Tucker ENERGY SERVICES

COMPOSITE LOG

Company CHIEFTON OIL CO.INC.
Well RATHGERBER #4
Field
County BARBER
State KANSAS
Country USA
API No. 15-007-24170

File No : TUL-59677
Company : CHIEFTON OIL CO.INC.
Well : RATHGERBER #4
Field :
County : BARBER
State : KANSAS
Country : USA
API No : 15-007-24170

Location :
1912' FSL & 340' FWL
NE SW NW SW

LSD : **Sect :** 6 **Twp :** 35S **Rge :** 11E

Permanent Datum:	GL	**Elevations:**		**Services:**	
Drilling Measured From:	KB	**KB** 1404.00	Ft	CNT	PIT
Log Measured From:	KB	**DF** 1403.00	Ft	LDT	
Above Permanent Datum:	12.00 Ft	**GL** 1392.00	Ft	MLT	

Date	06-04-2014			
Run Number	1			
Depth--Driller	5555.0 Ft			
Depth--Logger	5553.0 Ft			
First Reading	5553.0 Ft			
Last Reading	326.0 Ft			
Casing--Driller	326.0 Ft			
Casing--Logger	326.0 Ft			
Bit Size	0.875 In			
Casing Size	13.375 In			
Hole Fluid Type	WBM			
Density	9.1			
Fluid Loss	10.0			
PH/Viscosity	10.0	58.0		
Sample Source	MEASURED			
RM@Measured Temp.	0.300 @ 80 F			
RMF@Measured Temp	0.260 @ 80 F			
RMC@Measured Temp.	0.350 @ 80 F			
Source RMF/RMC	CALCULATED	CALCULATED		
RM@BHT	0.190 @ 130 F			
Time Circulation Stopped	06-04-2014 3:30 pm			
Max Recorded Temp.	135 F			
Equipment/Base	T-123	TULSA		
Recorded By	S. DAVIS			
Witnessed By	A. RATZLAFF			

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

Size (In)	Bottom (Ft)
0.875	5553.00

Casing Strings

Size (In)	Weight (Lbs)	Bottom (Ft)	Top (Ft)
13.375	24.00	326.00	0.00

Run Number	1
Date	06-04-2014
Date/Time On Bottom	06-04-2014 7:30 pm
Depth to Fluid	0.0 Ft
Salinity	8600.000
RMF@BHT	0.160 @ 130 F
RMC@BHT	0.220 @ 130 F

Run Number 1

Comments

ALL PRESENTATION PER CUSTOMER REQUEST
GRT,CNT,LDT,PIT RUN IN COMBINATION
CALIPERS ORIENTED ON X-Y AXIS
2.71 G/CC USED TO CALCULATE POROSITY
ANNULAR & BOREHOLE VOLUME CALCULATED USING 5.5 PRODUCTION CASING
PHIN IS CALIPER CORRECTED
DETAIL FROM TD TO 3750'
ANHYDRITE SECTION FROM 1750' TO 1200'

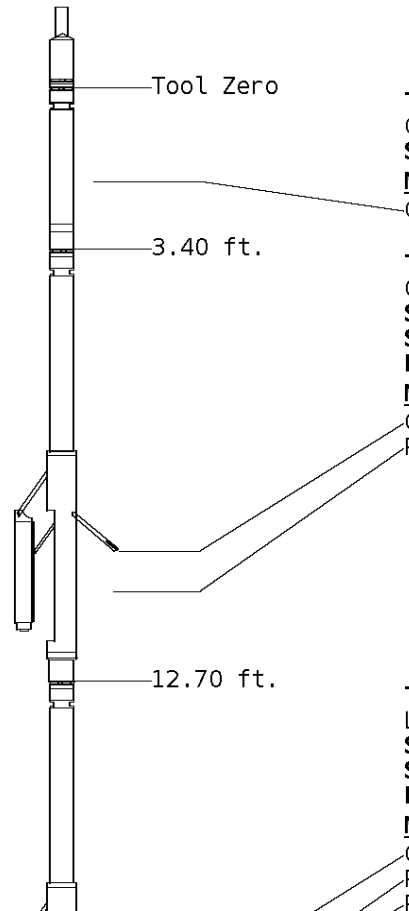
GRT; GRP,
CNT; PHIN, CLCNIN
LDT; PORL, LCORN, PECLN, LDENN, CLLDIN
MLT; NOR.RF, INV.RF, MSCLPIN.
PIT; ILD, ILM, SPU, SFLAEC, CIRD

OPERATORS;

C. GONZALES
J. THOMAS

Tool String Schematic

Total Tool Length - 53.57 **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-107

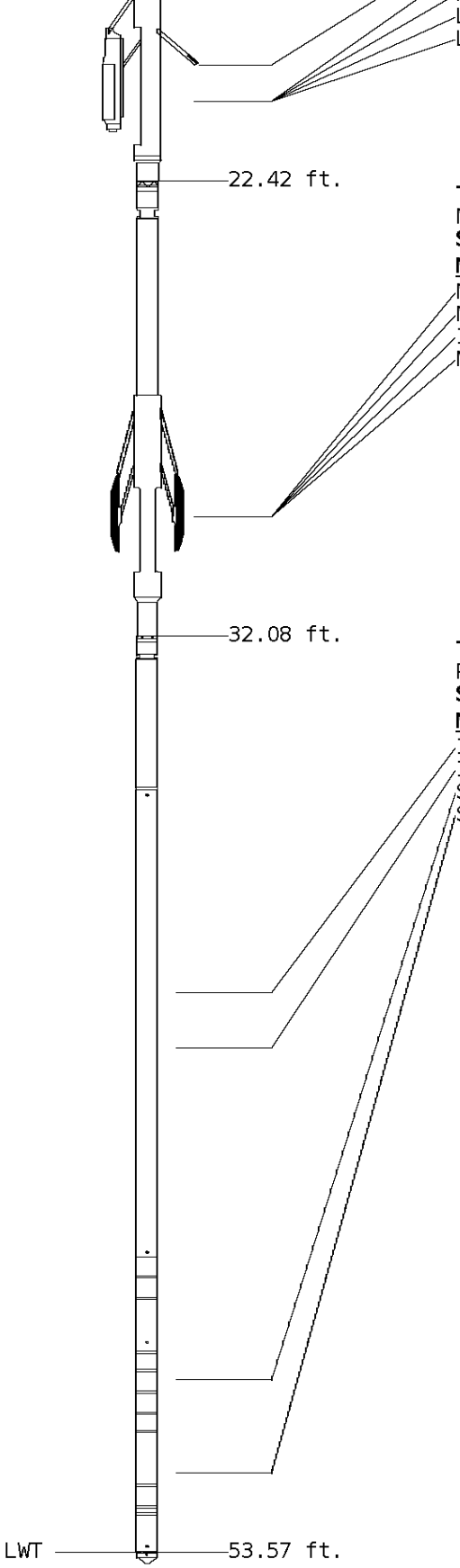
Measure Point	Tool Offset	Stack Offset	Bottom Offset
GRP	2.00	2.00	51.57

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	44.17
PHIN	6.80	10.20	43.37

Tool: LDT-DF **Length:** 9.72 **ft.** **O.D.** 4.80 **in.**
Litho Density D Pad on NDT-F
Sonde ID :PDT-GA-465
Source ID :2991GW
Pad ID :LDP-DA-065

Measure Point	Tool Offset	Stack Offset	Bottom Offset
CLLD	6.42	19.12	34.45
PEL	7.42	20.12	33.45
PES	7.82	20.52	33.05



LDEN	7.62	20.32	33.25
LCOR	7.62	20.32	33.25

Tool: MST-DA **Length:** 9.66 **ft.** **O.D.** 6.00 **in.**
Micro Spherically Focused (IC,D)
Sonde ID :MST-DA-057

Measure Point	Tool Offset	Stack Offset	Bottom Offset
MSFL	7.60	30.02	23.55
MSCLP	7.60	30.02	23.55
INV	7.60	30.02	23.55
NOR	7.60	30.02	23.55

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	41.00	12.56
ILM	10.10	42.18	11.39
SFLU	17.49	49.57	4.00
SP	20.60	52.68	0.88

Well File: chief-rath-4-mstk-jun-4 **Scale:** 1:240 **Format:** COMSAT
Segment: V1.D1.S6 MAIN **Acquired:** 2014-06/04 19:35 3.3.0-12594
Reference: 0 **Processed:** 2014-06/04 21:30 3.3.0-12594

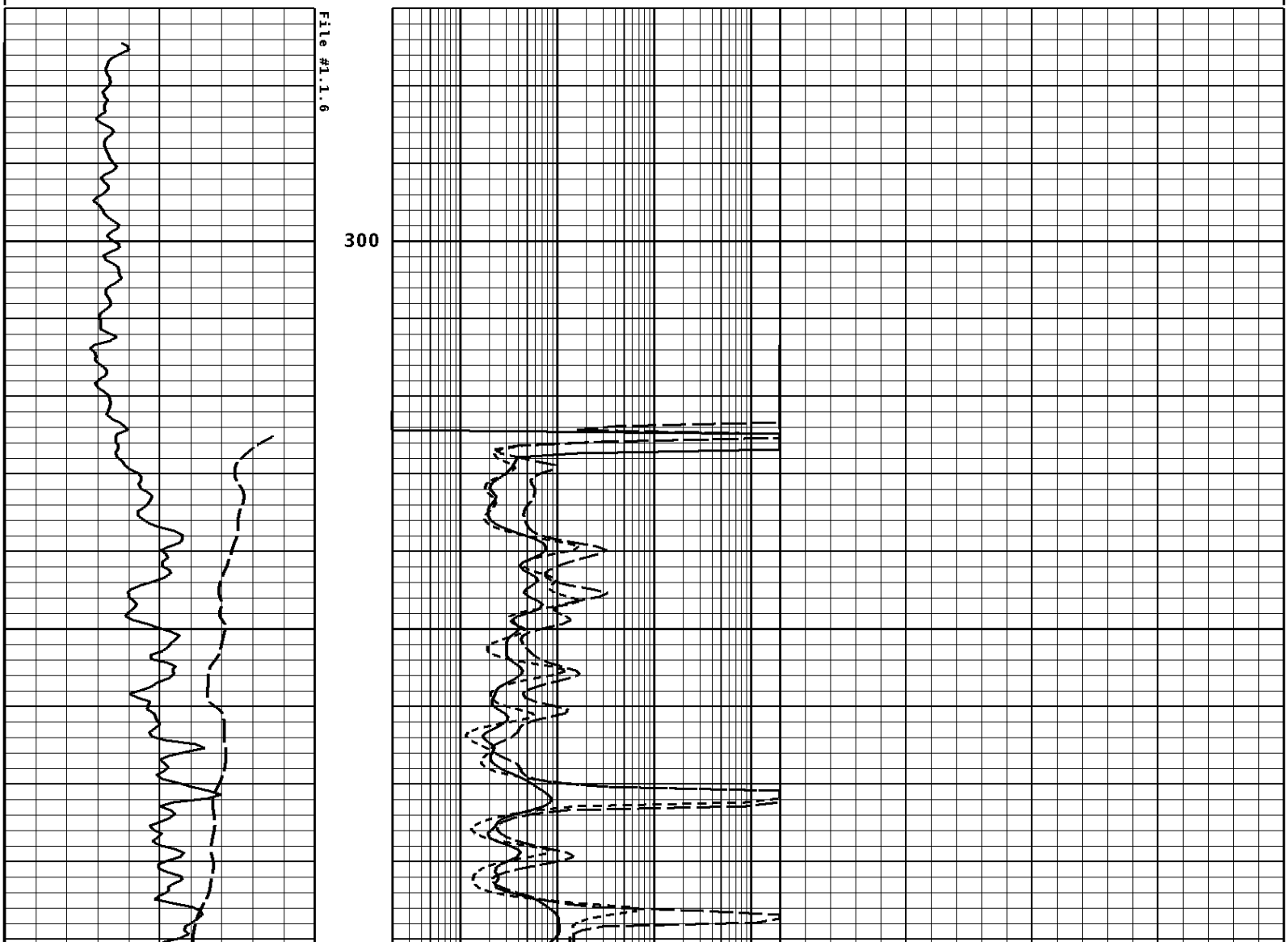
CALIPER MICRO
INCHES (IN)
16 26
6 16

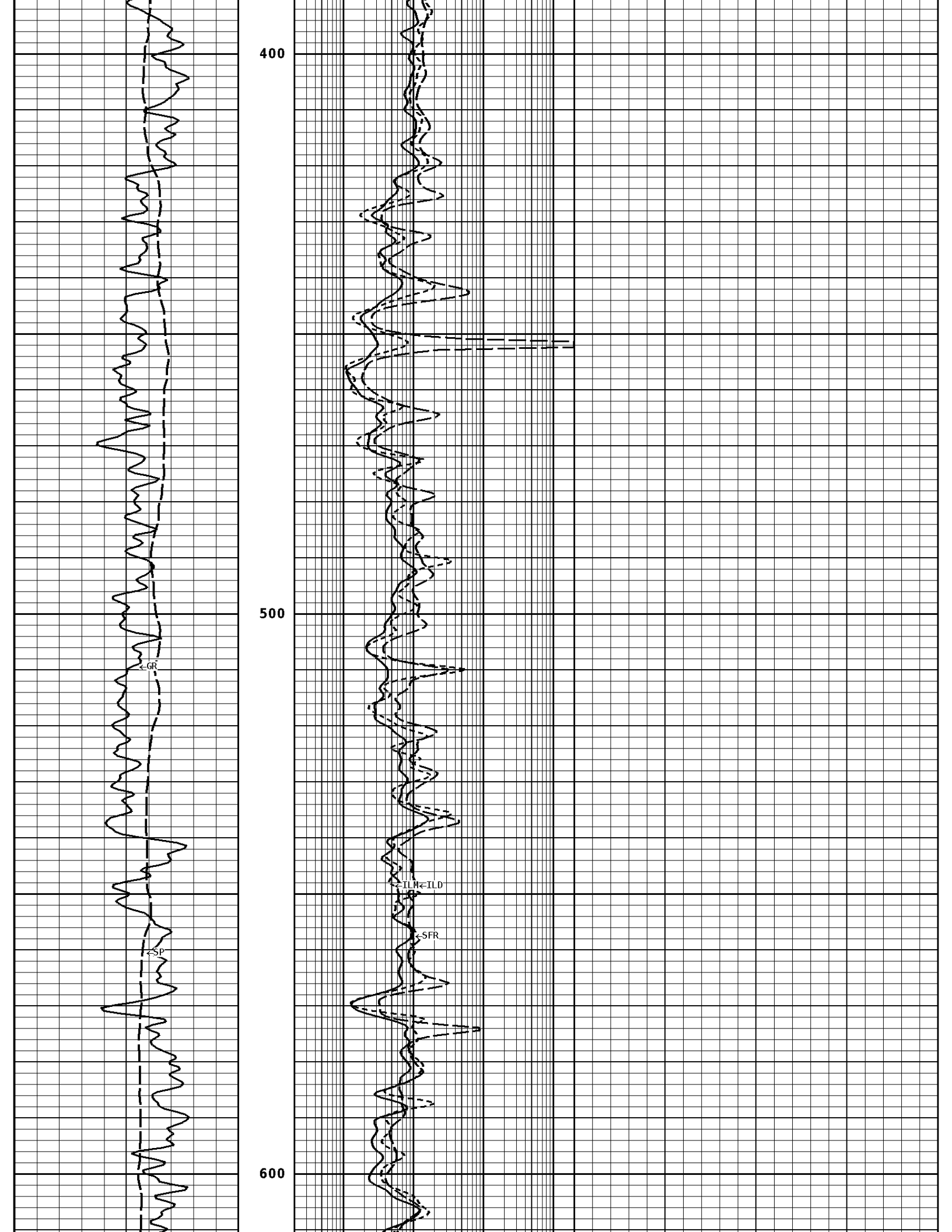
BIT SIZE
INCHES (IN)

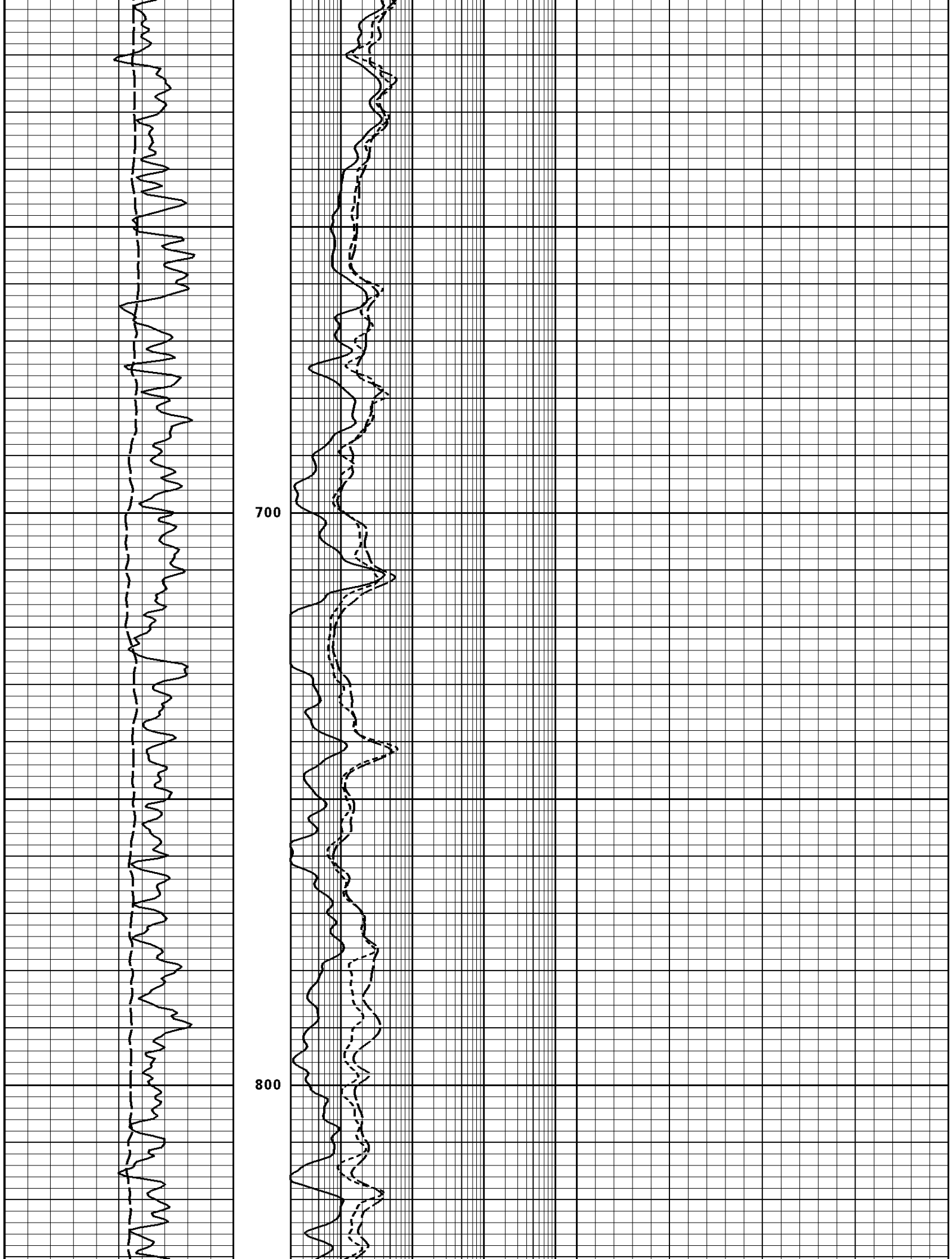
NORMAL
OHMM

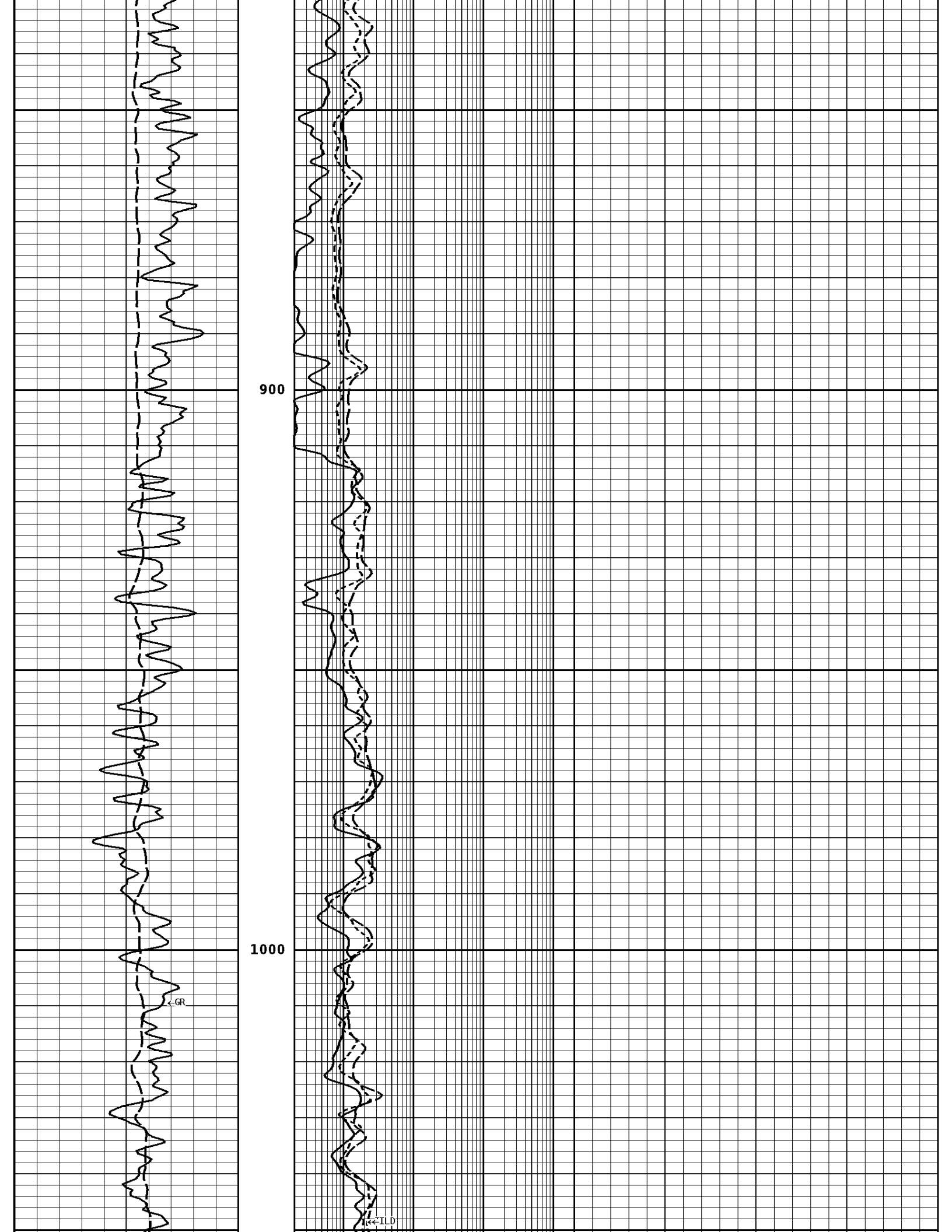
6 16			0 40
NEUTRON (Y) CALIPER INCHES (IN) 16 26 / 6 16			INVERSE OHMM 0 40
DENSITY (X) CALIPER INCHES (IN) 16 26 / 6 16	Volume Quartz		DENSITY CORRECTION G/CC -0.75 0.25
TENSION LBS 10000 0	Volume Calcite	SHALLOW FOCUSED RESISTIVITY OHMM 0.2 2000.0	PE CROSS-SECTION BARNS/ELECTRON 0 20
SPONTANEOUS POTENTIAL mV →| |←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




400
500
600
GR
SP
ILM
ILD
SFR


700
800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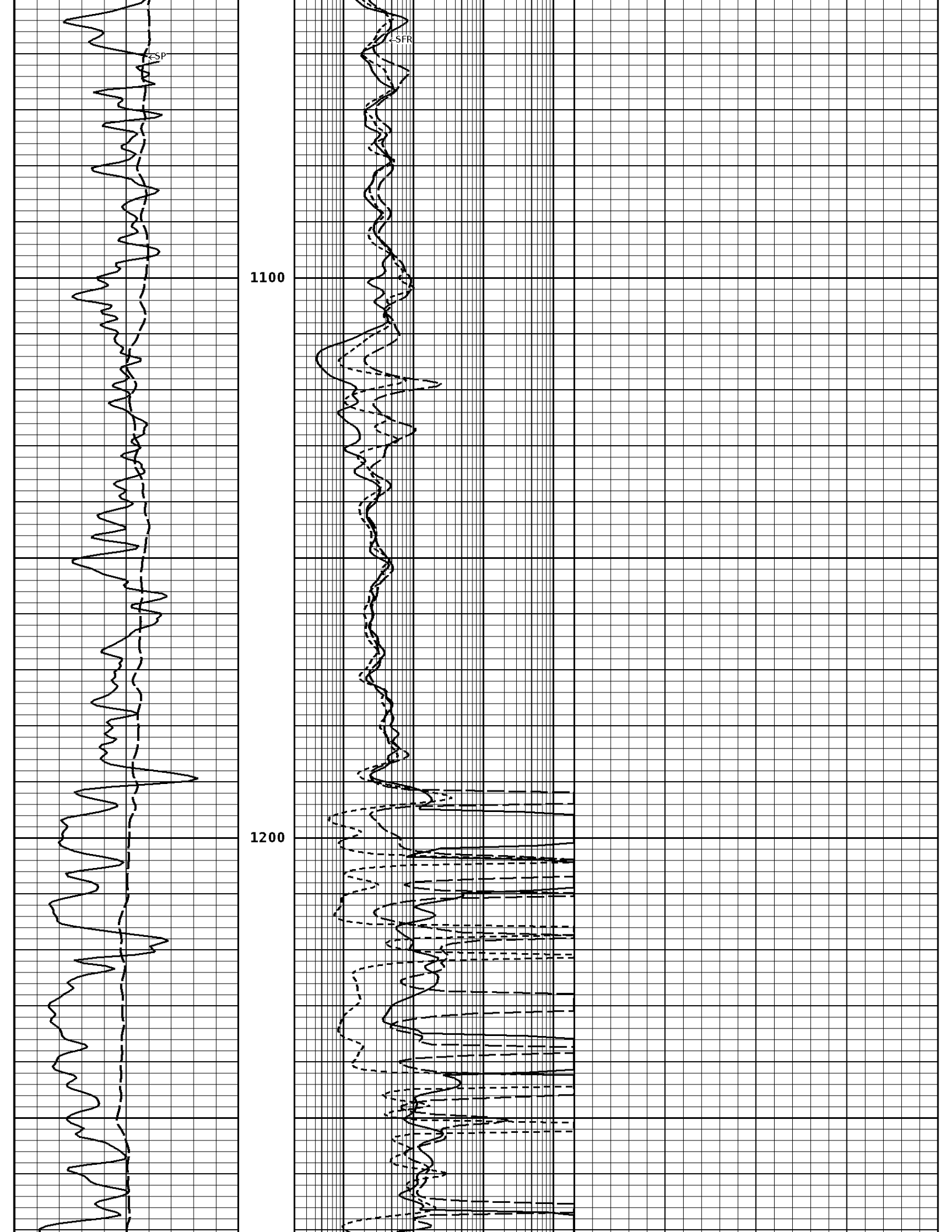
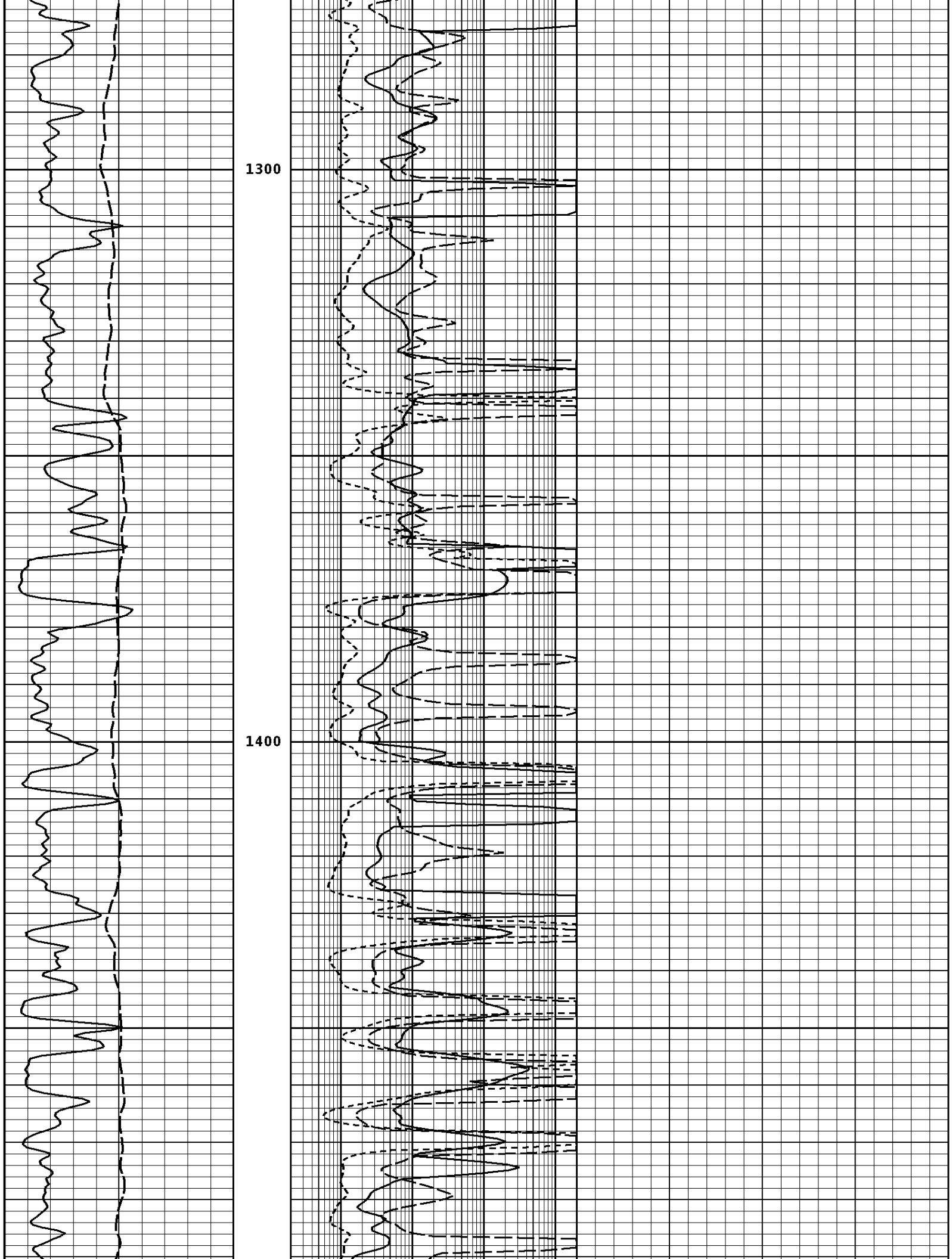
1000
GR
ILD


SP
SFR
1100
1200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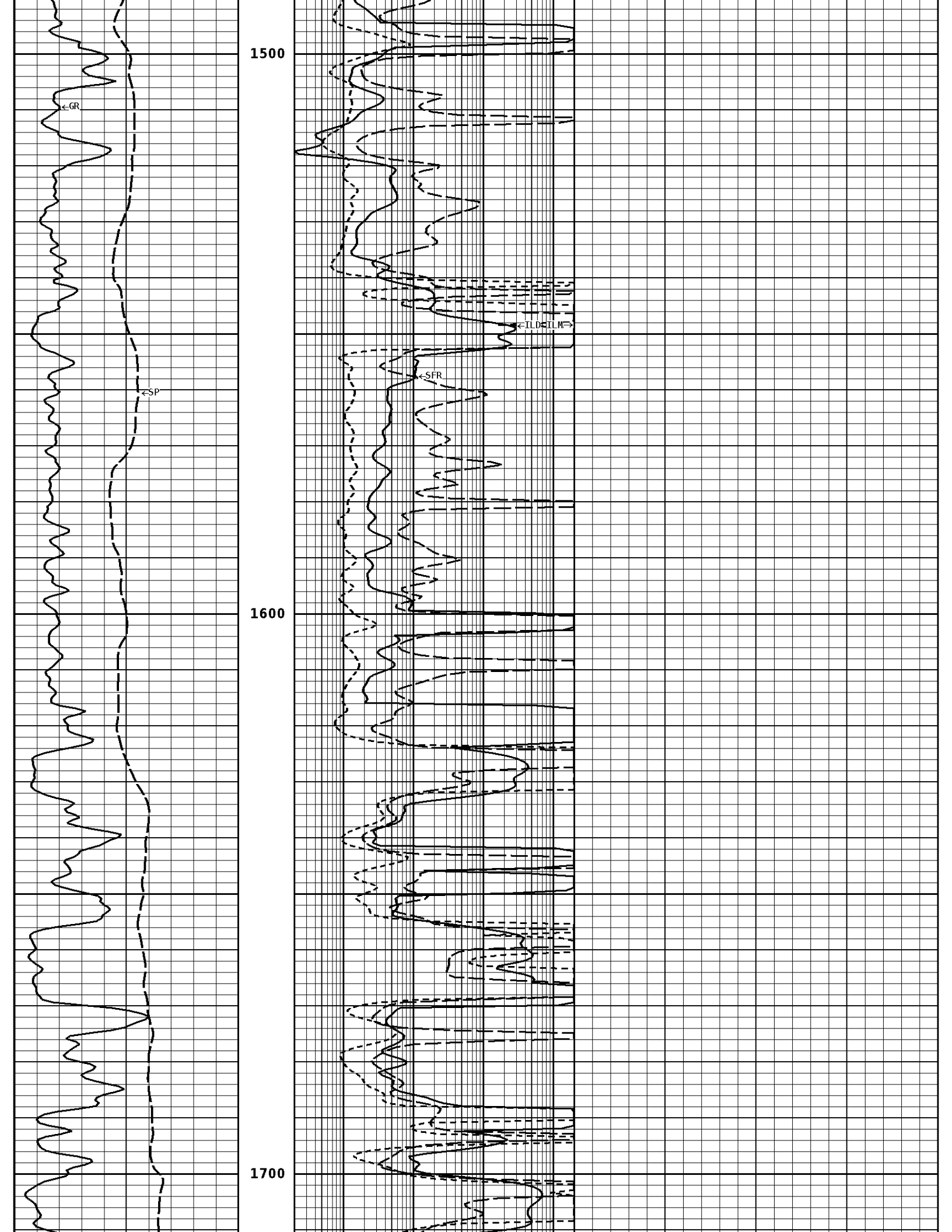
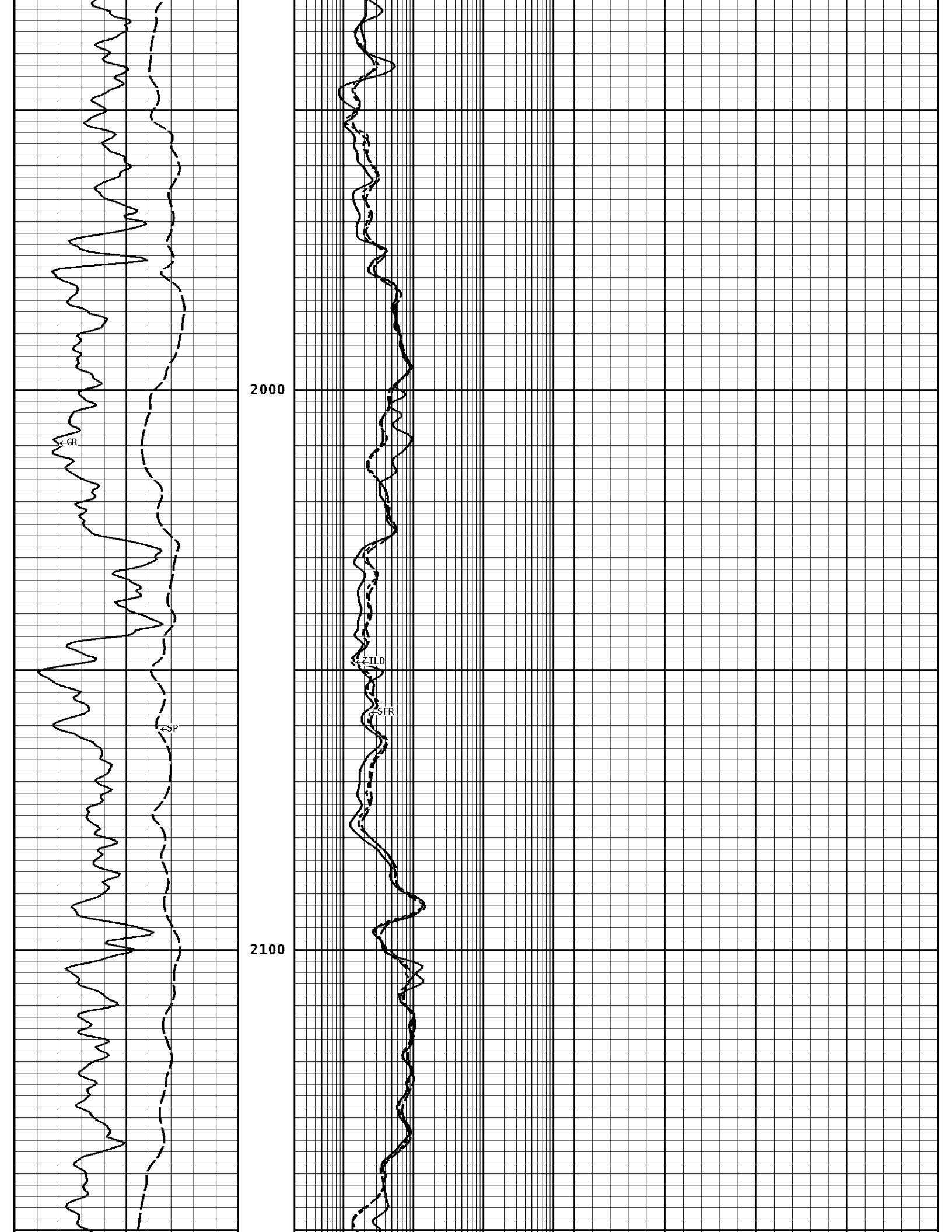
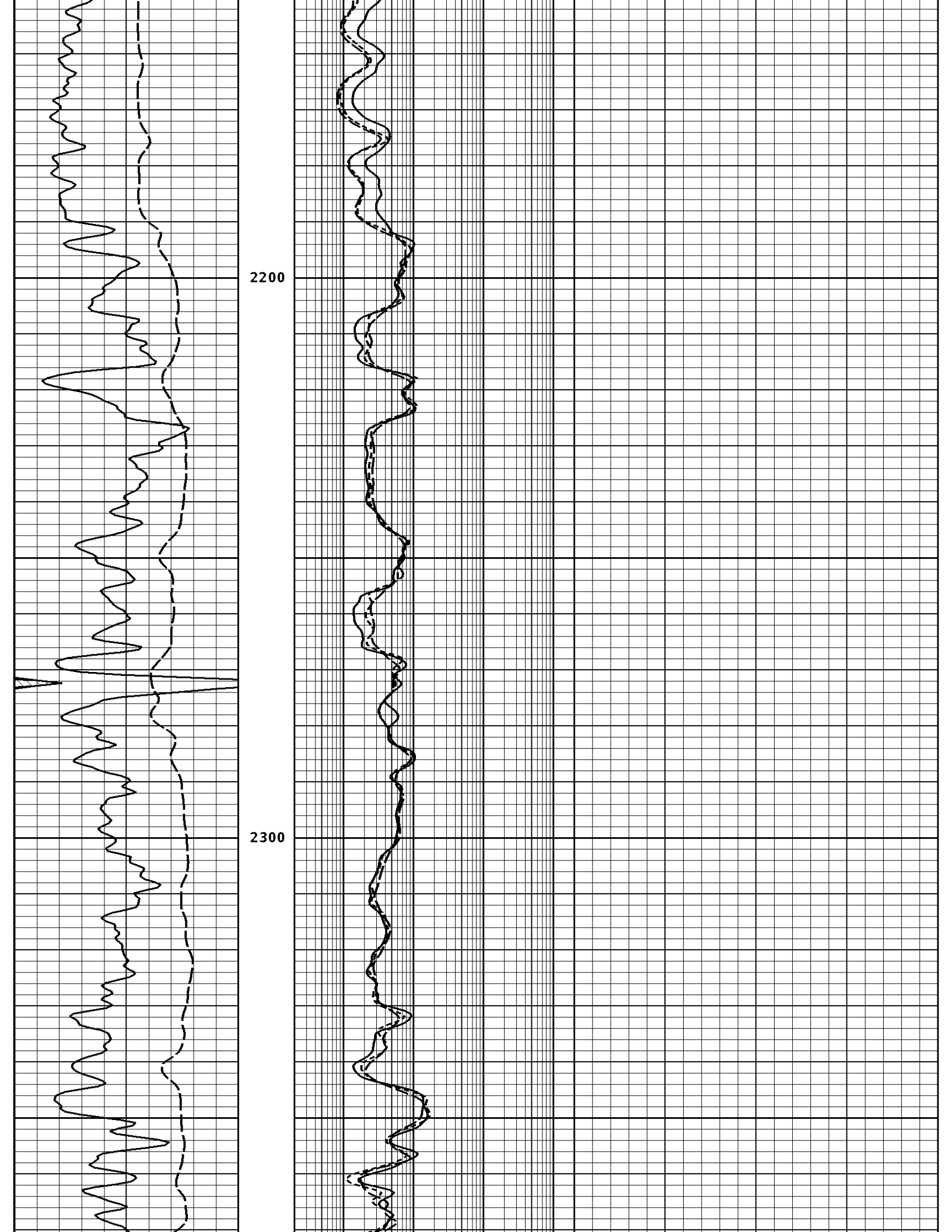
1400


1500
1600
1700
GR
SP
ILD
ILM
SFR


1800
1900


2000
GR
ILD
SFR
SP
2100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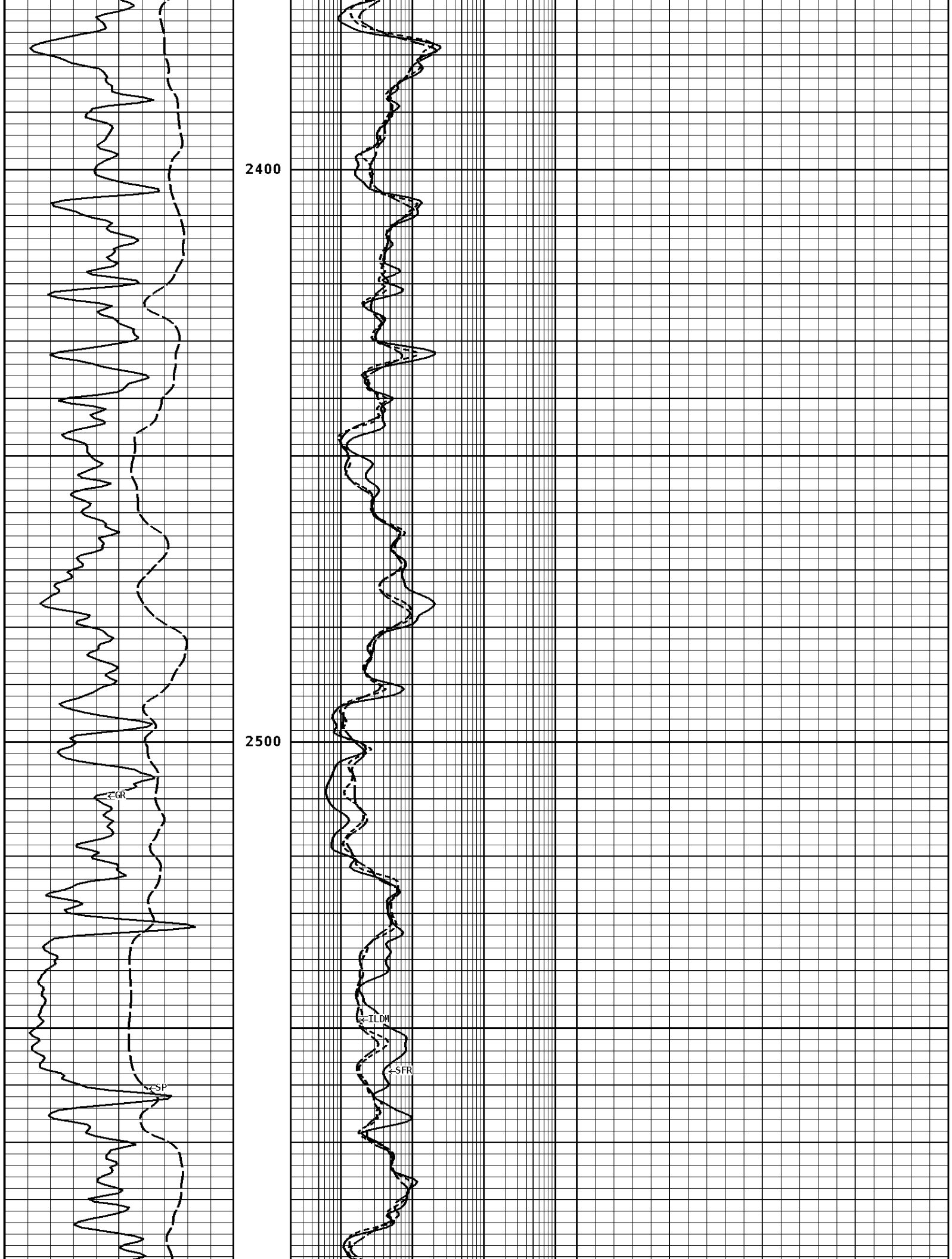
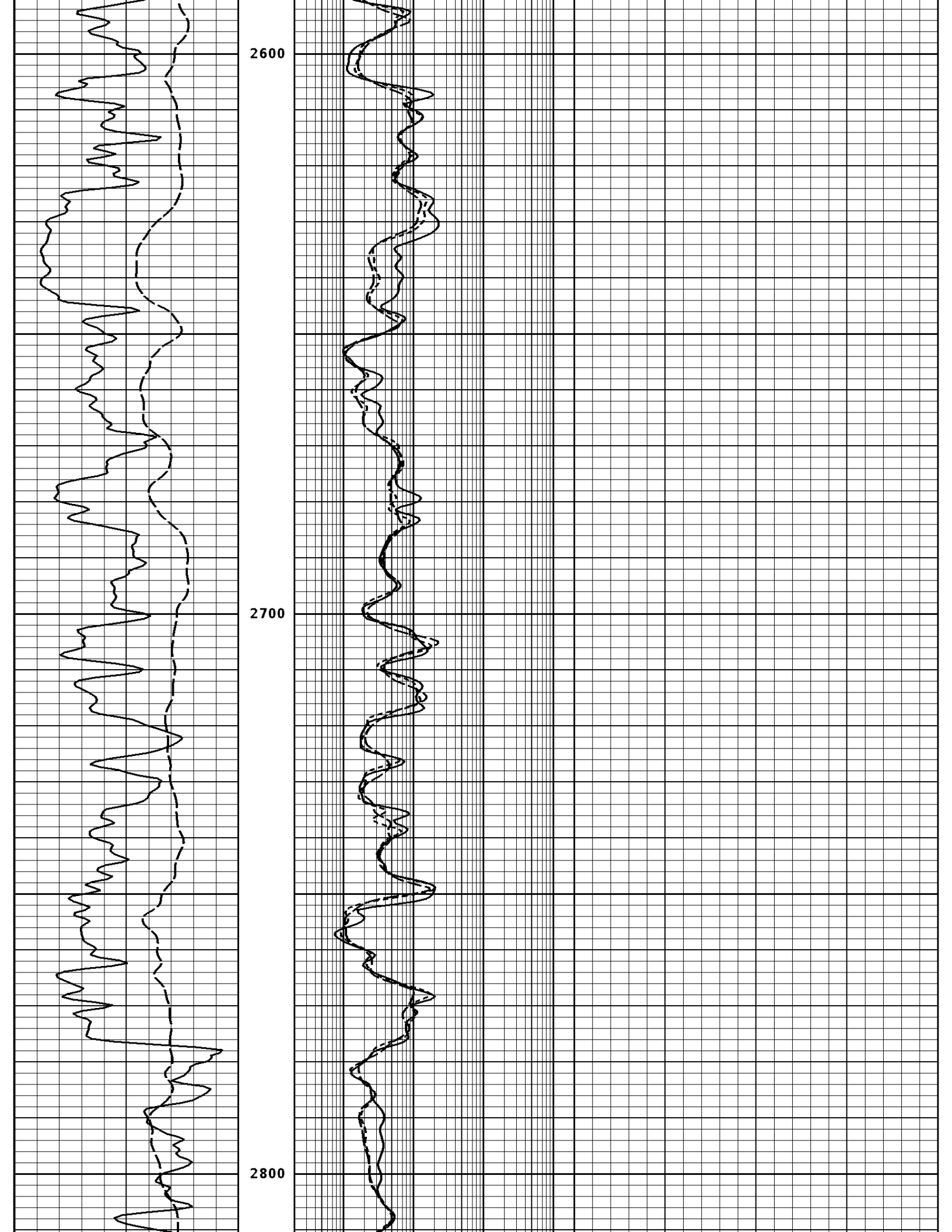
2300


2400
2500
GR
SP
ILDM
SFR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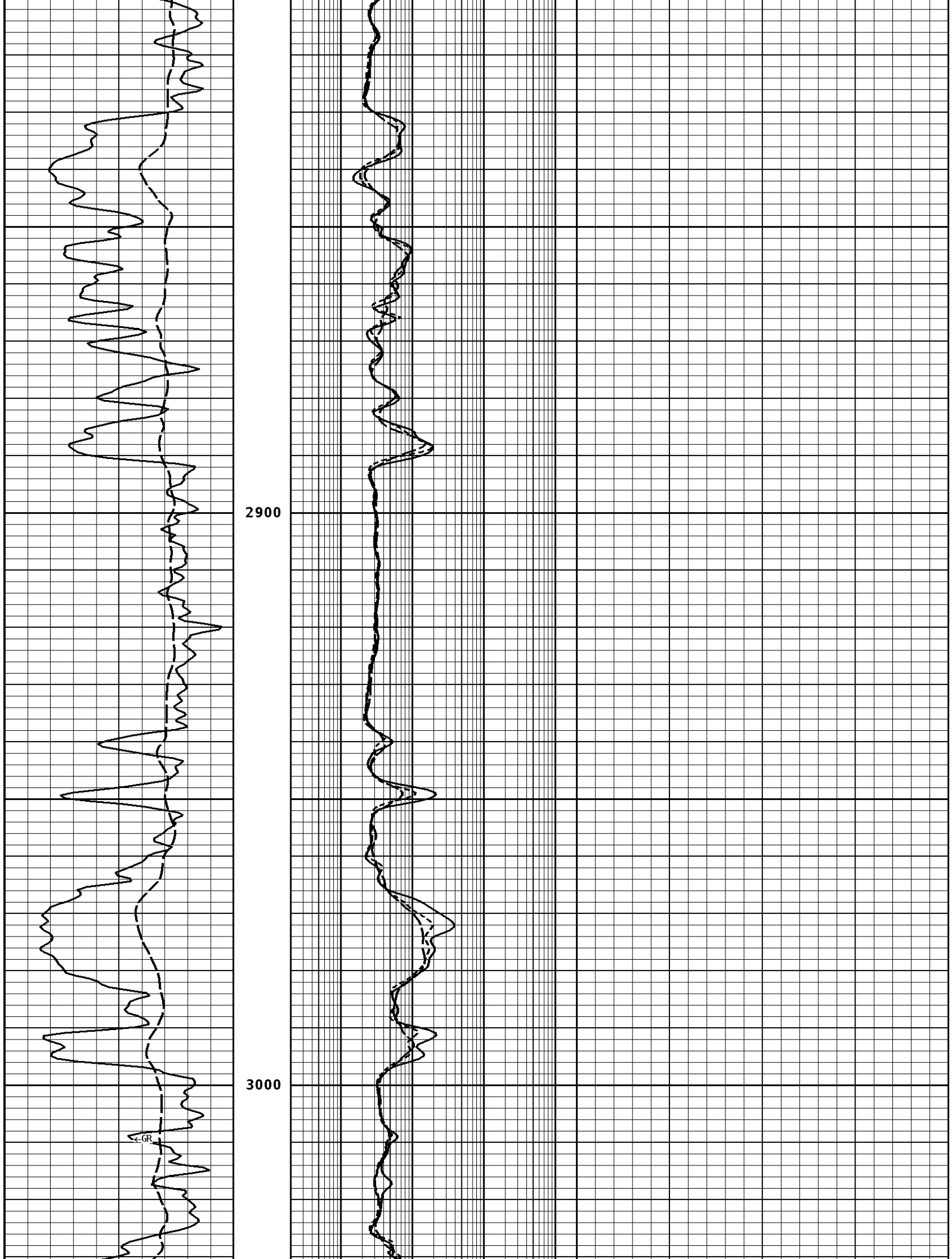
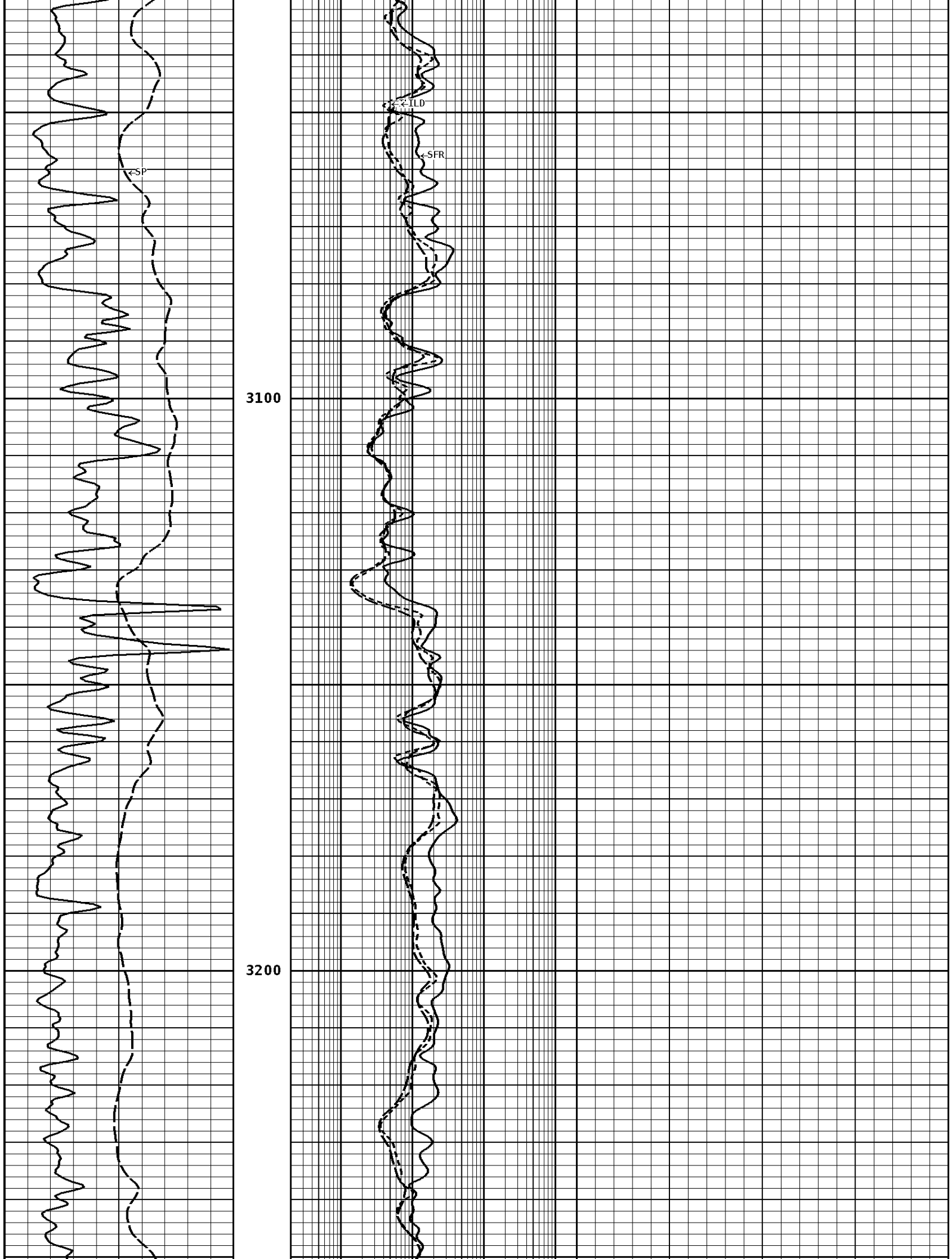
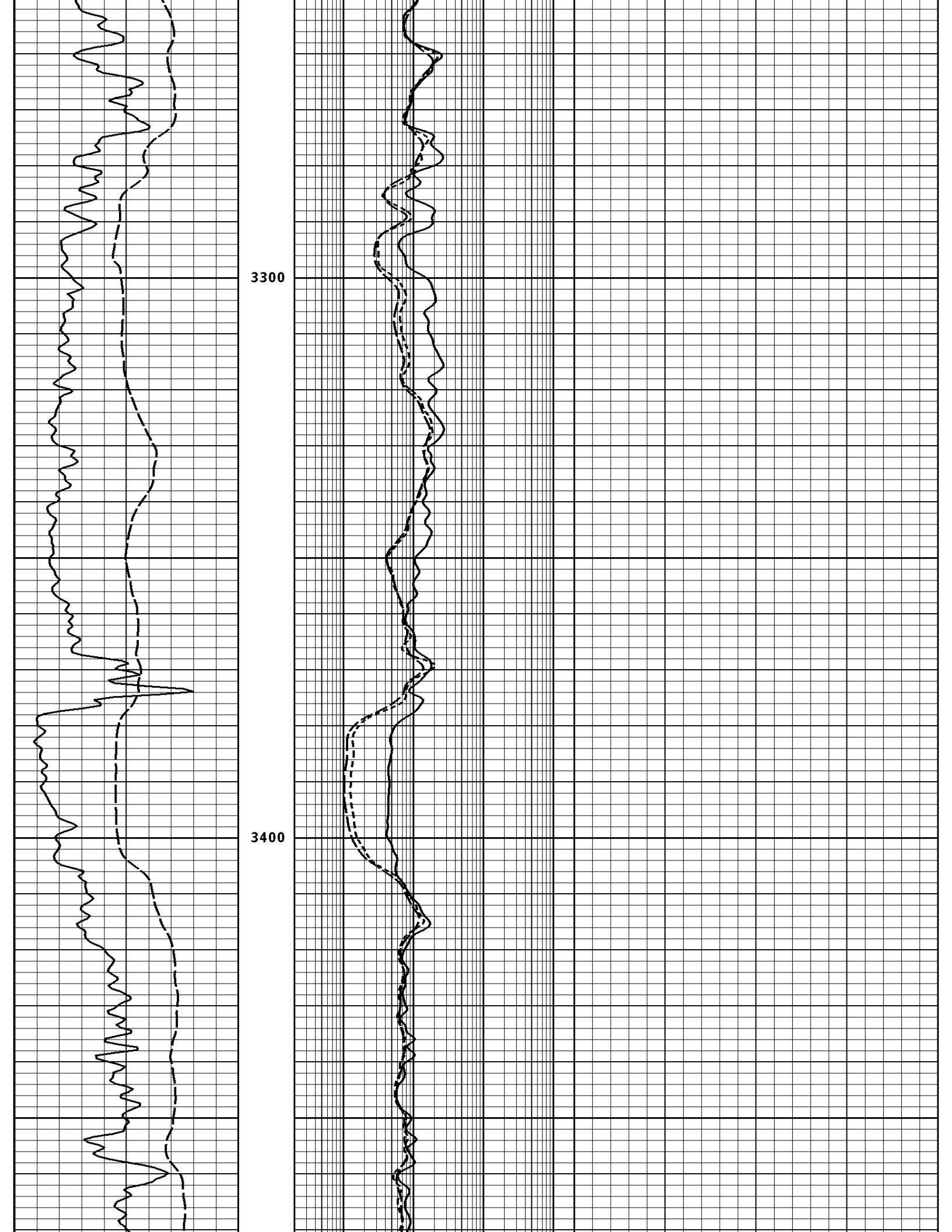
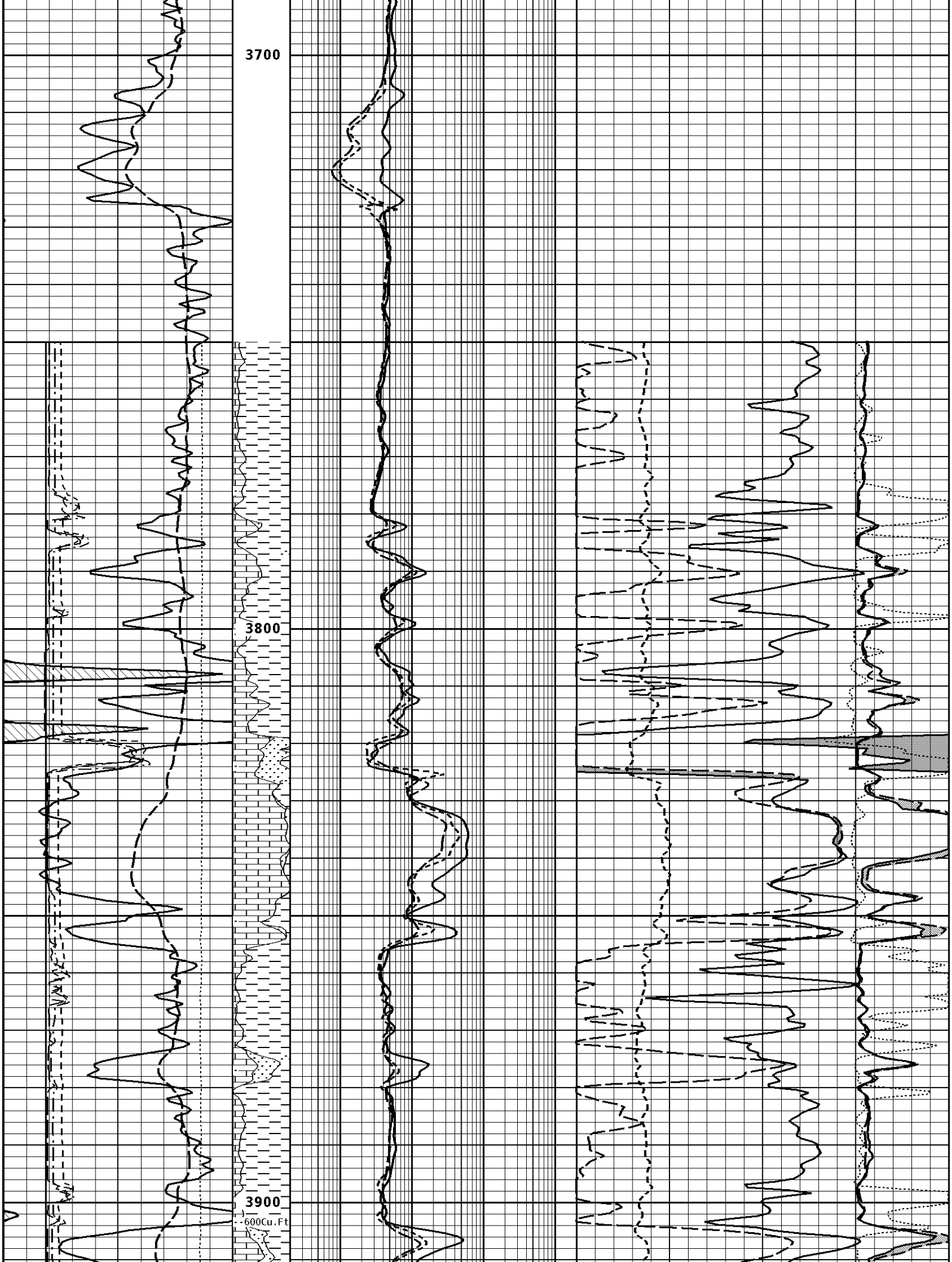
2700
2800

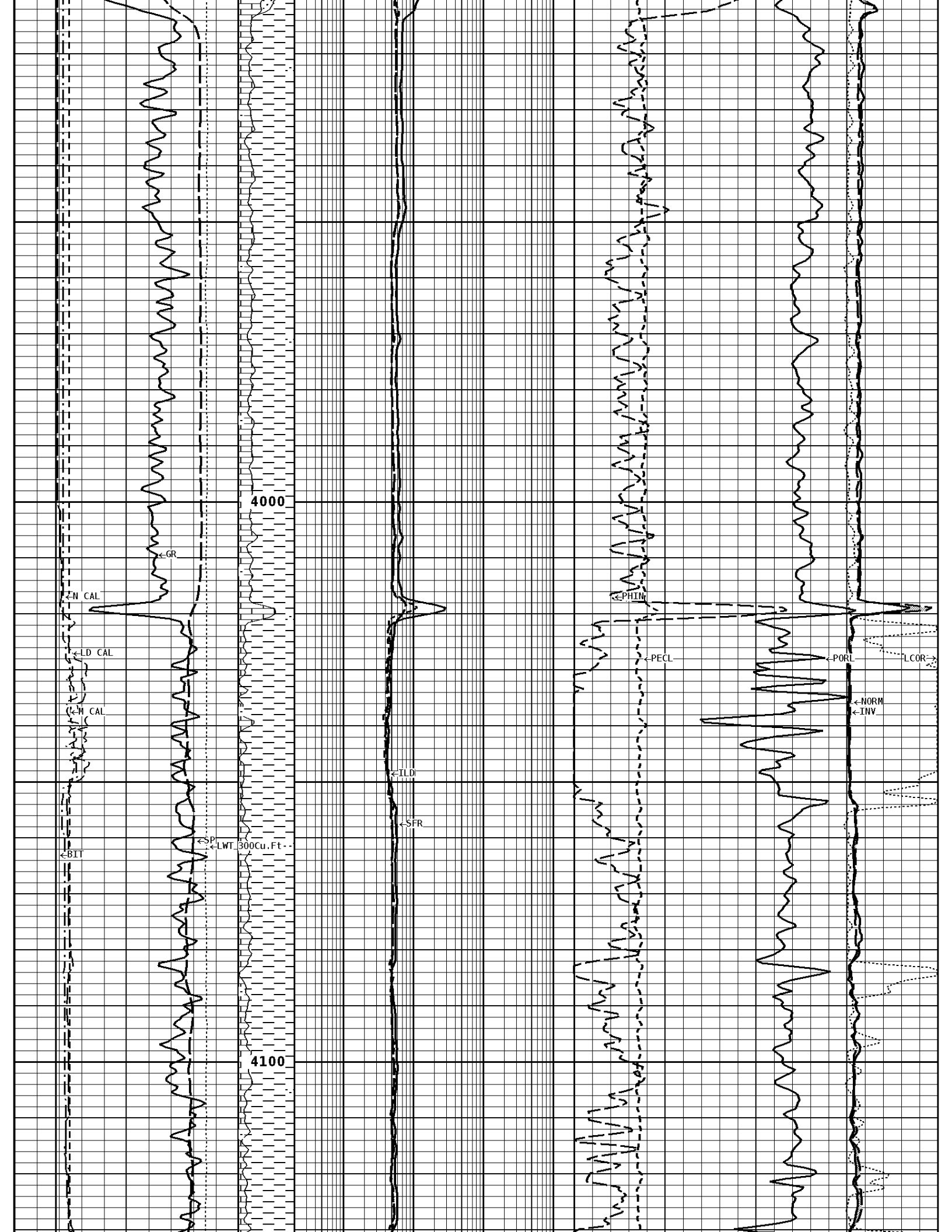

2900
3000
←GR
K

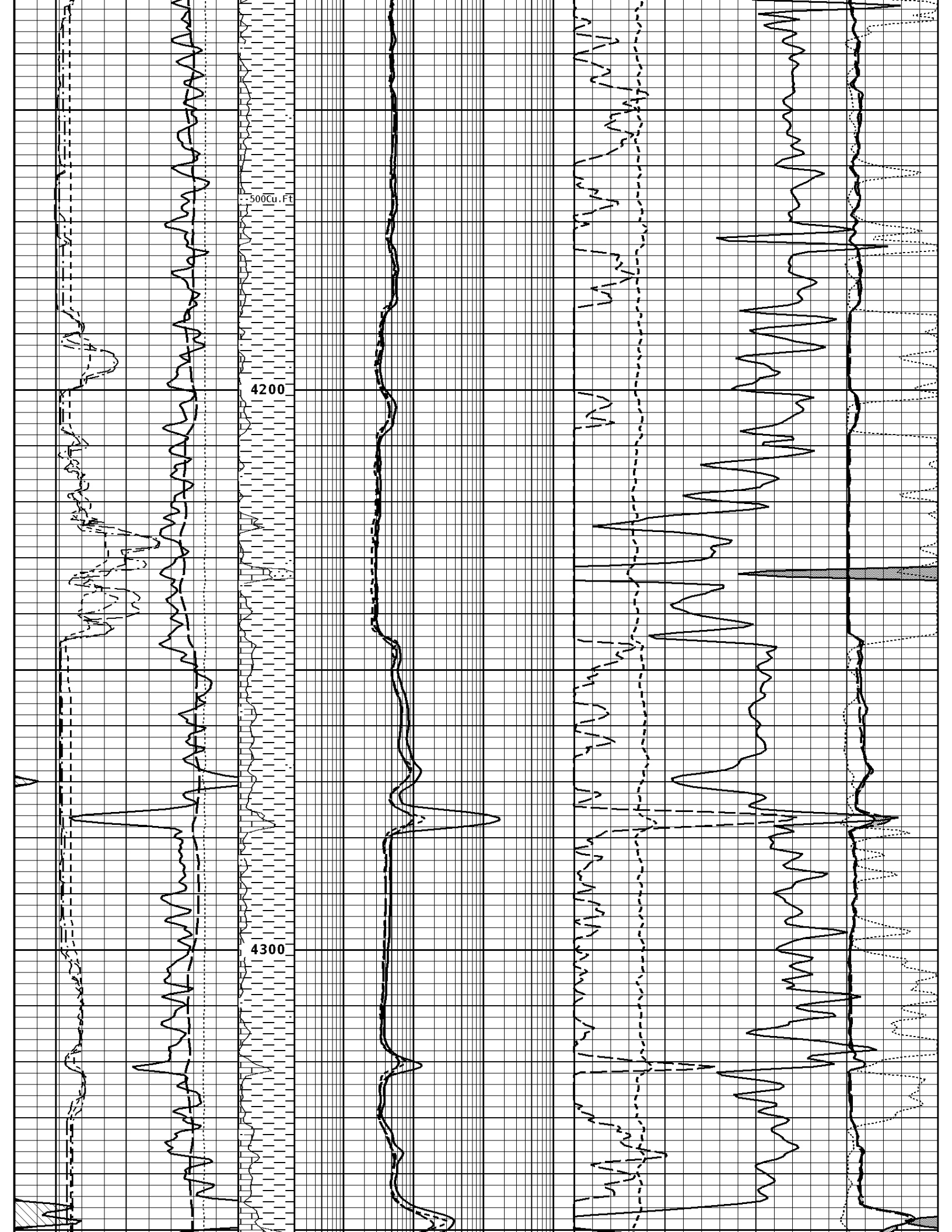

ILD
SFR
SP
3100
3200

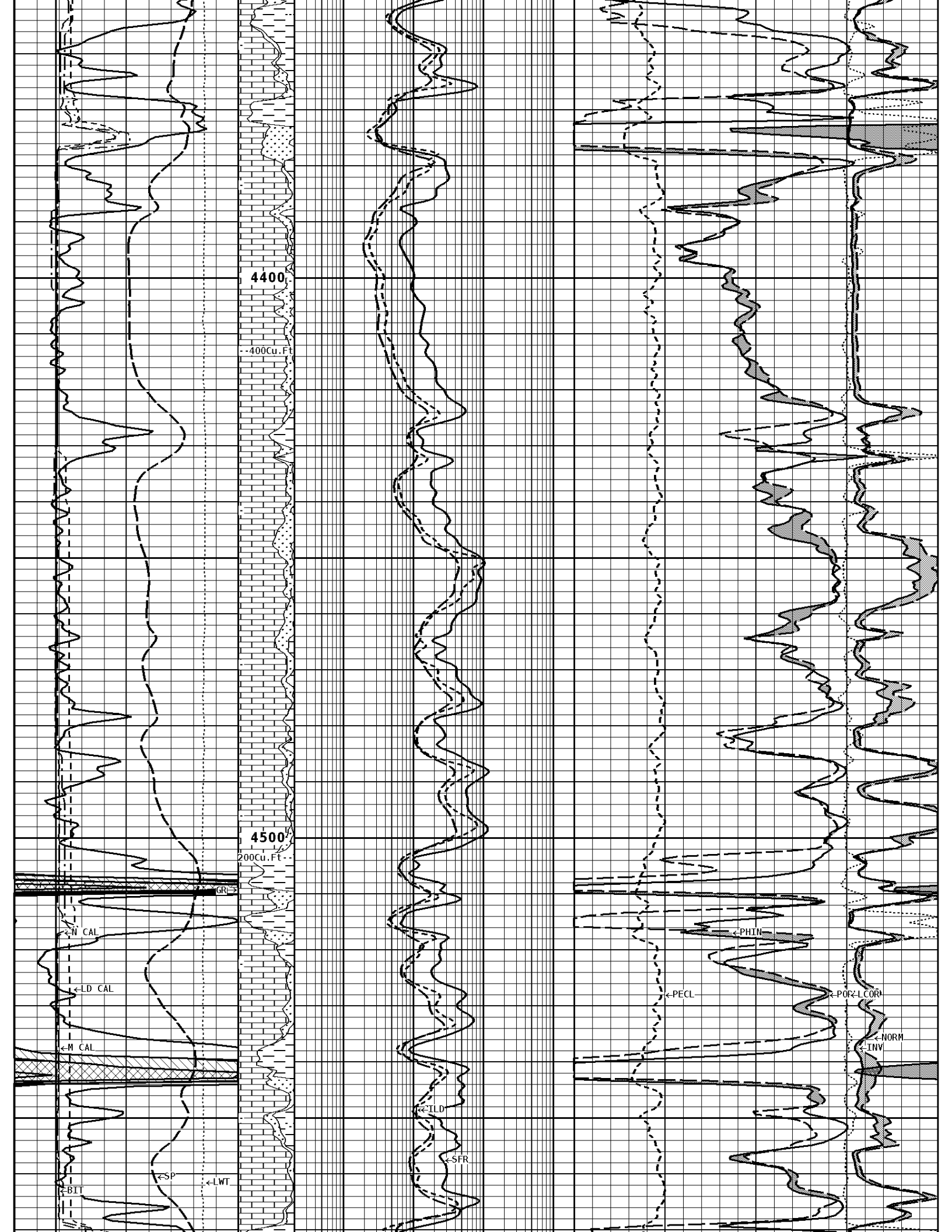

3300
3400

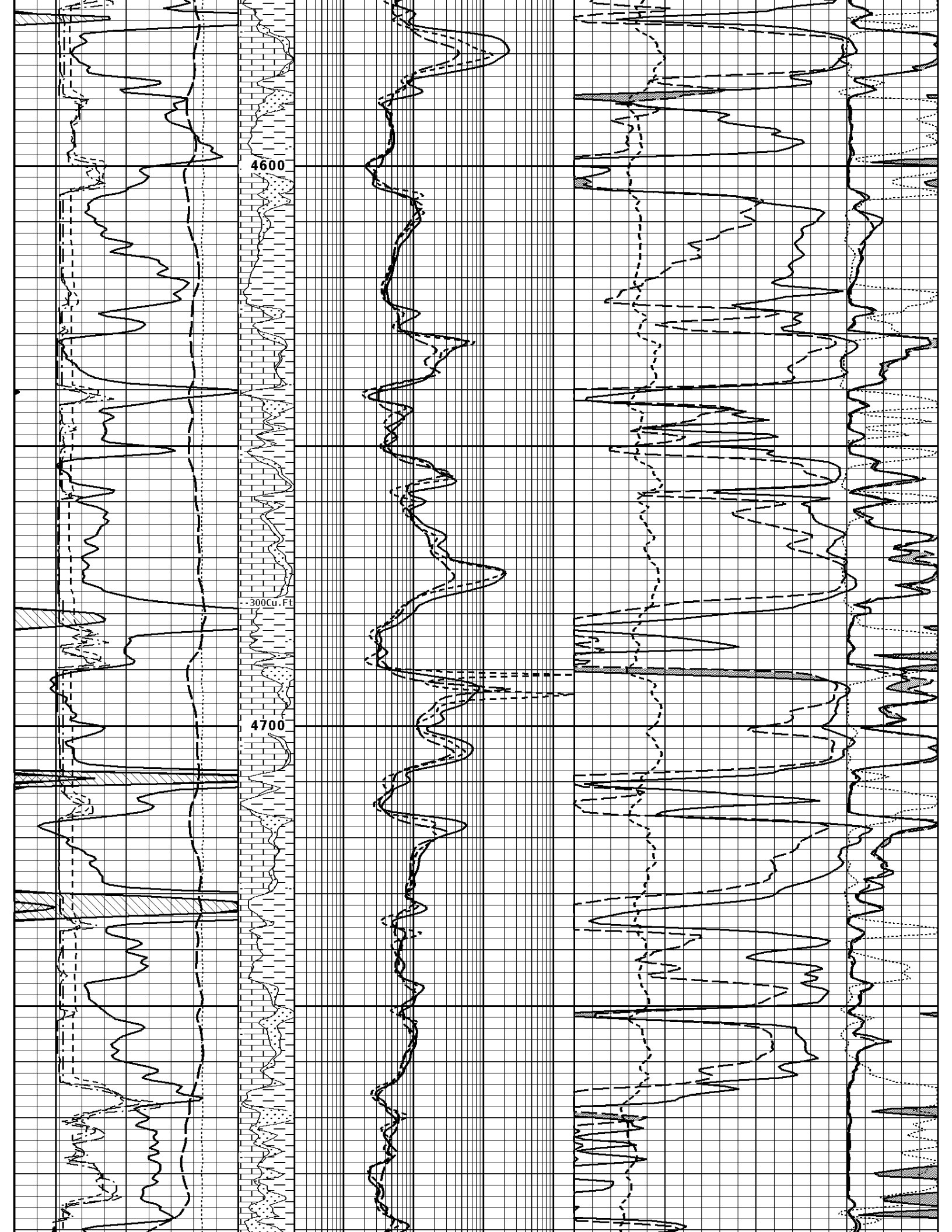

3500
GR
ILD
SFR
SP
3600

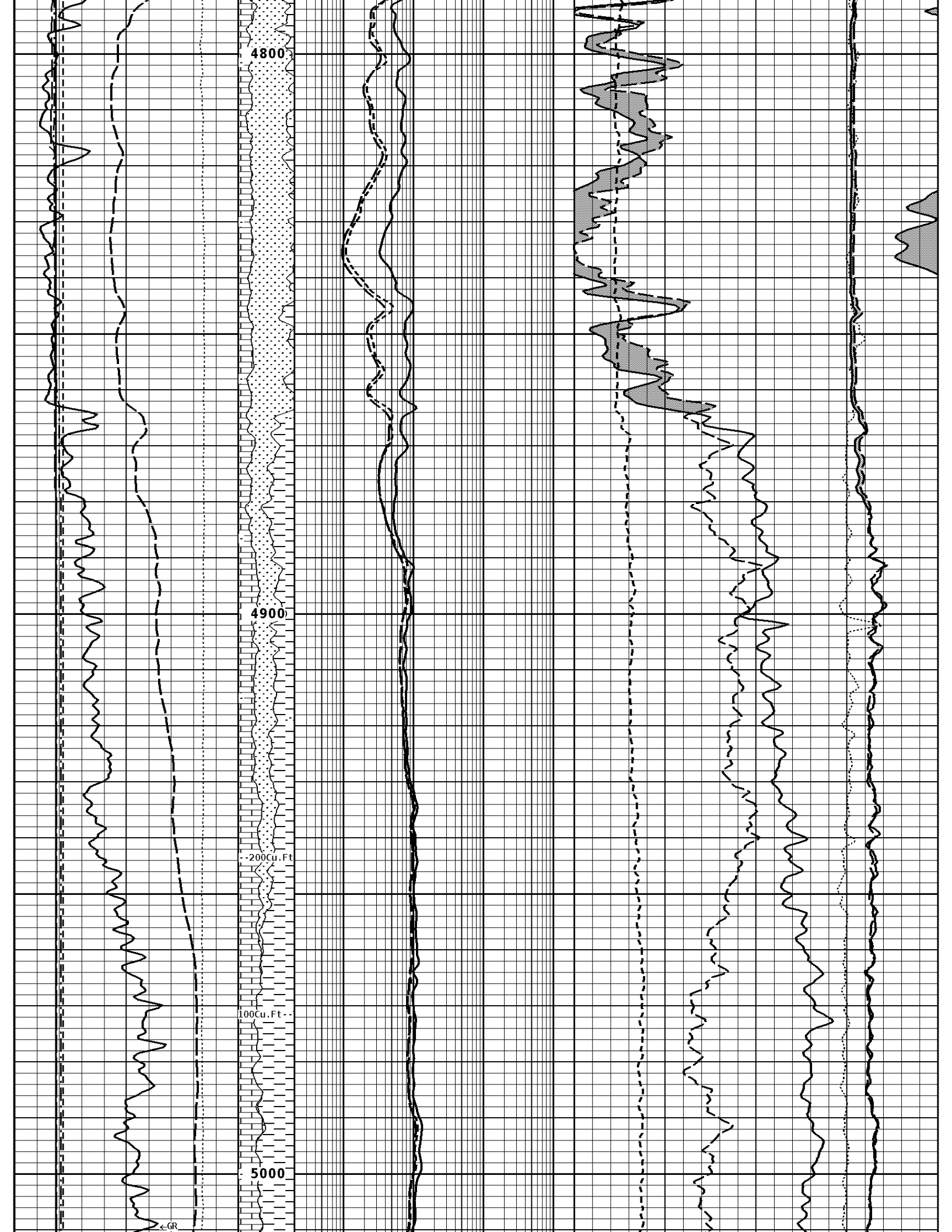

3700
3800
3900
-600Cu.Ft


4000
←GR
←N CAL
←LD CAL
←M CAL
←BIT
←SP
←LWT_300Cu.Ft--
←ILD
←SFR
←PHIN
←PECL
←PORL
LCOR→
←NORM
←INV
4100


500Cu.Ft
4200
4300


4400
400Cu.Ft
4500
200Cu.Ft
GR
N CAL
LD CAL
M CAL
SP
LWT
BIT
ILD
SFR
PHIN
PECL
POR2
LCOR
NORM
INV


4600
300Cu.Ft
4700


4800
4900
5000
-200Cu.Ft
100Cu.Ft--
←GR


←N CAL
←LD CAL
←M CAL
←BIT
←SP
←LWT
←ILD
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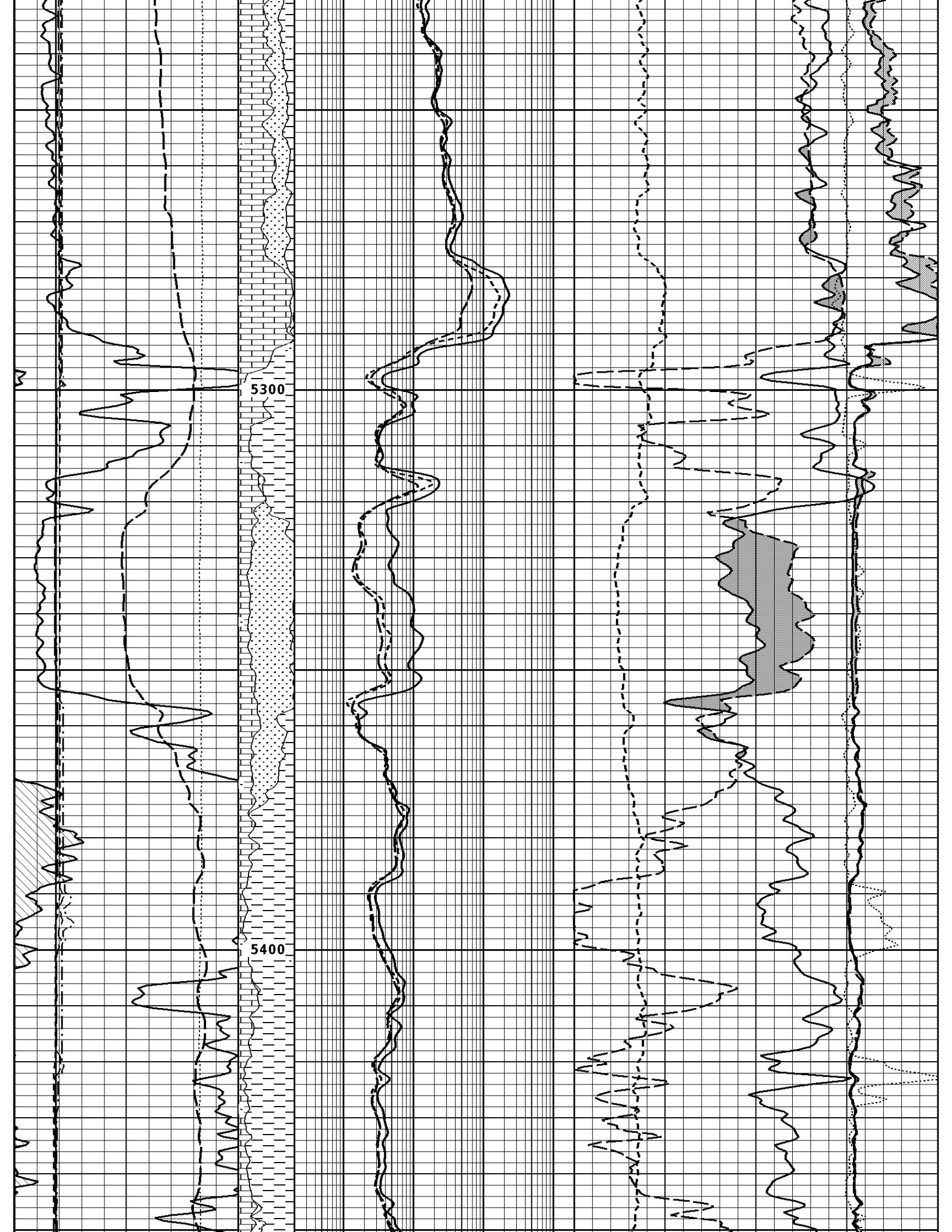
←PHIN
←PECL
←LCOR
←NORM
←INV
5100
5200
-100Cu.Ft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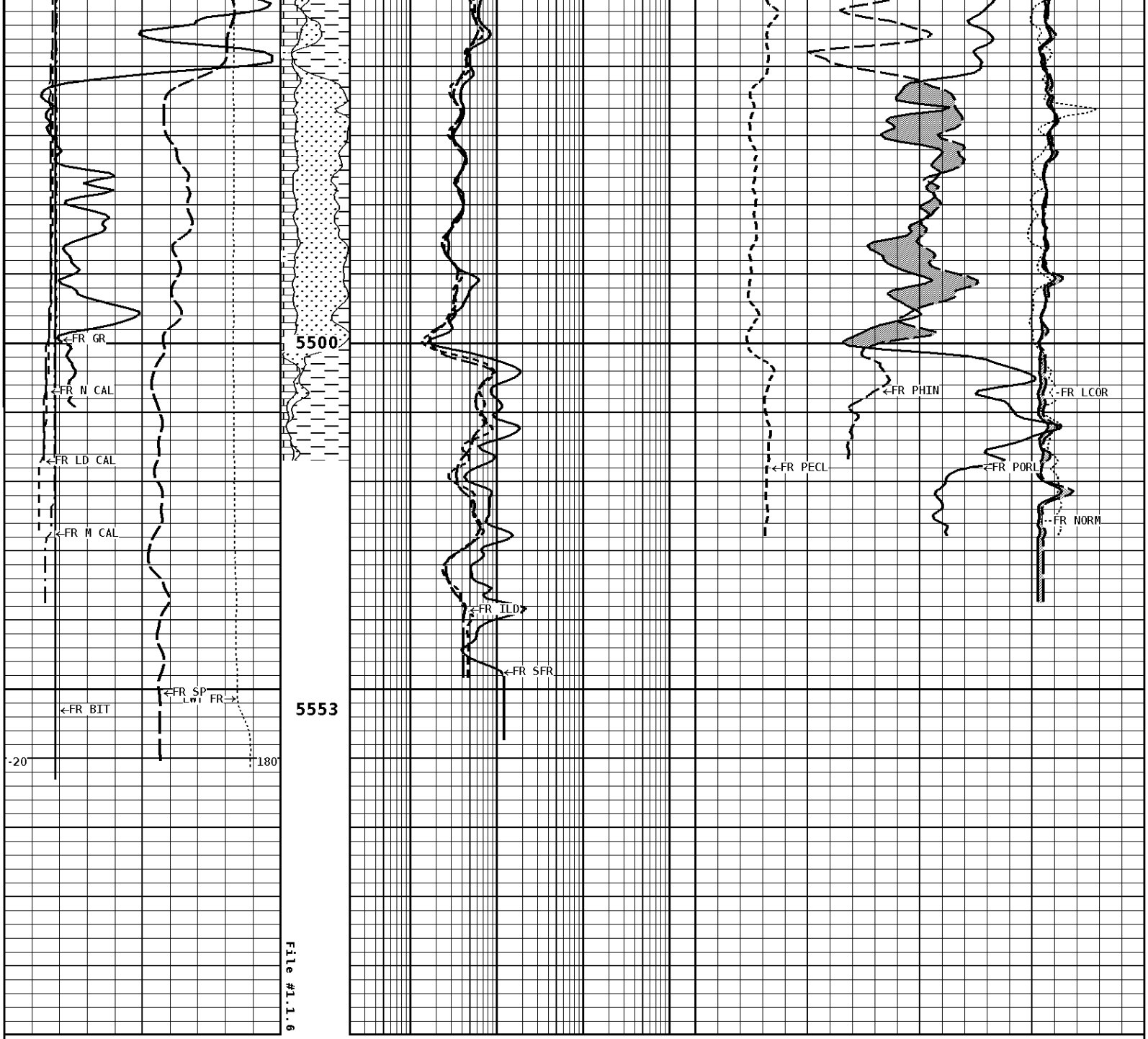
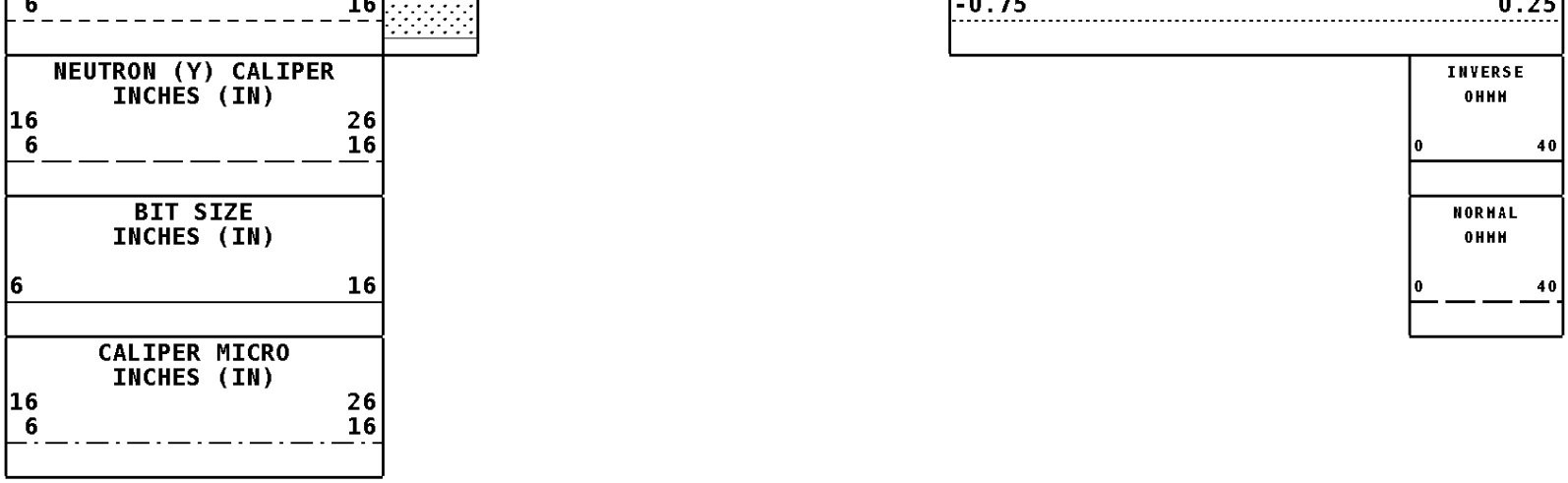
5400



1:240 MAIN 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**
→| |←20		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			-0.25 0.25

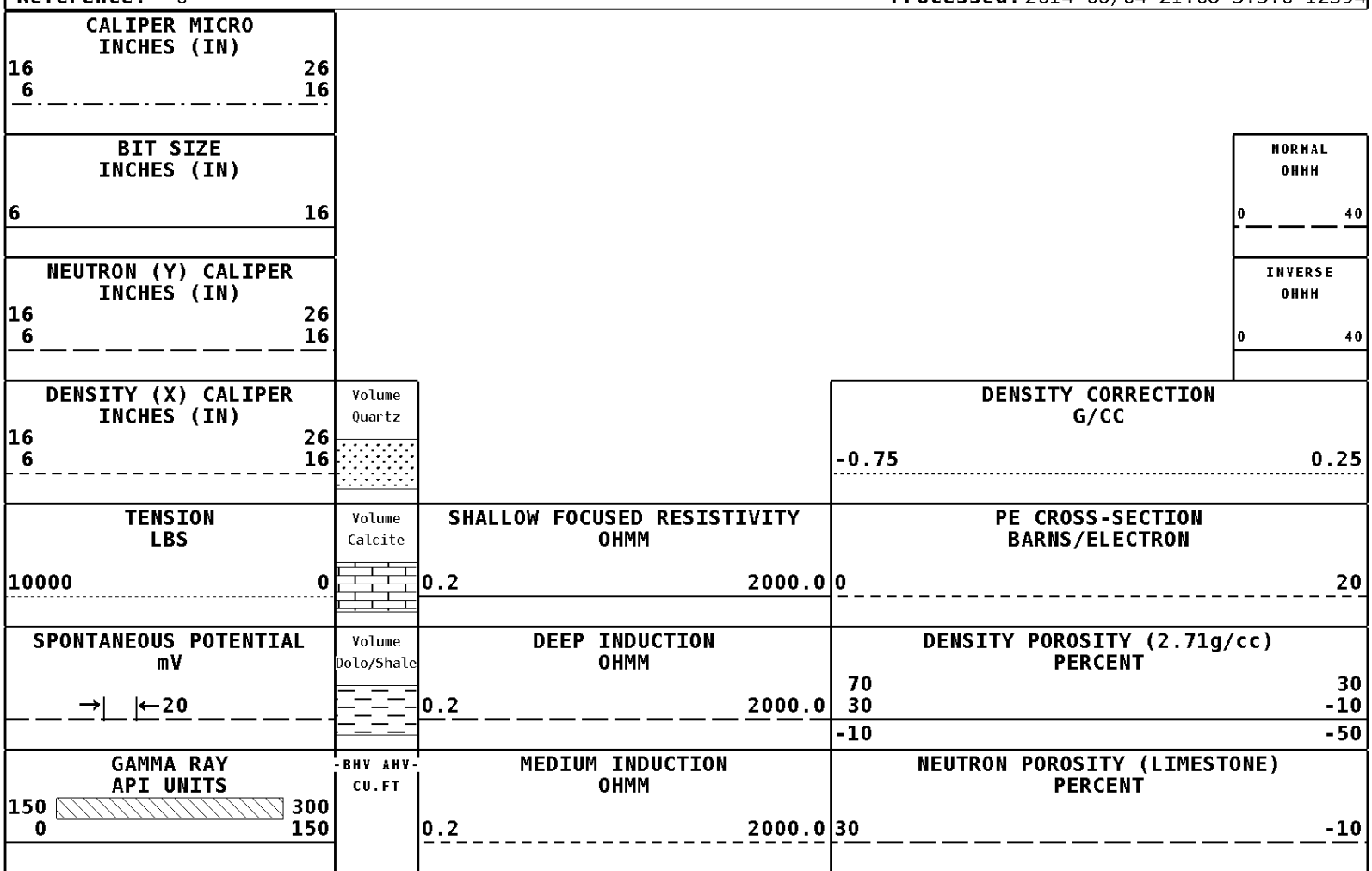


*** Borehole Zone Factors ***

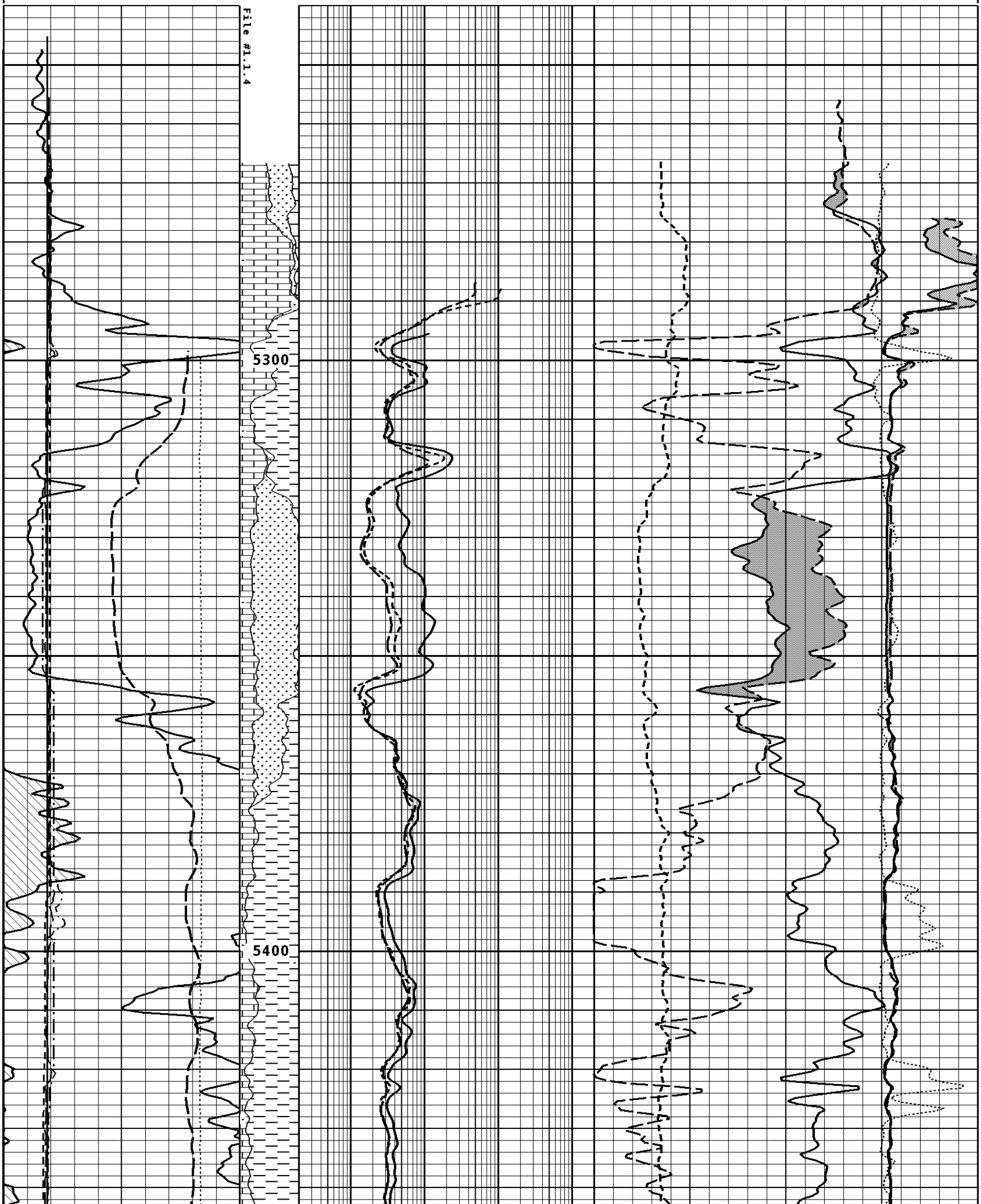
Zone 1 99999.0 to 0.0 Feet

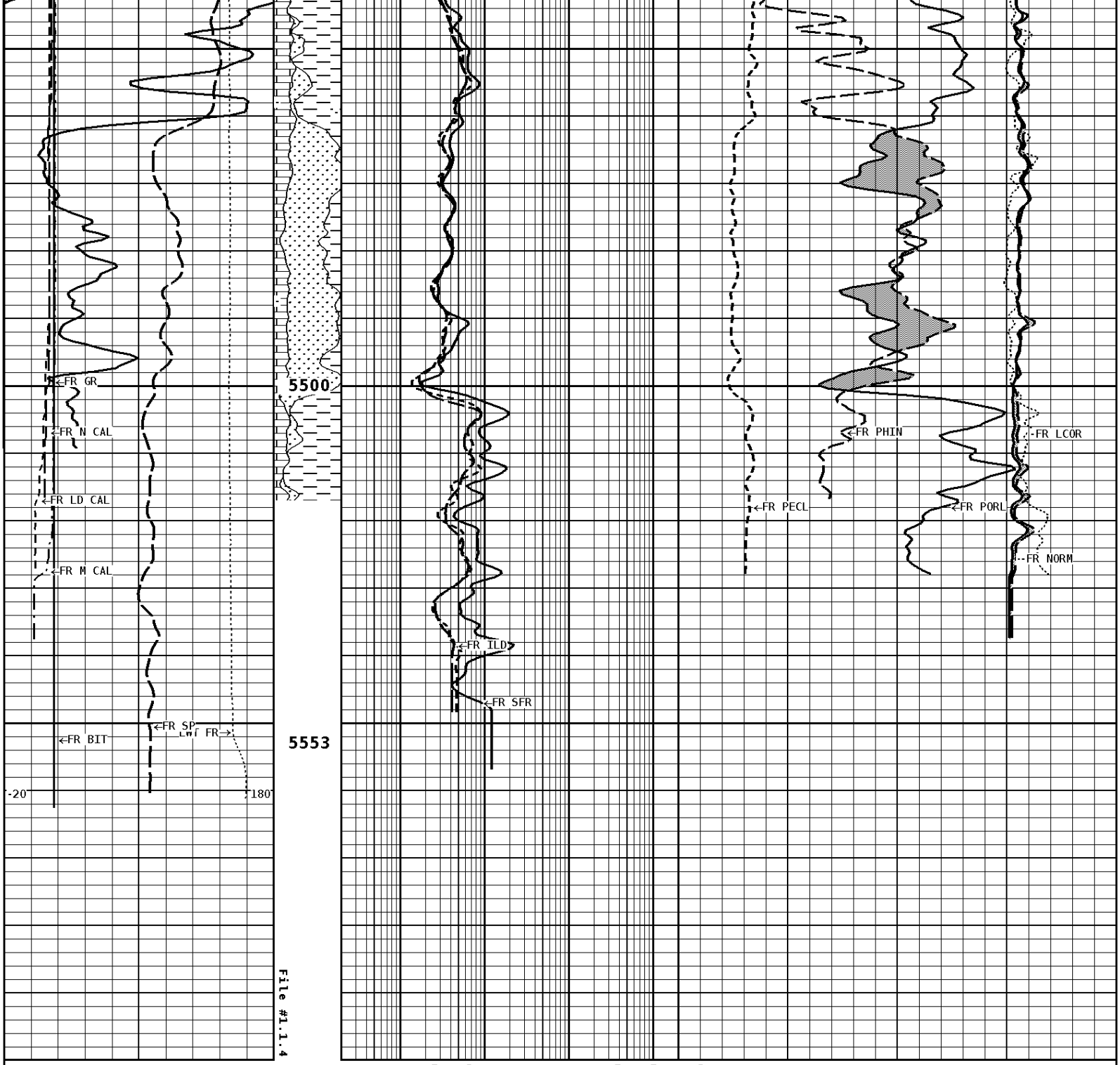
Matrix Density	2.71	g/cc
Fluid Density	1.00	g/cc
Formation Matrix	Limestone	
Drill Bit Size	7.875	in
Casing Diameter	5.500	in
Casing Thickness	0.250	in
Casing Correction (PHI N)	Disable	
Hole Substance	Fluid	
BHT Depth	5553.000	ft
Borehole Temperature	130.0	degF
Temperature Gradient	1.00	DFHF
Resistivity Of Mud	0.300	ohm/m
MSTNG Normal Correction	0.00	ohm/m
MSTNG Inverse Correction	0.00	ohm/m

Well File: chief-rath-4-mstk-jun-4 **Scale:** 1:240 **Format:** COMSAT
Segment: V1.D1.S4 RP **Acquired:** 2014-06/04 19:19 3.3.0-12594
Reference: 0 **Processed:** 2014-06/04 21:08 3.3.0-12594



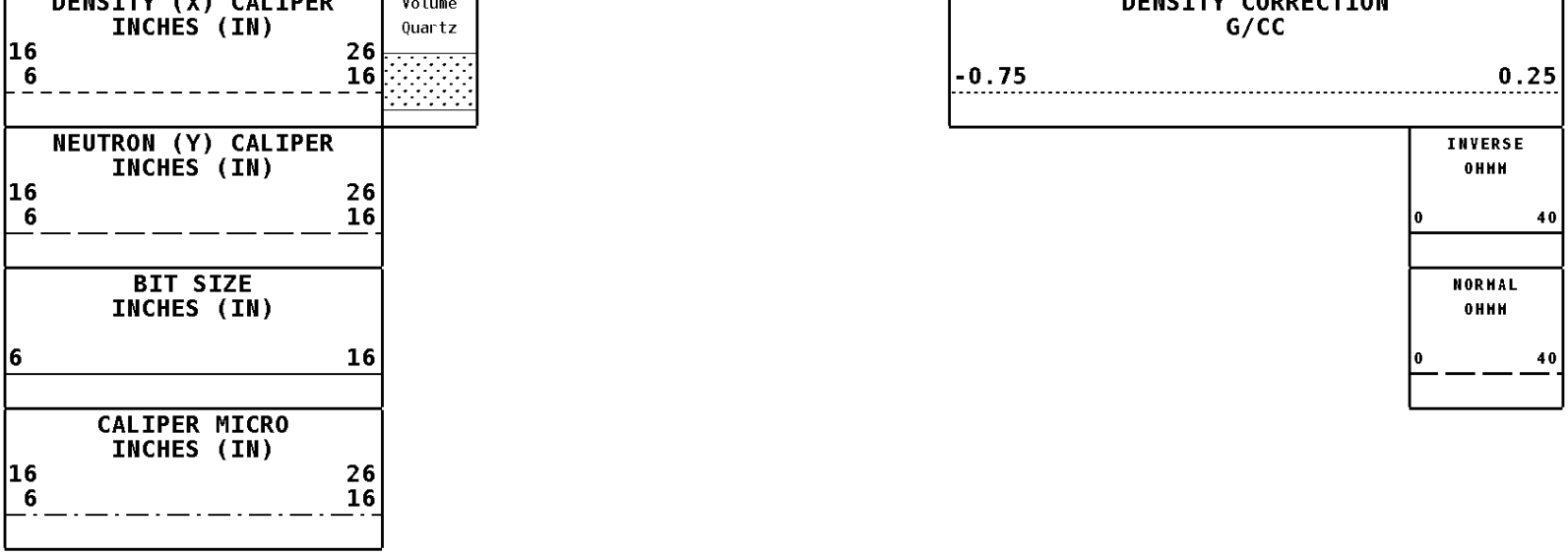
1:240 REPEAT SECTION





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**
→| |←20		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			**DENSITY CORRECTION**



* 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	5553.000	ft
Borehole Temperature	130.0	degF
Temperature Gradient	1.00	DFHF
Resistivity Of Mud	0.300	ohm/m
MSTNG Normal Correction	0.00	ohm/m
MSTNG Inverse Correction	0.00	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 : 29-MAY-2014 Time : 10:57
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	9.3	13.9	6.0	12.0	IN.

Performed : 29-May-2014 Time : 10:46
Sensor Suite : BHC NEUT ID : CNP-AA-024
Source ID : N-1045

	Tank Measured	Tank Calibrated	Verification Jig	Units
N/F	3.8815	3.6893	3.7002	
Porosity	23.5	20.5	20.7	%

Shop Calibration
LDT-DF

Performed : 29-MAY-2014 Time : 13:15
Sensor Suite : CALI-LTH ID : PDT-GA-465

	Jig - Measured Ring#1	Jig - Measured Ring#2	Jig - Calibrated Ring#1	Jig - Calibrated Ring#2	Units
CL # 1	7.1	10.8	6.0	12.0	IN.

Performed : 29-May-2014 Time : 11:26
Sensor Suite : BHCPELNG ID : LDP-DA-065

Source ID : 2991GW

Short Space

	BKGD	Al	Mg	Al+Fe	Units
LSW1	69	1146	1855	747	CPS
LSW2	70	1383	2179	989	CPS
LSW3	266	3133	5006	2684	CPS
LSW4	324	2793	3933	2482	CPS
LSW5	30	56	85	52	CPS
LSW6	88	91	76	92	CPS
LSW7	55	59	56	58	CPS
LSW8	1	4	13	4	CPS
QS	0.231	0.214	0.154	0.225	
PES			2.778	5.967	
SSDN		2.600	1.680		G/CC

Long Space

	BKGD	Al	Mg	Al+Fe	Units
LLW1	120	1329	5838	805	CPS
LLW2	147	2295	8846	1681	CPS
LLW3	463	4102	15035	3563	CPS
LLW4	519	1973	6097	1791	CPS
LLW5	63	75	160	73	CPS
LLW6	153	151	126	150	CPS
LLW7	103	101	89	100	CPS
LLW8	6	9	32	9	CPS
QL	0.196	0.197	0.172	0.201	
PEL			2.697	5.458	
LSDN		2.600	1.680		G/CC

Shop Calibration
MST-DA

Performed : 12-May-2014 Time : 11:19
Sensor Suite : CALI-MSN ID : MST-DA-057

	Jig - Measured		Jig - Calibrated		Units
	Ring#1	Ring#2	Ring#1	Ring#2	
CL # 1	7.1	11.4	6.0	12.0	IN.

Performed : 12-May-2014 Time : 11:13
Sensor Suite : MSTDA-NI ID : MST-DA-057

Internal

	Measured			Calibrated		
	Zero	Reference	Units	Zero	Reference	Units
INV-V	288.8	30429.7		0.00	1536.00	MV
NOR-V	165.4	30363.3		0.00	1636.00	MV
IN-C	163.6	30670.3		0.00	15.46	UA
INV-R					32.14	OHMM
NOR-R					58.31	OHMM

Shop Calibration
PIT-CA

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

Medium

	Measured		Calibrated		
	R	X	R	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		Calibrated		
	R	X	R	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		Calibrated		
	Low	High	Low	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: CHIEFTON OIL CO.INC.

Well: RATHGERBER #4

Location: 1912' FSL & 340' FWL

Logged: 06-04-2014

K.B. Elev: 1404.0 Ft