



Tucker

ENERGY SERVICES

PHASED INDUCTION

SHALLOW FOCUSED SP LOG

Company AZTEC OIL CO. Well COOPER D #4		File No : TUL-57363 Company : AZTEC OIL CO. Well : COOPER D #4	
Field BUTLER County KANSAS State USA Country : KANSAS API No. 15-015-23950-0000		Location : 2250' FNL & 820' FEL SW SE NE	
Permanent Datum: Drilling Measured From: GL KB Log Measured From: KB KB Above Permanent Datum: 10.00 Ft GL 1613.00		Elevations: Ft KB 1623.00 Ft DF 1622.00 Ft GL 1613.00	
Services: GRT CNT LDT XYT MLT PIT CST			
LSD : Sect : 31 Twp : 28S Rge : 8E			
Date 2012-08-09			
Run Number	1		
Depth--Driller	3300.0 Ft		
Depth--Logger	3296.0 Ft		
First Reading	3295.0 Ft		
Last Reading	224.0 Ft		
Casing--Driller	224.0 Ft		
Casing--Logger	224.0 Ft		
Bit Size	7.875 In		
Casing Size	8.625 In		
Hole Fluid Type	GEL		
Density	9.5 LBS/GAL		
Fluid Loss	9.0 CC		
PH/Viscosity	9.0 50.0 SEC		
Sample Source	MEASURED		
RM@Measured Temp.	4.000 @ 79 F		
RMF@Measured Temp	3.000 @ 79 F		
RMG@Measured Temp.	5.000 @ 79 F		
Source RMF/RMC	CALCULATED/CALCULATED		
RM@BHT	2.960 @ 109 F		
Time Circulation Stopped	2012-08-09 06:00		
Max Recorded Temp.	109 F		
Equipment/Base	TRUCK 119 TULSA		
Recorded By	R. FRANKLIN / C. PAYNE		
Witnessed By	M. CROSS / B. STOUT		

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)
7.875	3300.00	8.625	24.00	224.00

Run Number	1	
Date	2012-08-09	
Date/Time On Bottom	2012-08-09 10:00	
Depth to Fluid	0.0 Ft	
Salinity	800.000 PPM	
RMF@BHT	2.220 @ 109 F	
RMC@BHT	3.700 @ 109 F	

Run Number 1

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 CALCULATED POROSITY.
 ANNULAR HOLE VOLUME CALCULATED UISING 5.500" PRODUCTION CASING.

SP SPIKE AT 2000' DUE TO SPLICE.

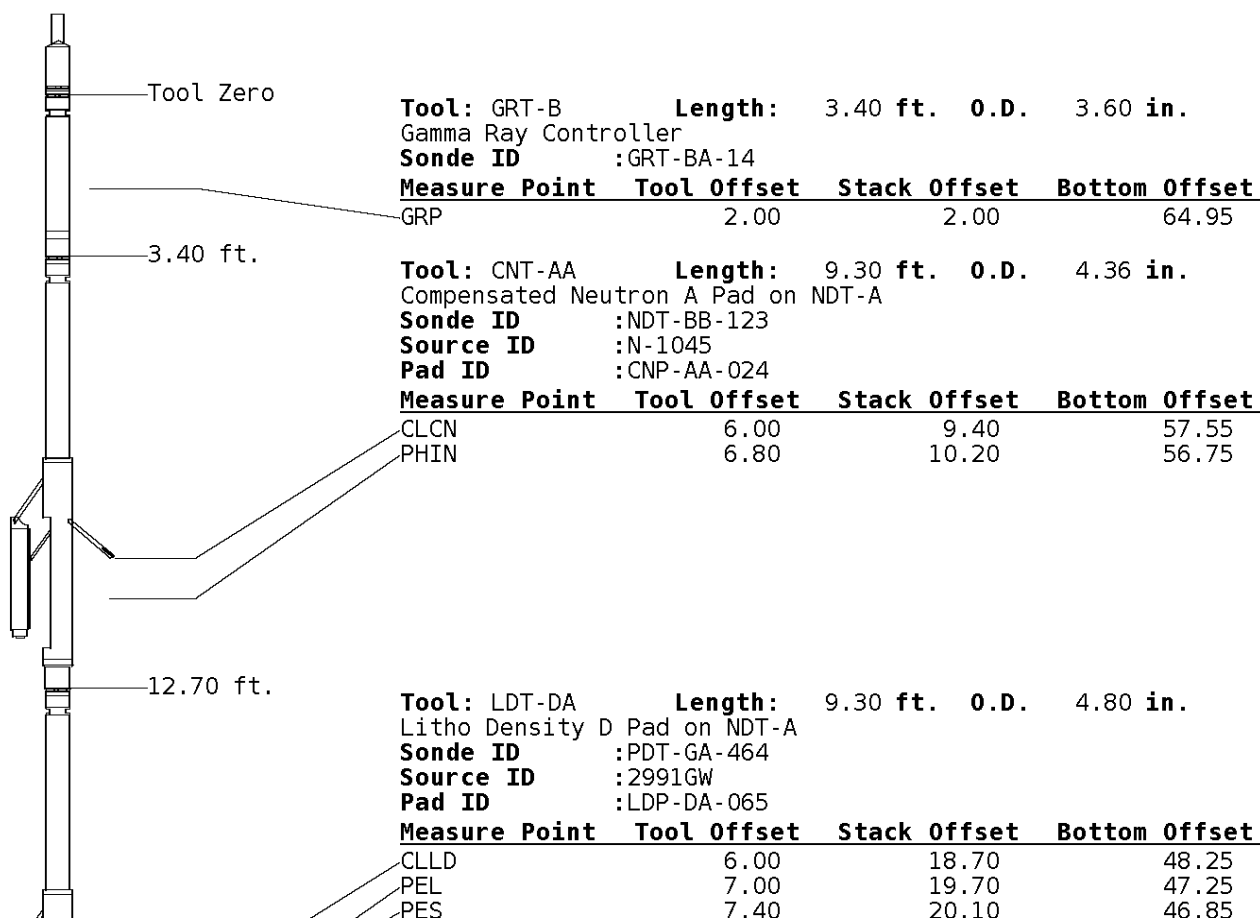
GRT: GRP.
 CNT: PHIN, CLCNIN
 LDT: PORL, LCORN, PECLN, LDENN, PORLLS, CLLDIN.
 MLT: NOR_R, INV_R, MSCLPIN.
 CST: PORS, DDCDTE, TT1PF, TT3PF, ITT.
 PIT: ILD, ILM, SPU, SFLAEC

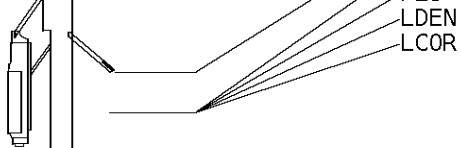
OPERATORS:

J. THOMAS
 D. HOPPER

Tool String Schematic

Total Tool Length - 66.95 ft.
Maximum Outside diameter - 6.00 in.
Net Weight in Air - 1171.00 lbs.



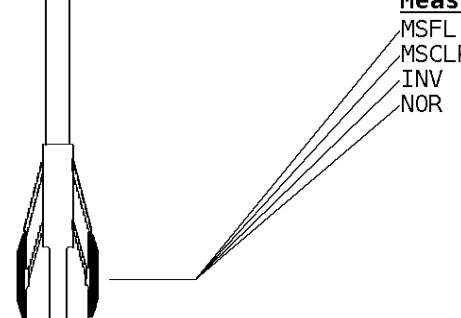


7.20 19.90 47.05
7.20 19.90 47.05

22.00 ft.

Tool: MST-DA **Length:** 9.66 ft. **O.D.** 6.00 in.
Micro Spherically Focused (IC)
Sonde ID :MST-DA-36

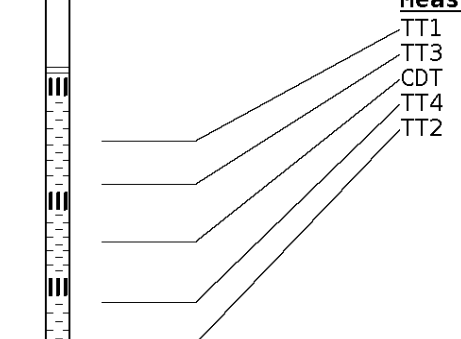
Measure Point	Tool Offset	Stack Offset	Bottom Offset
MSFL	7.60	29.60	37.35
MSCLP	7.60	29.60	37.35
INV	7.60	29.60	37.35
NOR	7.60	29.60	37.35



31.66 ft.

Tool: CST-AD **Length:** 13.80 ft. **O.D.** 3.60 in.
Open Hole Sonic
Sonde ID :CST-AD-078

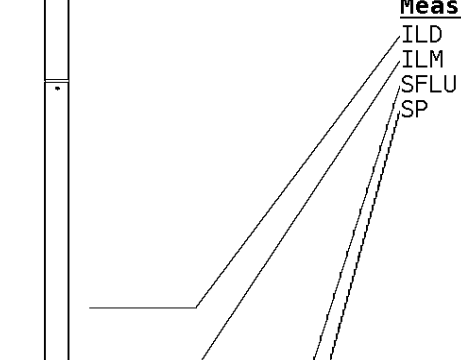
Measure Point	Tool Offset	Stack Offset	Bottom Offset
TT1	4.80	36.46	30.49
TT3	5.80	37.46	29.49
CDT	7.30	38.96	27.99
TT4	8.80	40.46	26.49
TT2	9.80	41.46	25.49



45.46 ft.

Tool: PIT-CA **Length:** 21.49 ft. **O.D.** 3.62 in.
Phased Dual Induction w/ RM & D
Sonde ID :PIT-AC-022

Measure Point	Tool Offset	Stack Offset	Bottom Offset
ILD	8.92	54.38	12.56
ILM	10.10	55.56	11.39
SFLU	17.49	62.95	4.00
SP	20.60	66.06	0.88



LWT 66.95 ft.

Well File: AZTEC COOPER-D-4_AUG9_QUINT

Scale: 1:600

Segment: V1.D1.S19 MAIN

Acquired: Not Available

Reference: 0

Processed: Not Available

TENSION
LBS

10000

0

SPONTANEOUS POTENTIAL
mV

→ | ← 20

GAMMA RAY
API UNITS

150
0

300
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 #1.1.1.19

200

300

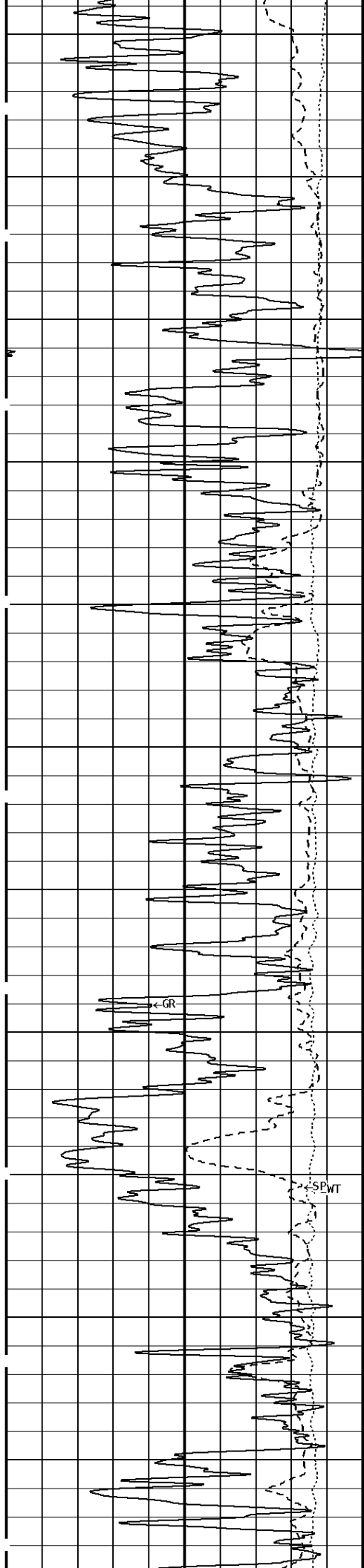
←DTC

←DIR

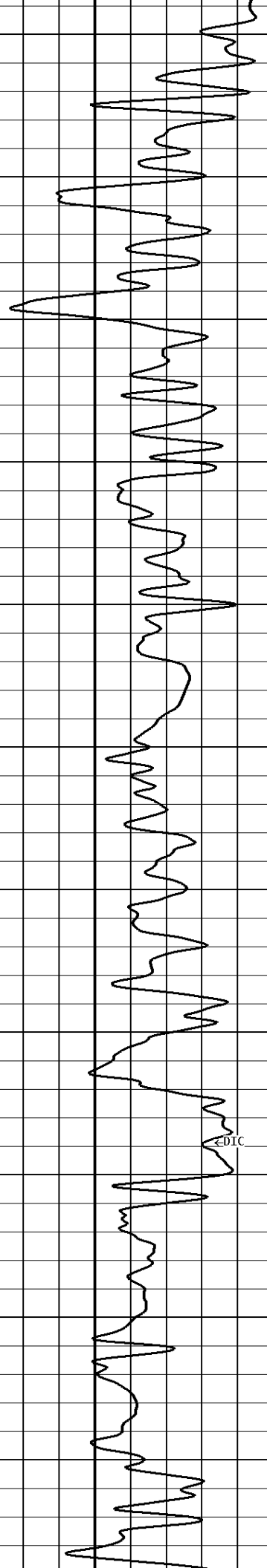
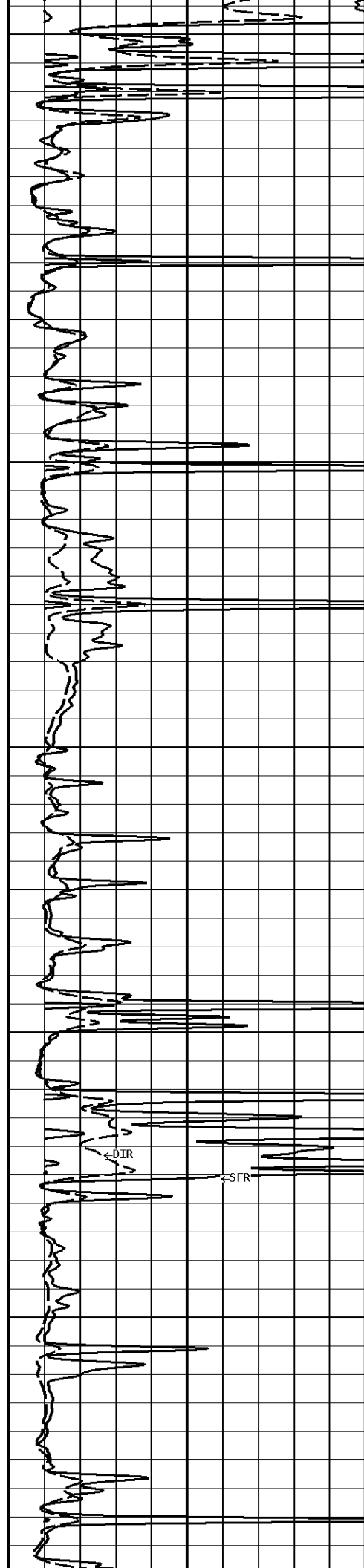
←SFR

←SP

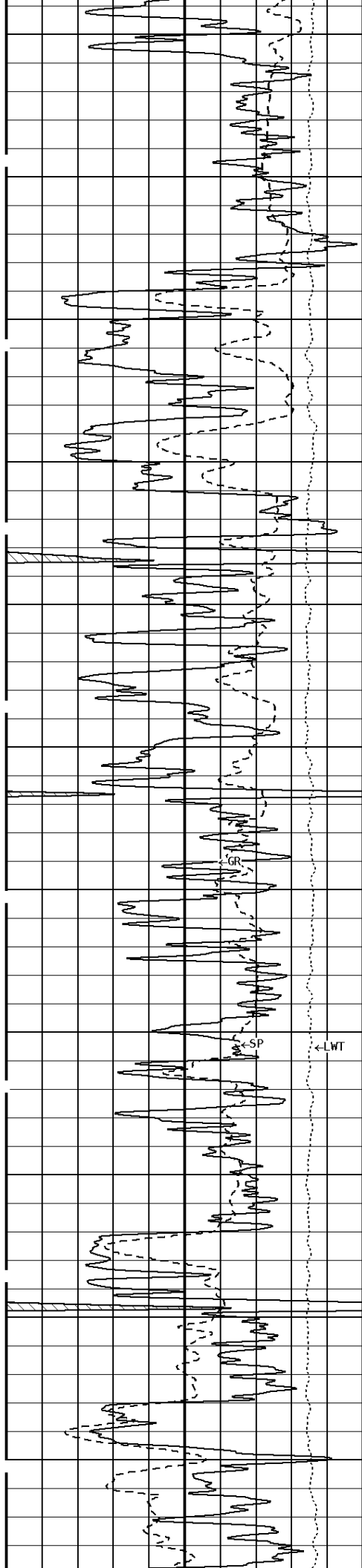
←LWT



400
500
600
700
800
900



c-DIC



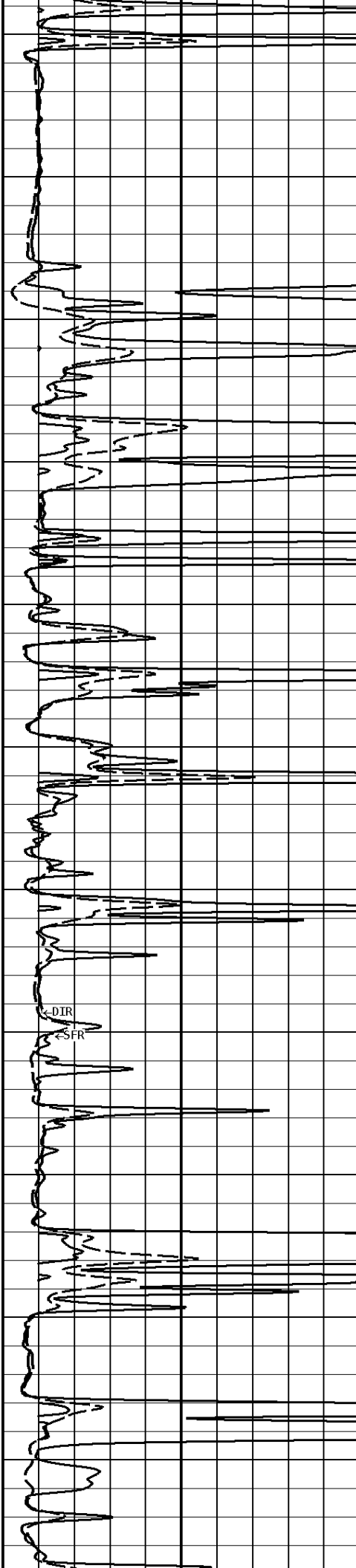
1000

1100

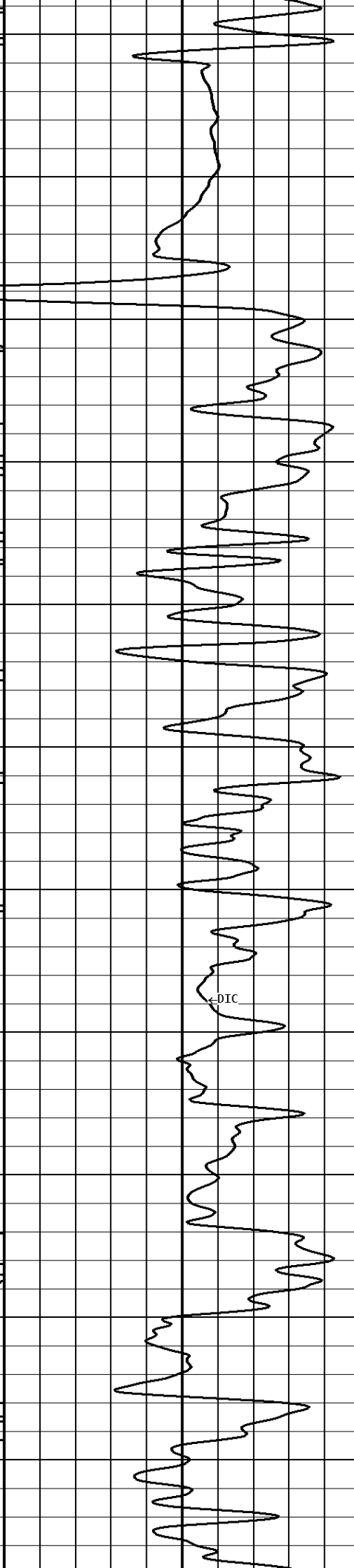
1200

1300

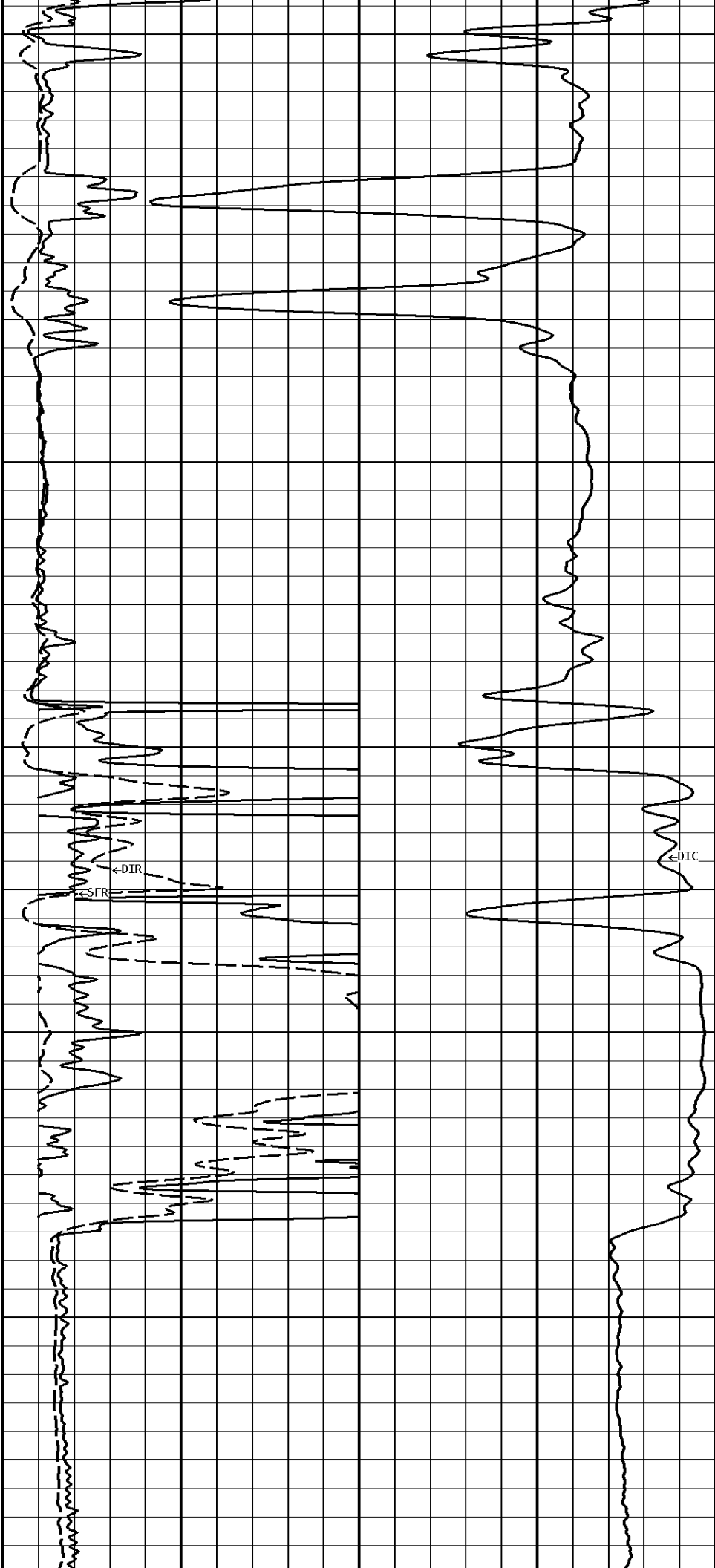
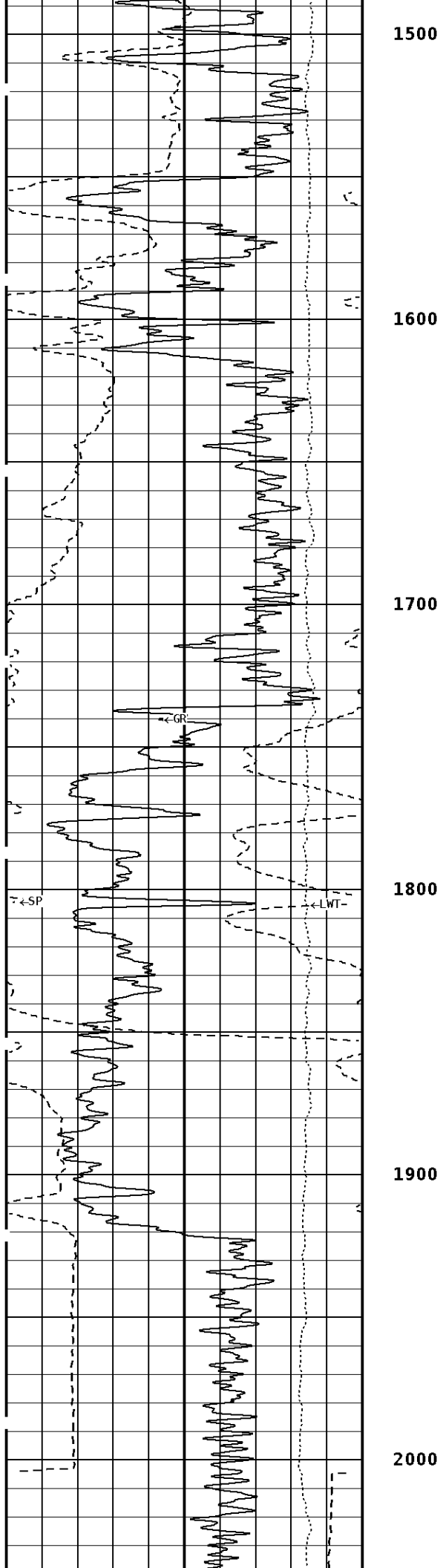
1400

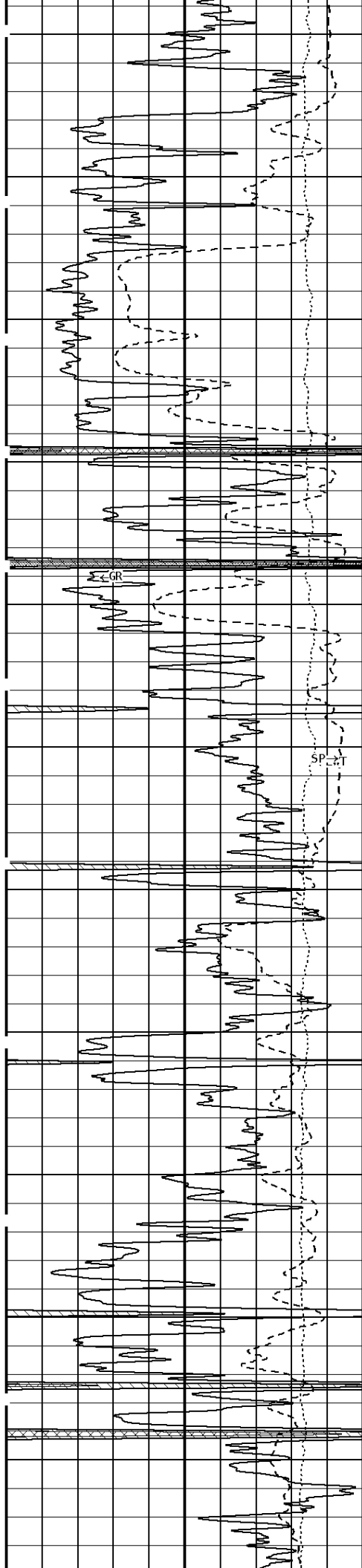


DIR
SFR



DIC





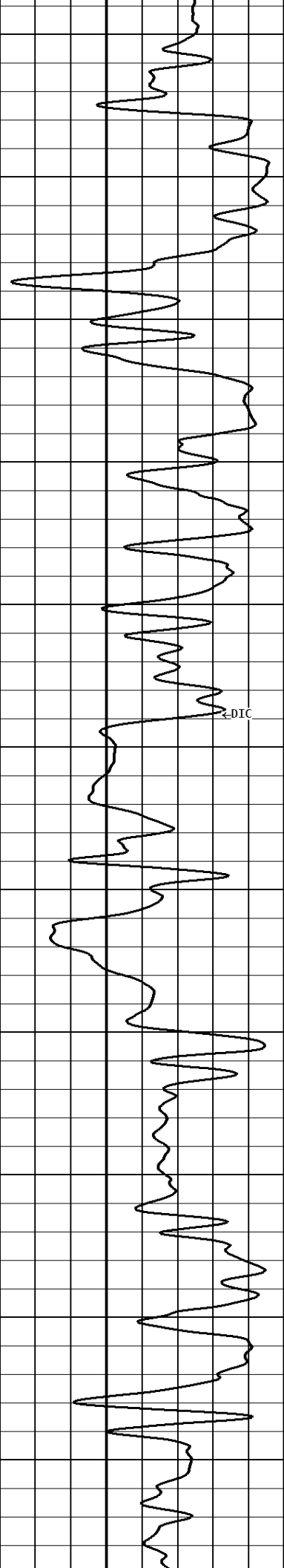
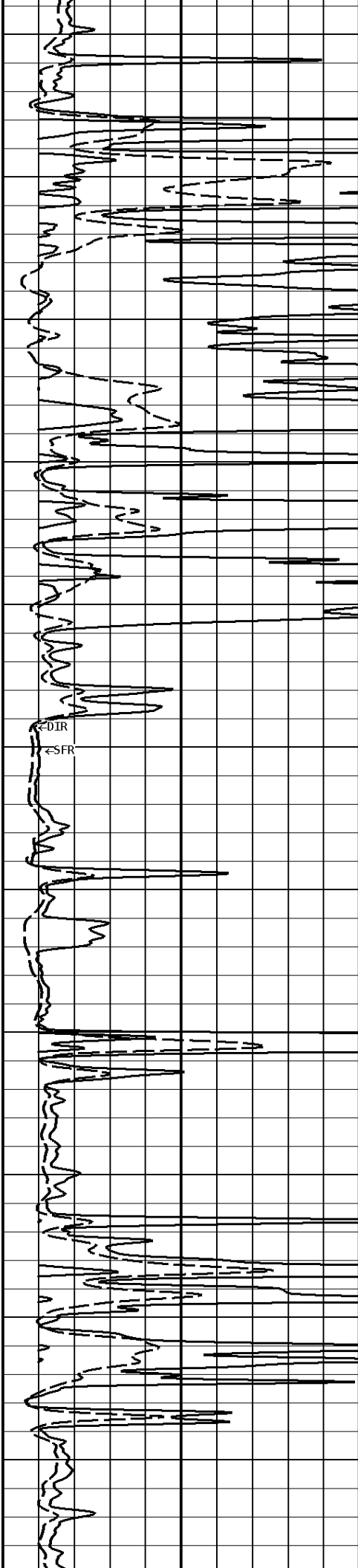
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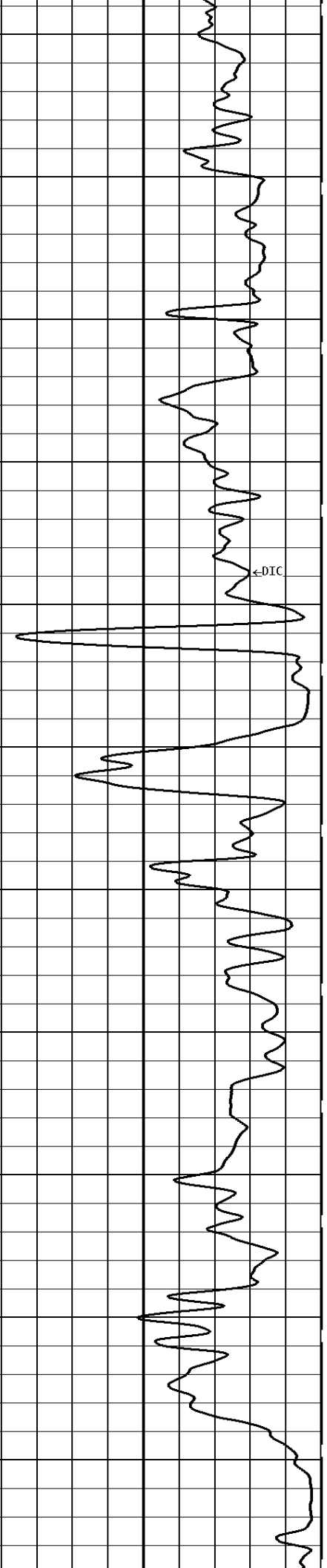
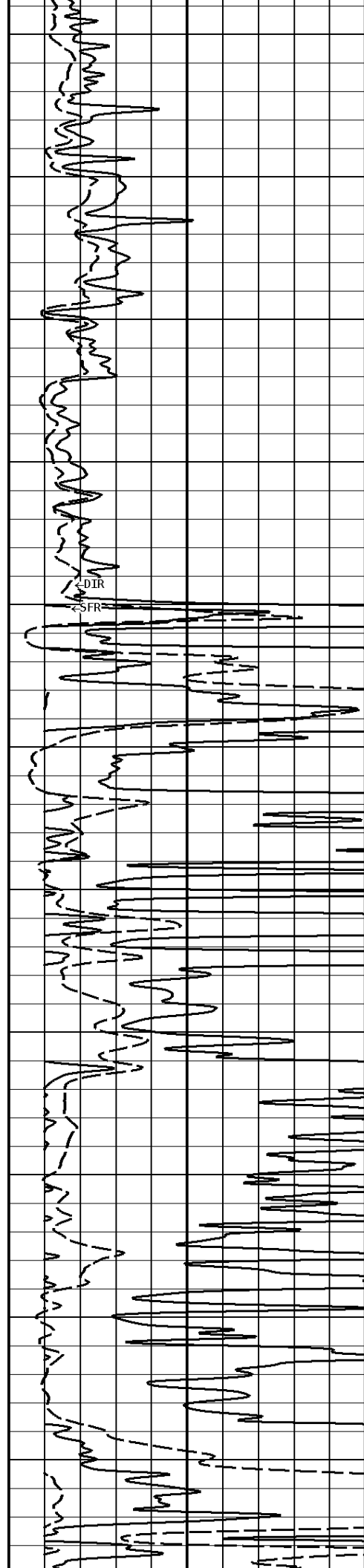
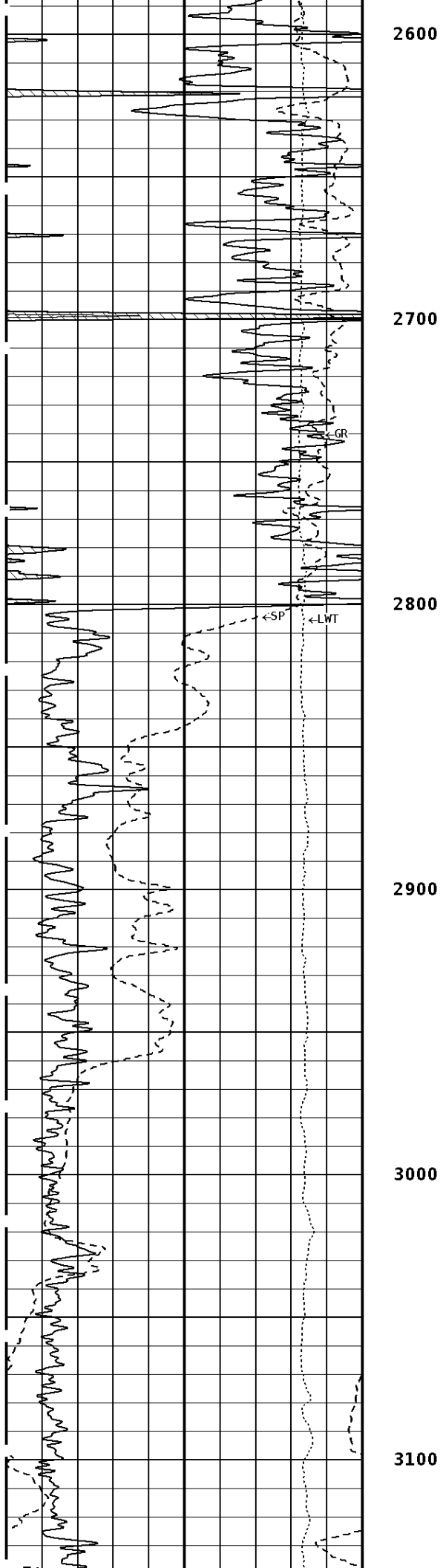
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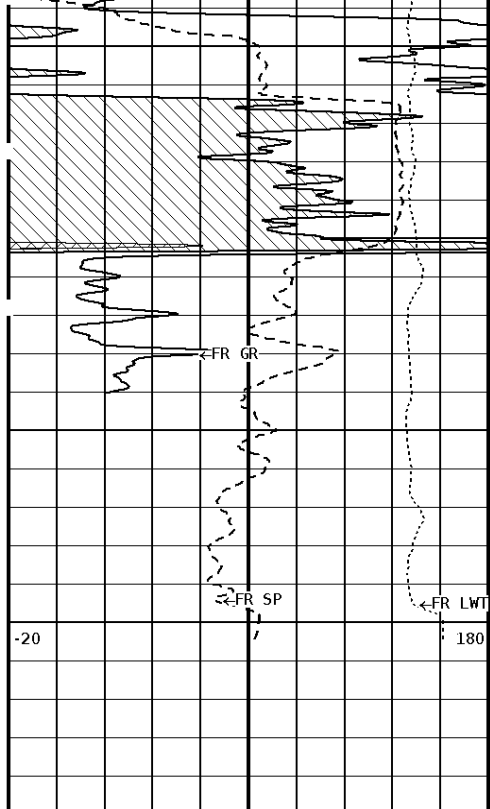
2300

2400

2500



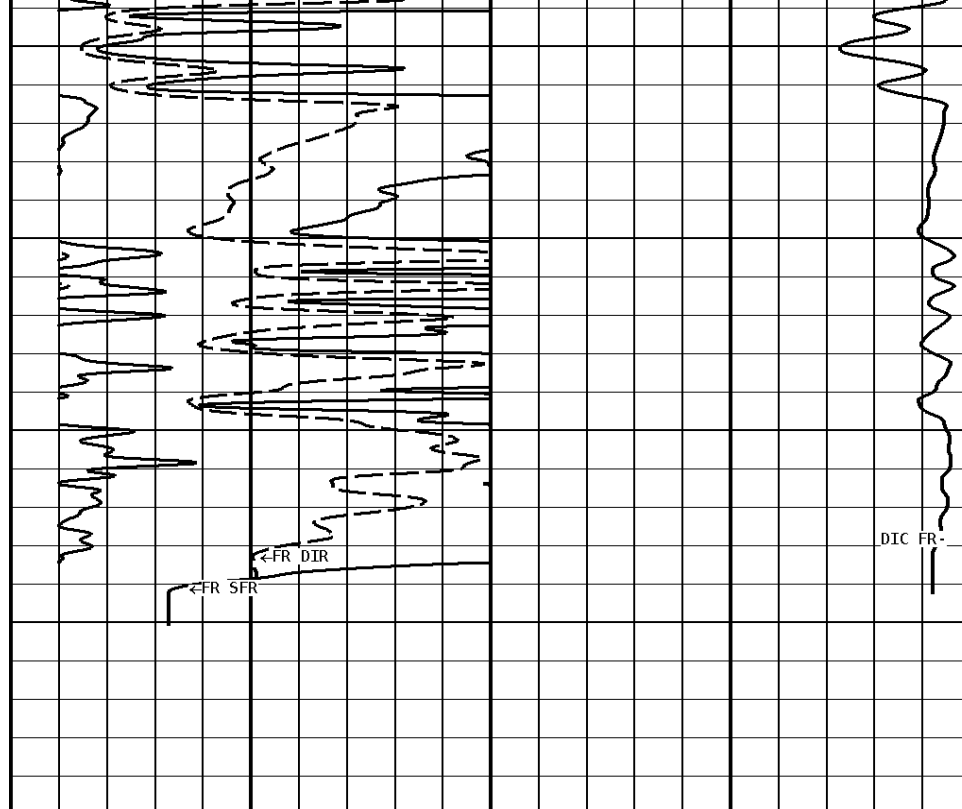




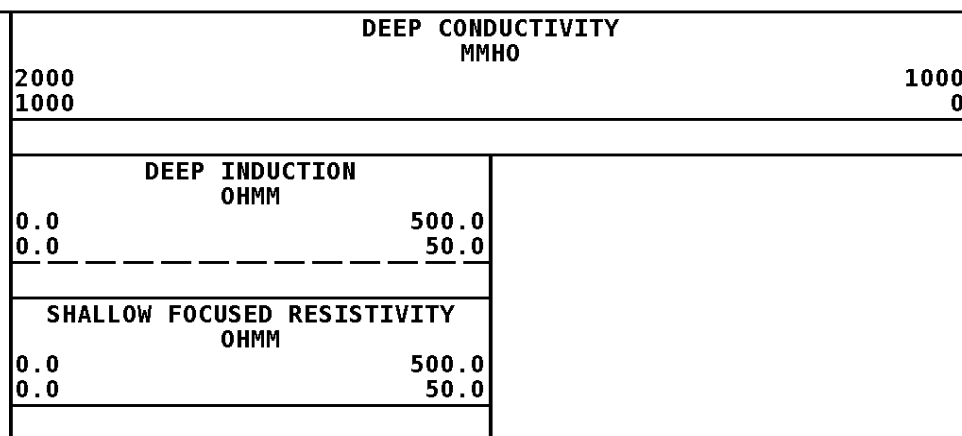
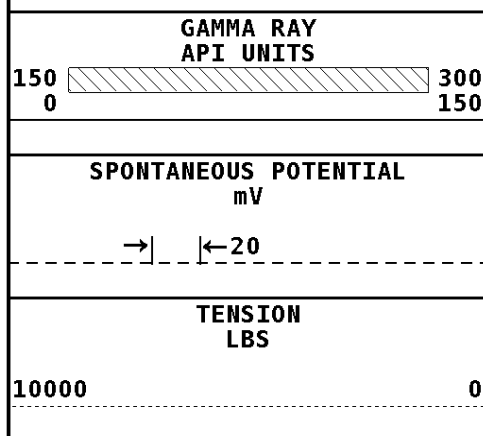
3200

3296

File #1.1.19



1:600 SECTION 2 INCH



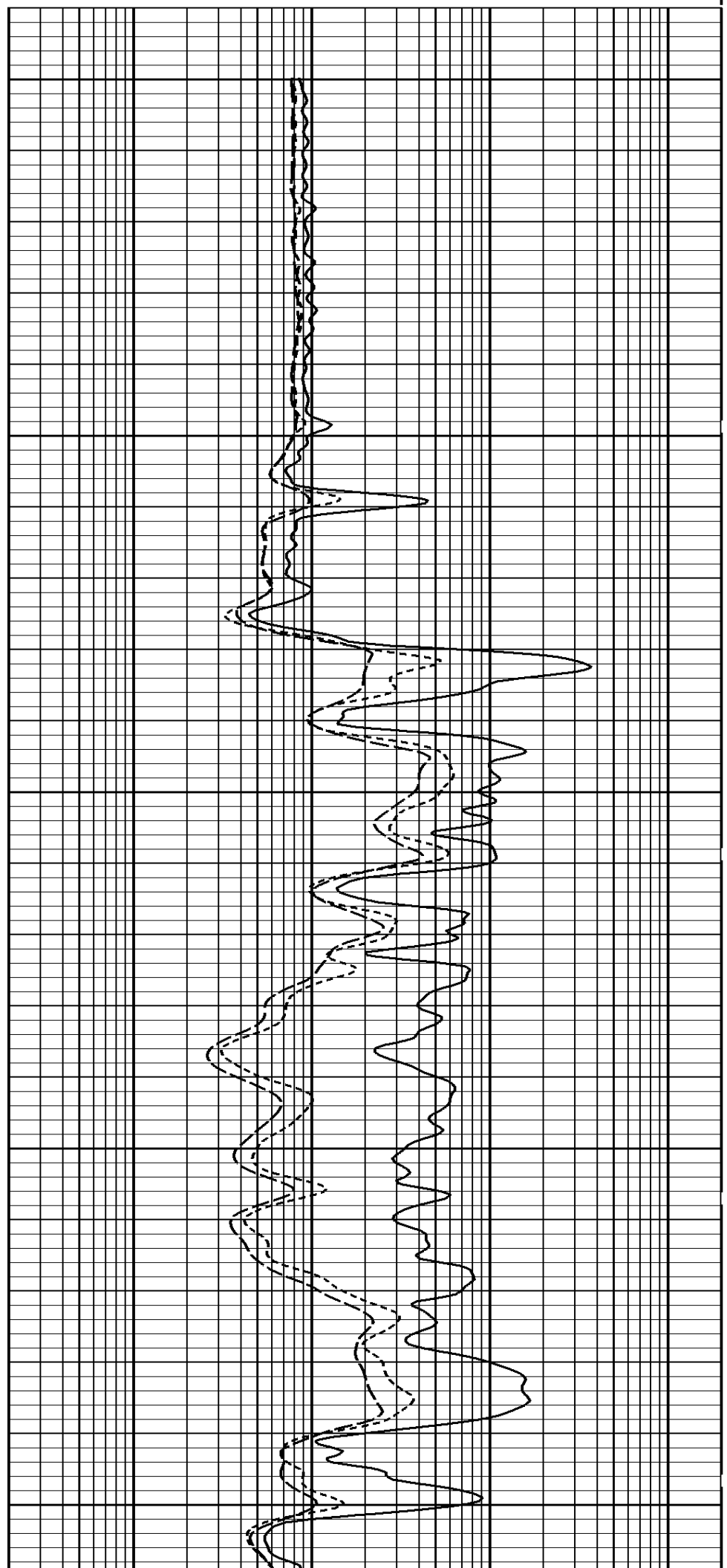
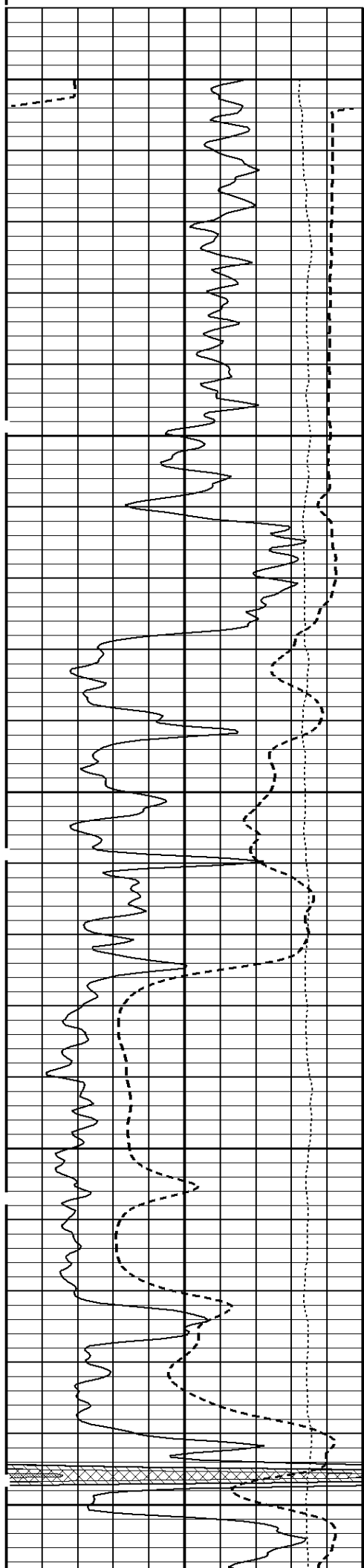
Well File: AZTEC COOPER-D-4_AUG9_QUINT		Scale: 1:240	
Segment: V1.D1.S19 MAIN		Acquired: Not Available	
Reference: 0		Processed: Not Available	
TENSION LBS		SHALLOW FOCUSED RESISTIVITY OHMM	
10000	0	0.2	2000.0
SPONTANEOUS POTENTIAL mV		MEDIUM INDUCTION OHMM	
→	←20	0.2	2000.0
GAMMA RAY API UNITS		DEEP INDUCTION OHMM	
150	300	0.2	2000.0
0	150		

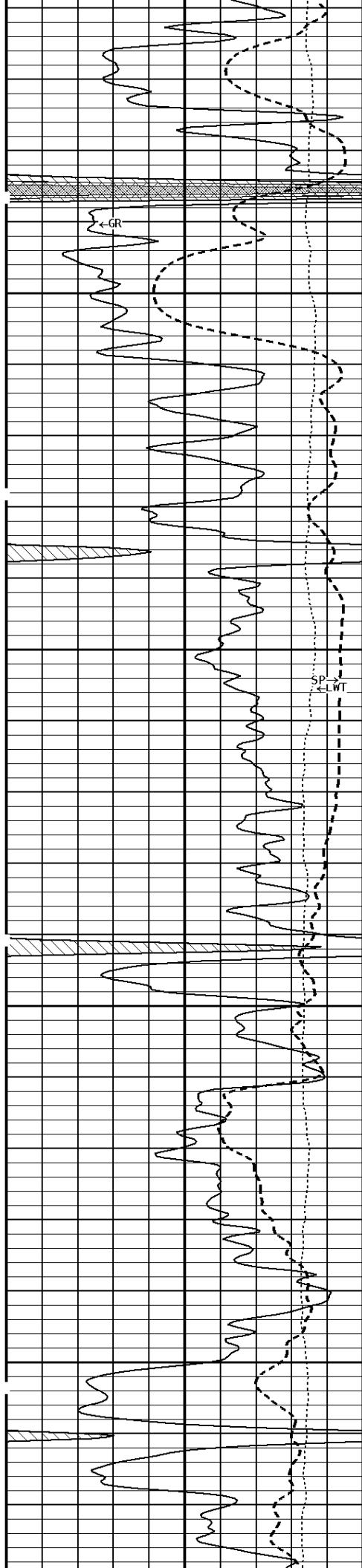
1:240 MAIN SECTION

2000

2100

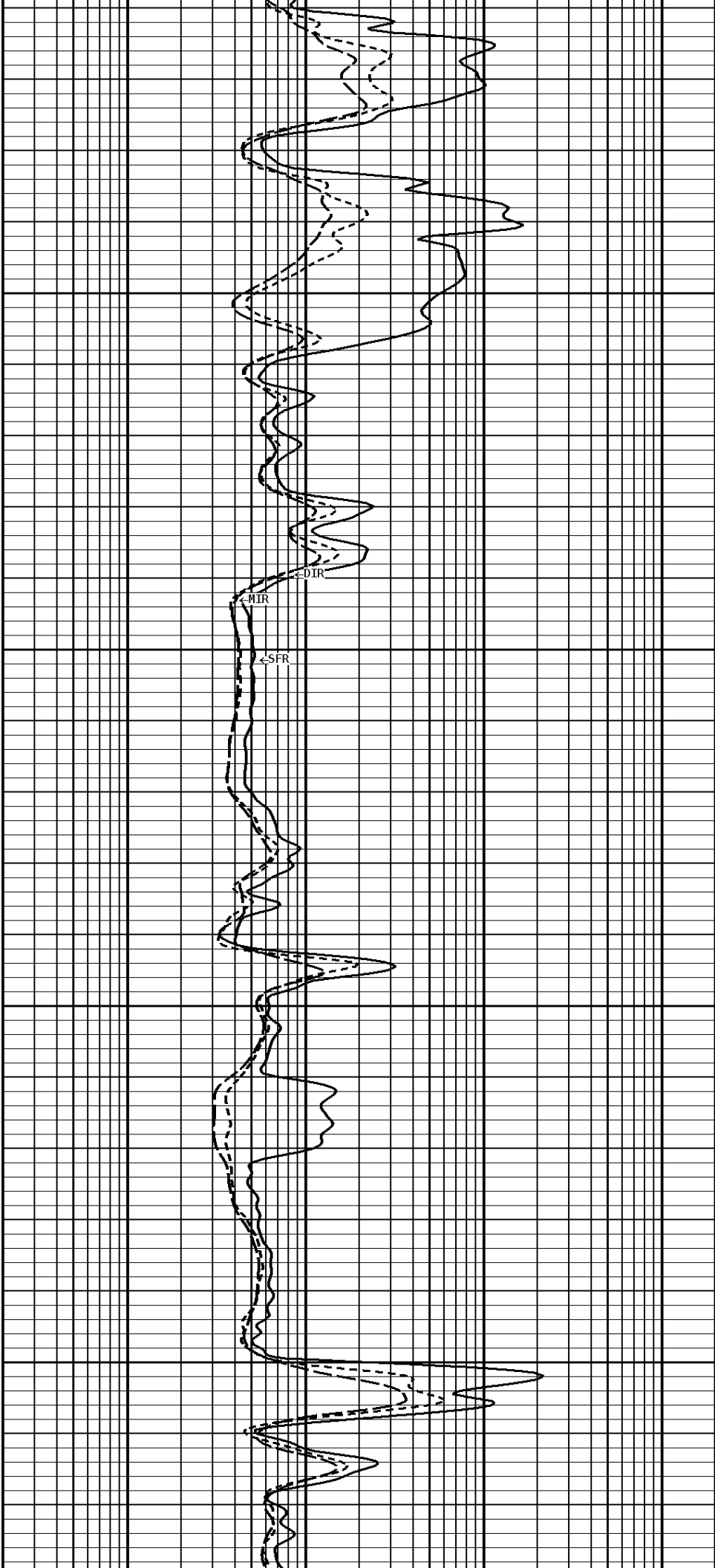
2200

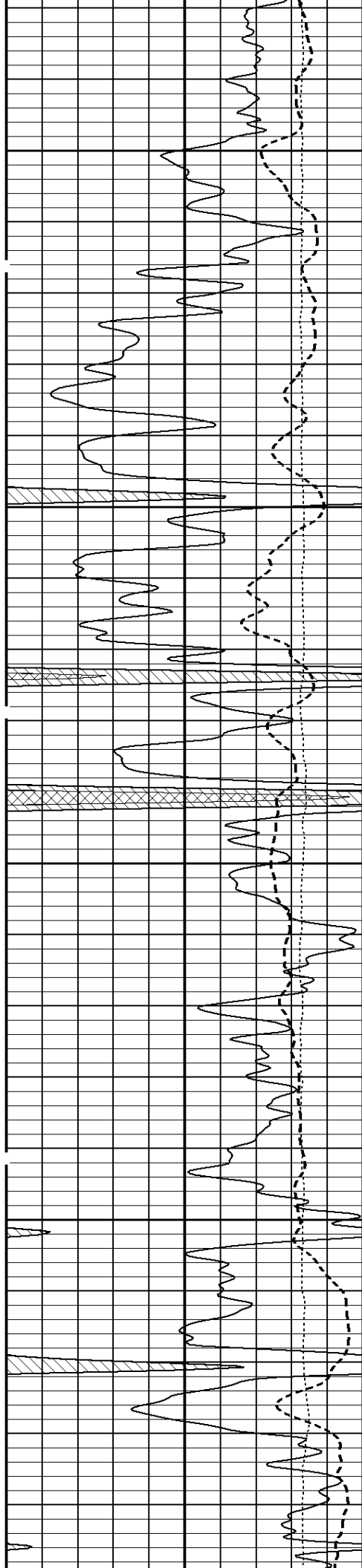




2300

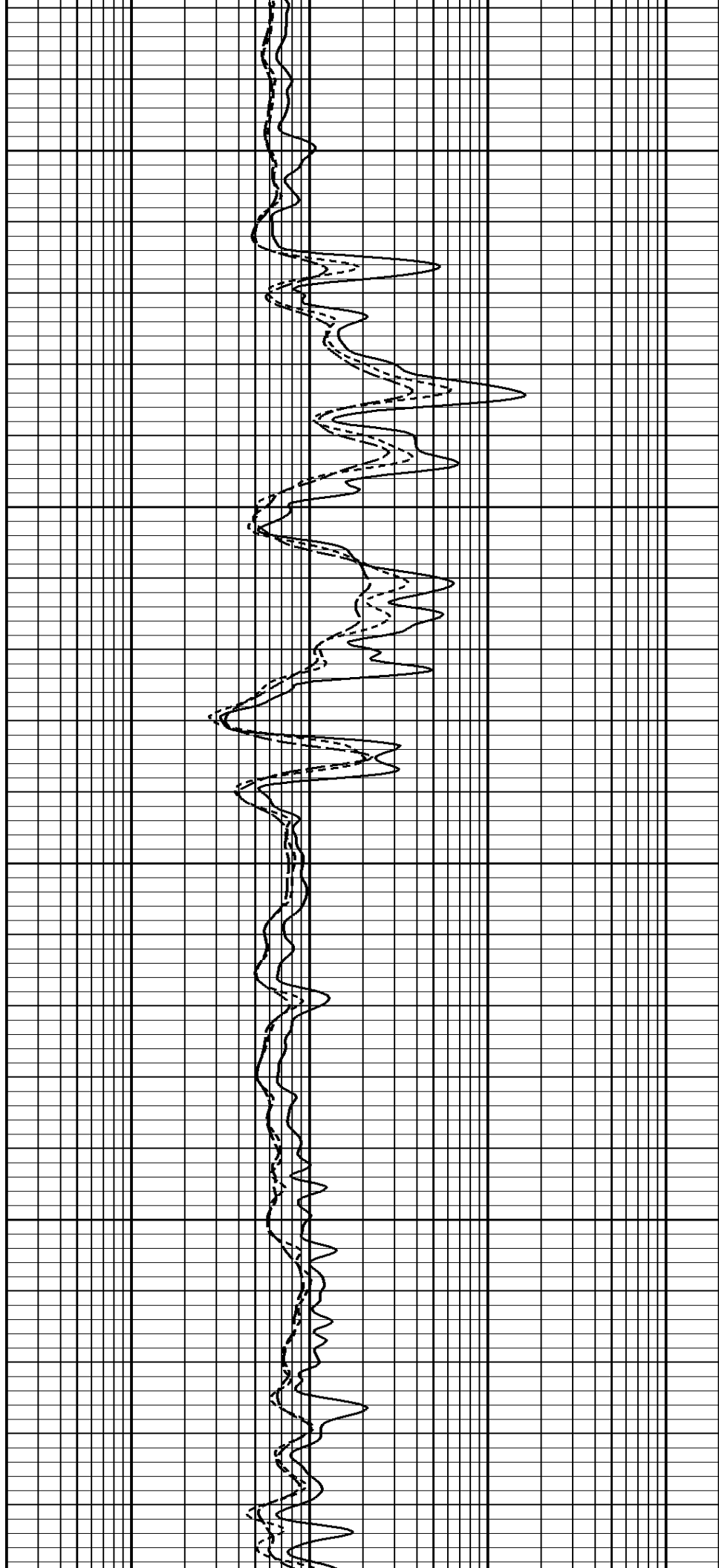
2400

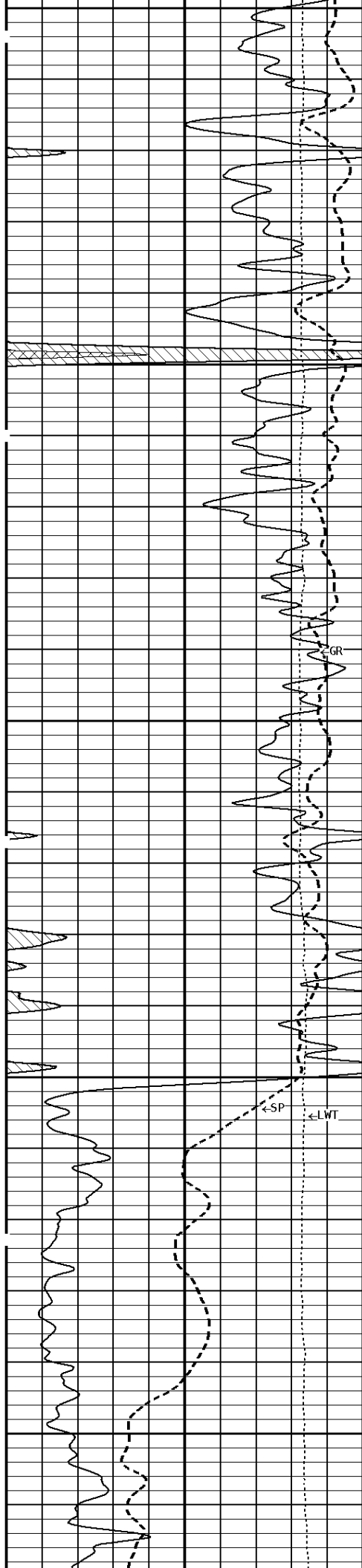




2500

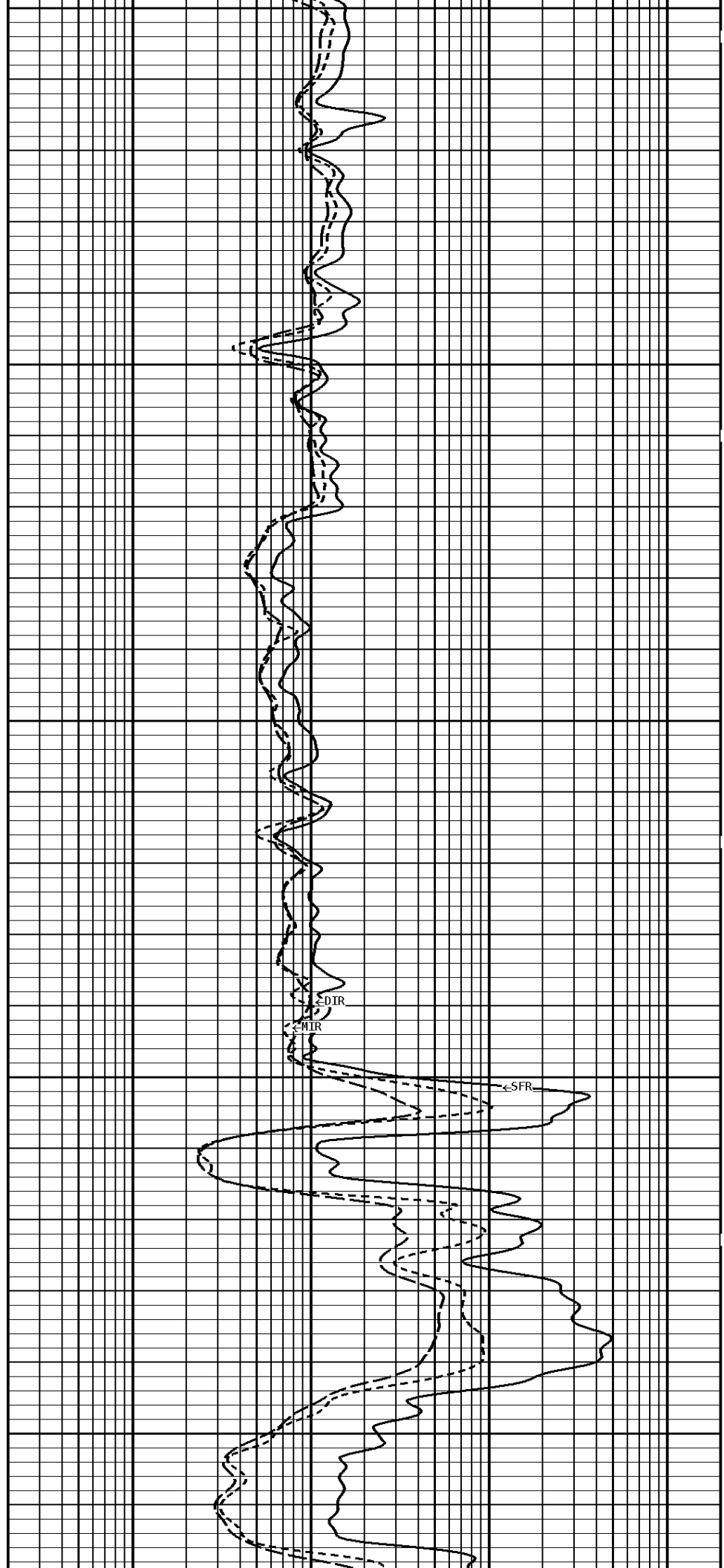
2600

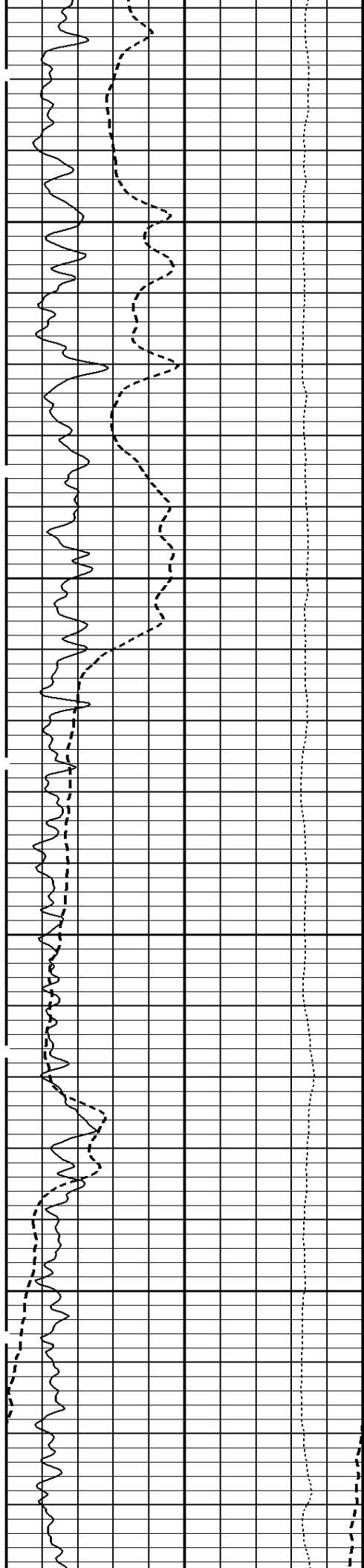




2700

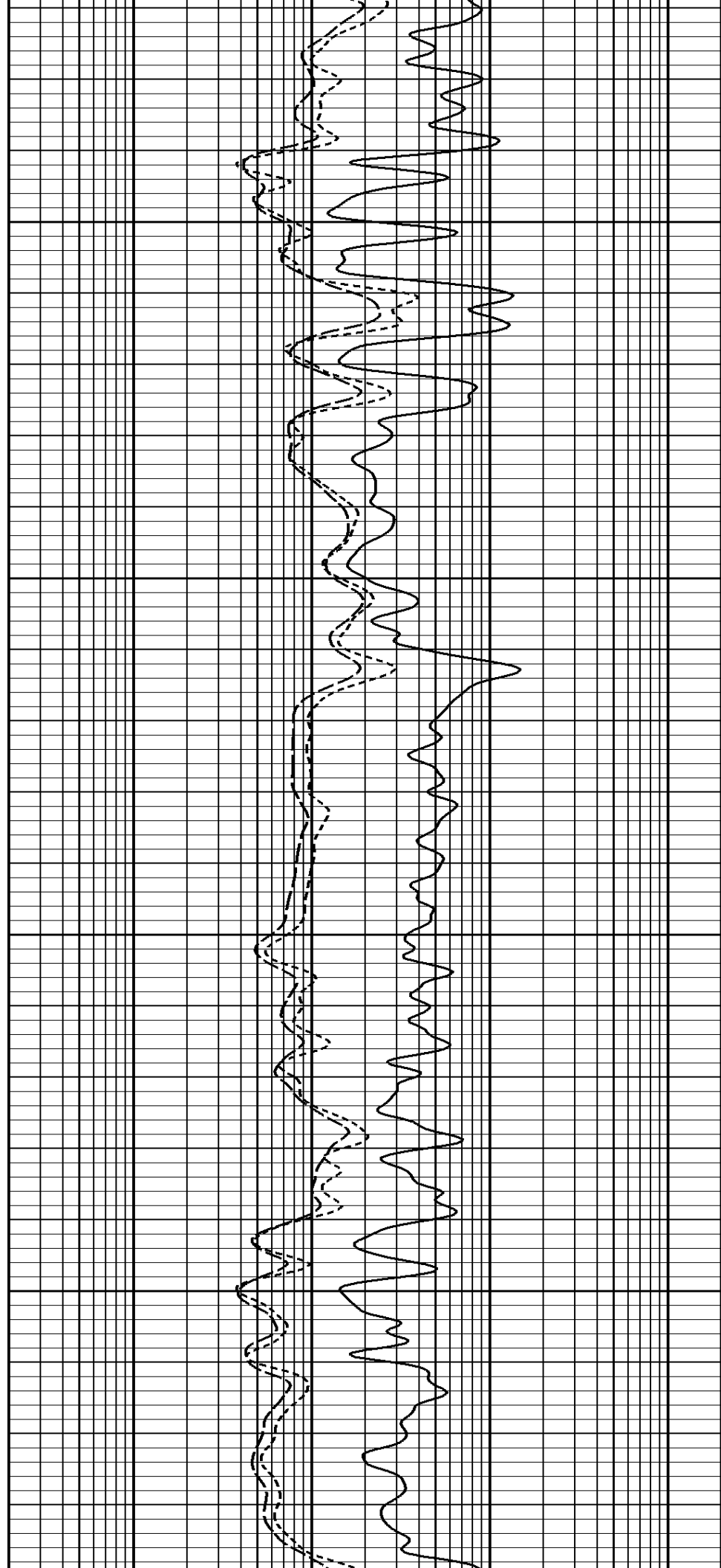
2800

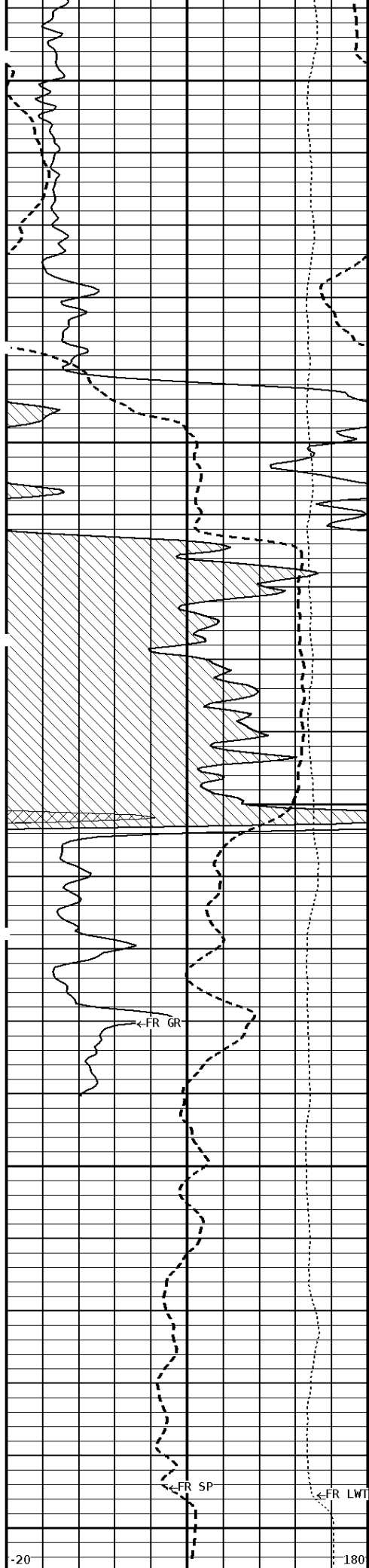




2900

3000



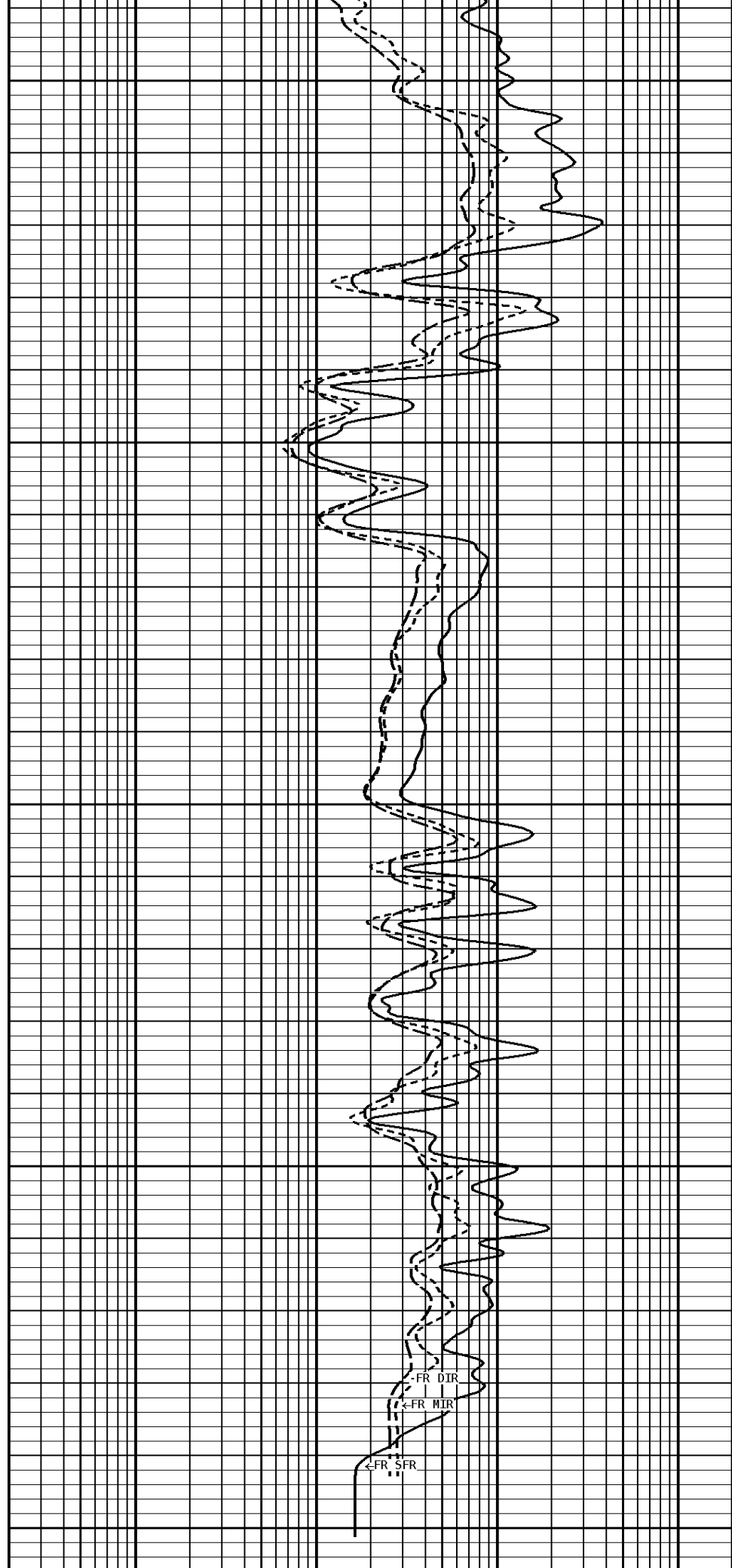


3100

3200

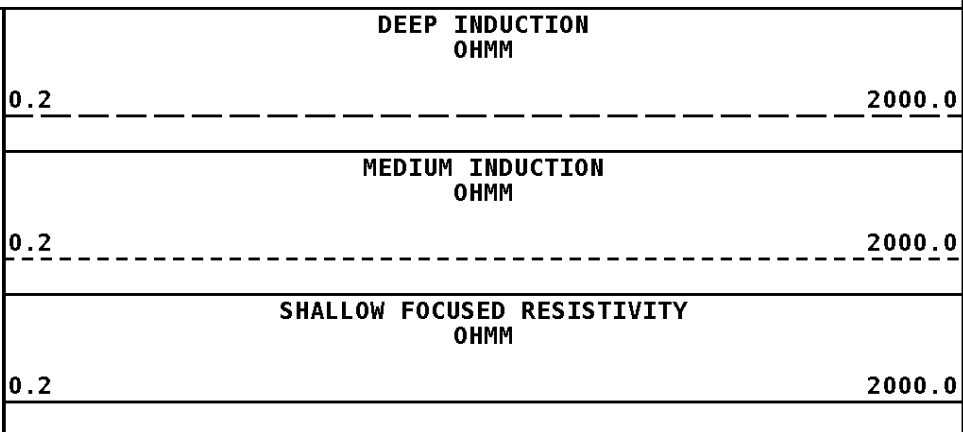
3296

3300



[illegible]

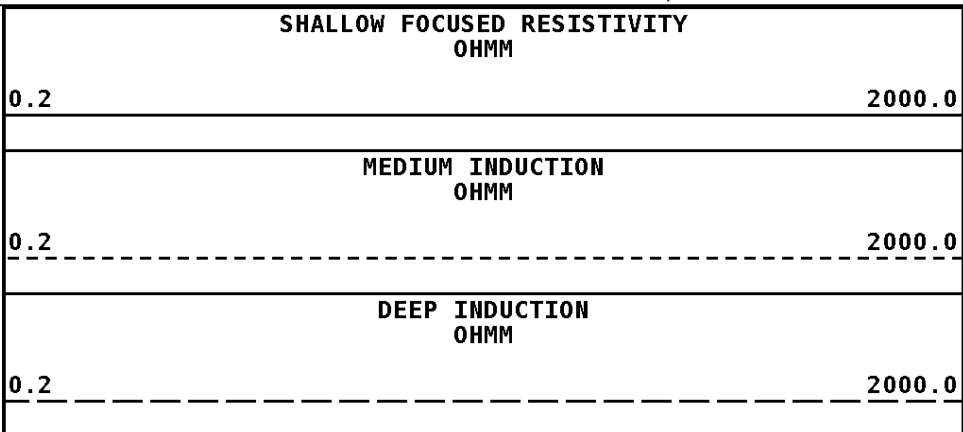
A full-page sheet of white graph paper with a uniform black grid. The grid consists of small squares, with thicker vertical lines dividing the page into four equal-width columns. There are no margins or other markings on the paper.



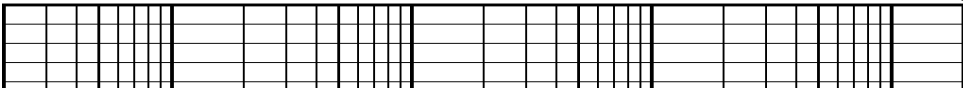
Zone 1 99999.0 to 0.0 Feet		
Temperature Gradient_____	1.00	DFHF
BHT Depth_____	3296.000	ft
Borehole Temperature_____	109.0	degF
Drill Bit Size_____	7.875	in
Resistivity Of Mud_____	4.000	ohm/m
Resistivity Of Mud Temperature_____	79.00	degF
Standoff_____	0.0	

Acquired: 2012-08/09 11:44 3.2.0-11172

Processed: 2012-08/09 14:22 3.2.0-11172



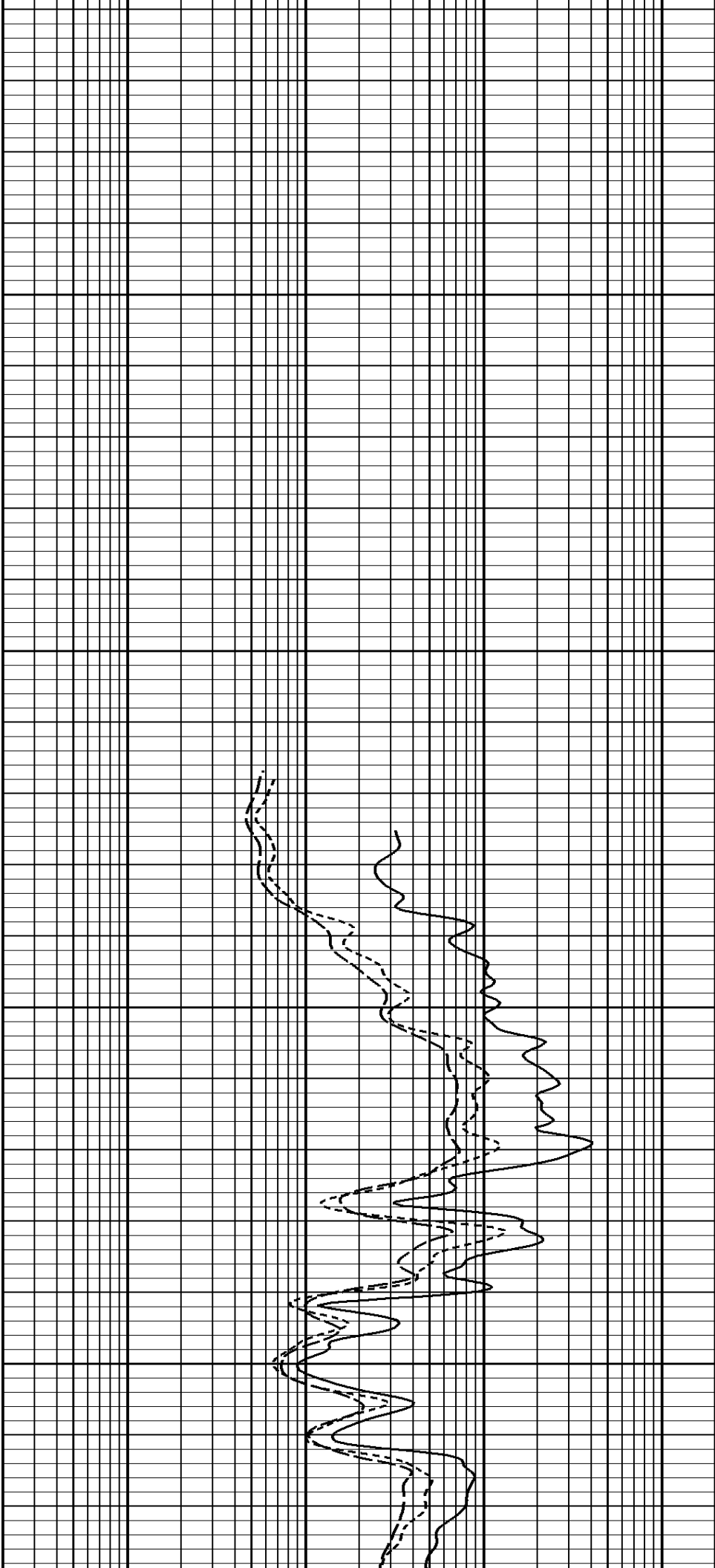
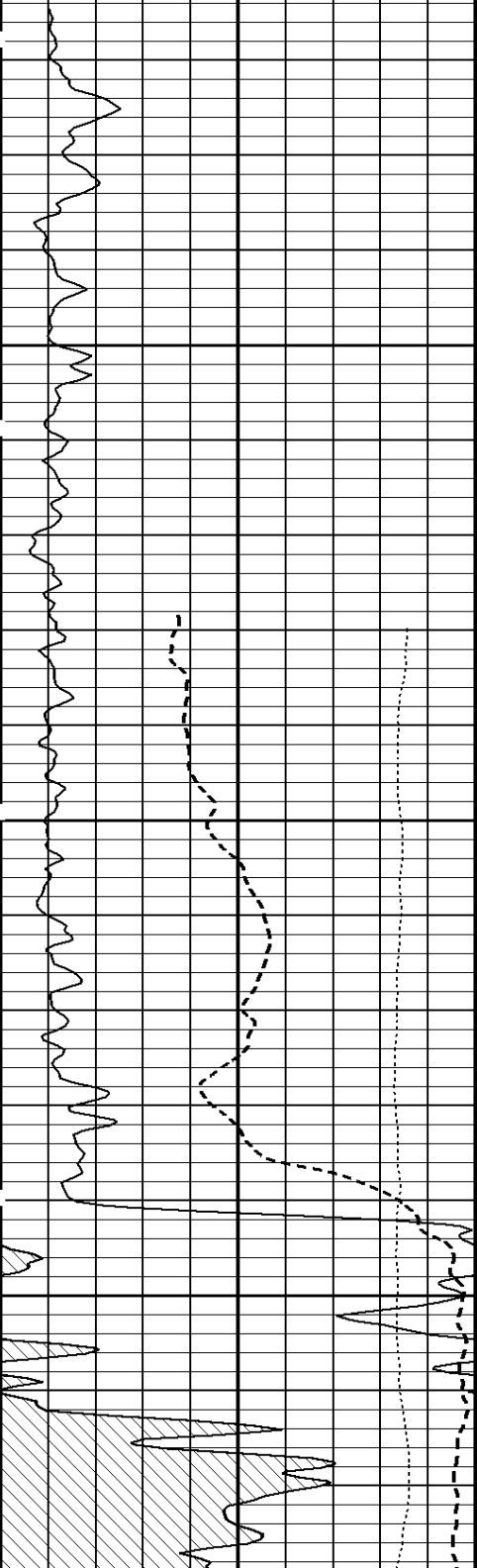
1:240 REPEAT SECTION	
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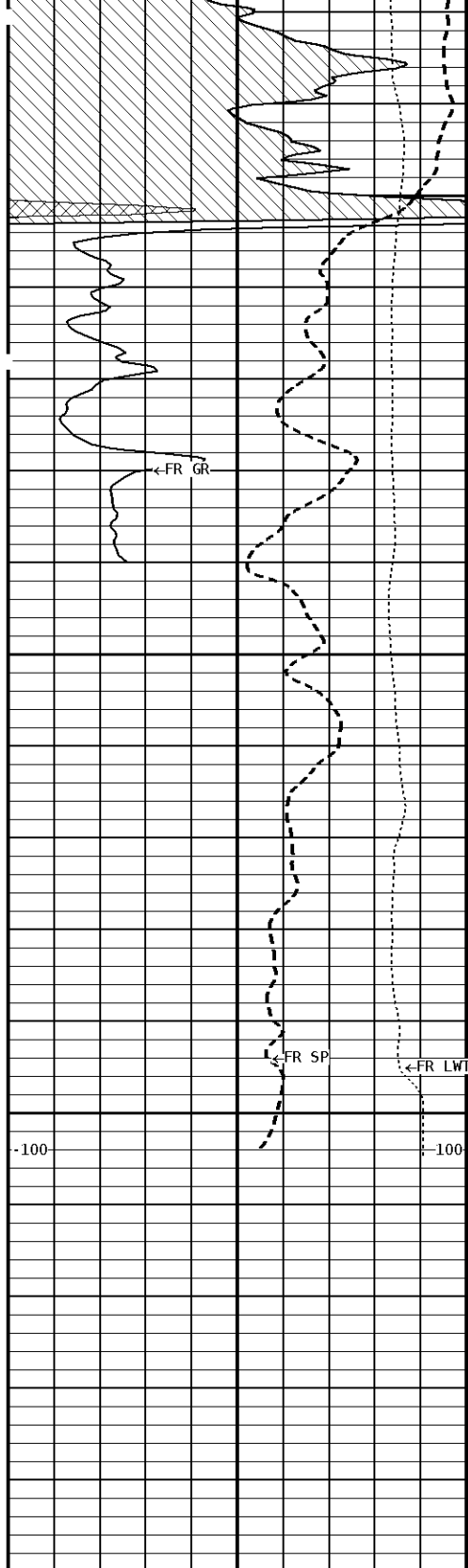
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1.20

3000

3100





3200

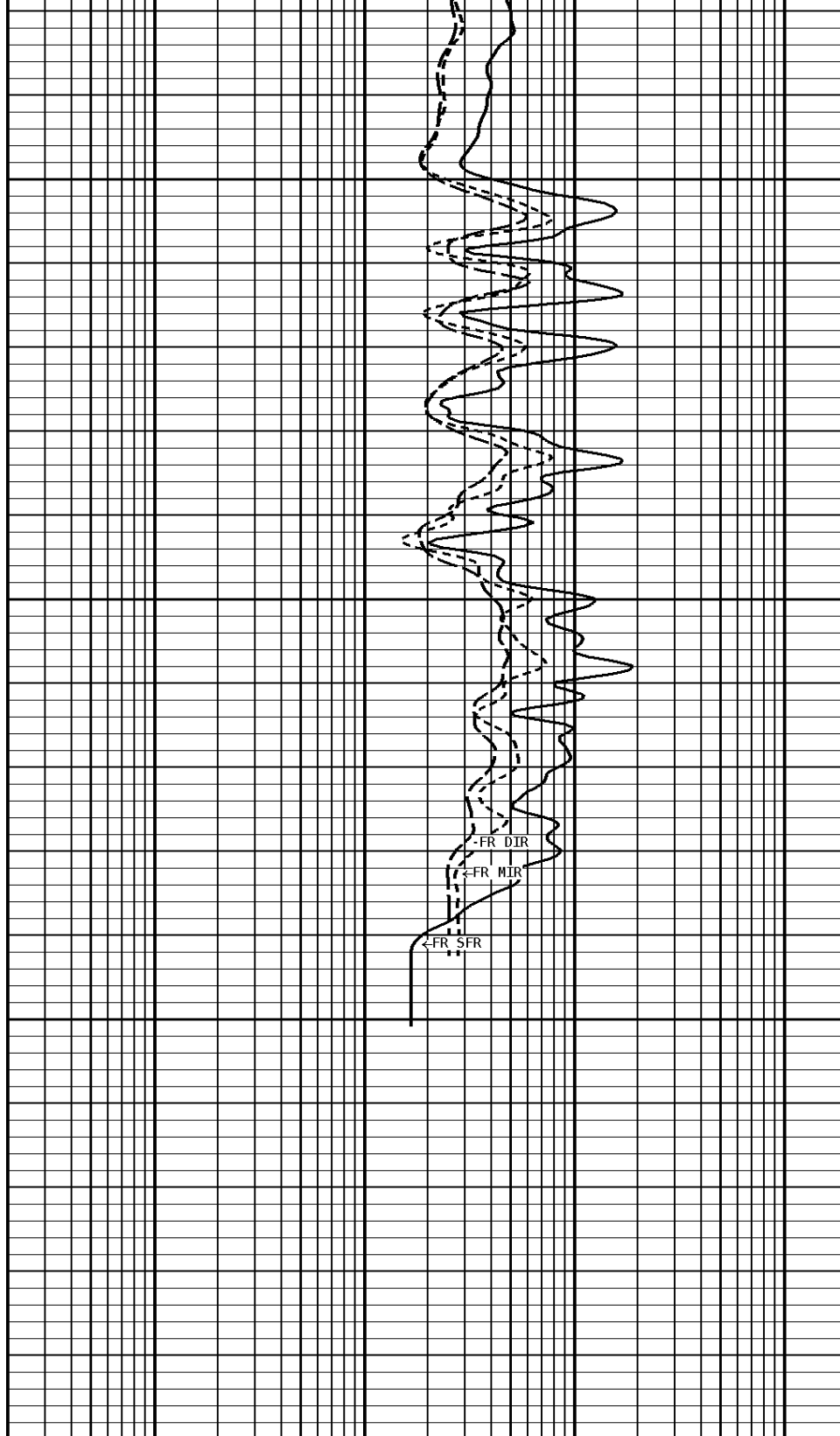
3296

3300

100

100

File #1.1.20



1:240 REPEAT SECTION

GAMMA RAY
API UNITS

150 0 300 150

SPONTANEOUS POTENTIAL
mV

→ | ← 20

TENSTON

DEEP INDUCTION
OHMM

0.2

2000.0

MEDIUM INDUCTION
OHMM

0.2

2000.0

SHALLOW FOCUSED RESISTIVITY

10000

0

0.2

2000.0

*** Borehole Zone Factors ***

Zone 1	99999.0	to	0.0	Feet
Drill Bit Size				7.875 in
BHT Depth				3296.000 ft
Borehole Temperature				109.0 degF
Temperature Gradient				1.00 DFHF
Resistivity Of Mud				4.000 ohm/m
Standoff				0.0
Resistivity Of Mud Temperature				79.00 degF

*** Calibration Summary ***

Shop Calibration GRT-B Performed : 16-MAY-2011 Time : 09:49 Sensor Suite : GR-GR5 ID : GRT-BA-14						
	Background	Measured Jig	Units	Calibrated Jig	Units	
GR	50	361	CPS	175	GRAPI	
Shop Calibration PIT-CA Performed : 09-MAR-2012 Time : 15:54 Sensor Suite : P-IND-T ID : PIT-AC-022						
Medium						
		Measured		Calibrated		
		R X		R X		Units
Air		129413 131202		-7.0 -7.0		MMHOS
Zero		131066 131071		65.6 -17.0		MMHOS
Reference		248746 249346		5065.6 4983.0		MMHOS
Loop		147468 174966		2610.2 1076.0		MMHOS
Sonde Error				-2.1 -6.8		MMHOS
Cond				5065.6 4983.0		MMHOS
Deep						
		Measured		Calibrated		
		R X		R X		Units
Air		129586 130432		0.0 0.0		MMHOS
Zero		131077 131073		31.9 6.9		MMHOS
Reference		238783 239471		2031.9 2006.9		MMHOS
Loop		148920 177248		1222.8 504.8		MMHOS
Sonde Error				-0.8 -9.2		MMHOS
Cond				2031.9 2006.9		MMHOS
Temperature						
		Measured		Calibrated		
		Low High		Low High		Units
		16980.0 56920.0		70.0 350.0		DEGF
Performed : 30-Jan-2012 Time : 11:24 Sensor Suite : SFL ID : PIT-AC-022						
Internal						
		Measured		Calibrated		
		Zero Reference		Zero Reference		Units
Im		32763.2 50516.1		0.0 7028.0		uA
Ib		32769.0 50217.9		0.0 1750.0		mA
MOM1		32796.4 60221.5		0.0 175.0		mV
Equivalent SFL				43.97		OHMM
Performed : 30-Jan-2012 Time : 11:26 Sensor Suite : P-SP ID : PIT-AC-022						
Internal						
		Measured		Calibrated		
		Zero Reference		Zero Reference		Units
		32785.2 58904.5		0.0 1000.0		mV
Performed : 18-Jan-2007 Time : 12:24 Sensor Suite : P-RMUD ID : PIT-AC-022						
Internal						

	Measured		Calibrated		Units
Rmi	Zero	Reference	Zero	Reference	mA
	8.3	54204.1	0.0	290.6	
Rmv	8.2	54136.7	0.0	290.6	mV
Equivalent Rm				0.9037	OHMM

Well File: AZTEC COOPER-D-4 AUG9 QUINT

Scale: 1:1200

Segment: V1.D1.S19 MAIN

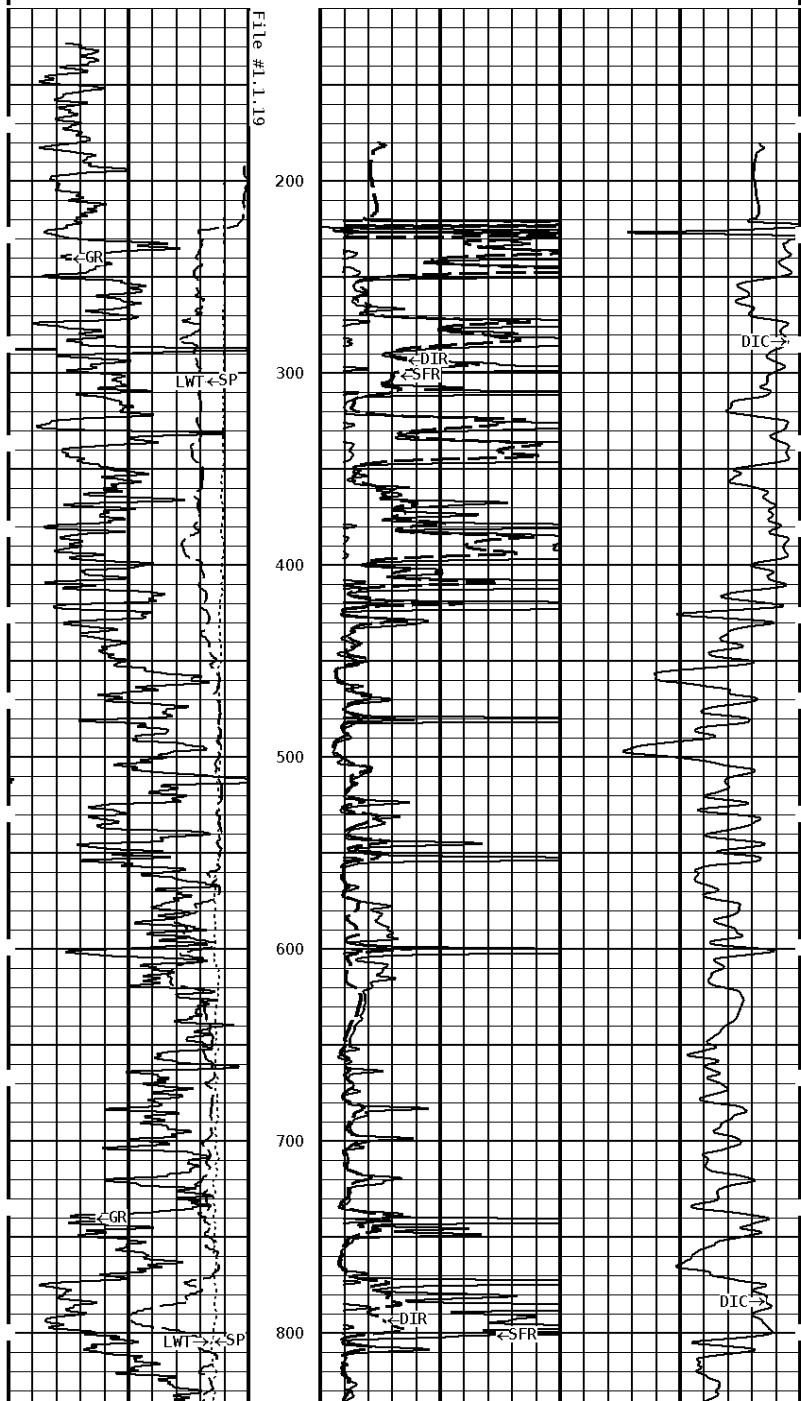
Acquired: Not Available

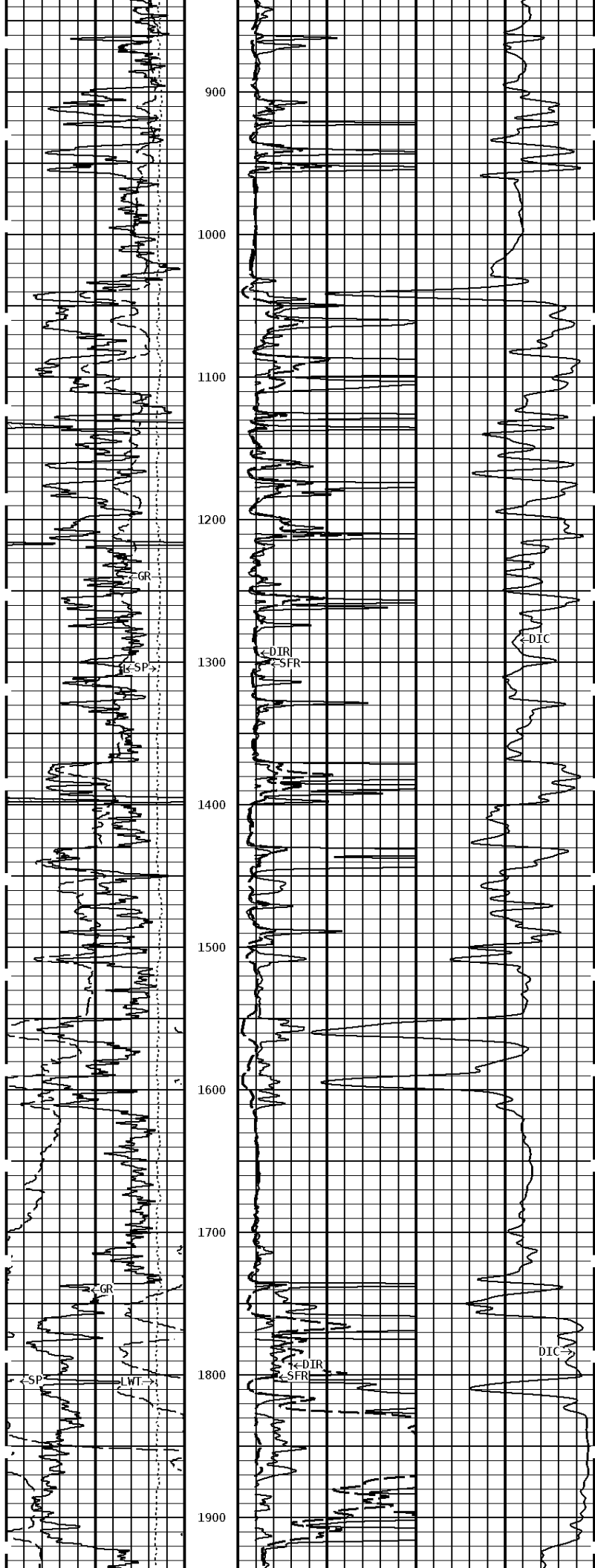
Reference: 0

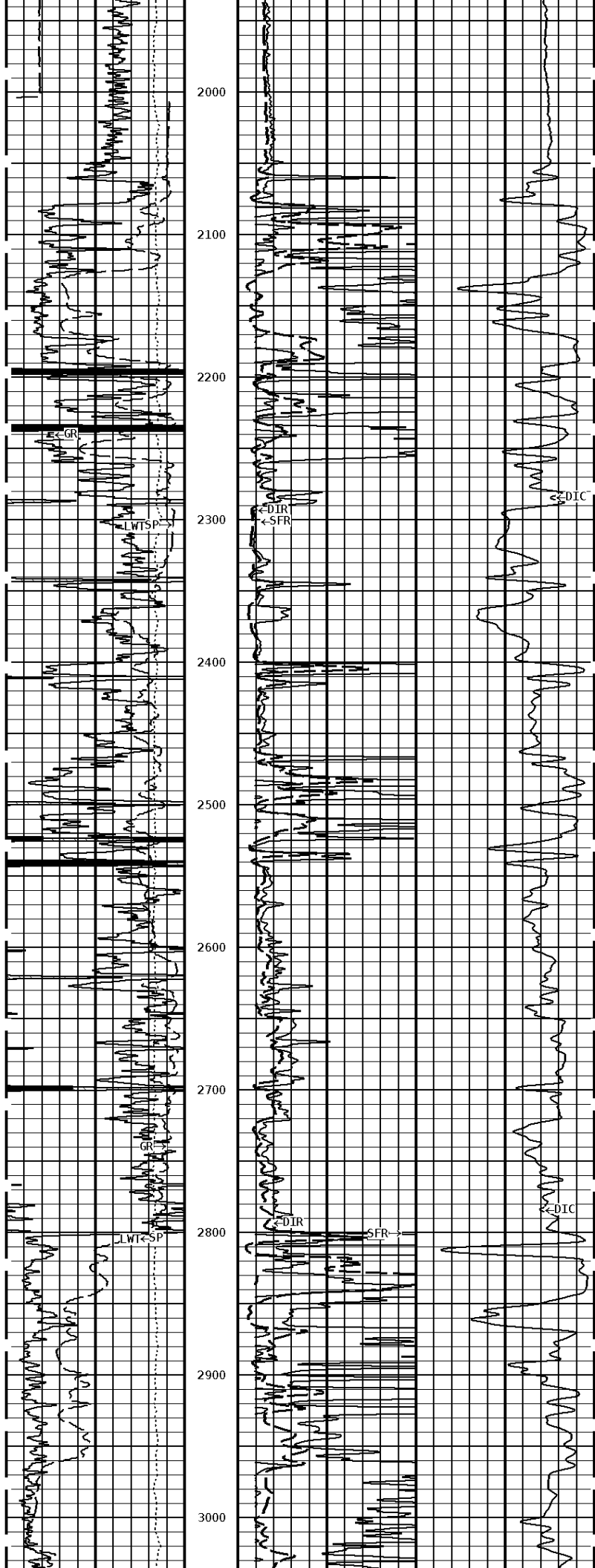
Processed: Not Available

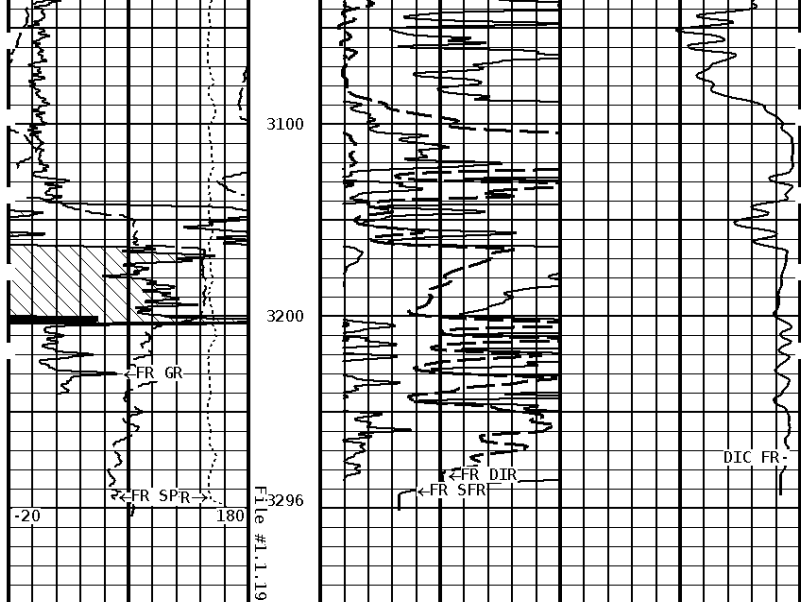
TENSION LBS 10000 0	DEEP INDUCTION OHMM 0.0 500.0 0.0 50.0	
	SHALLOW FOCUSED OHMM 0.0 500.0 0.0 50.0	
SPONTANEOUS POTENTIAL mV → ← 20	DEEP CONDUCTIVITY MHMO 2000 1000 1000 0	
GAMMA RAY API UNITS 150 300 0 150		

1:1200 MAIN SECTION









GAMMA RAY API UNITS 150 0 300 150	DEEP CONDUCTIVITY MMHO 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



Tucker

ENERGY SERVICES

Company: AZTEC OIL CO.

Well: COOPER D #4

Location: 2250' FNL & 820' FEL

Logged: 2012-08-09

K.B. Elev: 1623.0