Tucker ENERGY SERVICES

PHASED INDUCTION

SHALLOW FOCUS SP LOG

Company CHIEFTAIN OIL CO, INC.
Well RATHGERBER #3
Field NA
County BARBER
State KANSAS
Country USA
API No. 15-007-24169-0000

File No : TUL-59611
Company : CHIEFTAIN OIL CO, INC.
Well : RATHGERBER #3
Field : NA
County : BARBER
State : KANSAS
Country : USA
API No : 15-007-24169-0000

Location :
2702' FSL & 2344' FWL
SE SE SE NW

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

Permanent Datum:	GL	**Elevations:**		**Services:**	
Drilling Measured From:	KB	**KB**	1387.00 Ft	CNT	PIT
Log Measured From:	KB	**DF**	1386.00 Ft	LDT	
Above Permanent Datum:	12.00 Ft	**GL**	1375.00 Ft	MLT	

Date	05-12-2014			
Run Number	1			
Depth--Driller	5544.0 Ft			
Depth--Logger	5545.0 Ft			
First Reading	5545.0 Ft			
Last Reading	303.0 Ft			
Casing--Driller	303.0 Ft			
Casing--Logger	303.0 Ft			
Bit Size	7.875 In			
Casing Size	13.375 In			
Hole Fluid Type	CHEM-GEL			
Density	9.4			
Fluid Loss	9.2			
PH/Viscosity	9.5	60.0		
Sample Source	MEASURED			
RM@Measured Temp.	1.000 @ 75 F			
RMF@Measured Temp	0.800 @ 75 F			
RMC@Measured Temp.	1.200 @ 75 F			
Source RMF/RMC	CALCULATED	CALCULATED		
RM@BHT	0.590 @ 133 F			
Time Circulation Stopped	05-12-2014 6:30 pm			
Max Recorded Temp.	133 F			
Equipment/Base	127	TULSA		
Recorded By	SHELDON TYLER			
Witnessed By	DAVID BARKER			

Casing Strings

Size (In)	Weight (Lbs)	Bottom (Ft)	Top (Ft)
13.375	42.00	303.00	0.00

Bitsize Intervals

Size (In)	Bottom (Ft)
7.875	5544.00

Run Number	1
Date	05-12-2014
Date/Time On Bottom	05-12-2014 9:30 pm
Depth to Fluid	0.0 Ft
Salinity	4000.000
RMF@BHT	0.470 @ 133 F
RMC@BHT	0.710 @ 133 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

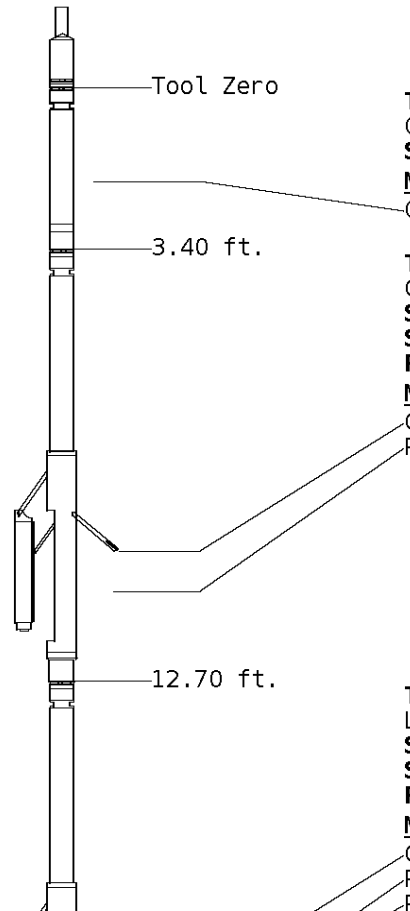
CUSTOMER REQUESTED DETAIL PULLED TO 3700'
CUSTOMER REQUESTED MICRO PULLED TO 4750'

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

OPERATORS:
J.JOHNSON
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

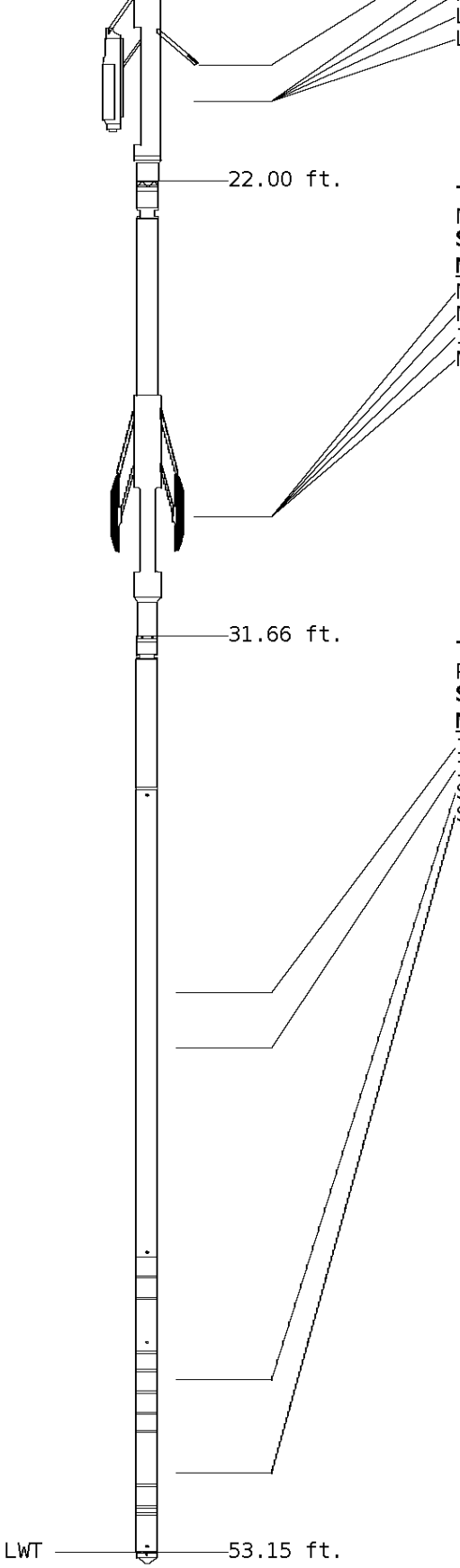
Measure Point	Tool Offset	Stack Offset	Bottom Offset
GRP	2.00	2.00	51.15

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-116
Source ID :CSV-587
Pad ID :LDP-DA-50

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



Measure Point	Tool Offset	Stack Offset	Bottom Offset
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-28

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_RATHGERBER_3_MAY12_MSTK **Scale:** 1:600 **Format:** DIL-600
Segment: V1.D1.S6 Reprocess of MAIN **Acquired:** Not Available
Reference: 0 **Processed:** 2014-05/12 23:06 3.5.0-12850

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

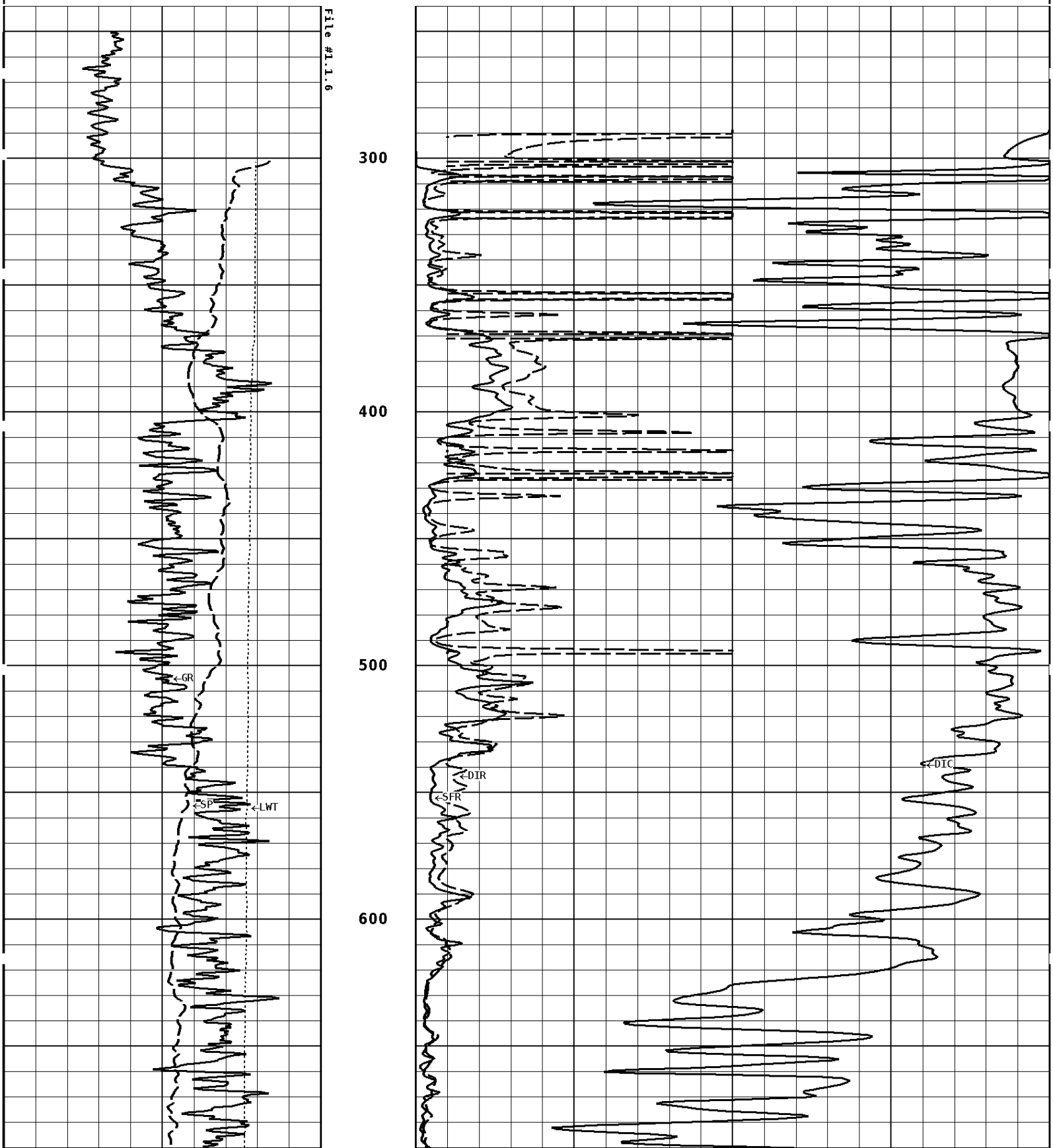
→ ←20

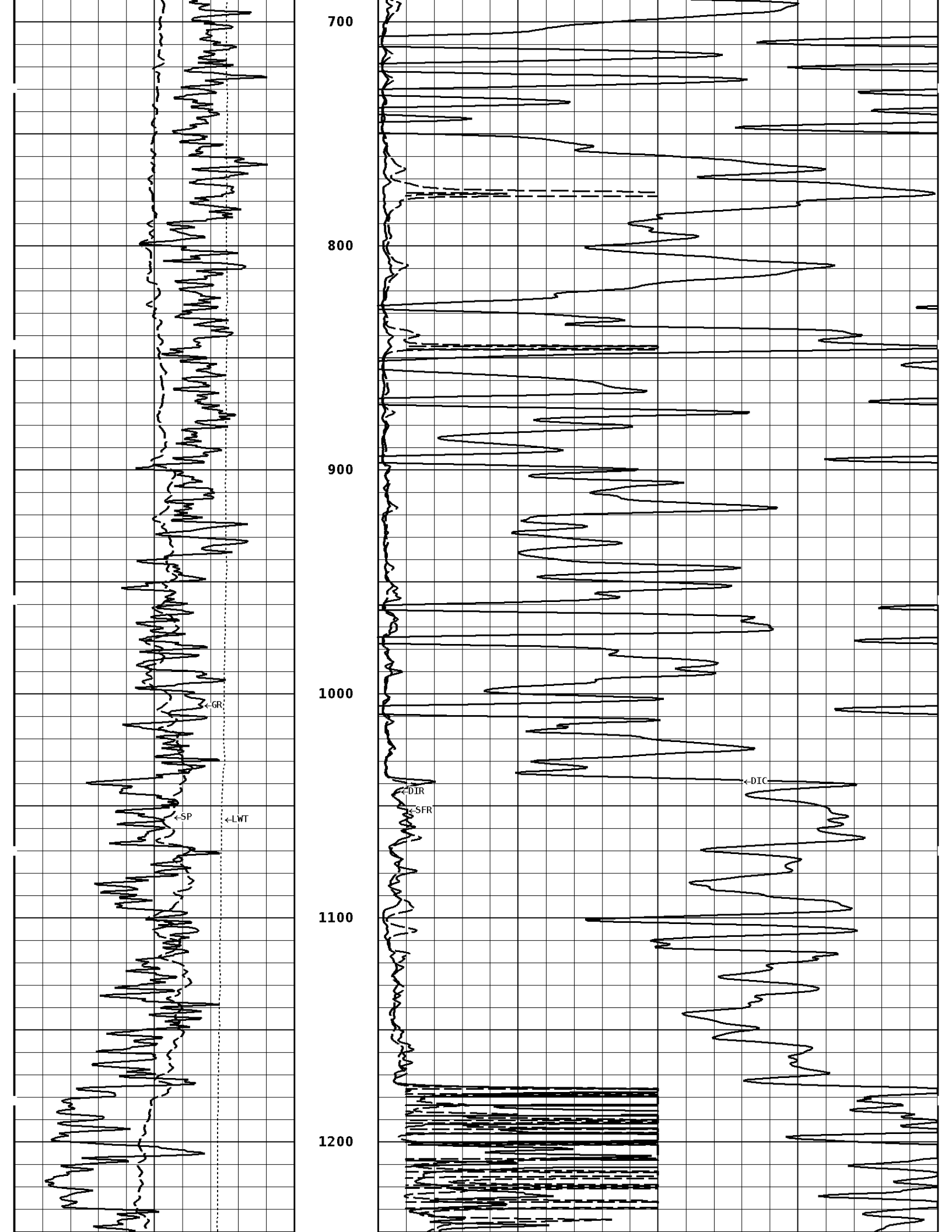
GAMMA RAY
API UNITS
150 300
0 150

0.0 500.0
0.0 50.0

DEEP CONDUCTIVITY
MMHO
2000 1000
1000 0

1:600 MAIN SECTION

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1100
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SP
LWT
DIR
SFR
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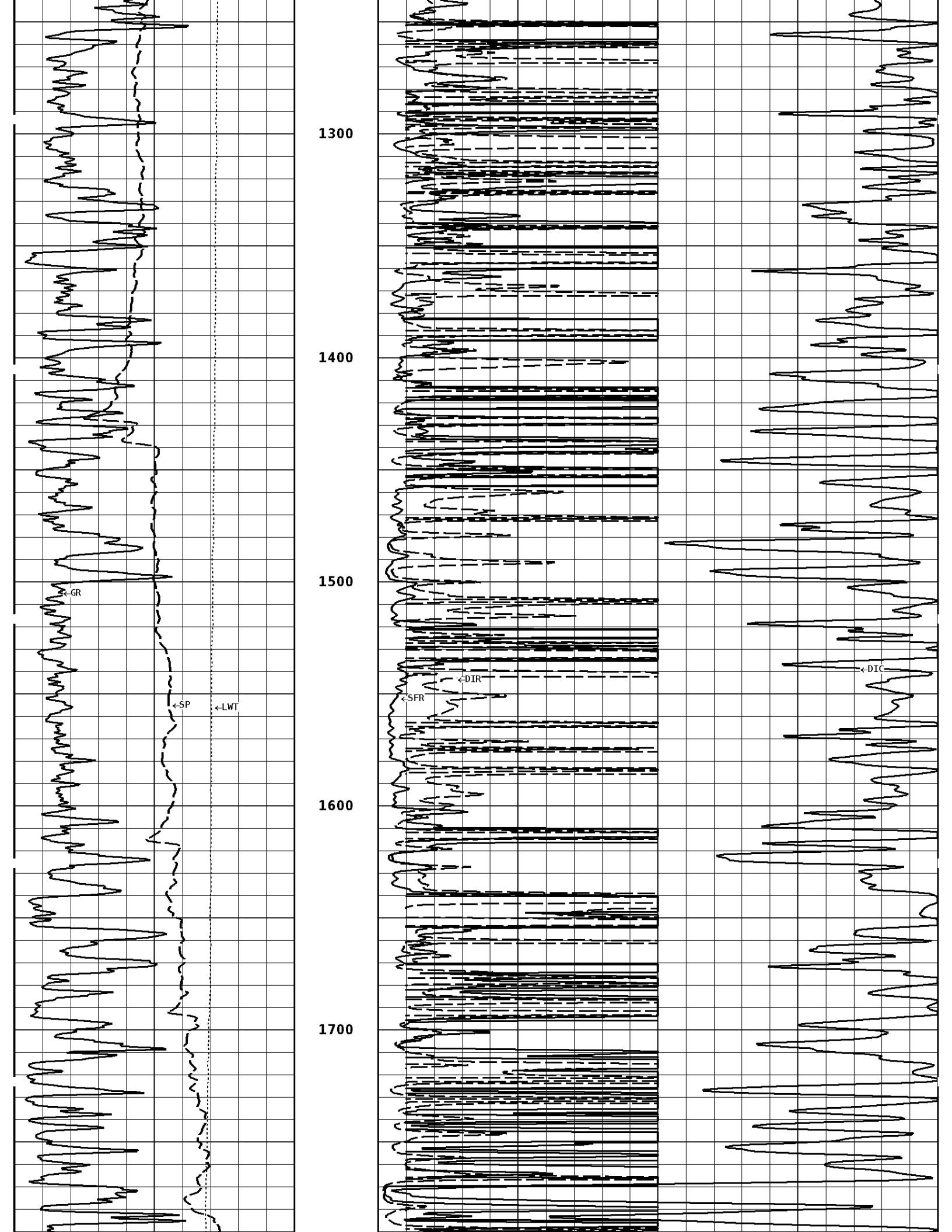
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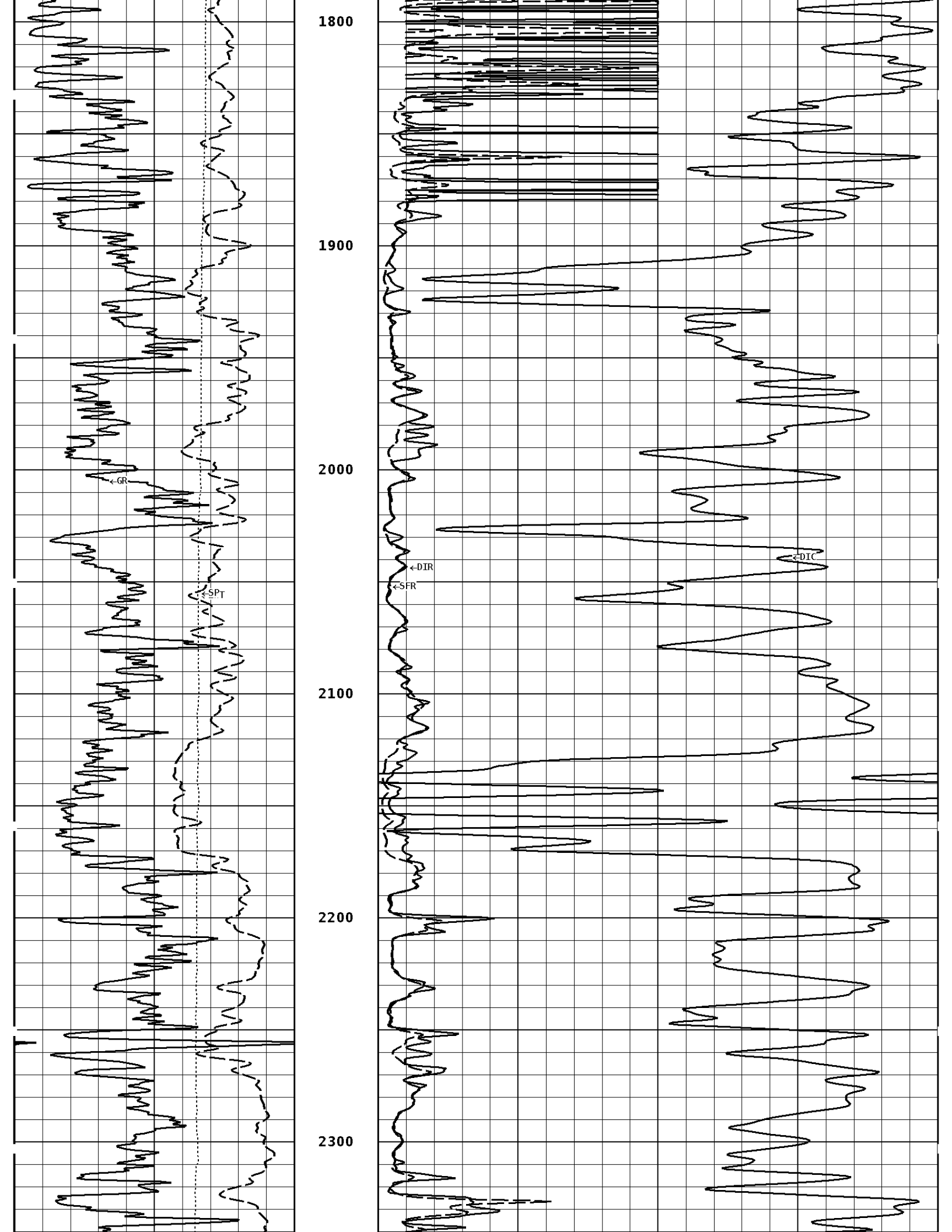
←DIC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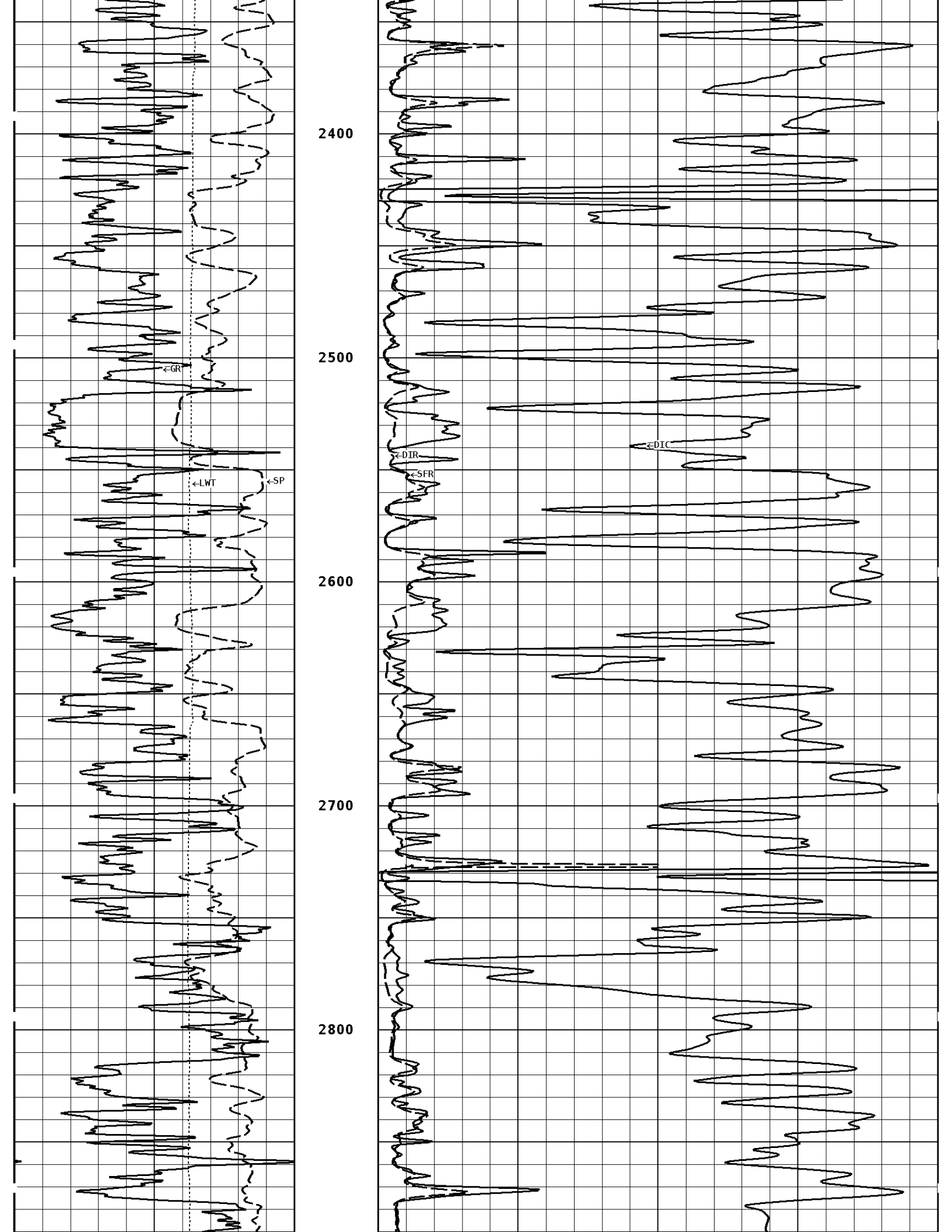
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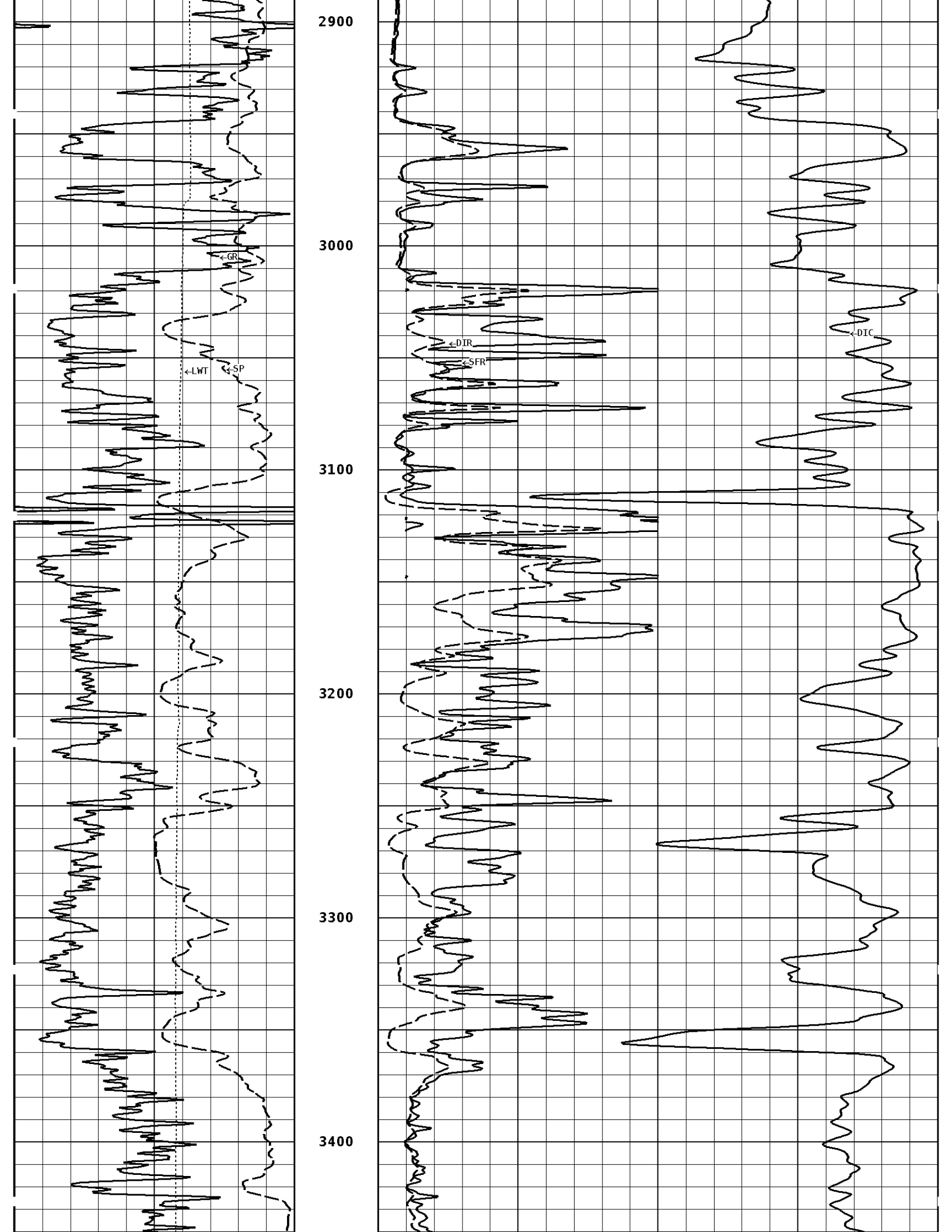
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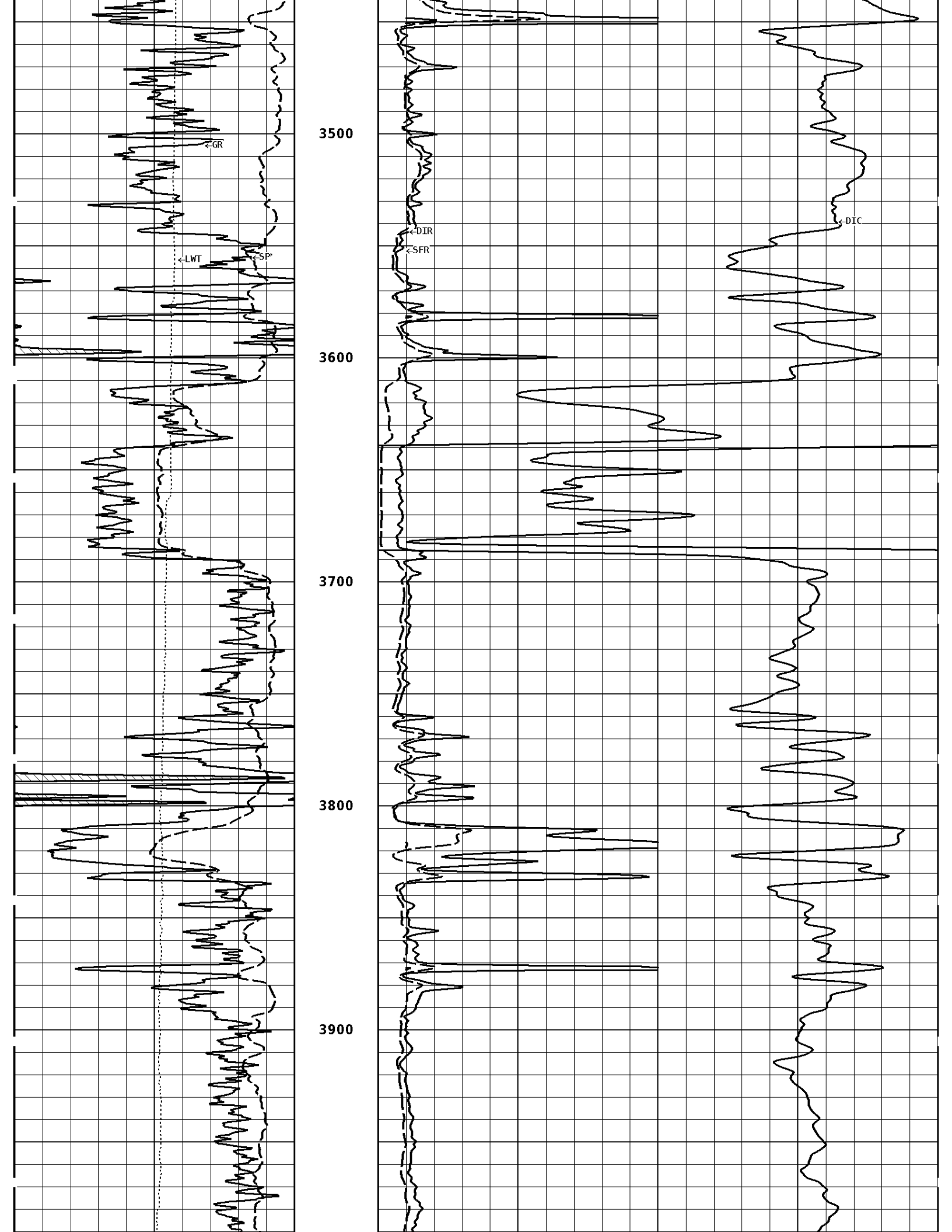
SFR
DIC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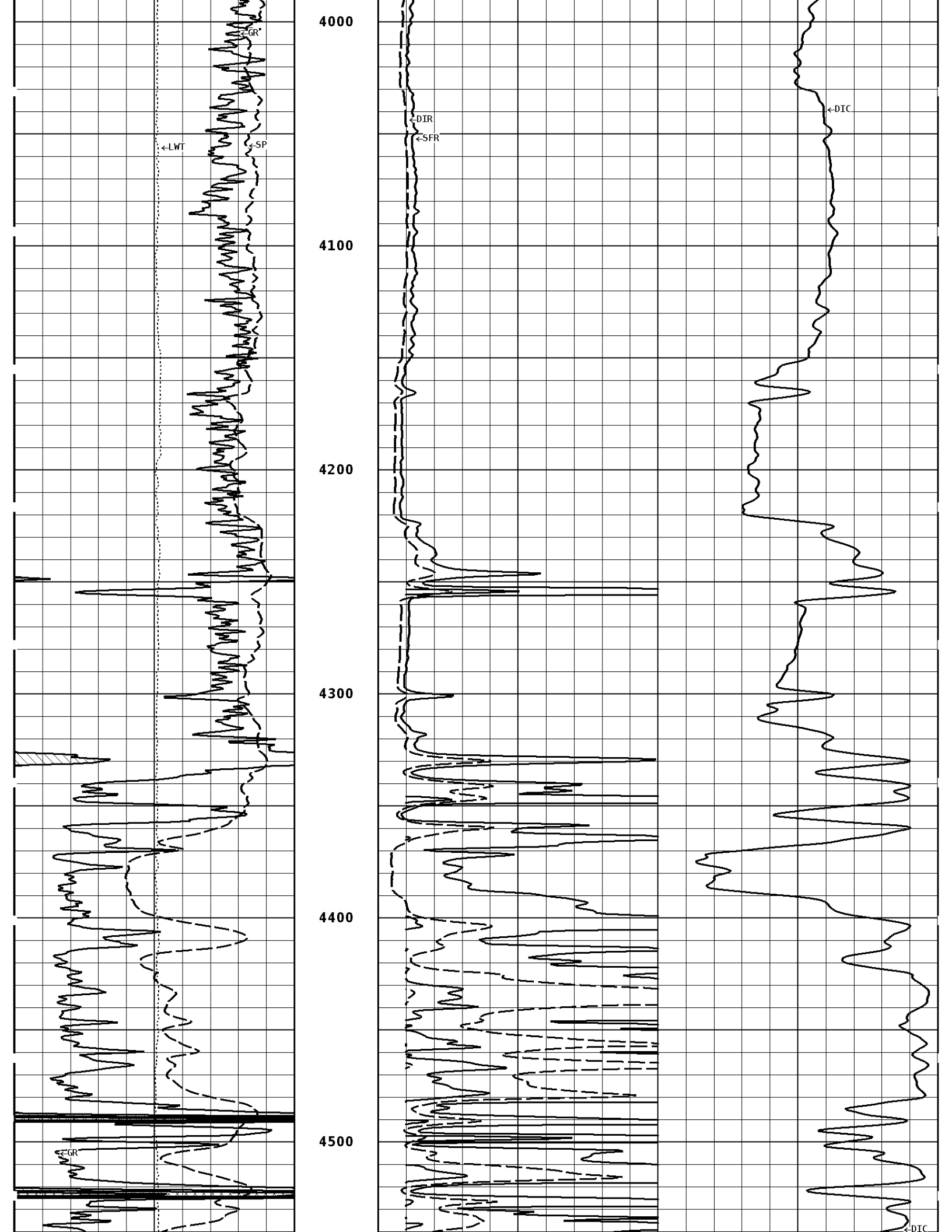
DIR
SFR
DIC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GR
4500
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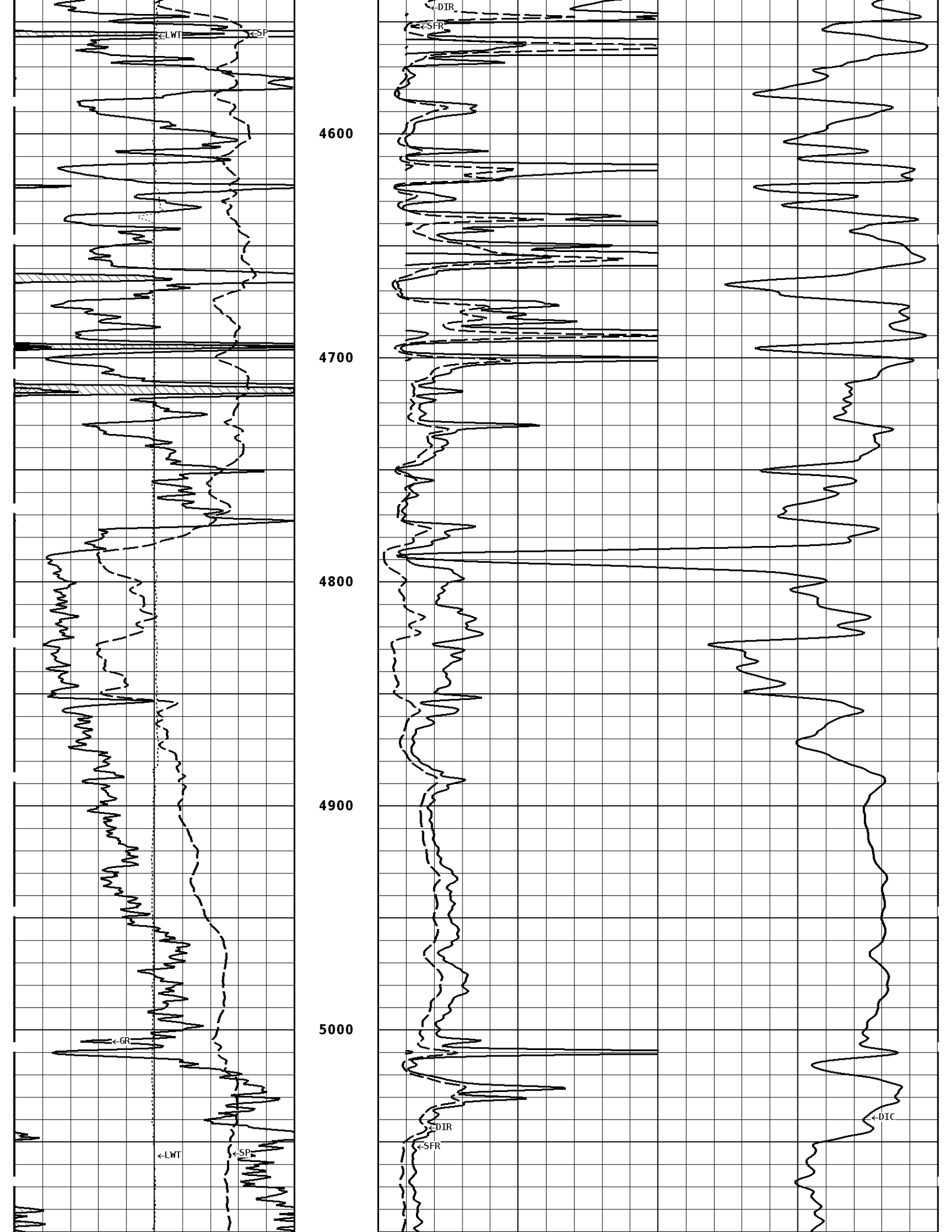
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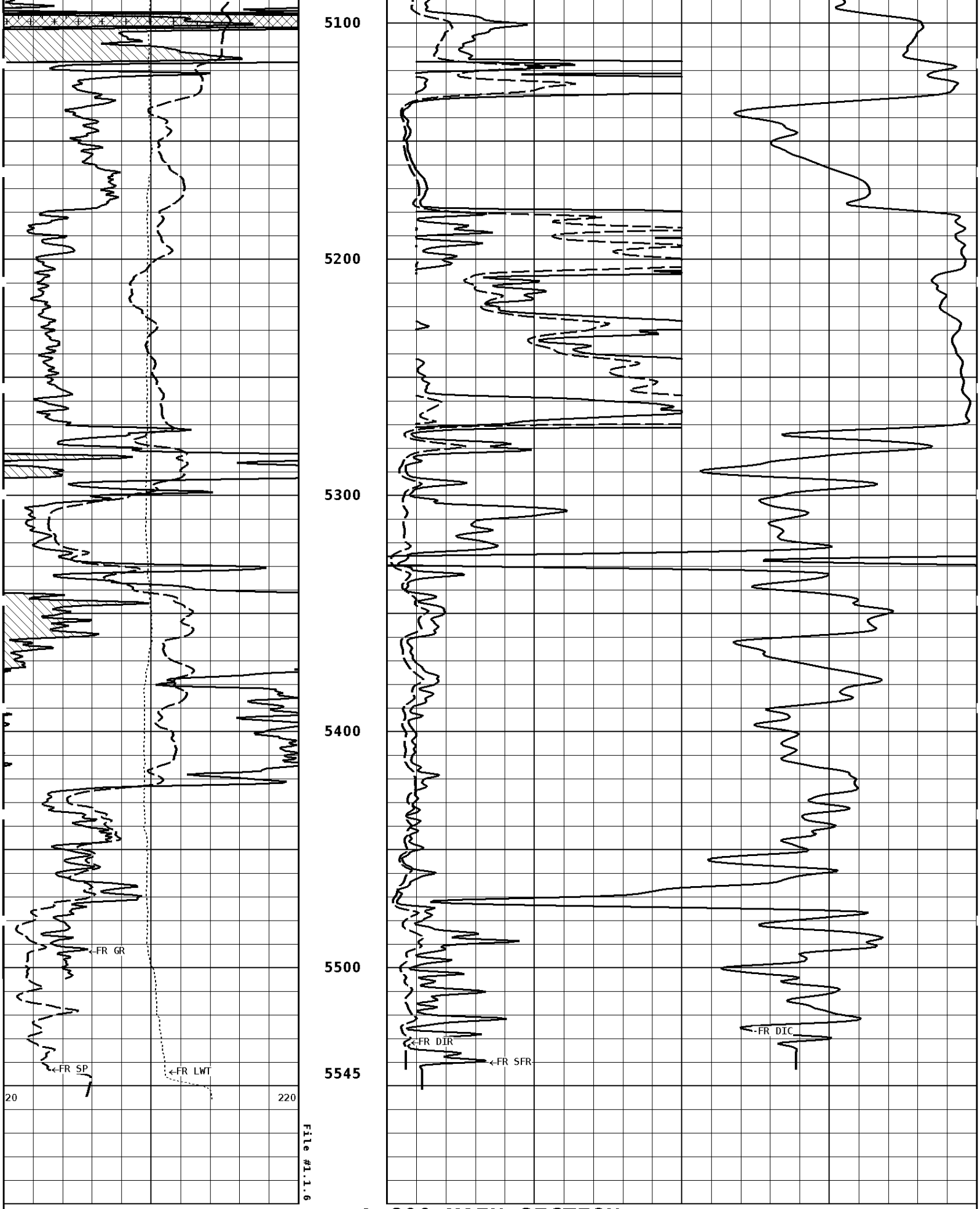


1:600 MAIN SECTION

GAMMA RAY
API UNITS
150 300
0 150

DEEP CONDUCTIVITY
MMHO
2000 1000
1000 0

SPONTANEOUS POTENTIAL
mV
→| |←20

SHALLOW FOCUSED RESISTIVITY
OHMM
0.0 500.0
0.0 50.0

TENSION
LBS
10000 0

DEEP INDUCTION
OHMM
0.0 500.0
0.0 50.0

Well File: CHIEFTON_RATHGERBER_3_MAY12_MSTK **Scale:** 1:240 **Format:** DIL-240
Segment: V1.D1.S6 Reprocess of MAIN **Acquired:** Not Available
Reference: 0 **Processed:** 2014-05/12 23:06 3.5.0-12850

RXO/RT
-160 40

SPONTANEOUS POTENTIAL
mV
→| |←20

DEEP INDUCTION
OHMM
0.2 2000.0

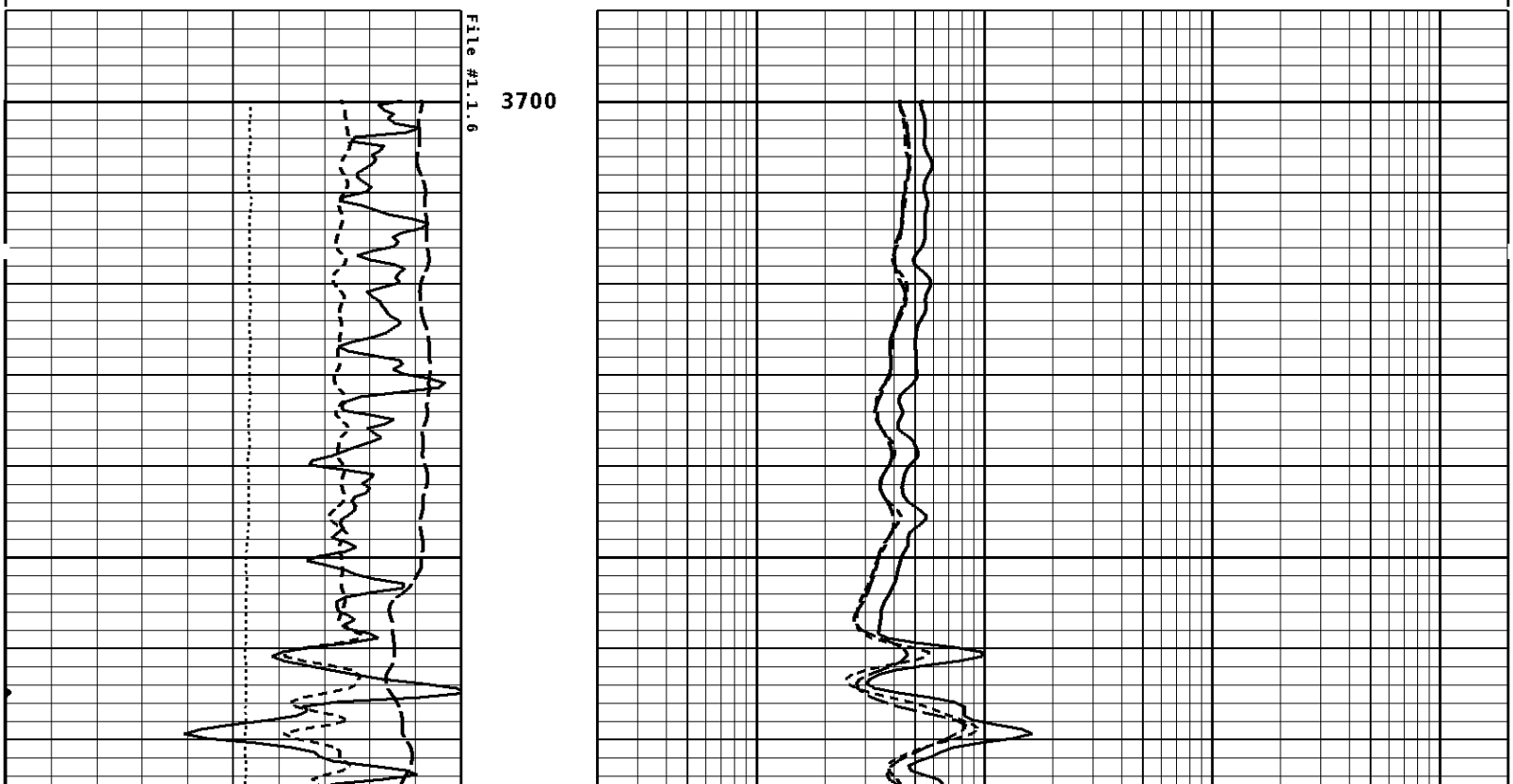
TENSION
LBS
10000 0

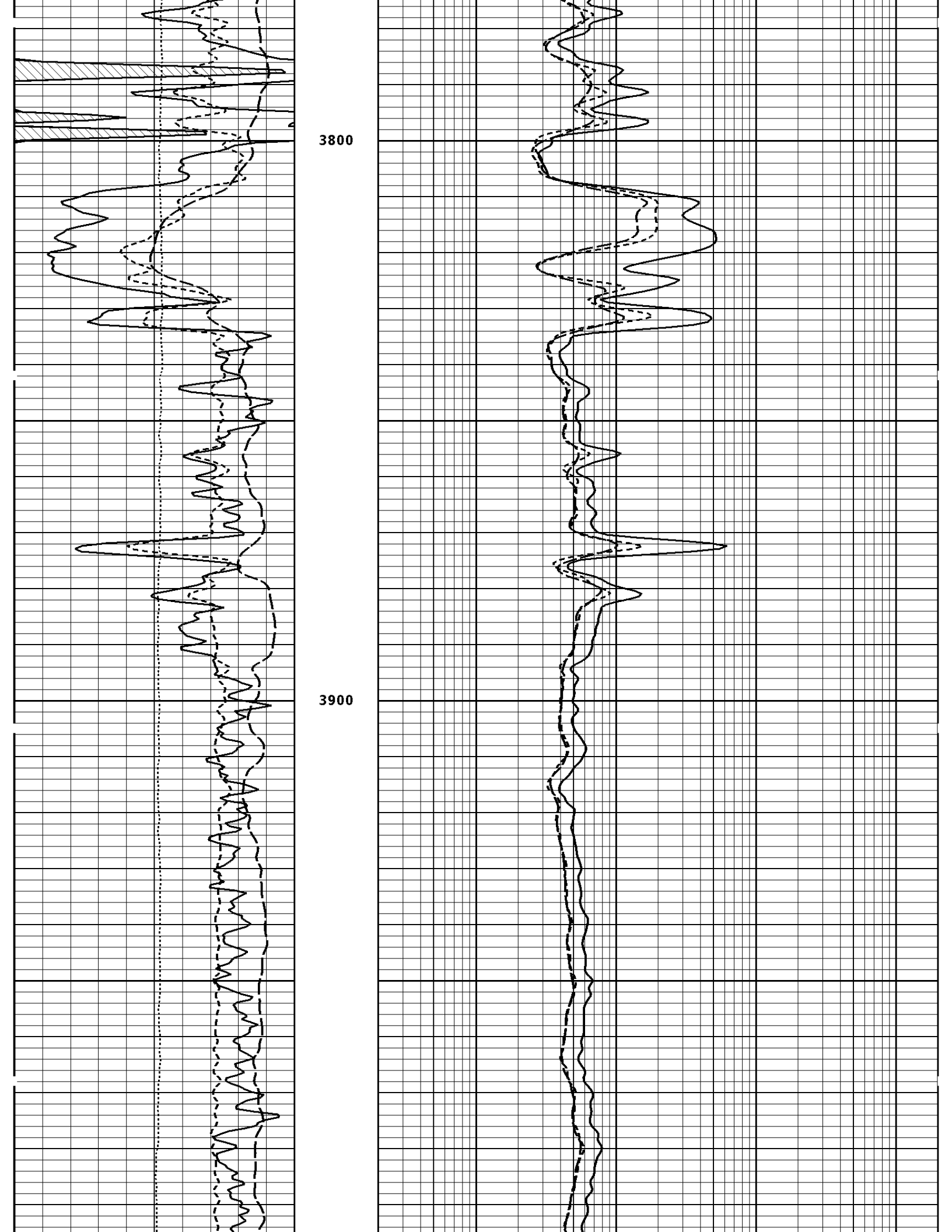
MEDIUM INDUCTION
OHMM
0.2 2000.0

GAMMA RAY
API UNITS
150 300
0 150

SHALLOW FOCUSED RESISTIVITY
OHMM
0.2 2000.0

1:240 MAIN SECTION

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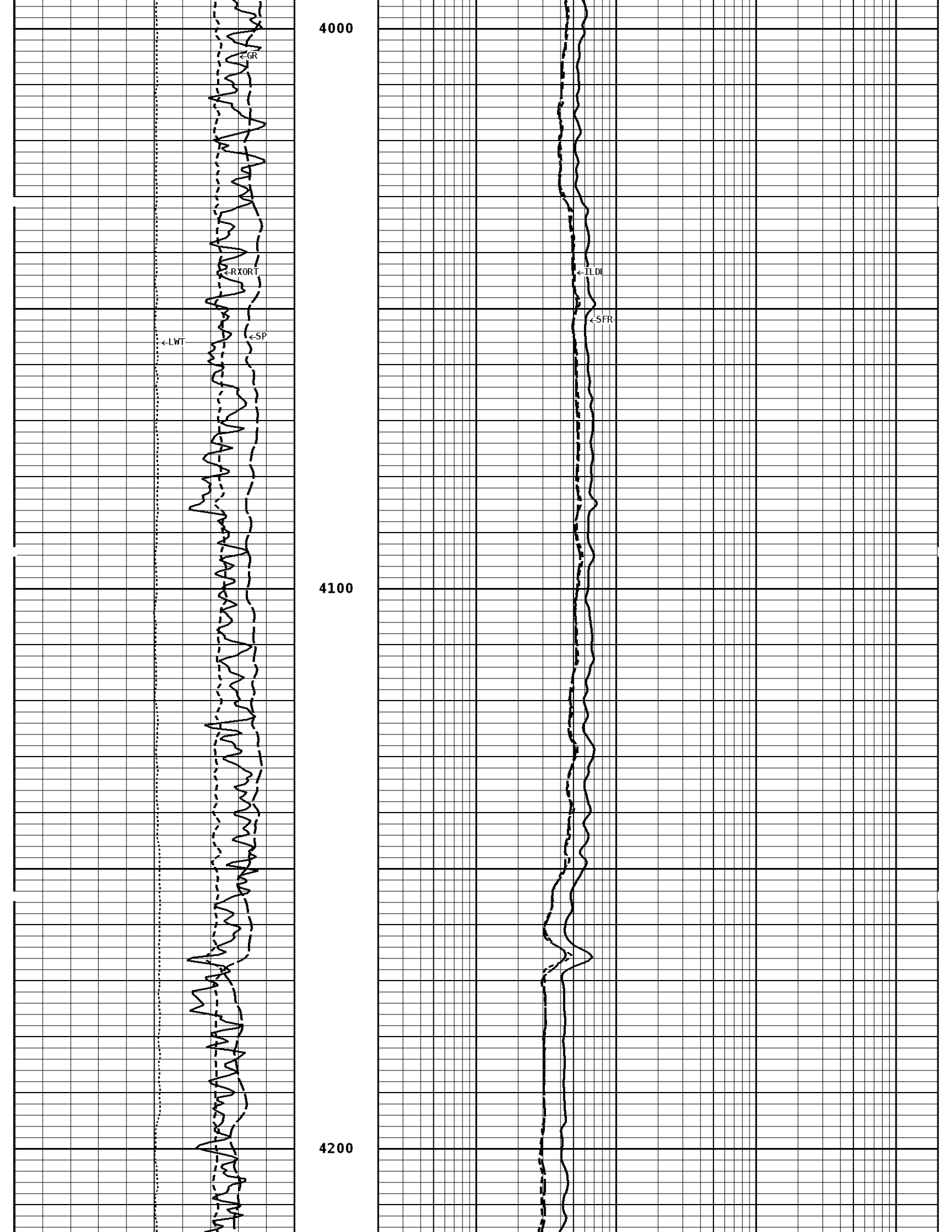
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←LWT
←SP
←ILDL
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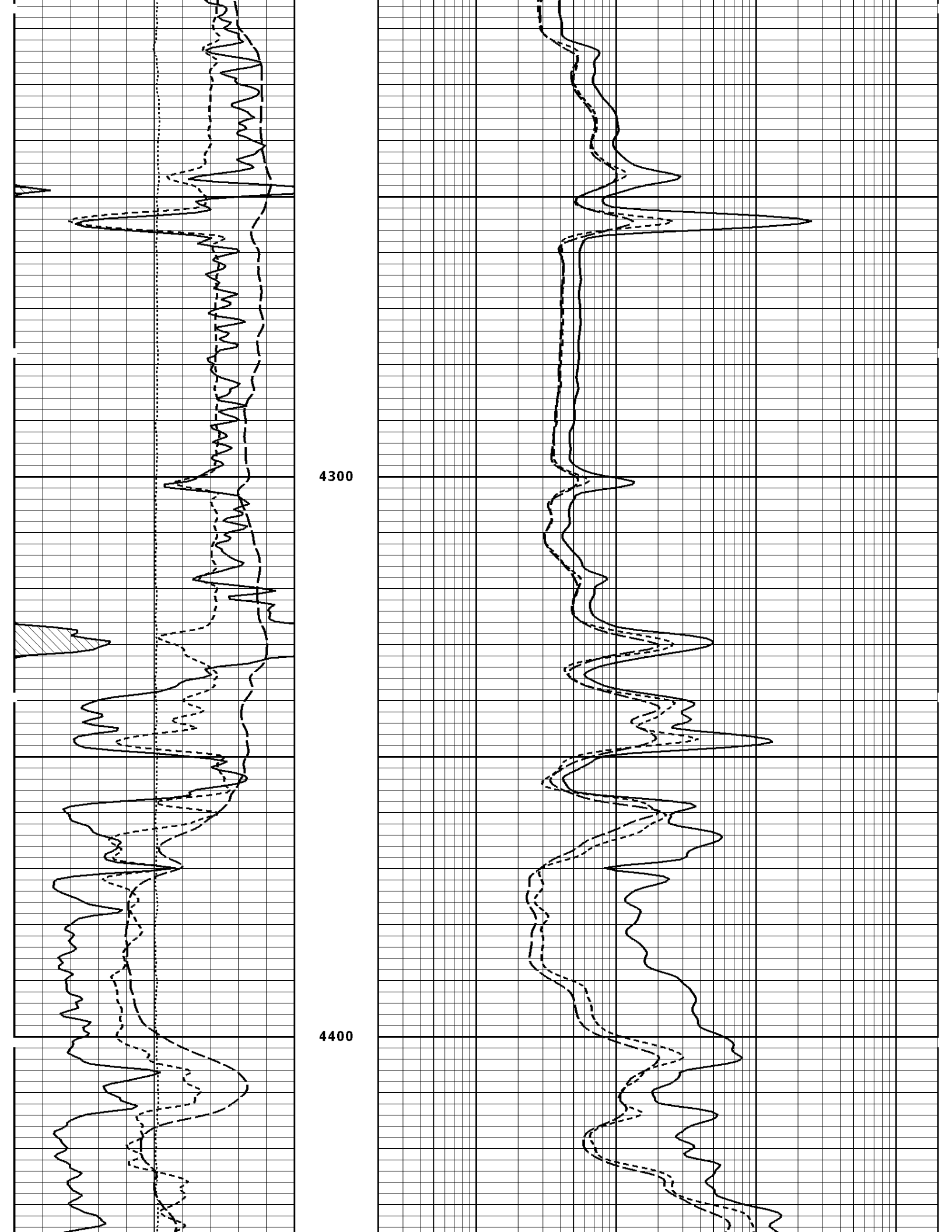
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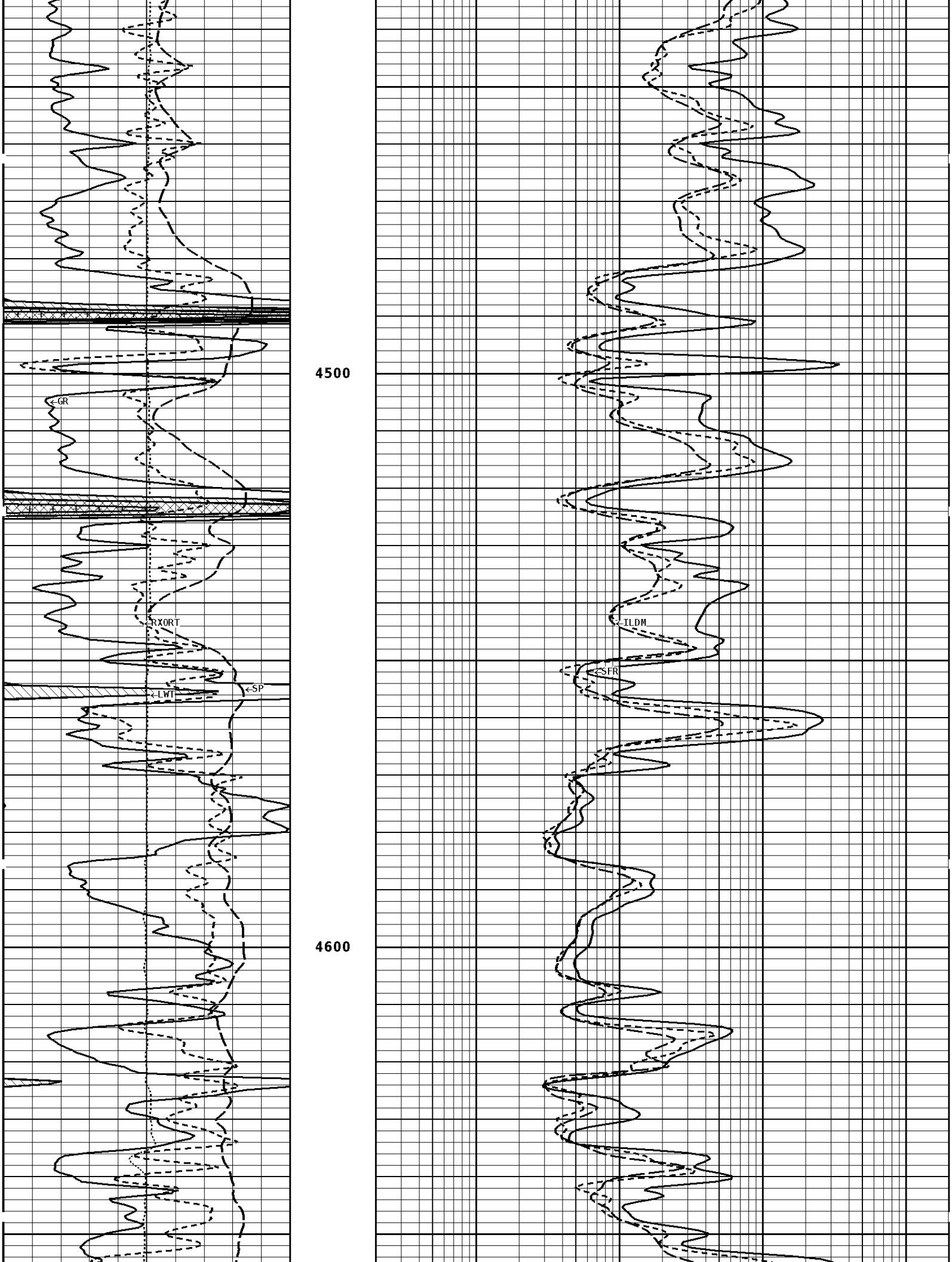
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GR
RXORT
LWT
SP
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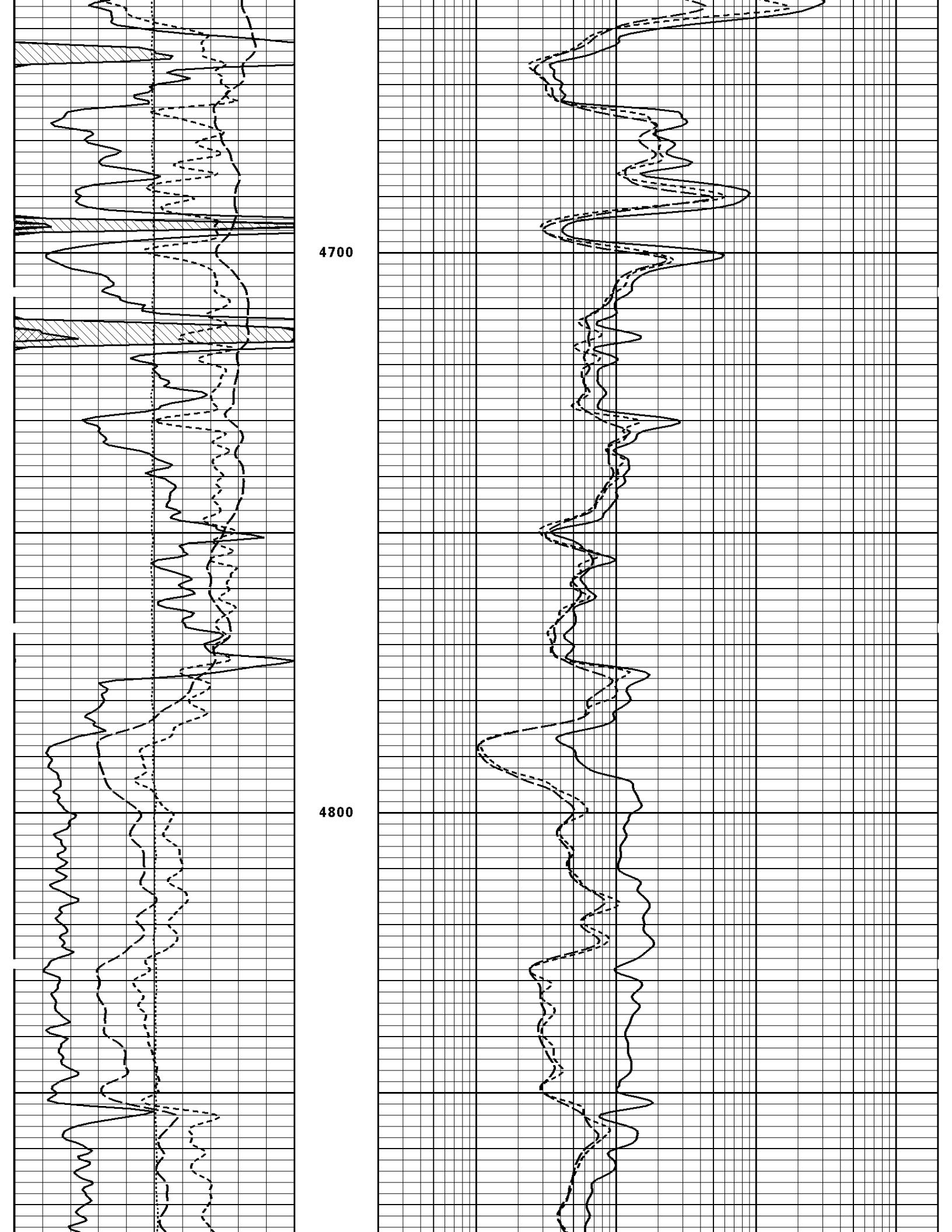
ILDM
SFR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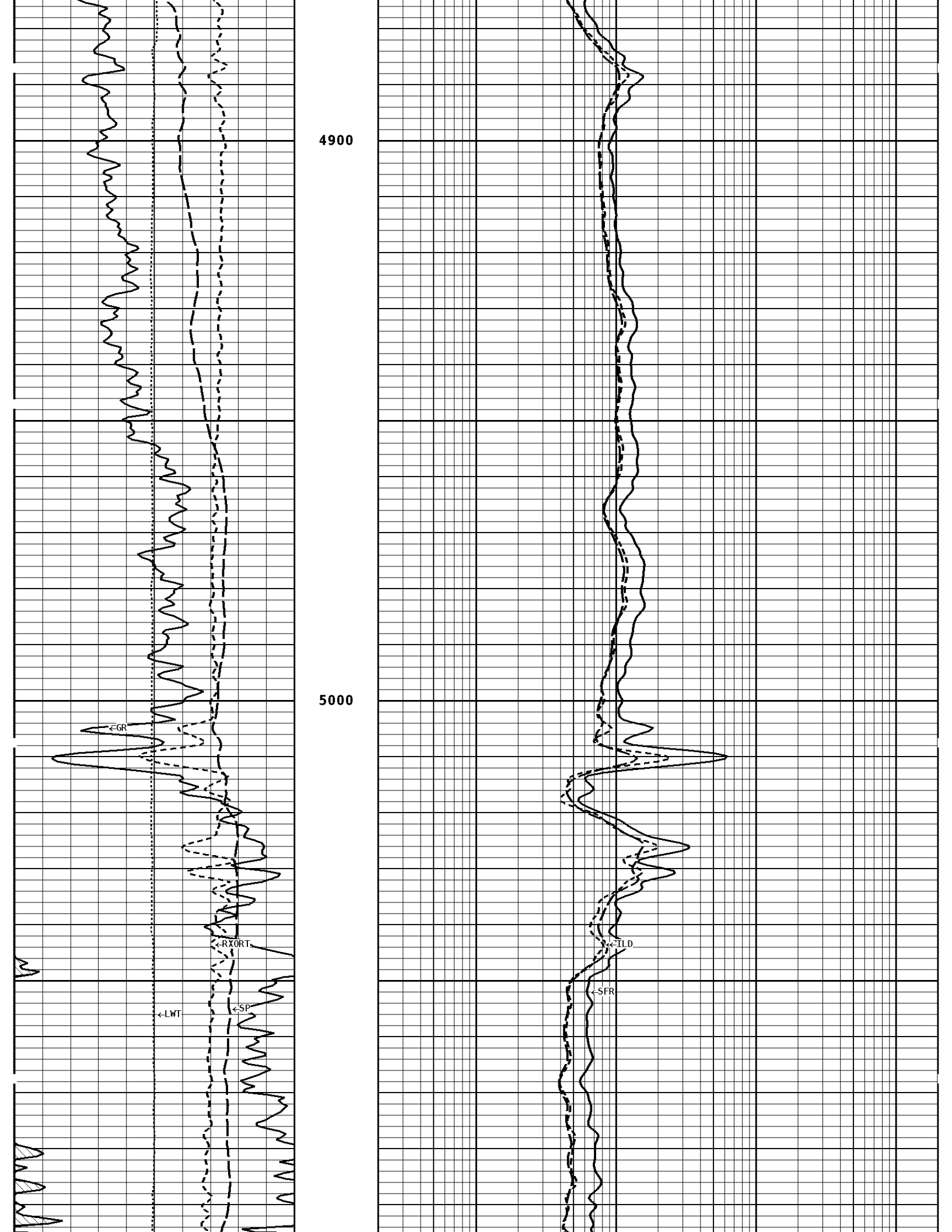
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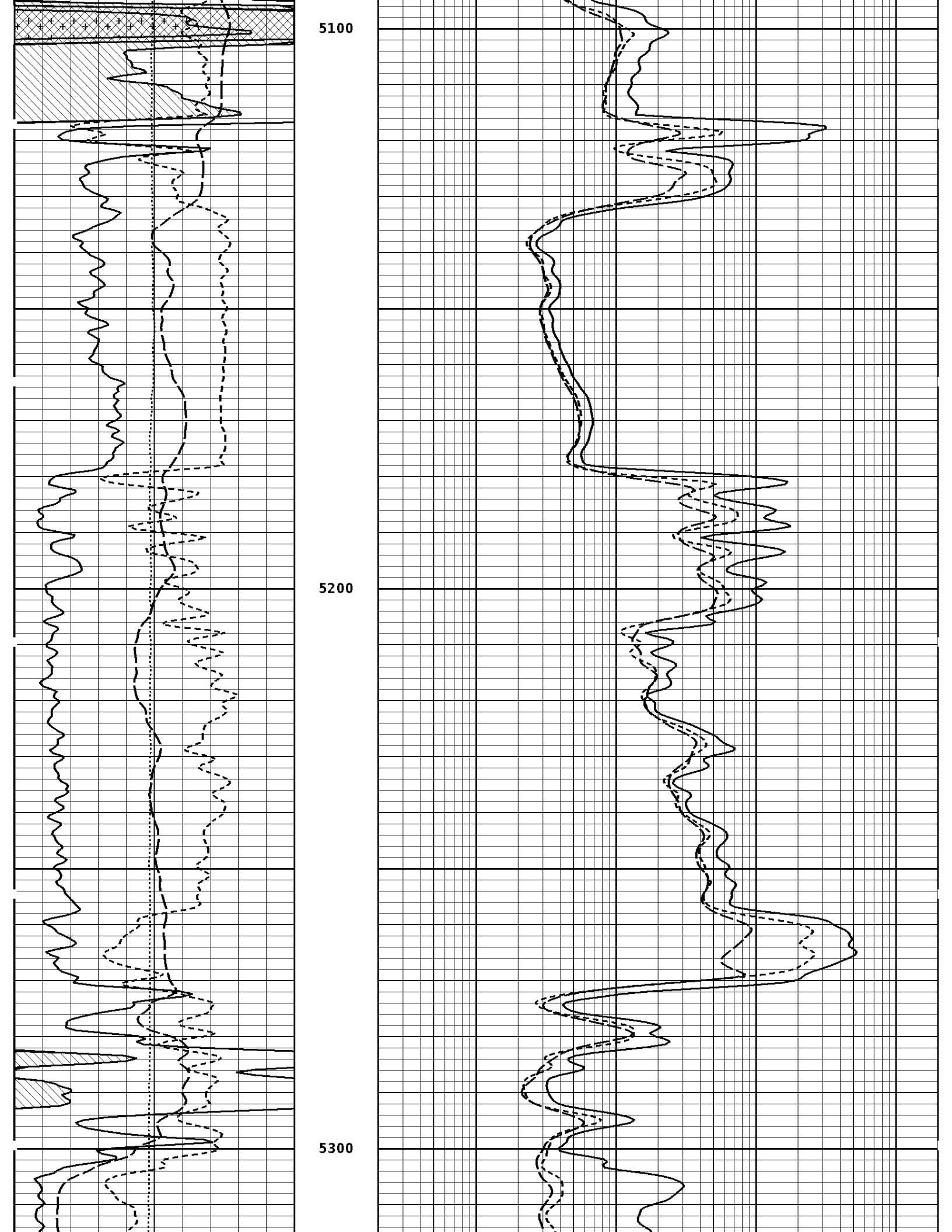
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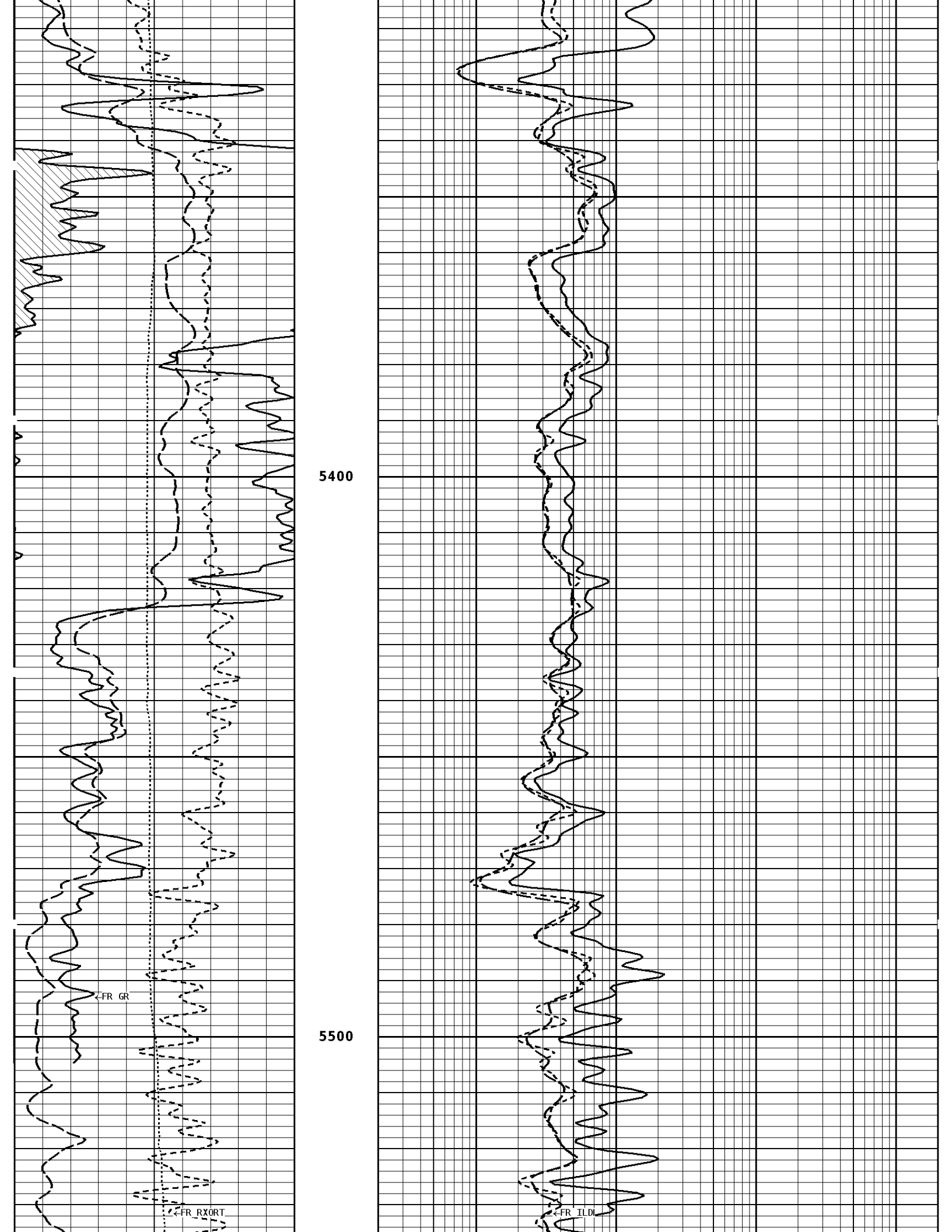
5400
5500
FR GR
FR RXORT
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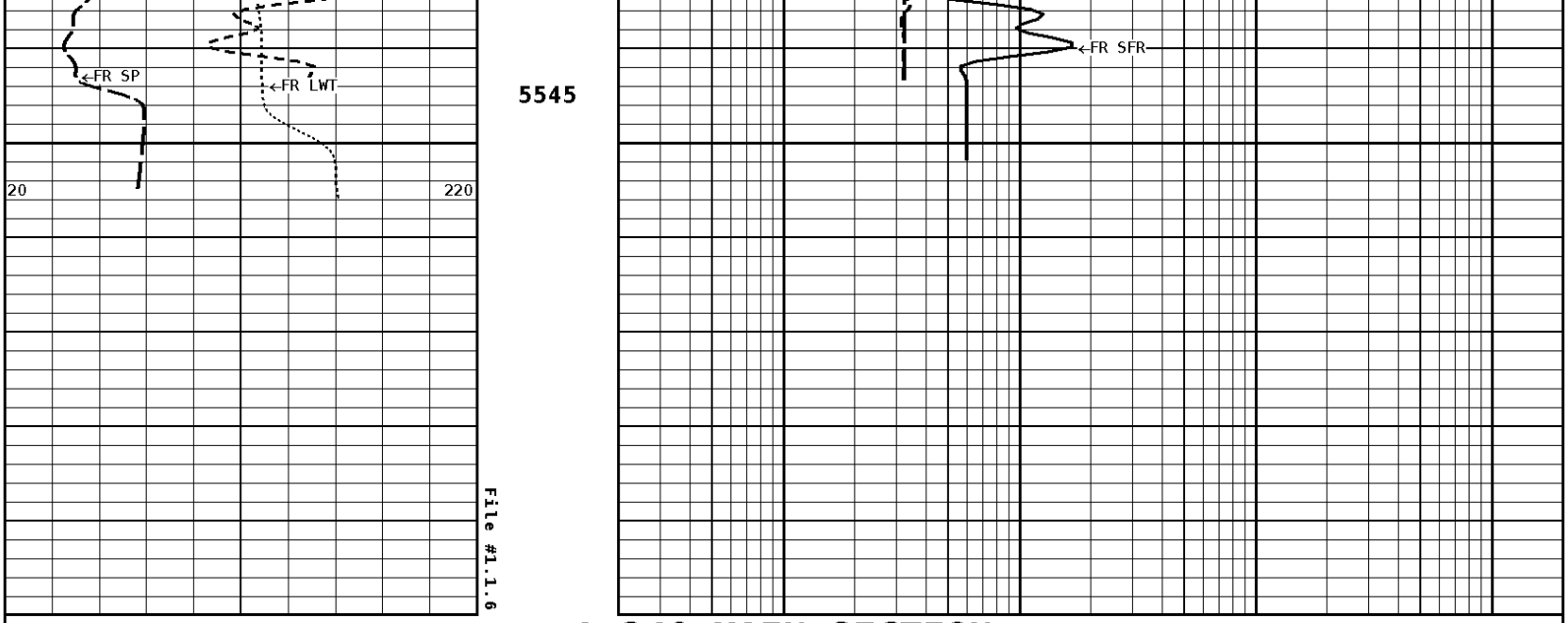


1:240 MAIN SECTION

GAMMA RAY
API UNITS
150 300
0 150

TENSION
LBS
10000 0

SPONTANEOUS POTENTIAL
mV
→ ←20

RXO/RT
-160 40

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	5544.000	ft
Borehole Temperature	133.0	degF
Temperature Gradient	1.00	DFHF
Resistivity Of Mud	1.000	ohm/m
Standoff	1.5	
Resistivity Of Mud Temperature	75.00	degF

Well File: CHIEFTON_RATHGERBER_3_MAY12_MSTK **Scale:** 1:240 **Format:** DIL-240
Segment: V1.D1.S7 CREPEAT **Acquired:** Not Available
Reference: 0 **Processed:** 2014-05/12 23:07 3.5.0-12850

RXO/RT
-160 40

SPONTANEOUS POTENTIAL
mV
→ ←20

DEEP INDUCTION
OHMM
0.2 2000.0

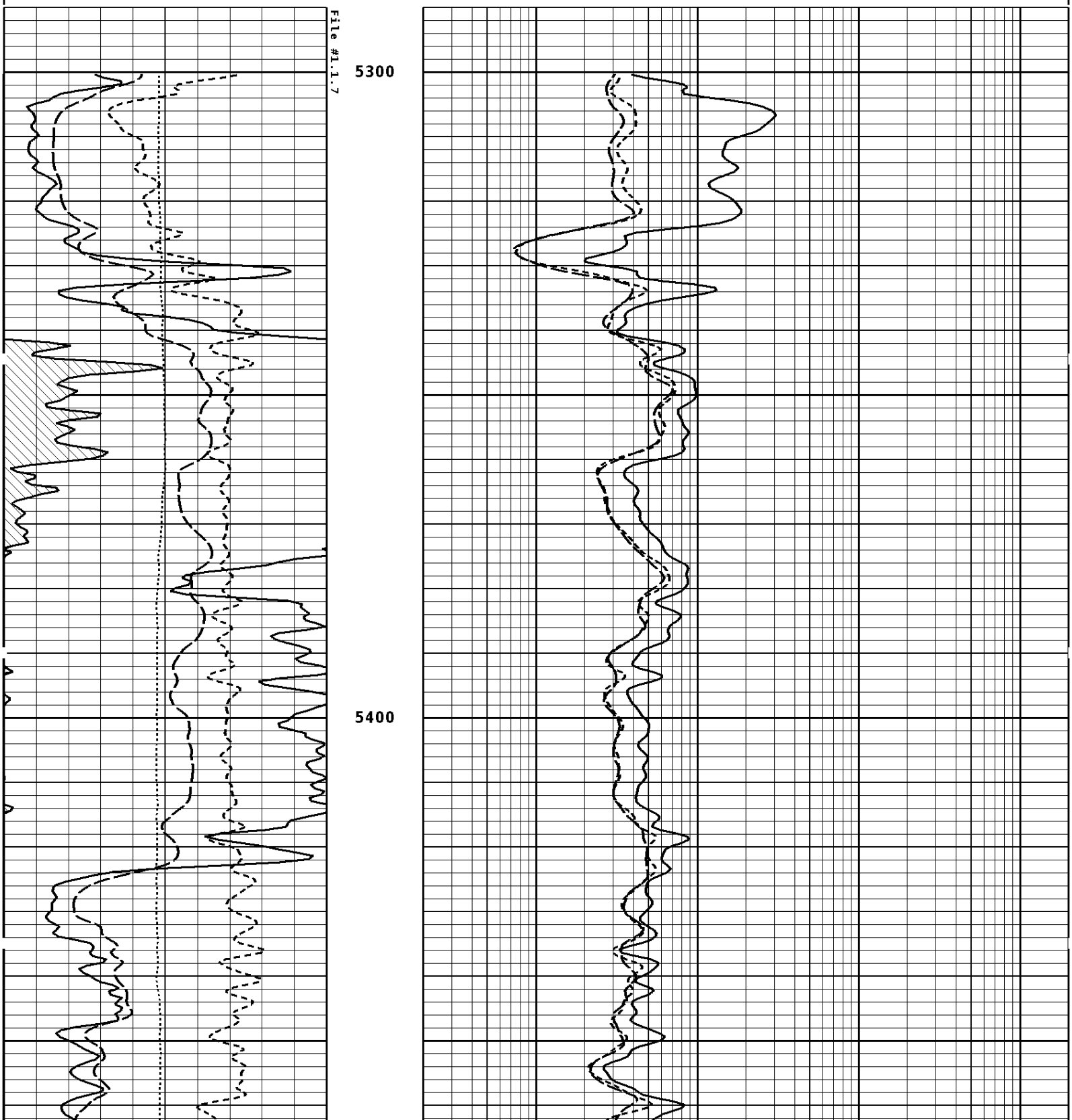
TENSION
LBS
10000 0

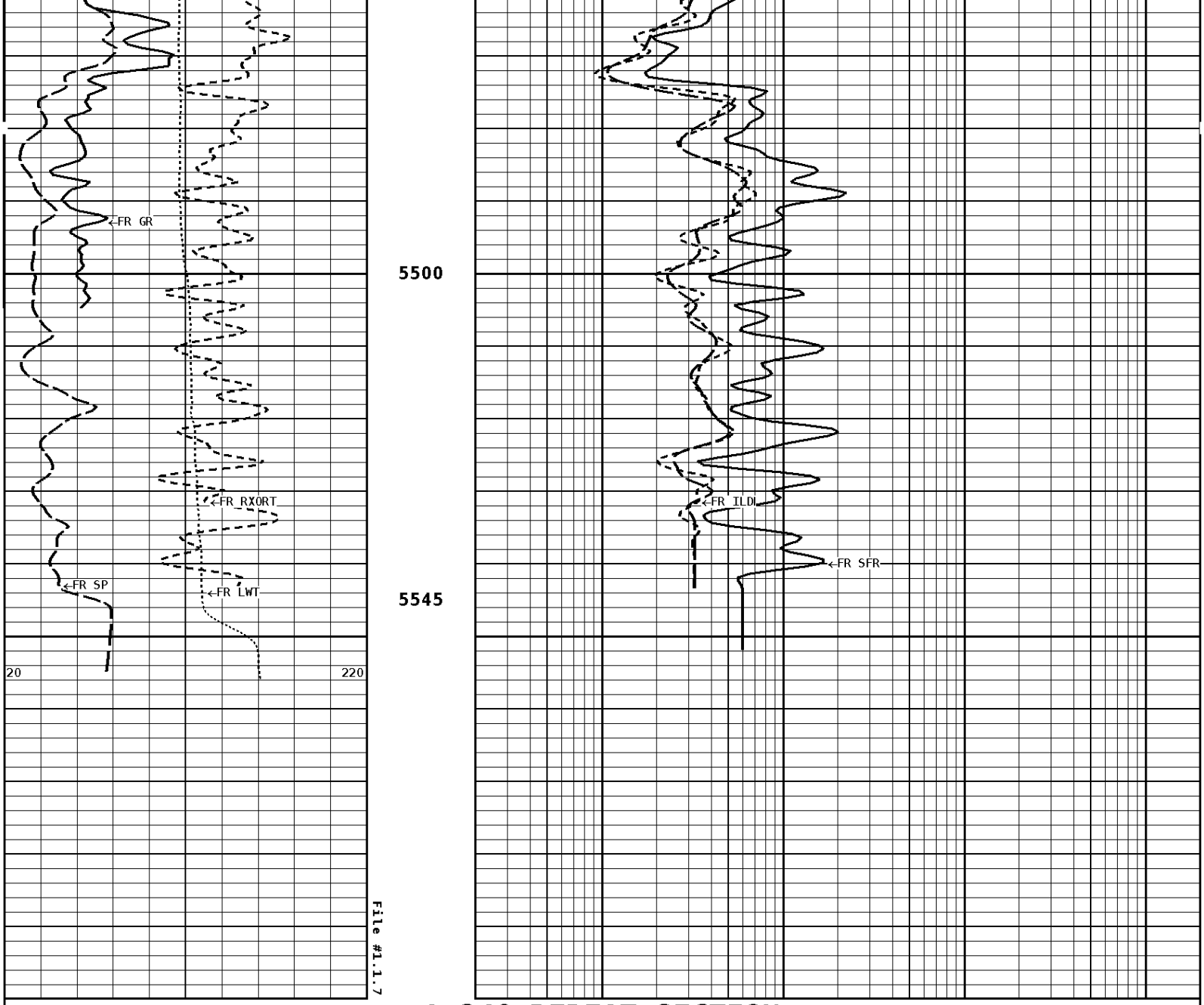
GAMMA RAY
API UNITS
150 300
0 150

MEDIUM INDUCTION
OHMM
0.2 2000.0

SHALLOW FOCUSED RESISTIVITY
OHMM
0.2 2000.0

1:240 REPEAT SECTION





1:240 REPEAT SECTION

GAMMA RAY
API UNITS
150 300
0 150

TENSION
LBS
10000 0

SPONTANEOUS POTENTIAL
mV
→ ←20

RXO/RT
-160 40

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	5544.000	ft
Borehole Temperature	133.0	degF
Temperature Gradient	1.00	DFHF
Resistivity Of Mud	1.000	ohm/m
Standoff	1.5	
Resistivity Of Mud Temperature	75.00	degF

* Calibration Summary *

Shop Calibration GRT-B

Performed : 29-APR-2014 Time : 09:39
Sensor Suite : GR-GR5 ID : GRT-BB-117

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

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

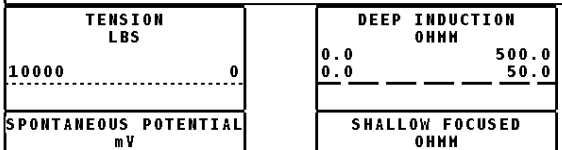
	Measured Zero	Measured Reference	Calibrated Zero	Calibrated Reference	Units
Im	32763.3	48949.7	0.0	7028.0	uA
Ib	32767.3	48756.3	0.0	1750.0	mA
MOM1	32726.5	57507.3	0.0	175.0	mV
Equivalent SFL				43.97	OHMM

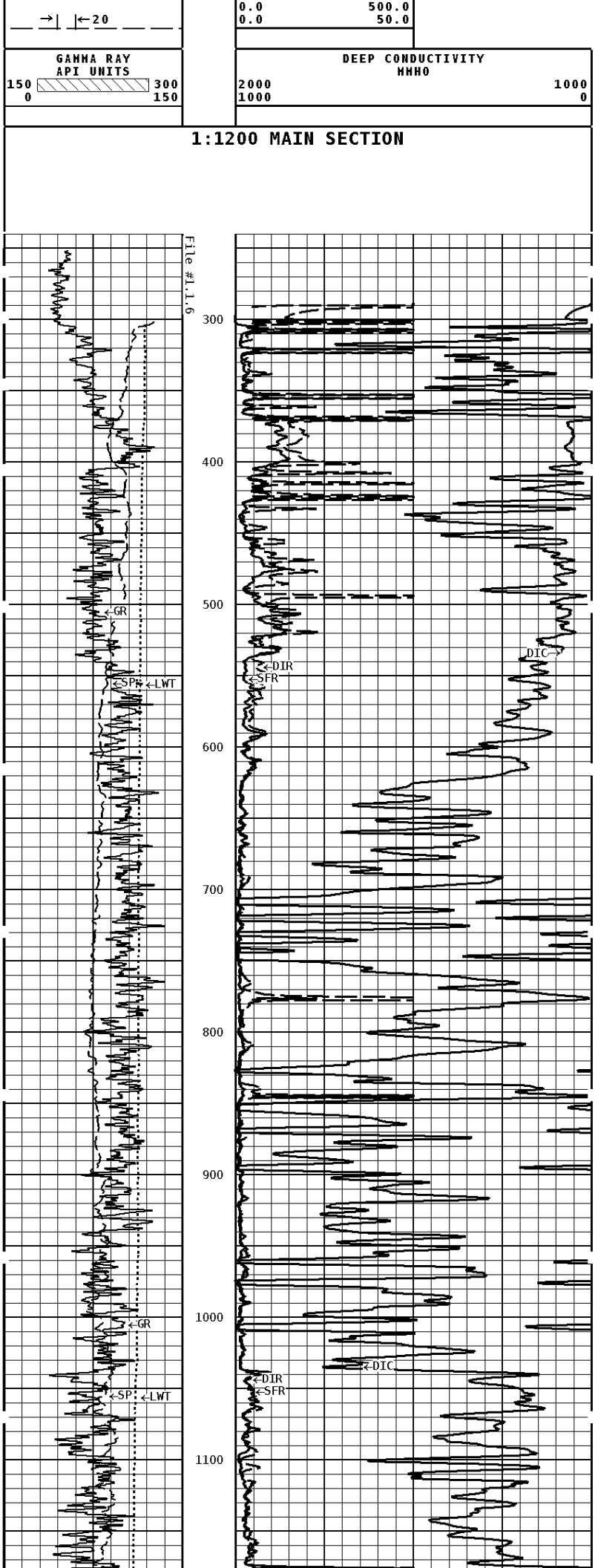
Performed : 15-Apr-2014 Time : 13:49
Sensor Suite : P-SP ID : PIT-CA-062

Internal

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

Well File: CHIEFTON_RATHGERBER_3_MAY12_MSTK **Scale:** 1:1200 **Format:** DIL1200
Segment: V1.D1.S6 Reprocess of MAIN **Acquired:** Not Available
Reference: 0 **Processed:** 2014-05/12 23:06 3.5.0-12850




→| |←20
0.0 500.0
0.0 50.0
GAMMA RAY
API UNITS
150 300
0 150
DEEP CONDUCTIVITY
MMHO
2000 1000
1000 0
1:1200 MAIN SECTION
File #1.1.6
300
400
500
600
700
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1000
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SFR
DIC
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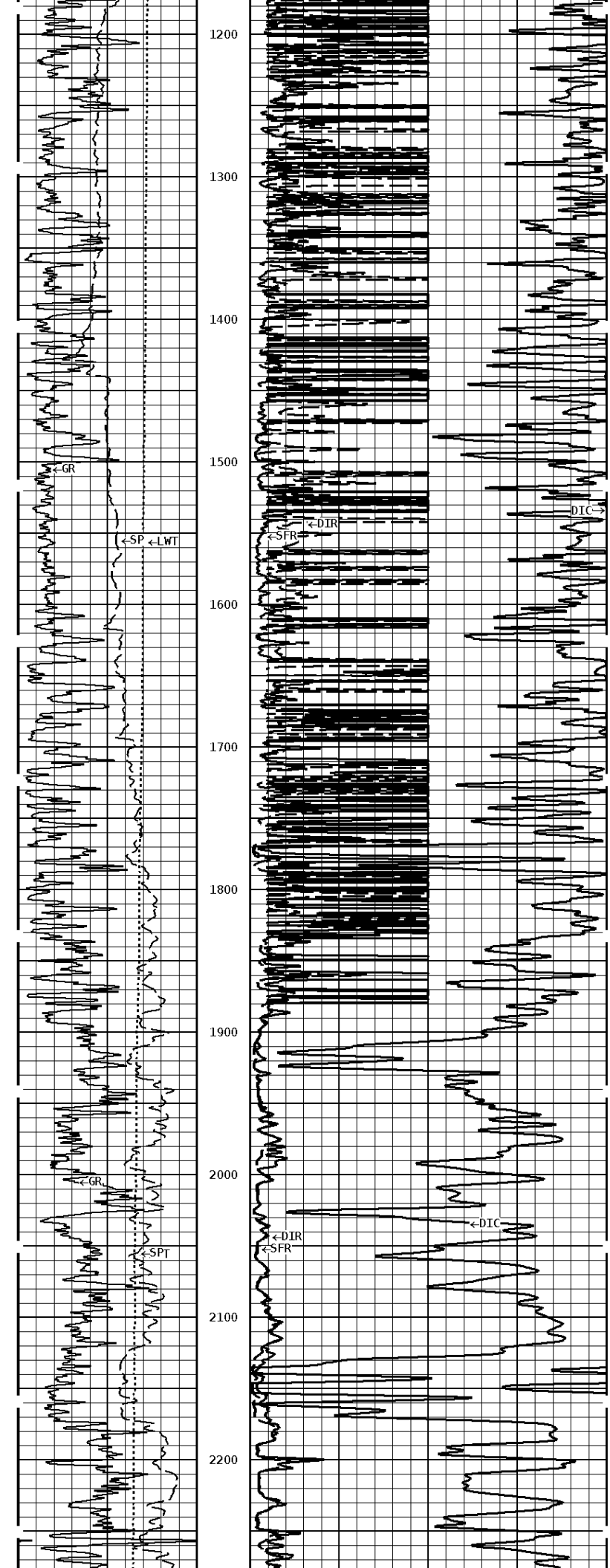
DIR
SFR
DIC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←GR
←DIR
←SFR
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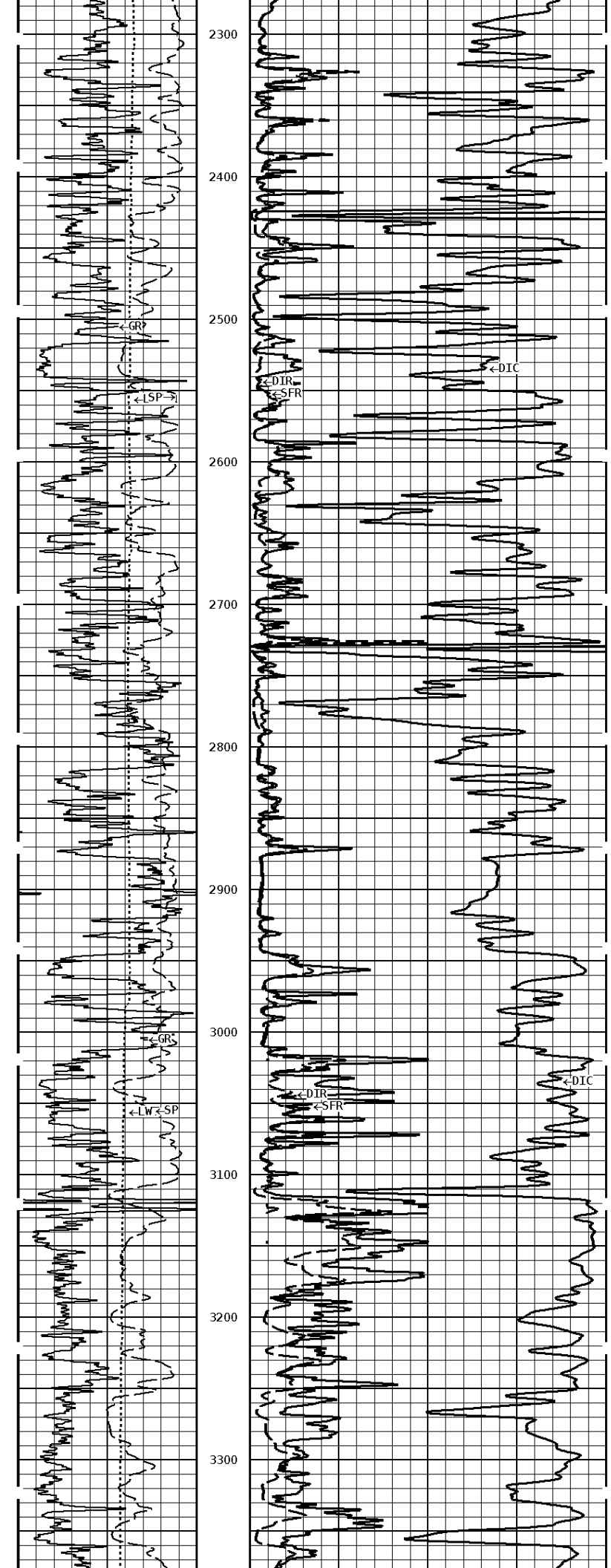
←DIC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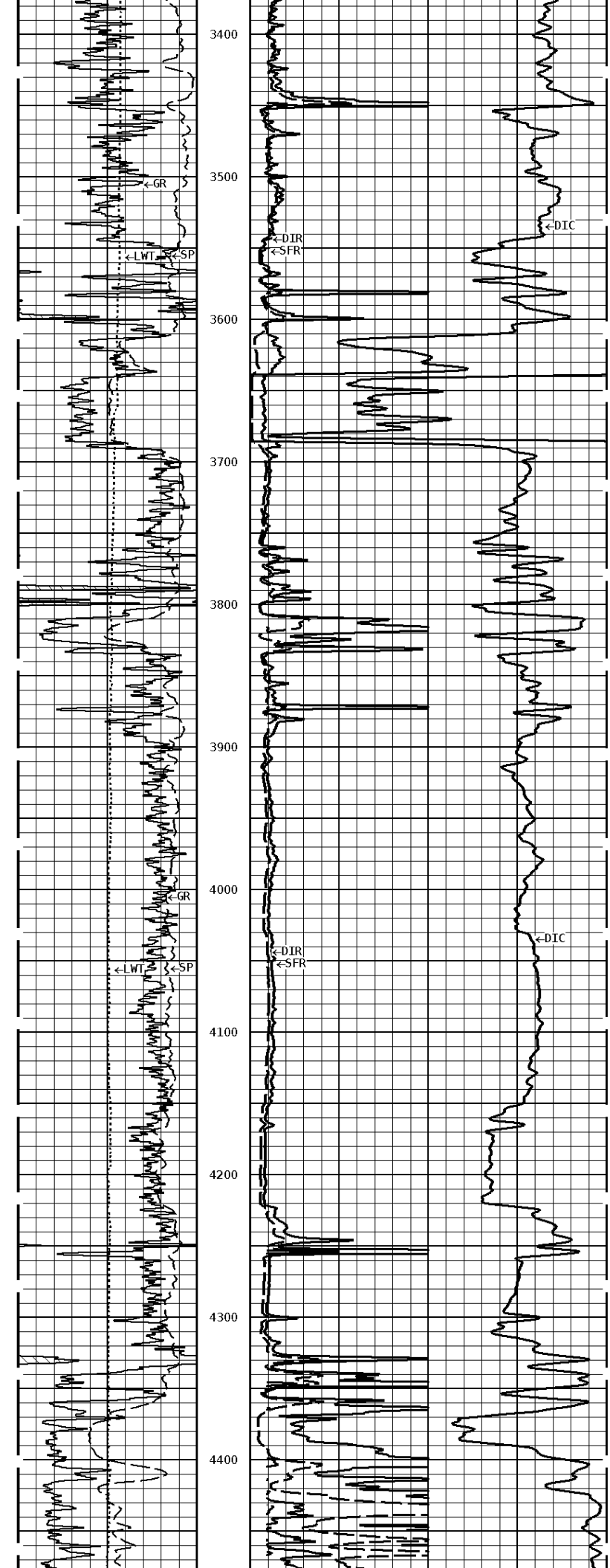
SP
DIR
SFR
DIC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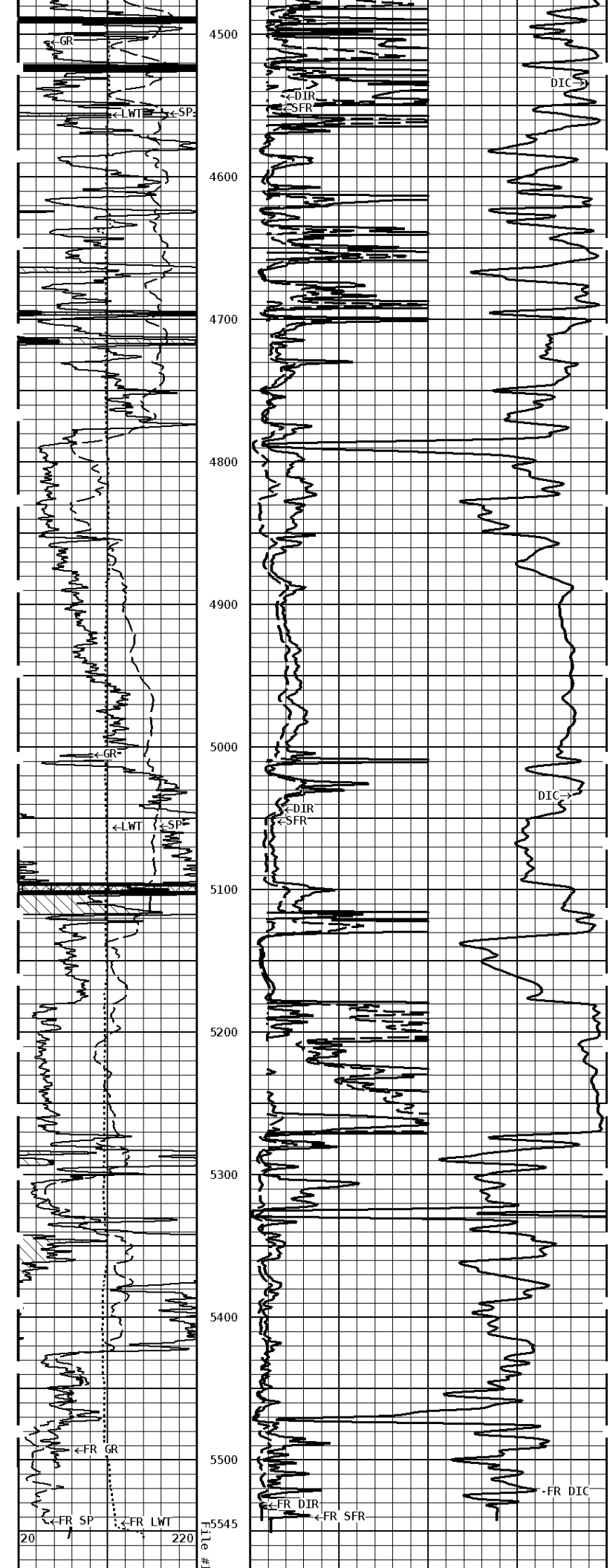
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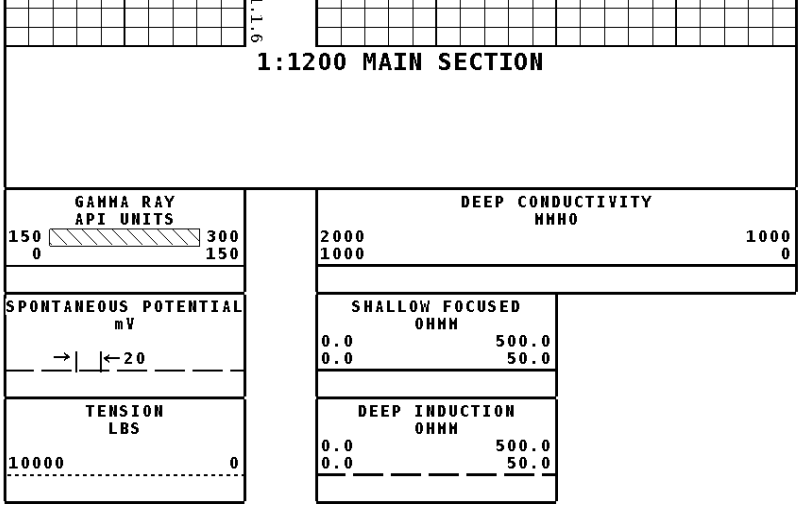

Tucker ENERGY SERVICES

Company: CHIEFTAIN OIL CO, INC.

Well: RATHGERBER #3

Location: 2702' FSL & 2344' FWL

Logged: 05-12-2014

K.B. Elev: 1387.0 Ft