



7136 South Yale Avenue, Suite 414

Tulsa, Oklahoma 74136-6378

phone 918.925.9739

fax 866.534.4559

WWW.HZMUD.COM

Customer Information

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

Geologist: Renee Clackler
Noble Energy Inc.

Mud Logging Details

Logger: Sam Stelzer &
Scott Haney
Log Interval: 2500' MD to 6050' MD
Start Date: May 4, 2015
Release Date: May 9, 2015

Well Information

Well Name: Kevin LC26-748

Location: 26-T9N-R59W
460' FSL, 1806' FEL

County: Weld
State: Colorado

Drilling Rig: H&P 321
Total Depth: 10745' MD
TD Date: May 9, 2015
Formation: Niobrara A Marl
KB Elevation: 4875'
GR Elevation: 4845'
API Number: 05-123-40684-0000

ROCK TYPES

Siltysh
 Anhy
 Bent
 Brec
 Cht
 Clyst
 Coal

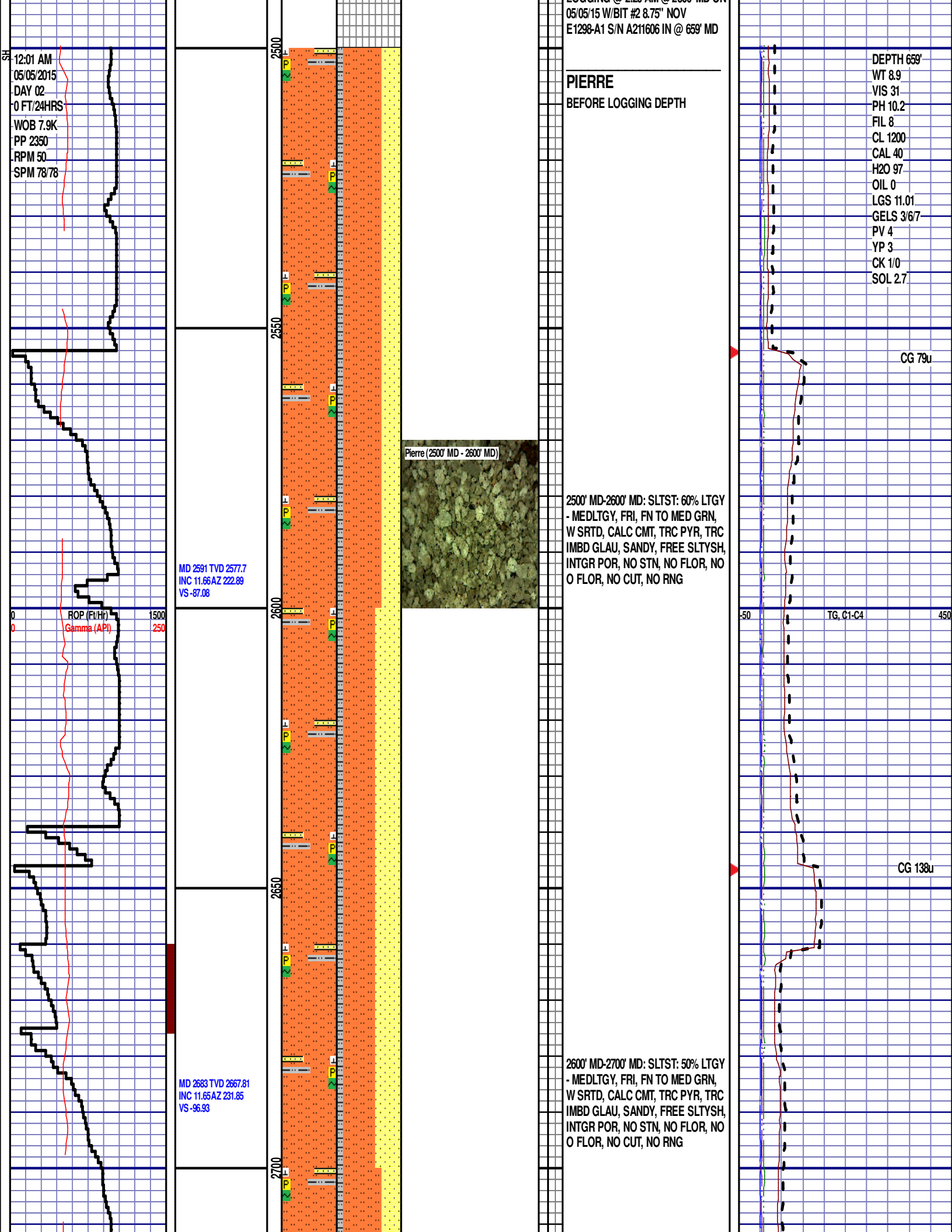
Congl
 Dol
 Gyp
 Igne
 Lmst
 Meta
 Chk

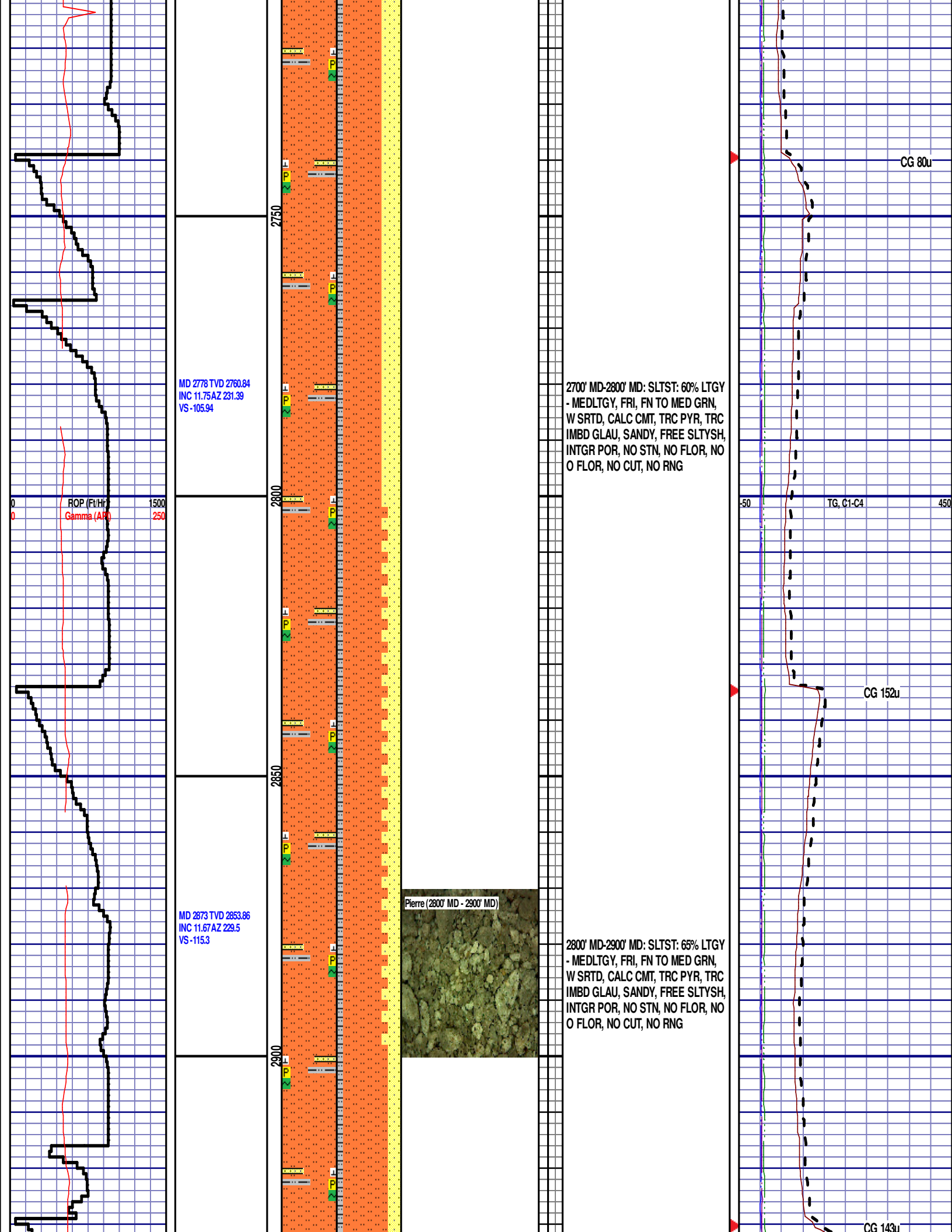
Mrlst
 Salt
 Shale
 Shcol
 Shgy
 Sltst
 Ss

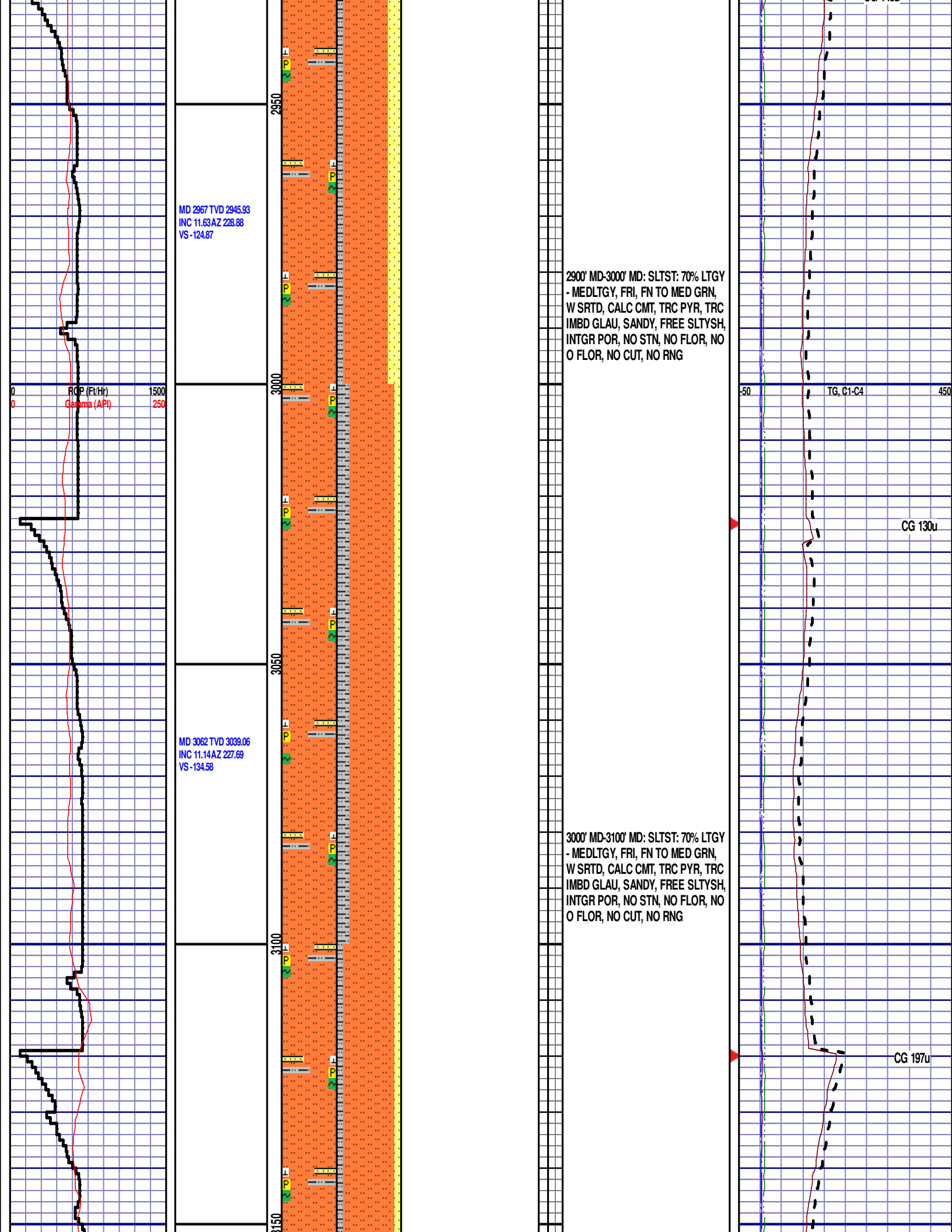
Till
 gw
 lmywash
 ogw
 olmywash
 oshly gw
 shly gw

sdylgw
 hvycrbsh
 NO SMPL
 Lsdetrst
 sltst
 sdy sh

LOGGING ON SHIFT	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	Connections
	ROP (Ft/Hr) Gamma (API)	1500 250		24					NOBLE ENERGY INC. KEVIN LC26-748 26-T9N-R59W 460' FSL, 1806' FEL WELD CO., CO	50	TG, C1-C4	450
	SLIDE-RED ROTATE-WHITE								H&P 321 LOGGERS: SAM STELZER SCOTT HANEY			
	ROP SCALE: 0 TO 1500 (FT/HR)								CONNECTIONS ARE MARKED WITH RED TRIANGLES			
	GAMMA SCALE: 0 TO 250 (GAMMA DATA AS RECEIVED)								GAS SCALE: 50u TO 450u (50 UNITS/DIVISION)			
									DRILLING ON WATER-BASED MUD			







MD 3157 TVD 3132.39
INC 10.36 AZ 224.86
VS -144.27

ROF (Ft/Hr)
Gamma (API)

1500
250

MD 3251 TVD 3224.89
INC 10.16 AZ 224.55
VS -153.82

WOB 5.7K
PP 2441
RPM 51
SPM 78/78

MD 3346 TVD 3318.25
INC 11.2 AZ 232.91
VS -162.75

Pierre (3100' MD - 3200' MD)



3100' MD-3200' MD: SLTST: 80% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, TRC PYR, TRC
IMBD GLAU, SANDY, FREE SLTYSH,
INTGR POR, NO STN, NO FLOR, NO
O FLOR, NO CUT, NO RNG

3200' MD-3300' MD: SLTST: 50% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, TRC PYR, TRC
IMBD GLAU, SANDY, FREE SLTYSH,
INTGR POR, NO STN, NO FLOR, NO
O FLOR, NO CUT, NO RNG

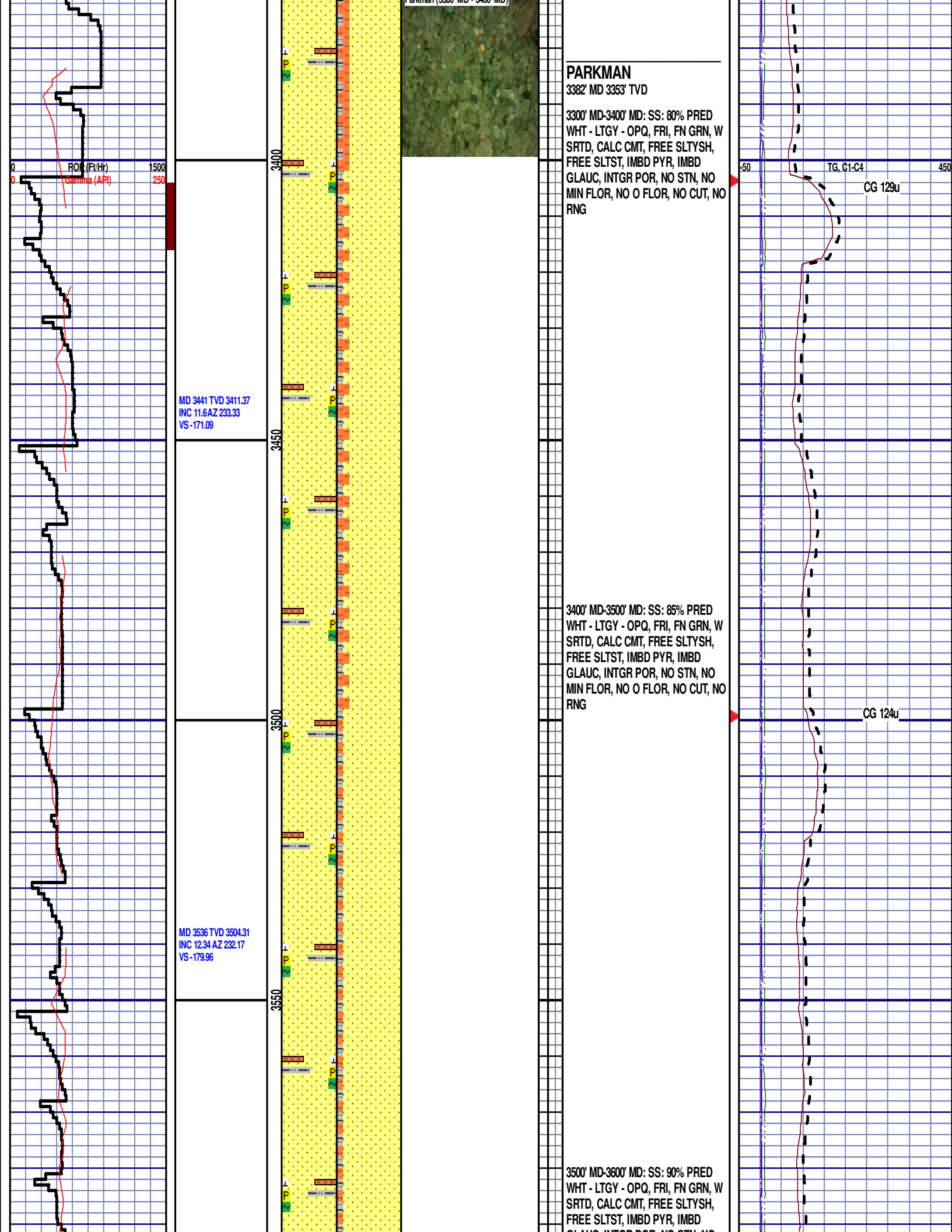
-50

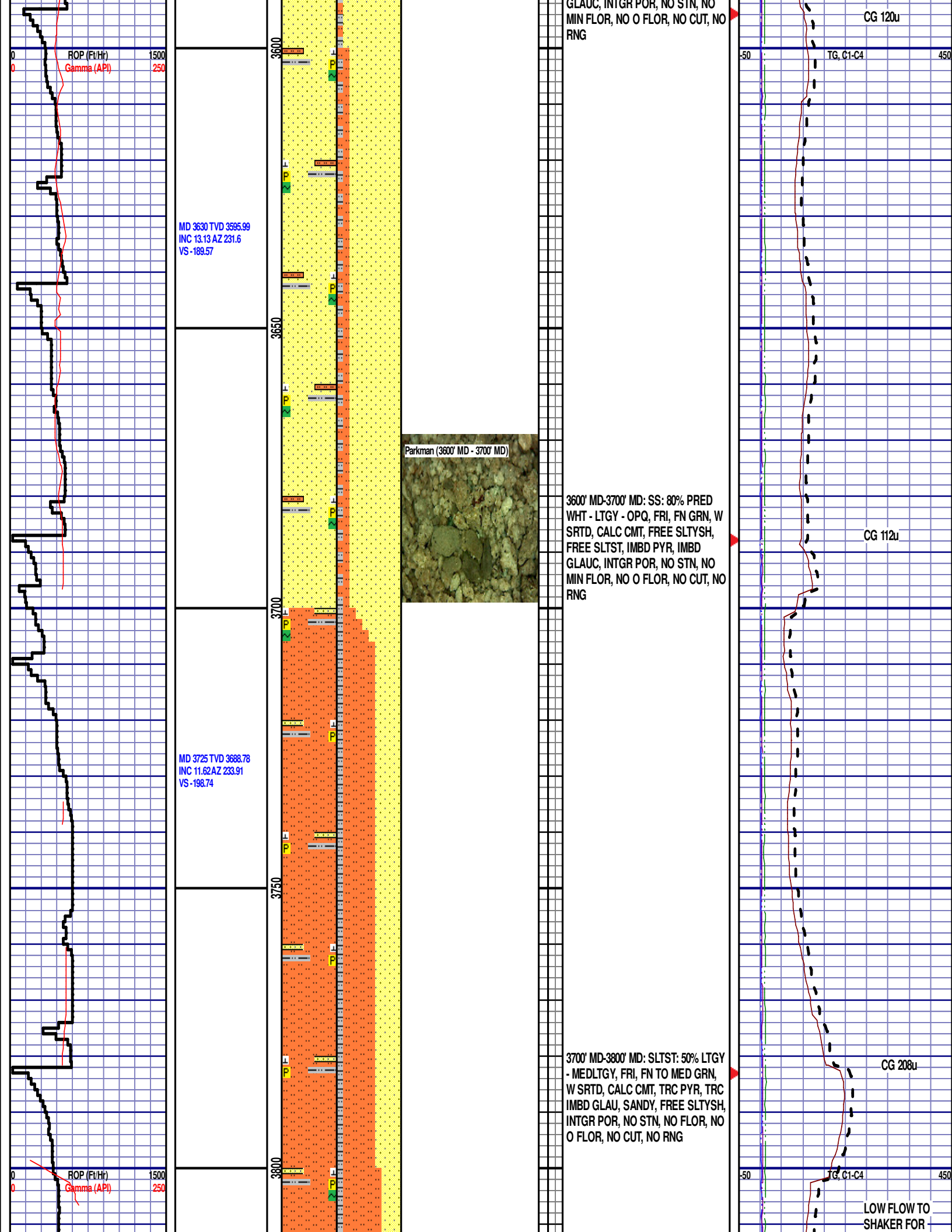
IG, C1-C4

CG 190u

CG 186u

Darkeon (3300' MD - 3400' MD)





MD 3819 TVD 3780.86
INC 11.6 AZ 233.86
VS -206.92

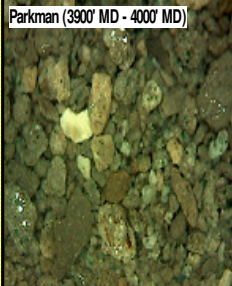
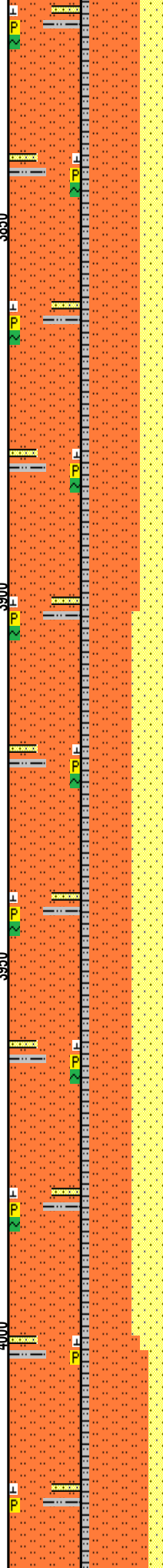
MD 4008 TVD 3965.83
INC 12.1 AZ 237.31
VS -222.62

3850

3900

3950

4000



3800' MD-3900' MD: SLTST: 60% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, TRC PYR, TRC
IMBD GLAU, SANDY, FREE SLTYSH,
INTGR POR, NO STN, NO FLOR, NO
O FLOR, NO CUT, NO RNG

3900' MD-4000' MD: SLTST: 50% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, TRC PYR, TRC
IMBD GLAU, SANDY, FREE SLTYSH,
INTGR POR, NO STN, NO FLOR, NO
O FLOR, NO CUT, NO RNG

MAINTENANCE

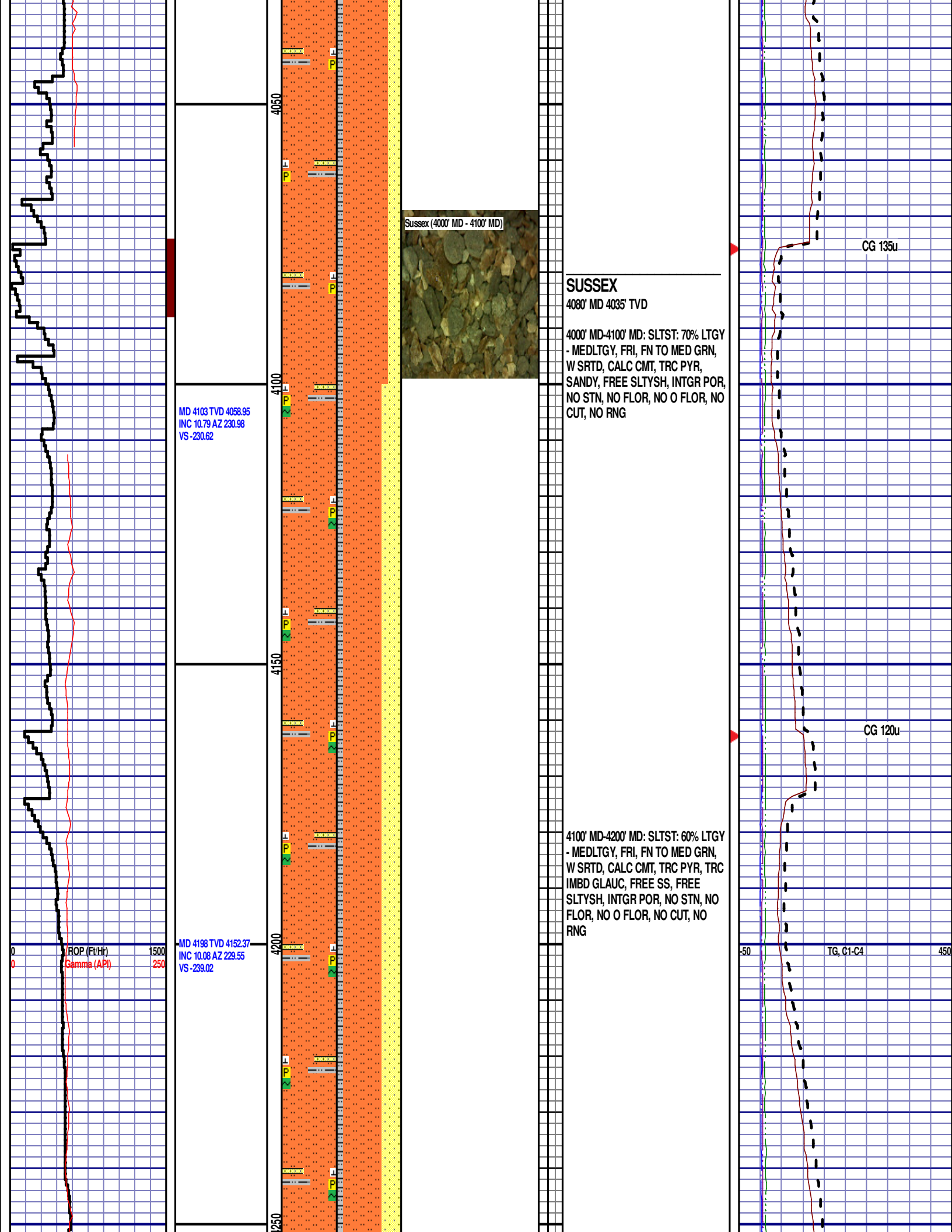
DEPTH 3860'
WT 9
VIS 30
PH 8.9
FIL 22
CL 1200
CAL 140
H2O 96.5
OIL 0
LGS 13.33
GELS 2/5/6
PV 2
YP 3
CK 1/0
SOL 3.2

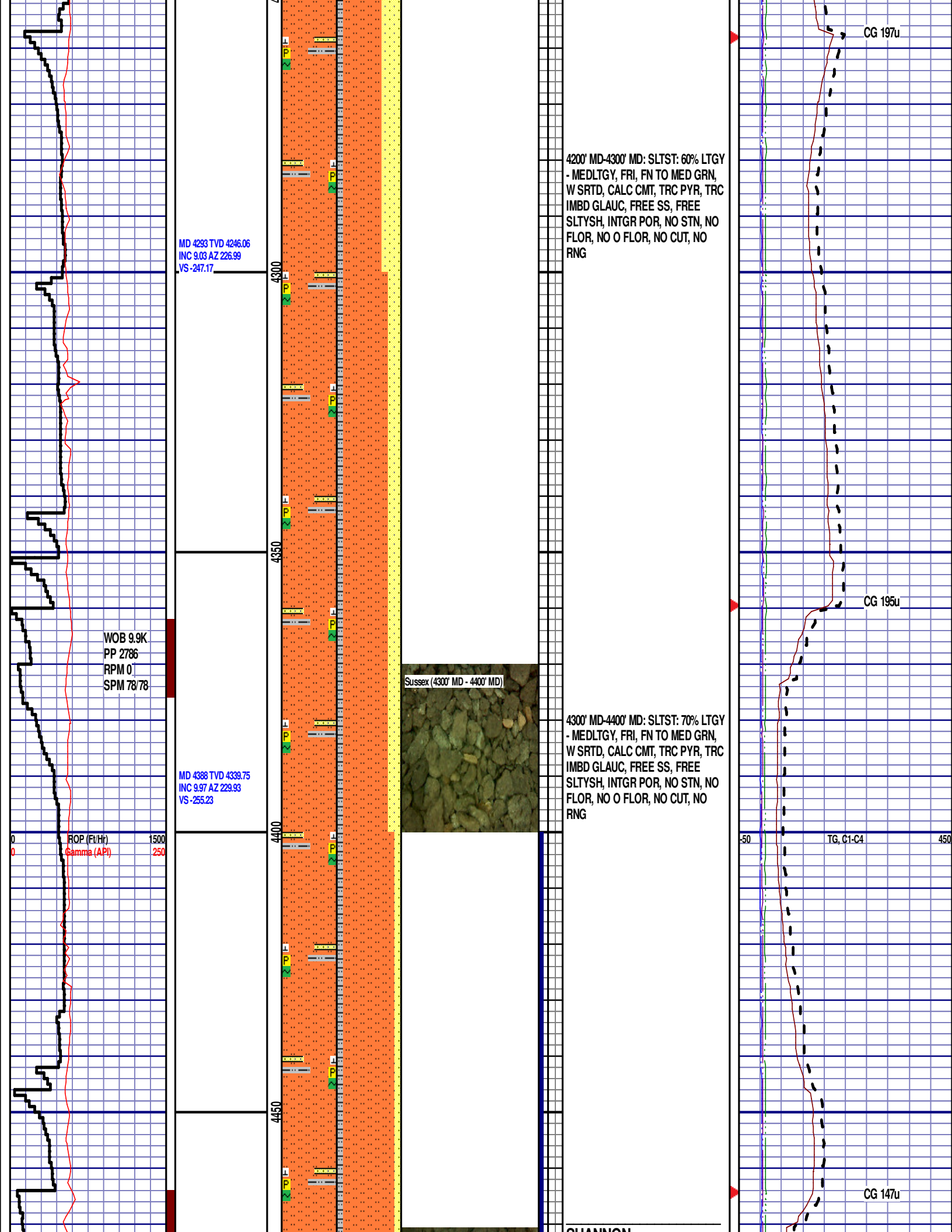
CG 68u

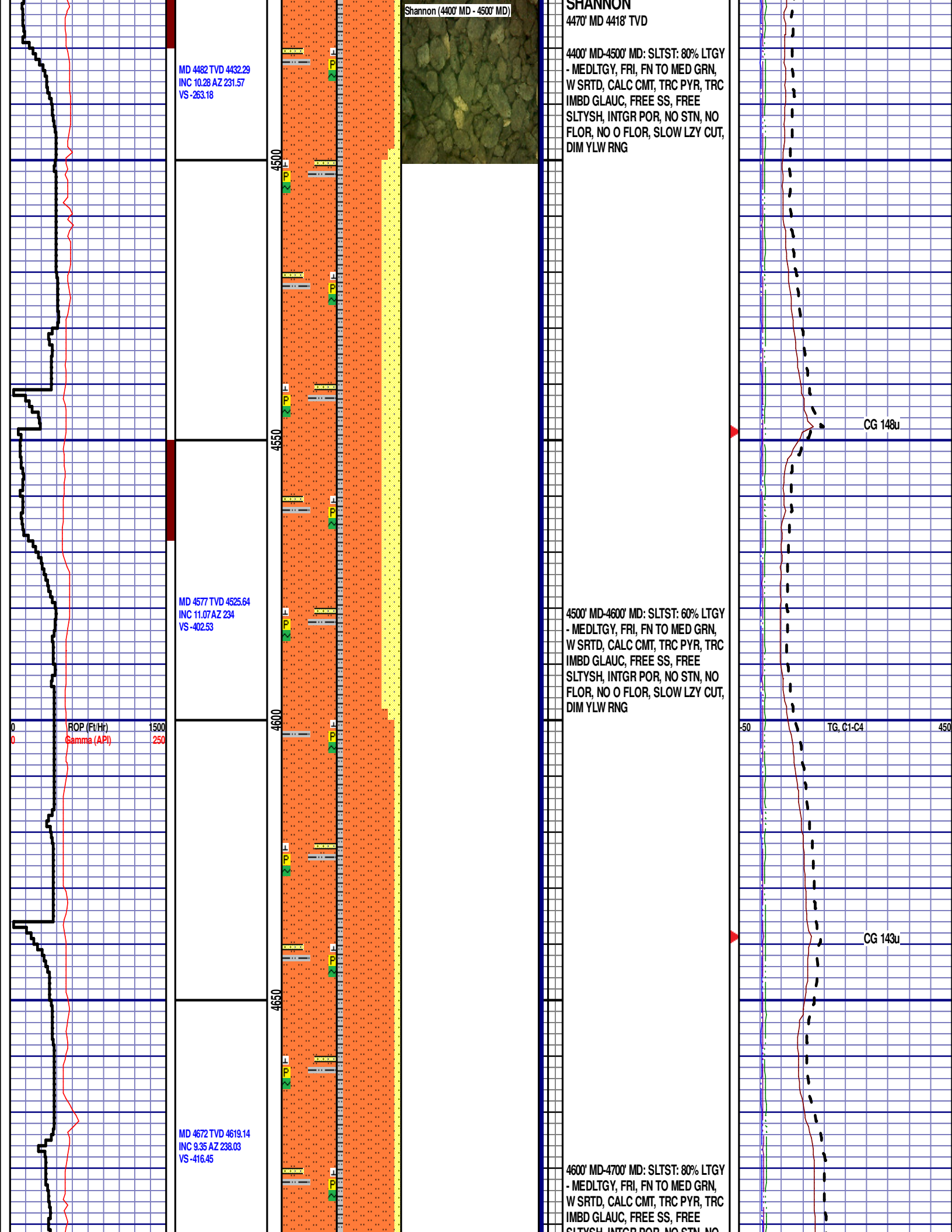
FLOW RESTORED TO SHAKER

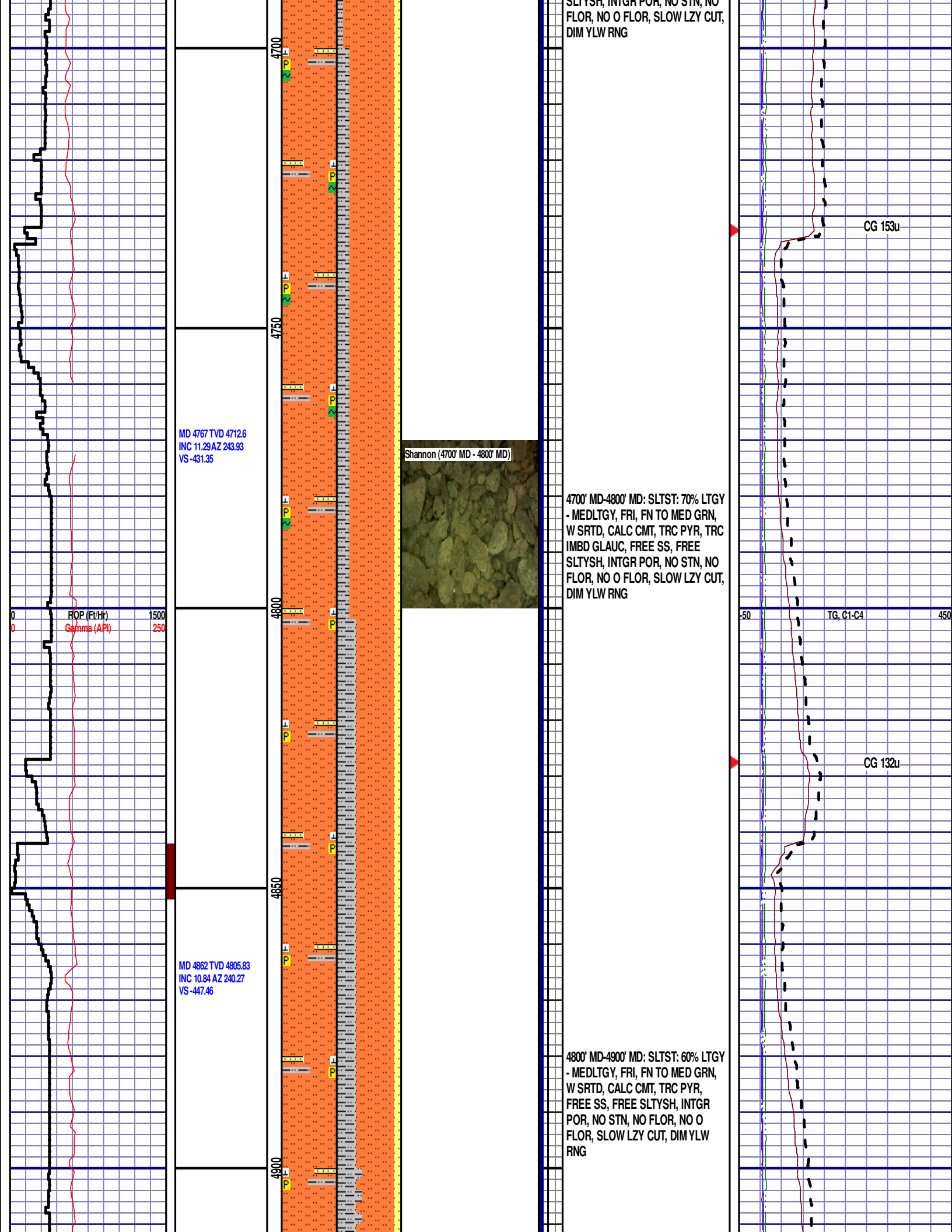
CG 117u

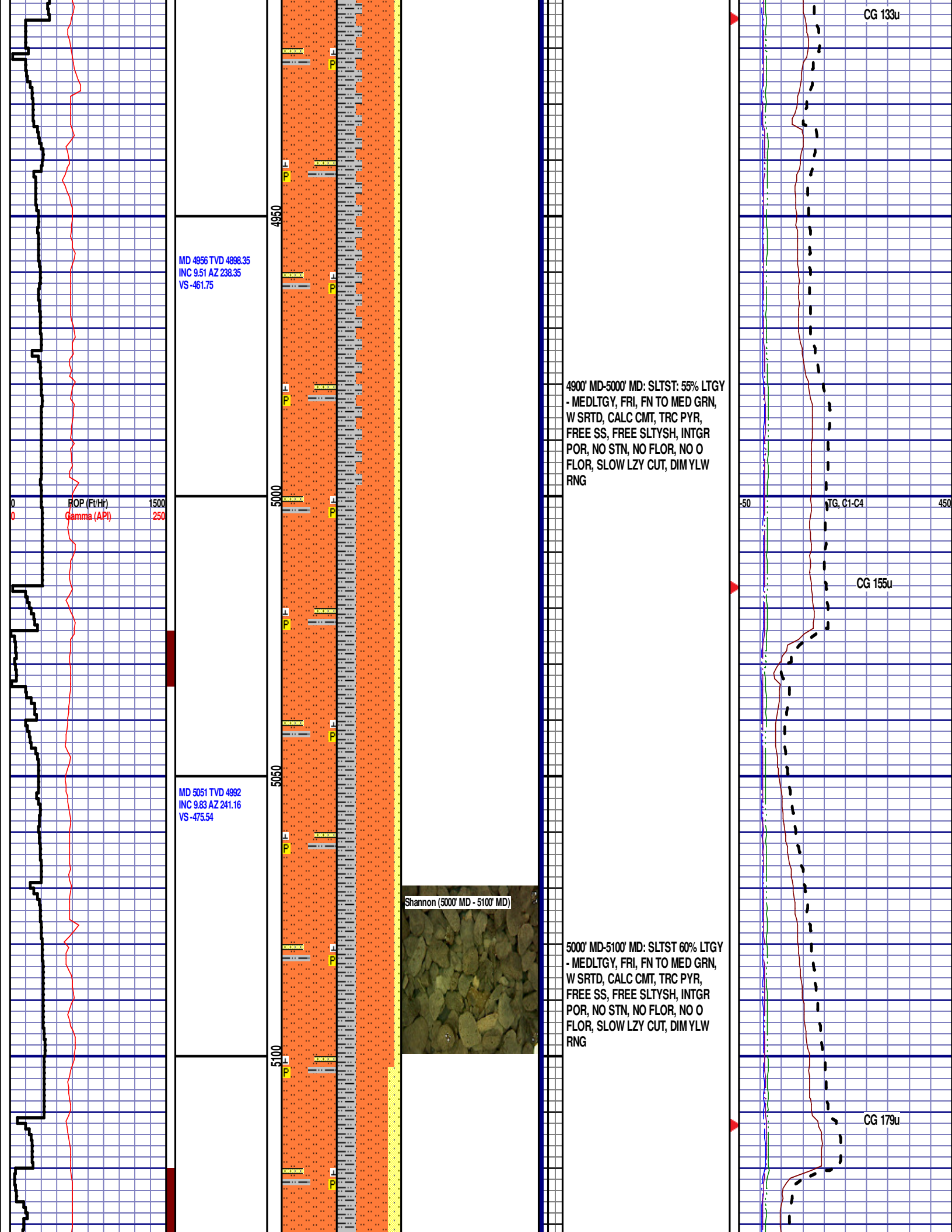
TG, C1-C4

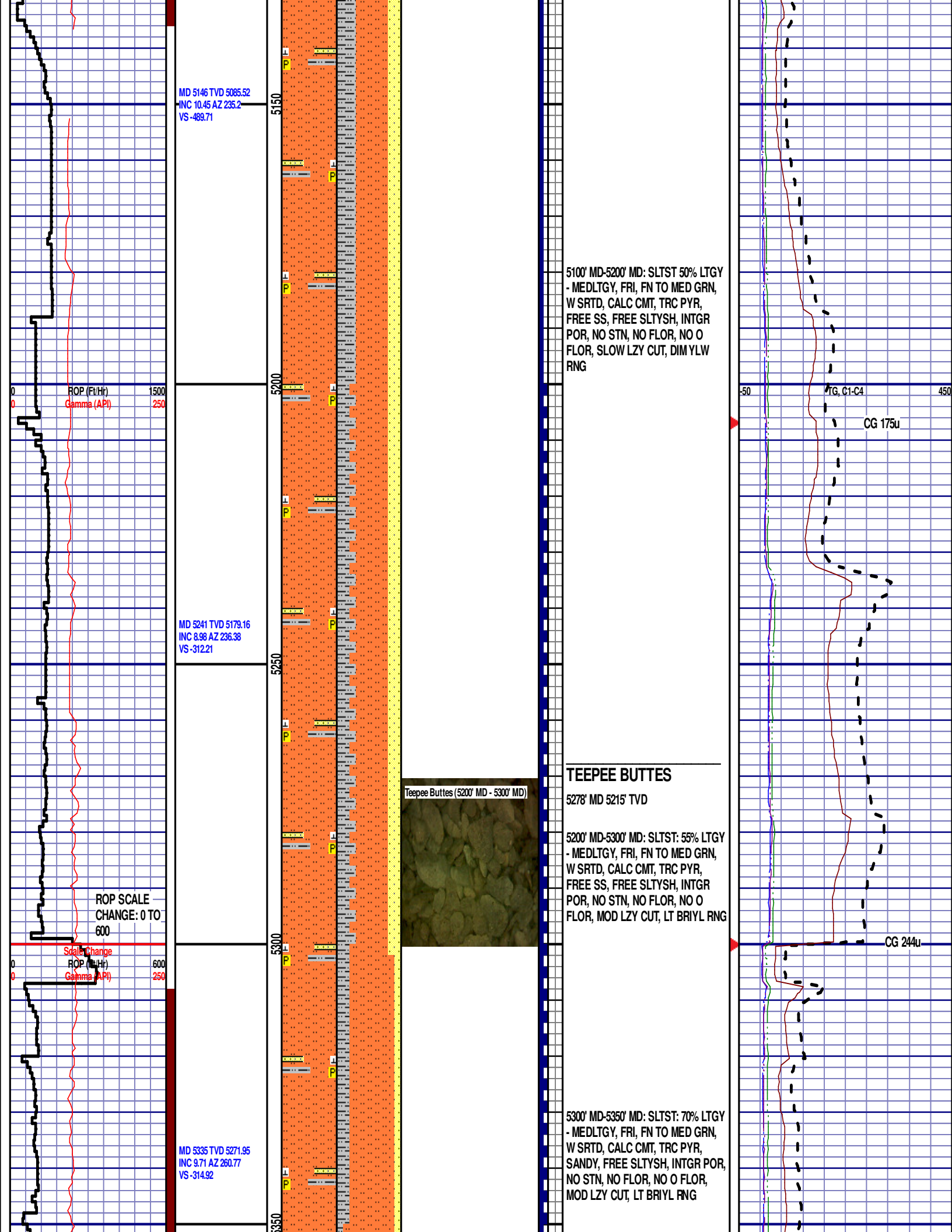


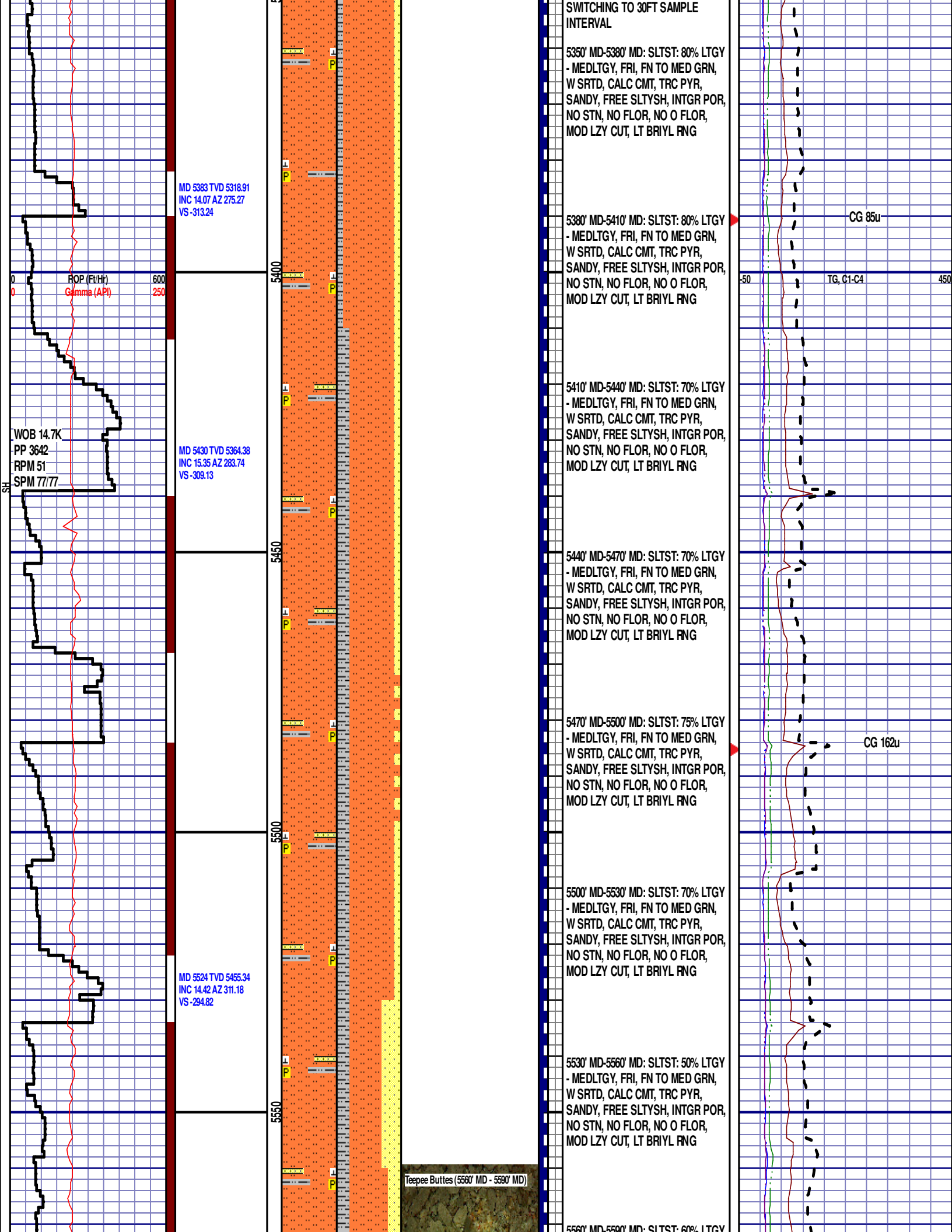












MD 5572 TVD 5501.49
INC 17.46 AZ 319.7
VS -283.87

ROP (Ft/Hr)
Gamma (API)

MD 5619 TVD 5545.95
INC 20.39 AZ 328.41
VS -270.11

MD 5667 TVD 5590.42
INC 23.81 AZ 332.68
VS -253.03

MD 5714 TVD 5632.75
INC 27.69 AZ 334.4
VS -233.39

MD 5762 TVD 5674.16
INC 33.01 AZ 333.64
VS -210.03

12:01 AM
05/06/2015
DAY 03
3268 FT/24HRS
WOB 11.6K
PP 3161
RPM 0
SPM 78/78

NO ROP DATA FROM 5693' MD TO
5762' MD DUE TO POWER
OUTAGE

NO GAS DATA FROM 5693' MD TO 5762' MD
DUE TO POWER OUTAGE

5580' MD-5590' MD: SLTST: 60% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, TRC PYR,
SANDY, FREE SLTYSH, INTGR POR,
NO STN, NO FLOR, NO O FLOR,
MOD LZY CUT, LT BRIYL RNG

CG 113u

5590' MD-5620' MD: SLTST: 70% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, TRC PYR,
SANDY, FREE SLTYSH, INTGR POR,
NO STN, NO FLOR, NO O FLOR,
MOD LZY CUT, LT BRIYL RNG

TG, C1-C4

5620' MD-5650' MD: SLTST: 70% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, TRC PYR,
SANDY, FREE SLTYSH, INTGR POR,
NO STN, NO FLOR, NO O FLOR,
MOD LZY CUT, LT BRIYL RNG

5650' MD-5680' MD: SLTST: 60% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, TRC PYR,
SANDY, FREE SLTYSH, INTGR POR,
NO STN, NO FLOR, NO O FLOR,
MOD LZY CUT, LT BRIYL RNG

CG 139u

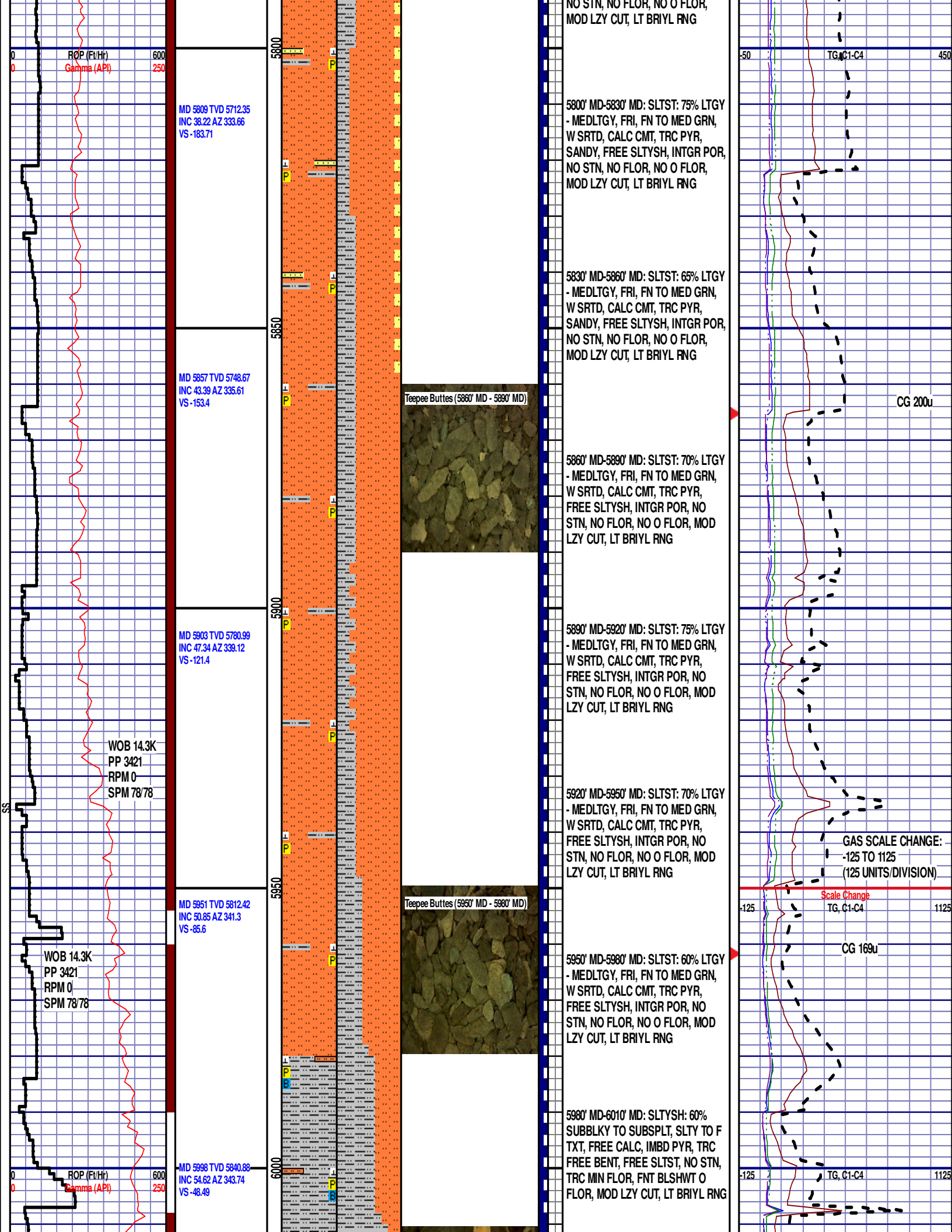
5680' MD-5710' MD: SLTST: 75% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, TRC PYR,
SANDY, FREE SLTYSH, INTGR POR,
NO STN, NO FLOR, NO O FLOR,
MOD LZY CUT, LT BRIYL RNG

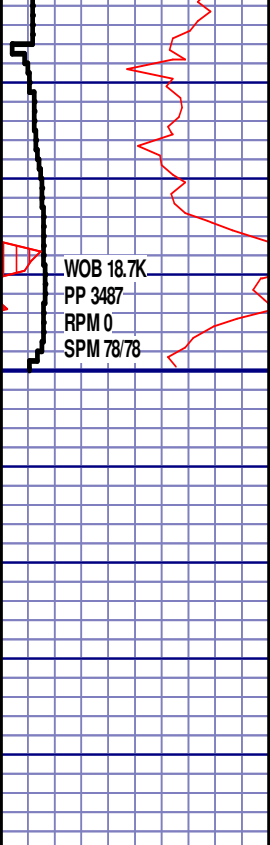
5710' MD-5740' MD: SLTST: 70% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, TRC PYR,
SANDY, FREE SLTYSH, INTGR POR,
NO STN, NO FLOR, NO O FLOR,
MOD LZY CUT, LT BRIYL RNG

5740' MD-5770' MD: SLTST: 60% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, TRC PYR,
SANDY, FREE SLTYSH, INTGR POR,
NO STN, NO FLOR, NO O FLOR,
MOD LZY CUT, LT BRIYL RNG

CG 131u

5770' MD-5800' MD: SLTST: 65% LTGY
- MEDLTGY, FRI, FN TO MED GRN,
W SRTD, CALC CMT, TRC PYR,
SANDY, FREE SLTYSH, INTGR POR,
NO STN, NO FLOR, NO O FLOR,





MD 6046 TVD 5866.95
INC 99.55 AZ 343.24
VS -8.42

6050

6010	MD	6040	MD	6030	MD	6020	MD	6010	MD	6000	MD	5990	MD	5980	MD	5970	MD	5960	MD	5950	MD	5940	MD	5930	MD	5920	MD	5910	MD	5900	MD	5890	MD	5880	MD	5870	MD	5860	MD	5850	MD	5840	MD	5830	MD	5820	MD	5810	MD	5800	MD	5790	MD	5780	MD	5770	MD	5760	MD	5750	MD	5740	MD	5730	MD	5720	MD	5710	MD	5700	MD	5690	MD	5680	MD	5670	MD	5660	MD	5650	MD	5640	MD	5630	MD	5620	MD	5610	MD	5600	MD	5590	MD	5580	MD	5570	MD	5560	MD	5550	MD	5540	MD	5530	MD	5520	MD	5510	MD	5500	MD	5490	MD	5480	MD	5470	MD	5460	MD	5450	MD	5440	MD	5430	MD	5420	MD	5410	MD	5400	MD	5390	MD	5380	MD	5370	MD	5360	MD	5350	MD	5340	MD	5330	MD	5320	MD	5310	MD	5300	MD	5290	MD	5280	MD	5270	MD	5260	MD	5250	MD	5240	MD	5230	MD	5220	MD	5210	MD	5200	MD	5190	MD	5180	MD	5170	MD	5160	MD	5150	MD	5140	MD	5130	MD	5120	MD	5110	MD	5100	MD	5090	MD	5080	MD	5070	MD	5060	MD	5050	MD	5040	MD	5030	MD	5020	MD	5010	MD	5000	MD	4990	MD	4980	MD	4970	MD	4960	MD	4950	MD	4940	MD	4930	MD	4920	MD	4910	MD	4900	MD	4890	MD	4880	MD	4870	MD	4860	MD	4850	MD	4840	MD	4830	MD	4820	MD	4810	MD	4800	MD	4790	MD	4780	MD	4770	MD	4760	MD	4750	MD	4740	MD	4730	MD	4720	MD	4710	MD	4700	MD	4690	MD	4680	MD	4670	MD	4660	MD	4650	MD	4640	MD	4630	MD	4620	MD	4610	MD	4600	MD	4590	MD	4580	MD	4570	MD	4560	MD	4550	MD	4540	MD	4530	MD	4520	MD	4510	MD	4500	MD	4490	MD	4480	MD	4470	MD	4460	MD	4450	MD	4440	MD	4430	MD	4420	MD	4410	MD	4400	MD	4390	MD	4380	MD	4370	MD	4360	MD	4350	MD	4340	MD	4330	MD	4320	MD	4310	MD	4300	MD	4290	MD	4280	MD	4270	MD	4260	MD	4250	MD	4240	MD	4230	MD	4220	MD	4210	MD	4200	MD	4190	MD	4180	MD	4170	MD	4160	MD	4150	MD	4140	MD	4130	MD	4120	MD	4110	MD	4100	MD	4090	MD	4080	MD	4070	MD	4060	MD	4050	MD	4040	MD	4030	MD	4020	MD	4010	MD	4000	MD	3990	MD	3980	MD	3970	MD	3960	MD	3950	MD	3940	MD	3930	MD	3920	MD	3910	MD	3900	MD	3890	MD	3880	MD	3870	MD	3860	MD	3850	MD	3840	MD	3830	MD	3820	MD	3810	MD	3800	MD	3790	MD	3780	MD	3770	MD	3760	MD	3750	MD	3740	MD	3730	MD	3720	MD	3710	MD	3700	MD	3690	MD	3680	MD	3670	MD	3660	MD	3650	MD	3640	MD	3630	MD	3620	MD	3610	MD	3600	MD	3590	MD	3580	MD	3570	MD	3560	MD	3550	MD	3540	MD	3530	MD	3520	MD	3510	MD	3500	MD	3490	MD	3480	MD	3470	MD	3460	MD	3450	MD	3440	MD	3430	MD	3420	MD	3410	MD	3400	MD	3390	MD	3380	MD	3370	MD	3360	MD	3350	MD	3340	MD	3330	MD	3320	MD	3310	MD	3300	MD	3290	MD	3280	MD	3270	MD	3260	MD	3250	MD	3240	MD	3230	MD	3220	MD	3210	MD	3200	MD	3190	MD	3180	MD	3170	MD	3160	MD	3150	MD	3140	MD	3130	MD	3120	MD	3110	MD	3100	MD	3090	MD	3080	MD	3070	MD	3060	MD	3050	MD	3040	MD	3030	MD	3020	MD	3010	MD	3000	MD	2990	MD	2980	MD	2970	MD	2960	MD	2950	MD	2940	MD	2930	MD	2920	MD	2910	MD	2900	MD	2890	MD	2880	MD	2870	MD	2860	MD	2850	MD	2840	MD	2830	MD	2820	MD	2810	MD	2800	MD	2790	MD	2780	MD	2770	MD	2760	MD	2750	MD	2740	MD	2730	MD	2720	MD	2710	MD	2700	MD	2690	MD	2680	MD	2670	MD	2660	MD	2650	MD	2640	MD	2630	MD	2620	MD	2610	MD	2600	MD	2590	MD	2580	MD	2570	MD	2560	MD	2550	MD	2540	MD	2530	MD	2520	MD	2510	MD	2500	MD	2490	MD	2480	MD	2470	MD	2460	MD	2450	MD	2440	MD	2430	MD	2420	MD	2410	MD	2400	MD	2390	MD	2380	MD	2370	MD	2360	MD	2350	MD	2340	MD	2330	MD	2320	MD	2310	MD	2300	MD	2290	MD	2280	MD	2270	MD	2260	MD	2250	MD	2240	MD	2230	MD	2220	MD	2210	MD	2200	MD	2190	MD	2180	MD	2170	MD	2160	MD	2150	MD	2140	MD	2130	MD	2120	MD	2110	MD	2100	MD	2090	MD	2080	MD	2070	MD	2060	MD	2050	MD	2040	MD	2030	MD	2020	MD	2010	MD	2000	MD	1990	MD	1980	MD	1970	MD	1960	MD	1950	MD	1940	MD	1930	MD	1920	MD	1910	MD	1900	MD	1890	MD	1880	MD	1870	MD	1860	MD	1850	MD	1840	MD	1830	MD	1820	MD	1810	MD	1800	MD	1790	MD	1780	MD	1770	MD	1760	MD	1750	MD	1740	MD	1730	MD	1720	MD	1710	MD	1700	MD	1690	MD	1680	MD	1670	MD	1660	MD	1650	MD	1640	MD	1630	MD	1620	MD	1610	MD	1600	MD	1590	MD	1580	MD	1570	MD	1560	MD	1550	MD	1540	MD	1530	MD	1520	MD	1510	MD	1500	MD	1490	MD	1480	MD	1470	MD	1460	MD	1450	MD	1440	MD	1430	MD	1420	MD	1410	MD	1400	MD	1390	MD	1380	MD	1370	MD	1360	MD	1350	MD	1340	MD	1330	MD	1320	MD	1310	MD	1300	MD	1290	MD	1280	MD	1270	MD	1260	MD	1250	MD	1240	MD	1230	MD	1220	MD	1210	MD	1200	MD	1190	MD	1180	MD	1170	MD	1160	MD	1150	MD	1140	MD	1130	MD	1120	MD	1110	MD	1100	MD	1090	MD	1080	MD	1070	MD	1060	MD	1050	MD	1040	MD	1030	MD	1020	MD	1010	MD	1000	MD	990	MD	980	MD	970	MD	960	MD	950	MD	940	MD	930	MD	920	MD	910	MD	900	MD	890	MD	880	MD	870	MD	860	MD	850	MD	840	MD	830	MD	820	MD	810	MD	800	MD	790	MD	780	MD	770	MD	760	MD	750	MD	740	MD	730	MD	720	MD	710	MD	700	MD	690	MD	680	MD	670	MD	660	MD	650	MD	640	MD	630	MD	620	MD	610	MD	600	MD	590	MD	580	MD	570	MD	560	MD	550	MD	540	MD	530	MD	520	MD	510	MD	500	MD	490	MD	480	MD	470	MD	460	MD	450	MD	440	MD	430	MD	420	MD	410	MD	400	MD	390	MD	380	MD	370	MD	360	MD	350	MD	340	MD	330	MD	320	MD	310	MD	300	MD	290	MD	280	MD	270	MD	260	MD	250	MD	240	MD	230	MD	220	MD	210	MD	200	MD	190	MD	180	MD	170	MD	160	MD	150	MD	140	MD	130	MD	120	MD	110	MD	100	MD	90	MD	80	MD	70	MD	60	MD	50	MD	40	MD	30	MD	20	MD	10	MD	0	MD
------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	------	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	-----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	---	----



6010' MD-6040' MD: SLTYSH: 80% SUBBLKY
TO SUBSPLT, SLTY TO F TXT, FREE CALC,
IMBD PYR, ABDT FREE BENT, FREE SLTST,
NO STN, TRC MIN FLOR, FNT BLSHWT O
FLOR, IMMED STRMG CUT, HVY BLSHWT
RNG

SHARON SPRINGS
6034' MD 5860' TVD

END OF VERTICAL LOG @ 6050' MD
ON 05/06/2015, CONTINUED ON
HORIZONTAL LOG

