



# FORMATION EVALUATION LOG



MA32\_N1Q.PR1

Well name : 16/7-9

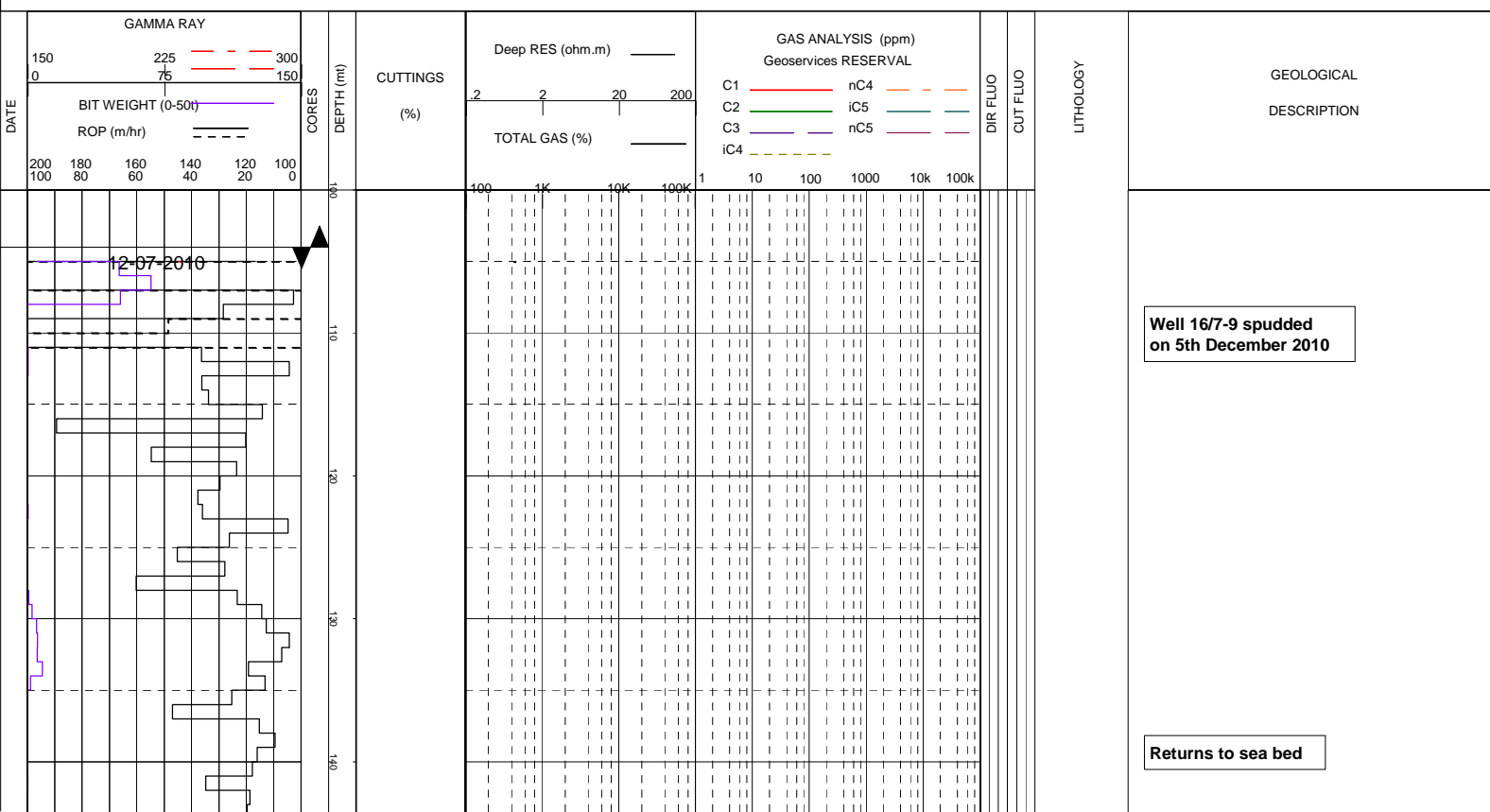
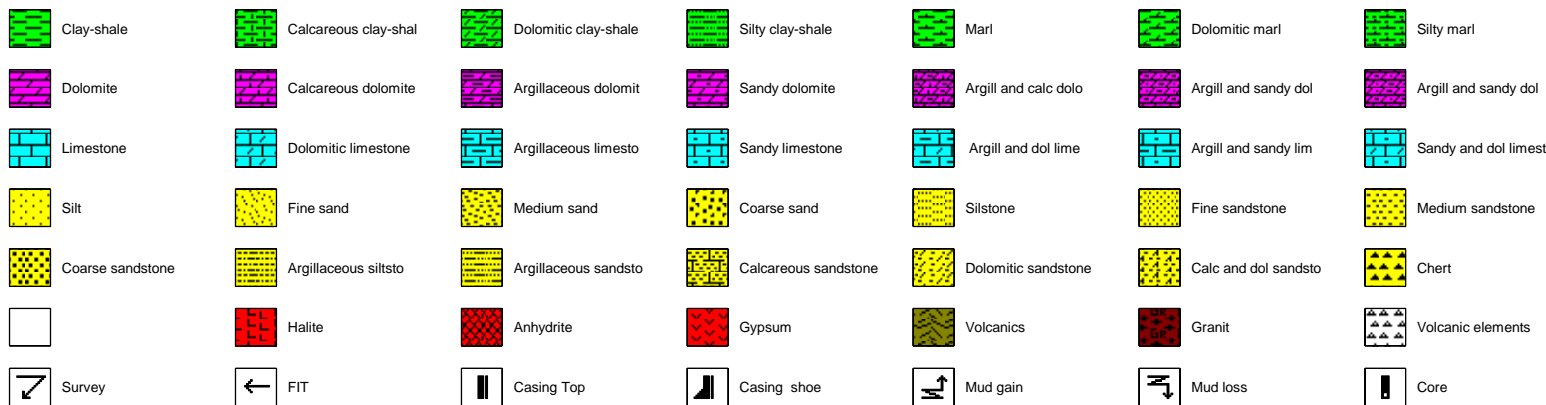
Client name : Lundin

Rig Name : Transocean Winner  
Rig Type : Semi-SubmersibleField : Norall  
Country : Norway  
Area : North SeaSpud Date : 8th November 2010  
TD Reached : 17th November 2010  
Total Drill Days : 22Location long : 2° 17' 24.953" E  
Location lat : 58° 15' 17.47" NUTM loc [E] (m) : 458345  
UTM loc [N] (m) : 6457451

Plot Scale : 1/ 500

Total Depth (m) : 2665  
TVD (m) : 2664.95  
RT - MSL (m) : 26  
MSL - Seabed (m) : 78  
Depth Reference : Rotary Table

Generated by ALX Package



BHA # 2 Bit # 2  
Smith XR + OD VEC  
In: 104 mMD out: 195 mMD  
Made 91m in 7.19h  
Circ: 9.65 Krevs: 31.5  
Grade: 1-1-WT-A-E-I-NO-TD

12-08-2010  
12-09-2010

WOB: 2.69 tons  
TRQ: 2.55 KNm  
RPM: 64 rpm  
FLOW: 3407 l/min  
SPP: 91.3 bar

12-10-2010

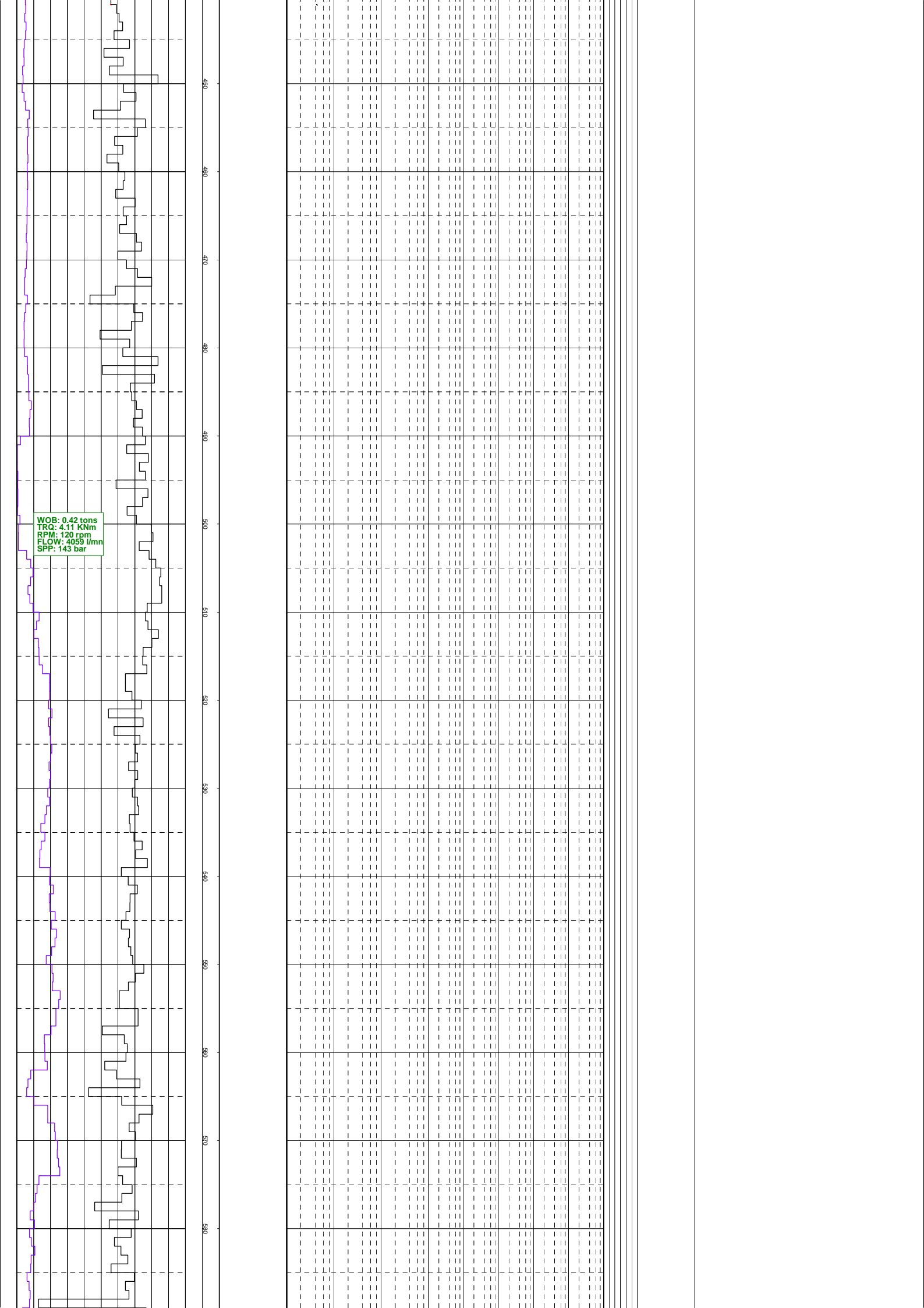
TD 30" Conductor  
at 193mMD

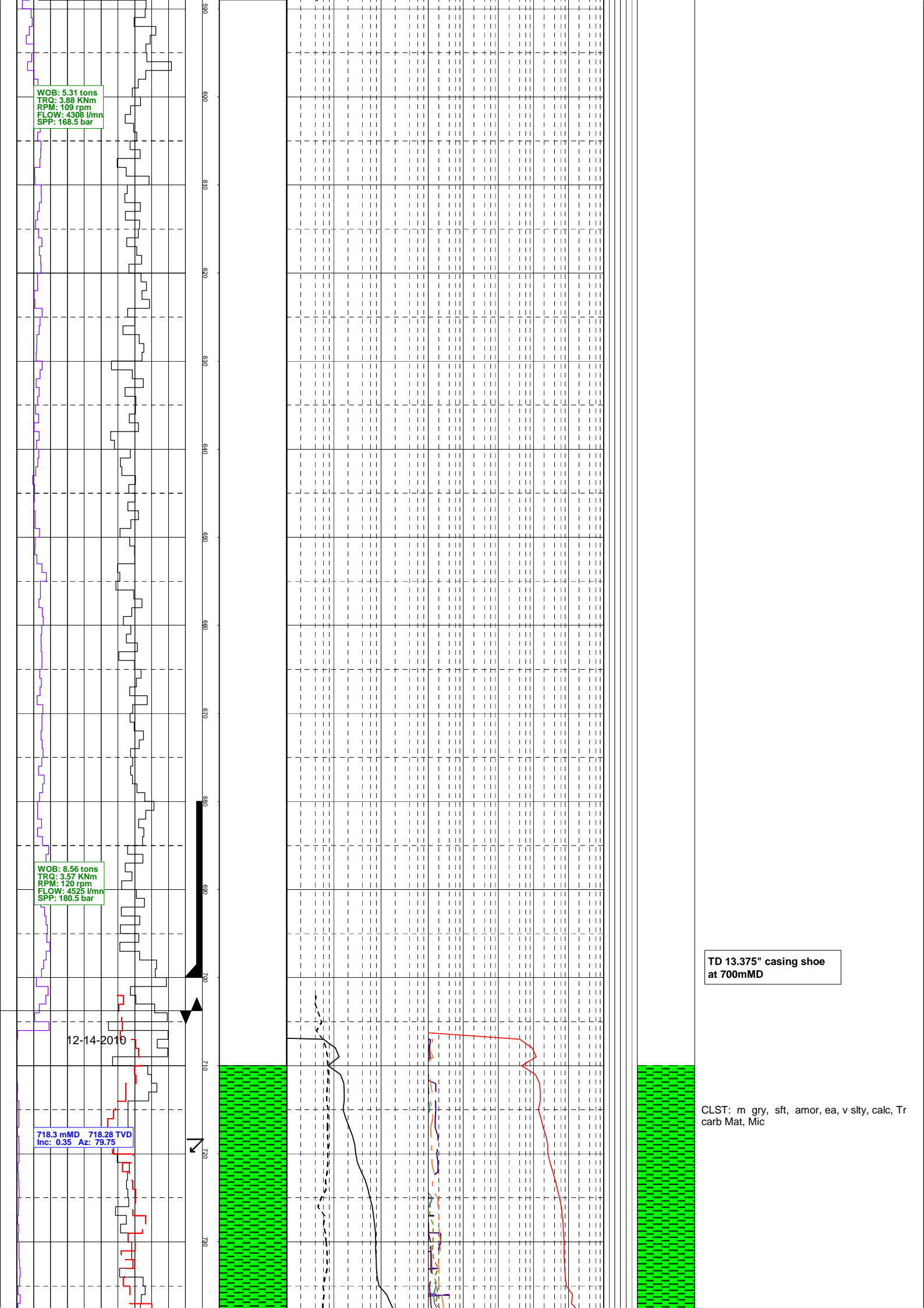
WOB: 4.63 tons  
TRQ: 2.43 KNm  
RPM: 100 rpm  
FLOW: 3985 l/min  
SPP: 129.1 bar

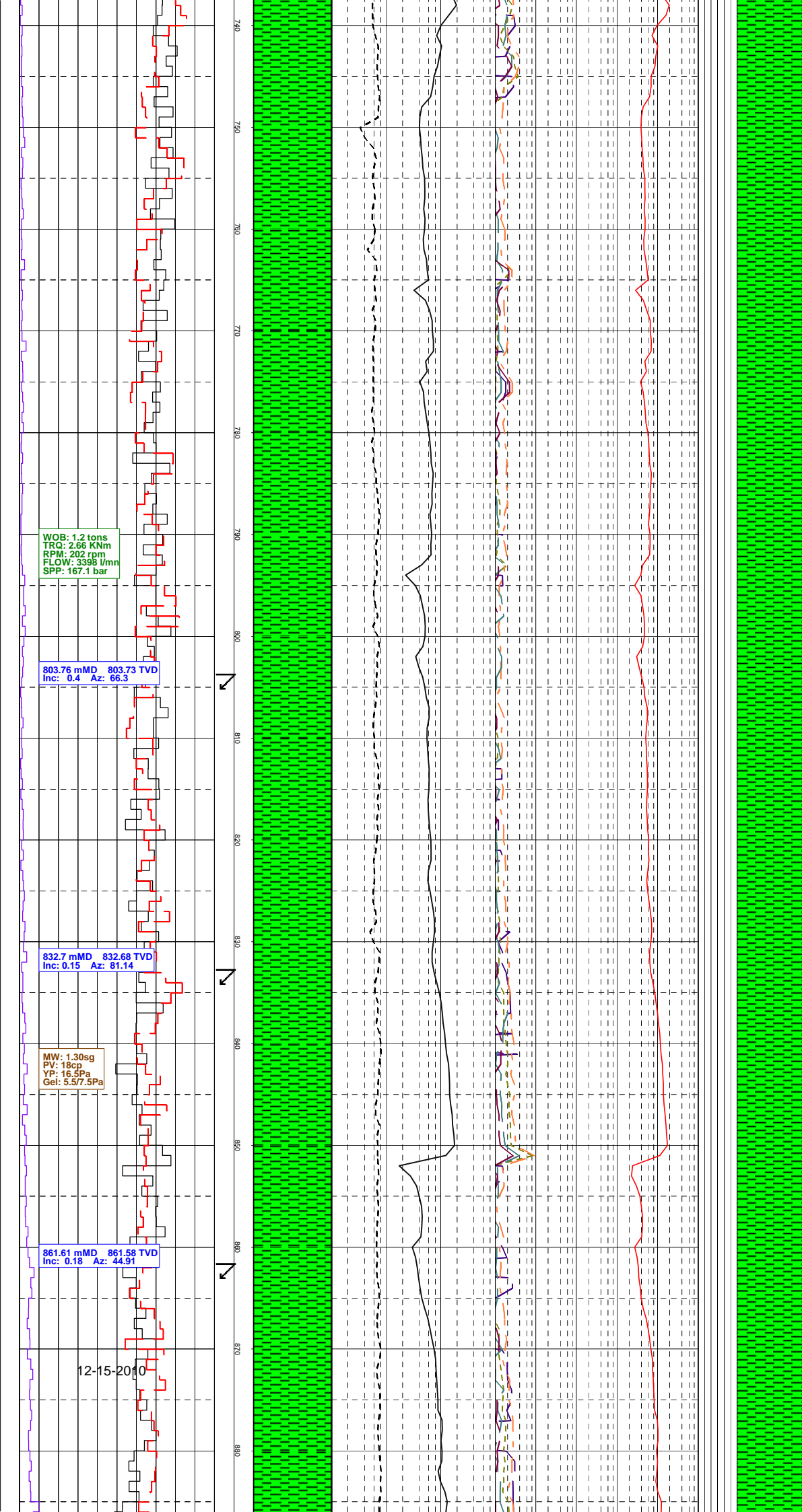
BHA # 4 Bit # 4  
Smith XR + VEC  
In: 195 mMD out: 706 mMD  
Made 511m in 19.11h  
Circ: 23.12 Krev: 124.5  
Grade: 1-1-BU-A-E-I-WT-TD

WOB: 1.79 tons  
TRQ: 2.09 KNm  
RPM: 100 rpm  
FLOW: 3983 l/min  
SPP: 133.2 bar

300  
310  
320  
330  
340  
350  
360  
370  
380  
390  
400  
410  
420  
430  
440



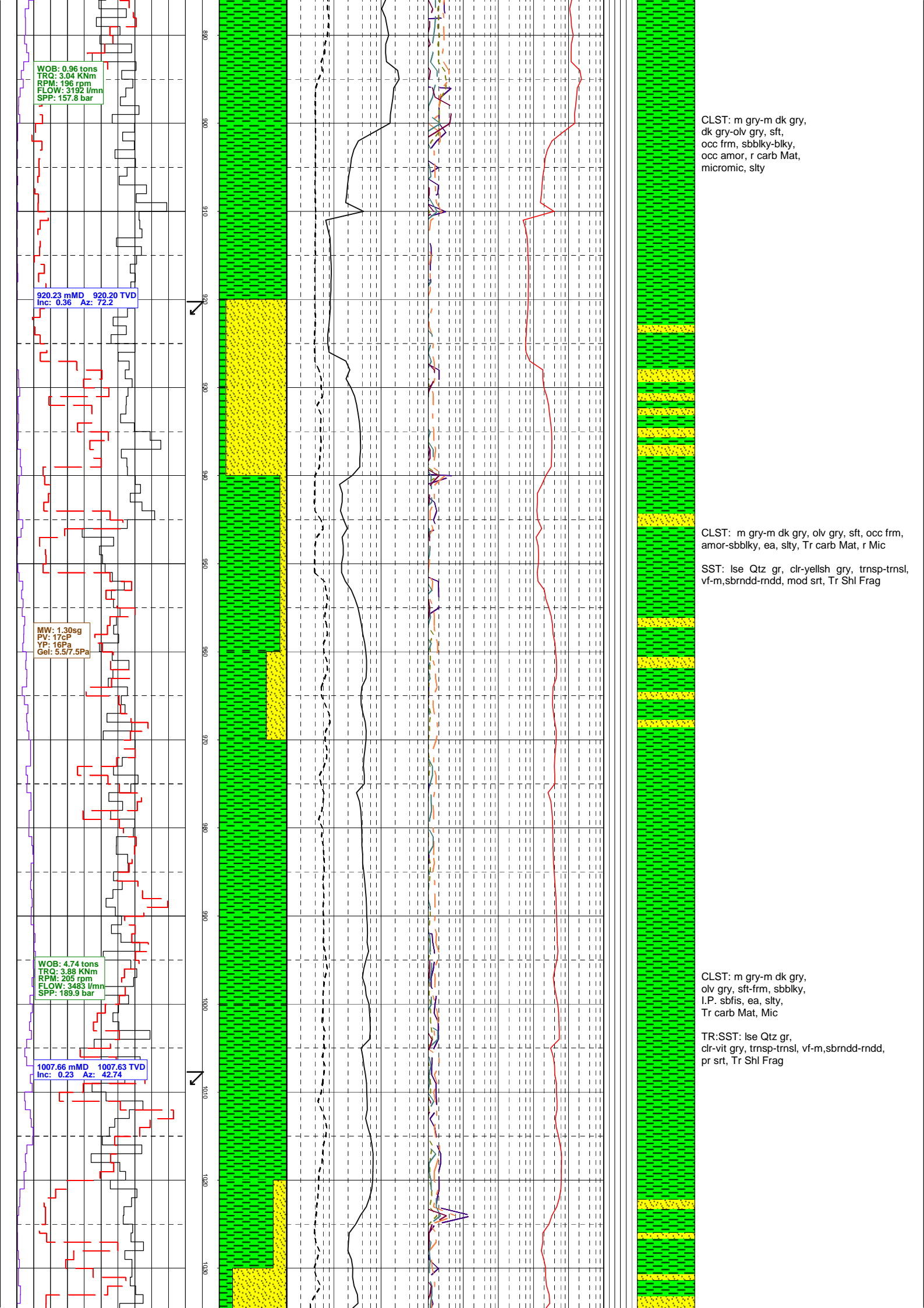




CLST: m gry-m dk gry, dk gry-olv gry, sft,  
occ frm, sbblky-blky, occ amor, r carb Mat,  
micromic, slty

CLST: m gry-m dk gry, dk gry-olv gry, sft,  
occ frm, sbblky-blky, occ amor, r carb Mat,  
micromic, slty

CLST: m gry-m dk gry, dk gry-olv gry, sft,  
occ frm, sbblky-blky, occ amor, r carb Mat,  
micromic, slty



WOB: 0.96 tons  
TRQ: 3.04 KNm  
RPM: 196 rpm  
FLOW: 3192 l/min  
SPP: 157.8 bar

920.23 mMD 920.20 TVD  
Inc: 0.36 Az: 72.2

MW: 1.30sg  
PV: 17cP  
YP: 16Pa  
Gel: 5.5/7.5Pa

WOB: 4.74 tons  
TRQ: 3.88 KNm  
RPM: 205 rpm  
FLOW: 3483 l/min  
SPP: 189.9 bar

1007.66 mMD 1007.63 TVD  
Inc: 0.23 Az: 42.74

CLST: m gry-m dk gry,  
dk gry-olv gry, sft,  
occ frm, sbblky-blky,  
occ amor, r carb Mat,  
micromic, slty

CLST: m gry-m dk gry, olv gry, sft, occ frm,  
amor-sbblky, ea, slty, Tr carb Mat, r Mic

SST: lse Qtz gr, clr-yellsh gry, trnsp-trnsl,  
vf-m,sbrnnd-rnnd, mod srt, Tr Shl Frag

CLST: m gry-m dk gry,  
olv gry, sft-frm, sbblky,  
I.P. sbfis, ea, slty,  
Tr carb Mat, Mic

TR:SST: lse Qtz gr,  
clr-vit gry, trnsp-trnsl, vf-m,sbrnnd-rnnd,  
pr srt, Tr Shl Frag

1038.58 mMD 1038.55 TVD  
Inc: 0.29 Az: 108.53

1095.16 mMD 1095.13 TVD  
Inc: 0.12 Az: 56.87

WOB: 2.31 tons  
TRQ: 3.54 KNm  
RPM: 205 rpm  
FLOW: 3492 l/min  
SPP: 187.1 bar

MW: 1.30sg  
PV: 16cP  
YP: 18Pa  
Gel: 6.5/10.5Pa

1125.20 mMD 1025.17 TVD  
Inc: 0.29 Az: 94.26

1182.79 mMD 1182.76 TVD  
Inc: 0.29 Az: 94.26

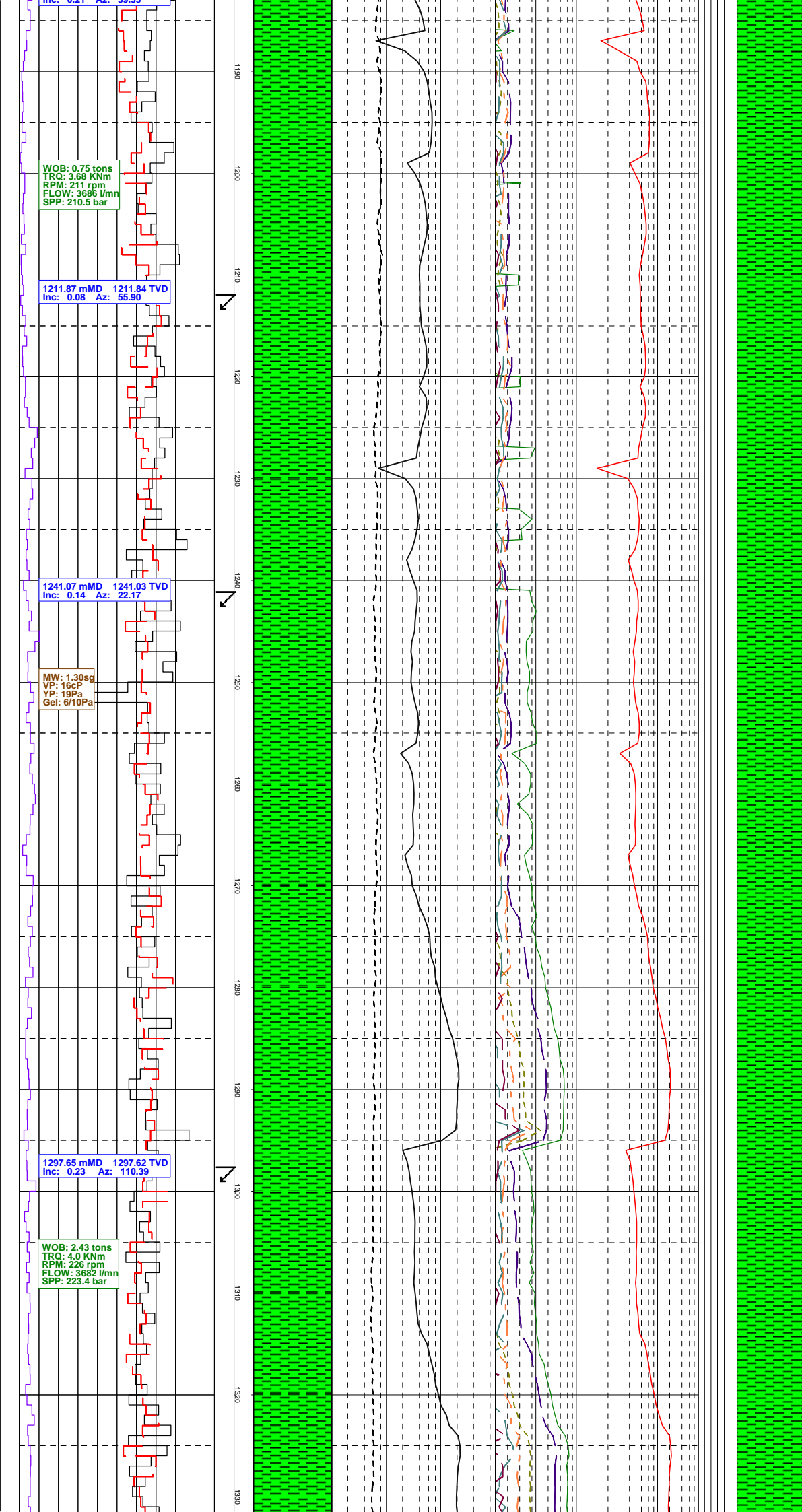
CLST: olv gry-dk gry, olv blk-brnsh blk, frm  
blk, slty, non calc, Tr carb Mat, Mic

SST: lse Qtz gr, clr-pksh gry, f-med  
sbrndd-rndd, mod-wl srt

CLST: dsky yelsh brn-dsky brn, frm,  
sbbkly, I.P.fri, slty-v slty, grad Stst,  
non calc, Tr Mic, carb Mat

CLST: dsky yelsh brn-dsky brn, stf-frm,  
sbbkly, slty-v slty, Tr Mic, r carb Mat, non  
calc





WOB: 0.75 tons  
TRQ: 3.68 KNm  
RPM: 211 rpm  
FLOW: 3686 l/min  
SPP: 210.5 bar

1211.87 mMD 1211.84 TVD  
Inc: 0.08 Az: 55.90

1241.07 mMD 1241.03 TVD  
Inc: 0.14 Az: 22.17

MW: 1.30sg  
VP: 16cP  
YP: 19Pa  
Gel: 6/10Pa

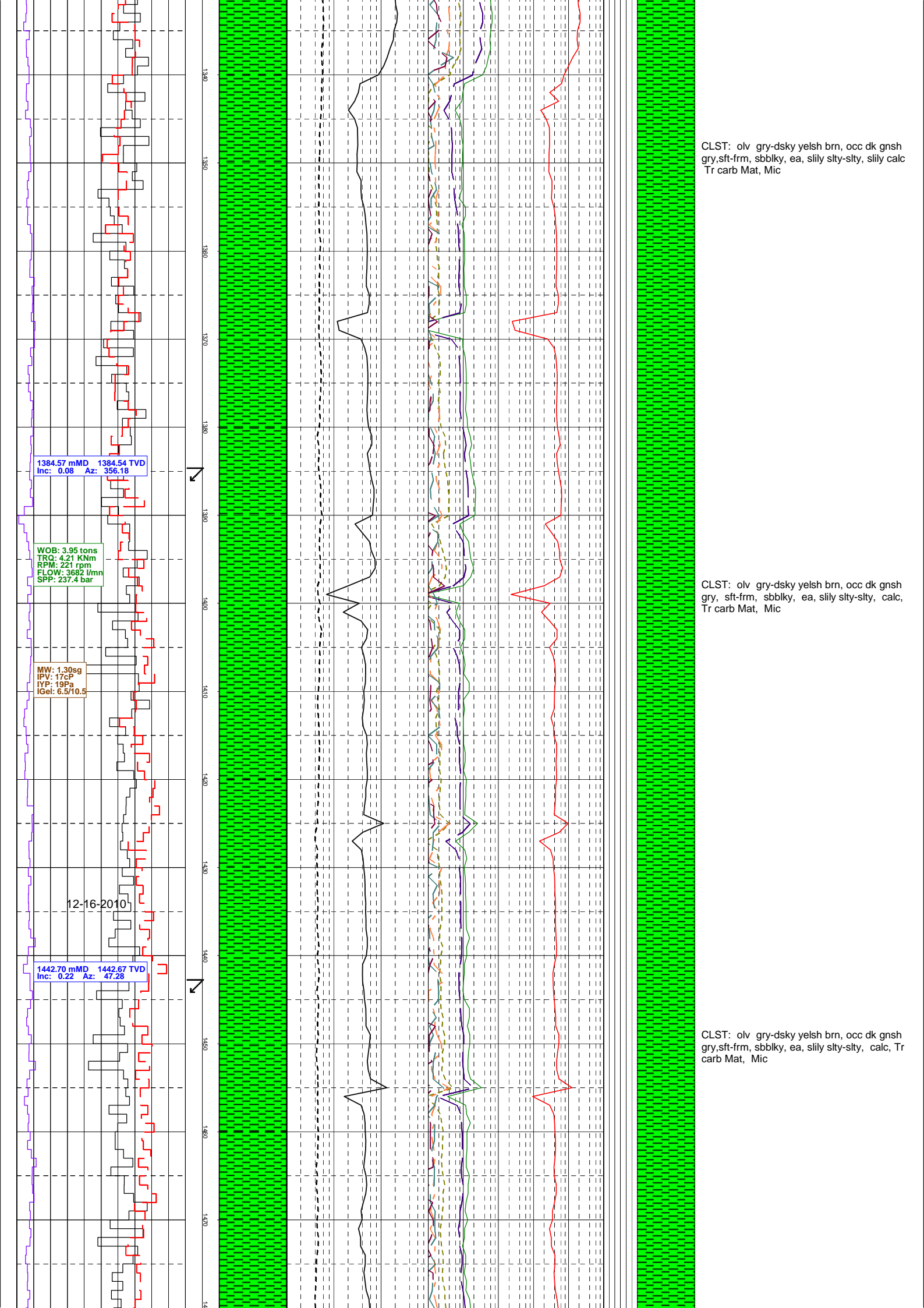
1297.65 mMD 1297.62 TVD  
Inc: 0.23 Az: 110.39

WOB: 2.43 tons  
TRQ: 4.0 KNm  
RPM: 226 rpm  
FLOW: 3682 l/min  
SPP: 223.4 bar

CLST: dsky yelsh brn-dsky brn, sft-frm,  
sbbiky, slty-v slty, grad Slstst, Tr Mic, r carb  
Mat, non calc

CLST: dsky yelsh brn-dsky brn, sft-frm,  
sbbiky, slty-v slty, Tr Mic, r carb Mat, non  
calc

CLST: dk yelsh brn,  
dsky yelsh brn-dsky brn, sft-frm,  
sbbiky, ea,  
slily slty-slty, Tr carb Mat, Mic



WOB: 1.62 tons  
TRQ: 3.78 KNm  
RPM: 220 rpm  
FLOW: 3689 l/min  
SPP: 240.7 bar

1500.08 mMD 1500.05 TVD  
Inc: 0.18 Az: 353.00

BHA # 5 Bit 5, 12.25"  
HALLIBURTON PDC  
In: 706 mMD out: 2204 mMD  
Made 1498m in 27.4h  
Circ: 104.6 Krevs: 556  
Grade: 1-3-WT-S-X-1-LT-TD

MW: 1.30sg  
PV: 19cP  
YP: 20.5Pa  
Gel: 6.5/10Pa

1558.87 mMD 1558.84 TVD  
Inc: 0.26 Az: 40.36

WOB: 1.73 tons  
TRQ: 5.0 KNm  
RPM: 237 rpm  
FLOW: 3688 l/min  
SPP: 251.4 bar

1618.70 mMD 1618.66 TVD  
Inc: 0.17 Az: 310.42

CLST: olv gry-dsky yelsh brn, occ dk gnsh  
gry.sft-frm, sbbiky-blky, slty, calc, Tr carb  
Mat, Mic, Glau, Pyr

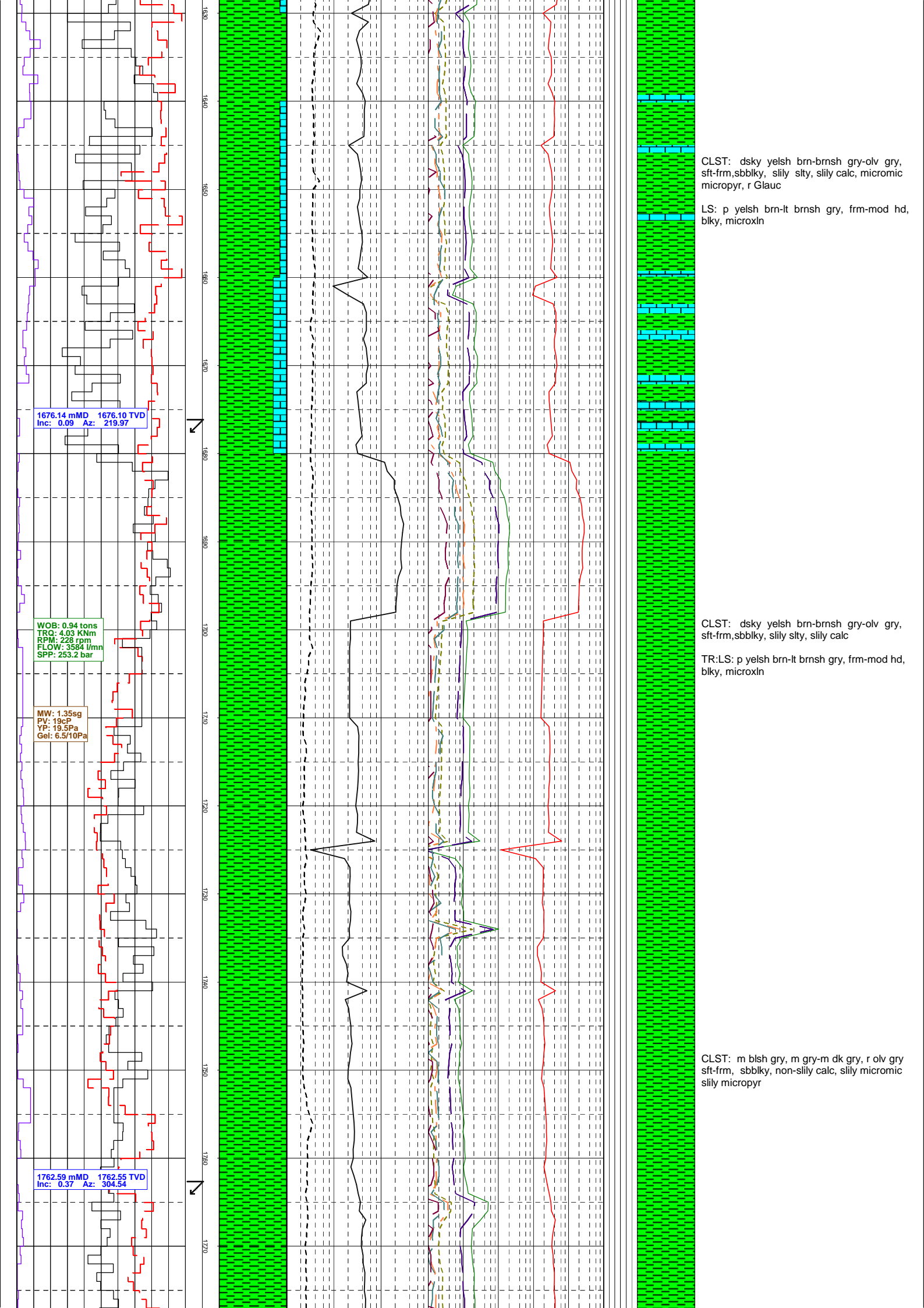
LS: p yelsh brn-grysh or, frm-mod hd, blky,  
microxln

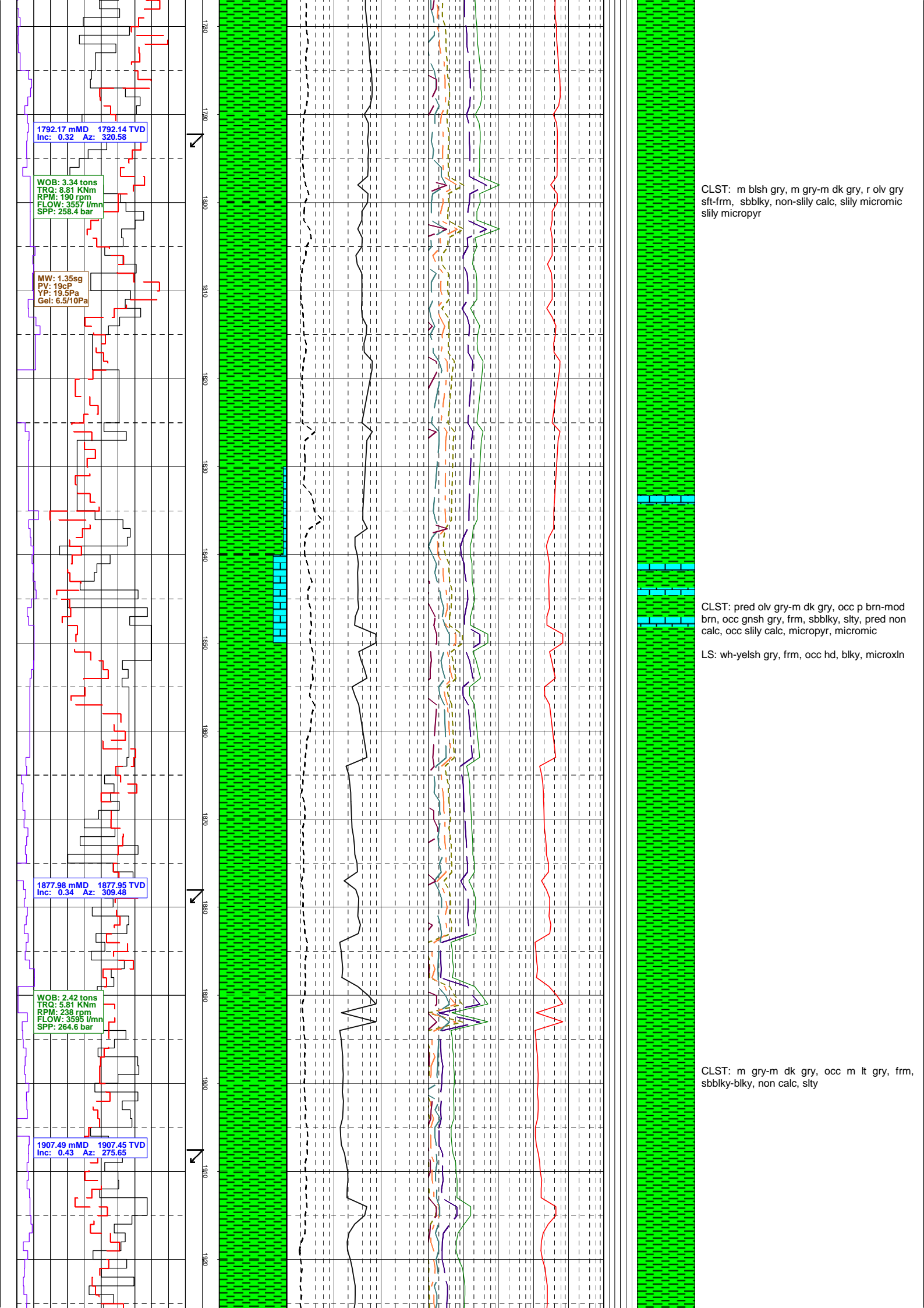
CLST: olv gry-dsky yelsh brn, sft-frm,  
sbbiky-blky,slty,  
calc, Tr carb Mat, micromic

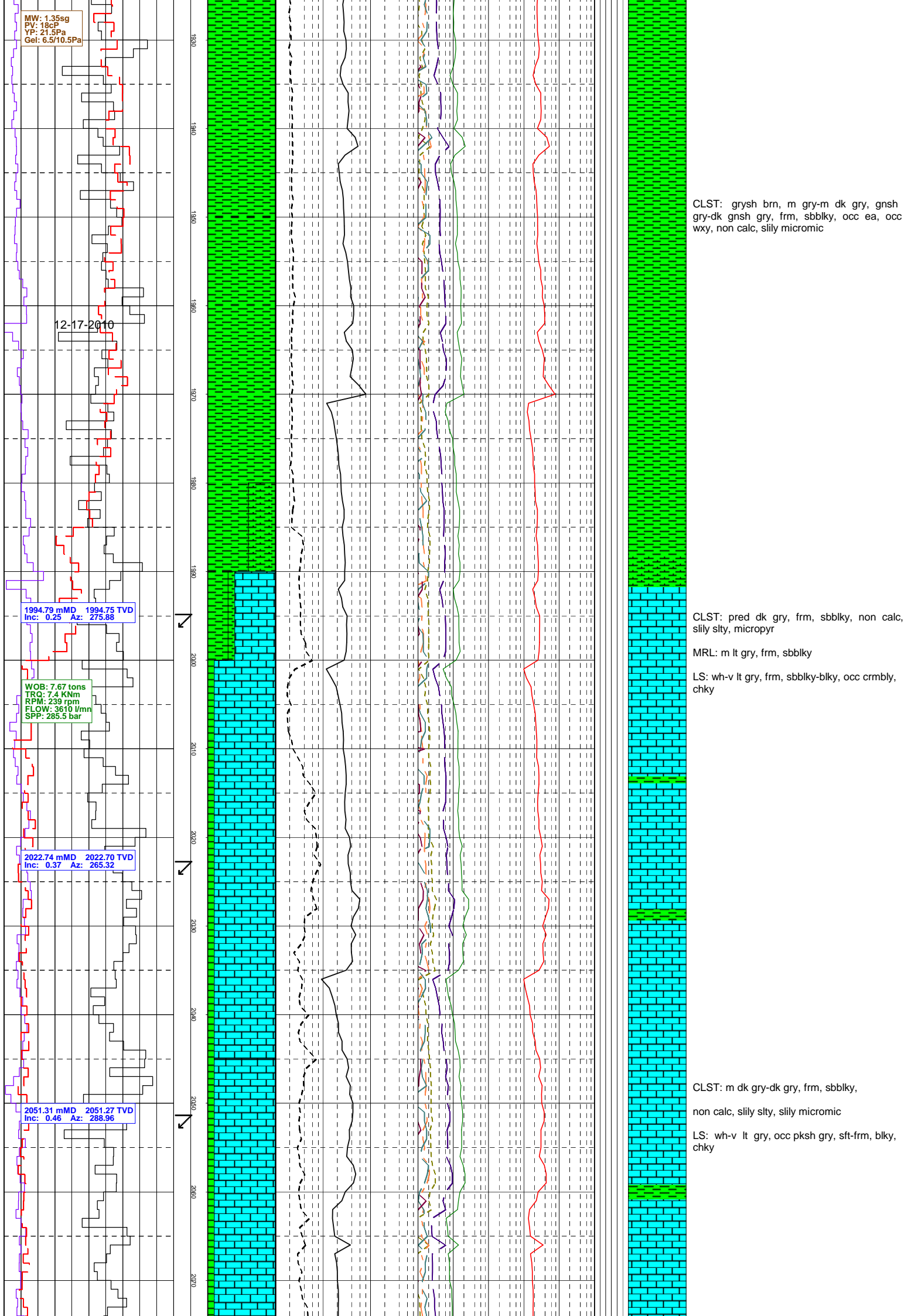
TR:LS: p yelsh brn,  
frm-mod hd, blky,  
microxln

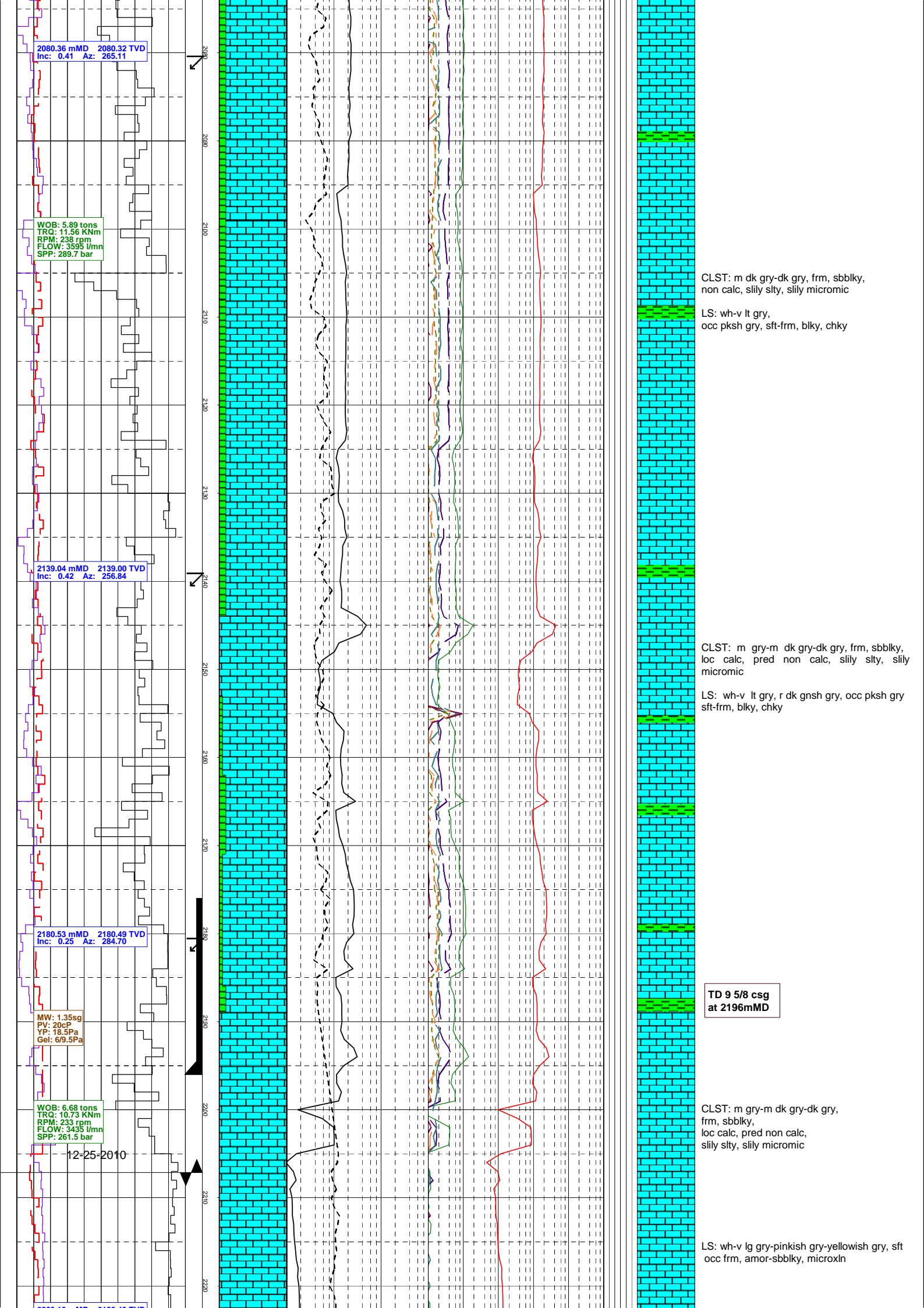
CLST: olv gry-dsky yelsh brn, sft-frm,  
sbbiky-blky, slty, calc, Tr carb Mat, micromic

LS: p yelsh brn, frm-mod hd, blky, microxln









2080.36 mMD 2080.32 TVD  
Inc: 0.41 Az: 265.11

WOB: 5.89 tons  
TRQ: 11.56 KNm  
RPM: 238 rpm  
FLOW: 3595 l/min  
SPP: 289.7 bar

2139.04 mMD 2139.00 TVD  
Inc: 0.42 Az: 256.84

2180.53 mMD 2180.49 TVD  
Inc: 0.25 Az: 284.70

MW: 1.35sg  
PV: 20cP  
YP: 18.5Pa  
Gel: 6/9.5Pa

WOB: 6.68 tons  
TRQ: 10.73 KNm  
RPM: 233 rpm  
FLOW: 3435 l/min  
SPP: 261.5 bar

12-25-2010

CLST: m dk gry-dk gry, frm, sbblky,  
non calc, slily slty, slily micromic

LS: wh-v lt gry,  
occ pksh gry, sft-frm, blk, chky

CLST: m gry-m dk gry-dk gry, frm, sbblky,  
loc calc, pred non calc, slily slty, slily  
micromic

LS: wh-v lt gry, r dk gnsh gry, occ pksh gry  
sft-frm, blk, chky

TD 9 5/8 csg  
at 2196mMD

CLST: m gry-m dk gry-dk gry,  
frm, sbblky,  
loc calc, pred non calc,  
slily slty, slily micromic

LS: wh-v lg gry-pinkish gry-yellowish gry, sft  
occ frm, amor-sbblky, microxln



