ARRAY INDUCTION SHALLOW FOCUSED ELECTRIC LOG

Weatherford®

COMPANY	O'BRIEN RESOURCES, LLC
WELL	BOOMHOWER 36 #3
FIELD	BOOMHOWER
PROVINCE/COUNTY	LANE
COUNTRY/STATE	U.S.A. / KANSAS
LOCATION	1309' FSL & 2300' FEL NE NW SW SE

SEC	TWP	RGE	Other Services
36	17S	29W	MPD/MDN MML

API Number 15-101-22464
Permit Number

Permanent Datum G.L, Elevation 2774 feet
Log Measured From KB
Drilling Measured From K.B. @ 10 FEET

Elevations:	feet
KB	2784.00
DF	2782.00
GL	2774.00

Date	25-OCT-2013			
Run Number	ONE			
Service Order	3539911			
Depth Driller	4685.00	feet		
Depth Logger	4683.00	feet		
First Reading	4680.00	feet		
Last Reading	276.00	feet		
Casing Driller	275.00	feet		
Casing Logger	276.00	feet		
Bit Size	7.875	inches		
Hole Fluid Type	CHEMICAL			
Density / Viscosity	9.30 lb/USg		44.00 CP	
PH / Fluid Loss	11.00		5.60 ml/30Min	
Sample Source	FLOWLINE			
Rm @ Measured Temp	1.02 @ 78.0	ohm-m		
Rmf @ Measured Temp	0.82 @ 78.0	ohm-m		
Rmc @ Measured Temp	1.22 @ 78.0	ohm-m		
Source Rmf / Rmc	CALC		CALC	
Rm @ BHT	0.69 @115.0	ohm-m		
Time Since Circulation	3 HOURS			
Max Recorded Temp	115.00	deg F		
Equipment / Base	13057		LIB	
Recorded By	ROB HOFFMAN			
Witnessed By	KURT TALBOTT			
JOB #	LB13-305			

BOREHOLE RECORD

Last Edited: 25-OCT-2013 06:19

Bit Size inches	Depth From feet	Depth To feet
7.875	275.00	4685.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	275.00	24.00

REMARKS

- SOFTWARE ISSUE: 13.05.9583
- MCG, MML, MDN, MPD, MFE, MAI RAN IN COMBINATION
- HARDWARE: DUAL BOWSPRING USED ON MDN
  0.5 INCH STANDOFF USED ON MFE_MAI
- 2.71 G/CC LIMESTONE DENSTIY MATRIX USED TO CALCULATE POROSITY
- BOREHOLE RUGOSITY, TIGHT PULLS, AND WASHOUTS WILL EFFECT DATA QUALITY
- ALL INTERVALS LOGGED AND SCALED PER CUSTOMRES REQUEST
- TOTAL HOLE VOLUME FROM TD TO SURFACE CASING: 1732 CU.FT.
- ANNULAR HOLE VOLUME WITH 4.5 INCH PRODUCTION CASING FROM TD TO 3300 FEET: 339 CU.FT.
- RIG: VAL DRILLING RIG #2

- RIG: VAL DRILLING RIG #2

- ENGINEER: ROB HOFFMAN, JOHN LAPOINT

- OPERATOR: CARLOS RAMIREZ

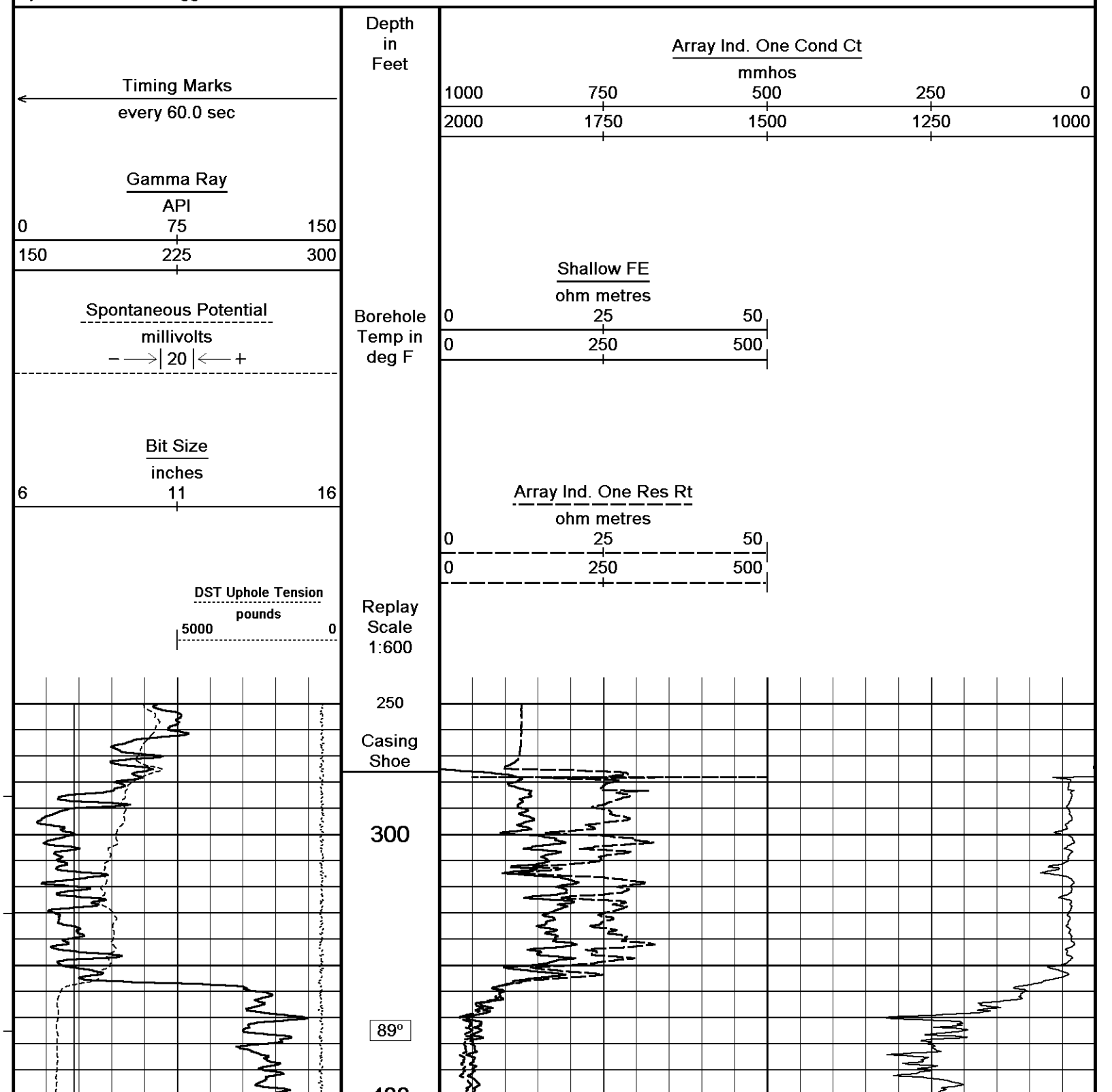
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions in our price schedule.

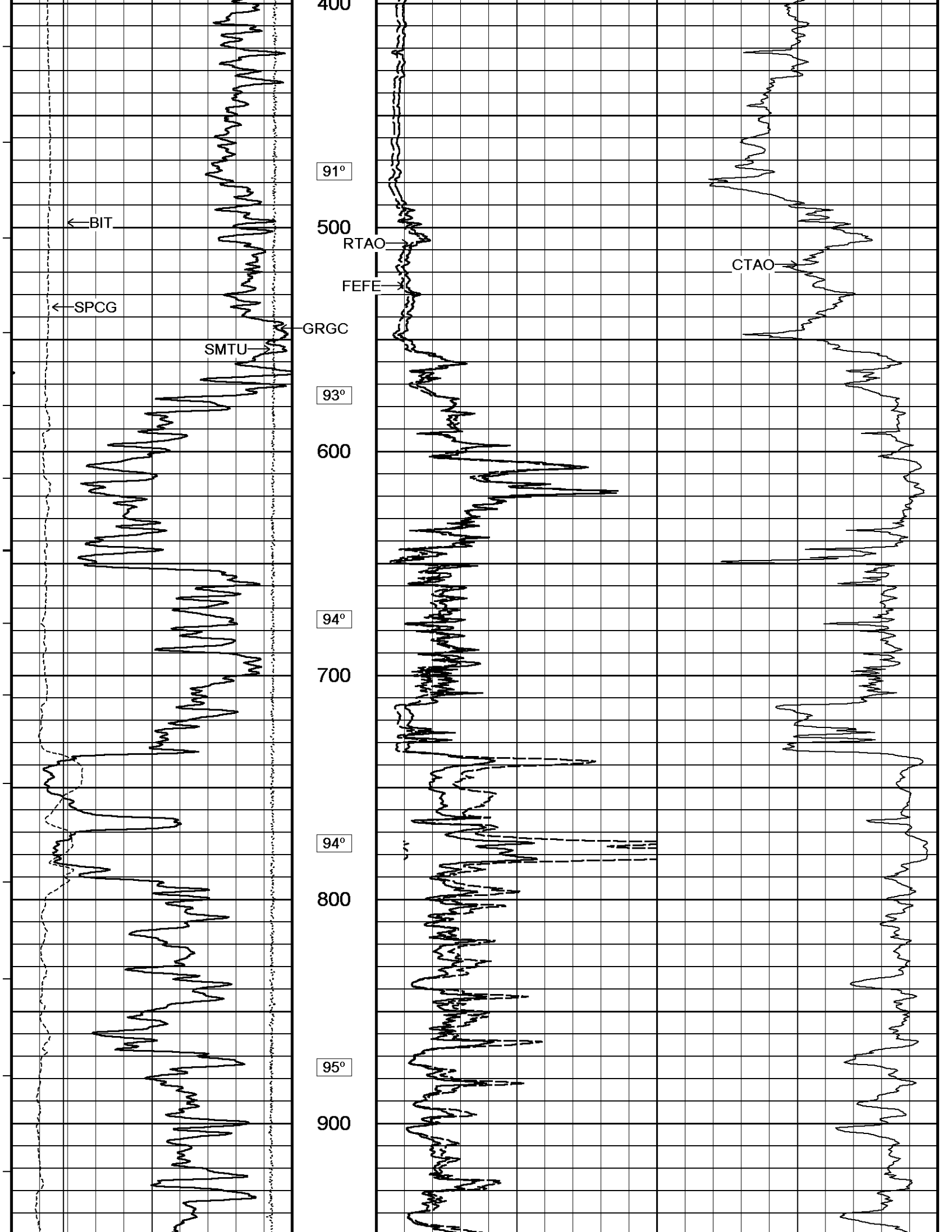
2 INCH MAIN

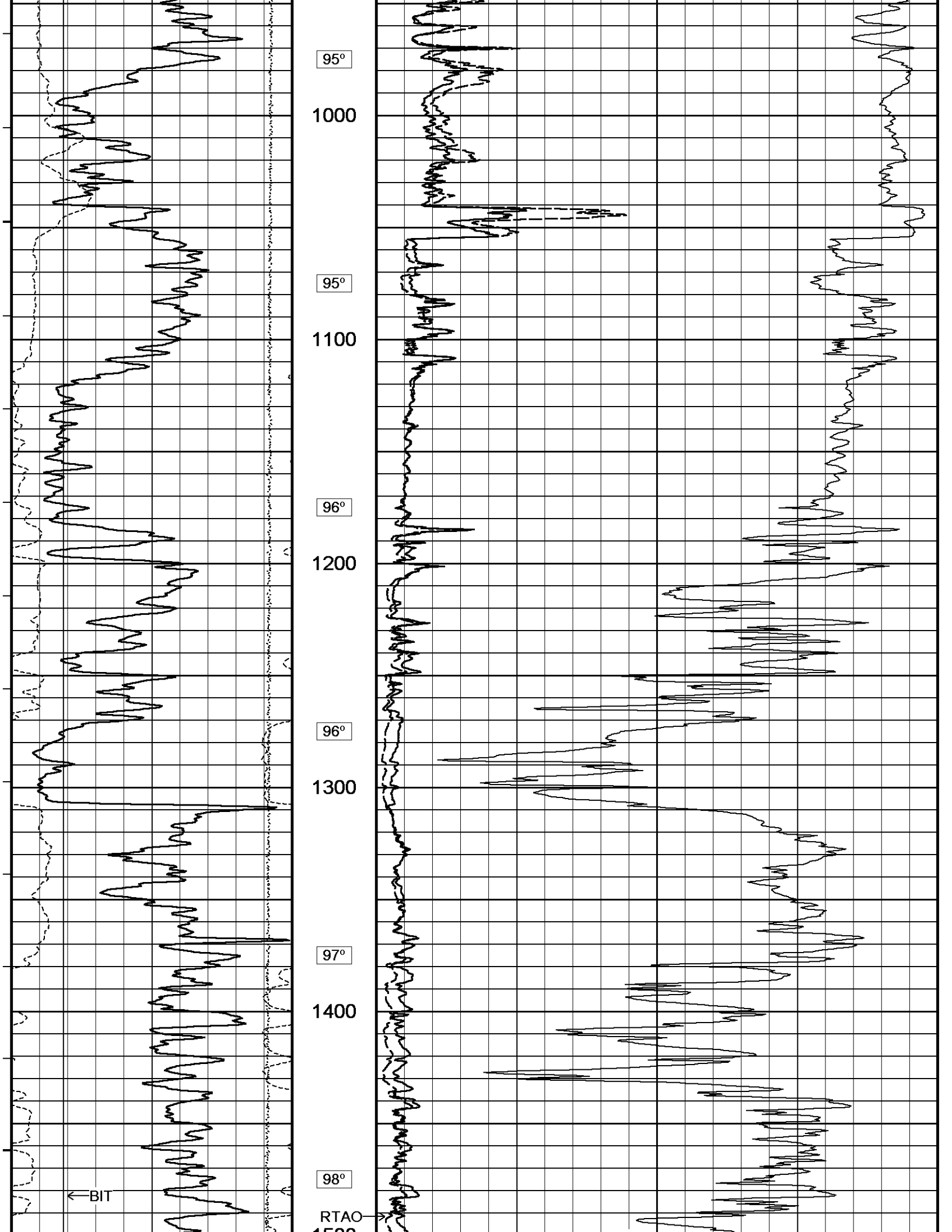
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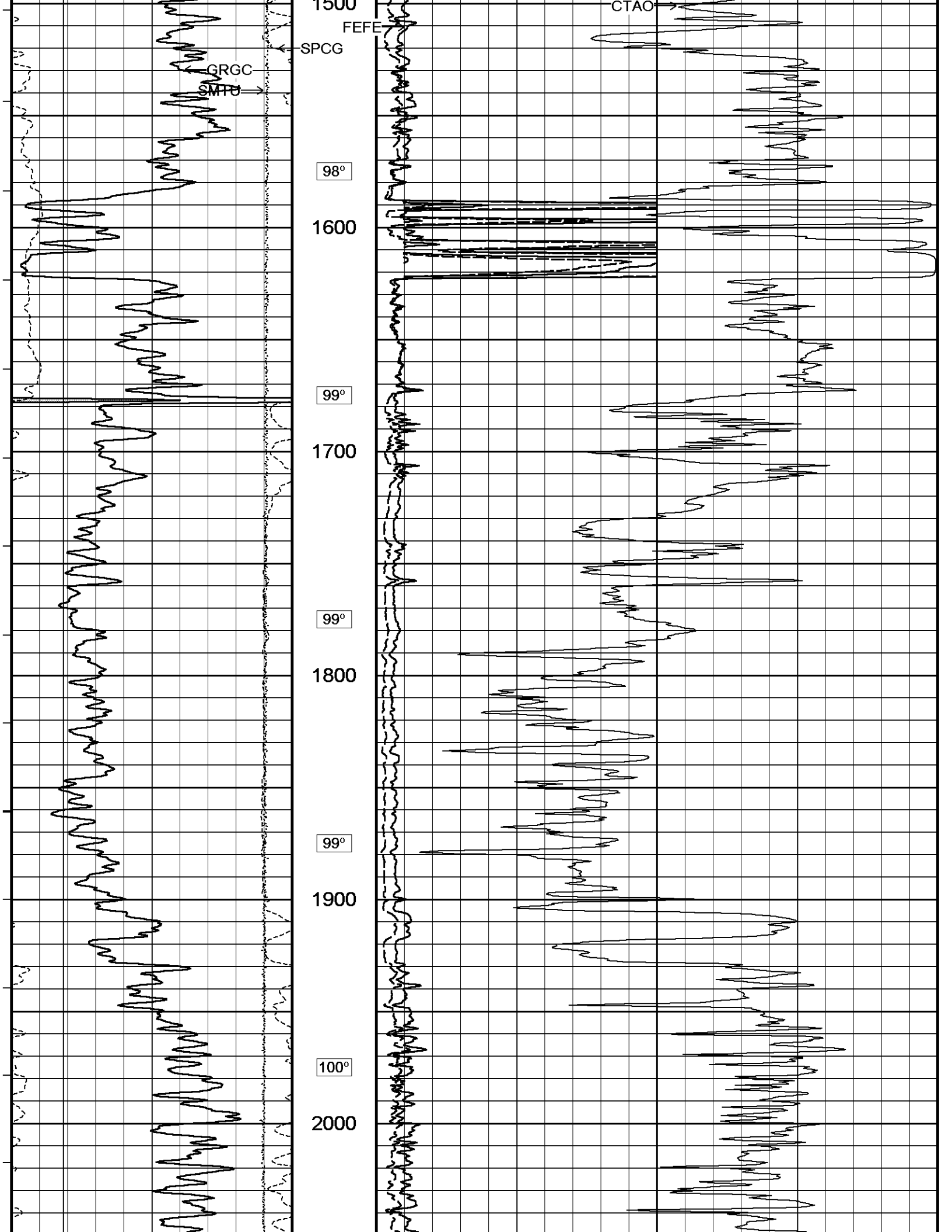
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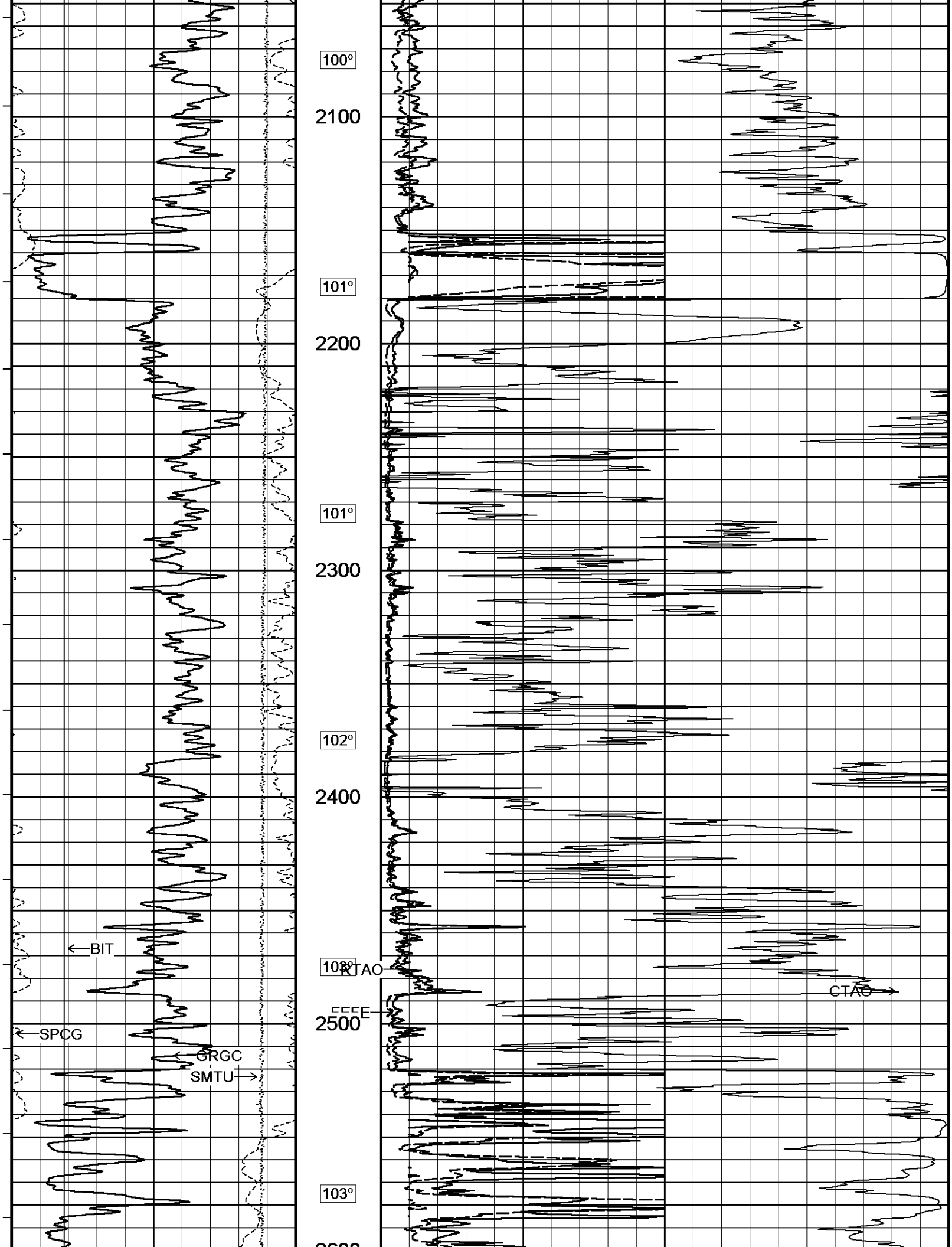
System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583

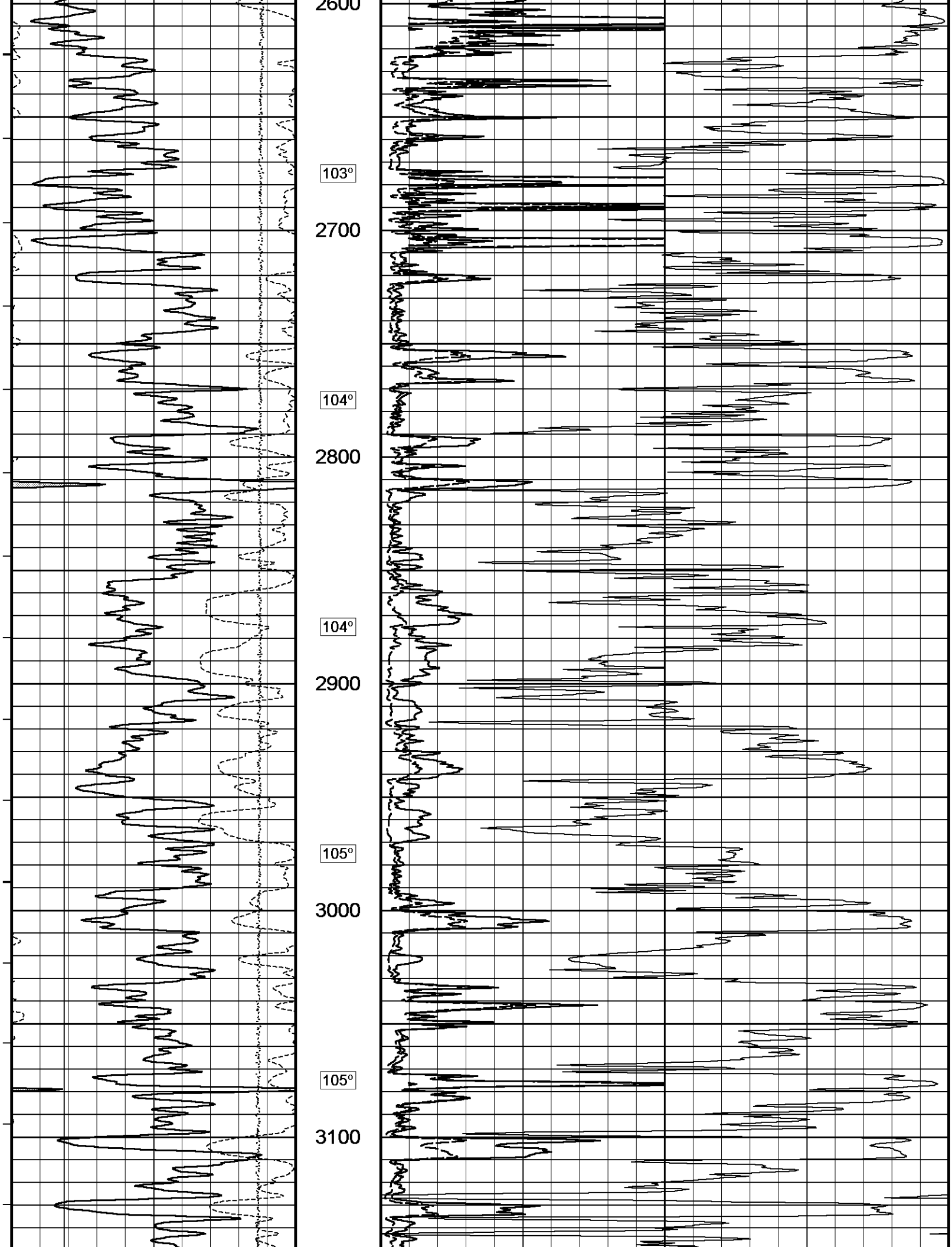


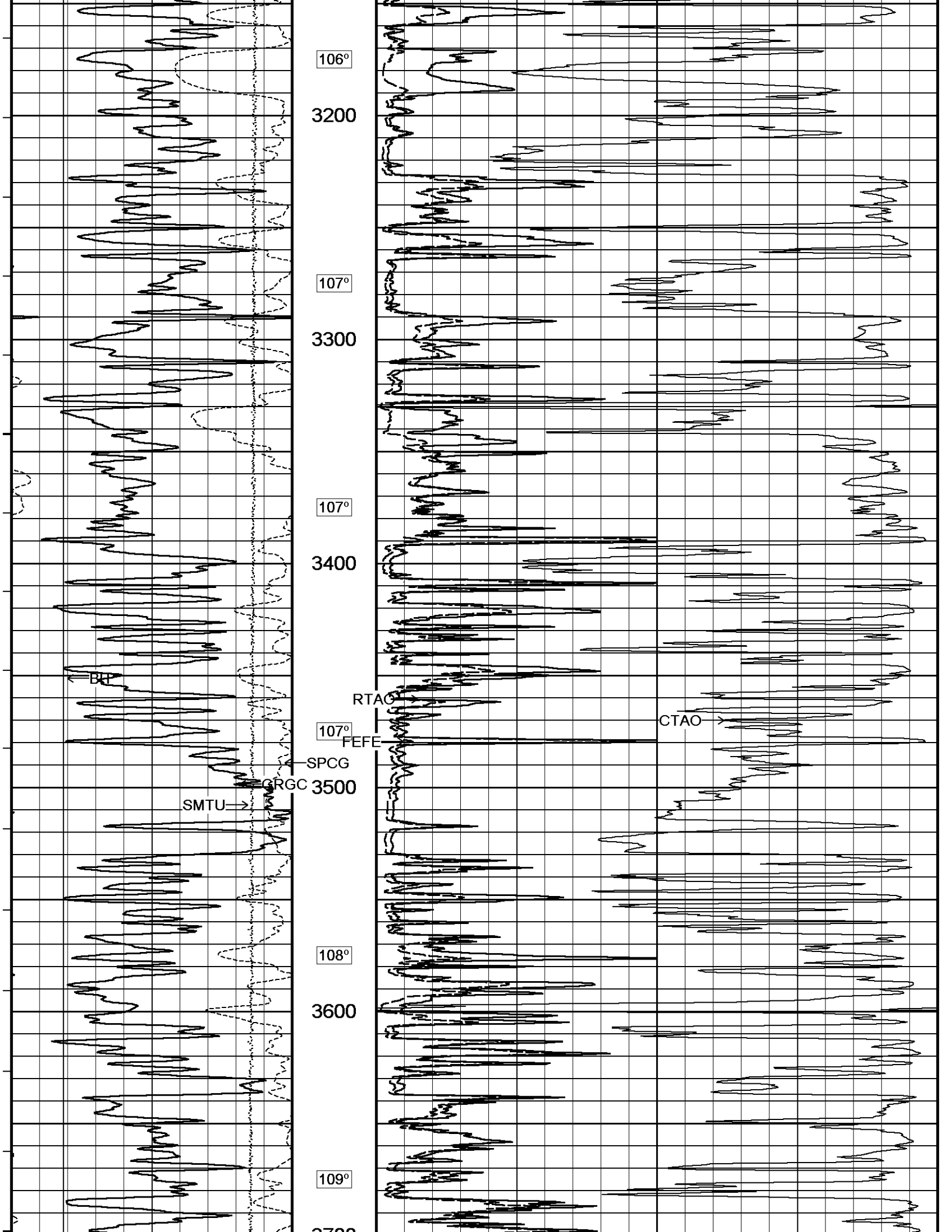

400
91°
BIT
500
RTAO
CTAO
FEFE
SPCG
GRGC
SMTU
93°
600
94°
700
94°
800
95°
900

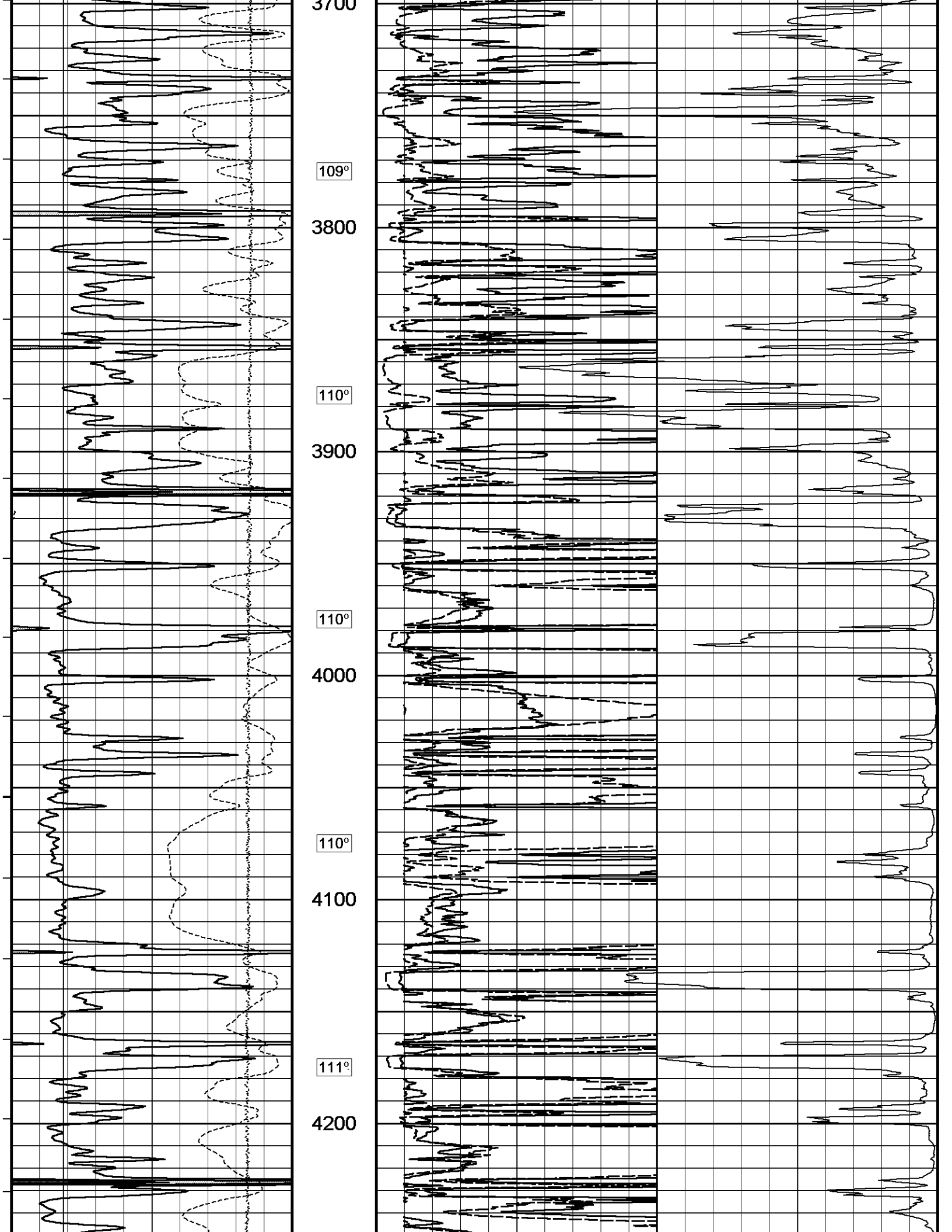

95°
1000
95°
1100
96°
1200
96°
1300
97°
1400
98°
BIT
RTAO

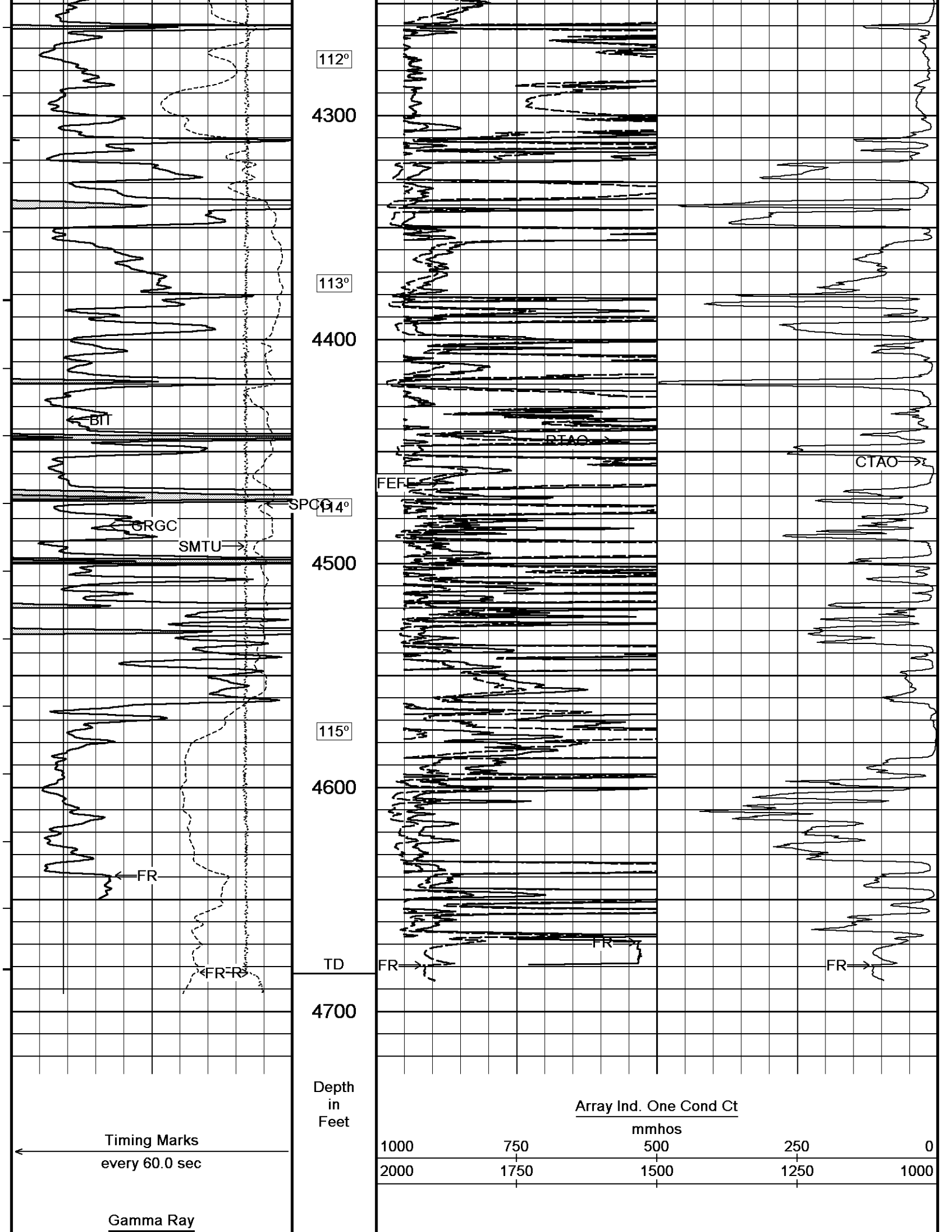

1500
FEFE
SPCG
GRGC
SMTU
CTAO
98°
1600
99°
1700
99°
1800
99°
1900
100°
2000


100°
2100
101°
2200
101°
2300
102°
2400
BIT
RTAO
CTAO
2500
SPCG
GRGC
SMTU
103°


2600
103°
2700
104°
2800
104°
2900
105°
3000
105°
3100


106°
3200
107°
3300
107°
3400
BKP
RTAO
CTAO
107°
FEFE
SPCG
GRGC
3500
SMTU
108°
3600
109°


3700
109°
3800
110°
3900
110°
4000
110°
4100
111°
4200


112°
4300
113°
4400
BIT
RTAO
CTAO
FEFE
SPCG
114°
GRGC
SMTU
4500
115°
4600
FR
FR
FR
FR
TD
4700
Depth
in
Feet
Timing Marks
every 60.0 sec
Gamma Ray
Array Ind. One Cond Ct
mmhos
1000
750
500
250
0
2000
1750
1500
1250
1000

API
0 75 150
150 225 300

Spontaneous Potential
millivolts
− → | 20 | ← +

Bit Size
inches
6 11 16

DST Uphole Tension
pounds
5000 0

Borehole Temp in deg F

Replay Scale 1:600

Shallow FE
ohm metres
0 25 50
0 250 500

Array Ind. One Res Rt
ohm metres
0 25 50
0 250 500

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 25-OCT-2013 14:54
Filename: C:\Minimus 13.05.9583\Logs\O'Brien Resou...\O'Brien Resources Boomhower 36 #3_002.dta — Recorded on 25-OCT-2013 08:06
System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583

2 INCH MAIN

5 INCH MAIN

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 25-OCT-2013 14:54
Filename: C:\Minimus 13.05.9583\Logs\O'Brien Resou...\O'Brien Resources Boomhower 36 #3_002.dta — Recorded on 25-OCT-2013 08:06
System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

Spontaneous Potential
millivolts
− → | 20 | ← +

DST Uphole Tension
pounds
5000 0

Depth in Feet

Borehole Temp in deg F

HVI every 10 cu ft

Annular Integral every 10 cu ft

Replay Scale 1:240

250

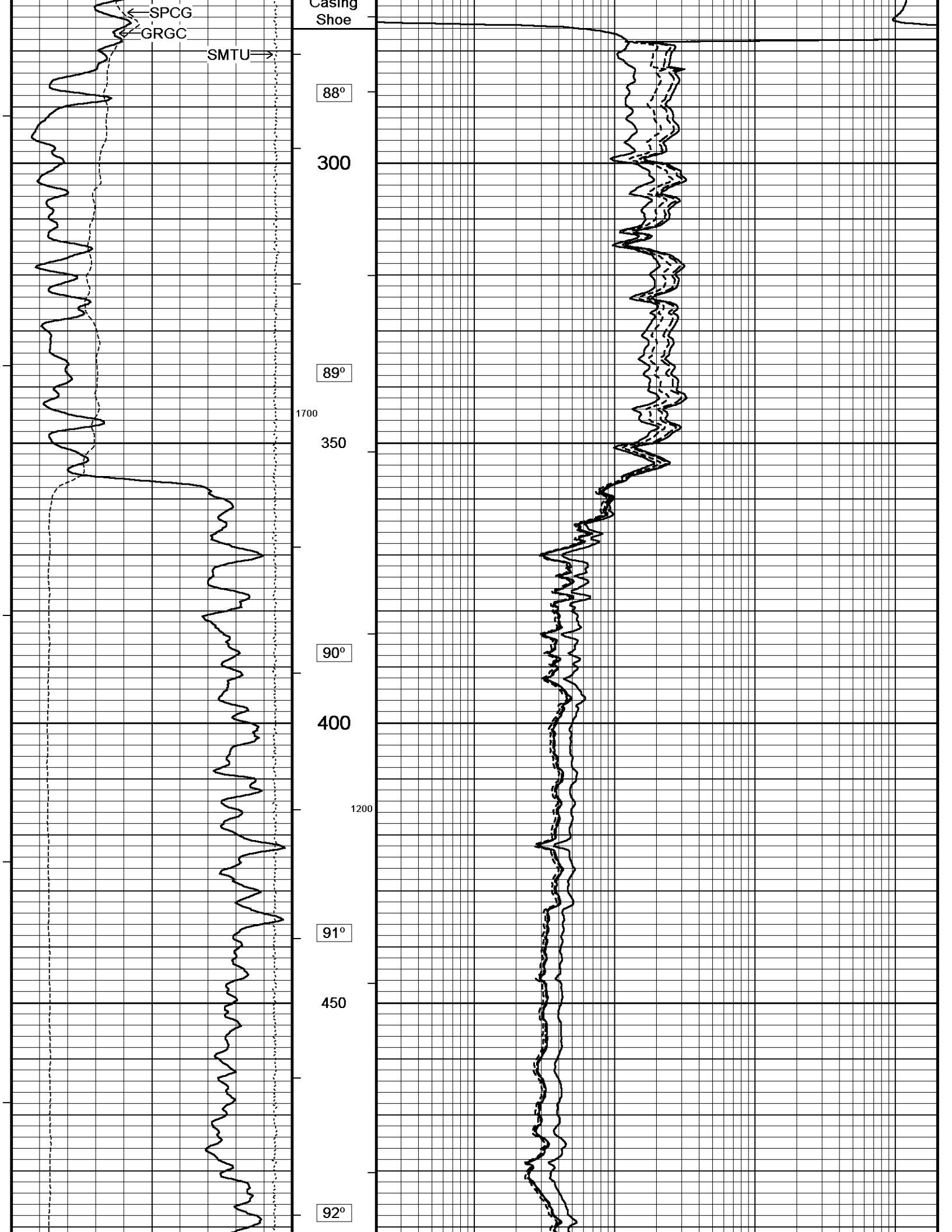
Shallow FE
ohm metres
0.20 2000
1 10 100 1000

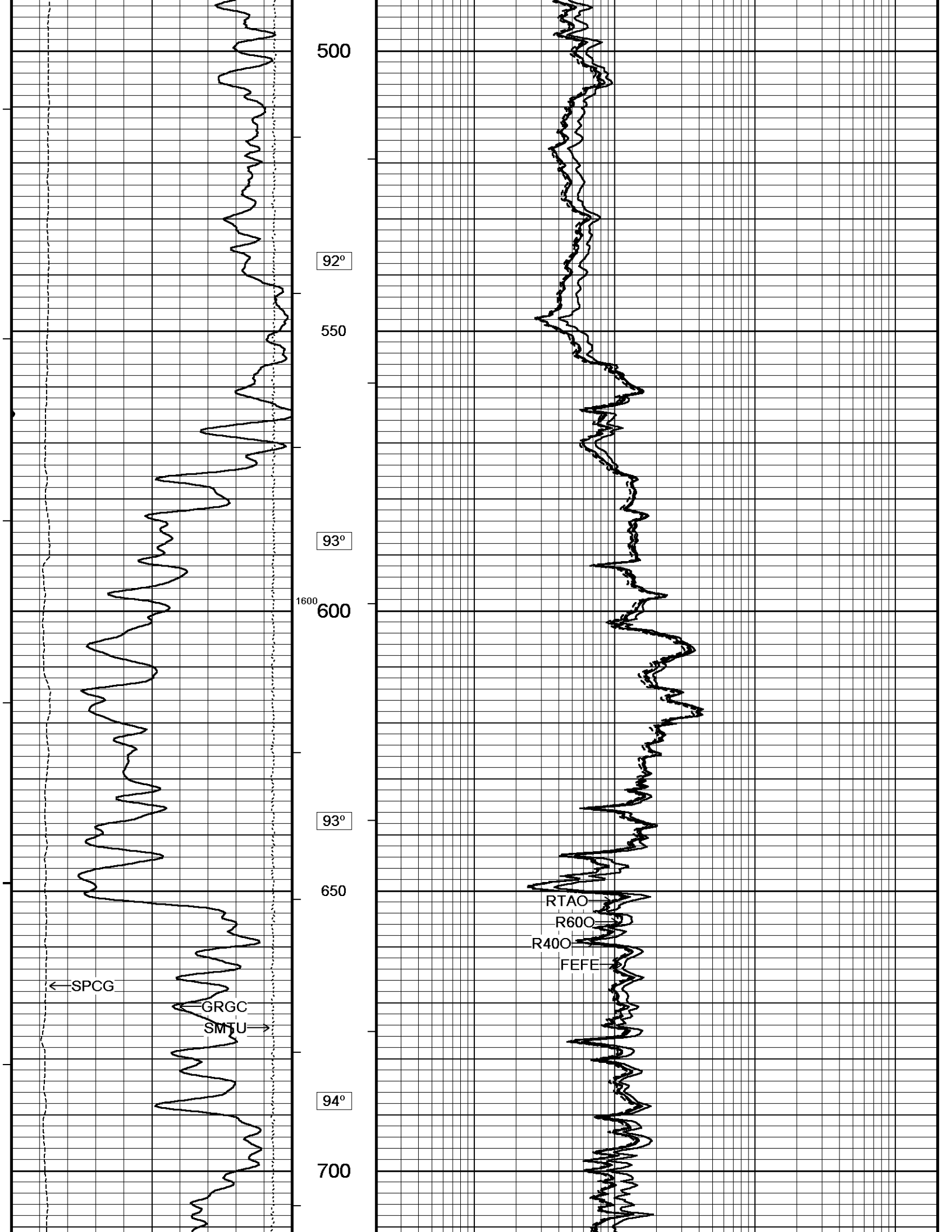
Array Ind. One Res 40
ohm metres
0.20 2000
1 10 100 1000

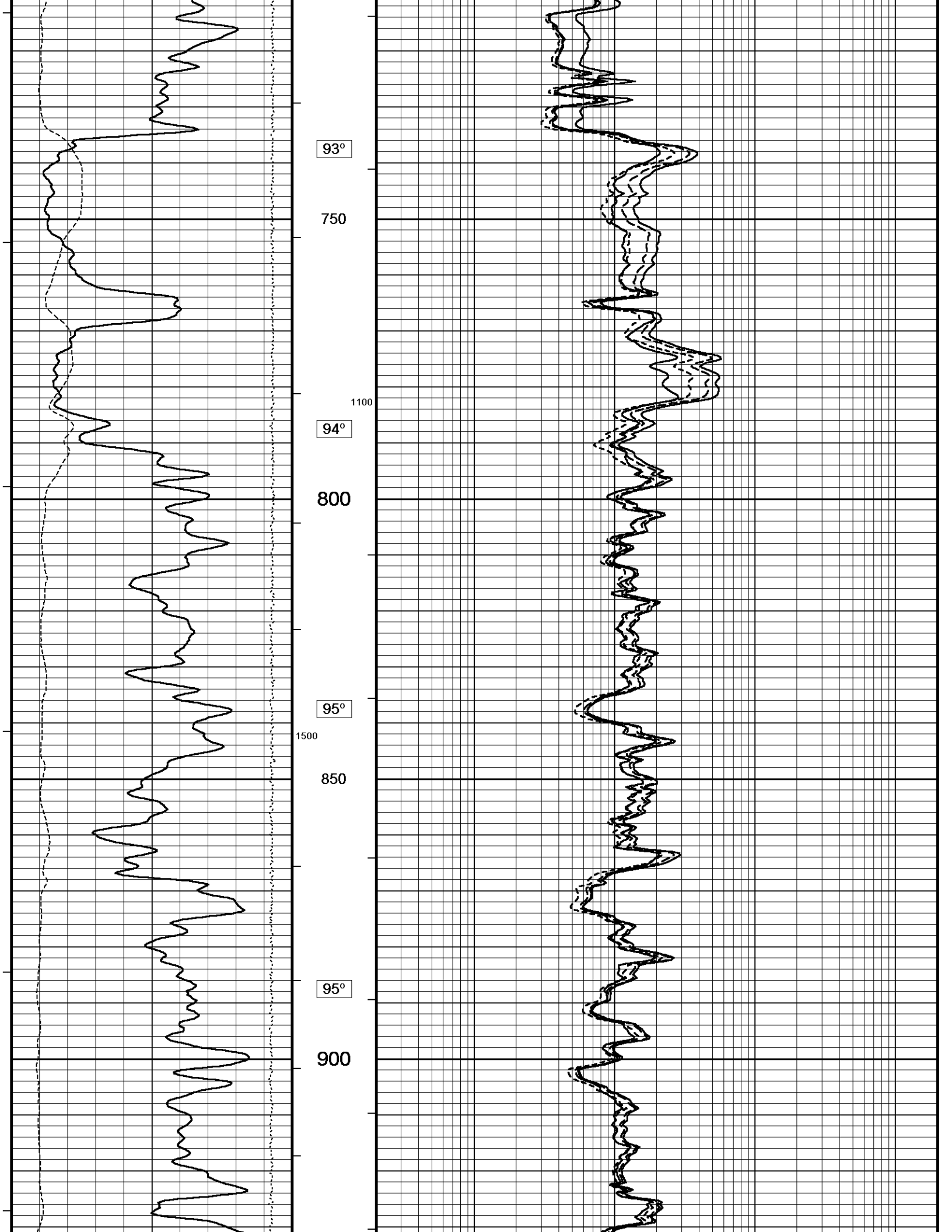
Array Ind. One Res 60
ohm metres
0.20 2000
1 10 100 1000

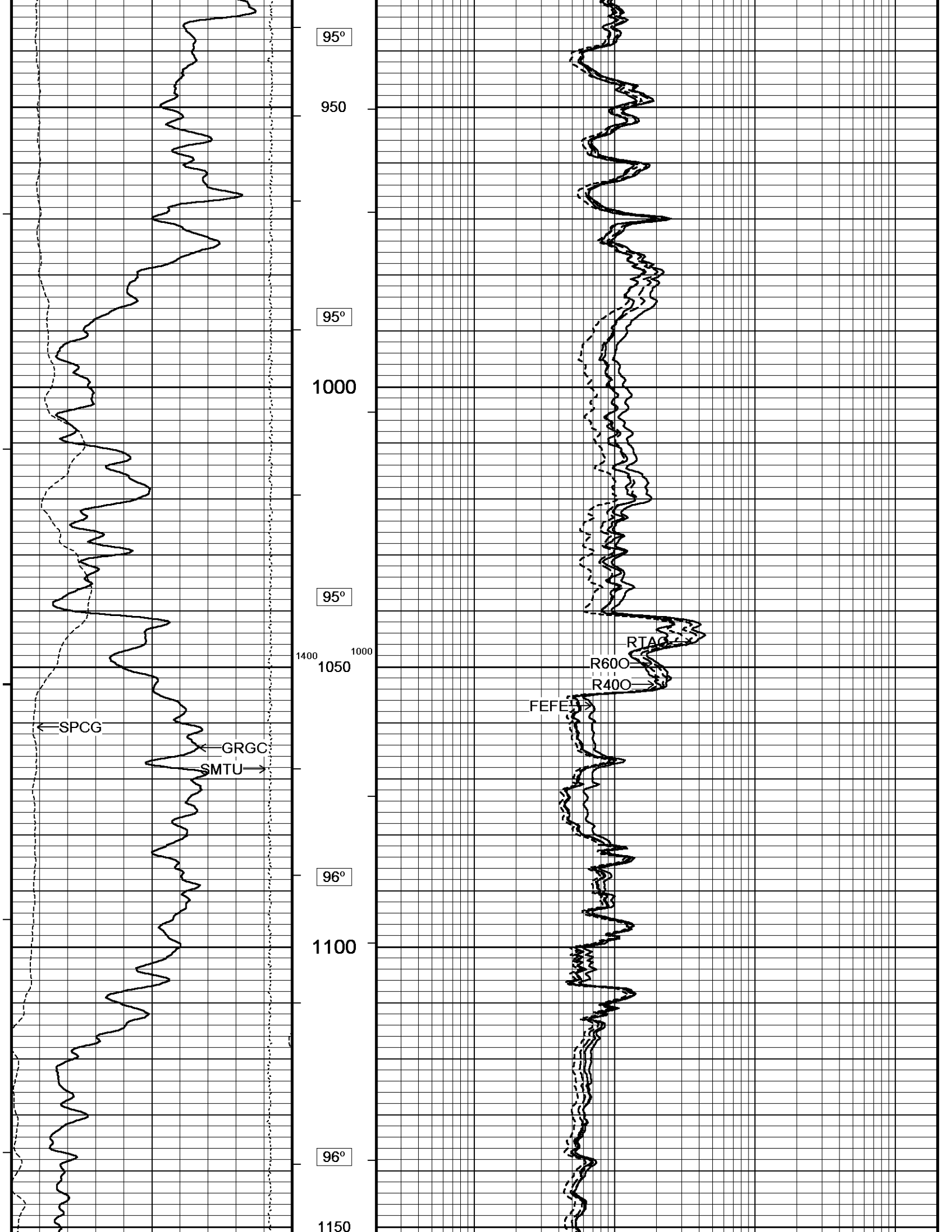
Array Ind. One Res Rt
ohm metres
0.20 2000
1 10 100 1000

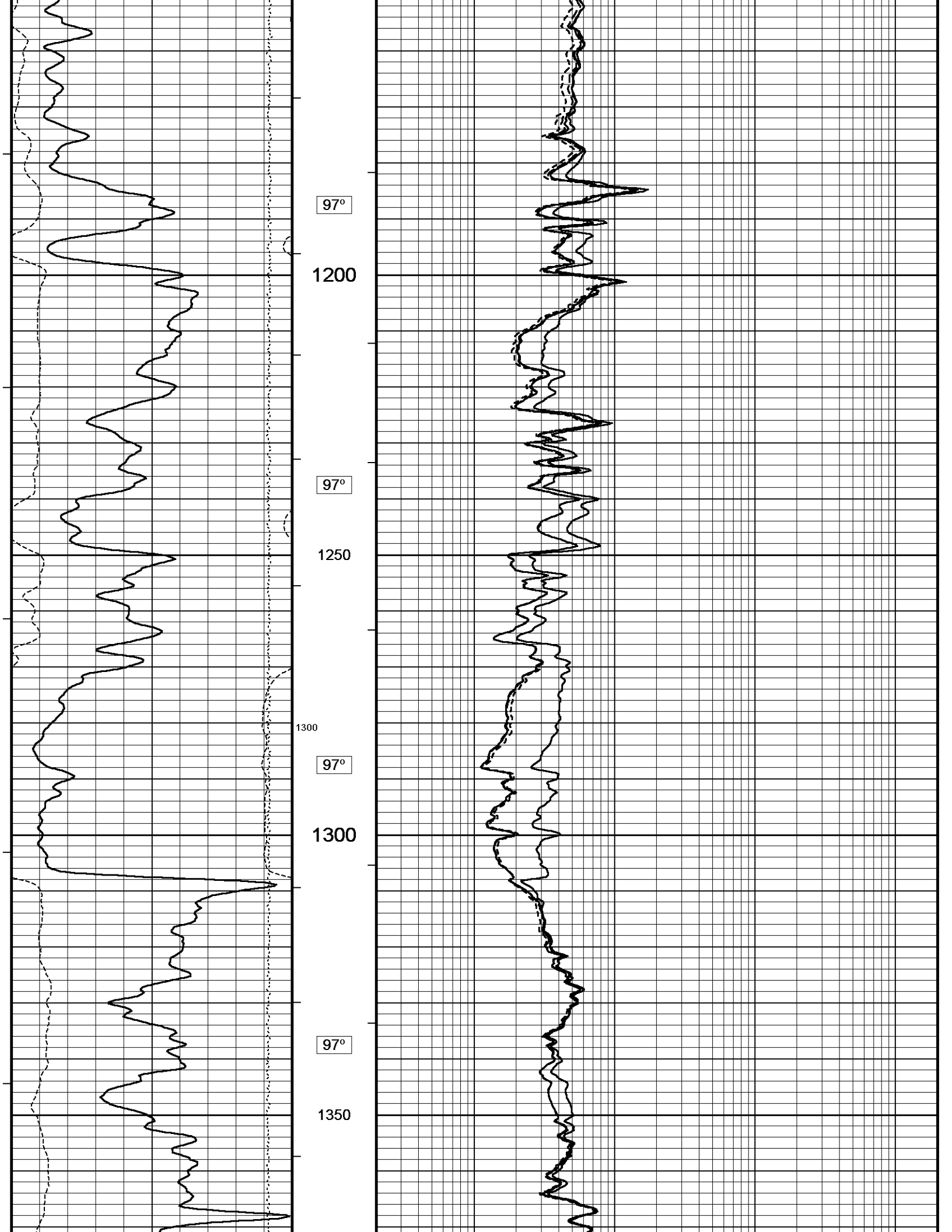
RTAO →
R60O →
R40O →

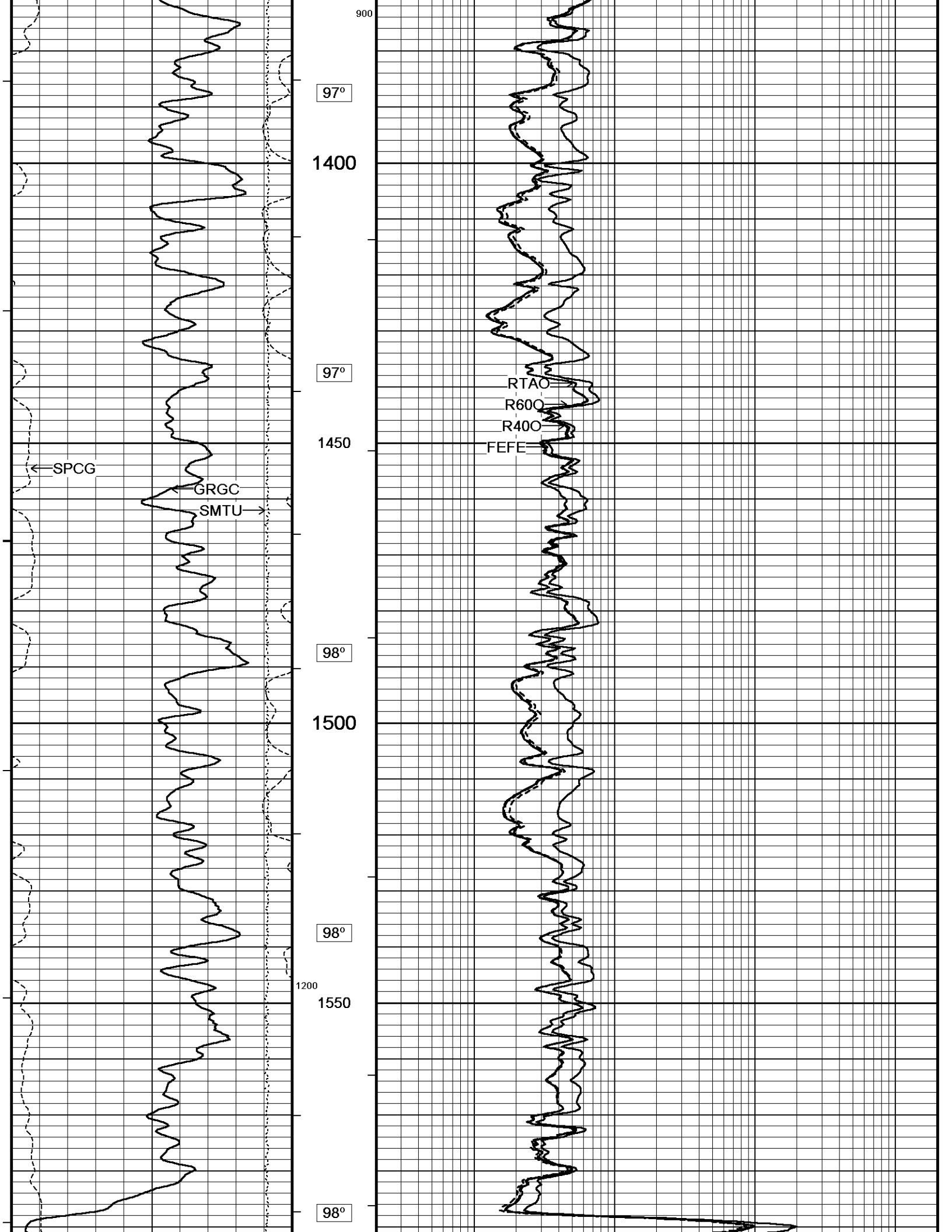

SPCG
GRGC
SMTU
Casing Shoe
88°
300
89°
1700
350
90°
400
1200
91°
450
92°

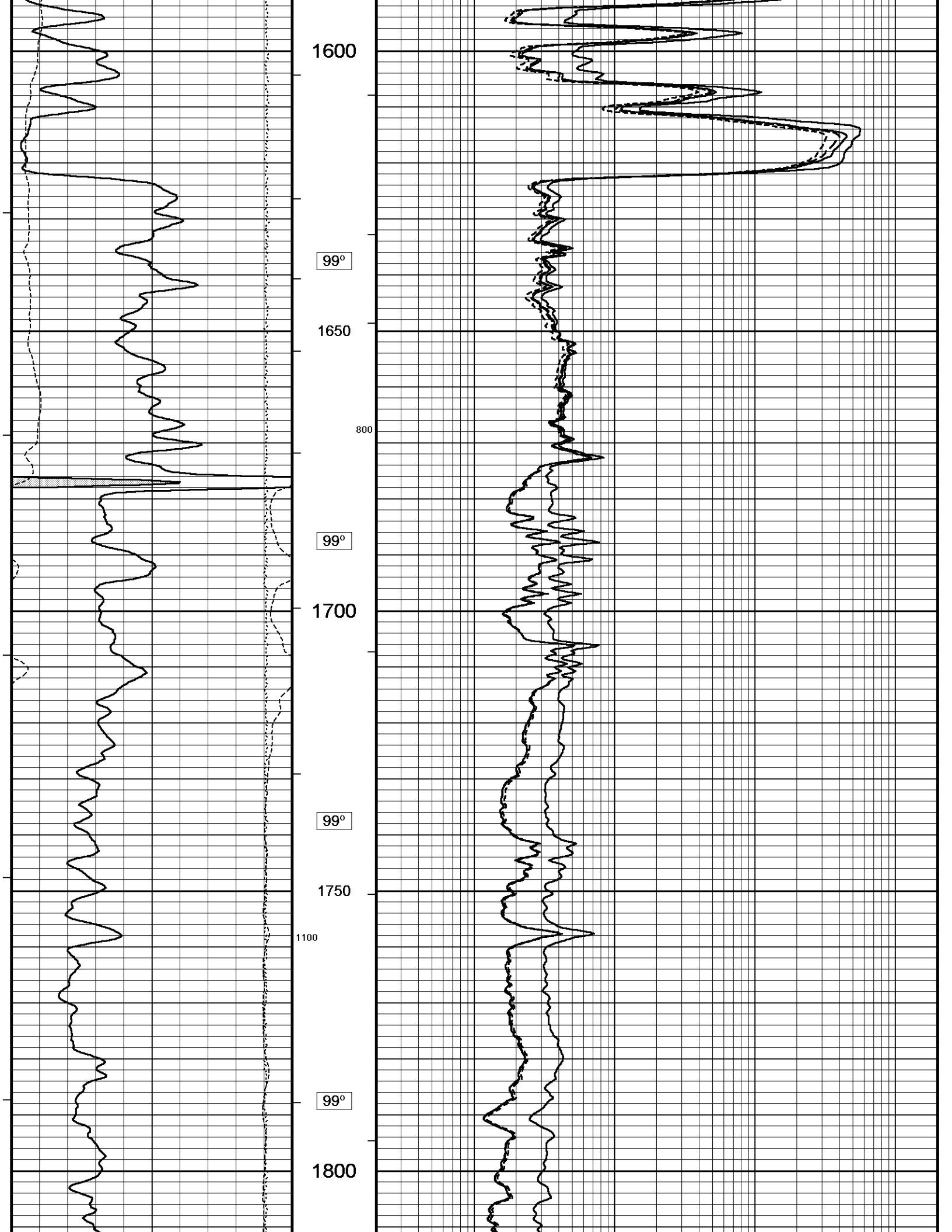

500
92°
550
93°
1600
600
93°
650
RTAO
R60O
R40O
FEFE
SPCG
GRGC
SMTU
94°
700

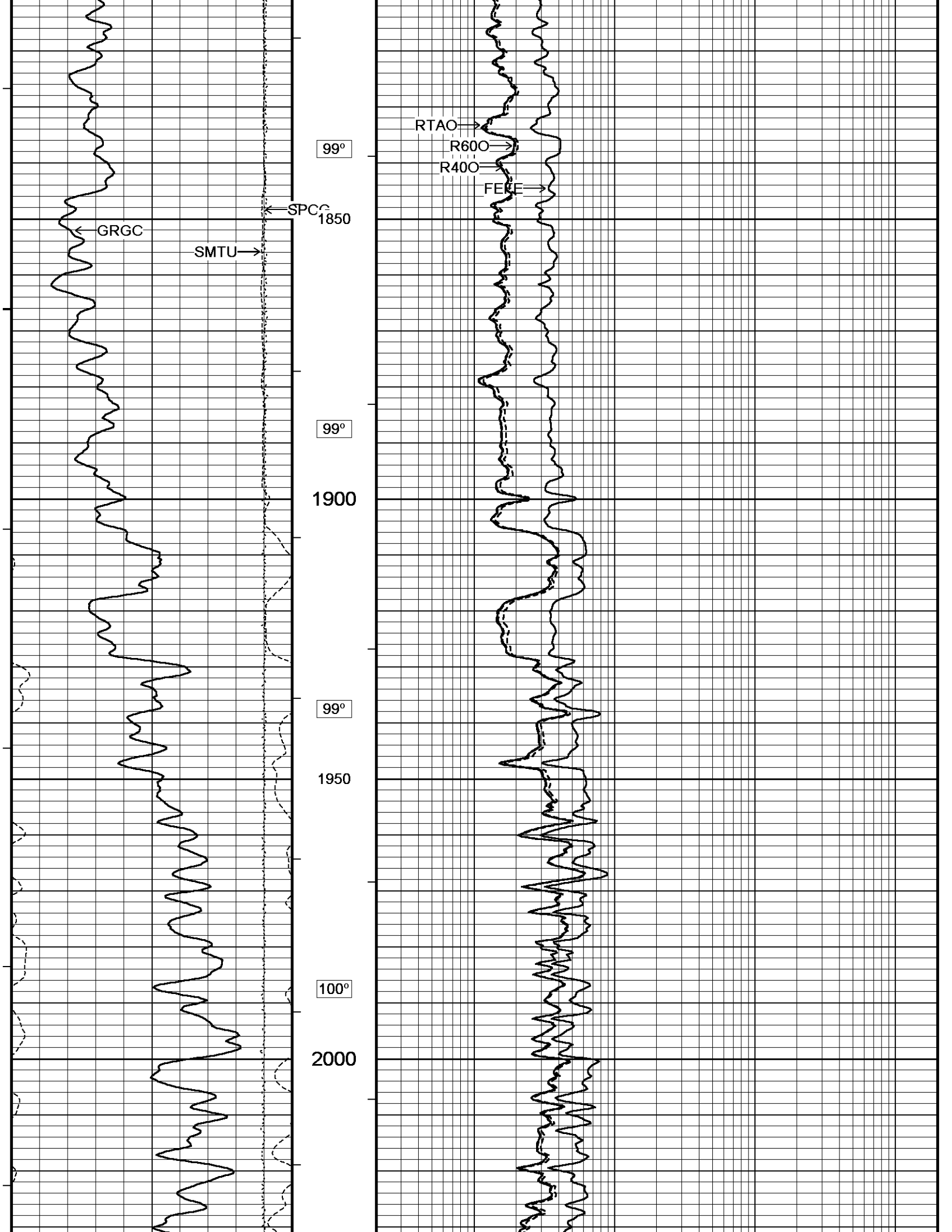

93°
750
1100
94°
800
95°
1500
850
95°
900

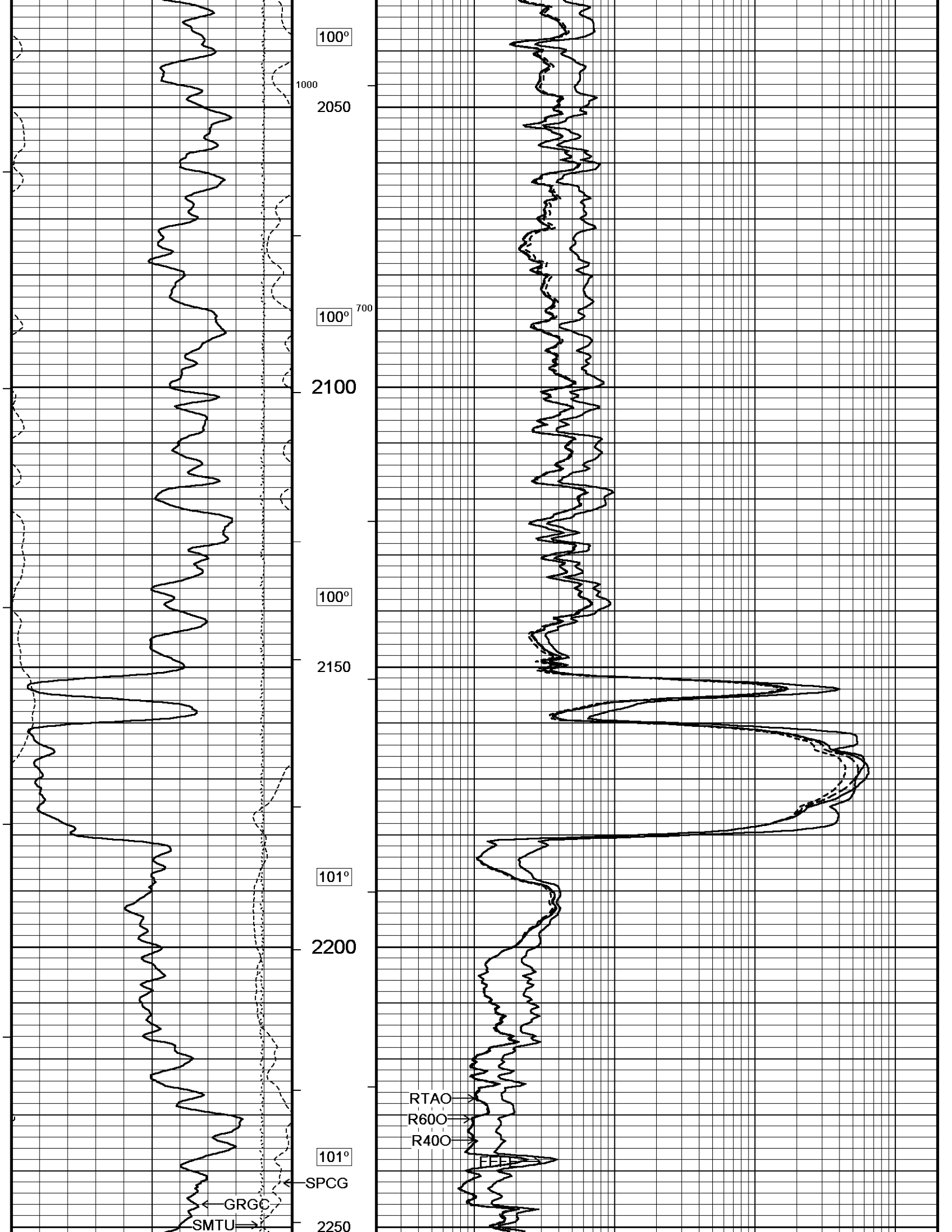

95°
950
95°
1000
95°
1400
1050
1000
RTAO
R60O
R40O
FEFE
SPCG
GRGC
SMTU
96°
1100
96°
1150

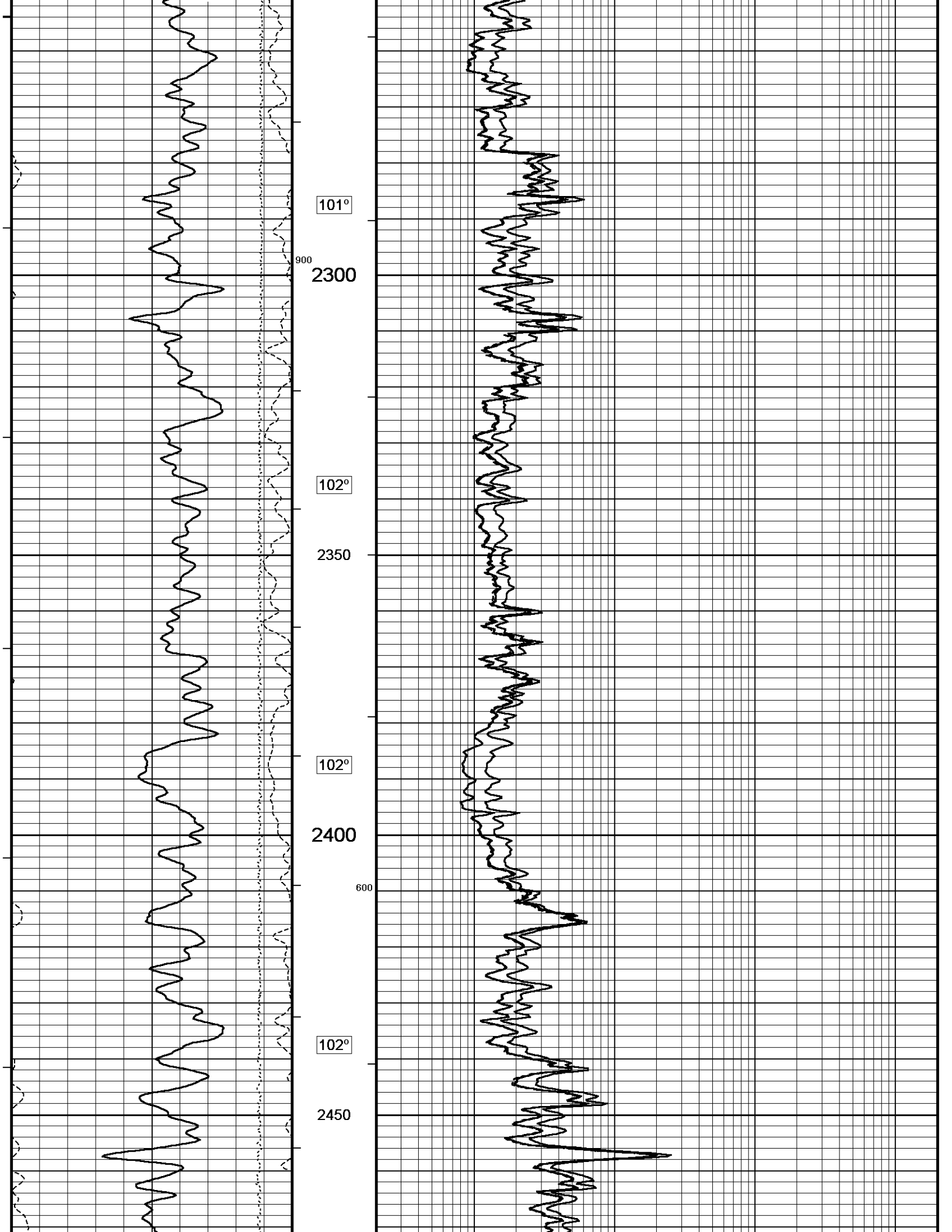

97°
1200
97°
1250
1300
97°
1300
97°
1350

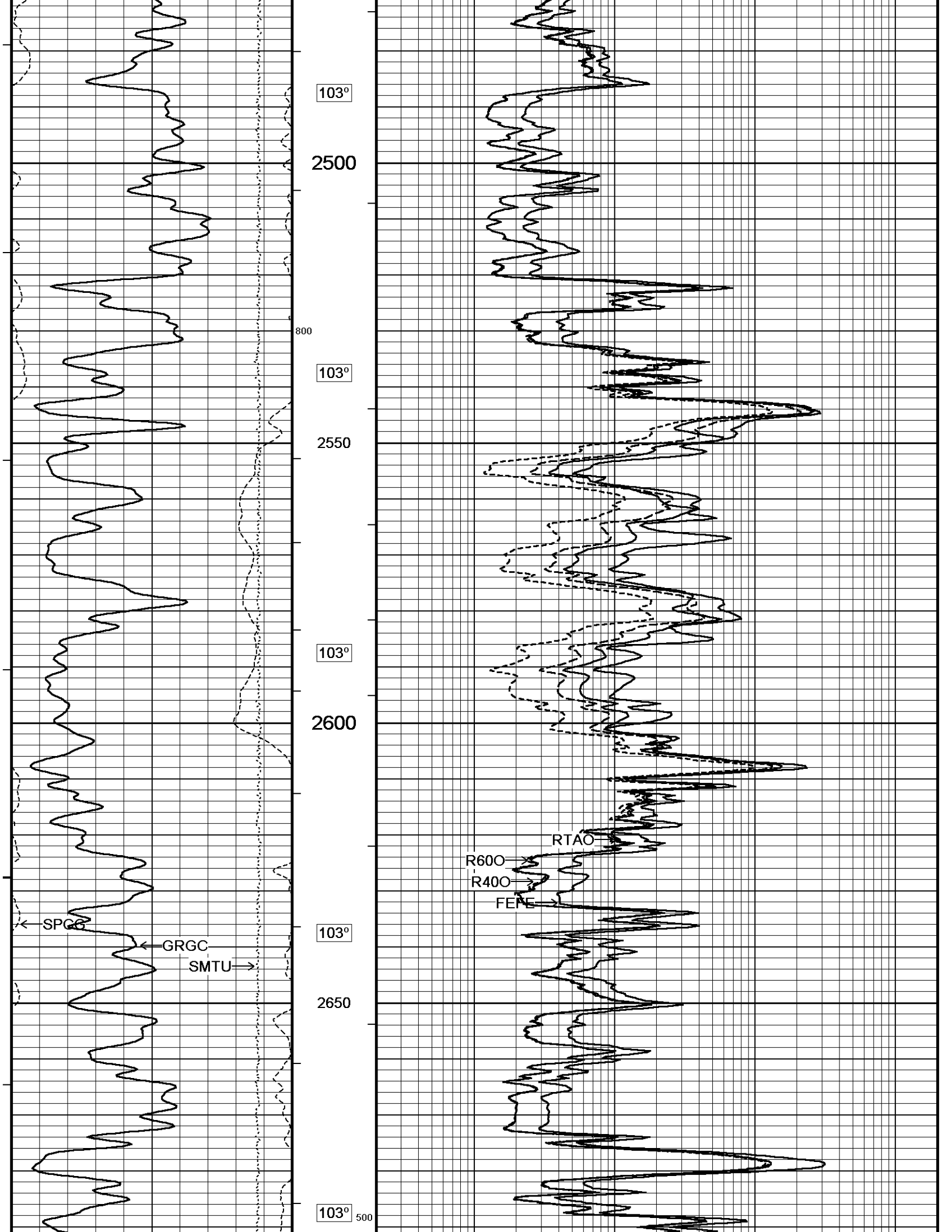

900
97°
1400
97°
RTAO
R60O
R40O
1450
FEFE
SPCG
GRGC
SMTU
98°
1500
98°
1200
1550
98°

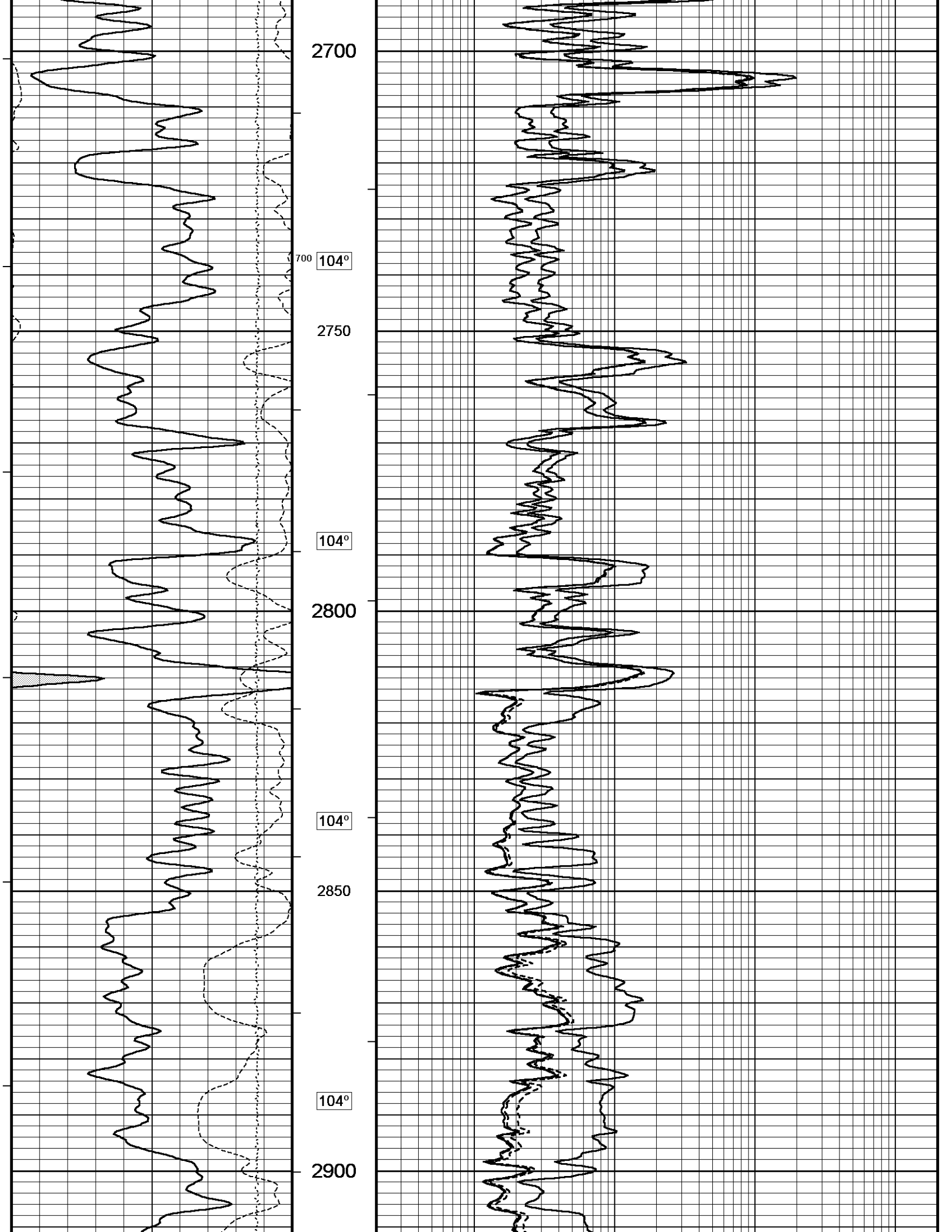

1600
99°
1650
800
99°
1700
99°
1750
1100
99°
1800

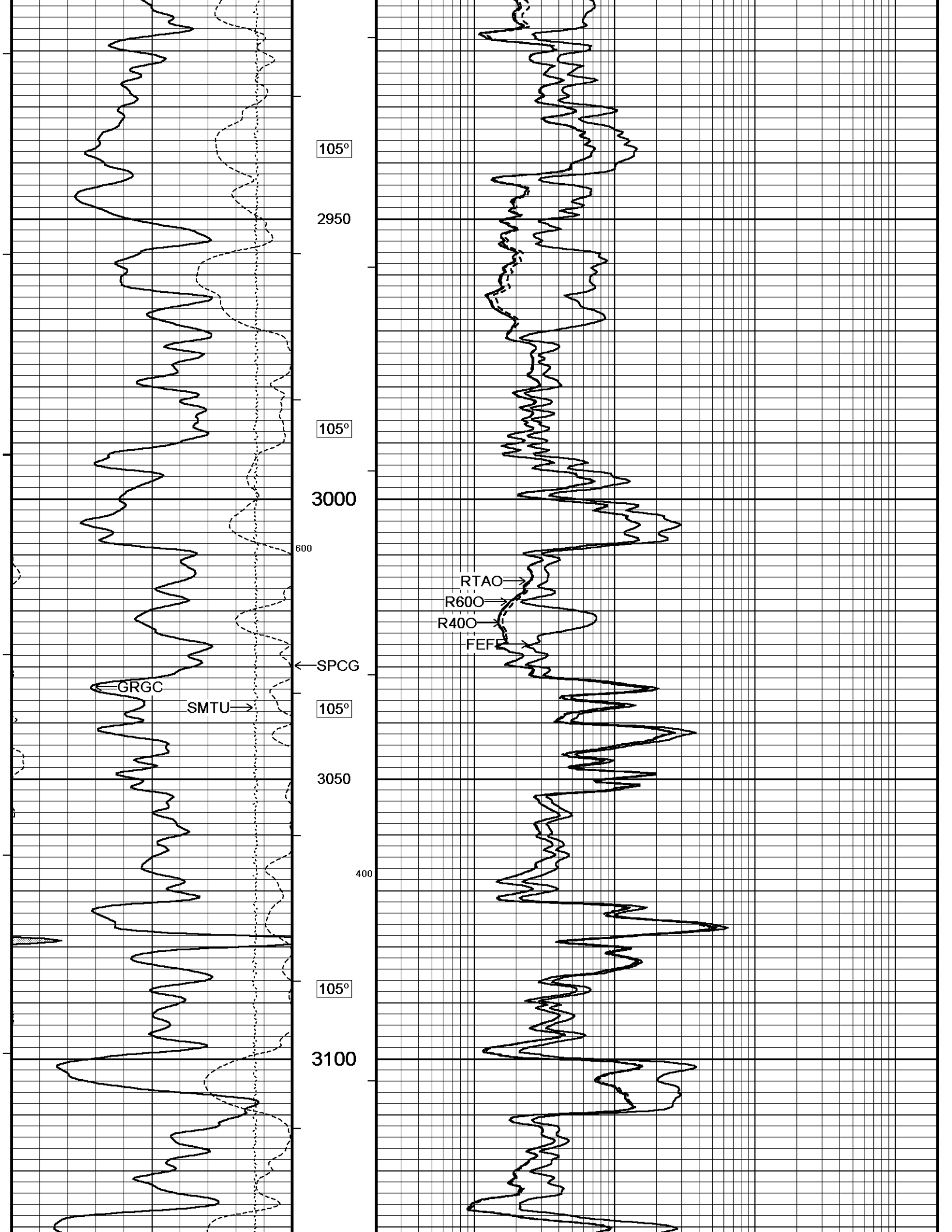

RTAO
R60O
R40O
FERE
SPCG
GRGC
SMTU
99°
1850
99°
1900
99°
1950
100°
2000

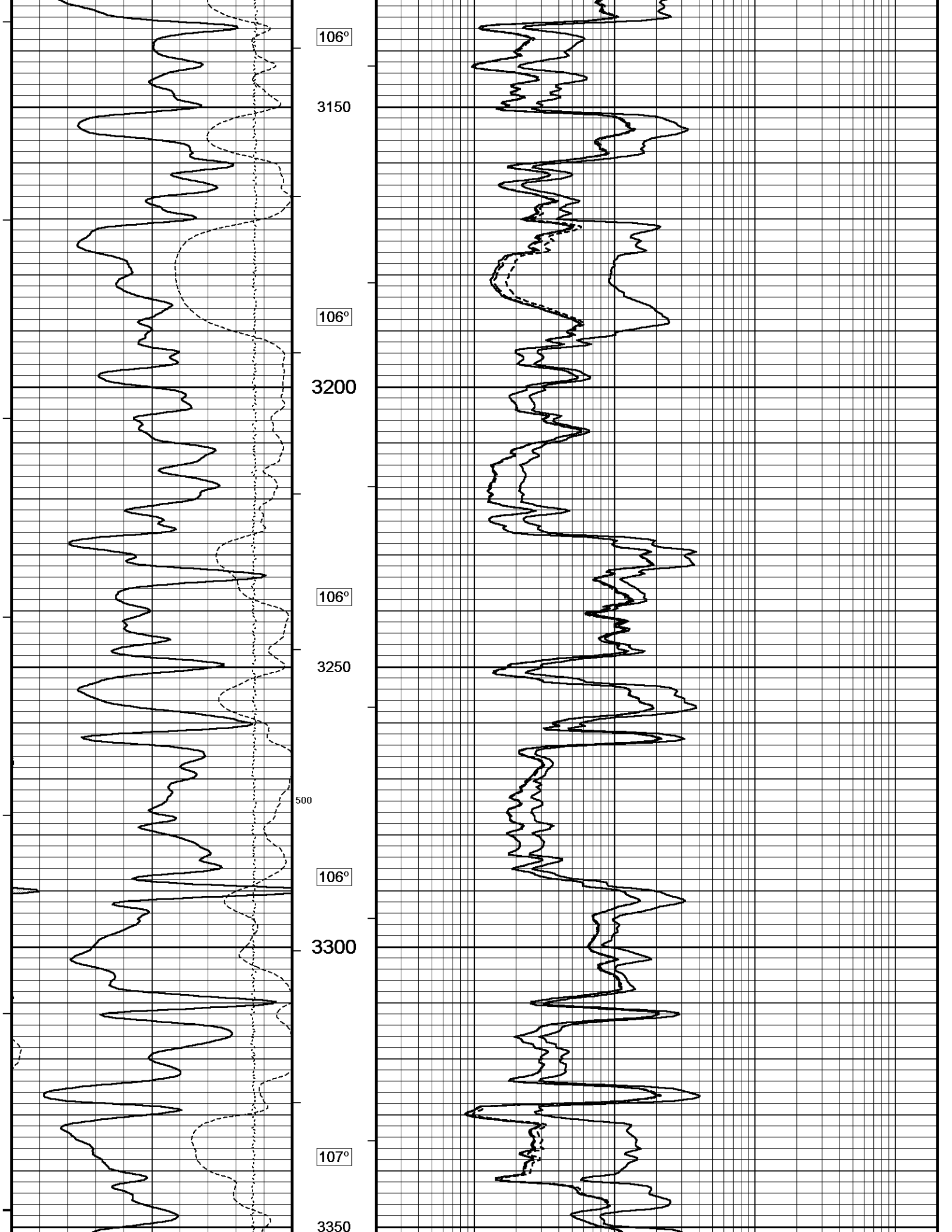

100°
1000
2050
100°
700
2100
100°
2150
101°
2200
101°
2250
RTAO
R60O
R40O
SPCG
GRGC
SMTU

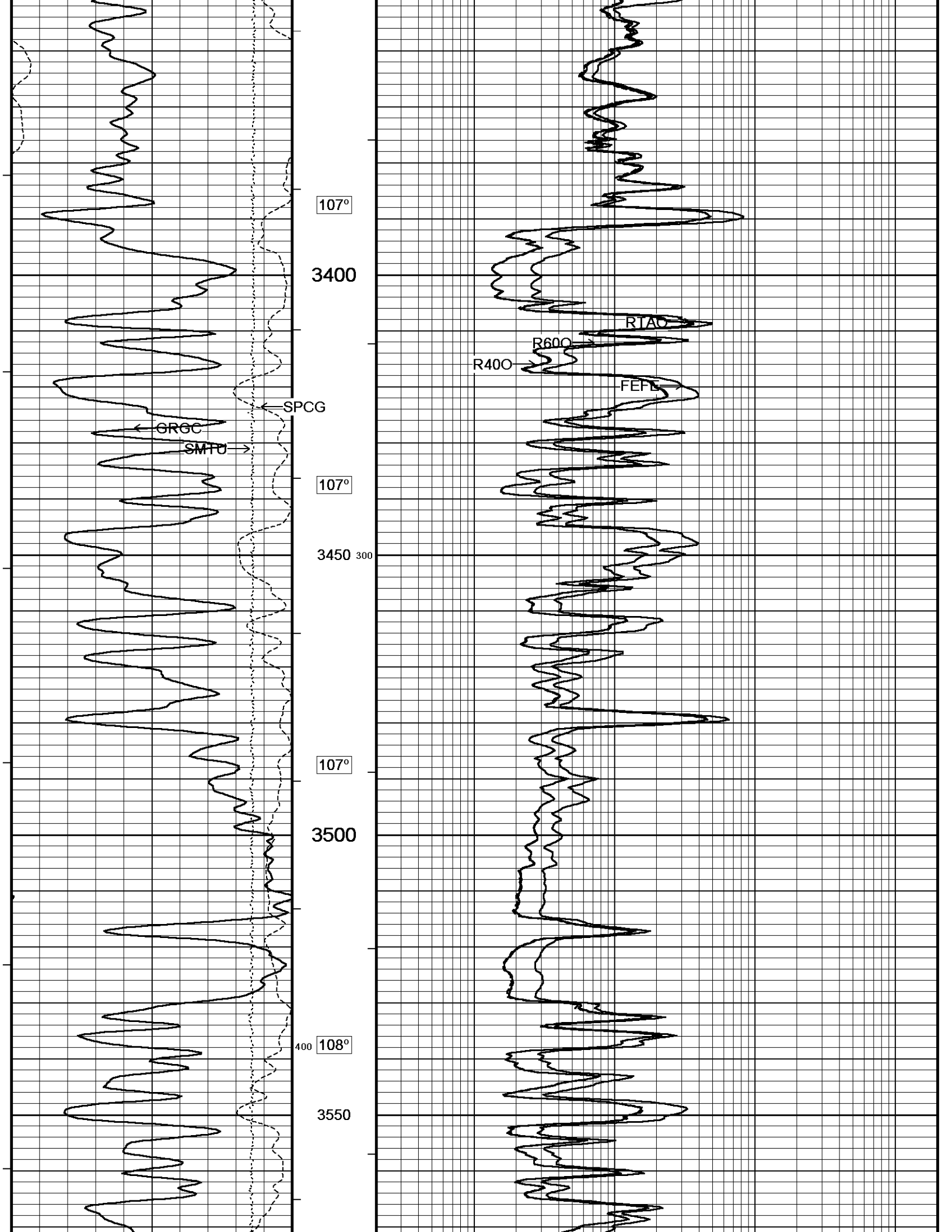

101°
900
2300
102°
2350
102°
2400
600
102°
2450

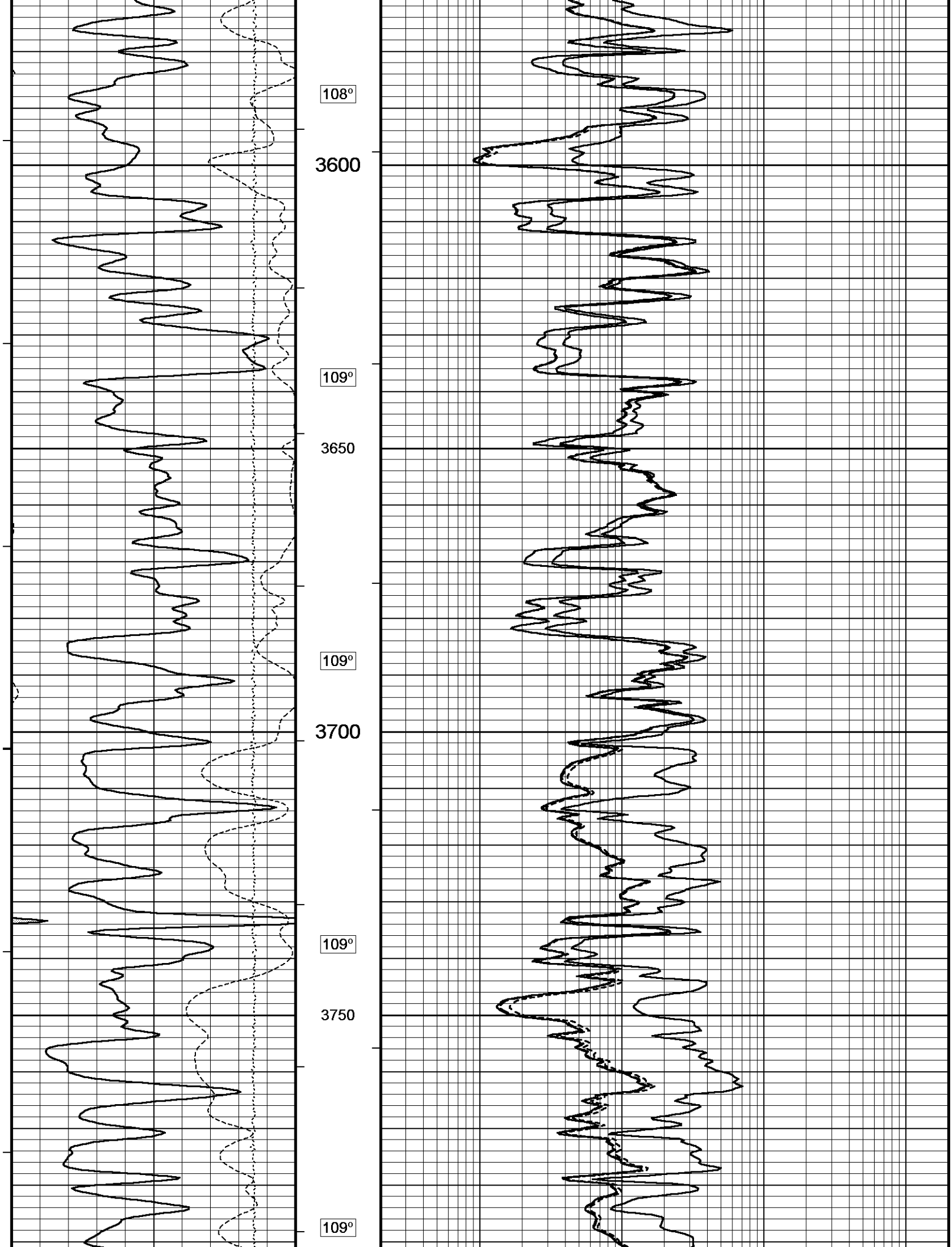

103°
2500
800
103°
2550
103°
2600
RTAO
R60O
R40O
FERE
SPGC
GRGC
SMTU
103°
2650
103°
500

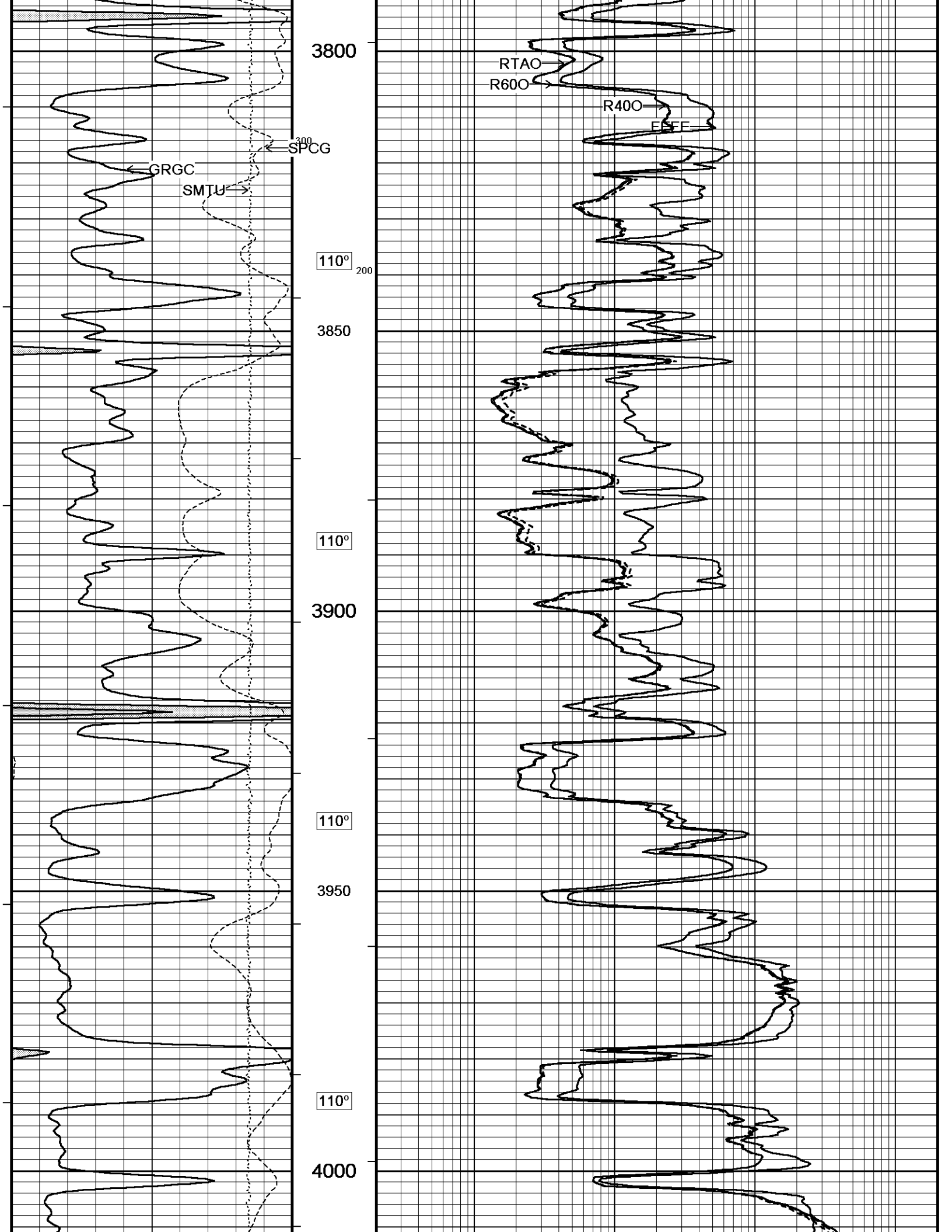

2700
700
104°
2750
104°
2800
104°
2850
104°
2900

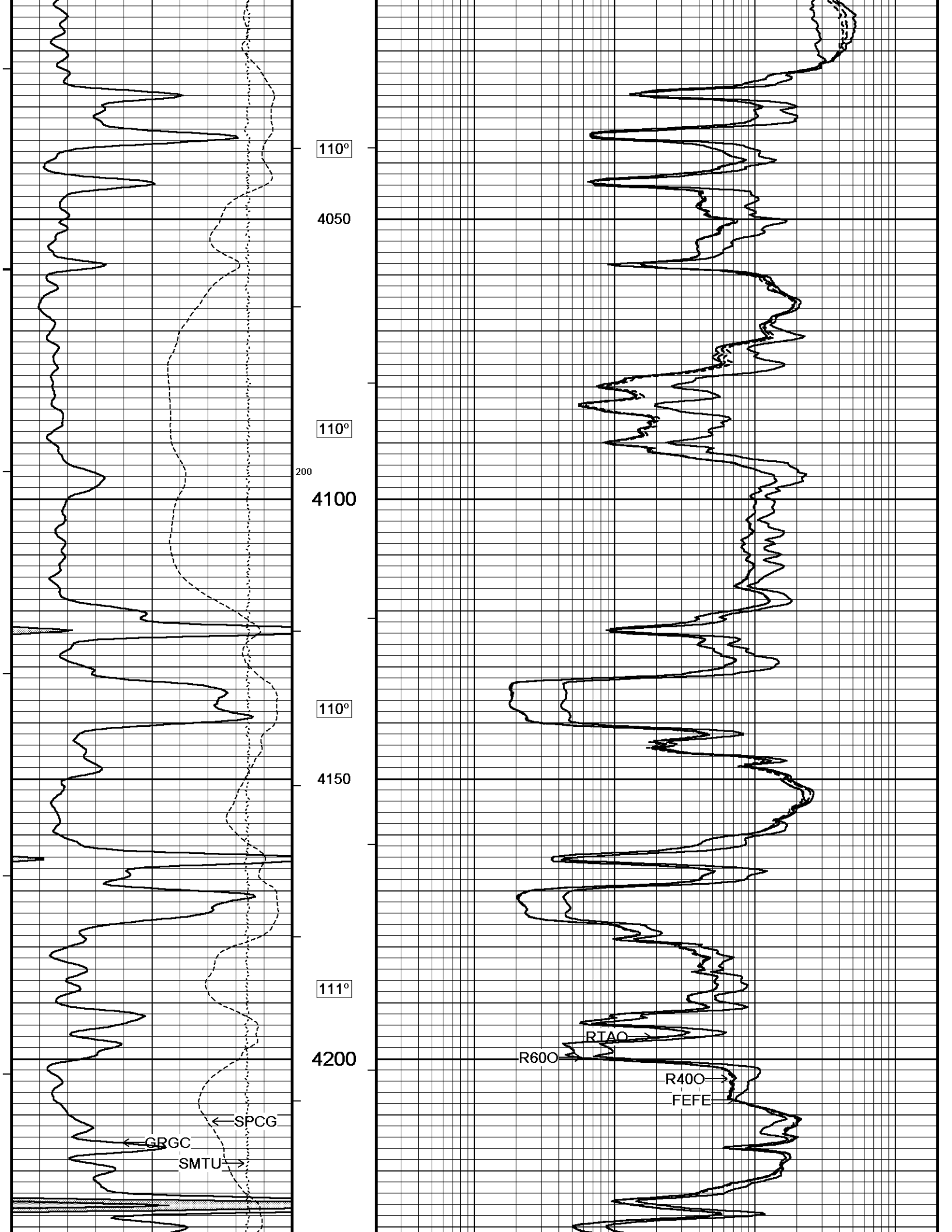

105°
2950
105°
3000
600
RTAO
R60O
R40O
FEFE
SPCG
GRGC
SMTU
105°
3050
400
105°
3100

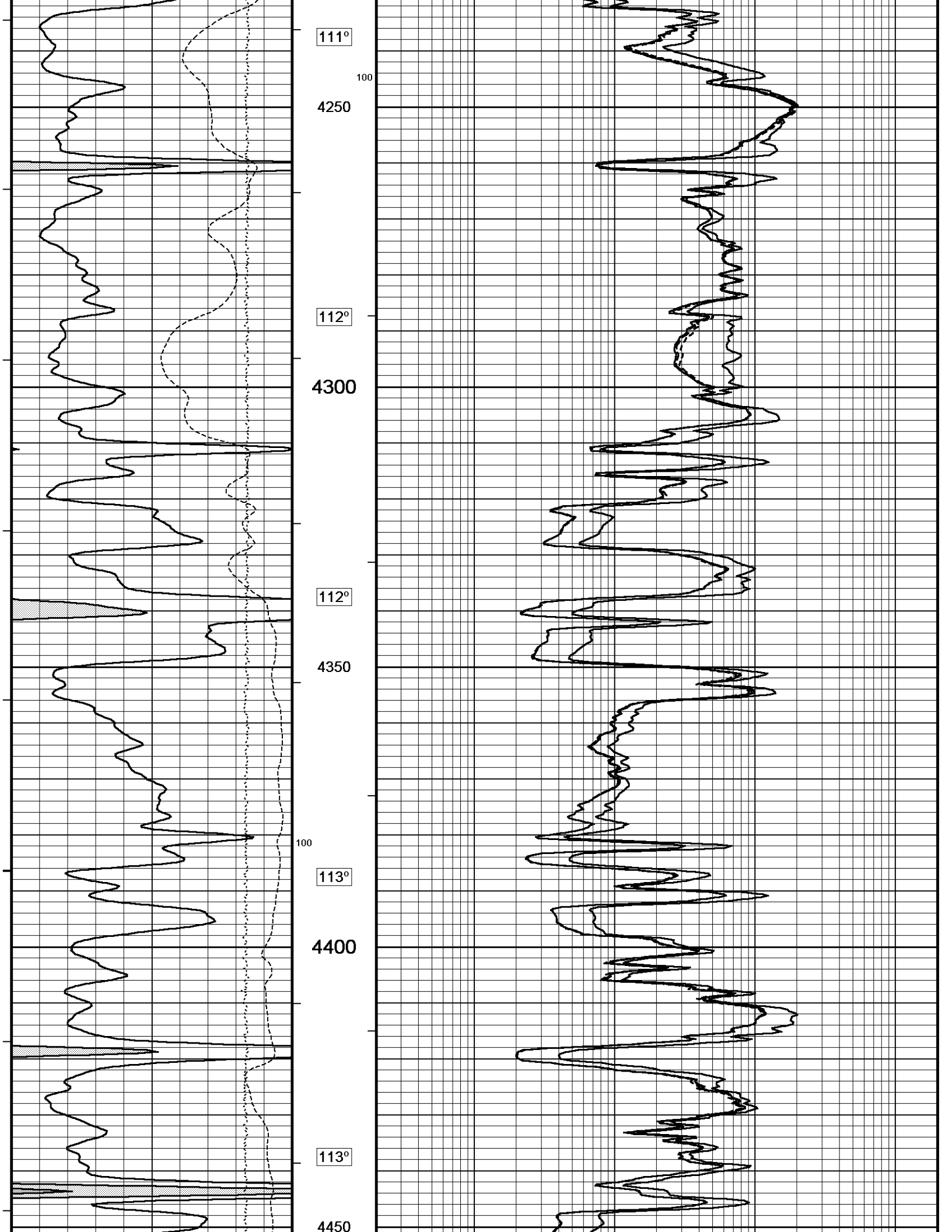

106°
3150
106°
3200
106°
3250
500
106°
3300
107°
3350

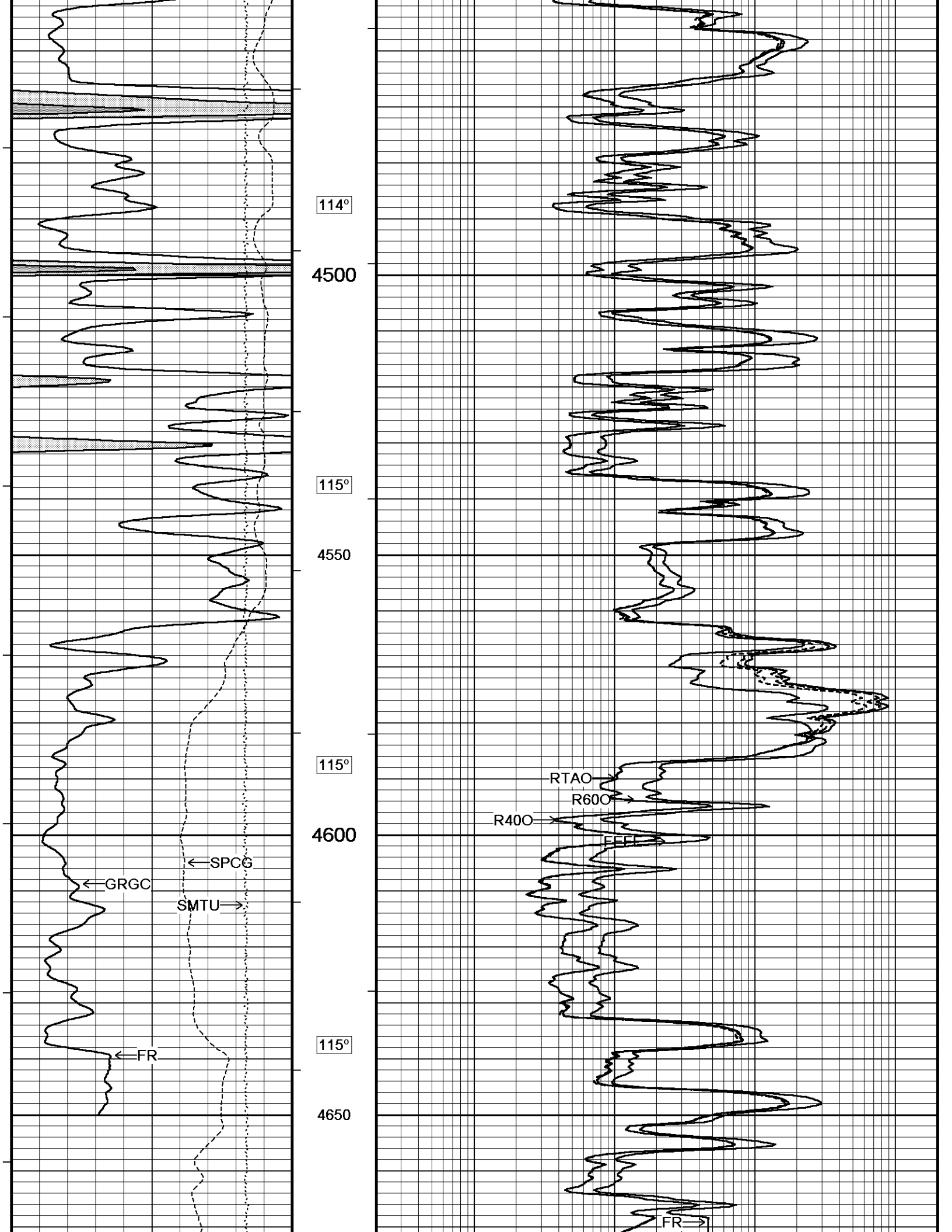

107°
3400
RTAO
R60O
R40O
FEFE
SPCG
GRGC
SMTU
107°
3450
300
107°
3500
400
108°
3550

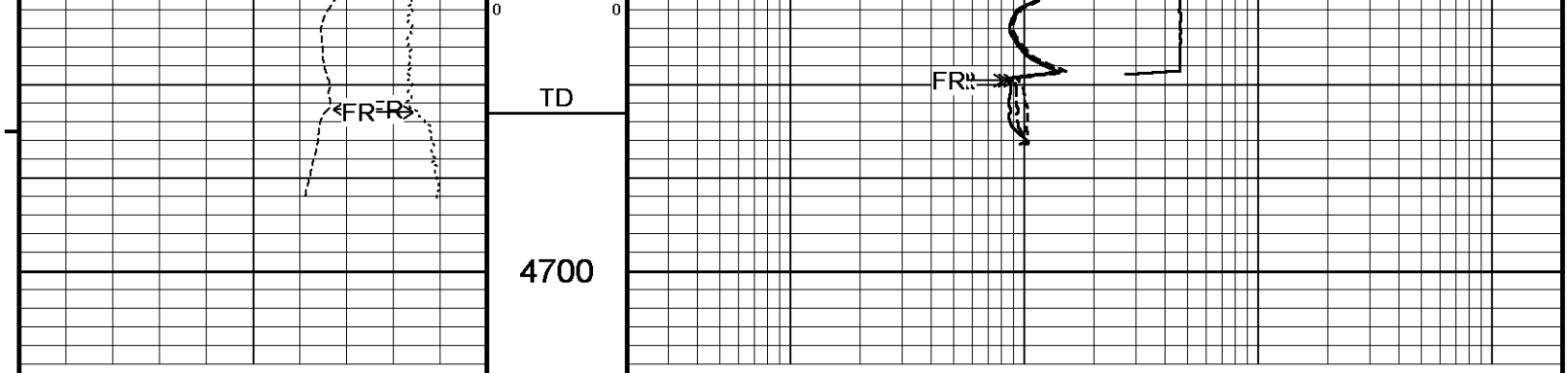

108°
3600
109°
3650
109°
3700
109°
3750
109°


3800
RTAO
R60O
R40O
EESF
300
SPCG
GRGC
SMTU
110°
200
3850
110°
3900
110°
3950
110°
4000


110°
4050
110°
200
4100
110°
4150
111°
4200
SPCG
GRGC
SMTU
RTAO
R60O
R40O
FEFE


111°
100
4250
112°
4300
112°
4350
100
113°
4400
113°
4450


114°
4500
115°
4550
115°
4600
115°
4650
SPCG
GRGC
SMTU
FR
RTAO
R60O
R40O
FFFF
FR



Depth in Feet

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

Spontaneous Potential
millivolts
− → | 20 | ← +

DST Uphole Tension
pounds
5000 0

Borehole Temp in deg F

HVI every 10 cu ft

Annular Integral every 10 cu ft

Replay Scale 1:240

Shallow FE
ohm metres
0.20 1 10 100 2000

Array Ind. One Res 40
ohm metres
0.20 1 10 100 2000

Array Ind. One Res 60
ohm metres
0.20 1 10 100 2000

Array Ind. One Res Rt
ohm metres
0.20 1 10 100 2000

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 25-OCT-2013 14:54
Filename: C:\Minimus 13.05.9583\Logs\O'Brien Resou...\O'Brien Resources Boomhower 36 #3_002.dta — Recorded on 25-OCT-2013 08:06
System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583

5 INCH MAIN

REPEAT SECTION

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 25-OCT-2013 14:54
Filename: C:\Minimus 13.05.9583\Logs\O'Brien Resou...\O'Brien Resources Boomhower 36 #3_001.dta — Recorded on 25-OCT-2013 07:48
System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583

Depth in Feet

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

Spontaneous Potential
millivolts
− → | 20 | ← +

Borehole Temp in deg F

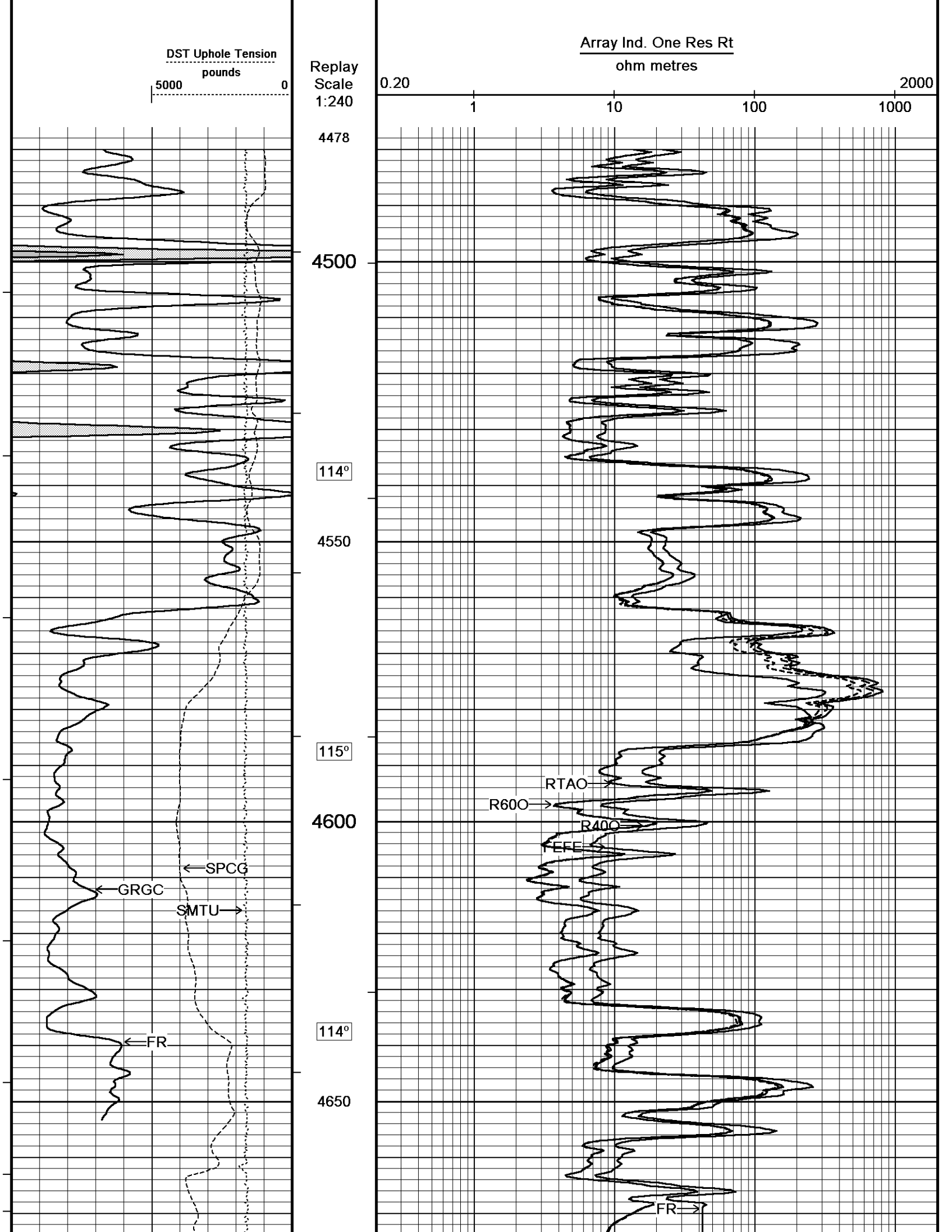
HVI every 10 cu ft

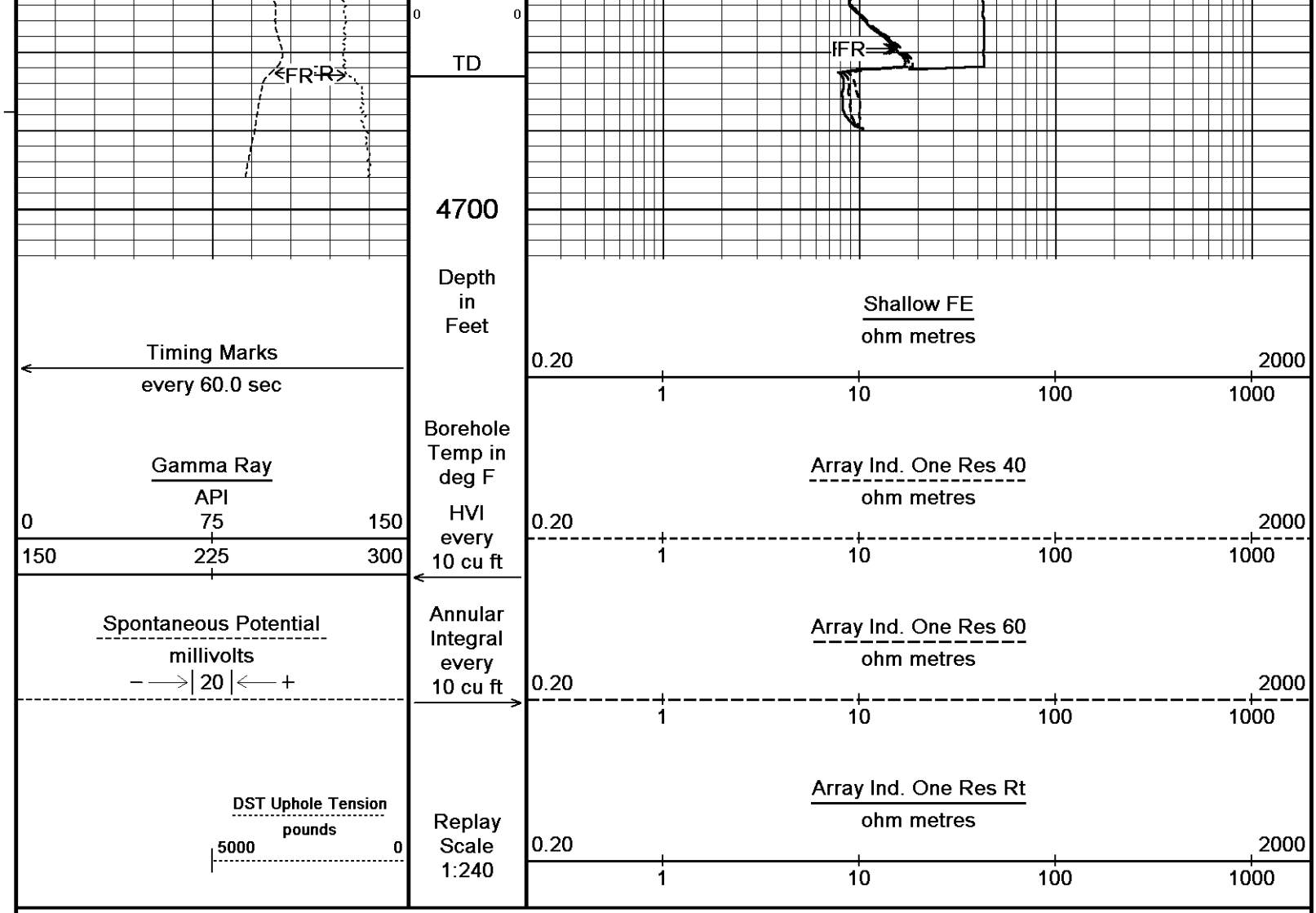
Annular Integral every 10 cu ft

Shallow FE
ohm metres
0.20 1 10 100 2000

Array Ind. One Res 40
ohm metres
0.20 1 10 100 2000

Array Ind. One Res 60
ohm metres
0.20 1 10 100 2000


DST Uphole Tension
pounds
5000
0
Replay
Scale
1:240
Array Ind. One Res Rt
ohm metres
0.20
2000
1
10
100
1000
4478
4500
114°
4550
115°
4600
114°
4650
SPCG
GRGC
SMTU
FR
RTAO
R60O
R40O
FEFE
FR



Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 25-OCT-2013 14:54

Filename: C:\Minimus 13.05.9583\Logs\O'Brien Resou...\O'Brien Resources Boomhower 36 #3_001.dta — Recorded on 25-OCT-2013 07:48

System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583

REPEAT SECTION

BEFORE SURVEY CALIBRATION

C:\Minimus 13.05.9583\Logs\O'Brien Resources Boomhower 36 #3\O'Brien Resources Boomhower 36 #3_001.dta

General Constants All 000 — Last Edited on 25-OCT-2013,06:23

General Parameters		
Mud Resistivity	1.020	ohm-metres
Mud Resistivity Temperature	78.000	degrees F
Water Level	0.000	feet
Borehole Fluid Processing	Wet Hole	
Hole/Annular Volume and Differential Caliper Parameters		
HVOL Method	Single Caliper	
HVOL Caliper 1	Density Caliper	
HVOL Caliper 2	N/A	
Annular Volume Diameter	4.500	inches
Caliper for Differential Caliper	Density Caliper	
Rwa Parameters		
Porosity used	Crossplot Porosity	
Resistivity used	Array Ind. One Res Rt	
RWA Constant A	1.000	
RWA Constant M	2.000	
SW/APOR Tool Source	0.000	

Down-hole Tension Calibration SMS 0

Field Calibration on 25-OCT-2013 07:11

Reading No	Measured	Calibrated (lbs)
1	15594.83	0.00
2	17435.90	399.00

SP Calibration MCG-D.K 442

Field Calibration on 20-OCT-2013 18:26

	Measured	Calibrated (mV)
Reference 1	101.8	100.9
Reference 2	-99.5	-100.5

High Resolution Temperature Calibration MCG-D.K 442

Field Calibration on 20-OCT-2013,18:27

	Measured	Calibrated(Deg F)
Lower	50.00	50.00
Upper	75.00	75.00

High Resolution Temperature Constants MCG-D.K 442

Last Edited on 20-OCT-2013,18:27

Pre-filter Length	11

Gamma Calibration MCG-D.K 442

Field Calibration on 23-OCT-2013 01:26

	Measured	Calibrated (API)
Background	74	50
Calibrator (Gross)	1157	775
Calibrator (Net)	1083	725

Gamma Constants MCG-D.K 442

Last Edited on 25-OCT-2013,06:23

Gamma Calibrator Number	GRC38	
Mud Density	1.12	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl		kppm
K Mud Type	Chloride	
K Mud Concentration	0.00	%

Micro Laterolog Calibration MMR-A 11

Base Calibration on 31-DEC-1999 00:00
Field Check on 31-DEC-1999 00:00

Base Calibration

	Measured		Calibrated (ohm-m)	
	Ref 1	Ref 2	Ref 1	Ref 2
	0.0	0.0	0.0	0.0

Base Check (ohm-m)	Field Check (ohm-m)
0.0	0.0

Micro Laterolog Constants MMR-A 11

Last Edited on

Pad Type	6 in Solid Nylon B23059	
Micro Laterolog K Factor	0.0128	
Standoff Offset	0.0000	inches
Mudcake Thickness Correction Constants		
Mud Cake Source	Constant Value	
Mud Cake Thickness	0.4000	inches
Mud Cake Thickness Caliper		
Mud Cake Resistivity	0.1500	ohm-m
Mud Cake Resistivity Temp.	68.00	Deg F
Mud Cake Resistivity Source	Constant Value	
Temp. Source Rmc Correc.	MCG External Temperature	

Caliper Calibration MMR-A 11

Base Calibration on 01-OCT-2013 09:07
Field Calibration on 23-OCT-2013 14:30

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	14311	5.98
2	17410	7.97
3	20706	9.86
4	24667	11.92
5	0	0.00
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
7.99	7.97

Micro Normal and Micro Inverse Calibration MMR-A 11

Base Calibration on 11-OCT-2013 11:00
Field Check on 23-OCT-2013 14:26

Base Calibration

Channel	Measured Resistor 1	Measured Resistor 2	Calibrated (ohm-m) Resistor 1	Calibrated (ohm-m) Resistor 2
Micro Normal	12.1	59.0	5.0	25.0
Micro Inverse	15.5	76.7	5.0	25.0

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	77.5	77.5
Micro Inverse	59.4	59.4

Micro Normal and Micro Inverse Constants MMR-A 11

Last Edited on 18-APR-2013,13:52

Pad Type	8-12 in Soft Rubber Inflatable 006-9011-159	
Micro Normal K Factor	1.0000	
Micro Inverse K Factor	1.0000	
Standoff Offset	0.0000	inches

Neutron Calibration MDN-A.B 65

Base Calibration on 11-OCT-2013 14:23
Field Check on 23-OCT-2013 01:30

Base Calibration

	Measured Near	Measured Far	Calibrated (cps) Near	Calibrated (cps) Far
	3088	96	3714	110
Ratio	32.181		33.764	

Field Calibrator at Base

	Calibrated (cps)	
	1674	2387
Ratio	0.701	

Field Check

	Calibrated (cps)	
	1677	2401
Ratio	0.680	

Neutron Constants MDN-A.B 65

Last Edited on 25-OCT-2013,06:23

Neutron Source Id	PN-521	
Neutron Jig Number	5824NE	
Epithermal Neutron	No	
Caliper Source for Processing	Density Caliper	
Stand-off	0.00	inches
Mud Density	1.00	gm/cc
Limestone Sigma	7.10	cu
Sandstone Sigma	4.26	cu
Dolomite Sigma	4.70	cu
Formation Pressure Source	None	
Formation Pressure	N/A	kpsi
Temperature Source	Constant Value	
Temperature	68.00	degrees F
Mud Salinity	0.00	kppm
Salinity Correction	Not Applied	
Formation Fluid Salinity Source	None	
Formation Fluid Salinity	N/A	kppm
Barite Mud Correction	Not Applied	

FE Calibration MFE-B.J 352

Base Calibration on 11-OCT-2013 11:23
Field Check on 23-OCT-2013 14:29

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	965.0	126.8
Base Check		281.1
Field Check		281.1

FE Constants MFE-B.J 352

Last Edited on 24-OCT-2013,04:27

Running Mode	No Sleeve	
MFE K Factor	0.1268	
Caliper Source for FE correction	Density Caliper	
Caliper Value for FE correction	N/A	inches
Rm Source for FE correction	Temperature Corr	
Temp. for Rm Corr.	MCG External Temperature	
Stand-off	0.5	inches

High Resolution Temperature Calibration MAI-A.A 45

Field Calibration on 20-OCT-2013,18:08

	Measured	Calibrated(Deg F)
Lower	50.00	50.00
Upper	75.00	75.00

High Resolution Temperature Constants MAI-A.A 45

Last Edited on 24-OCT-2013,04:26

Pre-filter Length	11

Induction Calibration MAI-A.A 45

Base Calibration on 21-MAY-2013,16:47
Field Check on 23-OCT-2013 14:25

Base Calibration

Test Loop Calibration

Channel	Measured Low	Measured High	Calibrated (mmho/m) Low	Calibrated (mmho/m) High
1	14.4	472.6	9.3	966.2
2	5.7	374.0	7.6	821.4
3	3.4	261.2	5.2	566.0
4	2.5	133.9	2.6	279.2

Array Temperature	0.0	Deg F

Channel	Base Check (mmho/m) Low	Base Check (mmho/m) High	Field Check (mmho/m) Low	Field Check (mmho/m) High
1			18.9	3851.4
2			31.8	3629.2
3			28.6	3049.3
4			18.3	2079.2
Deep			16.1	1911.2
Medium			42.5	4060.4
Shallow			49.7	5482.8

Array Temperature	69.9	Deg F

Induction Constants MAI-A.A 45

Last Edited on 24-OCT-2013,04:26

Induction Model	RtAP-WBM	
Caliper for Borehole Corr.	Density Caliper	
Hole Size for Borehole Correction	N/A	inches
Tool Centred	No	
Stand-off Type	Fins	
Stand-off	0.50	inches
Number of Fins on Stand-off	8.0000	
Stand-off Fin Angle	45.00	degrees
Stand-off Fin Width	0.5000	inches
Borehole Corr. Rm Source	Temperature Corr	
Temp. for Rm Corr.	MCG External Temperature	
Squasher Start	0.0020	mhos/metre
Squasher Offset	N/A	mhos/metre

Borehole Normalisation

DRM1	0.0000	DRC1	0.0000
DRM2	0.0000	DRC2	0.0000
MRM1	0.0000	MRC1	0.0000
MRM2	0.0000	MRC2	0.0000
SRM1	0.0000	SRC1	0.0000
SRM2	0.0000	SRC2	0.0000

Calibration Site Corrections

Channel 1	0.00	mmhos/metre
Channel 2	0.00	mmhos/metre
Channel 3	0.00	mmhos/metre
Channel 4	0.00	mmhos/metre

Apparent Porosity and Water Saturation Constants		
Archie Constant (A)	1.00	
Cementation Exponent (M)	2.00	
Saturation Exponent (N)	2.00	
Saturation of Water for Apor	100.00	percent
Resistivity of Water for Apor and Sw	0.05	ohm-m
Resistivity of Mud Filtrate for Sw	0.00	ohm-m
Source for Rt	0.00	
Source for Rxo	0.00	

Photo Density Calibration MPD-B 31

Base Calibration on 11-OCT-2013 13:32
Field Check on 23-OCT-2013 01:18

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	44679	22866	59556	30836
Reference 2	18345	1888	24941	2541
Field Check at Base	669.8	824.9		
Field Check	667.4	826.5		

PE Calibration

Base Calibration	Measured			Calibrated
	WS	WH	Ratio	Ratio
Background	125	594		
Reference 1	18704	44569	0.422	0.371
Reference 2	5436	18261	0.301	0.272
Field Check at Base	124.9	594.3		
Field Check	124.0	593.3		

Density Constants MPD-B 31

Last Edited on 25-OCT-2013,06:22

Density Source Id	254	
Nylon Calibrator Number	DNCE695	
Aluminium Calibrator Number	DACD698	
Density Shoe Profile	8 inch	
Caliper Source for Processing	Density Caliper	
PE Correction to Density	Not Applied	
Mud Density	1.12	gm/cc
Mud Density Z/A Multiplier	1.11	
Mud Filtrate Density	1.00	gm/cc
Dry Hole Mud Filtrate Density	1.00	gm/cc
DNCT	0.00	gm/cc
CRCT	0.00	gm/cc
Density Z/A Correction	Hybrid	

Matrix Density (gm/cc)	Depth (ft)
2.71	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00

Caliper Calibration MPD-B 31

Base Calibration on 11-OCT-2013 13:50
Field Calibration on 23-OCT-2013 01:14

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	18160	3.99
2	27038	5.98
3	35584	7.97
4	43976	9.86
5	53328	11.92

6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
7.94	7.97

DOWNHOLE EQUIPMENT

C:\Minimus 13.05.9583\Logs\O'Brien Resources Boomhower 36 #3\O'Brien Resources Boomhower 36 #3_001.dta

3/8" Triple Cone Cable Head (MCB C A)
MCB-C.A 5 LG: 1.58 ft WT: 15.4 lb OD: 2.24 in

Compact Comms Gamma
MCG-D.K 442 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Micro-Resistivity
MMR-A 11 LG: 8.59 ft WT: 81.6 lb OD: 4.88 in

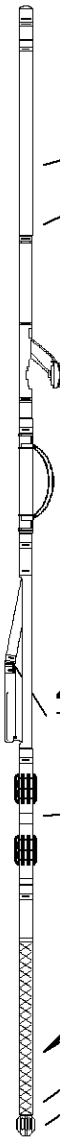
Compact Neutron
MDN-A.B 65 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
MPD-B 31 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

Compact Focussed Electric
MFE-B.J 352 LG: 6.05 ft WT: 48.5 lb OD: 2.24 in

Compact Induction
MAI-A.A 45 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 50.36 ft Weight: 399.0 lb



43.50 ft	GRGC - Gamma Ray
40.59 ft	CGXT - MCG External Temperature
33.24 ft	MBTC - MMR Caliper
33.24 ft	MINV - MMR MicroLog Inverse
33.24 ft	MNRL - MMR MicroLog Normal
28.45 ft	NPRL - Limestone Neutron Por.
21.21 ft	AVOL - Annular Volume
21.21 ft	HVOL - Hole Volume
21.21 ft	CLDC - Density Caliper
19.28 ft	DEN - Compensated Density
19.28 ft	DCOR - Density Correction
19.28 ft	DPRL - Limestone Density Por.
19.22 ft	PDPE - PE
13.72 ft	FEFE - Shallow FE
3.34 ft	R40O - Array Ind. One Res 40
3.34 ft	R10O - Array Ind. One Res 10
3.34 ft	R60O - Array Ind. One Res 60
0.23 ft	SPCG - Spontaneous Potential
Tool Zero	(0.13ft from bottom)
-0.13 ft	SMTU - DST Uphole Tension

All measurements relative to tool zero.

COMPANY	O'BRIEN RESOURCES, LLC
WELL	BOOMHOWER 36 #3
FIELD	BOOMHOWER
PROVINCE/COUNTY	LANE
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	2784.00	feet	First Reading	4680.00	feet
Elevation Drill Floor	2782.00	feet	Depth Driller	4685.00	feet
Elevation Ground Level	2774.00	feet	Depth Logger	4683.00	feet

Weatherford®

ARRAY INDUCTION
SHALLOW FOCUSED
ELECTRIC LOG

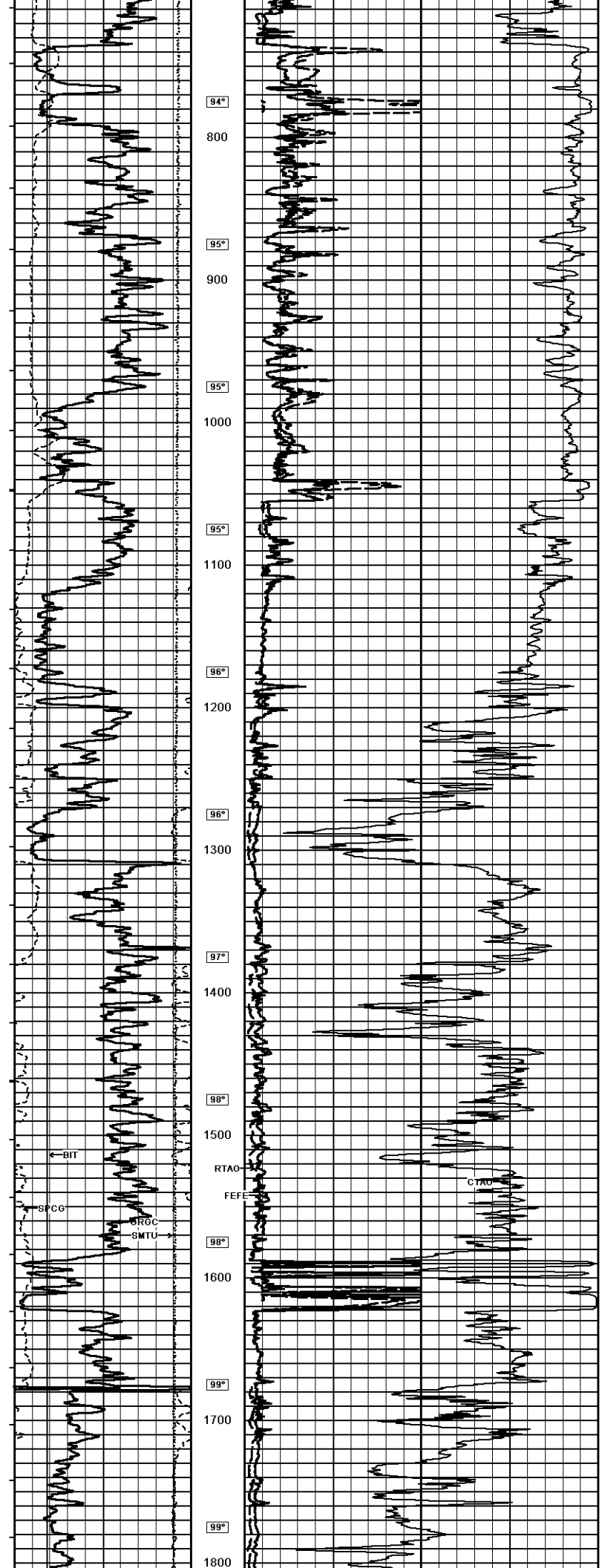
Weatherford ELECTRIC LOG

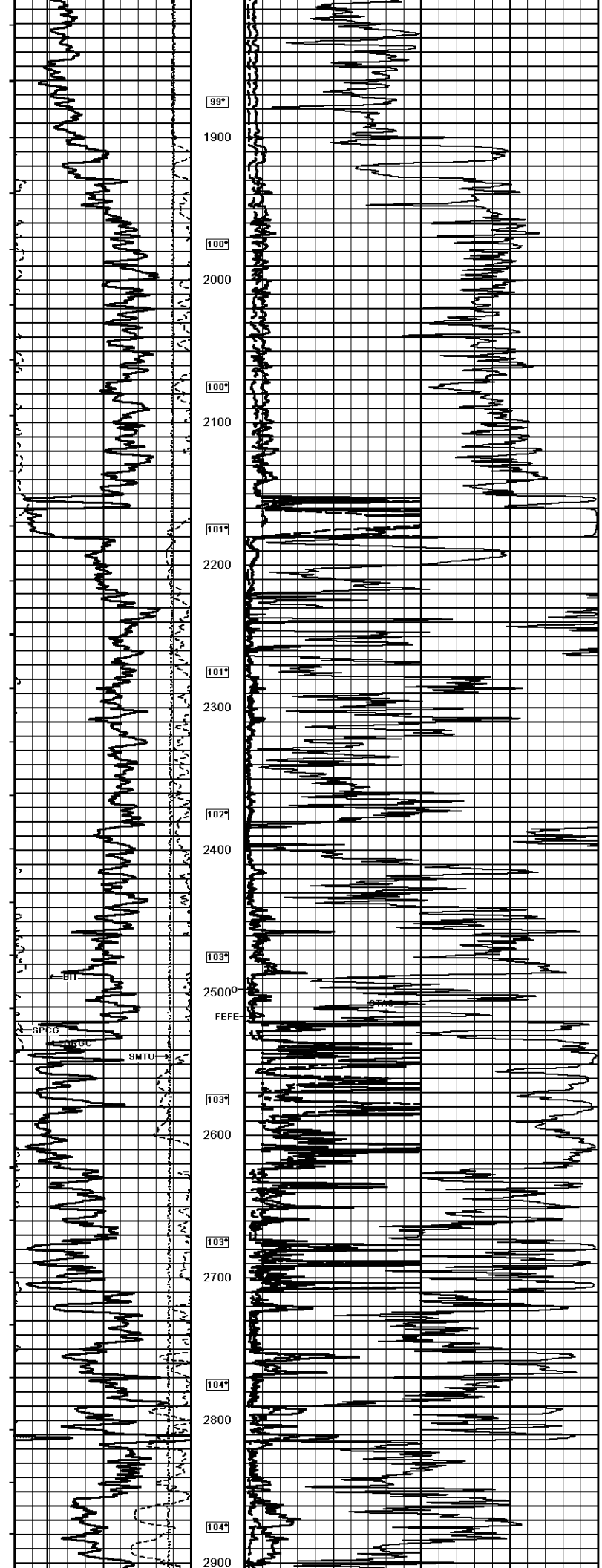
ARRAY INDUCTION
SHALLOW FOCUSED
ELECTRIC LOG

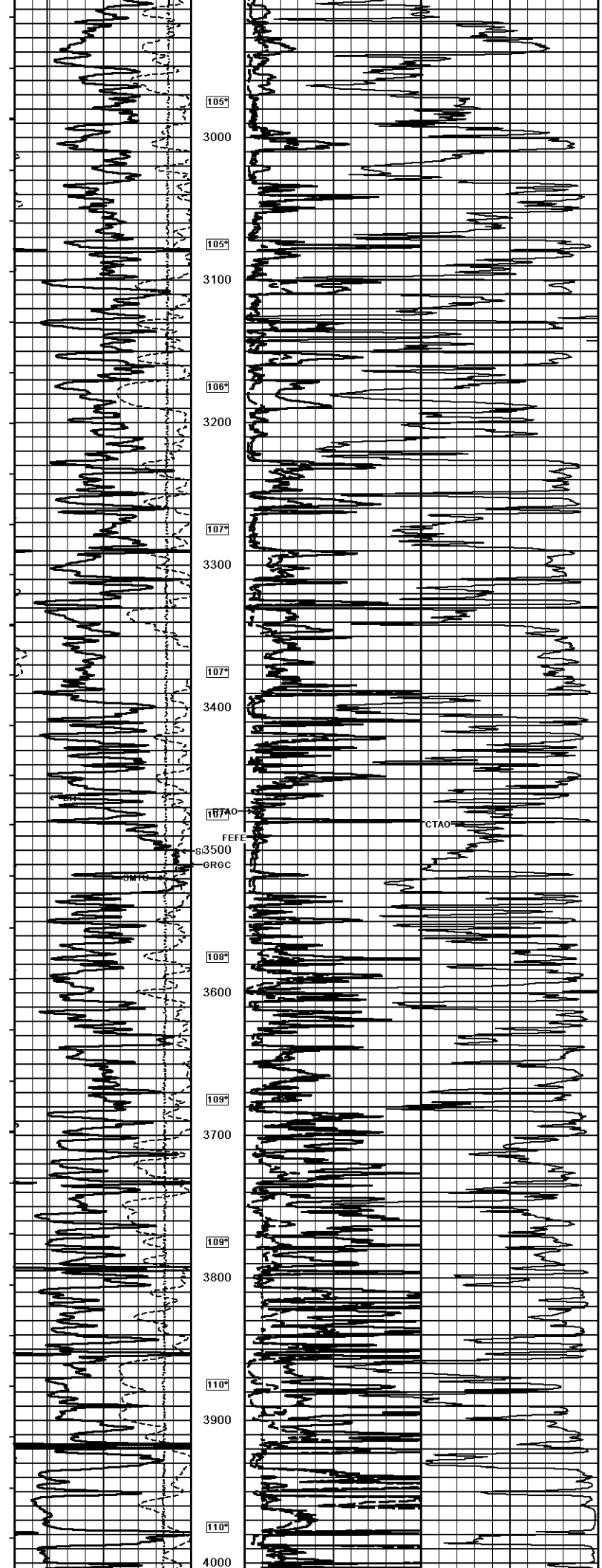
COMPANY	O'BRIEN RESOURCES, LLC
WELL	BOOMHOWER 36 #3
FIELD	BOOMHOWER
PROVINCE/COUNTY	LANE
COUNTRY/STATE	U.S.A. / KANSAS
LOCATION	1309' FSL & 2300' FEL NE NW SW SE

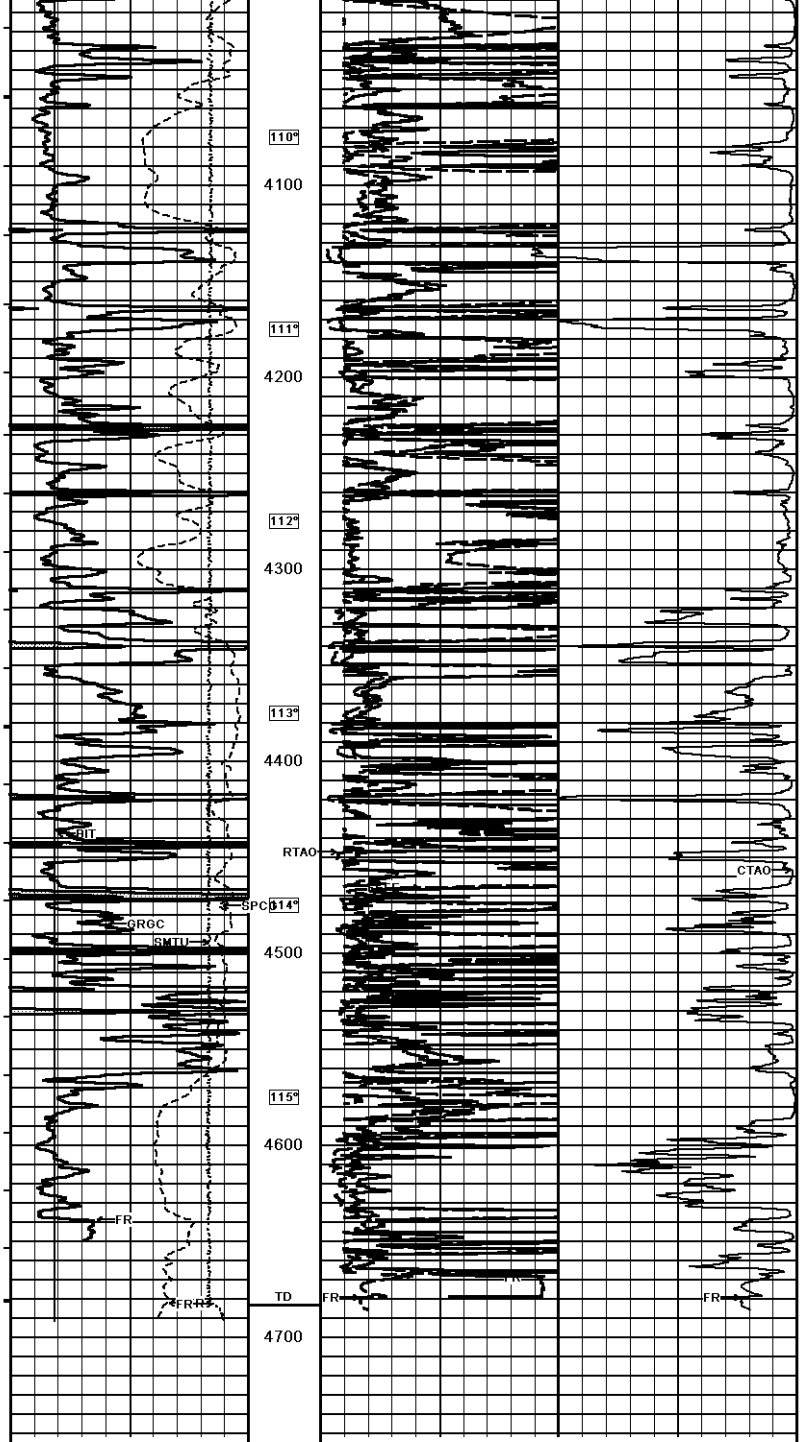
SEC	TWP	RGE	Other Services
36	17S	29W	MPD/MDN
API Number	15-101-22464		MML
Permanent Datum G.L. Elevation 2774 feet			
Log Measured From KB			Elevations: feet
Drilling Measured From KB @ 10 FEET			KB 2784.00
			DF 2782.00
			GL 2774.00

| | | |


94°
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BIT
RTAO
CTAO
FEFE
SPCO
SRGC
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3900
110°
4000



Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 25-OCT-2013 14:54

Filename: C:\Minimus 13.05.9583\Logs\O'Brien Resource...\O'Brien Resources Boomhower 36 #3_002.dta — Recorded on 25-OCT-2013 08:06

System Versions: Logged with 13.05.9583 Processed with 13.05.9583 Plotted with 13.05.9583

1 INCH MAIN

COMPANY	O'BRIEN RESOURCES, LLC
WELL	BOOMHOWER 36 #3
FIELD	BOOMHOWER
PROVINCE/COUNTY	LANE

PROVINCE/COUNTY	LANE
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	2784.00	feet	First Reading	4680.00	feet
Elevation Drill Floor	2782.00	feet	Depth Driller	4685.00	feet
Elevation Ground Level	2774.00	feet	Depth Logger	4683.00	feet

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ARRAY INDUCTION
SHALLOW FOCUSED
ELECTRIC LOG