Tucker WIRELINE SERVICES

DUAL INDUCTION RESISTIVITY LOG

File No. : TUL-56702
Company : BRUNGARDT OIL & LEASING, INC
Well : SELLEN'S 'A' #1
Field :
County : RUSSELL
State : KANSAS
Country : USA

Location : API#: 15-167-23641-00-00
400' FNL & 400' FWL
SE NW NW NW
Sect : 12 Twp : 13S Rge : 14W

Recorded By : B.BAILEY
Witnessed By : B.HUTCHINSON

Date : OCT 25 2010
Run No. : 1

Permanent Datum :	GL	
Drilling Measured From :	KB	
Log Measured From:	KB	
Above Permanent Datum :	5.00	FT
Depth--Driller :	3180.0	FT
Depth--Logger :	3179.0	FT
Bottom Log Interval :	3178.0	FT
Top Log Interval :	219.0	FT
Casing Depth--Driller:	219.0	FT
Casing Depth--Logger :	219.0	FT
Casing Diameter :	8.625	IN
Bit Size :	7.875	IN

Unit No. : 127
Location : TULSA

Elevations :
KB : 1635.00 FT
DF : 1634.00 FT
GL : 1630.00 FT

Additional Services

CNT
LDT
MLT

Run Number 1

Depth To Fluid	0.0	FT		
Fluid Type In Hole :	WBM			
Density :	9.100	SG		
Viscosity :	46.000	SEC		
pH :	9.500			
Fluid Loss :	10.400			
Salinity :	0.000	KPPM		
			66	F
			96	F
RM Source :	MEASURED			
RM :	0.900	OHMM at	66	F
RM at BHT :	0.637	OHMM at	96	F
RMF Source :	CALCULATED			
RMF :	0.765	OHMM at	66	F
RMF at BHT :	0.542	OHMM at	96	F
RMC Source :	CALCULATED			

RMC :	1.035	OHMM at	66	F
RMC at BHT :	0.733	OHMM at	96	F
Max Recorded Temp. :			96	F
Time Circulation Stopped :				
Operating Rig Time, Hrs. :			2.0	

- Source Serial Numbers -

Gamma	CSV-587
Neutron	N-1044

- Sonde Serial Numbers -

GRTB	GRT-BA-14
CNT	CNP-AA-116
LDTNG	LDP-NG-02
MSTNG	MST_DA-_029
PIT	PIT-AB-14

Casing Strings

Size (IN)	Weight (LB/FT)	Bottom (FT)
8.625	32.00	219.00

- Comments -

ALL PRESENTATIONS AS PER CUSTOMER REQUEST.

GRT, CNT, LDT, MLT, PIT RAN IN COMBINATION
CALIPERS ORIENTED ON THE X-Y AXIS.
PHIN IS CALIPER CORRECTED.
2.71 G/CC USED TO CALCULATE POROSITY.
ANNULAR HOLE VOLUME CALCULATED USING 5.500" PRODUCTION CASING.
DERTAIL FROM TD TO 1500' AS PER CUSTOMER REQUEST.

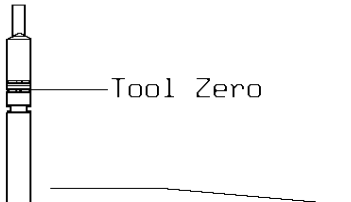
GRT: GRP.
CNT: PHIN, CLCNIN.
LDT: PORL, LCORN, PECLN, CLLDIN, LDENN, PORLLS, PECSN.
MLT: INV_R, NOR_R, MSCLPIN.
PIT: ILD, ILM, CIRD, SFLAEC, SPU.

OPERATORS:
M.BURKE
R.AUSTIN

THANK YOU FOR USING TUCKER WIRELINE SERVICES!

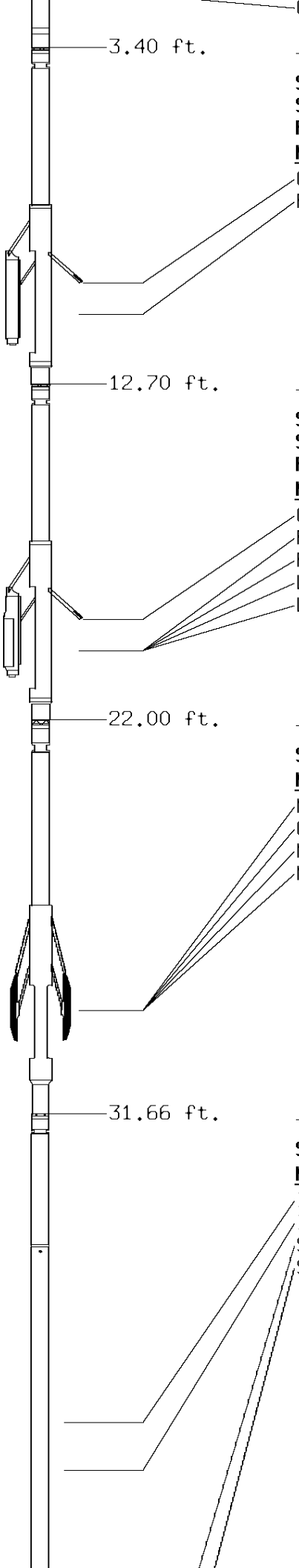
Tool String Schematic

Total Tool Length - 52.95 **ft.**
Maximum Outside diameter - 6.00 **in.**
Net Weight in Air - 943.00 **lbs.**



Tool: GRTB **Length:** 3.40 **ft. O.D.:** 3.60 **in.**
Sonde ID : GRT-BA-14

Measure Point	Stack Offset	Tool Offset	Bottom Offset
SRR		3.00	50.85



	Stack Offset	Tool Offset	Bottom Offset
GRP	2.00	2.00	50.95

3.40 ft.

Tool: CNT **Length:** 9.30 **ft. O.D.:** 4.36 **in.**
Sonde ID : CNP-AA-116
Source ID : N-1044
Pad ID : CNP-AA-116

Measure Point	Stack Offset	Tool Offset	Bottom Offset
CLCN	9.40	6.00	43.55
PHIN	10.24	6.84	42.71

12.70 ft.

Tool: LDTNG **Length:** 9.30 **ft. O.D.:** 4.80 **in.**
Sonde ID : LDP-NG-02
Source ID : CSV-587
Pad ID : LDP-NG-02

Measure Point	Stack Offset	Tool Offset	Bottom Offset
CLLD	18.70	6.00	34.25
PEL	19.70	7.00	33.25
PES	20.10	7.40	32.85
LDEN	19.70	7.00	33.25
LCOR	19.70	7.00	33.25

22.00 ft.

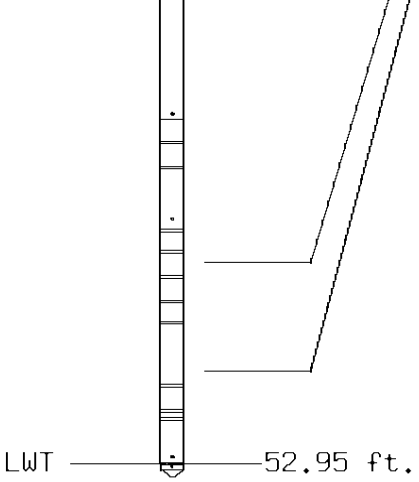
Tool: MST **Length:** 9.66 **ft. O.D.:** 6.00 **in.**
Sonde ID : MST_DA-_029

Measure Point	Stack Offset	Tool Offset	Bottom Offset
MSFL	29.60	7.60	23.35
CLMR	29.60	7.60	23.35
MSFN	29.60	7.60	23.35
MSFI	29.60	7.60	23.35

31.66 ft.

Tool: PIT **Length:** 21.29 **ft. O.D.:** 3.62 **in.**
Sonde ID : PIT-AB-14

Measure Point	Stack Offset	Tool Offset	Bottom Offset
ILD	40.58	8.92	12.37
ILM	41.76	10.10	11.20
SFLU	49.15	17.49	3.81
SP	52.26	20.60	0.69



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

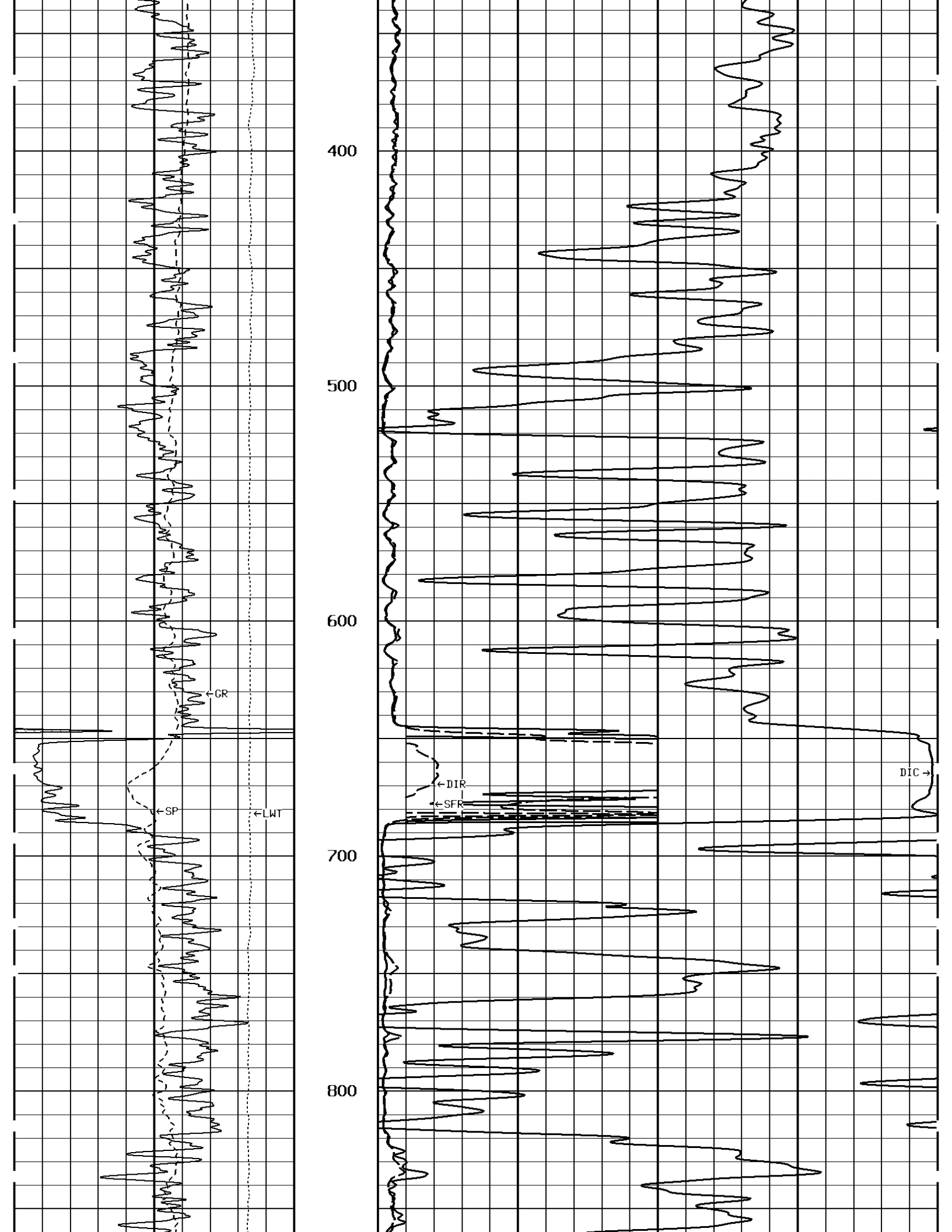
DEEP CONDUCTIVITY
MMHO
2000 1000
1000 0

1:600 SECTION
2 INCH

File #708

200

300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600
700
800
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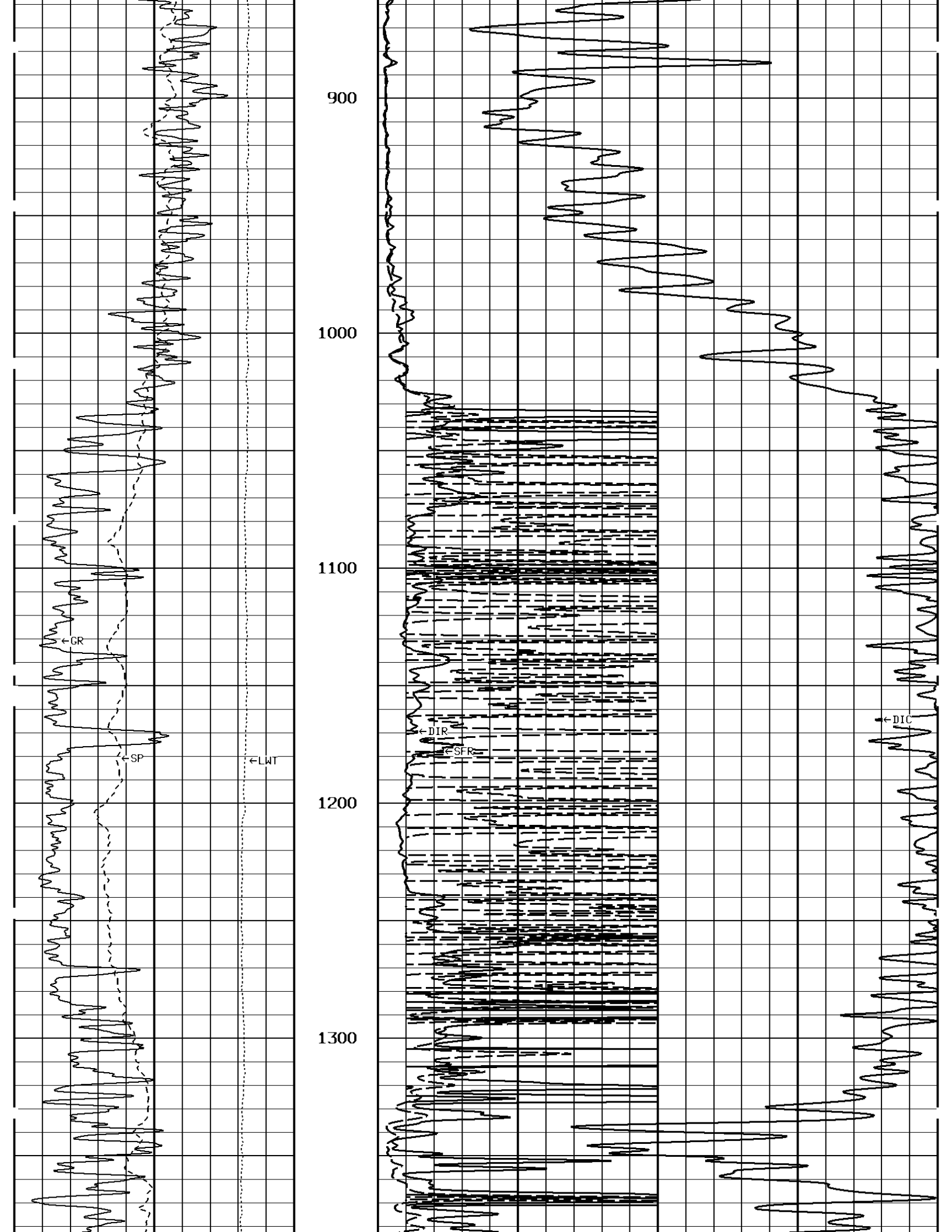
←SP
←LWT
←DIR
←SFR
DIC→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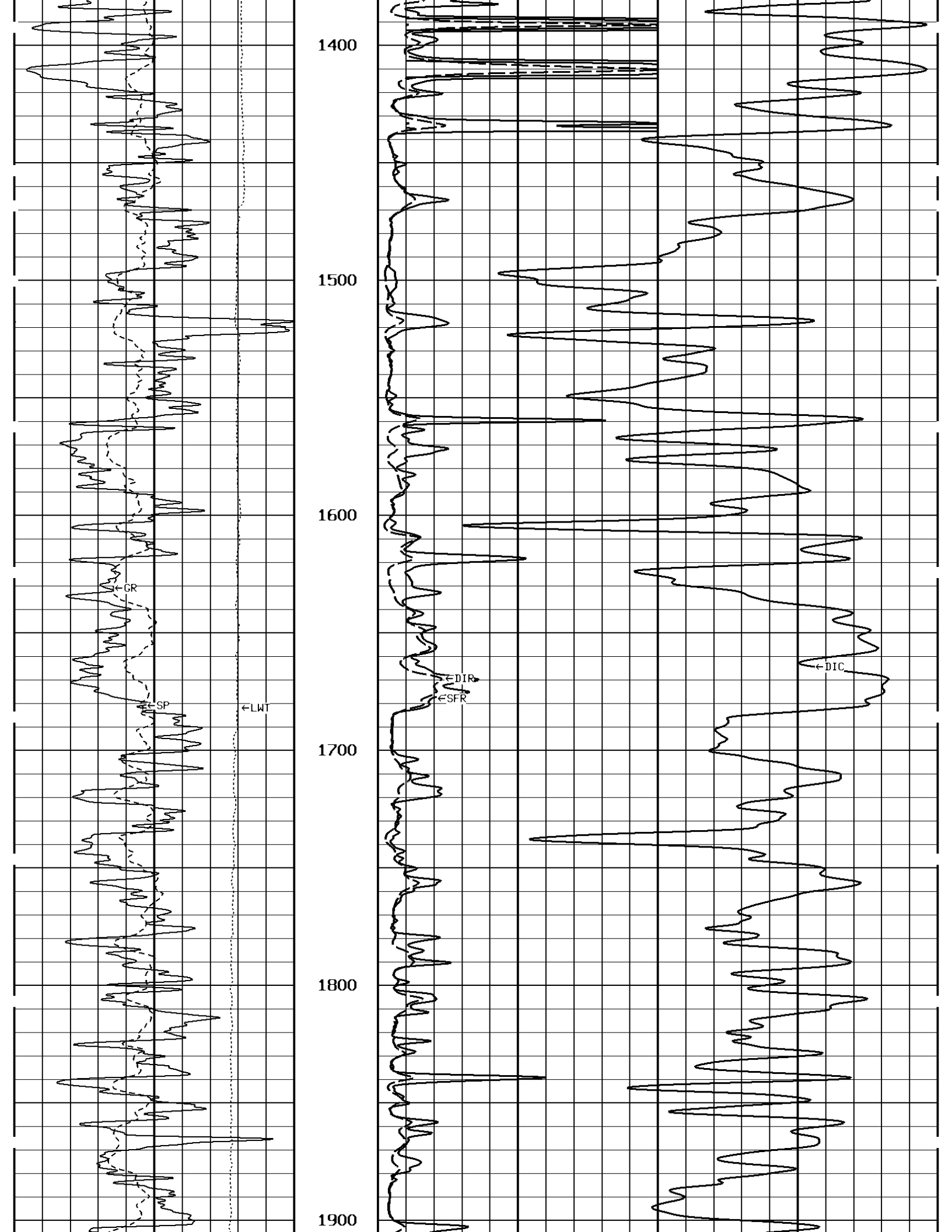
1000
1100
1200
1300
←GR
←SP
←LWT
←DIR
←SFR
←DIC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1500
1600
1700
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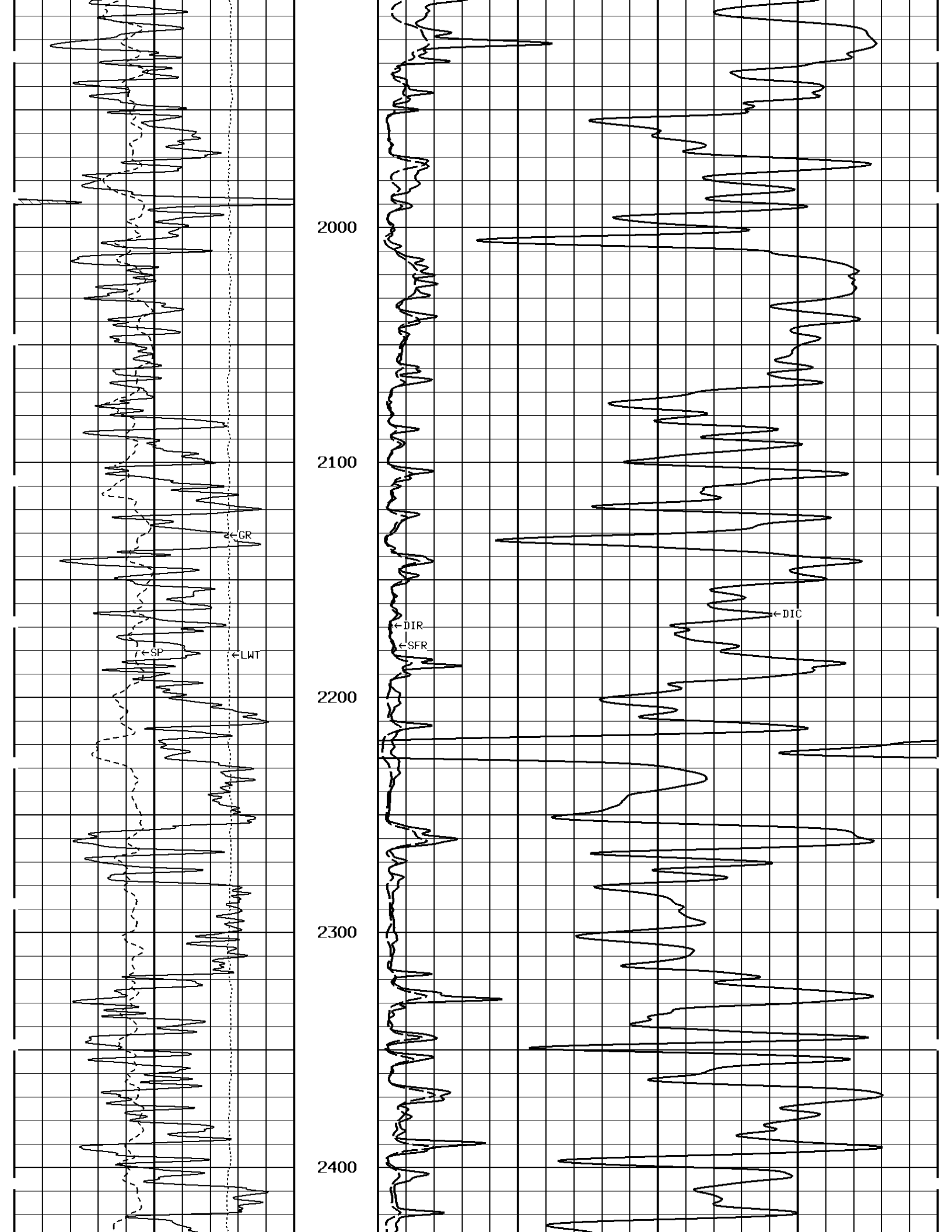
←SP
←LWT
←DIR
←SFR
←DIC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2100
2200
2300
2400
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←SP
←LWT
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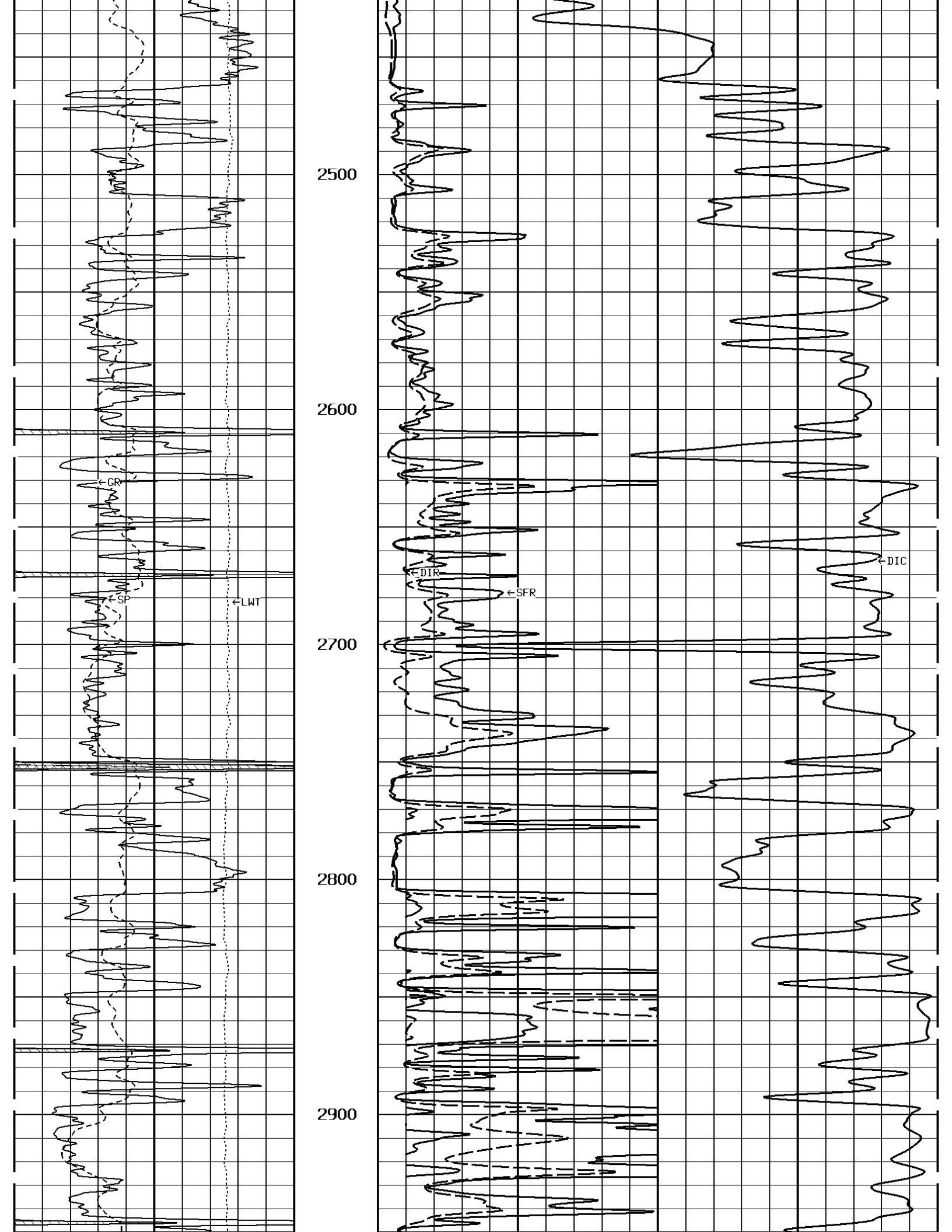
←DIC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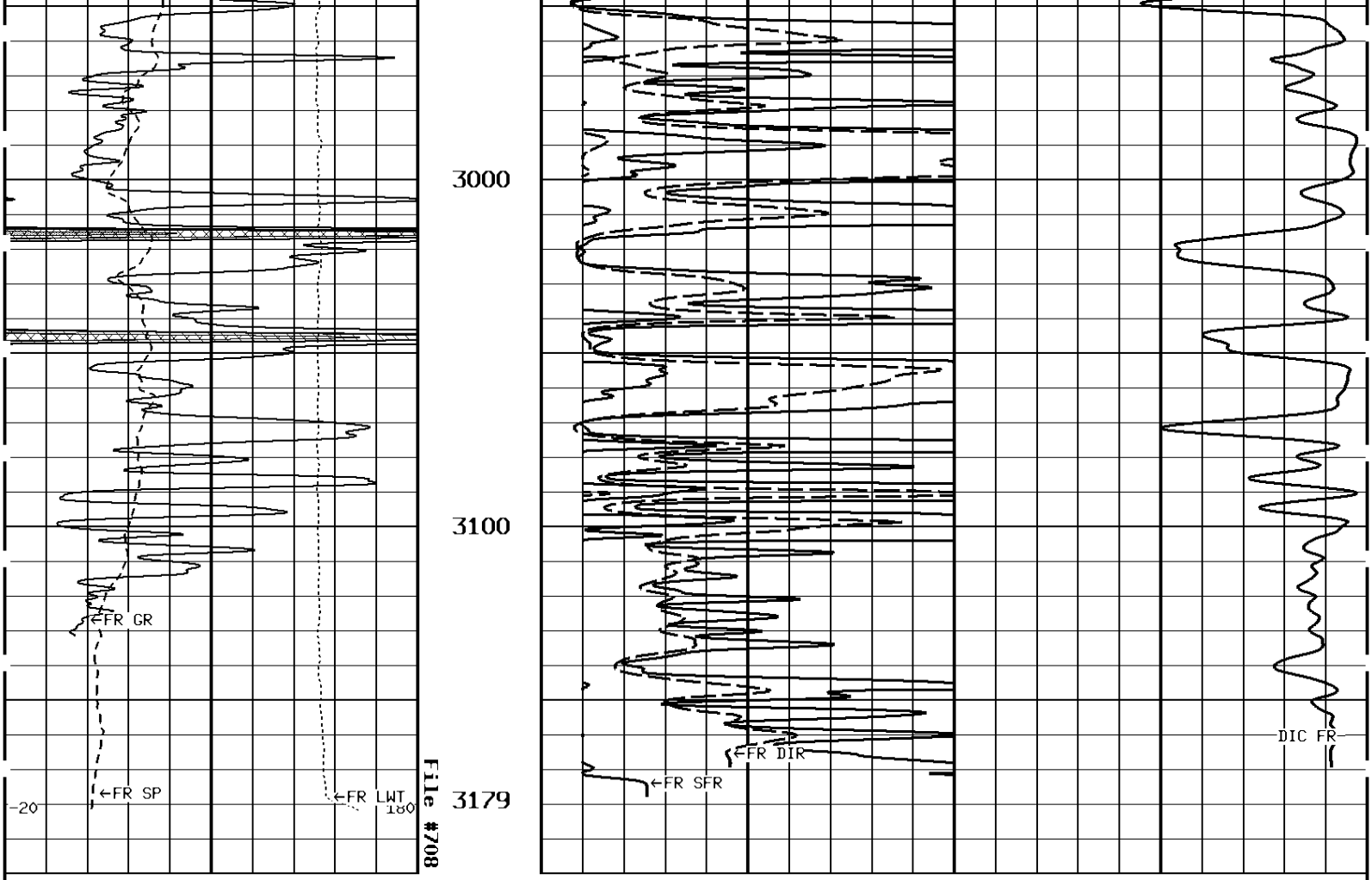
2600
2700
2800
2900
←GR
←SP
←LWT
←DIR
←SFR
←DIC



1:600 SECTION
2 INCH

GAMMA RAY
API UNITS
150 300
0 150

SPONTANEOUS POTENTIAL
mV
→| |← 20

TENSION
LBS
10000 0

DEEP CONDUCTIVITY
MMHO
2000 1000
1000 0

DEEP INDUCTION
OHMM
0.0 500.0
0.0 50.0

SHALLOW FOCUSED RESISTIVITY
OHMM
0.0 500.0
0.0 50.0

TENSION
LBS
10000 0

SHALLOW FOCUSED RESISTIVITY
OHMM
0.2 2000.0

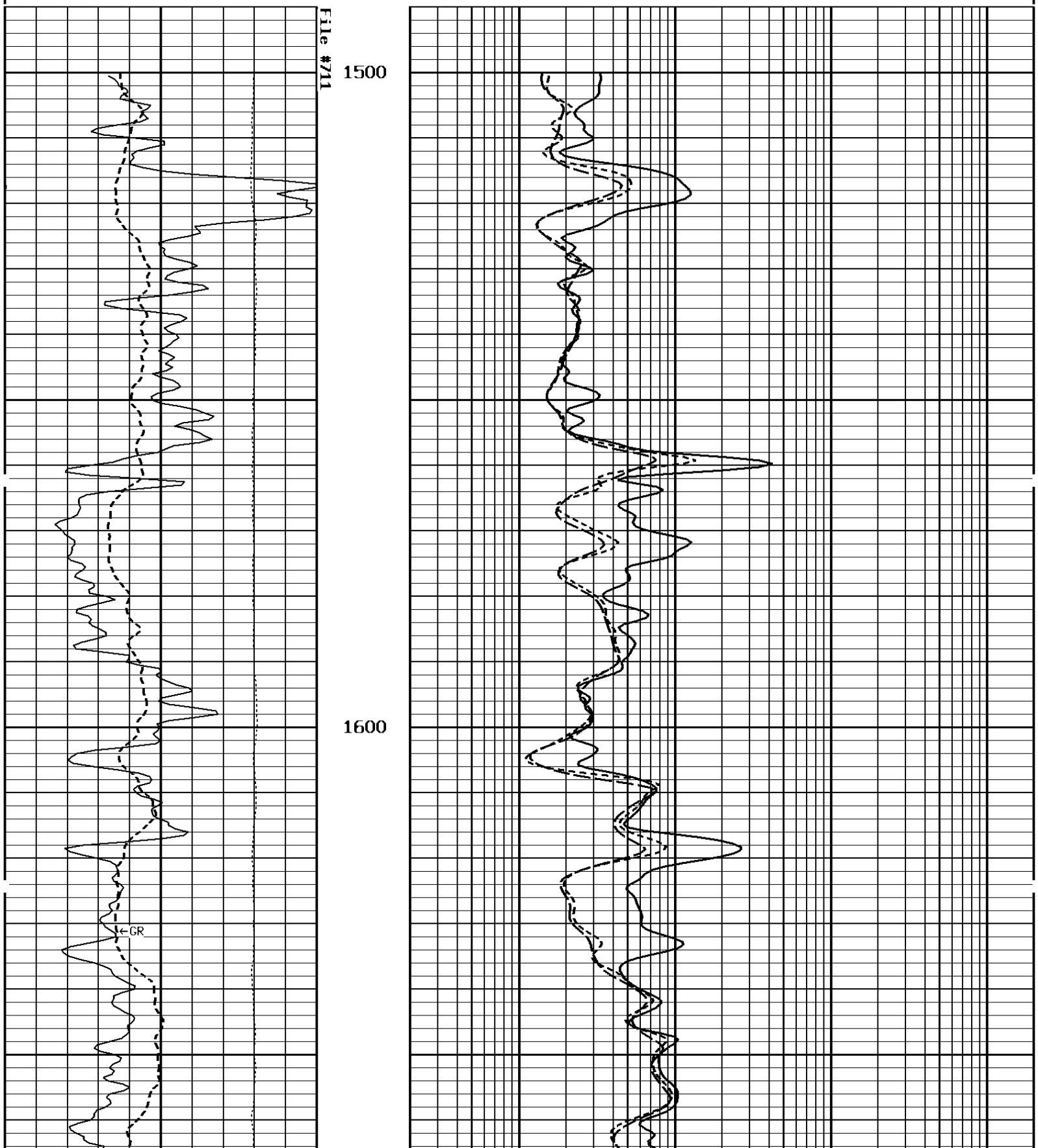
SPONTANEOUS POTENTIAL
mV
→| |← 20

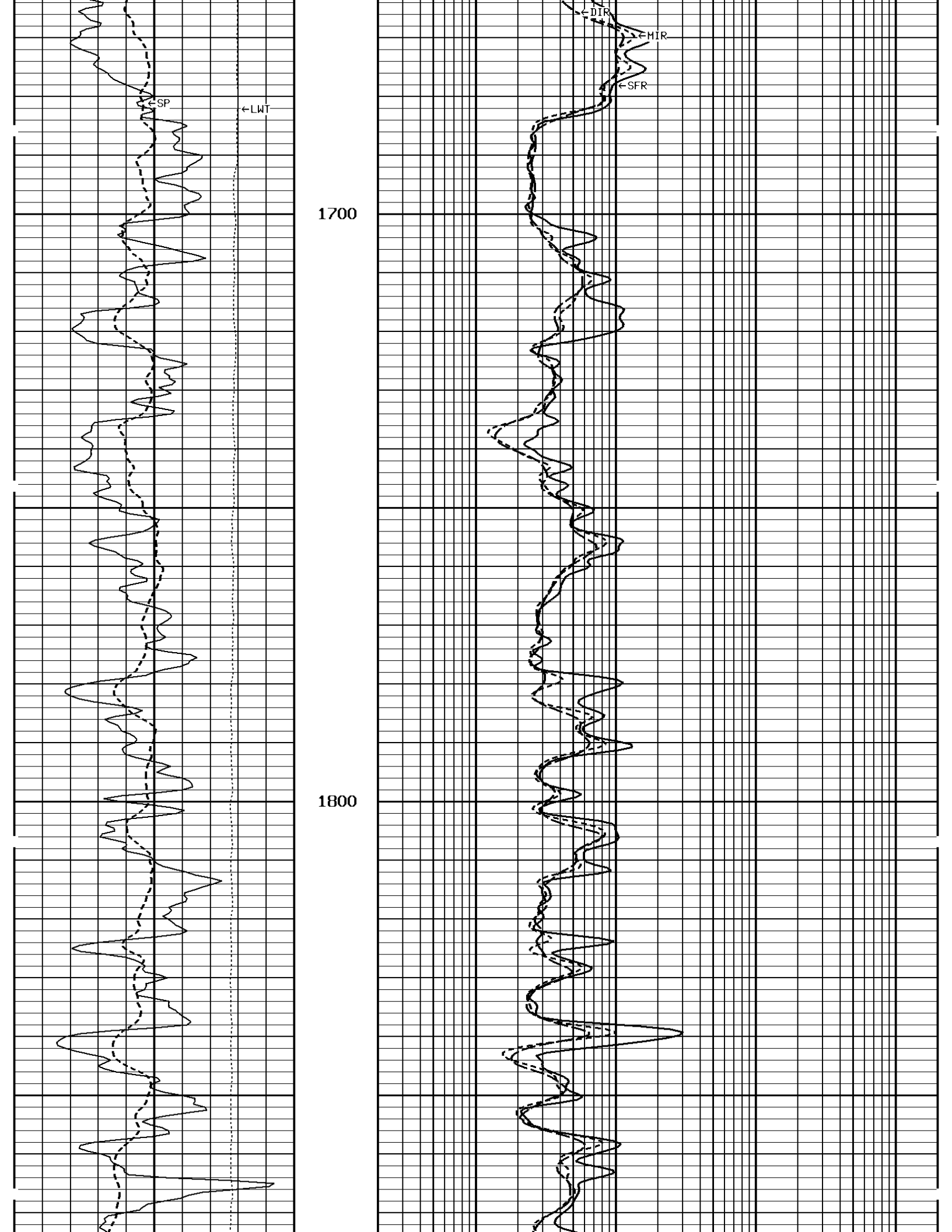
MEDIUM INDUCTION
OHMM
0.2 2000.0

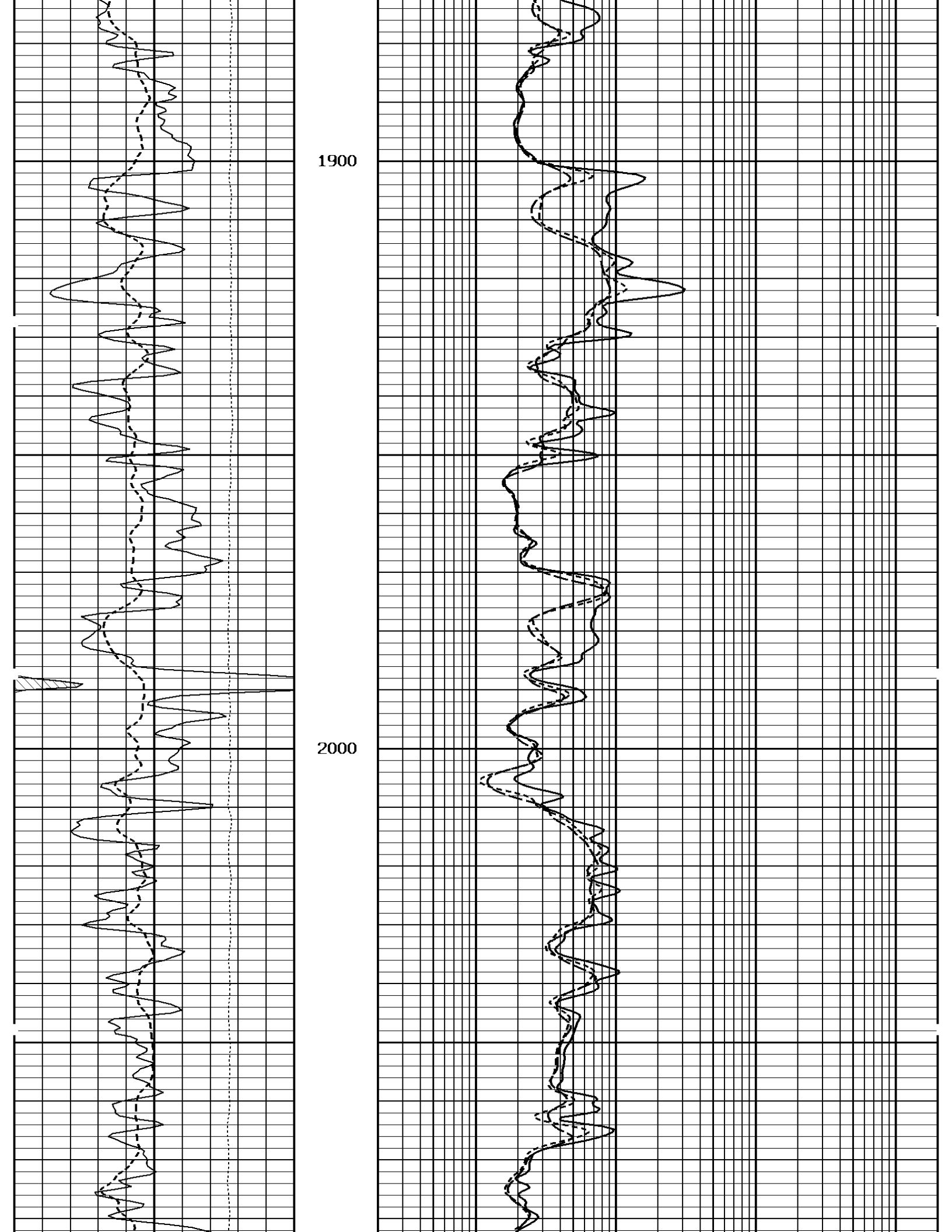
GAMMA RAY
API UNITS
150 300
0 150

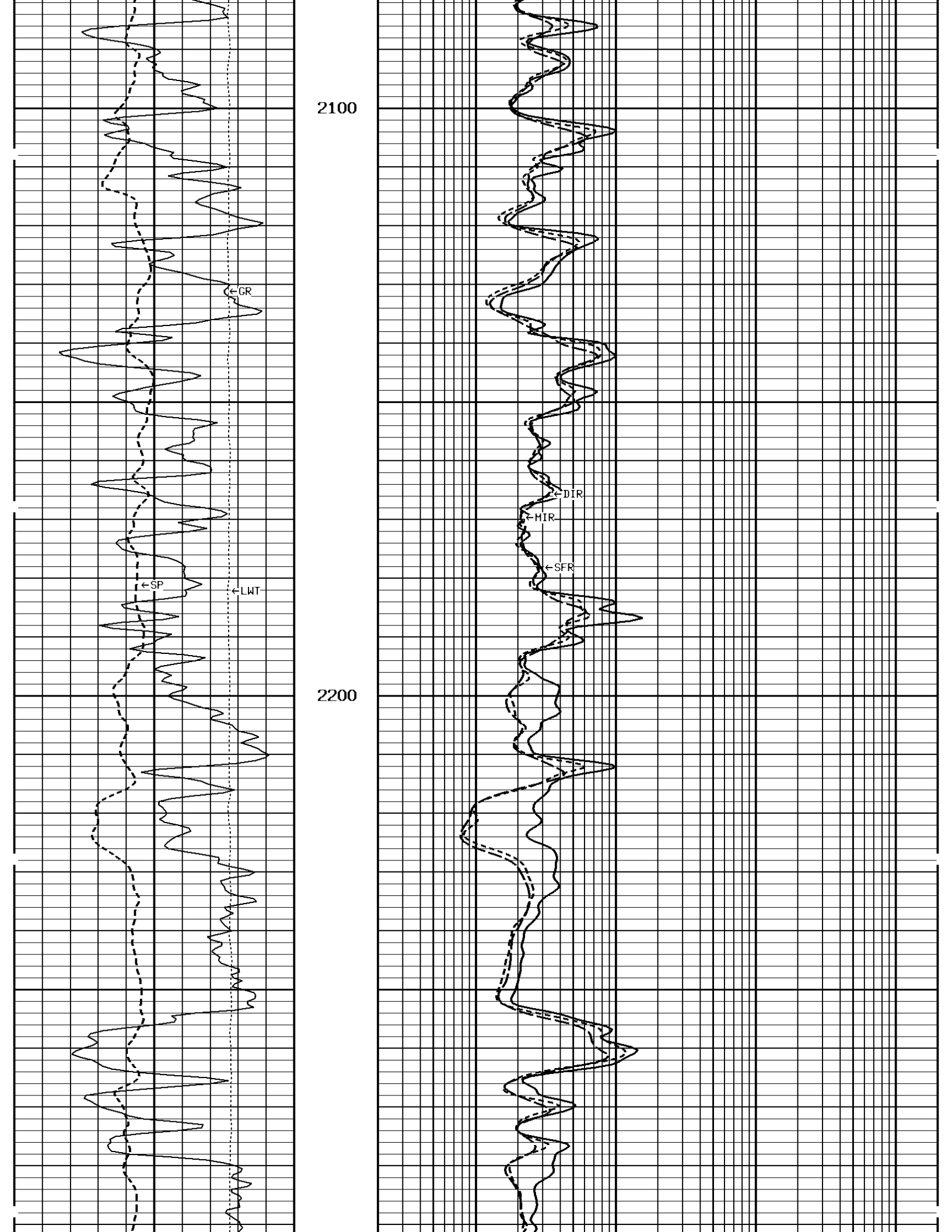
DEEP INDUCTION
OHMM
0.2 2000.0

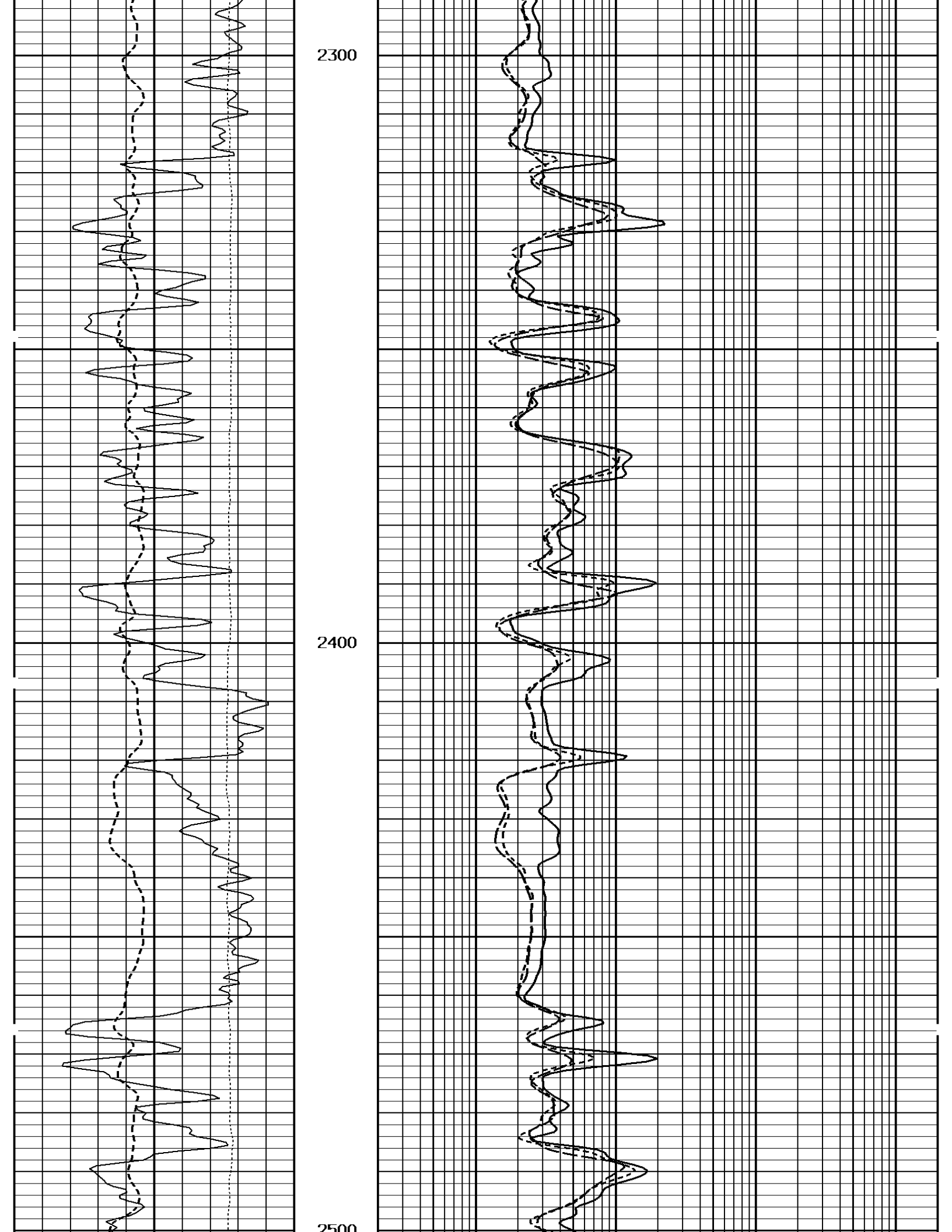
1:240 MAIN SECTION

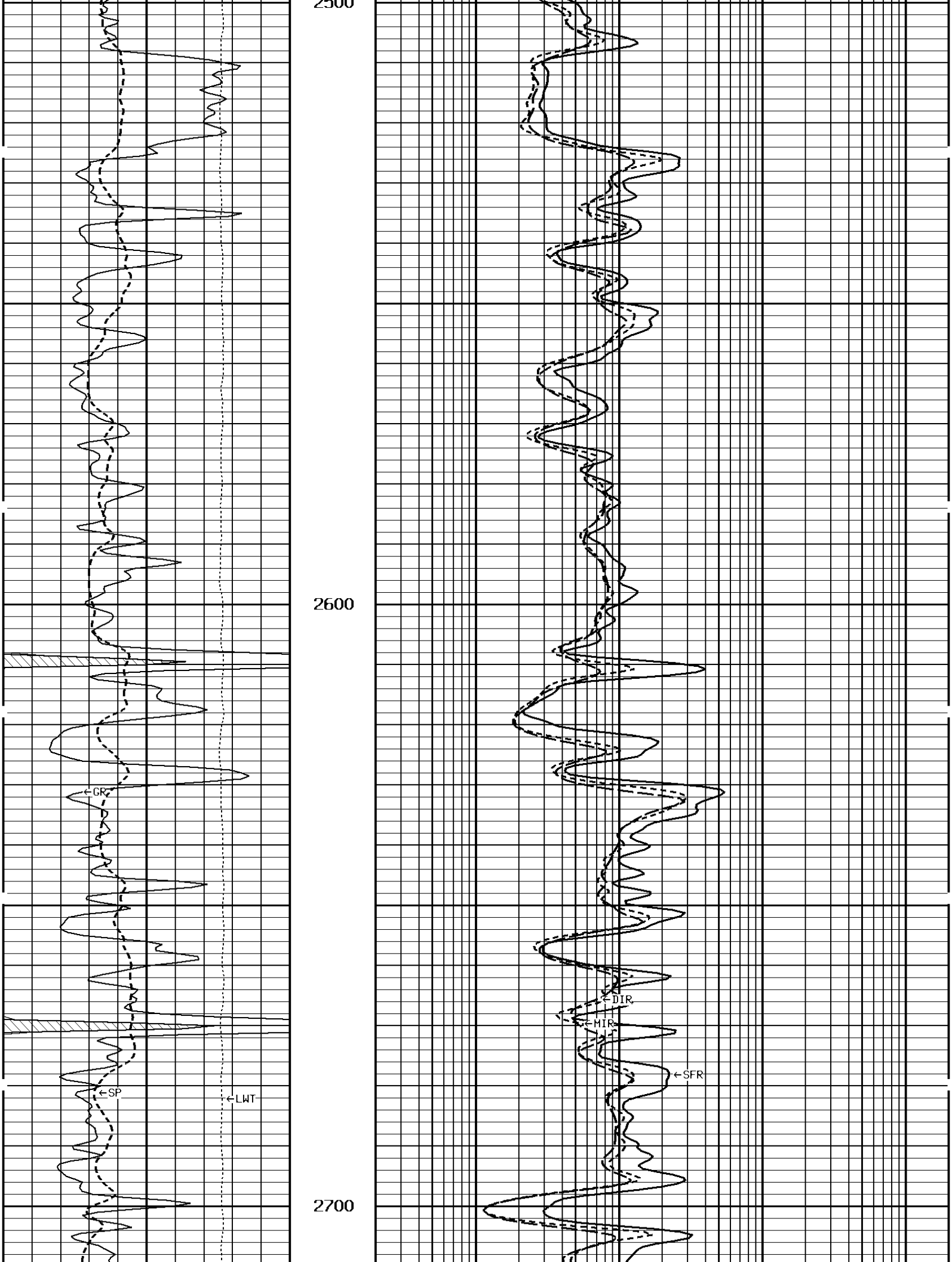


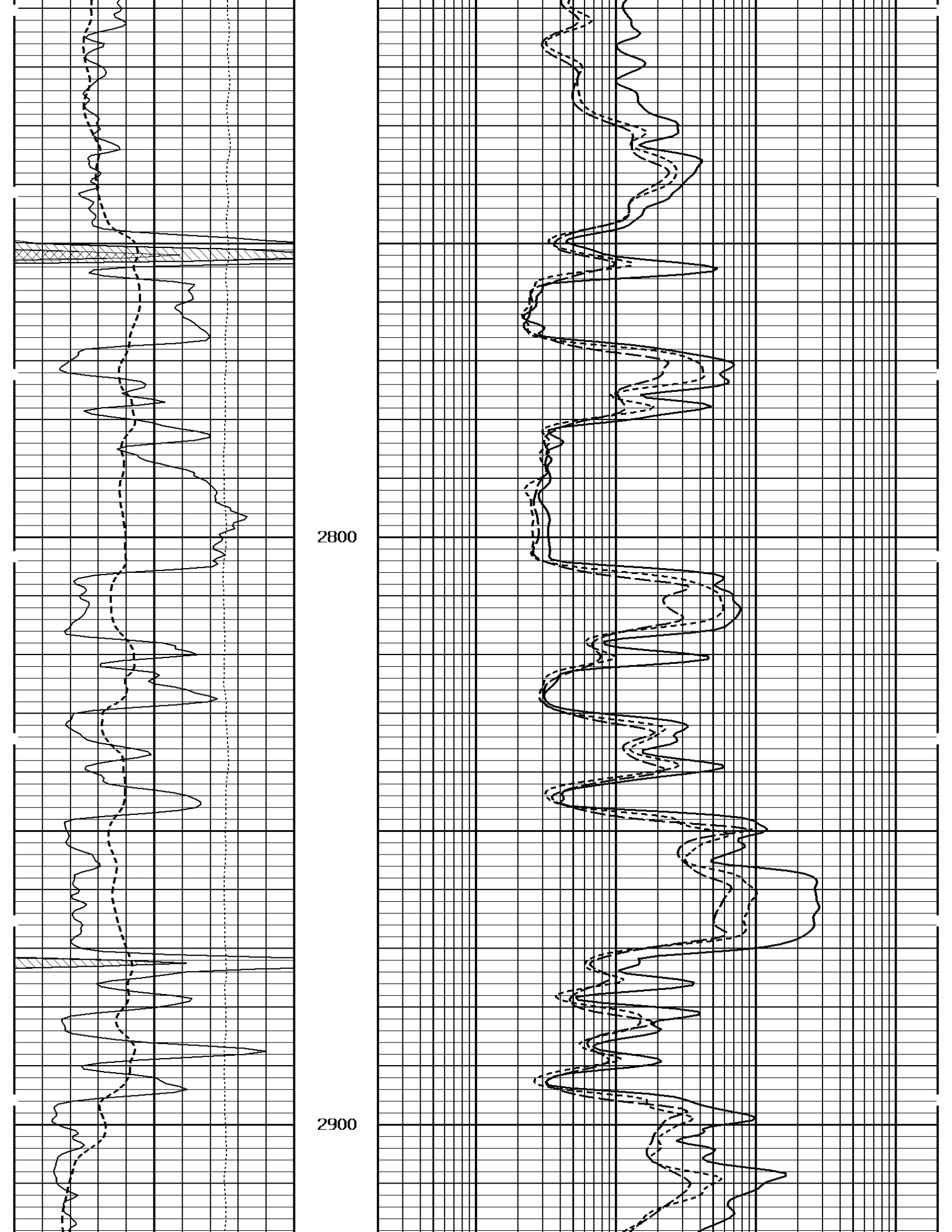

←SP
←LWT
←DIR
←MIR
←SFR
1700
1800

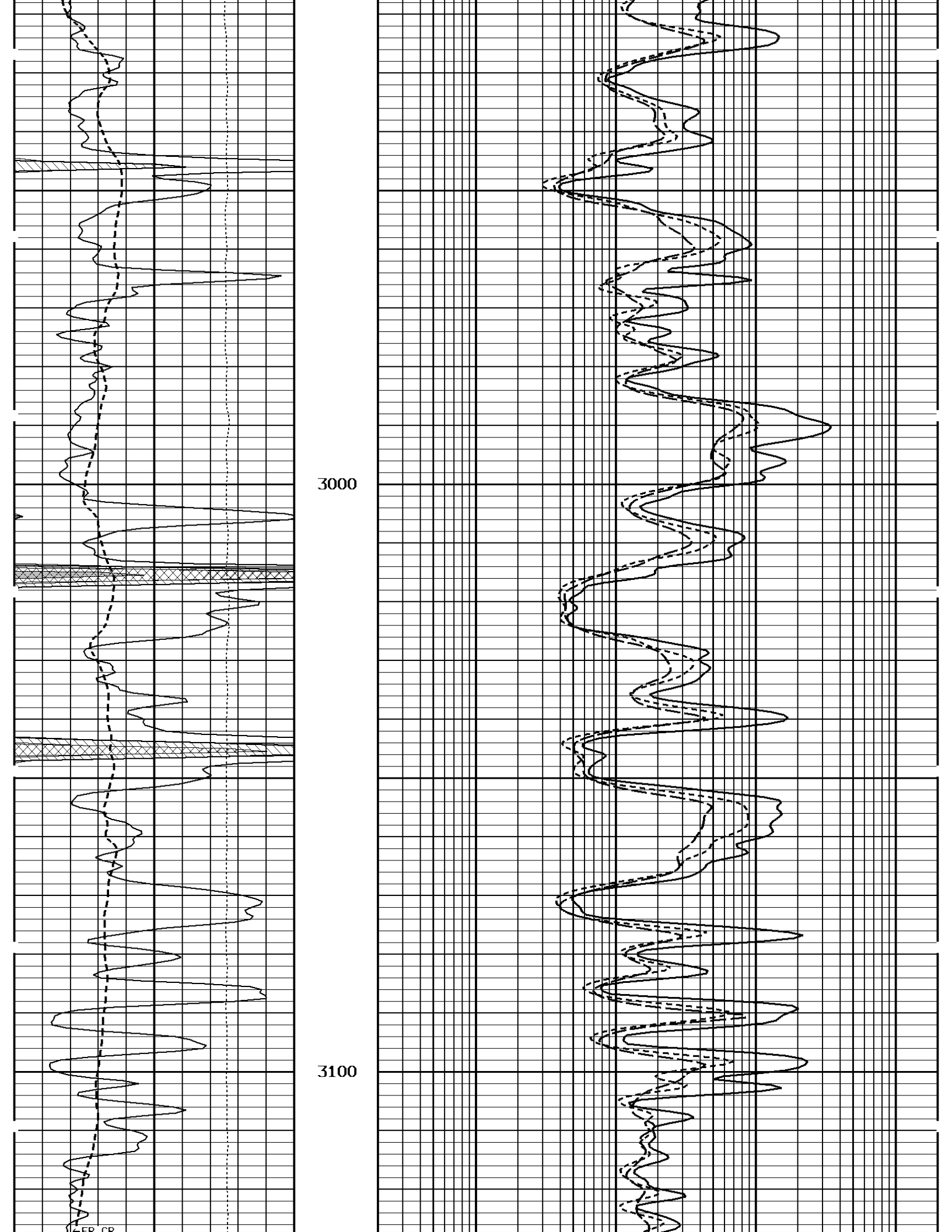

1900
2000

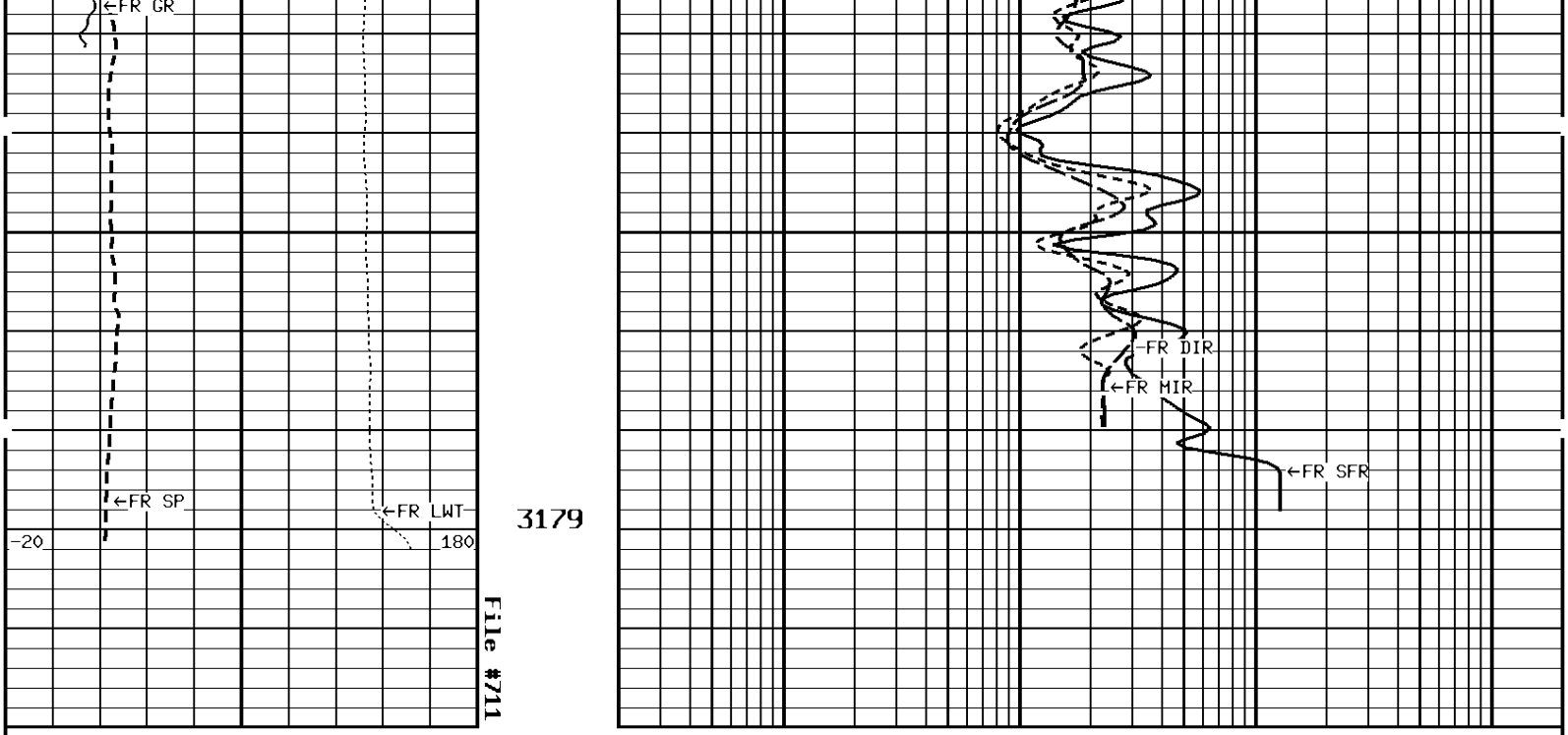

2100
←GR
←DIR
←MIR
←SFR
←SP
←LWT
2200


2300
2400
2500


2500
2600
2700
←GR
←SP
←LWT
←DIR
←MIR
←SFR


2800
2900


3000
3100



1:240 MAIN SECTION

GAMMA RAY
API UNITS
150 300
0 150

SPONTANEOUS POTENTIAL
mV
→| |← 20

TENSION
LBS
10000 0

DEEP INDUCTION
OHMM
0.2 2000.0

MEDIUM INDUCTION
OHMM
0.2 2000.0

SHALLOW FOCUSED RESISTIVITY
OHMM
0.2 2000.0

* Borehole Zone Factors *

Zone 1 99999.0 to 0.0 F

Drill Bit Size	7.875	IN
BHT Depth	3180.000	F
Borehole Temperature	99.0	DEGF
Temperature Gradient	1.00	DFHF
Resistivity Of Mud	0.90	OHMM
Standoff	1.5	
Resistivity Of Mud Temperature	66.00	DEGF

TENSION
LBS
10000 0

SHALLOW FOCUSED RESISTIVITY
OHMM
0.2 2000.0

SPONTANEOUS POTENTIAL
mV

MEDIUM INDUCTION
OHMM

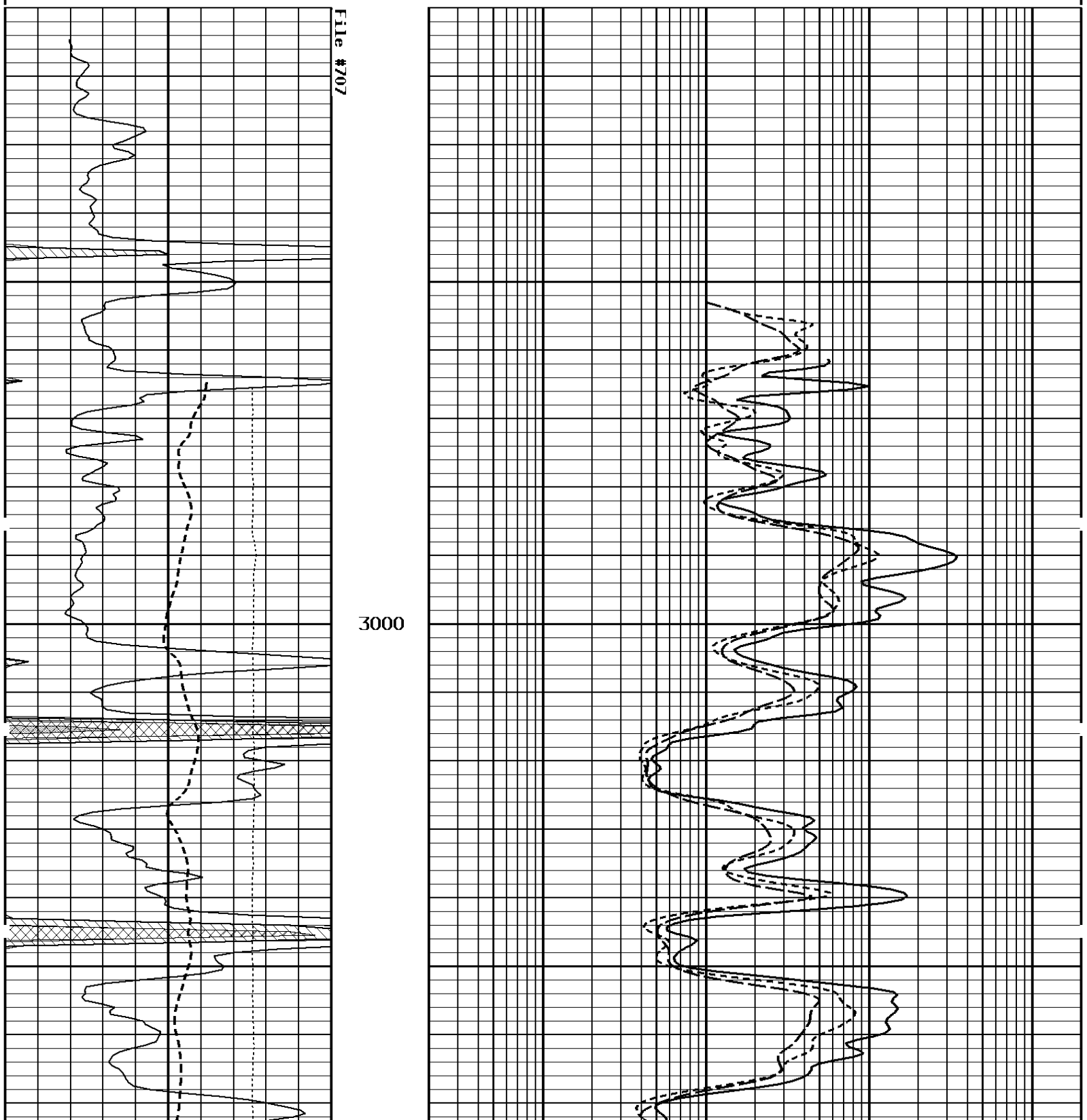
→| |← 20

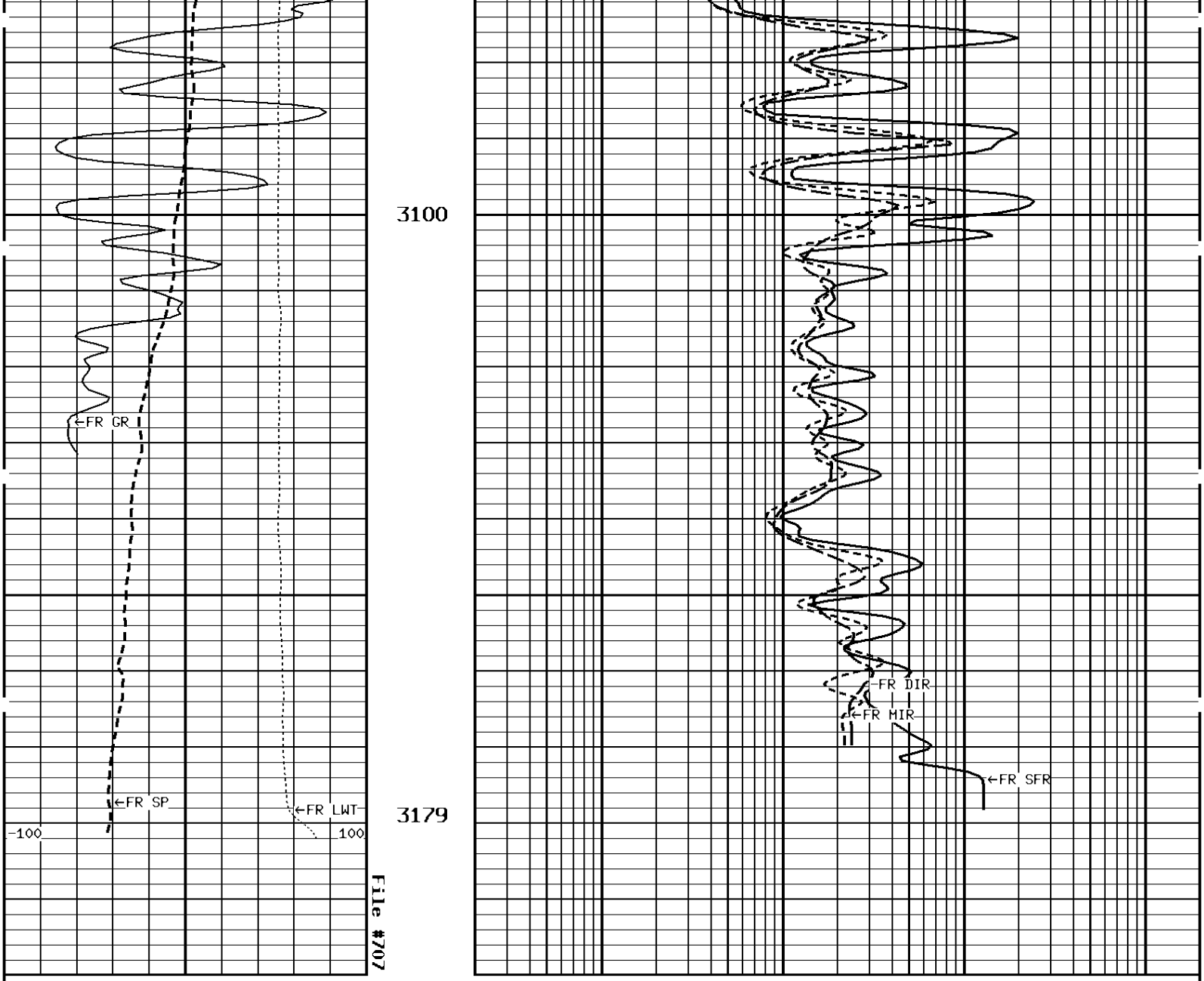
GAMMA RAY
API UNITS
150 300
0 150

0.2 2000.0

DEEP INDUCTION
OHMM
0.2 2000.0

1:240 REPEAT SECTION





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

* Borehole Zone Factors *

Zone 1	88888.0	to	0.0	F

Zone 1 99999.0 to 0.0 F

Drill Bit Size	7.875	IN
BHT Depth	3180.000	F
Borehole Temperature	99.0	DEGF
Temperature Gradient	1.00	DFHF
Resistivity Of Mud	0.90	OHMM
Standoff	1.5	
Resistivity Of Mud Temperature	66.00	DEGF

* Calibration Summary *

Shop Calibration GRTB

Performed : 21-Aug-2009 Time : 15:26
Sensor Suite : GR-GR5 ID : GRT-BA-14

	Measured Background	Measured Jig	Units	Calibrated Jig	Units
GR	49	347	CPS	175	GRAPI

Shop Calibration PIT

Performed : 30-JUN-2010 Time : 14:33
Sensor Suite : P-IND-T ID : PIT-AB-14

Medium

	Measured R	Measured X	Calibrated R	Calibrated X	Units
Air	131256	130213	0.6	1.7	MMHOS
Zero	131067	131070	0.0	0.0	MMHOS
Reference	247915	247872	5000.0	5000.0	MMHOS
Loop	151253	173280	2699.9	989.7	MMHOS
Sonde Error			-2.5	-2.4	MMHOS
Cond			5000.0	5000.0	MMHOS

Deep

	Measured R	Measured X	Calibrated R	Calibrated X	Units
Air	128953	131238	0.2	-0.0	MMHOS
Zero	131079	131070	0.0	0.0	MMHOS
Reference	231857	231317	2000.0	2000.0	MMHOS
Loop	149299	174773	1272.5	464.8	MMHOS
Sonde Error			-4.7	0.1	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 : 30-Jun-2010 Time : 14:00
Sensor Suite : SFL ID : PIT-AB-14

Internal

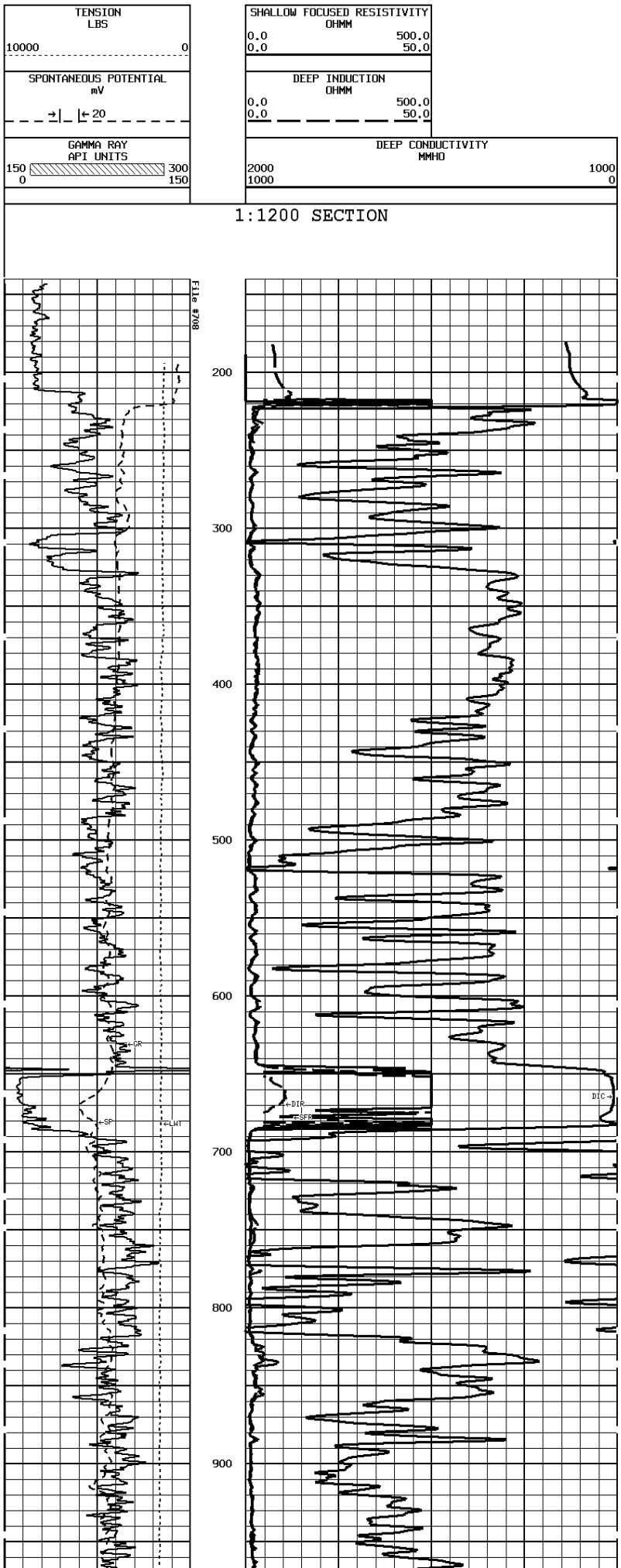
	Measured Zero	Measured Reference	Calibrated Zero	Calibrated Reference	Units
Im	32747.3	48723.4	0.0	7028.0	uA
Ib	32767.9	49766.0	0.0	1750.0	mA
MOM1	32753.1	56567.9	0.0	175.0	mV
Equivalent SFL				43.97	OHMM

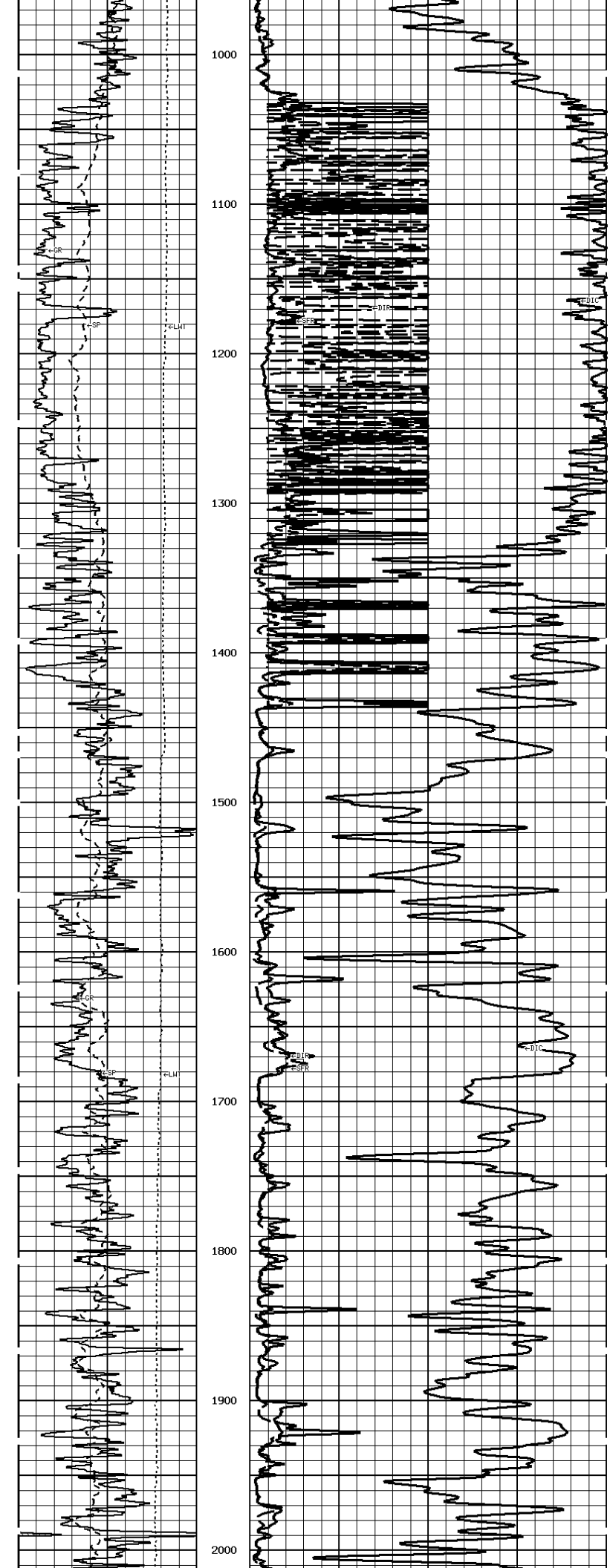
Performed : 30-Jun-2010 Time : 13:51
Sensor Suite : P-SP ID : PIT-AB-14

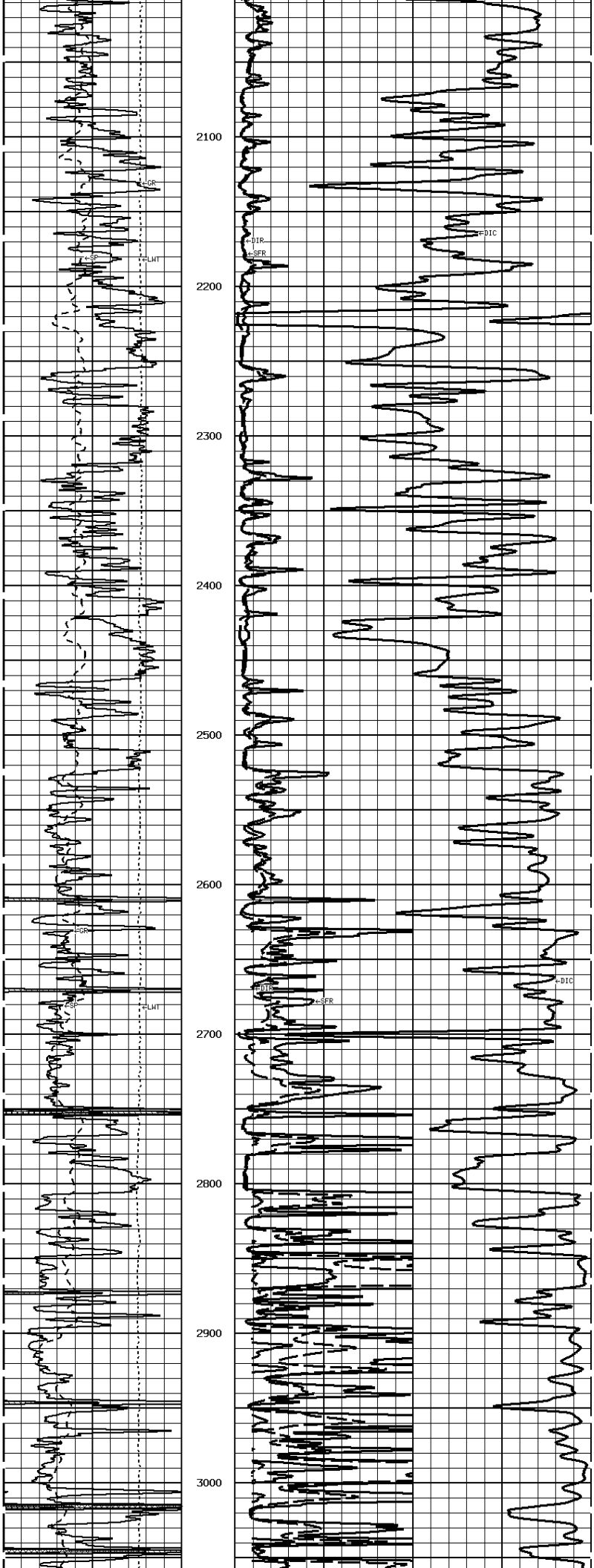
Internal

	Measured Zero	Measured Reference	Calibrated Zero	Calibrated Reference	Units

32783.0	58941.9	0.0	1000.0	mV




1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
GR
SP
LLMT
DIC
DIR
SFR
GR
SP
LLM
DIC
DIR
SFR


2100
2200
2300
2400
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2600
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2800
2900
3000
←GR
←SP
←LMT
←DIR
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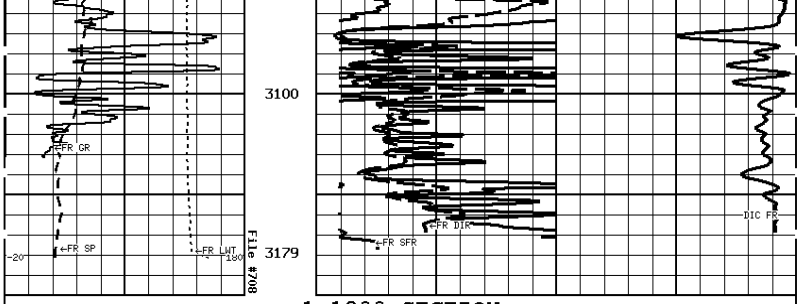
←DIC



1:1200 SECTION

GAMMA RAY
API UNITS
150 300
0 150

SPONTANEOUS POTENTIAL
mV
20

TENSION
LBS
10000 0

DEEP CONDUCTIVITY
MMHO
2000 1000
1000 0

DEEP INDUCTION
OHMM
0.0 500.0
0.0 50.0

SHALLOW FOCUSED RESISTIVITY
OHMM
0.0 500.0
0.0 50.0