Tucker ENERGY SERVICES

PHASED INDUCTION

SHALLOW FOCUS SP LOG

Company PICKRELL DRILLING CO, INC.
Well COYKENDALL #10
Field SPIVEY-GRABS-BASIL
County KINGMAN
State KANSAS
Country USA
API No. 15-095-22267-00-00

File No : TUL-58233
Company : PICKRELL DRILLING CO, INC.
Well : COYKENDALL #10
Field : SPIVEY-GRABS-BASIL
County : KINGMAN
State : KANSAS
Country : USA
API No : 15-095-22267-00-00

Location :
1980' FSL & 760' FEL
100' W OF NE SE

LSD : **Sect :** 36 **Twp :** 29S **Rge :** 07W

Permanent Datum:	GL	**Elevations:**		**Services:**	
Drilling Measured From:	KB	**KB**	1469.00 Ft	GRT	MLT
Log Measured From:	KB	**DF**	1468.00 Ft	CNT	PIT
Above Permanent Datum:	10.00 Ft	**GL**	1459.00 Ft	LDT	

Date	2013-01-31			
Run Number	1			
Depth--Driller	4220.0 Ft			
Depth--Logger	4218.0 Ft			
First Reading	2217.0 Ft			
Last Reading	223.0 Ft			
Casing--Driller	223.0 Ft			
Casing--Logger	223.0 Ft			
Bit Size	7.875 In			
Casing Size	8.625 In			
Hole Fluid Type	WBM			
Density	9.2 LBS/GAL			
Fluid Loss	9.0 CC			
PH/Viscosity	10.0	53.0 SEC		
Sample Source	MEASURED			
RM@Measured Temp.	1.100 @ 65 F			
RMF@Measured Temp	0.940 @ 65 F			
RMC@Measured Temp.	1.270 @ 65 F			
Source RMF/RMC	CALCULATED	CALCULATED		
RM@BHT	0.690 @ 108 F			
Time Circulation Stopped				
Max Recorded Temp.	108 F			
Equipment/Base	TRK 123	TULSA		
Recorded By	Z. HICKMAN			
Witnessed By	R. STOLZLE			

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.

Casing Strings

Size (In)	Weight (Lbs)	Bottom (Ft)
8.625	24.00	223.00

Bitsize Intervals

Size (In)	Bottom (Ft)
7.875	4220.00

Run Number	1	
Date	2013-01-31	
Date/Time On Bottom	2013-01-31 16:00	
Depth to Fluid	0.0 Ft	
Salinity	0.000 PPM	
RMF@BHT	0.580 @ 108 F	
RMC@BHT	0.790 @ 108 F	

Run Number 1

Comments

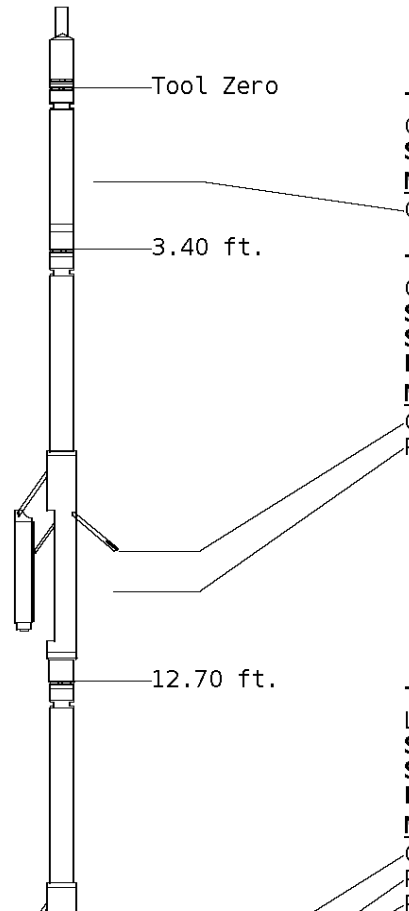
ALL PRESENTATIONS AS PER CUSTOMER REQUEST.
GRT, CNT, LDT, MLT, AND PIT RUN IN COMBINATION.
CALIPERS ORIENTED ON X-Y AXIS.
2.71 G/CC USED TO CALCULATED POROSITY.
ANNULAR HOLE VOLUME CALCULATED USING 5.50" PRODUCTION CASING.
PHIN IS CALIPER CORRECTED
DETAIL PULLED FROM TD TO 2800'

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

OPERATORS:
D. HOPPER
M. RUBY

Tool String Schematic

Total Tool Length - 53.57 **ft.**
Maximum Outside diameter - 6.00 **in.**
Net Weight in Air - 943.00 **lbs.**



Tool: GRT-B **Length:** 3.40 **ft.** **O.D.** 3.60 **in.**
Gamma Ray Controller
Sonde ID :GRT-BC-41

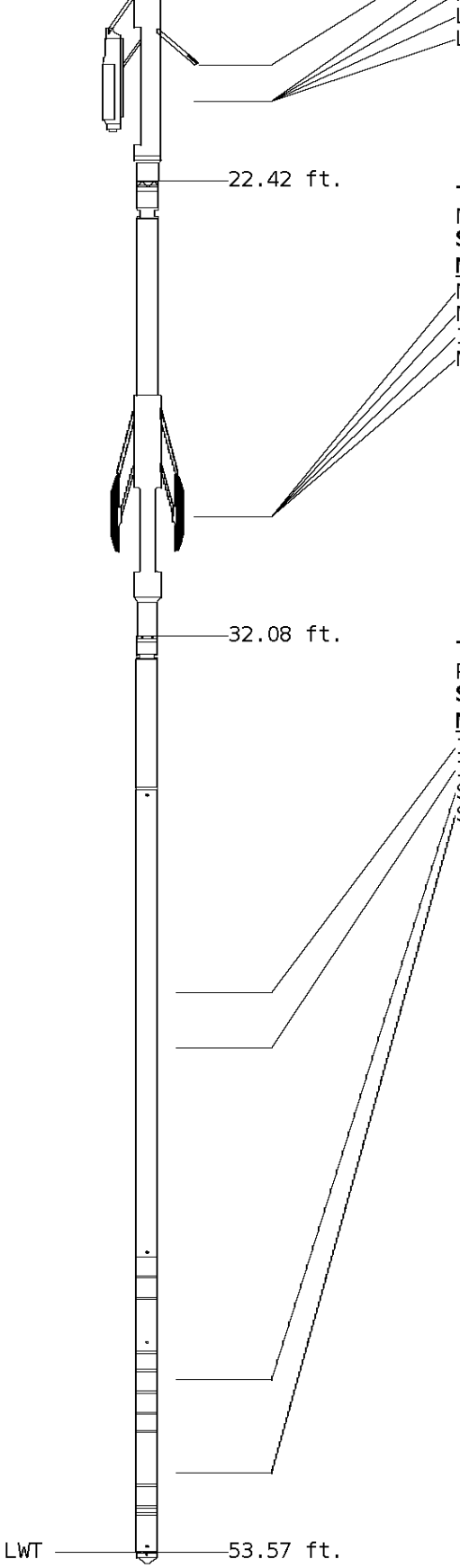
Measure Point	Tool Offset	Stack Offset	Bottom Offset
GRP	2.00	2.00	51.57

Tool: CNT-AA **Length:** 9.30 **ft.** **O.D.** 4.36 **in.**
Compensated Neutron A Pad on NDT-A
Sonde ID :NDT-BD-123
Source ID :N-1045
Pad ID :CNP-AA-024

Measure Point	Tool Offset	Stack Offset	Bottom Offset
CLCN	6.00	9.40	44.17
PHIN	6.80	10.20	43.37

Tool: LDT-DF **Length:** 9.72 **ft.** **O.D.** 4.80 **in.**
Litho Density D Pad on NDT-F
Sonde ID :PDT-GA-466
Source ID :2991GW
Pad ID :LDP-DA-066

Measure Point	Tool Offset	Stack Offset	Bottom Offset
CLLD	6.42	19.12	34.45
PEL	7.42	20.12	33.45
PES	7.82	20.52	33.05



LDEN	7.62	20.32	33.25
LCOR	7.62	20.32	33.25

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	30.02	23.55
MSCLP	7.60	30.02	23.55
INV	7.60	30.02	23.55
NOR	7.60	30.02	23.55

Tool: PIT-CA **Length:** 21.49 **ft.** **O.D.** 3.62 **in.**
Phased Dual Induction w/ RM & D
Sonde ID :PIT-AB-005

Measure Point	Tool Offset	Stack Offset	Bottom Offset
ILD	8.92	41.00	12.56
ILM	10.10	42.18	11.39
SFLU	17.49	49.57	4.00
SP	20.60	52.68	0.88

Well File: PICK_COY_10_JAN_31_MSTK **Scale:** 1:600
Segment: V1.D1.S5 MAIN **Acquired:** 2013-01/31 16:33 3.2.0-11401
Reference: 0 **Processed:** 2013-01/31 18:01 3.2.0-11401

TENSION LBS		DEEP INDUCTION OHMM	
10000	0	0.0	500.0
		0.0	50.0
SPONTANEOUS POTENTIAL mV		**SHALLOW FOCUSED RESISTIVITY OHMM**	
		0.0	500.0

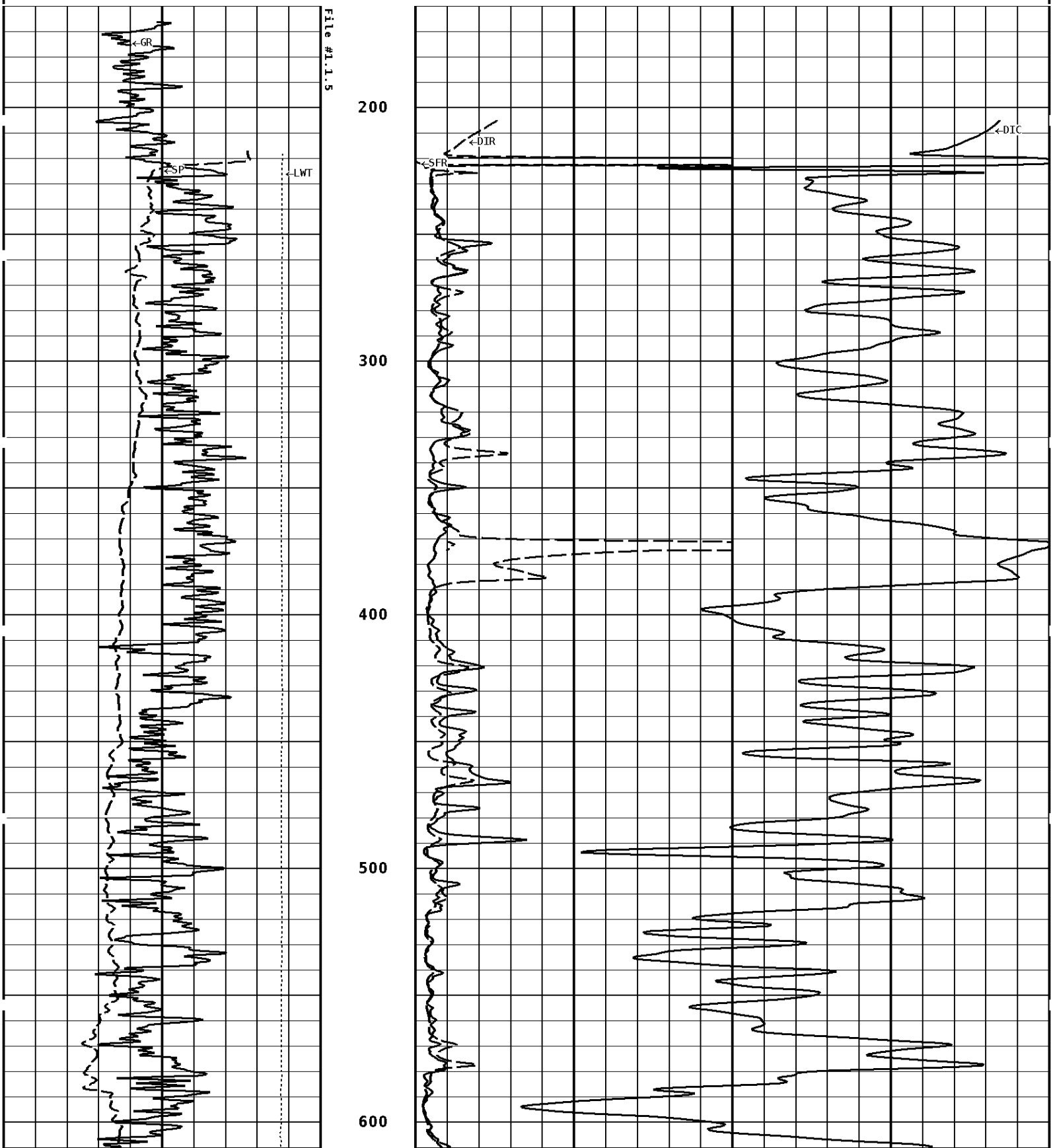
→ ←25

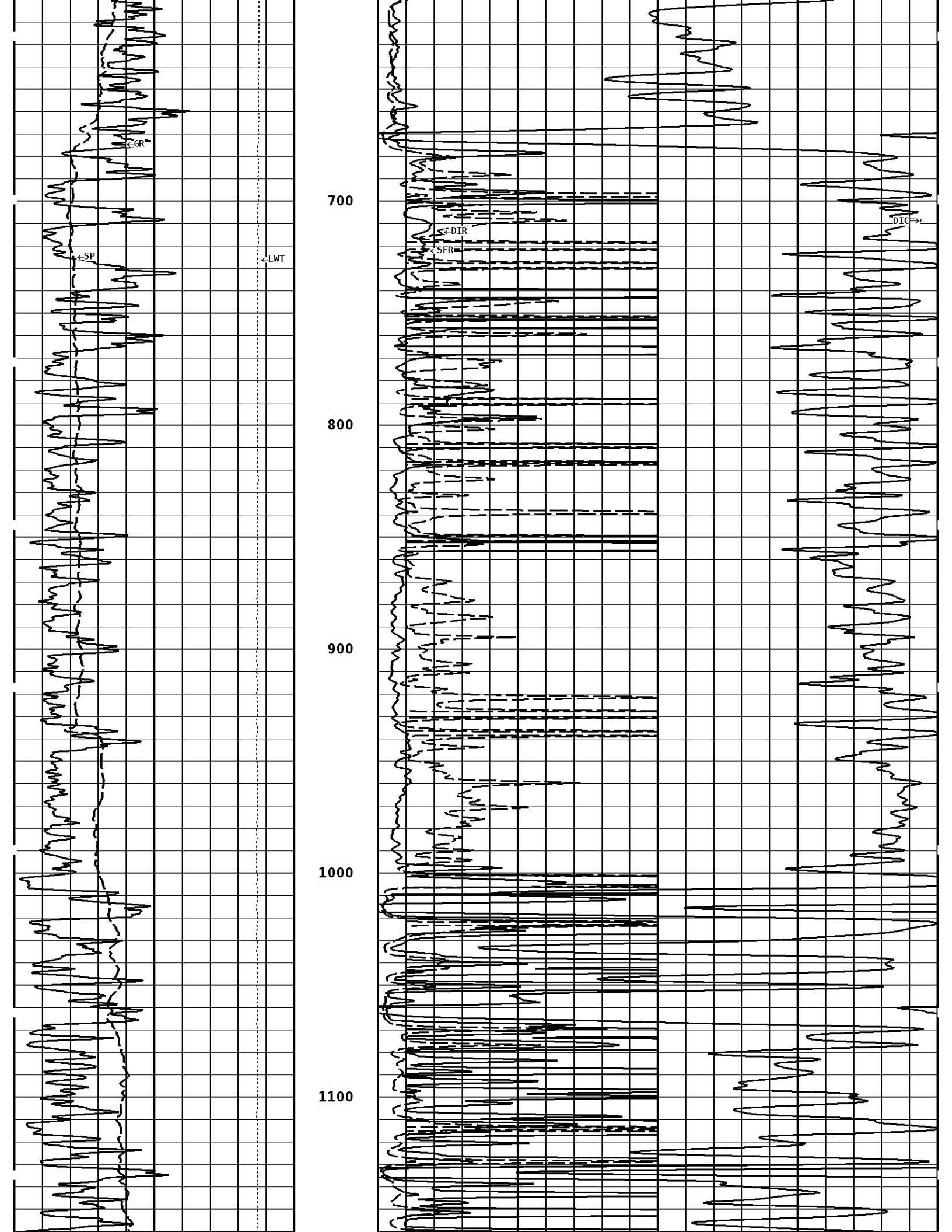
GAMMA RAY
API UNITS
150 300
0 150

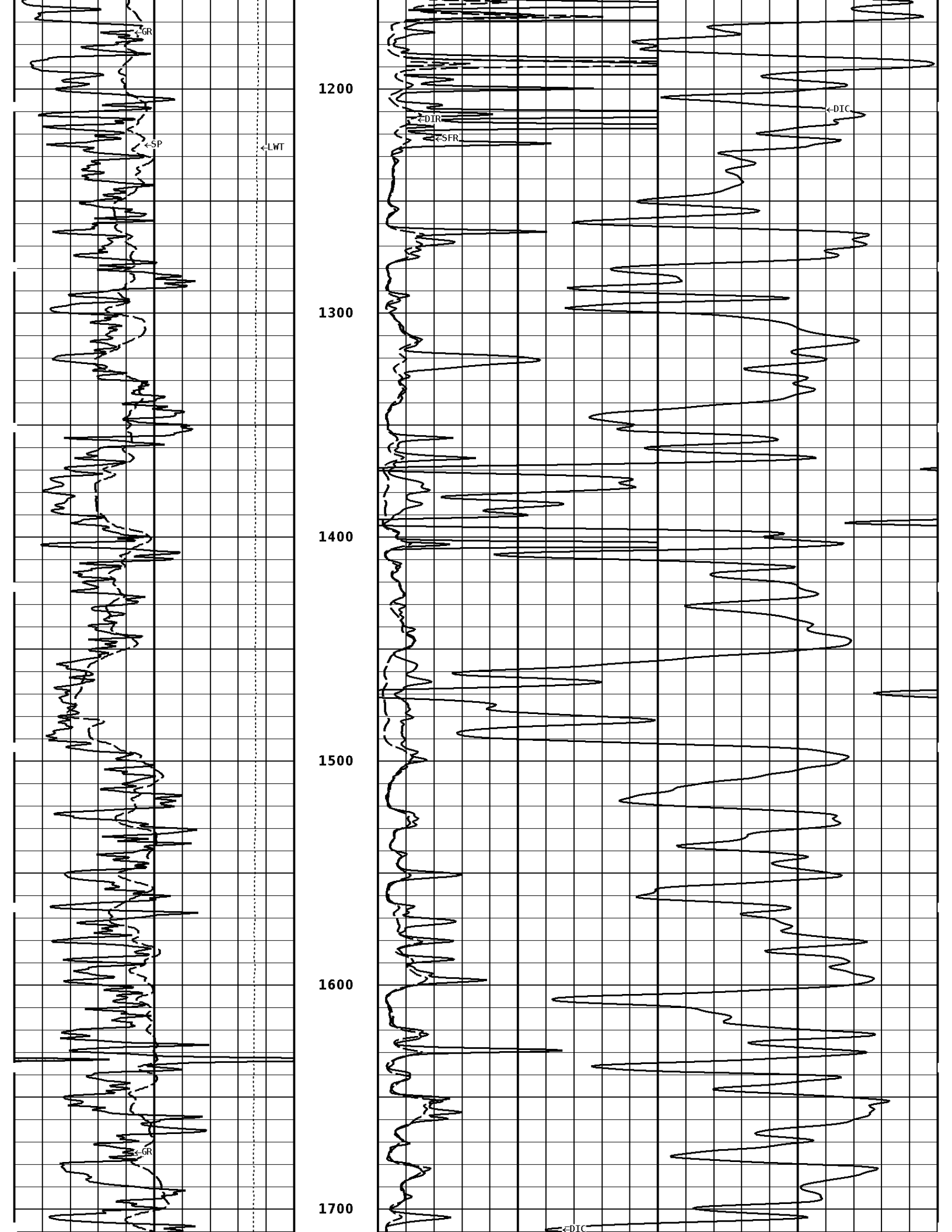
0.0 500.0
0.0 50.0

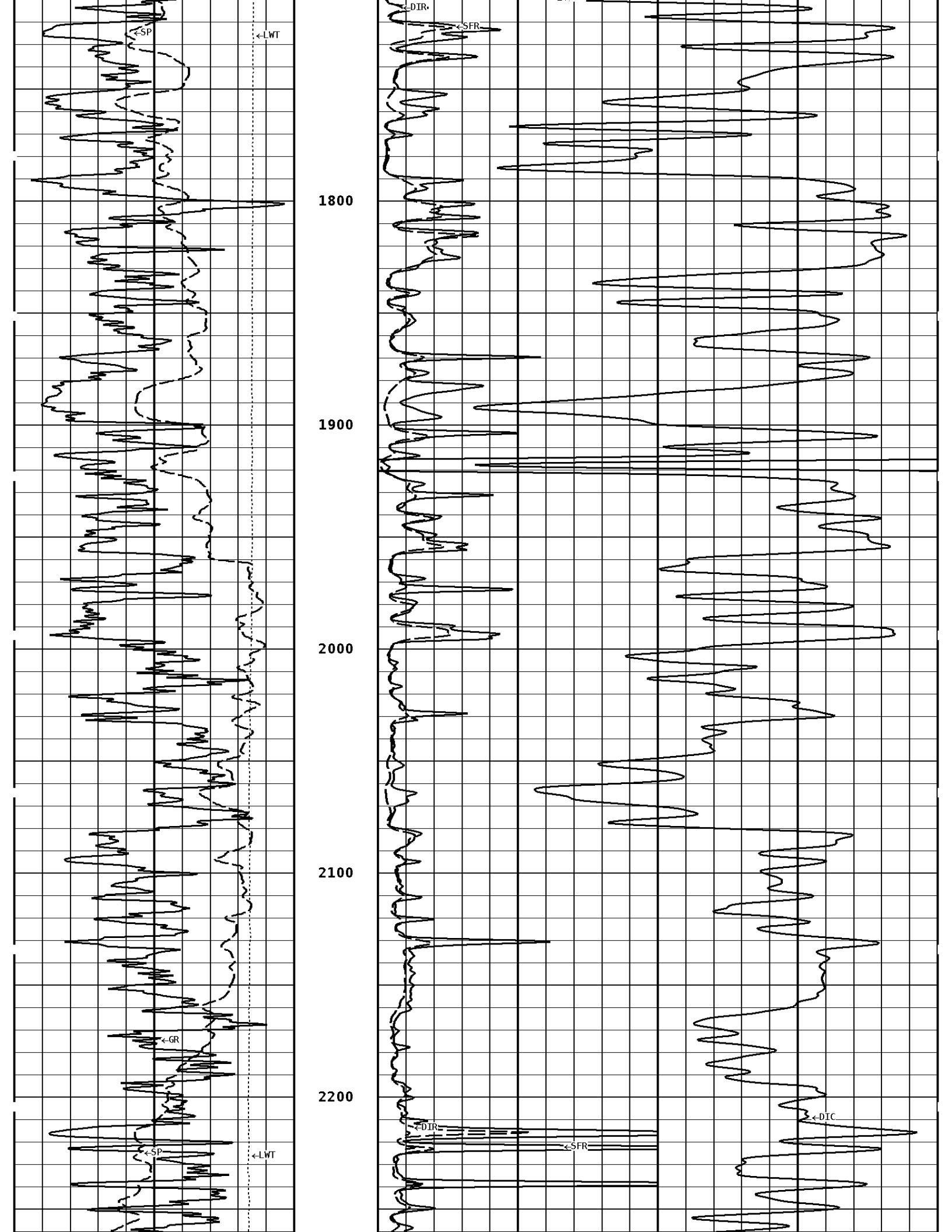
DEEP CONDUCTIVITY
MMHO
2000 1000
1000 0

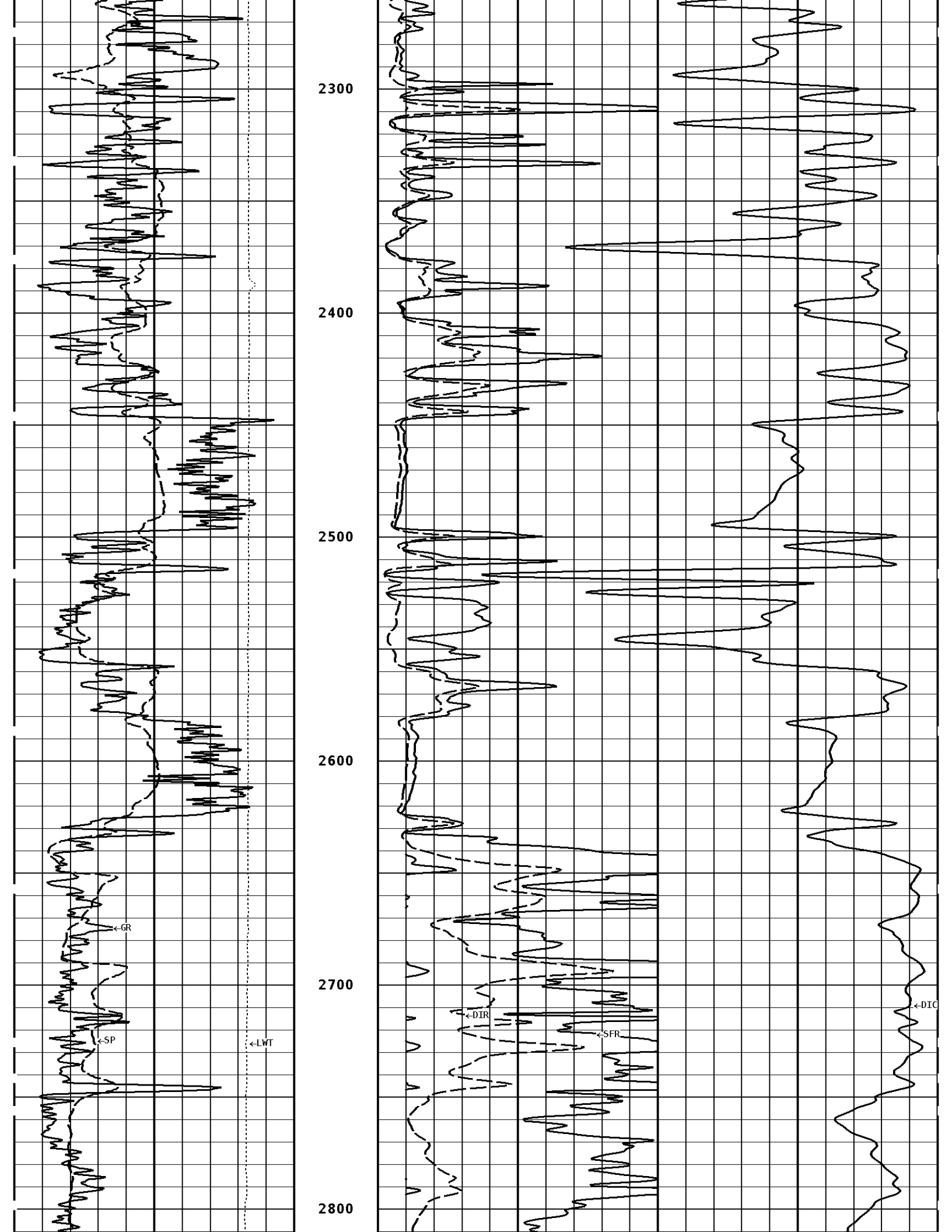
1:600 MAIN SECTION

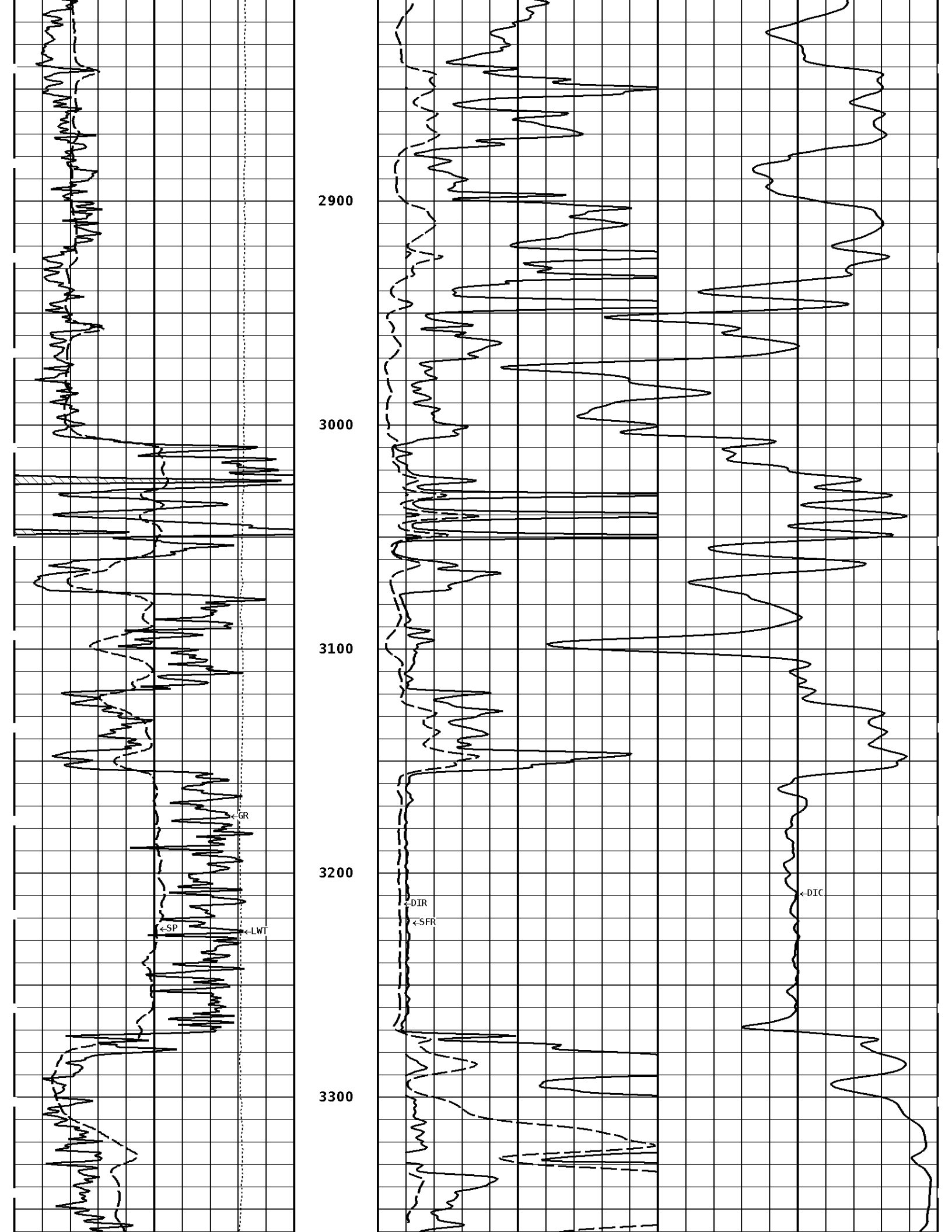


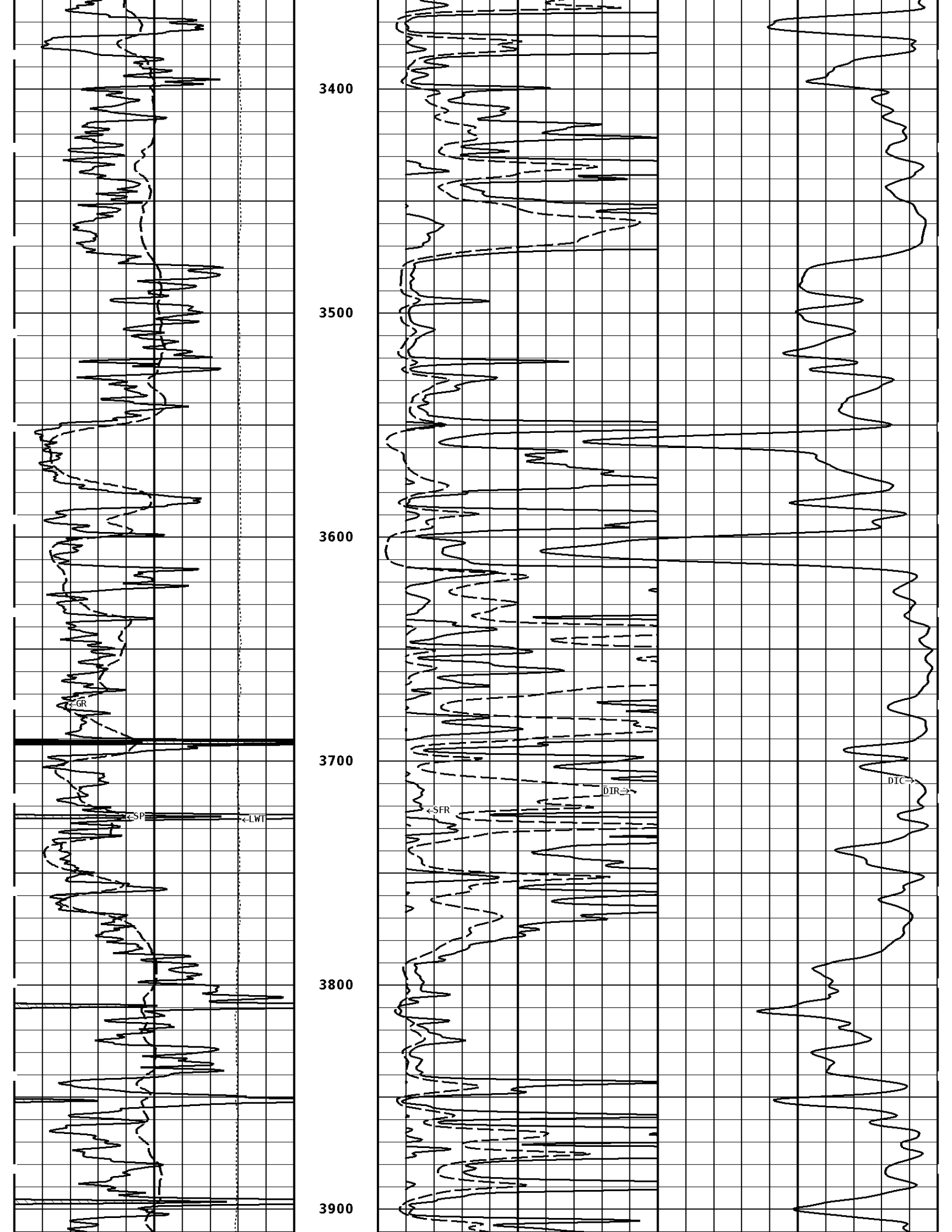

GR
SP
LWT
DIR
SFR
DIC
700
800
900
1000
1100

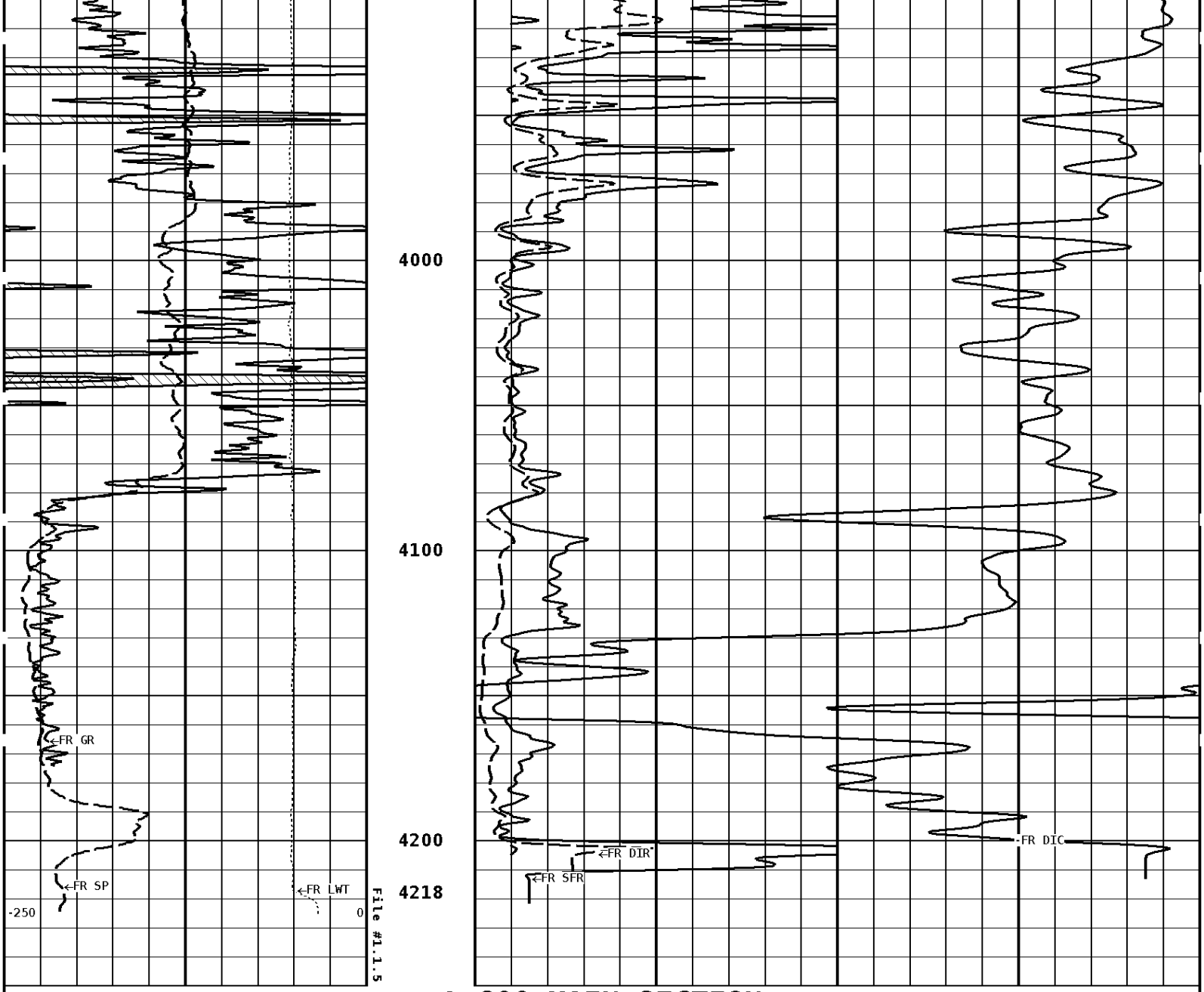

GR
SP
LWT
GR
1200
1300
1400
1500
1600
1700
DIR
SFR
DIC
DIC


←SP
←LWT
←DIR
←SFR
1800
1900
2000
2100
←GR
2200
←DIR
←SFR
←DIC
←SP
←LWT


2300
2400
2500
2600
2700
2800
←GR
←SP
←LWT
←DIR
←SFR
←DIC


2900
3000
3100
3200
3300
GR
SP
LWT
DIR
SFR
DIC


3400
3500
3600
3700
3800
3900
←GR
←SP
←LWT
←SFR
DIR→
DIC→



1:600 MAIN SECTION

GAMMA RAY
API UNITS
150 300
0 150

SPONTANEOUS POTENTIAL
mV
→ ←25

TENSION
LBS
10000 0

DEEP CONDUCTIVITY
MMHO
2000 1000
1000 0

SHALLOW FOCUSED RESISTIVITY
OHMM
0.0 500.0
0.0 50.0

DEEP INDUCTION
OHMM
0.0 500.0
0.0 50.0

Well File: PICK_COY_10_JAN_31_MSTK
Segment: V1.D1.S5 MAIN
Reference: 0

Scale: 1:240
Acquired: 2013-01/31 16:33 3.2.0-11401
Processed: 2013-01/31 18:01 3.2.0-11401

SPONTANEOUS POTENTIAL
mV
→ ←25

DEEP INDUCTION
OHMM
0.2 2000.0

0.2 2000.0

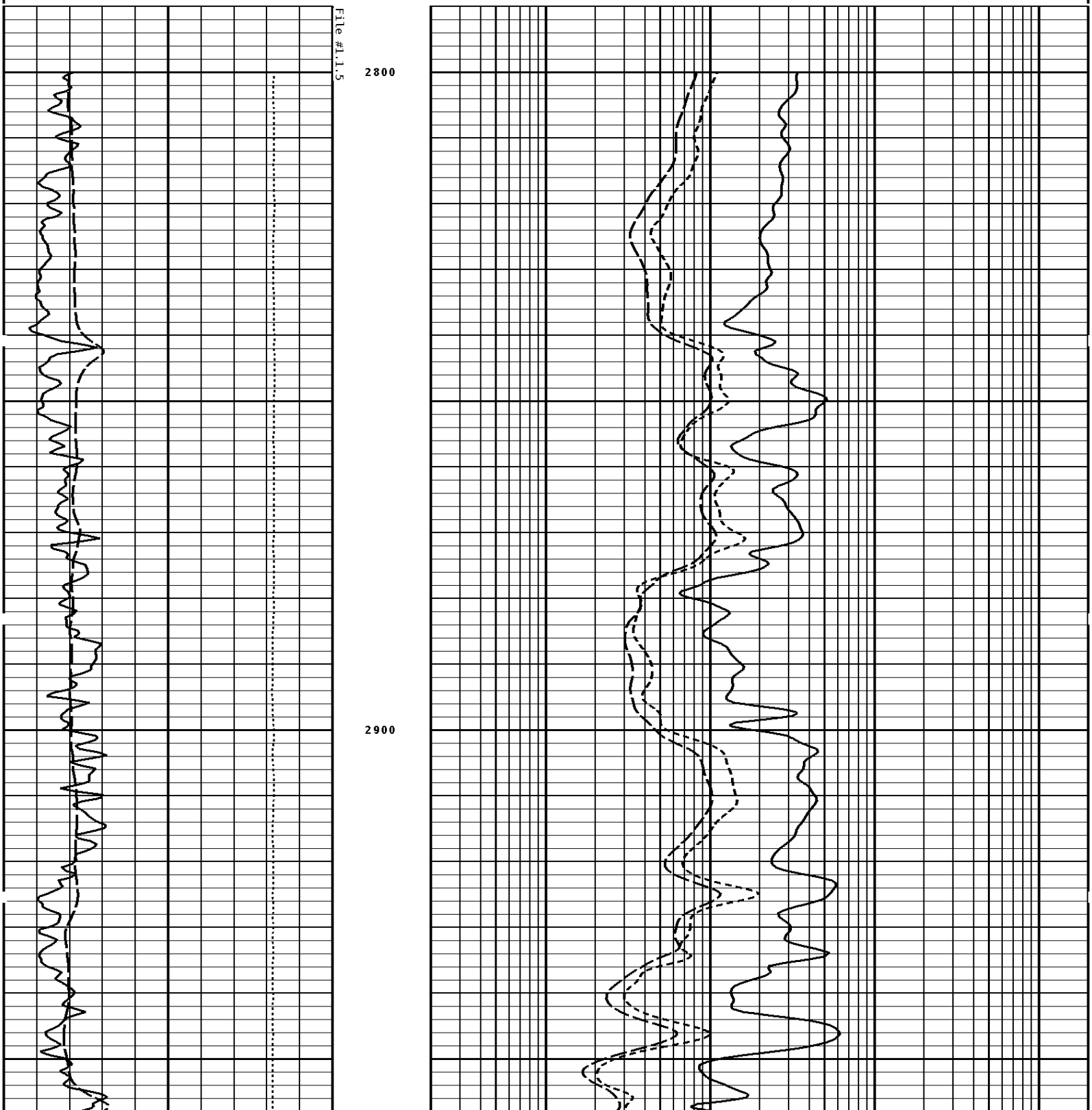
TENSION
LBS
10000 0

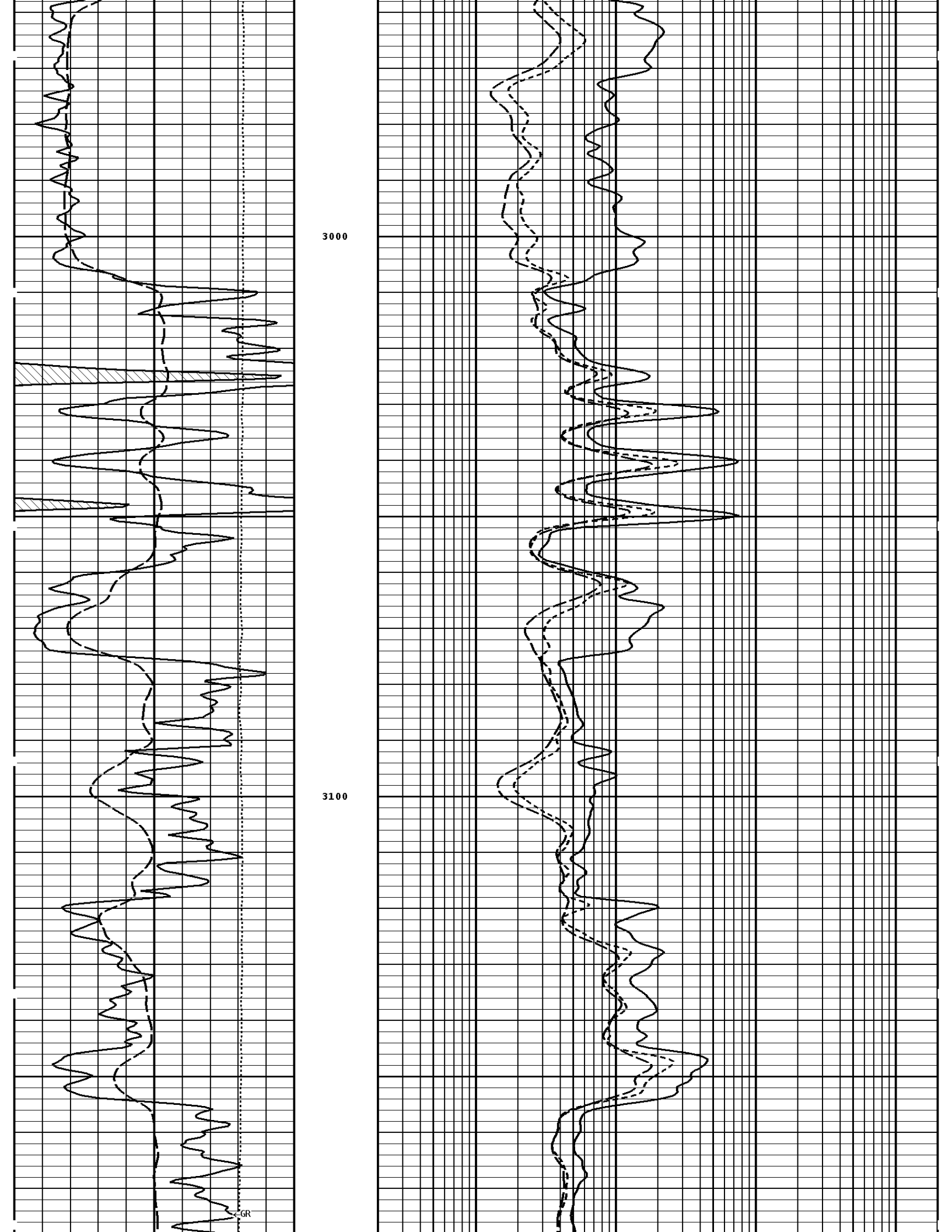
MEDIUM INDUCTION
OHMM
0.2 2000.0

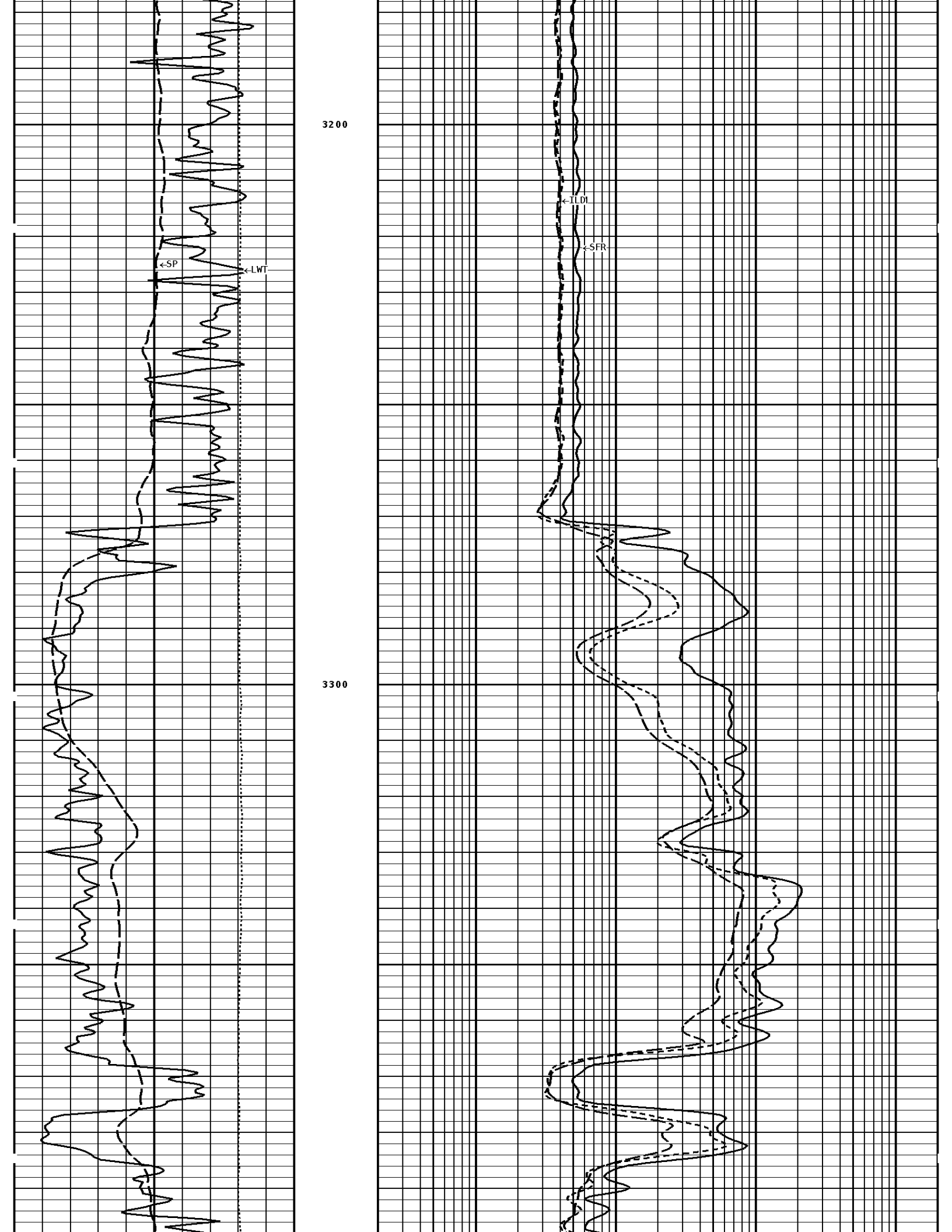
GAMMA RAY
API UNITS
150 300
0 150

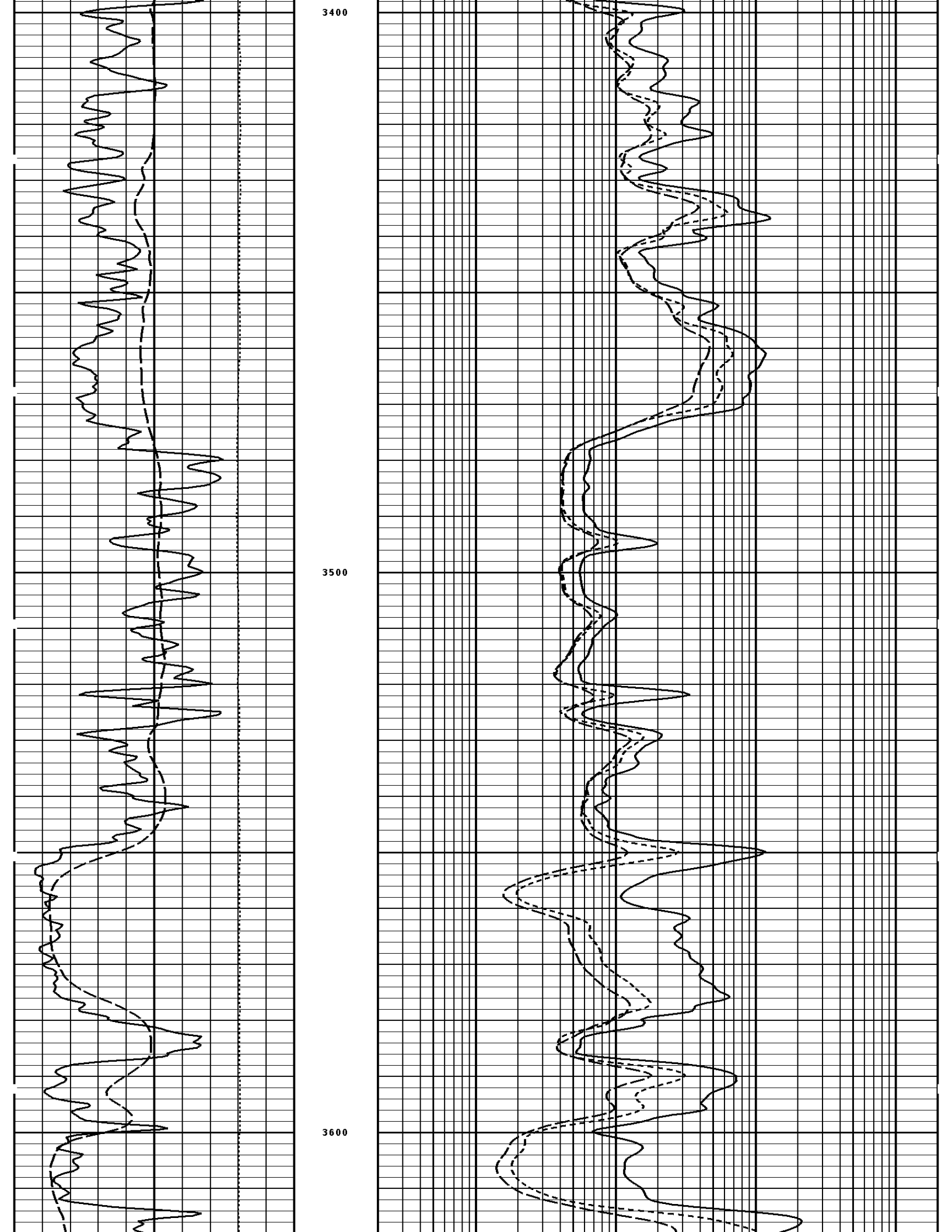
SHALLOW FOCUSED RESISTIVITY
OHMM
0.2 2000.0

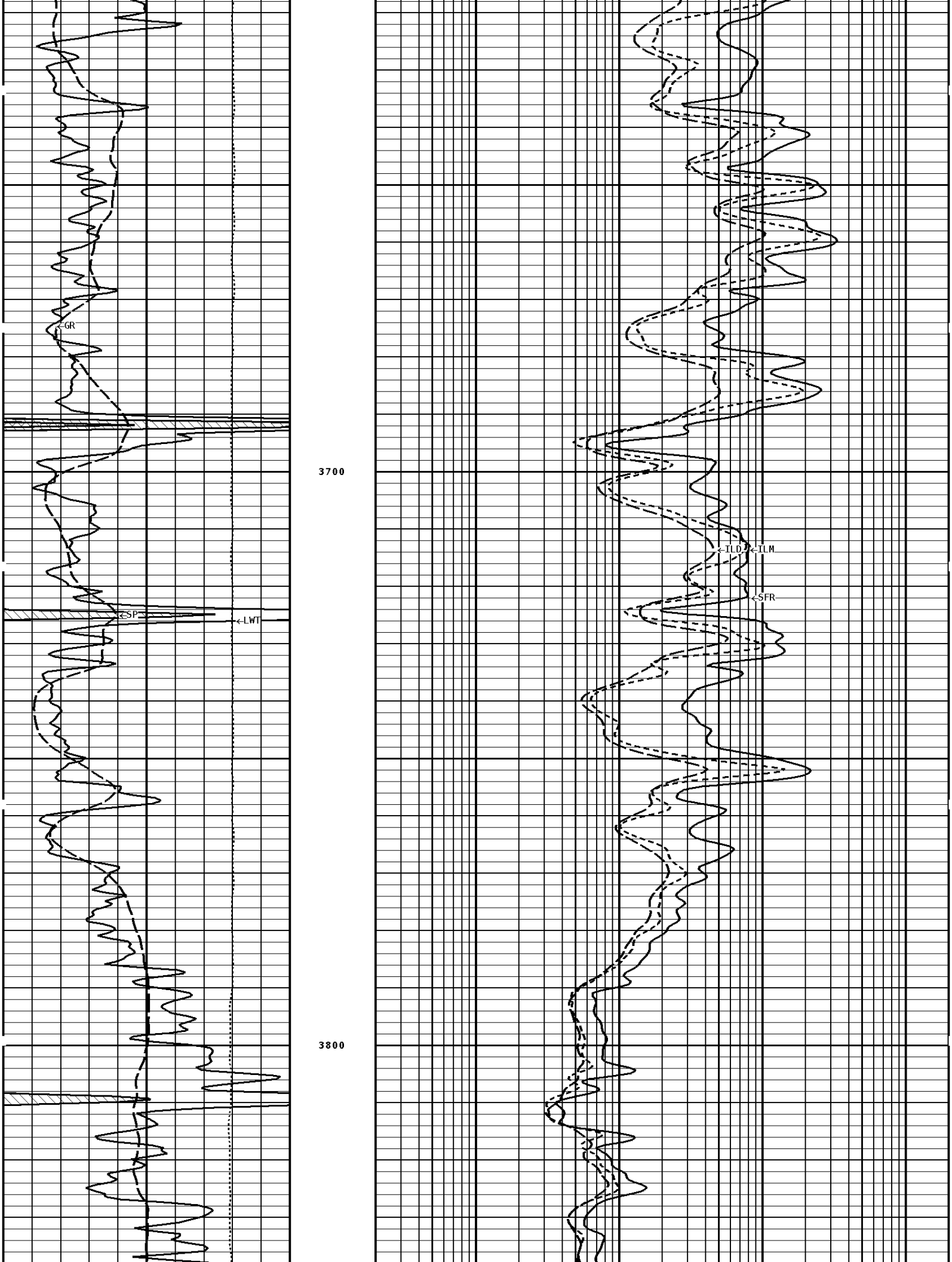
1:240 MAIN SECTION

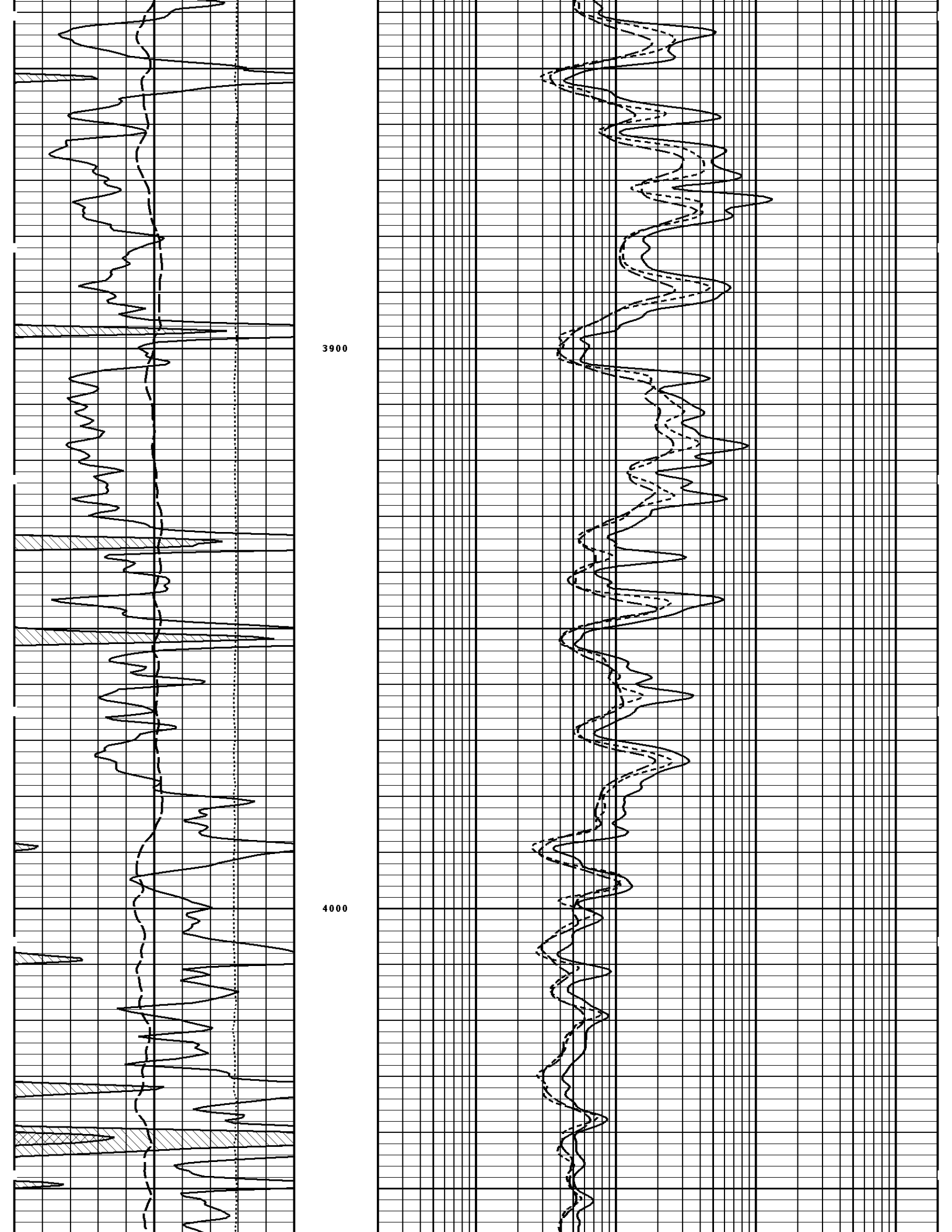


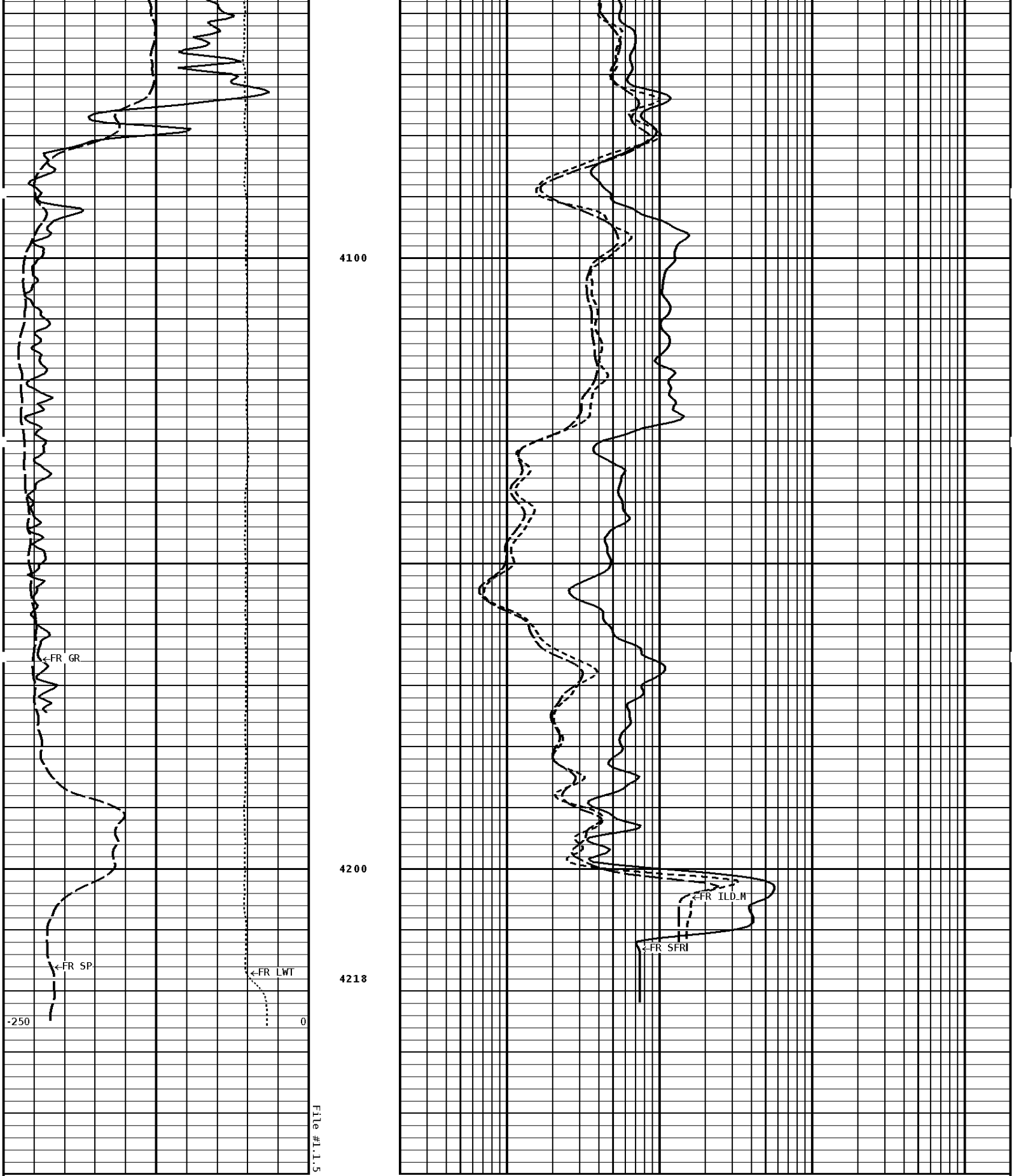

3000
3100
GR


3200
3300
←SP
←LWT
←ILD1
←SFR


3400
3500
3600


←GR
3700
←TLD
←ILM
←SFR
←SP
←LWT
3800


3900
4000



1:240 MAIN SECTION

GAMMA RAY API UNITS		SHALLOW FOCUSED RESISTIVITY OHMM
150	300	0.2
0	150	2000.0

TENSION
LBS
10000 0

SPONTANEOUS POTENTIAL
mV
→| |←25

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	4218.000	ft
Borehole Temperature	108.0	degF
Temperature Gradient	1.00	DFHF
Resistivity Of Mud	1.100	ohm/m
Resistivity Of Mud Temperature	65.00	degF

Well File: PICK_COY_10_JAN_31_MSTK **Scale:** 1:240
Segment: V1.D1.S4 REPEAT **Acquired:** 2013-01/31 16:20 3.2.0-11401
Reference: 0 **Processed:** 2013-01/31 18:01 3.2.0-11401

SPONTANEOUS POTENTIAL
mV
→| |←25

DEEP INDUCTION
OHMM
0.2 2000.0

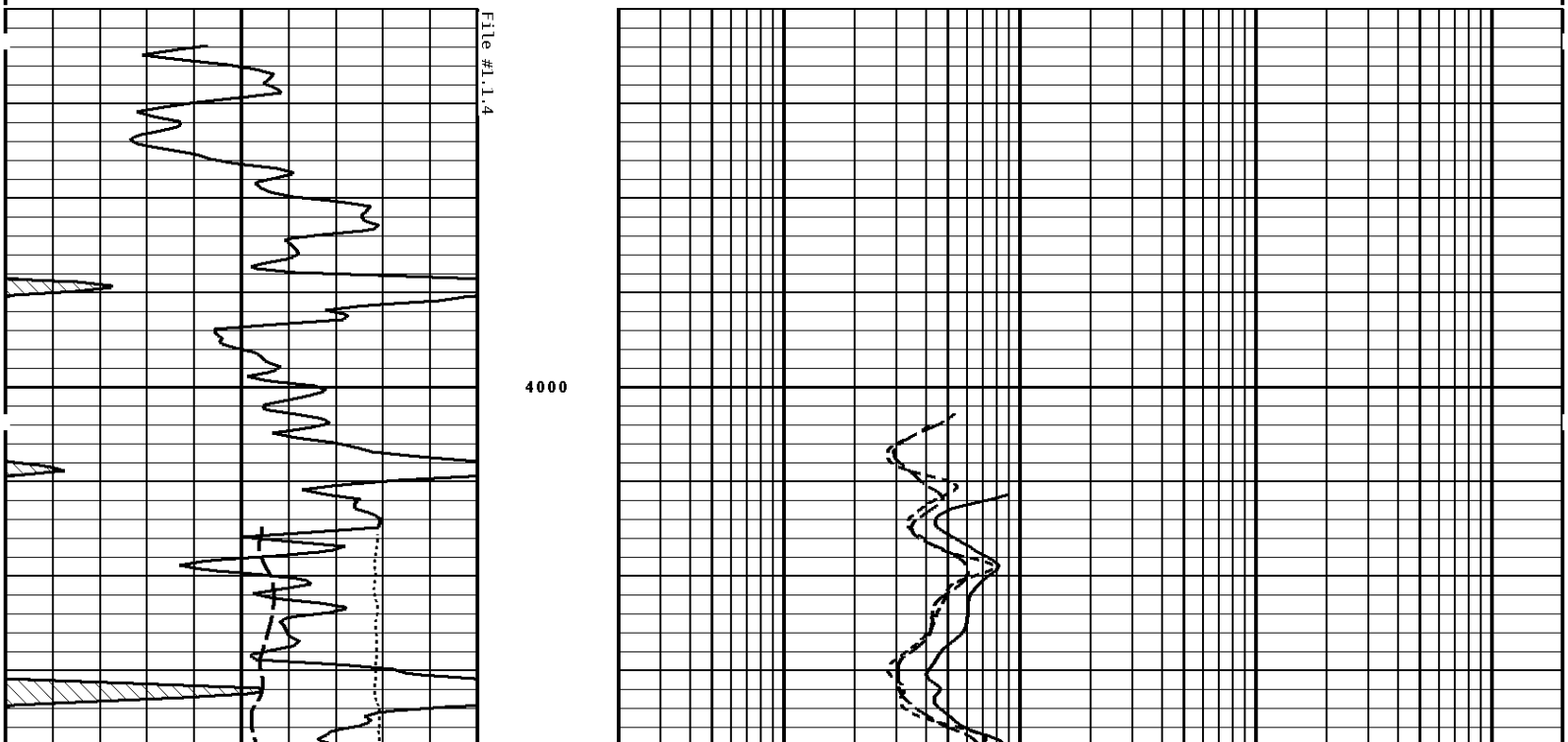
TENSION
LBS
10000 0

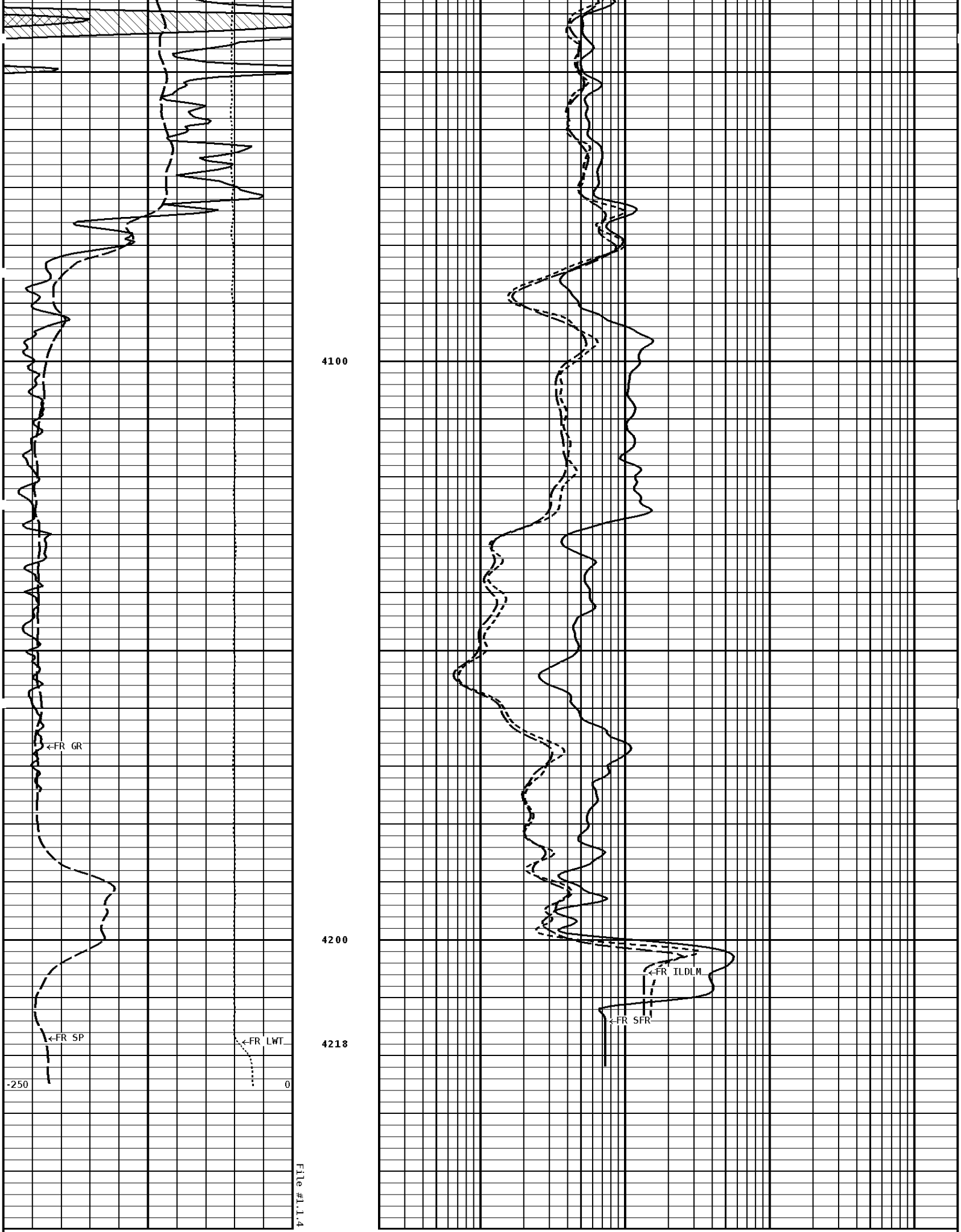
MEDIUM INDUCTION
OHMM
0.2 2000.0

GAMMA RAY
API UNITS
150 300
0 150

SHALLOW FOCUSED RESISTIVITY
OHMM
0.2 2000.0

1:240 REPEAT SECTION





1:240 REPEAT SECTION

GAMMA RAY API UNITS		SHALLOW FOCUSED RESISTIVITY OHMM	
150	300	0.2	2000.0
0	150		
TENSION LBS		MEDIUM INDUCTION OHMM	
10000	0	0.2	2000.0
SPONTANEOUS POTENTIAL mV		DEEP INDUCTION OHMM	
→| |←25		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	4218.000	ft
Borehole Temperature	108.0	degF
Temperature Gradient	1.00	DFHF
Resistivity Of Mud	1.100	ohm/m
Resistivity Of Mud Temperature	65.00	degF

* Calibration Summary *

Shop Calibration GRT-B

Performed : 04-SEP-2012 Time : 19:28
Sensor Suite : GR-GR5 ID : GRT-BC-41

	Measured Background	Measured Jig	Units	Calibrated Jig	Units
GR	46	346	CPS	175	GRAPI

Shop Calibration PIT-CA

Performed : 21-NOV-2012 Time : 14:36
Sensor Suite : P-IND-T ID : PIT-AB-005

Medium

	Measured R	Measured X	Calibrated R	Calibrated X	Units
Air	130351	131011	-0.2	-0.2	MMHOS
Zero	131064	131068	26.7	1.9	MMHOS
Reference	250174	250556	5026.7	5001.9	MMHOS
Loop	128308	218141	3560.1	3731.6	MMHOS
Sonde Error			-3.6	3.0	MMHOS
Cond			5026.7	5001.9	MMHOS

Deep

	Measured R	Measured X	Calibrated R	Calibrated X	Units
Air	128932	131135	-0.1	-0.0	MMHOS
Zero	131084	131072	43.9	-7.2	MMHOS
Reference	233274	233952	2043.9	1992.8	MMHOS
Loop	126596	219999	1681.7	1773.2	MMHOS
Sonde Error			-4.1	-7.7	MMHOS
Cond			2043.9	1992.8	MMHOS

Temperature

Measured Low	Measured High	Calibrated Low	Calibrated High	Units
16980.0	56920.0	70.0	350.0	DEGF

Performed : 21-Nov-2012 Time : 14:39
Sensor Suite : SFL ID : PIT-AB-005

Internal

	Measured Zero	Measured Reference	Calibrated Zero	Calibrated Reference	Units
Im	32765.9	49467.5	0.0	7028.0	uA
Ib	32769.2	48720.1	0.0	1750.0	mA

Ib	32769.2	48720.1	0.0	1750.0	mA
MOM1	32713.4	56534.1	0.0	175.0	mV
Equivalent SFL				43.97	OHMM

Performed : 21-NOV-2012 Time : 14:40
Sensor Suite : P-SP ID : PIT-AB-005

Internal

Measured		Calibrated		
Zero	Reference	Zero	Reference	Units
32768.6	58921.2	0.0	1000.0	mV

Well File: PICK_COY_10_JAN_31_MSTK **Scale:** 1:1200
Segment: V1.D1.S5 MAIN **Acquired:** 2013-01/31 16:33 3.2.0-11401
Reference: 0 **Processed:** 2013-01/31 18:01 3.2.0-11401

TENSION
LBS
10000 0

DEEP INDUCTION
OHMM
0.0 500.0
0.0 50.0

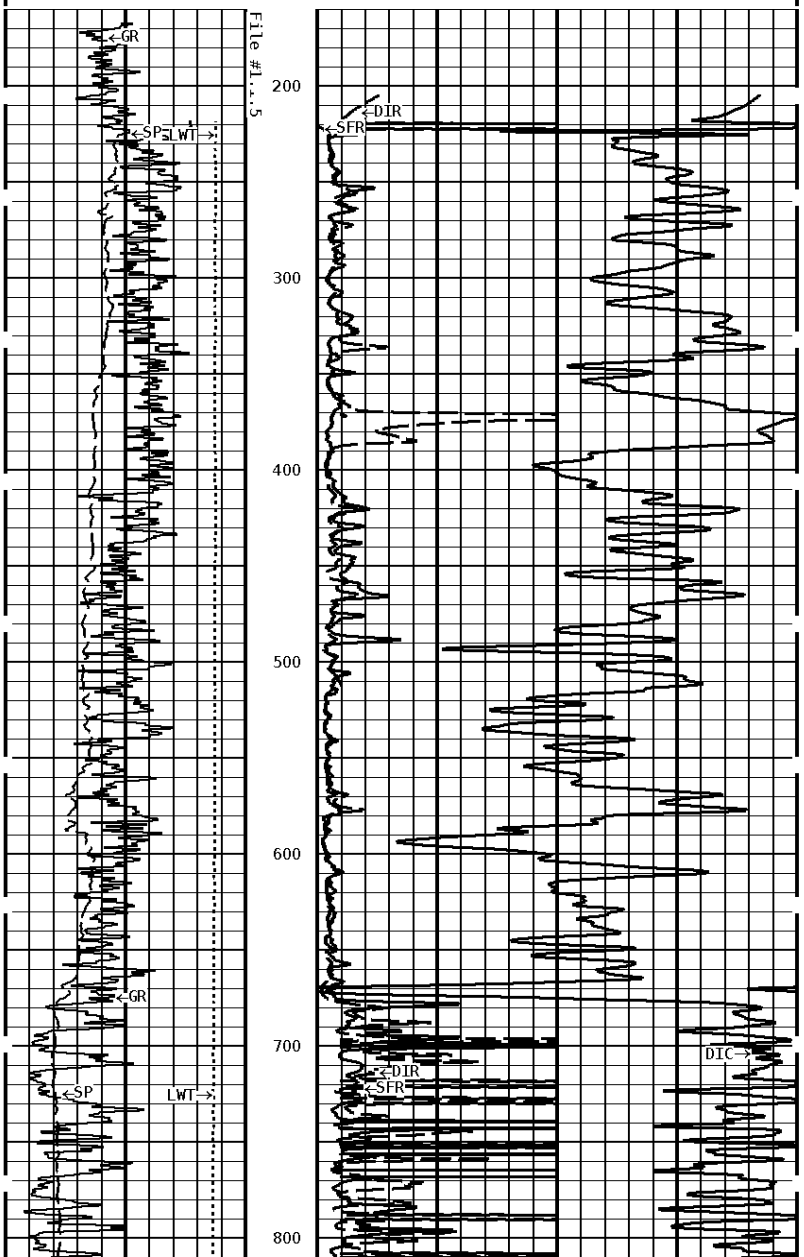
SPONTANEOUS POTENTIAL
mV
→| |←25

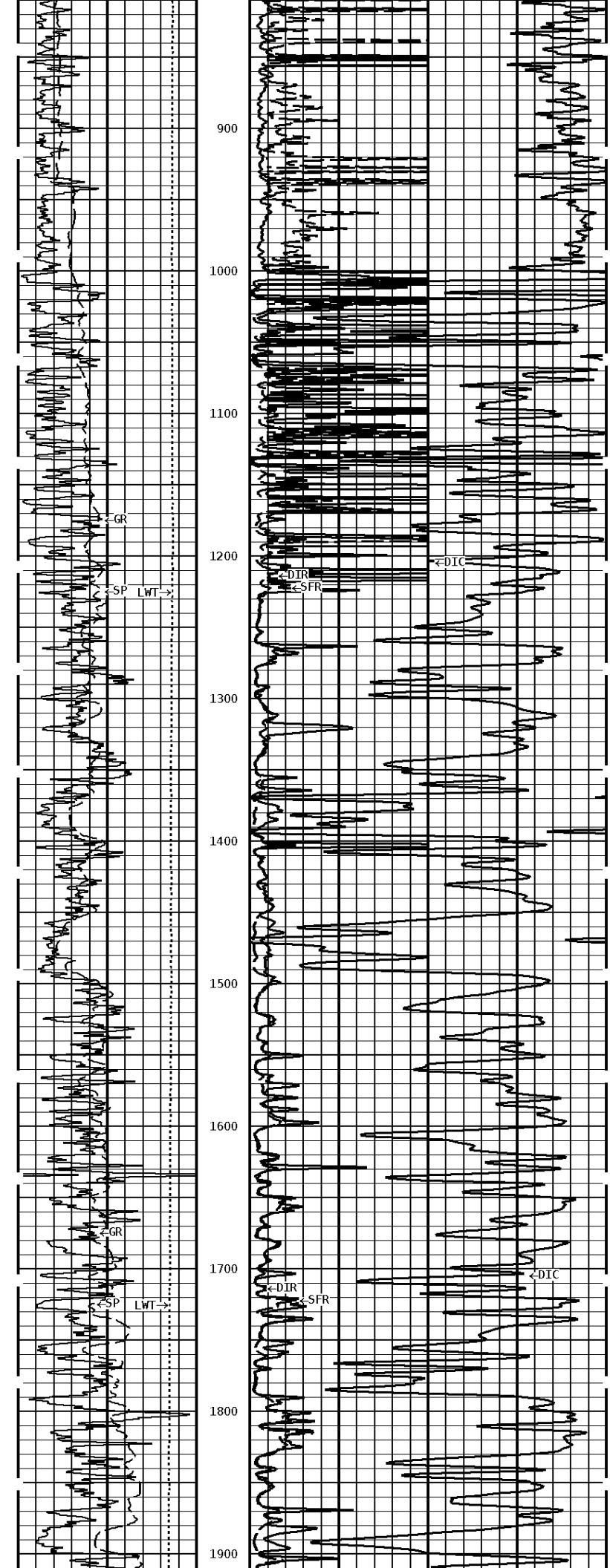
SHALLOW FOCUSED
OHMM
0.0 500.0
0.0 50.0

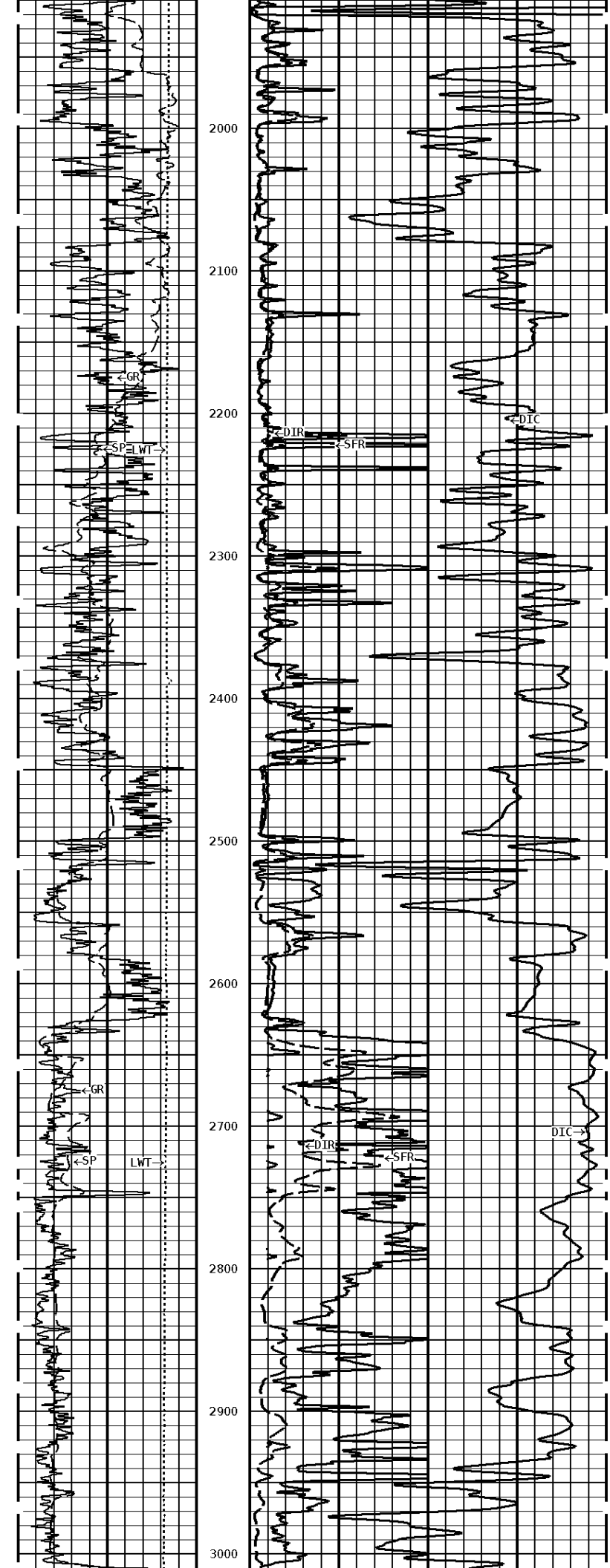
GAMMA RAY
API UNITS
150 300
0 150

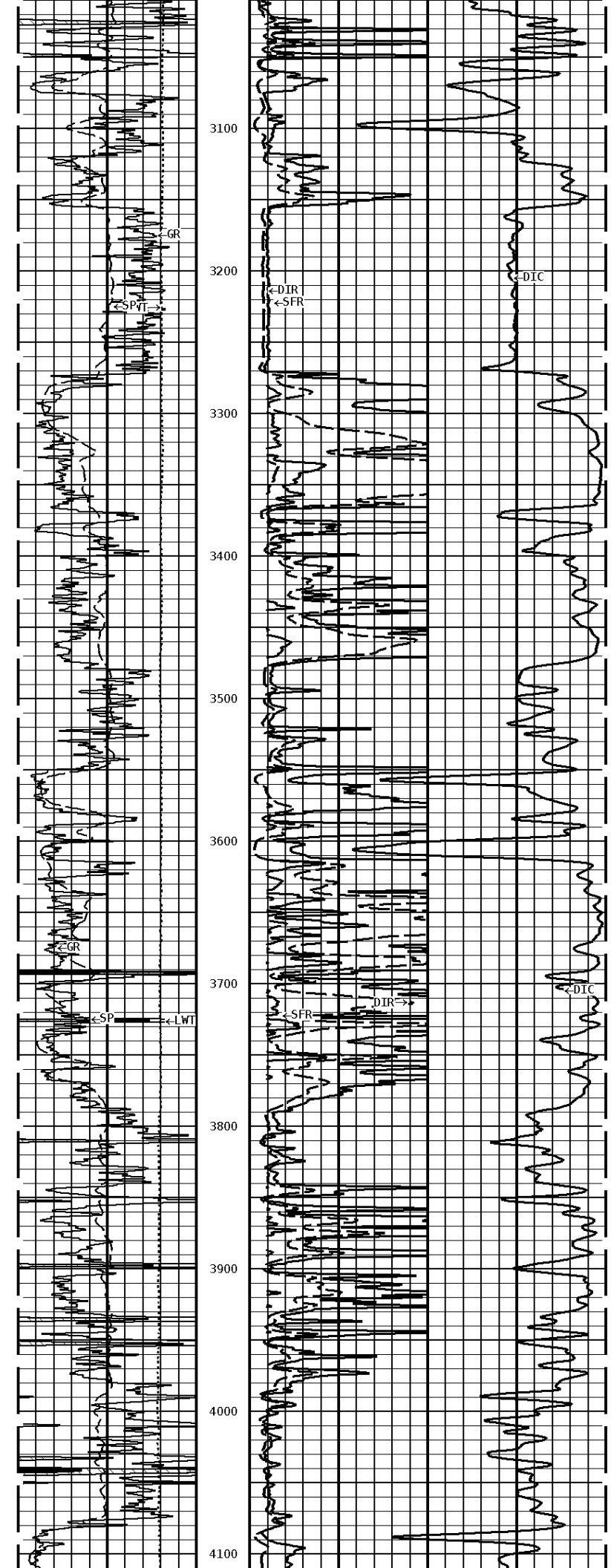
DEEP CONDUCTIVITY
MMHO
2000 1000
1000 0

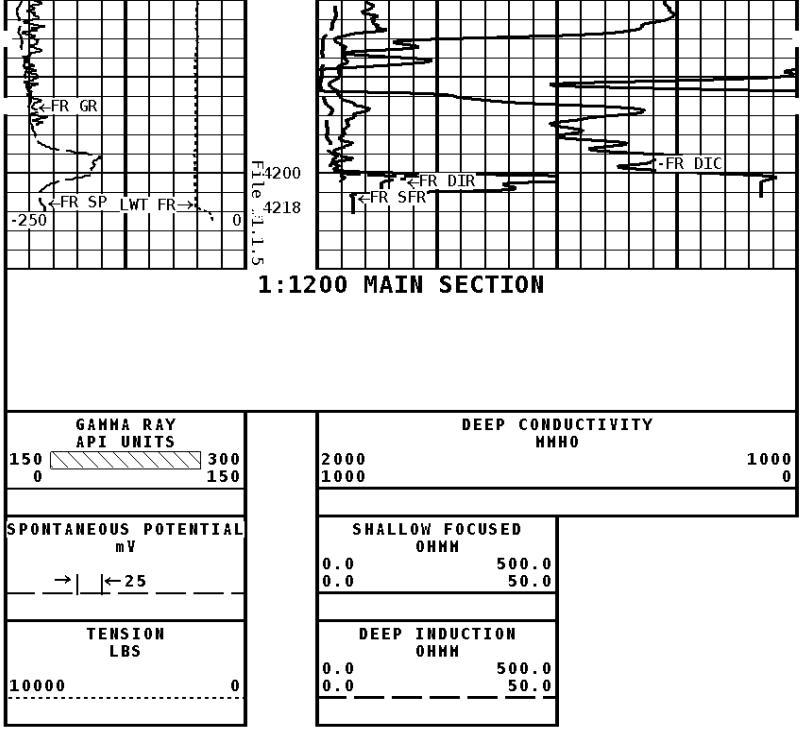
1:1200 MAIN SECTION




900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
GR
SP
LWT
DIR
SFR
DIC
GR
SP
LWT
DIR
SFR
DIC


2000
2100
2200
2300
2400
2500
2600
2700
2800
2900
3000
←GR
←SP
LWT→
←DIR
←SFR
←DIC
DIC→


3100
3200
3300
3400
3500
3600
3700
3800
3900
4000
4100
GR
SPWT
DIR
SFR
DIC
GR
SP
LWT
SFR
DIR
DIC



Tucker ENERGY SERVICES

Company: PICKRELL DRILLING CO, INC.

Well: COYKENDALL #10

Location: 1980' FSL & 760' FEL

Logged: 2013-01-31

K.B. Elev: 1469.0 Ft