



8/19/2014  
DAY 02  
0 FT/24HRS

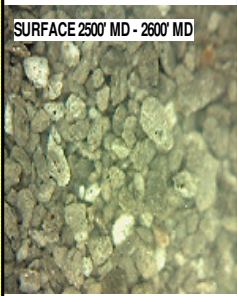
WOB 25.1K  
PP 2946  
RPM 0  
SPM 87/87

MD 2589 TVD 2588.25  
INC 5.84 AZ 57.52  
VS -5.07

MD 2684 TVD 2682.74  
INC 6.04 AZ 46.65  
VS -12.54

ROP (Ft/Hr)  
Gamma (API)

1500  
250



SURFACE 2500' MD - 2600' MD

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

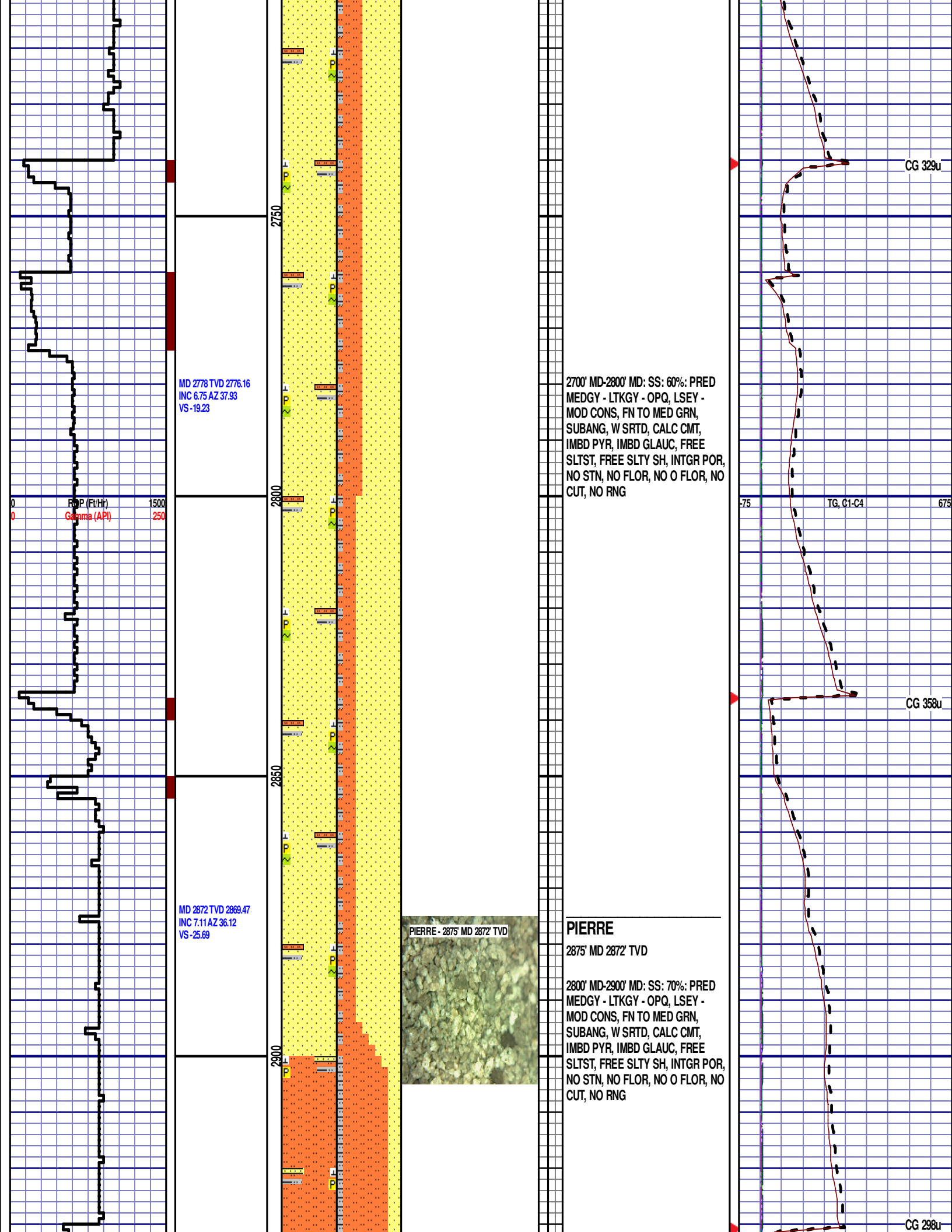
@ 11:00 PM ON 8/19/2014 W/BIT # 2,  
8.75", SMITH, SDI519 (S/N) JJ0514 IN  
@ 687 MD

DEPTH 687  
WT 8.55  
VIS 28  
PH 8.5  
FIL 7.8  
CL 2800  
CAL 260  
H2O 98.5  
OIL 0.0  
LGS 174.3  
GEL 1/2/2  
PV 2  
YP 2  
CK 1/0  
SOL1.2

CG 187u

TG, C1-C4

CG 251u

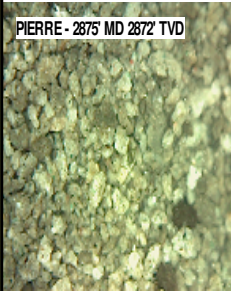


MD 2778 TVD 2776.16  
INC 6.75 AZ 37.93  
VS -19.23

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

MD 2872 TVD 2869.47  
INC 7.11 AZ 36.12  
VS -25.69

PIERRE - 2875' MD 2872' TVD



2700' MD-2800' 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, FREE SLTY SH, INTGR POR,  
NO STN, NO FLOR, NO O FLOR, NO  
CUT, NO RNG

PIERRE

2875' MD 2872' TVD

2800' MD-2900' MD: SS: 70%: 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

CG 329u

TG, C1-C4

CG 358u

CG 298u

ROP SCALE:  
0 TO 1000

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

12:01AM  
8/20/2014  
DAY 03  
2267 FT/24HRS  
WOB 27.9K  
PP 3228  
RPM 60  
SPM 87/87

MD 2967 TVD 2963.79  
INC 6.63 AZ 34.48  
VS -31.9

ROP (Ft/Hr)  
Gamma (API)

MD 3062 TVD 3058.05  
INC 7.7 AZ 28.95  
VS -37.68

2900' MD-3000' 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

3000' MD-3100' 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

75 675  
SG, C1-C4

CG 315u

CG 283u

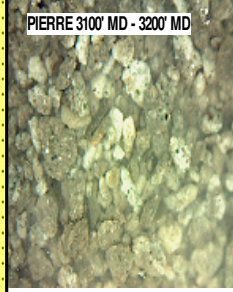
MD 3156 TVD 3151.11  
INC 8.47 AZ 29.49  
VS -43.68

ROP (Ft/Hr)  
Gamma (API)

MD 3251 TVD 3245.18  
INC 7.6 AZ 27.26  
VS -49.54

MD 3346 TVD 3339.32  
INC 7.8 AZ 31.5  
VS -55.35

PIERRE 3100' MD - 3200' MD



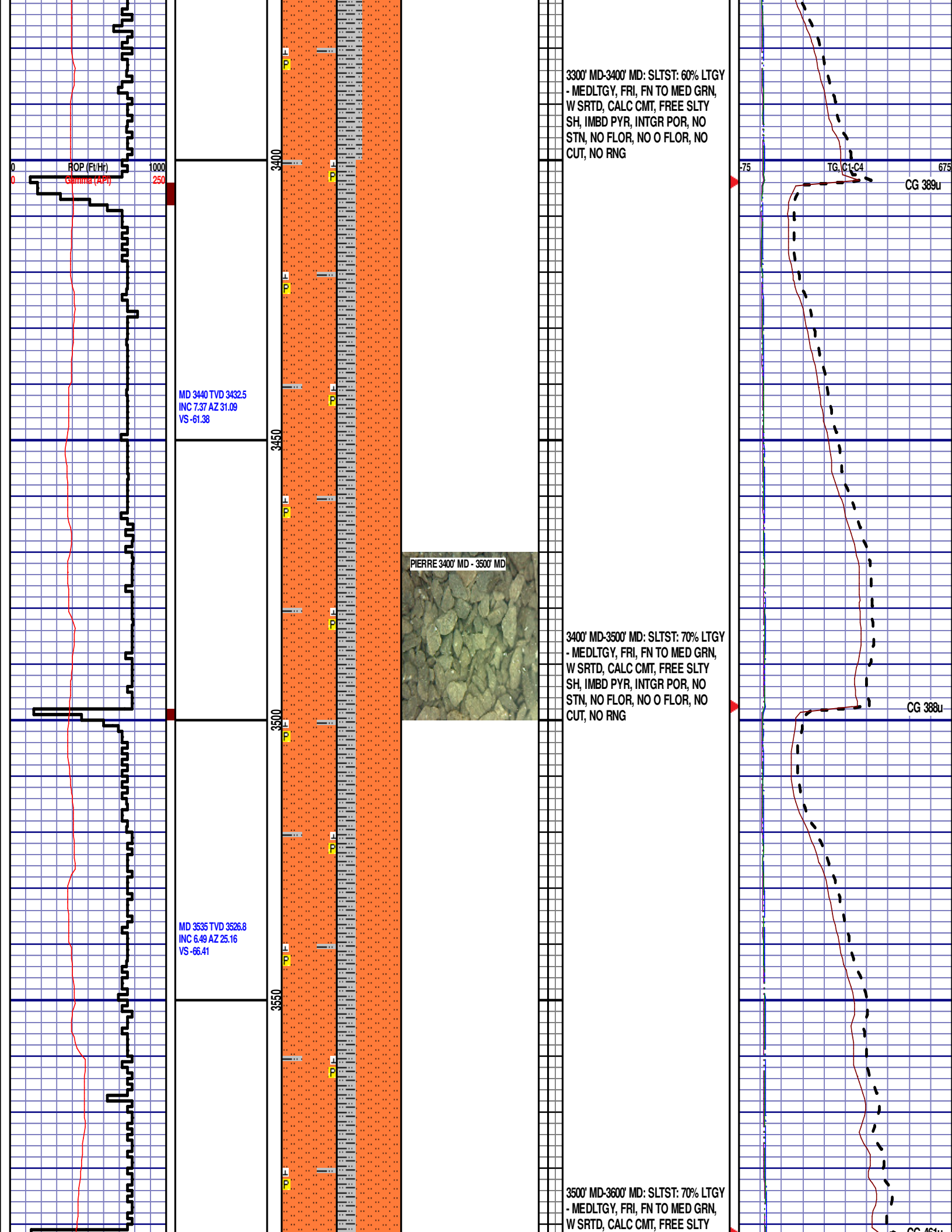
3100' MD-3200' MD: SLTST: 60% LTGY  
- MEDLTGY, FRI, FN TO MED GRN,  
W SRTD, CALC CMT, SANDY, IMBD  
PYR, INTGR POR, NO STN, NO  
FLOR, NO O FLOR, NO CUT, NO  
RNG

3200' MD-3300' MD: SLTST: 60% 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

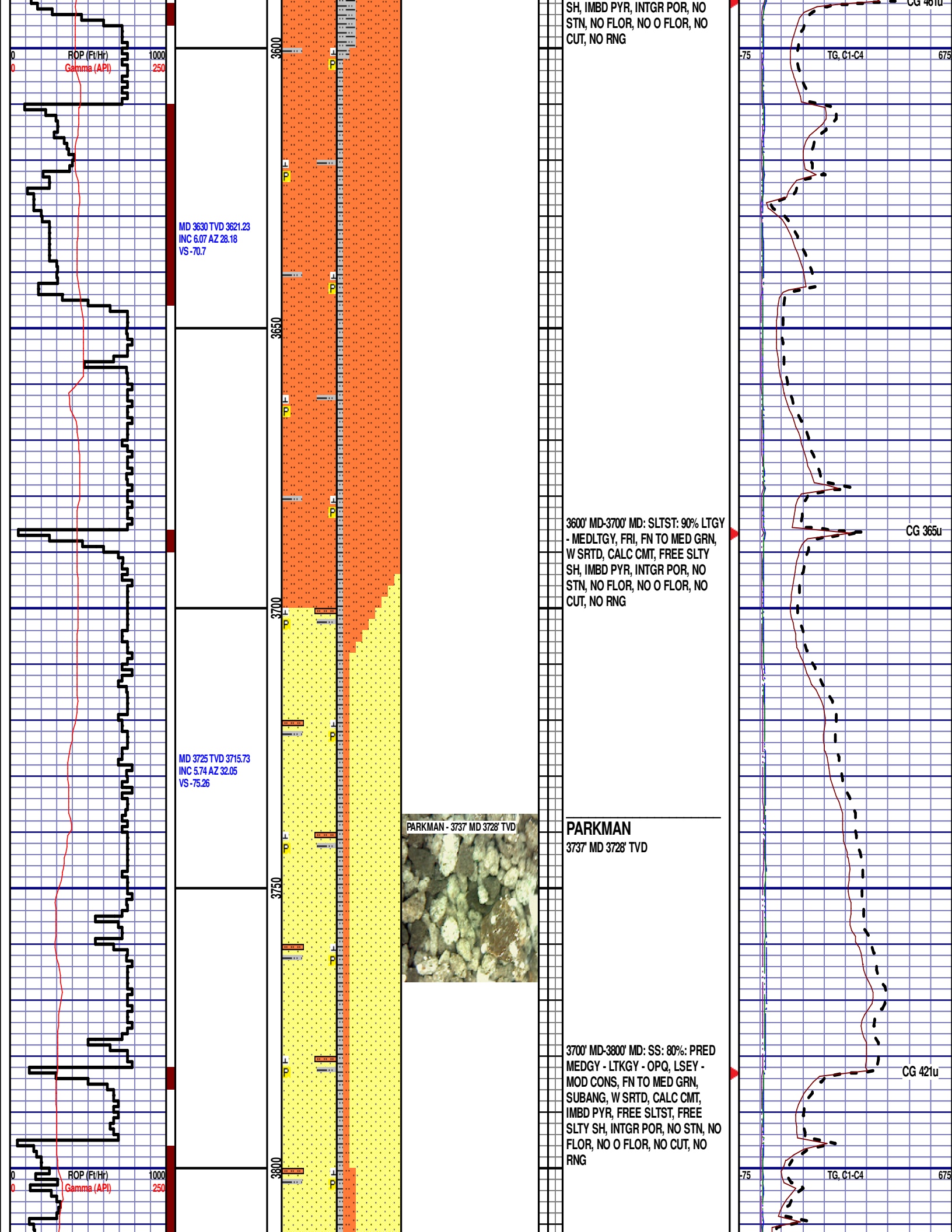
75 TG, C1-C4 675

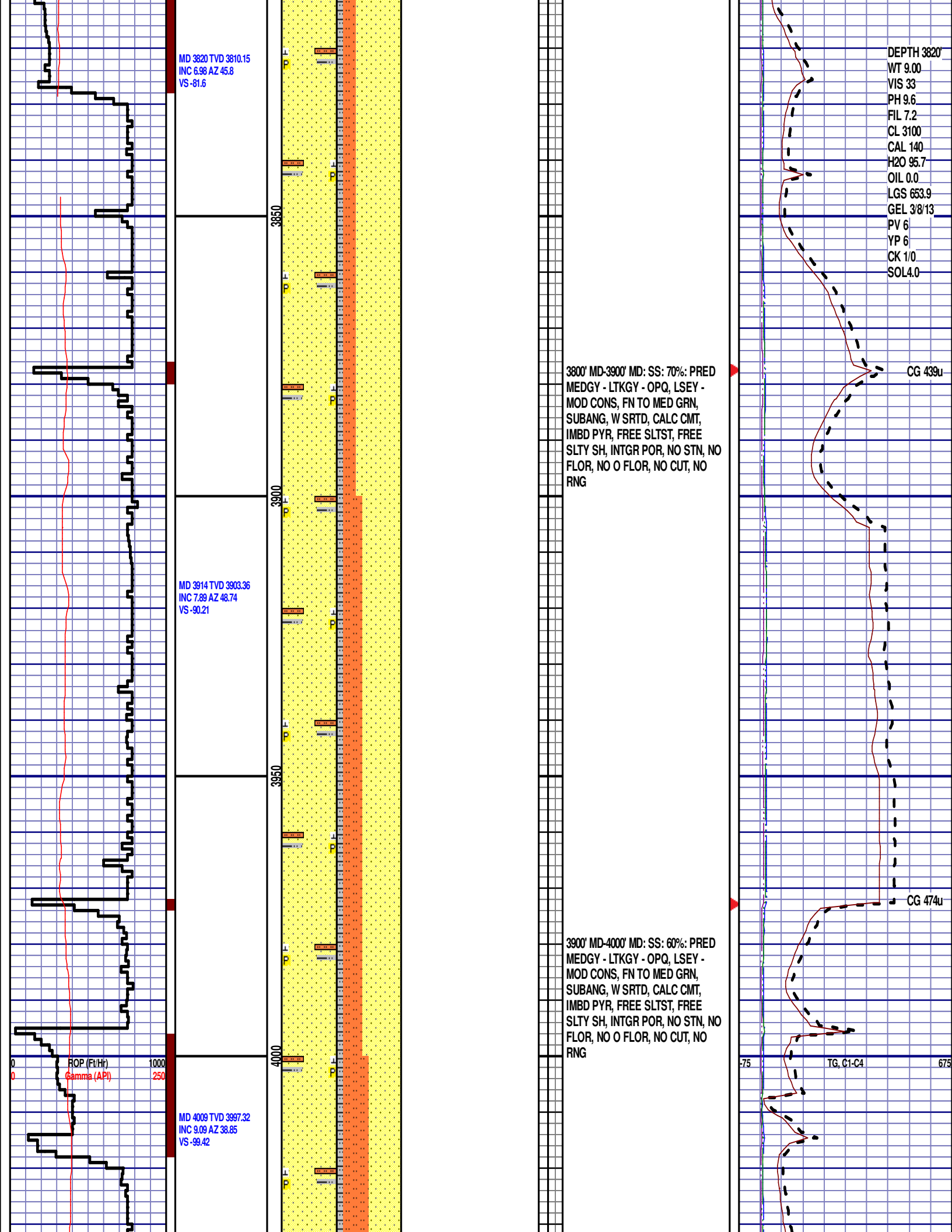
CG 345u

CG 378u

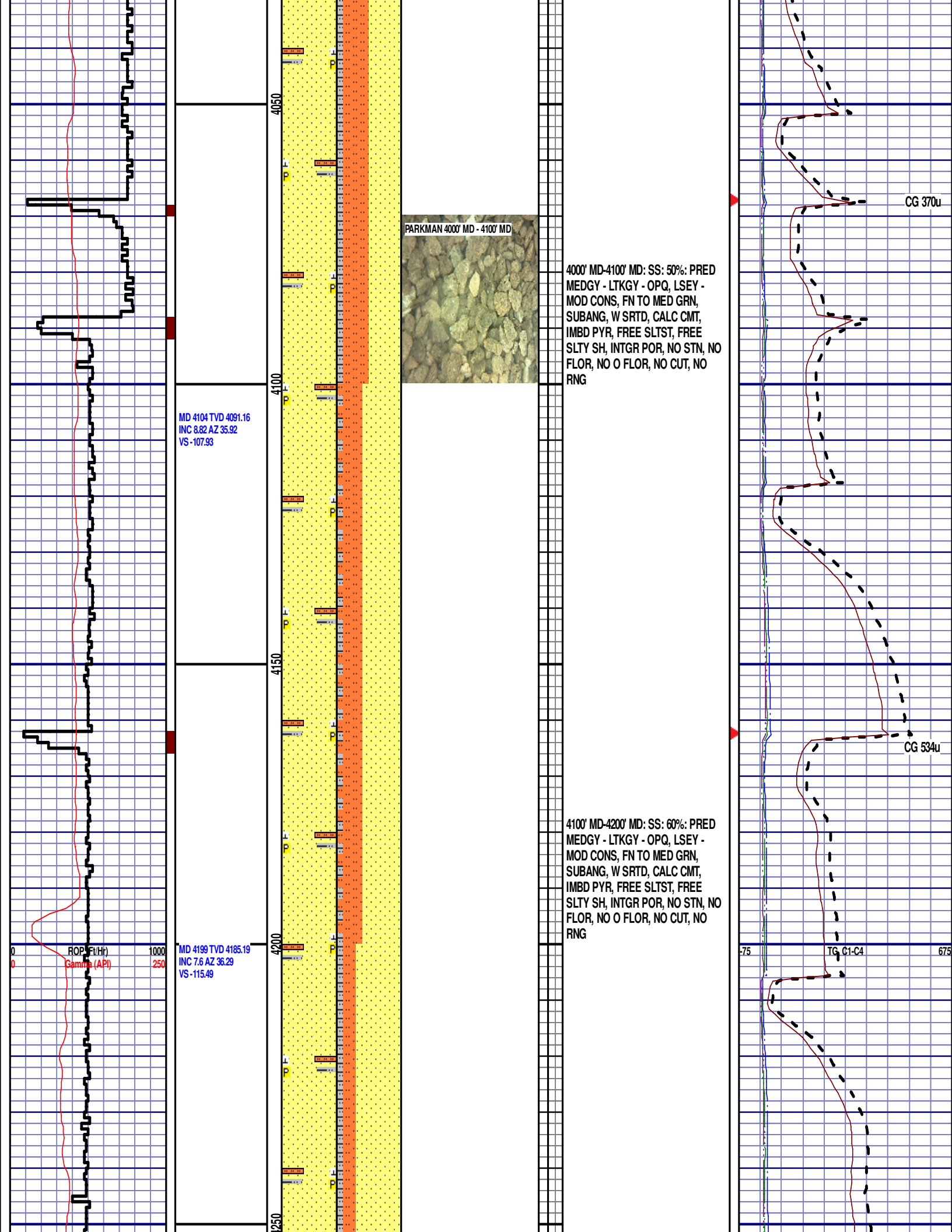


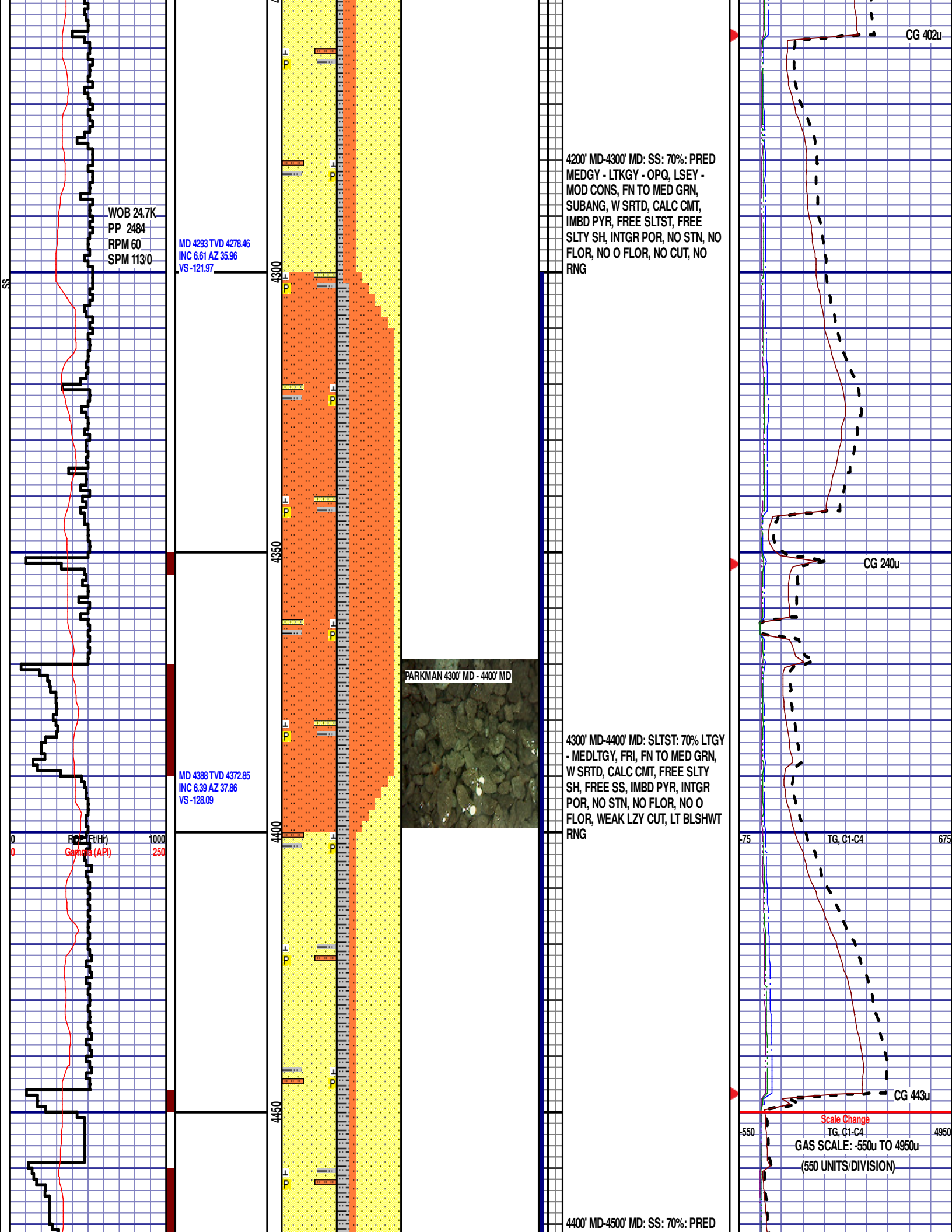


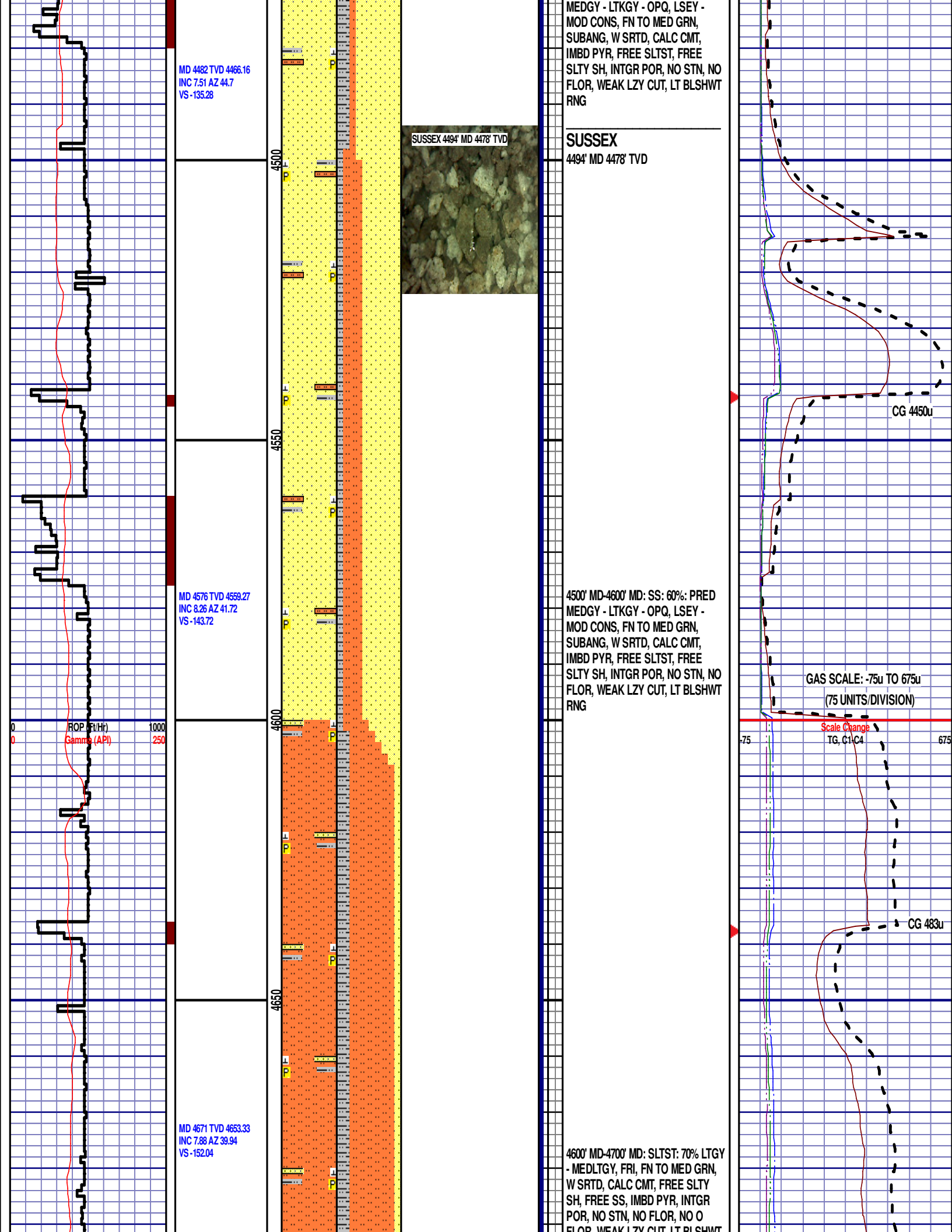


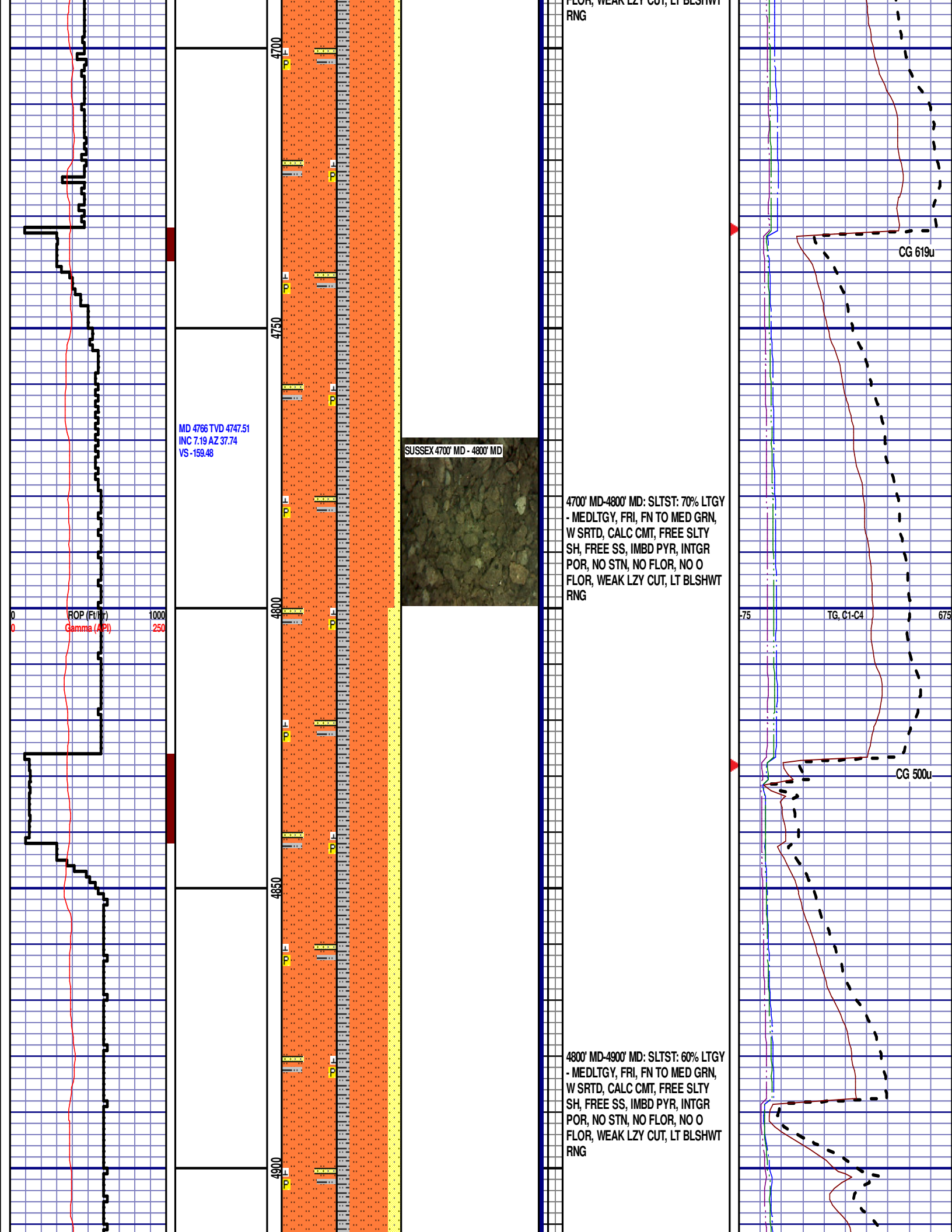


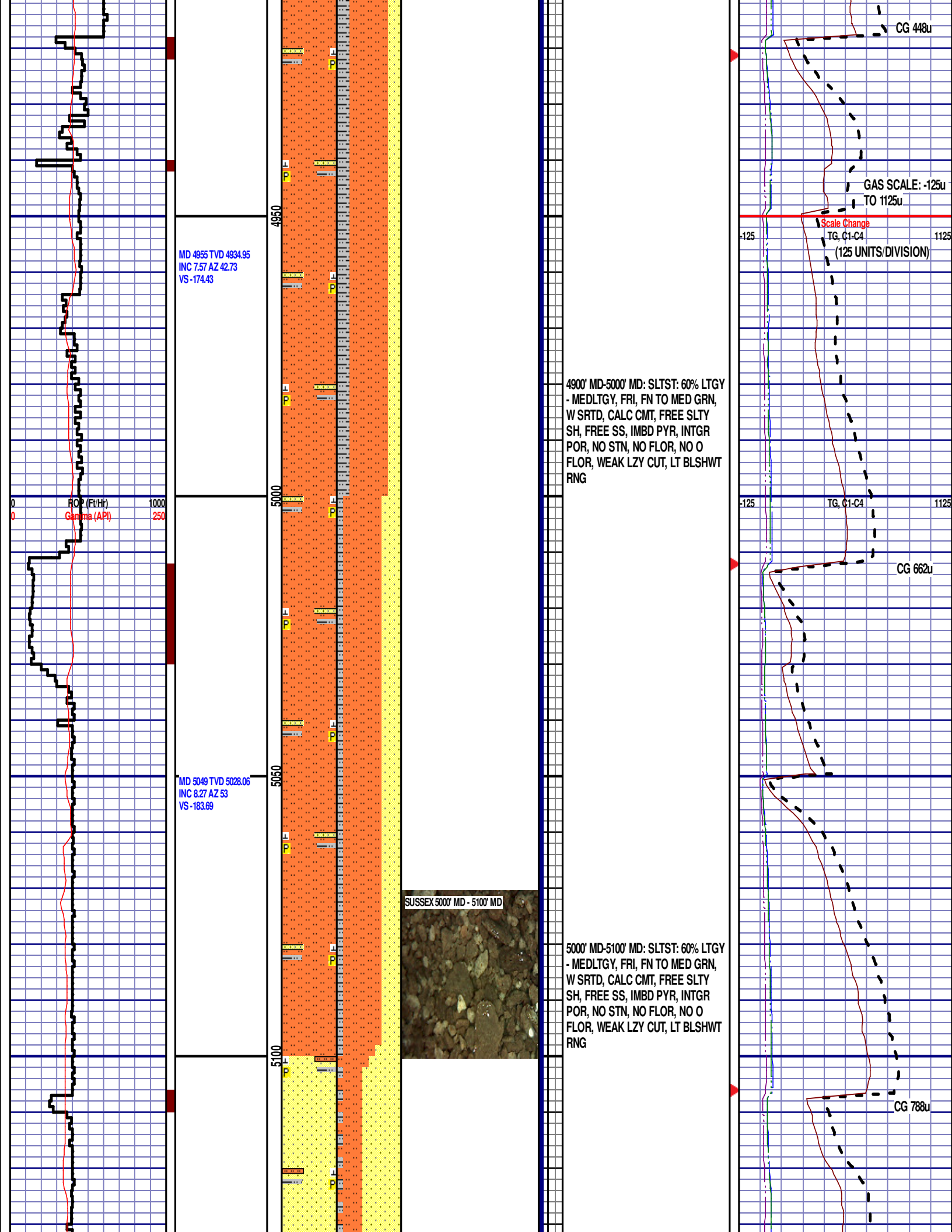














MD 5144 TVD 5122.09  
INC 8.11 AZ 52.03  
VS -194.1

SHANNON - 5149' MD 5126' TVD

SHANNON  
5149' MD 5126' TVD

5100' MD-5200' 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, WEAK LZY CUT, LT BLSHWT  
RNG

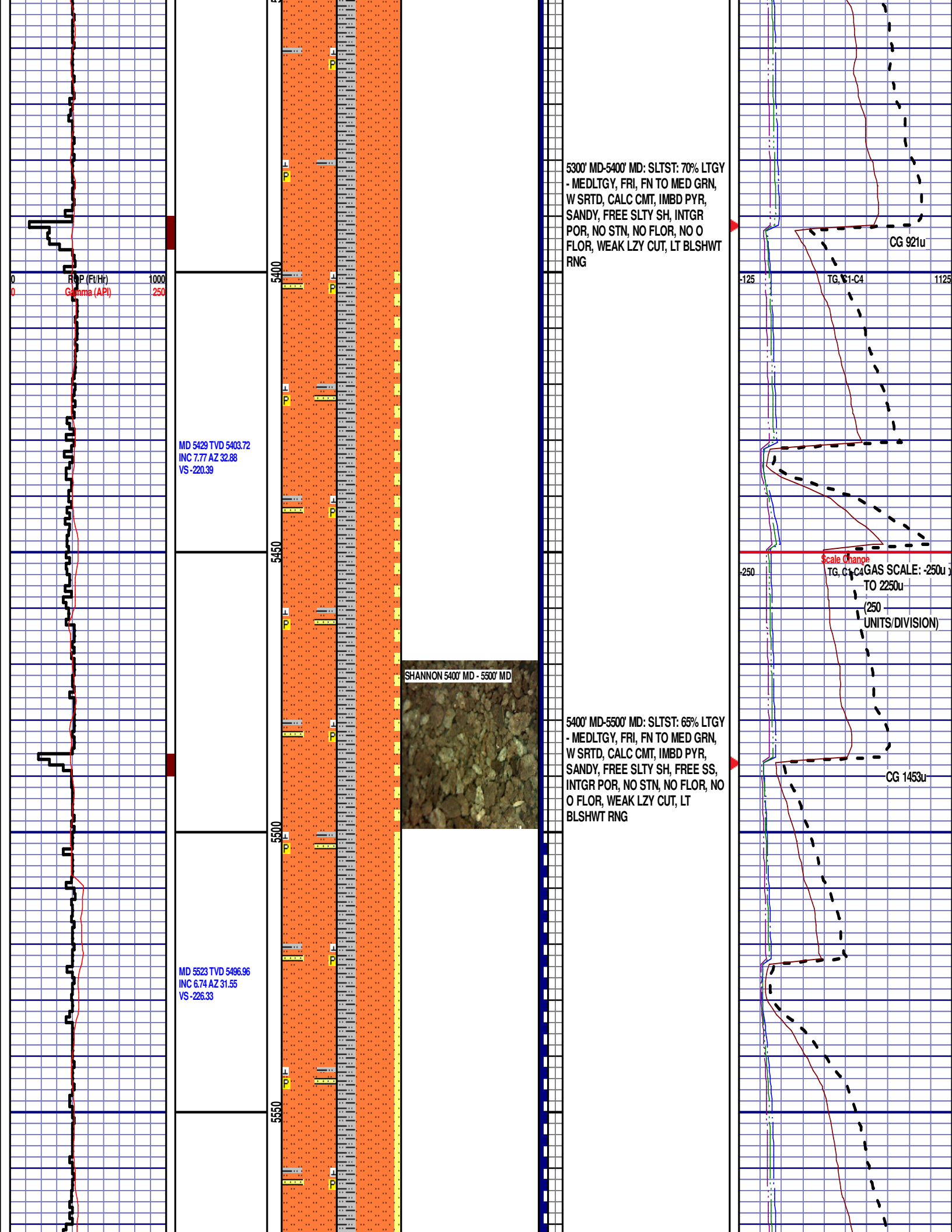
MD 5239 TVD 5215.98  
INC 9.45 AZ 40.33  
VS -204.03

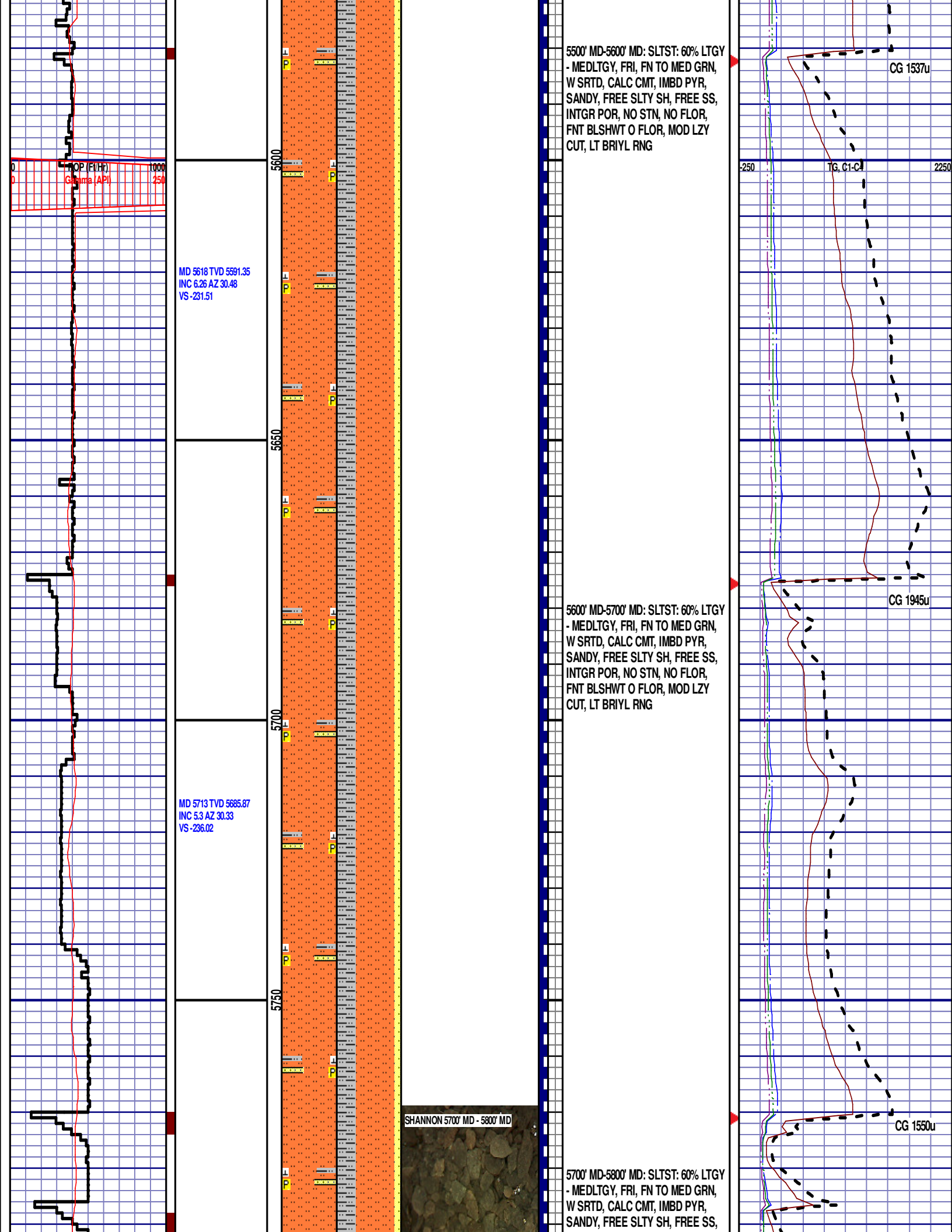
5200' MD-5300' MD: SLTST: 70% LTGY  
- MEDLTGY, FRI, FN TO MED GRN,  
W SRTD, CALC CMT, IMBD PYR,  
SANDY, FREE SLTY SH, INTGR  
POR, NO STN, NO FLOR, NO O  
FLOR, WEAK LZY CUT, LT BLSHWT  
RNG

MD 5334 TVD 5309.74  
INC 9.07 AZ 35.8  
VS -212.98

CG 726u

CG 786u





MD 5618 TVD 5591.35  
INC 6.26 AZ 30.48  
VS -231.51

MD 5713 TVD 5685.87  
INC 5.3 AZ 30.33  
VS -236.02

SHANNON 5700' MD - 5800' MD



5500' MD-5600' MD: SLTST: 60% LTGY  
- MEDLTGY, FRI, FN TO MED GRN,  
W SRTD, CALC CMT, IMBD PYR,  
SANDY, FREE SLTY SH, FREE SS,  
INTGR POR, NO STN, NO FLOR,  
FNT BLSHWT O FLOR, MOD LZ  
CUT, LT BRIYL RNG

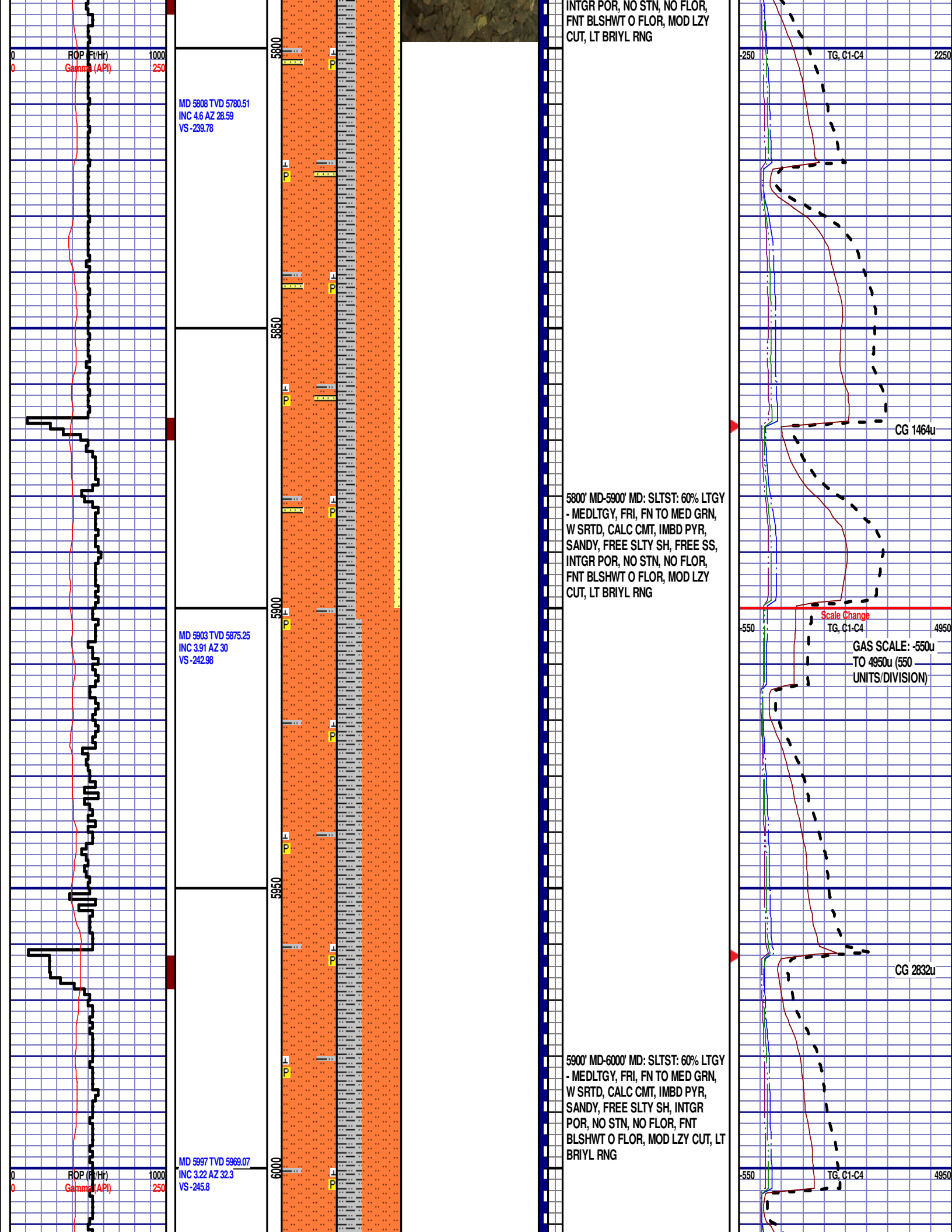
5600' MD-5700' MD: SLTST: 60% LTGY  
- MEDLTGY, FRI, FN TO MED GRN,  
W SRTD, CALC CMT, IMBD PYR,  
SANDY, FREE SLTY SH, FREE SS,  
INTGR POR, NO STN, NO FLOR,  
FNT BLSHWT O FLOR, MOD LZ  
CUT, LT BRIYL RNG

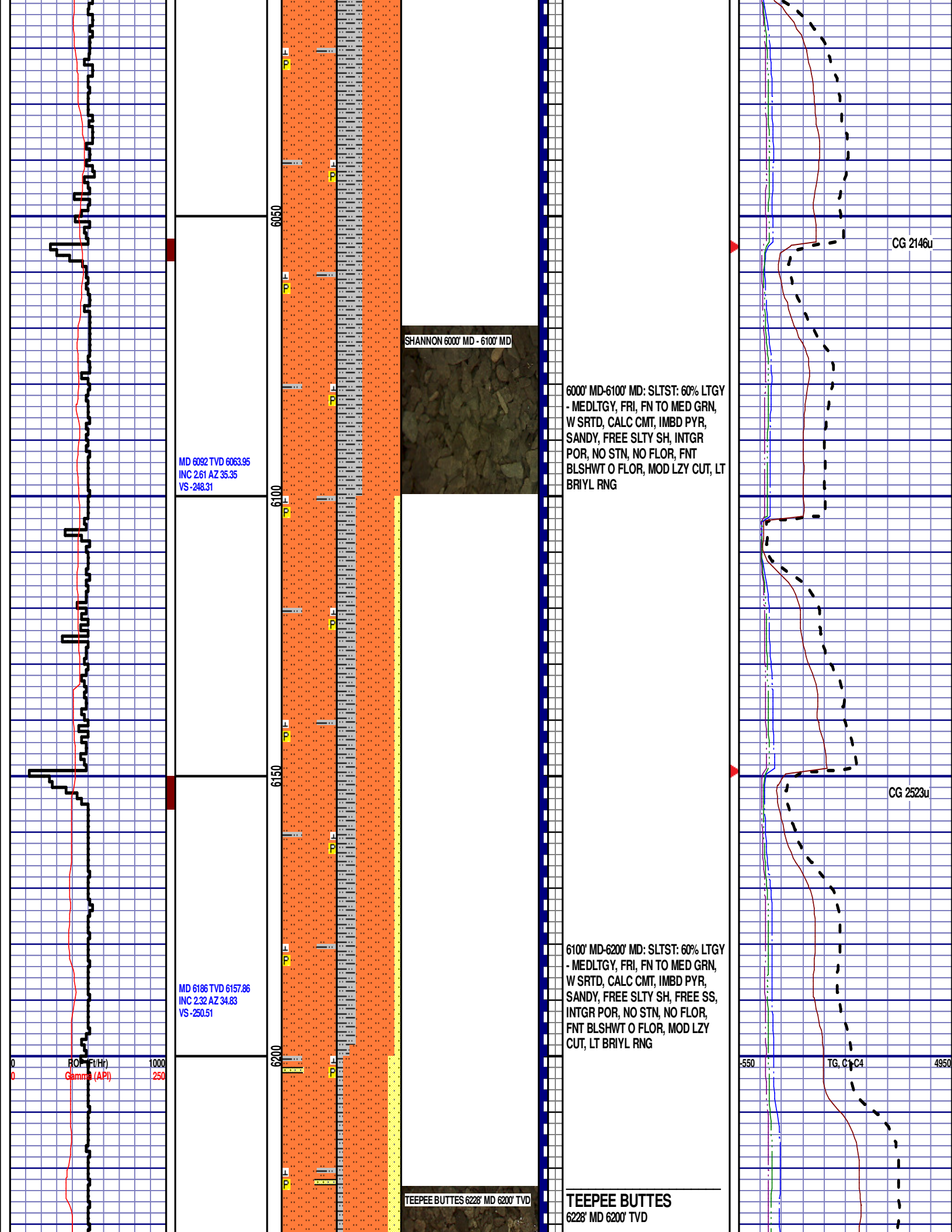
5700' MD-5800' MD: SLTST: 60% LTGY  
- MEDLTGY, FRI, FN TO MED GRN,  
W SRTD, CALC CMT, IMBD PYR,  
SANDY, FREE SLTY SH, FREE SS,

CG 1537u

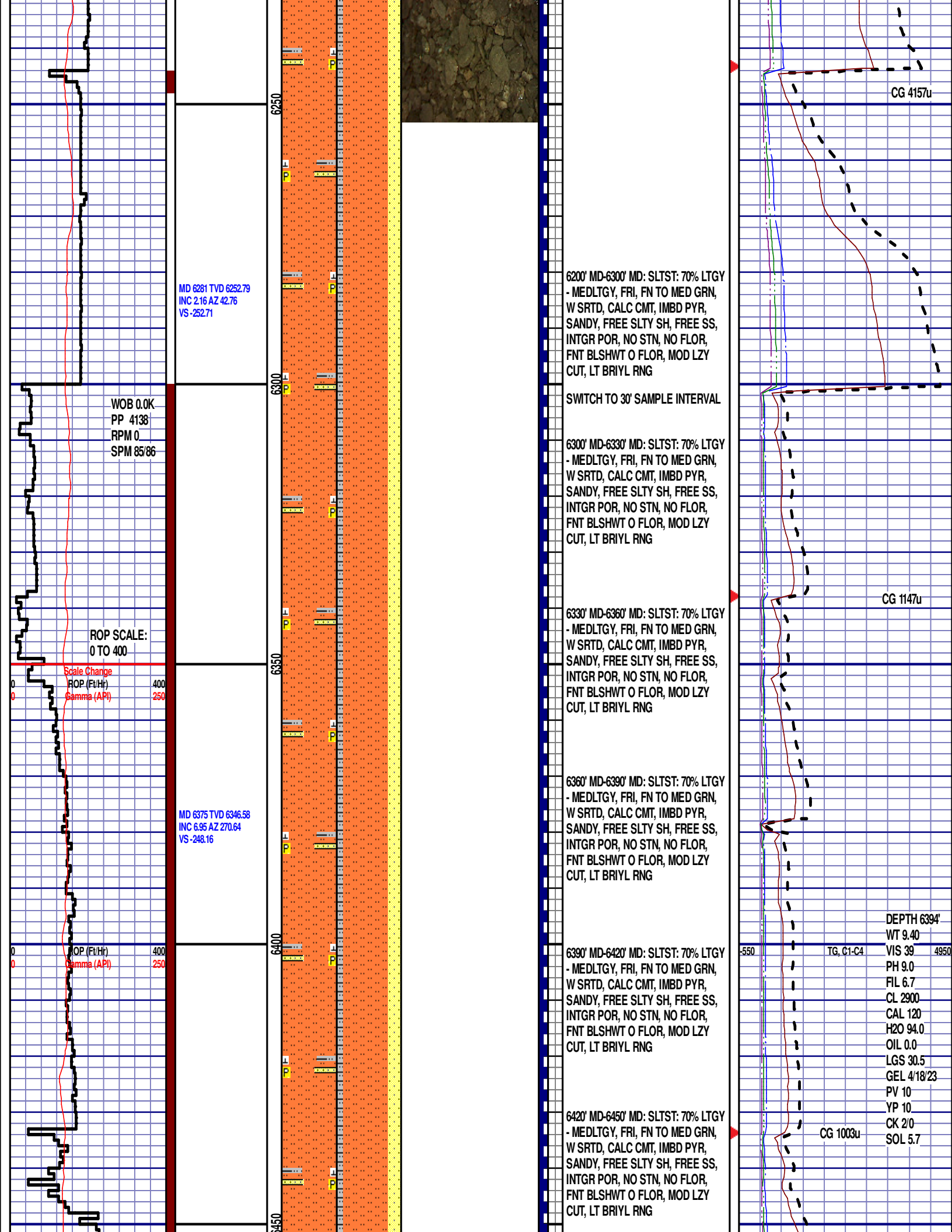
CG 1945u

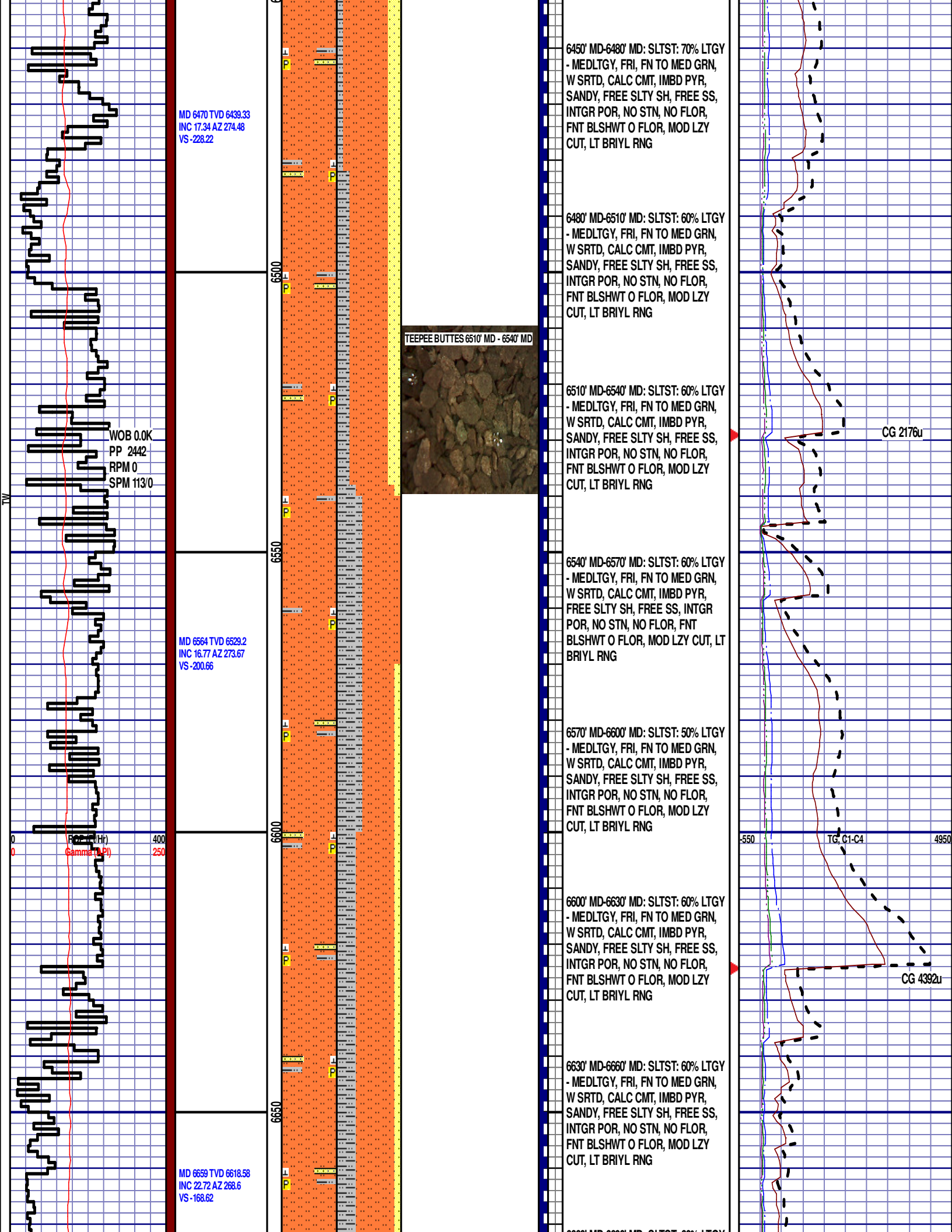
CG 1550u

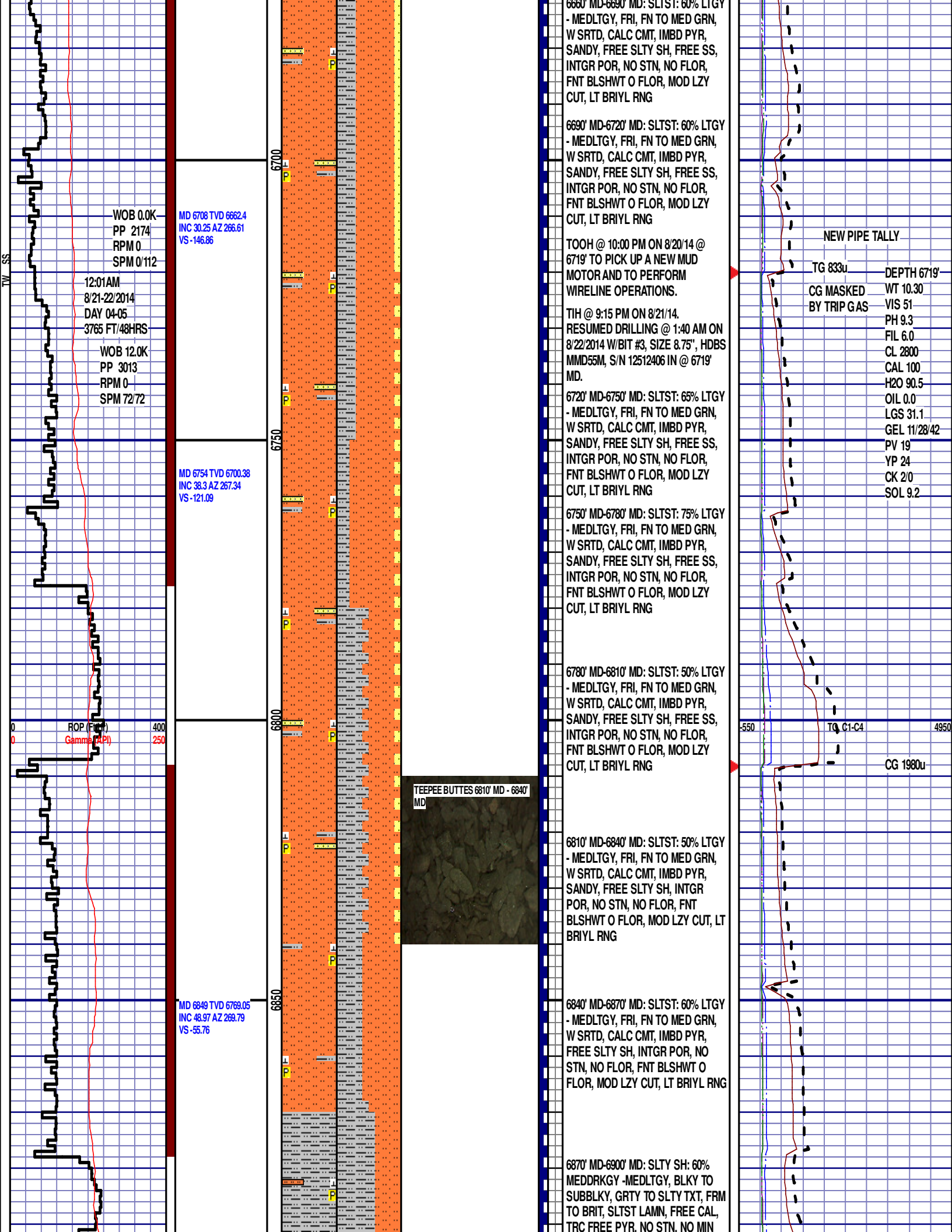












WOB 0.0K  
PP 2174  
RPM 0  
SPM 0/112

MD 6708 TVD 6662.4  
INC 30.25 AZ 266.61  
VS -146.86

12:01AM  
8/21-22/2014  
DAY 04-05  
3765 FT/48HRS

WOB 12.0K  
PP 3013  
RPM 0  
SPM 72/72

MD 6754 TVD 6700.38  
INC 38.3 AZ 267.34  
VS -121.09

ROP (Ft)  
Gamma (API)

400  
250

TEEPEE BUTTES 6810' MD - 6840' MD



MD 6849 TVD 6769.05  
INC 48.97 AZ 269.79  
VS -55.76

6660' MD-6690' MD: SLTST: 60% LTGY  
- MEDLTGY, FRI, FN TO MED GRN,  
W SRTD, CALC CMT, IMBD PYR,  
SANDY, FREE SLTY SH, FREE SS,  
INTGR POR, NO STN, NO FLOR,  
FNT BLSHWT O FLOR, MOD LZ Y  
CUT, LT BRIYL RNG

6690' MD-6720' MD: SLTST: 60% LTGY  
- MEDLTGY, FRI, FN TO MED GRN,  
W SRTD, CALC CMT, IMBD PYR,  
SANDY, FREE SLTY SH, FREE SS,  
INTGR POR, NO STN, NO FLOR,  
FNT BLSHWT O FLOR, MOD LZ Y  
CUT, LT BRIYL RNG

TOOH @ 10:00 PM ON 8/20/14 @  
6719' TO PICK UP A NEW MUD  
MOTOR AND TO PERFORM  
WIRELINE OPERATIONS.

TIH @ 9:15 PM ON 8/21/14.  
RESUMED DRILLING @ 1:40 AM ON  
8/22/2014 W/BIT #3, SIZE 8.75", HDBS  
MMD55M, S/N 12512406 IN @ 6719'  
MD.

6720' MD-6750' MD: SLTST: 65% LTGY  
- MEDLTGY, FRI, FN TO MED GRN,  
W SRTD, CALC CMT, IMBD PYR,  
SANDY, FREE SLTY SH, FREE SS,  
INTGR POR, NO STN, NO FLOR,  
FNT BLSHWT O FLOR, MOD LZ Y  
CUT, LT BRIYL RNG

6750' MD-6780' MD: SLTST: 75% LTGY  
- MEDLTGY, FRI, FN TO MED GRN,  
W SRTD, CALC CMT, IMBD PYR,  
SANDY, FREE SLTY SH, FREE SS,  
INTGR POR, NO STN, NO FLOR,  
FNT BLSHWT O FLOR, MOD LZ Y  
CUT, LT BRIYL RNG

6780' MD-6810' MD: SLTST: 50% LTGY  
- MEDLTGY, FRI, FN TO MED GRN,  
W SRTD, CALC CMT, IMBD PYR,  
SANDY, FREE SLTY SH, FREE SS,  
INTGR POR, NO STN, NO FLOR,  
FNT BLSHWT O FLOR, MOD LZ Y  
CUT, LT BRIYL RNG

6810' MD-6840' MD: SLTST: 50% LTGY  
- MEDLTGY, FRI, FN TO MED GRN,  
W SRTD, CALC CMT, IMBD PYR,  
SANDY, FREE SLTY SH, INTGR  
POR, NO STN, NO FLOR, FNT  
BLSHWT O FLOR, MOD LZ Y CUT, LT  
BRIYL RNG

6840' MD-6870' MD: SLTST: 60% LTGY  
- MEDLTGY, FRI, FN TO MED GRN,  
W SRTD, CALC CMT, IMBD PYR,  
FREE SLTY SH, INTGR POR, NO  
STN, NO FLOR, FNT BLSHWT O  
FLOR, MOD LZ Y CUT, LT BRIYL RNG

6870' MD-6900' MD: SLTY SH: 60%  
MEDDRKGY -MEDLTGY, BLKY TO  
SUBBLKY, GRTY TO SLTY TXT, FRM  
TO BRIT, SLTST LAMN, FREE CAL,  
TRC FREE PYR, NO STN, NO MIN

NEW PIPE TALLY

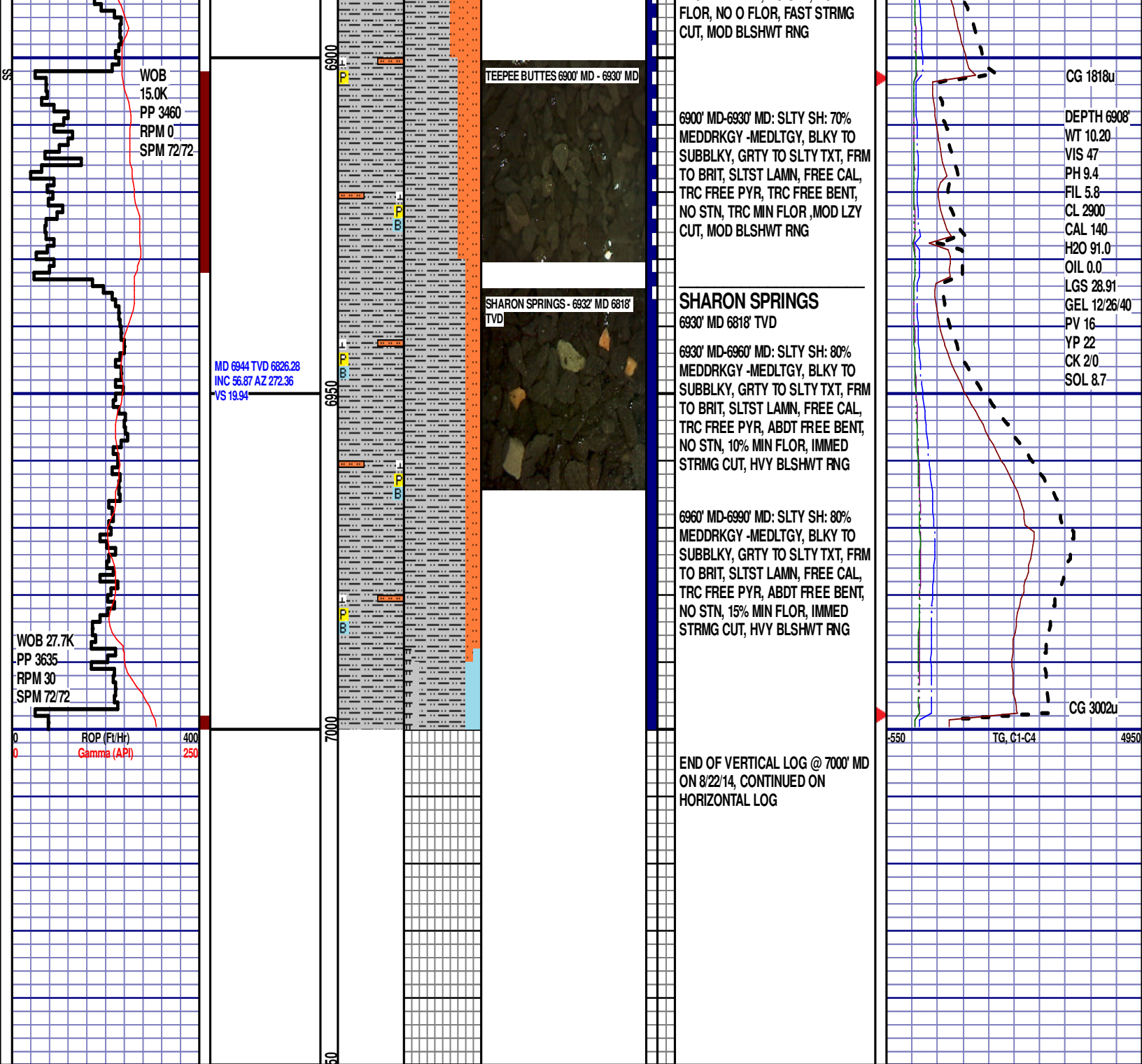
TG 833u	DEPTH 6719'
CG MASKED	WT 10.30
BY TRIP GAS	VIS 51
	PH 9.3
	FIL 6.0
	CL 2800
	CAL 100
	H2O 90.5
	OIL 0.0
	LGS 31.1
	GEL 11/28/42
	PV 19
	YP 24
	CK 2/0
	SOL 9.2

550

TG C1-C4

4950

CG 1980u



WOB  
15.0K  
PP 3460  
RPM 0  
SPM 72/72

MD 6944 TVD 6826.28  
INC 56.87 AZ 272.36  
VS 19.94

WOB 27.7K  
PP 3635  
RPM 30  
SPM 72/72

ROP (Ft/Hr)  
Gamma (API)

TEEPEE BUTTES 6900' MD - 6930' MD

SHARON SPRINGS - 6932' MD 6818' TVD

FLOR, NO O FLOR, FAST STRMG CUT, MOD BLSHWT RNG

6900' MD-6930' MD: SLTY SH: 70% MEDDRKGY -MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, SLTST LAMN, FREE CAL, TRC FREE PYR, TRC FREE BENT, NO STN, TRC MIN FLOR, MOD LZ CUT, MOD BLSHWT RNG

### SHARON SPRINGS

6930' MD 6818' TVD

6930' MD-6960' MD: SLTY SH: 80% MEDDRKGY -MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, SLTST LAMN, FREE CAL, TRC FREE PYR, ABDT FREE BENT, NO STN, 10% MIN FLOR, IMMED STRMG CUT, HVY BLSHWT RNG

6960' MD-6990' MD: SLTY SH: 80% MEDDRKGY -MEDLTGY, BLKY TO SUBBLKY, GRTY TO SLTY TXT, FRM TO BRIT, SLTST LAMN, FREE CAL, TRC FREE PYR, ABDT FREE BENT, NO STN, 15% MIN FLOR, IMMED STRMG CUT, HVY BLSHWT RNG

END OF VERTICAL LOG @ 7000' MD  
ON 8/22/14, CONTINUED ON  
HORIZONTAL LOG

CG 1818u

DEPTH 6908'  
WT 10.20  
VIS 47  
PH 9.4  
FIL 5.8  
CL 2900  
CAL 140  
H2O 91.0  
OIL 0.0  
LGS 28.91  
GEL 12/26/40  
PV 16  
YP 22  
CK 2/0  
SOL 8.7

CG 3002u

TG, C1-C4