COMPOSITE LOG

energy services

Company	CASILLAS PETROLEUM CORP
Well	HAMKER #20-3
Field	LETTE
County	HASKELL
State	KANSAS
Country	USA
API No.	15-081-22204-00-00

File No : HAYS-70387
Company : CASILLAS PETROLEUM CORP
Well : HAMKER #20-3
Field : LETTE
County : HASKELL
State : KANSAS
Country : USA
API No : 15-081-22204-00-00

Location :
1420' FSL & 660' FWL
S/2 S/2 NW SW

LSD : **Sect :** 20 **Twp :** 30S **Rge :** 31W

Permanent Datum:	GL	**Elevations:**		**Services:**	
Drilling Measured From:	KB	**KB**	2858.00 Ft	CNT	CST
Log Measured From:	KB	**DF**	2857.00 Ft	LDT	PIT
Above Permanent Datum:	0.00 Ft	**GL**	2846.00 Ft	MLT	

Date	12-07-2019						
Run Number	1						
Depth--Driller	5721.0	Ft					
Depth--Logger	5716.0	Ft					
First Reading	5715.0	Ft					
Last Reading	1832.0	Ft					
Casing--Driller	1823.0	Ft					
Casing--Logger	1826.0	Ft					
Bit Size	7.875	In					
Casing Size	8.625	In					
Hole Fluid Type	WBM						
Density	9.3						
Fluid Loss	4.6						
PH/Viscosity	11.0	57.0					
Sample Source	MEASURED						
RM@Measured Temp.	2.000 @ 60 F						
RMF@Measured Temp	0.850 @ 60 F						
RMC@Measured Temp.	1.150 @ 60 F						
Source RMF/RMC	CALCULATED	CALCULATED					
RM@BHT	1.000 @ 125 F						
Time Circulation Stopped	12-07-2019 03:00						
Max Recorded Temp.	125 F						
Equipment/Base	TRK-137	HAYS					
Recorded By	B.BAILEY						
Witnessed By	DAVID						

Bitsize Intervals

Size (In)	Bottom (Ft)
7.875	5721.00

Casing Strings

Size (In)	Weight (Lbs)	Bottom (Ft)	Top (Ft)
8.625	32.00	1832.00	0.00

Run Number	1
Date	12-07-2019
Date/Time On Bottom	12-07-2019 09:45
Depth to Fluid	0.0 Ft
Salinity	0.000
RMF@BHT	0.850 @ 125 F
RMC@BHT	1.150 @ 125 F

Run Number 1

Comments

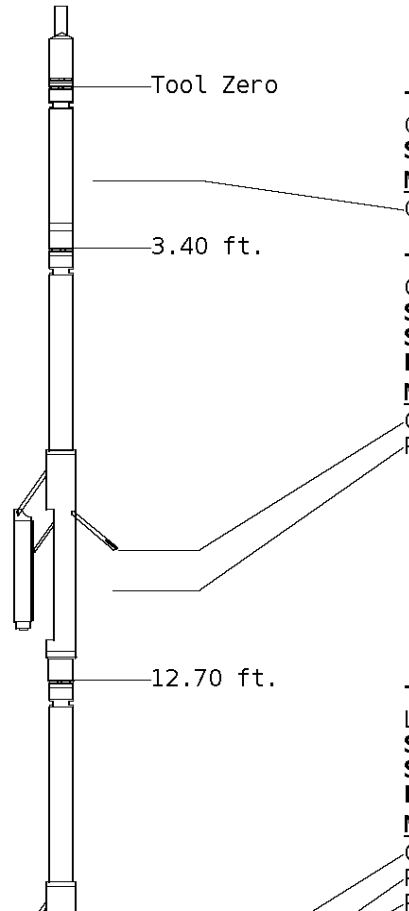
ALL PRESENTATIONS AS PER CUSTOMER REQUEST
GRT, CNT, LDT, MLT, CST, AND PIT RUN IN COMBINATION
CALIPERS ORIENTED ON X-Y AXIS
2.71 G/CC USED TO CALCULATE POROSITY
ANNULAR HOLE VOLUME CALCULATED USING 5.50" PRODUCTION CASING
PHIN IS CALIPER CORRECTED

GRT: GRP.
CNT: PHIN, CLCNIN.
LDT: PORL, LCORN, PECLN, LDENN, CLLDIN.
MLT: NOR_RF, INV_RF, MSCLPIN.
CST: PORS, ITT, CDTF, TT1, TT2, TT3, TT4.
PIT: ILD, ILM, SFLAEC, CIRD, SPU

OPERATORS:

Tool String Schematic

Total Tool Length - 68.31 **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-013

Measure Point	Tool Offset	Stack Offset	Bottom Offset
GRP	2.00	2.00	66.31

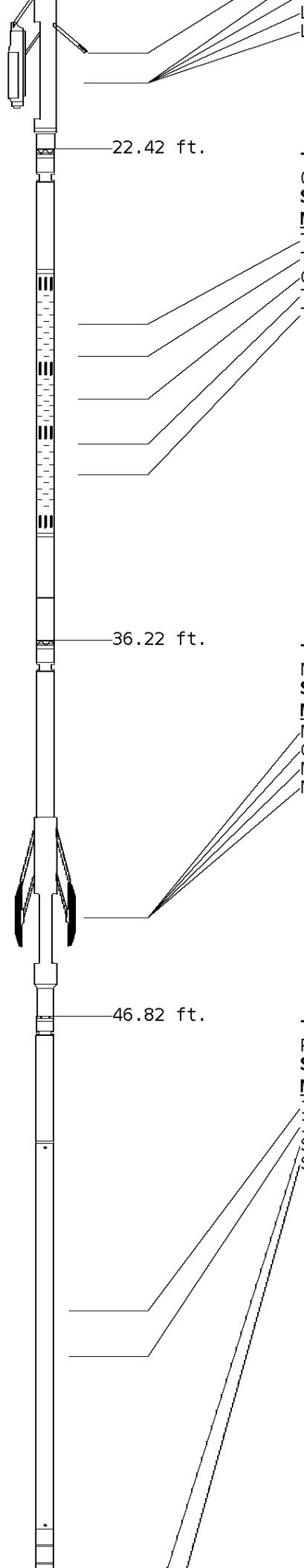
Tool: CNT-AA **Length:** 9.30 **ft.** **O.D.** 4.36 **in.**
Compensated Neutron A Pad on NDT-A
Sonde ID :NDT-AF-411
Source ID :N-1104
Pad ID :CNP-AD-037

Measure Point	Tool Offset	Stack Offset	Bottom Offset
CLCN	6.00	9.40	58.91
PHIN	6.80	10.20	58.11

Tool: LDT-DF **Length:** 9.72 **ft.** **O.D.** 4.80 **in.**
Litho Density D Pad on NDT-F
Sonde ID :NDT-FA-404
Source ID :1637GW
Pad ID :LDP-DA-062

Measure Point	Tool Offset	Stack Offset	Bottom Offset
CLLD	6.42	19.12	49.19
PEL	7.42	20.12	48.19
PES	7.82	20.52	47.79

LDEN	7.62	20.32	47.99
LCOR	7.62	20.32	47.99



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

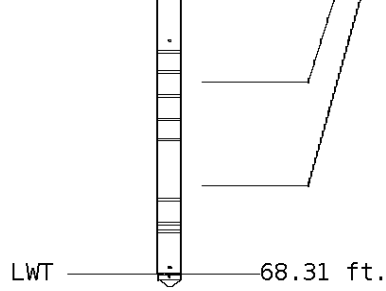
Measure Point	Tool Offset	Stack Offset	Bottom Offset
TT1	4.80	27.22	41.09
TT3	5.80	28.22	40.09
CDT	7.30	29.72	38.59
TT4	8.80	31.22	37.09
TT2	9.80	32.22	36.09

Tool: MLT-AB **Length:** 10.60 **ft.** **O.D.** 6.00 **in.**
Micro Log Tool
Sonde ID :MLT-012

Measure Point	Tool Offset	Stack Offset	Bottom Offset
MSFL	8.90	45.12	23.19
CLMR	7.60	43.82	24.49
MSFN	8.90	45.12	23.19
MSFI	8.90	45.12	23.19

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	55.74	12.56
ILM	10.10	56.92	11.39
SFLU	17.49	64.31	4.00
SP	20.60	67.42	0.88



Well File:	casillas_hamker_20-3_dec-7-2019_qst	**Scale:**	1:240 **Format:** COMSAT
Segment:	V1.D1.S7 Reprocess MAIN	**Acquired:**	2019-12/07 11:10 3.4.1-13972
Reference:	0	**Processed:**	2019-12/07 13:13 3.4.1-13972

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 →|__|←30

Volume Dolo/Shale

DEEP INDUCTION OHMM 0.2 – 2000.0

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

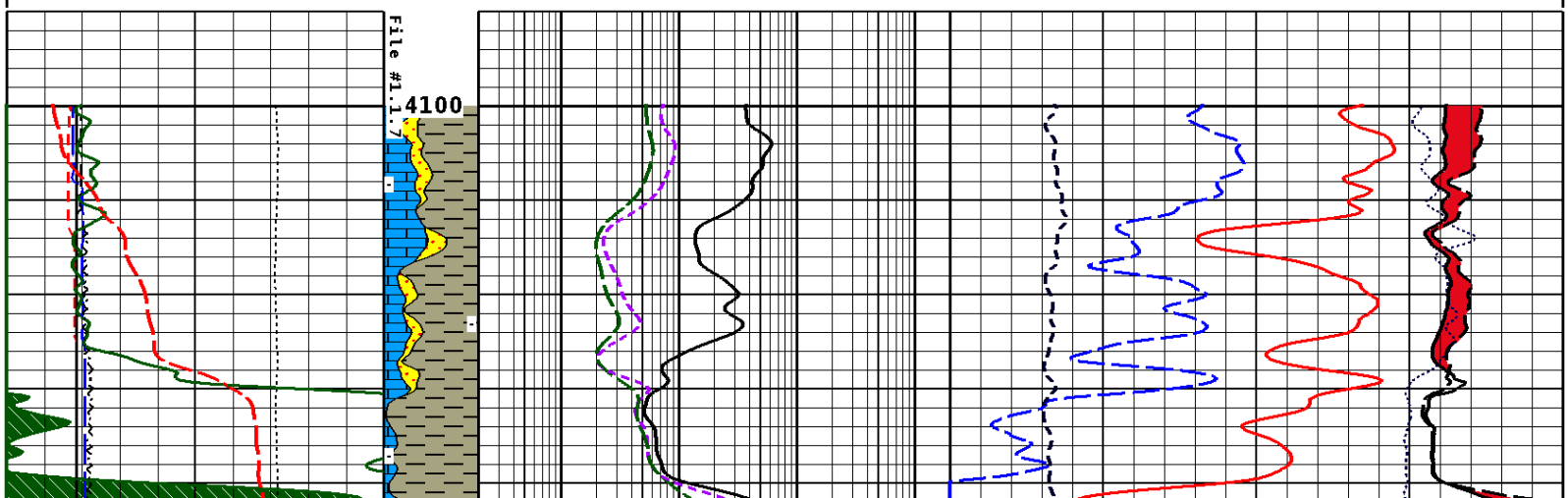
GAMMA RAY API UNITS 150 – 300 / 0 – 150

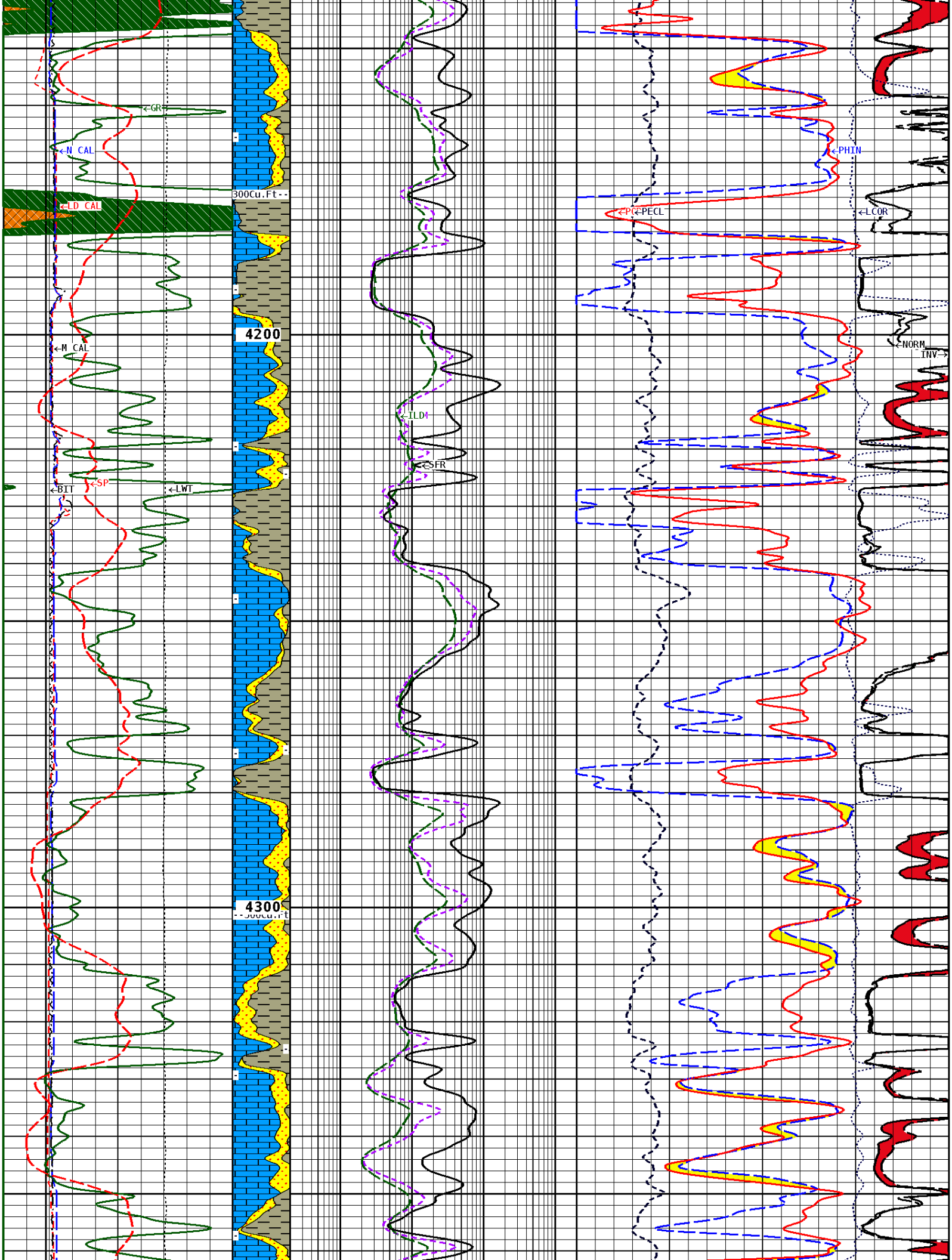
-BHV AHV- CU.FT

MEDIUM INDUCTION OHMM 0.2 – 2000.0

NEUTRON POROSITY (LIMESTONE) PERCENT 30 – -10

1:240 MAIN SECTION

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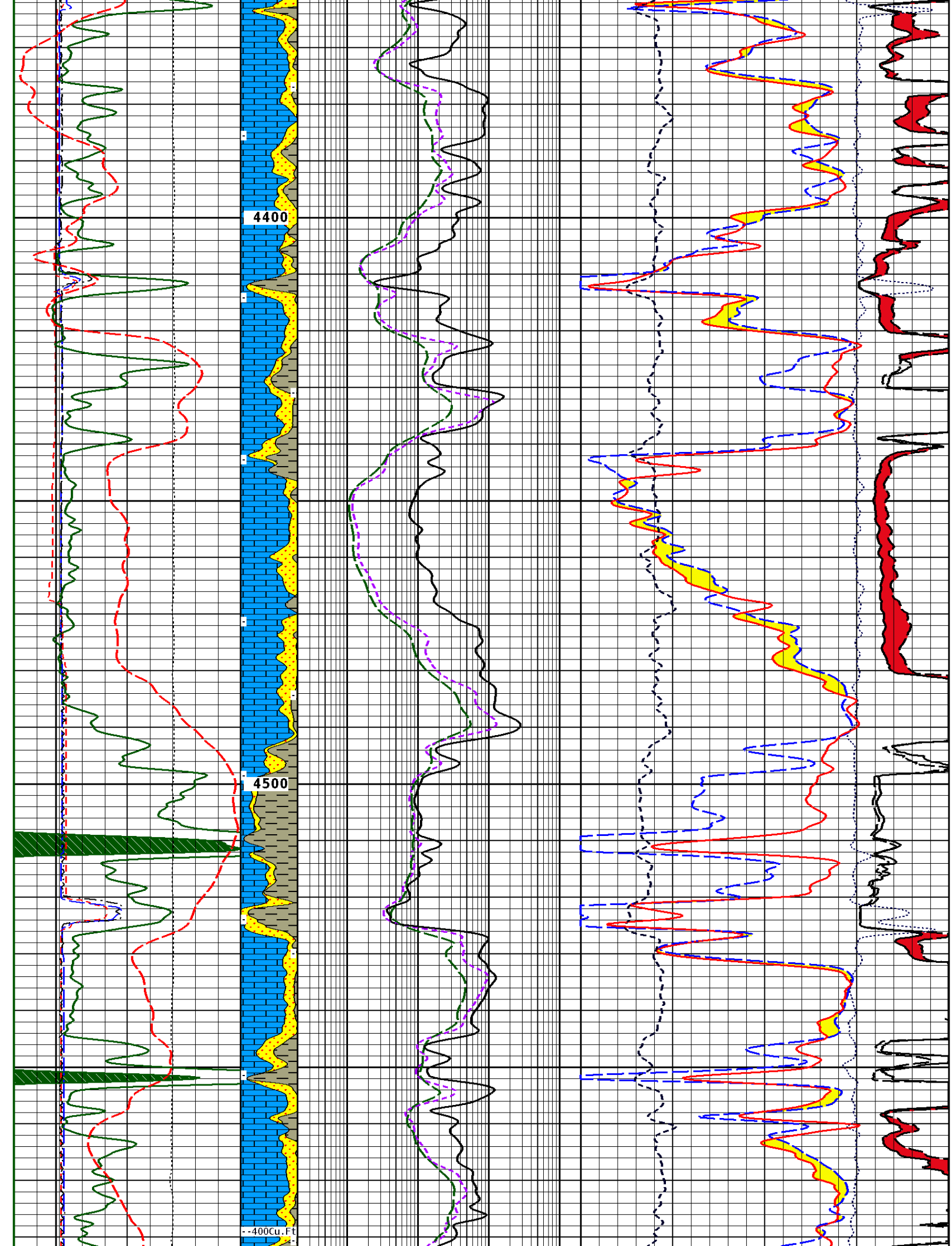
←NORM
INV→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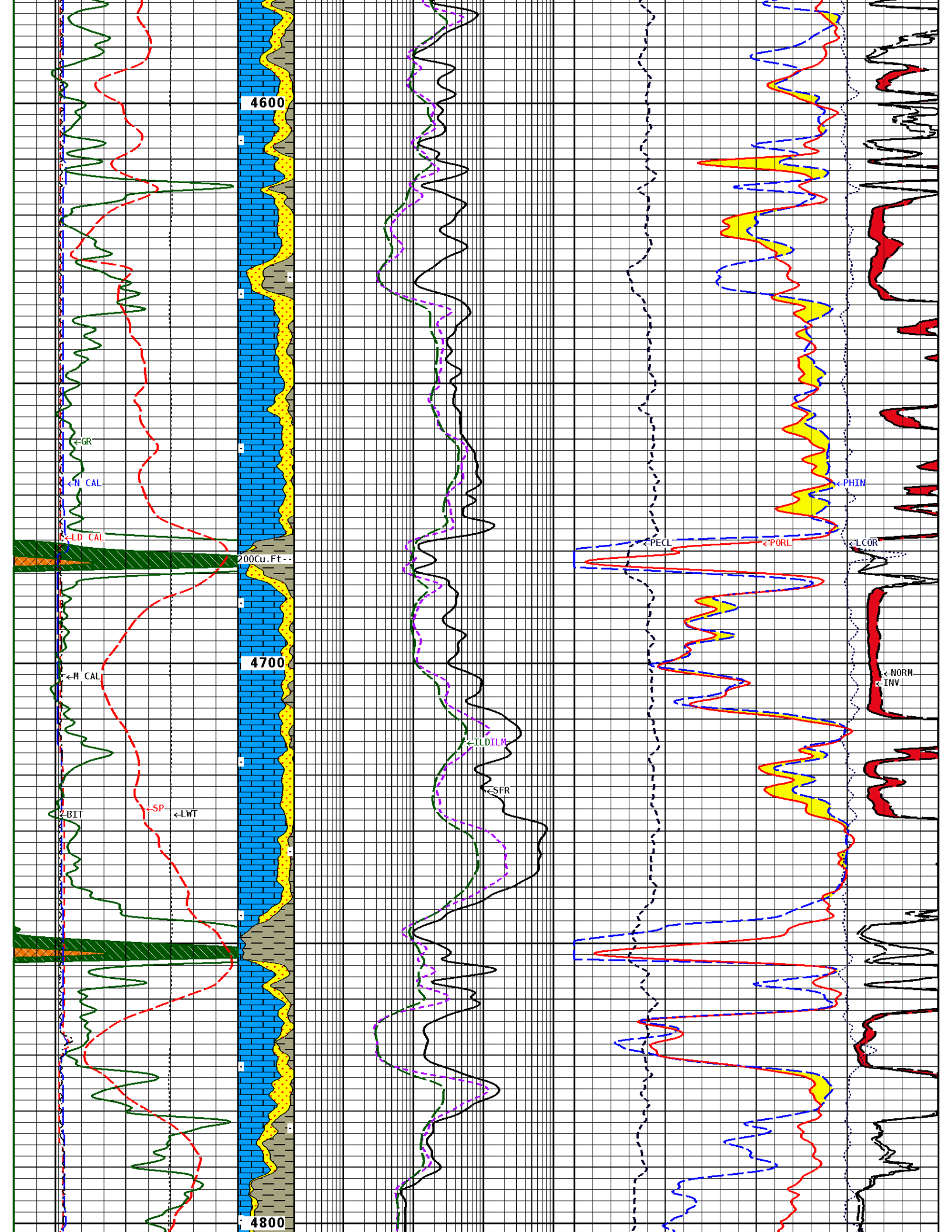
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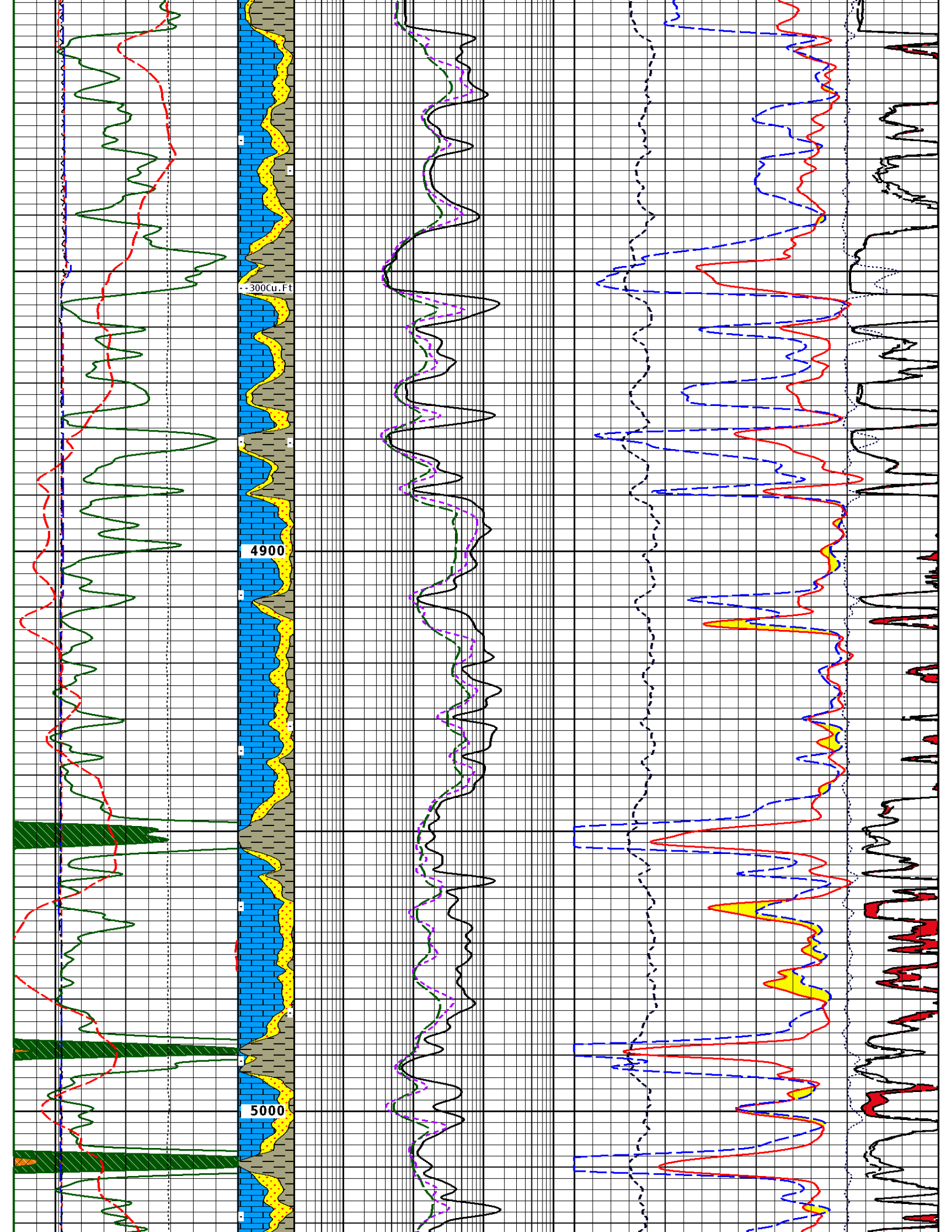
←PHIN
←LCOR
←NORM
←INV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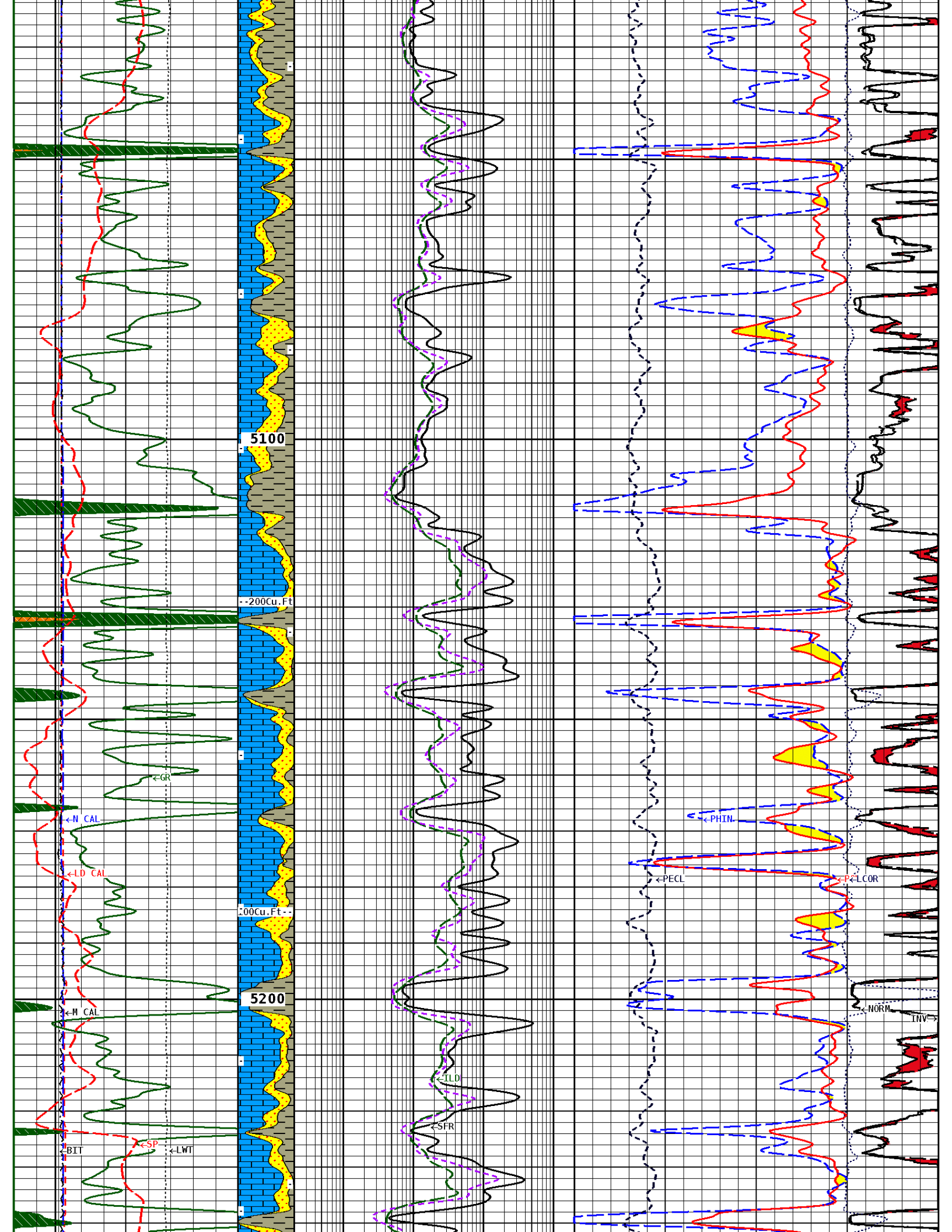
5000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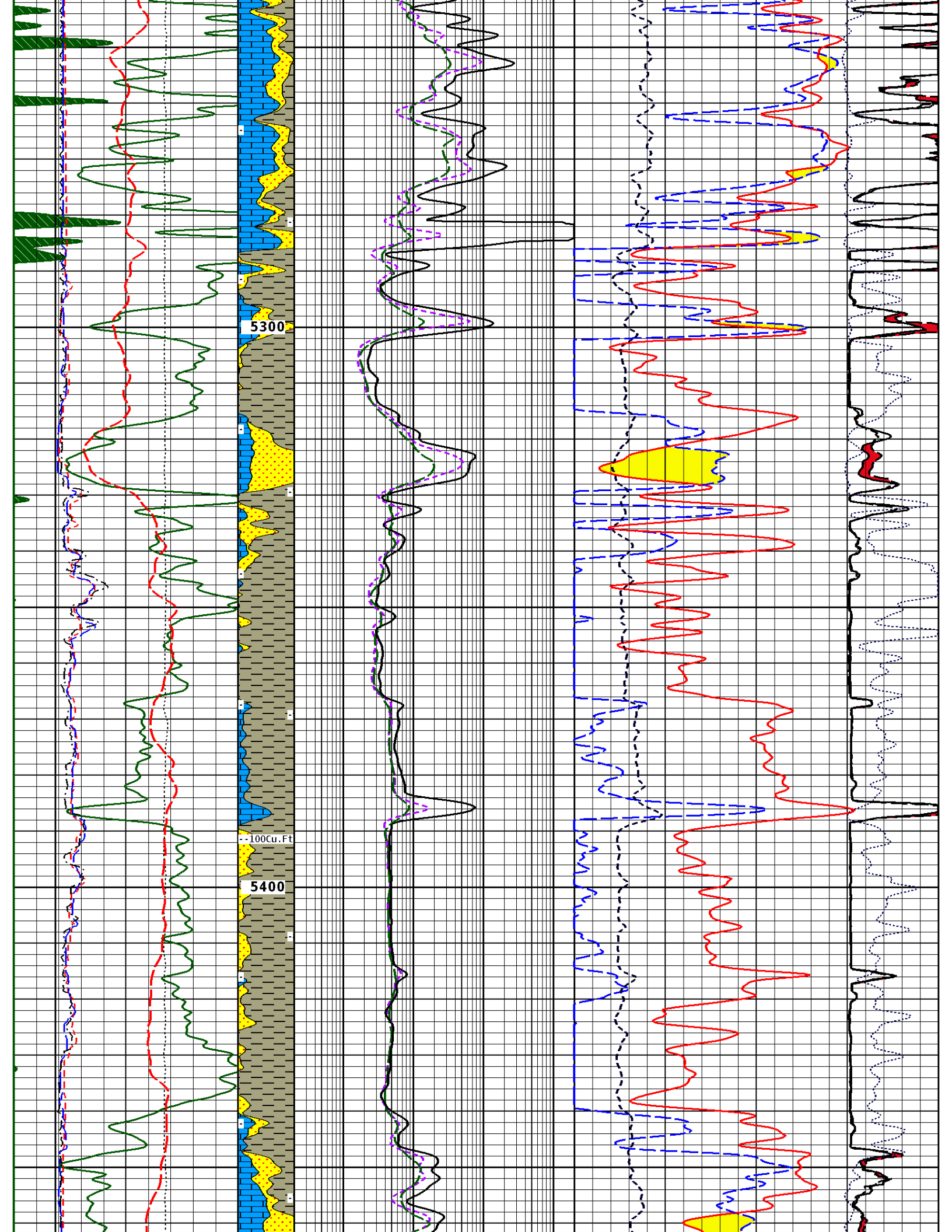
←NORM
INV→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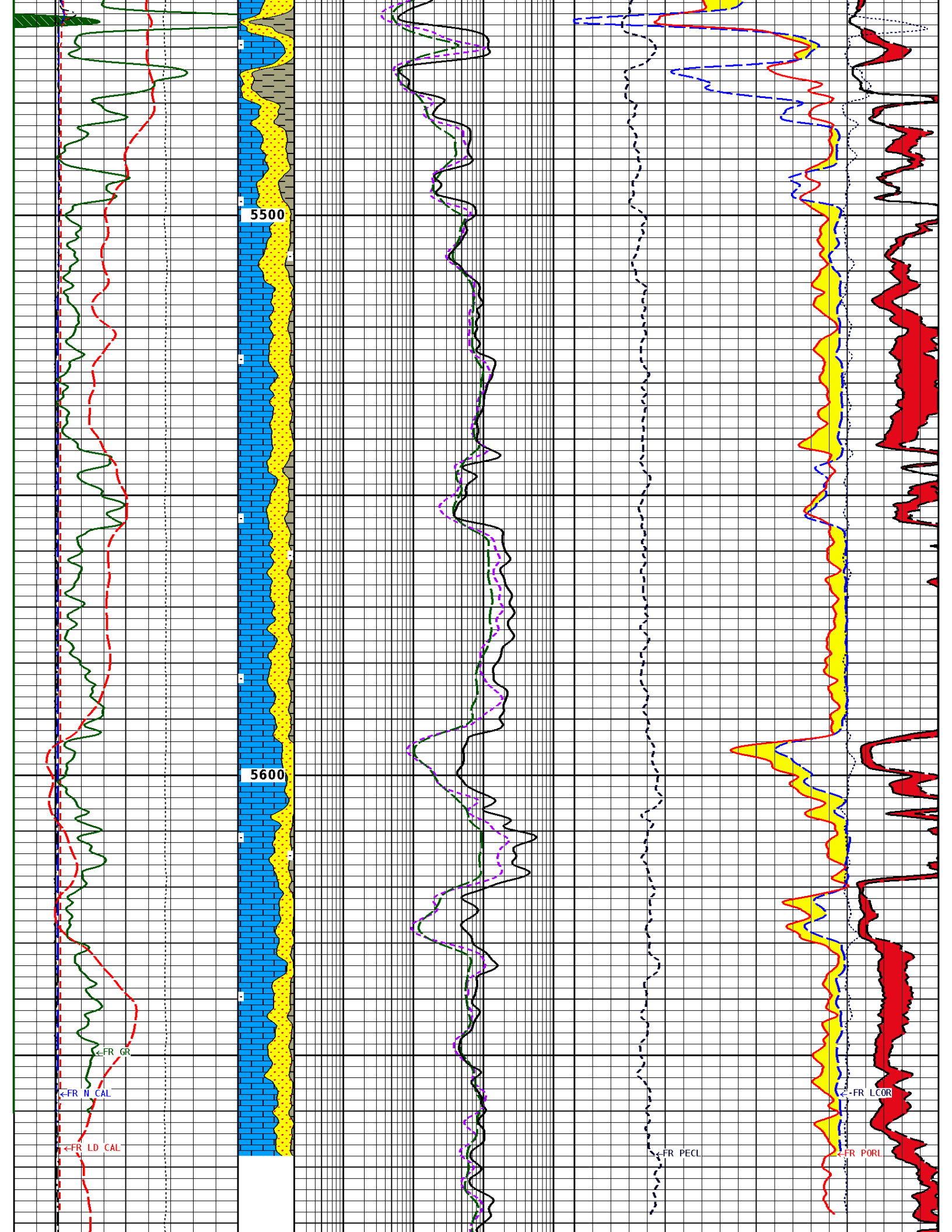
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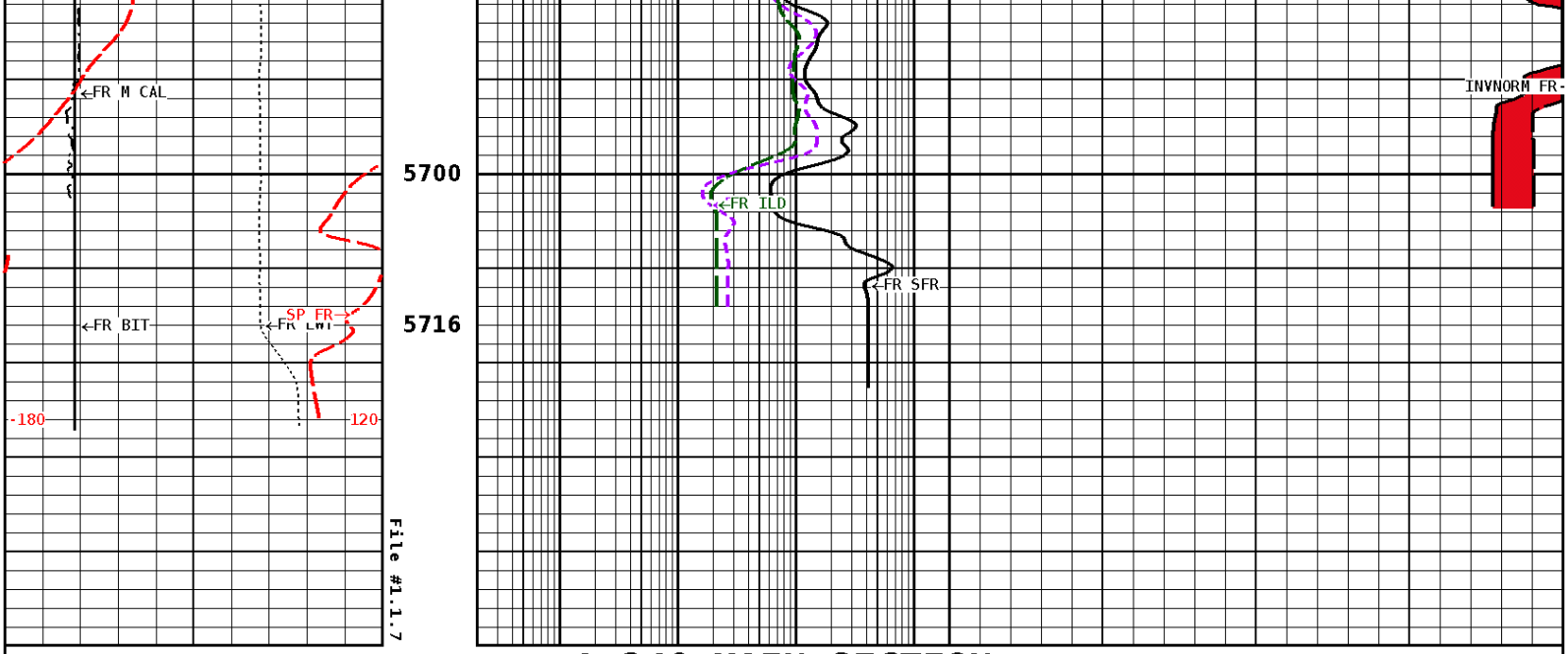
FR LD_CAL
FR PECL
FR LCOR
FR PORL



1:240 MAIN 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** → ←30	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 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
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	5721.000	ft
Borehole Temperature	125.0	degF
Temperature Gradient	1.00	DFHF
Resistivity Of Mud	2.000	ohmm

Well File: casillas_hamker_20-3_dec-7-2019_qst **Scale:** 1:240 **Format:** COMSAT
Segment: V1.D1.S5 Reprocess REPEAT **Acquired:** 2019-12/07 10:48 3.4.1-13972
Reference: 0 **Processed:** 2019-12/07 13:08 3.4.1-13972

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

BIT SIZE INCHES (IN) 6 / 16

NORMAL OHMM 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 →|←30

Volume Dolo/Shale

DEEP INDUCTION OHMM 0.2 / 2000.0

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

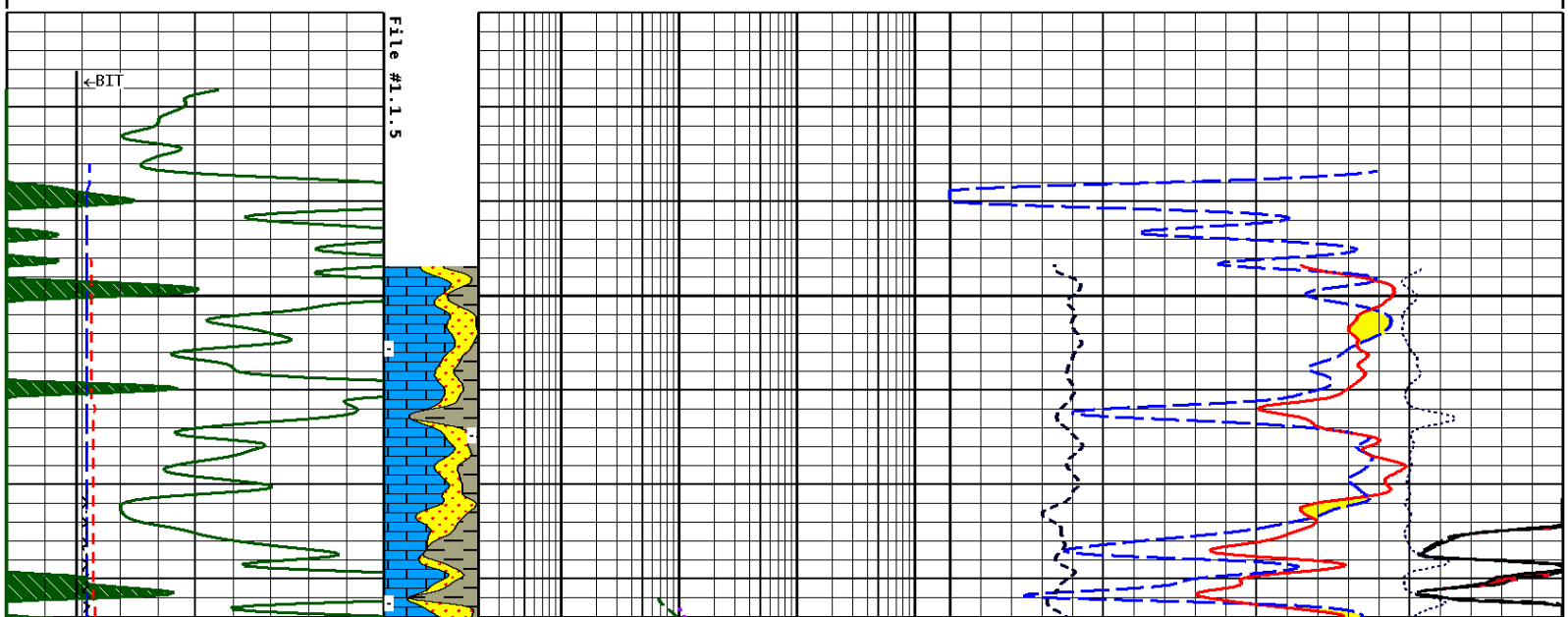
GAMMA RAY API UNITS 150 / 0 — 300 / 150

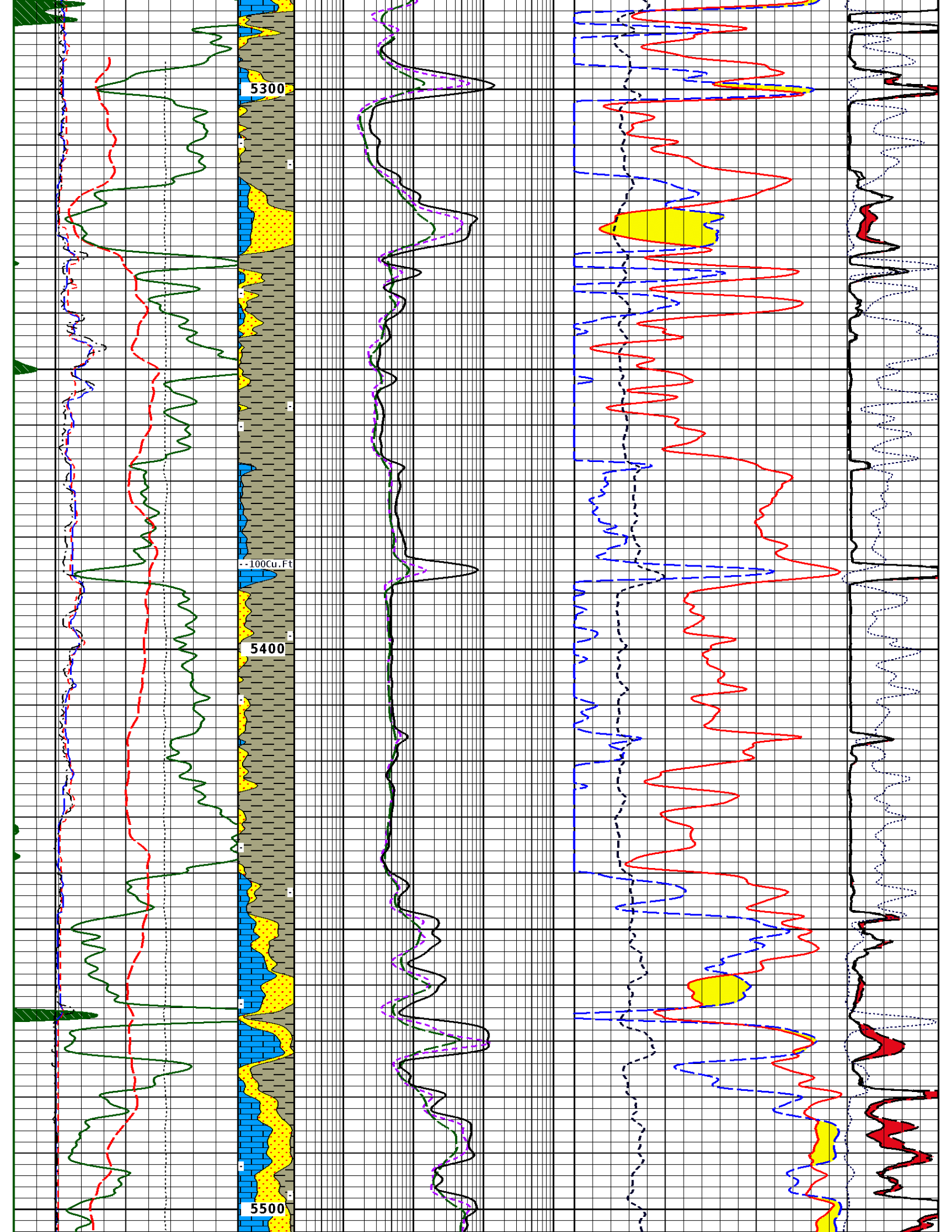
-BHV AHV- CU.FT

MEDIUM INDUCTION OHMM 0.2 / 2000.0

NEUTRON POROSITY (LIMESTONE) PERCENT 30 / -10

1:240 REPEAT SECTION

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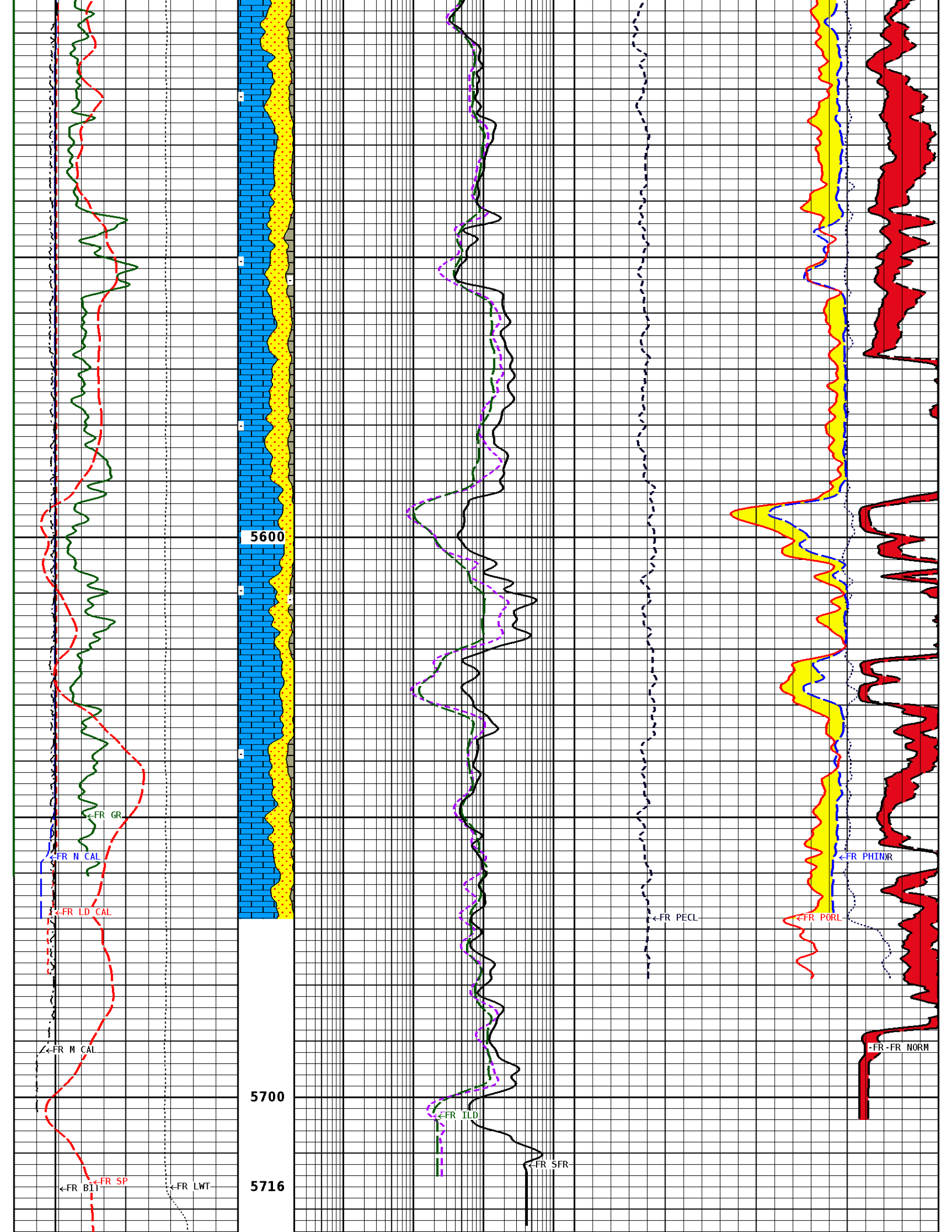
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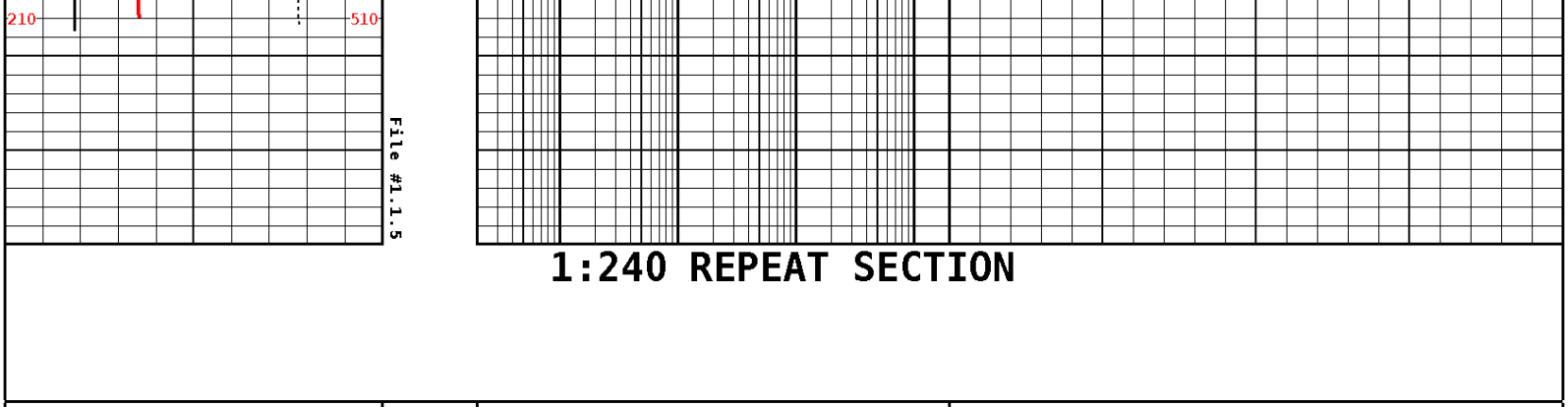
-FR-FR NORM



1:240 REPEAT SECTION

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
SPONTANEOUS POTENTIAL mV	Volume Dolo/Shale	**DEEP INDUCTION OHMM**	**DENSITY POROSITY (2.71g/cc) PERCENT**
→||←30		0.2 2000.0	70 30 30 -10 -10 -50
TENSION LBS	Volume Calcite	**SHALLOW FOCUSED RESISTIVITY OHMM**	**PE CROSS-SECTION BARNS/ELECTRON**
10000 0		0.2 2000.0	0 20
DENSITY (X) CALIPER INCHES (IN)	Volume Quartz		**DENSITY CORRECTION G/CC**
16 26 6 16			-0.75 0.25
NEUTRON (Y) CALIPER INCHES (IN)			**INVERSE OHMM**
16 26 6 16			0 40
BIT SIZE INCHES (IN)			**NORMAL OHMM**
6 16			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
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	5721.000	ft
Borehole Temperature	125.0	degF
Temperature Gradient	1.00	DFHF
Resistivity Of Mud	2.000	ohmm

* Calibration Summary *

Shop Calibration
GRT-B

Performed : 04-Jun-2019 Time : 09:53
Sensor Suite : GR-GR5 ID : GRT-BB-013

Sensor Suite : GR-GRS ID : GRT-DB-013

	Measured Background	Measured Jig	Units	Calibrated Jig	Units
GR	44	314	CPS	160	GRAPI

Shop Calibration
CNT-AA

Performed : 03-Jun-2019 Time : 11:01
Sensor Suite : CALI-BCN ID : NDT-AF-411

	Jig - Measured Ring#1	Jig - Measured Ring#2	Jig - Calibrated Ring#1	Jig - Calibrated Ring#2	Units
CL # 1	7.5	12.5	6.0	12.0	IN.

Performed : 08-AUG-2019 Time : 16:18
Sensor Suite : BHC NEUT ID : CNP-AD-037
Source ID : N-1104

	Tank Measured	Tank Calibrated	Verification Jig	Units
N/F	3.7594	3.6893	3.6944	
Porosity	21.6	20.5	20.6	%

Shop Calibration
LDT-DF

Performed : 03-Jun-2019 Time : 14:53
Sensor Suite : CALI-LTH ID : NDT-FA-404

	Jig - Measured Ring#1	Jig - Measured Ring#2	Jig - Calibrated Ring#1	Jig - Calibrated Ring#2	Units
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-MAY-2003 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
MLT-AB

Performed : 08-JUN-2016 Time : 15:58

Performed : 03-JUN-2019 Time : 15:59
Sensor Suite : CAL-MSFL ID : MLT-012

	Jig - Measured Ring#1	Jig - Measured Ring#2	Jig - Calibrated Ring#1	Jig - Calibrated Ring#2	Units
CL # 1	12.4	15.4	6.0	12.0	IN.

Performed : 03-Jun-2019 Time : 16:08
Sensor Suite : MS-NI ID : MLT-012

	Jig#1	Jig#2	Verifier	Units
VN-0	522.41	3592.20	3592.82	
VN-90	322.29	4426.00	4426.45	
MPNR Measured	3.07	28.50	28.51	
MPNR Calibrated	2.00	20.00	20.00	OHMM
VI-0	379.00	5381.38	5381.98	
VI-90	608.31	4363.26	4364.08	
MPIR Measured	3.58	34.64	34.64	
MPIR Calibrated	2.00	20.00	20.00	OHMM

Shop Calibration
PIT-CA

Performed : 10-MAY-2019 Time : 11:27
Sensor Suite : P-IND-T ID : PIT-AC-043

Medium

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

Performed : 10-May-2019 Time : 14:03
Sensor Suite : SFL ID : PIT-AC-043

Internal

	Measured Zero	Measured Reference	Calibrated Zero	Calibrated Reference	Units
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 : 10-MAY-2019 Time : 11:16
Sensor Suite : P-SP ID : PIT-AC-043

Internal

Measured Zero	Measured Reference	Calibrated Zero	Calibrated Reference	Units
32774.5	58935.9	0.0	1000.0	mV

STEP energy services

Company: CASILLAS PETROLEUM CORP

Well: HAMKER #20-3

Location: 1420' FSL & 660' FWL

Logged: 12-07-2019

K.B. Elev: 2858.0 Ft