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COMPANY: Sandridge EXPLORATION & PRODUCTION

WELL: Pintail SWD 2-16D API:05-057-06566

FIELD: Wildcat COUNTY: Jackson STATE: Colorado

LOCATION: \_\_\_\_\_

Interval Logged: 2318 To: \_\_\_\_\_ G.L.: \_\_\_\_\_ K.B: \_\_\_\_\_

Date Logged: \_\_\_\_\_ To: \_\_\_\_\_ Spud Date: \_\_\_\_\_

Rig: \_\_\_\_\_ Unit No.: \_\_\_\_\_

Loggers: \_\_\_\_\_

Api No.: \_\_\_\_\_

Filename: pintail\_sw\_d\_2-16d.mlw

Geologist: \_\_\_\_\_

Created By MainLog

<p><b>Abbreviations:</b></p> <table style="width:100%;"> <tr><td>NB...New Bit</td><td>DST...Drill Stem Test</td></tr> <tr><td>CO...Circ Out</td><td>DS...Directional Survey</td></tr> <tr><td>NR...No Returns</td><td>CG...Connection gas</td></tr> <tr><td>TG...Trip Gas</td><td>LAT...Logged After Trip</td></tr> <tr><td>WOB...Wt on Bit</td><td>PP...Pump Pressure</td></tr> <tr><td>RPM...Rev/Min</td><td>SPM...Strokes/Min</td></tr> <tr><td>SG...Survey Gas</td><td>DTG...Down Time Gas</td></tr> </table> <p><b>Mud Data</b></p> <table style="width:100%;"> <tr><td>WT...Weight</td><td>V...Viscosity</td></tr> <tr><td>PH...Acidity</td><td>F...Filtrate</td></tr> <tr><td>CHL...Chlorides</td><td>SC...Solids Content</td></tr> </table>	NB...New Bit	DST...Drill Stem Test	CO...Circ Out	DS...Directional Survey	NR...No Returns	CG...Connection gas	TG...Trip Gas	LAT...Logged After Trip	WOB...Wt on Bit	PP...Pump Pressure	RPM...Rev/Min	SPM...Strokes/Min	SG...Survey Gas	DTG...Down Time Gas	WT...Weight	V...Viscosity	PH...Acidity	F...Filtrate	CHL...Chlorides	SC...Solids Content	<p><b>Lithology Symbols:</b></p> <table style="width:100%;"> <tr> <td> Anhydrite</td> <td> Salt</td> <td> Granite</td> </tr> <tr> <td> Siltstone</td> <td> Chert</td> <td> Sandstone</td> </tr> <tr> <td> Dolomite</td> <td> Conglomerate</td> <td> Limestone</td> </tr> <tr> <td> Coal</td> <td> Shale</td> <td> Bentonite</td> </tr> <tr> <td> Carb Shale</td> <td> Granite Wash</td> <td> Quartz Wash</td> </tr> <tr> <td> Red Sh</td> <td> Org Sh</td> <td> Green Sh</td> </tr> <tr> <td> Cust Sh1</td> <td> Cust Sh2</td> <td> Cust Sh3</td> </tr> <tr> <td> Cust Sh4</td> <td> Cust Sh5</td> <td> Cust Sh6</td> </tr> </table> <p><b>Accessories</b></p> <table style="width:100%;"> <tr> <td> Glauconite</td> <td> Pyrite</td> <td> Fossils</td> <td> Oolites</td> </tr> <tr> <td> Fractures</td> <td> Cement</td> <td></td> <td></td> </tr> </table>	Anhydrite	Salt	Granite	Siltstone	Chert	Sandstone	Dolomite	Conglomerate	Limestone	Coal	Shale	Bentonite	Carb Shale	Granite Wash	Quartz Wash	Red Sh	Org Sh	Green Sh	Cust Sh1	Cust Sh2	Cust Sh3	Cust Sh4	Cust Sh5	Cust Sh6	Glauconite	Pyrite	Fossils	Oolites	Fractures	Cement			<p><b>Gas Chromatograph Analysis:</b></p> <table style="width:100%;"> <tr><td>TG</td><td>_____</td></tr> <tr><td>C1</td><td>_____</td></tr> <tr><td>C2</td><td>_____</td></tr> <tr><td>C3</td><td>_____</td></tr> <tr><td>IC4</td><td>_____</td></tr> <tr><td>NC4</td><td>_____</td></tr> <tr><td>IC5</td><td>_____</td></tr> <tr><td>NC5</td><td>_____</td></tr> </table>	TG	_____	C1	_____	C2	_____	C3	_____	IC4	_____	NC4	_____	IC5	_____	NC5	_____
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0 <span style="color: green;">GAMMA API</span> 300 <b>Drilling Rate</b> FT/HR	Vis Por  Tr / p f g	<b>Lithology</b>	% Oil Flu Tr / p f g	Cut Tr / pfg	<b>Descriptions/Remarks</b>	<b>Total Gas/Chromatograph</b>
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0 <span style="color: green;">GAMMA</span> 300		2 <span style="color: blue;">ALL DEPTHS FROM RIG TALLY</span> 0 500
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RIG UP 2 MAN UNIT ON 12/19/17 SET 9 5/8" CSG. @ 2318' DRILLING 8 3/4" O.H. W/5" D.P. PUMPS 5.5"x11"

DRILLING W/ OIL BASED MUD

GAMMA

300

600 400 200 100 2300

MD 2318'  
TVD 2317.24'  
INC 1.70°  
AZM 231.61°  
VS 5.47'  
DLS 0.00°

50

SH: gry-dk gry sft-frm  
plty blkly splty rgh txt  
n calc

c

2400

SH: gry-dk gry sft-frm  
plty blkly splty rgh txt  
n calc

GAMMA

300

600 400 200 100

MD 2414'  
TVD 2414.19'  
INC 2.10°  
AZM 198.80°  
VS 4.10'  
DLS 1.17°

50

SH: gry-dk gry sft-frm  
plty blkly splty rgh txt  
n calc

25 50 100 200 300 400 500

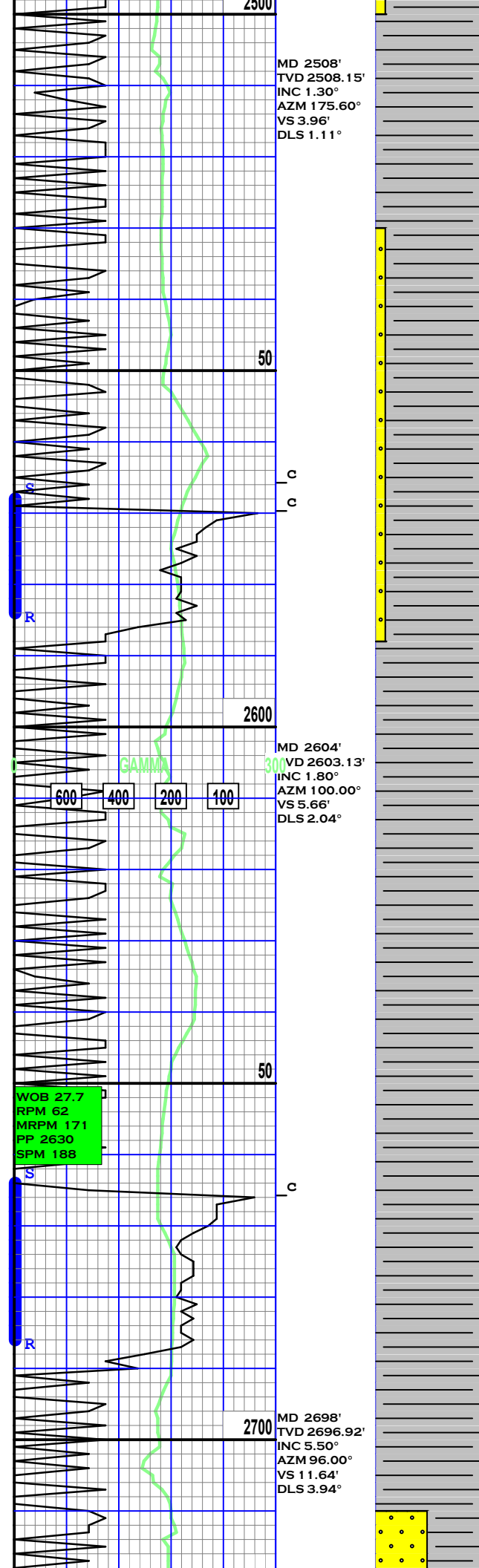
WOB 23.8  
RPM 62  
MRPM 171  
PP 2610  
SPM 188

WT IN 9.5  
WT OUT 9.5  
VIS 76

c



R  
R  
R



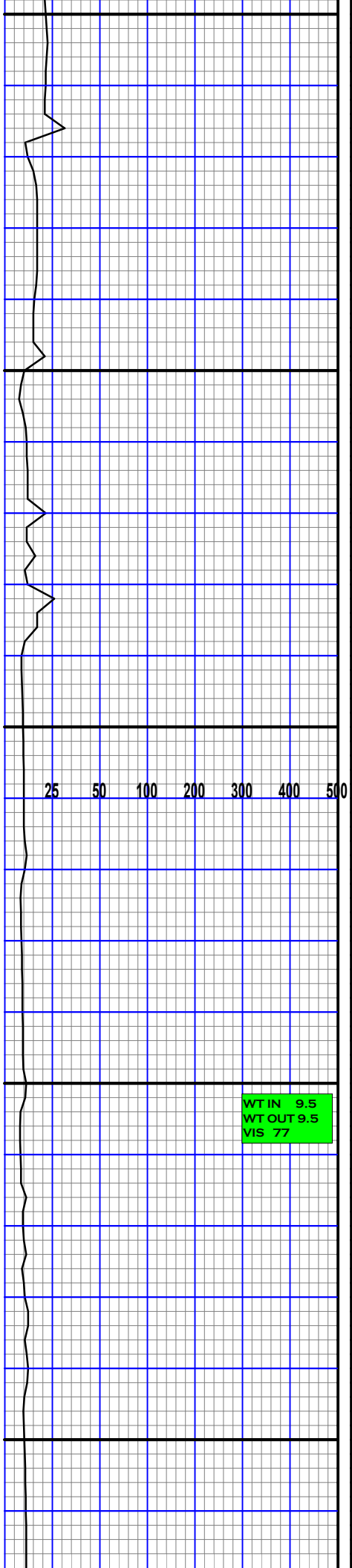
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sbrnd sbang wlsrtd wl  
consol ip calc

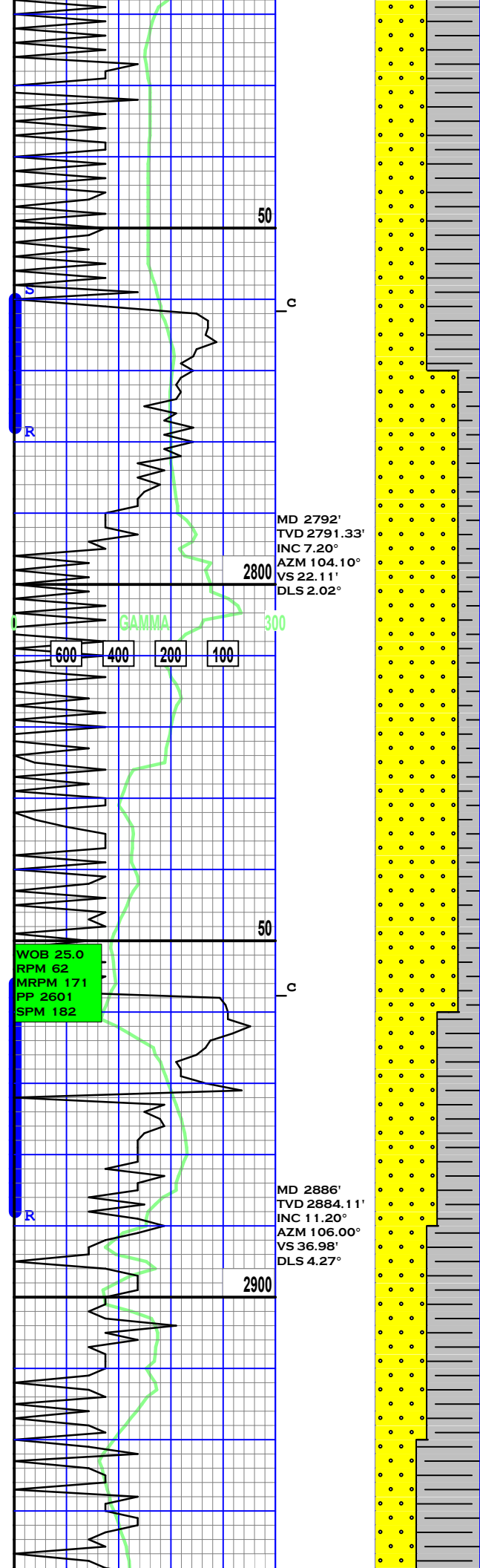
SH: gry-dk gry sft-firm  
plty blky splty rgh txt  
n calc

SD: off wht-wht xf-vfg  
sbrnd sbang wlsrtd wl  
consol ip calc

SH: gry-dk gry sft-firm  
plty blky splty rgh txt  
n calc

SH: gry-dk gry sft-firm  
plty blky splty rgh txt  
n calc





SD: lt gry trans off  
wht-wht xf-vfg sbrnd  
sbang wlsrtd wl consol  
ip calc

SH: gry-dk gry sft-frm  
plty blkly splty rgh txt  
n calc

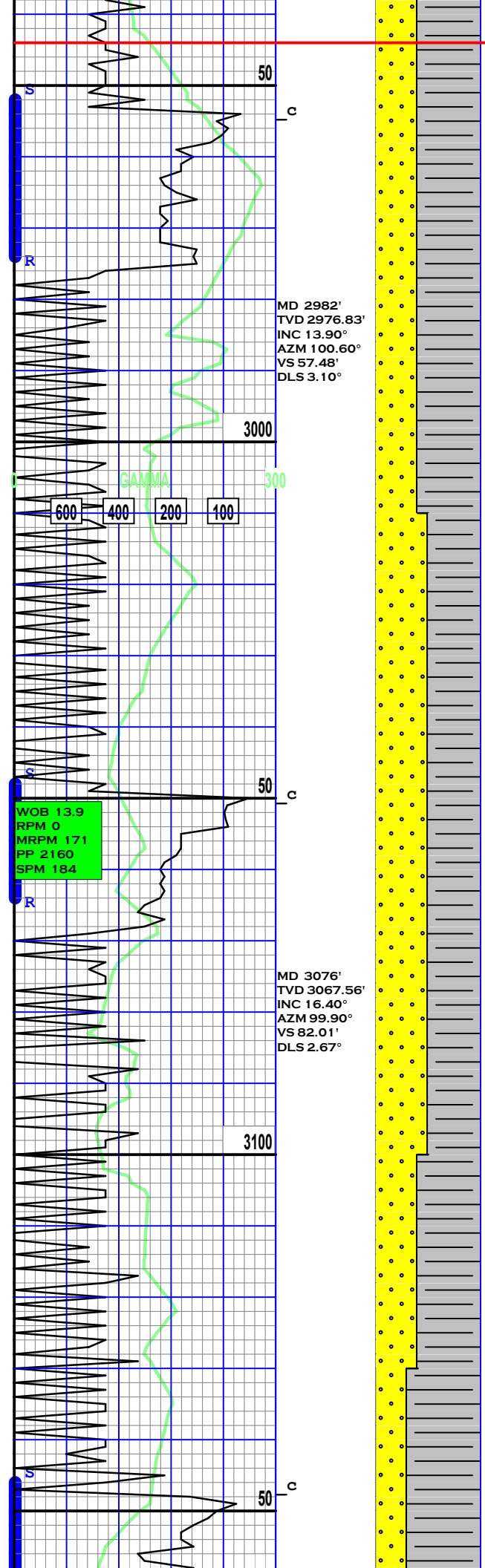
SD: lt gry trans off  
wht-wht xf-vfg sbrnd  
sbang wl srtd wl consol  
ip calc

SD: lt gry trans off  
wht-wht xf-vfg sbrnd  
sbang wl srtd wl consol  
ip calc

WT IN 9.4  
WT OUT 9.4  
VIS 73

25 50 100 200 300 400 500

Top Lance



SH: lt grn lt gry-dk gry  
sft-frm plty blkly splty  
rgh-rthy txt n calc

SD: lt gry trans off  
wht-wht xf-vfg sbrnd  
sbang wl srtd wl consol  
ip calc

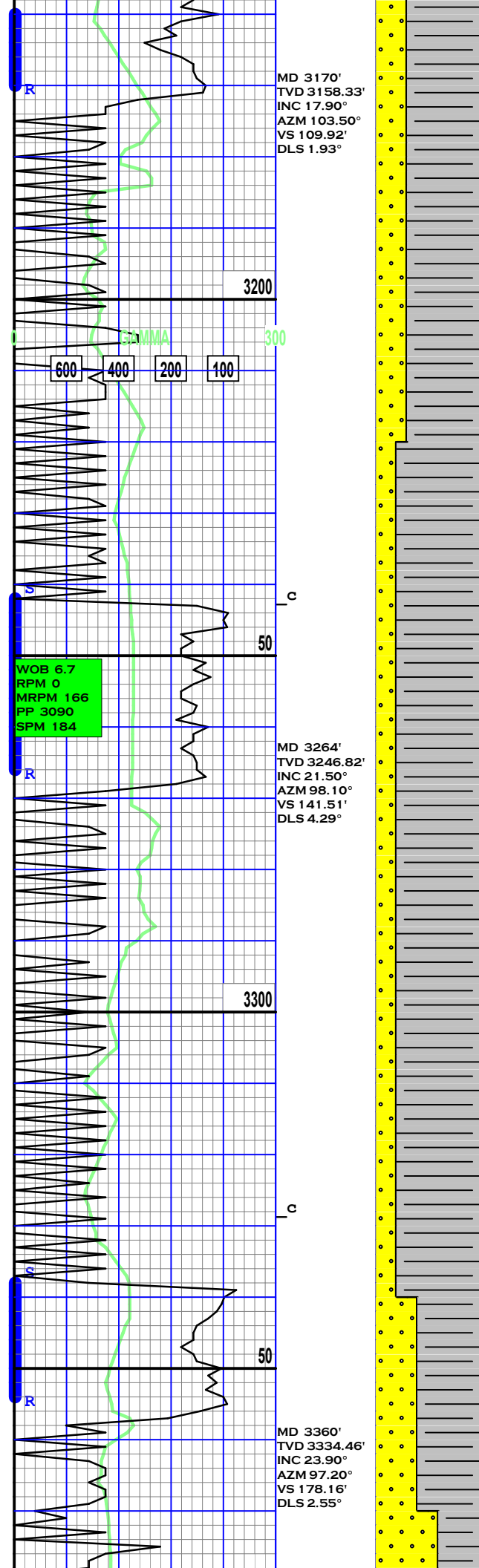
SH: lt grn lt gry-dk gry  
sft-frm plty blkly splty  
rgh-rthy txt n calc

SD: lt gry trans off  
wht-wht xf-vfg sbrnd  
sbang wl srtd wl consol  
ip calc

SH: lt grn lt gry-dk gry  
sft-frm plty blkly splty  
rgh-rthy txt n calc

25 50 100 200 300 400 500

WT IN 9.4  
WT OUT 9.4  
VIS 73



SH: lt grn lt gry-dk  
gry sft frm plty blk  
splty rgh-rthy txt n  
calc

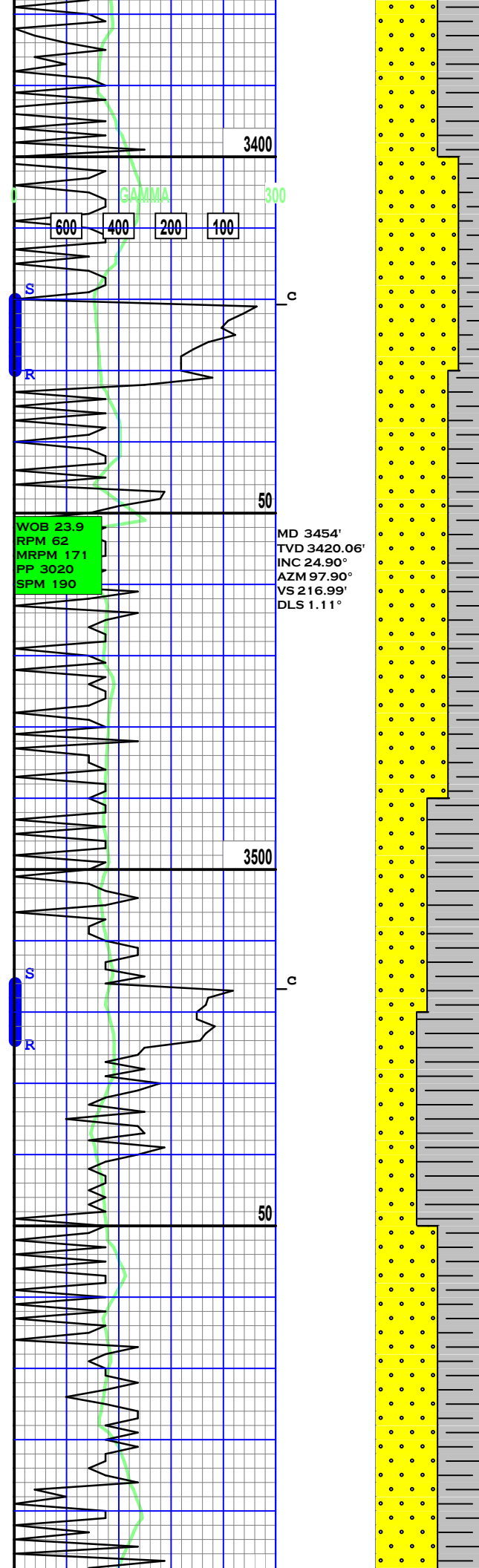
25 50 100 200 300 400 500

SD: lt gry trans off  
wht-wht xf-vfg sbrnd  
sbang wl srted wl consol  
ip calc

WT IN 9.3  
WT OUT 9.3  
VIS 61

SH: lt grn lt gry-dk  
gry sft frm plty blk  
splty rgh-rthy txt n  
calc

SH: lt grn lt gry-dk  
gry sft frm plty blk  
splty rgh-rthy txt n  
calc



SD: lt gry trans off  
 wht-wht xf-vfg sbrnd  
 sbang wl srt'd wl consol  
 ip calc

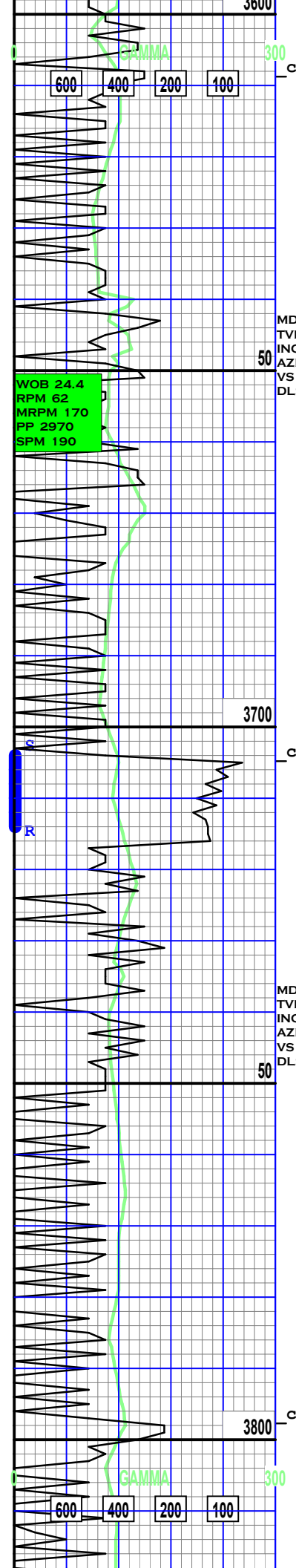
25 50 100 200 300 400 500

SH: lt grn lt gry-dk  
 gry sft-frm plty blk  
 splty rgh-rthy txt n  
 calc

WT IN 9.3  
 WT OUT 9.3  
 VIS 61

SH: lt grn lt gry-dk  
 gry sft-frm plty blk  
 splty rgh-rthy txt n  
 calc

SD: lt gry trans off  
 wht-wht xf-vfg sbrnd  
 sbang wl srt'd wl consol  
 ip calc



MD 3644'  
TVD 3590.76'  
INC 25.70°  
AZM 95.80°  
VS 300.40'  
DLS 1.18°

MD 3738'  
TVD 3674.88'  
INC 27.30°  
AZM 95.30°  
VS 342.33'  
DLS 1.72°

SH: lt grn lt gry-dk  
gry sft-frm plty blk  
spty rgh-rthy txt n  
calc

SD: lt gry trans off  
wht-wht xf-vfg sbrnd  
sbang wl srted wl consol  
ip calc

SH: lt grn lt gry-dk  
gry sft-frm plty blk  
spty rgh-rthy txt n  
calc

SD: wt lt gry clr mlky  
sbang sbrnd mf-cg wl  
srted wl consol

SD: lt gry wht clr mlky  
mfg sbang sbrnd wl  
srted wl consol

WTIN 9.3  
WT OUT 9.3  
VIS 61

25 50 100 200 300 400 500

25 50 100 200 300 400 500

MD 3832'  
TVD 3759.56'  
INC 26.60°  
AZM 94.90°  
VS 385.36'  
DLS 0.76°

50

WOB 24.3  
RPM 62  
MRPM 168  
PP 3005  
SPM 188

SH: gry-dk gry blk  
hom smth-rthy txt

WT IN 9.4  
WT OUT 9.4  
VIS 57

3900

SD: lt gry-wt clr mlky  
mfg sbang sbrnd wl srted  
wl consol n calc

Top Fox Hills

MD 3928'  
TVD 3844.73'  
INC 26.00°  
AZM 94.00°  
VS 427.40'  
DLS 0.76°

50

SH: dk gry-lt gry blk  
hom smth txt

c

4000

SD: wt occ lt gry clr  
mlky vf-mfg sbang sbrnd  
wl srted wl consol calc

Gamma

300

600 400 200 100

25 50 100 200 300 400 500

MD 4022'  
TVD 3929.71'  
INC 24.60°  
AZM 94.90°  
VS 467.53'  
DLS 1.54°

WOB 24.3  
RPM 62  
MRPM 172  
PP 3233  
SPM 192

WT IN 9.4  
WT OUT 9.4  
VIS 57

SH: gry-dk gry blk  
hom rthy txt

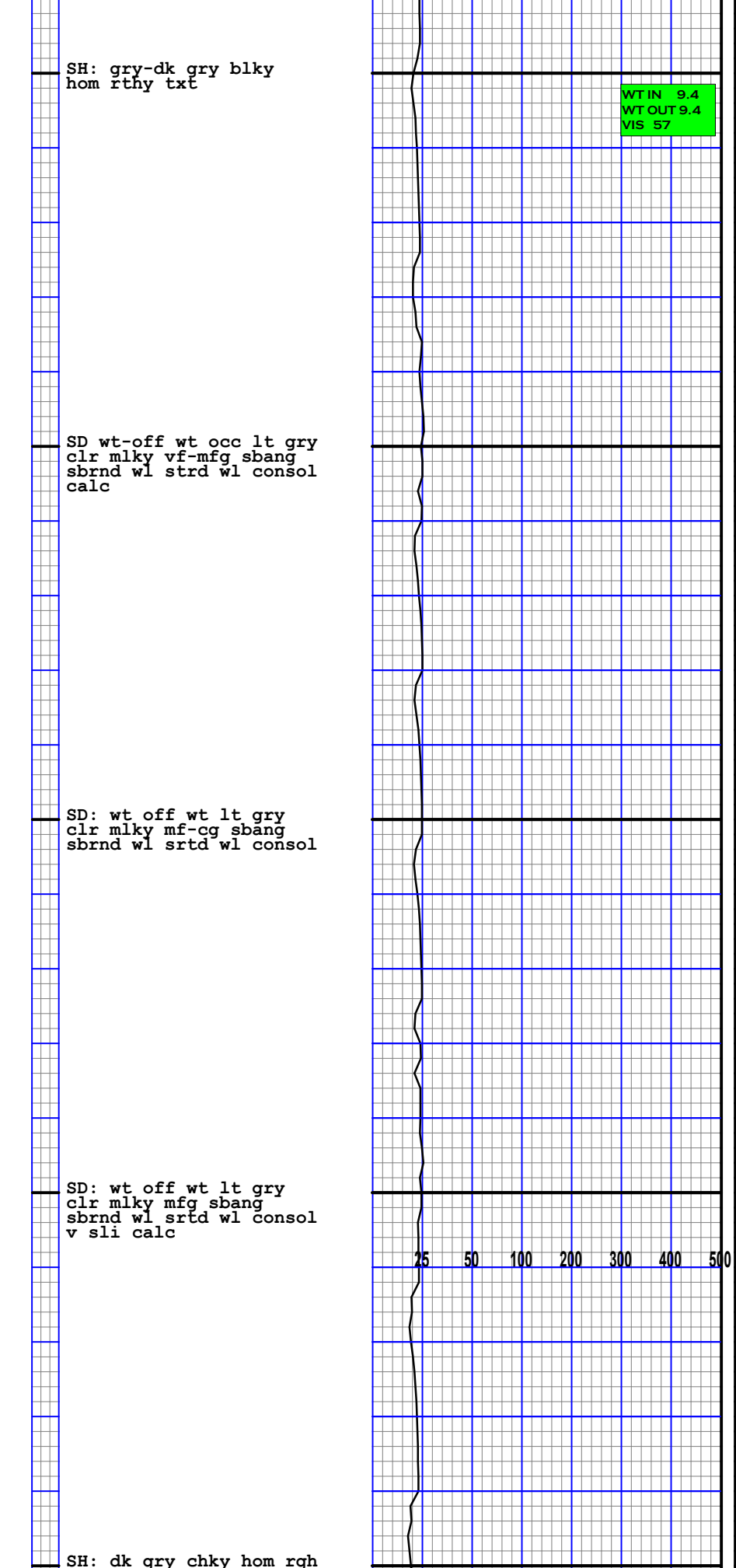
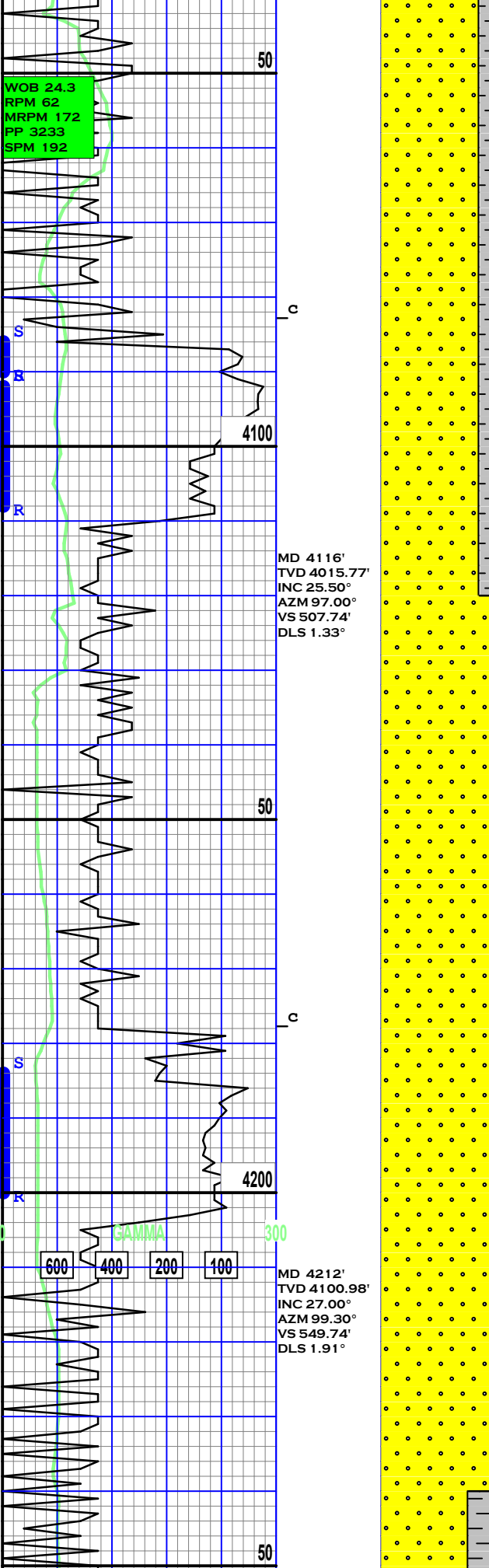
SD wt-off wt occ lt gry  
clr mlky vf-mfg sbang  
sbrnd wl strd wl consol  
calc

SD: wt off wt lt gry  
clr mlky mf-cg sbang  
sbrnd wl srtd wl consol

SD: wt off wt lt gry  
clr mlky mfg sbang  
sbrnd wl srtd wl consol  
v sii calc

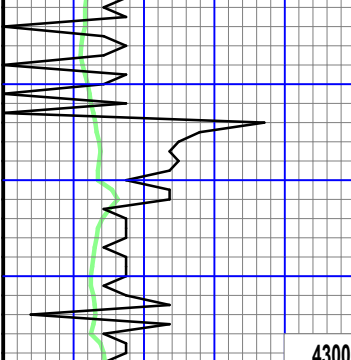
SH: dk gry chky hom rgh  
rthy txt

WT IN 9.4  
WT OUT 9.4  
VIS 64



WOB 25.2  
RPM 62  
MRPM 169  
PP 3015

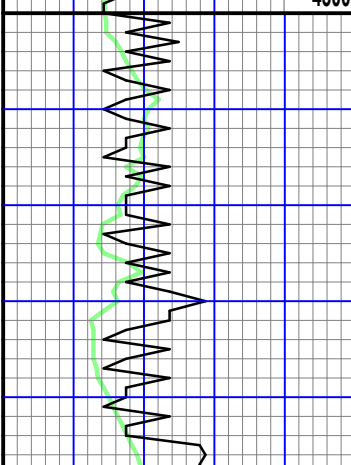
SPM 188



4300

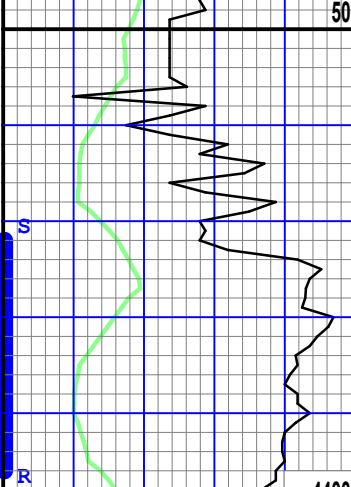
MD 4306'  
 TVD 4185.99'  
 INC 26.00°  
 AZM 99.30°  
 VS 592.10'  
 DLS 1.05°

SD: off wt lt gry occ  
 wt clr mlky mfg wl srted  
 wl consol



50

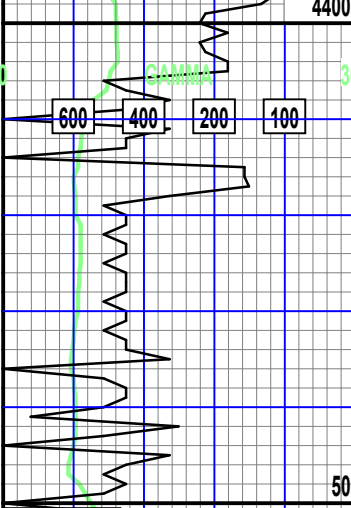
SH: dk gry chky hom rgh  
 rthy txt



4400

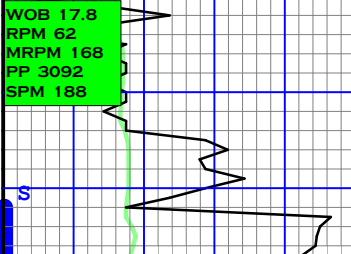
MD 4400'  
 TVD 4269.93'  
 INC 27.50°  
 AZM 100.90°  
 VS 634.34'  
 DLS 1.77°

SH: dk gry blk chky  
 hom rgh-rthy txt



50

SD: wt-off wt clr mlky  
 mfg sbang sbrnd wl srted  
 wl consol sli clac

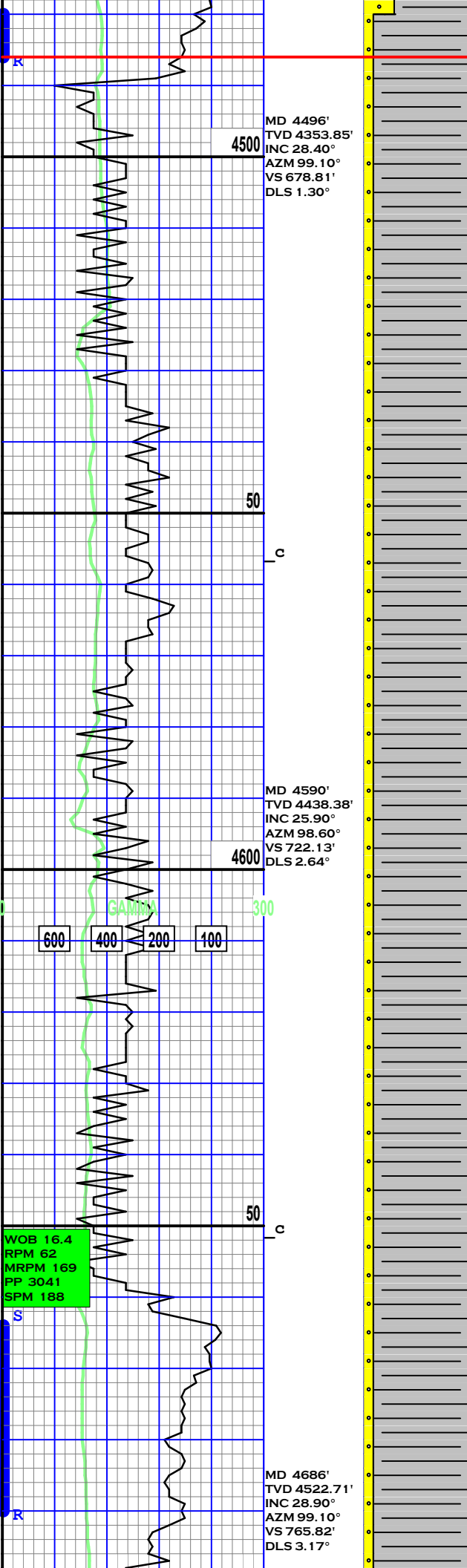


WOB 17.8  
 RPM 62  
 MRPM 168  
 FP 3092  
 SPM 188

WT IN 9.4  
 WT OUT 9.4  
 VIS 58

25 50 100 200 300 400 500

Top Pierre



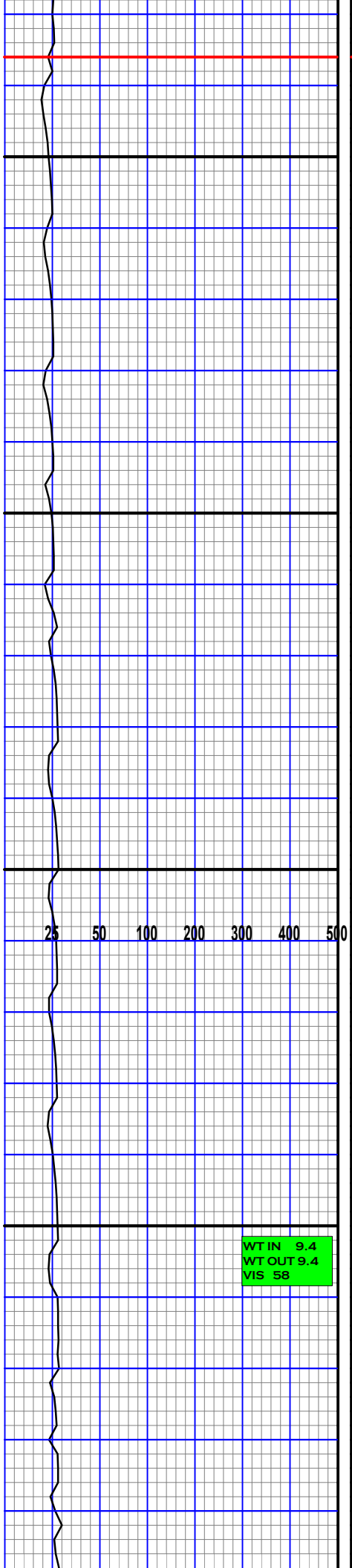
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hom rgh-rthy txt

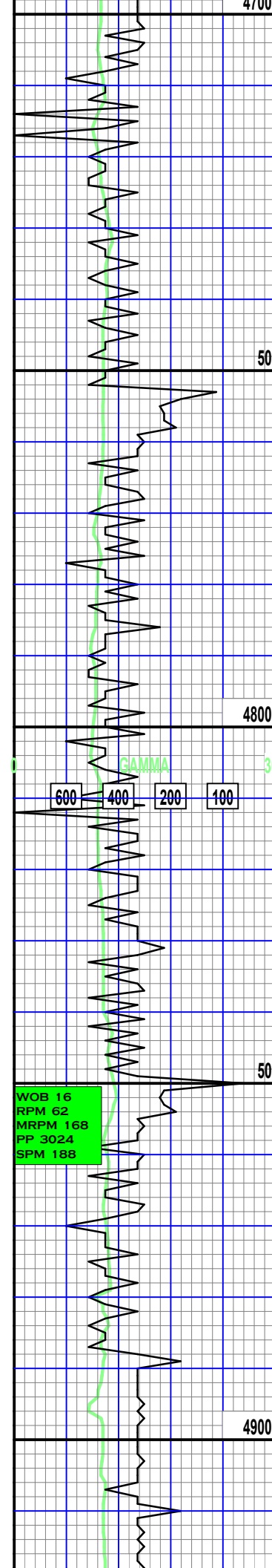
SD: wt-off wt clr mlky  
mfg sbang sbrnd wl srted  
wl consol

SH: dk gry chky occ  
blk hom rgh txt trc  
clct

SD: wt-off wt clr mlky  
mfg sbang sbrnd wl srted  
wl consol

WT IN 9.4  
WT OUT 9.4  
VIS 58





50

MD 4780'  
 TVD 4605.32'  
 INC 28.10°  
 AZM 99.00°  
 VS 810.65'  
 DLS 0.85°

4800

GAMMA

300

600 400 200 100

50

WOB 16  
 RPM 62  
 MRPM 168  
 FP 3024  
 SPM 188

MD 4874'  
 TVD 4688.88'  
 INC 26.40°  
 AZM 99.90°  
 VS 853.65'  
 DLS 1.86°

4900

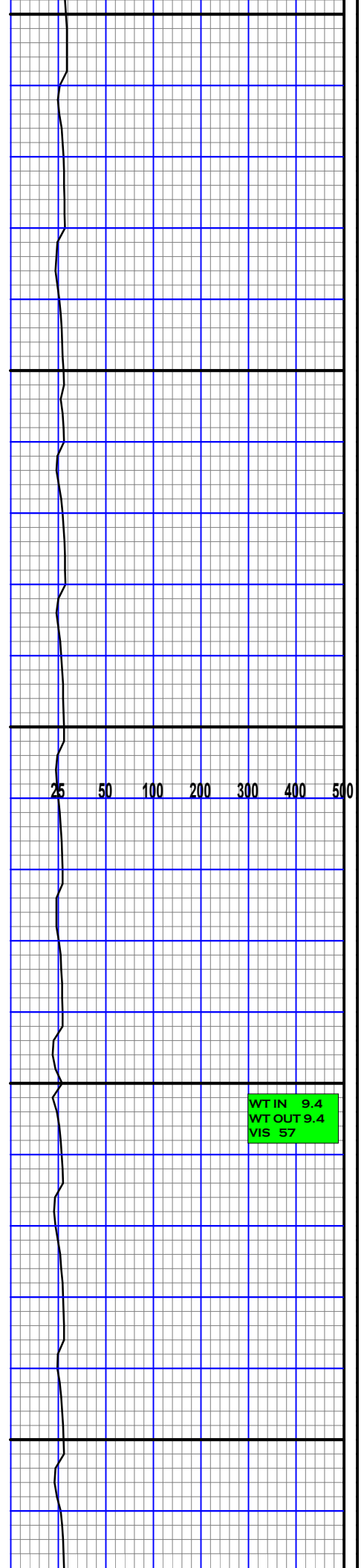
SH: dk gry chky blk  
 occ plty hom rgh txt

SD: lt gry-off wt clr  
 mlky vfg sbang wl srt  
 wl consol sli calc

SH: dk gry chky occ  
 plty hom rgh-rthy txt  
 slty

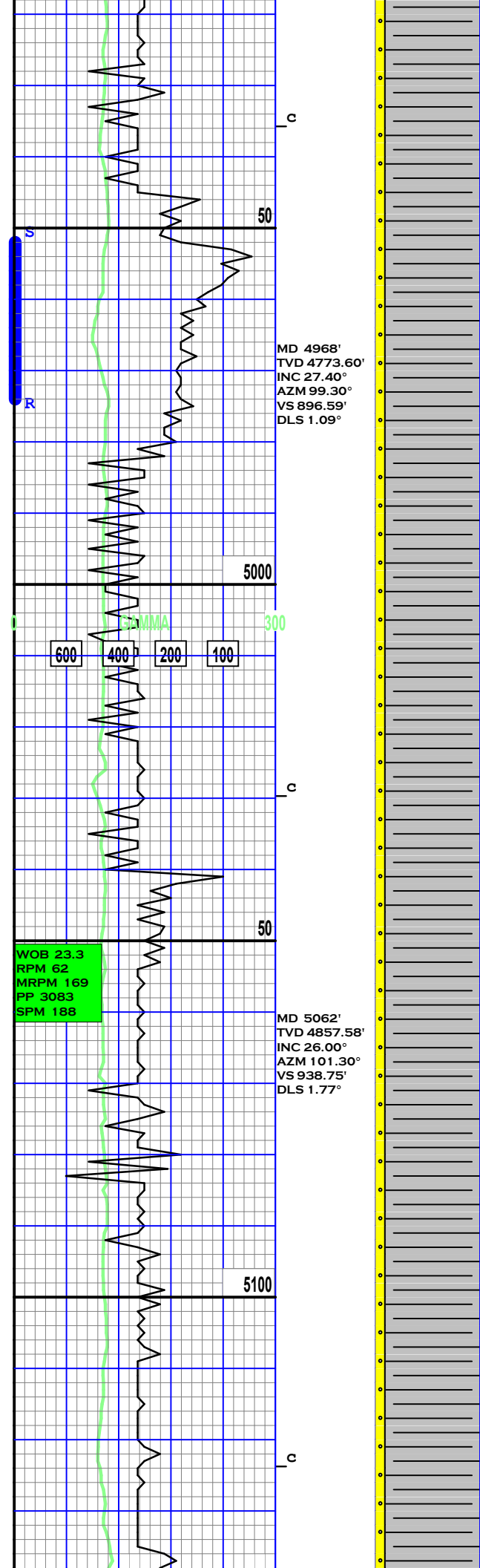
SD: lt gry- off wt mlky  
 vf-mfg sbang sbrnd wl  
 srt wl consol calc

SH: dk gry chky occ  
 plty hom rgh txt v  
 slty trc clet



25 50 100 200 300 400 500

WT IN 9.4  
 WT OUT 9.4  
 VIS 57

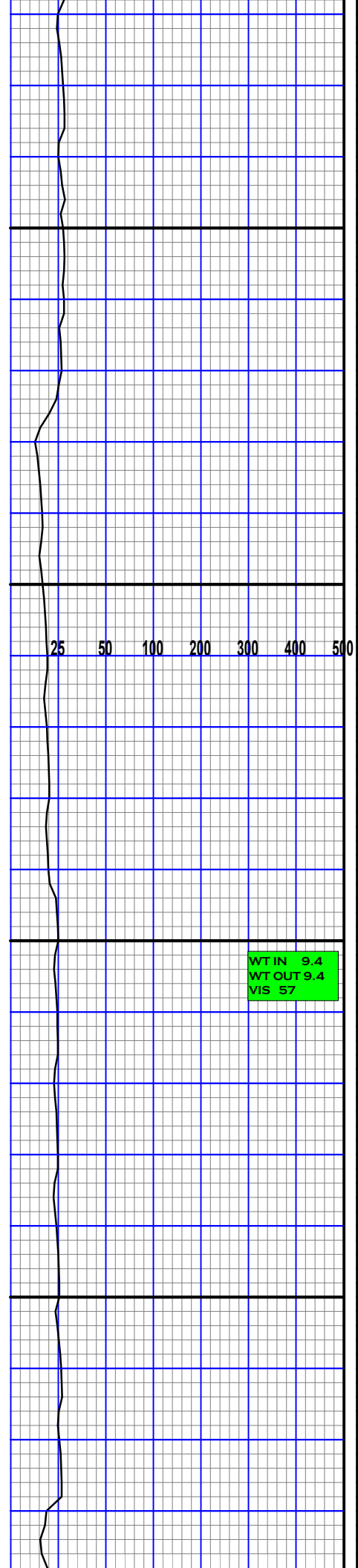


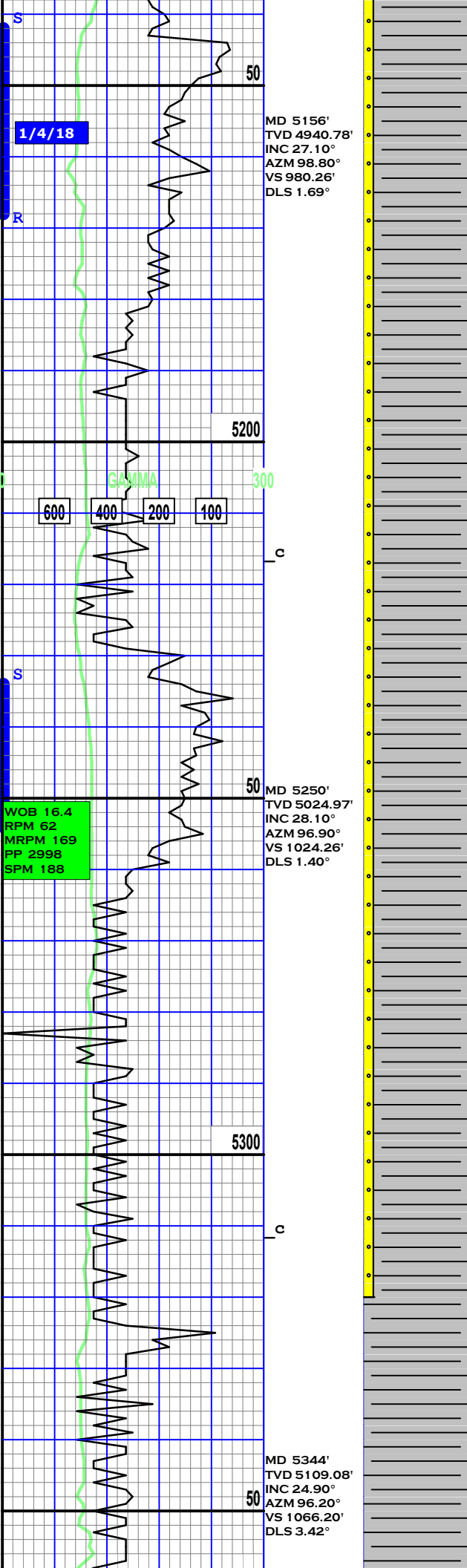
SD: lt gry mlky occ clr  
 vf-mfg sbang sbrnd wl  
 srtd wl consol sli calc

SH: dk gry chky occ  
 plty hom rgh txt v  
 slty calc

SD: lt gry occ off wt  
 mlkt occ clr vf-mfg  
 sbang sbrnd wl srtd wl  
 consol

SH: dk gry chky occ  
 plty hom rgh-rthy txt  
 slty





SD: lt gry-off wt mlky  
occ clr mfg sbang sbrnd  
wl srted wl consol calc

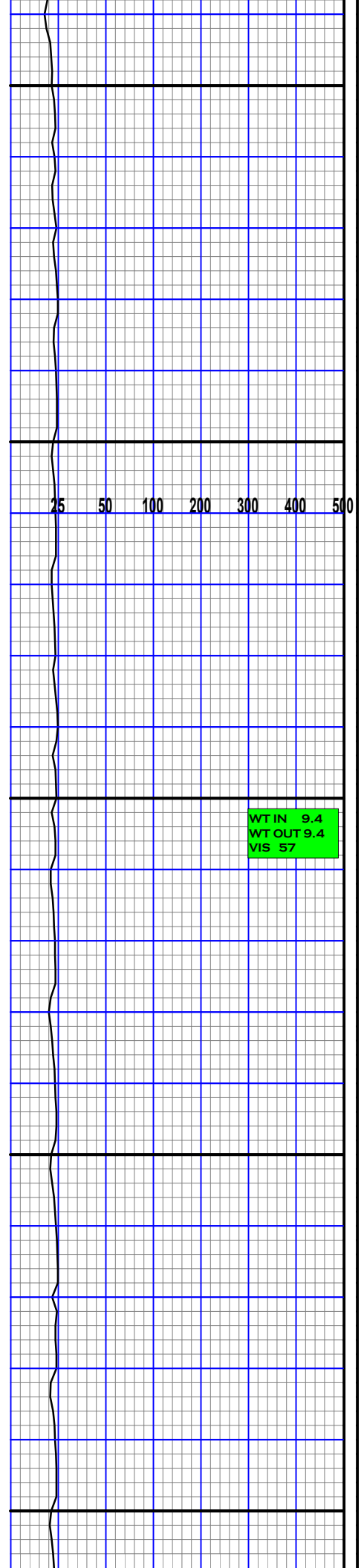
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plty hom rgh txt v  
sly

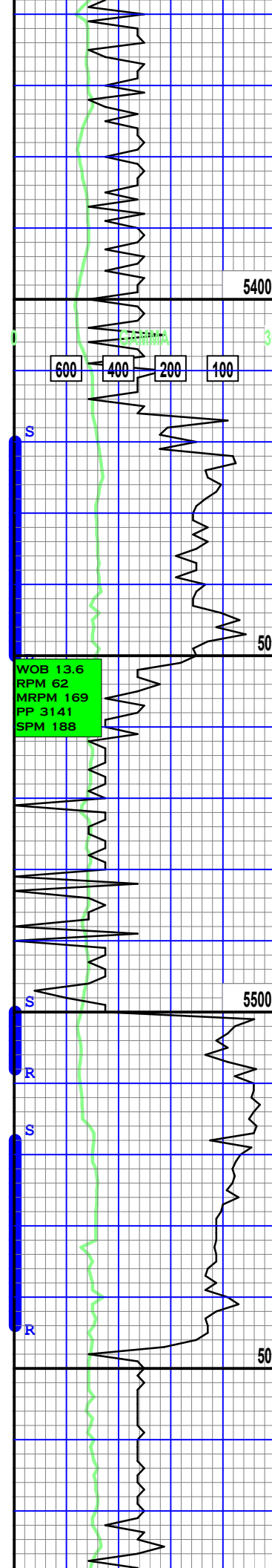
SD: lt gry mlky occ clr  
vfg sbang sbrnd wl srted  
wl consol calc

WT IN 9.4  
WT OUT 9.4  
VIS 57

SH: dk gry chky v occ  
plty hom rgh-rthy txt  
sly trc clet

SH: dk gry plty occ  
blky hom smth-rthy txt



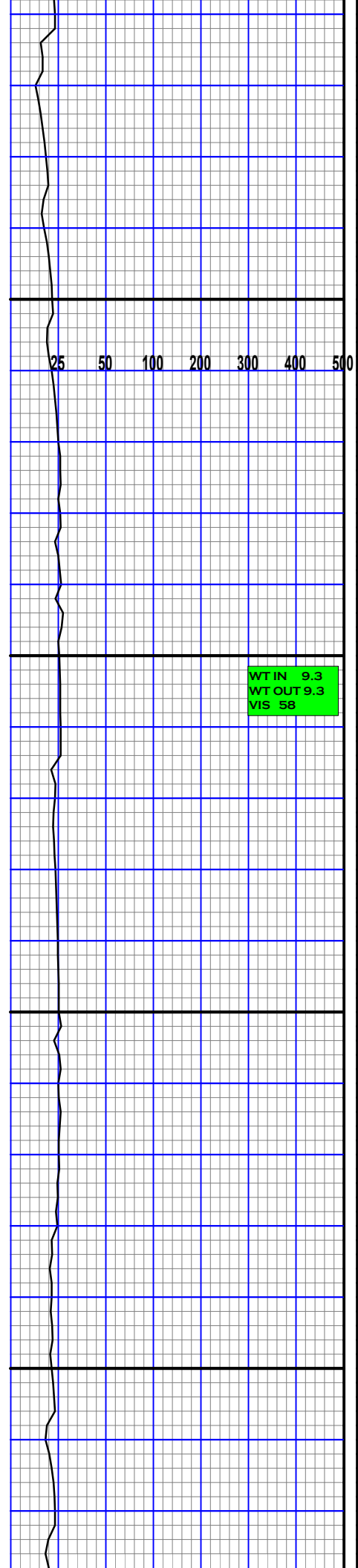


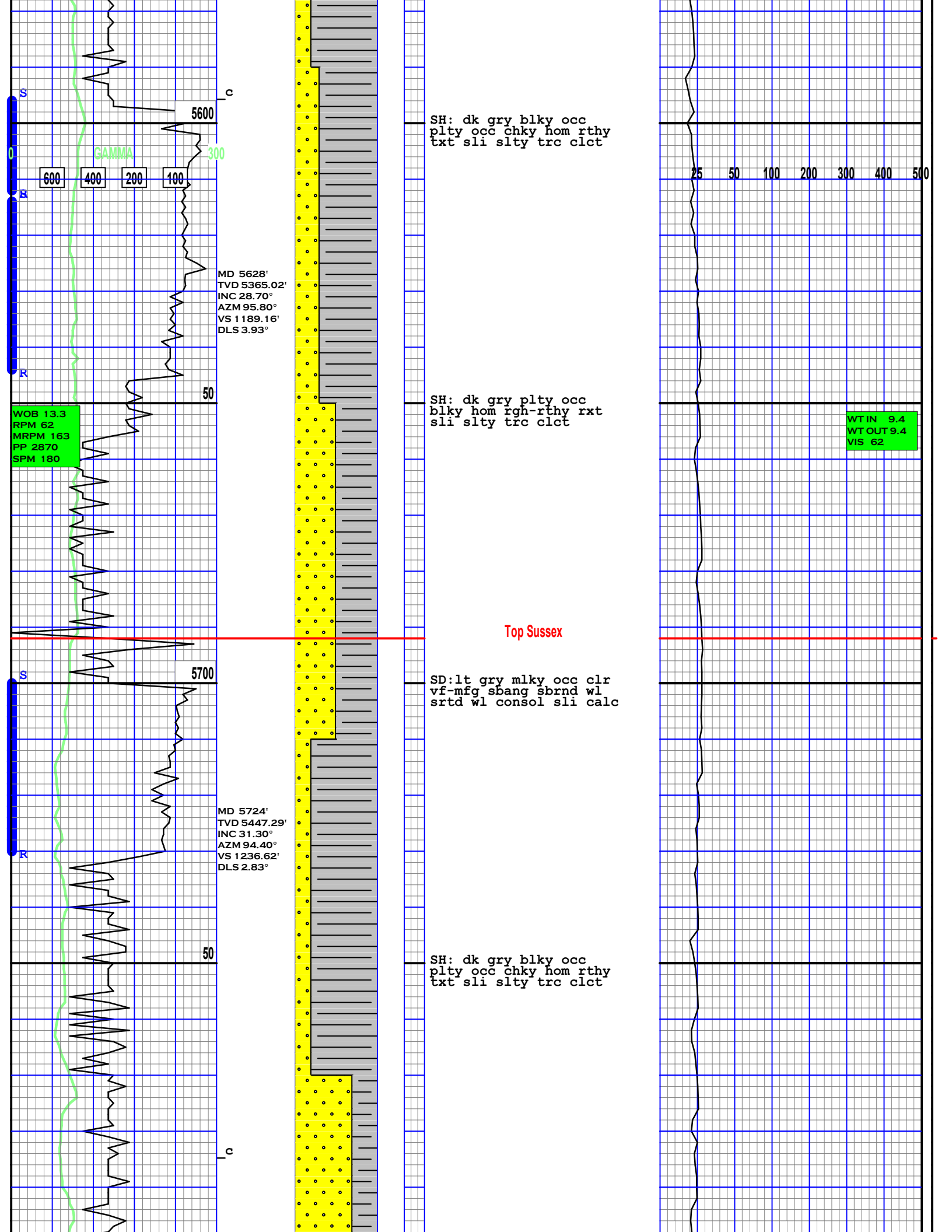
SH: dk gry plty occ  
blky occ chky nom smth  
txt

SD: lt gry mlky occ clr  
vf-mfg sbang sbrnd wl  
srted wl consol v sli  
calc

SH: dk gry plty occ  
blky nom rgh-rthy rxt  
sli slty trc clct

SD: lt gry mlky occ clr  
vf-mfg sbang sbrnd wl  
srted wl consol sli calc





S  
5600

SH: dk gry blk occ  
 plty occ chky nom rthy  
 txt sli slty trc clct

25 50 100 200 300 400 500

GAMMA  
 600 400 200 100  
 300

MD 5628'  
 TVD 5365.02'  
 INC 28.70°  
 AZM 95.80°  
 VS 1189.16'  
 DLS 3.93°

WOB 13.3  
 RPM 62  
 MRPM 163  
 PP 2870  
 SPM 180

SH: dk gry plty occ  
 blk nom rgh-rthy rxt  
 sli slty trc clct

WT IN 9.4  
 WT OUT 9.4  
 VIS 62

Top Sussex

S  
5700

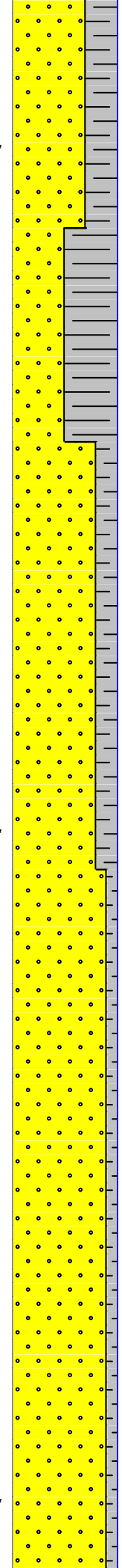
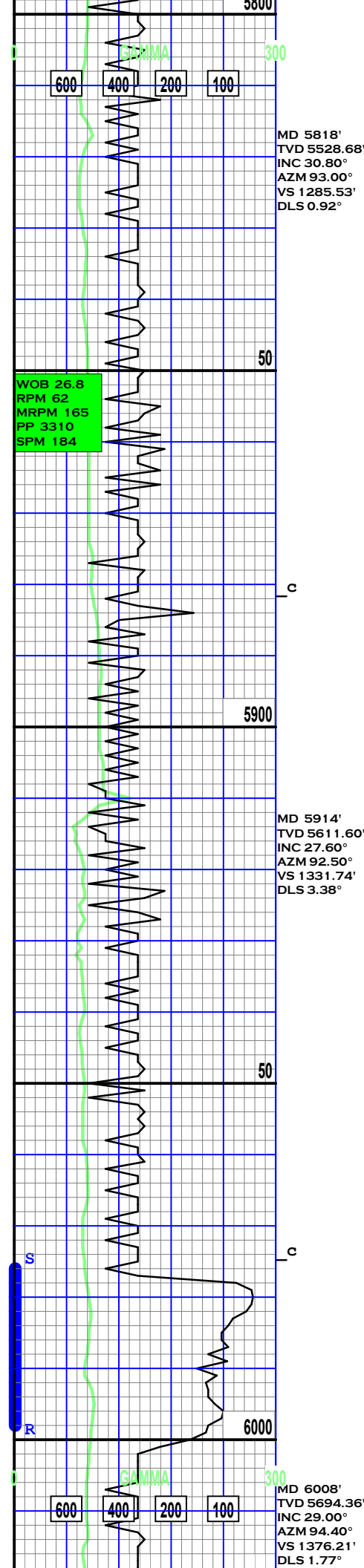
SD:lt gry mlky occ clr  
 vf-mfg sbang sbrnd wl  
 srted wl consol sli calc

MD 5724'  
 TVD 5447.29'  
 INC 31.30°  
 AZM 94.40°  
 VS 1236.62'  
 DLS 2.83°

R  
50

SH: dk gry blk occ  
 plty occ chky nom rthy  
 txt sli slty trc clct

c



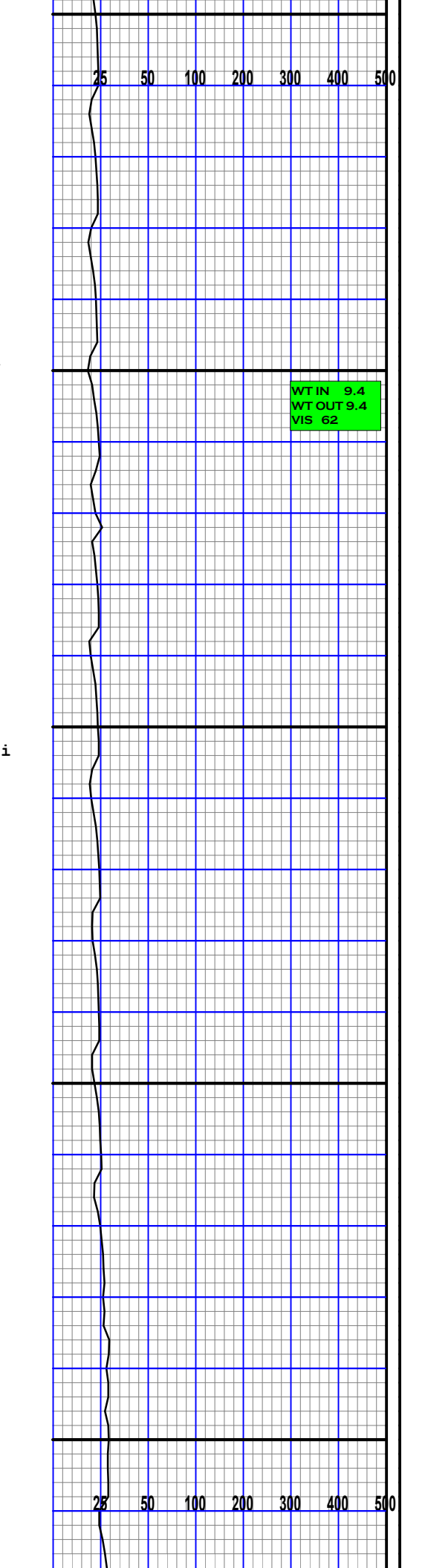
SH: dk gry plty occ  
blky hom rgh-rthy rxt  
sli slty trc clct

SD: lt gry mlky occ clr  
vf-mfg sbang sbrnd wl  
srted wl consol sli calc

SD: lt gry mlky vf-mfg  
sbang sbrnd wl srted wl  
consol hvy carb lams sli  
calc

SH: dk gry plty occ  
blky hom rgh-rthy rxt  
sli slty trc clct

SD: lt gry mlky occ clr  
vf-mfg sbang sbrnd wl  
srted wl consol sli calc



WOB 19.9  
RPM 62  
MRPM 171  
PP 3370  
SPM 190

50

c

6100

MD 6102'  
TVD 5778.95'  
INC 25.10°  
AZM 93.50°  
VS 1419.34'  
DLS 4.13°

50

c

6200

MD 6198'  
TVD 5865.44'  
INC 23.80°  
AZM 97.60°  
VS 1458.62'  
DLS 2.25°

600 400 200 100

300

SD: lt gry mlky vf-mfg  
sbang sbrnd wl srtd wl  
consol hvly carb lams sli  
calc

WT IN 9.5  
WT OUT 9.5  
VIS 56

SH: dk gry plty occ  
blky hom rgh-rthy rxt  
sli slty trc clct

SH: dk gry plty occ  
blky hom rgh-rthy rxt  
sli slty trc clct

SD: lt gry mlky occ clr  
vf-mfg sbang sbrnd wl  
srtd wl consol sli calc

TRAP TEST

25 50 100 200 300 400 500

WOB 21.1  
RPM 62  
MRPM 168  
PP 3470  
SPM 188

WTIN 9.5  
WT OUT 9.5  
VIS 54

SH: dk gry plty occ  
blky hom rgh-rthy rxt  
sli slty trc clct

MD 6292'  
TVD 5951.39'  
INC 26.60°  
AZM 99.10°  
VS 1499.06'  
DLS 3.02°

SH: dk gry plty occ  
blky hom rgh-rthy rxt  
sli slty trc clct

SD: lt gry ~~plty~~ occ clr  
vf-mfg sbang sbrnd wl  
srted wl consol sli calc

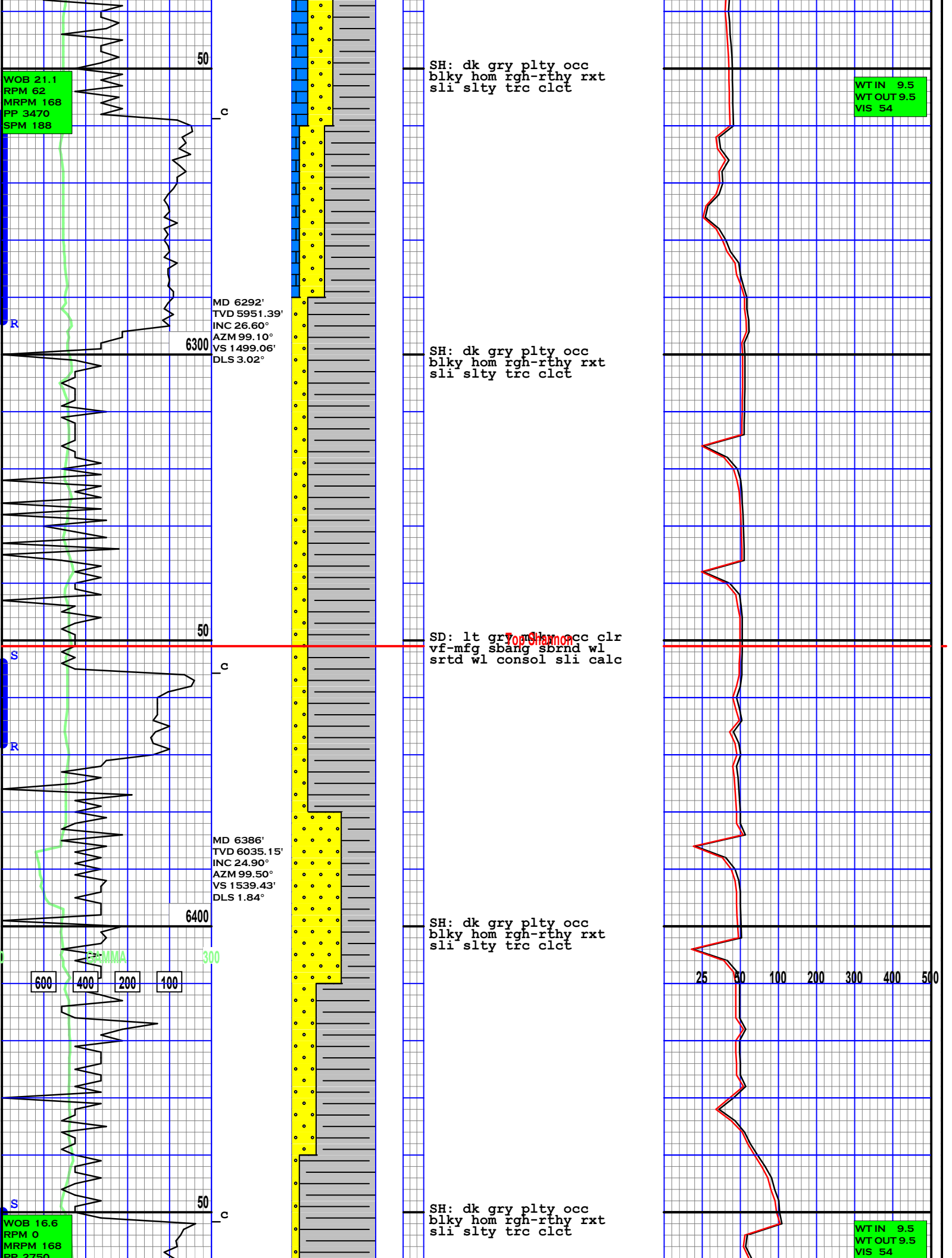
MD 6386'  
TVD 6035.15'  
INC 24.90°  
AZM 99.50°  
VS 1539.43'  
DLS 1.84°

SH: dk gry plty occ  
blky hom rgh-rthy rxt  
sli slty trc clct

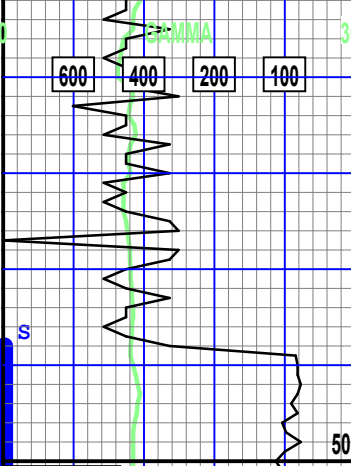
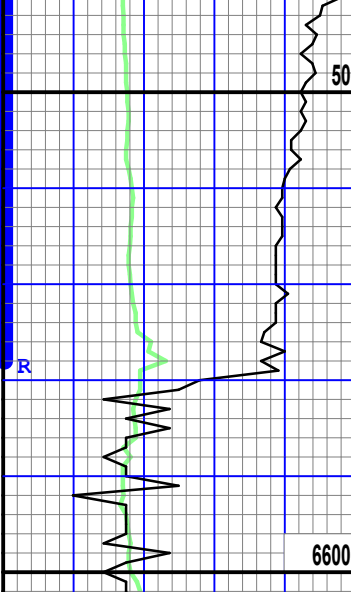
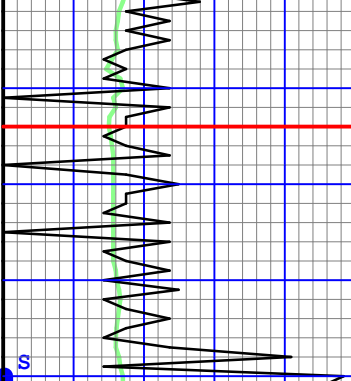
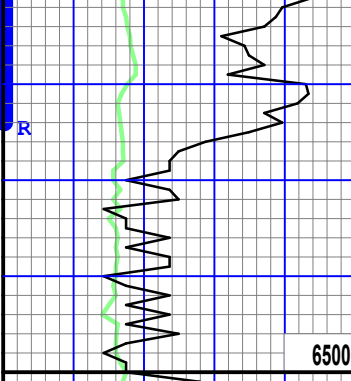
WOB 16.6  
RPM 0  
MRPM 168  
PP 3750

WTIN 9.5  
WT OUT 9.5  
VIS 54

SH: dk gry plty occ  
blky hom rgh-rthy rxt  
sli slty trc clct



SPM 188



WOB 11.9  
RPM 0  
MRPM 168  
PP 2970  
SPM 188

6500

50

6600

50

SD:lt gry mlky occ clr  
vf-mfg sbang sbrnd wl  
srted wl consol sli calc

Top Lower Pierre

SH: dk gry plty occ  
blky hom rgh-rthy rxt  
sli slty trc clct

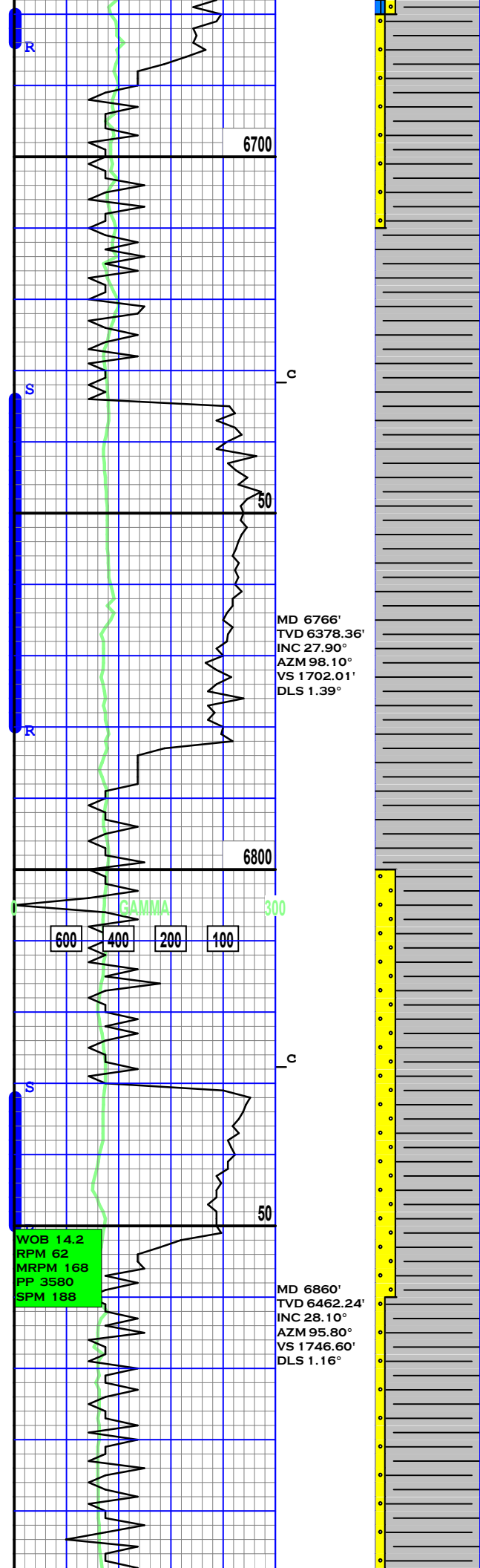
SH: dk gry plty occ  
blky hom rgh-rthy rxt  
sli slty trc clct

SH: dk gry plty occ  
blky hom rgh-rthy rxt  
sli slty trc clct

600 400 200 100

25 50 100 200 300 400 500

WT IN 9.3+  
WT OUT 9.3+  
VIS 52

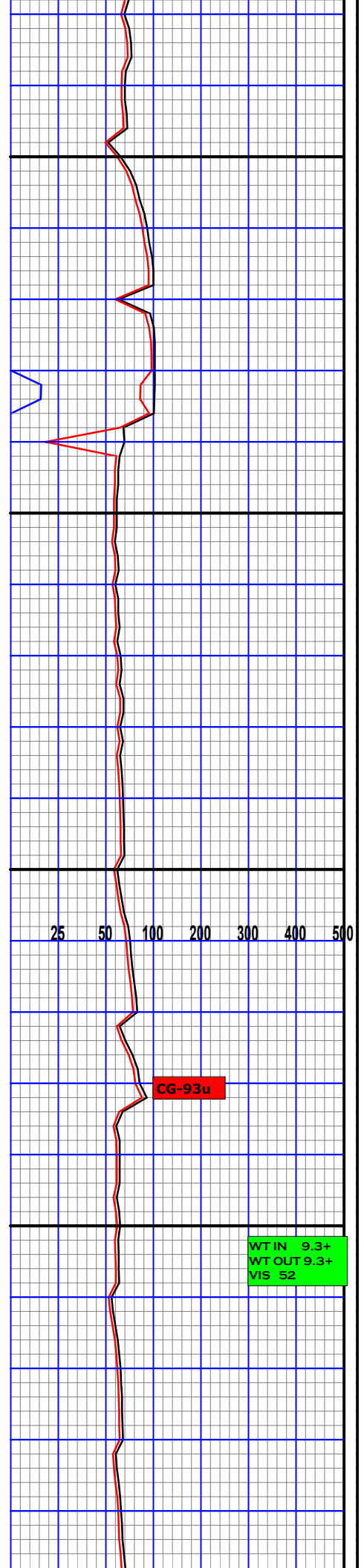


SD: lt gry mlky occ clr  
 vf-mfg sbang sbrnd wl  
 srted wl consol sli calc

SH: dk gry plty occ  
 blk hom rgh-rthy rxt  
 sli slty trc clct

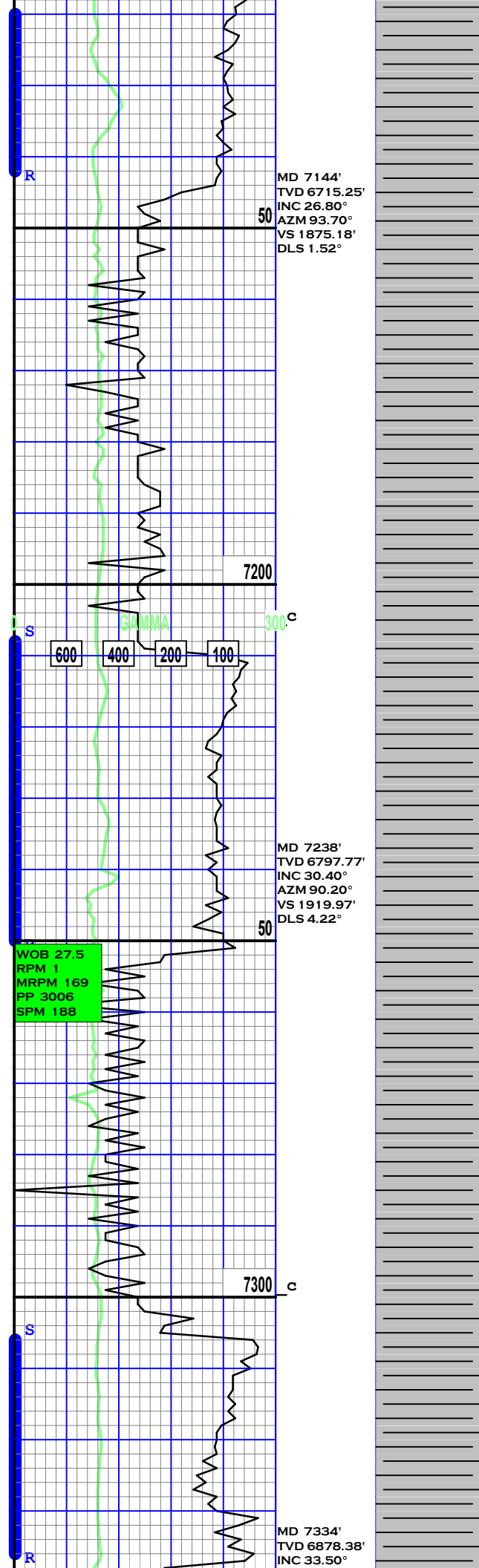
SH: dk gry plty occ  
 blk hom rgh-rthy rxt  
 sli slty trc clct

SD: lt gry mlky occ clr  
 vf-mfg sbang sbrnd wl  
 srted wl consol sli calc



WT IN 9.3+  
 WT OUT 9.3+  
 VIS 52



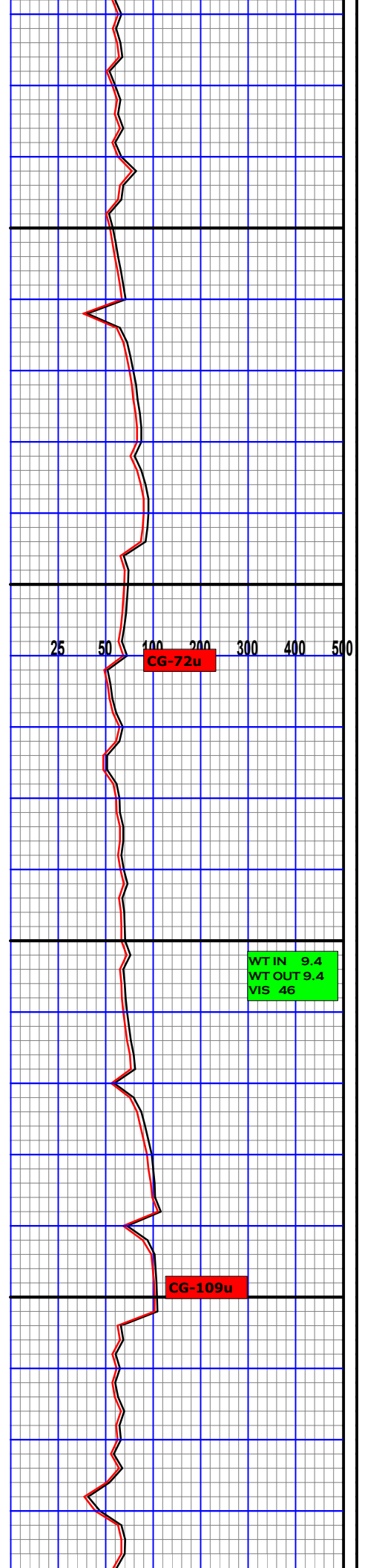


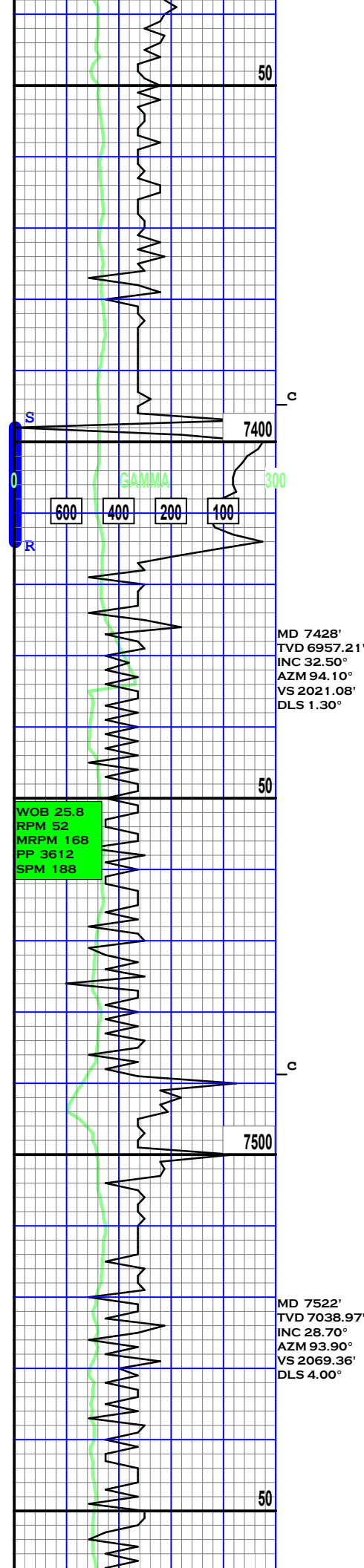
SH: dk gry chky plty  
occ blk hom smth-rgh  
txt v sli calc

SH: dk gry plty blk  
occ fiss hom smth-rgh  
txt occ slty trc clct

SH: dk gry plty blk  
occ chky hom smth-rgh  
txt sli slty trc clct

SH: dk gry plty blk  
hom smth occ rgh txt  
trc clct





MD 7428'  
 TVD 6957.21'  
 INC 32.50°  
 AZM 94.10°  
 VS 2021.08°  
 DLS 1.30°

WOB 25.8  
 RPM 52  
 MRPM 168  
 PP 3612  
 SPM 188

MD 7522'  
 TVD 7038.97'  
 INC 28.70°  
 AZM 93.90°  
 VS 2069.36°  
 DLS 4.00°

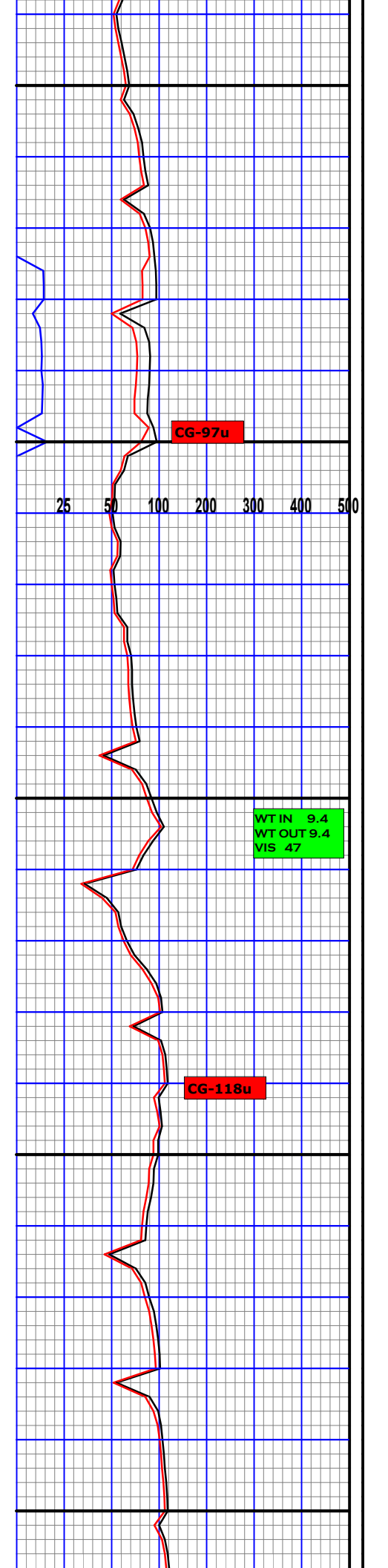
SH: dk gry plty blk  
 hom smth-rgh txt

SH: dk gry plty blk  
 hom smth-rgh txt trc  
 clct

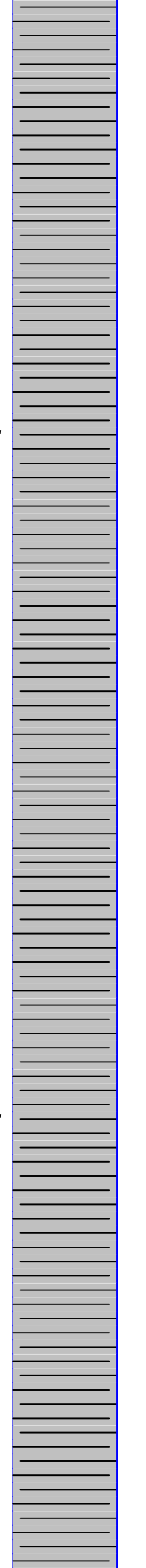
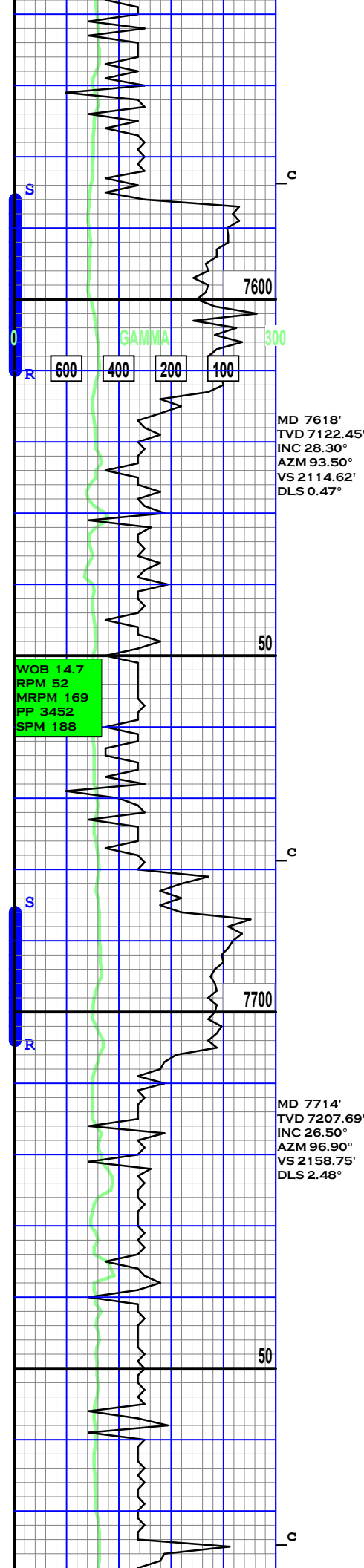
SH: dk gry plty blk  
 occ chky hom smth-rgh  
 txt trc clct

SH: dk gry plty blk  
 hom smth-rgh txt trc  
 clct

SH: dk gry plty blk  
 occ chky hom smth-rgh  
 txt trc clct



WT IN 9.4  
 WT OUT 9.4  
 VIS 47

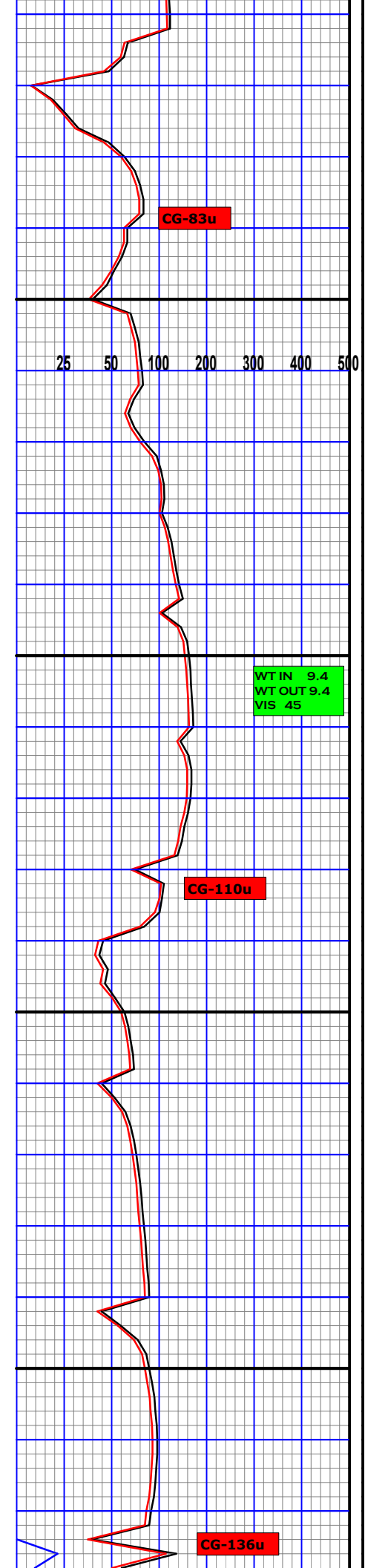


SH: dk gry plty blk  
 hom smth-rgh txt trc  
 clct

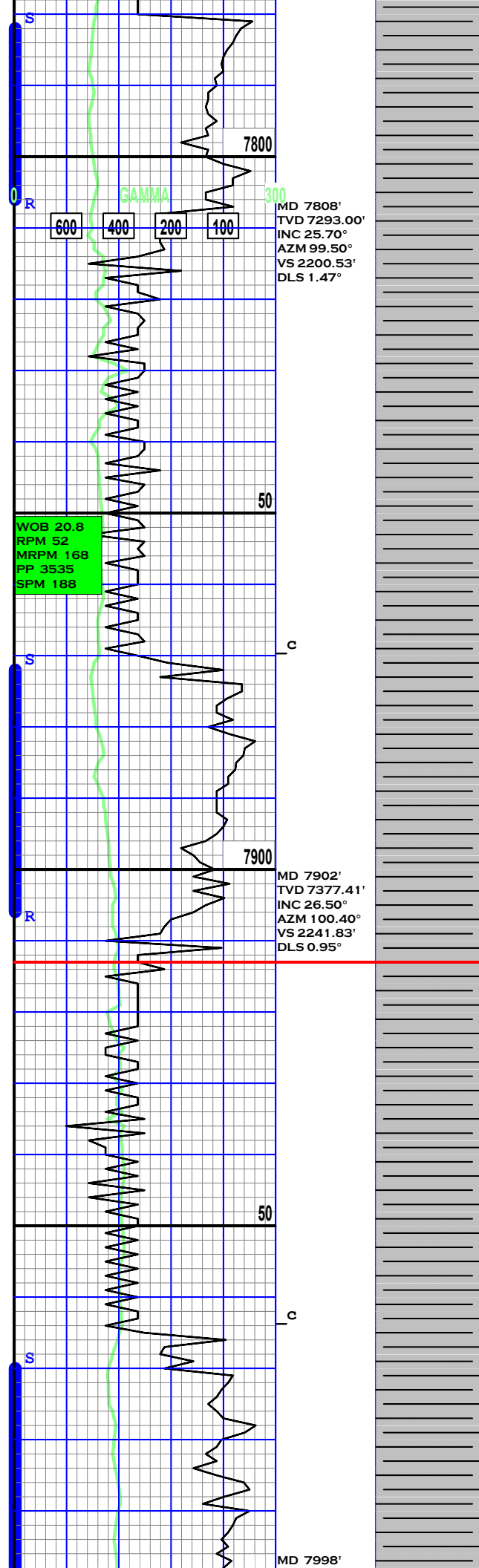
SH: dk gry plty blk  
 hom smth-rgh txt sli  
 slty trc clct

SH: dk gry plty blk  
 occ chky hom smth-rgh  
 txt sli slty v sli calc

SH: dk gry plty blk  
 hom smth-rgh txt v sli  
 calc



WT IN 9.4  
 WT OUT 9.4  
 VIS 45



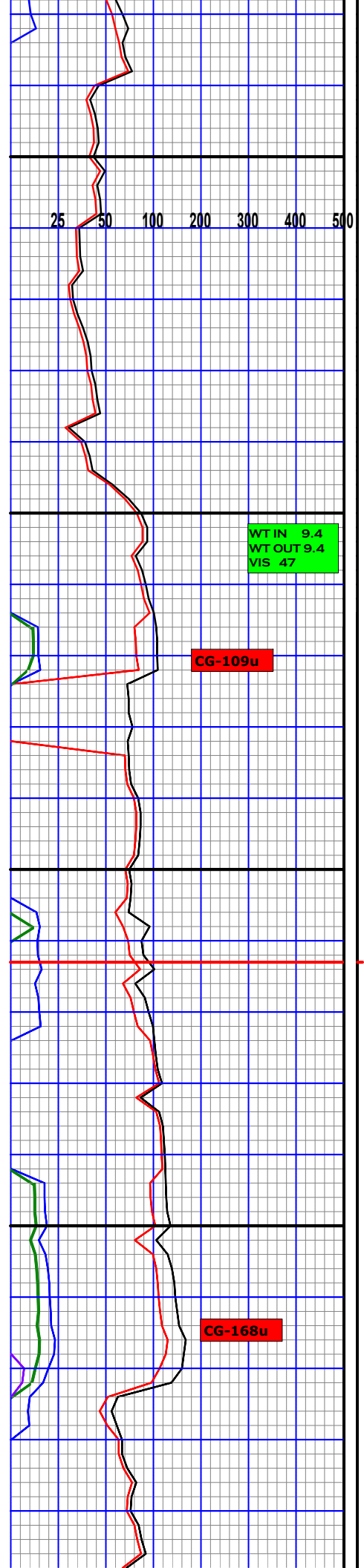
SH: dk gry plty blk  
 hom smth txt trc clct

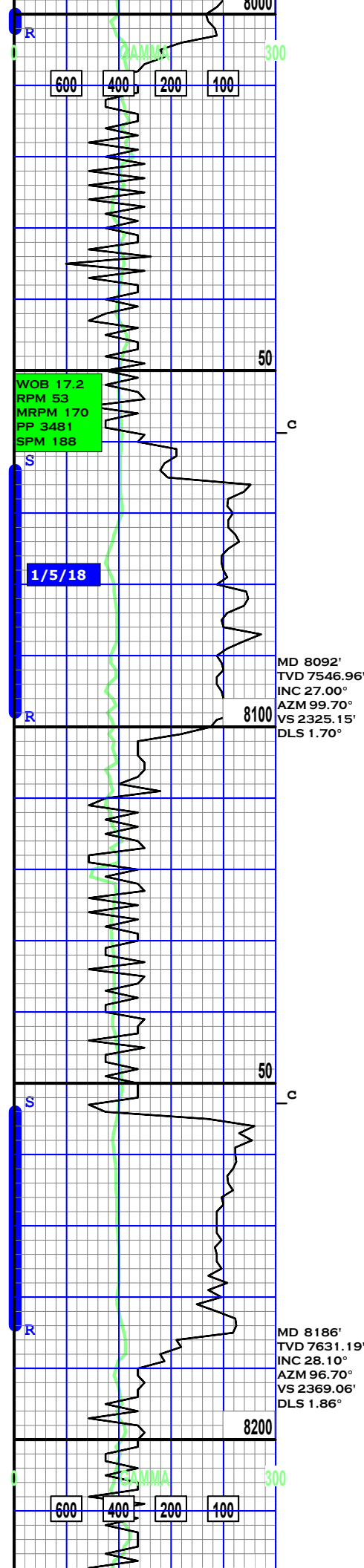
SH: dk gry plty blk  
 occ chky hom smth-rgh  
 txt

SH: dk gry occ lt gry  
 occ wt plty blk hom  
 smth-rgh txt trc clct

SH: dk gry plty blk  
 hom smth-rgh txt trc  
 clct

Top Mancos





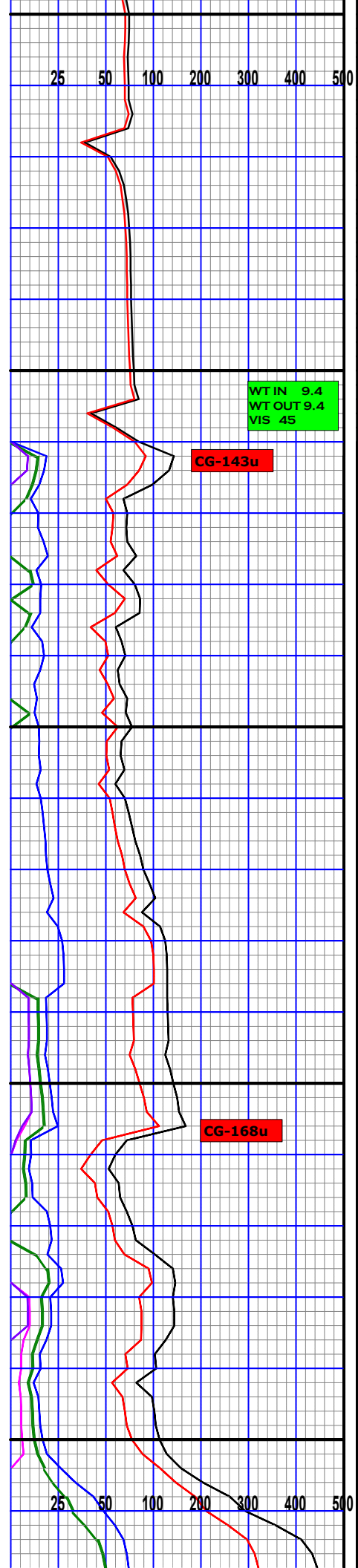
SH: dk gry plty blk  
hom smth txt trc clct

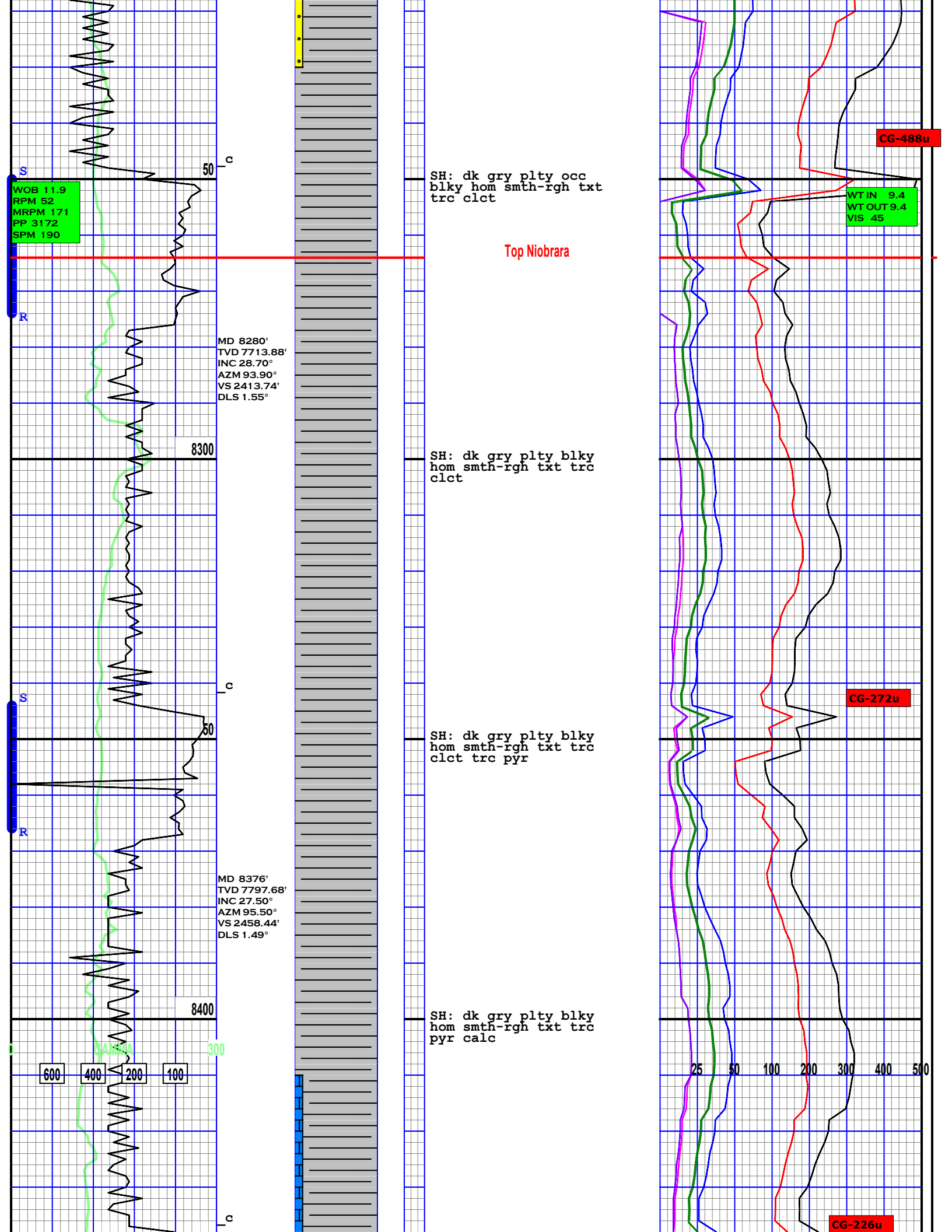
SH: dk gry plty blk  
occ chky hom smth txt  
trc clct

SH: dk gry plty blk  
hom smth txt trc clct

SH: dk gry plty blk  
hom smth-rgn txt trc  
clct

SH: dk gry plty bkly  
occ fiss hom smth txt  
trc clct





WOB 11.9  
RPM 52  
MRPM 171  
PP 3172  
SPM 190

WTIN 9.4  
WTOUT 9.4  
VIS 45

CG-488u

Top Niobrara

MD 8280'  
TVD 7713.88'  
INC 28.70°  
AZM 93.90°  
VS 2413.74'  
DLS 1.55°

SH: dk gry plty occ  
blk hom smth-rght txt  
trc clct

SH: dk gry plty blk  
hom smth-rght txt trc  
clct

SH: dk gry plty blk  
hom smth-rght txt trc  
clct trc pyr

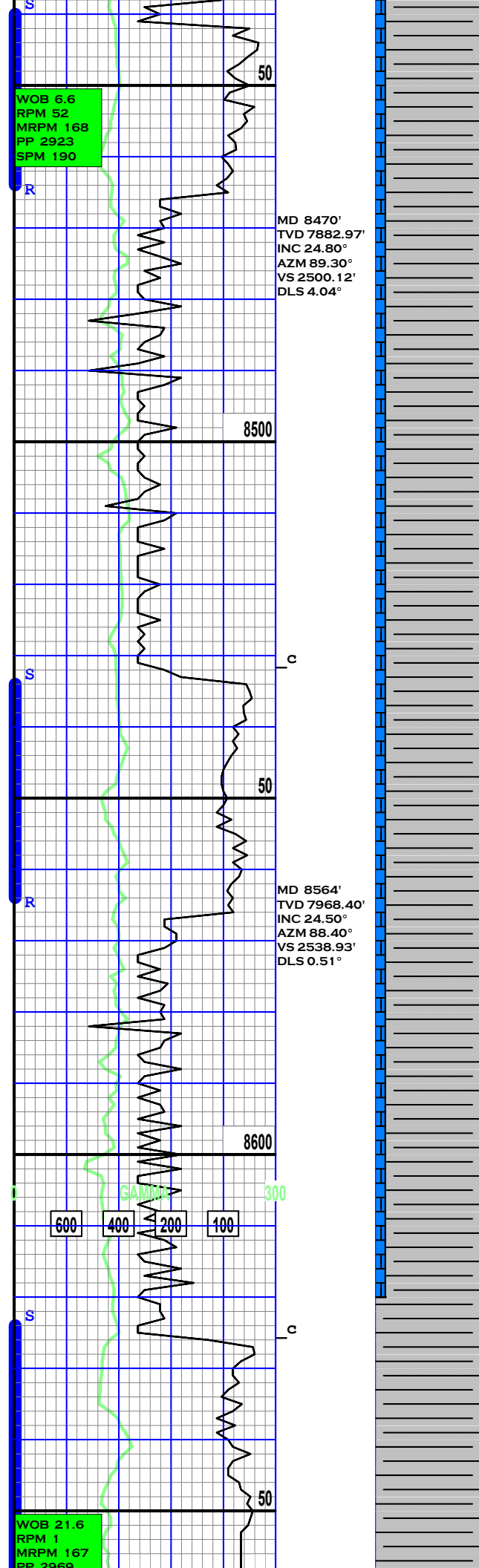
SH: dk gry plty blk  
hom smth-rght txt trc  
pyr calc

CG-272u

CG-226u

600 400 200 100

25 50 100 200 300 400 500



SH: dk gry plty blk  
hom smth-rgh txt calc  
trc clct

WTIN 9.4  
WT OUT 9.4  
VIS 45

SH: dk gry plty blk  
hom smth-rgh txt trc  
clct

SH: dk gry plty blk  
hom smth-rgh txt abndt  
lse calct

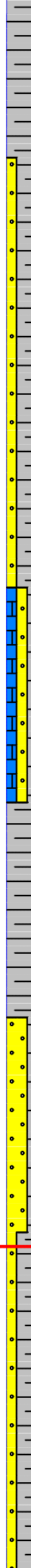
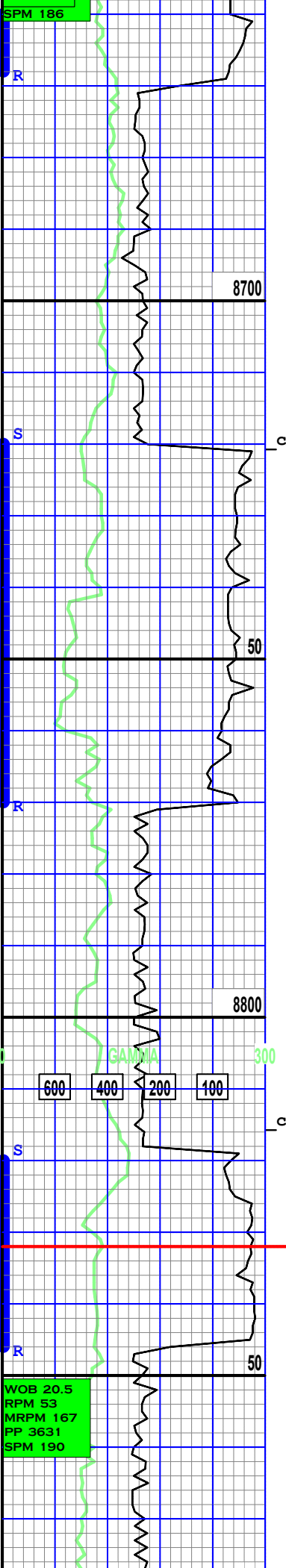
LS: wt-off wt crm  
micxln-xln sft frm mass  
mic sucx abndt lse calct

SH: dk gry plty blk  
occ chky hom smth txt

25 50 100 200 300 400 500

CG-77u

WTIN 9.3  
WT OUT 9.3+  
VIS 46



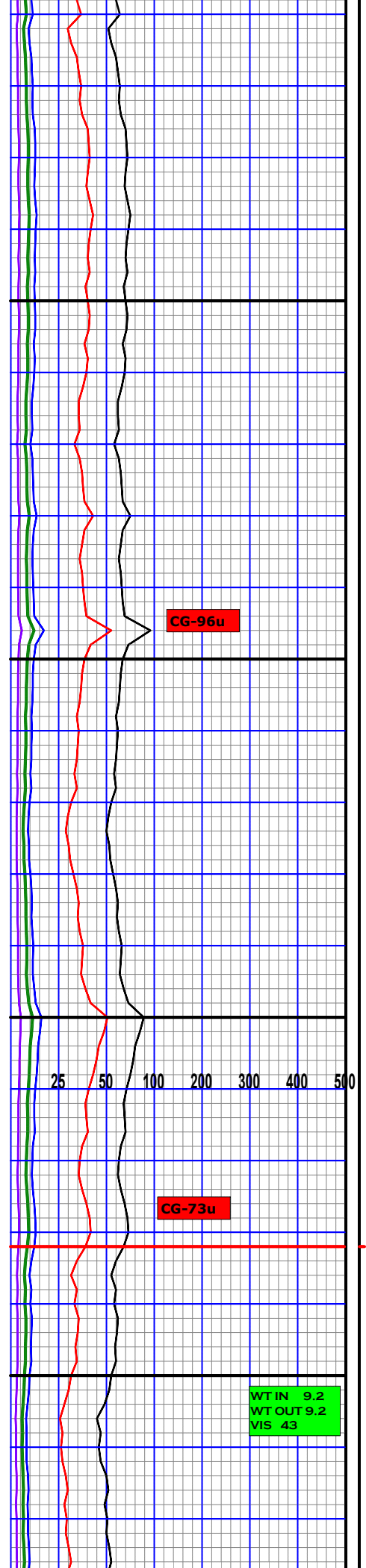
SH: dk gry plty chky  
hom smth-rgh txt

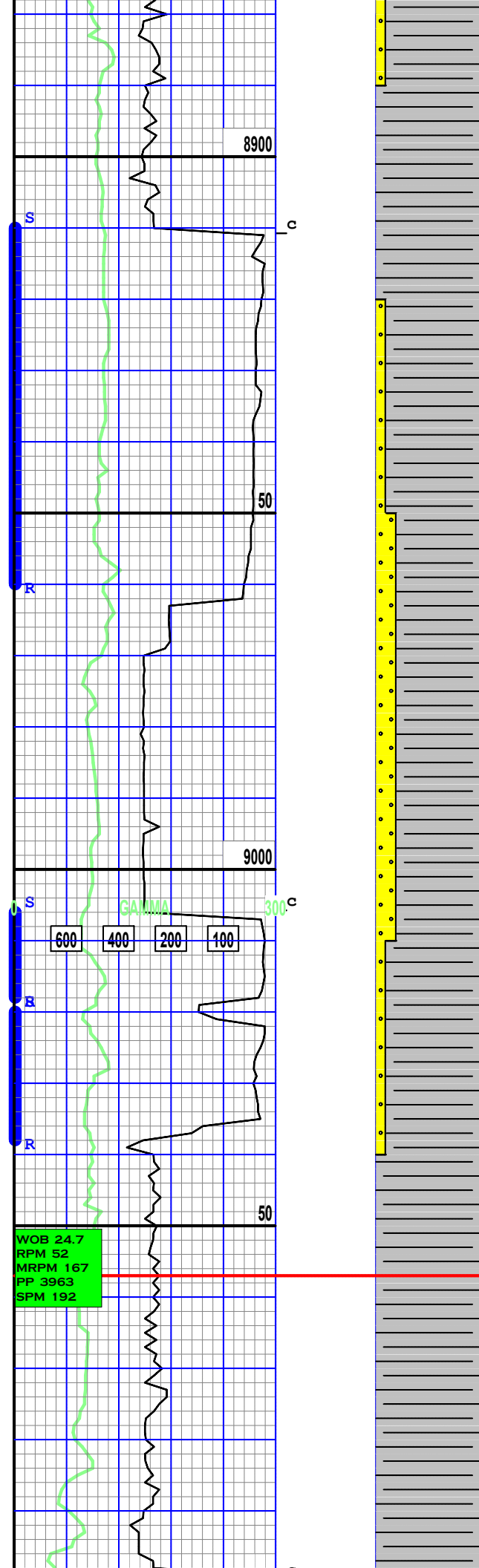
SD: lt gry-off wt mlky  
occ clr vf-mfg sbang  
sbrnd wl srted wl consol  
calc

SH: dk gry plty blk  
hom smth-rgh txt lse  
clct

Top Carlie

SD: lt gry occ off wt  
mlky occ clr mfg sbang  
sbrnd wl srted wl consol  
calc





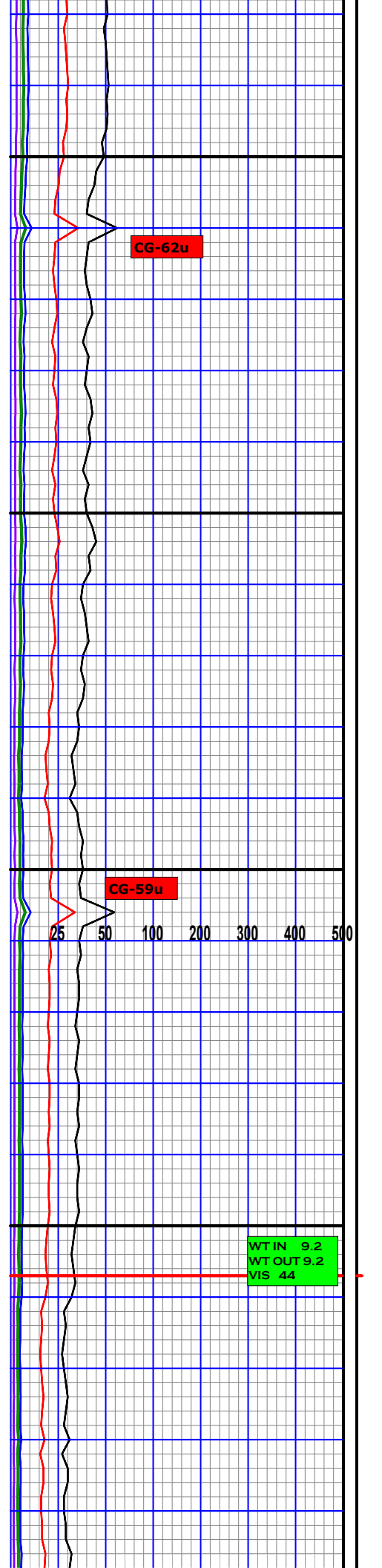
SH: dk gry plty blk  
 hom smth txt abndt lse  
 clct

SD: lt gry-off wt mlky  
 occ clr vf-mfg sbang  
 sbrnd wl srted wl consol  
 calc

SH: dk gry plty occ  
 blk hom smth-rgh txt  
 lse clct

SH: dk gry plty chky  
 hom smth txt

Top Frontier

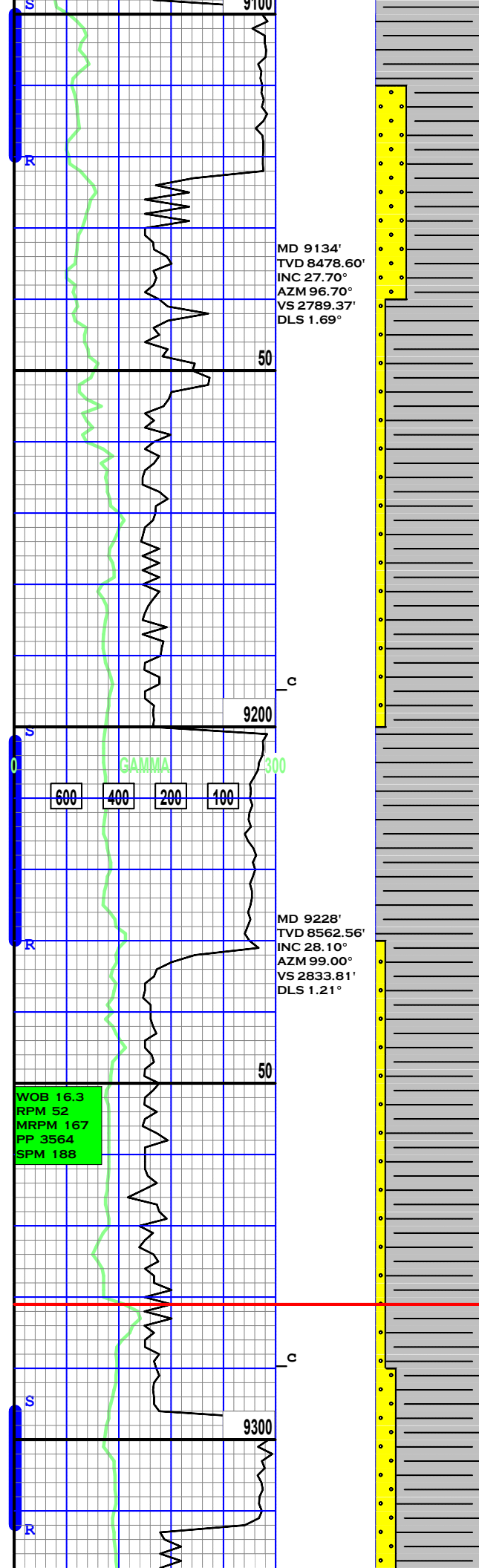


CG-62u

CG-59u

WT IN 9.2  
 WT OUT 9.2  
 VIS 44

WOB 24.7  
 RPM 52  
 MRPM 167  
 FP 3963  
 SPM 192



SH: dk gry plty blk  
occ chky hom smth-rgh  
txt

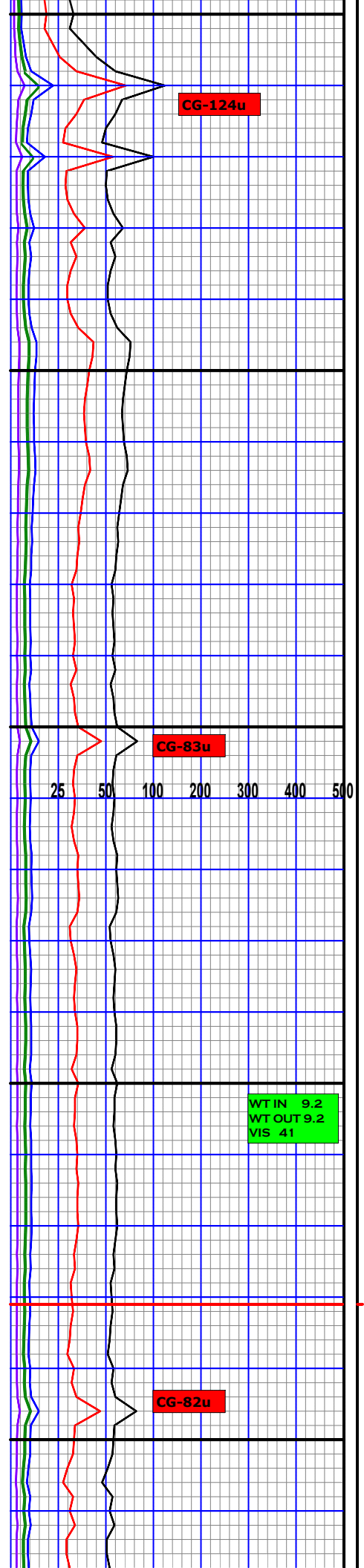
SD: off wt occ lt gry  
mlky clr vf-mfg wl srted  
v wl consol calc

SH: dk gry blkly plty  
hom smth txt lse clct

SD: lt gry-off wt mlky  
occ clr vfg sbang sbrnd  
wl srted v wl consol  
calc

Top Graneros

SH: dk gry plty blk  
occ chky hom smth txt



MD 9324'  
TVD 8646.78'  
INC 27.00°  
AZM 99.00°  
VS 2877.72'  
DLS 1.16°

50

SD: lt gry-off wt mlky  
occ clr sbang sbrnd wl  
srted v wl consol calc

9400

CG-87u

SH: dk gry plty blk  
sft frm hom smth-rgh txt

GAMMA 300  
600 400 200 100

25 50 100 200 300 400 500

MD 9418'  
TVD 8730.43'  
INC 27.30°  
AZM 100.60°  
VS 2920.56'  
DLS 0.84°

50

SD: lt gry-off wt mlky  
occ clr vfg sband sbrnd  
wl srted v wl consol  
calc

WOB 10.8  
RPM 53  
MRPM 167  
PP 3581  
SPM 188

WT IN 9.6  
WT OUT 9.6  
VIS 42

1/6/18, TOOH, NB #2 ULT.  
U813M JETS: 8x14's C/O MM

TG-632u

NOTE ROP SCALE CHANGE  
GAMMA 300  
100 75 50 25 9500

SH: dk gry plty blk  
sft frm hom smth-rgh txt

MD 9512'  
TVD 8815.34'  
INC 26.00°  
AZM 98.80°  
VS 2963.12'  
DLS 1.61°

Top Mowry

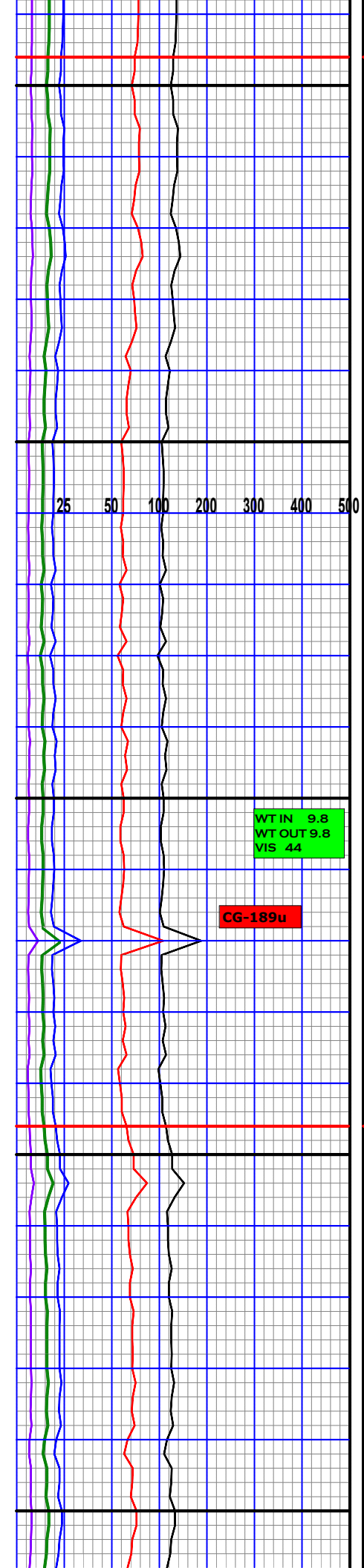
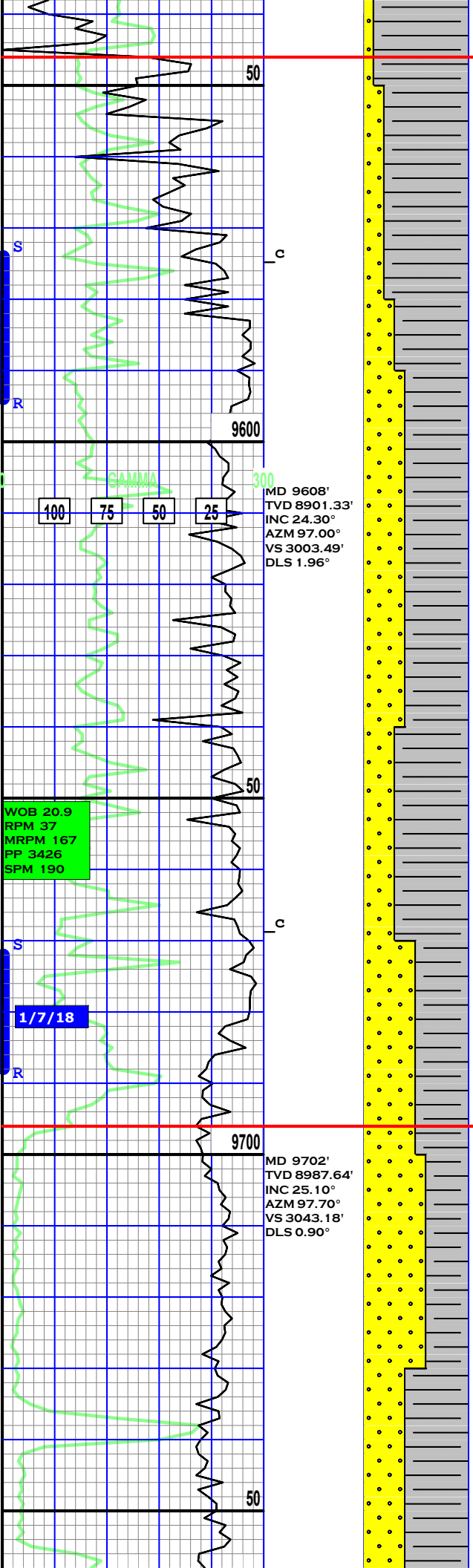
SD: lt gry-off wt mlky  
occ clr vfg sbang sbrnd  
wl srted v wl consol  
calc

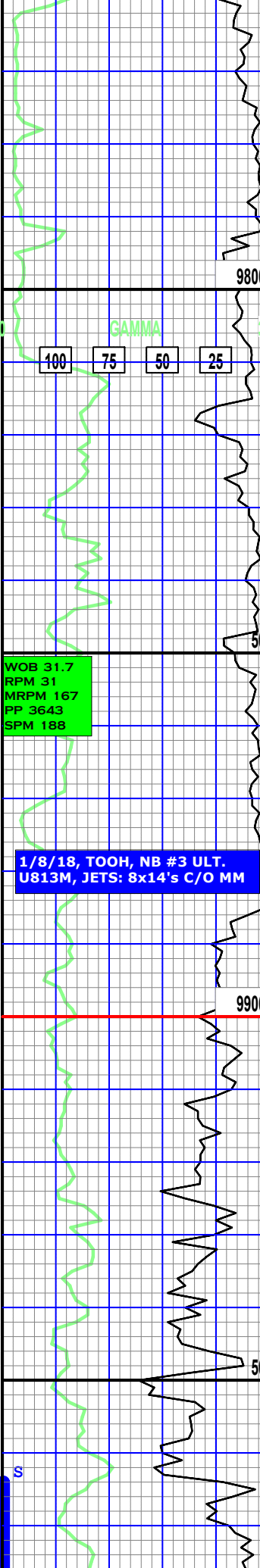
SD: off wt occ lt gry  
mlky vf-mfg sbang sbrnd  
wl srted wl consol lse  
clct

SH: dk gry plty blk  
sft frm hom smth-rgh txt  
abdnt lse calct

SD: wt-off wt-lt gry  
mlky clr sbang sbrnd  
wl srted wl-v wl consol  
lse clct

SH: dk gry plty blk  
sft frm hom smth-rgh txt  
abdnt lse calct





MD 9798'  
 TVD 9073.42'  
 INC 25.80°  
 AZM 95.10°  
 VS 3083.99'  
 DLS 1.39°

WOB 31.7  
 RPM 31  
 MRPM 167  
 FP 3643  
 SPM 188

1/8/18, TOOH, NB #3 ULT.  
 U813M, JETS: 8x14's C/O MM

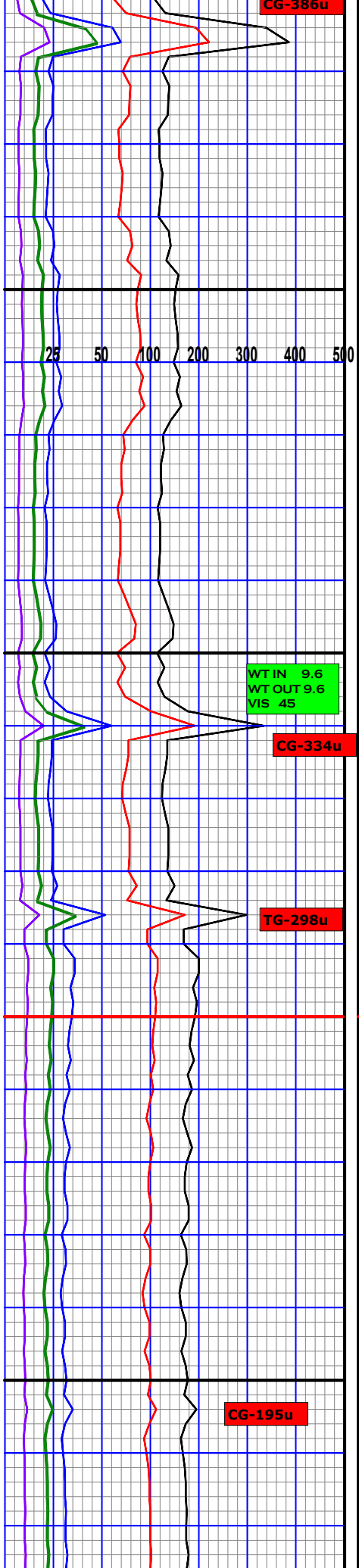
MD 9892'  
 TVD 9158.12'  
 INC 25.60°  
 AZM 94.40°  
 VS 3124.72'  
 DLS 0.39°

SD: wt-off wt-lt gry  
 mlky clr sbang sbrnd  
 wl srted wl-v wl consol  
 lse calct

SD: lt gry mlky clr vfg  
 sbang sbrnd wl srted wl  
 consol

SD: off w ~~Top Morris~~ lt  
 gry clr mlky vf-mfg  
 sbang sbrnd wl srted wl  
 consol

SH: pnk v occ lt grn  
 plty blkly sft hom rthy  
 txt



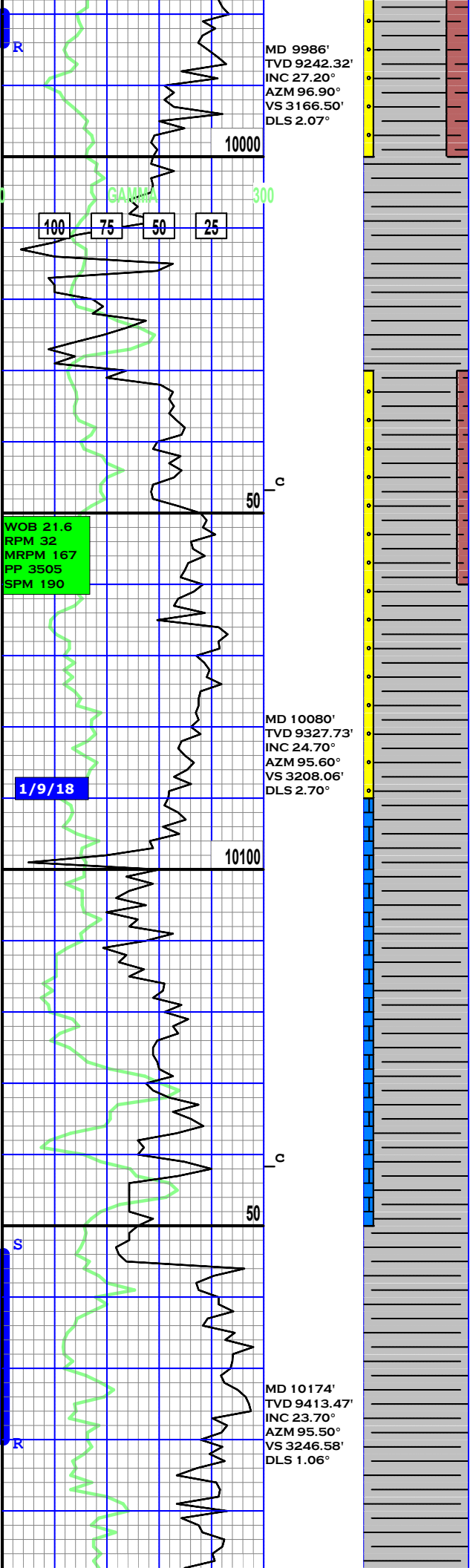
CG-386u

WT IN 9.6  
 WT OUT 9.6  
 VIS 45

CG-334u

TG-298u

CG-195u

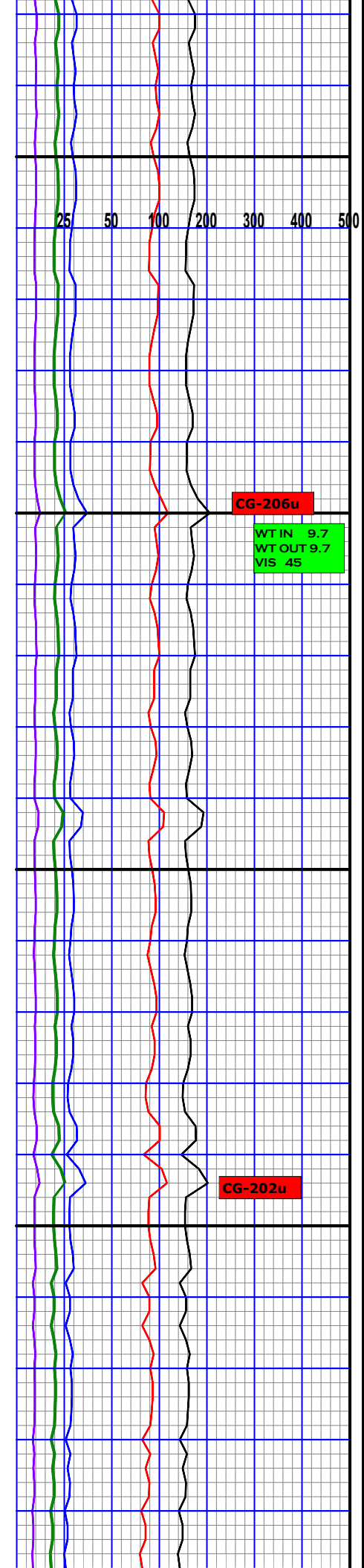


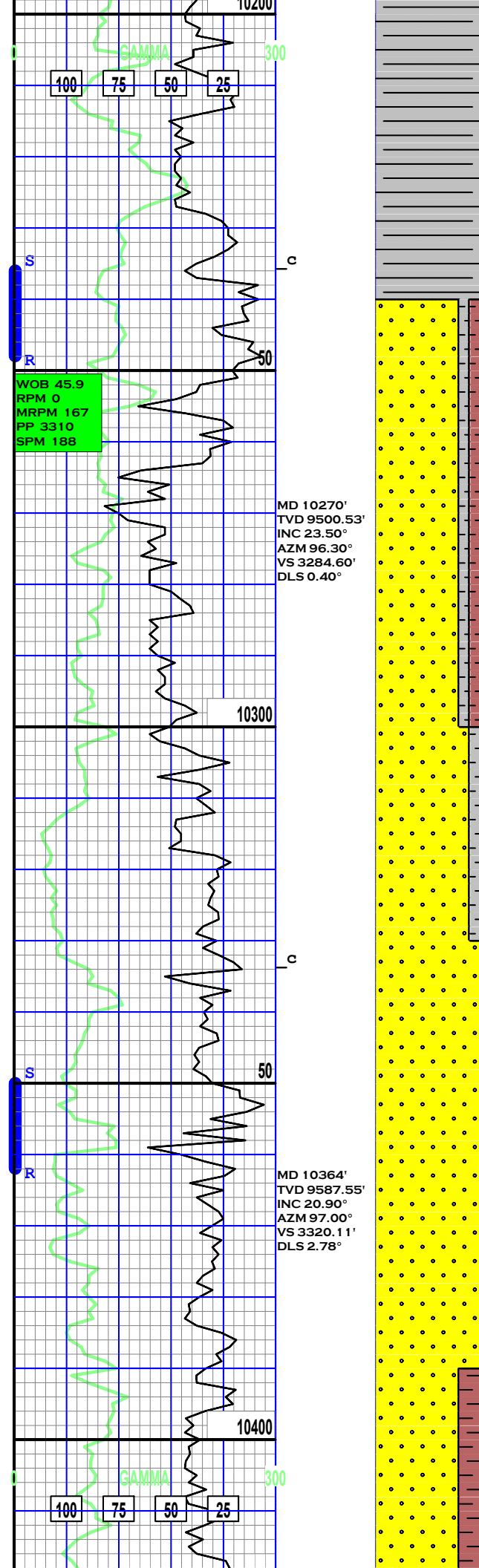
SH: v lt gry-lt grn  
sft-frm plty blkly sft  
hom smth  
txt

SD: lt gry wt occ rd  
mlky clr vfg sbang  
sbrnd wl srted wl consol

SH: lt gry-grnsh plty  
sft-frm blkly chky sft  
hom smth txt

SH: lt gry-grnsh plty  
sft-frm blkly chky sft  
hom smth txt





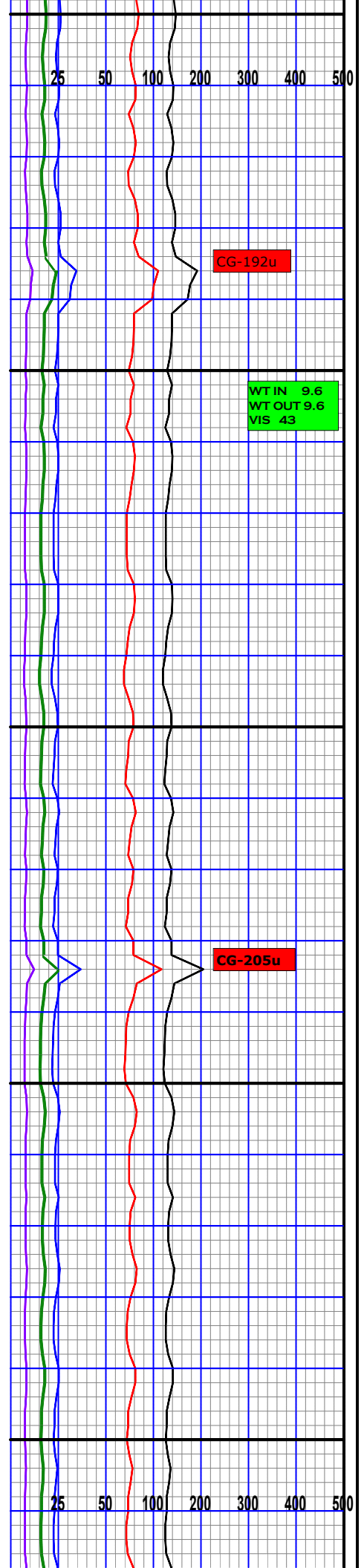
SH: lt gry-grnsh plty  
sft-frm blký chky sft  
hom smth txt trc ls

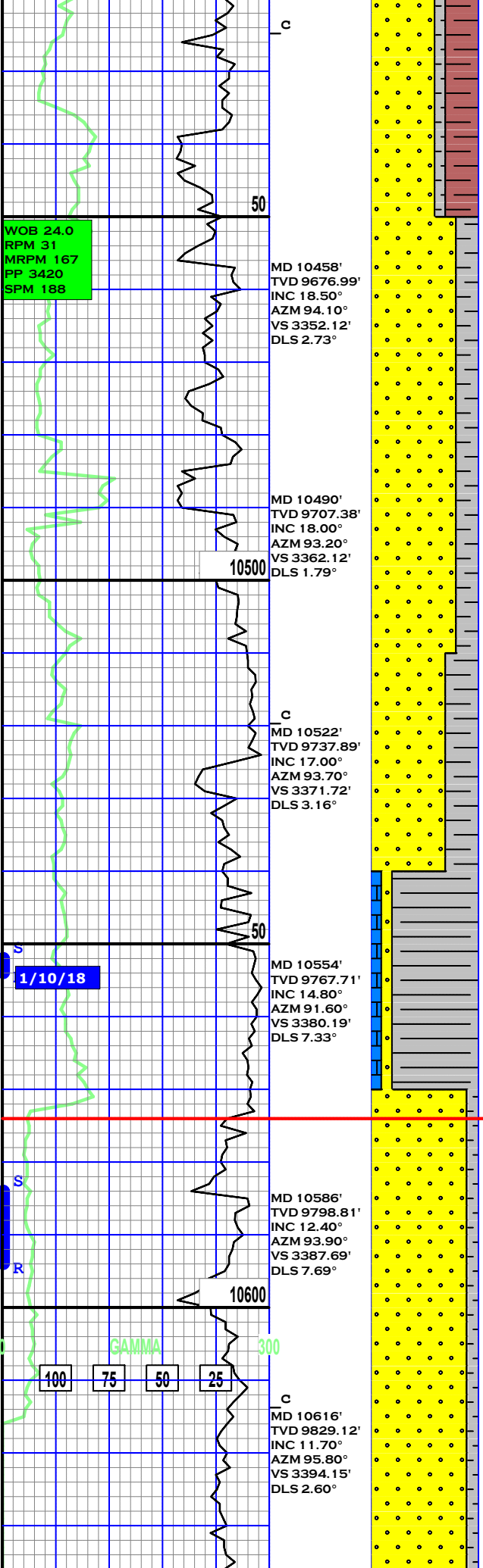
SD: off wht lt gry-gry  
vf-mfg sbrnd sbang wl  
consol wl srted n calc  
trc ls

SH: lt gry-grnsh plty  
sft-frm blký chky sft  
hom smth txt trc ls

SD: off wht lt gry-gry  
vf-mfg sbrnd sbang wl  
consol wl srted n calc  
trc ls

SD: off wht lt gry-gry  
vf-mfg sbrnd sbang wl  
consol wl srted n calc  
trc ls trc gry sh





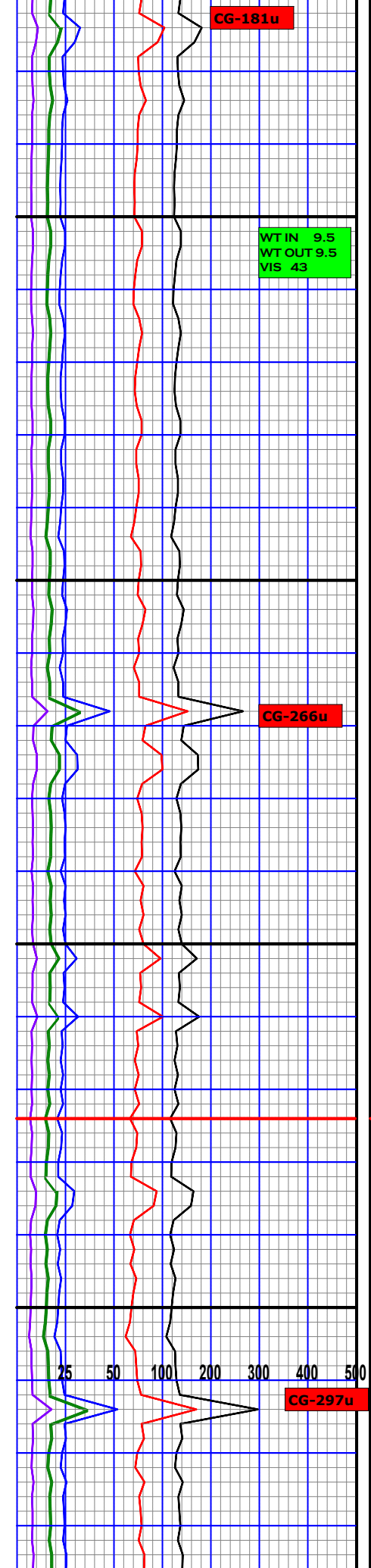
RSH: brnsh red dk red  
frm plty blk tab smth-  
rgh txt n calc trc ls

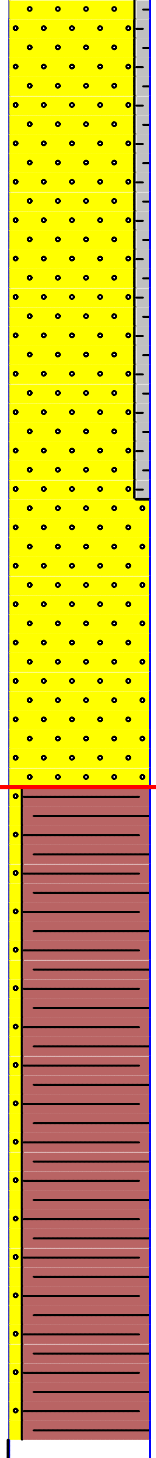
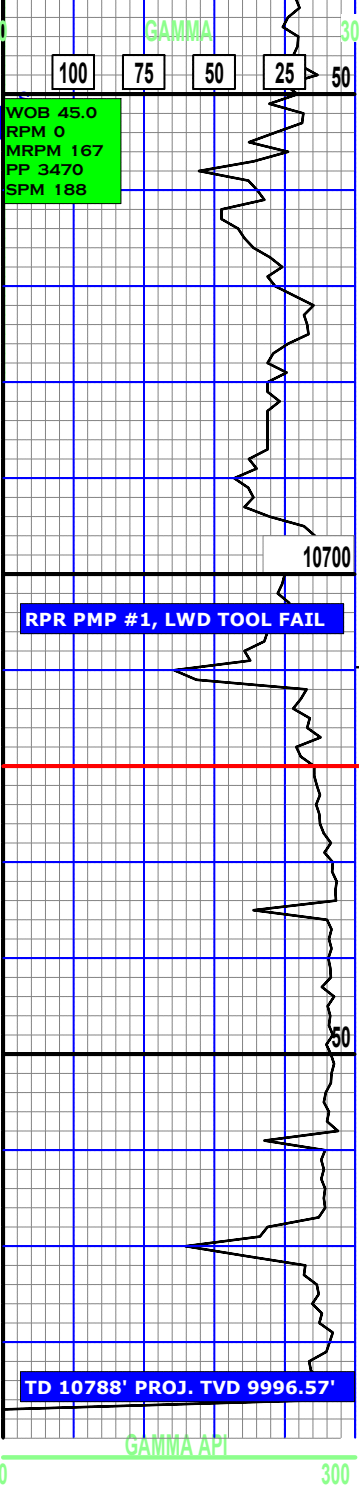
SD: wt-off wt occ lt  
gry mlky clr vf-mfg  
sbang sbrnd wl srted wl  
consol calc lse clct

SH: lt gry-gry occ grn  
plty sft hom smth txt  
calc lse clct

SD: wt-off wt mlky clr  
vf-mfg sbang sbrnd wl  
srted wl consol calc

Top Entrada





SD: wt-off wt mlky clr  
vf-mfg sbang sbrnd wl  
srted wl consol calc

SD: wt-off wt mlky clr  
vf-mfg sbang sbrnd wl  
srted wl consol calc

Top Chugwater

RSH: rd-brn plty blk  
v sft hom rthy txt n  
calc

