



Tucker
ENERGY SERVICES

COMPOSITE LOG

Company CHIEFTAIN OIL CO., INC. Well DOUGLAS-KENT #5-18 Field RHODES SOUTH County BARBER State KANSAS Country USA API No. 15-007-24224-0000		File No : TUL-59745 Company : CHIEFTAIN OIL CO., INC. Well : DOUGLAS-KENT #5-18 Field : RHODES SOUTH County : BARBER State : KANSAS Country : USA API No : 15-007-24224-0000	
Location : 340' FSL & 340' FEL NW SE SE SE		LSD : Sect : 18 Twp : 34S Rge : 11W	
Permanent Datum: Drilling Measured From: Log Measured From: Above Permanent Datum:	GL KB KB 8.00 Ft	Elevations: KB 1404.00 DF 1403.00 GL 1396.00	Services: CNT LDT MLT
Date	09-29-2014		
Run Number	1		
Depth--Driller	5229.0	Ft	
Depth--Logger	5234.0	Ft	
First Reading	5234.0	Ft	
Last Reading	302.0	Ft	
Casing--Driller	302.0	Ft	
Casing--Logger	302.0	Ft	
Bit Size	7.875	In	
Casing Size	13.375	In	
Hole Fluid Type	CHEM-GEL		
Density	9.3		
Fluid Loss	8.0		
PH/Viscosity	10.0	54.0	
Sample Source	MEASURED		
RMF@Measured Temp.	2.000	@ 75 F	
RMF@Measured Temp	1.600	@ 75 F	
RMFC@Measured Temp.	2.400	@ 75 F	
Source RMF/RMC	CALCULATED/CALCULATED		
RM@BHT	1.200	@ 130 F	
Time Circulation Stopped	09-29-2014 10:00 am		
Max Recorded Temp.	130	F	
Equipment/Base	127	TULSA	
Recorded By	SHELDON TYLER		
Witnessed By	DAVID BARKER		

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	5229.00	13.375	45.00	302.00	0.00

Run Number	1
Date	09-29-2014
Date/Time On Bottom	09-29-2014 1:00 pm
Depth to Fluid	0.0 Ft
Salinity	4500.000
RMF@BHT	0.960 @ 130 F
RMC@BHT	1.440 @ 130 F

Run Number 1

Comments

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

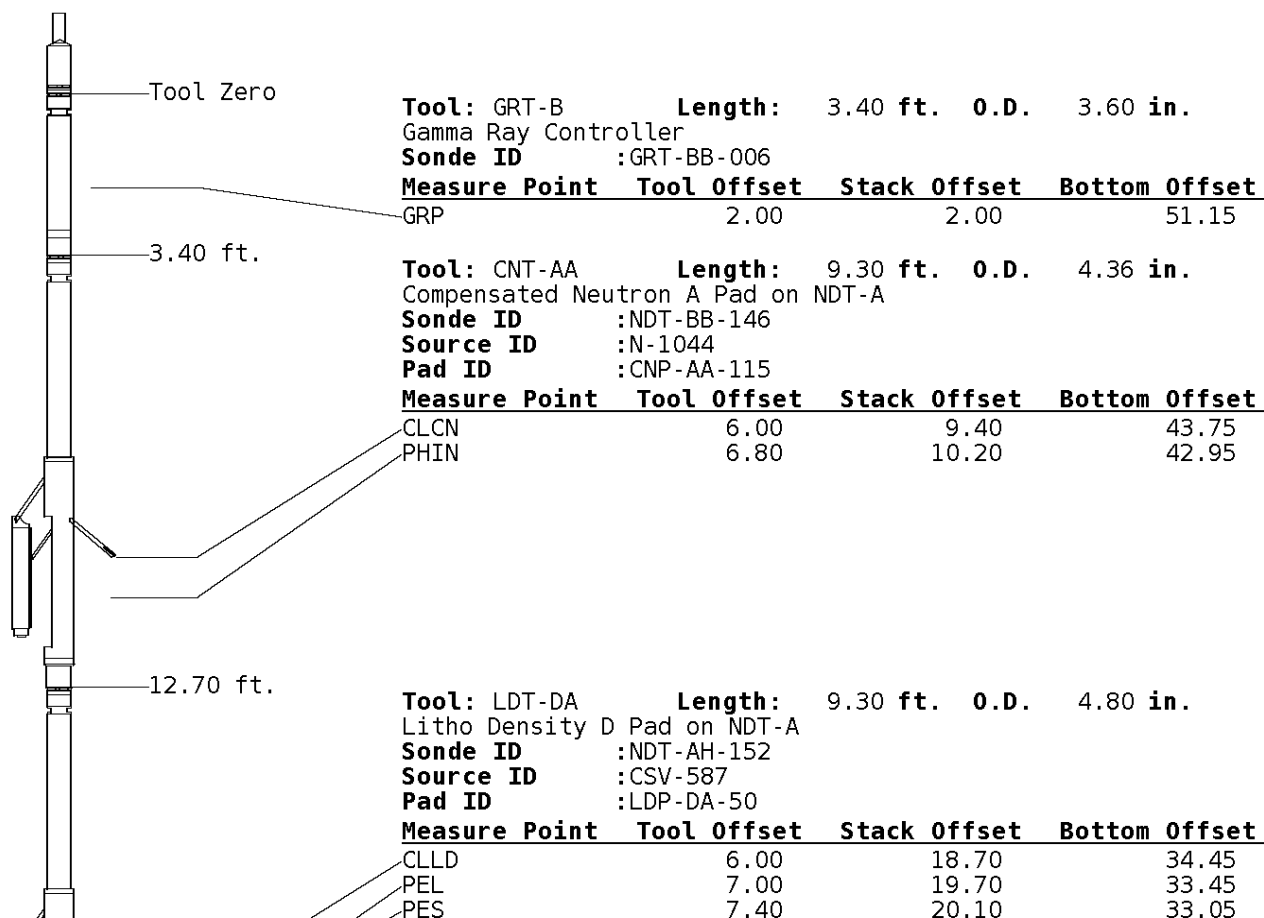
CUSTOMER REQUESTED DETAIL PULLED TO 3400'

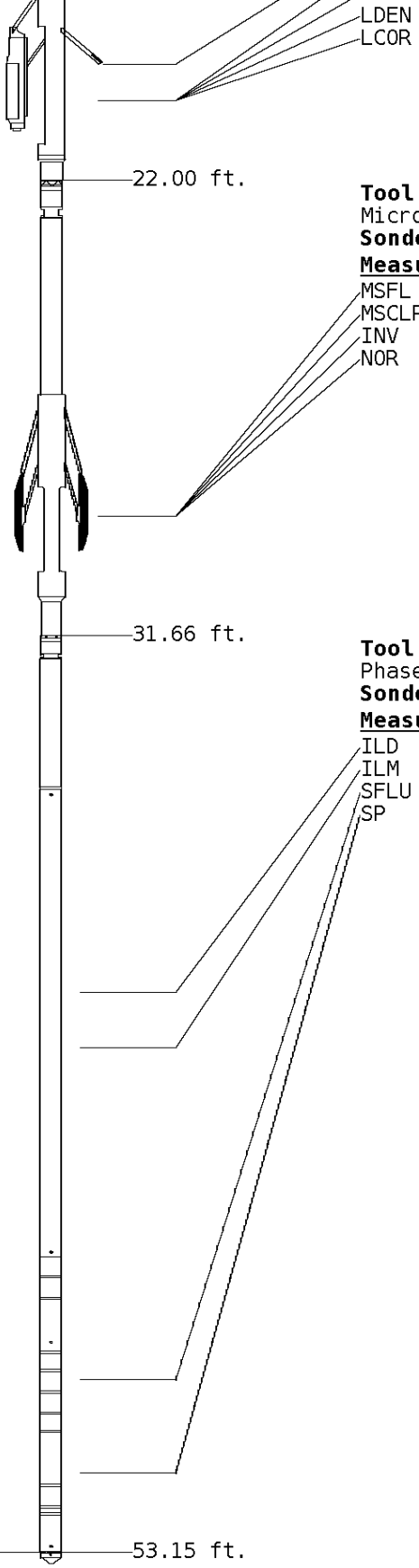
GRT: GRP, GRX
 CNT: PHIN, CLCNIN, PHXN
 LDT: PORL, LCORN, PECLN, LDENN, PORLLS, CLLDIN, PRXL, PECLX, LDENNX, LCORX
 MLT: NOR_RF, INV_RF, MSCLPIN
 PIT: ILD, ILM, SPU, SFLAEC, CIRD

OPERATORS:+4
 J.JOHNSON
 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-24

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-062

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: CHIEFTAIN DOUGLAS KENT_5-18_SEP29_MSTK **Scale:** 1:240 **Format:** COMSAT
Segment: V1.D1.S6 AS MAIN **Acquired:** 2014-09/29 12:59 3.4.0-13115
Reference: 0 **Processed:** 2014-09/29 14:09 3.4.0-13115

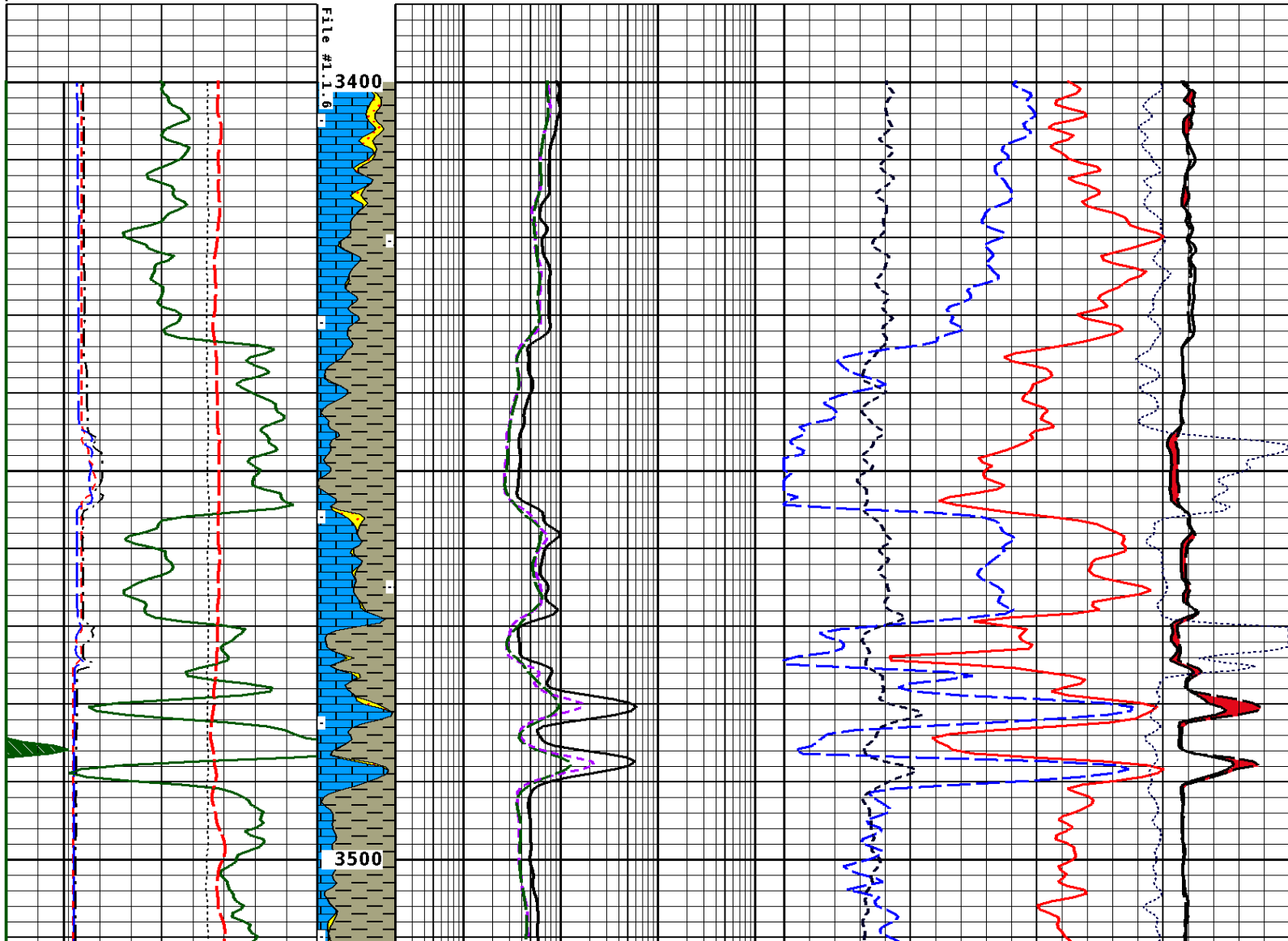
CALIPER MICRO INCHES (IN)	
16	26
6	16

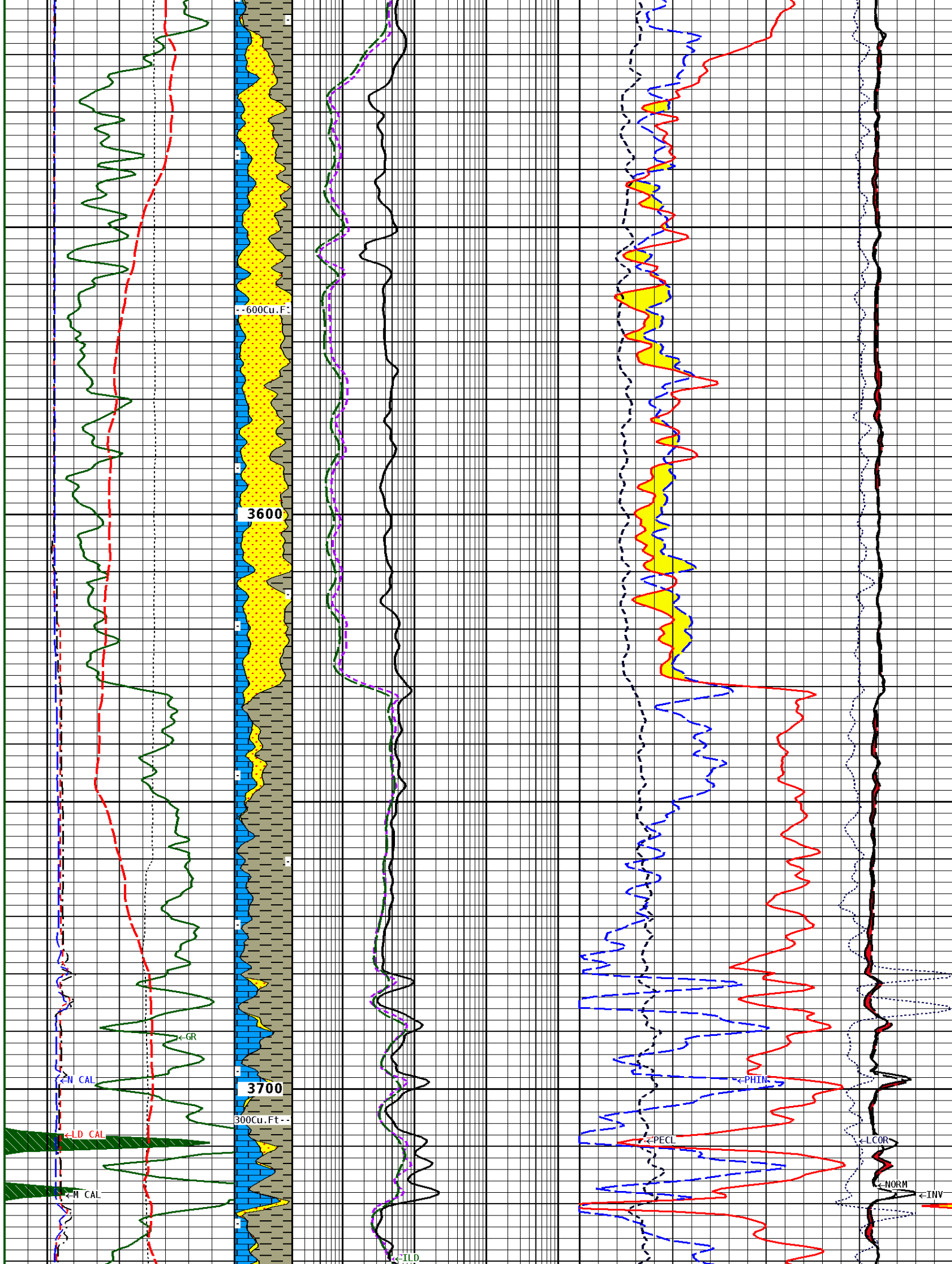
BIT SIZE INCHES (IN)

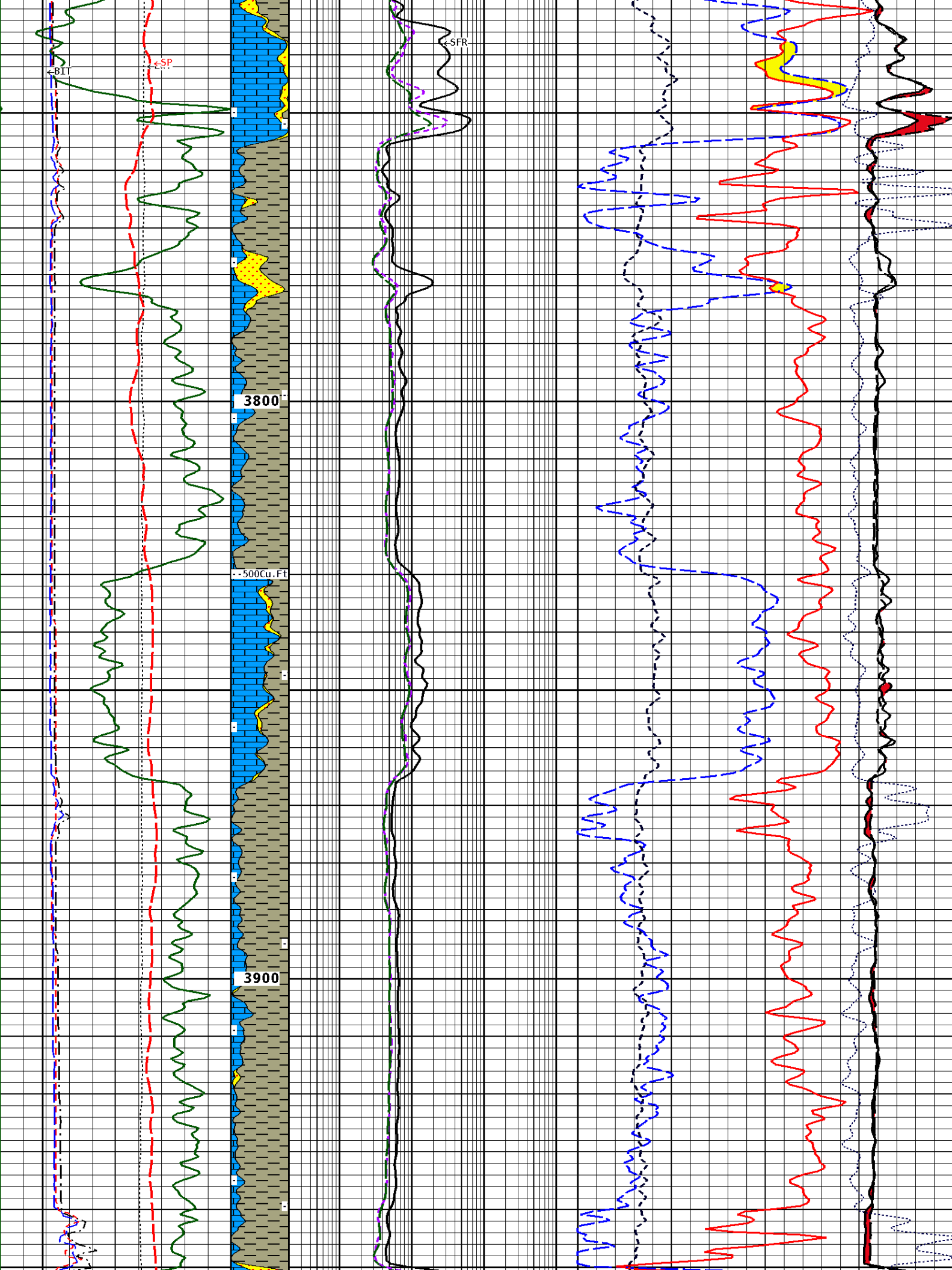
NORHAL
OHNN

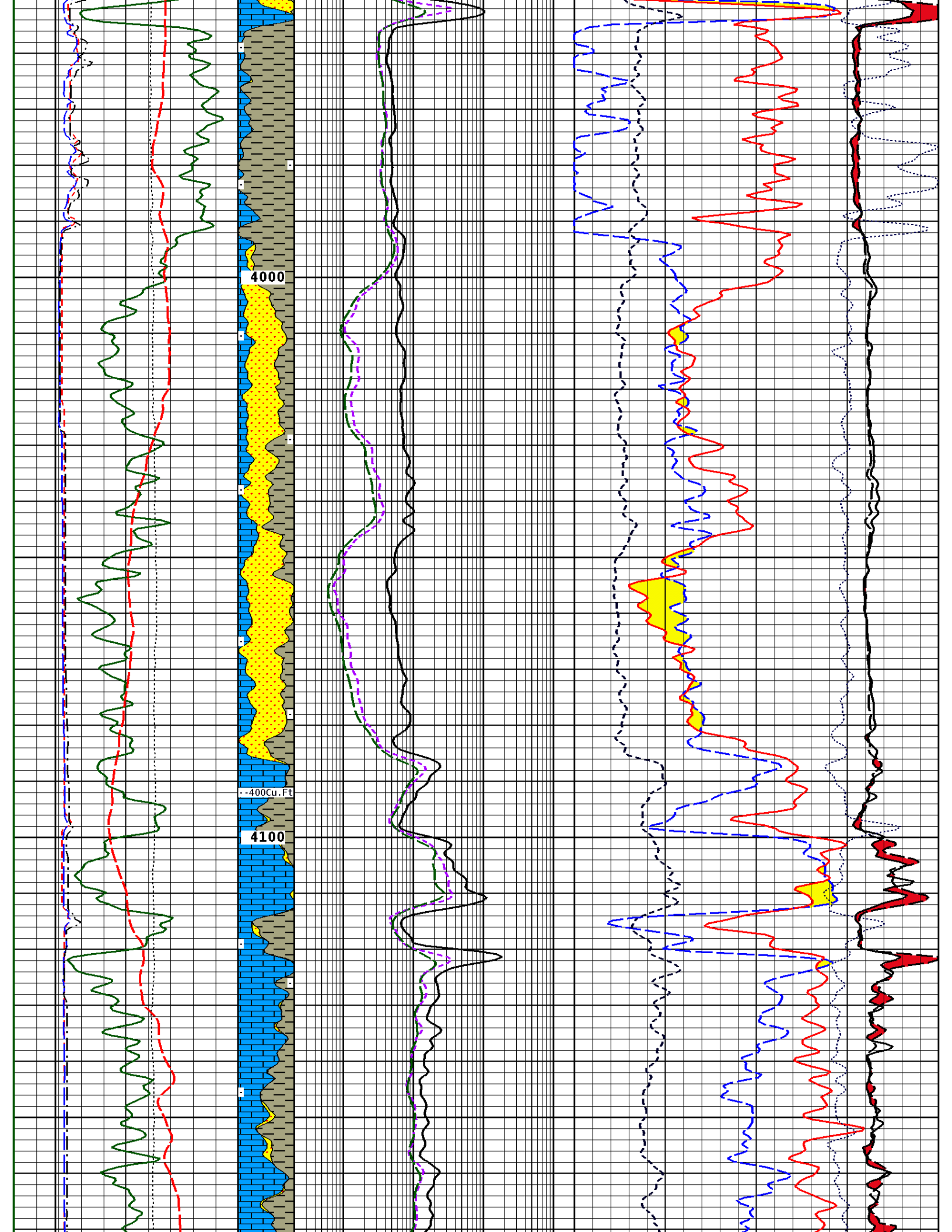
6	16				0	40
NEUTRON (Y) CALIPER INCHES (IN)					INVERSE OHMM	
16	26				0	40
6	16					
DENSITY (X) CALIPER INCHES (IN)		Volume Quartz		DENSITY CORRECTION G/CC		
16	26			-0.75		0.25
6	16					
TENSION LBS		Volume Calcite	SHALLOW FOCUSED RESISTIVITY OHMM	PE CROSS-SECTION BARN/ELECTRON		
10000	0		0.2	2000.0	0	20
SPONTANEOUS POTENTIAL mV		Volume DoLo/Shale	DEEP INDUCTION OHMM	DENSITY POROSITY (2.71g/cc) PERCENT		
	→ ← 25		0.2	2000.0	70	30
					30	-10
					-10	-50
GAMMA RAY API UNITS		BHV AHV CU.FT	MEDIUM INDUCTION OHMM	NEUTRON POROSITY (LIMESTONE) PERCENT		
150	300		0.2	2000.0	30	-10
0	150					

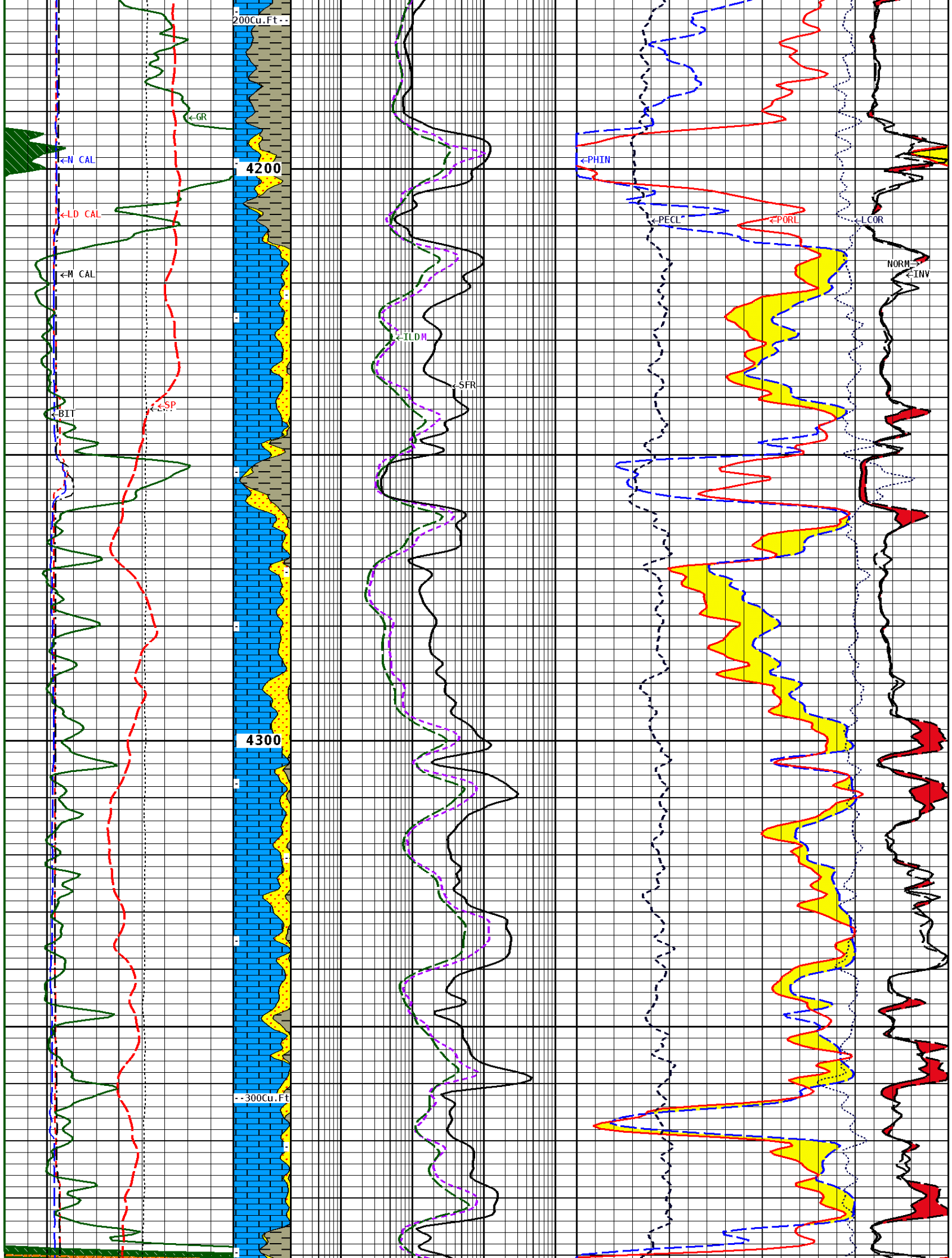
1:240 MAIN SECTION

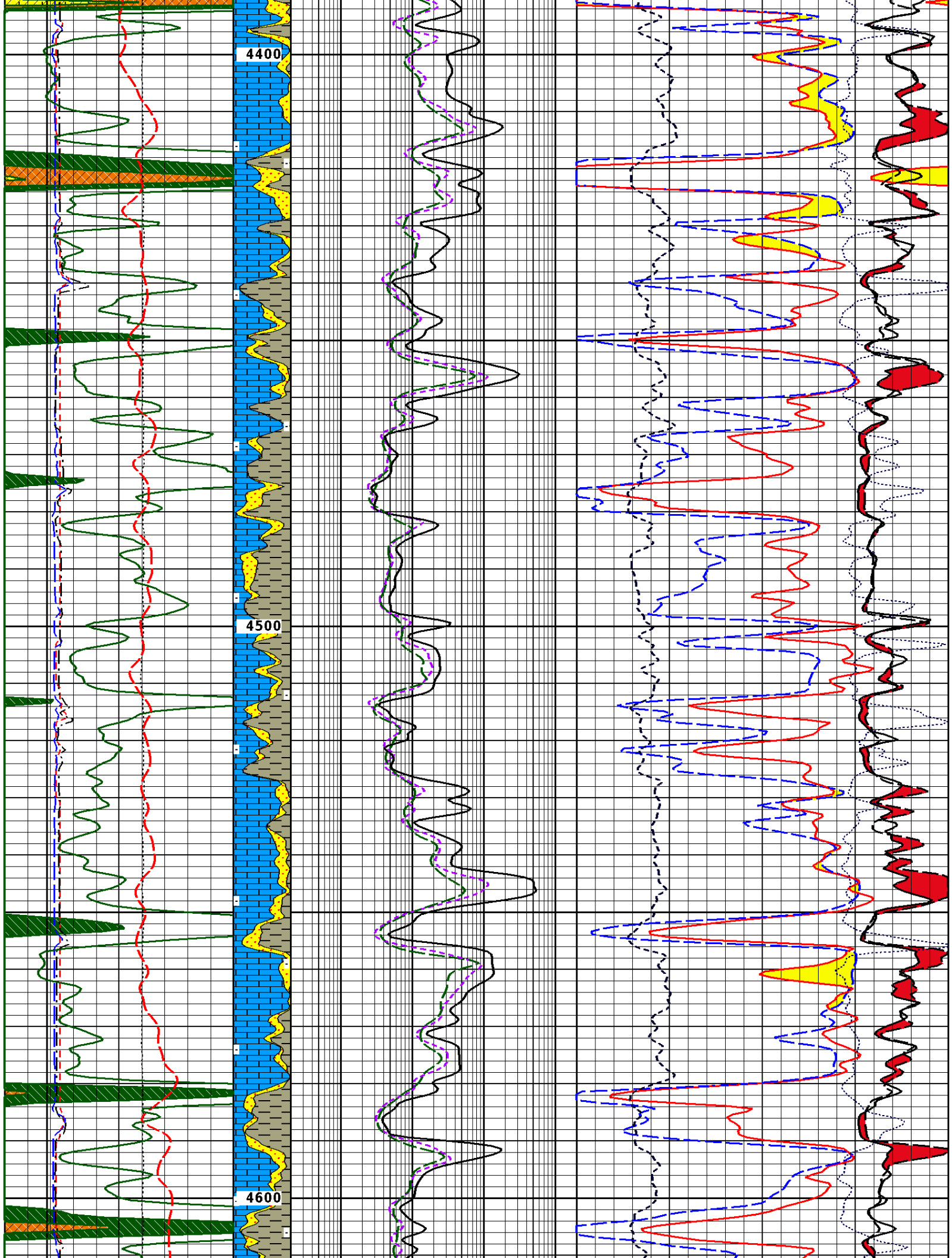


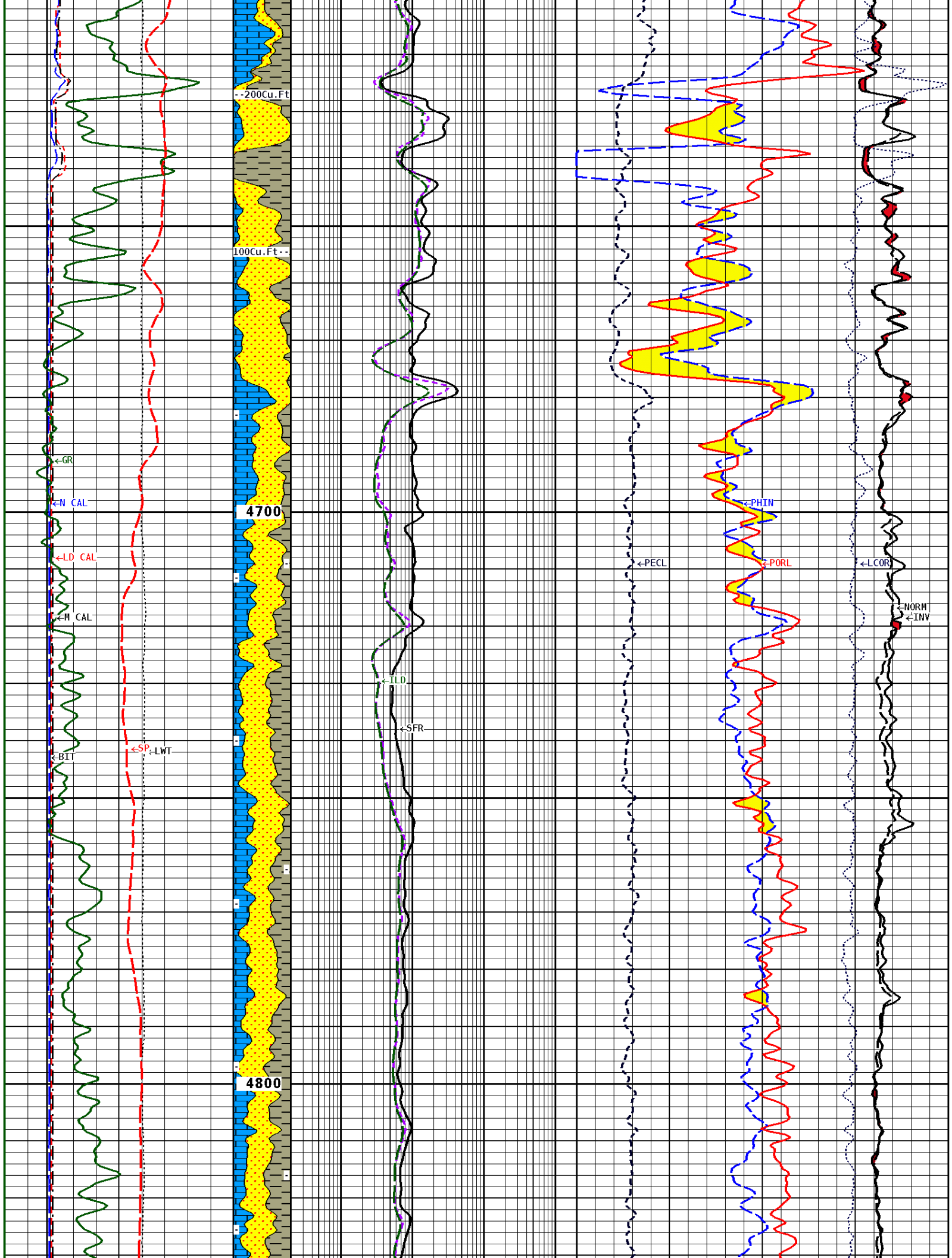


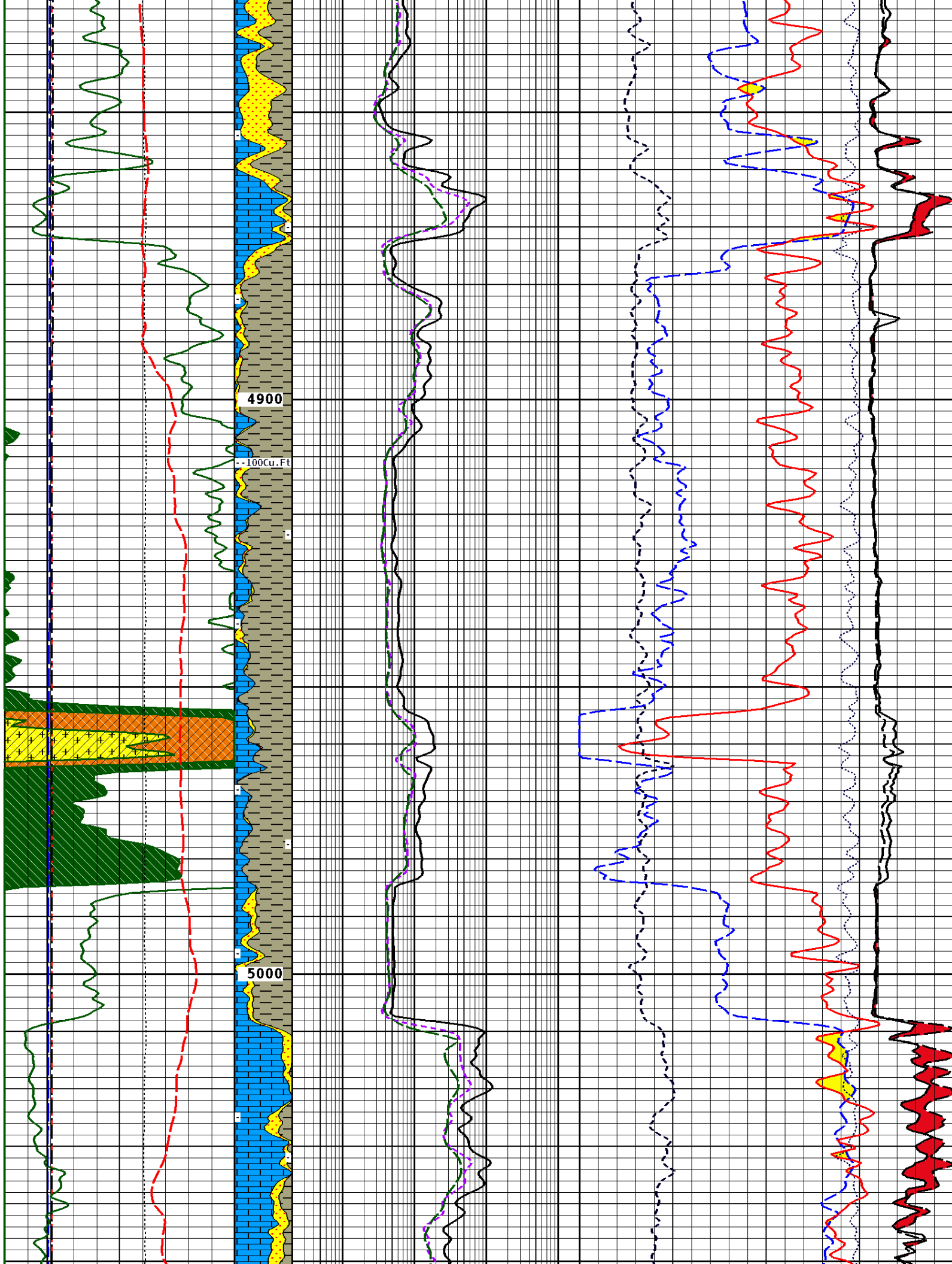


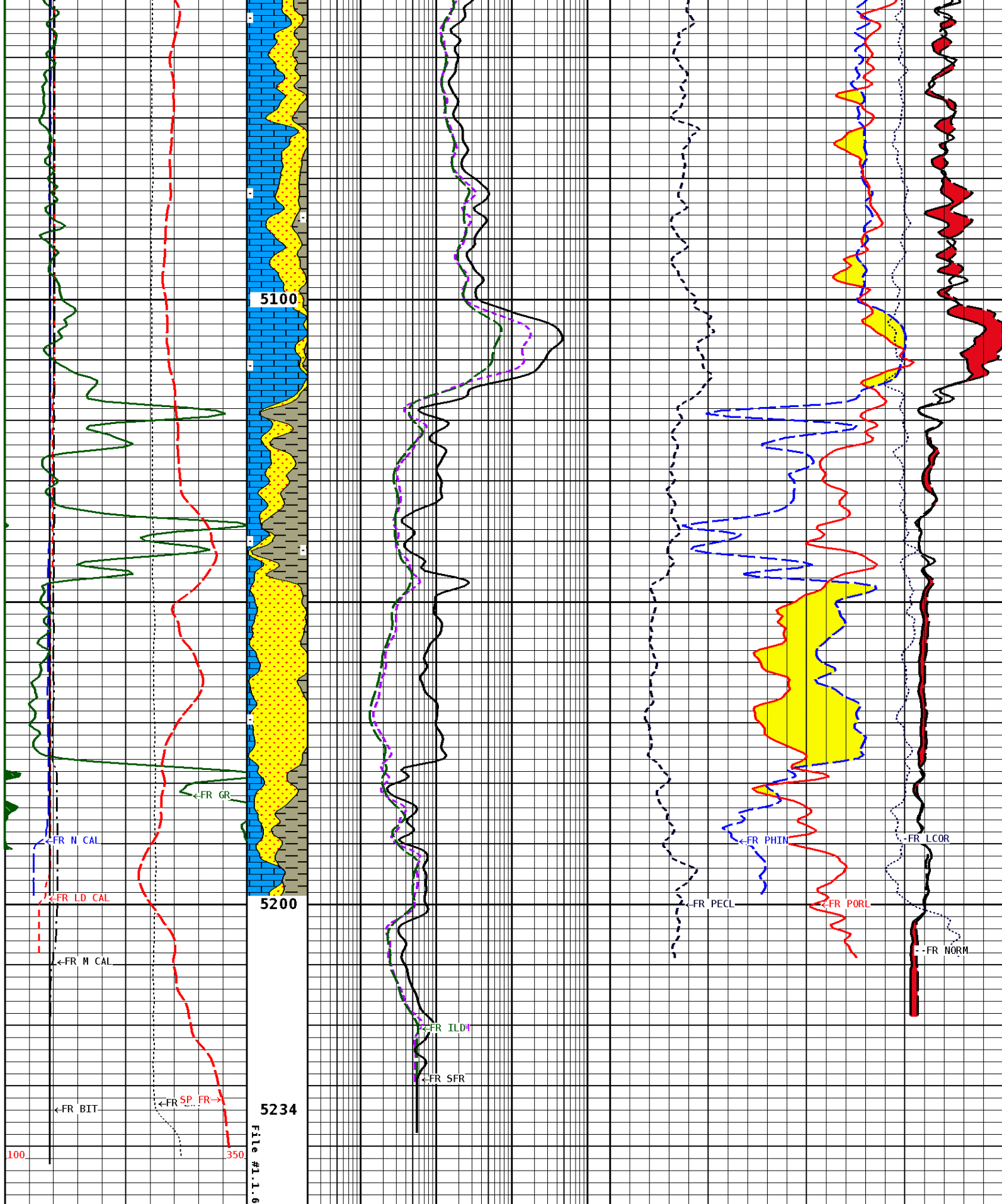












1:240 MAIN SECTION

GAMMA RAY
SDT UNITS

BHY ANV

MEDIUM INDUCTION
OHMM

NEUTRON POROSITY (LIMESTONE)
PERCENT

API UNITS 150 0	CO.FT 300 150	OHMM 0.2	2000.0	PERCENT 30	-10
SPONTANEOUS POTENTIAL mV → ← 25	Volume Dolo/Shale	DEEP INDUCTION OHMM 0.2	2000.0	DENSITY POROSITY (2.71g/cc) PERCENT 70 30 -10	30 -10 -50
TENSION LBS 10000	Volume Calcite	SHALLOW FOCUSED RESISTIVITY OHMM 0.2	2000.0	PE CROSS-SECTION BARNs/ELECTRON	20
DENSITY (X) CALIPER INCHES (IN) 16 6	Volume Quartz			DENSITY CORRECTION G/CC -0.75	0.25
NEUTRON (Y) CALIPER INCHES (IN) 16 6				INVERSE OHMM 0	40
BIT SIZE INCHES (IN) 6				NORMAL OHMM 0	40
CALIPER MICRO INCHES (IN) 16 6					

*** Borehole Zone Factors ***

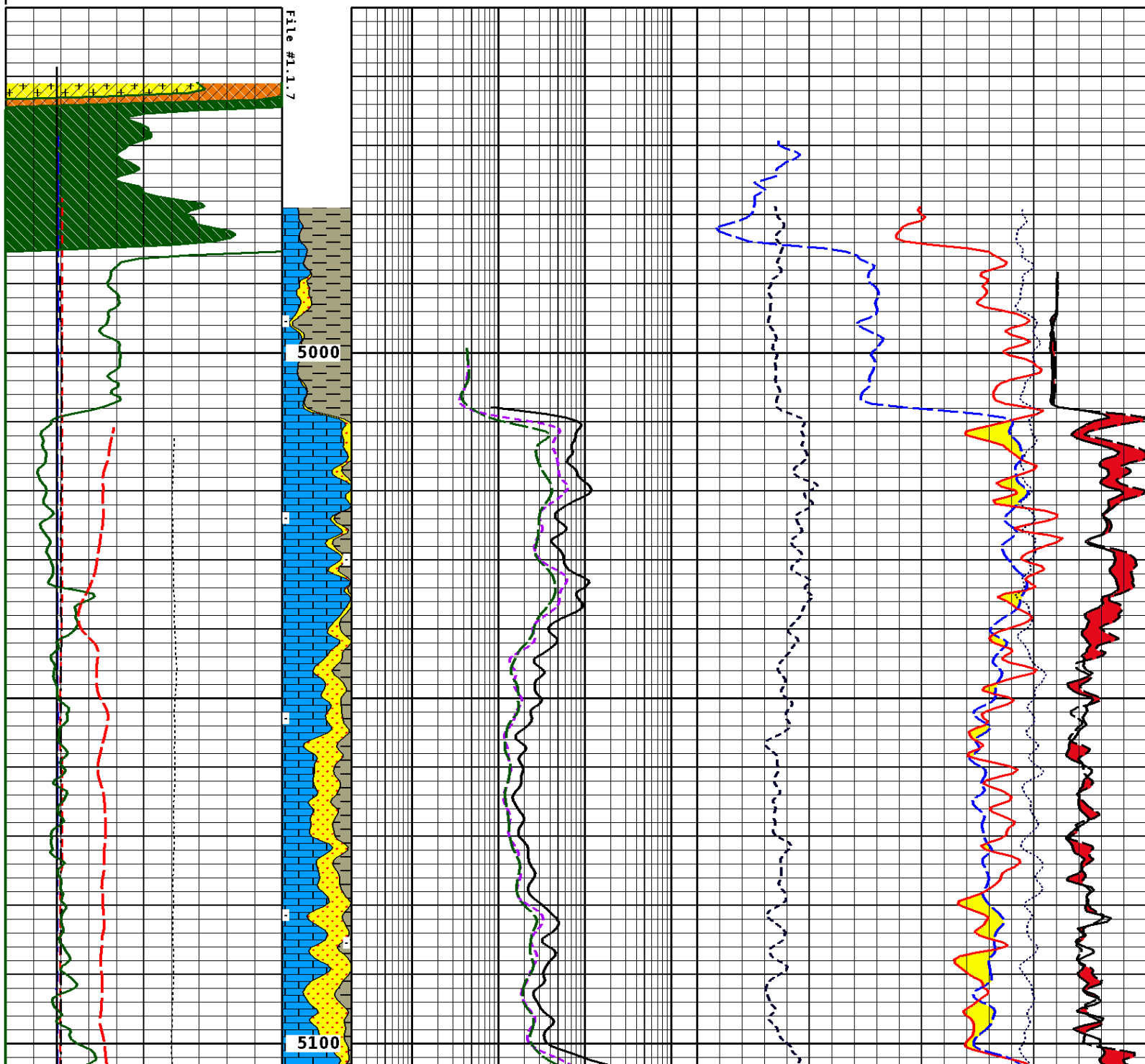
Zone 1 99999.0 to 0.0 Feet		
Matrix Density	2.71	g/cc
Fluid Density	1.00	g/cc
Formation Matrix	Limestone	
Drill Bit Size	7.875	in
Casing Diameter	5.500	in
Casing Thickness	0.250	in
Casing Correction (PHI N)	Disable	
Hole Substance	Fluid	
BHT Depth	5229.000	ft
Borehole Temperature	130.0	degF
Temperature Gradient	1.00	DFHF
Resistivity Of Mud	2.000	ohm/m
MSTNG Normal Correction	3.00	ohm/m
MSTNG Inverse Correction	0.00	ohm/m

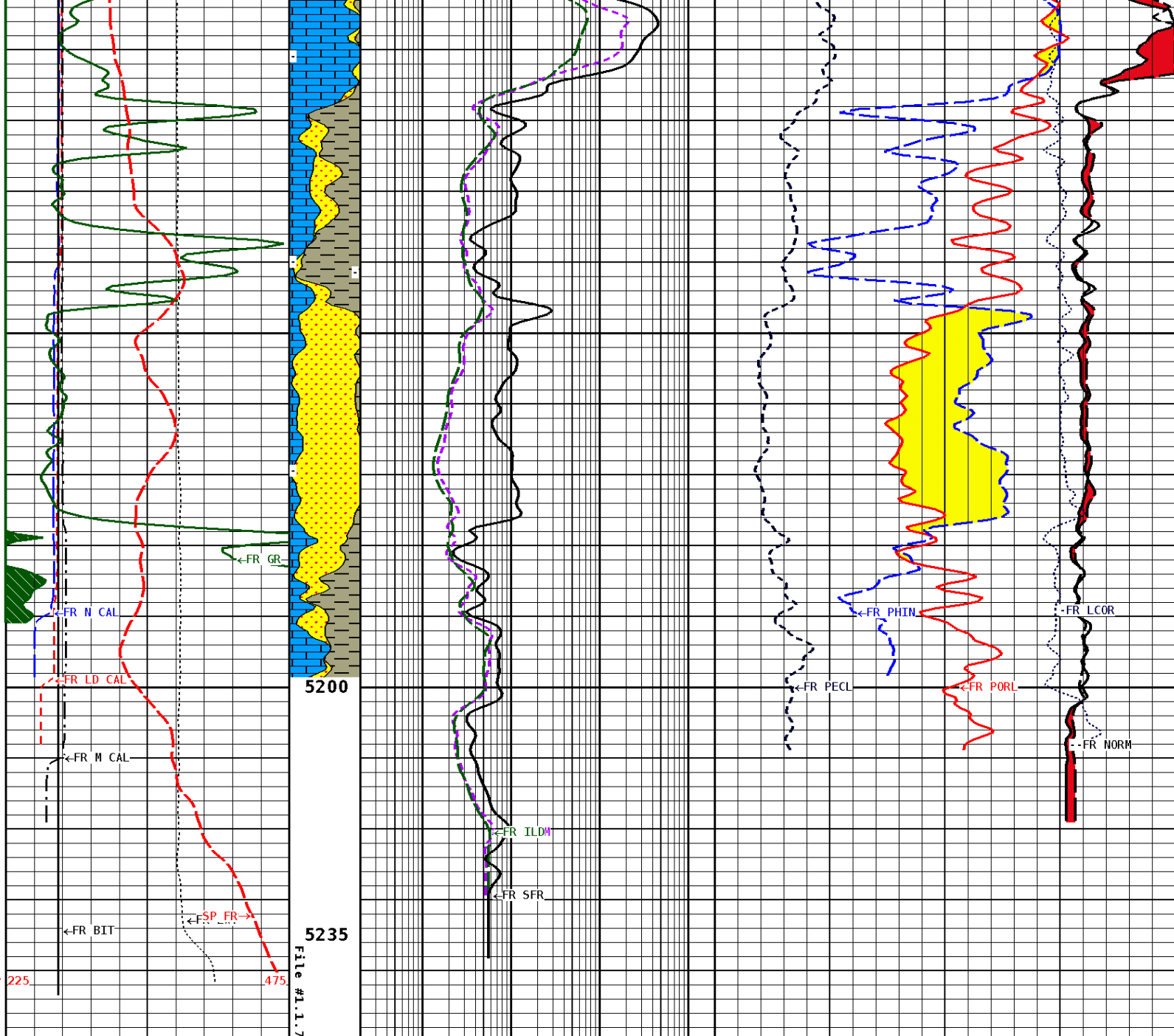
Well File: CHIEFTAIN DOUGLAS KENT 5-18 SEP29 MSTK	Scale: 1:240	Format: COMSAT
Segment: V1.D1.S7 AS REPEAT	Acquired: 2014-09/29 12:43 3.4.0-13115	
Reference: 0	Processed: 2014-09/29 14:11 3.4.0-13115	

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

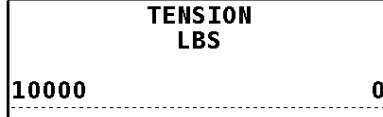
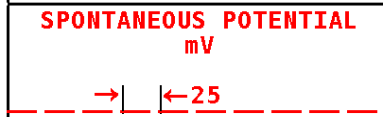
TENSION LBS	Volume Calcite	SHALLOW FOCUSED RESISTIVITY OHMM	PE CROSS-SECTION BARNES/ELECTRON
10000 0	0.2 2000.0	0 20	
SPONTANEOUS POTENTIAL mV	Volume Dolo/Shale	DEEP INDUCTION OHMM	DENSITY POROSITY (2.71g/cc) PERCENT
→ ← 25	0.2 2000.0	70 30 -10	30 -10 -50
GAMMA RAY API UNITS	BHV AHV CU. FT	MEDIUM INDUCTION OHMM	NEUTRON POROSITY (LIMESTONE) PERCENT
150 300 0 150	0.2 2000.0	30	-10

1:240 REPEAT SECTION





1:240 REPEAT SECTION



BHV AHV
CU.FT

Volume
Dolo/Shale

Volume
Calcite

Volume
Quartz

MEDIUM INDUCTION
OHMM

0.2 2000.0

DEEP INDUCTION
OHMM

0.2 2000.0

SHALLOW FOCUSED RESISTIVITY
OHMM

0.2 2000.0

NEUTRON POROSITY (LIMESTONE)
PERCENT

30 -10

DENSITY POROSITY (2.71g/cc)
PERCENT

70 30 -10 -50

PE CROSS-SECTION
BARNs/ELECTRON

0 20

DENSITY CORRECTION
G/CC

-0.75 0.25

NEUTRON (Y) CALIPER INCHES (IN)	
16 6	26 16
<hr/>	
BIT SIZE INCHES (IN)	
6	16
<hr/>	
CALIPER MICRO INCHES (IN)	
16 6	26 16
<hr/>	

INVERSE OHMM	
0	40
<hr/>	
NORMAL OHMM	
0	40
<hr/>	

*** 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	5229.000	ft
Borehole Temperature	130.0	degF
Temperature Gradient	1.00	DFHF
Resistivity Of Mud	2.000	ohm/m
MSTNG Normal Correction	3.00	ohm/m
MSTNG Inverse Correction	0.00	ohm/m

*** Calibration Summary ***

Shop Calibration GRT-B					
Performed : 27-JUN-2014			Time : 09:30		
Sensor Suite : GR-GR5			ID : GRT-BB-006		
	Measured	Units	Calibrated	Units	
GR	Background	Jig	Jig		
	62	374	175	GRAPI	
Shop Calibration CNT-AA					
Performed : 22-AUG-2014			Time : 17:15		
Sensor Suite : CALI-BCN			ID : NDT-BB-146		
	Jig - Measured		Jig - Calibrated	Units	
CL # 1	Ring#1	Ring#2	Ring#1	Ring#2	
	9.1	13.9	6.0	12.0	IN.
Shop Calibration LDT-AA					
Performed : 22-Aug-2014			Time : 17:14		
Sensor Suite : BHC NEUT			ID : CNP-AA-115		
Source ID : N-1044					
	Measured	Tank	Calibrated	Verification	Units
N/F	4.0442		3.6893	Jig	
Porosity	26.3		20.5	3.6848	20.4 %
Shop Calibration LDT-DA					
Performed : 22-AUG-2014			Time : 16:47		
Sensor Suite : CALI-LTH			ID : NDT-AH-152		
	Jig - Measured		Jig - Calibrated	Units	
CL # 1	Ring#1	Ring#2	Ring#1	Ring#2	
	7.4	10.7	6.0	12.0	IN.
Performed : 22-Aug-2014			Time : 16:45		
Sensor Suite : BHCPELNG			ID : LDP-DA-50		
Source ID : CSV-587					
	Short Space				
BKGD	A1	Ma	A1+Fe	Units	

LSW1	71	480	775	324	CPS
LSW2	78	543	862	409	CPS
LSW3	280	1302	2046	1139	CPS
LSW4	342	1239	1712	1114	CPS
LSW5	31	41	41	39	CPS
LSW6	95	95	95	94	CPS
LSW7	58	59	58	60	CPS
LSW8	2	2	3	3	CPS
QS	0.242	0.229	0.245	0.220	
PES			2.778	5.967	
SSDN		2.600	1.680		G/CC

Long Space					
	BKGD	Al	Mg	Al+Fe	Units
LLW1	99	571	2372	373	CPS
LLW2	114	888	3642	678	CPS
LLW3	431	1745	6355	1547	CPS
LLW4	549	1062	2629	991	CPS
LLW5	64	69	80	66	CPS
LLW6	173	169	162	169	CPS
LLW7	116	112	108	113	CPS
LLW8	5	6	9	6	CPS
QL	0.196	0.203	0.200	0.197	
PEL			2.697	5.458	
LSDN		2.600	1.680		G/CC

Shop Calibration					
MST-DA					
Performed : 16-Sep-2014			Time : 09:41		
Sensor Suite : CALI-MSN			ID : MST-DA-24		
	Jig - Measured		Jig - Calibrated		Units
	Ring#1	Ring#2	Ring#1	Ring#2	
CL # 1	7.6	12.0	6.0	12.0	IN.

Performed : 16-SEP-2014			Time : 09:43		
Sensor Suite : MSTDA-NI			ID : MST-DA-24		
Internal					
	Measured		Calibrated		
	Zero	Reference	Zero	Reference	Units
INV-V	0.0	29667.2	0.00	1546.00	MV
NOR-V	6.4	29973.2	0.00	1546.00	MV
IN-C	0.0	60289.1	0.00	15.46	UA
INV-R				32.34	OHMM
NOR-R				55.11	OHMM

Shop Calibration					
PIT-CA					
Performed : 15-APR-2014			Time : 14:04		
Sensor Suite : P-IND-T			ID : PIT-CA-062		
Medium					
	Measured		Calibrated		
	R	X	R	X	Units
Air	130583	130713	-0.1	-0.1	MMHOS
Zero	131074	131072	27.3	6.4	MMHOS
Reference	253427	250043	5027.3	5006.4	MMHOS
Loop	130592	221688	3823.7	3823.0	MMHOS
Sonde Error			-1.3	-15.8	MMHOS
Cond			5027.3	5006.4	MMHOS
Deep					
	Measured		Calibrated		
	R	X	R	X	Units
Air	129032	131483	-0.0	0.1	MMHOS
Zero	131074	131059	39.8	-17.0	MMHOS
Reference	233823	231658	2039.8	1983.0	MMHOS
Loop	129039	222242	1804.5	1804.3	MMHOS
Sonde Error			-8.5	-8.7	MMHOS
Cond			2039.8	1983.0	MMHOS
Temperature					
	Measured		Calibrated		
	Low	High	Low	High	Units
	16980.0	56920.0	70.0	350.0	DEGF

Performed : 15-Apr-2014			Time : 13:51		
Sensor Suite : SFL			ID : PIT-CA-062		
Internal					
	Measured		Calibrated		
	Zero	Reference	Zero	Reference	Units

Im	32763.3	48949.7	0.0	7028.0	uA
Ib	32767.3	48756.3	0.0	1750.0	mA
MOM1	32726.5	57507.3	0.0	175.0	mV
Equivalent SFL				43.97	OHMM
Performed : 15-Apr-2014		Time : 13:49			
Sensor Suite : P-SP		ID : PIT-CA-062			
	Measured		Internal		
	Zero	Reference	Zero	Reference	Units
	32765.9	58980.4	0.0	1000.0	mV



Company: CHIEFTAIN OIL CO., INC.
 Well: DOUGLAS-KENT #5-18
 Location: 340' FSL & 340' FEL
 Logged: 09-29-2014
 K.B. Elev: 1404.0 Ft