

ALL PRESENTATIONS AS PER CUSTOMER REQUEST
 GRT, CNT, LDT, MLT AND PIT RUN IN COMBINATION
 CALIPERS ORIENTED ON X-Y AXIS
 2.71 G/CC USED TO CALCULATE POROSITY
 ANNULAR HOLE VOLUME CALCULATED USING 5.5" PRODUCTION CASING
 PHIN IS CALIPER CORRECTED

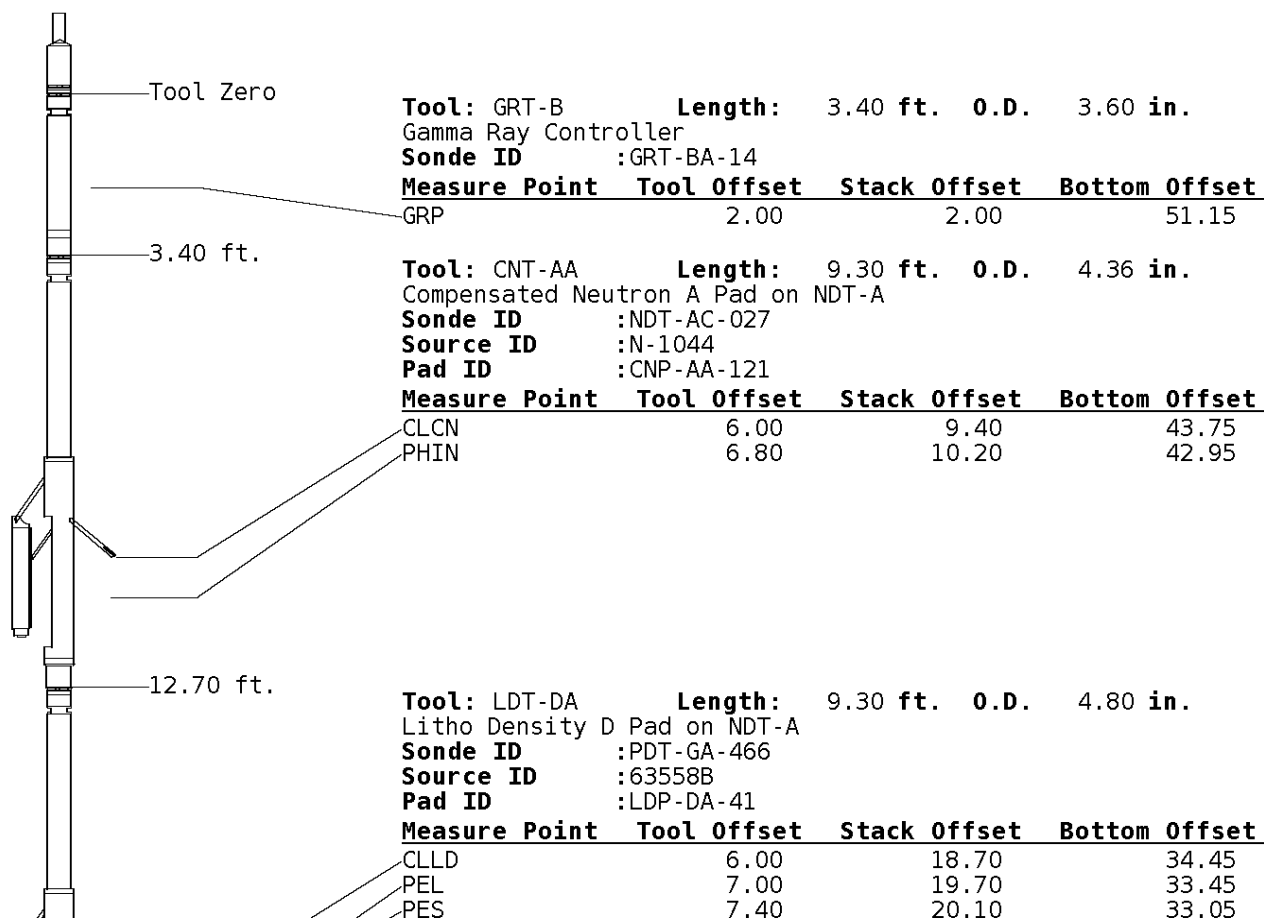
MICRO CALIPER STOPPED WORKING AT 1960'
 CUSTOMER REQUESTED DETAIL TO 1600'

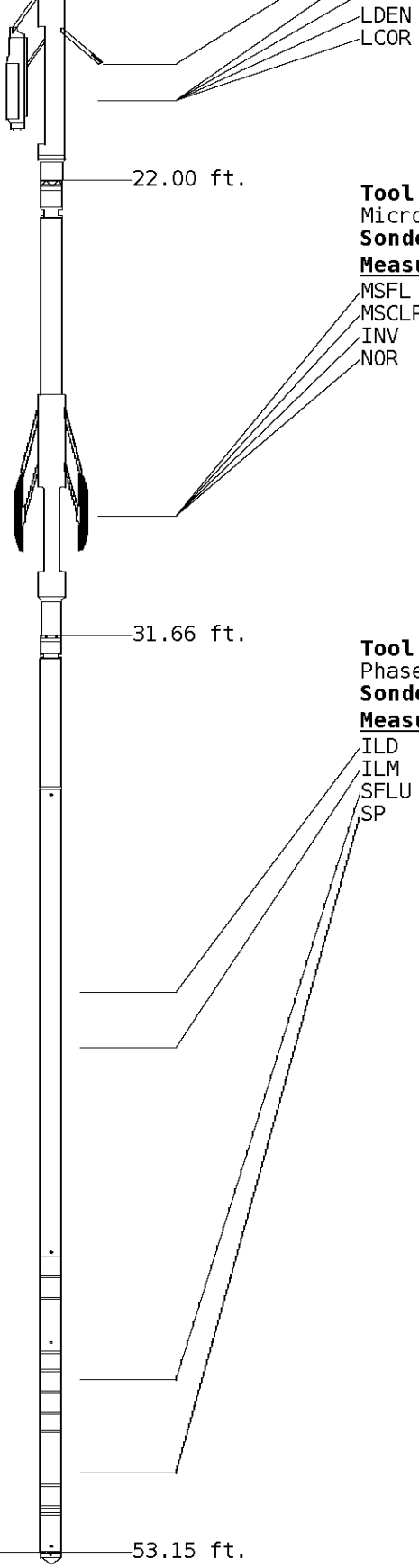
GRT: GRP, GRX
 CNT: PHIN, CLCNIN, PHXN
 LDT: PORL, LCORN, PECLN, LDENN, PORLLS, CLLDIN, PRXL, PECLX, LDENNX, LCORX
 MLT: NOR_RF, INV_RF, MSCLPIN
 PIT: ILD, ILM, SPU, SFLAEC, CIRD

OPERATORS:
 B.BAILEY
 B.BROWN

Tool String Schematic

Total Tool Length - 53.15 ft.
Maximum Outside diameter - 6.00 in.
Net Weight in Air - 943.00 lbs.





7.20 19.90 33.25
 7.20 19.90 33.25

Tool: MST-DA **Length:** 9.66 ft. **O.D.** 6.00 in.
 Micro Spherically Focused (IC)
Sonde ID :MST-DA-021

Measure Point	Tool Offset	Stack Offset	Bottom Offset
MSFL	7.60	29.60	23.55
MSCLP	7.60	29.60	23.55
INV	7.60	29.60	23.55
NOR	7.60	29.60	23.55

Tool: PIT-CA **Length:** 21.49 ft. **O.D.** 3.62 in.
 Phased Dual Induction w/ RM & D
Sonde ID :PIT-CA-069

Measure Point	Tool Offset	Stack Offset	Bottom Offset
ILD	8.92	40.58	12.56
ILM	10.10	41.76	11.39
SFLU	17.49	49.15	4.00
SP	20.60	52.26	0.88

Well File: VAL ENERGY WERNER 4-310WVO MAY10 MSTK **Scale:** 1:240 **Format:** NLD-240
Segment: V1.D1.S5 Reprocess of MAIN **Acquired:** 2018-05/10 07:28 3.4.0-13756
Reference: 0 **Processed:** 2018-05/10 08:21 3.4.0-13756

CALIPER MICRO INCHES (IN)	
16	26
6	16

BIT SIZE INCHES (IN)

NORMAL
OHMH

6	16
NEUTRON (Y) CALIPER INCHES (IN)	
16	26
6	16

0	40
INVERSE OHMH	
0	40

DENSITY (X) CALIPER INCHES (IN)	
16	26
6	16

Volume Quartz	PE CROSS-SECTION BARNS/ELECTRON	DENSITY CORRECTION G/CC
0	10	-0.25
0.25		

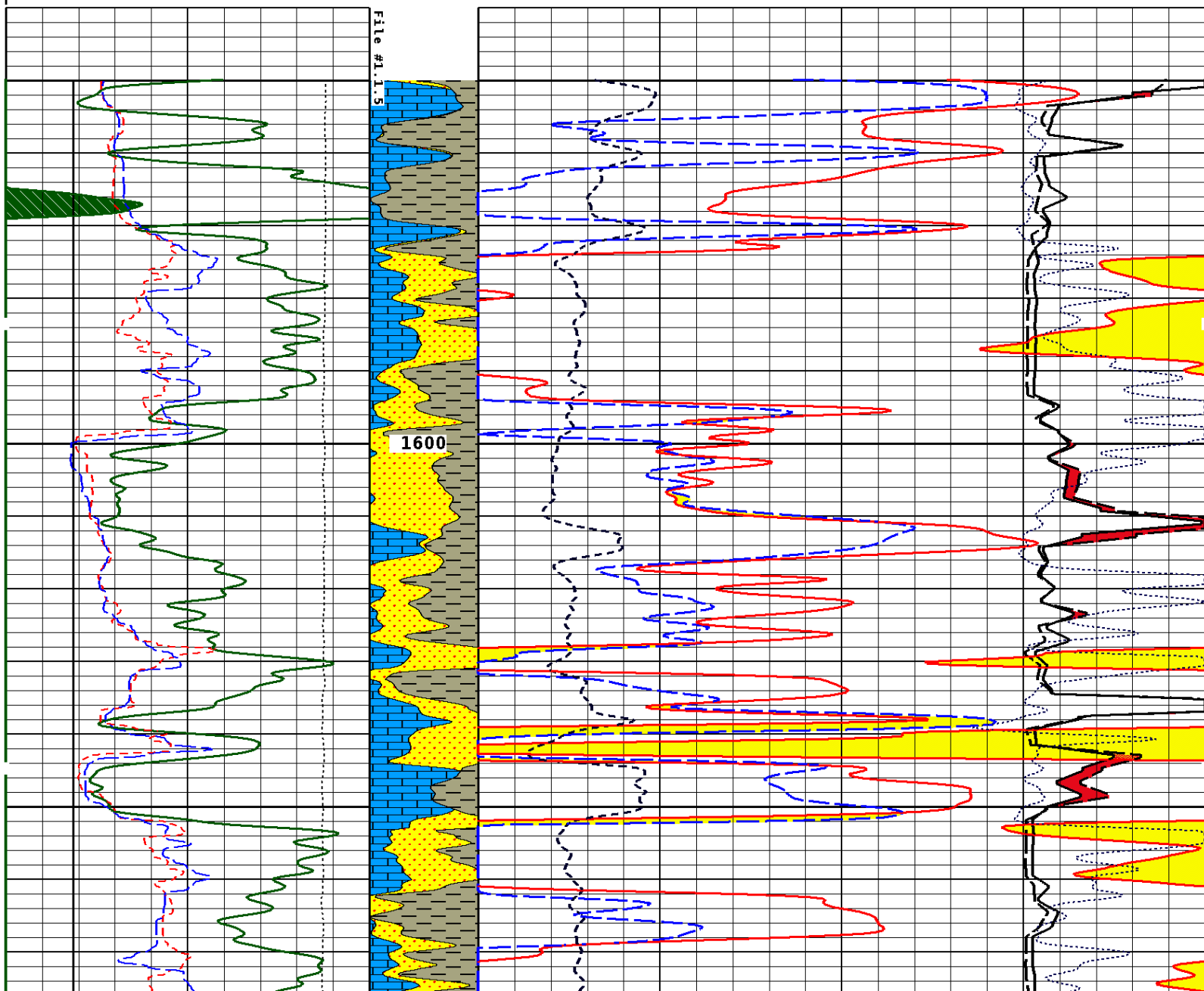
TENSION LBS	
10000	0

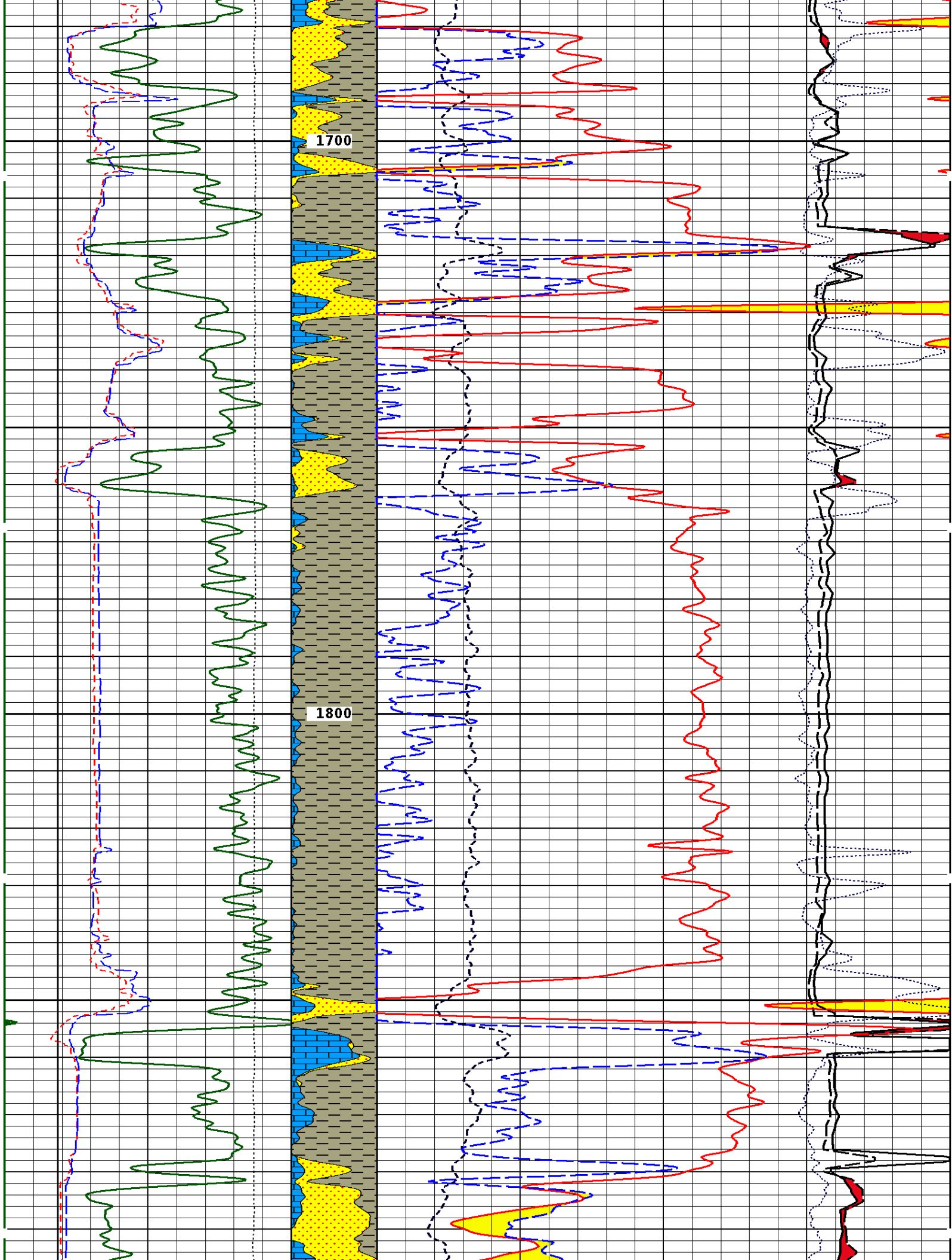
Volume Calcite	DENSITY POROSITY (2.71g/cc) PERCENT	
70		30
30		-10
-10		-50

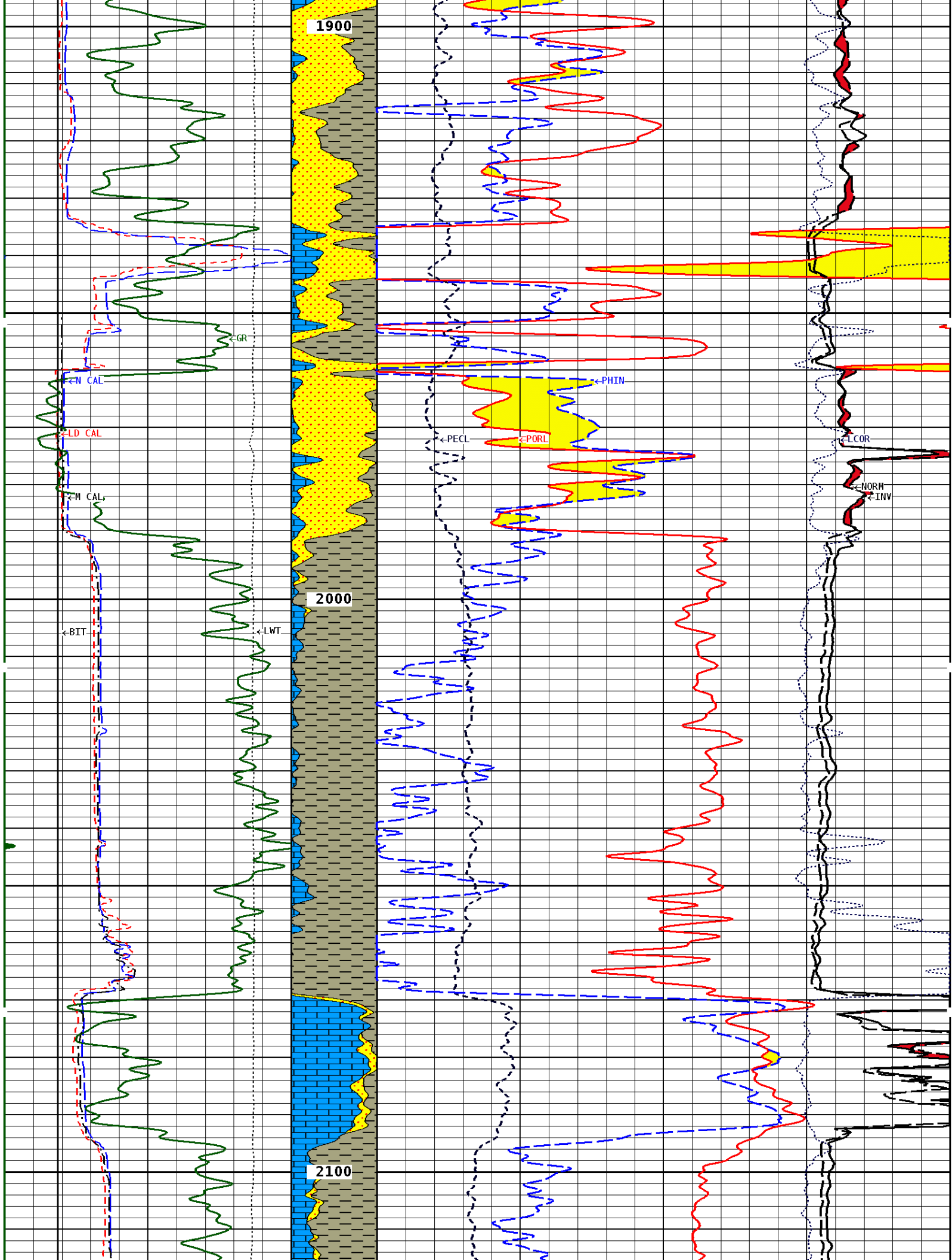
GAMMA RAY API UNITS	
150	300
0	150

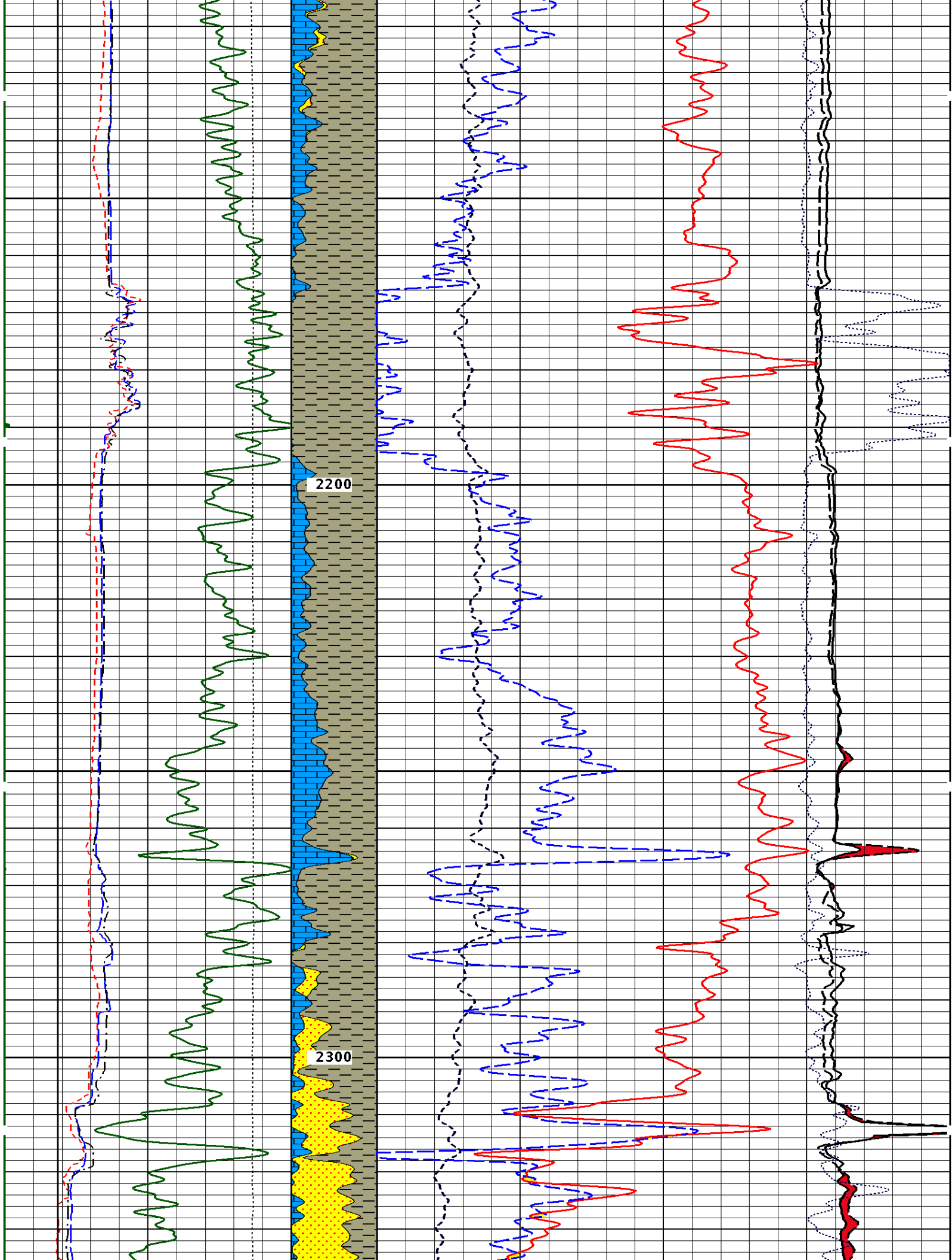
Volume DoLo/Shale	NEUTRON POROSITY (LIMESTONE) PERCENT	
30		-10

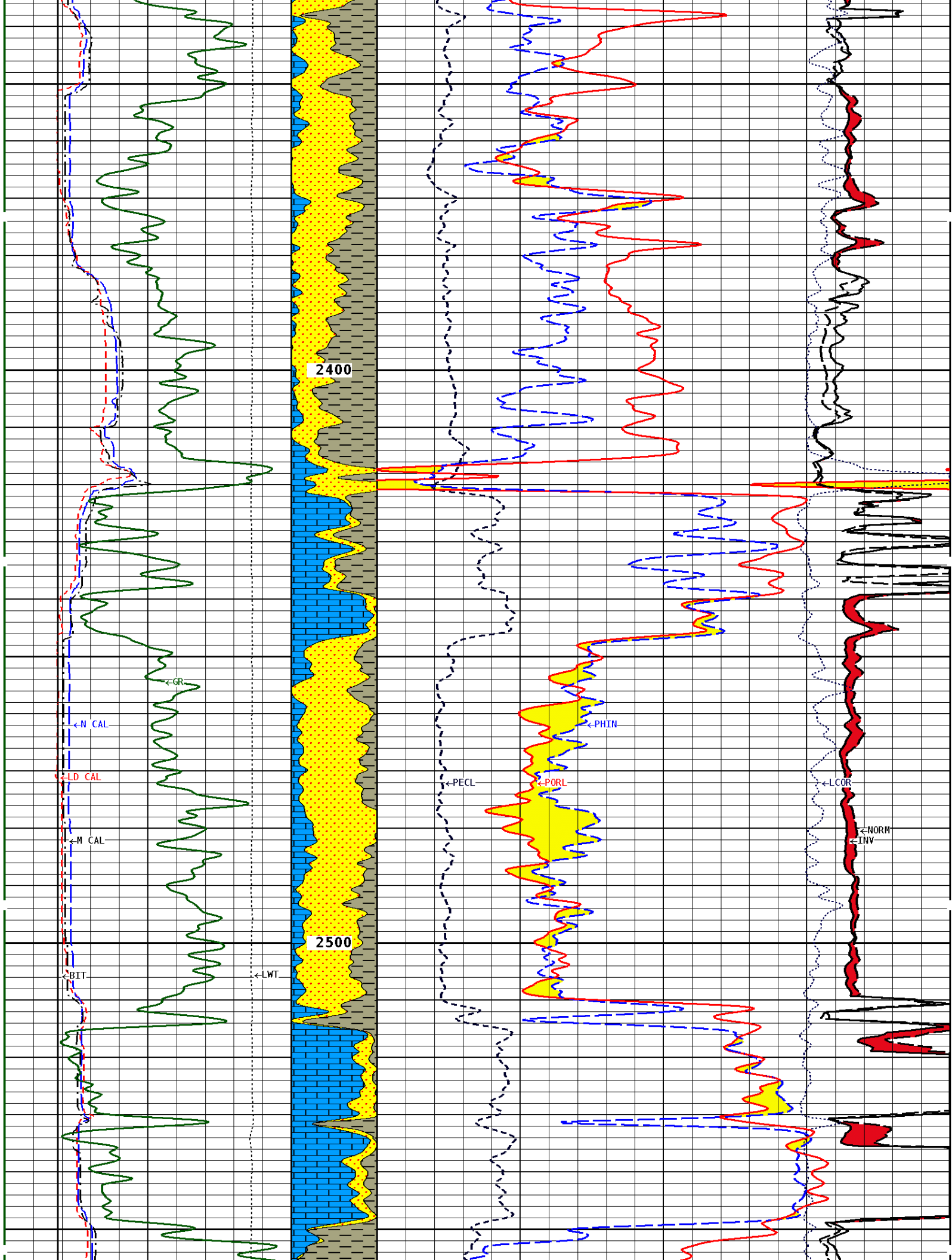
1:240 MAIN SECTION

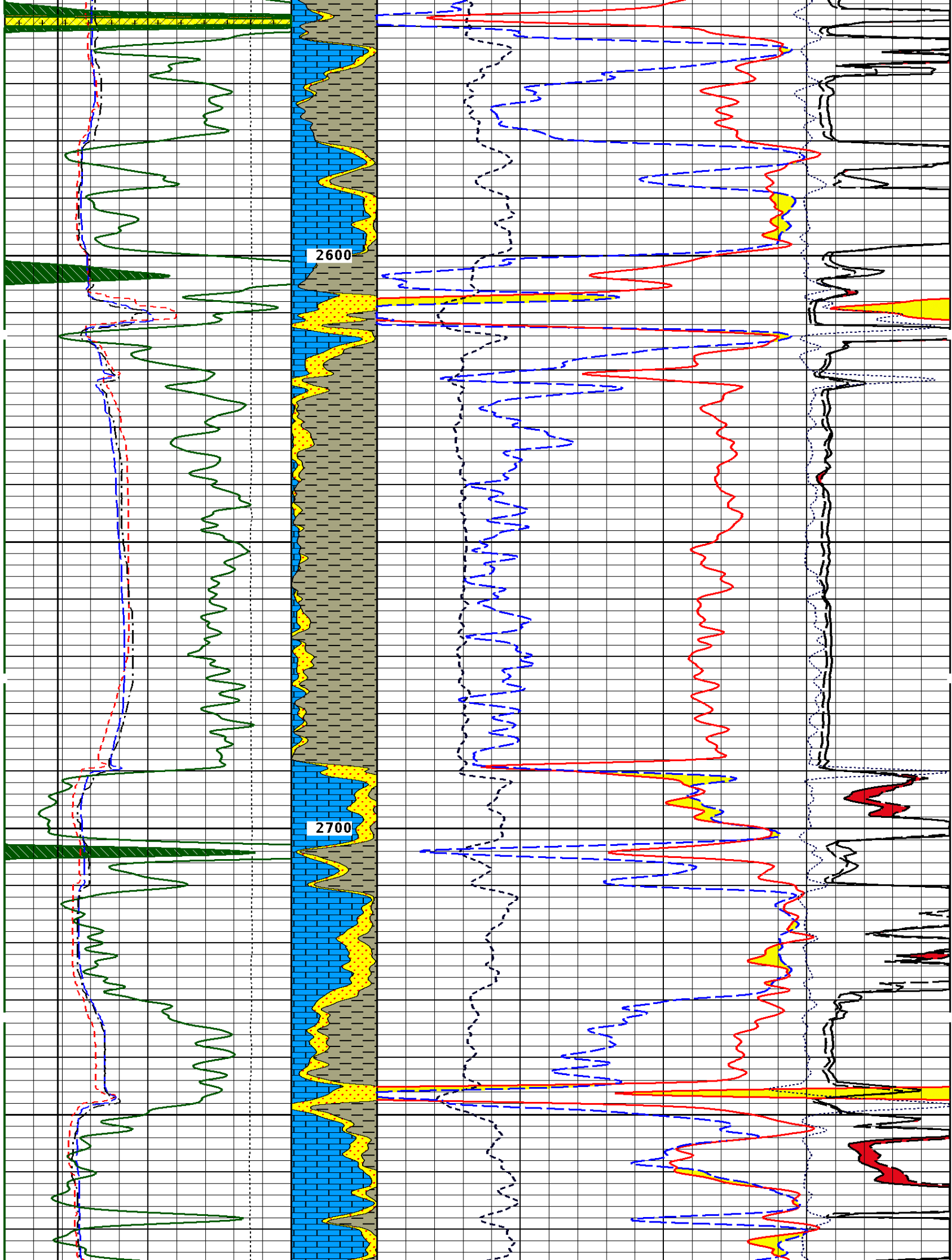


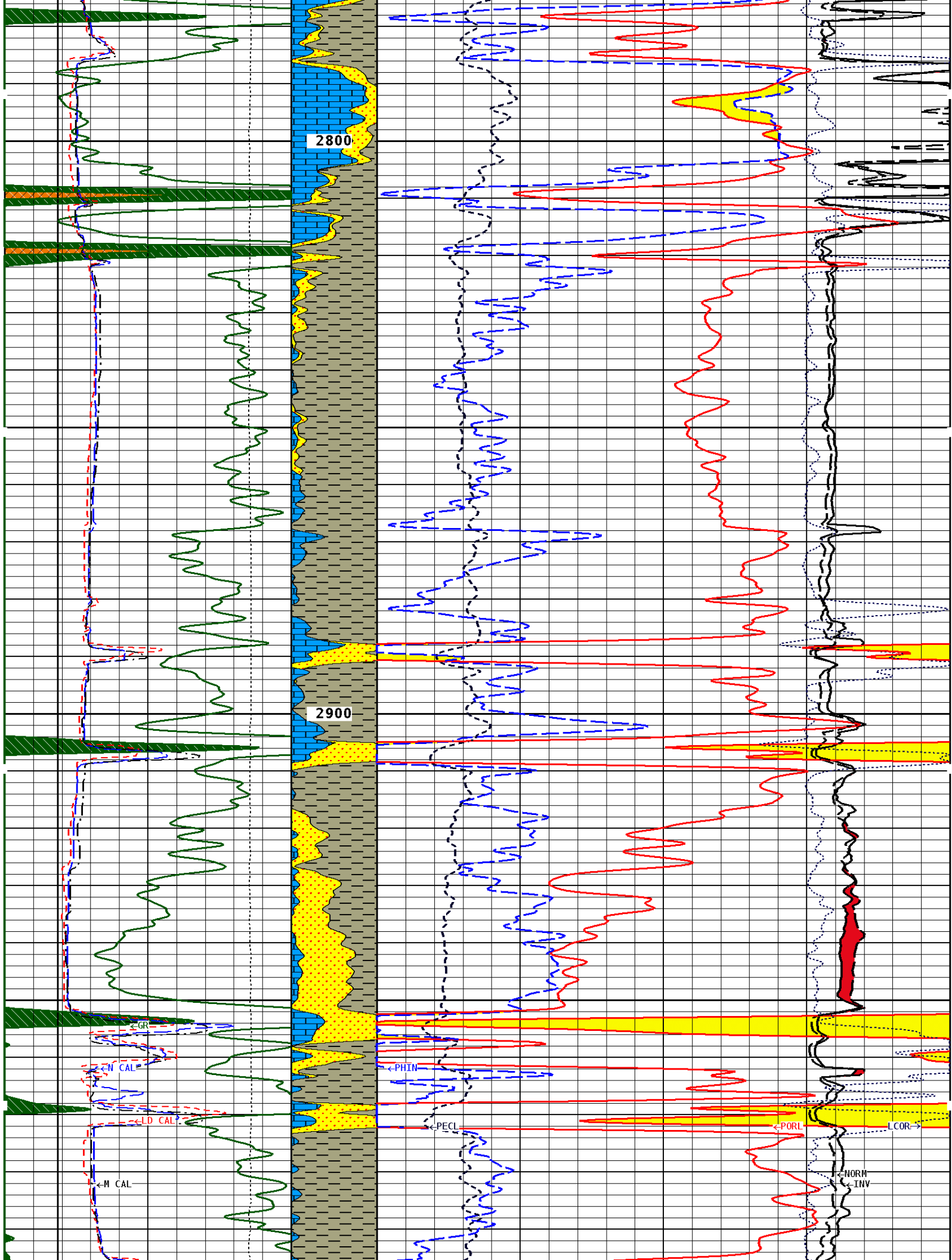


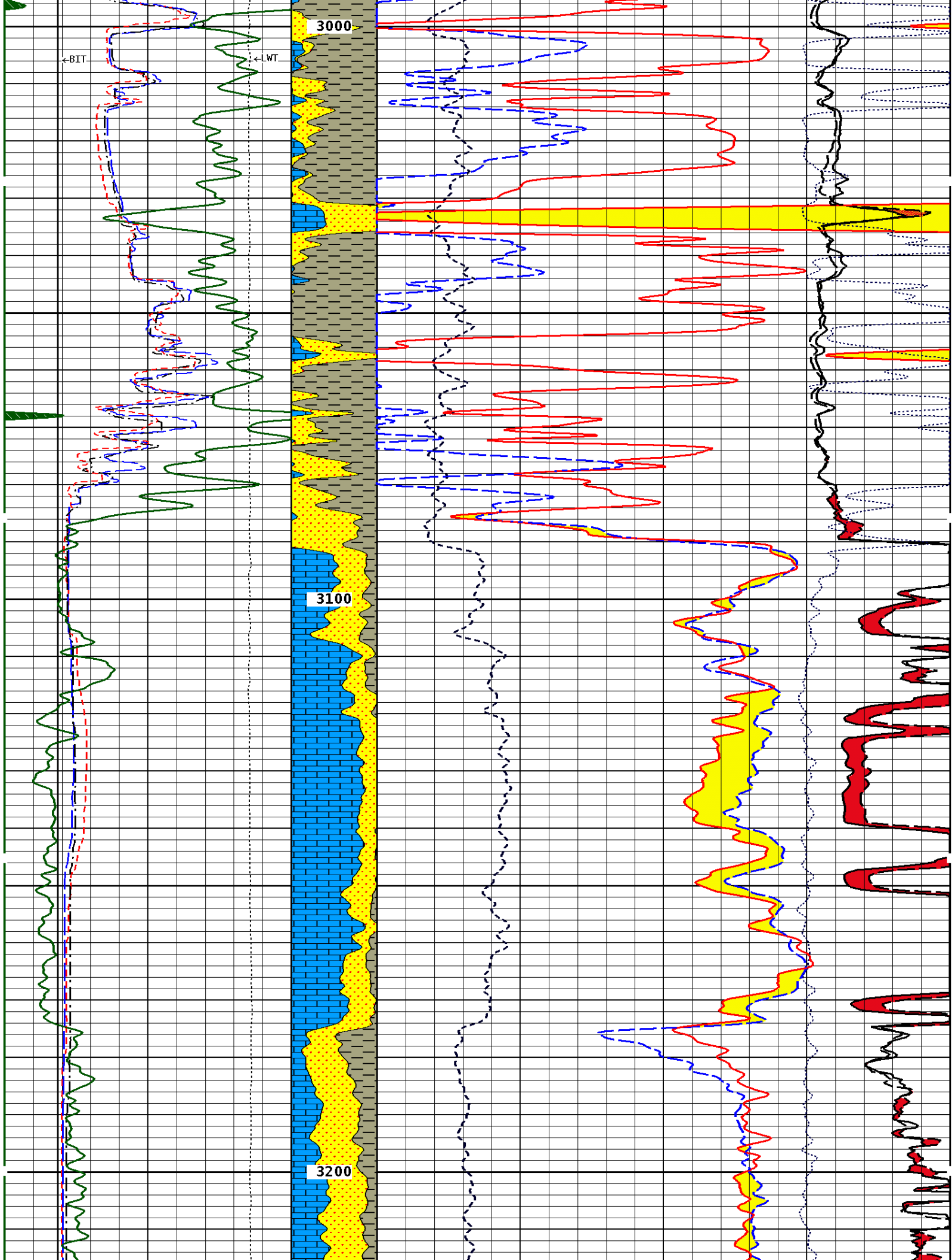


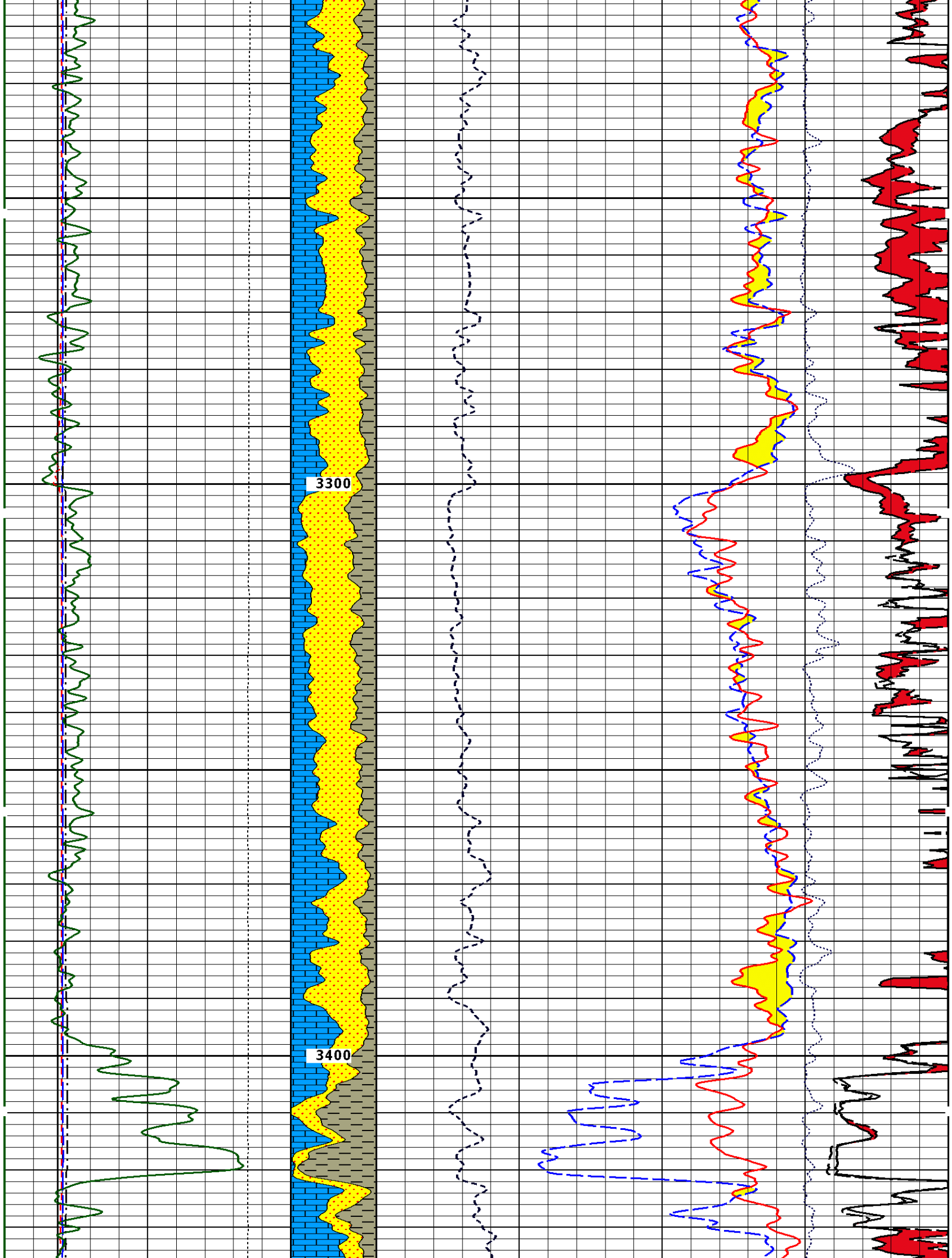


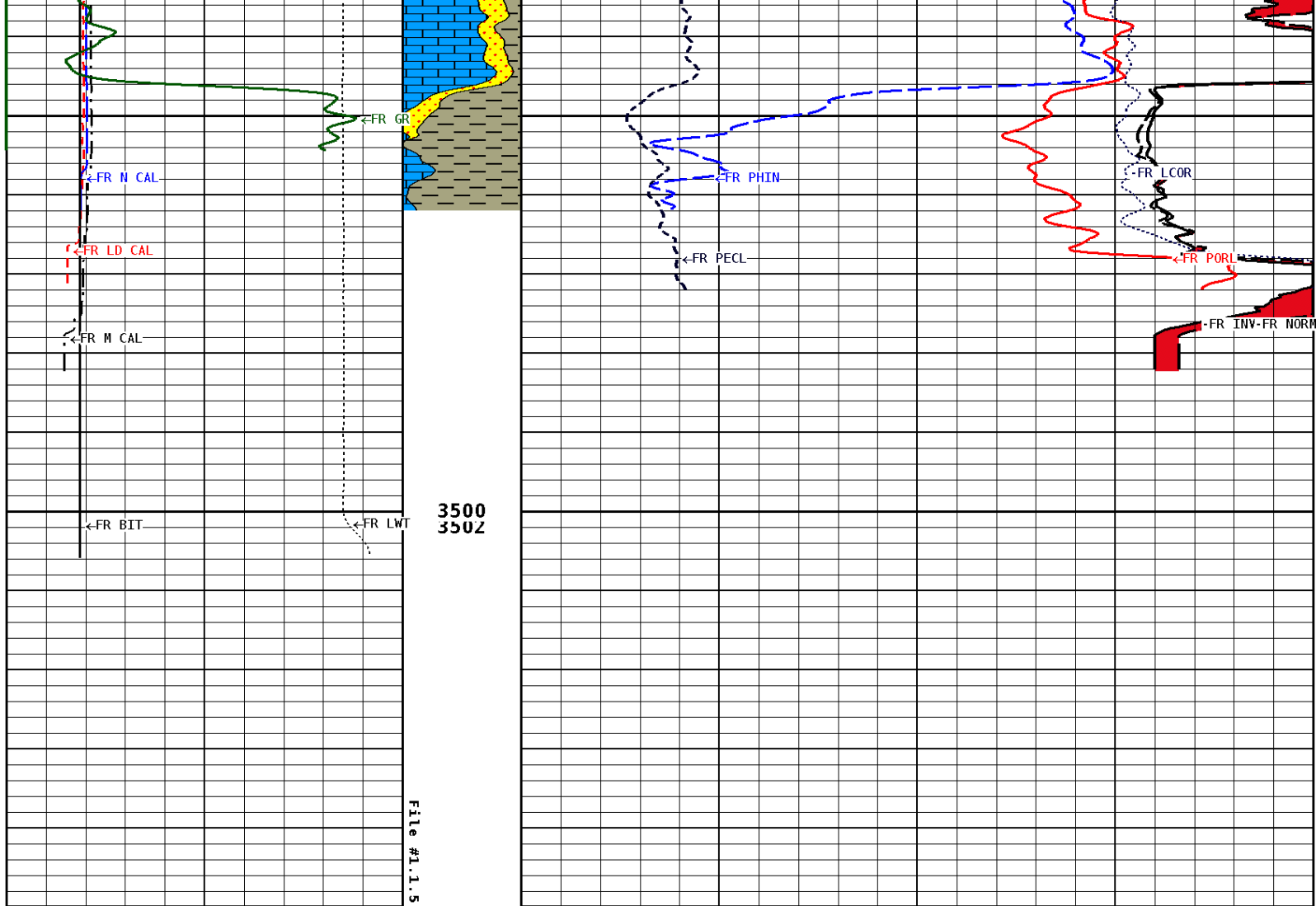






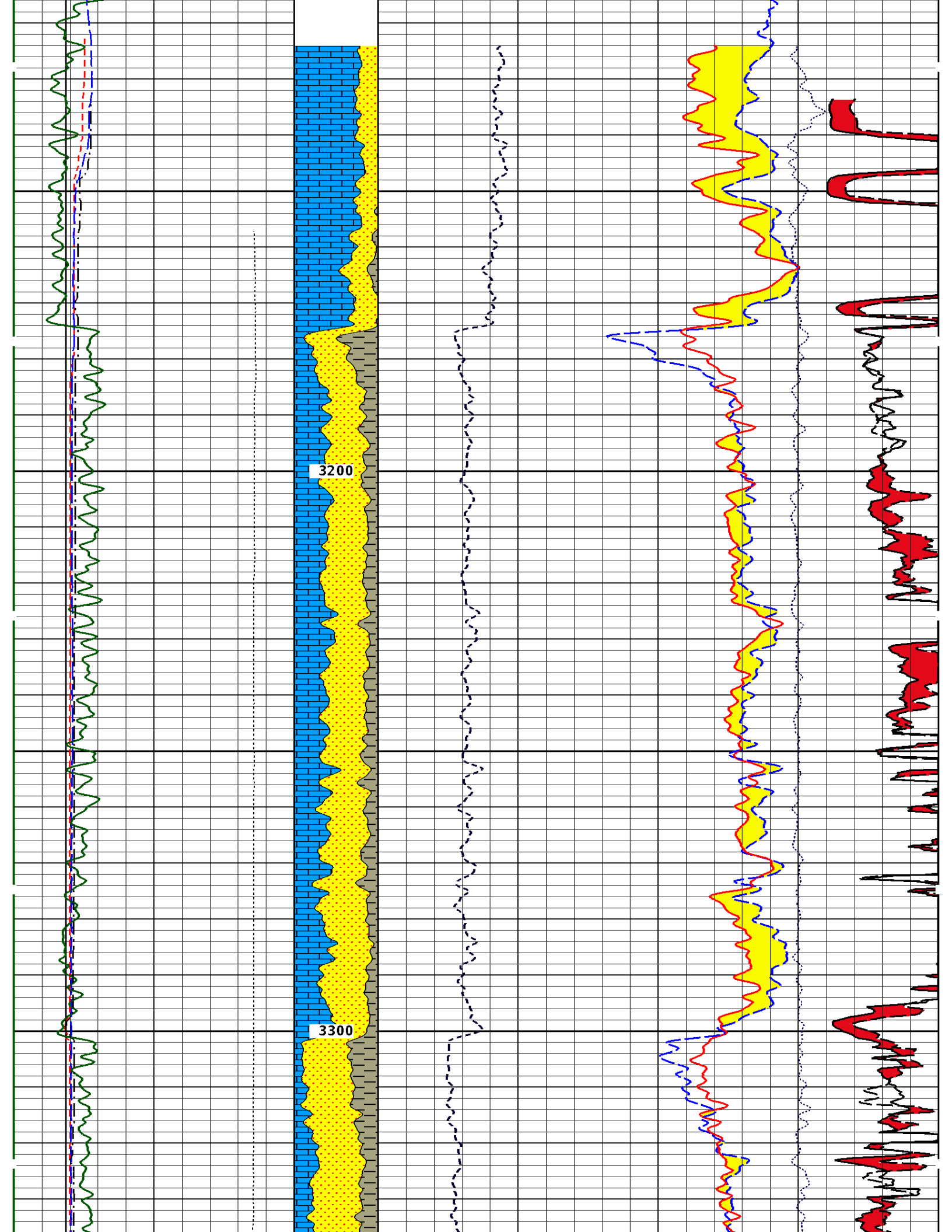


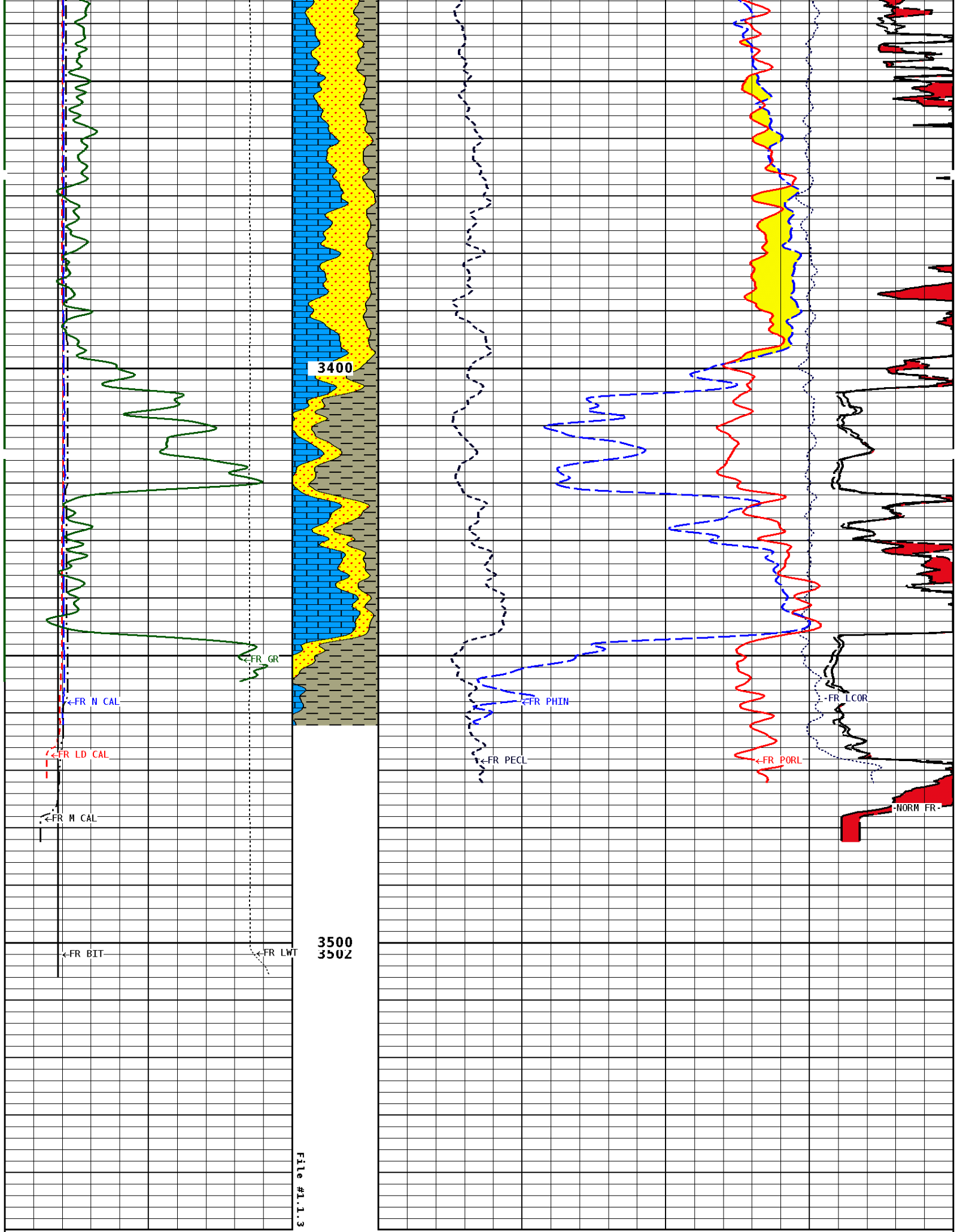




1:240 MAIN SECTION

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






3400

3500
3502

File #1.1.3


1:240 REPEAT SECTION

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

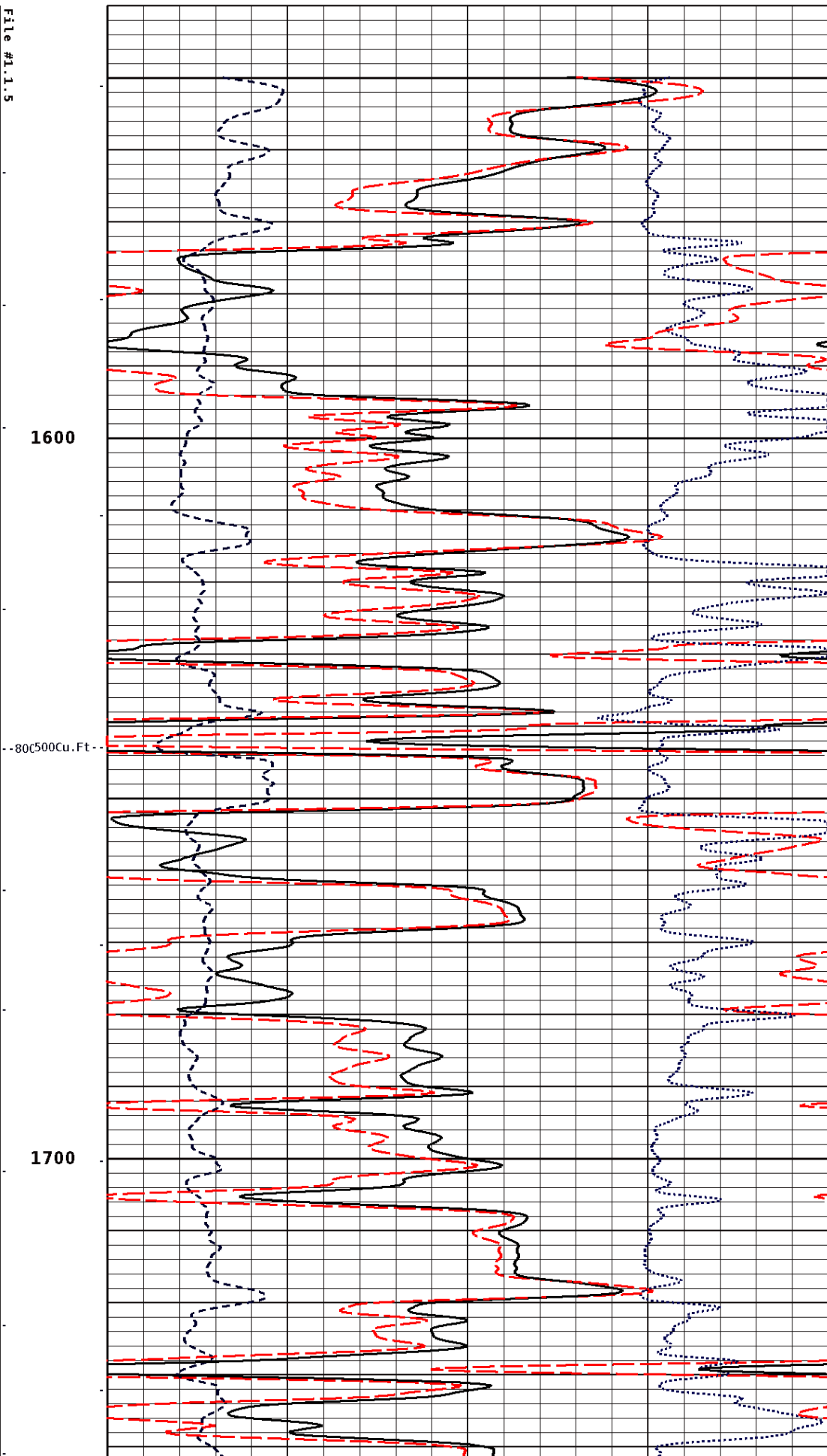
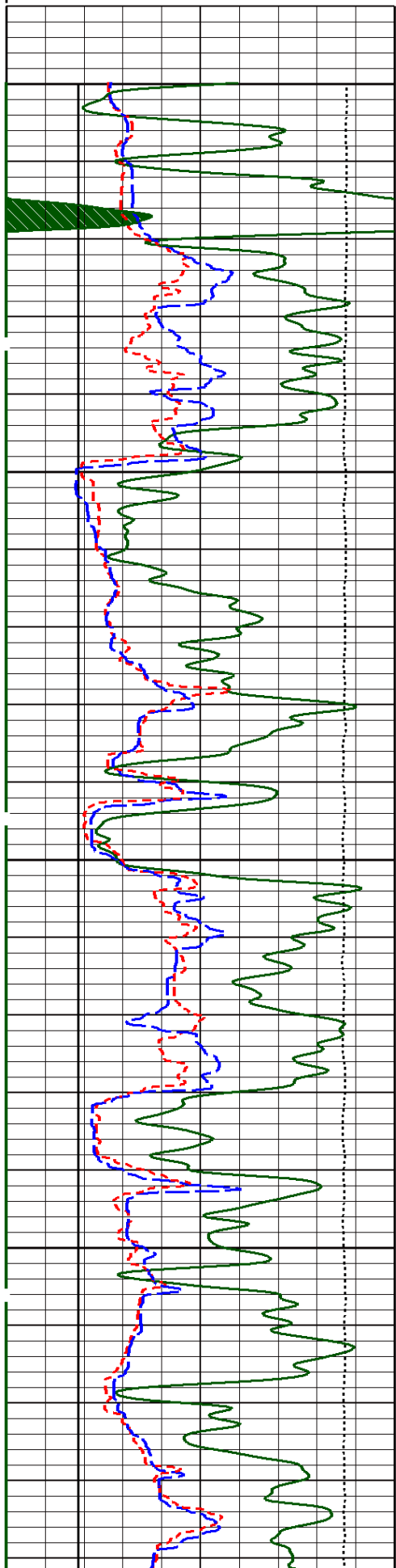
* Borehole Zone Factors *

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 Thickness _____	0.250	in
Casing Correction (PHI N) _____	Disable	

Well File: VAL ENERGY WERNER 4-310WVO MAY10 MSTK	Scale: 1:240	Format: LDT-240
Segment: V1.D1.S5 Reprocess of MAIN	Acquired: 2018-05/10 07:28 3.4.0-13756	
Reference: 0	Processed: 2018-05/10 08:21 3.4.0-13756	

BIT SIZE INCHES (IN) 6 ----- 16			
NEUTRON (Y) CALIPER INCHES (IN) 16 6 ----- 26 16			
DENSITY (X) CALIPER INCHES (IN) 16 6 ----- 26 16		PE CROSS-SECTION BARN/ELECTRON 0 ----- 10	DENSITY CORRECTION G/CC -0.25 ----- 0.25
TENSION LBS 10000 ----- 0		COMPENSATED BULK DENSITY G/CC 3.0 ----- 4.0 2.0 ----- 3.0 1.0 ----- 2.0	
GAMMA RAY API UNITS 		DENSITY POROSITY (2.71g/cc) PERCENT 70 30 ----- -10 -10 ----- -50	

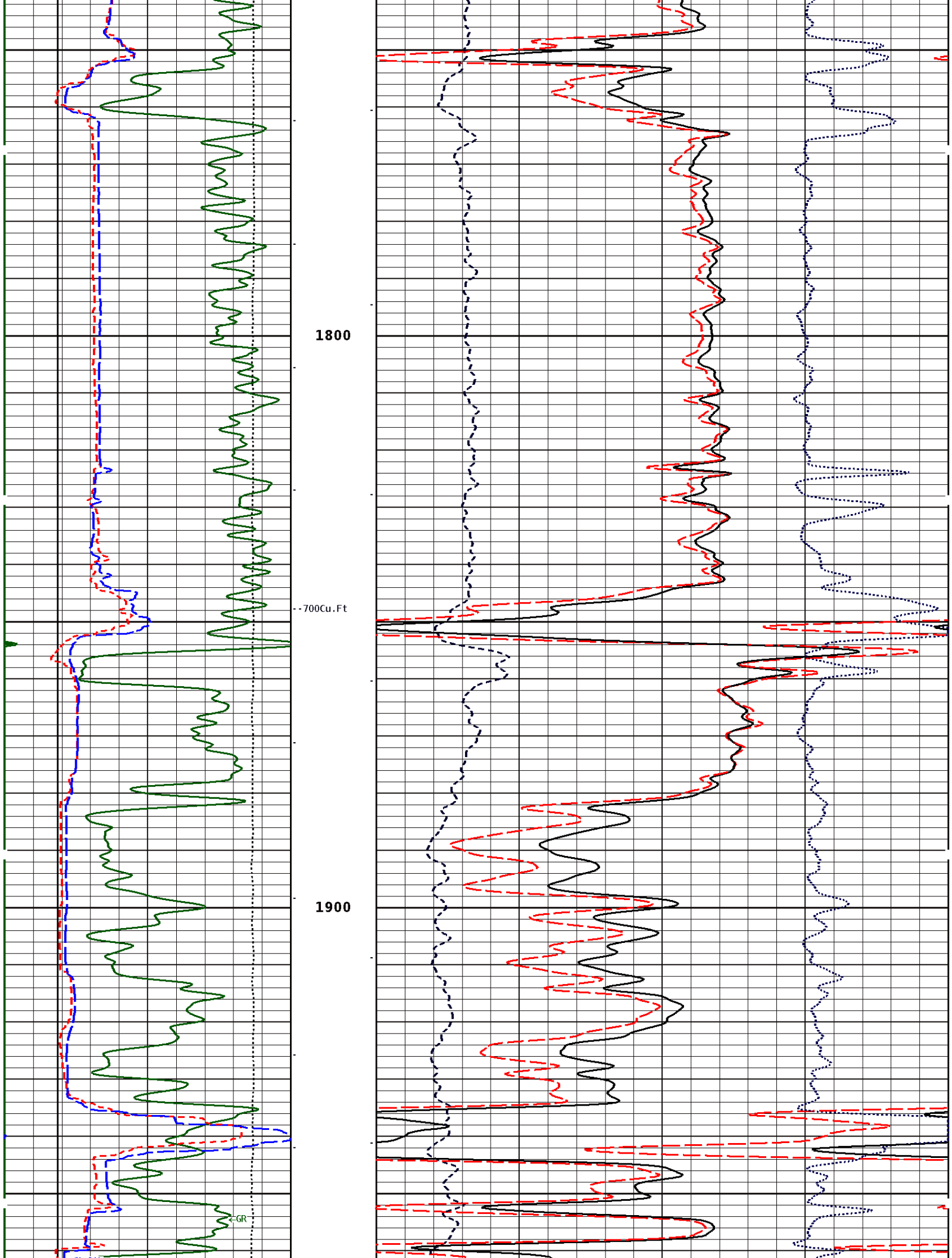
1:240 MAIN SECTION
BULK DENSITY

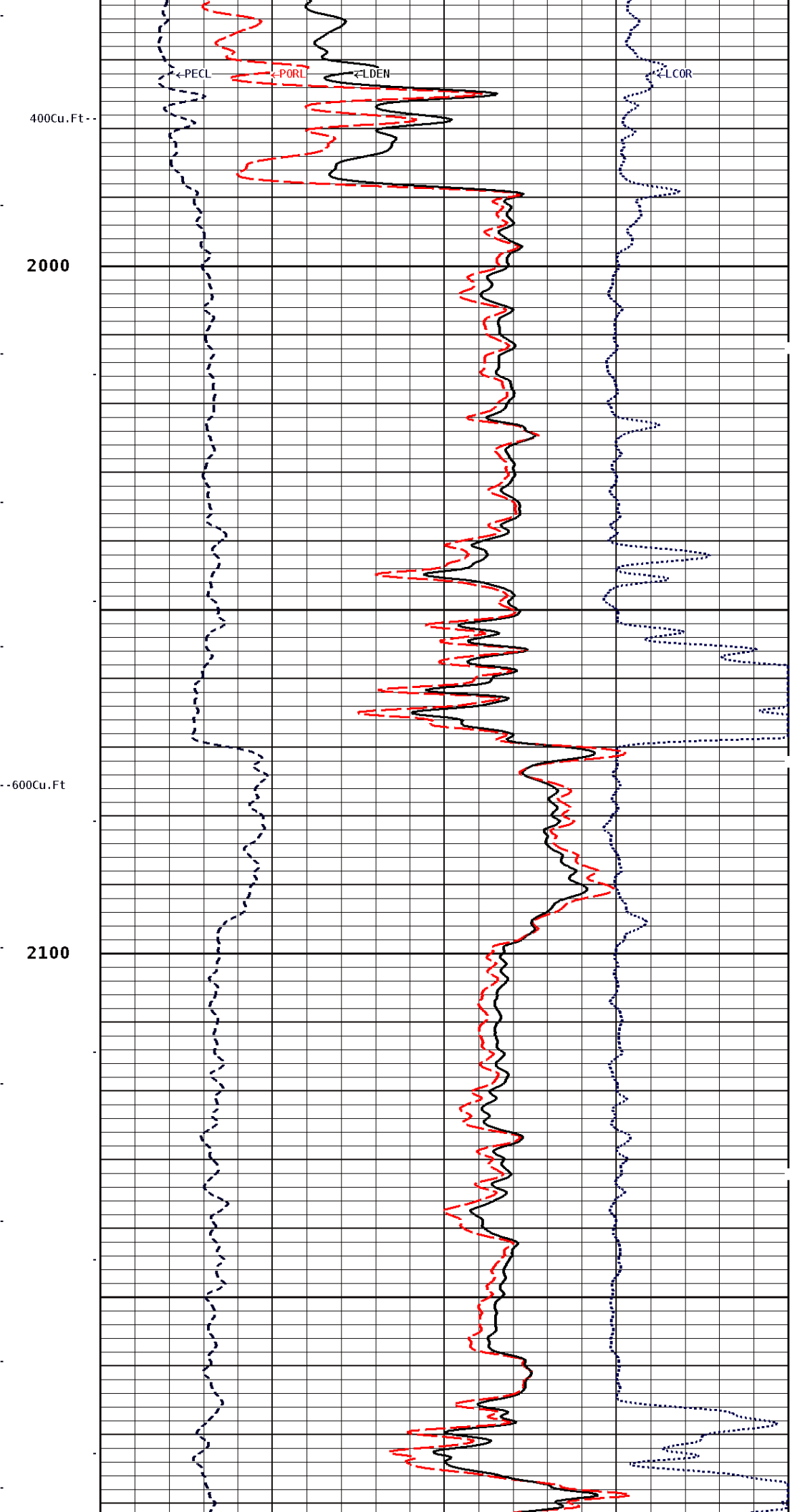
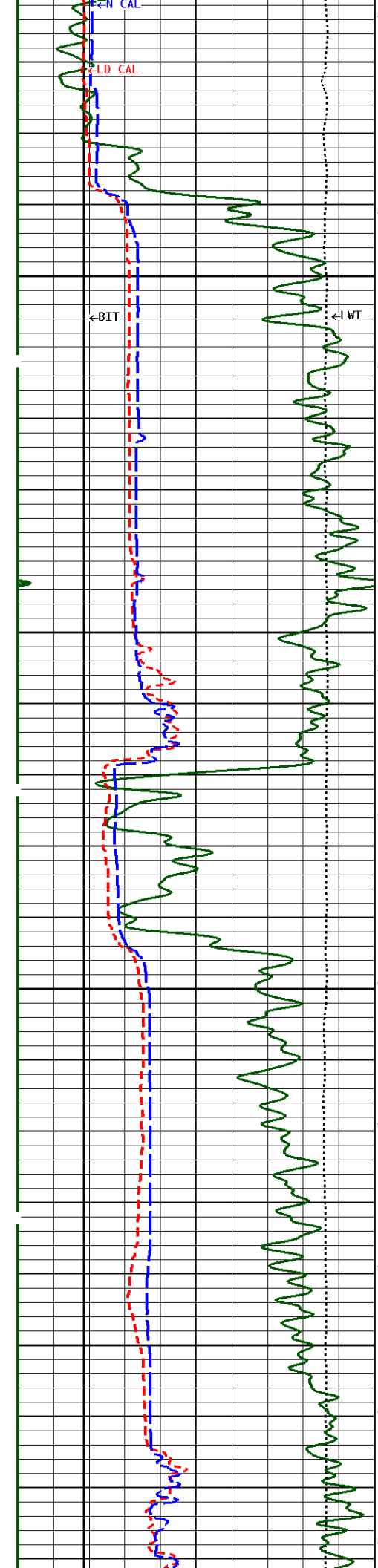


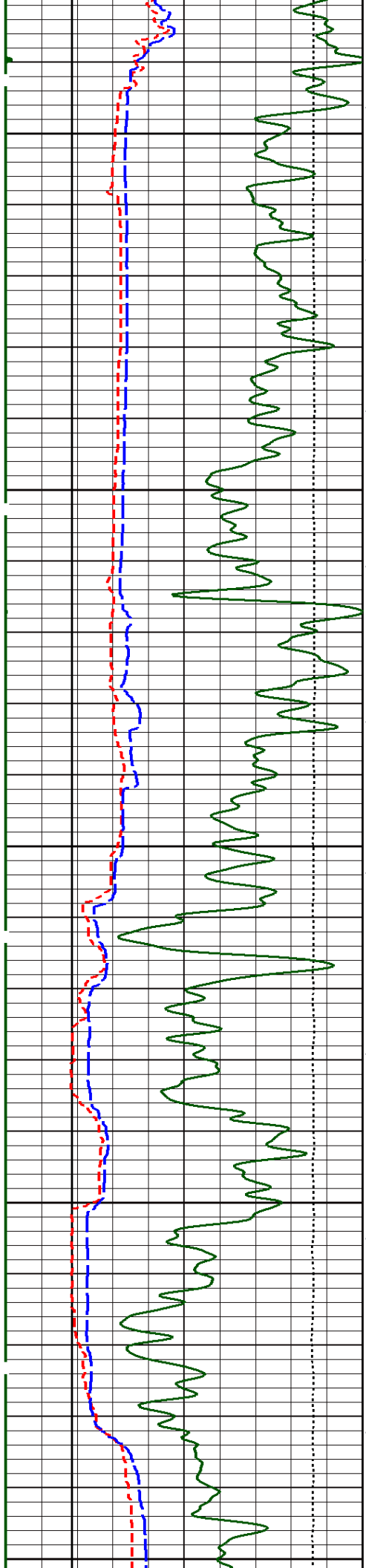
1600

80c500Cu.Ft.

1700





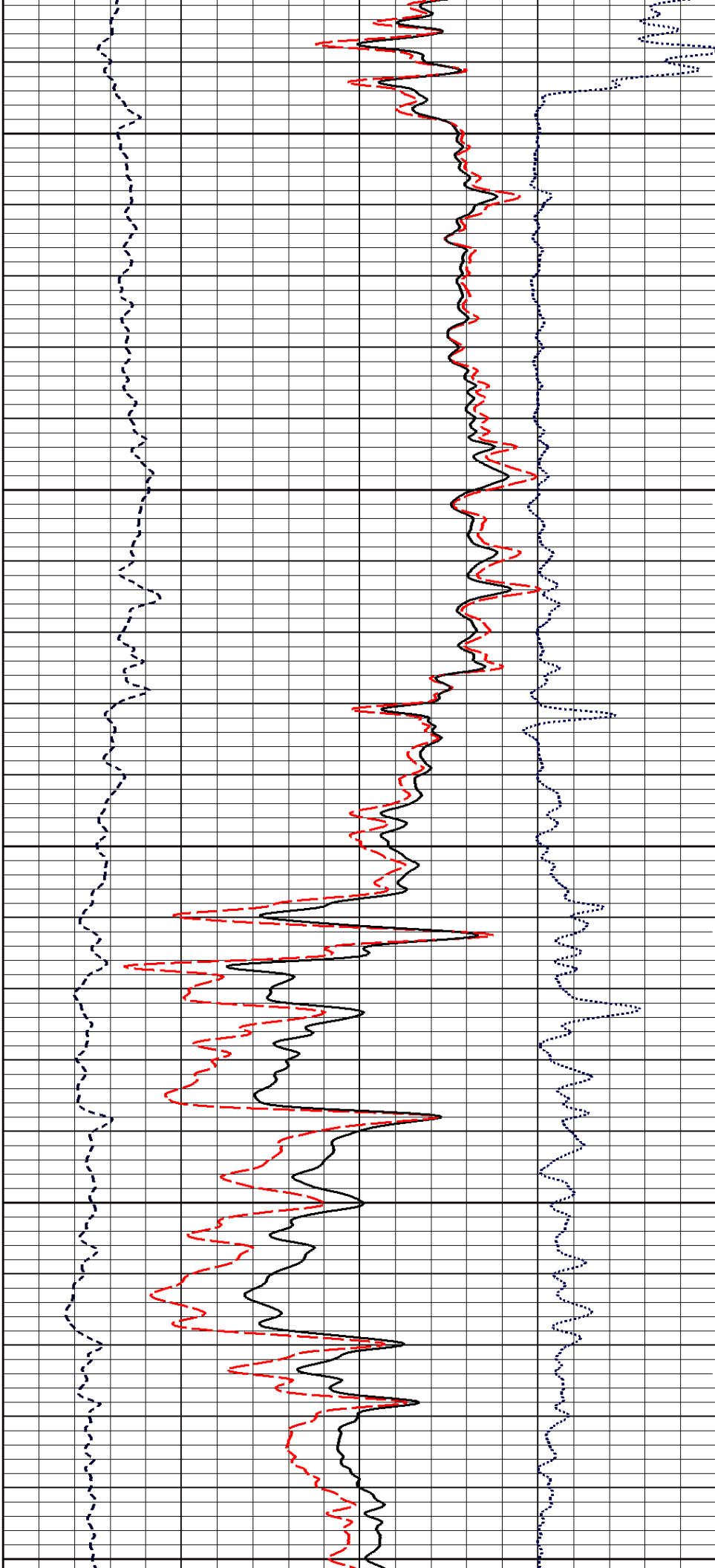


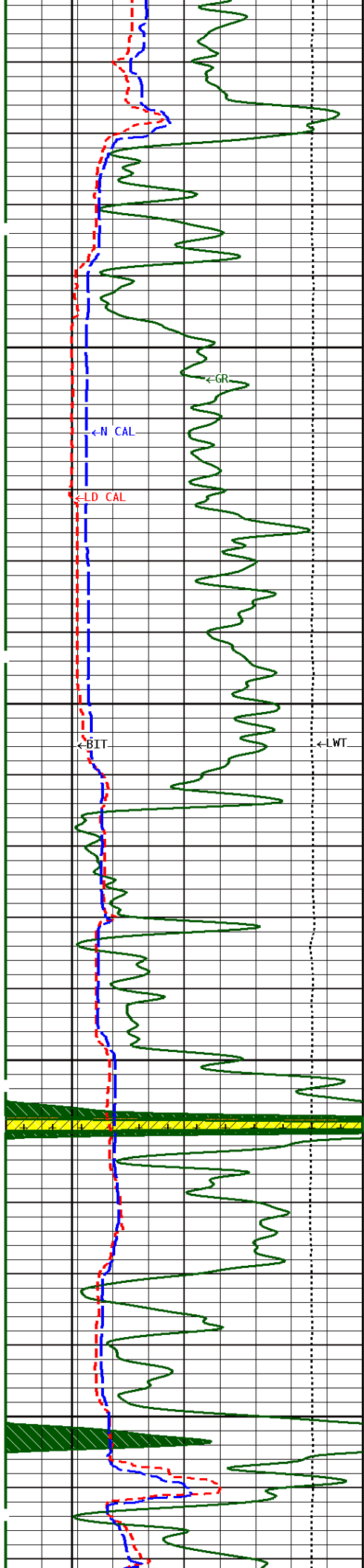
2200

500Cu.Ft

300Cu.Ft

2400

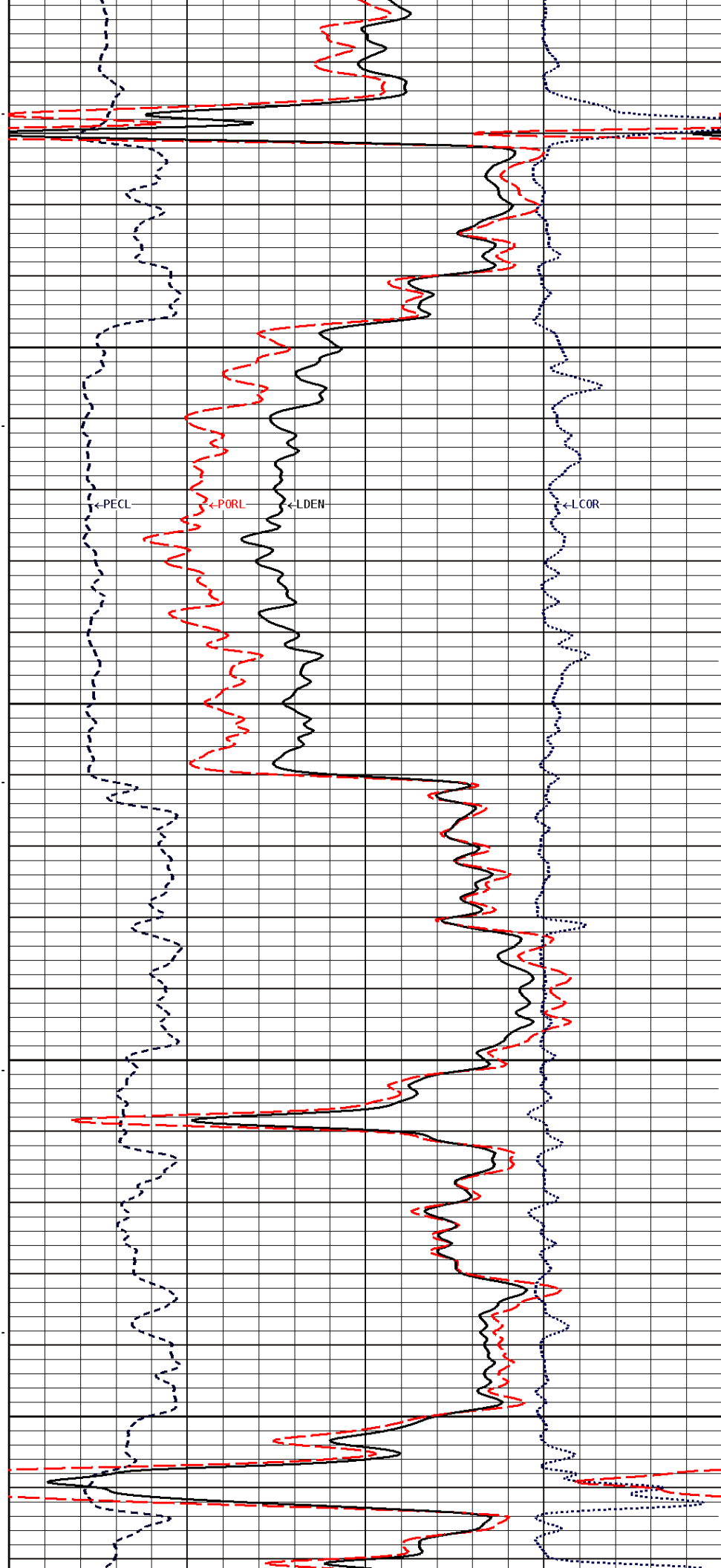


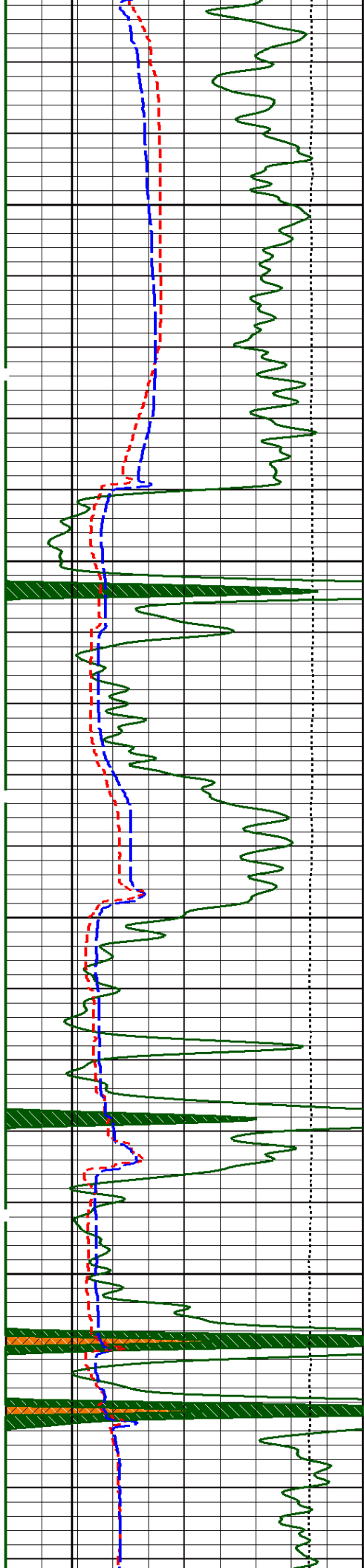


2500

-400Cu.Ft

2600



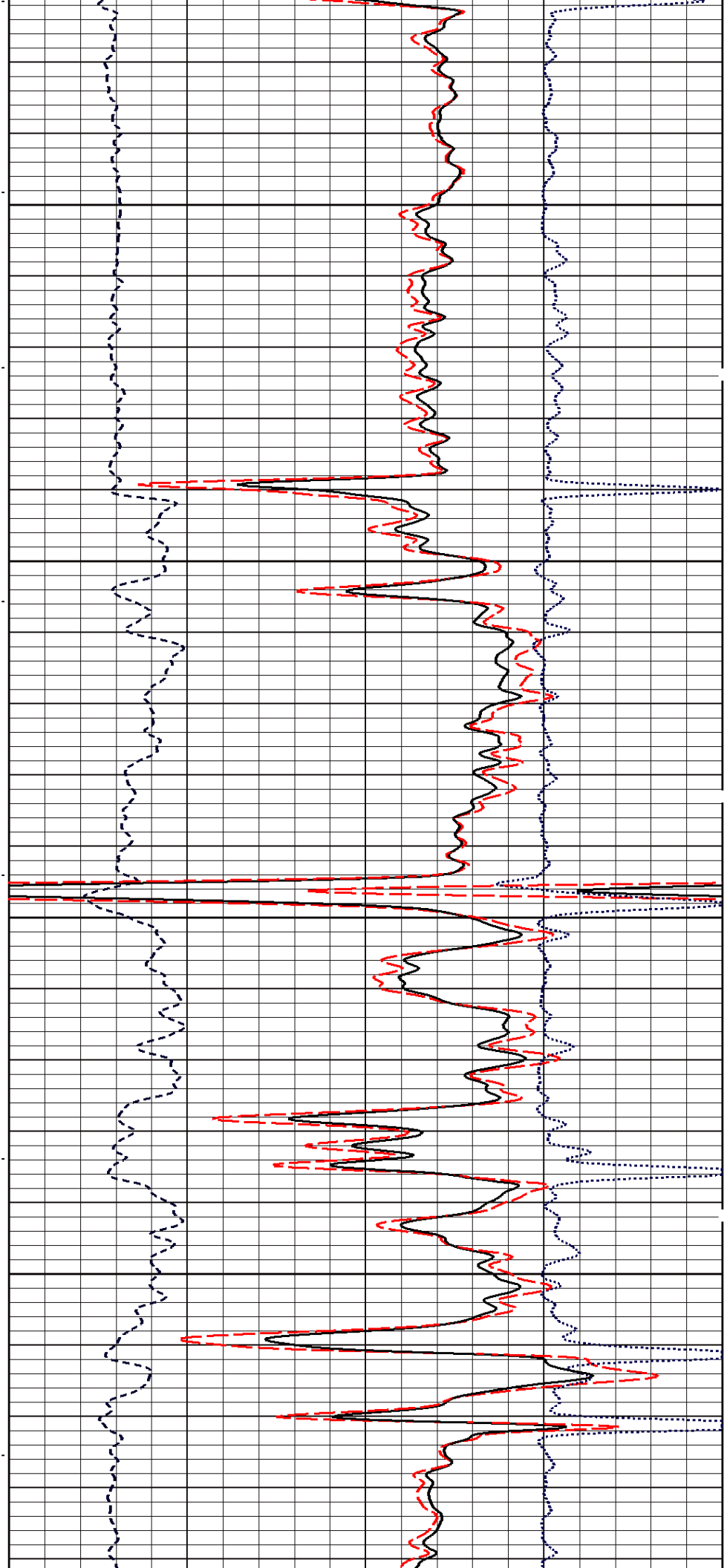


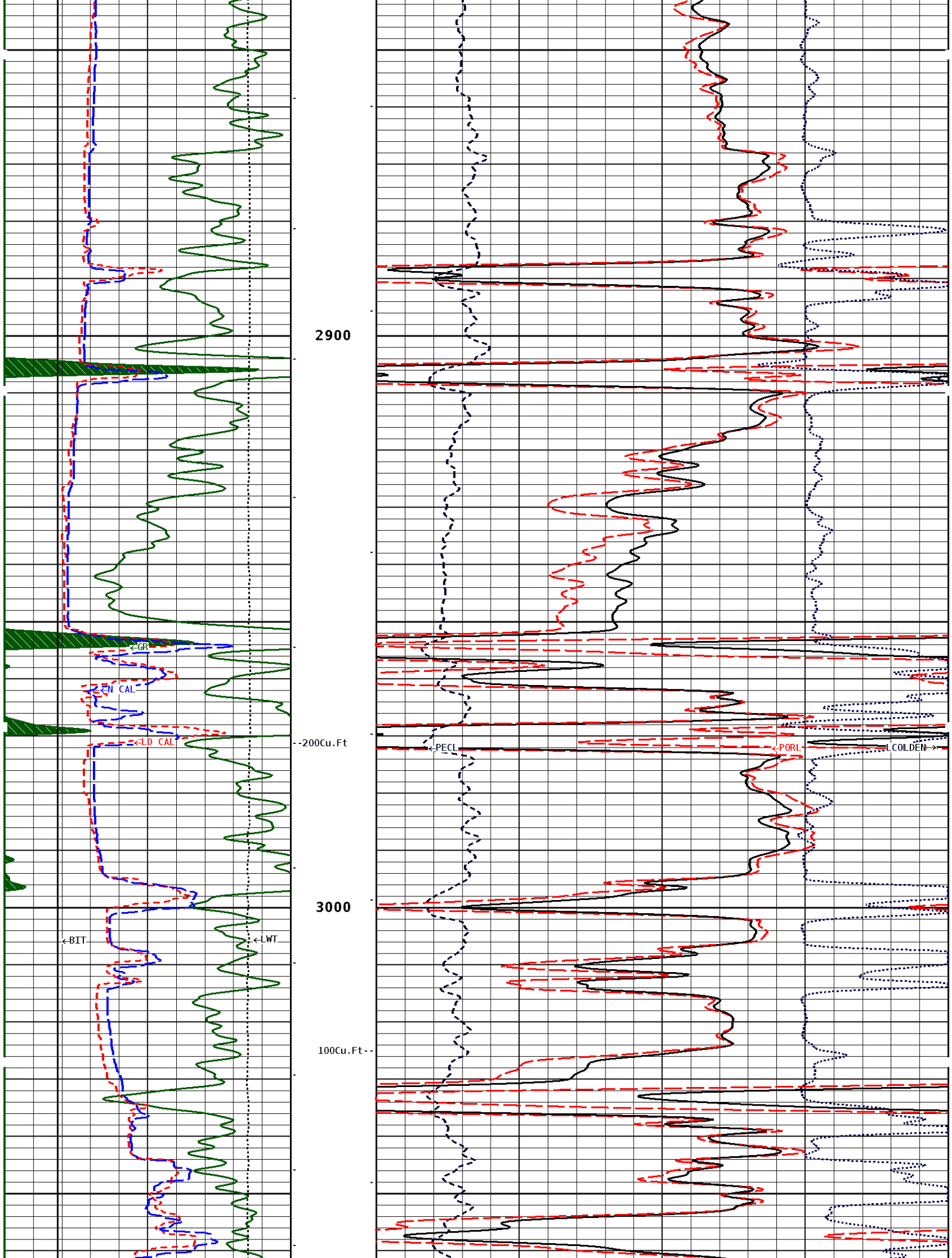
200 Cu.Ft.

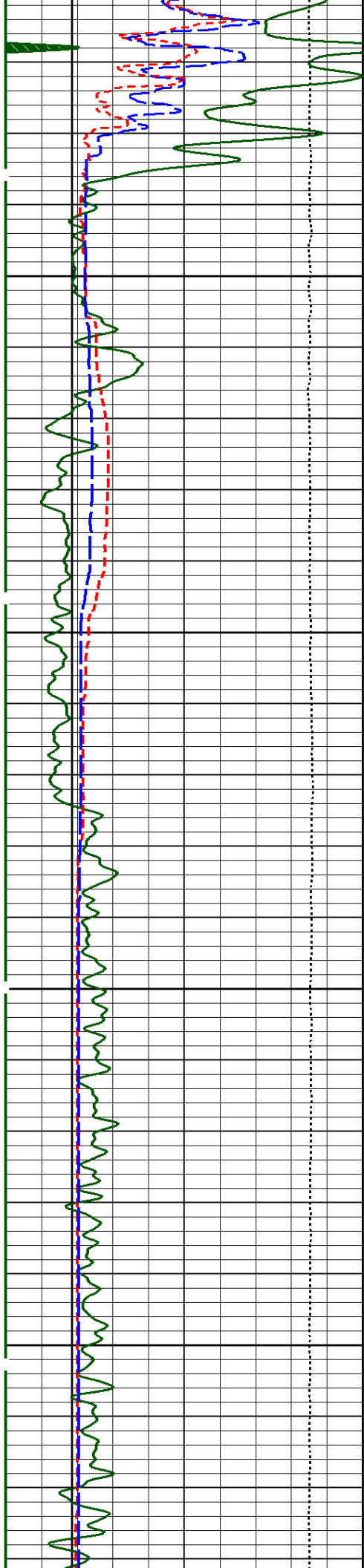
2700

-300 Cu.Ft.

2800



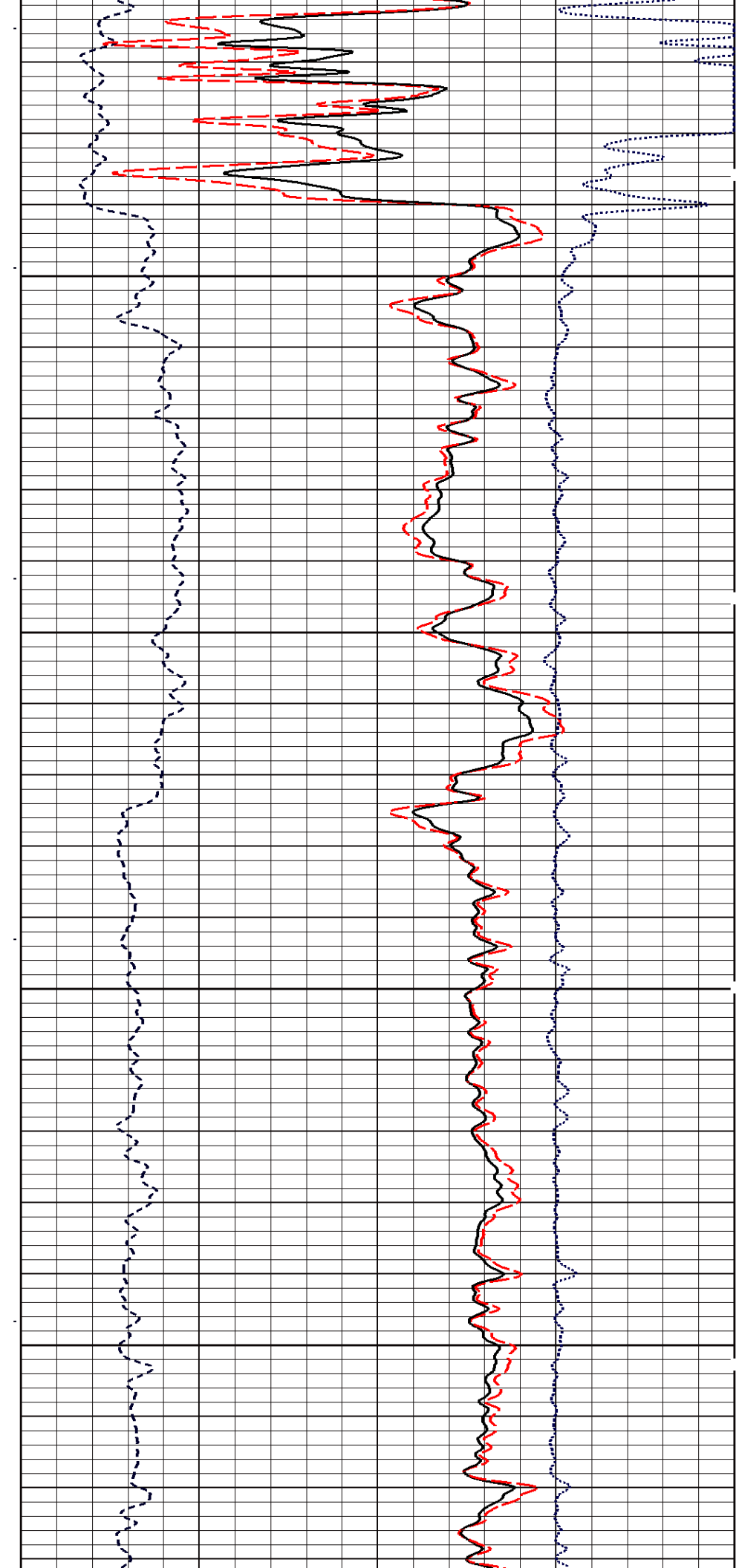


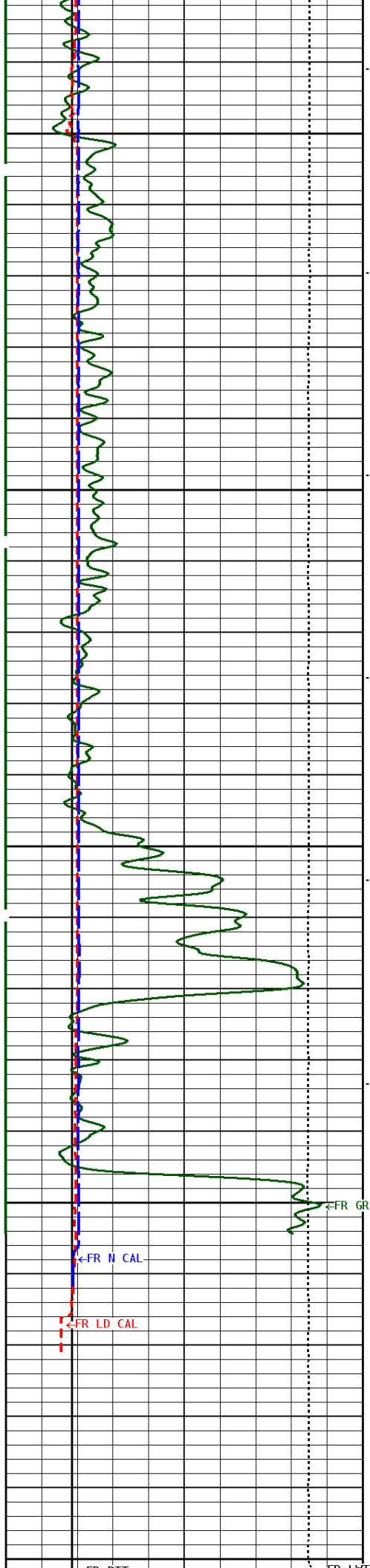


3100

-100Cu.Ft

3200





3300

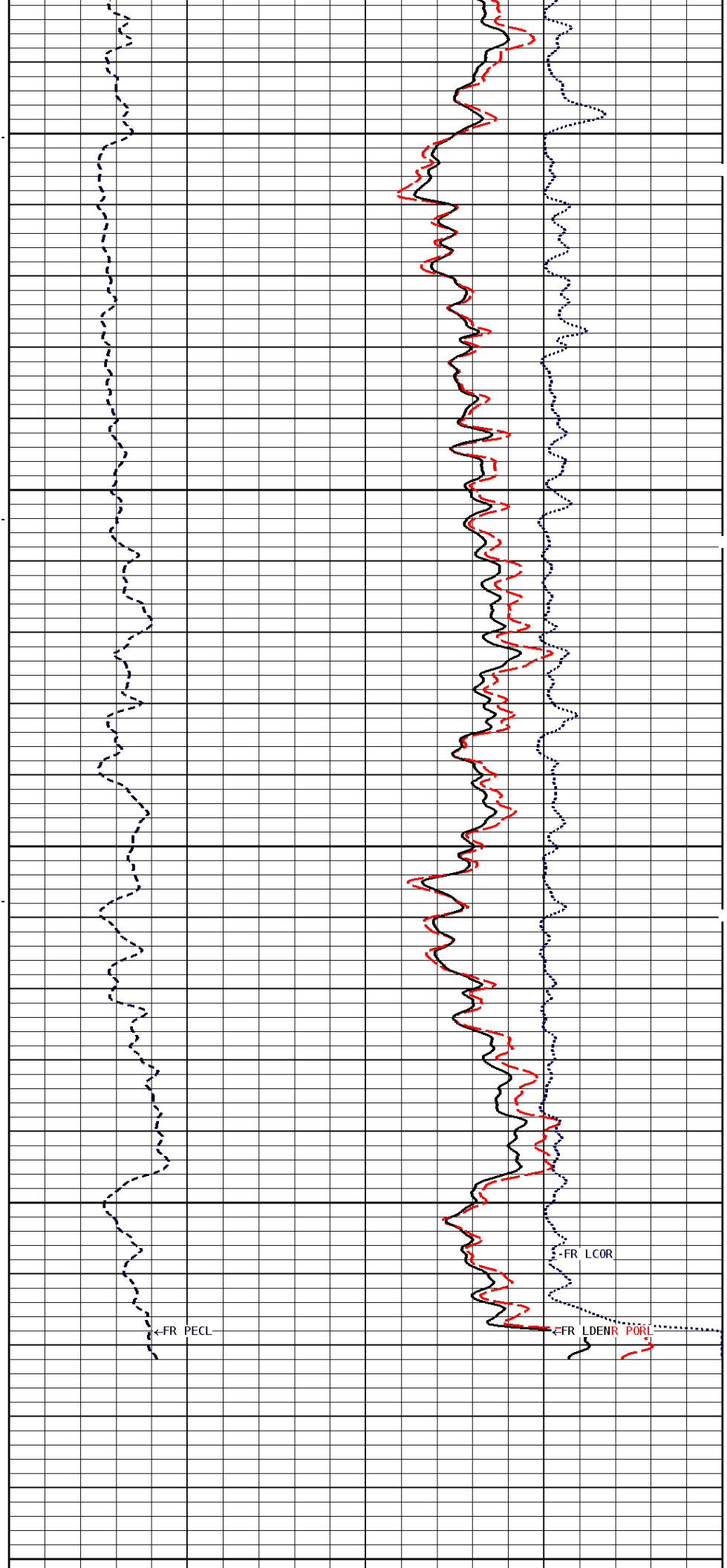
3400

3500

←FR GR

←FR M CAL

←FR LD CAL



←FR PECL

←FR L COR

←FR LDENR PORI

File #1.1.5

1:240 MAIN SECTION BULK DENSITY

GAMMA RAY API UNITS 150 300 0 150	- BHV AHV - CU. FT	DENSITY POROSITY (2.71g/cc) PERCENT 70 30 30 -10 -10 -50		
TENSION LBS 10000 0		COMPENSATED BULK DENSITY G/CC 3.0 4.0 2.0 3.0 1.0 2.0		
DENSITY (X) CALIPER INCHES (IN) 16 26 6 16		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;"> PE CROSS-SECTION BARNS/ELECTRON 0 10 </td> <td style="width: 50%; text-align: center;"> DENSITY CORRECTION G/CC -0.25 0.25 </td> </tr> </table>	PE CROSS-SECTION BARNS/ELECTRON 0 10	DENSITY CORRECTION G/CC -0.25 0.25
PE CROSS-SECTION BARNS/ELECTRON 0 10	DENSITY CORRECTION G/CC -0.25 0.25			
NEUTRON (Y) CALIPER INCHES (IN) 16 26 6 16				
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 : 09-Feb-2018		Time : 11:37		
Sensor Suite : GR-GR5		ID : GRT-BA-14		
	Measured	Units	Calibrated	Units
GR	Background	Jig	Jig	GR-API
	42	309	160	
		CPS		
Shop Calibration CNT-AA				
Performed : 30-APR-2018		Time : 09:27		
Sensor Suite : CALI-BCN		ID : NDT-AC-027		

	Jig - Measured	Jig - Calibrated	Units
CL # 1	Ring#1 Ring#2 9.4 15.5	Ring#1 Ring#2 6.0 12.0	IN.

Performed : 30-Apr-2018 Time : 09:32
 Sensor Suite : BHC NEUT ID : CNP-AA-121
 Source ID : N-1044

	Tank	Verification	Units
	Measured Calibrated	Jig	
N/F	3.9748 3.6893	3.6939	
Porosity	25.1 20.5	20.6	%

**Shop Calibration
LDT-DA**

Performed : 30-APR-2018 Time : 10:26
 Sensor Suite : CALI-LTH ID : PDT-GA-466

	Jig - Measured	Jig - Calibrated	Units
CL # 1	Ring#1 Ring#2 7.9 11.5	Ring#1 Ring#2 6.0 12.0	IN.

Performed : 30-Apr-2018 Time : 10:42
 Sensor Suite : BHCPELNG ID : LDP-DA-41
 Source ID : 63558B

Short Space

	BKGD	Al	Mg	Al+Fe	Units
LSW1	64	1175	1887	765	CPS
LSW2	69	1426	2256	1015	CPS
LSW3	252	3346	5407	2847	CPS
LSW4	310	2951	4288	2605	CPS
LSW5	29	57	67	54	CPS
LSW6	81	87	88	87	CPS
LSW7	53	57	57	58	CPS
LSW8	1	4	7	4	CPS
QS	0.207	0.211	0.214	0.200	
PES			2.778	5.967	
SSDN		2.600	1.680		G/CC

Long Space

	BKGD	Al	Mg	Al+Fe	Units
LLW1	93	1316	5328	796	CPS
LLW2	101	2437	9431	1758	CPS
LLW3	384	4595	17388	3952	CPS
LLW4	506	2118	6915	1912	CPS
LLW5	58	71	143	68	CPS
LLW6	160	152	147	155	CPS
LLW7	102	100	96	101	CPS
LLW8	4	8	21	7	CPS
QL	0.220	0.208	0.208	0.211	
PEL			2.697	5.458	
LSDN		2.600	1.680		G/CC

**Shop Calibration
MST-DA**

Performed : 09-FEB-2018 Time : 11:28
 Sensor Suite : CALI-MSN ID : MST-DA-021

	Jig - Measured	Jig - Calibrated	Units
CL # 1	Ring#1 Ring#2 8.4 12.7	Ring#1 Ring#2 6.0 12.0	IN.

Performed : 09-FEB-2018 Time : 11:11
 Sensor Suite : MSTDA-NI ID : MST-DA-021

Internal

	Measured	Units	Calibrated	Units
	Zero Reference		Zero Reference	
INV-V	0.0 30239.2		0.00 1546.00	MV
NOR-V	3.9 30805.8		0.00 1646.00	MV
IN-C	0.0 29403.5		0.00 15.46	UA
INV-R			32.34	OHMM
NOR-R			58.67	OHMM

Performed : 09-FEB-2018 Time : 11:28
 Sensor Suite : MSTDAMSF ID : MST-DA-021

Internal

	Measured	Units	Calibrated	Units
	Zero Reference		Zero Reference	
MSFC	35.0 62277.7		0.00 1522.00	UA
MSFB	13098.0 44123.4		0.00 1522.00	MA
MOM1	0.0 64536.5		0.00 1522.00	MV



Company: VAL ENERGY, INC
Well: WERNER #4-31 OWWO
Location: 1650' FWL & 2310' FNL
Logged: 05-10-2018
K.B. Elev: 1303.0 Ft