

Tucker
ENERGY SERVICES

PHASED INDUCTION
SHALLOW FOCUS SP LOG

Company VAL ENERGY, INC
Well HAMMER D V3-4
Field WILSON
County COWLEY
State KANSAS
Country USA
API No. 15-035-24680

File No : TUL-61356
Company : VAL ENERGY, INC
Well : HAMMER D V3-4
Field : WILSON
County : COWLEY
State : KANSAS
Country : USA
API No : 15-035-24680

Location :
990' FSL & 660' FWL
N/2 SW SW

LSD : Sect : Twp : Rge :

Permanent Datum: GL
Drilling Measured From: KB
Log Measured From: KB
Above Permanent Datum: 9.00 Ft
Date: 11-20-2017

Elevations:
KB 1346.00 Ft
DF 1345.00 Ft
GL 1337.00 Ft

Services:
CNT
LDT
MLT
PIT

Run Number	0		
Depth--Driller	3585.0	Ft	
Depth--Logger	3584.0	Ft	
First Reading	3583.0	Ft	
Last Reading	304.0	Ft	
Casing--Driller	304.0	Ft	
Casing--Logger	304.0	Ft	
Bit Size	7.875	In	
Casing Size	8.625	In	
Hole Fluid Type	OBM		
Density	9.5		
Fluid Loss	6.1		
PH/Viscosity	9.5	49.0	
Sample Source	MEASURED		
RM@Measured Temp.	2.000	@ 65 F	
RMF@Measured Temp	1.700	@ 65 F	
RMG@Measured Temp.	2.300	@ 65 F	
Source RMF/RMG	CALCULATED	CALCULATED	
RM@BHT	1.180	@ 115 F	
Time Circulation Stopped	11-20-2017 11:00 am		
Max Recorded Temp.	115	F	
Equipment/Base	TRK-126	TULSA	
Recorded By	B. BAILEY		
Witnessed By	JOE BAKER		

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		Casing Strings			
Size (In)	Bottom (Ft)	Size (In)	Weight (Lbs)	Bottom (Ft)	Top (Ft)
7.875	3585.00	8.625	32.00	304.00	0.00

Run Number	0	
Date	11-20-2017	
Date/Time On Bottom	11-20-2017 10:30 am	
Depth to Fluid	0.0	Ft
Salinity	0.000	
RMF@BHT	1.000	@ 115 F
RMC@BHT	1.380	@ 115 F

Run Number 0

Comments

ALL PRESENTATIONS AS PER CUSTOMER REQUEST.

GRT, CNT, LDT, MLT, AND PIT RUN IN COMBINATION.

2.71 G/CC DENSITY MATRIX USED TO CALCULATE POROSITY.

5.50" PRODUCTION CASING USED TO CALCULATE ANNULAR HOLE VOLUME.

CALIPERS ORIENTED ON X-Y AXIS.

PHIN IS CALIPER CORRECTED

GRT: GRP

CNT: PHIN, PHINDOL, CLCNIN

LDT: PORL, PORLDOL, LCORN, LDENN, PECLN, CLLDIN

MLT: NOR_RF, INV_RF, MSCLPIN.

PIT: ILD, ILM, SFLAEC, SPU, CIRD

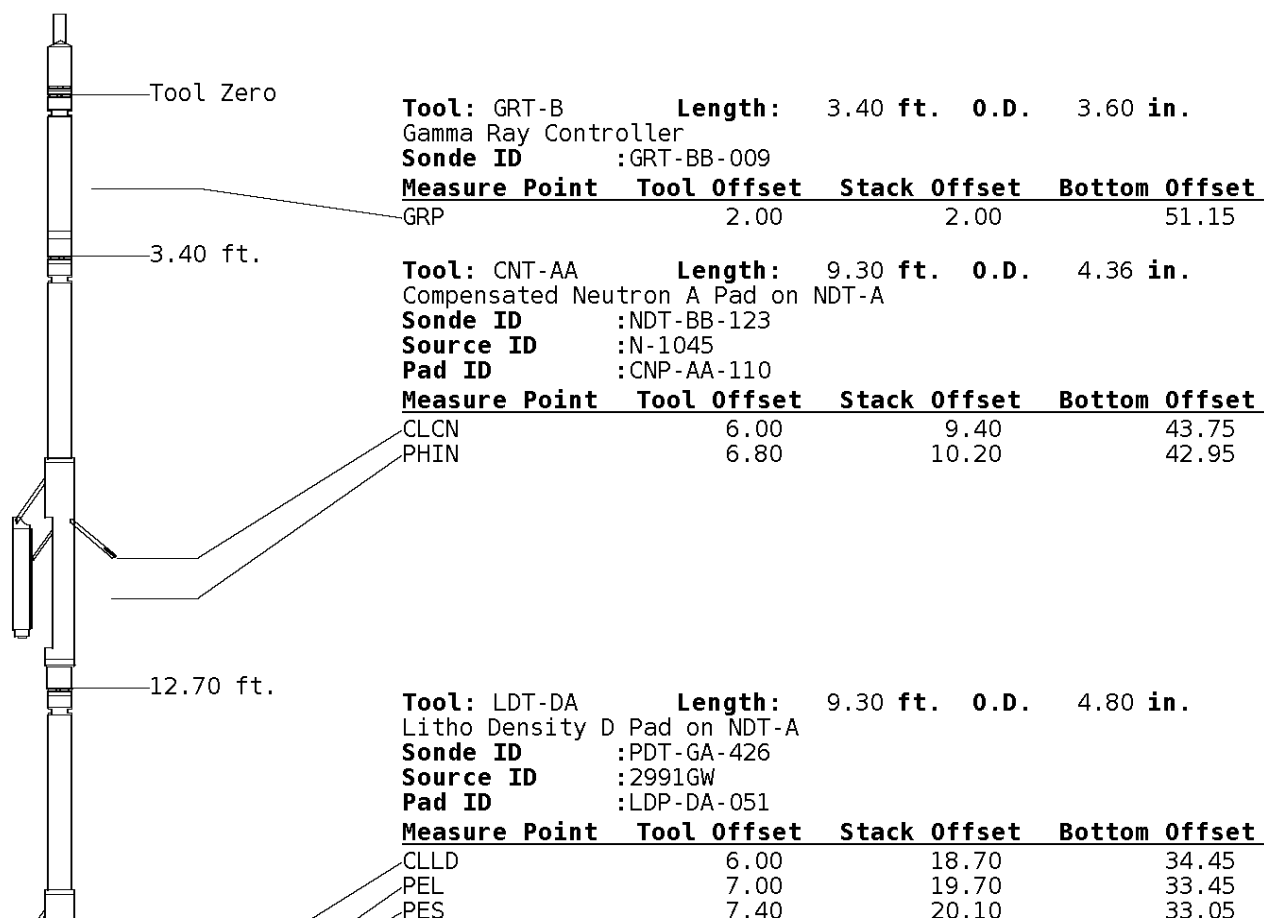
OPERATORS:

R.FRANKLIN

B.BROWN

Tool String Schematic

Total Tool Length - 53.15 ft.
Maximum Outside diameter - 6.00 in.
Net Weight in Air - 943.00 lbs.





7.20	19.90	33.25
7.20	19.90	33.25

Tool: MST-DA **Length:** 9.66 ft. **O.D.** 6.00 in.
 Micro Spherically Focused (IC,D)
Sonde ID :MST-DA-025

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-AC-043

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: val_hammer_dv_3-4_nov-20_mst **Scale:** 1:600 **Format:** DIL-600
Segment: V1.D1.S3 MAIN **Acquired:** 2017-11/20 15:20 3.4.0-13756
Reference: 0 **Processed:** 2017-11/20 16:25 3.4.0-13756

TENSION LBS	0
10000	0

DEEP INDUCTION OHMM	500.0
0.0	50.0
0.0	50.0

SPONTANEOUS POTENTIAL mV	
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SHALLOW FOCUSED RESISTIVITY OHMM	500.0
0.0	500.0

→ ←20

0.0 500.0
0.0 50.0

GAMMA RAY
API UNITS

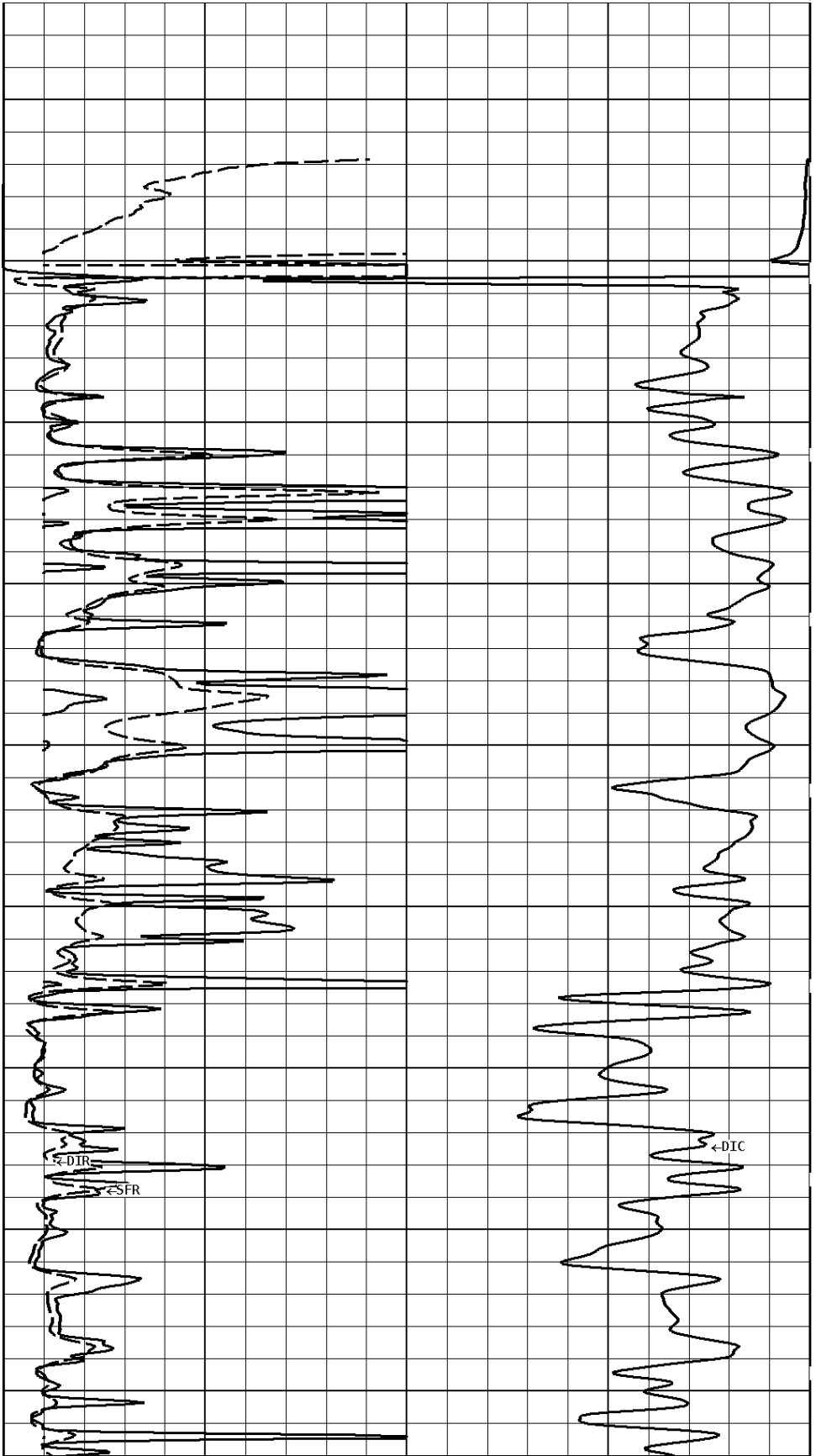
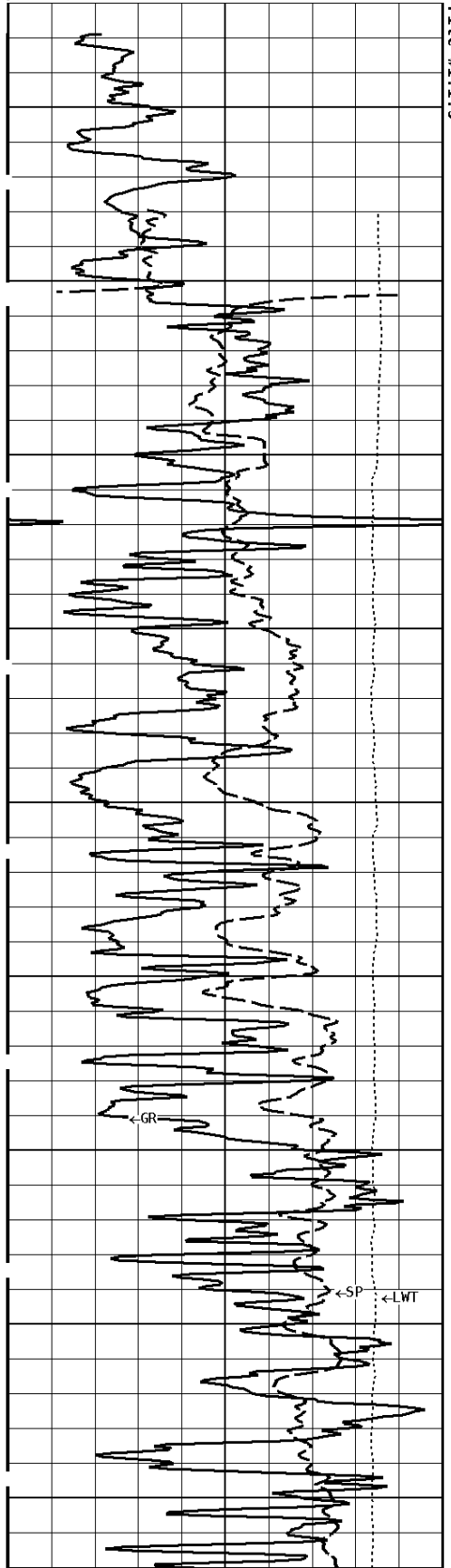
DEEP CONDUCTIVITY
MMHO

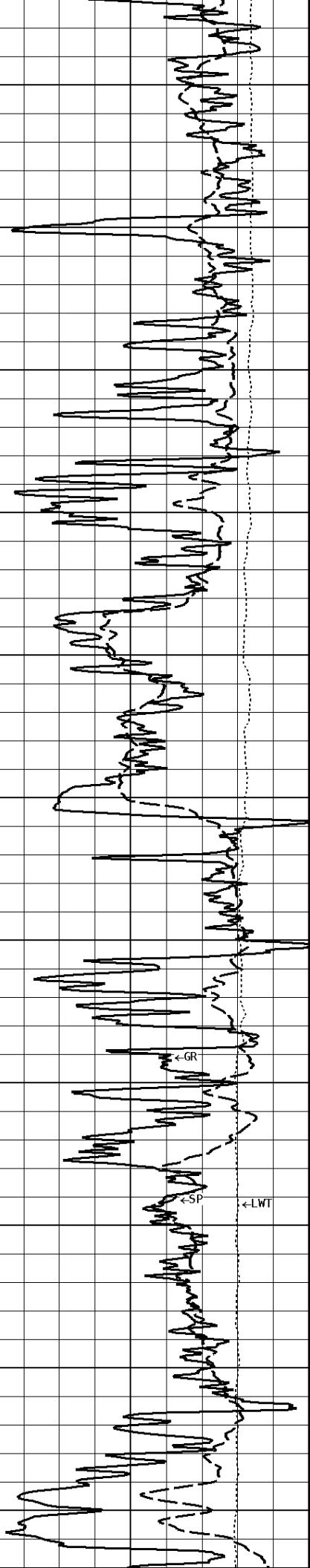
150 0 300 150

2000 1000

1000 0

1:600 MAIN SECTION





700

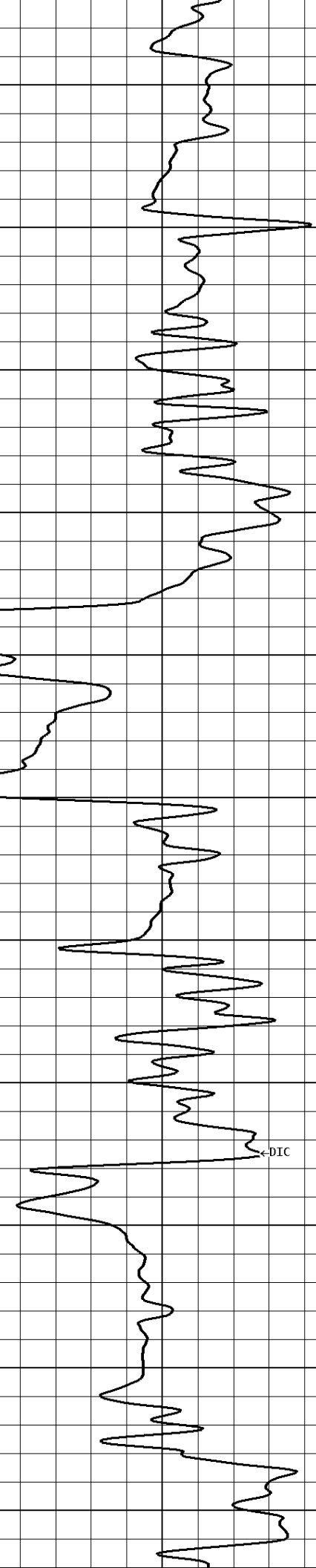
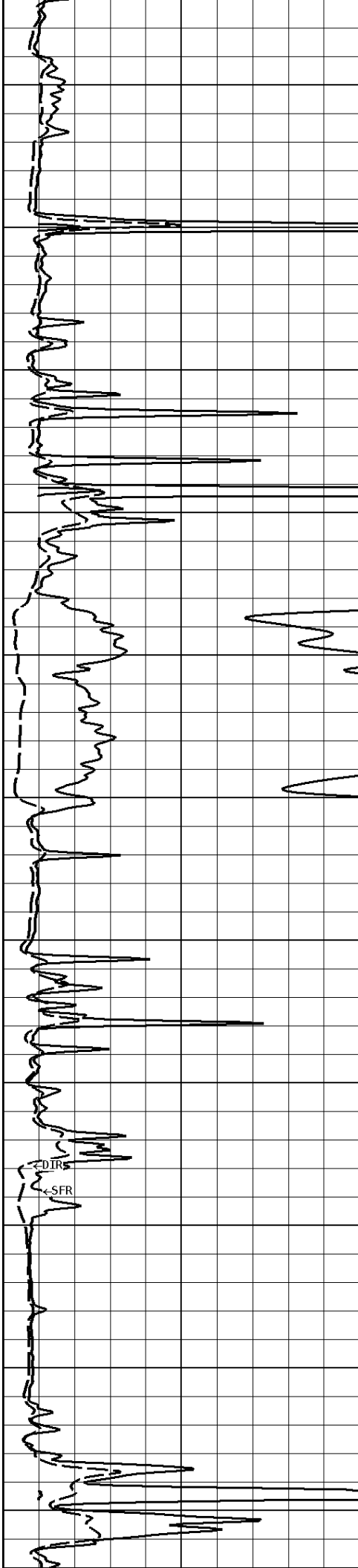
800

900

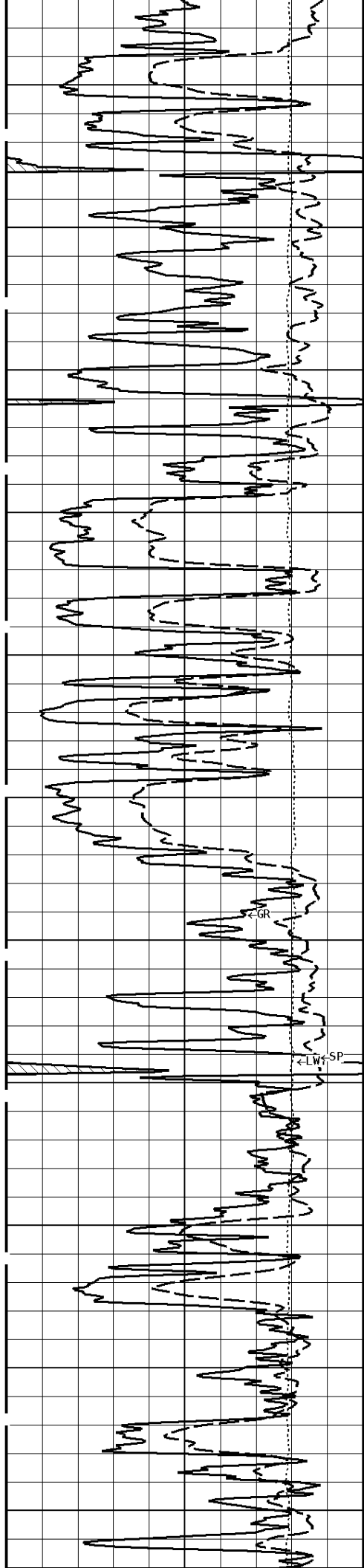
1000

1100

1200



DIC



1300

1400

1500

1600

1700

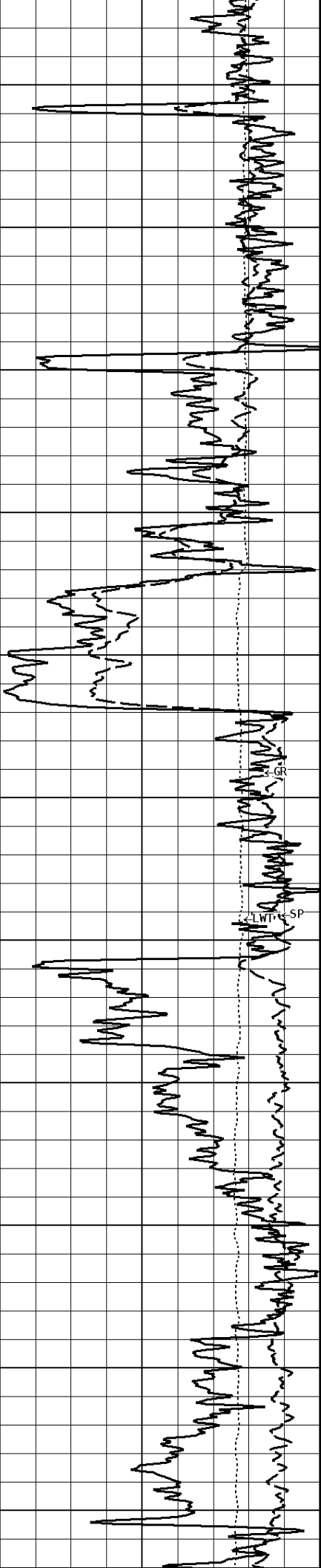


←DIR

←SFR



←DIC



1800

1900

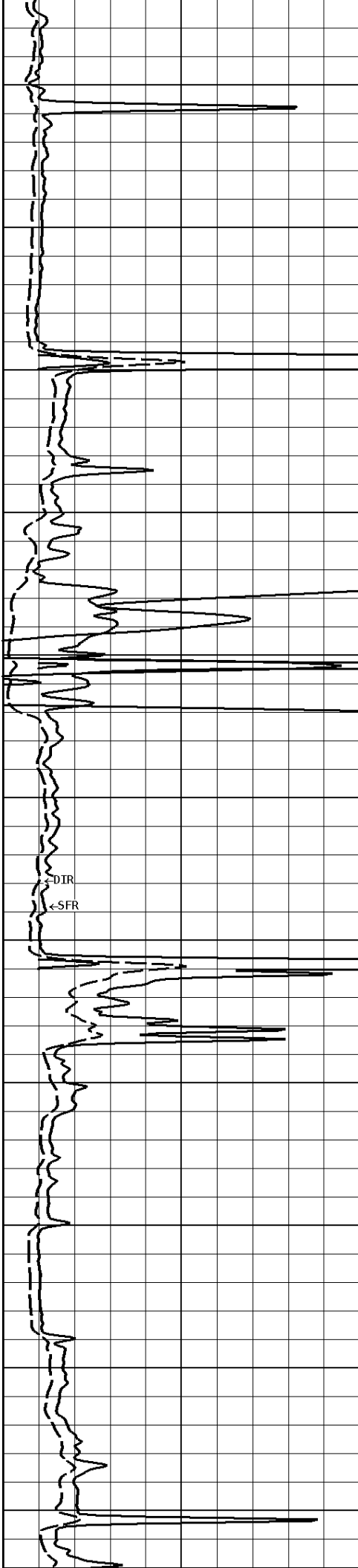
2000

2100

2200

2300

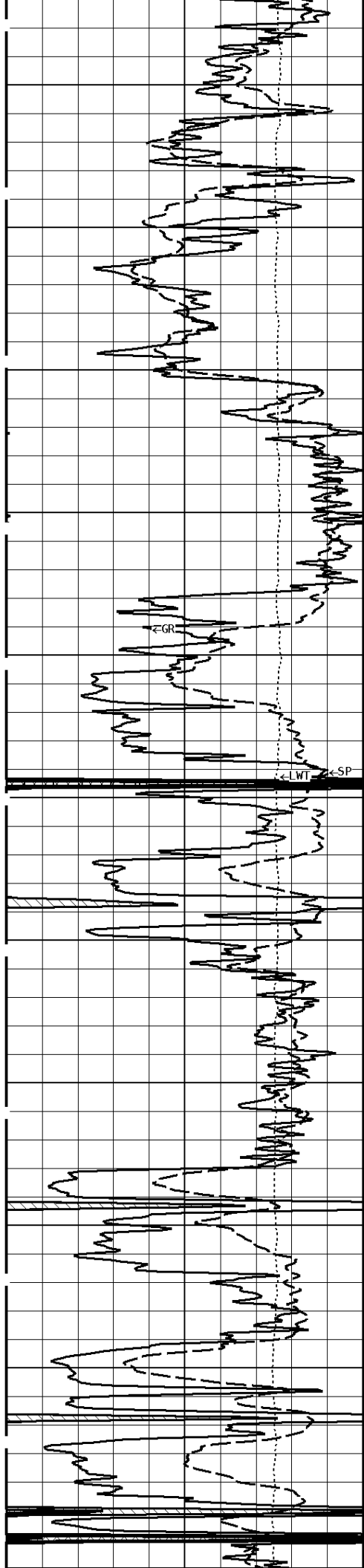
SP



←DIR

←SFR

←DIC



2400

2500

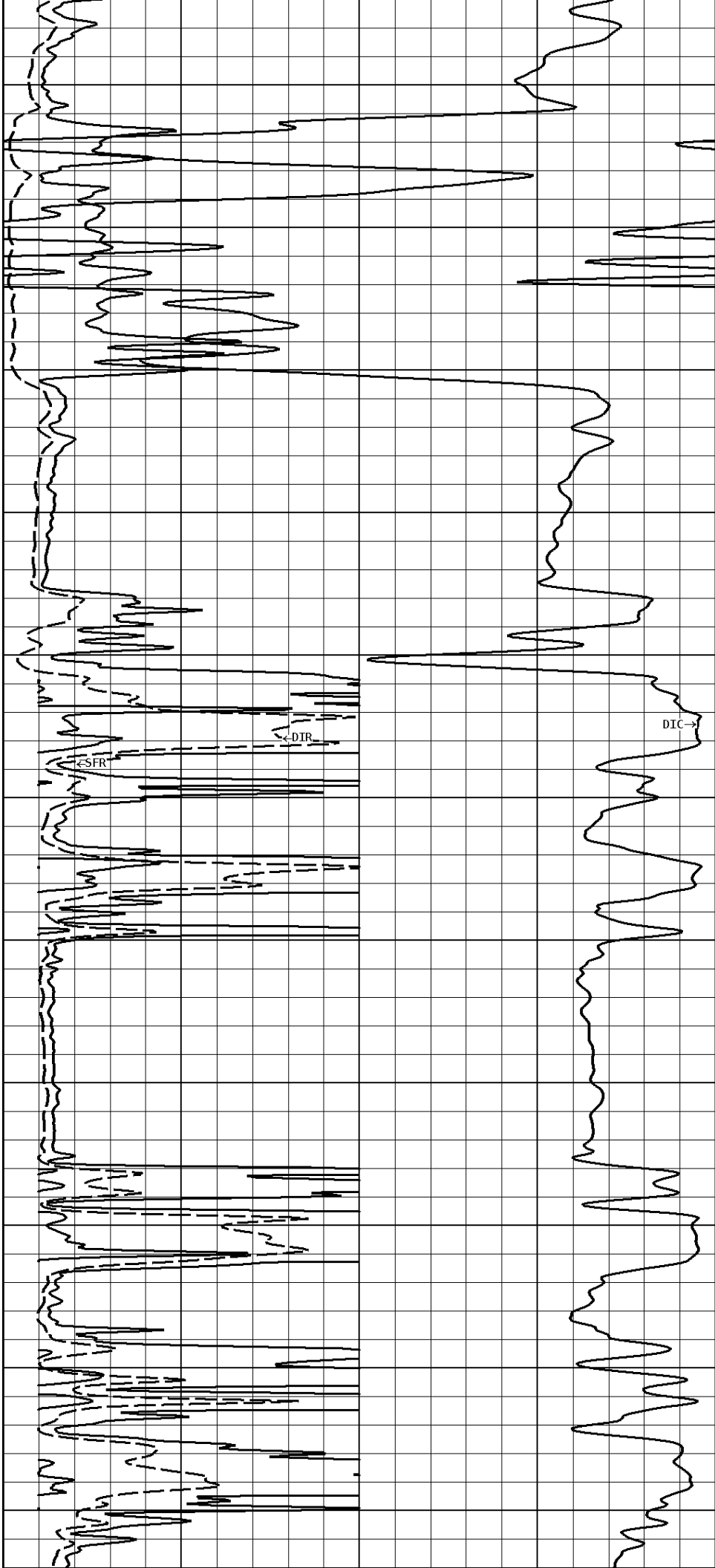
2600

2700

2800

←GR

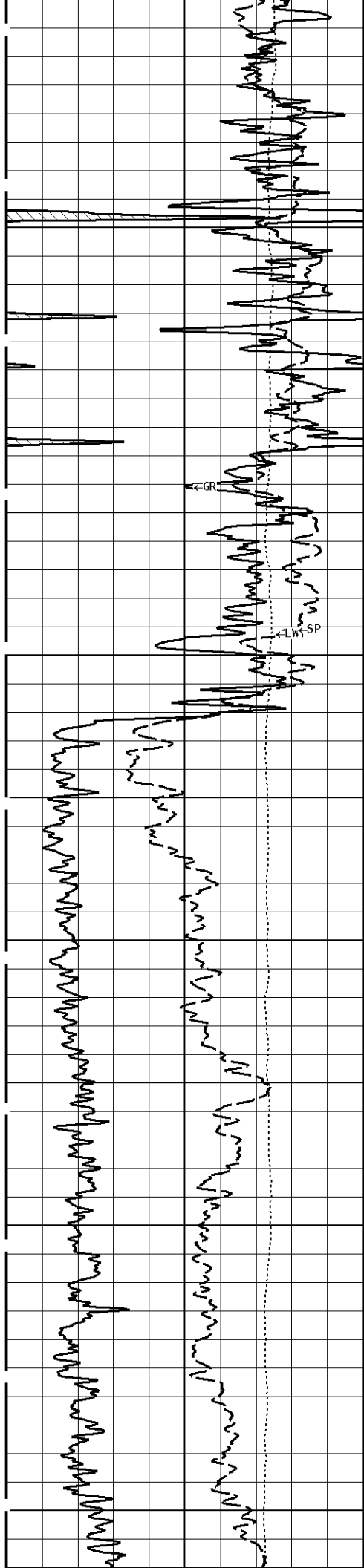
←LWT ←SP



←SFR

←DTR

DIC



2900

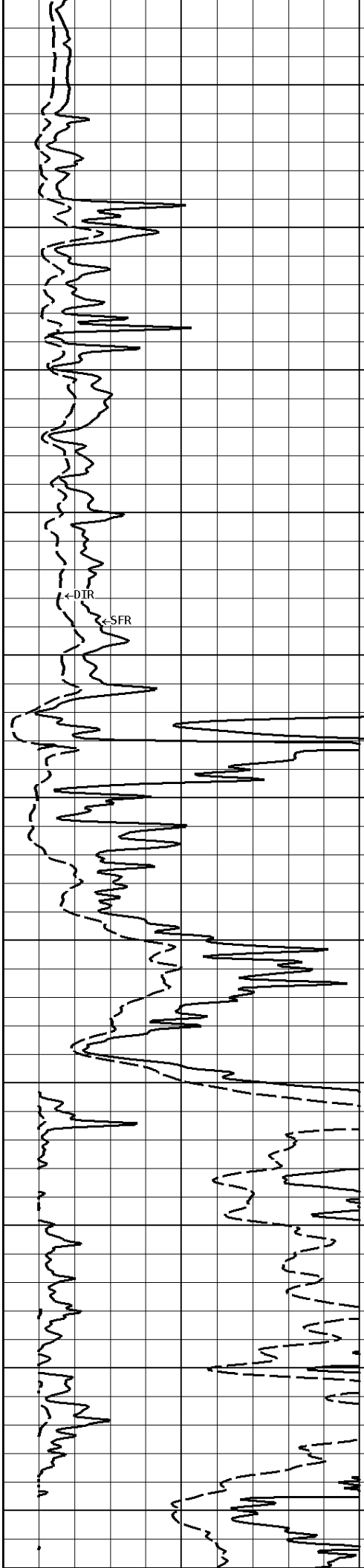
3000

3100

3200

3300

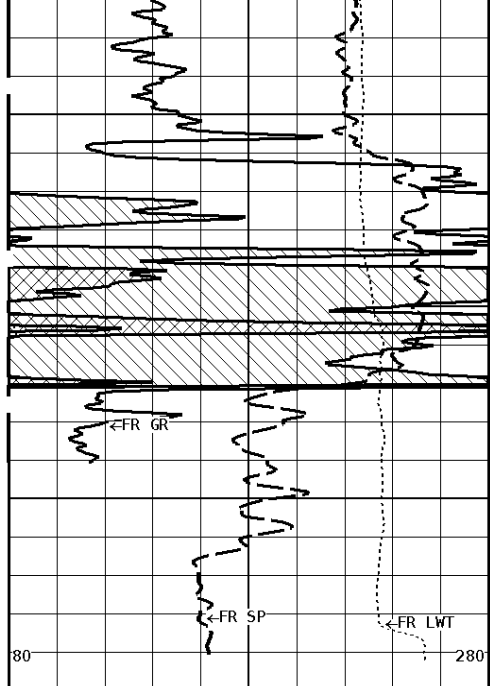
3400



←DTR

←SFR

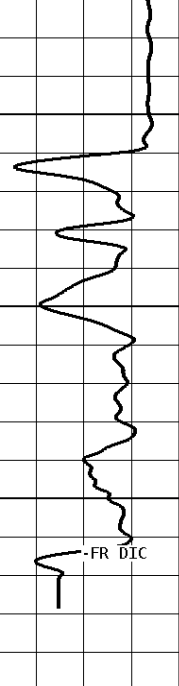
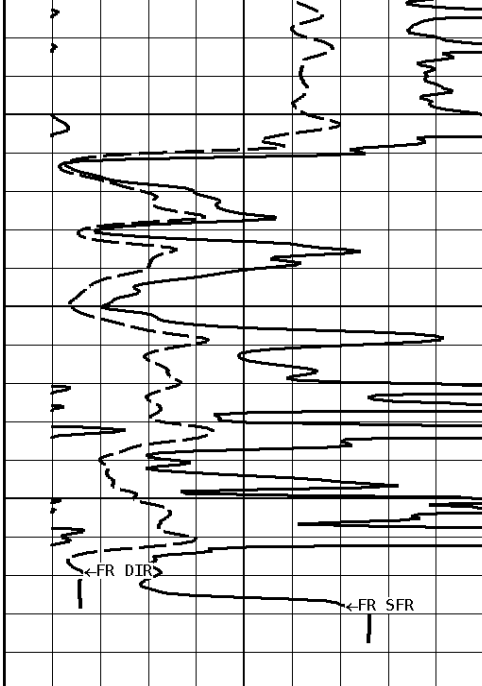
←DIC



3500

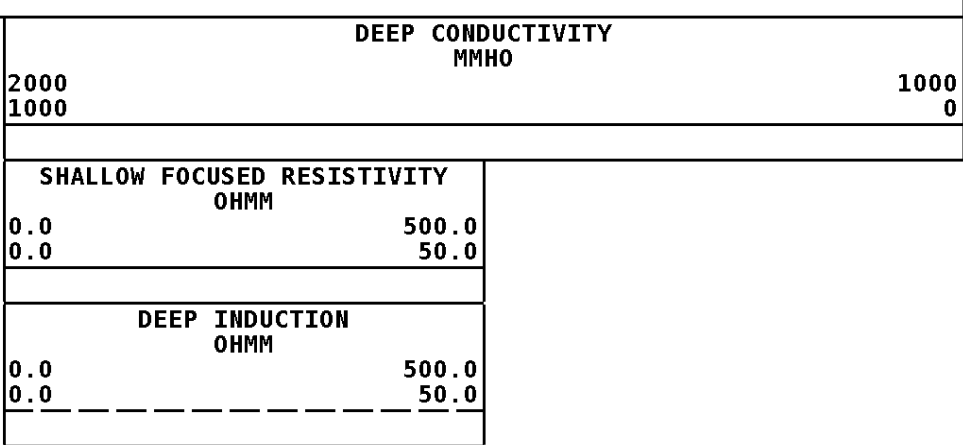
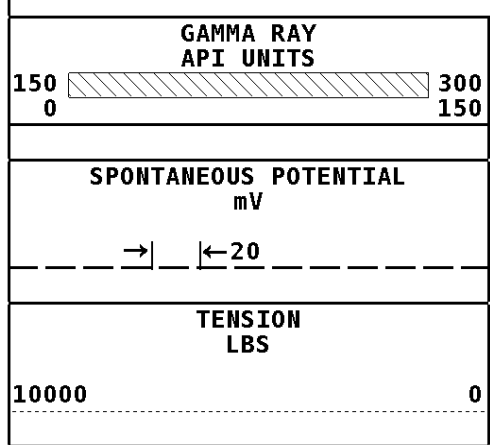
3583

File #1.1.3

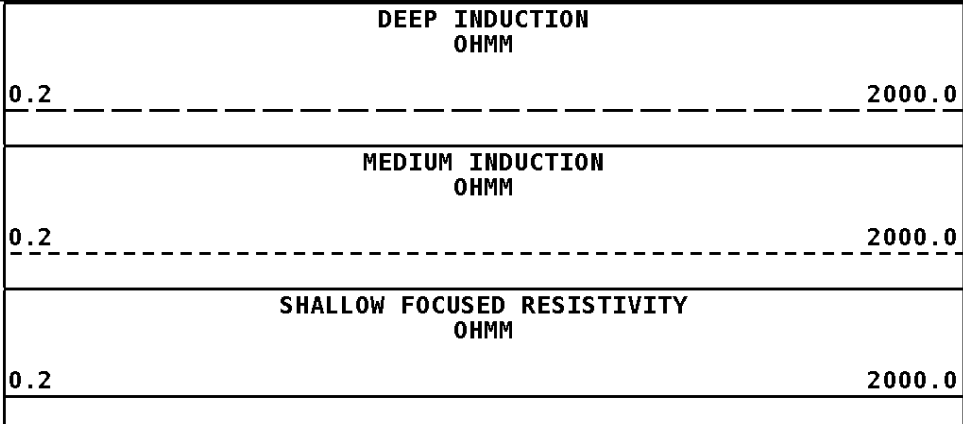
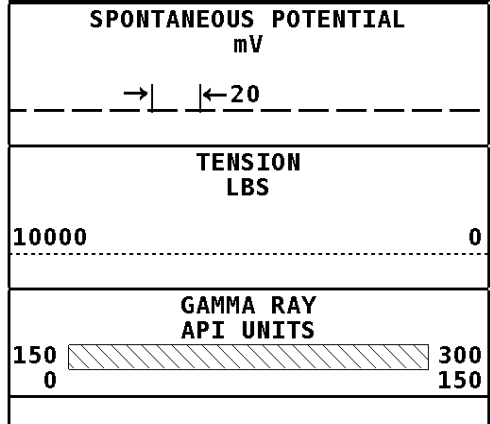


-FR DIC

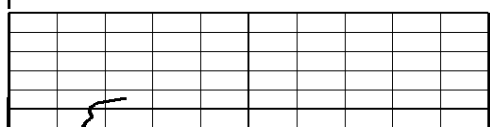
1:600 MAIN SECTION



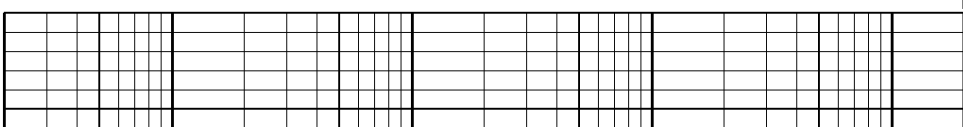
Well File: val hammer dv 3-4 nov-20 mst Scale: 1:240 Format: DIL-240
 Segment: V1.D1.S3 MAIN Acquired: 2017-11/20 15:20 3.4.0-13756
 Reference: 0 Processed: 2017-11/20 16:25 3.4.0-13756

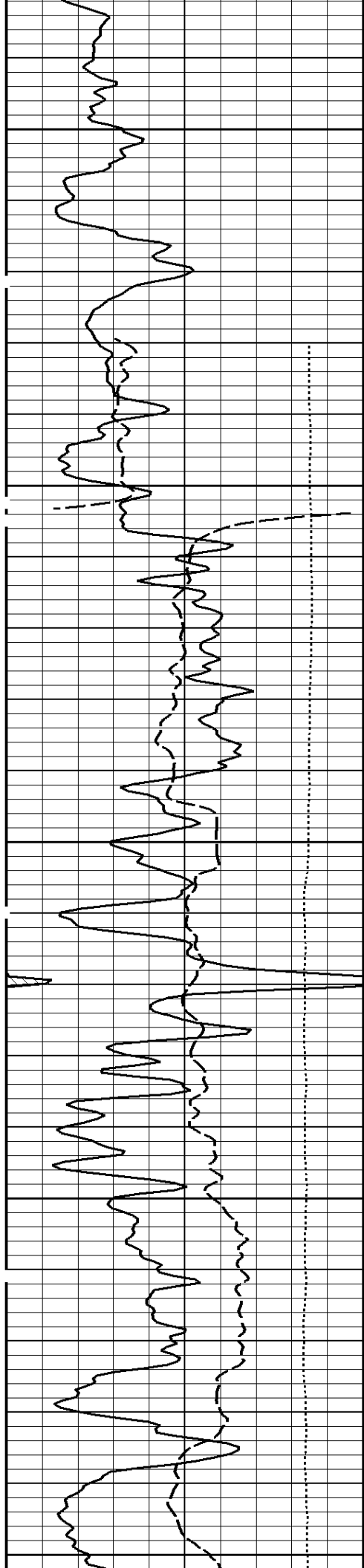


1:240 MAIN SECTION



File #1.1.3

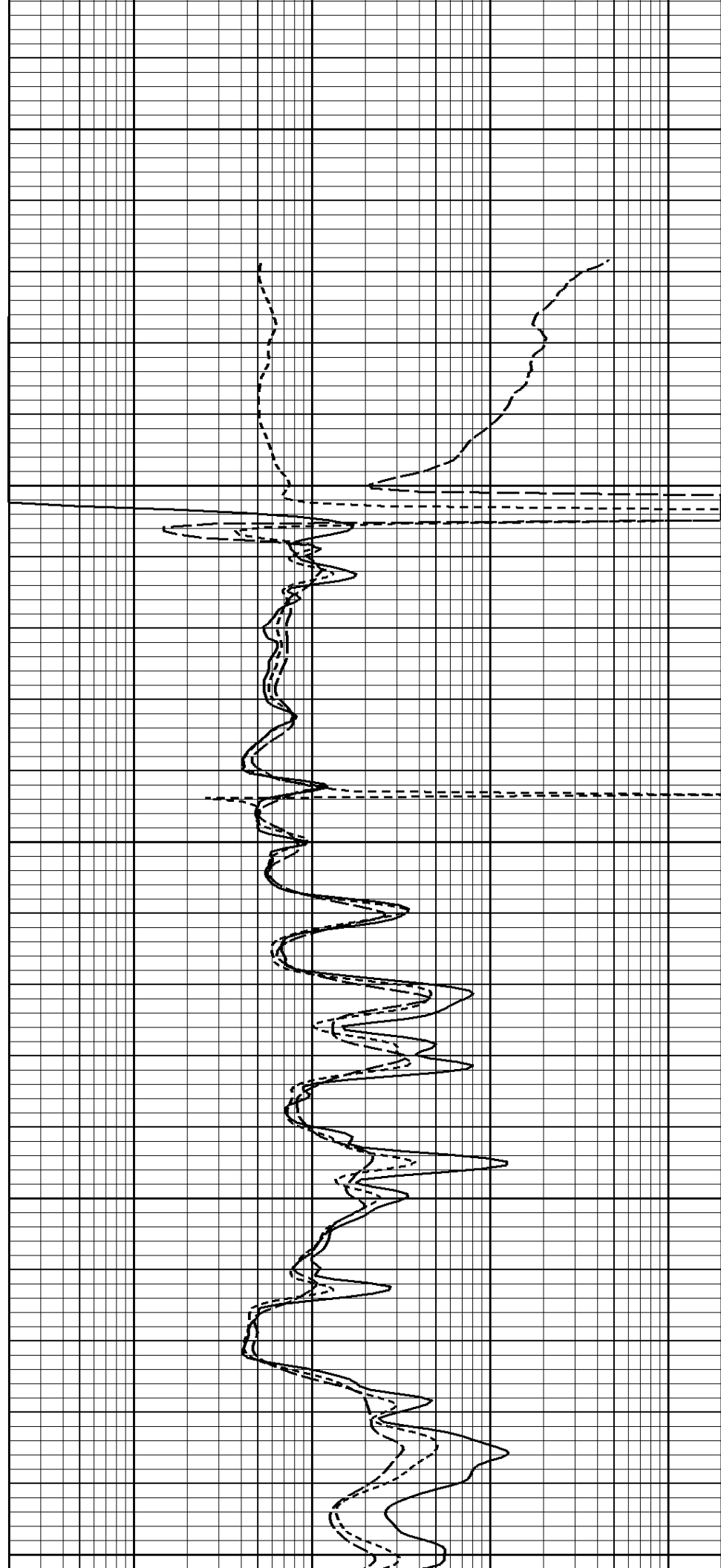


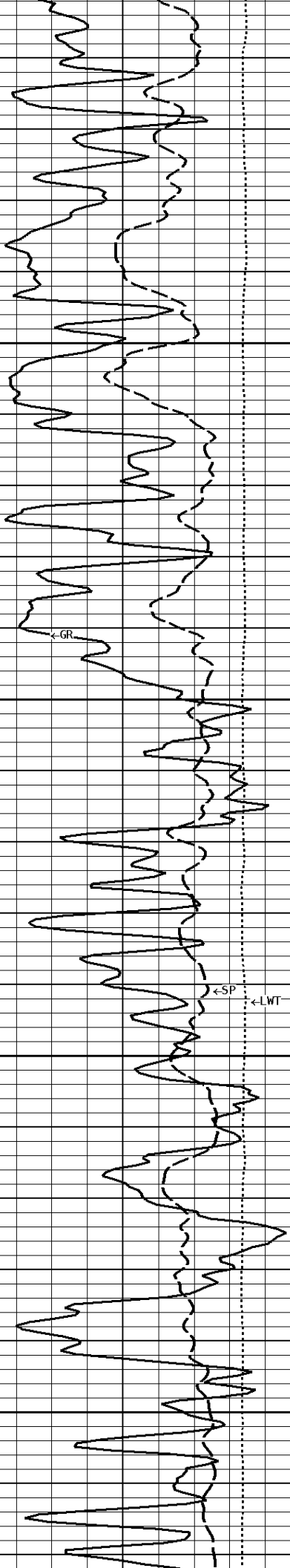


3

300

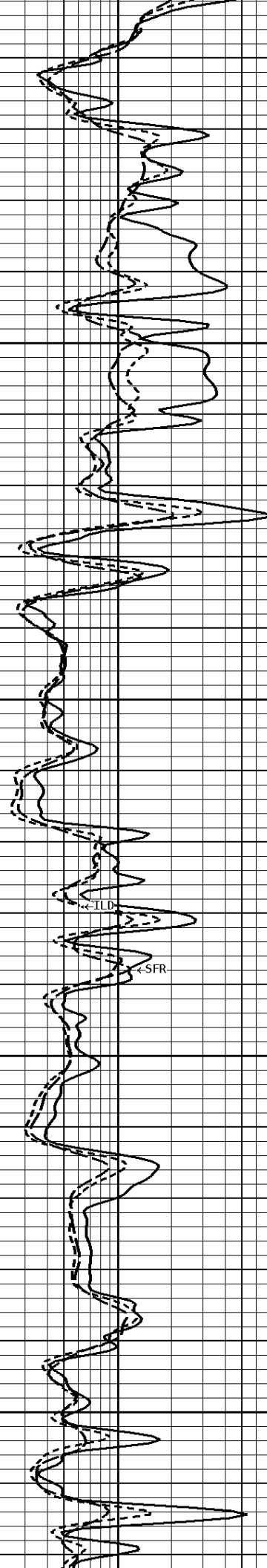
400

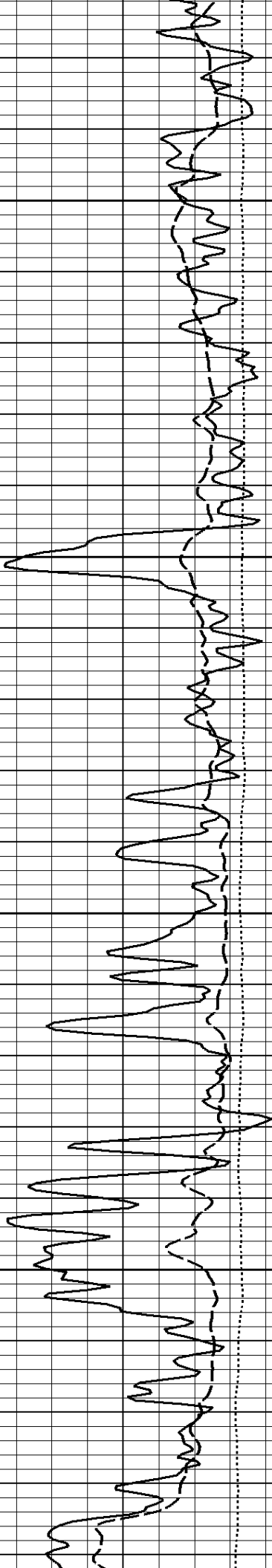




500

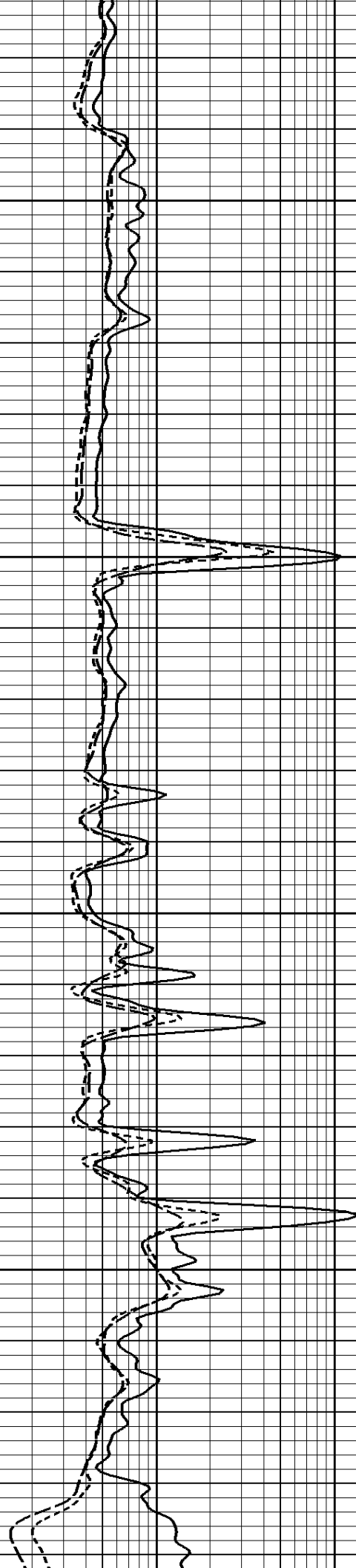
600





700

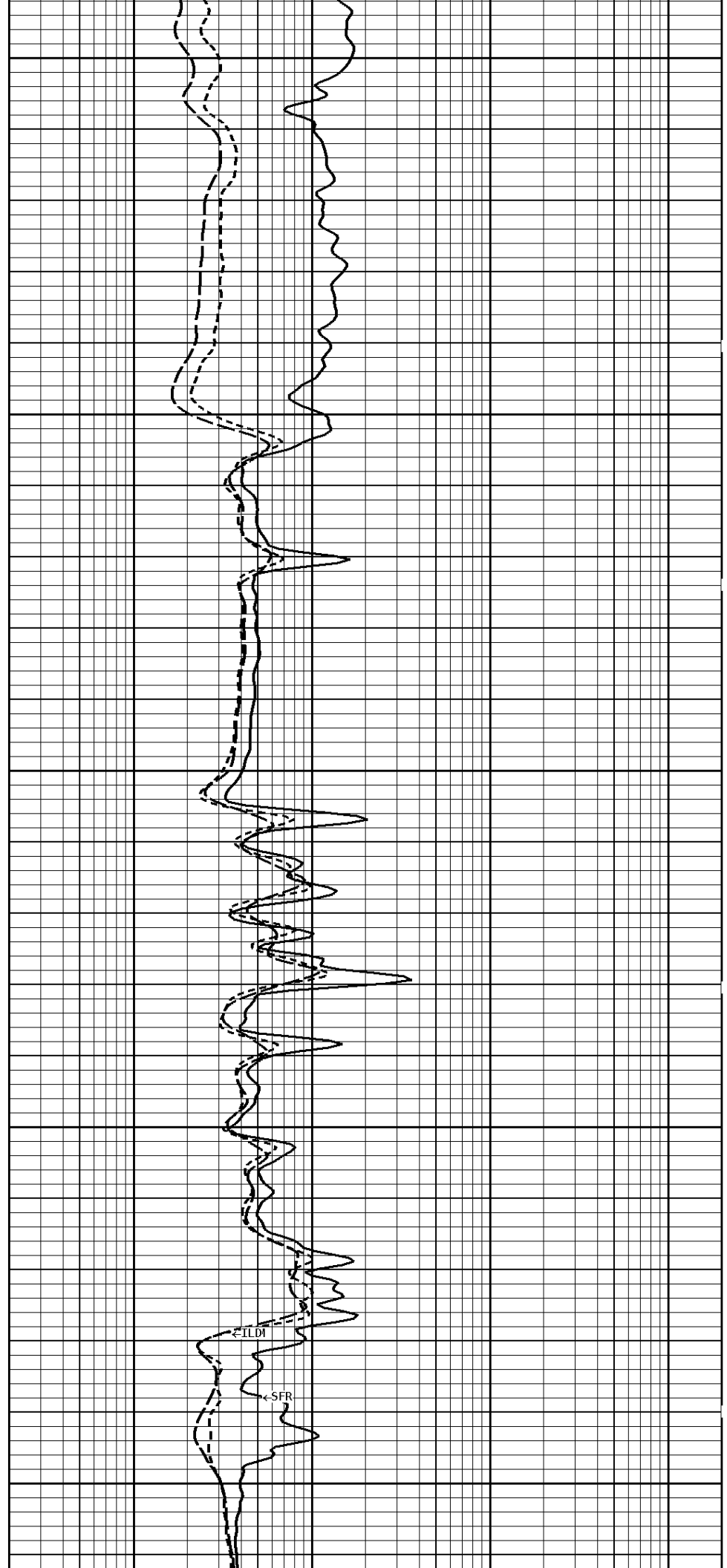
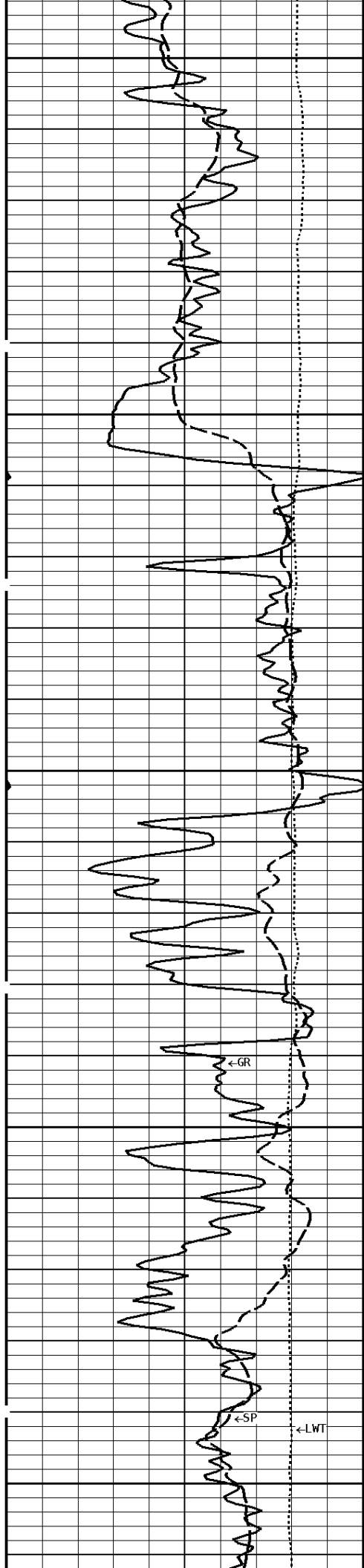
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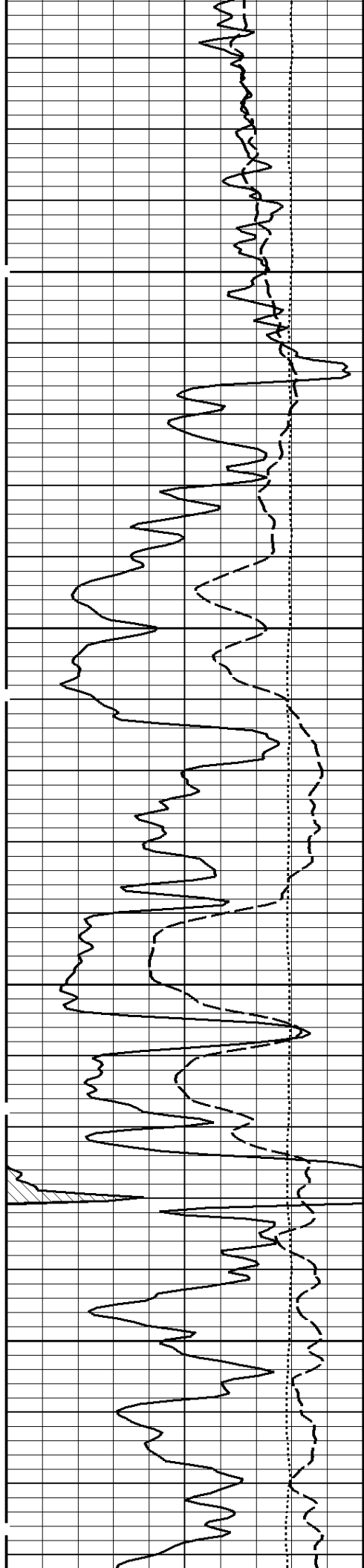


900

1000

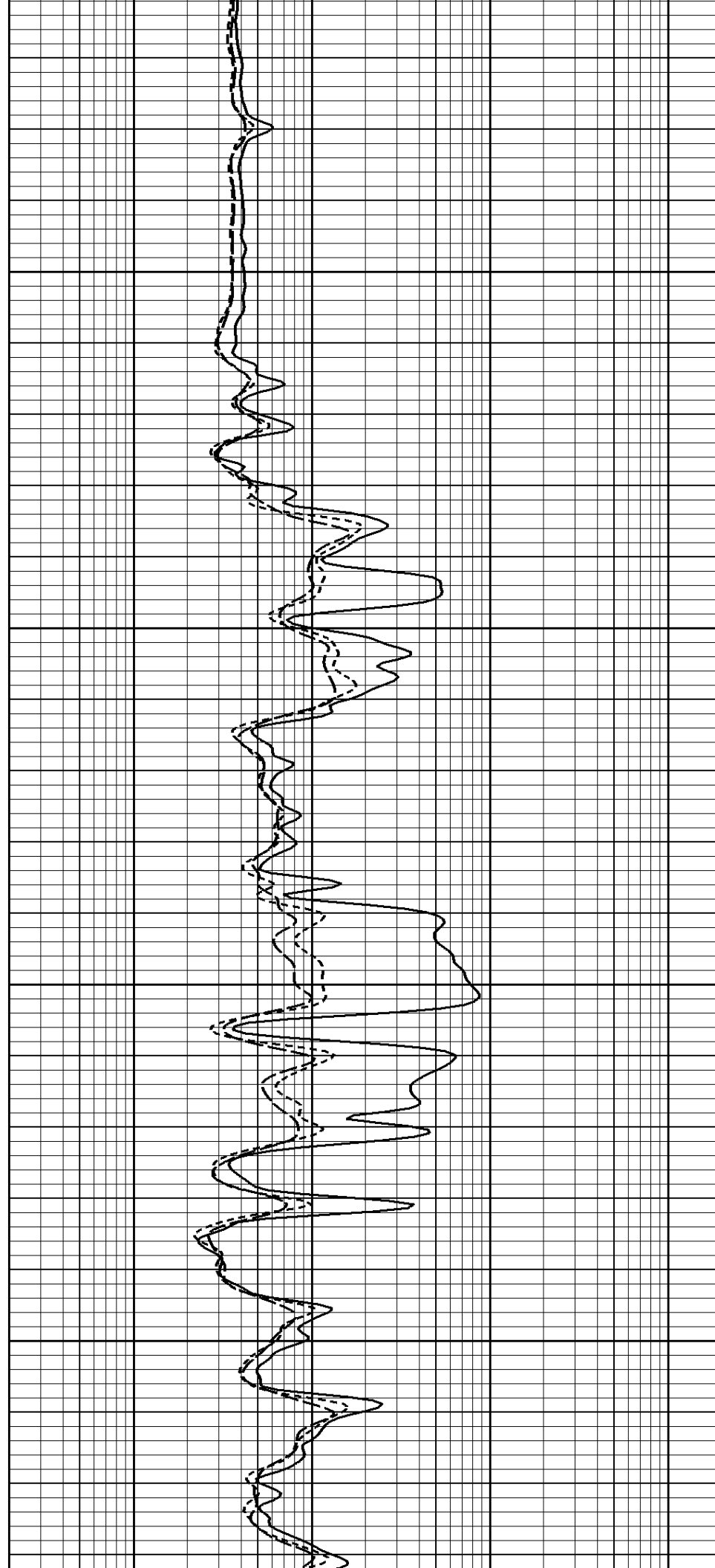
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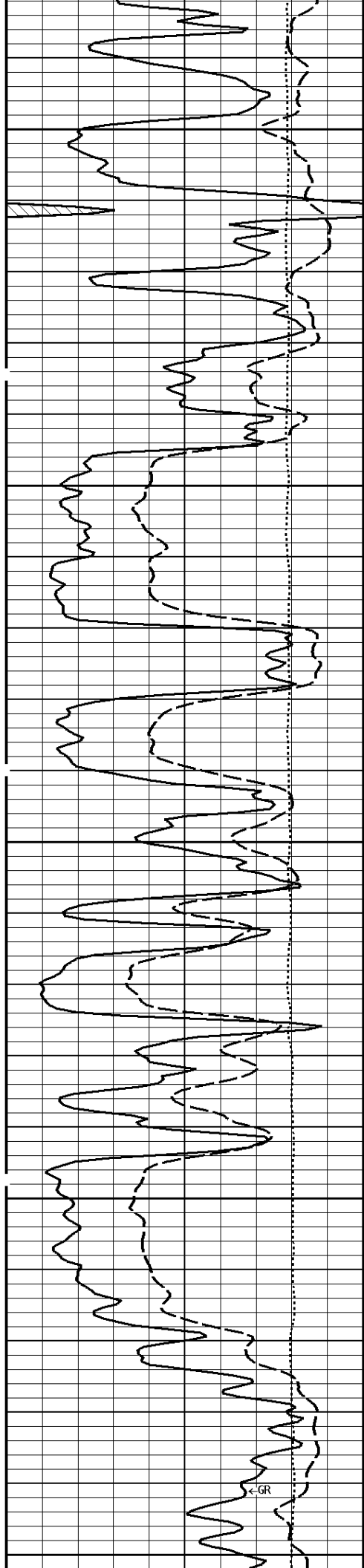




1200

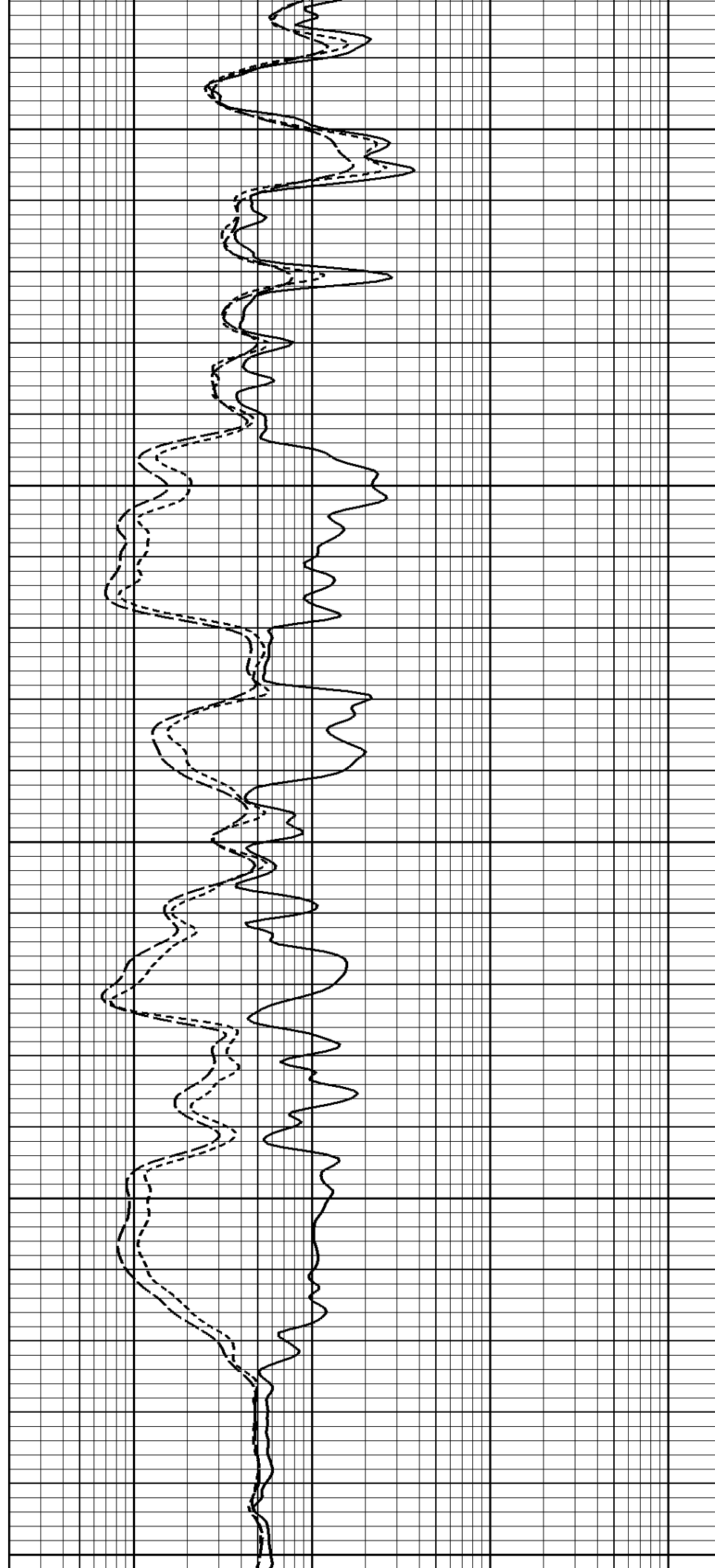
1300

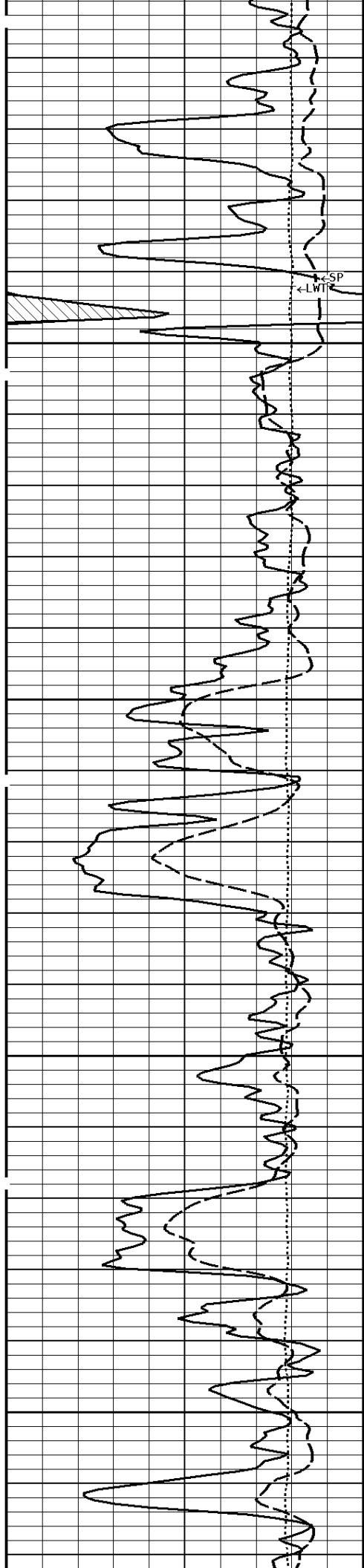




1400

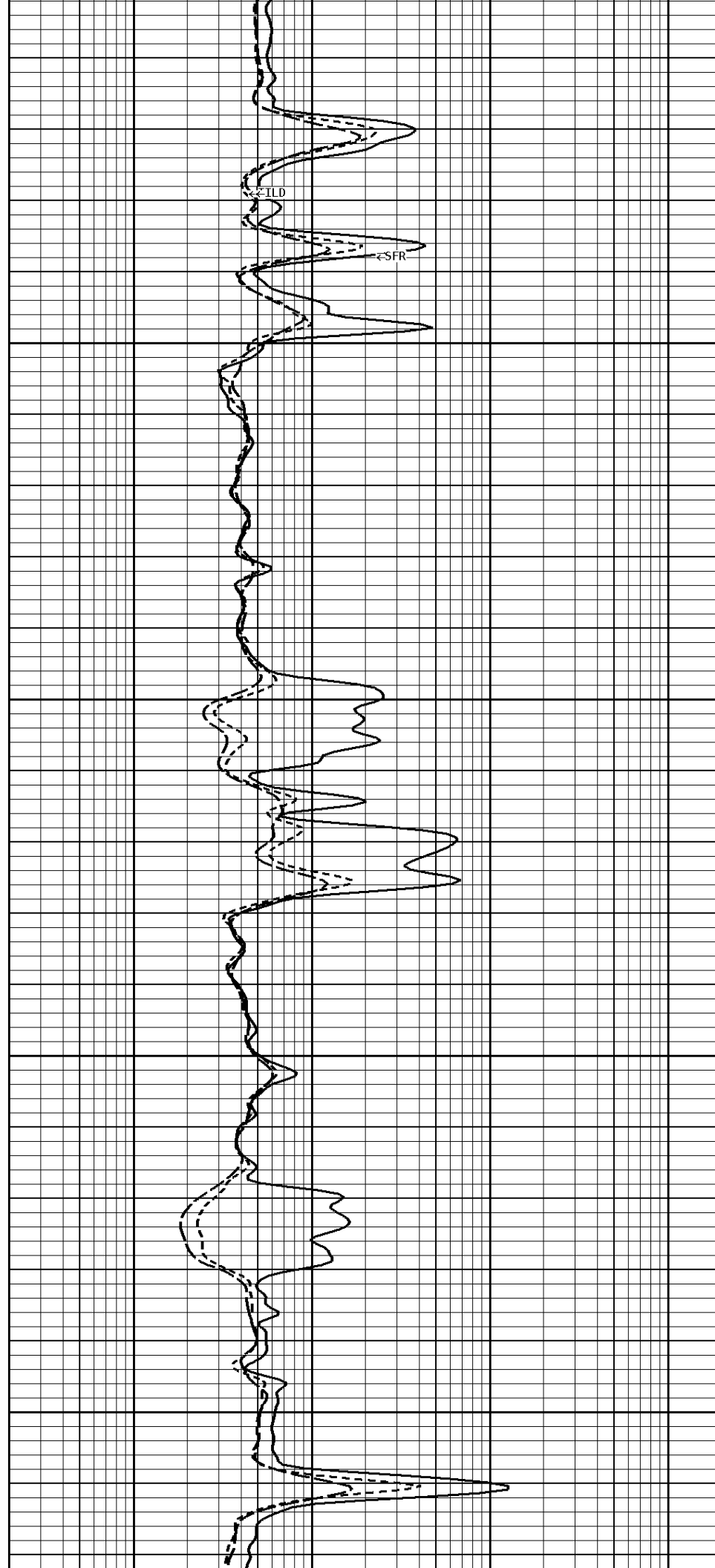
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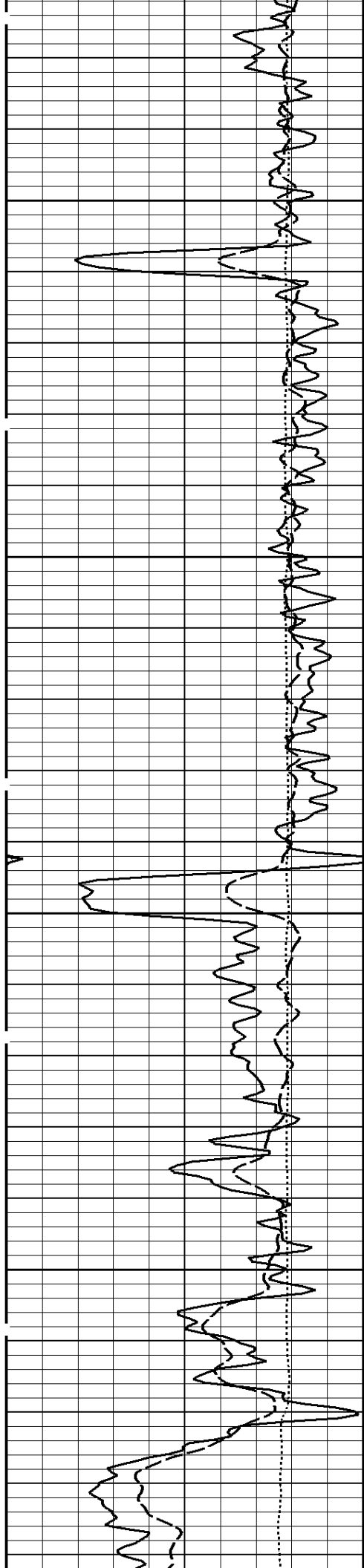




1600

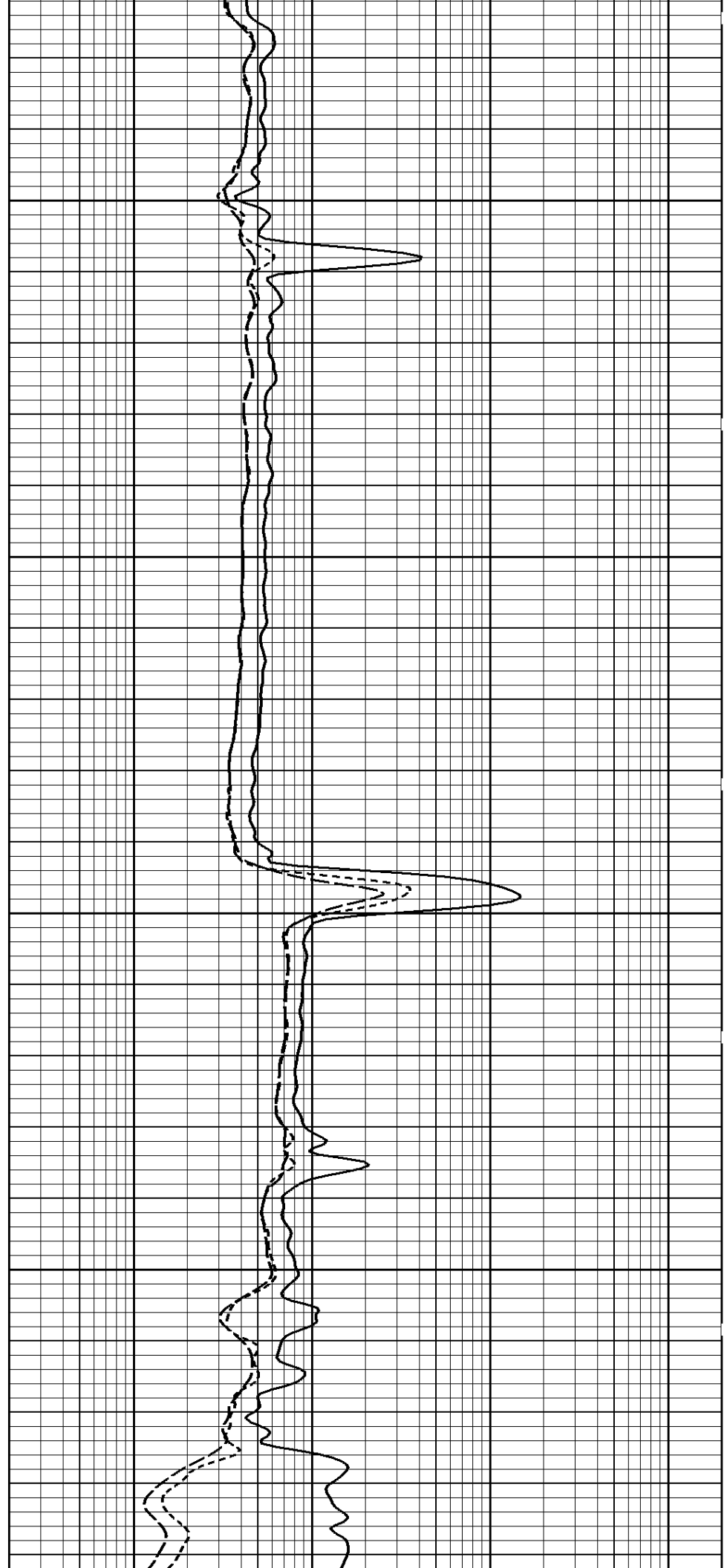
1700

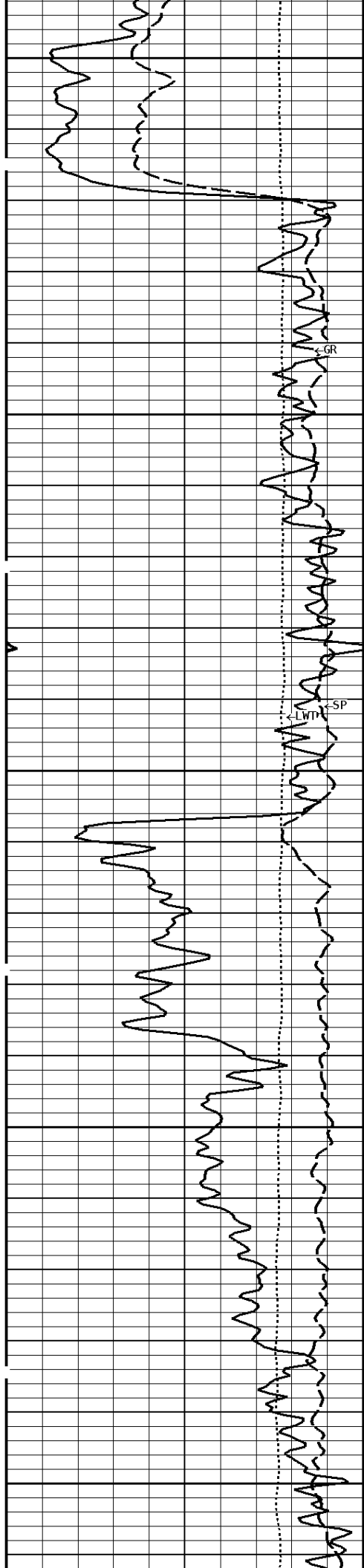




1800

1900

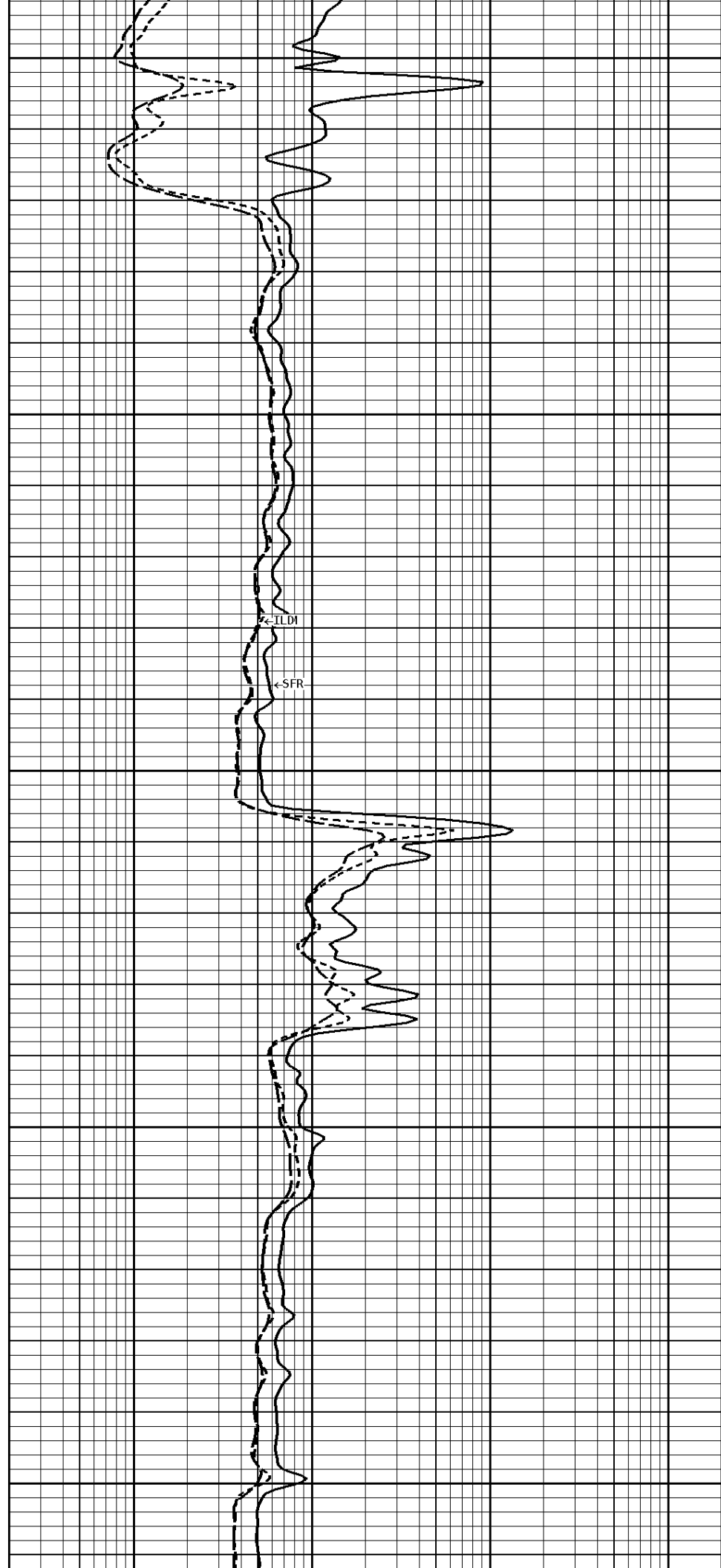




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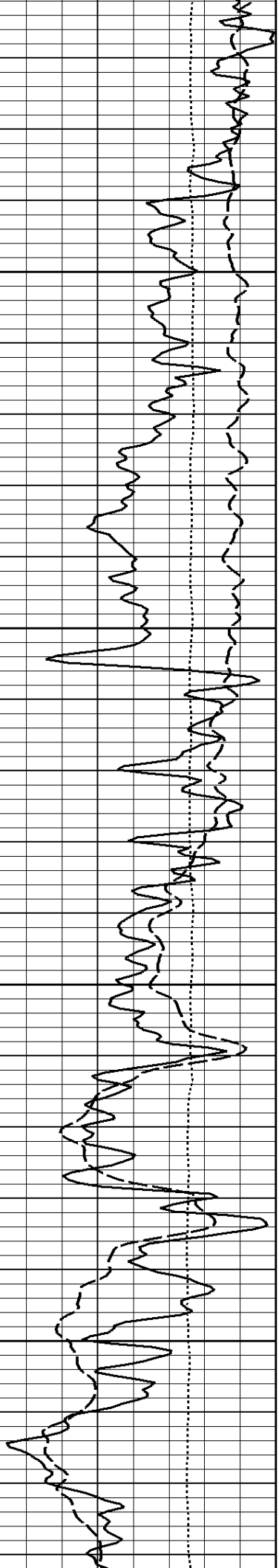
2100

2200



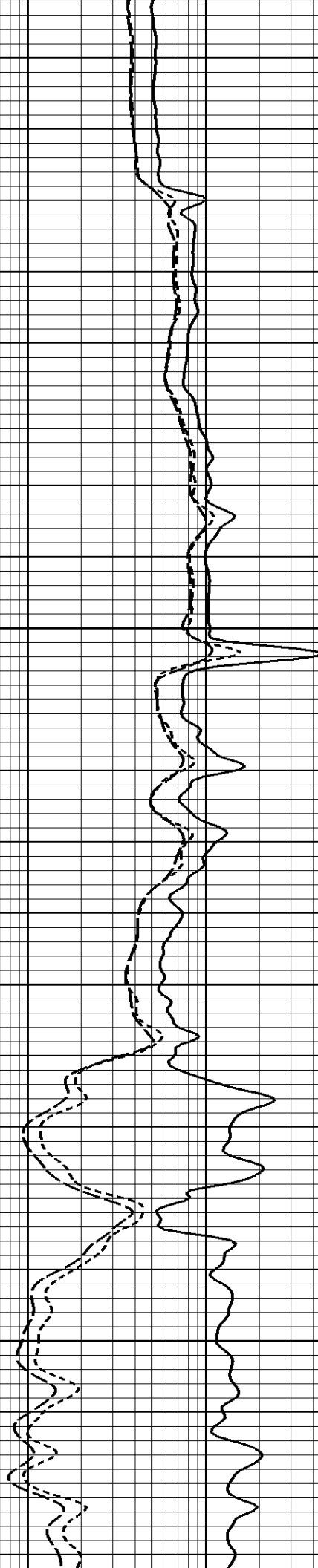
ILD1

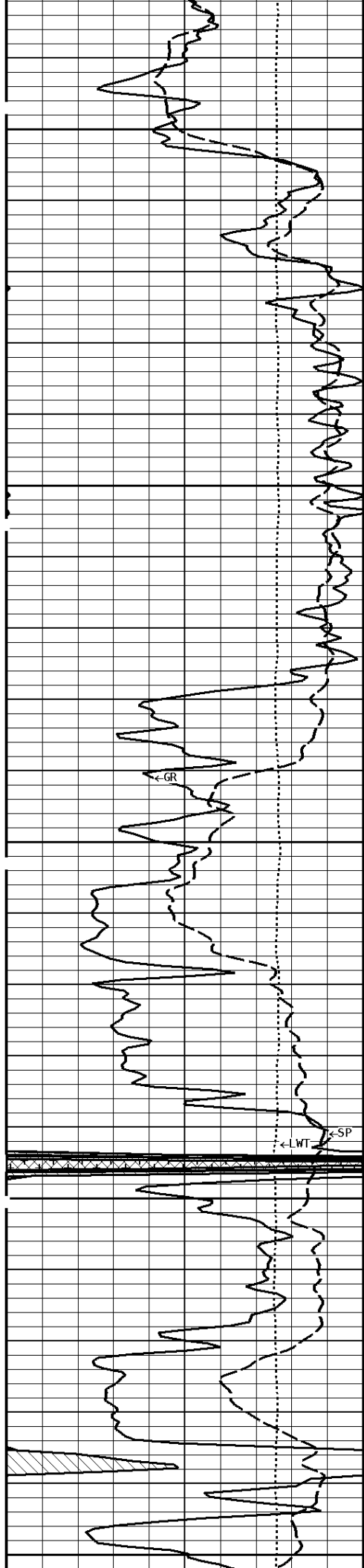
SFR



2300

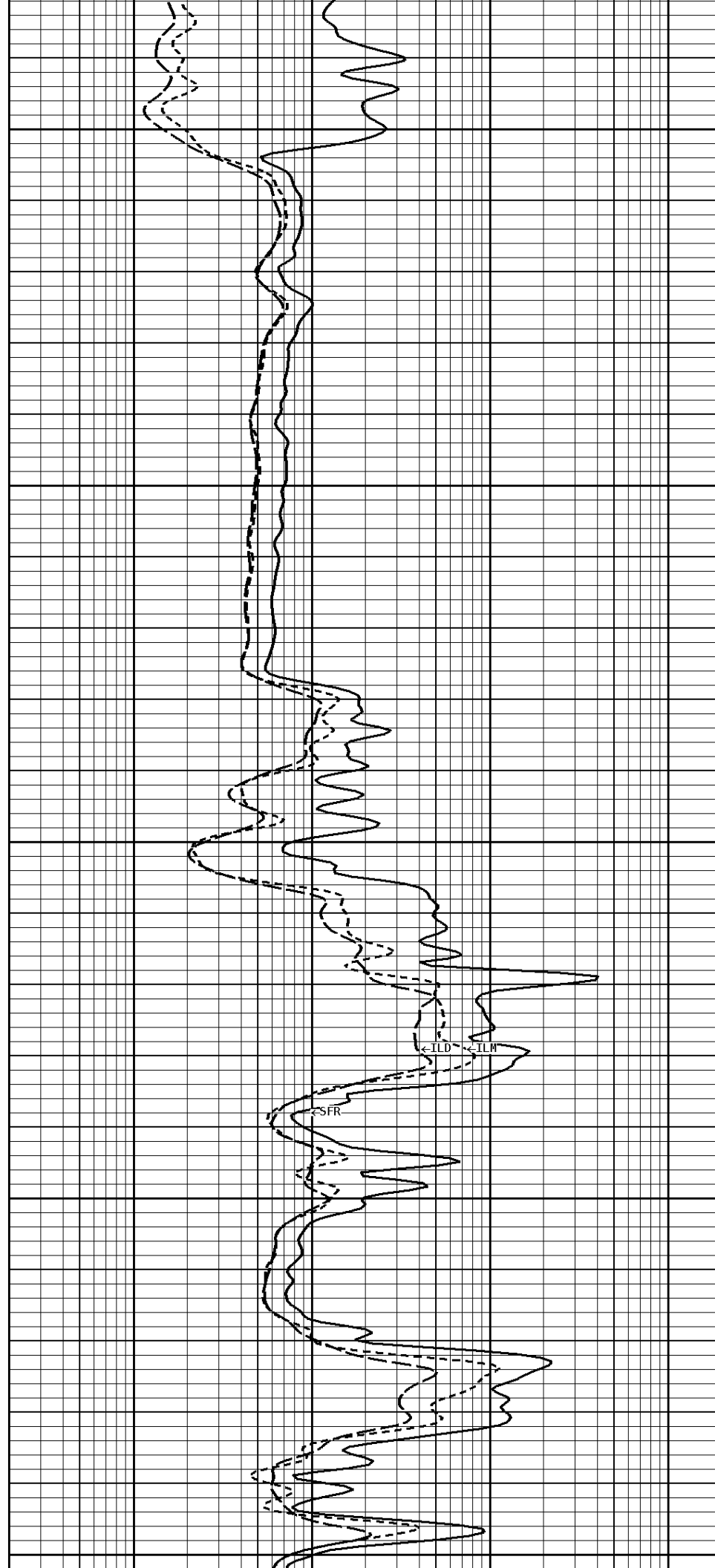
2400





2500

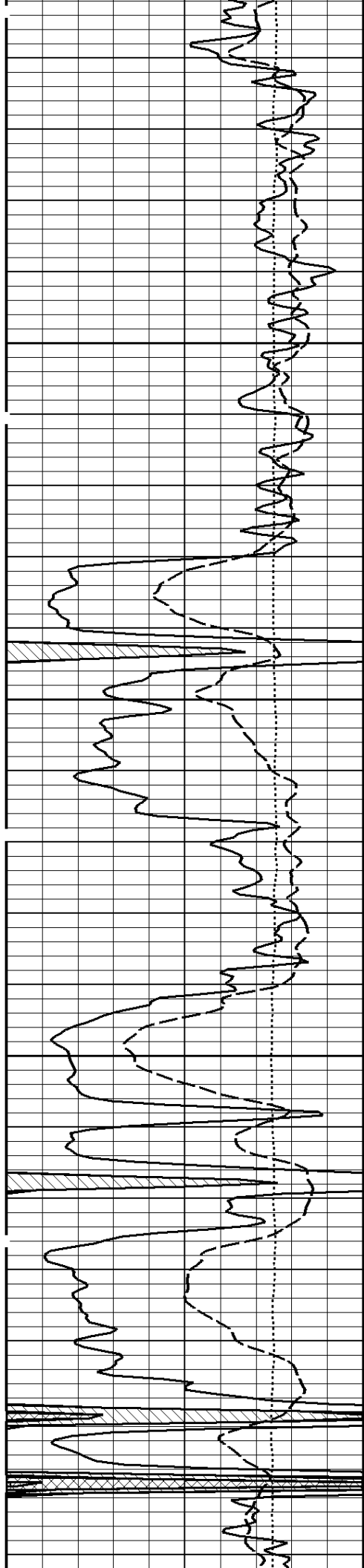
2600



SFR

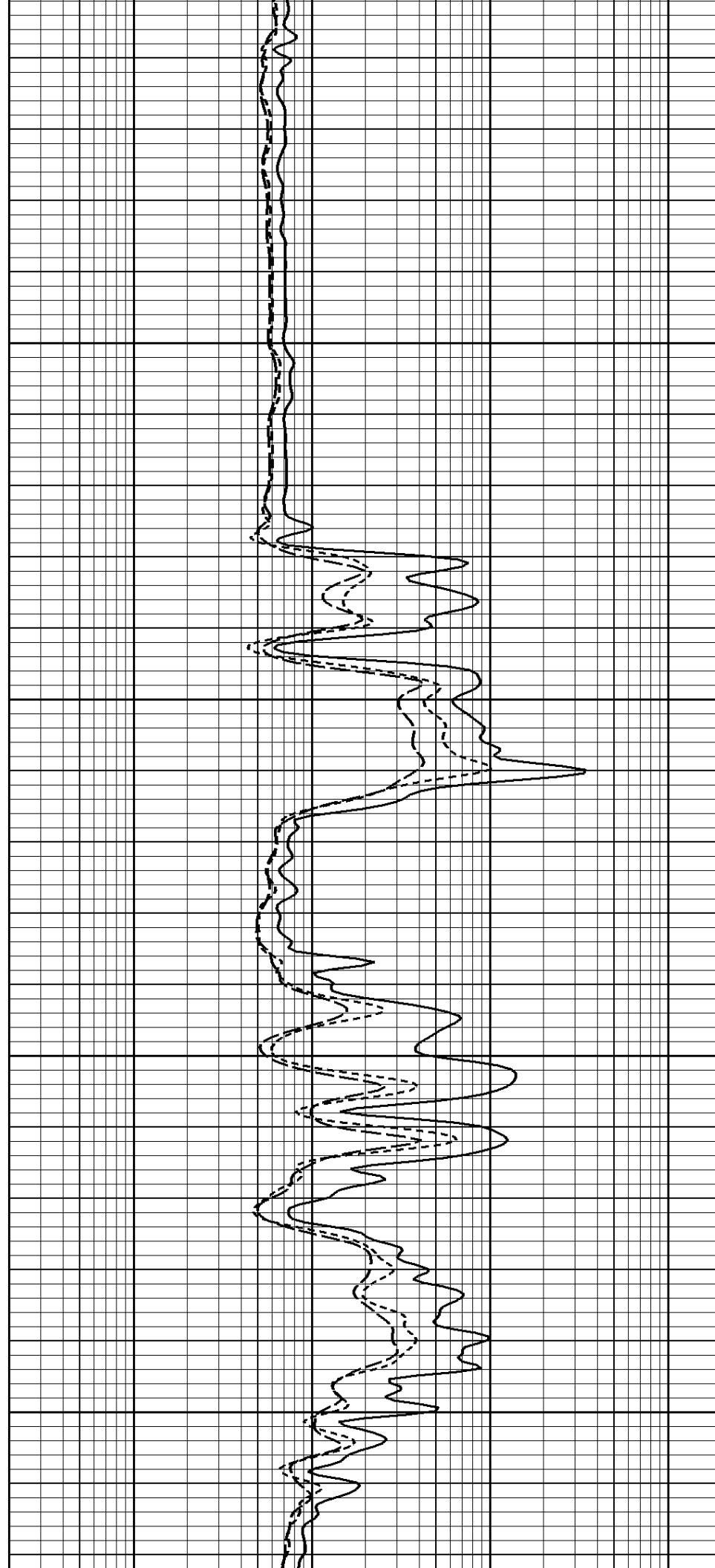
ILD

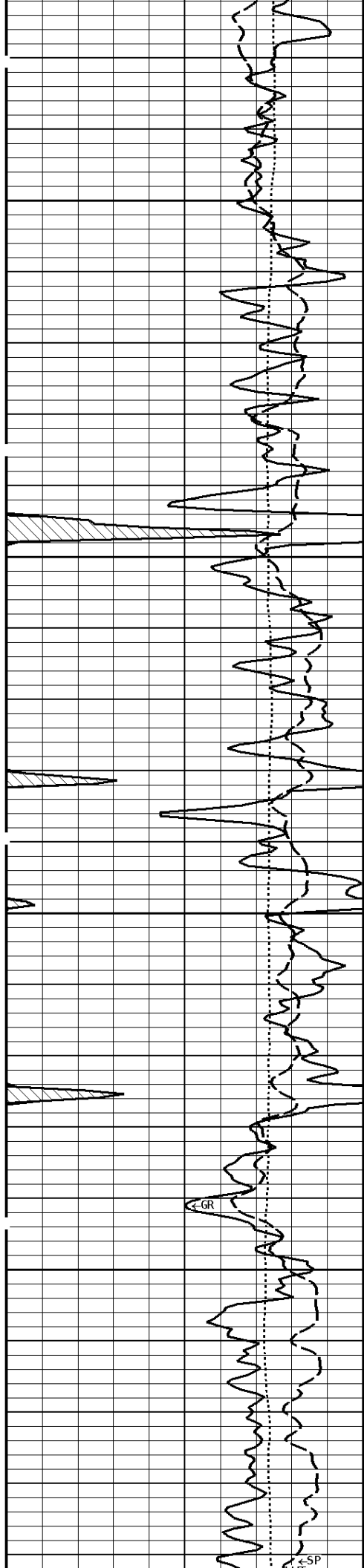
ILM



2700

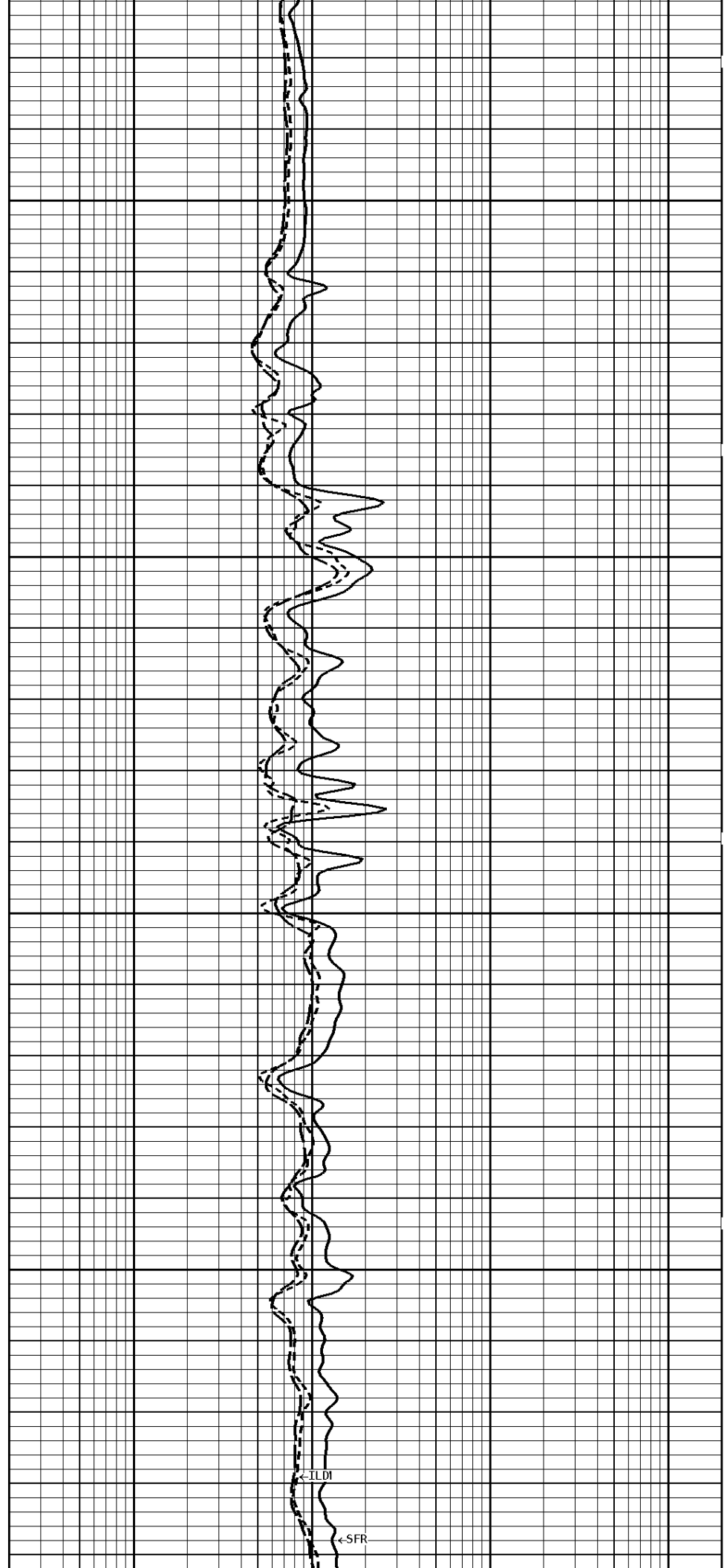
2800





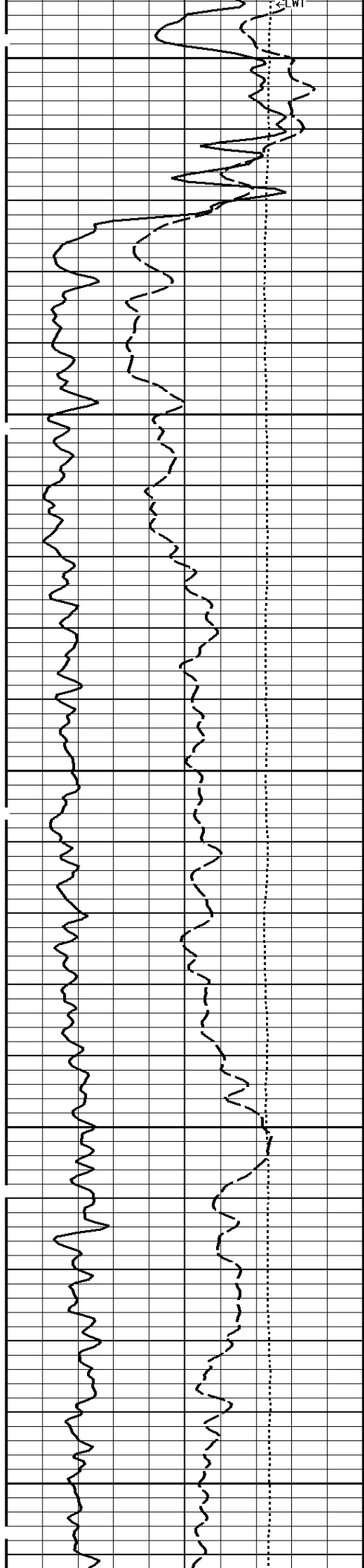
2900

3000



←LD1

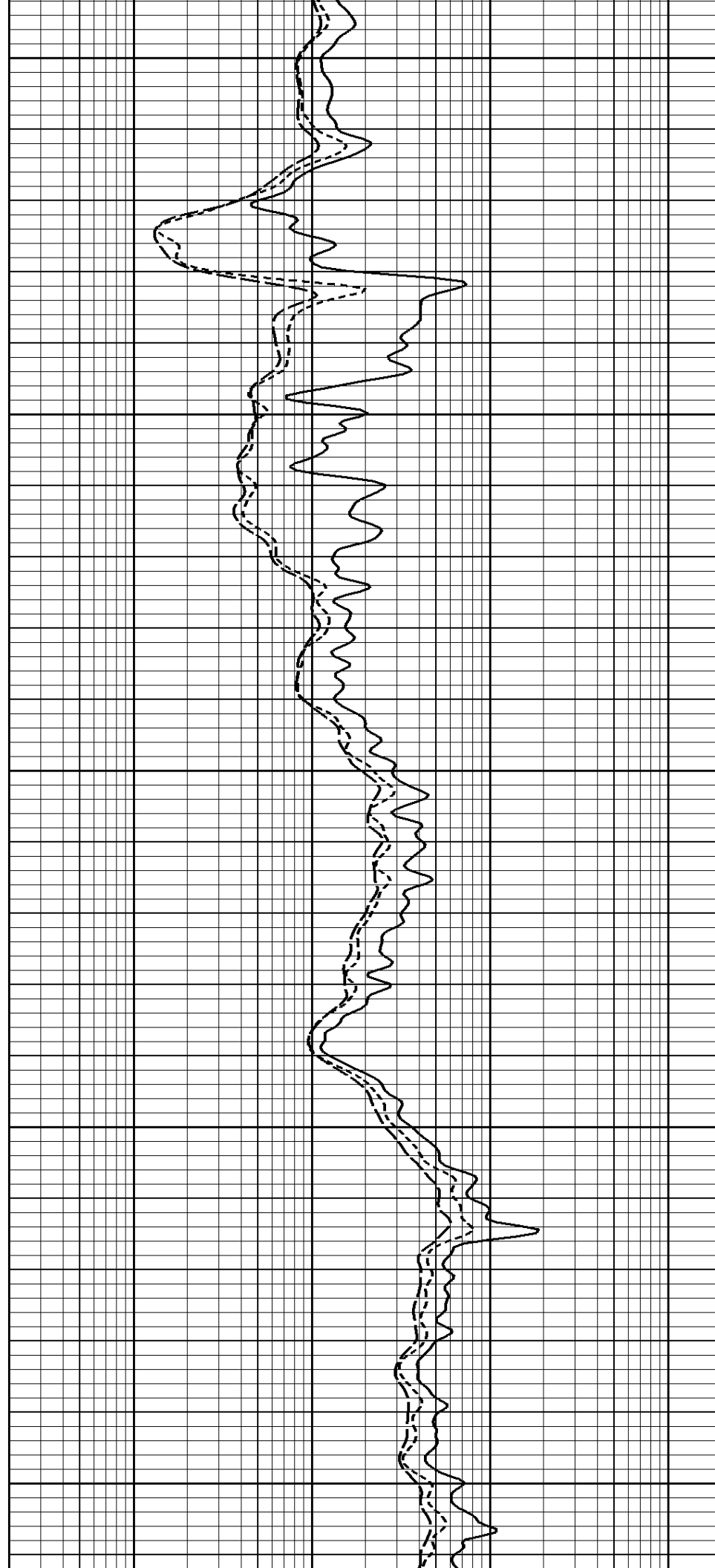
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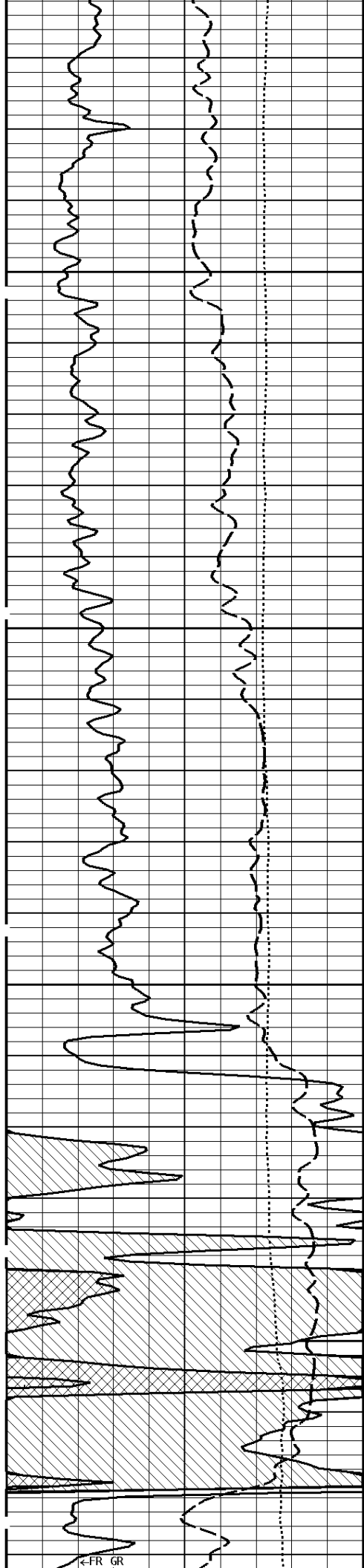


3100

3200

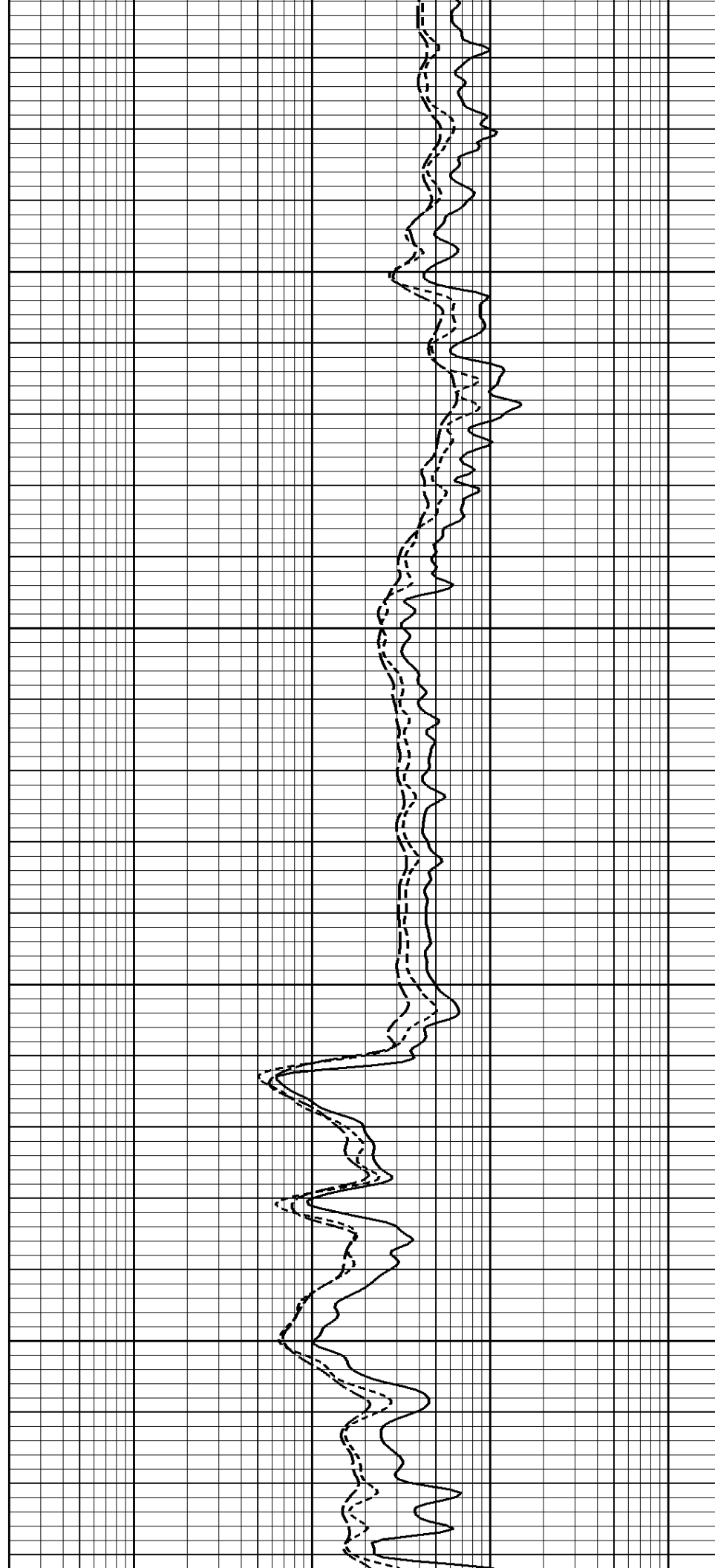
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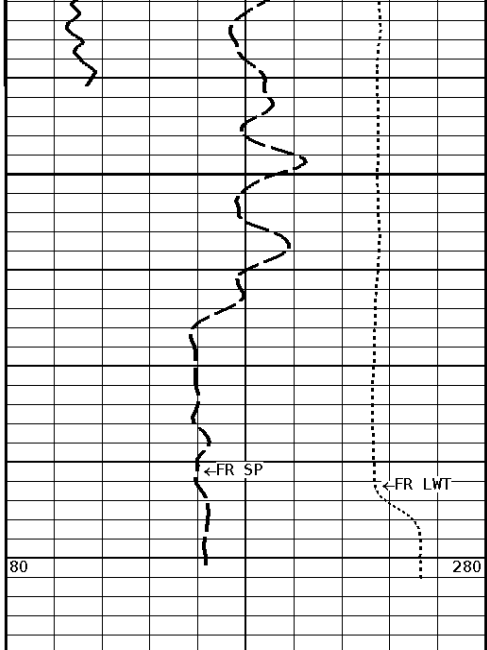




3400

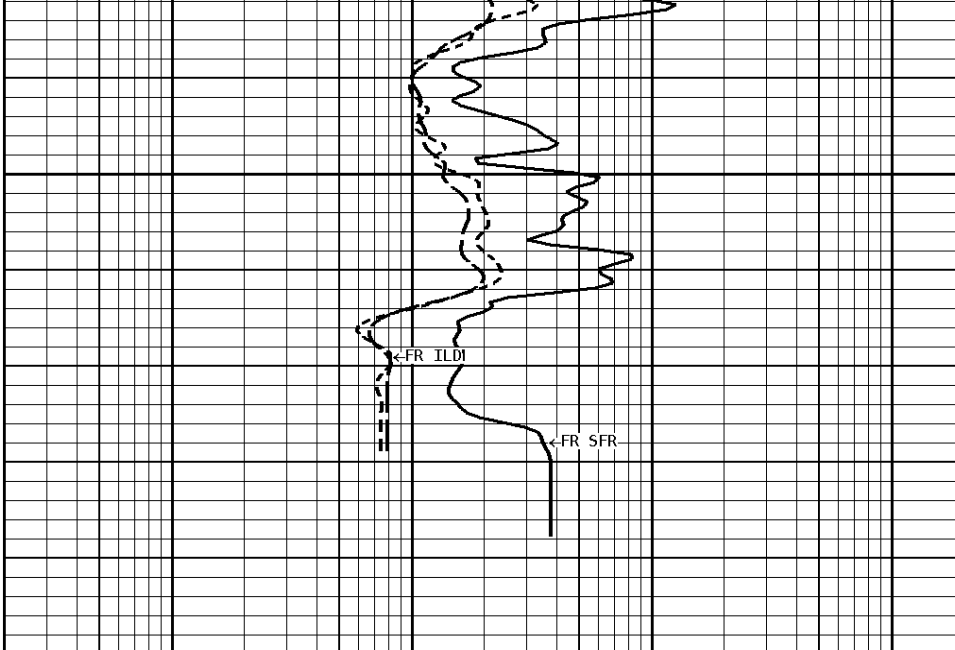
3500





3583

File #1.1.3



1:240 MAIN SECTION

GAMMA RAY API UNITS 150 0 300 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 _____	3585.000 ft
Borehole Temperature _____	115.0 degF
Temperature Gradient _____	1.00 DFHF
Resistivity Of Mud _____	2.000 ohmm
Standoff _____	1.5
Resistivity Of Mud Temperature _____	65.00 degF

Well File: val hammer dv 3-4 nov-20_mst Scale: 1:240 Format: DIL-240
 Segment: V1.D1.S4 CRE REPEAT Acquired: Not Available
 Reference: 0 Processed: 2017-11/20 16:26 3.4.0-13756

SPONTANEOUS POTENTIAL mV → ← 20
TENSION LBS 10000 0
GAMMA RAY API UNITS 150 0 300 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

File #1.1.4

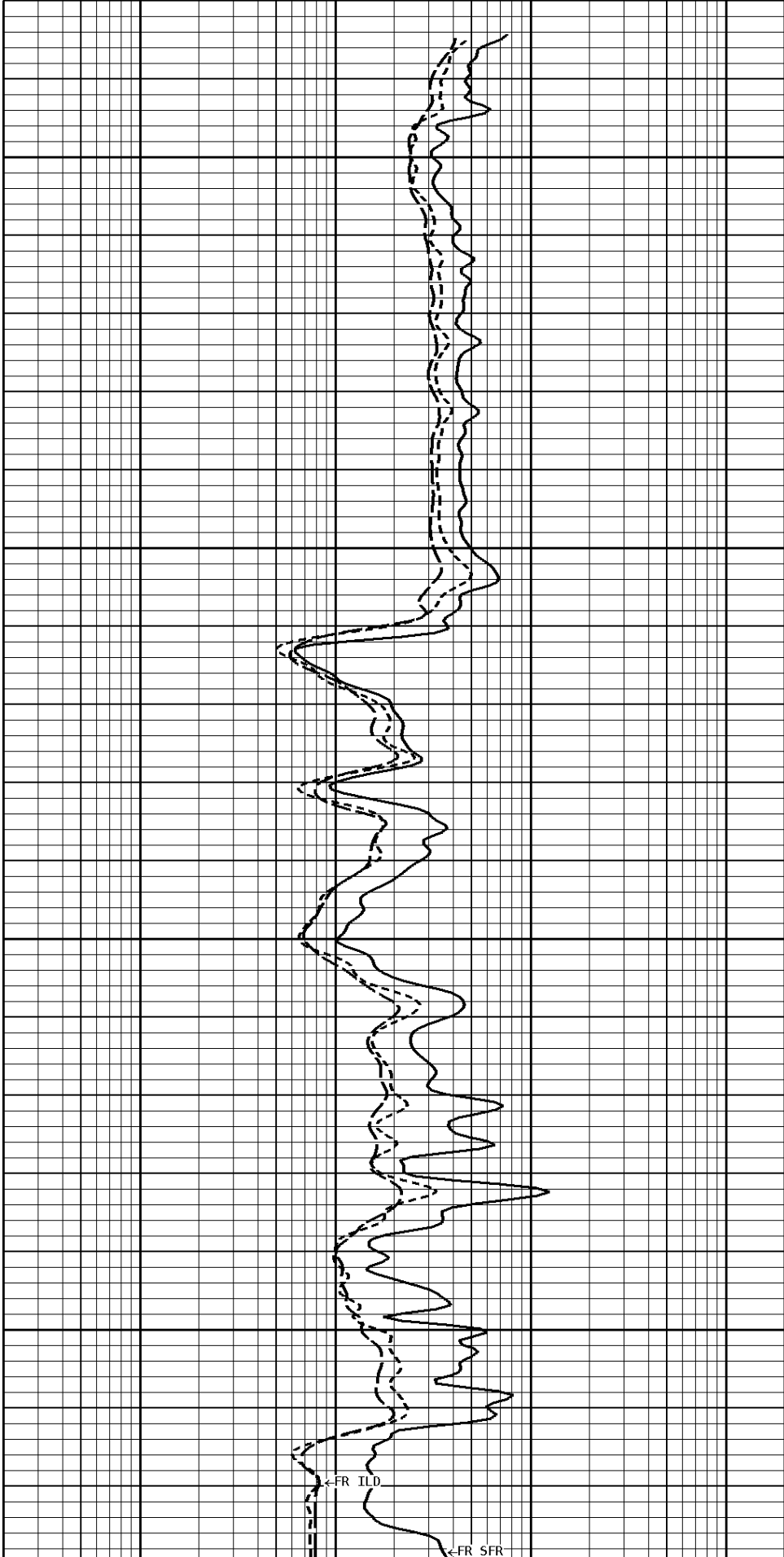
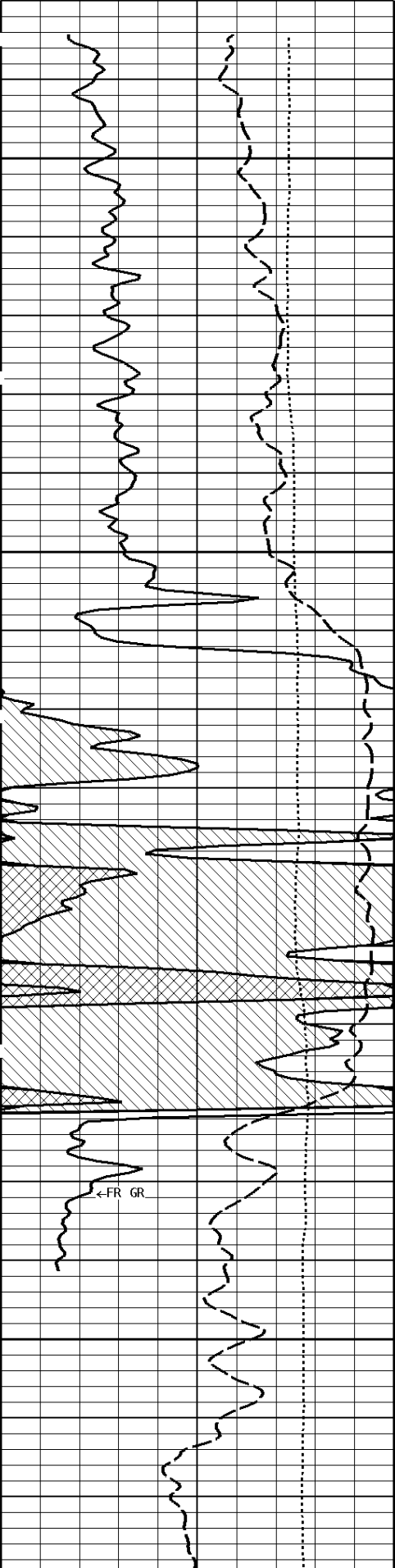
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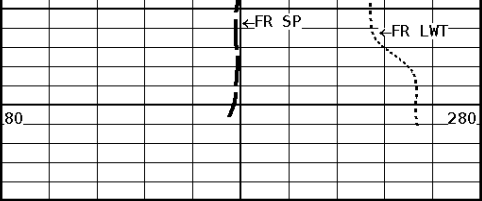
3500

←FR GR

←FR ILD

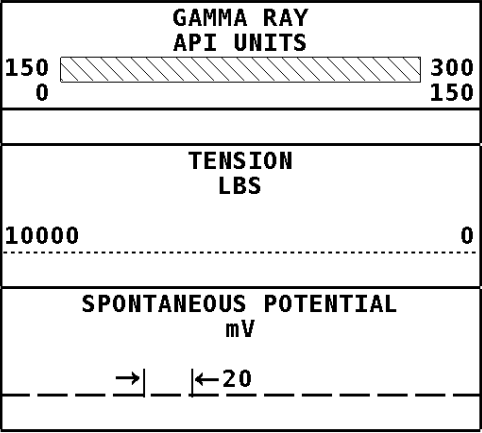
←FR SFR





3583

1:240 REPEAT SECTION



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	3585.000	ft
Borehole Temperature	115.0	degF
Temperature Gradient	1.00	DFHF
Resistivity Of Mud	2.000	ohmm
Standoff	1.5	
Resistivity Of Mud Temperature	65.00	degF

*** Calibration Summary ***

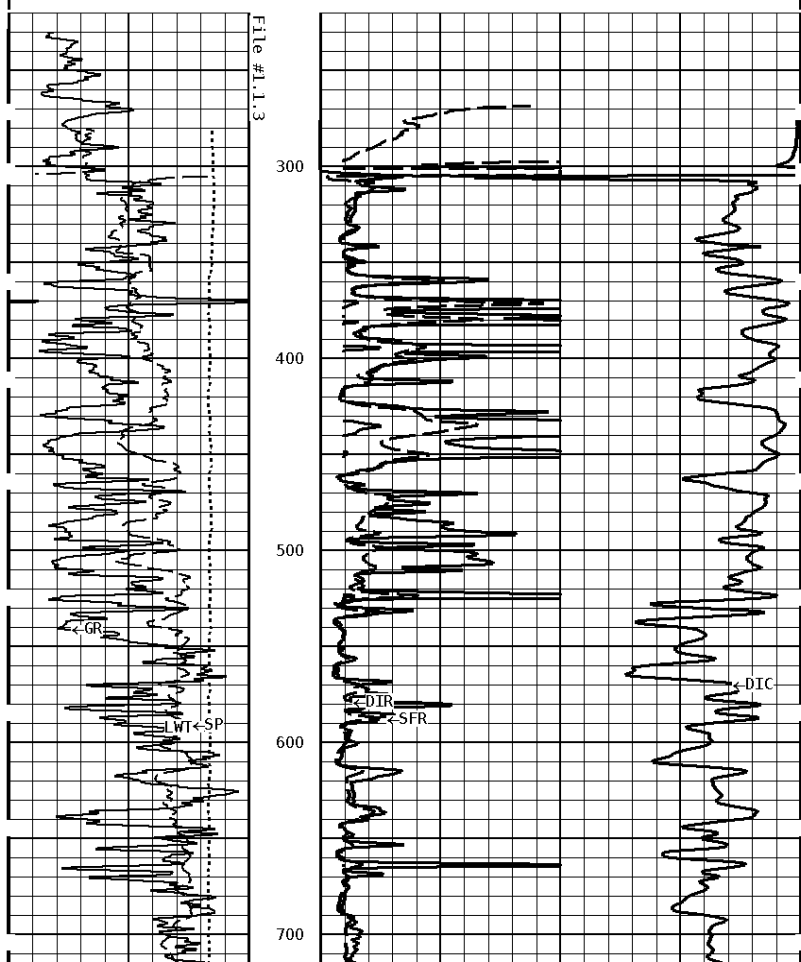
Shop Calibration GRT-B						
Performed : 02-OCT-2017			Time : 10:27			
Sensor Suite : GR-GR5			ID : GRT-BB-009			
	Measured	Units	Calibrated	Units		
GR	Background	Jig	Jig	GRAPI		
	46	362	175			
Shop Calibration PIT-CA						
Performed : 26-Sep-2017			Time : 09:42			
Sensor Suite : P-IND-T			ID : PIT-AC-043			
Medium						
	Measured		Calibrated		Units	
	R	X	R	X		
Air	131497	129662	0.5	0.6	MMHOS	
Zero	131065	131063	-18.2	60.1	MMHOS	
Reference	244627	244503	4981.8	5060.1	MMHOS	
Loop	130435	210091	3498.7	3592.2	MMHOS	
Sonde Error			-1.3	-3.0	MMHOS	
Cond			4981.8	5060.1	MMHOS	
Deep						
	Measured		Calibrated		Units	
	R	X	R	X		
Air	131956	129220	0.3	-0.7	MMHOS	
Zero	131074	131072	-15.2	35.1	MMHOS	
Reference	220263	224181	1984.8	2035.1	MMHOS	
Loop	129286	205754	1584.4	1703.2	MMHOS	
Sonde Error			-0.4	-8.6	MMHOS	
Cond			1984.8	2035.1	MMHOS	

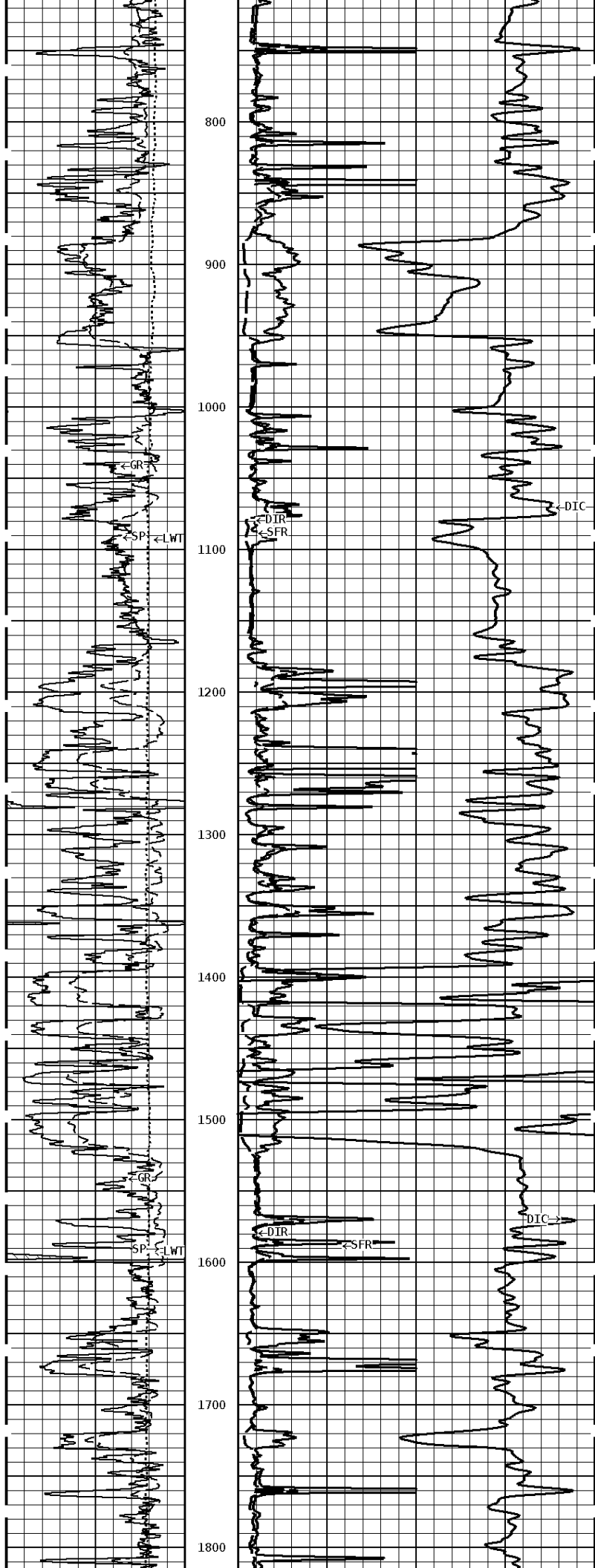
Measured		Calibrated		Units	
Low	High	Low	High	DEGF	
16980.0	56920.0	70.0	350.0		
Performed : 26-Sep-2017		Time : 09:35			
Sensor Suite : SFL		ID : PIT-AC-043			
Measured		Calibrated		Units	
Zero	Reference	Zero	Reference		
Im	32732.5	48898.9	0.0	7028.0	uA
Ib	32768.3	49649.9	0.0	1750.0	mA
MOM1	32730.8	56254.3	0.0	175.0	mV
Equivalent SFL				43.97	OHMM
Performed : 26-Sep-2017		Time : 09:31			
Sensor Suite : P-SP		ID : PIT-AC-043			
Measured		Calibrated		Units	
Zero	Reference	Zero	Reference		
	32772.9	58924.4	0.0	1000.0	mV

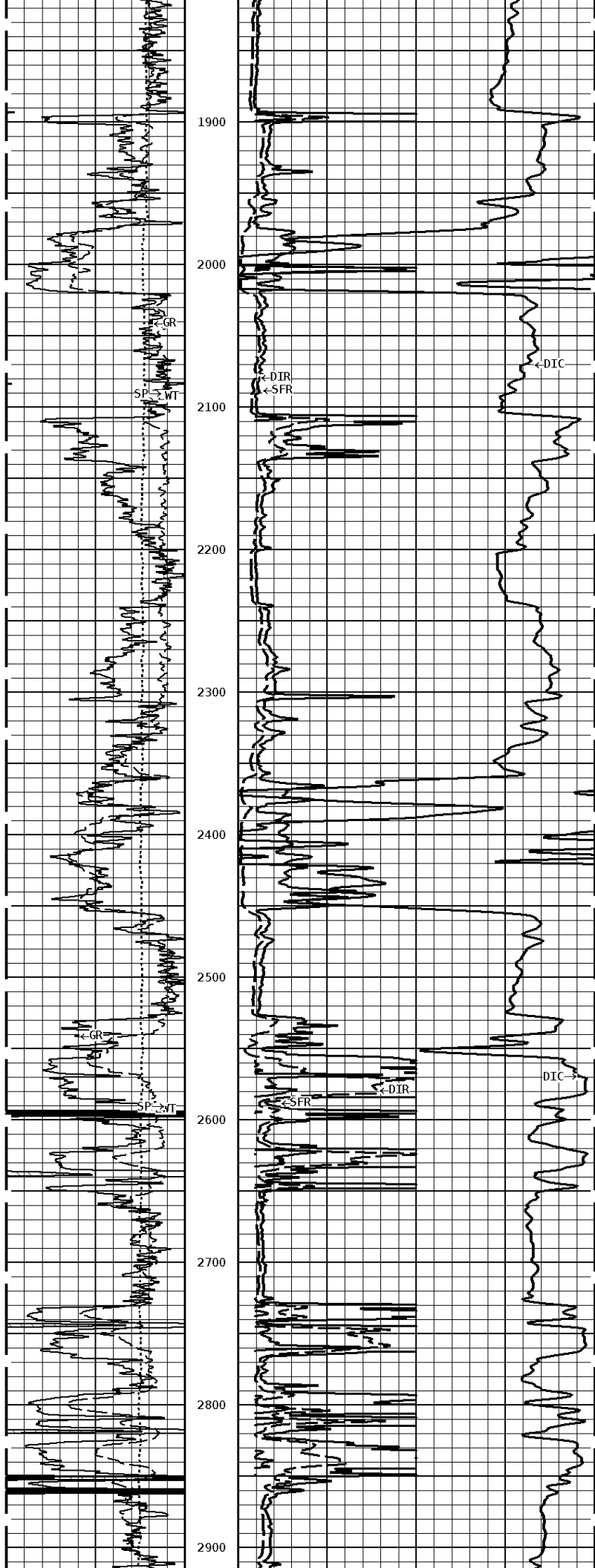
Well File: val_hammer_dv_3-4_nov-20_mst Scale: 1:1200 Format: DIL1200
Segment: V1.D1.S3 MAIN Acquired: 2017-11/20 15:20 3.4.0-13756
Reference: 0 Processed: 2017-11/20 16:25 3.4.0-13756

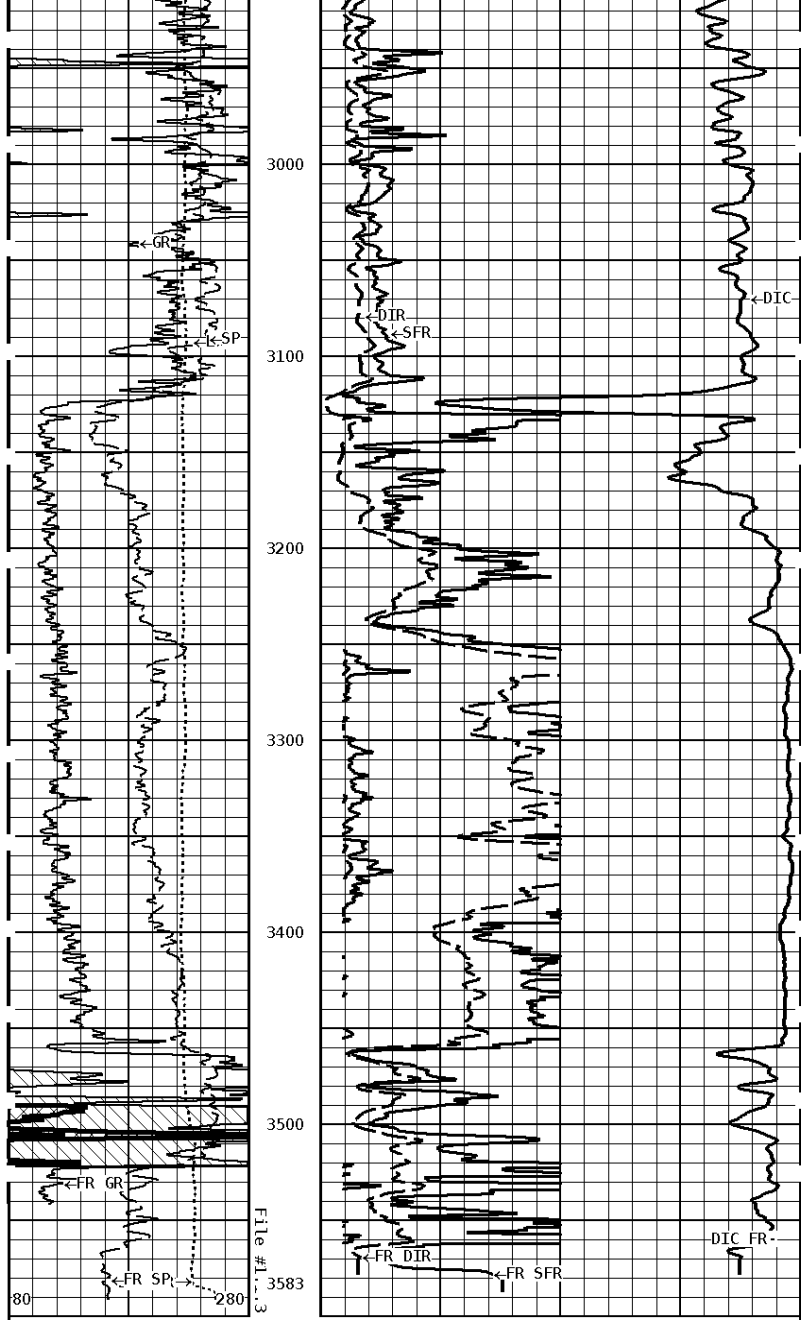
TENSION LBS	DEEP INDUCTION OHMM
10000 0	0.0 500.0 0.0 50.0
SPONTANEOUS POTENTIAL mV	SHALLOW FOCUSED OHMM
→ ← 20	0.0 500.0 0.0 50.0
GAMMA RAY API UNITS	DEEP CONDUCTIVITY MHMO
150 300 0 150	2000 1000 1000 0

1:1200 MAIN SECTION









1:1200 MAIN SECTION

GAMMA RAY API UNITS 150 0 300 150	DEEP CONDUCTIVITY MHMO 2000 1000 1000 0	
SPONTANEOUS POTENTIAL mV → ← 20	SHALLOW FOCUSED OHMM 0.0 500.0 0.0 50.0	
TENSION LBS 10000 0	DEEP INDUCTION OHMM 0.0 500.0 0.0 50.0	



Company: VAL ENERGY, INC
 Well: HAMMER D V3-4
 Location: 990' FSL & 660' FWL
 Logged: 11-20-2017
 K.B. Elev: 1346.0 Ft

