

MBC WELL LOGGING LLC

Scale 1:240 (5"=100') Imperial
Measured Depth Log

Well Name: LCCLU 108 MERIT ENERGY
 15-067-21841-0000: AFE: 54736
 Location: GRANT COUNTY, KANSAS USA
 License Number: 32446
 Spud Date: 10-14-17
 Surface Coordinates: 2596'fnl 2380'fwl-SEC 10-T29S-R38W
 Bottom Hole Coordinates: HLS-DIL/SP/GR CNL/CAL/PE/BHV SONIC SFC- GR TO SFC'
 Ground Elevation (ft): 3111' K.B. Elevation (ft): 3124'
 Logged Interval (ft): 3800' To: 6603' Total Depth (ft): E-LOG
 Formation: LOWER MISS
 Type of Drilling Fluid: WATER BASED MUD // HUGO ROSALES
 Region: WILDCAT
 Drilling Completed: 10-17-2017

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OPERATOR

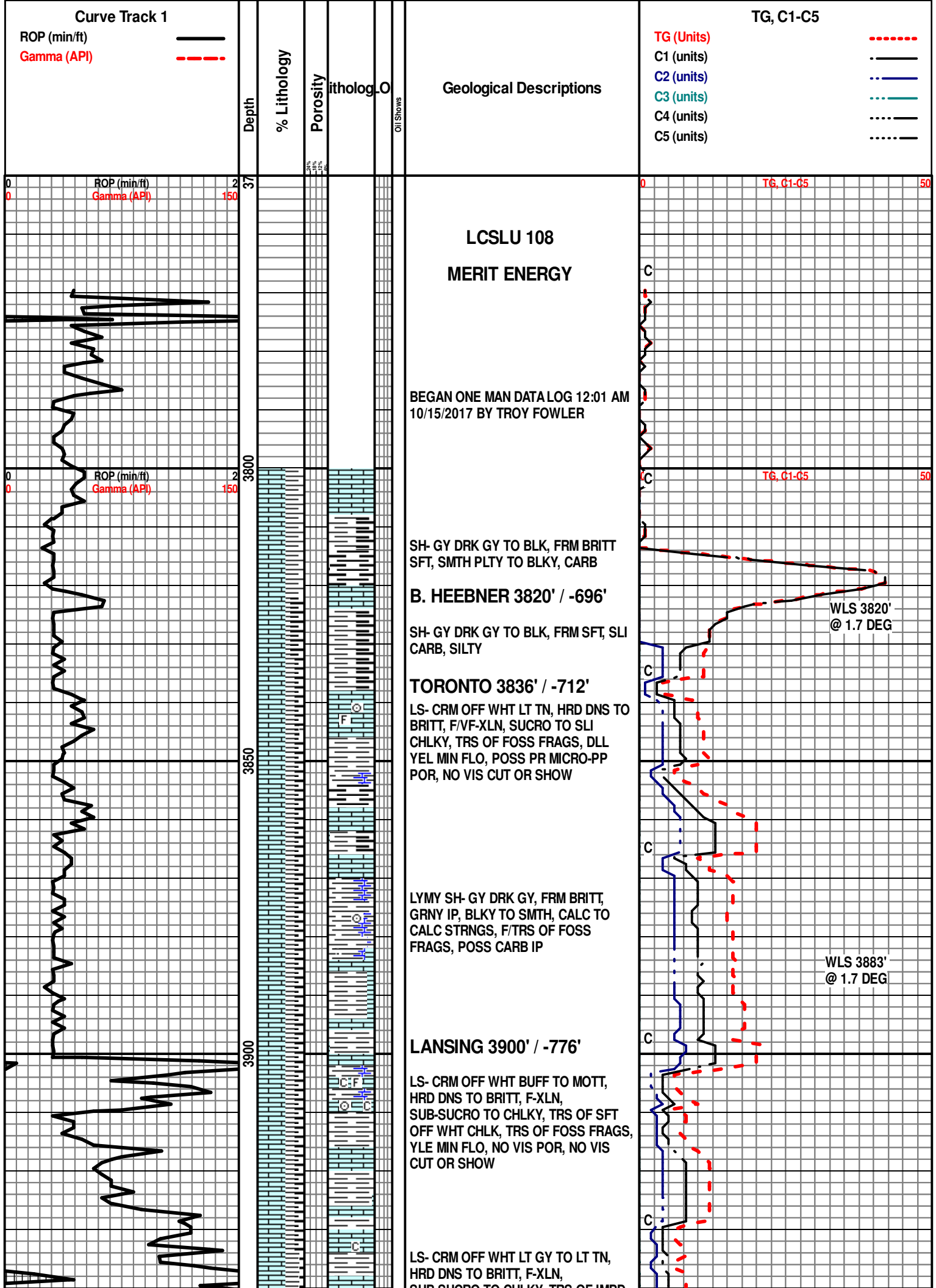
Company: MERIT ENERGY CO LLC
 Address: ATTN MARTIN LANGE GEOLOGY
 13727 NOEL RD STE 1200
 DALLAS, TEXAS 75240

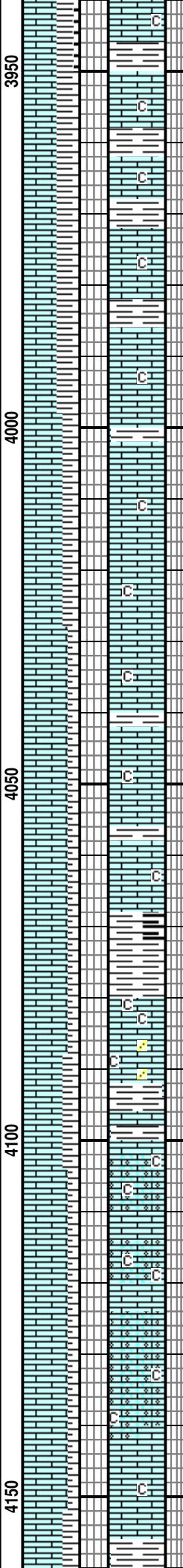
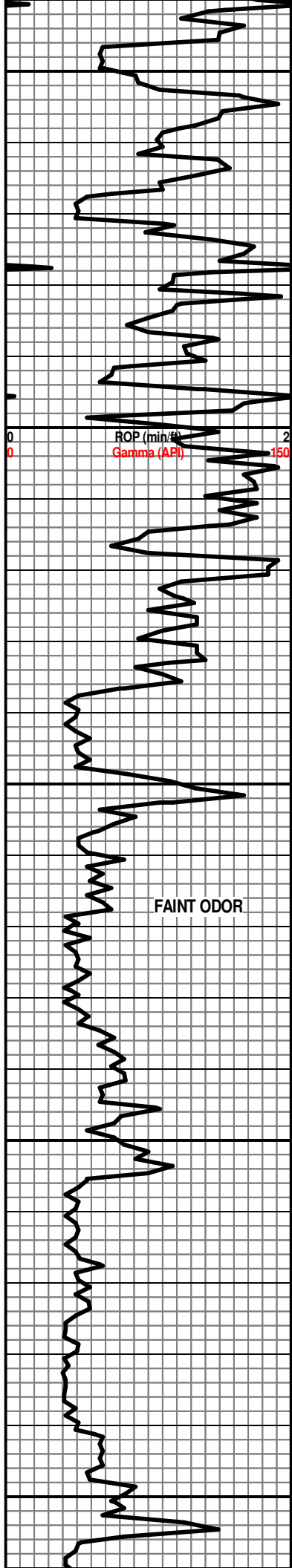
MUDLOGGER

Name: TROY FOWLER
 Company: MBC WELL LOGGING LLC
 Address: 21156 RD 22
 MEADE, KANSAS 67864

ROCK TYPES

	Anhy		Stgensndy-arkos		Sltst-1		Red sh-1
	Brec		New ls-1		Sltly-shale		Stgensndy-arkos
	Cht		Carby shale		Lmy ss-1		Sndy ool ls
	Coal		Lmy carby sh-3		Arkosic snd		Sndy-ls-1
	Congl		Carb sh		Ss		Calc shale
	Dolo new		Gyp		Grn sh strk		Granitewash
	New dolomite		Sltst		Grn mott gy sh		Ls shly-b
	Newdolo ls 2		Salt		New symbol		Poor sortd ss
	Ls & ooids		Sndy sh--red		Lmy sh-2		Snd-ls-sh
	Oolitic ls -1		Sndy sh		Shale-1		





SUB-SUCRO TO CHLKY, TRS OF IMBD TO DISS SH, YEL MIN FLO, NO VIS POR, NO VIS CUT OR SHOW

WLS 3947' @ 1.7 DEG

LS- GY BUFF TO LT TN, HRD BRITT, F/VF-XLN, CHLKY, DLL YEL MIN FLO, POSS PR MICRO-PP POR, NO VIS CUT OR SHOW, NO ODOR

SAMPLES ARE GROUND UP FROM HARD DRILLING

TG, C1-C5

50

LS- CRM OFF WHT LT GY TO LT TN, HRD DNS TO BRITT, F-XLN, SUCRO TO CHLKY, SLI ARHEN IP, DLL YEL MIN FLO, NO VIS POR, NO VIS CUT OR SHOW, NO ODOR

WLS 4010' @ 1.5 DEG

LS- LT GY TO LT TN, HRD DNS TO BRITT, F-XLN, SUB-SUCRO TO CHLKY, TRS OF SFT OFF WHT CHLK, YEL MIN FLO, NO VIS POR, NO VIS CUT OR SHOW, FAINT ODOR

FAINT ODOR

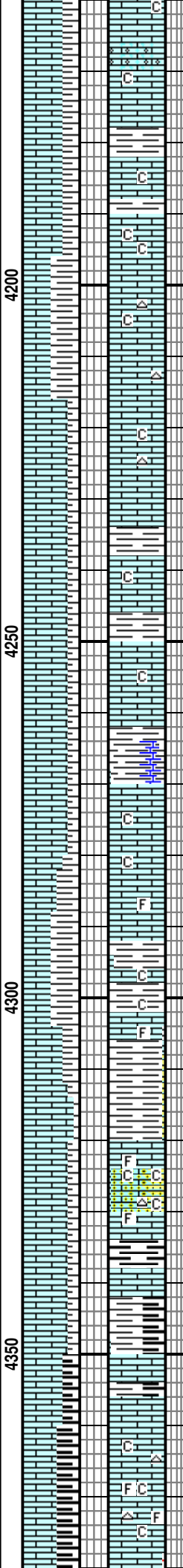
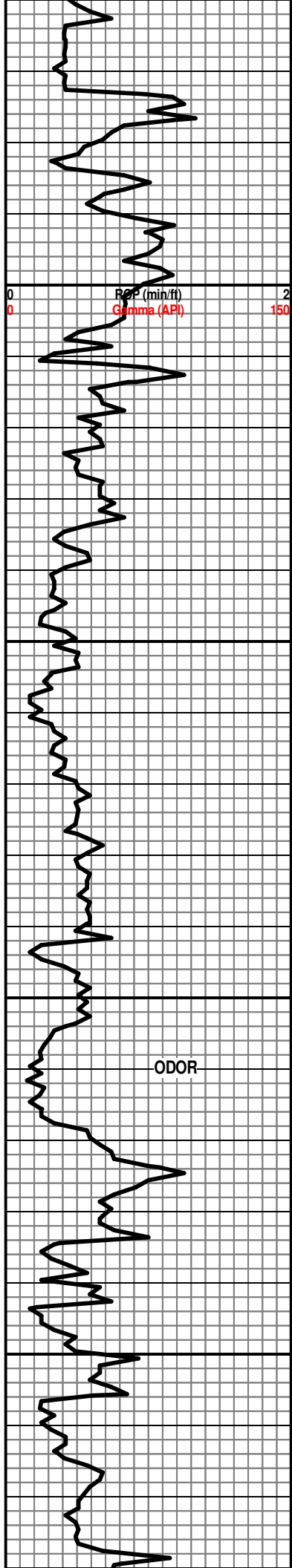
SH- GY DRK GY TO BLK, FRM BRITT TO SFT, SMTH BLKY, CARB IP

WLS 4070' @ 1.5 DEG

LS- OFF WHT LT GY TO LT TN, HRD DNS TO BRITT, F/VF-XLN TO ARHEN IP, SUCRO TO CHLKY, TRS OF MICRO OOL, DLL YEL MIN FLO, POSS PR INTER-GRN POR TO PP POR, NO VIS C OR SHOW, NO ODOR

OOL LS- LT TN OFF WHT, HRD DNS TO BRITT IP, M-F OOL GRNS FAIR SORTD, CHLKY IP, SPOTTY TO DLL GLD FLO, FR OOLICASTIC POR, NO VIS C OR SHOW, NO ODOR

WLS 4135' @ 1.4 DEG



LS- GY LT TN TO MOTT, HRD DNS TO BRITT, F/VF-XLN, SUB-SUCRO TO CHLKY, TRS OF OOL, DLL YEL MIN FLO, POS PR OOLCASTIC POR, NO VIS CUT OR SHOW, NO ODOR

LS- GY FF WHT LT TN TO MOTT, HRD DNS TO BRITT, F/VF-XLN, SUCRO TO CHLKY IP, TRS OF LT TN TO GY CHRT, DLL YELL MIN FLO, NO VIS CUT OR SHOW

LS- GY DRK GY TN TO BUFF, HRD DNS, F/VF-XLN, CHLKY IP, IMBD TO DISS SH, DLL YEL MIN FLO, NO VIS POR, NO VIS CUT OR SHOW

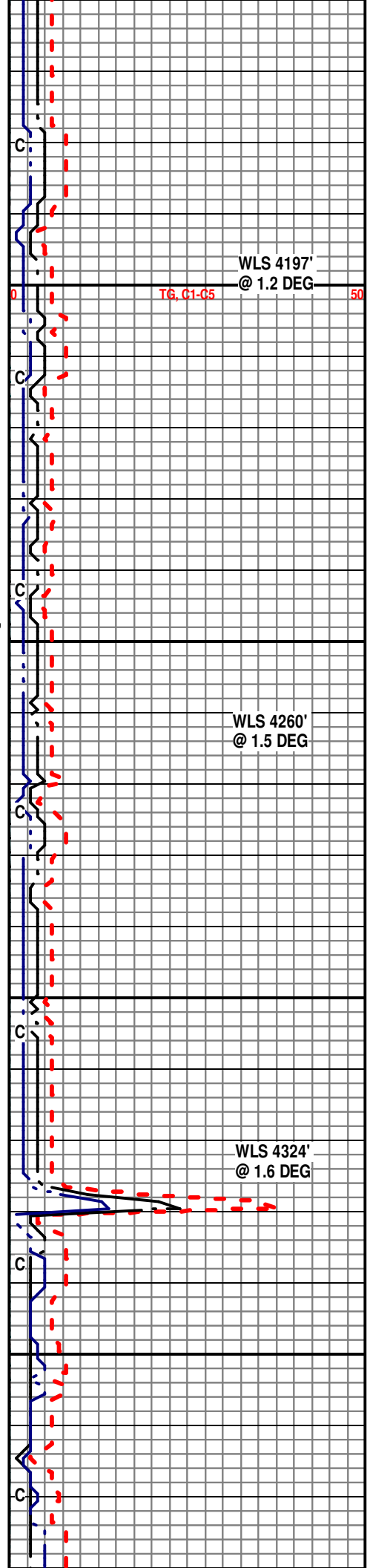
LS- GY LT TN TO BUFF, HRD DNS TO BRITT, F/VF-XLN, SUB-SUCRO TO CHLKY, TRS OF FOSS FRAGS, DLL YEL MIN FLO, NO VIS POR, NO VIS CUT OR SHOW, NO ODOR

SNDY LS- TN GY BUFF TO OFF WHT, HRD BRITT, F/VF-XLN, SUCRO TO CHLKY, AHREN IP, F/TRS OF FOSS FRAGS, DLL YEL MIN FLO, POSS INTER-GRN POR, NO VIS CUT OR SHOW, NO ODOR

STARK

SH- SFT BLK CARB

LS- OFF WHT LT TN TO LT GY, HRD BRITT, F/VF-XLN, SUCRO TO CHLKY, TRS OF LT TN TO GY CHRT, F/TRS OF FOSS FRAGS, DLL YEL MIN FLO, NO VIS POR, NO VIS CUT OR SHOW, NO DET ODOR



WLS 4197'
@ 1.2 DEG

WLS 4260'
@ 1.5 DEG

WLS 4324'
@ 1.6 DEG

TG, C1-C5

50

ODOR

ROP (min/ft)
Gamma (API)

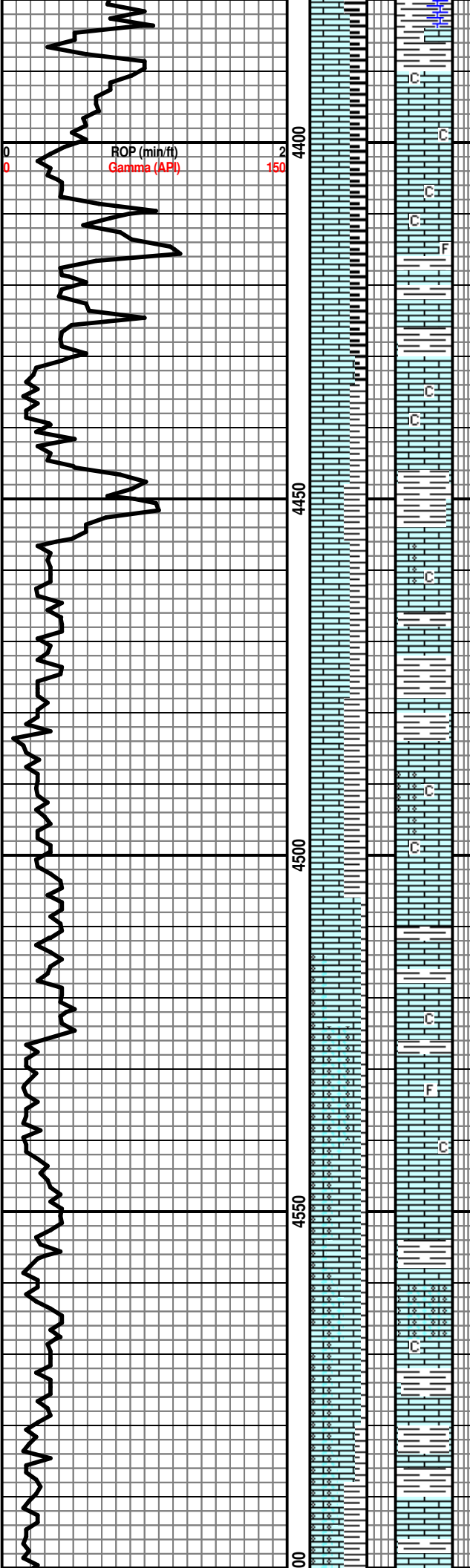
4200
150

4250

4300

4350

WLS 4386'
@ 1.4 DEG



LS- TN GY TO OFF WHT, HRD DNS TO BRITT, F-XL, CHLKY, TRS OF TN CHRT, DLL YEL MIN FLO, NO VIS POR, NO VIS CUT OR SHOW-

T6, C1-C5

50

MARMATON

LS- GY OFF WHT LT TN TO MOTT, HRD DNS TO BRITT, F/VF-XLN, SUCRO TO CHLKY, DLL YEL MIN FLO, N VIS POR, NO VIS CUT OR SHOW

LS- TN GY OFF WHT, HRD DNS TO BRITT, SUCRO TO CHLKY, OOL, DLL YEL MIN FLO, PR/FR OOLICASTIC POR, NO VIS CUT OR SHOW

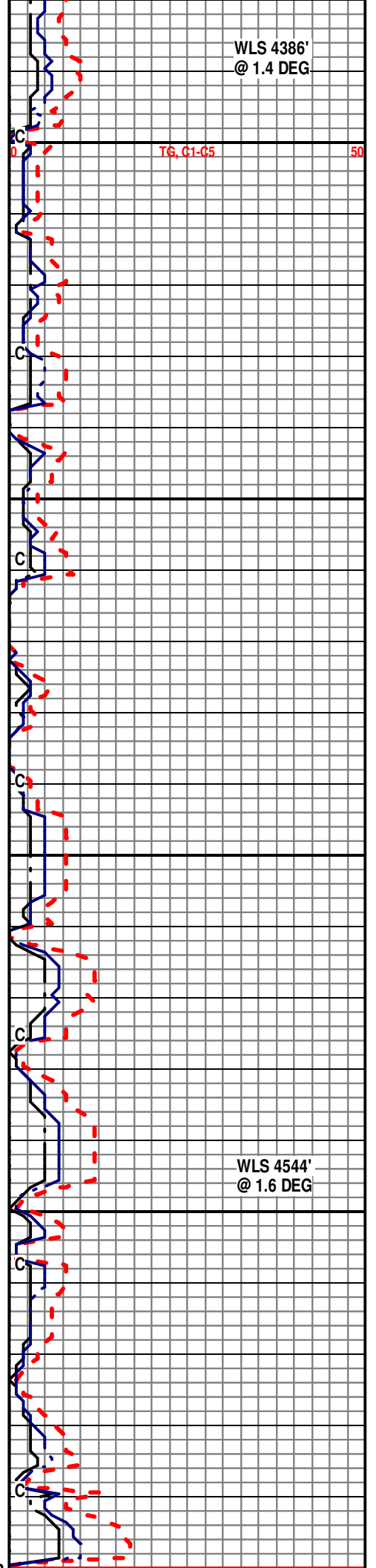
TN GY DRK GY, HRD DNS TO BRITT, F-XLN, CHLKY, F/TRS OF OOL SME SHADOW, DLL YEL MIN FLO, NO VIS POR, NO VIS CUT OR SHOW

LS- GY TN TO MOTT, HRD DNS TO BRITT, F-XLN, CHLKY, F/TRS OF FOSS FRAGS, DLL L MIN FLO, NO VIS POR, NO VIS CUT OR SHOW

WLS 4544'
@ 1.6 DEG

OOL LS- TN LT GY TO OFF WHT, HRD DNS TO BRITT, F-GRN OOL FR SORTD, CHLKY, TRS OF SFT OFF WHT CHLK, YEL FLO, FR- OOLICAST POR, NO VIS CUT OR SHOW, NO ODOR

LS- CRM OFF WHT GY TO MOTT, HRD BRITT, F-XLN, SUCRO TO CHLKY, DLL OOL FLO, NO VIS POR, NO VIS CUT OR



ROP (min/ft)
Gamma (API)

150

Scale Change
TG, C1-C5
CHANGE SCALE 0-200 UN

200

GLD FLO, NO VIS POR, NO VIS CUT OR SHOW

PAWNEE

SH- DRK GY TO BLK, FRM BRITT, CARB

OOL LS- TN GY TO OFF WHT, HRD BRITT, M/F-GRN OOL PR SORTD, CHLKY TRS OR SFT OFF WHT CHLK, TRS OF FOSS FRAGS, DLL PALE YEL FLO, PR OOLICASTIC POR, NO VIS CUT OR SHOW, NO ODOR

BANDERRA

OOL LS- TN GY TO OFF WHT, HRD BRITT, M/F-GRN OOL PR SORTD, CHLKY, PALE YEL FLO, PR OOLICASTIC POR, NO VIS CUT OR SHOW, NO ODOR

SH- GY DRK GY TO BLK, CARB

LS- TN BRN OFF WHT TO GY, HRD DNS, F/VF-XLN TO SLI CRYPTO-XLN, V/CHLKY IP, TRS OF SFT OFF WHT CHLK, TRS OF TN CHRT, TRS OF FOSS FRAGS IP, YEL MIN FLO, NO VIS POR, NO VIS CUT OR SHOW

WLS 4702'
@ 1.9 DEG

LS- TN GY OFF WHT TO MOTT, HRD DNS TO BRITT, F-XLN, SUCRO TO CHLKY, OFF WHT CHLK, TRS OF FOSS FRAGS, DLL PALE YEL FLO, NO VIS POR, NO VIS CUT OR SHOW

CHEROKEE

SH- FRM TO SFT BLK CARB

LYMY SH- GY DRK GY BRN, HRD BRITT, BLKY TO GRNY, TRS OF CALC GRN AND STRNGS

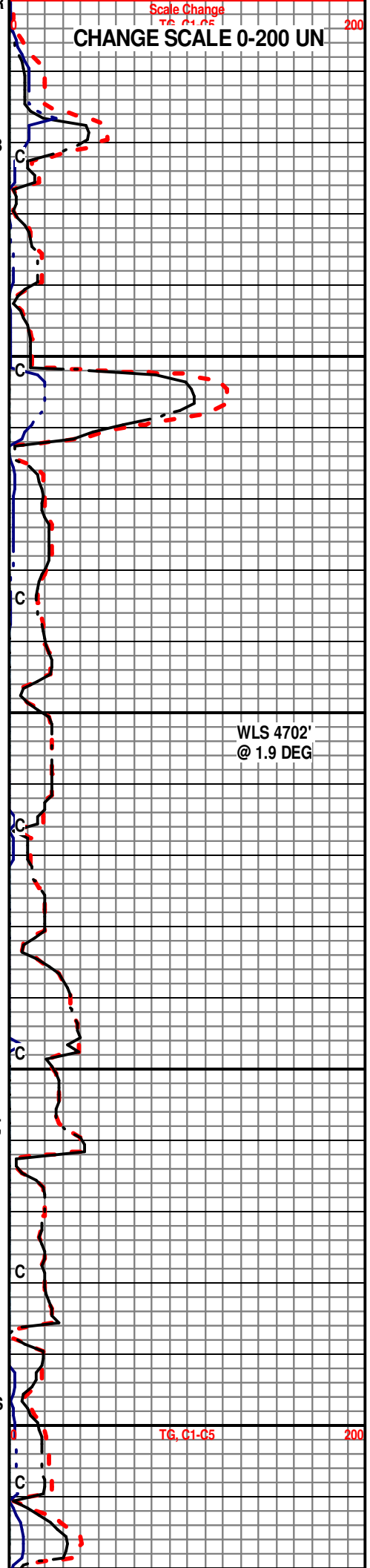
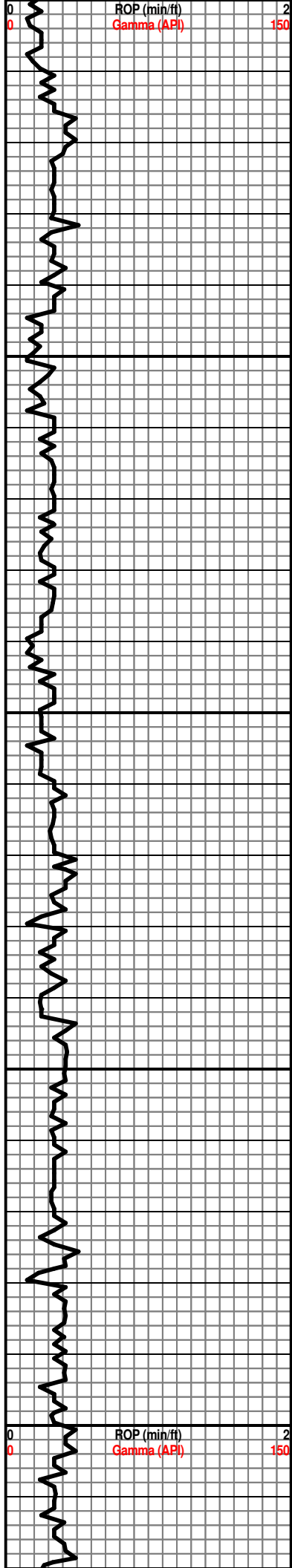
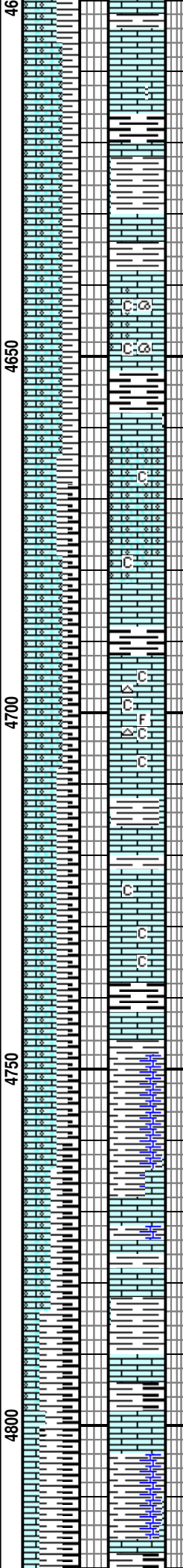
LS- TN BRN GY TO MOTT, HRD DNS TO BRITT, F/VF-XLN, CHLKY, TRS OF FOSS FRAGS, DLL PALE YEL FLO, NO VIS POR, NO VIS C OR SHOW

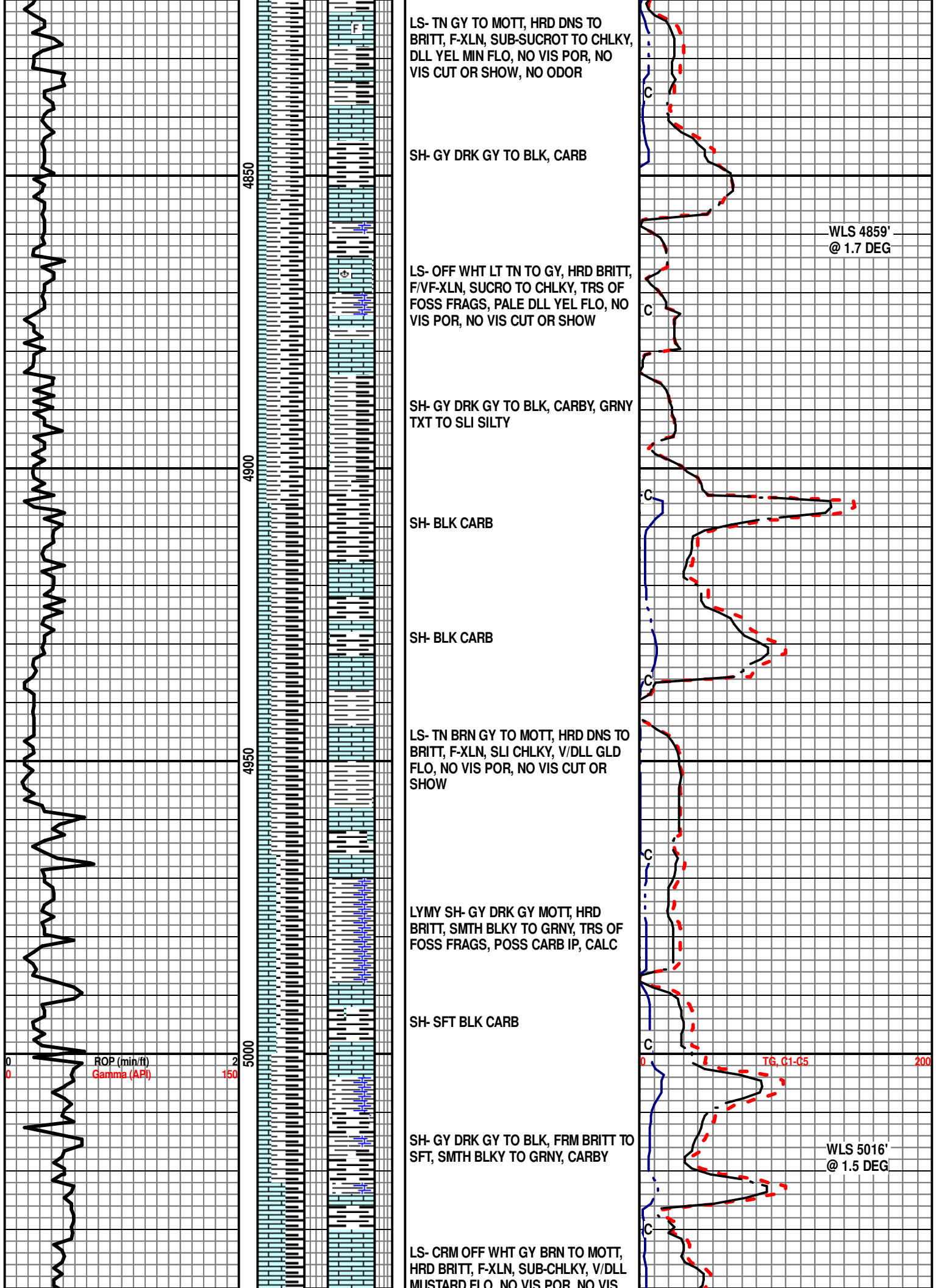
TG, C1-C5

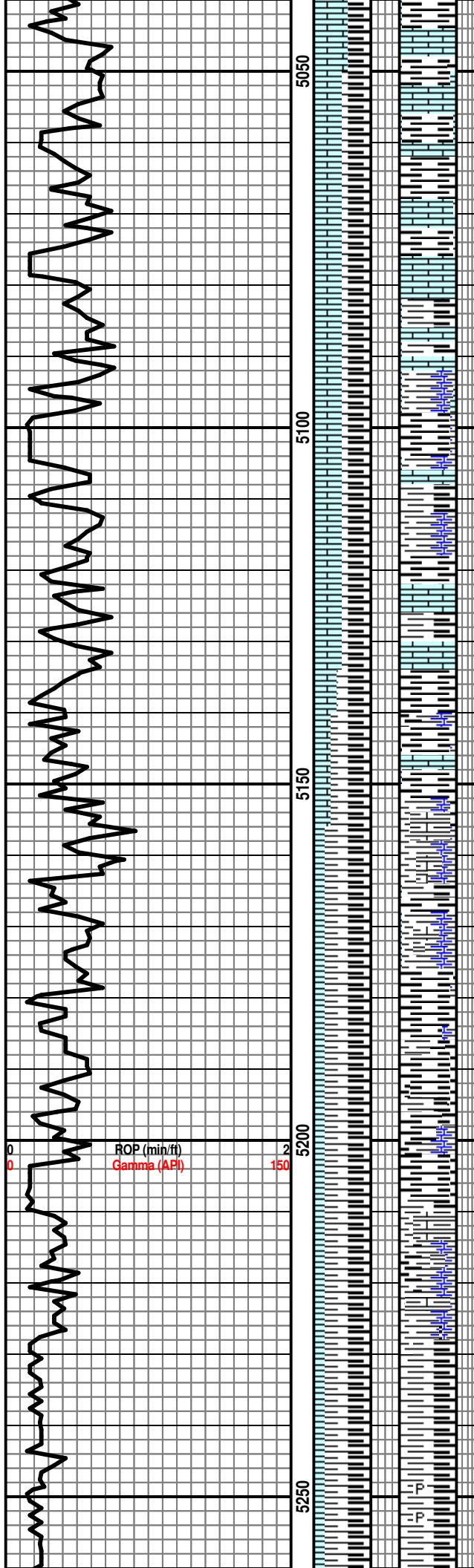
200

ROP (min/ft)
Gamma (API)

150







NO VIS. CUT OR SHOW

SH- SFT BLK CARB

ATOKA

LYMY SH- GY DRK GY TO BLK, SMTH BLKY TO GRNY, CALC, TRS OF CALC GRNS

LYMY SH- DRK GY BLK, FRM BRITT, GRNY, CARB IP

SH- GY DRK GY TO BLK, CARB

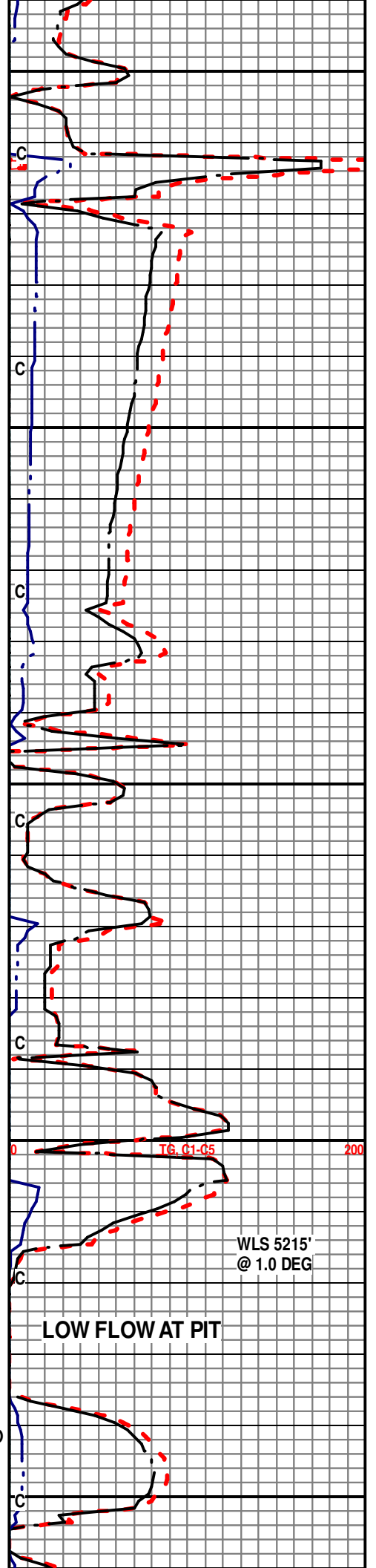
LYMY SH- DRK GY BLK, FRM BRITT, GRNY, CARB IP

SH- GY DRK GY TO BLK, CARBY, SPLNTY SMTH

MORROW

LYMY SH- GDRK GY TO BLK, FRM BRITT TO SFT, CARBY

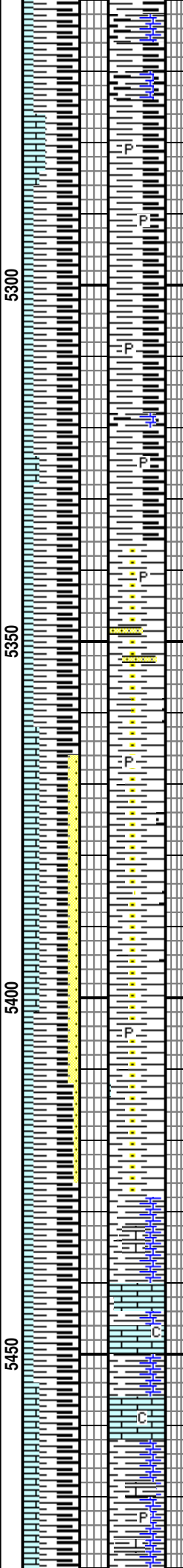
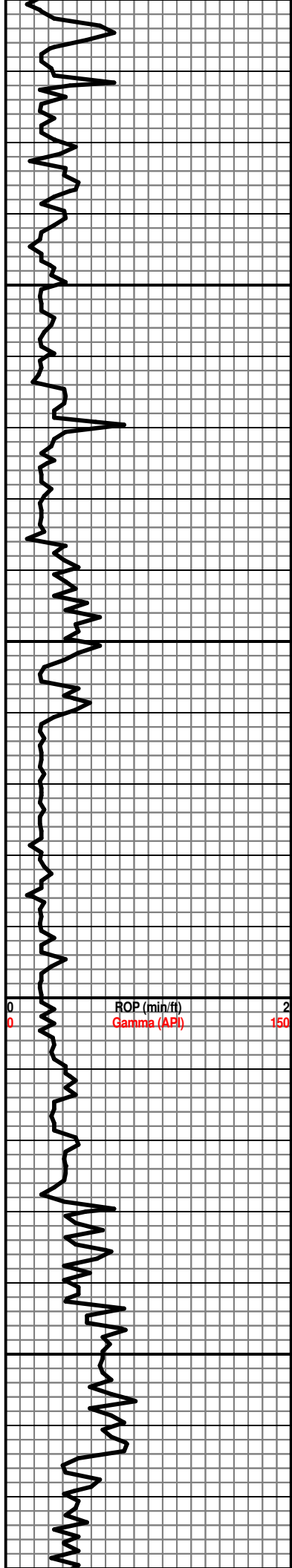
SH- GY DRK GY TO BLK, FRM BRITT TO SFT, CARBY, SMTH BLKY SPLNTY, F/TRS OF FOSS FRAGS



LOW FLOW AT PIT

WLS 5215'
@ 1.0 DEG

TG. C1-C5



LYMY SH- GY DRK GY BLK, CALC, BRITT

SH- DRK GY BLK, FRM BRITT TO SFT, SMTH BLKY SME SPLINTY, GUMMY IP, F/TRS OF PYR

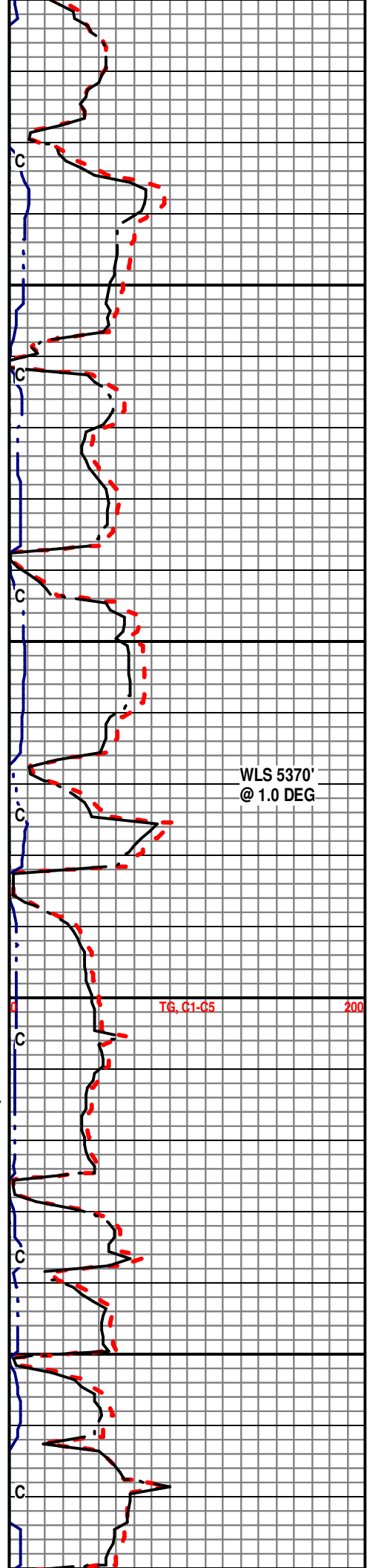
SILTY SNDY SH- GY DRK GY, TRS OF SS STRNGS, TT CONSOLIDATED SALT AND PEPPER, IMBD TO LAMN BLK SH, SILTY, POSS CARB

SILTY SH- DRK GY BLK, FRM BRITT TO GUMMY, CARBY

SILTY SH- GY DRK GY BLK, FRM BRITT TO GUMMY, BLKY TO GRNY, CARBY, TRS OF PYR NODS

LS- GY OFF WHT BRN TO MOTT, HRD DNS TO BRITT, F/VF-XLN, SLI CHLKY, DLL YEL MIN FLO, NO VIS POR, NO VIS CUT OR SHOW

LYMY SH- GY DRK GY TO BLK, FRM BRITT TO SFT, SMTH BLKY TO GRNY



WLS 5370'
@ 1.0 DEG

T6, C1-C5

200

ST LOUIS B

WLS 5707'
@ 0.8 DEG

LS- CRM OFF WHT TO LT TN, HRD BRITT, F/VF-XLN TO F-GRN OOL FR SORTD, SUCRO TO CHLKY, PALE YEL TO SPOTTY YEL FLO, POSS PR INTER-GRN POR, NO VIS CUT OR SHOW, NO ODOR

LS- OFF WHT TO LT TN, HRD BRITT, F/VF-XLN TO M/F-GRN OOL PR SORTD, SUCRO TO V/CHLKY, F/TRS OF GY CHRT, SPOTTY YEL FLO, POSS PR INTER-GRN POR, NO VIS CUT OR SHOW, NO ODOR

LS- OFF WHT TO LT TN, HRD BRITT, F/VF-XLN TO F/TRS F-GRN OOL FR SORTD, SUCRO TO V/CHLKY, 80% LS CONTENT, F/TRS OF FOSS FRAGS, SPOTTY YEL TO NO FLO, POSS PR INTER-GRN POR TO NO VIS POR, NO VIS CUT OR SHOW, FAINT ODOR

5795' TOH FOR BIT TRIP @ 09:10 AM 10/16/2017 - RETURNED TO DRILLING @ 04:20 PM W/ BIT #3

SCALE CHANGE 0-50 UN
@ 5800'

OOL LS TN LT BRN TO BUFF, HRD BRITT, VVF OOL-GRNS, CHLKY, V/DLL DRK MUSTRD FLO, PR INTER-GRN POR, NO VIS CUT OR SHOW, NO ODOR

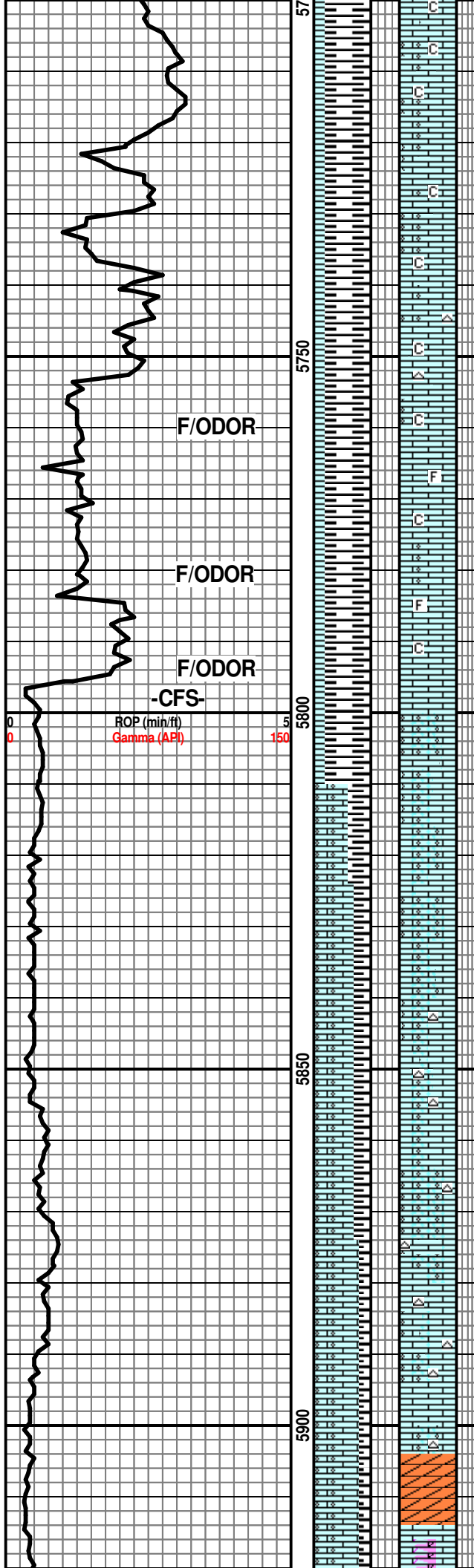
OOL- LS TN LT BRN TO BUFF, HRD BRITT, M/VF OOL-GRNS FR SORTD, SUB-SUCRO TO CHLKY, TRS OF GY TN OPAQ CHRT SME W/ OOL, V/DLL MUSTRD FLO, PR INTER-GRN POR, NO VIS CUT OR SHOW, NO ODOR

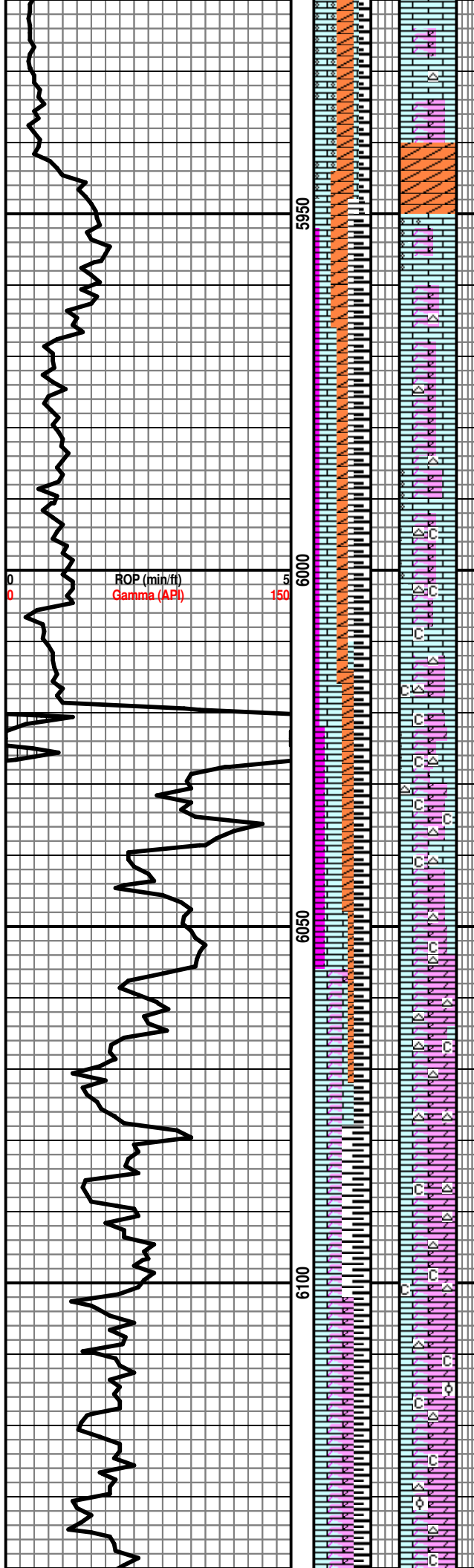
WLS 5875'
@ 1.2 DEG

OOL- LS TN LT BRN TO BUFF, HRD BRITT, M/F OOL-GRNS PR SORTD, SUB-SUCRO TO CHLKY, INCR LS CONTENT 60%, TRS OF GY TN OPAQ CHRT, V/DLL MUSTRD FLO, PR INTER-GRN POR, NO VIS CUT OR SHOW, NO ODOR

ANHYDRITE- BONE WHITE, FRSTY, VV-F GRN, CHLKY

SPERGEN





LS- TN GY TO MOTT, HRD BRITT, F-XLN,
CHLKY IP, F/TRS OF CHRT, F/TRS OF
DOLO IP, DLL MUSTRD FLO, NO VIS
POR, NO VIS CUT OR SHOW

ANHYDRITE- BONE WHITE, FRSTY,
VV-F GRN, V/CHLKY

LS- TN BRN GY TO MOTT, HRD DNS TO
BRITT, F/VF-XLN, SUB-SUCRO TO
CHLKY, GRNY TXT IP TO SLI ARHEN,
TRS OF DOLO IP, F/TRS MICRO-OOL,
F/TRS OF LT GY TO TN OPAQ CHRT,
DLL MUSTARD FLO, NO VIS POR, NO
VIS CUT OR SHOW

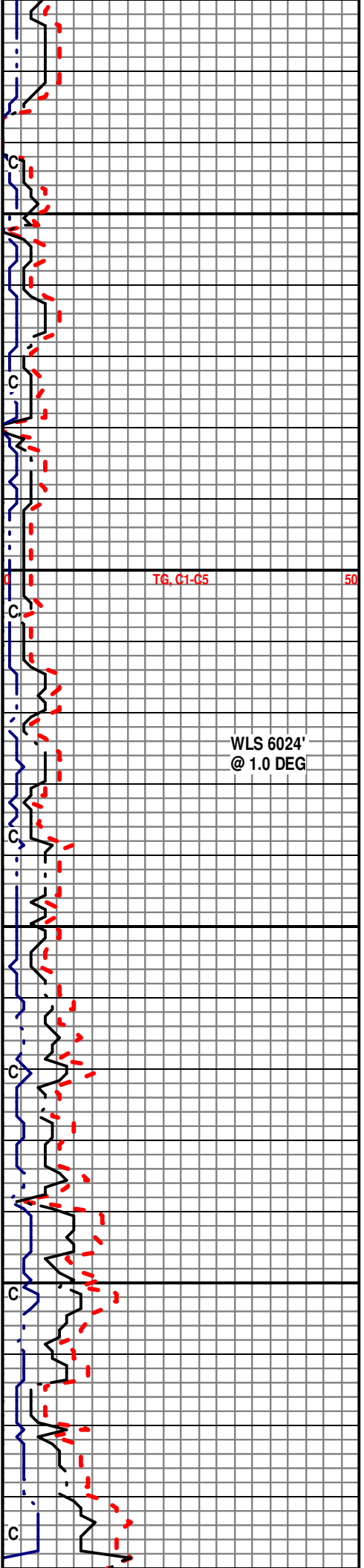
LS- LT TN LT GY TO BUFF, HRD DNS TO
BRITT, F/VF-XLN, GRNY IP, SUCRO TO
V/CHLKY, TRS OF TN GY CHRT SME
OPAQ, DLL PALE YEL FLO, NO VIS
POR, NO VIS CUT OR SHOW, POSS
SLI WEATHRD

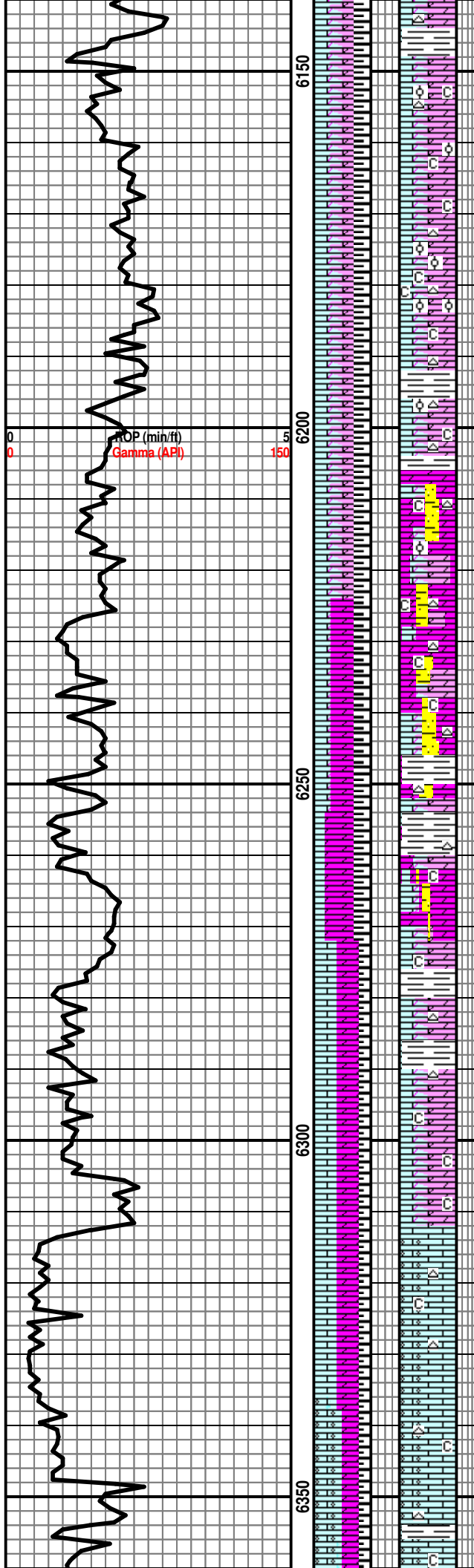
LS- LT TN LT GY TO BUFF, HRD DNS TO
BRITT, F/VF-XLN, GRNY IP, SUCRO TO
V/CHLKY, ABNDT TRS OF TN GY CHRT
SME OPAQ, INCR DOLO CONTENT
30%, DLL PALE YEL FLO, NO VIS POR,
NO VIS CUT OR SHOW,

WARSAW

LS- LT TN TO BUFF, HRD DNS TO
BRITT, F/VF-XLN, SUCRO TO V/CHLKY,
ABNDT TRS OF TN GY TO MILKY CHRT
SME OPAQ, INCR DOLO CONTENT
40%, DLL PALE YEL TO BLUISH FLO,
NO VIS POR, NO VIS CUT OR SHOW

DOLO LS- GY CRM OFF WHT TN TO
MOTT, HRD DNS TO BRITT, F-XLN,
SUB-SUCRO TO V/CHLKY, TRS OF SFT
OFF WHT CHLK, F/TRS OF SHADOW
OOL, TRS OF GY CLR TN OPAQ CHRT,
PALE YEL TO BLUISH FLO, NO VIS
POR, NO VIS CUT OR SHOW





SH- REDDISH BRN, FRM SFT, GRNY, SLI SPLNTY

DOLO LS- GY CRM TN TO MOTT, HRD TO BRITT, M/F-XLN, V/CHLKY, TRS OF SFT OFF WHT CHLK, ABNDT TRS SHADOW OOL IN CHLKY MTX, GY CLR TN OPAQ CHRT, SPOTTY PALE YEL TO BLUISH FLO THRU, NO VIS POR, NO VIS CUT OR SHOW

CARRY LOTS OF BLK CARBY SH

SH- MOUSY GREY TO REDDISH, FRM SFT, BLKY, SOAPY TXT

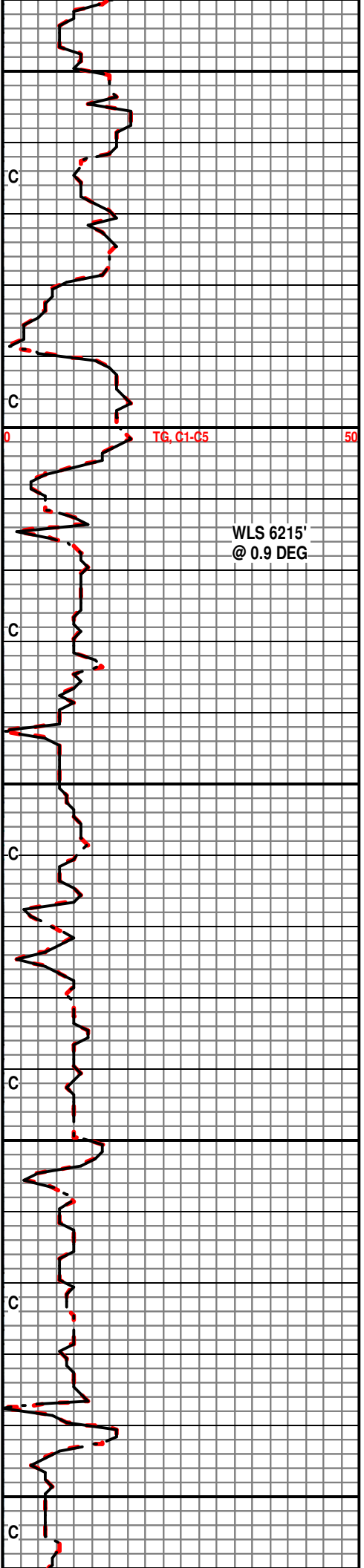
DOLO LS- GY LT TN TO MOTT, HRD TO BRITT, M/F-XLN, SUB-SUCRO TO CHLKY, SME SHADOW OOL IN CHLKY MTX, LT GY SILTY CALC IP, TRS CLR TN GY OPAQ CHRT, PALE YEL IP TO BLUISH FLO THRU, NO VIS POR, NO VIS CUT OR SHOW

DOLO LS- GY LT TN TO MOTT, HRD BRITT, VF-XLN, SUCRO TO CHLKY, SLT GY SILTY, CALC IP, F/TRS OPAQ CHRT, PALE YEL IP TO BLUISH FLO THRU, NO VIS POR, NO VIS CUT OR SHOW

DOLO LS- GY LT TN TO MOTT, HRD BRITT, VF-XLN, SUCRO TO CHLKY, SLT GY SILTY, F/TRS OPAQ CHRT, PALE YEL IP TO BLUISH FLO THRU, NO VIS POR, NO VIS CUT OR SHOW

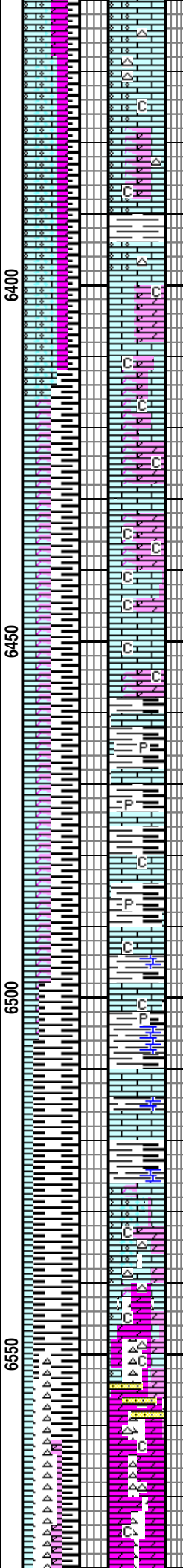
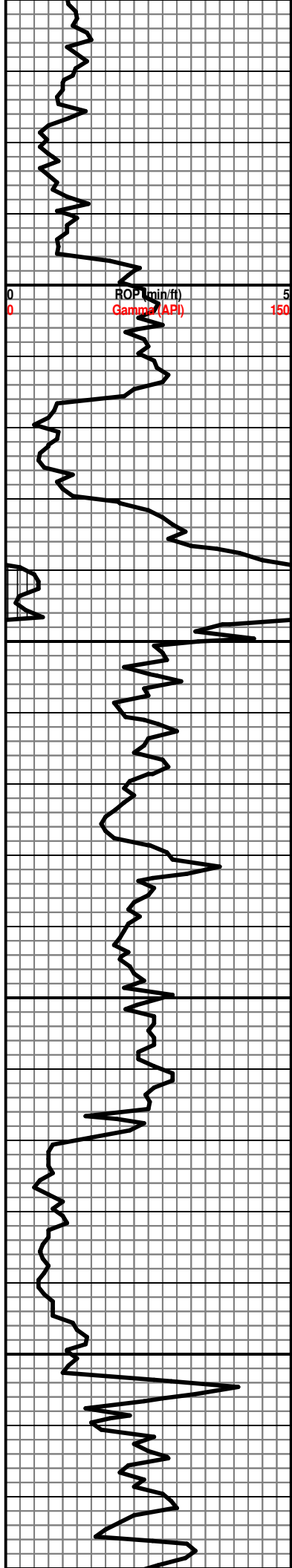
OSAGE

LS- GY OFF WHT, HRD BRITT, F/VF-GRN MICRO OOL GRNS, SUCRO TO SLI CHLKY, TRS OF GY TN OFF WHT TO CLR CHRT, PALE YEL MIN FLO, POSS PR INTER-GRN POR, NO VIS C OR SHOW, NO ODOR



TG, C1-C5

WLS 6215'
@ 0.9 DEG



LS- GY OFF WHT TO MOTT IP, HRD BRITT, F/VF-GRN MICRO OOL GRNS, SUCRO TO SLI CHLKY, TRS OF GY TN OFF WHT TO CLR CHRT, F/TRS OF FOSS FRAGS, DLL PALE YEL MIN FLO, POSS PR INTER-GRN POR, NO VIS CUT OR SHOW, NO ODOR

WLS 6373'
@ 0.9 DEG

SH- BRN GY BLKY GRNY TXT FRM SFT

DOLO LS- TN GY OFF WHT, HRD BRITT, F/VF-GRN MICRO OOL GRNS, SUCRO TO CHLKY, ABNDT TRS OF GY TN OFF WHT TO CLR CHRT, DLL PALE YEL MIN FLO IP, POSS PR INTER-GRN POR, NO VIS CUT OR SHOW, NO DET ODOR

LOW FLO / JET PITS

SAMPLES ARE GROUND UP VERY DIFFICULT TO READ

KINDERHOOK

SH- BLK DRK GY BRN, FRM BRITT TO SFT, SMTH SPLNTY, TRS OF PYR

LS -CRM OFF WHT VF-XLN, V/CHLKY, WEATHRD?

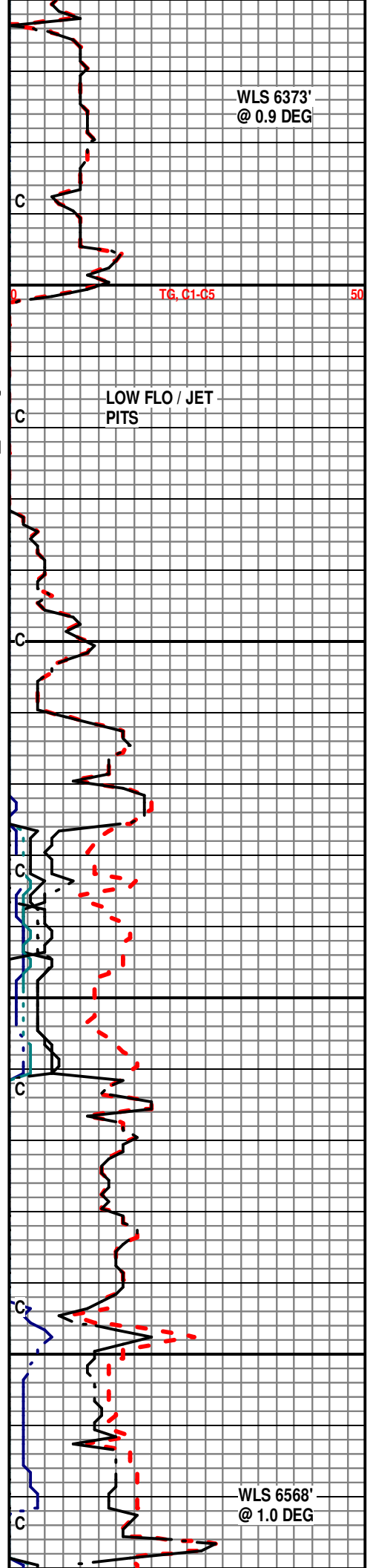
SH- BLK DRK GY, FRM BRITT TO SFT, SMTH SPLNTY

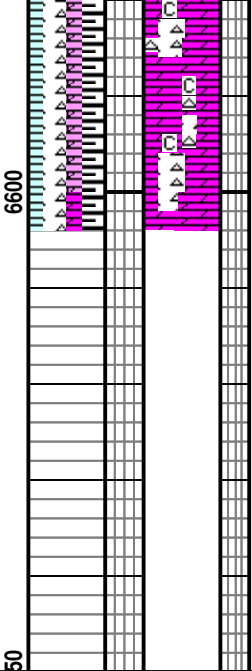
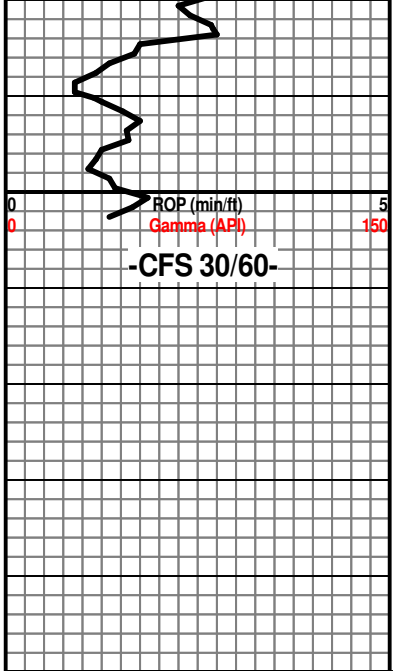
VIOLA

DOLO- LS- CRM OFF WHT LT TN TO LT GY, HRD BRITT, VF-XLN TO VF-OOL GRNS FR SORTD, SUCRO TO SLI CHLKY, DOLO IP SLO RX TO ACID, ABNDT MULTI COLORD VIT TO OPAQ CHRT, V/ DLL MUSTRD FLO IP SME CHRT HAS PALE YEL FLO, POSS PR INTER-GRN POR, NO VIS CUT OR SHOW

DOLO- CLR OFF WHT, HRD DNS TO SLI BRITT, TT, F/VF-GRNS, SNDY AHREN APPEAR, SUCRO, V/DLL YEL FLO, ABNDT VIT TO OPAQ CHRT, DLL BLU FLO, POSS PR INTER-GRN TO PR FRAC POR, NO VIS CUT OR SHOW

WLS 6568'
@ 1.0 DEG





DOLO-GY OFF WHI LI TN TO LI GY,
HRD DNS TO BRITT, TT, F/VF-GRNS,
SUCRO, V/DLL YEL FLO, ABNDT VIT TO
OPAQ CHRT, DLL BLU FLO W/ SME
CHRT W/ YEL FLOPOSS PR
INTER-GRN POR, NO VIS CUT OR
SHOW, NO DET ODOR

RTD 6603' @ 04:30 PM 10/17/2017

