



7136 South Yale Avenue, Suite 414

Tulsa, Oklahoma 74136-6378

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WWW.HZMUD.COM

Customer Information

Operator: Noble Energy Inc
1625 Broadway
Suite 2200
Denver, Colorado 80202

Geologist: Cassidy Miller
Noble Energy Inc.

Mud Logging Details

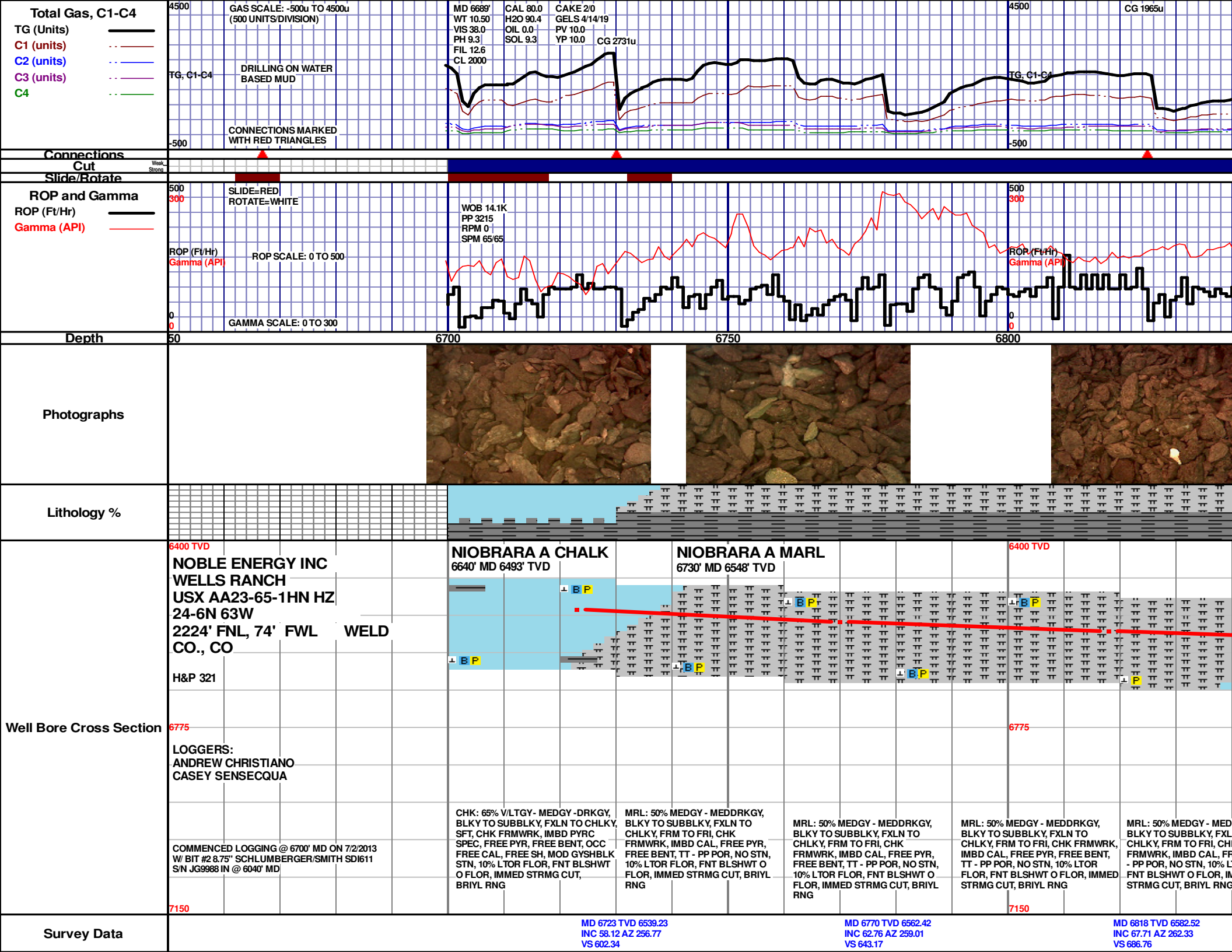
Logger: Andrew Christiano & Casey
Sensecqua
Log Interval: 6700' MD to 11100' MD
Start Date: July 2, 2013
Release Date: July 5, 2013

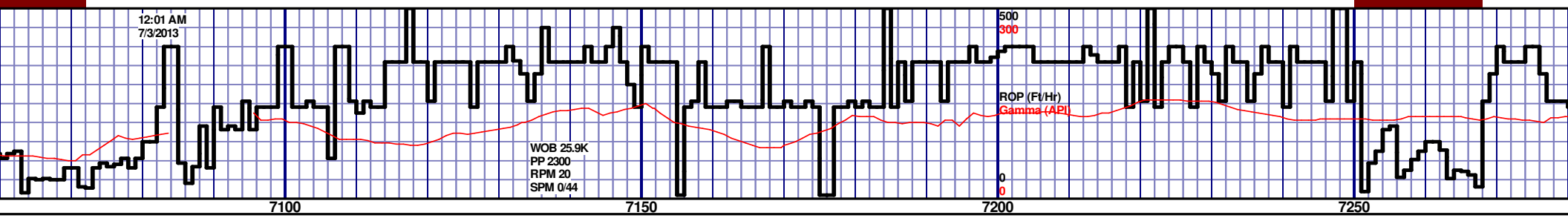
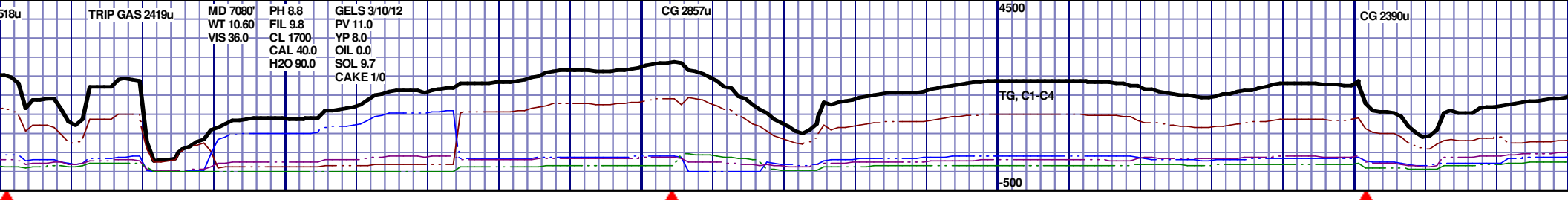
Well Information

Well Name: Wells Ranch USX
AA23-65-1HN HZ
Location: 24-6N 63W
2224' FNL, 74' FWL

County: Weld
State: Colorado

Drilling Rig: H&P 321
Total Depth: 11100' MD
TD Date: July 5, 2013
Formation: Niobrara B Chalk
KB Elevation: 4840'
GR Elevation: 4810'
API Number: 05-123-37023

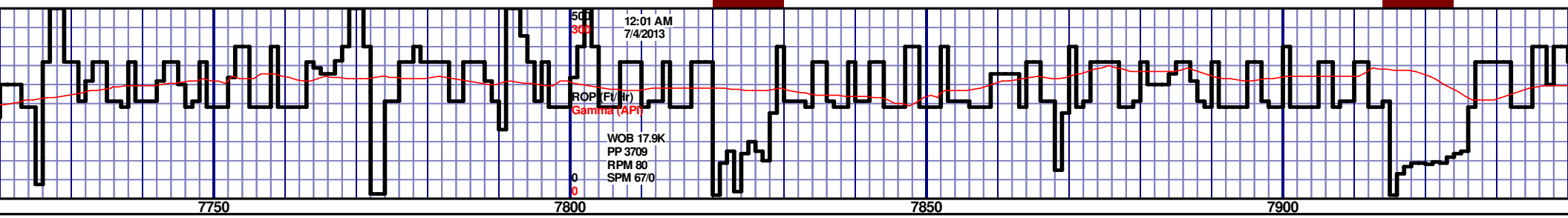
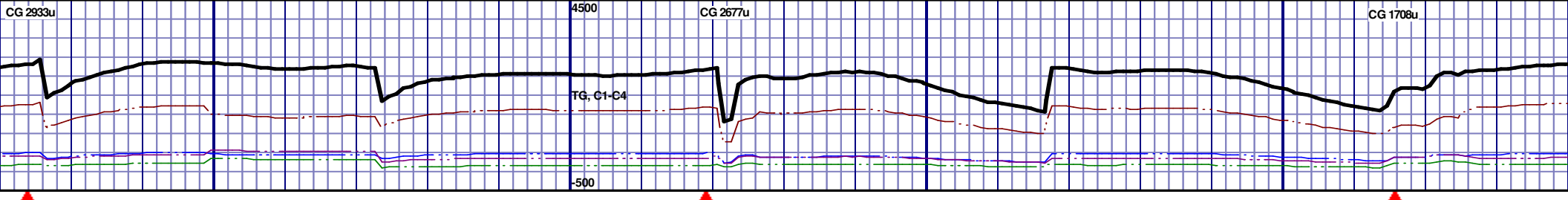




TOOH @ 7080' MD @ 11:45AM ON 7/2/13 FOR INTERMEDIATE CASING OPERATIONS. TIH @ 11:15AM ON 7/3/13. RESUMED DRILLING ON 7/3/13 AT 7:00 PM W/ BIT #3 6.125' SHULMBERGER/SMITH MDI513UBPX S/N JG3707 IN @ 7080' MD						6400 TVD				
⊥ B P	⊥ B P	⊥ B P	⊥ B P	⊥ B P	⊥ B P					
⊥ B P	⊥ B P	⊥ B P	⊥ B P	⊥ B P	⊥ B P					
SWITCHING TO 50FT SAMPLE INTERVAL						6775				
CHK: 65% VLTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD PYRC SPEC, FREE PYR, FREE BENT, OCC FREE CAL, FREE SH, MOD GYSHBLK STN, 10% LTOR FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, BRIYL RNG	CHK: 65% VLTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD PYRC SPEC, FREE PYR, FREE BENT, FREE CAL, FREE SH, MOD GYSHBLK STN, 10% LTOR FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, BRIYL RNG	CHK: 60% VLTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD PYRC SPEC, FREE PYR, FREE BENT, FREE CAL, FREE SH, MOD GYSHBLK STN, 10% LTOR FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, BRIYL RNG	CHK: 60% VLTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD PYRC SPEC, FREE PYR, FREE BENT, FREE CAL, FREE SH, MOD GYSHBLK STN, 10% LTOR FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, BRIYL RNG	CHK: 60% VLTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD PYRC SPEC, FREE PYR, FREE BENT, FREE CAL, FREE SH, MOD GYSHBLK STN, 10% LTOR FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, BRIYL RNG	CHK: 60% VLTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD PYRC SPEC, FREE PYR, FREE BENT, FREE CAL, FREE SH, MOD GYSHBLK STN, 10% LTOR FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, BRIYL RNG					
						7150				

MD 7114 TVD 6640.68
INC 87.47 AZ 270.24
VS 973.53

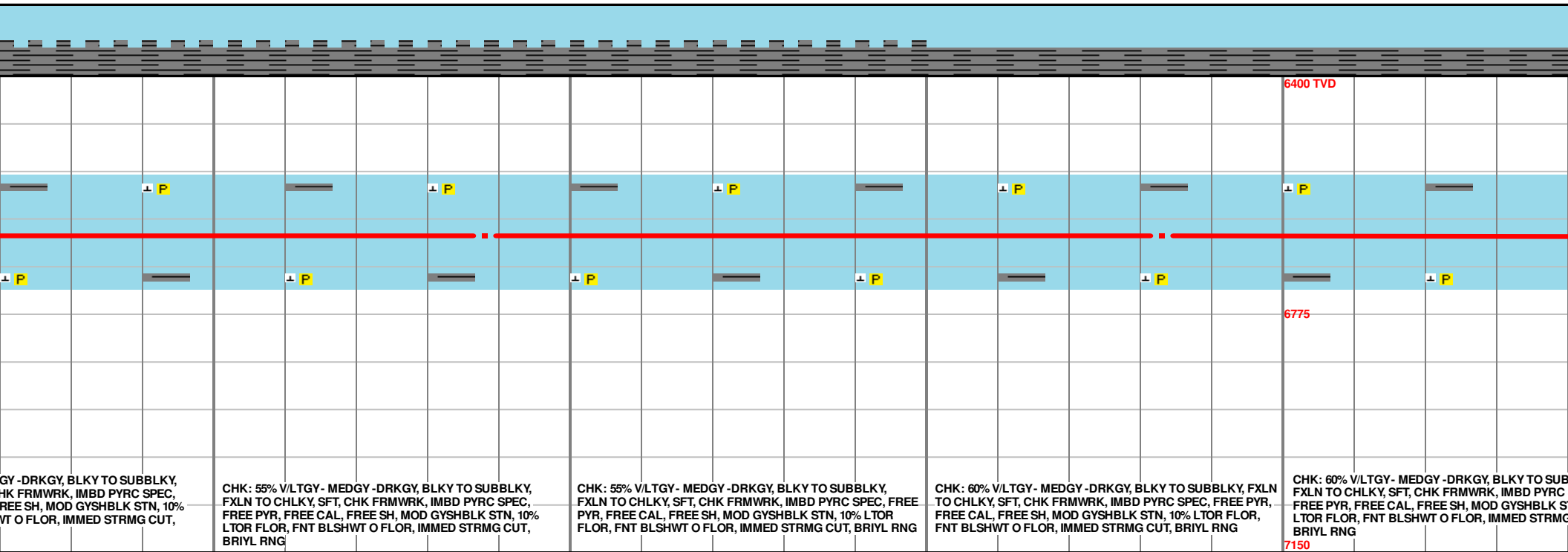
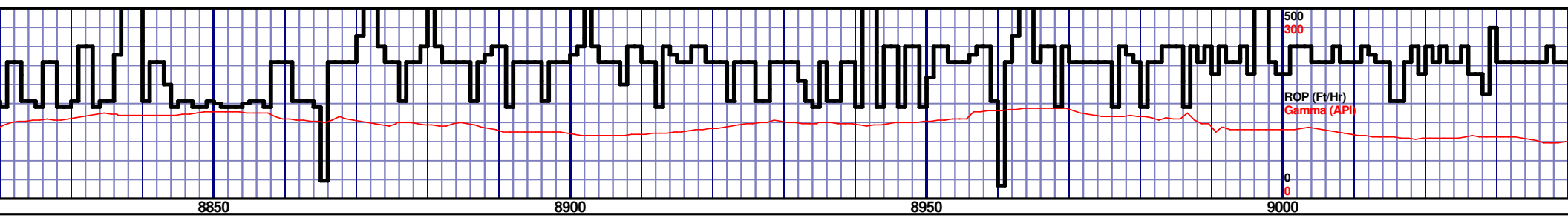
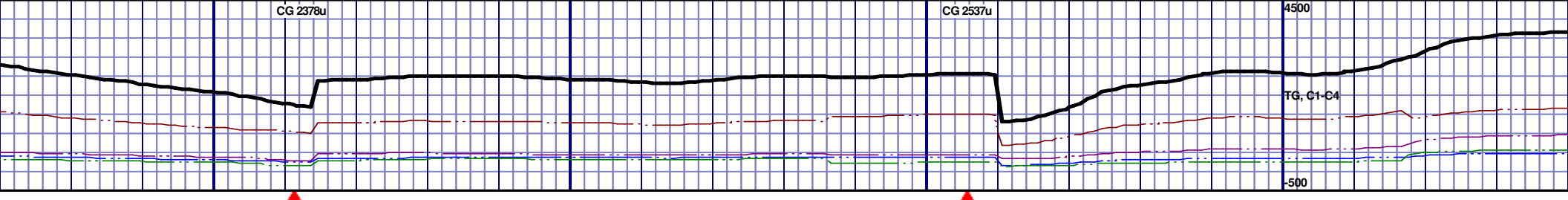
MD 7184 TVD 6643.95
INC 87.16 AZ 270.25
VS 1042.47



6400 TVD											
⊥ B P	⊥ B P	⊥ B P	⊥ B P	⊥ B P	⊥ B P	⊥ B P	⊥ B P	⊥ B P	⊥ B P	⊥ B P	⊥ B P
6775											
7150											
<p>CHK: 55% VLTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD PYRC SPEC, FREE PYR, FREE BENT, FREE CAL, FREE SH, MOD GYSHBLK STN, 10% L TOR FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, BRIYL RNG</p>			<p>CHK: 60% VLTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD PYRC SPEC, FREE PYR, FREE BENT, FREE CAL, FREE SH, MOD GYSHBLK STN, 10% L TOR FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, BRIYL RNG</p>			<p>CHK: 60% VLTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD PYRC SPEC, FREE PYR, FREE BENT, FREE CAL, FREE SH, MOD GYSHBLK STN, 10% L TOR FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, BRIYL RNG</p>			<p>CHK: 65% VLTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD PYRC SPEC, FREE PYR, FREE BENT, FREE CAL, FREE SH, MOD GYSHBLK STN, 10% L TOR FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, BRIYL RNG</p>		

MD 7752 TVD 6646.13
INC 89.94 AZ 268.46
VS 1604.07

MD 7846 TVD 6646.91
INC 89.11 AZ 268.04
VS 1697.24



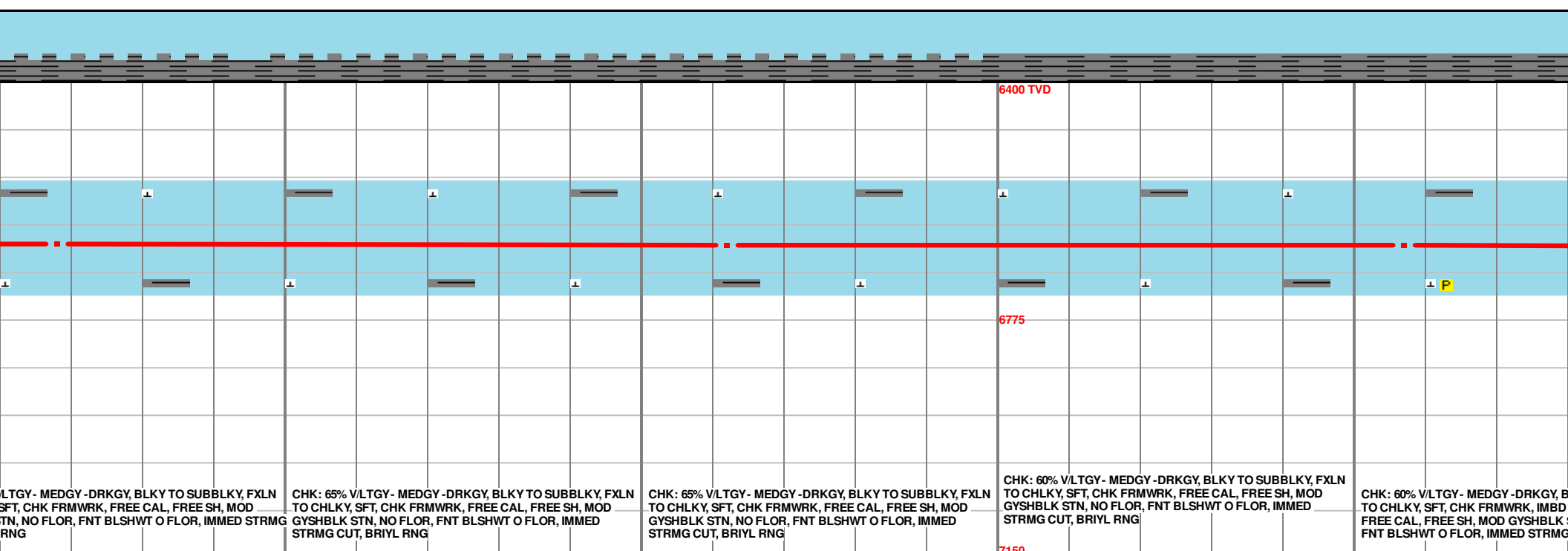
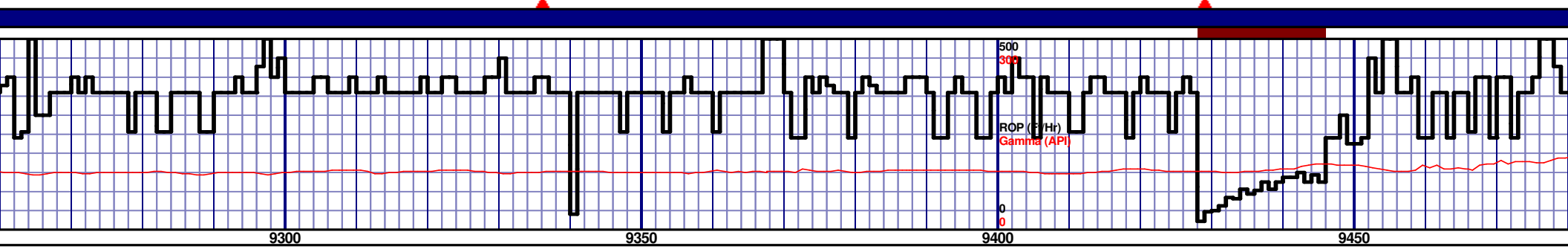
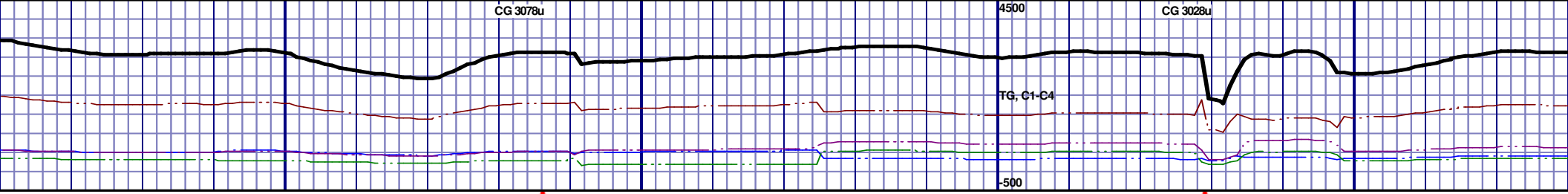
GY - DRKGY, BLKY TO SUBBLKY,
CHK FRMWRK, IMBD PYRC SPEC,
FREE SH, MOD GYSHBLK STN, 10%
LTOR FLOR, IMMED STRMG CUT,BRIYL RNG

CHK: 55% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY,
FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD PYRC SPEC,
FREE PYR, FREE CAL, FREE SH, MOD GYSHBLK STN, 10%
LTOR FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT,
BRIYL RNG

CHK: 55% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY,
FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD PYRC SPEC, FREE
PYR, FREE CAL, FREE SH, MOD GYSHBLK STN, 10% LTOR
FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, BRIYL RNG

CHK: 60% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN
TO CHLKY, SFT, CHK FRMWRK, IMBD PYRC SPEC, FREE PYR,
FREE CAL, FREE SH, MOD GYSHBLK STN, 10% LTOR FLOR,
FNT BLSHWT O FLOR, IMMED STRMG CUT, BRIYL RNG

CHK: 60% V/LTGY - MEDGY - DRKGY, BLKY TO SUB
FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD PYRC
FREE PYR, FREE CAL, FREE SH, MOD GYSHBLK S
LTOR FLOR, FNT BLSHWT O FLOR, IMMED STRMG
BRIYL RNG



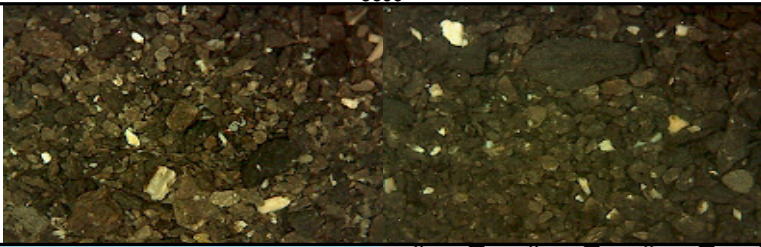
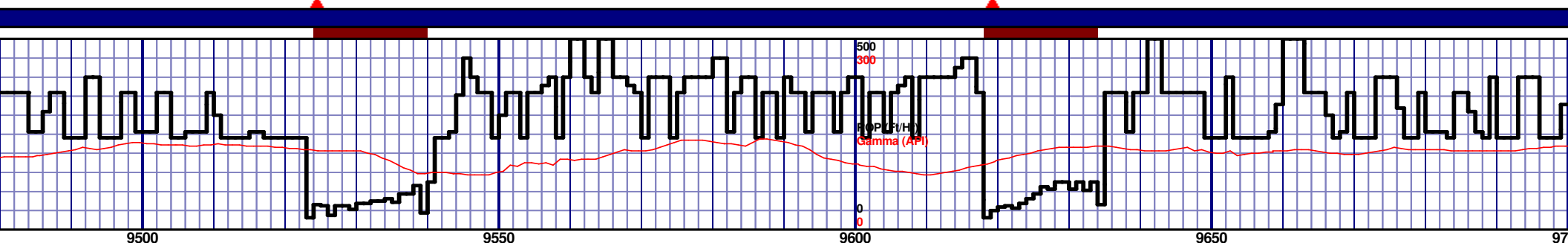
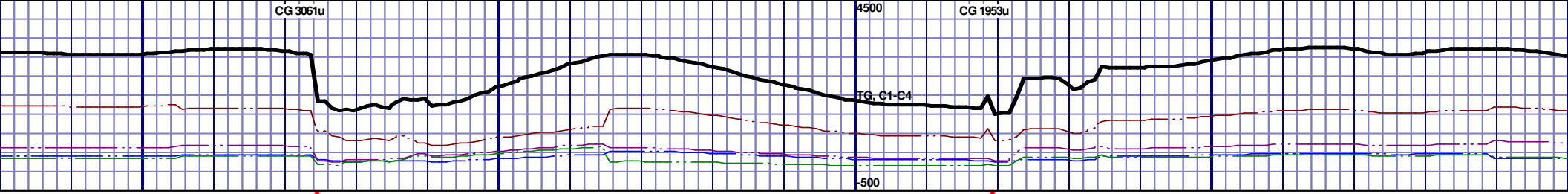
LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN
SFT, CHK FRMWRK, FREE CAL, FREE SH, MOD
TN, NO FLOR, FNT BLSHWT O FLOR, IMMED STRMG
RNG

CHK: 65% VLTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN
TO CHLKY, SFT, CHK FRMWRK, FREE CAL, FREE SH, MOD
GYSHBLK STN, NO FLOR, FNT BLSHWT O FLOR, IMMED
STRMG CUT, BRIYL RNG

CHK: 65% VLTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN
TO CHLKY, SFT, CHK FRMWRK, FREE CAL, FREE SH, MOD
GYSHBLK STN, NO FLOR, FNT BLSHWT O FLOR, IMMED
STRMG CUT, BRIYL RNG

CHK: 60% VLTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN
TO CHLKY, SFT, CHK FRMWRK, FREE CAL, FREE SH, MOD
GYSHBLK STN, NO FLOR, FNT BLSHWT O FLOR, IMMED
STRMG CUT, BRIYL RNG

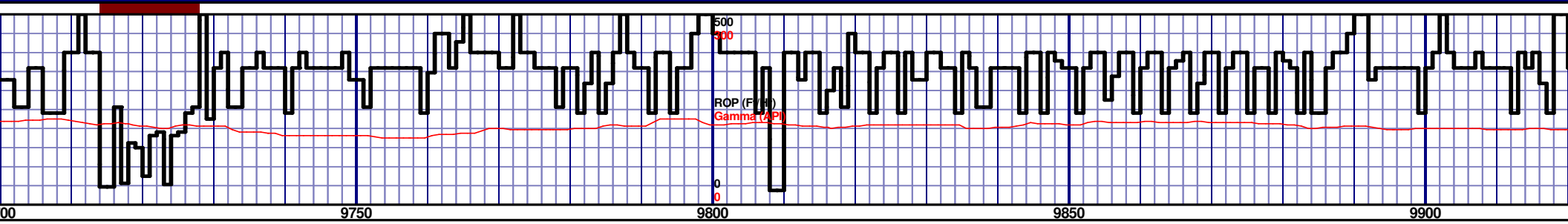
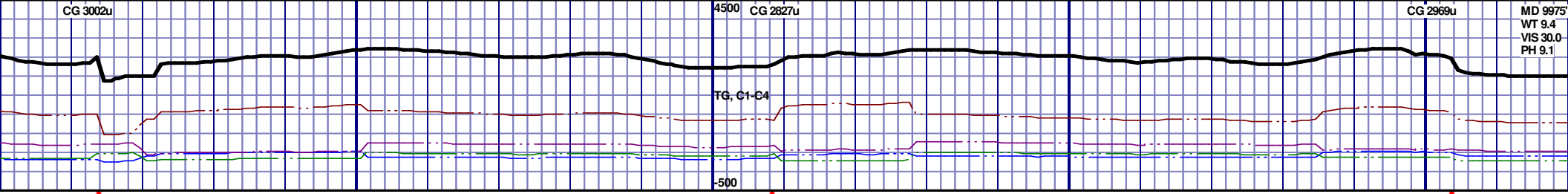
CHK: 60% VLTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN
TO CHLKY, SFT, CHK FRMWRK, FREE CAL, FREE SH, MOD
GYSHBLK STN, NO FLOR, FNT BLSHWT O FLOR, IMMED
STRMG CUT, BRIYL RNG



<p>CHK: 55% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD PYRC SPEC, FREE PYR, FREE CAL, FREE SH, MOD GYSHBLK STN, 10% LTOR FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, BRIYL RNG</p>	<p>CHK: 60% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD PYRC SPEC, FREE PYR, FREE CAL, FREE SH, MOD GYSHBLK STN, 10% LTOR FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, BRIYL RNG</p>	<p>CHK: 60% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD PYRC SPEC, FREE PYR, FREE CAL, FREE SH, MOD GYSHBLK STN, 10% LTOR FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, BRIYL RNG</p>	<p>6400 TVD NIORARA B MARL 9600' MD 6662' TVD</p> <p>MRL: 50% MEDGY - MEDDRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, FRM TO FRI, CHK FRMWRK, IMBD PYR SPEC, IMBD CAL, FREE PYR, TT - PP POR, TR GYSHBLK STN, 10% LTOR FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, BRIYL RNG</p> <p>7150</p>	<p>MRL: 50% MEDGY - MEDDRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, FRM TO FRI, CHK FRMWRK, IMBD PYR SPEC, IMBD CAL, FREE PYR, TT - PP POR, TR GYSHBLK STN, 10% LTOR FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, BRIYL RNG</p>
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MD 9552 TVD 6659.94
 INC 87.66 AZ 268.71
 VS 3381.52

MD 9647 TVD 6662.73
 INC 88.98 AZ 268.25
 VS 3475.59



				6400 TVD															
<p>CHK: 50% VLTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD PYRC SPEC, FREE PYR, FREE CAL, FREE SH, MOD GYSHBLK STN, NO FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, BRIYL RNG</p>				<p>CHK: 50% VLTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD PYRC SPEC, FREE PYR, FREE CAL, FREE SH, MOD GYSHBLK STN, NO FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, BRIYL RNG</p>				<p>MRL: 45% MEDGY - MEDDRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, FRM TO FRI, CHK FRMWRK, IMBD PYR SPEC, IMBD CAL, FREE PYR, TT - PP POR, TR GYSHBLK STN, 10% LTOR FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, BRIYL RNG</p>				<p>MRL: 45% MEDGY - MEDDRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, FRM TO FRI, CHK FRMWRK, IMBD PYR SPEC, IMBD CAL, FREE PYR, TT - PP POR, TR GYSHBLK STN, 10% LTOR FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, BRIYL RNG</p>				<p>MRL: 45% MEDGY - MEDDRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, FRM TO FRI, CHK FRMWRK, IMBD PYR SPEC, IMBD CAL, FREE PYR, TT - PP POR, TR GYSHBLK STN, 10% LTOR FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, BRIYL RNG</p>			
				6775															
				7150															

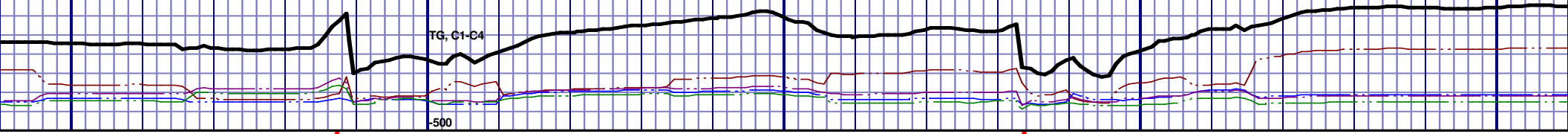
MD 9742 TVD 6663.75
INC 89.78 AZ 269.2
VS 3569.63

MD 9837 TVD 6663.82
INC 90.12 AZ 269.55
VS 3663.53

CG 2573u

4500

CG 2291u



TG, C1-C4

500



500

300

ROP (Ft/Hr)
Gamma (API)

0

10150

10200

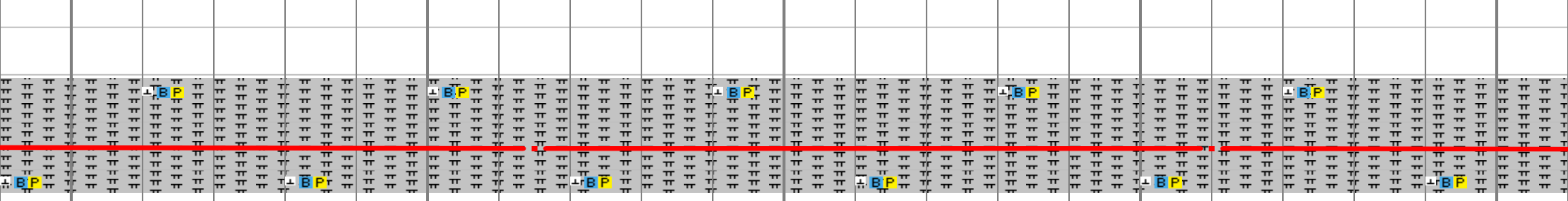
10250

10300

10350



6400 TVD



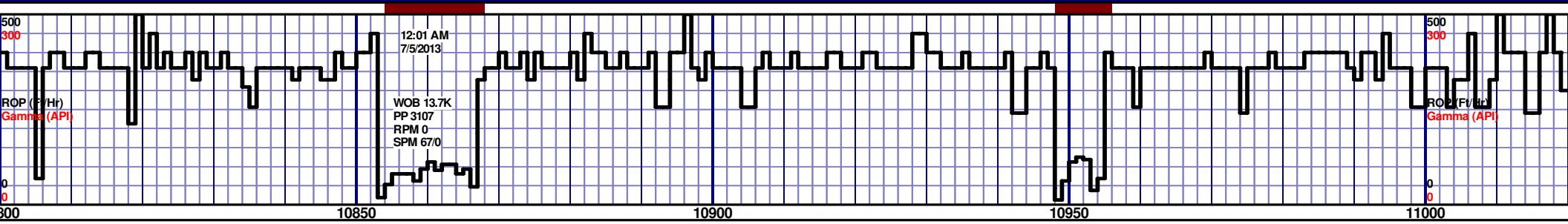
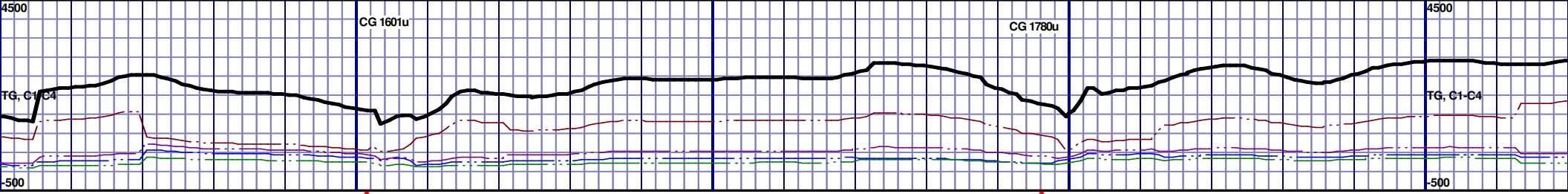
6775

<p>BLKY, FXLN R SPEC, R FLOR,</p>	<p>MRL: 45% MEDGY - MEDDRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, FRM TO FRI, CHK FRMWRK, IMBD PYR SPEC, IMBD CAL, FREE PYR, FREE BENT, TT - PP POR, TR GYSHBLK STN, 10% L TOR FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, BRIYL RNG</p>	<p>MRL: 45% MEDGY - MEDDRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, FRM TO FRI, CHK FRMWRK, IMBD PYR SPEC, IMBD CAL, FREE PYR, FREE BENT, TT - PP POR, TR GYSHBLK STN, 10% L TOR FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, BRIYL RNG</p>	<p>MRL: 45% MEDGY - MEDDRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, FRM TO FRI, CHK FRMWRK, IMBD PYR SPEC, IMBD CAL, FREE PYR, FREE BENT, TT - PP POR, TR GYSHBLK STN, 10% L TOR FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, BRIYL RNG</p>	<p>MRL: 45% MEDGY - MEDDRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, FRM TO FRI, CHK FRMWRK, IMBD PYR SPEC, IMBD CAL, FREE PYR, FREE BENT, TT - PP POR, TR GYSHBLK STN, 10% L TOR FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, BRIYL RNG</p>	<p>MRL: 45% M TO CHLKY, IMBD CAL, GYSHBLK IMMED STR</p>
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7150

MD 10215 TVD 6666.29
INC 89.54 AZ 267.55
VS 4038.68

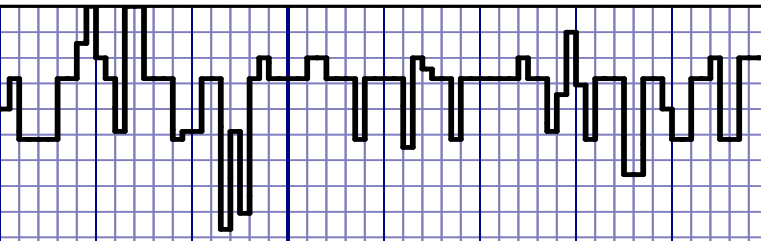
MD 10310 TVD 6666.86
INC 89.78 AZ 268.52
VS 4132.89



6400 TVD														
6775														
<p>CHK: 55% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD PYRC SPEC, FREE PYR, FREE BENT, FREE CAL, FREE SH, MOD GYSHBLK STN, 10% LTOR FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, BRIYL RNG</p>			<p>CHK: 65% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD PYRC SPEC, FREE PYR, FREE BENT, FREE CAL, FREE SH, MOD GYSHBLK STN, 10% LTOR FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, BRIYL RNG</p>			<p>CHK: 60% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD PYRC SPEC, FREE PYR, FREE BENT, FREE CAL, FREE SH, MOD GYSHBLK STN, 10% LTOR FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, BRIYL RNG</p>			<p>CHK: 60% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD PYRC SPEC, FREE PYR, FREE BENT, FREE CAL, FREE SH, MOD GYSHBLK STN, 10% LTOR FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, BRIYL RNG</p>			<p>CHK: 60% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY, FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD PYRC SPEC, FREE PYR, FREE BENT, FREE CAL, FREE SH, MOD GYSHBLK STN, 10% LTOR FLOR, FNT BLSHWT O FLOR, IMMED STRMG CUT, BRIYL RNG</p>		
7150														

CG 2843u

BOTTOMS UP GAS 2513u

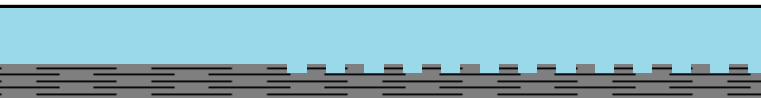


DRILLERS TD @ 11100'
MD @ 1:30 AM ON
7/5/2013

11050

11100

11



TD @ 11100' MD

RELEASED ON 7/5/2013

THANK YOU FROM
ANDREW CHRISTIANO,
CASEY SENSECQUA,
AND HORIZON WELL
LOGGING, LLC

Y-DRKGY, BLKY TO SUBBLKY,
K FRMWRK, IMBD PYRC SPEC,
FREE CAL, FREE SH, MOD GYSHBLK
T BLSHW O FLOR, IMMED STRMG

CHK: 65% V/LTGY - MEDGY - DRKGY, BLKY TO SUBBLKY,
FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD PYRC SPEC,
FREE PYR, FREE BENT, FREE CAL, FREE SH, MOD GYSHBLK
STN, 10% LTOR FLOR, FNT BLSHW O FLOR, IMMED STRMG
CUT, BRIYL RNG