

STEP

energy services

PHASED INDUCTION SHALLOW FOCUS SP LOG

Company MERIT ENERGY COMPANY Well DRUSSEL A-11 Field COYOTE NORTHWEST County FINNEY State KANSAS Country USA API No. 15-055-22526-0100		File No : HAYS-70374 Company : MERIT ENERGY COMPANY Well : DRUSSEL A-11 Field : COYOTE NORTHWEST County : FINNEY State : KANSAS Country : USA API No : 15-055-22526-0100	
Location : 314' FWL & 2359' FSL NW SW		LSD : Sect : 27 Twp : 25S Rge : 33W	
Permanent Datum: Drilling Measured From: GL Log Measured From: KB Above Permanent Datum: 12.00 Ft		Elevations: KB 2927.00 Ft DF 2926.00 Ft GL 2915.00 Ft	
Date 02-21-2020		Services: GRT CNT LDT MLT CST PIT	
Run Number	1		
Depth--Driller	5270.0 Ft		
Depth--Logger	5269.0 Ft		
First Reading	5268.0 Ft		
Last Reading	1785.0 Ft		
Casing--Driller	1799.0 Ft		
Casing--Logger	1785.0 Ft		
Bit Size	7.875 In		
Casing Size	8.625 In		
Hole Fluid Type	WBM		
Density	9.2		
Fluid Loss	6.4		
PH/Viscosity	10.5 58.0		
Sample Source	MEASURED		
RM@Measured Temp.	1.400 @ 61 F		
RMF@Measured Temp	1.190 @ 61 F		
RMG@Measured Temp.	1.610 @ 61 F		
Source RMF/RMG	CALCULATED/CALCULATED		
RM@BHT	0.670 @ 135 F		
Time Circulation Stopped			
Max Recorded Temp.	135 F		
Equipment/Base	TRK 137 HAYS		
Recorded By	R. FRANKLIN		
Witnessed By	R. GONZALES, K. ROBINSON		

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.

Bitsize Intervals		Casing Strings			
Size (In)	Bottom (Ft)	Size (In)	Weight (Lbs)	Bottom (Ft)	Top (Ft)
7.875	5270.00	8.625	0.00	1790.00	0.00

Run Number	1	
Date	02-21-2020	
Date/Time On Bottom	02-21-2020 00:45	
Depth to Fluid	0.0 Ft	
Salinity	1250.000	
RMF@BHT	0.570 @ 135 F	
RMC@BHT	0.770 @ 135 F	

Run Number 1

Comments

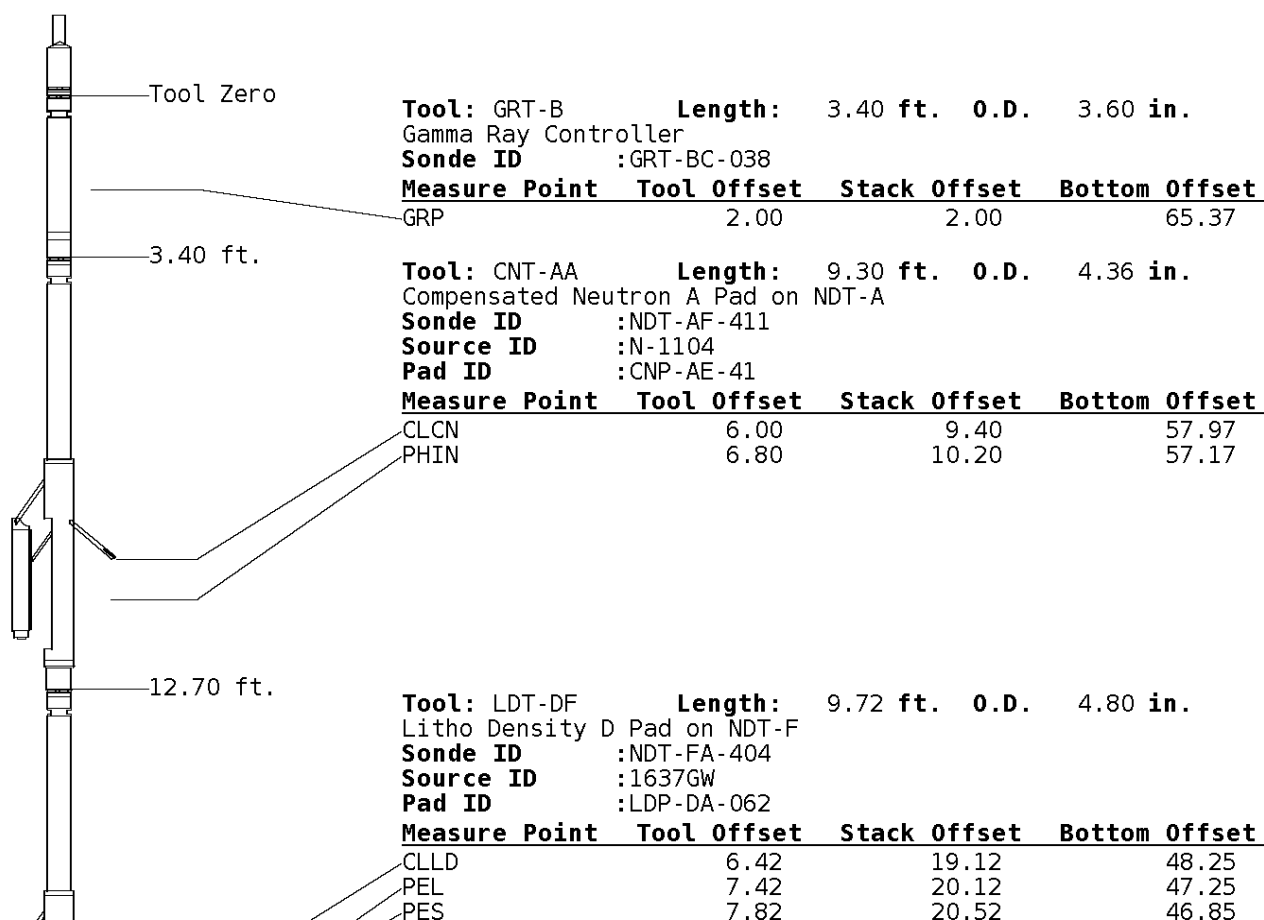
ALL PRESENTATIONS AS PER CUSTOMER REQUEST
GRT, CNT, LDT, CST, MLT AND PIT RUN IN COMBINATION
CALIPERS ORIENTED ON X-Y AXIS
2.71 G/CC USED TO CALCULATE POROSITY
ANNULAR HOLE VOLUME CALCULATED USING 5.5" PRODUCTION CASING
PHIN IS CALIPER CORRECTED

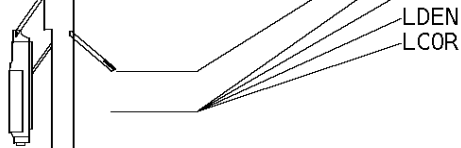
GRT: GRP
CNT: PHIN, CLCNIN,
LDT: PORL, LCORN, PECLN, LDENN, PORLLS, CLLDIN
CST: PORS, CDTF, TTIPF, TT2PF, TT3PF, TT4PF, ITT
MLT: NOR_RF, INV_RF, MSCLPIN
PIT: ILD, ILM, SPU, SFLAEC, CIRD

OPERATORS:
D. RAGSDALE
J. VAUGHN
D.LEGLEITER

Tool String Schematic

Total Tool Length - 67.37 ft.
Maximum Outside diameter - 6.00 in.
Net Weight in Air - 1171.00 lbs.



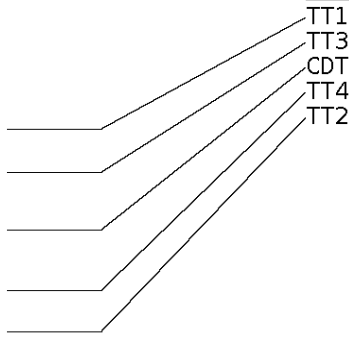


7.62	20.32	47.05
7.62	20.32	47.05

22.42 ft.

Tool: CST-AD **Length:** 13.80 ft. **O.D.** 3.60 in.
 Open Hole Sonic
Sonde ID : CST-AB-21

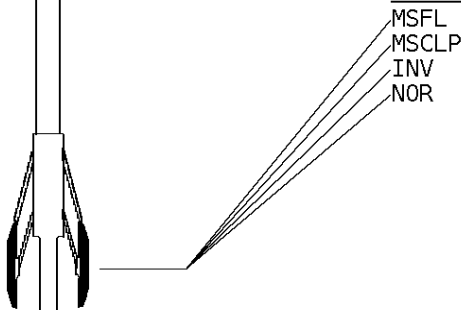
Measure Point	Tool Offset	Stack Offset	Bottom Offset
TT1	4.80	27.22	40.15
TT3	5.80	28.22	39.15
CDT	7.30	29.72	37.65
TT4	8.80	31.22	36.15
TT2	9.80	32.22	35.15



36.22 ft.

Tool: MST-DA **Length:** 9.66 ft. **O.D.** 6.00 in.
 Micro Spherically Focused (IC)
Sonde ID : MST-DA-13

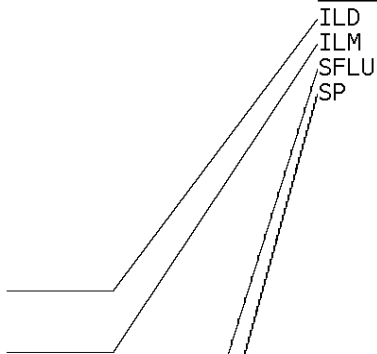
Measure Point	Tool Offset	Stack Offset	Bottom Offset
MSFL	7.60	43.82	23.55
MSCLP	7.60	43.82	23.55
INV	7.60	43.82	23.55
NOR	7.60	43.82	23.55



45.88 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	54.80	12.56
ILM	10.10	55.98	11.39
SFLU	17.49	63.37	4.00
SP	20.60	66.48	0.88



LWT 67.37 ft.

Well File: MERIT_DRUSSEL_A-11_FEB_20_QUINT

Scale: 1:600

Format: DIL-600

Segment: V1.D1.S6 MAIN

Acquired: 2020-02/21 01:21 3.4.1-13972

Reference: 0

Processed: 2020-02/21 03:32 3.4.1-13972

TENSION
LBS

10000

0

DEEP INDUCTION
OHMM

0.0

500.0

0.0

50.0

SPONTANEOUS POTENTIAL
mV

→

←20

SHALLOW FOCUSED RESISTIVITY
OHMM

0.0

500.0

0.0

50.0

GAMMA RAY
API UNITS

150

300

0

150

DEEP CONDUCTIVITY
MMHO

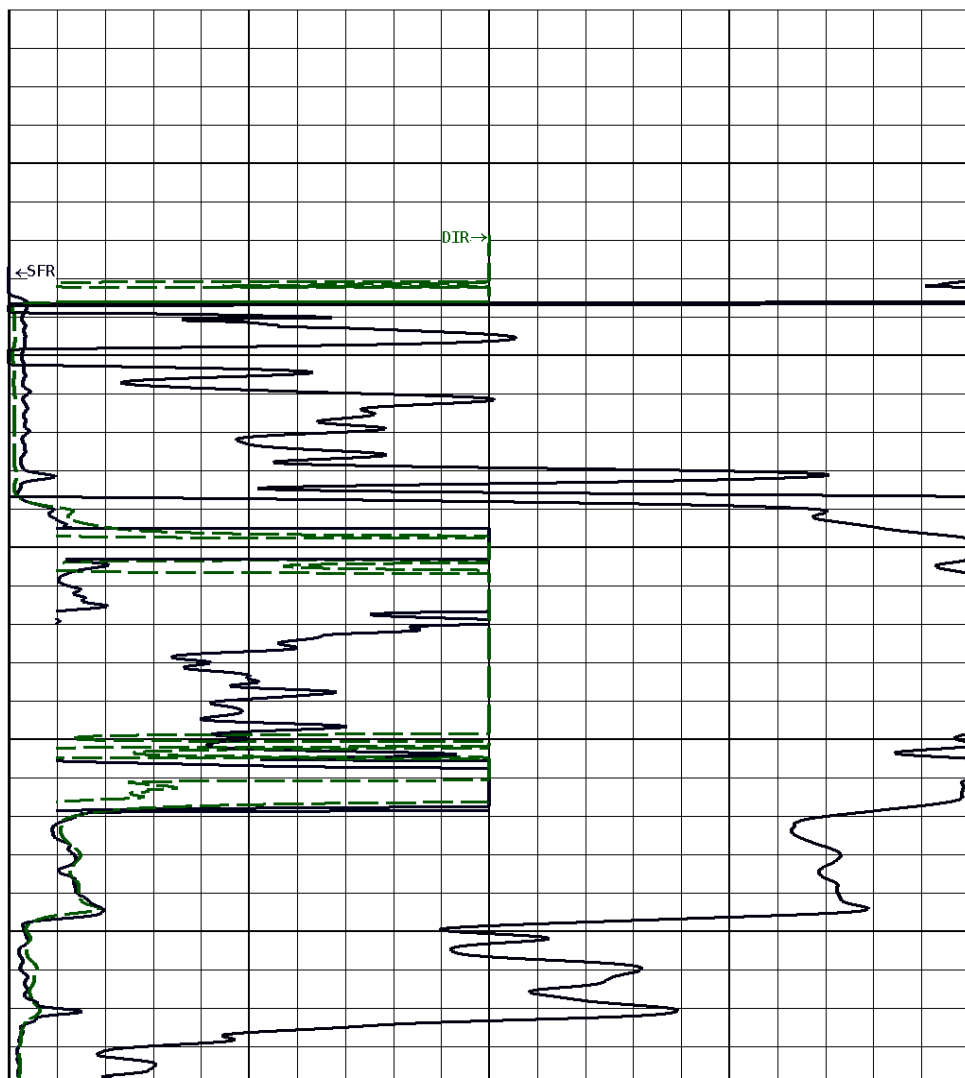
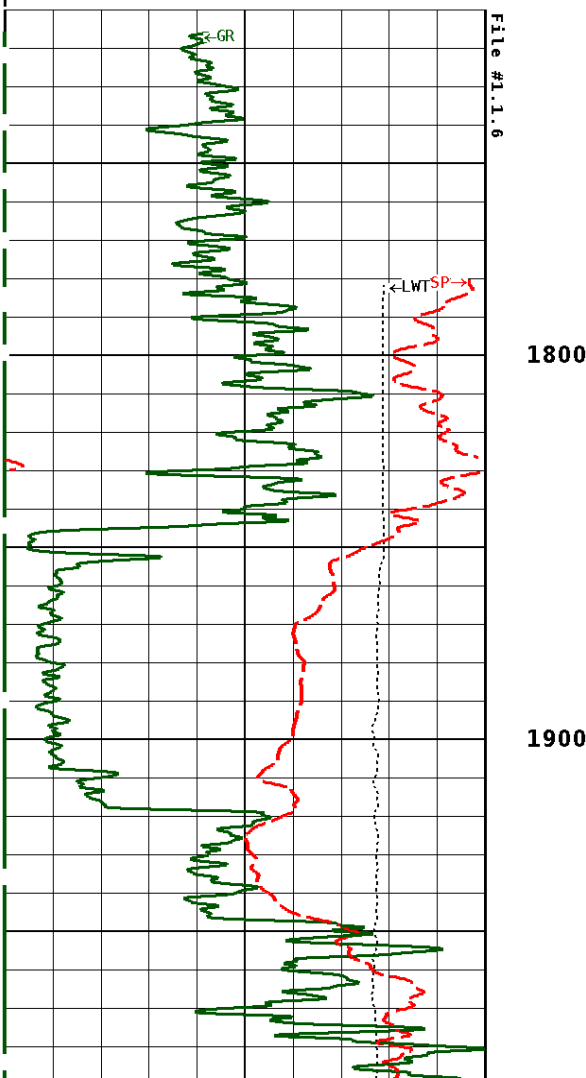
2000

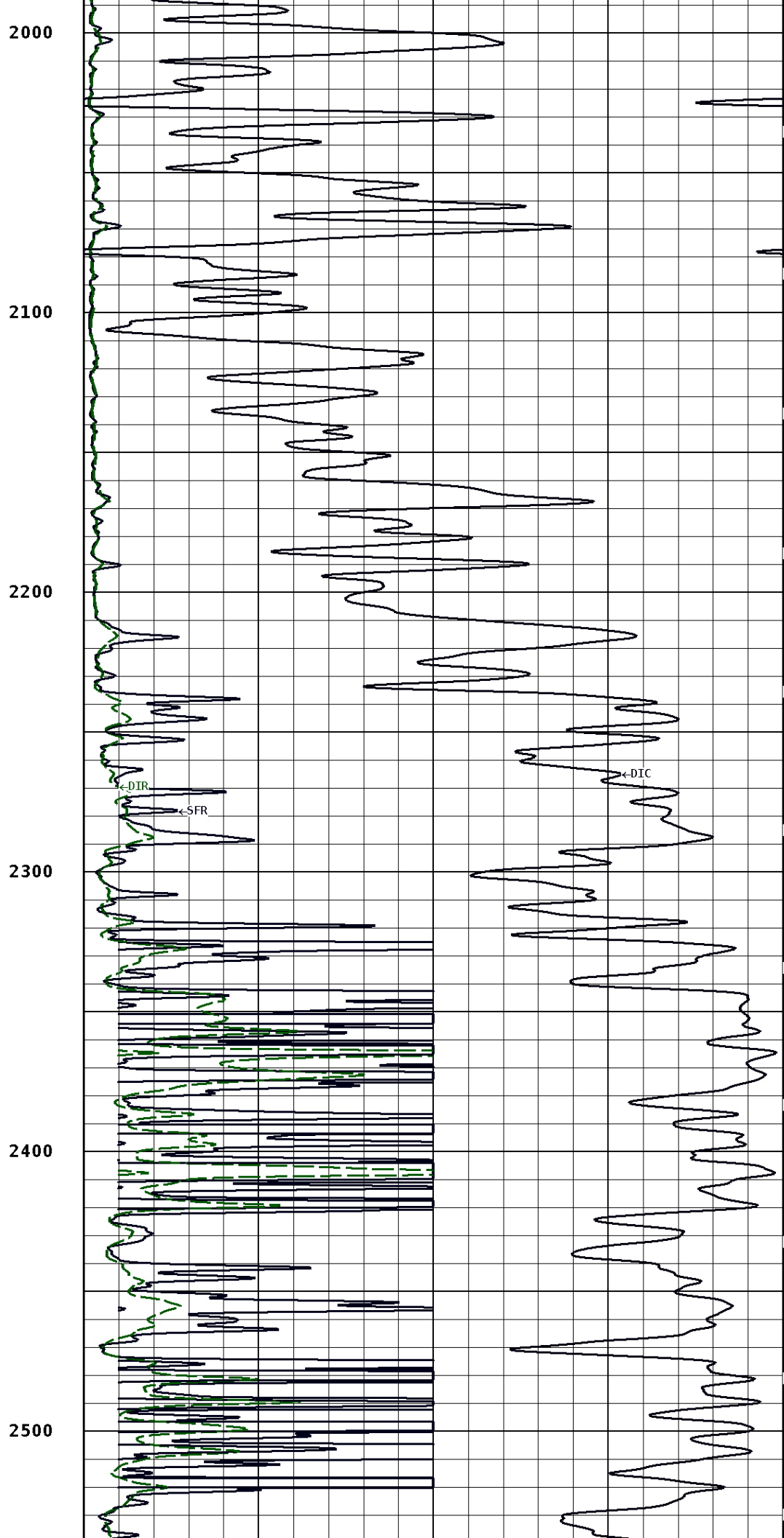
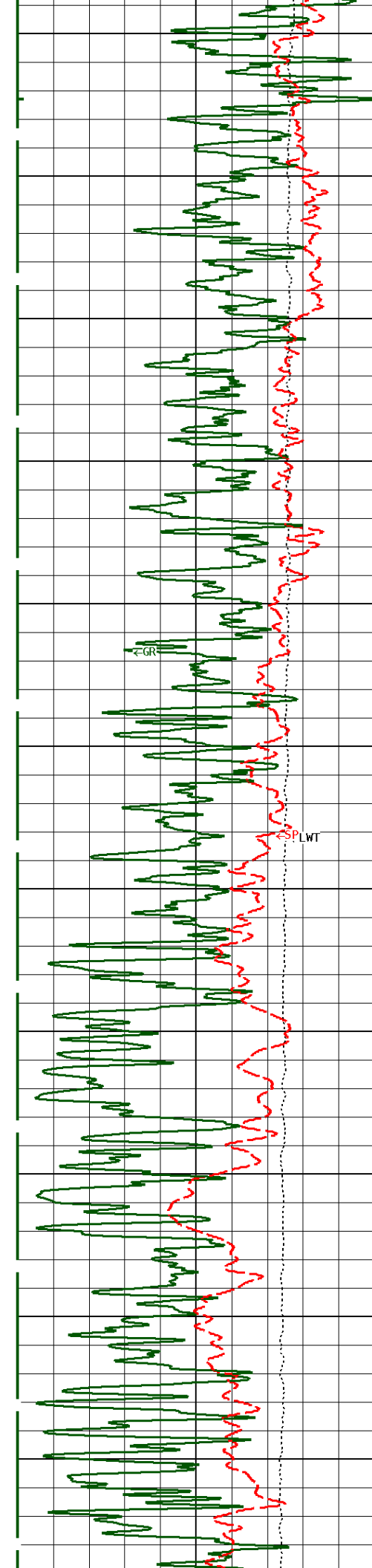
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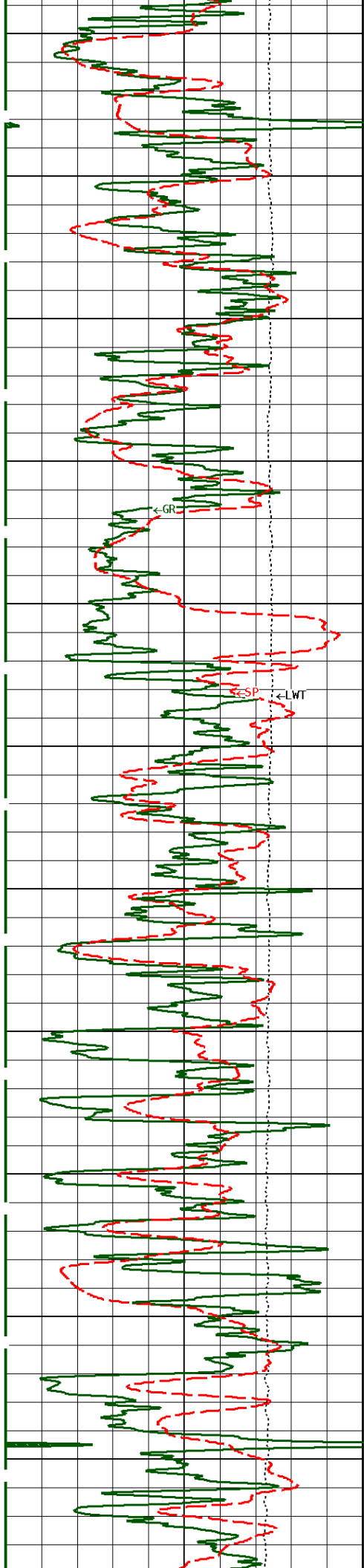
1000

0

1:600 MAIN SECTION







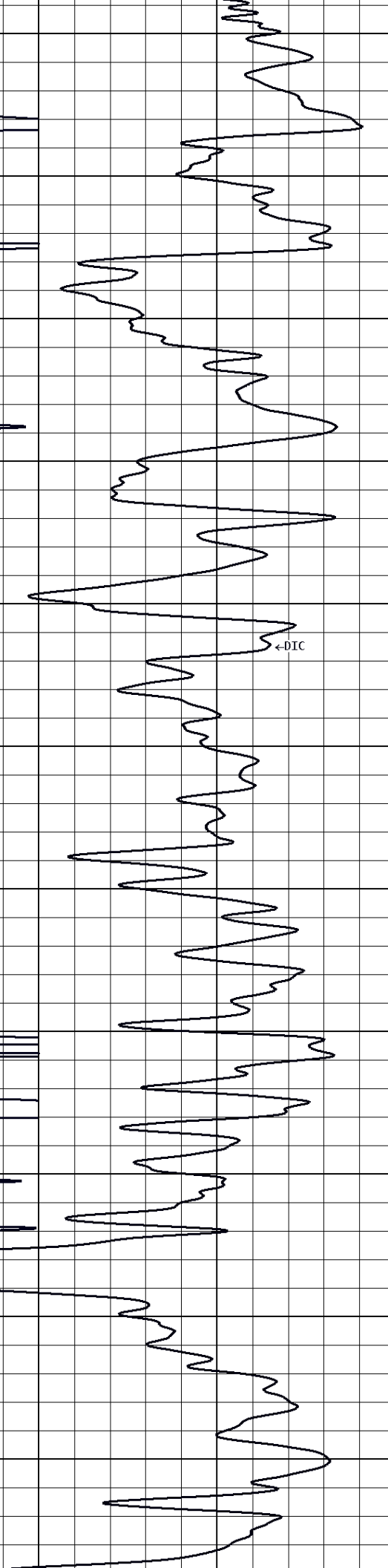
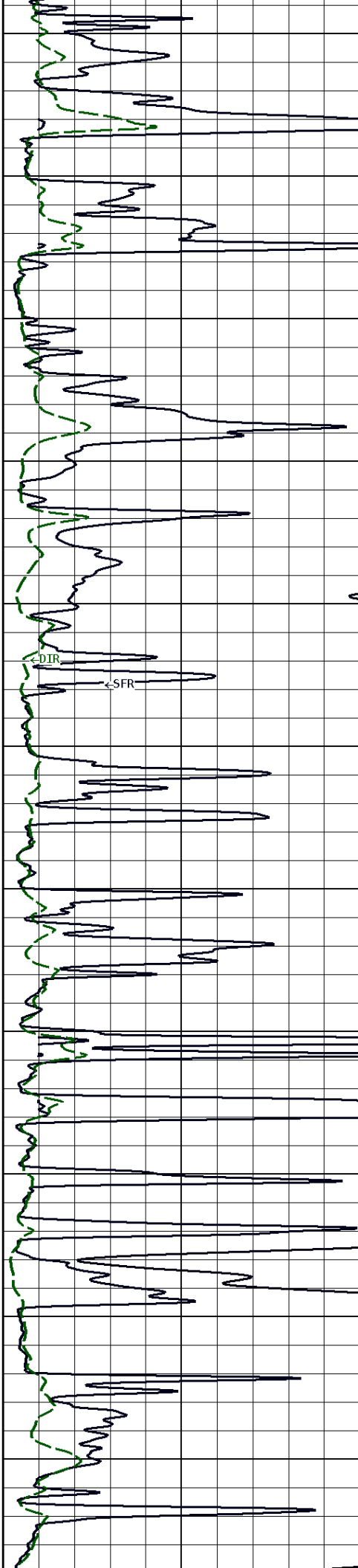
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2700

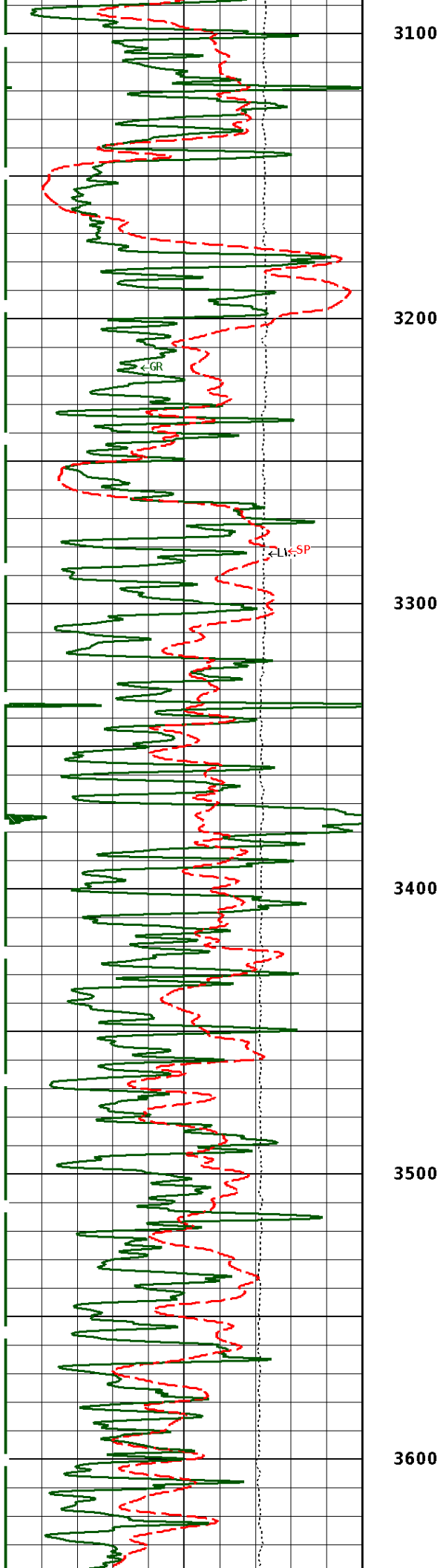
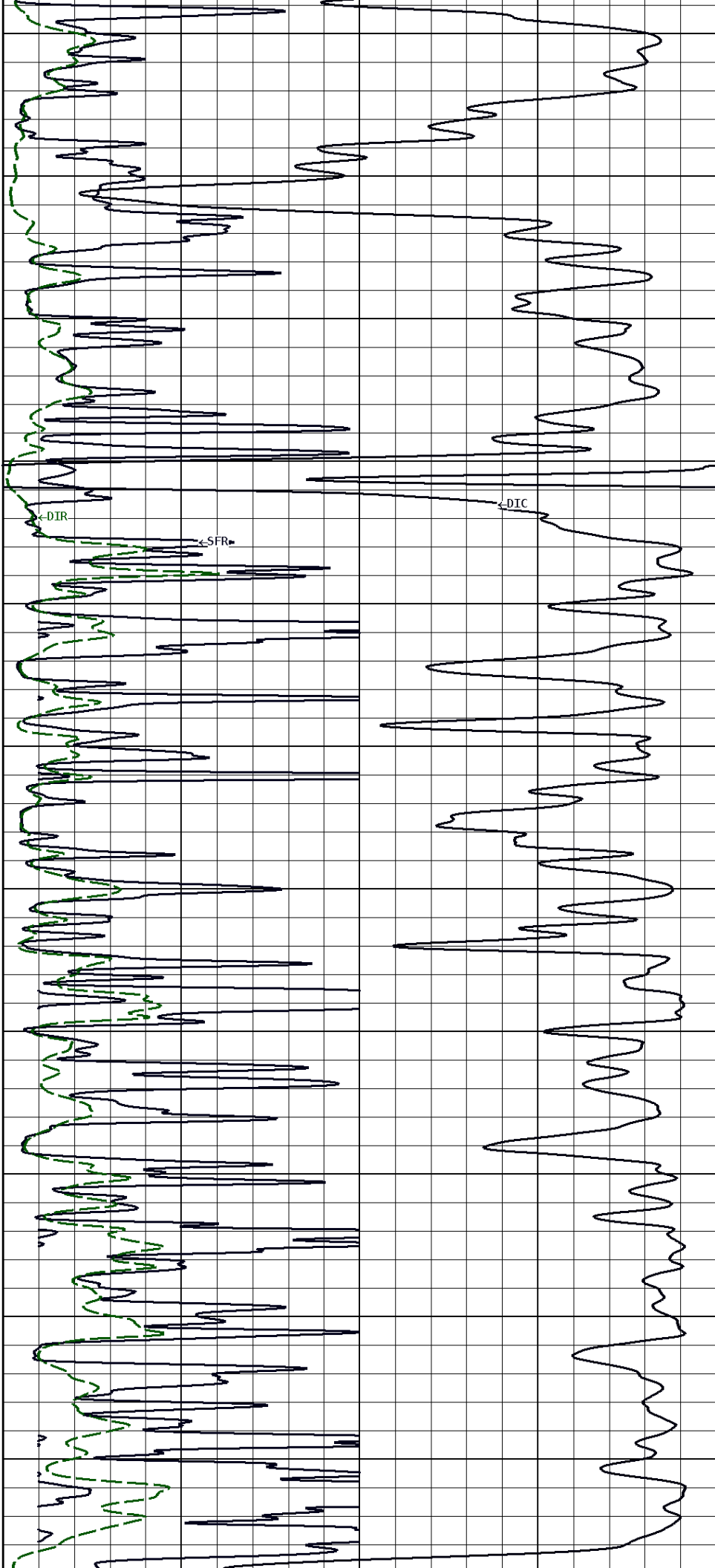
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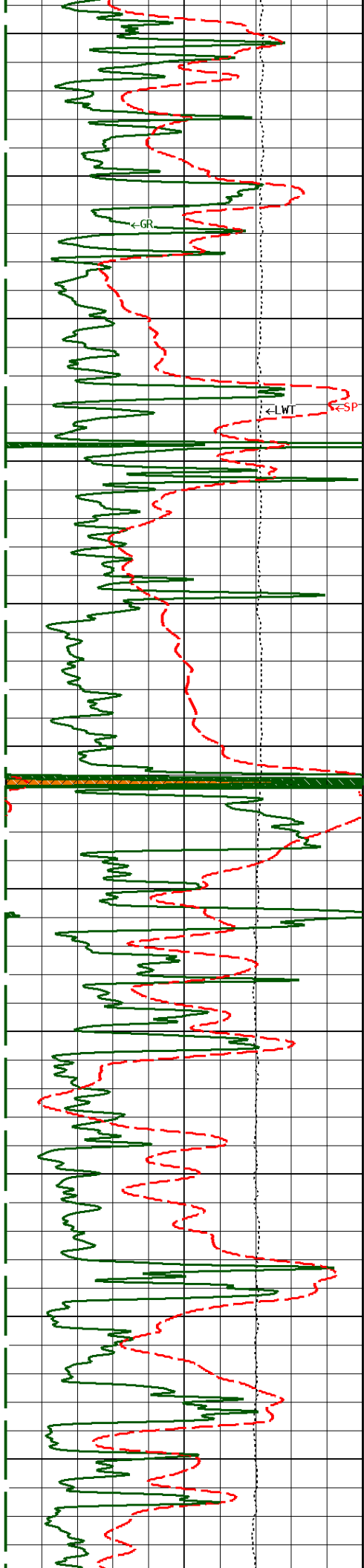
2900

3000



←DIC





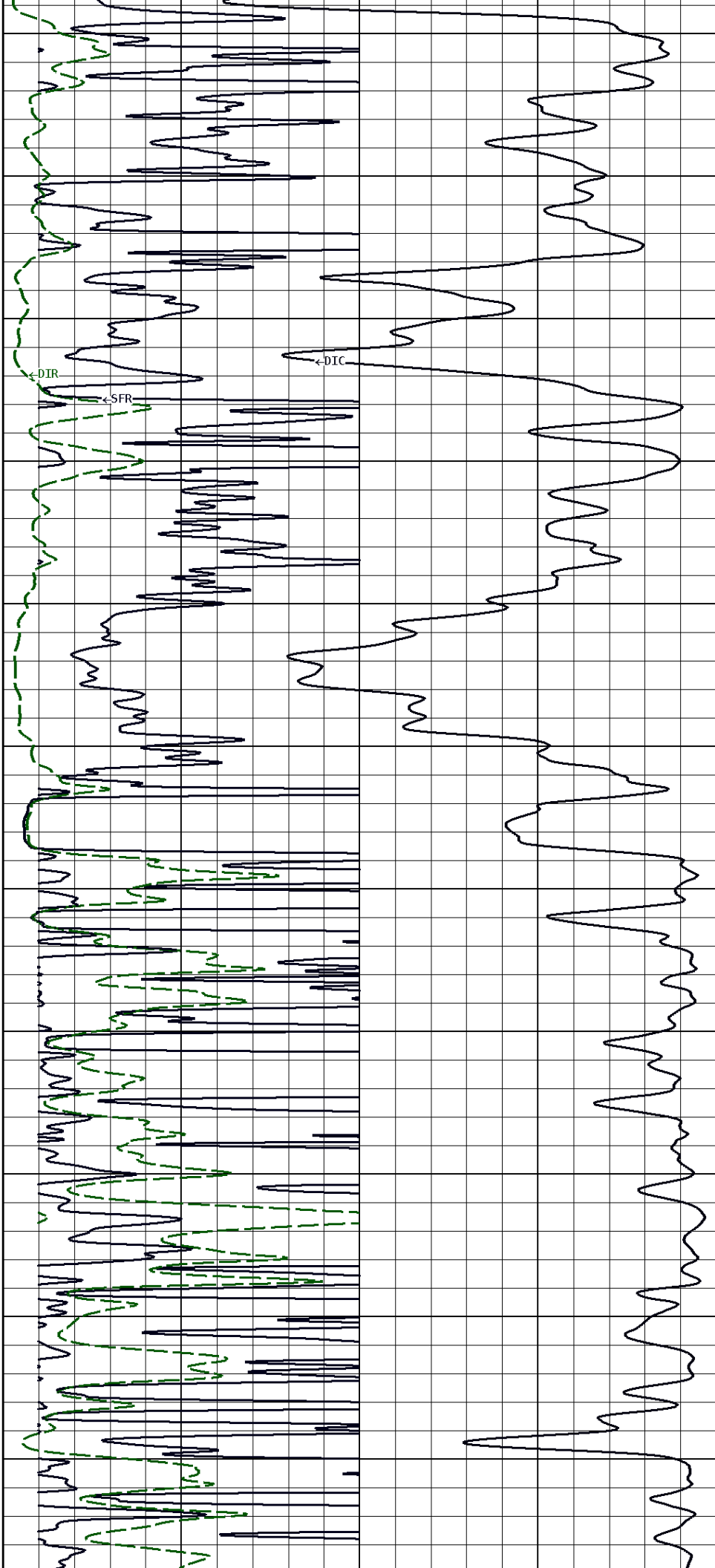
3700

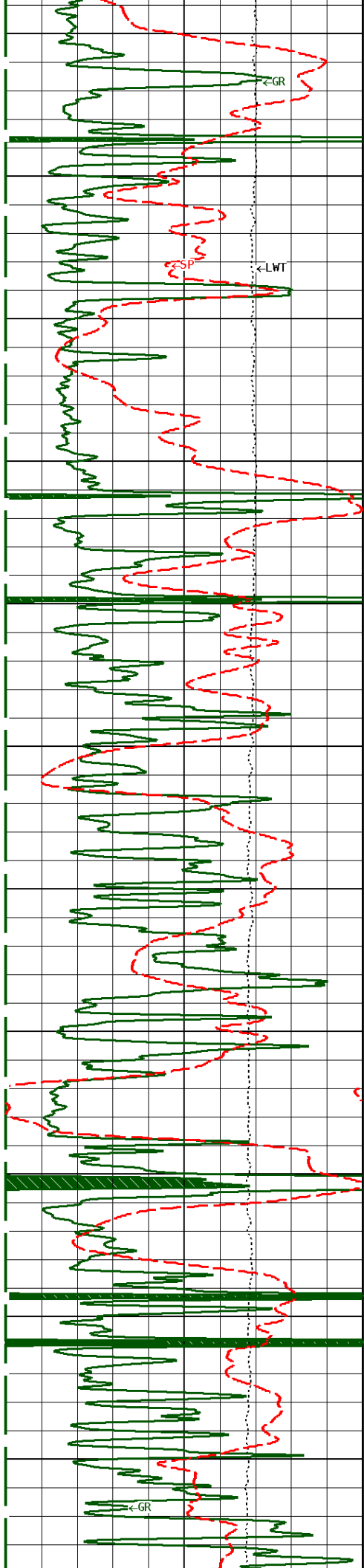
3800

3900

4000

4100





4200

4300

4400

4500

4600

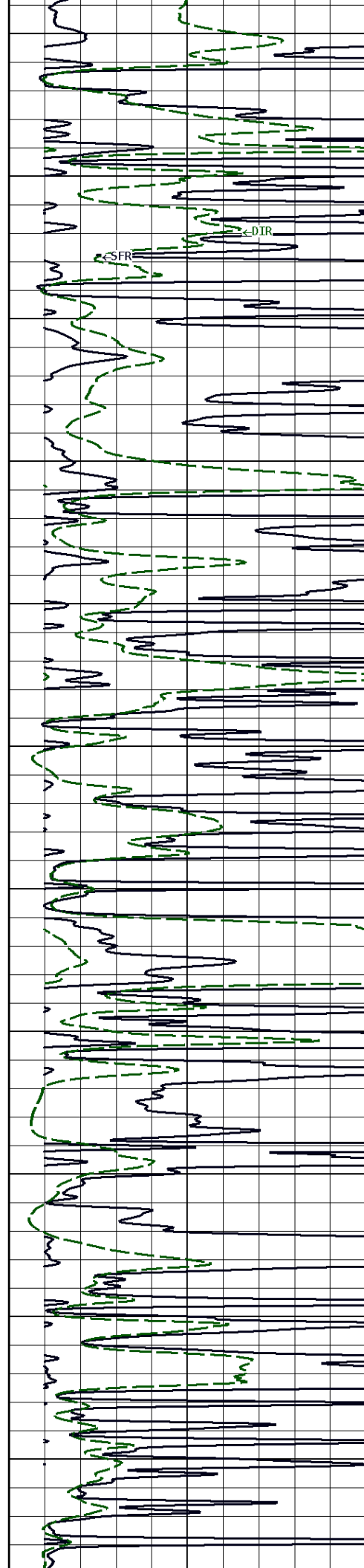
4700

← GR

← LWT

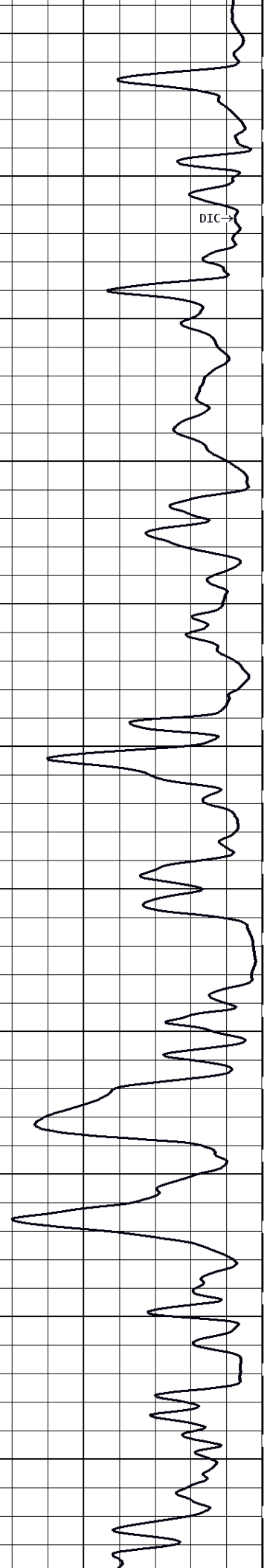
← SP

← GR

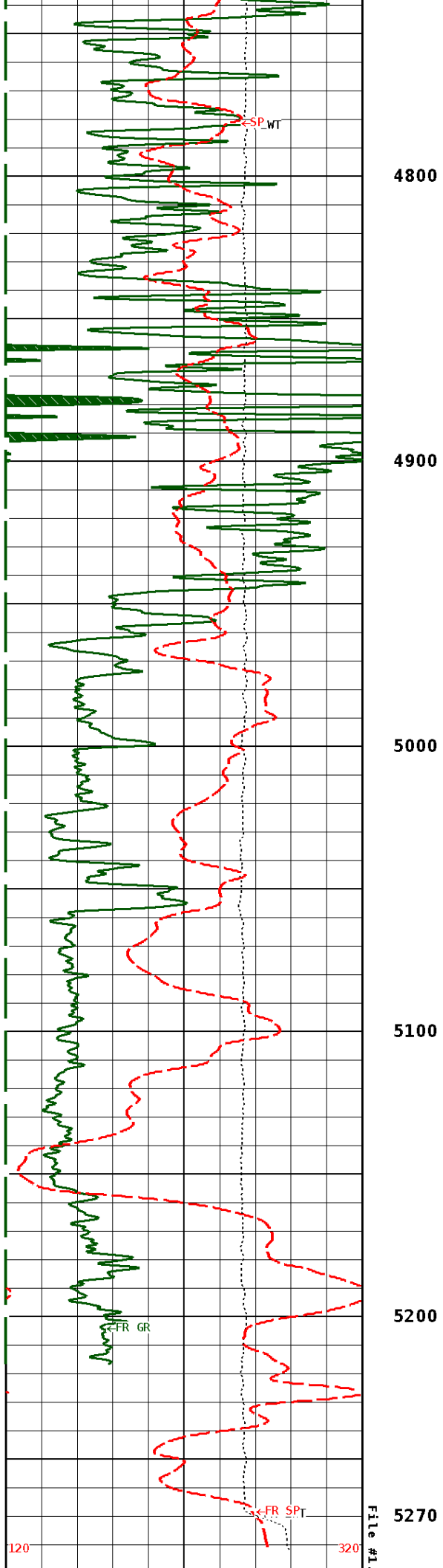


← SFR

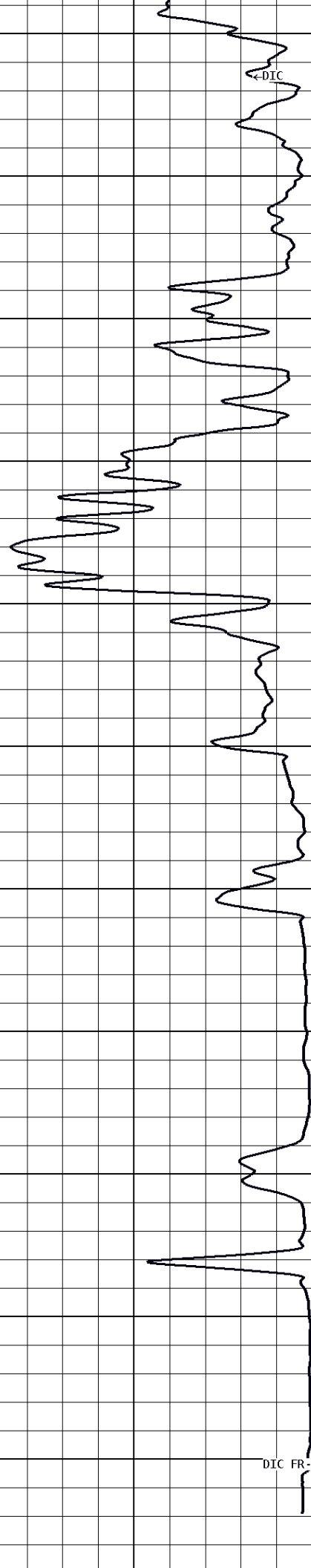
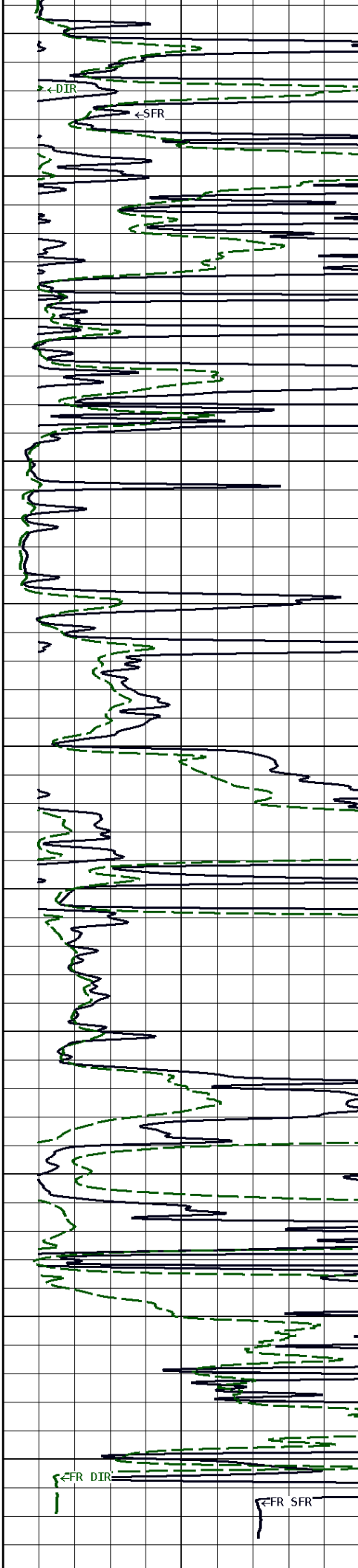
← DTR



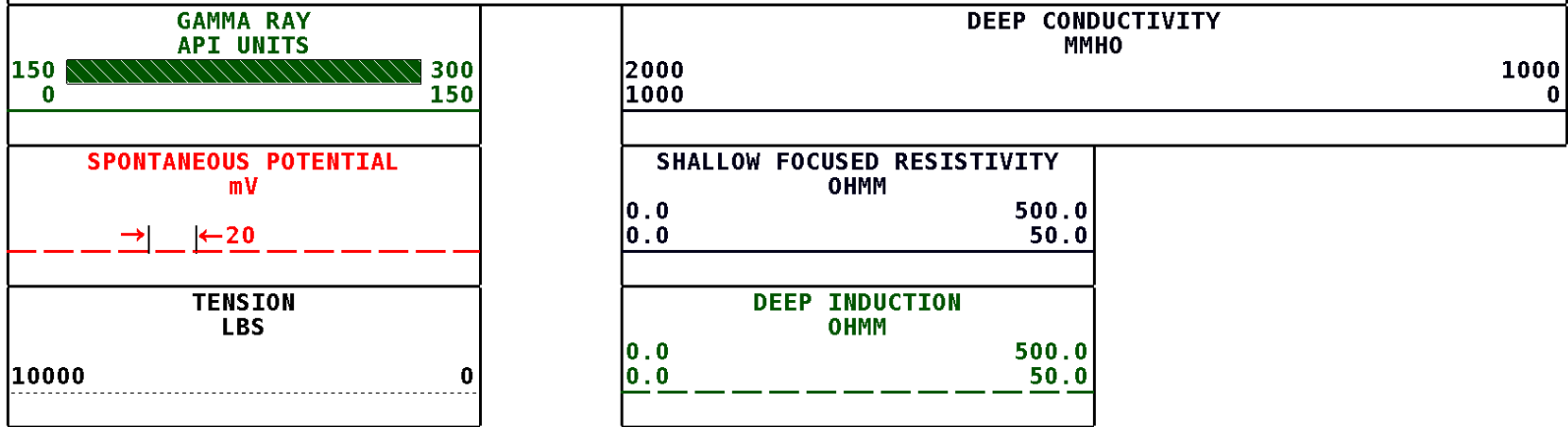
DIC →



File #11



1:600 MAIN SECTION



Well File: MERIT_DRUSSEL_A-11_FEB_20_QUINT

Scale: 1:240

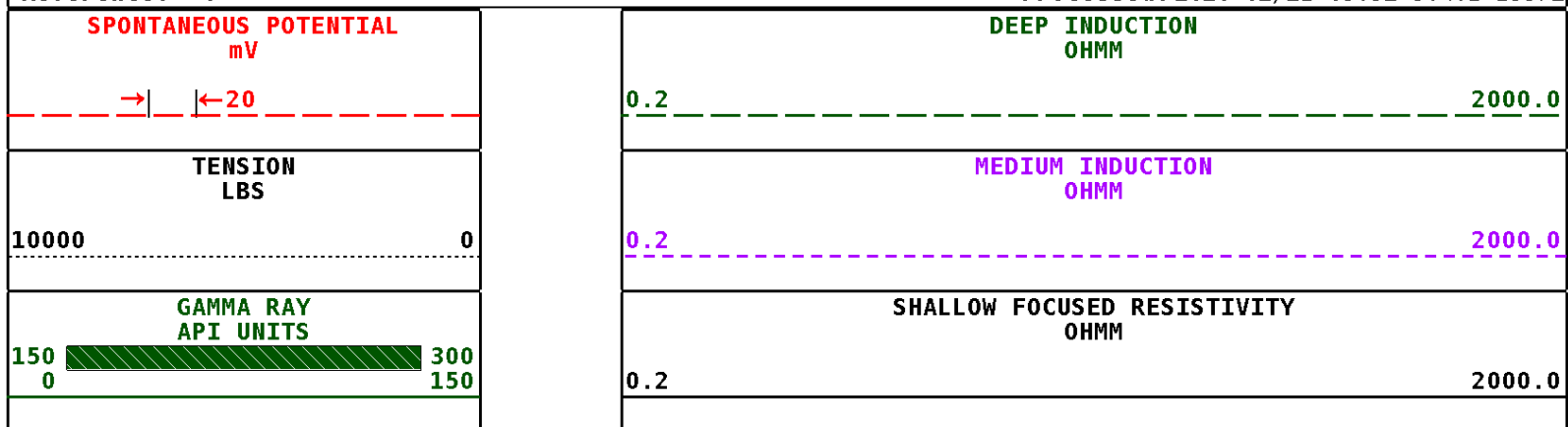
Format: DIL-240

Segment: V1.D1.S6 MAIN

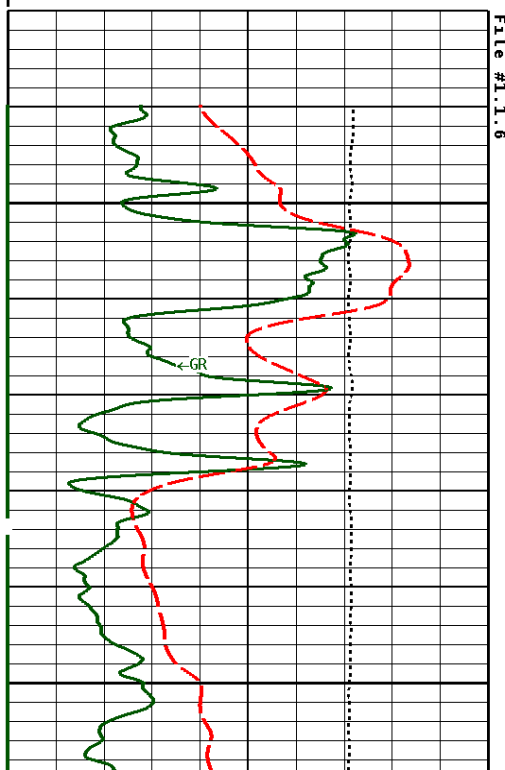
Acquired: 2020-02/21 01:21 3.4.1-13972

Reference: 0

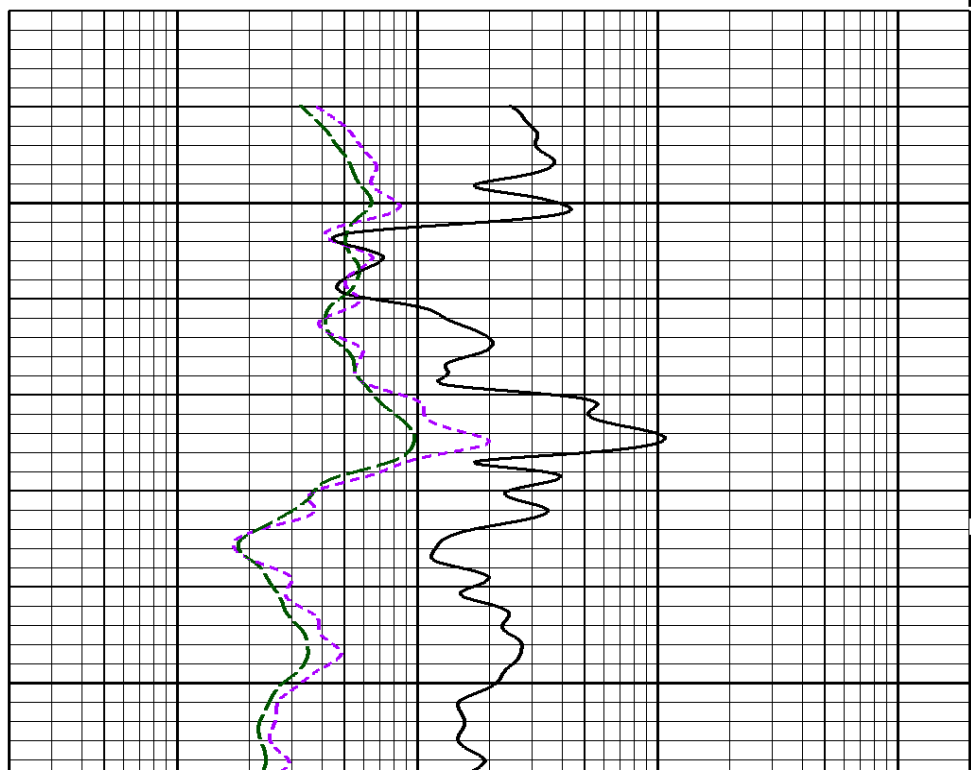
Processed: 2020-02/21 03:32 3.4.1-13972

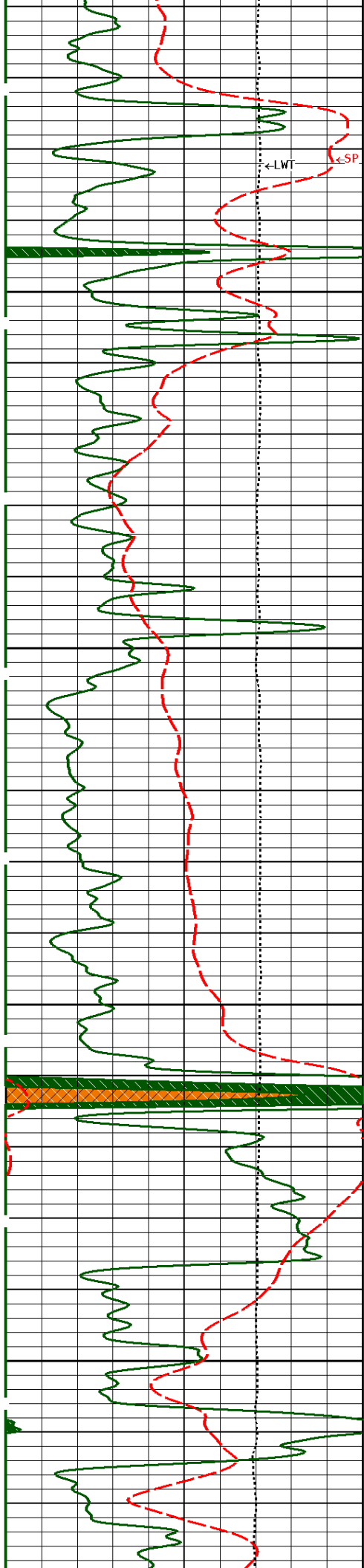


1:240 MAIN SECTION



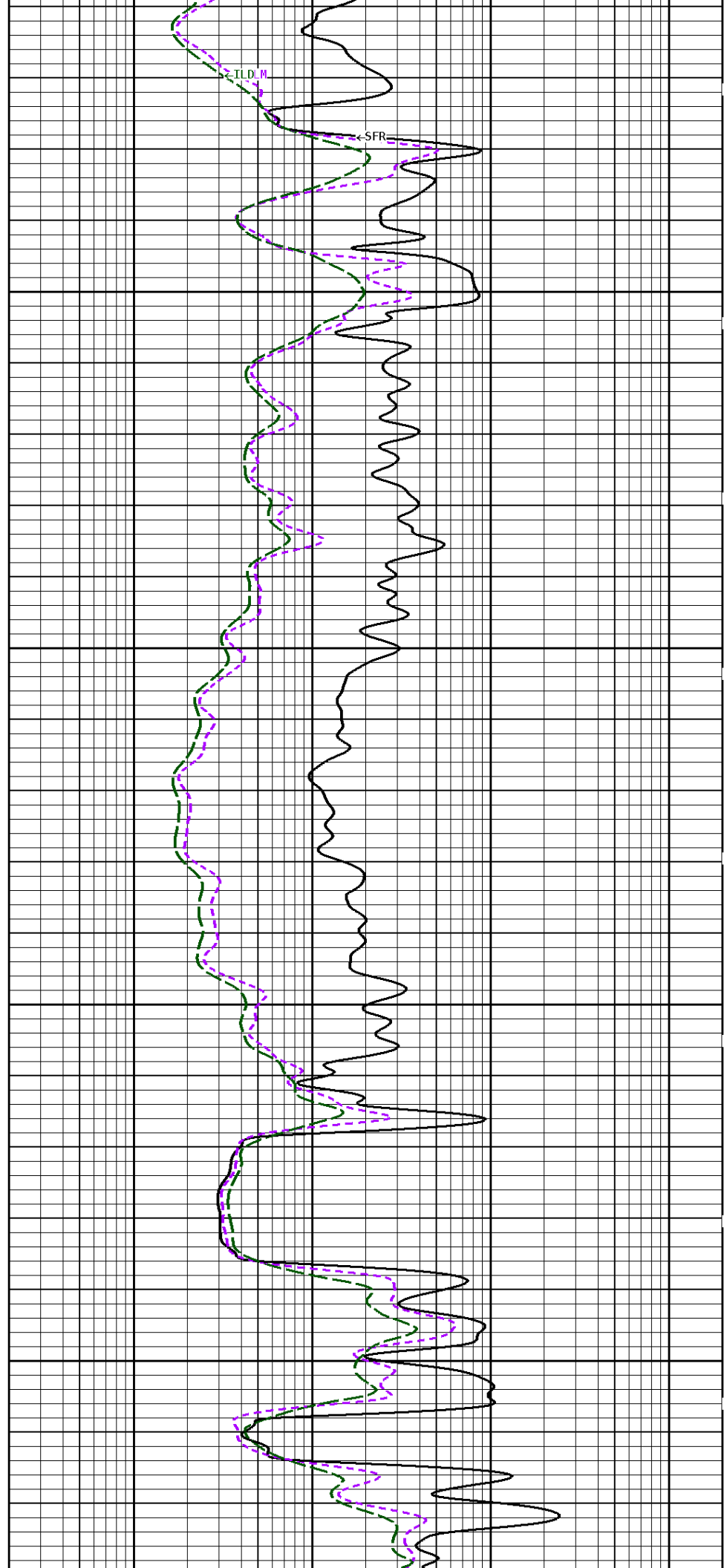
3700

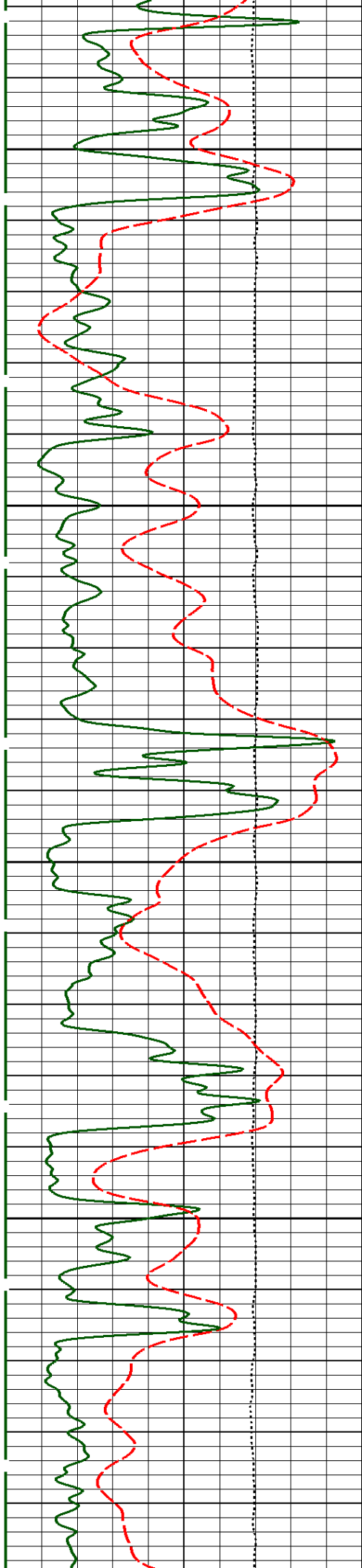




3800

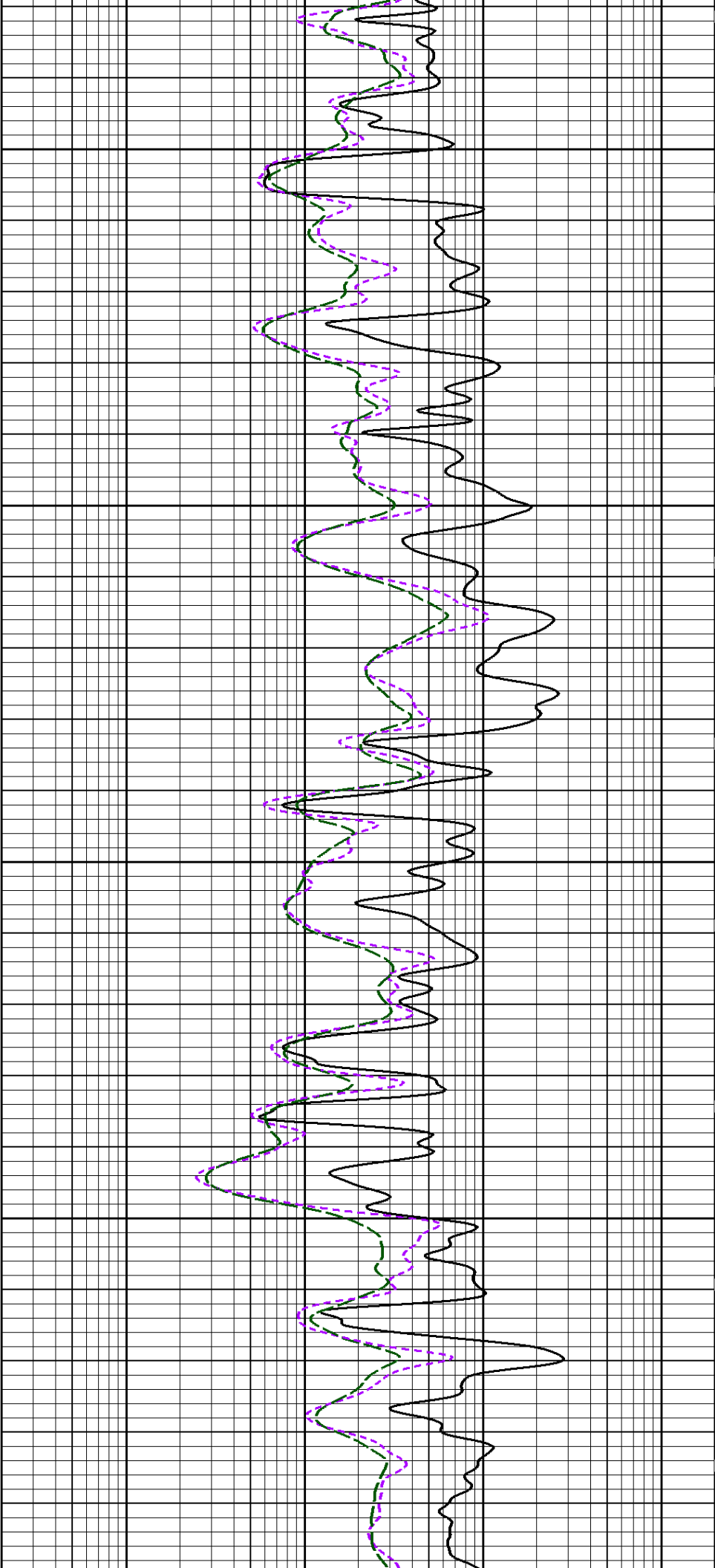
3900

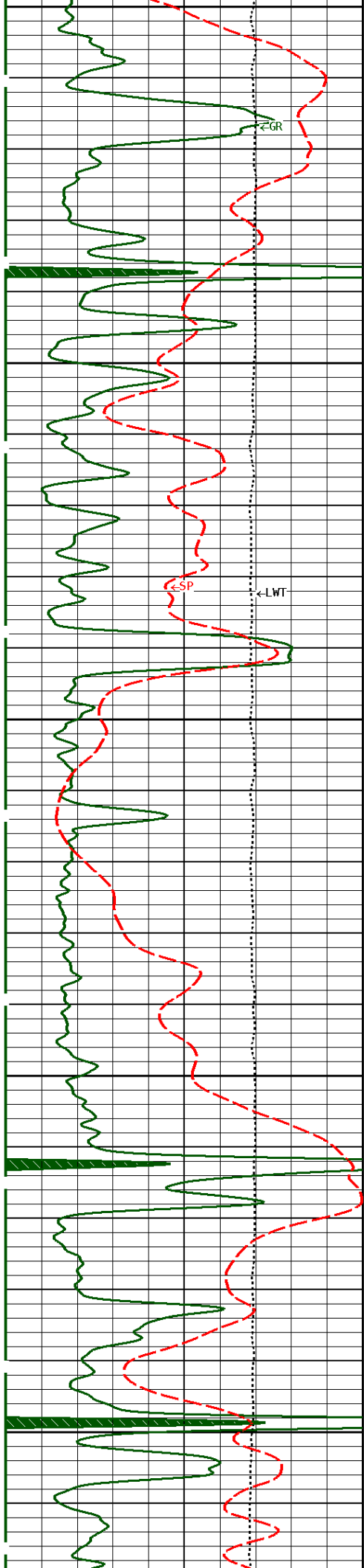




4000

4100

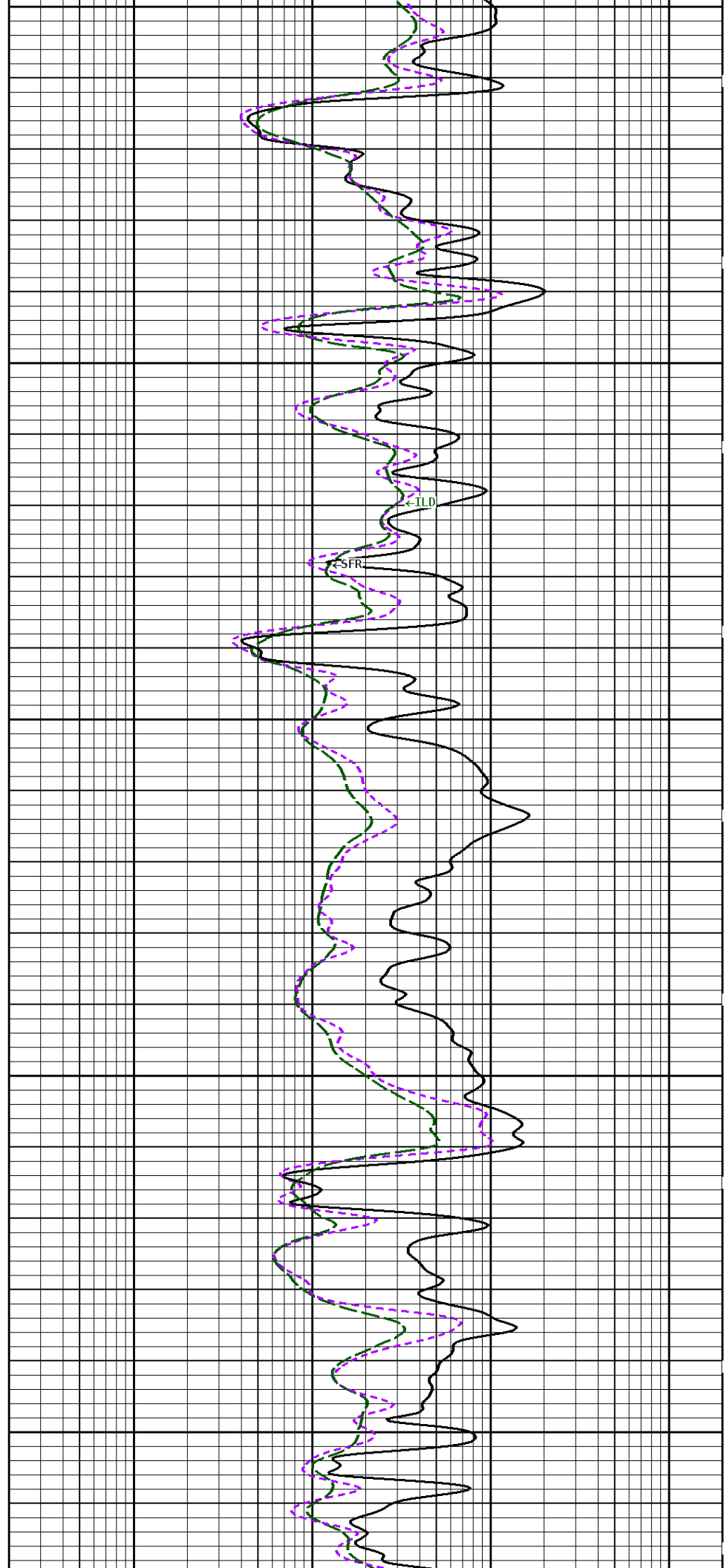


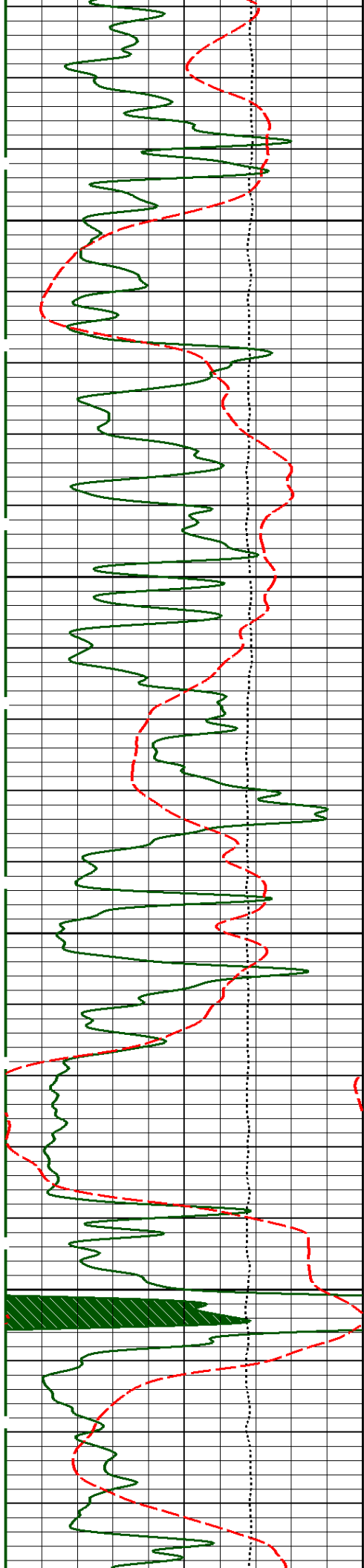


4200

4300

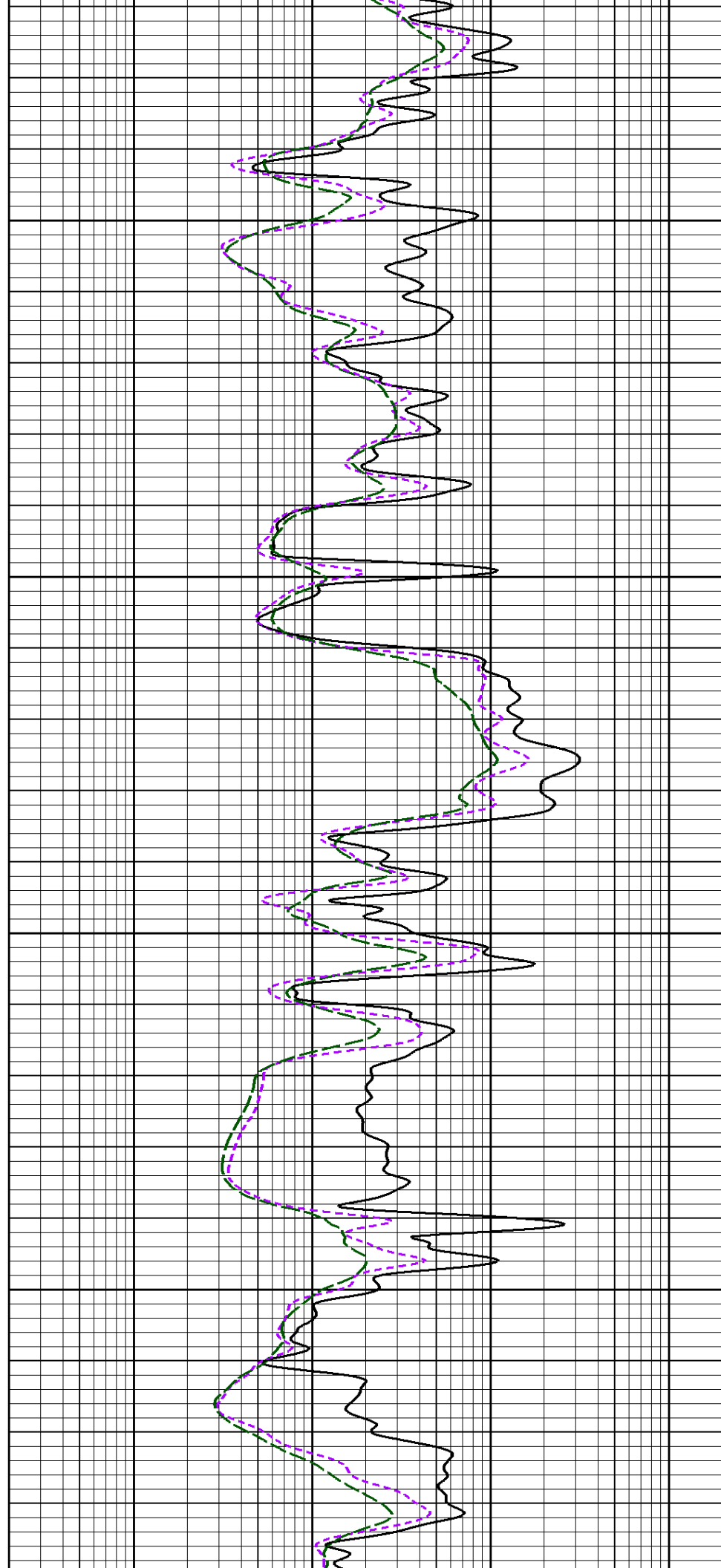
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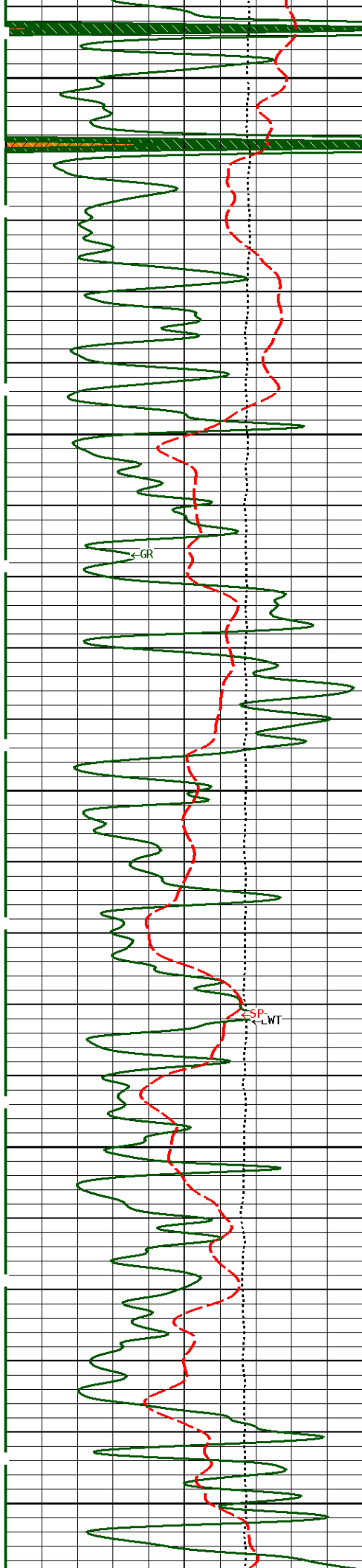




4500

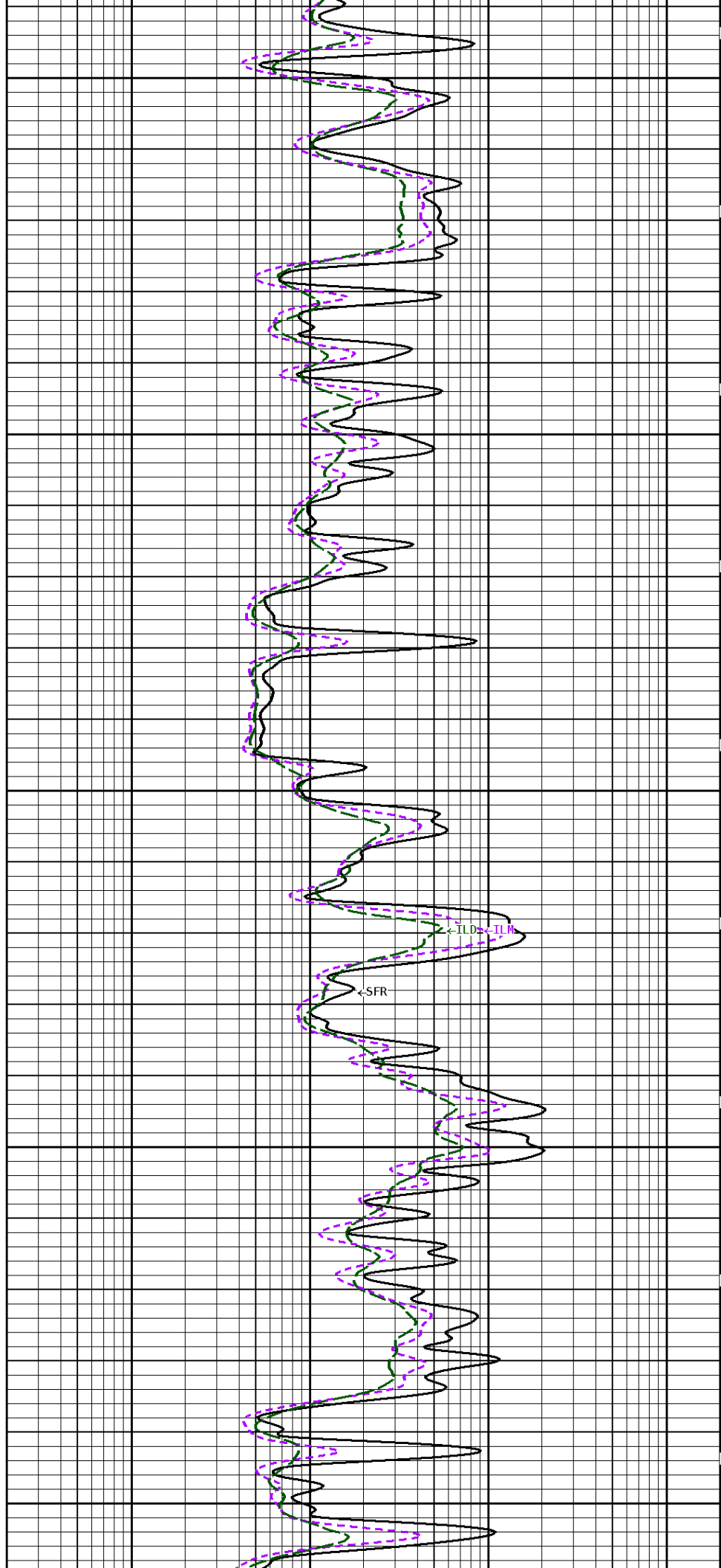
4600

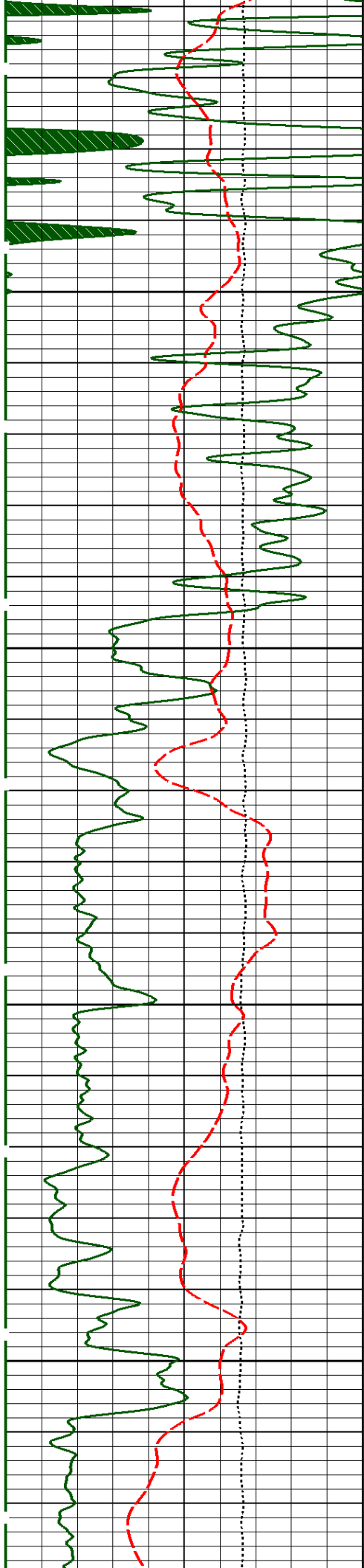




4700

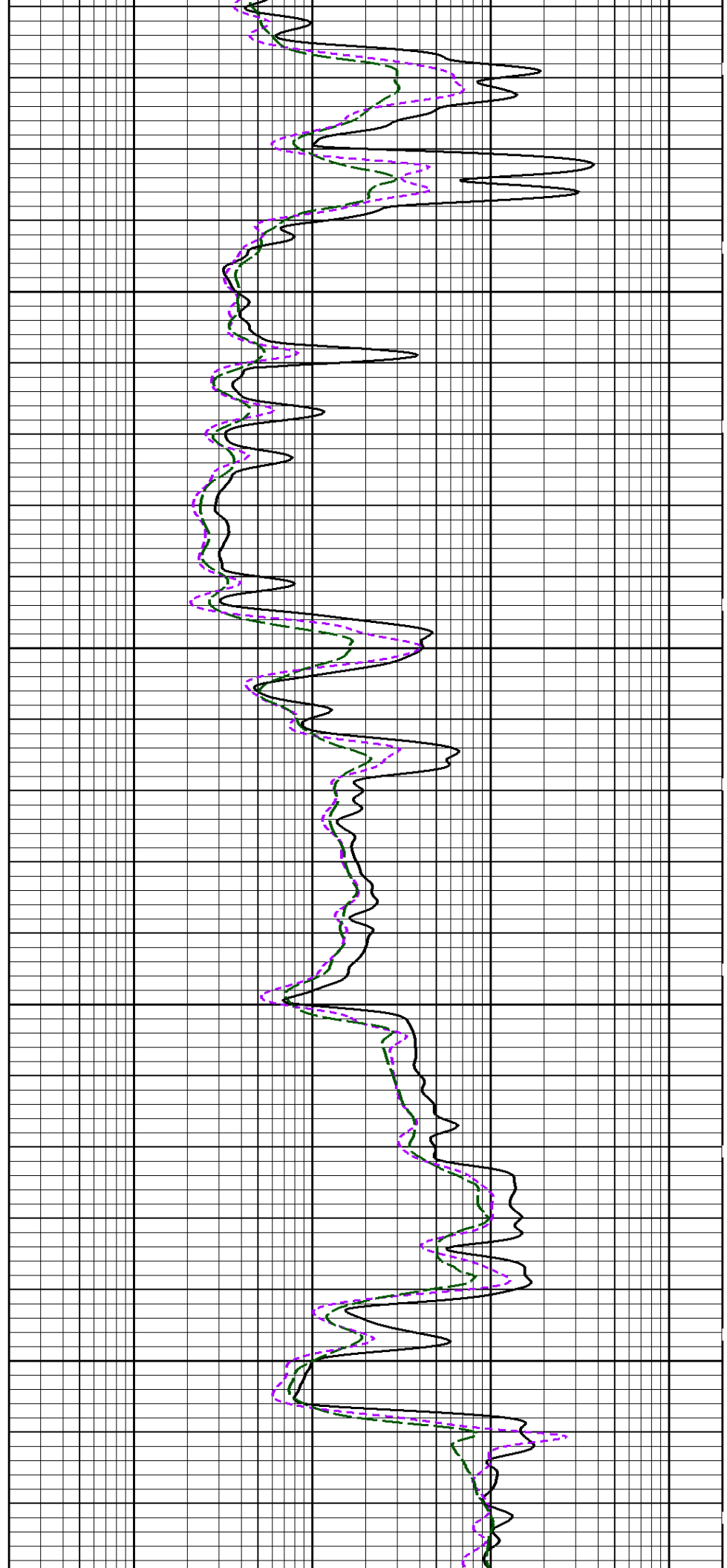
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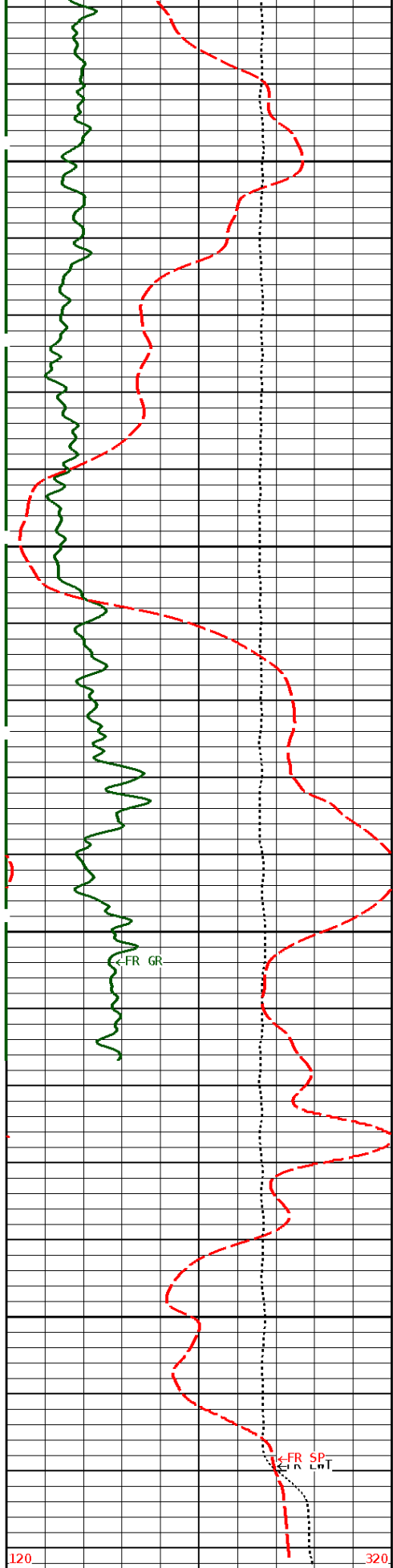




4900

5000





5100

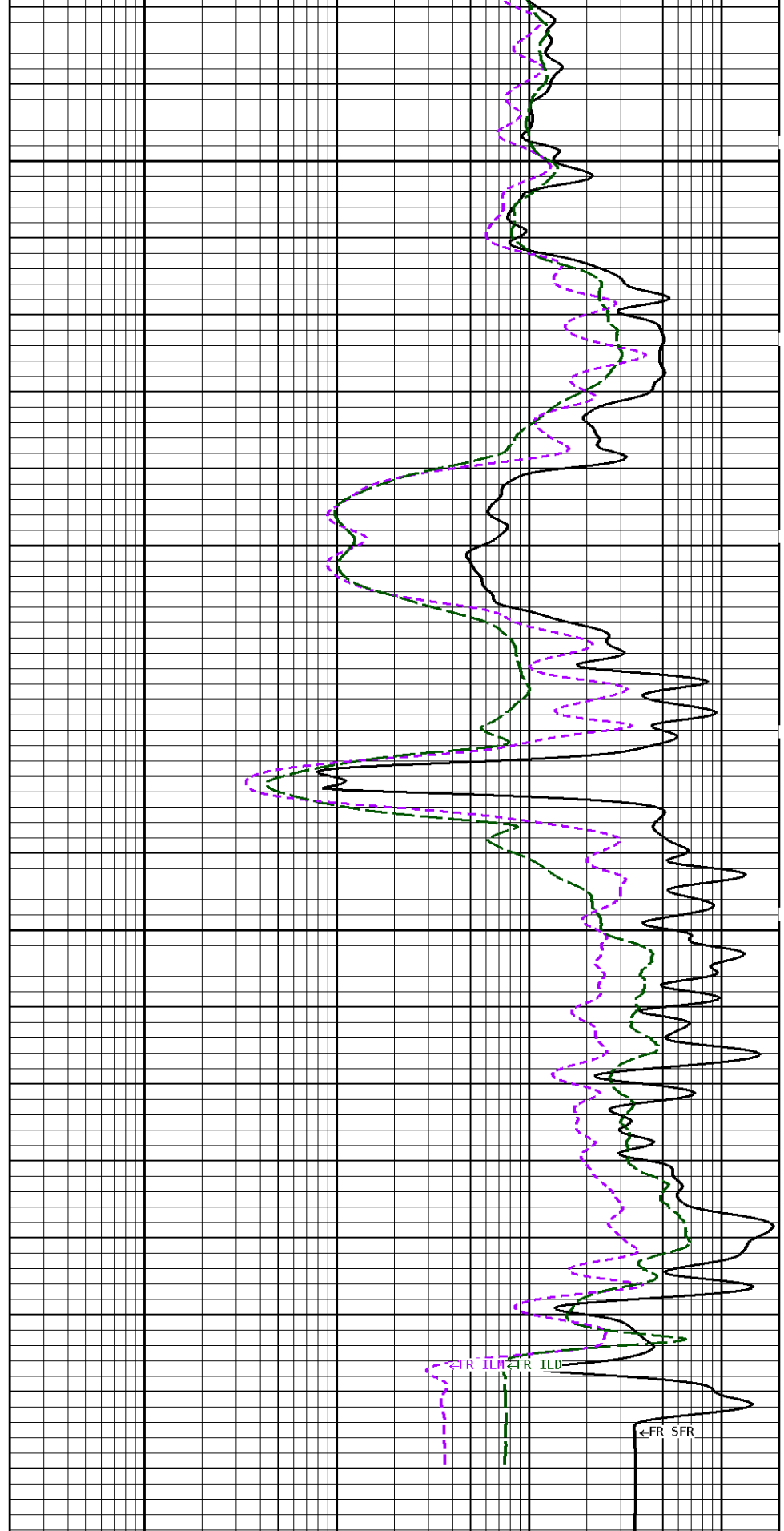
5200

5270

GR

SP
LWT

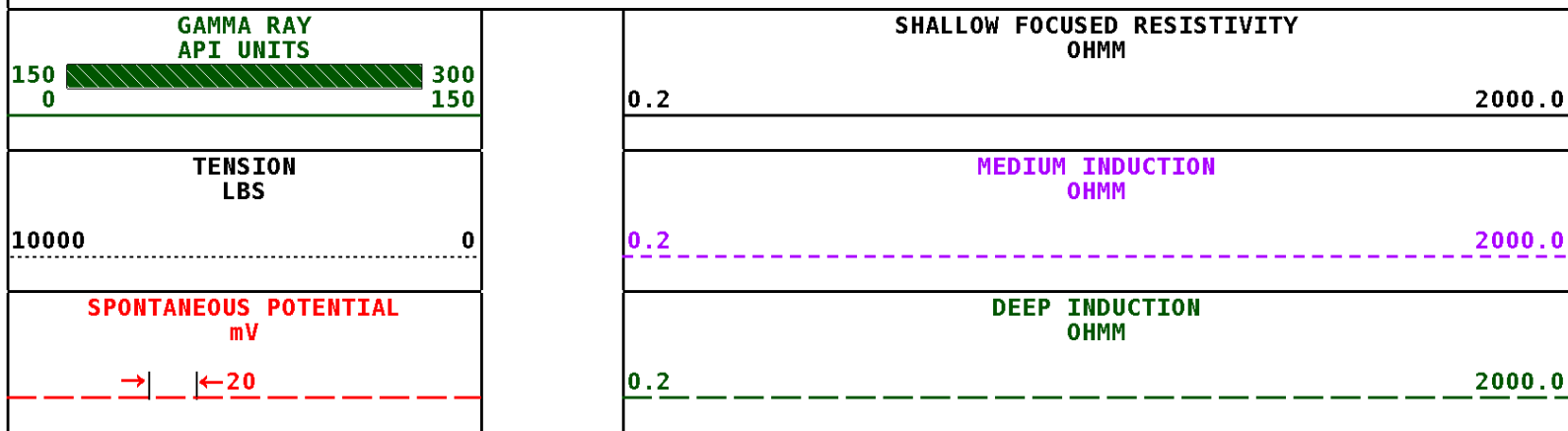
File #1.1.6



ILM
ILD

SFR

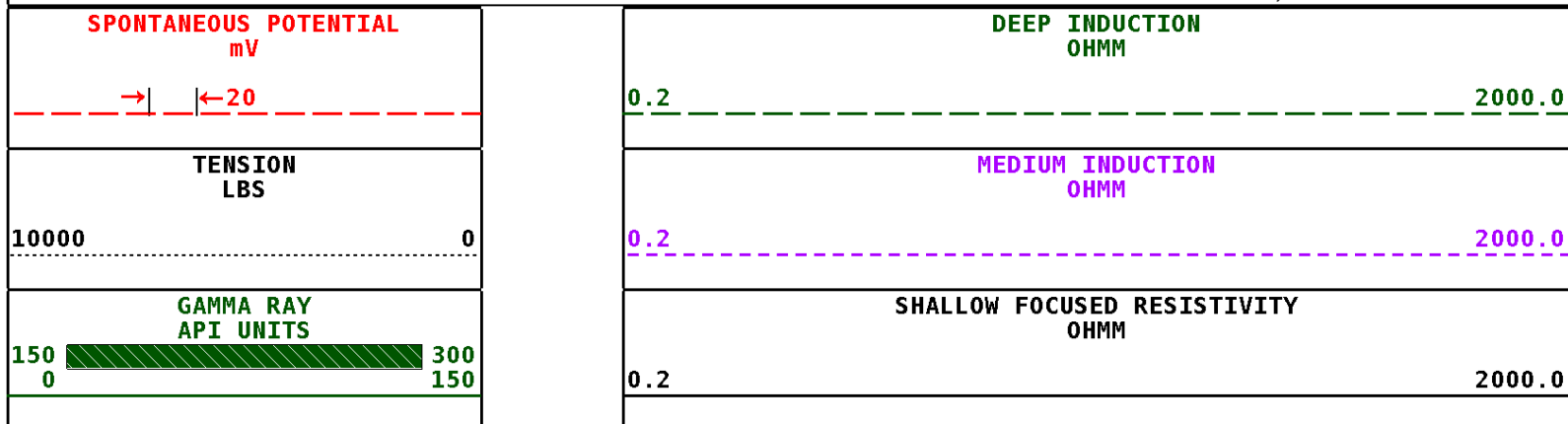
1:240 MAIN SECTION



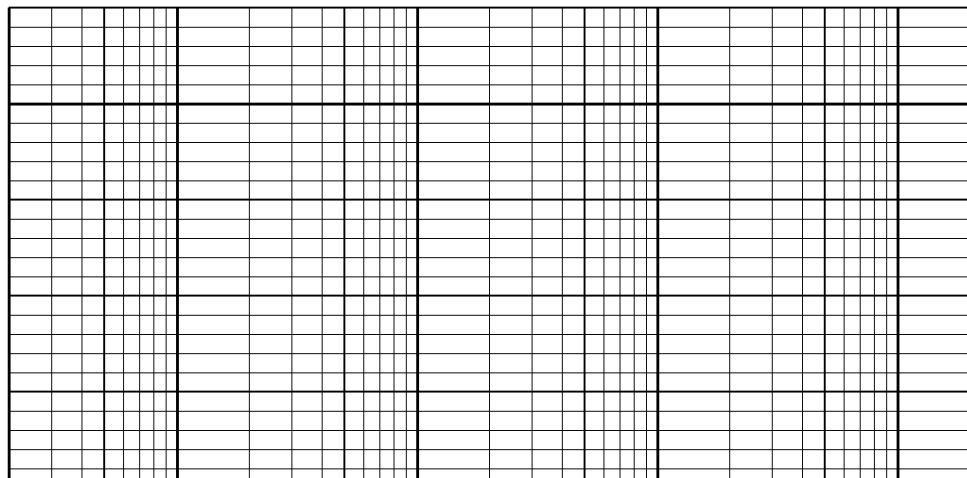
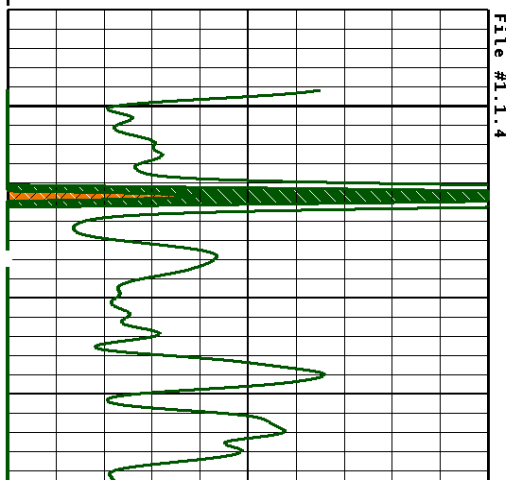
* Borehole Zone Factors *

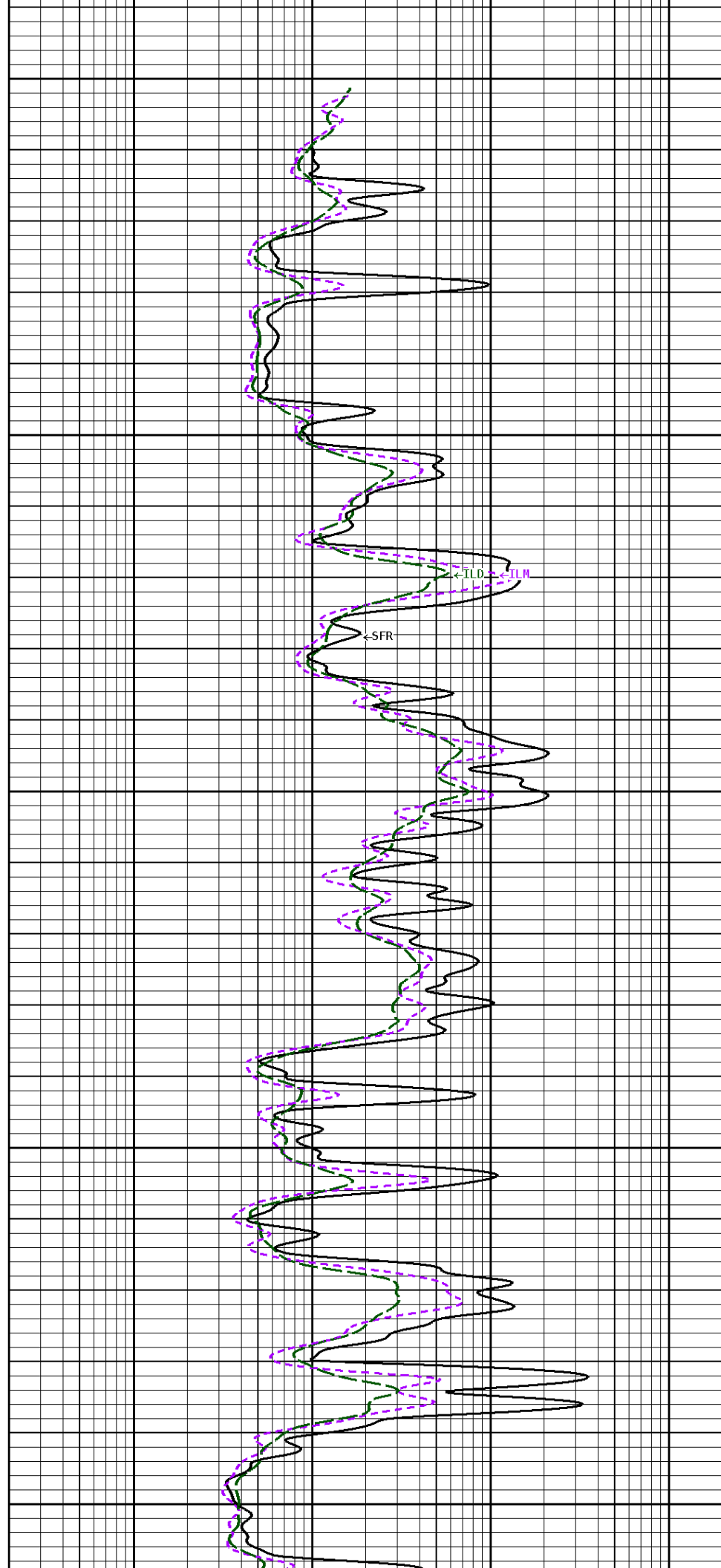
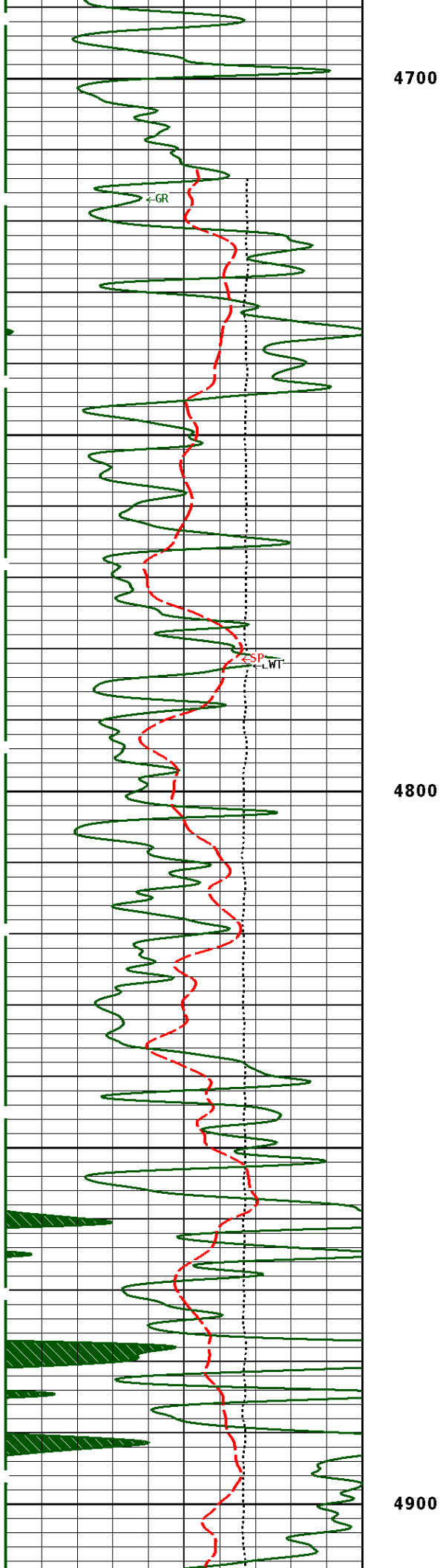
Zone 1		99999.0	to	0.0	Feet
Drill Bit Size		7.875	in		
Casing Diameter		5.500	in		
BHT Depth		5270.000	ft		
Borehole Temperature		135.0	degF		
Temperature Gradient		1.00	DFHF		
Resistivity Of Mud		1.400	ohmm		
Resistivity Of Mud Temperature		61.00	degF		

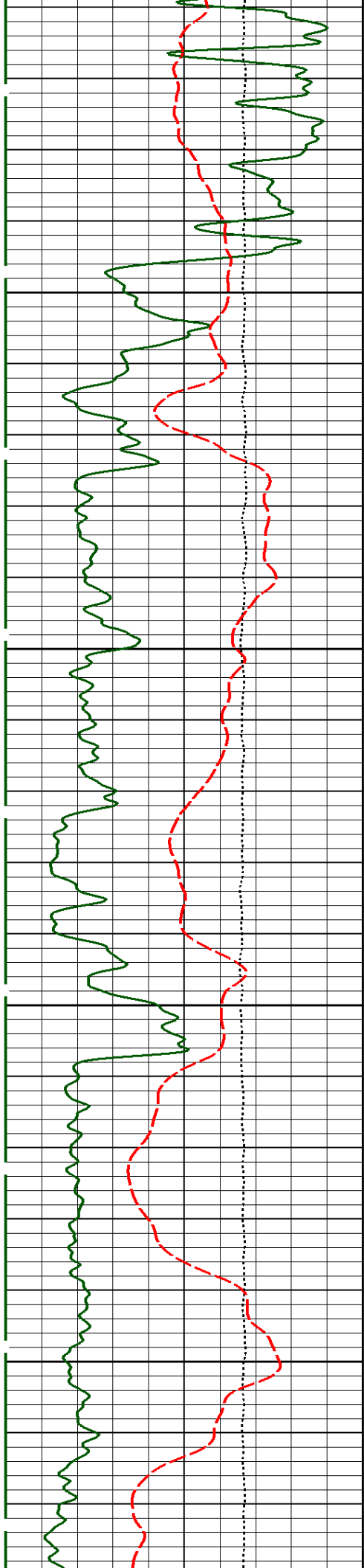
Well File: MERIT_DRUSSEL_A-11_FEB_20_QUINT	Scale: 1:240	Format: DIL-240
Segment: V1.D1.S4 REPEAT	Acquired: 2020-02/21 00:45 3.4.1-13972	
Reference: 0	Processed: 2020-02/21 01:11 3.4.1-13972	



1:240 REPEAT SECTION

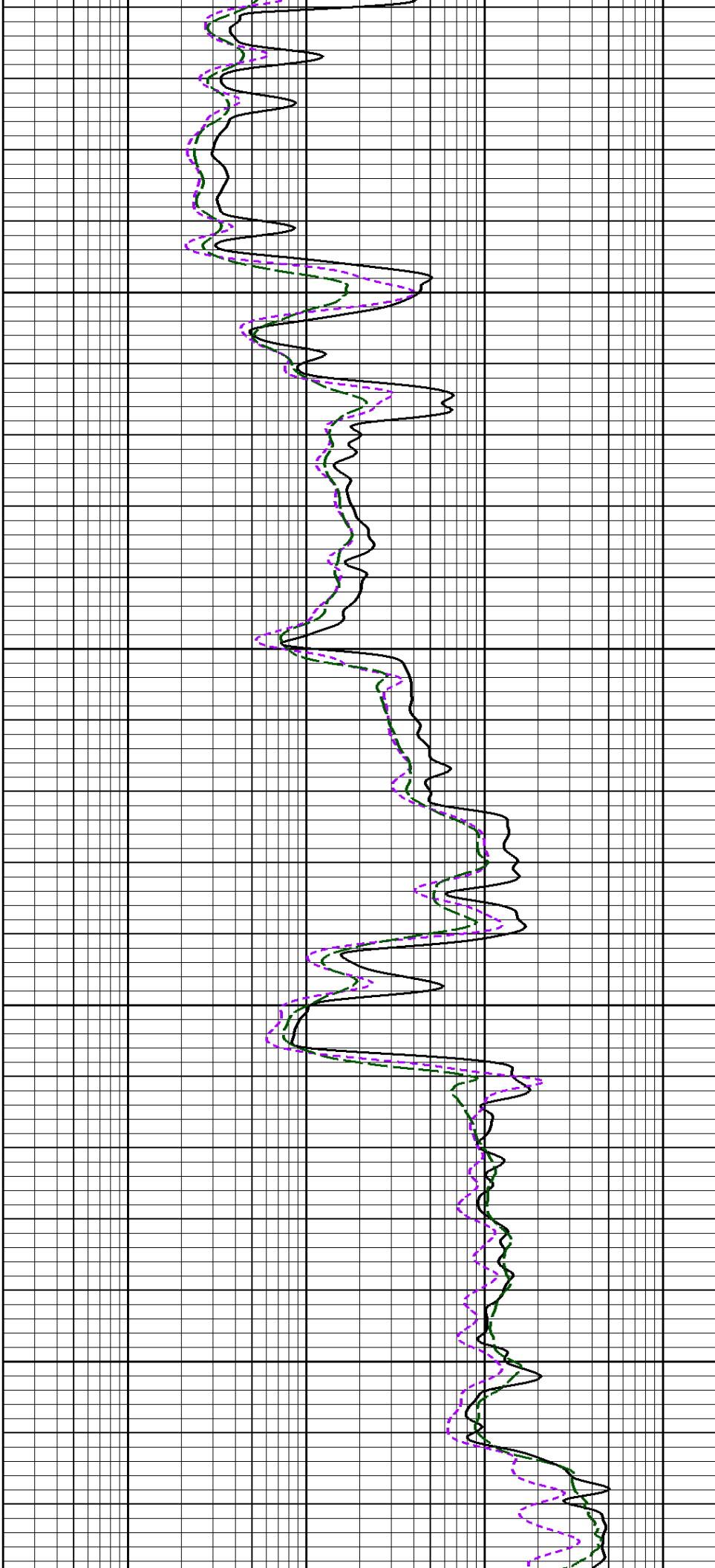


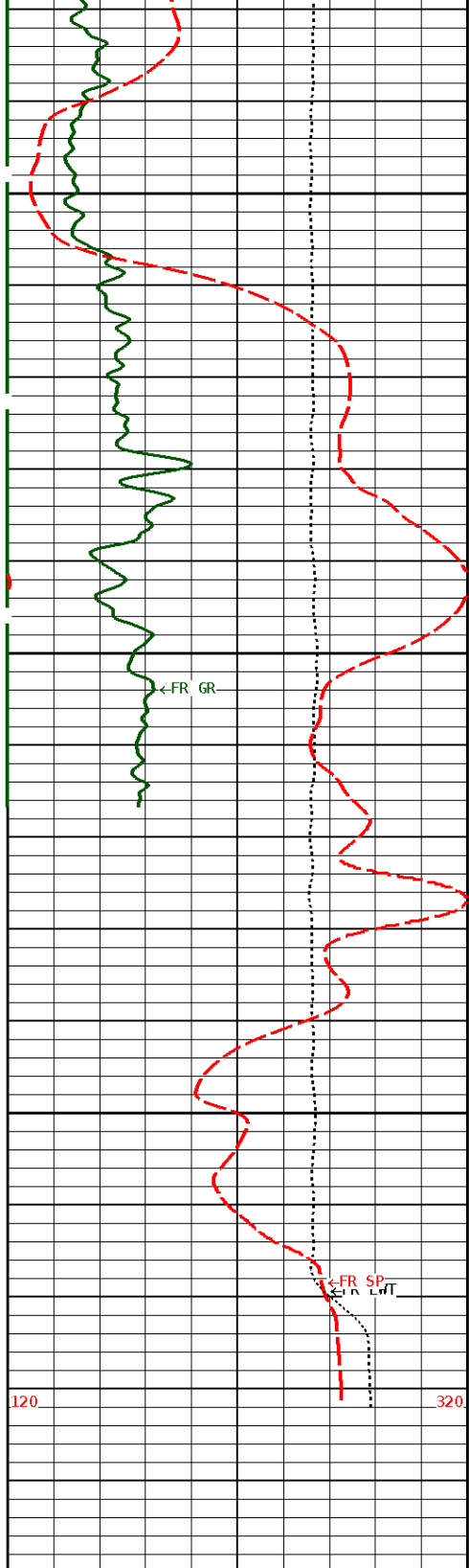




5000

5100





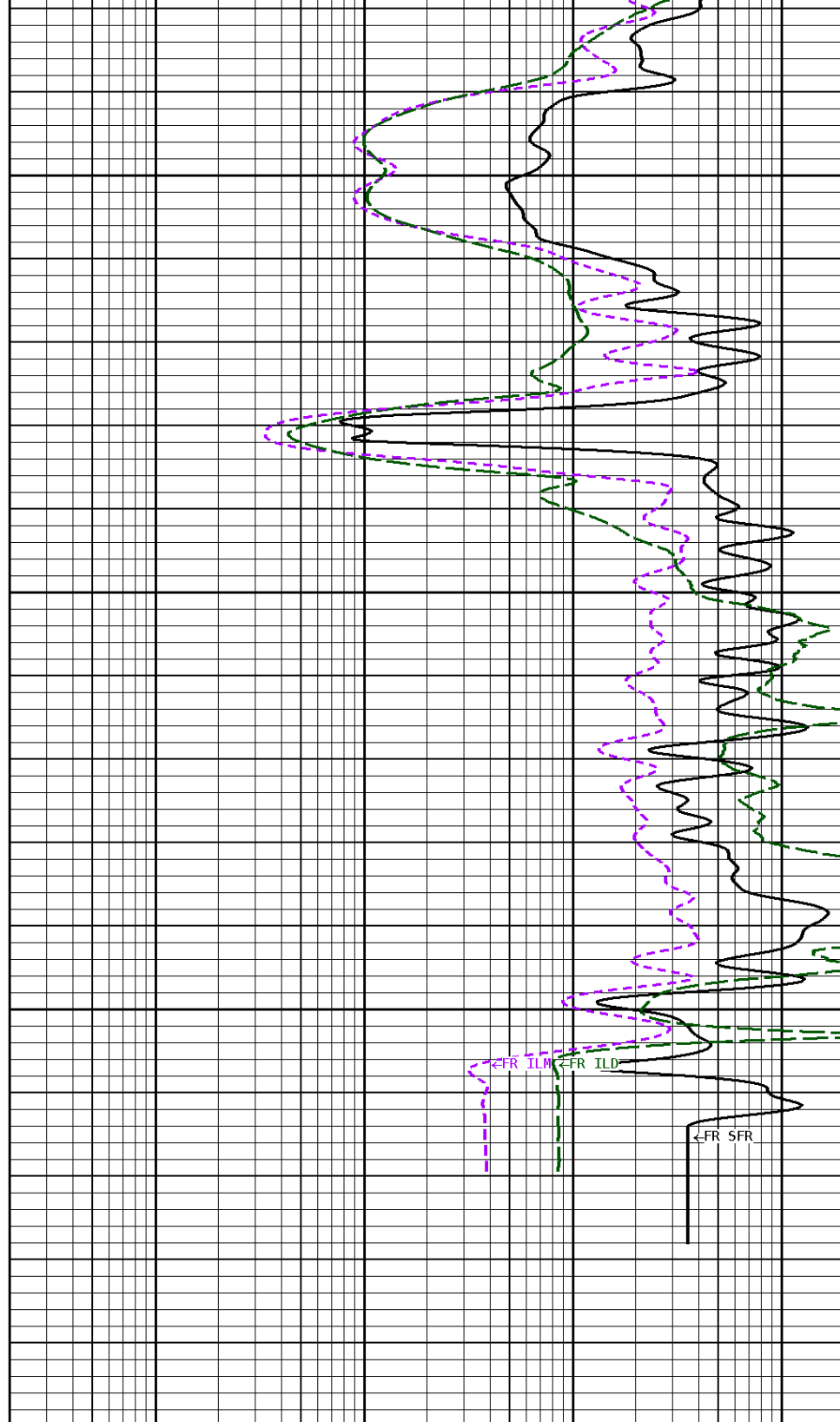
5200

5269

120 320

File #1.1.4

1:240 REPEAT SECTION



←FR ILM ←FR ILD

←FR SFR

GAMMA RAY
API UNITS

150 0 300 150

TENSION
LBS

10000 0

SPONTANEOUS POTENTIAL

SHALLOW FOCUSED RESISTIVITY
OHMM

0.2

2000.0

MEDIUM INDUCTION
OHMM

0.2

2000.0

DEEP INDUCTION

mV

→ | ← 20

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		5270.000	ft
Borehole Temperature		123.0	degF
Temperature Gradient		1.00	DFHF
Resistivity Of Mud		1.700	ohmm
Resistivity Of Mud Temperature		67.00	degF

* Calibration Summary *

Shop Calibration GRT-B					
Performed : 24-JUN-2019			Time : 12:20		
Sensor Suite : GR-GR5			ID : GRT-BC-038		
	Measured	Units	Calibrated	Units	
	Background	Jig	Jig		
GR	36	266	160		GRAPI

Shop Calibration PIT-CA					
Performed : 21-DEC-2019			Time : 21:46		
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		Units
	Low	High	Low	High	
	16980.0	56920.0	70.0	350.0	DEGF

Performed : 21-DEC-2019			Time : 21:46		
Sensor Suite : SFL			ID : PIT-AC-043		
Internal					
	Measured		Calibrated		Units
	Zero	Reference	Zero	Reference	
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 : 21-DEC-2019			Time : 21:47		
Sensor Suite : P-SP			ID : PIT-AC-043		
Internal					
	Measured		Calibrated		Units
	Zero	Reference	Zero	Reference	
	32774.5	58935.9	0.0	1000.0	mV

Well File: MERIT_DRUSSEL_A-11_FEB_20_QUINT

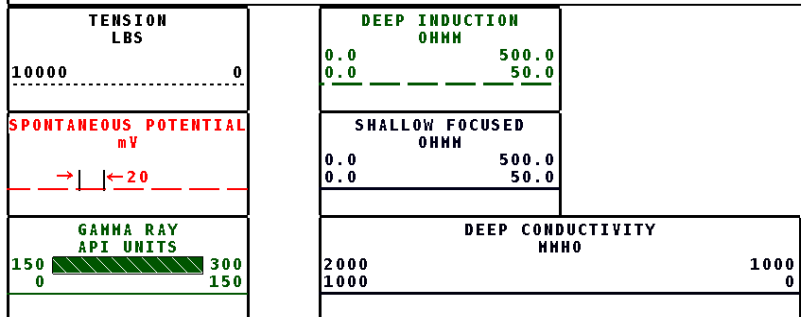
Scale: 1:1200 Format: DIL1200

Segment: V1.D1.S6 MAIN

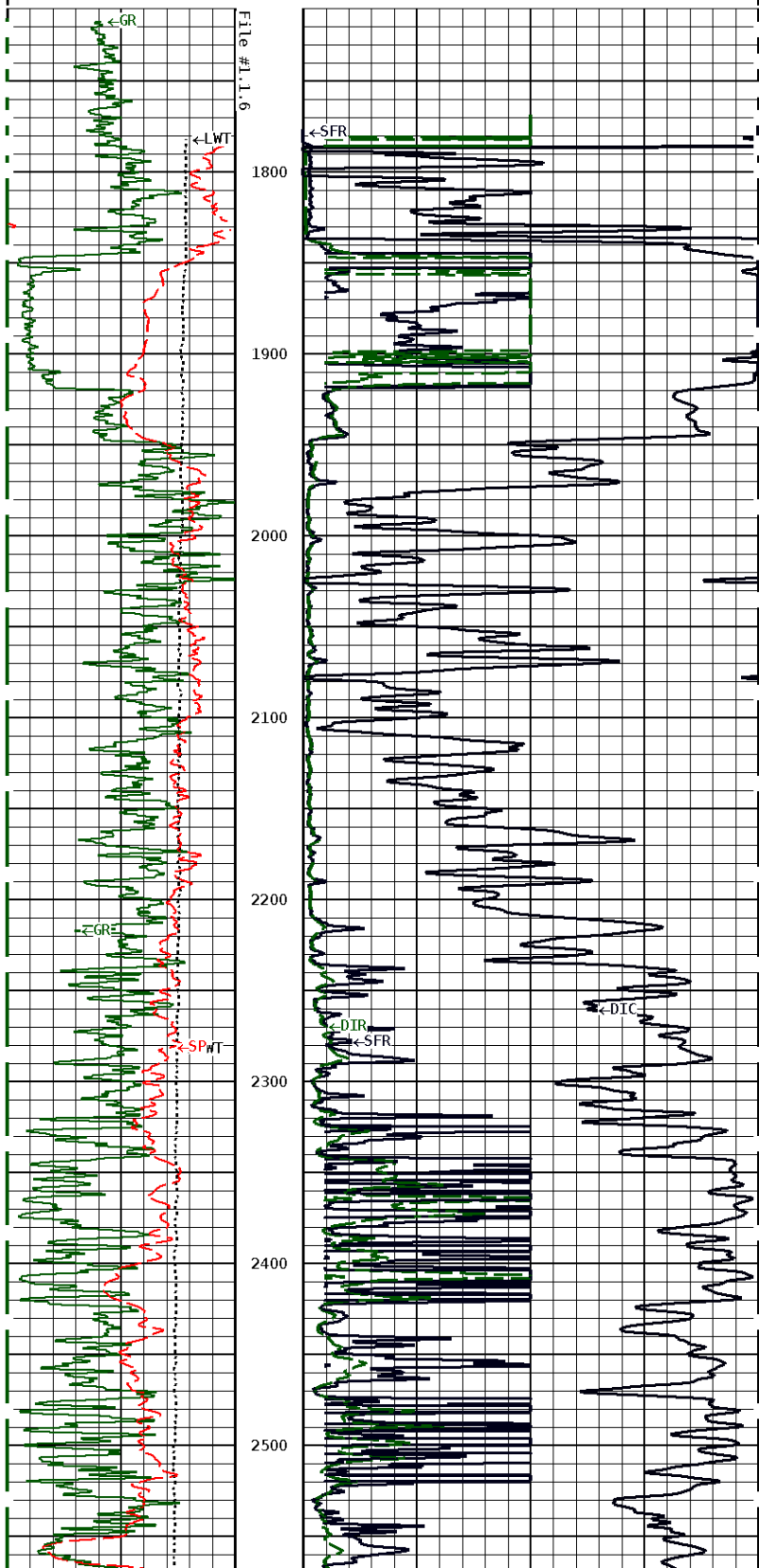
Acquired: 2020-02/21 01:21 3.4.1-13972

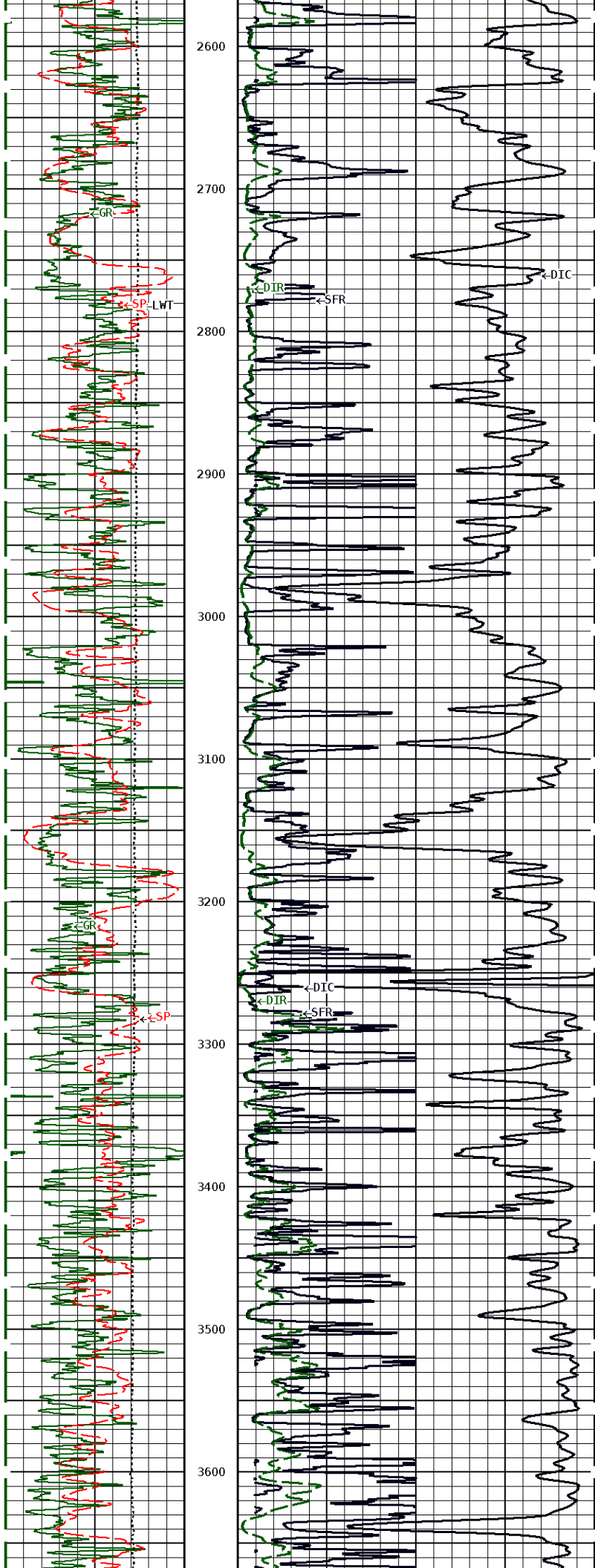
Reference: 0

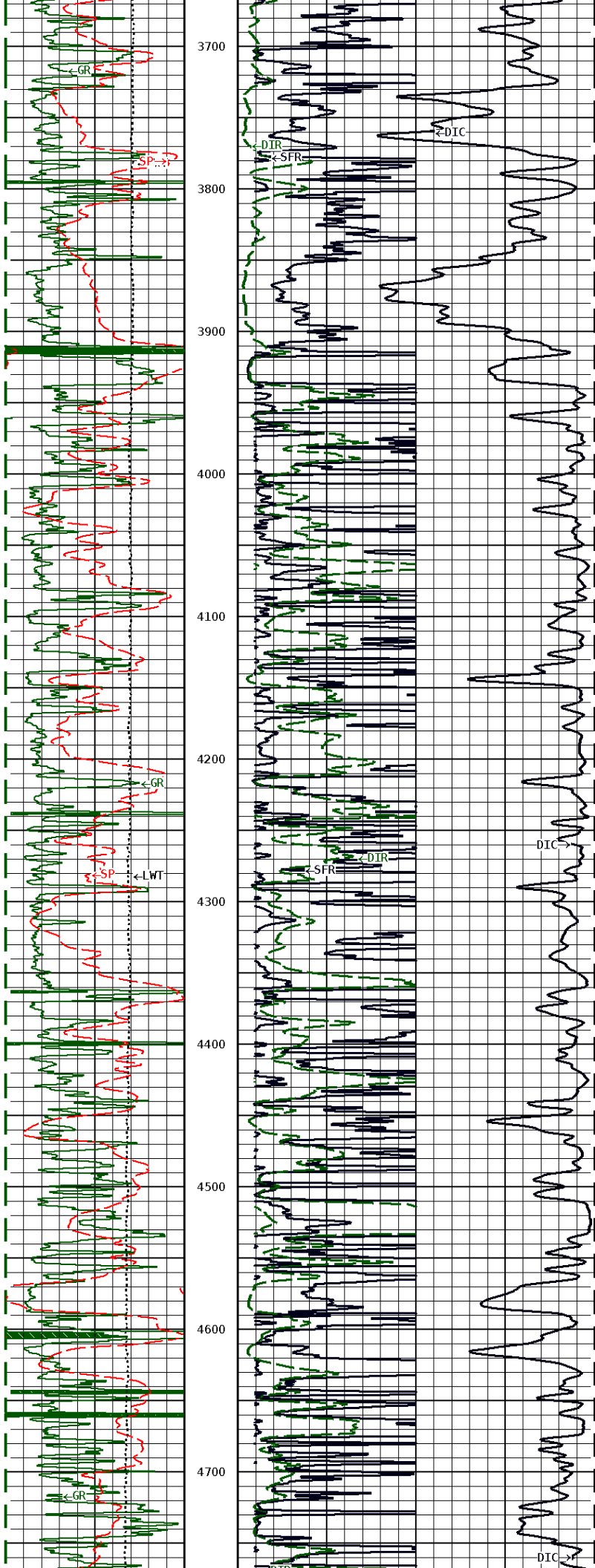
Processed: 2020-02/21 03:32 3.4.1-13972

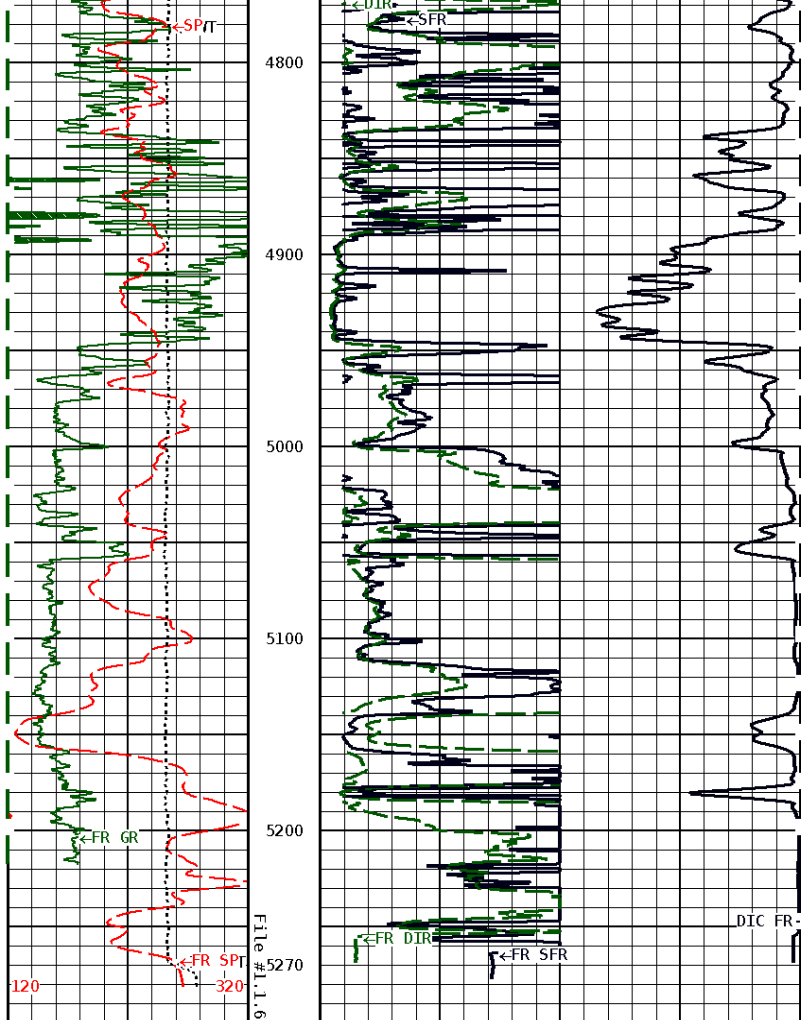


1:1200 MAIN SECTION









GAMMA RAY
API UNITS

150 300

0 150

SPONTANEOUS POTENTIAL
mV

→ | ← 20

TENSION
LBS

10000 0

DEEP CONDUCTIVITY
MHMO

2000 1000

1000 0

SHALLOW FOCUSED
OHMM

0.0 500.0

0.0 50.0

DEEP INDUCTION
OHMM

0.0 500.0

0.0 50.0



Company: MERIT ENERGY COMPANY

Well: DRUSSEL A-11

Location: 314' FWL & 2359' FSL

Logged: 02-21-2020

K.B. Elev: 2927.0 Ft