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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: Five Rivers K09-62-1HN</p> <p>Location: 8-T4N-R66W 1034' FSL, 674' FEL</p> <p>County: Weld State: Colorado</p>
Mud Logging Details	
<p>Logger: Sam Stelzer & Brad Leonard</p> <p>Log Interval: 2500' MD to 7200' MD</p> <p>Start Date: August 07, 2014</p> <p>Release Date: August 12, 2014</p>	<p>Drilling Rig: H&P 343</p> <p>Total Depth: 12454' MD</p> <p>TD Date: August 12, 2014</p> <p>Formation: Niobrara C Chalk</p> <p>KB Elevation: 4726'</p> <p>GR Elevation: 4702'</p> <p>API Number: 05-123-39463-0000</p>

ROCK TYPES

shale	Congl	Salt	gw	hvyrcrbsh
Anhy	Dol	Shale	lmywash	nosmpl
Bent	Gyp	Shcol	ogw	Lsdetrst
Brec	Igne	Shgy	olmywash	sltst
Cht	Lmst	Sltst	oshly gw	sdly sh
Clyst	Meta	Ss	shly gw	
Coal	Mrlst	Till	sdgyw	

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
12:01AM			24					NOBLE ENERGY INC FIVE RIVERS K09-62-1HN 8-T4N-R66W 1034' FSL, 674' FEL WELD CO., CO		
								H&P 343 LOGGERS: SAM STELZER BRAD LEONARD CALLED OUT BY COMPANY MAN @ 8:00PM ON 8/07/2014 COMMENCED LOGGING @ 2500' MD		

8/08/2014
DAY 02
0FT/24HRS

WOB 6.2K
PP 3027
RPM 40
SPM 75/75

MD 2588 TVD 2564.04
INC 11.97 AZ 151.88
VS 167.82

ROP (Ft/Hr)
Gamma (API)

MD 2680 TVD 2653.96
INC 12.46 AZ 151.91
VS 178.86

@ 4:45 PM ON 8/08/2014 W/BIT # 2,
8.75", SMITH SDi519, (S/N) JJ1351 IN
@ 639' MD

PIERRE

CAME IN BEFORE LOGGING
DEPTH



2500' MD-2600' MD: SLTST: 60% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, SANDY, IMBD
PYR, IMBD GLAUC, INTGR POR, NO
STN, NO FLOR, NO O FLOR, NO
CUT, NO RNG

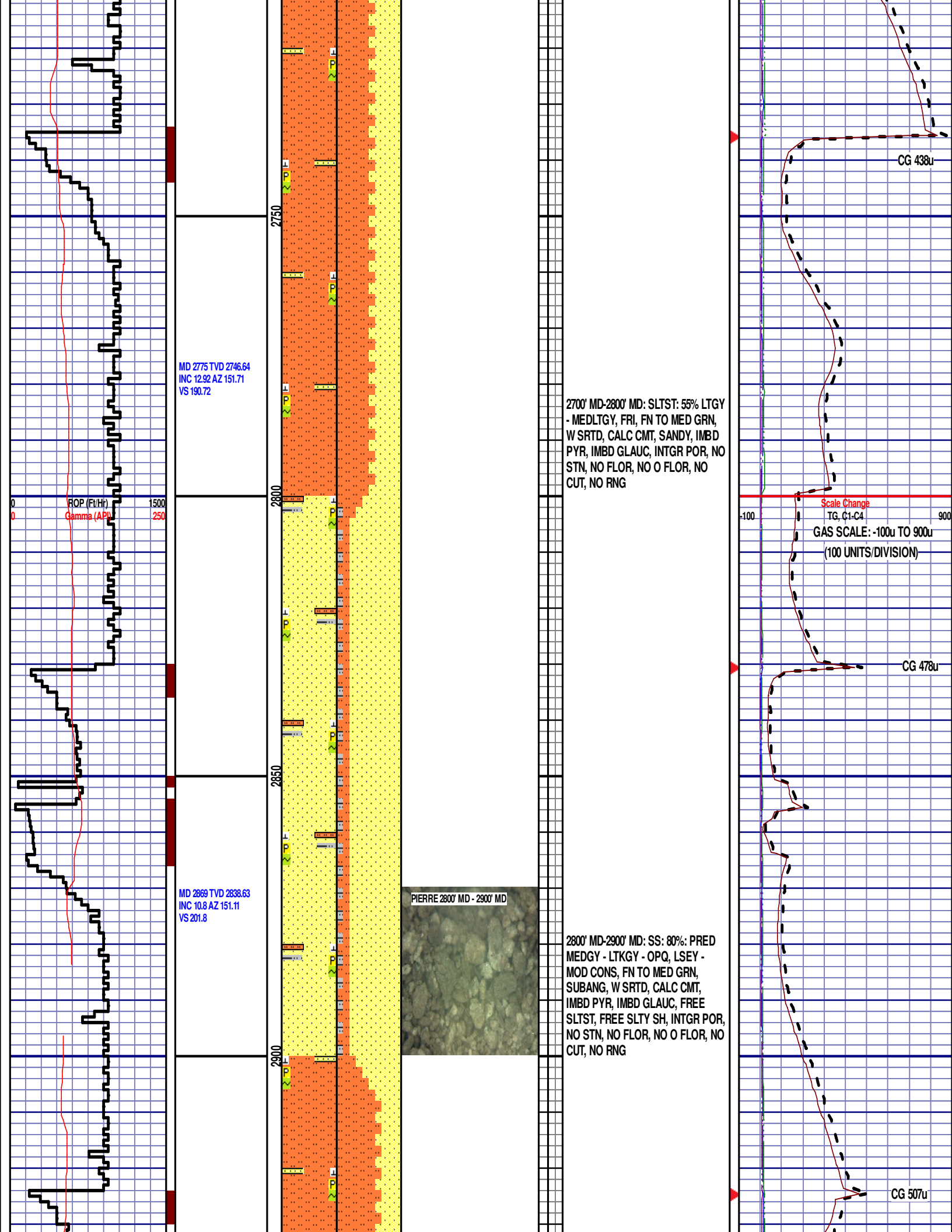
2600' MD-2700' MD: SS: 90%: PRED
MEDGY - LTKGY - OPQ, LSEY -
MOD CONS, FN TO MED GRN,
SUBANG, W SRTD, CALC CMT,
IMBD PYR, IMBD GLAUC, FREE
SLTST, FREE SLTY SH, INTGR POR,
NO STN, NO FLOR, NO O FLOR, NO
CUT, NO RNG

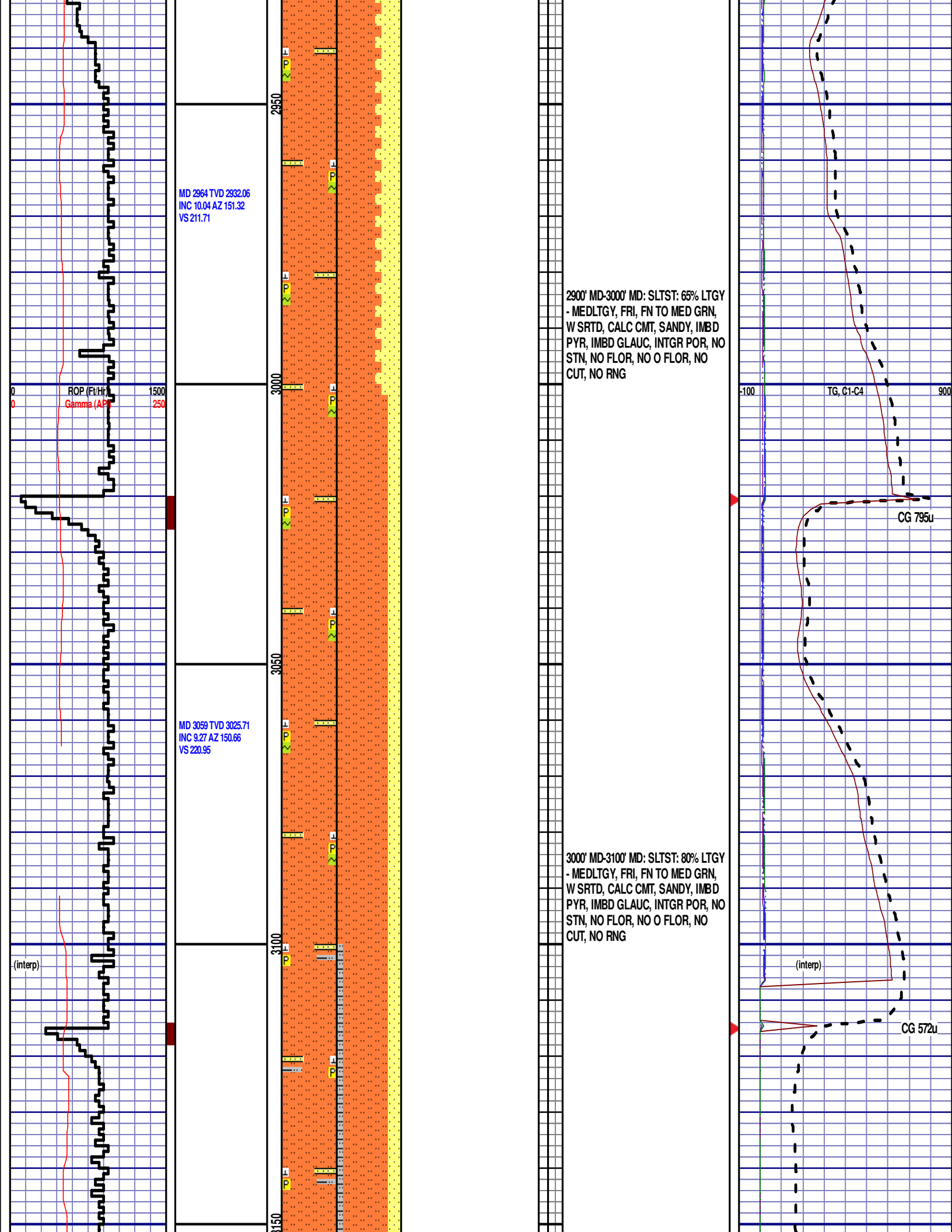
DEPTH 1646'
WT 8.70
VIS 27
PH 11.2
FIL 200.0
CL 1600
CAL 320
H2O 97.5
OIL 0.0
LGS 15.2
GEL 1/2/3
PV 3
YP 2
CK 4/0
SOL 2.2

CG 389u

TG, C1-C4

CG 235u





MD 3154 TVD 3119.59
INC 8.37 AZ 151.24
VS 229.41

ROP (F)
Gamma (API)

MD 3248 TVD 3212.7
INC 7.39 AZ 147.81
VS 237.13

MD 3343 TVD 3306.8
INC 8.41 AZ 146.66
VS 245.39

PIERRE 3100' MD - 3200' MD

3100' MD-3200' MD: SLTST: 70% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, SANDY, FREE
SLTY SH, IMBD PYR, INTGR POR,
NO STN, NO FLOR, NO O FLOR, NO
CUT, NO RNG

3200' MD-3300' MD: SLTST: 70% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, SANDY, FREE
SLTY SH, IMBD PYR, INTGR POR,
NO STN, NO FLOR, NO O FLOR, NO
CUT, NO RNG

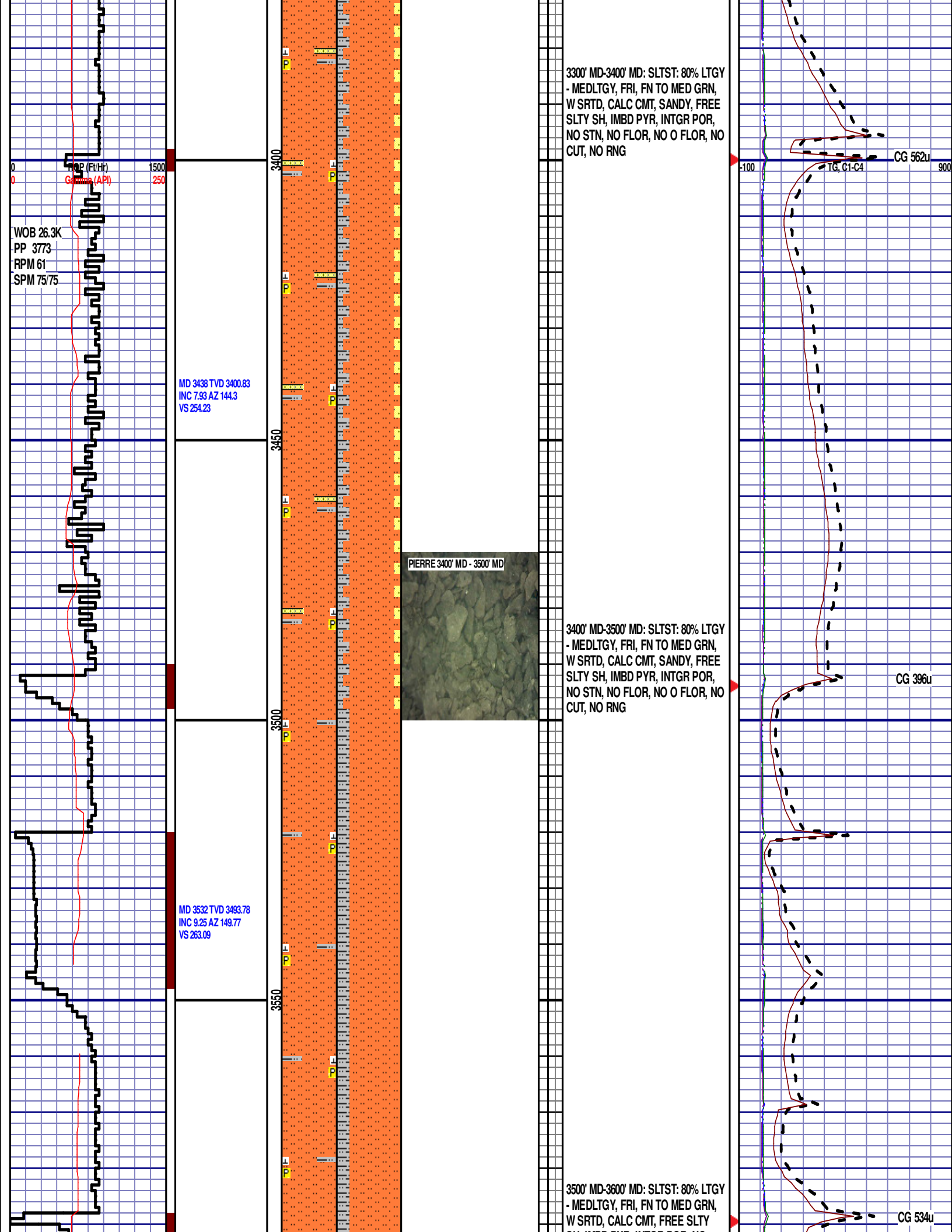
-100 TG, C1-C4 900

CG 649u

CG 418u

(act)

(act)

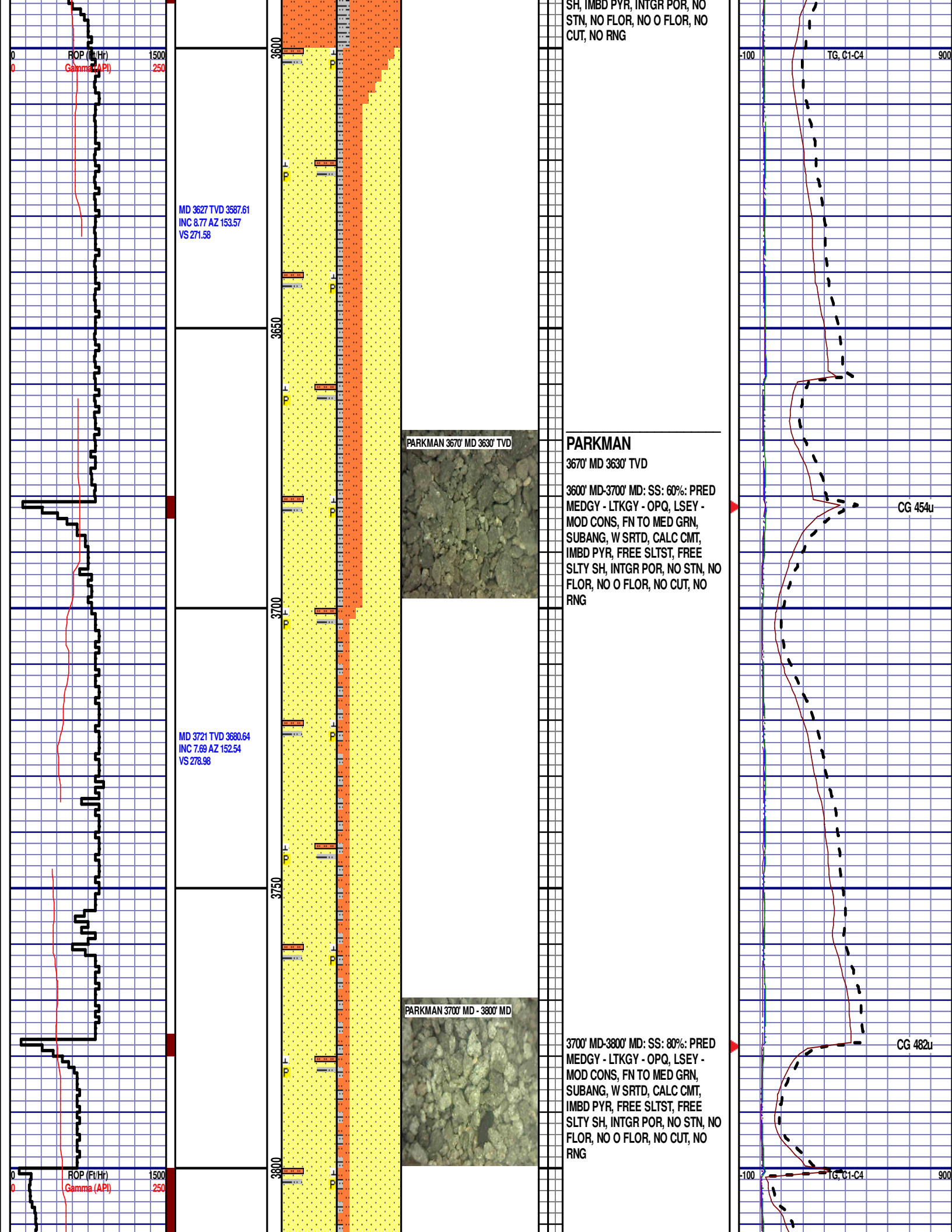


3300' MD-3400' MD: SLTST: 80% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, SANDY, FREE
SLTY SH, IMBD PYR, INTGR POR,
NO STN, NO FLOR, NO O FLOR, NO
CUT, NO RNG

PIERRE 3400' MD - 3500' MD

3400' MD-3500' MD: SLTST: 80% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, SANDY, FREE
SLTY SH, IMBD PYR, INTGR POR,
NO STN, NO FLOR, NO O FLOR, NO
CUT, NO RNG

3500' MD-3600' MD: SLTST: 80% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, FREE SLTY



MD 3816 TVD 3774.43
INC 10.52 AZ 153.66
VS 287.22

MD 3910 TVD 3866.66
INC 11.77 AZ 155.94
VS 296.74

MD 4004 TVD 3958.73
INC 11.44 AZ 156.71
VS 306.23

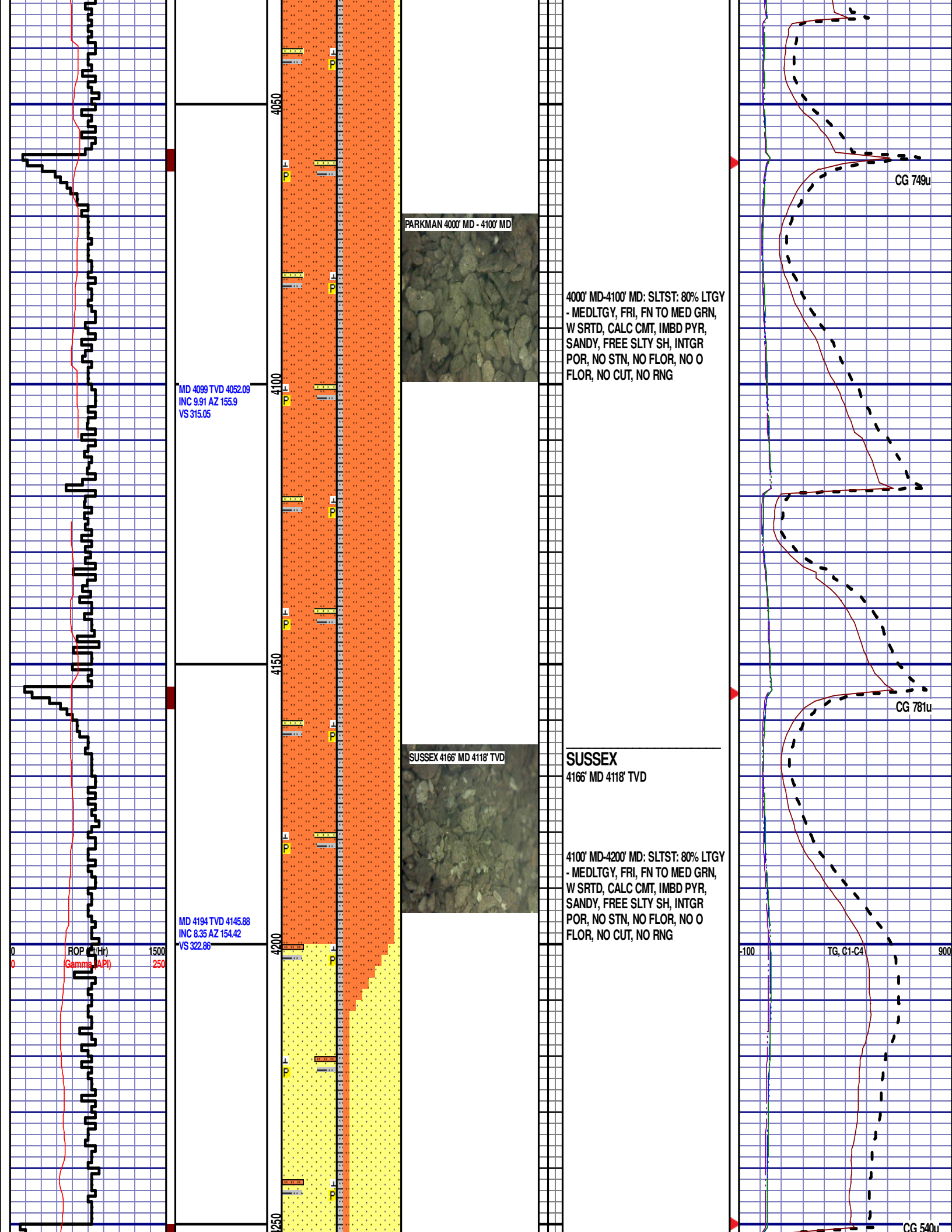
3800' MD-3900' MD: SS: 80%: PRED
MEDGY - LTKGY - OPQ, LSEY -
MOD CONS, FN TO MED GRN,
SUBANG, W SRTD, CALC CMT,
IMBD PYR, FREE SLTST, FREE
SLTY SH, INTGR POR, NO STN, NO
FLOR, NO O FLOR, NO CUT, NO
RNG

3900' MD-4000' MD: SS: 75%: 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

CG 672u

CG 699u

VG, C1-C4



MD 4288 TVD 4238.73
INC 9.58 AZ 148.13
VS 331.33

MD 4383 TVD 4332.51
INC 8.82 AZ 144.12
VS 341.14

ROP (ft/hr)
Gamm (API)

12:01AM
8/09/2014
DAY 03
3947FT/24HRS

WOB 9.3K
PP 3245
RPM 60
SPM 74/74

4200' MD-4300' MD: SS: 80%: 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

SUSSEX 4300' MD - 4400' MD

4300' MD-4400' MD: SLTST: 60% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, IMBD PYR,
SANDY, INTGR POR, NO STN, NO
FLOR, NO O FLOR, NO CUT, NO
RNG

CG 606u

TG, C1-C4

CG 622u

MD 4478 TVD 4426.29
INC 9.59 AZ 149.92
VS 350.75

MD 4573 TVD 4519.96
INC 9.61 AZ 154.92
VS 359.6

MD 4667 TVD 4612.79
INC 8.45 AZ 153.73
VS 367.44

4400' MD-4500' MD: SS: 90%: PRED
MEDGY - LTKGY - OPQ, LSEY -
MOD CONS, FN TO MED GRN,
SUBANG, W SRTD, CALC CMT,
IMBD PYR, IMBD GLAUC, FREE
SLTY SH, INTGR POR, NO STN, NO
FLOR, NO O FLOR, NO CUT, NO
RNG

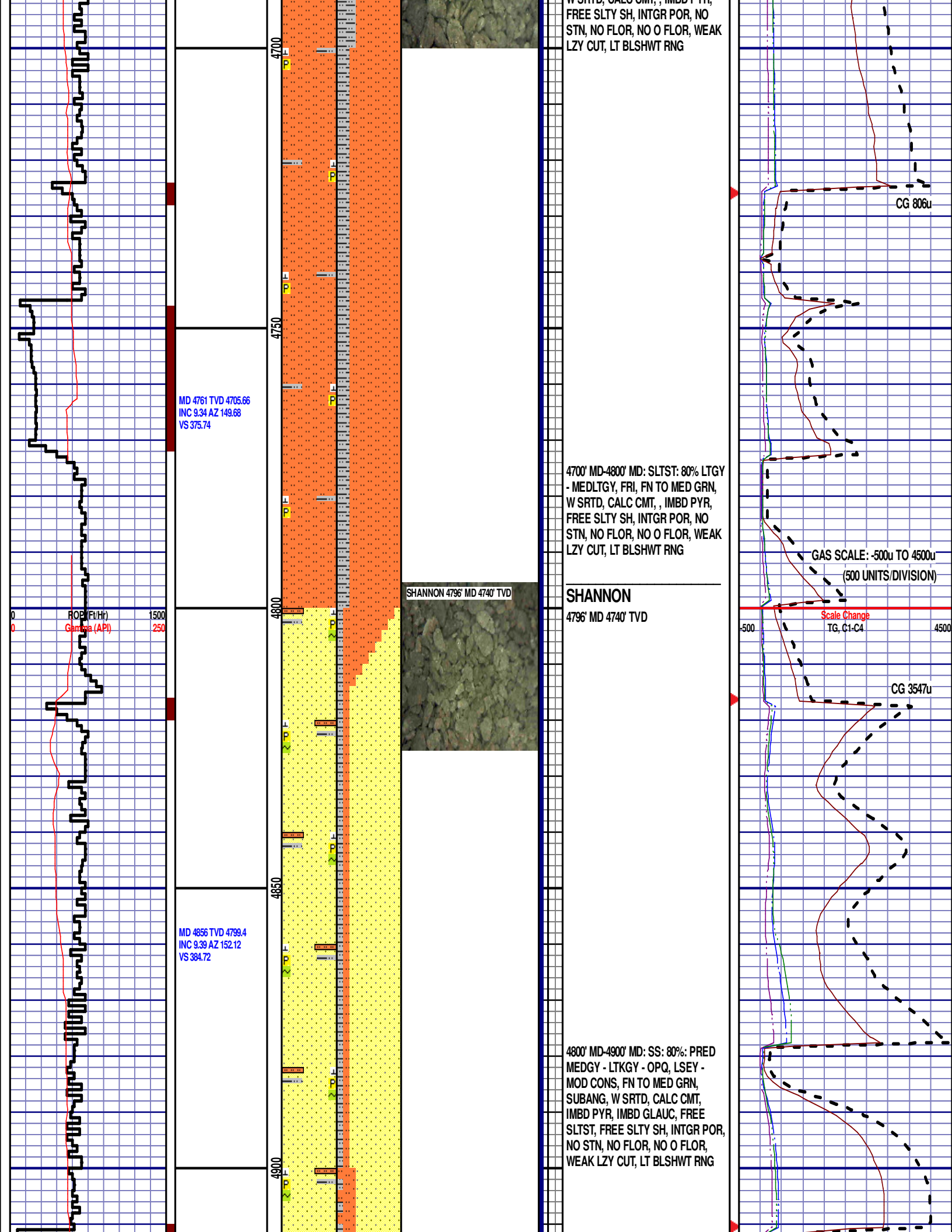
4500' MD-4600' MD: SS: 60%: PRED
MEDGY - LTKGY - OPQ, LSEY -
MOD CONS, FN TO MED GRN,
SUBANG, W SRTD, CALC CMT,
IMBD PYR, IMBD GLAUC, FREE
SLTST, INTGR POR, NO STN, NO
FLOR, NO O FLOR, WEAK LZ CUT,
LT BLSHWT RNG

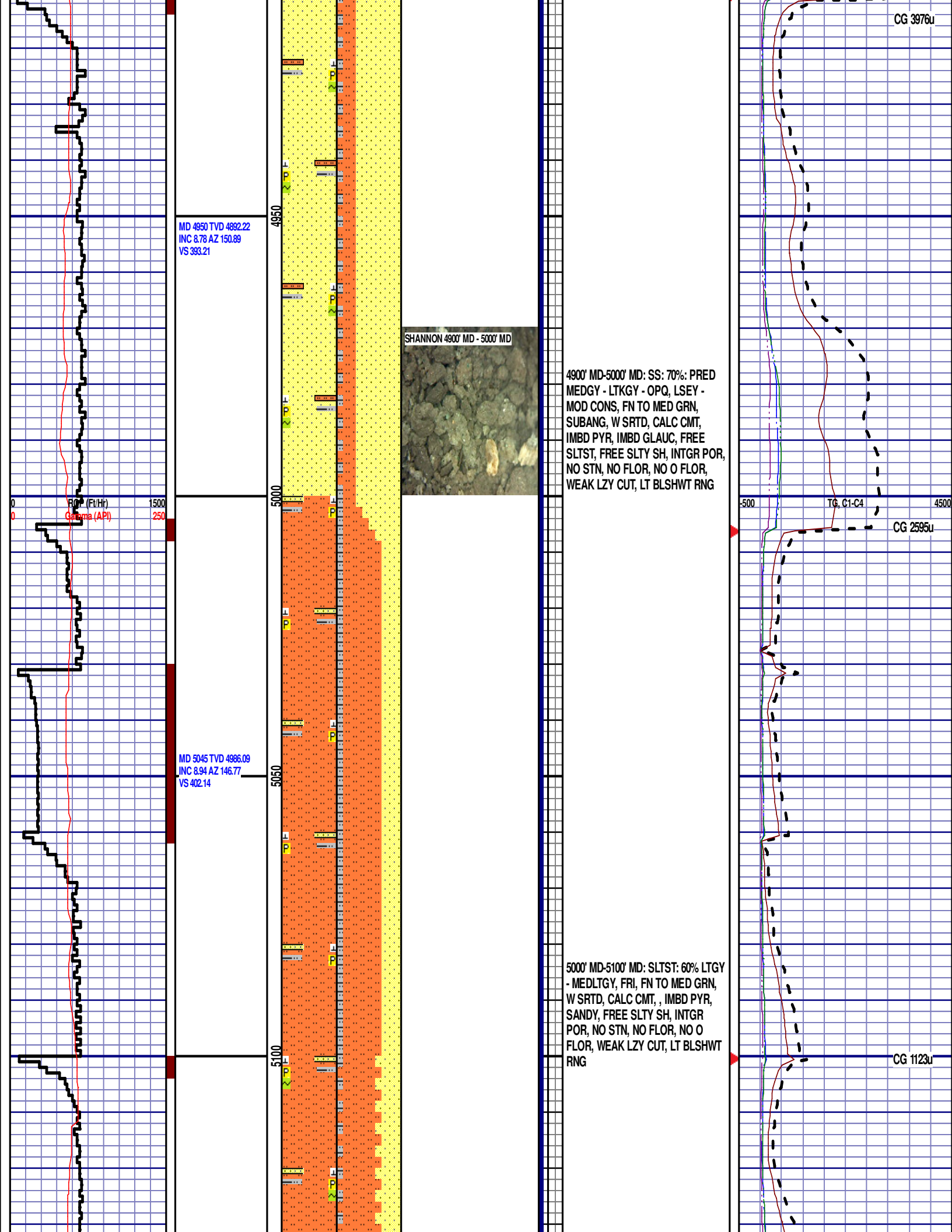
SUSSEX 4600' MD - 4700' MD

4600' MD-4700' MD: SLTST: 70% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, IMBD PYR

CG 617u

CG 784u





MD 5139 TVD 5078.94
INC 8.95 AZ 140.99
VS 412.02

MD 5234 TVD 5172.94
INC 7.74 AZ 138.94
VS 422

MD 5329 TVD 5266.99
INC 8.5 AZ 135.31
VS 432.18

5100' MD-5200' MD: SLTST: 60% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, , IMBD PYR,
IMBD GLAUC, SANDY, FREE SLTY
SH, INTGR POR, NO STN, NO FLOR,
NO O FLOR, WEAK LZY CUT, LT
BLSHWT RNG

SHANNON 5200' MD - 5300' MD



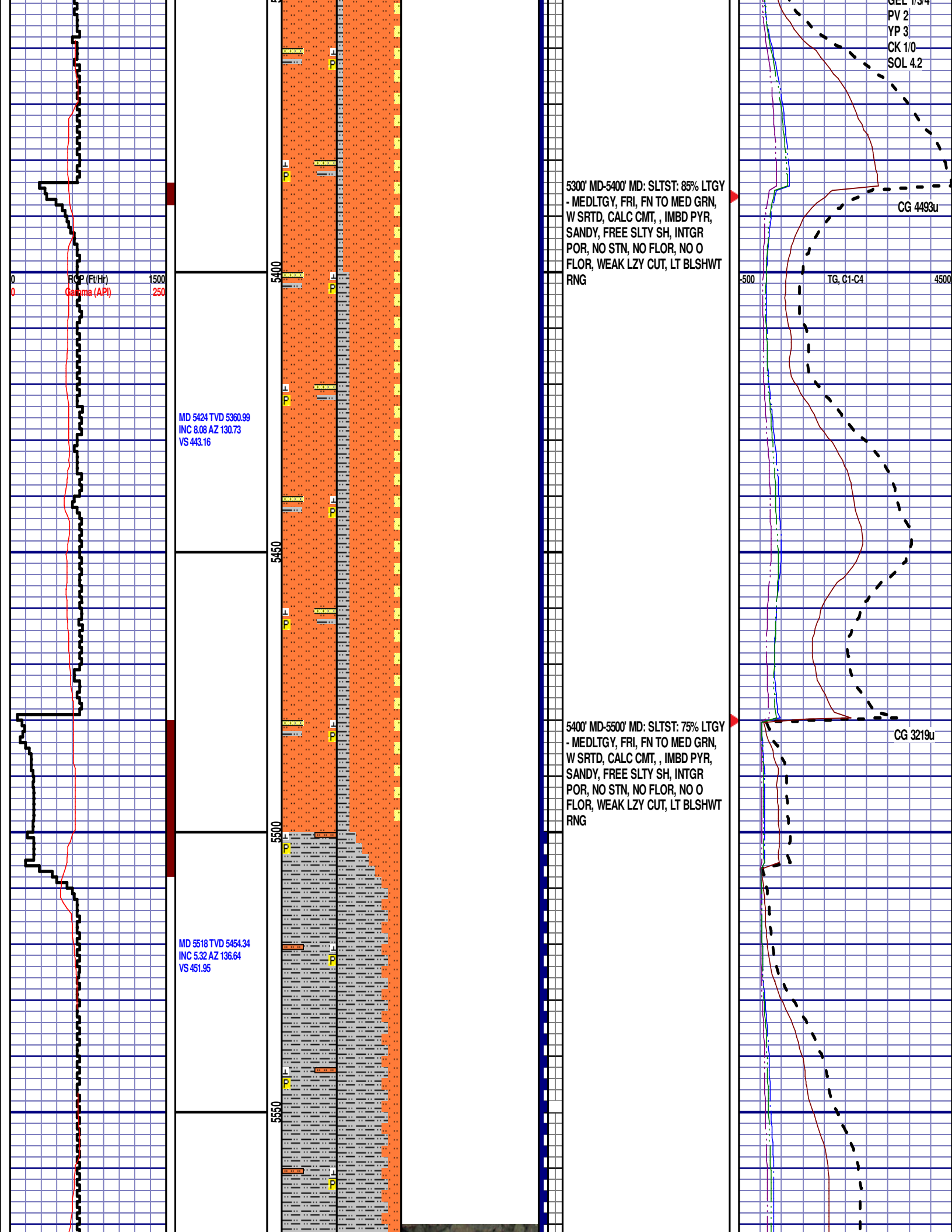
5200' MD-5300' MD: SLTST: 60% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, , IMBD PYR,
IMBD GLAUC, SANDY, INTGR POR,
NO STN, NO FLOR, NO O FLOR,
WEAK LZY CUT, LT BLSHWT RNG

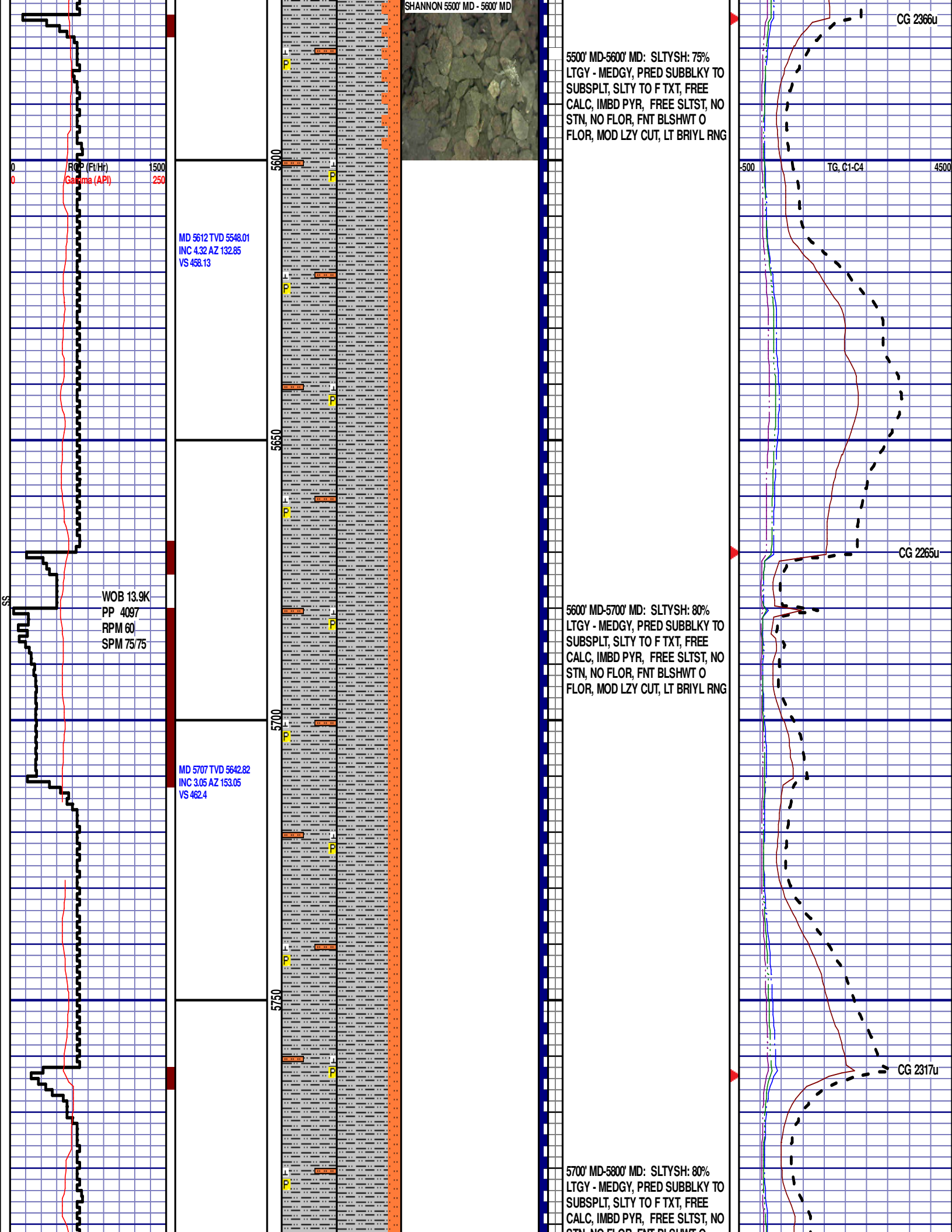
CG 2080u

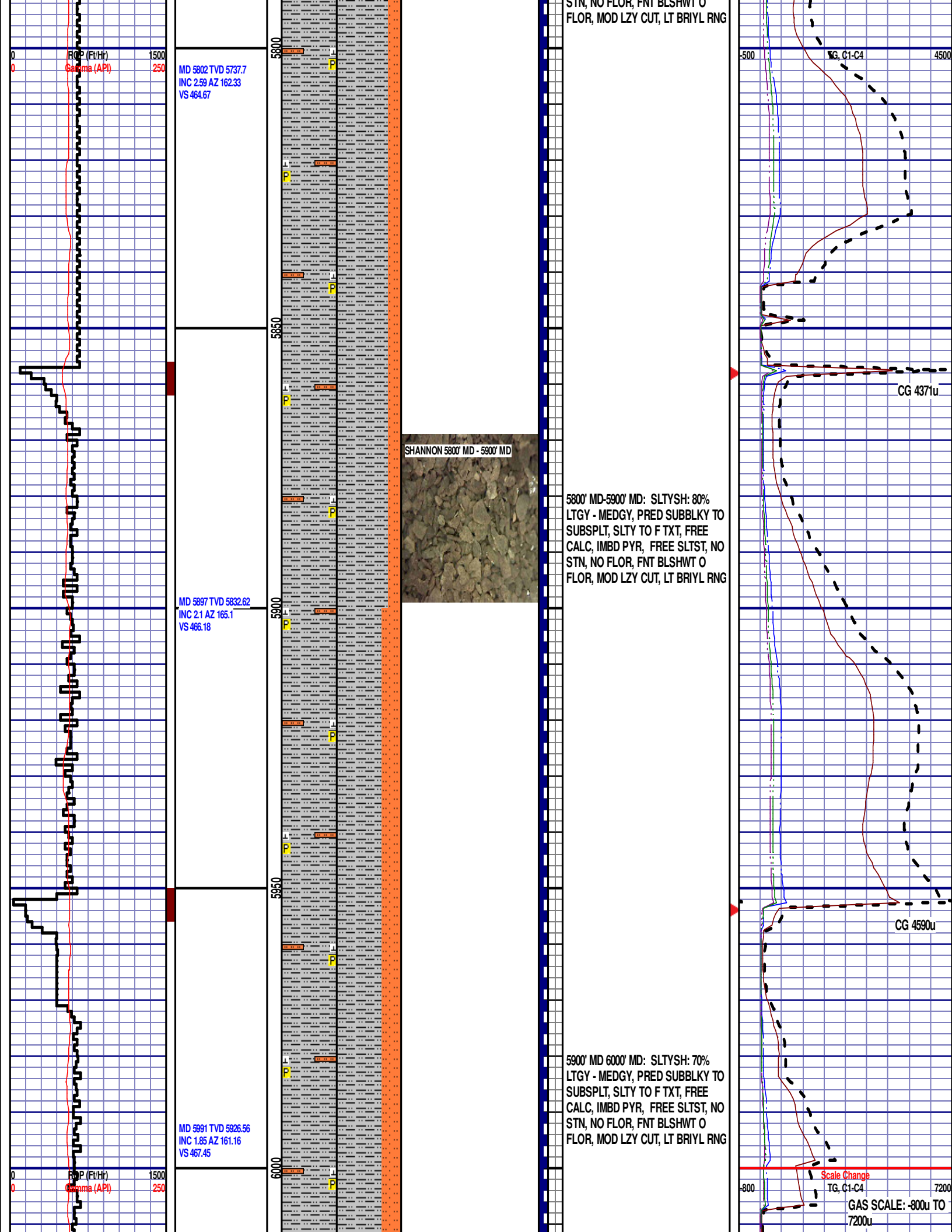
TG, C1-C4

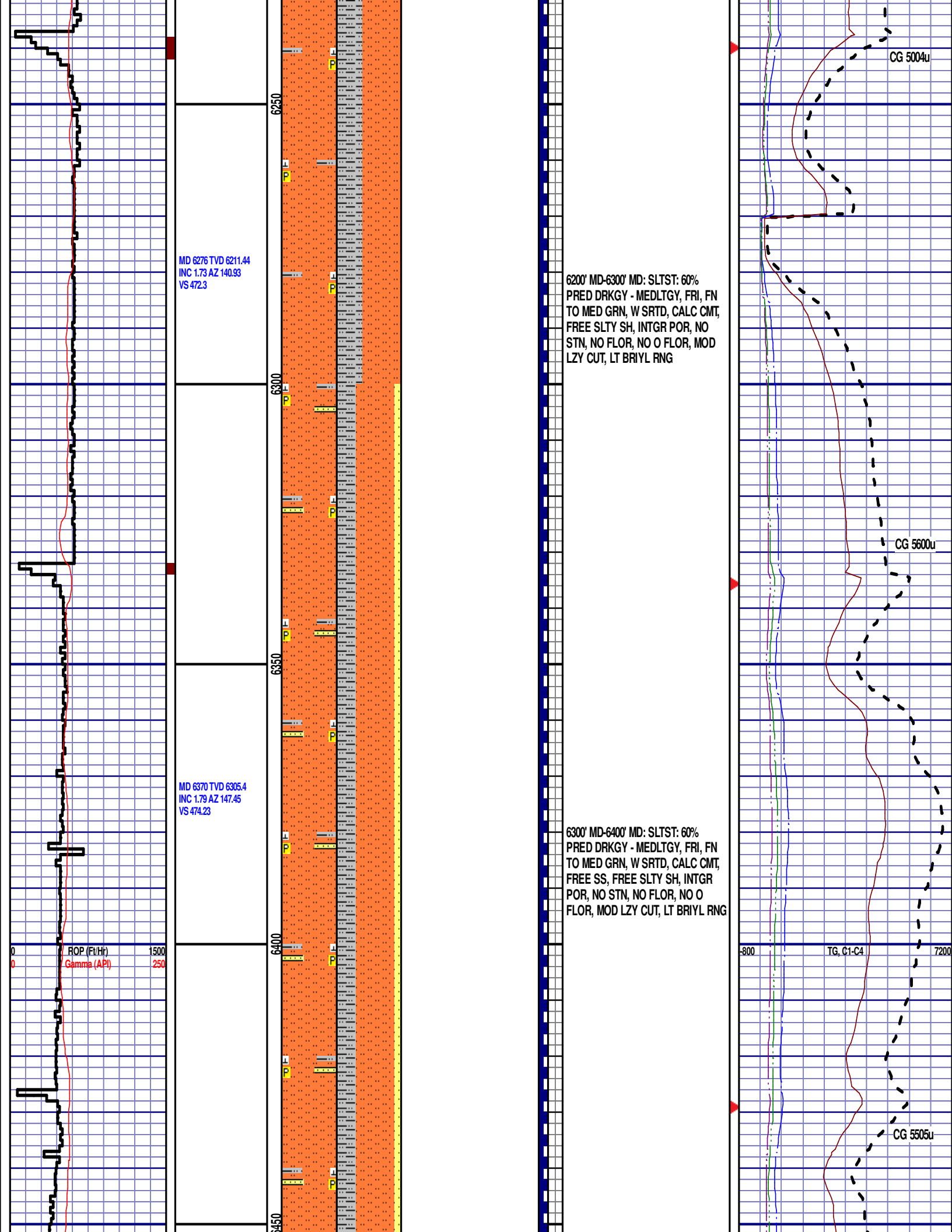
CG 3503u

DEPTH 5329'
WT 9.05
VIS 27
PH 8.8
FIL 70.0
CL 1500
CAL 120
H2O 95.5
OIL 0.0
LGS 28.2
GEI 1/2/4



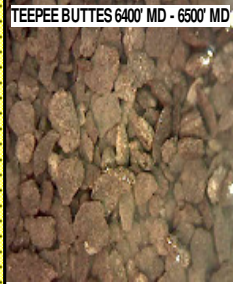






MD 6465 TVD 6400.35
INC 1.86 AZ 145.37
VS 476.18

TEEPEE BUTTES 6400' MD - 6500' MD



6400' MD-6500' MD: SLTST: 60%
PRED DRKGY - MEDLTGY, FRI, FN
TO MED GRN, W SRTD, CALC CMT,
FREE SS, FREE SLTY SH, INTGR
POR, NO STN, NO FLOR, NO O
FLOR, MOD LZY CUT, LT BRIYL RNG

SWITCH TO 30' SAMPLE INTERVAL

6500' MD-6530' MD: SLTST: 60%
PRED DRKGY - MEDLTGY, FRI, FN
TO MED GRN, W SRTD, CALC CMT,
FREE SS, FREE SLTY SH, INTGR
POR, NO STN, NO FLOR, NO O
FLOR, MOD LZY CUT, LT BRIYL RNG

6530' MD-6560' MD: SLTST: 60%
PRED DRKGY - MEDLTGY, FRI, FN
TO MED GRN, W SRTD, CALC CMT,
FREE SS, FREE SLTY SH, INTGR
POR, NO STN, NO FLOR, NO O
FLOR, MOD LZY CUT, LT BRIYL RNG

6560' MD-6590' MD: SLTST: 50%
PRED DRKGY - MEDLTGY, FRI, FN
TO MED GRN, W SRTD, CALC CMT,
FREE SS, FREE SLTY SH, INTGR
POR, NO STN, NO FLOR, NO O
FLOR, MOD LZY CUT, LT BRIYL RNG

6590' MD-6620' MD: SLTST: 50%
PRED DRKGY - MEDLTGY, FRI, FN
TO MED GRN, W SRTD, CALC CMT,
FREE SS, FREE SLTY SH, INTGR
POR, NO STN, NO FLOR, NO O
FLOR, MOD LZY CUT, LT BRIYL RNG

6620' MD-6650' MD: SLTST: 70%
PRED DRKGY - MEDLTGY, FRI, FN
TO MED GRN, W SRTD, CALC CMT,
FREE SS, FREE SLTY SH, INTGR
POR, NO STN, NO FLOR, NO O
FLOR, MOD LZY CUT, LT BRIYL RNG

6650' MD-6680' MD: SLTST: 70%
PRED DRKGY - MEDLTGY, FRI, FN
TO MED GRN, W SRTD, CALC CMT,
FREE SS, FREE SLTY SH, INTGR
POR, NO STN, NO FLOR, NO O
FLOR, MOD LZY CUT, LT BRIYL RNG

ROP SCALE: 0 TO 500

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

WOB 31.0K
PP 3668
RPM 0
SPM 73/73

MD 6559 TVD 6494.3
INC 1.92 AZ 160.39
VS 477.87

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

MD 6653 TVD 6588.16
INC 4.8 AZ 84.19
VS 482.41

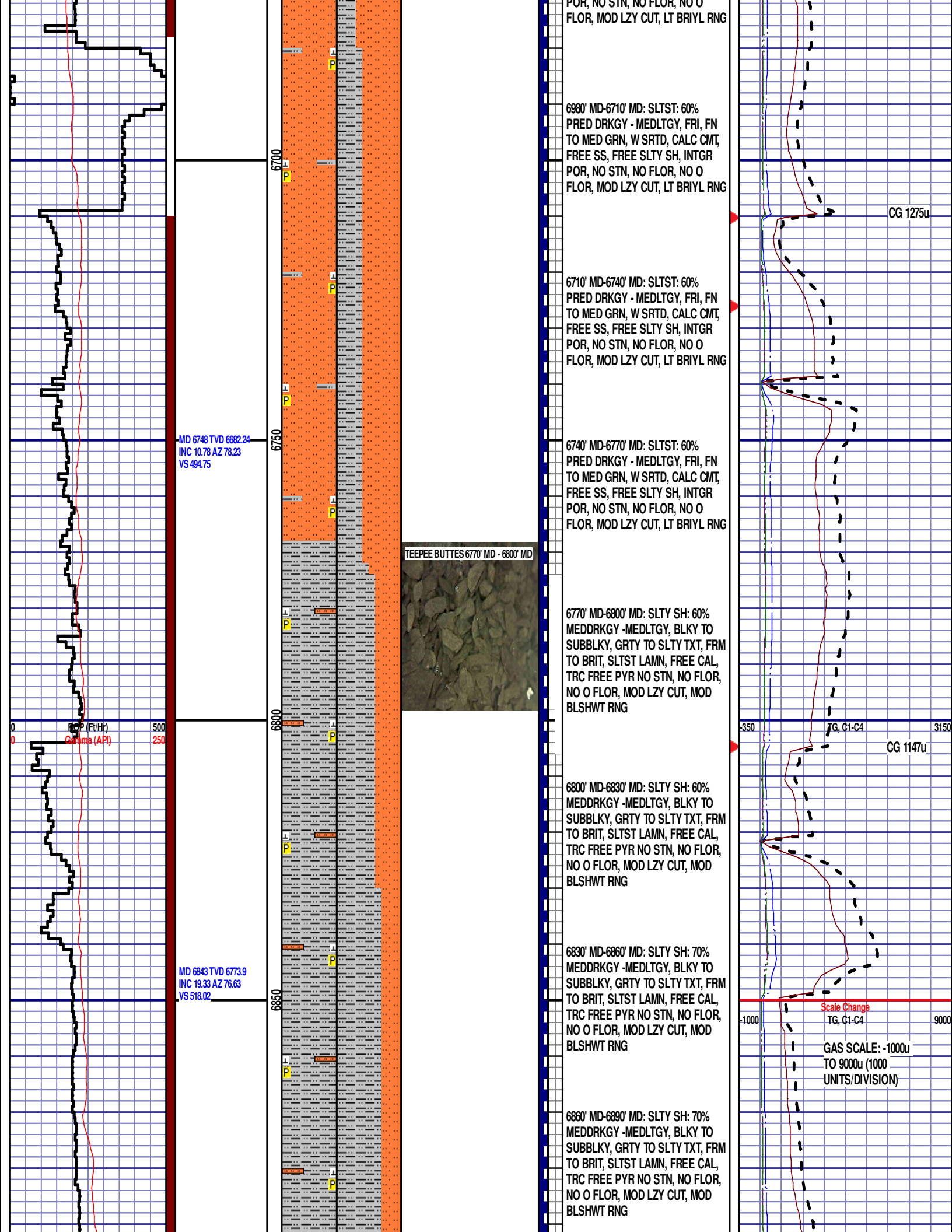
Scale Change
TG, C1-C4
GAS SCALE: -350u
TO 3150u

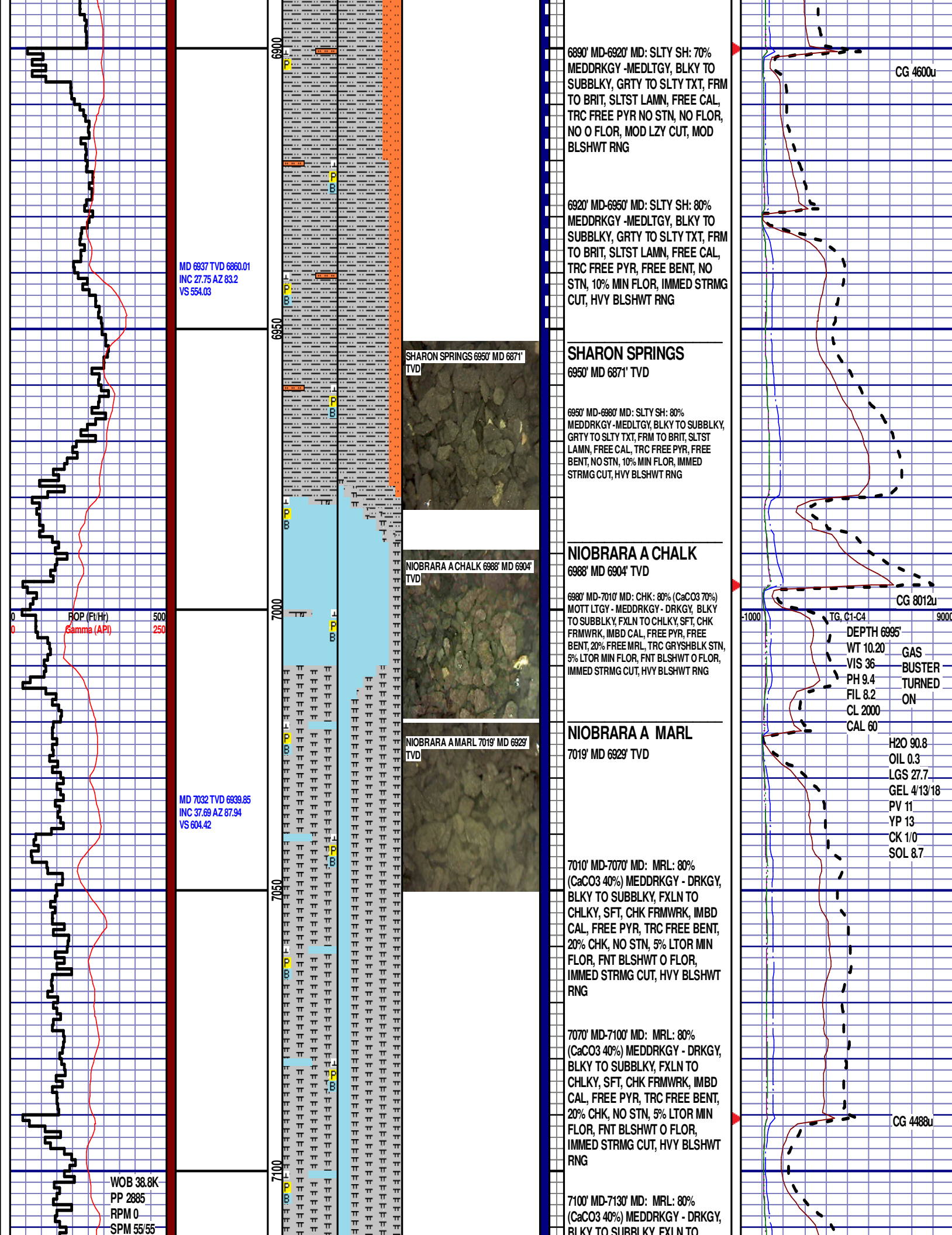
(350 UNITS/DIVISION)

TG, C1-C4 3150

CG 719u

CG 4774u





MD 7126 TVD 7007.97
INC 49.22 AZ 88.58
VS 668.31

WOB 34.5K
PP 2765
RPM 0
SPM 55/55

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

7150

7200

50

NIOBRARA B CHALK 7138' MD 7015'
TVD

NIOBRARA B MARL 7160' MD 7031'
TVD

CHLKY, SFT, CHK FRMWK, IMBD
CAL, FREE PYR, TRC FREE BENT,
20% CHK, NO STN, 5% LTOR MIN
FLOR, FNT BLSHWT O FLOR,
IMMED STRMG CUT, HVY BLSHWT
RNG

NIOBRARA B CHALK

7138' MD 7015' TVD
7130' MD-7160' MD: CHK: 60% (CaCO3 60%)
MOTT LTGY - MEDDRKGY - DRKGY, BLKY
TO SUBBLKY, FXLN TO CHLKY, SFT, CHK
FRMWK, IMBD CAL, FREE PYR, FREE
BENT, 40% FREE MRL, TRC GRYSBLK STN,
10% LTOR MIN FLOR, FNT BLSHWT O FLOR,
IMMED STRMG CUT, HVY BLSHWT RNG

NIOBRARA B MARL

7160' MD 7031' TVD
7160' MD-7190' MD: MRL: 80% (CaCO3 40%)
MEDDRKGY - DRKGY, BLKY TO SUBBLKY,
FXLN TO CHLKY, SFT, CHK FRMWK, IMBD
CAL, FREE PYR, ABDT FREE BENT, 20% CHK,
NO STN, 10% LTOR MIN FLOR, FNT BLSHWT
O FLOR, IMMED STRMG CUT, HVY BLSHWT
RNG

END OF VERTICAL LOG @ 7200' MD
ON 8/09/14, CONTINUED ON
HORIZONTAL LOG

CG 3273u

-1000 TG, C1-C4 9000