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WWW.HZMUD.COM/25

Customer Information	Well Information
<p>Operator: Noble Energy Inc 1625 Broadway Suite 2200 Denver, Colorado 80202</p> <p>Geologist: Holly Duncan Noble Energy Inc.</p>	<p>Well Name: Wells Ranch AE30-62HNC</p> <p>Location: 29-T6N-R62W 305' FSL, 65' FWL</p> <p>County: Weld State: Colorado</p>
Mud Logging Details	
<p>Logger: Tom Wacholz & Sam Stelzer</p> <p>Log Interval: 2500' MD to 6600' MD</p> <p>Start Date: May 25, 2014</p> <p>Release Date: May 29, 2014</p>	<p>Drilling Rig: H&P 343</p> <p>Total Depth: 12026' MD</p> <p>TD Date: May 29, 2014</p> <p>Formation: Niobrara C Chalk</p> <p>KB Elevation: 4772'</p> <p>GR Elevation: 4748'</p> <p>API Number: 05-123-38685-0000</p>

ROCK TYPES

shale Anhy Bent Brec Cht Clyst Coal	Congl Dol Gyp Igne Lmst Meta Mrlist	Salt Shale Shcol Shgy Sltst Ss Till	gw lmywash ogw olmywash oshly gw shly gw sdygw	hvycrbsh nosmpl Lsdetrst sltst sdy sh
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ROP (Ft/Hr) Gamma (API)	Drill Depth v. Time	Survey Data	Depth	Lithology	Lithology Percentages	Sample Photographs	Porosity	Geological Description	TG (1-8) C1 (units) C2 (units) C3 (units) C4 (units)	Total Gas, C1-C4
1500 250			24					NOBLE ENERGY INC WELLS RANCH AE30-62HNC 29-T6N-R62W 305' FSL, 65' FWL WELD CO., CO H&P 343 LOGGERS: TOM WACHOLZ SAM STELZER CALLED OUT BY COMPANY MAN ON 5/25/2014 COMMENCED LOGGING @ 2500' MD	50 450	TG, C1-C4
SLIDE=RED ROTATE=WHITE ROP SCALE: 0 TO 1500 GAMMA SCALE: 0 TO 250 ORIGINAL DATA AS RECEIVED									CONNECTIONS ARE MARKED WITH RED TRIANGLES GAS SCALE: -50u TO 450u (50 UNITS/DIVISION) DRILLING ON WATER BASED MUD	

5/26/2014
DAY 02
0 FT/24HRS

WOB 7.7K
PP 3461
RPM 81
SPM 66/66

MD 2587 TVD 2578.54
INC 9.94 AZ 347.37
VS 24.13

MD 2682 TVD 2672.21
INC 9.25 AZ 347.18
VS 28.11

@ 1:45 AM ON 5/26/2014 W/BIT # 2,
8.75" SMITH, MDi519 (S/N) JJ0341 IN
@ 641' MD

PIERRE
CAME IN BEFORE LOGGING
DEPTH

DEPTH 641'
WT 8.60
VIS 27
PH 8.2
FIL 29.4
CL 2200
CAL 180
H2O 98.3
OIL 0.0
LGS 7.44
GEL 1/2/2
PV 2
YP 3
CK 1/0
SOL 1.4

CG 131u

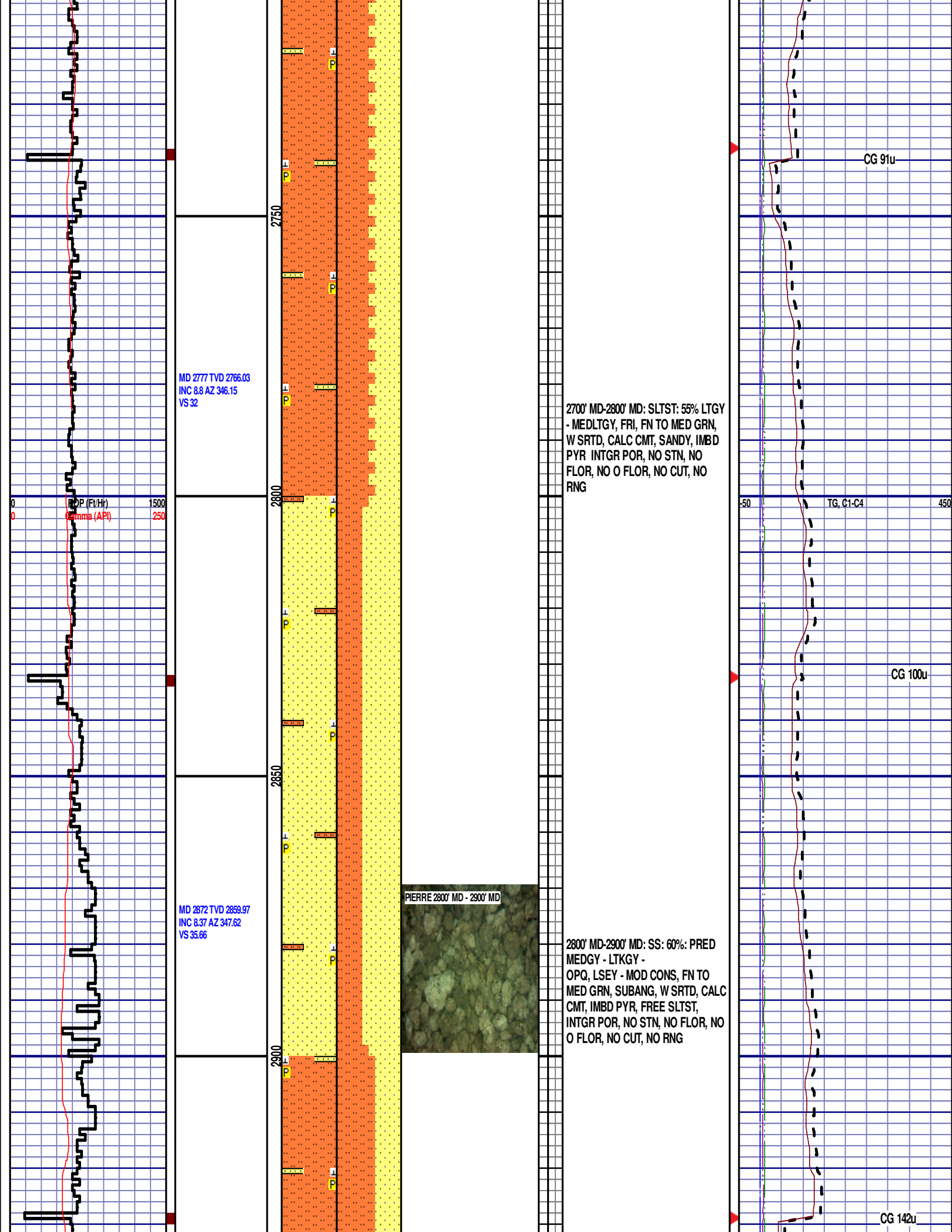
IG, C1-C4

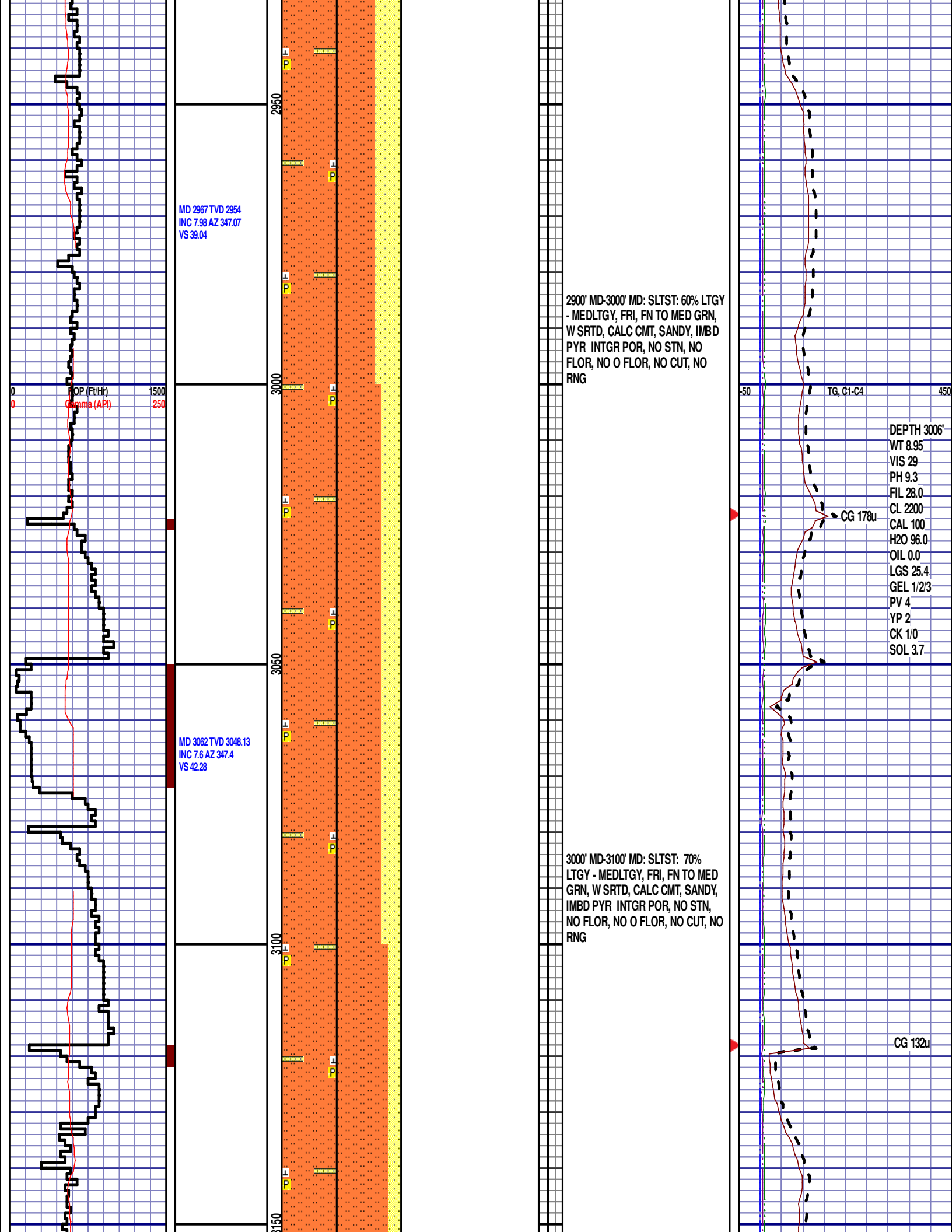
CG 99u

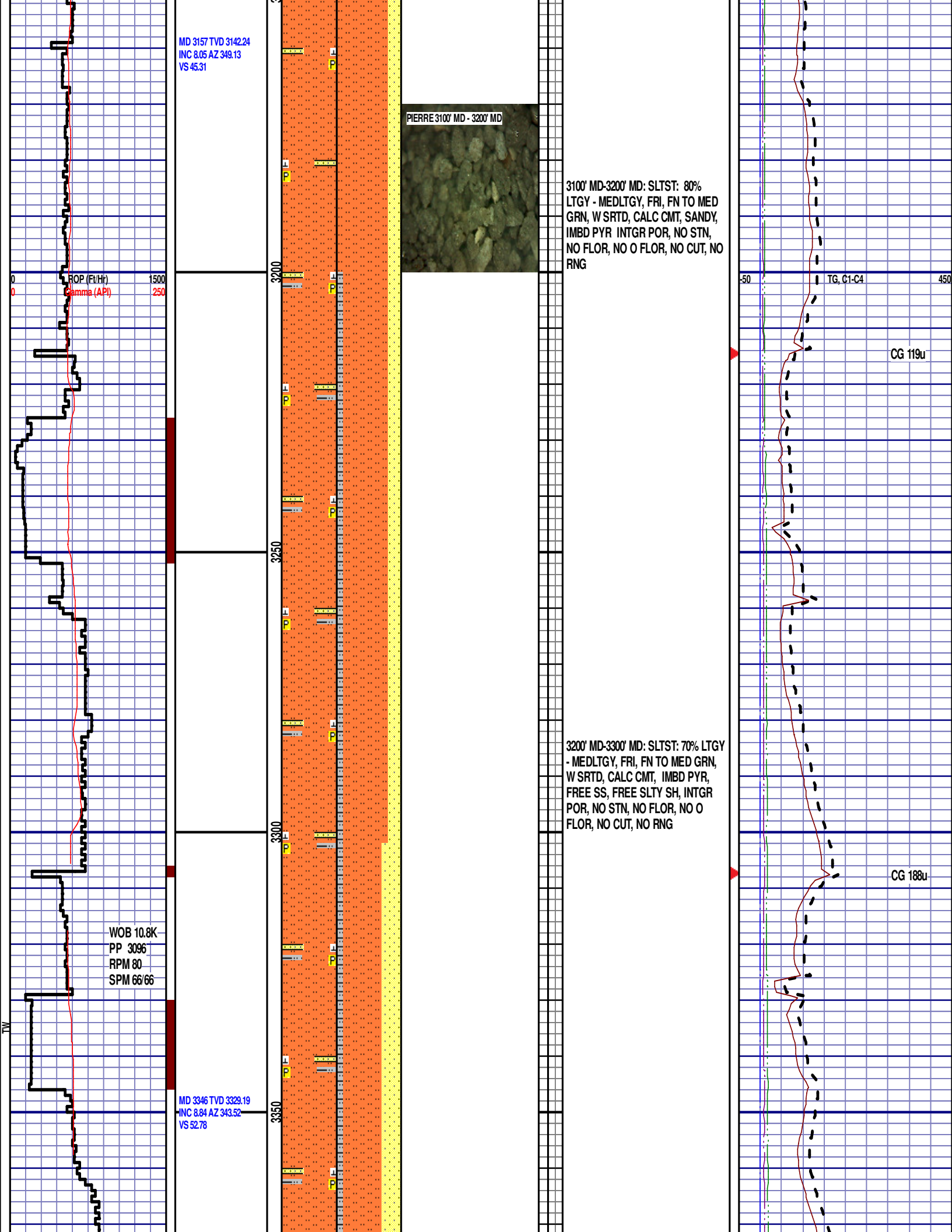


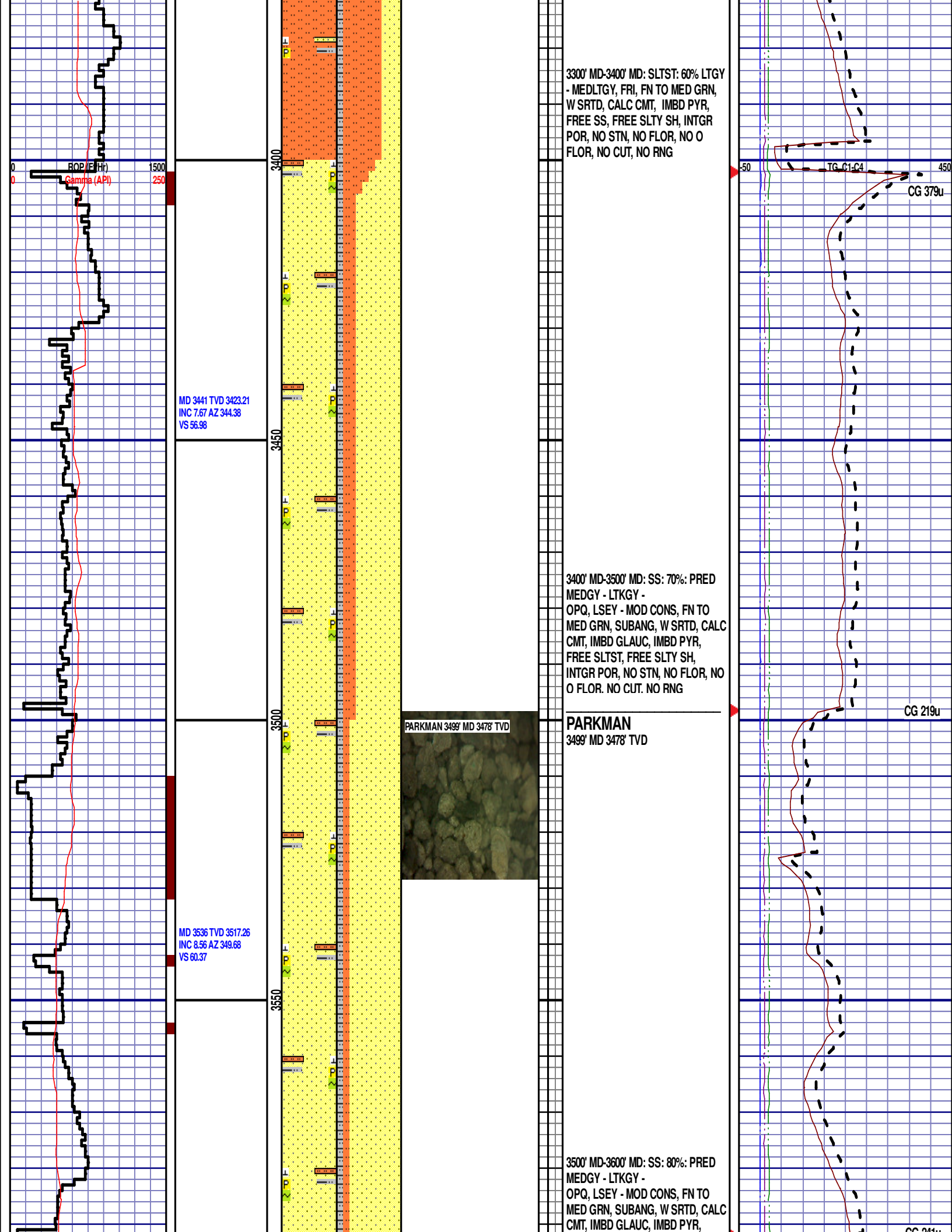
2500' MD-2600' MD: SLTST: 70% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, SANDY, IMBD
PYR INTGR POR, NO STN, NO
FLOR, NO O FLOR, NO CUT, NO
RNG

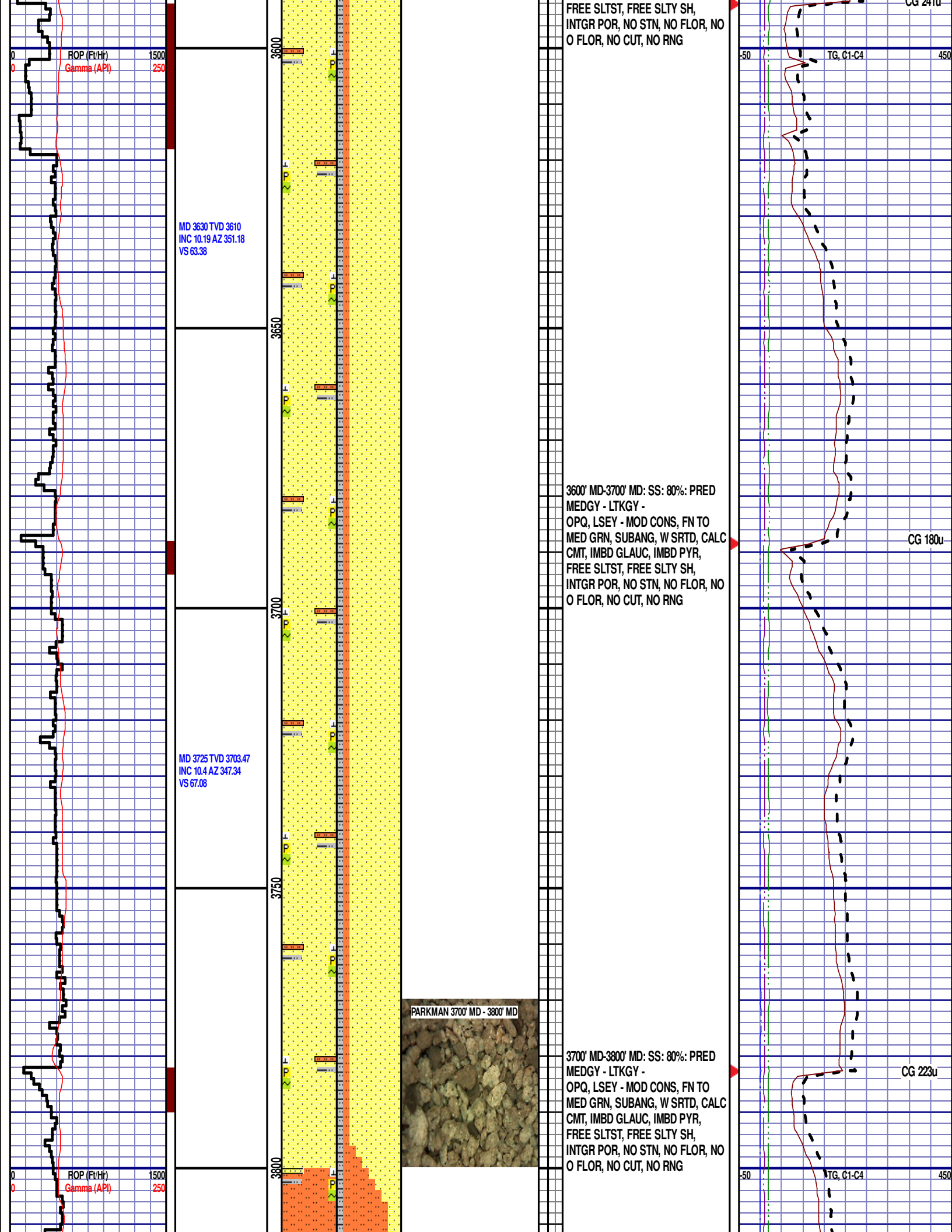
2600' MD-2700' MD: SLTST: 60% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, SANDY, IMBD
PYR INTGR POR, NO STN, NO
FLOR, NO O FLOR, NO CUT, NO
RNG











MD 3820 TVD 3796.91
INC 10.36 AZ 344.95
VS 71.7

MD 3915 TVD 3890.49
INC 9.53 AZ 344.14
VS 76.57

MD 4010 TVD 3984.25
INC 9.01 AZ 343.51
VS 81.3

3850

3900

3950

4000

3800' MD-3900' MD: SLTST: 70% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, IMBD GLAUC,
IMBD PYR, FREE SS, FREE SLTY
SH, INTGR POR, NO STN, NO FLOR,
NO O FLOR, NO CUT, NO RNG

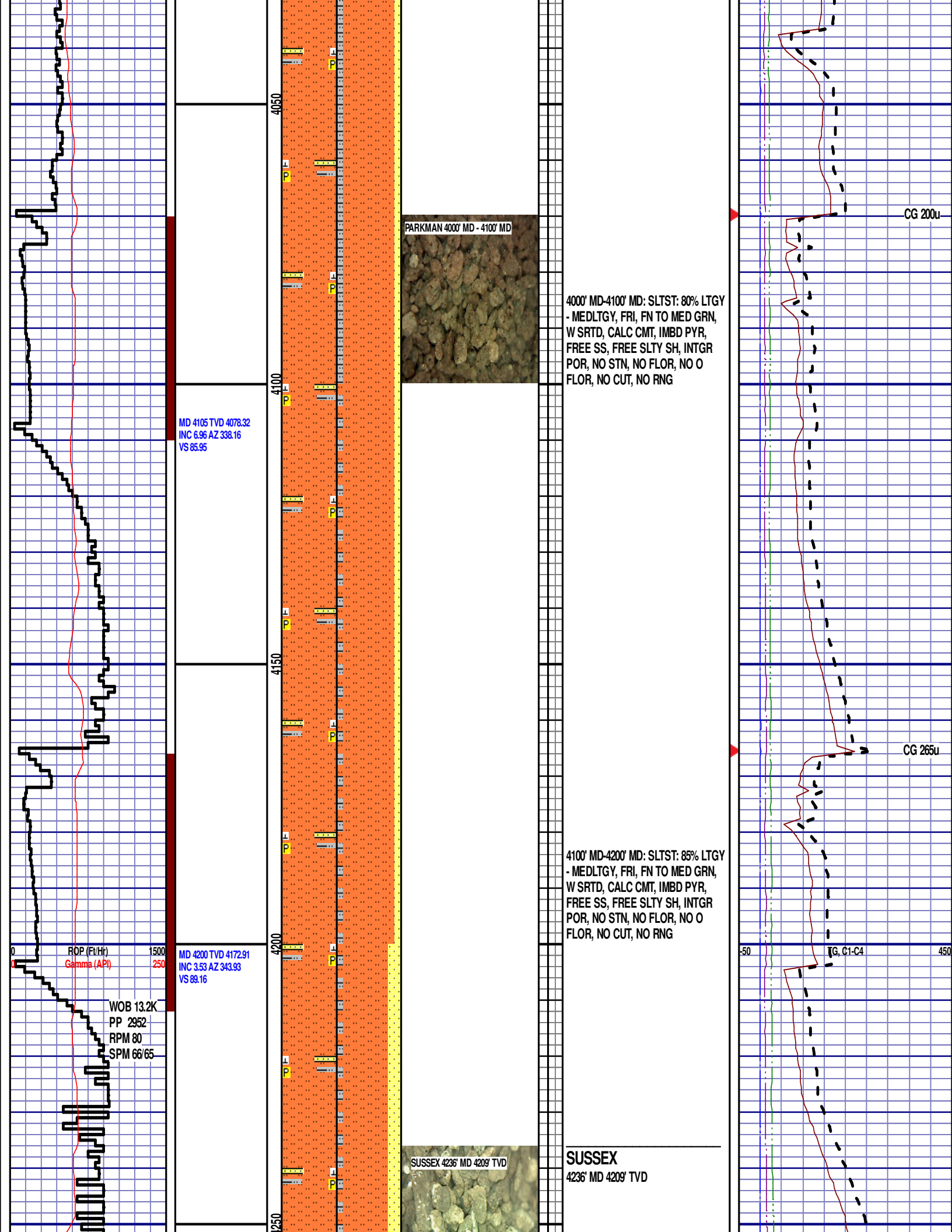
3900' MD-4000' MD: SLTST: 80% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, IMBD PYR,
FREE SS, FREE SLTY SH, INTGR
POR, NO STN, NO FLOR, NO O
FLOR, NO CUT, NO RNG

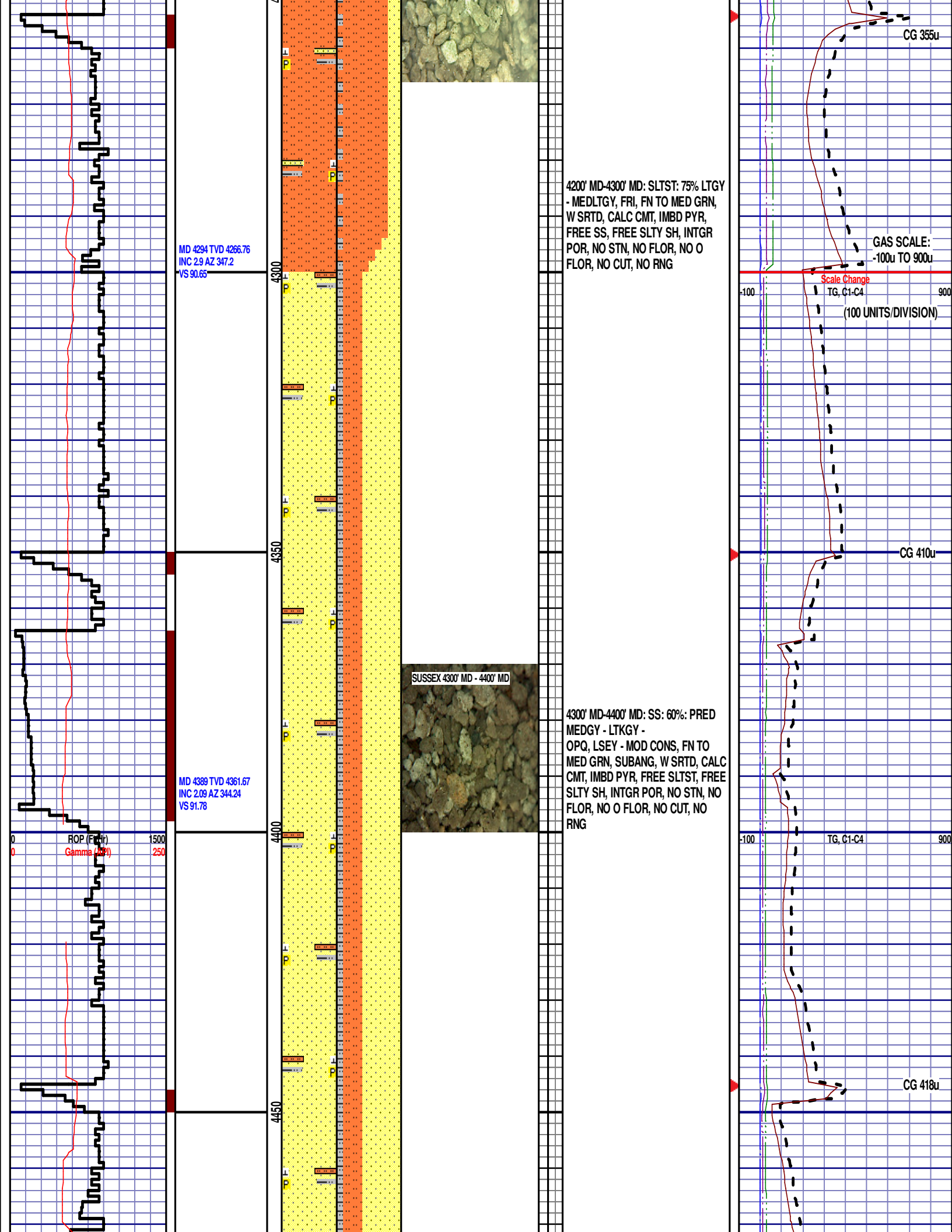
CG 274u

CG 244u

ROP (Ft/Hr) 1500
Gamma (API) 250

-50 TG, C1-C4 450





MD 4484 TVD 4456.62
INC 1.54 AZ 324.87
VS 93.07

MD 4578 TVD 4550.59
INC 1.66 AZ 335.45
VS 94.44

MD 4673 TVD 4645.57
INC 0.64 AZ 43.38
VS 94.7

4400' MD-4500' MD: SS: 60%: PRED
MEDGY - LTKGY -
OPQ, LSEY - MOD CONS, FN TO
MED GRN, SUBANG, W SRTD, CALC
CMT, IMBD PYR, FREE SLTST, FREE
SLTY SH, INTGR POR, NO STN, NO
FLOR, NO O FLOR, NO CUT, NO
RNG

4500' MD-4600' MD: SLTST: 75% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, IMBD PYR,
FREE SS, FREE SLTY SH, INTGR
POR, NO STN, NO FLOR, NO O
FLOR, NO CUT, NO RNG

4600' MD-4700' MD: SLTST: 80% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, IMBD PYR,

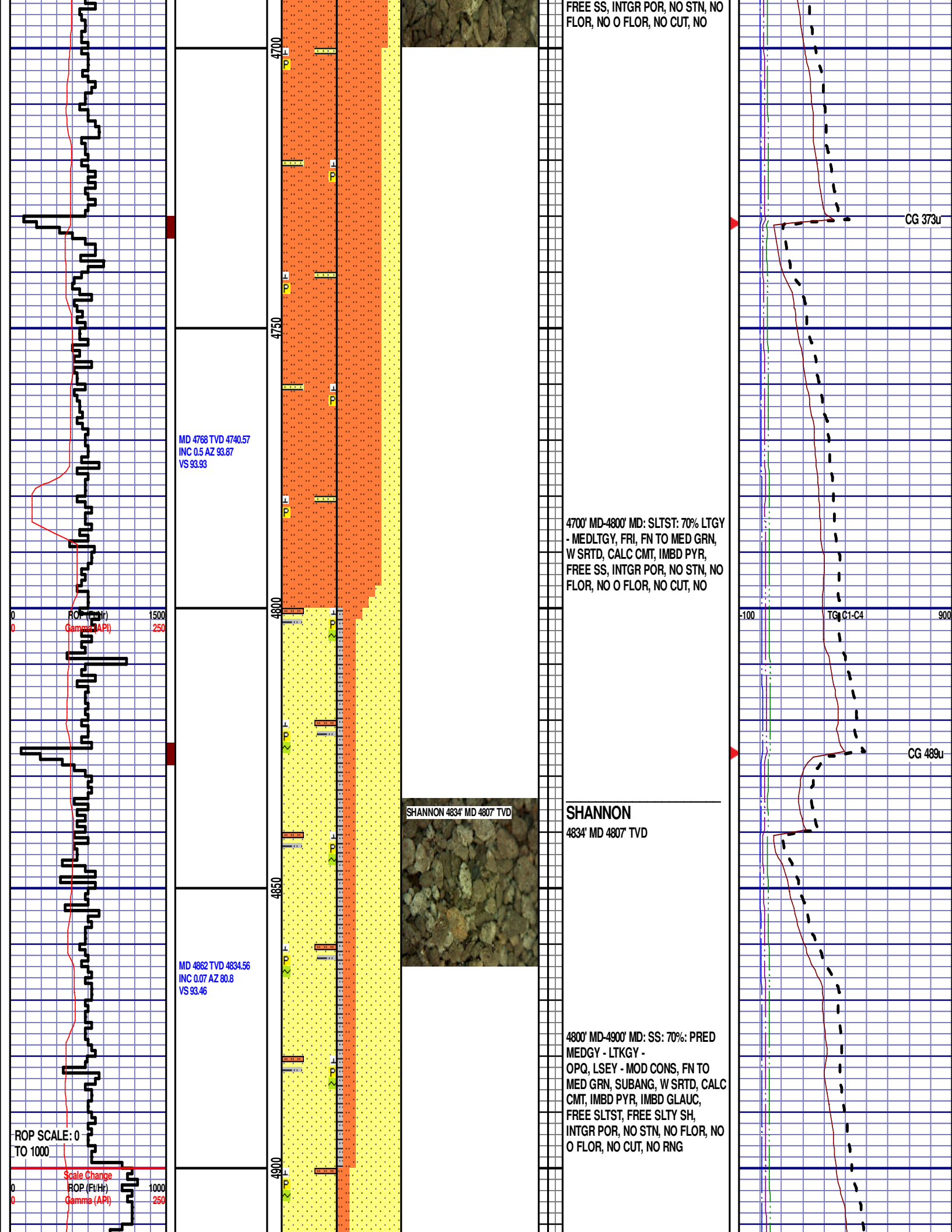
SUSSEX 4600' MD - 4700' MD

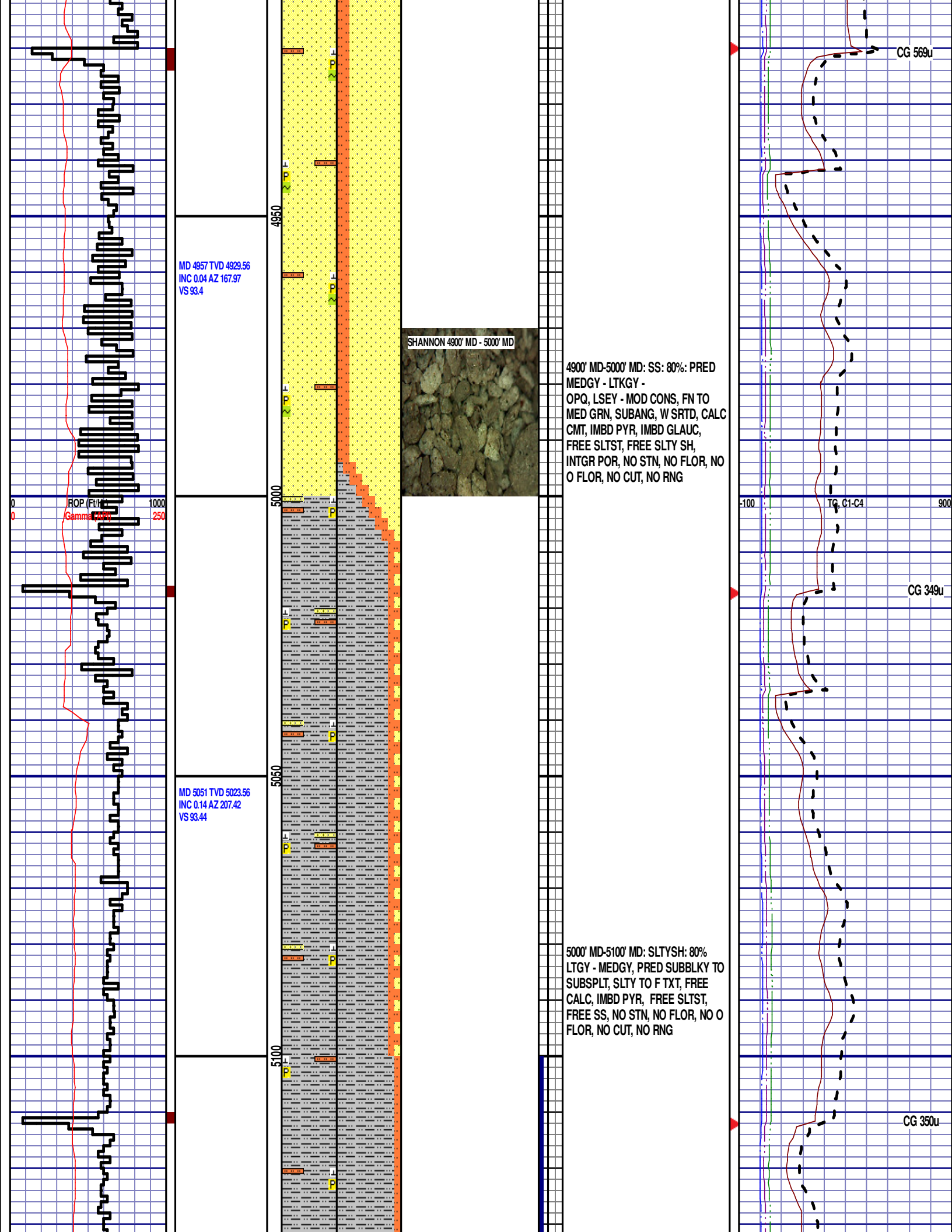


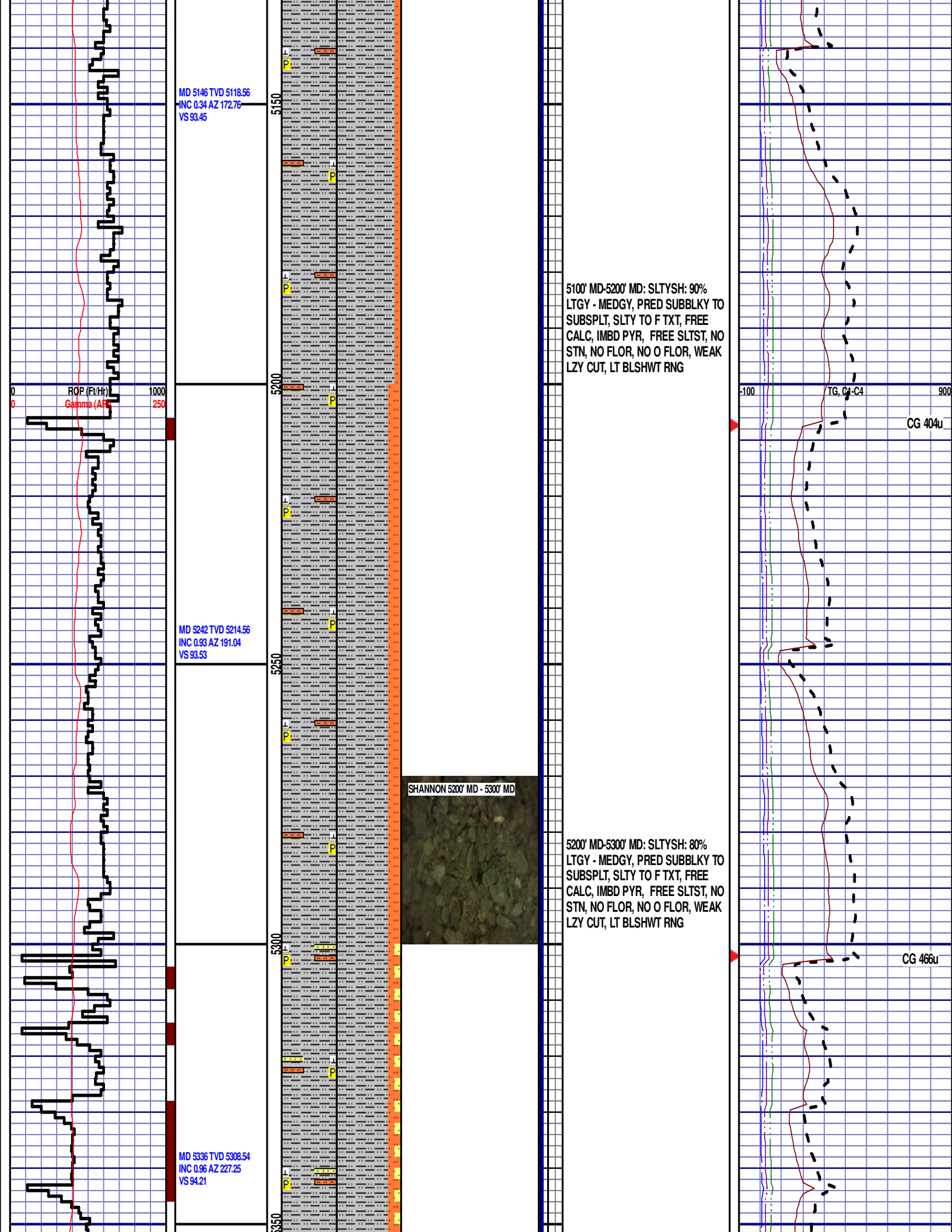
CG 430u

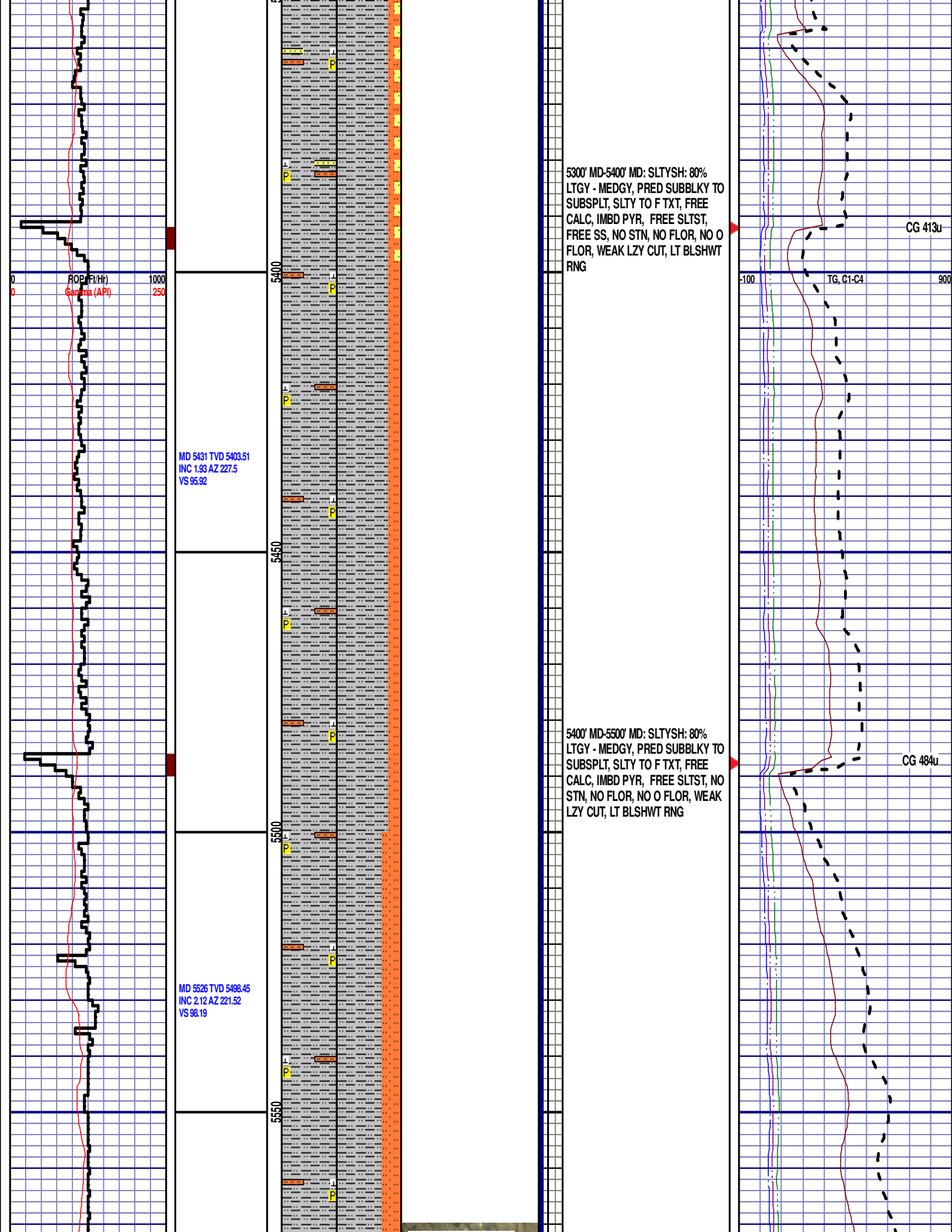
CG 417u

-100 TC, C1-C4 900









ROP (ft/hr)
Gamma (API)

MD 5431 TVD 5403.51
INC 1.93 AZ 227.5
VS 95.92

MD 5526 TVD 5498.45
INC 2.12 AZ 221.52
VS 98.19

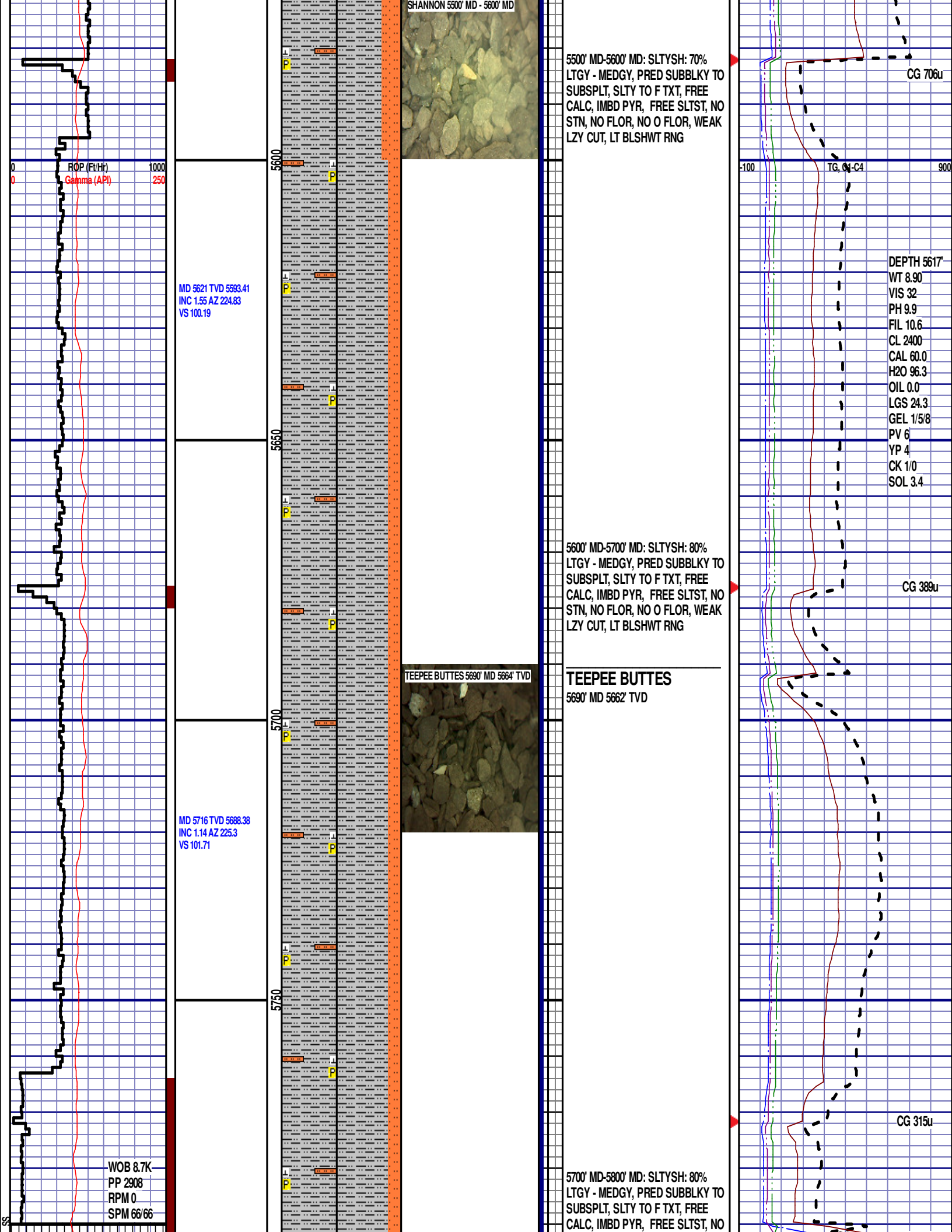
5300' MD-5400' MD: SLTYSH: 80%
LTGY - MEDGY, PRED SUBBLKY TO
SUBSPLT, SLTY TO F TXT, FREE
CALC, IMBD PYR, FREE SLTST,
FREE SS, NO STN, NO FLOR, NO O
FLOR, WEAK LZY CUT, LT BLSHWT
RNG

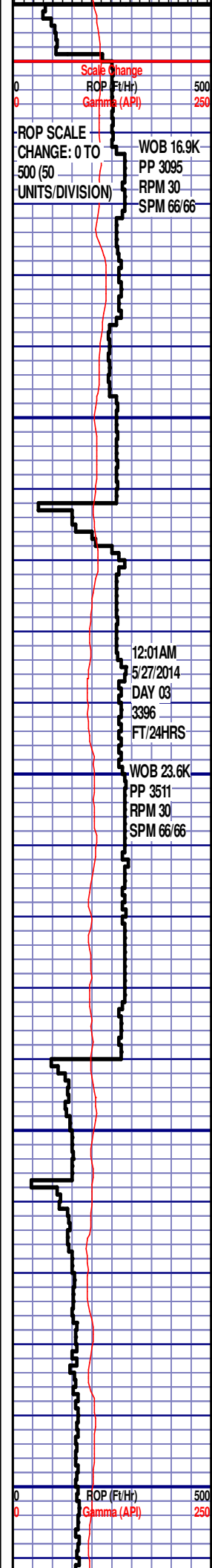
CG 413u

TG, C1-C4

5400' MD-5500' MD: SLTYSH: 80%
LTGY - MEDGY, PRED SUBBLKY TO
SUBSPLT, SLTY TO F TXT, FREE
CALC, IMBD PYR, FREE SLTST, NO
STN, NO FLOR, NO O FLOR, WEAK
LZY CUT, LT BLSHWT RNG

CG 484u





WOB 16.9K
PP 3095
RPM 30
SPM 66/66

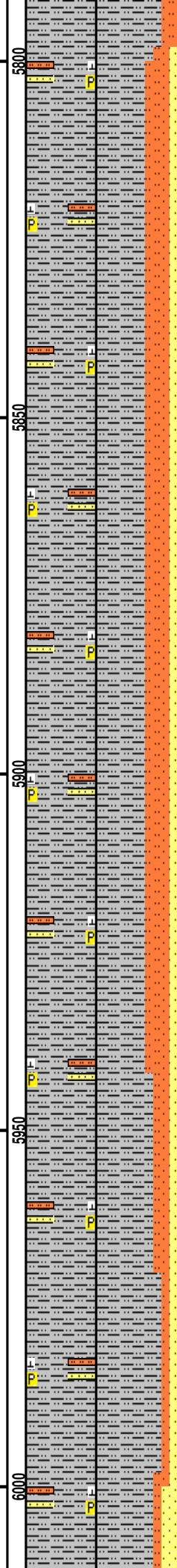
MD 5810 TVD 5782.37
INC 0.61 AZ 220.27
VS 102.67

12:01AM
5/27/2014
DAY 03
3396
FT/24HRS

WOB 23.6K
PP 3511
RPM 30
SPM 66/66

MD 5904 TVD 5876.36
INC 0.44 AZ 251.49
VS 103.32

MD 5999 TVD 5971.05
INC 7.91 AZ 275.28
VS 110.19



TEEPEE BUTTES 5970' MD - 6000' MD

STN, NO FLOR, NO O FLOR, WEAK
LZY CUT, LT BLSHWT RNG

TOOH @ 2:45 PM ON 5/26/14 @ 5790'
MD TO PICK UP CURVE ASSEMBLY
AFTER MUD MOTOR FAILURE.

TIH @ 7:00PM ON 5/26/14. RESUMED
DRILLING @ 11:15 PM ON 5/26/2014
W/BIT #3, SIZE 8.75", HDBS
MMD55M, S/N 1239471 IN @ 5790' MD

5800' MD-5900' MD: SLTYSH: 60%
LTGY - MEDGY, PRED SUBBLKY TO
SUBSPLT, SLTY TO F TXT, FREE
CALC, IMBD PYR, FREE SLTST,
FREE SS, NO STN, NO FLOR, NO O
FLOR, MOD LZY CUT, LT BLSHWT
RNG

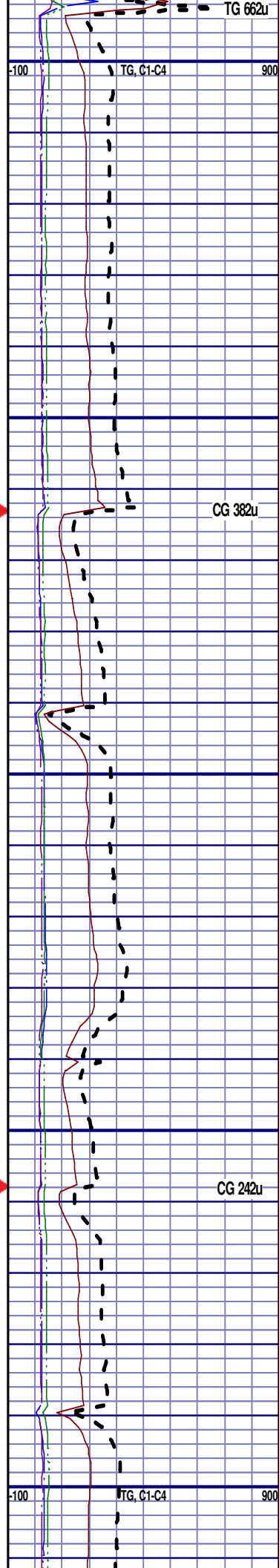
SWITCHING TO 30FT SAMPLE
INTERVAL

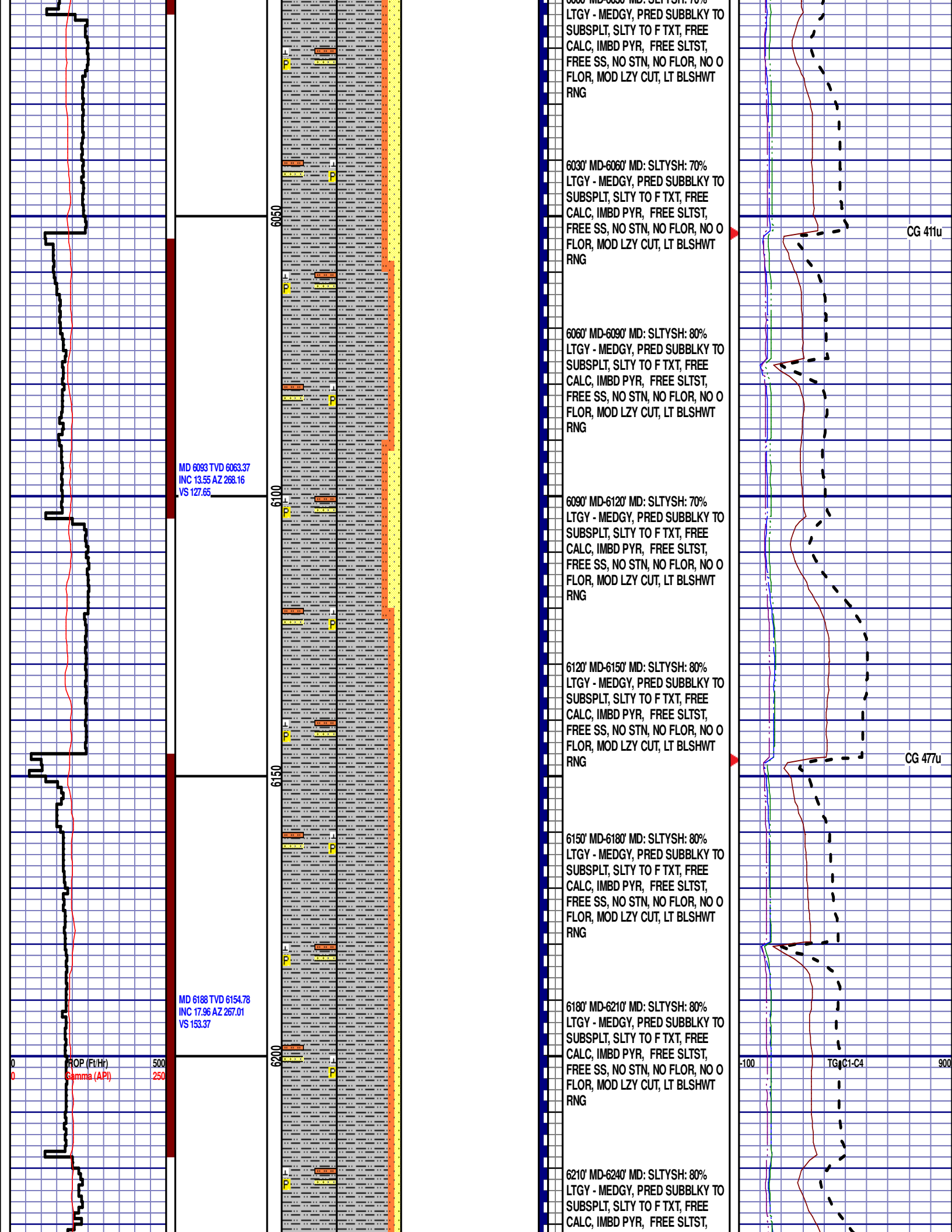
5900' MD-5940' MD: SLTYSH: 60%
LTGY - MEDGY, PRED SUBBLKY TO
SUBSPLT, SLTY TO F TXT, FREE
CALC, IMBD PYR, FREE SLTST,
FREE SS, NO STN, NO FLOR, NO O
FLOR, MOD LZY CUT, LT BLSHWT
RNG

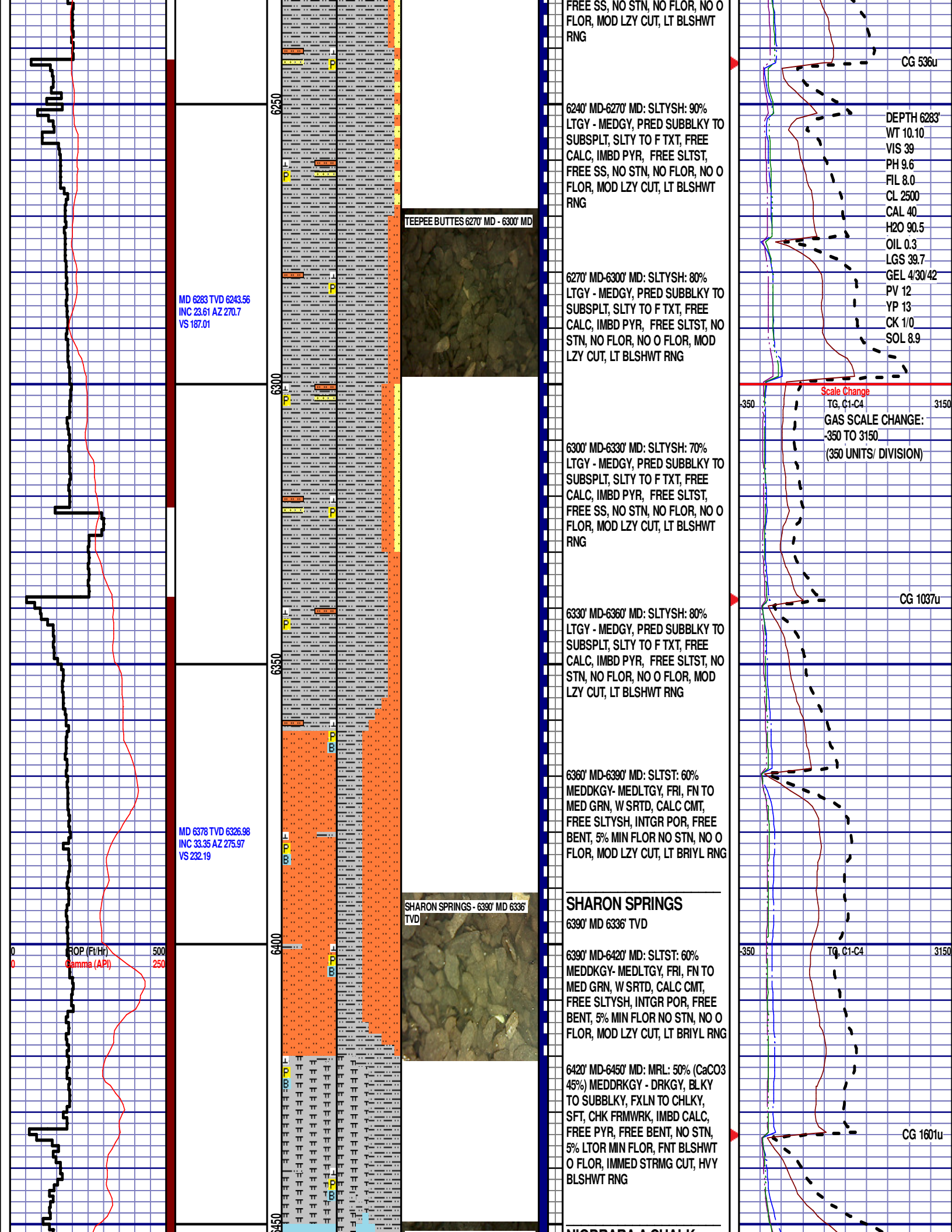
5940' MD-5970' MD: SLTYSH: 70%
LTGY - MEDGY, PRED SUBBLKY TO
SUBSPLT, SLTY TO F TXT, FREE
CALC, IMBD PYR, FREE SLTST,
FREE SS, NO STN, NO FLOR, NO O
FLOR, MOD LZY CUT, LT BLSHWT
RNG

5970' MD-6000' MD: SLTYSH: 80%
LTGY - MEDGY, PRED SUBBLKY TO
SUBSPLT, SLTY TO F TXT, FREE
CALC, IMBD PYR, FREE SLTST,
FREE SS, NO STN, NO FLOR, NO O
FLOR, MOD LZY CUT, LT BLSHWT
RNG

6000' MD-6030' MD: SLTYSH: 70%







MD 6283 TVD 6243.56
INC 23.61 AZ 270.7
VS 187.01

MD 6378 TVD 6326.98
INC 33.35 AZ 275.97
VS 232.19

ROP (ft/hr)
Gamma (API)

TEEPEE BUTTES 6270' MD - 6300' MD

SHARON SPRINGS - 6390' MD 6336' TVD

6240' MD-6270' MD: SLTYSH: 90%
LTGY - MEDGY, PRED SUBBLKY TO
SUBSPLT, SLTY TO F TXT, FREE
CALC, IMBD PYR, FREE SLTST,
FREE SS, NO STN, NO FLOR, NO O
FLOR, MOD LZV CUT, LT BLSHWT
RNG

6270' MD-6300' MD: SLTYSH: 80%
LTGY - MEDGY, PRED SUBBLKY TO
SUBSPLT, SLTY TO F TXT, FREE
CALC, IMBD PYR, FREE SLTST, NO
STN, NO FLOR, NO O FLOR, MOD
LZY CUT, LT BLSHWT RNG

6300' MD-6330' MD: SLTYSH: 70%
LTGY - MEDGY, PRED SUBBLKY TO
SUBSPLT, SLTY TO F TXT, FREE
CALC, IMBD PYR, FREE SLTST,
FREE SS, NO STN, NO FLOR, NO O
FLOR, MOD LZV CUT, LT BLSHWT
RNG

6330' MD-6360' MD: SLTYSH: 80%
LTGY - MEDGY, PRED SUBBLKY TO
SUBSPLT, SLTY TO F TXT, FREE
CALC, IMBD PYR, FREE SLTST, NO
STN, NO FLOR, NO O FLOR, MOD
LZY CUT, LT BLSHWT RNG

6360' MD-6390' MD: SLTST: 60%
MEDDKGY- MEDLTGY, FRI, FN TO
MED GRN, W SRTD, CALC CMT,
FREE SLTYSH, INTGR POR, FREE
BENT, 5% MIN FLOR NO STN, NO O
FLOR, MOD LZV CUT, LT BRIYL RNG

SHARON SPRINGS

6390' MD 6336' TVD

6390' MD-6420' MD: SLTST: 60%
MEDDKGY- MEDLTGY, FRI, FN TO
MED GRN, W SRTD, CALC CMT,
FREE SLTYSH, INTGR POR, FREE
BENT, 5% MIN FLOR NO STN, NO O
FLOR, MOD LZV CUT, LT BRIYL RNG

6420' MD-6450' MD: MRL: 50% (CaCO3
45%) MEDDRKGY - DRKGY, BLKY
TO SUBBLKY, FXLN TO CHLKY,
SFT, CHK FRMWRK, IMBD CALC,
FREE PYR, FREE BENT, NO STN,
5% LTOR MIN FLOR, FNT BLSHWT
O FLOR, IMMED STRMG CUT, HVY
BLSHWT RNG

CG 536u

DEPTH 6283'
WT 10.10
VIS 39
PH 9.6
FIL 8.0
CL 2500
CAL 40
H2O 90.5
OIL 0.3
LGS 39.7
GEL 4/30/42
PV 12
YP 13
CK 1/0
SOL 8.9

Scale Change
TG, C1-C4
GAS SCALE CHANGE:
-350 TO 3150
(350 UNITS/ DIVISION)

CG 1037u

TG, C1-C4

CG 1601u

MD 6473 TVD 6398.96
INC 47.78 AZ 275.45
VS 293.67

MD 6568 TVD 6453.44
INC 62.05 AZ 270.86
VS 371.16

WOB 32.2K
PP 3998
RPM 0
SPM 66/66

ROP (Ft/Hr)	500
Gamma (API)	250

NIOBRARA A CHALK - 6446' MD 6382'
TVD

NIOBRARA A CHALK

6446' MD 6382' TVD

6450' MD-6480' MD: CHK: 70% (CaCO₃ 60%)
MOTT LTGY - MEDDRKGY - DRKGY, BLKY
TO SUBBLKY, FXLN TO CHLKY, SFT, CHK
FRMWRK, IMBD CALC, FREE PYR, TRC
FREE BENT, 30% FREE MRL, TRC GRYSHLBK
STN, TRC LTOR MIN FLOR, FNT BLSHW O
FLOR, IMMED STRMG CUT, HVY BLSHW
RNG

6480' MD-6510' MD: MRL: 70% (CaCO3 40%)
MEDDRKGY - DRKGY, BLKY TO SUBB LKY,
FXLN TO CHLKY, SFT, CHK FRMWRK, IMBD
CAL, FREE PYR, TRC FREE BENT, 30% CHK,
NO STN, TRC LTOR MIN FLOR, FNT BLSHWT
O FLOR, IMMED STRMG CUT, HVY BLSHWT
RNG

NIOBRARA A MARL
6500' MD 6414' TVD

6510' MD-6540' MD: MRL: 80%
(CaCO₃ 40%) MEDDRKG Y - DRKG,
BLKY TO SUBBLKY, FXLN TO
CHLKY, SFT, CHK FRMWRK, IMBD
CAL, FREE PYR, TRC FREE BENT,
20% CHK, NO STN, TRC LTOR MIN
FLOR, FNT BLSHW O FLOR,
IMMED STRMG CUT, Hvy BLSHW
RNG

6540' MD-6570' MD: MRL: 70%
(CaCO₃ 45%) MEDDRKGY - DRKGY,
BLKY TO SUBBLKY, FXLN TO
CHLKY, SFT, CHK FRMWRK, IMBD
CAL, FREE PYR, TRC FREE BENT,
30% CHK, NO STN, TRC LTOR MIN
FLOR, FNT BLSHW O FLOR,
IMMED STRMG CUT, Hvy BLSHW
RNG

6570' MD-6600' MD: MRL: 85%
(CaCO₃ 40%) MEDDRKG Y - DRKG,
BLKY TO SUBBLKY, FXLN TO
CHLKY, SFT, CHK FRMWRK, IMBD
CAL, FREE PYR, TRC FREE BENT,
15% CHK, NO STN, TRC LTOR MIN
FLOR, FNT BLSHW O FLOR,
IMMED STRMG CUT, HVY BLSHW
RNG

END OF VERTICAL LOG @ 6600' MD
ON 5/27/2014, CONTINUED ON
HORIZONTAL LOG

CG 2161u