Tucker
WIRELINE SERVICES

DUAL INDUCTION RESISTIVITY LOG

File No. : TUL-56589
Company : CHARLES N. GRIFFIN
Well : DENA #1
Field : HIBBORD NORTH EAST
County : HARPER
State : KANSAS
Country : U.S.A.

Location : API: #15-077-21692-00-00
2310' FSL & 505' FWL
NW NW SW

Sect : 31 Twp : 33S Rge : 08W

Recorded By : R. FRANKLIN
Witnessed By : J.R. GRIFFIN

Date : AUG 03 2010
Run No. : 1

Permanent Datum :	GL	
Drilling Measured From :	KB	
Log Measured From:	KB	
Above Permanent Datum :	8.00	FT
Depth--Driller :	4700.0	FT
Depth--Logger :	4691.0	FT
Bottom Log Interval :	4690.0	FT
Top Log Interval :	265.0	FT
Casing Depth--Driller:	265.0	FT
Casing Depth--Logger :	265.0	FT
Casing Diameter :	8.625	IN
Bit Size :	7.875	IN

Unit No. : TRK 123
Location : TULSA

Elevations :

KB :	1302.00	FT
DF :	1301.00	FT
GL :	1294.00	FT

Additional Services

CNT

LDT

The customer is hereby warned that by providing the log data herein, T. W. S. does not agree to provide any interpretation of log data, conversion of log data to physical rock parameters or recommendations. T. W. 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. W. 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. W. S. for its services. Any user of the log data is warned that said user is not entitled to rely on intepretations, conversions or recommendations as aforesaid.

Run Number 1

Depth To Fluid	0.0	FT
Fluid Type In Hole :	WBM	
Density :	9.600	LBS/GAL
Viscosity :	46.000	SEC/QT
pH :	10.000	
Fluid Loss :	12.000	CC
Salinity :	0.000	KPPM

RM Source :	MEASURED			
RM :	0.200	OHMM at	110	F
RM at BHT :	0.180	OHMM at	125	F
RMF Source :	CALCULATED			
RMF :	0.170	OHMM at	110	F
RMF at BHT :	0.150	OHMM at	125	F
RMC Source :	CALCULATED			

RMC :	0.230	OHMM at	110	F
RMC at BHT :	0.200	OHMM at	125	F

Max Recorded Temp. :	125	F
Time Circulation Stopped :		
Operating Rig Time, Hrs. :	3.0	

- Source Serial Numbers -

Gamma	2991GW
Neutron	N-1046

- Sonde Serial Numbers -

GRTB	GRT-BC-41
CNT	CNP-AE-42
LDTNG	LDP-DA-067
PIT_B	PIT-BA-20

Casing Strings

Size (IN)	Weight (LB/FT)	Bottom (FT)
8.625	36.00	265.00

- Comments -

ALL PRESENTATIONS AS PER CLIENTS REQUEST.

GRT, CNT, LDT, AND PIT RUN IN COMBINATION.
CALIPERS ORIENTED ON THE X-Y AXIS.
2.71 G/CC USED TO CALCULATE PORSITY.
ANNULAR HOLE VOLUME CALCULATED USING 5.50" PRODUCTION CASING.
DETAIL PRESENTED FROM TD TO 3400' AS PER CLIENTS REQUEST.

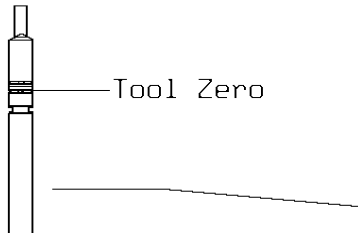
GRT: GRP.
CNT: PHIN, PHINLS, CLCNIN.
LDT: PORL, PORLLS, LCORN, PECLN, LDENN, CLLDIN.
PIT: ILD, ILM, CIRD, SFLAEC, SPU, RXRT.

OPERATORS:
M. GARNER
S. DAVIS

THANK YOU FOR USING TUCKER WIRELINE SERVICES!

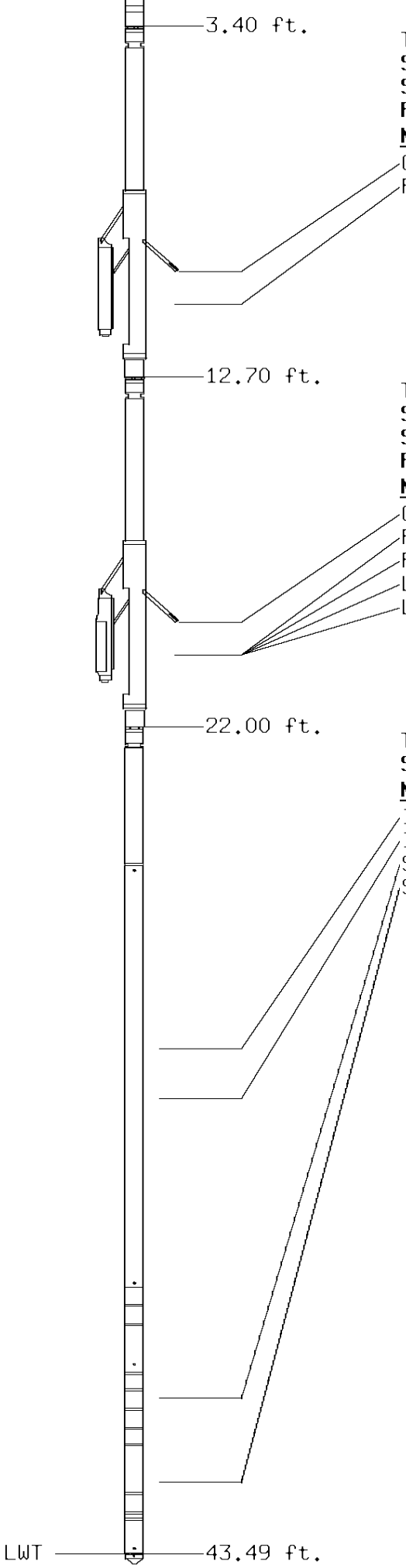
Tool String Schematic

Total Tool Length - 43.49 **ft.**
Maximum Outside diameter - 4.80 **in.**
Net Weight in Air - 743.00 **lbs.**



Tool: GRTB **Length:** 3.40 **ft. O.D.:** 3.60 **in.**
Sonde ID : GRT-BC-41

Measure Point	Stack Offset	Tool Offset	Bottom Offset
GRP	2.00	2.00	41.49



Tool: CNT **Length:** 9.30 **ft. O.D.:** 4.36 **in.**
Sonde ID : CNP-AE-42
Source ID : N-1046
Pad ID : CNP-AE-42

Measure Point	Stack Offset	Tool Offset	Bottom Offset
CLCN	9.40	6.00	34.09
PHIN	10.24	6.84	33.25

Tool: LDTNG **Length:** 9.30 **ft. O.D.:** 4.80 **in.**
Sonde ID : LDP-DA-067
Source ID : 2991GW
Pad ID : LDP-DA-067

Measure Point	Stack Offset	Tool Offset	Bottom Offset
CLLD	18.70	6.00	24.79
PEL	19.70	7.00	23.79
PES	20.10	7.40	23.39
LDEN	19.70	7.00	23.79
LCOR	19.70	7.00	23.79

Tool: PIT **Length:** 21.49 **ft. O.D.:** 3.62 **in.**
Sonde ID : PIT-BA-20

Measure Point	Stack Offset	Tool Offset	Bottom Offset
ILD	30.92	8.92	12.56
ILM	32.10	10.10	11.39
SFLU	39.49	17.49	4.00
SP	42.60	20.60	0.88

TENSION
LBS

10000 0

SPONTANEOUS POTENTIAL
mV

→| |← 20

GAMMA RAY
API UNITS

150 300
0 150

SHALLOW FOCUSED RESISTIVITY
OHMM

0.0 500.0
0.0 50.0

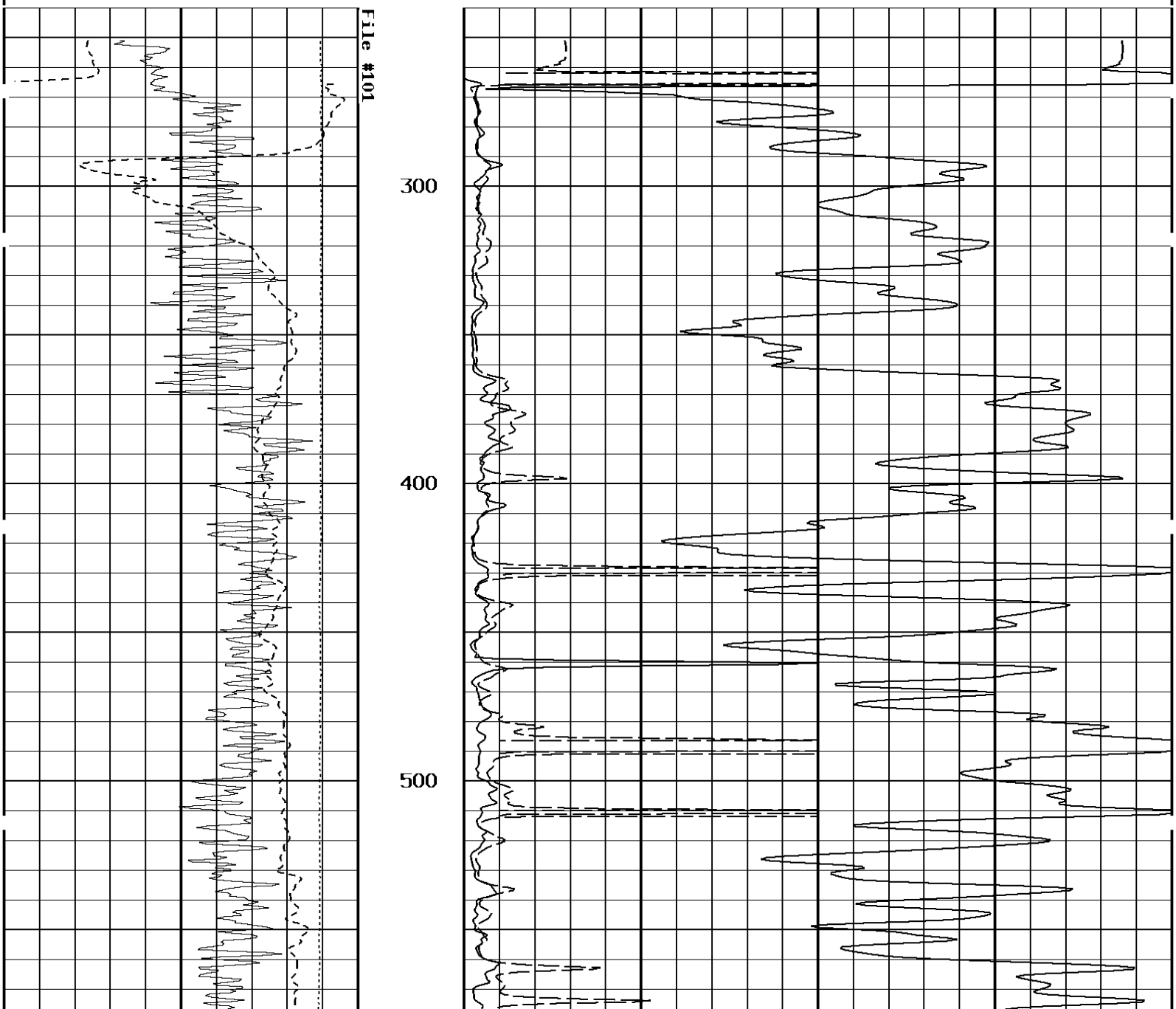
DEEP INDUCTION
OHMM

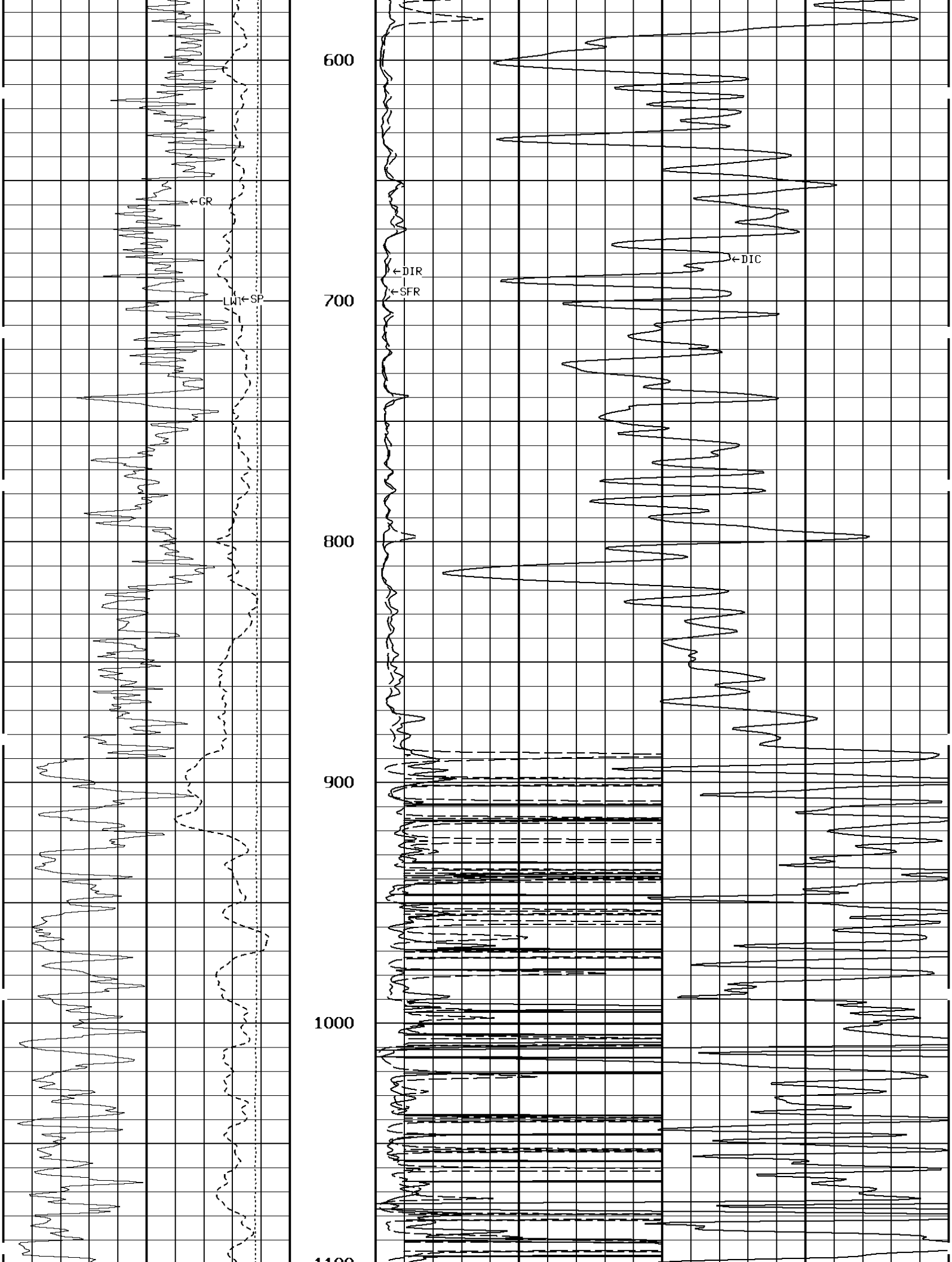
0.0 500.0
0.0 50.0

DEEP CONDUCTIVITY
MMHO

2000 1000
1000 0

1:600 SECTION

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1000
1100
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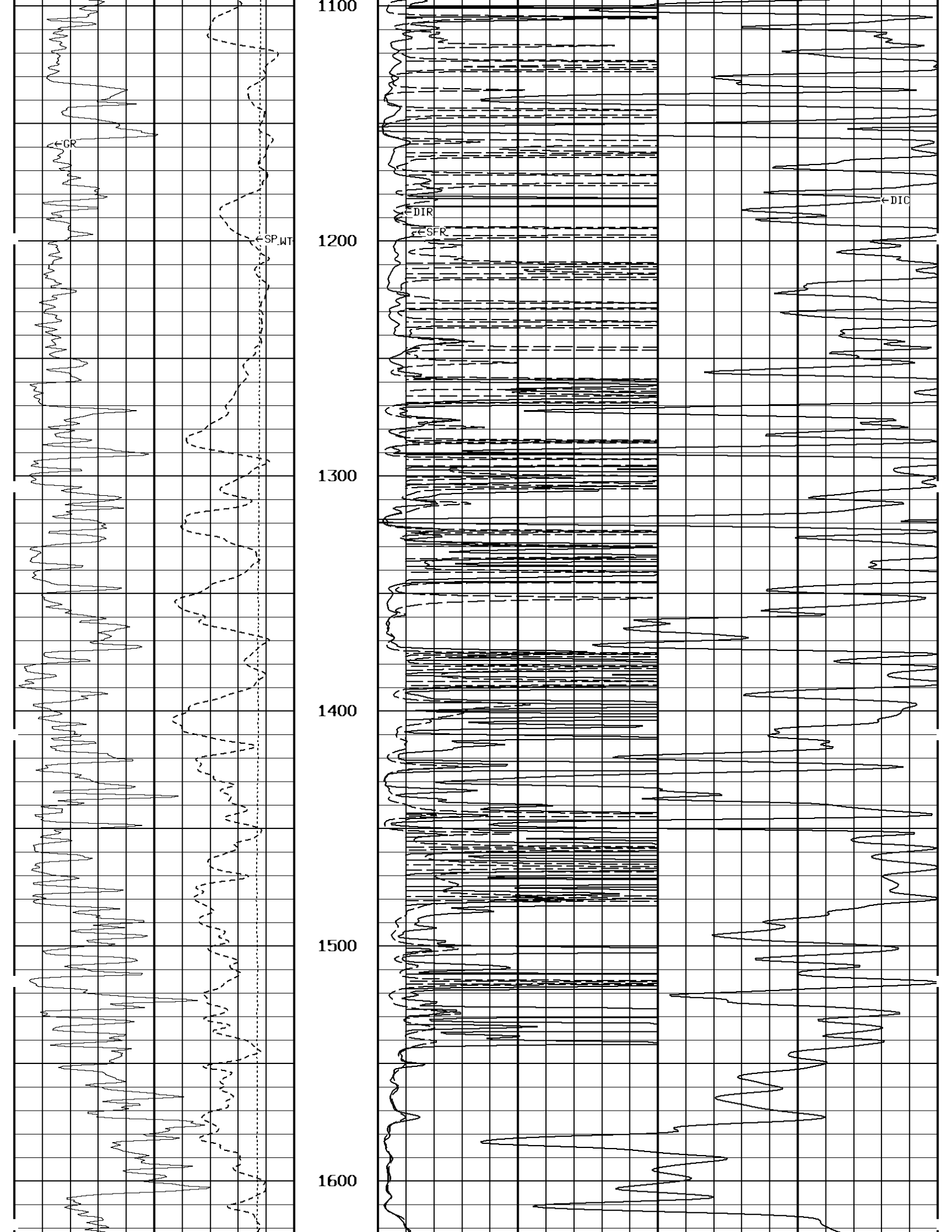
LW1←SP
←DIR
←SFR
←DIC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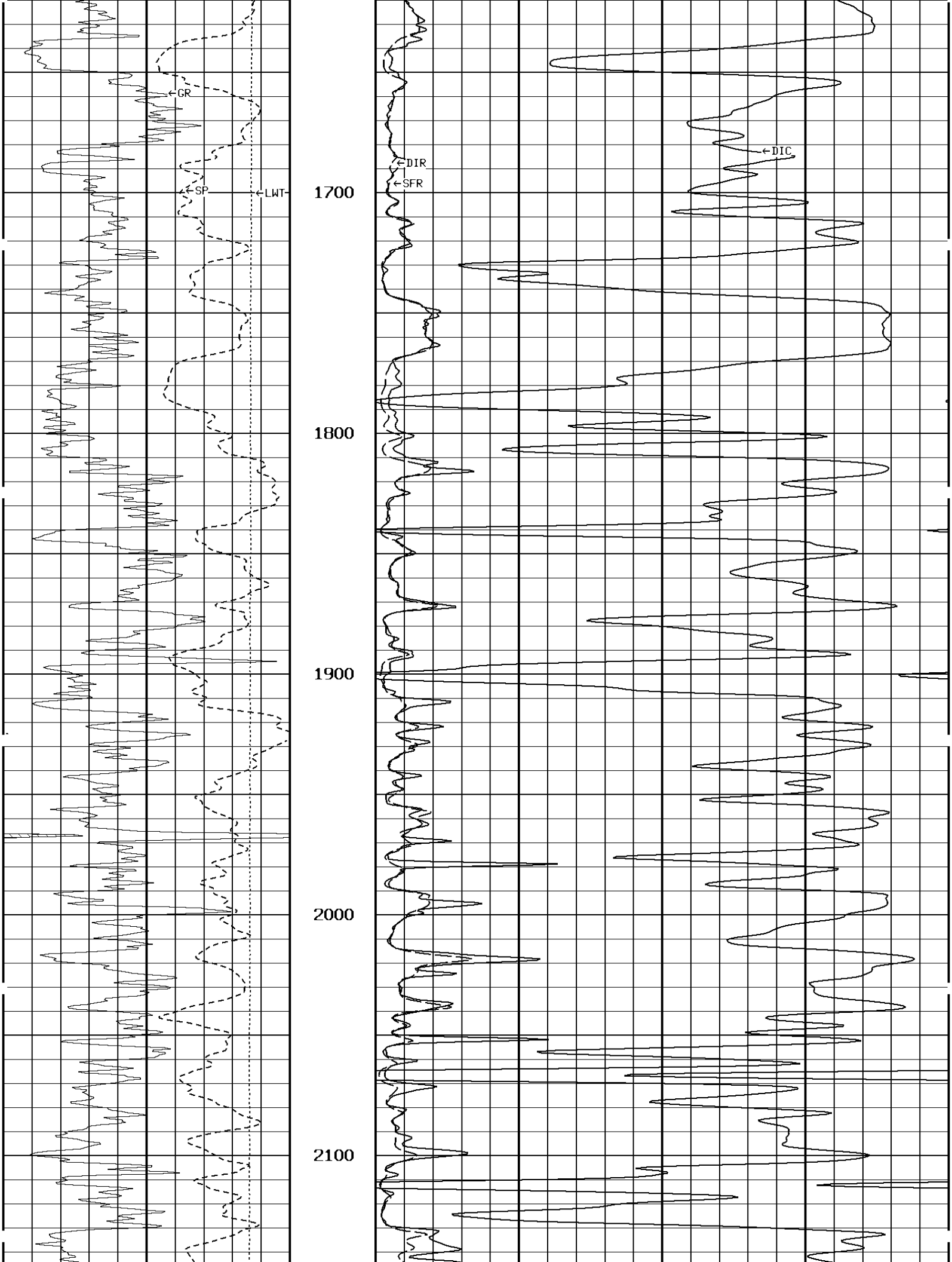
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SP
LWT
DIR
SFR
DIC
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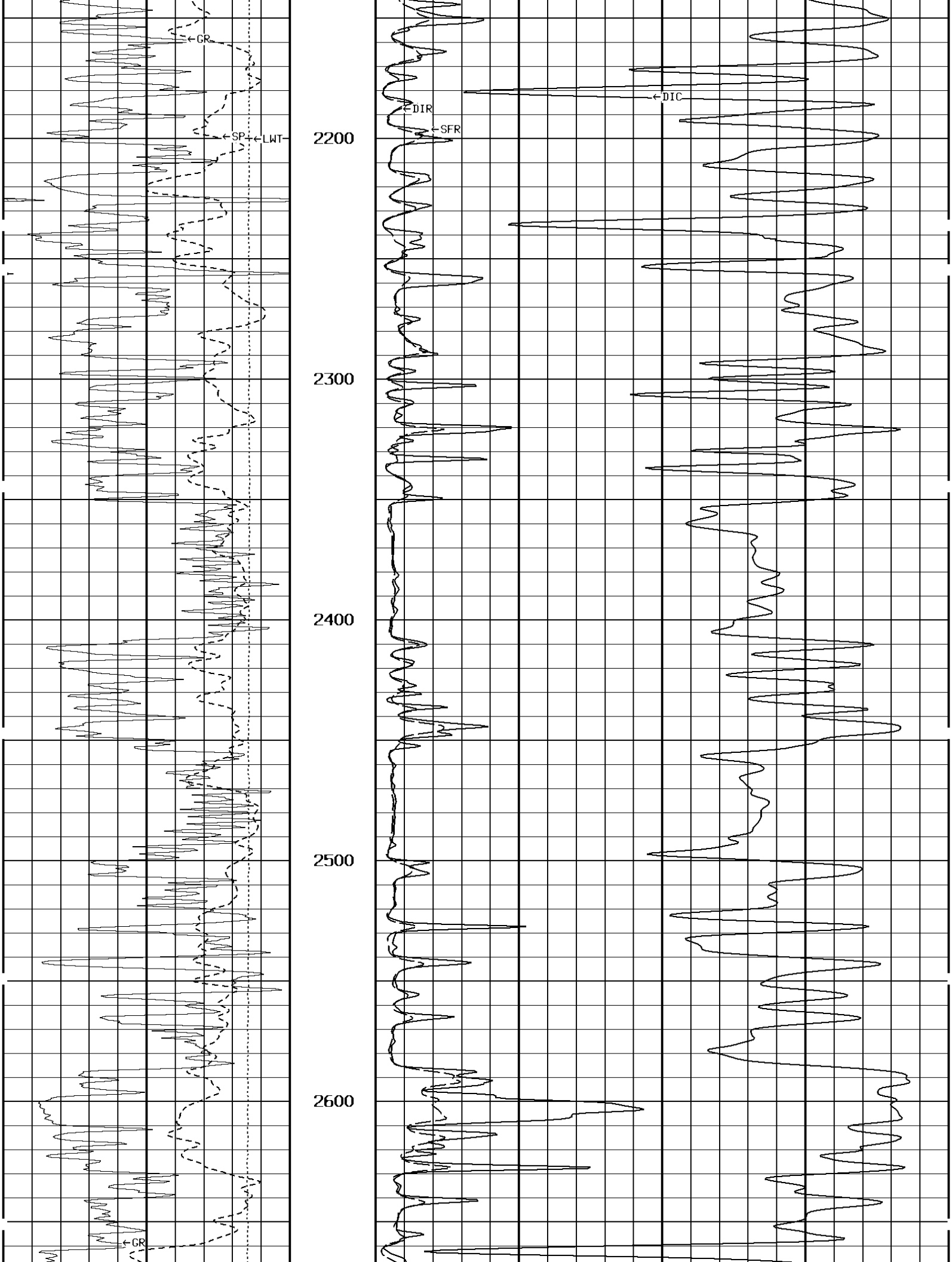
1800
1900
2000
2100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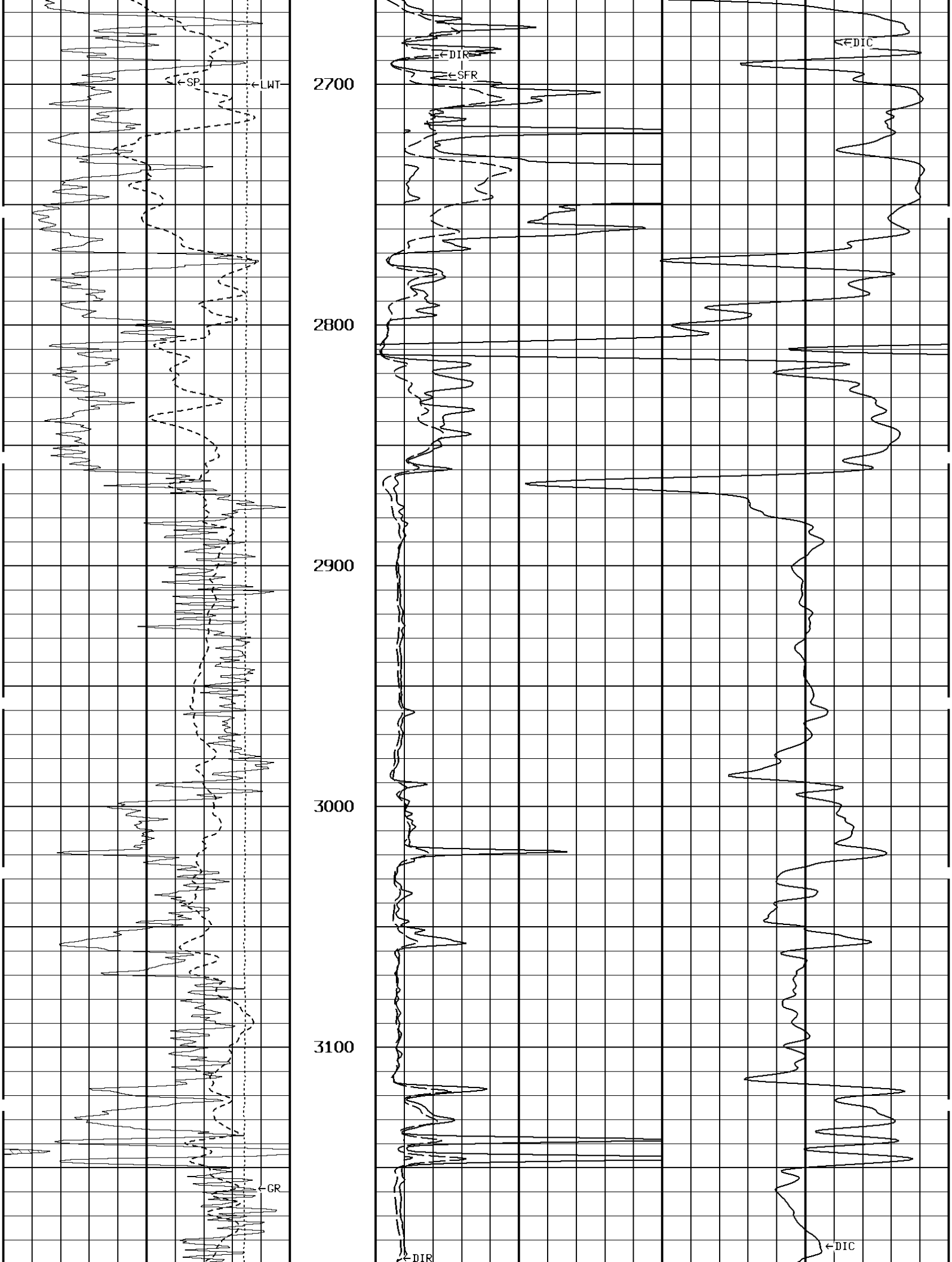
2300
2400
2500
2600
←GR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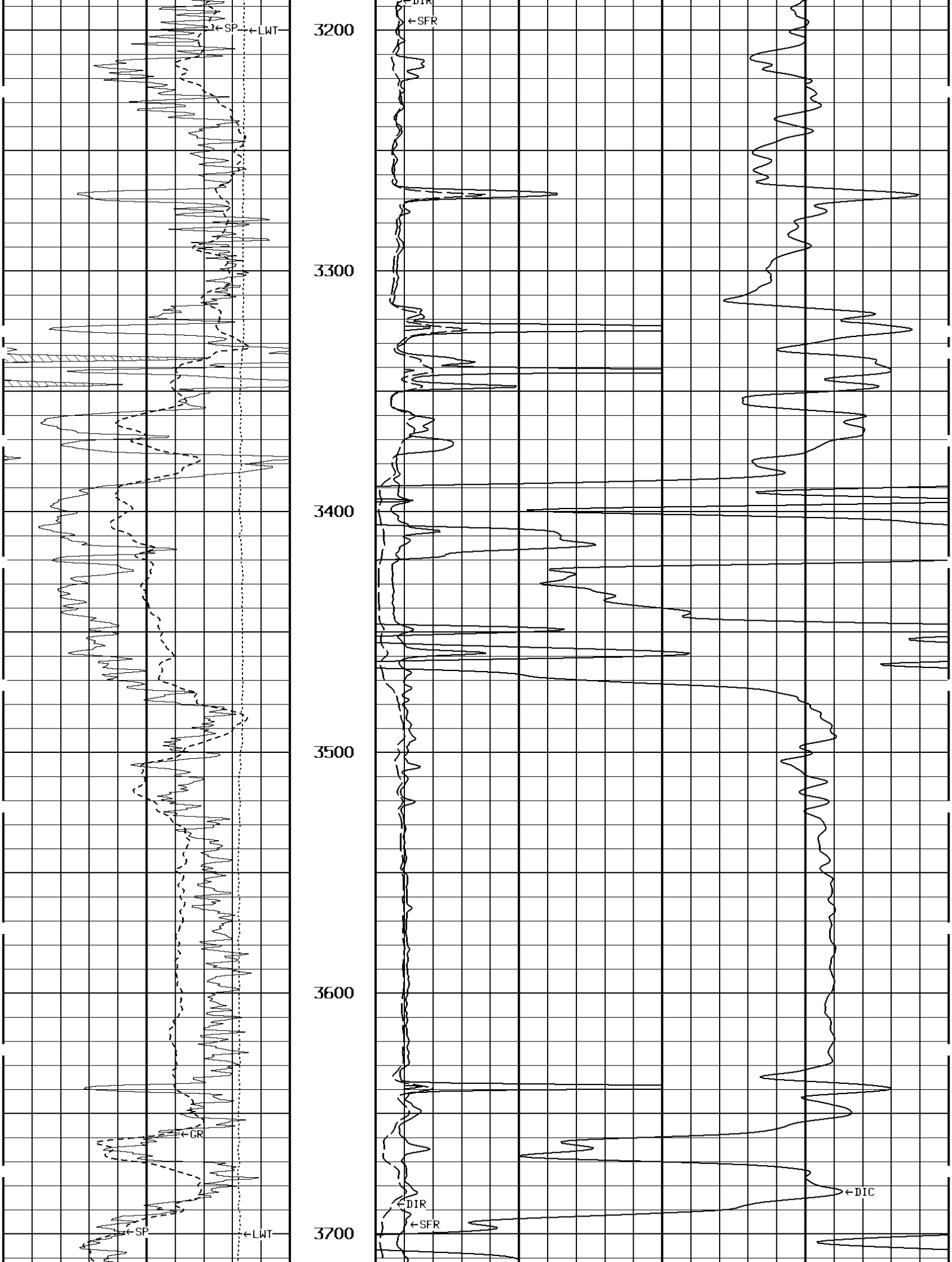
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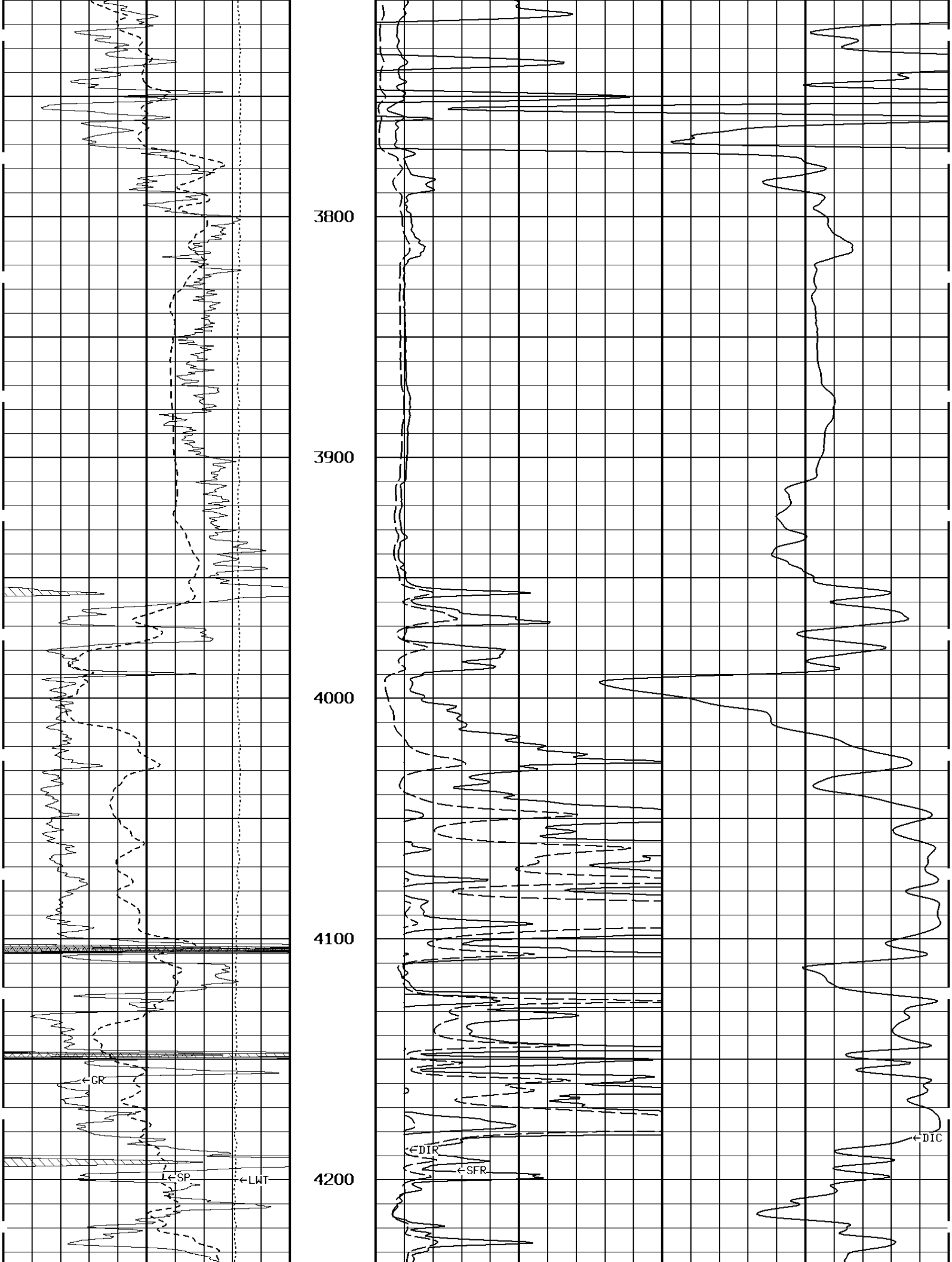
3700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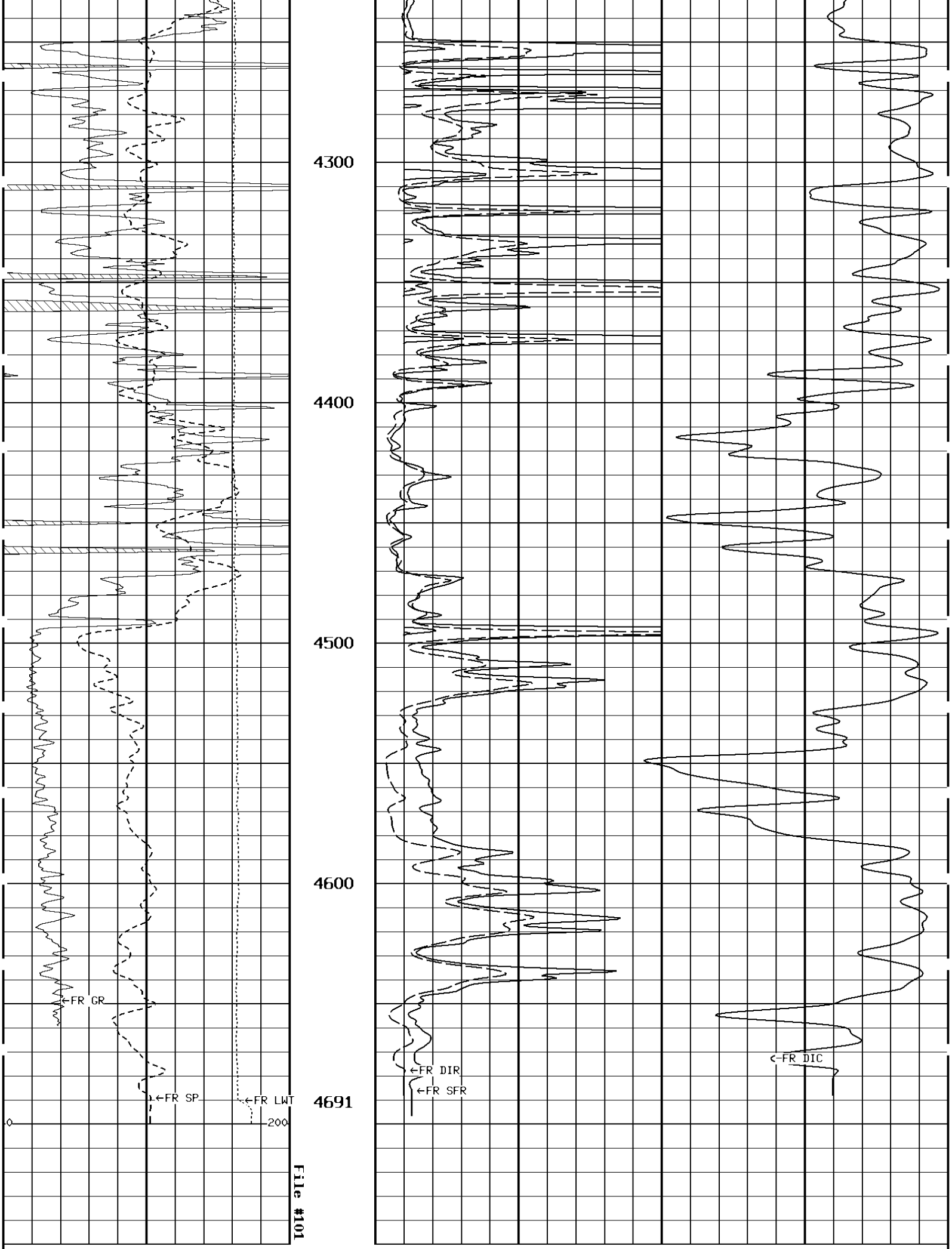
4200
GR
SP
LWT
DIR
SFR
DIC



1:600 SECTION

1:600 SECTION

GAMMA RAY
API UNITS
150 300
0 150

DEEP CONDUCTIVITY
MMHO
2000 1000
1000 0

SPONTANEOUS POTENTIAL
mV
→| |← 20

DEEP INDUCTION
OHMM
0.0 500.0
0.0 50.0

TENSION
LBS
10000 0

SHALLOW FOCUSED RESISTIVITY
OHMM
0.0 500.0
0.0 50.0

RXO/RT
-160 40

TENSION
LBS
10000 0

SHALLOW FOCUSED RESISTIVITY
OHMM
0.2 2000.0

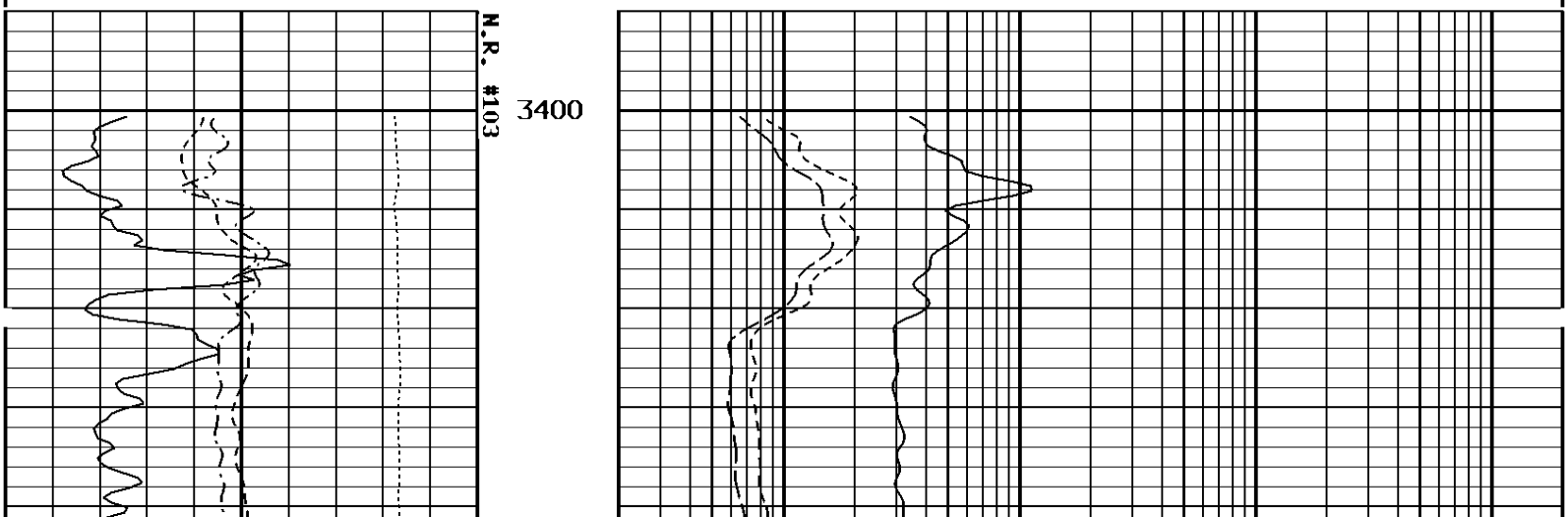
SPONTANEOUS POTENTIAL
mV
→| |← 20

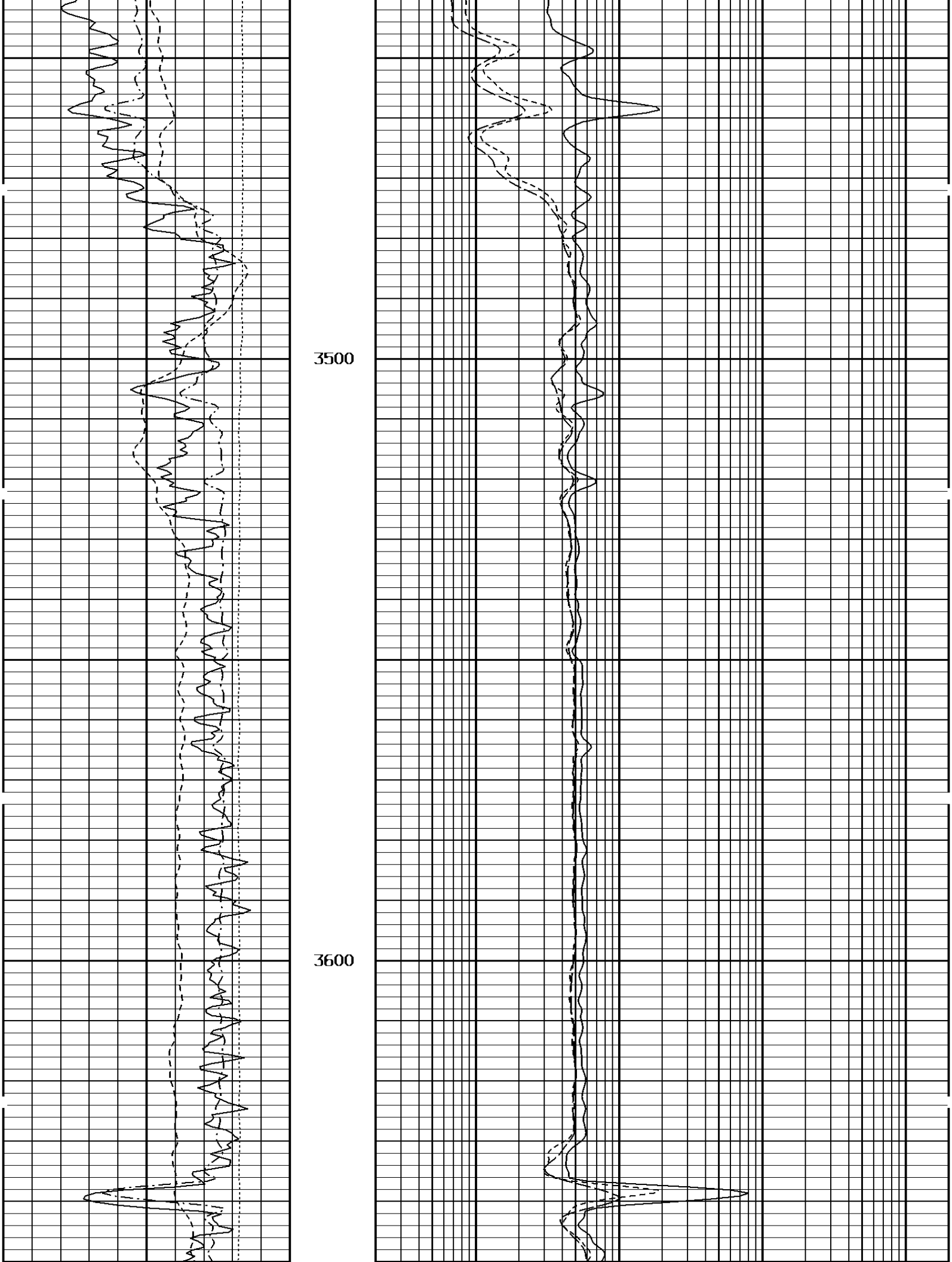
MEDIUM INDUCTION
OHMM
0.2 2000.0

GAMMA RAY
API UNITS
150 300
0 150

DEEP INDUCTION
OHMM
0.2 2000.0

1:240 MAIN SECTION

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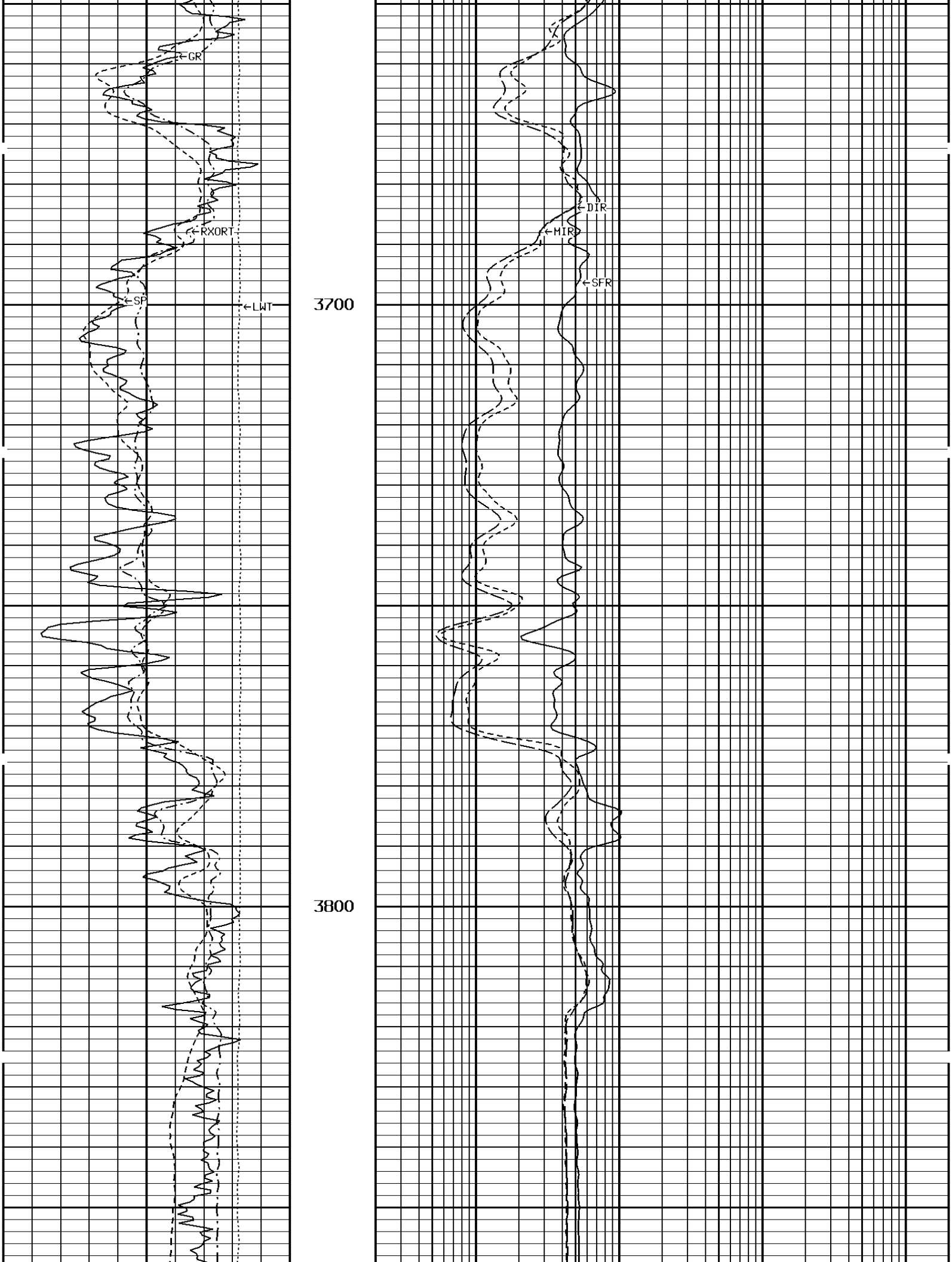
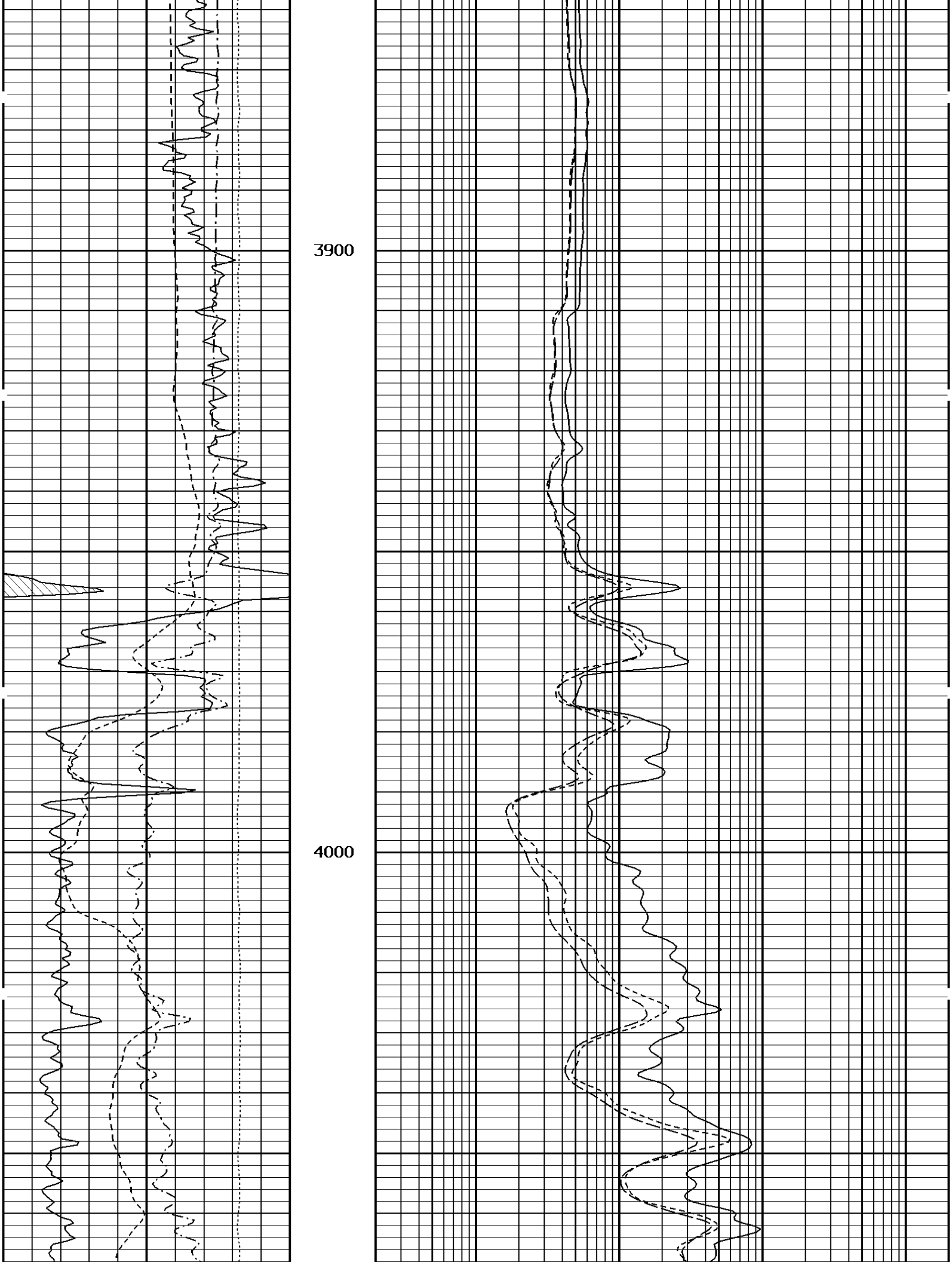

GR
RXORT
SP
LWT
3700
3800
X
DIR
MIR
SFR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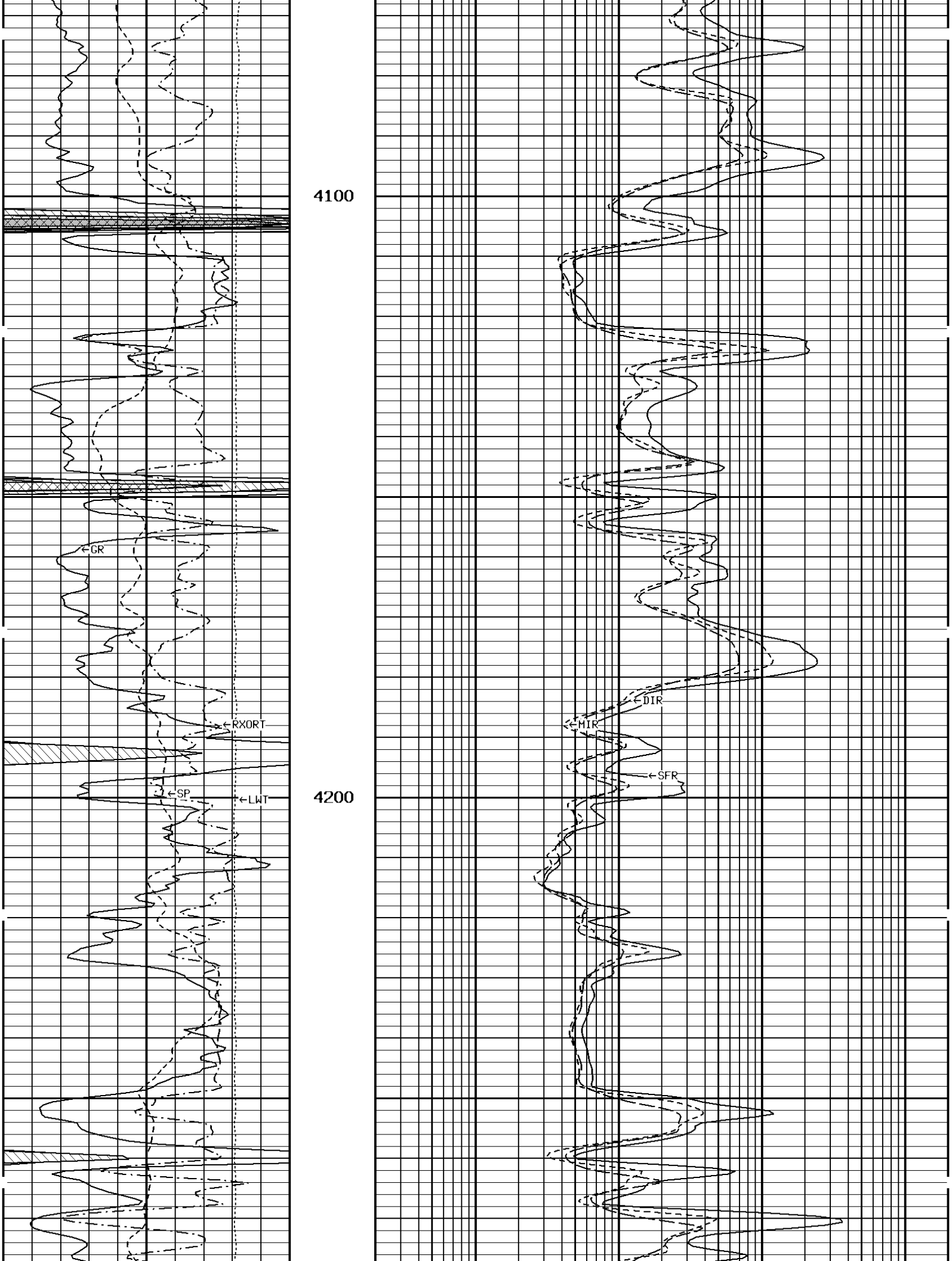
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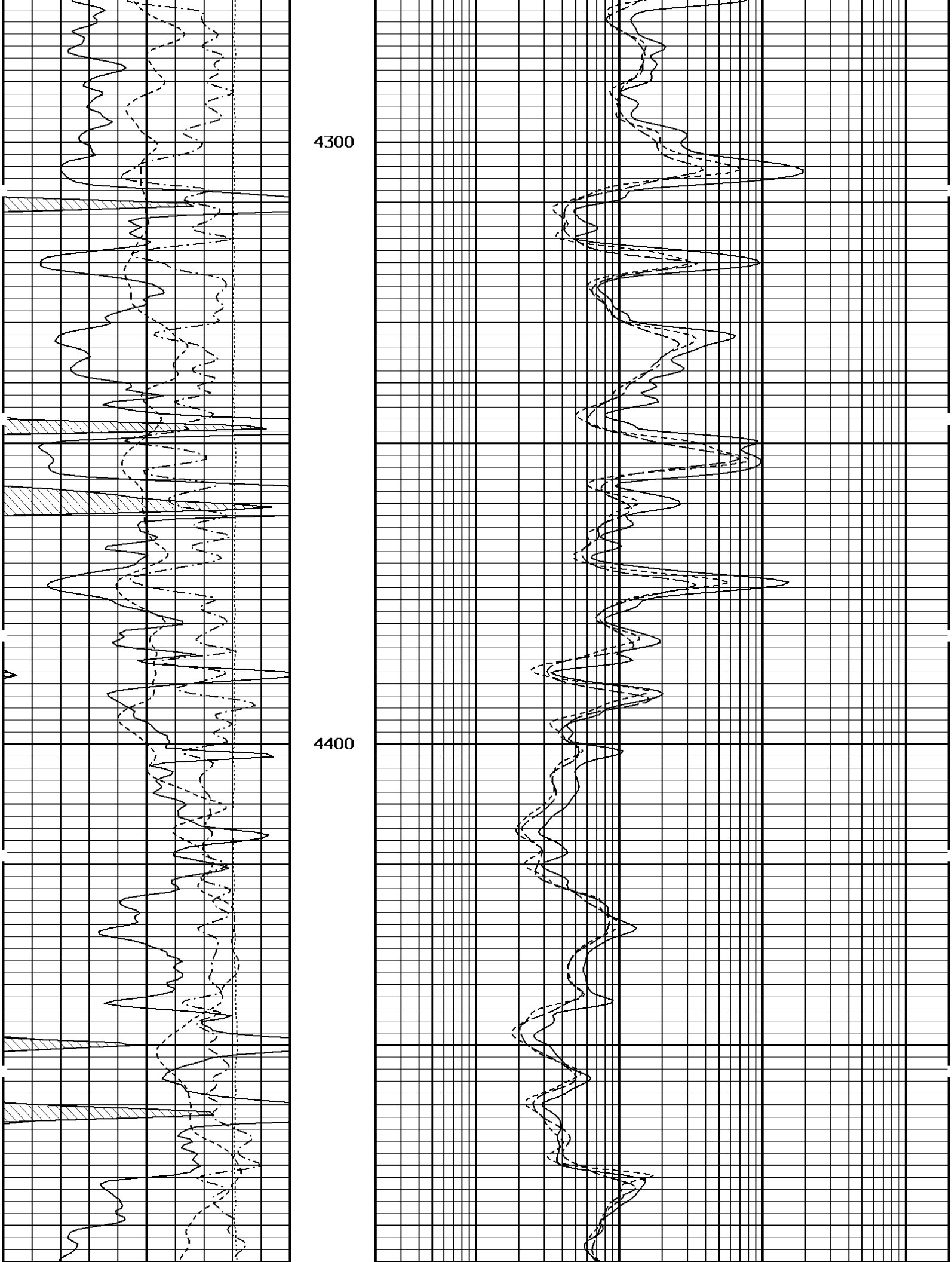
4200
GR
RXORT
SP
LWT
DIR
MIR
SFR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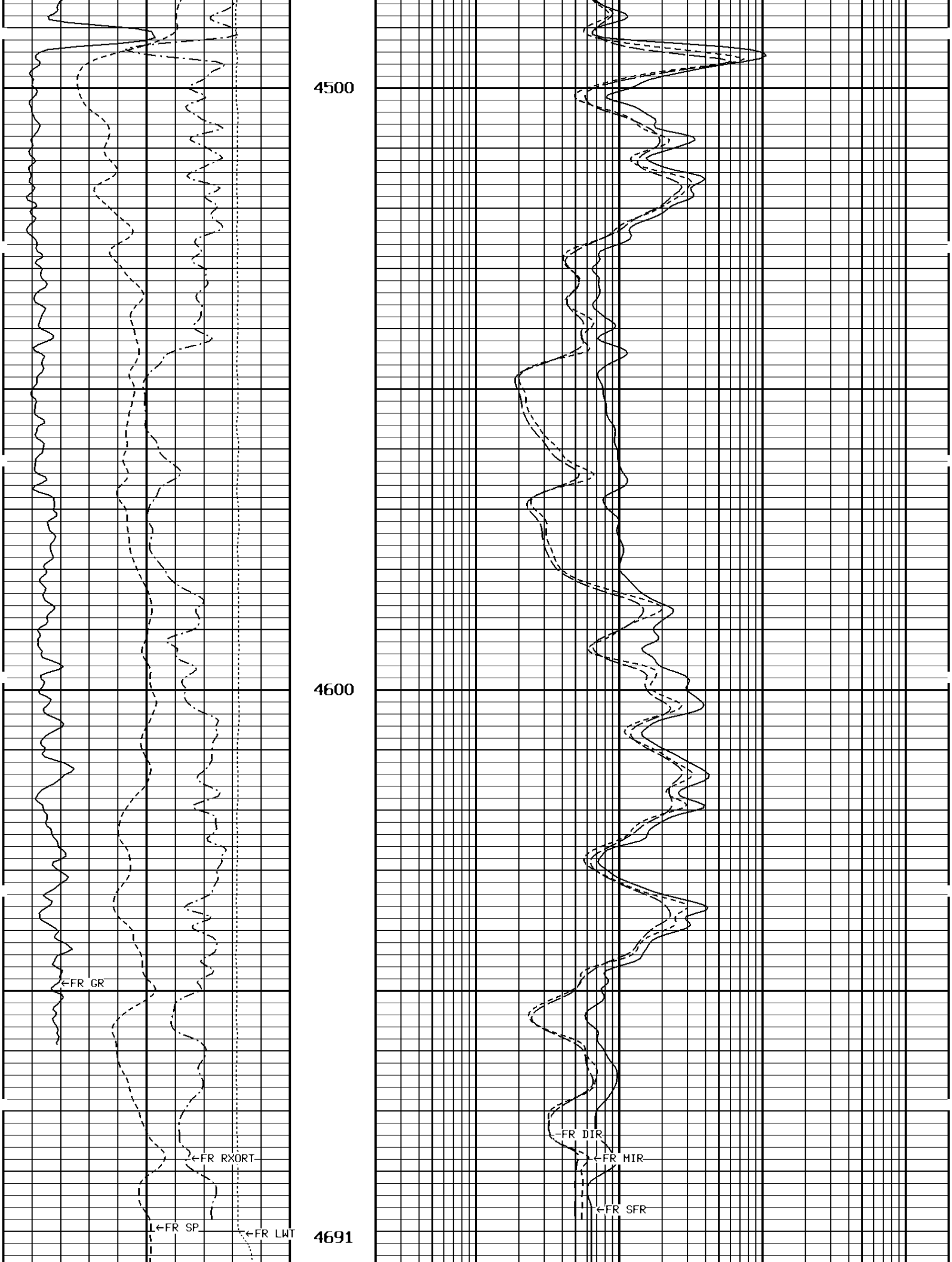
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4691
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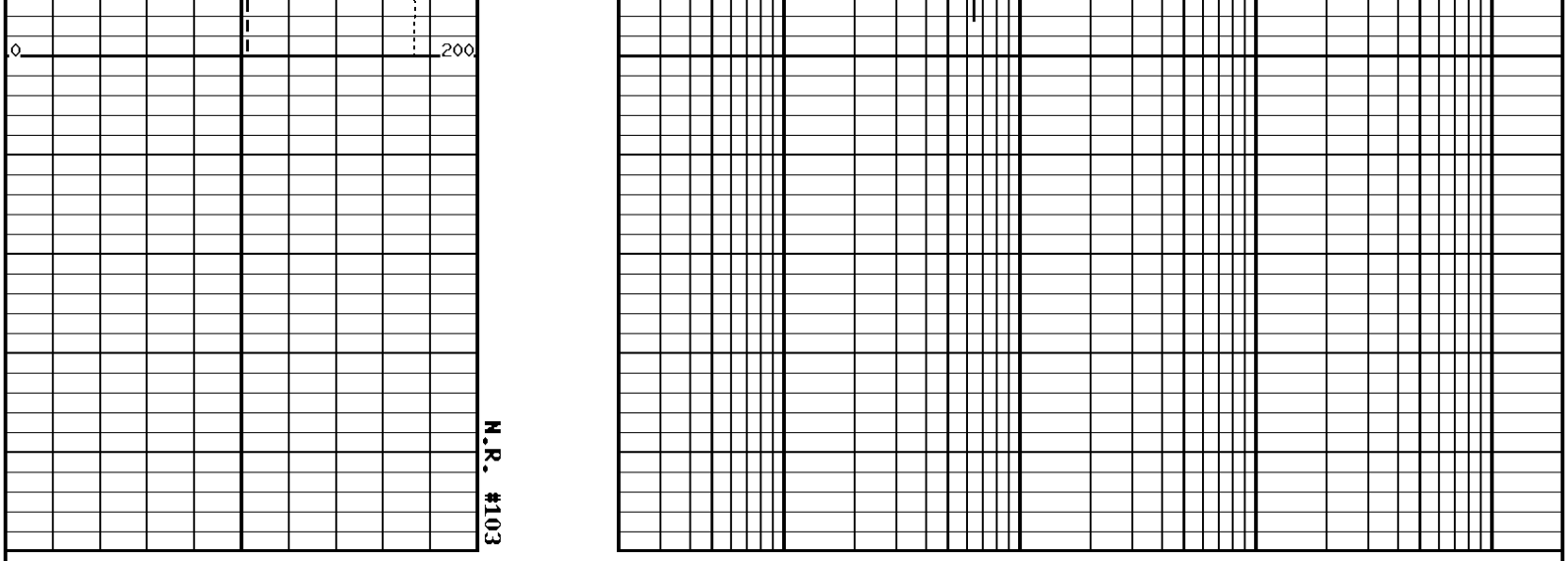
←FR SP
←FR LWT
FR DIR
←FR MIR
←FR SFR



1:240 MAIN SECTION

GAMMA RAY API UNITS	DEEP INDUCTION OHMM
150 — 300 / 0 — 150	0.2 — 2000.0
SPONTANEOUS POTENTIAL mV	**MEDIUM INDUCTION OHMM**
→ | |← 20	0.2 — 2000.0
TENSION LBS	**SHALLOW FOCUSED RESISTIVITY OHMM**
10000 — 0	0.2 — 2000.0
RXO/RT	
-160 — 40	

* Borehole Zone Factors *

Zone 1 99999.0 to 0.0 F

Drill Bit Size	7.875	IN
BHT Depth	4691.000	F
Borehole Temperature	125.0	DEGF
Temperature Gradient	1.00	DFHF
Resistivity Of Mud	0.20	OHMM
Resistivity Of Mud Temperature	110.00	DEGF

RXO/RT	SHALLOW FOCUSED RESISTIVITY OHMM
-160 — 40	
TENSION LBS	
40000 — 0	0.2 — 2000.0

10000 0

SPONTANEOUS POTENTIAL
mV

→| |← 20

GAMMA RAY
API UNITS

150 300
0 150

0.2 2000.0

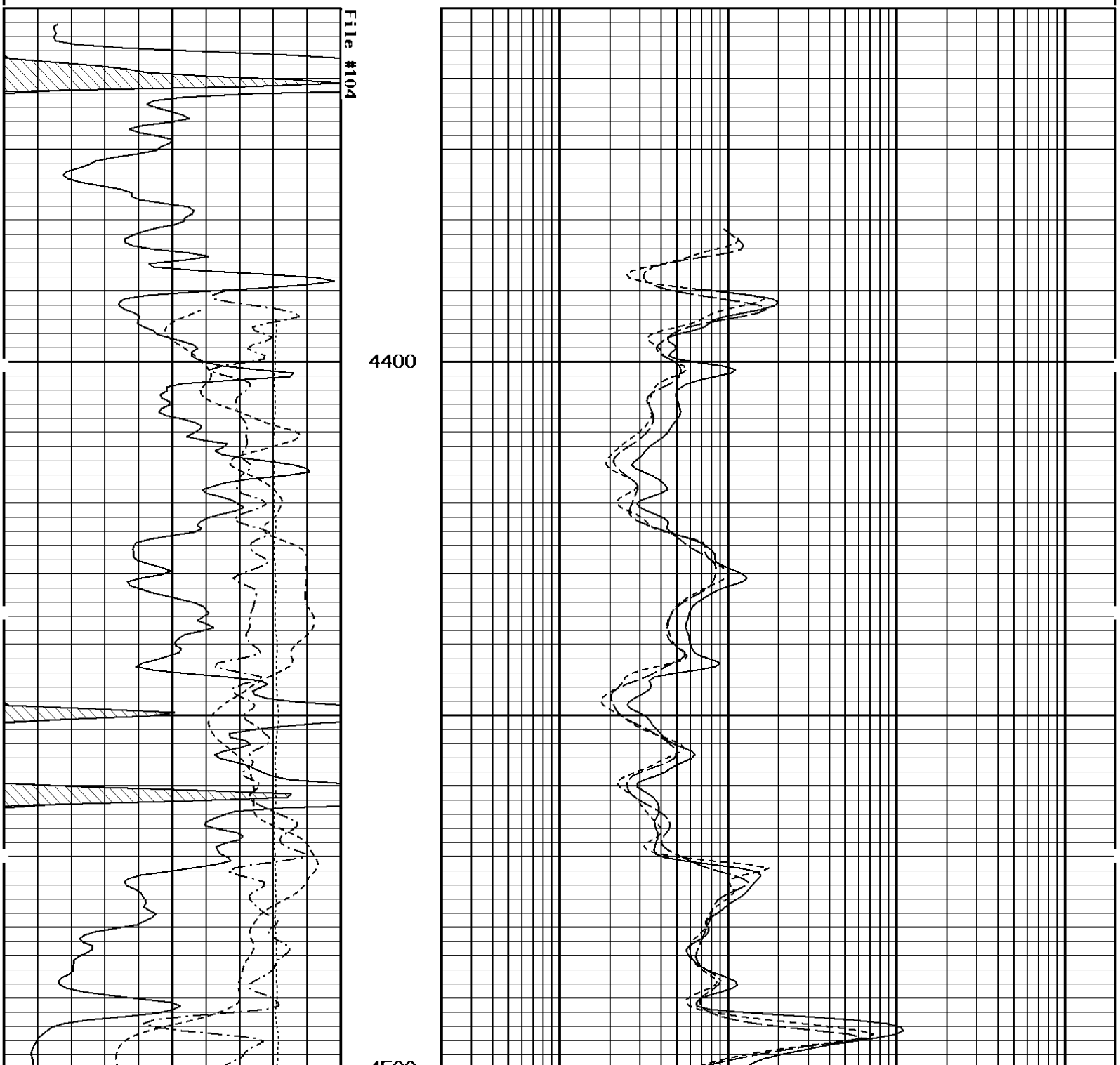
MEDIUM INDUCTION
OHMM

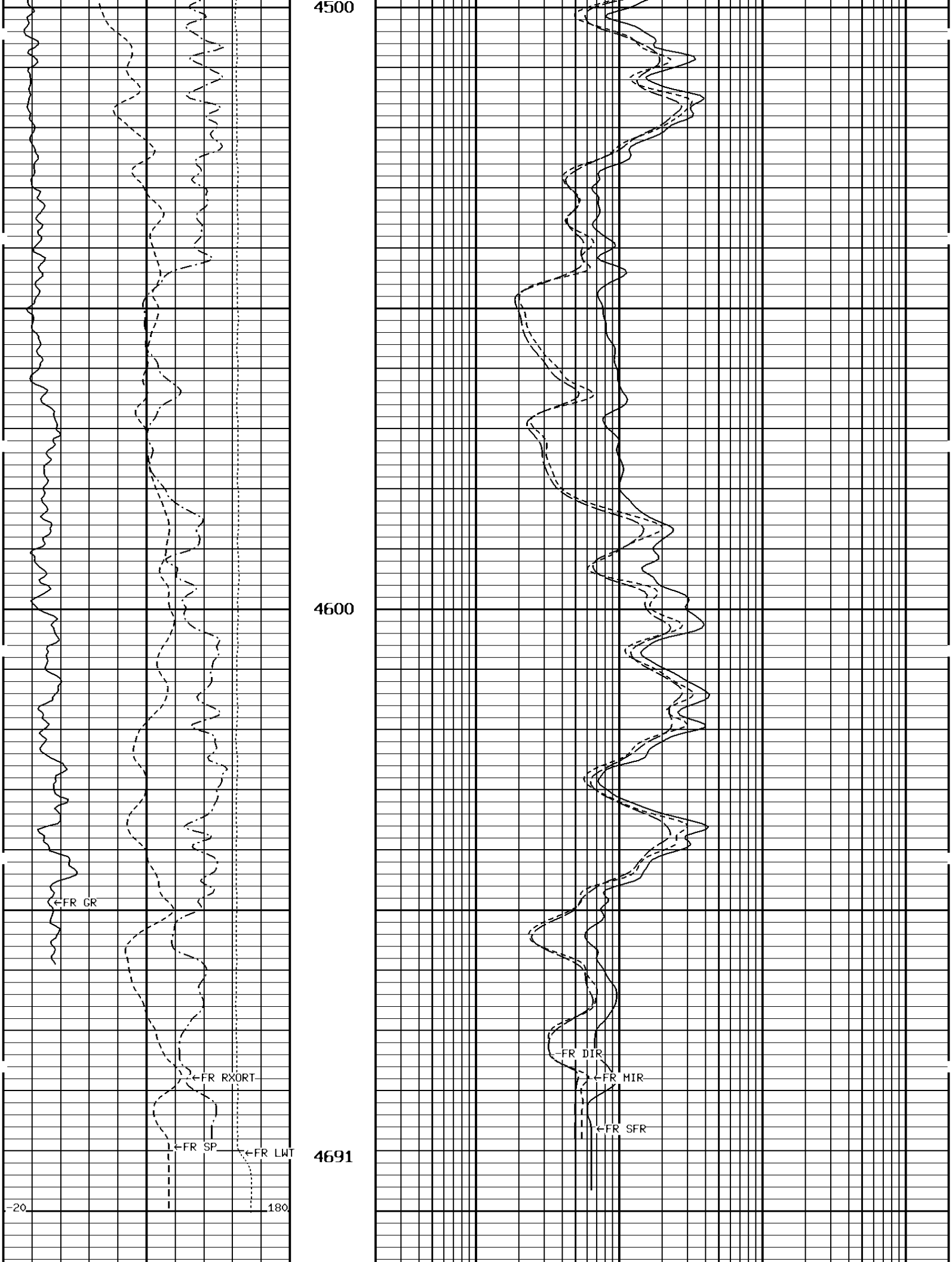
0.2 2000.0

DEEP INDUCTION
OHMM

0.2 2000.0

1:240 REPEAT SECTION




4500
4600
4691
←FR GR
←FR RXORT
←FR SP
←FR LWT
-20
180
FR DIR
←FR MIR
←FR SFR

File #104

1:240 REPEAT SECTION

GAMMA RAY API UNITS 150 – 300 / 0 – 150	DEEP INDUCTION OHMM 0.2 – 2000.0
SPONTANEOUS POTENTIAL mV → | |← 20	MEDIUM INDUCTION OHMM 0.2 – 2000.0
TENSION LBS 10000 – 0	SHALLOW FOCUSED RESISTIVITY OHMM 0.2 – 2000.0
RXO/RT -160 – 40	

* Borehole Zone Factors *

Zone 1 99999.0 to 0.0 F

Drill Bit Size	7.875	IN
BHT Depth	4691.000	F
Borehole Temperature	125.0	DEGF
Temperature Gradient	1.00	DFHF
Resistivity Of Mud	0.20	OHMM
Resistivity Of Mud Temperature	110.00	DEGF

* Calibration Summary *

Shop Calibration
GRTB

Performed : 29-Apr-2010 Time : 11:02
Sensor Suite : GR-GR5 ID : GRT-BC-41

	Measured Background	Measured Jig	Units	Calibrated Jig	Units
GR	46	346	CPS	175	GRAPI

Shop Calibration
BIT B

PIT_B

Performed : 09-Mar-2010 Time : 11:08
Sensor Suite : P-IND-T ID : PIT-BA-20

Medium

	Measured R	Measured X	Calibrated R	Calibrated X	Units
Air	131850	129617	0.1	0.1	MMHOS
Zero	131066	131069	0.0	0.0	MMHOS
Reference	244028	243695	5000.0	5000.0	MMHOS
Loop	150861	170755	2667.8	984.9	MMHOS
Sonde Error			-0.1	1.7	MMHOS
Cond			5000.0	5000.0	MMHOS

Deep

	Measured R	Measured X	Calibrated R	Calibrated X	Units
Air	129092	131615	0.1	-0.0	MMHOS
Zero	131075	131069	0.0	0.0	MMHOS
Reference	226896	227570	2000.0	2000.0	MMHOS
Loop	148067	173099	1255.9	463.7	MMHOS
Sonde Error			-1.7	-4.4	MMHOS
Cond			2000.0	2000.0	MMHOS

Temperature

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

Performed : 09-Mar-2010 Time : 11:05
Sensor Suite : SFL ID : PIT-BA-20

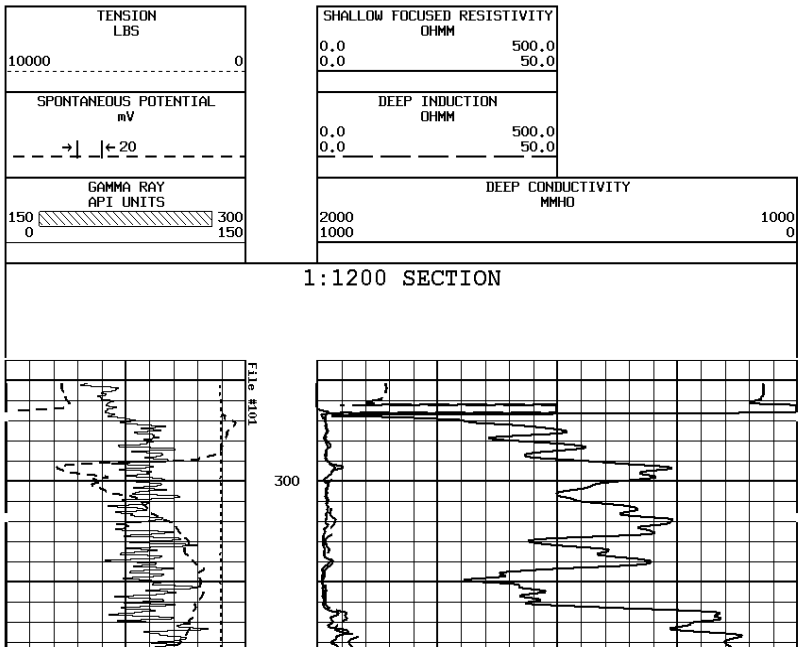
Internal

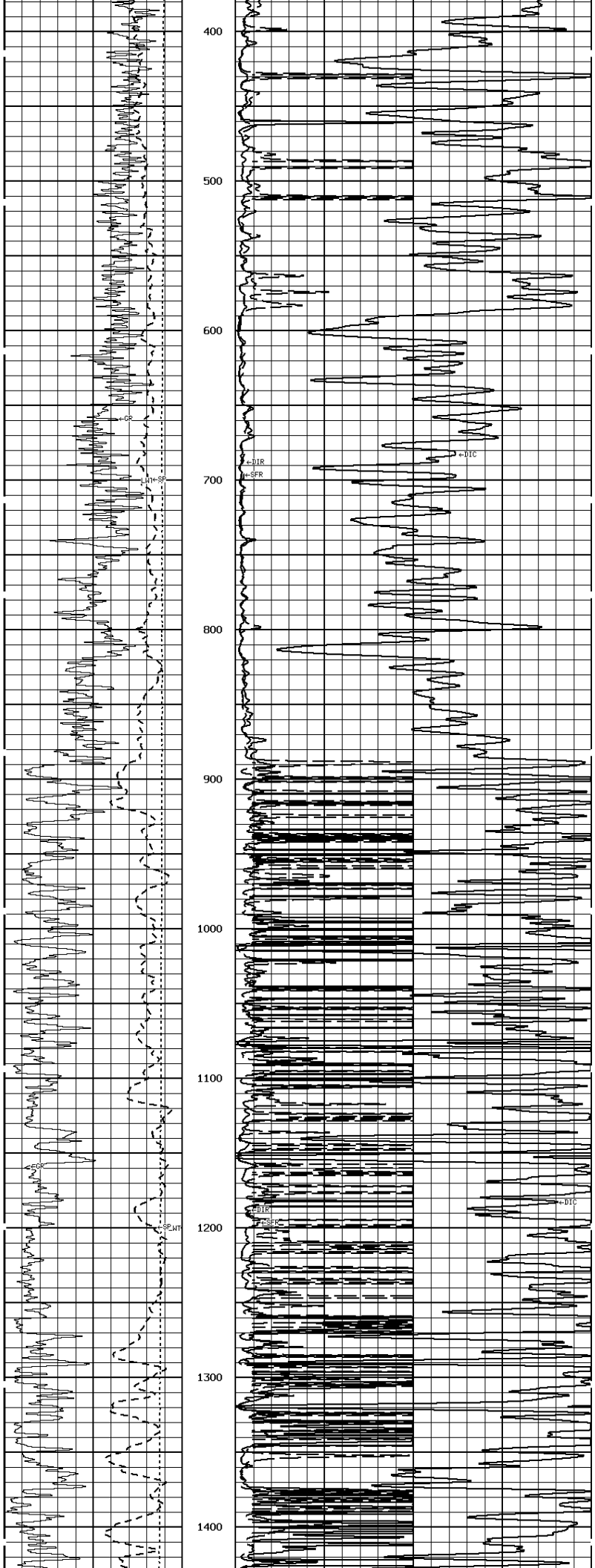
	Measured Zero	Measured Reference	Calibrated Zero	Calibrated Reference	Units
Im	32745.0	48834.1	0.0	7028.0	uA
Ib	32761.4	48458.4	0.0	1750.0	mA
MOM1	32806.0	56045.2	0.0	175.0	mV
Equivalent SFL				43.97	OHMM

Performed : 09-Mar-2010 Time : 10:57
Sensor Suite : P-SP ID : PIT-BA-20

Internal

Measured Zero	Measured Reference	Calibrated Zero	Calibrated Reference	Units
32794.7	58952.0	0.0	1000.0	mV

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500
600
700
800
900
1000
1100
1200
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1400
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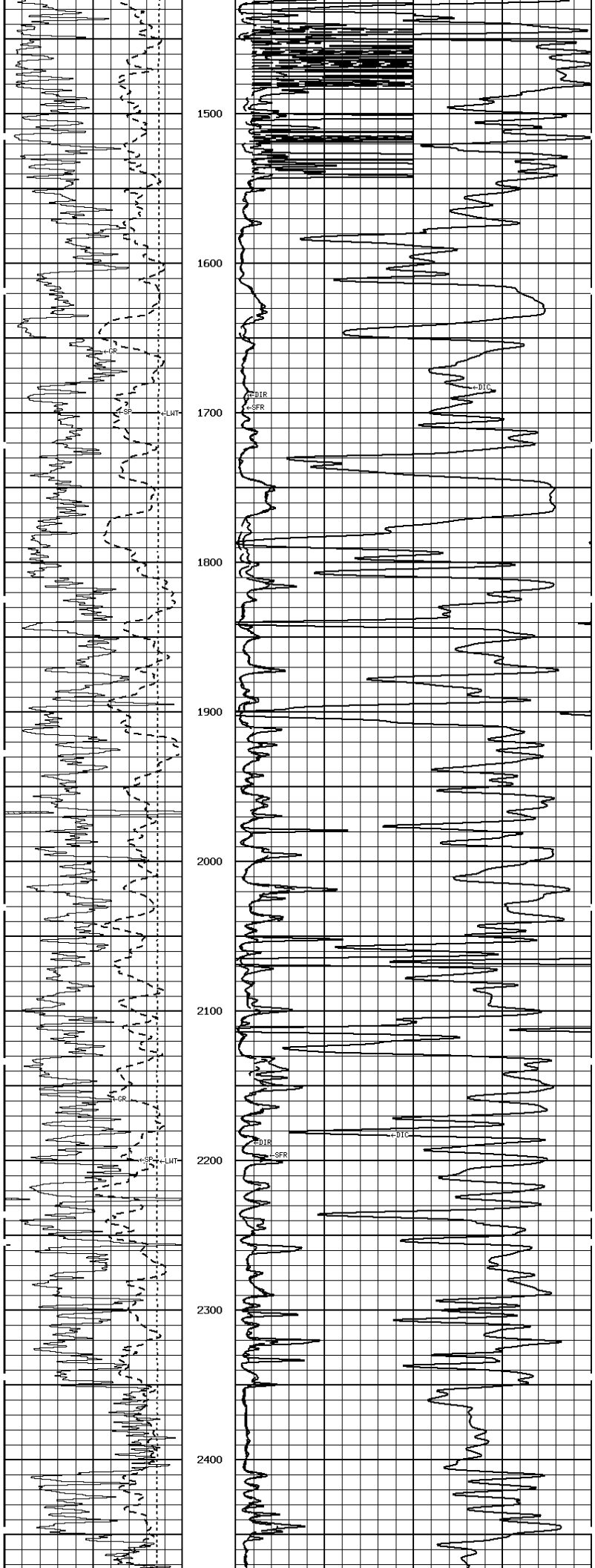
←DIR
←SFR
←DIC
←SP
←GR
←DIR
←SFR
←DIC
SP_WTR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1800
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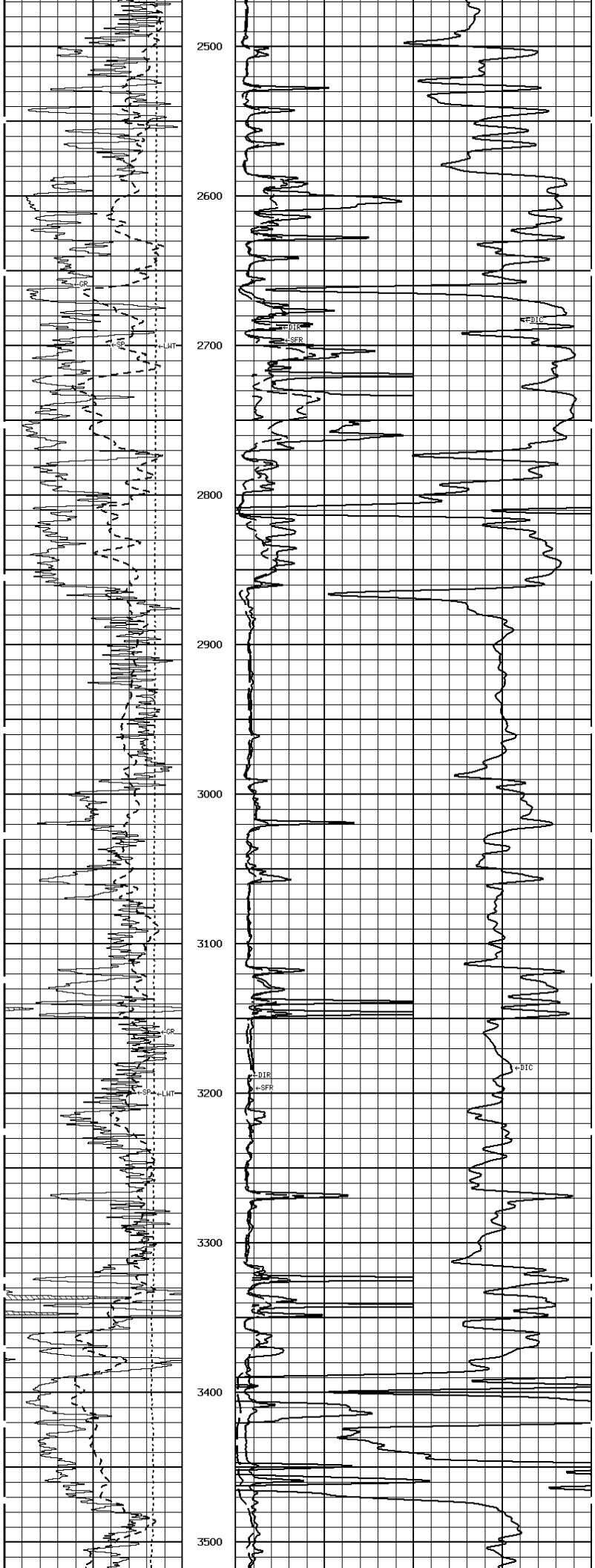
2000
2100
2200
2300
2400
GR
SP
LWT
DIR
SFR
DIC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3000
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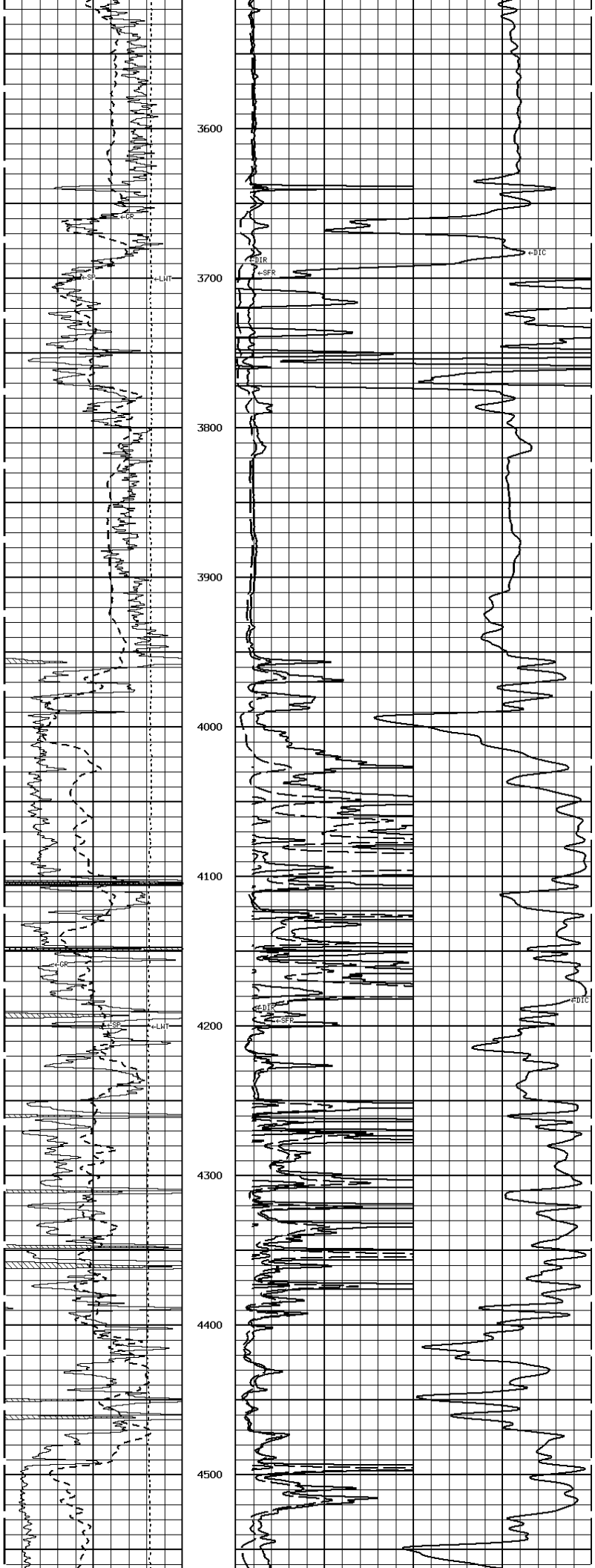
3500
GR
SP
LMT
DIR
SFR
DIC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3700
3800
3900
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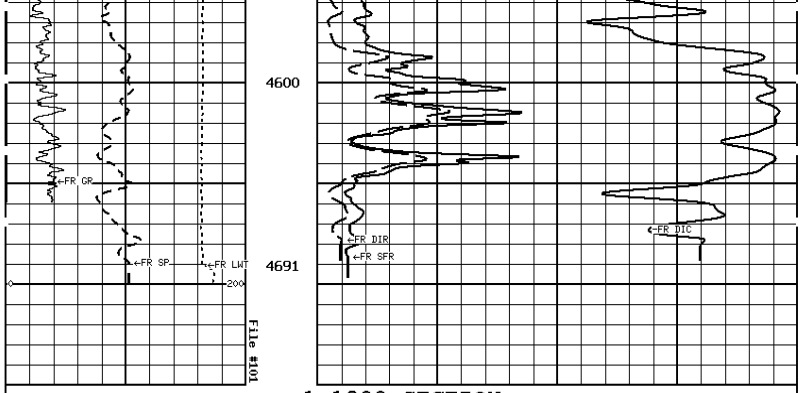
4400
4500
←GR
←SP
←LWT
←DIR
←SFR
←DIC



1:1200 SECTION

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

SPONTANEOUS POTENTIAL mV	DEEP INDUCTION OHMM
→ | | ← 20	0.0 500.0
	0.0 50.0

TENSION LBS	SHALLOW FOCUSED RESISTIVITY OHMM
10000 0	0.0 500.0
	0.0 50.0