



Company : Woodside Energy Limited

Well : Somerset-1

Interval : 494.00 - 2938.78 meters

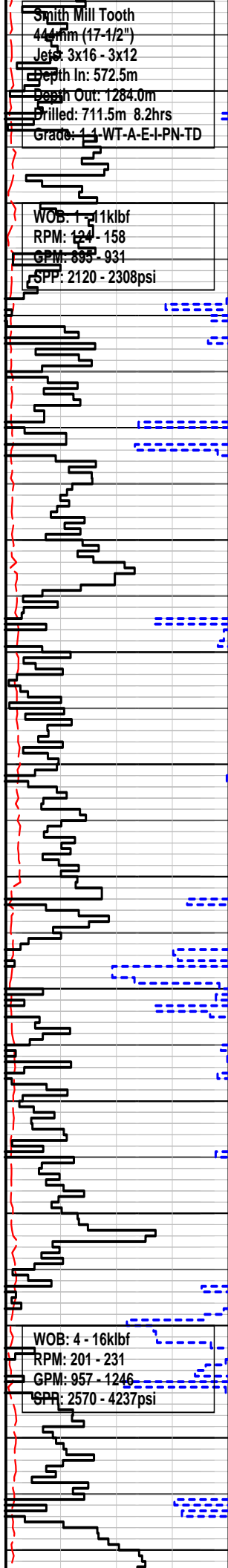
Created : 13/Jan/2010 8:53:02 AM



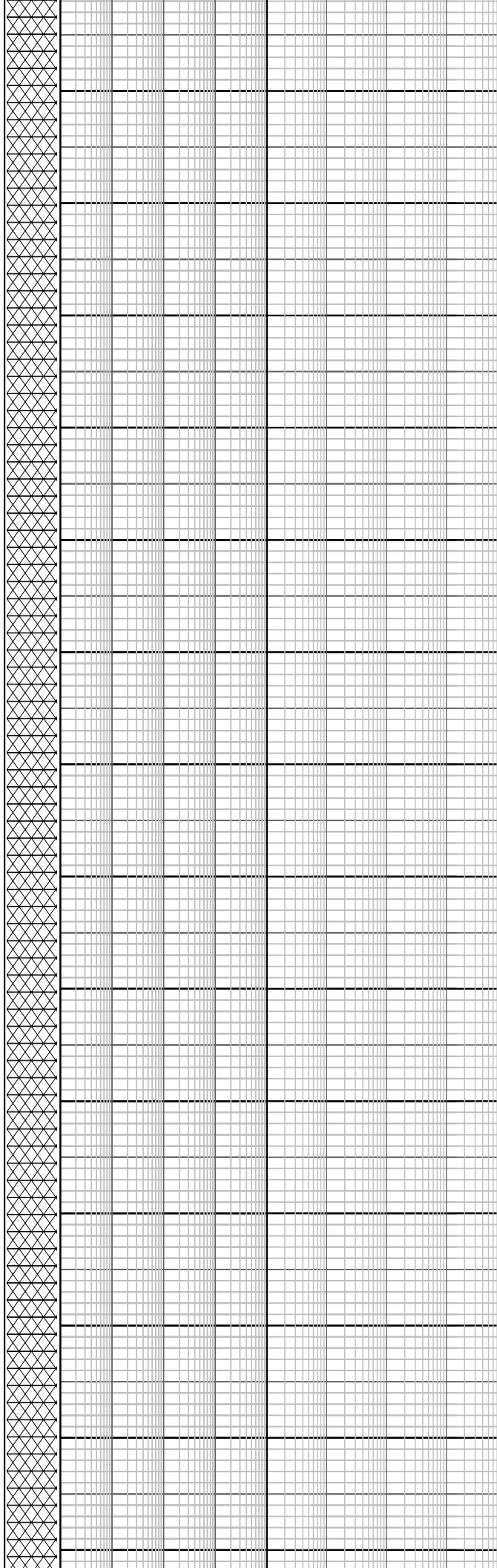
INTEQ

FORMATION EVALUATION LOG

WOB		MD meters 1:500	CORE	LITHOLOGY %	INTERPRETED LITHOLOGY	TOTAL GAS & RESISTIVITY		CHROMATOGRAPH		CALC	REMARKS
ROP						Total Gas		Methane		Calcite	
ROP Backup						0.01 0.1 1 10 %		% Ethane Propane iso-Butane n-Butane iso-Pentane n-Pentane 0.01 0.1 1 10 %		20 40 60 80 100 Dolomite 10000 60 40 20 P F G	



590
600
610
620
630
640
650
660
670
680
690
700
710
720



commenced @ 20:25 hrs on 20
October 2009

Survey @ 599.08m Inc: 0.60, Azi:
121.19, TVD: 599.07m

Drill with seawater and Hi-vis
PHG & Guar Gum sweeps
Returns to Seabed

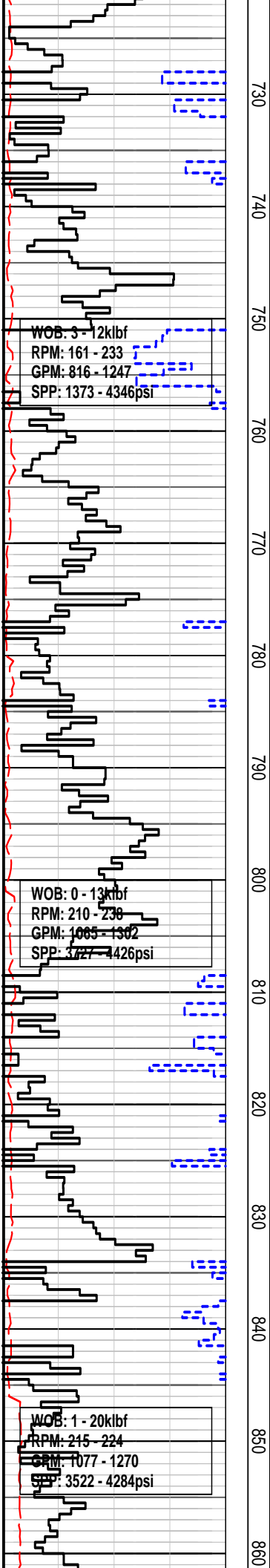
Survey @ 627.77m Inc: 0.58, Azi:
134.31, TVD: 627.76m

Drill with seawater and Hi-vis
PHG & Guar Gum sweeps
Returns to Seabed

Survey @ 684.35m Inc: 0.43, Azi:
117.87, TVD: 684.34m

Drill with seawater and Hi-vis
PHG & Guar Gum sweeps
Returns to Seabed

Survey @ 713.04m Inc: 0.54, Azi:
135.97, TVD: 713.02m



WOB: 3 - 12klbf
RPM: 161 - 233
GPM: 816 - 1247
SPP: 1373 - 4346psi

WOB: 0 - 13klbf
RPM: 210 - 238
GPM: 1085 - 1302
SPP: 3727 - 4426psi

WOB: 1 - 20klbf
RPM: 245 - 224
GPM: 1077 - 1270
SPP: 3522 - 4284psi

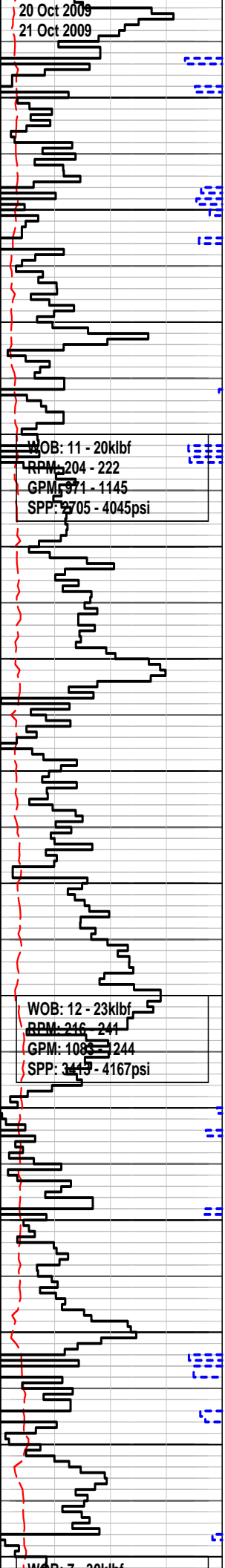
Drill with seawater and Hi-vis
PHG & Guar Gum sweeps
Returns to Seabed

Survey @ 799.04m Inc: 0.53, Azi:
124.88, TVD: 799.02m

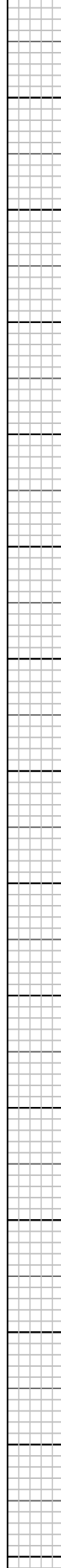
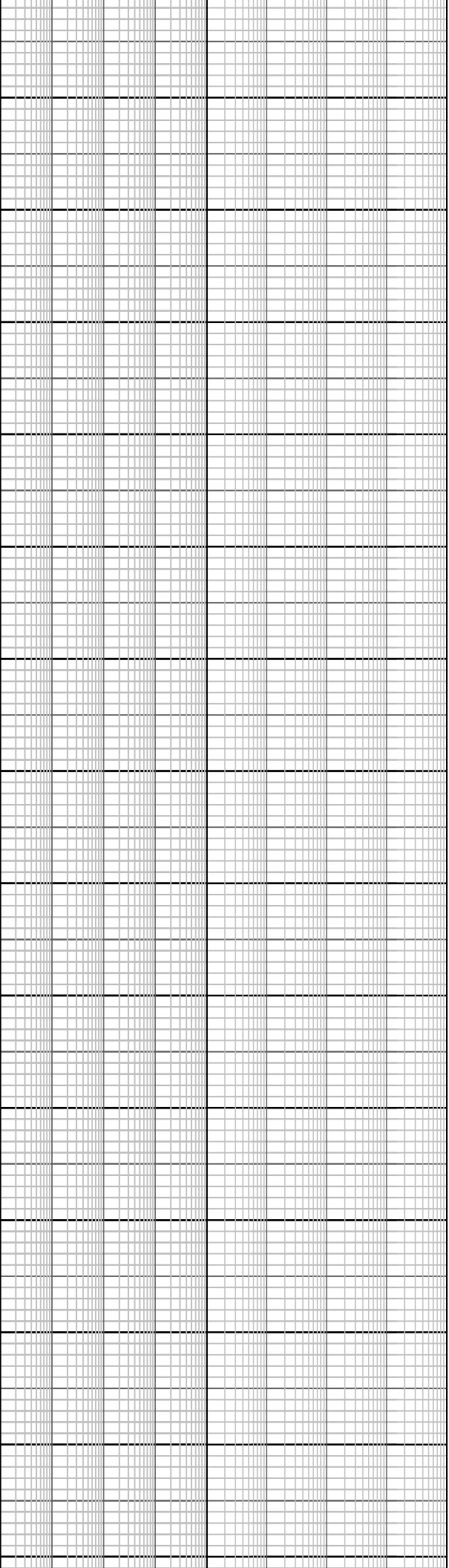
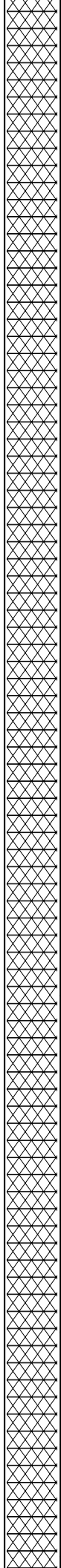
Type: Hi Vis PHG & GG
MW: 8.7ppg FV:200
PV:N/A Gel:N/A
YP:N/A pH:9.5

Drill with seawater and Hi-vis
PHG & Guar Gum sweeps
Returns to Seabed

20 Oct 2009
21 Oct 2009



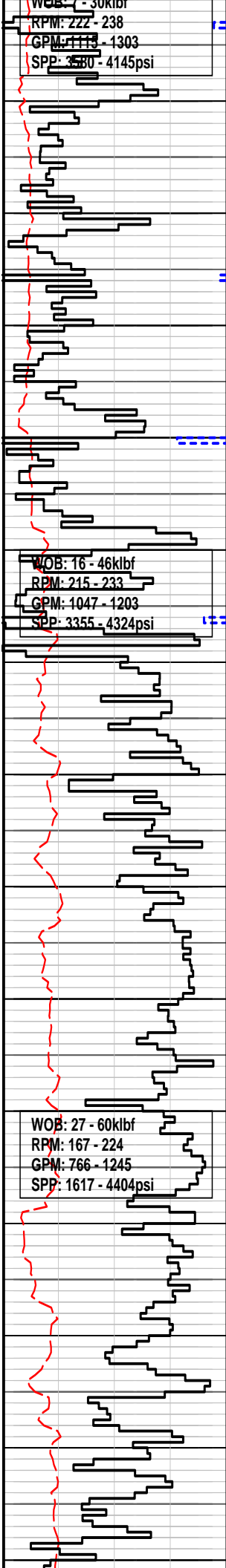
870
880
890
900
910
920
930
940
950
960
970
980
990
1000



Drill with seawater and Hi-vis
PHG & Guar Gum sweeps
Returns to Seabed

Survey @ 972.34m Inc: 0.93, Azi:
96.0, TVD: 972.30m

Drill with seawater and Hi-vis
PHG & Guar Gum sweeps
Returns to Seabed



1010 1020 1030 1040 1050 1060 1070 1080 1090 1100 1110 1120 1130 1140

Survey @ 1001.37m Inc: 0.92,
Azi: 82.73, TVD: 1001.33m

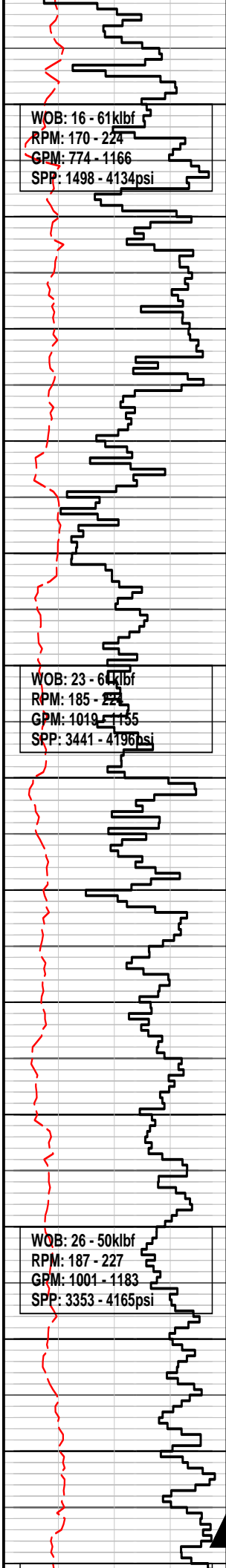
Drill with seawater and Hi-vis
PHG & Guar Gum sweeps
Returns to Seabed

Survey @ 1059.78m Inc: 0.97,
Azi: 75.34, TVD: 1059.73m

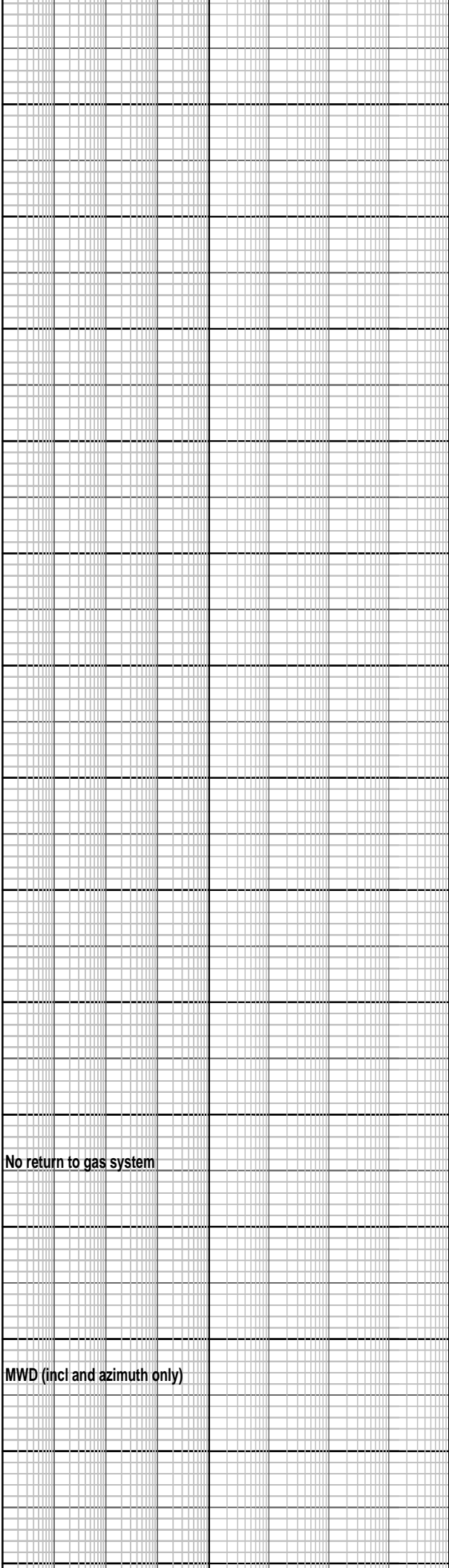
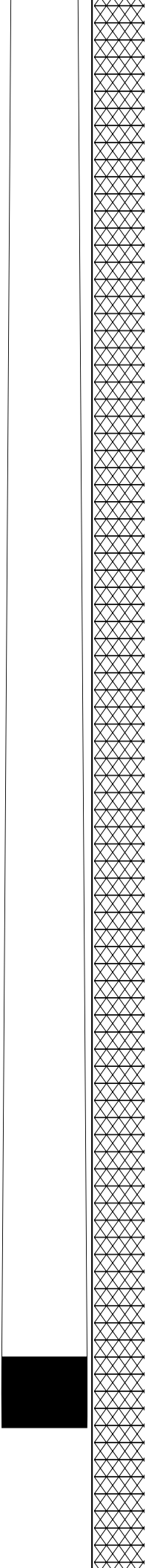
Survey @ 1090.08m Inc: 0.77,
Azi: 49.47, TVD: 1090.03m

Drill with seawater and Hi-vis
PHG & Guar Gum sweeps
Returns to Seabed

Survey @ 1117.31m Inc: 0.68,
Azi: 45.03, TVD: 1117.26m



0 1150 1160 1170 1180 1190 1200 1210 1220 1230 1240 1250 1260 1270 1280



Drill with seawater and Hi-vis
PHG & Guar Gum sweeps
Returns to Seabed

Survey @ 1203.66m Inc: 0.95,
Azi: 60.78, TVD: 1203.60m

Drill with seawater and Hi-vis
PHG & Guar Gum sweeps
Returns to Seabed

No return to gas system

MWD (incl and azimuth only)

Survey @ 1254.36m Inc: 0.22,
Azi: 29.97, TVD: 1254.29m

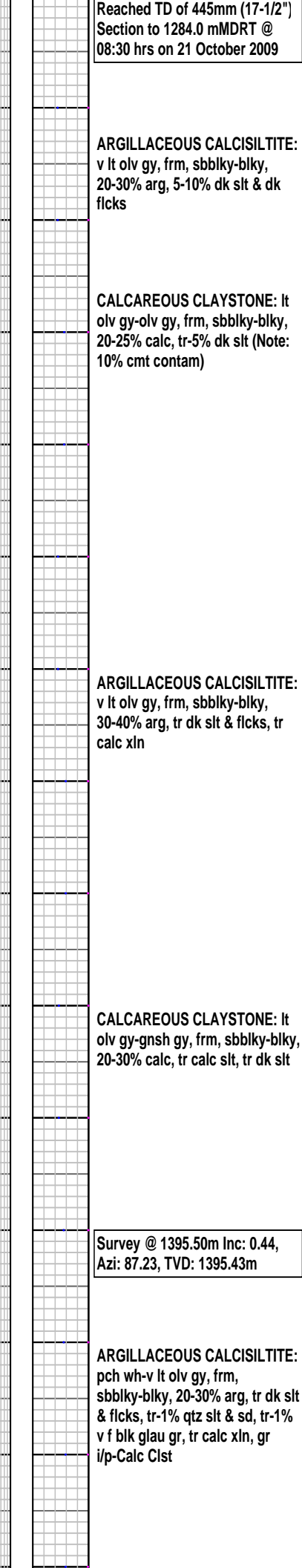
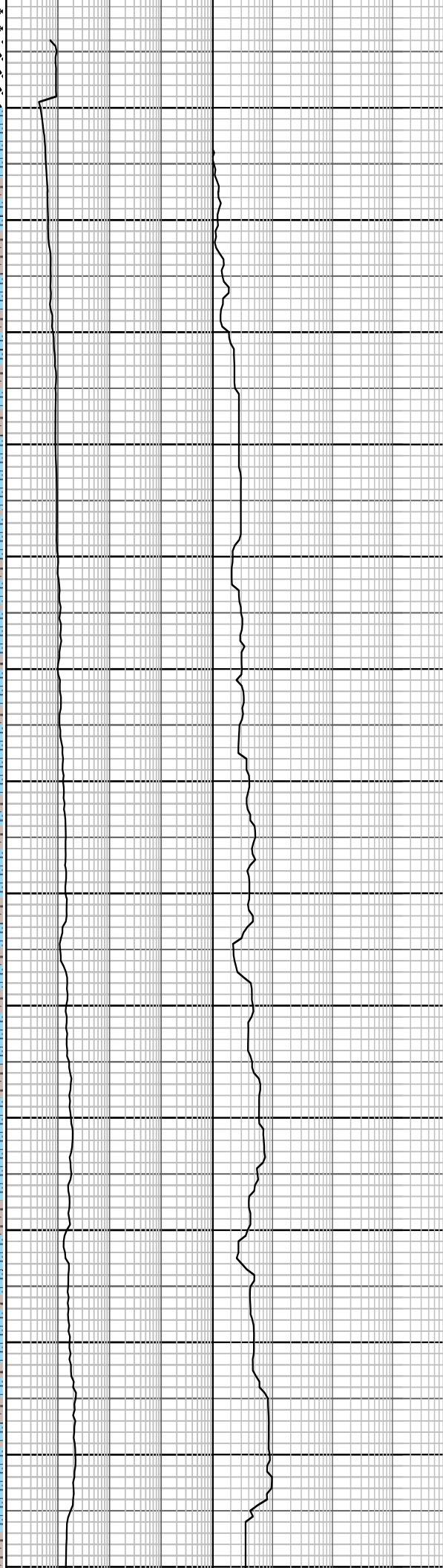
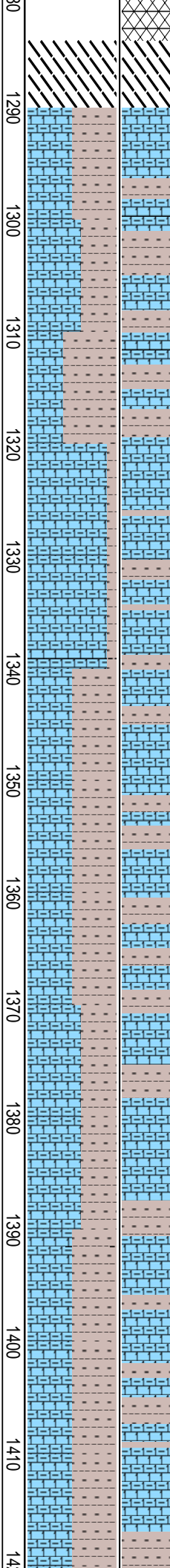
Set 340mm (13-3/8") casing shoe
at 1278.6 mMDRT

Smith PDC Bit
341mm (12-1/4")
Jets: 10x12
Depth In: 1284.0m
Depth Out: 2912.0m
Drilled: 1628.0m in 42.4hrs
Grade: 1-2-WT-S-X-I-CT-IP

WOB: 8 - 62klbf
RPM: 58 - 223
GPM: 690 - 1158
SPP: 1827 - 4188psi

WOB: 15 - 54klbf
RPM: 109 - 177
GPM: 716 - 1060
SPP: 2151 - 4186psi

WOB: 16 - 34klbf
RPM: 161 - 174
GPM: 1008 - 1063
SPP: 3916 - 4244psi



Reached TD of 445mm (17-1/2")
Section to 1284.0 mMDRT @
08:30 hrs on 21 October 2009

ARGILLACEOUS CALCISILTITE:
v lt olv gy, frm, sbblky-blky,
20-30% arg, 5-10% dk slt & dk
flicks

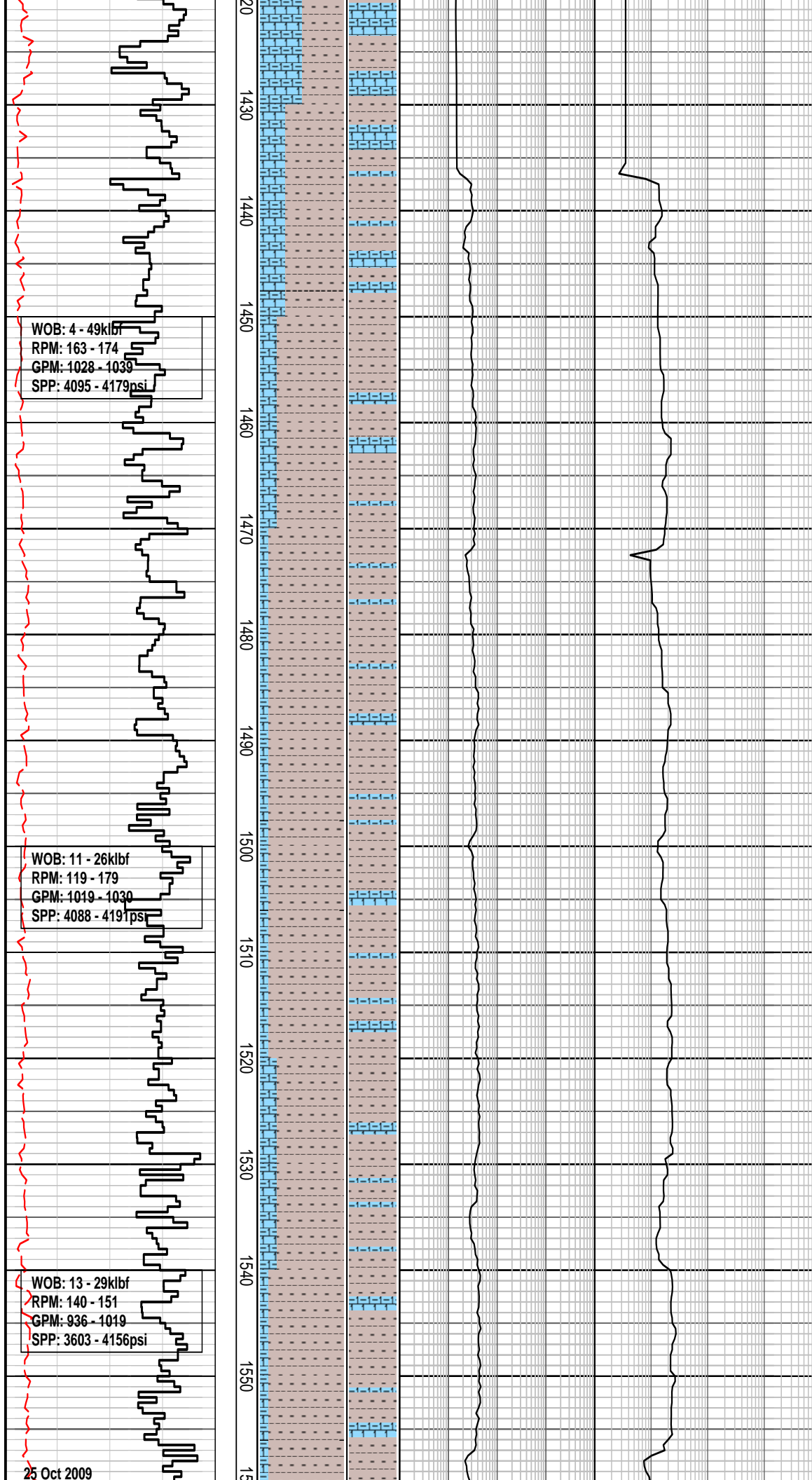
CALCAREOUS CLAYSTONE: lt
olv gy-olv gy, frm, sbblky-blky,
20-25% calc, tr-5% dk slt (Note:
10% cmt contam)

ARGILLACEOUS CALCISILTITE:
v lt olv gy, frm, sbblky-blky,
30-40% arg, tr dk slt & flicks, tr
calc xln

CALCAREOUS CLAYSTONE: lt
olv gy-gnsh gy, frm, sbblky-blky,
20-30% calc, tr calc slt, tr dk slt

Survey @ 1395.50m Inc: 0.44,
Azi: 87.23, TVD: 1395.43m

ARGILLACEOUS CALCISILTITE:
pch wh-v lt olv gy, frm,
sbblky-blky, 20-30% arg, tr dk slt
& flicks, tr-1% qtz slt & sd, tr-1%
v f blk glau gr, tr calc xln, gr
i/p-Calc Clst



Survey @ 1423.48m Inc: 0.35,
Azi: 95.19, TVD: 1423.41m

CALCAREOUS CLAYSTONE: lt
olv gy-gnsh gy, frm, sbblky-blky,
30-40% calc, tr-1% calc slt, tr v f
qtz sd, tr yel calc gr, tr rdsh brn
lith, tr glau, tr dk slt, tr skel frag

Survey @ 1450.69m Inc: 0.32,
Azi: 100.66, TVD: 1450.62m

ARGILLACEOUS CALCISILTITE:
pch wh-v lt olv gy, frm,
sbblky-blky, 20-30% arg, tr dk slt
& flcks, tr-1% qtz slt & sd, tr-1%
v f gn blk glauc gr, tr calc xln,
grd i/p-Calc Clst

Type: Ultradril
MW: 10.5ppg FV:74
PV:20 Gel:6/9/10
YP:28 pH:10.2

CALCAREOUS CLAYSTONE: lt
olv gy-gnsh gy, sft-frm,
sbblky-blky, 30-40% calc, tr-1%
Calc Slt, tr glau slt, i/p tr blky pyr

ARGILLACEOUS CALCISILTITE:
pch wh-v lt olv gy, frm,
sbblky-blky, 20-30% arg, tr dk slt
& flcks, tr-1% qtz slt & sd, tr-1%
v f gn blk glauc gr, tr calc xln,
grd i/p-Calc Clst

CALCAREOUS CLAYSTONE: lt
olv gy-olv gy, gnsh gy-dk gy,
sft-frm, sbblky-blky, 30-40%
calc, tr-1% calc slt, tr glau slt, i/p
tr pyr

ARGILLACEOUS CALCISILTITE:
lt olv gy-lt gy, frm, sbblky-blky,
25% arg, tr calc xln, grd-Calc
Clst i/p

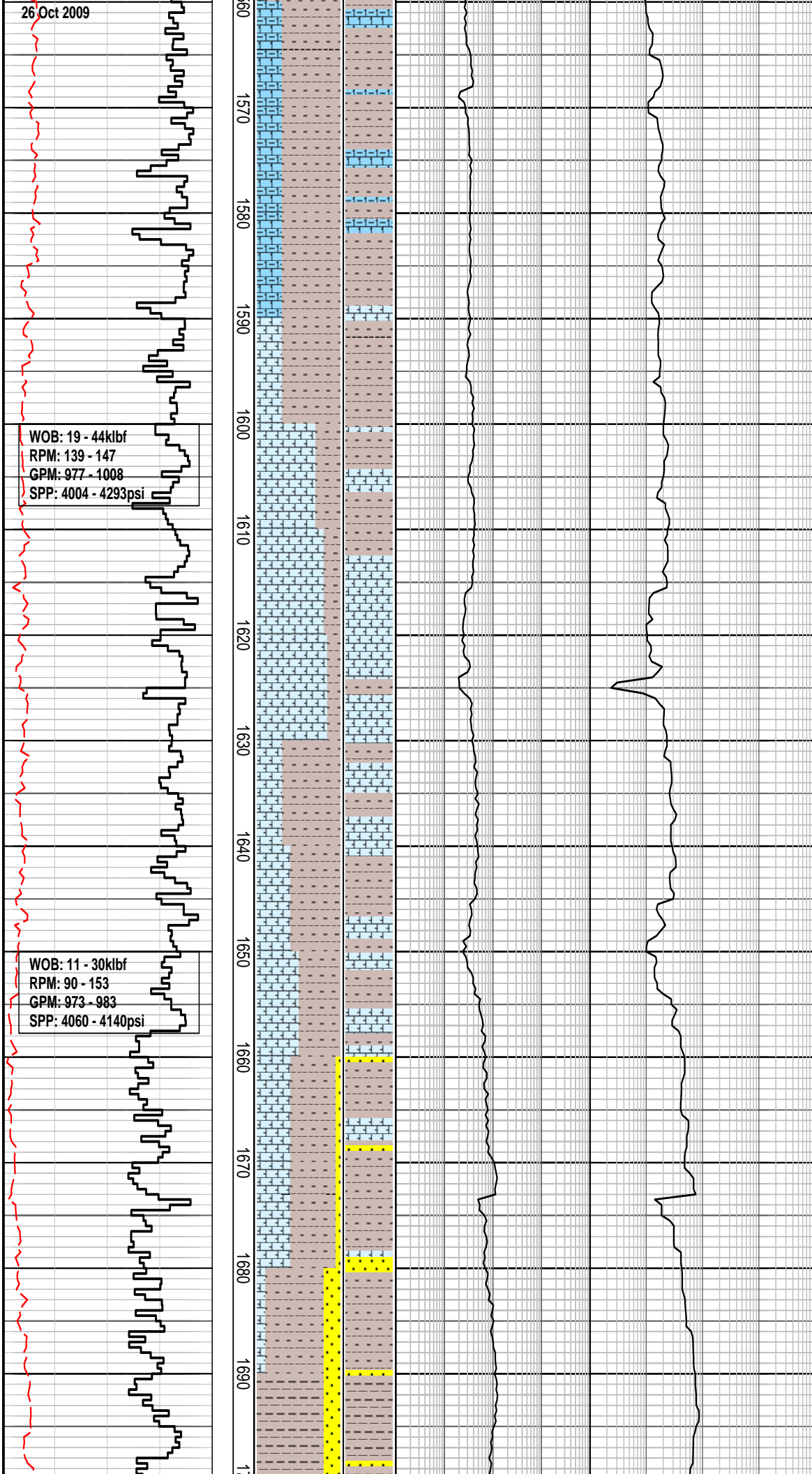
ARGILLACEOUS CALCISILTITE:
lt olv gy-lt gy, tr wh pch, frm,
sbblky-blky, 25% arg, tr calc xln,
tr v f lith, grd-Calc Clst i/p

WOB: 4 - 49klbf
RPM: 163 - 174
GPM: 1028 - 1039
SPP: 4095 - 4179psi

WOB: 11 - 26klbf
RPM: 119 - 179
GPM: 1019 - 1030
SPP: 4088 - 4191psi

WOB: 13 - 29klbf
RPM: 140 - 151
GPM: 936 - 1019
SPP: 3603 - 4156psi

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WOB: 19 - 44klbf
RPM: 139 - 147
GPM: 977 - 1008
SPP: 4004 - 4293psi

WOB: 11 - 30klbf
RPM: 90 - 153
GPM: 973 - 983
SPP: 4060 - 4140psi

CALCAREOUS CLAYSTONE: lt olv gy-olv gy, grnh gy-dk gnsh gy, sft-frm, sbblky-blky, 30-40% calc cl, tr-1% calc slt, tr carb spks, tr glau slt, tr pyr

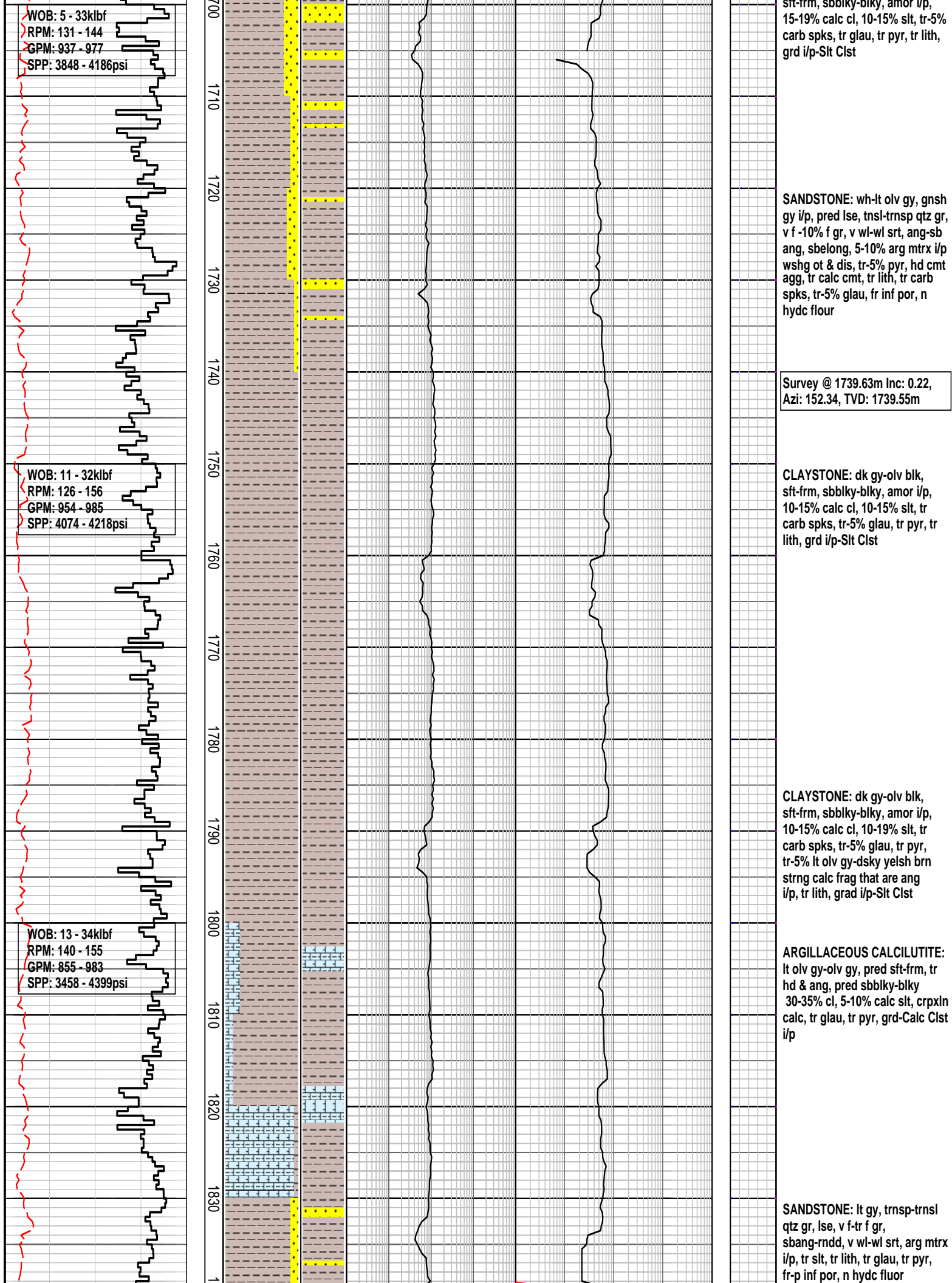
CALCILUTITE: wh-lt gy, lt olv gy, frm, sbblky-blky, 5% calc slt, 15% cl, tr crpxln calc, tr v f blk-gnsh blk lith, tr glau spks, grd-arg calc

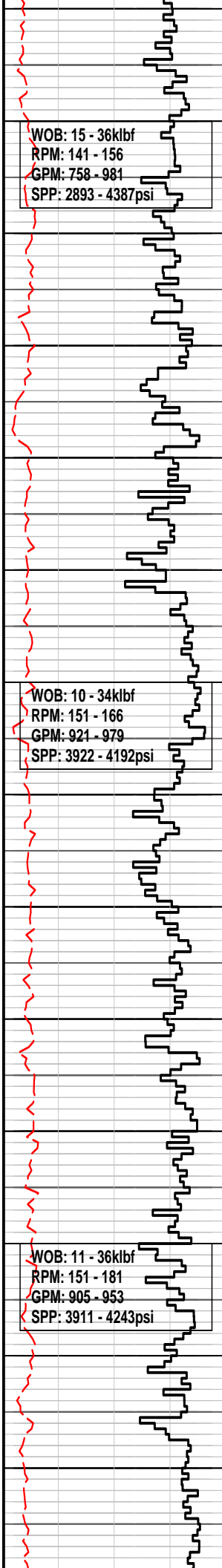
CALCAREOUS CLAYSTONE: m gy-olv gy, sft-frm, sbblky-blky, 30- 40% calc cl, 30-40% calc cl, tr-1% calc slt, tr carb spks, tr glau slt, tr pyr, tr lith

CALCILUTITE: wh-lt gy, lt olv gy, sft-frm, sbblky-blky, 5% calc slt, 15% cl, tr crpxln calc, tr glau, tr carb spks

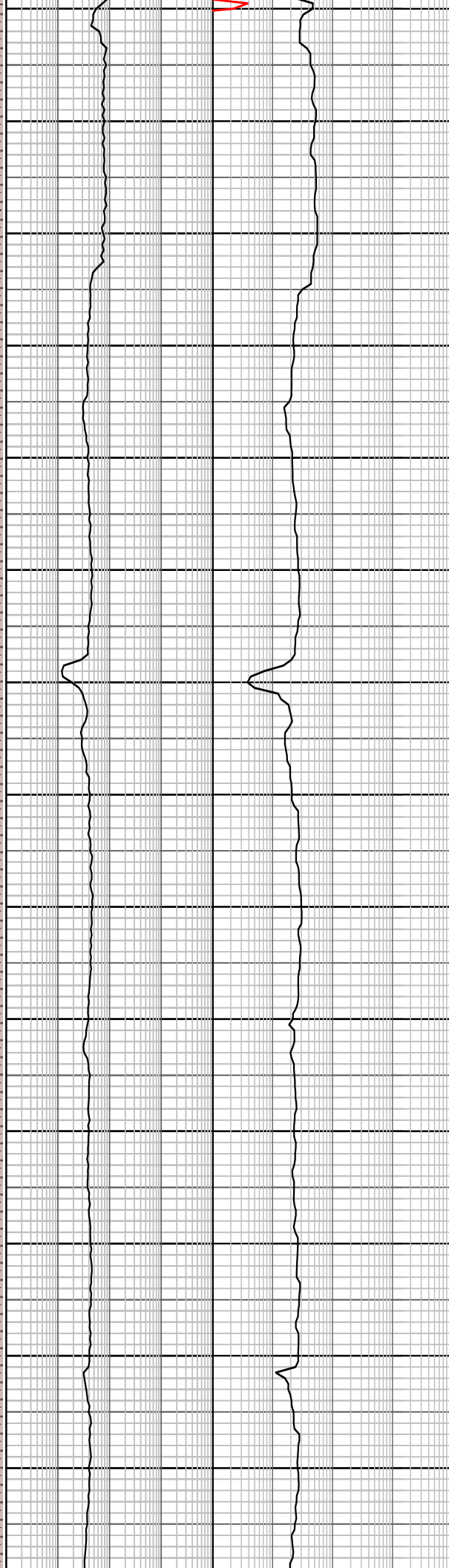
SANDSTONE: wh-lt olv gy, lse trnsl-trnsp qtz gr, v f-5% f g, v wl srt, ang-sbang, sbelong, tr lith, tr carb spks, pr-fr inf por, hydc fluor

CLAYSTONE: 50% dk gy-gnsh blk, 50% olv gy-brnsh gy, sft-frm, sbblky-blky, 30-40% calc cl, tr-1% calc slt, tr carb spks, tr glau slt, tr pyr





1840 1850 1860 1870 1880 1890 1900 1910 1920 1930 1940 1950 1960 1970 1



CLAYSTONE: dk gy-grnsh blk, sft-frm, sbblky-blky, amor i/p 10-15% calc cl, 10-19% slt, tr carb spks, tr-5% glauc, tr pyr, tr lith, grad i/p Slst Clst

SILTY CLAYSTONE: dk gy-dark olv gy, sft-mod fm, amor-sbblky, tr calc, 20-25% slt, tr-1% v f qtz gr, pred lse gn, tr-2% hd peld & gran glauc, tr blkly pyr, tr lith

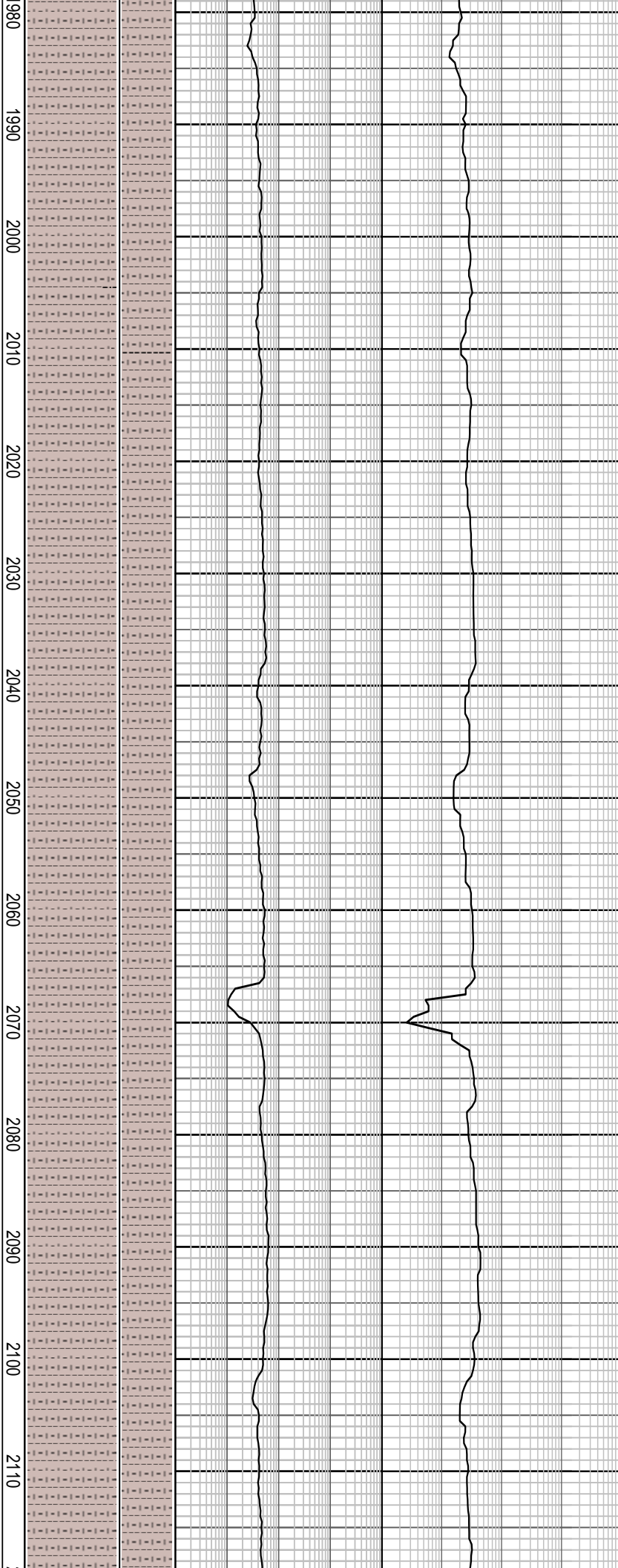
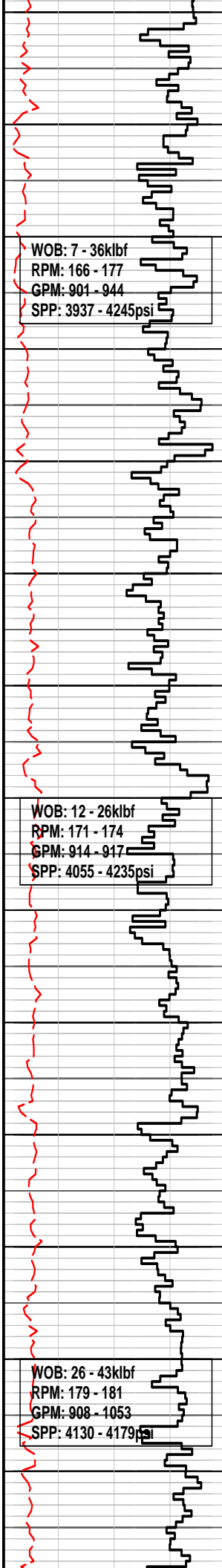
Survey @ 1885.00m Inc: 0.43, Azi: 189.27, TVD: 1884.92m

CALCAREOUS CLAYSTONE: lt brn gy-brn gy, sli mott, fm-mod hd, in pt brit, sb-blky-blky, 20-25% calc, tr-3% calc slt, tr calc sd & frag, 2-5% dol cmt & frag, tr qtz sd, tr foss frag

SILTY CLAYSTONE: dk gy-dk olv gy, sft-mod frm, amor-sbblky, tr calc, 20-25% slt, 2% v f qtz gr, pred lse gn, tr-2% hd peld & gran glau, occ rndd clmp, tr blkly pyr, tr lith

Survey @ 1933.81m Inc: 0.33, Azi: 335.46, TVD: 1933.72m

CALCAREOUS CLAYSTONE (tr): sli mott ap, lt brnsh gy-brnsh gy, frm-mod hd, i/p brit, sbblky-blky, 20-25% calc, tr-3% calc slt, tr calc frag, i/p 2-5% dol cmt



SILTY CLAYSTONE: dk gy-dk olv gy, sli brnsh gy, sft-i/p frm, amor-sbblky, tr-i/p 3% calc, 20-25% slt, tr-2% v f qtz gr, tr-2% lse qtz sd, v wl srt prob disagg gprndd-rndd, sbspher, tr hd peld & gran glau, tr disagg blk py, tr lith

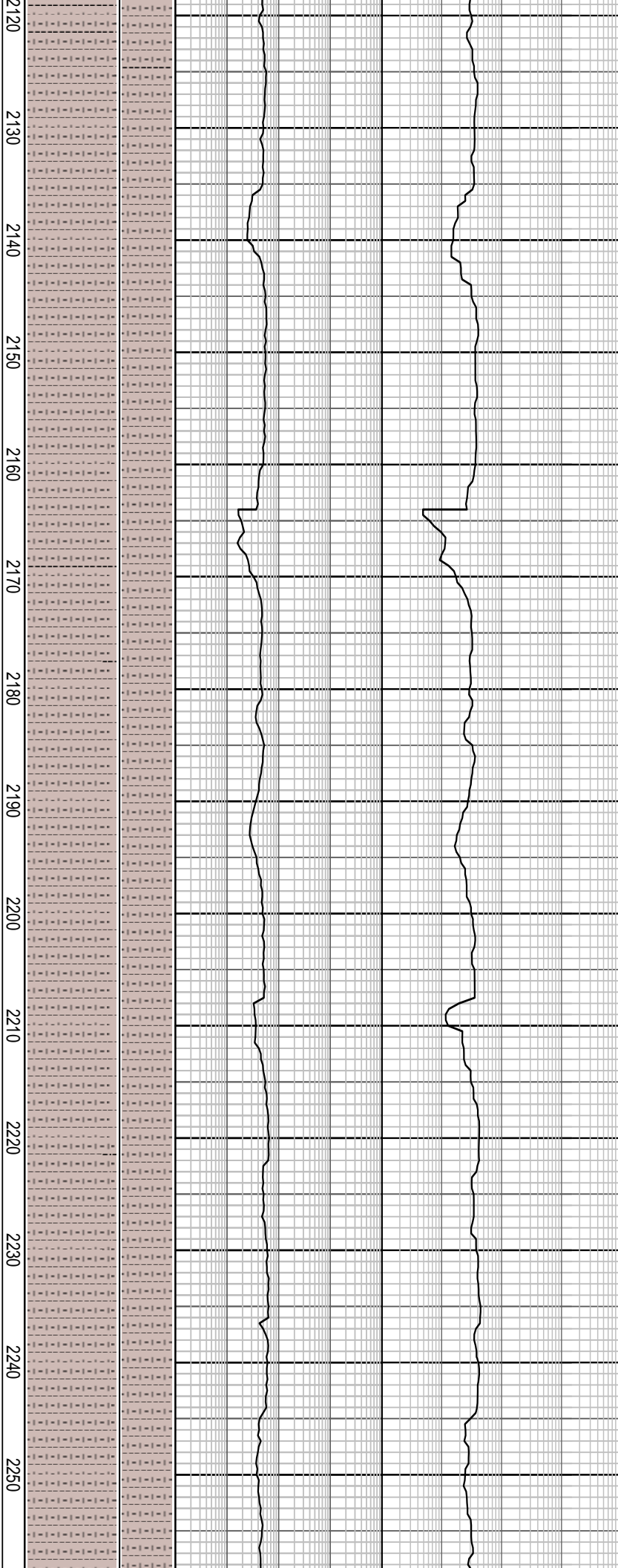
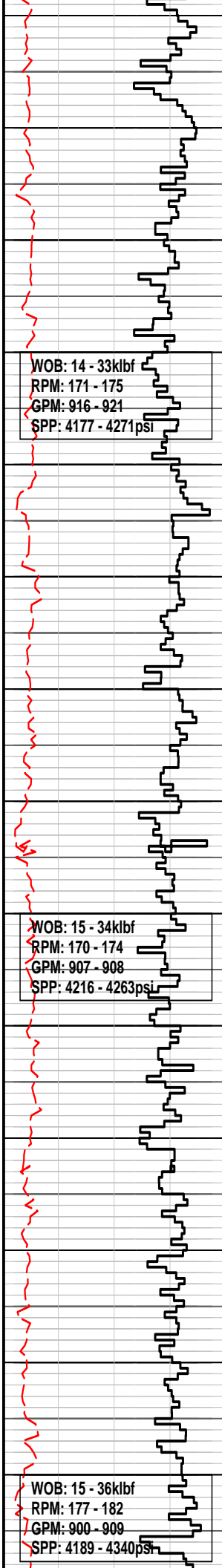
Survey @ 2029.52m Inc: 0.80, Azi: 194.45, TVD: 2029.44m

CALCAREOUS CLAYSTONE: sli mott ap, lt brnsh gy-brnsh gy, frm-mod hd, i/p brit, sbblky-blky, 20-25% calc, tr-3% calc slt, tr calc frag, tr-5% dol cmt

SILTY CLAYSTONE: brnsh gy-dk olv gy, sft, amor-sbblky, tr calc, 20-25% slt, tr v f qtz gr, tr v f glau, tr disagg blk py, tr lith

Survey @ 2086.65m Inc: 0.81, Azi: 197.53, TVD: 2086.56m

SILTY CLAYSTONE: brnsh gy-dk olv gy, sft, amor-sbblky, tr calc, 20-25% slt, tr v f qtz gr, tr v f glau, tr disagg blk py, tr lith



CALCAREOUS CLAYSTONE:
mott-pch ap, lt brnsh gy-brnsh
gy, i/p wh, frm-mod hd, i/p brit,
sbbiky-blky, 20-25% calc, tr-3%
calc slt, tr calc frag, tr-5% dol
cmt

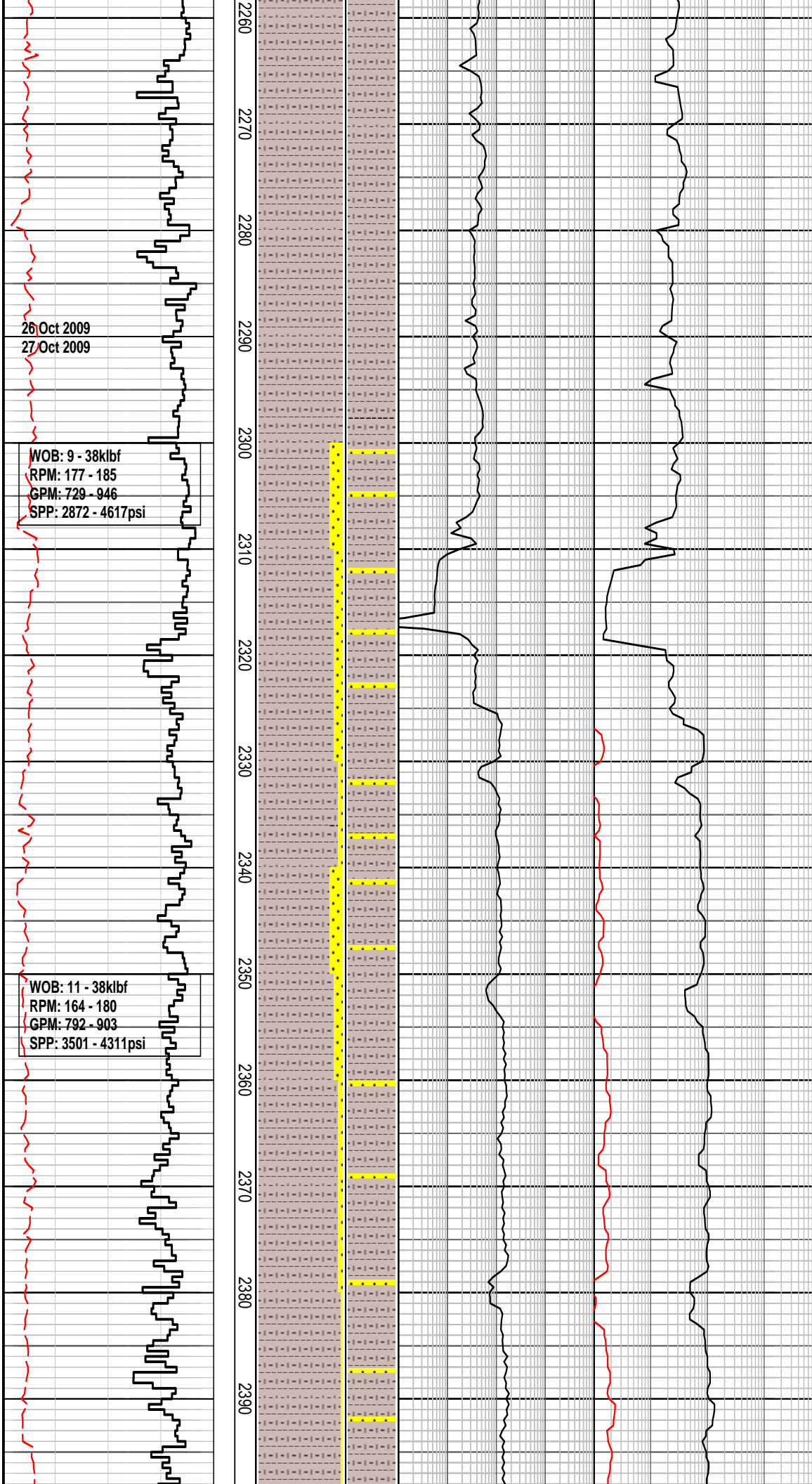
SILTY CLAYSTONE: brnsh gy-dk
olv gy, sft-firm, amor-sbbiky,
20-25% slt, tr v f qtz gr, tr slt-v f
glau, tr slt lith

Survey @ 2201.88m Inc: 0.95,
Azi: 192.05, TVD: 2201.78m

CALCAREOUS CLAYSTONE:
mott-pch ap, lt brnsh gy-brnsh
gy, i/p wh, frm-mod hd, i/p brit,
sbbiky-blky, 20-25% calc, tr-3%
Calc Slt, tr calc frag, i/p hd dol
cmt

Type: Ultradril
MW: 10.8ppg FV:74
PV:21 Gel:7/10/11
YP:32 pH:10.0

SILTY CLAYSTONE: dk gy, mnr
brnsh gy-dk olv gy, sft-firm,
amor-sbbiky, 20-25% slt, tr v f
qtz gr, tr v f glau spks, tr slt lith



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WOB: 9 - 38klbf
RPM: 177 - 185
GPM: 729 - 946
SPP: 2872 - 4617psi

WOB: 11 - 38klbf
RPM: 164 - 180
GPM: 792 - 903
SPP: 3501 - 4311psi

SILTY CLAYSTONE: dk gy,
sft-frn, amor-sbblky, 20-25% slt,
tr v f qtz gr, tr v f glau spks, tr slt
lith, tr brk wh calc foss frag

Survey @ 2288.48m Inc: 0.99,
Azi: 182.79, TVD: 2288.37m

SANDSTONE: lt gy, trnsp-trnsl
qtz gr, lse, v f-f gr, sbang-rnnd,
sbelong-sbspher, v wl-wl srt, arg
mtrx i/p, tr-5% slt, tr lith, tr glau,
tr pyr, fr-p inf por, n hydc fluor

Changed shaker screens and
adjusted gastrap

Survey @ 2316.76m Inc: 1.04,
Azi: 183.07, TVD: 2316.63m

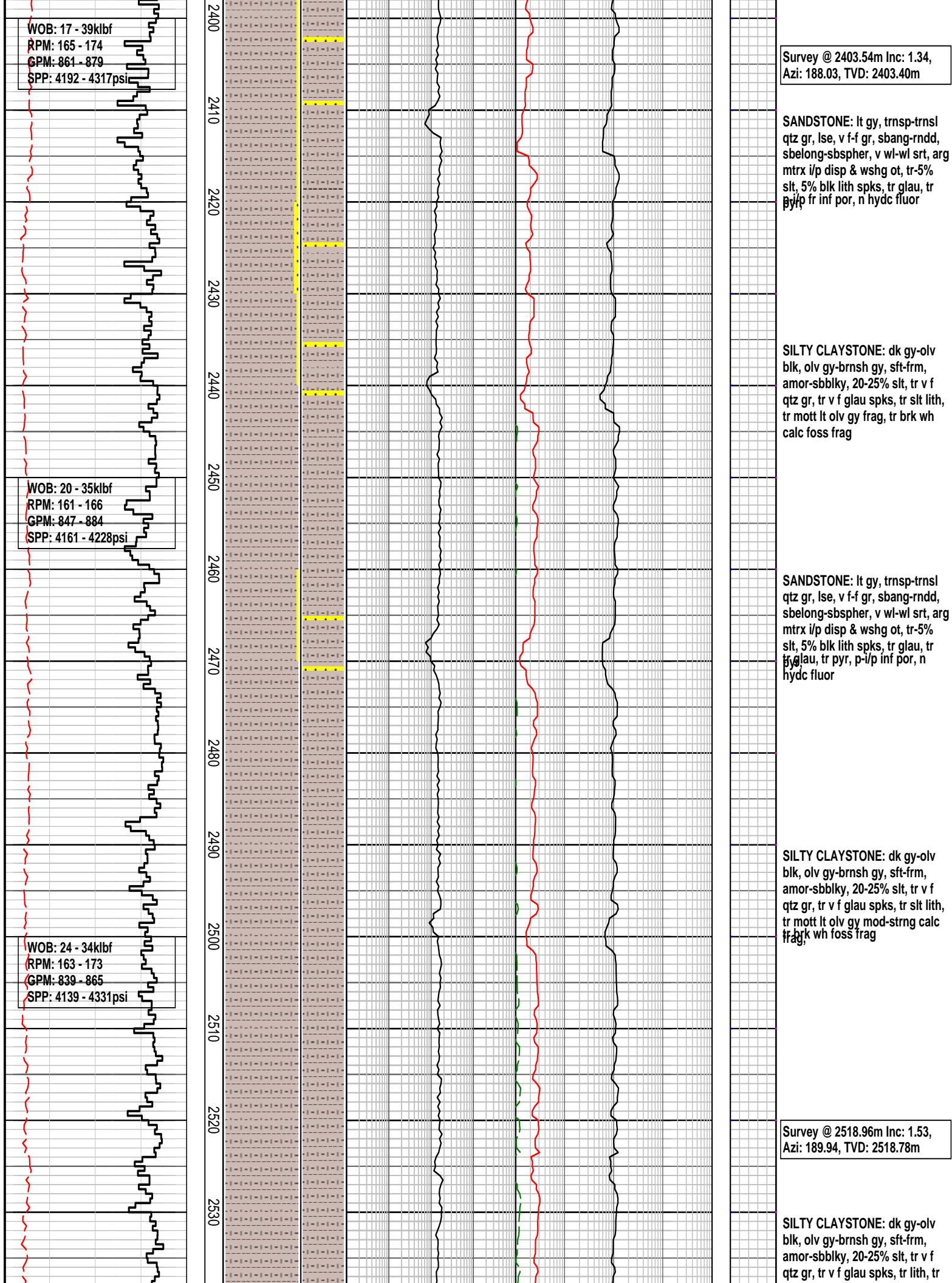
SILTY CLAYSTONE: dk gy-olv
blk, brnsh gy i/p, sft-frn,
amor-sbblky, 20-25% slt, tr-5% v
f qtz gr, tr v f glau spks, tr slt
lith, tr brk wh calc foss frag

Survey @ 2345.02m Inc: 1.11,
Azi: 183.02, TVD: 2344.89m

SANDSTONE: lt gy, trnsp-trnsl
qtz gr, lse, v f-f gr, sbang-rnnd,
sbelong-sbspher, v wl-wl srt, arg
mtrx i/p disp & wshg ot, tr-5%
slt, 5% blk lit spks, tr glauc,
tr pyr, fr-p inf por, n hydc fluor

Survey @ 2374.64m Inc: 1.29,
Azi: 186.60, TVD: 2374.50m

SILTY CLAYSTONE: dk gy-olv
blk, olv gy-brnsh gy, sft-frn,
amor-sbblky, 20-25% slt, tr v f
qtz gr, tr v f glau spks, tr slt lith,
tr mott lt olv gy frag, tr brk wh
calc foss frag





mott lt olv gy mod-strng calc
frag, wh foss frag

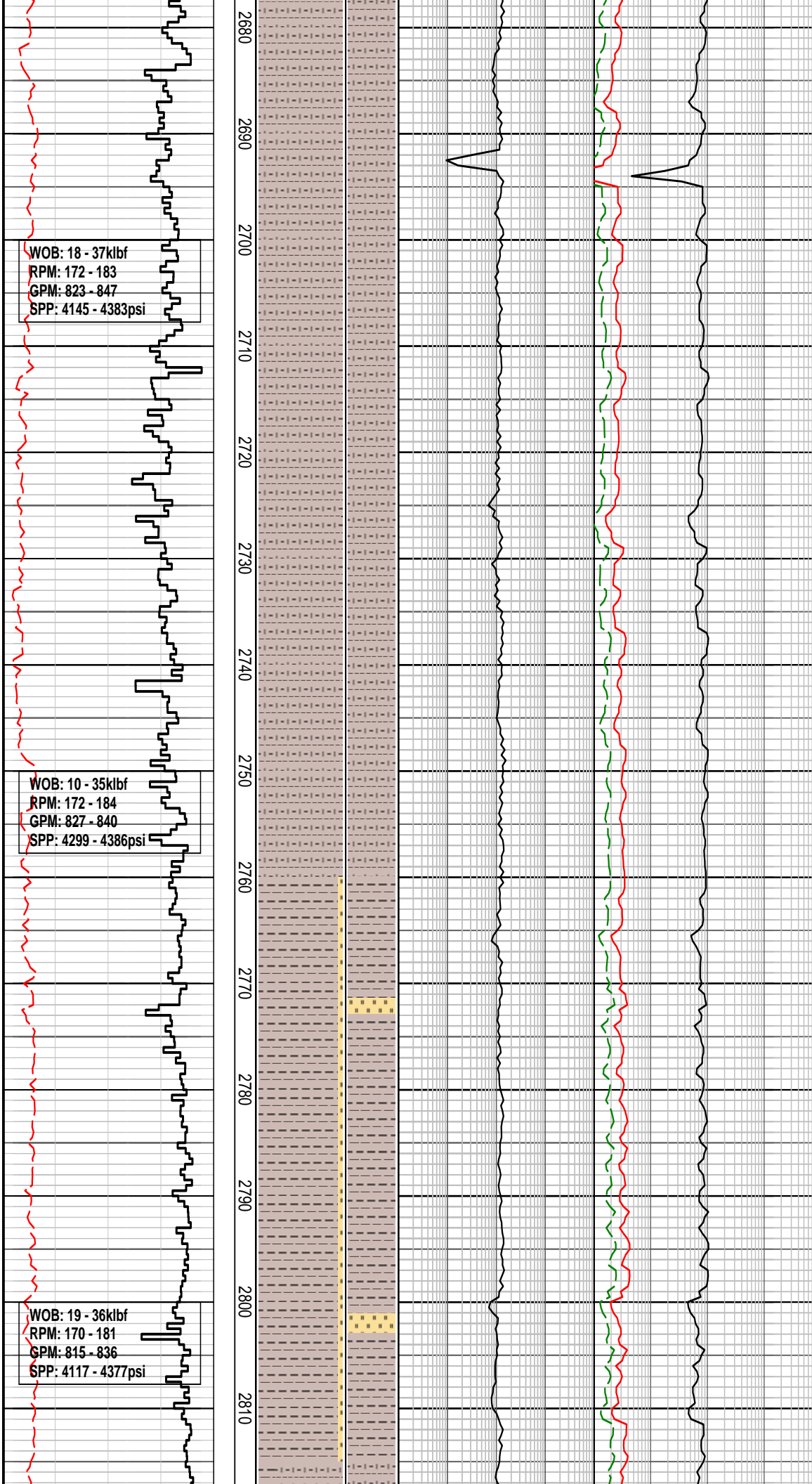
Survey @ 2546.16m Inc: 1.43,
Azi: 187.93, TVD: 2545.97m

SILTY CLAYSTONE: dk gy-gysh
blk, olv gy-brnsh gy, sft-frm,
amor-sbblky, 20-25% slt, tr v f
qtz gr, tr v f glau spks, tr lith, tr
mott lt olv gy mod-strng calc
frag, wh foss frag

Survey @ 2604.71m Inc: 1.39,
Azi: 183.90, TVD: 2604.51m

SILTY CLAYSTONE: olv
gy-brnsh gy, sft, amor-sbblky,
20% slt, tr-2% mott lt olv gy
mod-strng Calc Clst, tr v f qtz gr,
tr slt-v f glau gr, tr dk spks

Survey @ 2661.70m Inc: 1.42,
Azi: 181.44, TVD: 2661.48m



WOB: 18 - 37klbf
RPM: 172 - 183
GPM: 823 - 847
SPP: 4145 - 4383psi

WOB: 10 - 35klbf
RPM: 172 - 184
GPM: 827 - 840
SPP: 4299 - 4386psi

WOB: 19 - 36klbf
RPM: 170 - 181
GPM: 815 - 836
SPP: 4117 - 4377psi

SILTY CLAYSTONE: olv
gy-brnsh gy, sft, amor-sbblky,
20% slt, tr-2% mott lt olv gy
mod-strng Calc Clst, tr v f qtz gr,
tr slt-v f glau gr, tr dk spks

Flush gas line and cleaned gas
trap and header box on shaker

Commenced adding calcium
carbonate to mud system

Survey @ 2719.22m Inc: 1.29,
Azi: 178.53, TVD: 2718.98m

Survey @ 2748.22m Inc: 1.23,
Azi: 176.46, TVD: 2747.98m

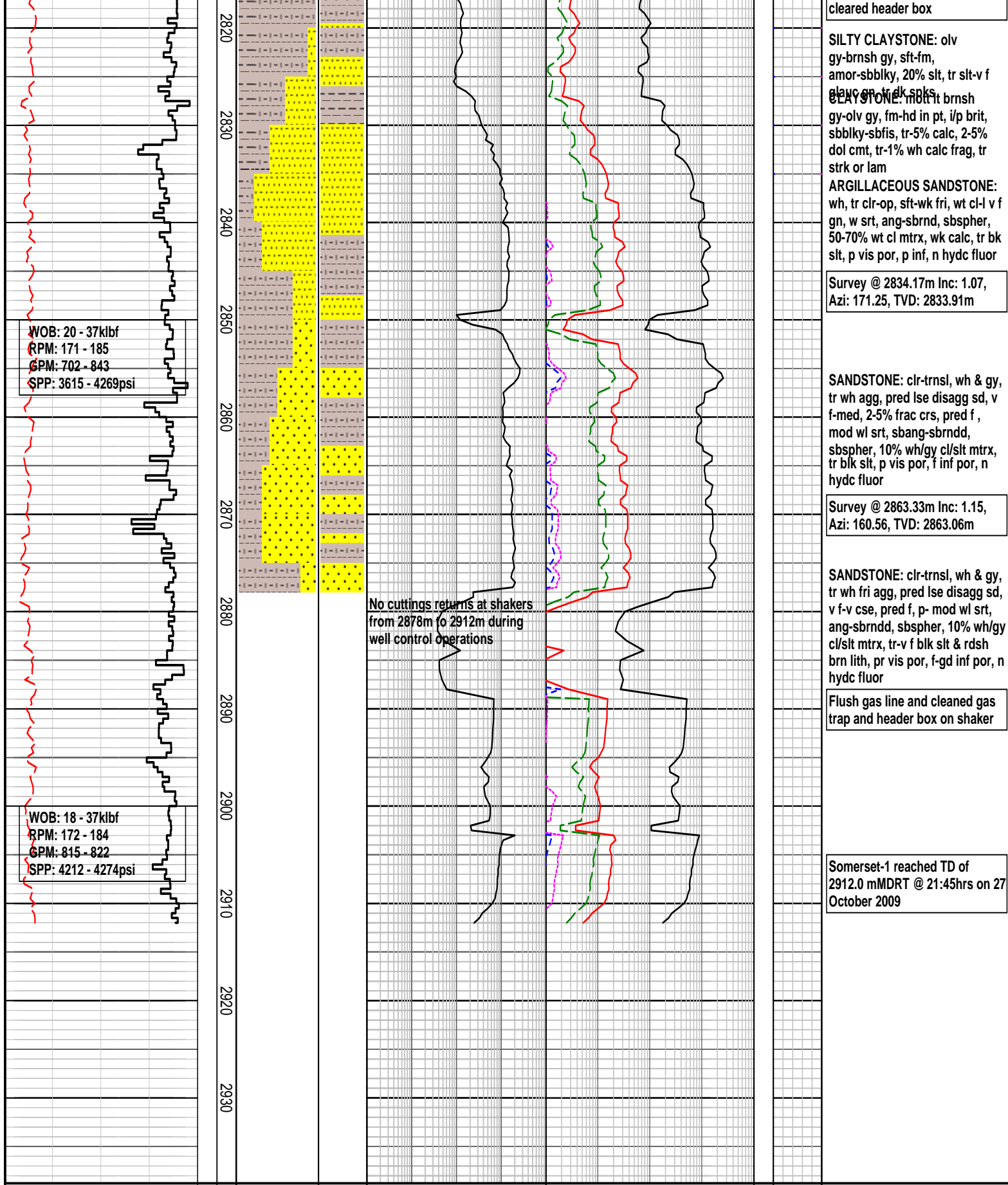
SILTY CLAYSTONE: olv
gy-brnsh gy, sft-fm,
amor-sbblky, 20% slt, tr-2% mott
lt olv gy & mod-strng Calc Clst,
tr slt-v f glau gn, tr dk spks

CLAYSTONE: mott lt brnsh
gy-olv gy, fm-hd i/p, i/p brit,
sbblky-sbfis, 2-5% calc, 2-5% dol
cmt, tr wh calc frag, tr strk or
lam
Survey @ 2776.91m Inc: 1.15,
Azi: 171.57, TVD: 2776.77m

Commenced adding calcium
carbonate to mud system

Survey @ 2806.83m Inc: 1.07,
Azi: 178.32, TVD: 2806.57m

Adjusted gas trap position and



FORMATION EVALUATION LOG										
WOB		MD meters 1:500	LITH	INTERPRETED	TOTAL GAS & RESISTIVITY		CHROMATOGRAPH		CALC	REMARKS
ROP					Total Gas		Methane			
ROP Backlog					0.01 0.1 1 10 %		% Ethane Propane			
25 50 75 100 klbf								20 40 60 80 100 Calcite Dolomite		
200 150 100 50 m/hr		CO						10000 60 40 20 OIL FLUOR		

[illegible]