



Tucker

ENERGY SERVICES

COMPOSITE LOG

Company ENTRANSCO ENERGY, LLC Well T. WIEBE #31-1 SWD Field HAZLETT County BUTLER State KS Country USA API No. 15-015-24118-00-00		File No : TUL-61373 Company : ENTRANSCO ENERGY, LLC Well : T. WIEBE #31-1 SWD Field : HAZLETT County : BUTLER State : KS Country : USA API No : 15-015-24118-00-00	
Location : 120' FNL & 540' FEL NW NE NE NE		LSD : Sect : 31 Twp : 23S Rge : 5E	
Permanent Datum:	GL	Elevations:	Services:
Drilling Measured From:	KB	KB 1475.00	CNT
Log Measured From:	KB	DF 1474.00	LDT
Above Permanent Datum:	0.00 Ft	GL 1469.00	MLT
Date	12-04-2018		
Run Number	0		
Depth--Driller	3100.0 Ft		
Depth--Logger	3098.0 Ft		
First Reading	3097.0 Ft		
Last Reading	214.0 Ft		
Casing--Driller	214.0 Ft		
Casing--Logger	214.0 Ft		
Bit Size	7.875 In		
Casing Size	8.625 In		
Hole Fluid Type	WBM		
Density	9.5		
Fluid Loss	9.6		
PH/Viscosity	10.0	40.0	
Sample Source	MEASURED		
RM@Measured Temp.	2.700 @ 70 F		
RMF@Measured Temp	2.300 @ 70 F		
RM@Measured Temp.	3.110 @ 70 F		
Source RMF/RMC	CALCULATED/CALCULATED		
RM@BHT	1.910 @ 102 F		
Time Circulation Stopped	12-05-2018 8:00 pm		
Max Recorded Temp.	102 F		
Equipment/Base	TRK-126	TULSA	
Recorded By	B.BAILEY		
Witnessed By	G.GILBERT		

The customer is hereby warned that by providing the log data herein, T. E. S. does not agree to provide any interpretation of log data, conversion of log data to physical rock parameters or recommendations. T. E. S. 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 T. E. S. 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 T. E. S. 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	3100.00	8.625	17.00	214.00	0.00

Run Number	0	
Date	12-04-2018	
Date/Time On Bottom	12-04-2018 11:30 pm	
Depth to Fluid	0.0 Ft	
Salinity	0.000	
RMF@BHT	1.620 @ 102 F	
RMC@BHT	2.190 @ 102 F	

Run Number 0

Comments

ALL PRESENTATIONS AS PER CUSTOMER REQUEST.

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

2.71 G/CC DENSITY MATRIX USED TO CALCULATE POROSITY.

5.50" PRODUCTION CASING USED TO CALCULATE ANNULAR HOLE VOLUME.

CALIPERS ORIENTED ON X-Y AXIS.

PHIN IS CALIPER CORRECTED

GRT: GRP

CNT: PHIN, PHINDOL, CLCNIN

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

MLT: NOR_RF, INV_RF, MSCLPIN

PIT: ILD, ILM, SFLAEC, SPU, CIRD

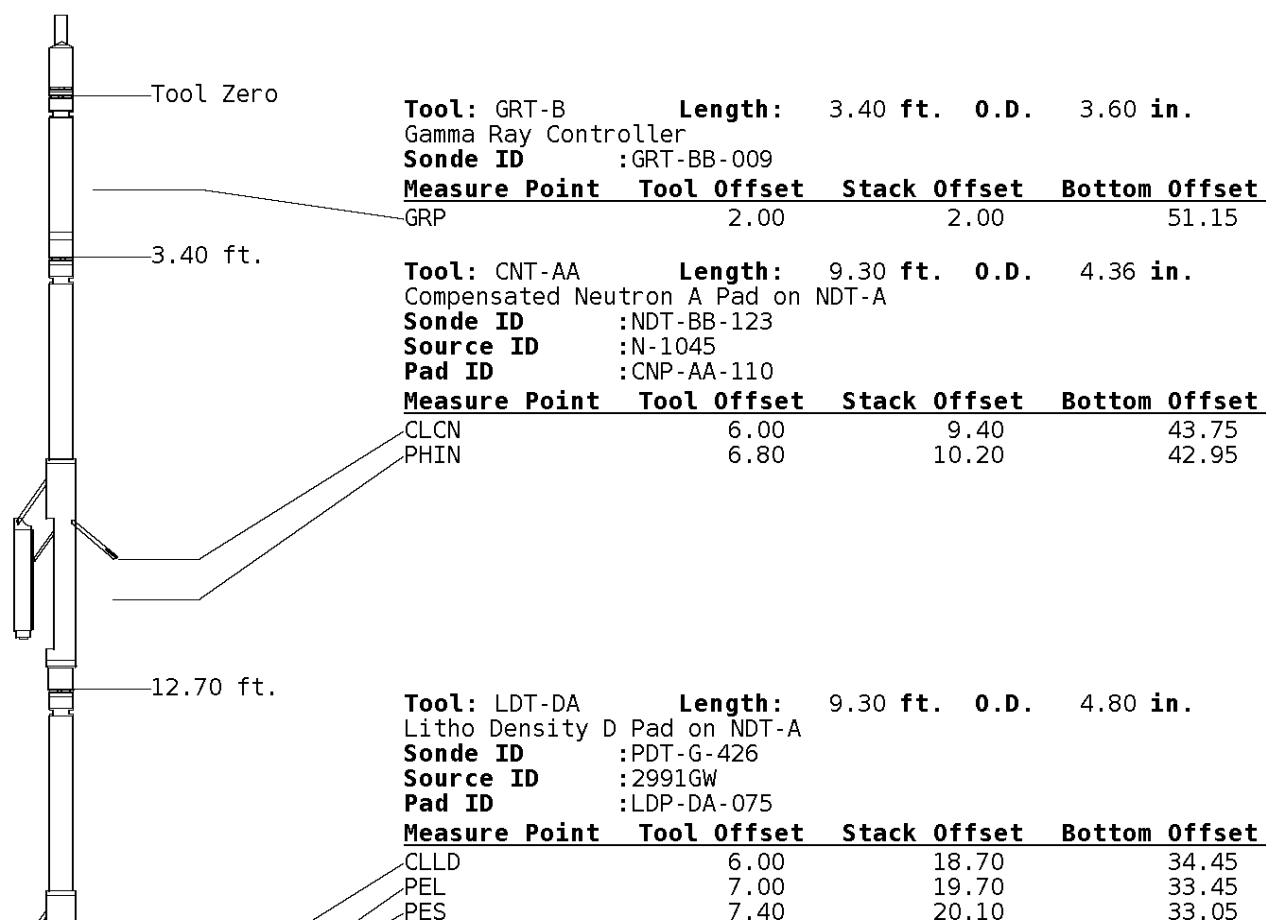
OPERATORS:

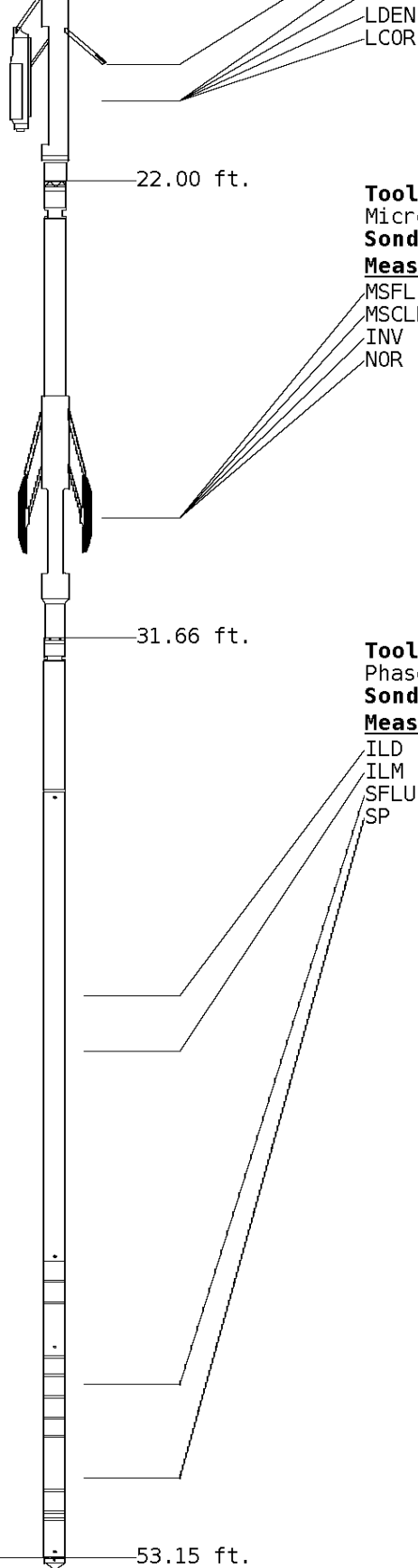
R.NITZ

B.BROWN

Tool String Schematic

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





Tool: MST-DA Length: 9.66 ft. O.D. 6.00 in.
Micro Spherically Focused (IC,D)
Sonde ID :MST-DA-28

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-AC-043

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: entransco_t_wiebe_31-1_swd_dec4_mst

Scale: 1:240

Format: COMSAT

Segment: V1.D1.S4 mn

Acquired: 2018-12/04 23:41 3.4.0-13756

Reference: 0

Processed: 2018-12/04 23:41 3.4.0-13756

CALIPER MICRO
INCHES (IN)

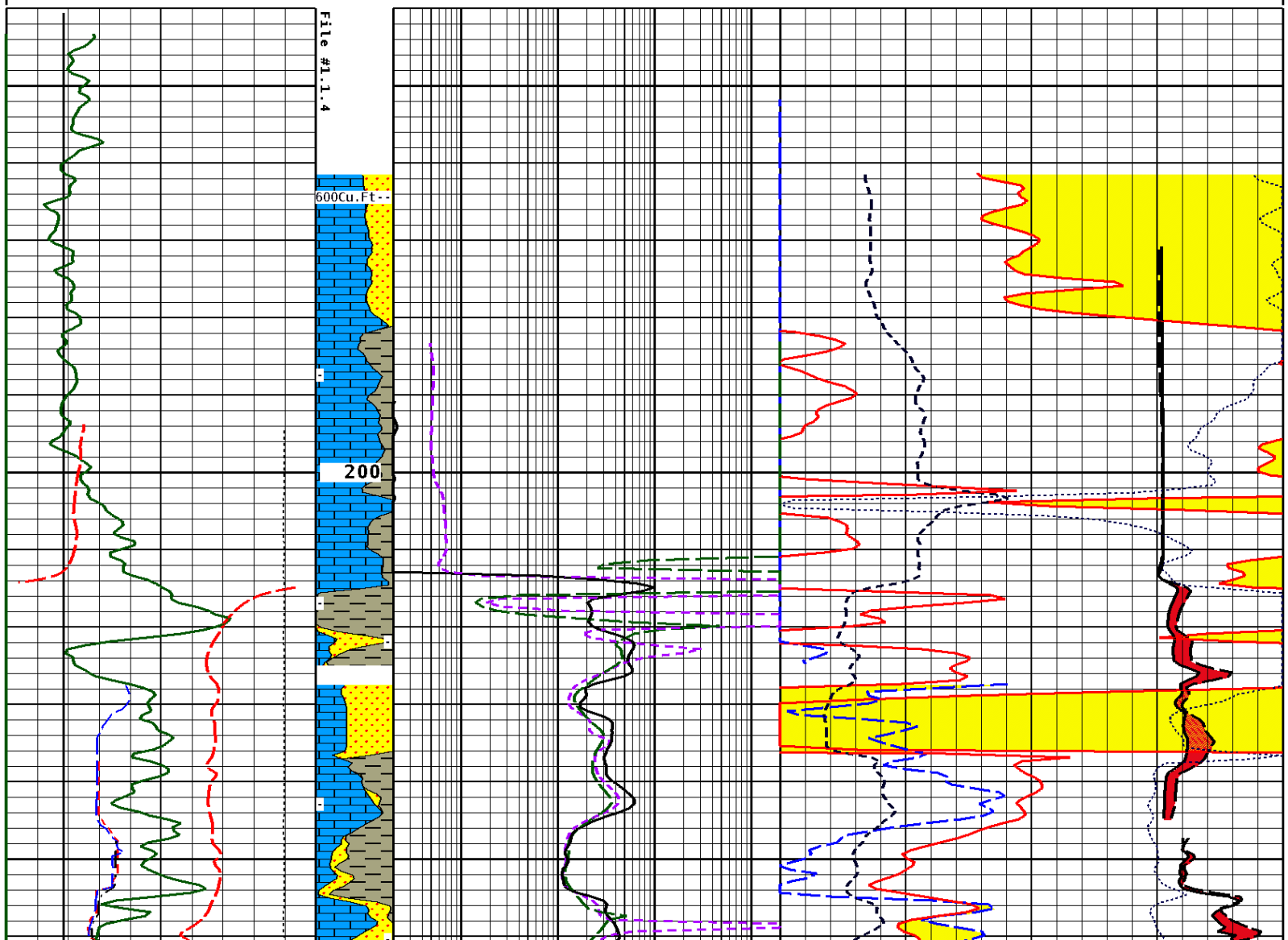
16 26
6 16

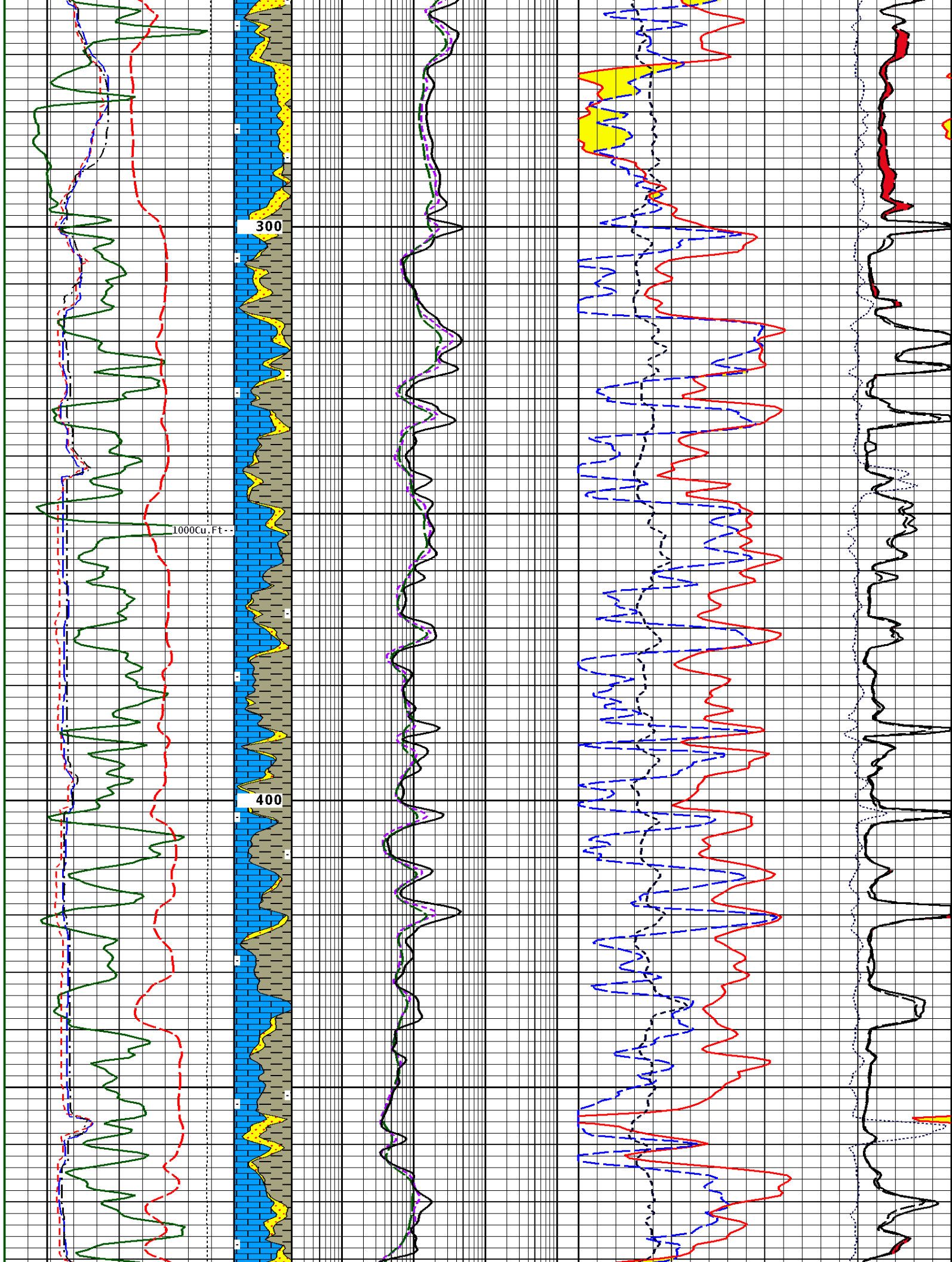
BIT SIZE
INCHES (IN)

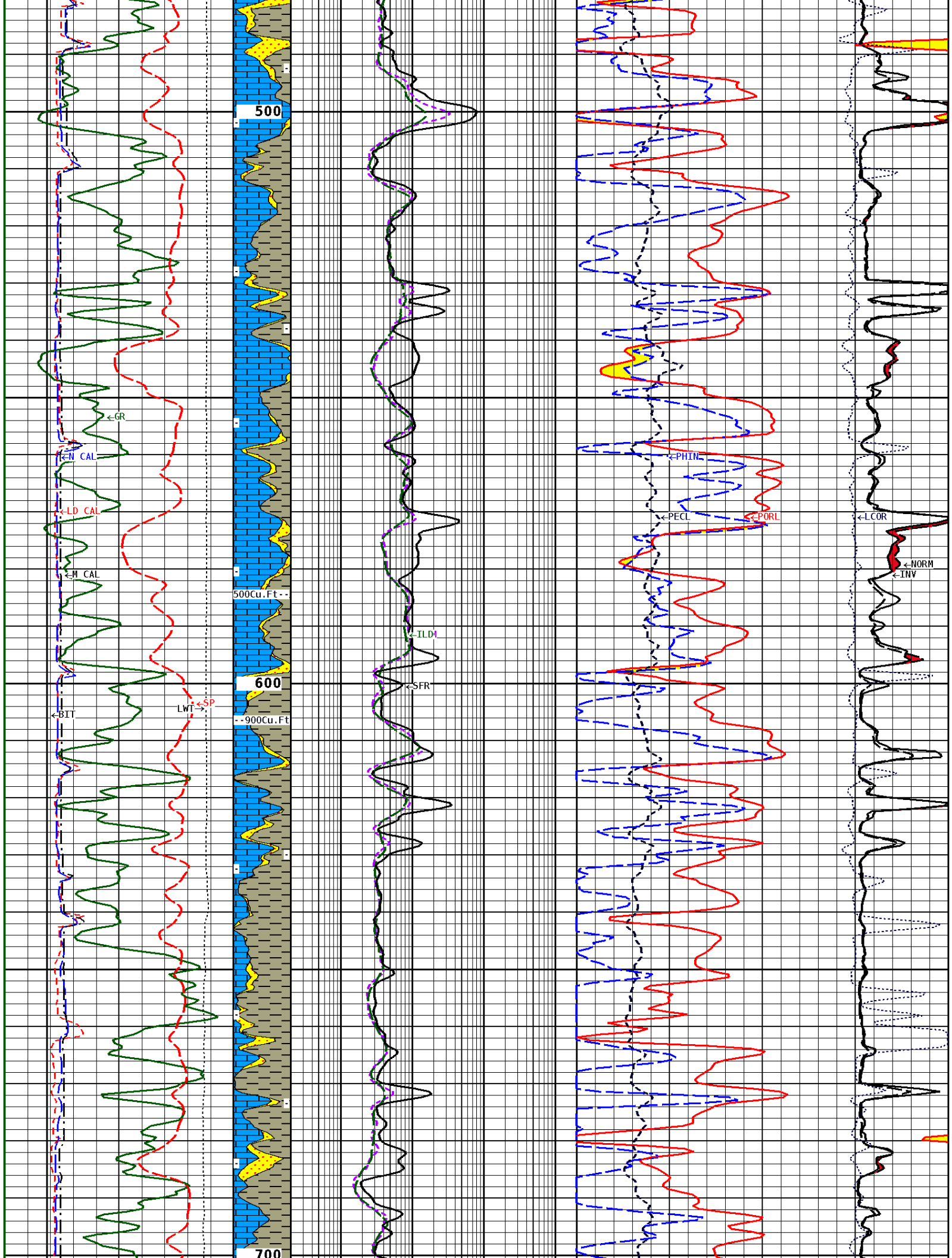
NORMAL
OHMM

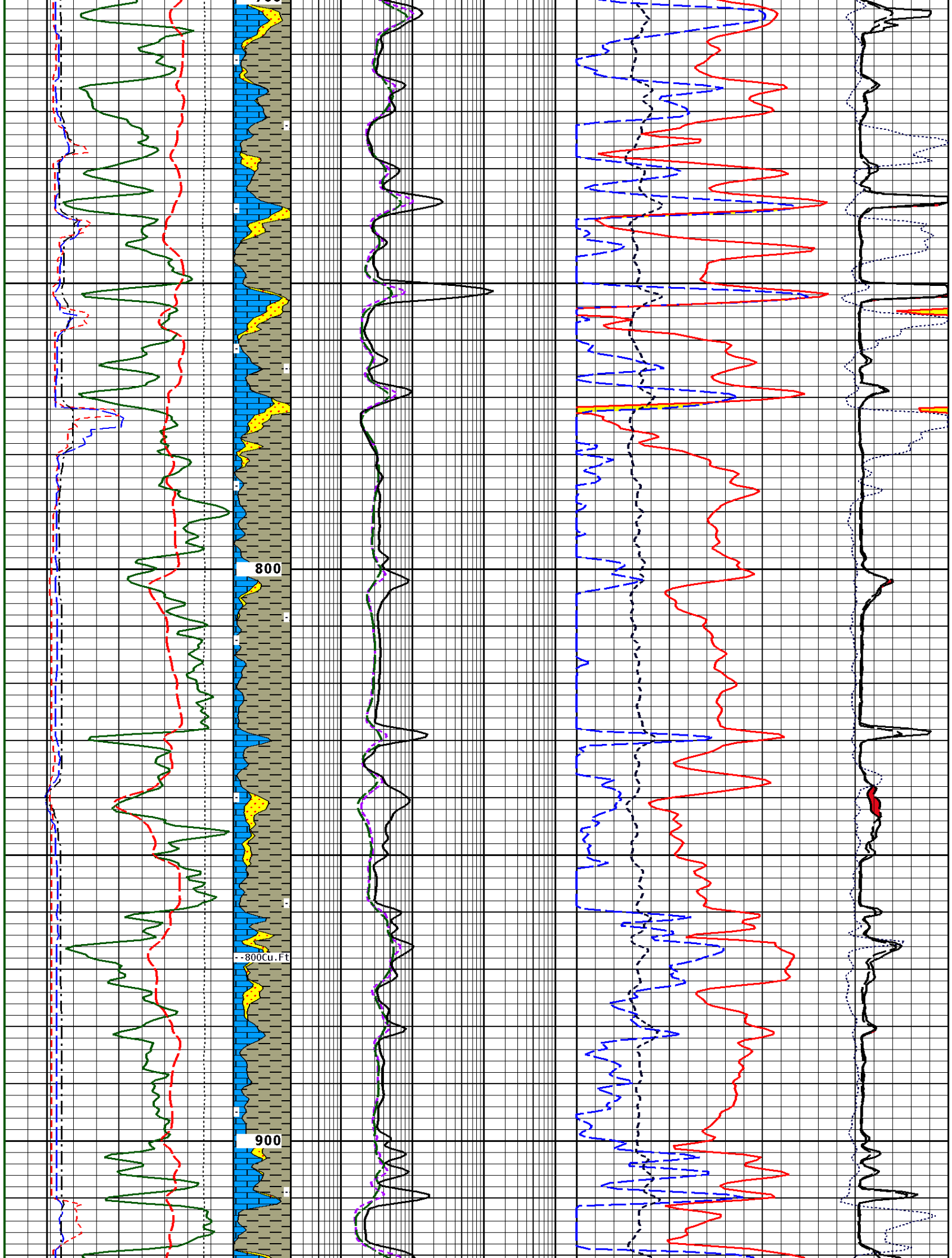
6	16			0	40
NEUTRON (Y) CALIPER INCHES (IN)				INVERSE OHMM	
16	26			0	40
6	16				
DENSITY (X) CALIPER INCHES (IN)		Volume Quartz		DENSITY CORRECTION G/CC	
16	26			-0.75	0.25
6	16				
TENSION LBS		Volume Calcite	SHALLOW FOCUSED RESISTIVITY OHMM	PE CROSS-SECTION BARNES/ELECTRON	
10000	0		0.2	2000.0	0
					20
SPONTANEOUS POTENTIAL mV		Volume Dolo/Shale	DEEP INDUCTION OHMM	DENSITY POROSITY (2.71g/cc) PERCENT	
→ ← 20			0.2	2000.0	70
					30
					-10
					-50
GAMMA RAY API UNITS		BHV AHV CU.FT	MEDIUM INDUCTION OHMM	NEUTRON POROSITY (LIMESTONE) PERCENT	
150	300		0.2	2000.0	30
0	150				-10

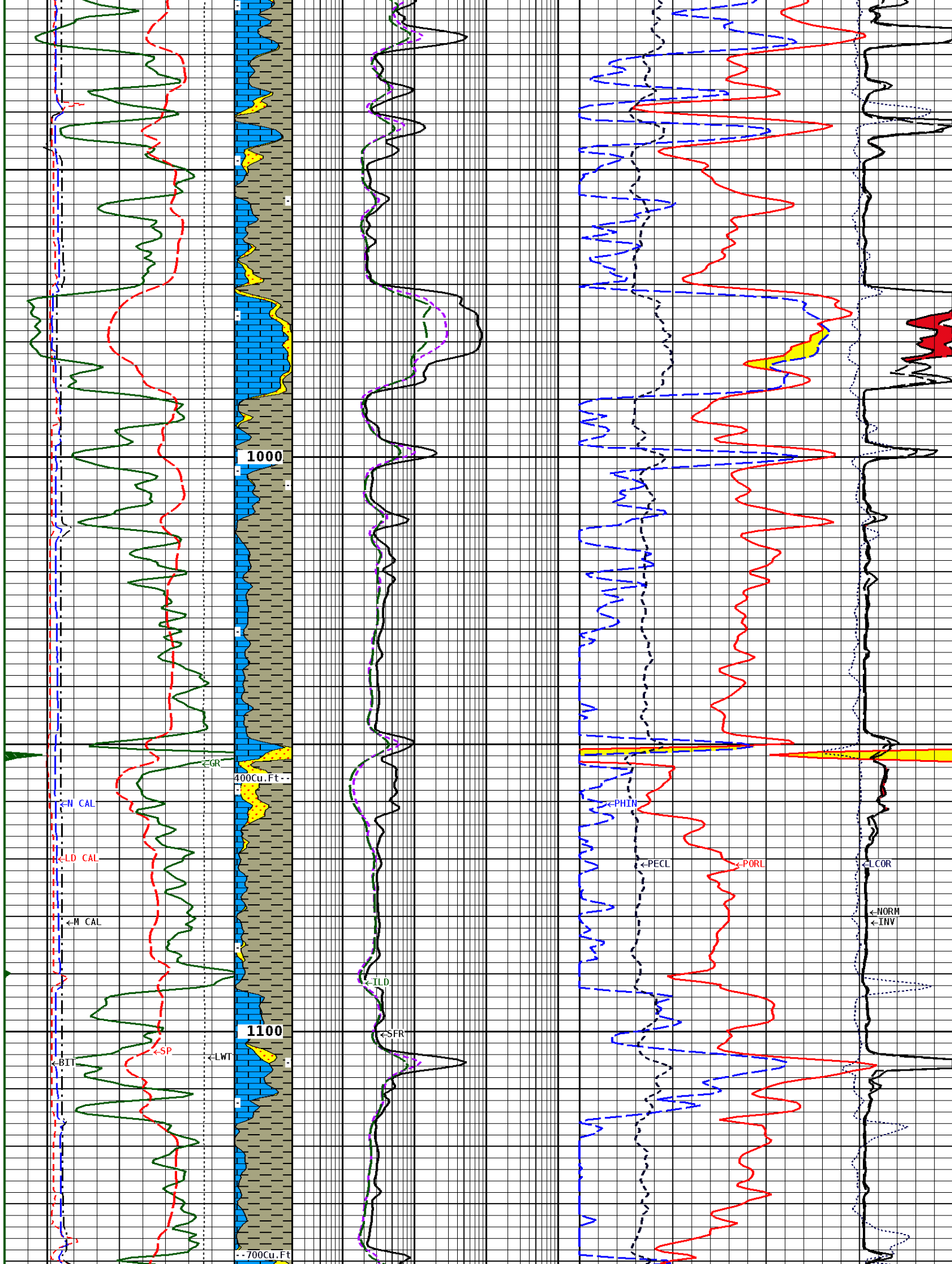
1:240 MAIN SECTION

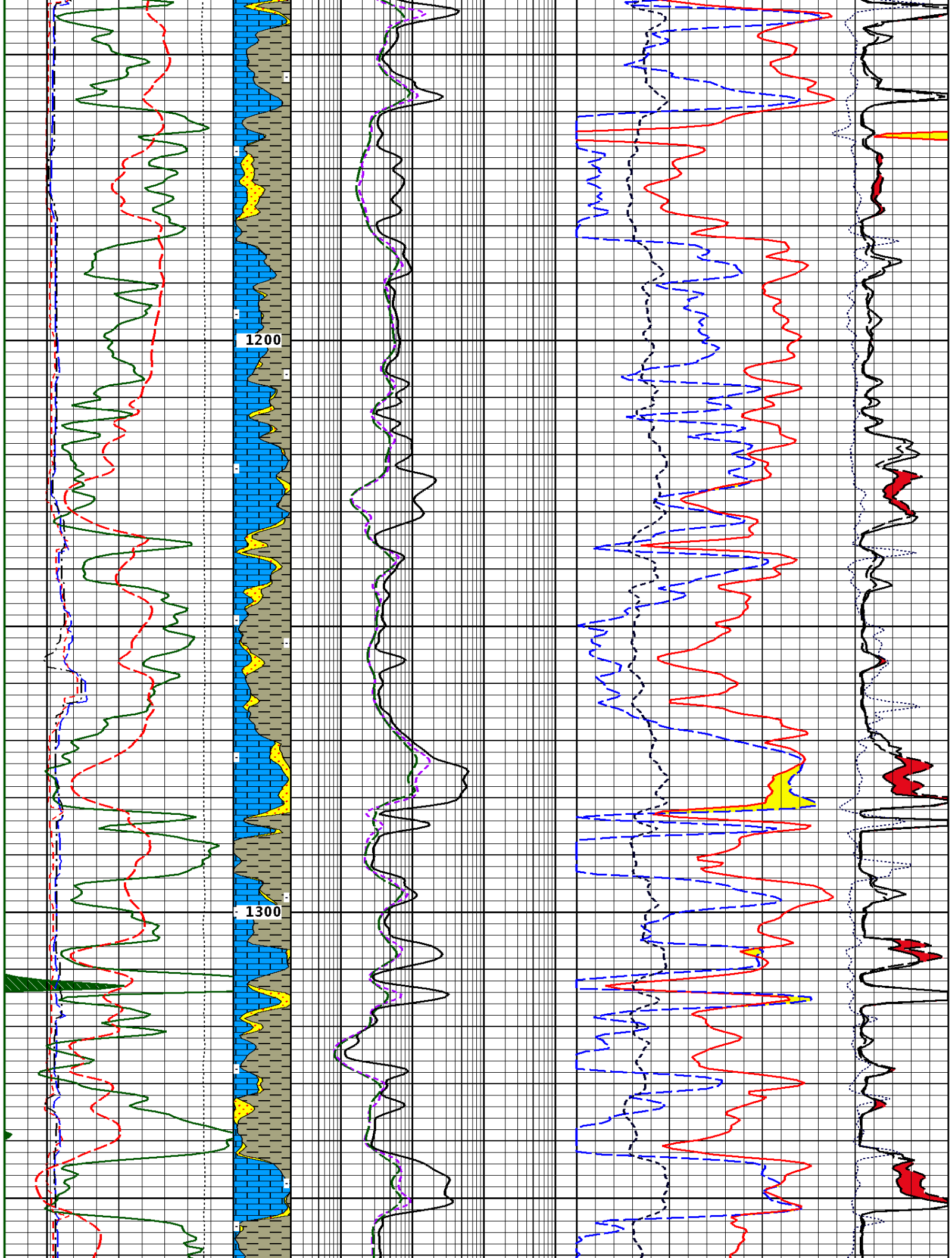


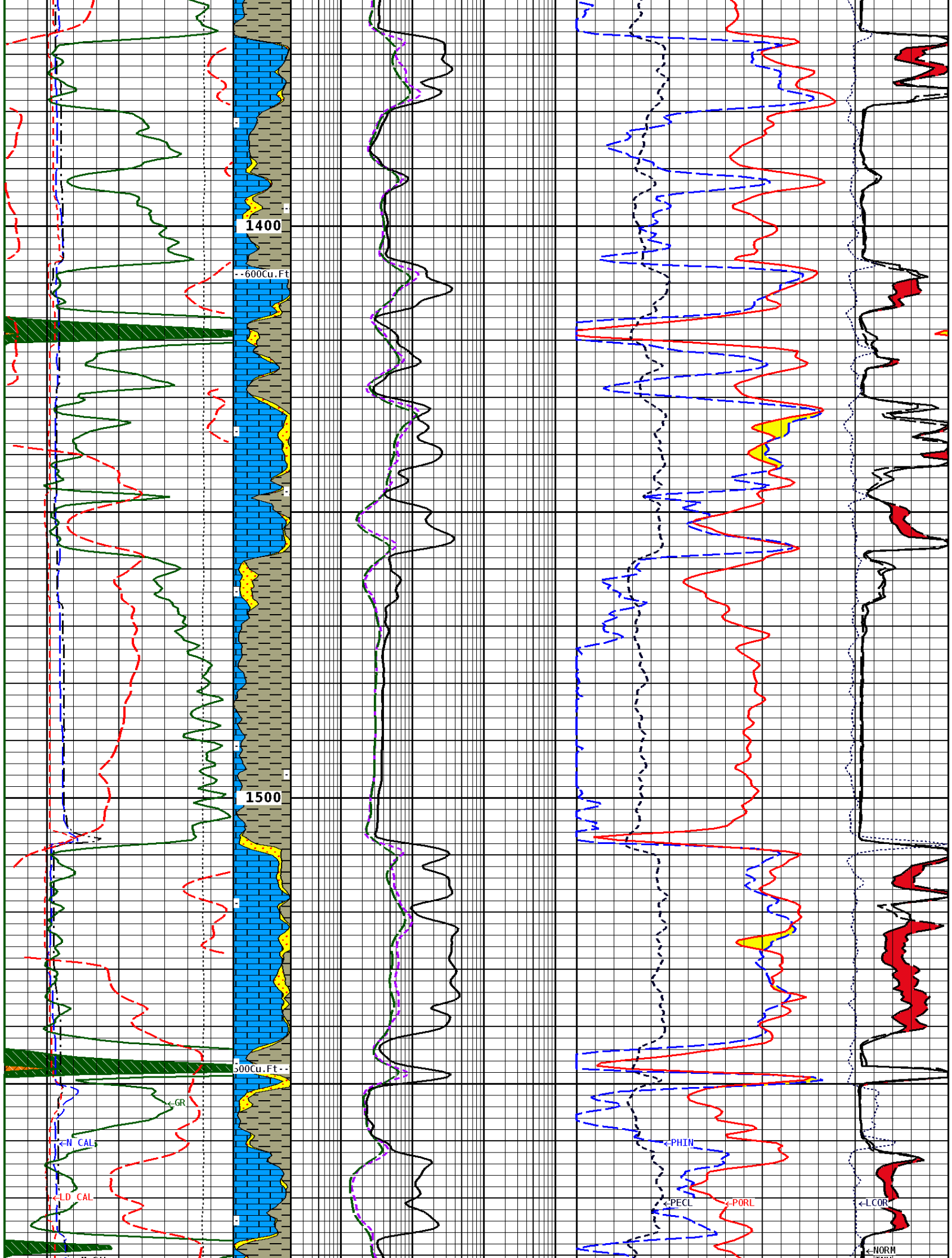


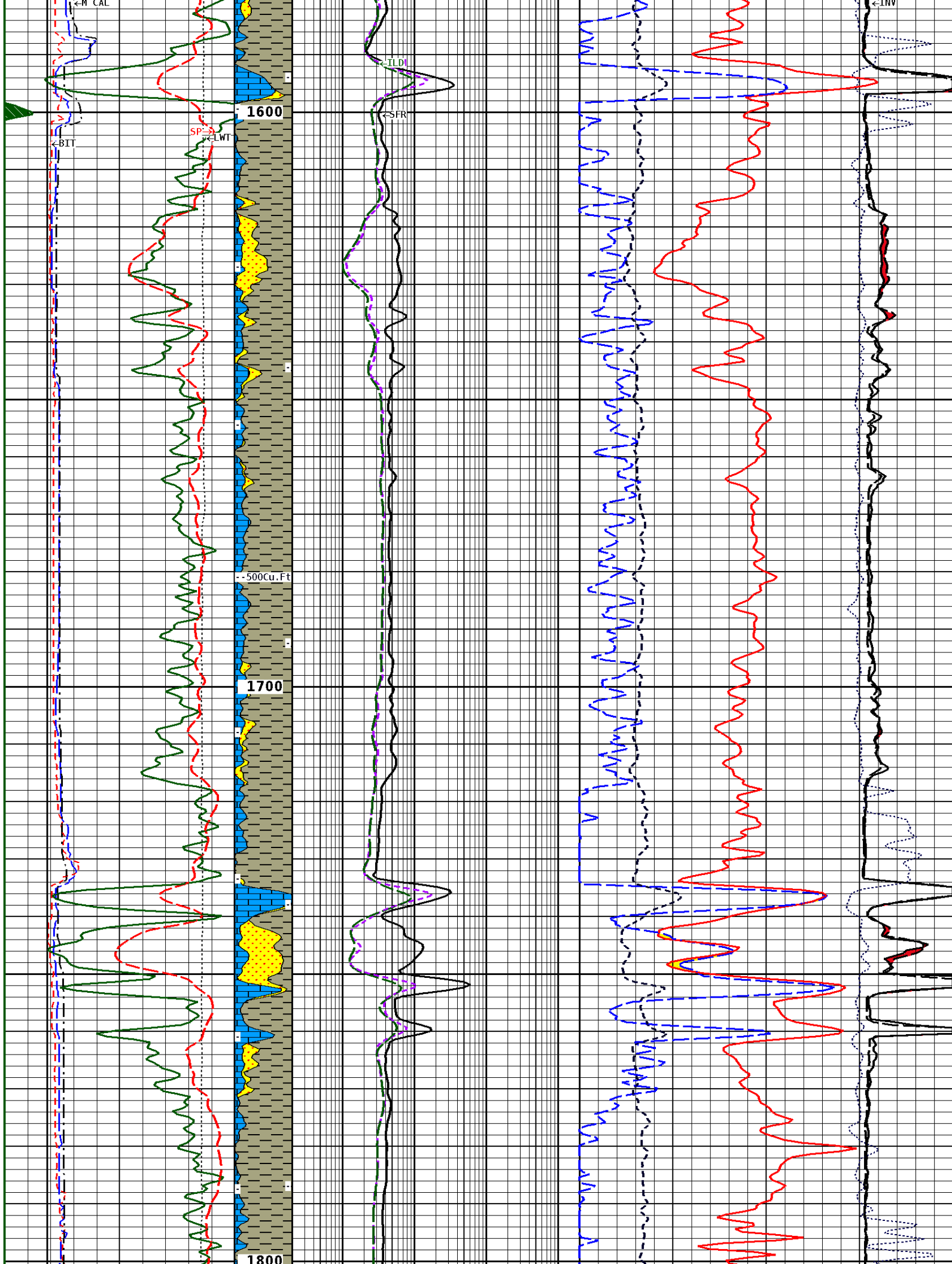


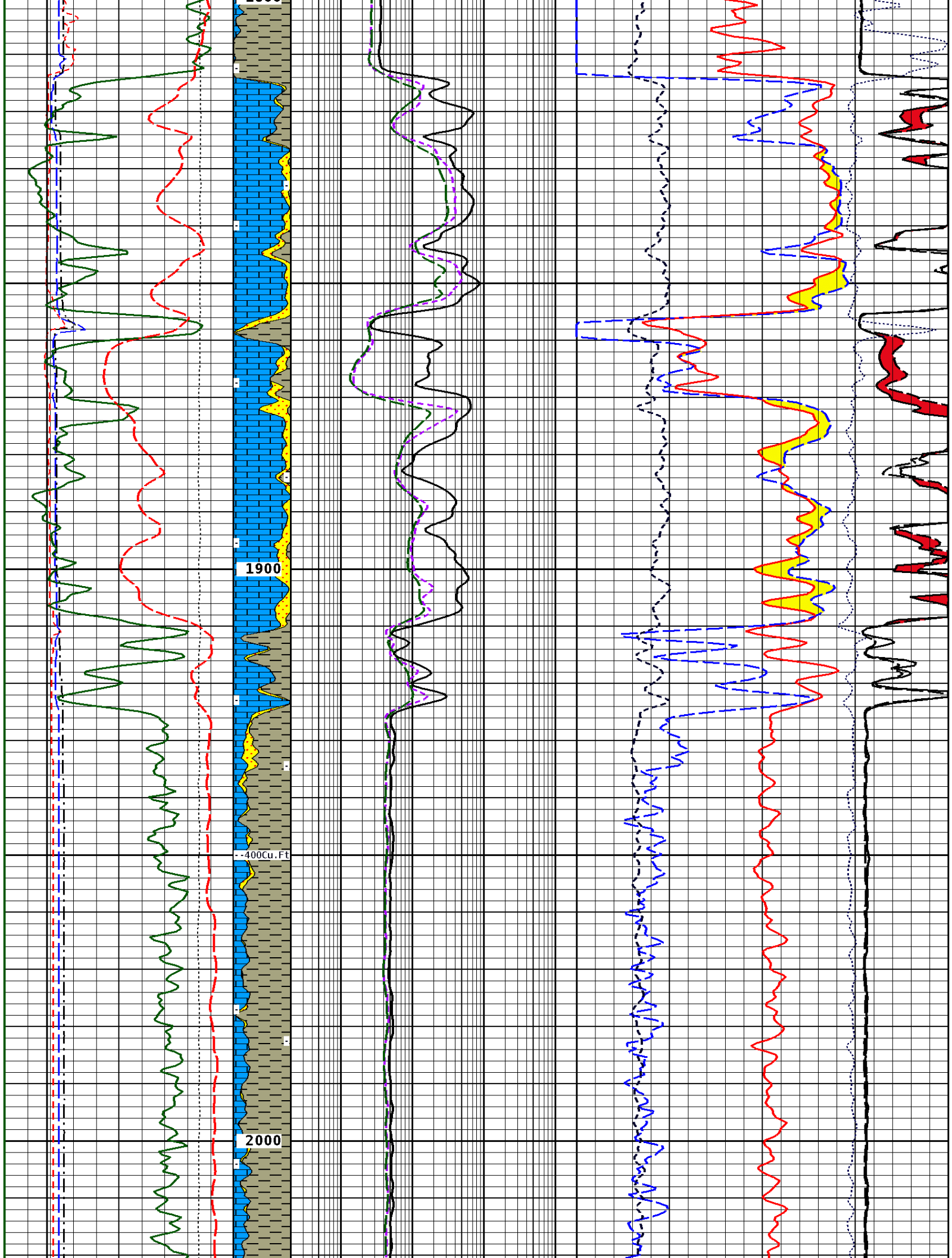


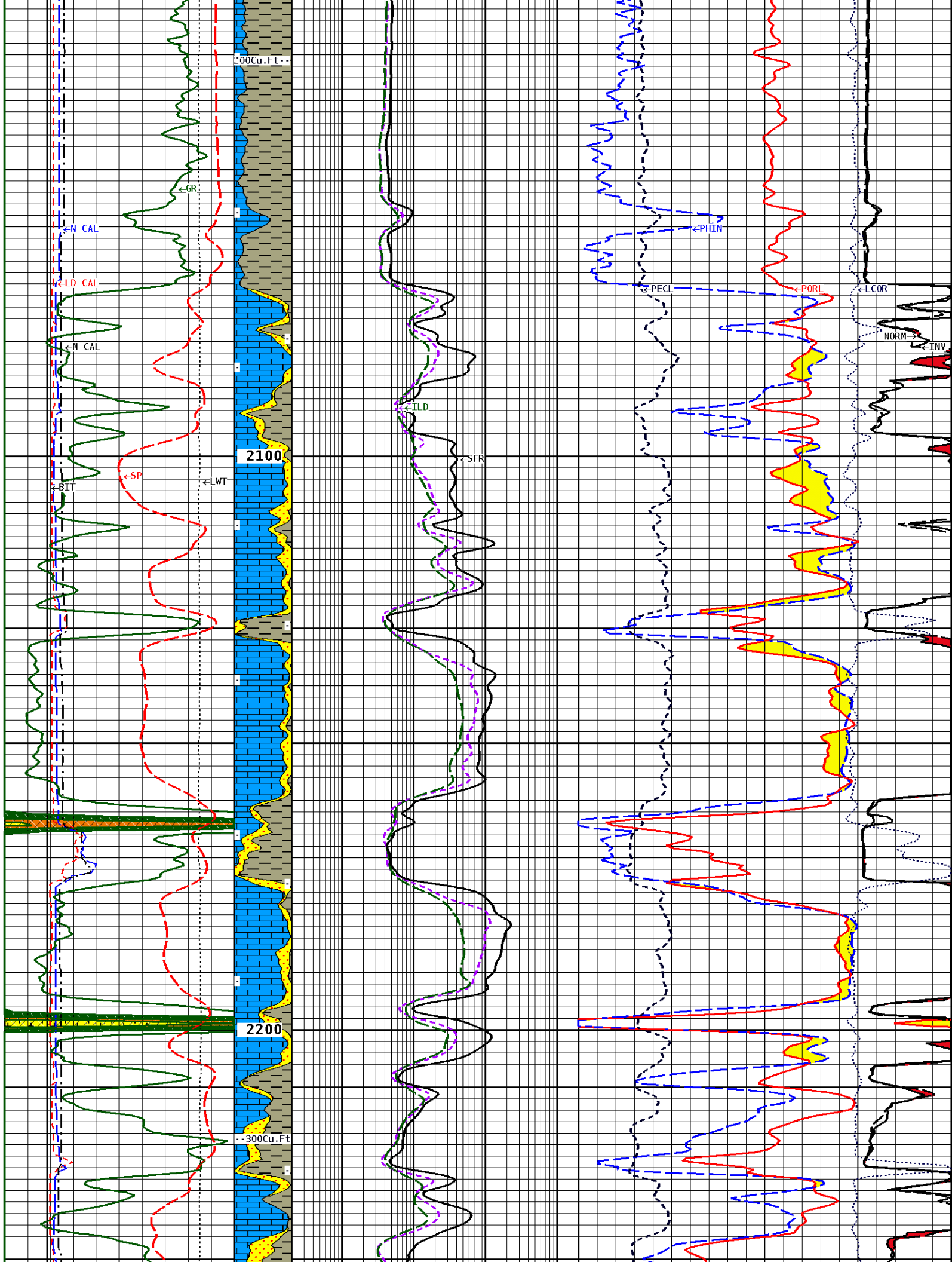


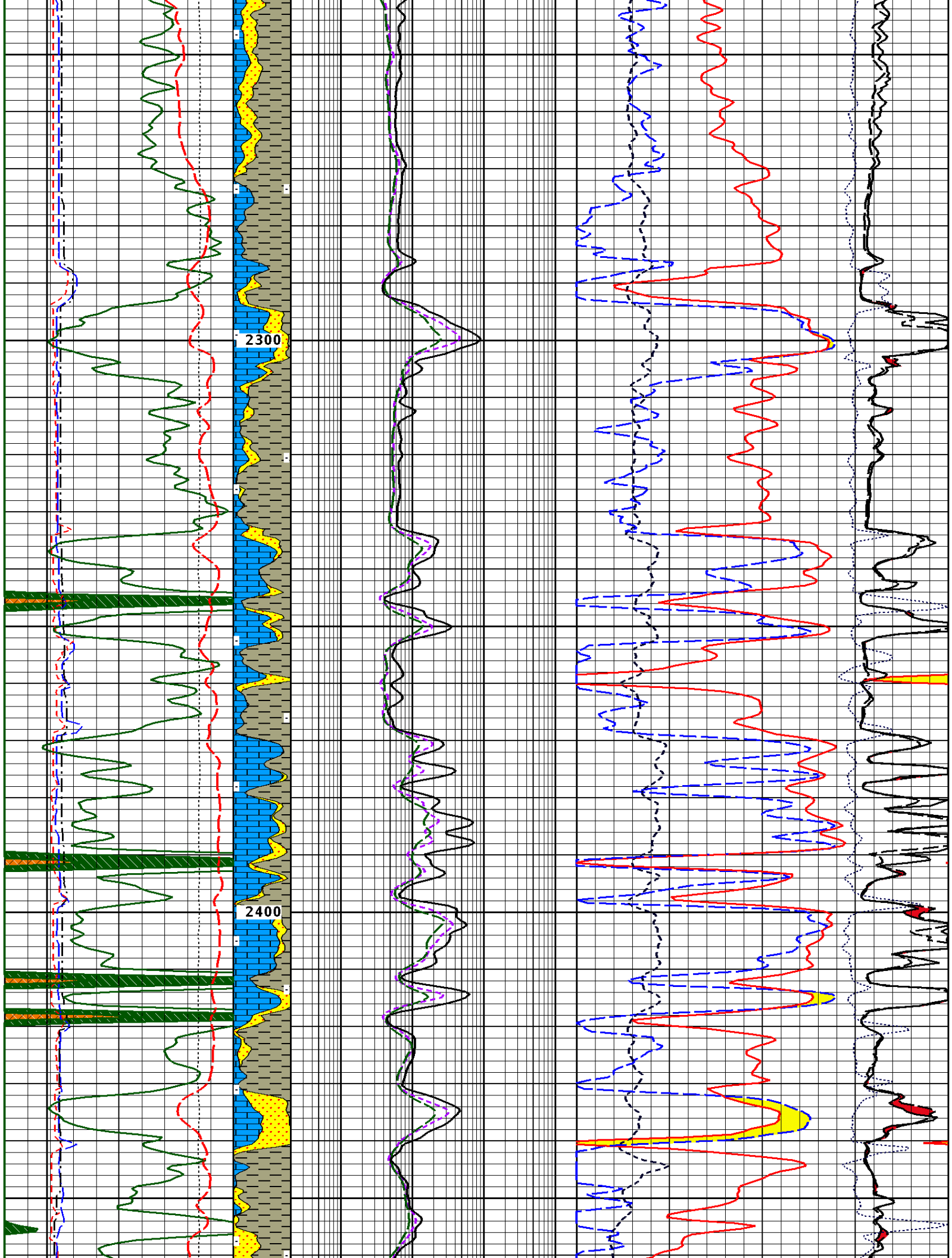


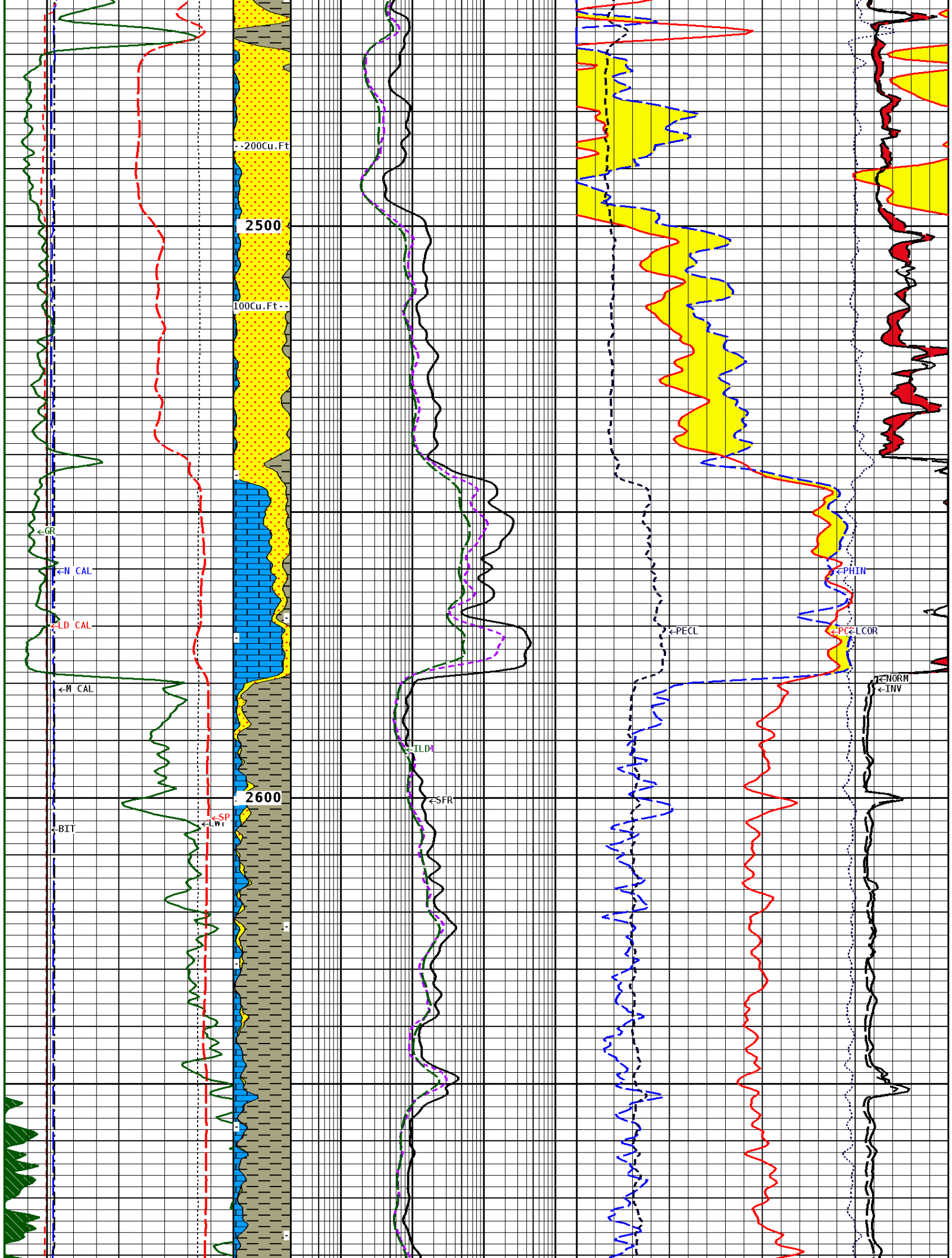


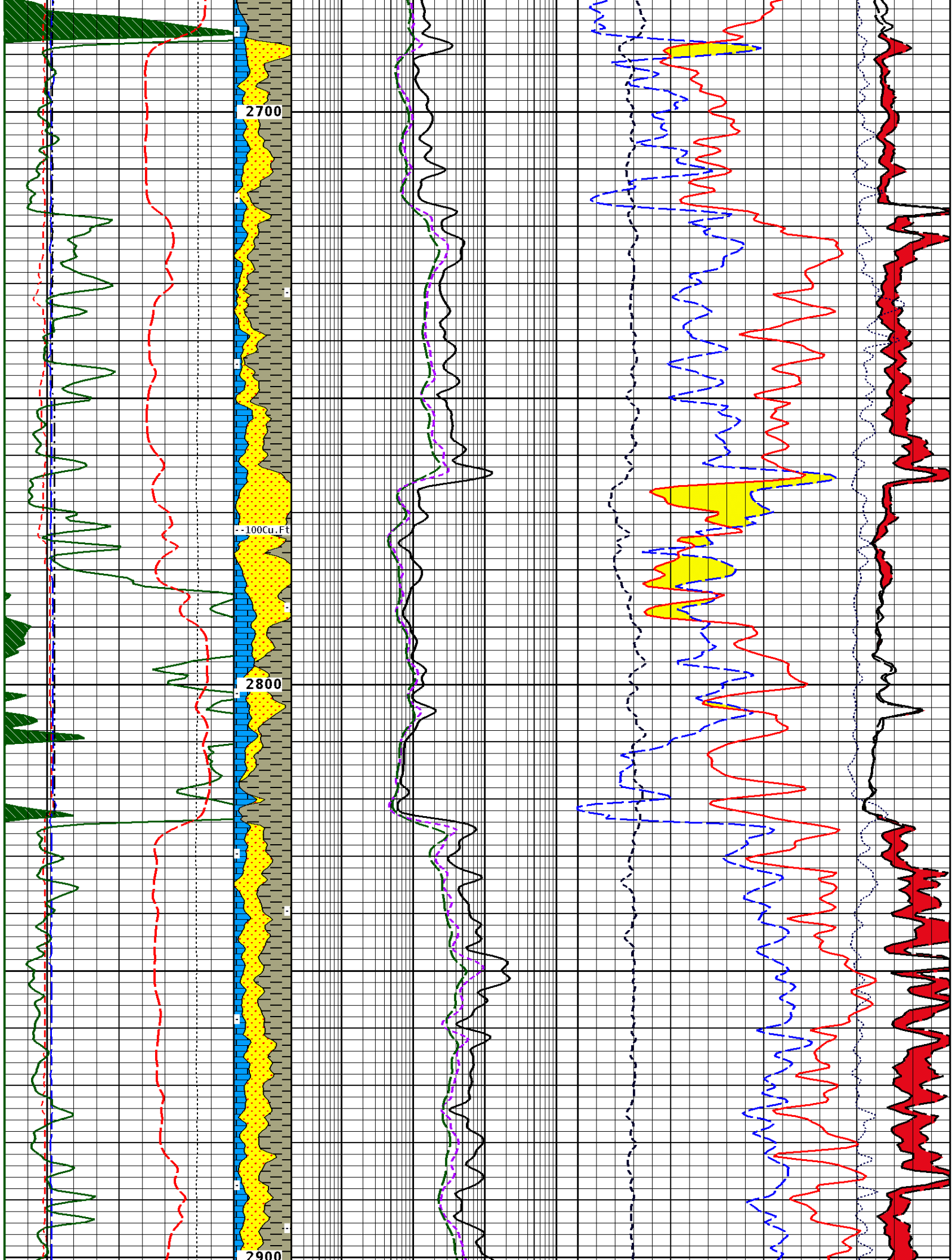


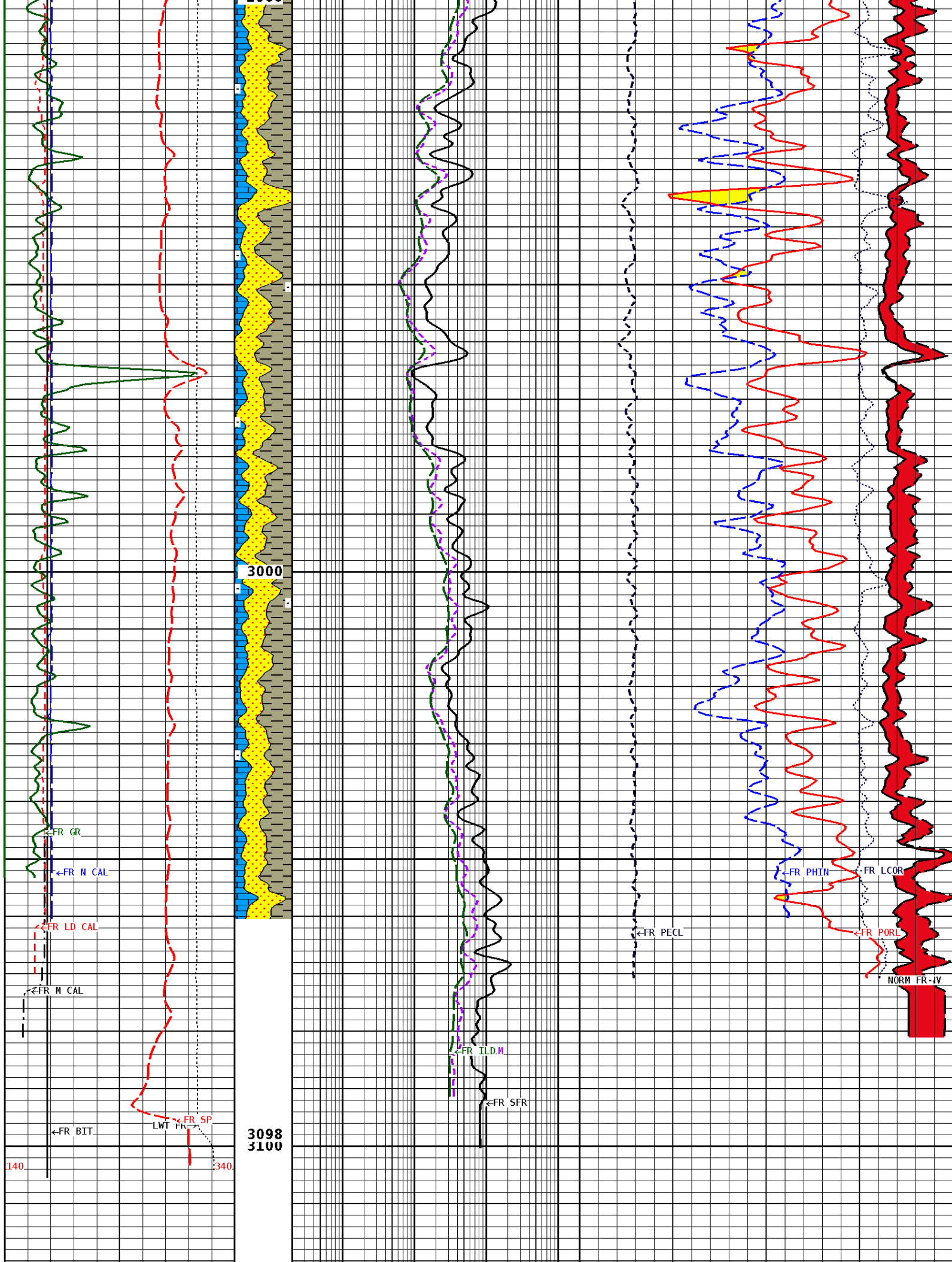






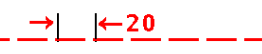






File #1.1.4

1:240 MAIN SECTION

GAMMA RAY API UNITS 	BHV AHV CU. FT	MEDIUM INDUCTION OHMM 0.2 2000.0	NEUTRON POROSITY (LIMESTONE) PERCENT 30 -10
SPONTANEOUS POTENTIAL mV 	Volume Dolo/Shale	DEEP INDUCTION OHMM 0.2 2000.0	DENSITY POROSITY (2.71g/cc) PERCENT 70 30 -10 -50
TENSION LBS 10000 0	Volume Calcite	SHALLOW FOCUSED RESISTIVITY OHMM 0.2 2000.0	PE CROSS-SECTION BARNS/ELECTRON 0 20
DENSITY (X) CALIPER INCHES (IN) 16 26 6 16	Volume Quartz		DENSITY CORRECTION G/CC -0.75 0.25
NEUTRON (Y) CALIPER INCHES (IN) 16 26 6 16			INVERSE OHMM 0 40
BIT SIZE INCHES (IN) 6 16			NORMAL OHMM 0 40
CALIPER MICRO INCHES (IN) 16 26 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 Thickness	0.250	in
Casing Correction (PHI N)	Disable	
Hole Substance	Fluid	
BHT Depth	3100.000	ft
Borehole Temperature	102.0	degF
Temperature Gradient	1.00	DFHF
Resistivity Of Mud	2.700	ohmm
MSTNG Normal Correction	0.00	ohmm
MSTNG Inverse Correction	0.00	ohmm

Well File: entransco t wiebe 31-1_swd_dec4_mst

Scale: 1:240

Format: COMSAT

Segment: V1.D1.S3 re

Acquired: 2018-12/04 23:27 3.4.0-13756

Reference: 0

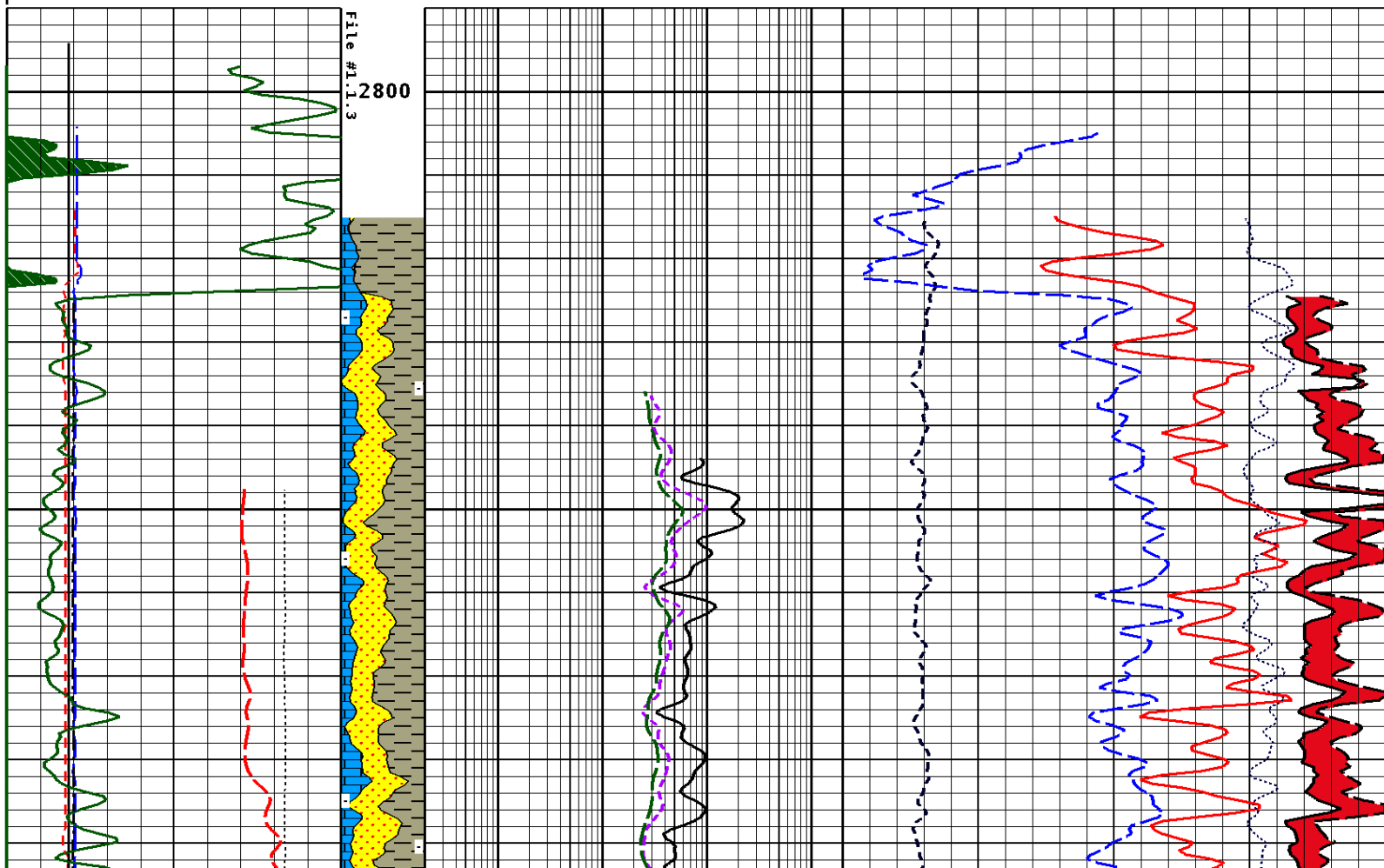
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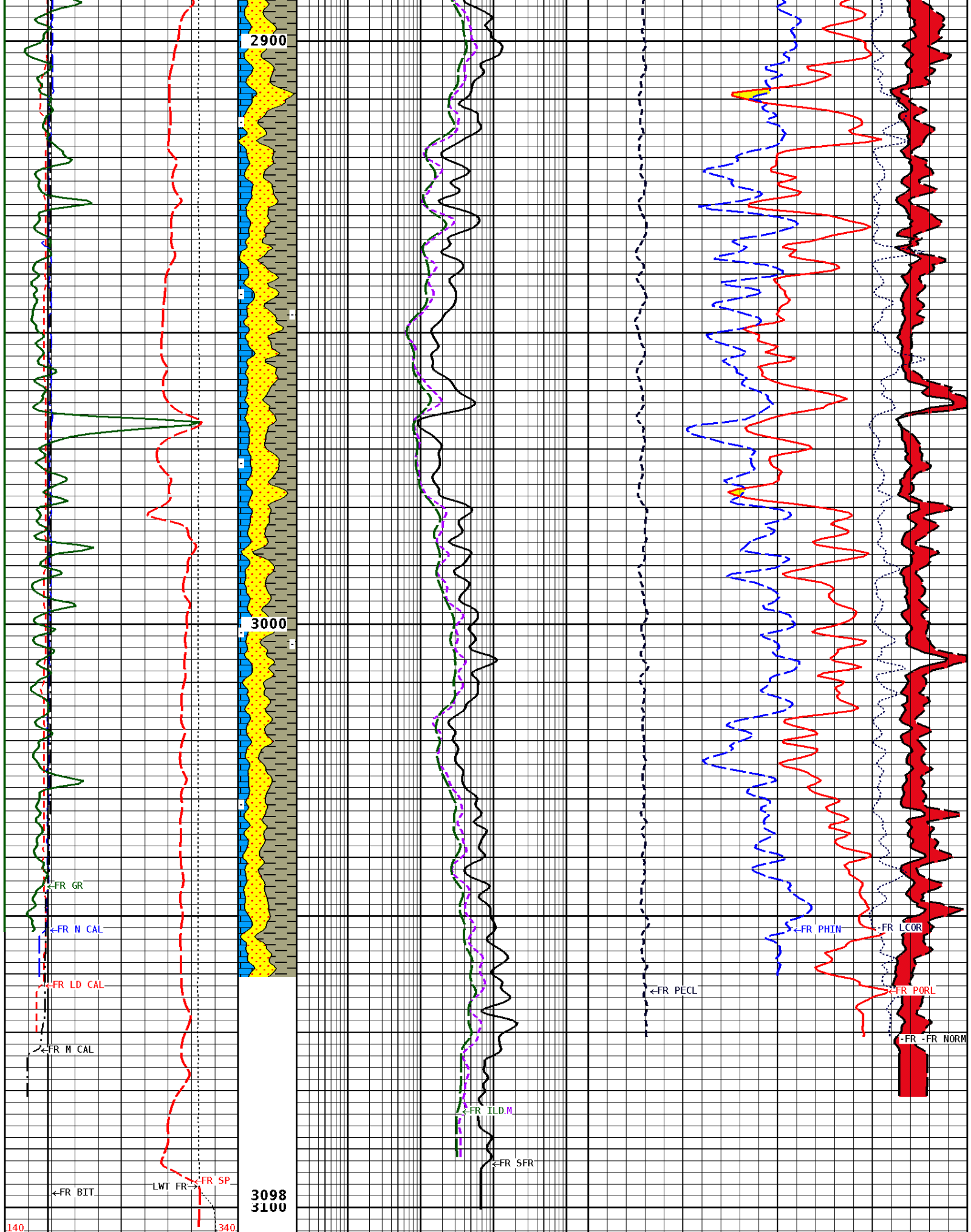
CALIPER MICRO

INCHES (IN)

INCHES (IN)		16		26	
6		16			
BIT SIZE INCHES (IN)		6		16	
NEUTRON (Y) CALIPER INCHES (IN)		16		26	
6		16		16	
DENSITY (X) CALIPER INCHES (IN)		16		26	
6		16		16	
		Volume Quartz		DENSITY CORRECTION G/CC	
				-0.75 0.25	
TENSION LBS		Volume Calcite		SHALLOW FOCUSED RESISTIVITY OHMM	
10000		0		0.2 2000.0 0 20	
				PE CROSS-SECTION BARNs/ELECTRON	
SPONTANEOUS POTENTIAL mV		Volume Dolo/Shale		DEEP INDUCTION OHMM	
→ ← 20				0.2 2000.0	
				DENSITY POROSITY (2.71g/cc) PERCENT	
				70 30 -10 -50	
GAMMA RAY API UNITS		BHV AHV CU. FT		MEDIUM INDUCTION OHMM	
150 0 300 150				0.2 2000.0	
				NEUTRON POROSITY (LIMESTONE) PERCENT	
				30 -10	

1:240 REPEAT SECTION





File #1.1.3

1:240 REPEAT SECTION

GAMMA RAY API UNITS 150 0 300 150	BHV AHV CU. FT	MEDIUM INDUCTION OHMM 0.2 2000.0	NEUTRON POROSITY (LIMESTONE) PERCENT 30 -10
SPONTANEOUS POTENTIAL mV → ← 20	Volume Dolo/Shale	DEEP INDUCTION OHMM 0.2 2000.0	DENSITY POROSITY (2.71g/cc) PERCENT 70 30 -10 -50
TENSION LBS 10000 0	Volume Calcite	SHALLOW FOCUSED RESISTIVITY OHMM 0.2 2000.0	PE CROSS-SECTION BARNs/ELECTRON 0 20
DENSITY (X) CALIPER INCHES (IN) 16 6 26 16	Volume Quartz		DENSITY CORRECTION G/CC -0.75 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			

* 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	
Hole Substance			Fluid	
BHT Depth			3100.000	ft
Borehole Temperature			102.0	degF
Temperature Gradient			1.00	DFHF
Resistivity Of Mud			2.700	ohmm
MSTNG Normal Correction			0.00	ohmm
MSTNG Inverse Correction			0.00	ohmm

* Calibration Summary *

Shop Calibration GRT-B Performed : 01-OCT-2018 Time : 10:33 Sensor Suite : GR-GR5 ID : GRT-BB-009						
GR	Background	Measured Jig 58 336	Units CPS	Calibrated Jig 160	Units GRAPI	
Shop Calibration CNT-AA Performed : 01-OCT-2018 Time : 12:20 Sensor Suite : CALI-BCN ID : NDT-BB-123						
CL # 1	Jig - Measured Ring#1 Ring#2 9.6 14.5	Jig - Calibrated Ring#1 Ring#2 6.0 12.0	Units IN.			
Performed : 21-Nov-2018 Time : 10:04 Sensor Suite : BHC NEUT ID : CNP-AA-110 Source ID : N-1045						
N/F Porosity	Tank Measured 3.7255 21.1	Calibrated 3.6893 20.5	Verification Jig 3.6864 20.5	Units %		
Shop Calibration LDT-DA Performed : 11-MAR-2015 Time : 16:09 Sensor Suite : CALI-LTH ID : PDT-G-426						
CL # 1	Jig - Measured Ring#1 Ring#2 7.6 11.5	Jig - Calibrated Ring#1 Ring#2 6.0 12.0	Units IN.			
Performed : 21-Nov-2018 Time : 12:00 Sensor Suite : BHCPELNG ID : LDP-DA-075 Source ID : 2991GW						
Short Space						
LSW1	BKGD Al Mg Al+Fe	Units				
LSW2	51 937 1536 606	CPS				
LSW3	54 1136 1803 798	CPS				
LSW4	209 2578 4184 2179	CPS				
LSW5	253 2266 3286 1982	CPS				
LSW6	23 44 48 40	CPS				
LSW7	68 71 74 72	CPS				
LSW8	45 46 47 47	CPS				
QS	1 3 4 3	CPS				
PES	0.207 0.215 0.219 0.210					
SSDN		2.778 5.967				
		2.600 1.680	G/CC			
Long Space						
LLW1	BKGD Al Mg Al+Fe	Units				
LLW2	84 993 4104 605	CPS				
LLW3	93 1907 7679 1363	CPS				
LLW4	352 3617 13956 3111	CPS				
LLW5	447 1715 5548 1556	CPS				
LLW6	51 59 106 59	CPS				
LLW7	143 140 130 140	CPS				
LLW8	91 90 85 90	CPS				
QL	3 6 14 5	CPS				
PEL	0.222 0.220 0.210 0.219					
LSDN		2.697 5.458				
		2.600 1.680	G/CC			
Shop Calibration MST-DA Performed : 21-NOV-2018 Time : 12:15 Sensor Suite : CALI-MSN ID : MST-DA-28						
CL # 1	Jig - Measured Ring#1 Ring#2 7.3 11.6	Jig - Calibrated Ring#1 Ring#2 6.0 12.0	Units IN.			
Performed : 21-Nov-2018 Time : 12:16 Sensor Suite : MSTDA-NI ID : MST-DA-28						
Internal						
INV-V	Measured Zero Reference 220.0 30274.6	Units	Calibrated Zero Reference 0.00 1546.00	Units MV		

NOR-V	158.0	30096.2	0.00	1546.00	MV
IN-C	153.5	30427.6	0.00	15.46	UA
INV-R				32.34	OHMM
NOR-R				55.11	OHMM
Shop Calibration PIT-CA Performed : 11-SEP-2018 Time : 11:27 Sensor Suite : P-IND-T ID : PIT-AC-043					
Medium					
	Measured		Calibrated		
	R	X	R	X	Units
Air	131492	129685	0.0	0.0	MMHOS
Zero	131066	131062	-18.1	59.6	MMHOS
Reference	244915	244454	4981.9	5059.6	MMHOS
Loop	130404	210498	3515.7	3611.2	MMHOS
Sonde Error			-0.5	-1.7	MMHOS
Cond			4981.9	5059.6	MMHOS
Deep					
	Measured		Calibrated		
	R	X	R	X	Units
Air	131939	129230	0.0	-0.0	MMHOS
Zero	131079	131067	-15.6	35.3	MMHOS
Reference	220620	224092	1984.4	2035.3	MMHOS
Loop	129308	206166	1595.4	1712.8	MMHOS
Sonde Error			-0.6	-7.8	MMHOS
Cond			1984.4	2035.3	MMHOS
Temperature					
	Measured		Calibrated		
	Low	High	Low	High	Units
	16980.0	56920.0	70.0	350.0	DEGF
Performed : 11-SEP-2018 Time : 11:18 Sensor Suite : SFL ID : PIT-AC-043					
Internal					
	Measured		Calibrated		
	Zero	Reference	Zero	Reference	Units
Im	32805.1	49015.6	0.0	7028.0	uA
Ib	32766.6	49693.1	0.0	1750.0	mA
MOM1	32710.5	56307.5	0.0	175.0	mV
Equivalent SFL				43.97	OHMM
Performed : 11-SEP-2018 Time : 11:16 Sensor Suite : P-SP ID : PIT-AC-043					
Internal					
	Measured		Calibrated		
	Zero	Reference	Zero	Reference	Units
	32774.5	58935.9	0.0	1000.0	mV



Company: ENTRANSCO ENERGY, LLC
 Well: T. WIEBE #31-1 SWD
 Location: 120' FNL & 540' FEL
 Logged: 12-04-2018
 K.B. Elev: 1475.0 Ft