

PHASED INDUCTION

The customer is hereby warned that by providing the log data herein, STEP Energy Services does not agree to provide any interpretation of log data, conversion of log data to physical rock parameters or recommendations. STEP Energy Services 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 STEP Energy Services 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 STEP Energy Services 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.

Run Number	1		
Date	12-07-2019		
Date/Time On Bottom	12-07-2019 09:45		
Depth to Fluid	0.0 Ft		
Salinity	0.000		
RMF@BHT	0.850 @ 125 F		
RMC@BHT	1.150 @ 125 F		

Comments

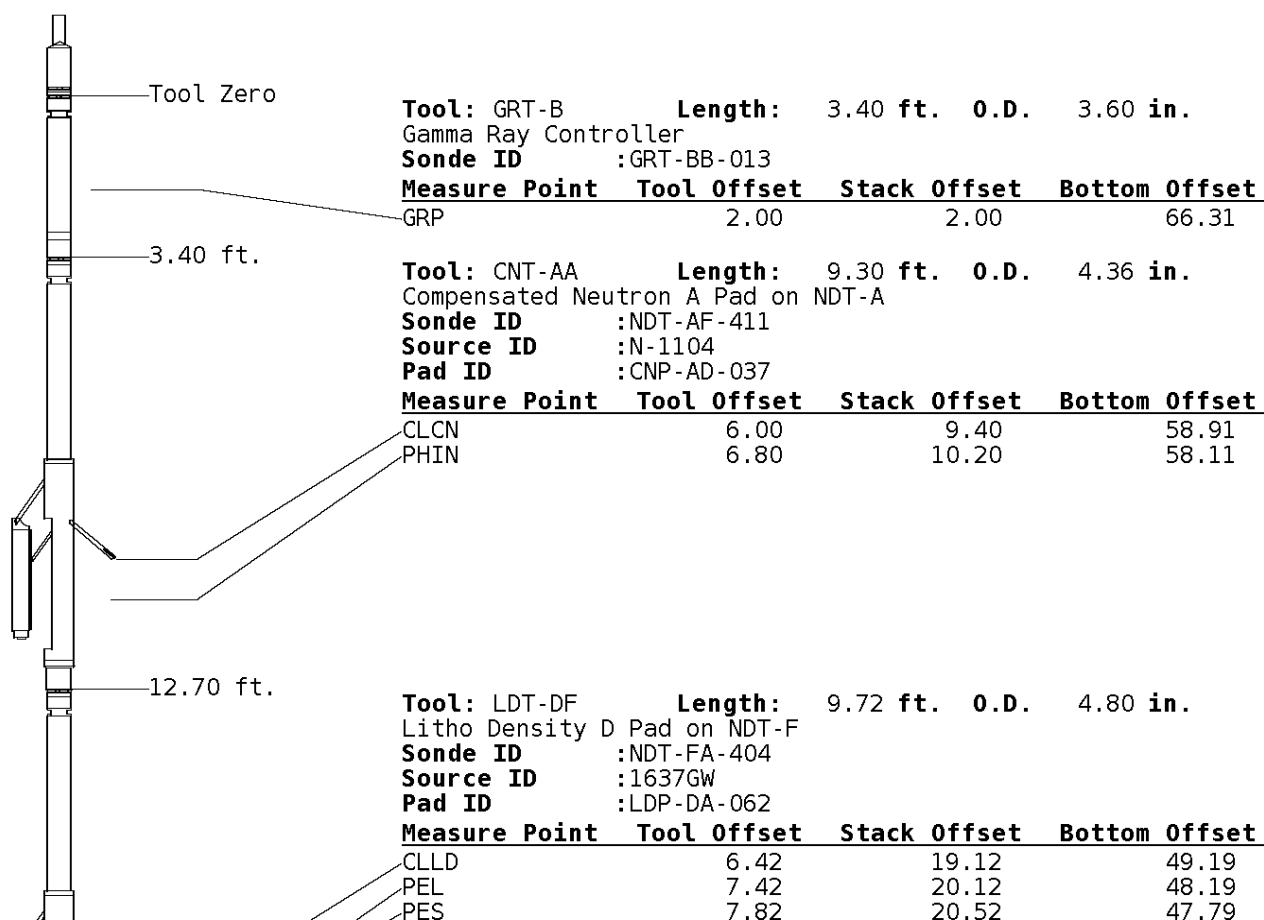
ALL PRESENTATIONS AS PER CUSTOMER REQUEST
GRT, CNT, LDT, MLT, CST, AND PIT RUN IN COMBINATION
CALIPERS ORIENTED ON X-Y AXIS
2.71 G/CC USED TO CALCULATE POROSITY
ANNULAR HOLE VOLUME CALCULATED USING 5.50" PRODUCTION CASING
PHIN IS CALIPER CORRECTED

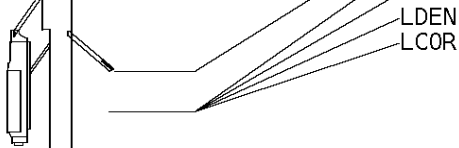
GRT: GRP.
CNT: PHIN, CLCNIN.
LDT: PORL, LCORN, PECLN, LDENN, CLLDIN.
MLT: NOR_RF, INV_RF, MSCLPIN.
CST: POR5, ITT, CDTF, TT1, TT2, TT3, TT4.
PIT: ILD, ILM, SFLAEC, CIRD, SPU

OPERATORS:

Tool String Schematic

Total Tool Length - 68.31 ft.
Maximum Outside diameter - 6.00 in.
Net Weight in Air - 1171.00 lbs.



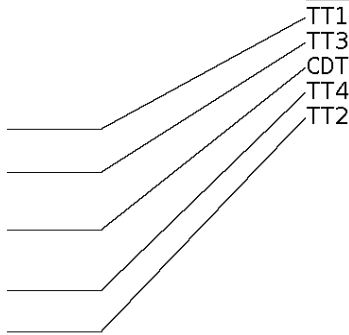


7.62 20.32 47.99
7.62 20.32 47.99

22.42 ft.

Tool: CST-AD **Length:** 13.80 ft. **O.D.** 3.60 in.
Open Hole Sonic
Sonde ID : CST-AB-24

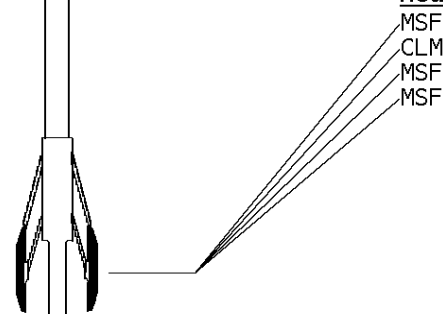
Measure Point	Tool Offset	Stack Offset	Bottom Offset
TT1	4.80	27.22	41.09
TT3	5.80	28.22	40.09
CDT	7.30	29.72	38.59
TT4	8.80	31.22	37.09
TT2	9.80	32.22	36.09



36.22 ft.

Tool: MLT-AB **Length:** 10.60 ft. **O.D.** 6.00 in.
Micro Log Tool
Sonde ID : MLT-012

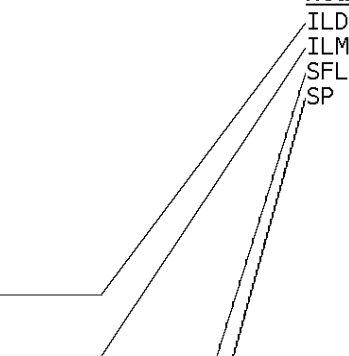
Measure Point	Tool Offset	Stack Offset	Bottom Offset
MSFL	8.90	45.12	23.19
CLMR	7.60	43.82	24.49
MSFN	8.90	45.12	23.19
MSFI	8.90	45.12	23.19



46.82 ft.

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	55.74	12.56
ILM	10.10	56.92	11.39
SFLU	17.49	64.31	4.00
SP	20.60	67.42	0.88



LWT 68.31 ft.

Well File: casillas hamker 20-3 dec-7-2019_qst

Scale: 1:600

Format: DIL-600

Segment: V1.D1.S7 Reprocess MAIN

Acquired: 2019-12/07 11:10 3.4.1-13972

Reference: 0

Processed: 2019-12/07 13:13 3.4.1-13972

TENSION
LBS

10000

0

DEEP INDUCTION
OHMM

0.0

500.0

0.0

50.0

SPONTANEOUS POTENTIAL
mV

→

← 30

SHALLOW FOCUSED RESISTIVITY
OHMM

0.0

500.0

0.0

50.0

GAMMA RAY
API UNITS

150

300

0

150

DEEP CONDUCTIVITY
MMHO

2000

1000

1000

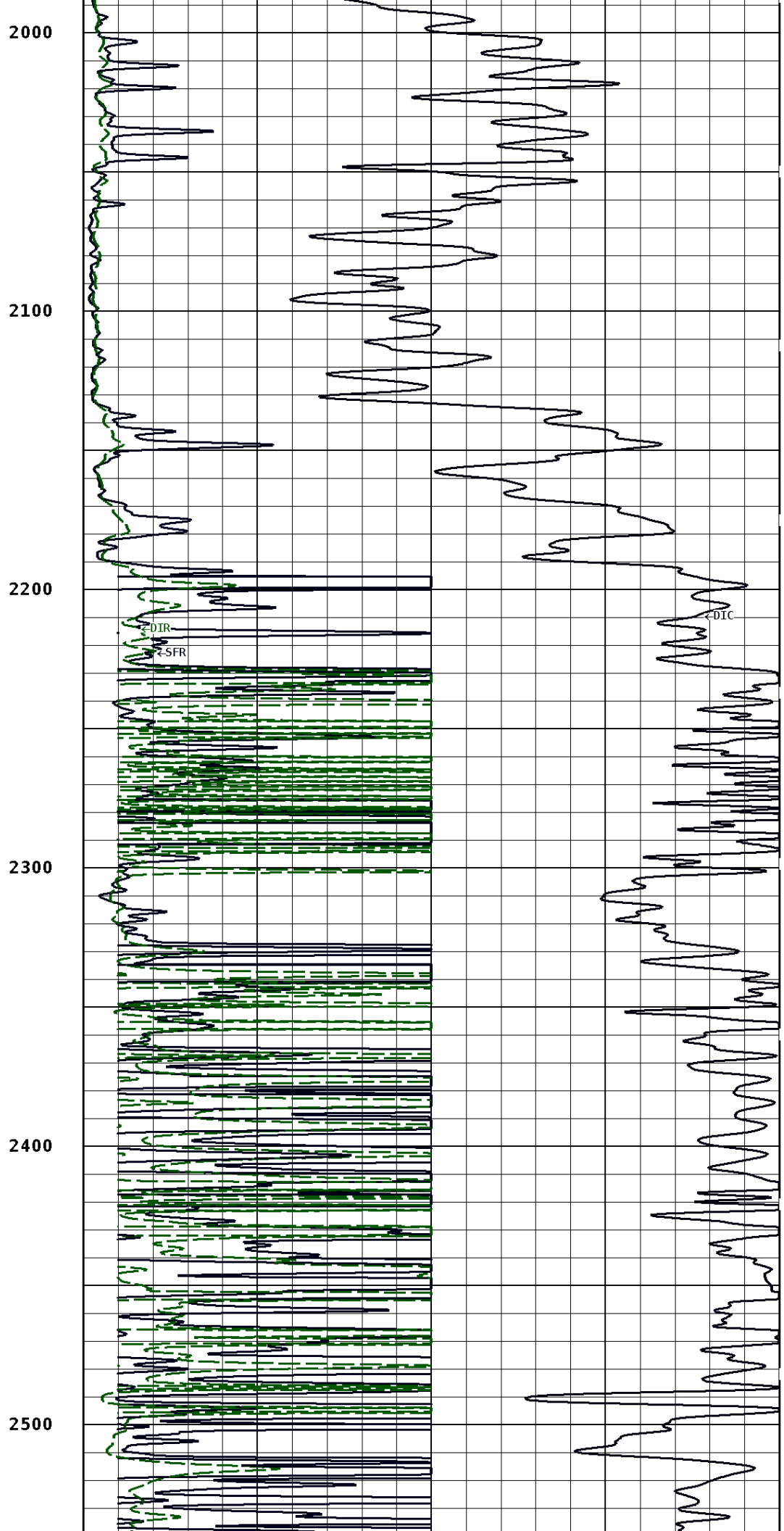
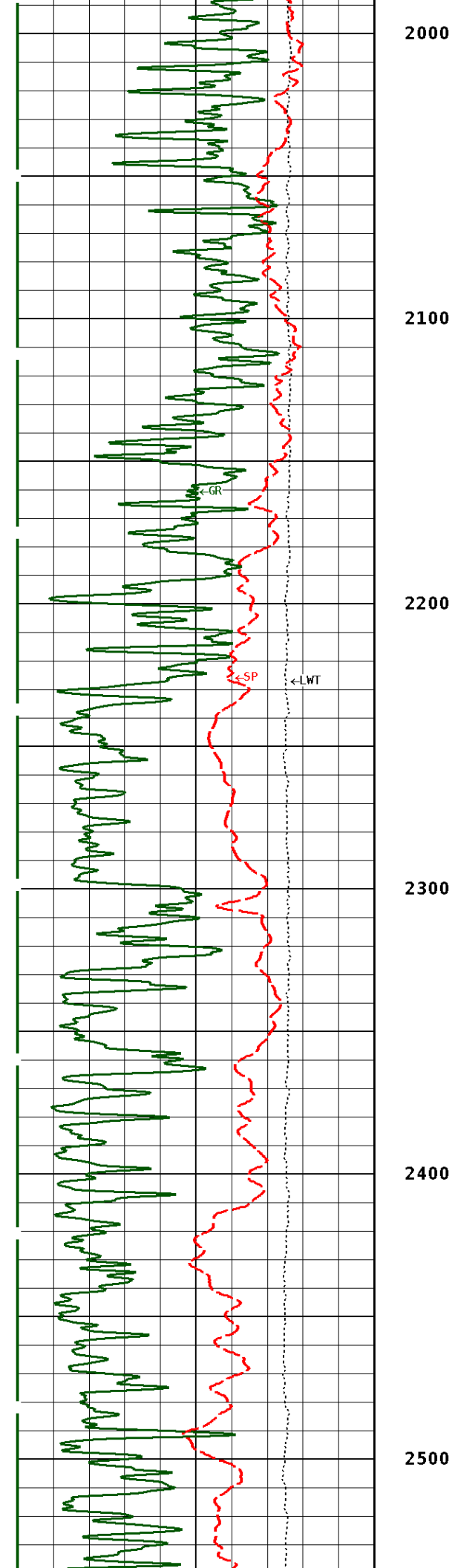
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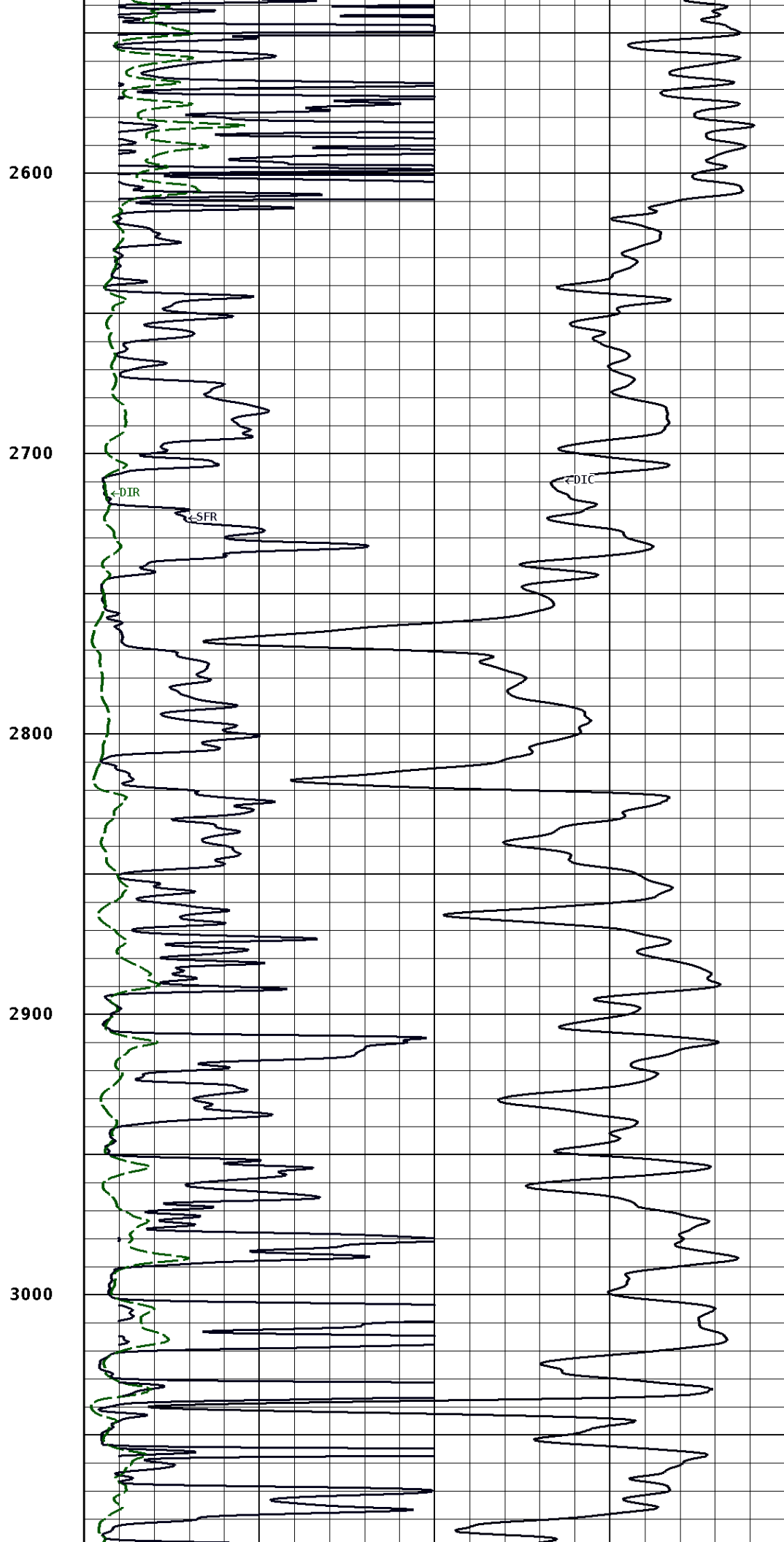
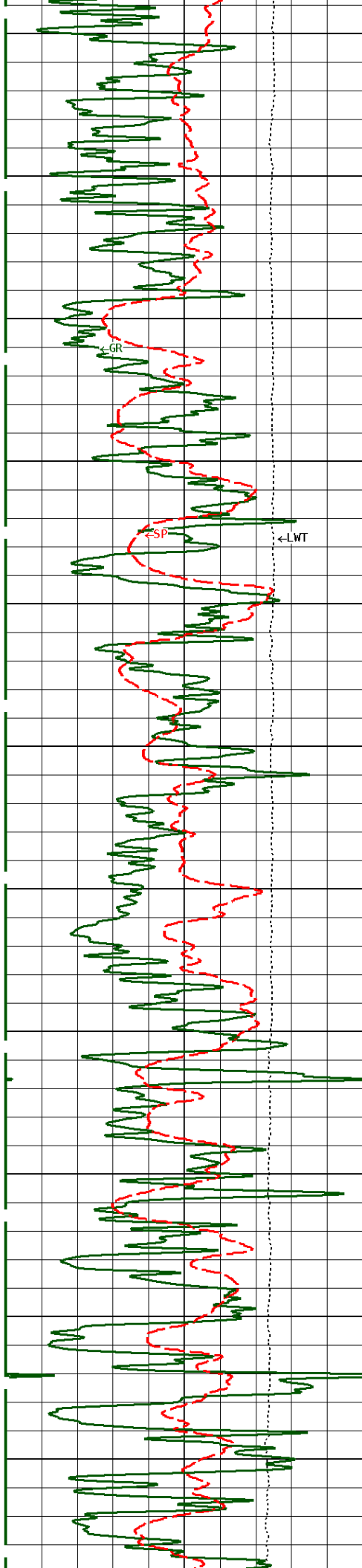
1:600 MAIN SECTION

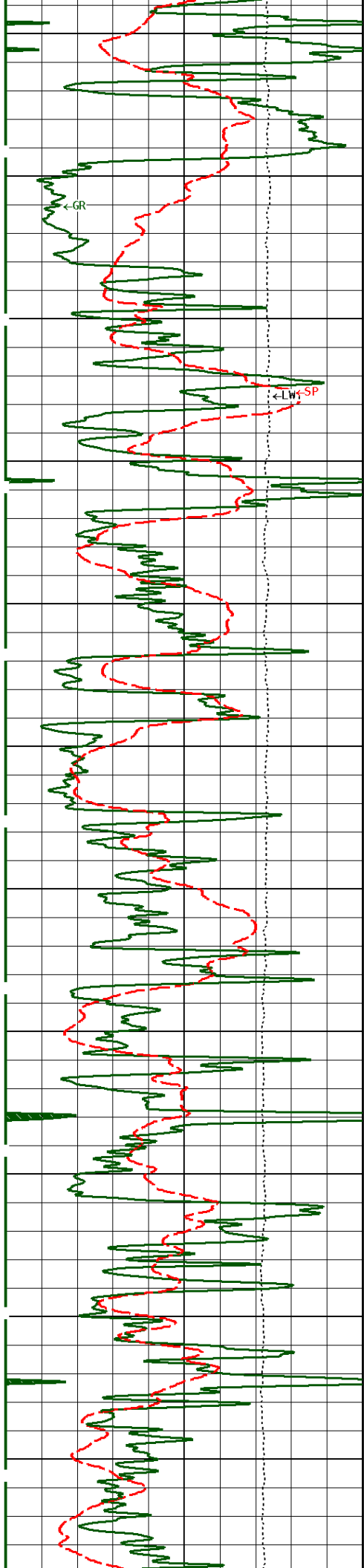
File #1.1.7

1800

1900







3100

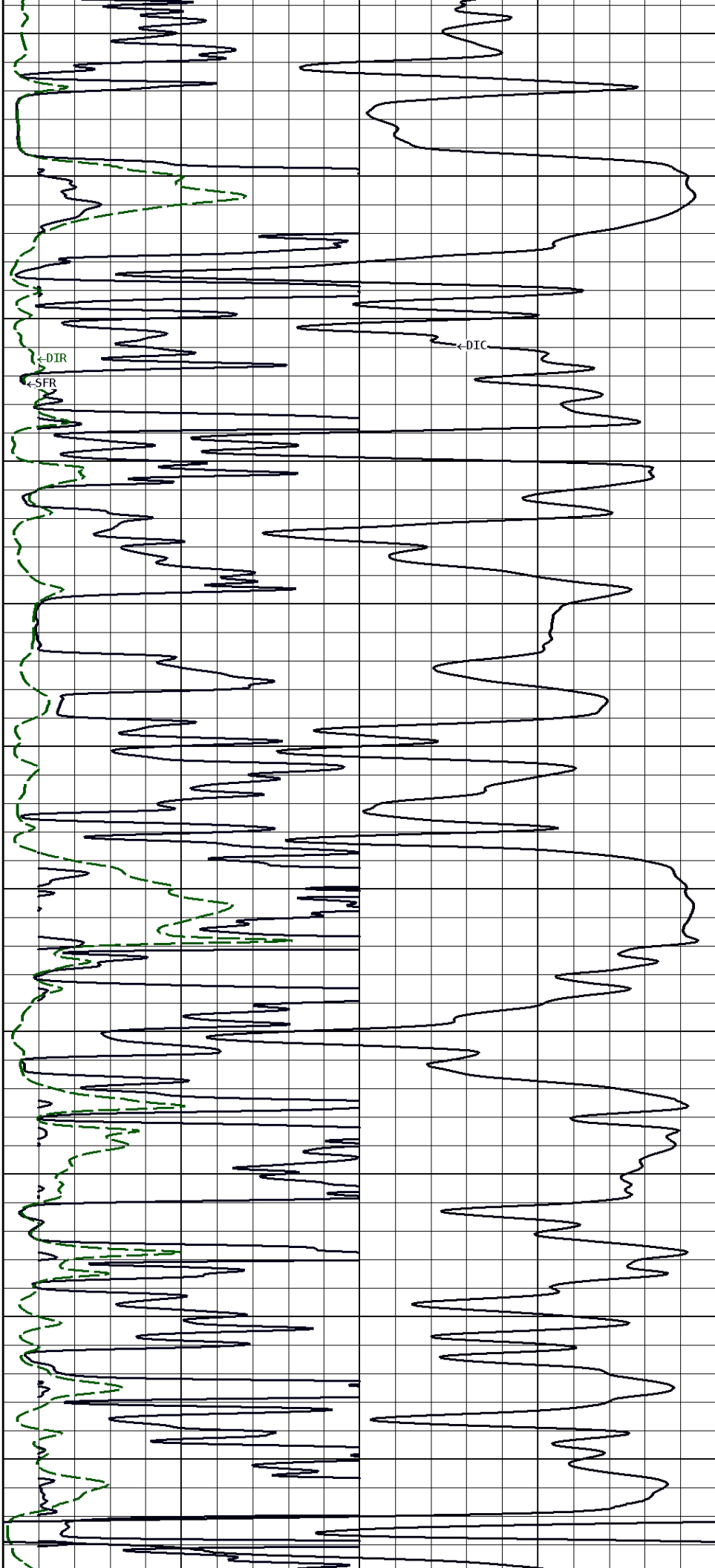
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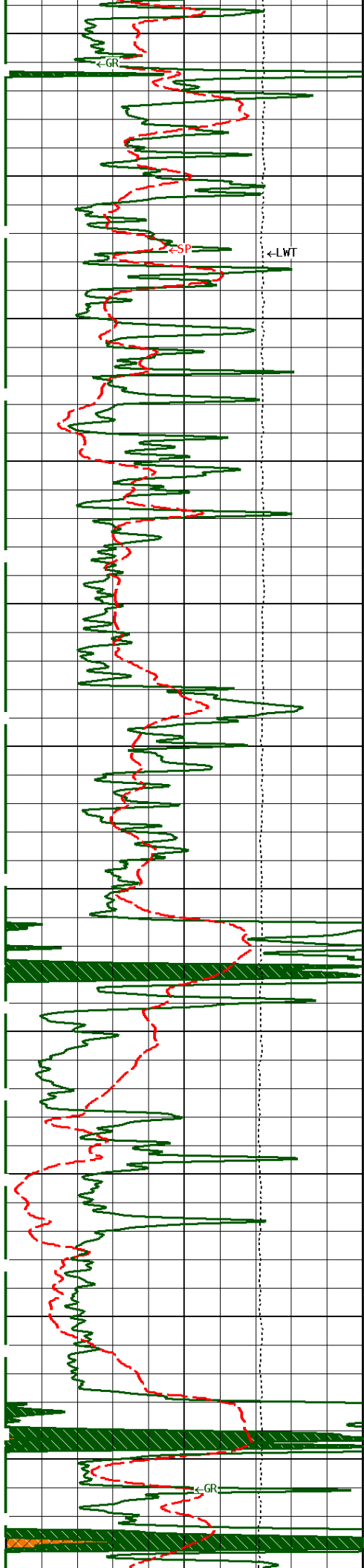
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3400

3500

3600





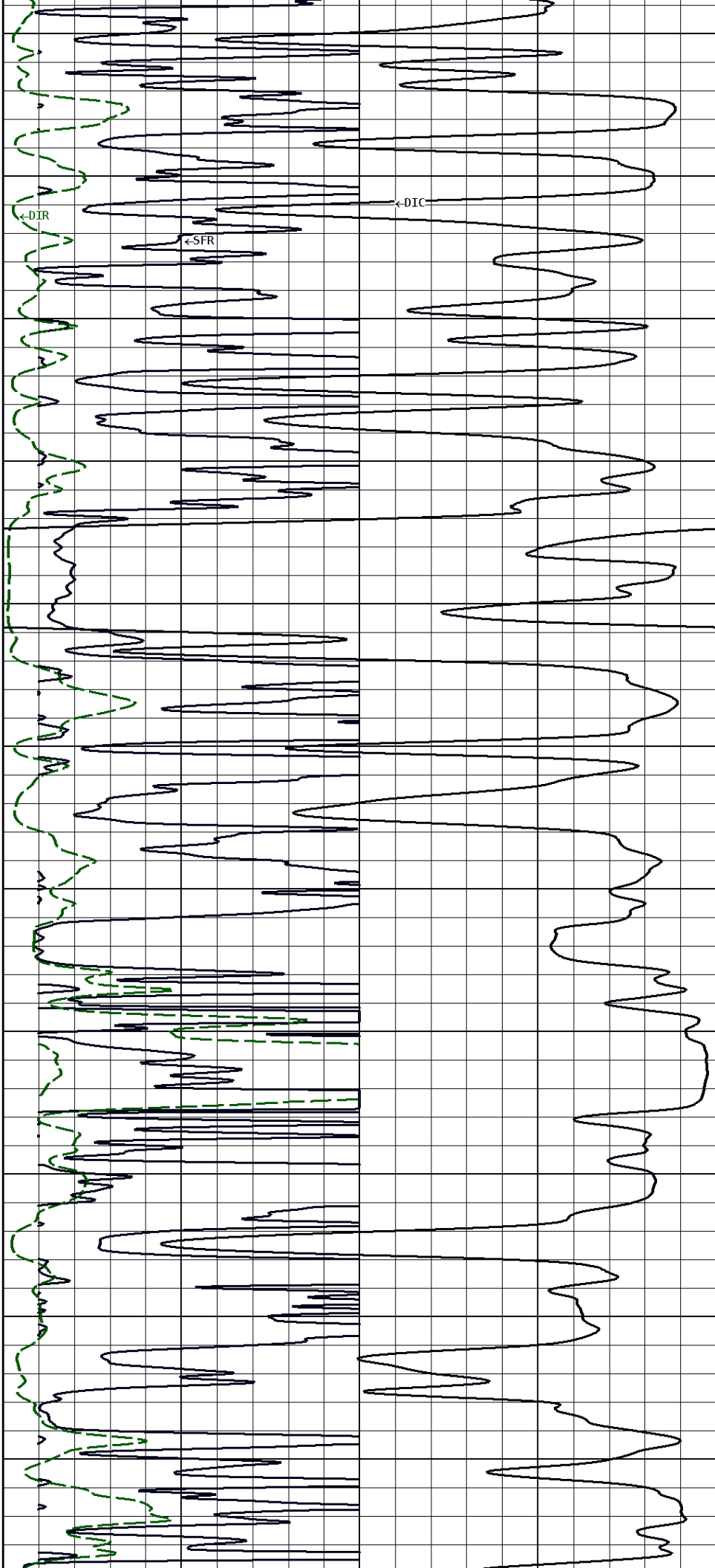
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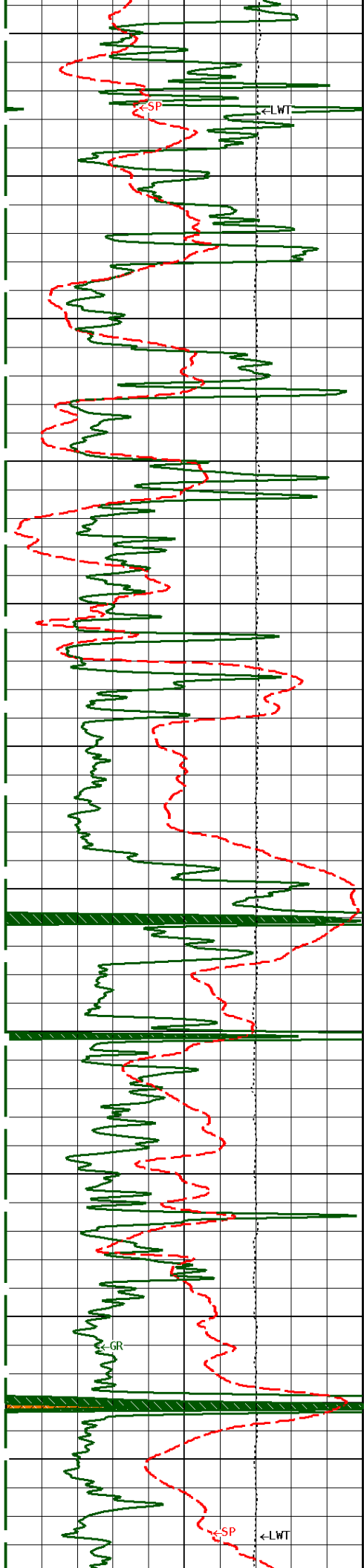
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3900

4000

4100





4200

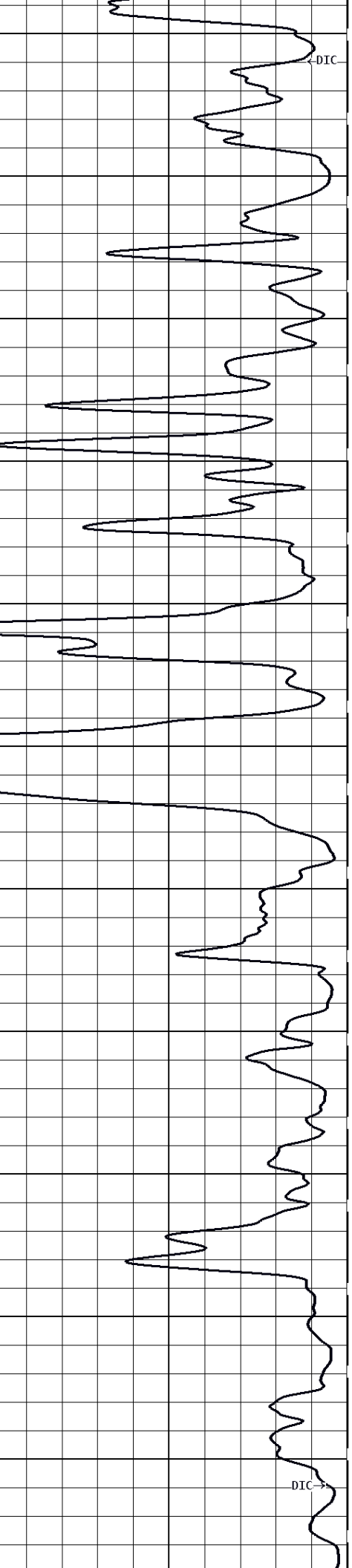
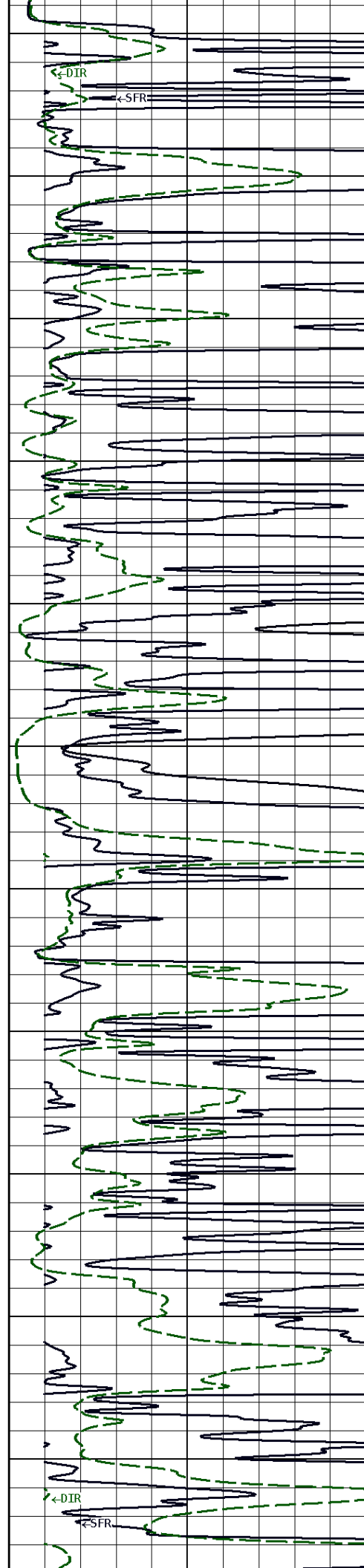
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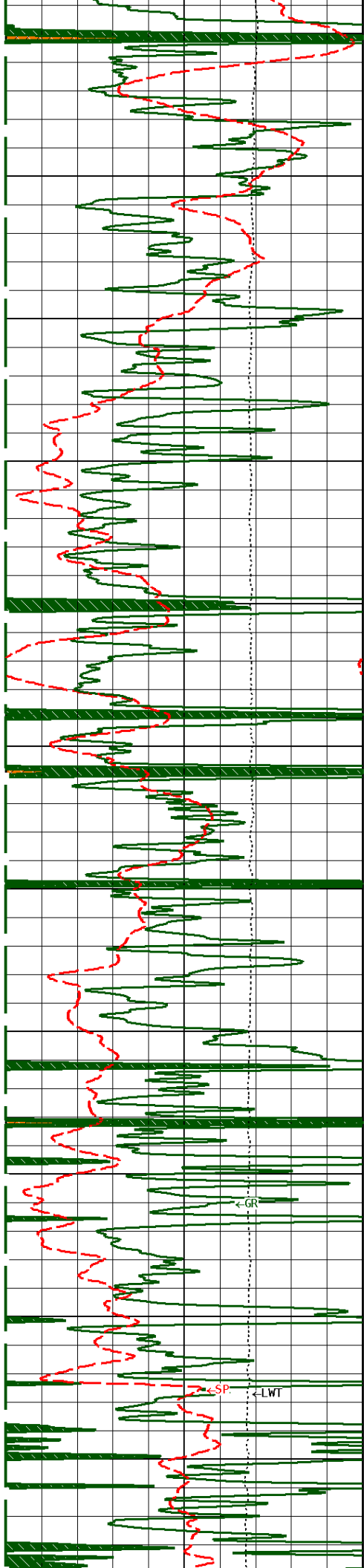
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4600

4700



DIC-5



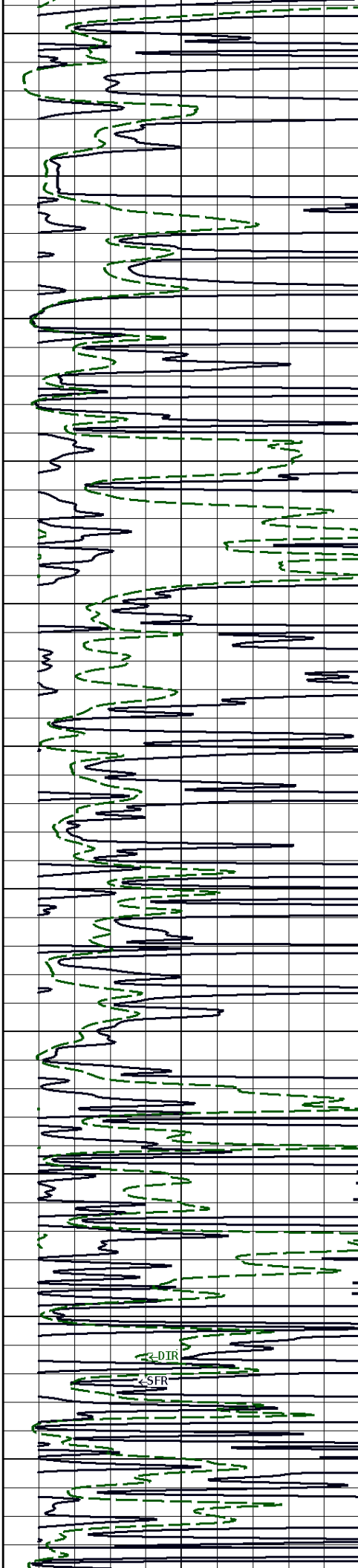
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4900

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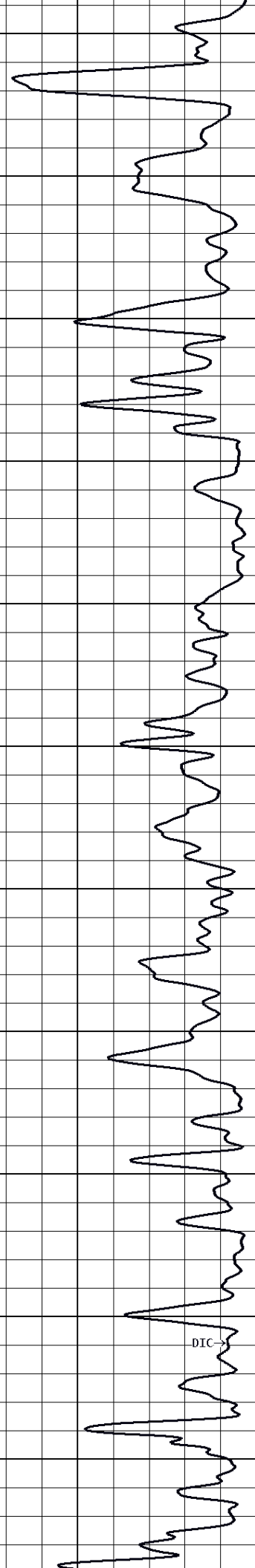
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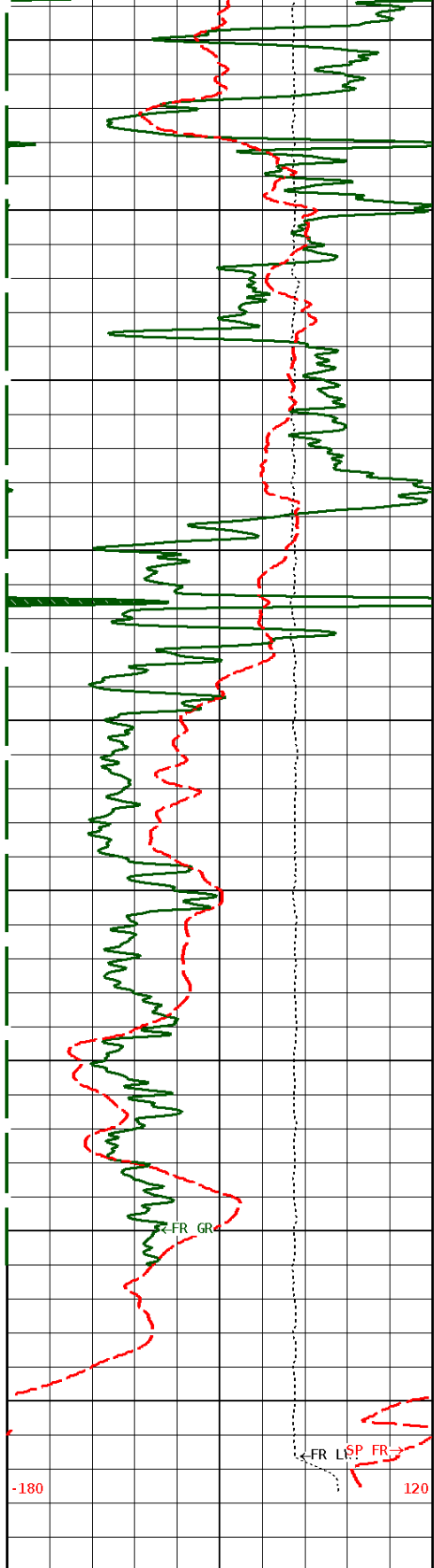


DIR

SFR



DIC



5300

5400

5500

5600

5700

5716

-180

120

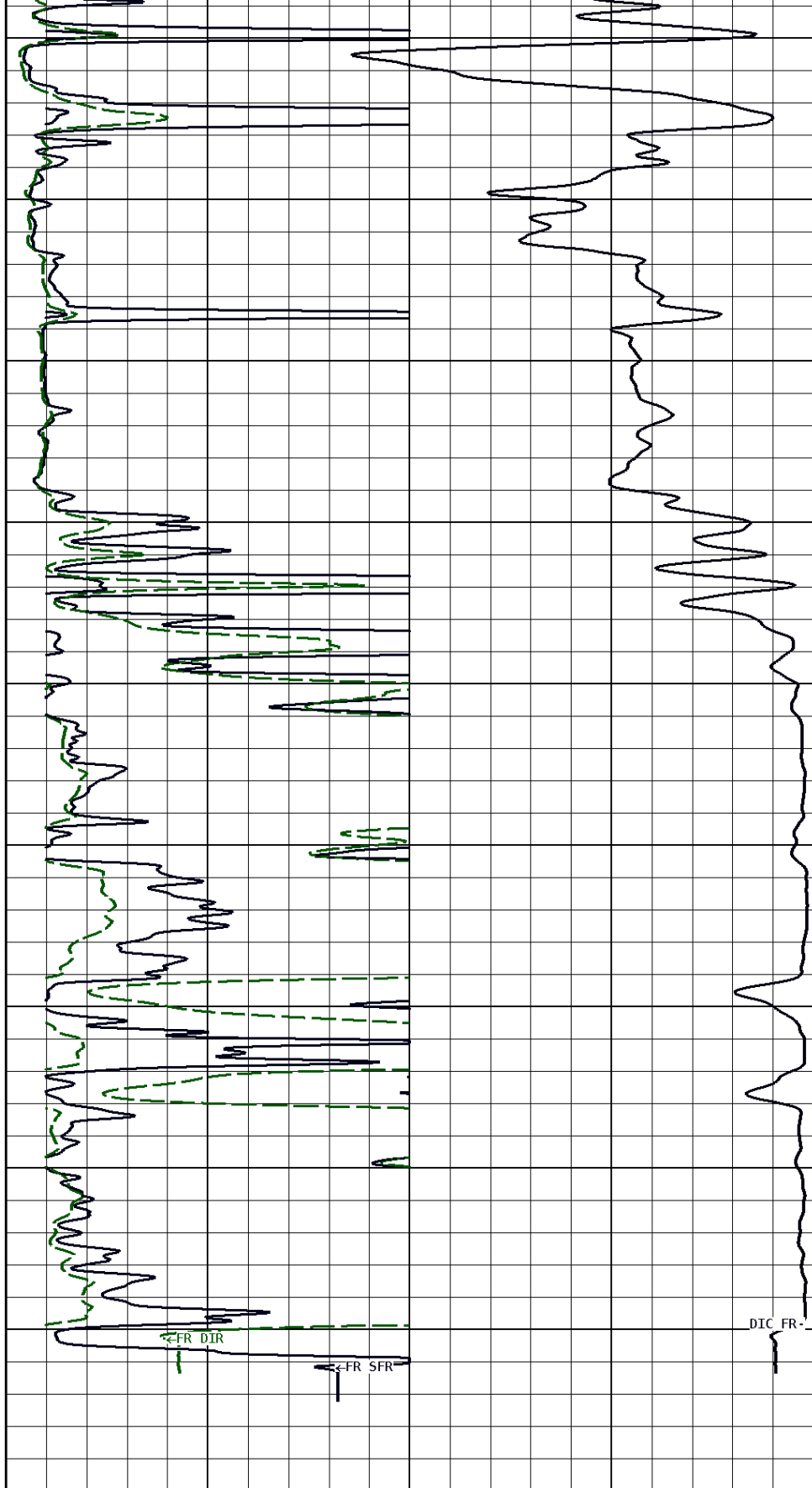
File #1.1.7

GR

SP

FR

1:600 MAIN SECTION



DIC FR

DIR

SFR

GAMMA RAY
API UNITS

150 0 300 150

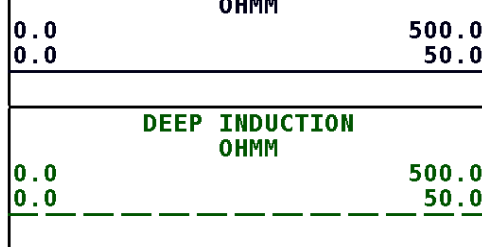
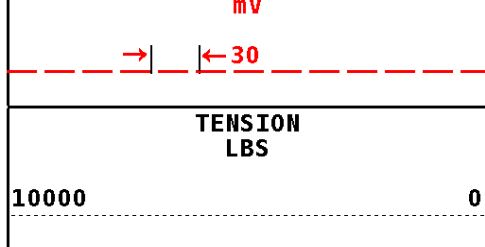
DEEP CONDUCTIVITY
MMHO

2000
1000

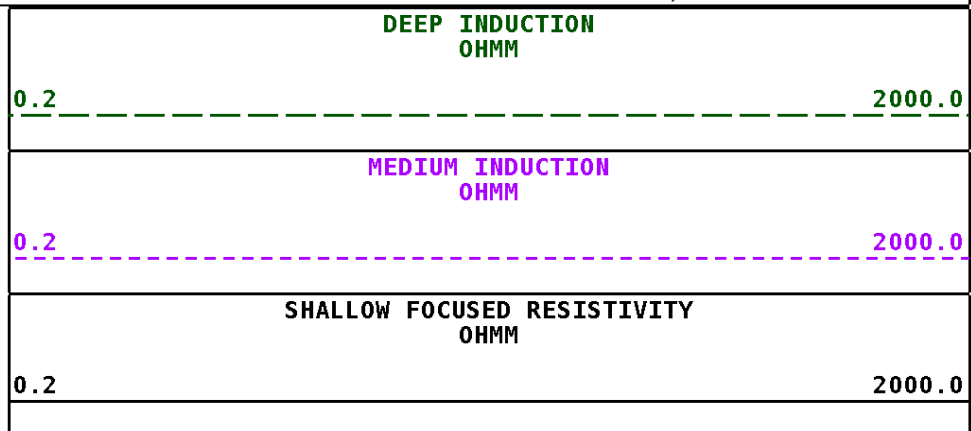
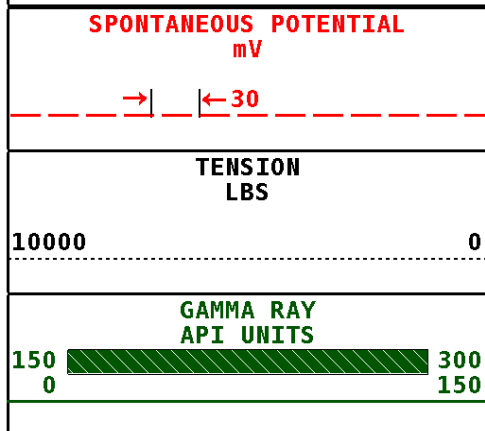
1000
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SPONTANEOUS POTENTIAL

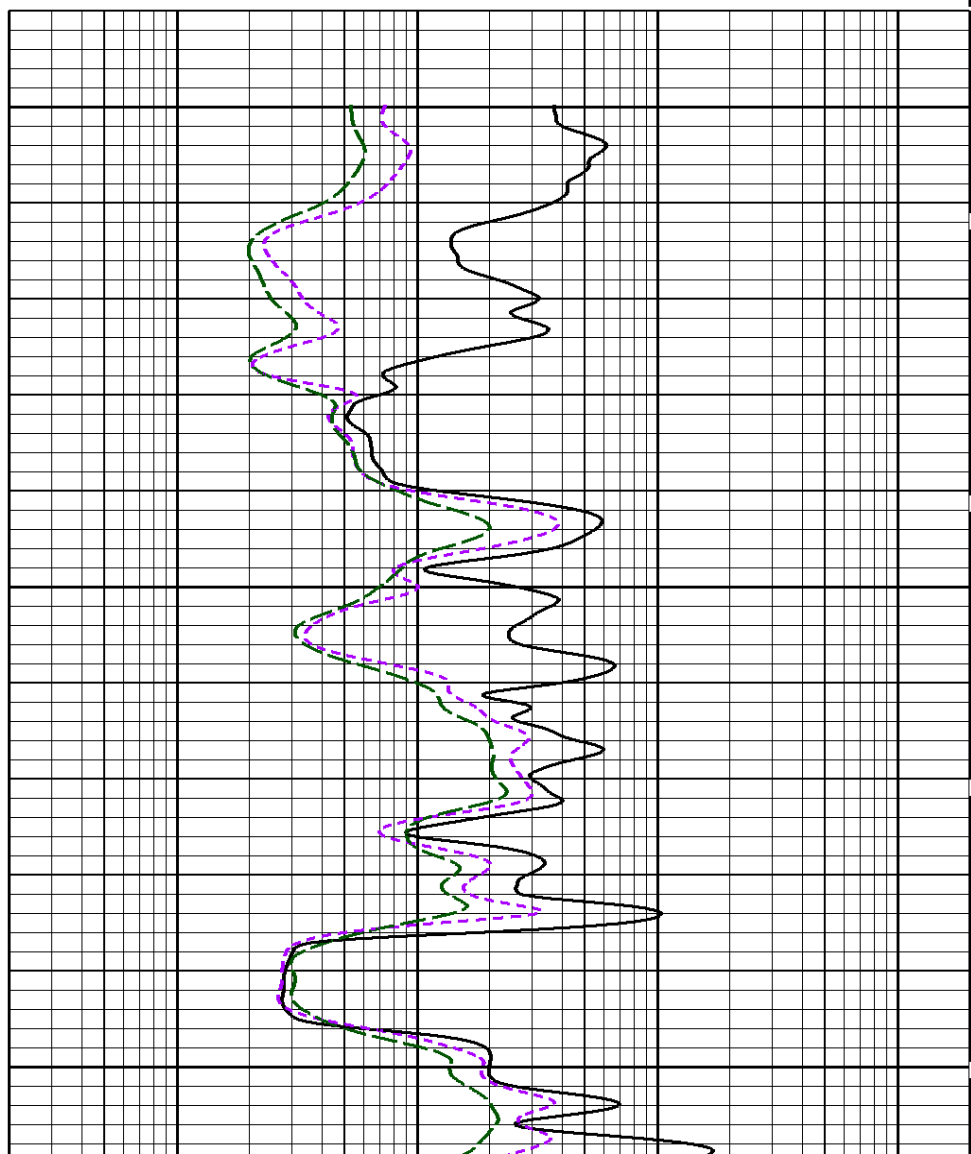
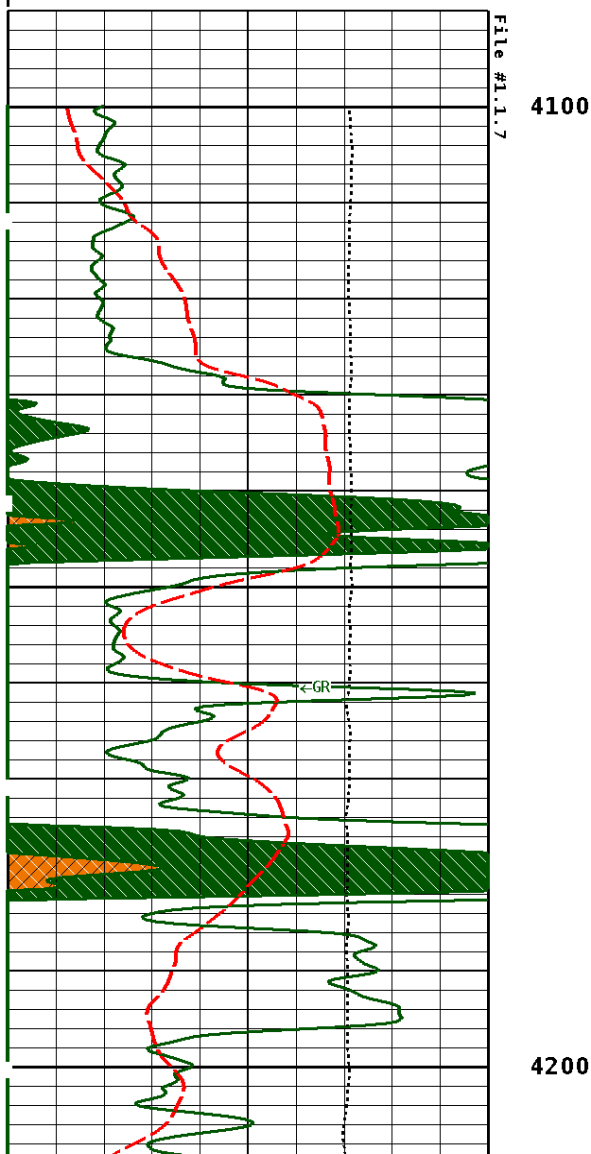
SHALLOW FOCUSED RESISTIVITY

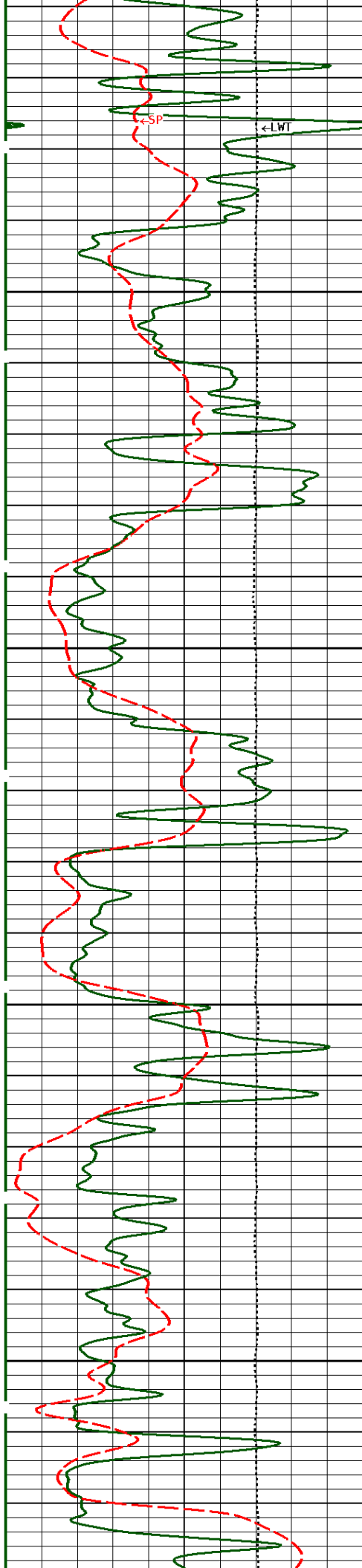


Well File: casillas_hamker_20-3_dec-7-2019_qst Scale: 1:240 Format: DIL-240
 Segment: V1.D1.S7 Reprocess MAIN Acquired: 2019-12/07 11:10 3.4.1-13972
 Reference: 0 Processed: 2019-12/07 13:13 3.4.1-13972



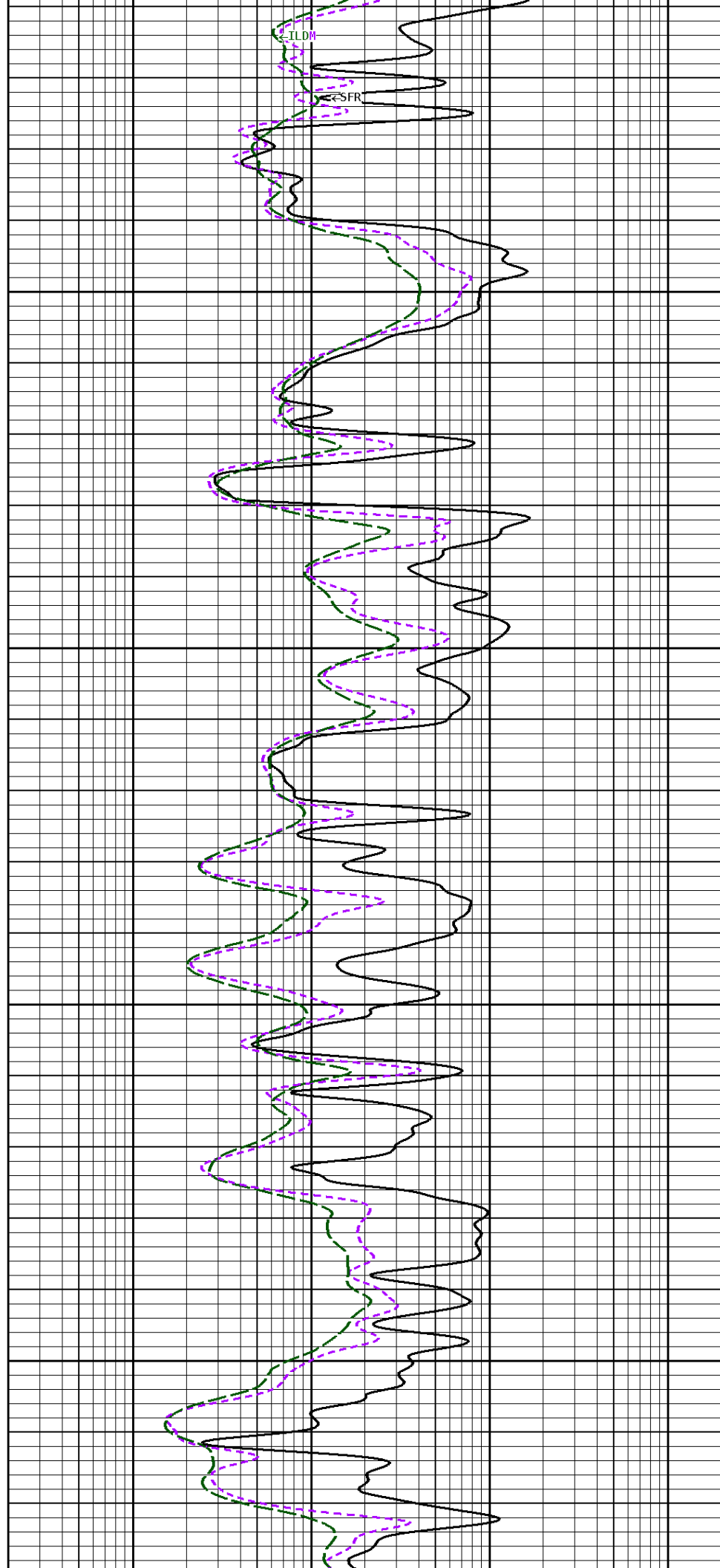
1:240 MAIN SECTION

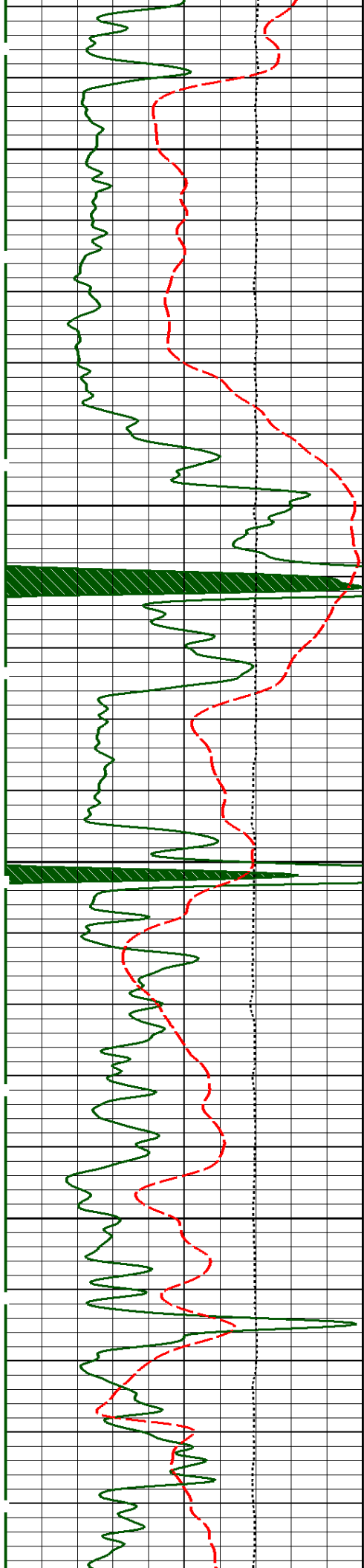




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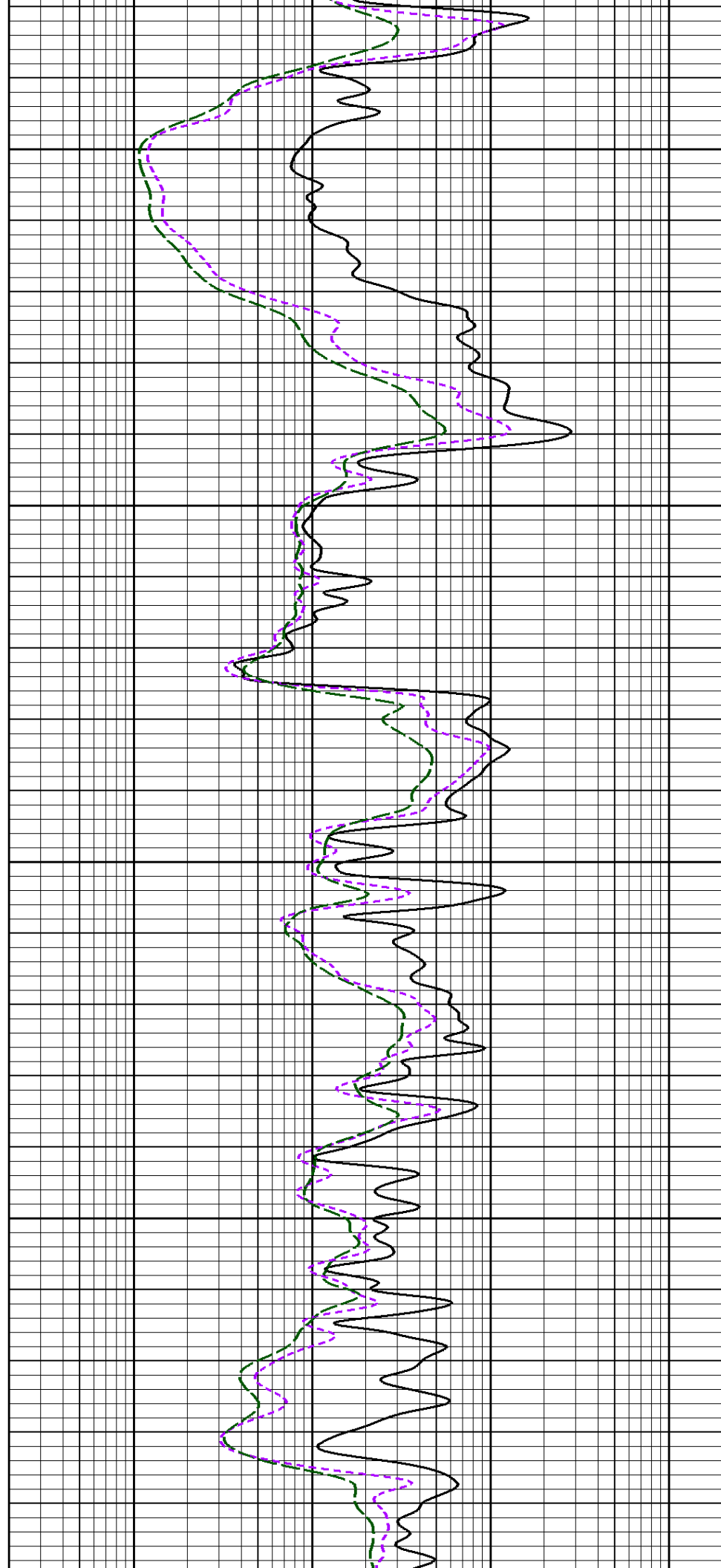
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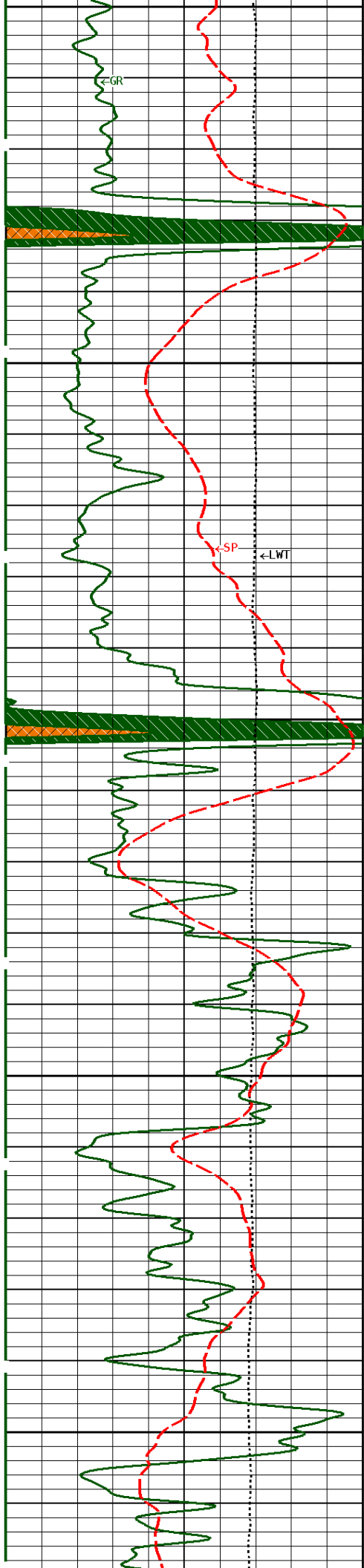




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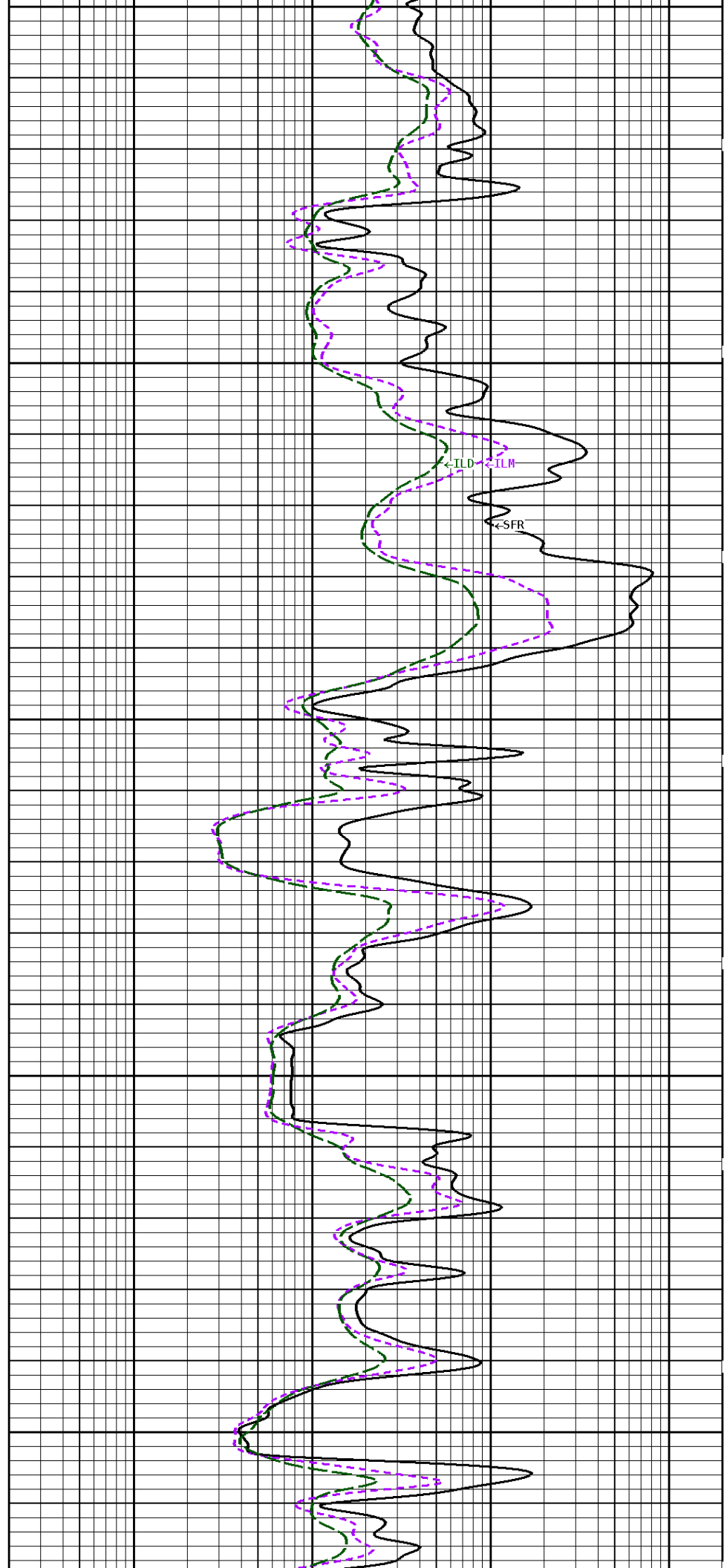
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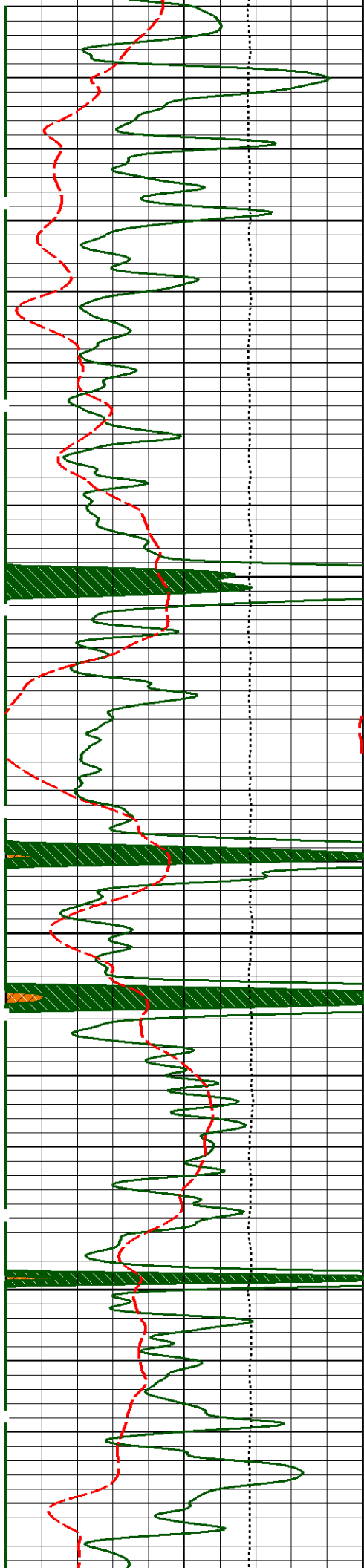




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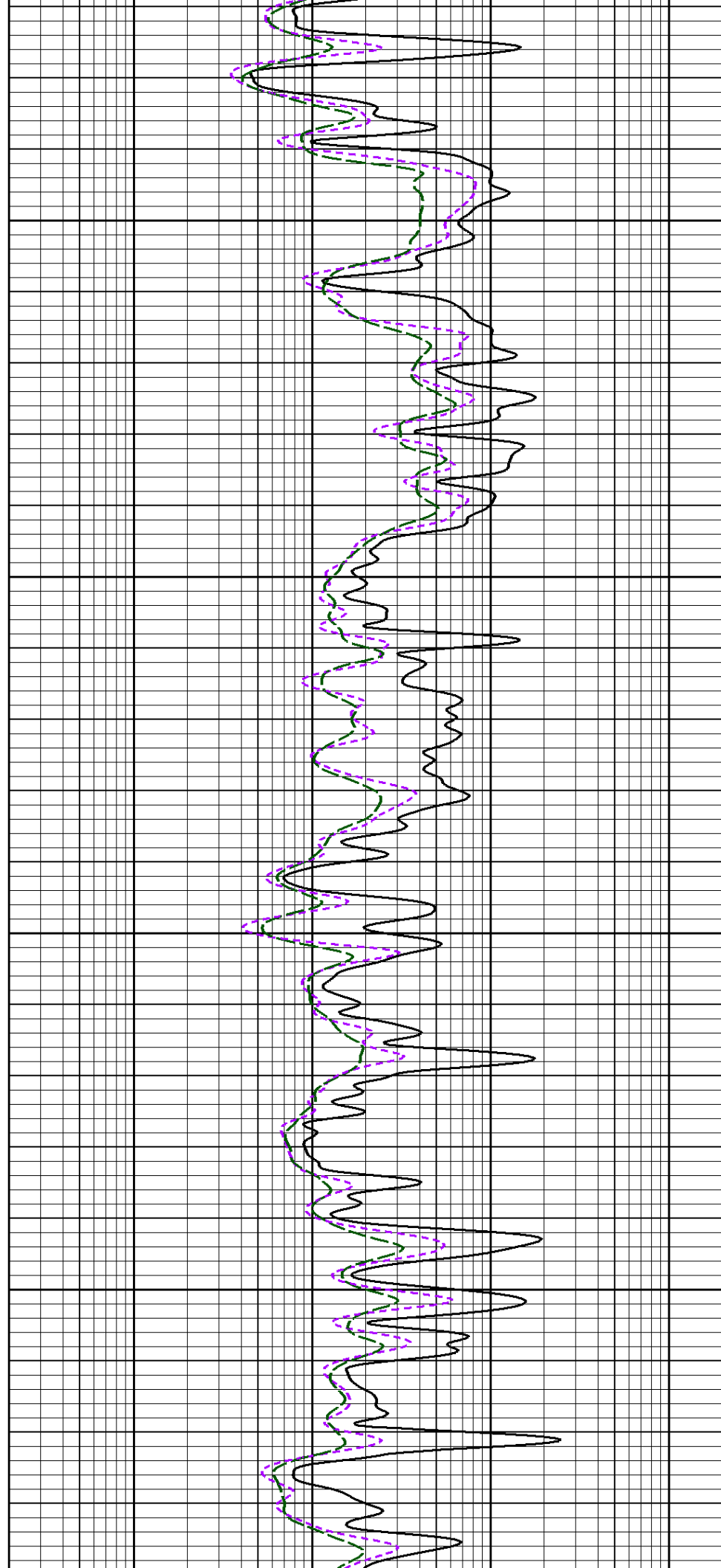
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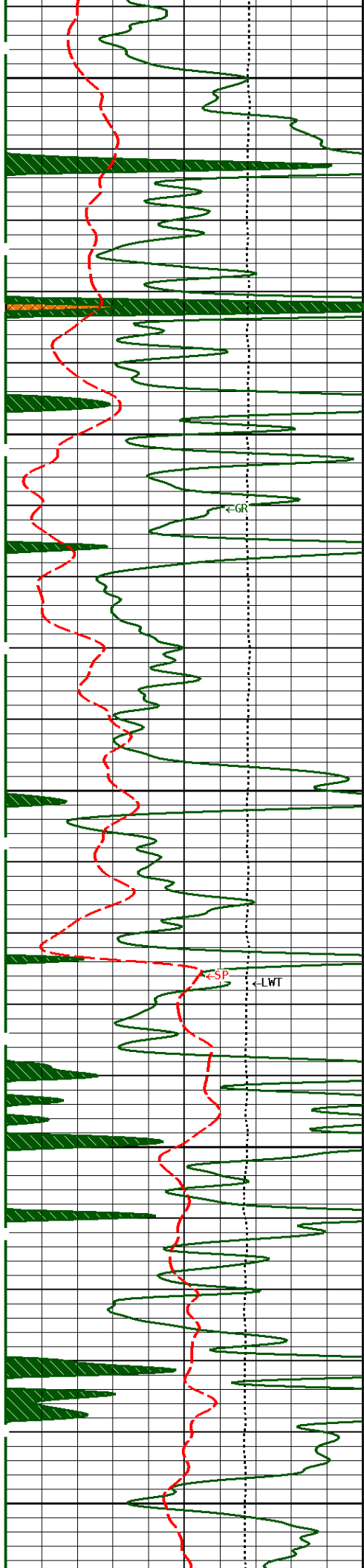




4900

5000

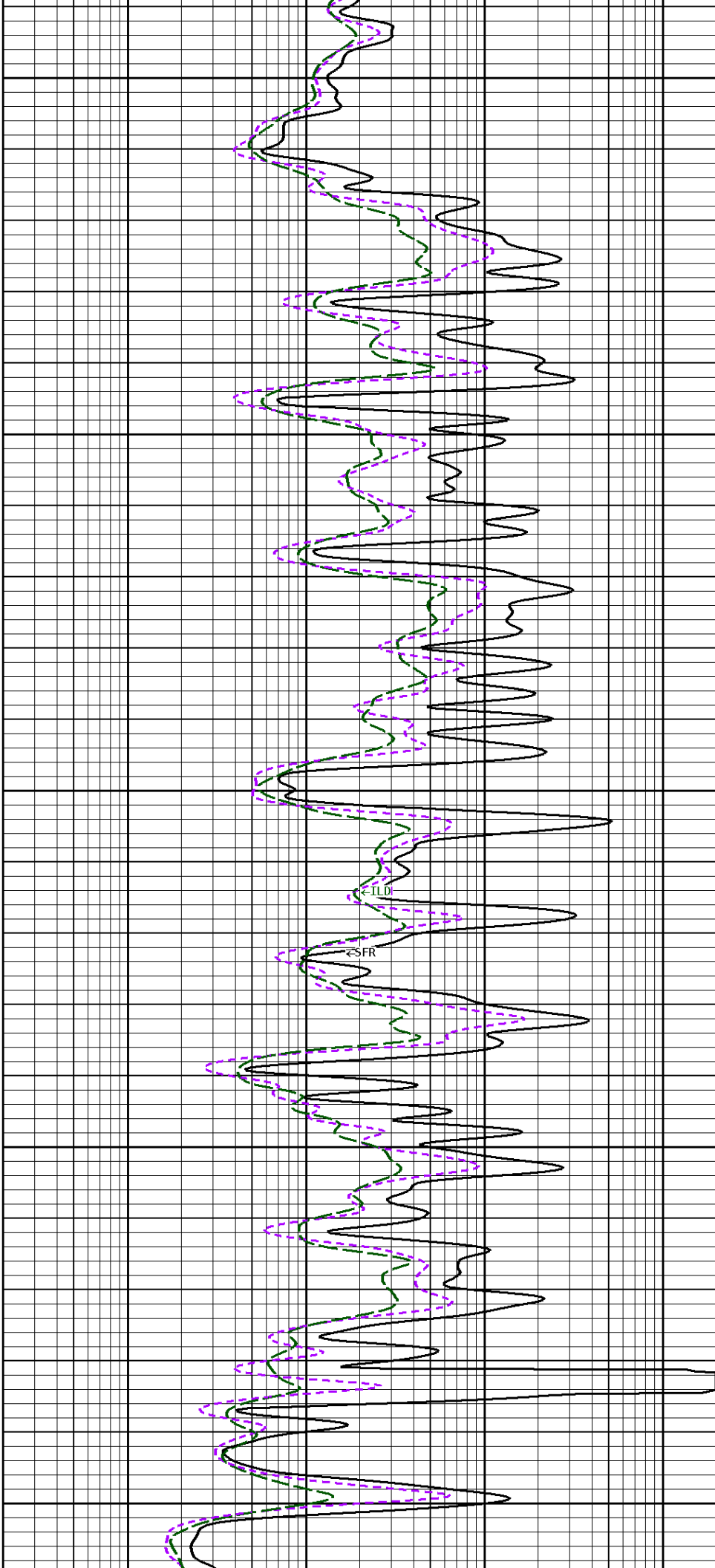




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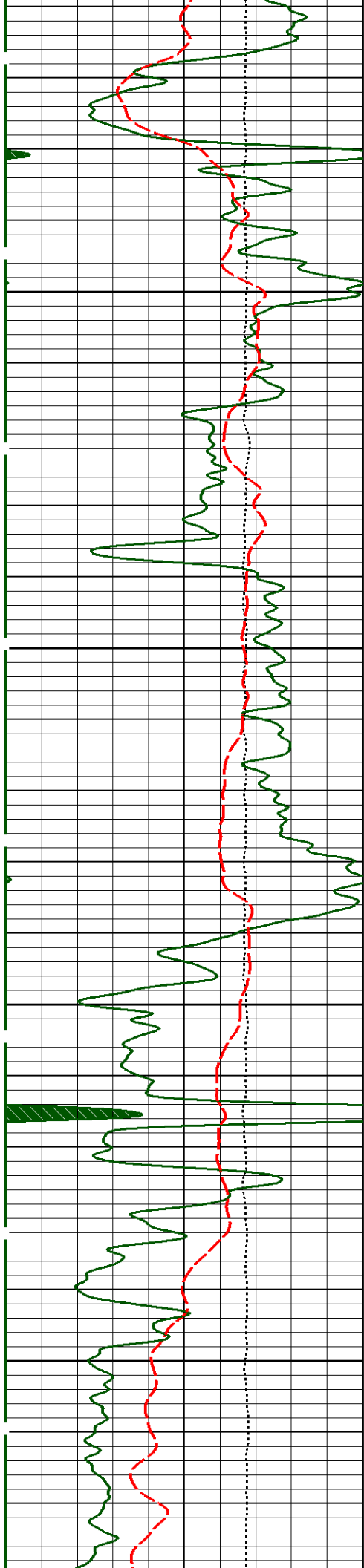
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5300



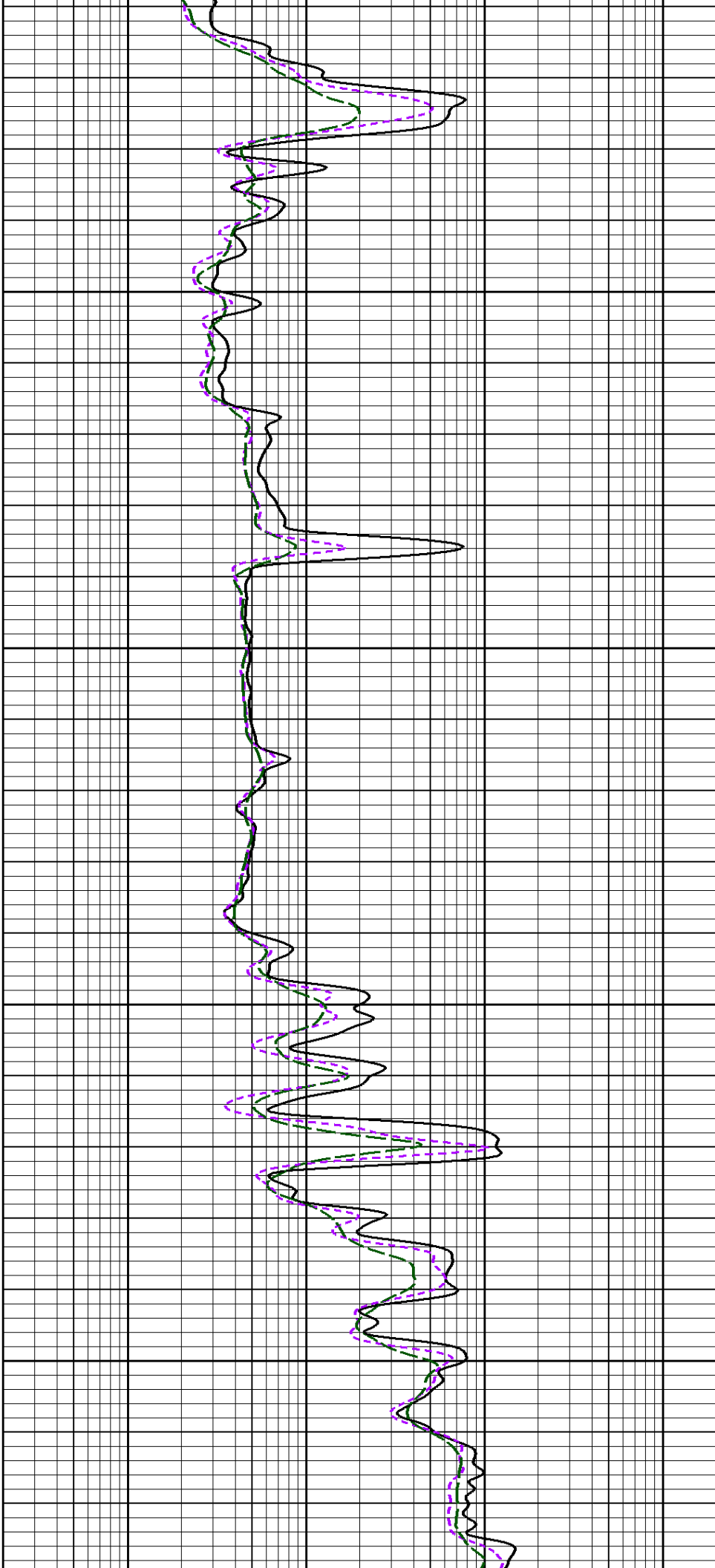
SFR

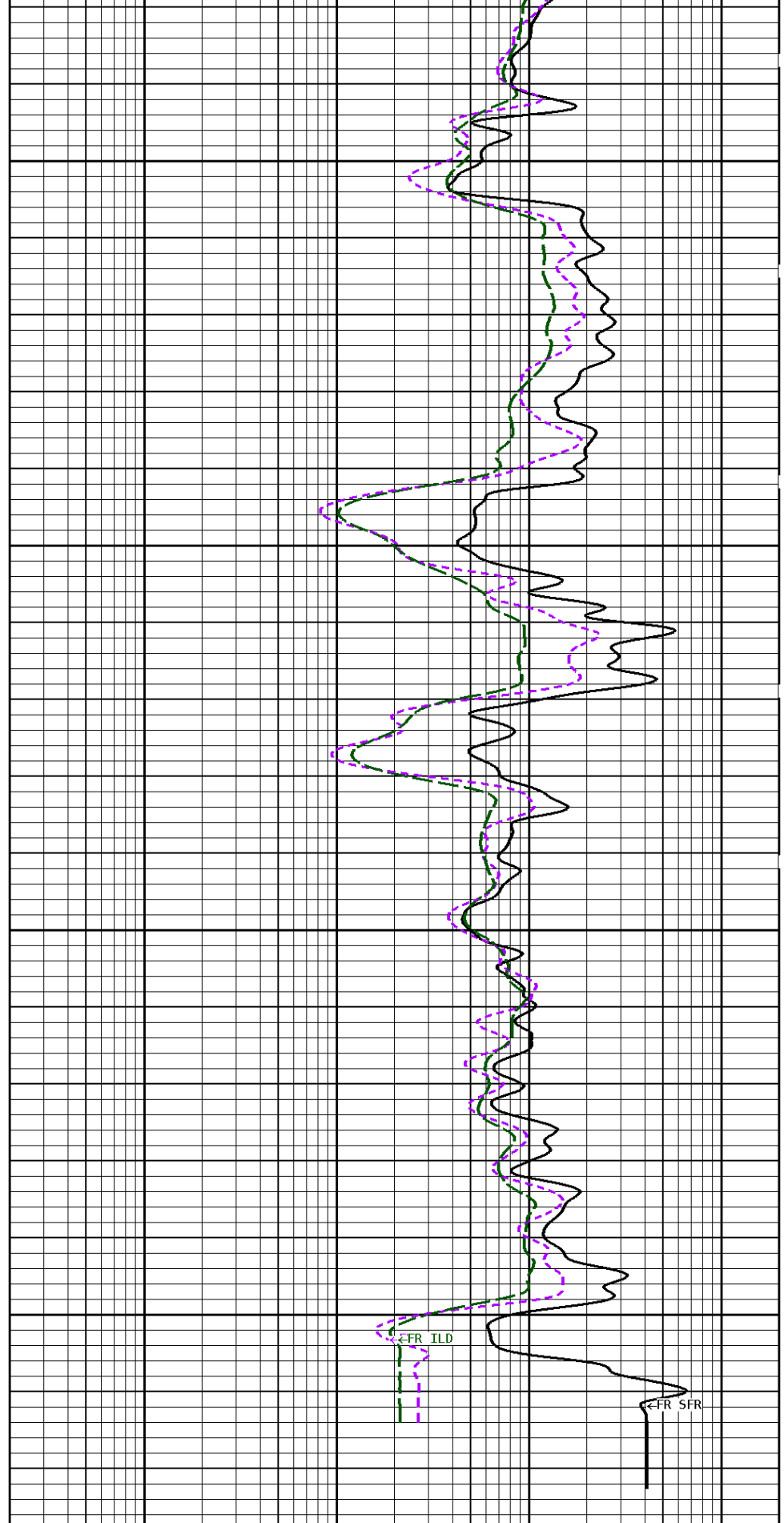
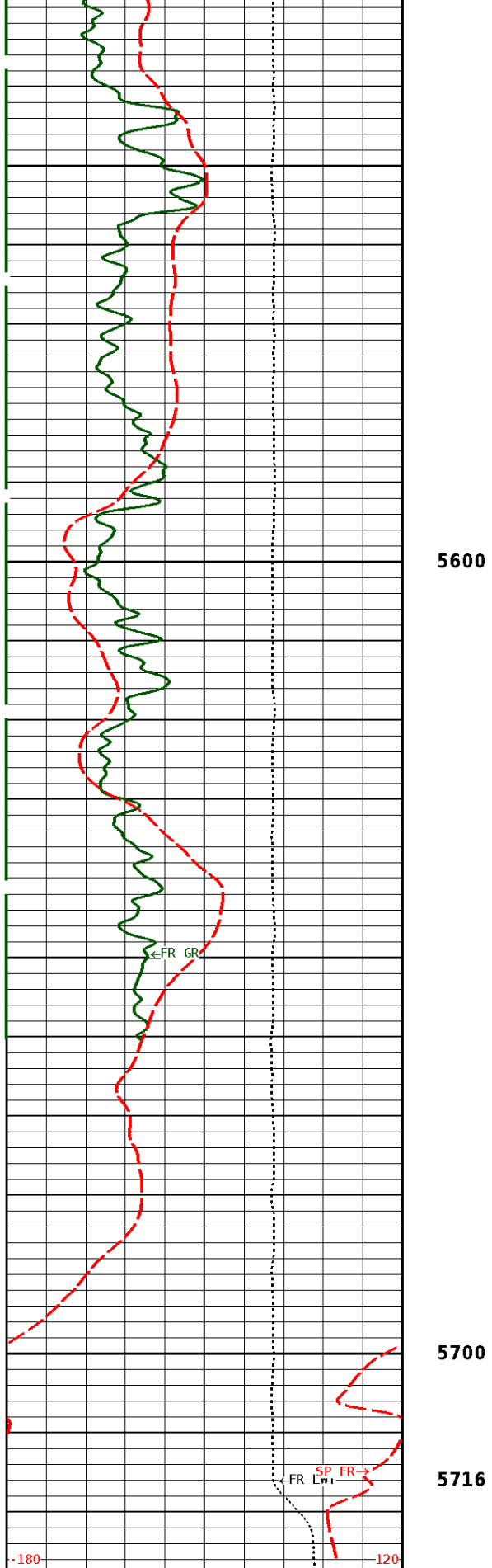
LLD



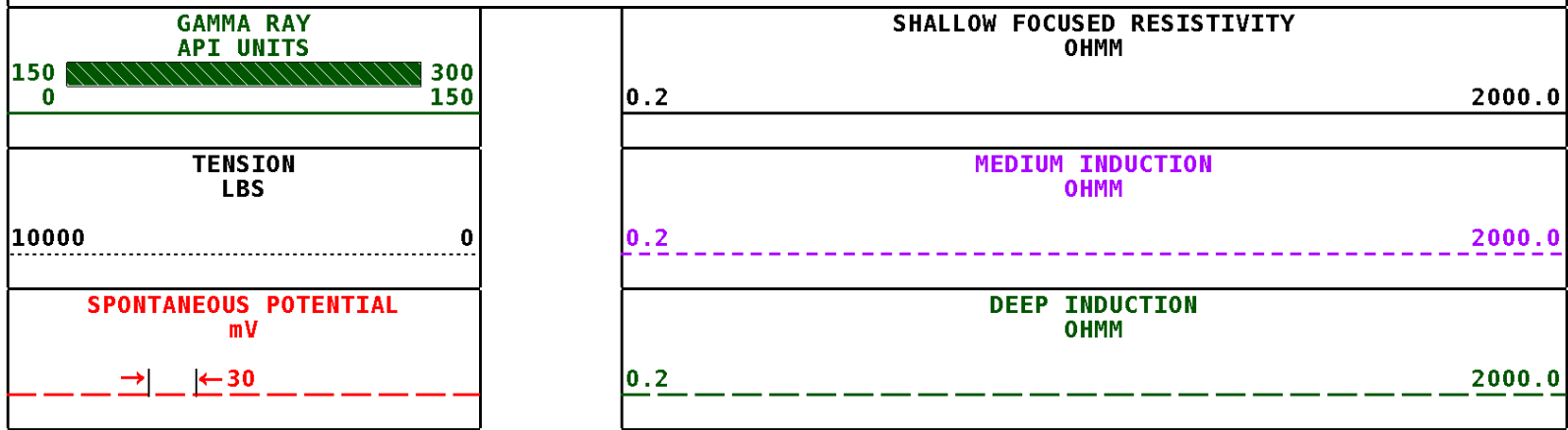
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5500



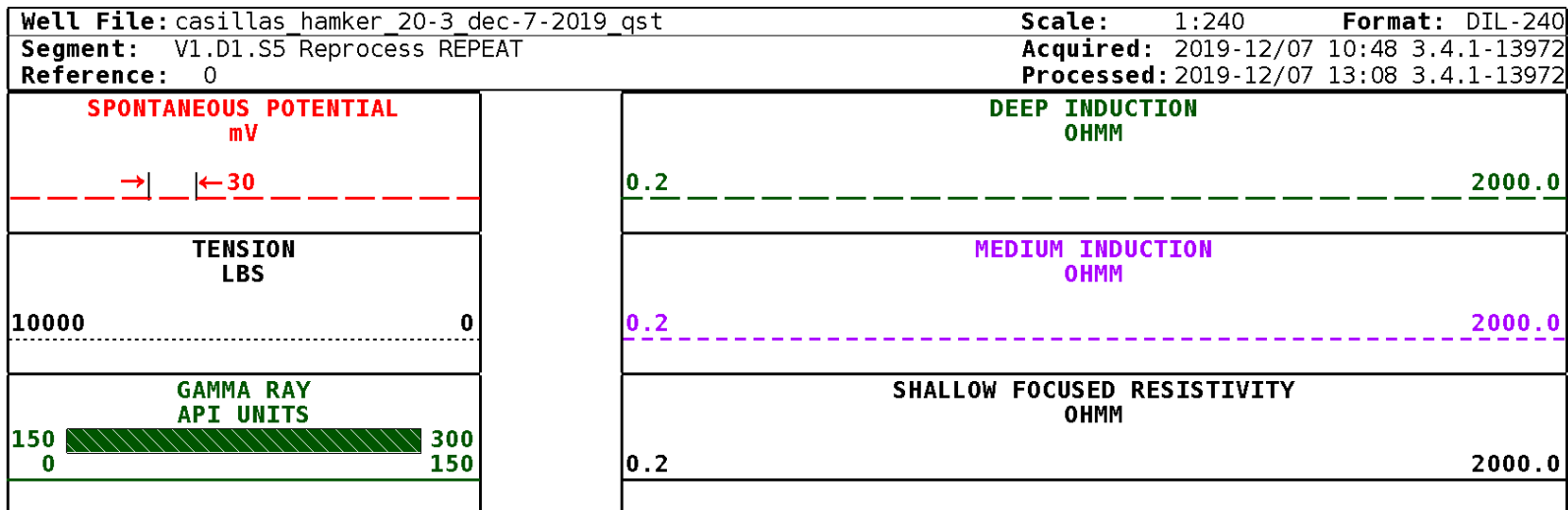


1:240 MAIN SECTION

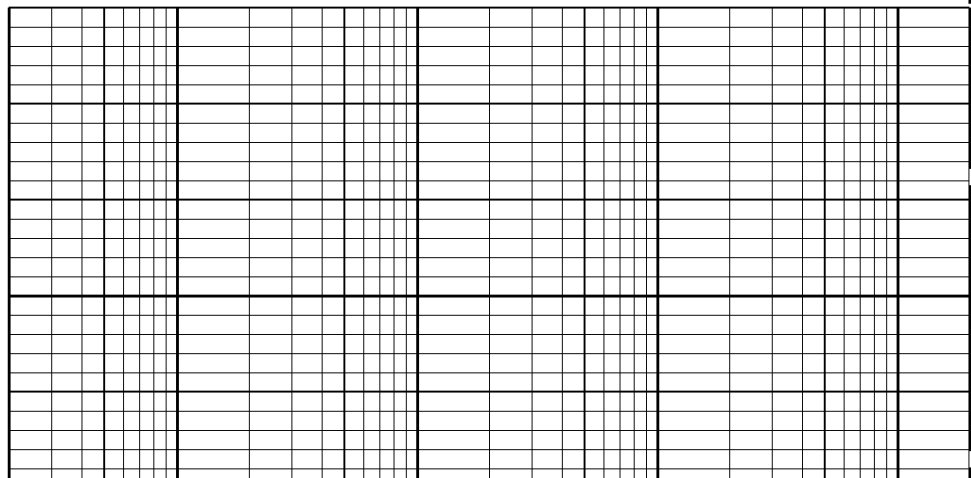
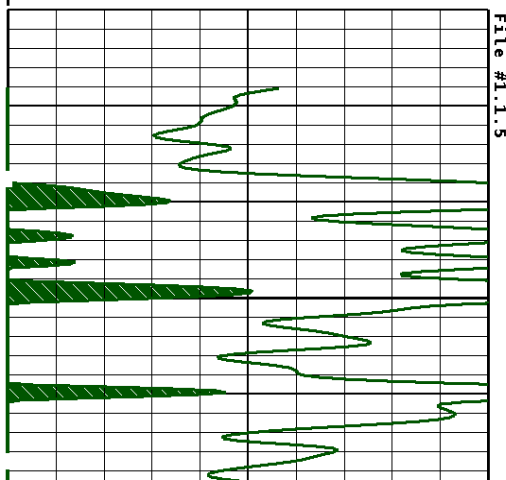


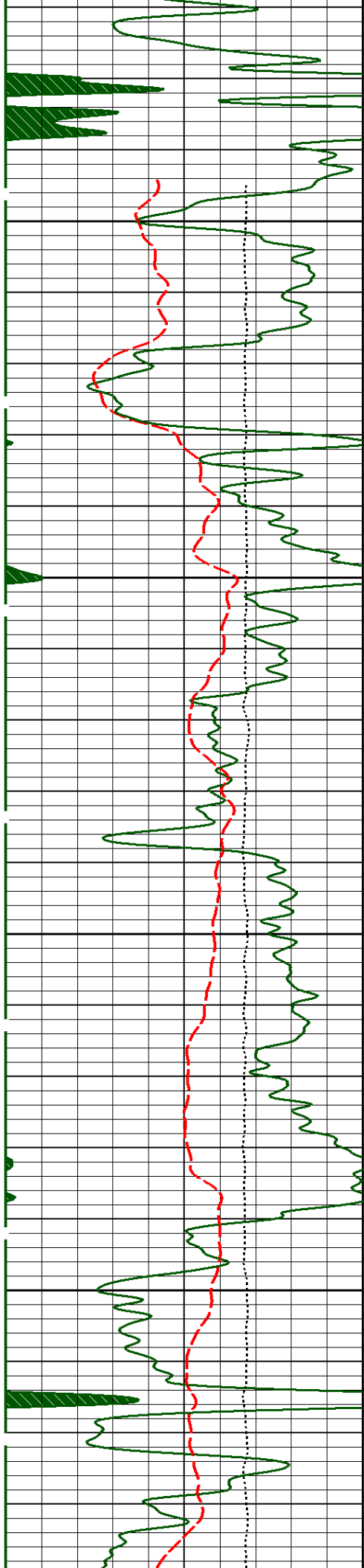
* Borehole Zone Factors *

Zone 1 99999.0 to 0.0 Feet		
Drill Bit Size	7.875	in
Casing Diameter	5.500	in
BHT Depth	5721.000	ft
Borehole Temperature	125.0	degF
Temperature Gradient	1.00	DFHF
Resistivity Of Mud	2.000	ohmm
Resistivity Of Mud Temperature	127.00	degF



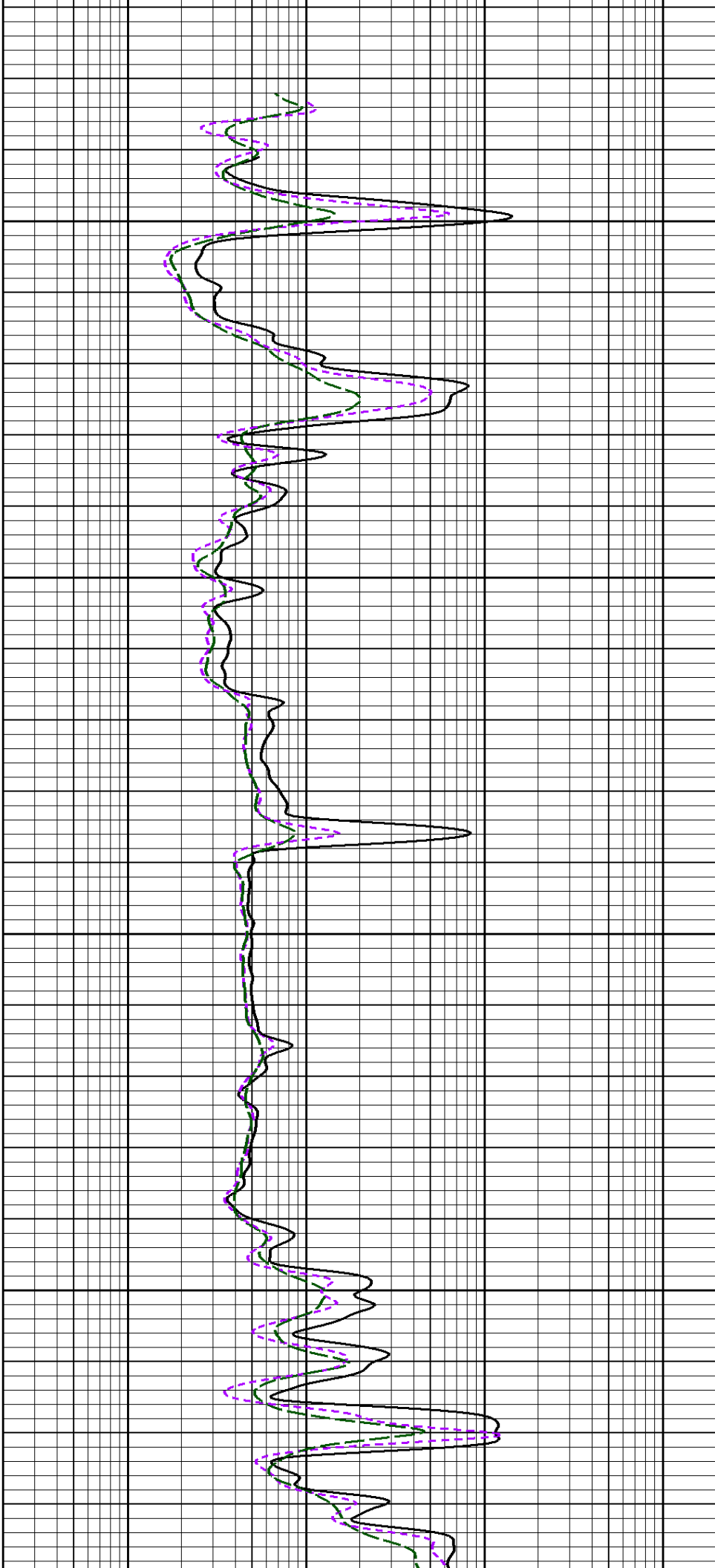
1:240 REPEAT SECTION

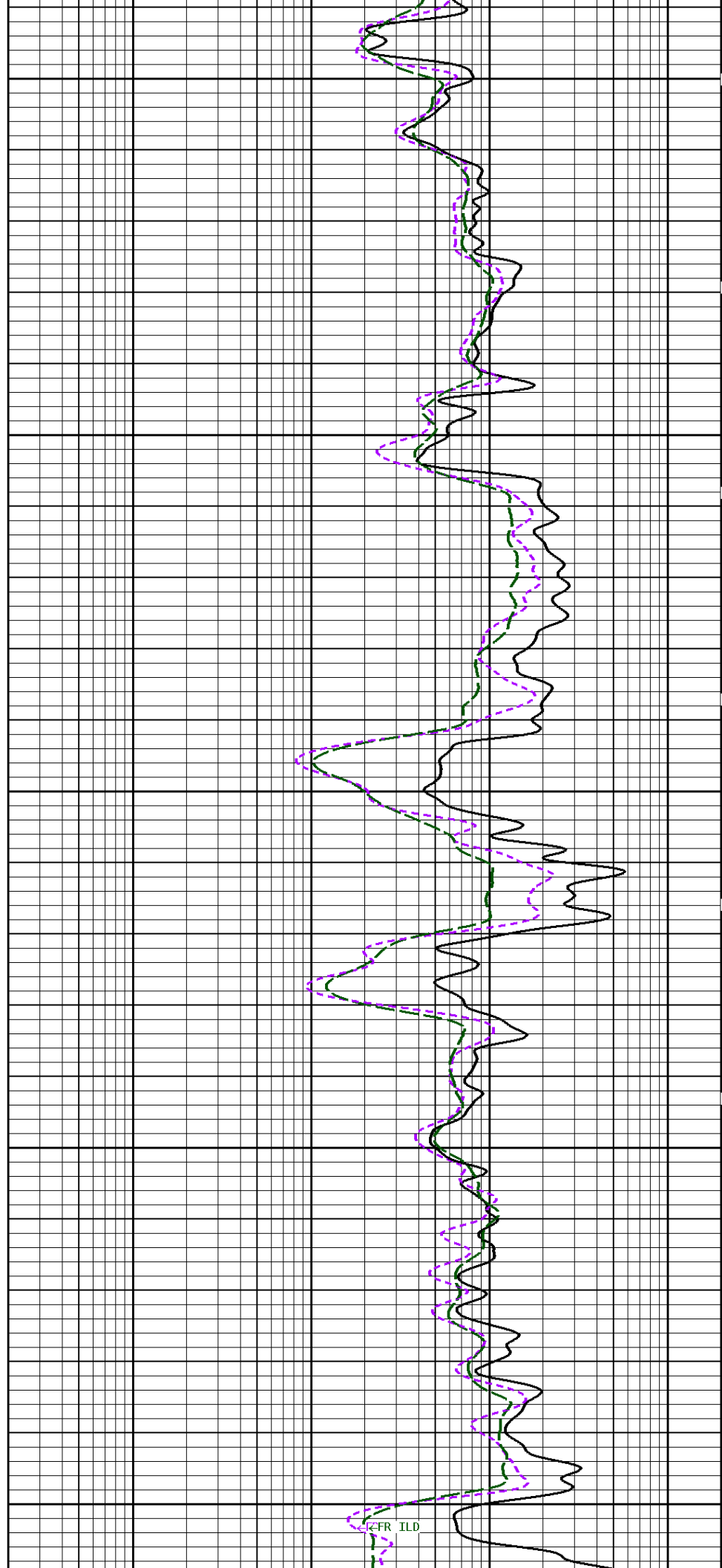
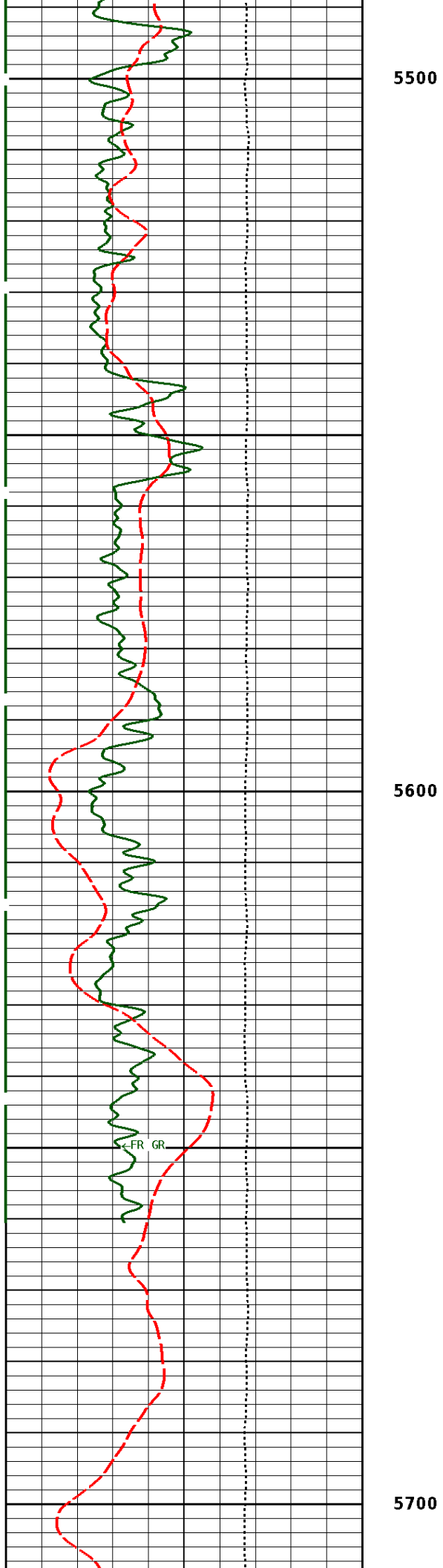


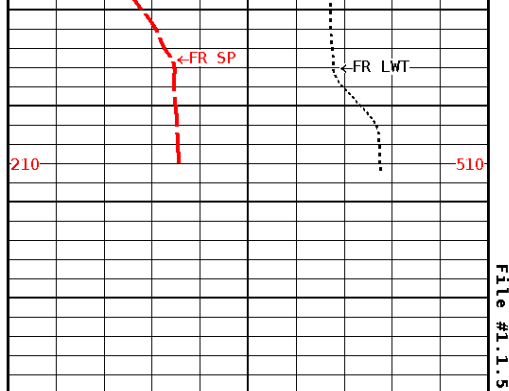


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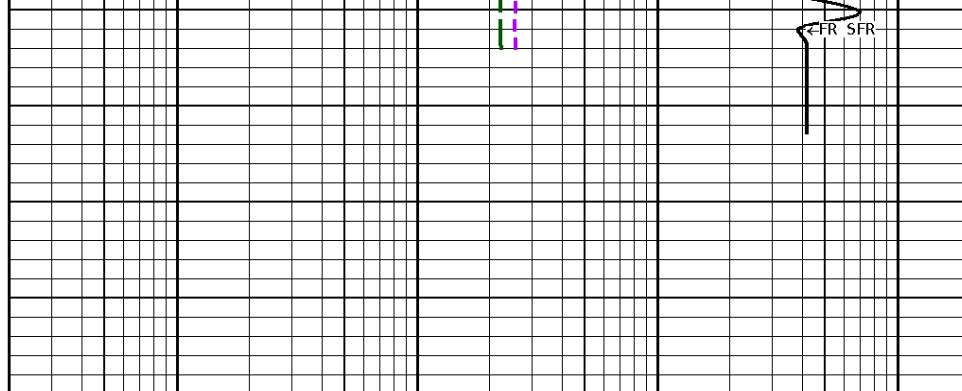
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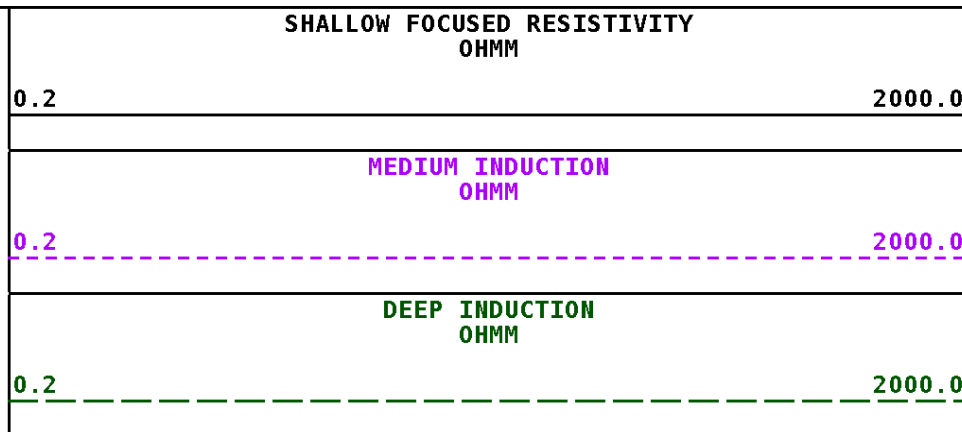
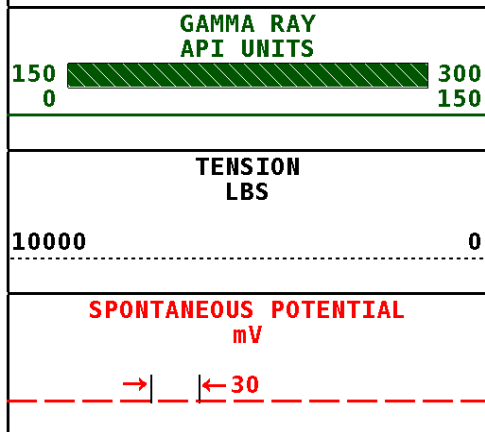




5716



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			5721.000	ft
Borehole Temperature			125.0	degF
Temperature Gradient			1.00	DFHF
Resistivity Of Mud			2.000	ohmm
Resistivity Of Mud Temperature			127.00	degF

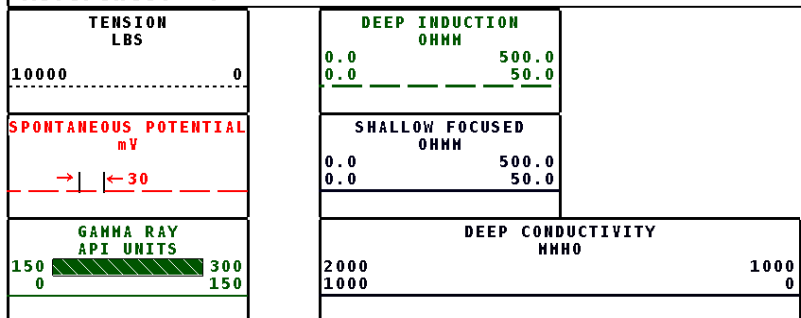
* Calibration Summary *

Shop Calibration					
GRT-B					
Performed : 04-Jun-2019			Time : 09:53		
Sensor Suite : GR-GR5			ID : GRT-BB-013		
	Measured		Units	Calibrated	Units
	Background	Jig		Jig	
GR	44	314	CPS	160	GR-API

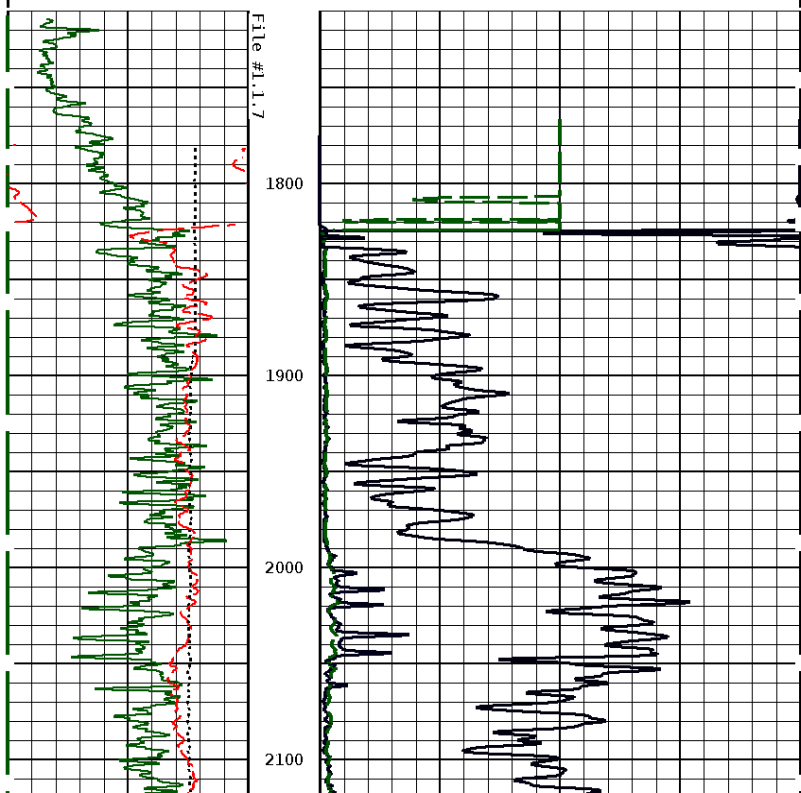
Shop Calibration					
PIT-CA					
Performed : 10-MAY-2019			Time : 11:27		
Sensor Suite : P-IND-T			ID : PIT-AC-043		
Medium					
	Measured		Calibrated		Units
	R	X	R	X	
Air	131492	129685	0.0	0.0	MMHOS
Zero	131066	131062	-18.1	59.6	MMHOS
Reference	244915	244454	4981.9	5059.6	MMHOS
Loop	130404	210498	3515.7	3611.2	MMHOS
Sonde Error			-0.5	-1.7	MMHOS
Cond			4981.9	5059.6	MMHOS
Deep					
	Measured		Calibrated		Units
	R	X	R	X	
Air	131939	129230	0.0	-0.0	MMHOS

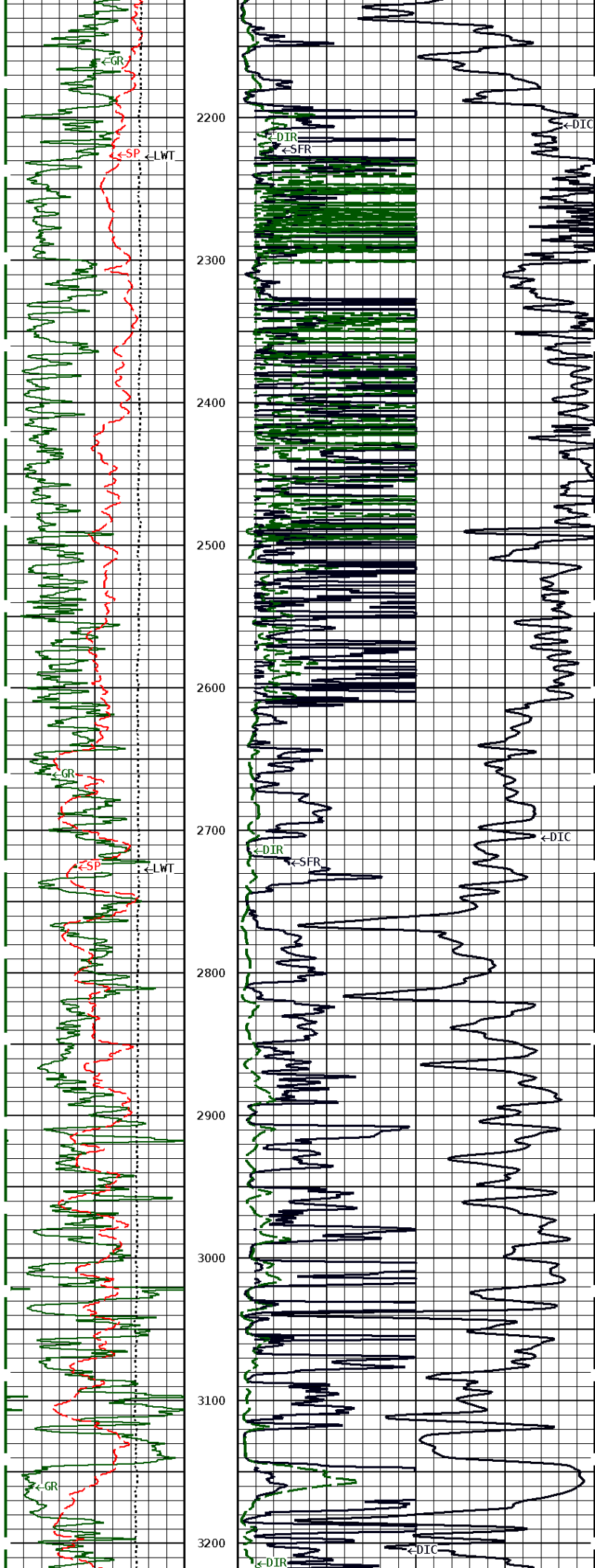
Zero	131079	131067	-15.6	35.3	MMHOS
Reference	220620	224092	1984.4	2035.3	MMHOS
Loop	129308	206166	1595.4	1712.8	MMHOS
Sonde Error			-0.6	-7.8	MMHOS
Cond			1984.4	2035.3	MMHOS
Temperature					
	Measured		Calibrated		
	Low	High	Low	High	Units
	16980.0	56920.0	70.0	350.0	DEGF
Performed : 10-May-2019			Time : 14:03		
Sensor Suite : SFL			ID : PIT-AC-043		
Internal					
	Measured		Calibrated		
	Zero	Reference	Zero	Reference	Units
Im	32732.6	48929.1	0.0	7028.0	uA
Ib	32768.6	49680.1	0.0	1750.0	mA
MOM1	32722.0	56290.6	0.0	175.0	mV
Equivalent SFL				43.97	OHMM
Performed : 10-MAY-2019			Time : 11:16		
Sensor Suite : P-SP			ID : PIT-AC-043		
Internal					
	Measured		Calibrated		
	Zero	Reference	Zero	Reference	Units
	32774.5	58935.9	0.0	1000.0	mV

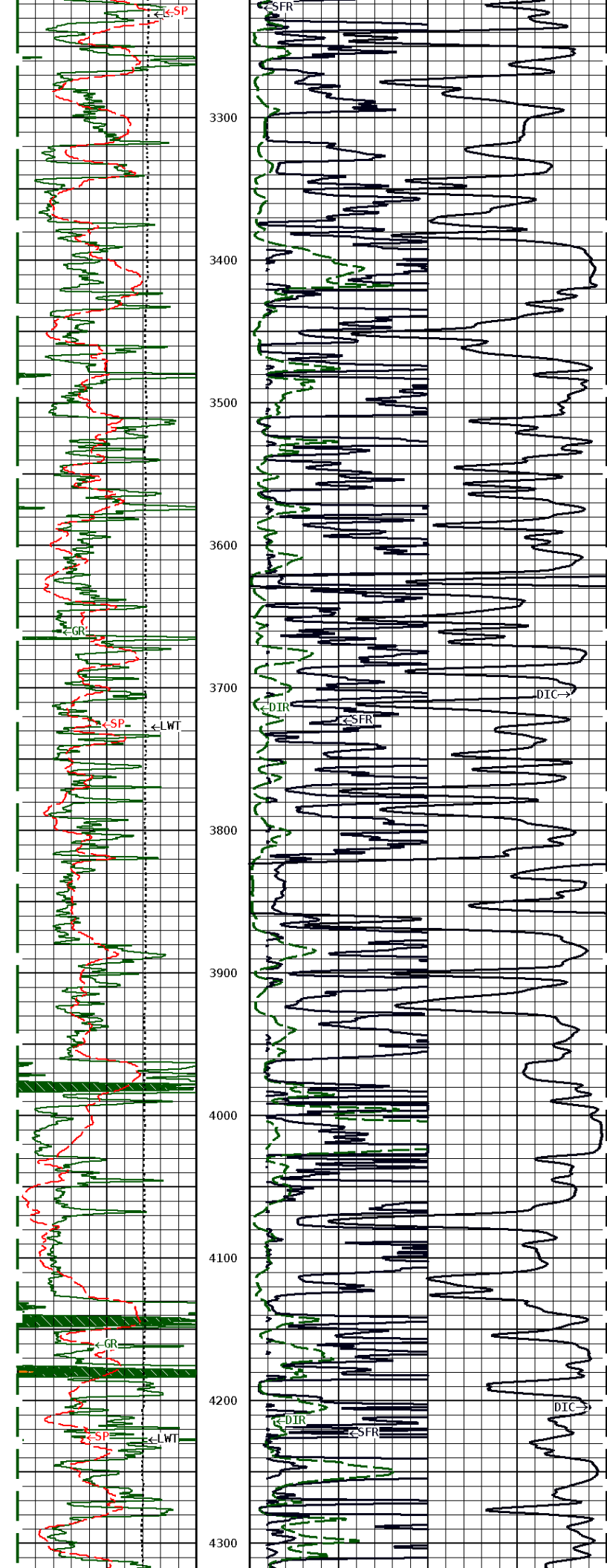
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Segment: V1.D1.S7 Reprocess MAIN Acquired: 2019-12/07 11:10 3.4.1-13972
Reference: 0 Processed: 2019-12/07 13:13 3.4.1-13972

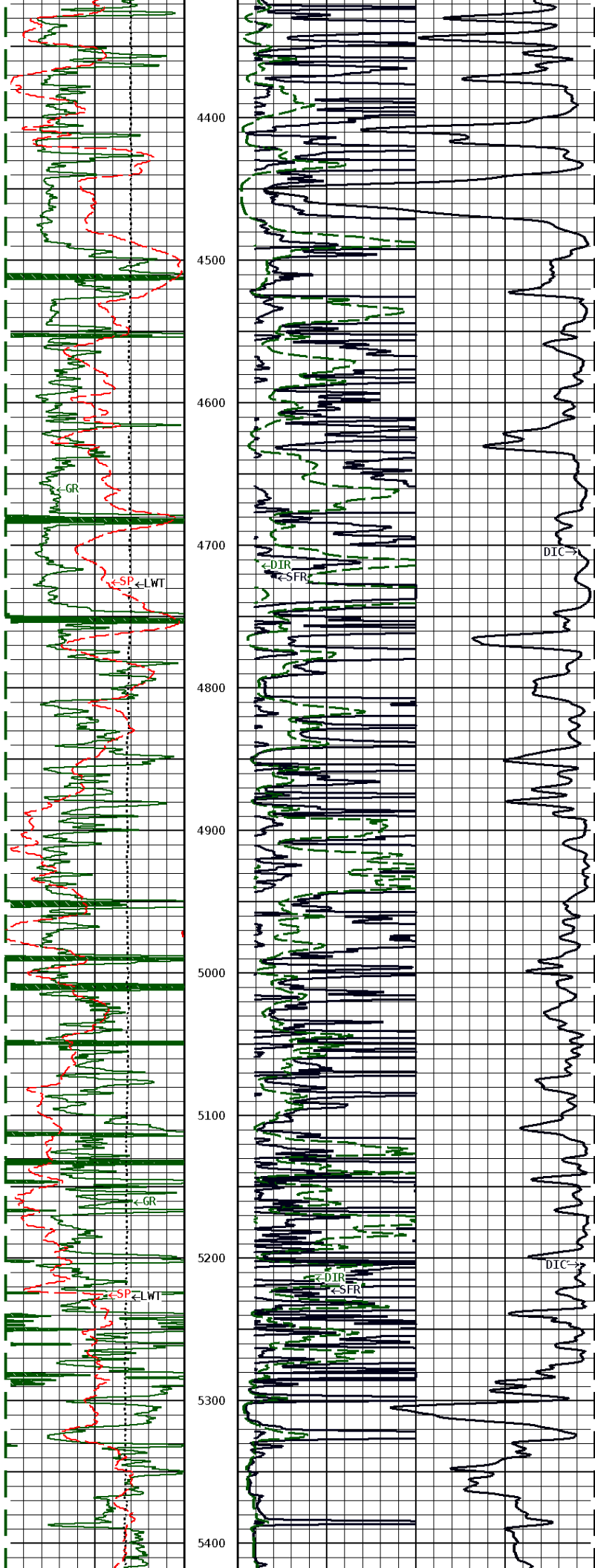


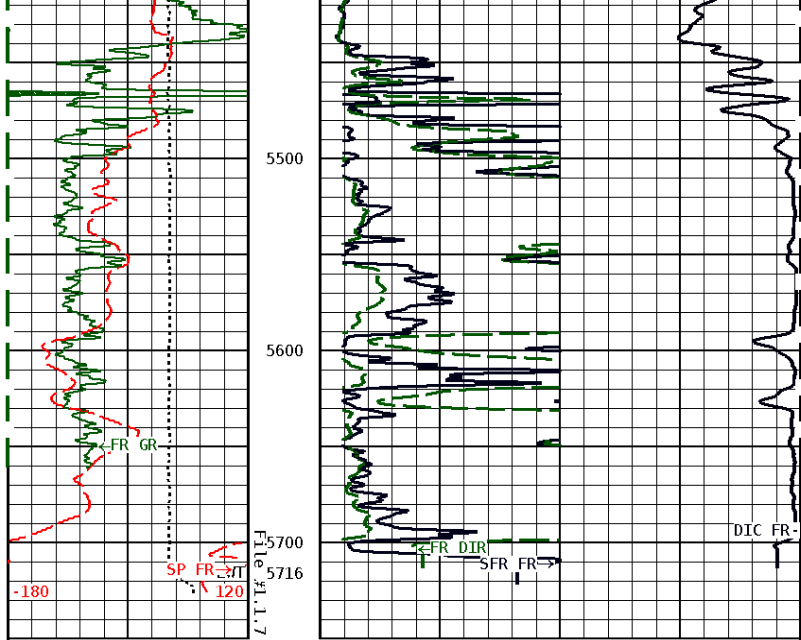
1:1200 MAIN SECTION



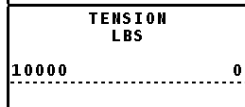
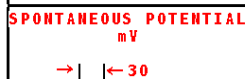








1:1200 MAIN SECTION



Company: CASILLAS PETROLEUM CORP
 Well: HAMKER #20-3
 Location: 1420' FSL & 660' FWL
 Logged: 12-07-2019
 K.B. Elev: 2858.0 Ft