Tucker ENERGY SERVICES

PHASED INDUCTION

SHALLOW FOCUS SP 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			

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'

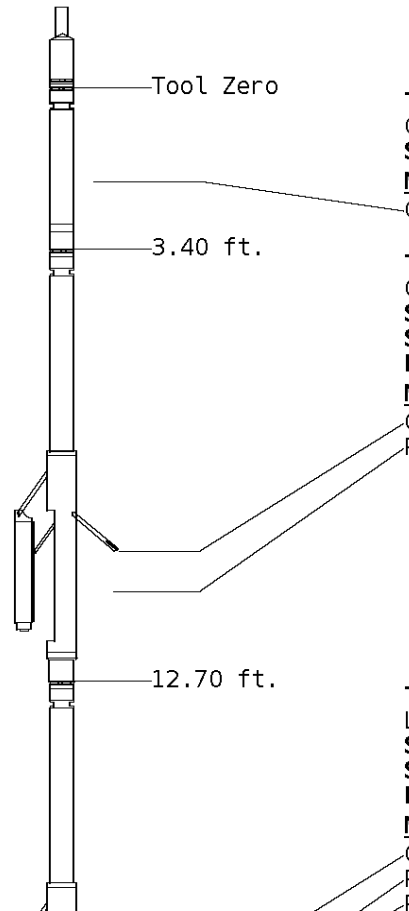
GRT; GRP,
CNT; PHIN, CLCNIN
LDT; PORL, LCORN, PECLN, LDENN, CLLDIN
MLT; NOR.RF, INV.RF, MSCLPIN.
PIT; ILD, ILM, SPU, SFLAEC, CIRD

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

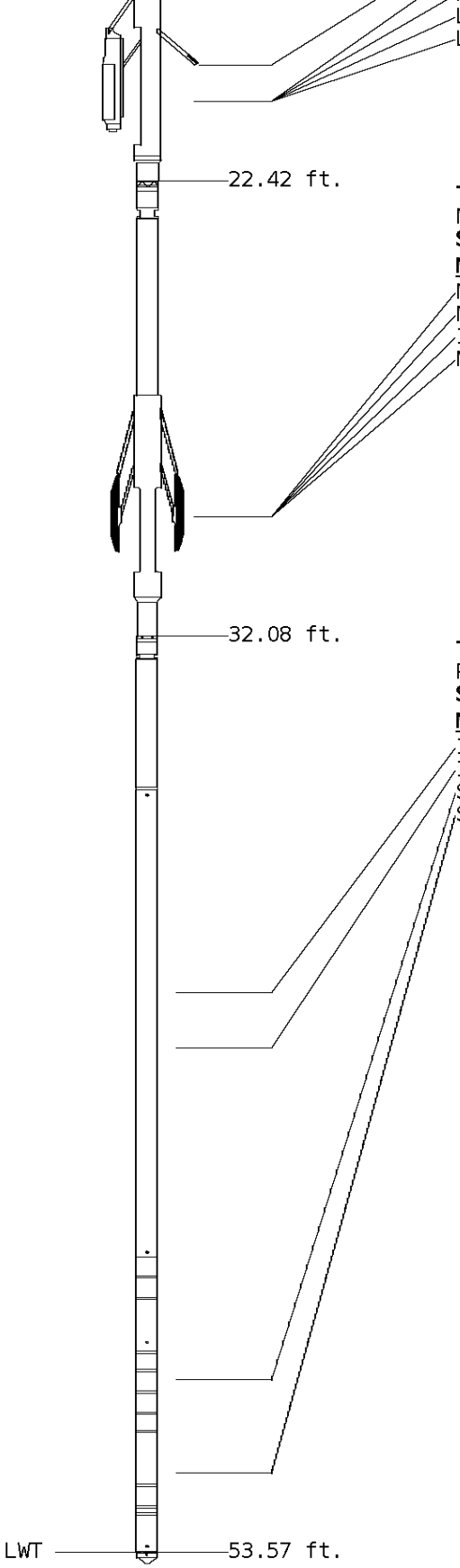
Measure Point	Tool Offset	Stack Offset	Bottom Offset
GRP	2.00	2.00	51.57

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



Measure Point	Tool Offset	Stack Offset	Bottom Offset
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

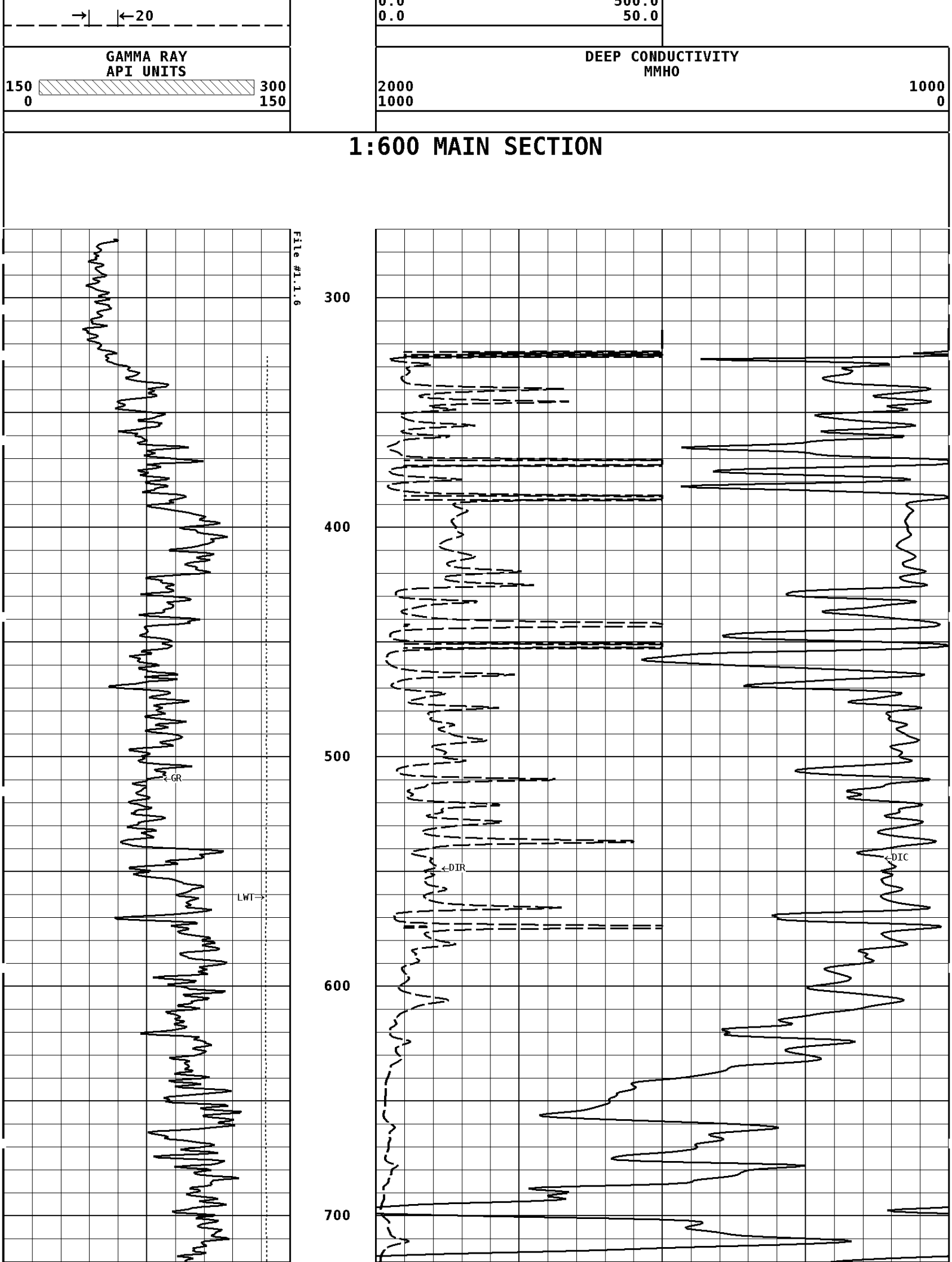
Measure Point	Tool Offset	Stack Offset	Bottom Offset
MSFL	7.60	30.02	23.55
MSCLP	7.60	30.02	23.55
INV	7.60	30.02	23.55
NOR	7.60	30.02	23.55

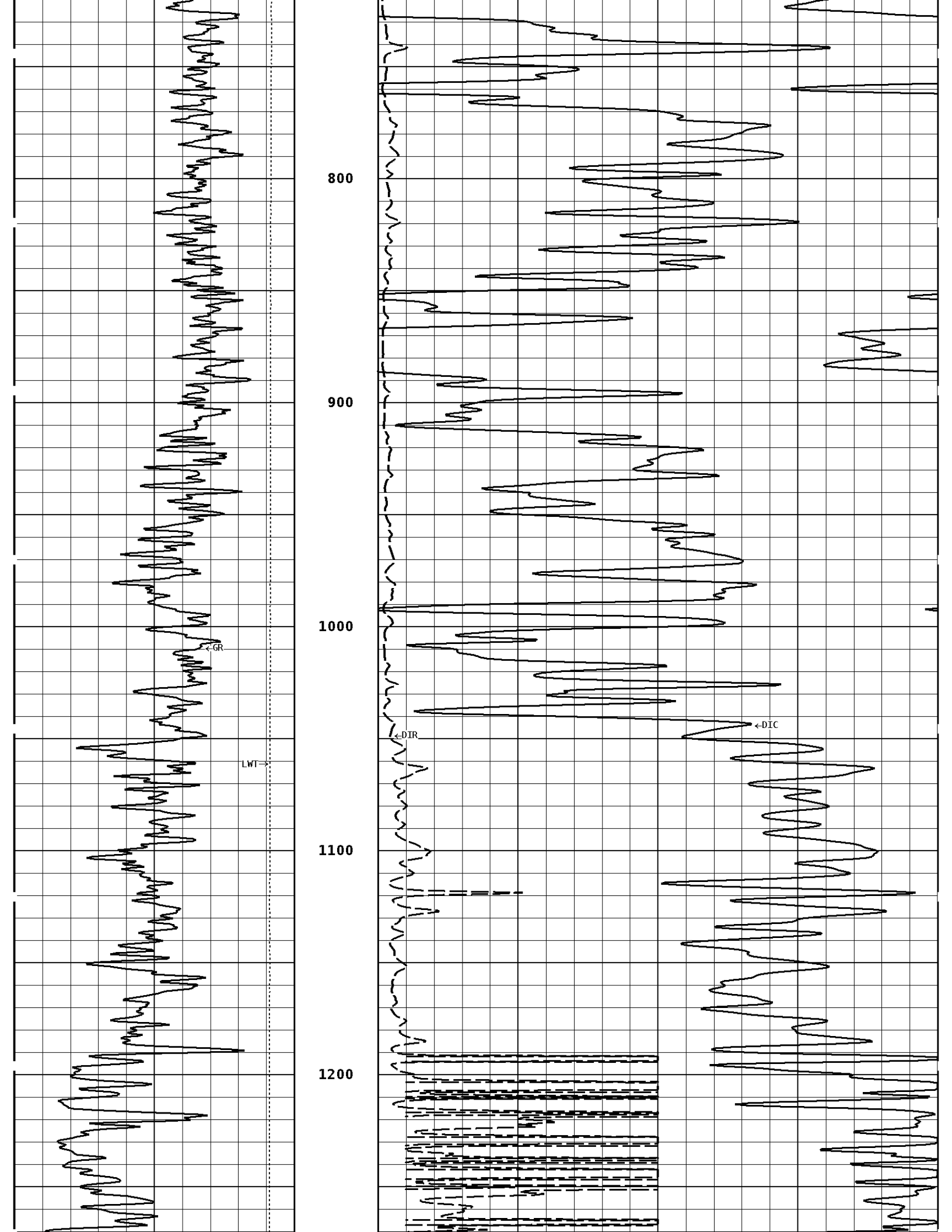
Tool: PIT-CA **Length:** 21.49 **ft.** **O.D.** 3.62 **in.**
Phased Dual Induction w/ RM & D
Sonde ID :PIT-AB-005

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:** 1:600 **Format:** DIL-600
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

TENSION LBS		DEEP INDUCTION OHMM	
10000	0	0.0	500.0
		0.0	50.0
SPONTANEOUS POTENTIAL mV		**SHALLOW FOCUSED RESISTIVITY OHMM**	
		0.0	500.0


→ ←20
GAMMA RAY
API UNITS
150
0
300
150
0.0
500.0
0.0
50.0
DEEP CONDUCTIVITY
MMHO
2000
1000
1000
0
1:600 MAIN SECTION
File #1.1.6
300
400
500
600
700
←GR
LWT→
←DIR
←DIC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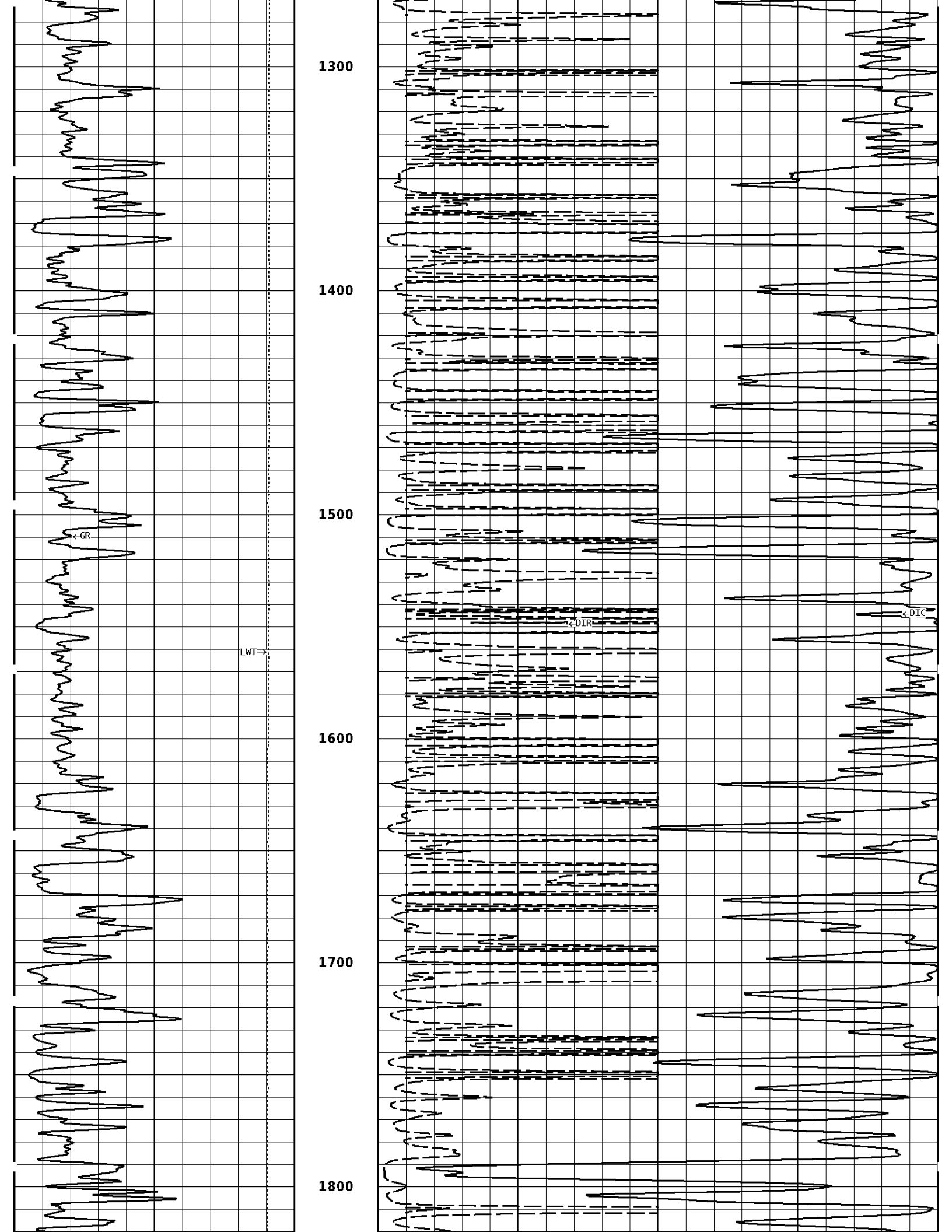
900
1000
1100
1200
←GR
LWT→
←DIR
←DIC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1400
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1700
1800
GR
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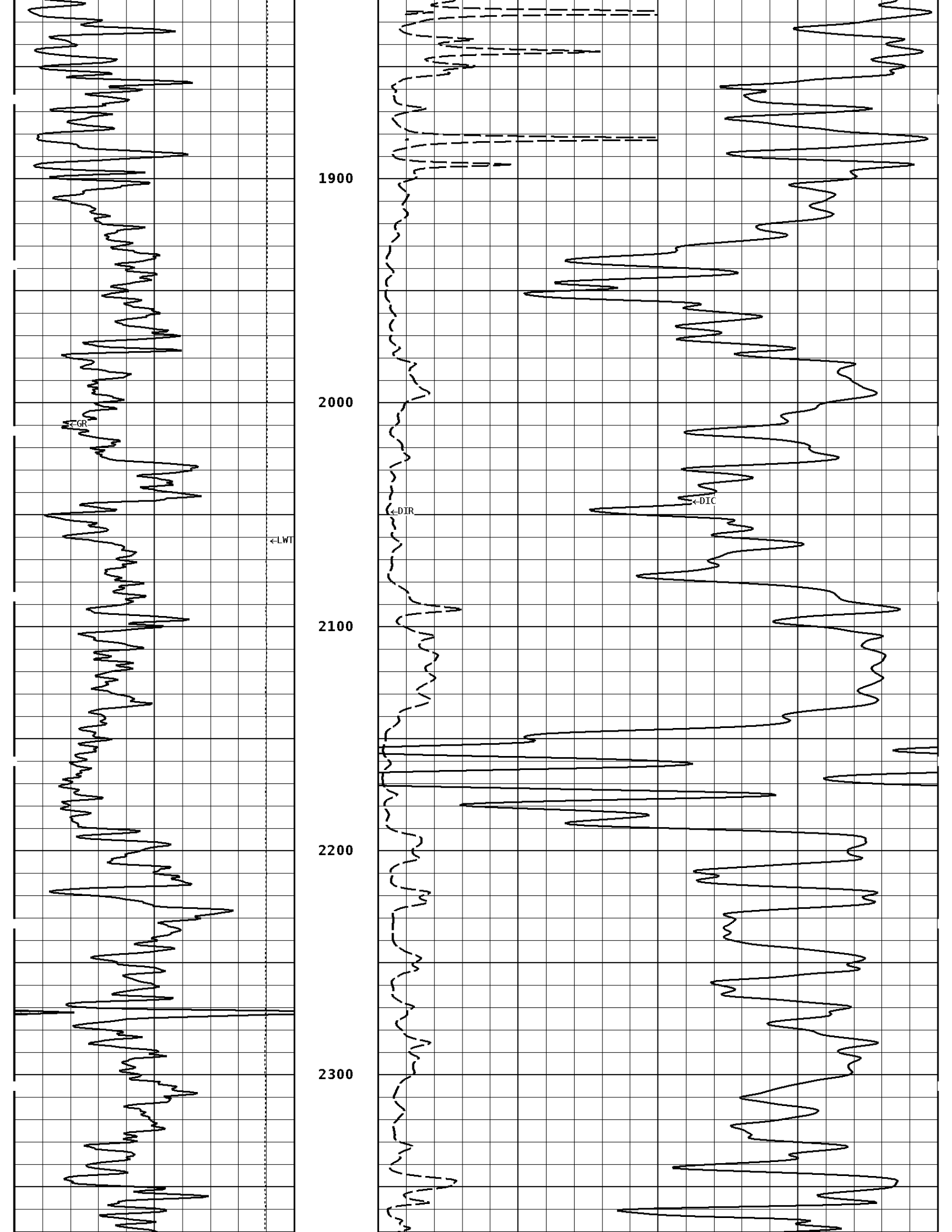
DIR
DIC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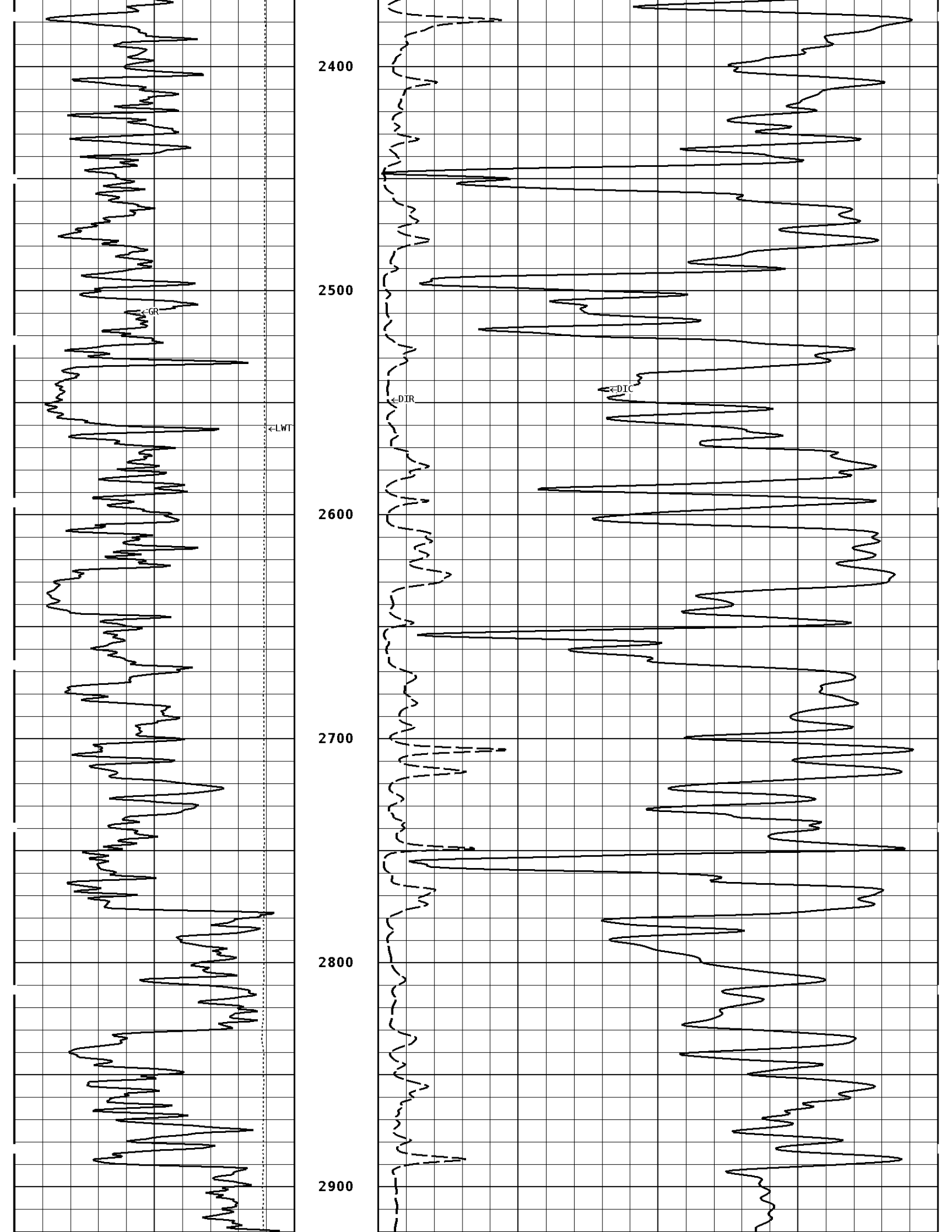
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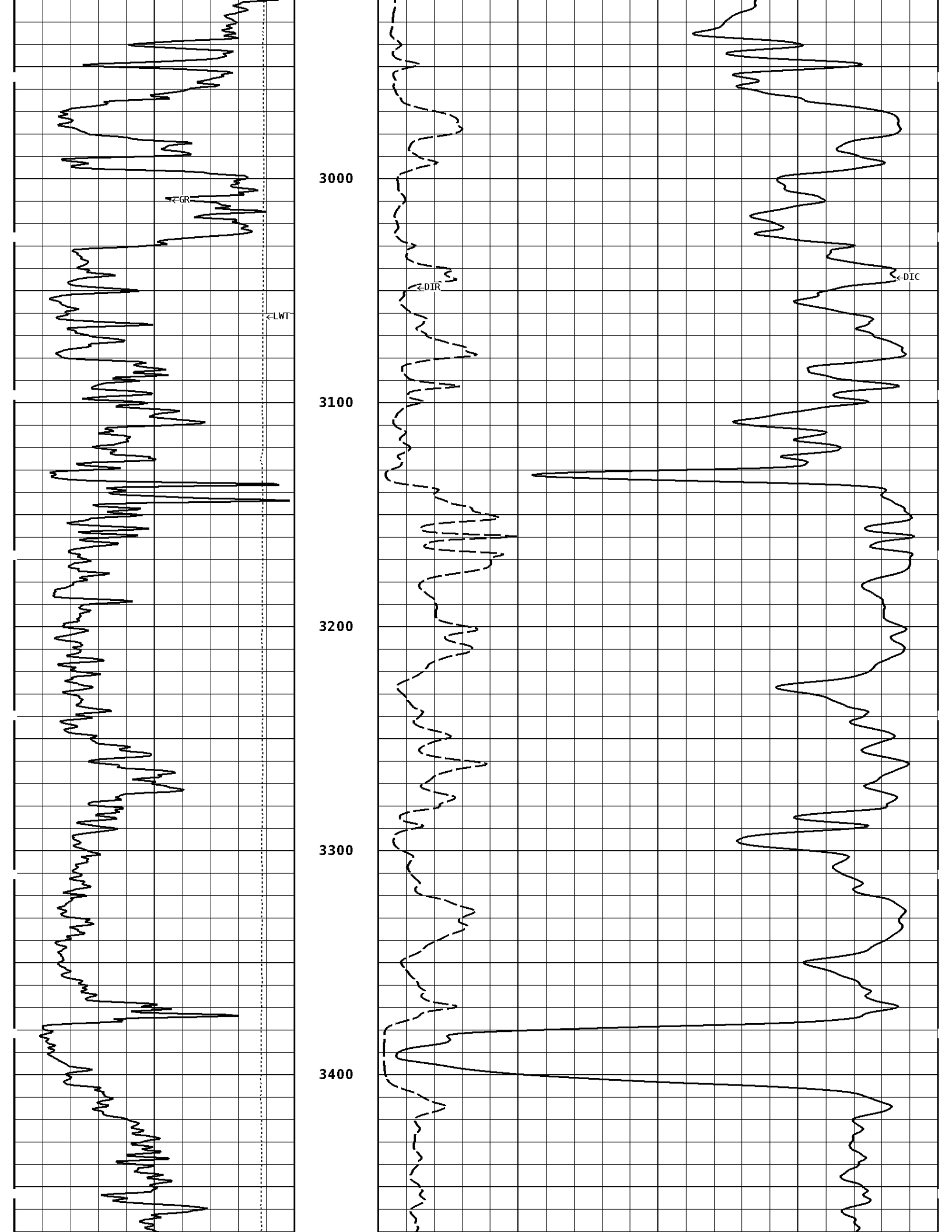
2700
2800
2900
GR
LWT
DIR
DIC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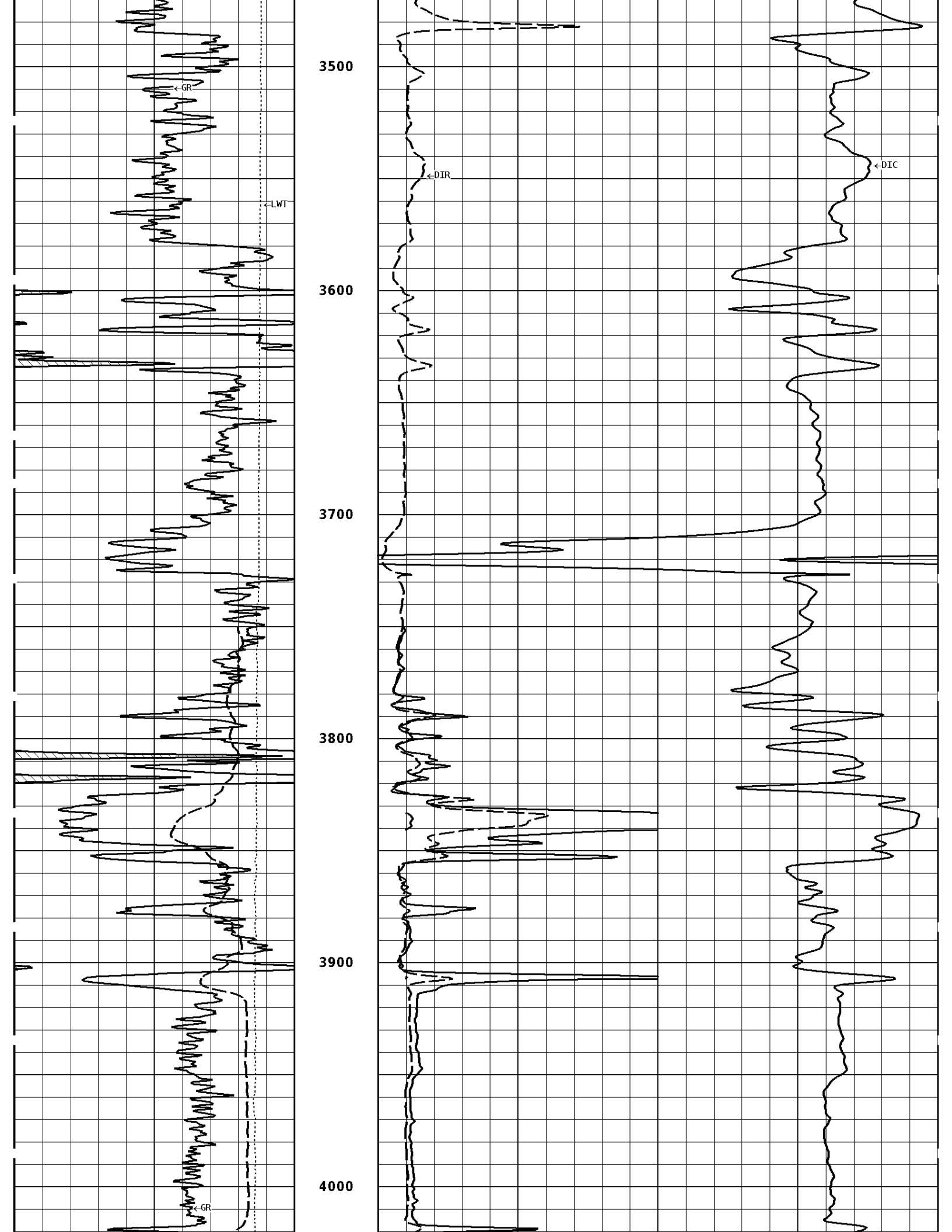
LWT
3000
DIR
DIC
3100
3200
3300
3400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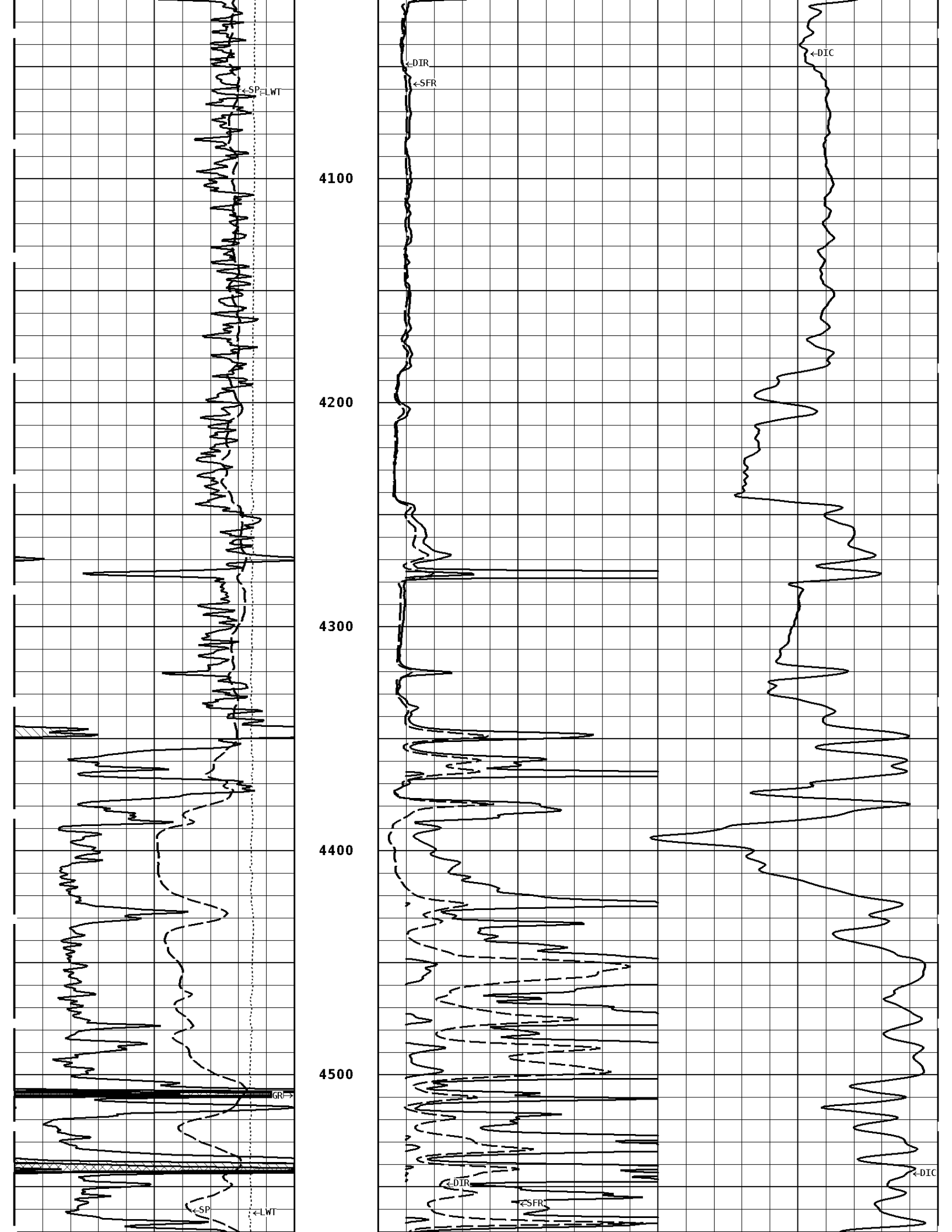
LWT
3500
DIR
DIC
3600
3700
3800
3900
4000
GR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←LWT
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4200
4300
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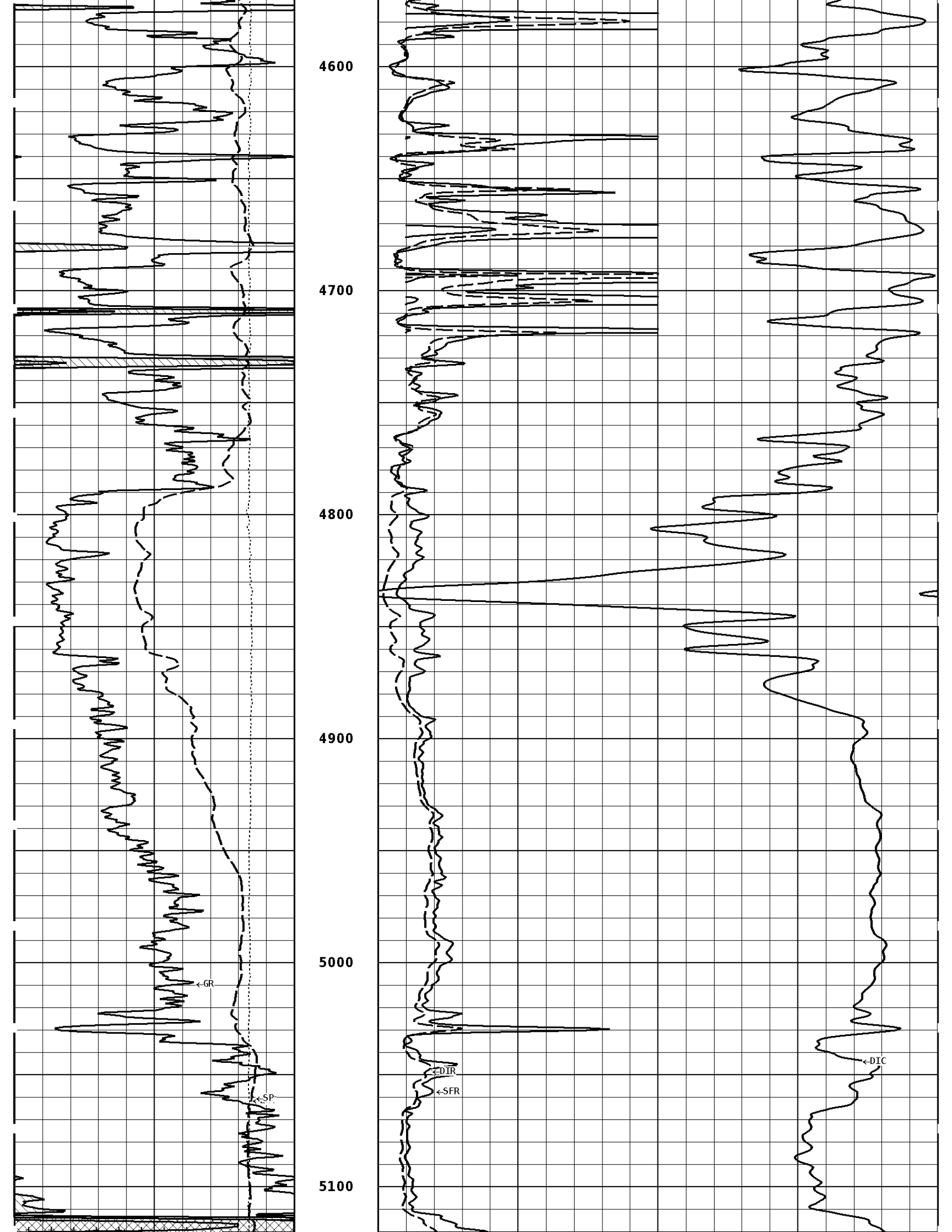
4500
GR→
←SP
←LWT
←DIR
←SFR
←DIC
←DIR
←SFR
←DIC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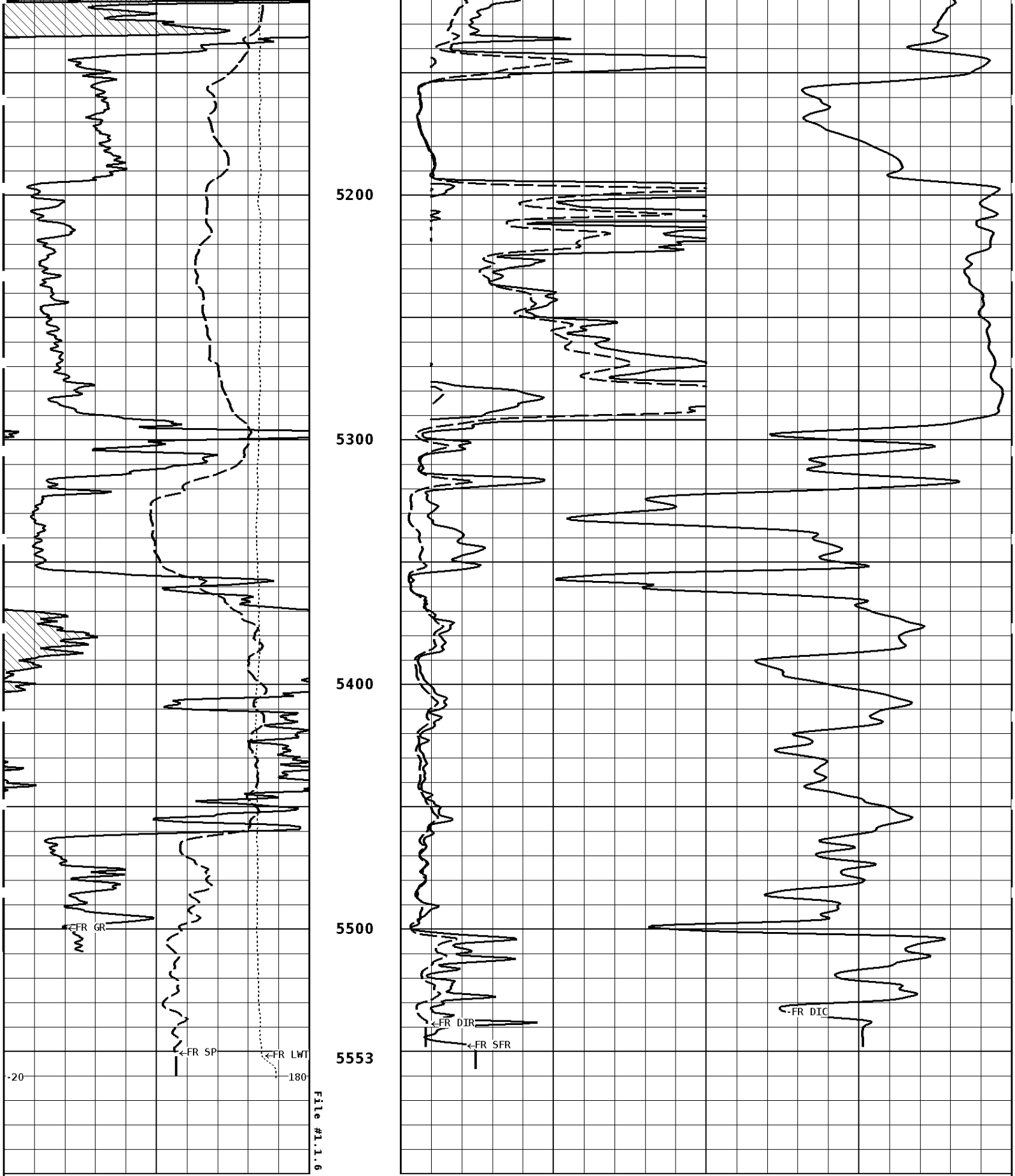
4700
4800
4900
5000
5100
GR
SP
DIR
SFR
DIC



1:600 MAIN SECTION

GAMMA RAY
API UNITS

150 | 300
0 | 150

DEEP CONDUCTIVITY
MMHO

2000 | 1000
1000 | 0

SPONTANEOUS POTENTIAL
mV
→ ←20

TENSION
LBS
10000 0

SHALLOW FOCUSED RESISTIVITY
OHMM
0.0 500.0
0.0 50.0

DEEP INDUCTION
OHMM
0.0 500.0
0.0 50.0

Well File: chief-rath-4-mstk-jun-4 **Scale:** 1:240 **Format:** DIL-240
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

SPONTANEOUS POTENTIAL
mV
→ ←20

TENSION
LBS
10000 0

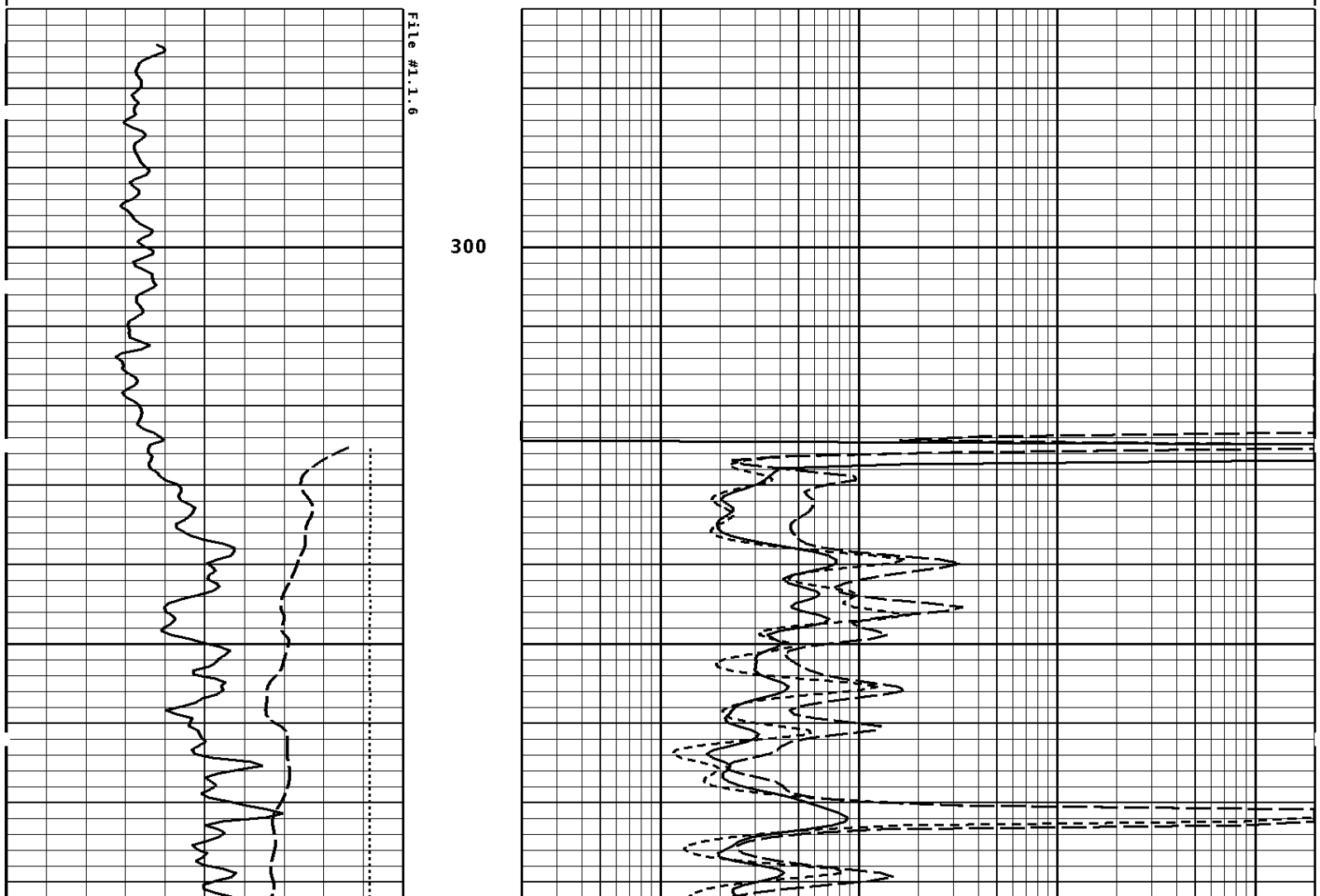
GAMMA RAY
API UNITS
150 300
0 150

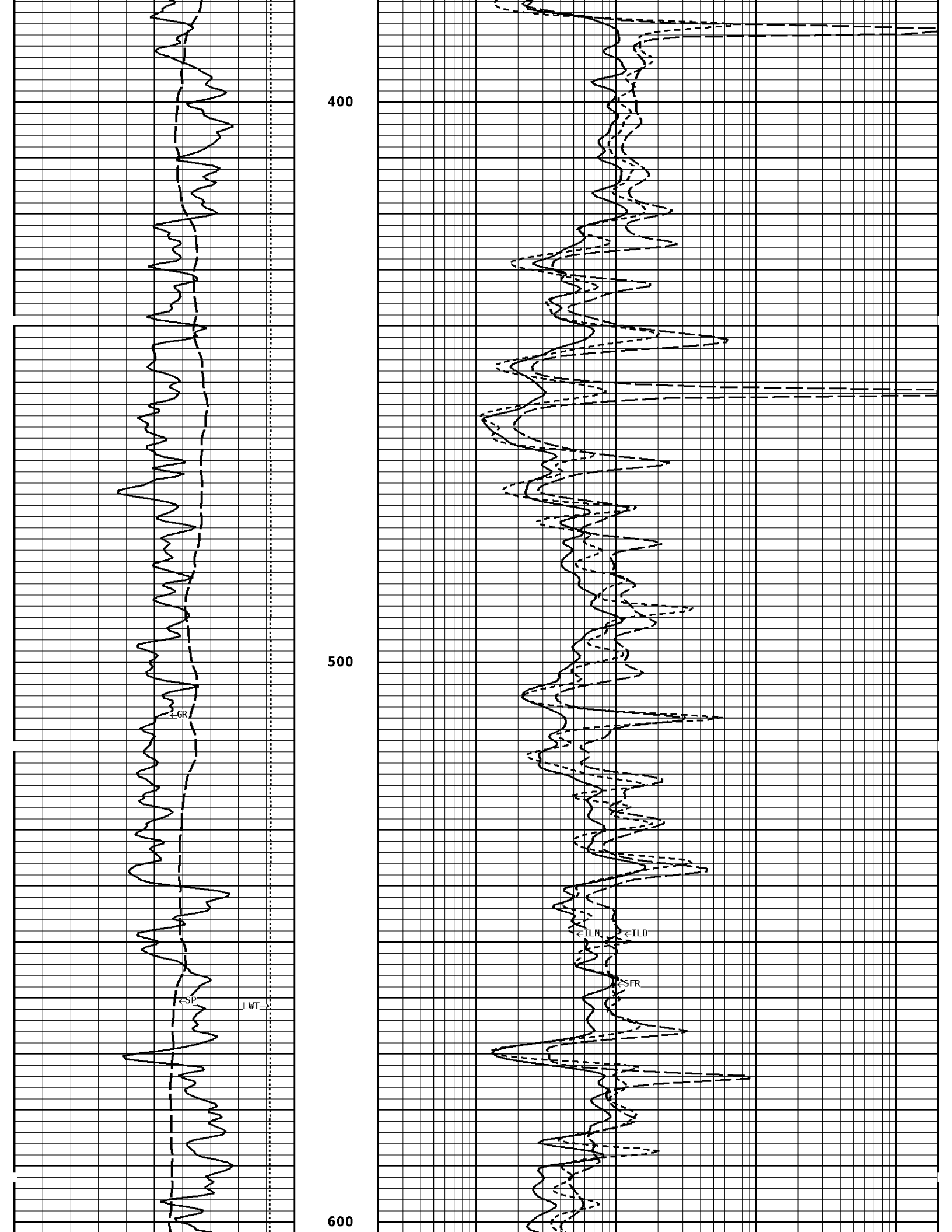
DEEP INDUCTION
OHMM
0.2 2000.0

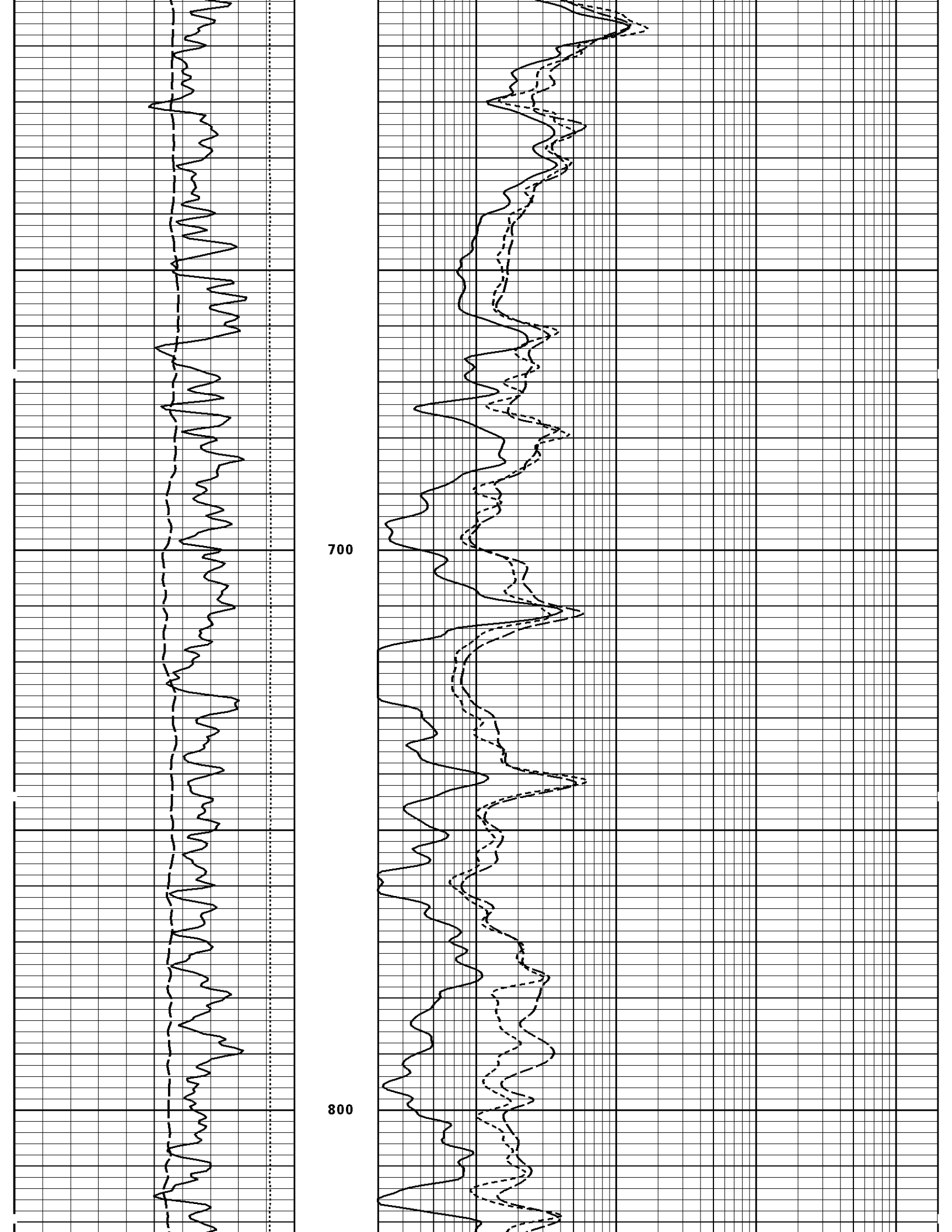
MEDIUM INDUCTION
OHMM
0.2 2000.0

SHALLOW FOCUSED RESISTIVITY
OHMM
0.2 2000.0

1:240 MAIN SECTION




400
500
600
←GR
←SP
LWT→
←ILM
←ILD
←SFR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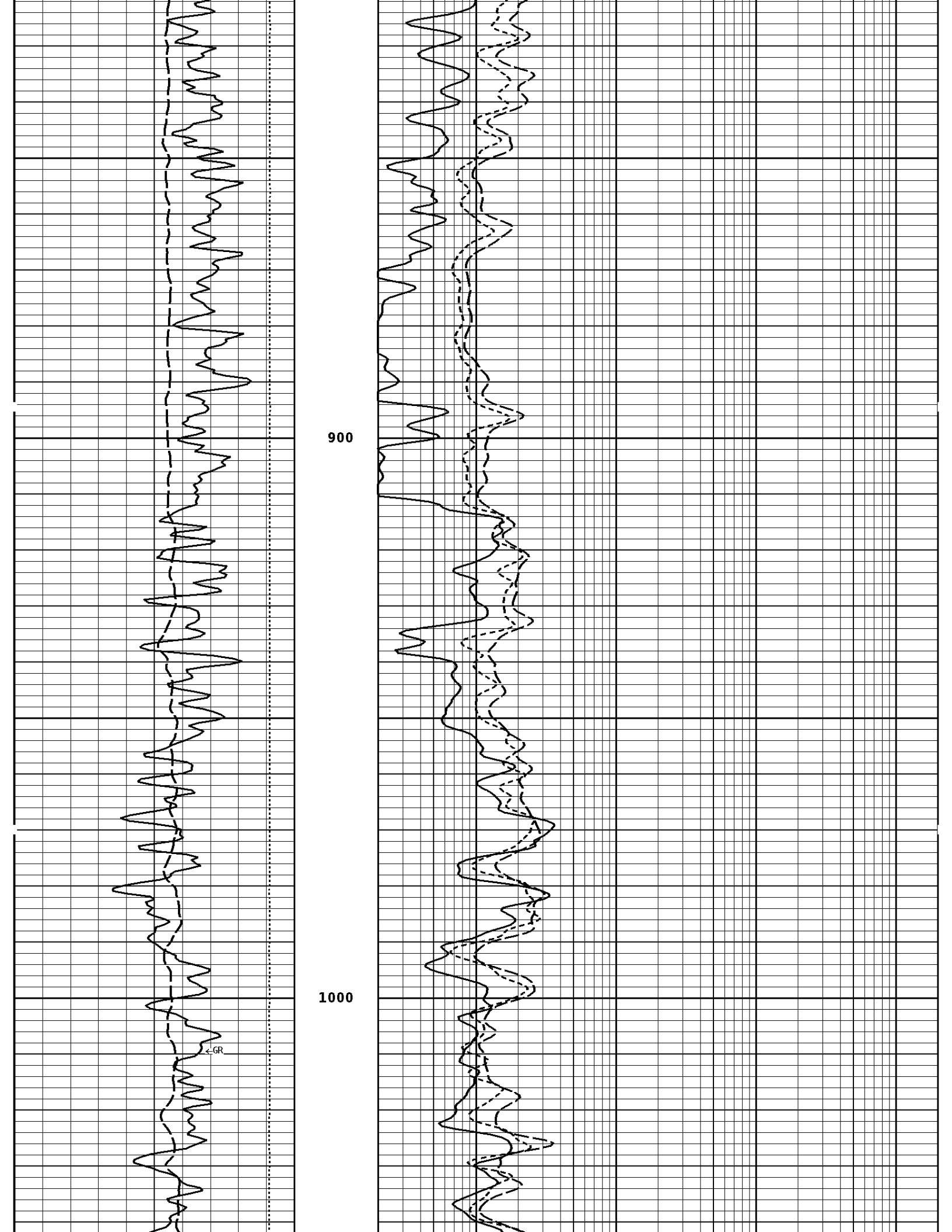
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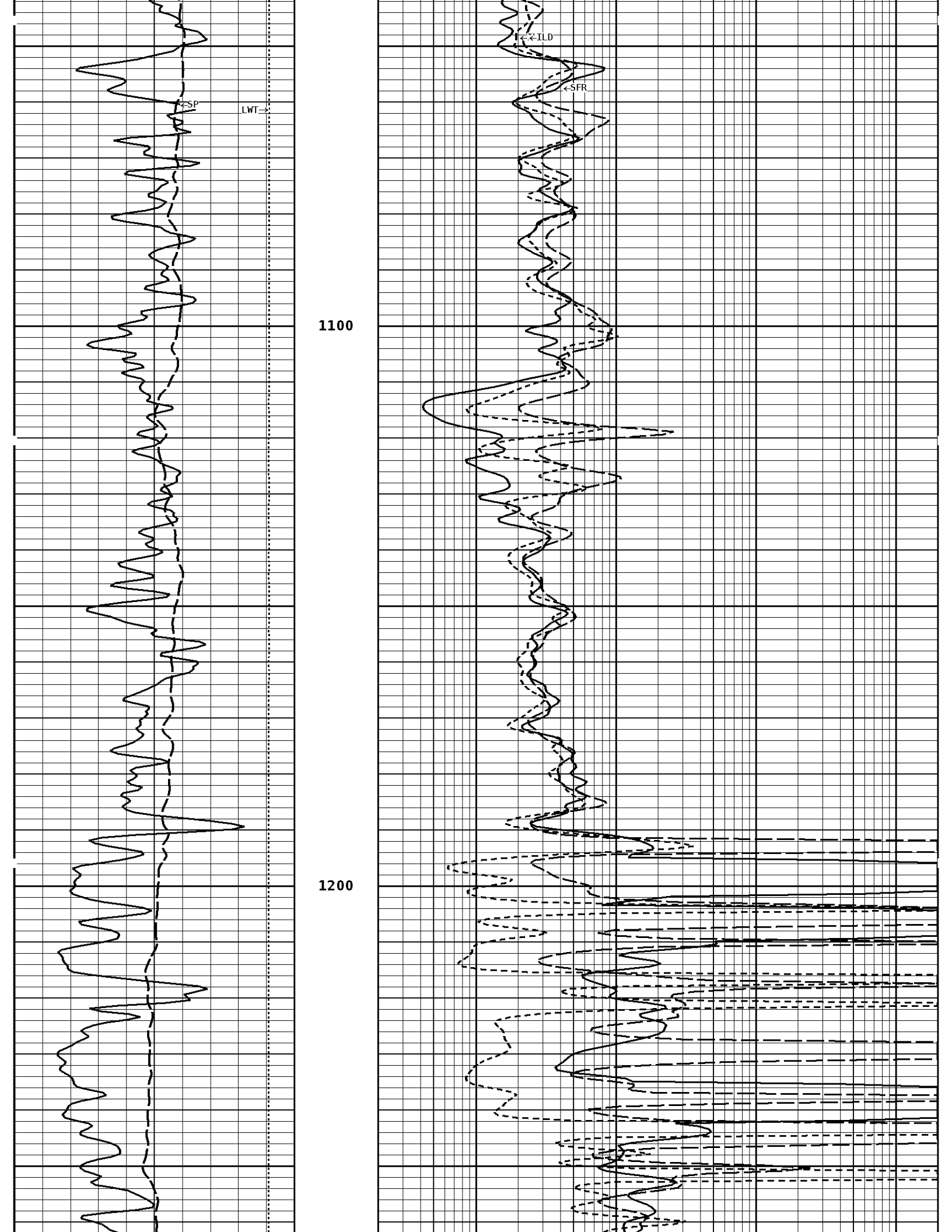
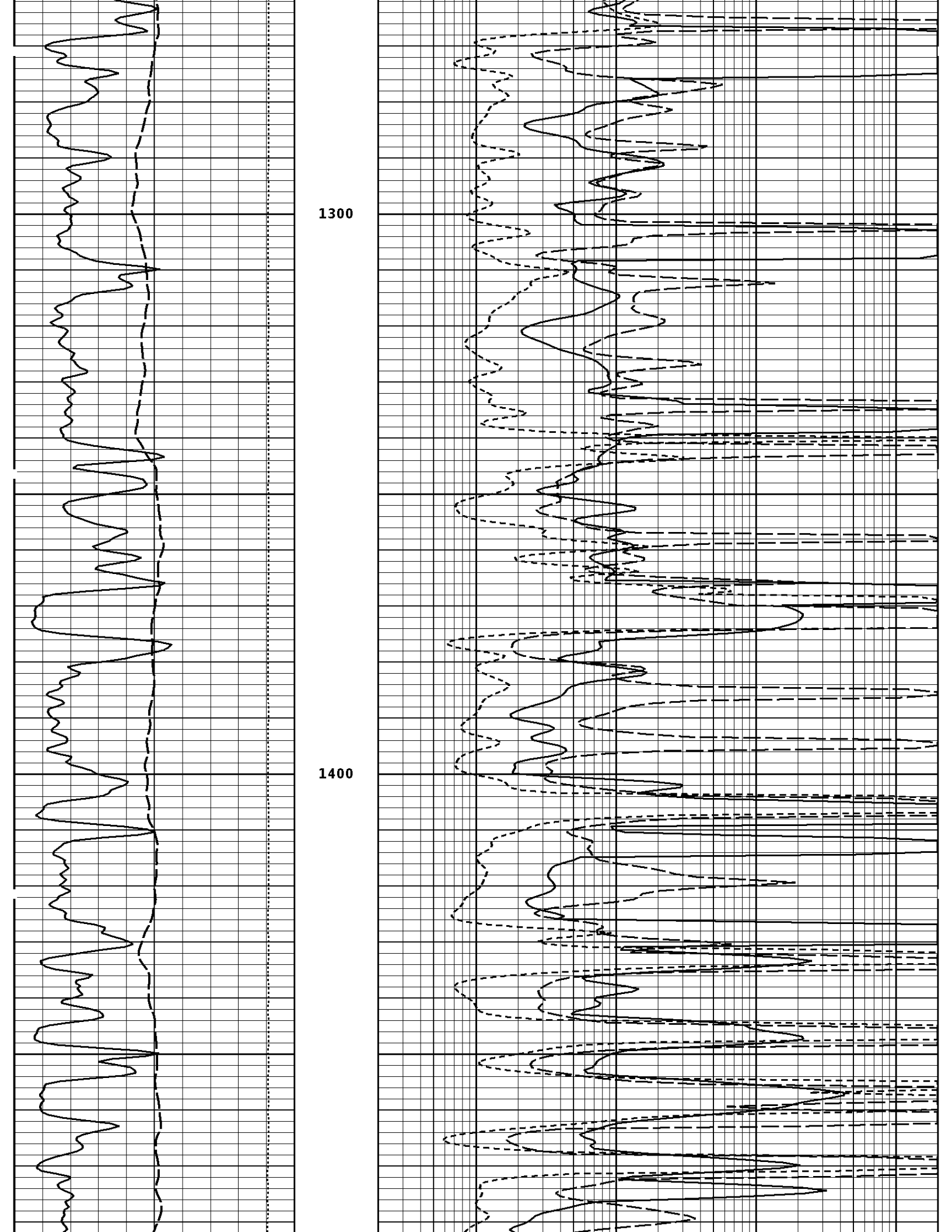
1000
GR


←ILD
←SFR
←SP
LWT→
1100
1200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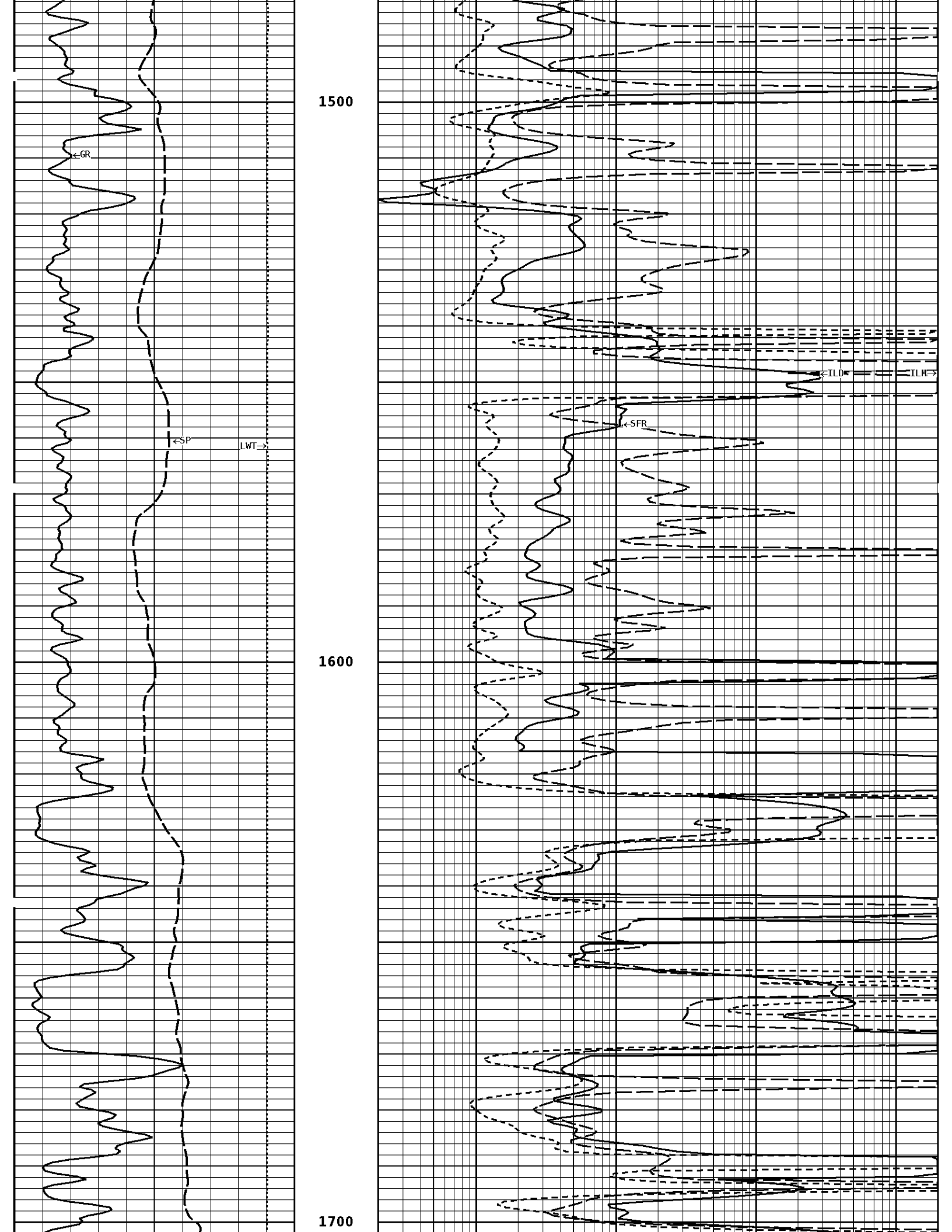
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SP
LWT
ILD
ILM
SFR
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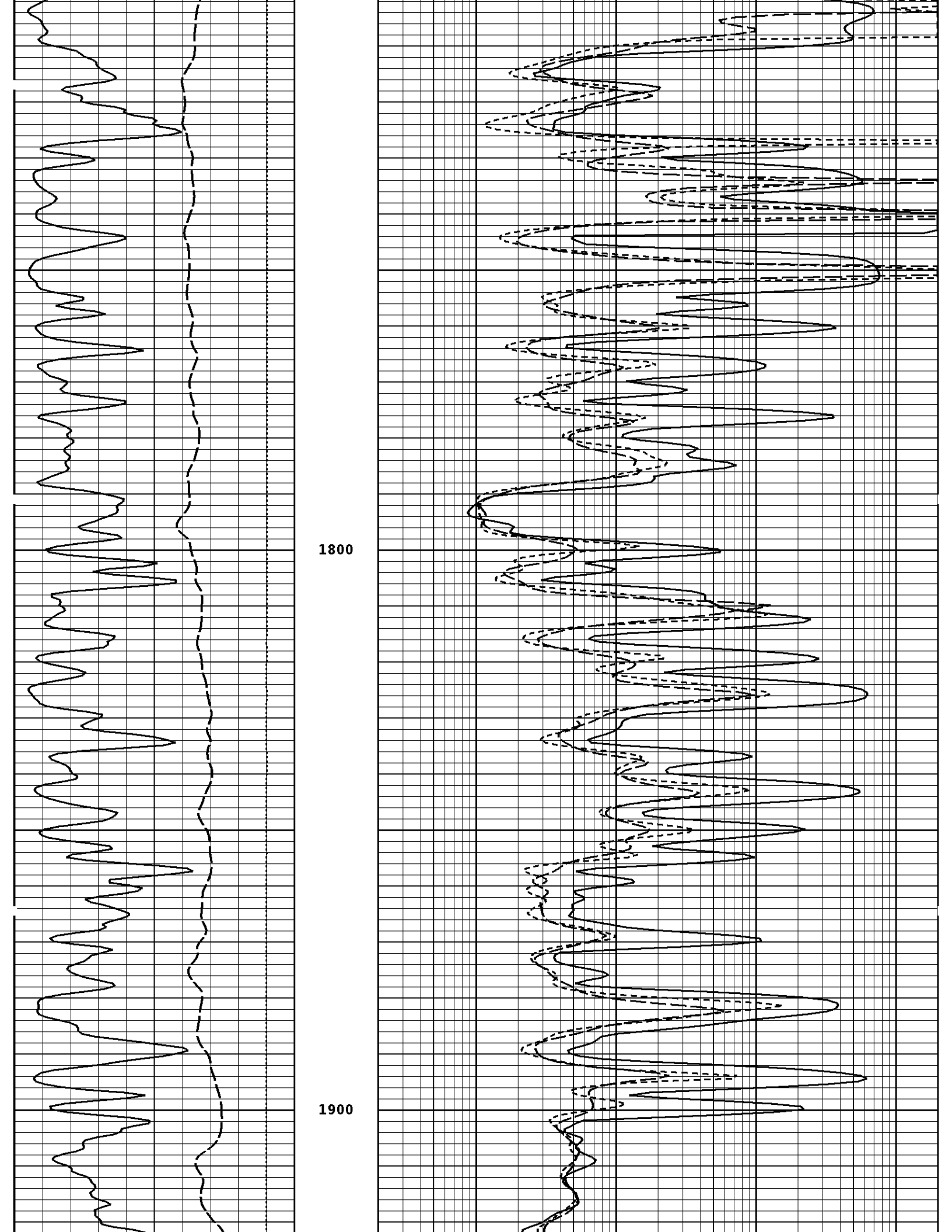
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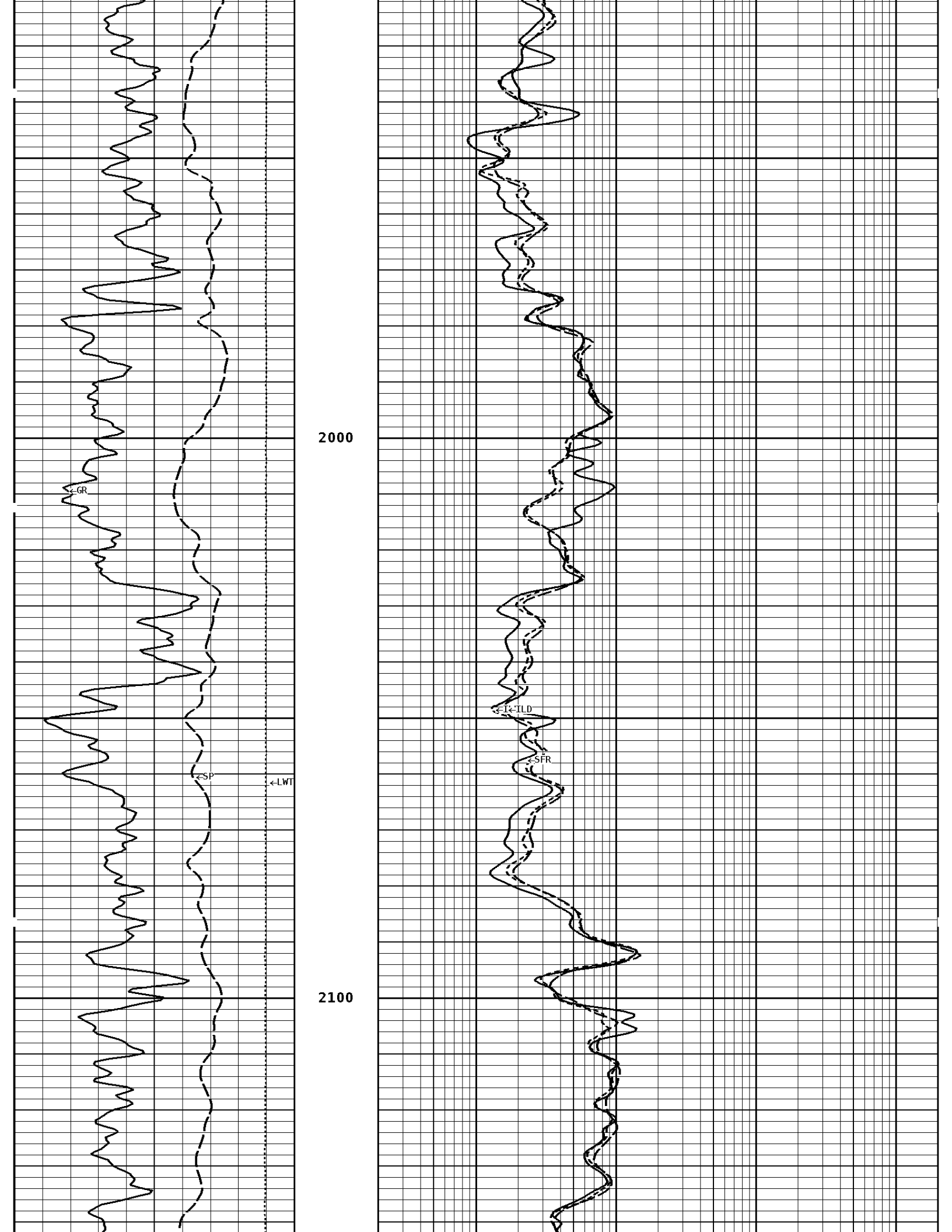
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SP
LWT
ILD
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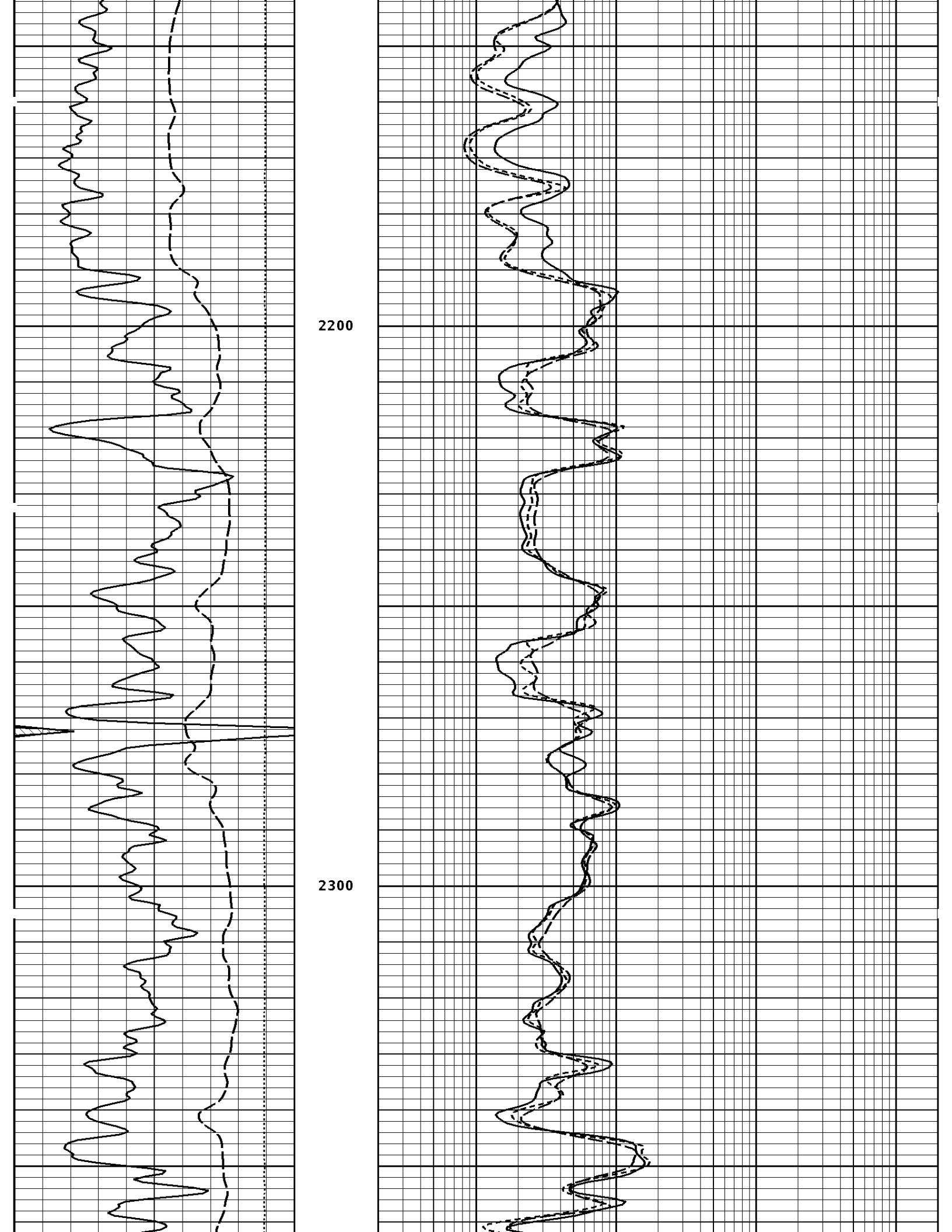
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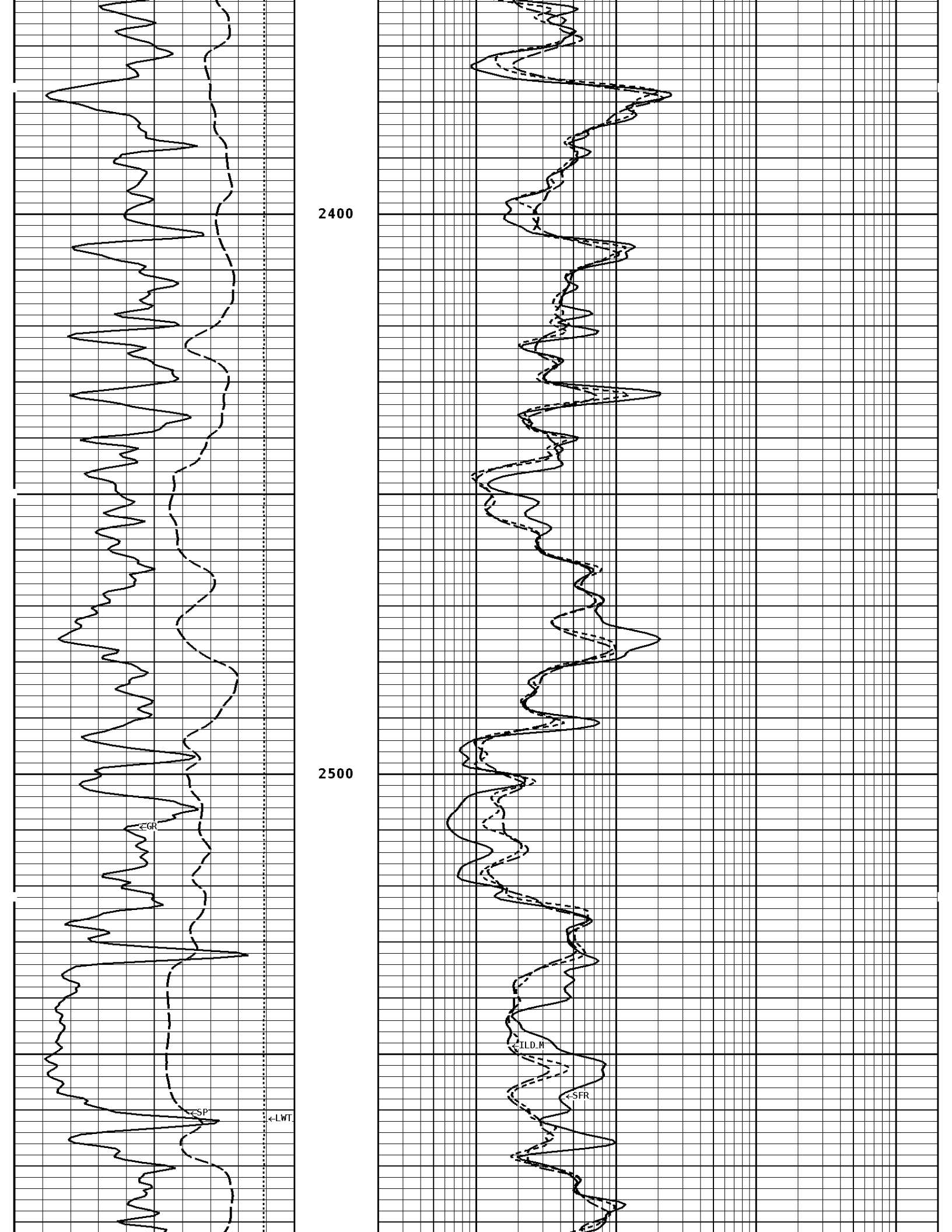
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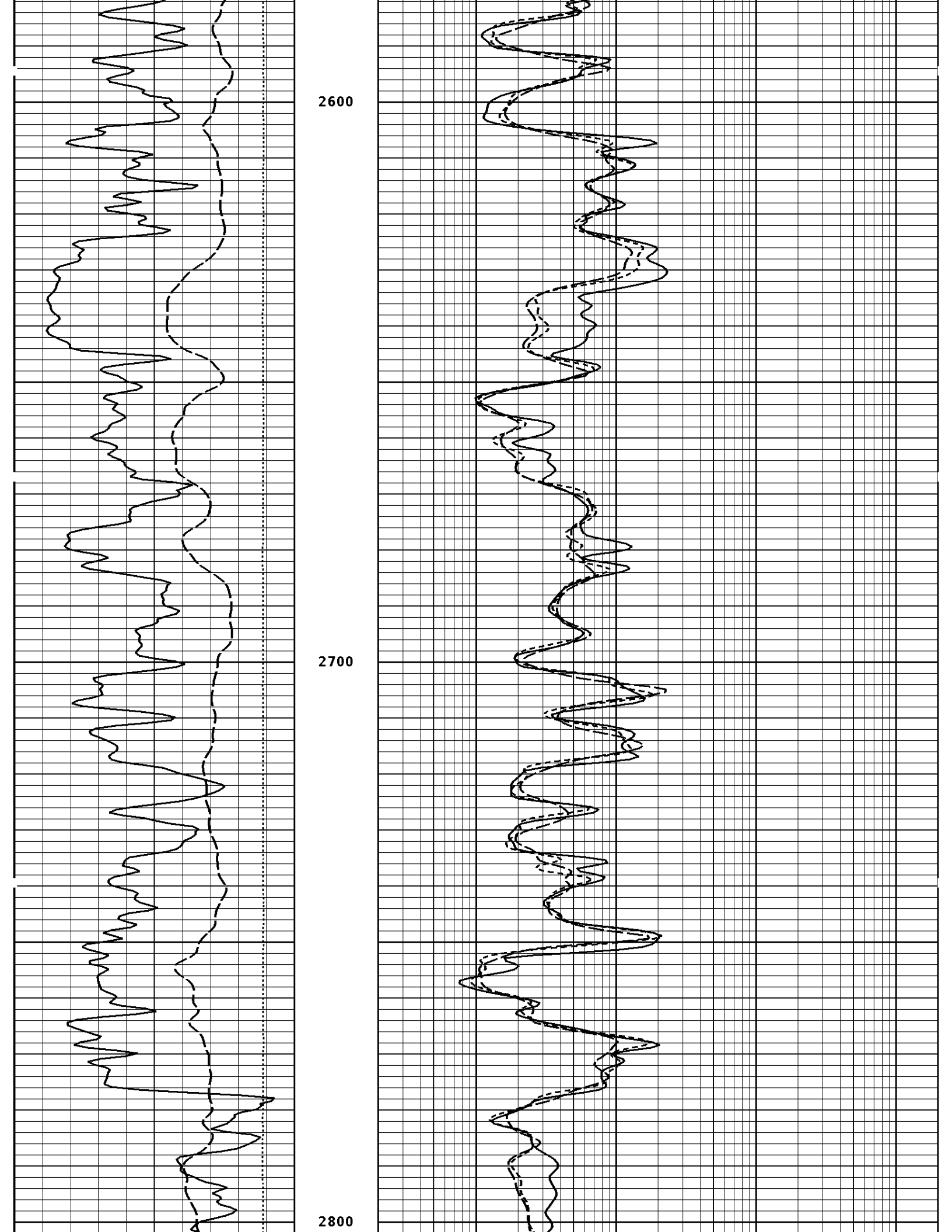
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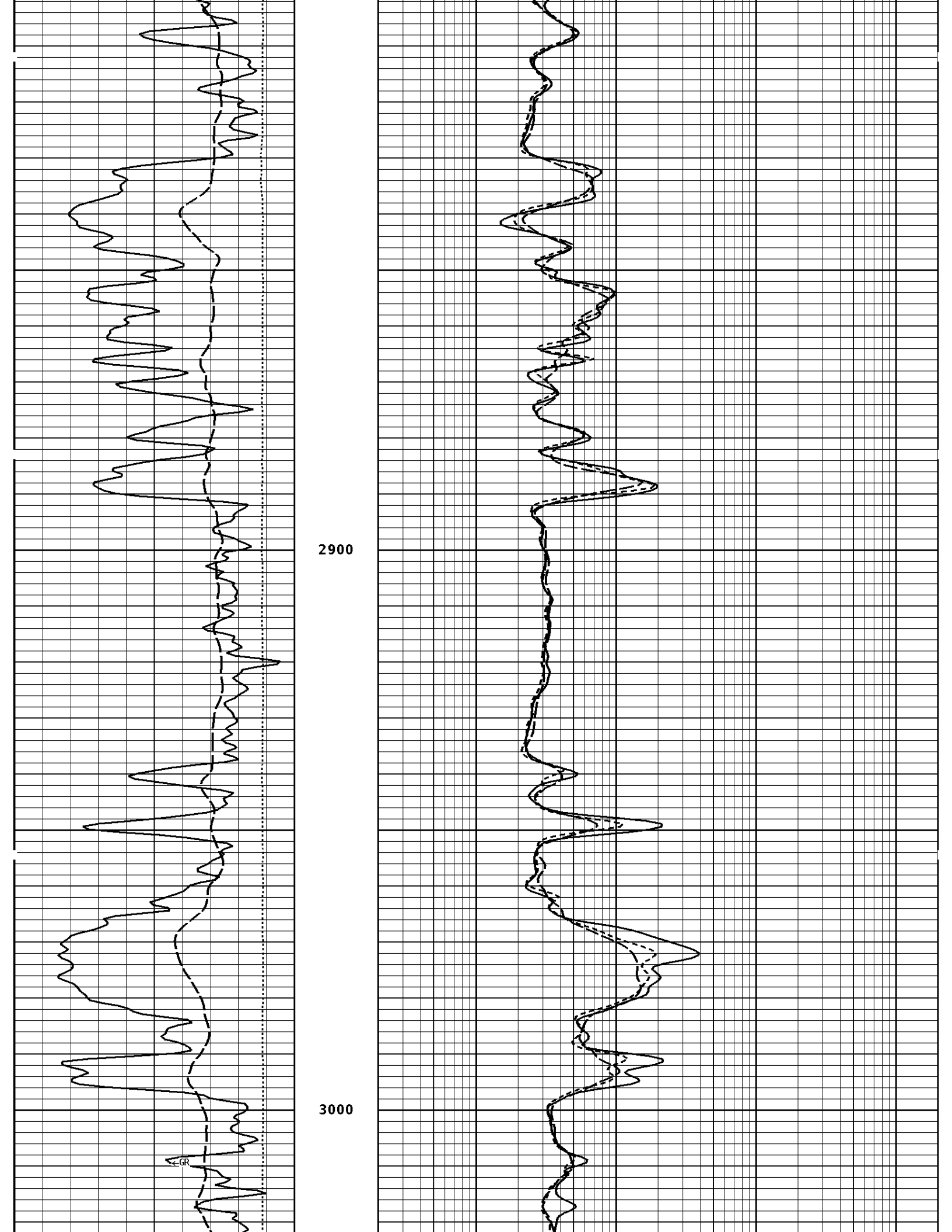
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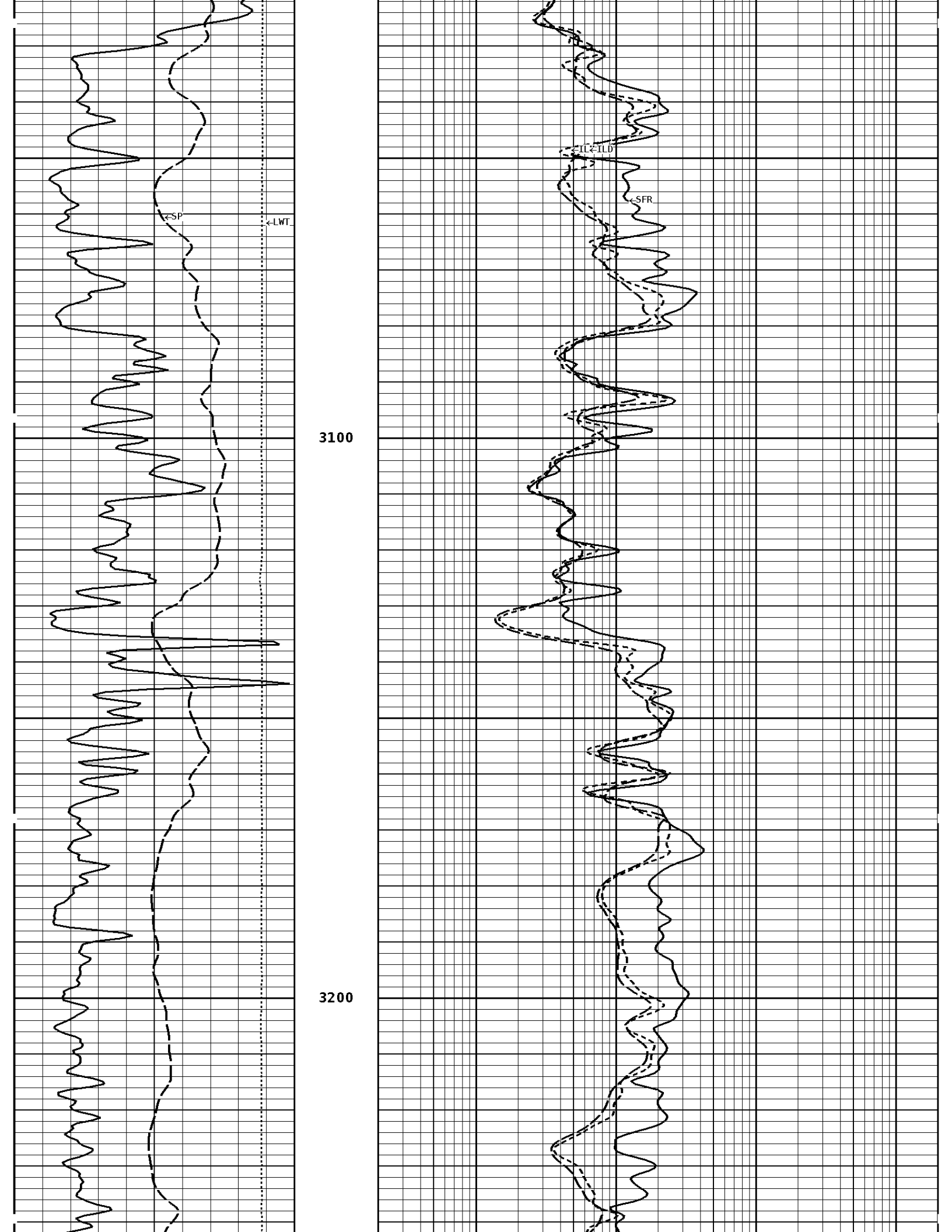
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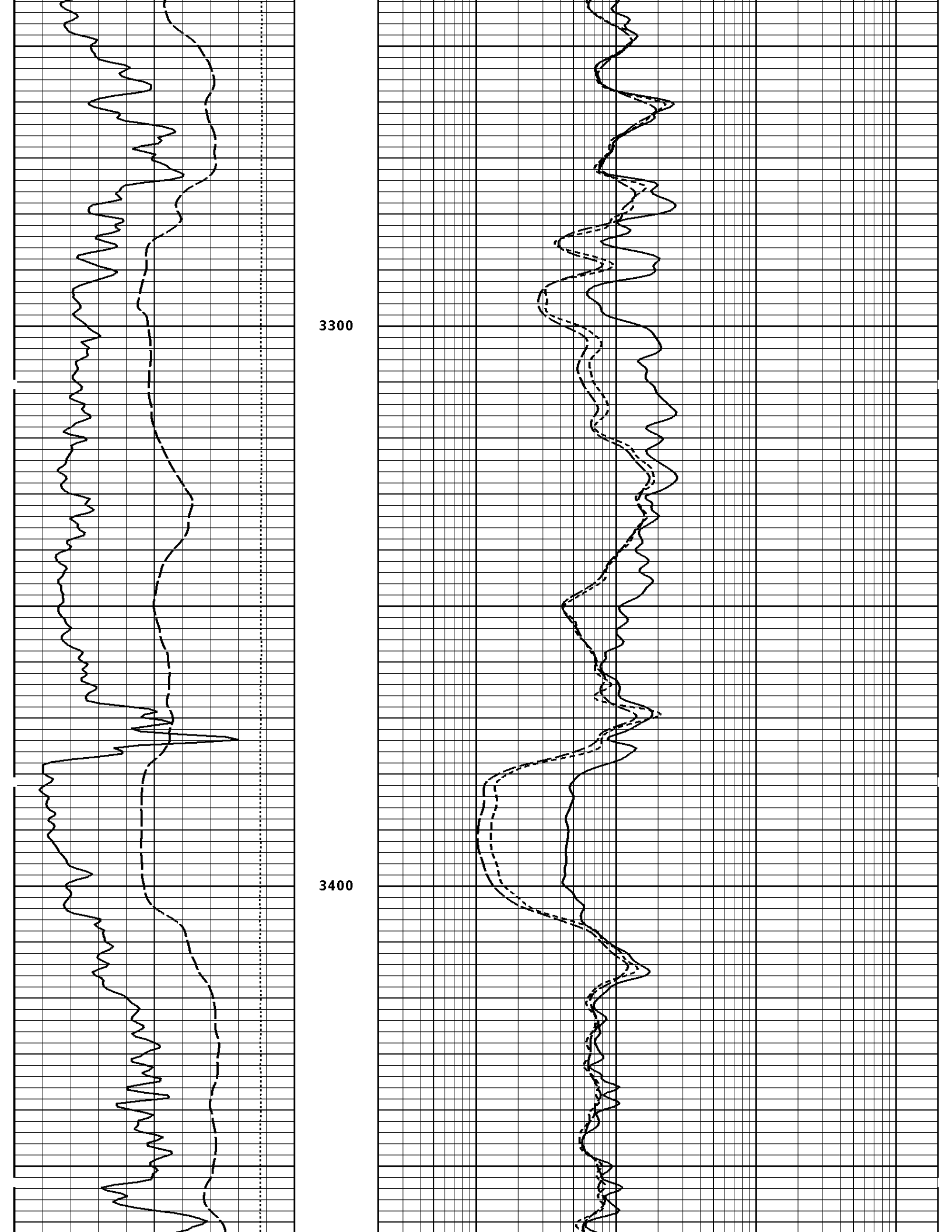
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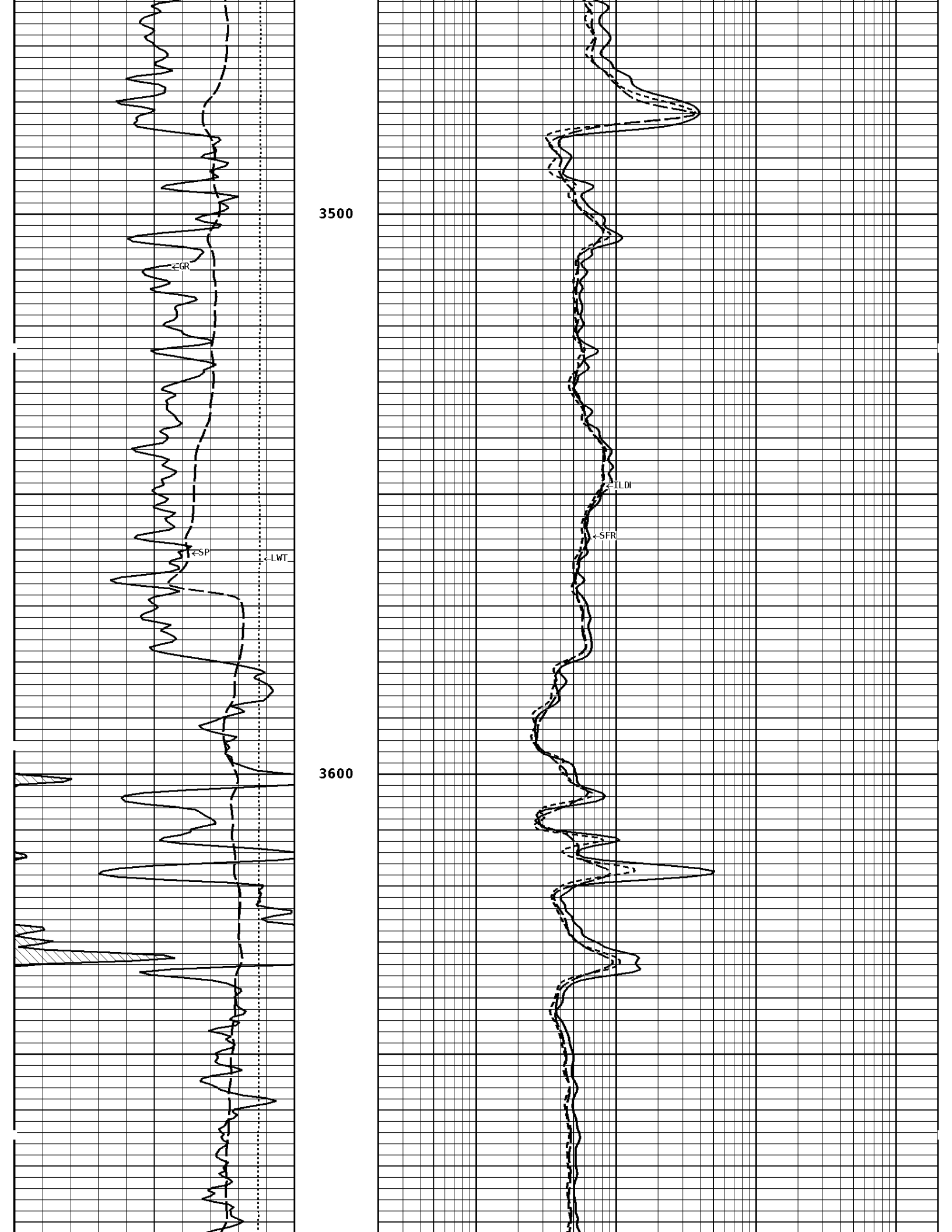
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SP
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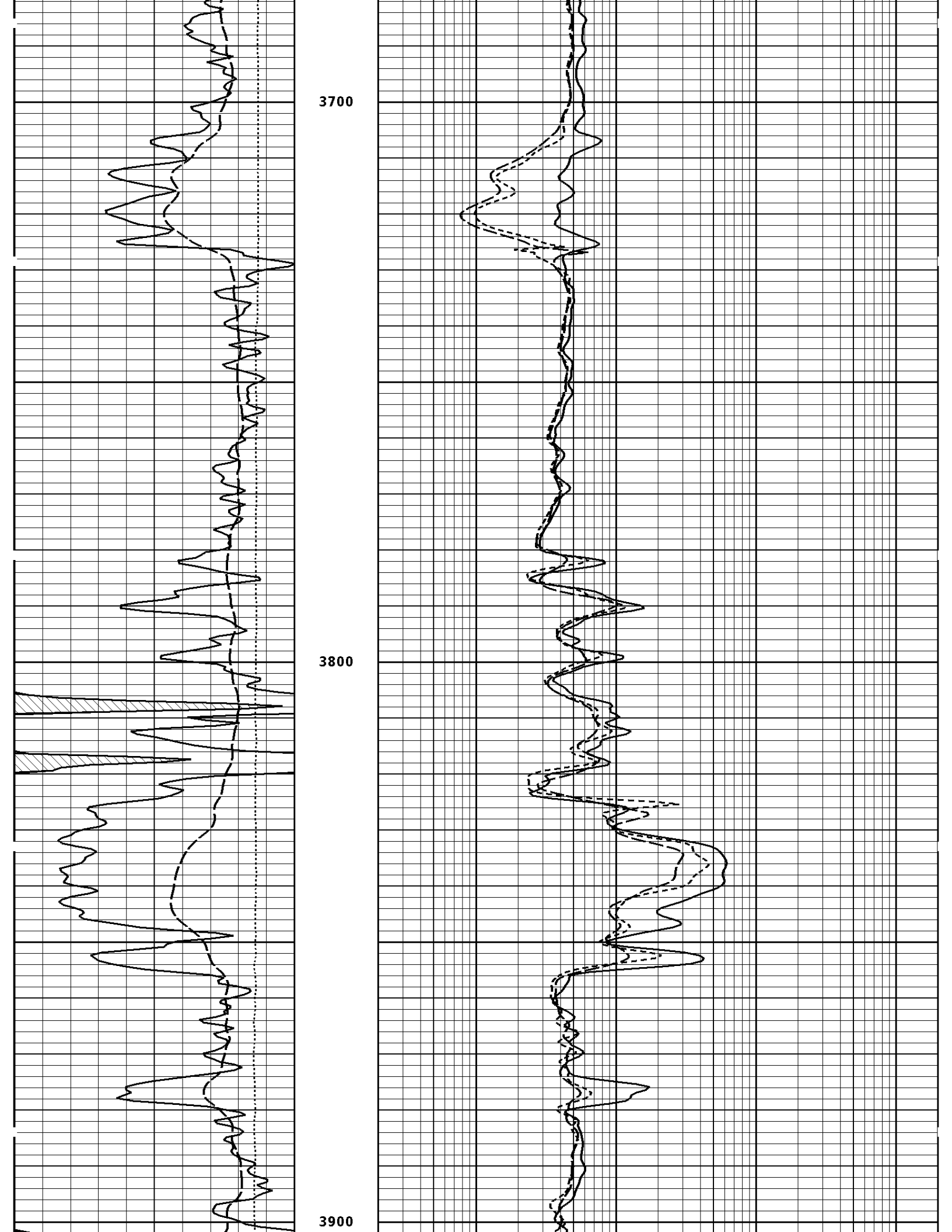
ILDI
SFR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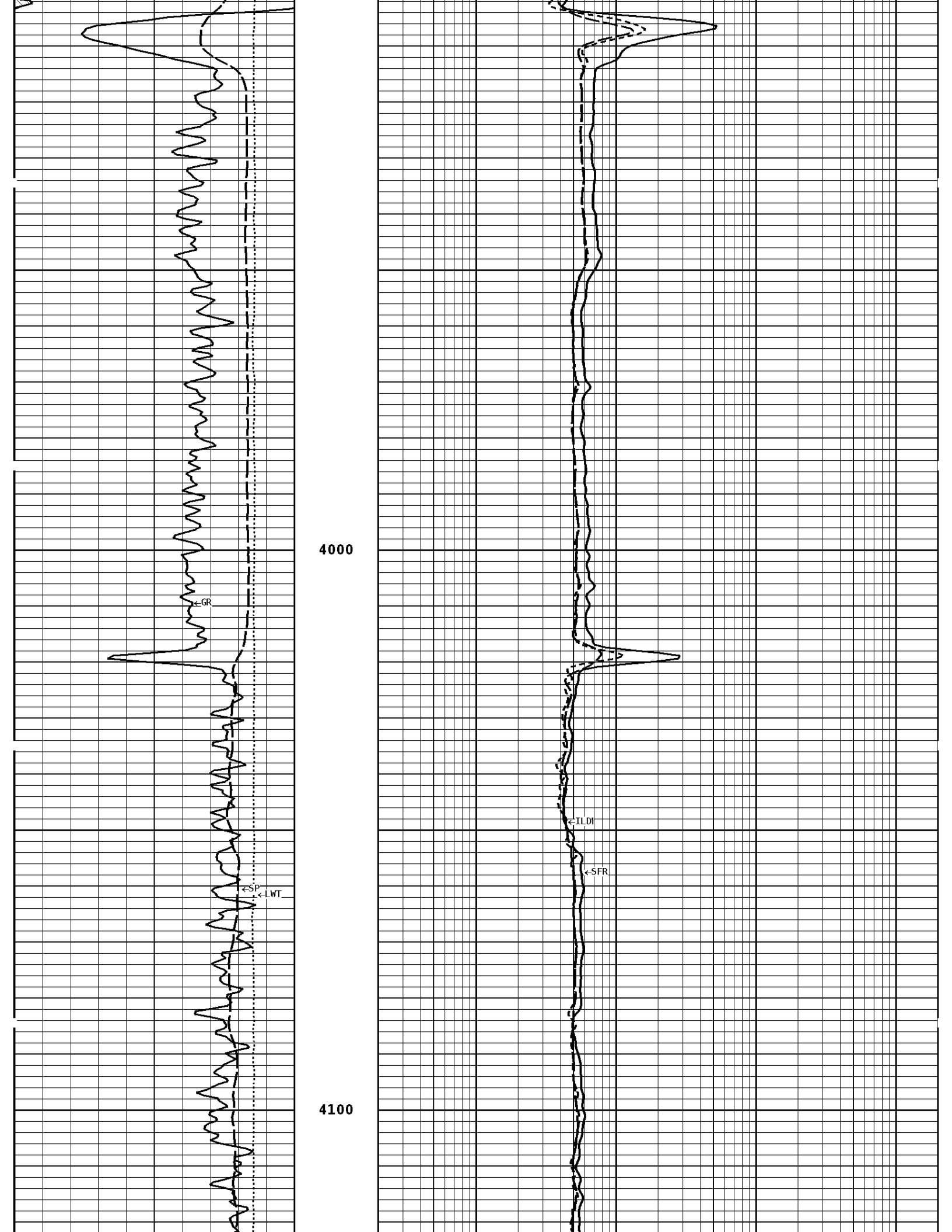
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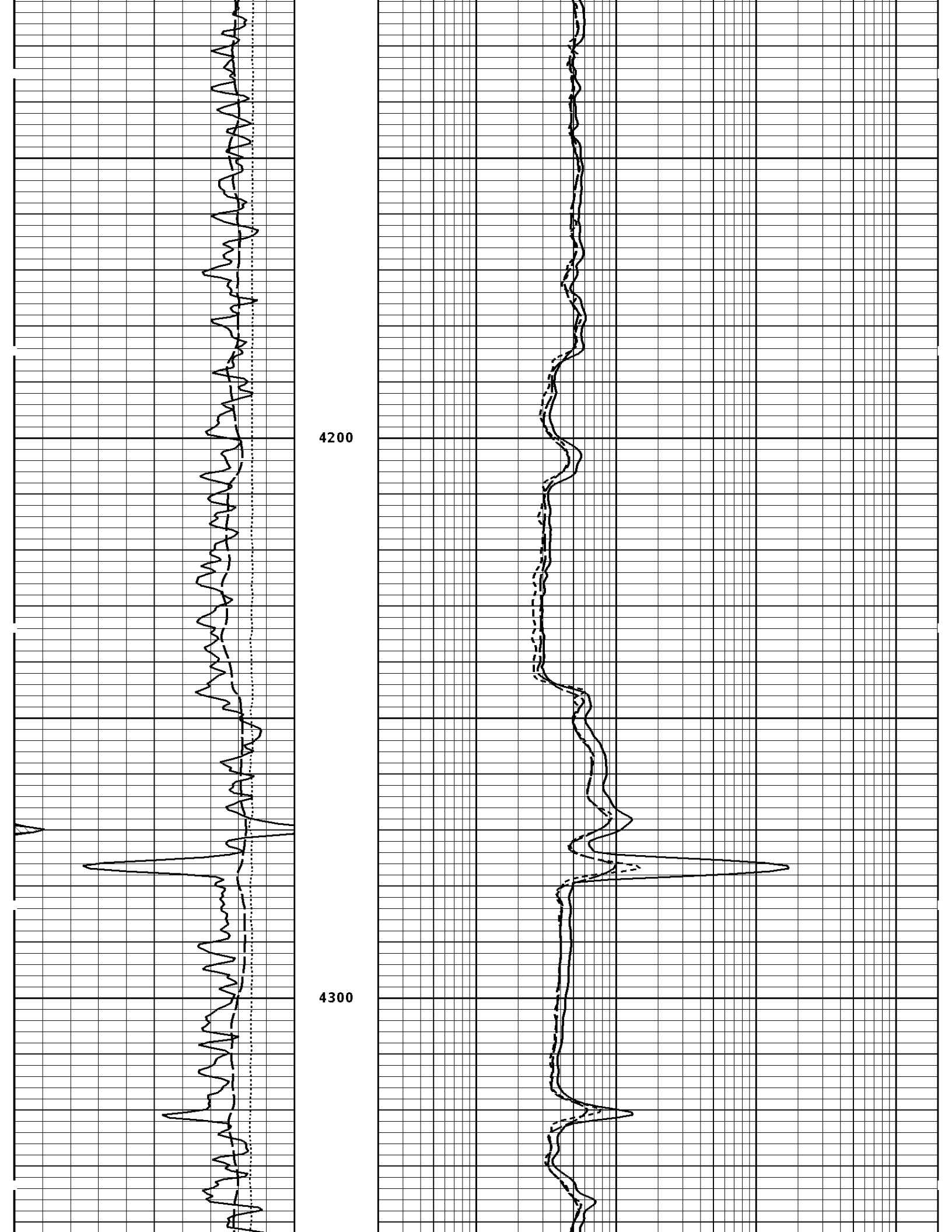
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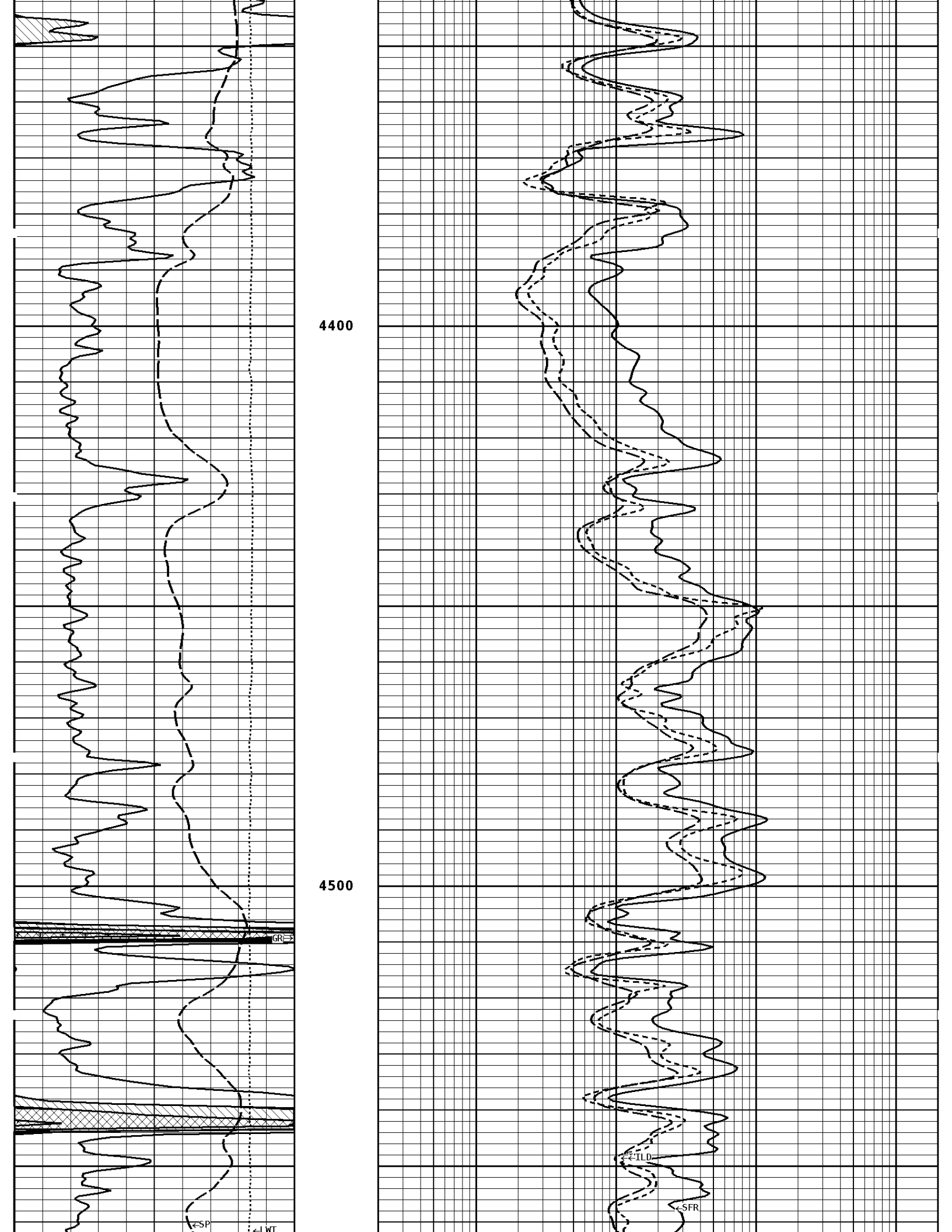
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WT
ILD
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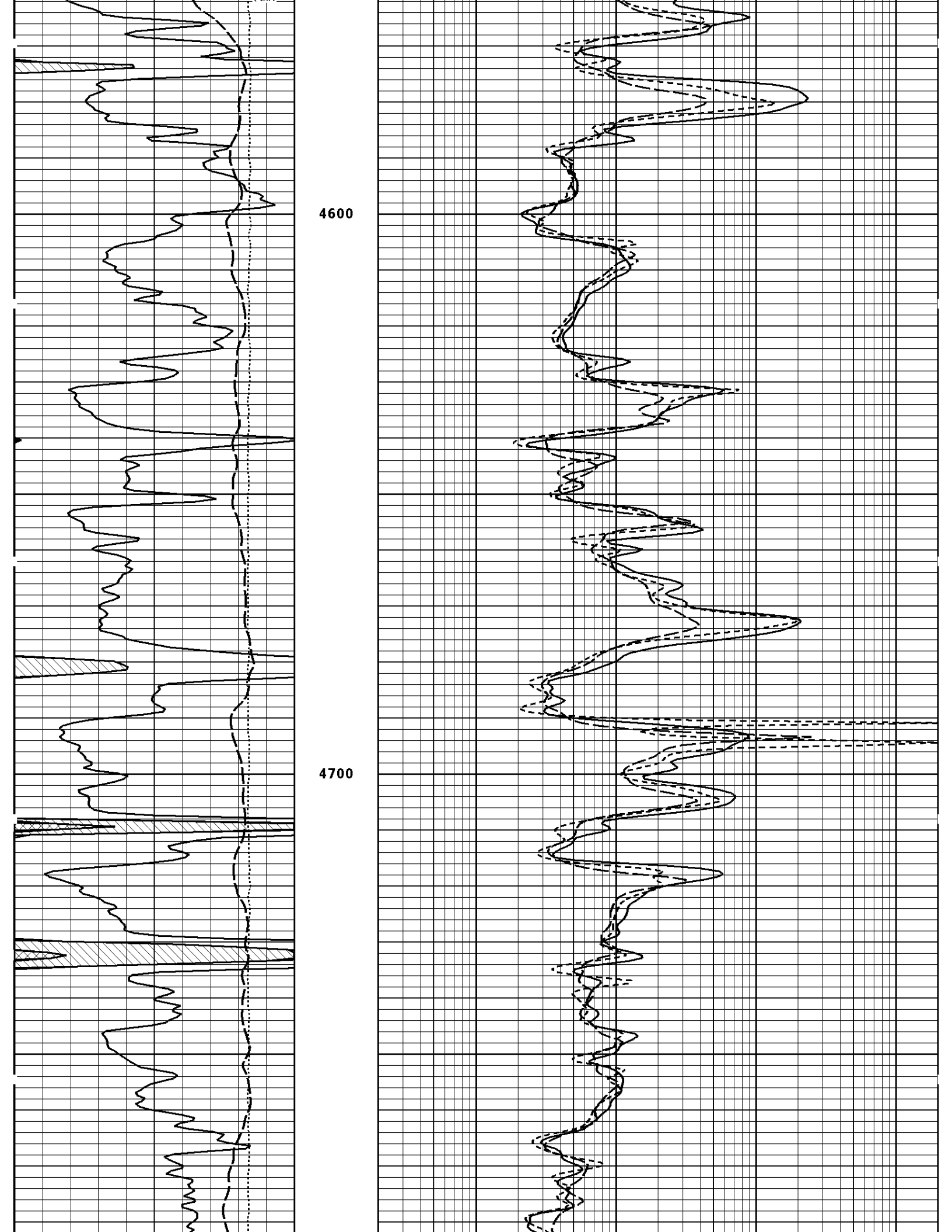
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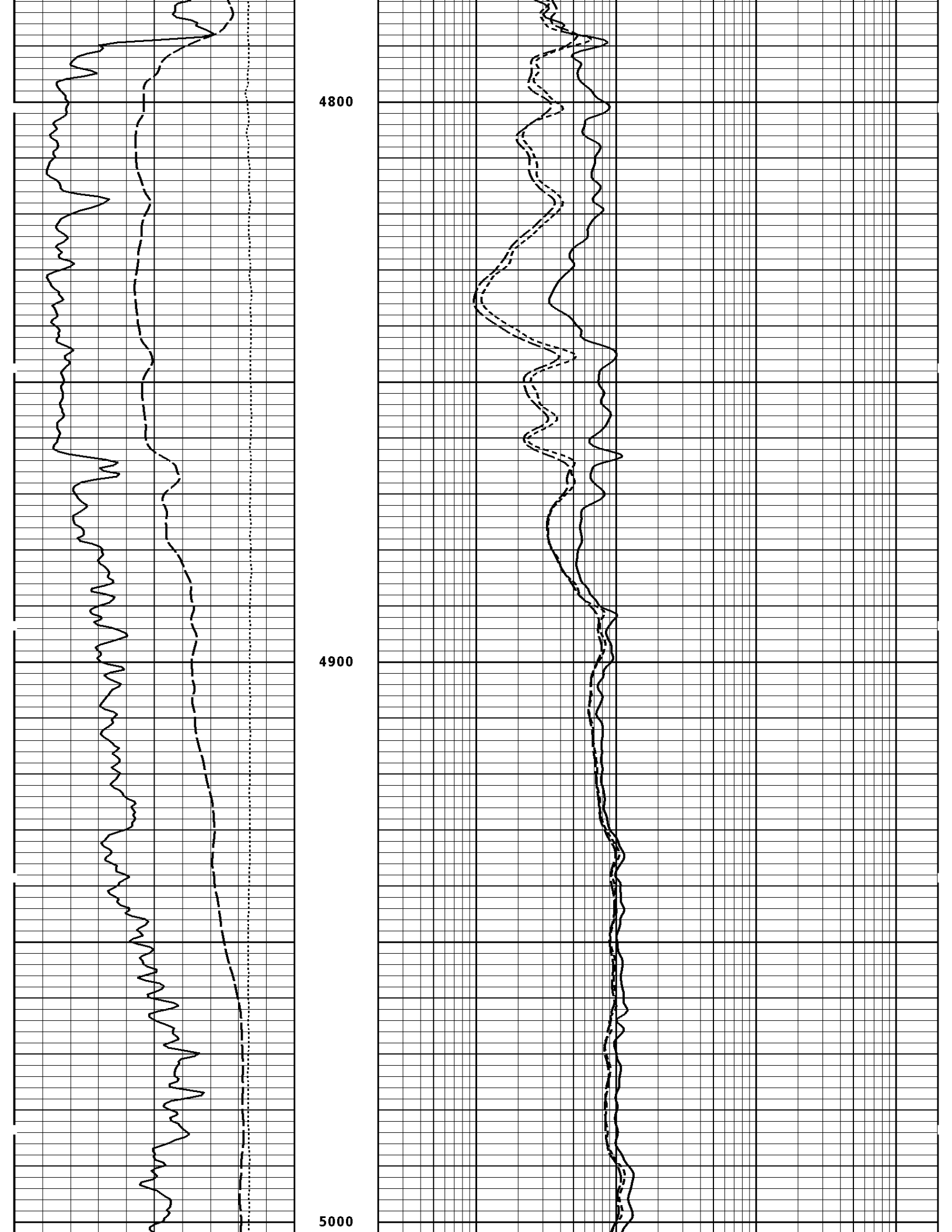
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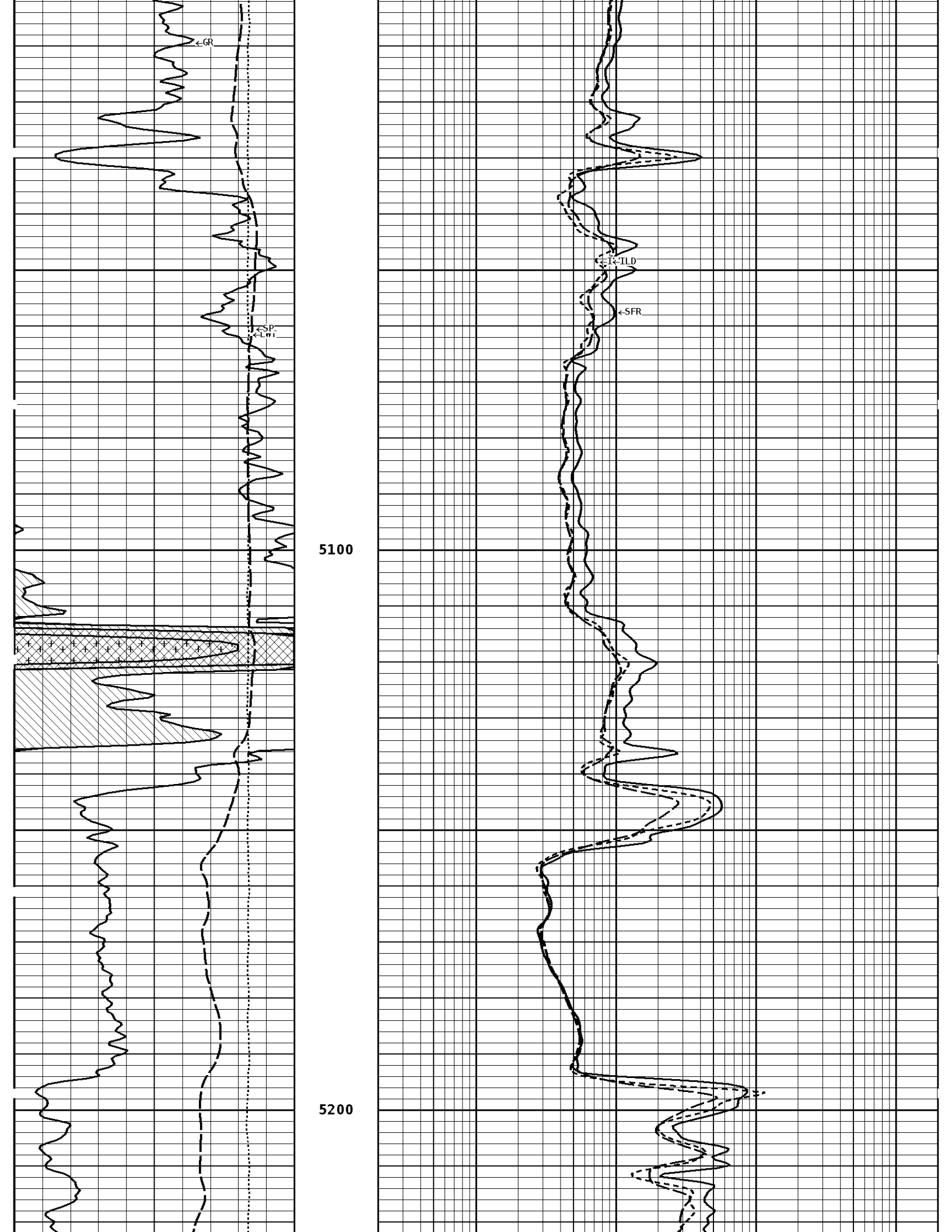
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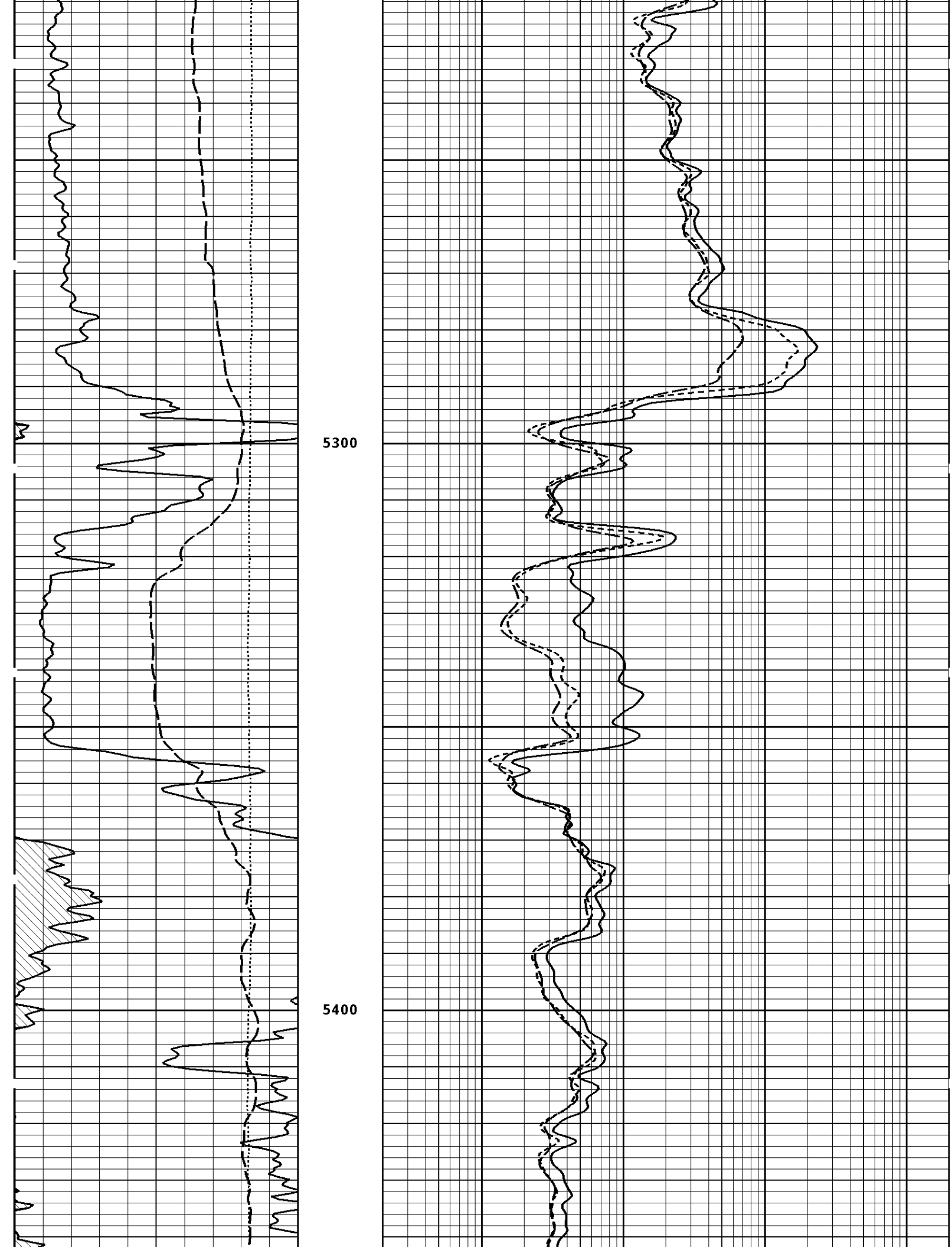
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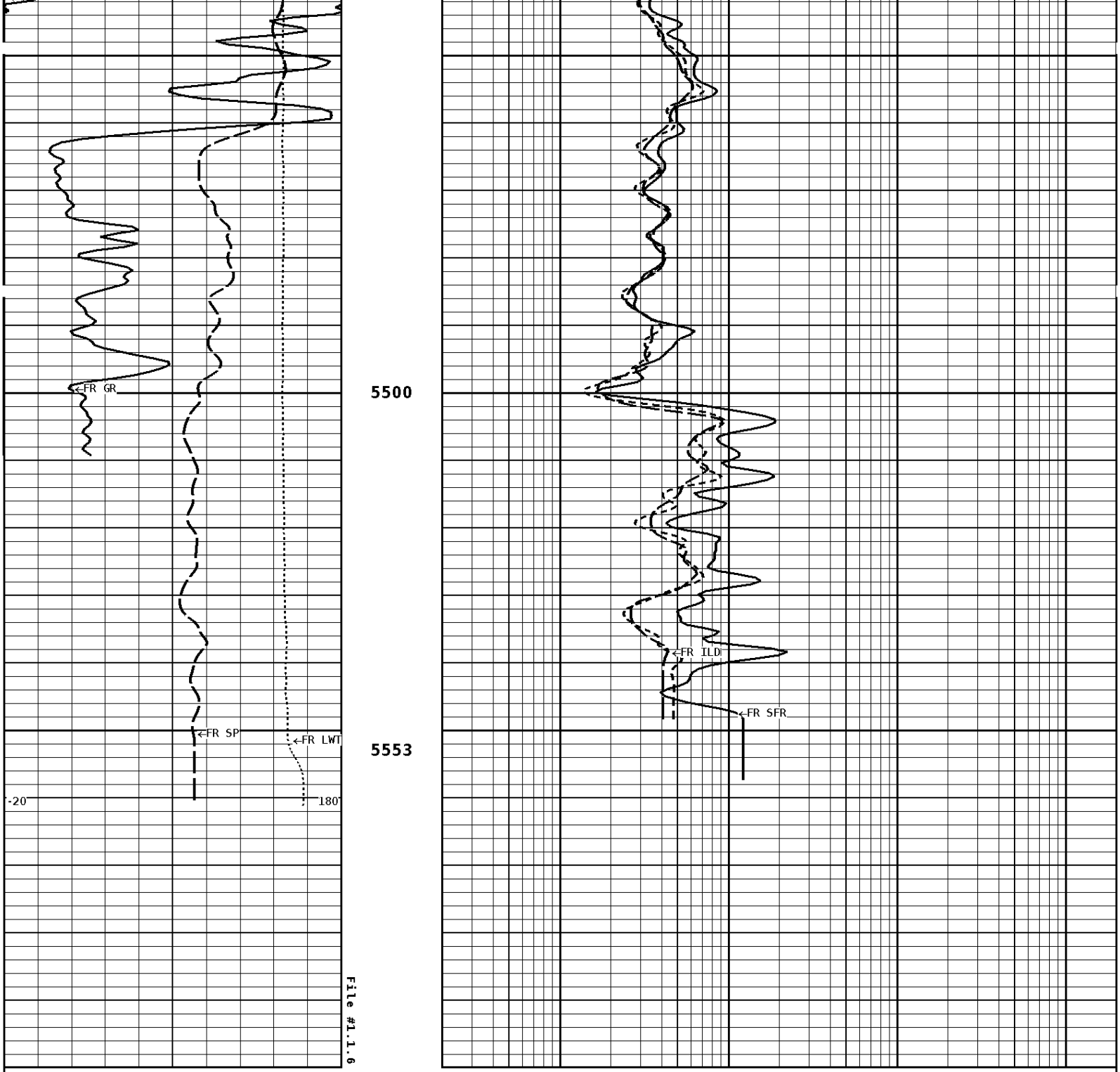


1:240 MAIN SECTION

GAMMA RAY
API UNITS
150 — 300
0 — 150

TENSION
LBS
10000 — 0

SPONTANEOUS POTENTIAL
mV
→ | ←20

SHALLOW FOCUSED RESISTIVITY
OHMM
0.2 — 2000.0

MEDIUM INDUCTION
OHMM
0.2 — 2000.0

DEEP INDUCTION
OHMM
0.2 — 2000.0

* Borehole Zone Factors *

Zone 1 99999.0 to 0.0 Feet

Drill Bit Size	7.875	in
Casing Diameter	5.500	in
BHT Depth	5553.000	ft
Borehole Temperature	130.0	degF
Temperature Gradient	1.00	DFHF
Resistivity Of Mud	0.300	ohm/m
Standoff	1.5	
Resistivity Of Mud Temperature	80.00	degF

Well File: chief-rath-4-mstk-jun-4 **Scale:** 1:240 **Format:** DIL-240
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

SPONTANEOUS POTENTIAL
mV
→| |←20

TENSION
LBS
10000 0

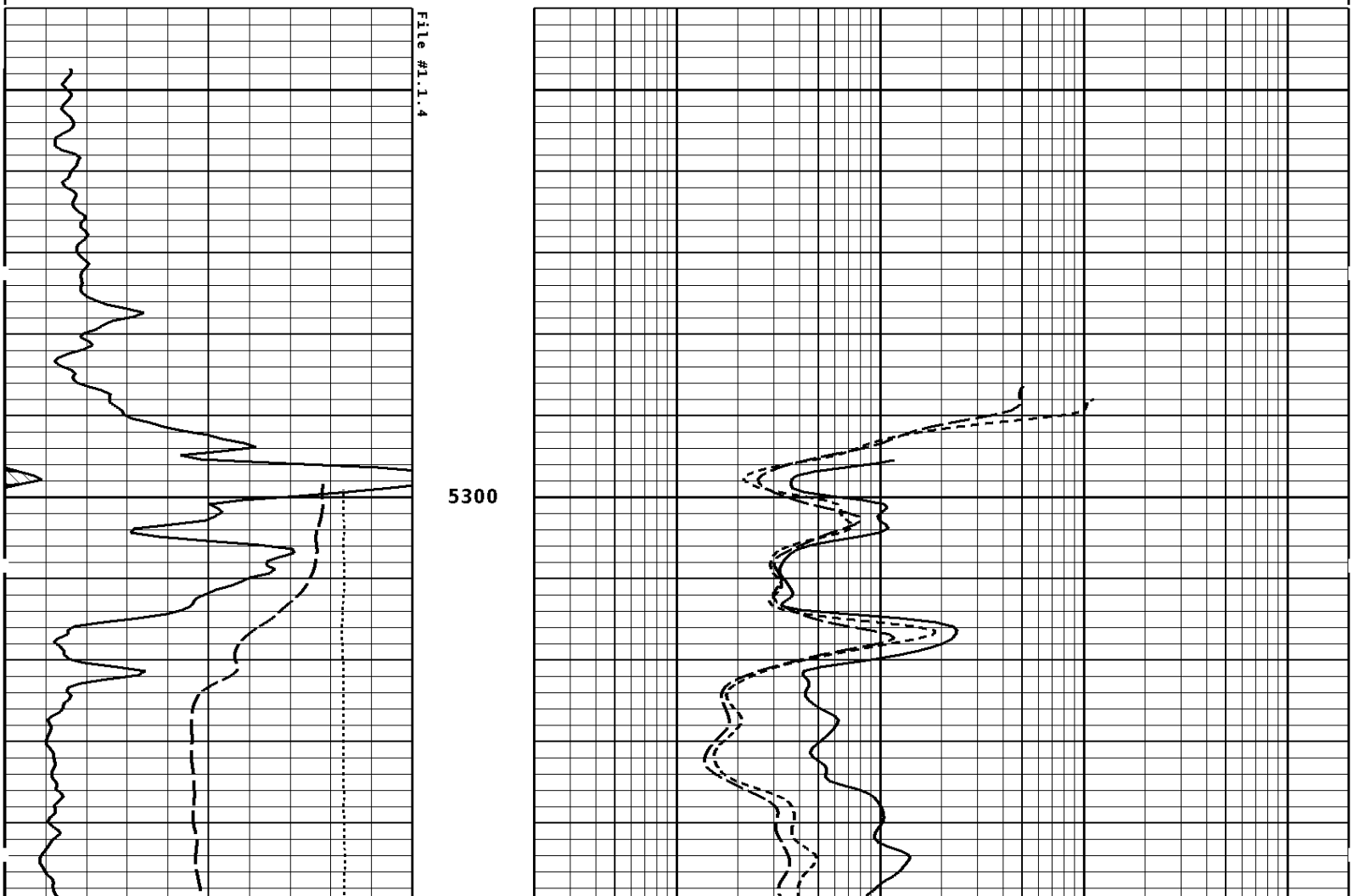
GAMMA RAY
API UNITS
150 300
0 150

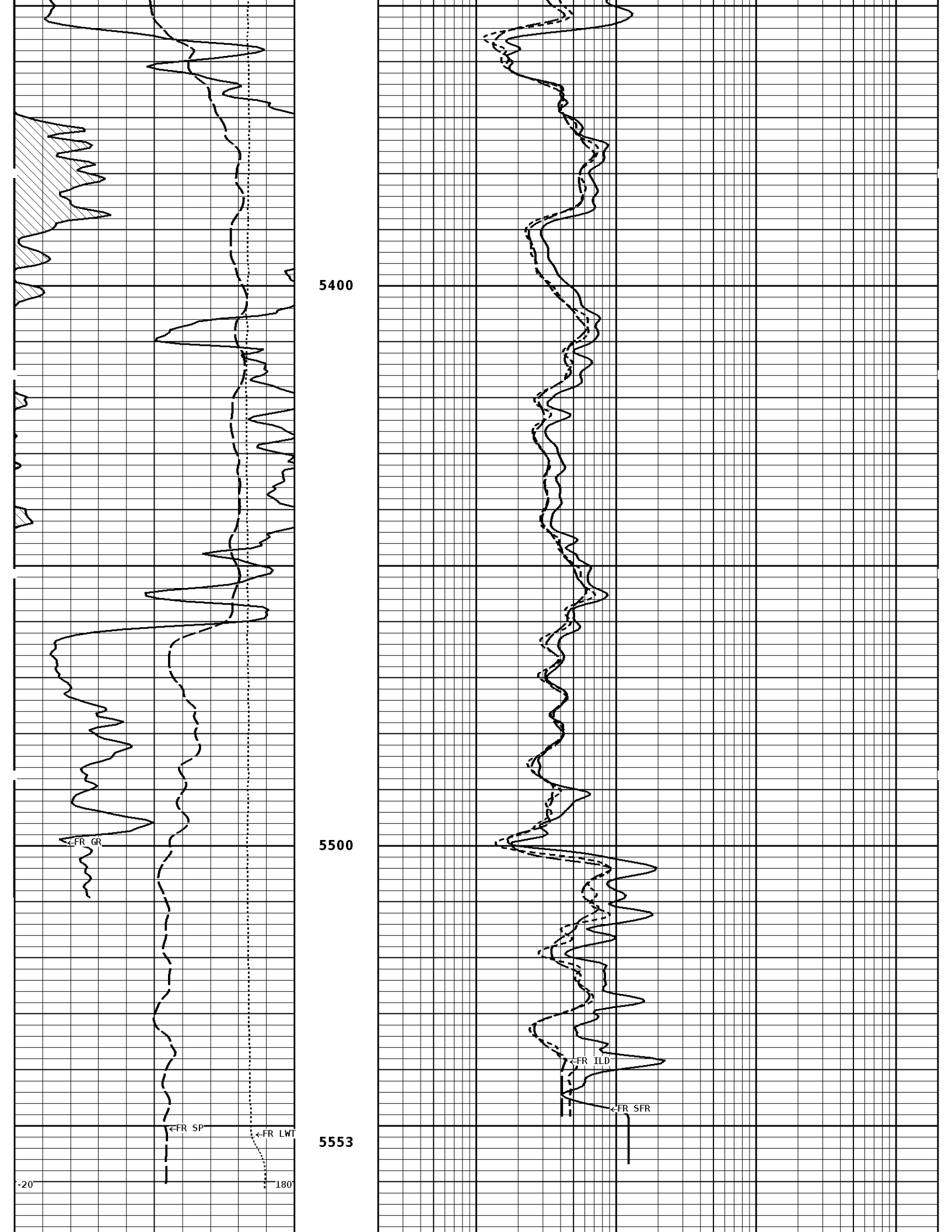
DEEP INDUCTION
OHMM
0.2 2000.0

MEDIUM INDUCTION
OHMM
0.2 2000.0

SHALLOW FOCUSED RESISTIVITY
OHMM
0.2 2000.0

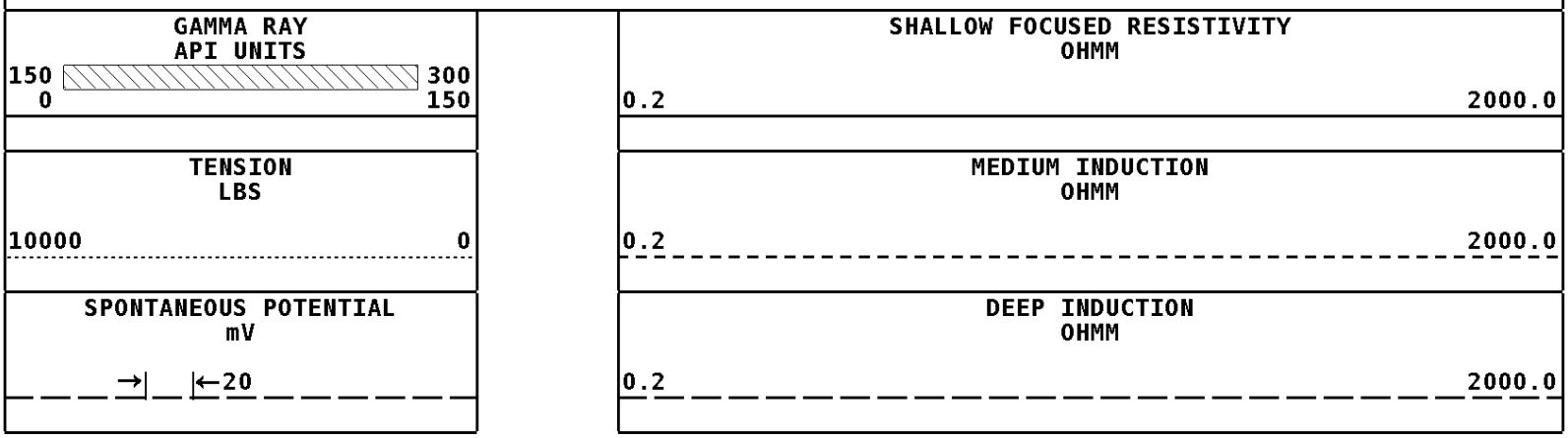
1:240 REPEAT SECTION




5400
5500
5553
←FR GR
←FR SP
←FR LWT
←FR ILD
←FR SFR
-20
180

File #1.1.4

1:240 REPEAT SECTION



* Borehole Zone Factors *

Zone 1 99999.0 to 0.0 Feet

Drill Bit Size	7.875	in
Casing Diameter	5.500	in
BHT Depth	5553.000	ft
Borehole Temperature	130.0	degF
Temperature Gradient	1.00	DFHF
Resistivity Of Mud	0.300	ohm/m
Standoff	1.5	
Resistivity Of Mud Temperature	80.00	degF

* 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 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

Loop	123792	219397	1835.8	1702.8	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

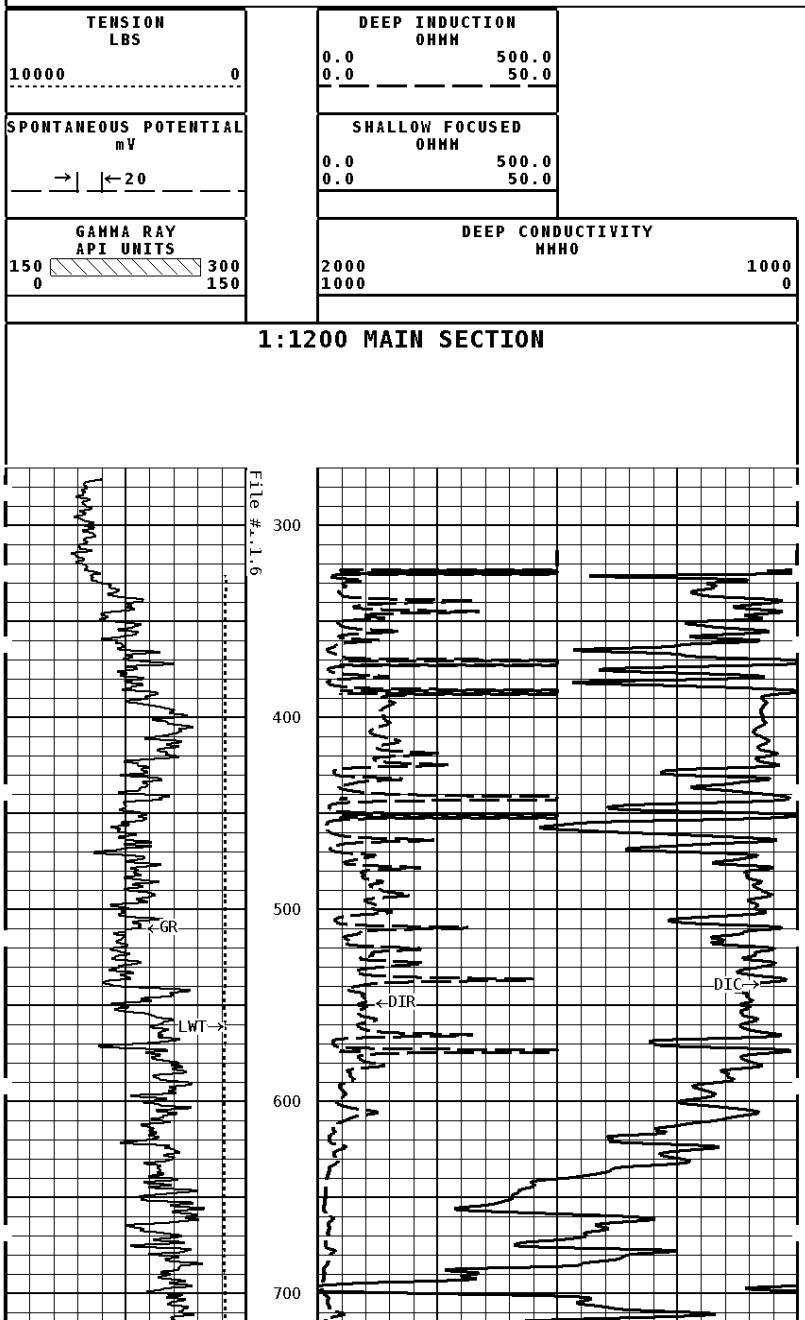
	Measured Zero	Measured Reference	Calibrated Zero	Calibrated Reference	Units
Im	32773.9	49477.8	0.0	7028.0	uA
Ib	32760.9	48718.2	0.0	1750.0	mA
MOM1	32720.3	56560.2	0.0	175.0	mV
Equivalent SFL				43.97	OHMM

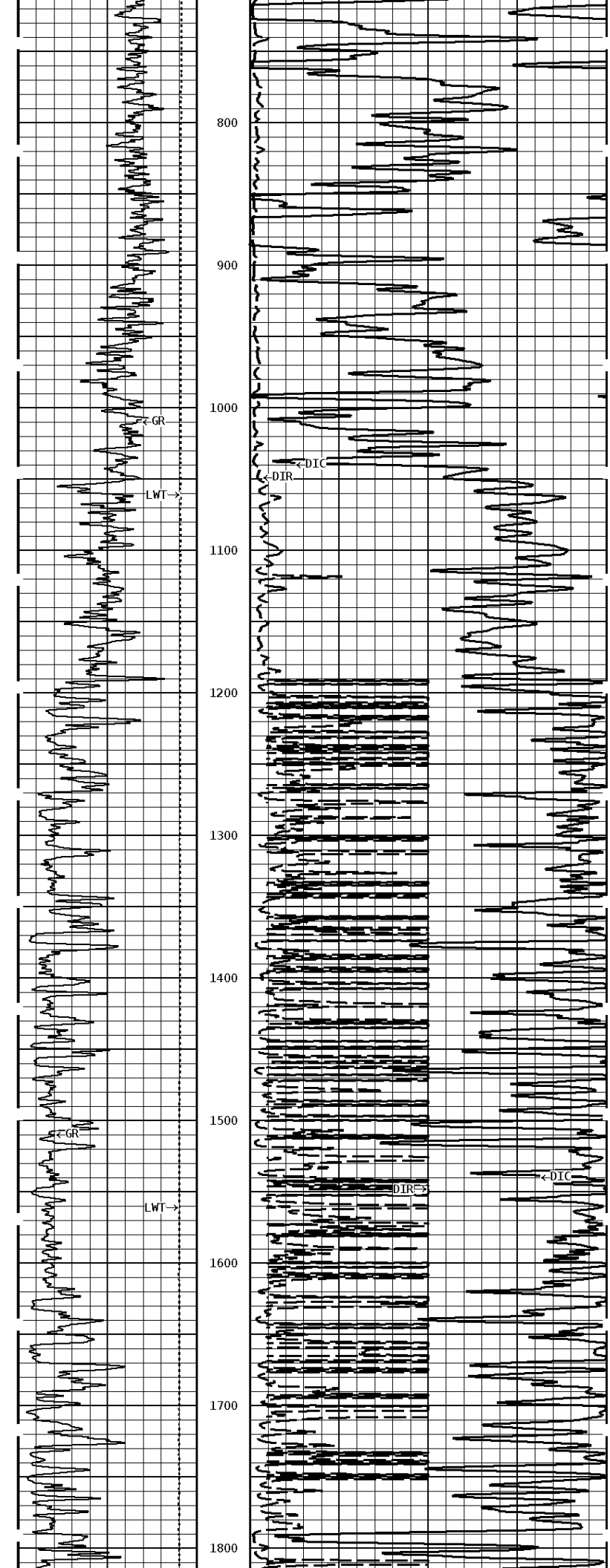
Performed : 20-Jan-2014 Time : 12:05
Sensor Suite : P-SP ID : PIT-AB-005

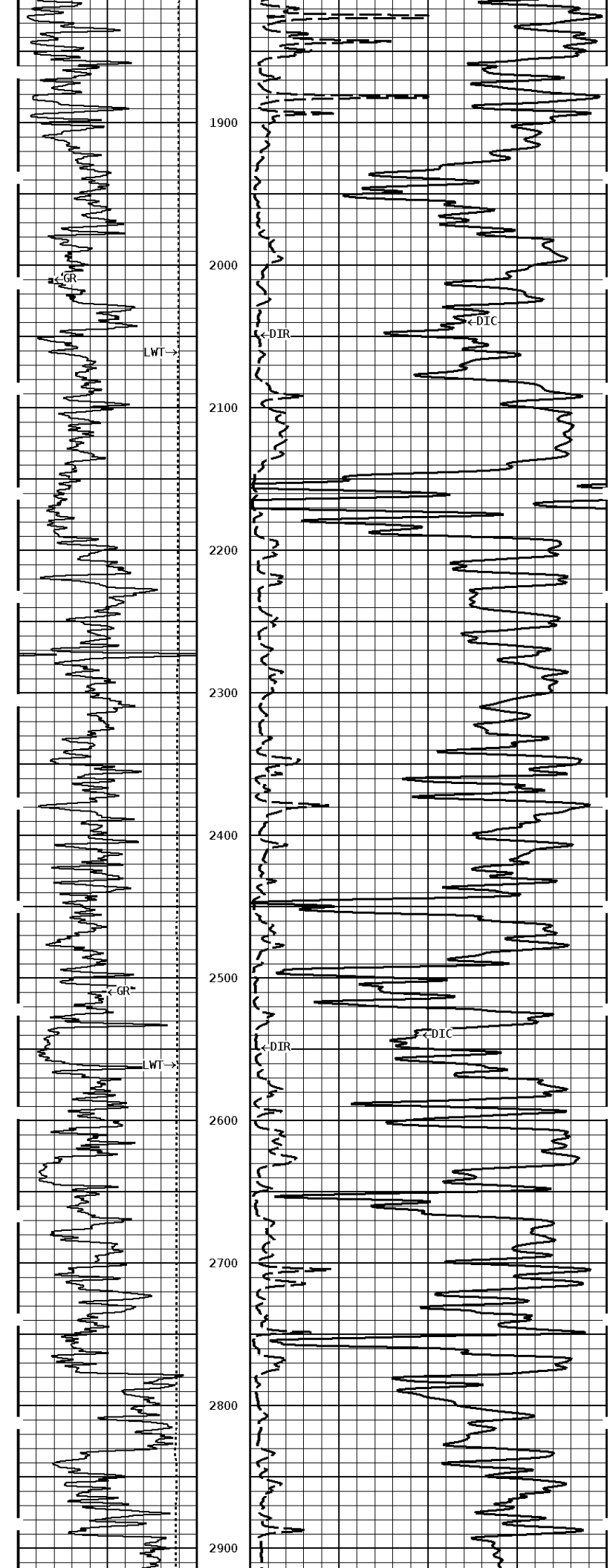
Internal

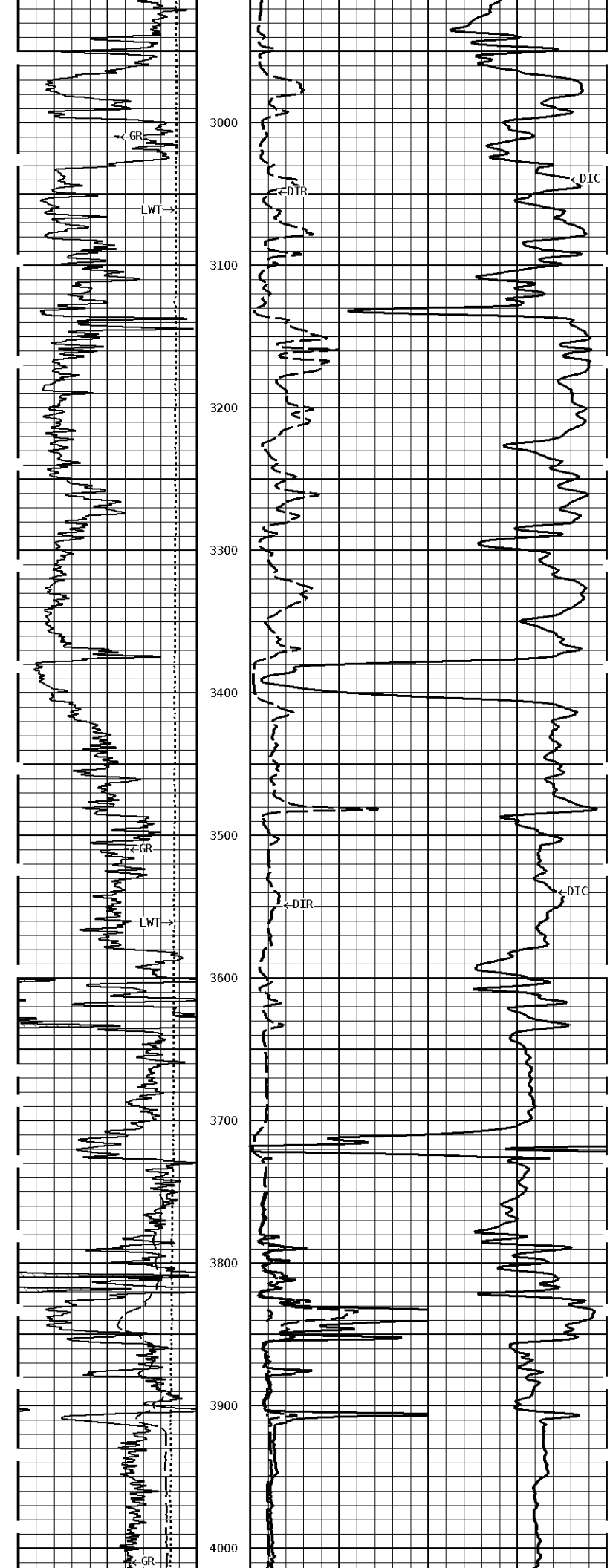
Measured Zero	Measured Reference	Calibrated Zero	Calibrated Reference	Units
32770.1	58920.2	0.0	1000.0	mV

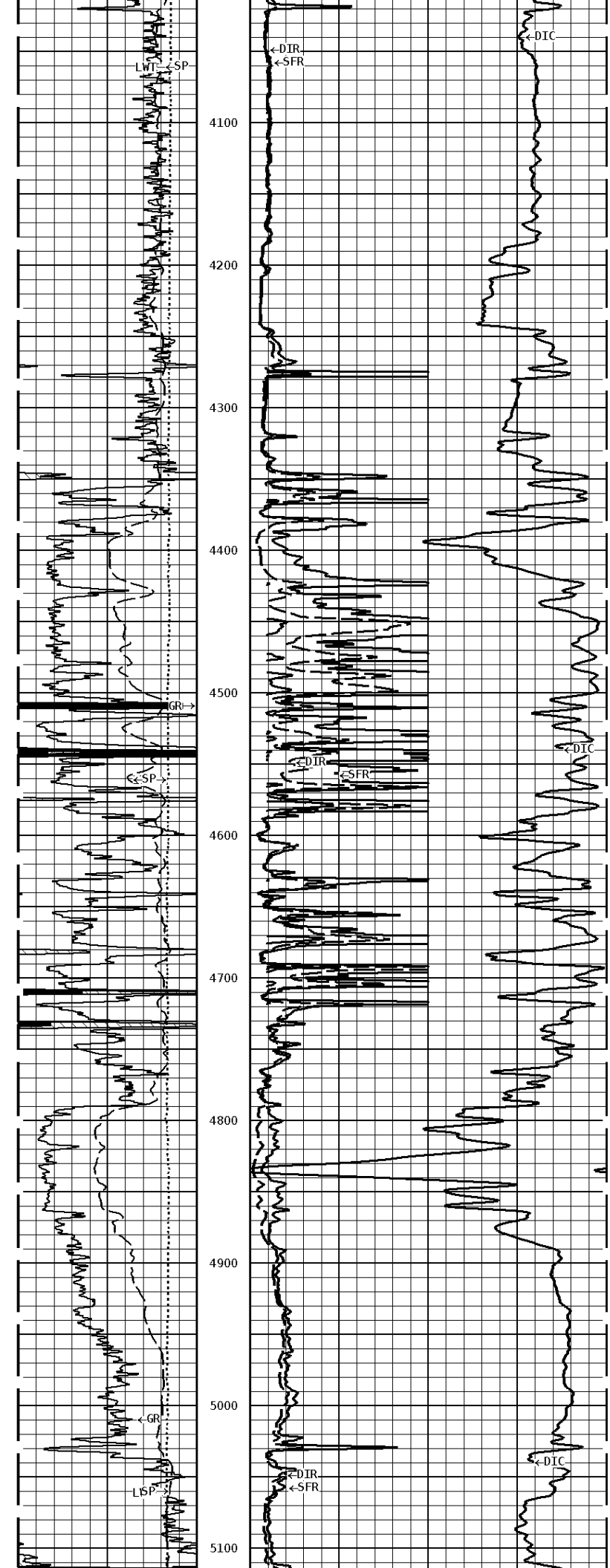
Well File: chief-rath-4-mstk-jun-4 **Scale:** 1:1200 **Format:** DIL1200
Segment: V1.D1.S6 MAIN **Acquired:** 2014-06/04 19:35 3.3.0-12594
Reference: 0 **Processed:** 2014-06/04 21:30 3.3.0-12594

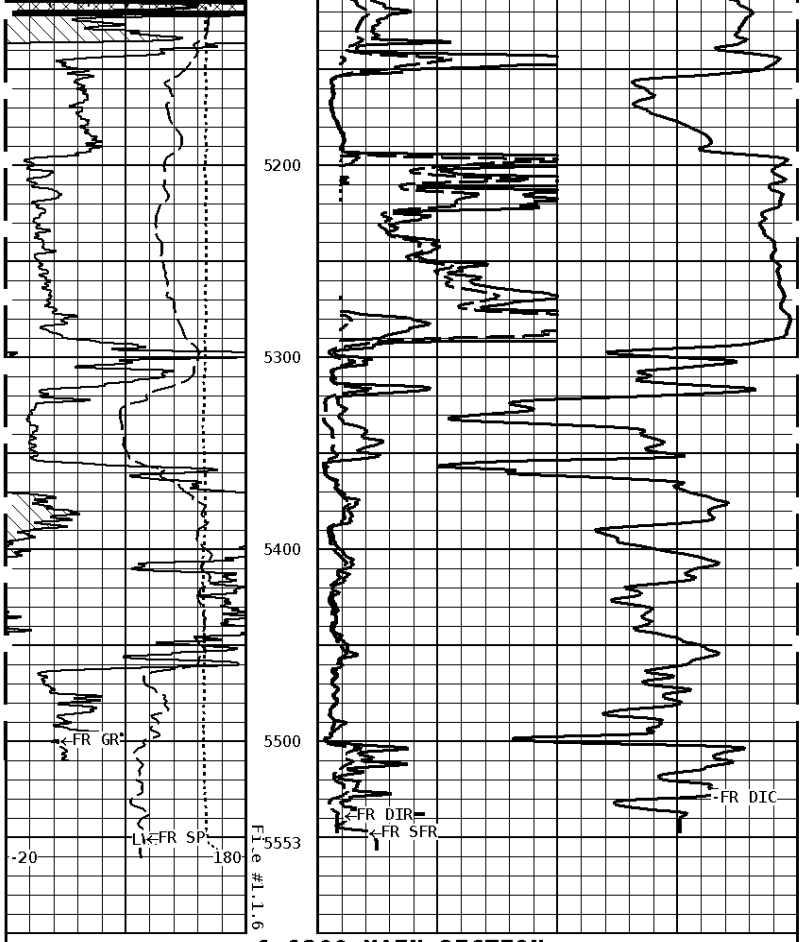



800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
GR
LWT
DIC
DIR
GR
LWT
DIR
DIC


1900
2000
GR
DIR
DIC
LWT
2100
2200
2300
2400
2500
GR
DIC
DIR
LWT
2600
2700
2800
2900


GR
LWT
DIR
DIC
3000
3100
3200
3300
3400
3500
3600
3700
3800
3900
4000


LWT
SP
DIR
SFR
DIC
4100
4200
4300
4400
4500
GR
SP
DIR
SFR
DIC
4600
4700
4800
4900
5000
GR
LSP
DIR
SFR
DIC
5100



1:1200 MAIN SECTION

GAMMA RAY API UNITS		DEEP CONDUCTIVITY MMHO	
150	300	2000	1000
0	150	1000	0

SPONTANEOUS POTENTIAL mV		SHALLOW FOCUSED OHMM	
→||← 20		0.0	500.0
		0.0	50.0

TENSION LBS		DEEP INDUCTION OHMM	
10000	0	0.0	500.0
		0.0	50.0

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