

STEP

energy services

COMPOSITE LOG

Company MERIT ENERGY COMPANY Well GOERING JACOB #M-4 Field EUBANK County HASKELL State KANSAS Country USA API No. 15-081-22200-0000		File No : HAYS-70397 Company : MERIT ENERGY COMPANY Well : GOERING JACOB #M-4 Field : EUBANK County : HASKELL State : KANSAS Country : USA API No : 15-081-22200-0000	
Location : 1340' FWL & 1184' FNL SW SW NE NW		LSD : Sect : 16 Twp : 28S Rge : 34W	
Permanent Datum: Drilling Measured From: Log Measured From: Above Permanent Datum:	GL KB KB 12.00 Ft	Elevations: KB 3063.00 DF 3062.00 GL 3051.00	Services: CNT LDT PIT CST
Date	01-27-2020		
Run Number	1		
Depth--Driller	5693.0 Ft		
Depth--Logger	5691.0 Ft		
First Reading	5690.0 Ft		
Last Reading	1790.0 Ft		
Casing--Driller	1790.0 Ft		
Casing--Logger	1786.0 Ft		
Bit Size	7.785 In		
Casing Size	8.625 In		
Hole Fluid Type	WBM		
Density	9.2		
Fluid Loss	4.8		
PH/Viscosity	10.5	64.0	
Sample Source	MEASURED		
RM@Measured Temp.	3.500 @ 60 F		
RMF@Measured Temp	2.980 @ 60 F		
RMG@Measured Temp.	4.030 @ 60 F		
Source RMF/RMG	CALCULATED/CALCULATED		
RM@BHT	1.720 @ 129 F		
Time Circulation Stopped	01-27-2020 07:31		
Max Recorded Temp.	129 F		
Equipment/Base	TRK-137 HAYS		
Recorded By	S. KEELEY, B. BAILEY		
Witnessed By	C. GUTHRIE, A. GARNER		

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)
7.785	5693.00	8.625	17.00	1786.00	0.00

Run Number	1	
Date	01-27-2020	
Date/Time On Bottom	01-27-2020 12:31	
Depth to Fluid	0.0 Ft	
Salinity	1600.000	
RMF@BHT	1.460 @ 129 F	
RMC@BHT	1.980 @ 129 F	

Run Number 1

Comments

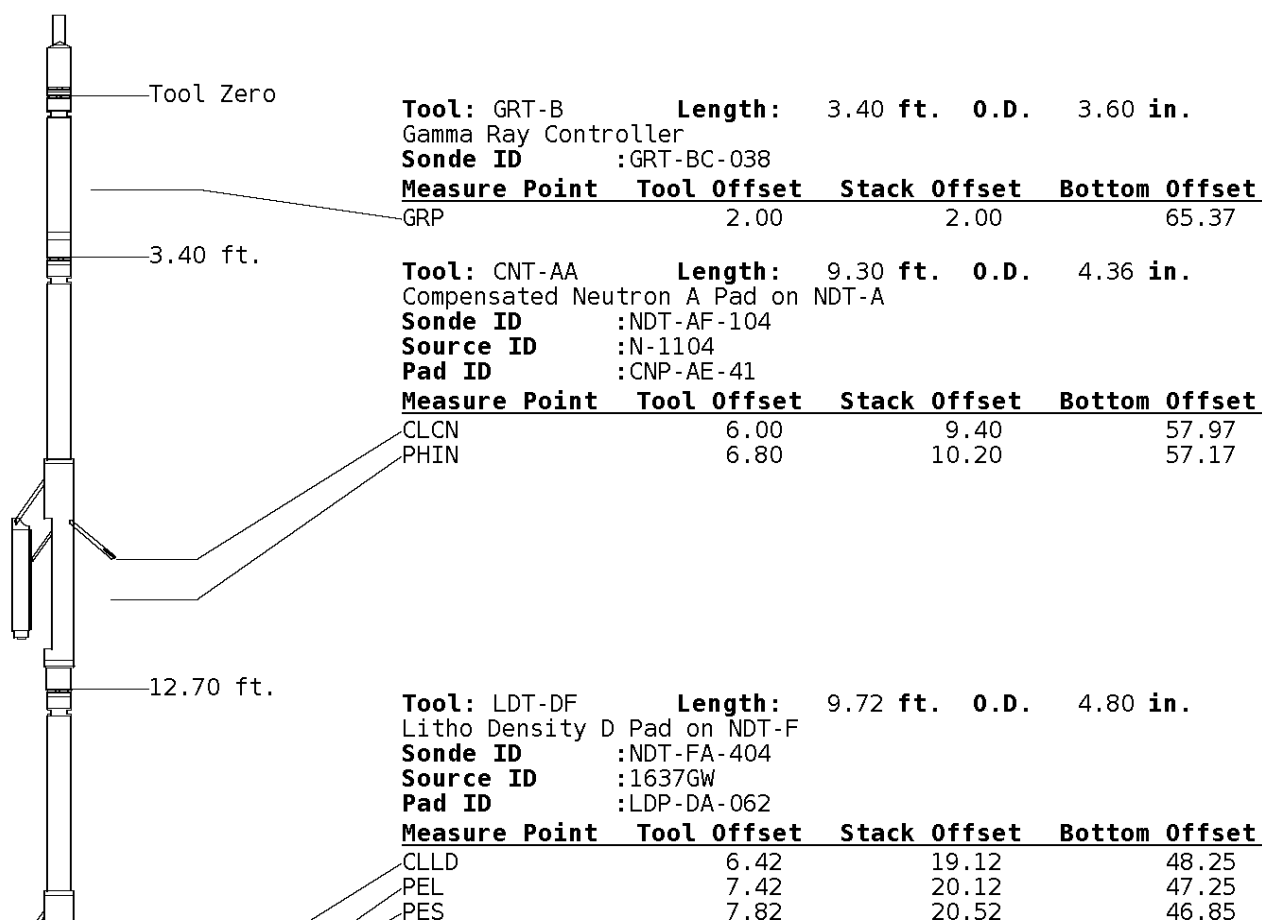
ALL PRESENTATIONS AS PER CUSTOMER REQUEST
 GRT, CNT, LDT, CST, MLT AND PIT RUN IN COMBINATION
 CALIPERS ORIENTED ON X-Y AXIS
 2.71 G/CC USED TO CALCULATE POROSITY
 ANNULAR HOLE VOLUME CALCULATED USING 5.5" PRODUCTION CASING
 PHIN IS CALIPER CORRECTED

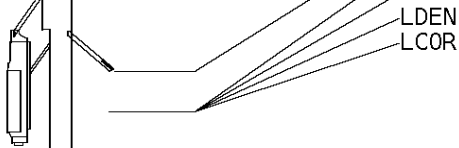
GRT: GRP
 CNT: PHIN, CLCNIN,
 LDT: PORL, LCORN, PECLN, LDENN, PORLLS, CLLDIN
 CST: PORS, CDTF, TTIPF, TT2PF, TT3PF, TT4PF, ITT
 MLT: NOR_RF, INV_RF, MSLCNIN
 PIT: ILD, ILM, SPU, SFLAEC, CIRD

OPERATORS:
 D. RAGSDALE
 J. VAUGHN

Tool String Schematic

Total Tool Length - 67.37 ft.
Maximum Outside diameter - 6.00 in.
Net Weight in Air - 1171.00 lbs.



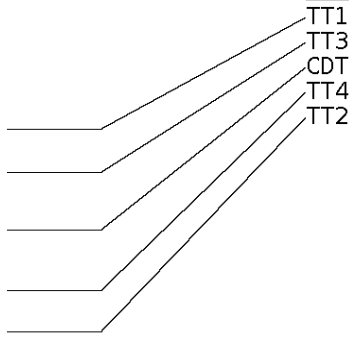


7.62	20.32	47.05
7.62	20.32	47.05

22.42 ft.

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

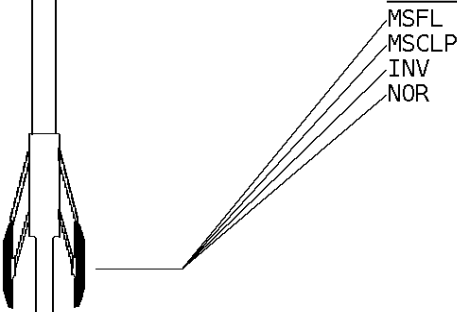
Measure Point	Tool Offset	Stack Offset	Bottom Offset
TT1	4.80	27.22	40.15
TT3	5.80	28.22	39.15
CDT	7.30	29.72	37.65
TT4	8.80	31.22	36.15
TT2	9.80	32.22	35.15



36.22 ft.

Tool: MST-DA **Length:** 9.66 ft. **O.D.** 6.00 in.
 Micro Spherically Focused (IC)
Sonde ID : MST-DA-13

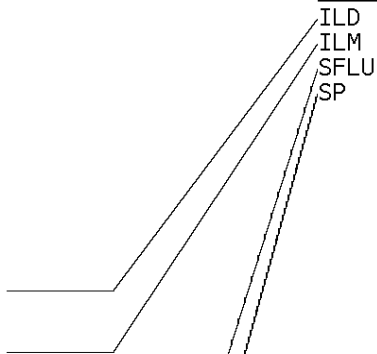
Measure Point	Tool Offset	Stack Offset	Bottom Offset
MSFL	7.60	43.82	23.55
MSCLP	7.60	43.82	23.55
INV	7.60	43.82	23.55
NOR	7.60	43.82	23.55



45.88 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	54.80	12.56
ILM	10.10	55.98	11.39
SFLU	17.49	63.37	4.00
SP	20.60	66.48	0.88



LWT 67.37 ft.

Well File: MERIT_GOERING_JACOB_M-4_JAN27_QUINT

Scale: 1:240 Format: COM-meri

Segment: V1.D1.S7 MAIN

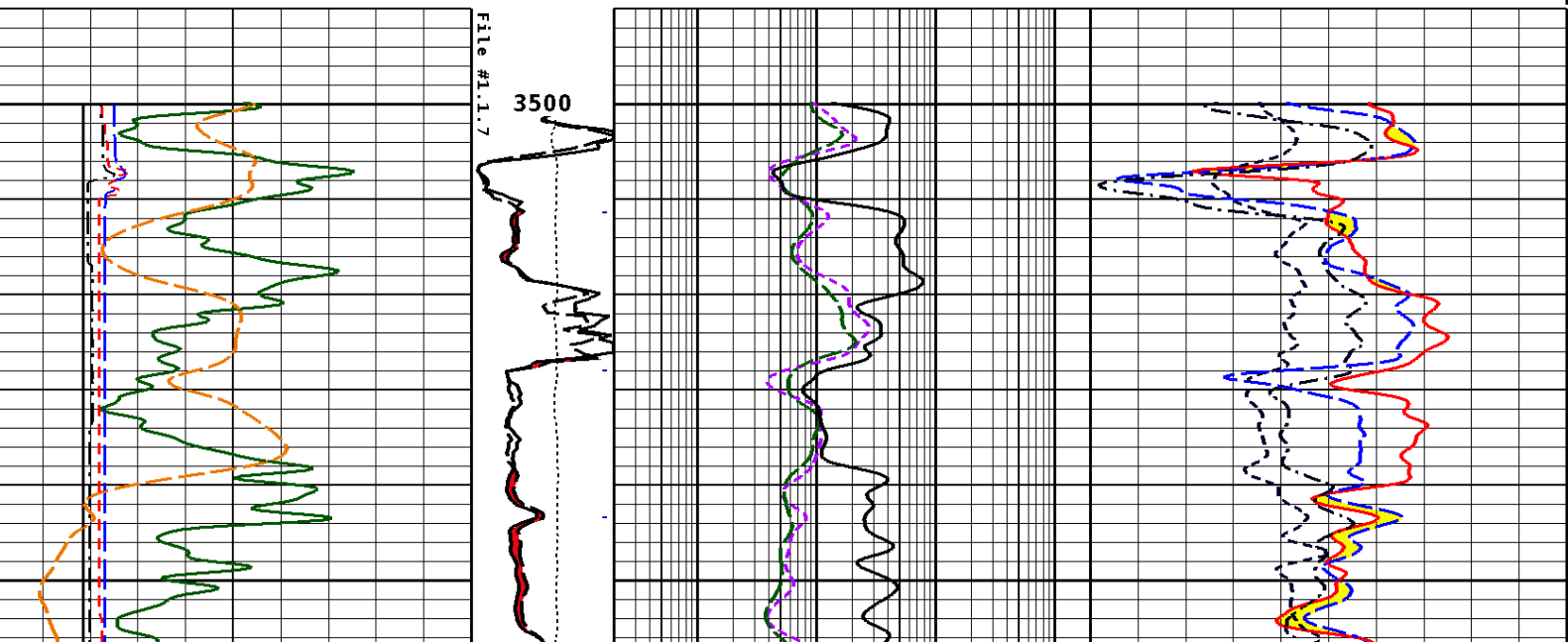
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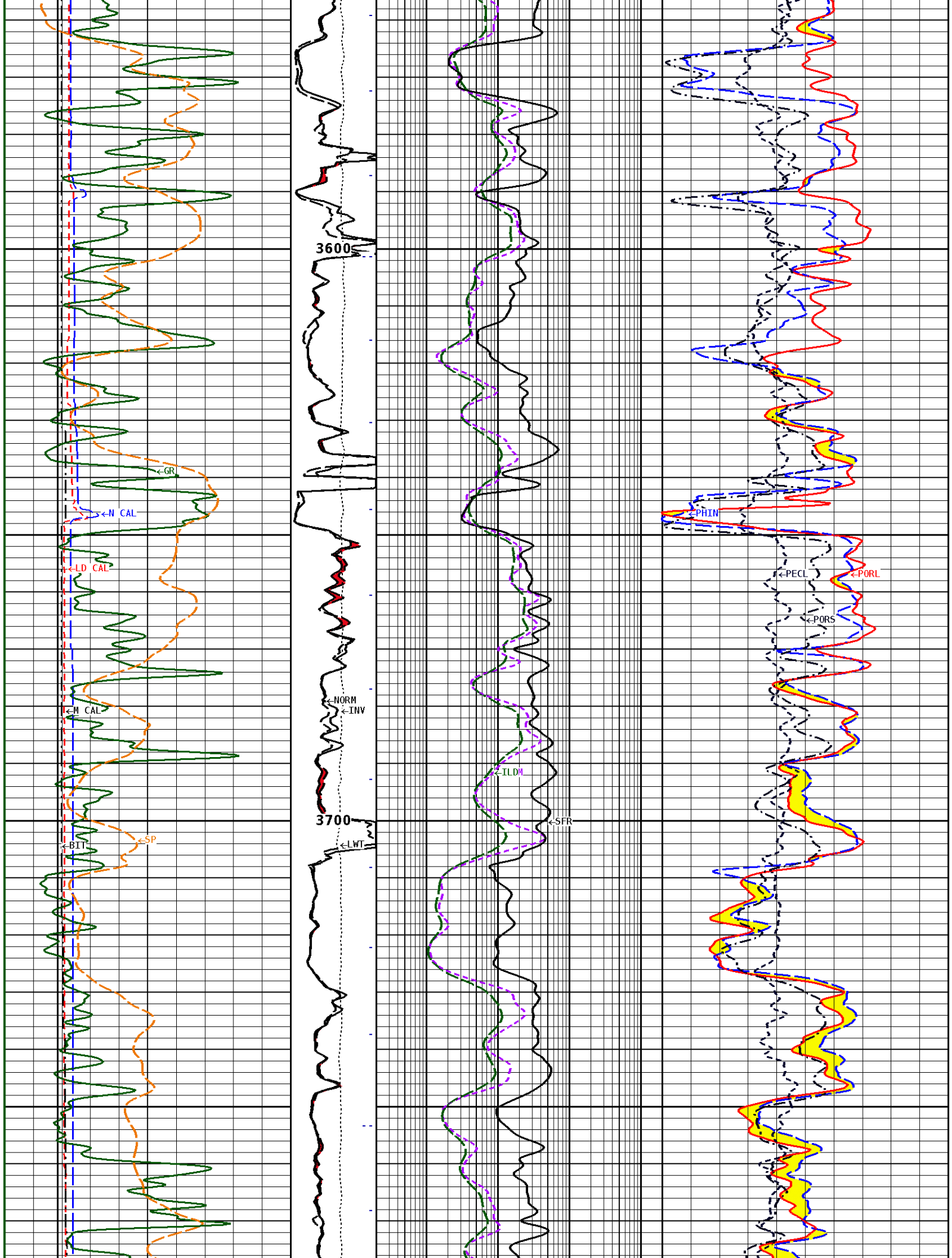
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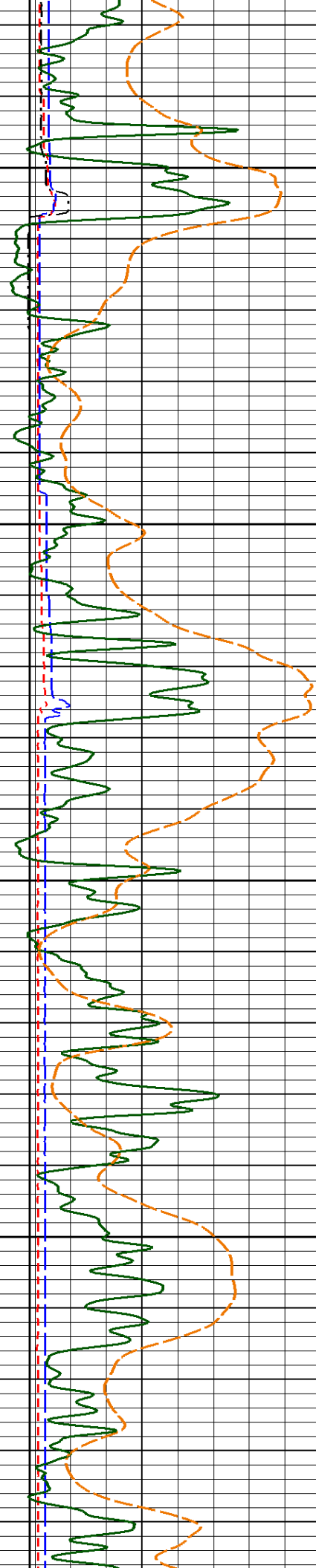
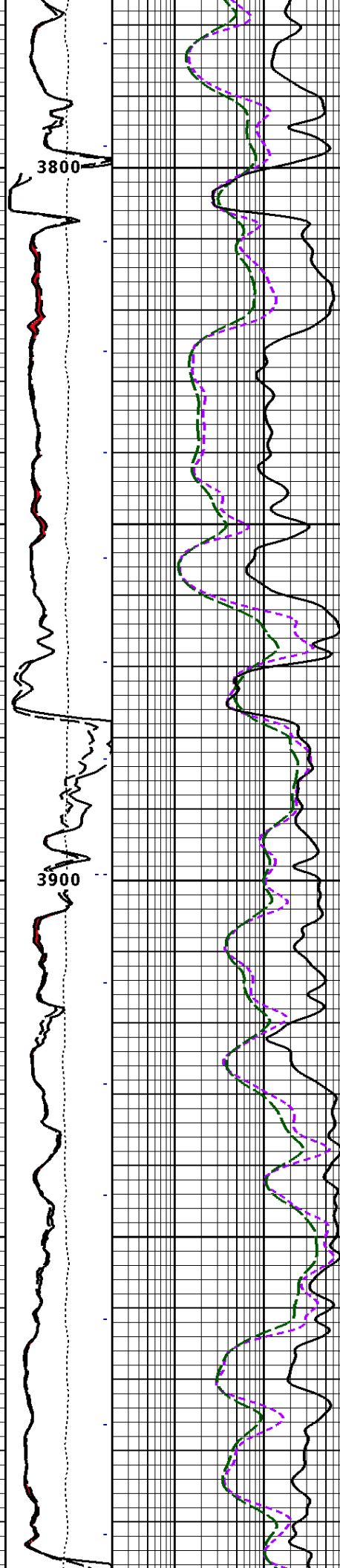
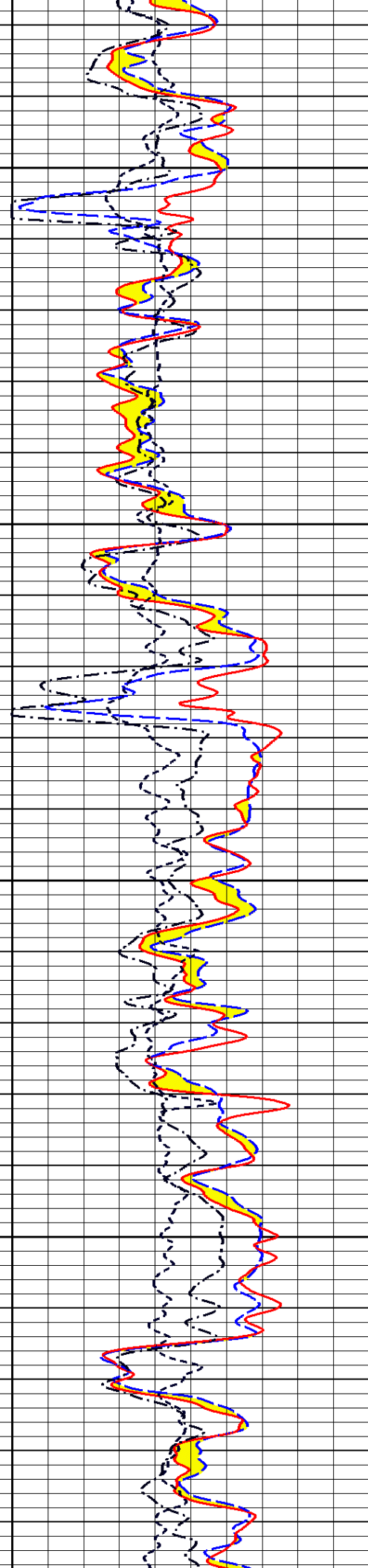
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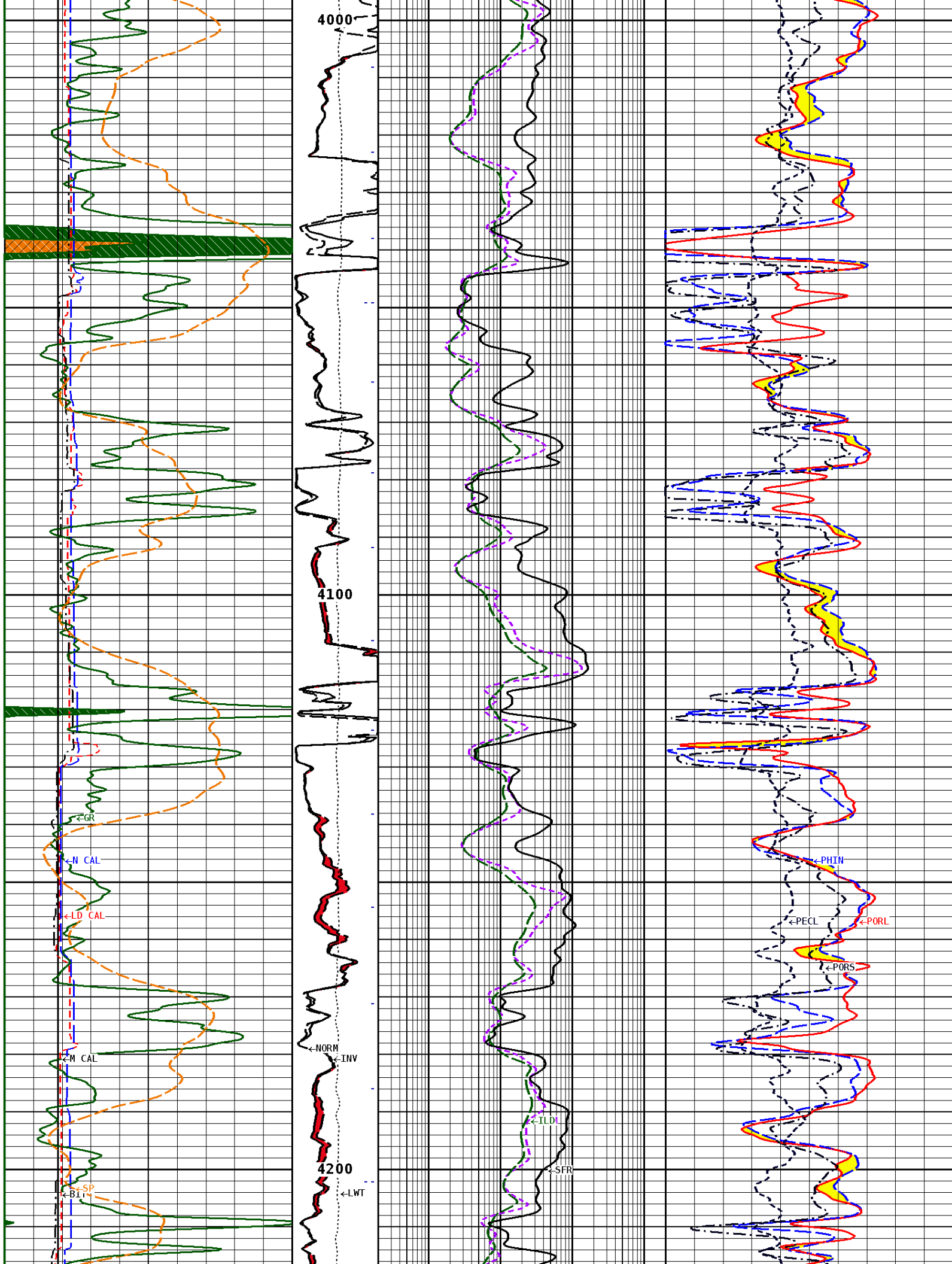
CALIPER MICRO INCHES (IN) 16 26 6 16					
BIT SIZE INCHES (IN) 6 16					
NEUTRON (Y) CALIPER INCHES (IN) 16 26 6 16				SONIC POROSITY Percent 30 -10	
DENSITY (X) CALIPER INCHES (IN) 16 26 6 16		NORMAL OHMM 0 40	SHALLOW FOCUSED RESISTIVITY OHMM 0.2 2000.0	PE CROSS-SECTION BARNS/ELECTRON 0 10	
SPONTANEOUS POTENTIAL mV → ←20		INVERSE OHMM 0 40	DEEP INDUCTION OHMM 0.2 2000.0	DENSITY POROSITY (2.71g/cc) PERCENT 30 -10	
GAMMA RAY API UNITS 150 300 0 150		TENSION LBS 4000 2000	MEDIUM INDUCTION OHMM 0.2 2000.0	NEUTRON POROSITY (LIMESTONE) PERCENT 30 -10	

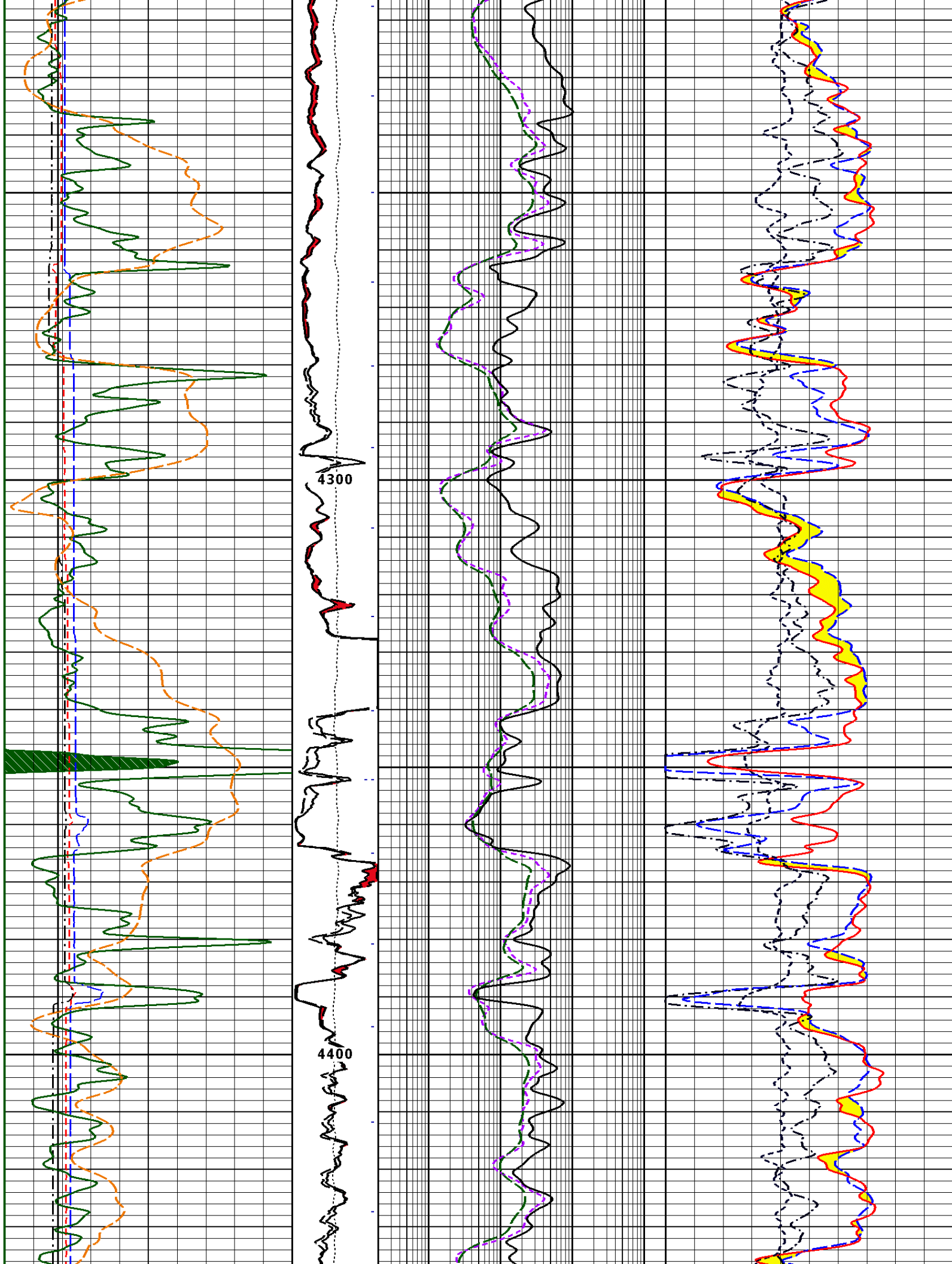
1:240 MAIN SECTION

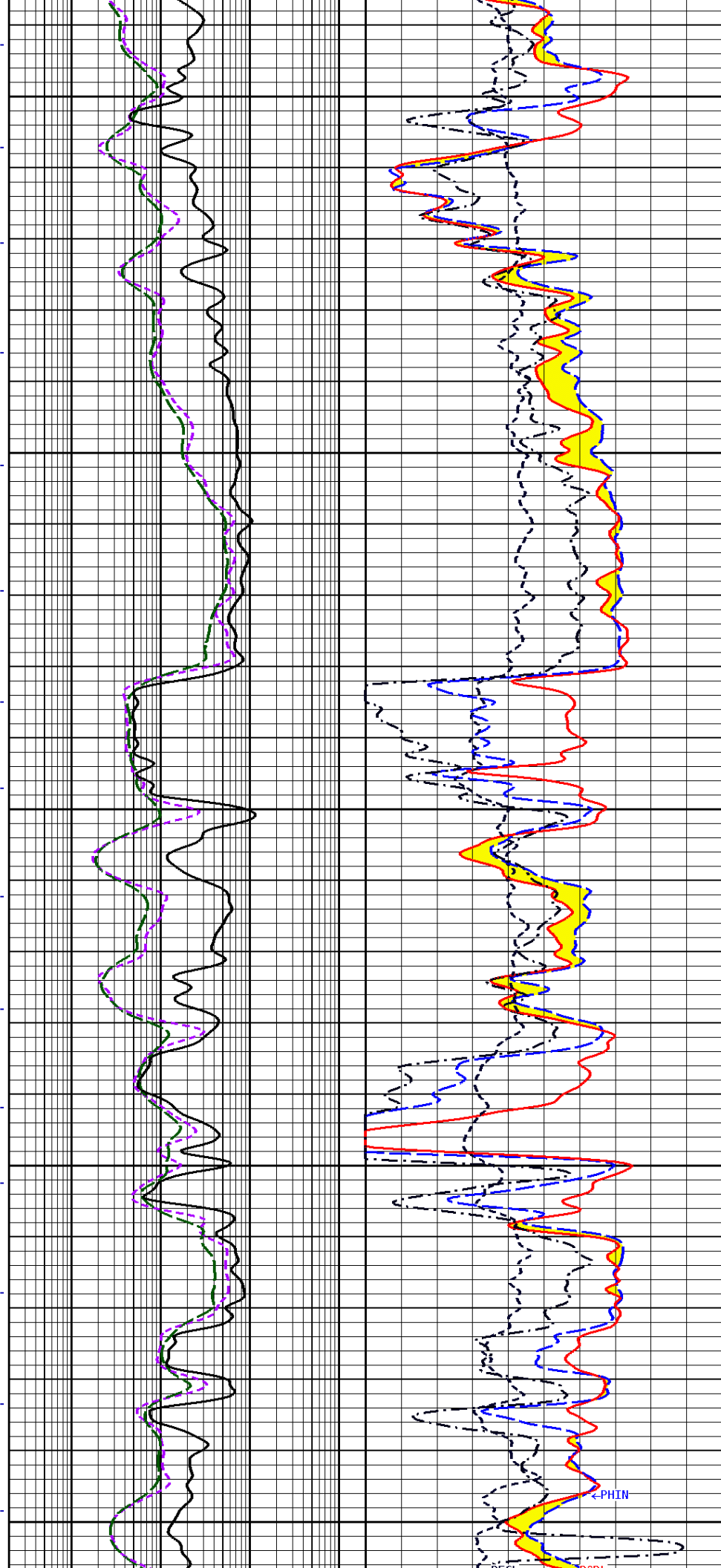
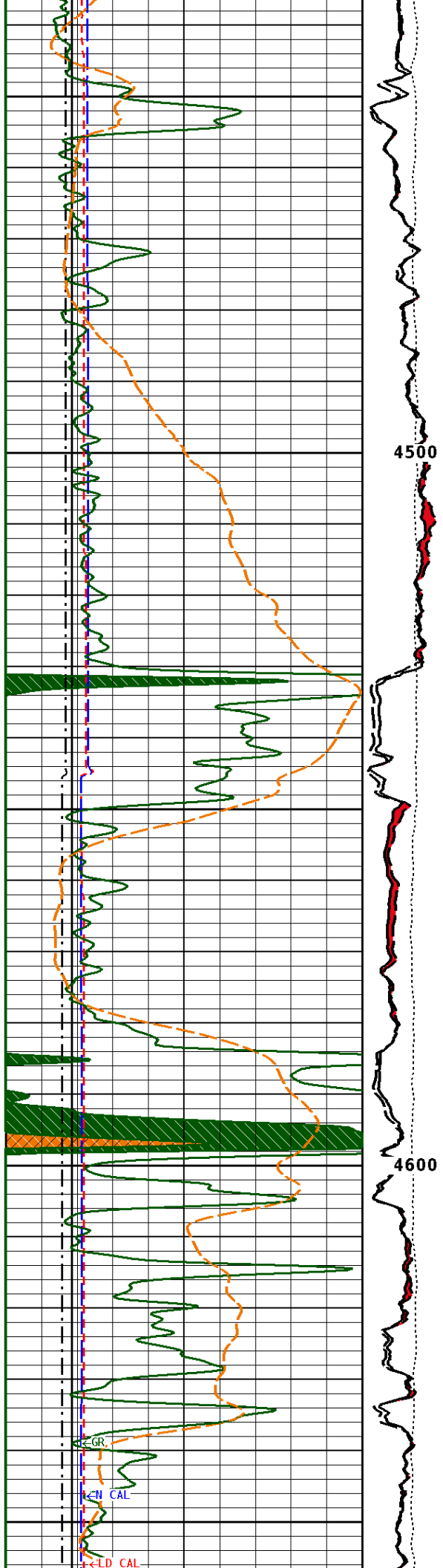


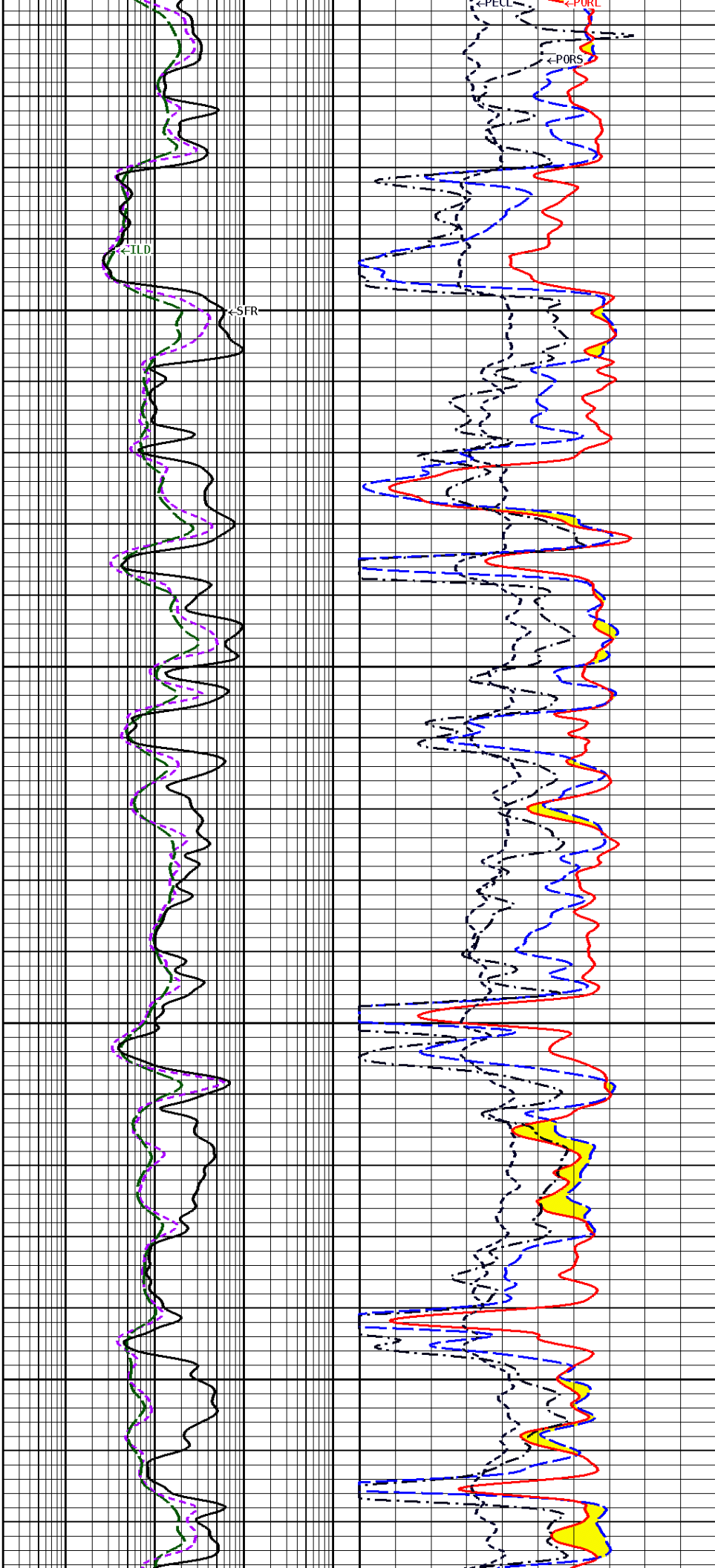
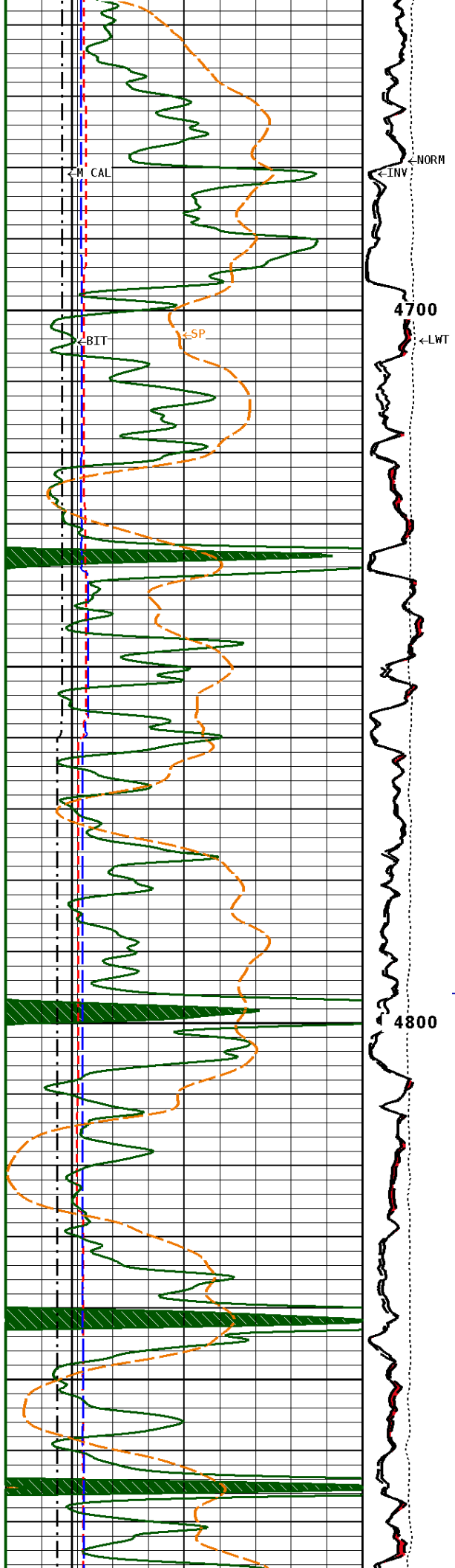


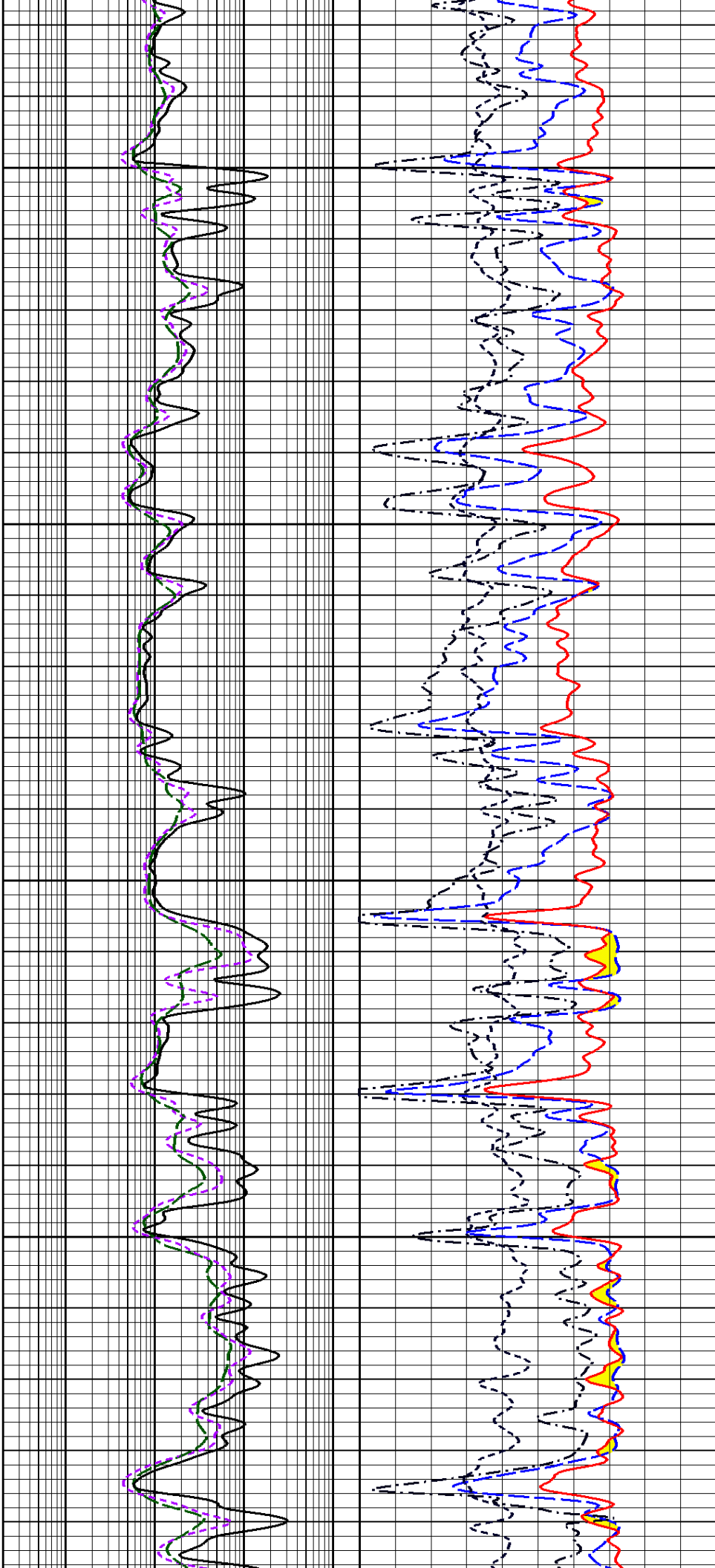
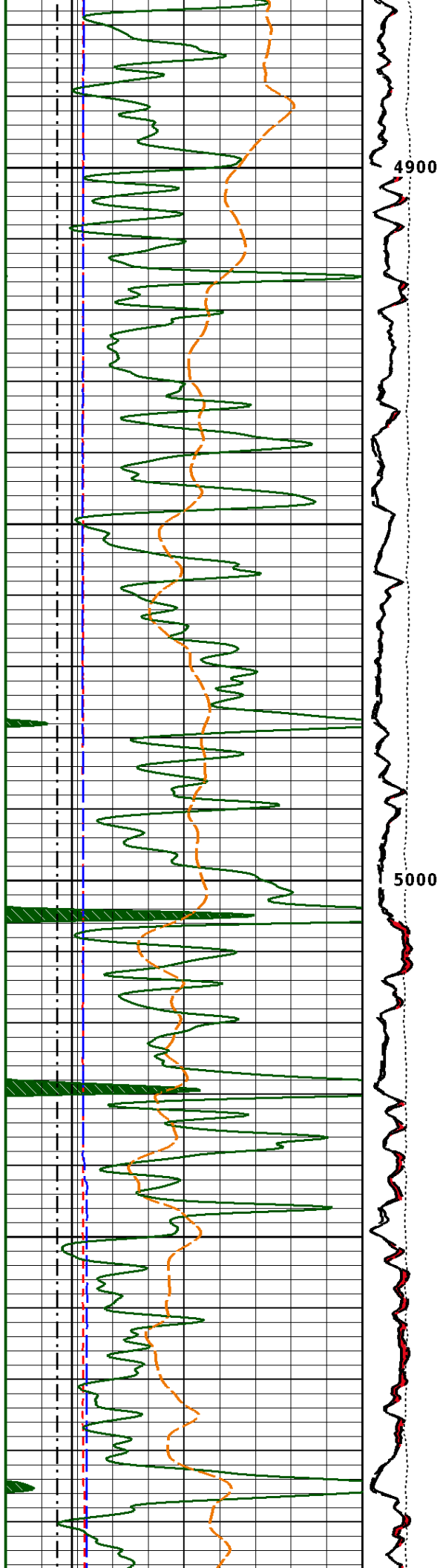


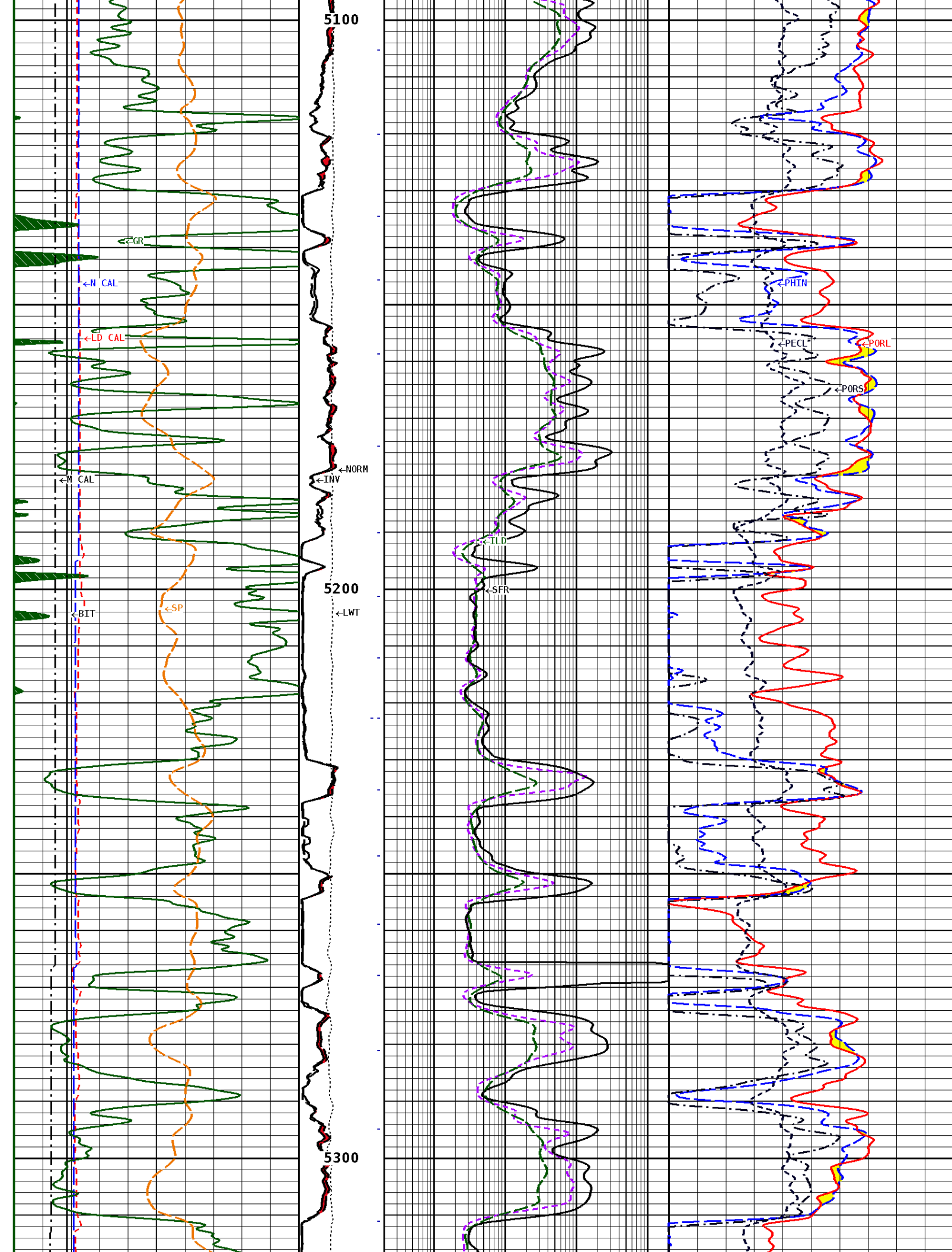


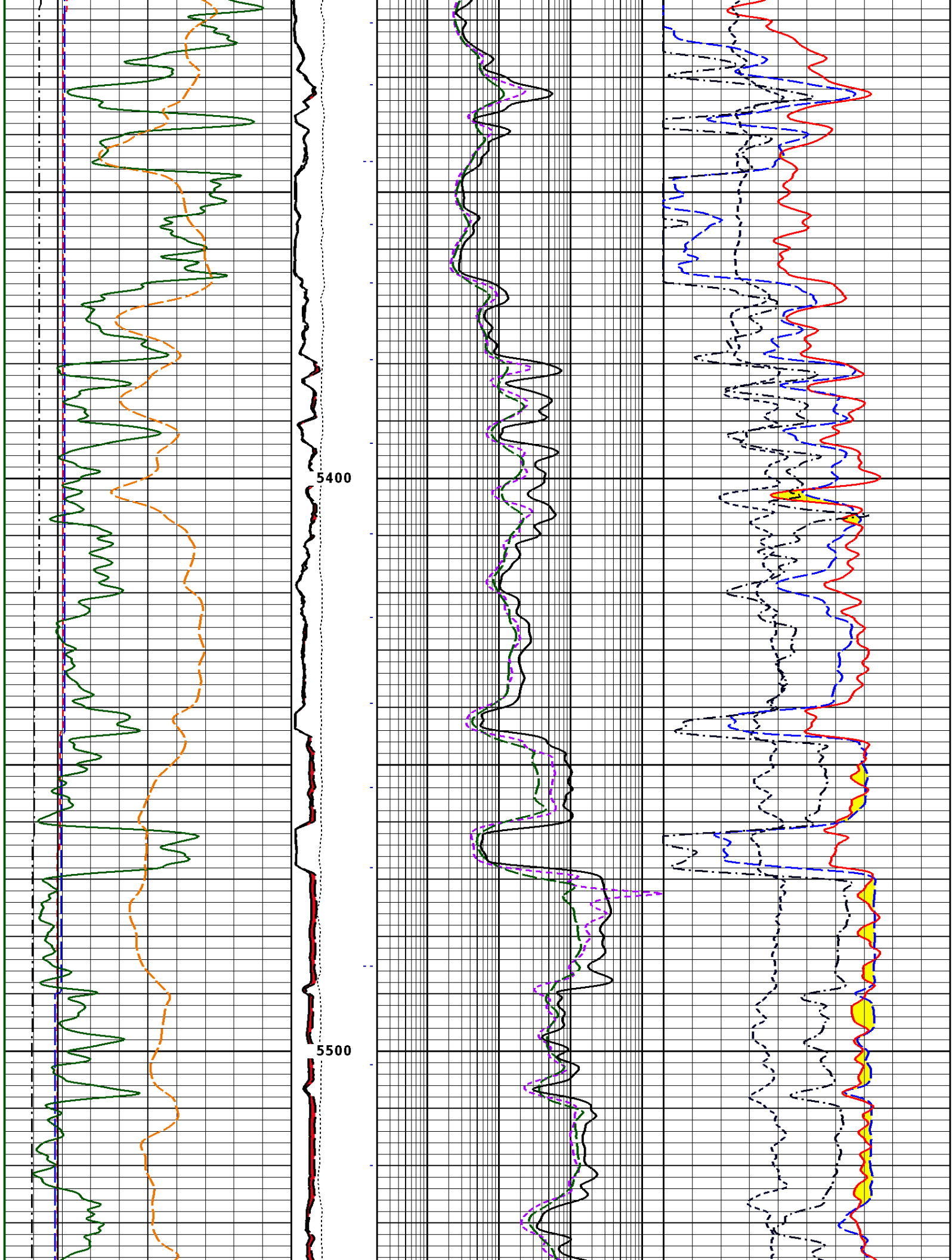


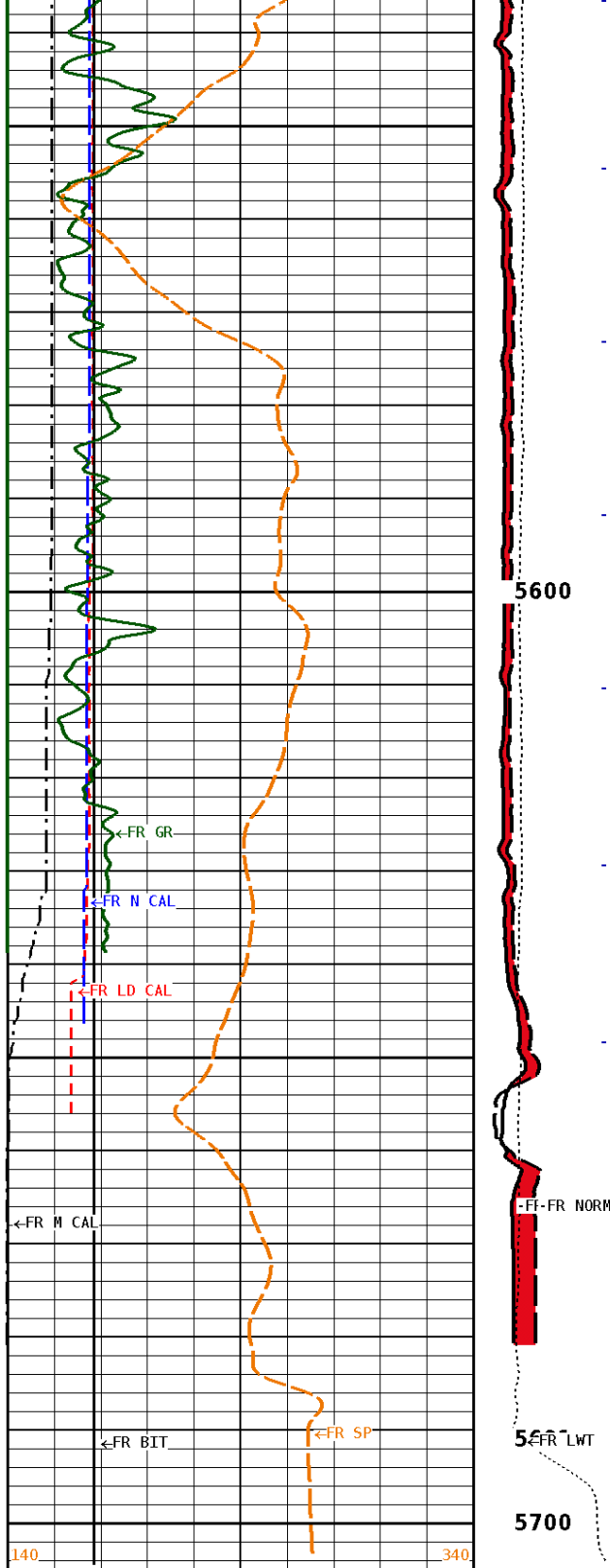






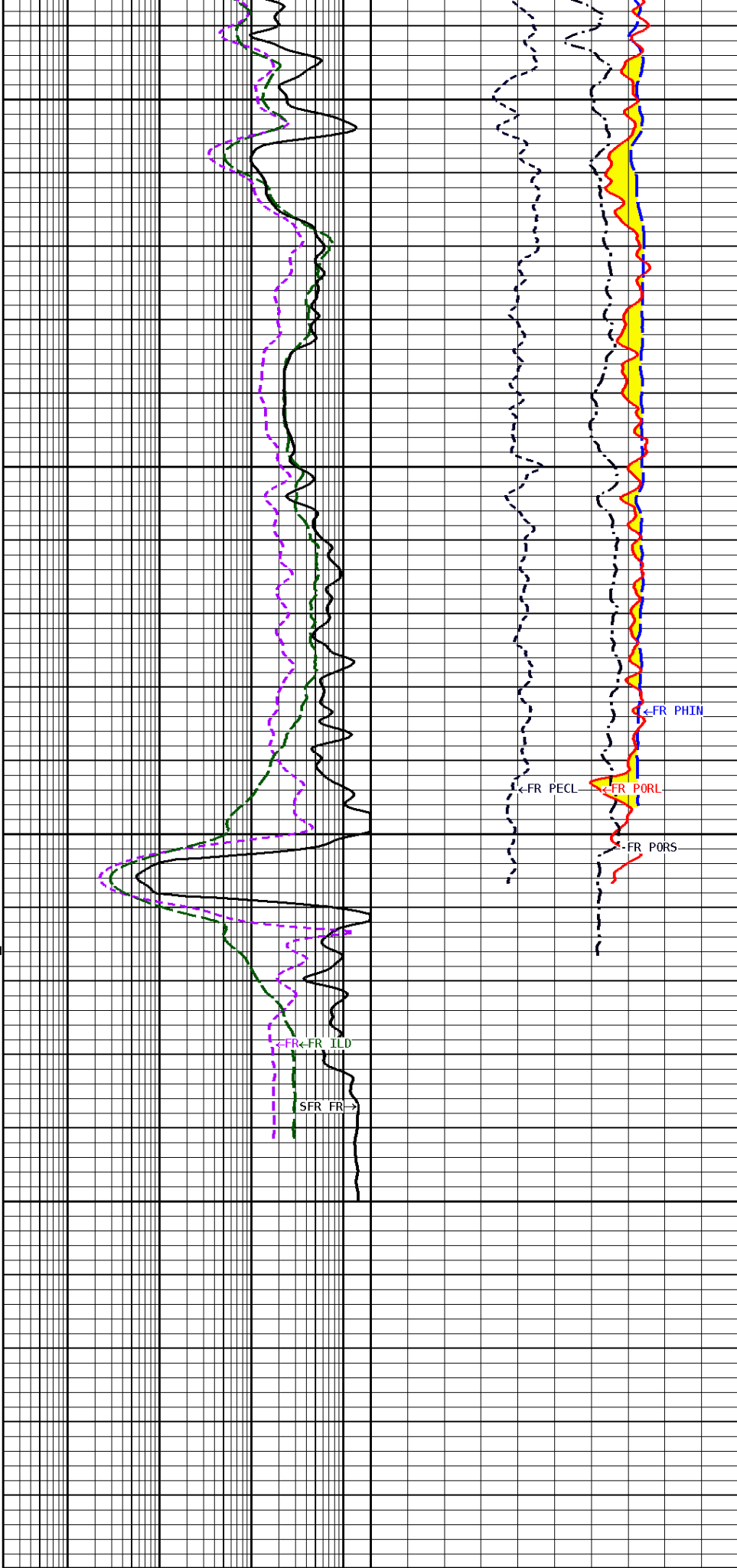






File #1.1.7

1:240 MAIN SECTION



GAMMA RAY API UNITS 150  300 0 150		TENSION LBS 4000 2000	MEDIUM INDUCTION OHMM 0.2 2000.0	NEUTRON POROSITY (LIMESTONE) PERCENT 30 -10
SPONTANEOUS POTENTIAL mV → ← 20		INVERSE OHMM 0 40	DEEP INDUCTION OHMM 0.2 2000.0	DENSITY POROSITY (2.71g/cc) PERCENT 30 -10
DENSITY (X) CALIPER INCHES (IN) 16 26 6 16		NORMAL OHMM 0 40	SHALLOW FOCUSED RESISTIVITY OHMM 0.2 2000.0	PE CROSS-SECTION BARNs/ELECTRON 0 10
NEUTRON (Y) CALIPER INCHES (IN) 16 26 6 16				SONIC POROSITY Percent 30 -10
BIT SIZE INCHES (IN) 6 16				
CALIPER MICRO INCHES (IN) 16 26 6 16				

*** Borehole Zone Factors ***

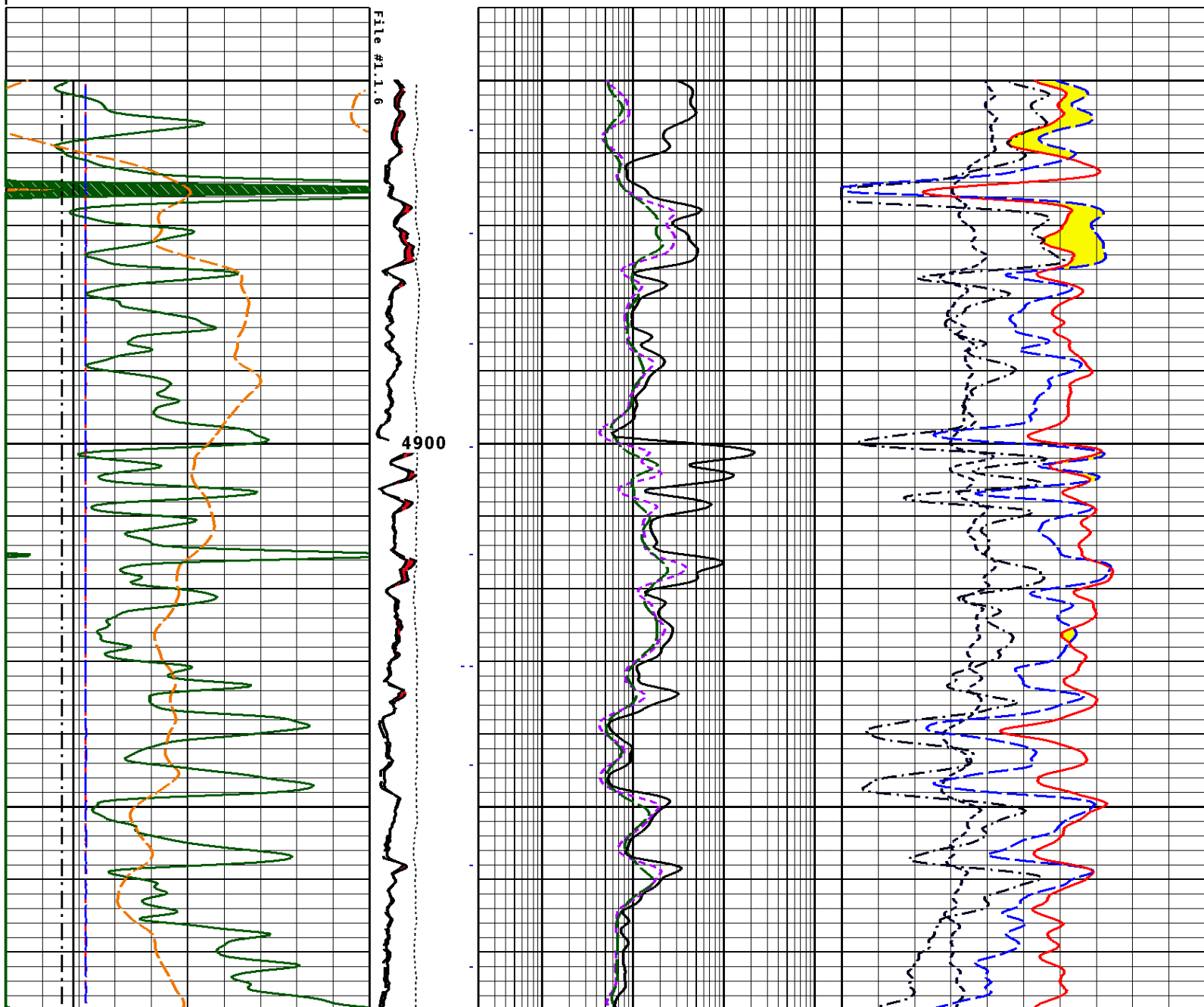
Zone 1 99999.0 to 0.0 Feet		
Matrix Density	2.71	g/cc
Cementation Exponent	2.00	
A	1.00	
Fluid Density	1.00	g/cc
Matrix Transit Time	47.5	us/ft
Fluid Transit Time	189.0	us/ft
Formation Matrix	Limestone	
Drill Bit Size	7.875	in
Casing Diameter	5.500	in
Casing Thickness	0.250	in
Casing Correction (PHI N)	Disable	
Hole Substance	Fluid	
BHT Depth	5691.000	ft
Borehole Temperature	129.0	degF
Temperature Gradient	1.82	DCHM
Resistivity Of Mud	3.500	ohmm
U Fluid	0.398	
Grain Density Mineral 1	2.510	g/cc
Grain Density Mineral 2	2.644	g/cc
Grain Density Mineral 3	2.877	g/cc
U Mineral 1	13.770	
U Mineral 2	4.779	
U Mineral 3	8.997	
Resistivity Of Mud Temperature	60.00	degF
MSTNG Normal Correction	0.00	ohmm
MSTNG Inverse Correction	0.00	ohmm

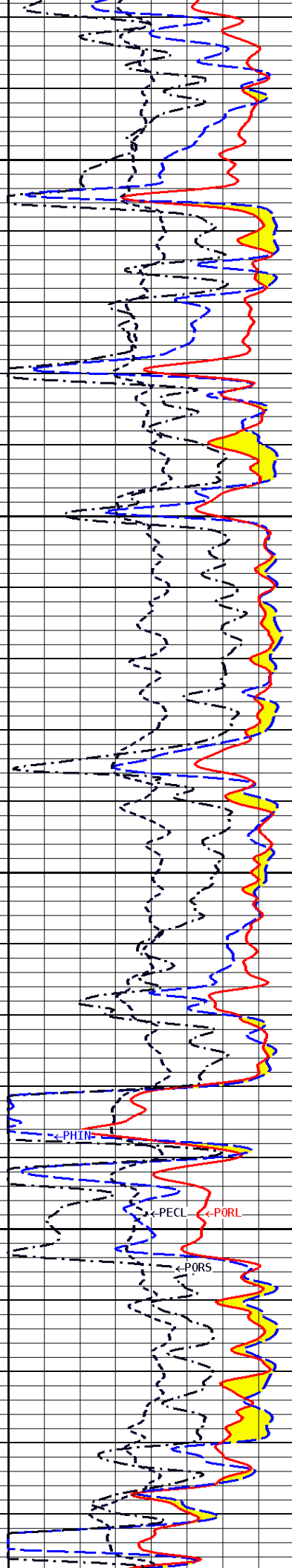
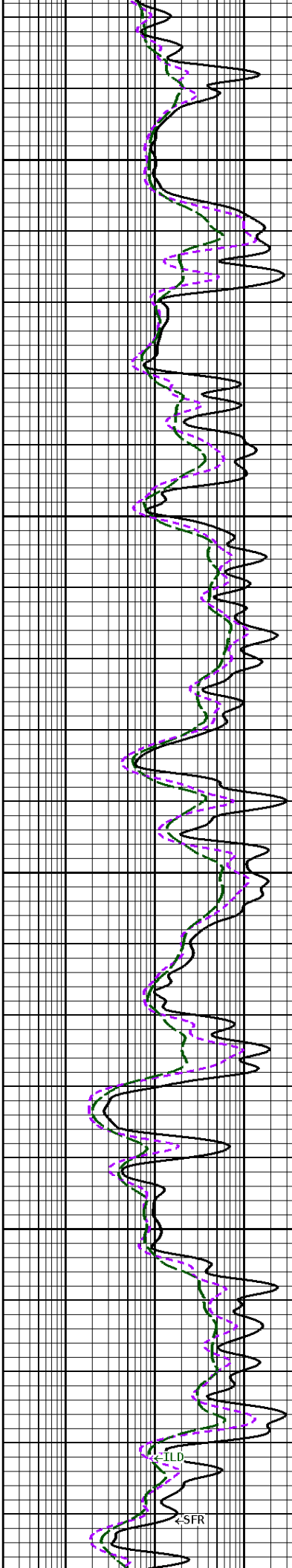
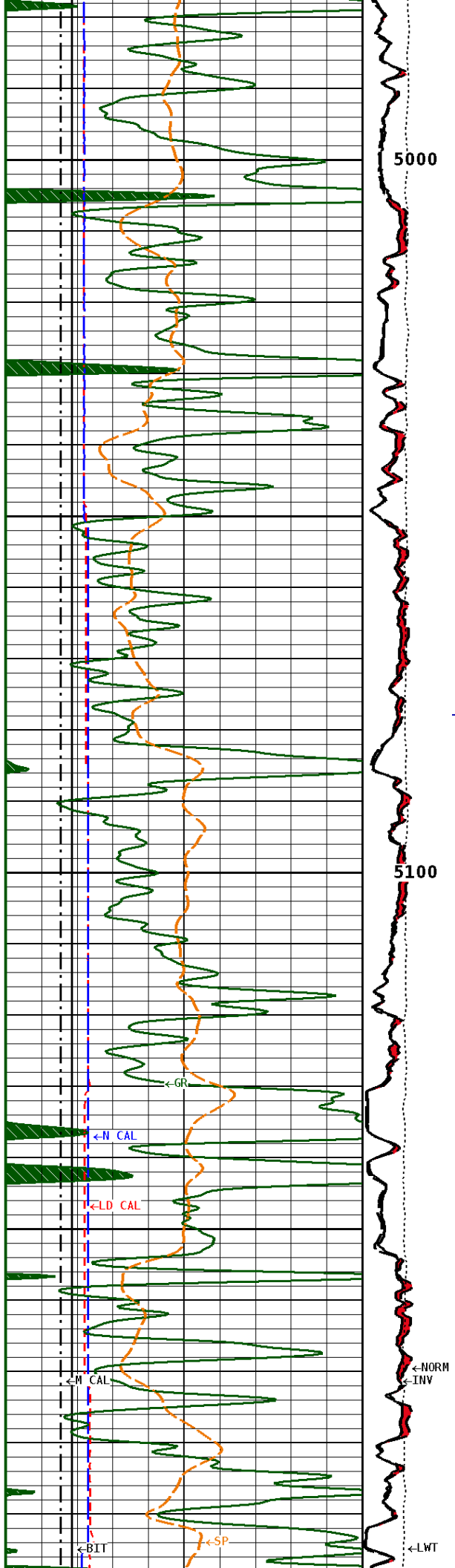
Well File: MERIT_GOERING_JACOB_M-4_JAN27_QUINT	Scale: 1:240	Format: COM-meri
Segment: V1.D1.S6 Repeat	Acquired: Not Available	
Reference: 0	Processed: Not Available	

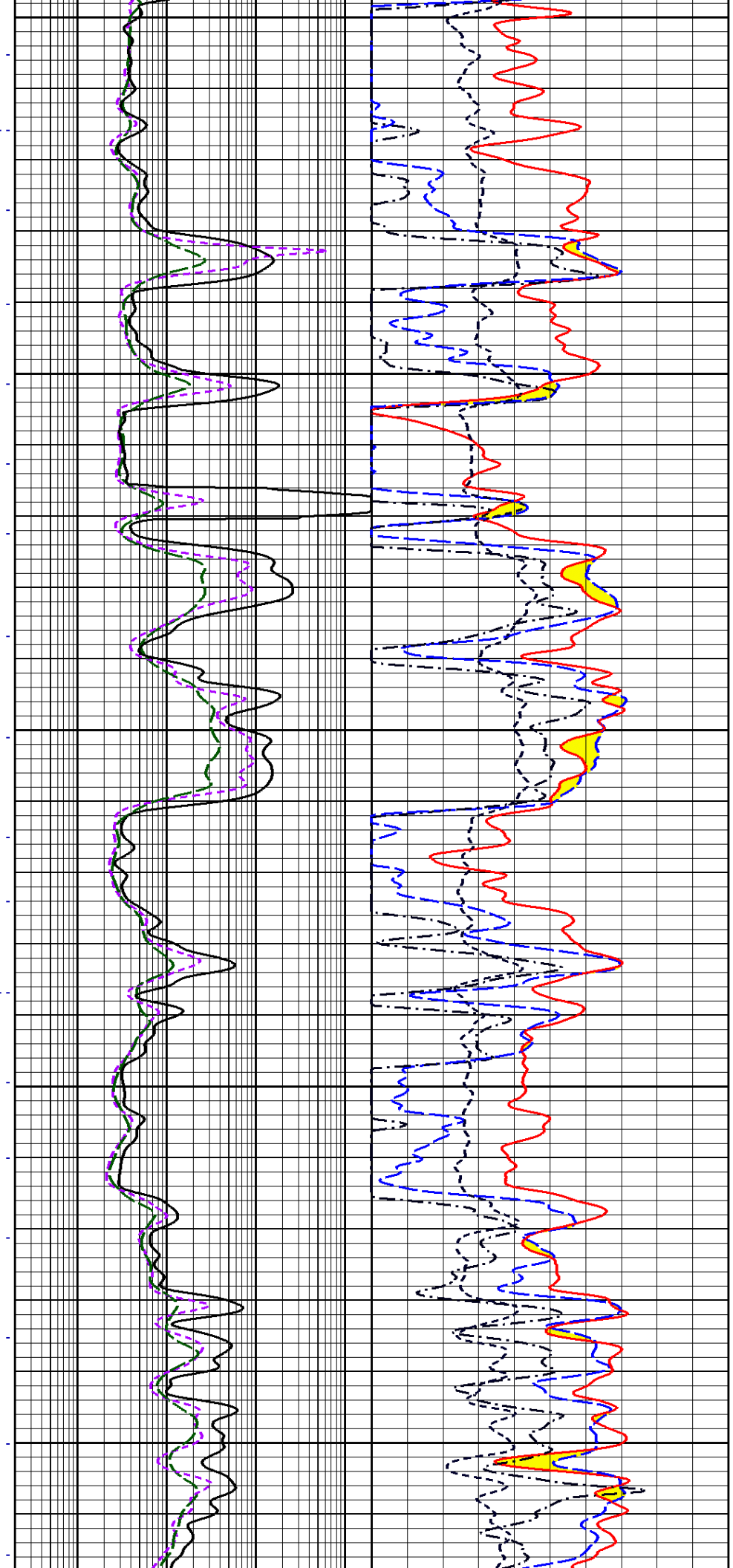
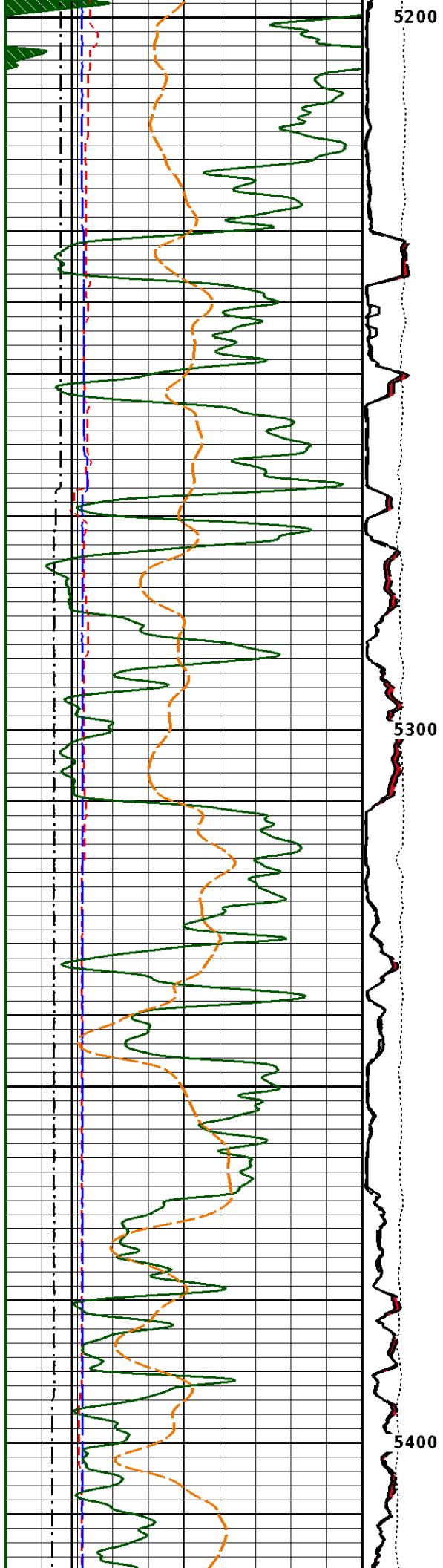
CALIPER MICRO INCHES (IN) 16 26 6 16	
BIT SIZE INCHES (IN) 6 16	

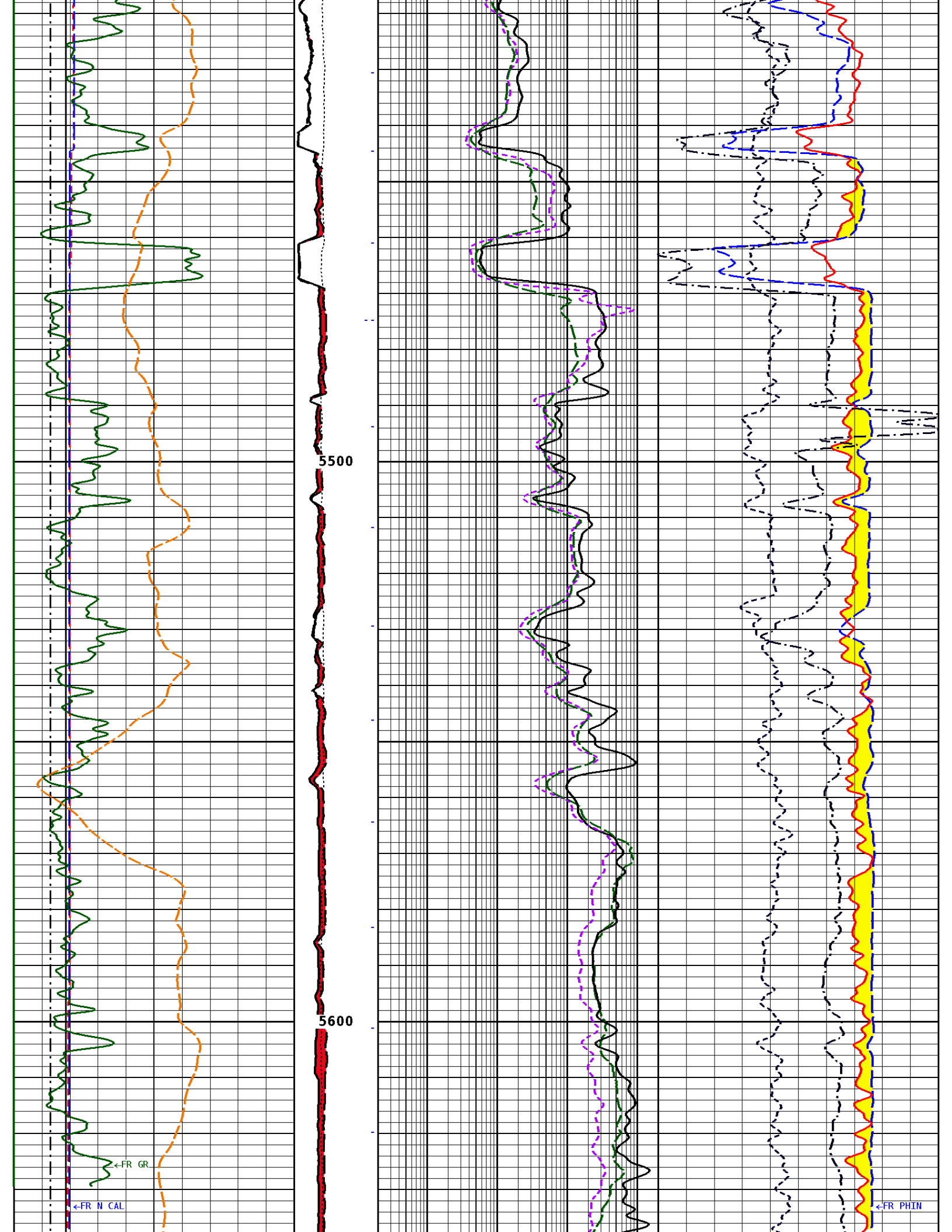
NEUTRON (Y) CALIPER INCHES (IN)		SONIC POROSITY Percent	
16	26	30	-10
6	16		
DENSITY (X) CALIPER INCHES (IN)		PE CROSS-SECTION BARNS/ELECTRON	
16	26	0	10
6	16		
SPONTANEOUS POTENTIAL mV		DENSITY POROSITY (2.71g/cc) PERCENT	
→ ← 20		30	-10
GAMMA RAY API UNITS		NEUTRON POROSITY (LIMESTONE) PERCENT	
150	300	30	-10
0	150		

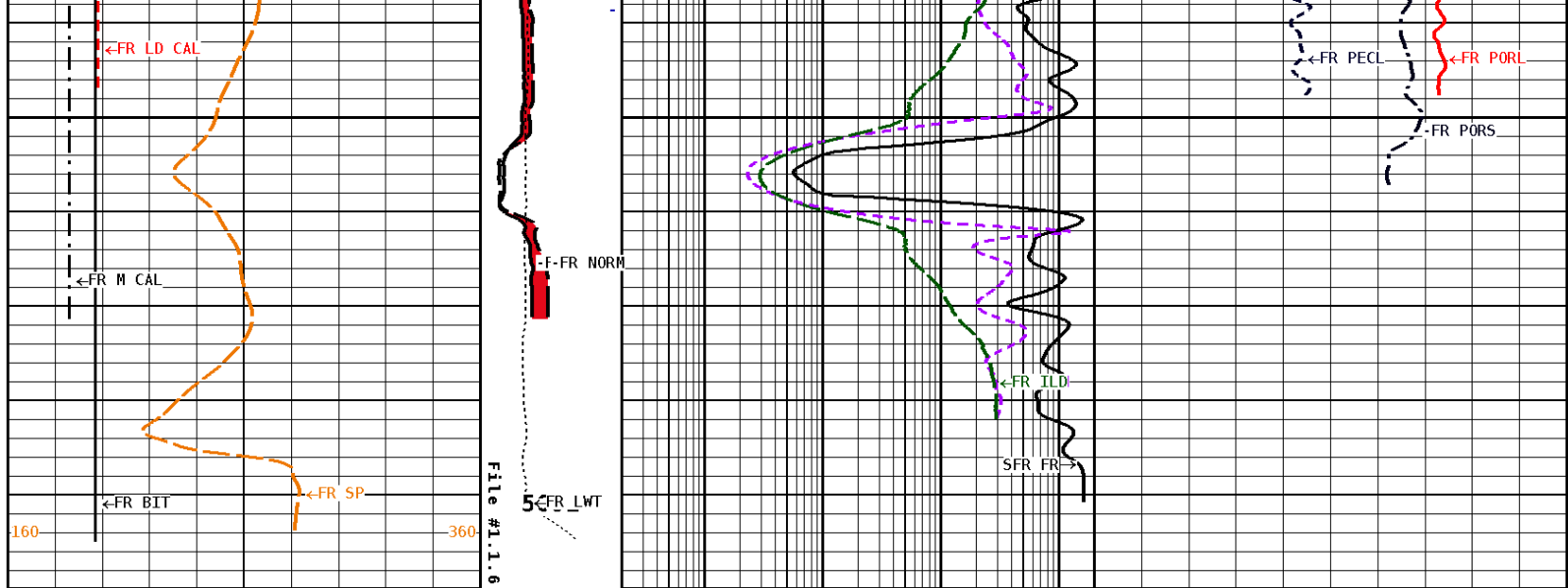
1:240 MAIN SECTION











1:240 MAIN SECTION

GAMMA RAY API UNITS 150 0 300 150	TENSION LBS 4000 2000	MEDIUM INDUCTION OHMM 0.2 2000.0	NEUTRON POROSITY (LIMESTONE) PERCENT 30 -10
SPONTANEOUS POTENTIAL mV → ←20	INVERSE OHMM 0 40	DEEP INDUCTION OHMM 0.2 2000.0	DENSITY POROSITY (2.71g/cc) PERCENT 30 -10
DENSITY (X) CALIPER INCHES (IN) 16 6 26 16	NORMAL OHMM 0 40	SHALLOW FOCUSED RESISTIVITY OHMM 0.2 2000.0	PE CROSS-SECTION BARN/ELECTRON 0 10
NEUTRON (Y) CALIPER INCHES (IN) 16 6 26 16			SONIC POROSITY Percent 30 -10
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
Matrix Density	2.71			g/cc
Cementation Exponent	2.00			
A	1.00			
Fluid Density	1.00			g/cc
Matrix Transit Time	47.5			us/ft
Fluid Transit Time	189.0			us/ft
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	5693.000			ft
Borehole Temperature	129.0			degF
Temperature Gradient	1.00			degF/ft

Temperature Gradient	1.82	DCHM
Resistivity Of Mud	3.500	ohmm
U Fluid	0.398	
Grain Density Mineral 1	2.510	g/cc
Grain Density Mineral 2	2.644	g/cc
Grain Density Mineral 3	2.877	g/cc
U Mineral 1	13.770	
U Mineral 2	4.779	
U Mineral 3	8.997	
Resistivity Of Mud Temperature	60.00	degF
MSTNG Normal Correction	0.00	ohmm
MSTNG Inverse Correction	0.00	ohmm

*** 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	
	Background	Jig	Jig		
GR	36	266	160		GRAPI
Shop Calibration					
CNT-AA					
Performed : 21-DEC-2019			Time : 21:43		
Sensor Suite : CALI-BCN			ID : NDT-AF-104		
	Jig - Measured		Jig - Calibrated	Units	
	Ring#1	Ring#2	Ring#1	Ring#2	
CL # 1	8.3	13.2	6.0	12.0	IN.
Performed : 21-DEC-2019			Time : 21:43		
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		%
Shop Calibration					
LDT-DF					
Performed : 21-DEC-2019			Time : 21:43		
Sensor Suite : CALI-LTH			ID : NDT-FA-404		
	Jig - Measured		Jig - Calibrated	Units	
	Ring#1	Ring#2	Ring#1	Ring#2	
CL # 1	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

Shop Calibration				
CST-AD				
Performed : 26-OCT-2019			Time : 16:03	
Sensor Suite : SON-ANA			ID : CST-AB-24	
Transit Time				
T/R Pair	Measured		Calibrated	Units
T1R1	208.5		208.5	uS
T2R2	208.5		208.5	uS
T1R2	322.5		322.5	uS
T2R1	322.5		322.5	uS
Amplitude				
T/R Pair	Measured		Calibrated	Units
T1R1	90.00		90.00	mV
T2R2	90.00		90.00	mV
T1R2	78.00		78.00	mV
T2R1	78.00		78.00	mV

Shop Calibration					
MST-DA					
Performed : 22-OCT-2014			Time : 09:27		
Sensor Suite : CALI-MSN			ID : MST-DA-13		
Jig - Measured			Jig - Calibrated		Units
	Ring#1	Ring#2	Ring#1	Ring#2	
CL # 1	6.6	11.6	6.0	12.0	IN.

Performed : 22-OCT-2014			Time : 09:20			
Sensor Suite : MSTDA-NI			ID : MST-DA-13			
Internal						
	Measured			Calibrated		
	Zero	Reference	Units	Zero	Reference	Units
INV-V	0.0	29663.4		0.00	2246.00	MV
NOR-V	5.5	29968.6		0.00	1546.00	MV
IN-C	0.0	60262.5		0.00	15.46	UA
INV-R					32.34	OHMM
NOR-R					55.11	OHMM

Performed : 22-Oct-2014			Time : 09:22			
Sensor Suite : MSTDAMSF			ID : MST-DA-13			
Internal						
	Measured			Calibrated		
	Zero	Reference	Units	Zero	Reference	Units
MSFC	16.0	42014.6		0.00	1522.00	UA
MSFB	32733.0	54896.5		0.00	1522.00	MA
MOM1	0.0	42954.5		0.00	1522.00	MV
MSFRA					43.30	OHMM

Shop Calibration PIT-CA					
Performed : 21-DEC-2019			Time : 21:46		
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 : 21-DEC-2019			Time : 21:46	
Sensor Suite : SFL			ID : PIT-AC-043	

Internal					
	Measured		Calibrated		Units
	Zero	Reference	Zero	Reference	
Im	32732.6	48929.1	0.0	7028.0	uA
Ib	32768.6	49680.1	0.0	1750.0	mA
MOM1	32722.0	56290.6	0.0	175.0	mV
Equivalent SFL				43.97	OHMM
Performed : 21-DEC-2019			Time : 21:47		
Sensor Suite : P-SP			ID : PIT-AC-043		
Internal					
	Measured		Calibrated		Units
	Zero	Reference	Zero	Reference	
	32774.5	58935.9	0.0	1000.0	mV
Performed : 21-DEC-2019			Time : 21:47		
Sensor Suite : P-RMUD			ID : PIT-AC-043		
Internal					
	Measured		Calibrated		Units
	Zero	Reference	Zero	Reference	
Rmi	0.0	34825.0	0.0	290.6	mA
Rmv	0.0	34825.0	0.0	290.6	mV
Equivalent Rm				0.0871	OHMM



Company: MERIT ENERGY COMPANY
 Well: GOERING JACOB #M-4
 Location: 1340' FWL & 1184' FNL
 Logged: 01-27-2020
 K.B. Elev: 3063.0 Ft