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WWW.HZMUD.COM

Customer Information

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

Geologist: Rob Koch
Noble Energy Inc.

Mud Logging Details

Logger: Andrew Christiano & Kooper Andringa

Log Interval: 2500' to 6480'
Start Date: April 4, 2012
Release Date: April 14, 2012

Well Information

Well Name: WELLS RANCH
AF08-69-1HN

Location: 8-5N-62W
480' FNL, 353' FEL

County: Weld
State: Colorado

Drilling Rig: H&P 343
Total Depth: 15726'
TD Date: April 13, 2012
Formation: Niobrara
KB Elevation: 4688'
GR Elevation: 4664'
API Number: 05-123-34780

ROCK TYPES

	Anhy		Dol		Salt		gw		hvycrbsh
	Bent		Gyp		Shale		lmywash		NO SMPL
	Brec		Igne		Shcol		ogw		Lsdetrst
	Cht		Chk		Shgy		olmywash		sltst
	Clyst		Lmst		Slstst		oshly gw		sdy sh
	Coal		Meta		Ss		shly gw		Cement
	Congl		Mrlst		Till		sdygw		

Drill Depth v. Time		Survey Data	Depth Porosity	Lithology	Geological Descriptions	Total Gas, C1-C4	
ROP (Min/Ft)	Gamma (API)					TG (units)	C1-C4 (units)
0	0		24		NOBLE ENERGY INC WELLS RANCH AF08-69-1HN 8-5N-62W 480' FNL, 353' FEL WELD CO., CO H&P 343 LOGGERS: ANDREW CHRISTIANO KOOPER ANDRINGA CALLED OUT BY COMPANY MAN ON 4/4/12. COMMENCED LOGGING @ 2500' MD @ 9:15 AM ON 4/6/2012	-50	450
SLIDE=RED ROTATE=WHITE						CONNECTIONS MARKED WITH RED TRIANGLES	
ROP SCALE: 0 TO 2						GAS SCALE: -50 TO 450 (50 UNITS/DIVISION)	
GAMMA SCALE: 0 TO 300						DRILLING ON WATER BASED MUD	

WOB 26.5K
PP 2171
RPM 35
SPM 112/0

MD 2501 TVD 2491.92
Az 183.58° Inc 10°
VS 1.78

SILTSTN; LT GRY, CGR, SUB-ANG,
OPA, BRITTLE, P/CONSOL, P/SORT,
CALC CMNT, POOR INTRGRAN
POR, NO FLUOR, NO STRM CUT,
NO CUT AFTER CRUSH, DIM YLW
RING CUT, SME SS

MD 594
WT 8.7
VIS 27
PH 8.8
FIL 65
CL 3300
CAL 360
H2O 97
OIL 0
SOL 2.2
GELS 1/2/3
PV 1
YP 4

2550

SILTSTN; LT GRY, CGR, SUB-ANG,
OPA, BRITTLE, P/CONSOL, P/SORT,
CALC CMNT, POOR INTRGRAN
POR, NO FLUOR, NO STRM CUT,
NO CUT AFTER CRUSH, DIM YLW
RING CUT, SME SS

CG 312u

ROP (Min/Ft) 2
Gamma (API) 300

MD 2597 TVD 2586.4
Az 179.21° Inc 10.43°
VS 1.73

SILTSTN; LT GRY, CGR, SUB-ANG,
OPA, BRITTLE, P/CONSOL, P/SORT,
CALC CMNT, POOR INTRGRAN
POR, NO FLUOR, NO STRM CUT,
NO CUT AFTER CRUSH, DIM YLW
RING CUT, SME SS

-50 TG, C1-C4 450

2650

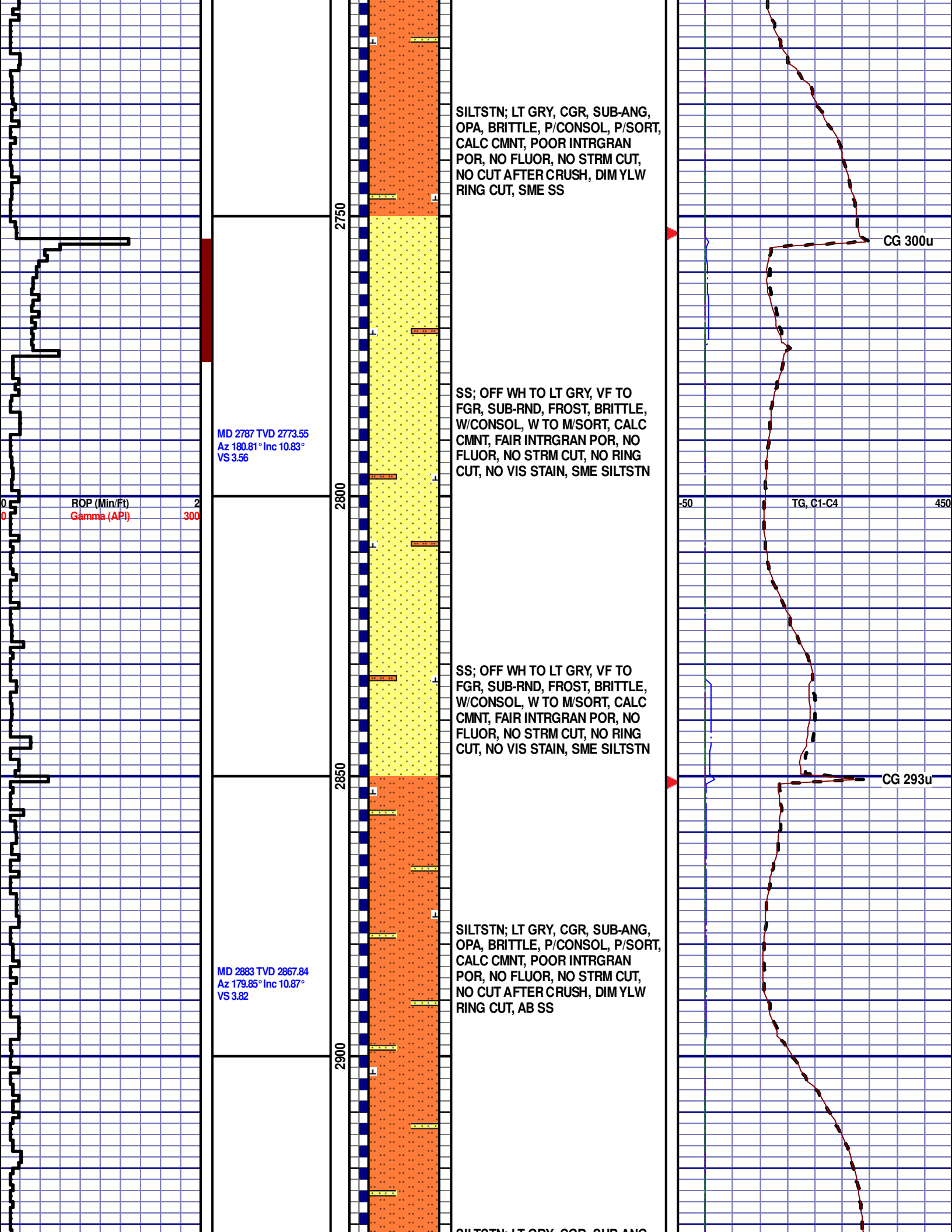
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OPA, BRITTLE, P/CONSOL, P/SORT,
CALC CMNT, POOR INTRGRAN
POR, NO FLUOR, NO STRM CUT,
NO CUT AFTER CRUSH, DIM YLW
RING CUT, SME SS

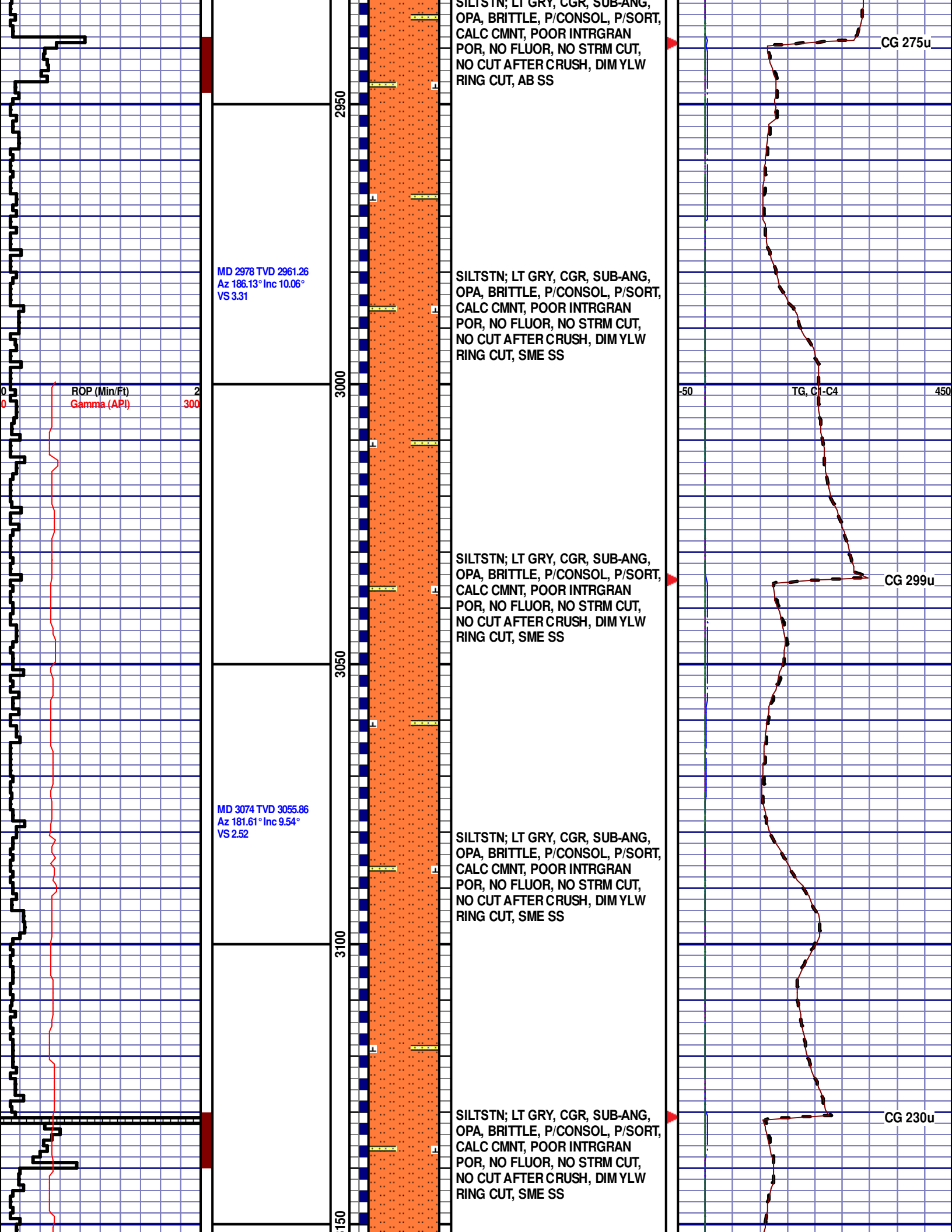
CG 272u

MD 2692 TVD 2680
Az 175.55° Inc 9.22°
VS 2.76

MD 2657'
WT 9.0
VIS 27
PH 8.4
FIL 75
CL 3800
CAL 400
H2O 96
OIL 0
SOL 4.1
GELS 1/2/3
PV 1
YP 4

2700





MD 2978 TVD 2961.26
Az 186.13° Inc 10.06°
VS 3.31

MD 3074 TVD 3055.86
Az 181.61° Inc 9.54°
VS 2.52

SILTSTN; LT GRY, CGR, SUB-ANG,
OPA, BRITTLE, P/CONSOL, P/SORT,
CALC CMNT, POOR INTRGRAN
POR, NO FLUOR, NO STRM CUT,
NO CUT AFTER CRUSH, DIM YLW
RING CUT, AB SS

SILTSTN; LT GRY, CGR, SUB-ANG,
OPA, BRITTLE, P/CONSOL, P/SORT,
CALC CMNT, POOR INTRGRAN
POR, NO FLUOR, NO STRM CUT,
NO CUT AFTER CRUSH, DIM YLW
RING CUT, SME SS

SILTSTN; LT GRY, CGR, SUB-ANG,
OPA, BRITTLE, P/CONSOL, P/SORT,
CALC CMNT, POOR INTRGRAN
POR, NO FLUOR, NO STRM CUT,
NO CUT AFTER CRUSH, DIM YLW
RING CUT, SME SS

SILTSTN; LT GRY, CGR, SUB-ANG,
OPA, BRITTLE, P/CONSOL, P/SORT,
CALC CMNT, POOR INTRGRAN
POR, NO FLUOR, NO STRM CUT,
NO CUT AFTER CRUSH, DIM YLW
RING CUT, SME SS

SILTSTN; LT GRY, CGR, SUB-ANG,
OPA, BRITTLE, P/CONSOL, P/SORT,
CALC CMNT, POOR INTRGRAN
POR, NO FLUOR, NO STRM CUT,
NO CUT AFTER CRUSH, DIM YLW
RING CUT, SME SS

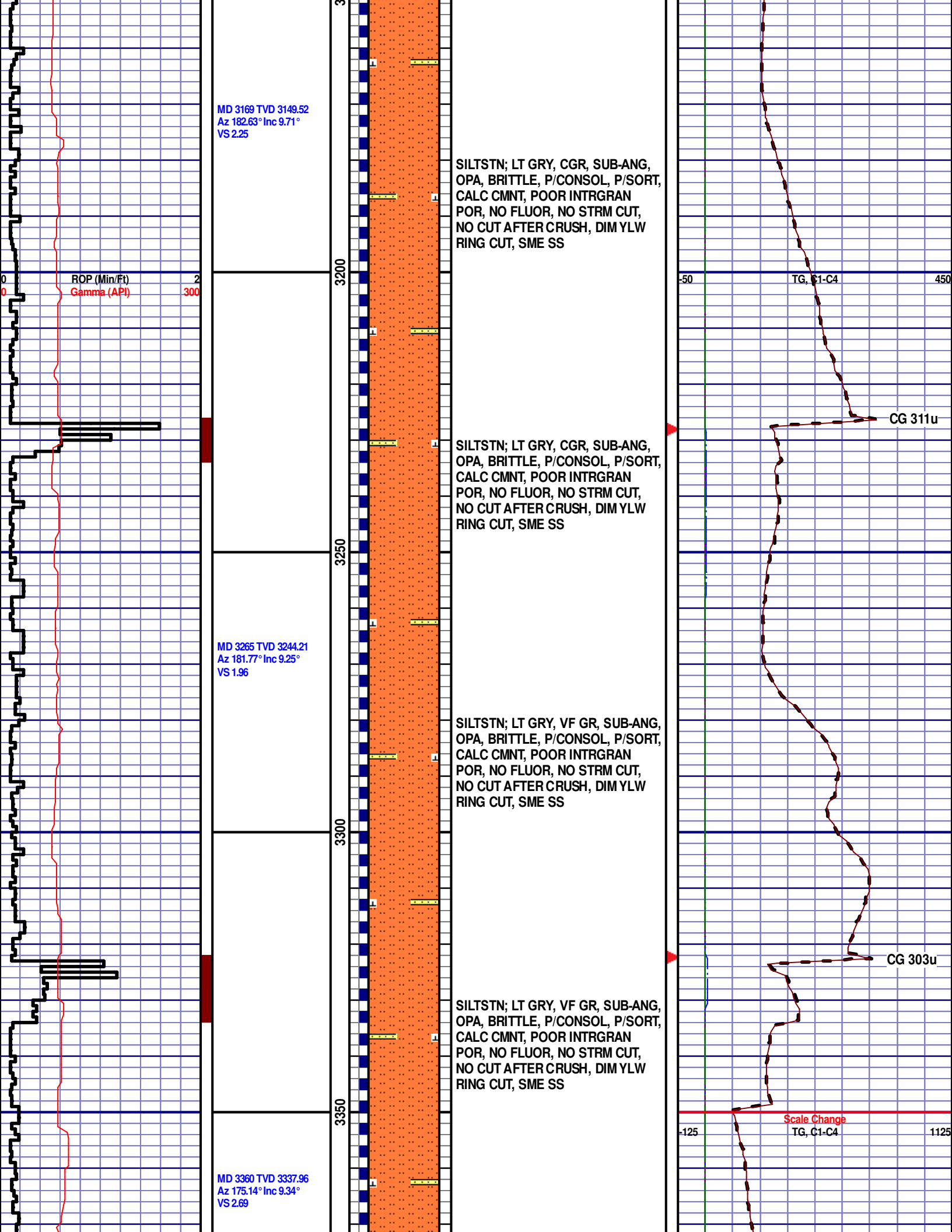
CG 275u

CG 299u

CG 230u

ROP (Min/Ft)
Gamma (API)

TG, C1-C4



MD 3169 TVD 3149.52
 Az 182.63° Inc 9.71°
 VS 2.25

SILTSTN; LT GRY, CGR, SUB-ANG, OPA, BRITTLE, P/CONSOL, P/SORT, CALC CMNT, POOR INTRGRAN POR, NO FLUOR, NO STRM CUT, NO CUT AFTER CRUSH, DIM YLW RING CUT, SME SS

SILTSTN; LT GRY, CGR, SUB-ANG, OPA, BRITTLE, P/CONSOL, P/SORT, CALC CMNT, POOR INTRGRAN POR, NO FLUOR, NO STRM CUT, NO CUT AFTER CRUSH, DIM YLW RING CUT, SME SS

SILTSTN; LT GRY, VF GR, SUB-ANG, OPA, BRITTLE, P/CONSOL, P/SORT, CALC CMNT, POOR INTRGRAN POR, NO FLUOR, NO STRM CUT, NO CUT AFTER CRUSH, DIM YLW RING CUT, SME SS

SILTSTN; LT GRY, VF GR, SUB-ANG, OPA, BRITTLE, P/CONSOL, P/SORT, CALC CMNT, POOR INTRGRAN POR, NO FLUOR, NO STRM CUT, NO CUT AFTER CRUSH, DIM YLW RING CUT, SME SS

MD 3265 TVD 3244.21
 Az 181.77° Inc 9.25°
 VS 1.96

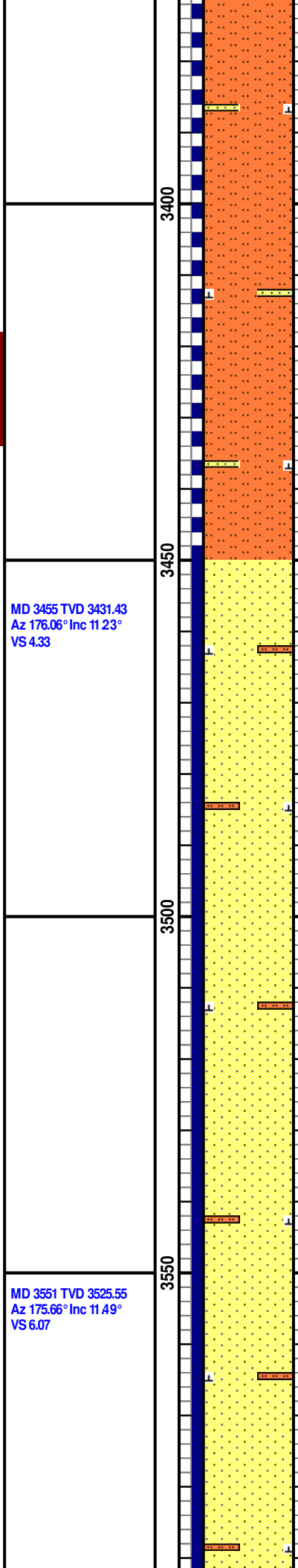
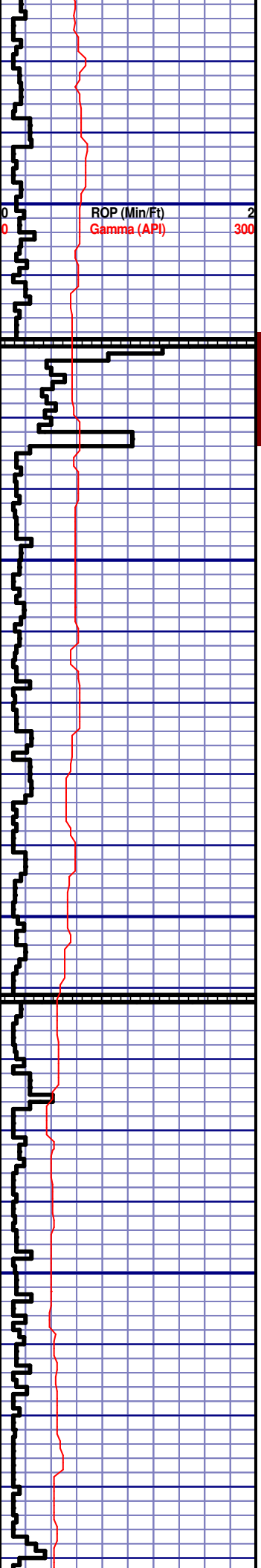
MD 3360 TVD 3337.96
 Az 175.14° Inc 9.34°
 VS 2.69

-50 TG, C1-C4 450

CG 311u

CG 303u

-125 Scale Change TG, C1-C4 1125



SILTSTN; LT GRY, VF GR, SUB-ANG, OPA, BRITTLE, P/CONSOL, P/SORT, CALC CMNT, POOR INTRGRAN POR, NO FLUOR, NO STRM CUT, NO CUT AFTER CRUSH, DIM YLW RING CUT, SME SS

SILTSTN; LT GRY, CGR, SUB-ANG, OPA, BRITTLE, P/CONSOL, P/SORT, CALC CMNT, POOR INTRGRAN POR, NO FLUOR, NO STRM CUT, NO CUT AFTER CRUSH, DIM YLW RING CUT, SME SS

PARKMAN
3436' MD 3414' TVD

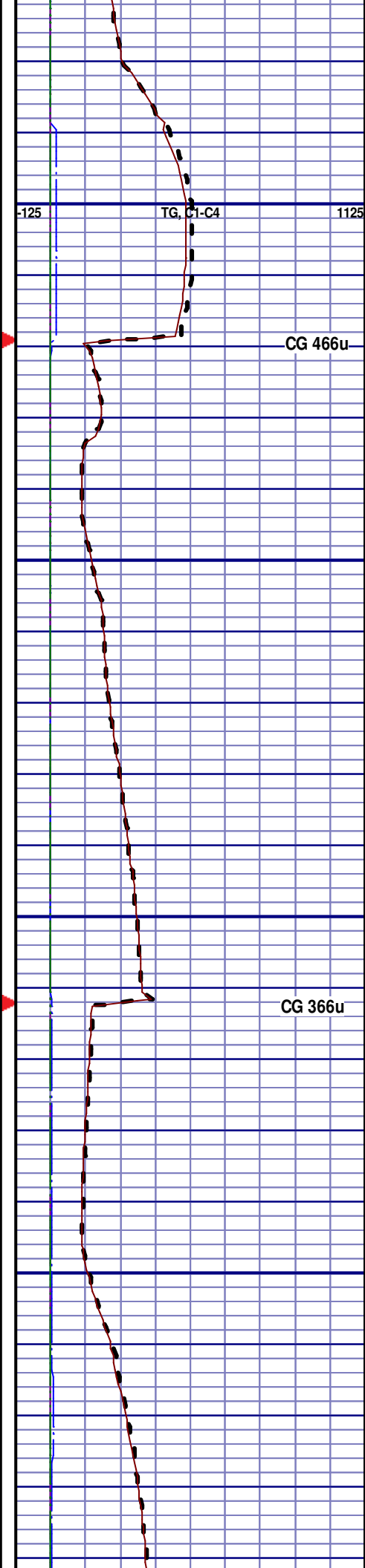
MD 3455 TVD 3431.43
Az 176.06° Inc 11.23°
VS 4.33

SS; OFF WH TO LT GRY, VF TO FGR, SUB-RND, FROST, BRITTLE, W/CONSOL, W TO M/SORT, CALC CMNT, FAIR INTRGRAN POR, NO FLUOR, NO STRM CUT, NO RING CUT, NO VIS STAIN, SME SILTSTN

SS; OFF WH TO LT GRY, VF TO FGR, SUB-RND, FROST, BRITTLE, W/CONSOL, W TO M/SORT, CALC CMNT, FAIR INTRGRAN POR, NO FLUOR, NO STRM CUT, NO RING CUT, NO VIS STAIN, SME SILTSTN

MD 3551 TVD 3525.55
Az 175.66° Inc 11.49°
VS 6.07

SS; OFF WH TO LT GRY, VF TO FGR, SUB-RND, FROST, BRITTLE, W/CONSOL, W TO M/SORT, CALC CMNT, FAIR INTRGRAN POR, NO FLUOR, NO STRM CUT, NO RING CUT, NO VIS STAIN, SME SILTSTN



MD 3837 TVD 3805.7
Az 181.96° Inc 10.53°
VS 7.98

SILTSTN; LT GRY, VF GR, SUB-ANG,
OPA, BRITTLE, P/CONSOL, P/SORT,
CALC CMNT, POOR INTRGRAN
POR, NO FLUOR, NO STRM CUT,
NO CUT AFTER CRUSH, DIM YLW
RING CUT, SME SS

3850

SILTSTN; LT GRY, VF GR, SUB-ANG,
OPA, BRITTLE, P/CONSOL, P/SORT,
CALC CMNT, POOR INTRGRAN
POR, NO FLUOR, NO STRM CUT,
NO CUT AFTER CRUSH, DIM YLW
RING CUT, SME SS

3900

CG 355u

VS 7.28

SILTSTN; LT GRY, VF GR, SUB-ANG,
OPA, BRITTLE, P/CONSOL, P/SORT,
CALC CMNT, POOR INTRGRAN
POR, NO FLUOR, NO STRM CUT,
NO CUT AFTER CRUSH, DIM YLW
RING CUT, SME SS

3950

SILTSTN; LT GRY, VF GR, SUB-ANG,
OPA, BRITTLE, P/CONSOL, P/SORT,
CALC CMNT, POOR INTRGRAN
POR, NO FLUOR, NO STRM CUT,
NO CUT AFTER CRUSH, DIM YLW
RING CUT, SME SS

4000

CG 280u

ROP (Min/Ft) 2
Gamma (API) 300

MD 4028 TVD 3993.73

SILTSTN; LT GRY, VF GR, SUB-ANG

-125 TG, C1-C4 1125

Az 185.13° Inc 9.12°
VS 6.18

SILTSTN; LT GR, VF GR, SUB-ANG,
OPA, BRITTLE, P/CONSOL, P/SORT,
CALC CMNT, POOR INTRGRAN
POR, NO FLUOR, NO STRM CUT,
NO CUT AFTER CRUSH, DIM YLW
RING CUT, SME SS

4050

SILTSTN; LT GR, VF GR, SUB-ANG,
OPA, BRITTLE, P/CONSOL, P/SORT,
CALC CMNT, POOR INTRGRAN
POR, NO FLUOR, NO STRM CUT,
NO CUT AFTER CRUSH, DIM YLW
RING CUT, SME SS

CG 273u

4100

MD 4124 TVD 4088.46
Az 180.08° Inc 9.55°
VS 5.81

SILTSTN; LT GR, VF GR, SUB-ANG,
OPA, BRITTLE, P/CONSOL, P/SORT,
CALC CMNT, POOR INTRGRAN
POR, NO FLUOR, NO STRM CUT,
NO CUT AFTER CRUSH, DIM YLW
RING CUT, SME SS

4150

SILTSTN; LT GR, VF GR, SUB-ANG,
OPA, BRITTLE, P/CONSOL, P/SORT,
CALC CMNT, POOR INTRGRAN
POR, NO FLUOR, NO STRM CUT,
NO CUT AFTER CRUSH, DIM YLW
RING CUT, SME SS

CG 332u

4200

ROP (Min/Ft) 2
Gamma (API) 300

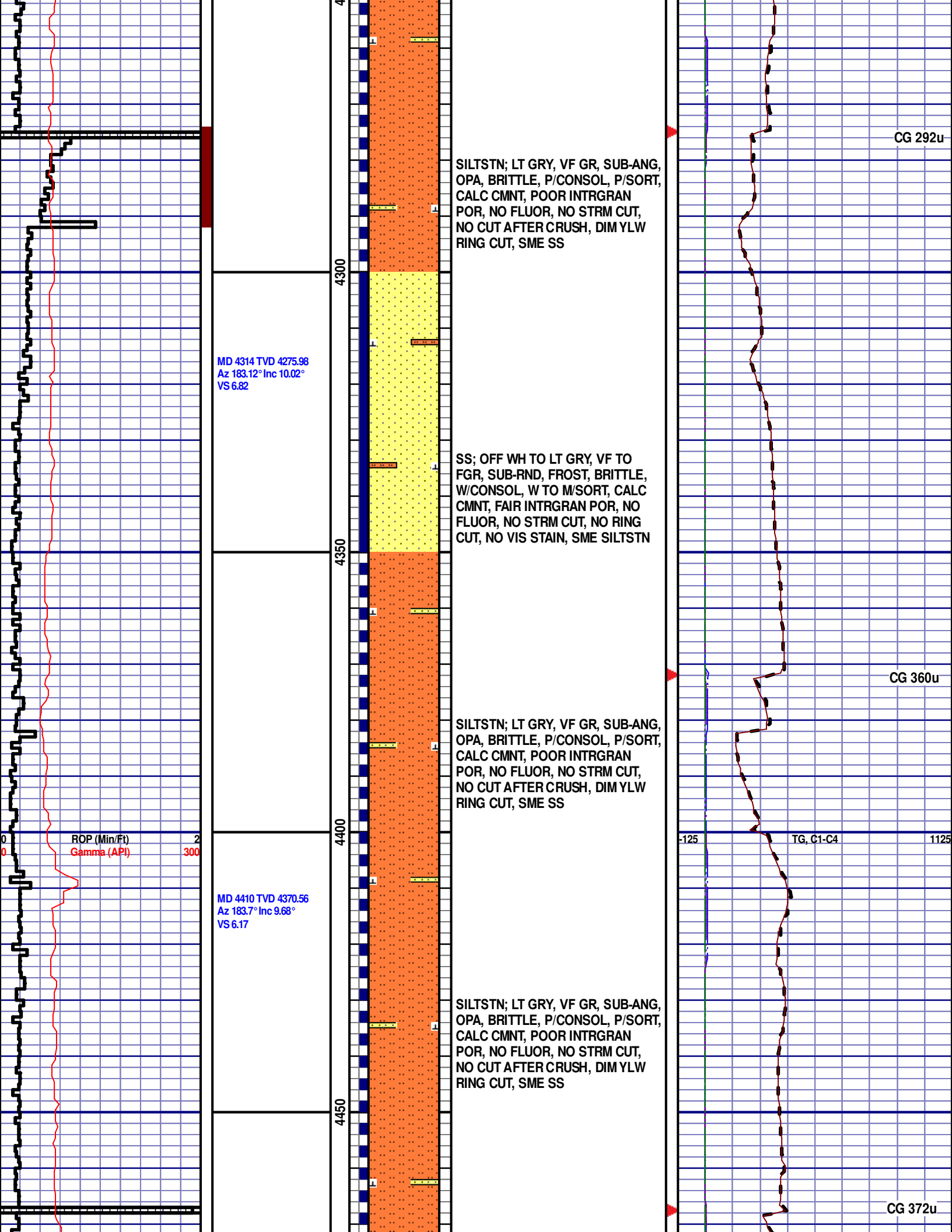
-125 TG, C1-C4 1125

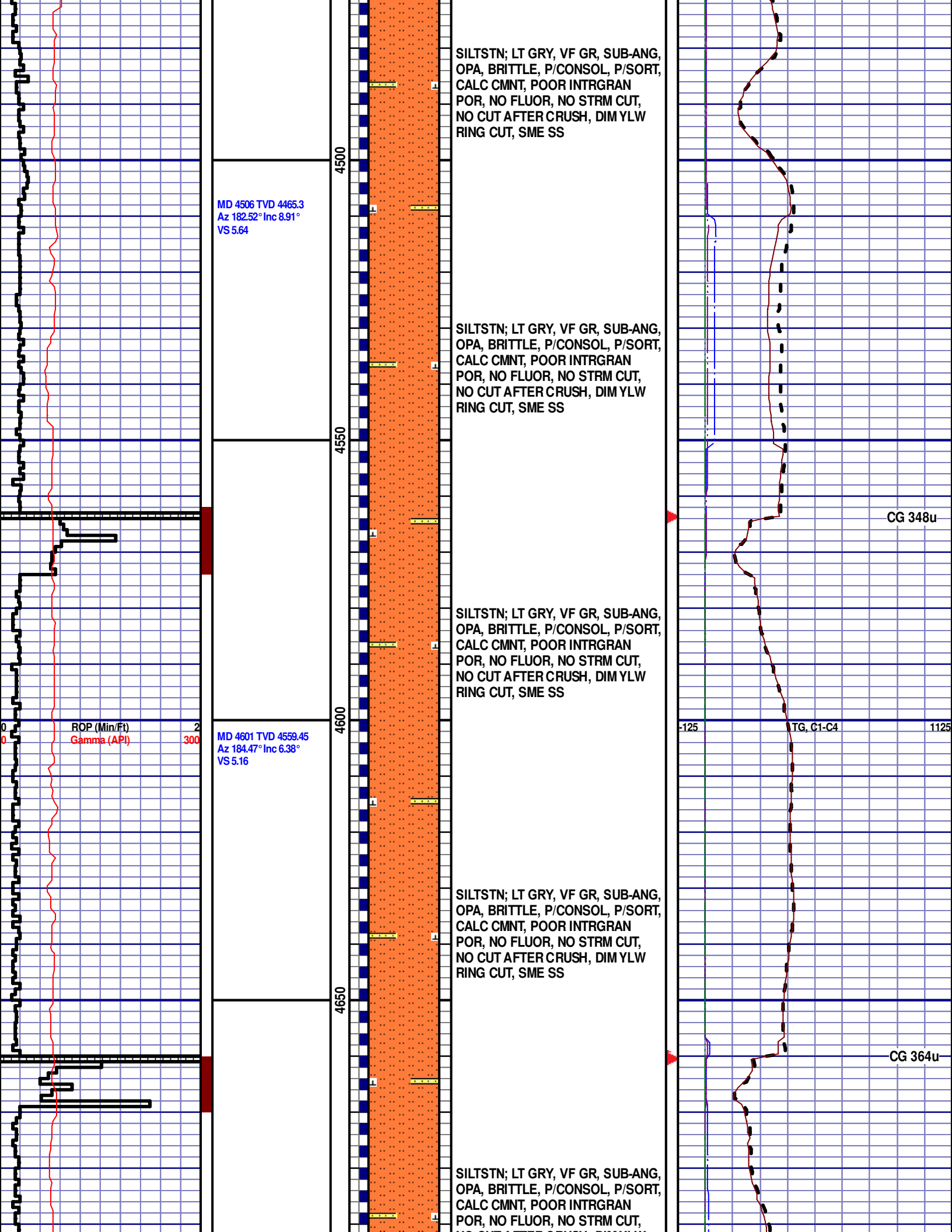
SUSSEX
4208' MD 4171' TVD

MD 4219 TVD 4182.25
Az 176.6° Inc 8.73°
VS 6.53

SILTSTN; LT GR, VF GR, SUB-ANG,
OPA, BRITTLE, P/CONSOL, P/SORT,
CALC CMNT, POOR INTRGRAN
POR, NO FLUOR, NO STRM CUT,
NO CUT AFTER CRUSH, DIM YLW
RING CUT, SME SS

4250





SILTSTN; LT GRY, VF GR, SUB-ANG, OPA, BRITTLE, P/CONSOL, P/SORT, CALC CMNT, POOR INTRGRAN POR, NO FLUOR, NO STRM CUT, NO CUT AFTER CRUSH, DIM YLW RING CUT, SME SS

MD 4506 TVD 4465.3
Az 182.52° Inc 8.91°
VS 5.64

SILTSTN; LT GRY, VF GR, SUB-ANG, OPA, BRITTLE, P/CONSOL, P/SORT, CALC CMNT, POOR INTRGRAN POR, NO FLUOR, NO STRM CUT, NO CUT AFTER CRUSH, DIM YLW RING CUT, SME SS

SILTSTN; LT GRY, VF GR, SUB-ANG, OPA, BRITTLE, P/CONSOL, P/SORT, CALC CMNT, POOR INTRGRAN POR, NO FLUOR, NO STRM CUT, NO CUT AFTER CRUSH, DIM YLW RING CUT, SME SS

ROP (Min/Ft) 2
Gamma (API) 300

MD 4601 TVD 4559.45
Az 184.47° Inc 6.38°
VS 5.16

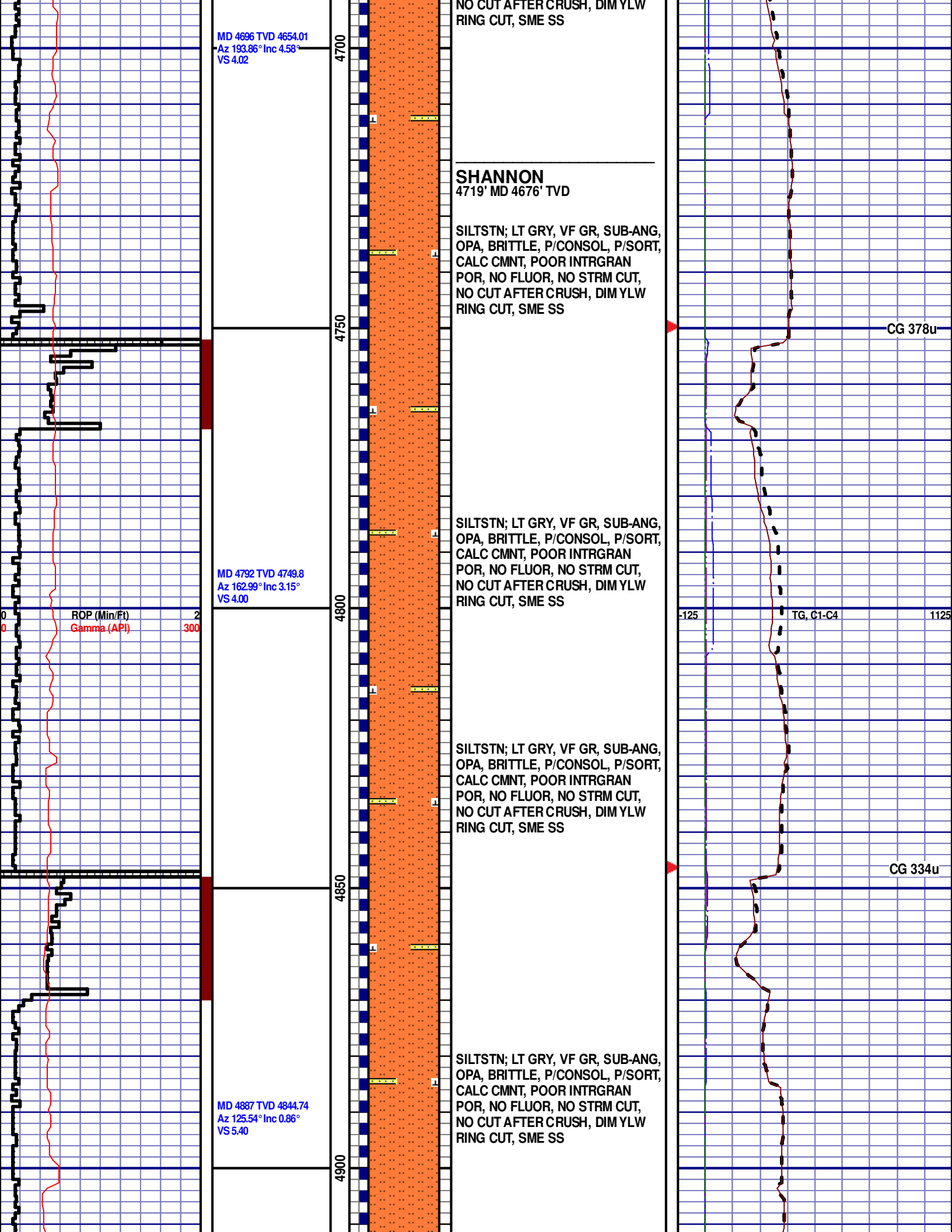
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SILTSTN; LT GRY, VF GR, SUB-ANG, OPA, BRITTLE, P/CONSOL, P/SORT, CALC CMNT, POOR INTRGRAN POR, NO FLUOR, NO STRM CUT, NO CUT AFTER CRUSH, DIM YLW RING CUT, SME SS

CG 348u

-125 TG, C1-C4 1125

CG 364u



MD 4696 TVD 4654.01
Az 193.86° Inc 4.58°
VS 4.02

SHANNON
4719' MD 4676' TVD

SILTSTN; LT GRY, VF GR, SUB-ANG,
OPA, BRITTLE, P/CONSOL, P/SORT,
CALC CMNT, POOR INTRGRAN
POR, NO FLUOR, NO STRM CUT,
NO CUT AFTER CRUSH, DIM YLW
RING CUT, SME SS

MD 4792 TVD 4749.8
Az 162.99° Inc 3.15°
VS 4.00

SILTSTN; LT GRY, VF GR, SUB-ANG,
OPA, BRITTLE, P/CONSOL, P/SORT,
CALC CMNT, POOR INTRGRAN
POR, NO FLUOR, NO STRM CUT,
NO CUT AFTER CRUSH, DIM YLW
RING CUT, SME SS

ROP (Min/Ft) 2
Gamma (API) 300

SILTSTN; LT GRY, VF GR, SUB-ANG,
OPA, BRITTLE, P/CONSOL, P/SORT,
CALC CMNT, POOR INTRGRAN
POR, NO FLUOR, NO STRM CUT,
NO CUT AFTER CRUSH, DIM YLW
RING CUT, SME SS

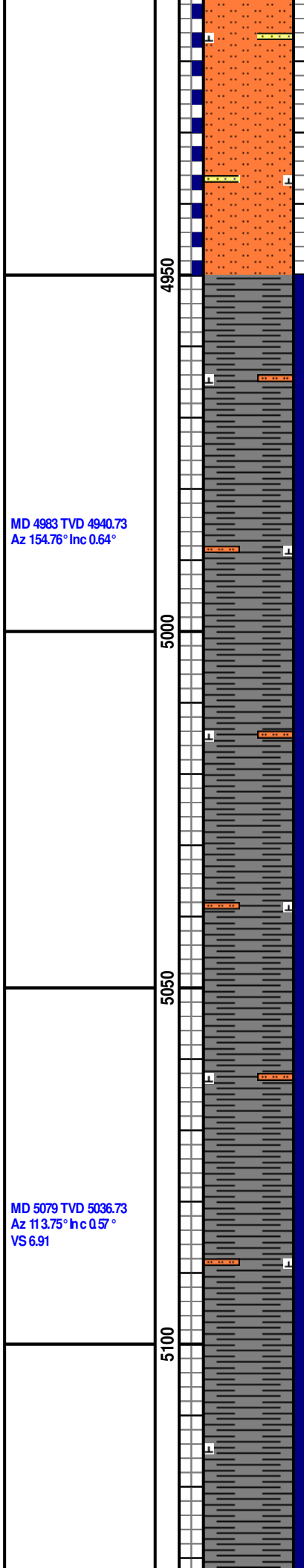
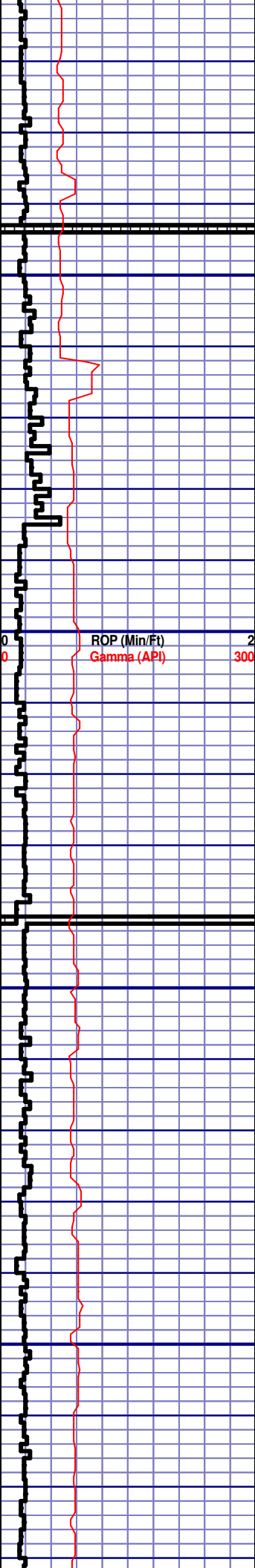
MD 4887 TVD 4844.74
Az 125.54° Inc 0.86°
VS 5.40

SILTSTN; LT GRY, VF GR, SUB-ANG,
OPA, BRITTLE, P/CONSOL, P/SORT,
CALC CMNT, POOR INTRGRAN
POR, NO FLUOR, NO STRM CUT,
NO CUT AFTER CRUSH, DIM YLW
RING CUT, SME SS

CG 378u

-125 TG, C1-C4 1125

CG 334u



SILTSTN; LT GRY, VF GR, SUB-ANG, OPA, BRITTLE, P/CONSOL, P/SORT, CALC CMNT, POOR INTRGRAN POR, NO FLUOR, NO STRM CUT, NO CUT AFTER CRUSH, DIM YLW RING CUT, SME SS

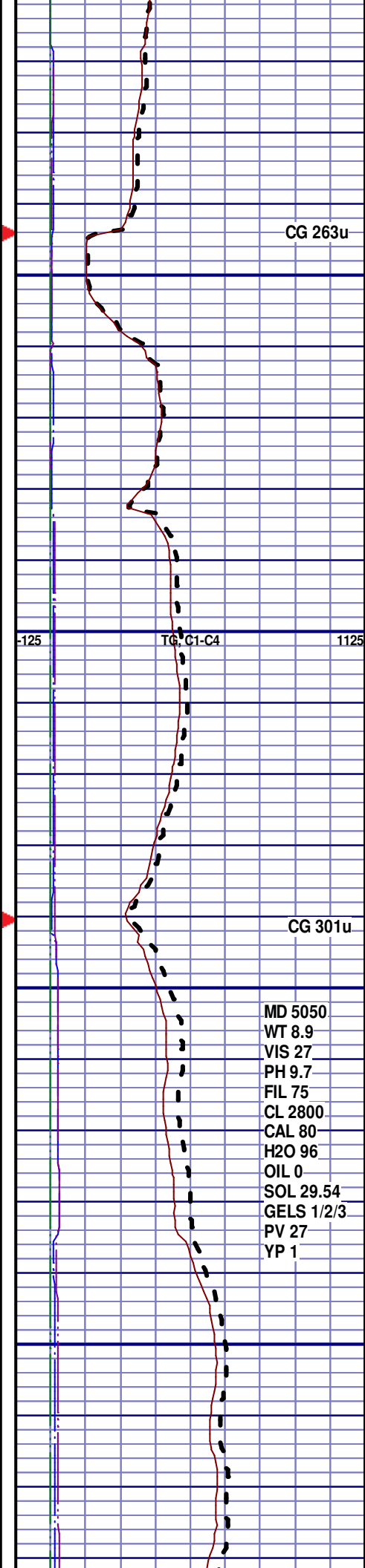
SH; GRY TO LT GRY, FINE TXT, SOFT TO FIRM, NO VIS FRACT, MINOR CALC, BLKY TO PLATY, IMMED BLU STRM CUT, DIM YLW RING CUT, NO VIS STAIN, SME SILTSTN

SH; GRY TO LT GRY, FINE TXT, SOFT TO FIRM, NO VIS FRACT, MINOR CALC, BLKY TO PLATY, IMMED BLU STRM CUT, DIM YLW RING CUT, NO VIS STAIN, SME SILTSTN

SH; GRY TO LT GRY, FINE TXT, SOFT TO FIRM, NO VIS FRACT, MINOR CALC, BLKY TO PLATY, IMMED BLU STRM CUT, DIM YLW RING CUT, NO VIS STAIN, SME SILTSTN

MD 4983 TVD 4940.73
Az 154.76° Inc 0.64°

MD 5079 TVD 5036.73
Az 113.75° Inc 0.57°
VS 6.91



CG 263u

TG, C1-C4

CG 301u

MD 5050
WT 8.9
VIS 27
PH 9.7
FIL 75
CL 2800
CAL 80
H2O 96
OIL 0
SOL 29.54
GELS 1/2/3
PV 27
YP 1

4950

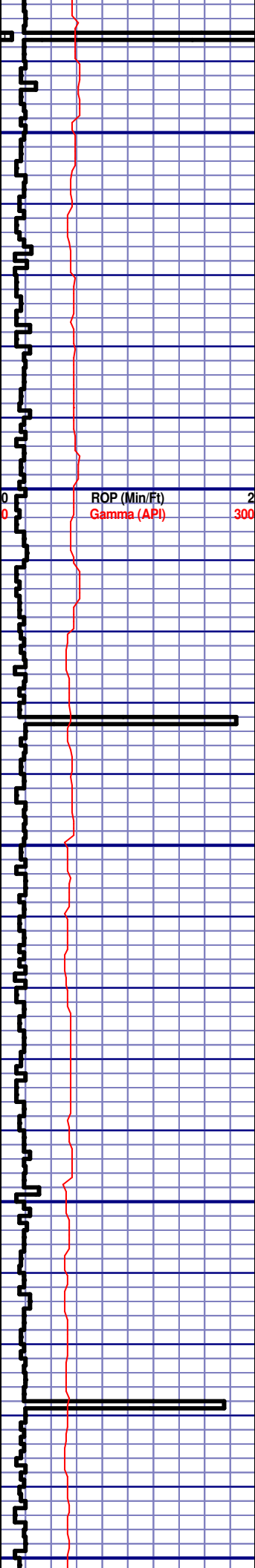
5000

5050

5100

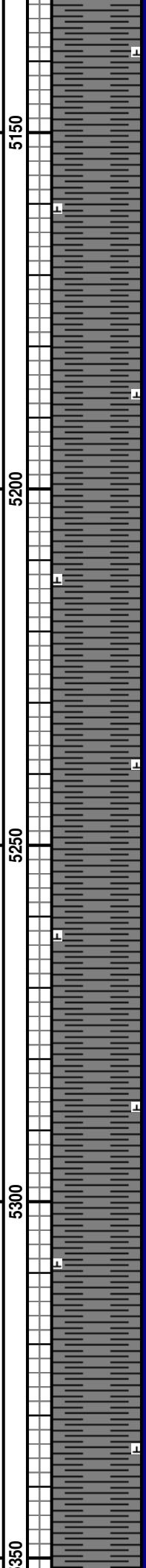
-125

1125



MD 5174 TVD 5131.73
 Az 100.82° Inc 0.29°
 VS 7.59

MD 5269 TVD 5226.72
 Az 145.51° Inc 1.05°
 VS 8.33



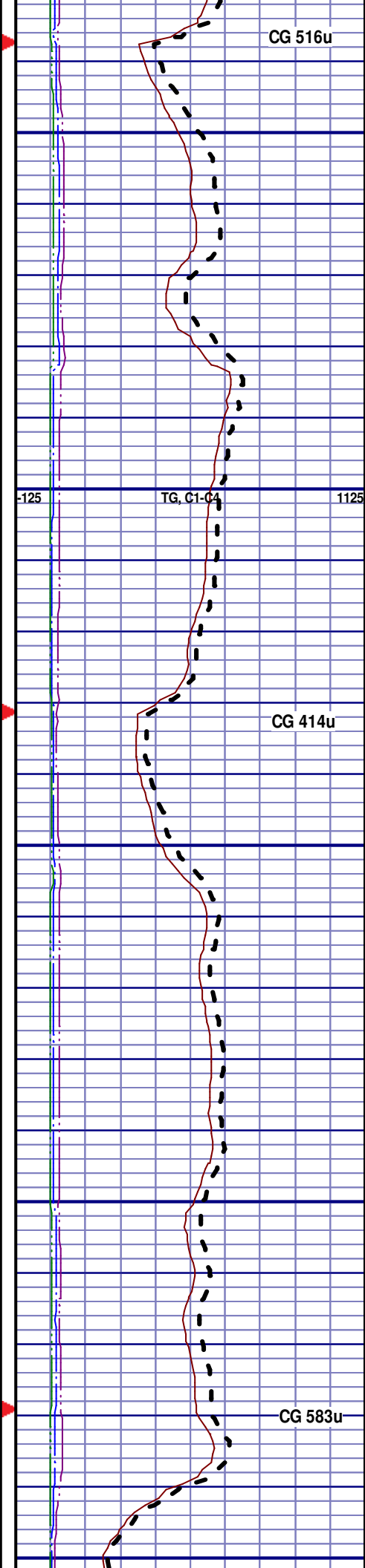
SH; GRY TO LT GRY, FINE TXT,
 SOFT TO FIRM, NO VIS FRACT,
 MINOR CALC, BLKY TO PLATY,
 IMMED BLU STRM CUT, DIM YLW
 RING CUT, NO VIS STAIN

SH; GRY TO LT GRY, FINE TXT,
 SOFT TO FIRM, NO VIS FRACT,
 MINOR CALC, BLKY TO PLATY,
 IMMED BLU STRM CUT, DIM YLW
 RING CUT, NO VIS STAIN

SH; GRY TO LT GRY, FINE TXT,
 SOFT TO FIRM, NO VIS FRACT,
 MINOR CALC, BLKY TO PLATY,
 IMMED BLU STRM CUT, DIM YLW
 RING CUT, NO VIS STAIN

SH; GRY TO LT GRY, FINE TXT,
 SOFT TO FIRM, NO VIS FRACT,
 MINOR CALC, BLKY TO PLATY,
 IMMED BLU STRM CUT, DIM YLW
 RING CUT, NO VIS STAIN

SH; GRY TO LT GRY, FINE TXT,
 SOFT TO FIRM, NO VIS FRACT,
 MINOR CALC, BLKY TO PLATY,
 IMMED BLU STRM CUT, DIM YLW
 RING CUT, NO VIS STAIN

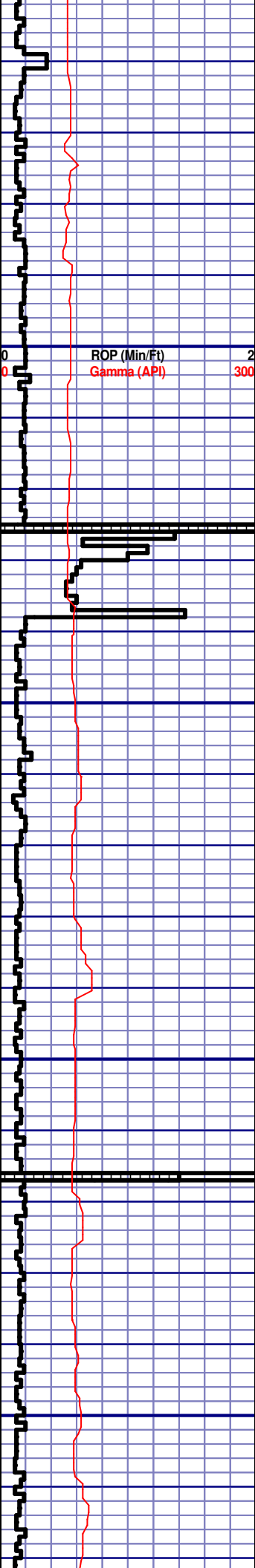


CG 516u

CG 414u

CG 583u

-125 TG, C1-C4 1125

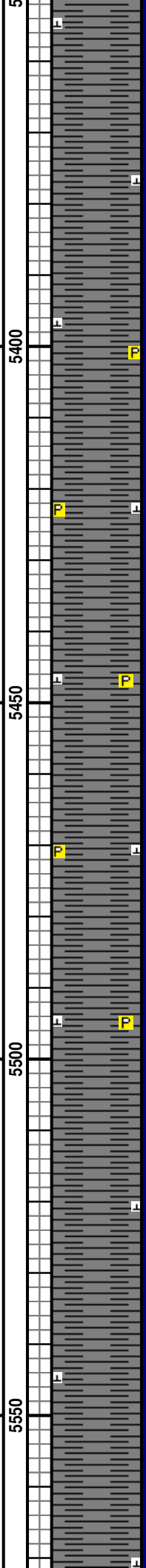


MD 5365 TVD 5322.69
 Az 137.65° Inc 1.75°
 VS 9.86

ROP (Min/Ft) 2
 Gamma (API) 300

MD 5460 TVD 5417.68
 Az 358.02° Inc 1.2°
 VS 10.8

MD 5556 TVD 5513.66
 Az 34.21° Inc 1.13°
 VS 11.27

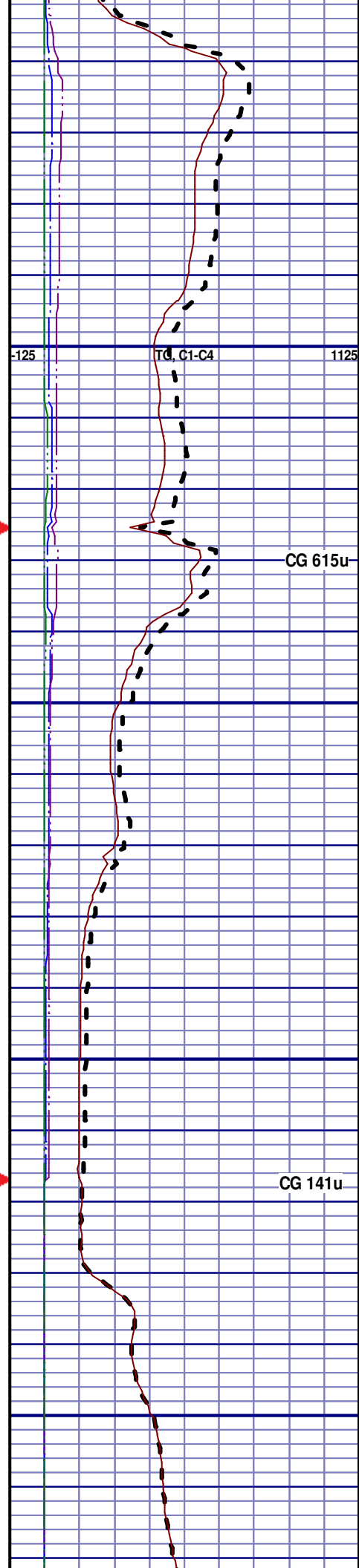


SH; GRY TO LT GRY, FINE TXT,
 SOFT TO FIRM, NO VIS FRACT,
 MINOR CALC, BLKY TO PLATY,
 IMMED BLU STRM CUT, DIM YLW
 RING CUT, NO VIS STAIN

SH; GRY TO LT GRY, FINE TXT,
 SOFT TO FIRM, NO VIS FRACT,
 MINOR CALC, TRC PYR, BLKY TO
 PLATY, IMMED BLU STRM CUT, DIM
 YLW RING CUT, NO VIS STAIN

SH; GRY TO LT GRY, FINE TXT,
 SOFT TO FIRM, NO VIS FRACT,
 MINOR CALC, TRC PYR, BLKY TO
 PLATY, IMMED BLU STRM CUT, DIM
 YLW RING CUT, NO VIS STAIN

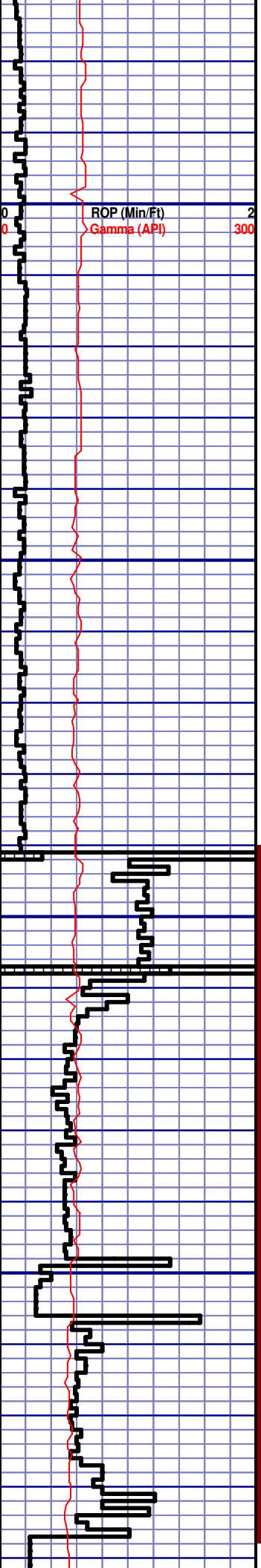
SH; GRY TO LT GRY, FINE TXT,
 SOFT TO FIRM, NO VIS FRACT,
 MINOR CALC, BLKY TO PLATY,
 IMMED BLU STRM CUT, DIM YLW
 RING CUT, NO VIS STAIN



-125 TD, C1-C4 1125

CG 615u

CG 141u



ROP (Min/Ft) 2
Gamma (API) 300

MD 5651 TVD 5608.64
Az 12.29° Inc 1.18°
VS 11.97

MD 5699 TVD 5656.62
Az 71.11° Inc 2.17°
VS 12.92

MD 5746 TVD 5703.42
Az 80.95° Inc 8°
VS 16.97

5600

5650

5700

5750

SH; GRY TO LT GRY, FINE TXT,
SOFT TO FIRM, NO VIS FRACT,
MINOR CALC, BLKY TO PLATY,
IMMED BLU STRM CUT, DIM YLW
RING CUT, NO VIS STAIN

SH; GRY TO LT GRY, FINE TXT,
SOFT TO FIRM, NO VIS FRACT,
MINOR CALC, TRC PYR, BLKY TO
PLATY, IMMED BLU STRM CUT, DIM
YLW RING CUT, NO VIS STAIN

SH; GRY TO LT GRY, FINE TXT,
SOFT TO FIRM, NO VIS FRACT,
MINOR CALC, TRC PYR, BLKY TO
PLATY, IMMED BLU STRM CUT, DIM
YLW RING CUT, NO VIS STAIN

SH; GRY TO LT GRY, FINE TXT,
SOFT TO FIRM, NO VIS FRACT,
MINOR CALC, TRC PYR, BLKY TO
PLATY, IMMED BLU STRM CUT, DIM
YLW RING CUT, NO VIS STAIN

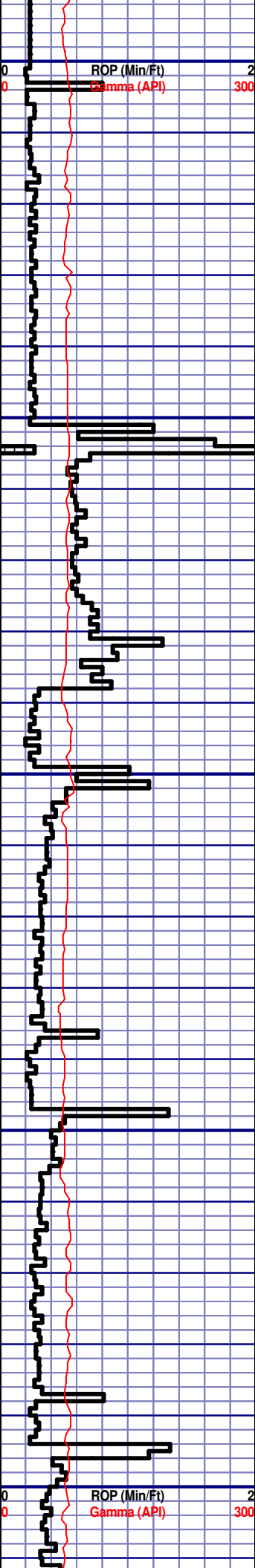
SH; GRY TO LT GRY, FINE TXT,
SOFT TO FIRM, NO VIS FRACT,
MINOR CALC, TRC PYR, BLKY TO
PLATY, IMMED BLU STRM CUT, DIM
YLW RING CUT, NO VIS STAIN, SME
SS

SH; GRY TO LT GRY, FINE TXT,
SOFT TO FIRM, NO VIS FRACT,
MINOR CALC, TRC PYR, BLKY TO
PLATY, IMMED BLU STRM CUT, DIM
YLW RING CUT, NO VIS STAIN, SME
SS

-125 TG, C1-C4 1125

CG 769u

CG 217u



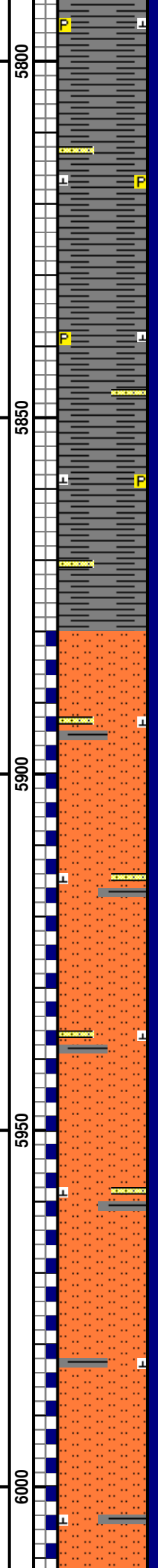
MD 5794 TVD 5750.73
Az 89.6° Inc 11.29°
VS 24.96

MD 5842 TVD 5797.84
Az 90.3° Inc 10.86°
VS 34.18

MD 5890 TVD 5844.66
Az 91.54° Inc 14.52°
VS 44.72

MD 5937 TVD 5889.64
Az 87.21° Inc 19.11°
VS 58.30

MD 5985 TVD 5934.36
Az 83.2° Inc 23.43°
VS 75.60



SH; GRY TO LT GRY, FINE TXT,
SOFT TO FIRM, NO VIS FRACT,
MINOR CALC, TRC PYR, BLKY TO
PLATY, IMMED BLU STRM CUT, DIM
YLW RING CUT, NO VIS STAIN, SME
SS

SH; GRY TO LT GRY, FINE TXT,
SOFT TO FIRM, NO VIS FRACT,
MINOR CALC, TRC PYR, BLKY TO
PLATY, IMMED BLU STRM CUT, DIM
YLW RING CUT, NO VIS STAIN, SME
SS

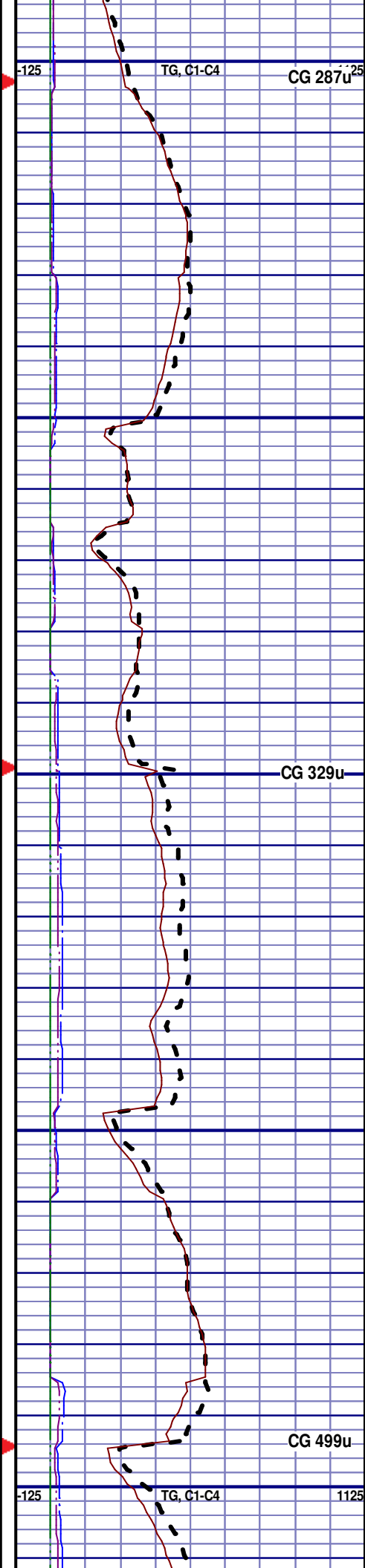
SH; GRY TO LT GRY, FINE TXT,
SOFT TO FIRM, NO VIS FRACT,
MINOR CALC, TRC PYR, BLKY TO
PLATY, IMMED BLU STRM CUT, DIM
YLW RING CUT, NO VIS STAIN, SME
SS

SILTSTN; LT GRY, SUB-ANG, OPA,
BRITTLE, P/CONSOL, P/SORT,
CALC CMNT, POOR INTRGRAN
POR, NO FLUOR, IMMED BLU STRM
CUT, DIM YLW RING CUT, NO VIS
STAIN, TRC SH, SME SS

SILTSTN; LT GRY, SUB-ANG, OPA,
BRITTLE, P/CONSOL, P/SORT,
CALC CMNT, POOR INTRGRAN
POR, NO FLUOR, IMMED BLU STRM
CUT, DIM YLW RING CUT, NO VIS
STAIN, TRC SH, SME SS

SILTSTN; LT GRY, SUB-ANG, OPA,
BRITTLE, P/CONSOL, P/SORT,
CALC CMNT, POOR INTRGRAN
POR, NO FLUOR, IMMED BLU STRM
CUT, DIM YLW RING CUT, NO VIS
STAIN, TRC SH, SME SS

SILTSTN; LT GRY, SUB-ANG, OPA,
BRITTLE, P/CONSOL, P/SORT,
CALC CMNT, POOR INTRGRAN
POR, NO FLUOR, IMMED BLU STRM
CUT, DIM YLW RING CUT, NO VIS
STAIN, TRC SH



-125 TG, C1-C4

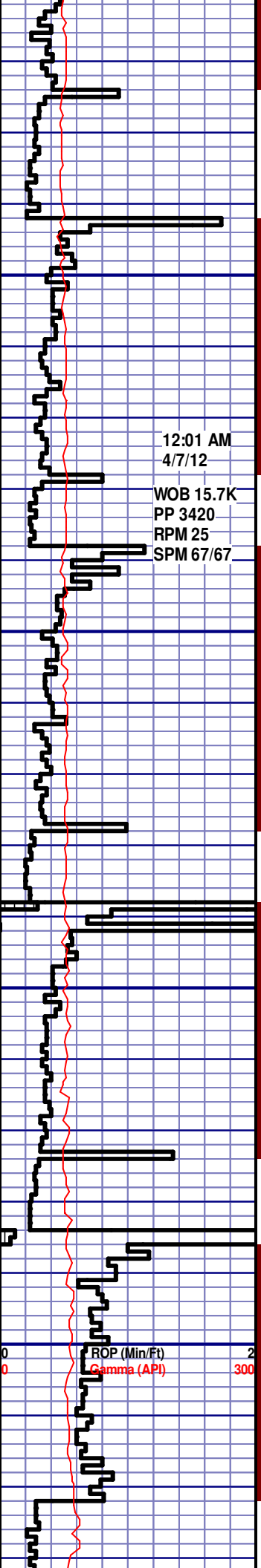
CG 287u²⁵

CG 329u

CG 499u

-125 TG, C1-C4

1125



MD 6033 TVD 5976.44
Az 82.72° Inc 26.71°
VS 95.73

12:01 AM
4/7/12

WOB 15.7K
PP 3420
RPM 25
SPM 67/67

MD 6081 TVD 6018.52
Az 86.92° Inc 30.41°
VS 118.52

MD 6129 TVD 6060.6
Az 90.52° Inc 34.15°
VS 144.12

MD 6177 TVD 6099.15
Az 89.4° Inc 38.82°
VS 172.65

MD 6225 TVD 6135.42
Az 89.74° Inc 42.97°
VS 204.05

6050
6100
6150
6200



SILTSTN; LT GRY, SUB-ANG, OPA,
BRITTLE, P/CONSOL, P/SORT,
CALC CMNT, POOR INTRGRAN
POR, NO FLUOR, IMMED BLU STRM
CUT, DIM YLW RING CUT, NO VIS
STAIN, TRC SH

SILTSTN; LT GRY, SUB-ANG, OPA,
BRITTLE, P/CONSOL, P/SORT,
CALC CMNT, POOR INTRGRAN
POR, NO FLUOR, IMMED BLU STRM
CUT, DIM YLW RING CUT, NO VIS
STAIN, TRC SH, SME SS

SILTSTN; LT GRY, SUB-ANG, OPA,
BRITTLE, P/CONSOL, P/SORT,
CALC CMNT, POOR INTRGRAN
POR, NO FLUOR, IMMED BLU STRM
CUT, DIM YLW RING CUT, NO VIS
STAIN, TRC SH, SME SS

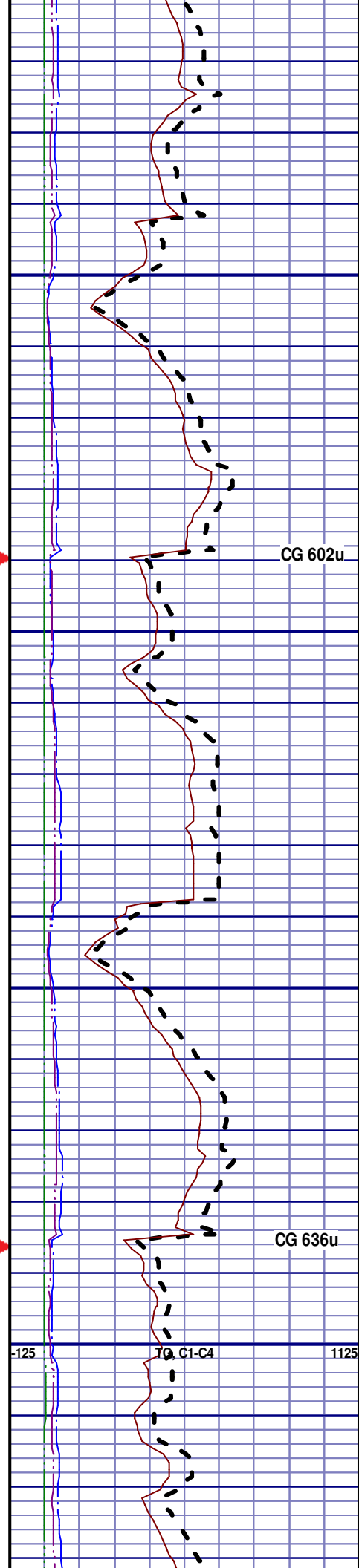
SILTSTN; LT GRY, SUB-ANG, OPA,
BRITTLE, P/CONSOL, P/SORT,
CALC CMNT, PYR INCLUS, POOR
INTRGRAN POR, NO FLUOR, IMMED
BLU STRM CUT, DIM YLW RING CUT,
NO VIS STAIN, TRC SH, SME SS

SILTSTN; LT GRY, SUB-ANG, OPA,
BRITTLE, P/CONSOL, P/SORT,
CALC CMNT, POOR INTRGRAN
POR, NO FLUOR, IMMED BLU STRM
CUT, DIM YLW RING CUT, NO VIS
STAIN, TRC SH, SME SS

SILTSTN; LT GRY, SUB-ANG, OPA,
BRITTLE, P/CONSOL, P/SORT,
CALC CMNT, POOR INTRGRAN
POR, NO FLUOR, IMMED BLU STRM
CUT, DIM YLW RING CUT, NO VIS
STAIN, TRC SH, SME SS

SILTSTN; LT GRY, SUB-ANG, OPA,
BRITTLE, P/CONSOL, P/SORT,
CALC CMNT, POOR INTRGRAN
POR, NO FLUOR, IMMED BLU STRM
CUT, DIM YLW RING CUT, NO VIS
STAIN, TRC SH, SME SS

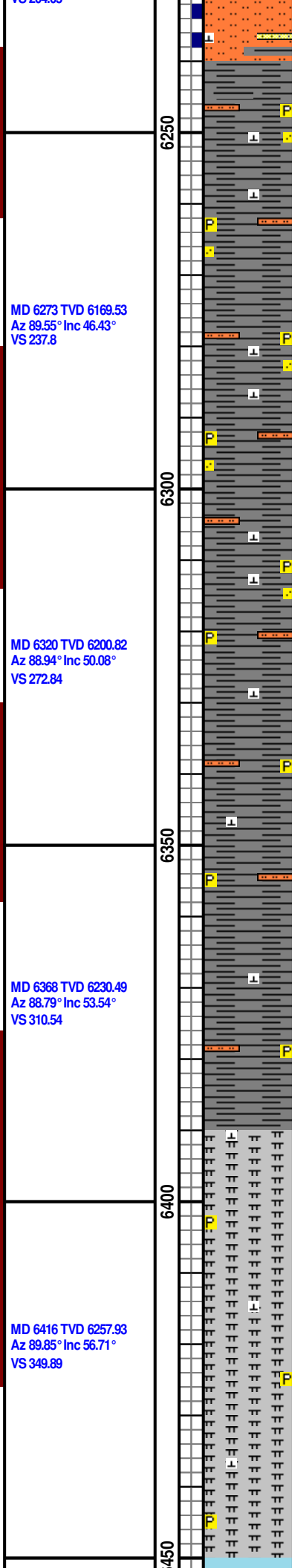
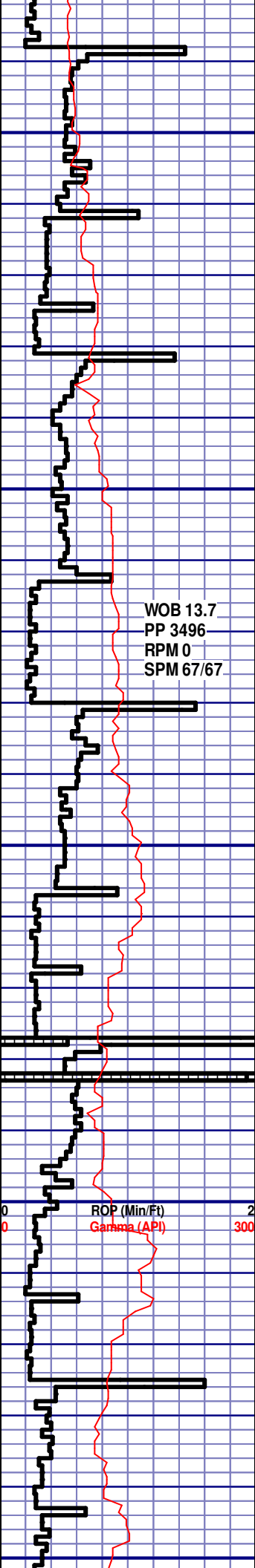
SILTSTN; LT GRY, SUB-ANG, OPA,
BRITTLE, P/CONSOL, P/SORT,
CALC CMNT, POOR INTRGRAN
POR, NO FLUOR, IMMED BLU STRM
CUT, DIM YLW RING CUT, NO VIS
STAIN, TRC SH, SME SS



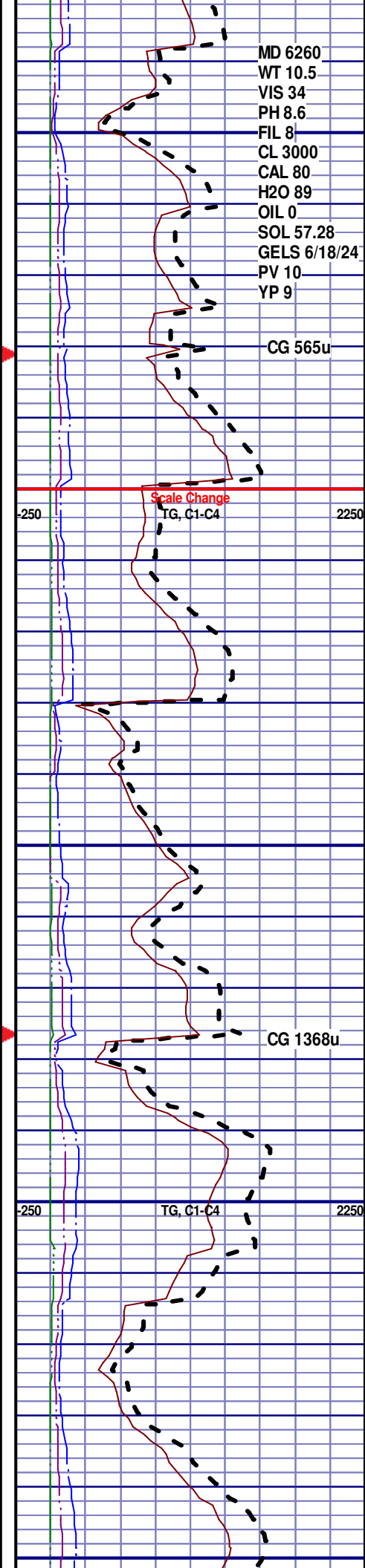
CG 602u

CG 636u

-125 70 C1-C4 1125



POR, NO FLUOR, IMMED BLU STRM CUT, DIM YLW RING CUT, NO VIS STAIN, TRC SH, SME SS
 SH; GRY EARTHY TXT, FIRM, SILTY, NO VIS FRACT, MINOR CALC, PYR INCLUS, PLATY, IMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN, SME SILTSTN, TRC SS
 SH; GRY EARTHY TXT, FIRM, SILTY, NO VIS FRACT, MINOR CALC, PYR INCLUS, PLATY, IMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN, SME SILTSTN, TRC SS
 SH; GRY EARTHY TXT, FIRM, SILTY, NO VIS FRACT, MINOR CALC, PYR INCLUS, PLATY, IMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN, SME SILTSTN, TRC SS
 SH; GRY EARTHY TXT, FIRM, SILTY, NO VIS FRACT, MINOR CALC, PYR INCLUS, PLATY, IMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN, SME SILTSTN
 SH; GRY EARTHY TXT, FIRM, SILTY, NO VIS FRACT, MINOR CALC, PYR INCLUS, PLATY, IMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN, SME SILTSTN
SHARON SPRINGS
 6404' MD 6252' TVD
 MRL; 40%; LT GRY TO GRY, SOFT TO BRITTLE, NO VIS FRACT, MINOR CALC, PYR INCLUS, POOR INTRXLN POR, NO FLUOR, IMMED BLU STRM CUT, YLW RING CUT, NO VIS STAIN
NIOBRARA
 6443' MD 6272' TVD



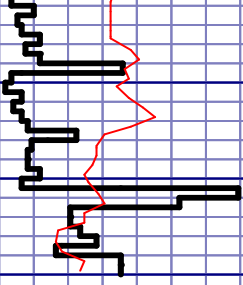
MD 6260
 WT 10.5
 VIS 34
 PH 8.6
 FIL 8
 CL 3000
 CAL 80
 H2O 89
 OIL 0
 SOL 57.28
 GELS 6/18/24
 PV 10
 YP 9

CG 565u

Scale Change
TG, C1-C4

CG 1368u

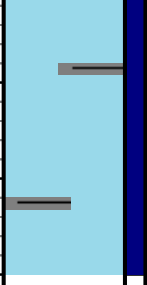
TG, C1-C4



MD 6464 TVD 6282.7
Az 88.2° Inc 61.16°
VS 390.97

6

6500



CHK; 65%; OFF WH TO GRY, SOFT,
SH INCLUS, NO VIS FRACT, POOR
INTRXLN POR, NO FLUOR, IMMED
BLU STRM CUT, YLW RING CUT, NO
VIS STAIN

NIOBRARA A MARL
6465' MD 6285' TVD

END OF VERTICAL LOG @ 6480'
MD ON 4/7/12, CONTINUED ON
HORIZONTAL LOG

