



Weatherford

**CML IMPULSE SHUTTLE
ARRAY INDUCTION
ELECTRIC LOG**

COMPANY	SANDRIDGE EXPLORATION & PRODUCTION LLC		
WELL	FREY 3508 1-8H		
FIELD	BOUSE		
PROVINCE/COUNTY	HARPER		
COUNTRY/STATE	USA / KANSAS		
LOCATION	NE NW NW NE 200'FNL & 2010' FEL		
PERMIT NUMBER	AFE# DC14211		
SEC 8	TWP 35S	RGE 8W	Other Services
Latitude	37.02102		MPD/MDN
Longitude	-98.20581		
API Number	15077220890100		
Permanent Datum GL, Elevation	1237 feet		
Log Measured From	KB		
Drilling Measured From	KB @ 15' AGL		
Date	13-OCT-2014		
Run Number	ONE		
Service Order	3648-100378911		
Depth Driller	9315.00	feet	
Depth Logger	9225.00	feet	
First Reading	9223.00	feet	
Last Reading	5624.00	feet	
Casing Driller	5626.00	feet	
Casing Logger	5624.00	feet	
Bit Size	6.125	inches	
Hole Fluid Type	WATER		
Density / Viscosity	9.00 lb/USg	30.00 CP	
PH / Fluid Loss	10.50	32.00 ml/30Min	
Sample Source	FLOWLINE		
Rm @ Measured Temp	2.50 @ 91.0	ohm-m	
Rmf @ Measured Temp	2.0 @ 91.0	ohm-m	
Rmc @ Measured Temp	3.0 @ 91.0	ohm-m	
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	1.69 @138.0	ohm-m	
Time Since Circulation	1 HOUR		
Max Recorded Temp	138.00	deg F	
Equipment / Base	18108	OKC	
Recorded By	GUTHMUELLER		
Witnessed By	R TICHENOR		

Elevations:	feet
KB	1252.00
DF	1252.00
GL	1237.00

BOREHOLE RECORD Last Edited: 13-OCT-2014 13:58

Bit Size inches	Depth From feet	Depth To feet
12.250	0.00	784.00
8.750	784.00	5631.00
6.125	5631.00	9315.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURF	9.625	0.00	784.00	36.00
INTER	7.000	0.00	5626.00	26.00

REMARKS

LOGGED WITH WLS_14.03.4558

LOGGED USING IMPULSE METHOD OF DEPLOYMENT AND MEMORY LOGGING SYSTEM

LOGGED WITH ADVANTAGE DEPTH SYSTEM, CORRECTED BACK TO PIPE STRAP

LOGGING STRING: SMR-152,SER-220,MBSF-115,MMSE-166, MTI-150,MGS-135,MCL-060, MISE-789,MFE-396,MISE564, SKJ-728,SHA-594,MISD-816,MDN-480,MPD-472,MISD-817,SHA-438,SKJ-455,MISD-579,MAI-502

HARDWARE: MAI: MISE 0.5 INCH STANDOFF ON AND 0.5 INCH STANDOFF BELOW
 MPD: 4" PROFILE PLATE, MISD SINGLE BOWSPRING DECENTRALIZER BELOW
 MDN: MISD DOUBLE BOWSPRING DECENTRALIZER ABOVE
 MFE: MISE 0.5 INCH STANDOFF ABOVE AND BELOW

2.71 G/CC DENSITY MATRIX USED TO CALCULATE DENSITY POROSITY
 ALL INTERVALS LOGGED AND SCALED PER CUSTOMER REQUEST

ALL INTERVALS LOGGED AND SCALED PER CUSTOMER REQUEST
 ANNULAR HOLE VOLUME CALCULATED FOR 4.5 INCH CASING
 CHLORIDES =4500 PPM

DRILL PIPE DEPTH DURING DEPLOYMENT - 9126
 LOGGING TOOL DEPTH AFTER DEPLOYMENT - 9227

RIG: HWD #8

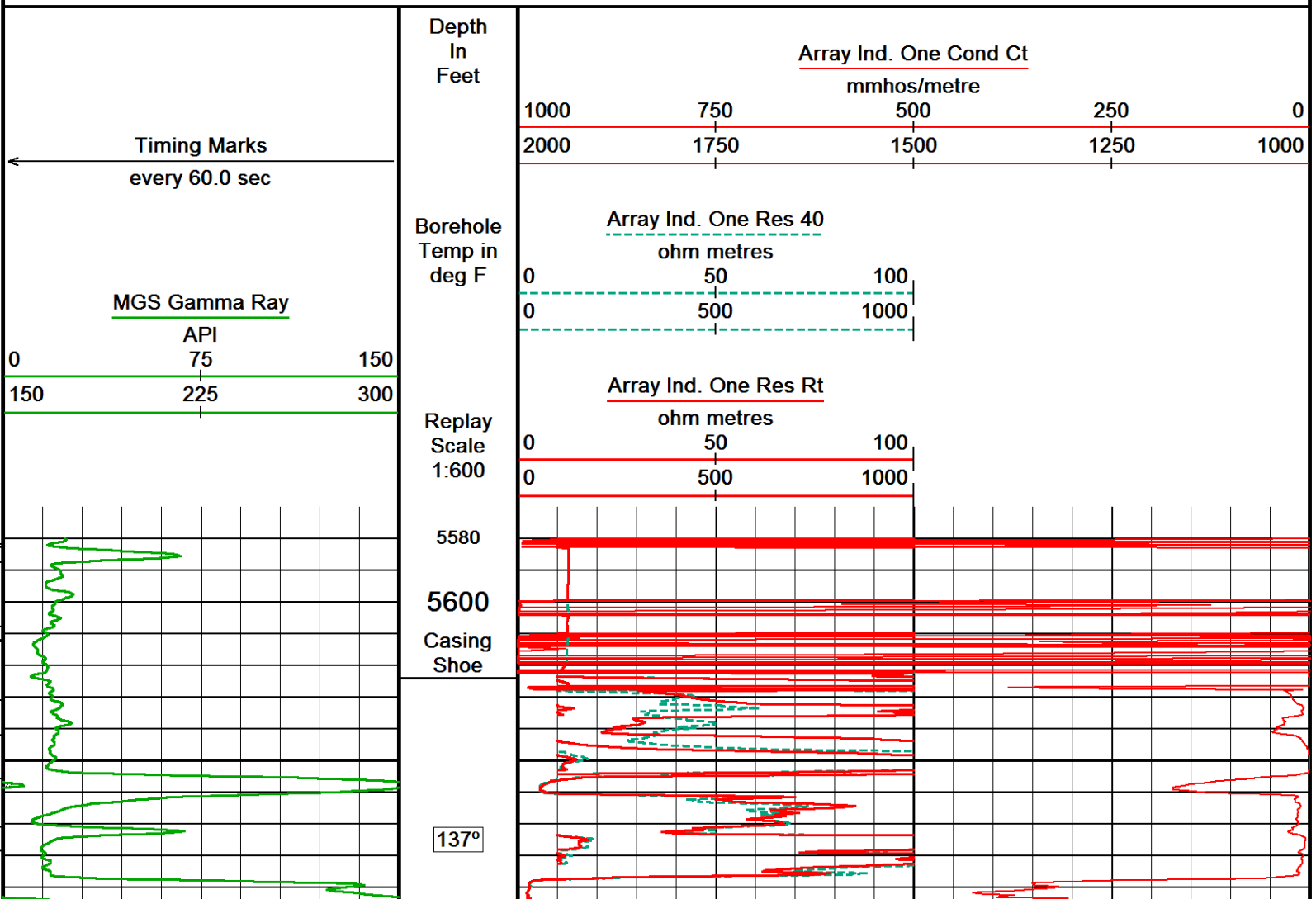
OPERATORS: R BRADSHAW, C HAWKINS

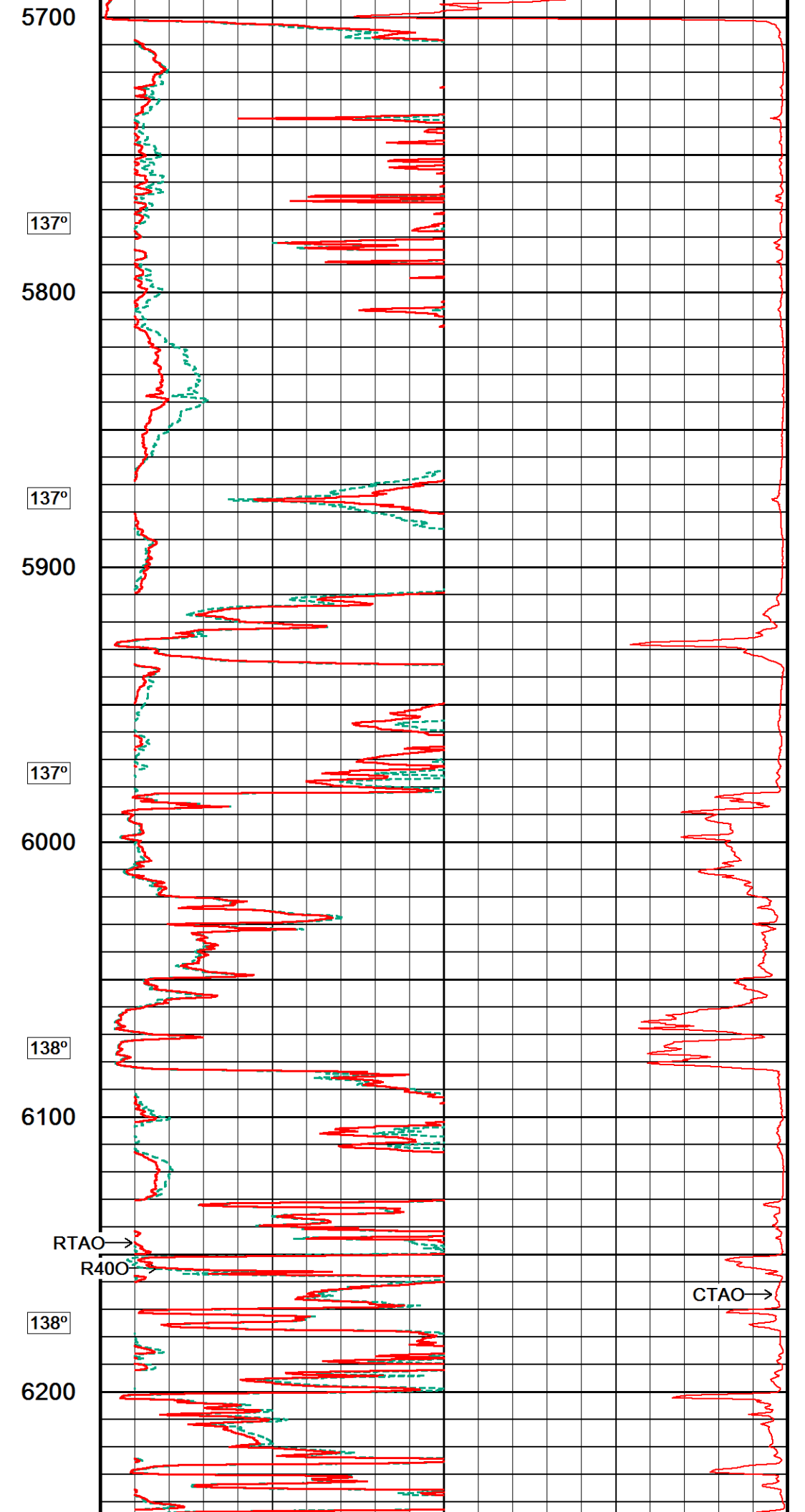
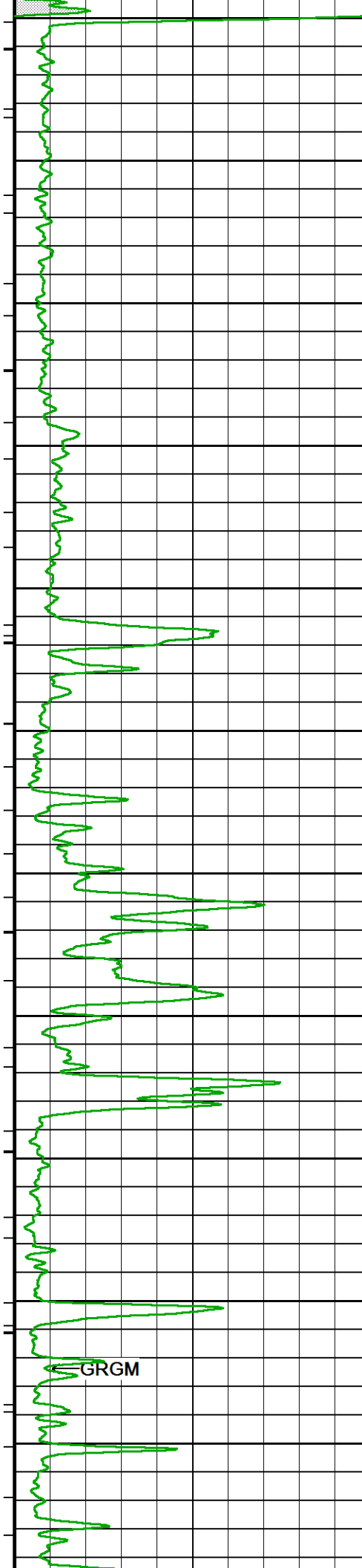
* UNABLE TO REACH TD DUE TO HOLE CONDITIONS, DEPLOYED 88 FEET OFF BOTTOM*
 ** LOG RESPONSES EFFECTED BY HOLE RUGOSITY**

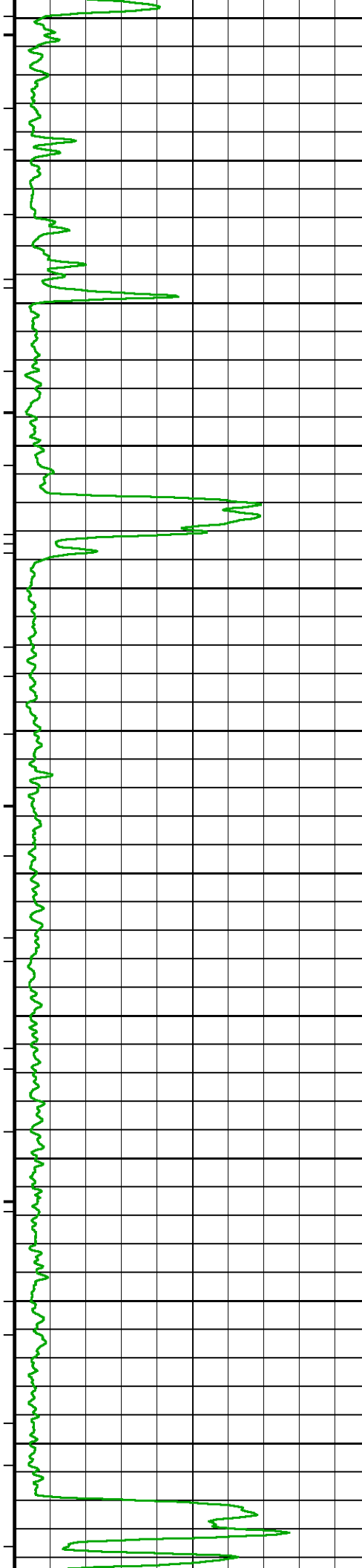
In interpreting, communicating or providing information and/or making recommendations, either written or oral, as to logs or test or other data, type or amount of material, or Work or other service to be furnished, or manner of performance, or in predicting results to be obtained, the Contractor will give the Company the benefit of the Contractor's best judgment based on its experience and will perform all such Work in a good and workmanlike manner. Any interpretation of test or other data, and any recommendation or reservoir description based upon such interpretations, are opinions based upon inferences from measurements and empirical relationships and assumptions, which inferences and assumptions are not infallible, and with respect to which professional engineers and analysts may differ. ACCORDINGLY ANY INTERPRETATION OR RECOMMENDATION RESULTING FROM THE SERVICES WILL BE AT THE SOLE RISK OF THE COMPANY, AND THE CONTRACTOR CANNOT AND DOES NOT WARRANT THE ACCURACY, CORRECTNESS OR COMPLETENESS OF ANY SUCH INTERPRETATION OR RECOMMENDATION, WHICH INTERPRETATIONS AND RECOMMENDATIONS SHOULD NOT, THEREFORE, UNDER ANY CIRCUMSTANCES BE RELIED UPON AS THE SOLE OR MAIN BASIS FOR ANY DRILLING, COMPLETION, WELL TREATMENT, PRODUCTION OR FINANCIAL DECISION, OR ANY PROCEDURE INVOLVING ANY RISK TO THE SAFETY OF ANY DRILLING ACTIVITY, DRILLING RIG OR ITS CREW OR ANY OTHER INDIVIDUAL. THE COMPANY HAS FULL RESPONSIBILITY FOR ALL DECISIONS CONCERNING THE SERVICES.

2 INCH MAIN LOG

Depth Based Data - Maximum Sampling Increment 10.0cm Plotted on 31-DEC-2014 12:02
 Filename: D:\14_03_4558_WLS\DATA\15077220890100_Frey 3508 1-8H\88208rtap.dta Recorded on 15-OCT-2014 01:45
 System Versions: Logged with 14.03.4558 Processed with 14.03.4558 Plotted with 14.05.5335







138°

6300

138°

6400

138°

6500

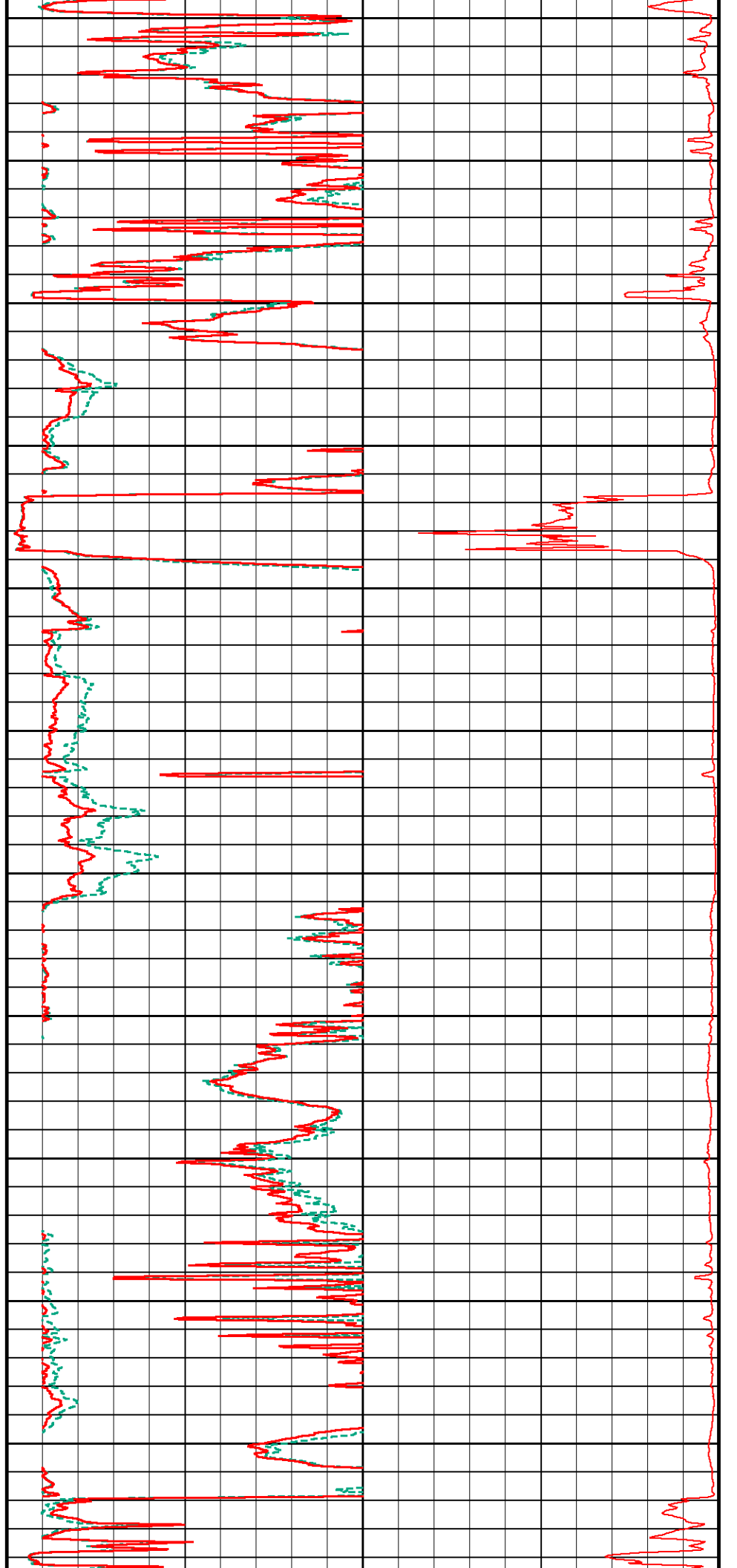
138°

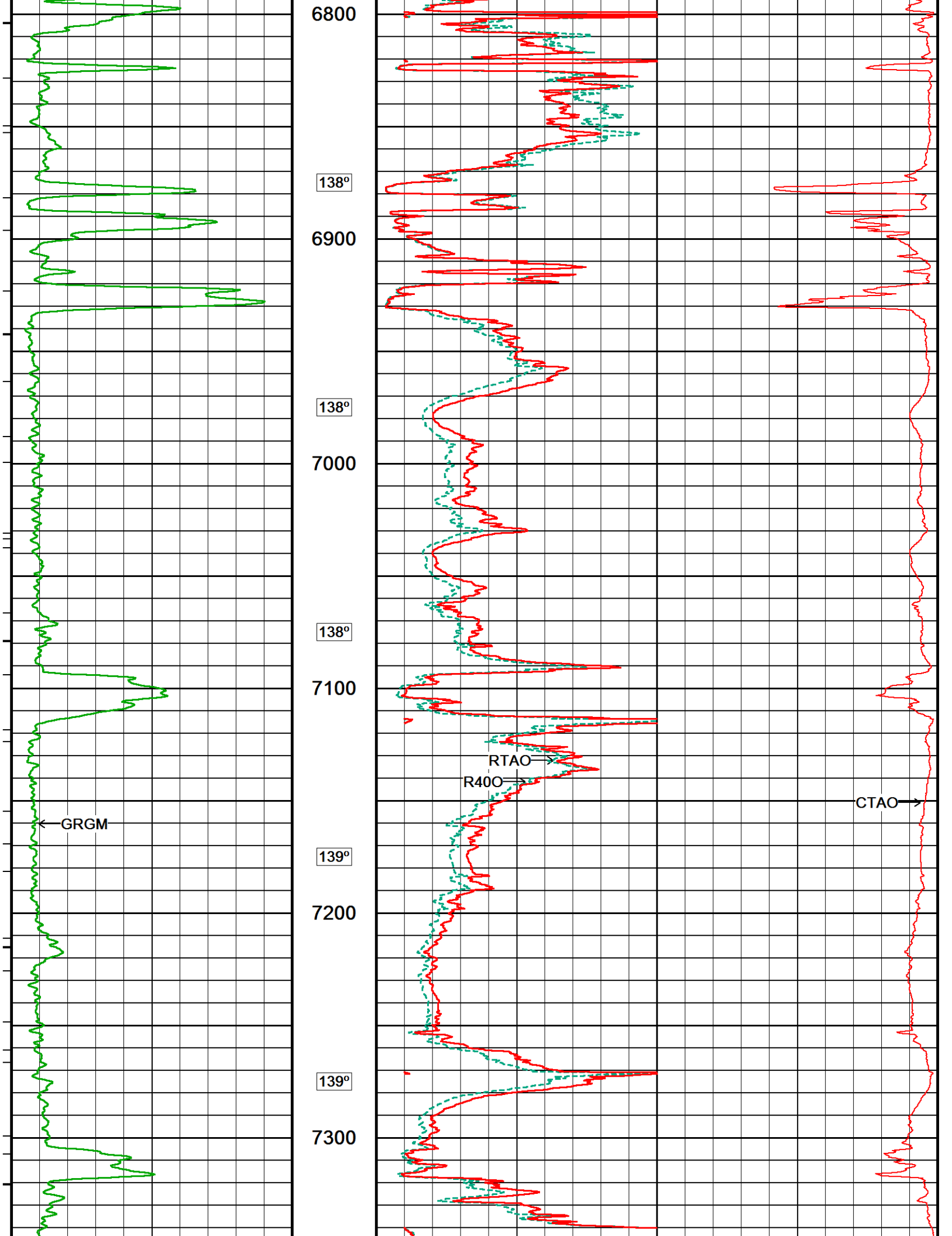
6600

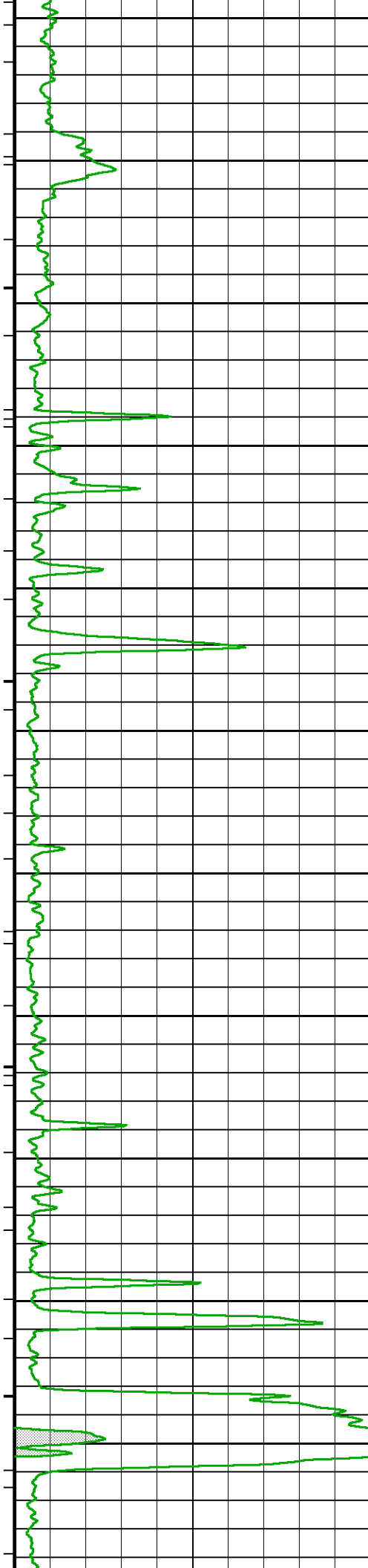
138°

6700

138°







139°

7400

139°

7500

139°

7600

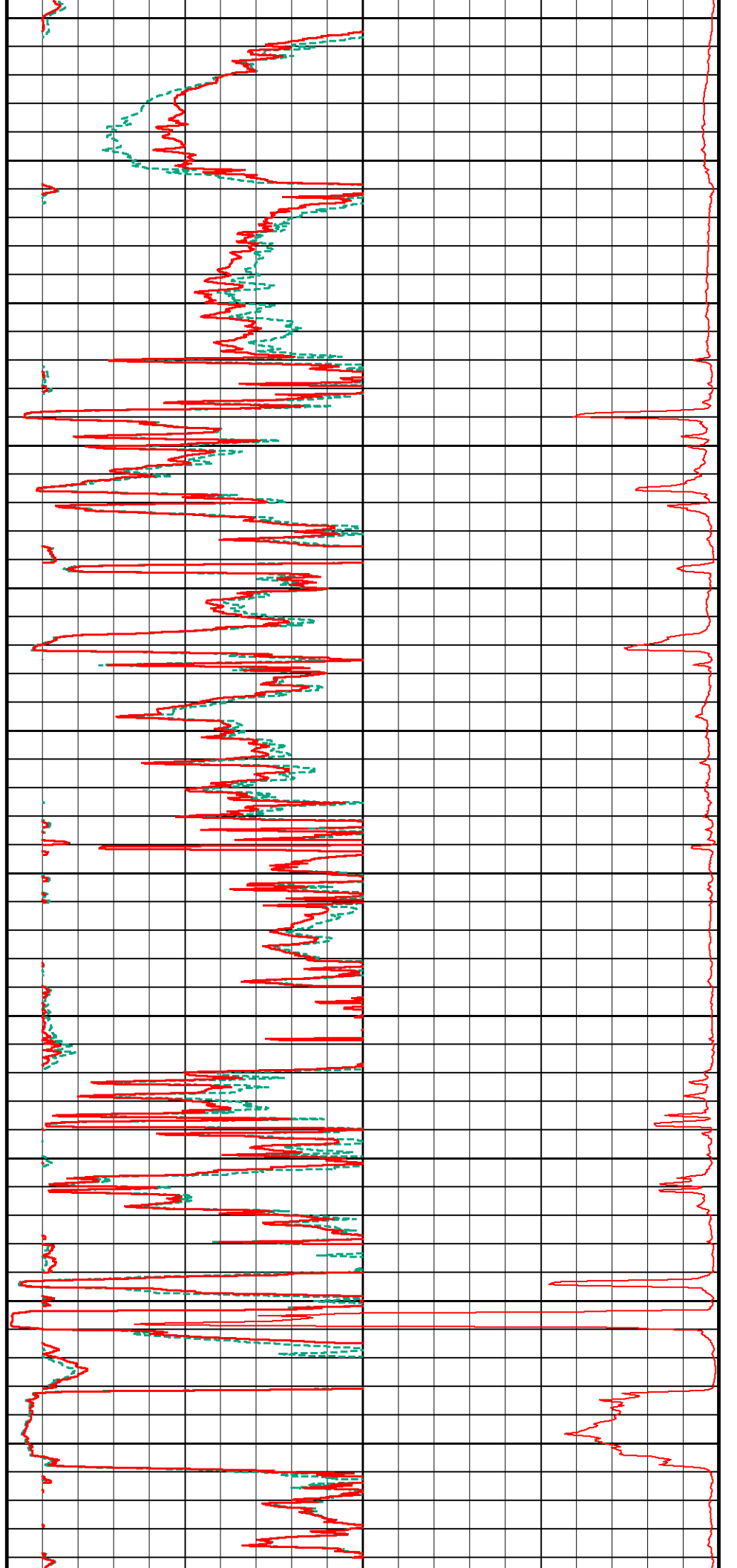
139°

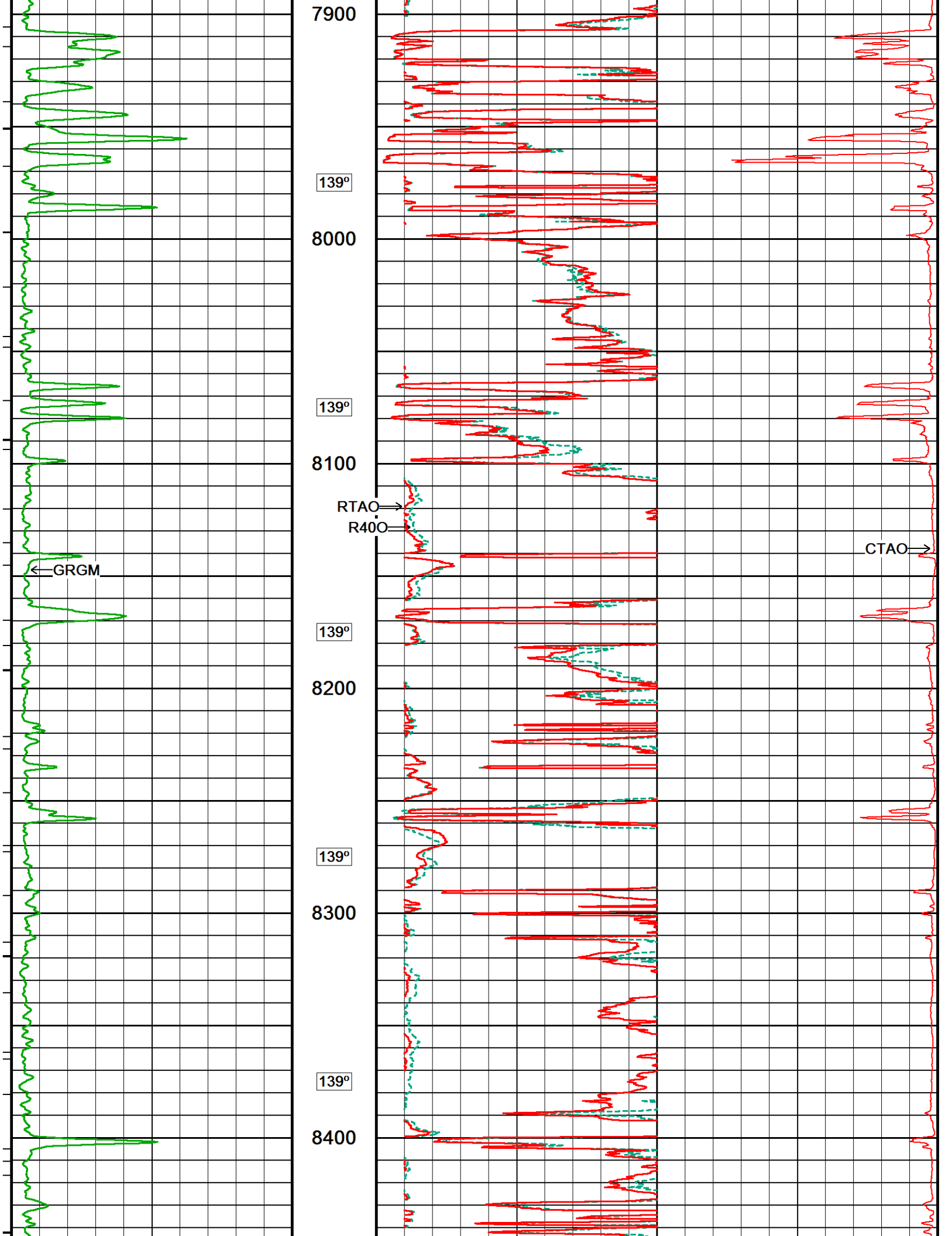
7700

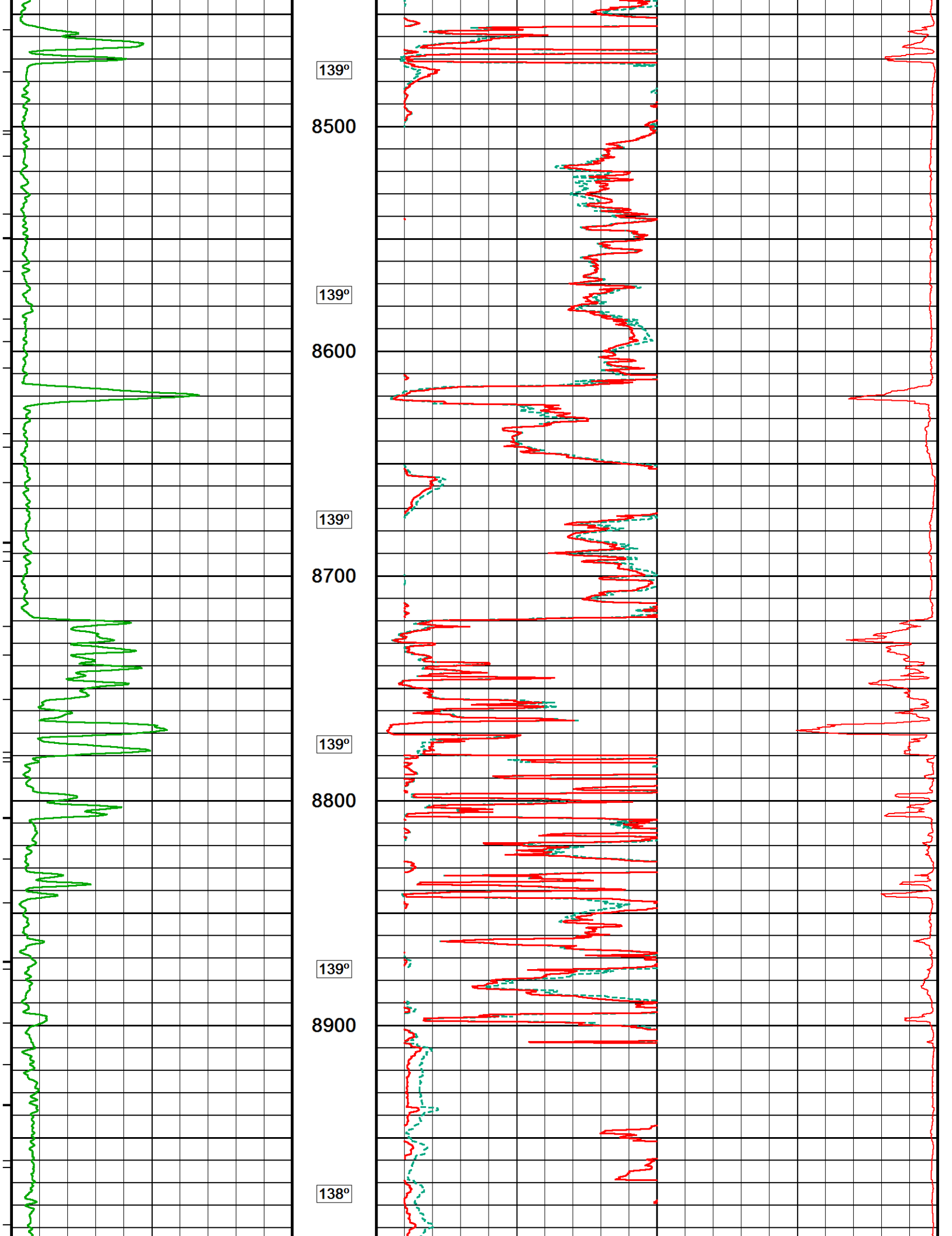
139°

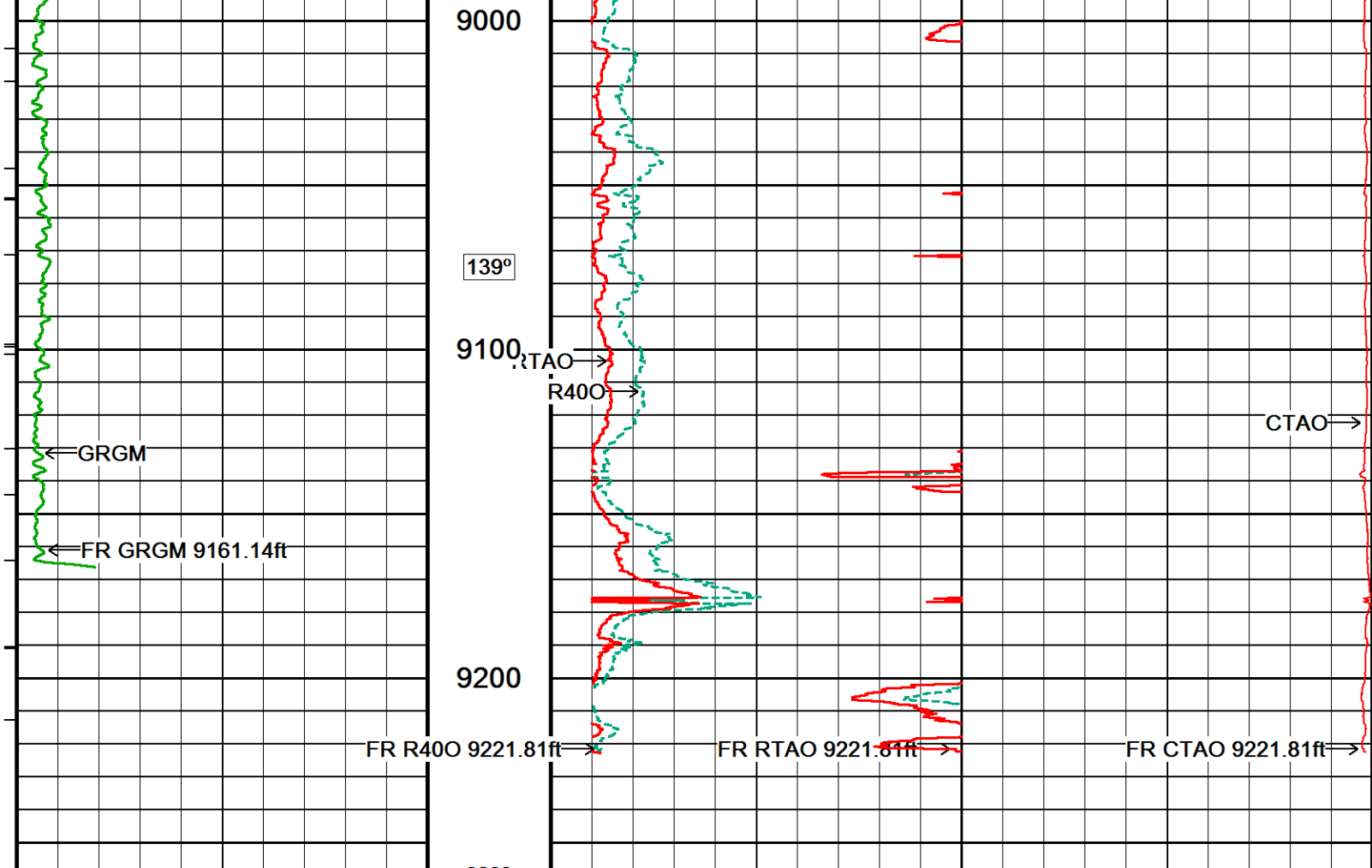
7800

139°









Timing Marks every 60.0 sec

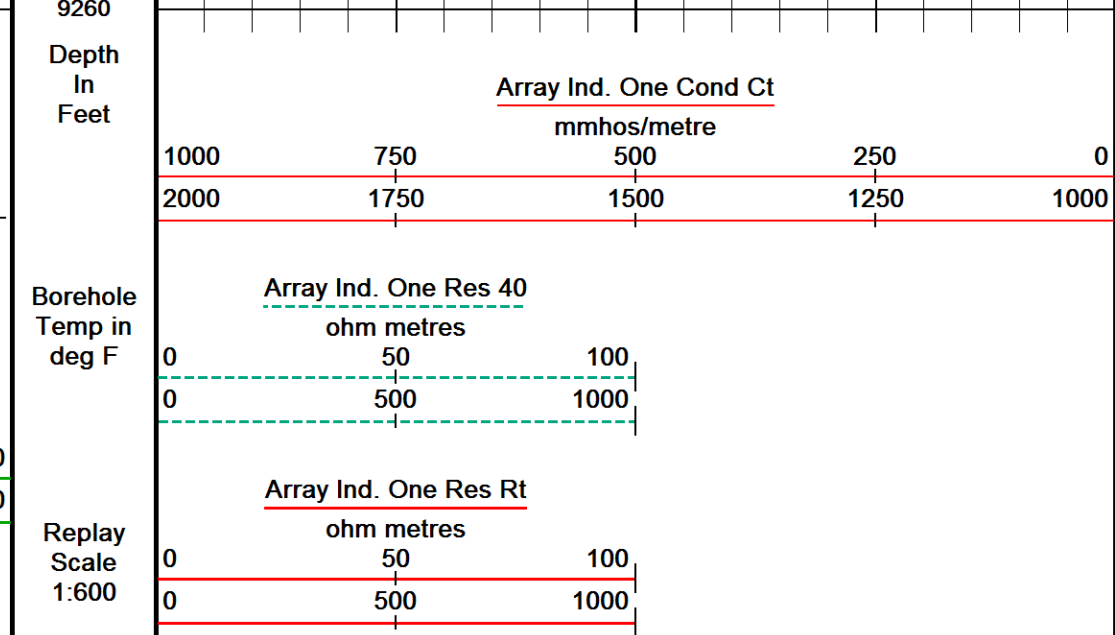
←

MGs Gamma Ray

API

0	75	150
150	225	300

Replay Scale 1:600



Depth Based Data - Maximum Sampling Increment 10.0cm

Filename: D:\14_03_4558_WLS\DATA\15077220890100_Frey 3508 1-8H\88208rtap.dta

System Versions: Logged with 14.03.4558 Processed with 14.03.4558 Plotted with 14.05.5335

Plotted on 31-DEC-2014 12:02

Recorded on 15-OCT-2014 01:45

↑ 2 INCH MAIN LOG ↑

↓ 5 INCH MAIN LOG ↓

Depth Based Data - Maximum Sampling Increment 10.0cm

Filename: D:\14_03_4558_WLS\DATA\15077220890100_Frey 3508 1-8H\88208rtap.dta

System Versions: Logged with 14.03.4558 Processed with 14.03.4558 Plotted with 14.05.5335

Plotted on 31-DEC-2014 12:02

Recorded on 15-OCT-2014 01:45



Timing Marks
every 60.0 sec

MGS Gamma Ray

API

0	75	150
150	225	300

Borehole
Temp in
deg F

Replay
Scale
1:240

5578

5600

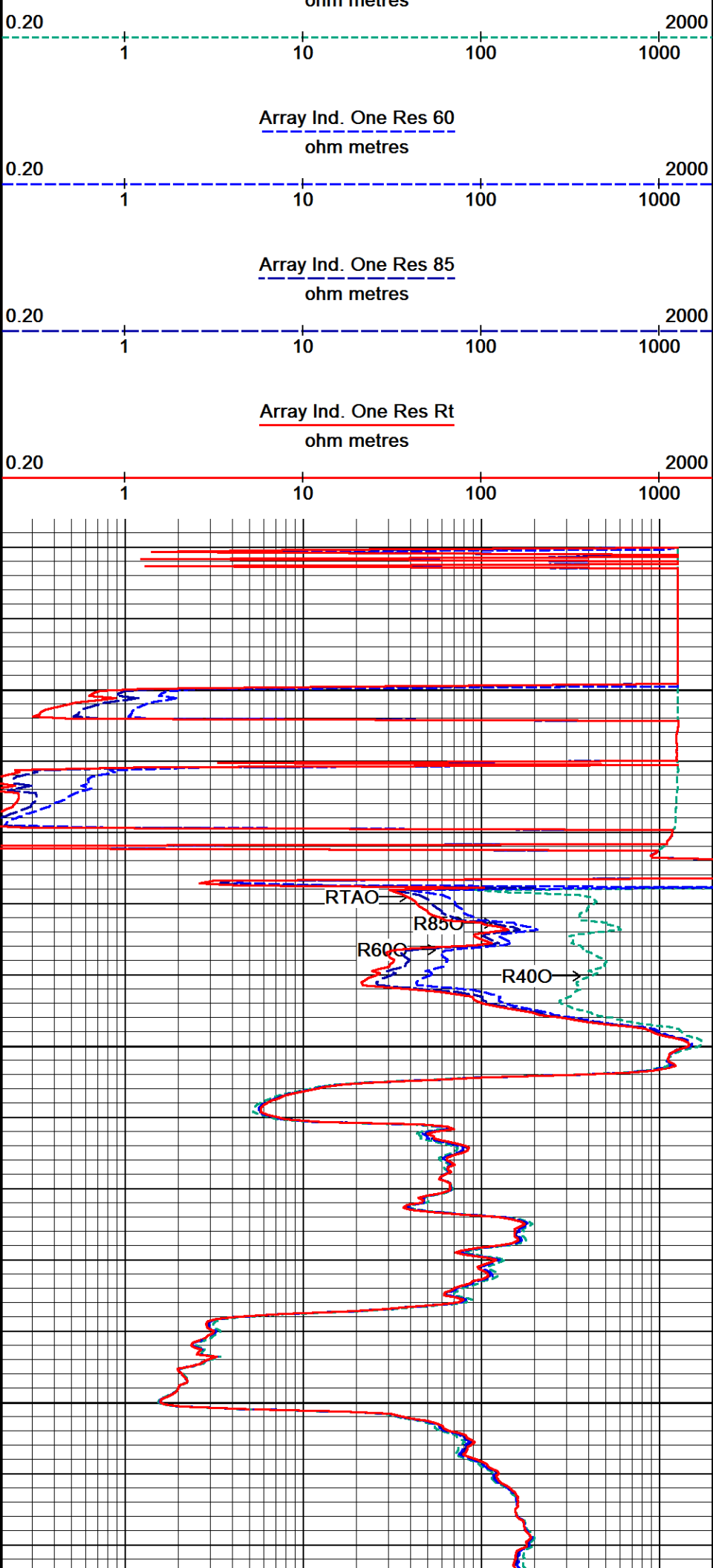
Casing
Shoe

137°

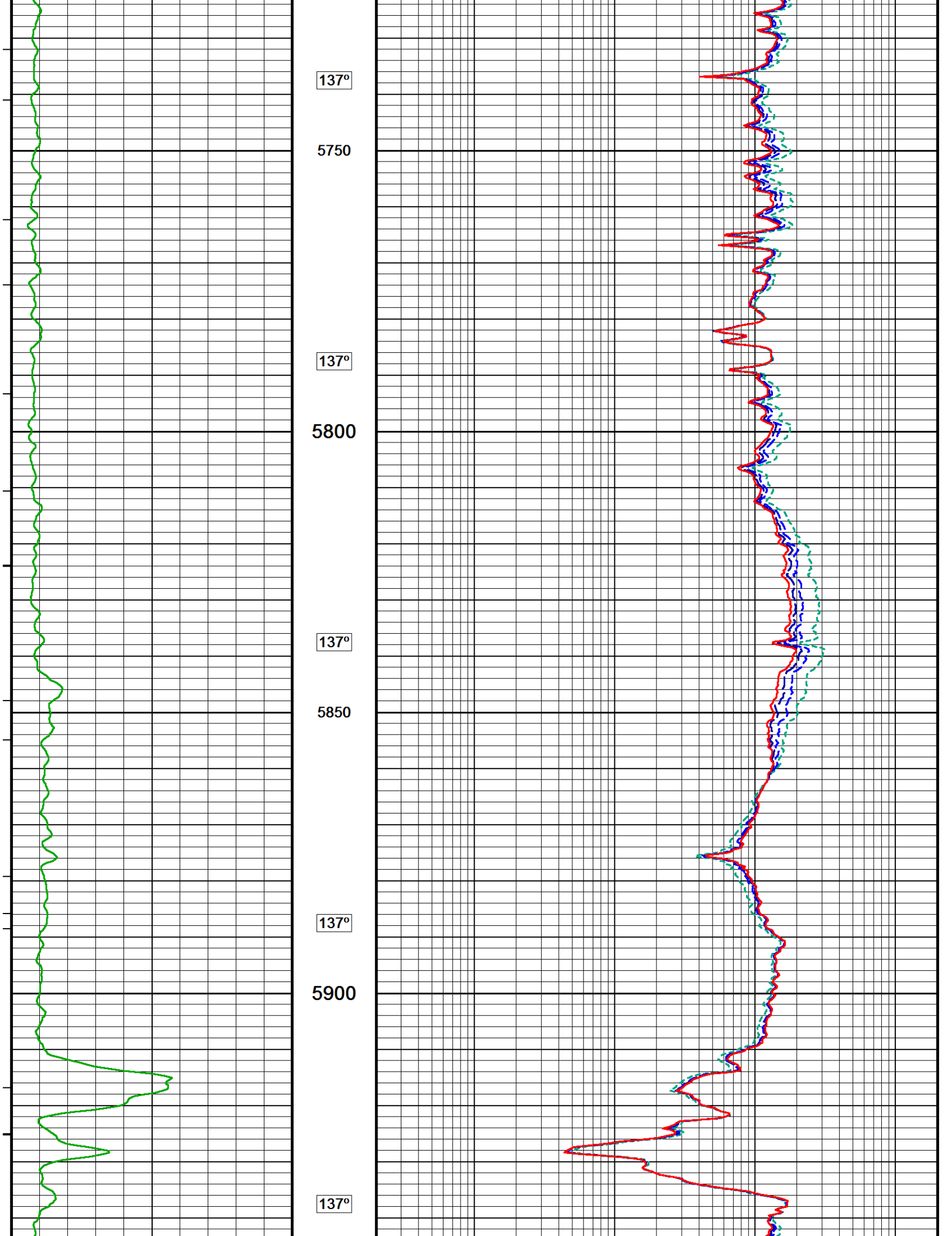
5650

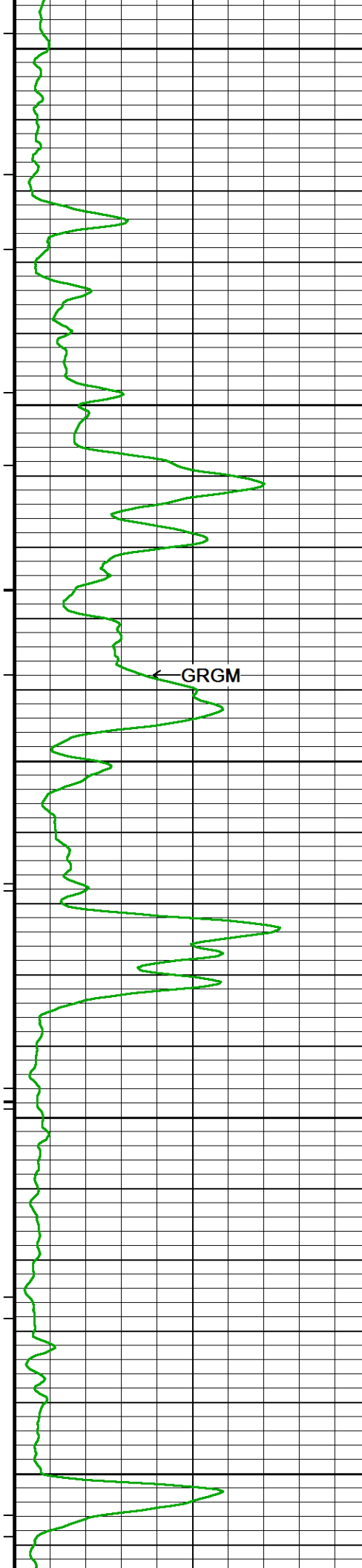
137°

5700



← GRGM





5950

137°

6000

137°

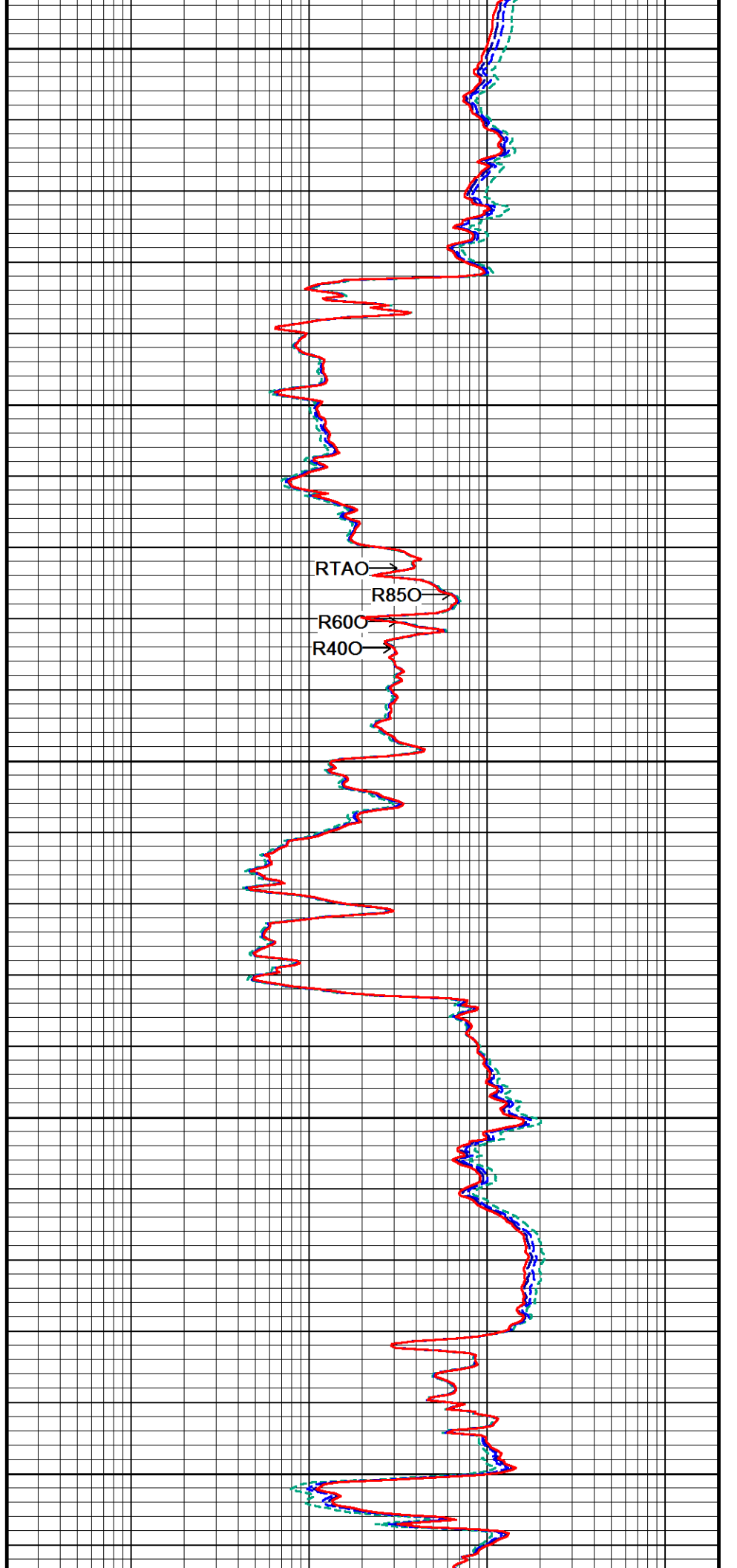
6050

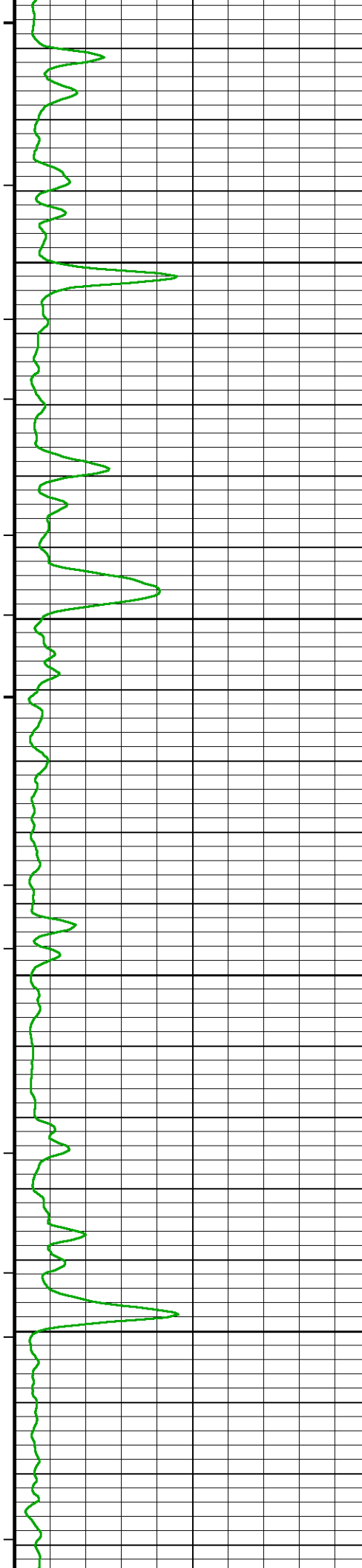
138°

6100

138°

6150





138°

6200

138°

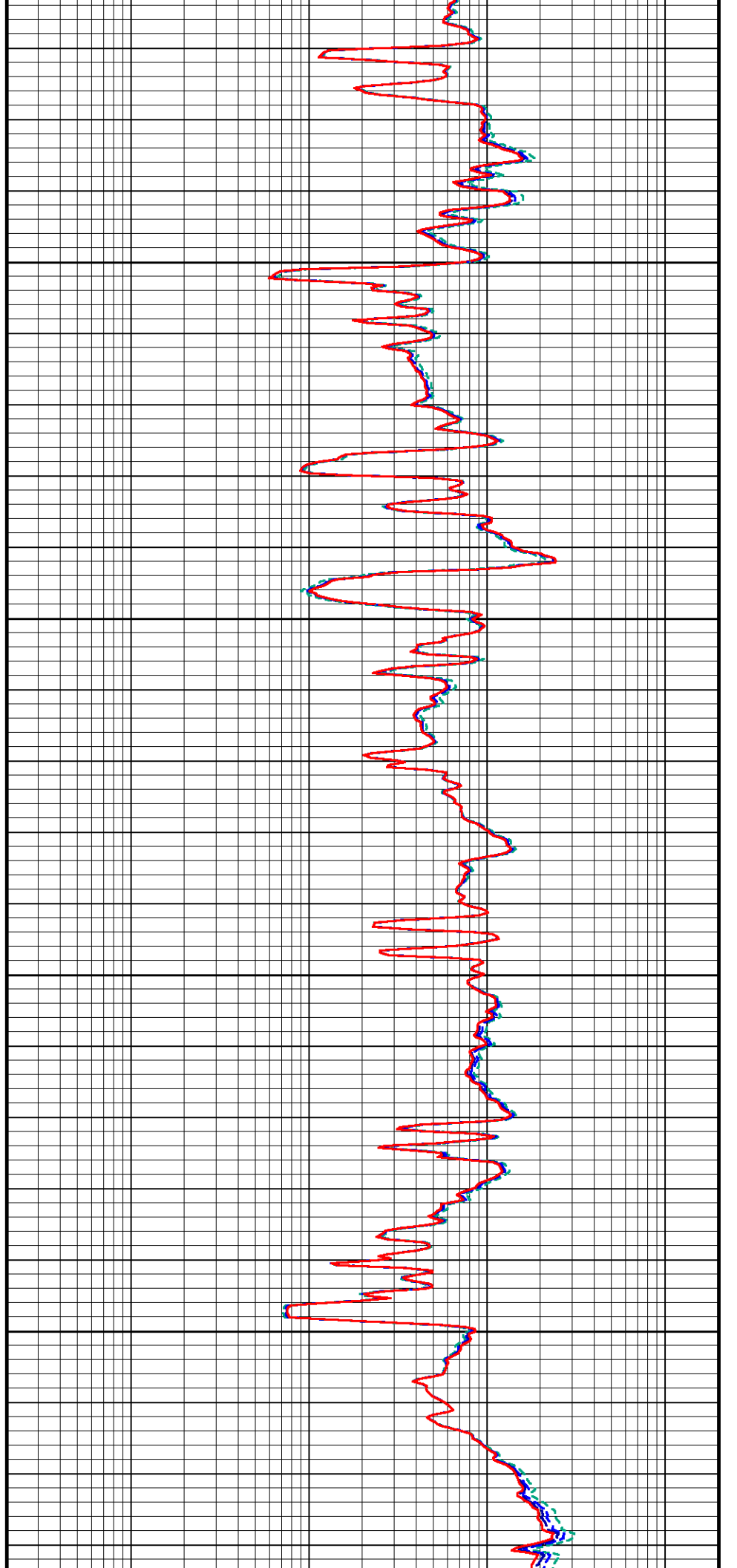
6250

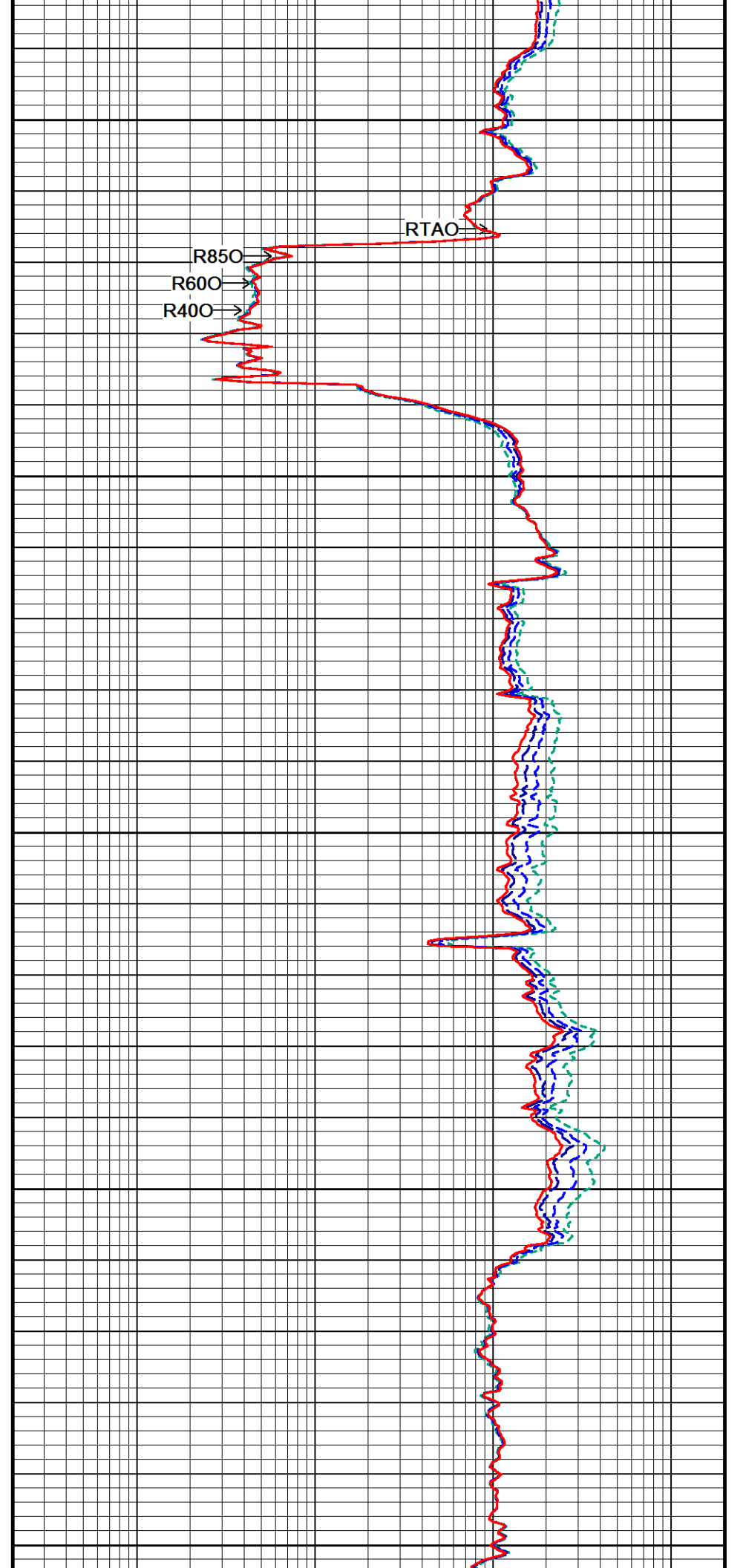
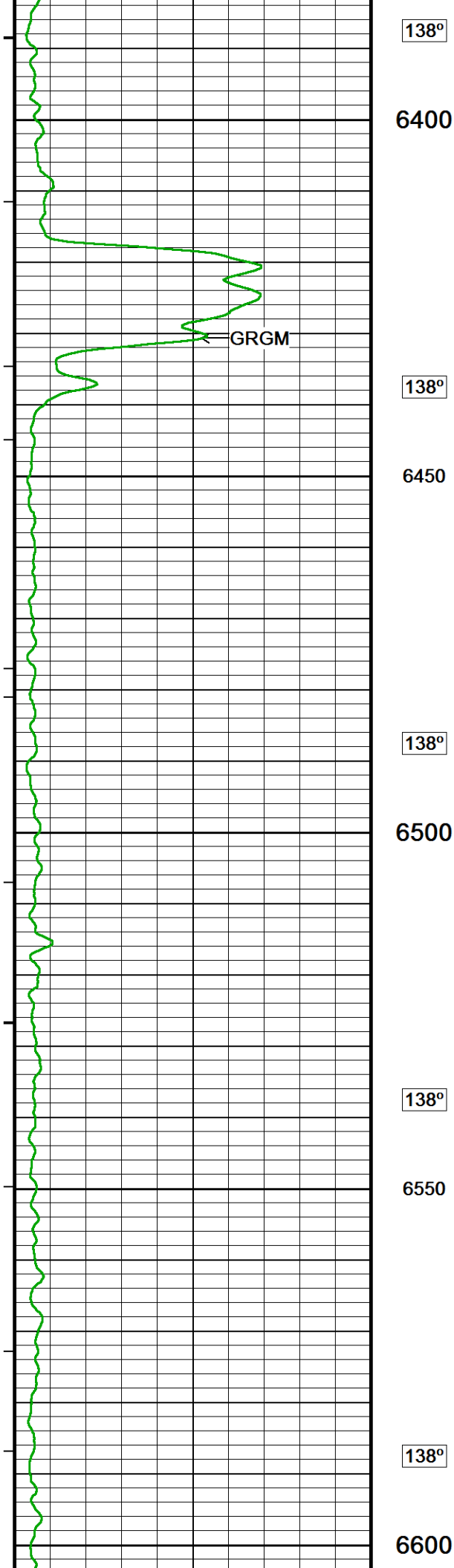
138°

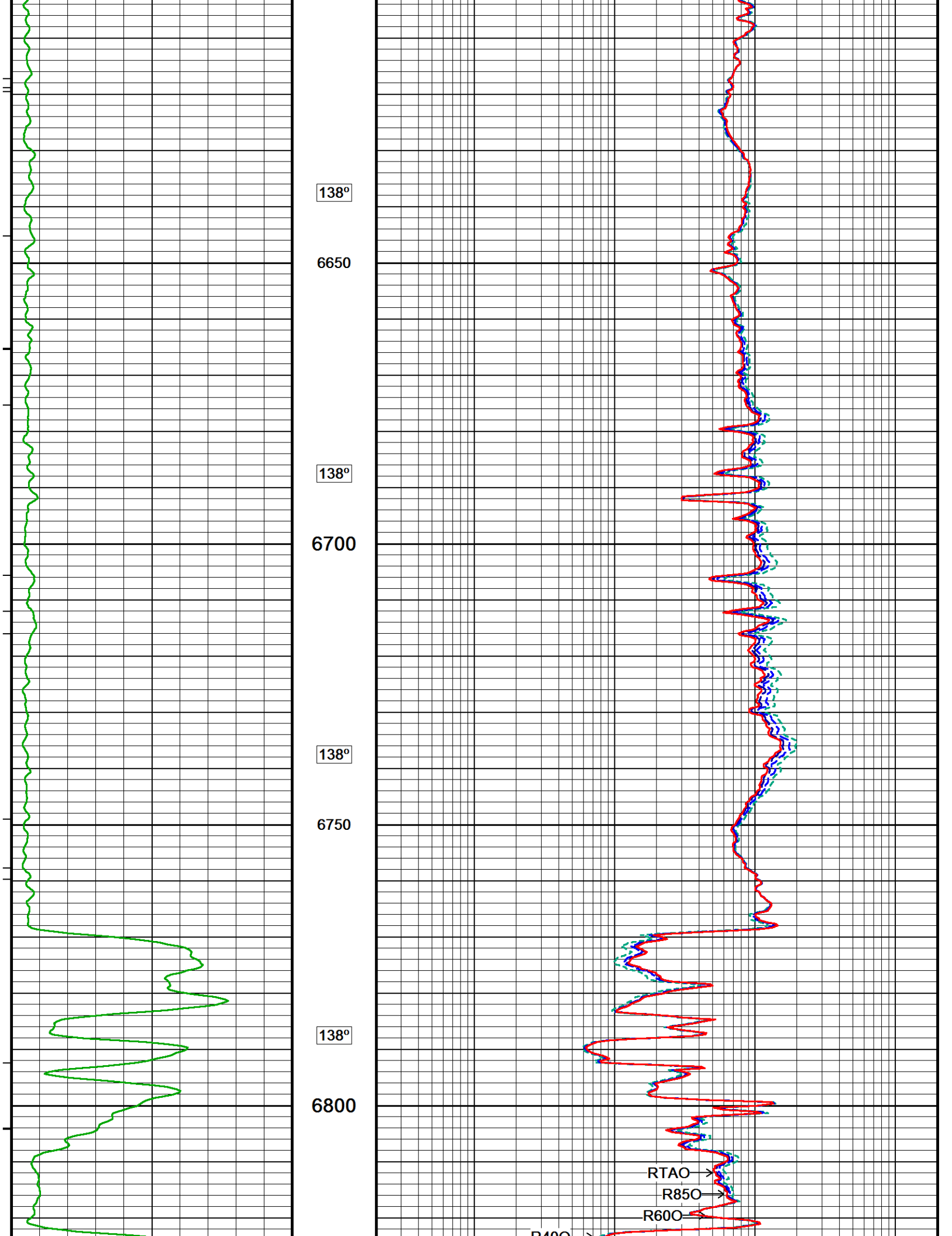
6300

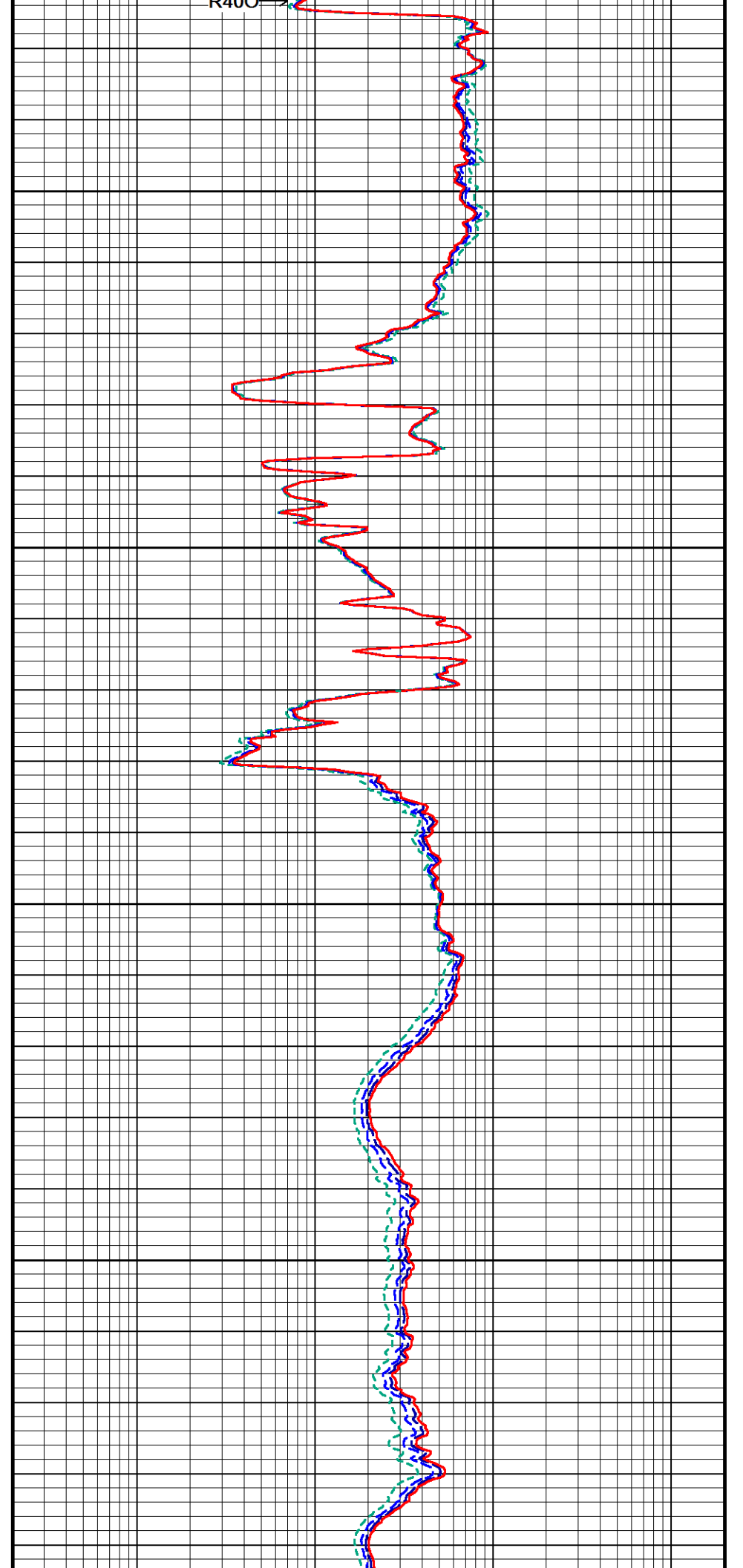
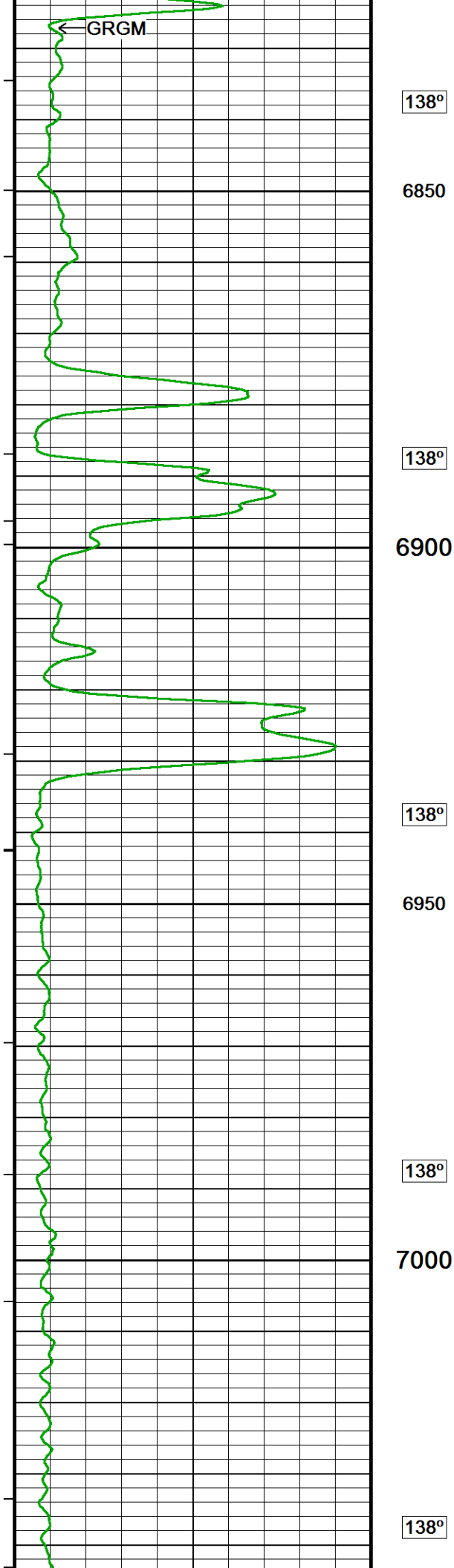
138°

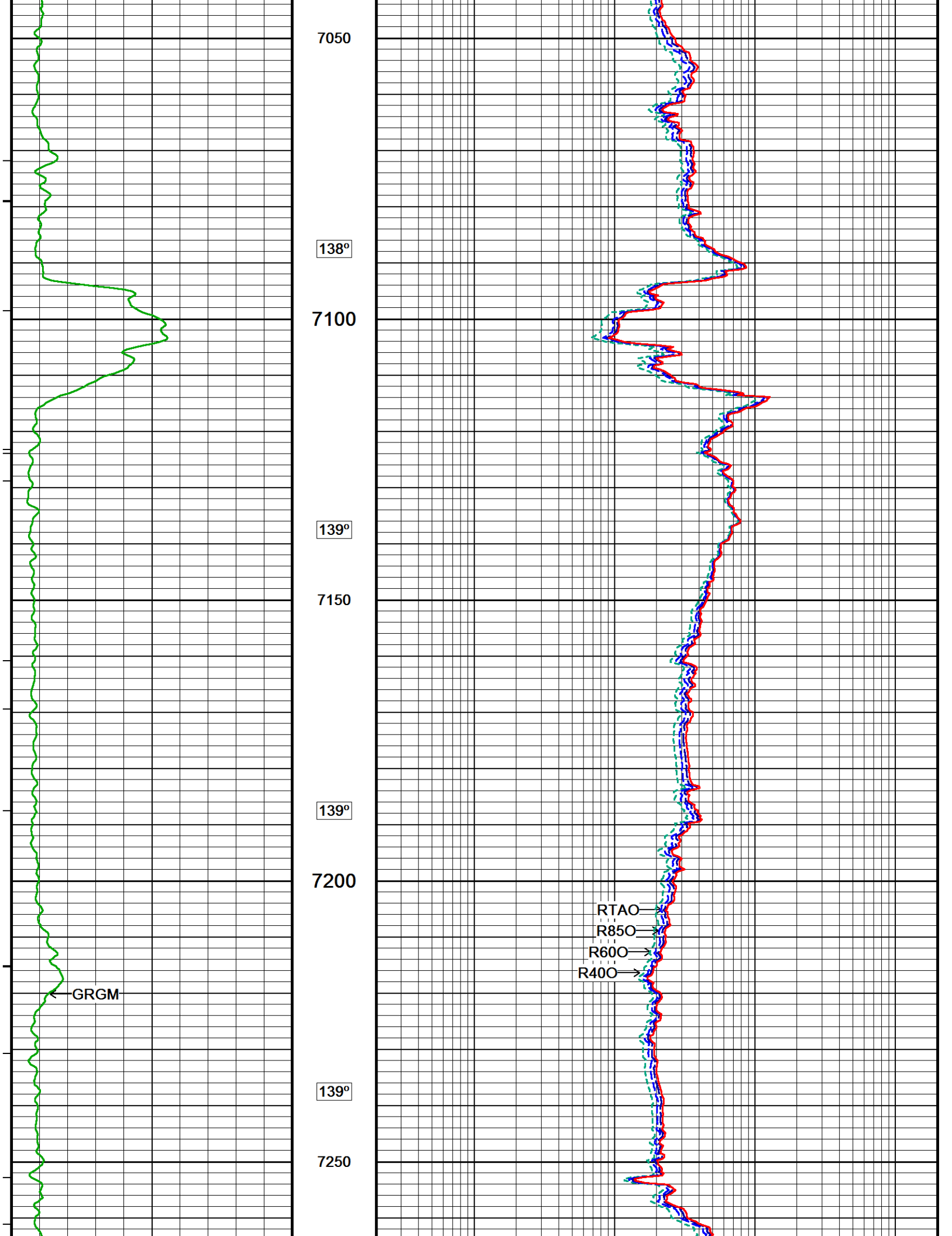
6350

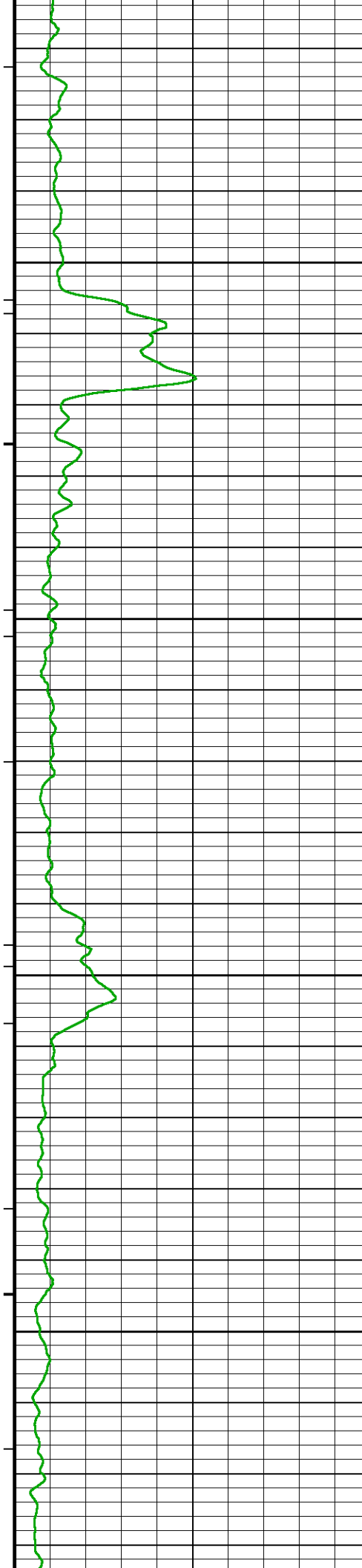












139°

7300

139°

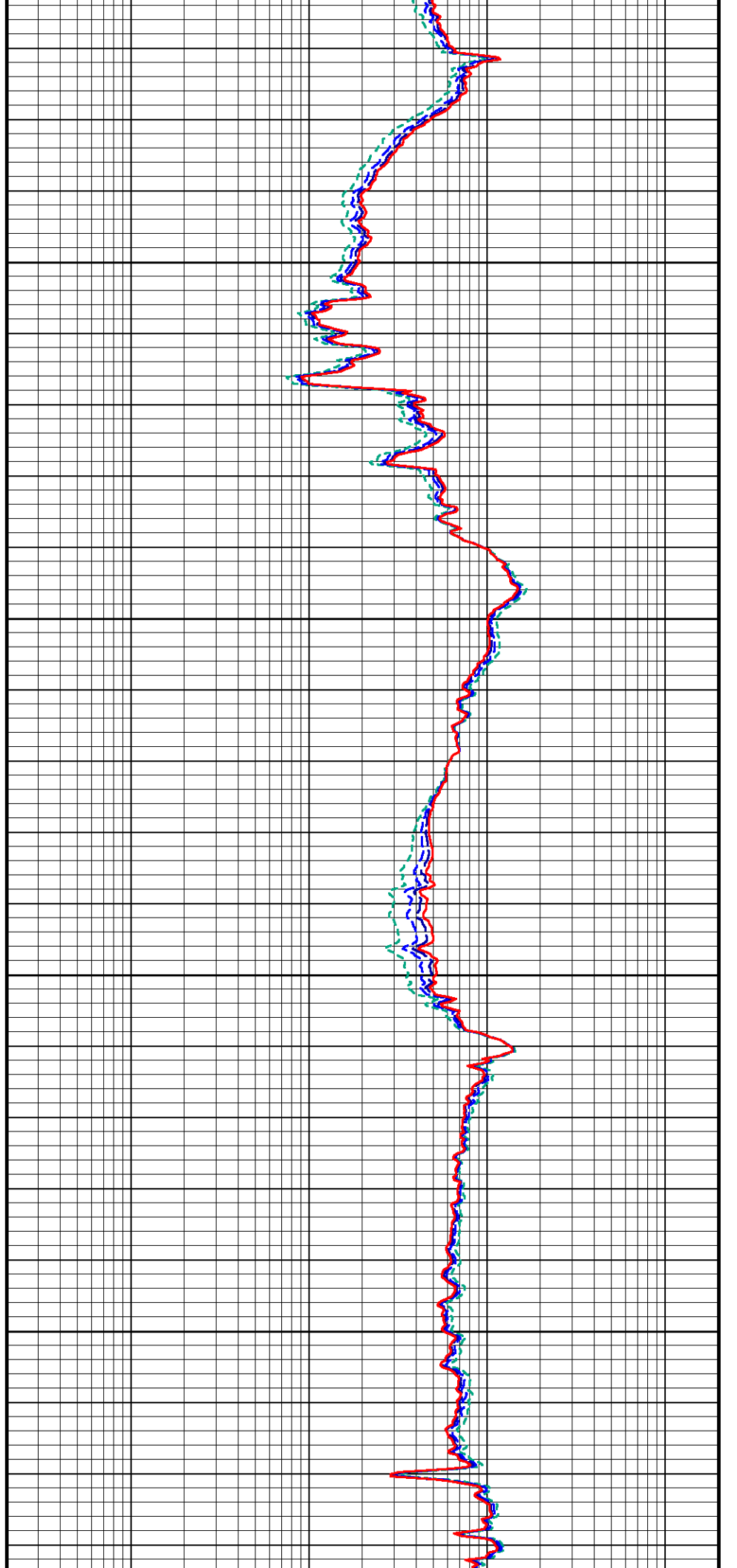
7350

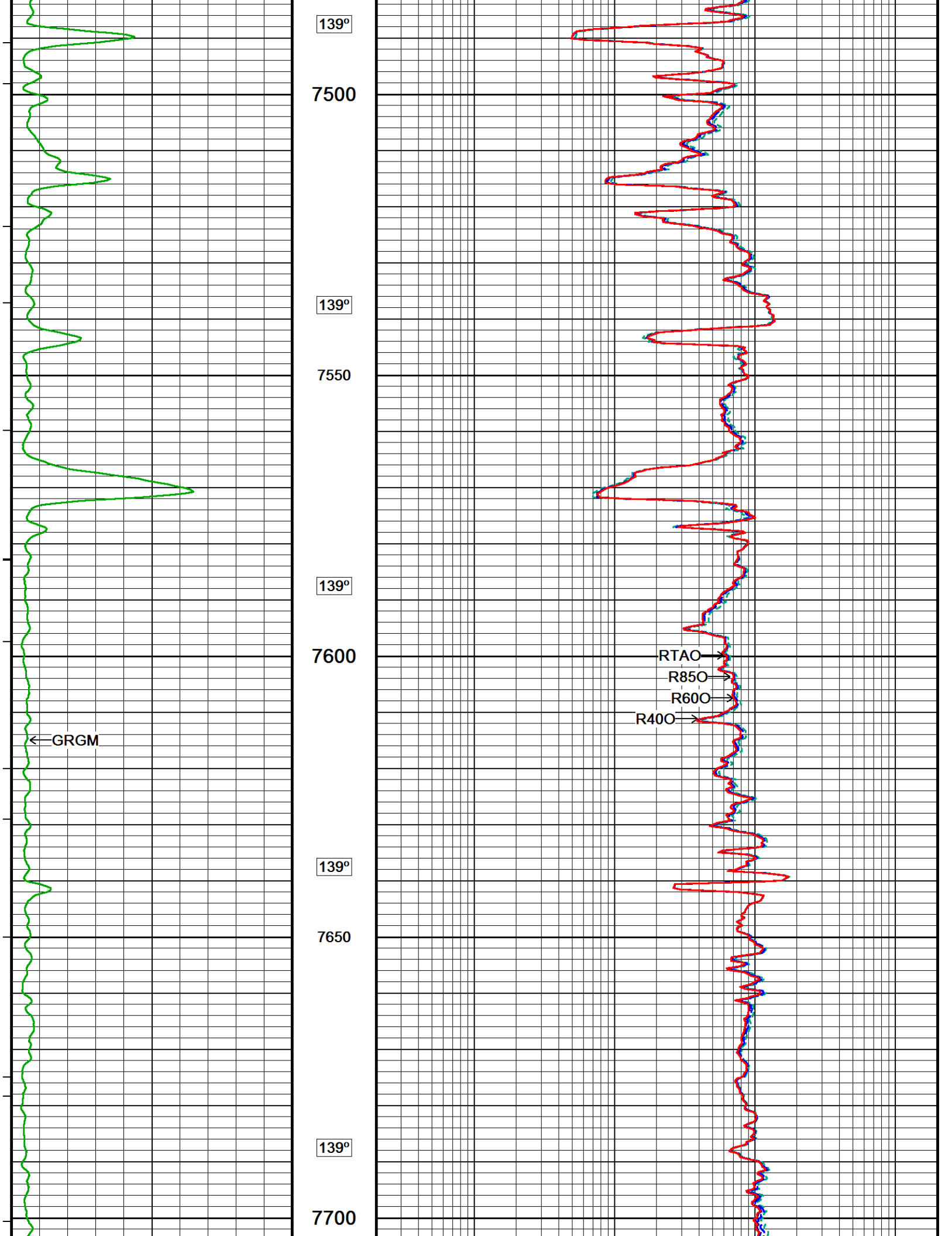
139°

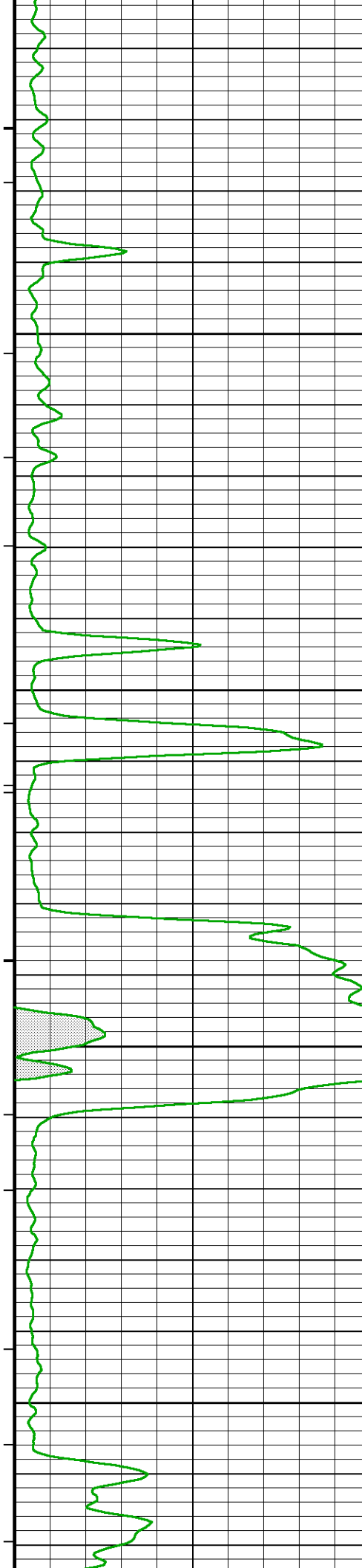
7400

139°

7450







139°

7750

139°

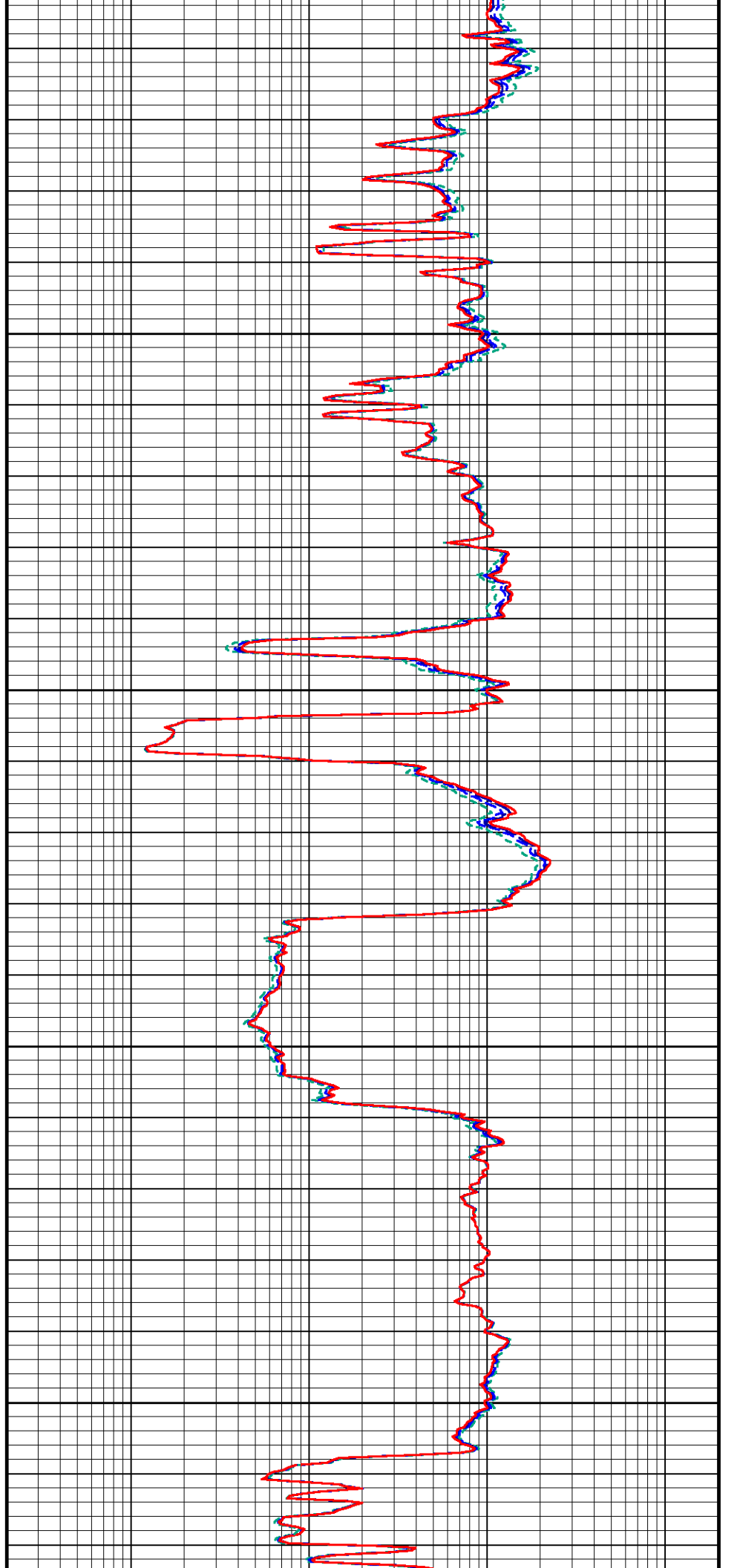
7800

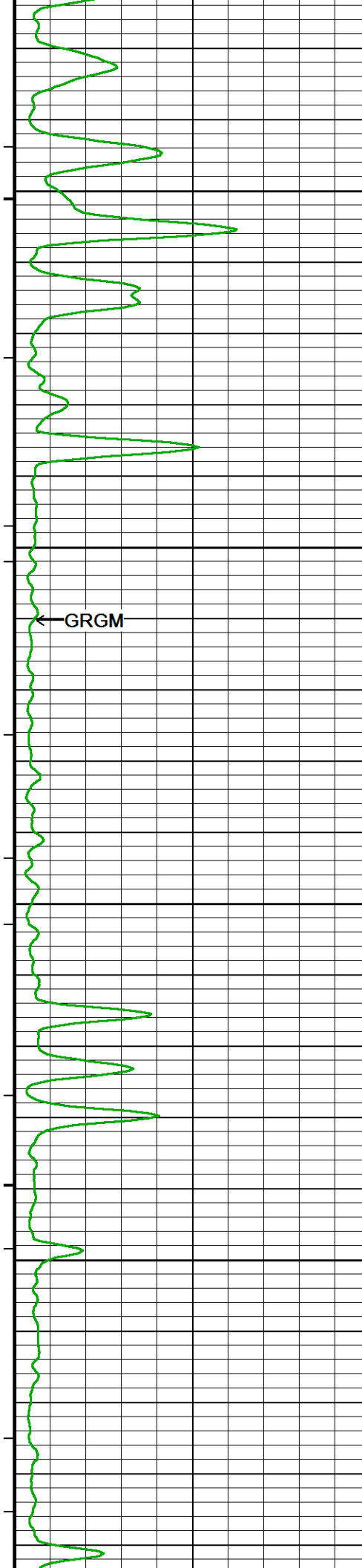
139°

7850

139°

7900





139°

7950

139°

8000

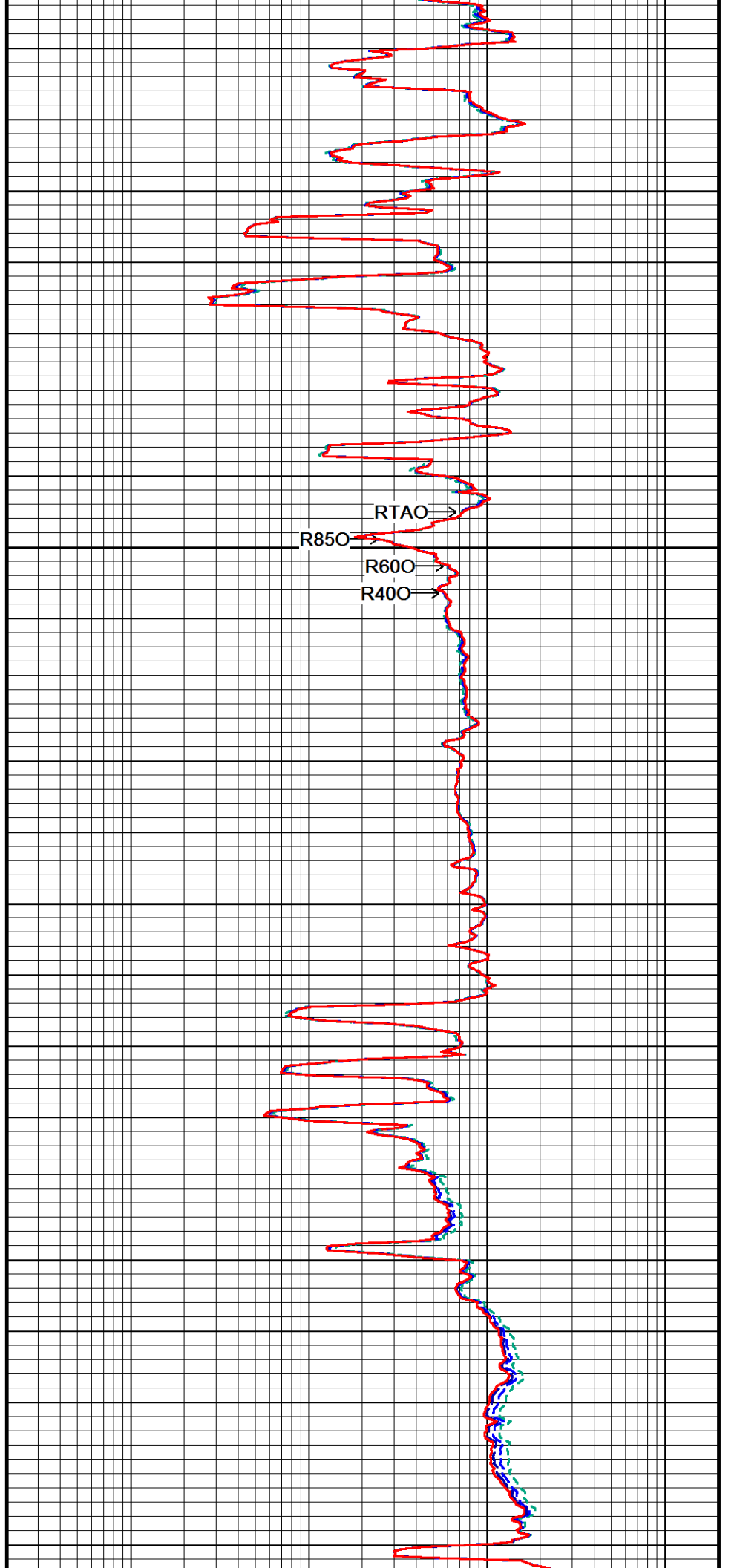
139°

8050

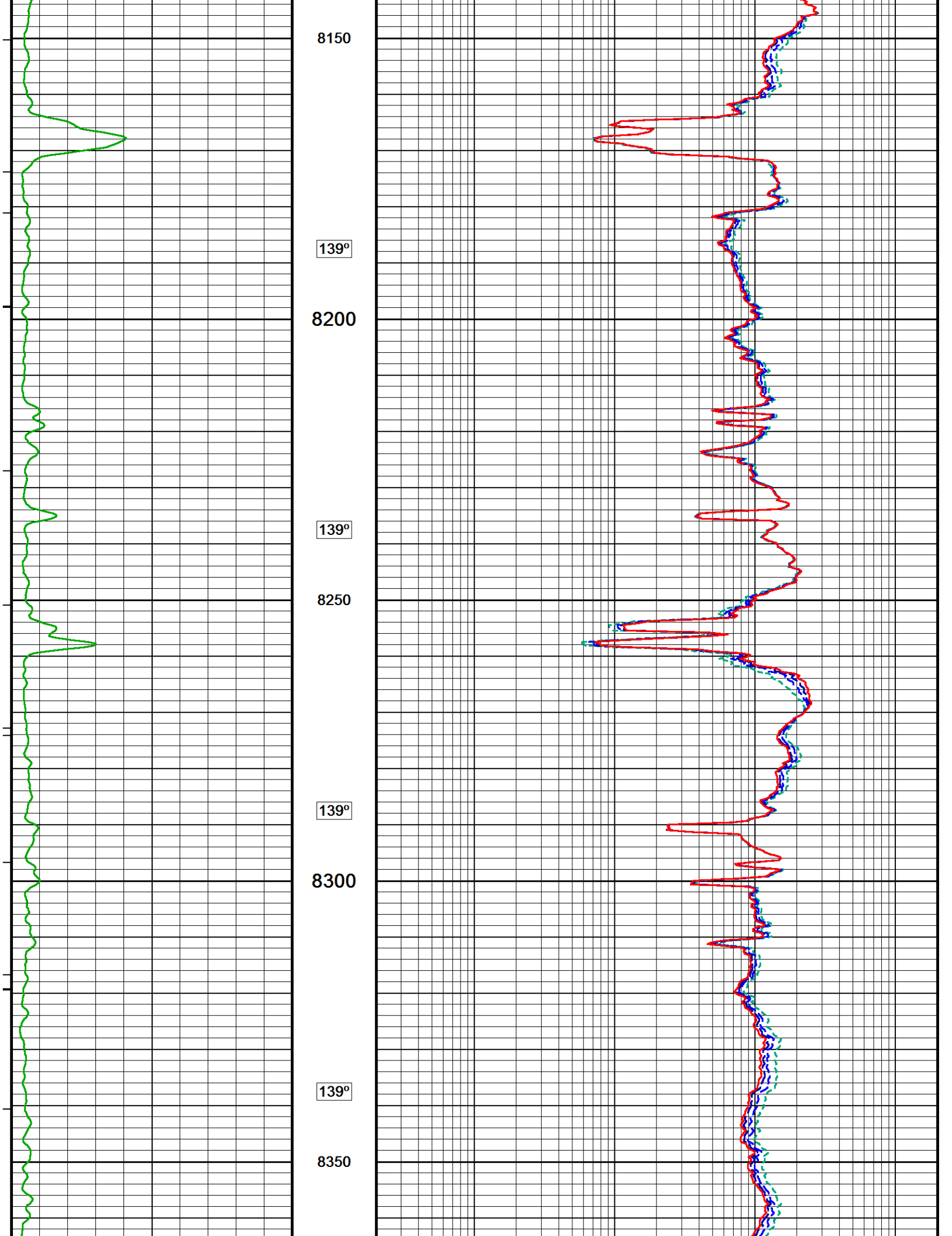
139°

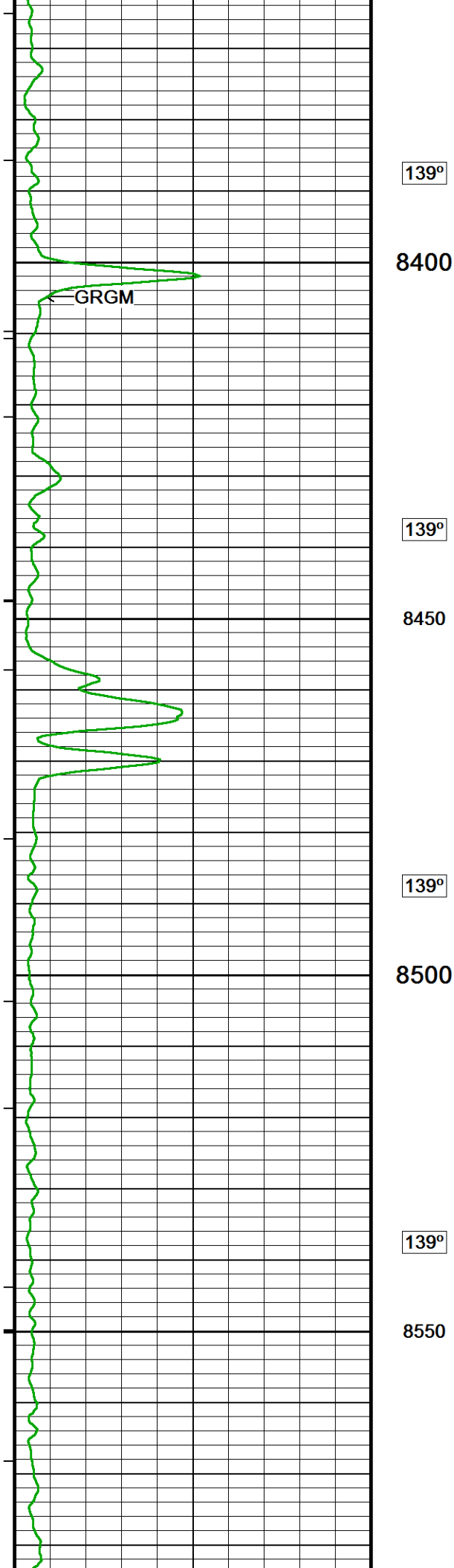
8100

139°



R850 →
RTAO →
R600 →
R400 →





139°

8400

139°

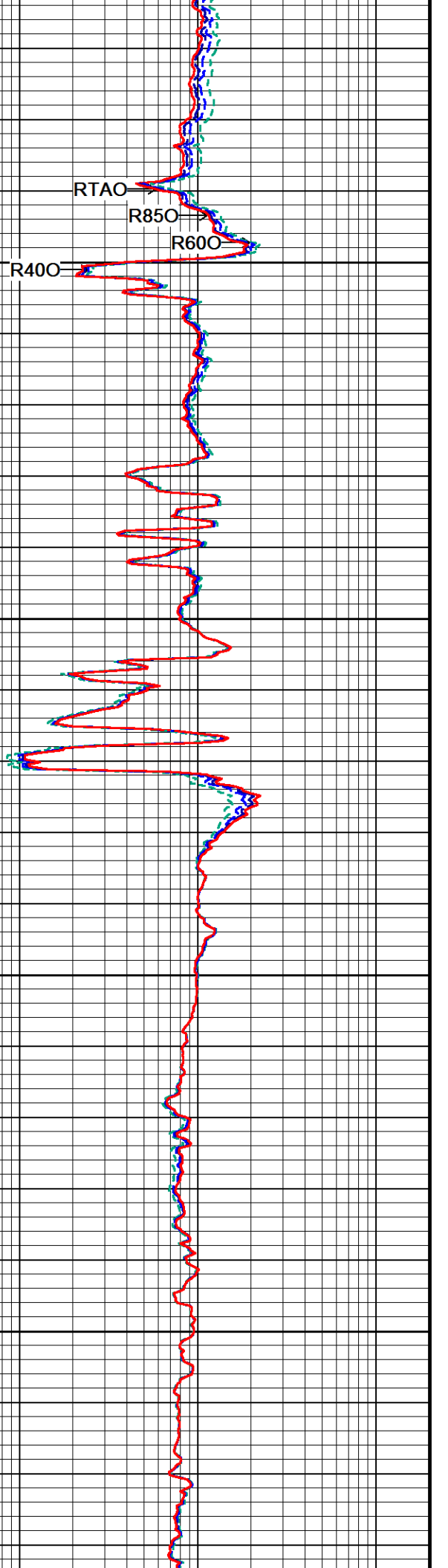
8450

139°

8500

139°

8550

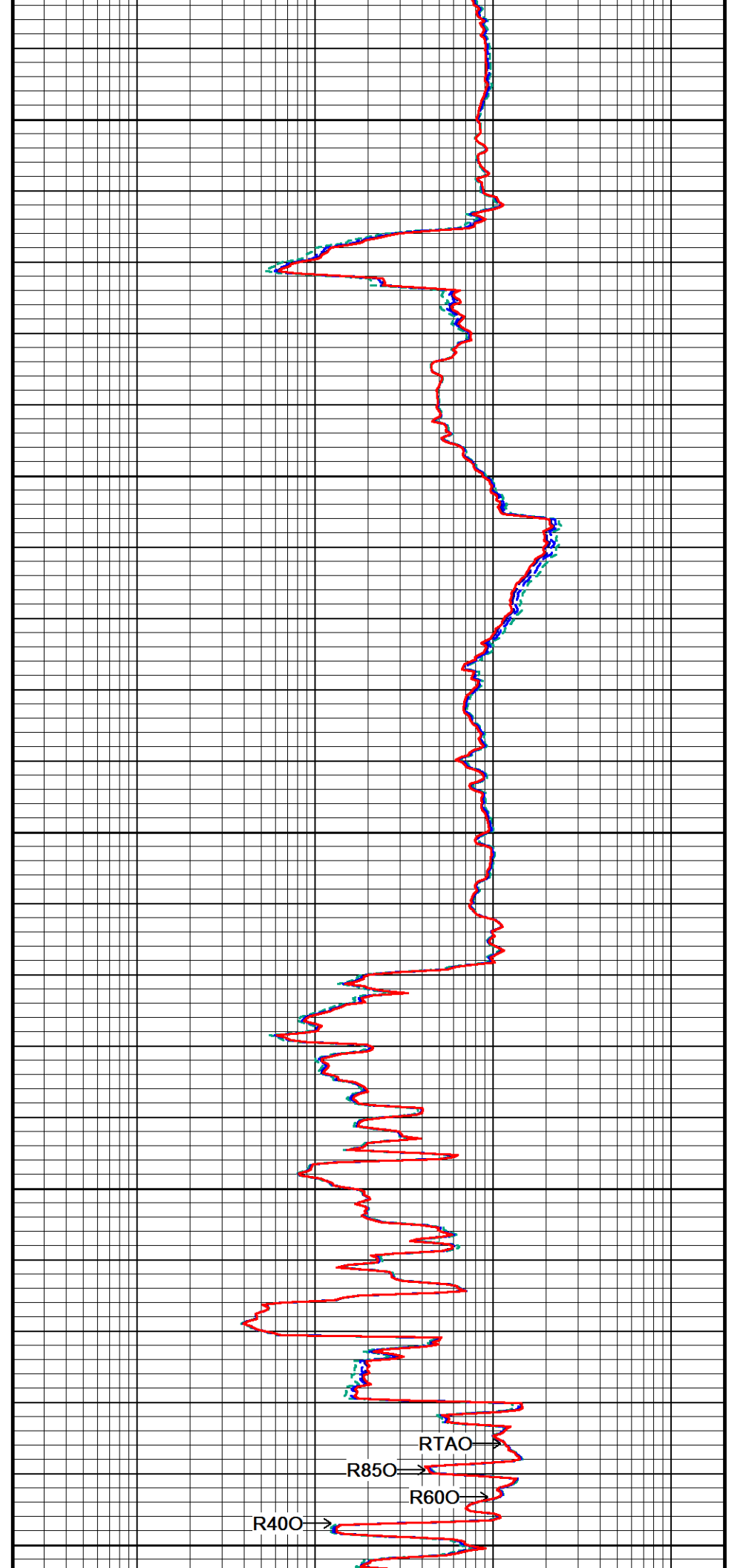
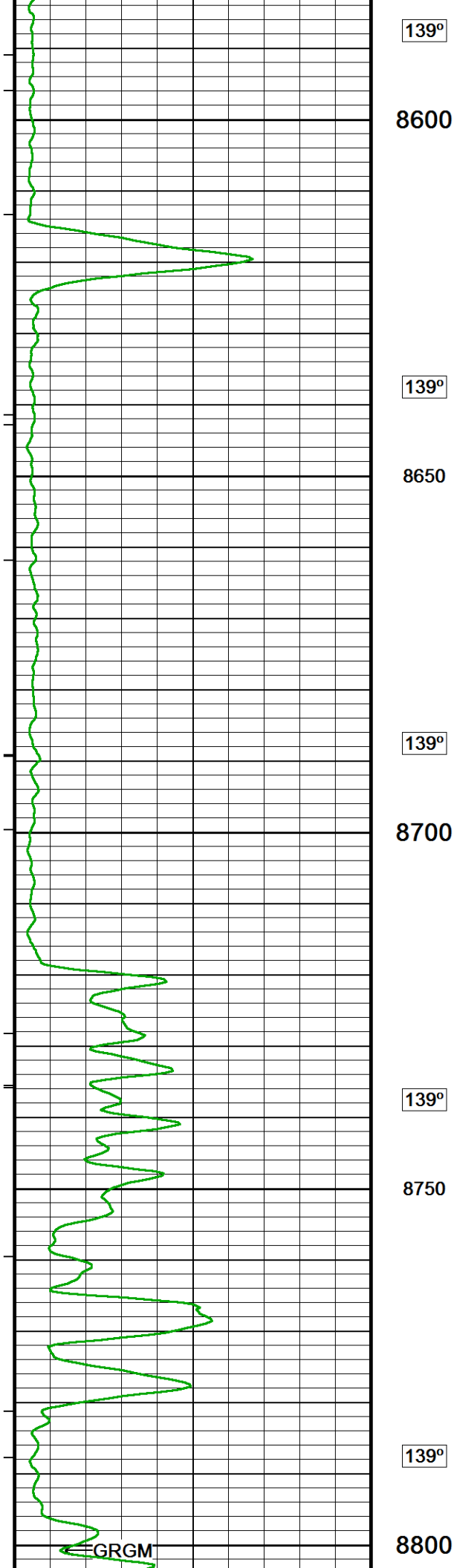


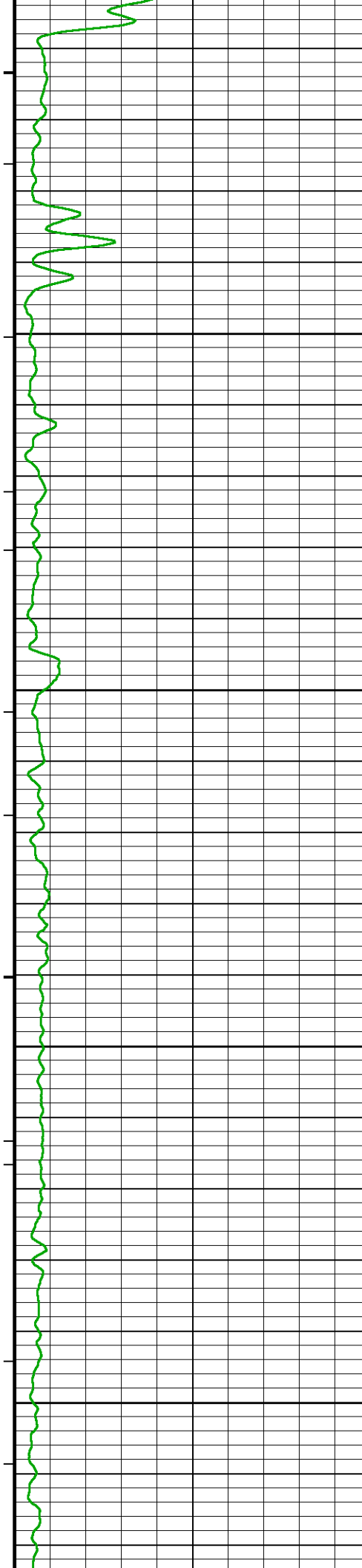
RTAO

R850

R600

R400





139°

8850

139°

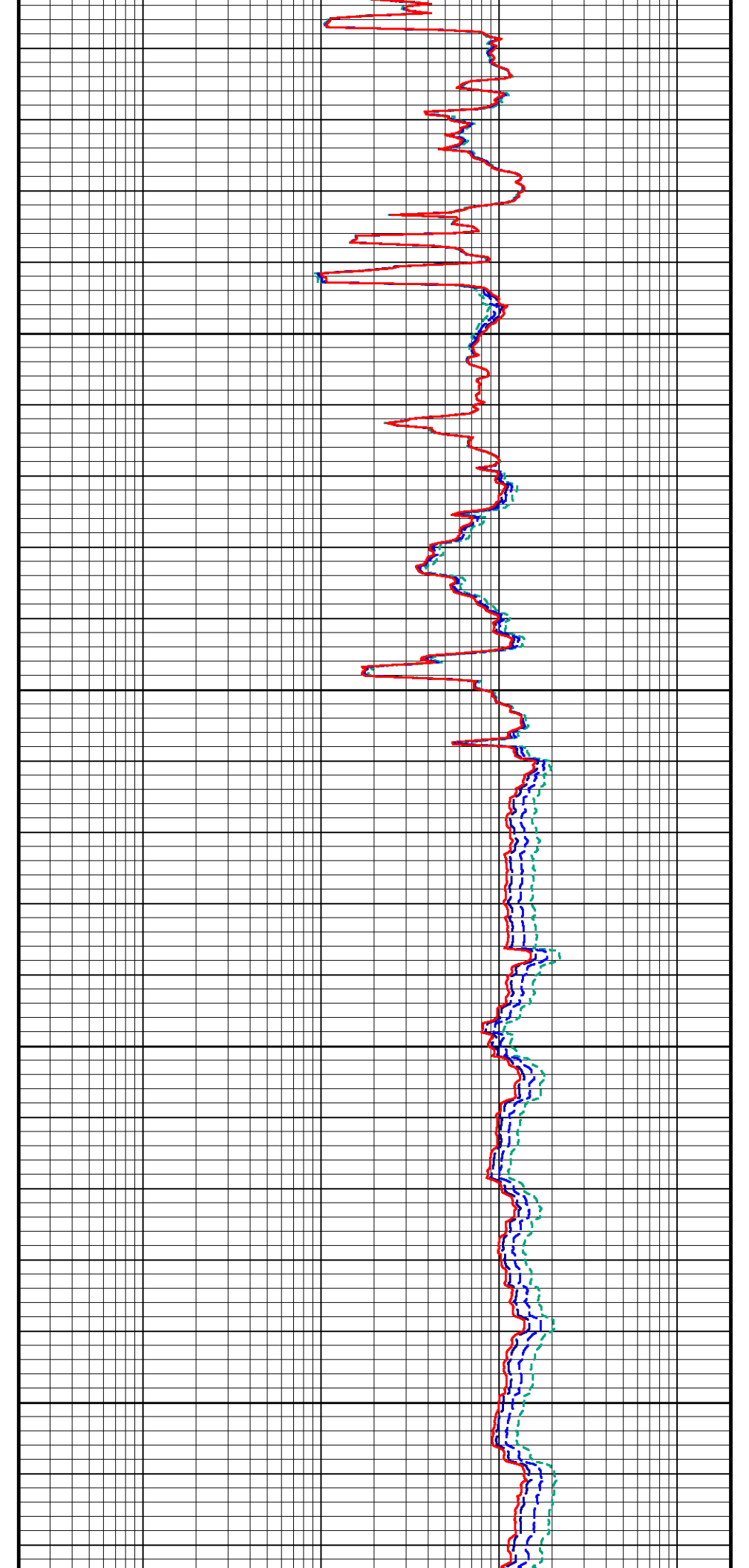
8900

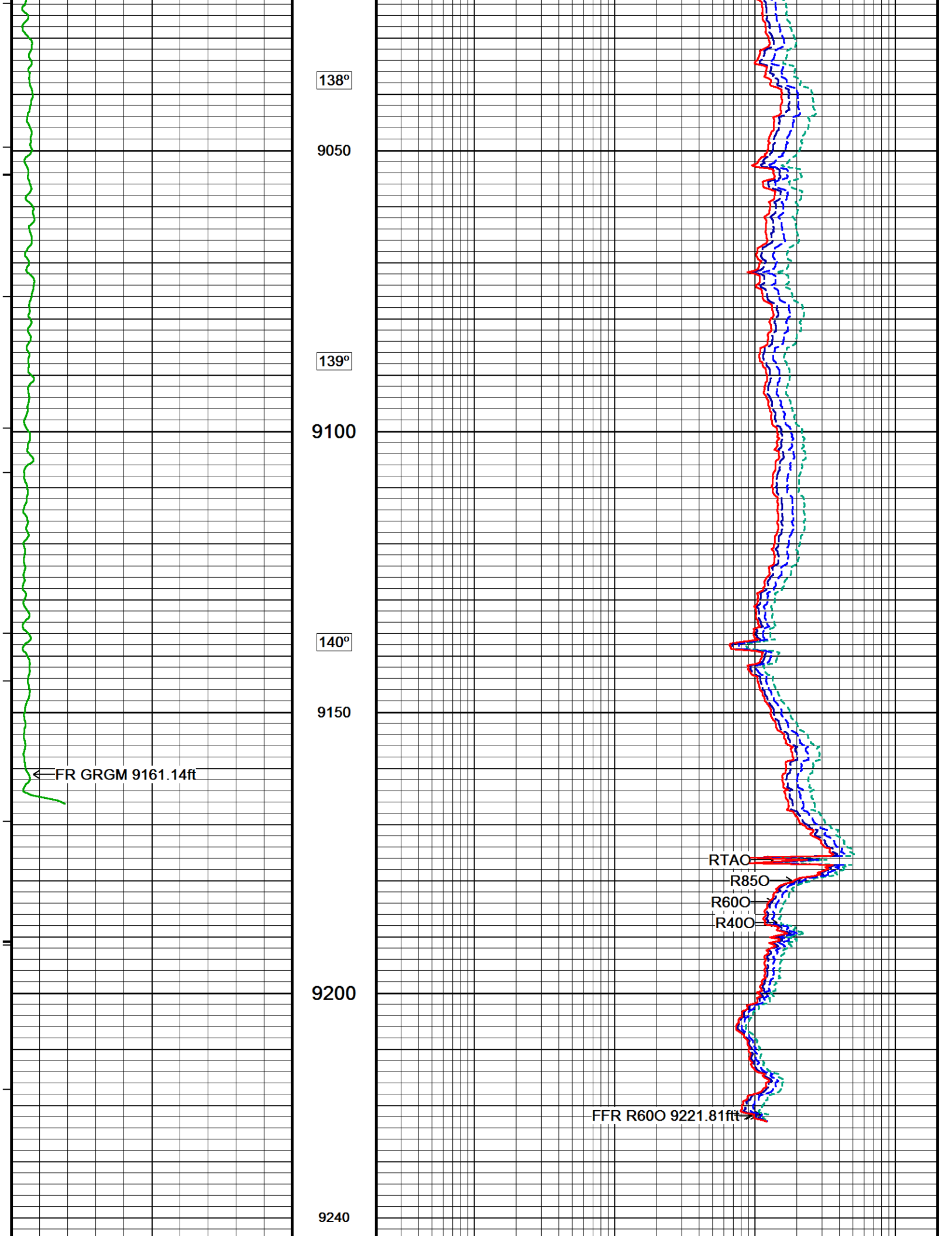
139°

8950

138°

9000





2000.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4000.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6000.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8000.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10000.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Strain Gauge Constants MMS-E.B 166

Last Edited on

Atmospheric Pressure			14.70			psi			
Serial Number			0						
Calibration Date			000000000000						
Base Check Date									
Dead Weight Serial Number			0						
Dead Weight Gravitational Correction			1.0						
Temperature	75.0		150.0		250.0		350.0		degrees F
Pressure psia	Inc.	Dec.	Inc.	Dec.	Inc.	Dec.	Inc.	Dec.	
0.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2000.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4000.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6000.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8000.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10000.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

High Resolution Temperature Calibration MGS-C.J 135

Field Calibration on 08-OCT-2014,11:27

	Measured	Calibrated(Deg F)	
Lower	0.00	0.00	
Upper	0.00	0.00	

High Resolution Temperature Constants MGS-C.J 135

Last Edited on 08-OCT-2014,11:27

Pre-filter Length	11
-------------------	----

SP Calibration MGS-C.J 135

Field Calibration on 08-OCT-2014,11:27

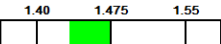
	Measured	Calibrated (mV)	
Reference 1	100.0	100.0	
Reference 2	-100.0	-100.0	

Gamma Calibration MGS-C.J 135

Field Calibration on 13-OCT-2014 04:49

	Measured	Calibrated (API)	
Background	45	32	
Calibrator (Gross)	1273	889	
Calibrator (Net)	1228	857	

Gamma Calibration Tolerances MGS-C.J 135

Ratio	1.433		Counts/API
-------	-------	---	------------

Gamma Constants MGS-C.J 135

Last Edited on 14-OCT-2014,09:00

Gamma Calibrator Number	GRCG073		
GRC-M Calibrator Jig in Use?	NO		
Inactive Background Jig in Use?	NO		
Mud Density	1.08	gm/cc	
Caliper Source for Processing	Density Caliper		
Tool Position	Eccentred		
Concentration of KCl		kppm	
K Mud Type	Chloride		
K Mud Concentration	0.00	%	

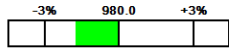
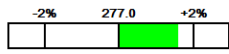
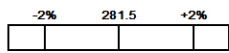
FE Calibration MFE-C.A 396

Base Calibration on 28-AUG-2014 11:47

Field Check on 13-OCT-2014 04:37

Base Calibration			
	Measured	Calibrated (ohm-m)	
Reference 1	0.0	0.0	
Reference 2	962.5	126.8	
Base Check		281.5	
Field Check		281.6	

FE Calibration Tolerances MFE-C.A 396

Reference 2	962.5		ohm
Base Check	281.5		ohm-m
Field Check	281.6		ohm-m

FE Constants MFE-C.A 396

Last Edited on 13-OCT-2014,04:35

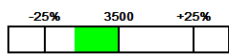
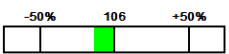
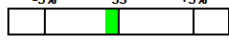
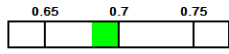
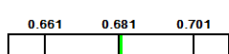
Running Mode	No Sleeve	
MFE K Factor	0.1268	
Caliper Source for FE correction	Density Caliper	
Caliper Value for FE correction	N/A	inches
Rm Source for FE correction	Temperature Corr	
Temp. for Rm Corr.	MGS External Temperature	
Stand-off	0.5	inches

Neutron Calibration MDN-C.A 480

Base Calibration on 29-SEP-2014 11:14
Field Check on 13-OCT-2014 04:56

Base Calibration		Measured		Calibrated (cps)	
	Near	Far	Near	Far	
	2972	91	3714	110	
Ratio	32.690		33.764		
Field Calibrator at Base			Calibrated (cps)		
			2423	3556	
Ratio			0.681		
Field Check			Calibrated (cps)		
			2392	3504	
Ratio			0.683		

Neutron Calibration Tolerances MDN-C.A 480

Near Reading	2972		cps	Far Reading	91		cps
Ratio	32.690						
Base Check	0.681						
Field Check	0.683						

Neutron Constants MDN-C.A 480

Last Edited on 14-OCT-2014,09:00

Neutron Source Id	HN553	
Neutron Jig Number	N639	
Air Hole Processing	Legacy	
Caliper Source for Processing	Density Caliper	
Stand-off	0.00	inches
Mud Density	1.08	gm/cc
Limestone Sigma	7.10	cu
Sandstone Sigma	4.26	cu
Dolomite Sigma	4.70	cu
Formation Pressure Source	Constant Value	
Formation Pressure	0.00	kpsi
Temperature Source	Constant Value	
Temperature	68.00	degrees F
Mud Salinity	0.00	kppm
Salinity Correction	Not Applied	
Formation Fluid Salinity Source	Constant Value	
Formation Fluid Salinity	0.00	kppm
Barite Mud Correction	Not Applied	

Induction Calibration MAI-C.A 502

Base Calibration on 23-APR-2013,17:49
Field Check on 13-OCT-2014 04:26

Base Calibration		Measured		Calibrated (mmho/m)	
Test Loop Calibration		Low	High	Low	High
Channel		10.7	15.0	10.7	15.0

1	16.7	457.8	9.3	966.2
2	6.5	374.2	7.6	821.4
3	3.6	252.2	5.2	566.0
4	1.1	130.0	2.6	279.2

Array Temperature 74.1 Deg F

Test Loop Calibration Verified

Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1			-4.9	2111.8
2			12.9	1926.8
3			14.0	1678.4
4			11.7	1131.8
Deep			10.0	1103.1
Medium			20.4	2213.5
Shallow			16.9	2833.9

Array Temperature 64.3 Deg F

Induction Calibration Tolerances MAI-C.A 502

Low Conductivity 1	16.7		mmho/m	High Conductivity 1	457.8		mmho/m
Low Conductivity 2	6.5		mmho/m	High Conductivity 2	374.2		mmho/m
Low Conductivity 3	3.6		mmho/m	High Conductivity 3	252.2		mmho/m
Low Conductivity 4	1.1		mmho/m	High Conductivity 4	130.0		mmho/m
Background Vx 1	0.0		mmho/m	Phase Check Loop 1	0.0		%
Background Vx 2	0.0		mmho/m	Phase Check Loop 2	0.0		%
Background Vx 3	0.0		mmho/m	Phase Check Loop 3	0.0		%
Background Vx 4	0.0		mmho/m	Phase Check Loop 4	0.0		%

Induction Constants MAI-C.A 502

Last Edited on 15-OCT-2014,03:01

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		6.0000	
Stand-off Fin Angle		60.00	degrees
Stand-off Fin Width		0.7500	inches
Borehole Corr. Rm Source		Temperature Corr	
Temp. for Rm Corr.	MGS 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 Water for Apor and Sw	0.00	ohm-m
Source for Rt	0.00	
Source for Rxo	0.00	

High Resolution Temperature Calibration MAI-C.A 502

Field Calibration on 09-JUL-2014,14:11

	Measured	Calibrated(Deg F)
Lower	50.00	50.00
Upper	100.00	212.00

High Resolution Temperature Constants MAI-C.A 502

Last Edited on 09-JUL-2014,14:09

Pre-filter Length 11

Caliper Calibration MPD-D.A 472

Base Calibration on 26-SEP-2014 10:16
Field Calibration on 13-OCT-2014 04:30

Base Calibration Reading No	Measured	Calibrator Size (in)
1	16803	4.00
2	25313	5.97
3	33731	7.96
4	41972	9.86
5	51107	11.88
6	N/A	N/A

Field Calibration	Measured Caliper (in)	Actual Caliper (in)
	5.94	5.97

Caliper Calibration Tolerances MPD-D.A 472

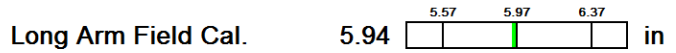


Photo Density Calibration MPD-D.A 472

Base Calibration on 26-SEP-2014 11:08
Field Check on 13-OCT-2014 04:34

Density Calibration Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Background	1281	1462		
Reference 1	57608	27585	59494	30754
Reference 2	24698	2738	26390	2598

Field Check at Base 1280.7 1462.4

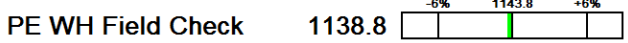
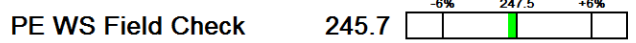
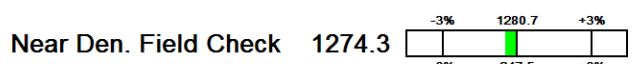
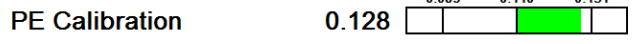
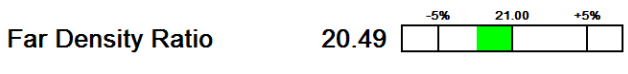
Field Check 1274.3 1461.5

PE Calibration Base Calibration	WS	Measured		Calibrated Ratio
		WH	Ratio	
Background	247	1144		
Reference 1	25852	57395	0.455	0.367
Reference 2	7749	24550	0.320	0.270

Field Check at Base 247.5 1143.8

Field Check 245.7 1138.8

Photo Density Calibration Tolerances MPD-D.A 472



Density Constants MPD-D.A 472

Last Edited on 14-OCT-2014,09:00

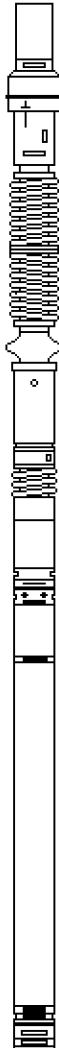
Density Source Id	P74840B	
Nylon Calibrator Number	766	
Aluminium Calibrator Number	856	
Density Shoe Profile	4 inch	
Caliper Source for Processing	Density Caliper	
PE Correction to Density	Not Applied	
Mud Density	1.08	gm/cc
Mud Density Z/A Multiplier	1.11	
Mud Filtrate Density	1.00	gm/cc
Dry Hole Mud 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	0.00

DOWNHOLE EQUIPMENT

D:\14_03_4558_WLS\DATA\15077220890100_Frey 3508 1-8H\88208rtap.dta

Shuttle Mechanical Release (SMR A)
 SMR-A 152 LG: 8.53 ft WT: 77.2 lb OD: 2.520 in



Shuttle Electrical Release
 SER-B.A 220 LG: 6.90 ft WT: 50.7 lb OD: 2.244 in

MBS-F.A 200v Compact Battery Sub
 MBS-F.A 115 LG: 10.22 ft WT: 81.6 lb OD: 2.240 in

Compact Memory Sub E.B
MMS-E.B 166 LG: 5.20 ft WT: 37.5 lb OD: 2.240 in

Compact Tool Isolator sub.
MTI-C.A 150 LG: 1.54 ft WT: 13.2 lb OD: 2.244 in

Compact Short Gamma
MGS-C.J 135 LG: 3.41 ft WT: 24.3 lb OD: 2.244 in

Compact Collar Locator
MCL-B.J 60 LG: 3.17 ft WT: 26.5 lb OD: 2.244 in

MIS-E.B Compact Inline Standoff sub
MIS-E.B 789 LG: 2.14 ft WT: 15.4 lb OD: 2.244 in

Compact Focussed Electric
MFE-C.A 396 LG: 6.05 ft WT: 48.5 lb OD: 2.244 in



63.89 ft GRGM - MGS Gamma Ray

61.91 ft GSXT - MGS External Temperature

59.89 ft GCSL - MCL C. Collar Locator

53.15 ft FEFE - Shallow FE

MIS-E.B Compact Inline Standoff sub
MIS-E.B 564 LG: 2.14 ft WT: 15.4 lb OD: 2.244 in

SKJ-E.B Compact Knuckle Joint
SKJ-E.B 728 LG: 2.17 ft WT: 24.3 lb OD: 2.244 in

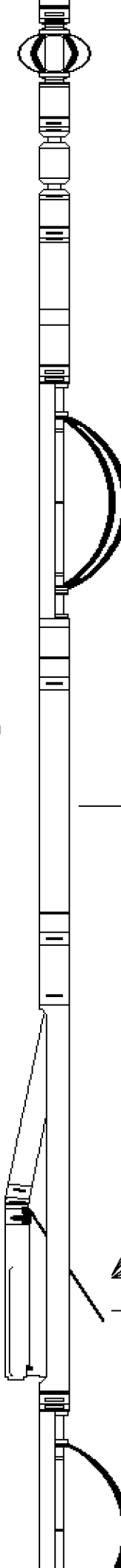
SHA-J.B Compact Swivel Head Adaptor
SHA-J.B 594 LG: 2.30 ft WT: 22.0 lb OD: 2.244 in

MIS-D.B Compact Inline Bowspring sub
MIS-D.B 816 LG: 5.70 ft WT: 33.1 lb OD: 2.244 in

Compact Neutron
MDN-C.A 480 LG: 5.04 ft WT: 50.7 lb OD: 2.244 in

Compact Density/Caliper
MPD-D.A 472 LG: 9.59 ft WT: 90.4 lb OD: 2.244 in

MIS-D.B Compact Inline Bowspring sub
MIS-D.B 817 LG: 5.70 ft WT: 33.1 lb OD: 2.240 in



34.70 ft NPRL - Limestone Neutron Por.

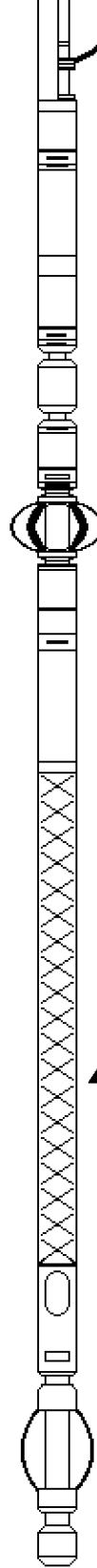
27.46 ft CLDC - Density Caliper
27.46 ft HVOL - Hole Volume
27.46 ft AVOL - Annular Volume
25.53 ft DCOR - Density Correction
25.53 ft DEN - Compensated Density
25.53 ft DPRL - Limestone Density Por.
25.47 ft PDPE - PE

SHA-J.A Compact Swivel Head Adaptor
 SHA-J.A 438 LG: 2.30 ft WT: 22.0 lb OD: 2.244 in

SKJ-E.B Compact Knuckle Joint
 SKJ-E.B 455 LG: 2.17 ft WT: 24.3 lb OD: 2.244 in

MIS-E.B Compact Inline Standoff sub
 MIS-E.B 579 LG: 2.14 ft WT: 15.4 lb OD: 2.244 in

Compact Induction
 MAI-C.A 502 LG: 12.52 ft WT: 48.5 lb OD: 2.240 in



- 3.34 ft CTAO - Array Ind. One Cond Ct
- 3.34 ft R200 - Array Ind. One Res 20
- 3.34 ft R300 - Array Ind. One Res 30
- 3.34 ft R400 - Array Ind. One Res 40
- 3.34 ft R600 - Array Ind. One Res 60
- 3.34 ft R850 - Array Ind. One Res 85
- 3.34 ft RTAO - Array Ind. One Res Rt

Tool Zero (1.84ft from bottom)

Total Length: 98.91 ft Weight: 754.0 lb

All measurements relative to tool zero.

COMPANY	SANDRIDGE EXPLORATION & PRODUCTION LLC
WELL	FREY 3508 1-8H
FIELD	BOUSE
PROVINCE/COUNTY	HARPER
COUNTRY/STATE	USA / KANSAS

Elevation Kelly Bushing	1252.00	feet	First Reading	9223.00	feet
Elevation Drill Floor	1252.00	feet	Depth Driller	9315.00	feet



Weatherford®

CML IMPULSE SHUTTLE ARRAY INDUCTION ELECTRIC LOG

		CML IMPULSE SHUTTLE ARRAY INDUCTION ELECTRIC LOG	
COMPANY	SANDBRIDGE EXPLORATION & PRODUCTION LLC	WELL	FREY 3508 1-8H
FIELD	BOUSE	PROVINCE/COUNTY	BOUSE
COUNTRY/STATE	HARPER	LOCATION	USA / KANSAS
PERMIT NUMBER	NE NW NW NE 200' N1. & 2010' FEL		
SEC	8	T1P	3S
R	3S	RBE	8W
Operator Services			
Latitude	37.02102	W	107.22089100
Longitude	-98.20351		
Permanent Datum GL Elevation	1237 feet		
Log Measured From NB			
Drilling Measured From NB @ 15' AGL			
Date	13-OCT-2014	Sevens	481
Run Number	ONE	CP	1252.00
Service Order	3548-100378911	GL	1237.00
Depth Logger	9315.00		
First Reading	9225.00		
Last Reading	5624.00		
Casing Diameter	5928.00		
Casing Depth	5924.00		
Bit Size	6.125		
Hole Fluid Type	WATER		
Density/Viscosity	9.00	INDUS	30.00
PPH / Fluid Loss	10.50		32.00
Sample Source	FLOWLINE		
Run @ Measured Temp	2.50 @ 91.0		ohm-m
Run @ Measured Temp	2.0 @ 91.0		ohm-m
Run @ Measured Temp	3.0 @ 91.0		ohm-m
Source Run / Rmc	CALC		ohm-m
Run @ BHT	1.69 @ 138.0		ohm-m
Time Since Circulation	1 HOUR		deg F
Max recorded Temp	139.00		
Equipment Base	18109		OKG
Recorded By	OSYR/MUELLER		
Witnessed By	RITCHENOR		E BREMER

1 INCH MAIN LOG

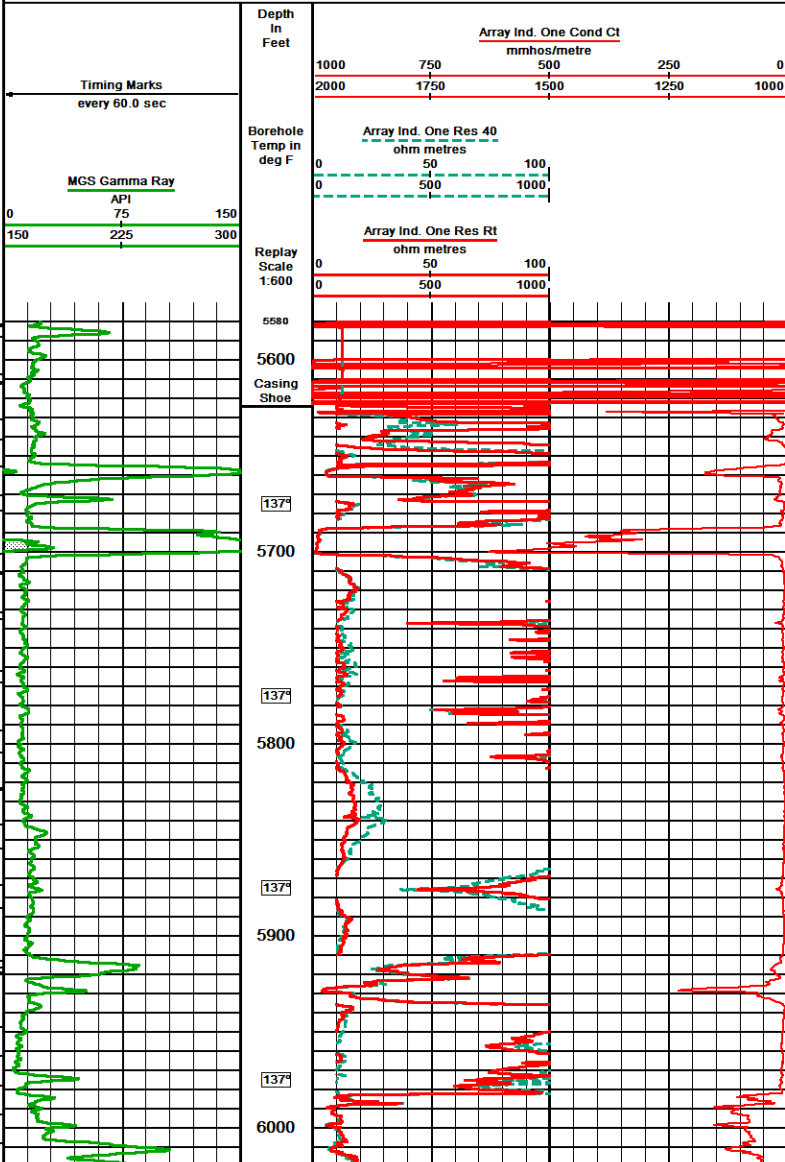
Depth Based Data - Maximum Sampling Increment 10.0cm

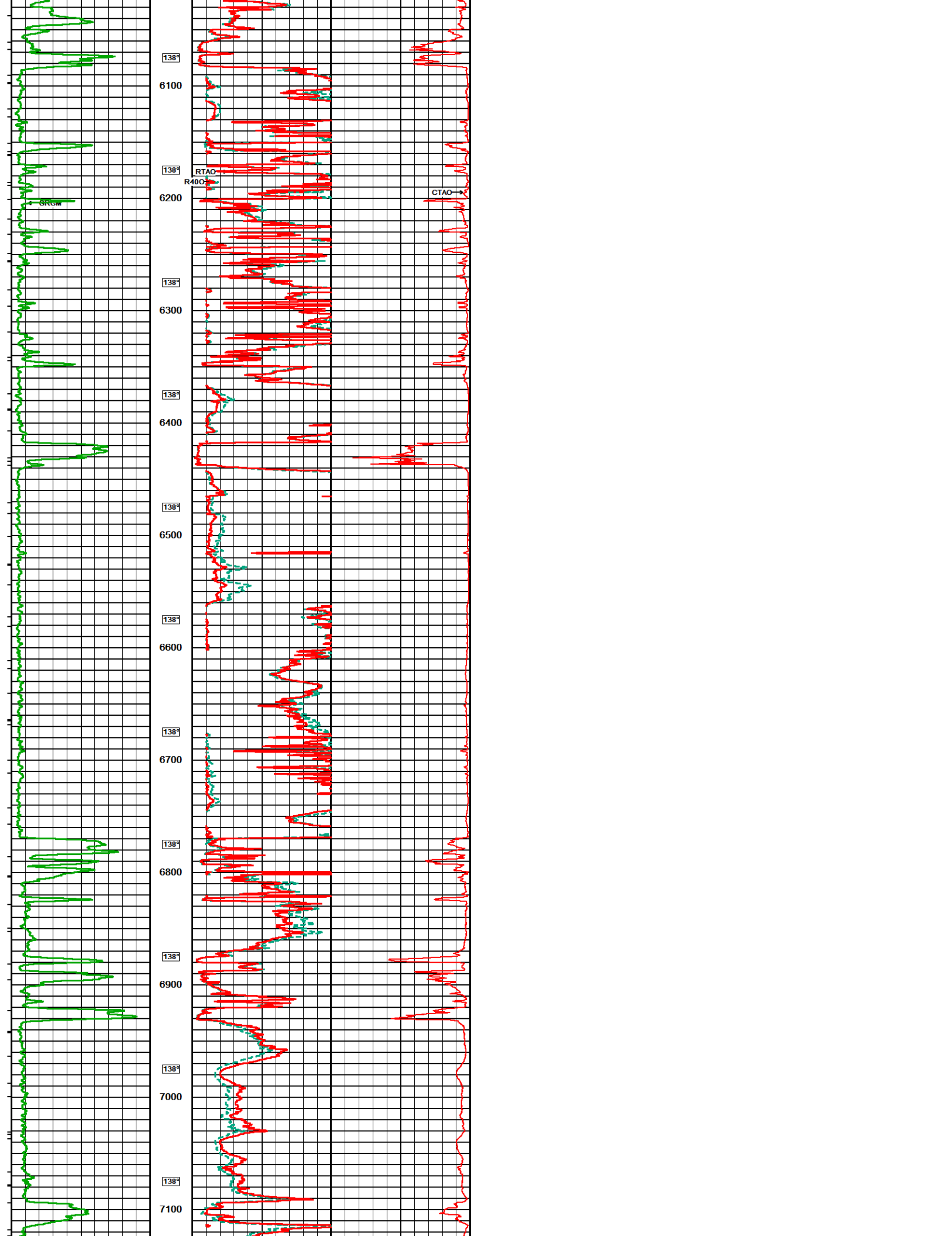
Plotted on 31-DEC-2014 12:02

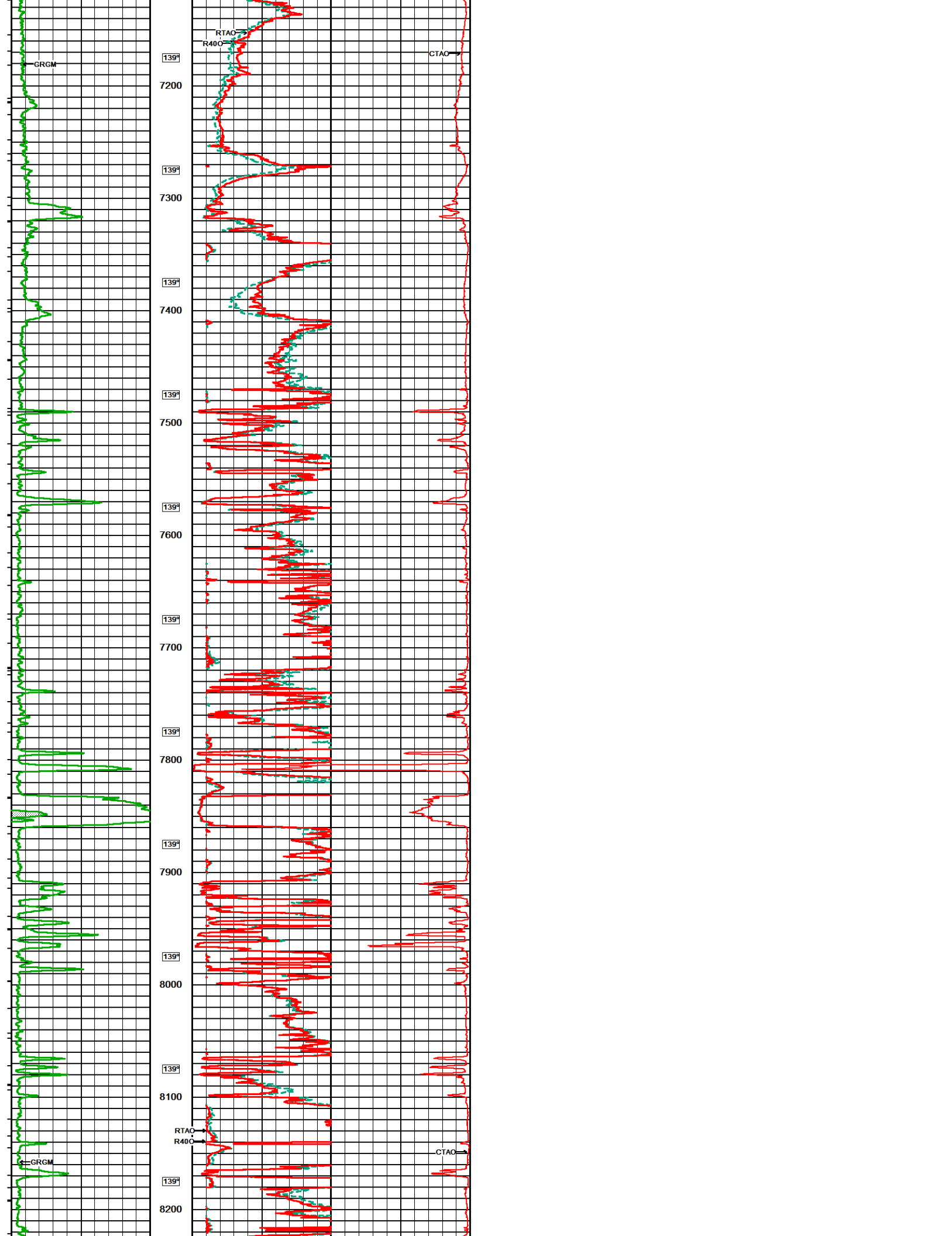
Filename: D:\14_03_4558_WLSDATA\15077220890100_Frey 3508 1-8H\88208rtap.dta

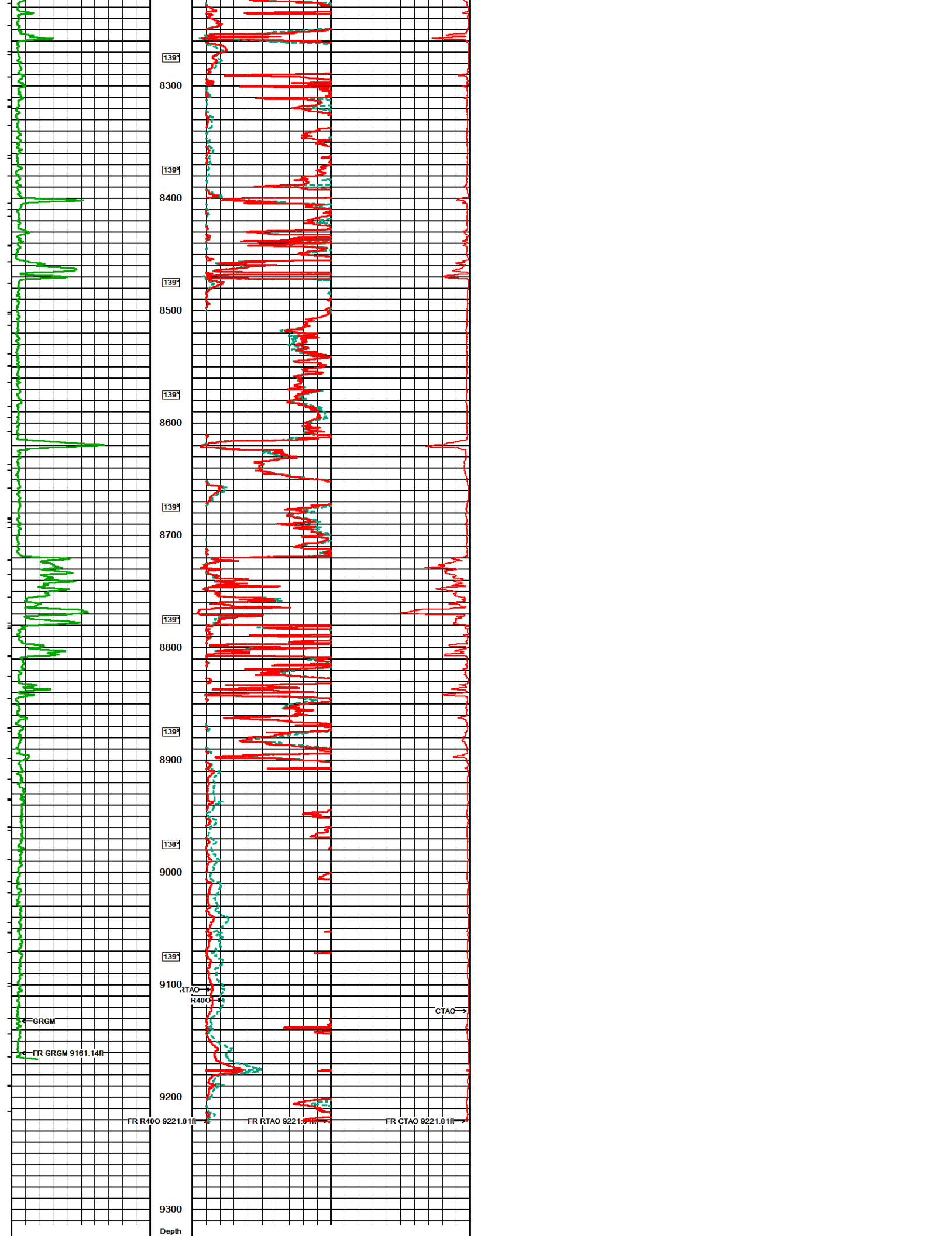
Recorded on 15-OCT-2014 01:45

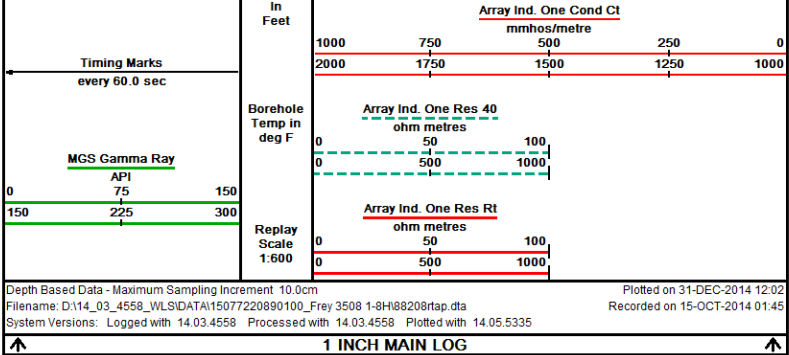
System Versions: Logged with 14.03.4558 Processed with 14.03.4558 Plotted with 14.05.5335












COMPANY	SANDRIDGE EXPLORATION & PRODUCTION LLC				
WELL	FREY 3508 1-8H				
FIELD	BOUSE				
PROVINCE/COUNTY	HARPER				
COUNTRY/STATE	USA / KANSAS				
Elevation Kelly Bushing	1252.00	feet	First Reading	9223.00	feet
Elevation Drill Floor	1252.00	feet	Depth Driller	9315.00	feet
Elevation Ground Level	1237.00	feet	Depth Logger	9225.00	feet
	CML IMPULSE SHUTTLE ARRAY INDUCTION ELECTRIC LOG				