Tucker ENERGY SERVICES

COMPOSITE LOG

Company MESSENGER PETROLEUM, INC.
Well BAUCK LH 1
Field VASSAR
County OSAGE
State KANSAS
Country USA
API No. 15-139-20097-0000

File No : TUL 59496
Company : MESSENGER PETROLEUM, INC.
Well : BAUCK LH 1
Field : VASSAR
County : OSAGE
State : KANSAS
Country : USA
API No : 15-139-20097-0000

Location :
1813' FNL & 1921' FEL
SW NE SW NE

LSD : **Sect :** 23 **Twp :** 16 S **Rge :** 16 E

Permanent Datum:	GL	**Elevations:**		**Services:**	
Drilling Measured From:	KB	**KB**	1108.00 Ft	CNT	MST
Log Measured From:	KB	**DF**	1107.00 Ft	LDT	CST
Above Permanent Datum:	10.00 Ft	**GL**	1098.00 Ft	XYT	PIT

Date	05-26-2014			
Run Number	1			
Depth--Driller	2766.0 Ft			
Depth--Logger	2759.0 Ft			
First Reading	2758.0 Ft			
Last Reading	266.0 Ft			
Casing--Driller	266.0 Ft			
Casing--Logger	266.0 Ft			
Bit Size	7.875 In			
Casing Size	8.625 In			
Hole Fluid Type	GEL / CHEMICAL			
Density	9.3 LBS/GAL			
Fluid Loss	6.6 CC			
PH/Viscosity	9.0	48.0 SEC		
Sample Source	MEASURED			
RM@Measured Temp.	2.800 @ 85 F			
RMF@Measured Temp	2.464 @ 85 F			
RMC@Measured Temp.	3.388 @ 85 F			
Source RMF/RMC	CALCULATED	CALCULATED		
RM@BHT	2.279 @ 106 F			
Time Circulation Stopped	05-26-2014 11:30 am			
Max Recorded Temp.	106 F			
Equipment/Base	TRUCK 123	TULSA		
Recorded By	R. KING			
Witnessed By	F. MIZE			

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.

Casing Strings

Size (In)	Weight (Lbs)	Bottom (Ft)	Top (Ft)
8.625	24.00	266.00	0.00

Bitsize Intervals

Size (In)	Bottom (Ft)
7.875	2766.00

Run Number 1

Run Number	1
Date	05-26-2014
Date/Time On Bottom	05-26-2014 3:00 pm
Depth to Fluid	0.0 Ft
Salinity	800.000 PPM
RMF@BHT	2.005 @ 106 F
RMC@BHT	2.755 @ 106 F

Comments

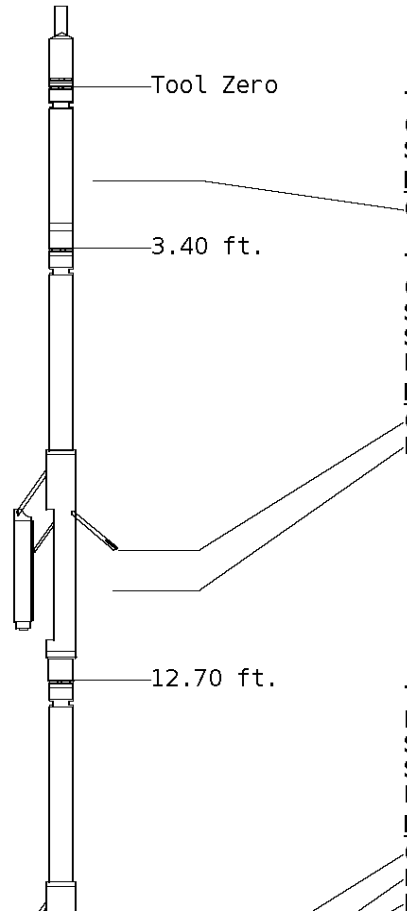
ALL PRESENTATIONS AS PER CUSTOMER REQUEST
GRT, CNT, LDT, MLT, CST, AND PIT RUN IN COMBINATION
CALIPERS ORIENTED ON X-Y AXIS
2.71 G/CC USED TO CALCULATE POROSITY
ANNULAR HOLE VOLUME CALCULATED USING 5.50" PRODUCTION CASING
PHIN IS CALIPER CORRECTED
HIRES LOGGED FROM TD-2500, 1800-1550, AS CLIENT REQUESTED.
DOLOMITE SECTIONS PRESENTED FROM 2630-2110, 2040-1900, 1725-1550, PER CLIENT
CNT AND GRT LOGGED TO GRASS ROOT, AS CLIENT REQUESTED
GRANITE IS PRESENT AT THE BOTTOM OF THE HOLE.

GRT: GRP, GRX.
CNT: PHIN, PHINX,CLCNIN.
LDT: PORL, LCORN, PECLN, LDENN, LDENNX, LCORNX, CLLDIN.
MLT: NOR_RF, INV_RF, MSCLPIN.
CST: PORS, ITT, CDTF, TT1, TT2, TT3, TT4.
PIT: VEIRDDS, EIRMDS, SFLAEC, CIRD, SPU

OPERATORS:
J. KLINE
J. THOMAS

Tool String Schematic

Total Tool Length - 66.95 **ft.**
Maximum Outside diameter - 6.00 **in.**
Net Weight in Air - 1171.00 **lbs.**



Tool: GRT-B **Length:** 3.40 **ft.** **O.D.** 3.60 **in.**
Gamma Ray Controller
Sonde ID :GRT-BB-107

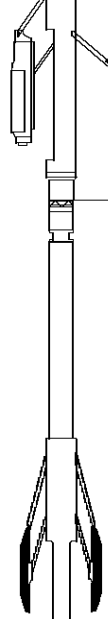
Measure Point	Tool Offset	Stack Offset	Bottom Offset
GRP	2.00	2.00	64.95

Tool: CNT-AA **Length:** 9.30 **ft.** **O.D.** 4.36 **in.**
Compensated Neutron A Pad on NDT-A
Sonde ID :NDT-BD-133
Source ID :N-1045
Pad ID :CNP-AA-024

Measure Point	Tool Offset	Stack Offset	Bottom Offset
CLCN	6.00	9.40	57.55
PHIN	6.80	10.20	56.75

Tool: LDT-DA **Length:** 9.30 **ft.** **O.D.** 4.80 **in.**
Litho Density D Pad on NDT-A
Sonde ID :PDT-GA-465
Source ID :2991GW
Pad ID :LDP-DA-065

Measure Point	Tool Offset	Stack Offset	Bottom Offset
CLLD	6.00	18.70	48.25
PEL	7.00	19.70	47.25
PES	7.40	20.10	46.85



LDEN	7.20	19.90	47.05
LCOR	7.20	19.90	47.05

22.00 ft.

Tool: MST-DA **Length:** 9.66 **ft.** **O.D.** 6.00 **in.**
Micro Spherically Focused (IC)
Sonde ID :MST-DA-26

Measure Point	Tool Offset	Stack Offset	Bottom Offset
MSFL	7.60	29.60	37.35
MSCLP	7.60	29.60	37.35
INV	7.60	29.60	37.35
NOR	7.60	29.60	37.35

31.66 ft.

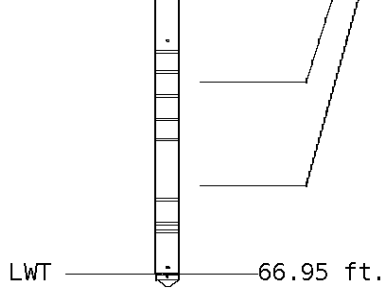
Tool: CST-AD **Length:** 13.80 **ft.** **O.D.** 3.60 **in.**
Open Hole Sonic
Sonde ID :CST-AB-38

Measure Point	Tool Offset	Stack Offset	Bottom Offset
TT1	4.80	36.46	30.49
TT3	5.80	37.46	29.49
CDT	7.30	38.96	27.99
TT4	8.80	40.46	26.49
TT2	9.80	41.46	25.49

45.46 ft.

Tool: PIT-CA **Length:** 21.49 **ft.** **O.D.** 3.62 **in.**
Phased Dual Induction w/ RM & D
Sonde ID :PIT-AB-005

Measure Point	Tool Offset	Stack Offset	Bottom Offset
ILD	8.92	54.38	12.56
ILM	10.10	55.56	11.39
SFLU	17.49	62.95	4.00
SP	20.60	66.06	0.88



Well File:	MESS_BAUCKLH1_MAY26-QUINT	**Scale:**	1:240 **Format:** COMSAT
Segment:	V1.D1.S6 MAIN-RPO	**Acquired:**	2014-05/26 15:17 3.3.0-12594
Reference:	0	**Processed:**	2014-05/26 18:37 3.3.0-12594

CALIPER MICRO INCHES (IN) 16 – 26 / 6 – 16

BIT SIZE INCHES (IN) 6 – 16

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

NORMAL OHMM 0 – 40

INVERSE OHMM 0 – 40

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

Volume Quartz

DENSITY CORRECTION G/CC -0.75 – 0.25

TENSION LBS 10000 – 0

Volume Calcite

SHALLOW FOCUSED RESISTIVITY OHMM 0.2 – 2000.0

PE CROSS-SECTION BARNS/ELECTRON 0 – 20

SPONTANEOUS POTENTIAL mV → | |← 20

Volume Dolo/Shale

DEEP INDUCTION OHMM 0.2 – 2000.0

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

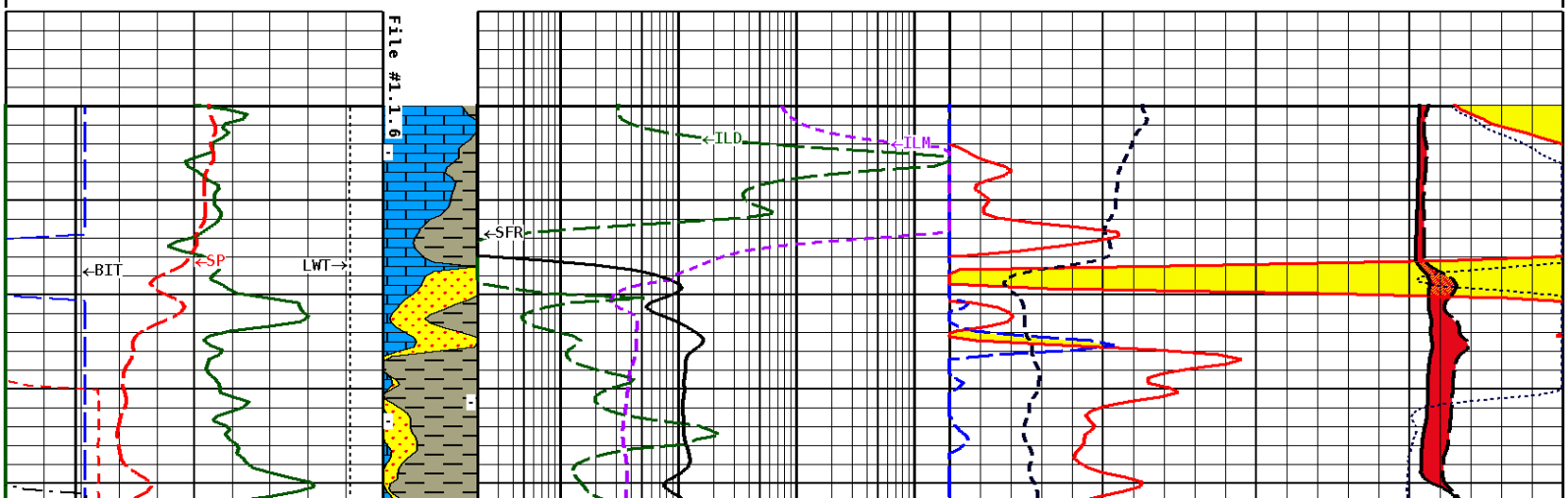
GAMMA RAY API UNITS 150 – 300 / 0 – 150

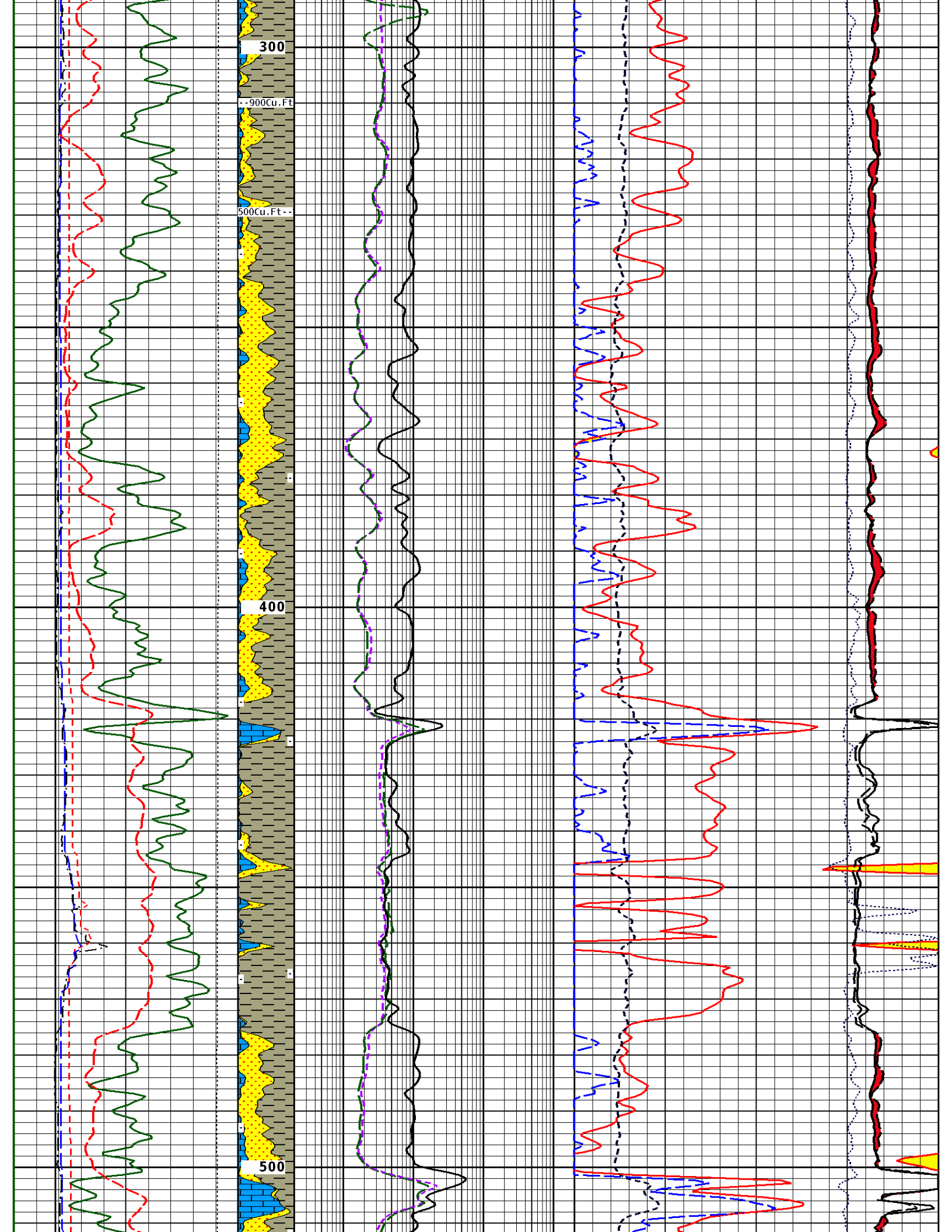
-BHV AHV- CU.FT

MEDIUM INDUCTION OHMM 0.2 – 2000.0

NEUTRON POROSITY (LIMESTONE) PERCENT 30 – -10

1:240 MAIN SECTION

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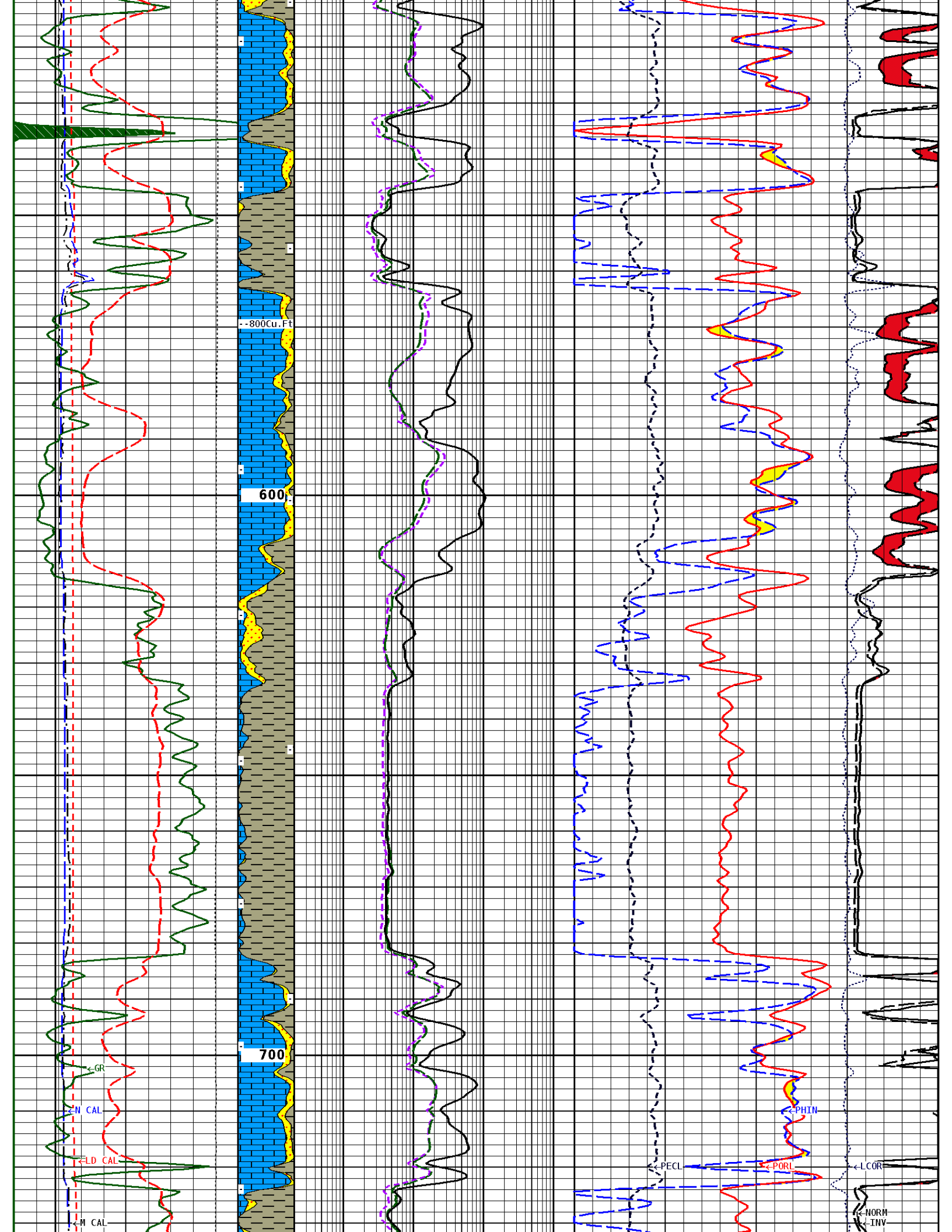
500Cu.Ft
400
500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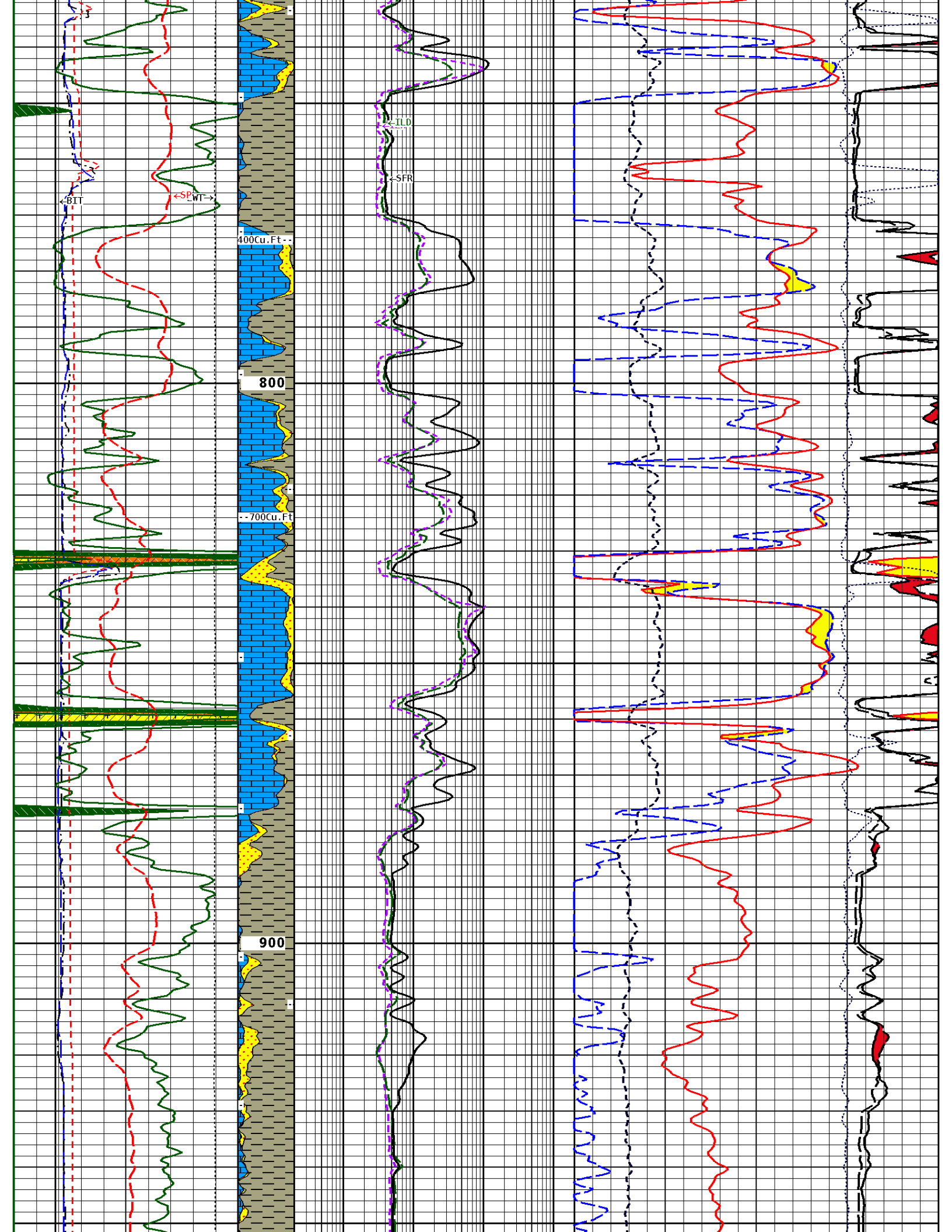
600
700
GR
N CAL
LD CAL
M CAL
PHIN
PECL
PORL
LCOR
NORM
INV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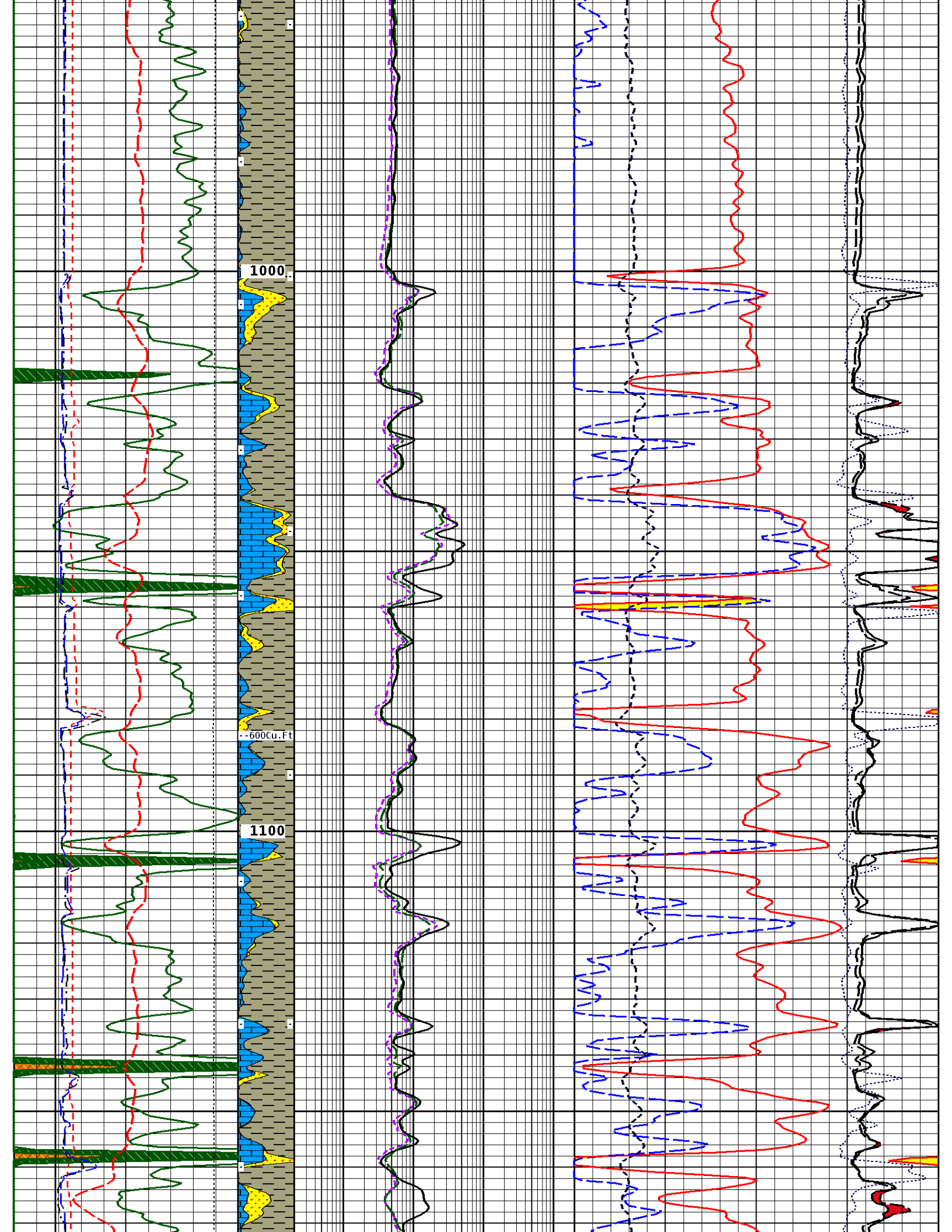
←SP
WT→
400Cu.Ft--
800
--700Cu.Ft
900
←ILD
←SFR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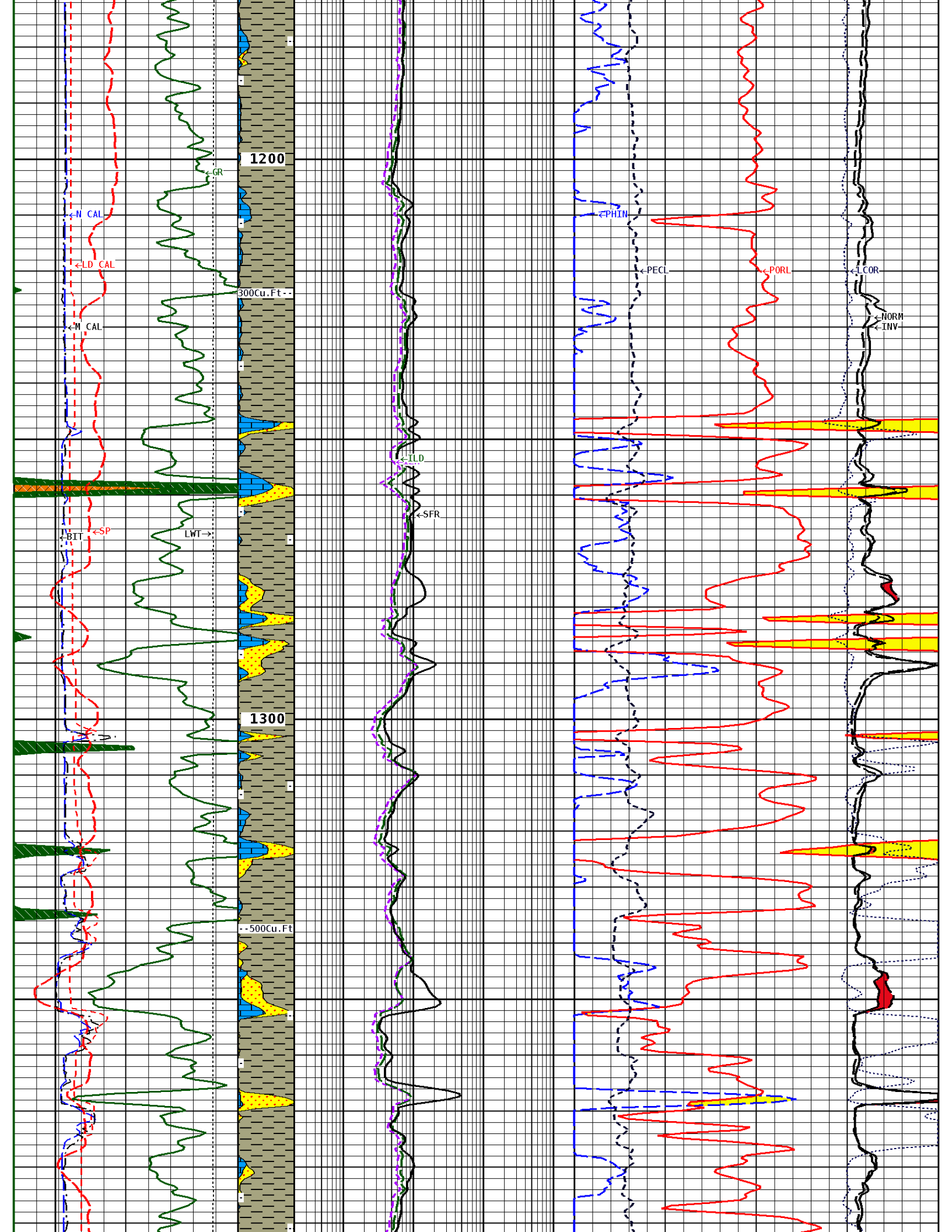
600Cu.Ft
1100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N CAL
LD CAL
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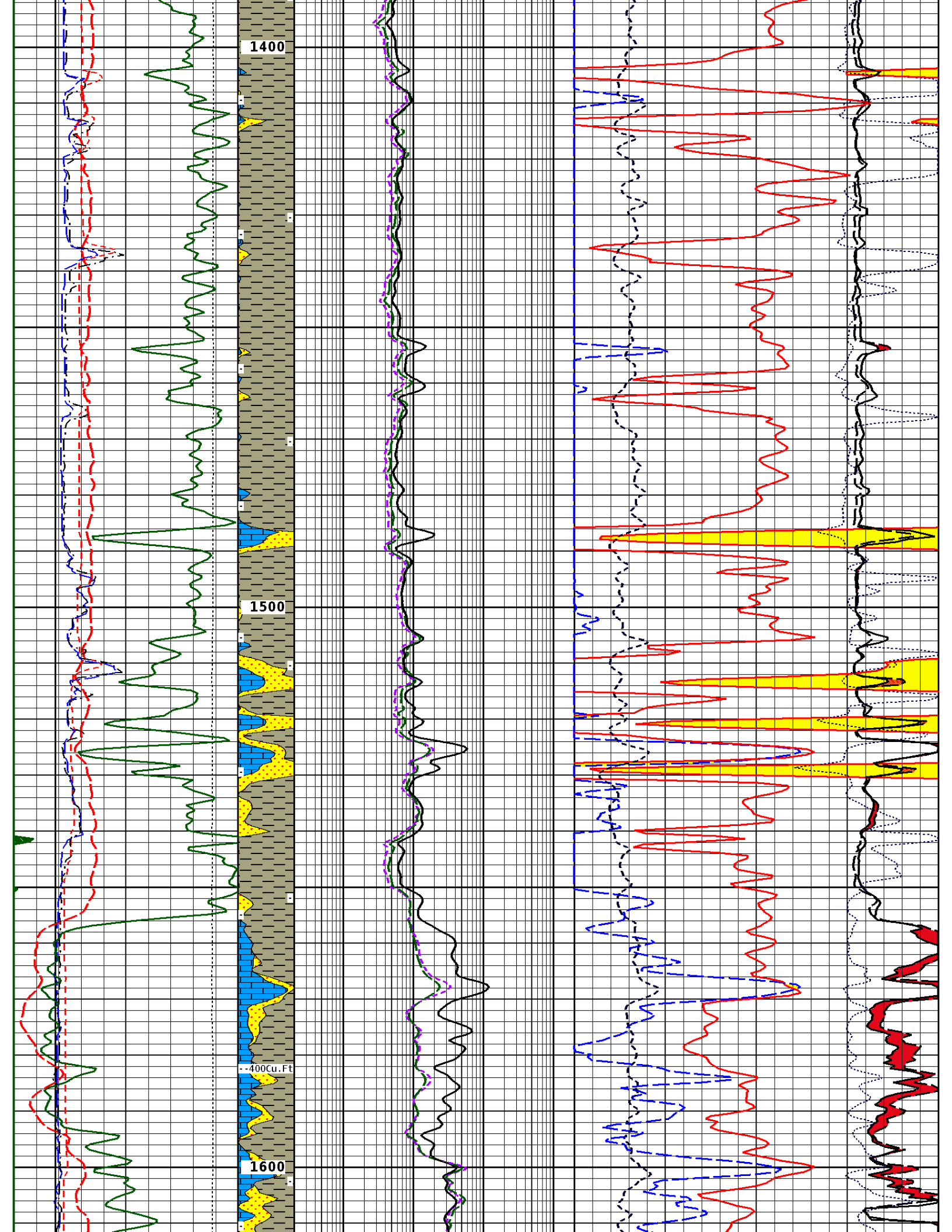
ILD
SFR
BIT
SP
LWT
1300
500Cu.Ft
PHIN
PECL
PORL
LCOR
NORM
INV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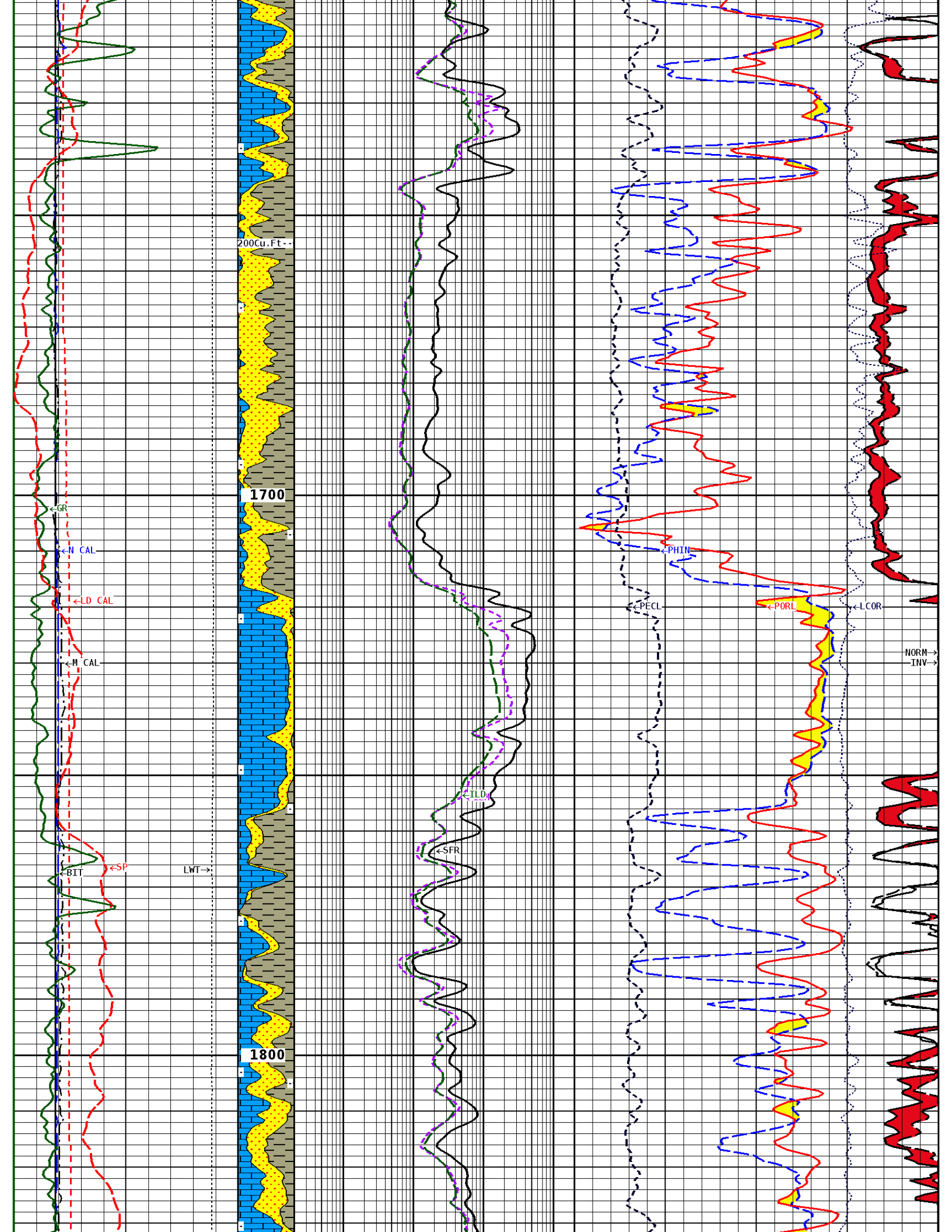
1500
400Cu.Ft
1600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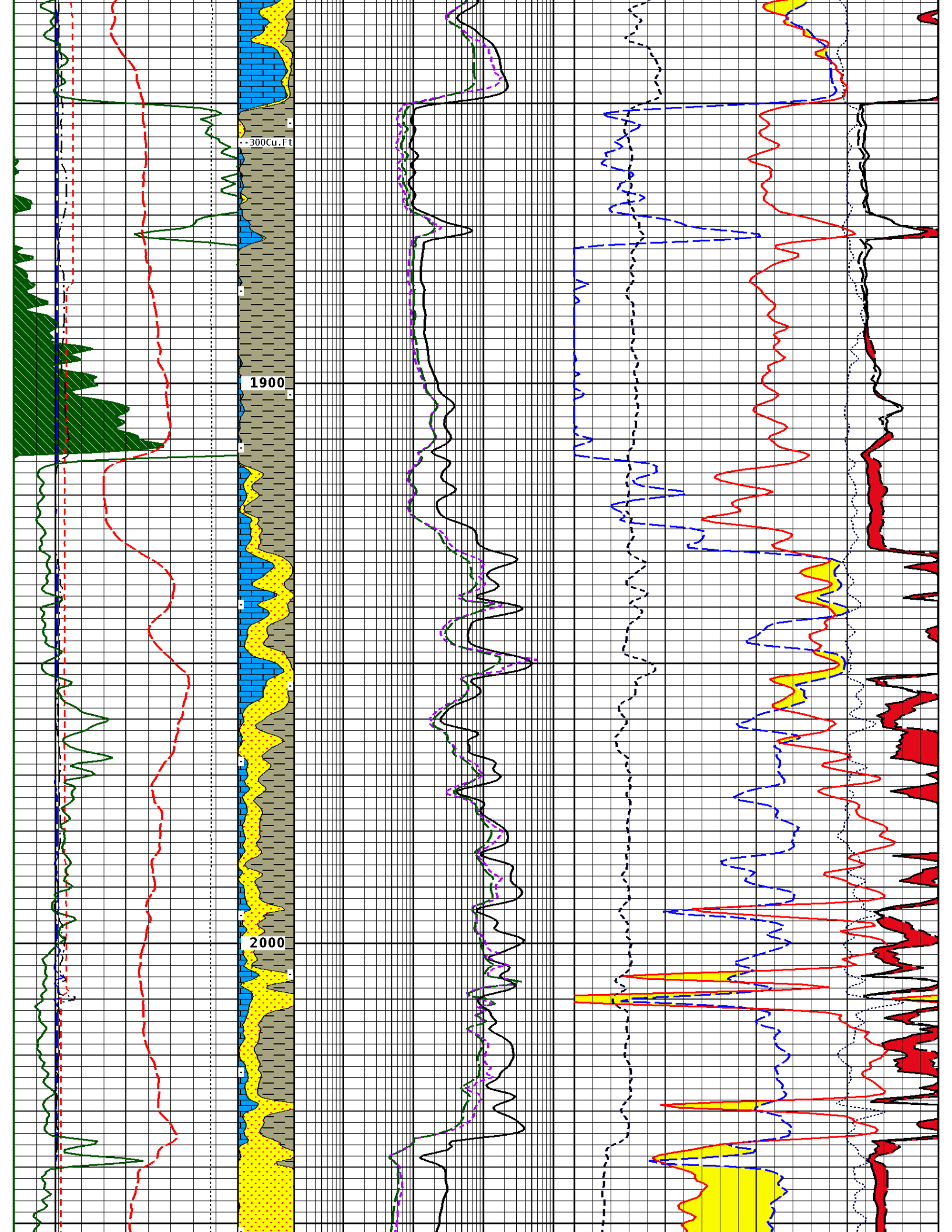
←LCOR
NORM→
INV→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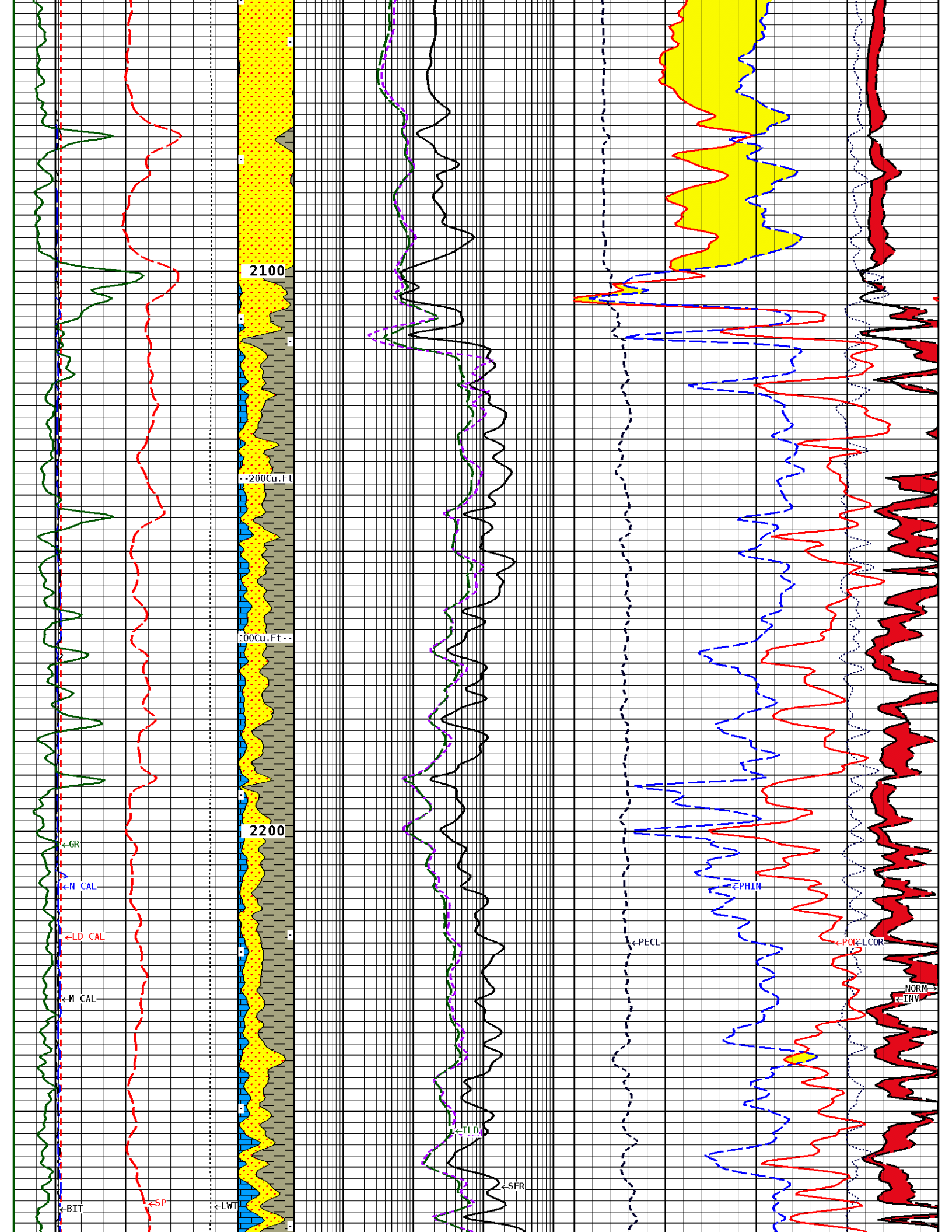
2000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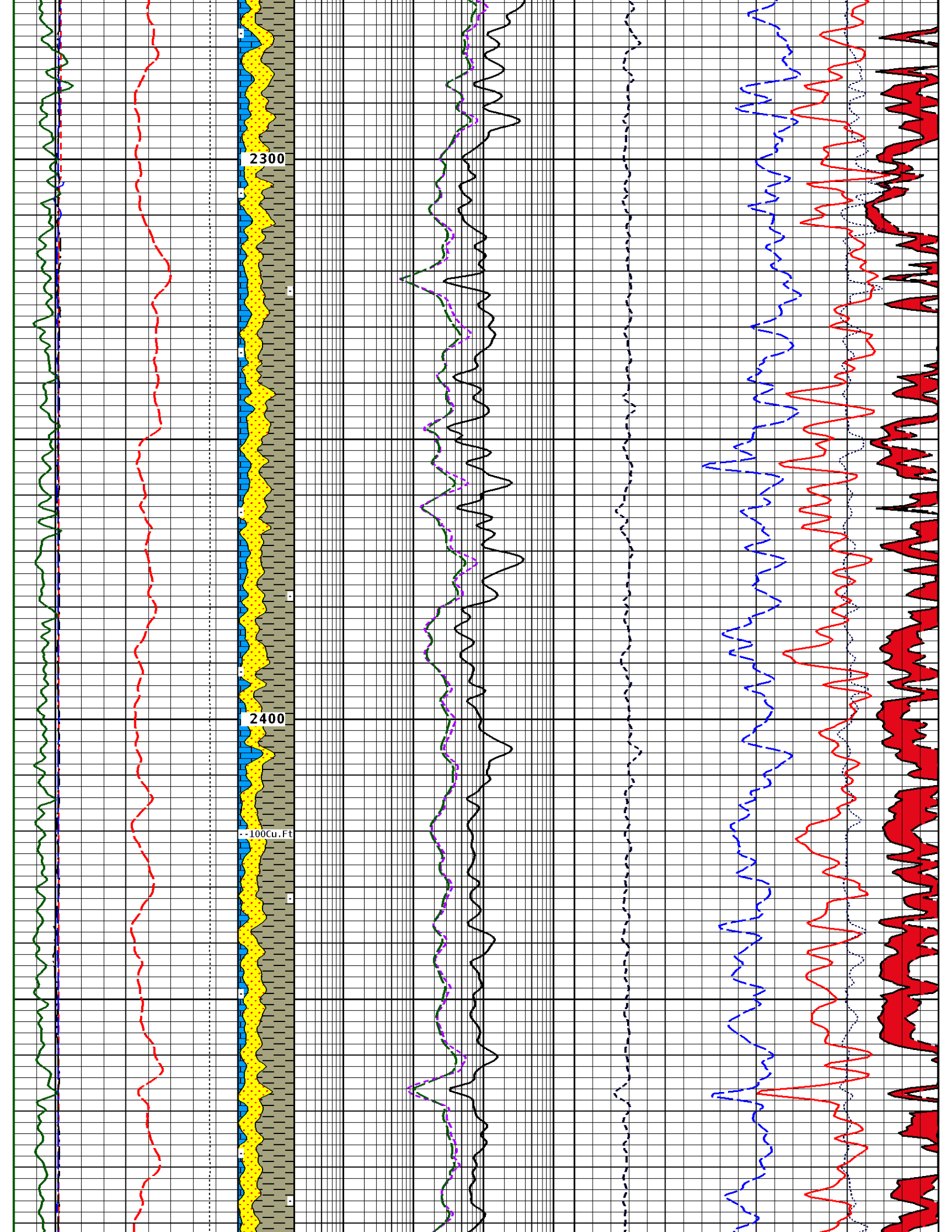
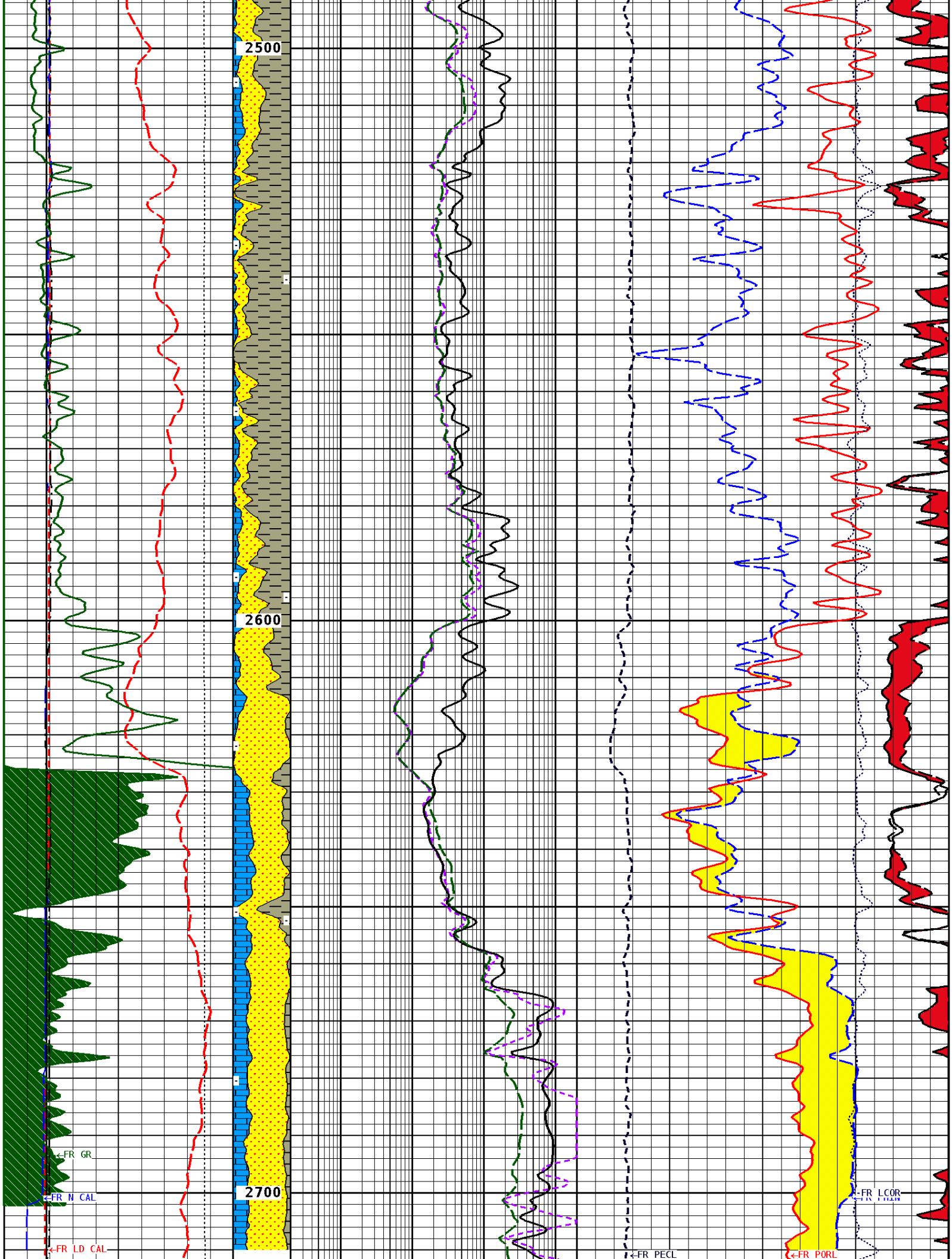
200Cu.Ft--
2200
←GR
←N CAL
←LD CAL
←M CAL
←BIT
←SP
←LWT
←ILD
←SFR
←PHIN
←PECL
←POR_LCOR
NORM→
←INV


2300
2400
100Cu.Ft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2600
2700
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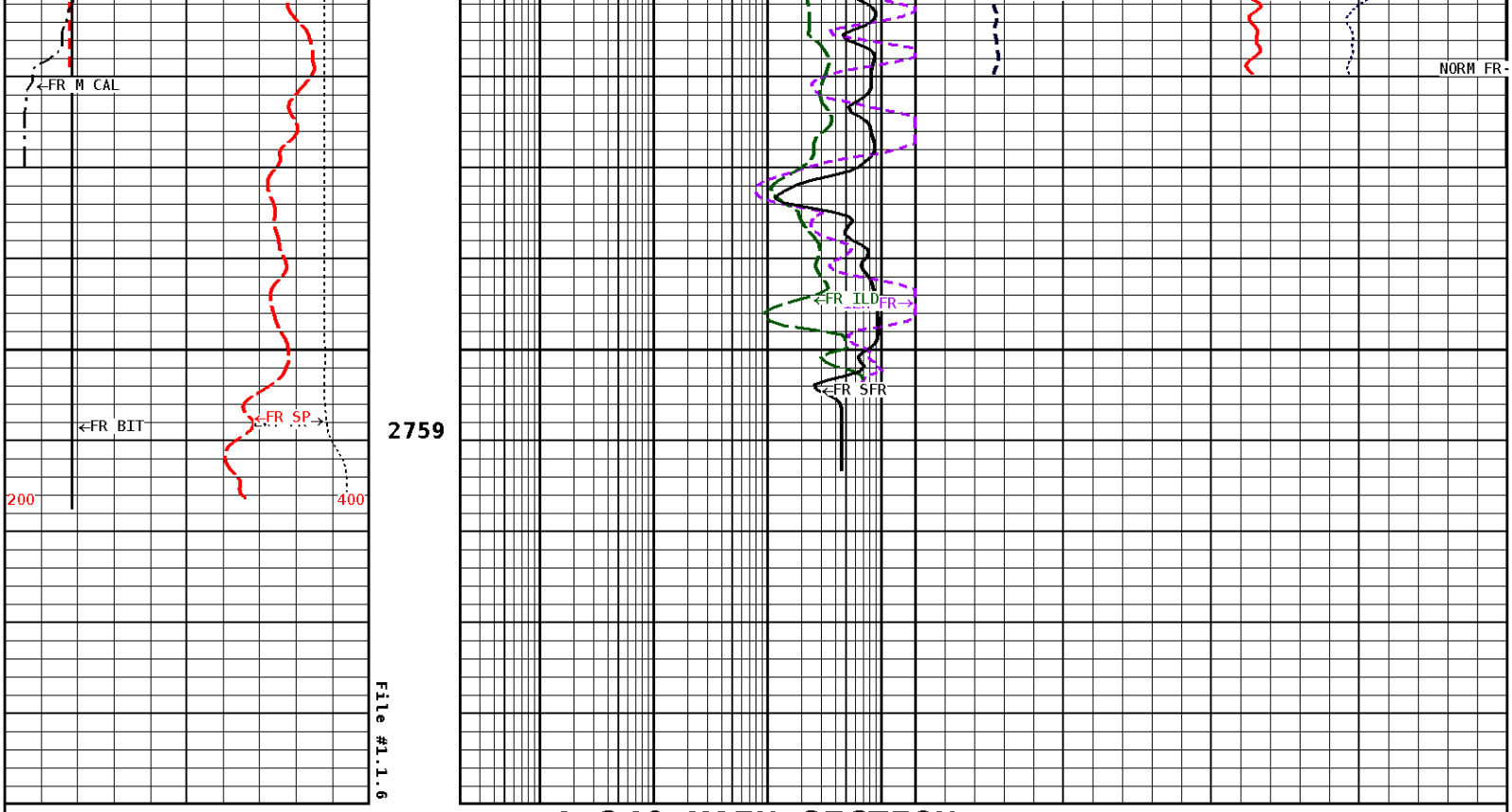
←FR N CAL
←FR LD CAL
←FR PECL
←FR PORL
←FR LCOR



1:240 MAIN SECTION

GAMMA RAY API UNITS 150 300 0 150	-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 30 -10 -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 *

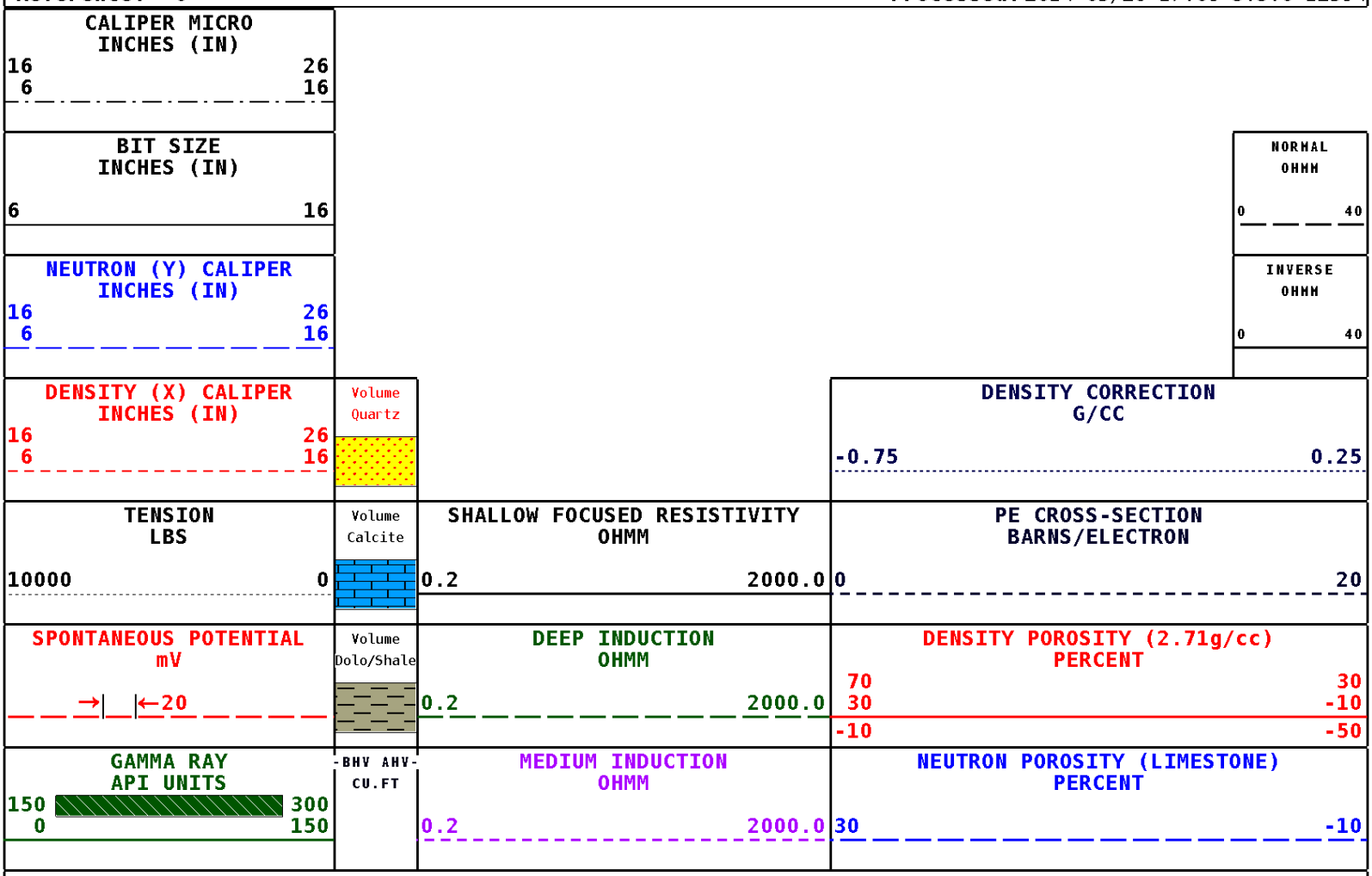
Zone 1 99999.0 to 262.0 Feet

Matrix Density	2.71	g/cc
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	2759.000	ft
Borehole Temperature	106.0	degF
Temperature Gradient	1.00	DFHF
Resistivity Of Mud	2.800	ohm/m
MSTNG Normal Correction	0.00	ohm/m
MSTNG Inverse Correction	1.00	ohm/m

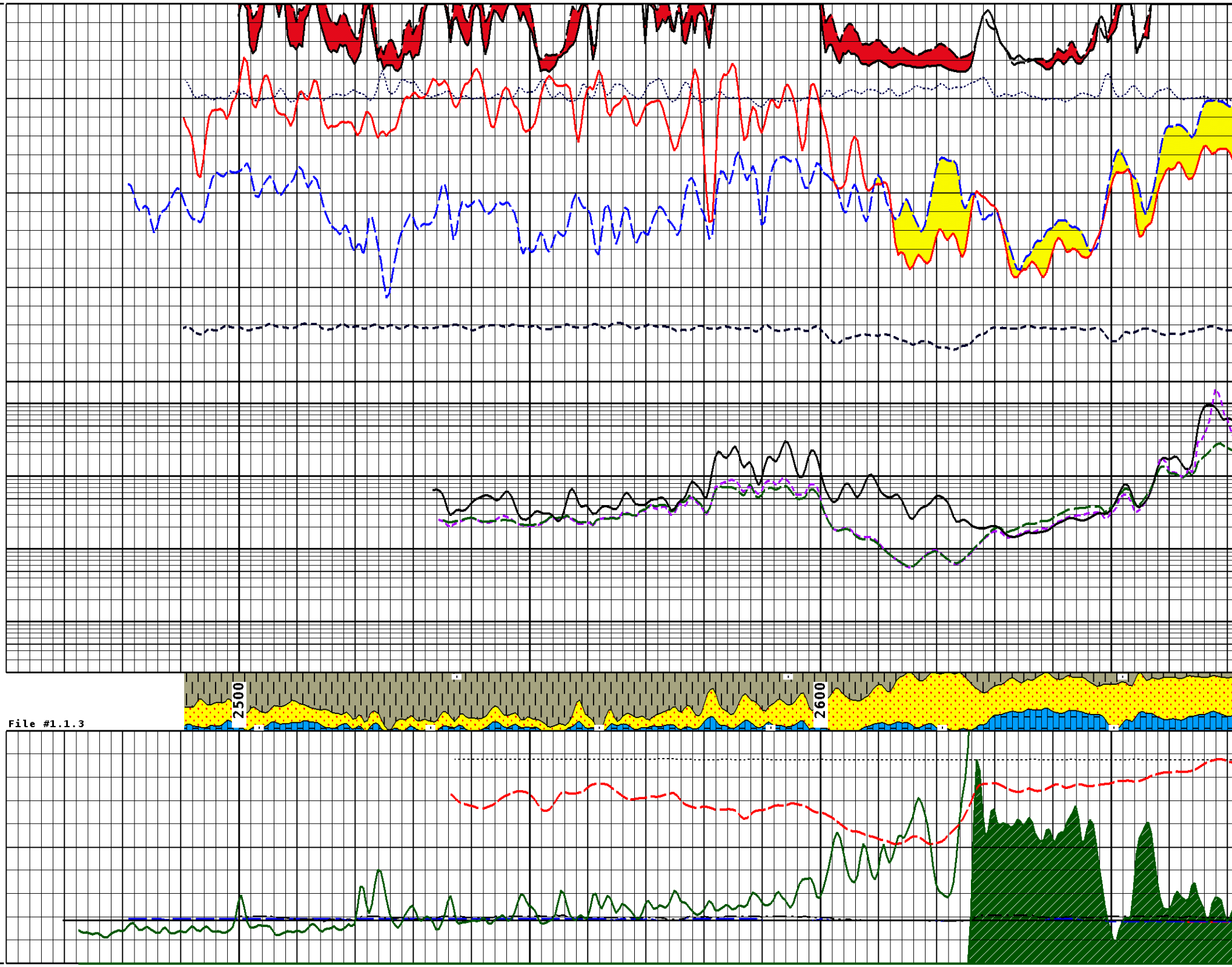
Zone 2 262.0 to 0.0 Feet

Matrix Density	2.71	g/cc
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)	Enable	
Hole Substance	Fluid	
BHT Depth	2759.000	ft
Borehole Temperature	106.0	degF
Temperature Gradient	1.00	DFHF
Resistivity Of Mud	2.800	ohm/m
MSTNG Normal Correction	0.00	ohm/m
MSTNG Inverse Correction	1.00	ohm/m

Well File: MESS_BAUCKLH1_MAY26-QUINT **Scale:** 1:240 **Format:** COMSAT
Segment: V1.D1.S3 REPEAT-RPO **Acquired:** 2014-05/26 15:00 3.3.0-12594
Reference: 0 **Processed:** 2014-05/26 17:08 3.3.0-12594



1:240 REPEAT SECTION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2600
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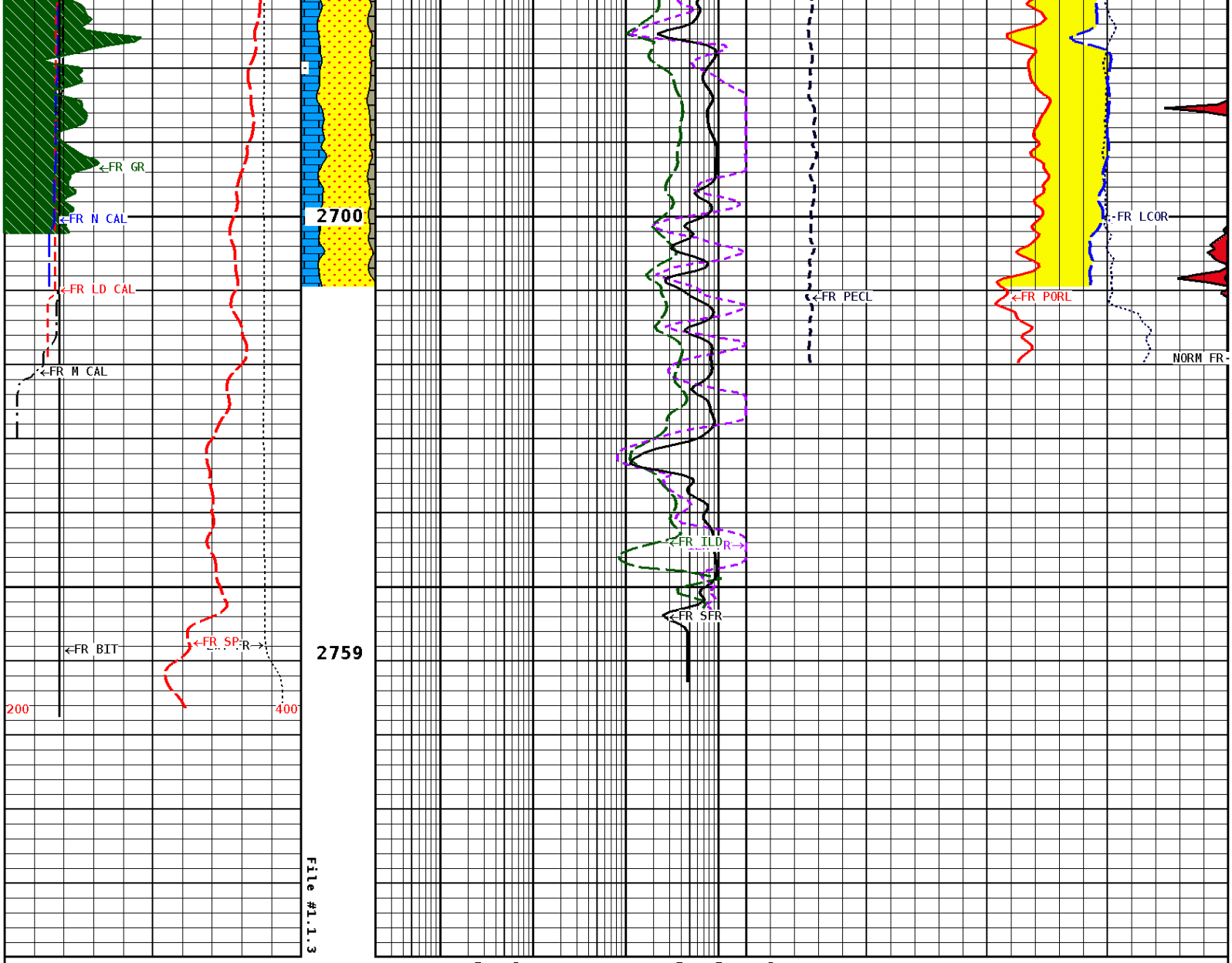
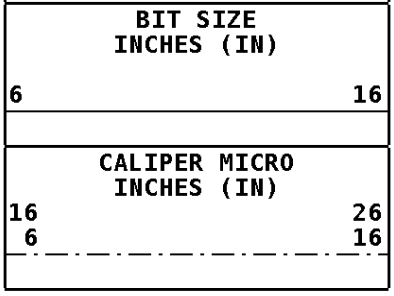
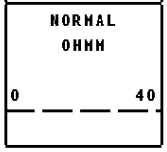


1:240 REPEAT SECTION

GAMMA RAY API UNITS 150 300 0 150	-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 30 -10 -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





* Borehole Zone Factors *

Zone 1 99999.0 to 262.0 Feet

Matrix Density	2.71	g/cc
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	2759.000	ft
Borehole Temperature	106.0	degF
Temperature Gradient	1.00	DFHF
Resistivity Of Mud	2.800	ohm/m
MSTNG Normal Correction	0.00	ohm/m
MSTNG Inverse Correction	1.00	ohm/m

Zone 2 262.0 to 0.0 Feet

Matrix Density	2.71	g/cc
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)	Enable	
Hole Substance	Fluid	
BHT Depth	2759.000	ft
Borehole Temperature	106.0	degF
Temperature Gradient	1.00	DFHF
Resistivity Of Mud	2.800	ohm/m
MSTNG Normal Correction	0.00	ohm/m
MSTNG Inverse Correction	1.00	ohm/m

* Calibration Summary *

Shop Calibration
GRT-B

Performed : 21-APR-2014 Time : 11:21
Sensor Suite : GR-GR5 ID : GRT-BB-107

	Measured Background	Measured Jig	Units	Calibrated Jig	Units
GR	75	381	CPS	175	GRAPI

Shop Calibration
CNT-AA

Performed : 28-APR-2014 Time : 11:56
Sensor Suite : CALI-BCN ID : NDT-BD-133

	Jig - Measured Ring#1	Jig - Measured Ring#2	Jig - Calibrated Ring#1	Jig - Calibrated Ring#2	Units
CL # 1	9.4	14.0	6.0	12.0	IN.

Performed : 21-Apr-2014 Time : 10:00
Sensor Suite : BHC NEUT ID : CNP-AA-024
Source ID : N-1045

	Tank Measured	Tank Calibrated	Verification Jig	Units
N/F	3.7923	3.6893	3.6669	
Porosity	22.1	20.5	20.2	%

Shop Calibration

LDT-DA

Performed : 26-JUN-2013 Time : 13:15
Sensor Suite : CALI-LTH ID : PDT-GA-465

	Jig - Measured Ring#1	Ring#2	Jig - Calibrated Ring#1	Ring#2	Units
CL # 1	7.0	10.7	6.0	12.0	IN.

Performed : 29-Apr-2014 Time : 09:32
Sensor Suite : BHCPELNG ID : LDP-DA-065
Source ID : 2991GW

Short Space

	BKGD	Al	Mg	Al+Fe	Units
LSW1	67	1135	1803	726	CPS
LSW2	70	1369	2164	970	CPS
LSW3	263	3128	5001	2644	CPS
LSW4	324	2784	3989	2435	CPS
LSW5	29	55	63	53	CPS
LSW6	91	91	91	91	CPS
LSW7	55	58	60	60	CPS
LSW8	1	4	5	4	CPS
QS	0.246	0.218	0.204	0.208	
PES			2.778	5.967	
SSDN		2.600	1.680		G/CC

Long Space

	BKGD	Al	Mg	Al+Fe	Units
LLW1	93	1299	5288	780	CPS
LLW2	102	2274	8834	1639	CPS
LLW3	396	4083	15315	3480	CPS
LLW4	510	1958	6261	1761	CPS
LLW5	60	73	134	71	CPS
LLW6	159	153	146	154	CPS
LLW7	106	103	98	102	CPS
LLW8	5	8	20	8	CPS
QL	0.200	0.195	0.198	0.202	
PEL			2.697	5.458	
LSDN		2.600	1.680		G/CC

Shop Calibration
MST-DA

Performed : 04-May-2014 Time : 12:47
Sensor Suite : CALI-MSN ID : MST-DA-26

	Jig - Measured Ring#1	Ring#2	Jig - Calibrated Ring#1	Ring#2	Units
CL # 1	6.9	11.1	6.0	12.0	IN.

Performed : 04-May-2014 Time : 12:44
Sensor Suite : MSTDA-NI ID : MST-DA-26

Internal

	Measured Zero	Reference	Units	Calibrated Zero	Reference	Units
INV-V	77.2	29878.6		0.00	1546.00	MV
NOR-V	0.0	29952.3		0.00	1546.00	MV
IN-C	0.0	30307.8		0.00	15.46	UA
INV-R					32.34	OHMM
NOR-R					55.11	OHMM

Shop Calibration
CST-AD

Performed : 30-DEC-2010 Time : 13:12
Sensor Suite : SON-ANA ID : CST-AB-38

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
PIT-CA

Performed : 20-JAN-2014 Time : 12:16
Sensor Suite : P-IND-T ID : PIT-AB-005

Medium

	Measured R	Measured X	Calibrated R	Calibrated X	Units
Air	130436	130973	0.3	0.3	MMHOS
Zero	131064	131069	27.2	2.3	MMHOS
Reference	250278	251098	5142.2	4745.2	MMHOS
Loop	127822	217880	3591.7	3538.5	MMHOS
Sonde Error			-1.6	-2.1	MMHOS
Cond			5142.2	4745.2	MMHOS

Deep

	Measured R	Measured X	Calibrated R	Calibrated X	Units
Air	128989	131106	-3.7	-3.9	MMHOS
Zero	131083	131072	40.1	-10.7	MMHOS
Reference	232597	234445	2030.7	1916.3	MMHOS
Loop	125792	219397	1633.8	1702.6	MMHOS
Sonde Error			-3.5	-9.0	MMHOS
Cond			2030.7	1916.3	MMHOS

Temperature

	Measured Low	Measured High	Calibrated Low	Calibrated High	Units
	16980.0	56920.0	70.0	350.0	DEGF

Performed : 20-Jan-2014 Time : 12:07
Sensor Suite : SFL ID : PIT-AB-005

Internal

	Measured Zero	Measured Reference	Calibrated Zero	Calibrated Reference	Units
Im	32773.9	49477.8	0.0	7028.0	uA
Ib	32760.9	48718.2	0.0	1750.0	mA
MOM1	32720.3	56560.2	0.0	175.0	mV
Equivalent SFL				43.97	OHMM

Performed : 20-Jan-2014 Time : 12:05
Sensor Suite : P-SP ID : PIT-AB-005

Internal

Measured Zero	Measured Reference	Calibrated Zero	Calibrated Reference	Units
32770.1	58920.2	0.0	1000.0	mV

Tucker ENERGY SERVICES

Company: MESSENGER PETROLEUM, INC.

Well: BAUCK LH 1

Location: 1813' FNL & 1921' FEL

Logged: 05-26-2014

K.B. Elev: 1108.0 Ft