

Company: XTO Energy, Inc.

Well: Remuda 25 Observation Well 1

Field: Remuda Basin

County: Eddy Country: United States

ThruBit Level 1	
Laterolog Resistivity	
Eddy	
Field:	Remuda Basin
Location:	2107' FNL & 485' FWL
Well:	Remuda 25 Observation Well 1
Company:	XTO Energy, Inc.
Location:	
2107' FNL & 485' FWL	
Section 25, Township 23 S, Range 29 E	
Survey Mark Dillon Harp	
Permanent Datum:	Ground Level
Log Measured From:	Ground Level
Drilling Measured From:	Ground Level
API Serial No.	Max.Hole Deviation
30-015-45751	0 deg
	Longitude: 0° 0' 0" E
	Latitude: 0° 0' 0" N
Logging Date	12-Mar-2019

Run Number	1A
Depth Driller	1000.00 ft
Schlumberger Depth	1000.00 ft
Bottom Log Interval	1000.00 ft
Top Log Interval	1.00 ft
Casing Driller Size @ Depth	7 in @ 321.00 ft
Casing Schlumberger	321 ft
Bit Size	5.125 in
Type Fluid In Hole	Salt Brine
Density	10.4 lbm/gal
Fluid Loss	2.8 cm3
Source of Sample	Active Tank
RM @ Meas Temp	0.07 ohm.m @ 68 degF
RMF @ Meas Temp	0.06 ohm.m @ 68 degF
RMC @ Meas Temp	0.1 ohm.m @ 68 degF
Source RMF	Calculated
RM @ BHT	0.06 @ 74
RMF @ BHT	0.06 @ 74
Max Recorded Temperatures	74 degF
Circulation Stopped	12-Mar-2019 04:00:00
Logger on Bottom	12-Mar-2019 09:00:00
Unit Number	9104
Recorded By	Brenton Atkinson
Witnessed By	Hannah Kadir

Disclaimer

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Remarks and Equipment Summary	

1A: Toolstring				1A: Remarks
Equip name PEH-EFA	Length 55.99	MP name	Offset	Logging objectives: Well evaluation.
				All tools ran as per tool sketch.
				All logs affected by borehole conditions.
AH-317-TB 53.63				Your crew today has been Brenton, Hector, Adrian and Carlos.
TBCCL-A TBCCL-A	52.57			Thankyou for choosing Schlumberger ThruBit/
TMG-A:102 TMG-A:102	50.86	CCL	50.86	ThruBit level 1 Real time log on Wireline cable.
		Gamma-Ray	50.06	Third Party Gyro ran for Imager/Sonic processing.
TILE-AB 44.73		Status	44.73	
TBN-B:66 TBN-B:66 NNLS-EWA: 5974	40.23	Neutron Porosity	37.92	
TBLA-A:20 TBLA-A:20	35.46			
		Laterolog	23.26	



Depth Summary

	1A		
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Depth Measuring Device

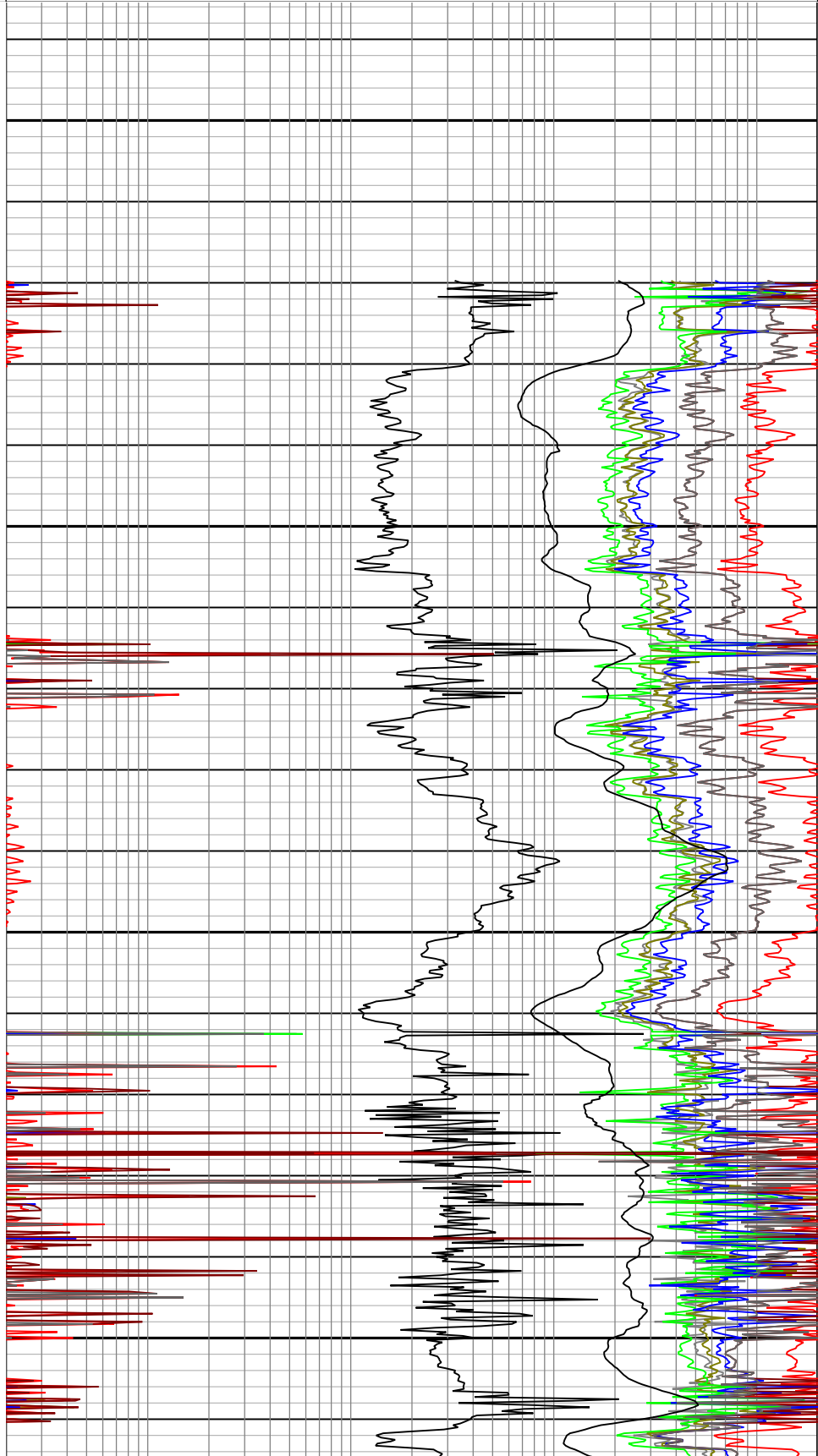
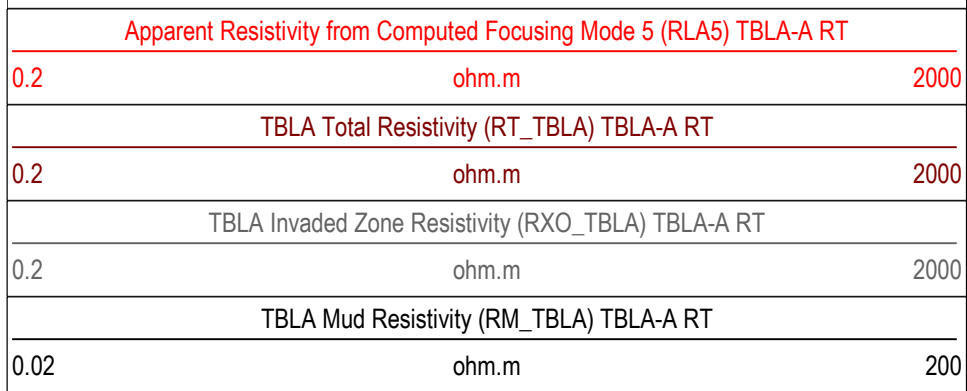
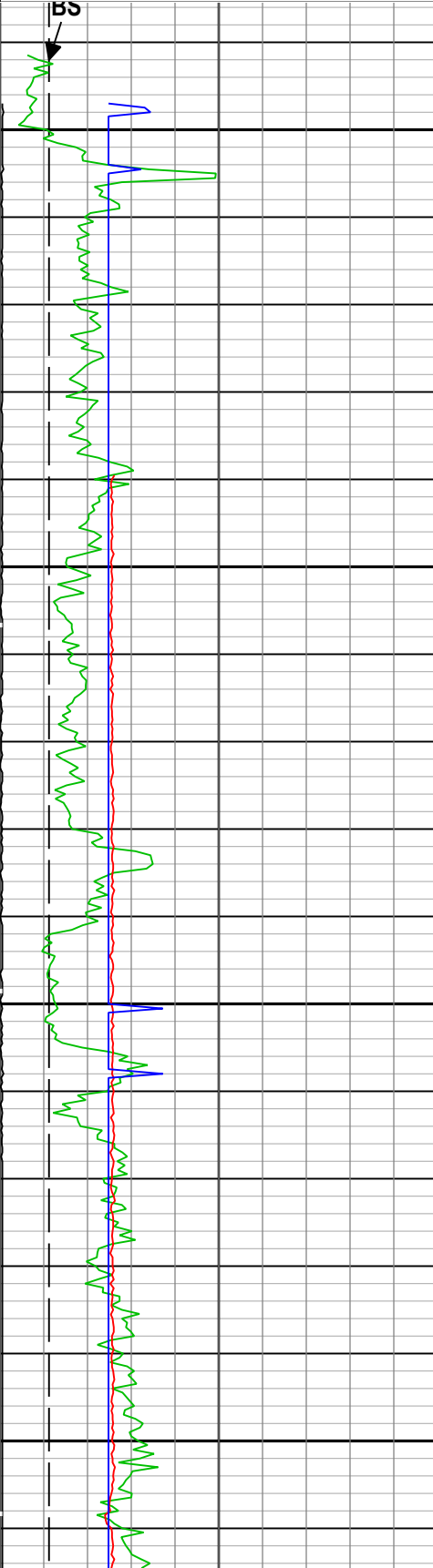
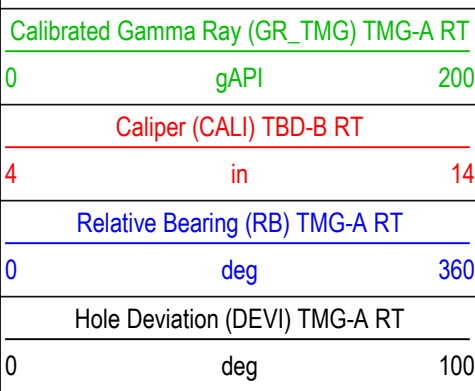
Type	IDW-B		
Serial Number			
Calibration Date			
Calibrator Serial Number			
Calibration Cable Type			
Wheel Correction 1	0		
Wheel Correction 2	0		

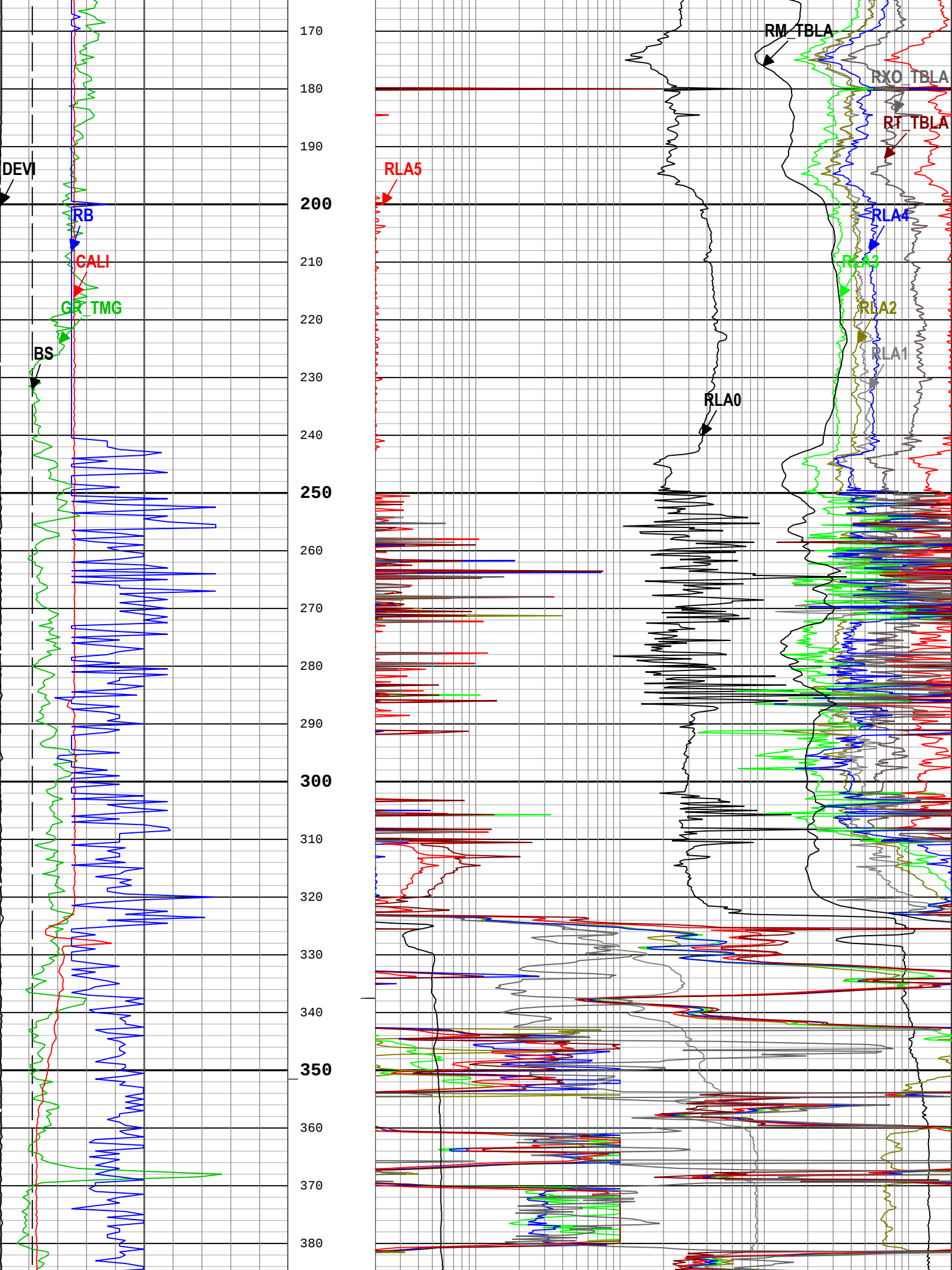
Tension Device

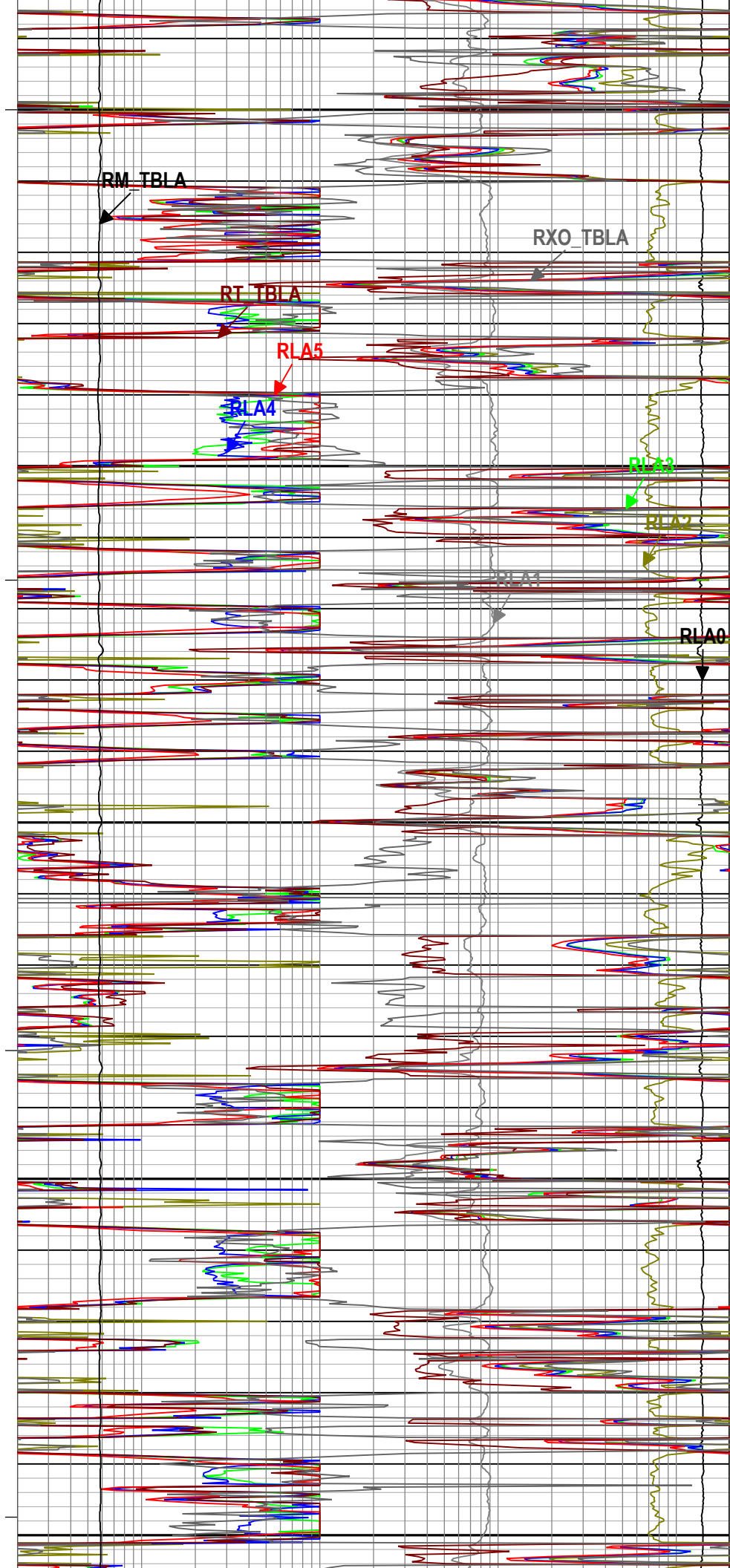
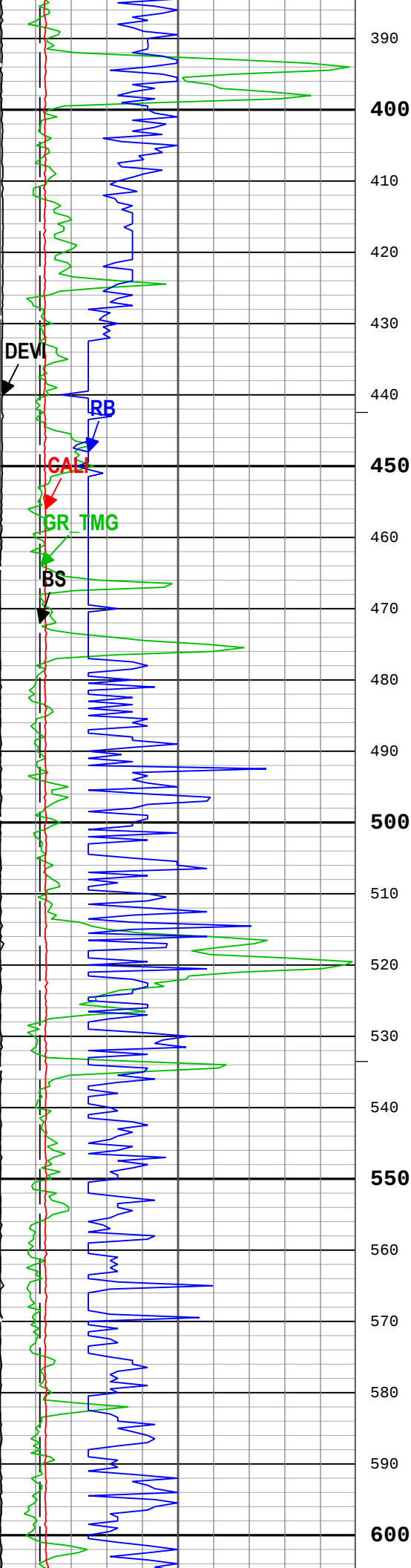
Type	CMTD-B/A		
Serial Number	2950		
Calibration Date	06-Mar-2019		
Calibrator Serial Number	1113		
Number of Calibration Points	10		
Calibration Root Mean Square Error	18		
Calibration Peak Error	34		

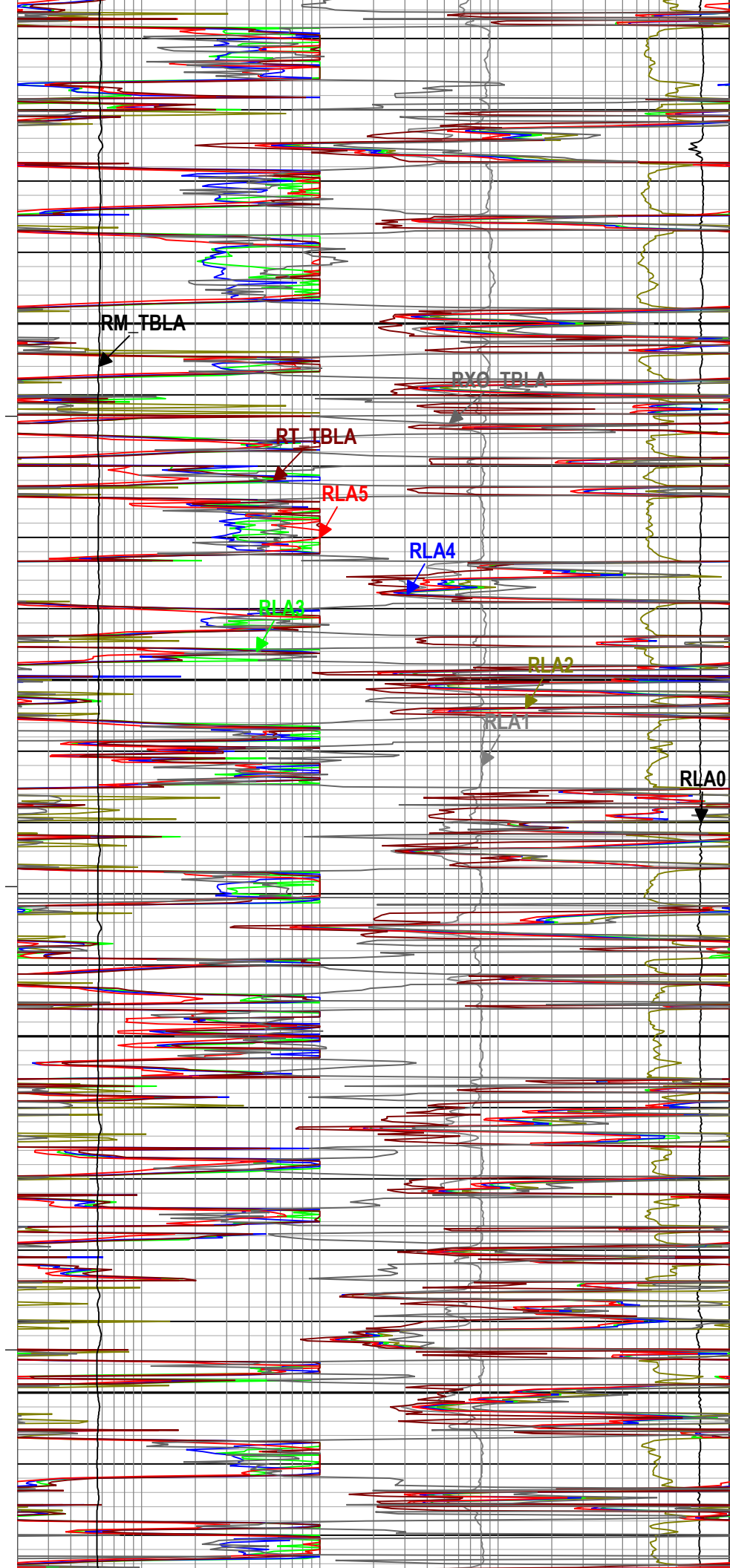
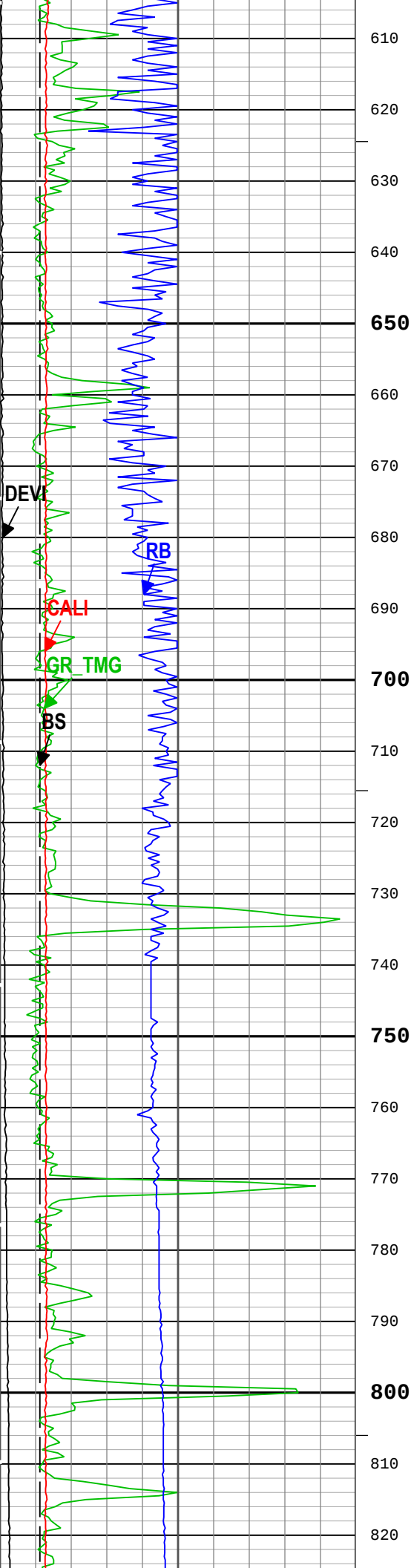
Logging Cable

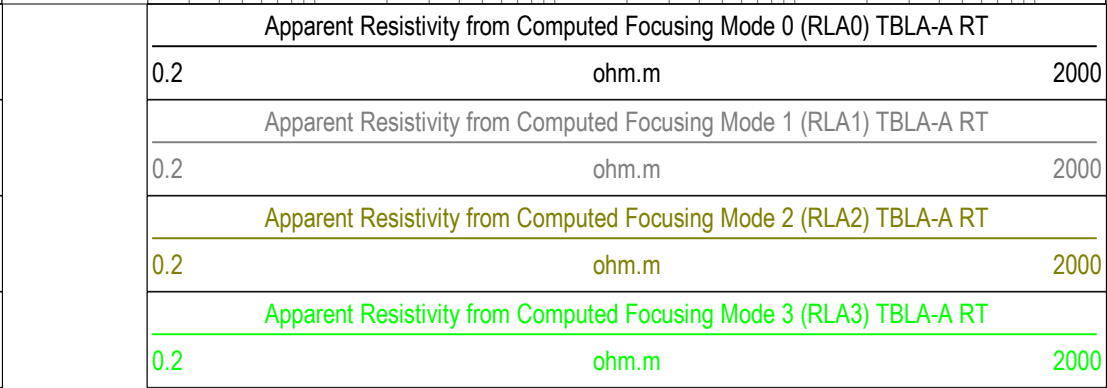
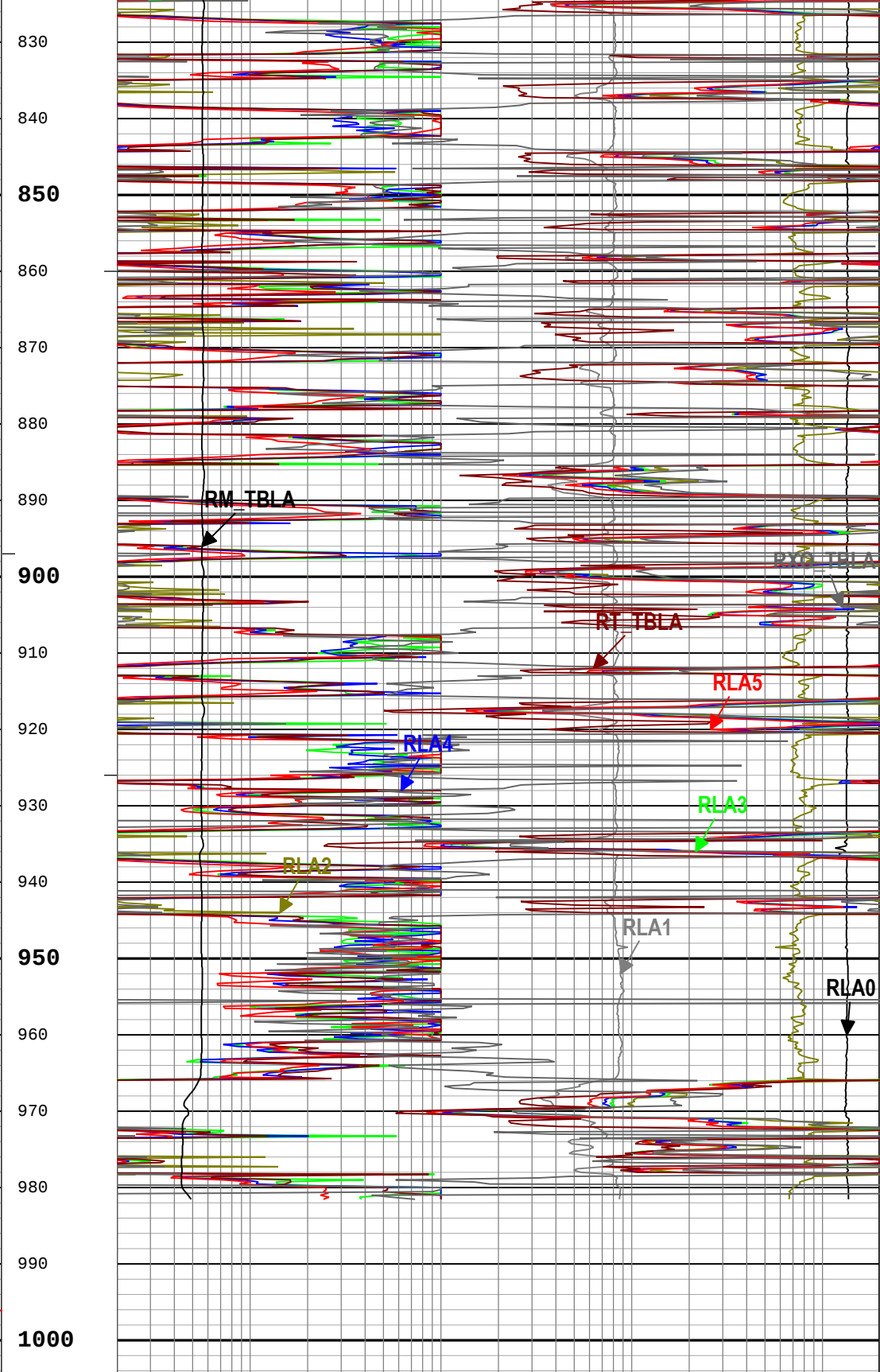
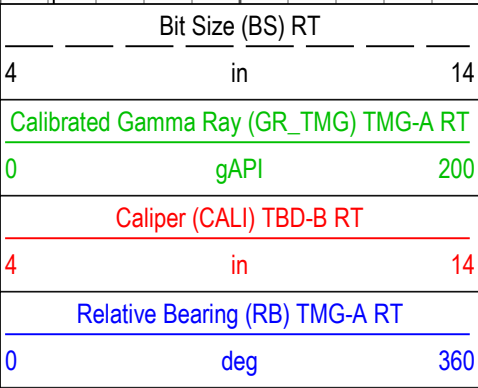
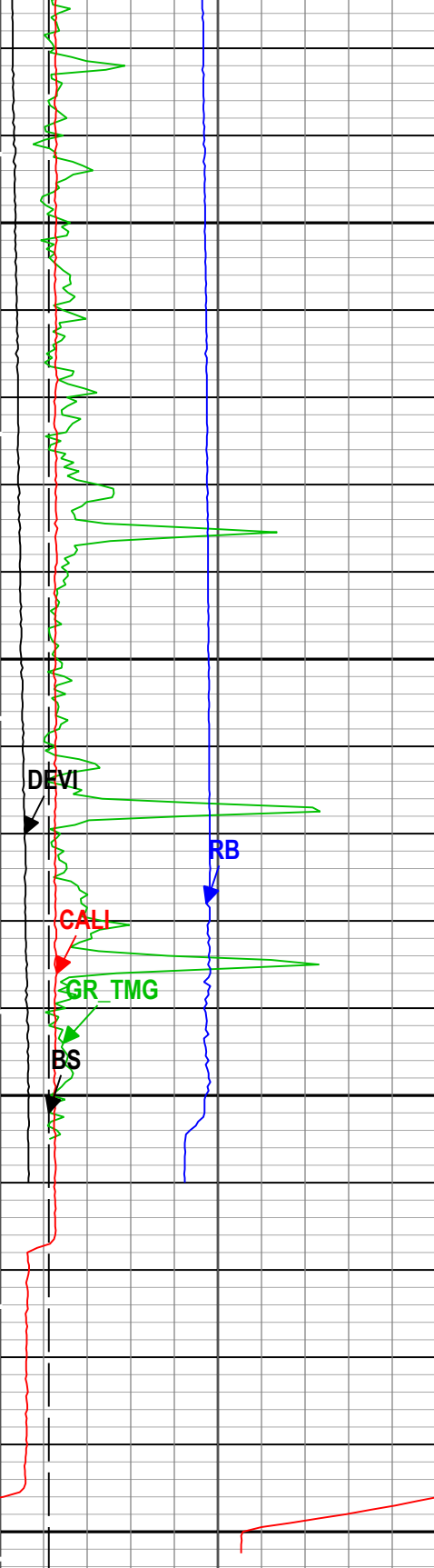
Type	7-46P-XS		
Serial Number			











Hole Deviation (DEVI) TMG-A RT		
0	deg	100

Apparent Resistivity from Computed Focusing Mode 4 (RLA4) TBLA-A RT		
0.2	ohm.m	2000
Apparent Resistivity from Computed Focusing Mode 5 (RLA5) TBLA-A RT		
0.2	ohm.m	2000
TBLA Total Resistivity (RT_TBLA) TBLA-A RT		
0.2	ohm.m	2000
TBLA Invaded Zone Resistivity (RXO_TBLA) TBLA-A RT		
0.2	ohm.m	2000
TBLA Mud Resistivity (RM_TBLA) TBLA-A RT		
0.02	ohm.m	200

└─ ICV - Integrated Cement Volume every 100.00 (ft3)

└─ ICV - Integrated Cement Volume every 10.00 (ft3)

TIME_1900 - Time Marked every 60.00 (s)

└─ IHV - Integrated Hole Volume every 100.00 (ft3)

└─ IHV - Integrated Hole Volume every 10.00 (ft3)

Description: ThruBit_TBLA_RESISTIVITY_RT Format: Log (ThruBit_TBLA_RESISTIVITY_RT) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 12-Mar-2019 11:05:06

Channel Processing Parameters				
1A: Parameters				
Parameter	Description	Tool	Value	Unit
BHS	Borehole Status (Open or Cased Hole)	Borehole	Depth Zoned	
BS	Bit Size	WLSESSION	5.125	in
CBLO	Casing Bottom (Logger)	WLSESSION	321	ft
CSODDRL	Casing Outer Diameter - Zoned along driller depths	WLSESSION	7	in
FCD	Future Casing (Outer) Diameter	WLSESSION	2.785	in
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS(RT)	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	CALI(RT)	
TBLA_BHC_OP	TBLA Hole Size Correction Option (Bit Size, Density Caliper, GCSE)	TBLA-A	Density Caliper	
TBLA_MSO	TBLA Standoff (if negative, tool is centered)	TBLA-A	0	in
RB_OFFSET	Additional RB offset (degrees)	TMG-A	0	deg

Depth Zone Parameters			
Parameter	Value	Start (ft)	Stop (ft)
BHS	Cased	0	321
BHS	Open	321	1004.5
All depth are actual.			

Tool Control Parameters	
1A	
5 in REPEAT	

Integration Summary				
Output Channel(s)	Output Description	Input Parameter	Output Value	Unit
ICV	Integrated Cement Volume	GCSE_UP_PASS, FCD	23.72	ft3
IHV	Integrated Hole Volume	GCSE_UP_PASS	33.64	ft3

Software Version	
Acquisition System	Version

Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
1A	Log[2]:Up	Up	755.69 ft	1004.58 ft	12-Mar-2019 8:44:53 AM	12-Mar-2019 8:53:30 AM	ON	0.00 ft	Yes

All depths are referenced to toolstring zero

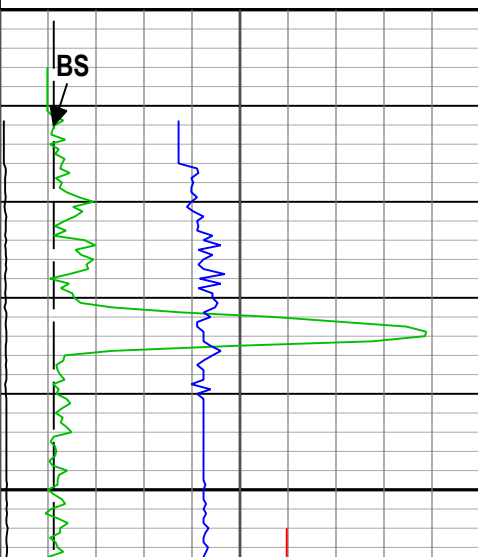
Log	Company:XTO Energy, Inc.	Well:Remuda 25 Observation Well 1
1A: Log[2]:Up:S004		

Description: ThruBit_TBLA_RESISTIVITY_RT Format: Log (ThruBit_TBLA_RESISTIVITY_RT) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 12-Mar-2019 11:05:08

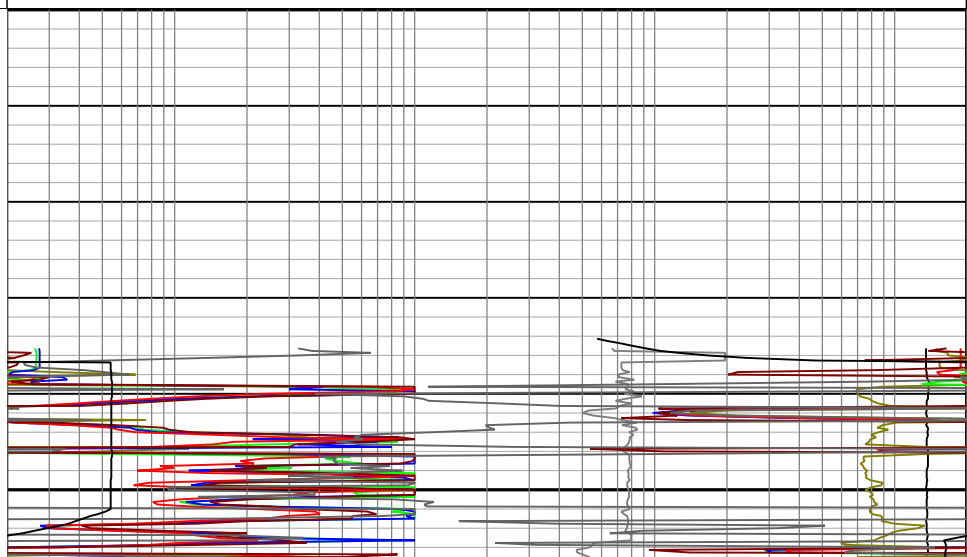
- IHV - Integrated Hole Volume every 10.00 (ft3)
- IHV - Integrated Hole Volume every 100.00 (ft3)
- ICV - Integrated Cement Volume every 10.00 (ft3)
- ICV - Integrated Cement Volume every 100.00 (ft3)

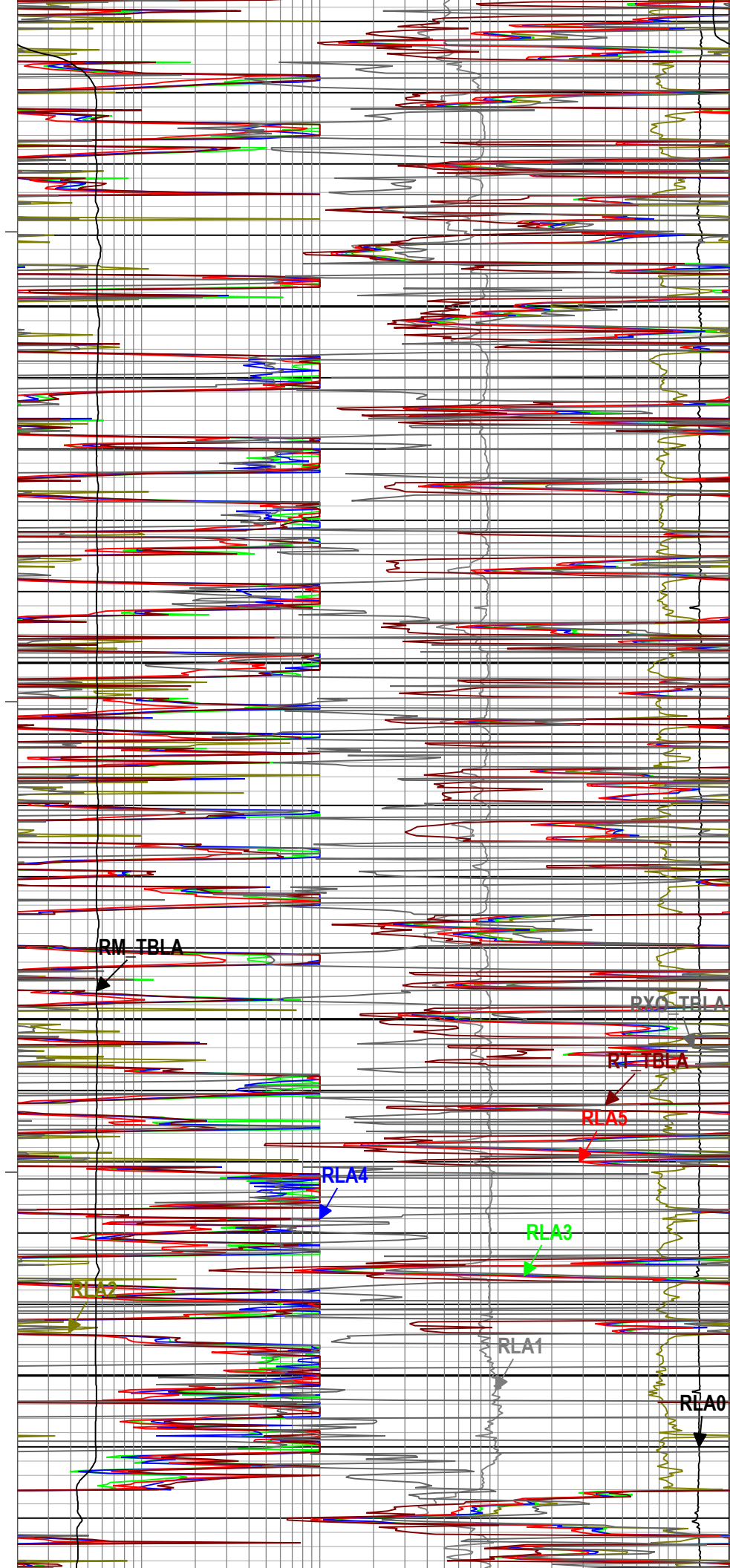
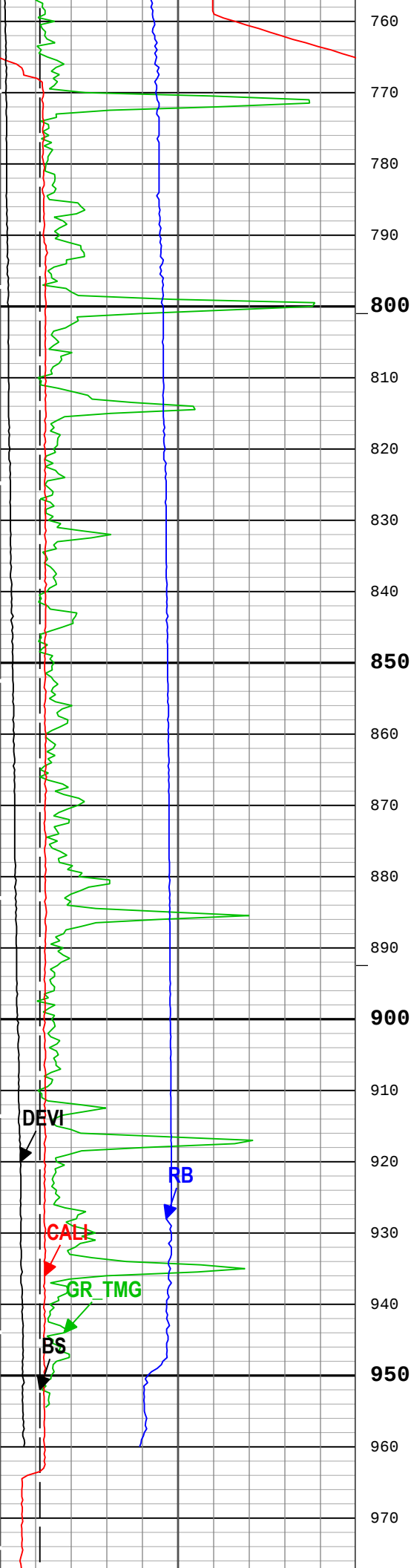
TIME_1900 - Time Marked every 60.00 (s)

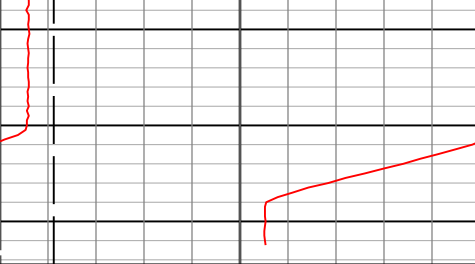
Bit Size (BS) RT		
4	in	14
Calibrated Gamma Ray (GR_TMG) TMG-A RT		
0	gAPI	200
Caliper (CALI) TBD-B RT		
4	in	14
Relative Bearing (RB) TMG-A RT		
0	deg	360
Hole Deviation (DEVI) TMG-A RT		
0	deg	100



Apparent Resistivity from Computed Focusing Mode 0 (RLA0) TBLA-A RT		
0.2	ohm.m	2000
Apparent Resistivity from Computed Focusing Mode 1 (RLA1) TBLA-A RT		
0.2	ohm.m	2000
Apparent Resistivity from Computed Focusing Mode 2 (RLA2) TBLA-A RT		
0.2	ohm.m	2000
Apparent Resistivity from Computed Focusing Mode 3 (RLA3) TBLA-A RT		
0.2	ohm.m	2000
Apparent Resistivity from Computed Focusing Mode 4 (RLA4) TBLA-A RT		
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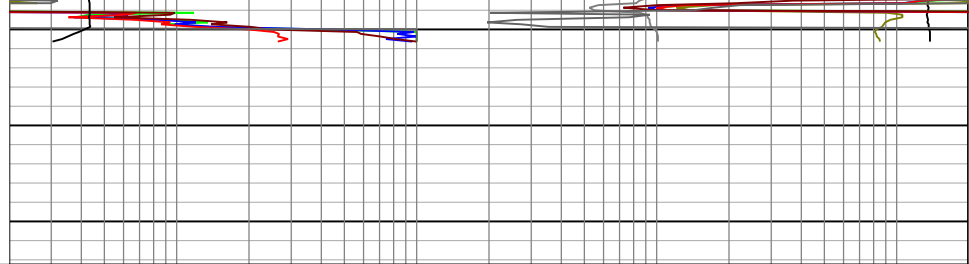






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0	gAPI	200
Caliper (CALI) TBD-B RT		
4	in	14
Relative Bearing (RB) TMG-A RT		
0	deg	360
Hole Deviation (DEVI) TMG-A RT		
0	deg	100

980
990
1000



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- IHV - Integrated Hole Volume every 100.00 (ft3)
- IHV - Integrated Hole Volume every 10.00 (ft3)

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TBLA_MSO	TBLA Standoff (if negative, tool is centered)	TBLA-A	0	in
RB_OFFSET	Additional RB offset (degrees)	TMG-A	0	deg
Tool Control Parameters				

Company:	XTO Energy, Inc.	Schlumberger
Well:	Remuda 25 Observation Well 1	
Field:	Remuda Basin	
County:	Eddy	
Country:	United States	
ThruBit Level 1		
Laterolog Resistivity		