

WT 9.0  
VS 30  
PH 9.5

81.25  
7.222  
10000  
1000  
100  
25  
2.5  
0.5

77.03

WOB 10/14M  
RPM 30/SLIDE  
PP 690  
SPM 72

WOB 23M

WOB 27M  
RPM SLIDE  
PP 926  
SPM 72

ROP IN F/HR 2864 TO TD

2700-2720 S.S.: off wh to gy to brn sl fri to fri occ from pred v/ gr shang to ang w srt w cmt calc cmt w/ mod to mas dly fill mtr intric w/ slst lent bod in ang w/ mod intrst deb pred carb flks rr vs por shn dk stn gd dull gld flr w/ v trt acid gs & sl o cut

2720-2740 S.S.: gy to brn gy frm to hd pred v/ gr to lv/ gr shang to ang w srt w to wv cmt calc cmt grdg to sdy ls dms tt to no vis por mod intrst deb pred carb flks tr sply carb shn gd dull gld flr no cut acid or crush

2740-2760 S.S.: brn to gry to mof to wh to off wh tr sft to fri to pred hd occ shly rdd to sbrrd to occ shang lvfg to vfg to fg fr srt w cmt lmy carb incl tr dk shn occ tr vs por pred no 30% dull to occ bri gld flr tr mlky gs cut no oil cut

2760-2780 S.H.: dk gy to brn gy to dk brn sft to bri sply smth to sly tx sl to mod calc v carb occ grdg to durite w/ tr free dull to bri coal

2780-2790 COAL: blk sft to sl brit sply to sply pred shly tx rr float coal drs pred durite no vs cleat or bldg gs w/ v trt slow gs cut

2820-2840 COAL: blk v/ cigs 90% free float dull to bri l just 10% v/ tr to v fri sbbly to conch frac w/ abnt vit & fus dust mod shly thn ply pr vs cleat pr vs bldg gs w/ tr slow mlky gs & o cut

2840-2864 COAL: blk fri to sft to v fri sply to sbbly to sply rr conch shly tx mod free bri rr vs v/ pred hackled frac pr vs cleat pr vs bldg & sl o cut 75% float coal pred vit dust w/ free fusinite dust tr free parat

2864-2890 COAL: blk sft to sl fri to fri sply to l just <10% vit pr vs cleat pred hackled gd vs o cut FROTHY

2890-2920 S.H.: d carb ilgc in app

2896 = 2642.99  
DEG 54.53  
AZM 94.4  
VS 137.03

2728 = 2860.36  
DEG 59.73  
AZM 90.41  
VS 163.88

2760 = 2874.82  
DEG 66.5  
AZM 88.71  
VS 192.39

2791 = 2685.51  
DEG 73.16  
AZM 88.4  
VS 221.45

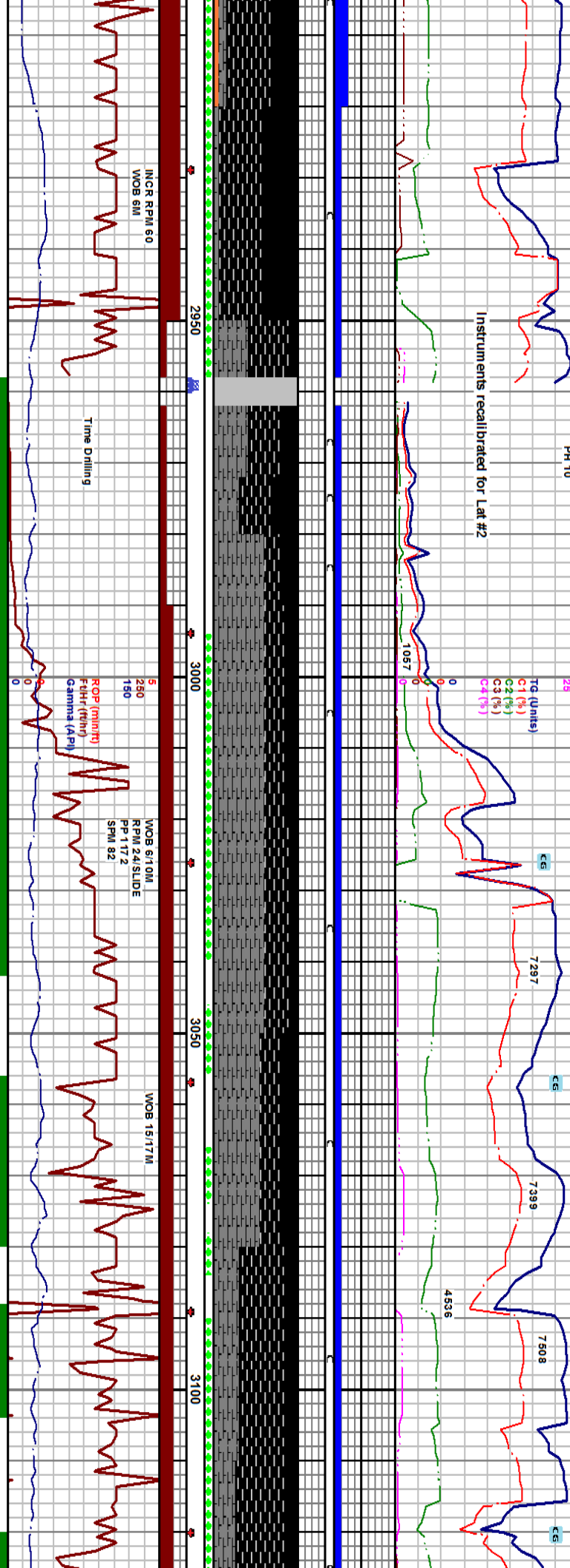
2823 = 2693.19  
DEG 83.74  
AZM 87.8  
VS 252.72

2865 = 2693.57  
DEG 90.3  
AZM 87.69  
VS 284.62

2886 = 2694.48  
DEG 86.3  
AZM 89.63  
VS 315.57

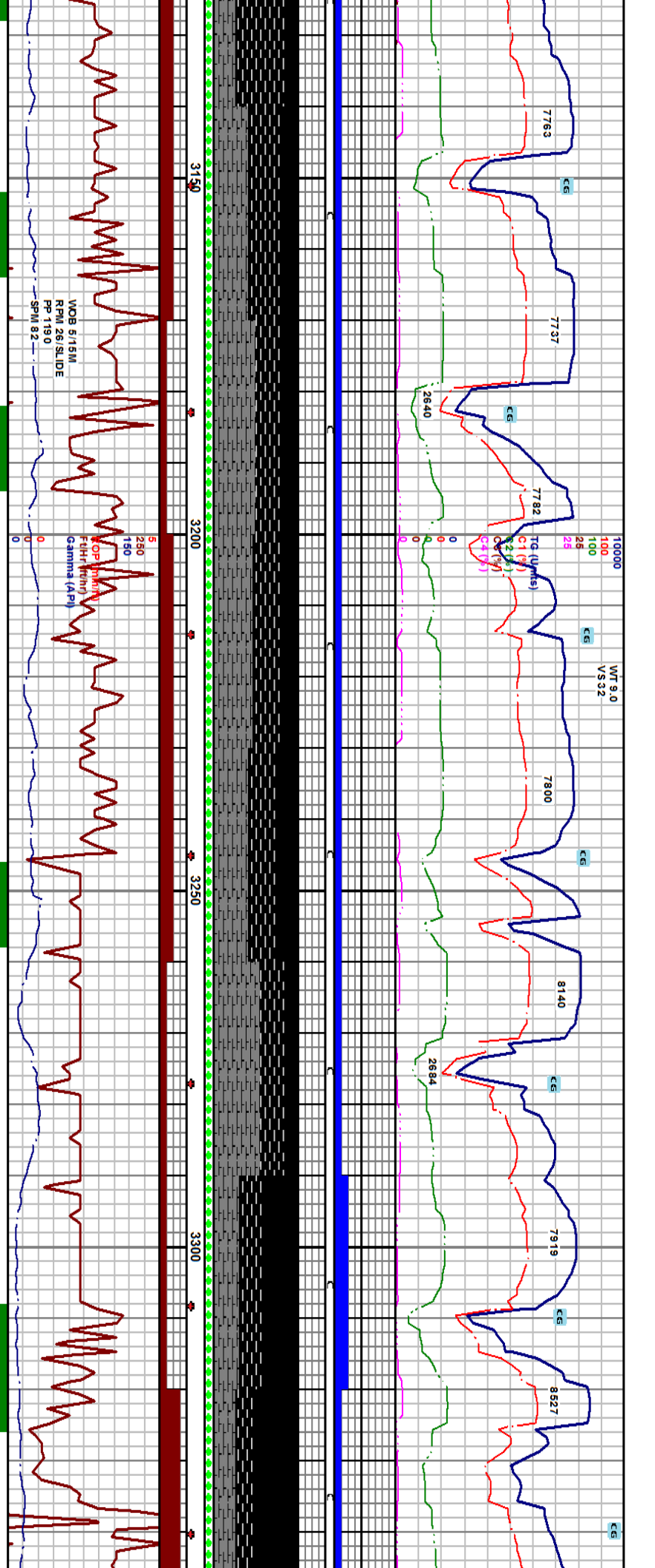
WT 9.0 VS 31 PH 9.0  
 4760  
 WT 9.0 VS 32 PH 10  
 110 11.4  
 2989 MIDNIGHT DEFCS  
 10000  
 100  
 100  
 25  
 25  
 WT 9.0+ VS 33 PH 10  
 10000  
 100  
 100  
 25  
 25

Instruments recalibrated for Lat #2

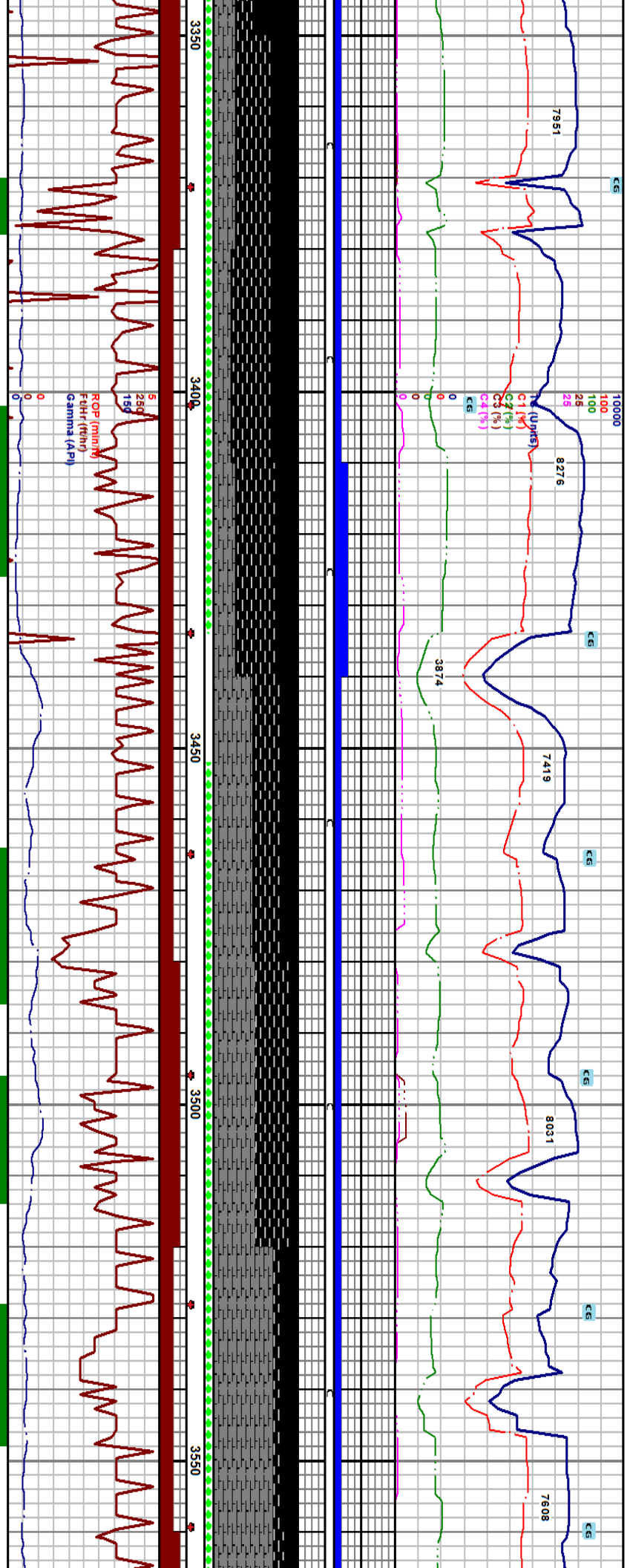


2959 COMMENCE LAT #2 RR #2 4.75 SDI 413  
 2962-2972 COAL: pred v' cigs grdg to dull just occ shly tx pr vis tr vis face cleat pr vis bldg gs w' mt slow gs & o cut  
 2972-2980 COAL: 40% coal dust sl frm to pred sl brit to sply tr shaved tr bldg gas pred  
 2980-2990 SH: choc brn to blk sft to sl brit sply to sply occ ligc in app to v carb grdg to durite pr vis bldg gs w' mt slow gs & o cut FROTHY  
 2990-3020 CSH: pred blk occ brn blk sft to brit sply to sply sl sly tx v carb pred grdg to durite fr vis bldg gs mt slow gs & pr sl o cut FROTHY  
 2985 = 2699.67  
 DEG 84.86  
 AZM 90.10  
 VS 378.35  
 2985 = 2704.3  
 DEG 82.55  
 AZM 90.13  
 VS 413.62  
 3016 = 2707.86  
 DEG 84.24  
 AZM 95.52  
 VS 444.37  
 3110 = 2714.78  
 DEG 87.34  
 AZM 105.31  
 VS 538.44

Target



3140-3170 SH: gy blk to blk to dk choc brn sft to sl brit sply to sply v carb pred grdg to durite pr to fr vis bldg gs w/ mt mly gs & pr o cut FROTHY	2887.5 (+3772.5)	3173 = 2716.69 DEG 89.97 AZM 103.65 VS 597.69
3170-3200 COAL: blk sft to v sft sply to sply to v thin ply bri pred float cigs tr vis cleat pred hatched grdg to durite pr to fr vis bldg gs w/ mt mly gs & pr yel o cut		3204 = 2716.28 DEG 91.65 AZM 104.17 VS 627.78
3200-3230 CSH: blk to gy blk sft to brit sply to sply pred v carb grdg to durite w/ pr vis bldg gs w/ v mt gs & v slow pr o cut FROTHY		3238 = 2715.11 DEG 92.62 AZM 104.62 VS 604.81
3230-3260 CSH: blk to dk choc brn to gy blk sft to v sft to sl brit sply to sply to sply occ ilgc in app pred v carb grdg to durite pr vis bldg gs w/ pr mly gs & o cut FROTHY		3267 = 2714.33 DEG 90.37 AZM 103.8 VS 688.93
3260-3290 CSH: dk choc brn to blk to gy blk sft to v sft to sl brit sply to sply to sply ilgc in app pred v carb grdg to durite pr to fr vis bldg gs w/ mt mly gs & o cut FROTHY		3299 = 2714.02 DEG 90.74 AZM 103.91 VS 720.0
3290-3320 COAL: blk sft to v sl fri sply to sply pred bri fl mly w/ pr vis cleat occ conch w/ dull shly to dull sooly tx fr bldg gs slow mt mly gs & o cut frothy		3329 = 2712.88 DEG 89.23 AZM 102.01 VS 749.18
3320-3350 COAL: blk sft to cigs grdg to vit dust tr vis mly gs & fr slow o cut FROTHY		



3350-3380 COAL: blk sft to sl brit being pred dull to shly tx to sooty bx  
 splly to splly hacked tx about tree float fusinite dust fr vis bldg gs wi  
 frnt mlky gs & pr to mod fr yel o cut FROTHY

3410-3440 C.S.H: dk choc brn to blk sft to v sft to sl brit  
 sbility to splly ligc in app to drdge to durite fr to vis bldg gs  
 wi frnt gs & pr slow o cut FROTHY

3440-3480 C.S.H: blk to gy blk to dk choc brn sft to brit splly  
 to splly pred hacked trac pr vis bldg gs wi frnt mlky gs &  
 pr o cut MOD FROTHY

3480-3520 COAL: blk sft to v sl fri splly to sbility pred dull shly to  
 dull wxy deor bri lust pr to fr vis cleat pr vis bldg gs wi pr mlky gs  
 & slow dull o cut MOD FROTHY

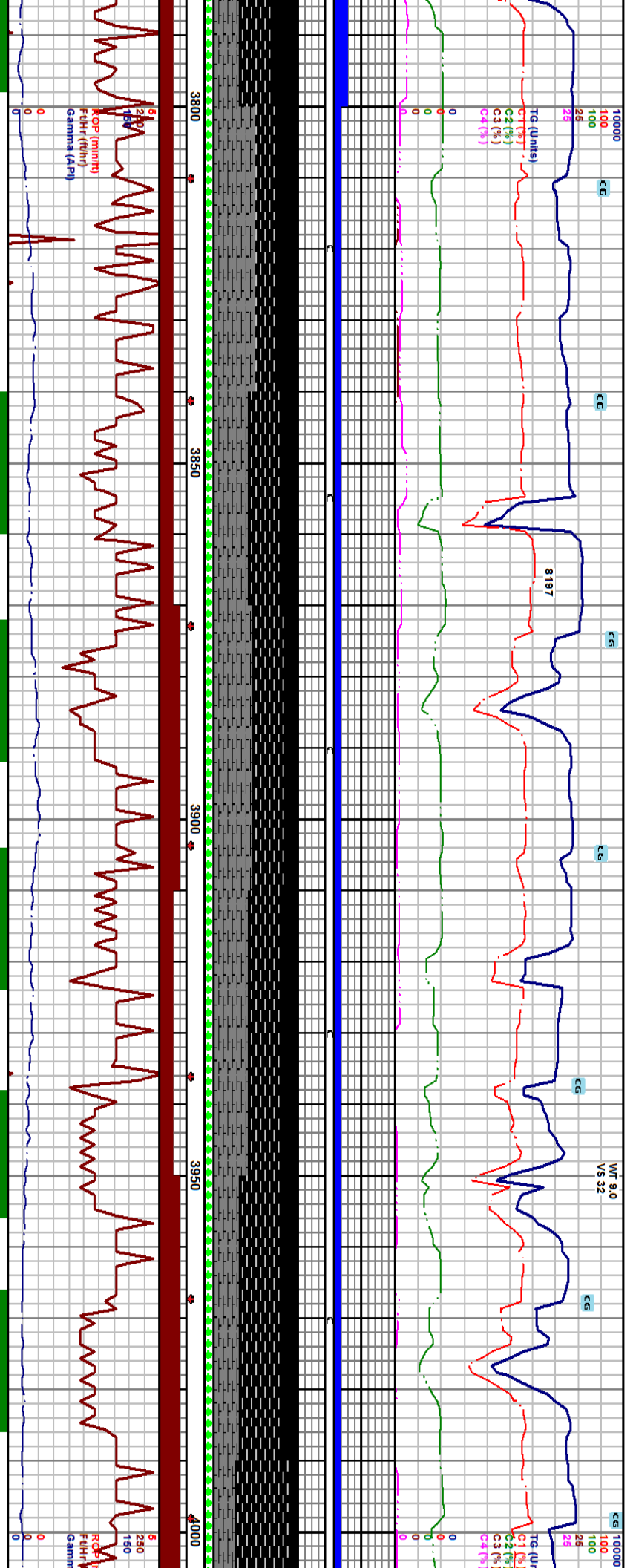
3520-3560 C.S.H: dk choc brn to blk sft to v sl brit  
 carb drdge to durite pr vis bldg gs wi vnt gs & c

2687.5 (+3772.5)	2615 TVD Sub sea (+3845)	3361 = 2713.78 DEG 80.2 AZM 102.7 VS 780.38	3392 = 2713.76 DEG 87.1 AZM 101.71 VS 810.67 (+3700)	3424 = 2716.47 DEG 83.2 AZM 101.7 VS 792.9	3456 = 2720.13 DEG 83.2 AZM 101.59 VS 811.85	3488 = 2723.66 DEG 83.71 AZM 106.17 VS 841.12	3518 = 2726.86 DEG 84.79 AZM 108.21 VS 871.9	3549 = 2729.08 DEG 87.01 AZM 111.40 VS 902.17
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v sft to v sl fri pred bri vfr  
 cleat pr vis bldg gs wi frnt  
 O THY

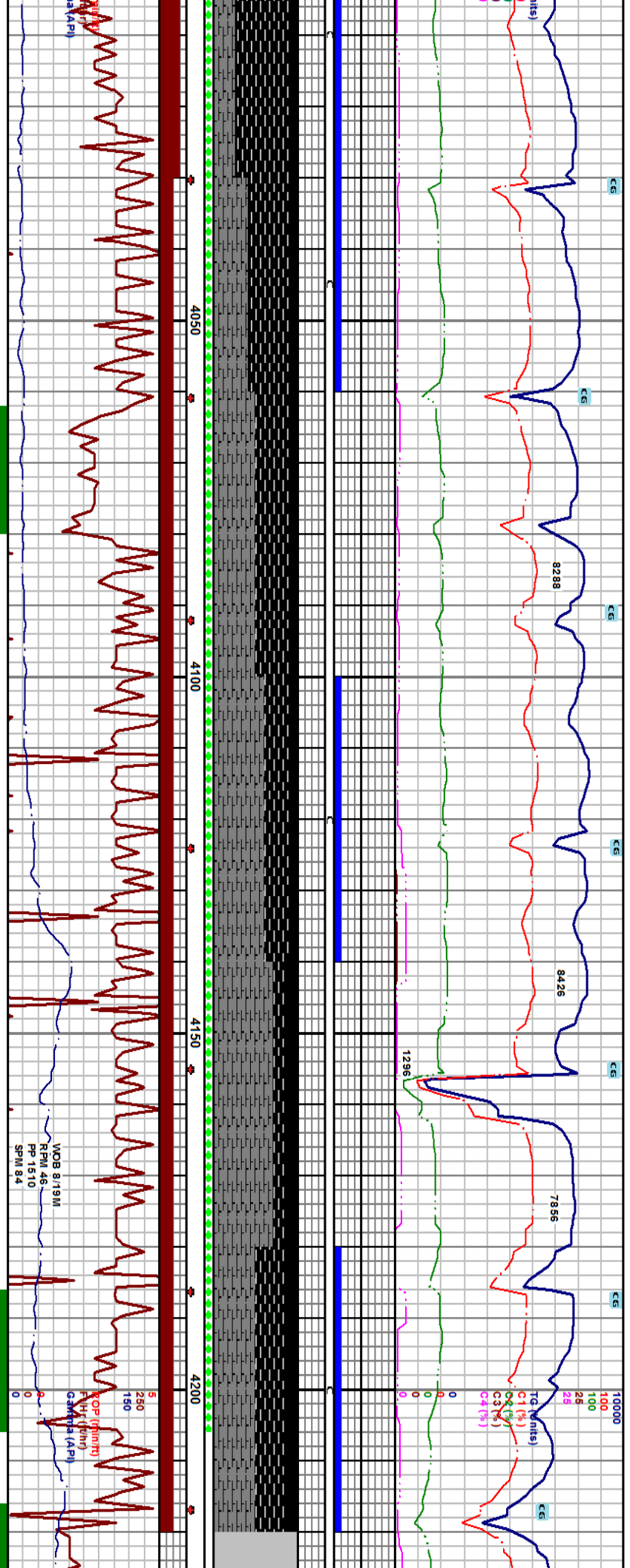
3560  
pred





2615 TVD Sub Sea (+3845)	3800-3840 CSH: dk choc brn to brn blk to blk sft to sl brit pred to mas in app pred grdy to durite w/ ligc in app fr vis bldg gs w/	2615 TVD Sub Sea (+3845)	3840-3870 COAL: blk sft to v sl fri bri v float cigs to wt dust pred dull shly tx tr vis cleat pred hacked fr vis bldg gs w/ pr slow milky gs & v slow o cut FROTHY	2615 TVD Sub Sea (+3845)	3870-3910 CSH: blk to brn blk to gy blk sft to sl brit sply to sply dull shly to sooty tx w/ bri v/ to wt float cigs tr vis cleat pr vis bldg gs w/ fr milky gs & fr o cut FROTHY	2615 TVD Sub Sea (+3845)	3910-3950 COAL: blk sft to v sft sply to sply occ lam w/ int lam thin coal to coal p/igs w/ bri v float cigs w/ occ w/ pr vis bldg gs w/ pr yel gs & o cut FROTHY	2615 TVD Sub Sea (+3845)	3950-3990 COAL: blk sft to sl fri sply to sply to thin ply & bri to dull shly tx pred durite in app bri pred v float cigs to cleat fr vis bldg gs fr slow gs & o cut	2615 TVD Sub Sea (+3845)	3990-4030 COAL sply to sply v bldg gs w/ int r	
2687.5 (+3772.5)		2687.5 (+3772.5)		2687.5 (+3772.5)		2687.5 (+3772.5)		2687.5 (+3772.5)		2687.5 (+3772.5)		
3800 = 2731.96 DEG 90.24 AZM 126.96 VS 115.18.3		3831 = 2731.77 DEG 90.47 AZM 126.79 VS 118.27.0		3869 = 2730.61 DEG 91.48 AZM 129.86 VS 121.4.46		3894 = 2730.61 DEG 90.77 AZM 133.16 VS 124.4.98		3926 = 2730.69 DEG 88.19 AZM 133.74 VS 127.5.30		3967 = 2731.81 DEG 88.52 AZM 137.2 VS 130.6.33		3988 = 2732.06 DEG 90.57 AZM 140.08 VS 133.5.95
2760 (+3700)		2760 (+3700)		2760 (+3700)		2760 (+3700)		2760 (+3700)		2760 (+3700)		

v sft to sl fri sply to sply to v thin ply  
r vis face cleat pred hacked pr vis bldg  
it FROTHY



VD  
o shaved in app  
vlt dust rr vis

... blk sft to v sft to v sl fr pred dull shly to scooty tx  
r vis cleat float ctdgs pred wxy to fushrite dust pr vis  
mky gs & o cut frothy

4030-4060 CSH: brn blk to blk to dk choc brn sft to v sft sply to sply sily tx ligc  
in app to grdg to durite pr to fr vis bldg gs w/ pr mky gs & o cut

4060-4100 COAL: blk sft to v sft sply to sply dull shly to occ scooty bri float  
ctgs pred bri rr vlt no vis cleat pr vis bldg gs w/ pr slow mky gs & o cut  
FROTHY

4100-4140 CSH: brn blk to blk to dk choc brn sft to v sft beam g vf ctdgs  
sply to sply sily tx ip ligc in app to grdg to durite pr vis bldg gs w/ fr  
mky gs & o cut FROTHY

4140-4180 CSH: brn blk to dk choc brn to blk f ctdgs sft to v sft thn ply to sply sily  
tx ligc in app to v carb grdg to durite occ lam w/ thin carb ptygs to coal intr lam fill  
pr vis bldg gs

4180-4220 COAL: 30% dust sft to tr sl frm tr face  
hacked fr mky vis gas cut w/ tr slo oil cut

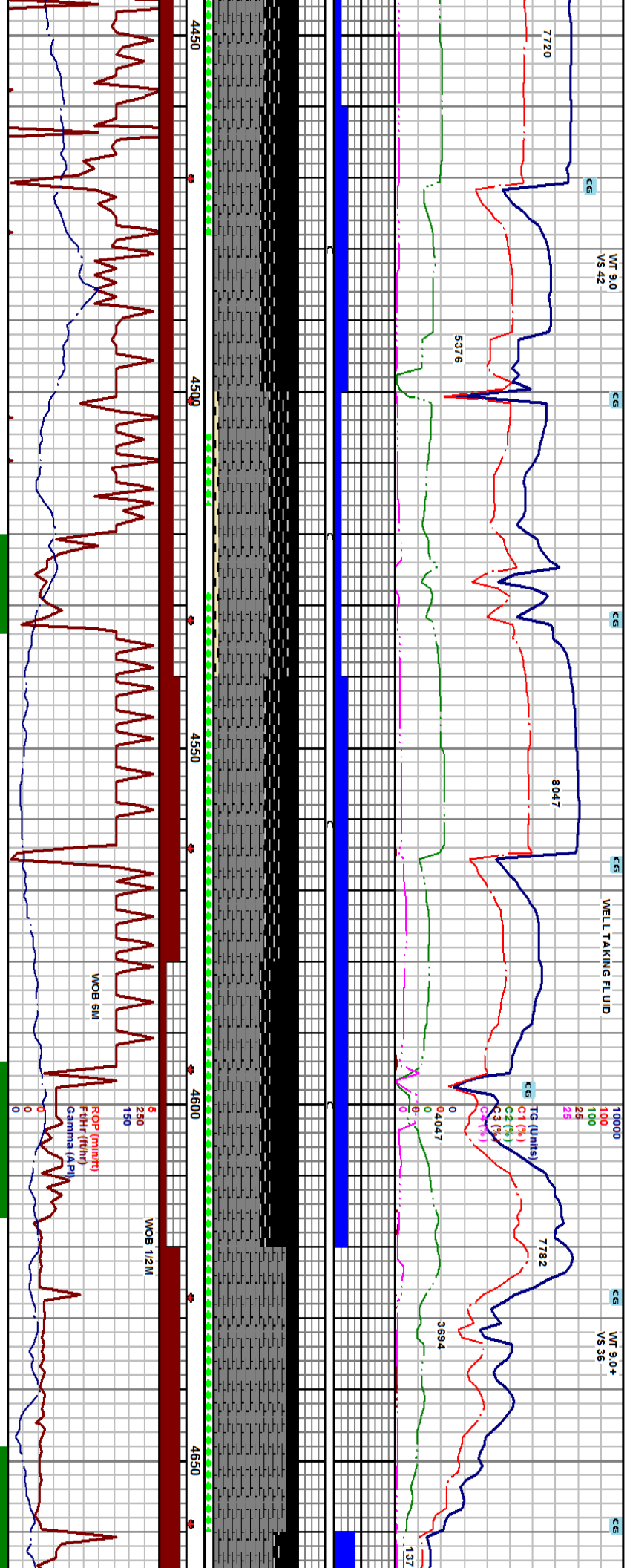
WOB 8/19M  
RPM 46  
PP 1510  
SPM 84

OPR (min)  
F-H (den)  
G-M (A.P.)

4020 = 2731.44 DEG 91.65 AZM 140.21 VS 1366.26	4051 = 2730.26 DEG 92.75 AZM 141.11 VS 1395.52	4082 = 2729.65 DEG 89.83 AZM 141.16 VS 1424.70	4114 = 2729.88 DEG 90.07 AZM 140.73 VS 1454.88	4145 = 2729.26 DEG 91.11 AZM 141.75 VS 1484.05	4176 = 2728.43 DEG 91.95 AZM 140.00 VS 1513.28	4208 = 2728.09 DEG 89.29 AZM 141.01 VS 1543.53
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2615 TWD  
Sub Sea (+3845)  
2687.5  
(+3772.5)  
2760  
(+3700)





4500-4540 CSH: choc brn to blk sft to sl brit sply to sbilly pred  
 lligc in app to grdg to durite wi tr free bent pred dk brn sft thn ply  
 wxy

4540-4580 COAL: blk fri to v fri occ frm sply to sbilly incr bri lust wi  
 abnt float vt dust pr vis cleat pred face cleat no butt cleat hackled frac pr  
 vis bldg gs wi pr to fr mly gs & o cut

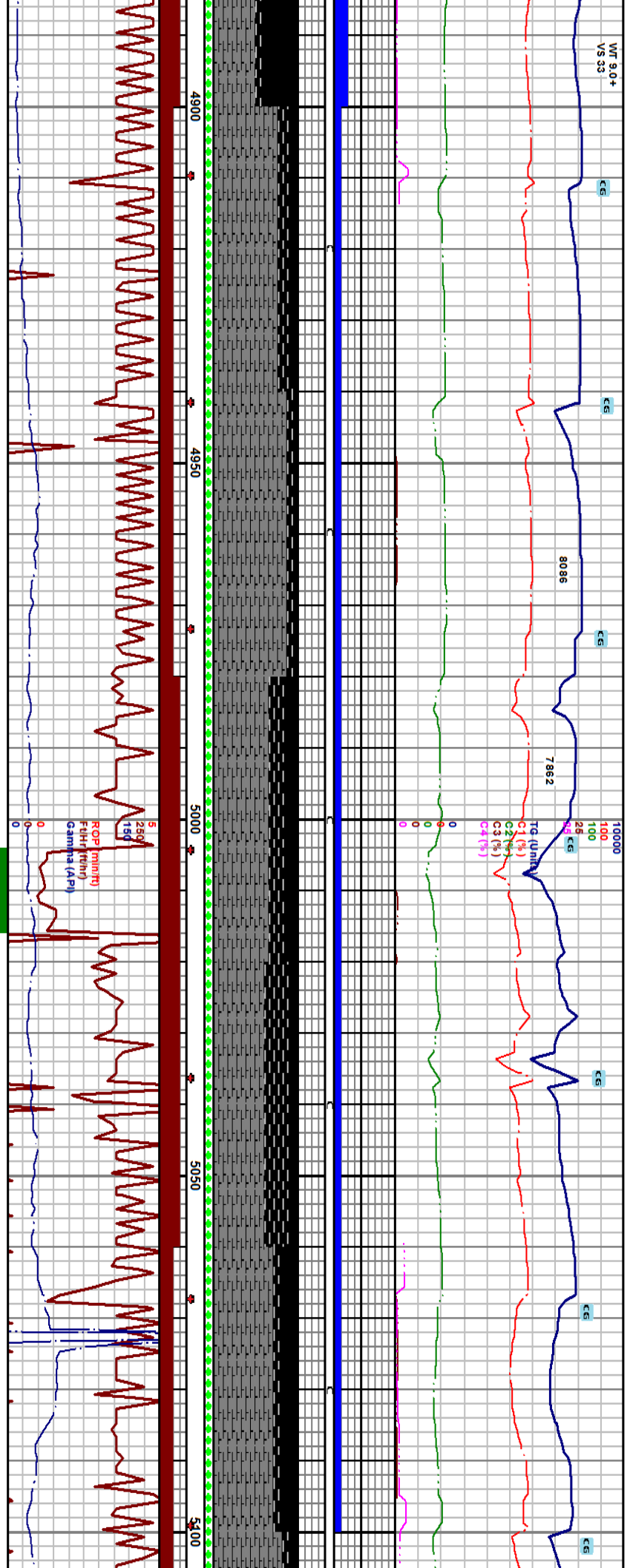
4580-4620 CSH: pred choc brn to brn blk occ blk sft to sl brit bcmg pred  
 sply to thn ply sily bx n calc v carb lligc in app occ grdg to durite pr vis  
 bldg gs wi frt gs & o cut

4620-4660 CSH: blk brn to brn to gry blk sl frm  
 coal bri tr face cleat tr bldg gas fr mly gas cut

4460 = 2719.93 DEG 90.54 AZM 140.35 VS 1780.74	4491 = 2719.54 DEG 90.91 AZM 140.36 VS 1810.07	4523 = 2718.86 DEG 91.55 AZM 140.59 VS 1840.31	4554 = 2717.67 DEG 92.83 AZM 141.22 VS 1899.66	4586 = 2716.07 DEG 92.93 AZM 140.55 VS 2716.07	4618 = 2713.47 DEG 96.37 AZM 140.0 VS 1899.56	4649 = 2709.71 DEG 97.56 AZM 139.88 VS 1958.03
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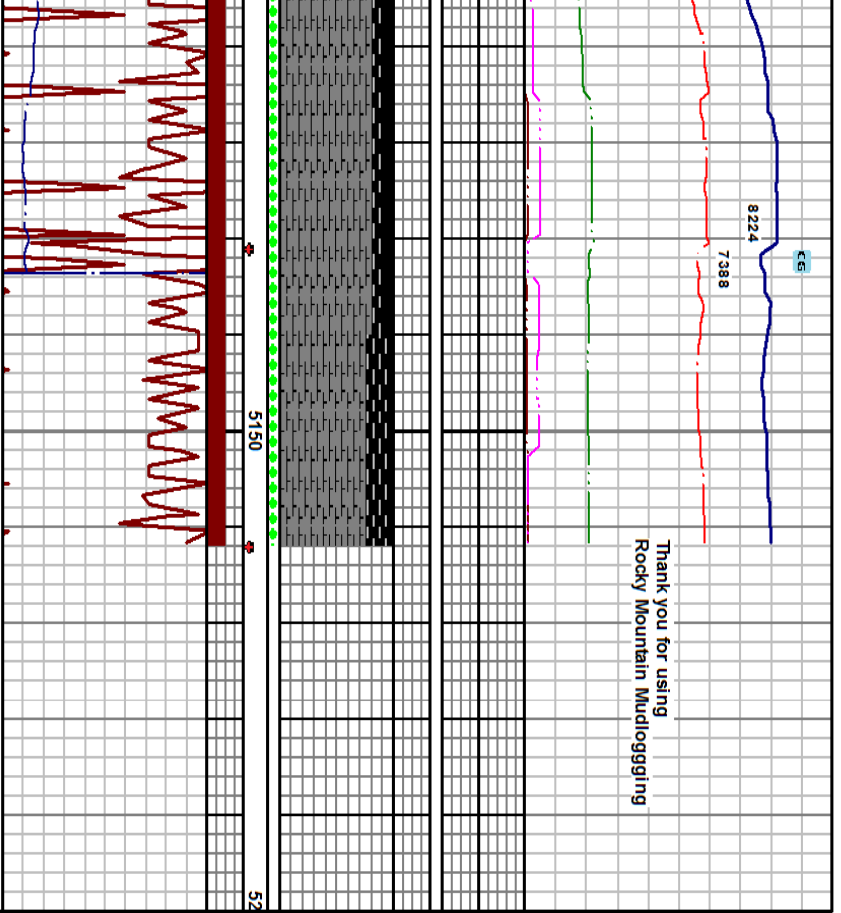
4660  
shly  
mly





4900-4940 CSH: dk choc brn to brn blk frm to brt sply to sbblky silty v carb pred ligc in app wi mod carb ptgs to lamina bdd sl calc wi pr vis bldg gs pr mlky gs & o cut frothy	2613 TVD Sub Sea (+3845)	5100 dull gs w
4940-4980 COAL: blk sft to occ sl frm to tr sply bri to dull hacked sl tr face cleat no butt cleat shly fr vis bldg gas fr mlky gas cut tr yel silo oil cut		
4980-5020 COAL: blk fri to v fri bom g pred f ctgs bri to pred dull just wxy to grsy wi mod vit dust tr vis cleat pr vis bldg gs wi pr mlky gs & o cut	2687.5 (+3772.5)	
5020-5060 COAL: blk sft to sl fri pred f ctgs sply to sbply pred dull wxy to dull grsy just to bom g shly tx pred hacked frac rr vis face cleat pr vis bldg gs wi slow frnt gs & o cut		
5060-5100 CSH: choc brn to dk choc brn to blk s sbply to sbblky pred ligc in app occ grdg to dull frnt mlky gs & pr o cut		
4901 = 2715.18 DEG 87.15 AZM 137.58 VS 2200.48	4932 = 2716.57 DEG 87.58 AZM 138.03 VS 2230.2	4963 = 2717.54 DEG 88.72 AZM 139.3 VS 2259.8
4995 = 2718.18 DEG 88.99 AZM 139.82 VS 2290.22 (+3700)	5026 = 2719.21 DEG 87.21 AZM 139.37 VS 2319.66	5058 = 2720.82 DEG 87.01 AZM 139.10 VS 2350.1
5090 = 2722.35 DEG 87.51 AZM 140.00 VS 2380.49		

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Rocky Mountain Mudlogging



5140 COAL: blk sft to v sl fri f cdgs sply to sply  
to bri lust rr vit no vis deat hackled frac pr vis blidg  
ht mlky gs & o cut

5140-5162 CSH: brn blk to dk choc brn sft to sl brit sply to  
thin ply silty bc v carb ilgc in app to grdg to durite in app pr  
vis blidg gs wi pr mlky gs & o cut

5162' C.O. for casing T.D. 11/02/14 @ 0355  
hrs.

f to sl brit sply to  
rite pr vis blidg gs wi

PROJECTED TO T.D.  
5162 = 2724.97  
DEG 88.02  
AZIM 140.08  
VS 2448.69

5121 = 2723.66  
DEG 88.02  
AZM 140.08  
VS 2409.96