COMPOSITE LOG

Tucker ENERGY SERVICES

Company	CHIEFTON OIL CO., INC.
Well	AHS CATTLE CO. #4
Field	STRANATHAN
County	BARBER
State	KANSAS
Country	USA
API No.	15-007-24146-0000

File No : TUL-59455
Company : CHIEFTON OIL CO., INC.
Well : AHS CATTLE CO. #4
Field : STRANATHAN
County : BARBER
State : KANSAS
Country : USA
API No : 15-007-24146-0000

Location :
1805' FNL & 2305' FEL
SE NW SW NE

LSD : **Sect :** 12 **Twp :** 35S **Rge :** 12W

Permanent Datum:	GL	**Elevations:**		**Services:**	
Drilling Measured From:	KB	**KB** 1368.00	Ft	GRT	XYT
Log Measured From:	KB	**DF** 1367.00	Ft	CNT	MLT
Above Permanent Datum:	12.00 Ft	**GL** 1356.00	Ft	LDT	PIT

Date	05-02-2014					
Run Number	1					
Depth--Driller	5610.0	Ft				
Depth--Logger	5605.0	Ft				
First Reading	5604.0	Ft				
Last Reading	981.0	Ft				
Casing--Driller	978.0	Ft				
Casing--Logger	981.0	Ft				
Bit Size	7.875	In				
Casing Size	8.625	In				
Hole Fluid Type	GEL/CHEMICAL					
Density	9.4	LBS/GAL				
Fluid Loss	0.0	CC				
PH/Viscosity	10.0	52.0 SEC/QT				
Sample Source	MEASURED					
RM@Measured Temp.	1.100	@ 66 F				
RMF@Measured Temp	0.970	@ 66 F				
RMC@Measured Temp.	1.330	@ 66 F				
Source RMF/RMC	CALCULATED	CALCULATED				
RM@BHT	0.056	@ 135 F				
Time Circulation Stopped	05-02-2014 5:30 pm					
Max Recorded Temp.	135	F				
Equipment/Base	TRUCK 127	TULSA, OK				
Recorded By	R. KING/ A. BRYANT					
Witnessed By	D. 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 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

Size (In)	Bottom (Ft)
7.875	5610.00

Casing Strings

Size (In)	Weight (Lbs)	Bottom (Ft)	Top (Ft)
8.625	24.00	978.00	0.00

Run Number	1
Date	05-02-2014
Date/Time On Bottom	05-02-2014 9:30 pm
Depth to Fluid	0.0 Ft
Salinity	3000.000 PPM
RMF@BHT	0.500 @ 135 F
RMC@BHT	0.680 @ 135 F

Run Number 1

Comments

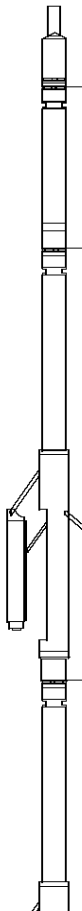
ALL PRESENTATIONS AS PER CUSTOMER REQUEST
GRT, CNT, LDT, MLT AND PIT RUN IN COMBINATION
CALIPERS ORIENTED ON X-Y AXIS
2.71 G/CC USED TO CALCULATE POROSITY
ANNULAR HOLE VOLUME CALCULATED USING 5.5" PRODUCTION CASING
PHIN IS CALIPER CORRECTED
CLIENT REQUESTED DETAIL PULLED TO 3700'.

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, EIRMDS, VEIRDDS

OPERATORS:
A.DJAHO

Tool String Schematic

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



Tool: GRT-B **Length:** 3.40 **ft.** **O.D.** 3.60 **in.**
Gamma Ray Controller
Sonde ID :GRT-BB-117

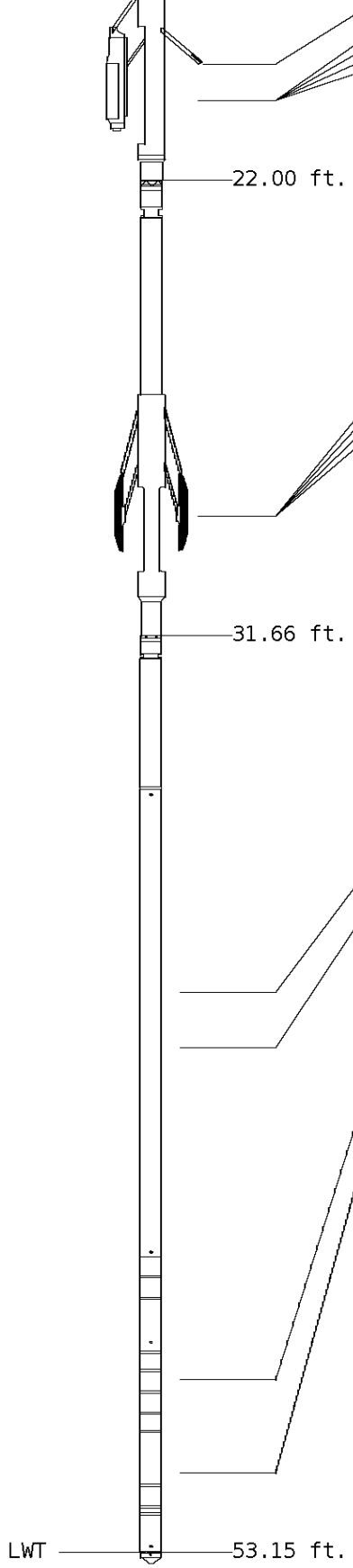
Measure Point	Tool Offset	Stack Offset	Bottom Offset
GRP	2.00	2.00	51.15

Tool: CNT-AA **Length:** 9.30 **ft.** **O.D.** 4.36 **in.**
Compensated Neutron A Pad on NDT-A
Sonde ID :NDT-AC-027
Source ID :N-1044
Pad ID :CNP-AE-42

Measure Point	Tool Offset	Stack Offset	Bottom Offset
CLCN	6.00	9.40	43.75
PHIN	6.80	10.20	42.95

Tool: LDT-DA **Length:** 9.30 **ft.** **O.D.** 4.80 **in.**
Litho Density D Pad on NDT-A
Sonde ID :NDT-AH-148
Source ID :CSV-587
Pad ID :LDP-DA-02

Measure Point	Tool Offset	Stack Offset	Bottom Offset
CLLD	6.00	18.70	34.45
PEL	7.00	19.70	33.45
PES	7.40	20.10	33.05



LDEN	7.20	19.90	33.25
LCOR	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-25

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: CHIEFTON_AHS_CATTLE_4_MAY2-MSTK **Scale:** 1:240 **Format:** COMSAT
Segment: V1.D1.S6 Repro-MAIN-FINAL **Acquired:** 2014-05/02 21:30 3.5.0-12850
Reference: 0 **Processed:** 2014-05/02 23:39 3.5.0-12850

CALIPER MICRO
INCHES (IN)
16 26
6 16

BIT SIZE
INCHES (IN)

NORMAL
OHMM

6 16

0 40

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

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
→| |←25

Volume
Dolo/Shale

DEEP INDUCTION
OHMM
0.2 2000.0

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

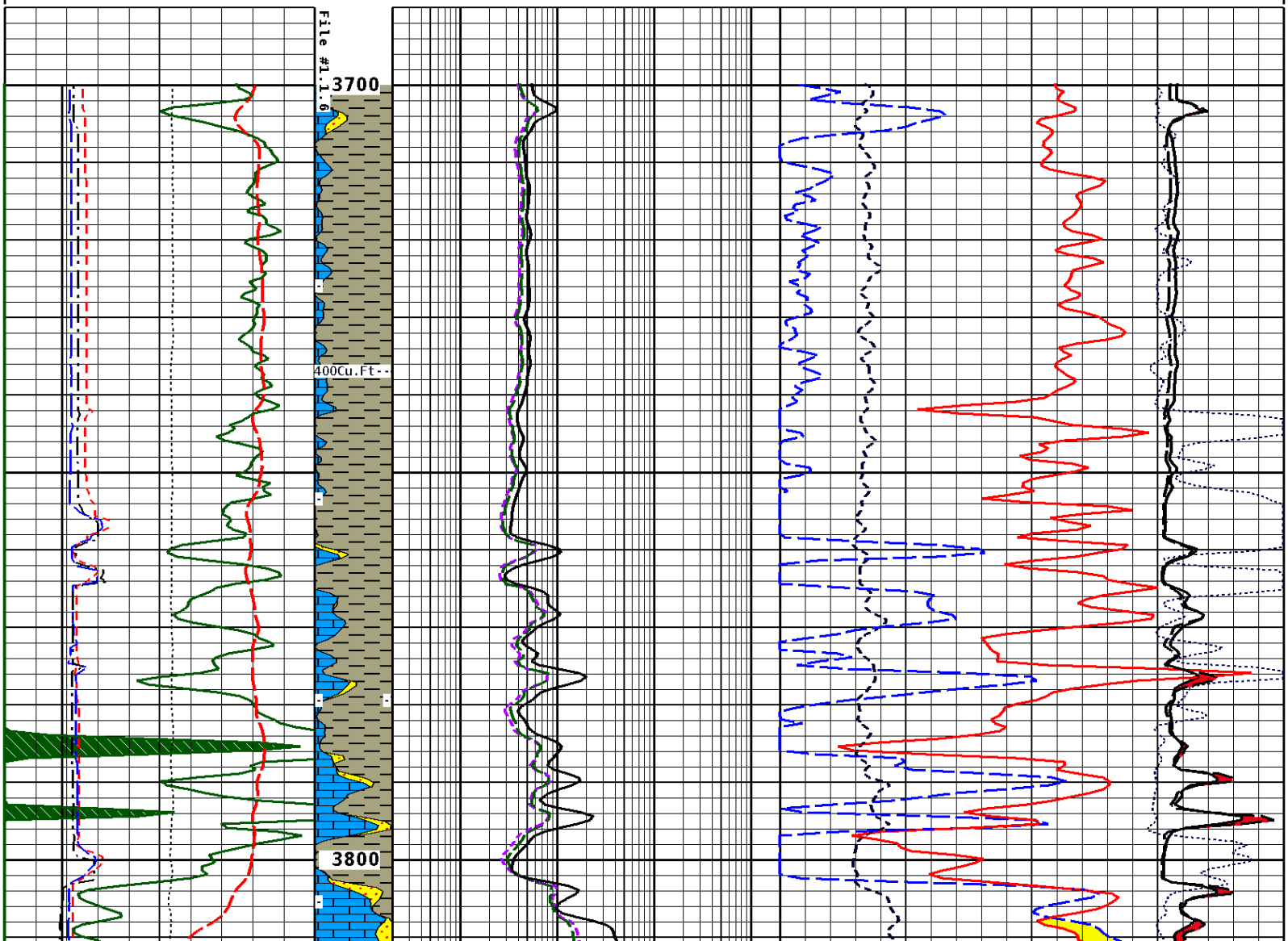
GAMMA RAY
API UNITS
150 300
0 150

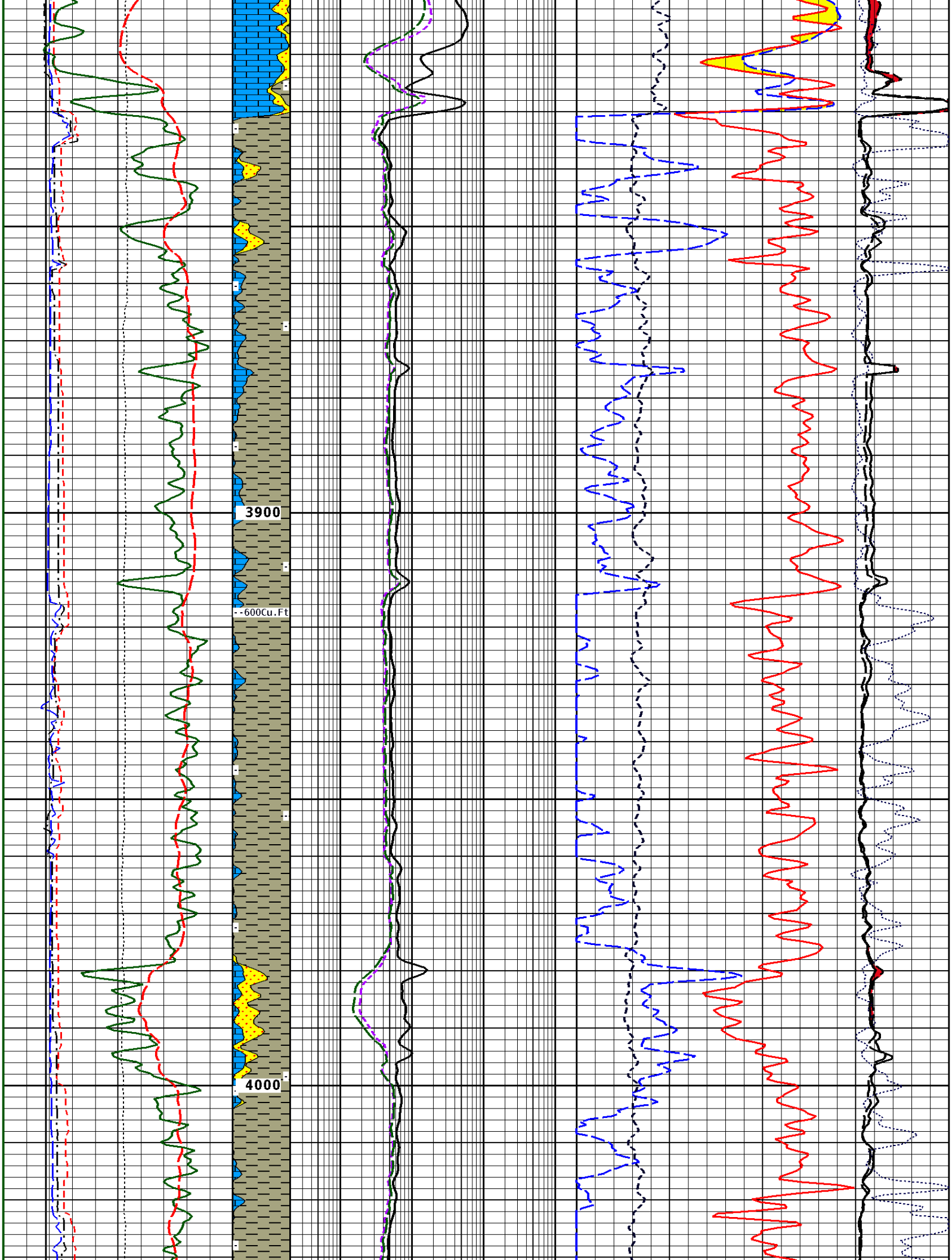
-BHV AHV-
CU.FT

MEDIUM INDUCTION
OHMM
0.2 2000.0

NEUTRON POROSITY (LIMESTONE)
PERCENT
30 -10

1:240 MAIN SECTION

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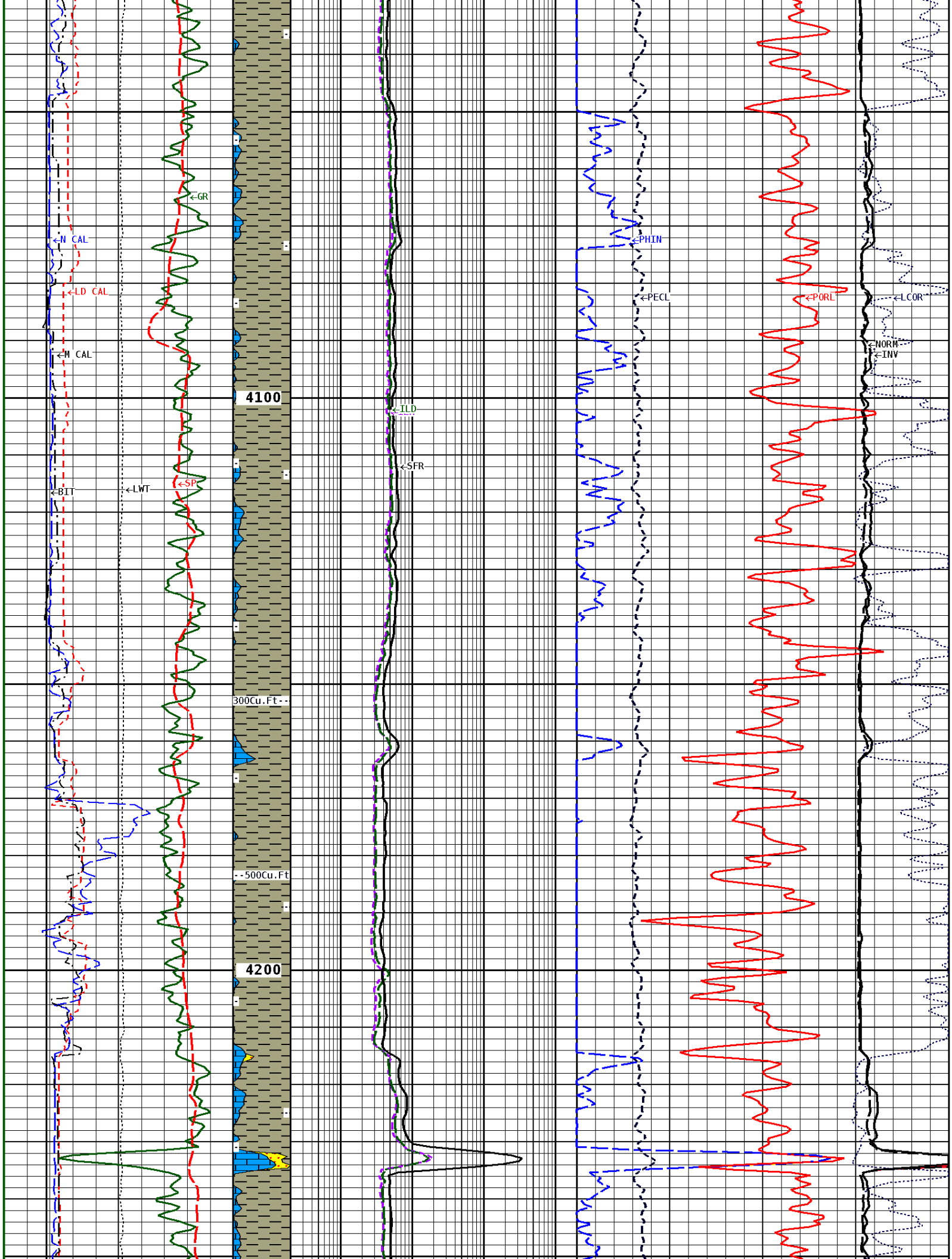
4000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LD CAL
M CAL
BIT
LWT
SP
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ILD
SFR
300Cu.Ft--
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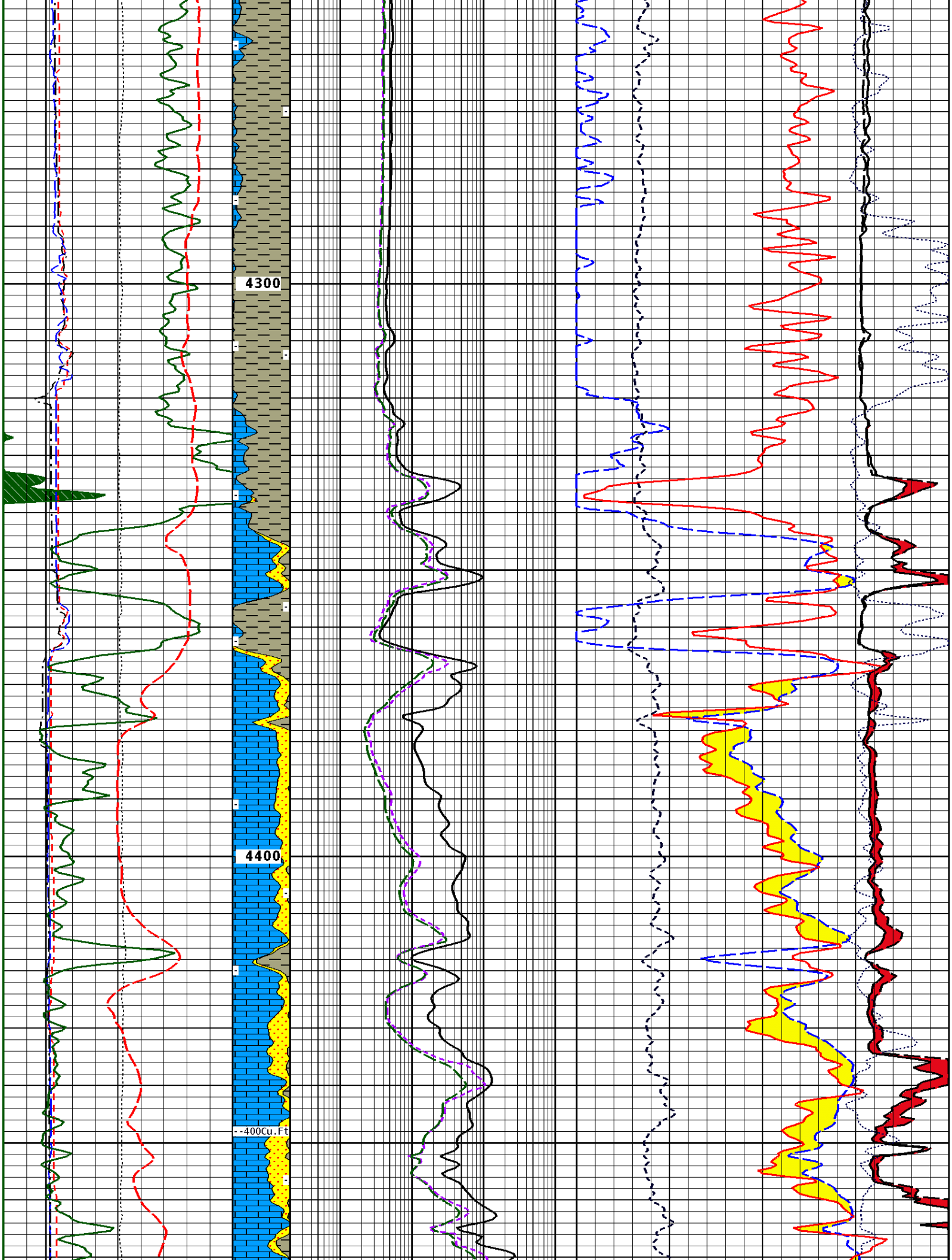
4200
PHIN
PECL
PORL
LCOR
NORM
INV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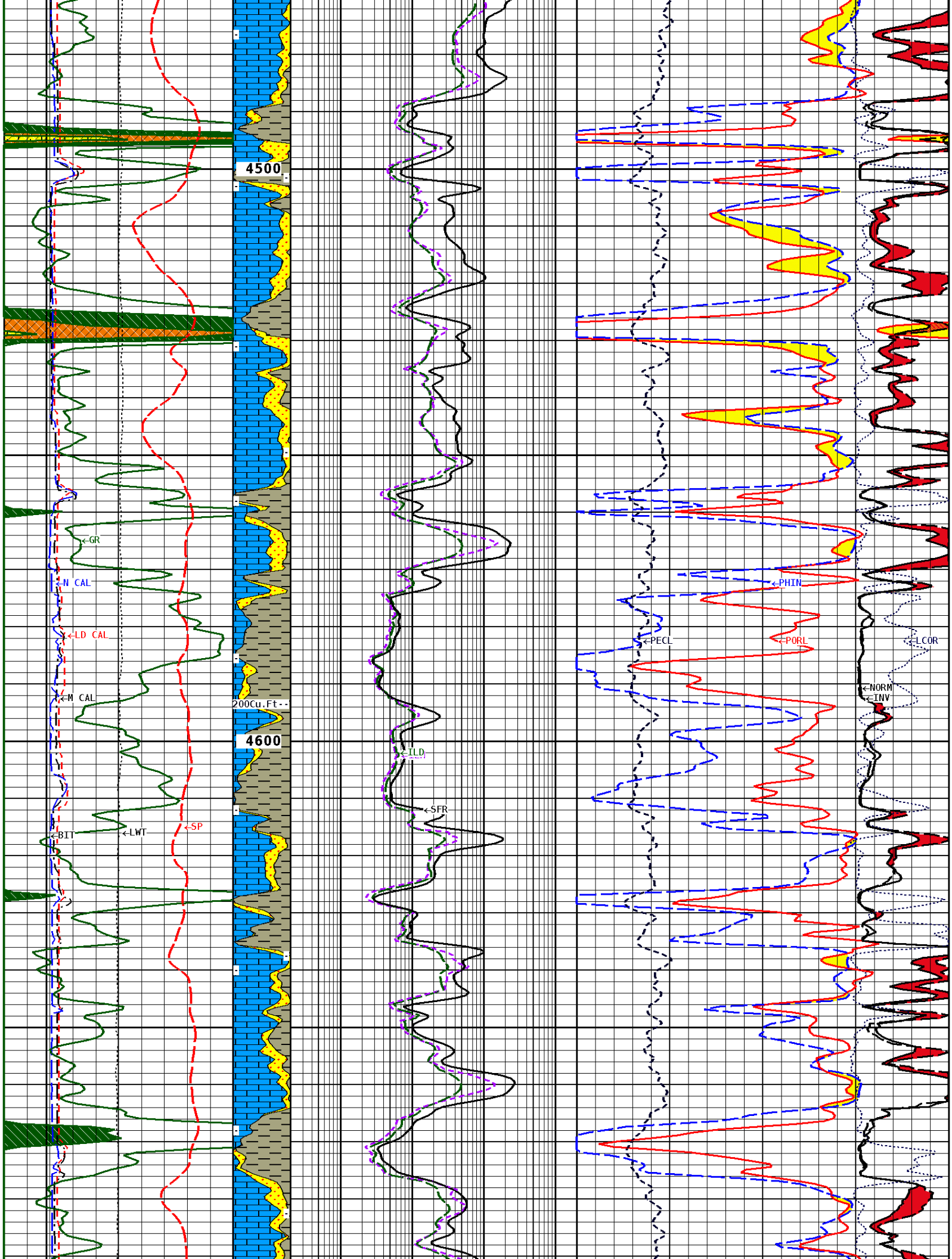
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4600
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LD CAL
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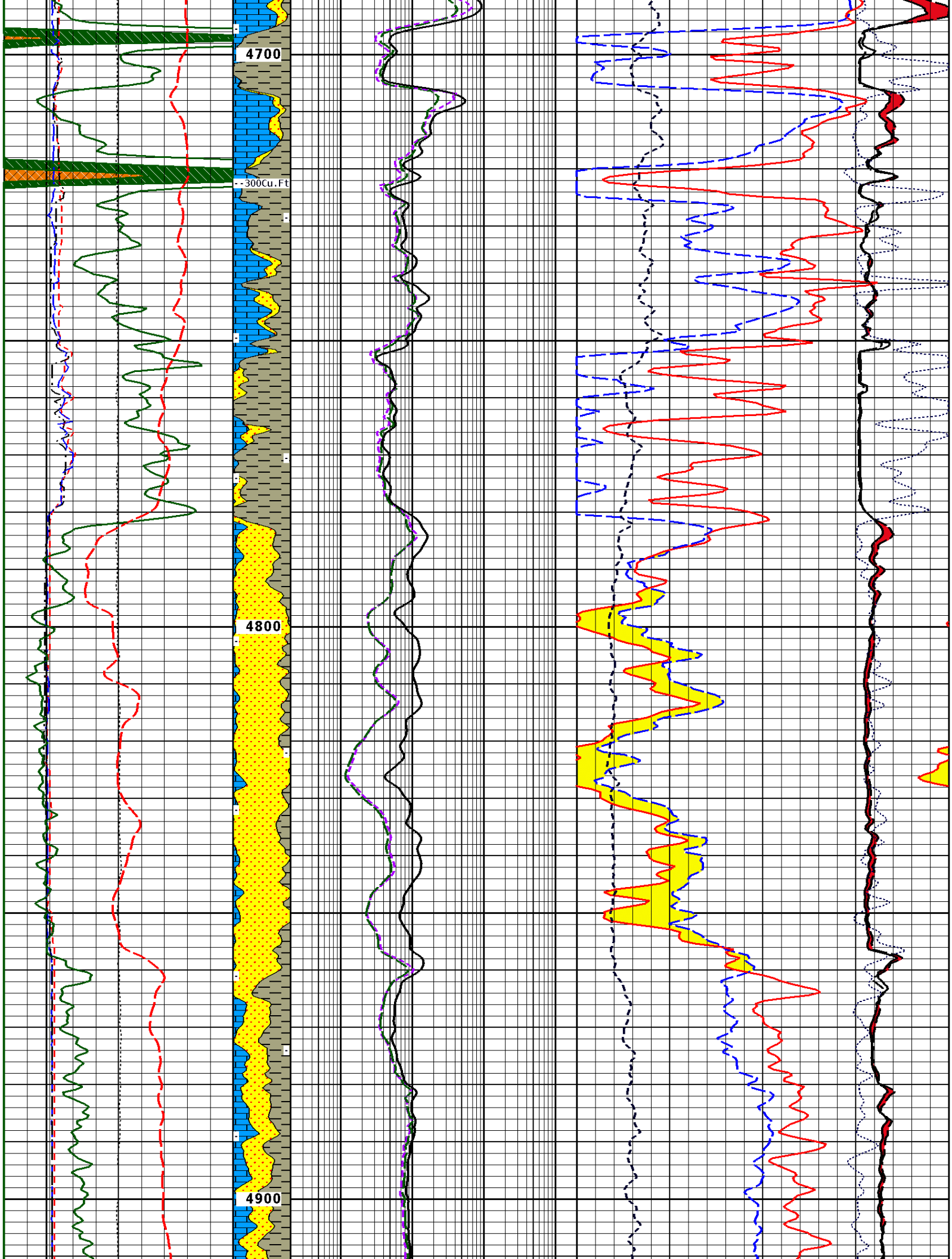
LWT
SP
200Cu.Ft--
ILD
SFR
PHIN
PECL
PORL
LCOR
NORM
INV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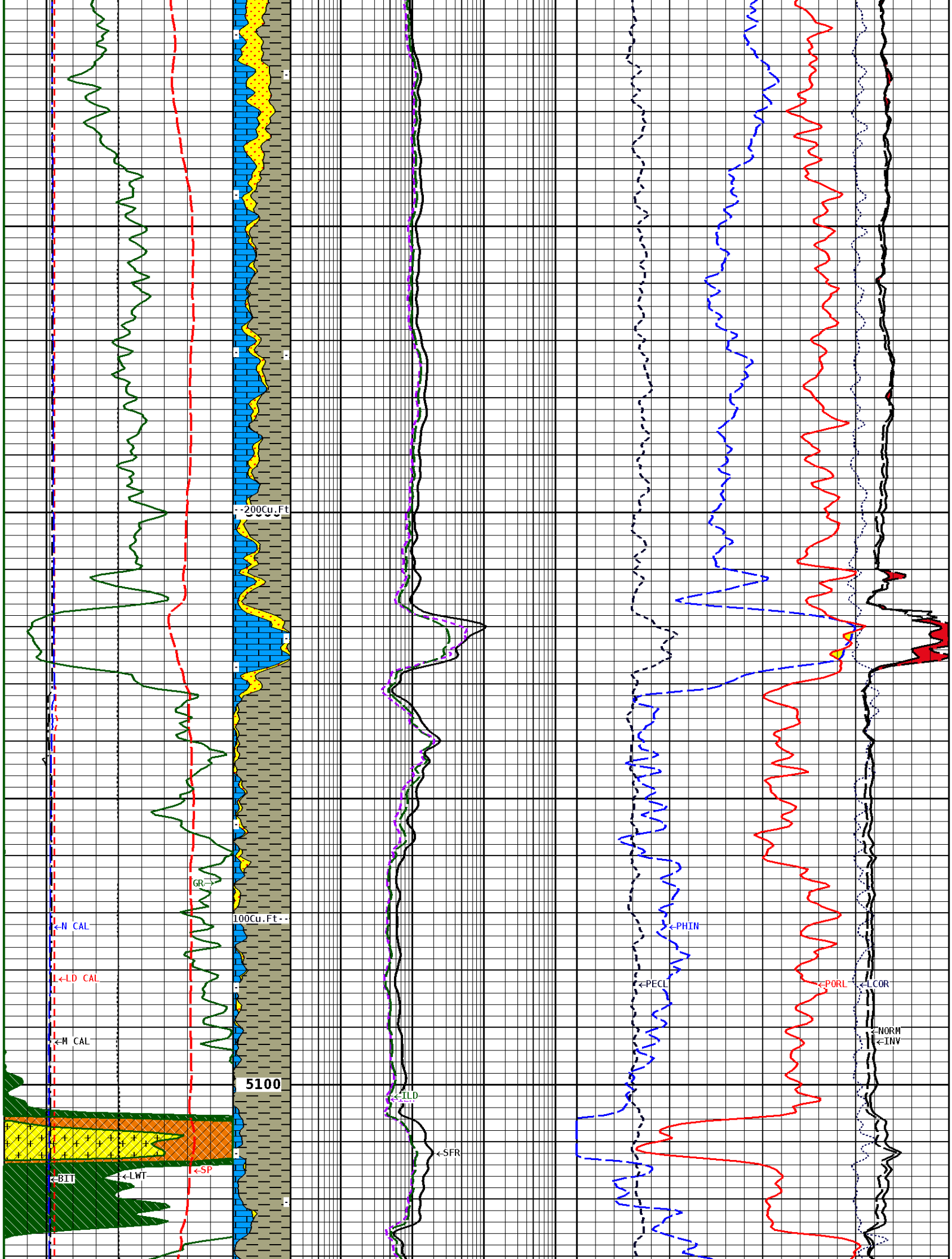
300Cu.Ft
4800
4900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GR
100Cu.Ft
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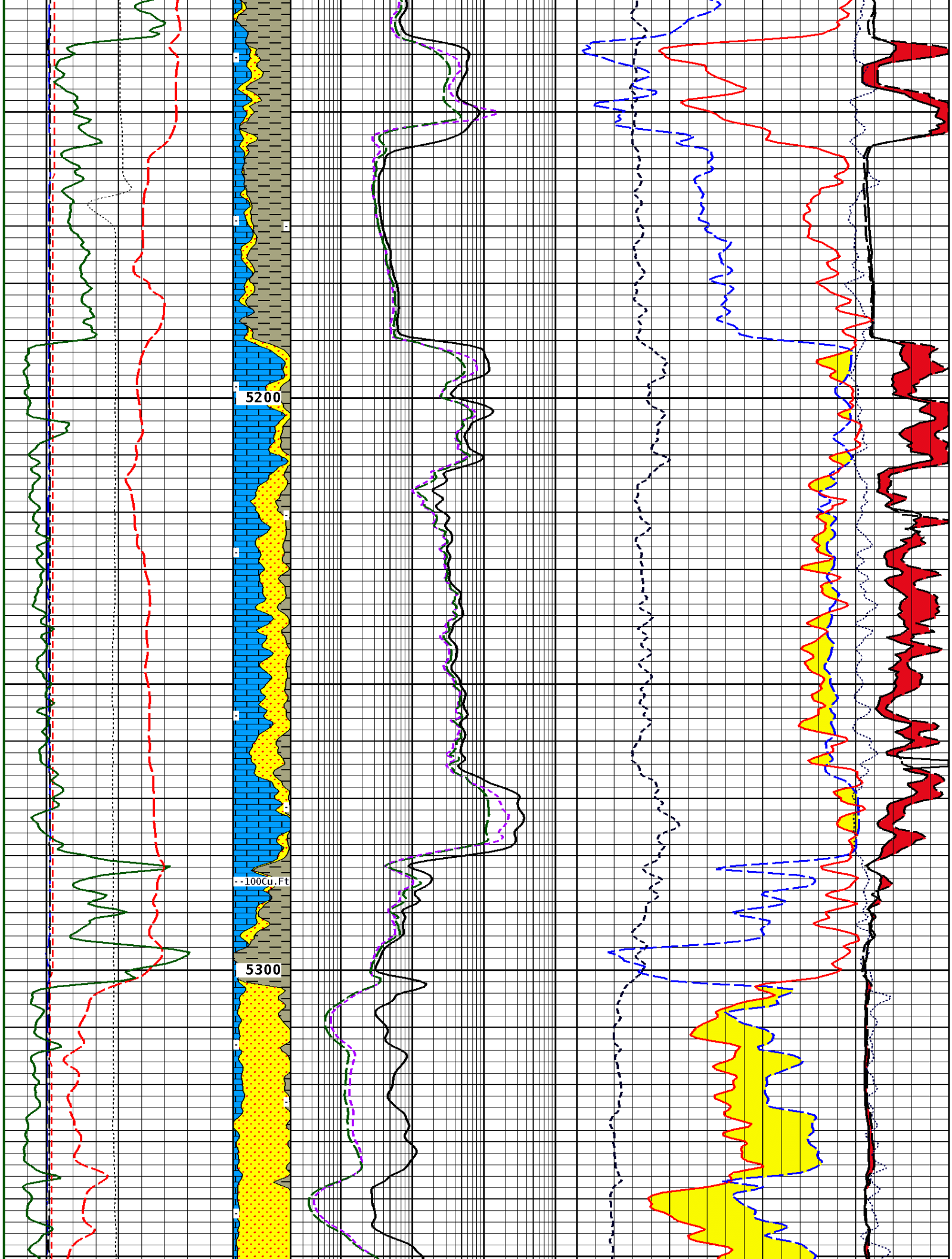
LD CAL
M CAL
5100
BIT
LWT
SP
ILD
SFR
PHIN
PECL
PORL
LCOR
NORM
INV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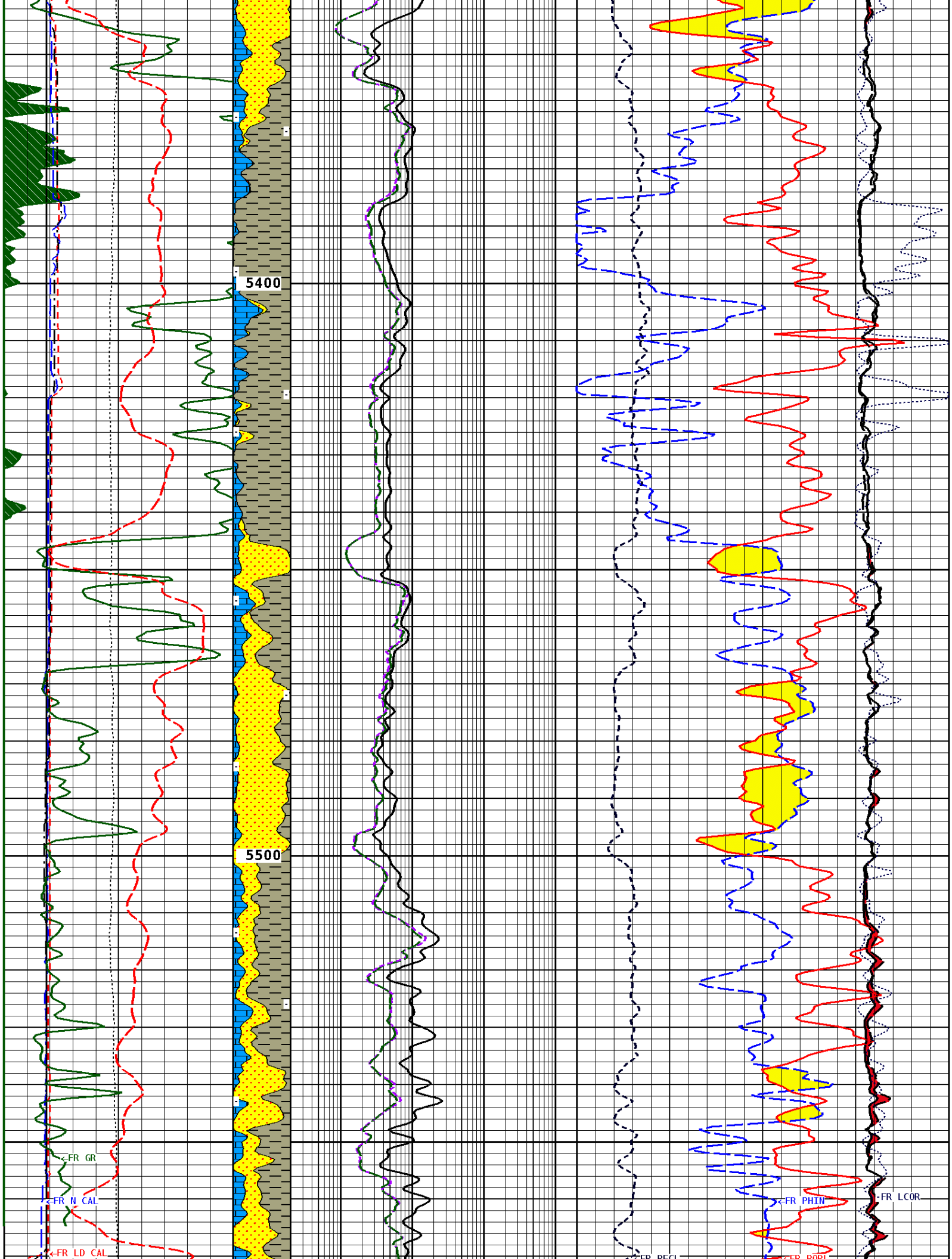
5300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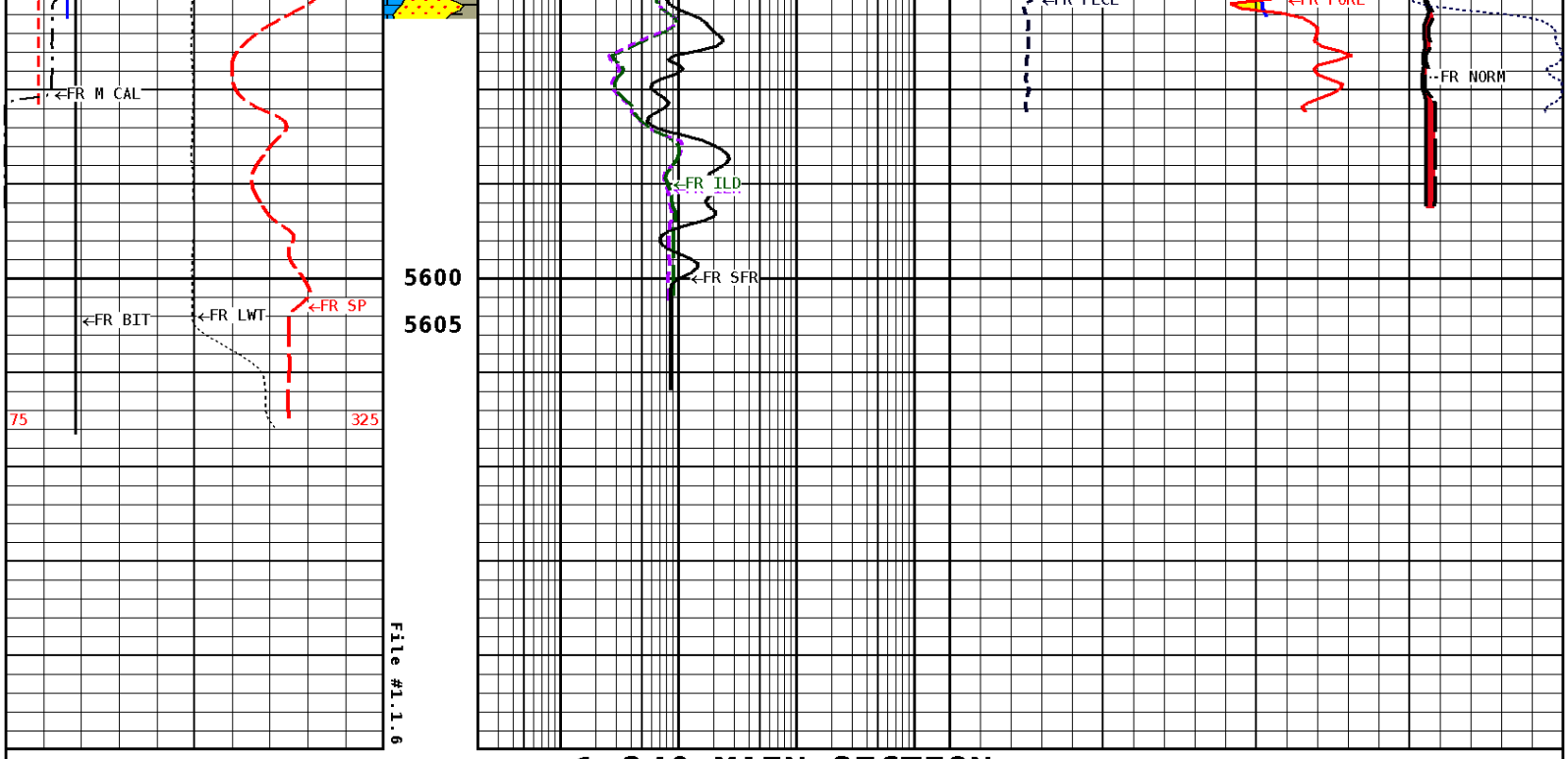
FR LD CAL
FR PHIN
FR LCOR
FR RECL
FR RORI



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 → ←25	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 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	5605.000	ft
Borehole Temperature	135.0	degF
Temperature Gradient	1.00	DFHF
Resistivity Of Mud	1.100	ohm/m
MSTNG Normal Correction	0.00	ohm/m
MSTNG Inverse Correction	1.00	ohm/m

Well File: CHIEFTON_AHS_CATTLE_4_MAY2-MSTK **Scale:** 1:240 **Format:** COMSAT
Segment: V1.D1.S5 Repro-RPT-FINAL **Acquired:** 2014-05/02 21:16 3.5.0-12850
Reference: 0 **Processed:** 2014-05/02 23:39 3.5.0-12850

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 →|←25

Volume Dolo/Shale

DEEP INDUCTION OHMM 0.2–2000.0

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

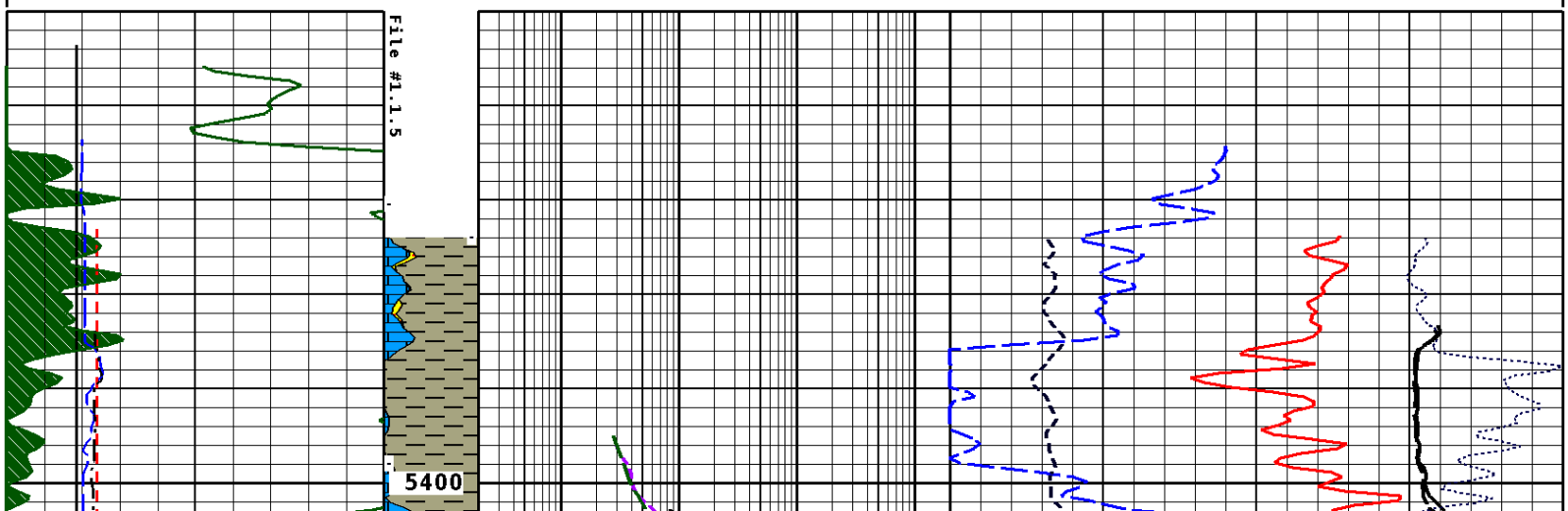
GAMMA RAY API UNITS 150–300, 0–150

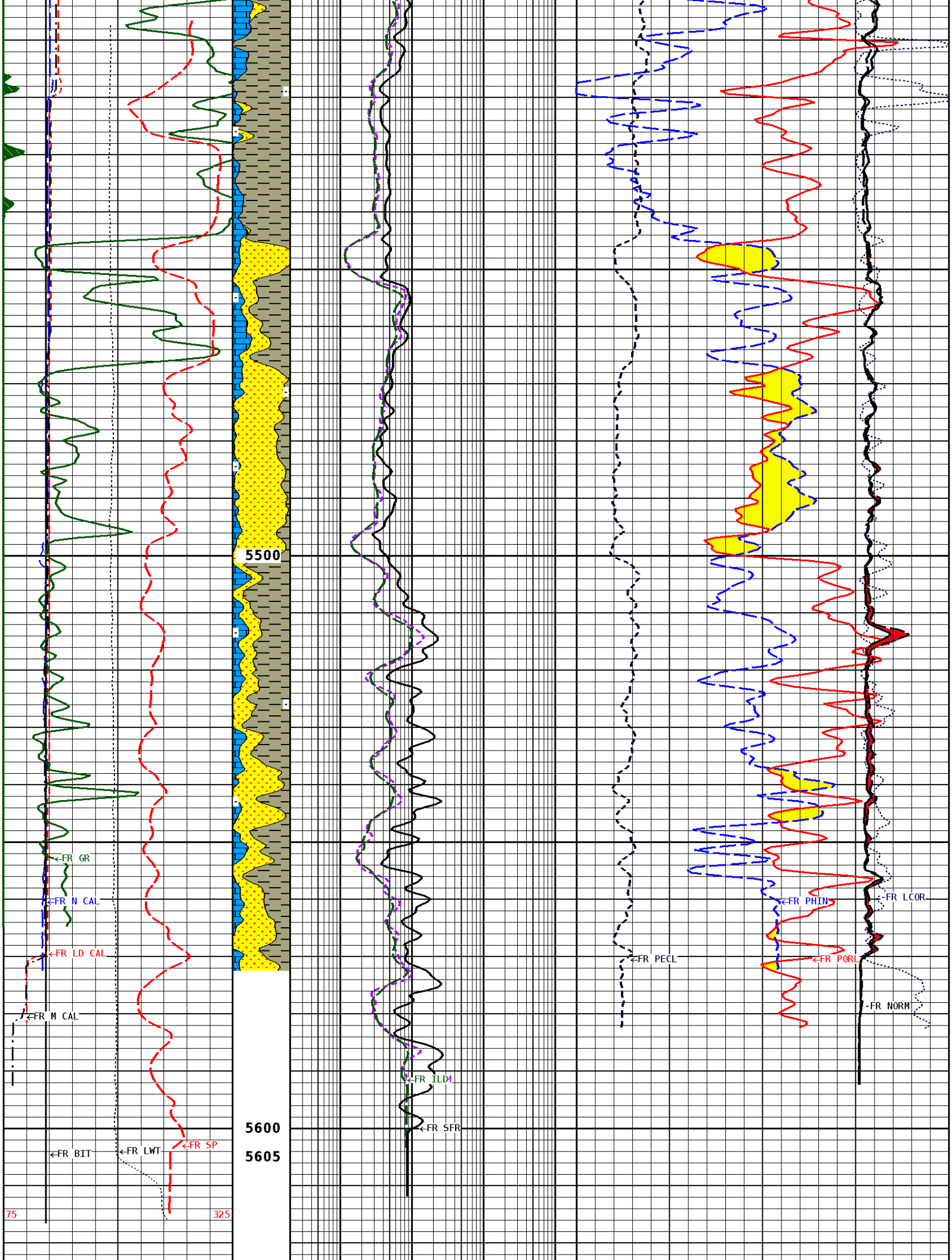
BHV AHV CU.FT

MEDIUM INDUCTION OHMM 0.2–2000.0

NEUTRON POROSITY (LIMESTONE) PERCENT 30–-10

1:240 REPEAT SECTION

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5600
5605
FR GR
FR N CAL
FR LD CAL
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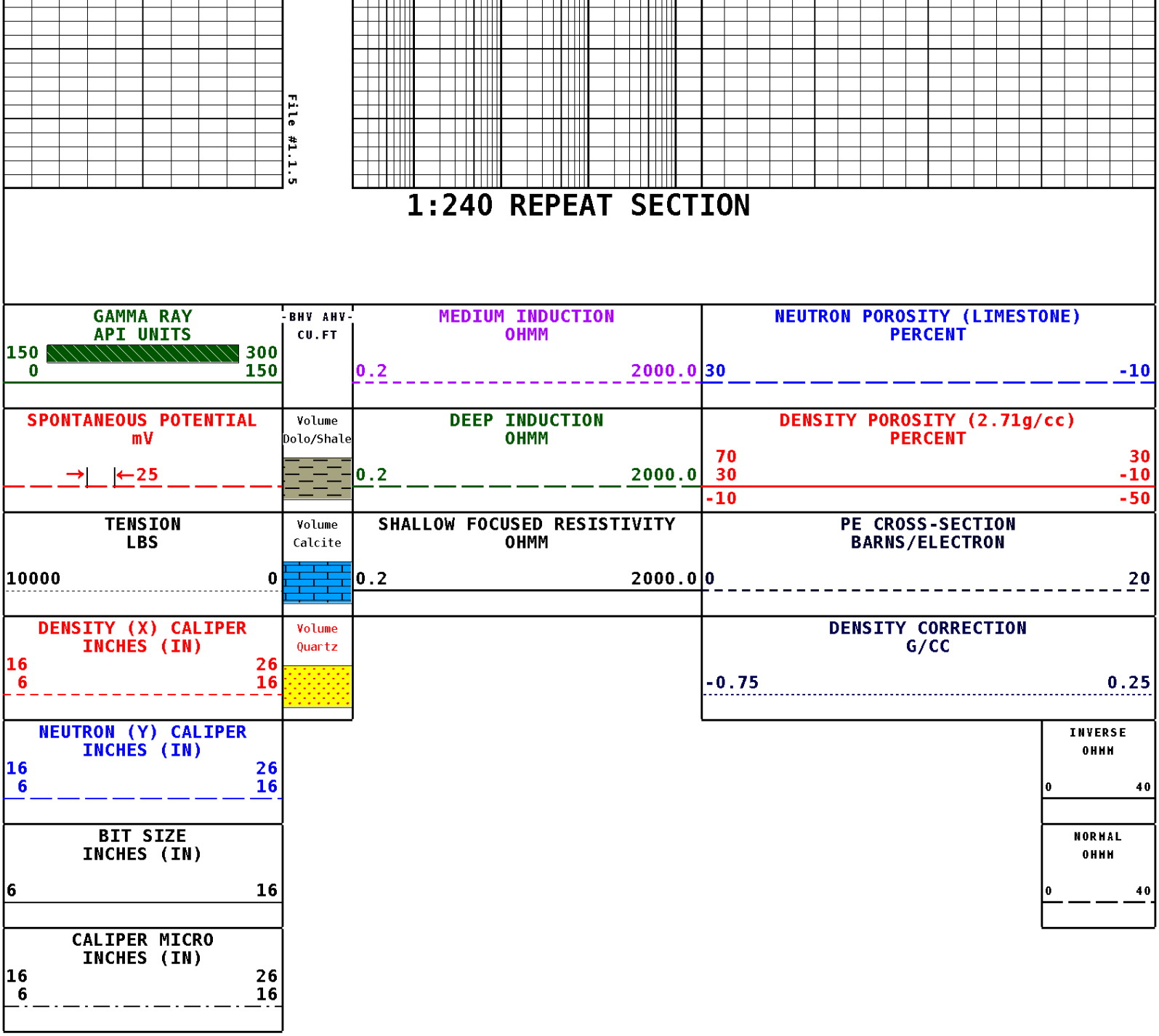
FR LWT
FR SP
FR ILD
FR SFR
FR PECL
FR PHIN
FR PORL
FR LCOR
FR NORM
75
325



*** 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	5605.000	ft
Borehole Temperature	135.0	degF
Temperature Gradient	1.00	DFHF
Resistivity Of Mud	1.100	ohm/m
MSTNG Normal Correction	0.00	ohm/m
MSTNG Inverse Correction	1.00	ohm/m

*** Calibration Summary ***

Shop Calibration
GRT-B

Performed : 29-APR-2014 Time : 09:39

Sensor Suite : GR-GR5 ID : GRT-BB-117

	Measured Background	Units	Calibrated Jig	Units
GR	43 344	CPS	175	GRAPI

Shop Calibration
CNT-AA

Performed : 29-Apr-2014 Time : 10:47
Sensor Suite : CALI-BCN ID : NDT-AC-027

	Jig - Measured Ring#1	Ring#2	Jig - Calibrated Ring#1	Ring#2	Units
CL # 1	8.0	14.6	6.0	12.0	IN.

Performed : 29-Apr-2014 Time : 10:37
Sensor Suite : BHC NEUT ID : CNP-AE-42
Source ID : N-1044

	Tank Measured	Calibrated	Verification Jig	Units
N/F	3.6372	3.6893	3.7053	
Porosity	19.7	20.5	20.7	%

Shop Calibration
LDT-DA

Performed : 12-SEP-2013 Time : 09:45
Sensor Suite : CALI-LTH ID : NDT-AH-148

	Jig - Measured Ring#1	Ring#2	Jig - Calibrated Ring#1	Ring#2	Units
CL # 1	7.8	12.2	6.0	12.0	IN.

Performed : 29-Apr-2014 Time : 11:09
Sensor Suite : BHCPELNG ID : LDP-DA-02
Source ID : CSV-587

Short Space

	BKGD	Al	Mg	Al+Fe	Units
LSW1	65	432	700	291	CPS
LSW2	67	514	843	372	CPS
LSW3	260	1293	2049	1102	CPS
LSW4	334	1240	1750	1108	CPS
LSW5	31	42	43	39	CPS
LSW6	86	88	88	86	CPS
LSW7	54	55	55	55	CPS
LSW8	2	3	3	3	CPS
QS	0.228	0.231	0.236	0.218	
PES			2.778	5.967	
SSDN		2.600	1.680		G/CC

Long Space

	BKGD	Al	Mg	Al+Fe	Units
LLW1	102	568	2360	362	CPS
LLW2	112	984	4108	717	CPS
LLW3	418	1909	7085	1657	CPS
LLW4	547	1108	2892	1030	CPS
LLW5	62	65	81	64	CPS
LLW6	178	174	170	175	CPS
LLW7	108	108	103	109	CPS
LLW8	4	5	10	5	CPS
QL	0.246	0.233	0.245	0.235	
PEL			2.697	5.458	
LSDN		2.600	1.680		G/CC

Shop Calibration
MST-DA

Performed : 29-Mar-2014 Time : 04:22
Sensor Suite : CALI-MSN ID : MST-DA-25

	Jig - Measured Ring#1	Ring#2	Jig - Calibrated Ring#1	Ring#2	Units
CL # 1	6.7	12.4	6.0	12.0	IN.

Performed : 29-Mar-2014 Time : 04:24
Sensor Suite : MSTDA-NI ID : MST-DA-25

Internal

	Measured Zero	Reference	Units	Calibrated Zero	Reference	Units
INV-V	0.0	30010.6		0.00	1546.00	MV
NOR-V	0.1	30159.6		0.00	1546.00	MV
IN-C	0.0	57334.5		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 R	Measured X	Calibrated R	Calibrated 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 R	Measured X	Calibrated R	Calibrated 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 Low	Measured High	Calibrated Low	Calibrated 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 Zero	Measured Reference	Calibrated Zero	Calibrated 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

Internal

Measured Zero	Measured Reference	Calibrated Zero	Calibrated Reference	Units
32765.9	58980.4	0.0	1000.0	mV

Tucker ENERGY SERVICES

Company: CHIEFTON OIL CO., INC.

Well: AHS CATTLE CO. #4

Location: 1805' FNL & 2305' FEL

Logged: 05-02-2014

K.B. Elev: 1368.0 Ft