

1:240										LWD		MD Log		
										Directional				
Country : USA Field : DJ Wattenberg Location : 40.224629 : -105.051741 Well : Billings 3D -18H Company : Encana Oil & Gas (USA) Inc Rig : Patterson Rig 326										Company : Encana Oil & Gas (USA) Inc Rig : Patterson Rig 326 Well : Billings 3D -18H Field : DJ Wattenberg County/Parish : Weld State/Province : Colorado Country : USA Well ID : 05-123-36890				
LOCATION					Latitude : 40.224629 Longitude : -105.051741 Mead Colorado					Other Services: Gamma WPR				
Sect: 18 Twp: 3N Range: 68W														
Permanent Datum : MSL Log Measured From : KB					Elevation: 5155					Elev. KB : 5187 DF : 5186 GLWD : 5155				
Depth Logged : 890.00 to : 7660.00 Date Logged : 11/11/2014 to : 11/13/2014 Total Depth MD : 7660.0 TVD : 7173.0 Spud Date : 10/08/2014					FIELD PRINT					Job Number: BILLINGS 3D 18H				
Run Borehole Record (MD) Size From To					Run Borehole Record (MD) Size From To									
1 8 3/4 890 7660														
					Casing Record (MD) Size Weight From To									
					9 5/8 40# 0 873									

CORRECTIONS

Log Run	Run 1	Run 1	Run 1		
Bit Run	Run 1	Run 1	Run 1		
Start Date/Time	2014-11-11 08:14:14	2014-11-12 18:26:03	2014-11-13 07:12:08		
Start Depth (ft)	886.16	6494.16	7210.44		
End Date/Time	2014-11-12 18:26:02	2014-11-13 07:12:07	2014-11-14 09:24:19		
End Depth (ft)	6494	7210.44	7660		

Gamma Ray Corrections

Collar Correction	4.843	4.843	4.843		
Mud Density (lb/gal)	9.15	9.15	10.7		
Mud Correction	1.267	1.267	1.309		
Calibration	1.35	1.35	1.35		
%K	0	0	0		

WPR Corrections

Effective Hole Diam (in)	8.75	8.75	8.75		
Surface Rm (ohm-m)	0.5	0.5	0.8		
Surface Mud Temp (F)	90	90	119		
Bottom Hole Circ Temp (F)	134	134	160		
Rm @ BHT	0.344	0.344	0.603		

--	--	--	--	--	--

<b>EQUIPMENT</b>					
------------------	--	--	--	--	--

Log Run	Run 1				
Bit Run	Run 1				
Start Date/Time	2014-11-11 04:30:00				
Start Depth (ft)	890				
End Date/Time	2014-11-14 05:41:16				
End Depth (ft)	7660.19				

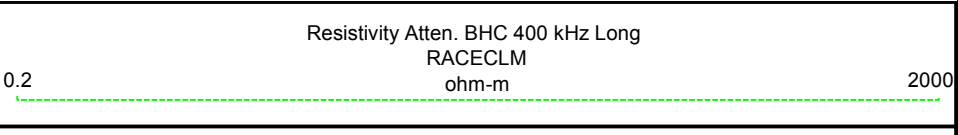
<b>Serial Numbers</b>					
-----------------------	--	--	--	--	--

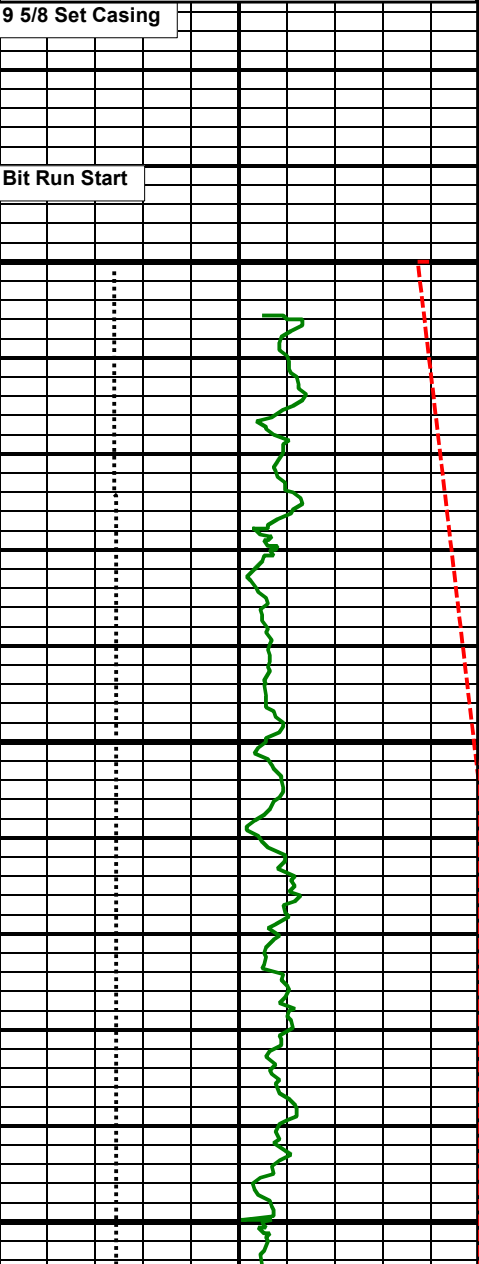
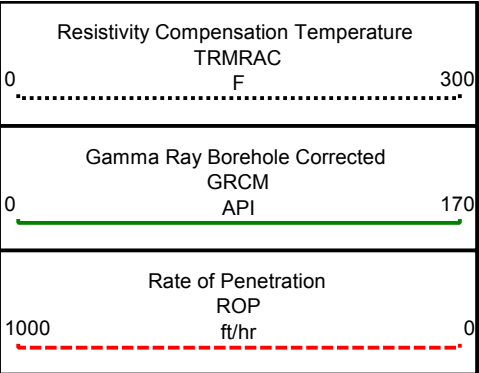
Surface Gear	614				
Flow Sub	21552-2				
Pulser	310				
Battery 1	565,555				
Battery 2	542,543				
Turbine Alternator					
Directional Sensor	282				
Gamma Sensor	114				
WPR Sensor	18				
Vibration Sensor					

<b>Sensor Offsets To Bit</b>					
------------------------------	--	--	--	--	--

Directional (ft)	51.93				
Gamma Ray (ft)	47.54				
WPR (ft)	40.63				
PWD (ft)					
Vibration (ft)					

LOGGING SUMMARY					
Log Run	Run 1				
Bit Run	Run 1				
Hole Size (in)	8.75				
Sensor Suite	DG_WPR				
Measured Depth					
In Hole From	890				
In Hole To	7660.19				
Log From	7660.19				
Log To	7660.19				
Date/Time					
In Hole Date	2014-11-11				
In Hole Time	04:30:00				
Out Hole Date	2014-11-14				
Out Hole Time	05:41:16				
Begin Log Date	2014-11-11				
Begin Log Time	04:30:00				
End Log Date	2014-11-14				
End Log Time	05:41:15				
LWD Engineer	Aaron Clark				
Oil Company Rep	Ira Cox				
DRILLING FLUID SUMMARY					
Mud Type	Water				
Density (lb/gal)	9.15				
Funnel Viscosity	39				
Plastic Viscosity	18				
Chlorides	2900				
Oil/Water Ratio	1.0 / 87				
Maximum Circ Temp (F)	164.3				
DISCLAIMER					
Cathedral Drilling Services does not guarantee the accuracy or correctness of interpretations provided in or from this log. Since all interpretations are opinions based on measurements, Cathedral shall under no circumstances be responsible for consequential damages or any other loss, costs, or expenses incurred or sustained in connection with the use of any such interpretations.					



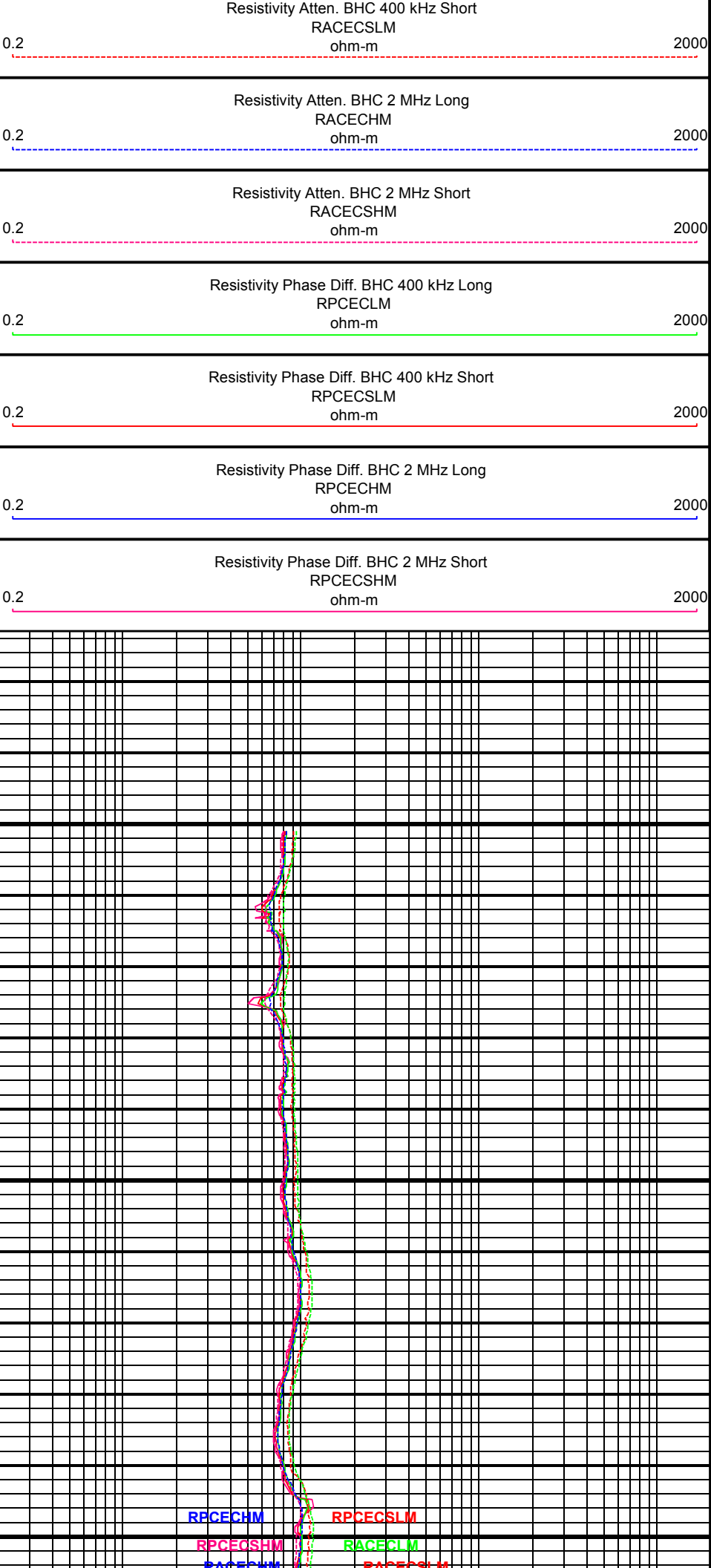


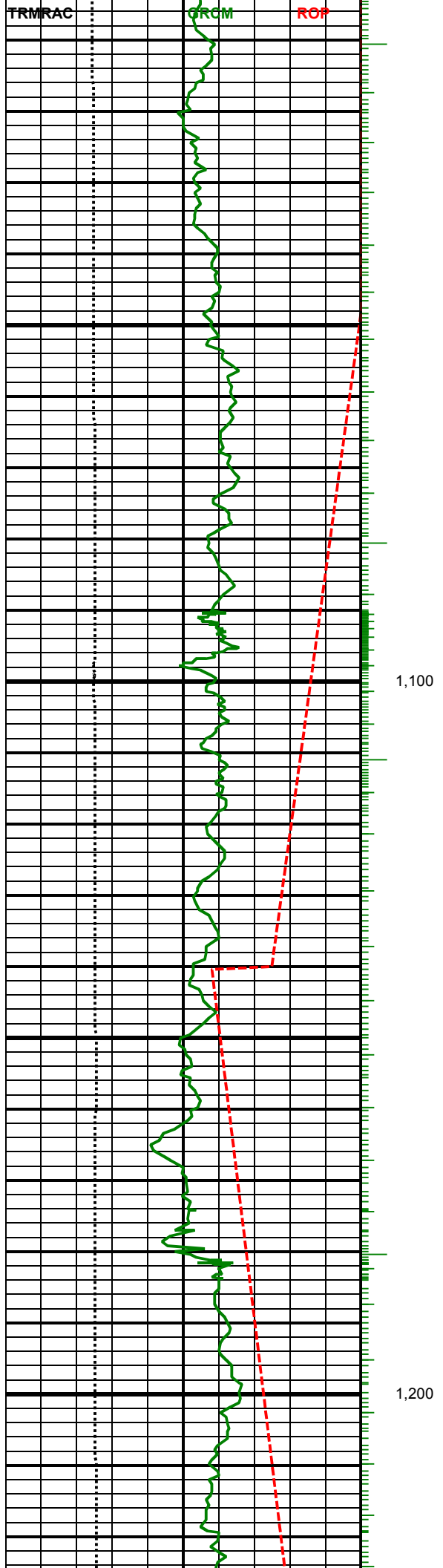
MD  
FEET

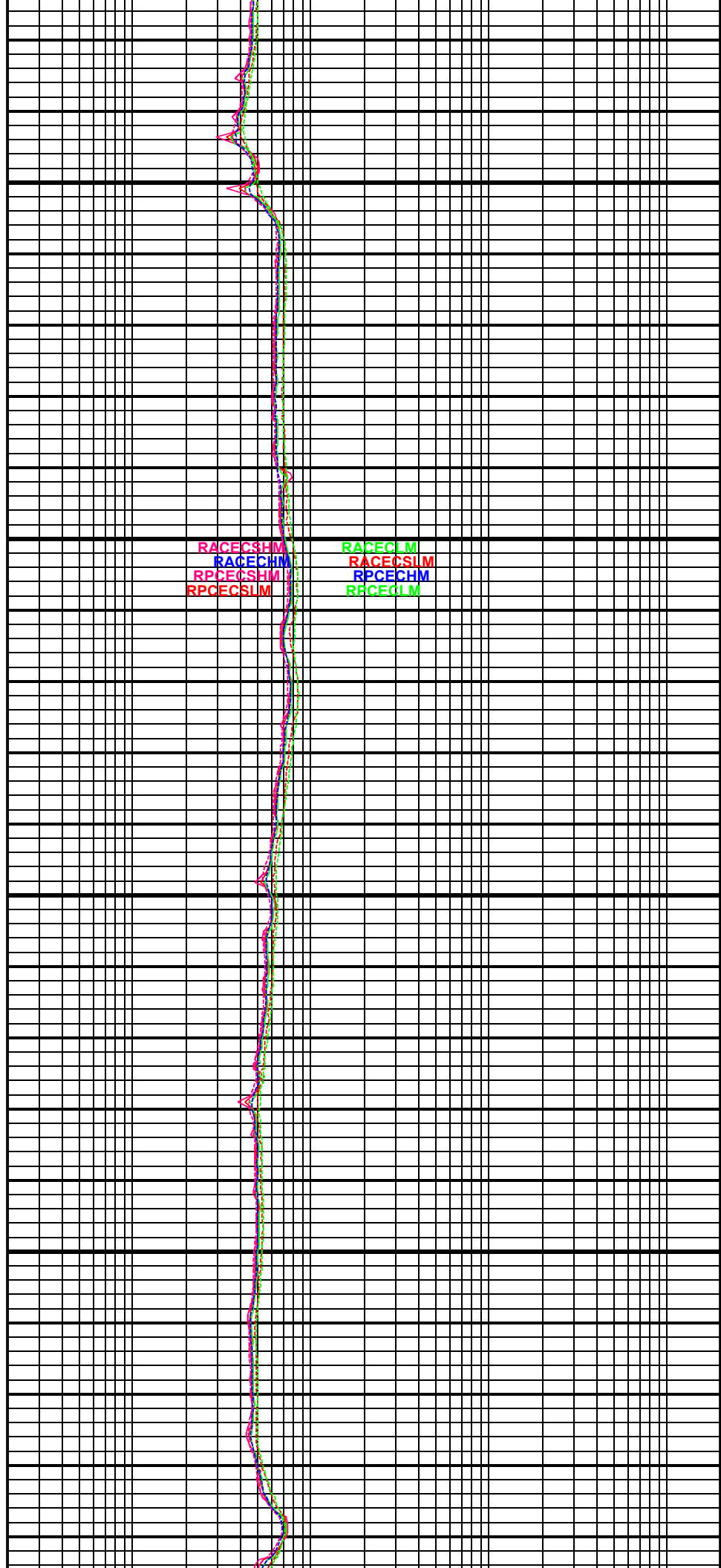
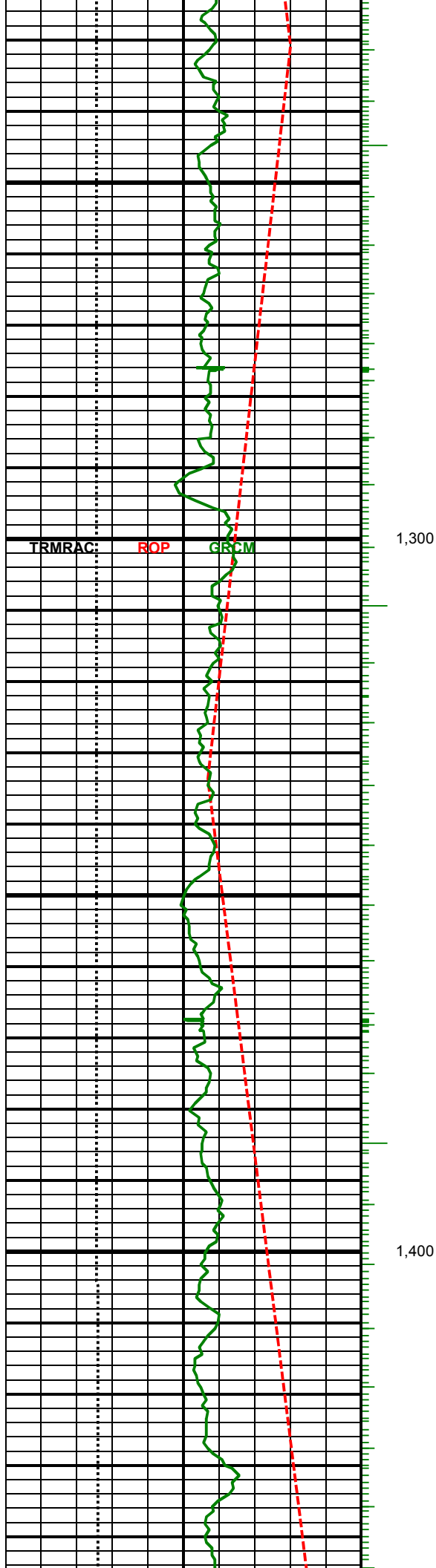
1:240

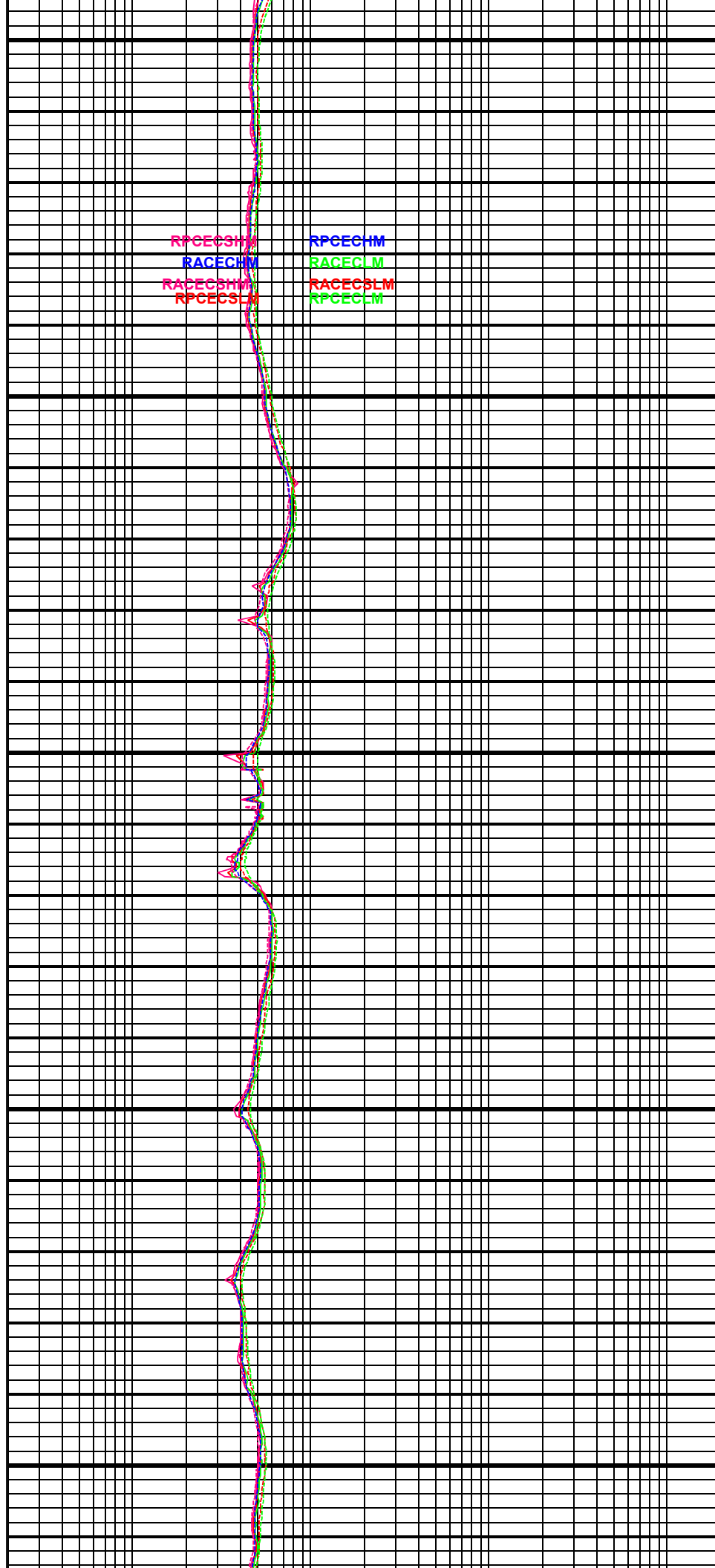
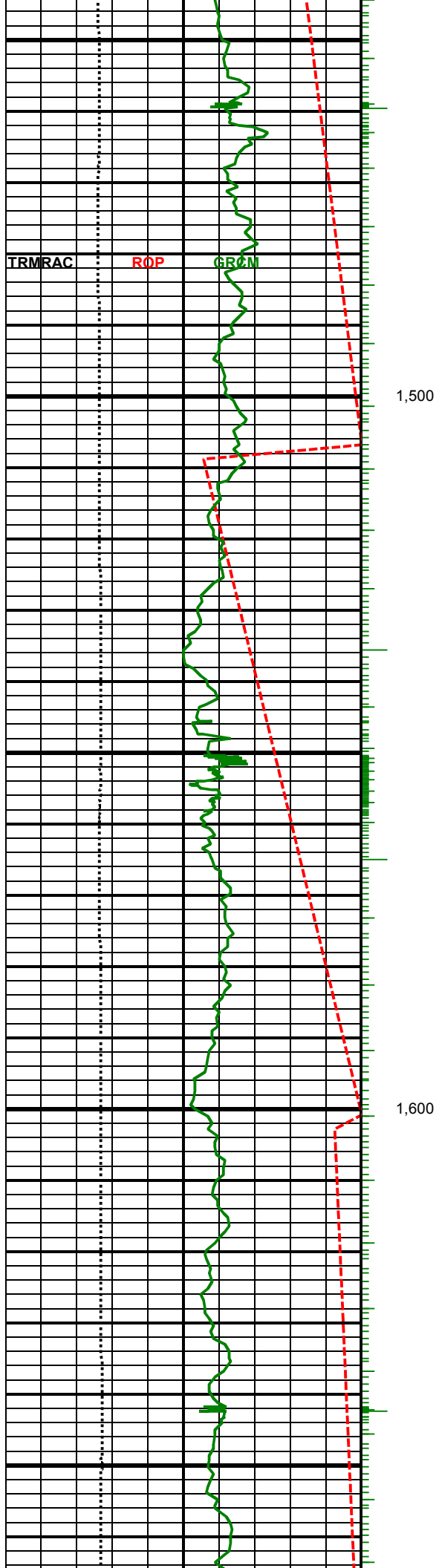
900

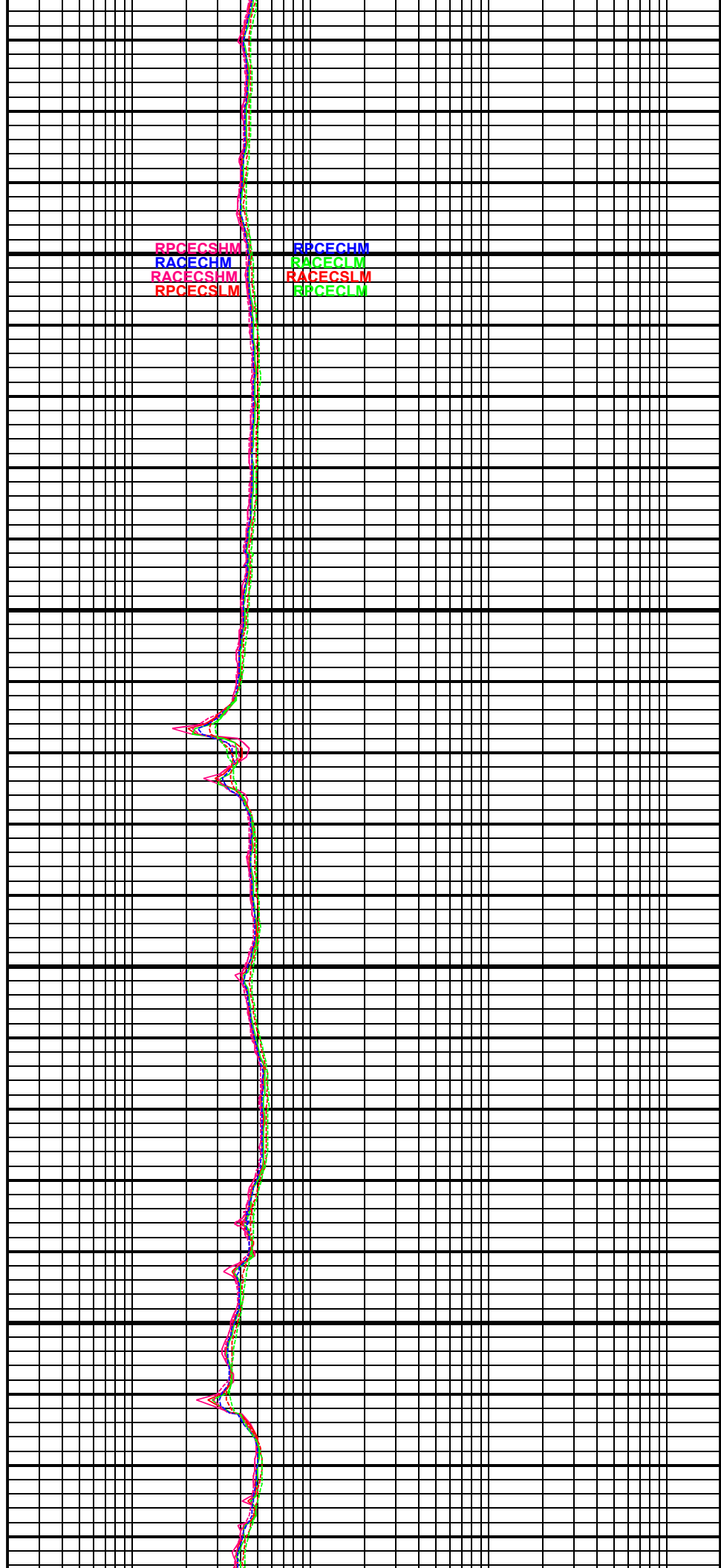
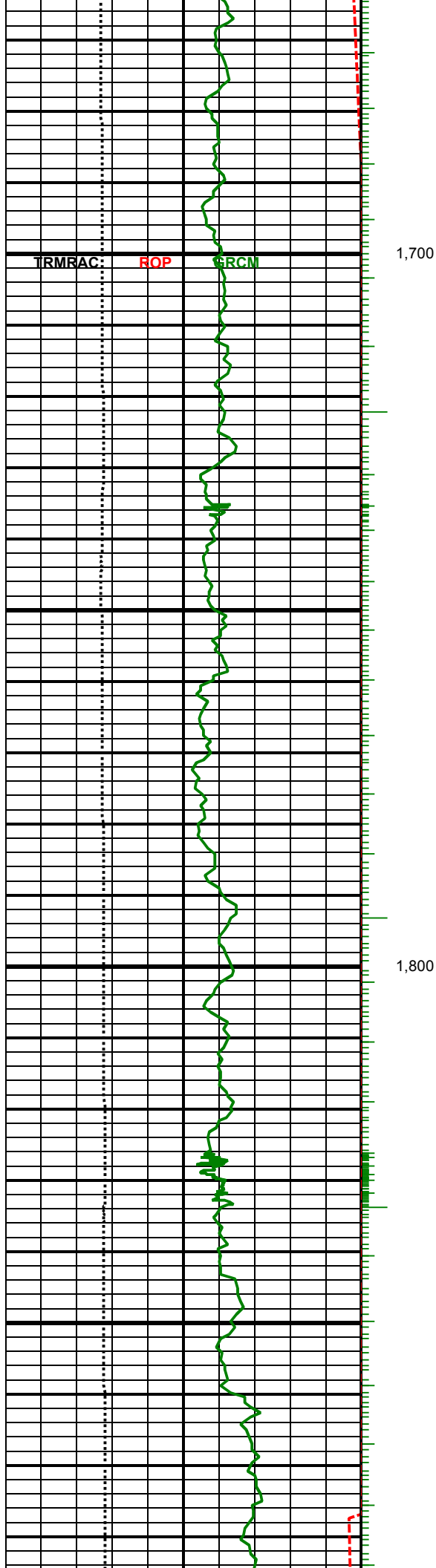
1,000



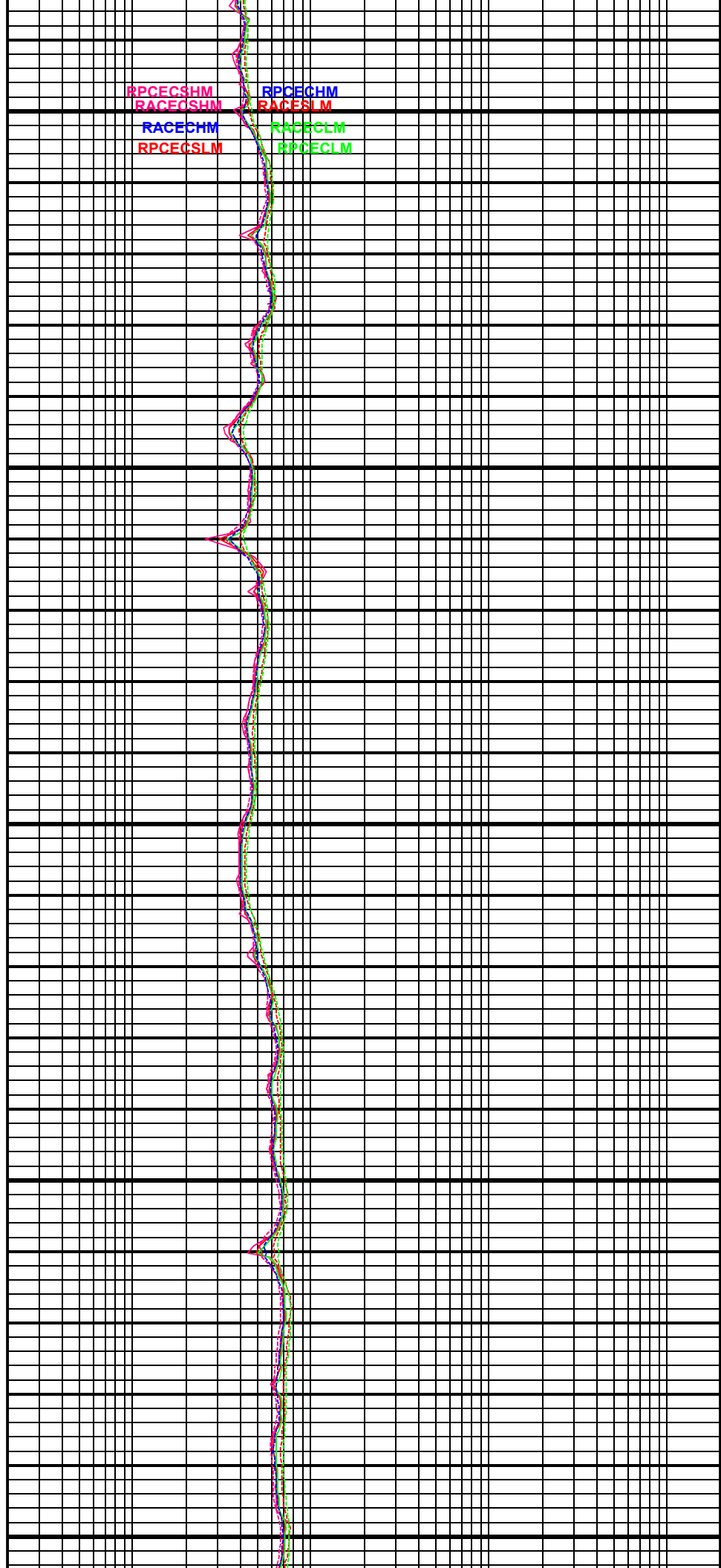
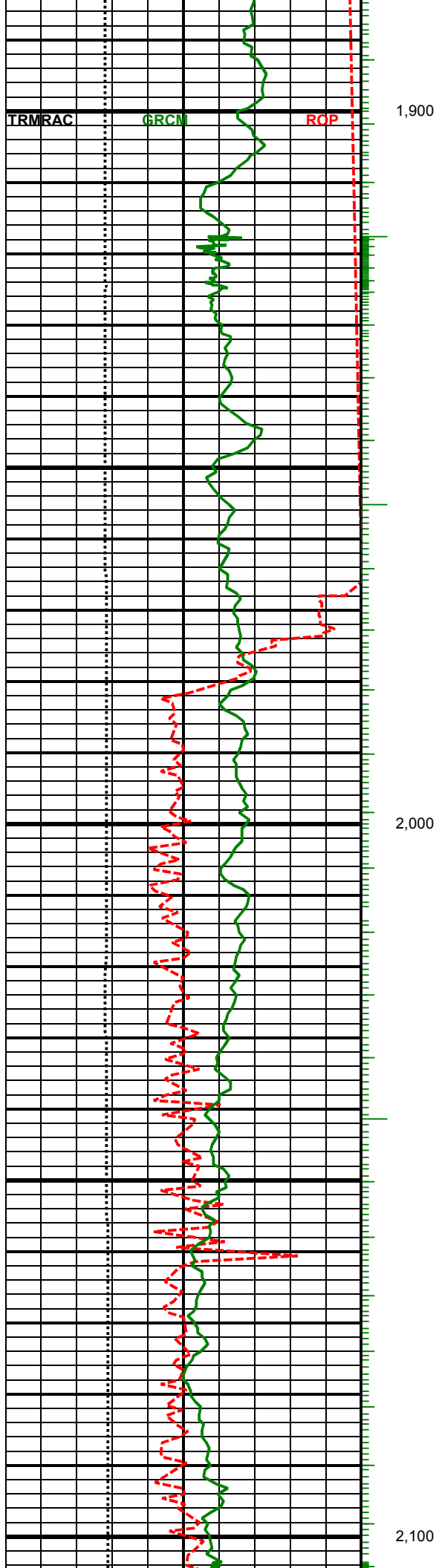


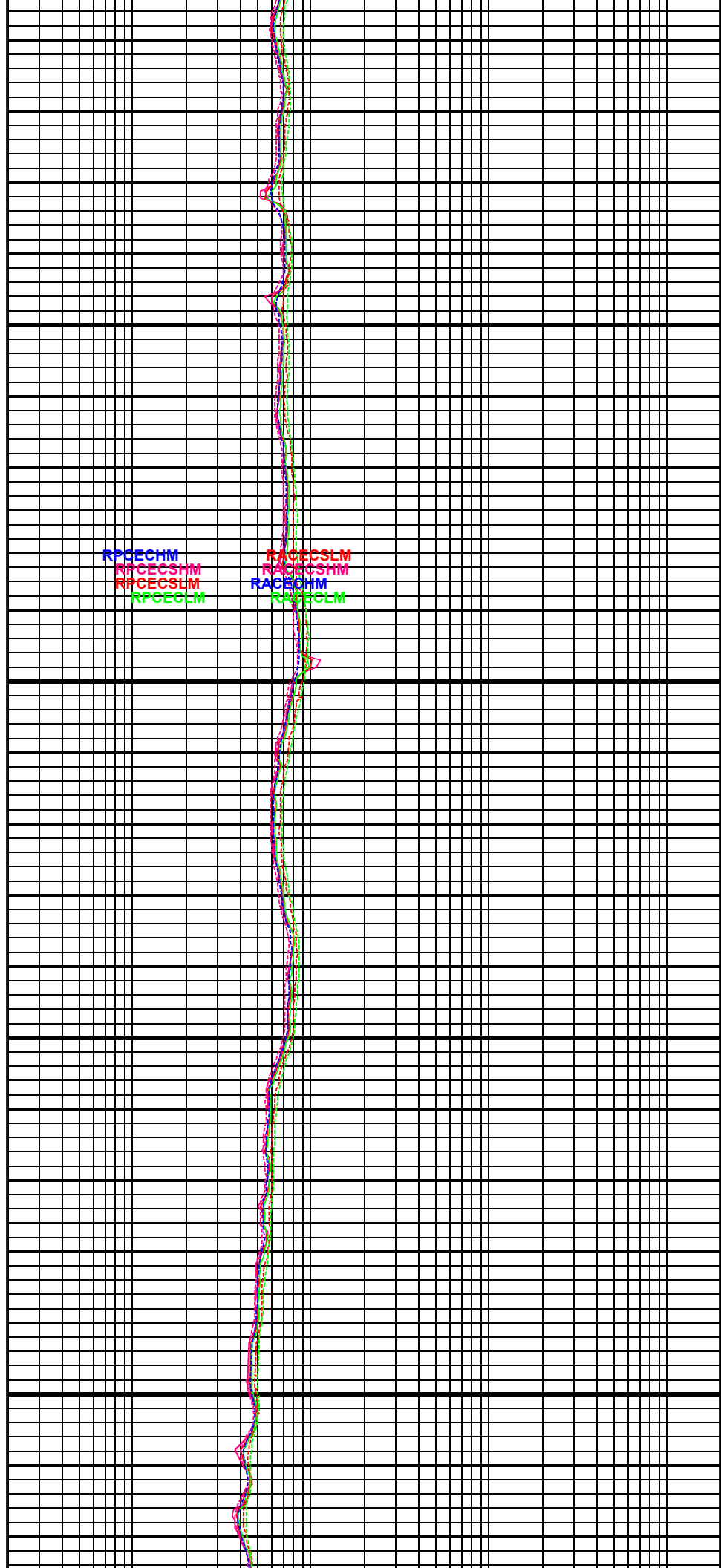
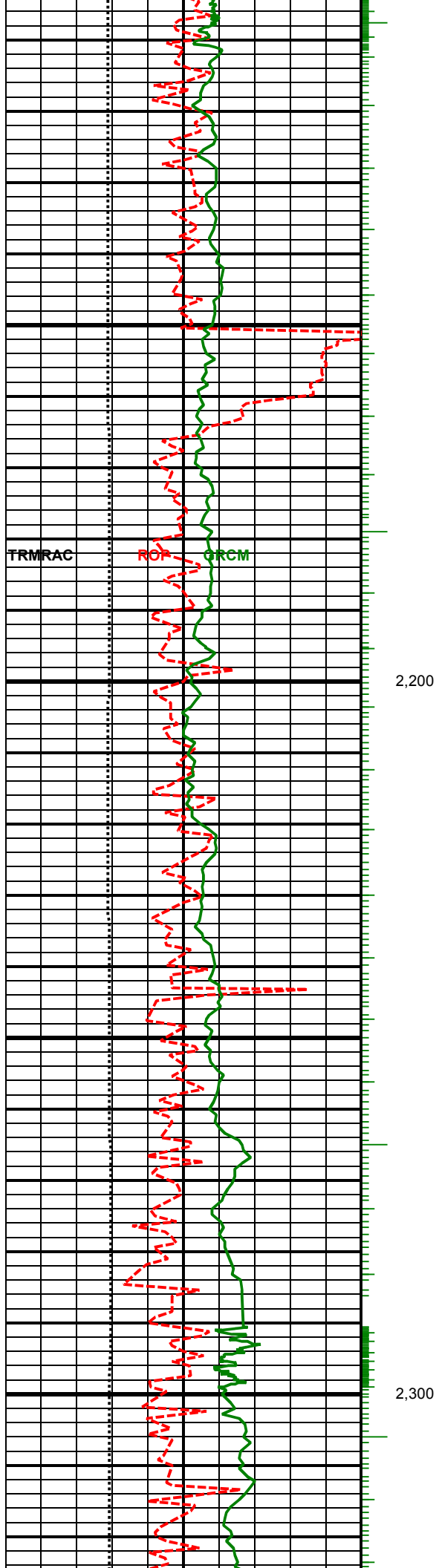


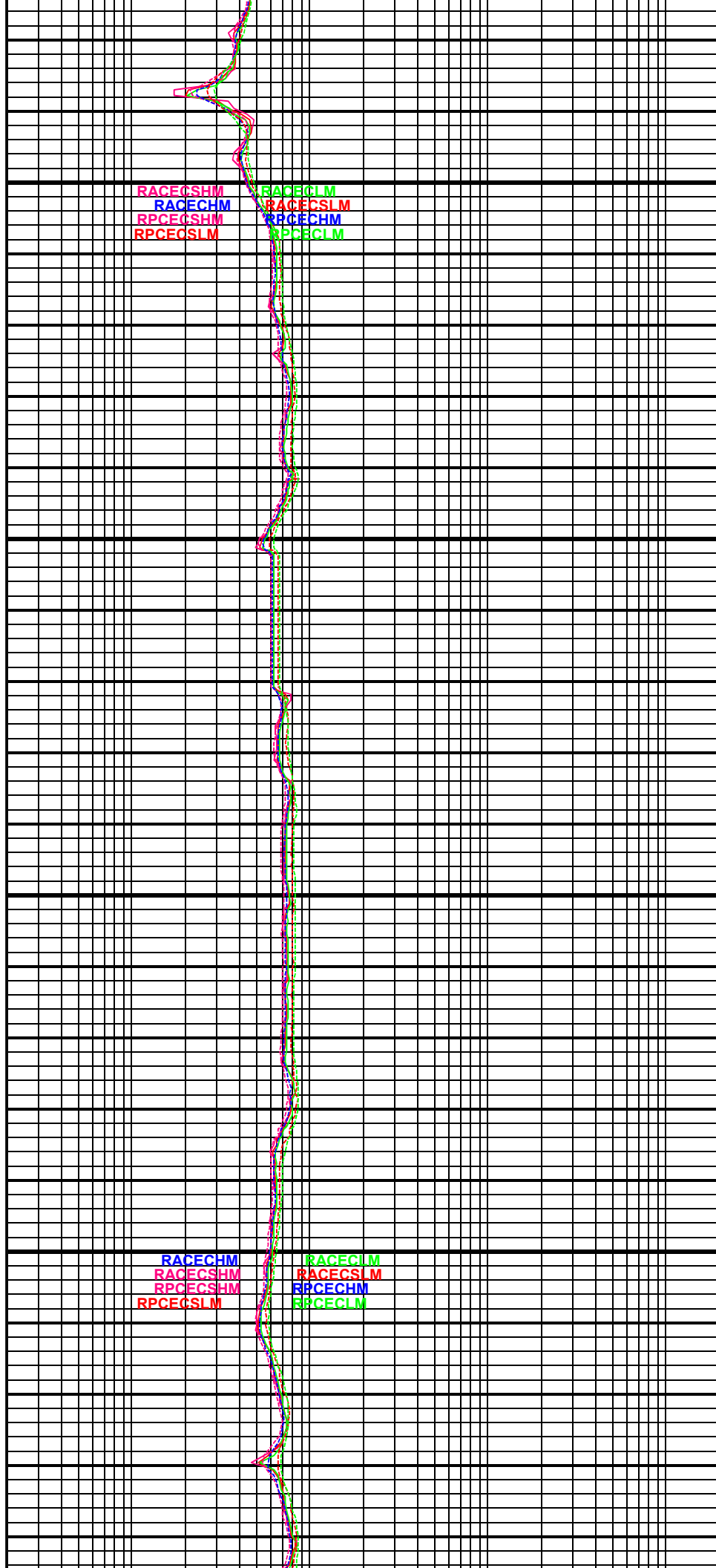
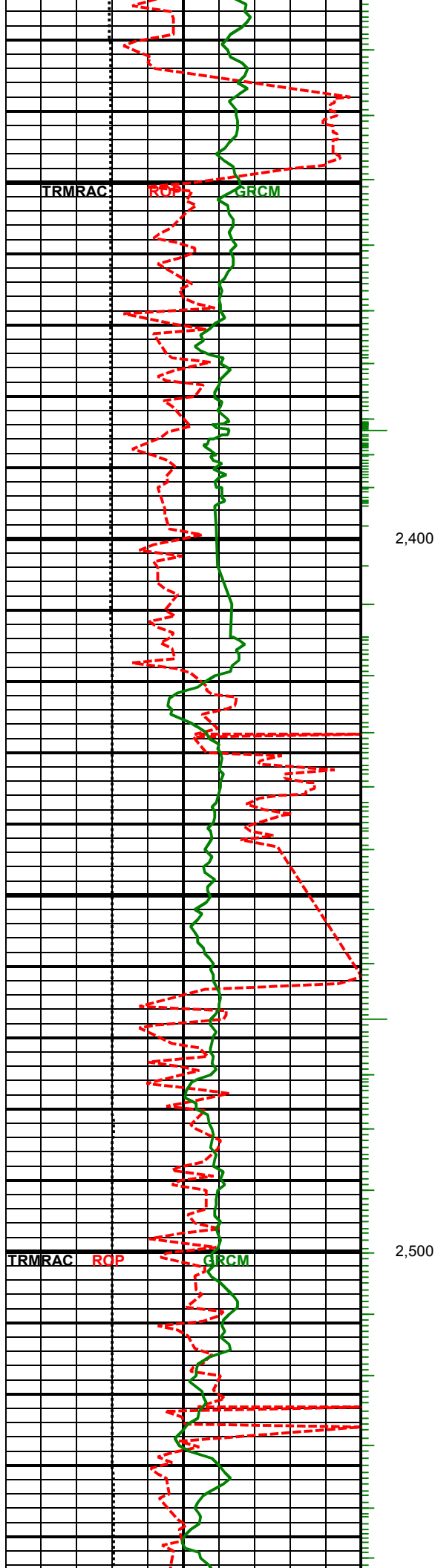


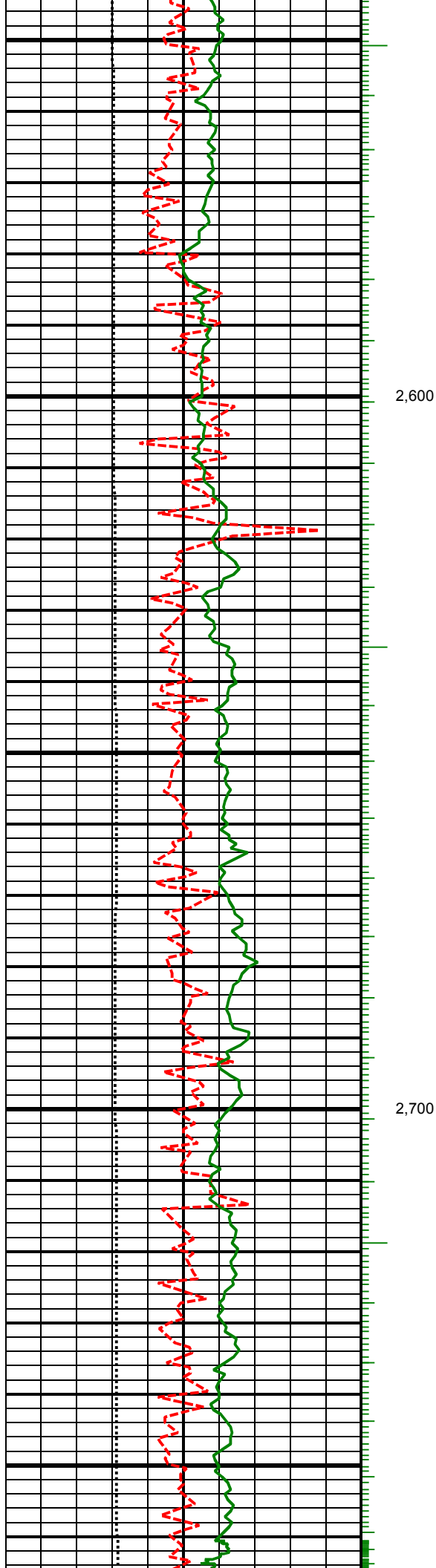




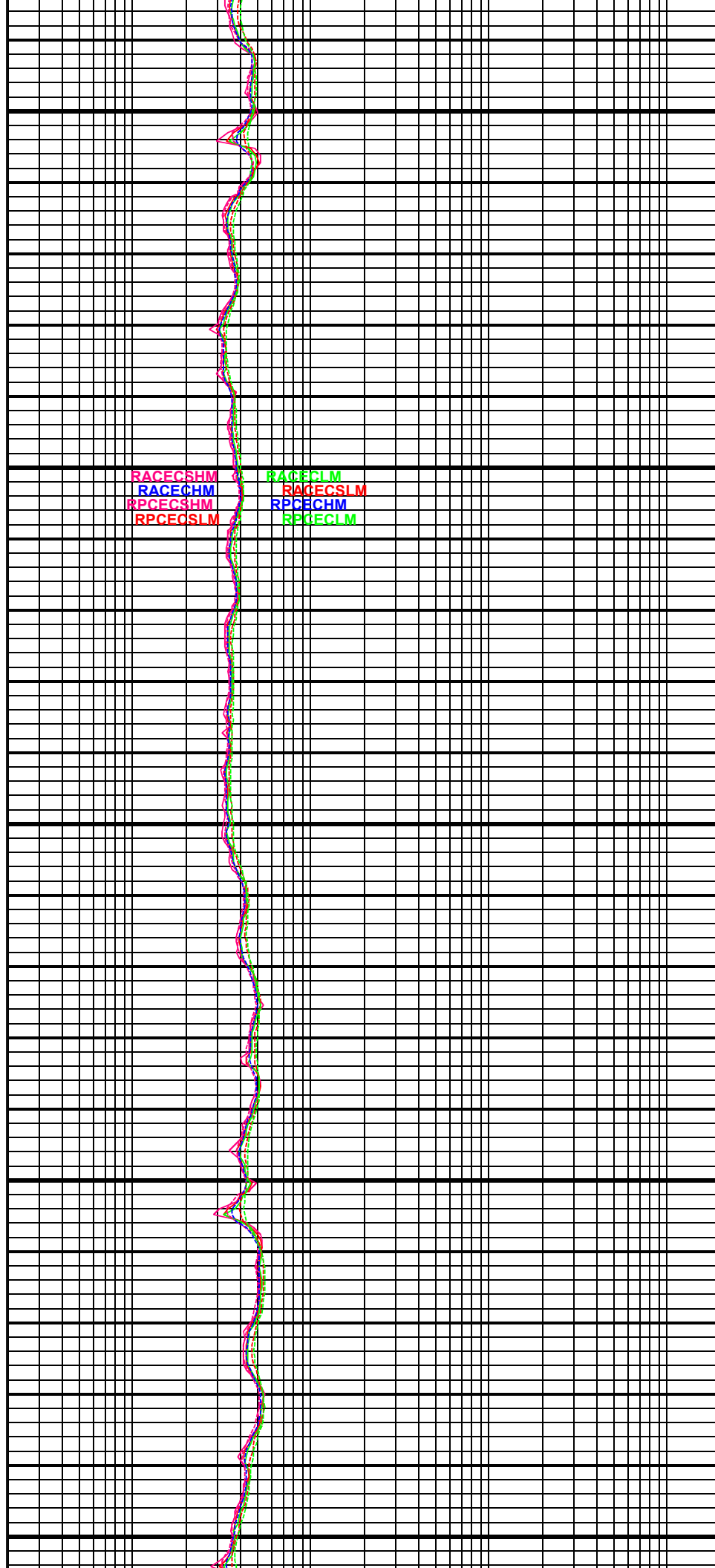
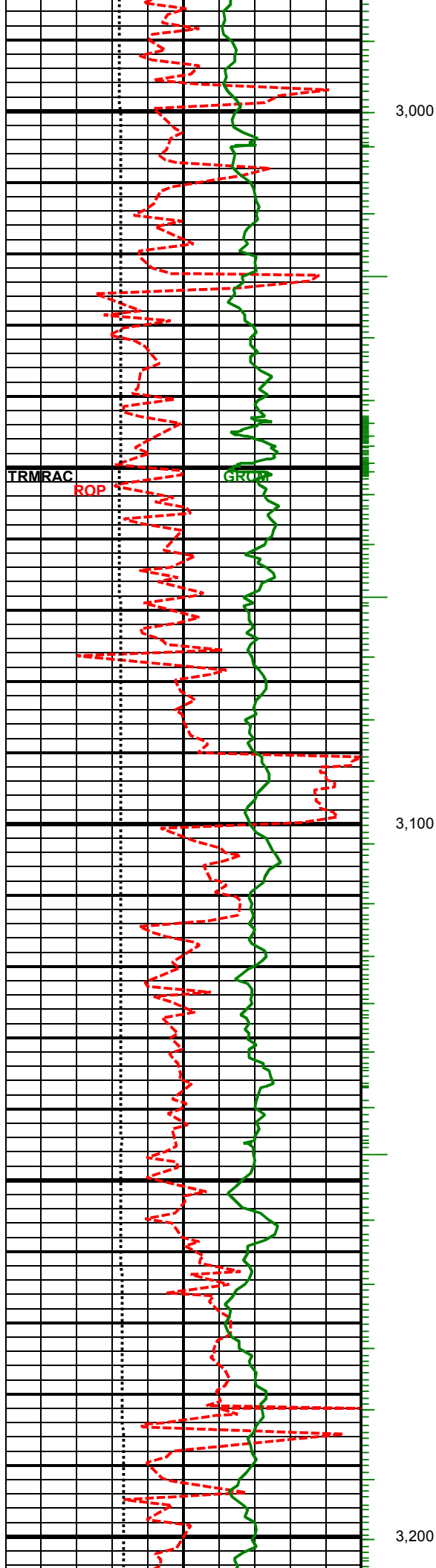


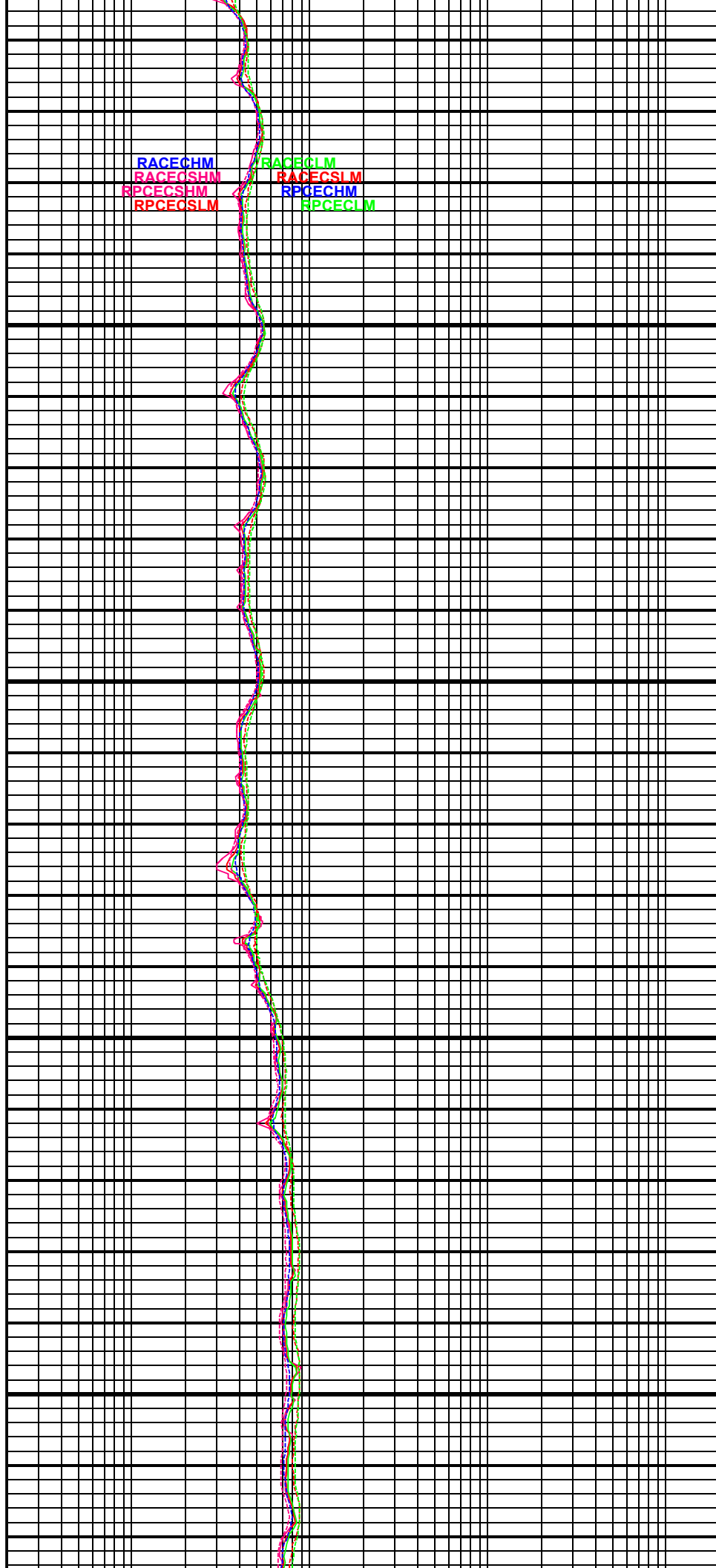
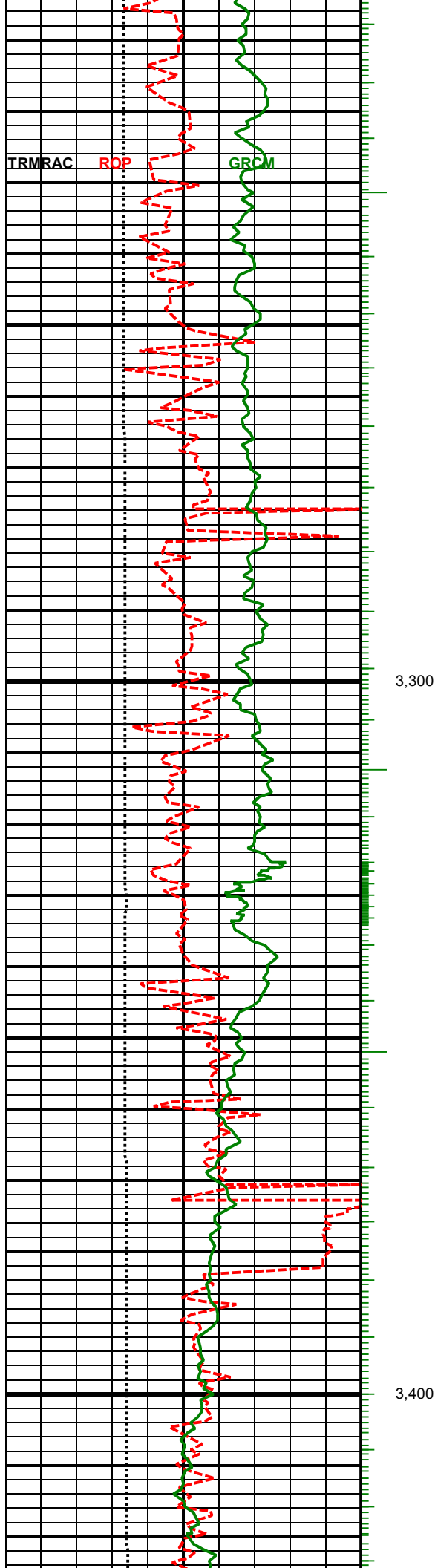


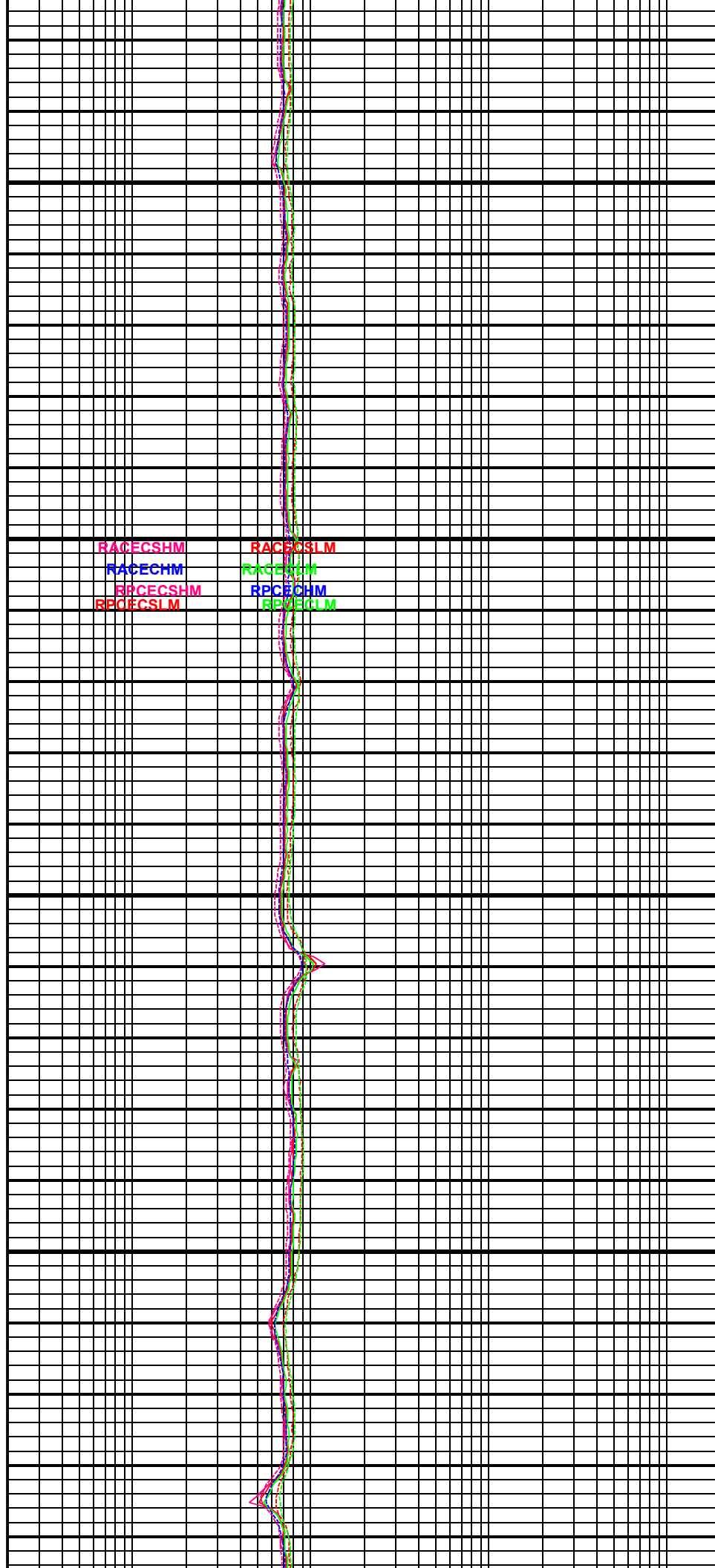
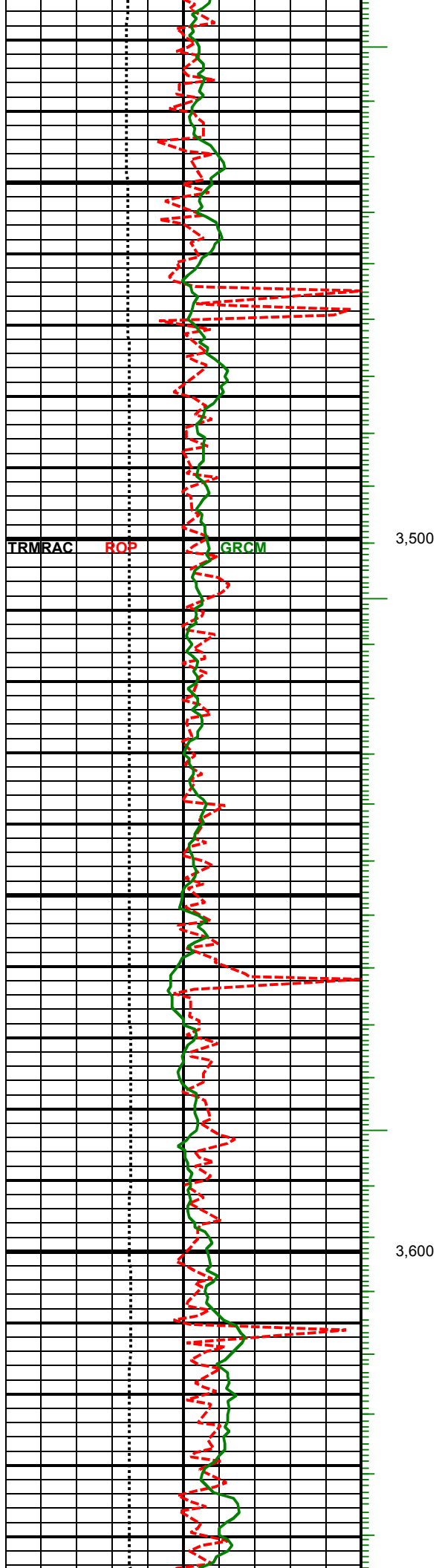




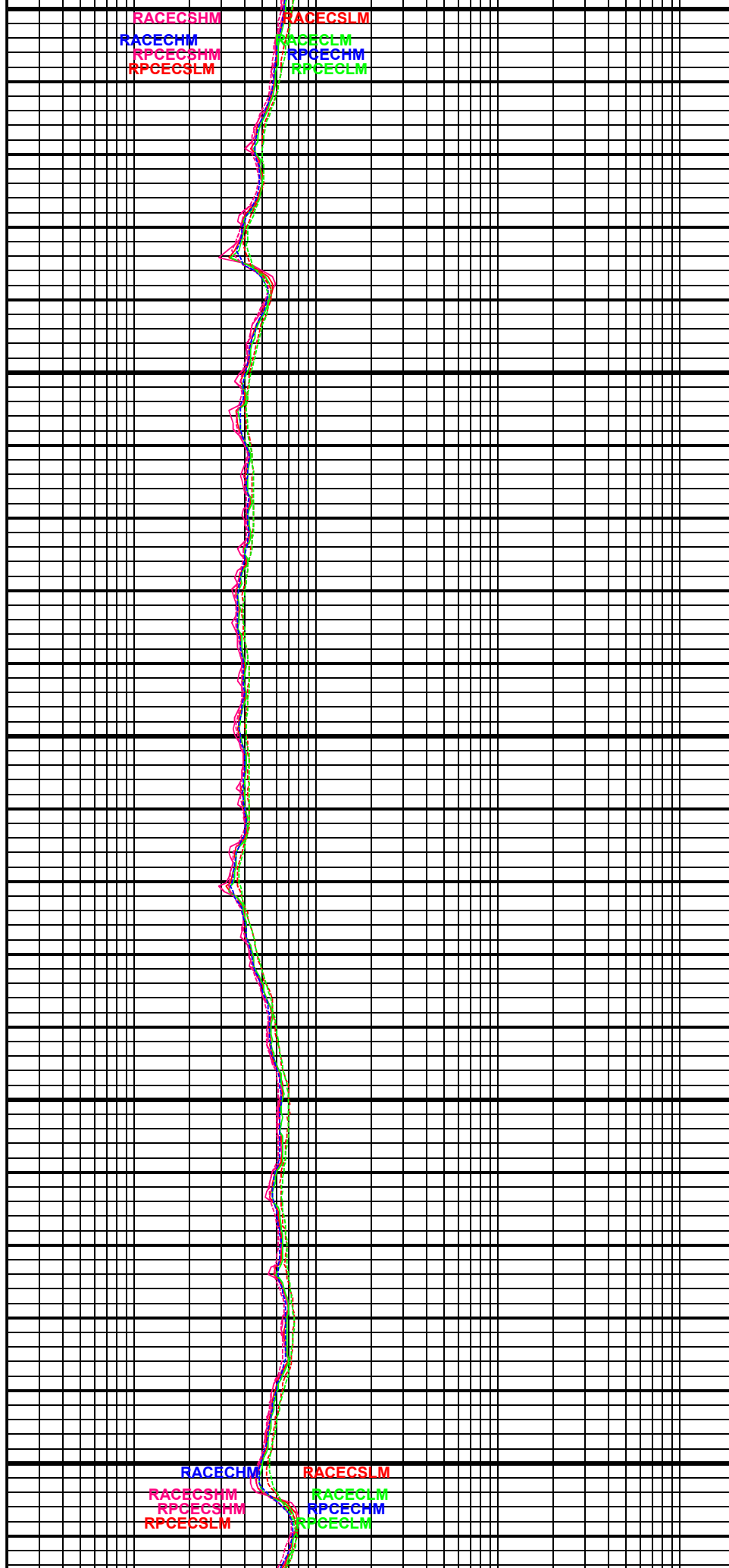
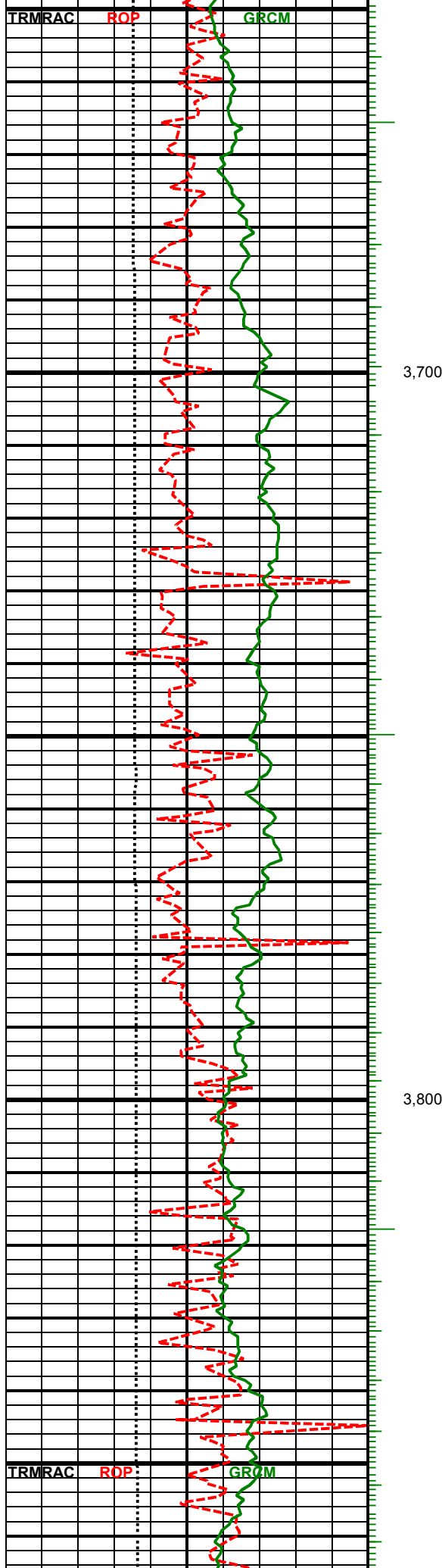


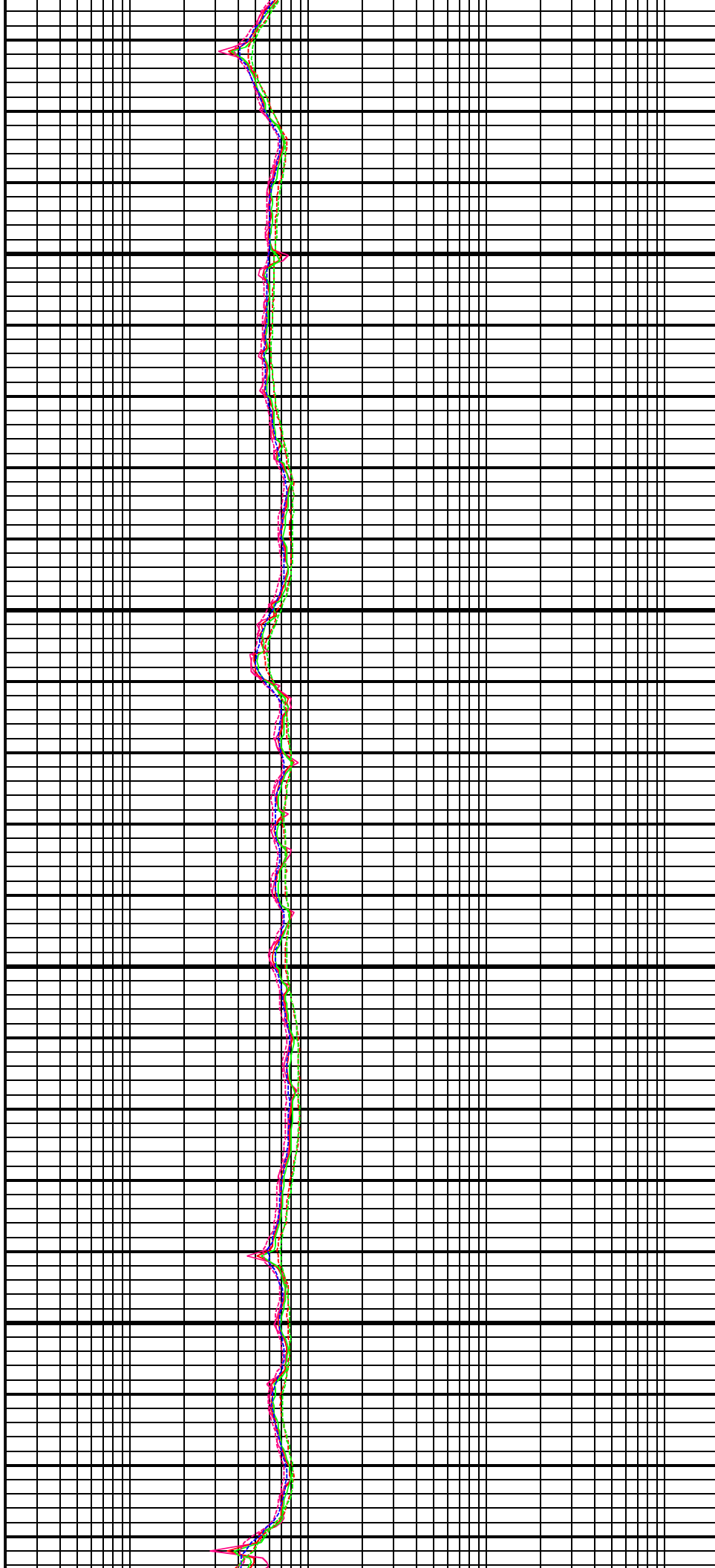
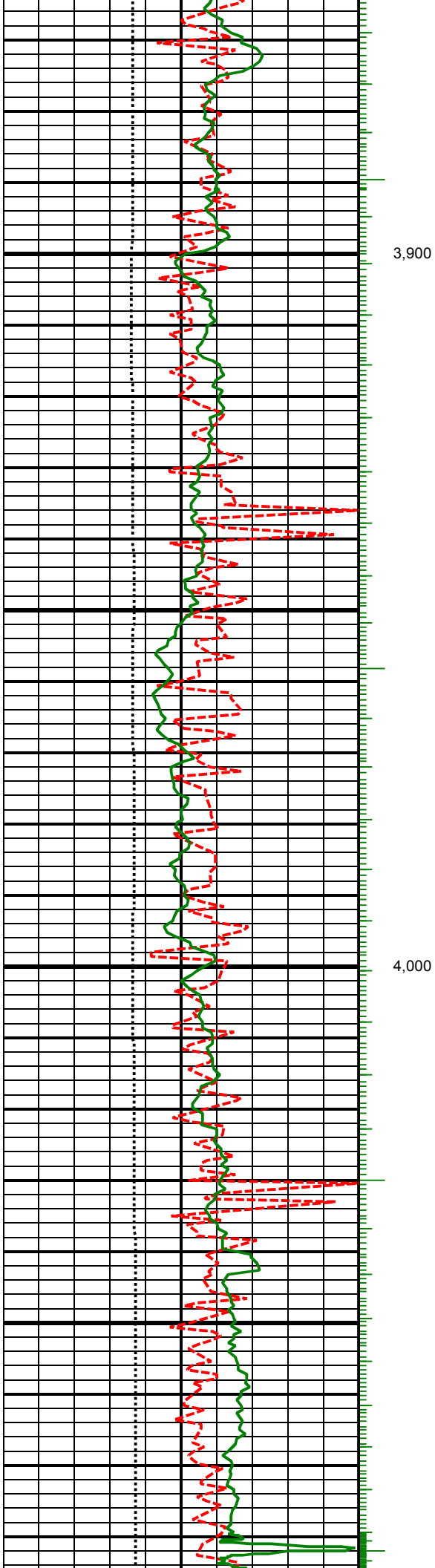


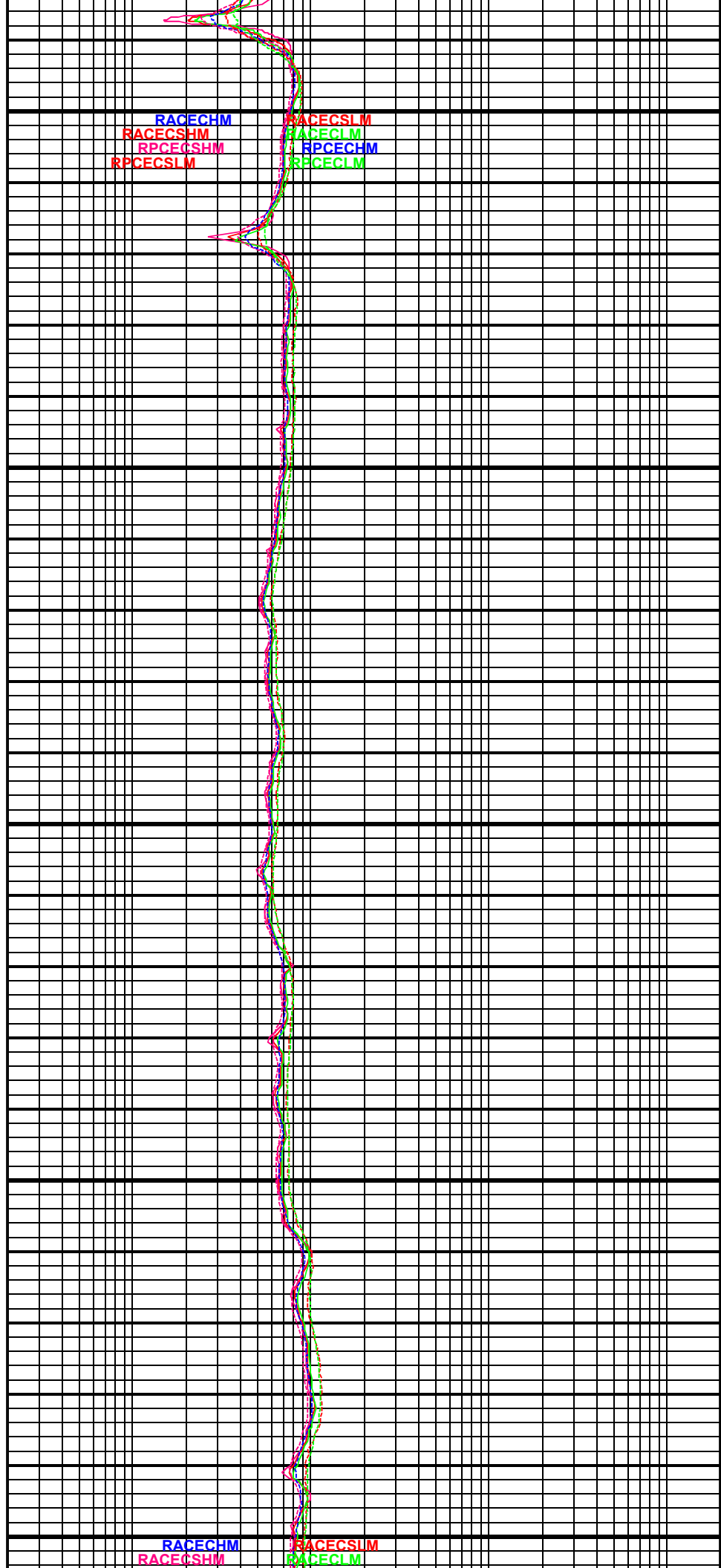
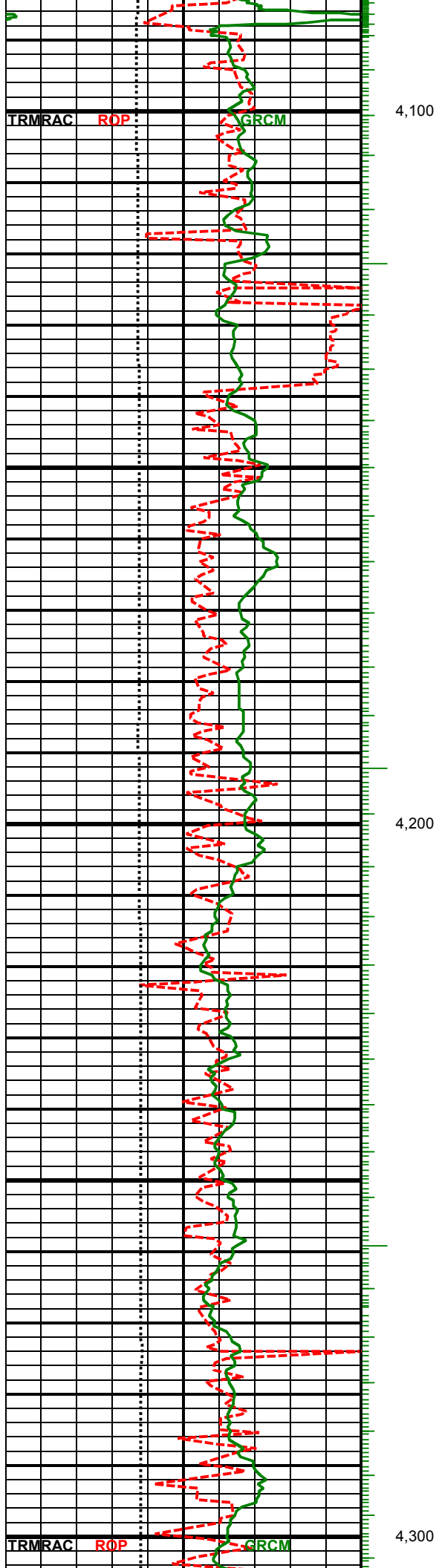


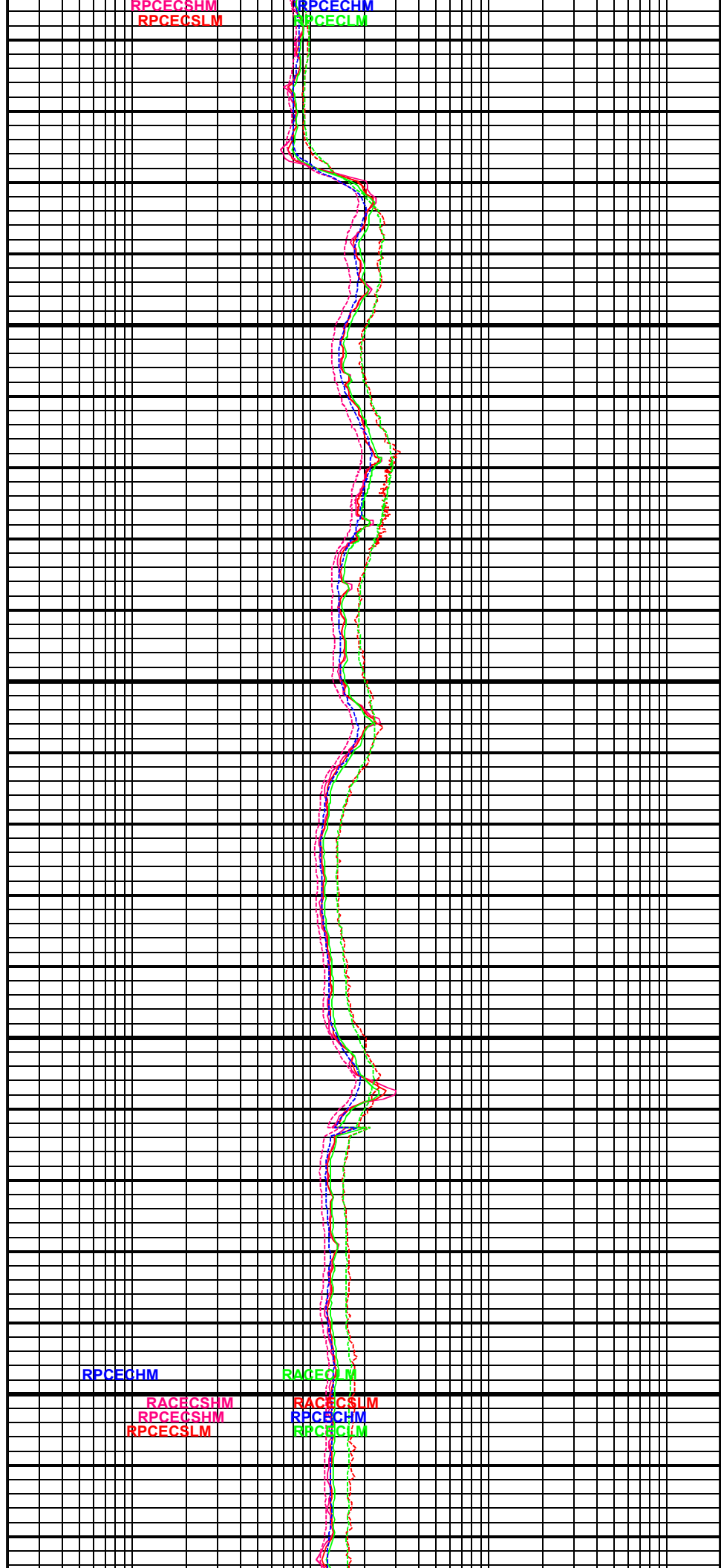
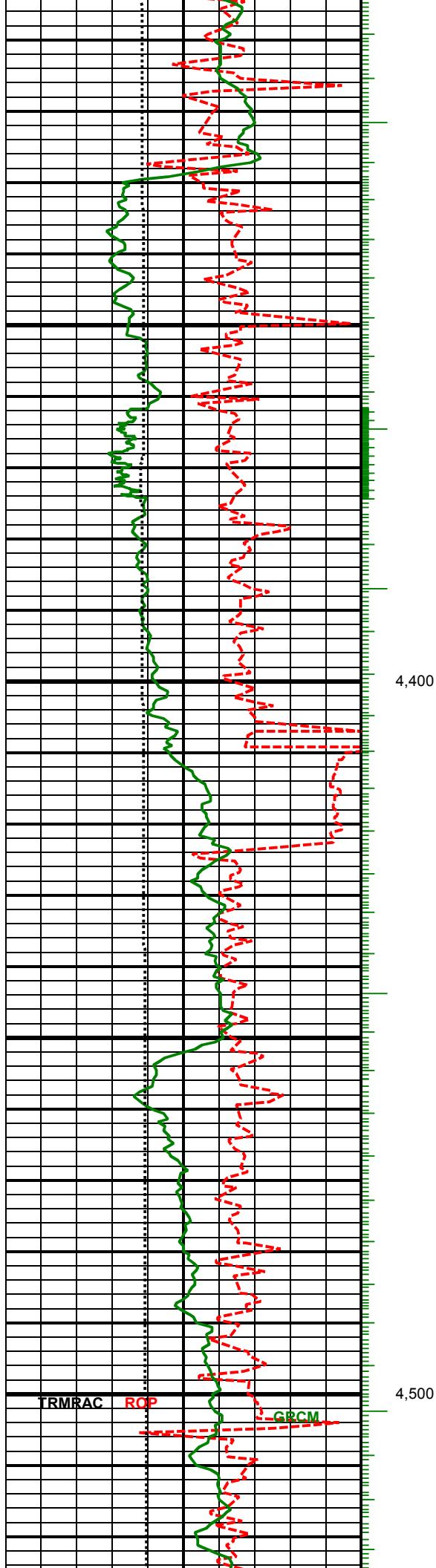


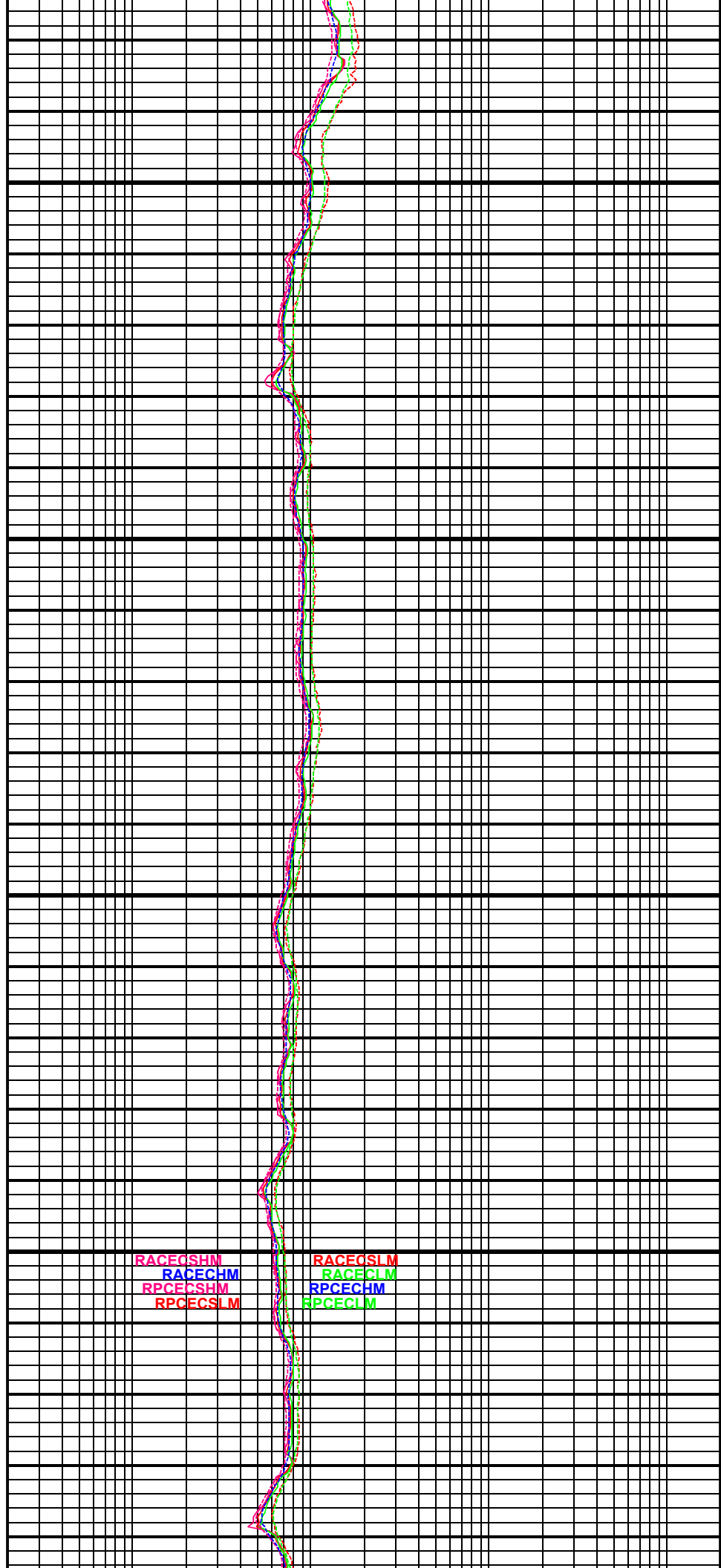
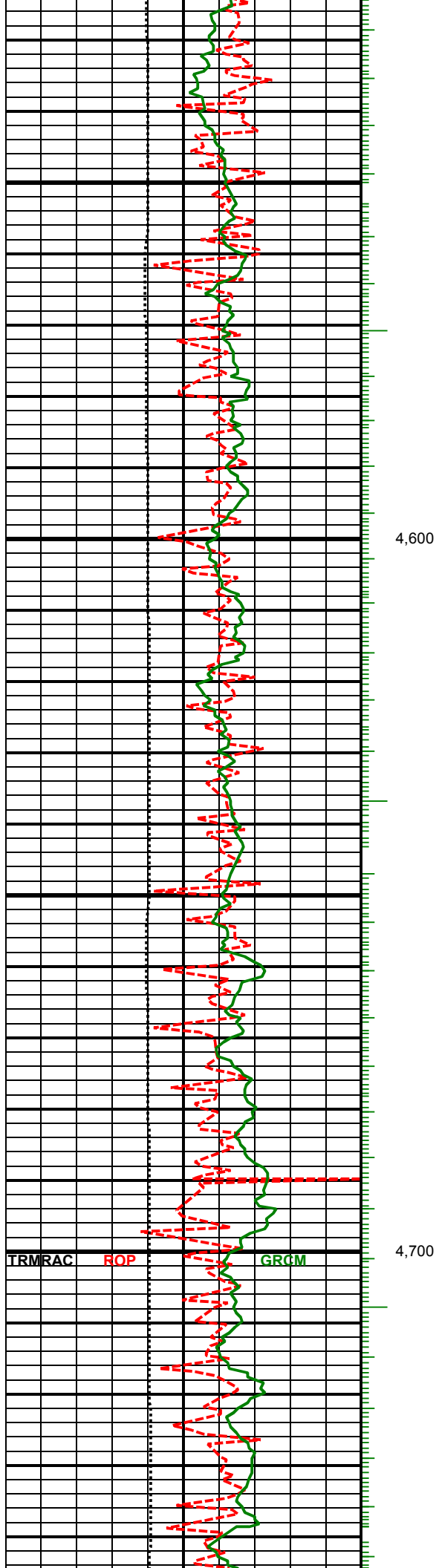


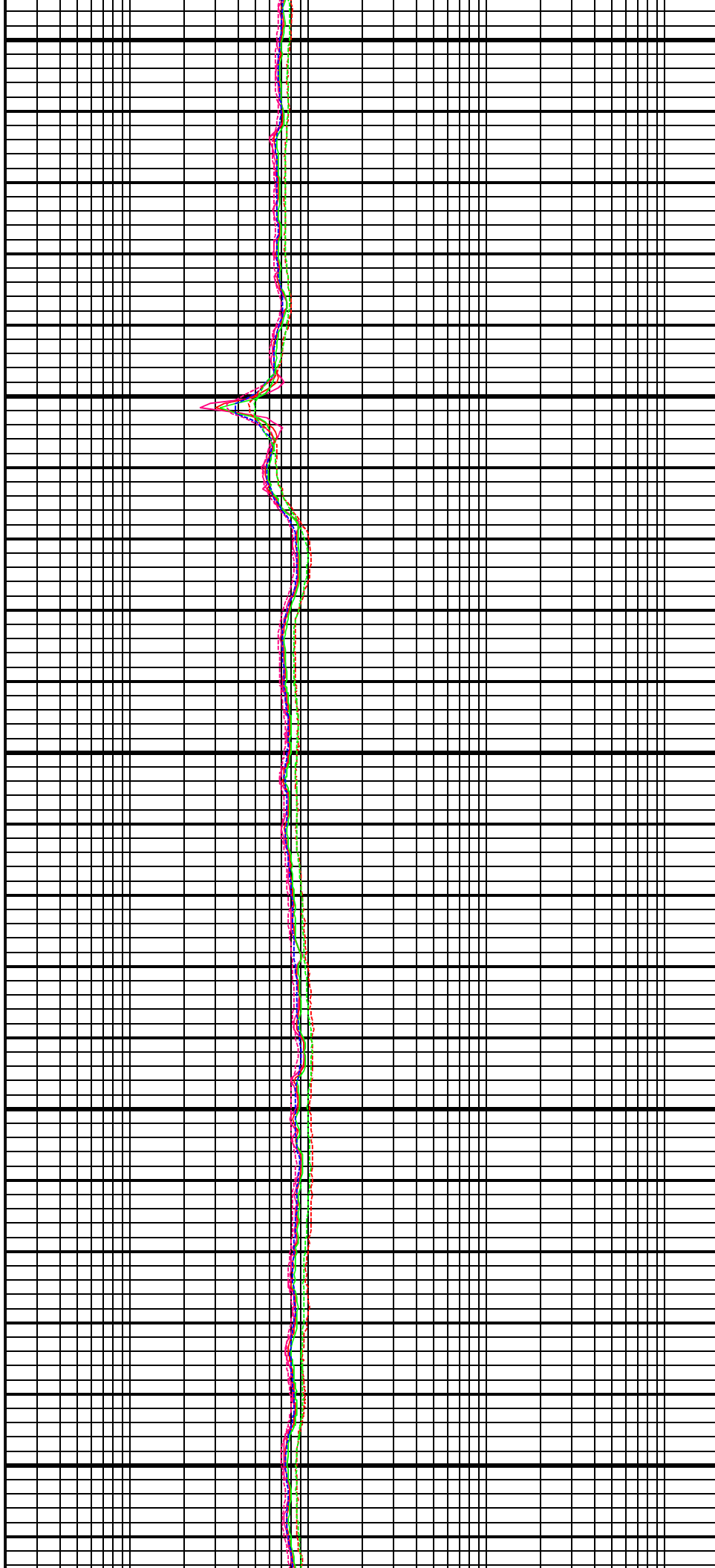
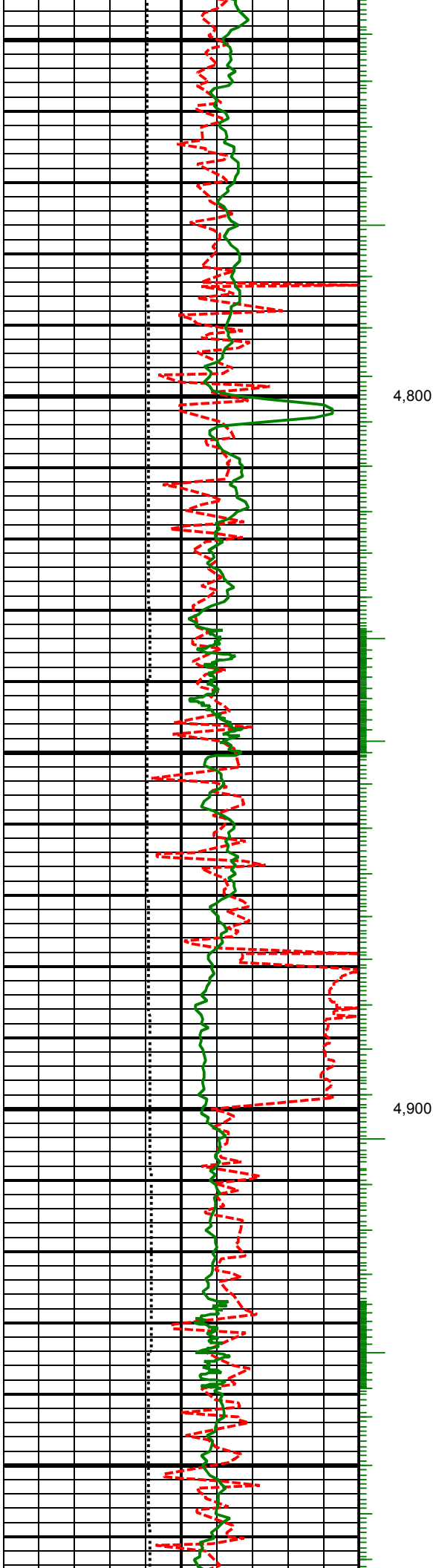


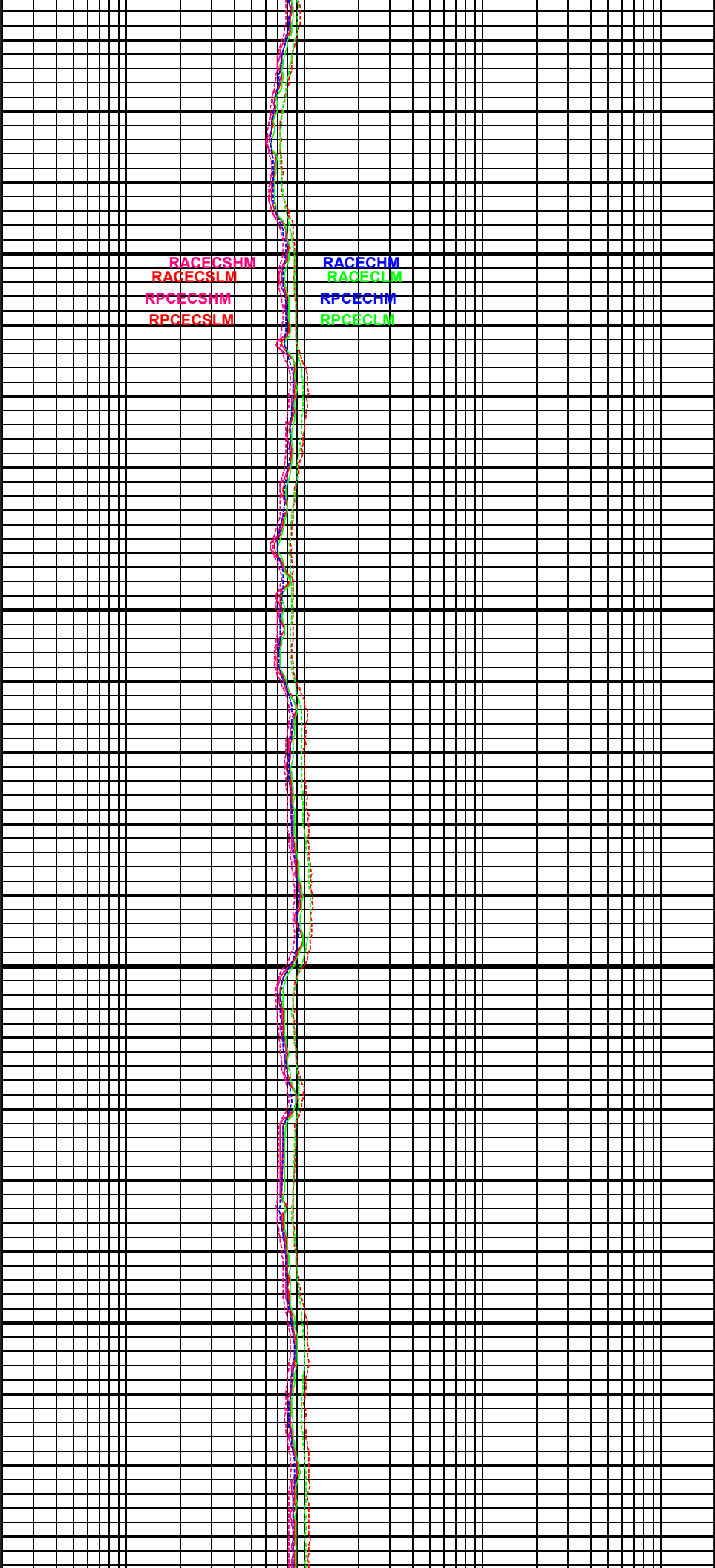
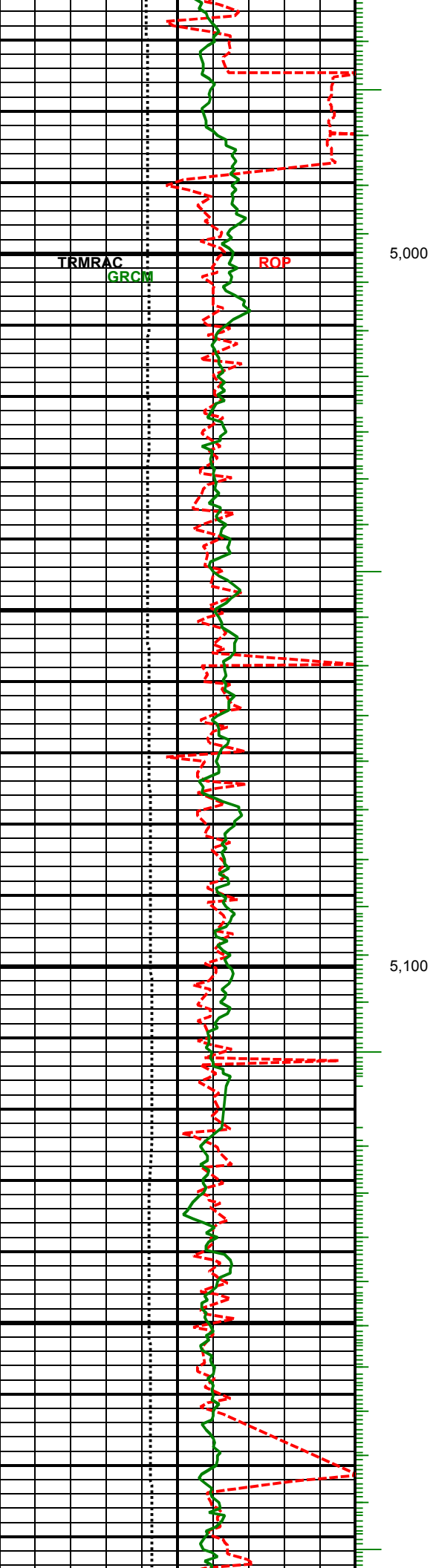


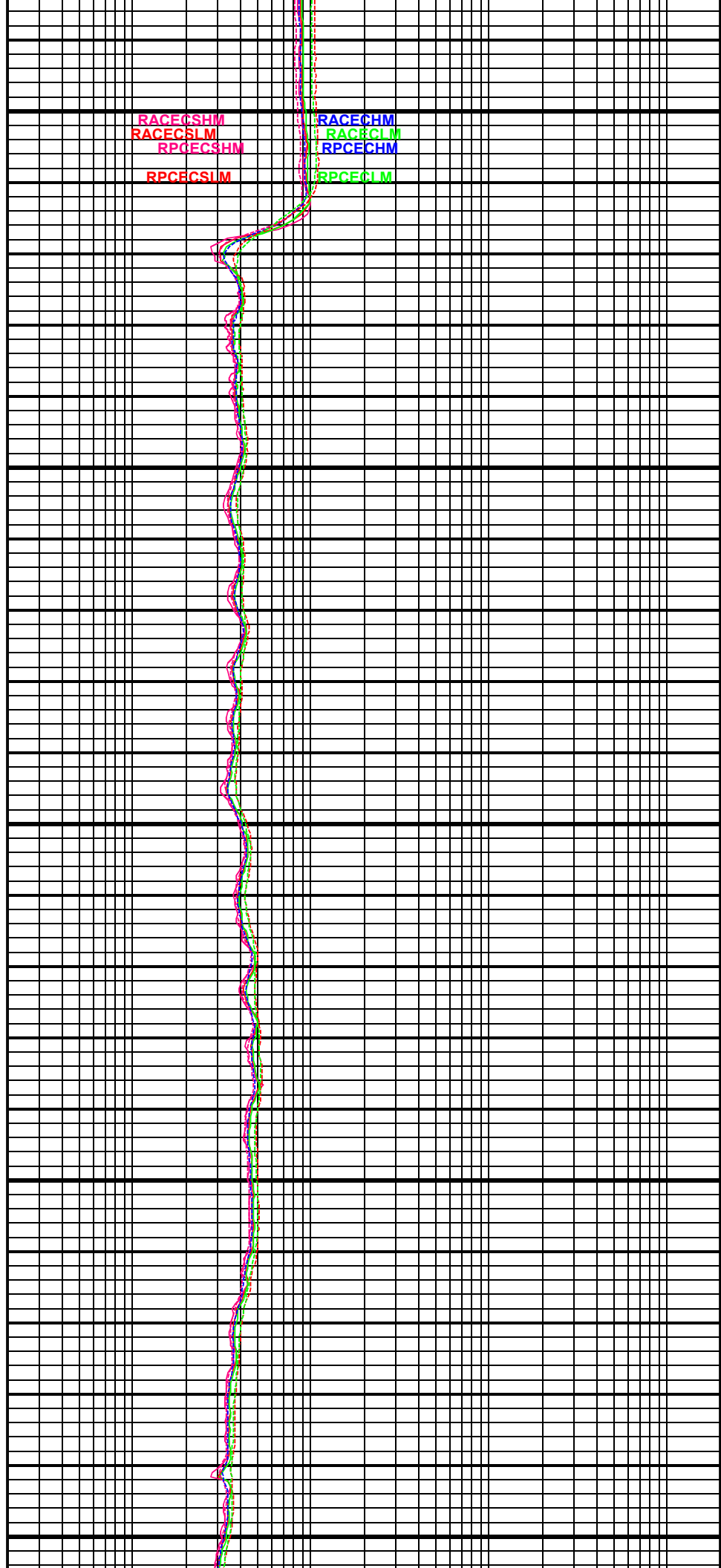
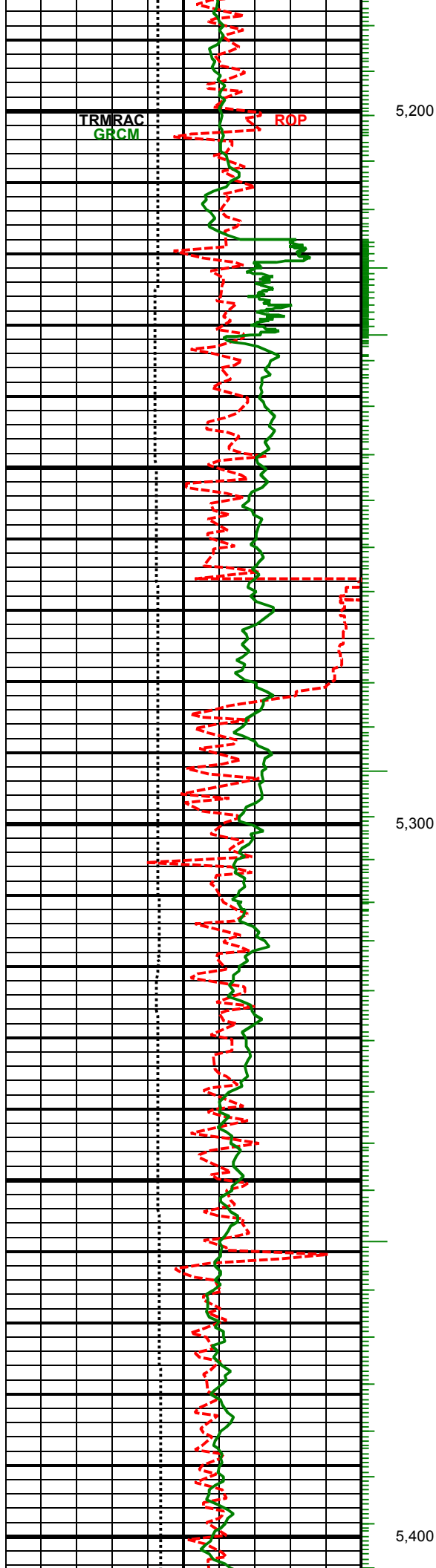




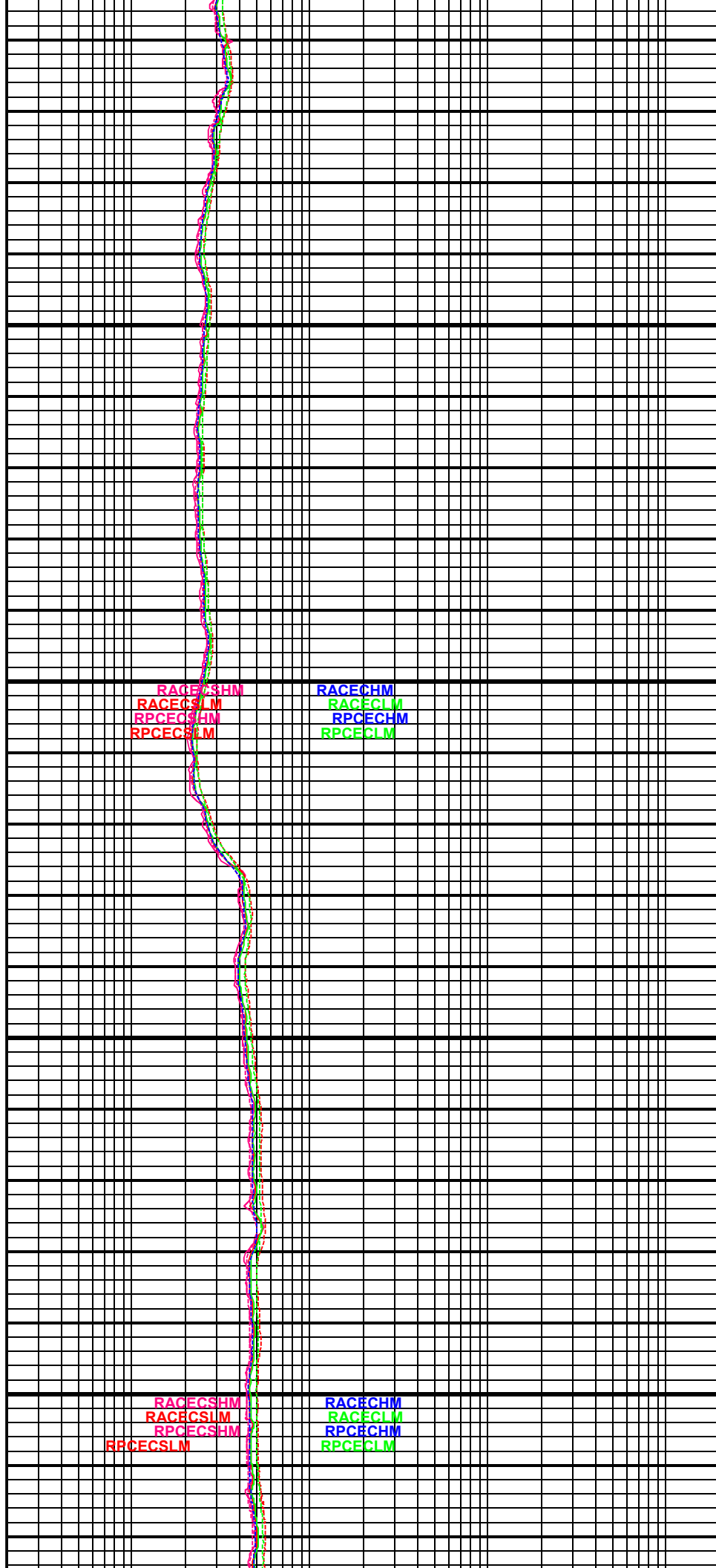
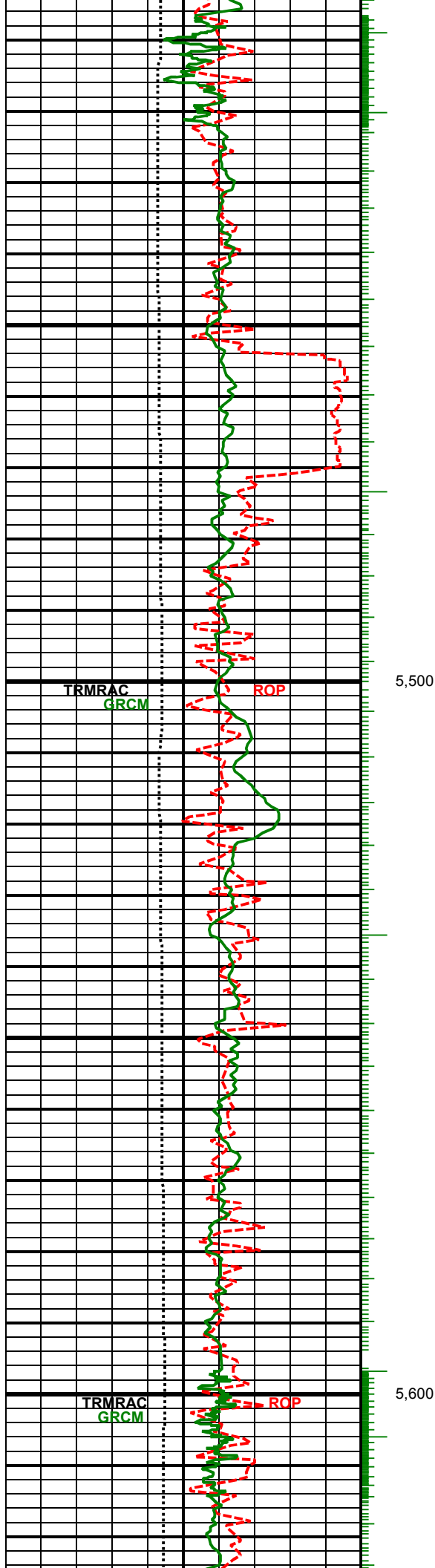


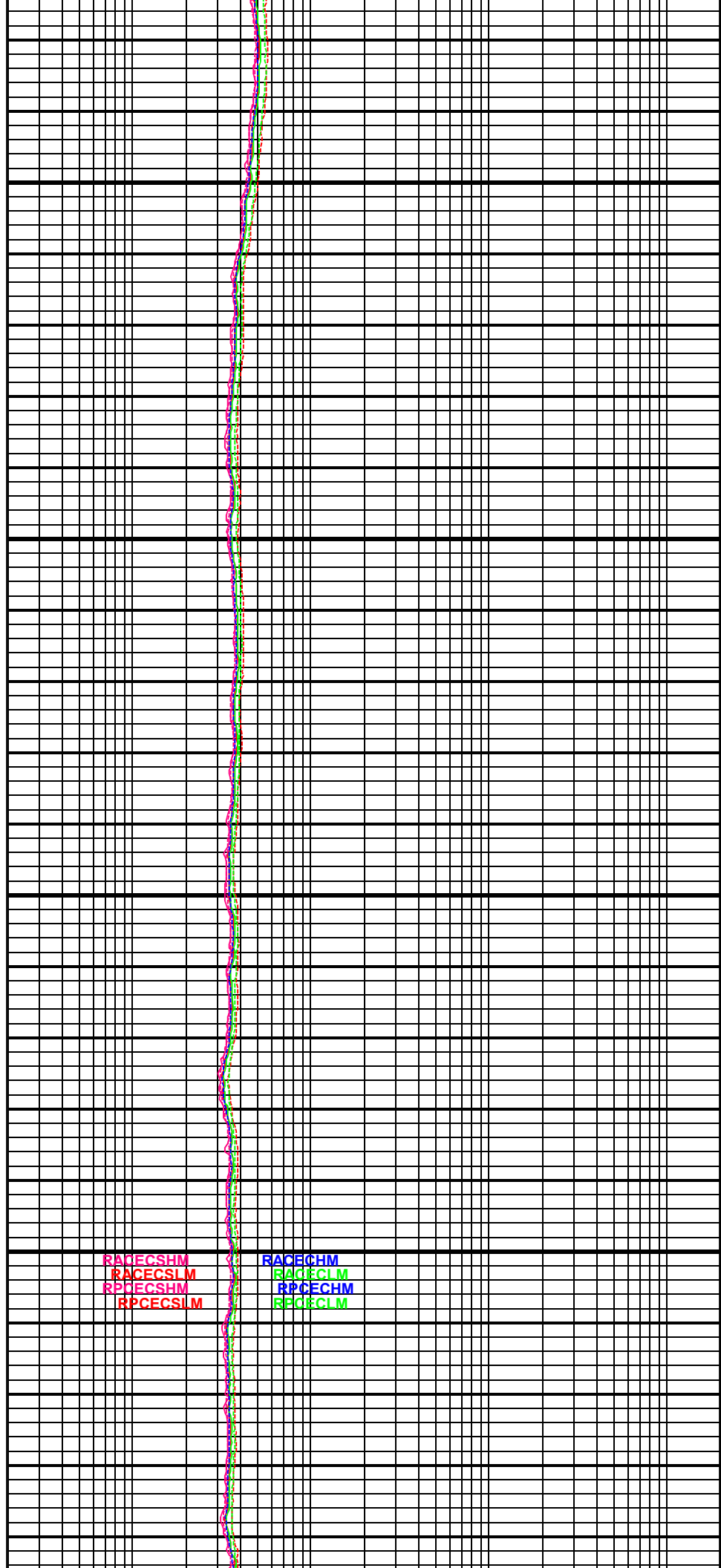
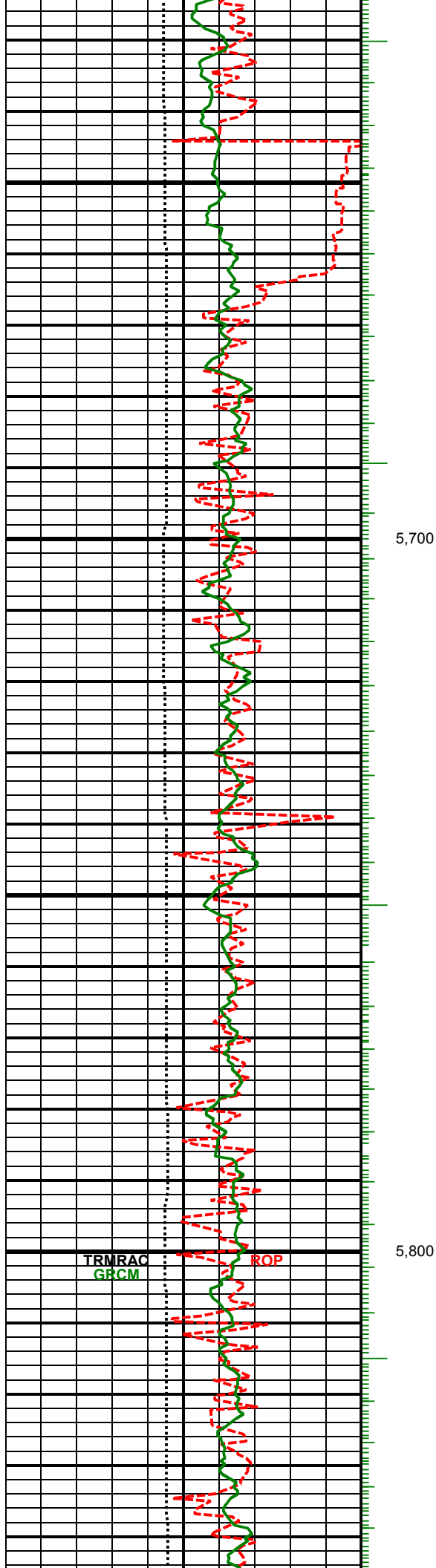


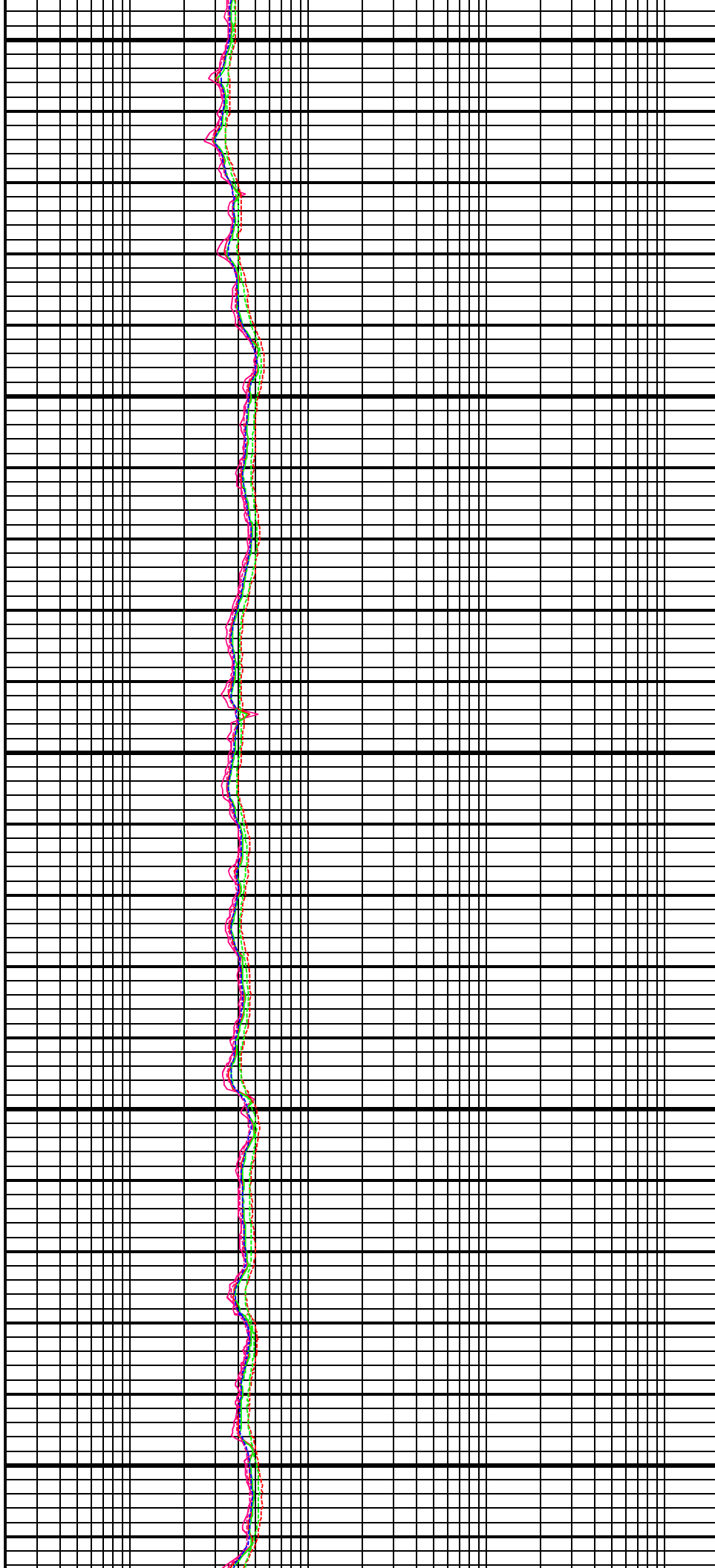
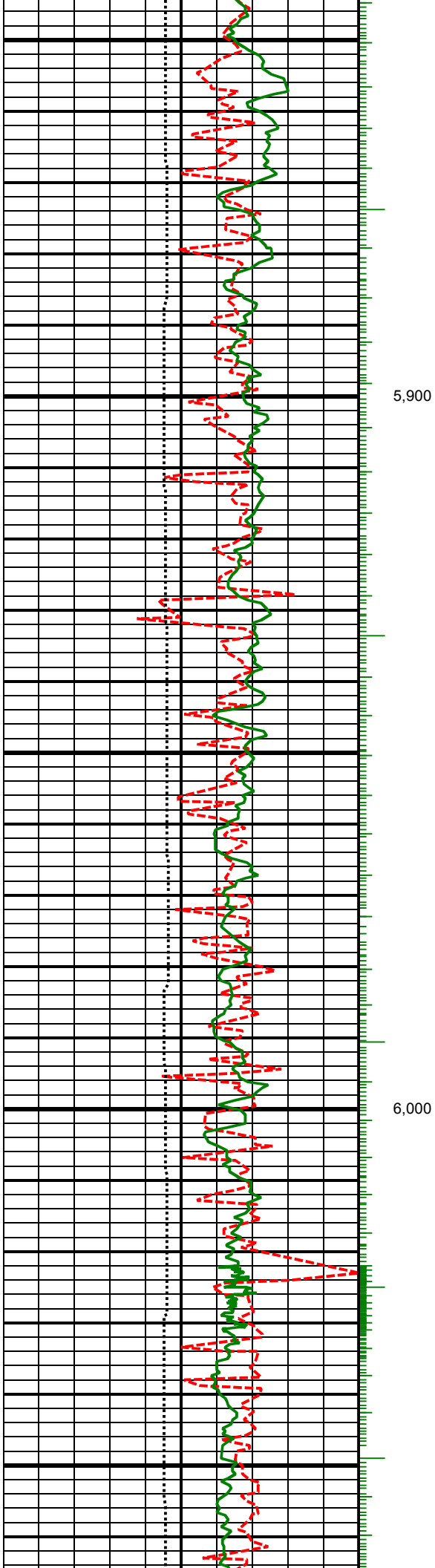


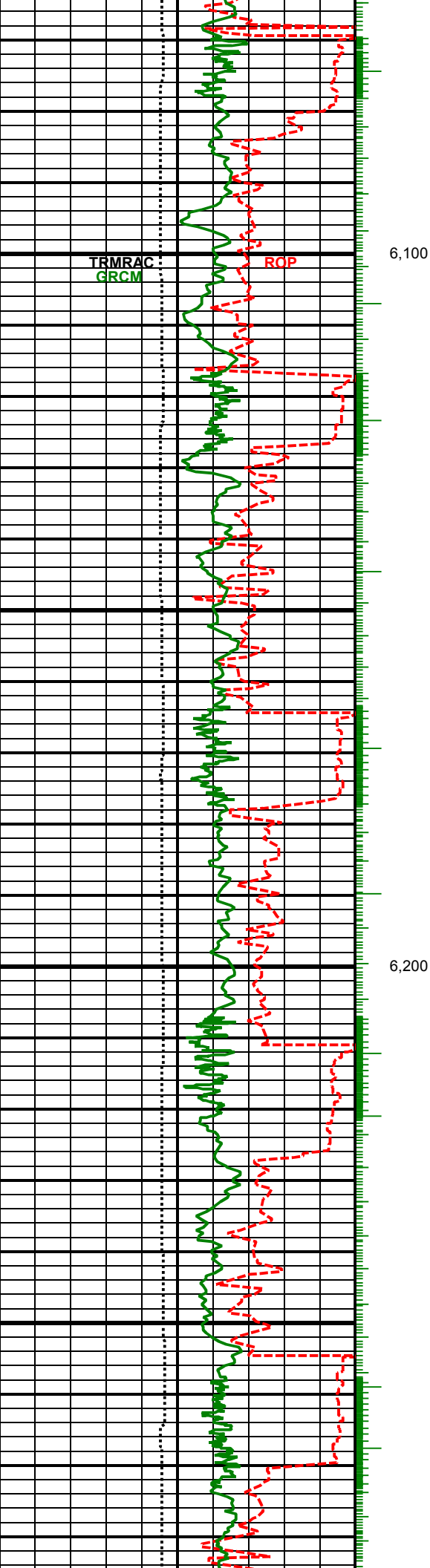


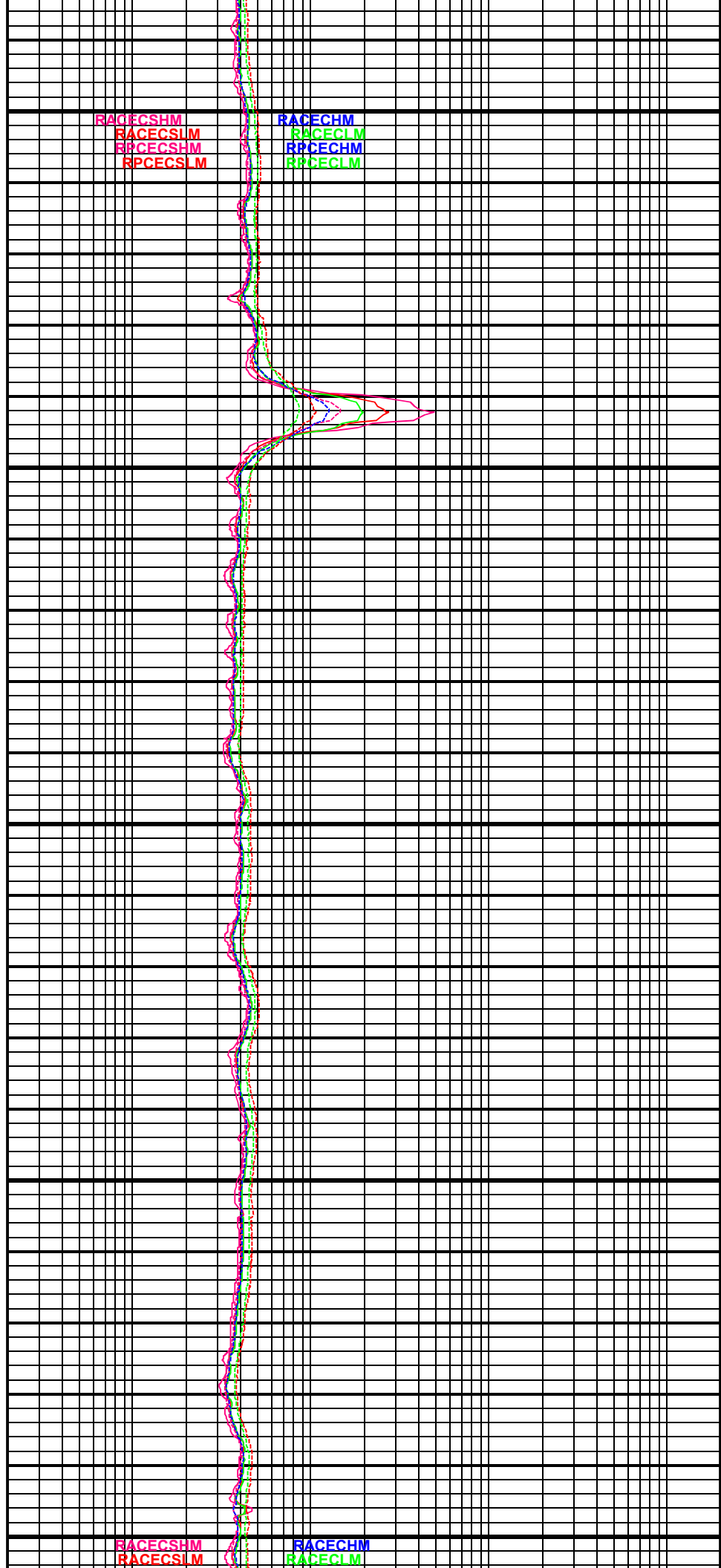
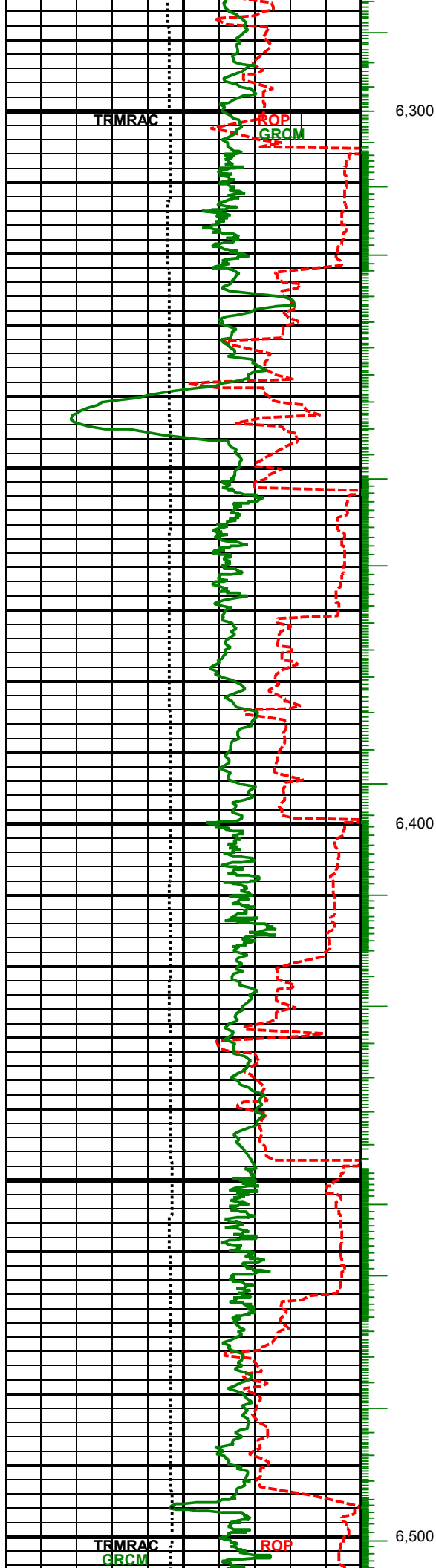


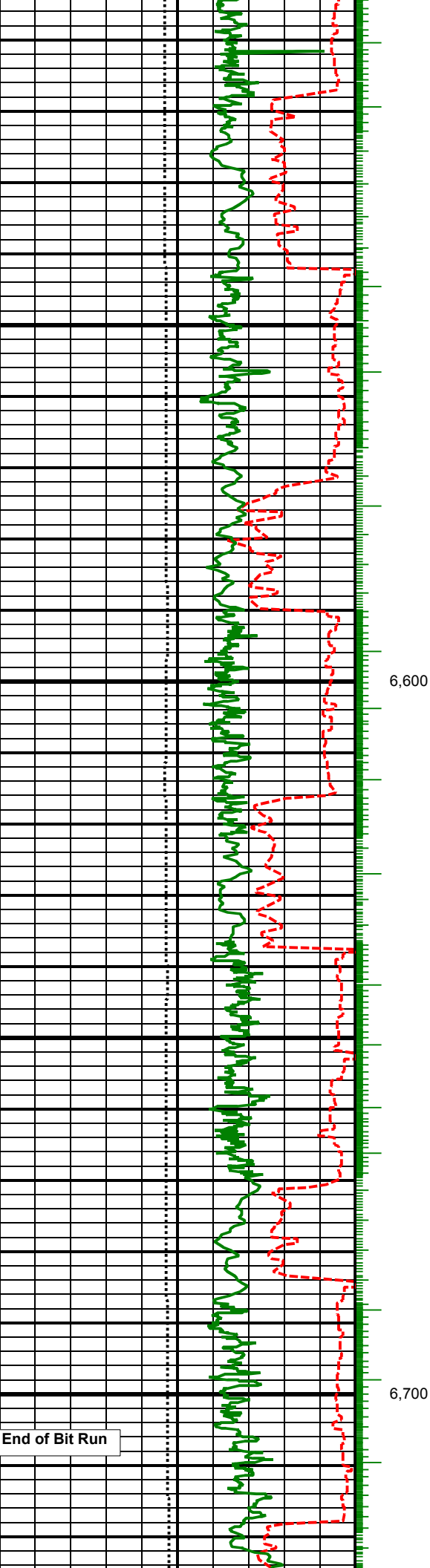












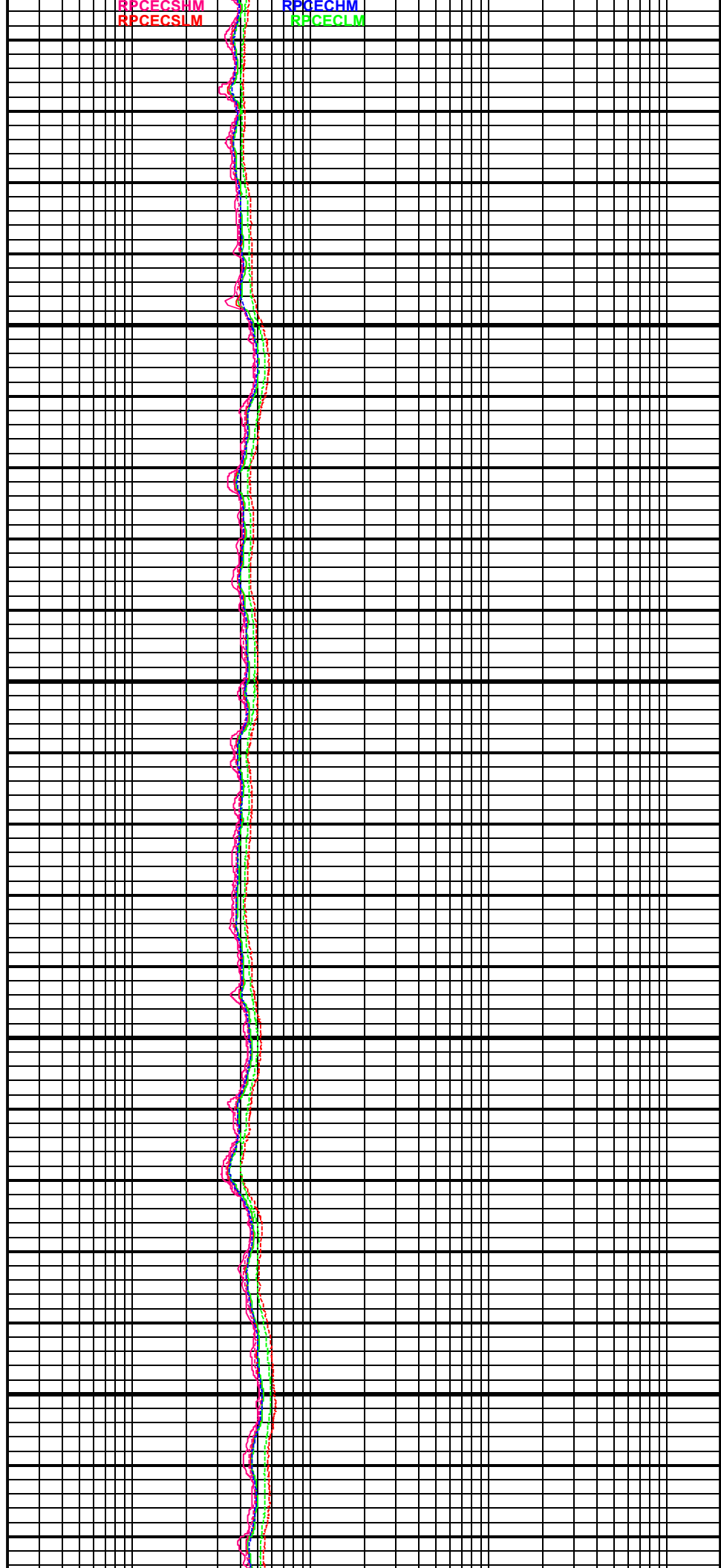
6,600

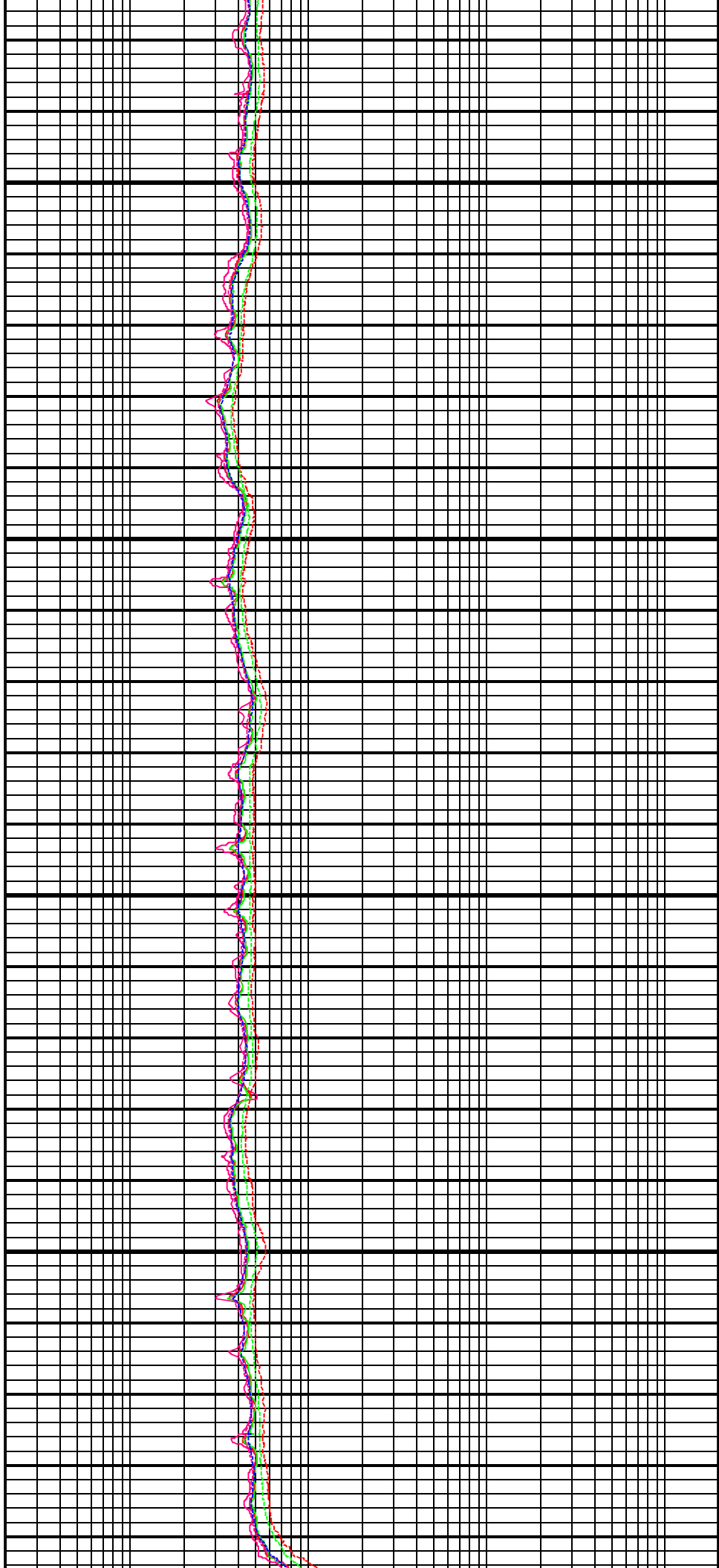
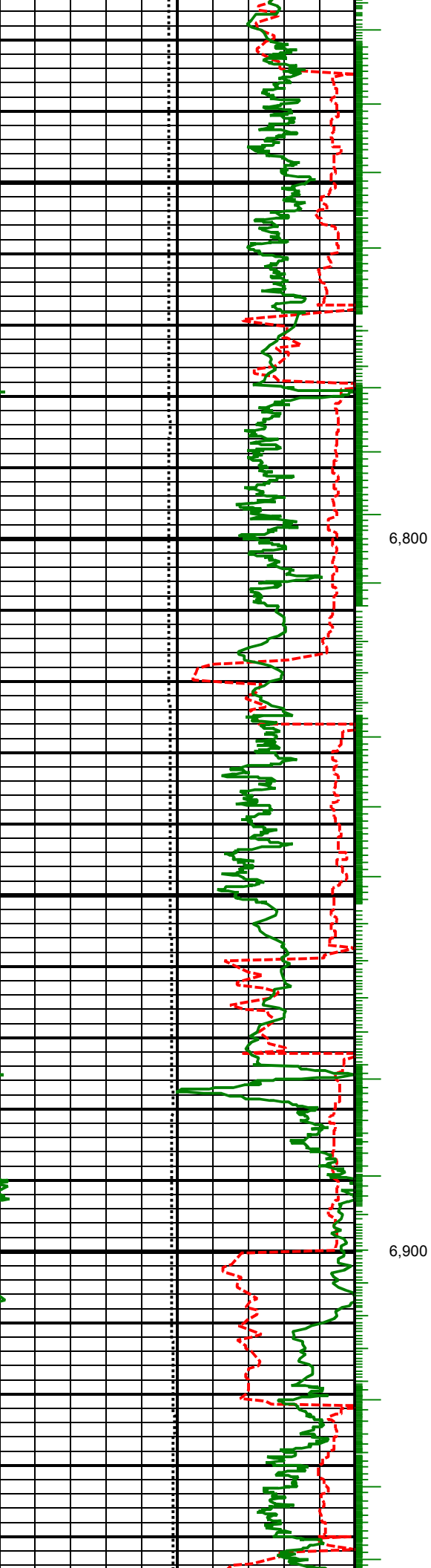
6,700

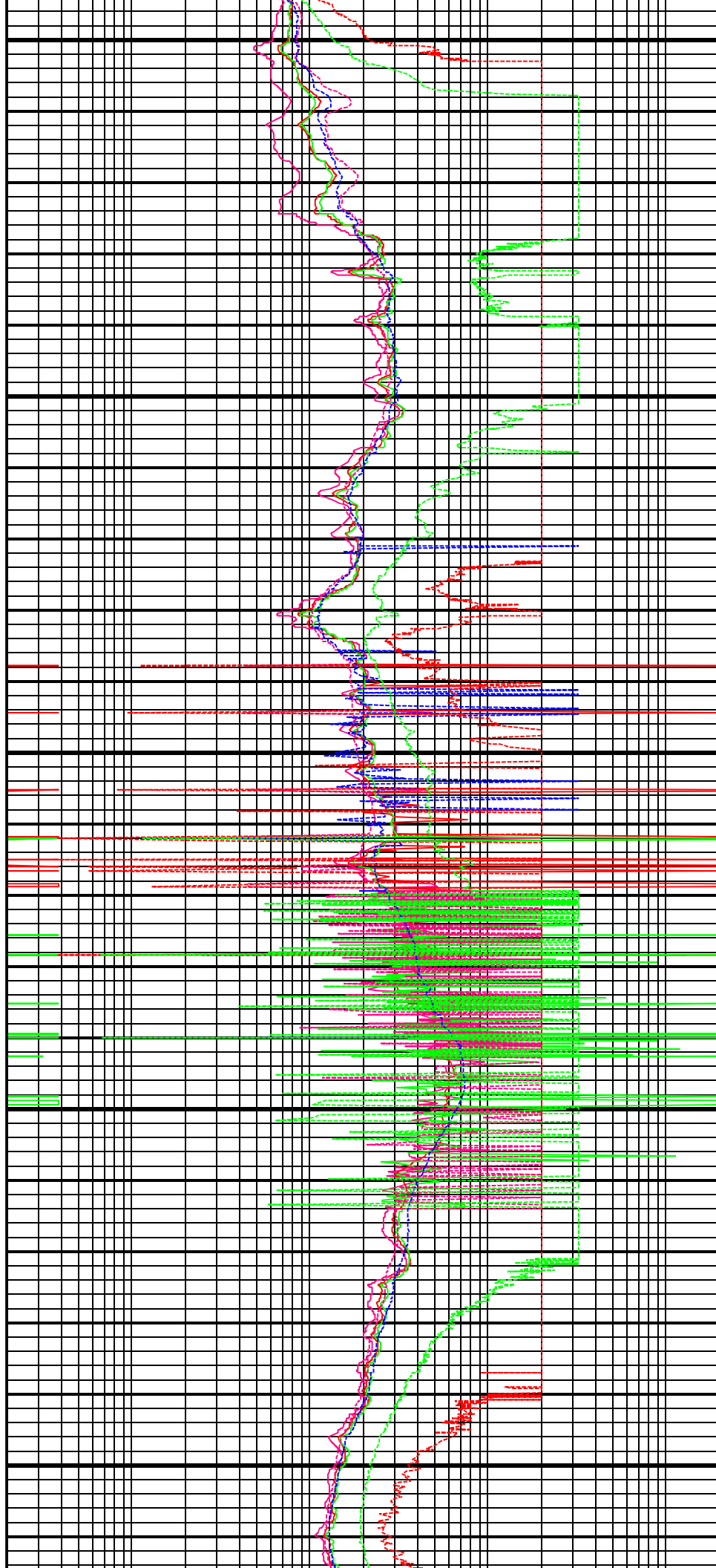
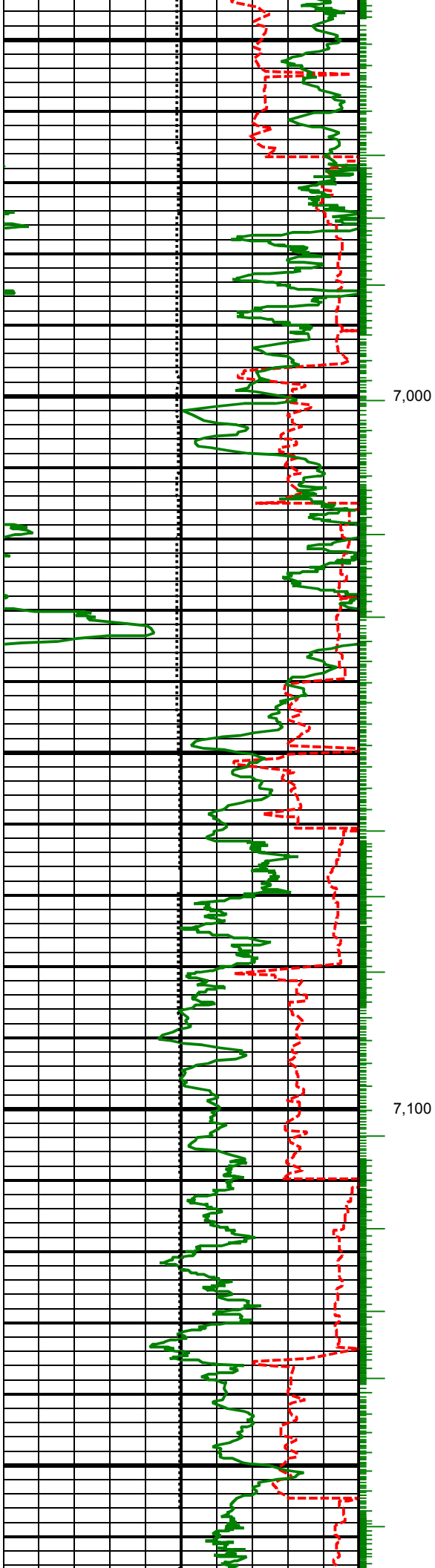
End of Bit Run

RPCECSHM  
RPCECSLM

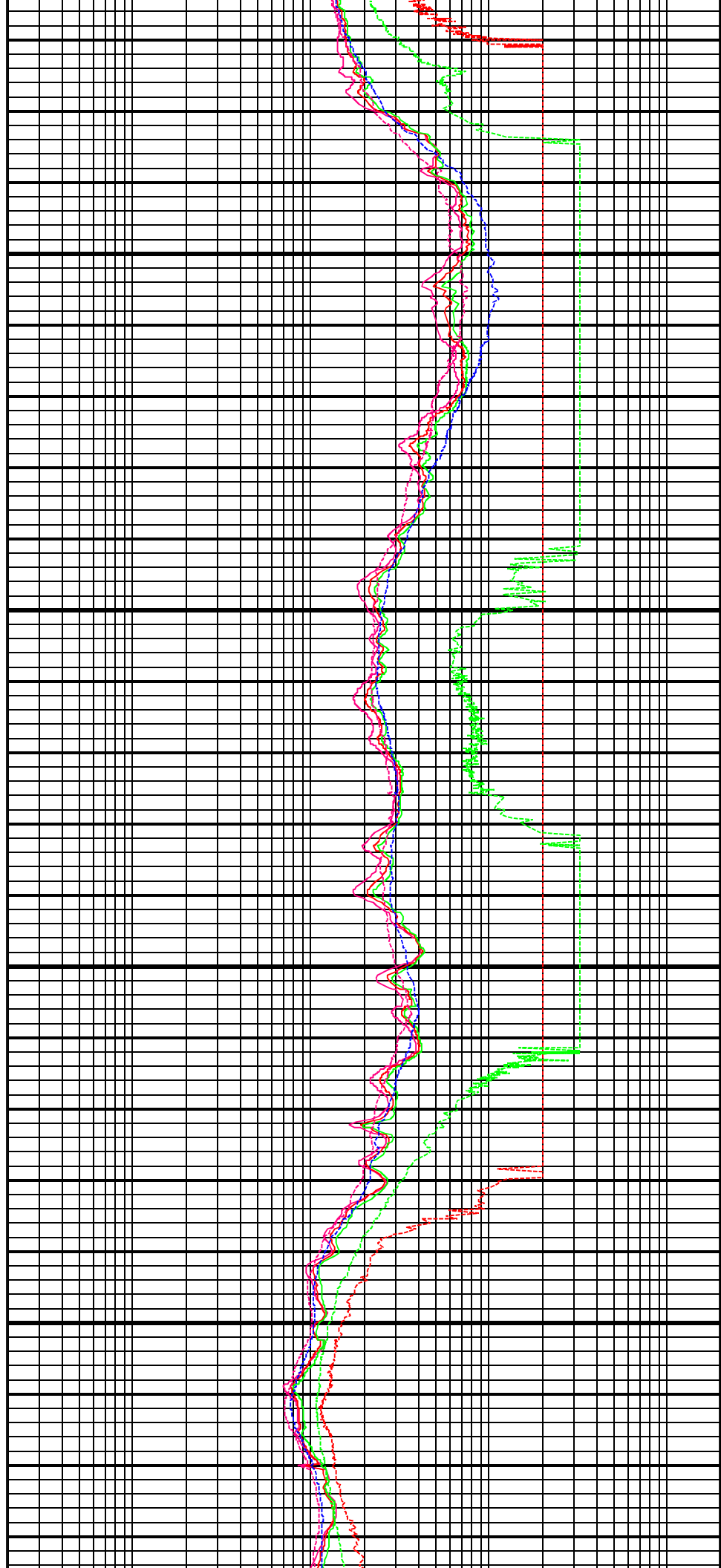
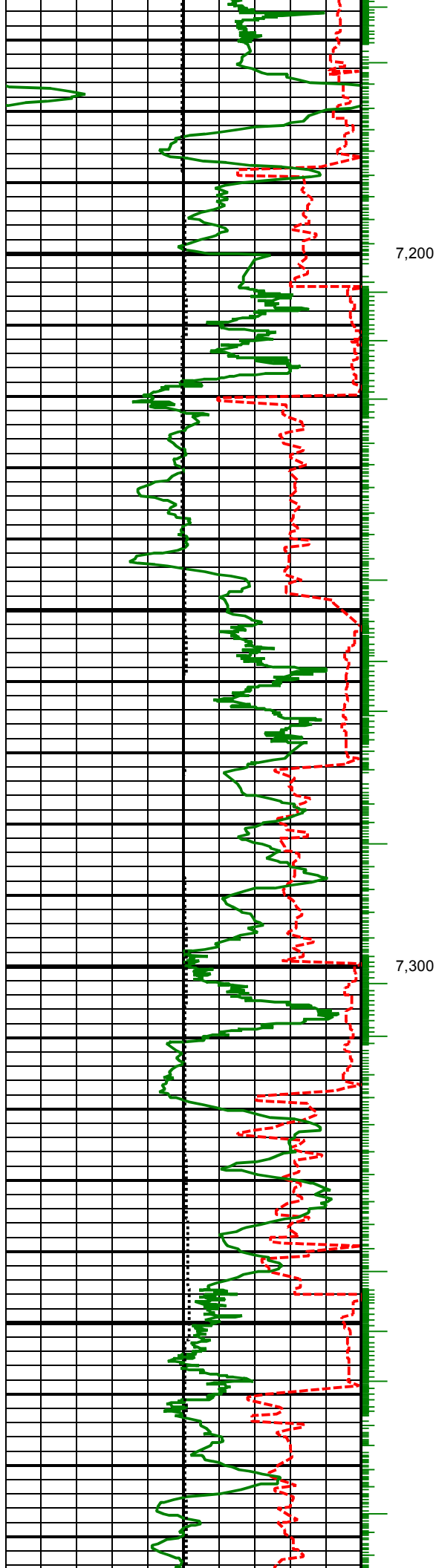
RPCECHM  
RPCECLM

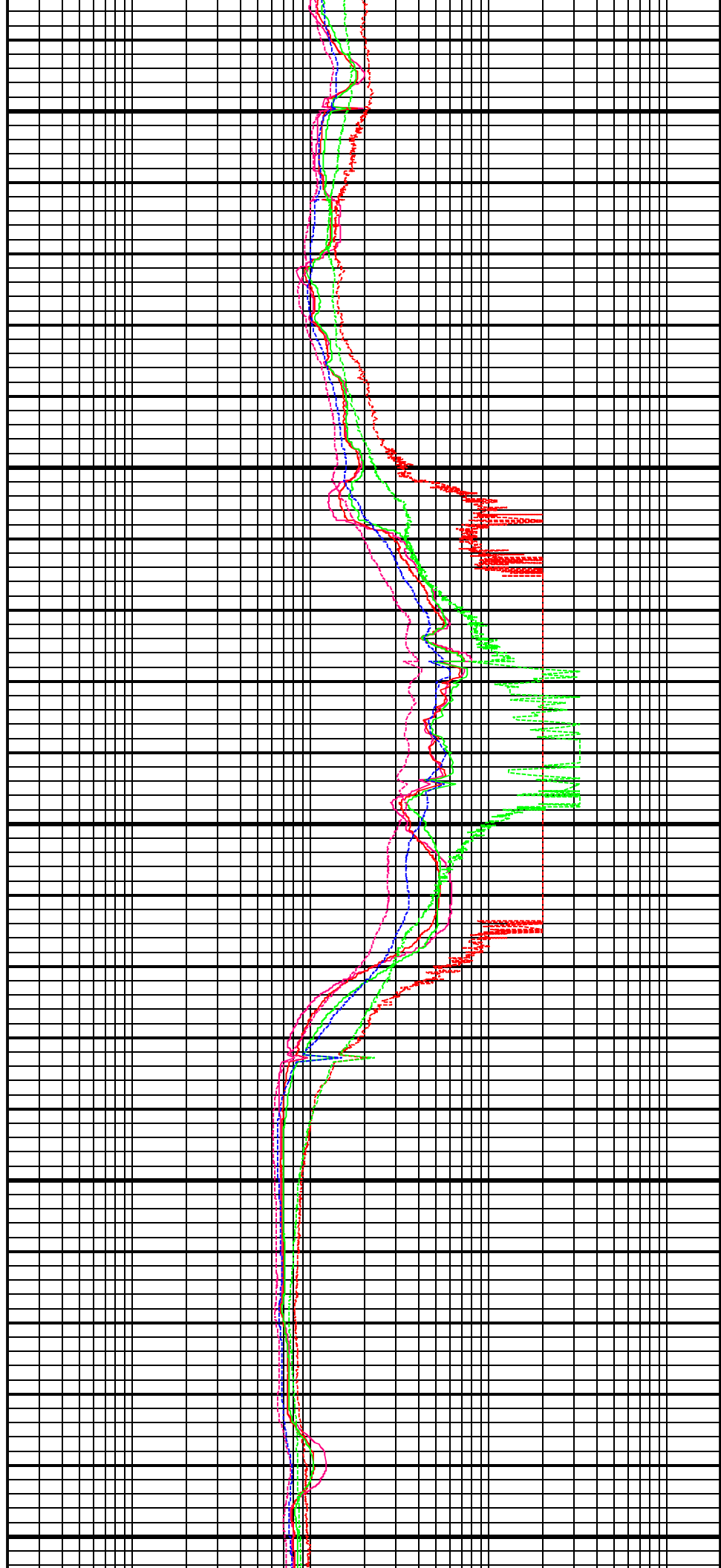
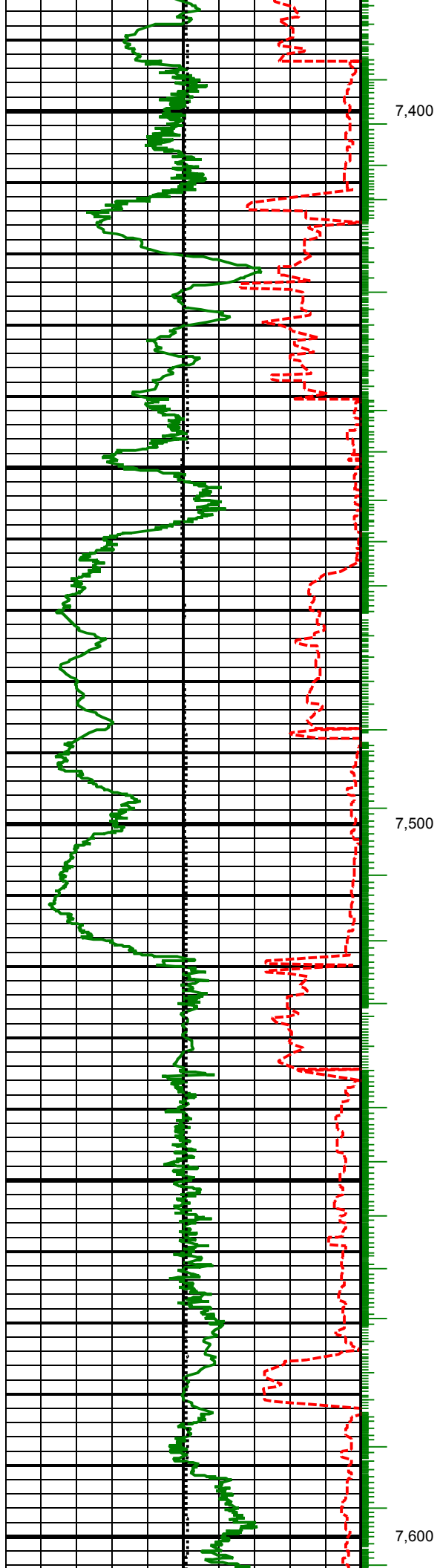


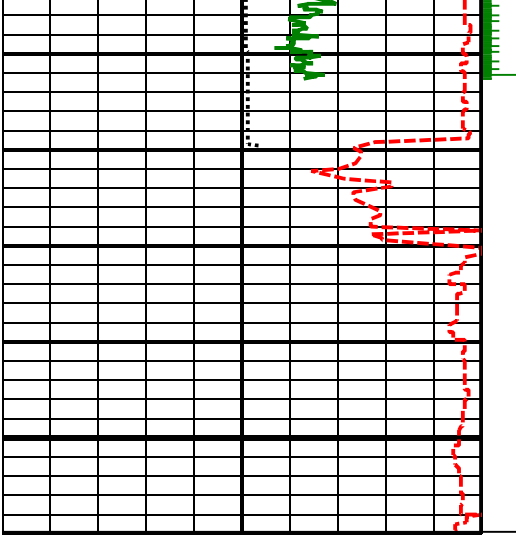




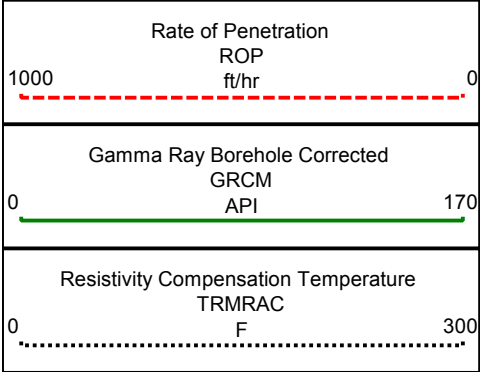








7,660



1:240  
FEET  
MD

