

COMPENSATED NEUTRON

Company	MERIT ENERGY COMPANY
Well	WENU #603
Field	EUBANK NORTH
County	HASKELL
State	KANSAS
Country	USA
API No.	15-081-22212-00-00

File No	:	HAYS-70389
Company	:	MERIT ENERGY COMPANY
Well	:	WENU #603
Field	:	EUBANK NORTH
County	:	HASKELL
State	:	KANSAS
Country	:	USA
API No	:	15-081-22212-00-00

Location :	2003' FWL & 2108' FSL
	SW NE NE SW

LSD :	Sect : 4	Twp : 28S	Rge : 34W
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The customer is hereby warned that by providing the log data herein, STEP Energy Services does not agree to provide any interpretation of log data, conversion of log data to physical rock parameters or recommendations. STEP Energy Services does not guarantee or warrant either expressly or impliedly, the accuracy of any interpretation of log data, conversion of log data to physical rock parameters or recommendations which may be given by STEP Energy Services personnel. Any interpretation, conversion or recommendation is not part of the consideration for the agreement between the parties and is not part of any part of the charge by STEP Energy Services for its services. Any user of the log data is warned that said user is not entitled to rely on interpretations, conversions or recommendations as aforesaid.

Bitsize Intervals		Casing Strings			
Size (In)	Bottom (Ft)	Size (In)	Weight (Lbs)	Bottom (Ft)	Top (Ft)
7.875	5578.00	8.625	32.00	1764.00	0.00

Run Number	1		
Date	12-11-2019		
Date/Time On Bottom	12-11-2019 18:49		
Depth to Fluid	0.0 Ft		
Salinity	1800.000		
RMF@BHT	1.330 @ 121 F		
RMC@BHT	1.800 @ 121 F		

ALL PRESENTATIONS AS PER CUSTOMER REQUEST.

GRT, CNT, LDT, CST, MLT, AND PIT RUN IN COMBINATION.

2.71 G/CC DENSITY MATRIX USED TO CALCULATE POROSITY.

5.5" PRODUCTION CASING USED TO CALCULATE ANNULAR HOLE VOLUME.

CALIPERS ORIENTED ON X-Y AXIS.

PHIN IS CALIPER CORRECTED

DETAIL TO 3800 FT AS PER CLIENT REQUESTED

GRT: GRP

CNT: PHIN, PHINDOL, CLCNIN

LDT: PORL, PORLDOL, LCORN, LDENN, PECLN, CLLDIN

MLT: MSFI, MSFN, CLMRIN.

PIT: ILD, ILM, SFLAEC, SPU, CIRD

OPERATORS:

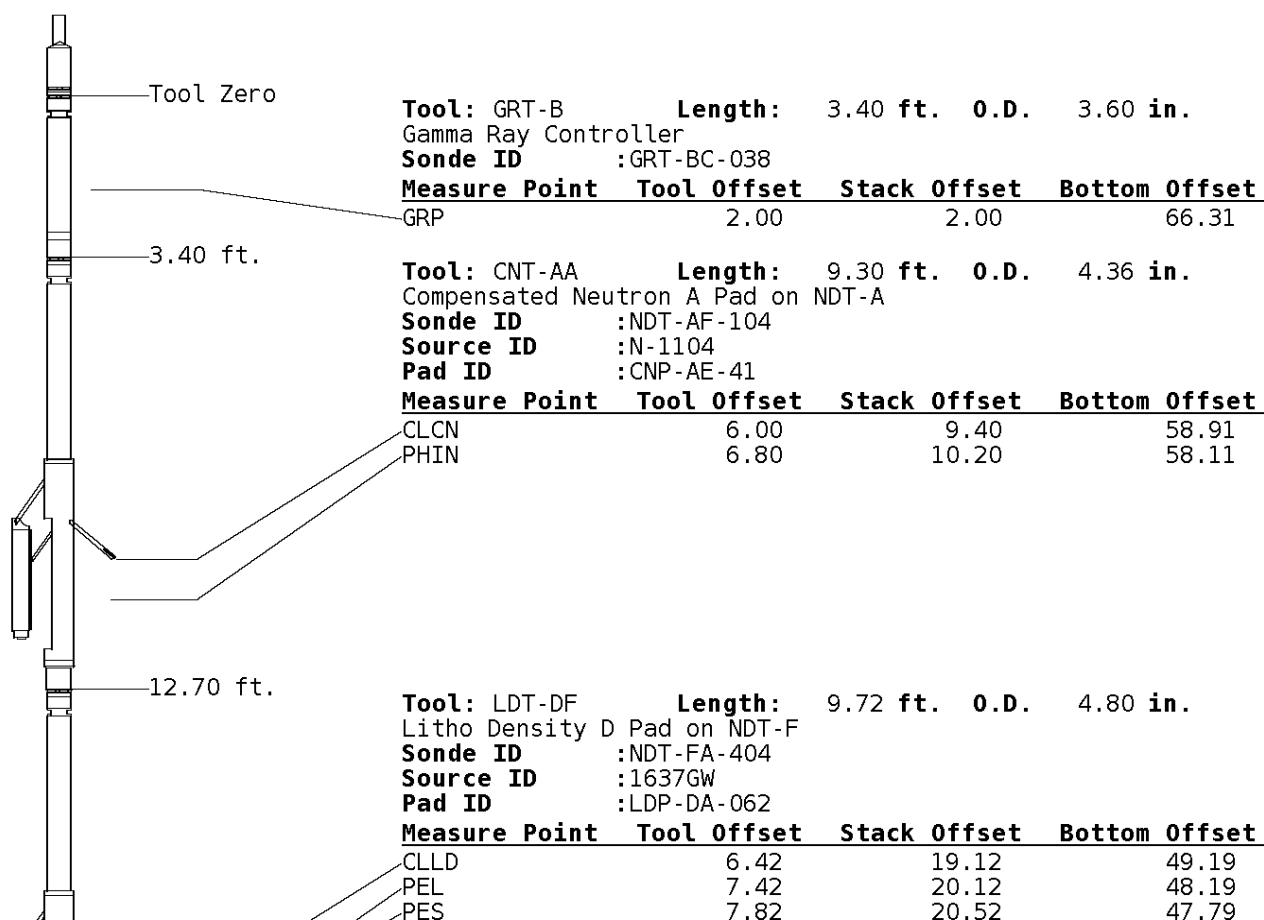
D.LEGLEGITER

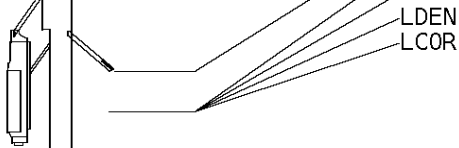
D.RAGSDALE

J.VAUGHN

Tool String Schematic

Total Tool Length - 68.31 ft.
Maximum Outside diameter - 6.00 in.
Net Weight in Air - 1171.00 lbs.



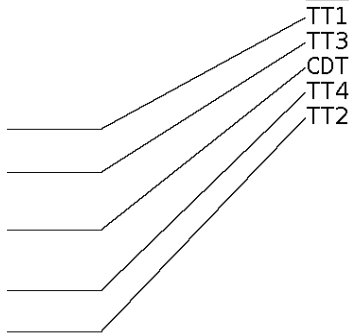


LDEN	7.62	20.32	47.99
LCOR	7.62	20.32	47.99

22.42 ft.

Tool: CST-AD **Length:** 13.80 ft. **O.D.** 3.60 in.
Open Hole Sonic
Sonde ID : CST-AB-24

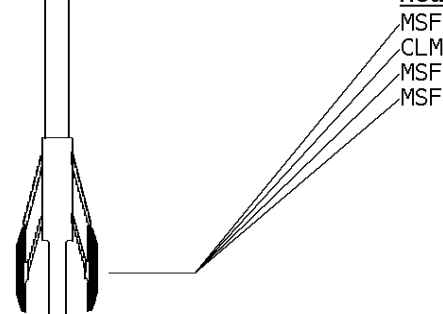
Measure Point	Tool Offset	Stack Offset	Bottom Offset
TT1	4.80	27.22	41.09
TT3	5.80	28.22	40.09
CDT	7.30	29.72	38.59
TT4	8.80	31.22	37.09
TT2	9.80	32.22	36.09



36.22 ft.

Tool: MLT-AB **Length:** 10.60 ft. **O.D.** 6.00 in.
Micro Log Tool
Sonde ID : MLT-012

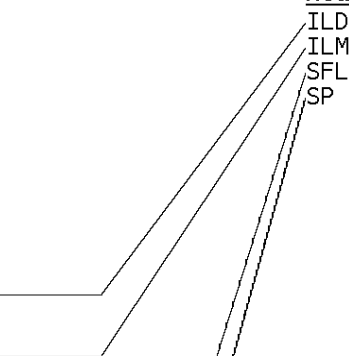
Measure Point	Tool Offset	Stack Offset	Bottom Offset
MSFL	8.90	45.12	23.19
CLMR	7.60	43.82	24.49
MSFN	8.90	45.12	23.19
MSFI	8.90	45.12	23.19



46.82 ft.

Tool: PIT-CA **Length:** 21.49 ft. **O.D.** 3.62 in.
Phased Dual Induction w/ RM & D
Sonde ID : PIT-AC-043

Measure Point	Tool Offset	Stack Offset	Bottom Offset
ILD	8.92	55.74	12.56
ILM	10.10	56.92	11.39
SFLU	17.49	64.31	4.00
SP	20.60	67.42	0.88



LWT 68.31 ft.

Well File: merit_wenu_603_dec11_gst

Scale: 1:240

Format: NLD-240

Segment: V1.D1.S14 MAIN

Acquired: Not Available

Reference: 0

Processed: Not Available

CALIPER MICRO
INCHES (IN)

16 26
6 16

BIT SIZE
INCHES (IN)

6 16

NEUTRON (Y) CALIPER
INCHES (IN)

16 26
6 16

DENSITY (X) CALIPER
INCHES (IN)

16 26
6 16

Volume
Quartz

PE CROSS-SECTION
BARNES/ELECTRON

DENSITY CORRECTION
G/CC

0 10 -0.25 0.25

TENSION
LBS

10000 0

Volume
Calcite

DENSITY POROSITY (2.71g/cc)
PERCENT

70 30
30 -10
-10 -50

GAMMA RAY
API UNITS

150 300
0 150

Volume
Dolo/Shale

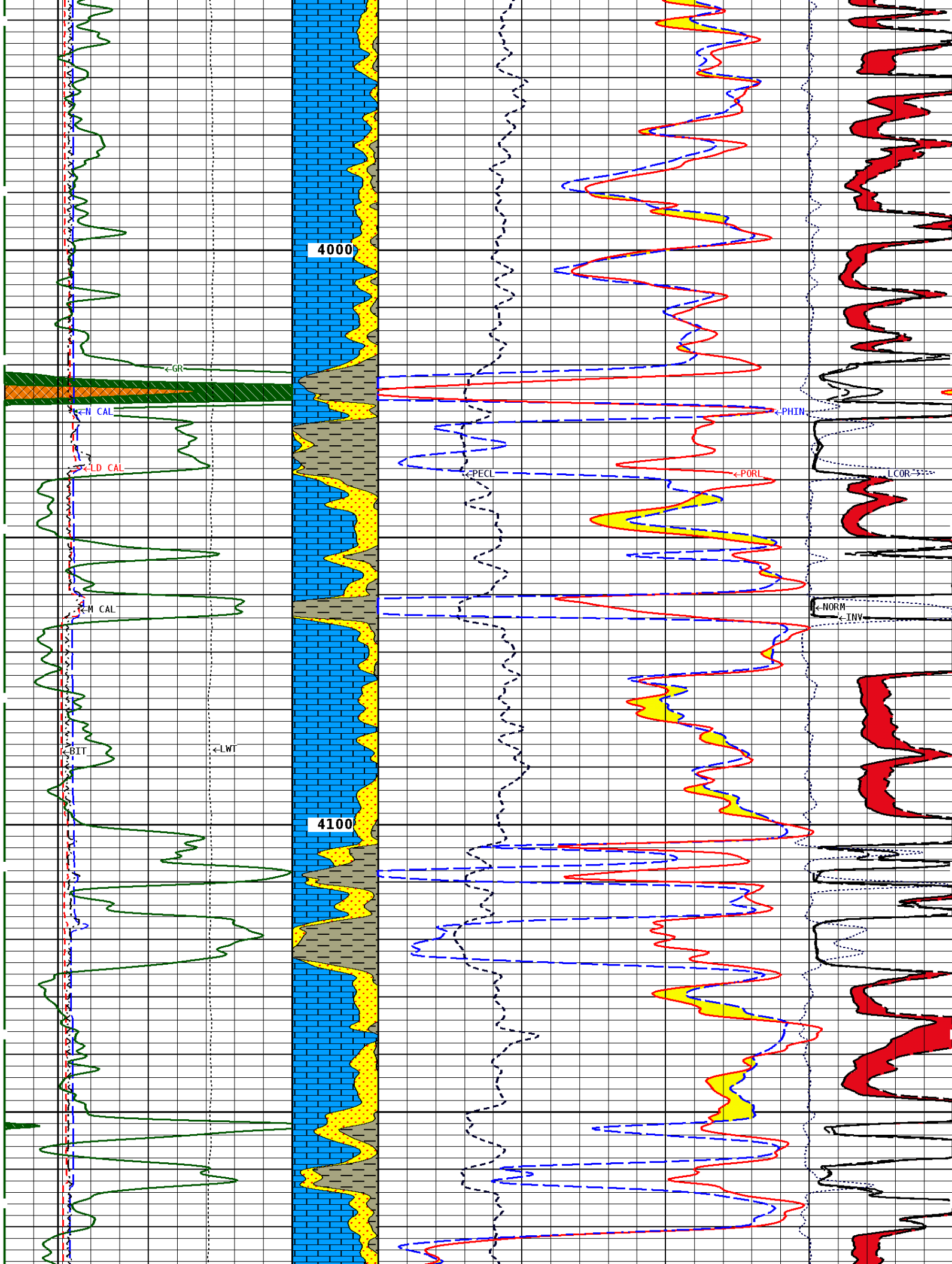
NEUTRON POROSITY (LIMESTONE)
PERCENT

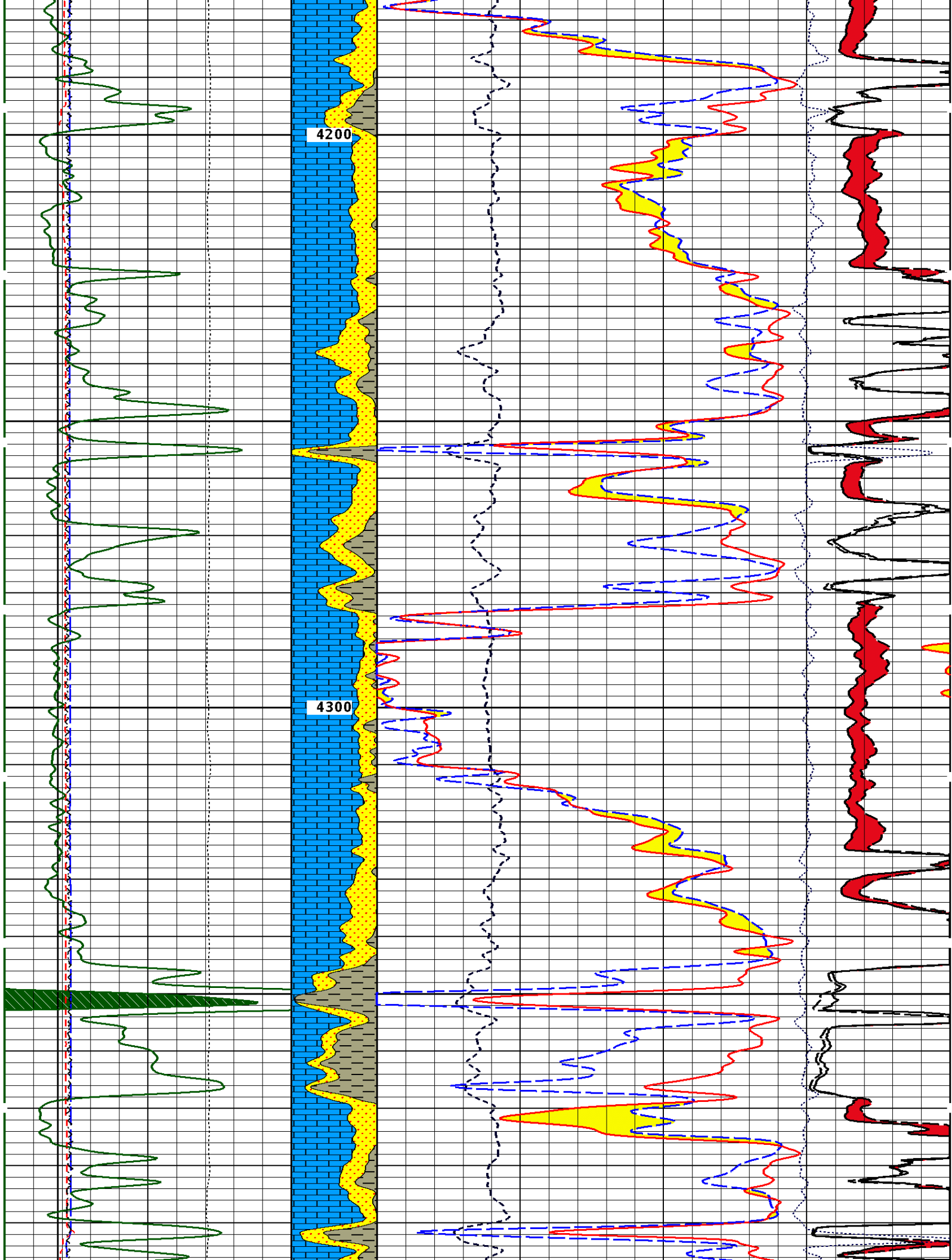
30 -10

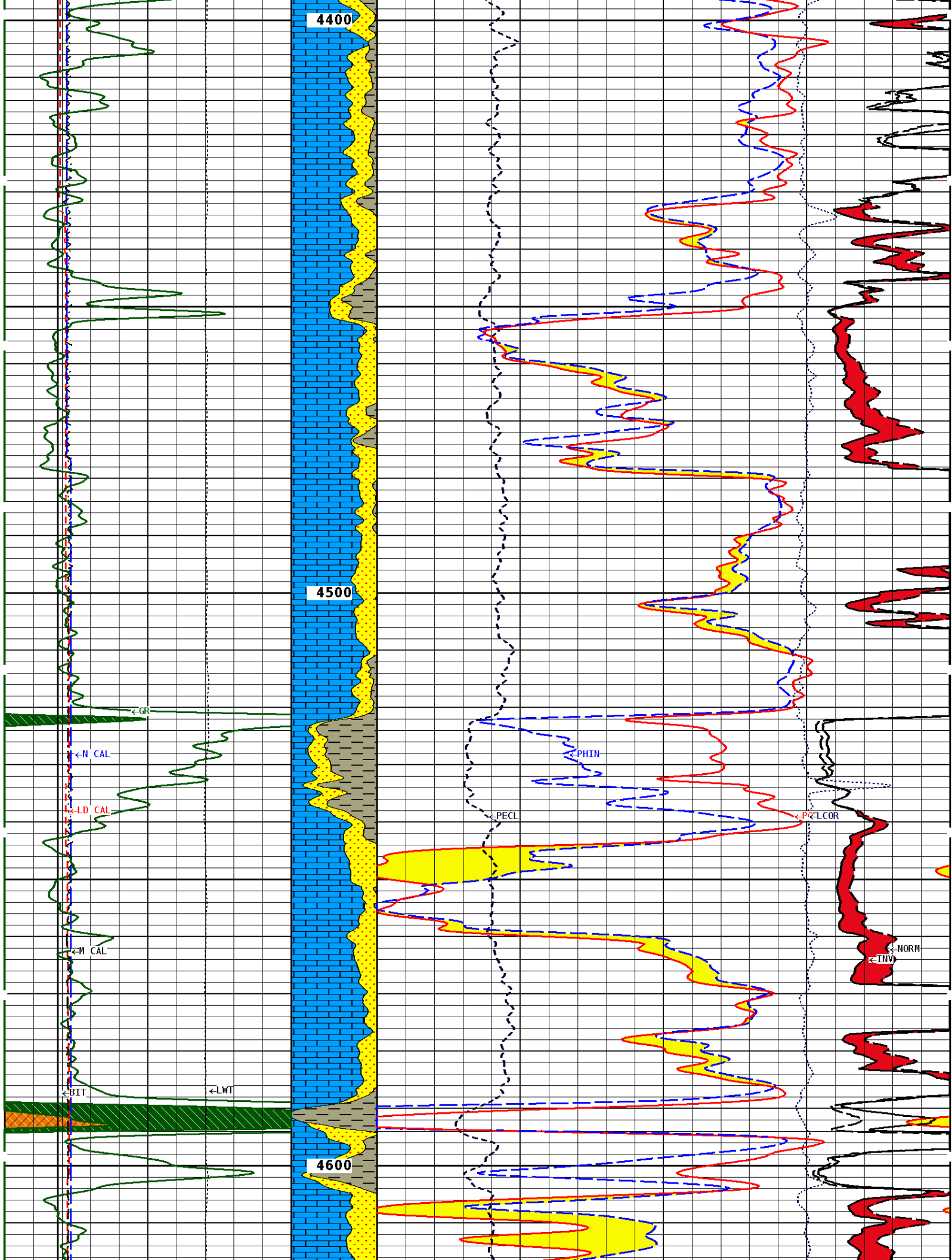
1:240 MAIN SECTION

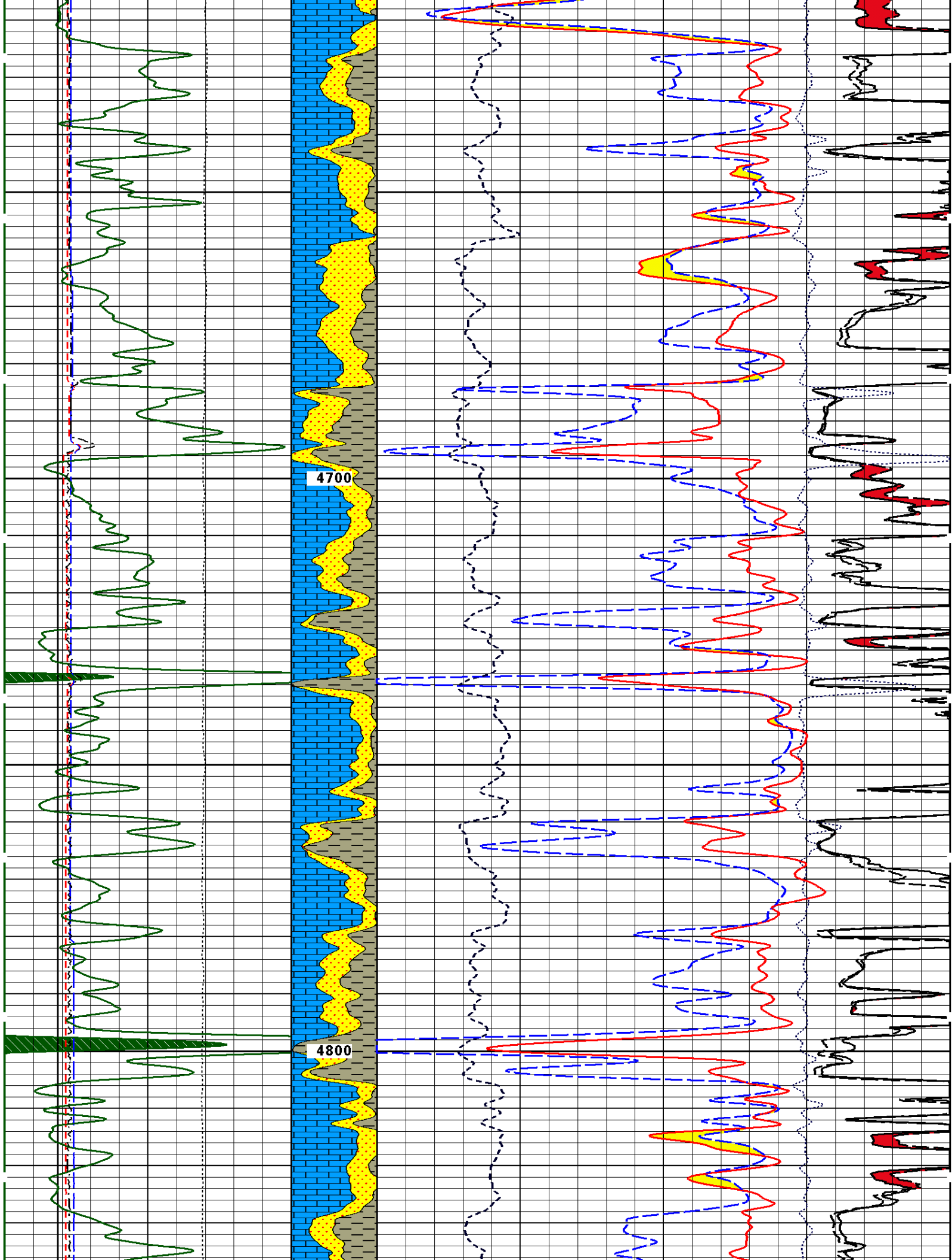
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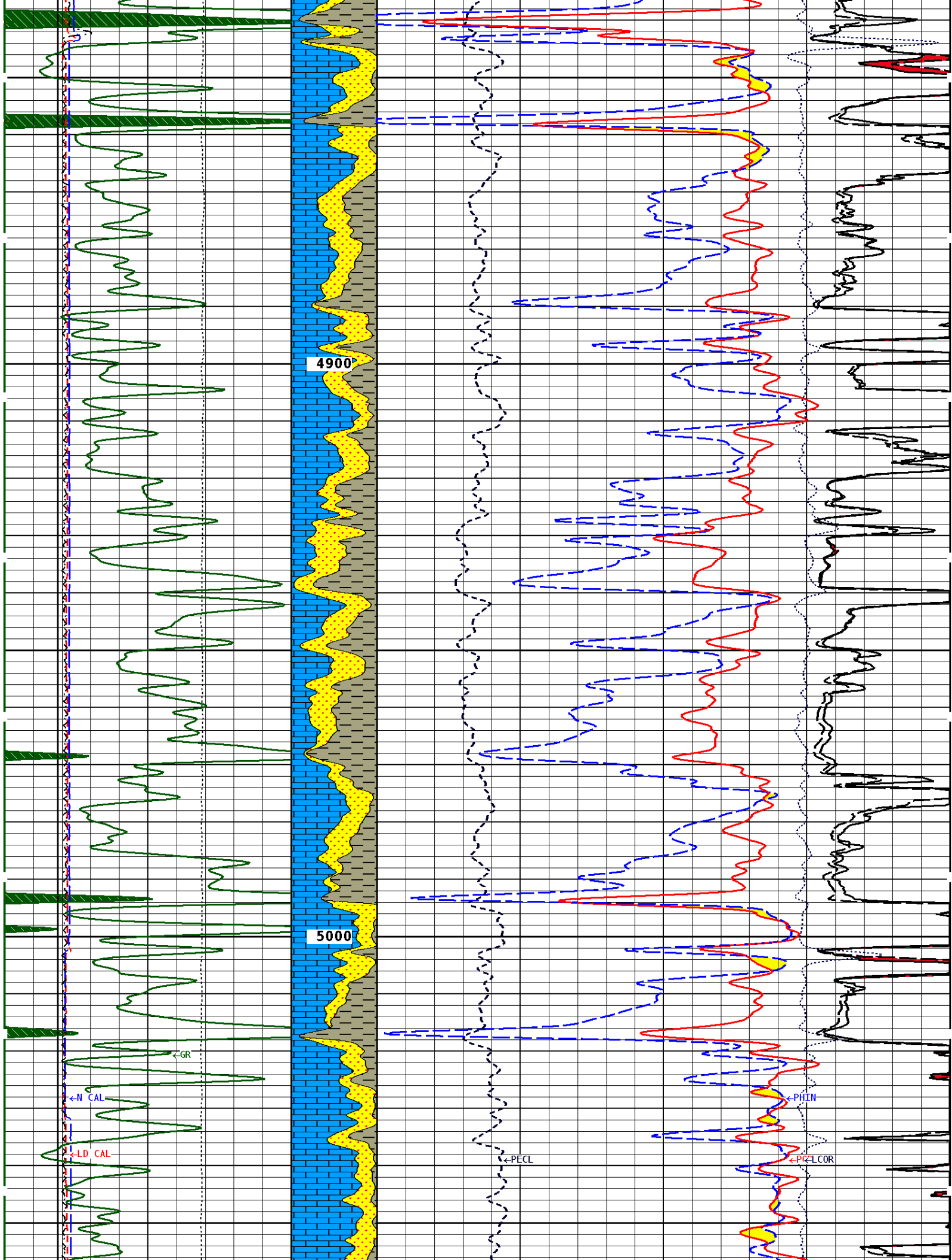
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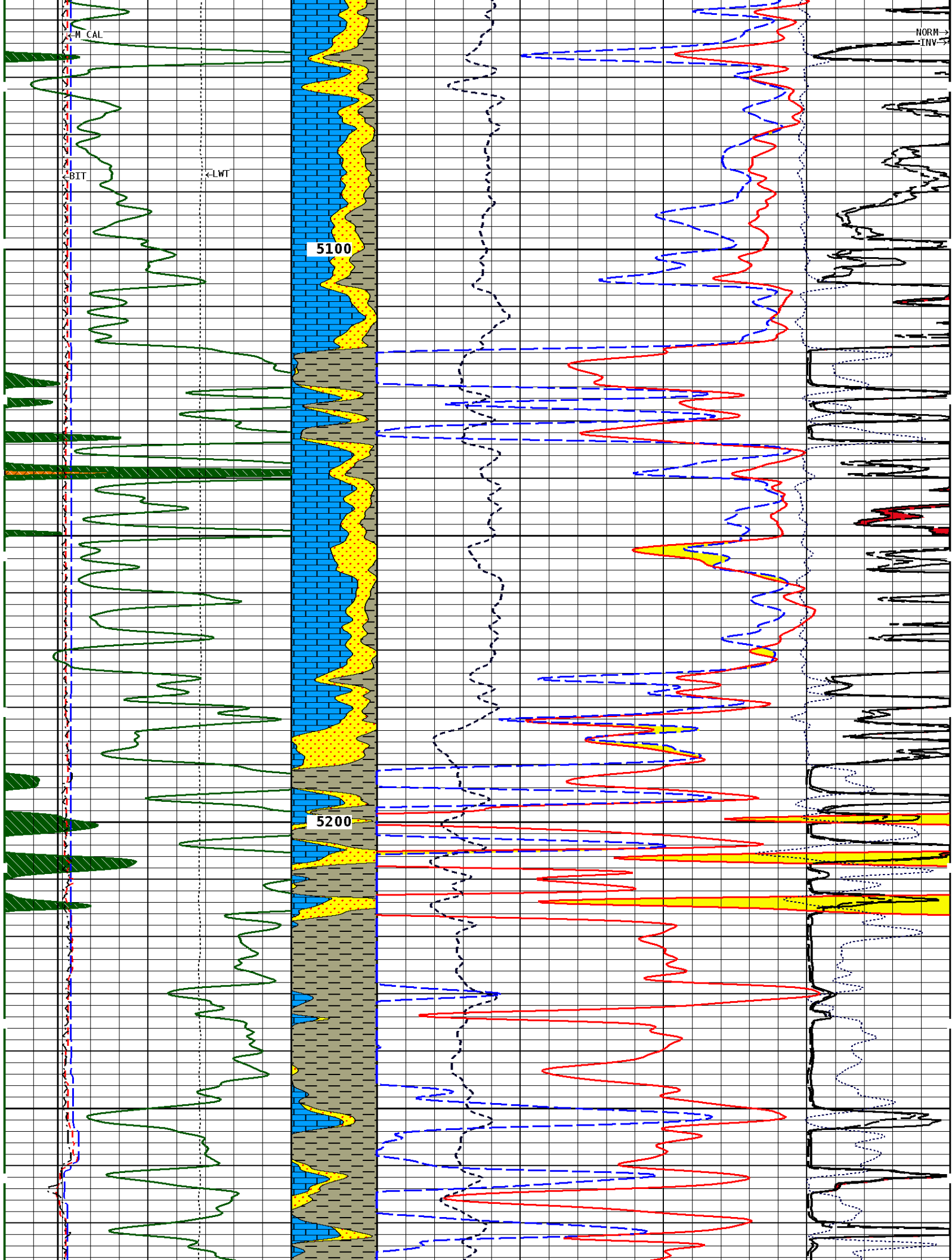


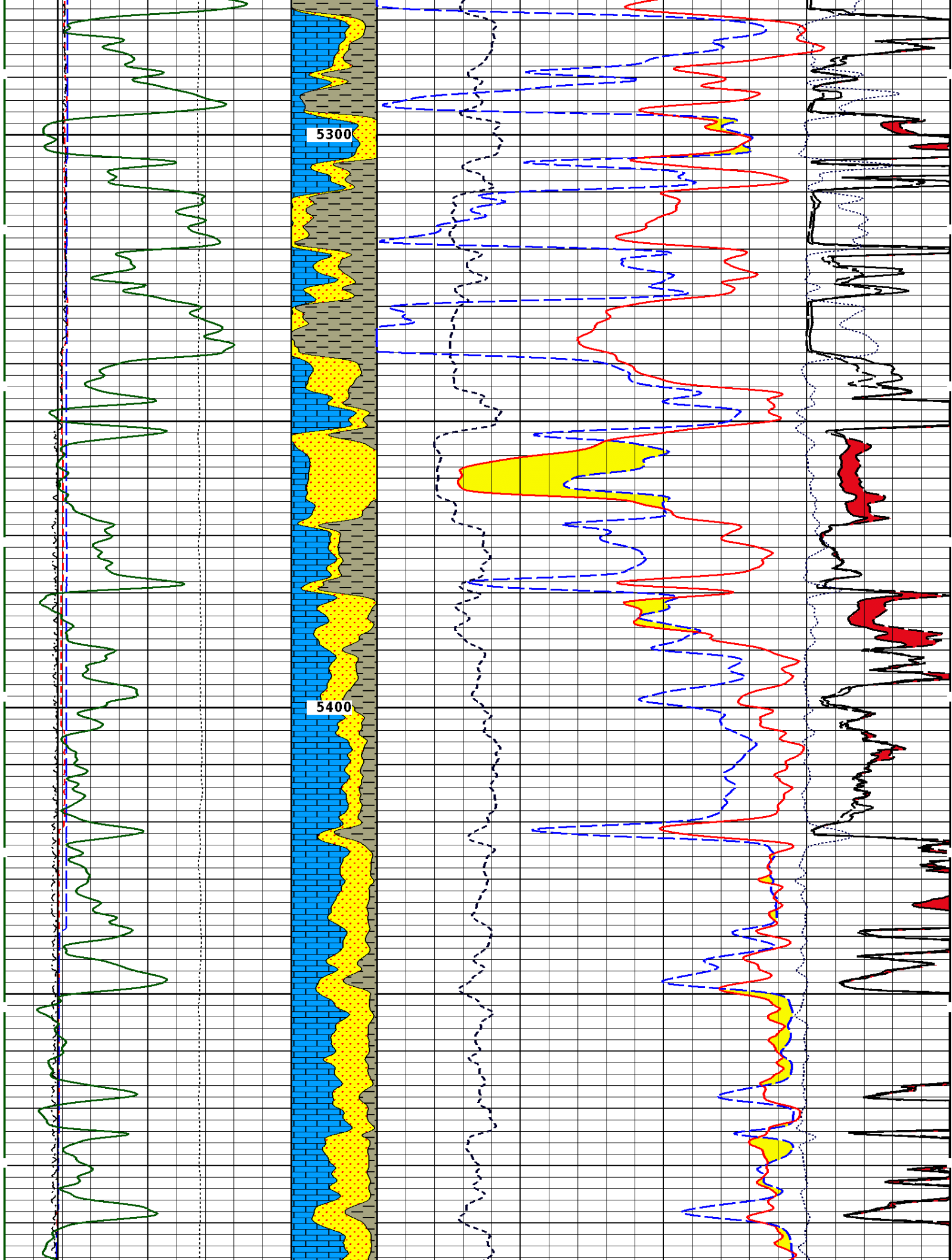


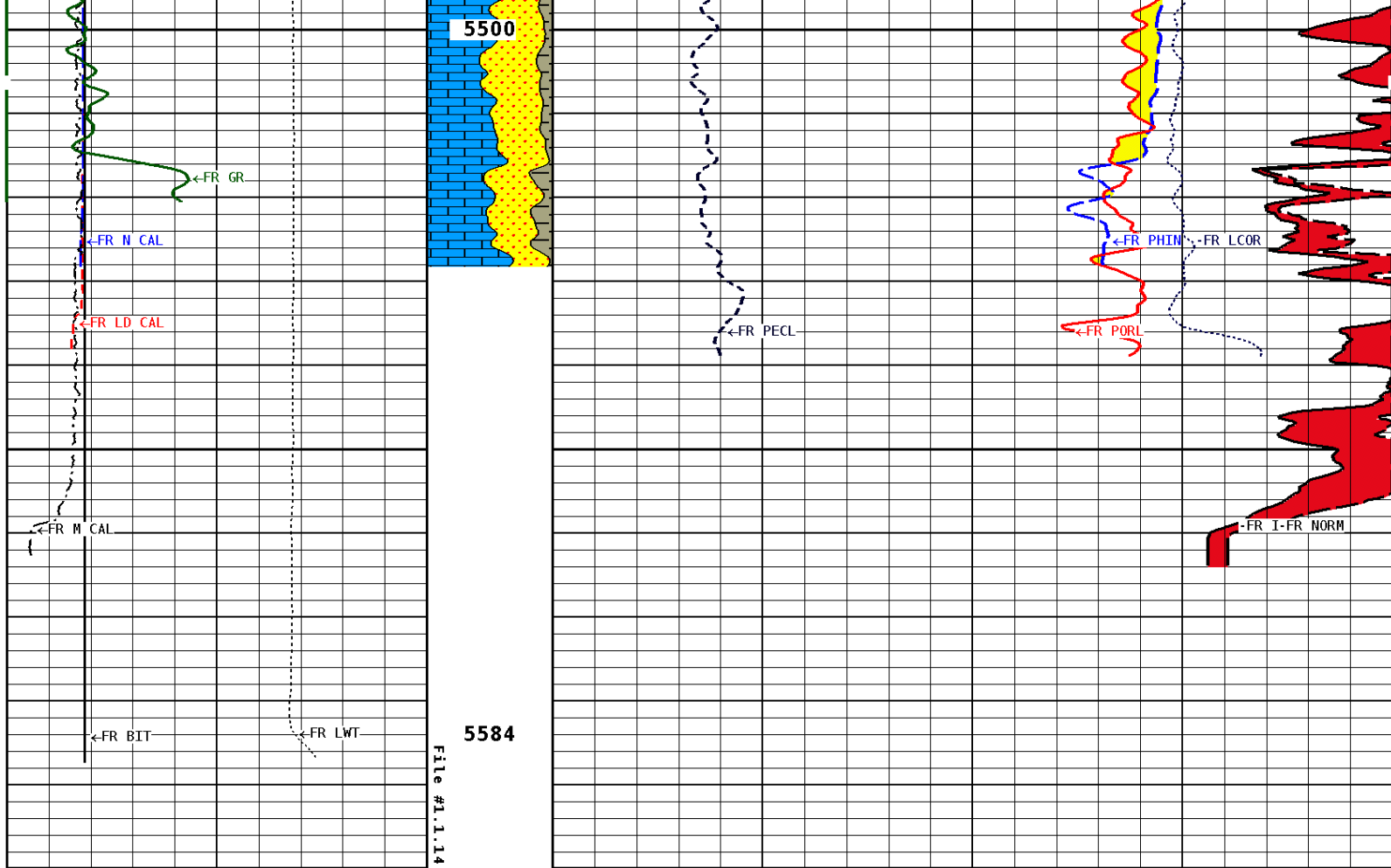












1:240 MAIN SECTION

GAMMA RAY API UNITS		Volume Dolo/Shale	NEUTRON POROSITY (LIMESTONE) PERCENT	
150 0	300 150		30	-10
TENSION LBS		Volume Calcite	DENSITY POROSITY (2.71g/cc) PERCENT	
10000	0		70 30	30 -10
			-10	-50
DENSITY (X) CALIPER INCHES (IN)		Volume Quartz	PE CROSS-SECTION BARNs/ELECTRON	DENSITY CORRECTION G/CC
16 6	26 16		010	-0.250.25
NEUTRON (Y) CALIPER INCHES (IN)				
16 6	26 16			
BIT SIZE INCHES (IN)				
6	16			
CALIPER MICRO INCHES (IN)				
16 6	26 16			

* Borehole Zone Factors *

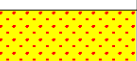
Zone 1 99999.0 to 0.0 Feet

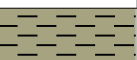
Zone 1 99999.0 to 0.0 feet			
Matrix Density	_____	2.71	g/cc
Fluid Density	_____	1.00	g/cc
Formation Matrix	_____	Limestone	
Drill Bit Size	_____	7.875	in
Casing Diameter	_____	5.500	in
Casing Thickness	_____	0.250	in
Casing Correction (PHI N)	_____	Disable	

Well File:merit wenu 603 dec11_qst	Scale: 1:240	Format: NLD-240
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Reference: 0	Processed: Not Available	

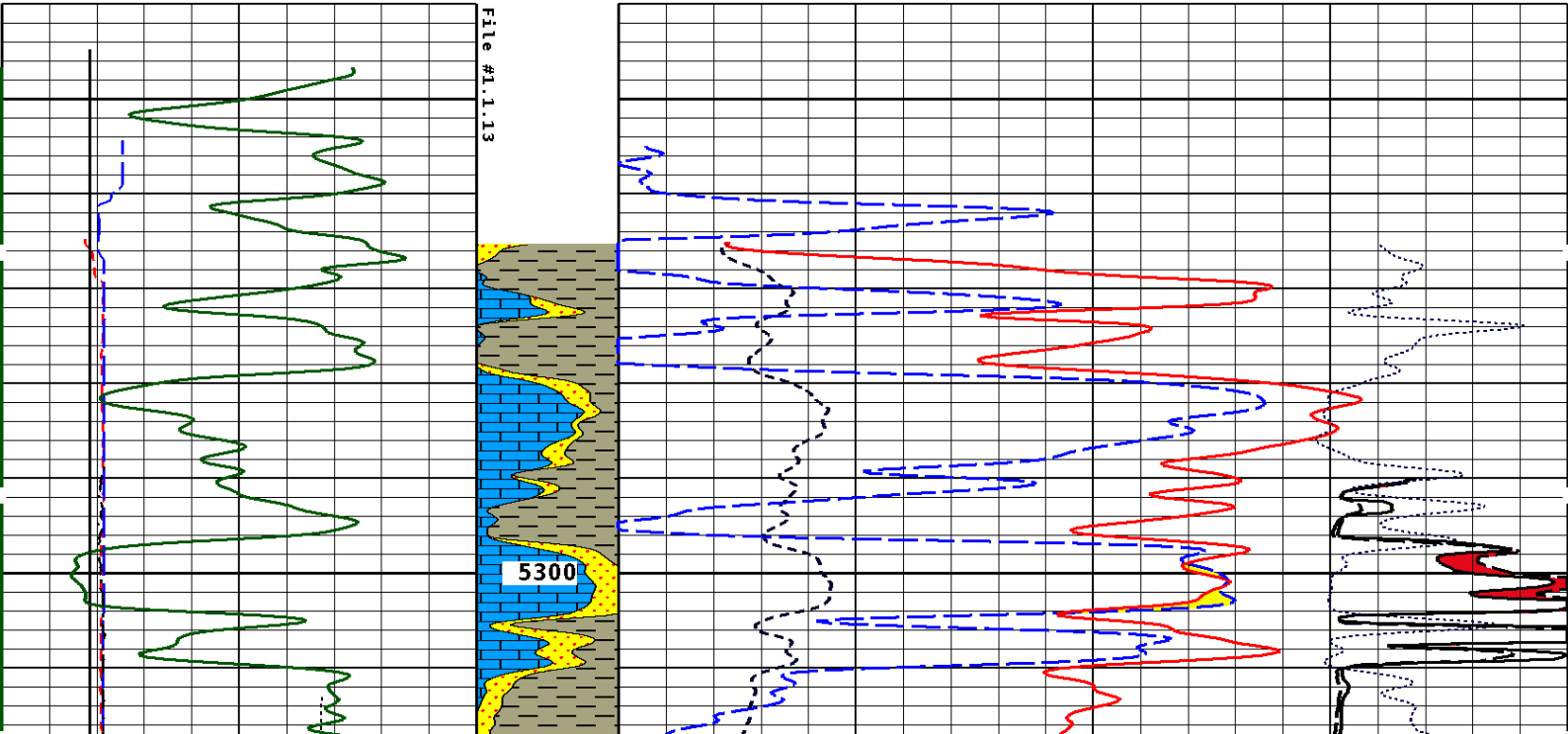
CALIPER MICRO INCHES (IN)					
16	26				
6	16				

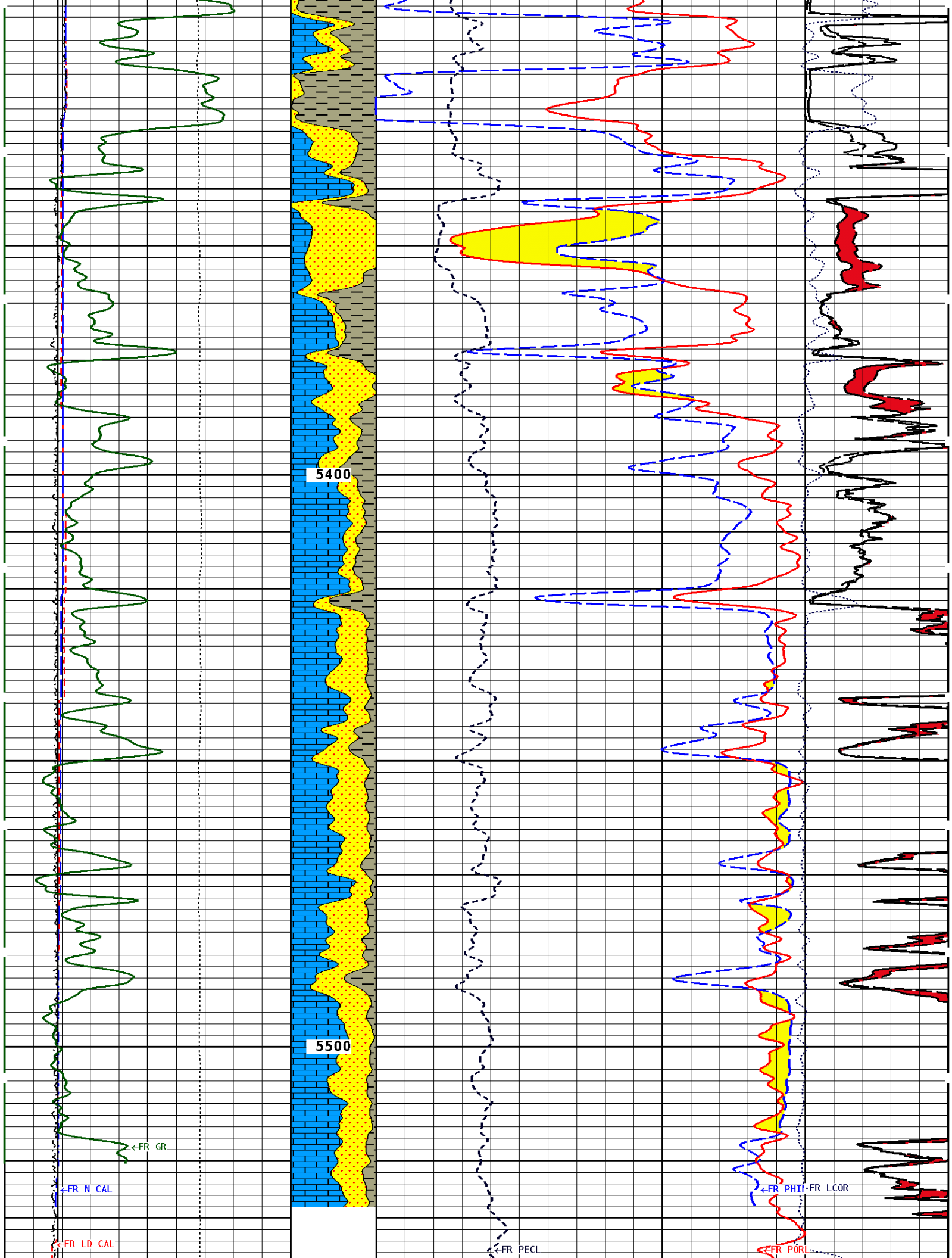
BIT SIZE INCHES (IN)				NORMAL OHMM	
6	16			0 ----- 40	
NEUTRON (Y) CALIPER INCHES (IN)				INVERSE OHMM	
16	26			0 ----- 40	
6	16				

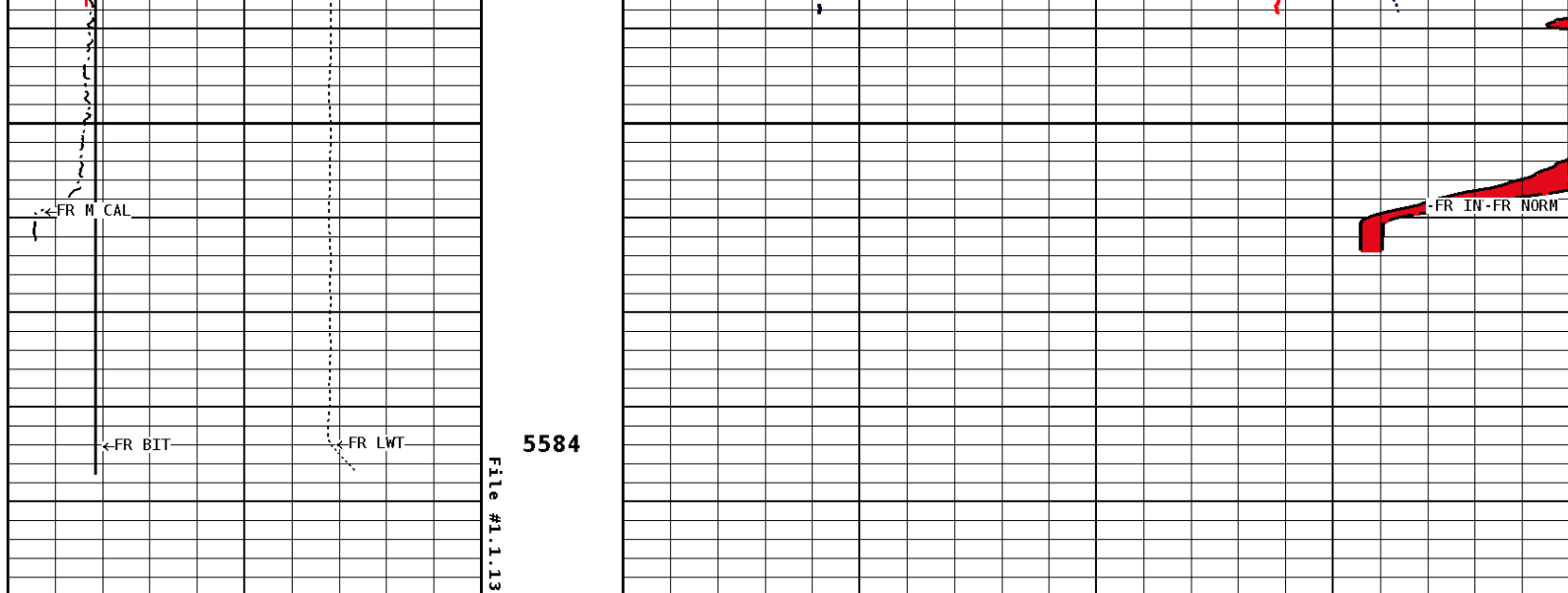
DENSITY (X) CALIPER INCHES (IN)		Volume Quartz	PE CROSS-SECTION BARNs/ELECTRON	DENSITY CORRECTION G/CC	
16	26		0 ----- 10	-0.25 ----- 0.25	
6	16				

TENSION LBS		Volume Calcite	DENSITY POROSITY (2.71g/cc) PERCENT		
10000	0		70 ----- 30		
-----			30 ----- -10		
			-10 ----- -50		
GAMMA RAY API UNITS		Volume Dolo/Shale	NEUTRON POROSITY (LIMESTONE) PERCENT		
150	300		30 ----- -10		
0	150				

1:240 REPEAT SECTION







1:240 REPEAT SECTION

GAMMA RAY API UNITS		Volume Dolo/Shale	NEUTRON POROSITY (LIMESTONE) PERCENT	
150	300		30	-10
0	150			
TENSION LBS		Volume Calcite	DENSITY POROSITY (2.71g/cc) PERCENT	
10000	0		70	30
			30	-10
			-10	-50
DENSITY (X) CALIPER INCHES (IN)		Volume Quartz	PE CROSS-SECTION BARNs/ELECTRON	DENSITY CORRECTION G/CC
16	26		10	-0.25
6	16			0.25
NEUTRON (Y) CALIPER INCHES (IN)				INVERSE OHMM
16	26			0
6	16			40
BIT SIZE INCHES (IN)				NORMAL OHMM
6	16			0
				40
CALIPER MICRO INCHES (IN)				
16	26			
6	16			

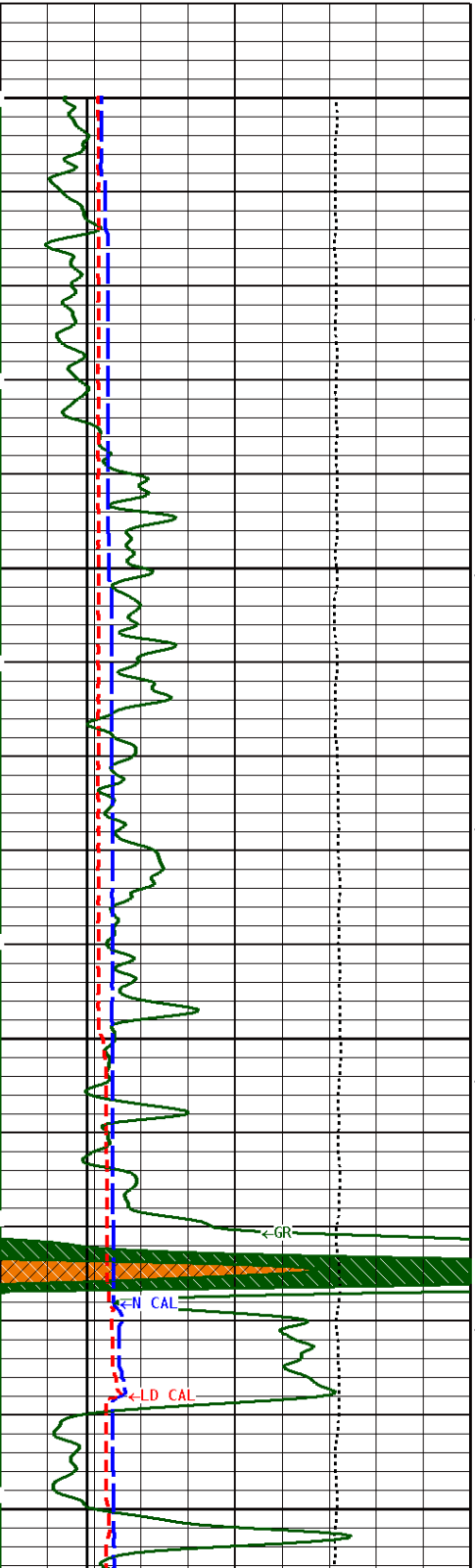
Well File:merit_wenu_603_dec11_gst Scale: 1:240 Format: LDT-240
Segment: V1.D1.S14 MAIN Acquired: Not Available
Reference: 0 Processed: Not Available

BIT SIZE INCHES (IN)		PE CROSS-SECTION BARNs/ELECTRON		DENSITY CORRECTION G/CC	
6	16				
NEUTRON (Y) CALIPER INCHES (IN)					
16	26				
6	16				
DENSITY (X) CALIPER INCHES (IN)					
16	26				

6	16
TENSION LBS	
10000	0
GAMMA RAY API UNITS	
150	300
0	150

0	10	-0.25	0.25
COMPENSATED BULK DENSITY G/CC			
3.0			4.0
2.0			3.0
1.0			2.0
DENSITY POROSITY (2.71g/cc) PERCENT			
70			30
30			-10
-10			-50

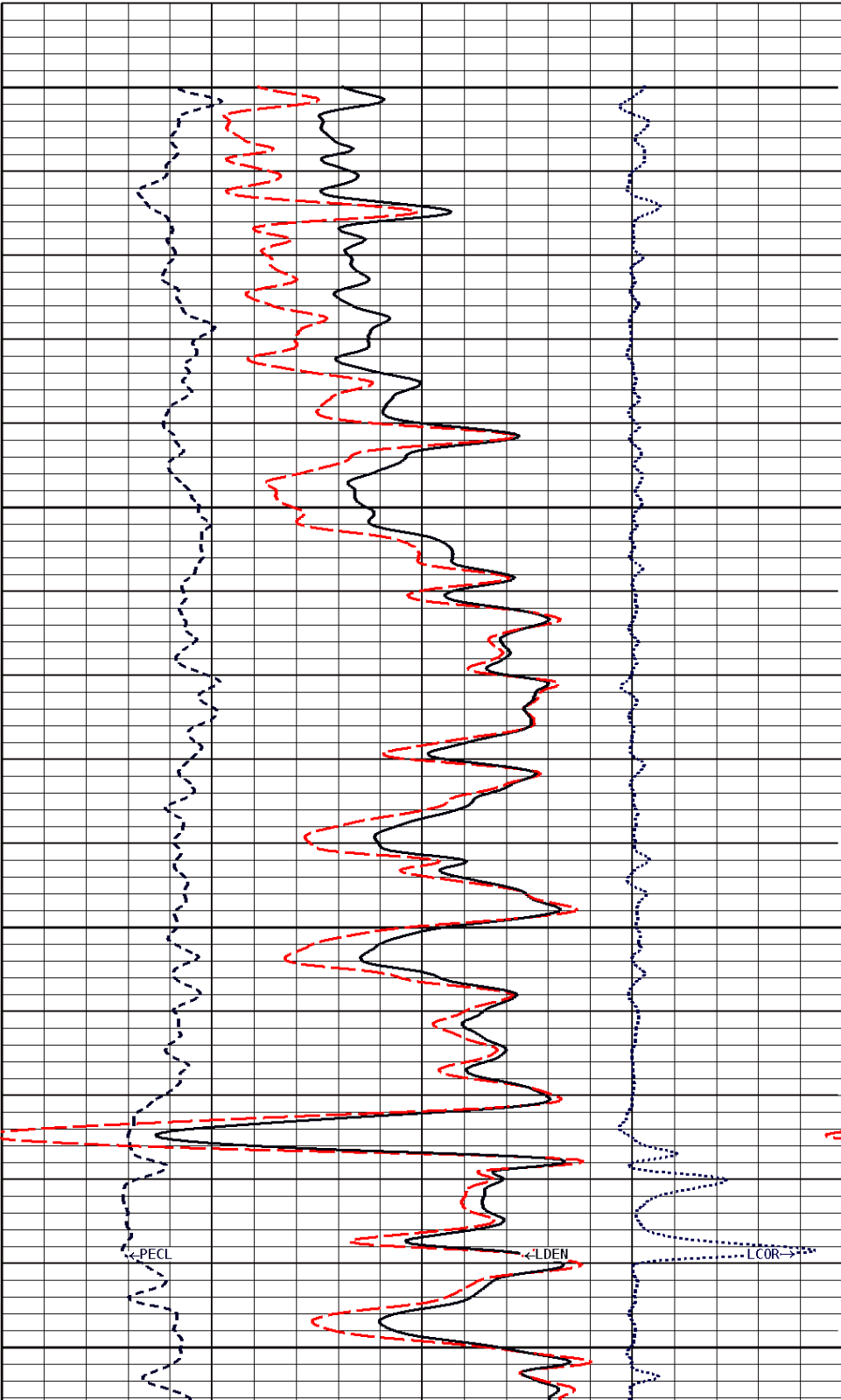
1:240 MAIN SECTION BULK DENSITY

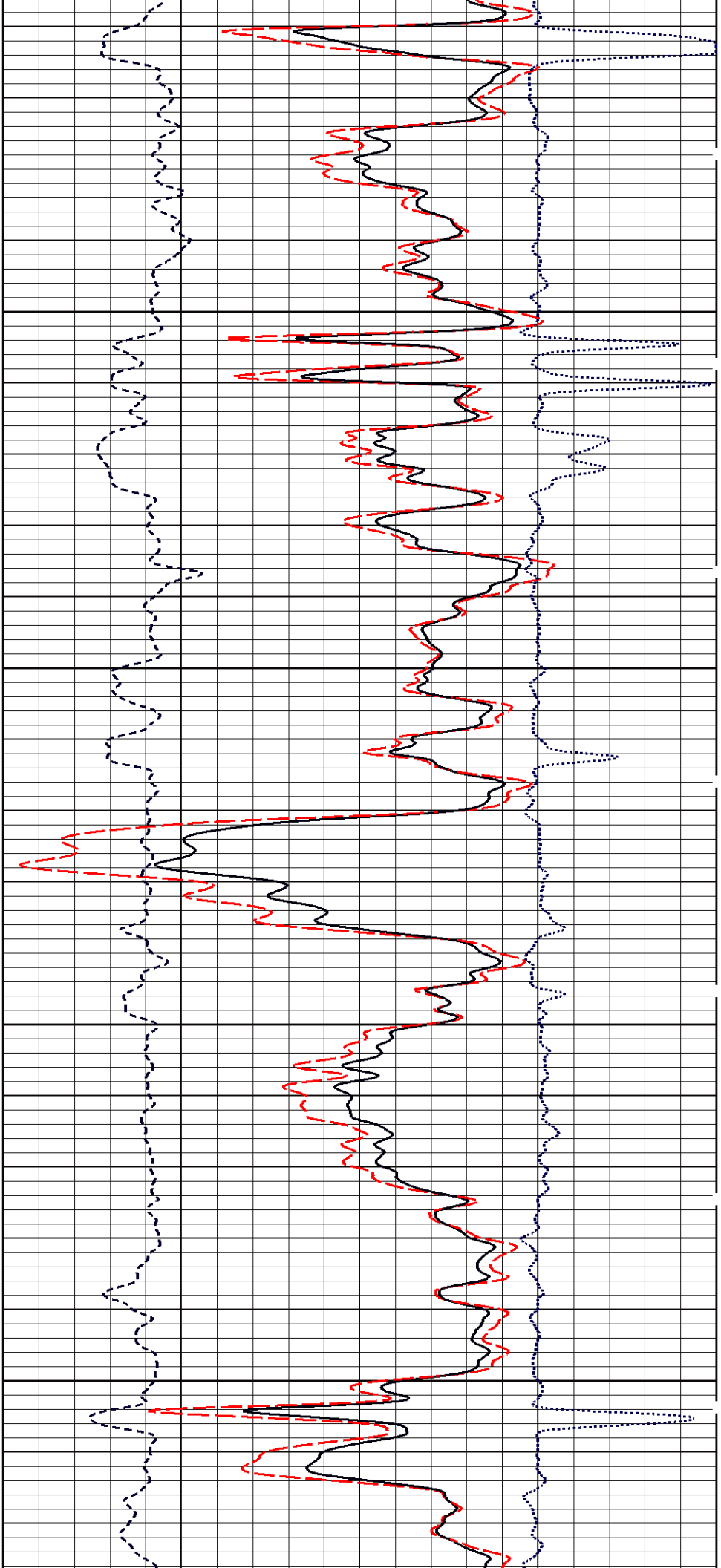
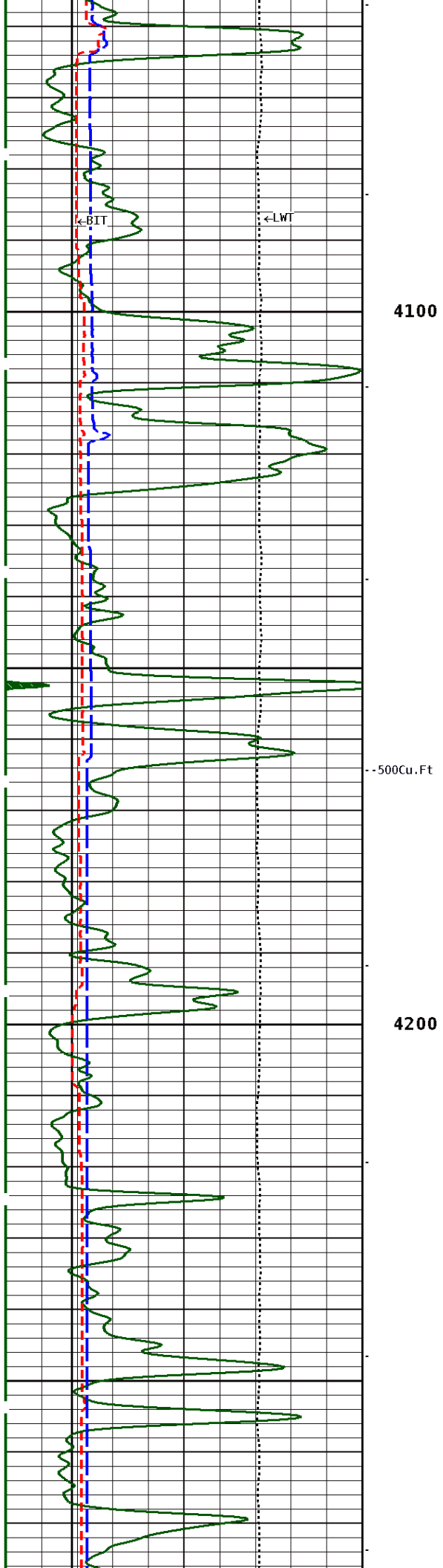


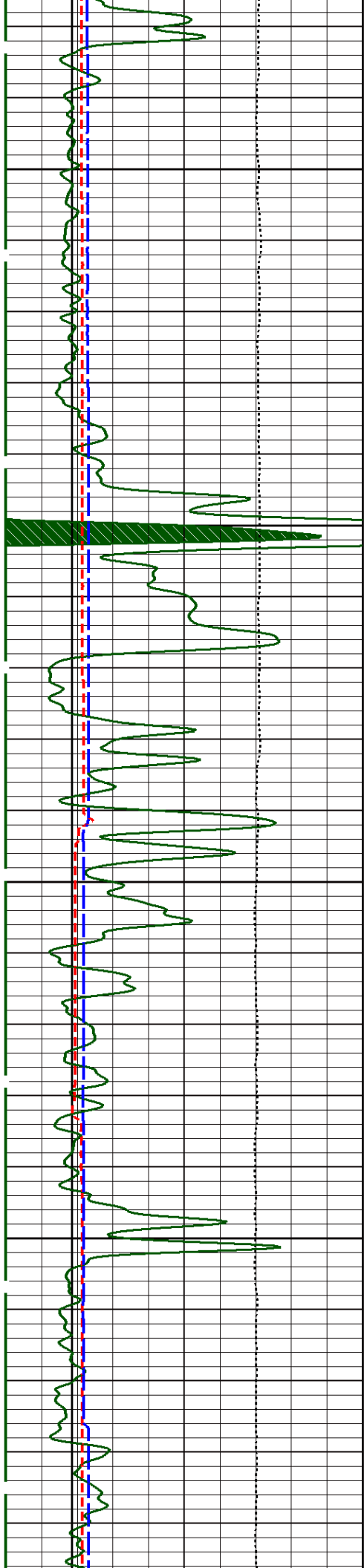
3900

4000

300Cu.Ft--



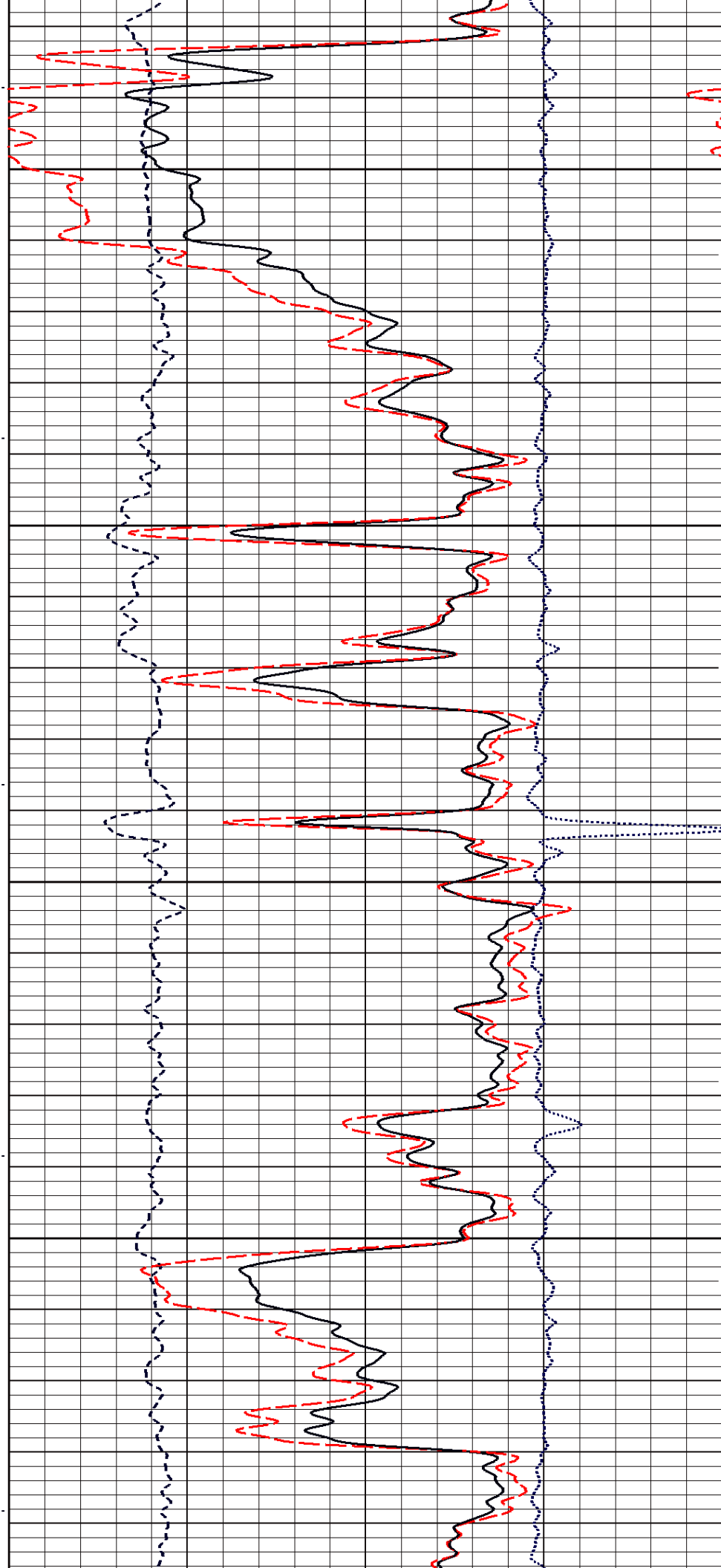


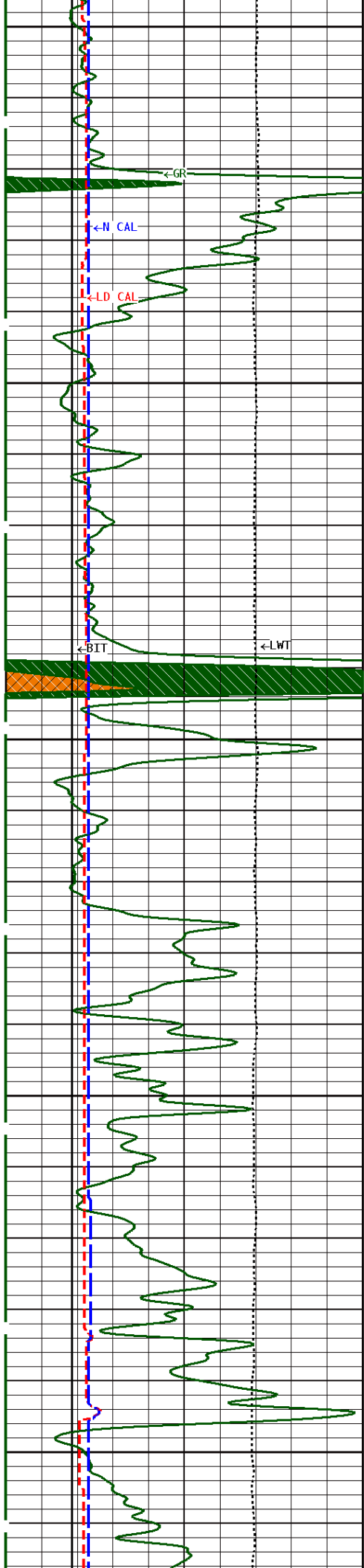


4300

4400

--400Cu.Ft





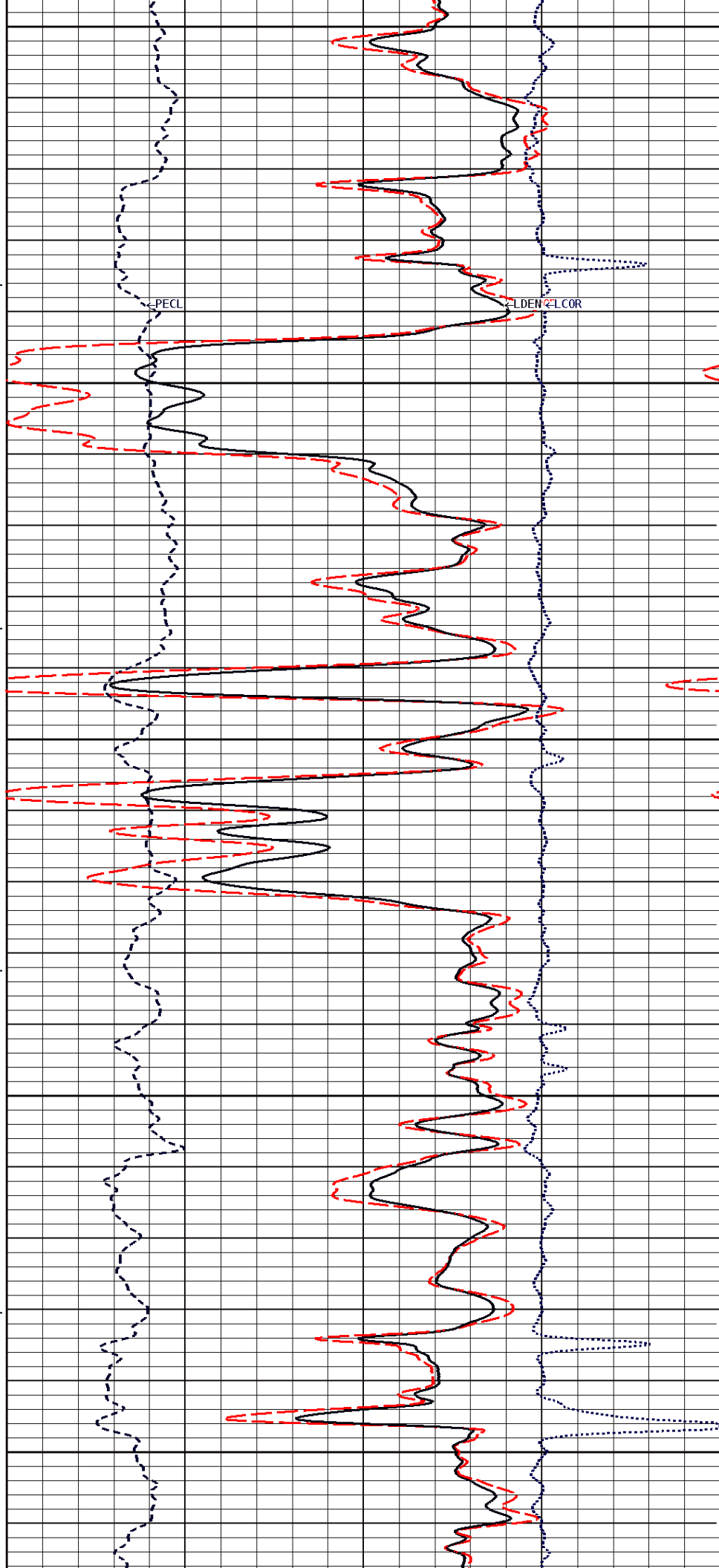
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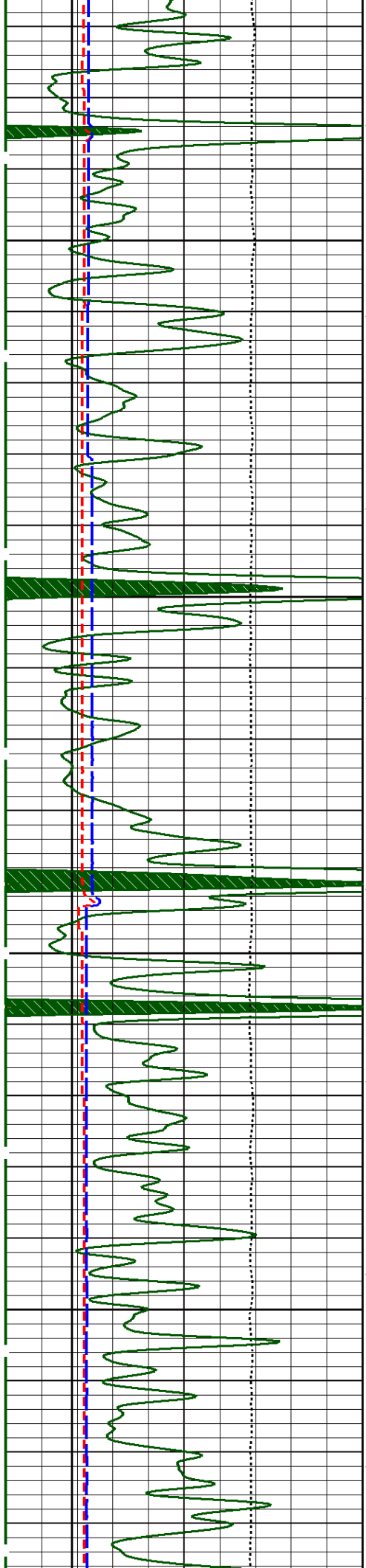
200Cu.Ft--

4600

4700

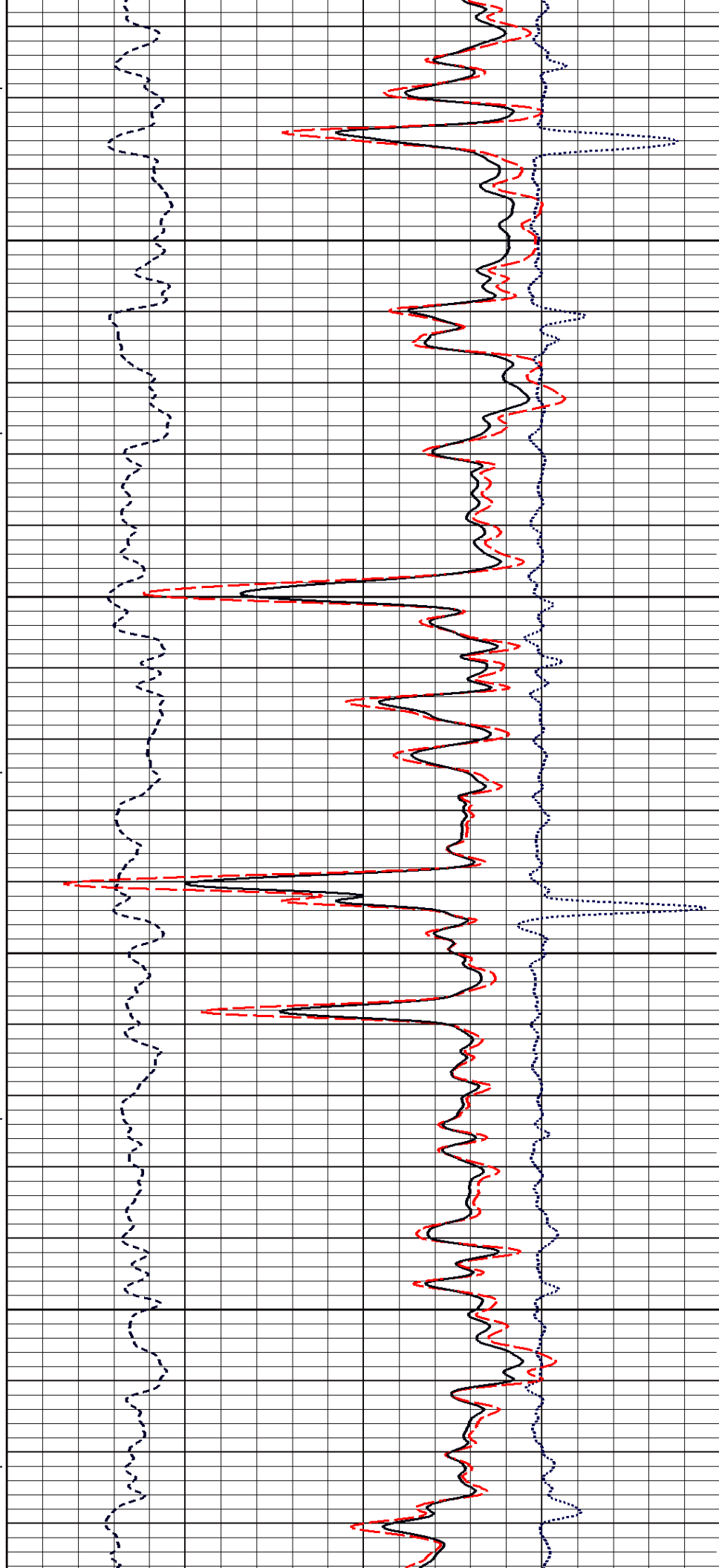
--300Cu.Ft

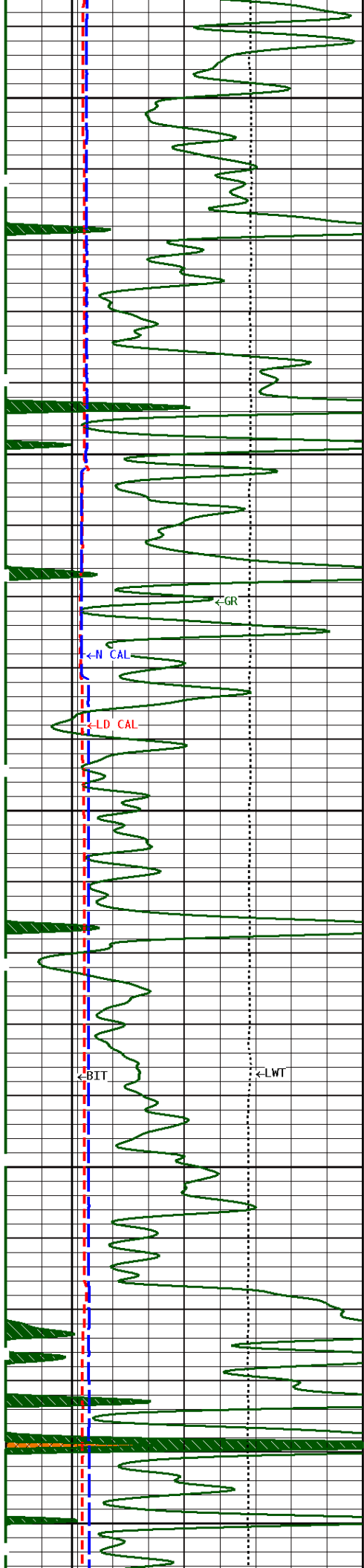




4800

4900





--200Cu.Ft

5000

100Cu.Ft--

←GR

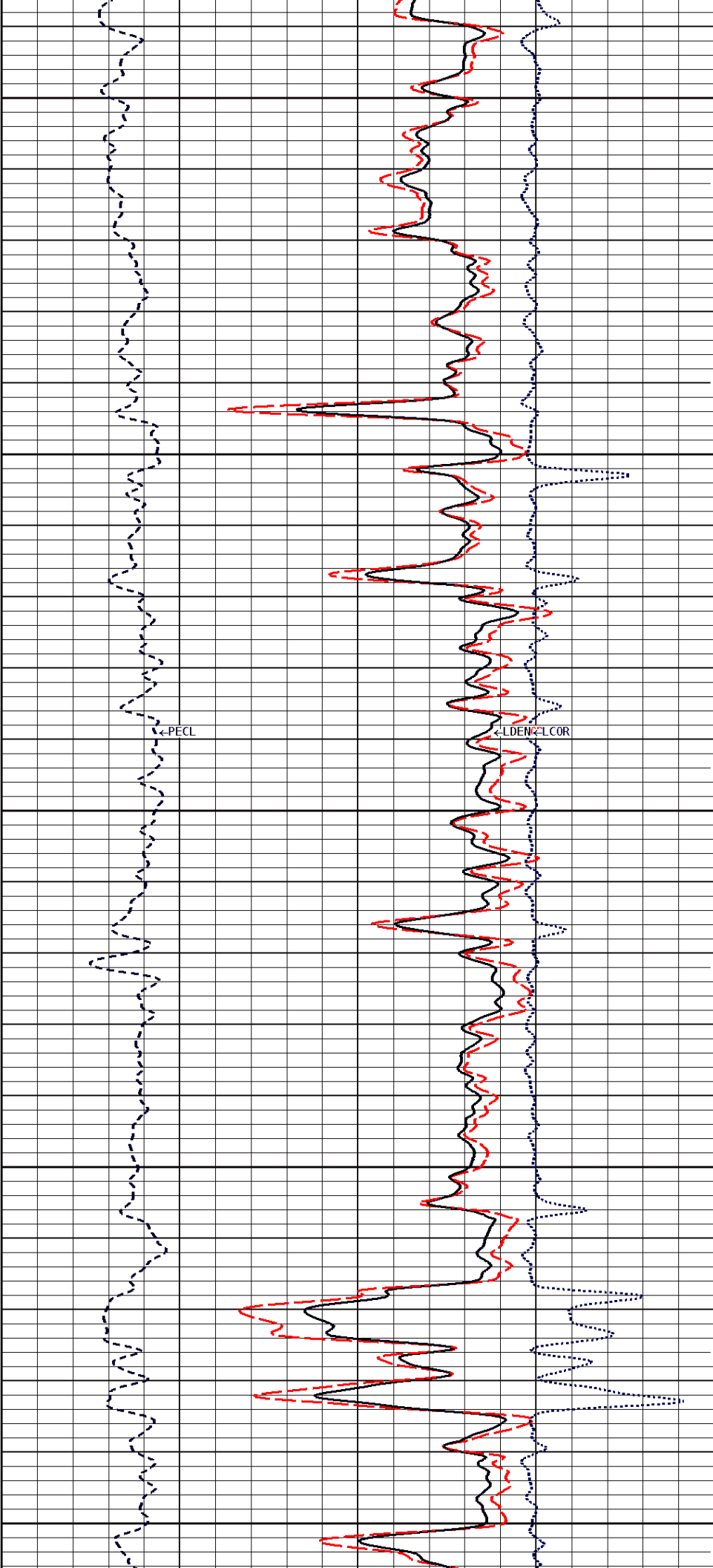
←N CAL

←LD CAL

←BIT

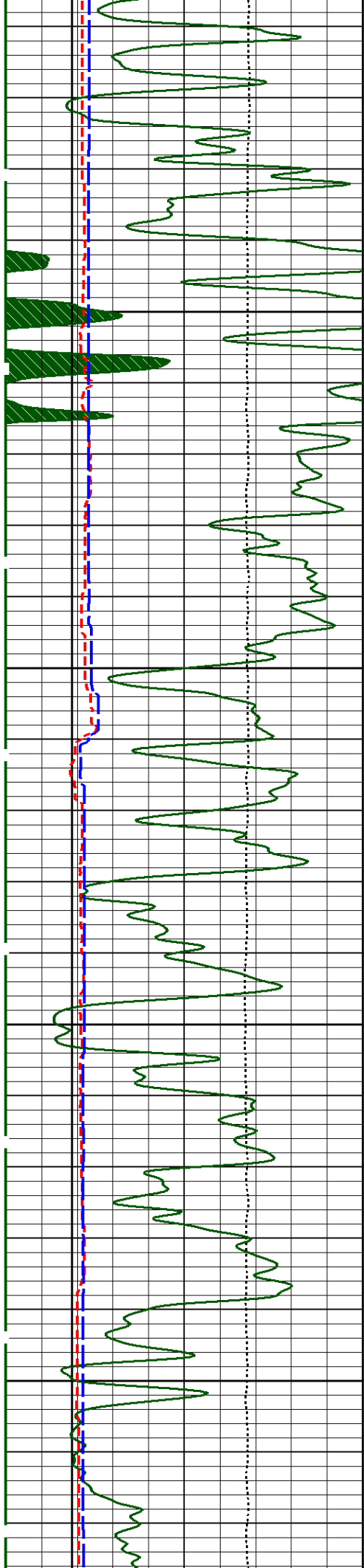
←LWT

5100



←PECL

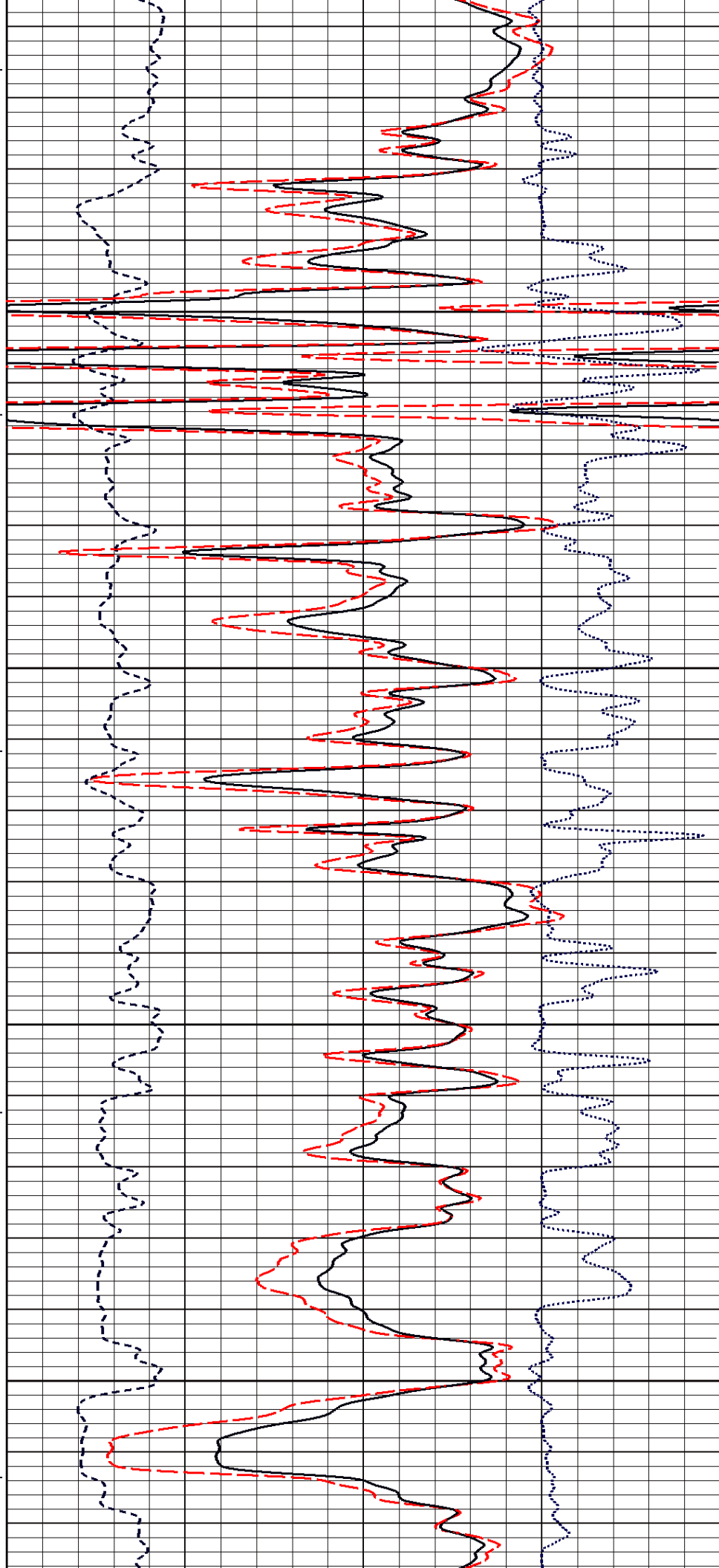
←LDEN←L COR

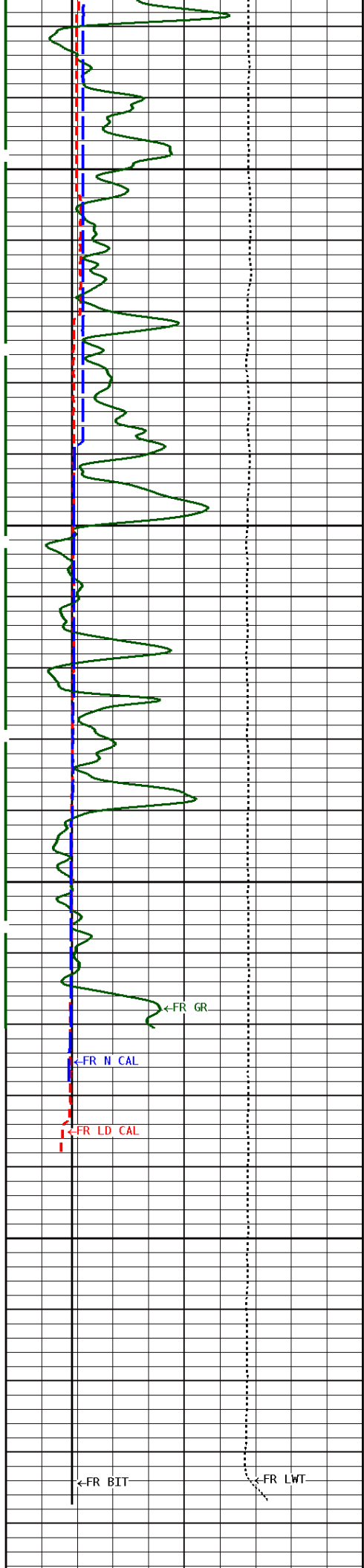


5200

--100Cu.Ft

5300



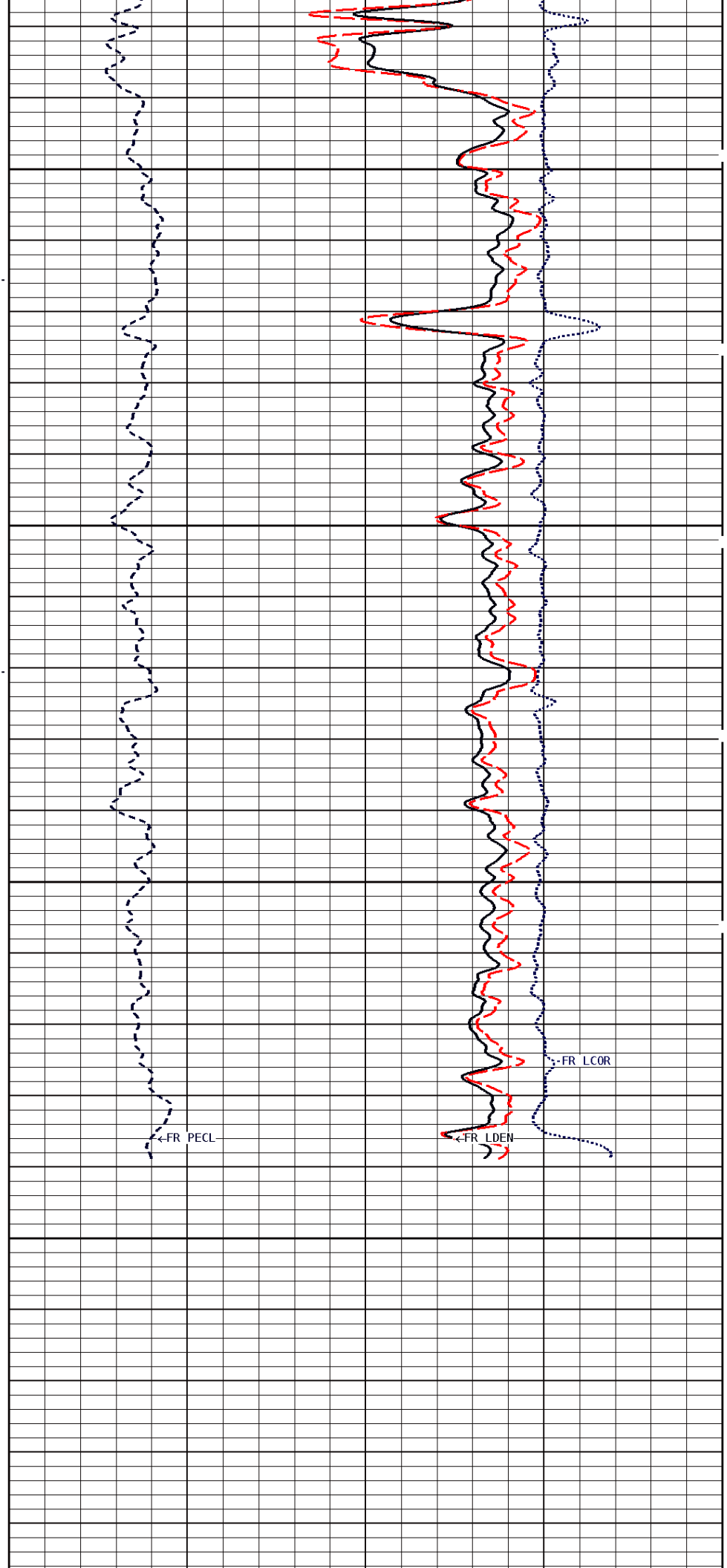


5400

5500

5584

File #1.1



1:240 MAIN SECTION

BULK DENSITY

GAMMA RAY API UNITS 	- BHV AHV - CU. FT	DENSITY POROSITY (2.71g/cc) PERCENT 70 30 -10 30 -10 -50	
TENSION LBS 10000 0		COMPENSATED BULK DENSITY G/CC 3.0 2.0 1.0 4.0 3.0 2.0	
DENSITY (X) CALIPER INCHES (IN) 16 6		PE CROSS-SECTION BARN/ ELECTRON 0 10	DENSITY CORRECTION G/CC -0.25 0.25
NEUTRON (Y) CALIPER INCHES (IN) 16 6			
BIT SIZE INCHES (IN) 6 16			

* Borehole Zone Factors *

Zone 1 99999.0 to 0.0 Feet			
Matrix Density		2.71	g/cc
Fluid Density		1.00	g/cc
Formation Matrix		Limestone	
Drill Bit Size		7.875	in
Casing Diameter		5.500	in
Casing Correction (PHI N)		Disable	

* Calibration Summary *

Shop Calibration GRT-B					
Performed : 24-JUN-2019			Time : 12:20		
Sensor Suite : GR-GR5			ID : GRT-BC-038		
	Measured	Units	Calibrated	Units	
GR	Background	Jig	Jig		
	36	266	160	GRAPI	
Shop Calibration CNT-AA					
Performed : 03-Jun-2019			Time : 11:06		
Sensor Suite : CALI-BCN			ID : NDT-AF-104		
	Jig - Measured		Jig - Calibrated		Units
CL # 1	Ring#1	Ring#2	Ring#1	Ring#2	IN.
	8.3	13.2	6.0	12.0	
Shop Calibration LDT-DF					
Performed : 18-SEP-2019			Time : 16:10		
Sensor Suite : BHC NEUT			ID : CNP-AE-41		
Source ID : N-1104					
	Tank		Verification	Units	
	Measured	Calibrated	Jig		
N/F	3.7537	3.6893	3.6964		
Porosity	21.5	20.5	20.6	%	

CL # 1	Jig - Measured		Jig - Calibrated		Units
	Ring#1	Ring#2	Ring#1	Ring#2	
	8.3	13.2	6.0	12.0	IN.
Performed : 03-Dec-2019 Time : 19:18 Sensor Suite : BHCPELNG ID : LDP-DA-062 Source ID : 1637GW					
Short Space					
	BKGD	Al	Mg	Al+Fe	Units
LSW1	59	994	1604	617	CPS
LSW2	58	1159	1848	809	CPS
LSW3	218	2640	4281	2191	CPS
LSW4	272	2262	3264	1957	CPS
LSW5	26	44	49	42	CPS
LSW6	76	80	79	79	CPS
LSW7	48	52	54	51	CPS
LSW8	1	3	4	3	CPS
QS	0.224	0.208	0.191	0.214	
PES			2.778	5.967	
SSDN		2.600	1.680		G/CC
Long Space					
	BKGD	Al	Mg	Al+Fe	Units
LLW1	89	1139	4703	663	CPS
LLW2	98	2033	7985	1435	CPS
LLW3	372	3656	13901	3102	CPS
LLW4	483	1704	5322	1526	CPS
LLW5	54	65	108	65	CPS
LLW6	152	153	144	154	CPS
LLW7	99	102	99	102	CPS
LLW8	4	6	16	6	CPS
QL	0.210	0.200	0.185	0.199	
PEL			2.697	5.458	
LSDN		2.600	1.680		G/CC



Company: MERIT ENERGY COMPANY
 Well: WENU #603
 Location: 2003' FWL & 2108' FSL
 Logged: 12-11-2019
 K.B. Elev: 3090.6 Ft