Weatherford

ARRAY INDUCTION SHALLOW FOCUSED ELECTRIC LOG

COMPANY	McCOY PETROLEUM CORPORATION
WELL	PATTERSON-O'BRATE 'A' 3-17
FIELD	MERTILLA SOUTHEAST
PROVINCE/COUNTY	MEADE
COUNTRY/STATE	U.S.A. / KANSAS
LOCATION	990' FNL & 1650' FWL

SEC	TWP	RGE	Other Services
17	30S	30W	MPD/MDN MML

Latitude
Longitude
API Number 15-119-21378

Permanent Datum GL, Elevation 2814 feet
Log Measured From KB
Drilling Measured From KB @ 11 feet

Elevations:	feet
KB	2825.00
DF	2823.00
GL	2814.00

Date	10-NOV-2014		
Run Number	ONE		
Service Order	7577-102837829		
Depth Driller	5700.00 feet		
Depth Logger	5702.00 feet		
First Reading	5699.00 feet		
Last Reading	1858.00 feet		
Casing Driller	1857.00 feet		
Casing Logger	1858.00 feet		
Bit Size	7.875 inches		
Hole Fluid Type	CHEMICAL		
Density / Viscosity	9.25 lb/USg	48.00 CP	
PH / Fluid Loss	9.50	8.00 ml/30Min	
Sample Source	MUD PIT		
Rm @ Measured Temp	1.97 @ 75.0 ohm-m		
Rmf @ Measured Temp	1.58 @ 75.0 ohm-m		
Rmc @ Measured Temp	2.36 @ 75.0 ohm-m		
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	1.24 @122.0 ohm-m		
Time Since Circulation	3.5 HOURS		
Max Recorded Temp	122.00 deg F		
Equipment / Base	13244	LIB	
Recorded By	JEFFREY RANDLE		
Witnessed By	ZACH WIELE		
JOB #	LB14-352		

BOREHOLE RECORD

Last Edited: 10-NOV-2014 19:58

Bit Size inches	Depth From feet	Depth To feet
7.875	1857.00	5700.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	1857.00	24.00

REMARKS

- SOFTWARE ISSUE: WLS 14.03.5114.
- RUN ONE: MCG, MML, MDN, MPD, MFE, MAI RUN IN COMBINATION.
  - HARDWARE: DUAL BOWSPRING USED ON MDN.
  0.5 INCH STANDOFF USED ON MFE.
  0.5 INCH STANDOFF USED ON MAI.
- 2.71 G/CC LIMESTONE DENSITY MATRIX USED TO CALCULATE POROSITY.
- BOREHOLE RUGOSITY, TIGHT PULLS, AND WASHOUTS WILL AFFECT DATA QUALITY.
- ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.
- TOTAL HOLE VOLUME FROM TD TO SURFACE CASING: 1337 CU.FT.
- ANNULAR HOLE VOLUME WITH 5.5 INCH PRODUCTION CASING FROM TD TO 4000 FEET: 279 CU.FT.
- RIG: STERLING #2

- RIG: STERLING #2.

- ENGINEER: J. RANDLE.

- OPERATOR: J. LaPOINT.

2 INCH MAIN

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 11-NOV-2014 02:53

Filename: C:\Minimus 14.03.4558\Logs\McCoy Patterson...\McCoy Patterson-O'Brate 'A' 3-17 Main1.dta — Recorded on 11-NOV-2014 00:18

System Versions: Logged with 14.03.5114 Processed with 14.03.5114 Plotted with 14.03.5114

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 1:600

Array Ind. One Cond Ct
mmhos/metre
1000 750 500 250 0
2000 1750 1500 1250 1000

Shallow FE
ohm metres
0 25 50
0 250 500

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

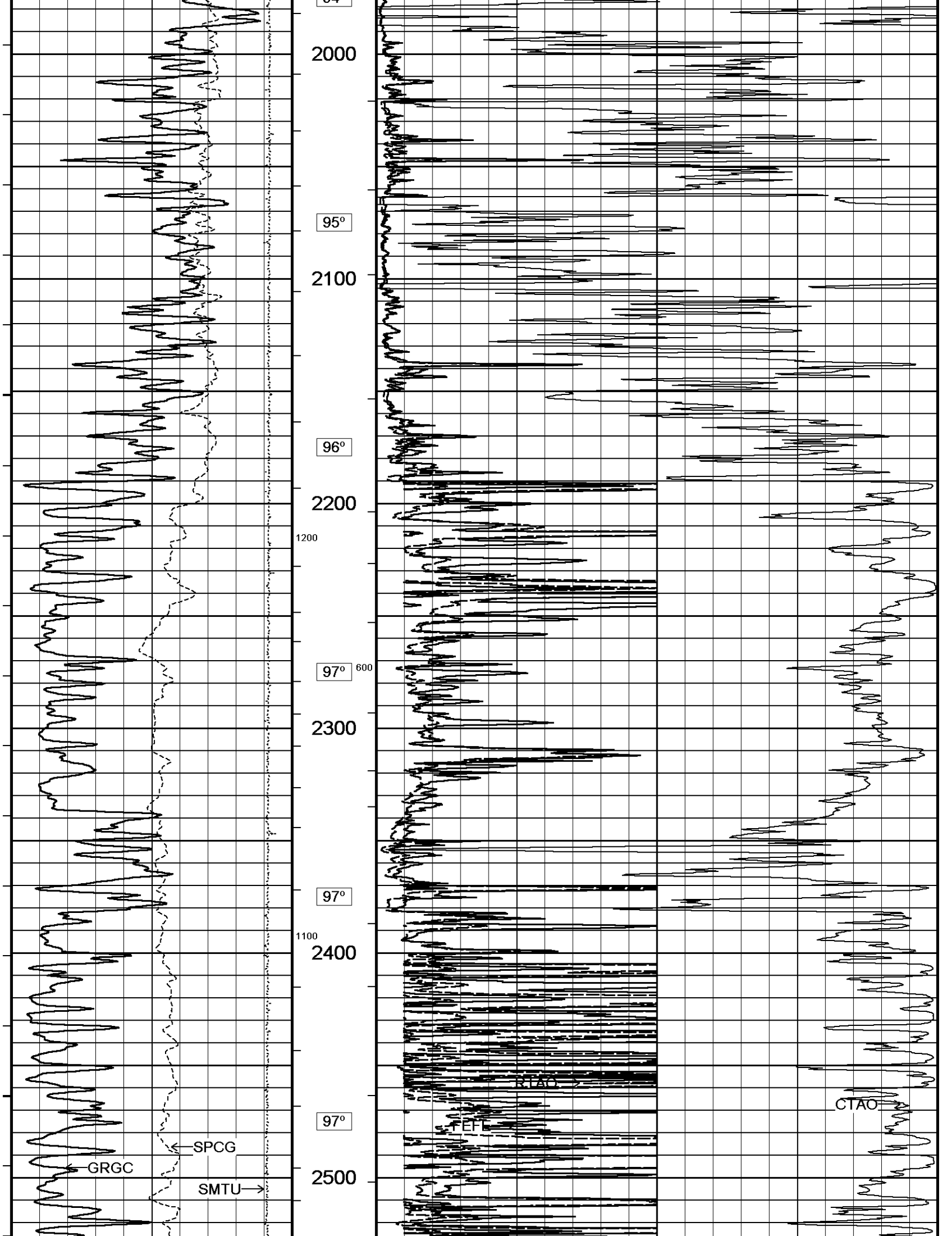
Casing Shoe 1850

700

1900

1300

94°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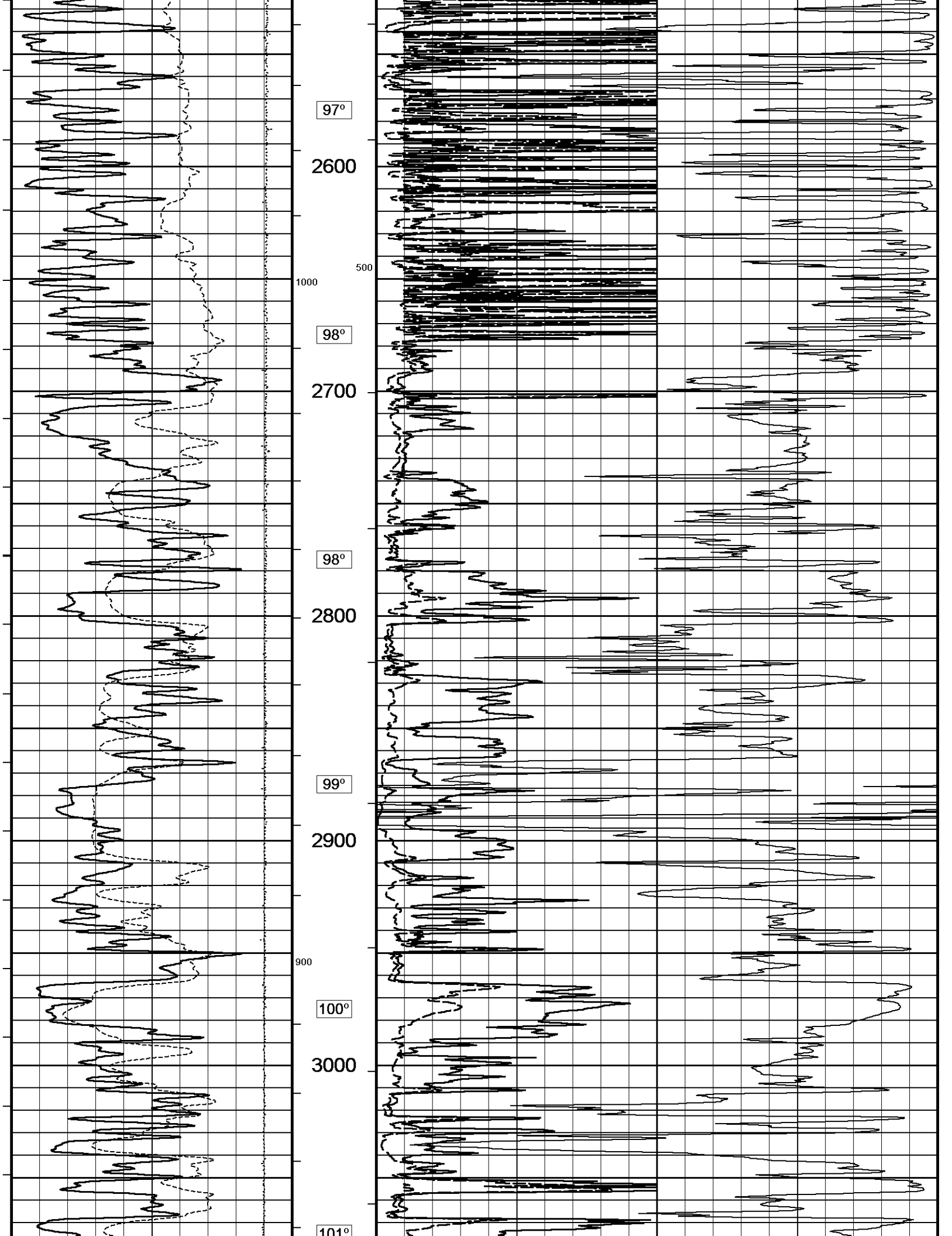
95°
2100
96°
2200
1200
97°
600
2300
97°
1100
2400
97°
2500
SPCG
GRGC
SMTU
RTAO
TEFL
CTAO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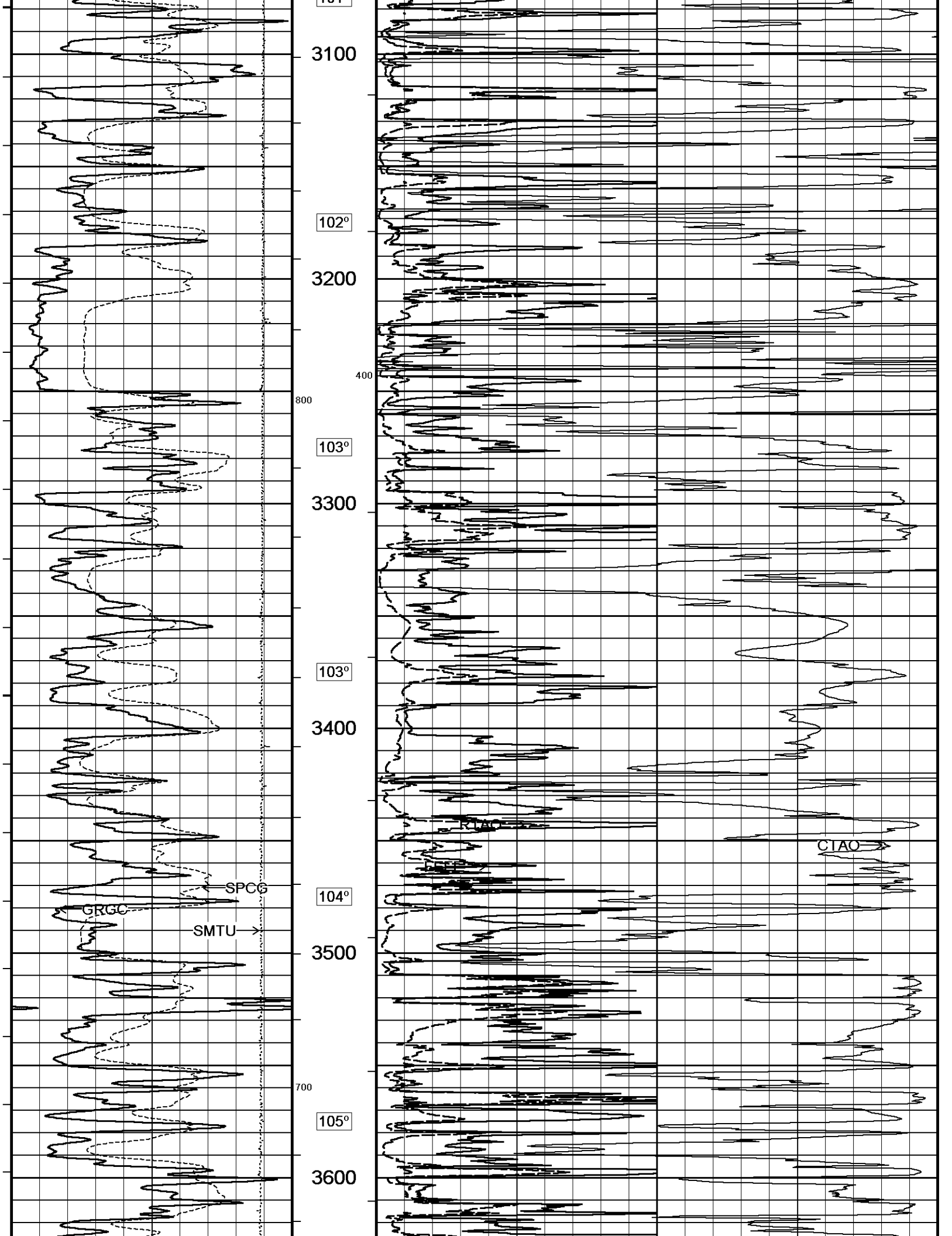
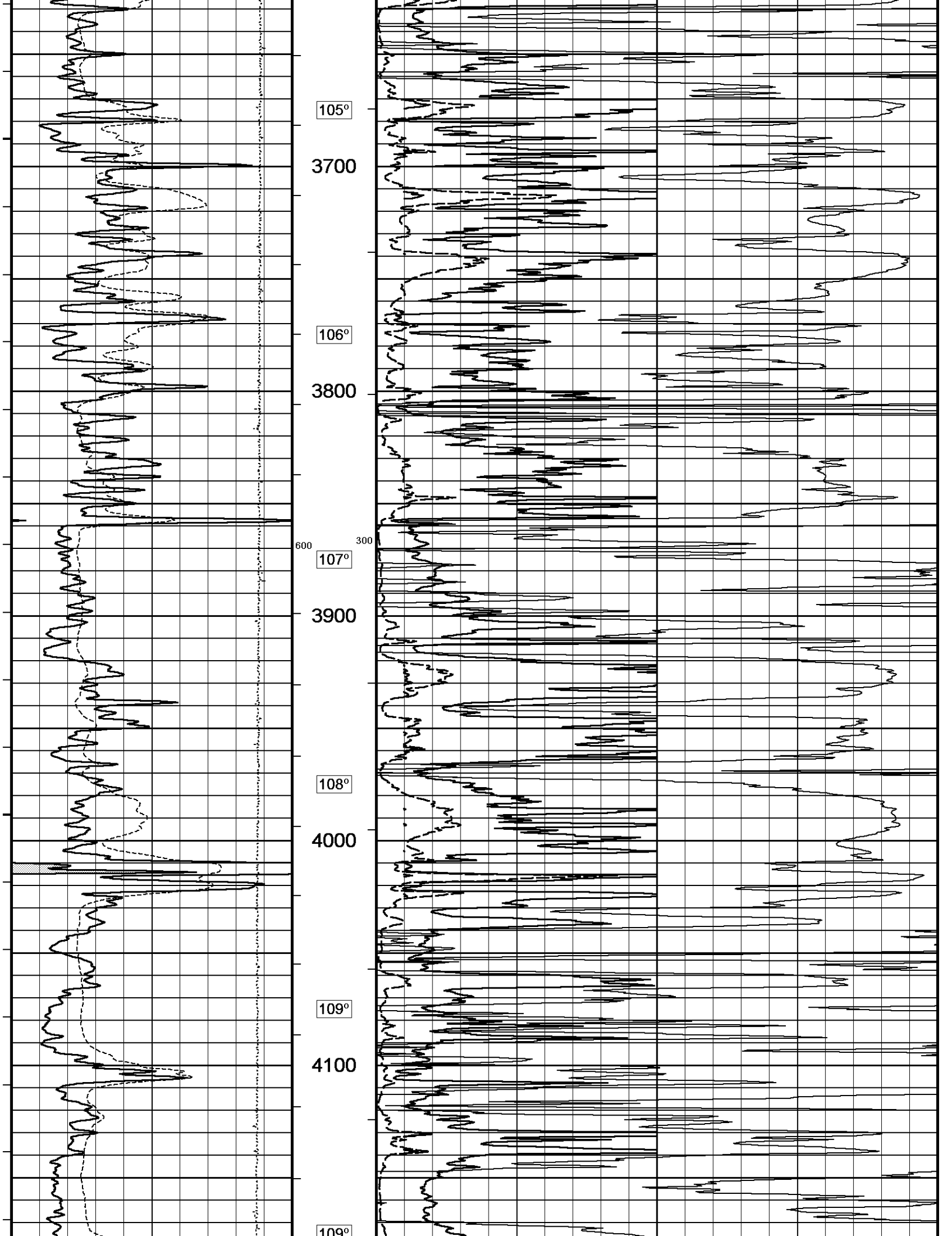
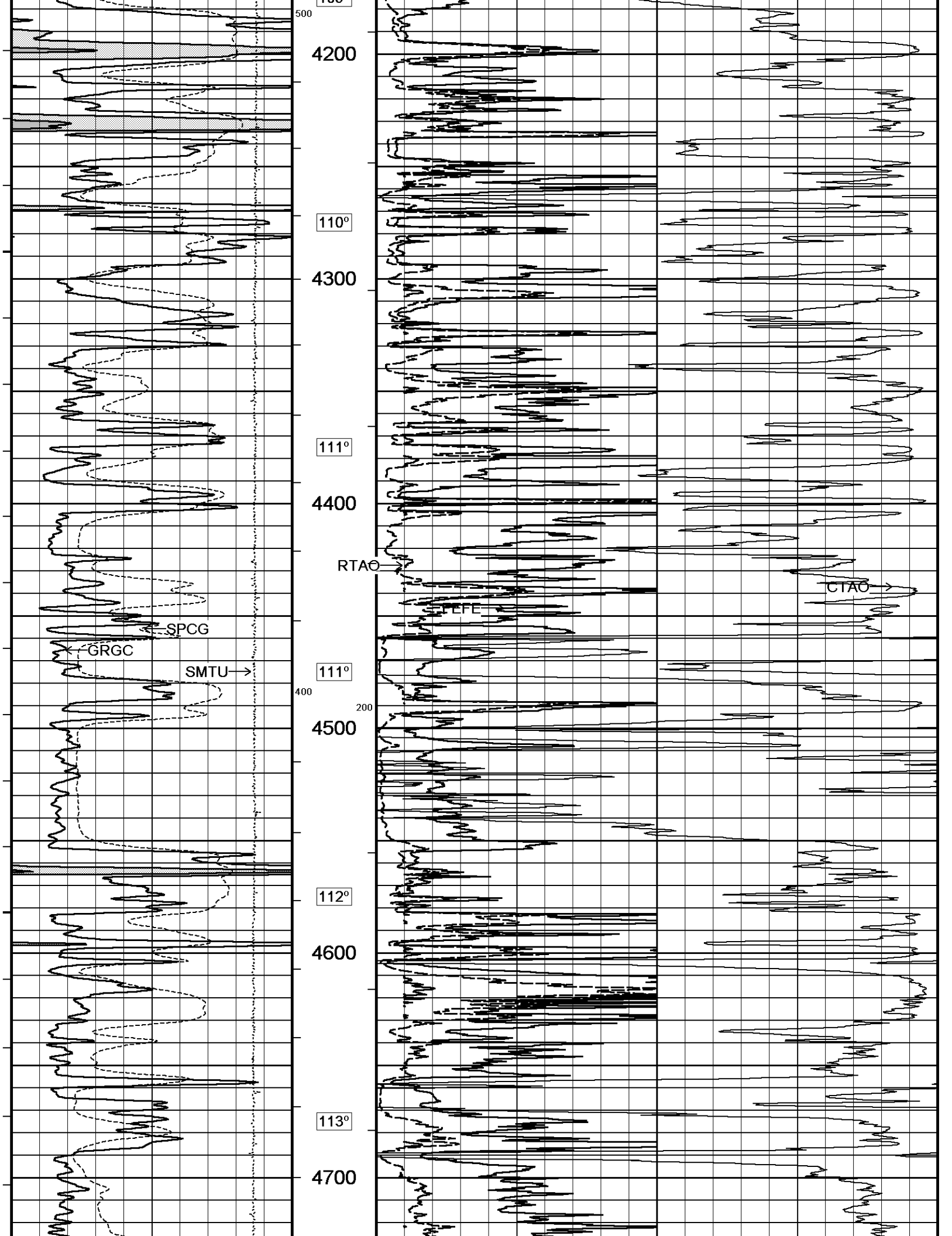
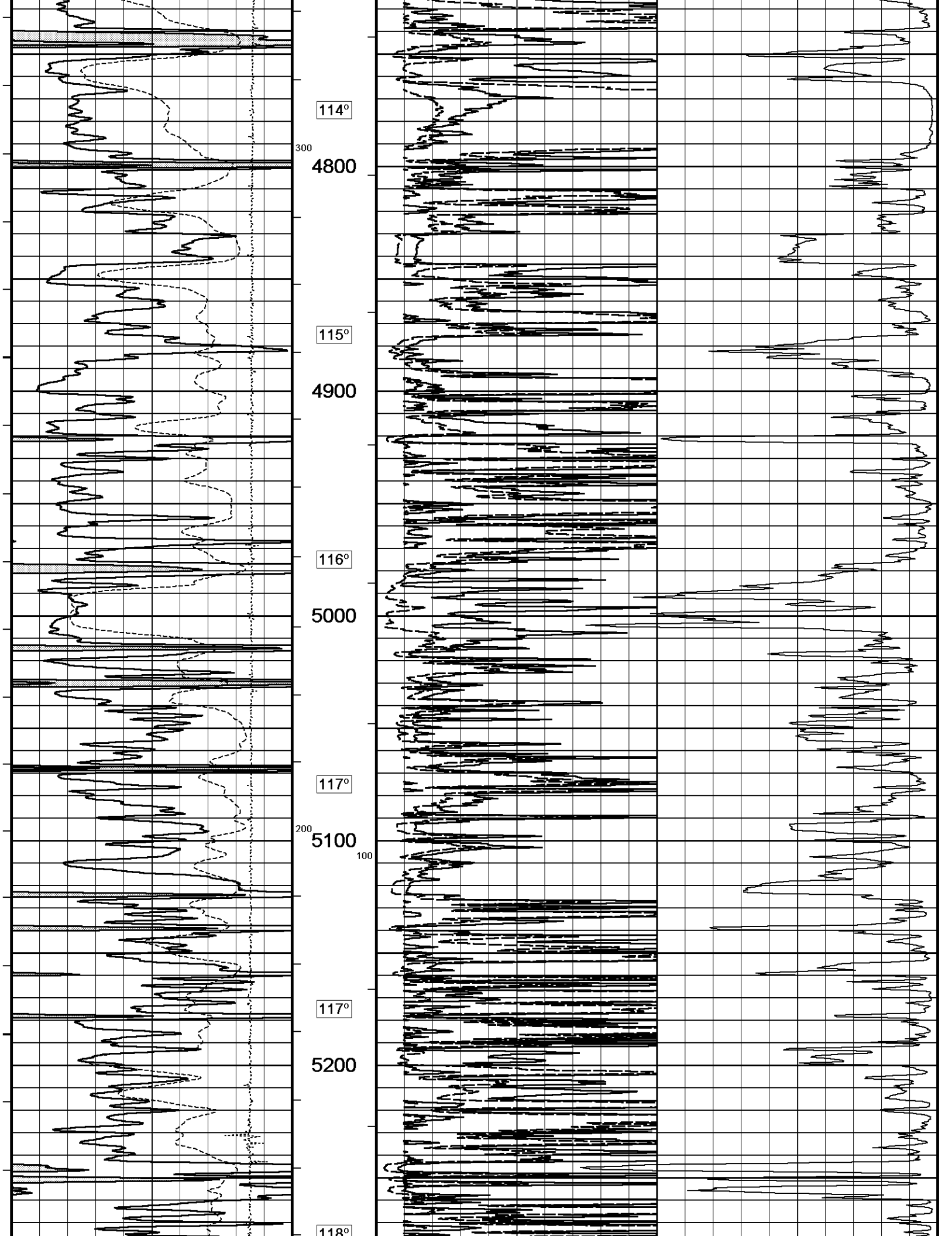
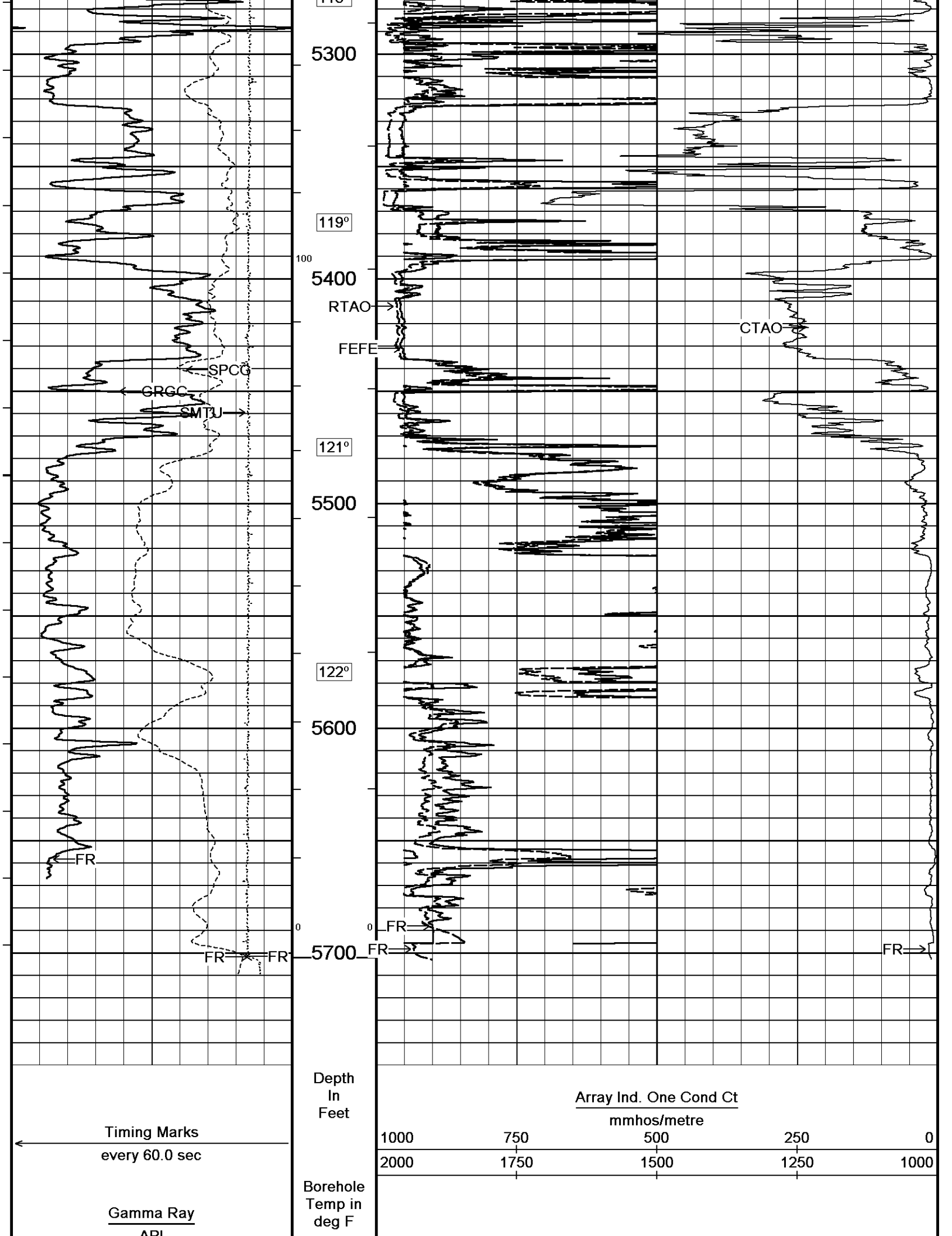
2600
1000
500
98°
2700
98°
2800
99°
2900
900
100°
3000
101°

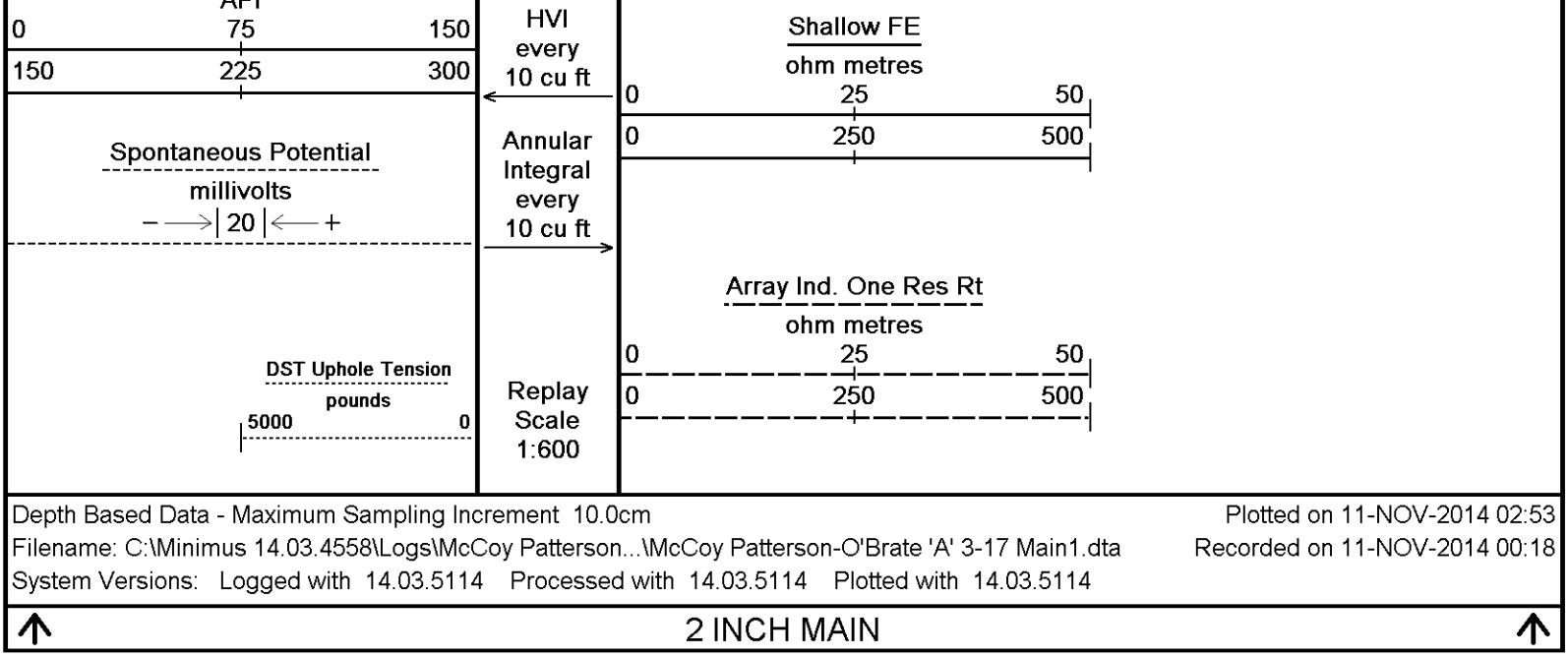

3100
102°
3200
400
800
103°
3300
103°
3400
RTAO
CTAO
SPCG
GRGC
104°
SMTU
3500
700
105°
3600


105°
3700
106°
3800
600
300
107°
3900
108°
4000
109°
4100
109°


500
4200
110°
4300
111°
4400
RTAO
CTAO
LLFE
SPCG
GRGC
SMTU
111°
400
200
4500
112°
4600
113°
4700


114°
300
4800
115°
4900
116°
5000
117°
200
5100
100
117°
5200
118°


5300
119°
100
5400
RTAO
FEFE
SPCG
GRGC
SMTU
121°
5500
122°
5600
FR
0
0
FR
FR
FR
5700
FR
FR
CTAO
Timing Marks
every 60.0 sec
Gamma Ray
API
Depth
In
Feet
Borehole
Temp in
deg F
Array Ind. One Cond Ct
mmhos/metre
1000
750
500
250
0
2000
1750
1500
1250
1000

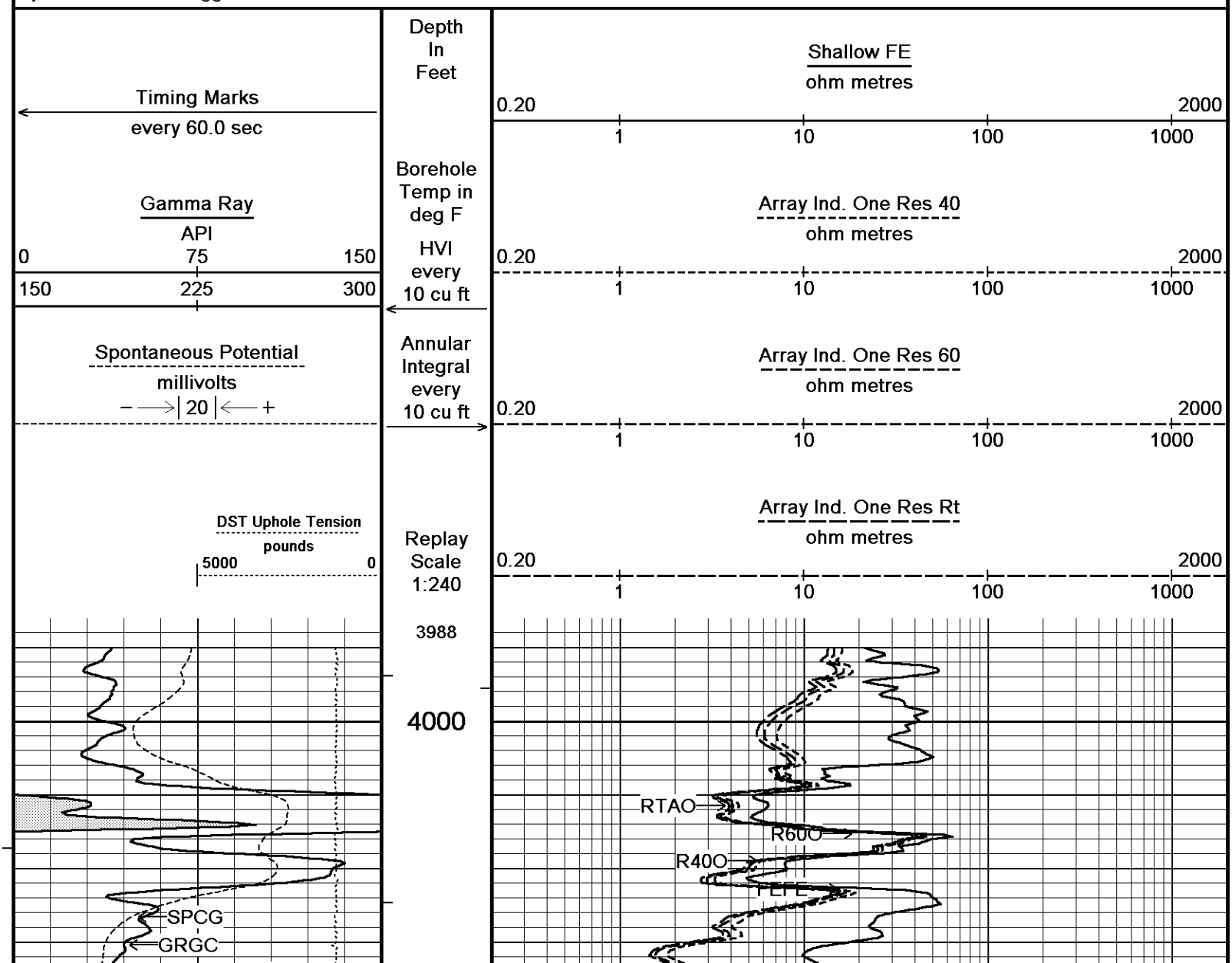


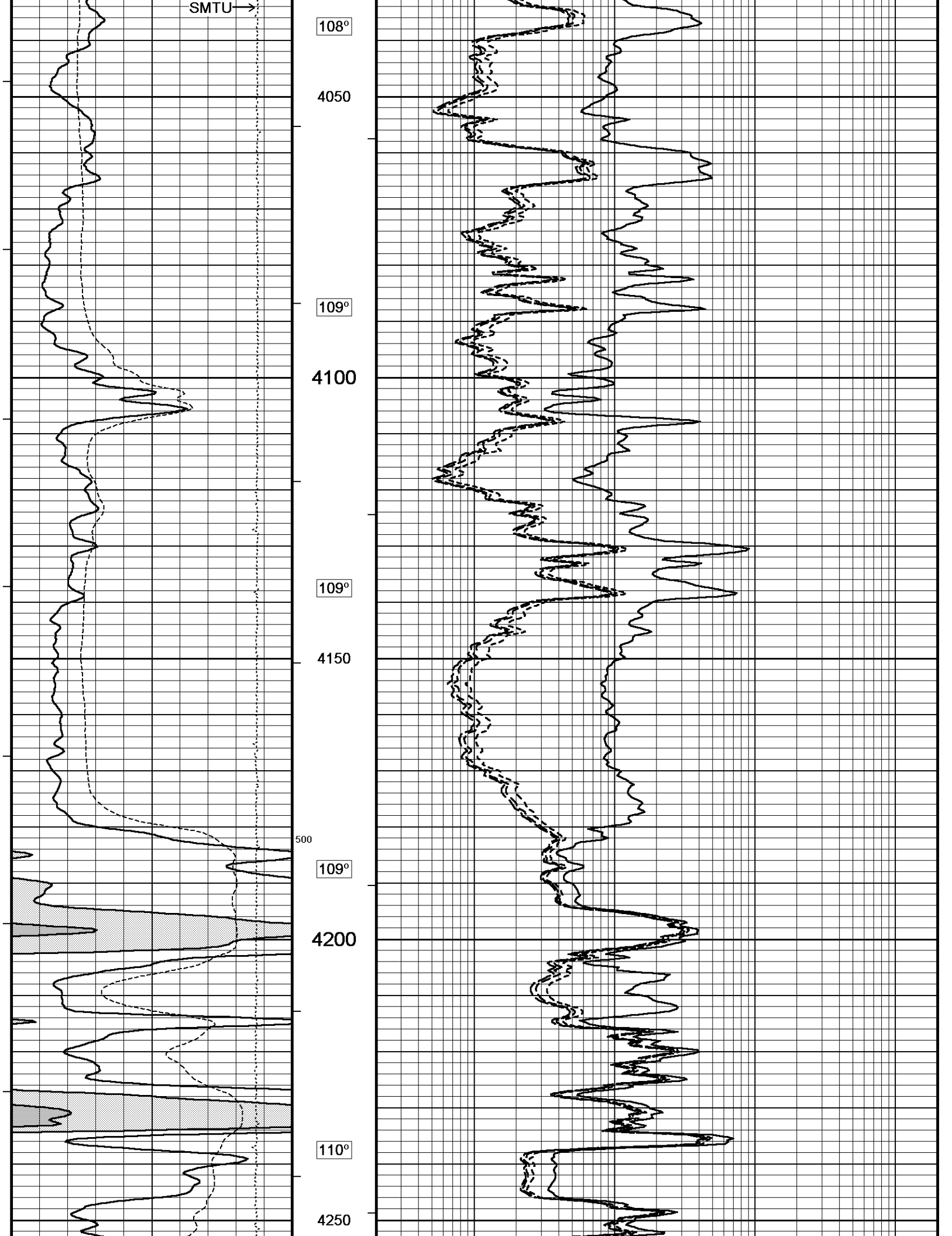
Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 11-NOV-2014 02:53
Filename: C:\Minimus 14.03.4558\Logs\McCoy Patterson...\McCoy Patterson-O'Brate 'A' 3-17 Main1.dta — Recorded on 11-NOV-2014 00:18
System Versions: Logged with 14.03.5114 Processed with 14.03.5114 Plotted with 14.03.5114

2 INCH MAIN

5 INCH MAIN

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 11-NOV-2014 02:53
Filename: C:\Minimus 14.03.4558\Logs\McCoy Patterson...\McCoy Patterson-O'Brate 'A' 3-17 Main1.dta — Recorded on 11-NOV-2014 00:18
System Versions: Logged with 14.03.5114 Processed with 14.03.5114 Plotted with 14.03.5114

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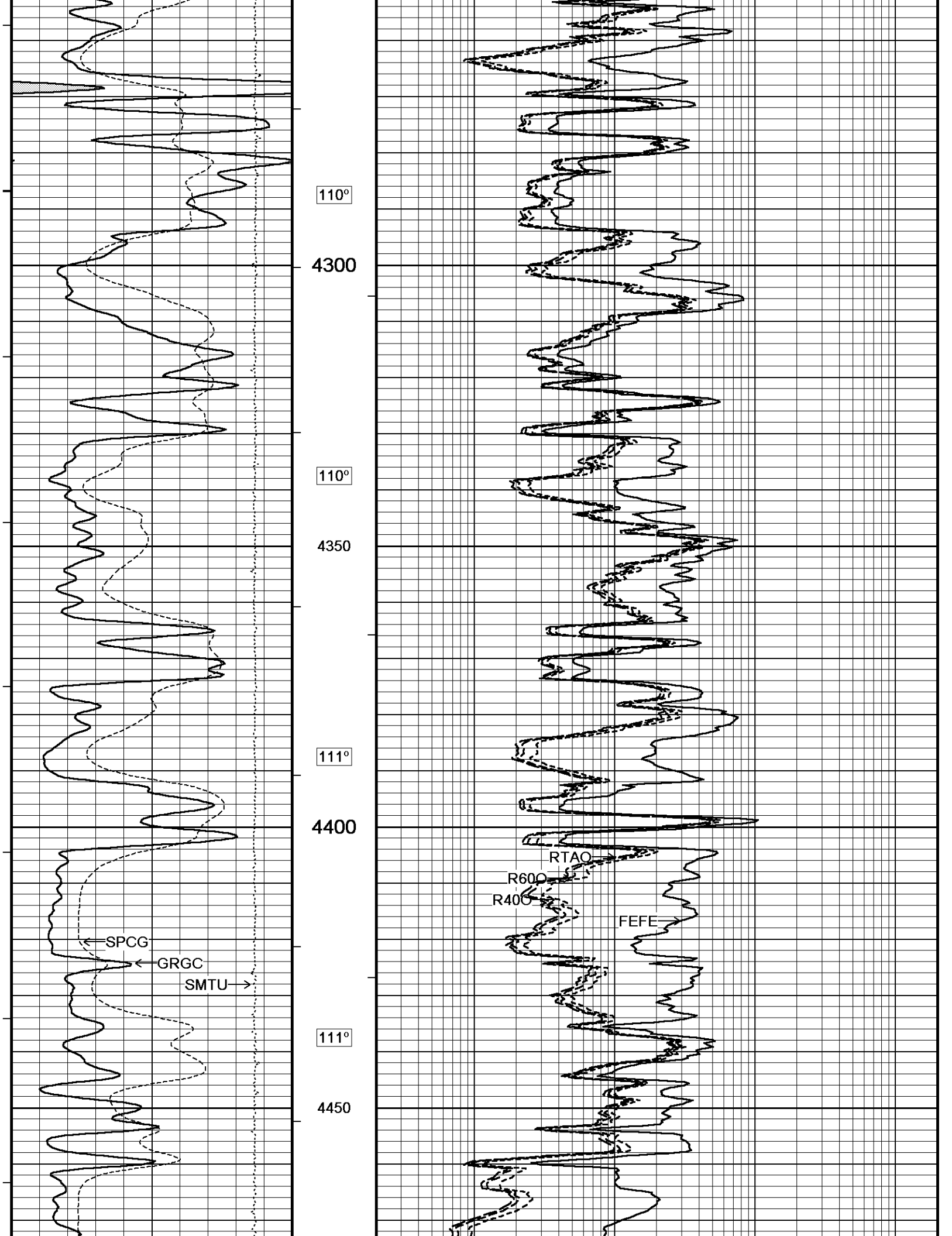
109°
4100
109°
4150
500
109°
4200
110°
4250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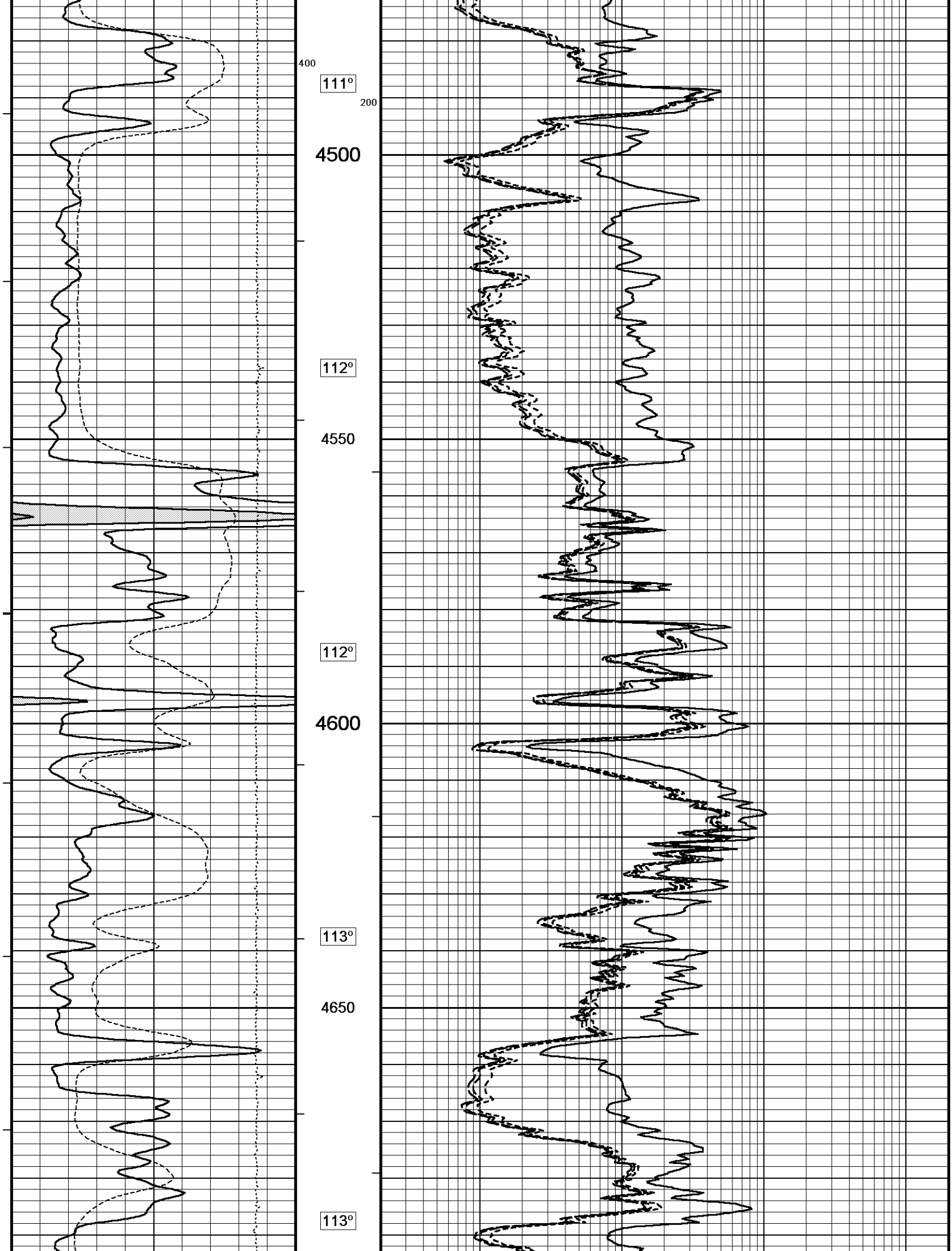
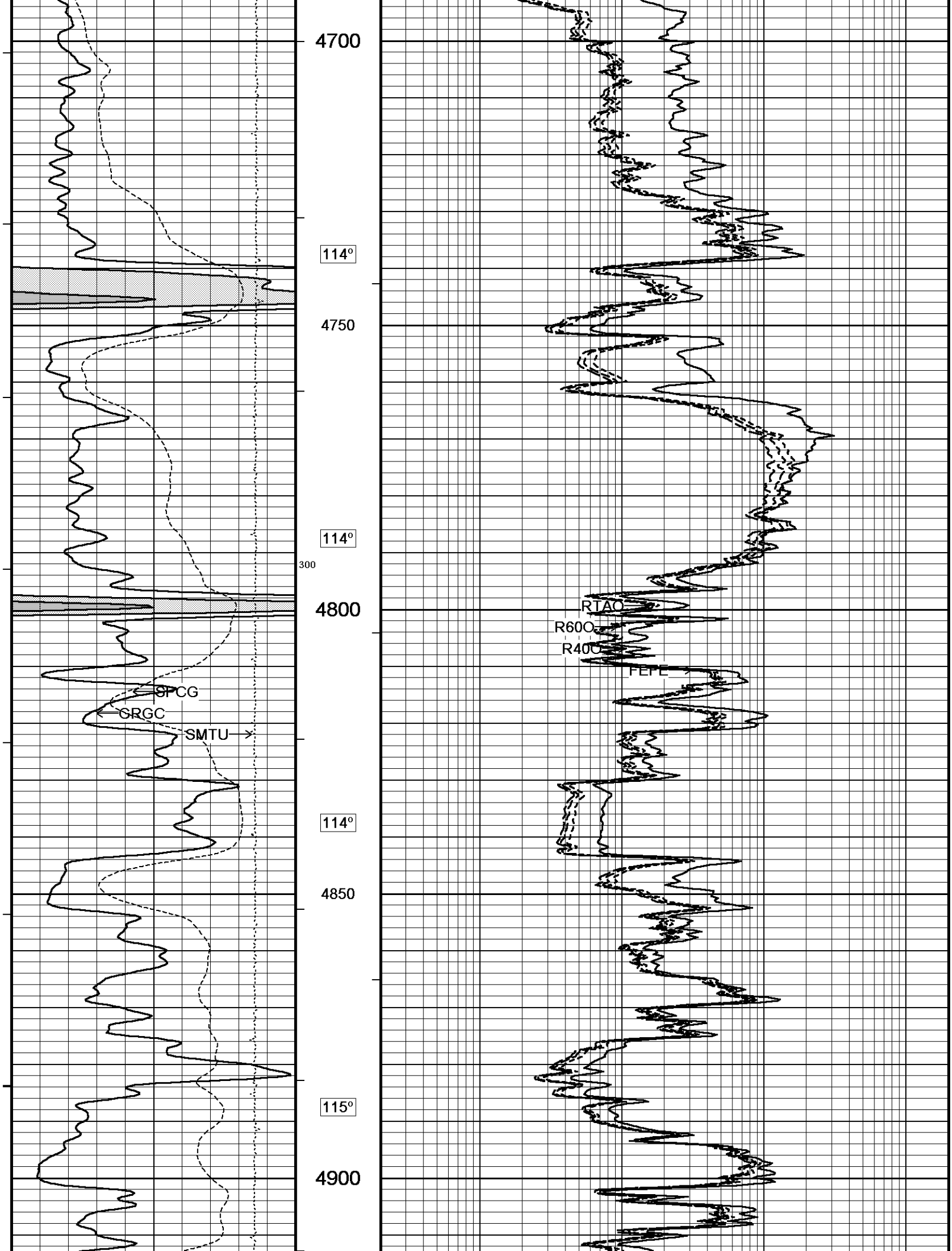
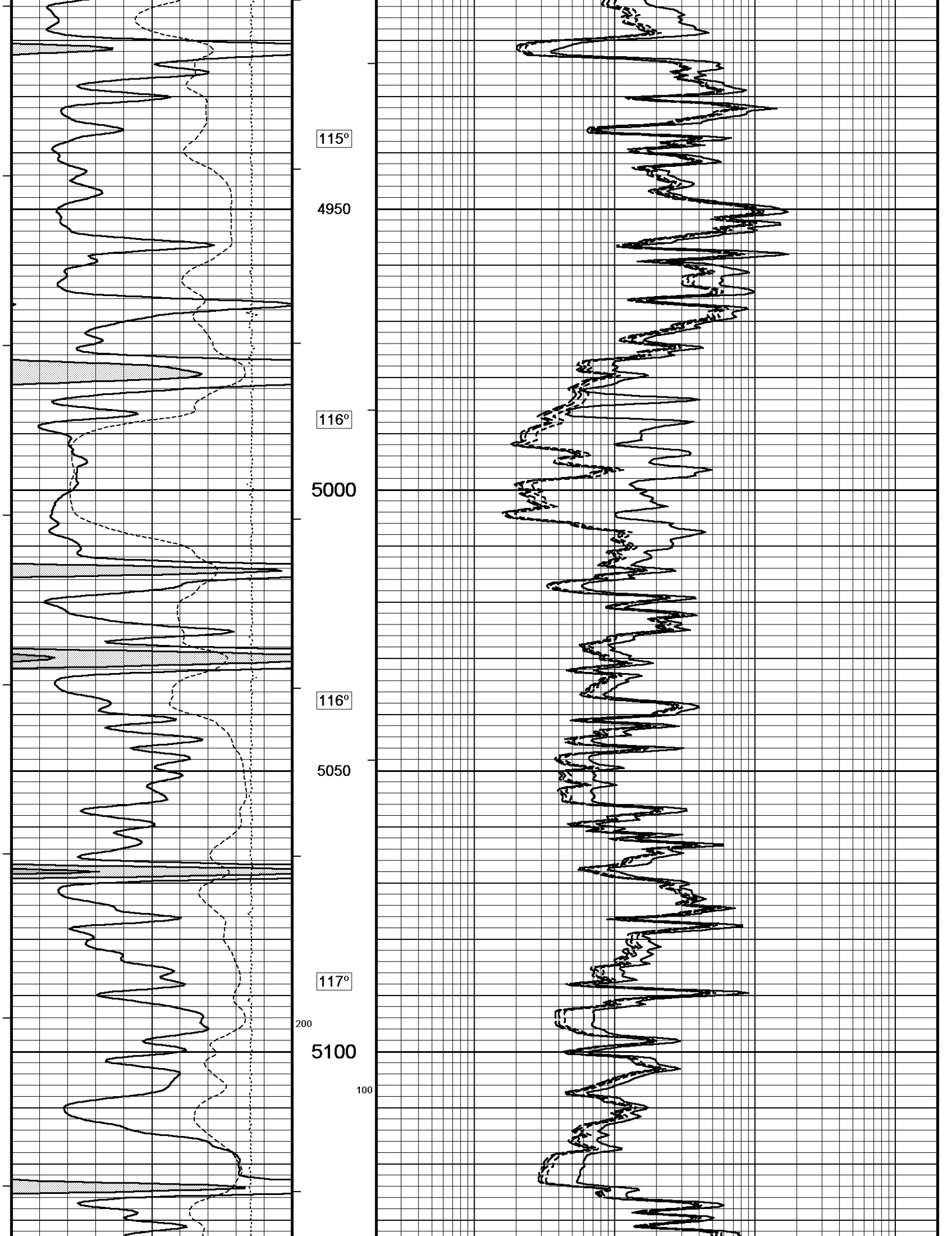
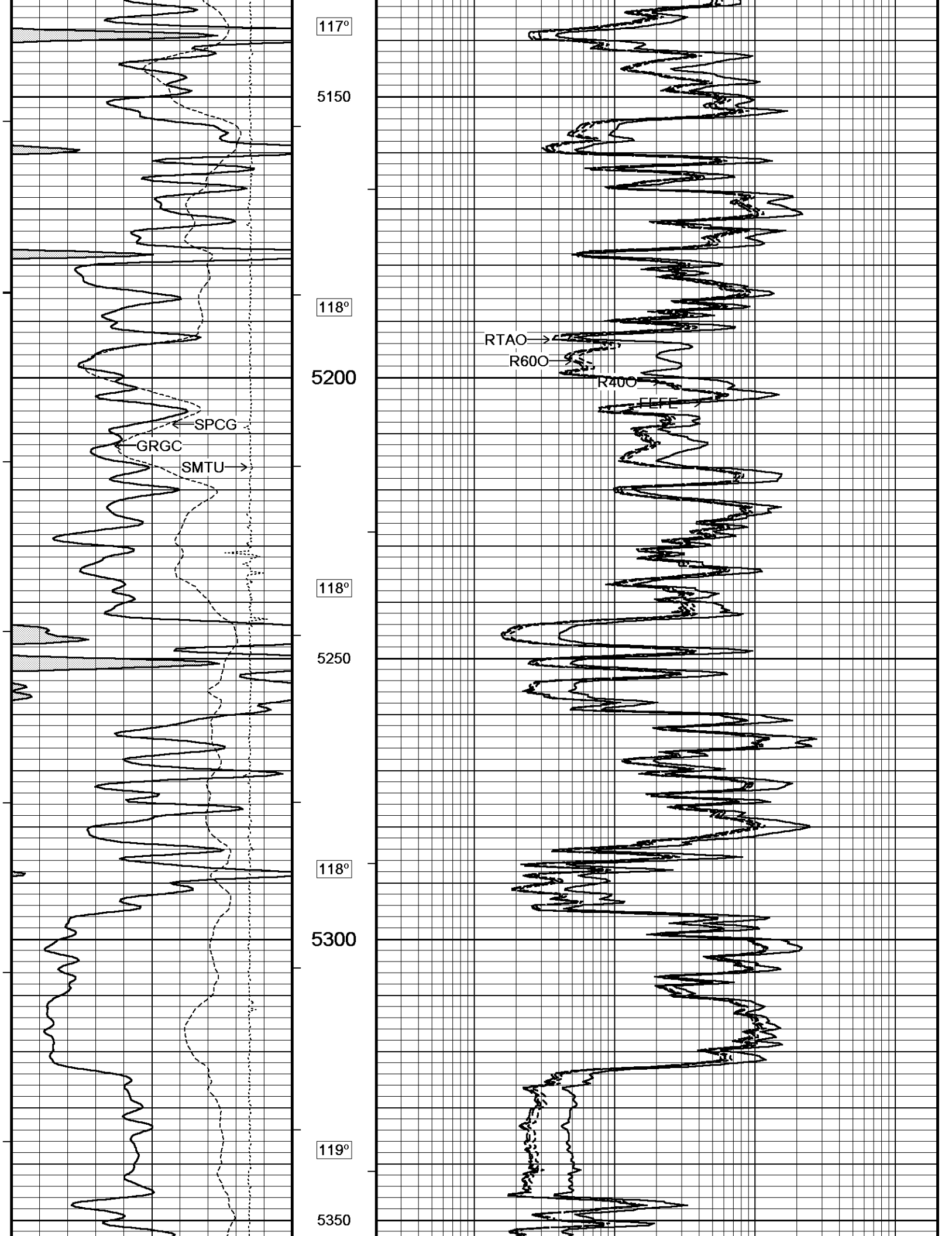
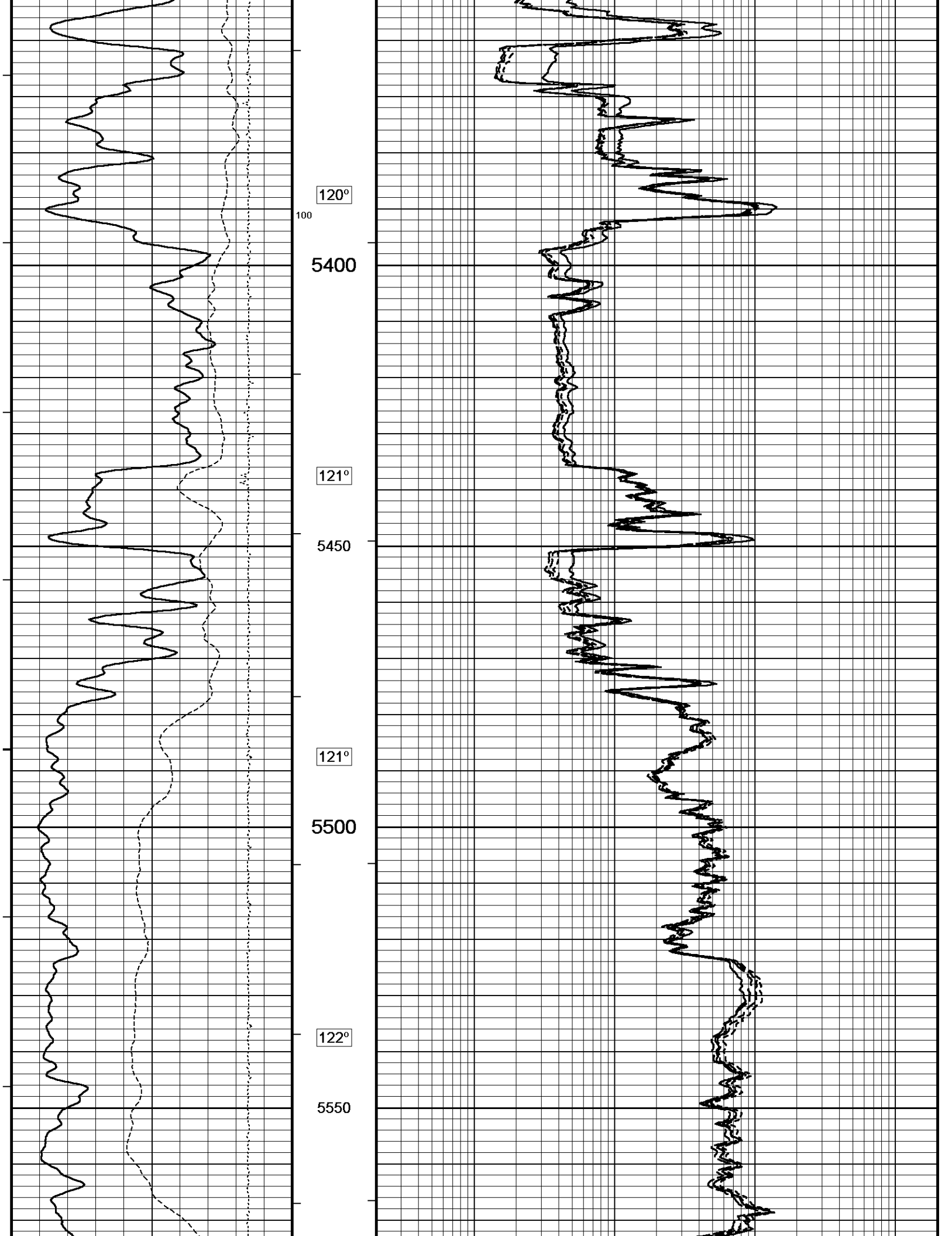
4300
110°
4350
111°
4400
111°
4450
SPCG
GRGC
SMTU
RTAO
R60O
R40O
FEFE

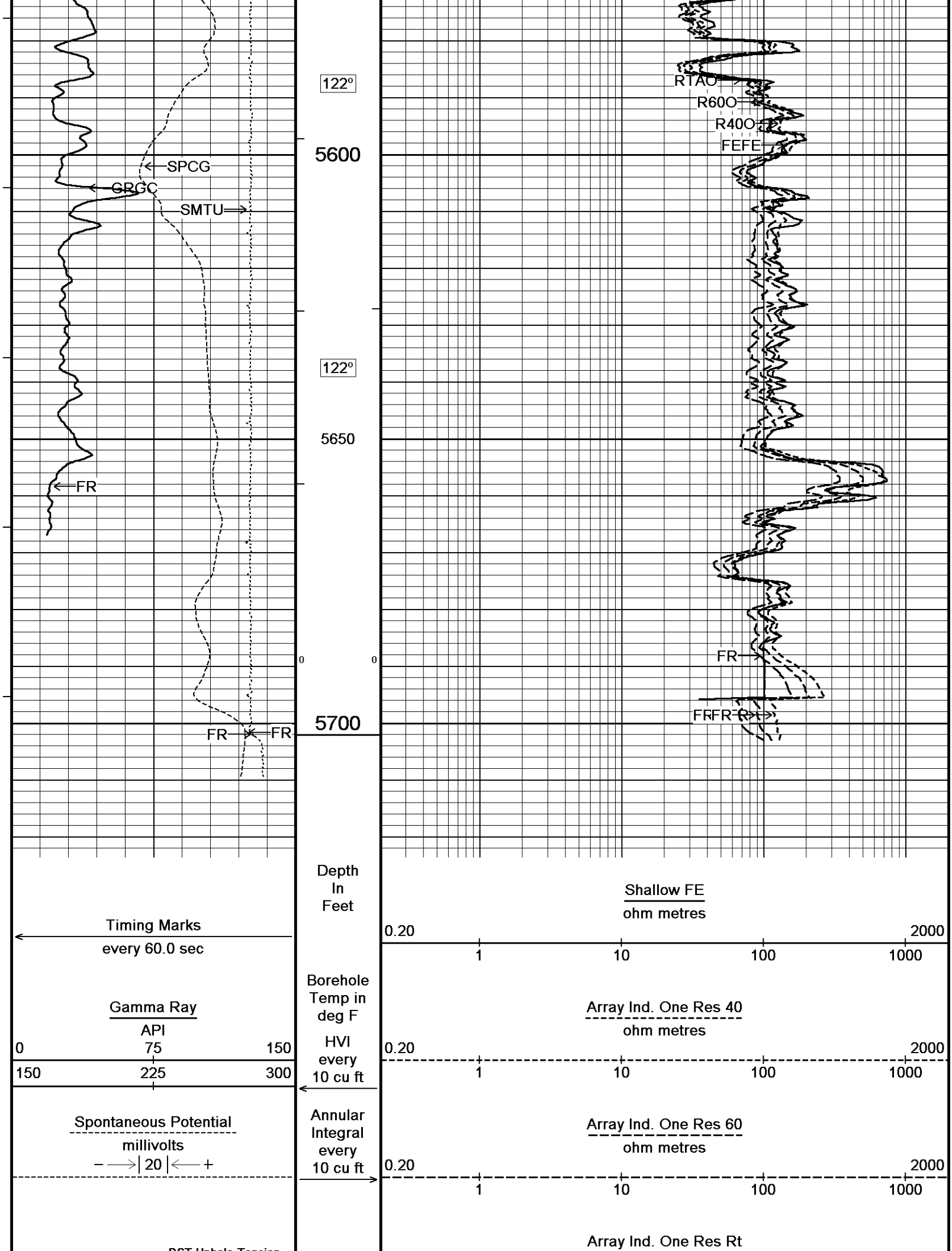

400
111°
200
4500
112°
4550
112°
4600
113°
4650
113°


4700
114°
4750
114°
300
4800
114°
4850
115°
4900
SPCG
GRGC
SMTU
RTAO
R60O
R40O
FEPE


115°
4950
116°
5000
116°
5050
117°
200
5100
100


117°
5150
118°
5200
118°
5250
118°
5300
119°
5350
SPCG
GRGC
SMTU
RTAO
R60O
R40O
FEFE


120°
100
5400
121°
5450
121°
5500
122°
5550


122°
5600
SPCG
GRGC
SMTU
122°
5650
FR
0
0
5700
FR
FR
RTAO
R60O
R40O
FEFE
FR
FRFR
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
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

DST Uphole Tension
pounds
5000 0

Replay
Scale
1:240

ohm metres
0.20 2000
1 10 100 1000

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 11-NOV-2014 02:53
Filename: C:\Minimus 14.03.4558\Logs\McCoy Patterson...\McCoy Patterson-O'Brate 'A' 3-17 Main1.dta
Recorded on 11-NOV-2014 00:18
System Versions: Logged with 14.03.5114 Processed with 14.03.5114 Plotted with 14.03.5114

5 INCH MAIN

10 INCH HIGH RESOLUTION

Depth Based Data - Maximum Sampling Increment 2.5cm
Plotted on 11-NOV-2014 02:53
Filename: C:\Minimus 14.03.4558\Logs\McCo...\McCoy Patterson-O'Brate 'A' 3-17 High Resolution1.dta
Recorded on 10-NOV-2014 23:07
System Versions: Logged with 14.03.5114 Processed with 14.03.5114 Plotted with 14.03.5114

Timing Marks
every 60.0 sec

Depth
in
Feet

Shallow FE
ohm metres
0.20 2000
1 10 100 1000

Gamma Ray
API
0 75 150
150 225 300

Borehole
Temp in
deg F

HVI
every
10 cu ft

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

Spontaneous Potential
millivolts
– → | 20 | ← +

Annular
Integral
every
10 cu ft

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

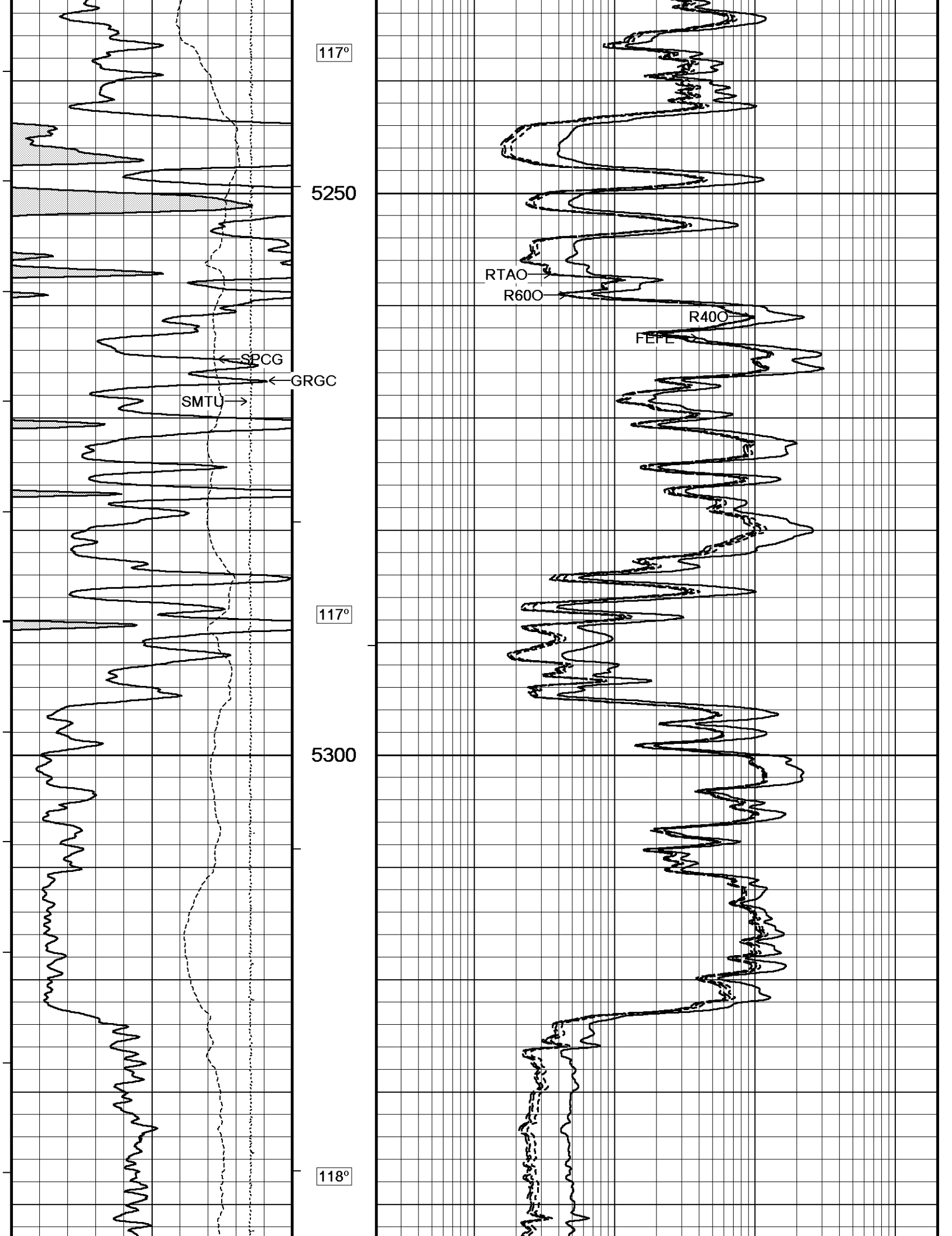
DST Uphole Tension
pounds
5000 0

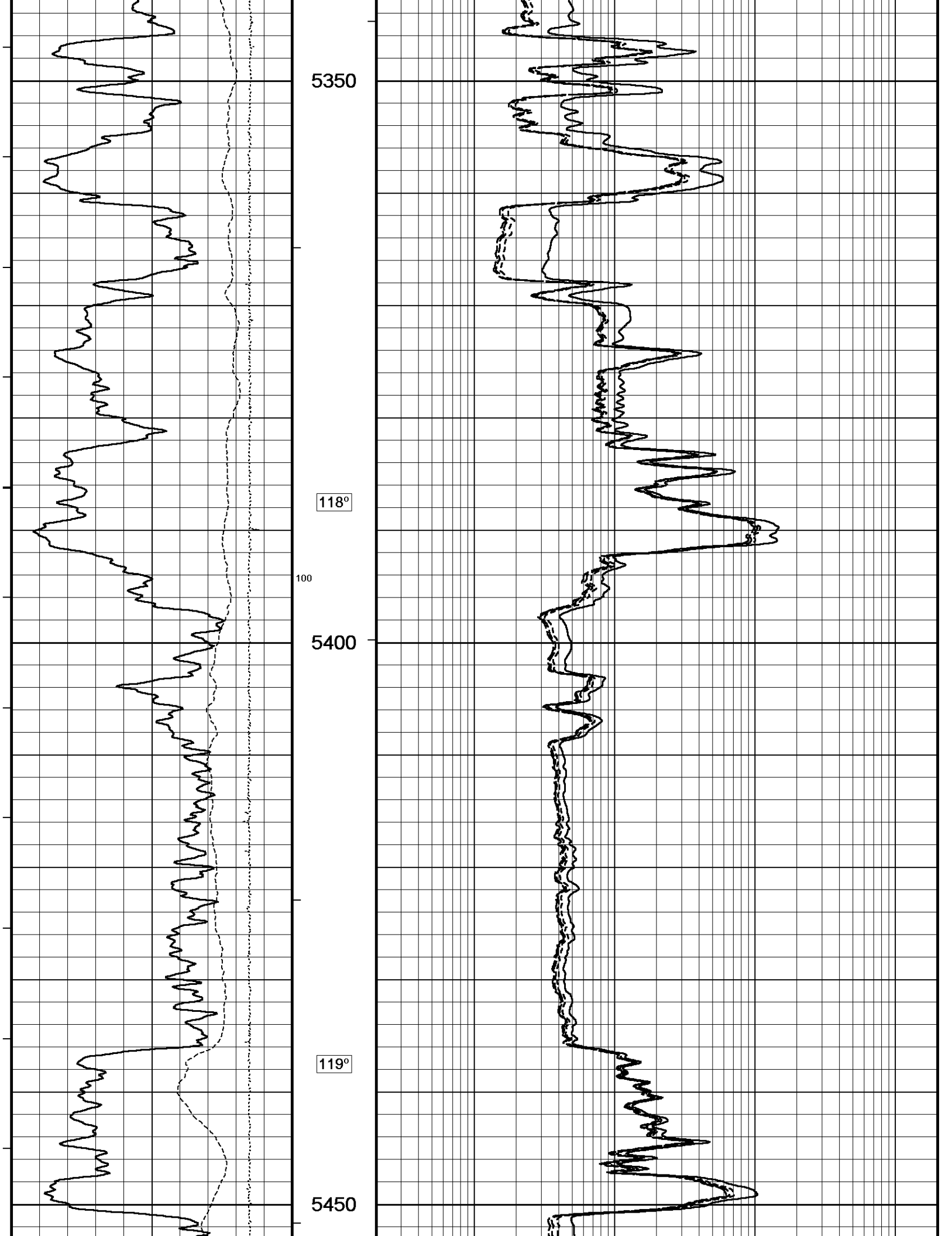
Replay
Scale
1:120

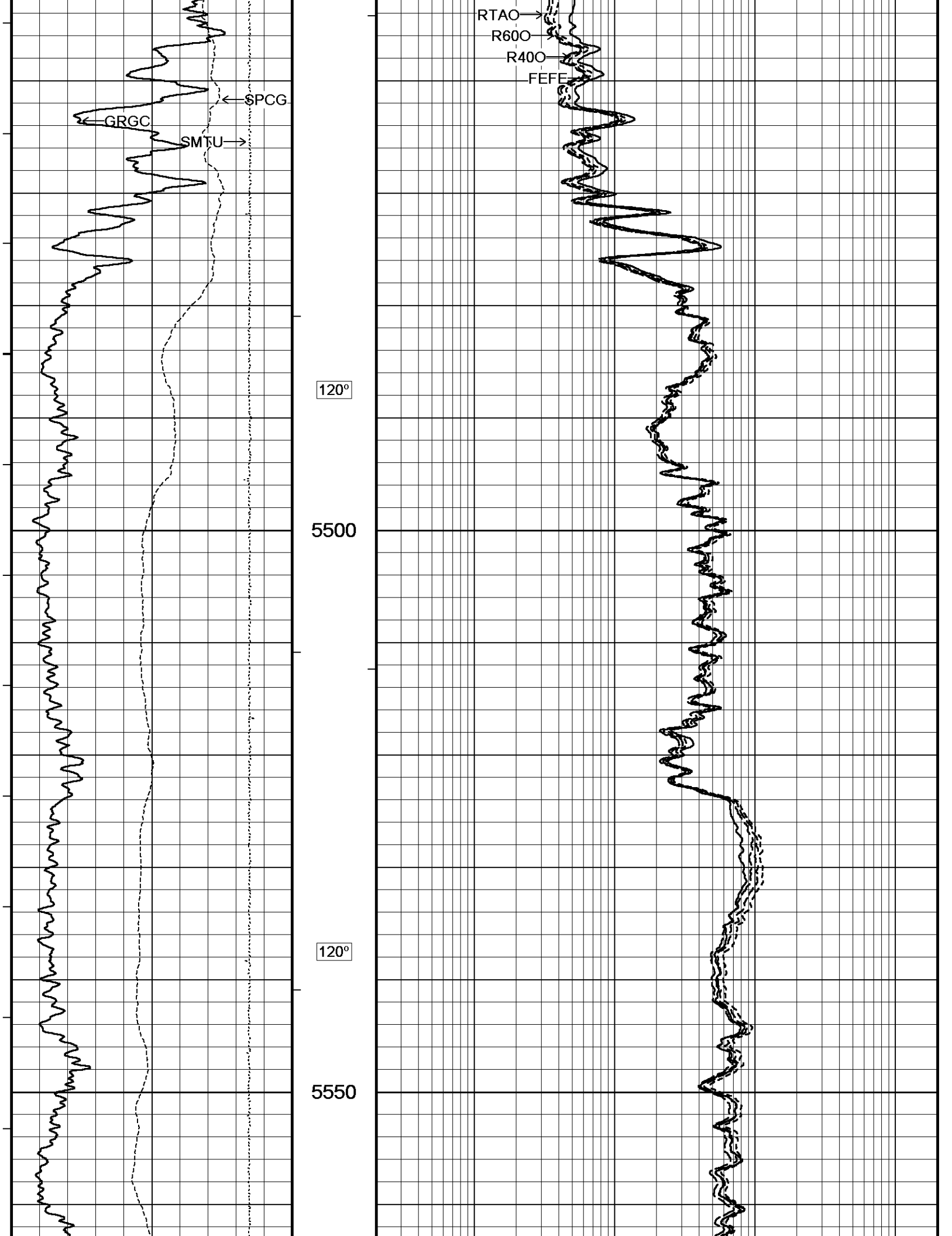
Array Ind. One Res Rt
ohm metres
0.20 2000
1 10 100 1000

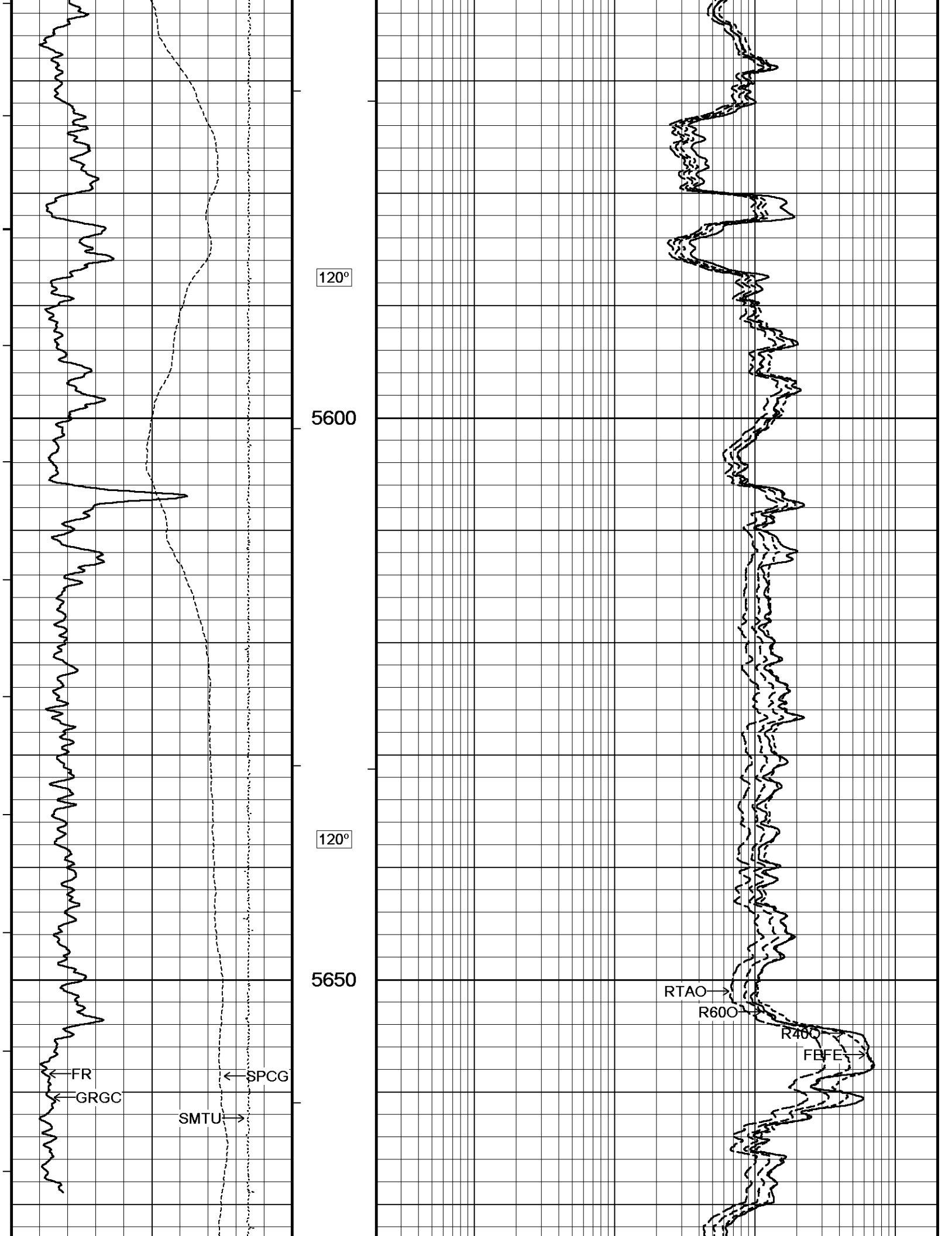
5192

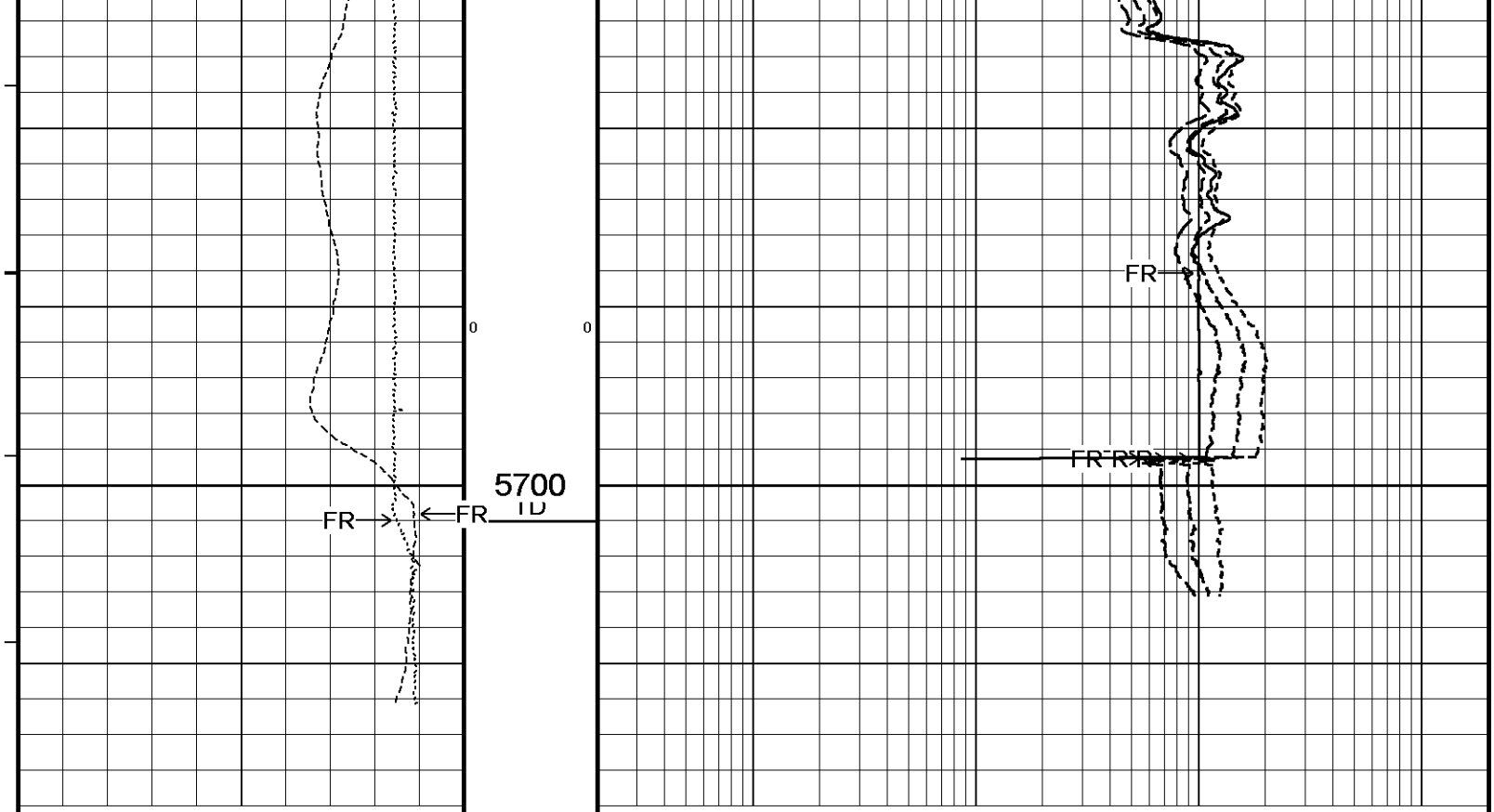
5200


117°
5250
SPCG
GRGC
SMTU
RTAO
R60O
R40O
FEPE
117°
5300
118°


5350
118°
100
5400
119°
5450


SPCG
GRGC
SMTU
RTAO
R60O
R40O
FEFE
120°
5500
120°
5550


120°
5600
120°
5650
FR
GRGC
SPCG
SMTU
RTAO
R60O
R40O
FEFE



Timing Marks
every 60.0 sec

Depth
in
Feet

Shallow FE
ohm metres
0.20 1 10 100 2000

Gamma Ray
API
0 75 150
150 225 300

Borehole
Temp in
deg F

HVI
every
10 cu ft

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

Spontaneous Potential
millivolts
– → | 20 | ← +

Annular
Integral
every
10 cu ft

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

DST Uphole Tension
pounds
5000 0

Replay
Scale
1:120

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

Depth Based Data - Maximum Sampling Increment 2.5cm
Plotted on 11-NOV-2014 02:53
Filename: C:\Minimus 14.03.4558\Logs\McCo...\McCoy Patterson-O'Brate 'A' 3-17 High Resolution1.dta
Recorded on 10-NOV-2014 23:07
System Versions: Logged with 14.03.5114 Processed with 14.03.5114 Plotted with 14.03.5114

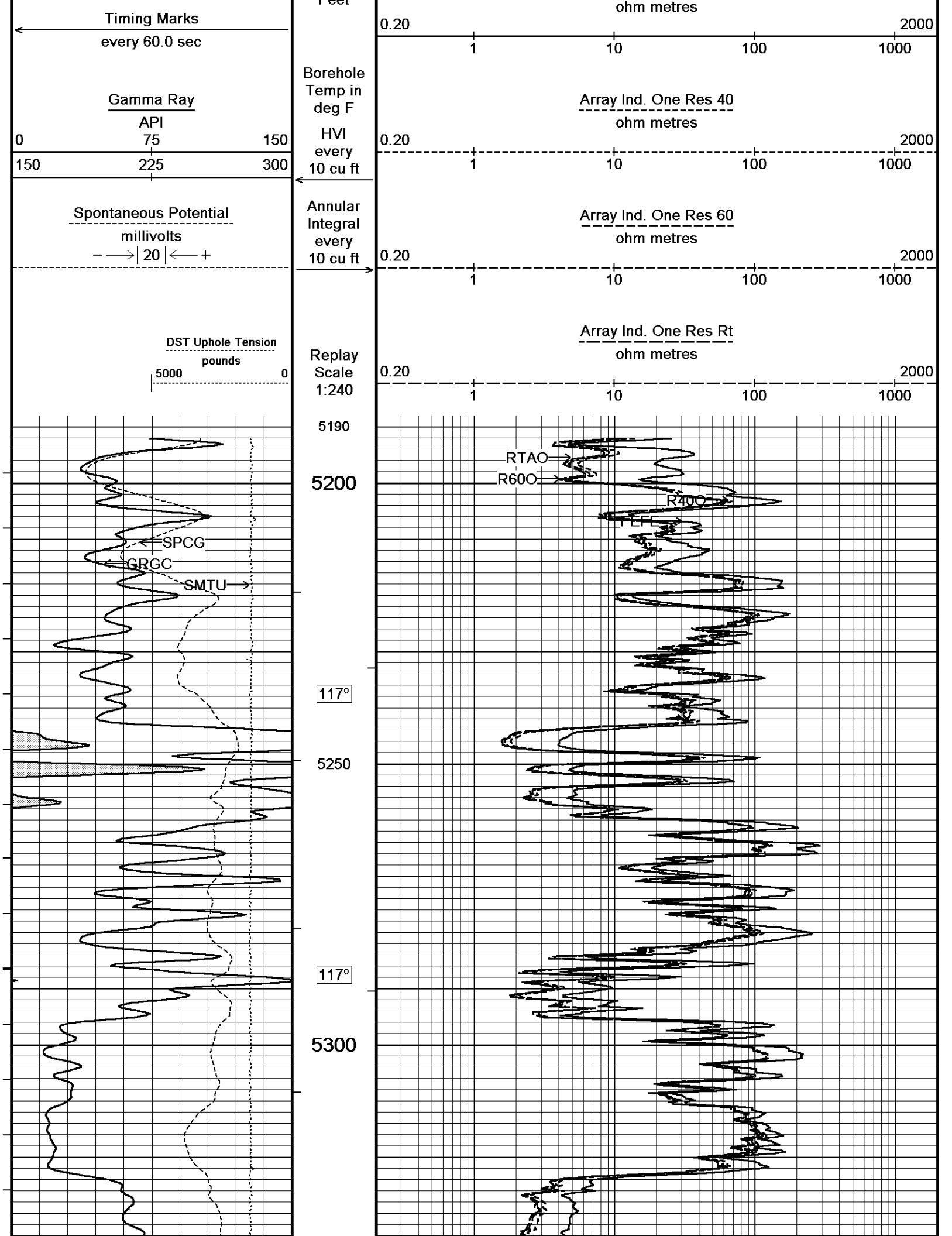
10 INCH HIGH RESOLUTION

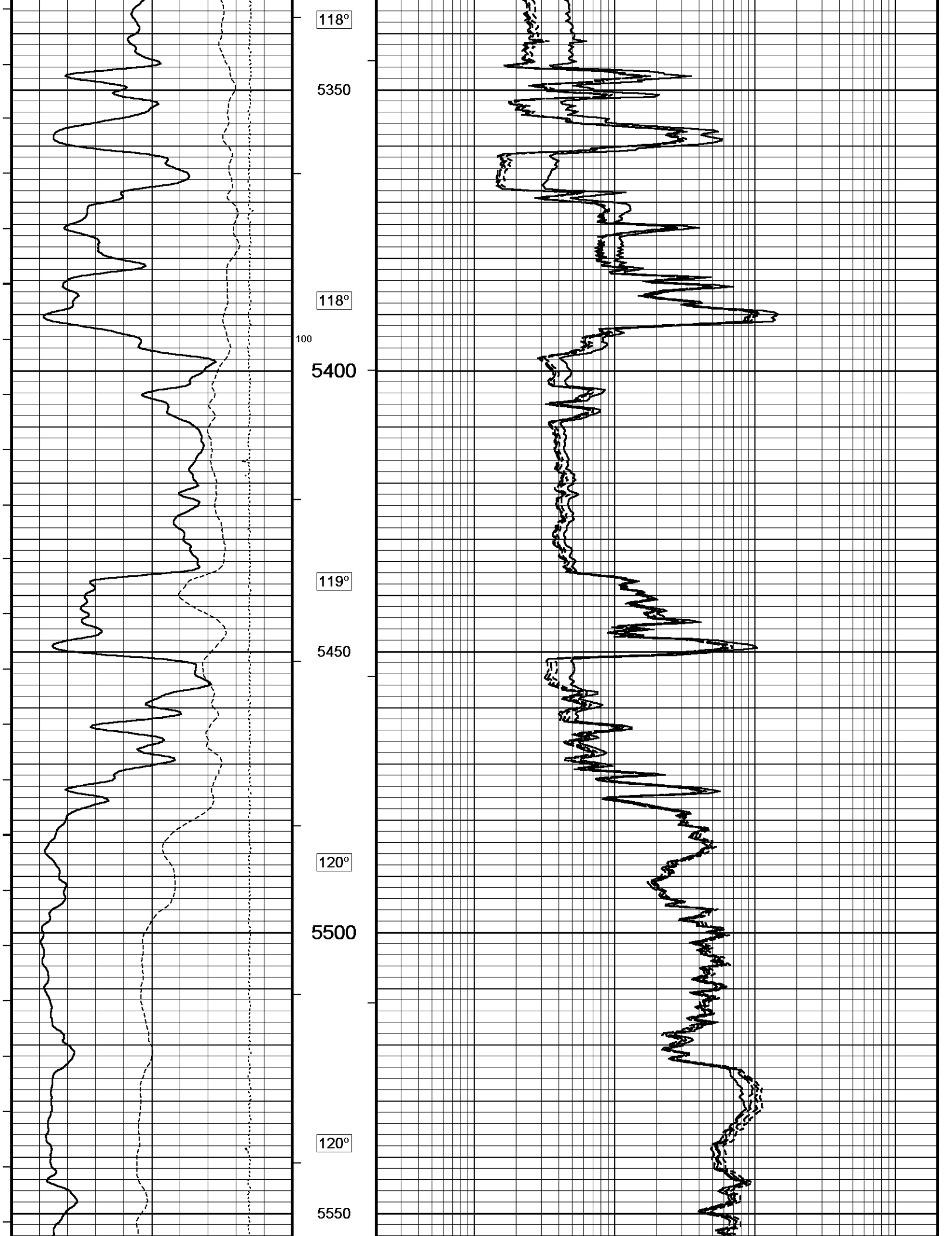
REPEAT SECTION

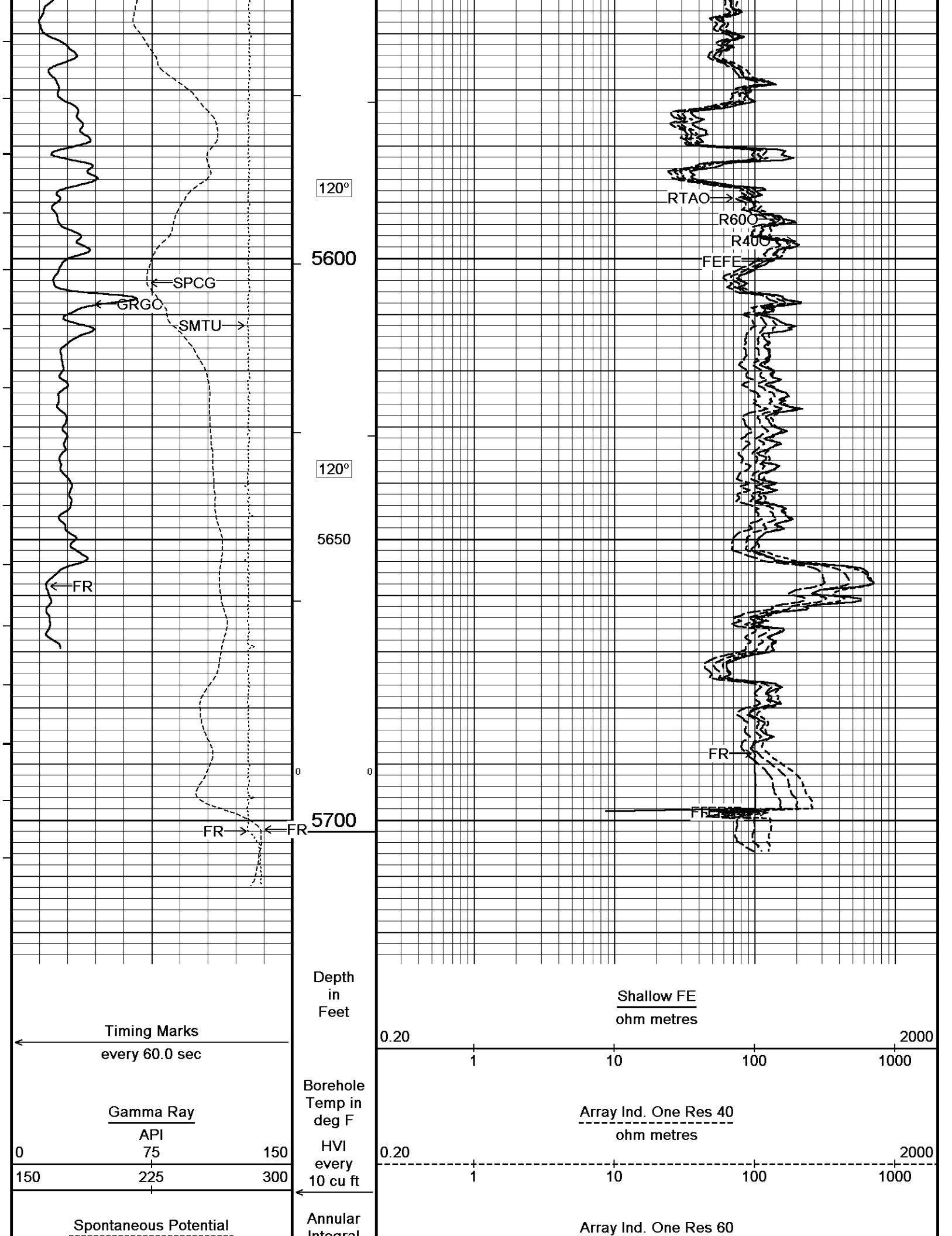
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 11-NOV-2014 02:53
Filename: C:\Minimus 14.03.4558\Logs\McCoy Patters...\McCoy Patterson-O'Brate 'A' 3-17 Repeat1.dta
Recorded on 10-NOV-2014 23:07
System Versions: Logged with 14.03.5114 Processed with 14.03.5114 Plotted with 14.03.5114

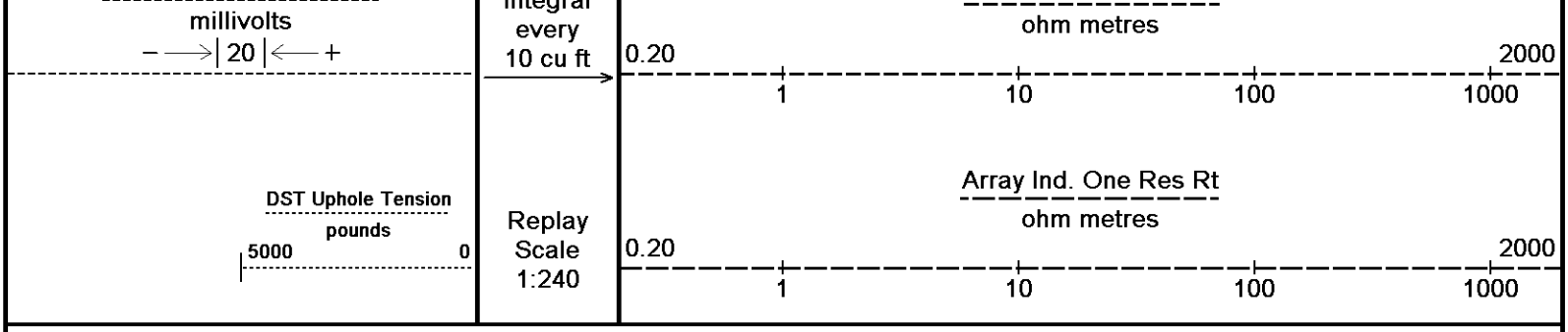
Depth
in
Feet

Shallow FE


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
Feet
Borehole Temp in deg F
HVI every 10 cu ft
Annular Integral every 10 cu ft
Replay Scale 1:240
ohm metres
0.20
2000
1
10
100
1000
Array Ind. One Res 40
Array Ind. One Res 60
Array Ind. One Res Rt
5190
5200
5250
5300
117°
117°
SPCG
GRGC
SMTU
RTAO
R60O
R40O
TEMP


118°
5350
118°
100
5400
119°
5450
120°
5500
120°
5550


120°
5600
SPCG
GRGO
SMTU
120°
5650
FR
0
0
5700
FR
FR
RTAO
R60O
R40O
FEFE
FR
Depth
in
Feet
Timing Marks
every 60.0 sec
Shallow FE
ohm metres
0.20
2000
1
10
100
1000
Borehole
Temp in
deg F
Gamma Ray
API
0
75
150
HVI
every
10 cu ft
Array Ind. One Res 40
ohm metres
0.20
2000
1
10
100
1000
150
225
300
Spontaneous Potential
Annular
Integral
Array Ind. One Res 60



Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 11-NOV-2014 02:53
Filename: C:\Minimus 14.03.4558\Logs\McCoy Patters...\McCoy Patterson-O'Brate 'A' 3-17 Repeat1.dta — Recorded on 10-NOV-2014 23:07
System Versions: Logged with 14.03.5114 Processed with 14.03.5114 Plotted with 14.03.5114

REPEAT SECTION

BEFORE SURVEY CALIBRATION

C:\Minimus 14.03.4558\Logs\McCoy Patterson-O'Brate 'A' 3-17\McCoy Patterson-O'Brate 'A' 3-17 Repeat1.dta

General Constants All 000

Last Edited on 10-NOV-2014,20:39

General Parameters		
Mud Resistivity	1.970	ohm-metres
Mud Resistivity Temperature	75.000	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	5.500	inches
Caliper for Differential Caliper	None	
Rwa Parameters		
Porosity used	Crossplot Porosity	
Resistivity used	Array Ind. Four Res Rt	
RWA Constant A	0.610	
RWA Constant M	2.150	
SW/APOR Tool Source	0.000	

Down-hole Tension Calibration SMS 0

Field Calibration on 10-NOV-2014 22:07

Reading No	Measured	Calibrated (lbs)
1	15342.73	0.00
2	15915.40	407.90

Gamma Calibration MCG-C 208

Field Calibration on 10-NOV-2014 09:47

	Measured	Calibrated (API)
Background	72	49
Calibrator (Gross)	1130	774
Calibrator (Net)	1057	725

Gamma Calibration Tolerances MCG-C 208

Ratio 1.459 (1.40 | 1.475 | 1.55) Counts/API

Gamma Constants MCG-C 208

Last Edited on 10-NOV-2014,20:39

Gamma Calibrator Number	GRC038	
GRC-M Calibrator Jig in Use?	NO	
Inactive Background Jig in Use?	NO	
Mud Density	1.11	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl		kppm
K Mud Type	Chloride	
K Mud Concentration	0.00	%

SP Calibration MCG-C 208

Field Calibration on 10-NOV-2014 11:01

	Measured	Calibrated (mV)
Reference 1	99.9	99.2
Reference 2	-98.0	-99.0

High Resolution Temperature Calibration MCG-C 208

Field Calibration on 23-SEP-2014,19:44

	Measured	Calibrated(Deg F)
Lower	10.00	10.00
Upper	100.00	100.00

High Resolution Temperature Constants MCG-C 208

Last Edited on 23-SEP-2014,19:44

Pre-filter Length 11

Caliper Calibration MMR-C.A 248

Base Calibration on 23-OCT-2014 09:52
Field Calibration on 10-NOV-2014 09:36

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	13737	5.96
2	17108	7.98
3	20397	9.85
4	24360	11.92
5	0	0.00
6	N/A	N/A

Field Calibration

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

Caliper Calibration Tolerances MMR-C.A 248

Short Arm Field Cal. 7.94 (7.77 | 7.97 | 8.17) in

Micro Normal and Micro Inverse Calibration MMR-C.A 248

Base Calibration on 23-OCT-2014 10:02
Field Check on 02-NOV-2014 00:33

Base Calibration

Channel	Measured Resistor 1	Measured Resistor 2	Calibrated (ohm-m) Resistor 1	Calibrated (ohm-m) Resistor 2
Micro Normal	10.2	49.9	5.1	25.6
Micro Inverse	9.9	49.5	3.4	16.9

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Micro Normal	93.5	93.5
Micro Inverse	62.2	62.2

Micro Normal & Micro Inverse Calibration Tolerance MMR-C.A 248

Micro Normal Res. 1 10.2 (-5% | 10.0 | +5%) ohm
Micro Normal Res. 2 49.9 (-5% | 50.0 | +5%) ohm
Micro Inverse Res. 1 9.9 (-5% | 10.0 | +5%) ohm
Micro Inverse Res. 2 49.5 (-5% | 50.0 | +5%) ohm

Micro Normal Base Check 93.5 (-2% | 93.16 | +2%) ohm-m
Micro Inverse Base Check 62.2 (-2% | 62.11 | +2%) ohm-m

Micro Normal Field Check 93.5 (-2% | 93.5 | +2%) ohm-m
Micro Inverse Field Check 62.2 (-2% | 62.2 | +2%) ohm-m

Micro Normal and Micro Inverse Constants MMR-C.A 248

Last Edited on 19-SEP-2014,16:14

Pad Type	8-12 in Soft Rubber Inflatable 006-9011-159	
Micro Normal K Factor	0.5110	
Micro Inverse K Factor	0.3380	
Standoff Offset	0.0000	inches

Micro-Resistivity Caliper Constants MMR-C.A 248

Last Edited on

Sonde Configuration Resistivity Mode

Micro Laterolog Calibration MMR-C.A 248

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-C.A 248

Last Edited on 23-SEP-2014,18:59

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	N/A	
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.	N/A	

Neutron Calibration MDN-A.B 163

Base Calibration on 22-OCT-2014 17:32
Field Check on 10-NOV-2014 09:51

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
	3042	93	3714	110
Ratio	32.627		33.764	

Field Calibrator at Base

	Calibrated (cps)	
	1687	2482
Ratio	0.680	

Field Check

	Calibrated (cps)	
	1673	2453
Ratio	0.682	

Neutron Calibration Tolerances MDN-A.B 163

Near Reading	3042	-25% 3500 +25%	cps	Far Reading	93 -50% 106 +50% cps
Ratio	32.627	-5% 33 +5%			
Base Check	0.680	0.65 0.7 0.75			
Field Check	0.682	0.660 0.680 0.700			

Neutron Constants MDN-A.B 163

Last Edited on 10-NOV-2014,20:02

Neutron Source Id	P58125B	
Neutron Jig Number	5824NE	
Air Hole Processing	Legacy	
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-A.A 55

Base Calibration on 23-OCT-2014 09:18

FE Calibration MFE-A.A 55

Base Calibration on 23-OCT-2014 09:18
Field Check on 10-NOV-2014 09:27

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	950.6	126.8
Base Check		282.0
Field Check		281.8

FE Calibration Tolerances MFE-A.A 55

Reference 2	950.6	-3% 980.0 +3%	ohm	
Base Check	282.0	-2% 277.0 +2%	ohm-m	
Field Check	281.8	-2% 282.0 +2%	ohm-m	

FE Constants MFE-A.A 55

Last Edited on 10-NOV-2014,20:01

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

Induction Calibration MAI-A.A 5

Base Calibration on 22-OCT-2014,13:28
Field Check on 10-NOV-2014 09:26

Base Calibration

Test Loop Calibration

Channel	Measured Low	Measured High	Calibrated (mmho/m) Low	Calibrated (mmho/m) High
1	16.3	470.8	9.3	966.2
2	5.6	376.1	7.6	821.4
3	2.6	266.1	5.2	566.0
4	1.6	130.0	2.6	279.2

Array Temperature 71.1 Deg F

Test Loop Calibration Verified

Channel	Base Check (mmho/m) Low	Base Check (mmho/m) High	Field Check (mmho/m) Low	Field Check (mmho/m) High
1			14.6	3862.9
2			31.6	3591.6
3			29.7	2972.4
4			20.7	2127.0
Deep			18.4	1913.0
Medium			42.9	3862.6
Shallow			46.9	5373.6

Array Temperature 66.3 Deg F

Induction Calibration Tolerances MAI-A.A 5

Low Conductivity 1	16.3	13.0 17.0 21.0	mmho/m	High Conductivity 1	470.8	430.0 475.0 520.0 mmho/m
Low Conductivity 2	5.6	4.5 6.0 7.5	mmho/m	High Conductivity 2	376.1	345.0 385.0 425.0 mmho/m
Low Conductivity 3	2.6	1.0 3.5 6.0	mmho/m	High Conductivity 3	266.1	240.0 260.0 280.0 mmho/m
Low Conductivity 4	1.6	0.0 2.0 4.0	mmho/m	High Conductivity 4	130.0	120.0 135.0 150.0 mmho/m
Background Vx 1	0.0	-110.0 -32.5 45.0	mmho/m	Phase Check Loop 1	0.0	-2.0 0.0 2.0 %
Background Vx 2	0.0	-35.0 20.0 75.0	mmho/m	Phase Check Loop 2	0.0	-2.0 0.0 2.0 %
Background Vx 3	0.0	-60.0 2.5 65.0	mmho/m	Phase Check Loop 3	0.0	-2.0 0.0 2.0 %
Background Vx 4	0.0	-50.0 -17.5 15.0	mmho/m	Phase Check Loop 4	0.0	-2.0 0.0 2.0 %

Induction Constants MAI-A.A 5

Last Edited on 10-NOV-2014,20:21

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	0.00	inches
Number of Fins on Stand-off	8.0000	
Stand-off Fin Angle	45.00	degrees
Stand-off Fin Width	0.0000	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	

High Resolution Temperature Calibration MAI-A.A 5

Field Calibration on 01-NOV-2014,01:00

	Measured	Calibrated(Deg F)
Lower	10.00	10.00
Upper	100.00	100.00

High Resolution Temperature Constants MAI-A.A 5

Last Edited on 01-NOV-2014,01:00

Pre-filter Length	11

Photo Density Calibration MPD-D.A 481

Base Calibration on 22-OCT-2014 15:53
Field Check on 10-NOV-2014 09:33

Density Calibration

Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Background	1210	1421		
Reference 1	55376	26233	59556	30836
Reference 2	22300	2596	24941	2541

Field Check at Base

	1210.3	1420.8

Field Check

	1211.2	1417.9

PE Calibration

Base Calibration	Measured			Calibrated
	WS	WH	Ratio	Ratio
Background	227	1078		
Reference 1	23980	55175	0.439	0.371
Reference 2	6780	22159	0.311	0.272

Field Check at Base

	226.9	1078.0
Field Check		
	230.6	1082.6

Photo Density Calibration Tolerances MPD-D.A 481

		-5%		+5%
Near Density Ratio	2.57		2.52	
Far Density Ratio	21.11		21.00	

		0.089		0.131
PE Calibration	0.120		0.110	

		-3%		+3%
Near Den. Field Check	1211.2		1210.3	
Far Den. Field Check	1417.9		1420.8	

		-6%		+6%
PE WS Field Check	230.6		226.9	
PE WH Field Check	1082.6		1078.0	

Density Constants MPD-D.A 481

Last Edited on 10-NOV-2014,20:38

Density Source Id	P50557B	
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	1.11	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 (m)
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-D.A 481

Base Calibration on 22-OCT-2014 15:01
Field Calibration on 10-NOV-2014 09:28

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	17509	3.99
2	27597	5.98
3	37616	7.97
4	47437	9.86
5	58570	11.92
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
7.98	7.97

Caliper Calibration Tolerances MPD-D.A 481

		7.77		8.17	
Short Arm Field Cal.	7.98		7.97		in

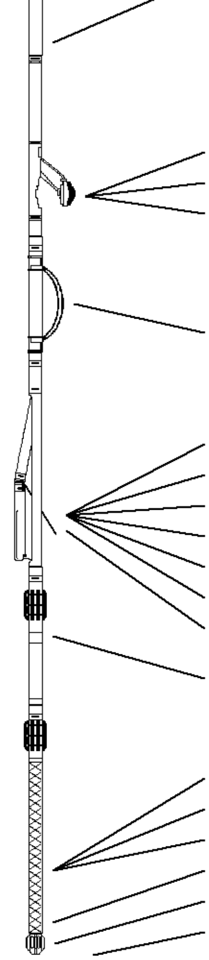
DOWNHOLE EQUIPMENT

C:\Minimus 14.03.4558\Logs\McCoy Patterson-O'Brate 'A' 3-17\McCoy Patterson-O'Brate 'A' 3-17 Repeat1.dta

CBH-C, Cablehead, 11 pin
CBH-C 0 LG: 2.40 ft WT: 24.3 lb OD: 2.244 in

Compact Comms Gamma
MCG-C 208 LG: 8.70 ft WT: 63.9 lb OD: 2.244 in

43.50 ft GRGC - Gamma Ray
40.59 ft CGXT - MCG External Temperature



Compact Micro-Resistivity
MMR-C.A 248   LG: 8.59 ft   WT: 81.6 lb   OD: 4.882 in

Compact Neutron
MDN-A.B 163   LG: 5.04 ft   WT: 50.7 lb   OD: 2.244 in

Compact Density/Caliper
MPD-D.A 481   LG: 9.59 ft   WT: 90.4 lb   OD: 2.449 in

Compact Focussed Electric
MFE-A.A 55   LG: 6.05 ft   WT: 48.5 lb   OD: 2.244 in

Compact Induction
MAI-A.A 5   LG: 10.81 ft   WT: 48.5 lb   OD: 2.244 in

Total   Length: 51.18 ft   Weight: 407.9 lb

34.24 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	RTAO - Array Ind. One Res Rt
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

COMPANY	McCOY PETROLEUM CORPORATION
WELL	PATTERSON-O'BRATE 'A' 3-17
FIELD	MERTILLA SOUTHEAST
PROVINCE/COUNTY	MEADE
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	2825.00	feet	First Reading	5699.00	feet
Elevation Drill Floor	2823.00	feet	Depth Driller	5700.00	feet
Elevation Ground Level	2814.00	feet	Depth Logger	5702.00	feet

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SHALLOW FOCUSED
ELECTRIC LOG

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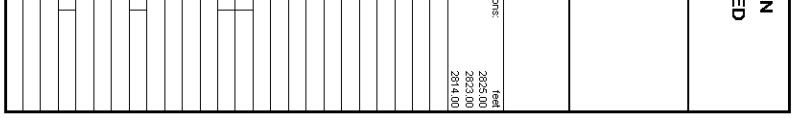
SHALLOW FOCUSE
ELECTRIC LOG

COMPANY	McCOY PETROLEUM CORPORATION
WELL	PATTERSON-O'BRATE 'A' 3-17
FIELD	MERTILLA SOUTHEAST
PROVINCE/COUNTY	MEADE
COUNTRY/STATE	U.S.A. / KANSAS
LOCATION	990' FNL & 1650' FWL

SEC 17 TWP 30S RGE 30W   Other Services MPD/MDN MML
Latitude
Longitude
API Number 15-119-21378
Permanent Datum GL, Elevation 2814 feet   Elevati KB DF GL
Log Measured From KB
Drilling Measured From KB @ 11 feet

Date	10-NOV-2014		
Run Number	ONE		
Service Order	7577-102837829		
Depth Driller	5700.00	feet	
Depth Logger	5702.00	feet	
First Reading	5699.00	feet	
Last Reading	1858.00	feet	
Casing Driller	1857.00	feet	
Casing Logger	1858.00	feet	
Bit Size	7.875	inches	
Hole Fluid Type	CHEMICAL		
Density / Viscosity	9.25 lb/USg	48.00 CP	
PH / Fluid Loss	9.50	8.00 ml/30Min	
Sample Source	MUD PIT		
Rm @ Measured Temp	1.97 @ 75.0	ohm-m	
Rmf @ Measured Temp	1.58 @ 75.0	ohm-m	
Rmc @ Measured Temp	2.36 @ 75.0	ohm-m	
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	1.24 @122.0	ohm-m	
Time Since Circulation	3.5 HOURS		
Max Recorded Temp	122.00	deg F	
Equipment / Base	13244	LIB	
Recorded By	JEFFREY RANDLE		
Witnessed By	ZACH WIELE		
JOB #	LB14-352		



1 INCH MAIN

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 11-NOV-2014 02:53
Filename: C:\Minimus 14.03.4558\Logs\McCoy Patterson-O'Br...\McCoy Patterson-O'Brate 'A' 3-17 Main1.dta
Recorded on 11-NOV-2014 00:18
System Versions: Logged with 14.03.5114 Processed with 14.03.5114 Plotted with 14.03.5114

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

Array Ind. One Cond Ct
mmhos/metre
1000 750 500 250 0
2000 1750 1500 1250 1000

Borehole
Temp in
deg F

HVI
every
10 cu ft

Shallow FE
ohm metres
0 25 50

Annular
Integral
every
10 cu ft
0 250 500

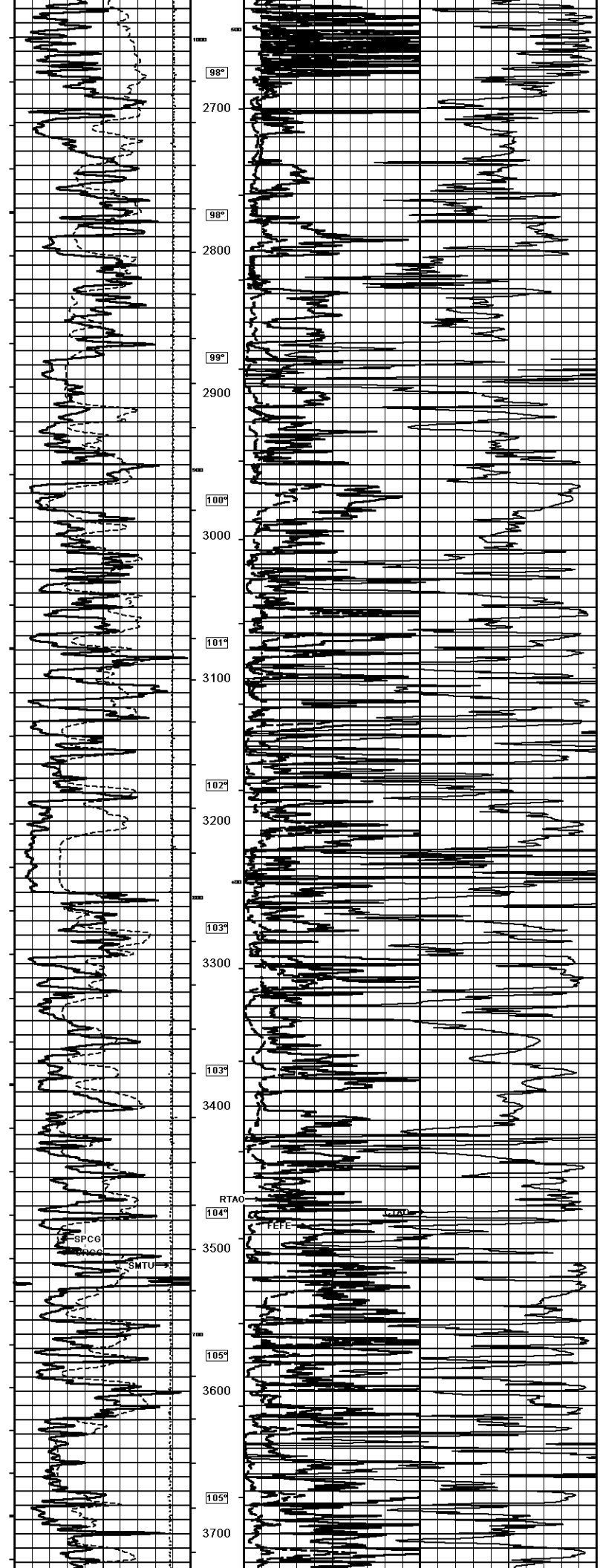
Array Ind. One Res Rt
ohm metres
0 25 50
0 250 500

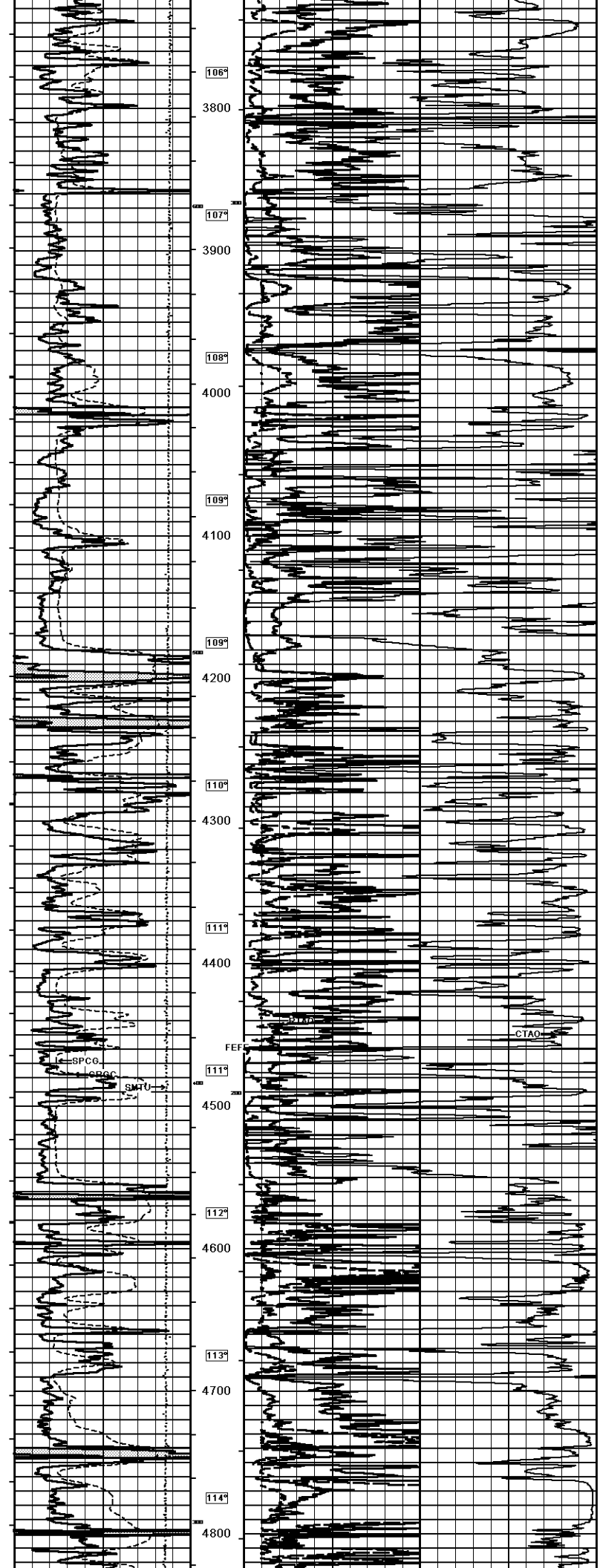
Replay
Scale
1:600

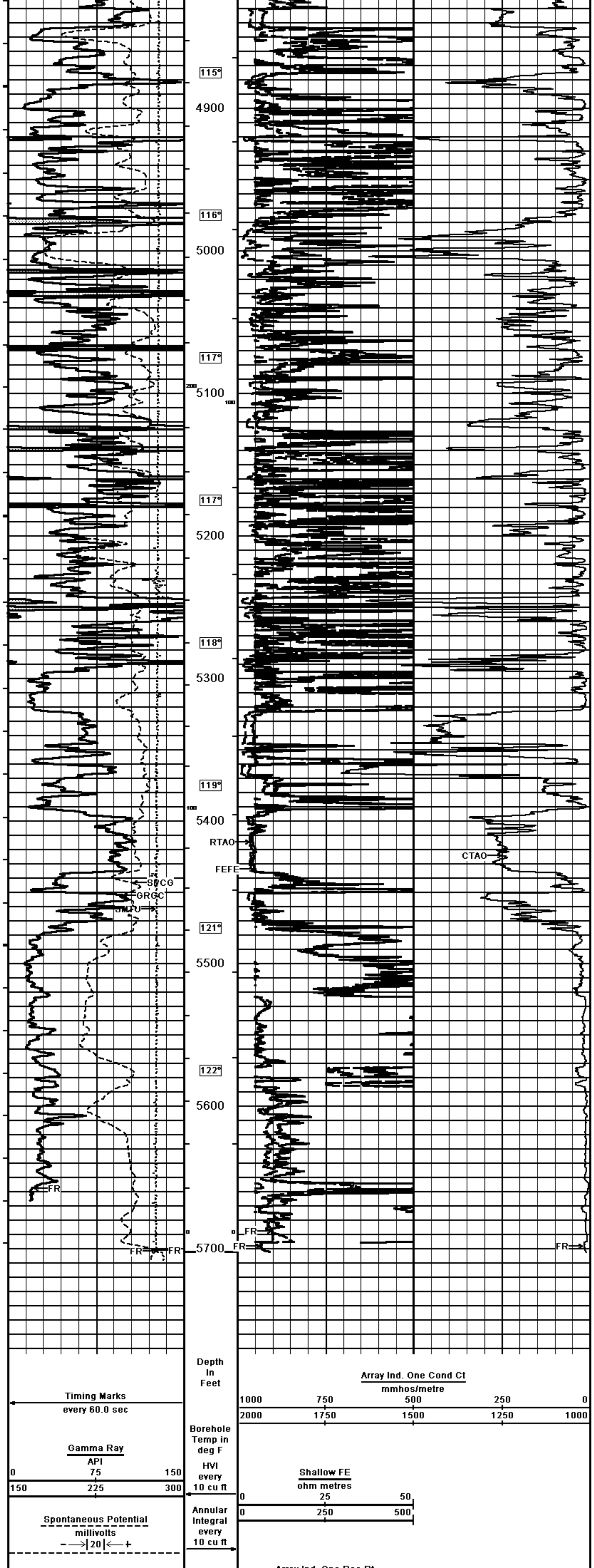
Casing
1850
Shoe

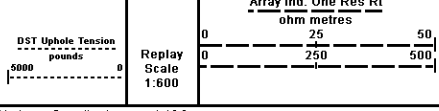
1900
94°
2000
95°
2100
96°
2200
97°
2300
97°
2400
97°
2500
97°
2600

SPCG
SMTU
CTAO


98°
2700
98°
2800
99°
2900
100°
3000
101°
3100
102°
3200
103°
3300
103°
3400
RTAO
104°
TEFE
SPCG
SMTU
3500
105°
3600
105°
3700


106°
3800
107°
3900
108°
4000
109°
4100
109°
4200
110°
4300
111°
4400
FEFE
SPCG
CPOC
SMTU
111°
4500
112°
4600
113°
4700
114°
4800
CTAO


115°
4900
116°
5000
117°
5100
117°
5200
118°
5300
119°
5400
RTAO
CTAO
FEFE
SPCG
GRGC
SMTU
121°
5500
122°
5600
FR
FR
FR
FR
FR
5700
Depth In Feet
Array Ind. One Cond Ct
mmhos/metre
1000 750 500 250 0
2000 1750 1500 1250 1000
Timing Marks
every 60.0 sec
Borehole Temp in deg F
Gamma Ray
API
0 75 150
150 225 300
HVI every 10 cu ft
Shallow FE
ohm metres
0 25 50
0 250 500
Spontaneous Potential
millivolts
– 20 +
Annular Integral every 10 cu ft



Replay Scale 1:600

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 11-NOV-2014 02:53

Filename: C:\Minimus 14.03.4558\Logs\McCoy Patterson-O'Br...\McCoy Patterson-O'Brate 'A' 3-17 Main1.dta — Recorded on 11-NOV-2014 00:18

System Versions: Logged with 14.03.5114 Processed with 14.03.5114 Plotted with 14.03.5114

1 INCH MAIN

COMPANY	McCOY PETROLEUM CORPORATION
WELL	PATTERSON-O'BRATE 'A' 3-17
FIELD	MERTILLA SOUTHEAST
PROVINCE/COUNTY	MEADE
COUNTRY/STATE	U.S.A. / KANSAS

Elevation Kelly Bushing	2825.00	feet	First Reading	5699.00	feet
Elevation Drill Floor	2823.00	feet	Depth Driller	5700.00	feet
Elevation Ground Level	2814.00	feet	Depth Logger	5702.00	feet

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