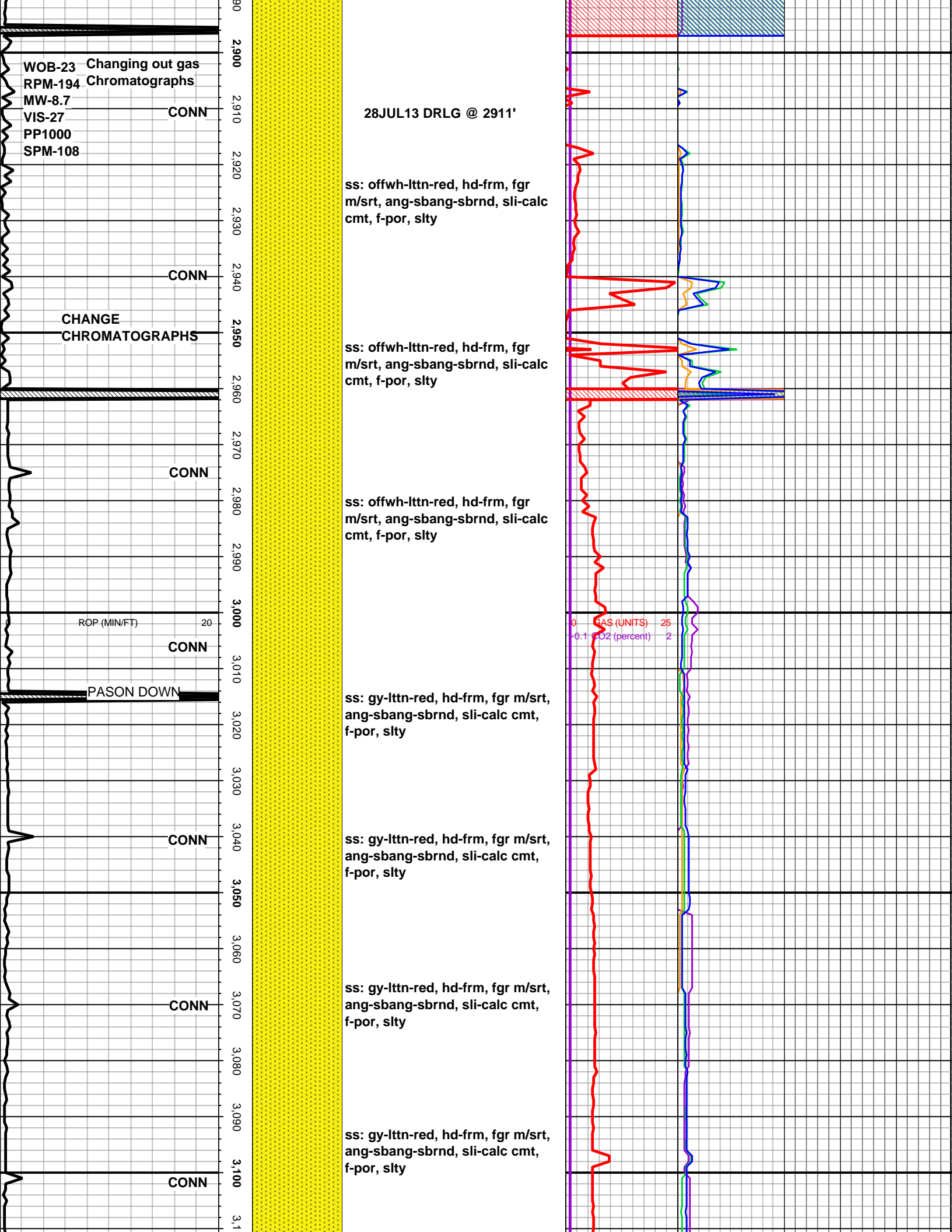
CONN

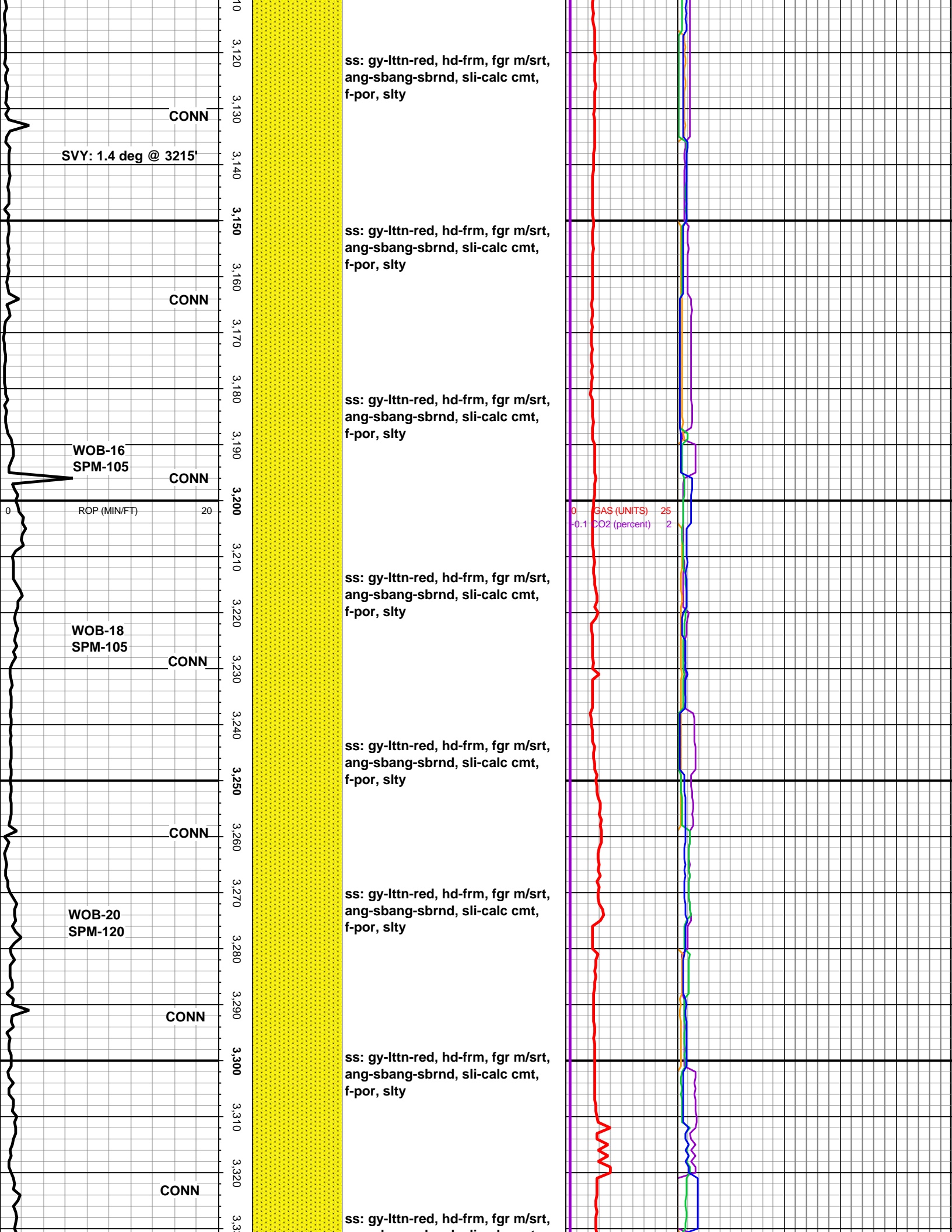
Sndy SH: GY-DKBRN-LTBRN-RED  
SFT-FRM, SBLKY-BLKY,  
VFGR-XFGR, SBFISS-PLTY

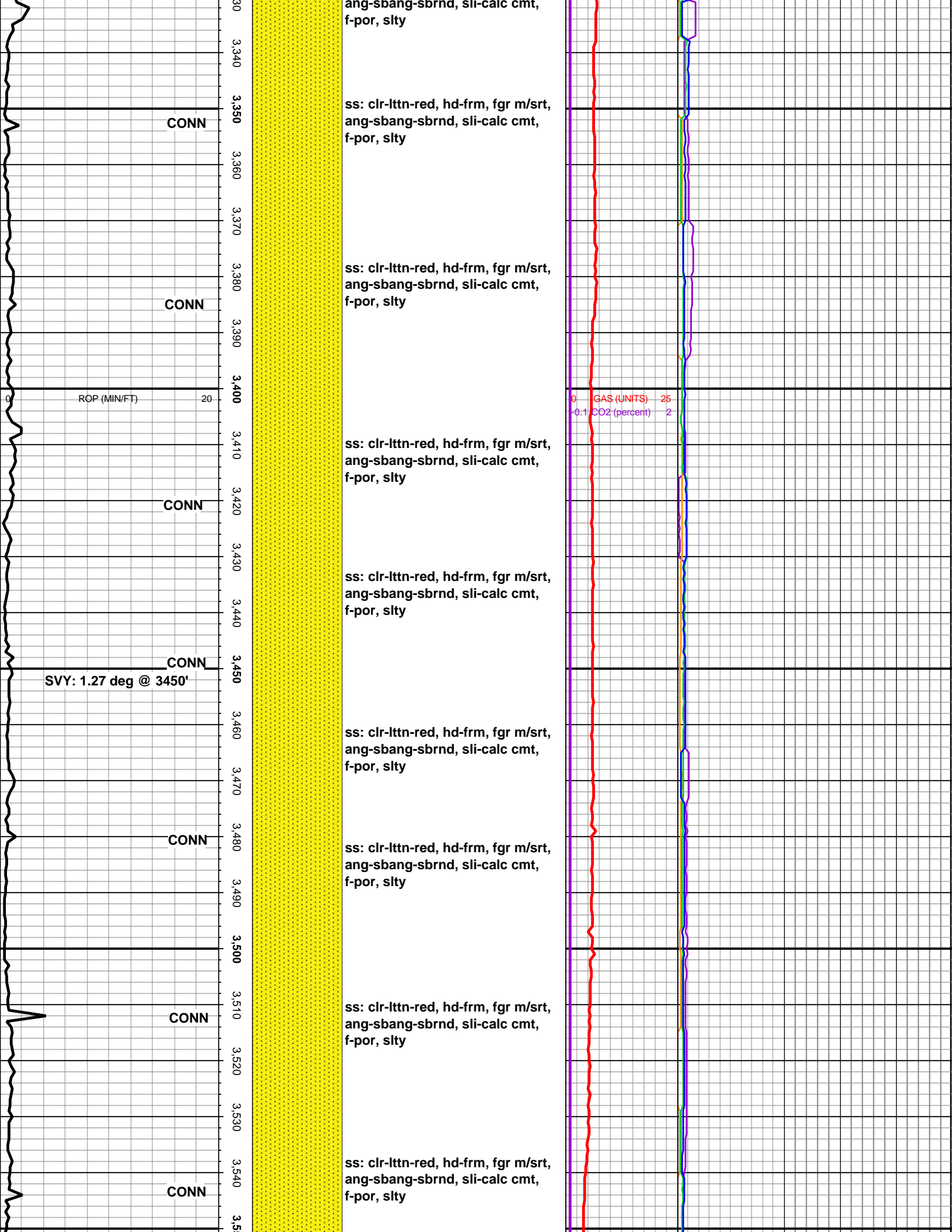
2,240  
2,250  
2,260  
2,270  
2,280  
2,290  
2,300  
2,310  
2,320  
2,330  
2,340  
2,350  
2,360  
2,370  
2,380  
2,390  
2,400  
2,410  
2,420  
2,430  
2,440  
2,4



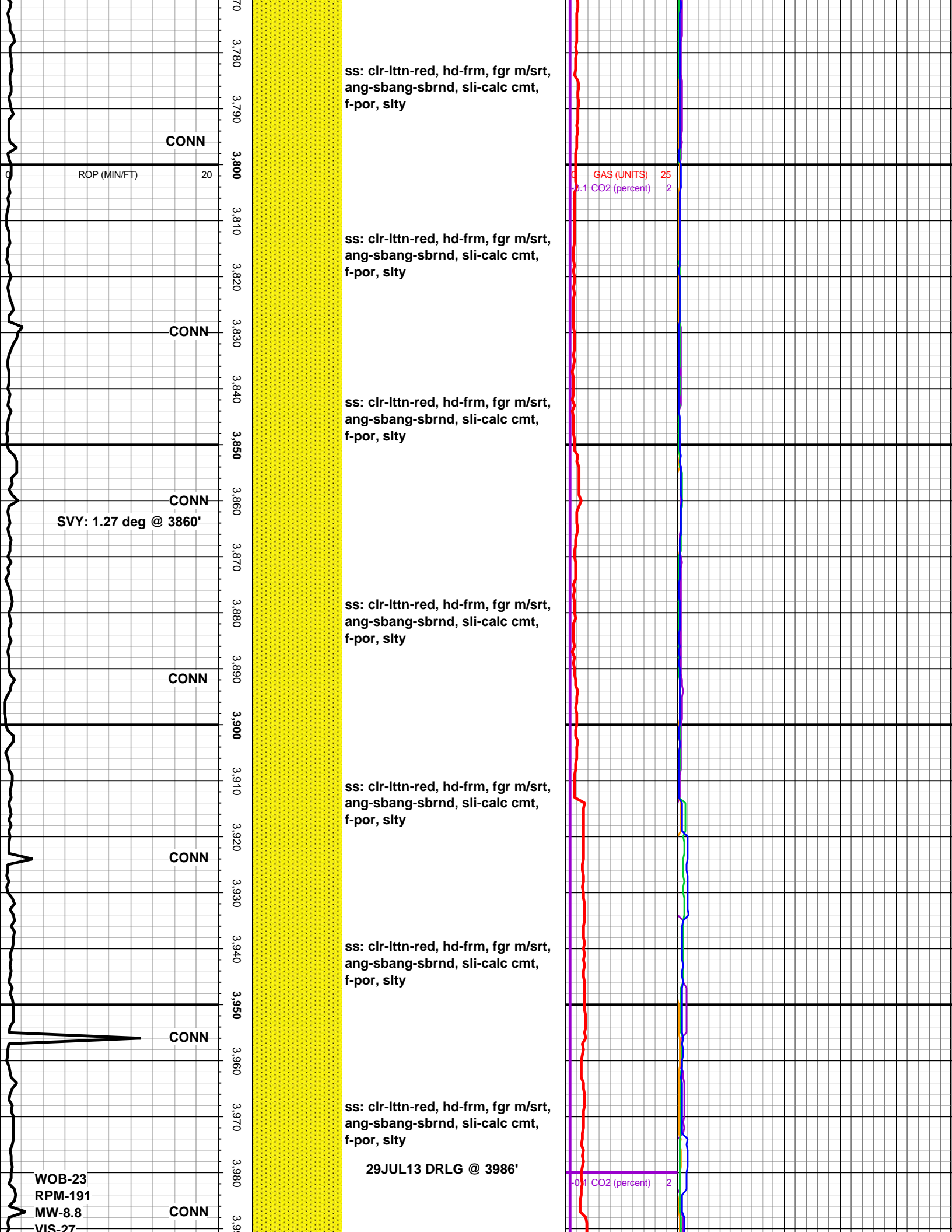












3,780  
3,790  
3,800  
3,810  
3,820  
3,830  
3,840  
3,850  
3,860  
3,870  
3,880  
3,890  
3,900  
3,910  
3,920  
3,930  
3,940  
3,950  
3,960  
3,970  
3,980  
3,9

ss: clr-lttn-red, hd-frm, fgr m/srt,  
ang-sbang-sbrnd, sli-calc cmt,  
f-por, slty

CONN

ROP (MIN/FT) 20

GAS (UNITS) 25  
CO2 (percent) 2

ss: clr-lttn-red, hd-frm, fgr m/srt,  
ang-sbang-sbrnd, sli-calc cmt,  
f-por, slty

CONN

ss: clr-lttn-red, hd-frm, fgr m/srt,  
ang-sbang-sbrnd, sli-calc cmt,  
f-por, slty

CONN

SVY: 1.27 deg @ 3860'

ss: clr-lttn-red, hd-frm, fgr m/srt,  
ang-sbang-sbrnd, sli-calc cmt,  
f-por, slty

CONN

ss: clr-lttn-red, hd-frm, fgr m/srt,  
ang-sbang-sbrnd, sli-calc cmt,  
f-por, slty

CONN

ss: clr-lttn-red, hd-frm, fgr m/srt,  
ang-sbang-sbrnd, sli-calc cmt,  
f-por, slty

CONN

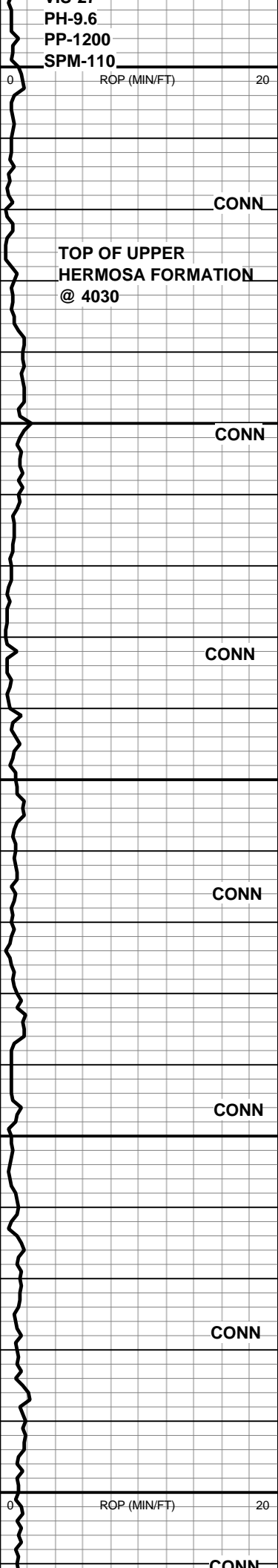
ss: clr-lttn-red, hd-frm, fgr m/srt,  
ang-sbang-sbrnd, sli-calc cmt,  
f-por, slty

29JUL13 DRLG @ 3986'

CO2 (percent) 2

WOB-23  
RPM-191  
MW-8.8  
VIS-27

CONN



PH-9.6  
PP-1200  
SPM-110

ROP (MIN/FT) 20

4,000

4,010

4,020

CONN

TOP OF UPPER HERMOSA FORMATION @ 4030

4,030

4,040

4,050

CONN

4,060

4,070

4,080

CONN

4,090

4,100

4,110

CONN

4,120

4,130

4,140

CONN

4,150

4,160

4,170

CONN

4,180

4,190

4,200

ROP (MIN/FT) 20

CONN

4,2

ss: clr-lttn-red, hd-frm, fgr m/srt, ang-sbang-sbrnd, sli-calc cmt, f-por, slty

ss: clr-lttn-red, hd-frm, fgr m/srt, ang-sbang-sbrnd, sli-calc cmt, f-por, slty

TOP OF UPPER HERMOSA FORMATION @ 4030

LS: OFFWH-RDBRN, FRM-MOD HD FXLN-GRNY, IP POR, TXT:FXLN, RDSTN

SH: BRN-RDBRN, FRM, SBFISS-PLTY-BLKY, CALC, SLTY. ASSOC: MICA

LS: OFFWH-RDBRN, FRM-MOD HD FXLN-GRNY, IP POR, TXT:FXLN, RDSTN

ss: clr-lttn-red, hd-frm, fgr m/srt, ang-sbang-sbrnd, sli-calc cmt, f-por, slty

SH: BRN-RDBRN, FRM, SBFISS-PLTY-BLKY, CALC, SLTY. ASSOC: MICA

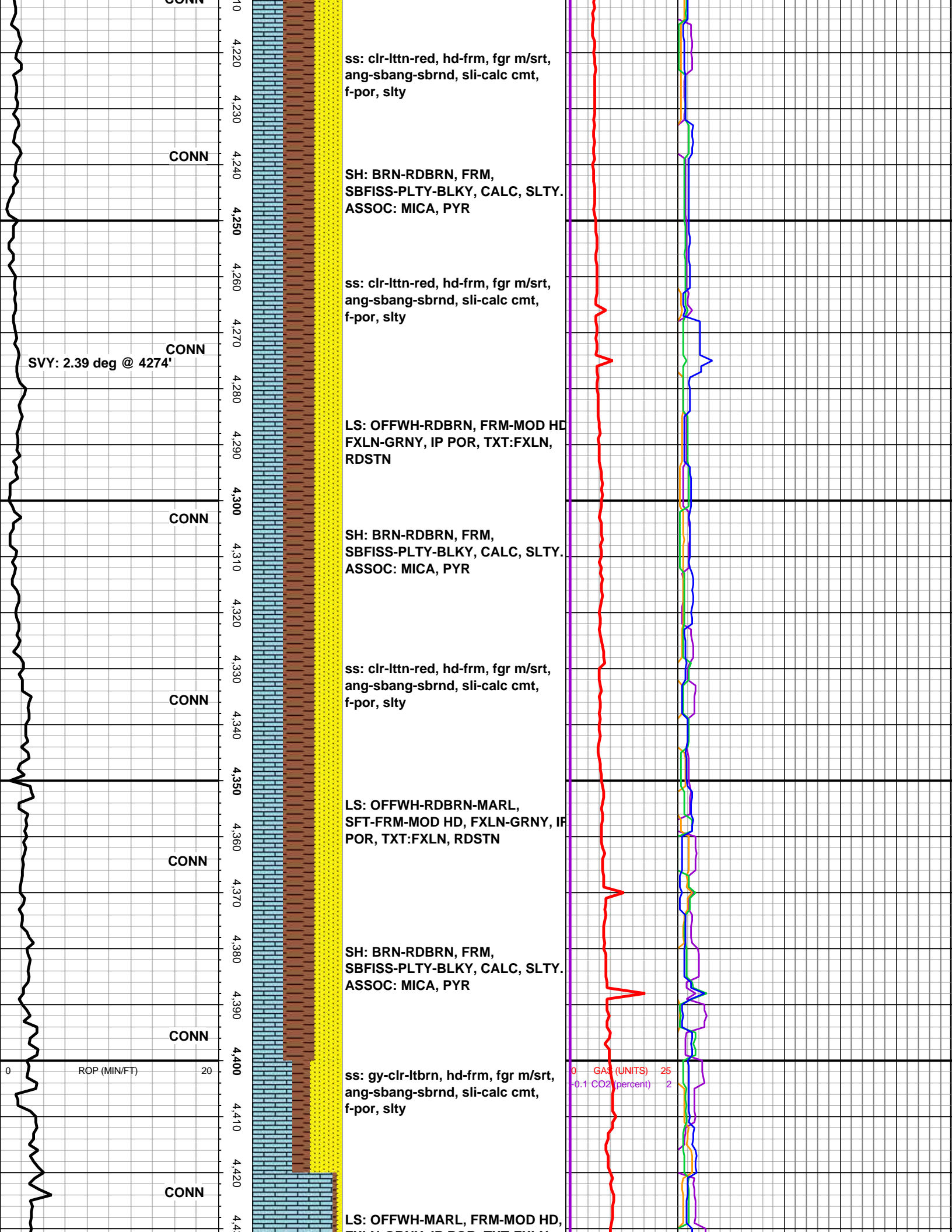
LS: OFFWH-RDBRN, FRM-MOD HD FXLN-GRNY, IP POR, TXT:FXLN, RDSTN

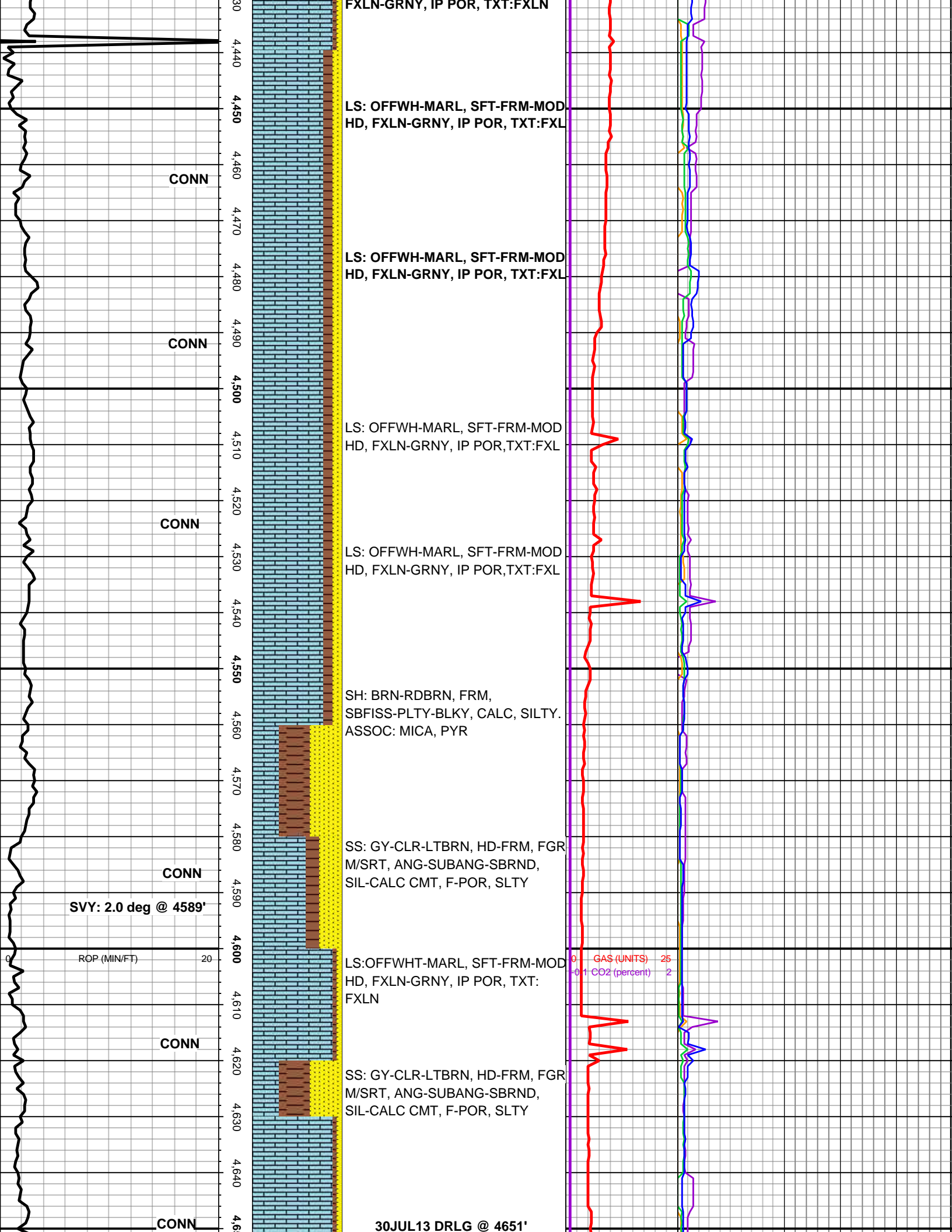
ss: clr-lttn-red, hd-frm, fgr m/srt, ang-sbang-sbrnd, sli-calc cmt, f-por, slty

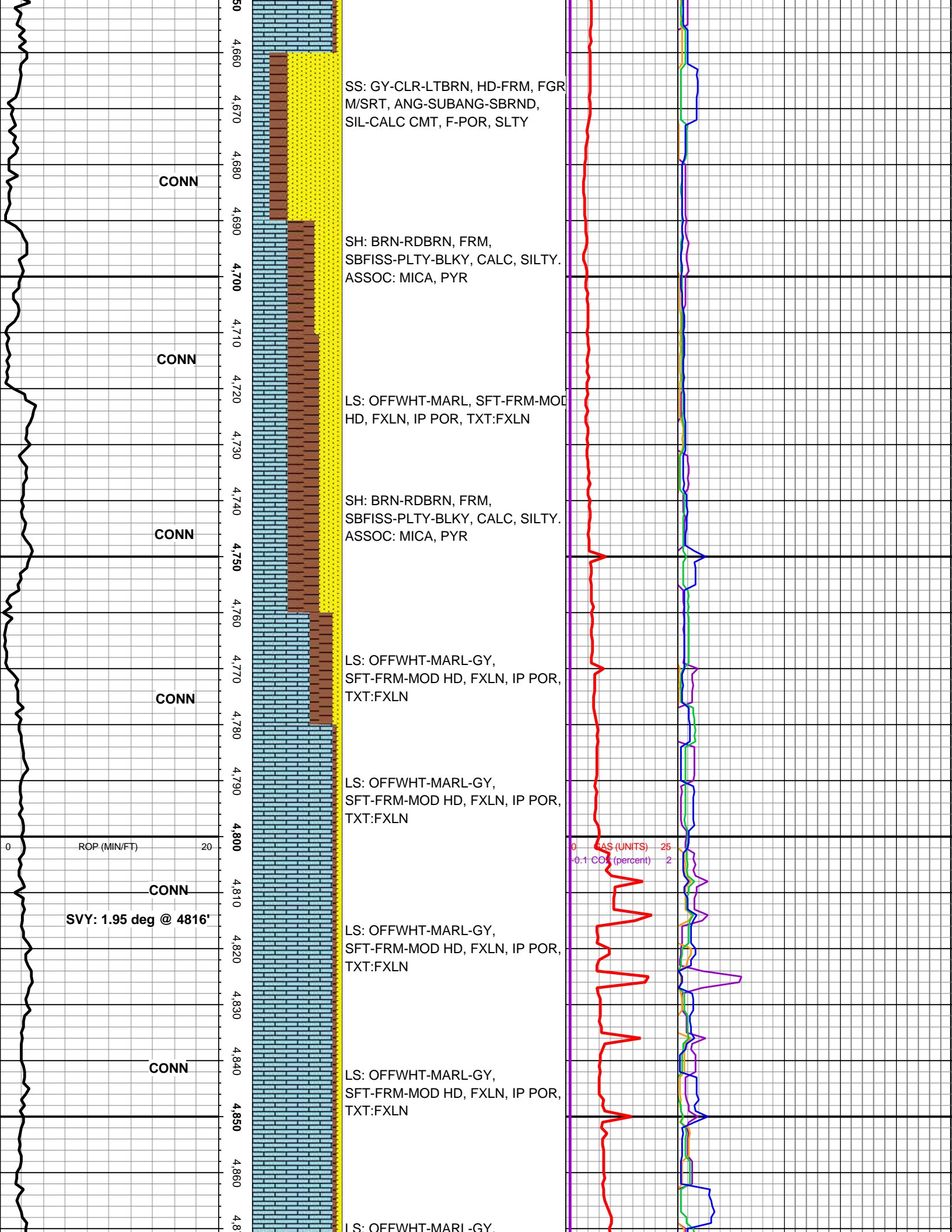
SH: BRN-RDBRN, FRM, SBFISS-PLTY-BLKY, CALC, SLTY. ASSOC: MICA, PYR

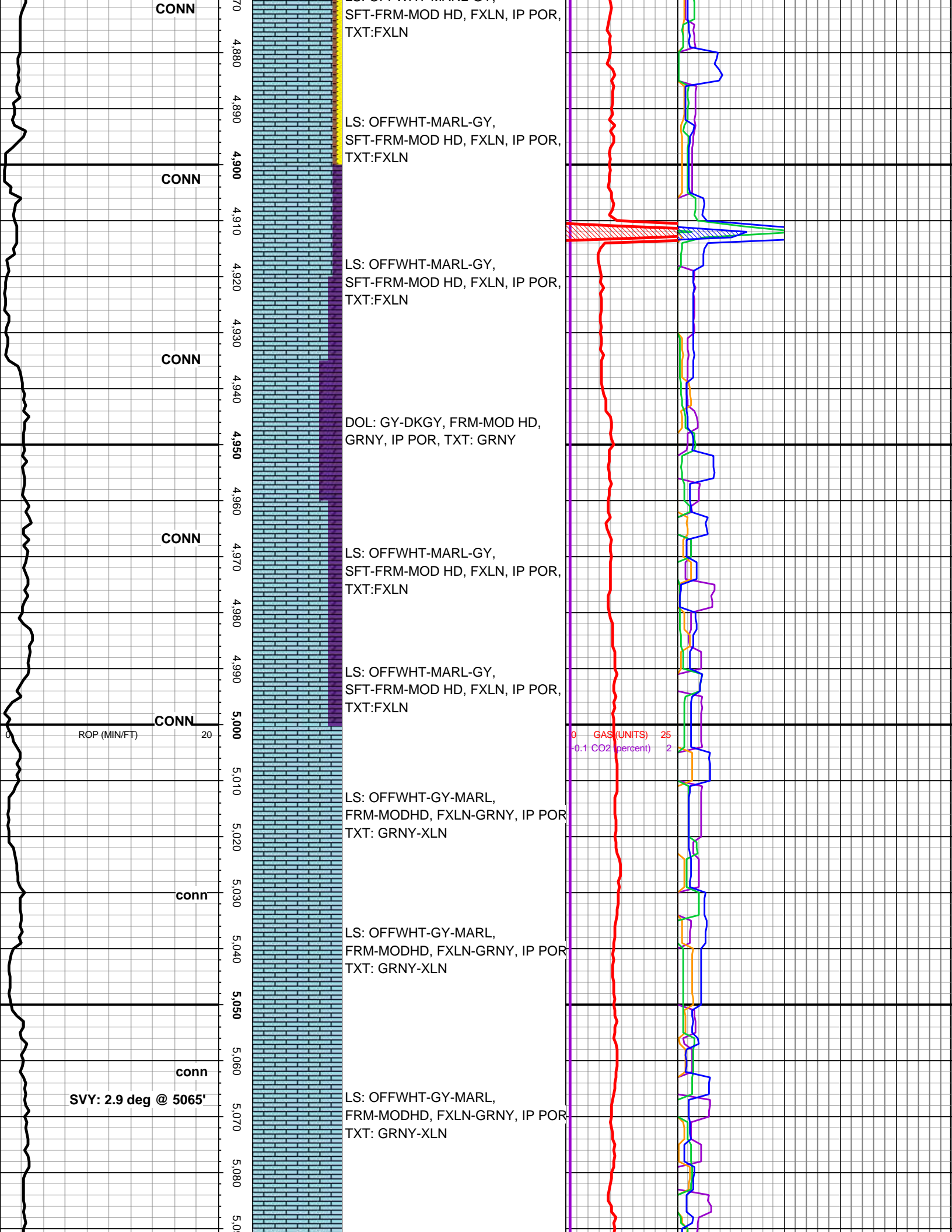
LS: OFFWH-RDBRN, FRM-MOD HD FXLN-GRNY, IP POR, TXT:FXLN, RDSTN

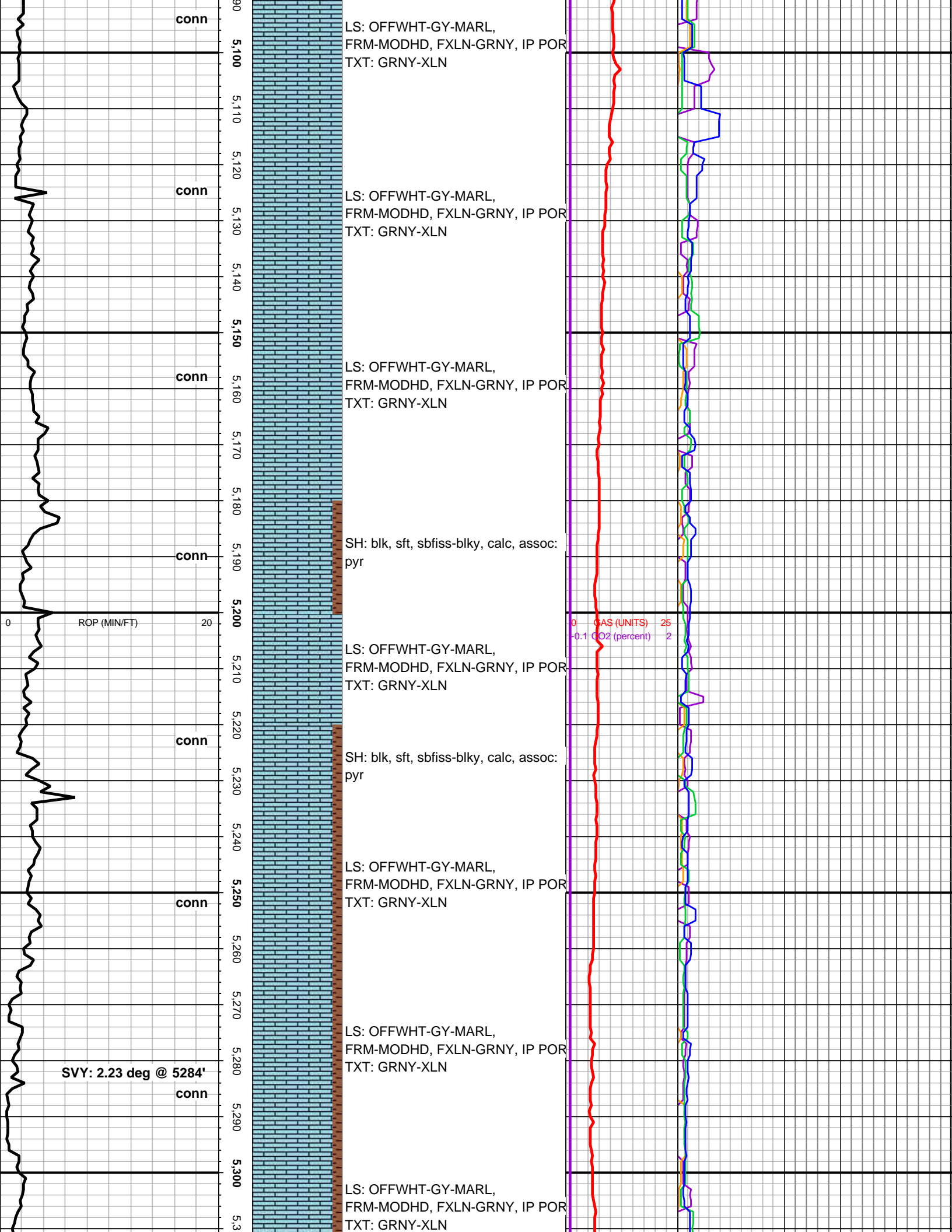


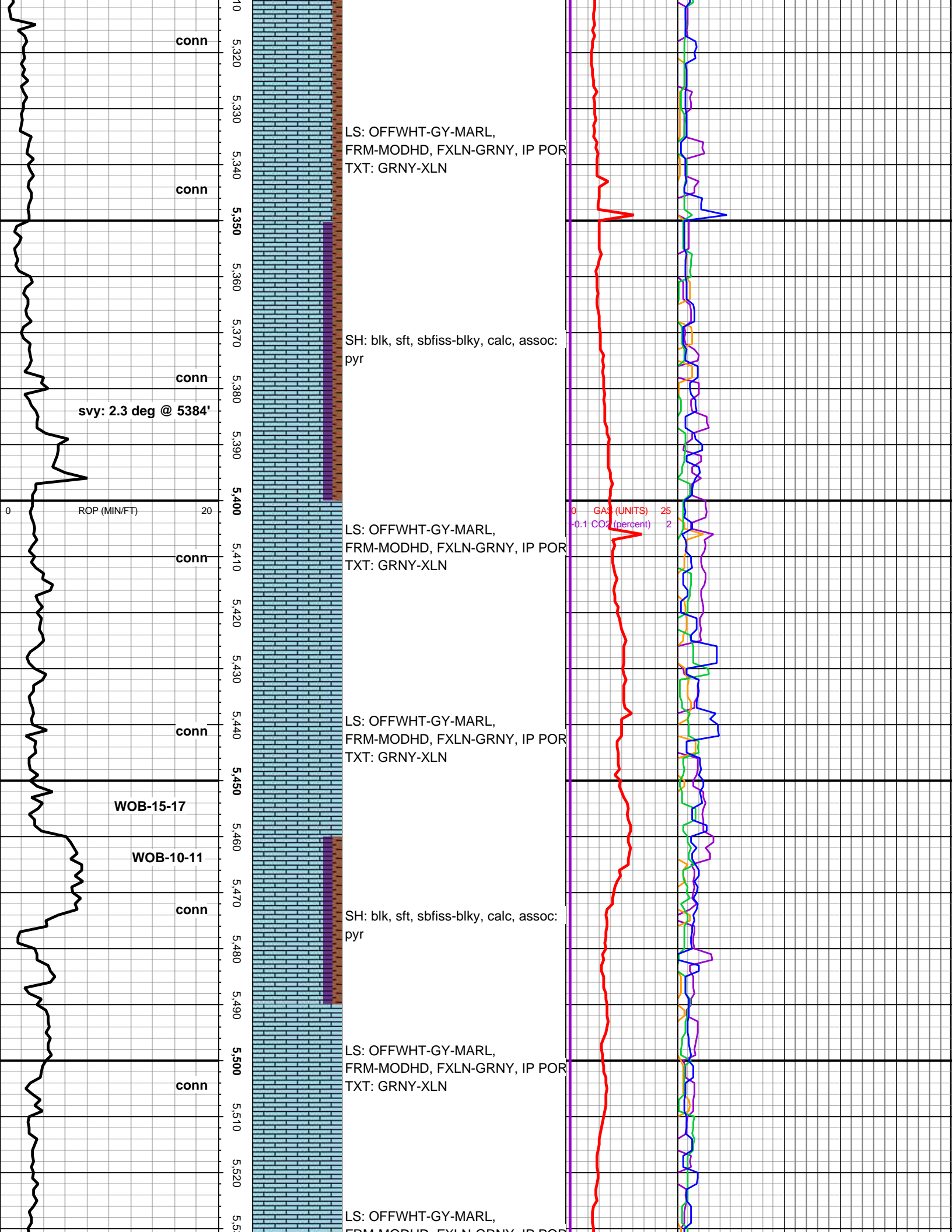


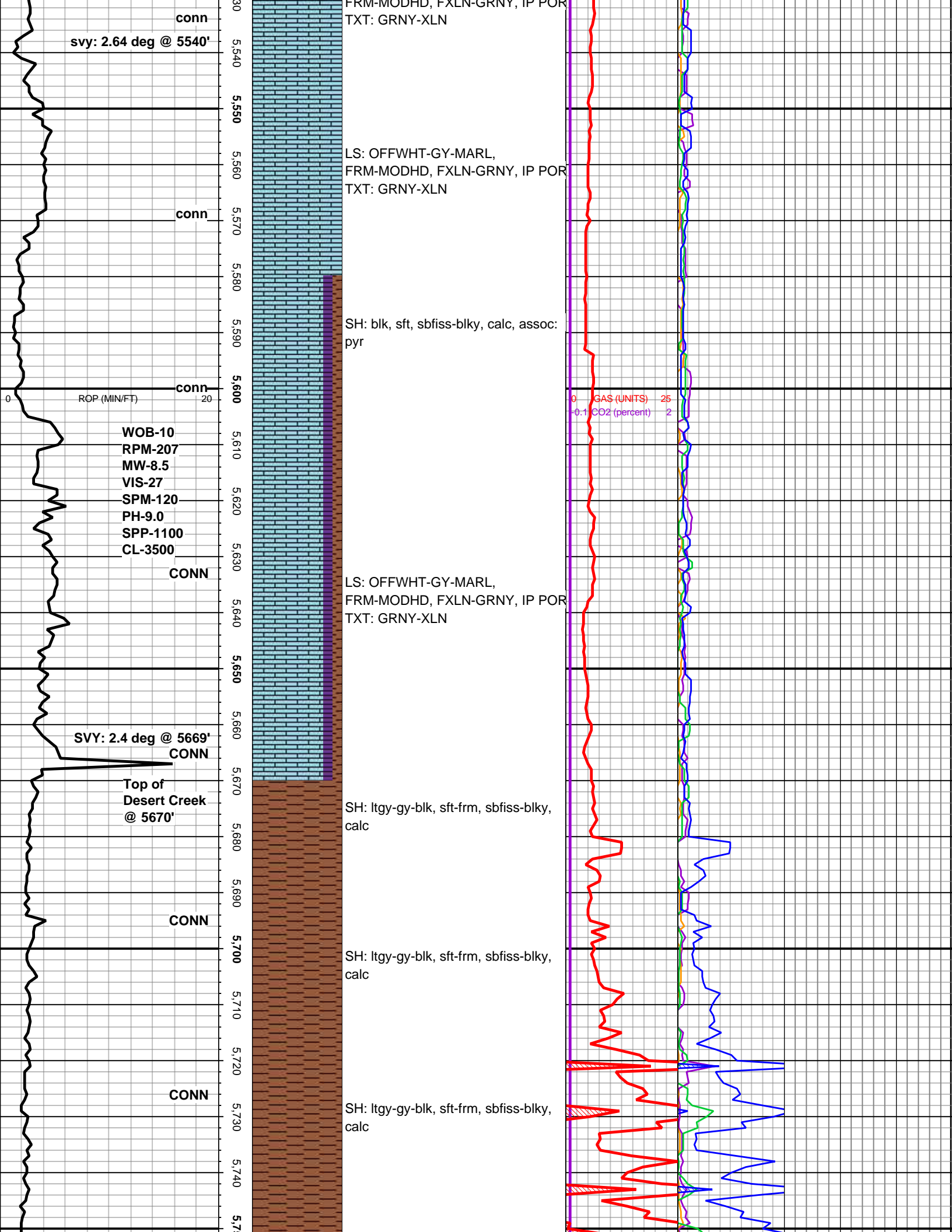


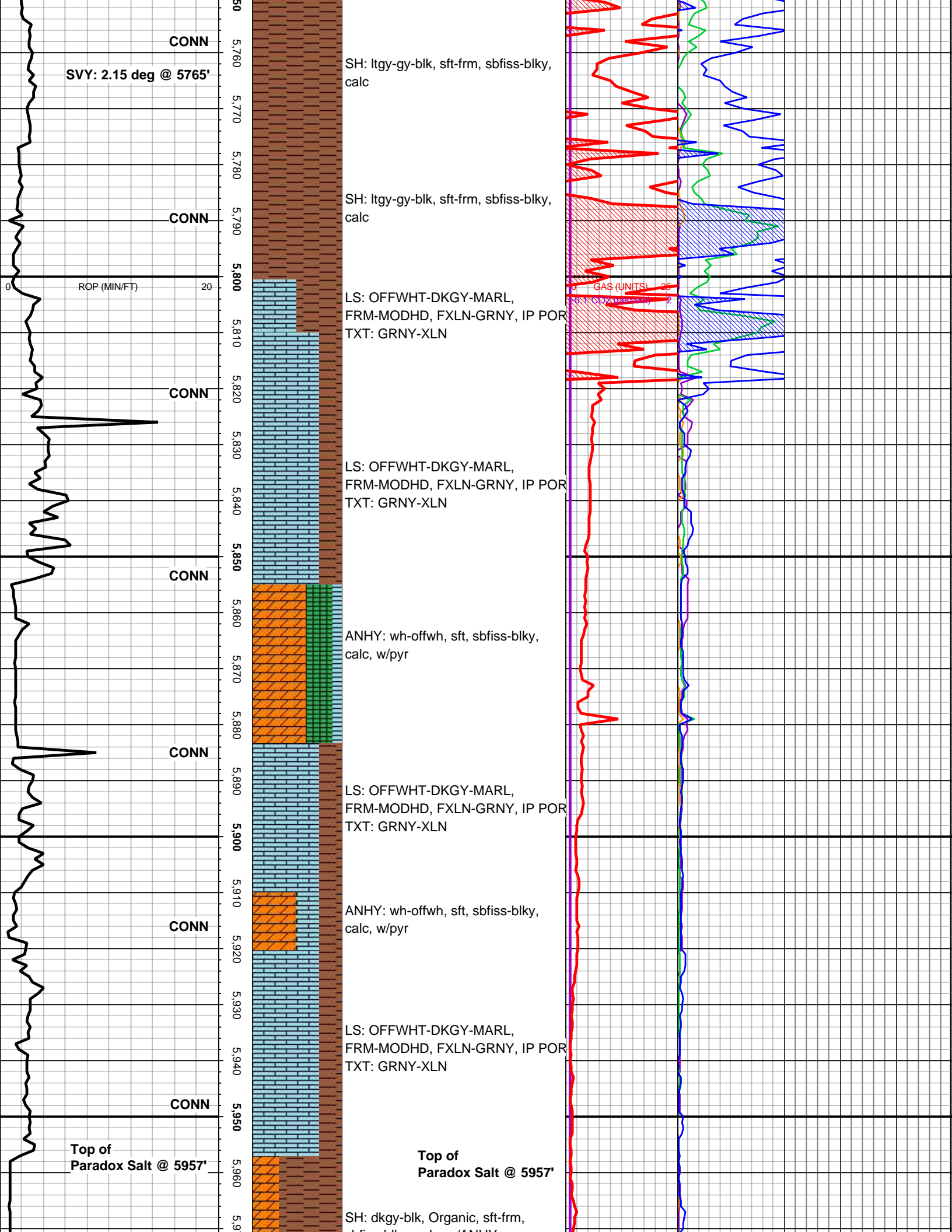




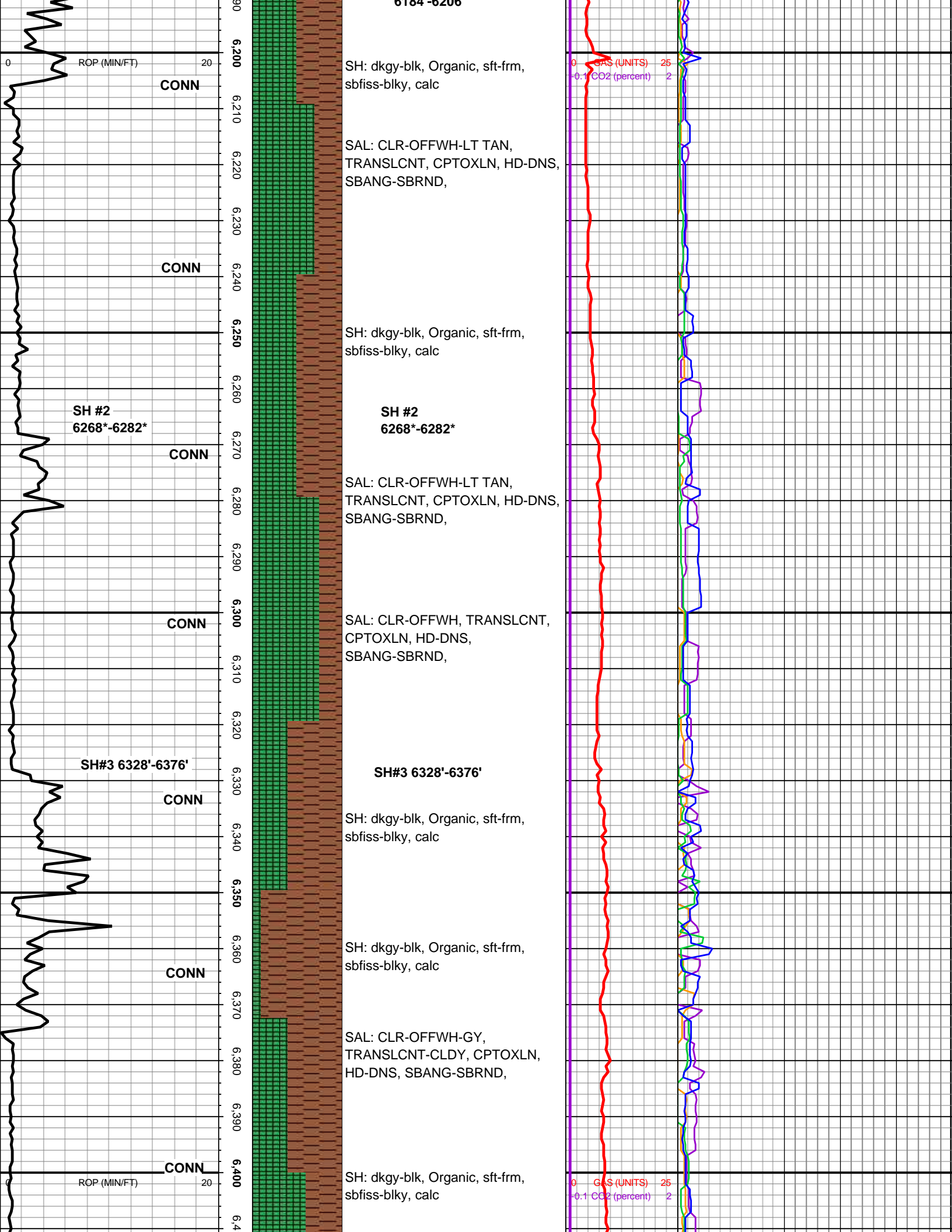


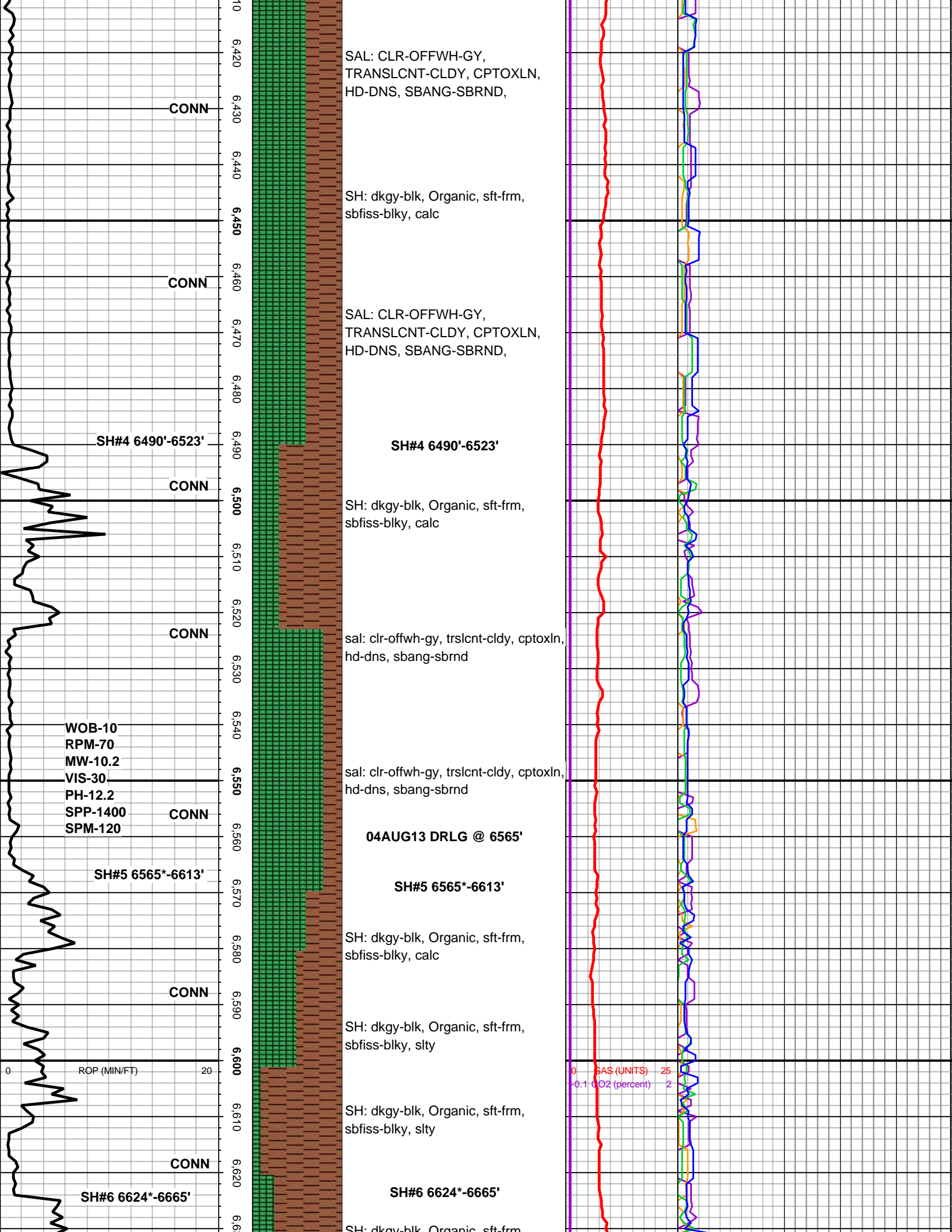


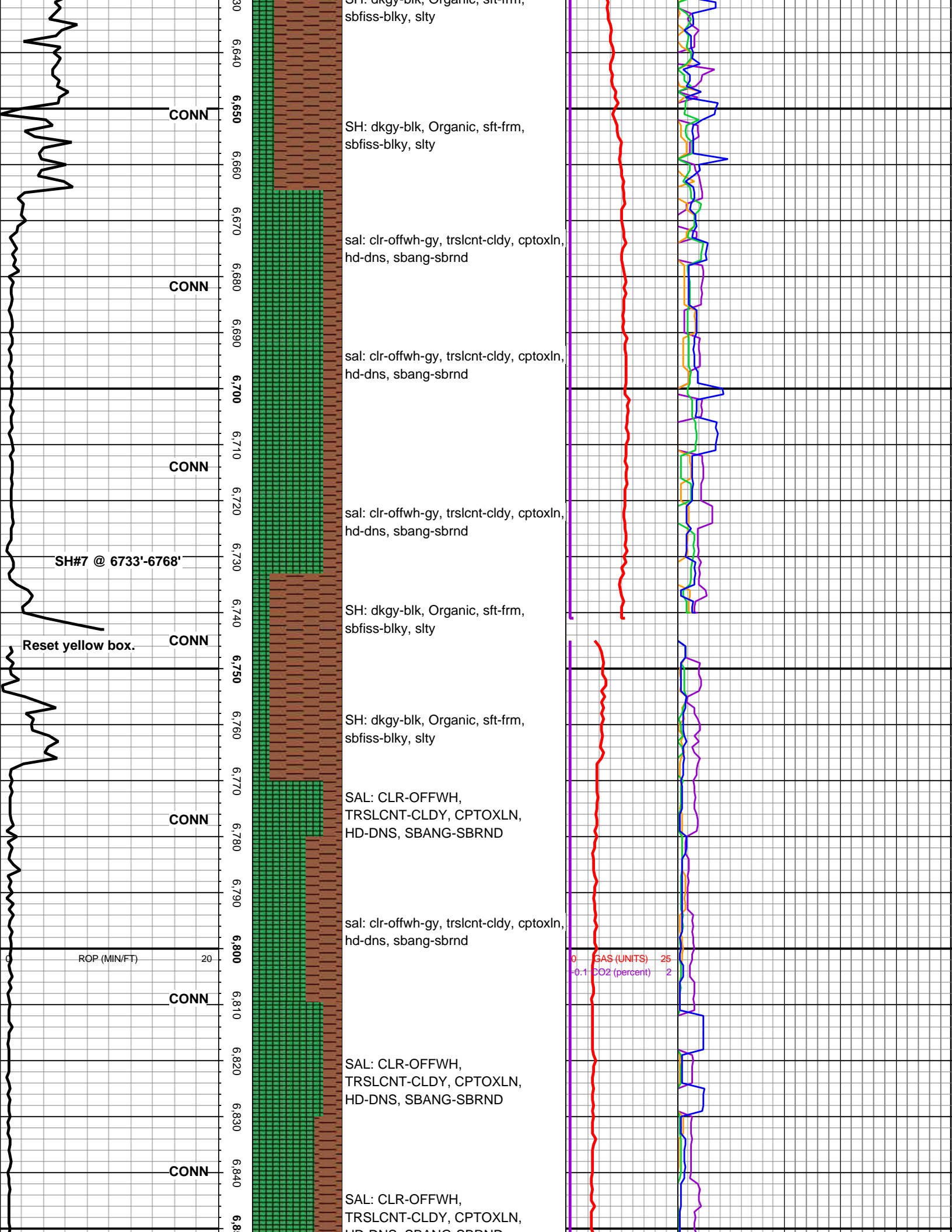


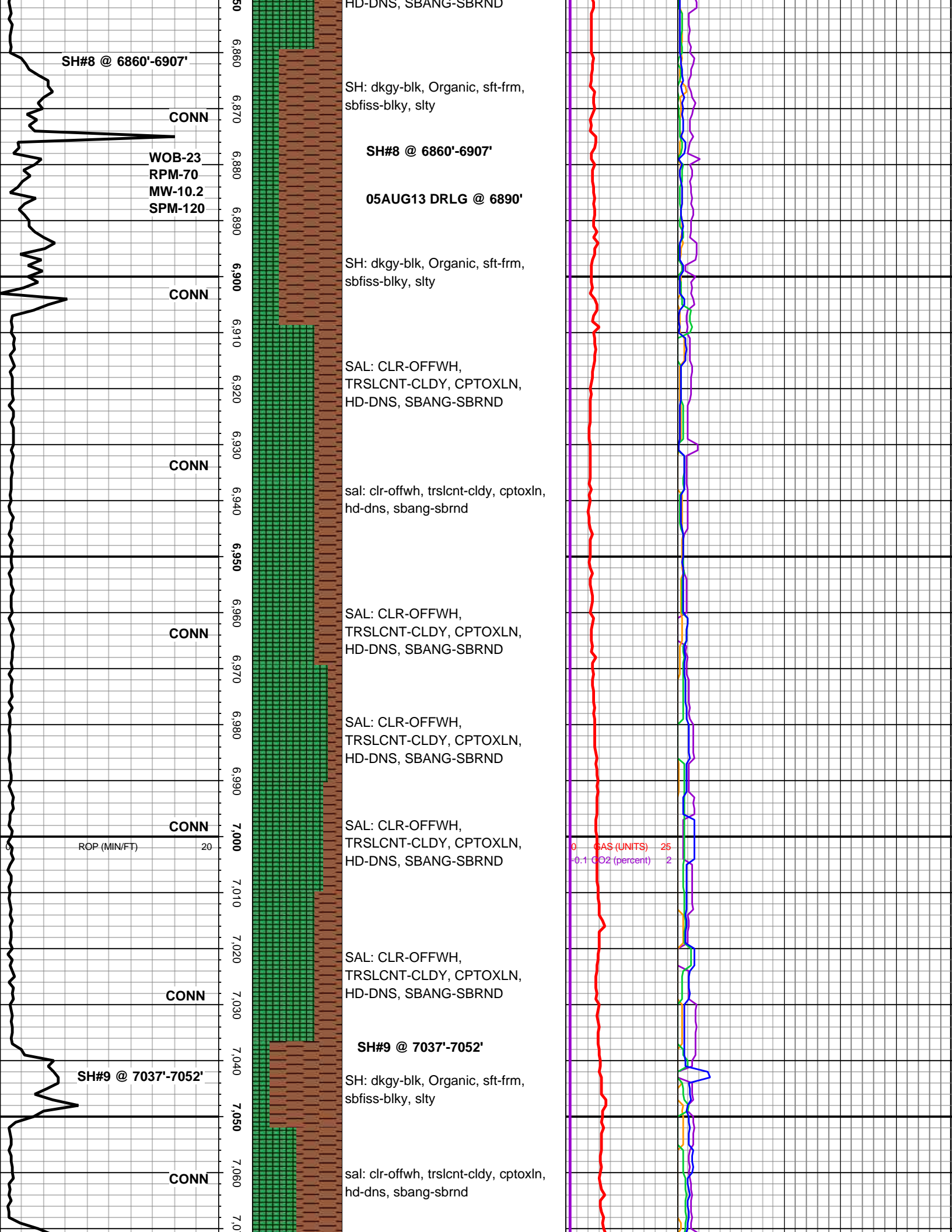












SH#8 @ 6860'-6907'

CONN

WOB-23  
RPM-70  
MW-10.2  
SPM-120

SH: dkgy-blk, Organic, sft-frm,  
sbfiss-blky, slty

SH#8 @ 6860'-6907'

05AUG13 DRLG @ 6890'

SH: dkgy-blk, Organic, sft-frm,  
sbfiss-blky, slty

CONN

SAL: CLR-OFFWH,  
TRSLCNT-CLDY, CPTOXLN,  
HD-DNS, SBANG-SBRND

CONN

sal: clr-offwh, trslcnt-cldy, cptoxln,  
hd-dns, sbang-sbrnd

CONN

SAL: CLR-OFFWH,  
TRSLCNT-CLDY, CPTOXLN,  
HD-DNS, SBANG-SBRND

CONN

SAL: CLR-OFFWH,  
TRSLCNT-CLDY, CPTOXLN,  
HD-DNS, SBANG-SBRND

ROP (MIN/FT) 20

SAL: CLR-OFFWH,  
TRSLCNT-CLDY, CPTOXLN,  
HD-DNS, SBANG-SBRND

CONN

SAL: CLR-OFFWH,  
TRSLCNT-CLDY, CPTOXLN,  
HD-DNS, SBANG-SBRND

SH#9 @ 7037'-7052'

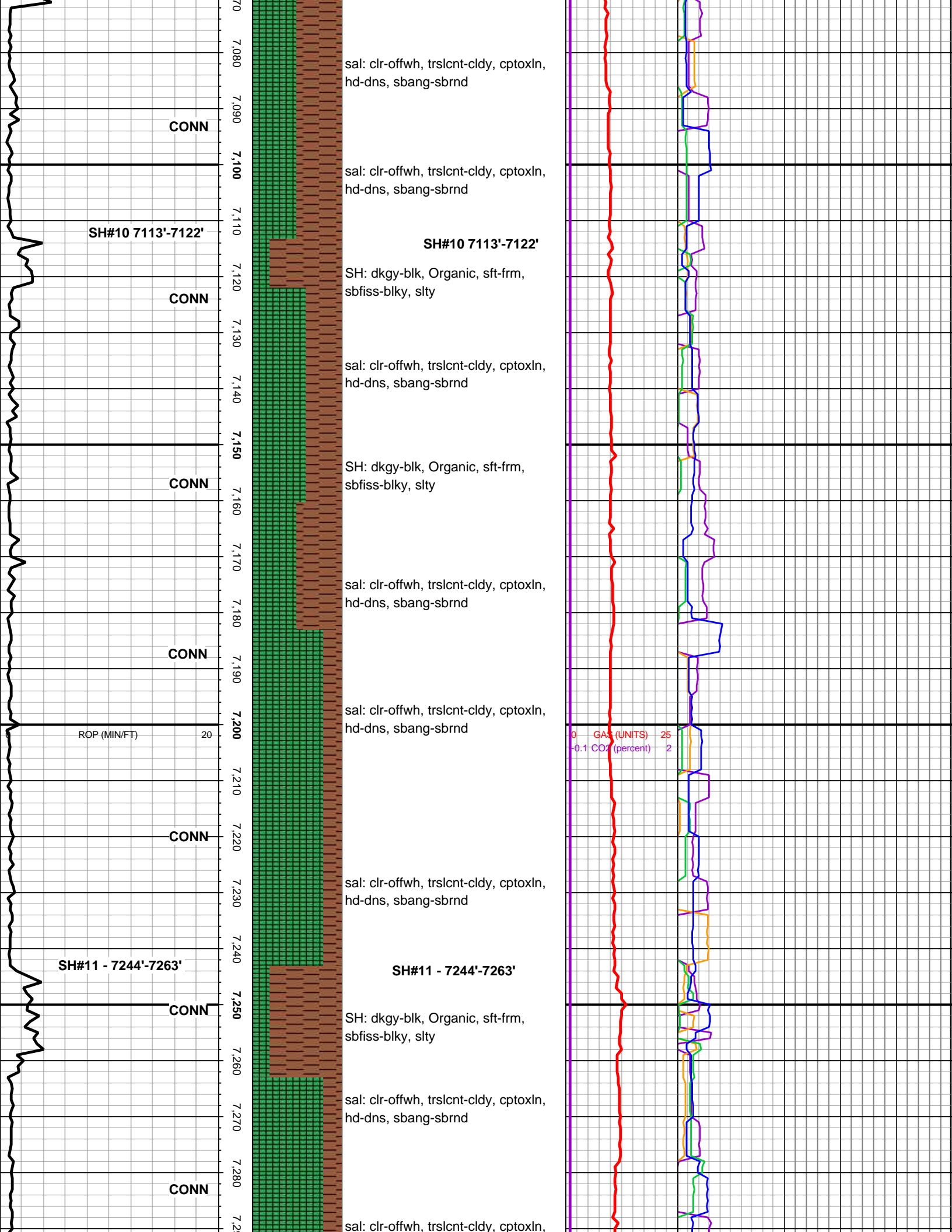
SH#9 @ 7037'-7052'

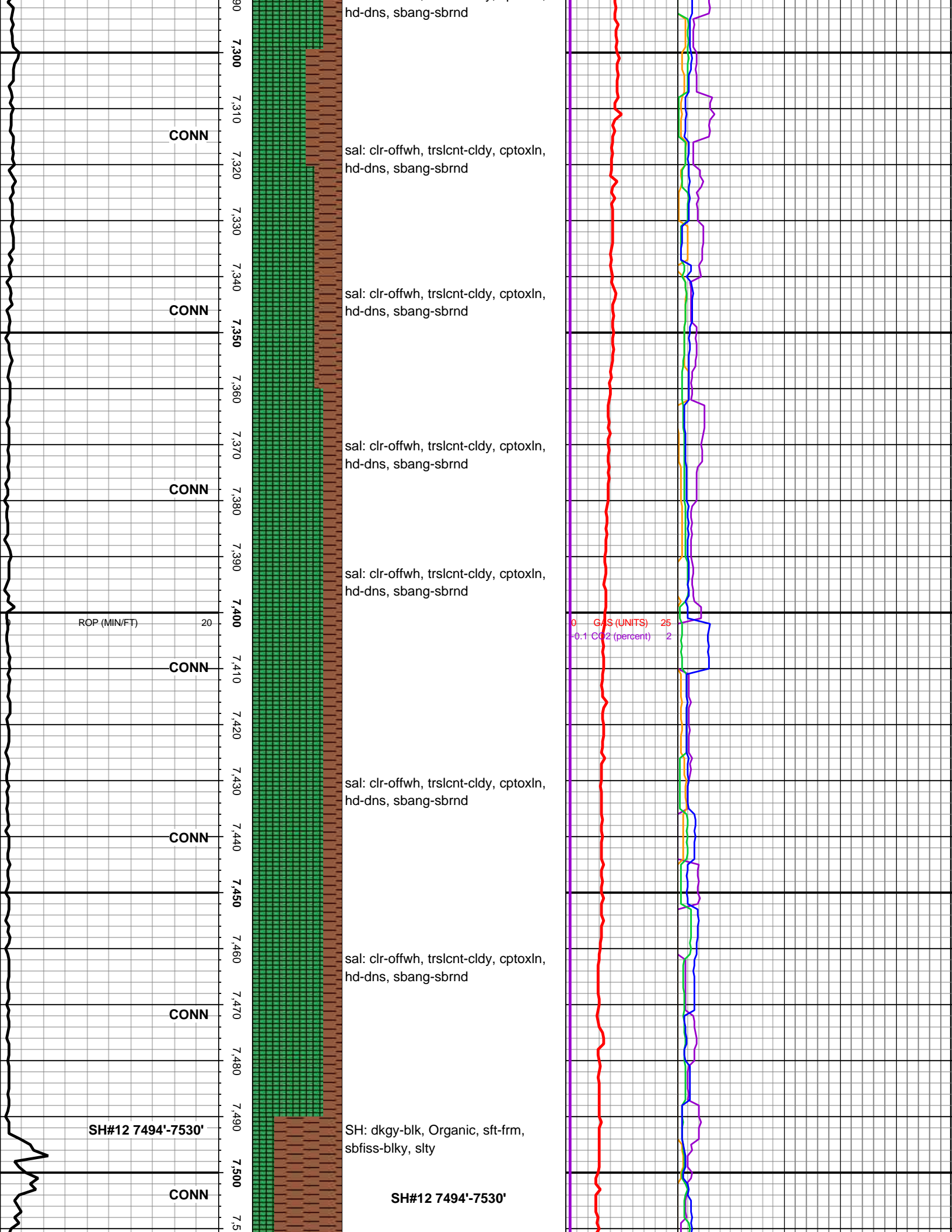
SH: dkgy-blk, Organic, sft-frm,  
sbfiss-blky, slty

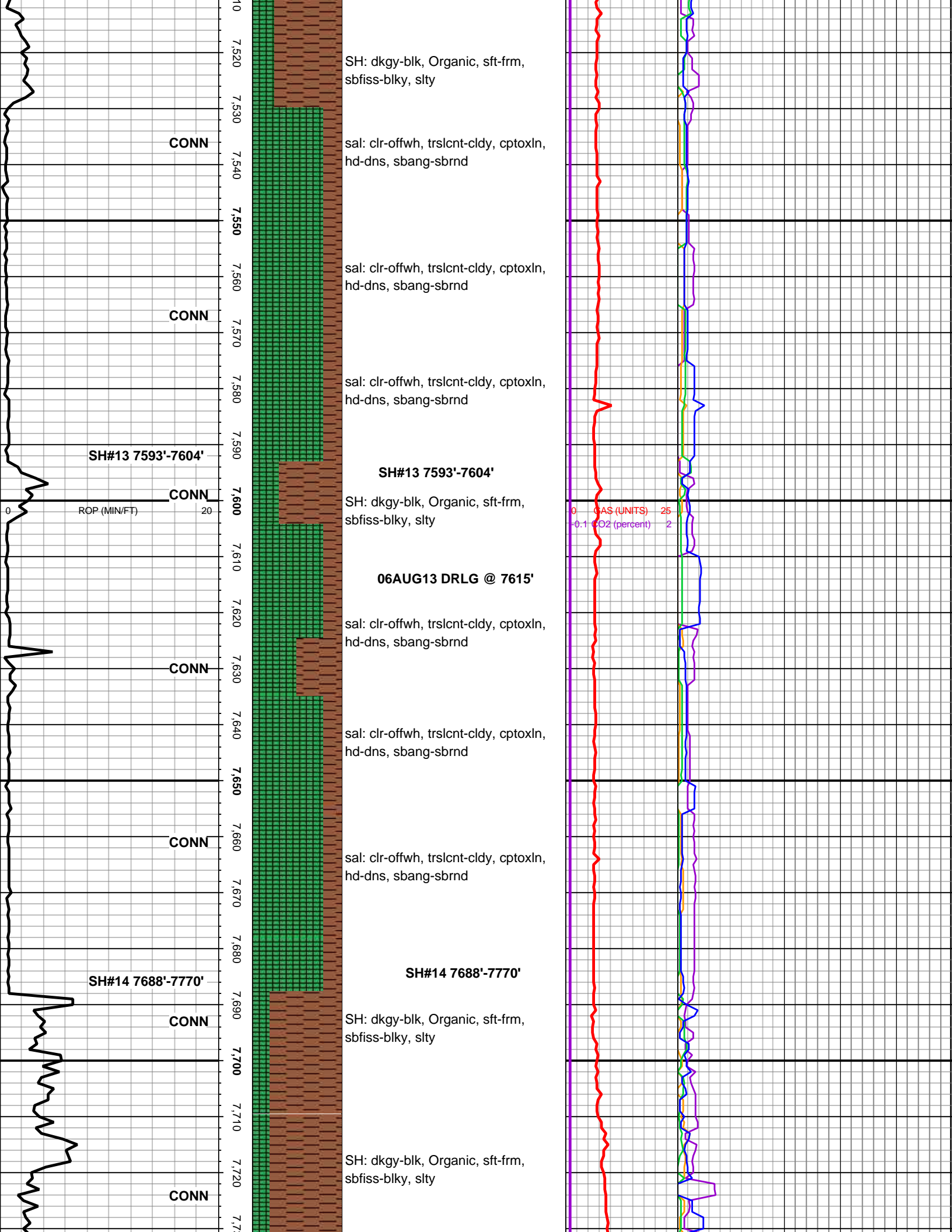
CONN

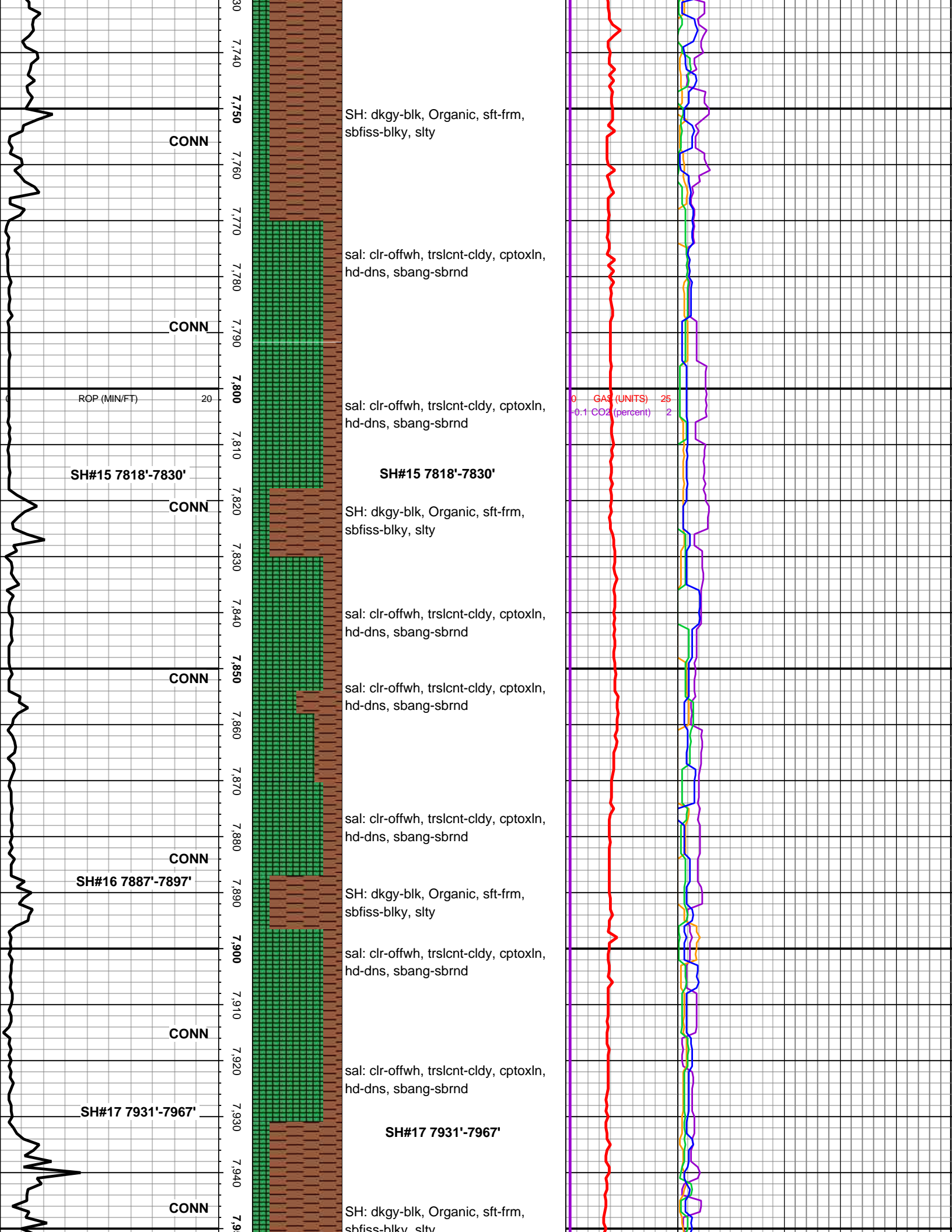
sal: clr-offwh, trslcnt-cldy, cptoxln,  
hd-dns, sbang-sbrnd

0 GAS (UNITS) 25  
-0.1 CO2 (percent) 2

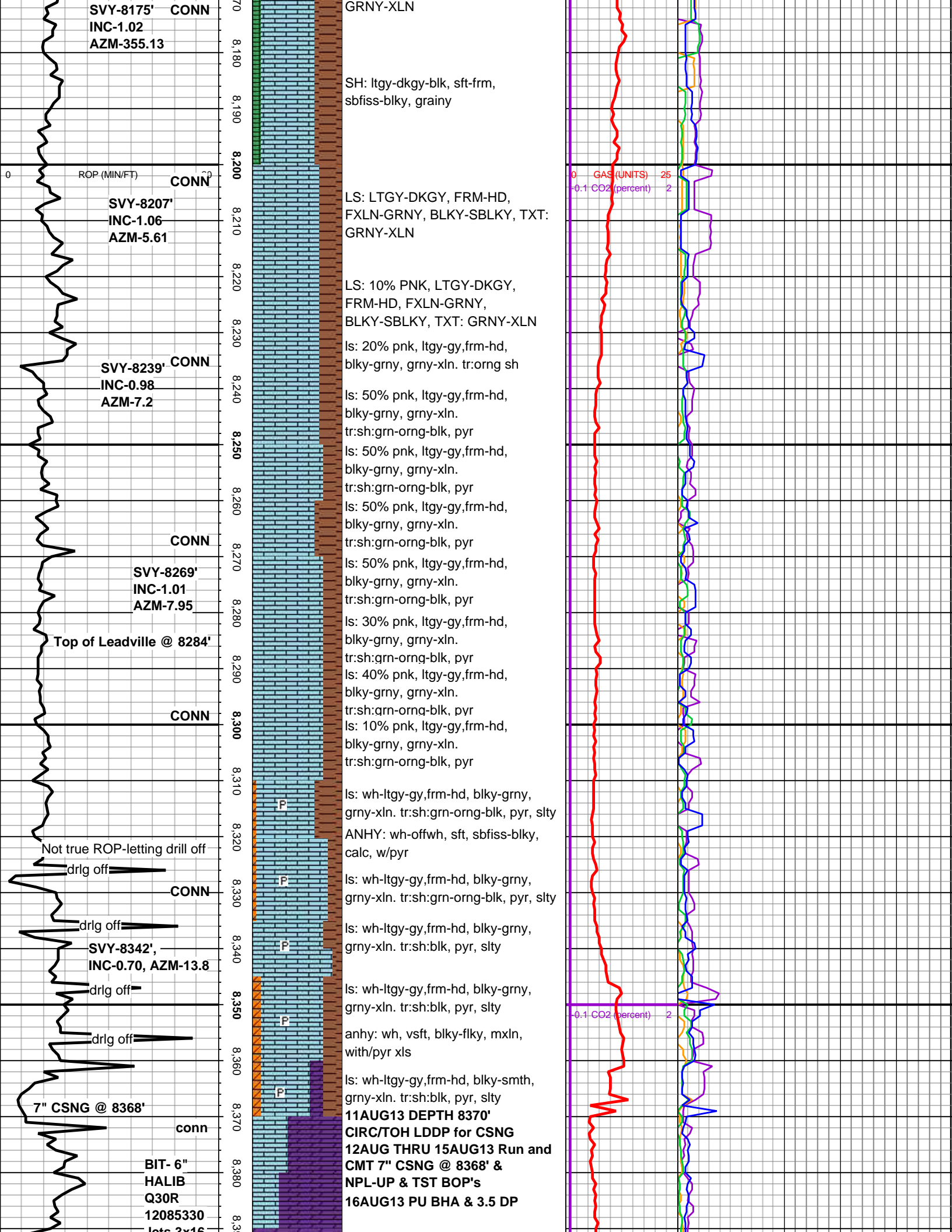












SVY-8175' CONN  
INC-1.02  
AZM-355.13

GRNY-XLN

SH: ltgy-dkgy-blk, sft-frm,  
sbfiss-blky, grainy

ROP (MIN/FT) CONN

SVY-8207'  
INC-1.06  
AZM-5.61

LS: LTGY-DKGY, FRM-HD,  
FXLN-GRNY, BLKY-SBLKY, TXT:  
GRNY-XLN

SVY-8239' CONN  
INC-0.98  
AZM-7.2

LS: 10% PNK, LTGY-DKGY,  
FRM-HD, FXLN-GRNY,  
BLKY-SBLKY, TXT: GRNY-XLN

CONN

SVY-8269'  
INC-1.01  
AZM-7.95

ls: 20% pnk, ltgy-gy,frm-hd,  
blky-grny, grny-xln. tr:orng sh

ls: 50% pnk, ltgy-gy,frm-hd,  
blky-grny, grny-xln.

tr:sh:grn-orng-blk, pyr

ls: 50% pnk, ltgy-gy,frm-hd,  
blky-grny, grny-xln.

tr:sh:grn-orng-blk, pyr

ls: 50% pnk, ltgy-gy,frm-hd,  
blky-grny, grny-xln.

tr:sh:grn-orng-blk, pyr

ls: 50% pnk, ltgy-gy,frm-hd,  
blky-grny, grny-xln.

tr:sh:grn-orng-blk, pyr

ls: 30% pnk, ltgy-gy,frm-hd,  
blky-grny, grny-xln.

tr:sh:grn-orng-blk, pyr

ls: 40% pnk, ltgy-gy,frm-hd,  
blky-grny, grny-xln.

tr:sh:grn-orng-blk, pyr

ls: 10% pnk, ltgy-gy,frm-hd,  
blky-grny, grny-xln.

tr:sh:grn-orng-blk, pyr

ls: wh-ltgy-gy,frm-hd, blky-grny,  
grny-xln. tr:sh:grn-orng-blk, pyr, slty

ANHY: wh-offwh, sft, sbfiss-blky,  
calc, w/pyr

ls: wh-ltgy-gy,frm-hd, blky-grny,  
grny-xln. tr:sh:grn-orng-blk, pyr, slty

ls: wh-ltgy-gy,frm-hd, blky-grny,  
grny-xln. tr:sh:blk, pyr, slty

ls: wh-ltgy-gy,frm-hd, blky-grny,  
grny-xln. tr:sh:blk, pyr, slty

anhy: wh, vsft, blky-flky, mxln,  
with/pyr xls

ls: wh-ltgy-gy,frm-hd, blky-smth,  
grny-xln. tr:sh:blk, pyr, slty

**11AUG13 DEPTH 8370'**  
**CIRC/TOH LDDP for CSNG**  
**12AUG THRU 15AUG13 Run and**  
**CMT 7" CSNG @ 8368' &**  
**NPL-UP & TST BOP's**  
**16AUG13 PU BHA & 3.5 DP**

Top of Leadville @ 8284'

CONN

Not true ROP-letting drill off  
drlg off

CONN

SVY-8342',  
INC-0.70, AZM-13.8

drlg off

drlg off

7" CSNG @ 8368'

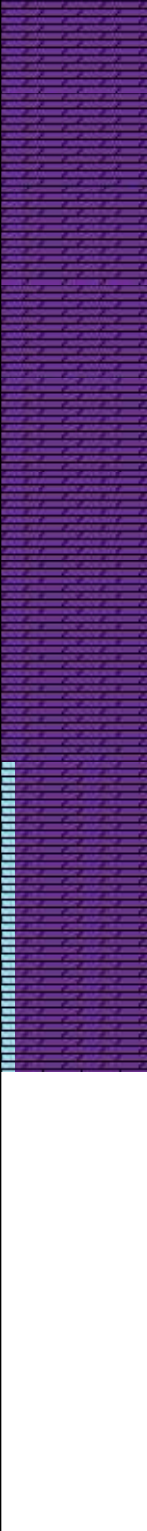
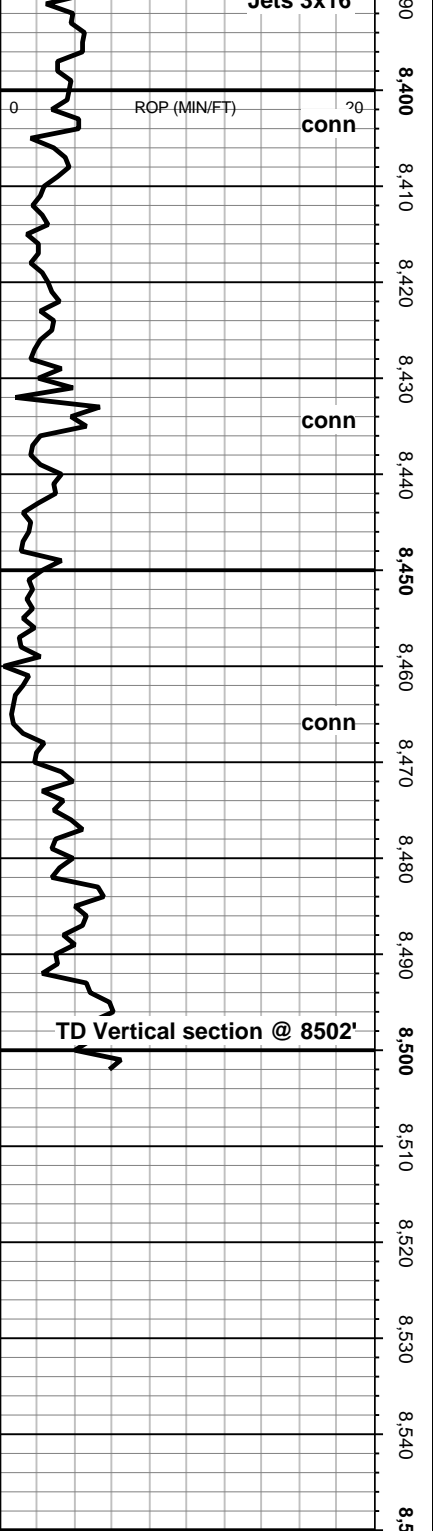
conn

BIT- 6"  
HALIB  
Q30R  
12085330  
lts 3x16

0 GAS (UNITS) 25

0.1 CO2 (percent) 2

0.1 CO2 (percent) 2



DOL: WH-DKGY, FRM-HD, SBLKY-BLKY, MXLN-GRAN, P-POR TR-SH, NO ODOR

DOL: LTGY-DKGY, FRM-HD, SBLKY-BLKY, XLN-GRAN-SUC, VG-POR, NO ODOR

DOL: WH-DKGY MARL, FRM-HD, SBLKY-BLKY, MXLN-GRAN, P-POR, NO ODOR

DOL: WH-DKGY MARL, FRM-HD, SBLKY-BLKY, MXLN-GRAN, P-POR NO ODOR

**17AUG13 DRLG @ 8470'**

DOL: WH-DKGY MARL, FRM-HD, SBLKY-BLKY, MXLN-GRAN, P-POR NO ODOR

DOL: WH-DKGY MARL, FRM-HD, SBLKY-BLKY, MXLN-GRAN, P-POR NO ODOR

**18AUG13 DRLG @ 8502' Run elect logs**

**TD Vertical section @ 8502'**

Thanks for using Above Enterprise

