



Company : Apache

Well : Madfish-1

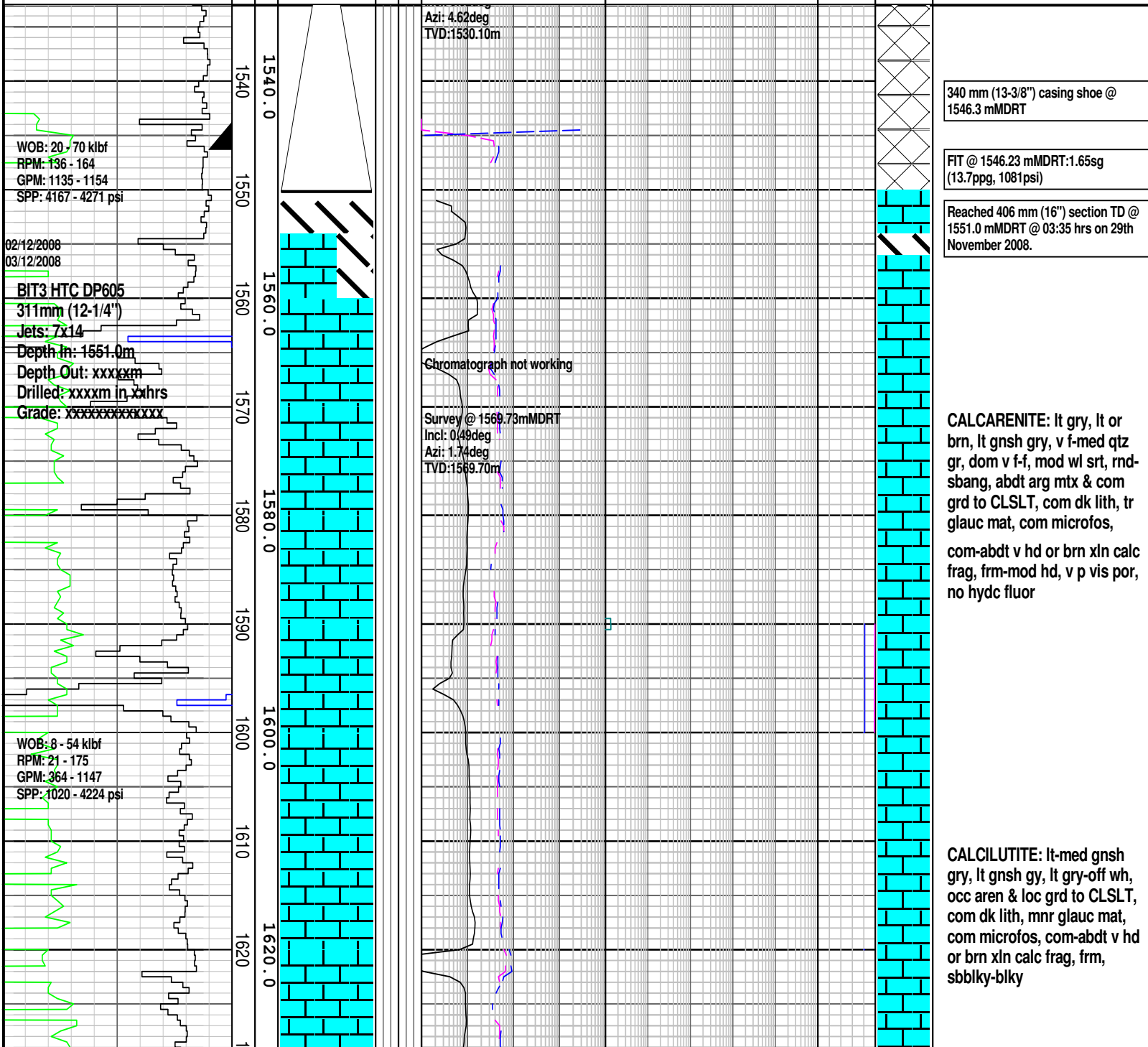
Interval : 1533.00 - 2634.09 meters

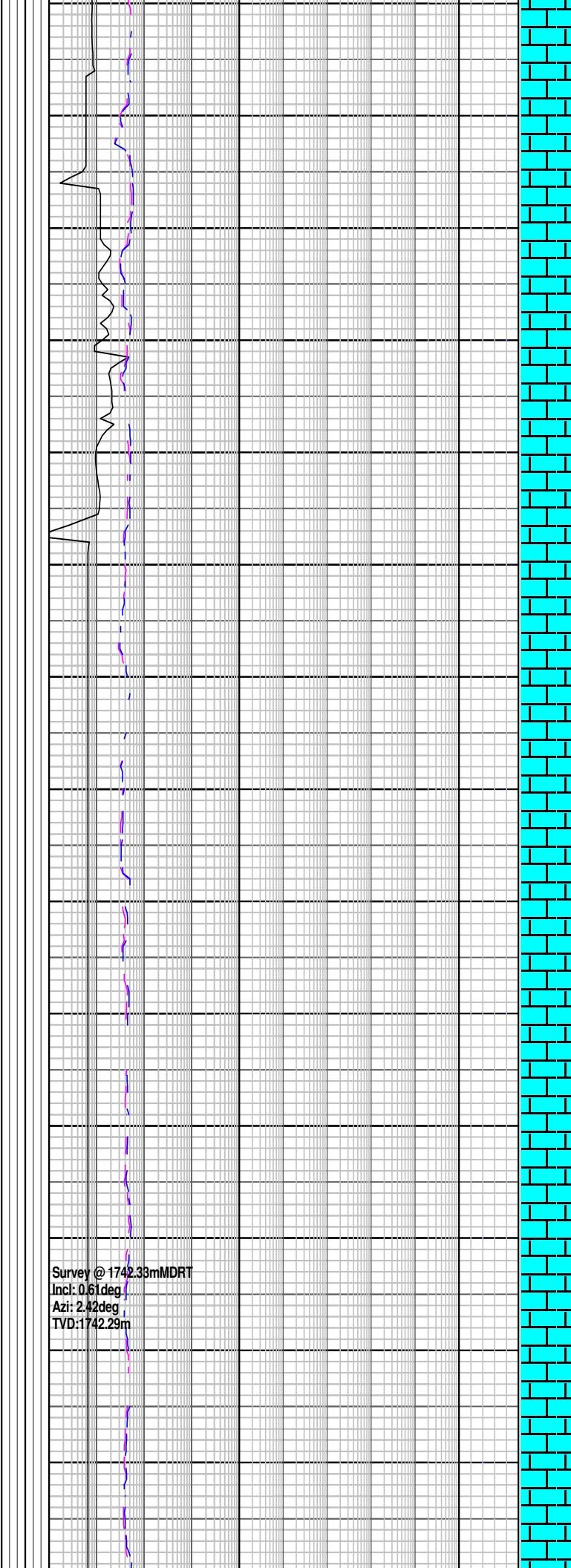
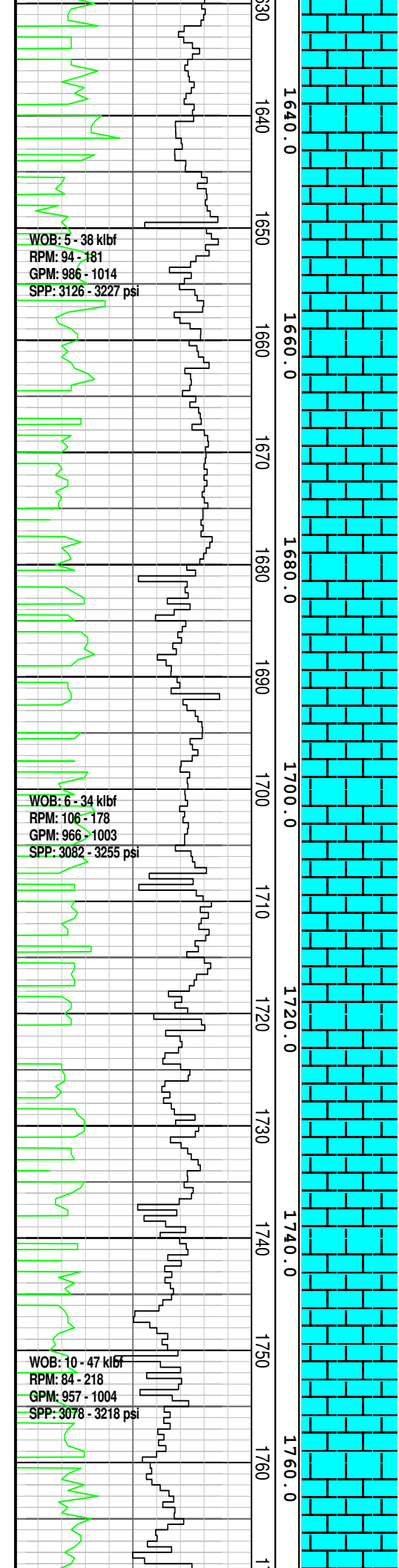
Created : 04/Dec/2008 8:13:47 AM

INTEQ

FORMATION EVALUATION LOG

| | | | | | | | |
|--|---|-------------------------------|--|---|---|--|----------------------------------|
| Drilling Rate ROP (m/hr) ROP (m/hr) Gamma Ray API | MD meters TVDRT meters MD meters 1:500 | Cuttings Lithology | Oil Show P F G Visual Inferred Porosity P F G | Gas Data Gas Hydrocarbon Avg % 0.1 1 10 100 Resistivity Shall Ohm.m 0.1 1000 Resistivity Deep Ohm.m 0.1 1000 | Chromatograph Data Methane ppm 100000 Ethane ppm 100000 Propane ppm 100000 iso-Butane ppm 100000 n-Butane ppm 100000 iso-Pentane ppm 100000 n-Pentane ppm 100000 | Calcmetry CaCO3 % 20 40 60 80 100 MgCO3 % 100 80 60 40 20 | Lithology Description |
| | | | | P F G P F G | CaCO3 % MgCO3 % | | |

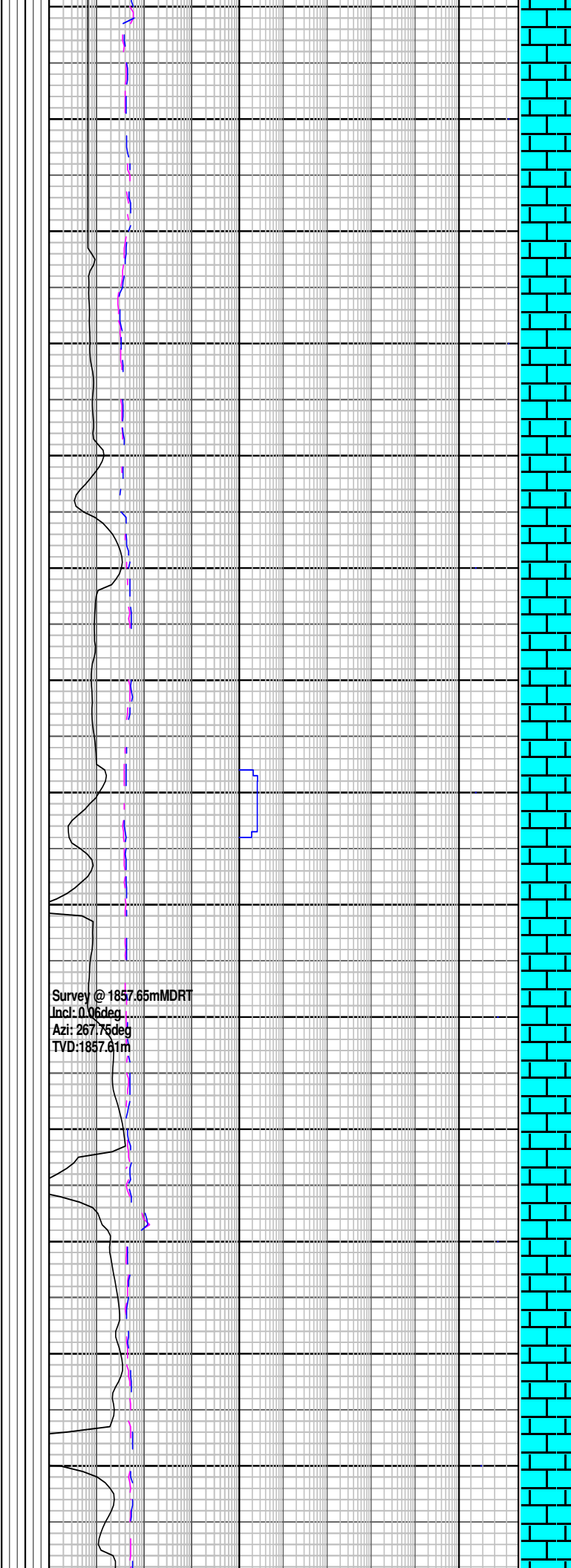
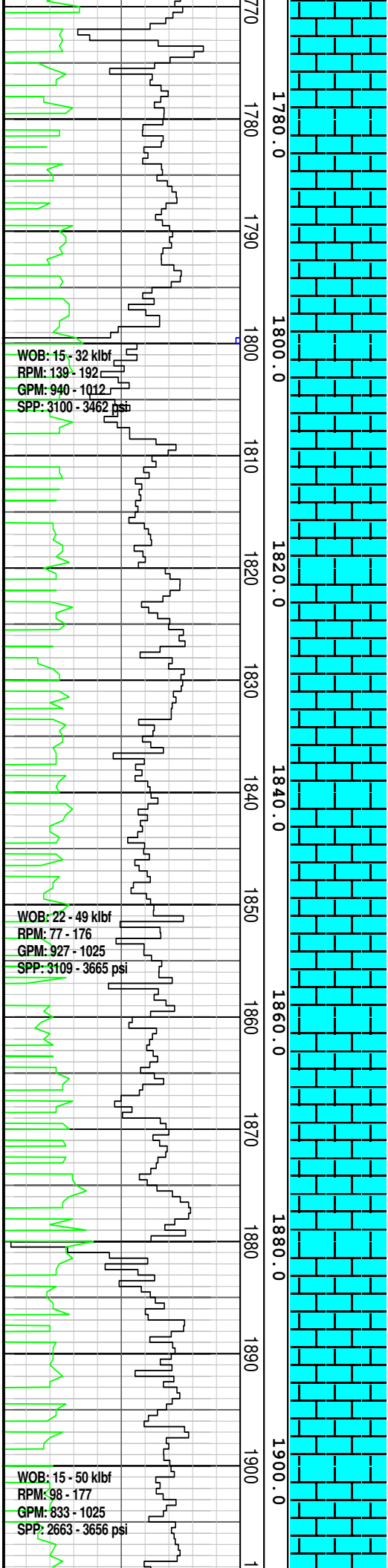




CALCARENITE: lt gry, lt or brn, lt gnsh gry, v f-med qtz gr, dom v f-f, mod wl srt, rnd-sbang, abd arg mtx & com grd to CLSLT, com dk lith, tr glauc mat, com microfos, com-abd v hd or brn xln calc frag, frm-mod hd, v p vis por, no hydc fluor

Survey @ 1742.33mMDRT
 Incl: 0.61deg
 Azi: 2.42deg
 TVD: 1742.29m

CALCISILTITE: med gry-olv gry, com arg mtx & grd to CLCLT, mnr dk lith, mnr glauc mat, com microfos, mnr micmic, sft-frm, dom frm, mnr



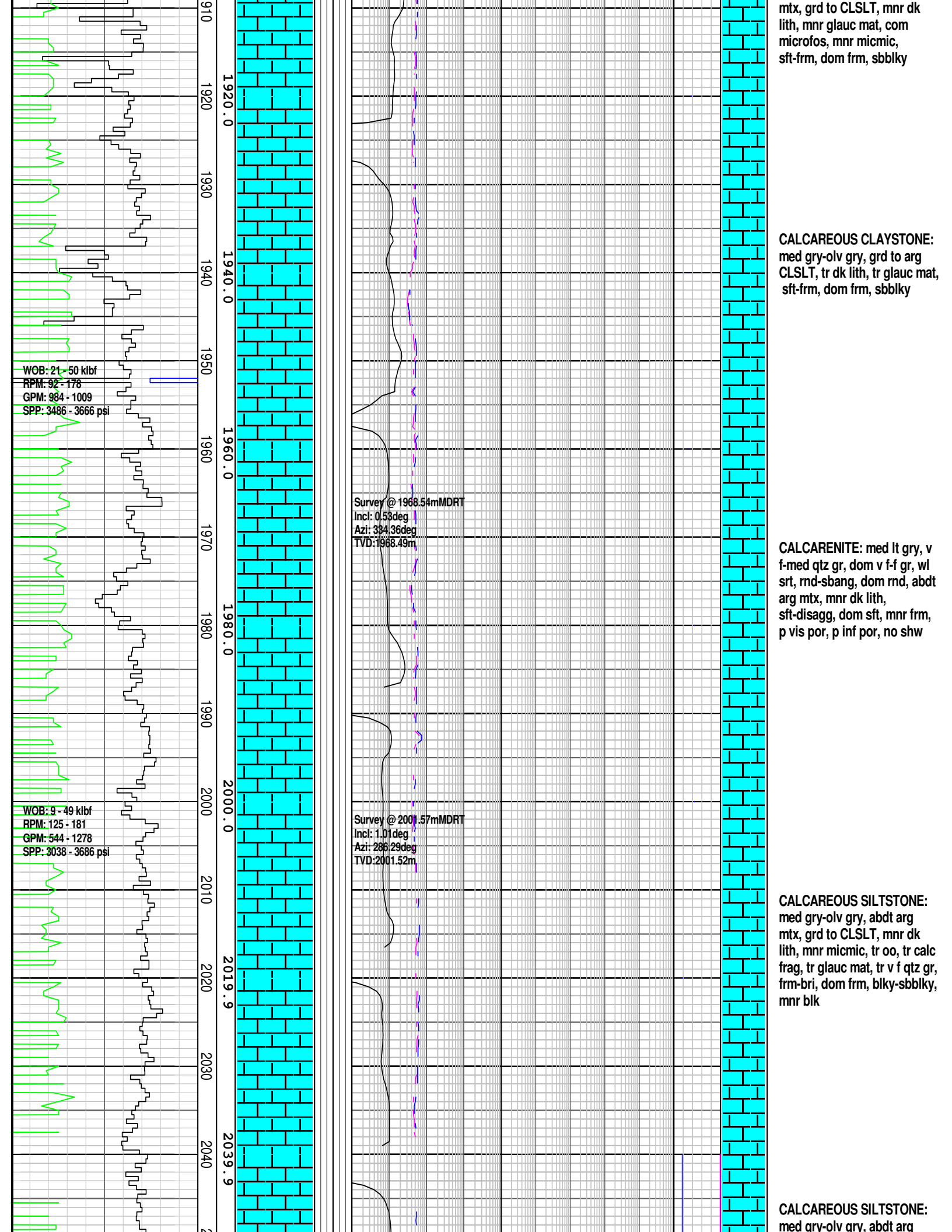
sft, sbbiky

CALCULUTITE: med gry-med dk gry, mnr lt gry-med lt gry, mnr olv gry, sft & grd to CLSLT, arg & grd to CALC CLST, mnr dk lith, mnr glauc mat, com microfos, sft-frm, dom frm, sbbiky

CALCAREOUS CLAYSTONE: med dk gry-olv gry, grd to arg CLCLT, tr dk lith, sft-frm, sbbiky

DOLOMITE: olv gry-dk yelsh brn, mnr med gry, xln, grd to Dol LST, hd-bri, dom blk, fiss i/p

CALCAREOUS SILTSTONE: med gry-olv gry, abdt arg



mtx, grd to CLSLT, mnr dk lith, mnr glauc mat, com microfos, mnr micmic, sft-frm, dom frm, sbblky

CALCAREOUS CLAYSTONE:
 med gry-olv gry, grd to arg CLSLT, tr dk lith, tr glauc mat, sft-frm, dom frm, sbblky

CALCARENITE: med lt gry, v f-med qtz gr, dom v f-f gr, wl srt, rnd-sbang, dom rnd, abdt arg mtx, mnr dk lith, sft-disagg, dom sft, mnr frm, p vis por, p inf por, no shw

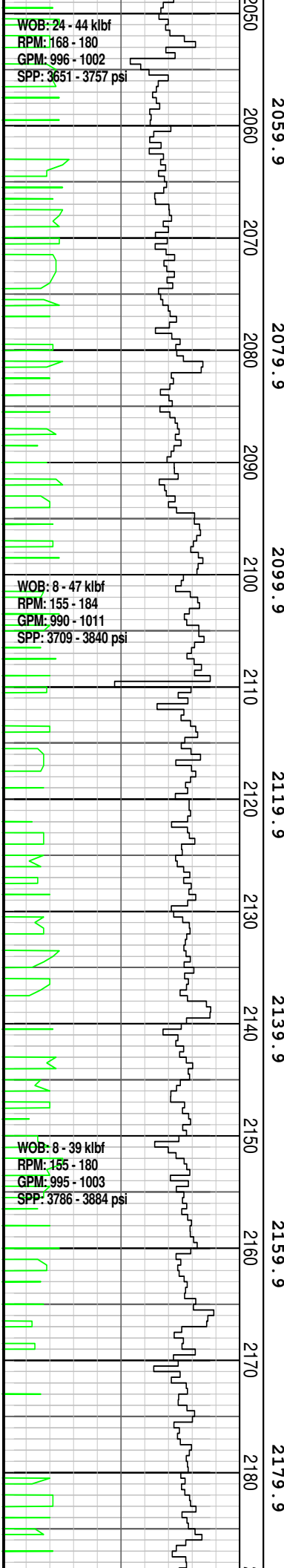
CALCAREOUS SILTSTONE:
 med gry-olv gry, abdt arg mtx, grd to CLSLT, mnr dk lith, mnr micmic, tr oo, tr calc frag, tr glauc mat, tr v f qtz gr, frm-bri, dom frm, blk-sbblky, mnr blk

CALCAREOUS SILTSTONE:
 med gry-olv gry, abdt arg

WOB: 24 - 44 kbf
RPM: 168 - 180
GPM: 996 - 1002
SPP: 3651 - 3757 psi

WOB: 8 - 47 kbf
RPM: 155 - 184
GPM: 990 - 1011
SPP: 3709 - 3840 psi

WOB: 8 - 39 kbf
RPM: 155 - 180
GPM: 995 - 1003
SPP: 3786 - 3884 psi



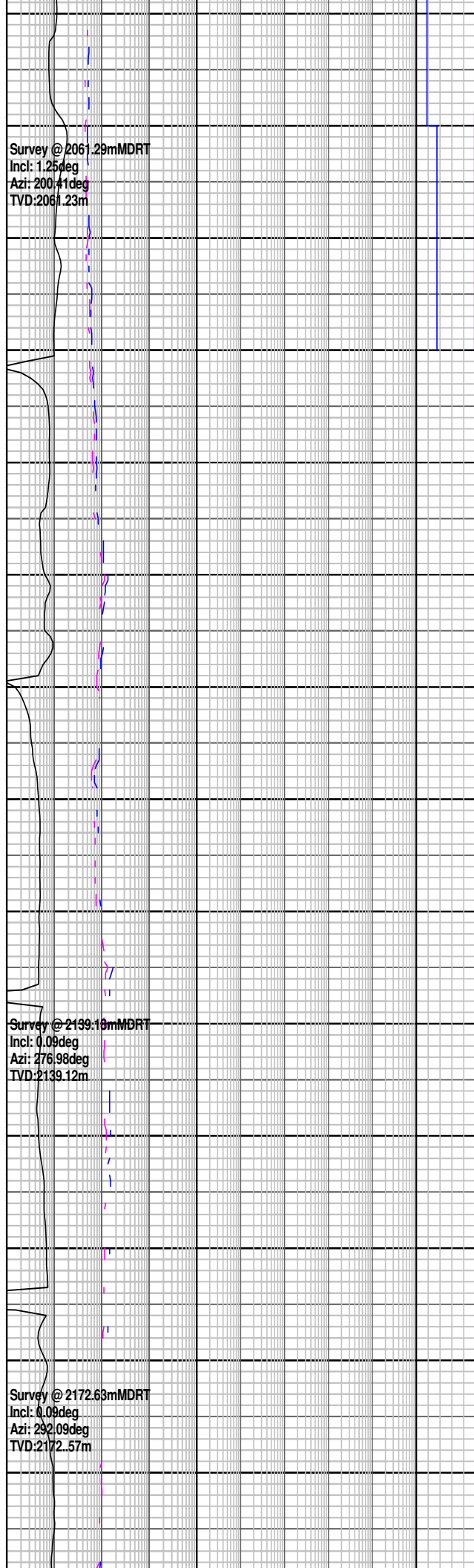
2050
2060
2070
2080
2090
2100
2110
2120
2130
2140
2150
2160
2170
2180

2059.9
2079.9
2099.9
2119.9
2139.9
2159.9
2179.9

Survey @ 2061.29mMDRT
Incl: 1.25deg
Azi: 200.41deg
TVD:2061.23m

Survey @ 2139.18mMDRT
Incl: 0.09deg
Azi: 276.98deg
TVD:2139.12m

Survey @ 2172.63mMDRT
Incl: 0.09deg
Azi: 292.09deg
TVD:2172.57m



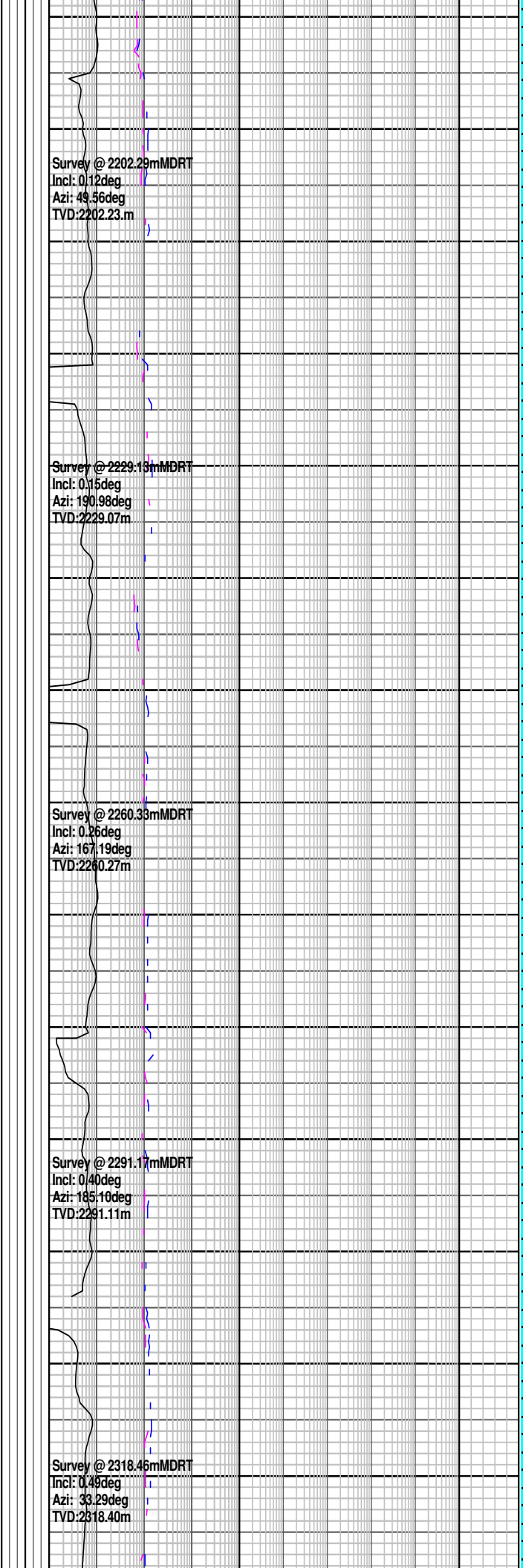
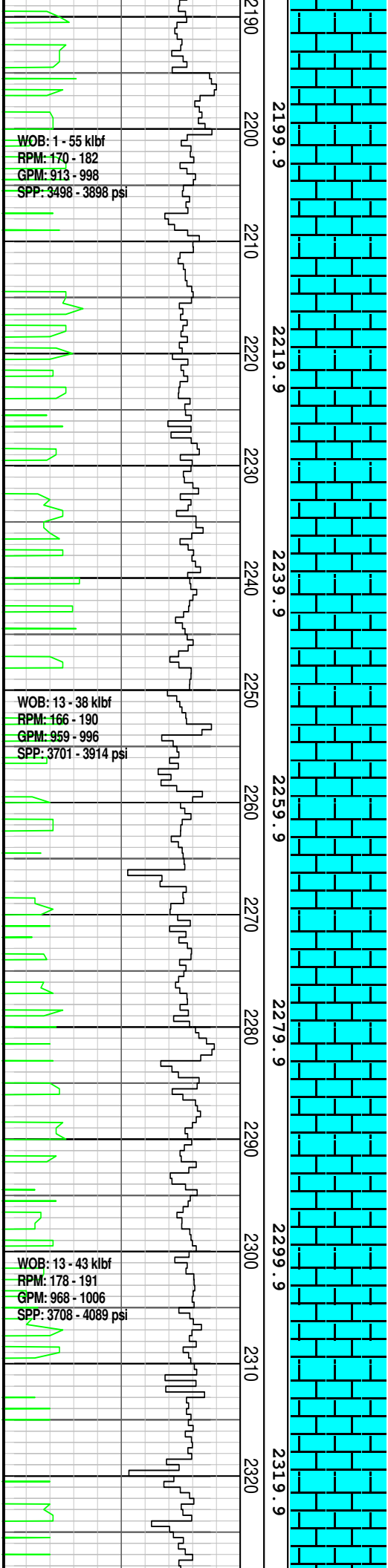
mtx, grd to CLSLT, mnr dk lith, mnr micmic, tr oo, tr calc frag, tr glauc mat, tr v f qtz gr, frm-bri, dom frm, blk-ssblky, mnr blk

CALCAREOUS CLAYSTONE:
med gry-olv gry, com-med lt gry, grd to arg CLSLT, slt & grd to CALC SLTST, tr dk lith, tr glauc mat, tr fos & oo, sft-frm, dom frm, sbbly

CALCAREOUS SILTSTONE:
med gry-olv gry, abdt arg mtx & grd to CALC CLST, tr Dol, grd to CLSLT, mnr dk lith, mnr micmic, tr oo, tr calc frag, tr glauc mat, tr v f qtz gr, frm-bri, dom frm, blk-ssblky, mnr blk

CALCAREOUS CLAYSTONE:
med lt gry mott, off wh-lt olv gry, abdt arg mtx, rr Dol, com dk lith, com v f aren microxln i/p, tr v f glauc, frm-hd, dom mod hd, blk-ssblky

SILTSTONE: med lt gry w/ mott .olv gry, abdt arg mtx &

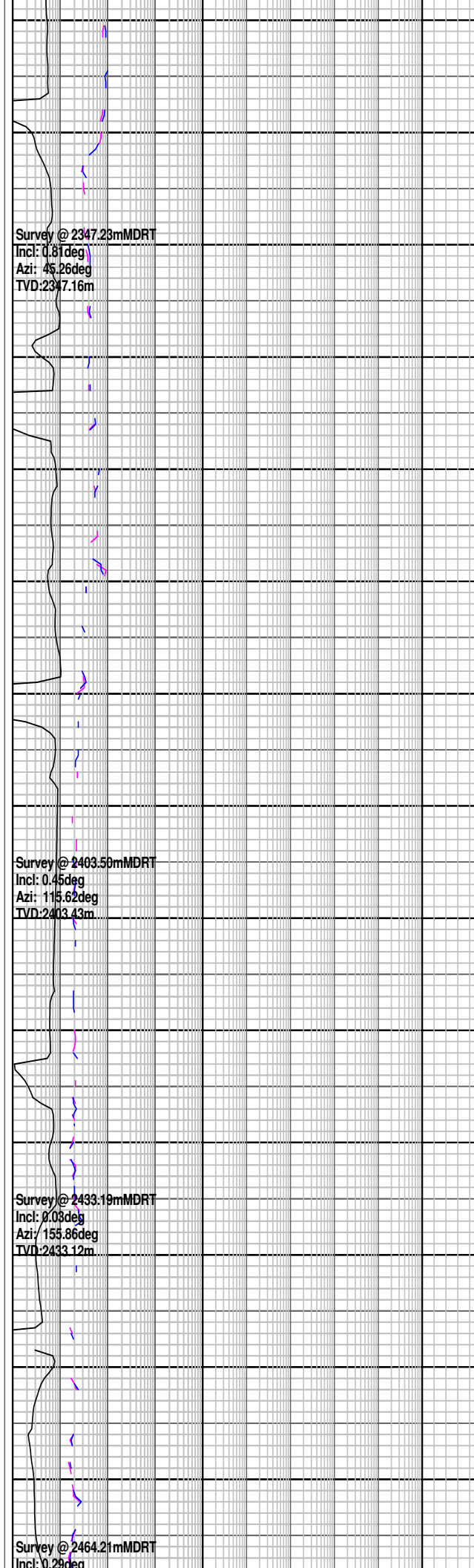
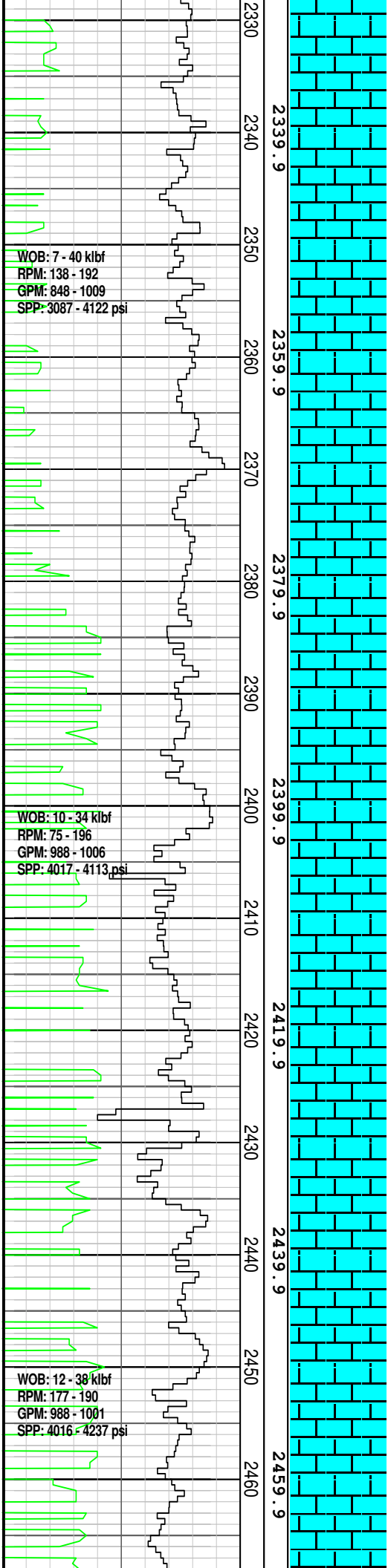


med lt gry, abdt arg mtx, com calc & grd to SLT CLST, com calc & grd to CALC SLTST, rr Dol, mnv dk lith, mnv v f qtz gr, tr Dol microbd, tr v f glauc, frm-hd, dom mod hd, abdt brit, com frm, mnv hd, blkv-sbbkly, dom sbbkly, mnv blkv

CALCAREOUS SILTSTONE:
 med lt gry w/ mott, olv gry, abdt arg mtx, rarely Dol, com dk lith, com v f aren, com microxln, tr Dol microbd, tr v f glauc, frm-v hd, dom mod hd, blkv-sbbkly

CALCAREOUS CLAYSTONE:
 off wh-med lt gry w/ mott, off wh-lt olv gry, abdt arg mtx, com dk lith, com v f aren, microxln i/p, tr microfos, frm-hd, dom mod hd, blkv-sbbkly

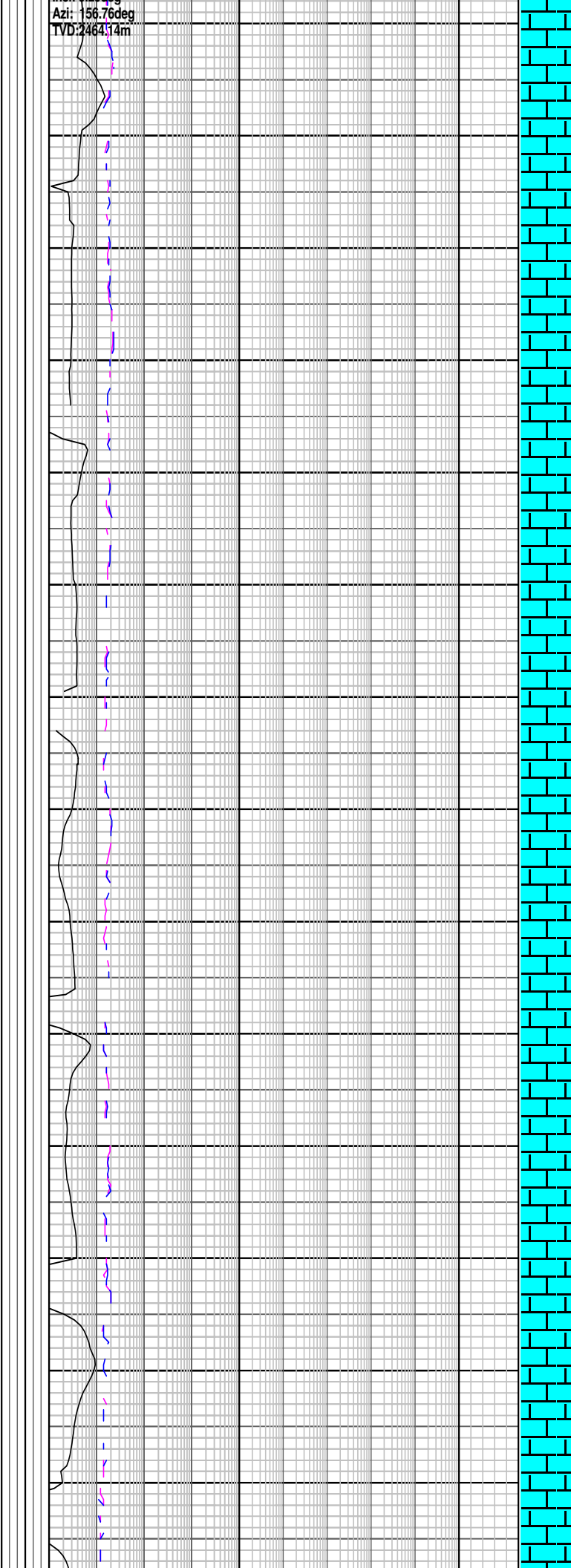
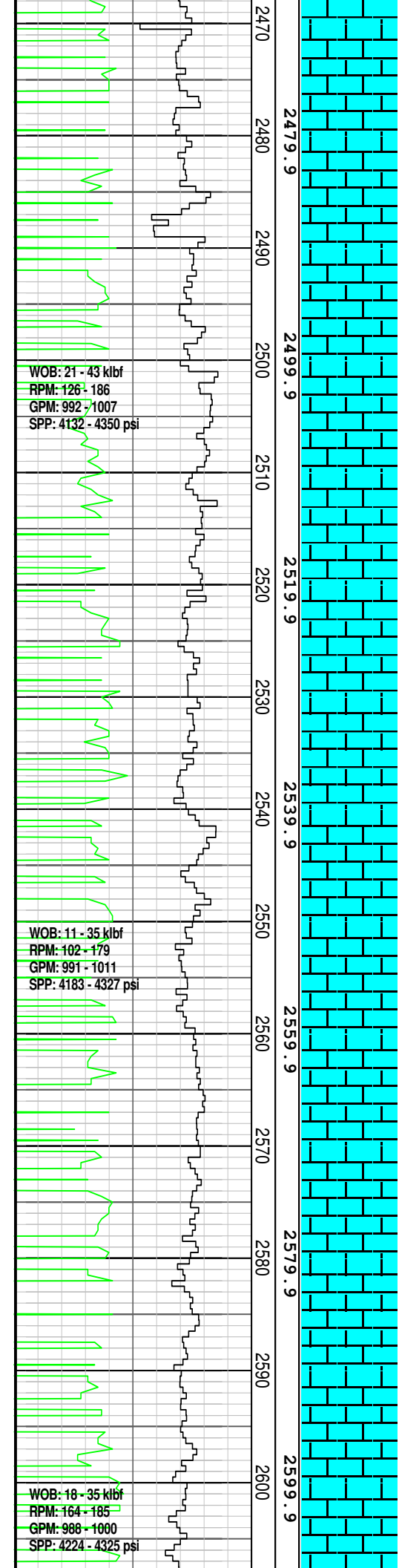
CALCAREOUS SILTSTONE:
 dom off wh-olv gry w/ mott, lt-med gry, abdt arg mtx, com dk lith, com v f aren, com fltg qtz gr, com microxln, mnv v f glauc mat, frm-v hd, dom mod hd, blkv



CALCAREOUS SILTSTONE:
dom off wh-olv gry w/ mott, lt-med gry, abdt arg mtx, com dk lith, com v f aren, com fltg qtz gr, com microxln, mnr v f glauc mat, frm-v hd, dom hd, blkly

CALCAREOUS SILTSTONE:
dom off wh-olv gry w/ mott ap, incr com olv gry, abdt arg mtx, com dk lith, com v f aren, com fltg qtz gr, tr microxln, mnr v f glauc mat, f-v hd, dom hd, blkly-sbblyky

CALCAREOUS CLAYSTONE:
olv gry, med gry, mnr pl gry-off wh, com calc & grd to MARL, slty i/p & grd to CALC SLTST, occ dk lith & microlam, tr v f qtz gr, r microfos, r glauc mat, frm-mod hd, sbblyky-blky



CALCAREOUS CLAYSTONE:
 lt olv gry-olv gry, off wh-lt gnsh gry, com calc & grd to MARL, mnr slty i/p, com carb spks, com lse f qtz gr, com microfos & xln frag, r dissem pyr, frm-mod hd, sbblky-blky

CALCAREOUS CLAYSTONE:
 lt olv gry-olv gry, off wh-lt gnsh gry, com calc & grd to MARL, mnr slty i/p, com carb spks, com lse f qtz gr, com microfos & xln frag, r dissem pyr, frm-mod hd, sbblky-blky

CALCAREOUS CLAYSTONE:
 lt olv gry-olv gry, off wh-lt gnsh gry, com calc & grd to MARL, mnr slty i/p, r carb spks, tr mnr-lse v f-med qtz gr, tr microfos & xln frag, mnr nod & dissem pyr, frm-mod hd, sbblky-blky

