



# GEOSEARCH LOGGING INC.

Scale 1:240 (5"=100') Imperial  
Measured Depth Log

**Well Name:** Windoes 2244H

**Location:** Harrison County, West Virginia

**License Number:** 47-033-05406

**Spud Date:** 12/18/2010

**Surface Coordinates:** Lat: 39.1273167

Long: -80.2332583

**Bottom Hole Coordinates:** Lat: 39.132838

Long: -80.233861

**Ground Elevation (ft):** 1,324'

**Logged Interval (ft):** 2,669      **To:** 10,437'

**Formation:** Marcellus

**Type of Drilling Fluid:** Oil-based Mud

**K.B. Elevation (ft):** 1,340'

**Total Depth (ft):** 10,437'

**Region:** APPALACHIA

**Drilling Completed:** 1/3/2011

Printed by HORIZONTAL.LOG from WellSight Systems 1-800-447-1534 [www.WellSight.com](http://www.WellSight.com)

## OPERATOR

**Company:** XTO ENERGY

**Address:** 600 E. Exchange Avenue  
Fort Worth, TX 76164


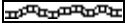
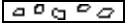

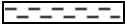







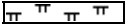


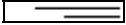
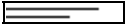










## GEOLOGIST

**Name:** Kelley Hartley, Daniel Blake, & Kelley Harris  
**Company:** Geosearch Logging Inc.  
**Address:** P.O. Box 6005  
 Edmond, OK 73083-6005  
 (405) 340-5545








































































## Comments

**2 Manned Logging Service**  
**Start Logging Date:** 12/24/2010  
**Released Logging Date:** 1/3/2011  
**OBM Date:** 12/29/2010  
**Drilling:** UDI#209  
**PC 193, ML#126, HASP: V: V42, H:33**

## ROCK TYPES








 <b>Anhy</b>  <b>Bent</b>  <b>Brec</b>  <b>Cht</b>  <b>Clyst</b>  <b>Coal</b>	 <b>Congl</b>  <b>Dol</b>  <b>Gyp</b>  <b>Igne</b>  <b>Lmst</b>  <b>Meta</b>	 <b>Mrlst</b>  <b>Salt</b>  <b>Shale</b>  <b>Shcol</b>  <b>Shgy</b>  <b>Sltst</b>	 <b>Ss</b>  <b>Till</b>  <b>Sandstn</b>  <b>Siltstn</b>  <b>Granwash</b>  <b>Dolowash</b>	 <b>Granite</b>  <b>Cement</b>  <b>Hotshale</b>
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## ACCESSORIES

<b>MINERAL</b>  <b>Anhy</b>  <b>Arggrn</b>  <b>Arg</b>  <b>Bent</b>  <b>Bit</b>  <b>Brecfrag</b>  <b>Calc</b>  <b>Carb</b>  <b>Chtdk</b>  <b>Chtlt</b>  <b>Dol</b>  <b>Feldspar</b>  <b>Ferrpel</b>  <b>Ferr</b>  <b>Glau</b>	 <b>Gyp</b>  <b>Hvymin</b>  <b>Kaol</b>  <b>Marl</b>  <b>Minxl</b>  <b>Nodule</b>  <b>Phos</b>  <b>Pyr</b>  <b>Salt</b>  <b>Sandy</b>  <b>Silt</b>  <b>Sil</b>  <b>Sulphur</b>  <b>Tuff</b>	<b>FOSSIL</b>  <b>Algae</b>  <b>Amph</b>  <b>Belm</b>  <b>Bioclst</b>  <b>Brach</b>  <b>Bryozoa</b>  <b>Cephal</b>  <b>Coral</b>  <b>Crin</b>  <b>Echin</b>  <b>Fish</b>  <b>Foram</b>  <b>Fossil</b>  <b>Gastro</b>  <b>Oolite</b>	 <b>Ostra</b>  <b>Pelec</b>  <b>Pellet</b>  <b>Pisolite</b>  <b>Plant</b>  <b>Strom</b>  <b>STRINGER</b>  <b>Anhy</b>  <b>Arg</b>  <b>Bent</b>  <b>Coal</b>  <b>Dol</b>  <b>Gyp</b>  <b>Ls</b>  <b>Mrst</b>	 <b>Sltstrg</b>  <b>Ssstrg</b>  <b>TEXTURE</b>  <b>Boundst</b>  <b>Chalky</b>  <b>Cryxln</b>  <b>Earthy</b>  <b>Finexln</b>  <b>Grainst</b>  <b>Lithogr</b>  <b>Microxln</b>  <b>Mudst</b>  <b>Packst</b>  <b>Wackest</b>
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**OTHER SYMBOLS**

**POROSITY TYPE**





-  Earthy
-  Fenest
-  Fracture
-  Inter
-  Moldic
-  Organic
-  Pinpoint

 Vuggy

**SORTING**

-  Well
-  Moderate
-  Poor

**ROUNDING**

-  Rounded
-  Subrnd
-  Subang
-  Angular

**OIL SHOWS**

-  Even

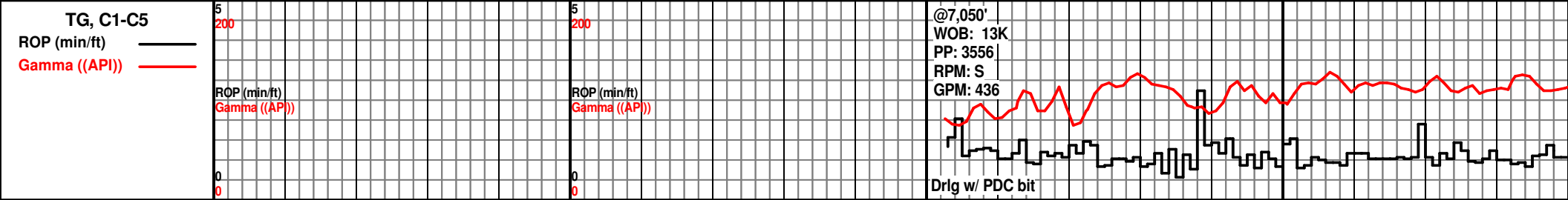
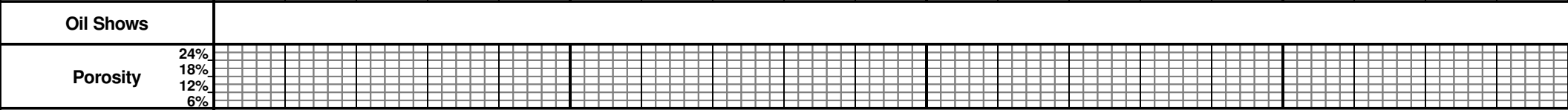
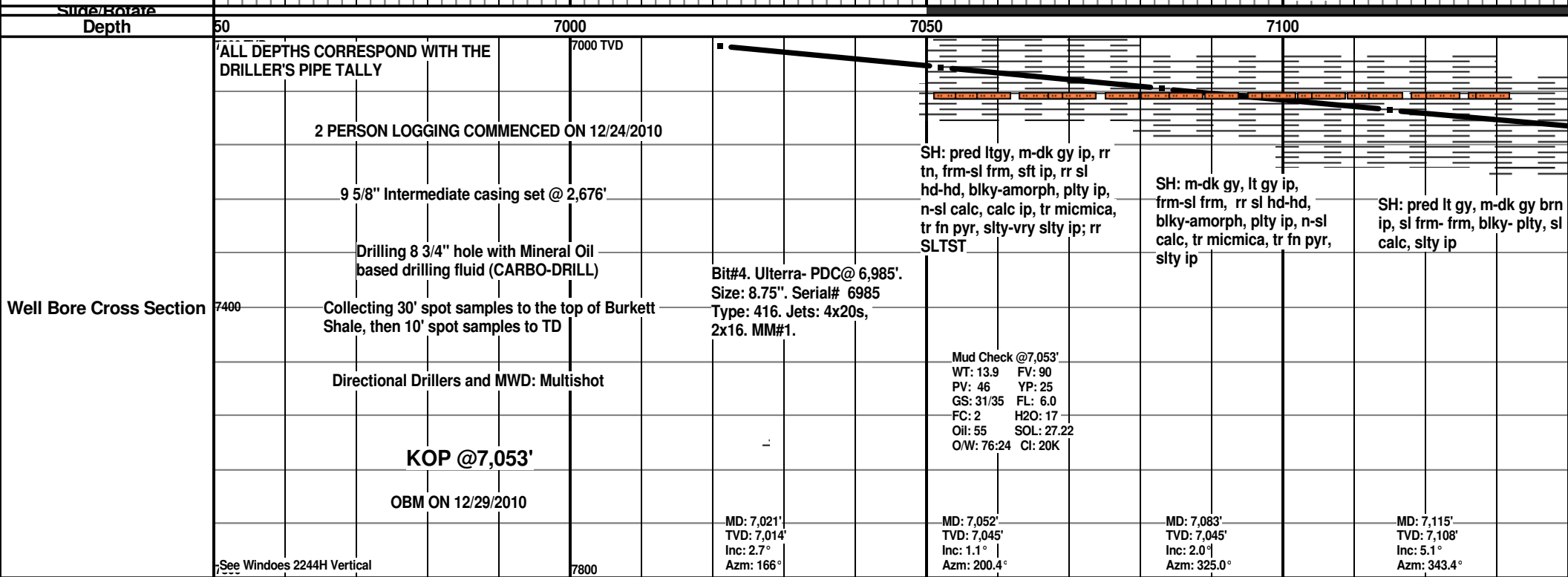
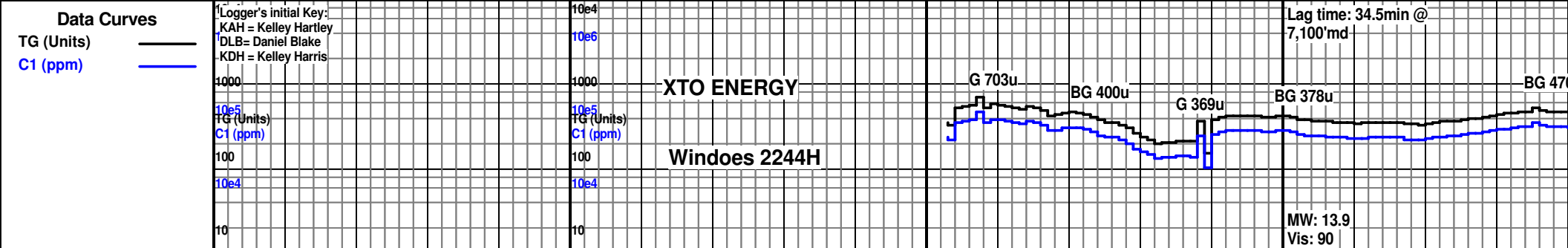
-  Spotted
-  Ques
-  Dead
-  poor
-  fair
-  good
-  excelent

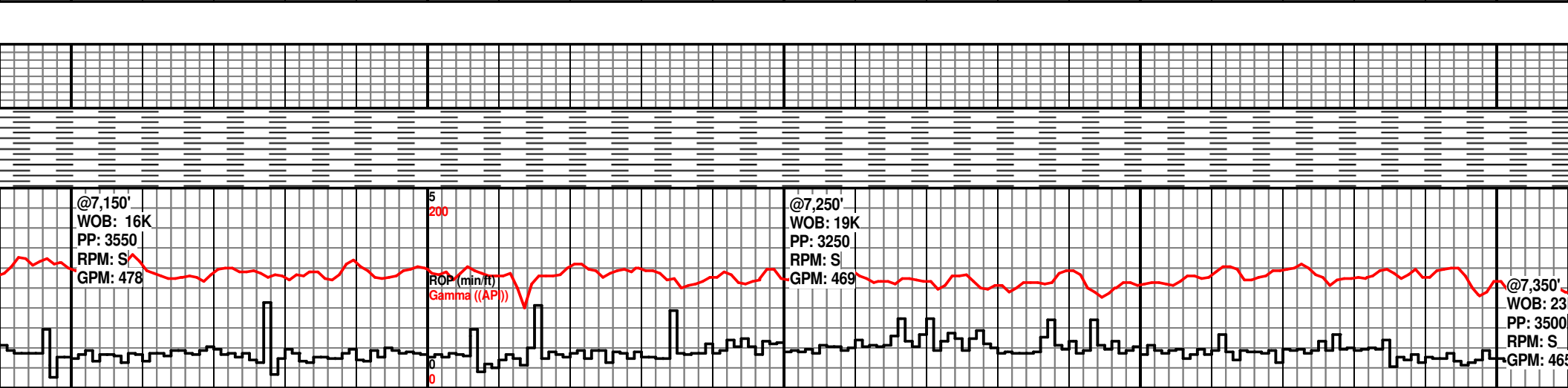
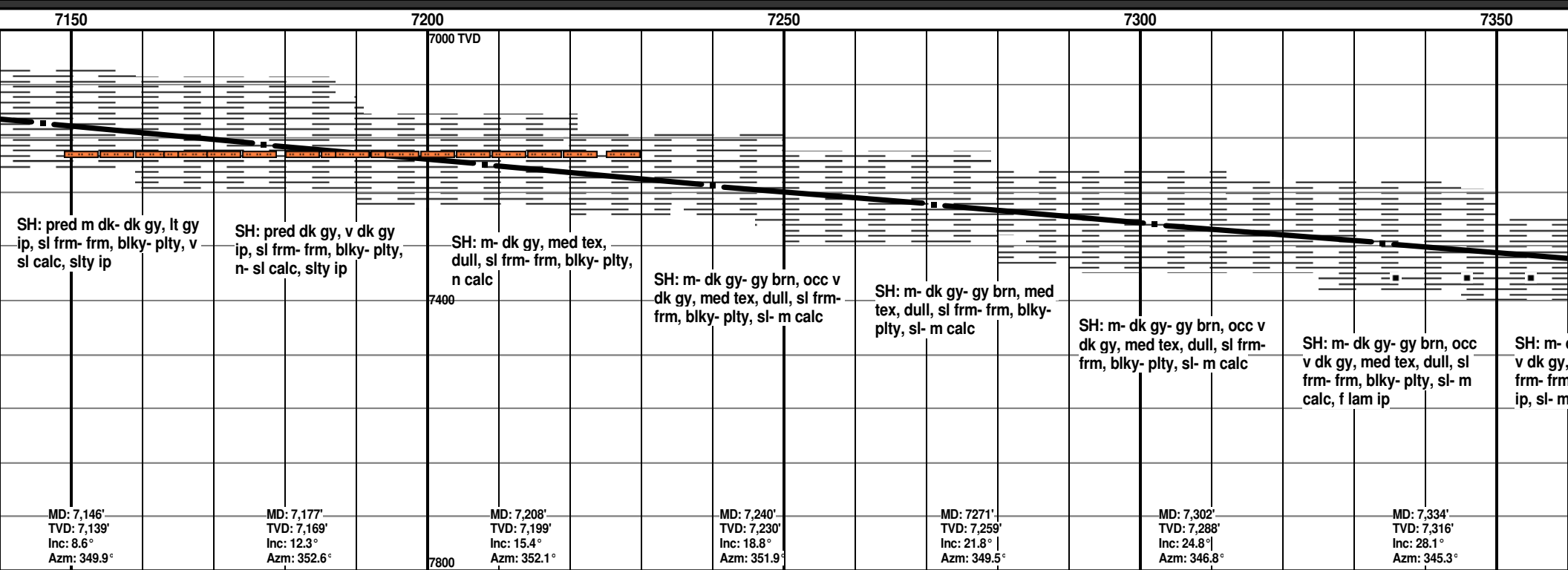
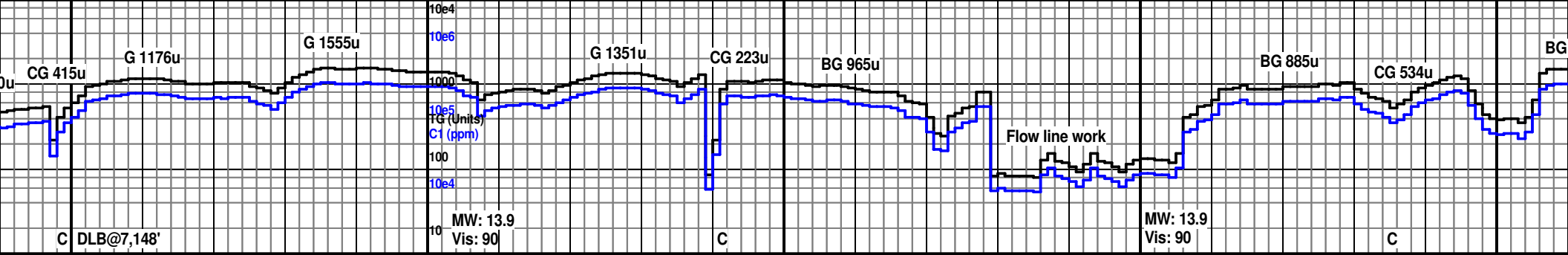
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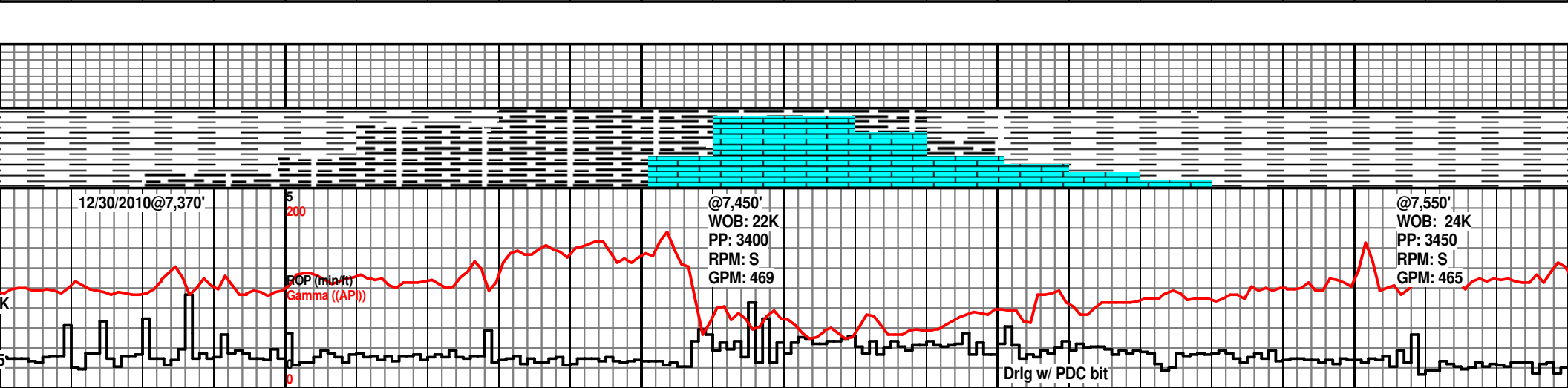
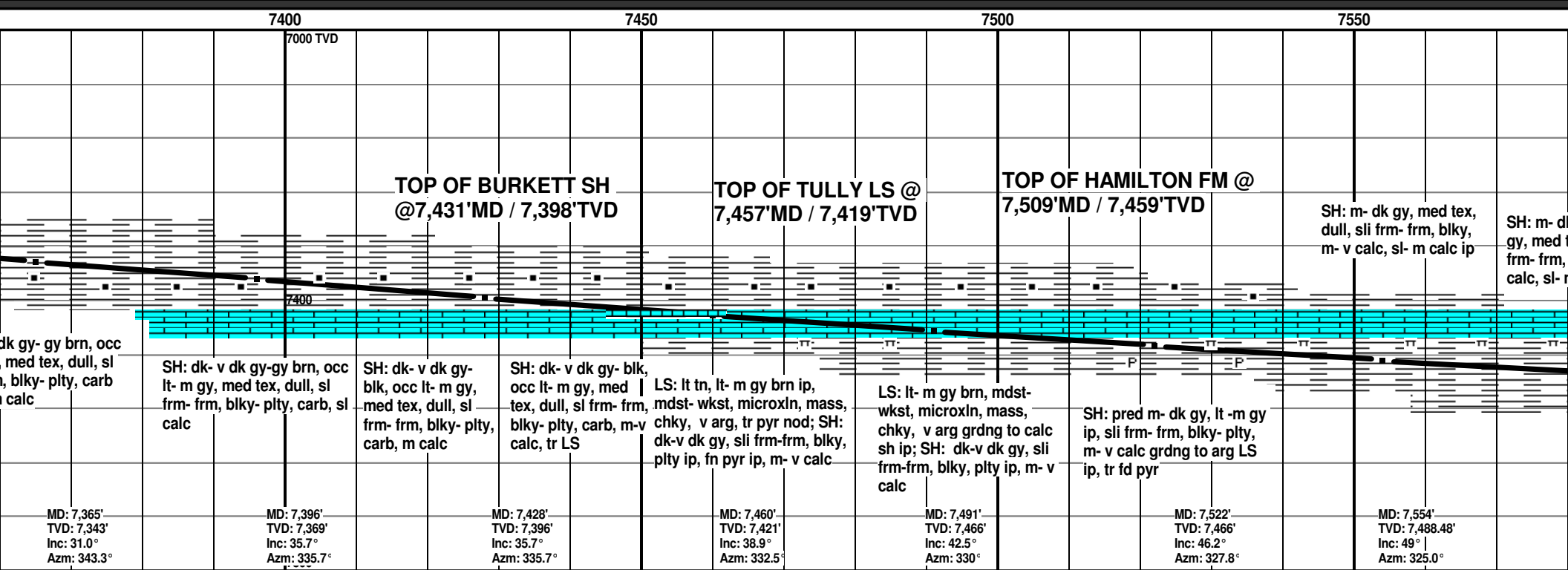
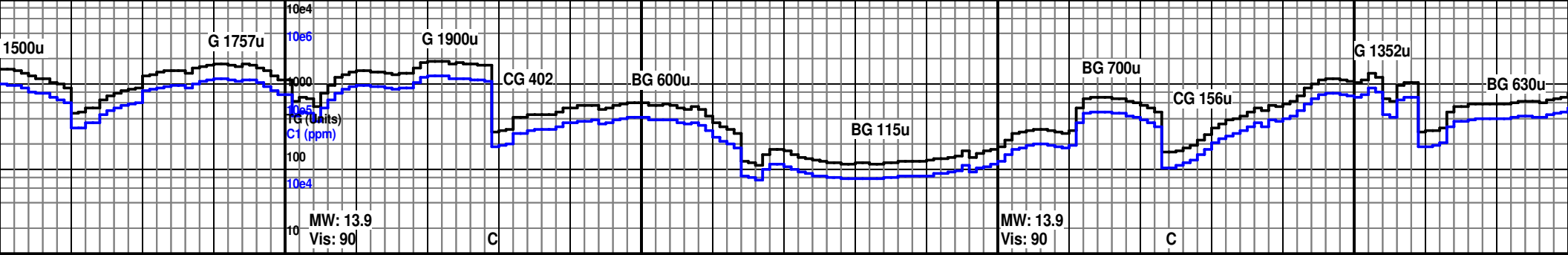
-  Core
-  Dst

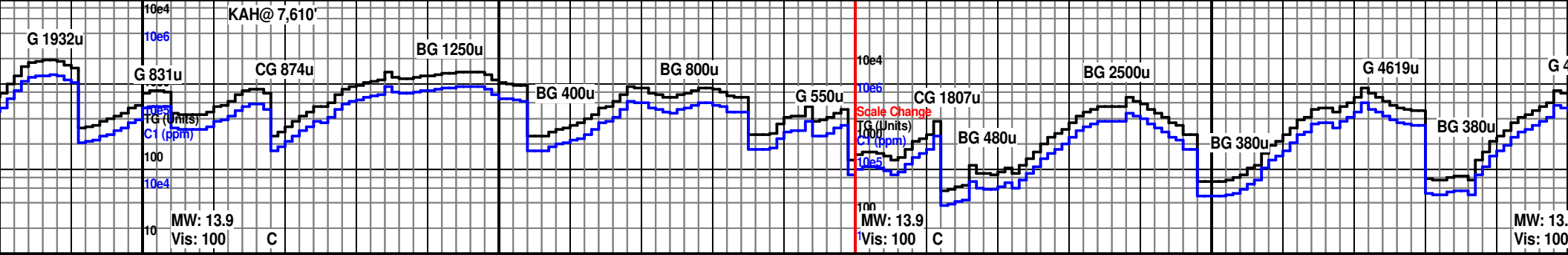
**EVENTS**

-  Rft
-  Sidewall

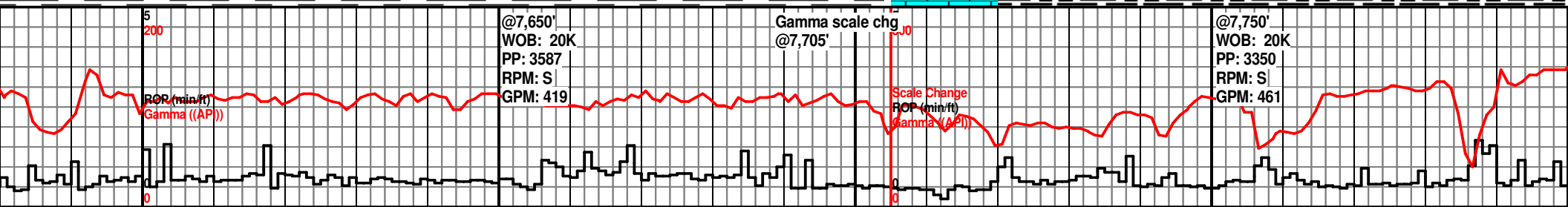
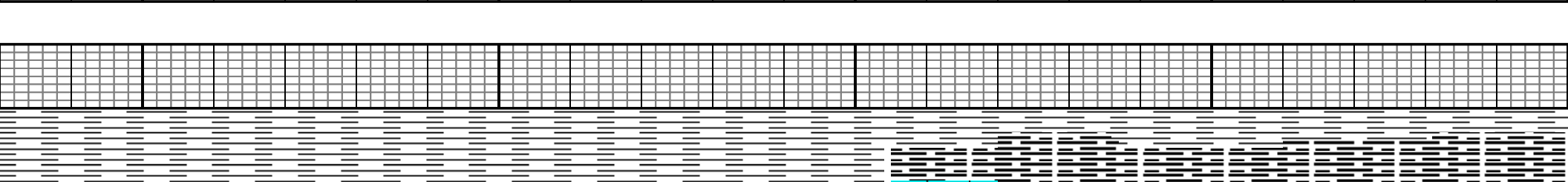
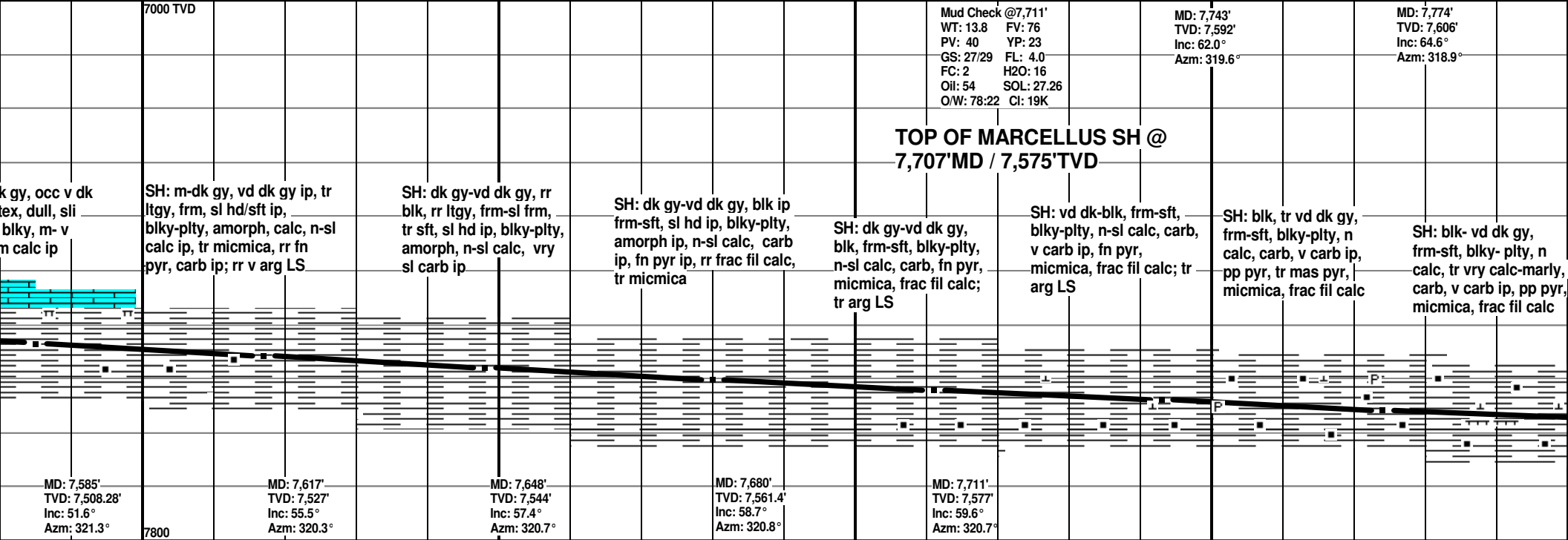


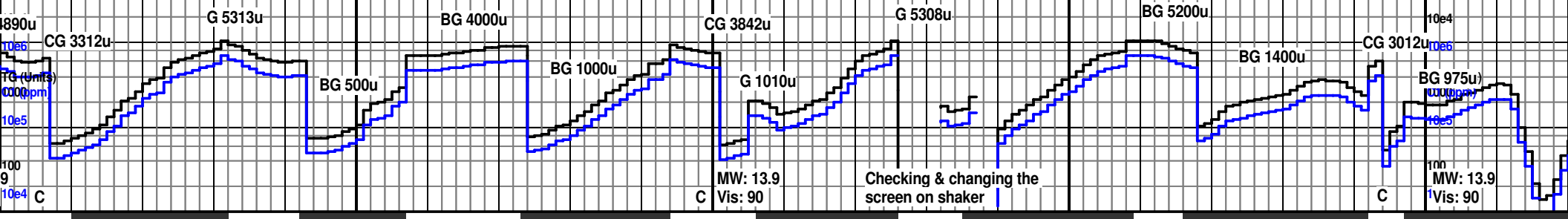






7600 7650 7700 7750 7800





00 7850 7900 7950 8000

MD: 7,805' TVD: 7,619' Inc: 67.2° Azm: 319.2°	MD: 7,837' TVD: 7,631' Inc: 70° Azm: 320°	MD: 7,868' TVD: 7,641' Inc: 71.6° Azm: 320.8°	MD: 7,900' TVD: 7,650' Inc: 73.5° Azm: 321.3°	MD: 7,930' TVD: 7,659' Inc: 75.1° Azm: 321.3°	MD: 7,962' TVD: 7,666' Inc: 77° Azm: 321.3°	MD: 7,993' TVD: 7,672' Inc: 80.5° Azm: 321.3°
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**TOP PURCELL LS @  
7,840'MD / 7,632'TVD**

SH: blk- vd dk gy, tr brn, pred frm, sft/sl hd ip, pred blk, plty-amorph ip, n calc, marly ip, carb-v carb ip, pp pyr, rr mas pyr, frac fil calc; rr vry arg LS

SH: blk- vd dk gy, tr brn, pred frm, sft/sl hd ip, pred blk, plty-amorph ip, n calc, carb-v carb, pp pyr, frac fil calc; LS: lt- m gy,, mdst- wkst, mass, chky, v arg, tr pyr nod

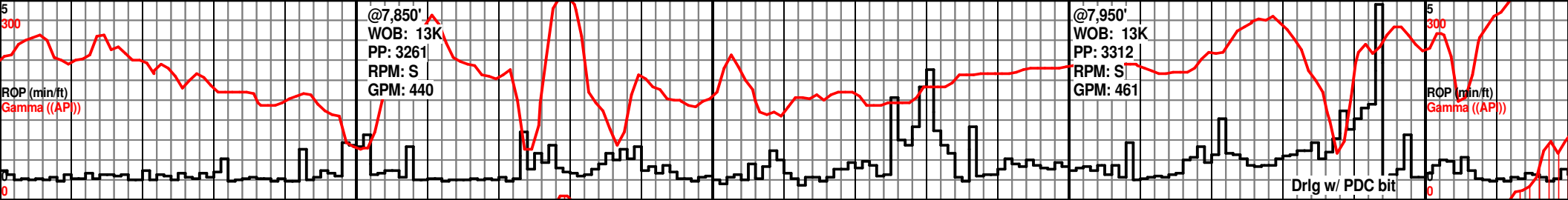
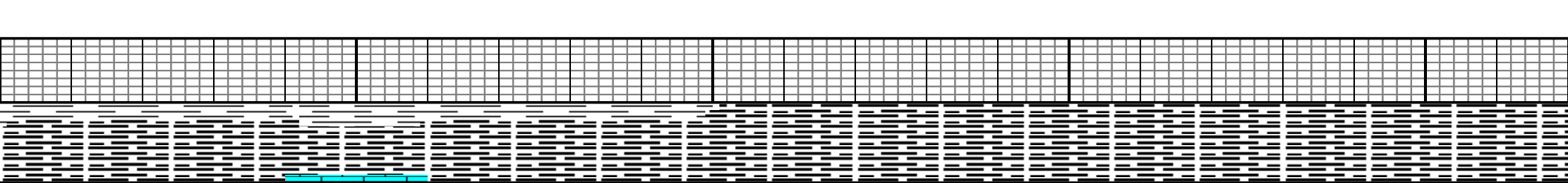
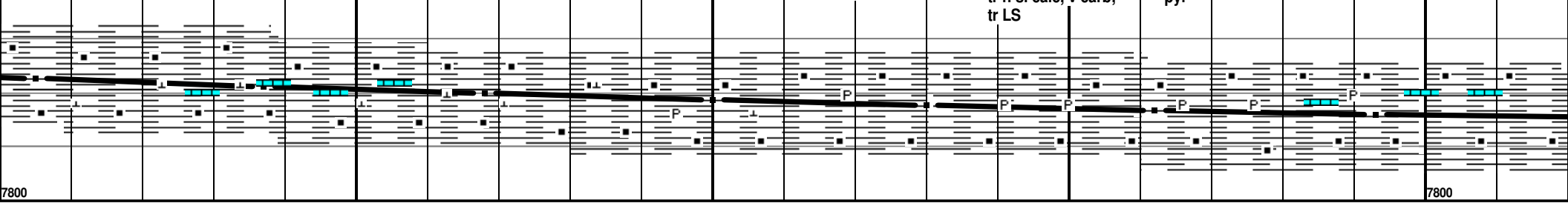
SH: blk- vd dk gy, frm-sft, blk- amorph, n calc, carb-v carb, tr pp pyr; rr vry arg LS

SH: blk- vd dk gy, dk gy ip, frm-sft, tr sl hd, blk, plty ip, rr amorph, n calc, carb-v carb

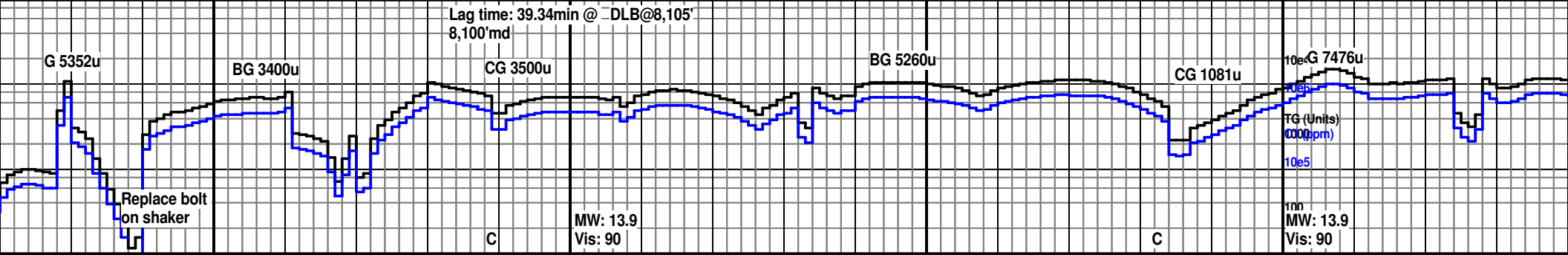
SH: blk- vd dk gy, brn ip, dk gy ip, frm-sft, tr sl hd, blk- plty, pred calc, tr n-sl calc, v carb; tr LS

SH: blk, brn ip, pred frm, sft ip, tr sl hd, blk- plty, amorph ip, pred sl calc, calc ip, v carb, fn/pp pyr, tr frc fil calc, rr mas pyr

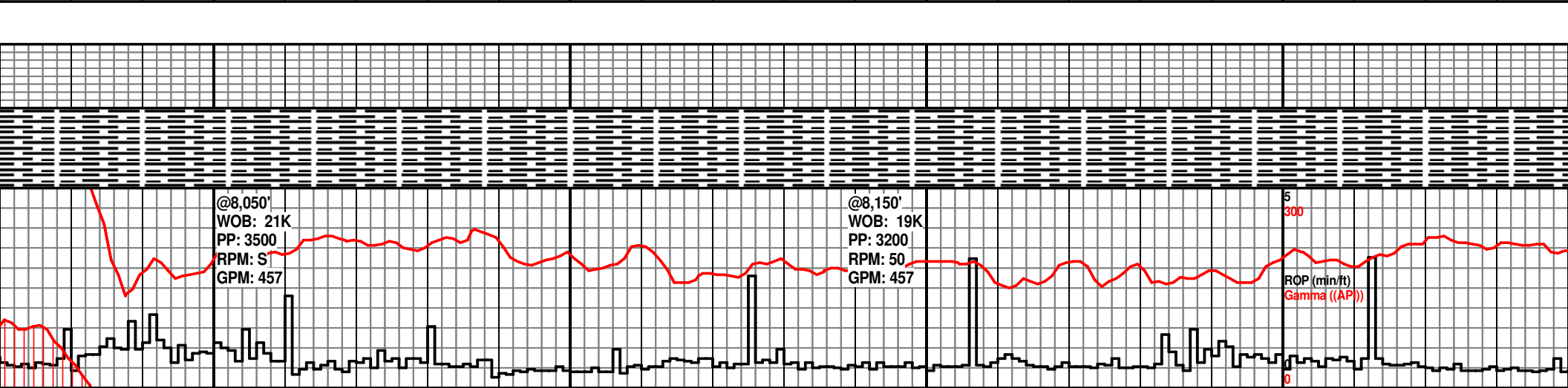
SH: blk, brn ip, frm-sft, blk- plty, pred sl calc, calc ip, v carb; tr LS

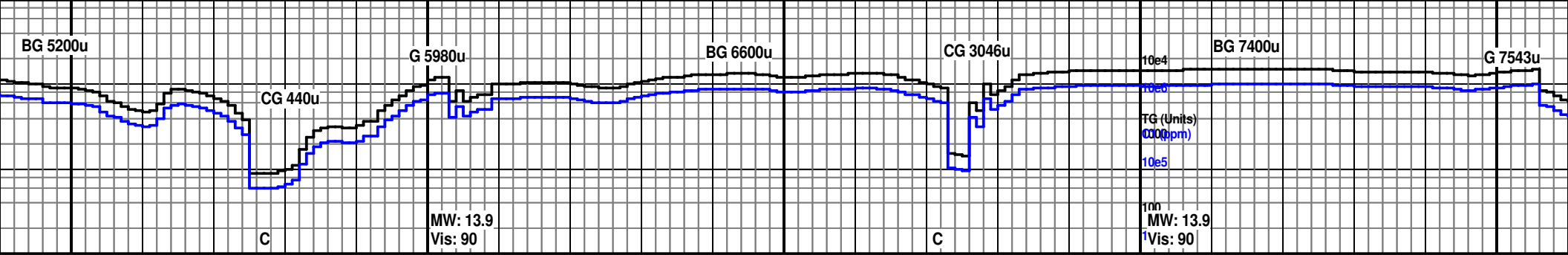




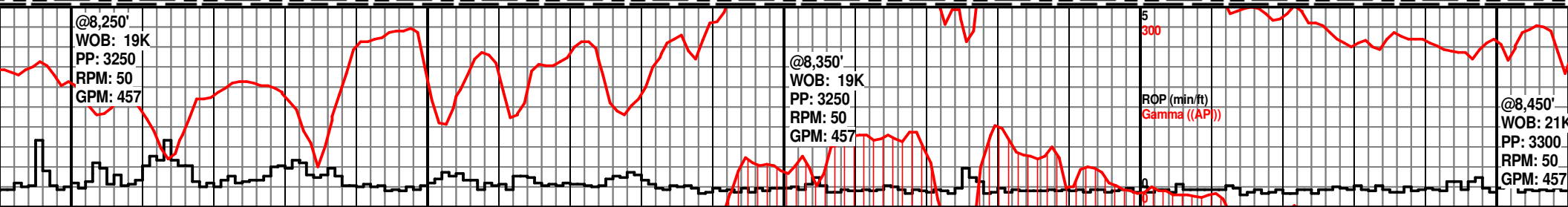
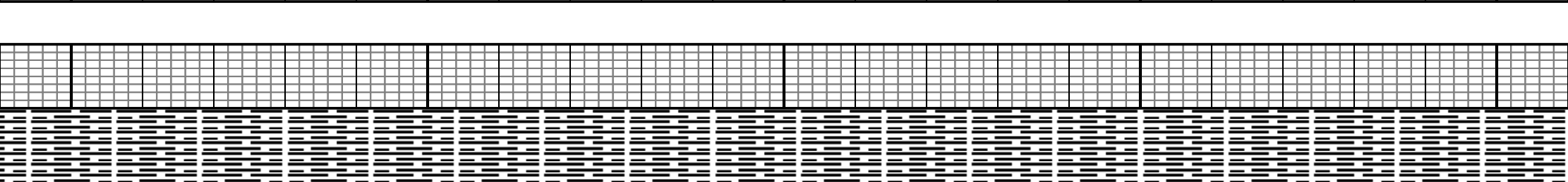
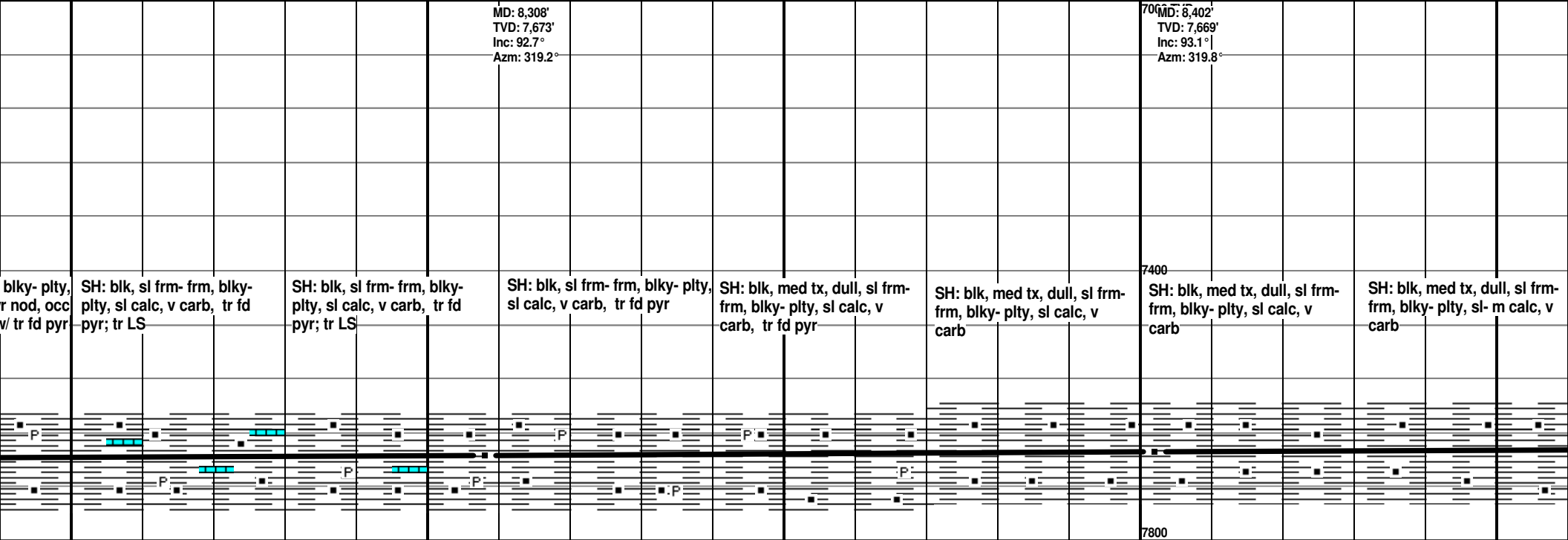


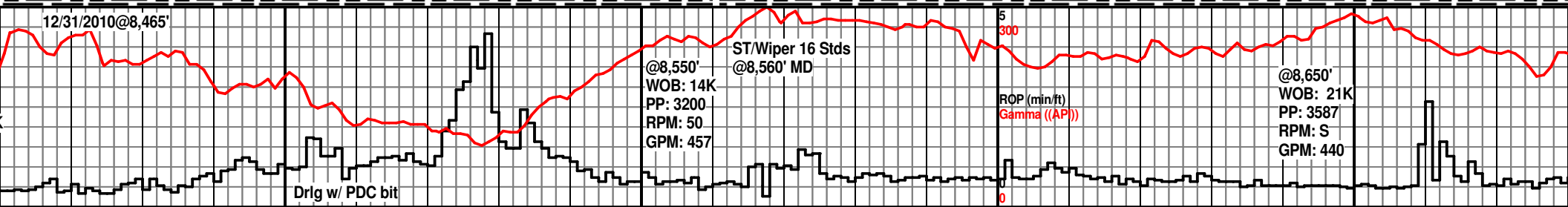
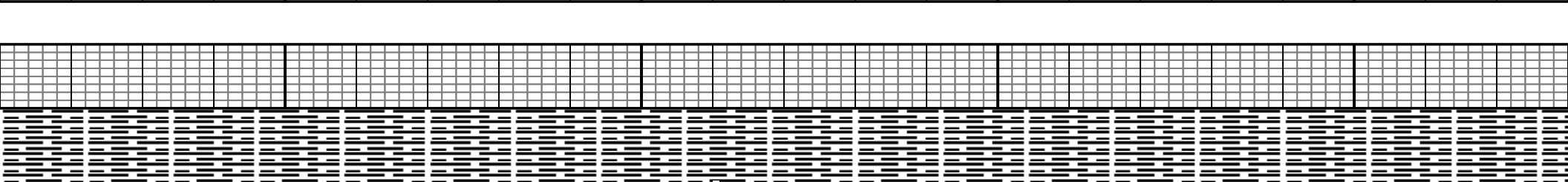
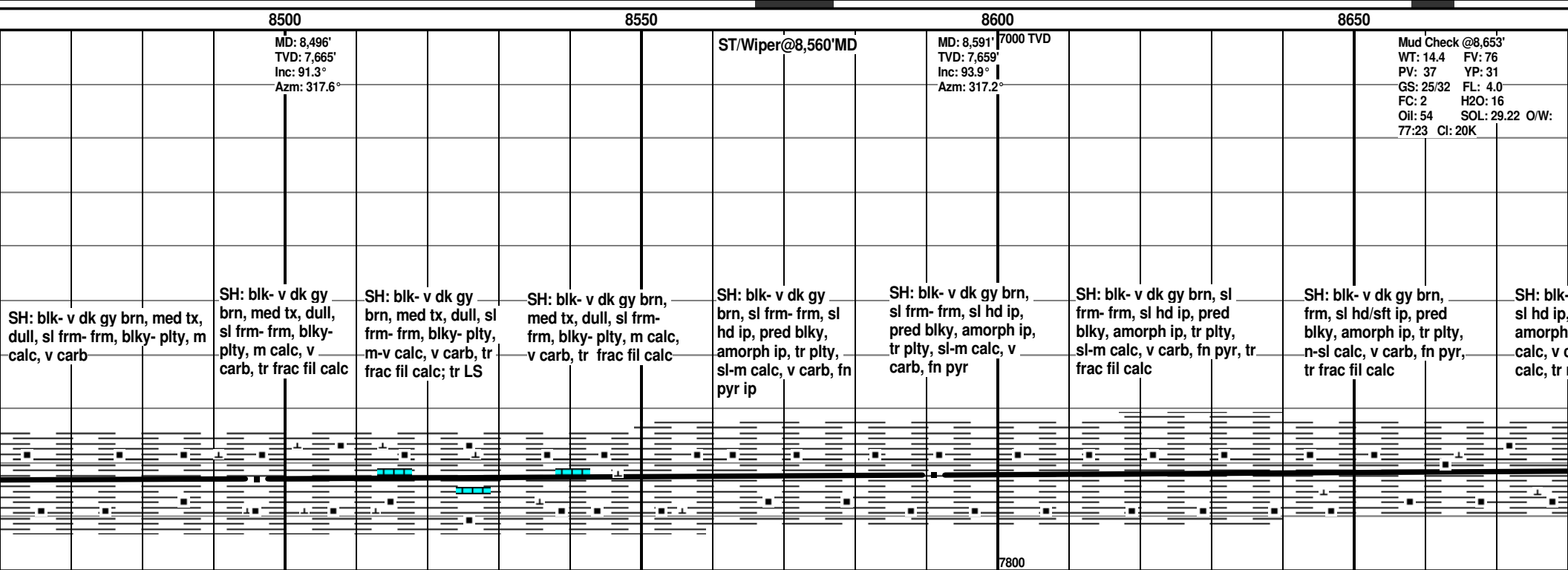
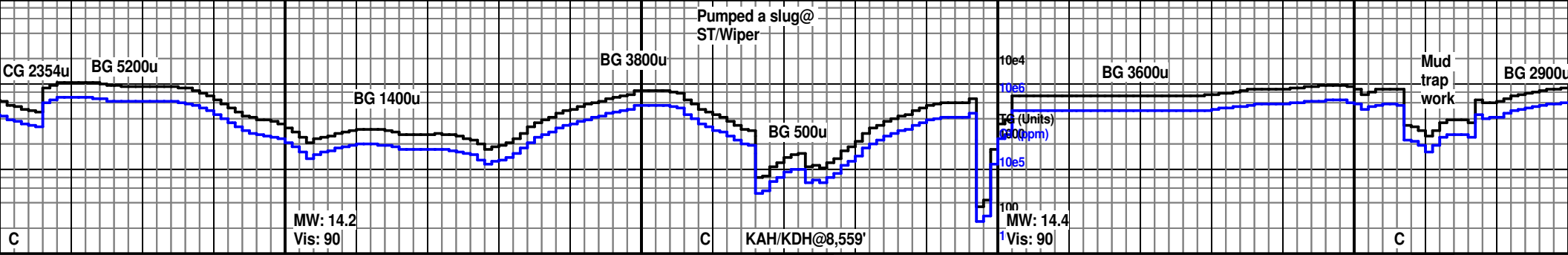
8050		8100				8150				8200		
MD: 8,025' TVD: 7,677' Inc: 84.3° Az: 321.1°		Mud Check @8,069' WT: 13.9 FV: 74 PV: 50 YP: 25 GS: 32/25 FL: 4.0 FC: 2 H2O: 18 Oil: 54 SOL: 27.22 O/W: 75:25 CI: 20K						MD: 8,119' TVD: 7,681' Inc: 90.9° Az: 321.3°			7000 TVD	MD: 8,214' TVD: 7,678' Inc: 92.6° Az: 319.2°
SH: blk, brn ip, frm-sft, blk-pty, pred sl calc, calc ip, v carb, fn/pp pyr, tr mas pyr, tr frac fil calc	SH: blk, sl frm-frm, blk-pty, sl calc, v carb	SH: pred blk, sl frm-frm, blk-pty, sl calc, v carb, occ Bent: m brn, sft, w/ abd fd pyr	SH: blk, sl frm-frm, blk-pty, sl calc, v carb, occ Bent: m brn, sft, w/ abd fd pyr	SH: blk, sl frm-frm, blk-pty, sl calc, v carb, occ Bent: m brn, sft w/ occ fd pyr	SH: blk, sl frm-frm, blk-pty, sl calc, v carb, occ Bent: lt- m brn, sft w/ tr fd pyr	SH: blk, sl frm-frm, blk-pty, sl calc, v carb, occ Bent: lt- m brn, sft w/ tr fd pyr	SH: blk, sl frm-frm, blk-pty, sl calc, v carb, occ Bent: lt- m brn, sft w/ tr fd pyr	SH: blk, sl frm-frm, blk-pty, sl calc, v carb, occ Bent: lt- m brn, sft w/ tr fd pyr	SH: blk, sl frm-frm, blk-pty, sl calc, v carb, occ Bent: lt- m brn, sft w/ tr fd pyr	SH: blk, sl frm-frm, blk-pty, sl calc, v carb, occ Bent: lt- m brn, sft w/ tr fd pyr	SH: blk, sl frm-frm, blk-pty, sl calc, v carb, occ Bent: lt- m brn, sft w/ tr fd pyr	SH: blk, sl frm-frm, blk-pty, sl calc, v carb, occ Bent: lt- m brn, sft w/ tr fd pyr

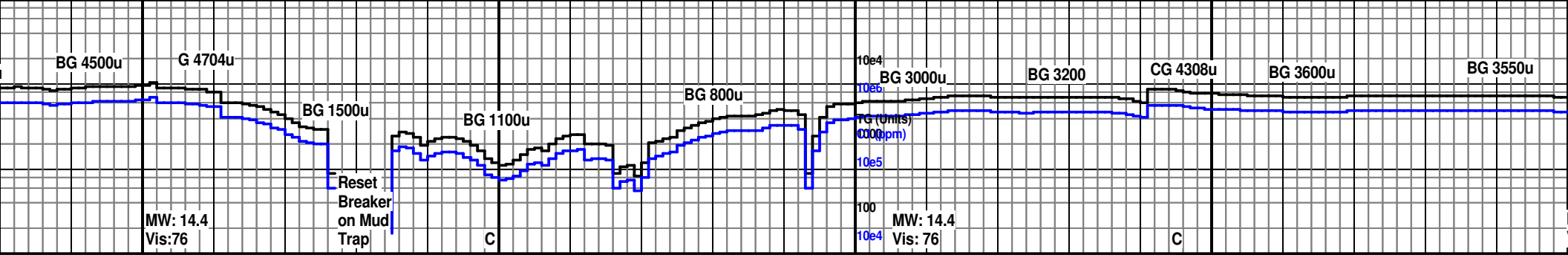




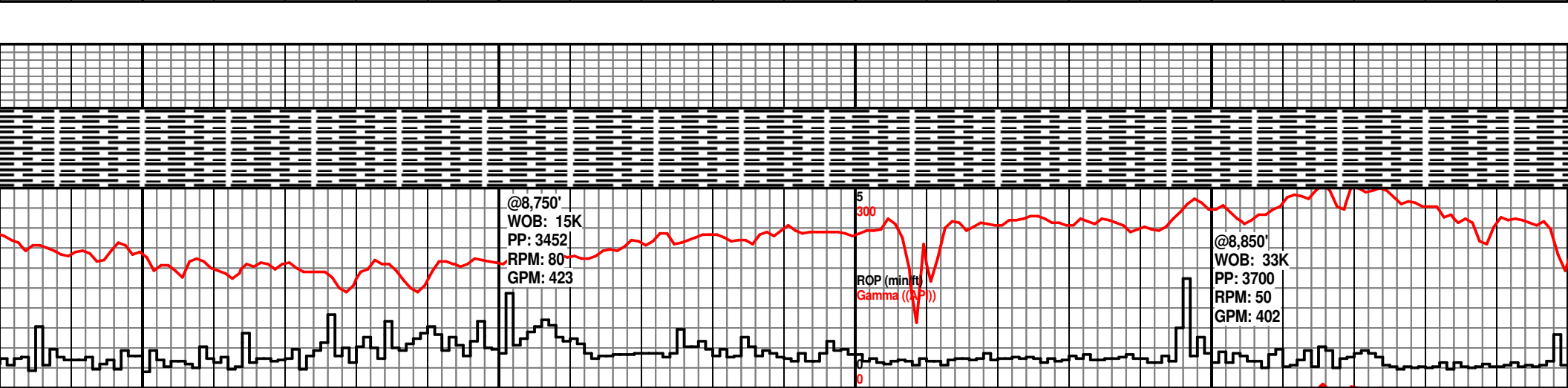
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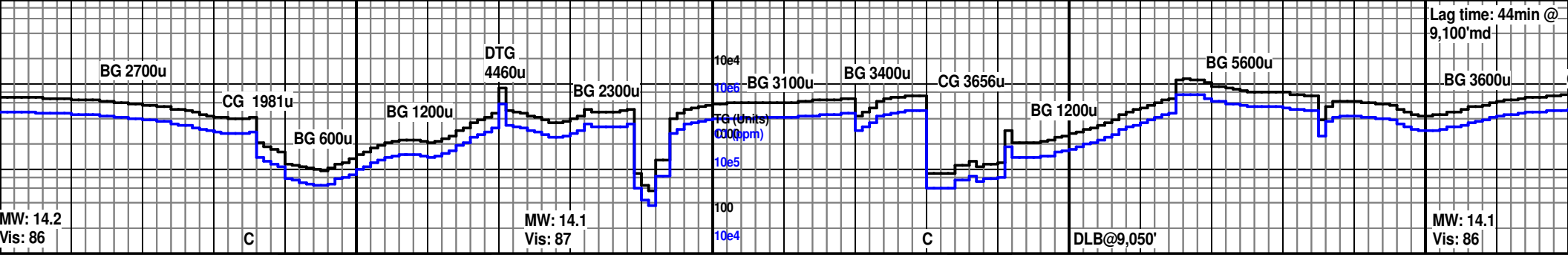






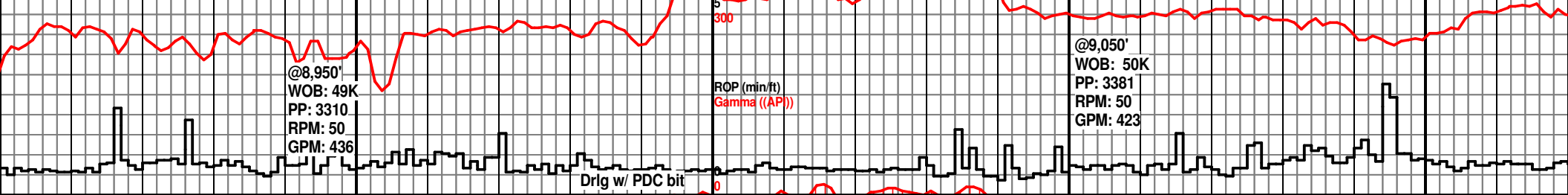
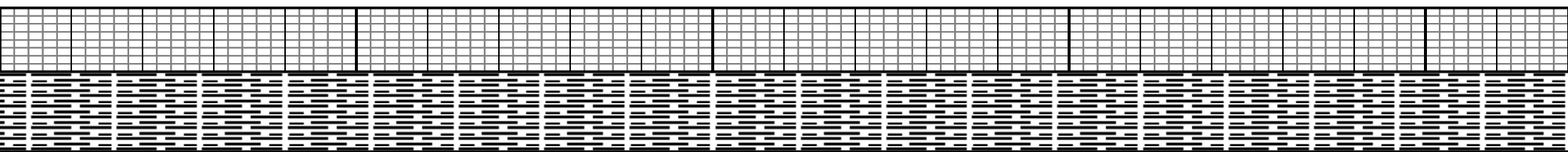
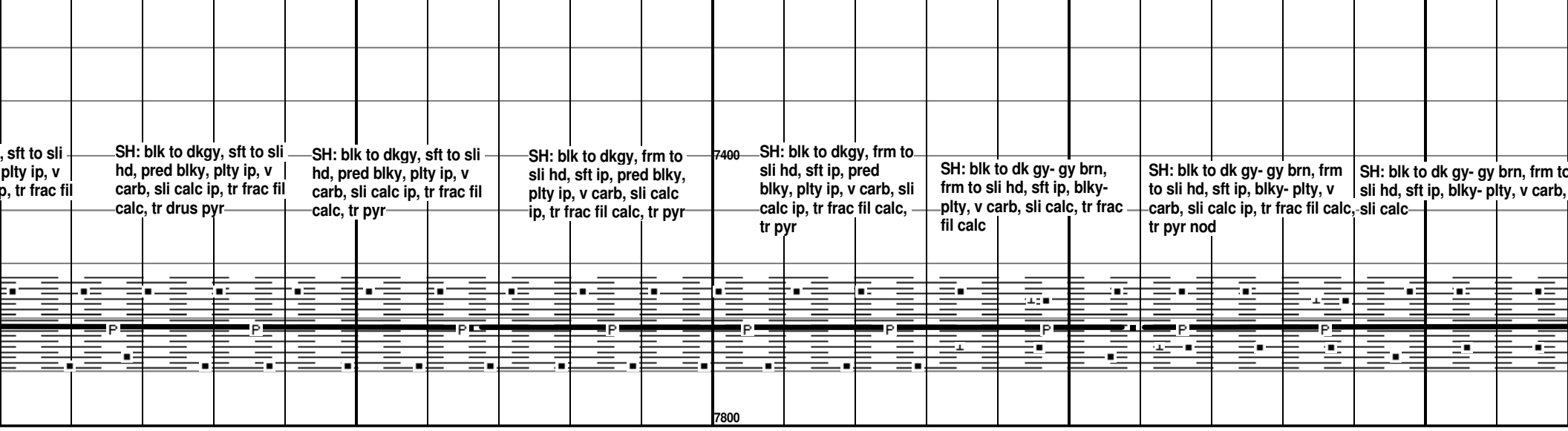
8700		8750		8800		8850		8900	
MD: 8,685'	TVD: 7,653'			MD: 8,778'	TVD: 7,651'	7000 TVD			MD: 8,872'
Inc: 93.5°	Azm: 317.4°			Inc: 89.5°	Azm: 314.7°				Inc: 88.4°
									Azm: 315.2°
v dk gy brn, frm, pred blk, ip, tr plty, n-si carb, fn pyr, frac fil mod pyr	SH: blk- v dk gy brn, pred sft, frm/sli hd ip, pred blk, tr plty, sl-m calc, v carb, fn pyr, frac fil calc	SH: blk -dkgy, dk gy brn ip, pred frm to sli hd, sft ip, pred blk, plty ip, sli calc ip, frac fil calc	SH: blk - dkgy, dkgy brn ip, pred frm to sli hd, pred blk, plty ip, v carb, sli calc ip, tr frac fil calc	SH: blk - dkgy, dkgy brn ip, pred frm to sli hd, sft ip, pred blk, plty ip, v carb, sli calc ip, tr frac fil calc, tr pyr	SH: blk - dkgy, pred frm to sli hd, sft ip, pred blk, plty ip, v carb, sli calc ip, tr frac fil calc, tr drus pyr	SH: blk - dkgy, sft to sli hd, pred blk, plty ip, v carb, sli calc ip	SH: blk - dkgy, sft to sli hd, pred blk, plty ip, v carb, sli calc ip	SH: blk - dkgy, sft to sli hd, pred blk, plty ip, v carb, sli calc ip	SH: blk - dkgy, sft to sli hd, pred blk, plty ip, v carb, sli calc ip
7800									

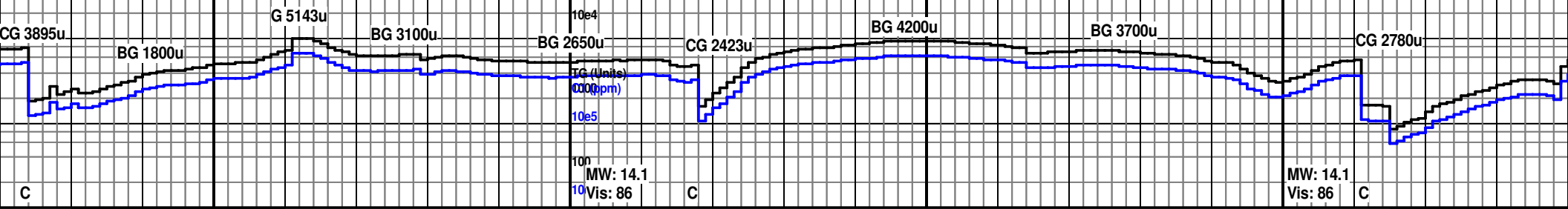




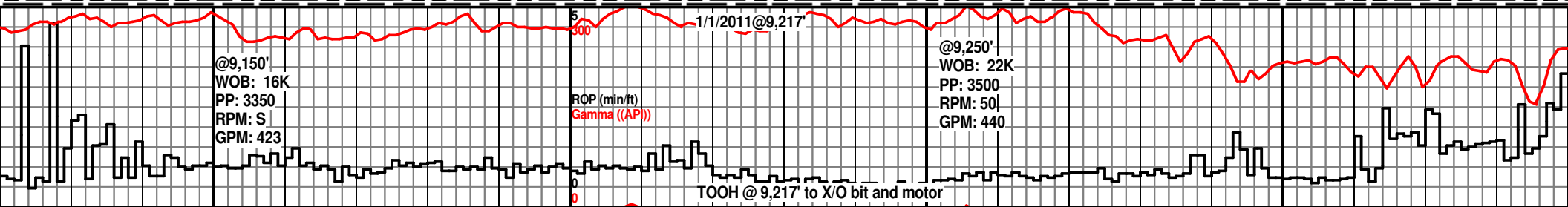
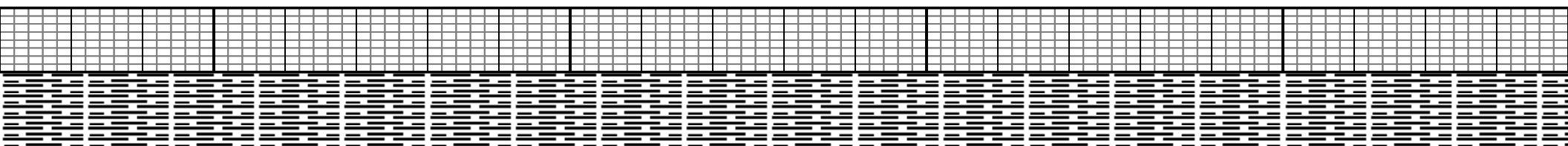
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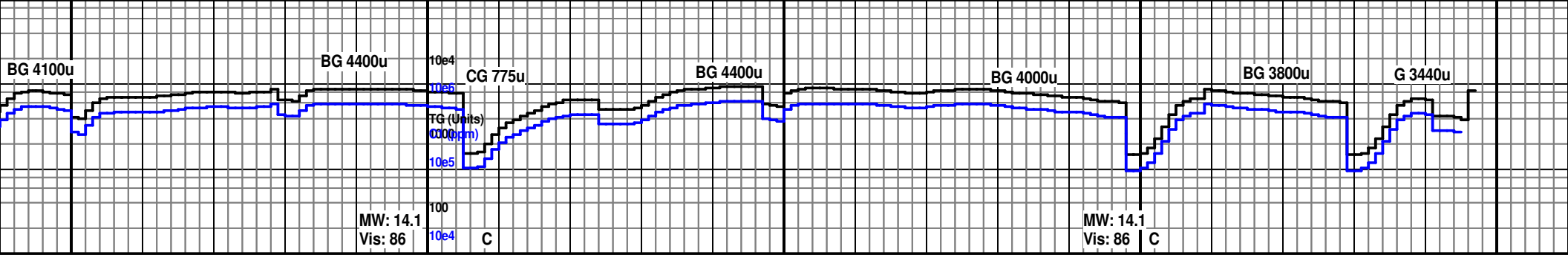
MD: 8,966' TVD: 7,654' Inc: 90.8° Azm: 317.0°  
 Mud Check @9,029' WT: 14.1 FV: 84 PV: 37 YP: 25 GS: 27/35 FL: 4 FC: 2 H2O: 18 Oil: 54 SOL: 27.14 O/W: 75:25 Cl: 22K  
 MD: 9,059' TVD: 7,654' Inc: 89.8° Azm: 317.1°



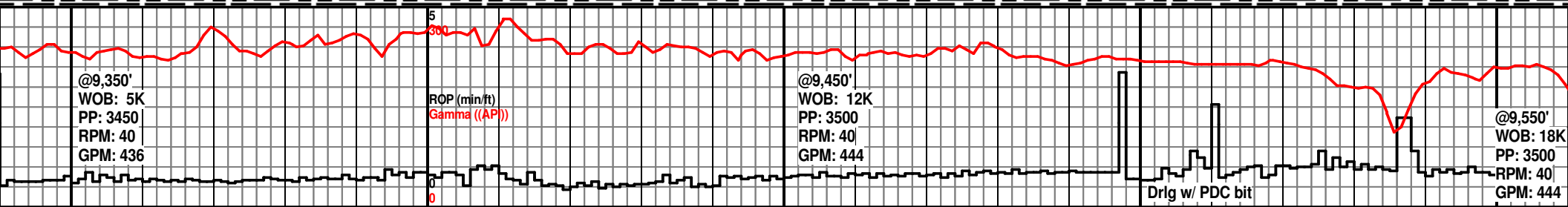
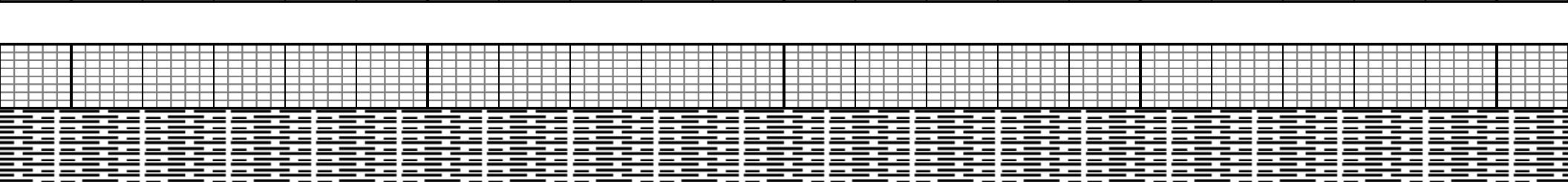


9150		9200		9250		9300	
MD: 9,153' TVD: 7,653' Inc: 91.8° Az: 318.4°		OB #4 Drilled 2,280' in 39.5 hours avg ROP 57.7 ft/hr		Bit #5 Ulterra PDC @ 9,217' Type 513, Serial # 5618, Jets 5x18-2x16, MM #2 6 3/4 7/8 : 6.4 Fxd @ 1.83°		MD: 9,248' TVD: 7,650' Inc: 91.4° Az: 317.7°	
		=				Mud Check @9,243' WT: 14.2 FV: 84 PV: 49 YP: 24 GS: 27/35 FL: 4 FC: 2 H2O: 18 Oil: 54 SOL: 27.14 O/W: 75:25 Cl: 22K	
SH: blk to dk gy- gy brn, frm to sli hd, blk- pty, v carb, sli-m calc	SH: blk to dk gy- gy brn, frm to sli hd, blk- pty, v carb, sli-m calc, tr frac fill calc	SH: blk to dk gy- gy brn, med tx, dull, frm to sli hd, blk- pty, v carb, sli calc	SH: blk to dk gy, gy brn ip, sft to sli hd, pred blk, pty ip, v carb, sli-m calc, tr frac fill calc	SH: blk to dk gy, gy brn ip, sft to sli hd, pred blk, pty ip, v carb, sli-m calc, tr pyr nod	SH: blk- dk gy, gy brn ip, sft to sl hd, pred blk, pty ip, v carb, sl- m calc, tr frac fill calc, tr pyr nod	SH: blk- dk gy, gy brn ip, med tx, dull, sft to sl hd, pred blk, pty ip, v carb, sl- m calc	SH: blk- dk gy, gy brn ip, med tx, dull, sft to sl hd, pred blk, pty ip, v carb, sl- m calc, tr pyr; rr LS
		7400					
		7800					



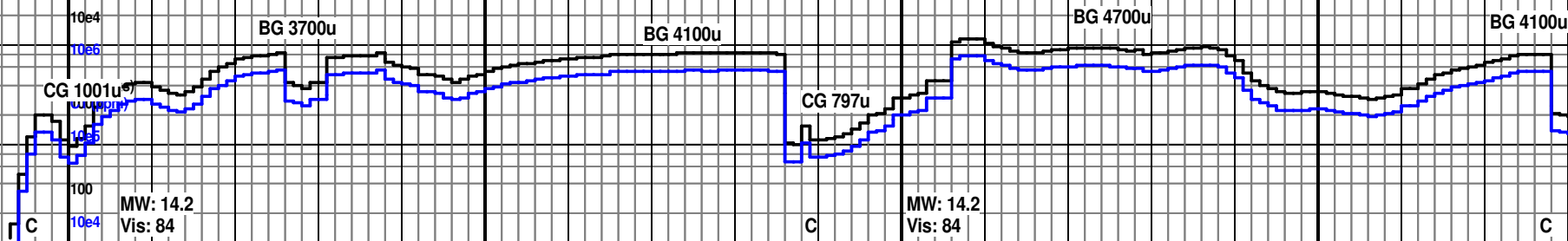


9350	9400	9450	9500	9550
MD: 9,342' TVD: 7,647' Inc: 92.8° Azm: 319.5°	7000 TVD	MD: 9,435' TVD: 7,641.9' Inc: 93.1° Azm: 319.7°		MD: 9,528' TVD: 7,636.3' Inc: 93.8° Azm: 320.2°
SH: blk- dk gy- gy brn, med tx, dull, sft to sl hd, blk- plty, v carb, sl calc, tr dru pyr	SH: blk- dk gy- gy brn, med tx, dull, sft to sl hd, blk- plty, v carb, sl calc, tr dru pyr	SH: blk- dk gy- gy brn, med tx, dull, frm- sl hd, blk- plty, v carb, sli calc, tr dru pyr	SH: blk- dk gy- gy brn, med tx, dull, frm- sl hd, blk- plty, v carb, sli calc	SH: v dk gy- gy brn- blk, med tx, dull, frm- sl hd, blk- plty, v carb, sli calc, tr frac fill calc
SH: blk- dk gy- gy brn, med tx, dull, sft to sl hd, blk- plty, v carb, sl calc, tr dru pyr	SH: blk- dk gy- gy brn, med tx, dull, sft to sl hd, blk- plty, v carb, sl calc, tr dru pyr	SH: blk- dk gy- gy brn, med tx, dull, frm- sl hd, blk- plty, v carb, sli calc, tr dru pyr	SH: blk- dk gy- gy brn, med tx, dull, frm- sl hd, blk- plty, v carb, sli calc	SH: v dk gy- blk, med tx, dull, frm- sl hd, blk- plty, v carb, sli calc, tr frac fill calc; rr LS
SH: blk- dk gy- gy brn, med tx, dull, sft to sl hd, blk- plty, v carb, sl calc, tr dru pyr	SH: blk- dk gy- gy brn, med tx, dull, sft to sl hd, blk- plty, v carb, sl calc, tr dru pyr	SH: blk- dk gy- gy brn, med tx, dull, frm- sl hd, blk- plty, v carb, sli calc, tr dru pyr	SH: blk- dk gy- gy brn, med tx, dull, frm- sl hd, blk- plty, v carb, sli calc	SH: v dk gy- blk, med tx, dull, frm- sl hd, blk- plty, v carb, sli calc, tr frac fill calc; rr LS



KAH@9,582'

MD TOTCO System down



9600

9650

9700

9750

MD TOTCO System down

7000 TVD

MD: 9,622'  
 TVD: 7,630'  
 Inc: 94.2°  
 Azm: 320.5°

MD: 9,715'  
 TVD: 7,624'  
 Inc: 92.9°  
 Azm: 319.5°

ed tx, - pty, v fill calc

SH: blk- dkgy- gybrn, sft to sl hd, blk- pty, v carb, sl-m calc

SH: blk- dkgy- gybrn, sft to sl hd, blk- pty, v carb, sl calc; rr LS

SH: blk- dkgy- gybrn, sft to sl hd, blk- pty, v carb, sl calc

SH: blk- dkgy- gybrn, frm to sl hd, blk- pty, v carb, sl calc, tr pyr

SH: blk- dkgy- gybrn, sft to sl hd, blk- pty, v carb, sl calc ip

SH: blk- dkgy- gybrn, sft to sl hd, blk- pty, v carb, sl calc ip

SH: blk- dk gy- gy brn, sft to sl hd, blk- pty, v carb, sl calc ip



7800

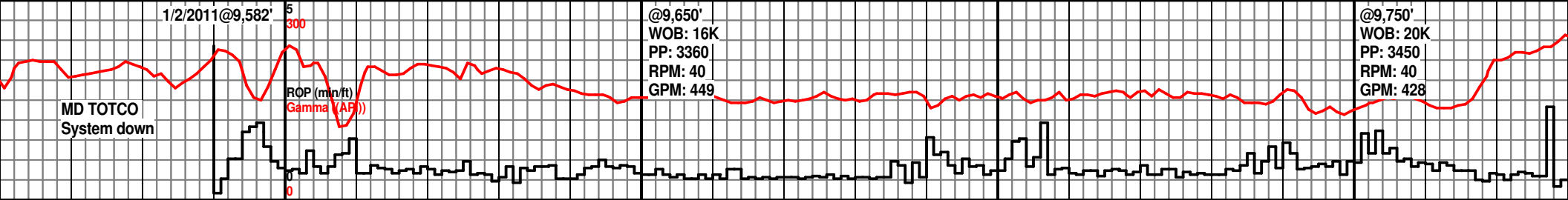
1/2/2011@9,582'

MD TOTCO System down

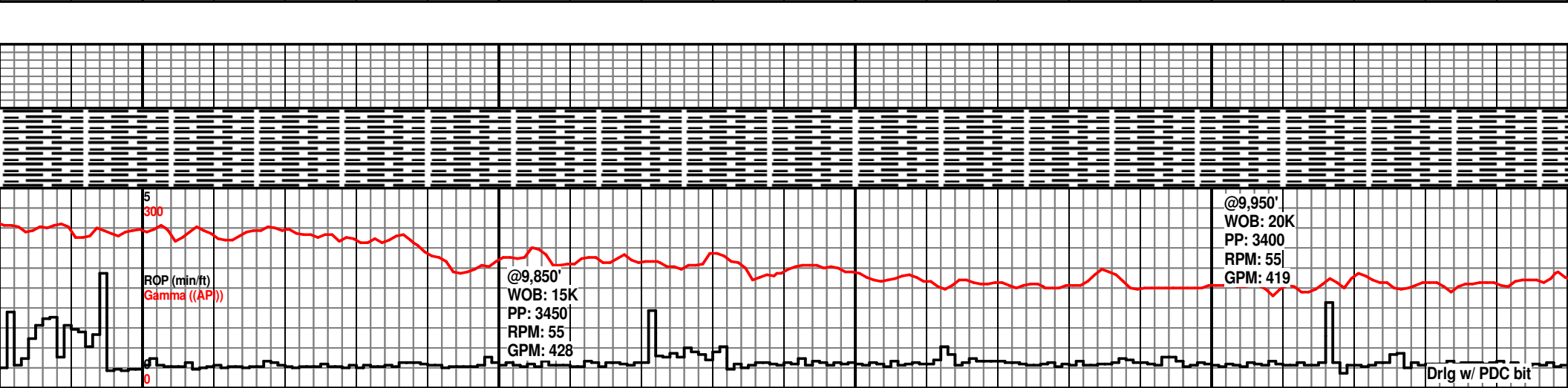
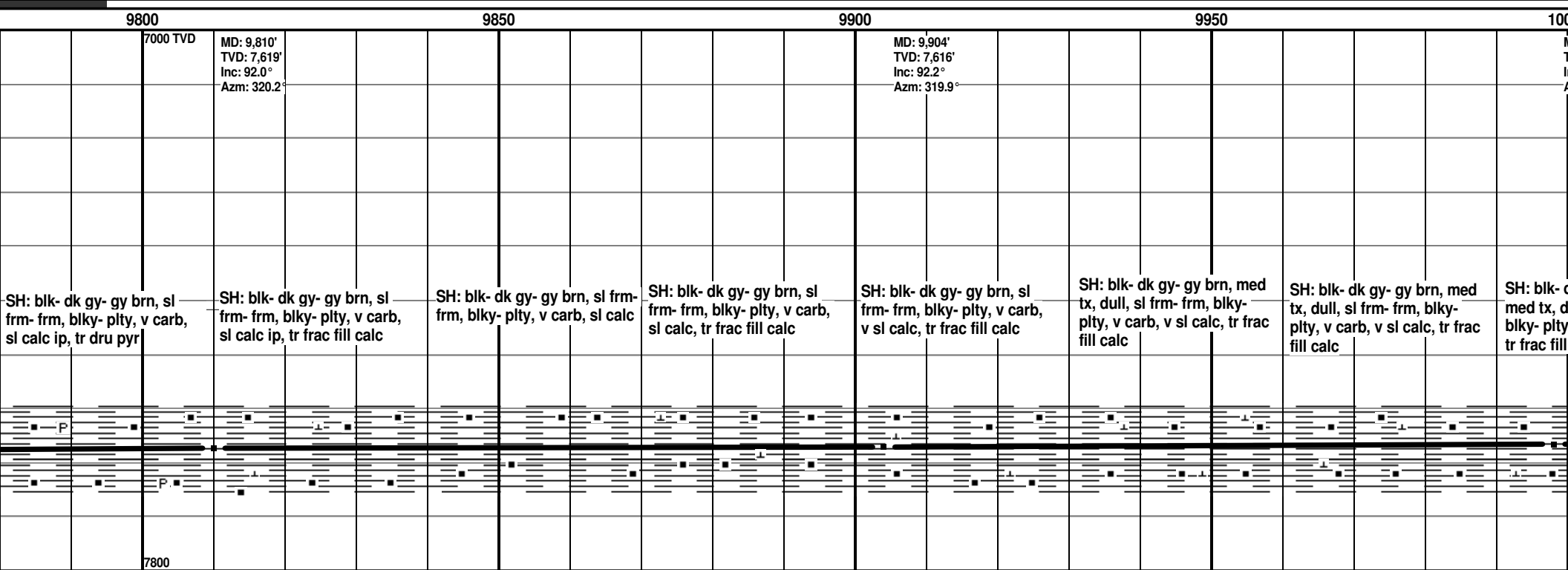
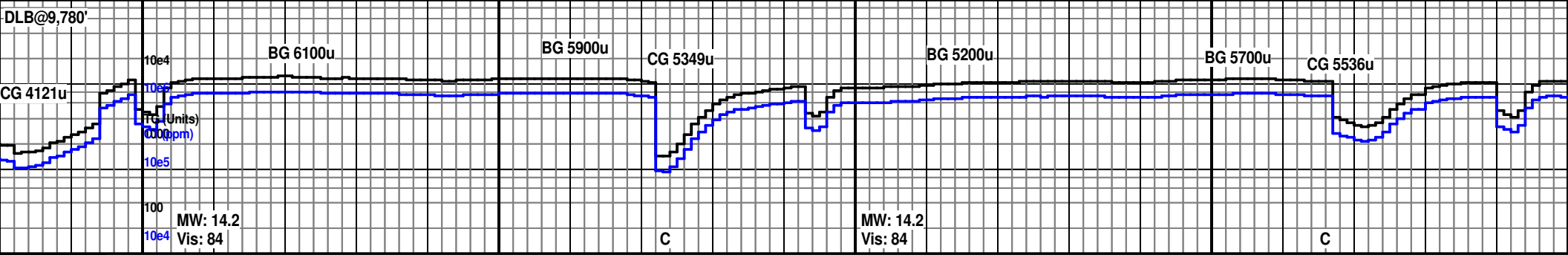
ROP (min/ft)  
 Gamma (API)

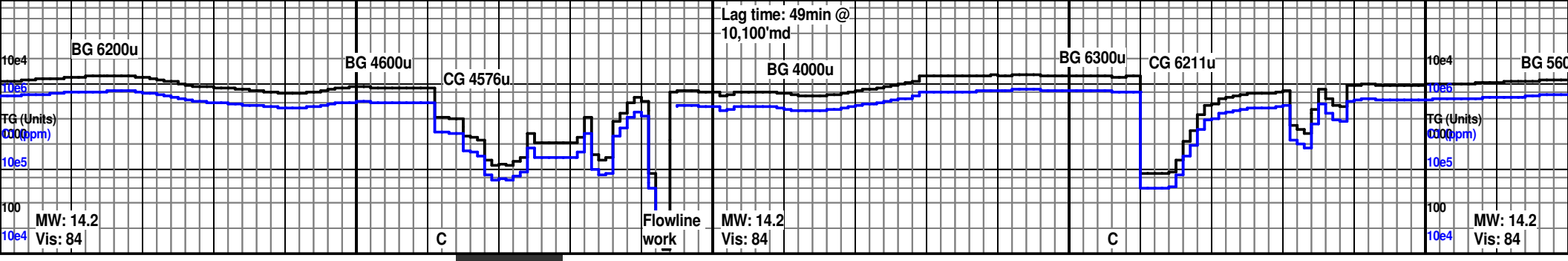
@9,650'  
 WOB: 16K  
 PP: 3360  
 RPM: 40  
 GPM: 449

@9,750'  
 WOB: 20K  
 PP: 3450  
 RPM: 40  
 GPM: 428



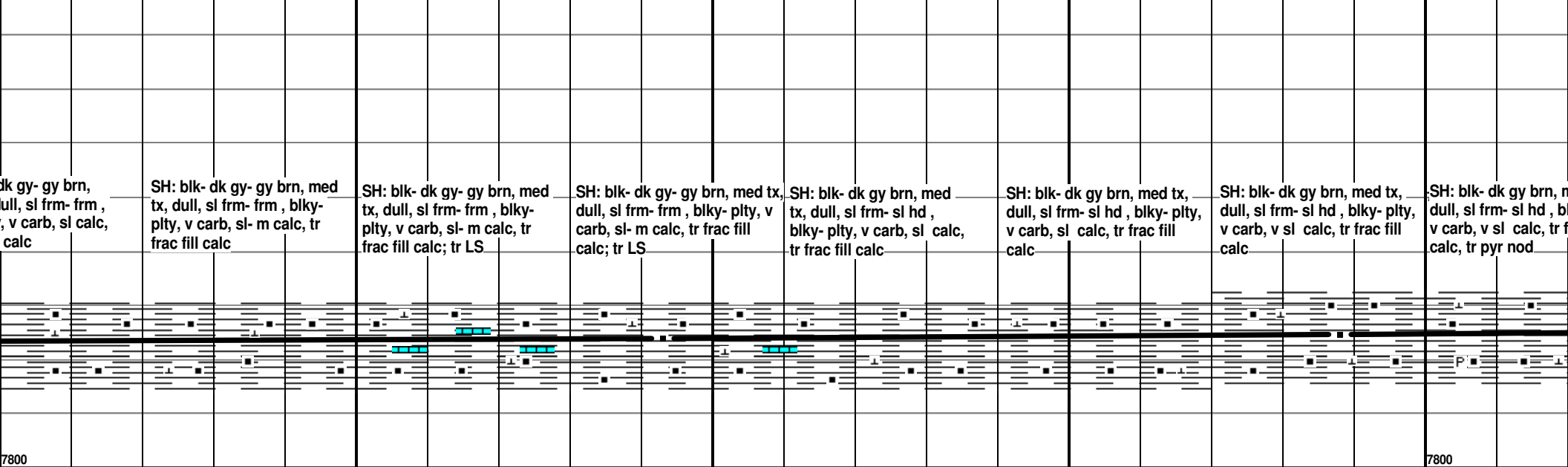




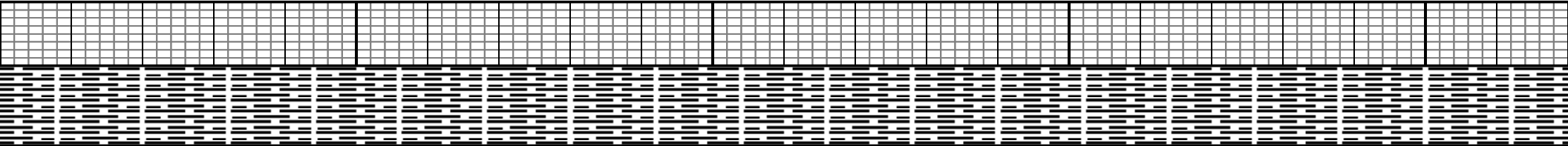


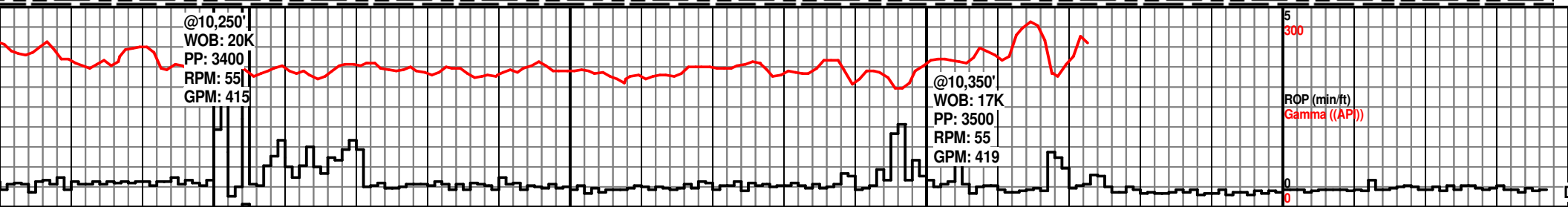
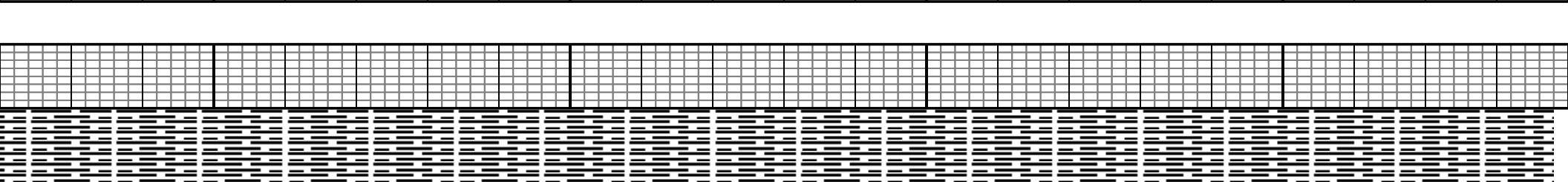
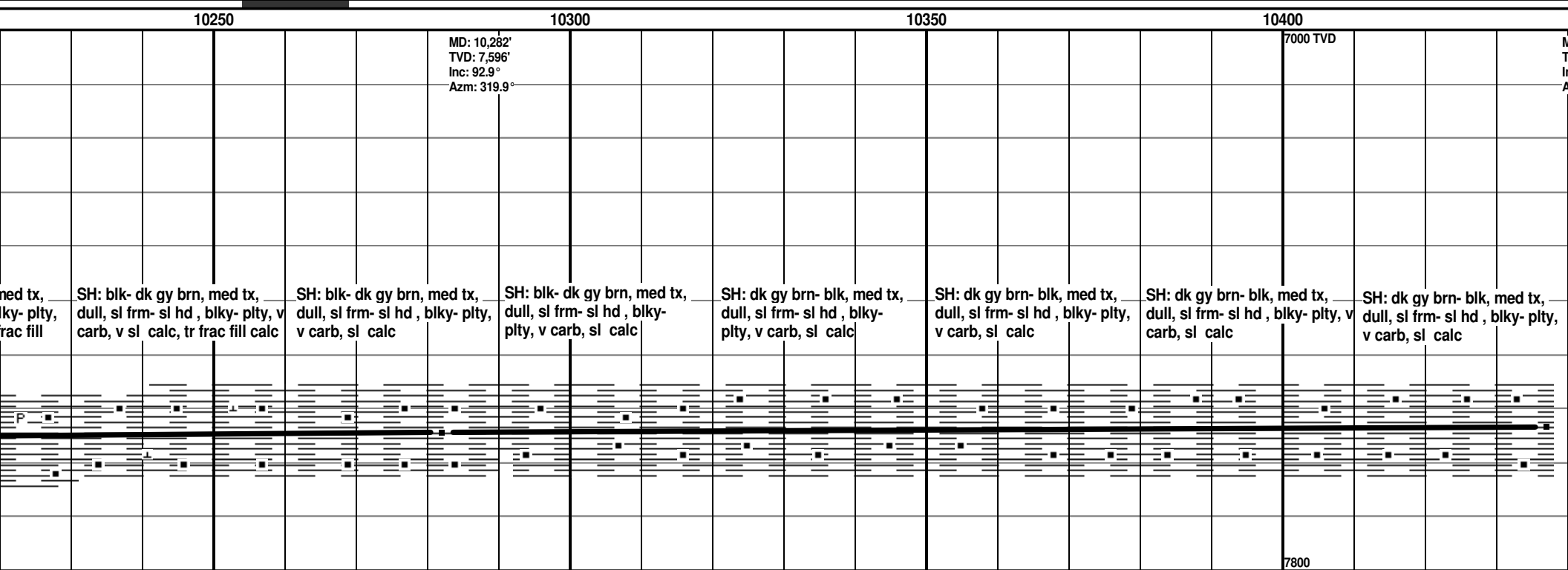
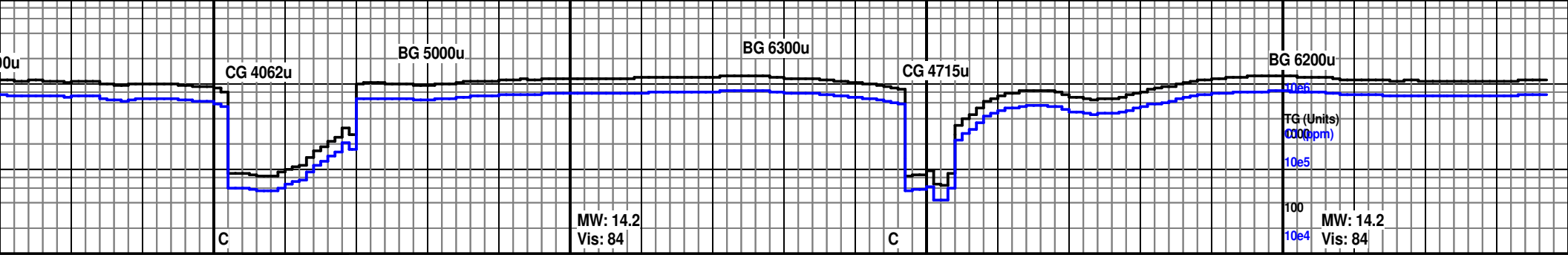
1000      10050      10100      10150      10200

MD: 9,998'      MD: 10,093'      MD: 10,188'      7000 TVD  
 TVD: 7,612'      TVD: 7,608'      TVD: 7,602'  
 Inc: 93.3°      Inc: 92.6°      Inc: 93.7°  
 Azm: 321.0°      Azm: 319.5°      Azm: 320.1°



7800





TD @10,437'MD

10450

104

MD: 10,437'  
VD: 7,588'  
IC: 93.4°  
AZM: 319.6°

ST/WIPER@10,437'MD

**TD @ 10,437'MD AT 4:00AM  
ON 1/3/2011**

**Loggers released from duty  
@12:01PM on 1/3/2011**

ST/Wiper 36 stds  
@ 10437'md

Orig w/ PDC bit