



ThruBit
A Schlumberger Company

**ARRAY INDUCTION
GAMMA RAY
MEMORY LOG**

Company	SANDRIDGE ENERGY	Company	SANDRIDGE ENERGY
Well	TAYLOR 3406 3-29H	Well	TAYLOR 3406 3-29H
Field	EASTHAM	Field	EASTHAM
County	HARPER	County	HARPER
State	KANSAS	State	KANSAS
Location:	API # : 15-077-21928-0100 200' FNL & 1640' FWL	Other Services THRUBIT PORTAL BIT	
Permanent Datum	SEC 29 TWP 34S RGE 6W	Elevation	
Log Measured From	G.L. D.F. 15' ABOVE PERM DATUM	K.B. 1310' D.F. 1310' G.L. 1295'	
Drilling Measured From	D.F.		
Date	26 MAY 2013		
Run Number	ONE		
Depth Driller	9233'		
Depth Logger	9192'		
Bottom Logged Interval	9181'		
Top Log Interval	2500'		
Casing Driller	7.0" @ 5370'		
Casing Logger	5368'		
Bit Size	6.125"		
Type Fluid in Hole	WBM		
Density / Viscosity	8.3 / 27		
pH / Fluid Loss	9.0 / 100		
Source of Sample	MUD TANK		
Rm @ Meas. Temp	1.76 OHM@65DEGF		
Rmf @ Meas. Temp	1.53 OHM@65DEGF		
Rmc @ Meas. Temp	1.98 OHM@65DEGF		
Source of Rmf / Rmc	CALCULATED		
Rm @ BHT	1.11 OHM@108DEGF		
Time Circulation Stopped	20:24 25 MAY 2013		
Time Logger on Bottom	21:14 25 MAY 2013		
Maximum Recorded Temperature	108 DEGF		
Equipment Number	T005		
Location	OKC, OK		
Recorded By	C.PARKER		
Witnessed By	S.FOX		

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

Comments

SERVICE: HORIZONTAL PUMP DOWN MEMORY BIT DEPTH: 9140' LOGGED TO: 2500'
ALL SCALES AND PRESENTATIONS PER CLIENT REQUEST
LIMESTONE MATRIX, 2.71 g/cc. USED FOR POROSITY MEASUREMENTS
TOOLSTING RAN WITH SWIVEL AND SMALL DE-CENTRALIZER
TBHV REPRESENTS TOTAL BOREHOLE VOLUME, ft³
ABHV REPRESENTS ANNULAR HOLE VOLUME, CALCULATED FOR 4.5" CSG., ft³
RIGMINDER USED TO ACQUIRE LOG DEPTH
LOG CORRELATED TO MWD GR
RIG: UNIT 310

CREW: C.PARKER J.HIRSHEL R.CRESSWELL

Service Ticket No.	1923	API No.	15-077-21928-0100	PGM Ver	WARRIOR 7.0
The Well Name, Location, Borehole Description, and / or Cementing Data Furnished by Client					
EQUIPMENT DATA					
GAMMA	NEUTRON	DENSITY	INDUCTION		

Run No.	ONE	Run No.	ONE	Run No.	ONE	Run No.	ONE	
Serial No.	ENP5T	Serial No.	PS14N	Serial No.	PS01D	Serial No.	PS38R	
Model No.	ENP	Model No.	PS	Model No.	PS	Model No.	PS	
Diameter	2.125"	Diameter	2.125"	Diameter	2.125"	Diameter	2.125"	
LOGGING DATA								
General Data								
Pass	Depths		Well Head	Speed	Logging Run Comments			
No.	From	To	Pressure	Ft/Min				
ONE	9181'	2500'	0 PSI	35 FPM				
	GAMMA		NEUTRON		DENSITY		INDUCTION	
Pass	Scale		Scale		Scale		Scale	
No.	L	R	L	R	L	R	L	R
ONE	0 API	150 API	30%	-10%	30%	-10%	0.2 OHMM	2000 OHMM
DIRECTIONAL INFORMATION								
Maximum Deviation	93.21°	deg. @	5971'	KOP	3802'			



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MAIN PASS

Database File:

Dataset Pathname:

Presentation Format:

Dataset Creation:

Charted by:

c:\users\kris.wetzel\desktop\taylor 3406 3-29h\sandridge_taylor_3406_3-29h_mem.db

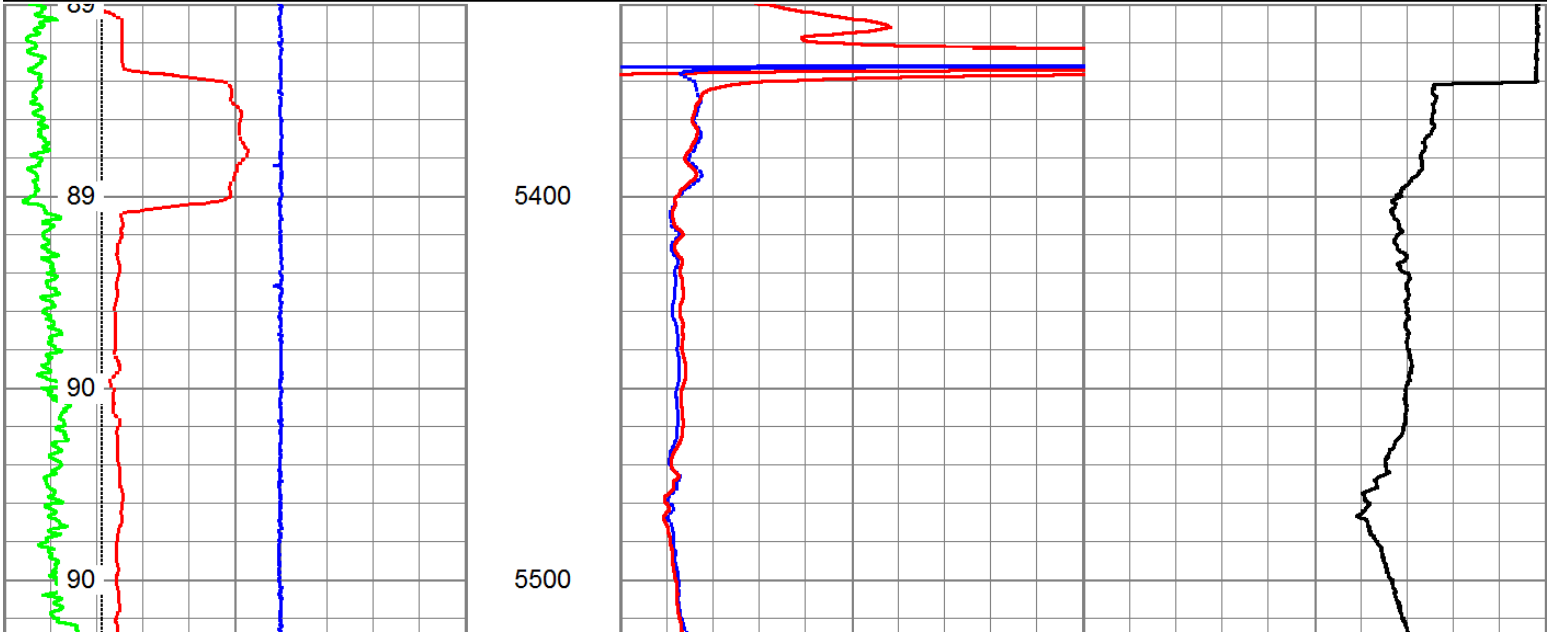
proc1/pass1.2

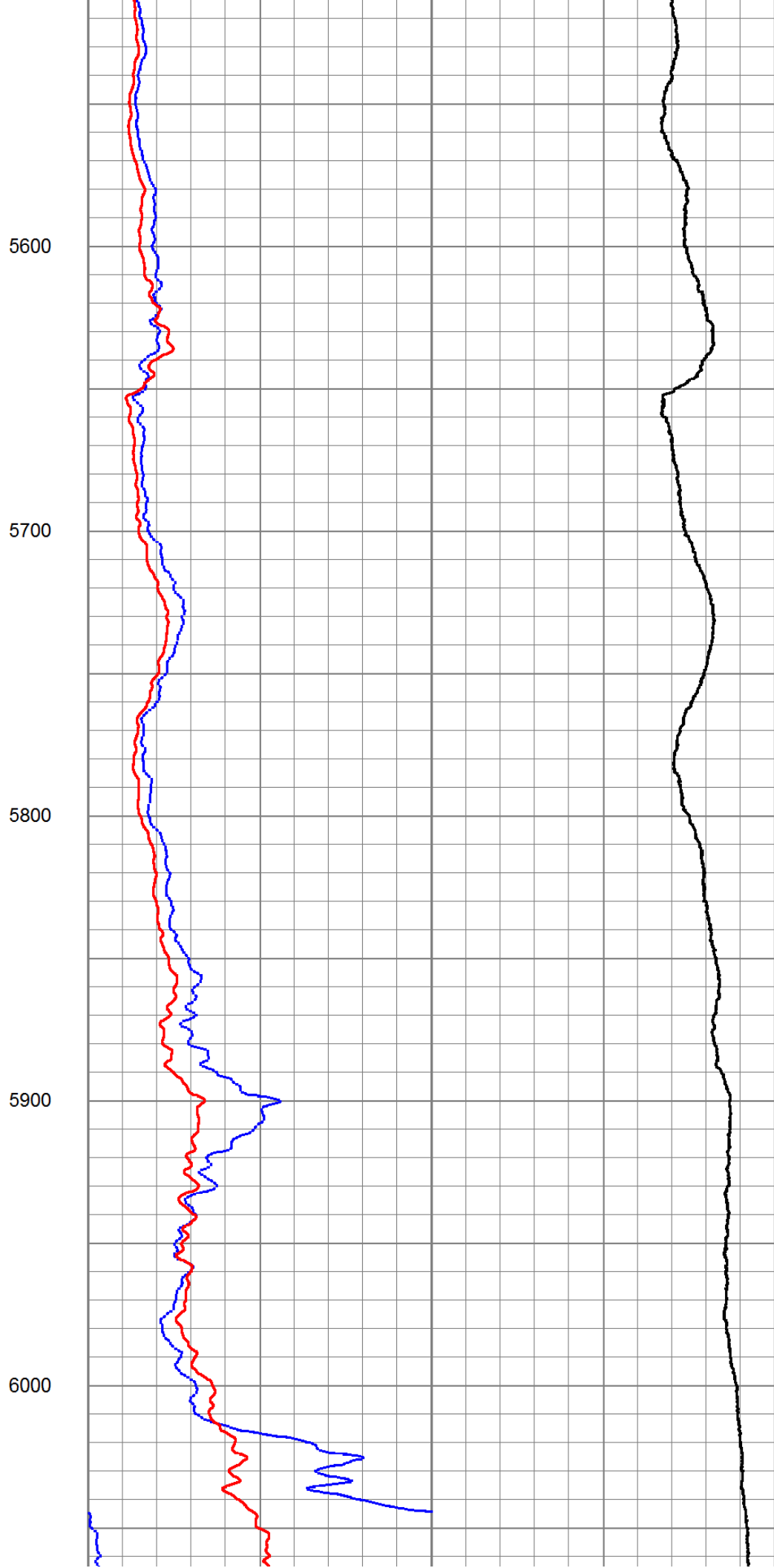
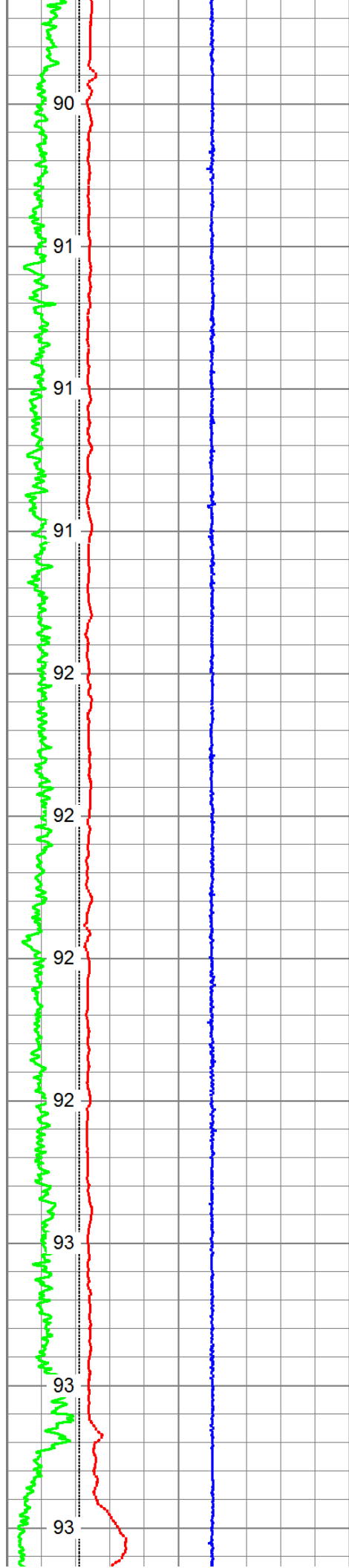
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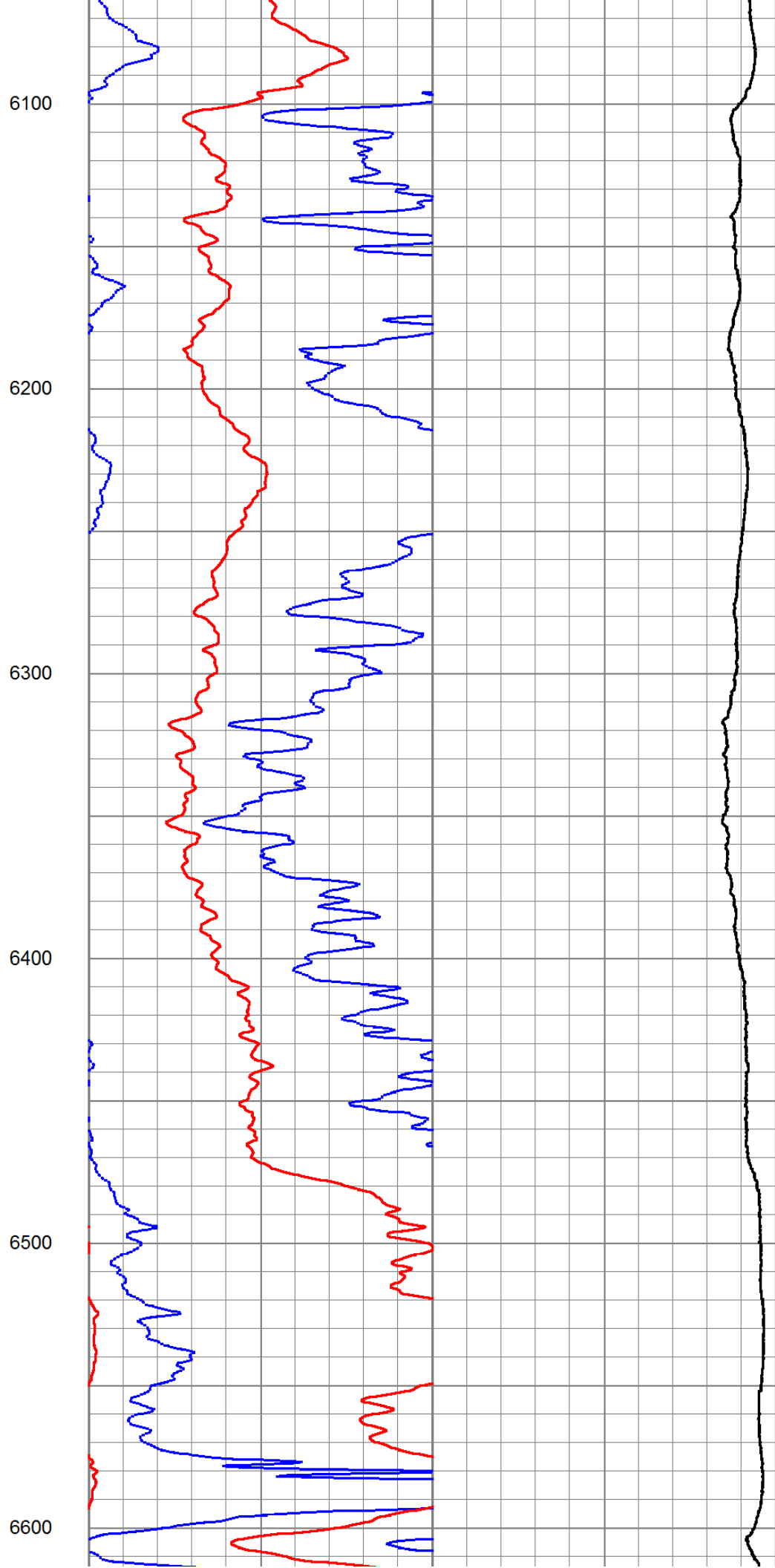
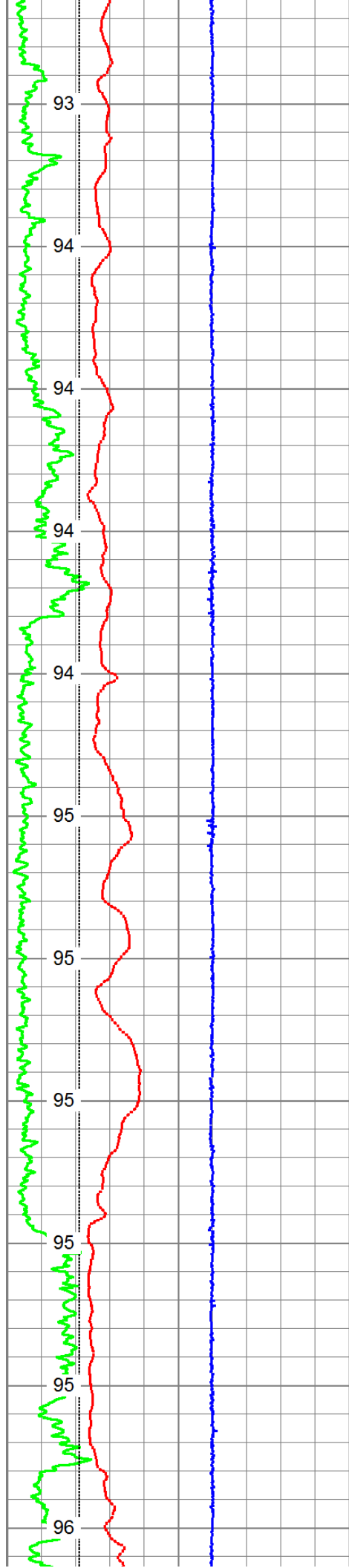
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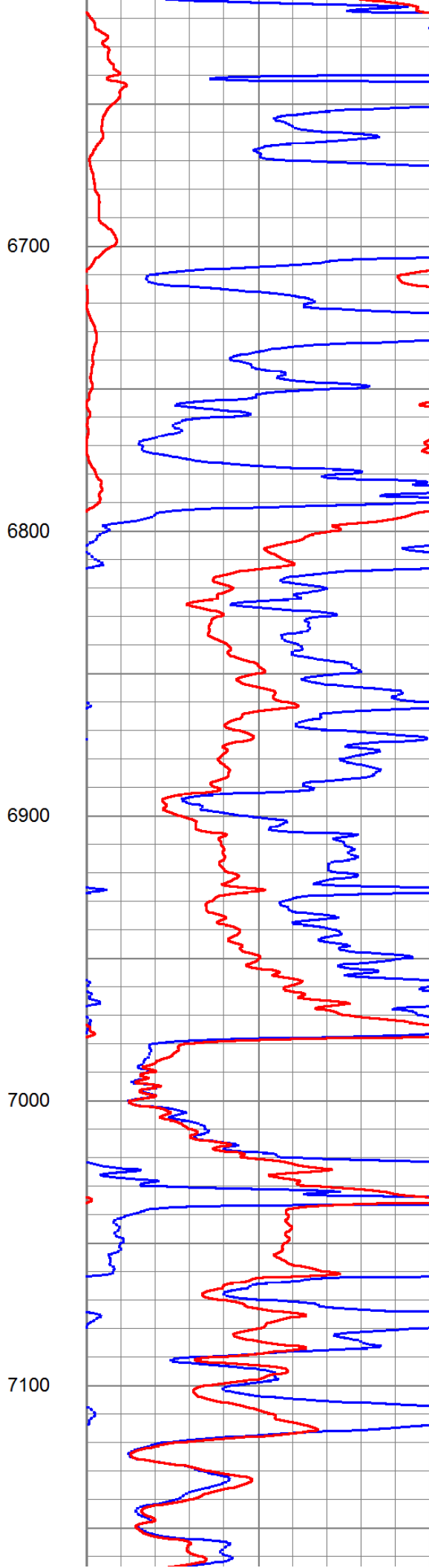
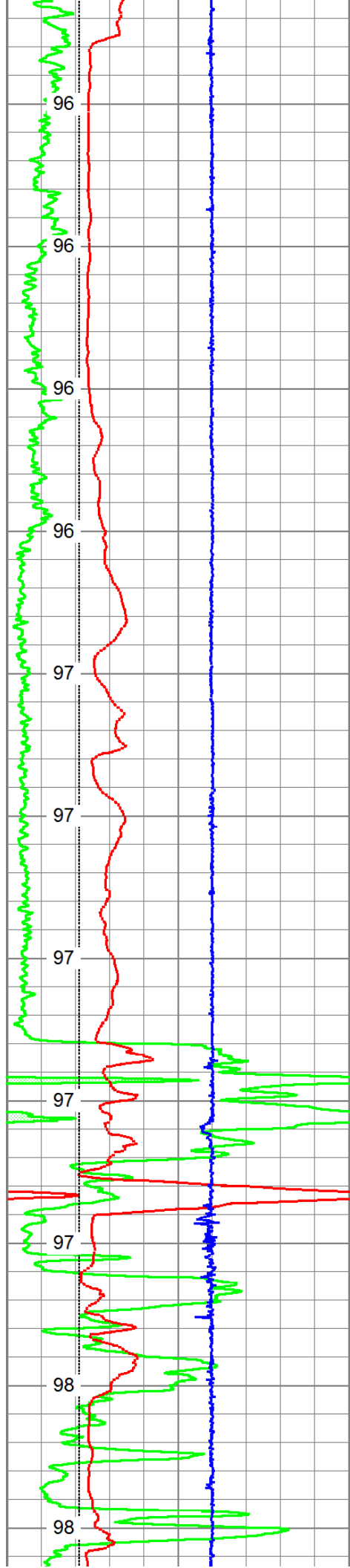
Depth in Feet scaled 1:600

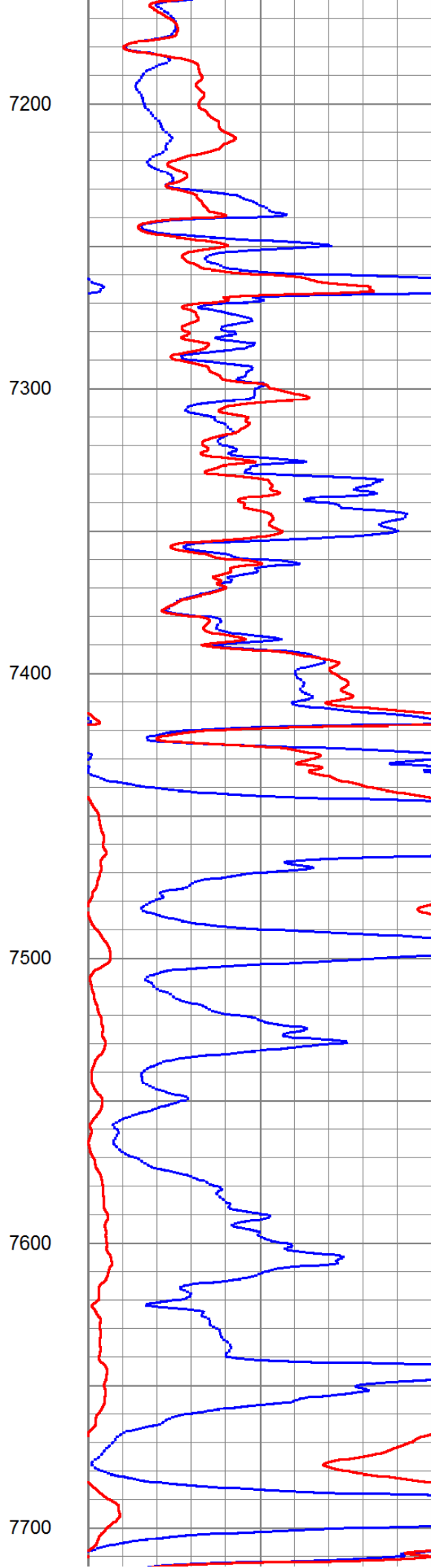
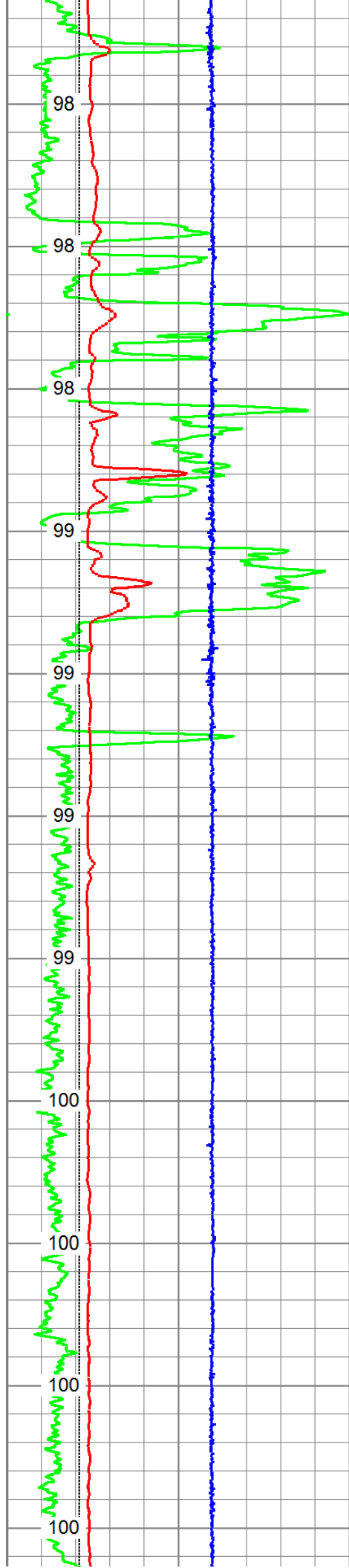
0	GR (GAPI)	150	50	20in 2ft Res (Ohm-m)	500	
4	DCAL (in)	14	50	90in 4ft Res (Ohm-m)	500	
-5	ACCY	5	1000	DEEP COND (mmho/m)		0
4	BOREID (in)	14	0	20in 4ft Res (Ohm-m)	50	
	GRTEMP (degF)		0	90in 4ft Res (Ohm-m)	50	

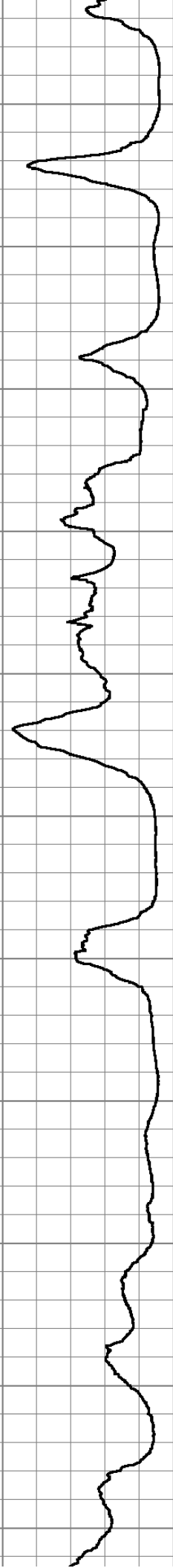
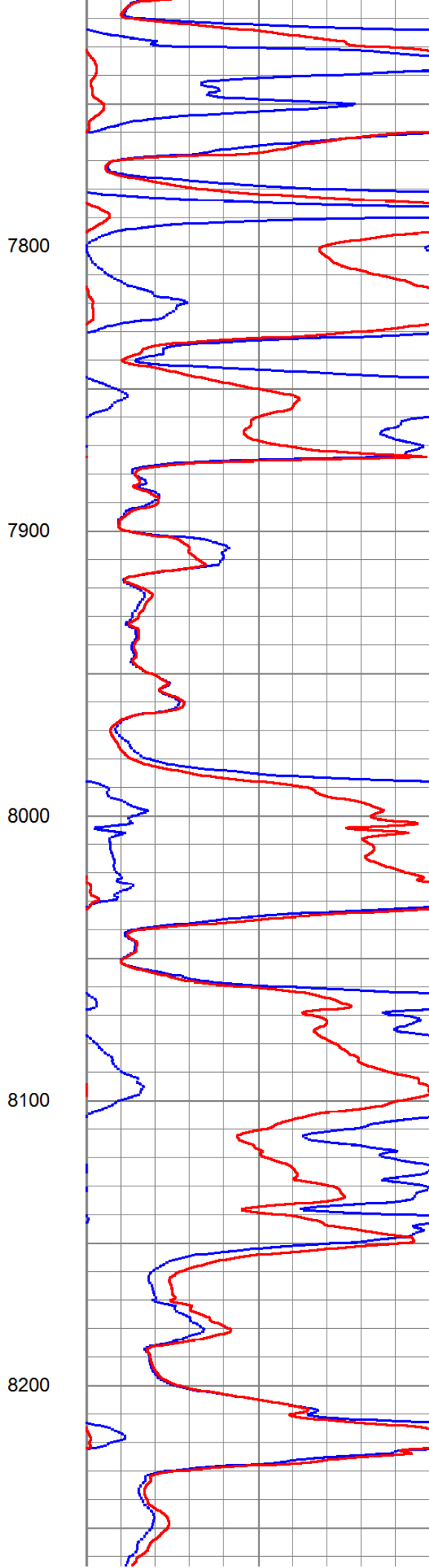
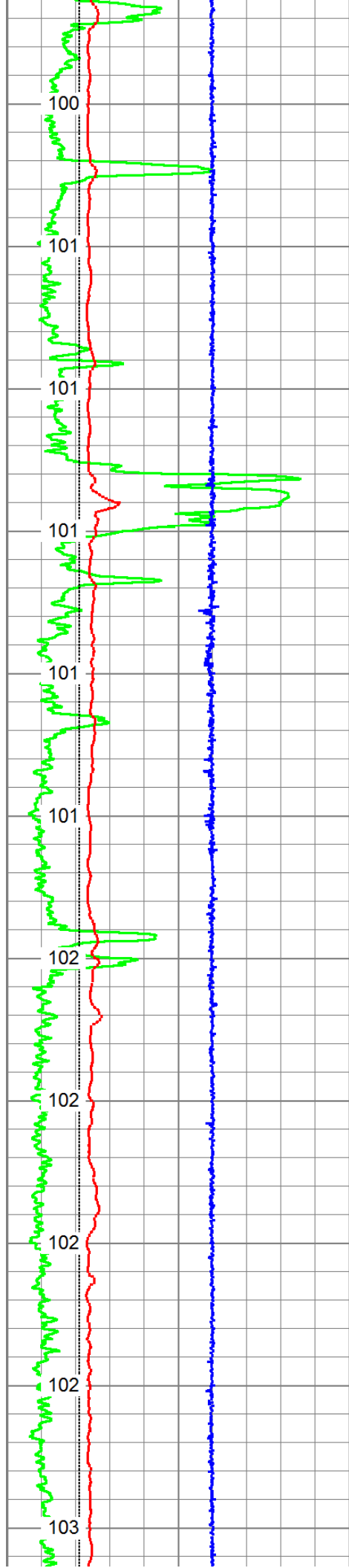


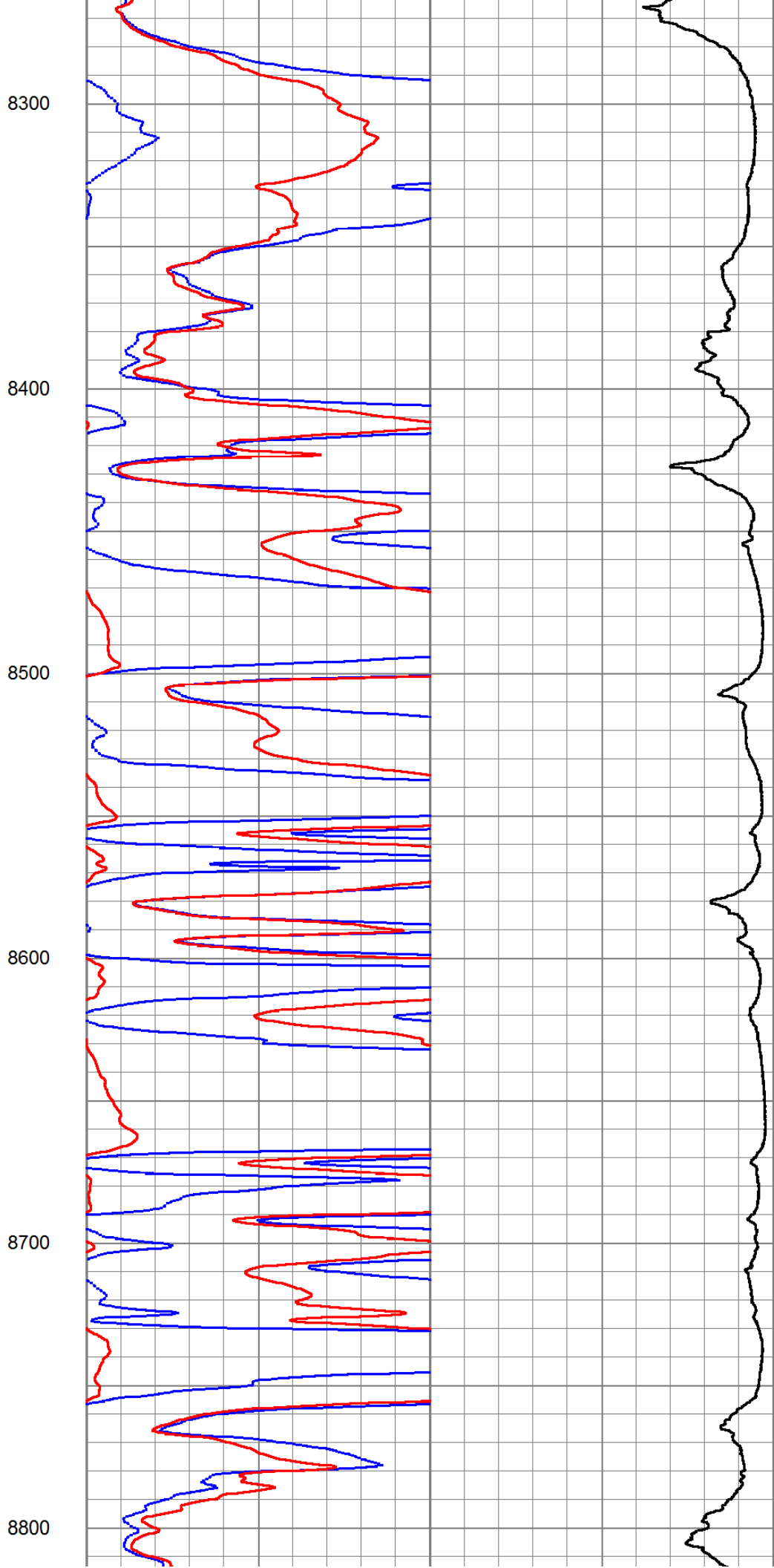
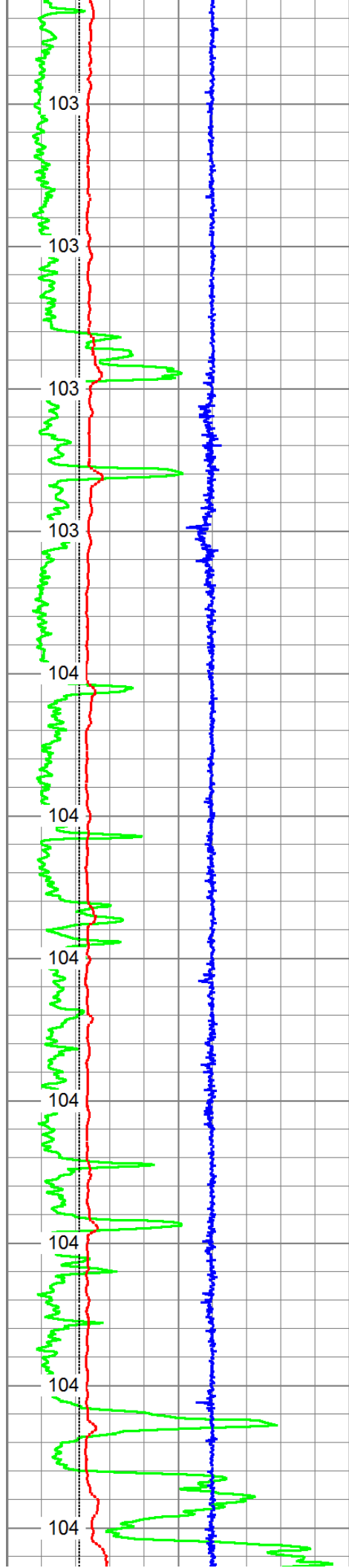


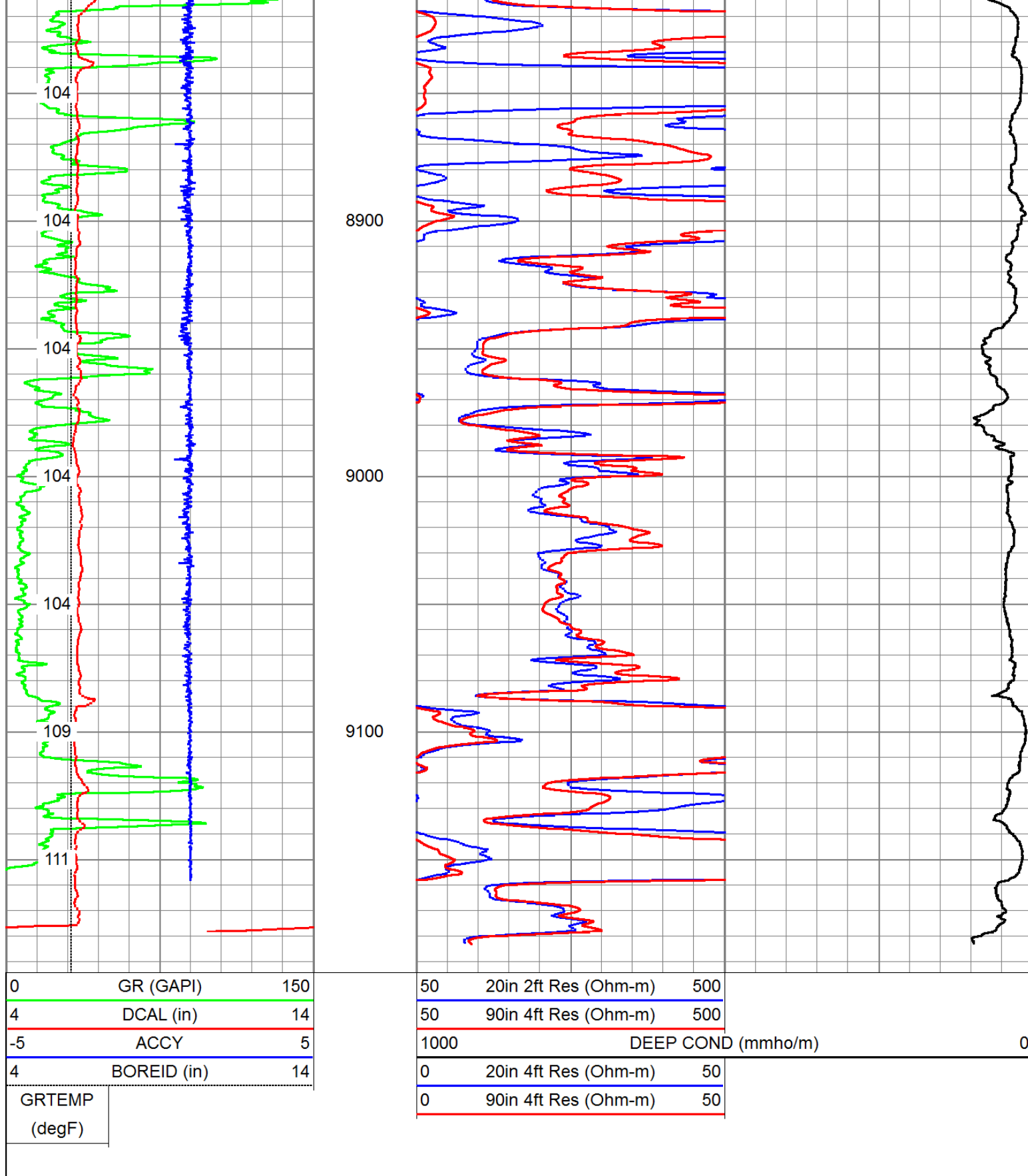






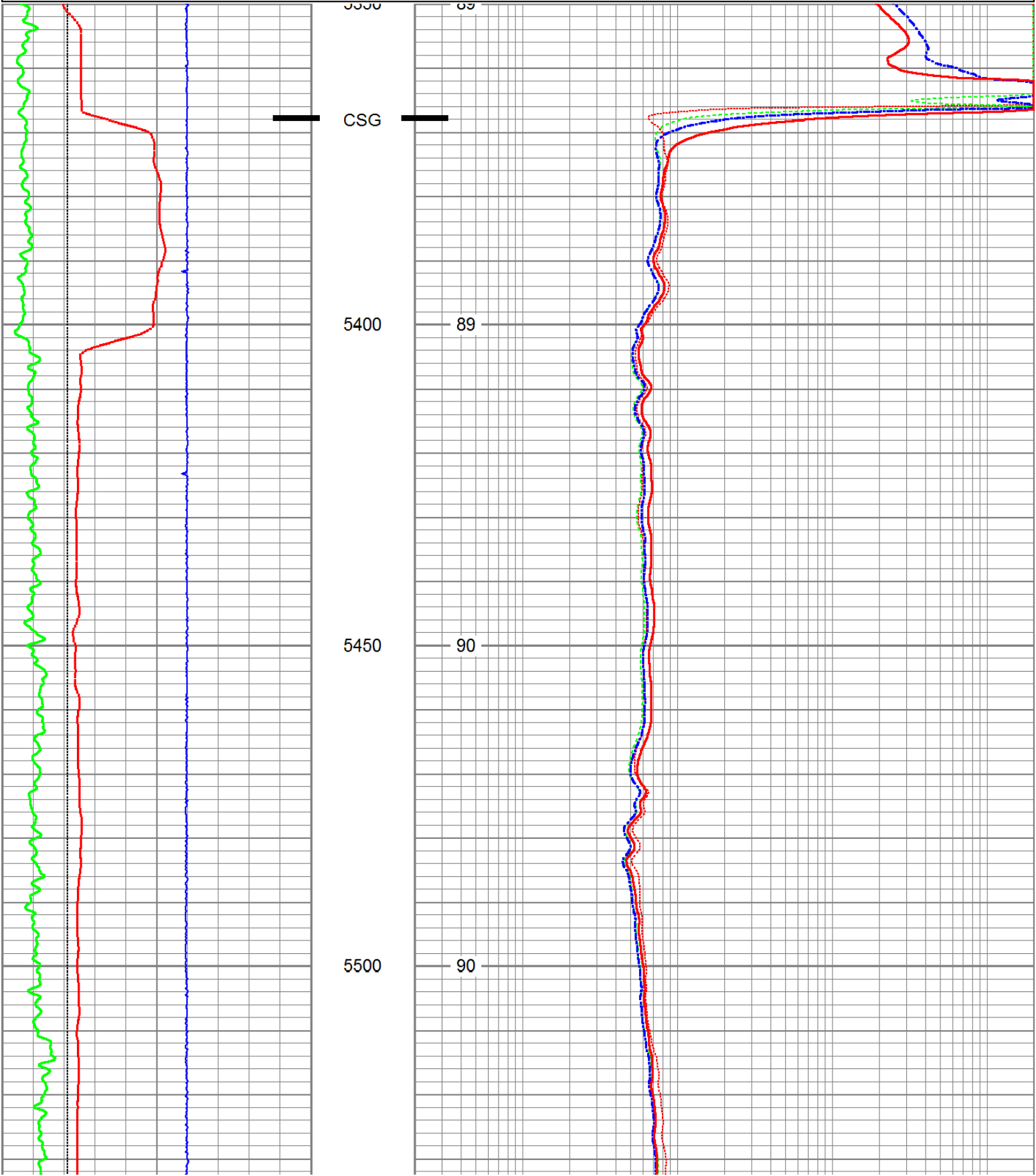


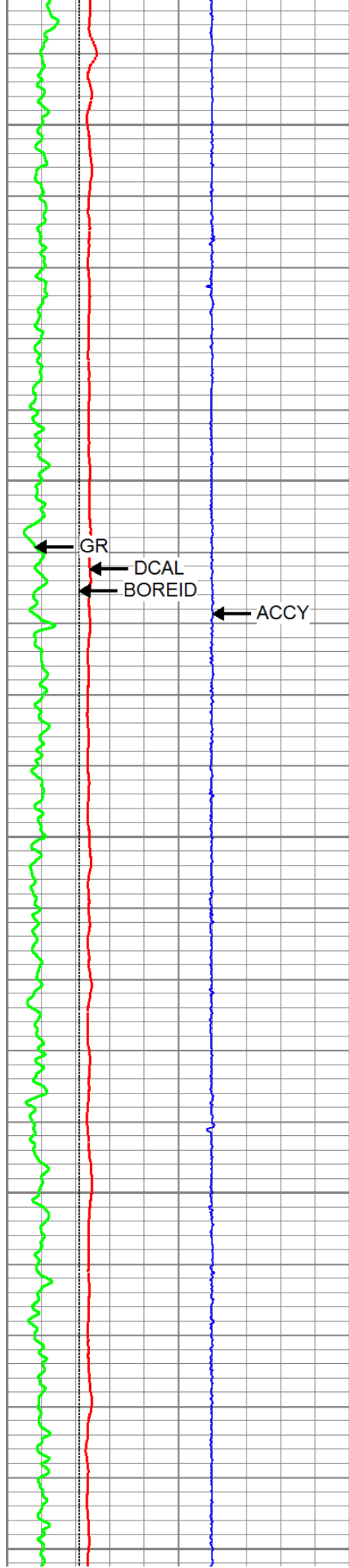




MAIN PASS

0	GR (GAPI)	150	0.2	20inRadial (Ohm-m)	2000
4	BOREID (in)	14	0.2	30inRadial (Ohm-m)	2000
4	DCAL (in)	14	0.2	60inRadial (Ohm-m)	2000
-5	ACCY	5	0.2	90inRadial (Ohm-m)	2000
			GRTEMP (degF)		





5550

5600

5650

5700

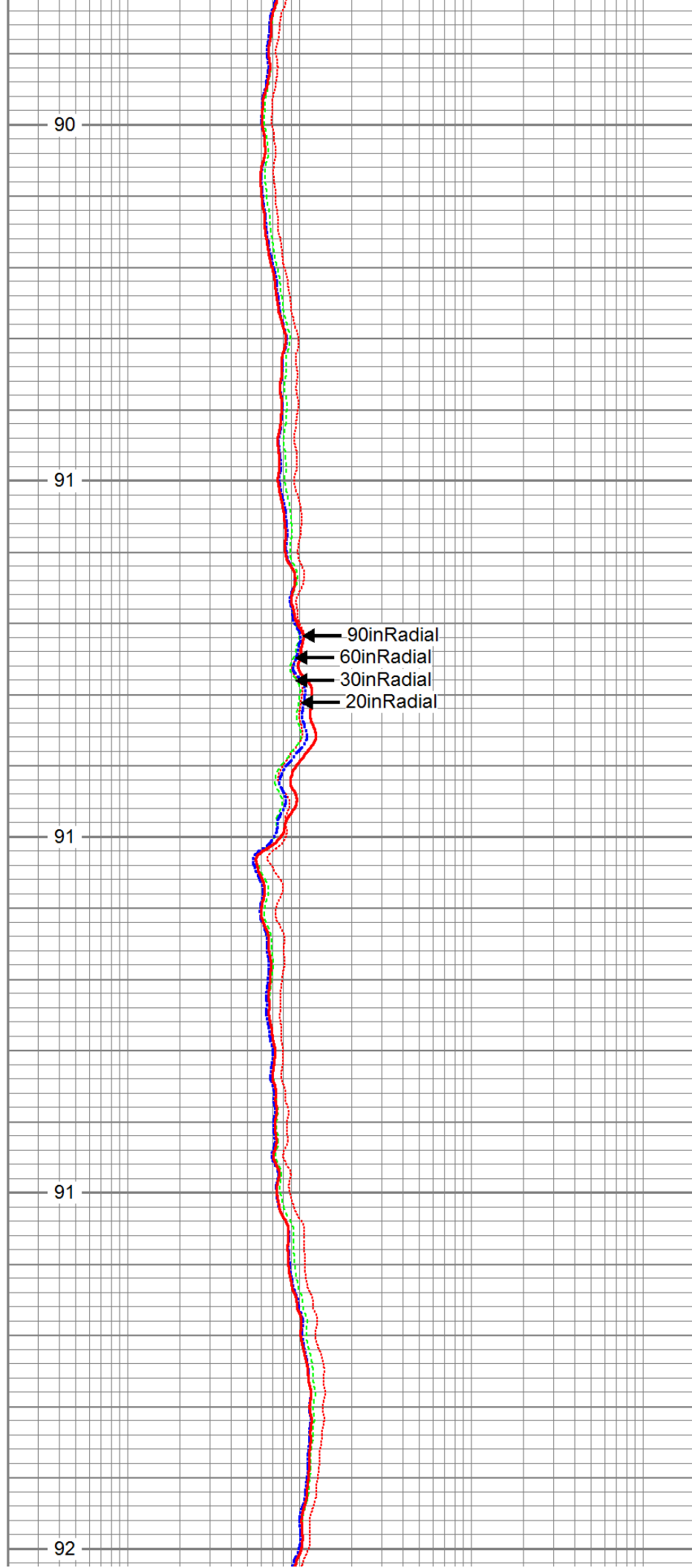
5750

GR

DCAL

BOREID

ACCY



90

91

91

91

92

90inRadial

60inRadial

30inRadial

20inRadial



5800

5850

5900

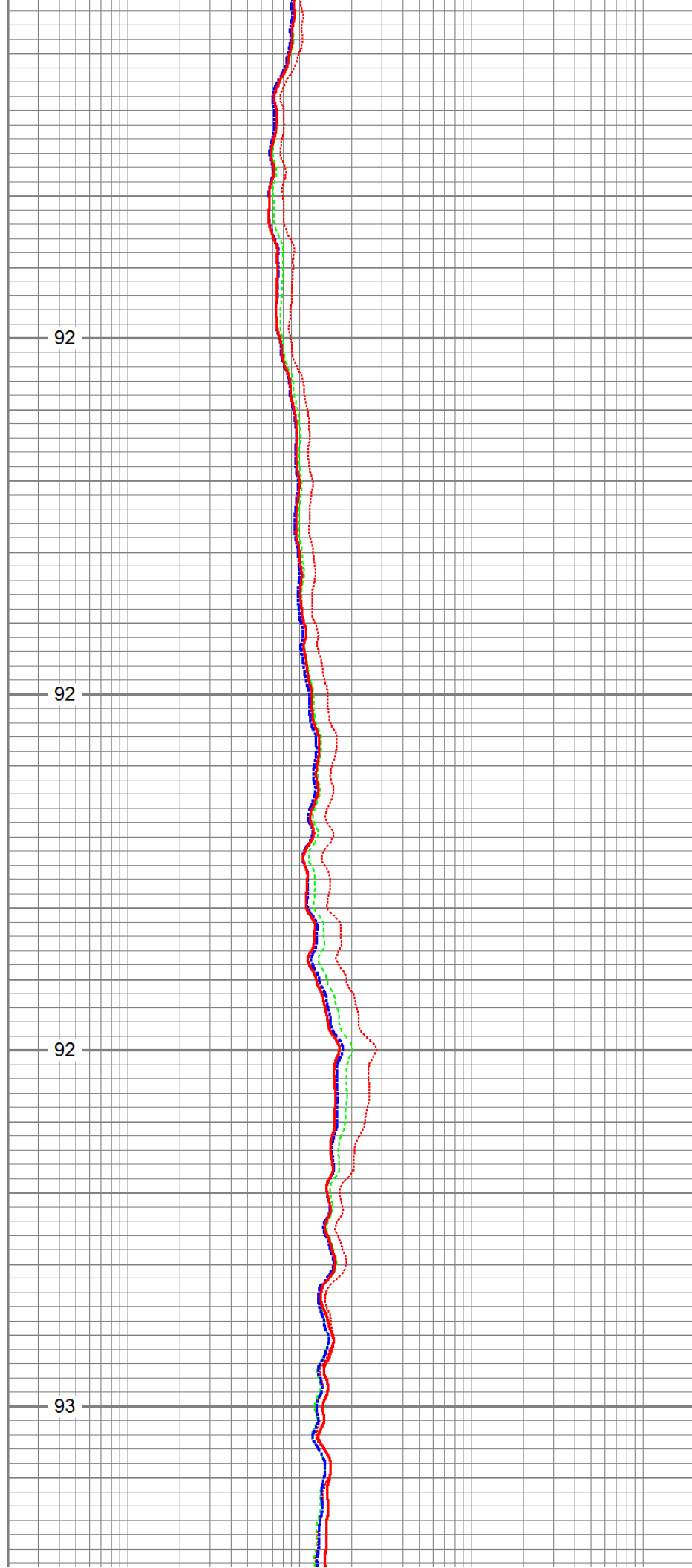
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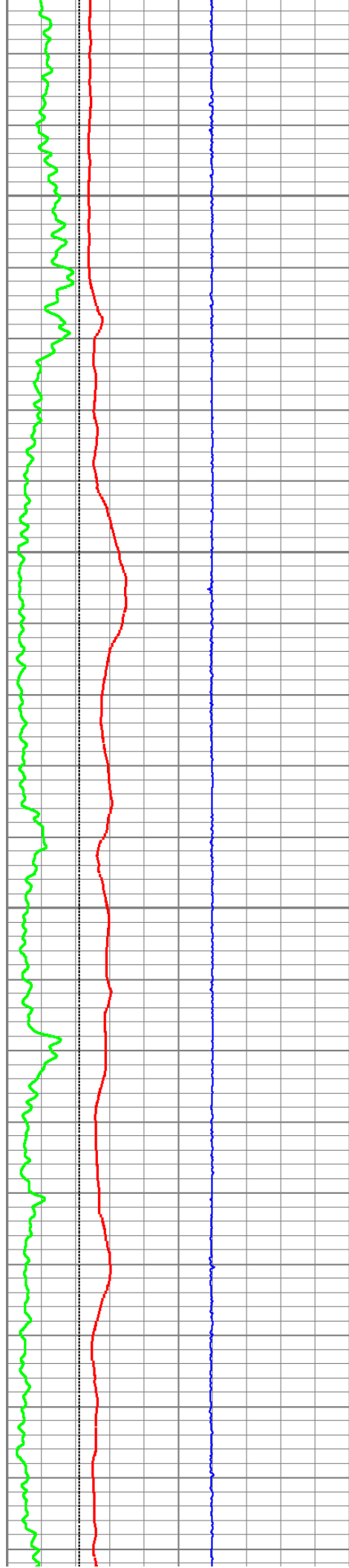
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92

92

93





6000

6050

6100

6150

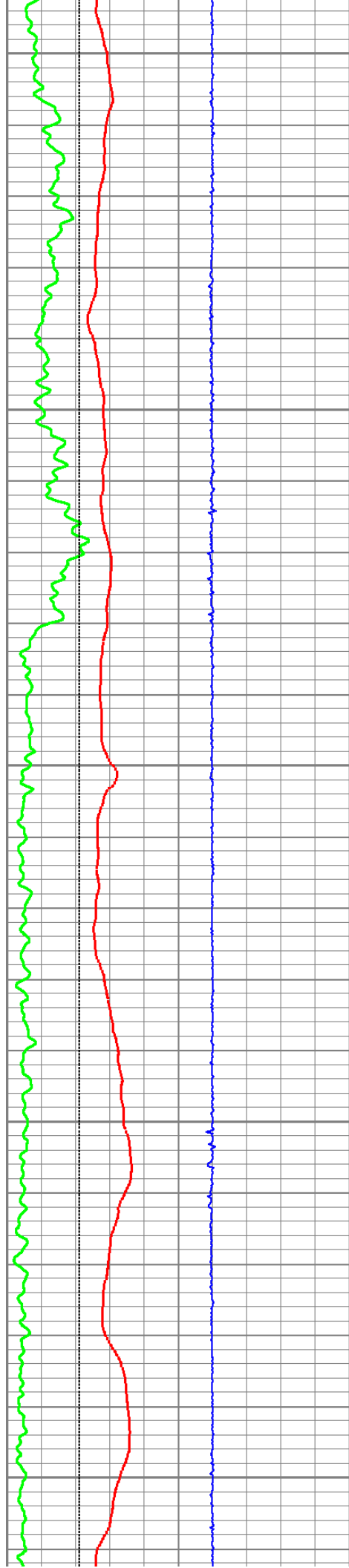
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6200

6250

6300

6350

6400

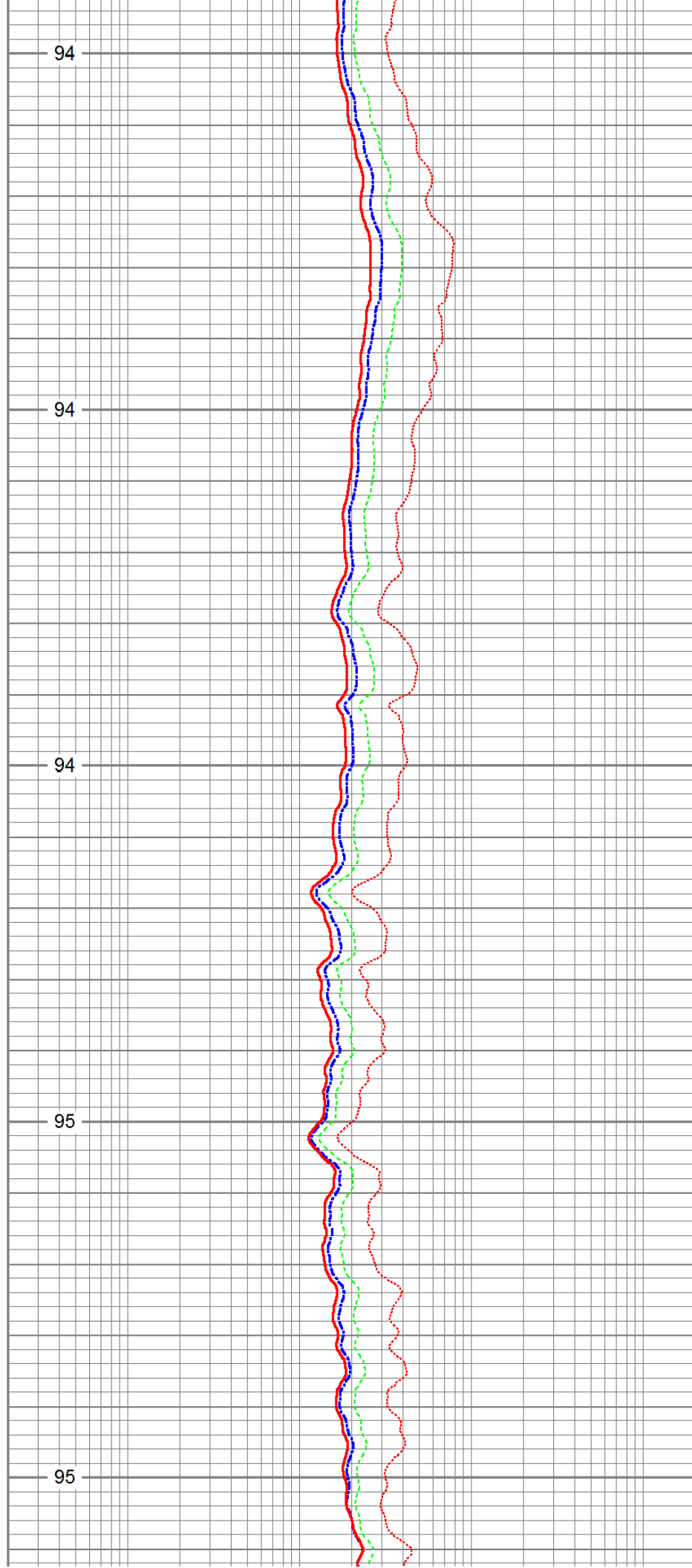
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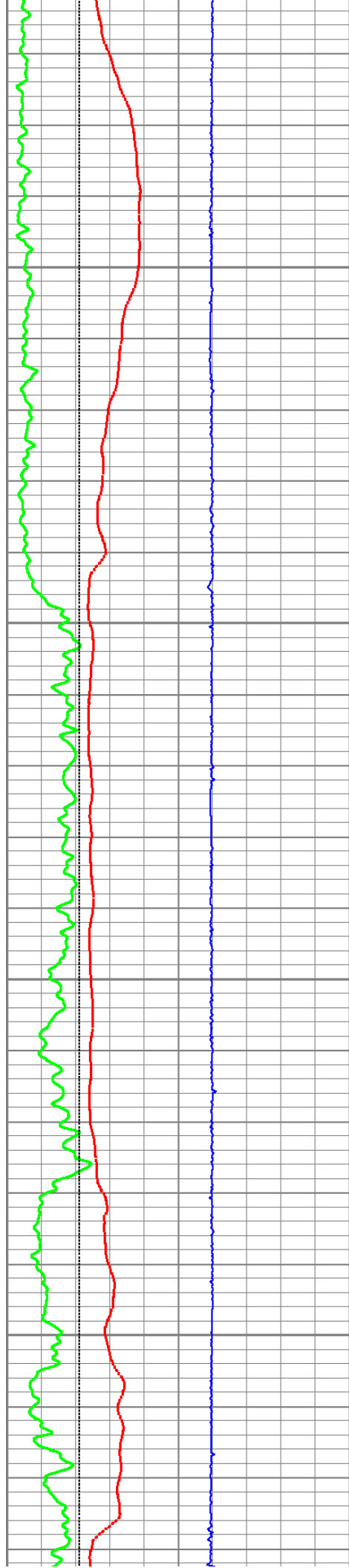
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6450

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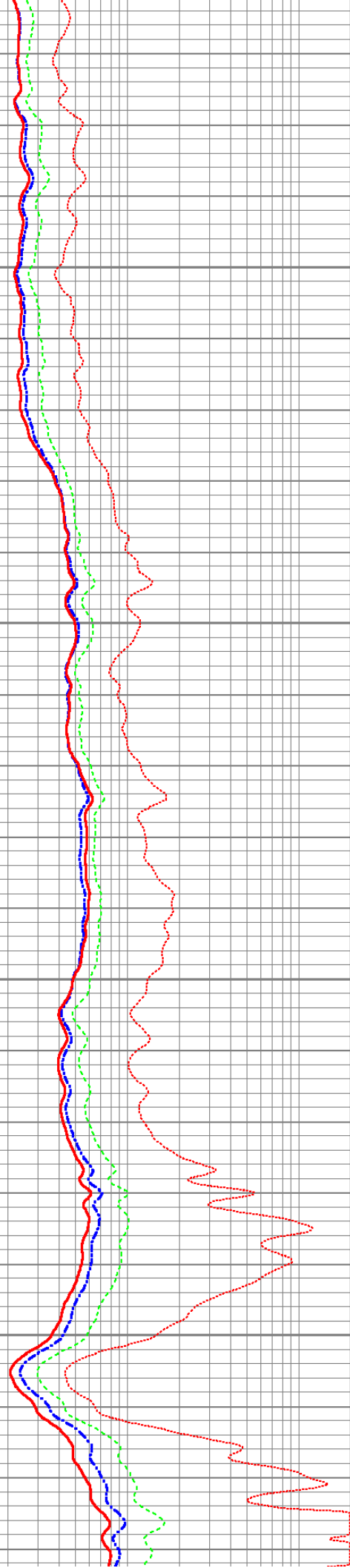
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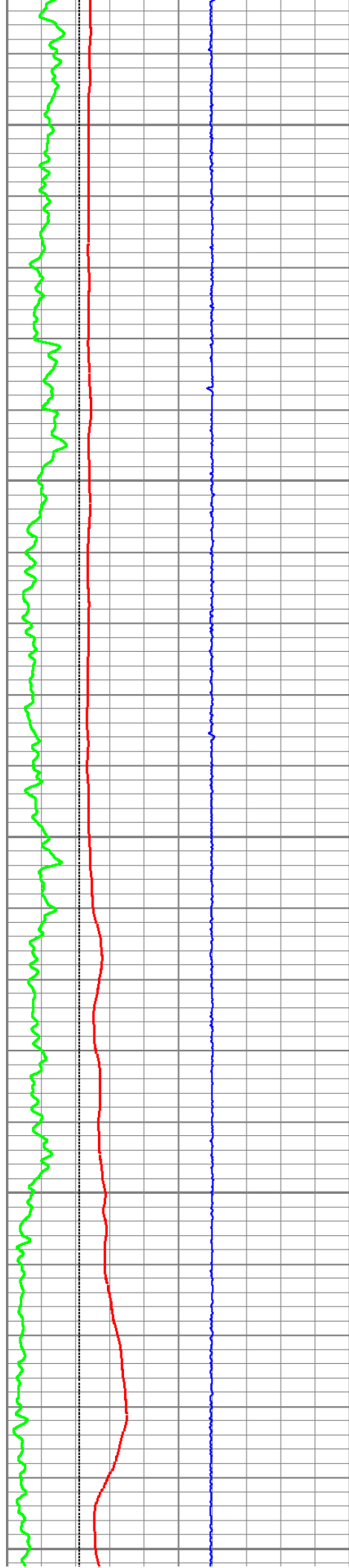
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6700

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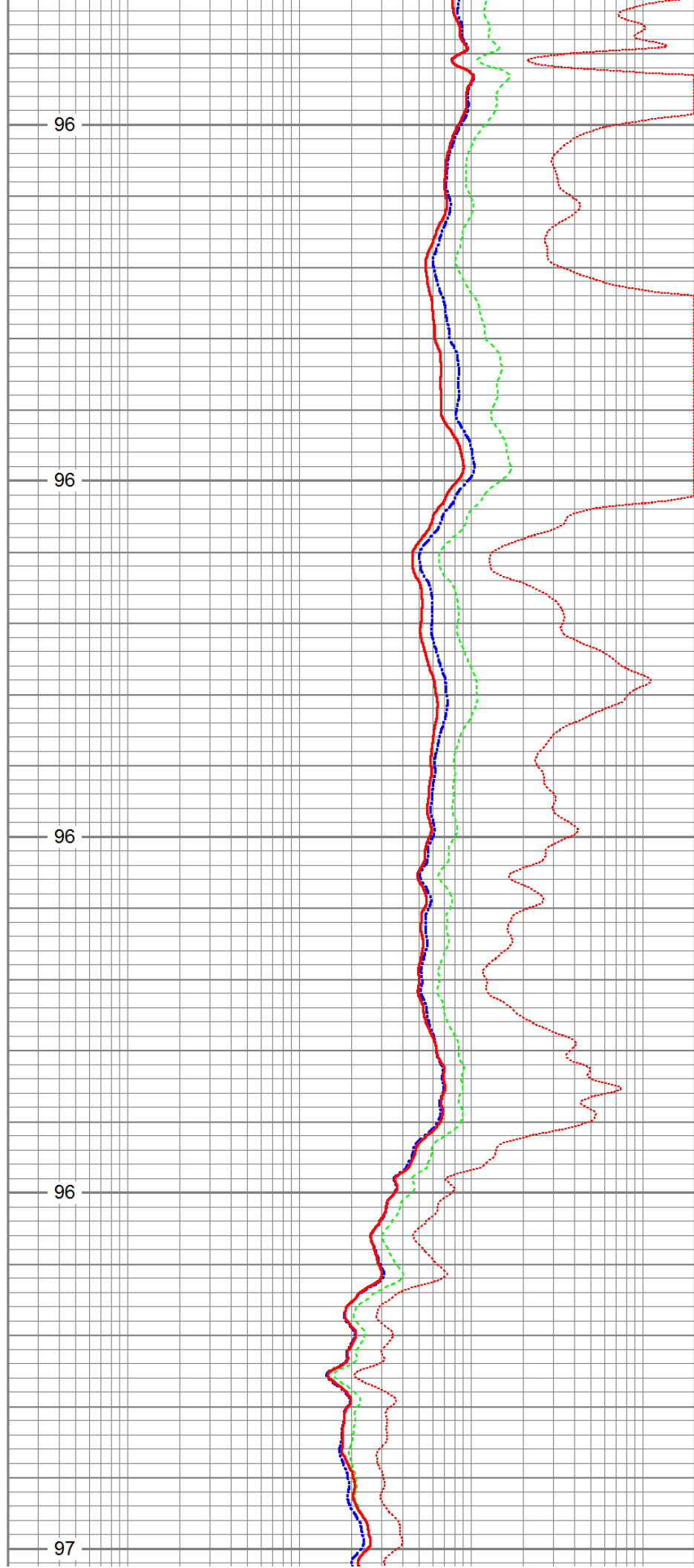
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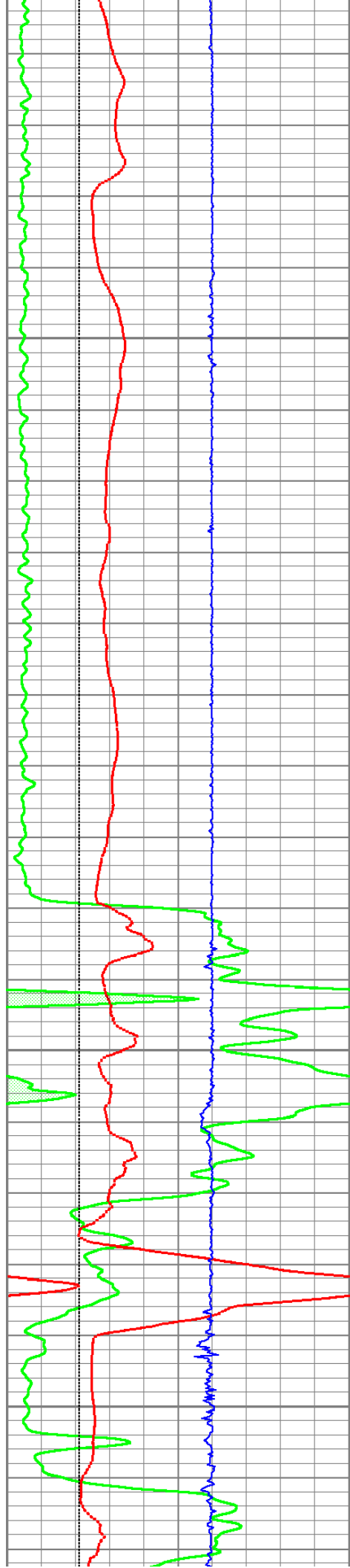
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7000

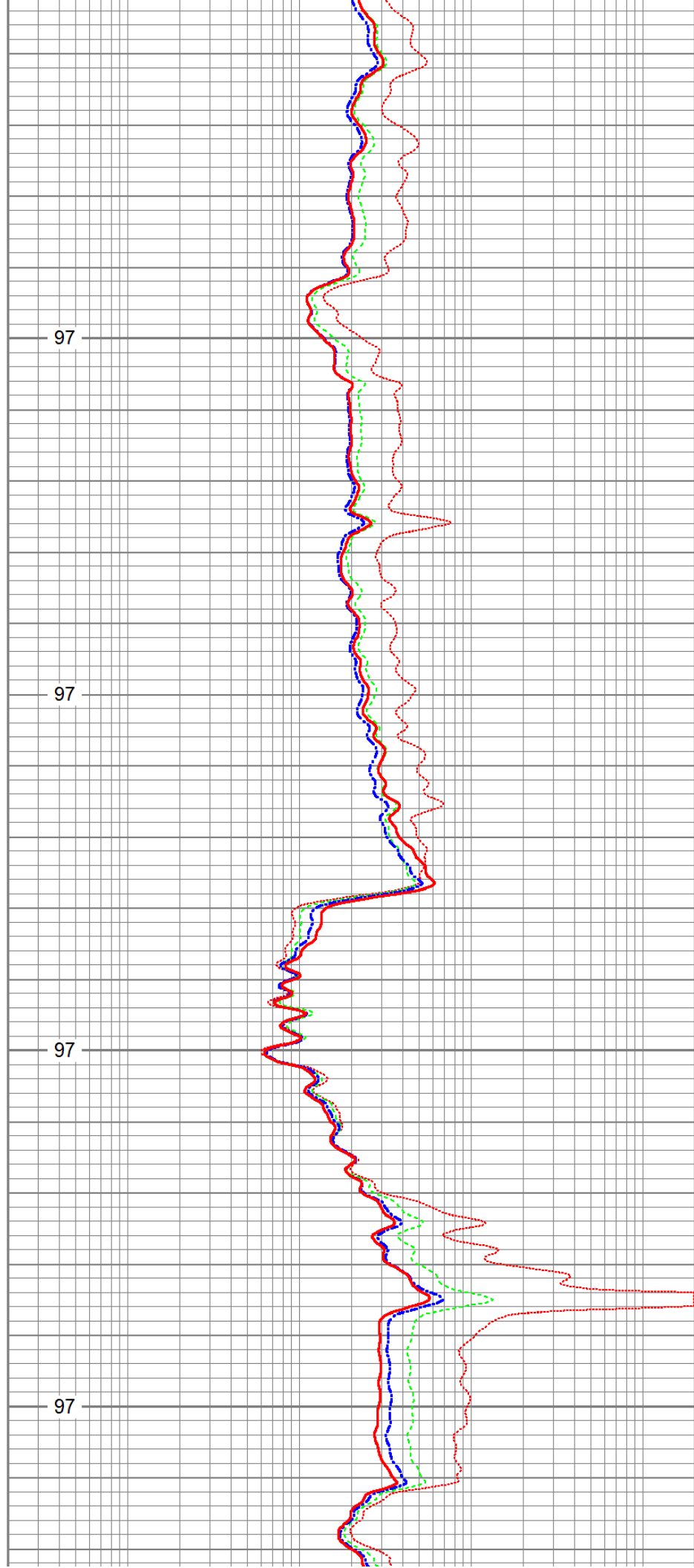
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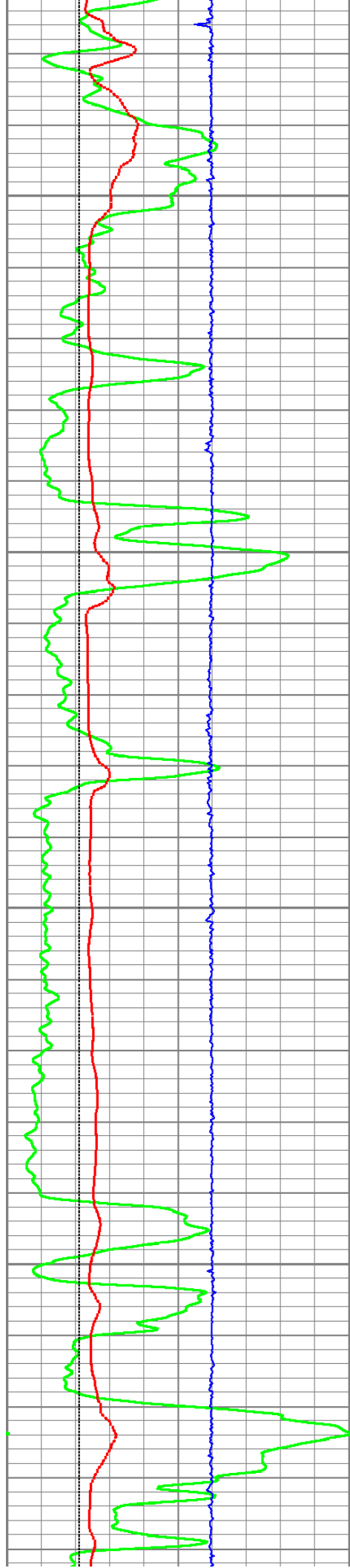
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7100

7150

7200

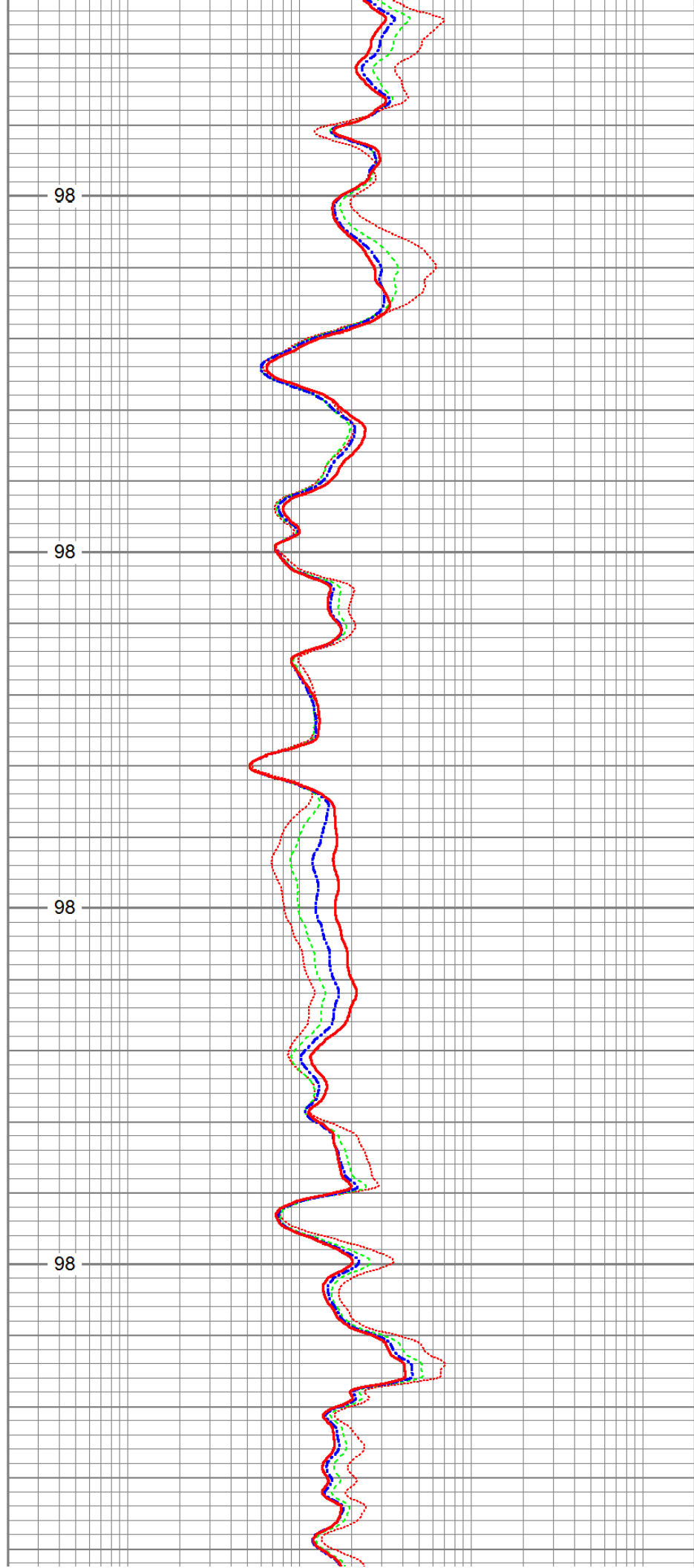
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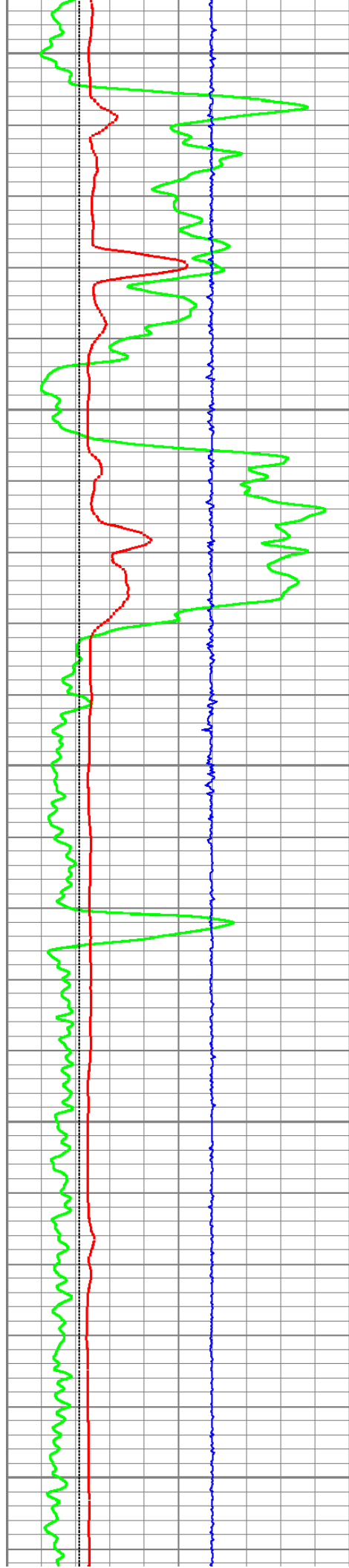
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7300

7350

7400

7450

7500

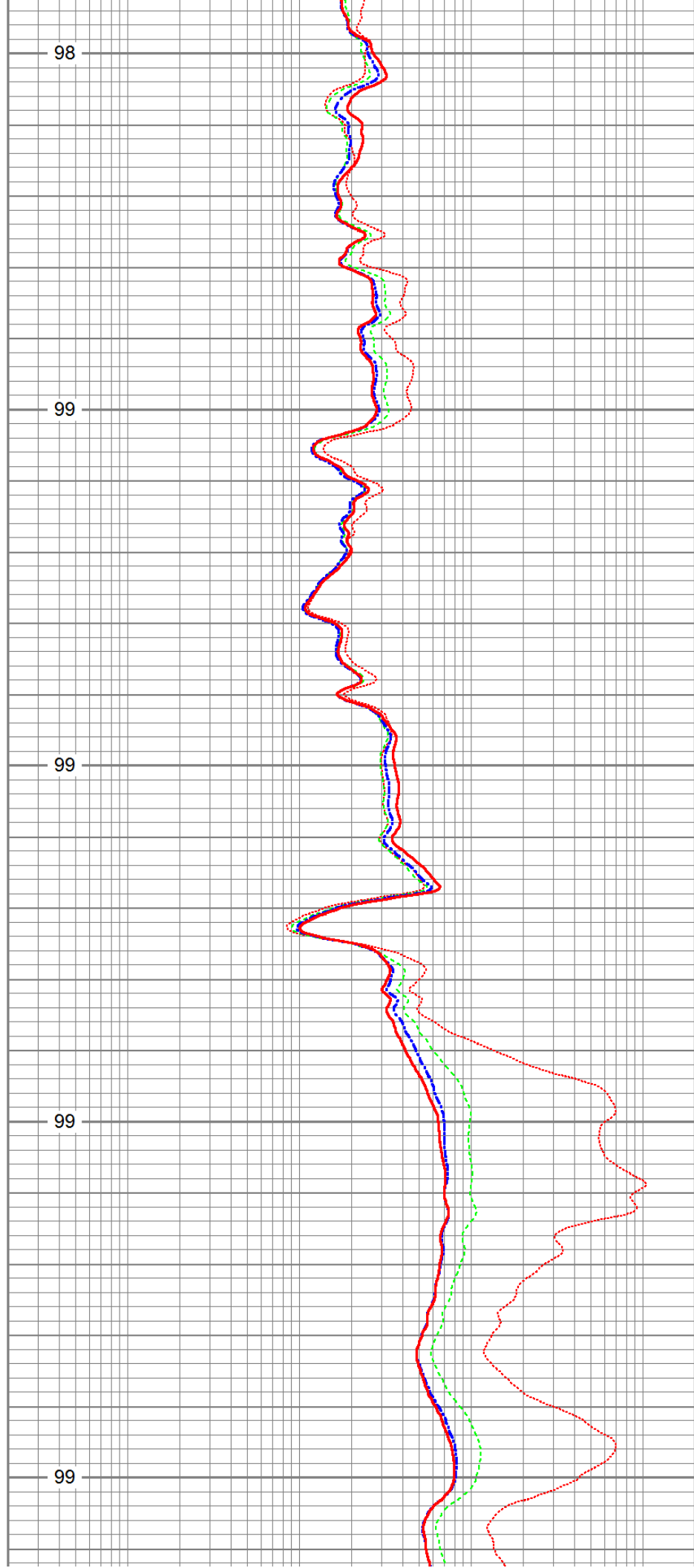
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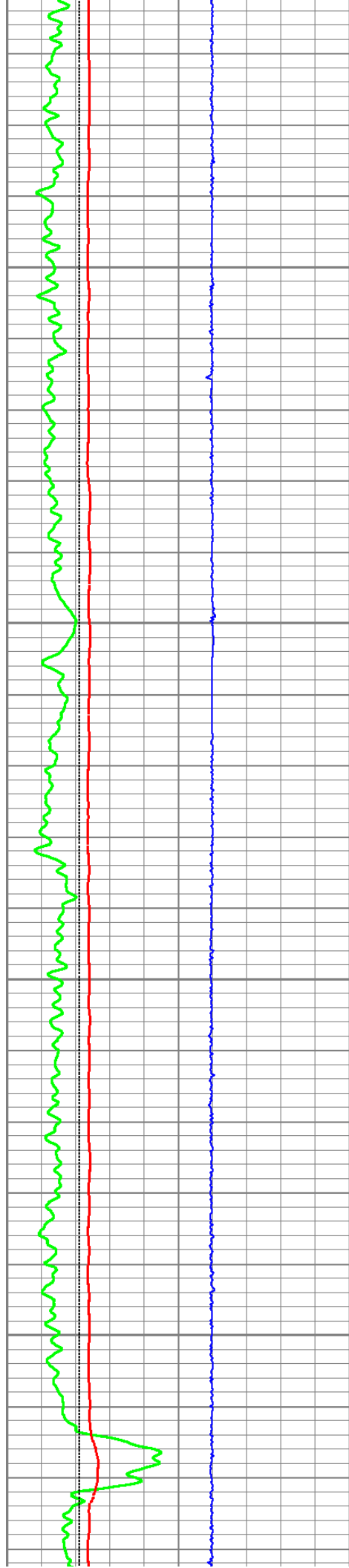
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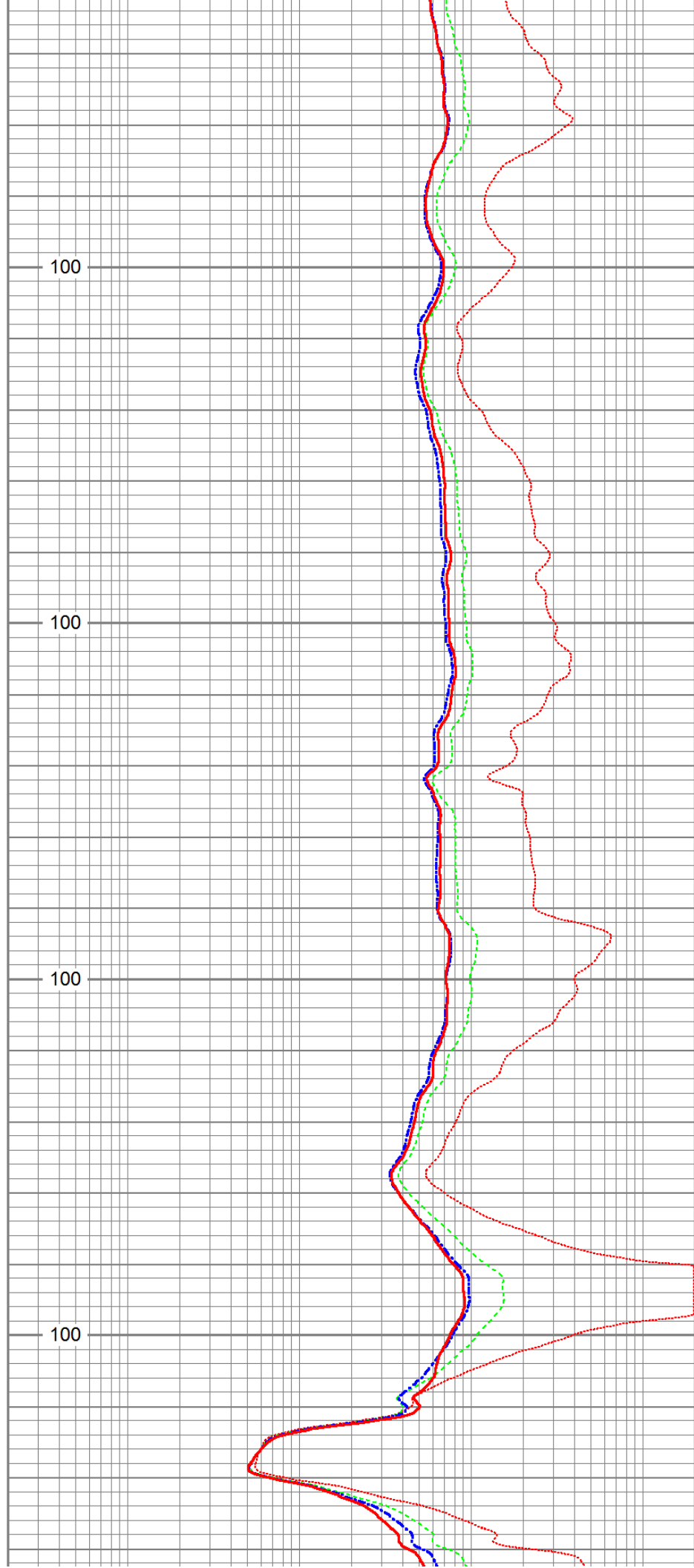
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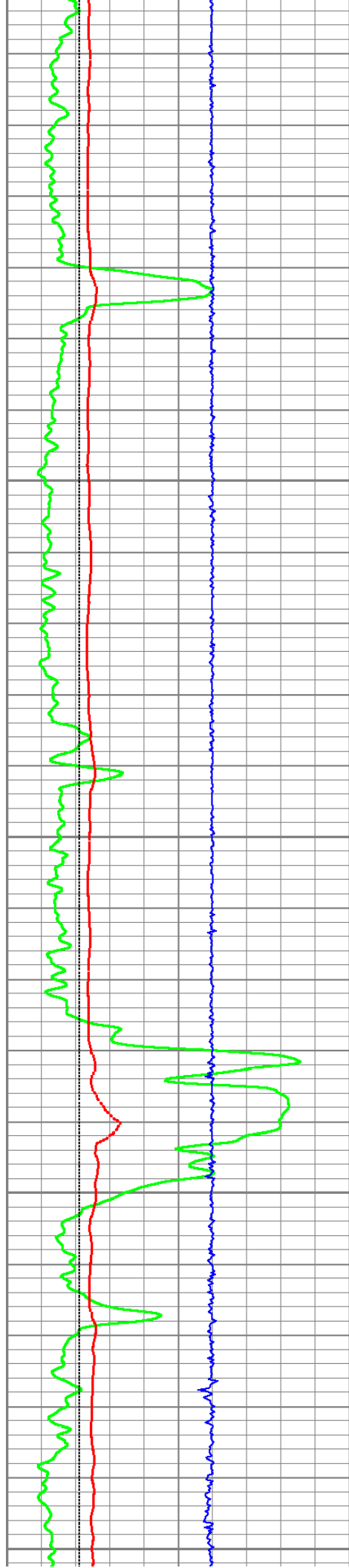
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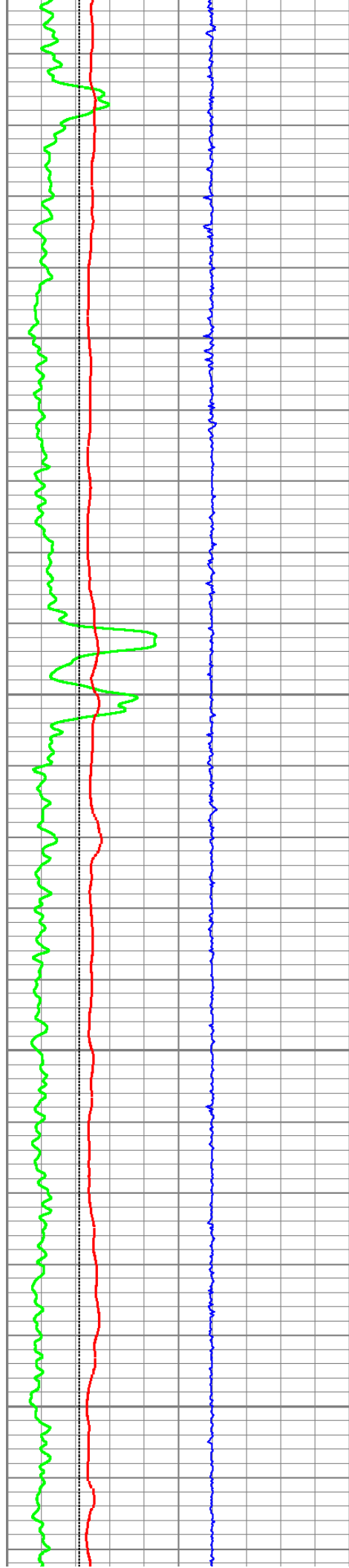
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8050

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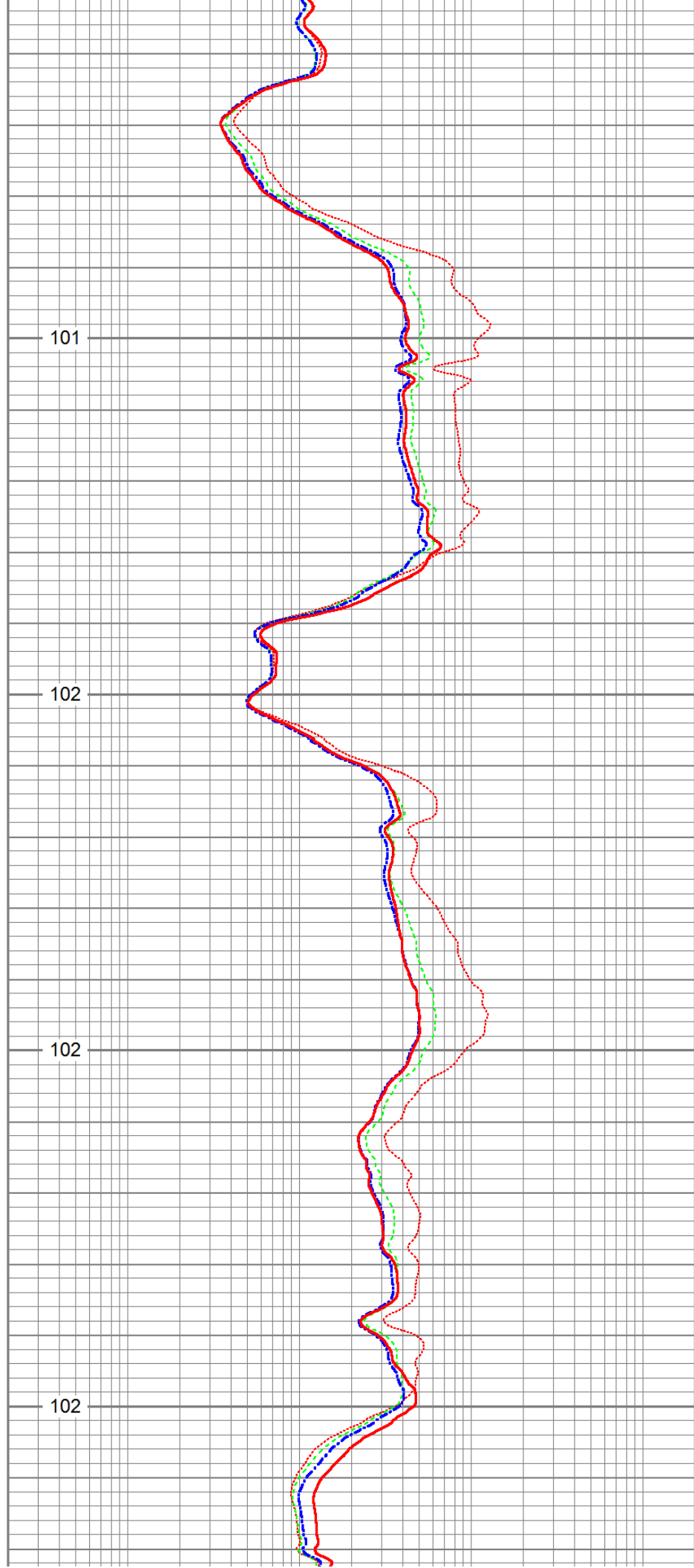
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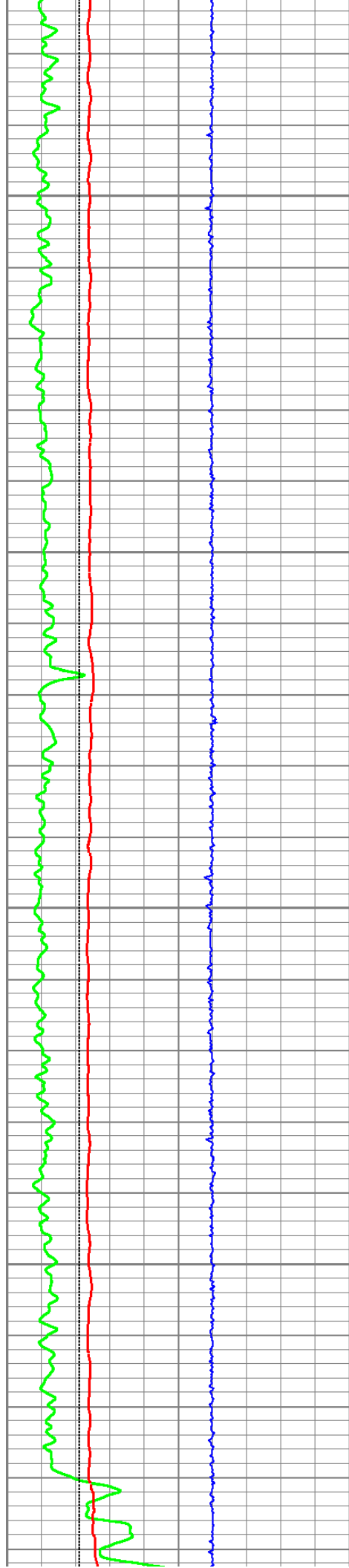
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8250

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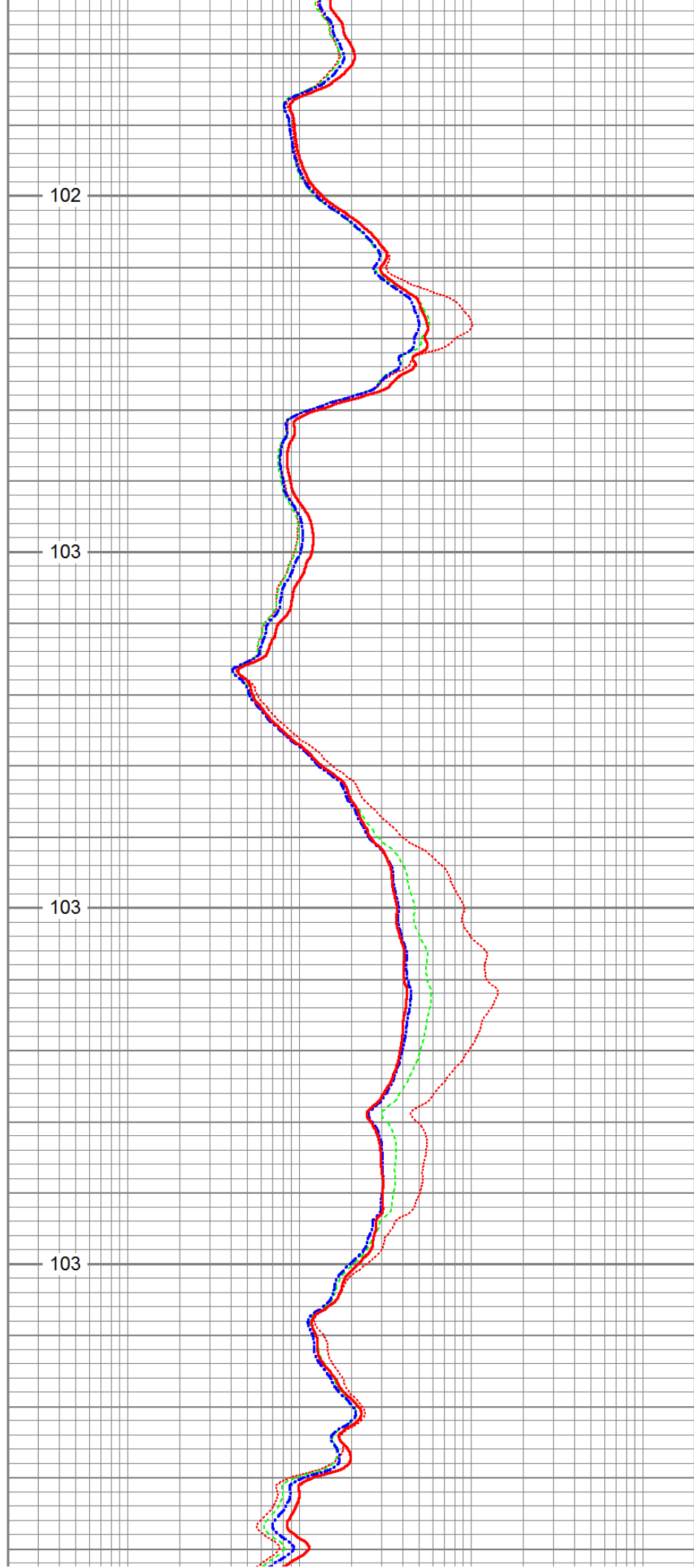
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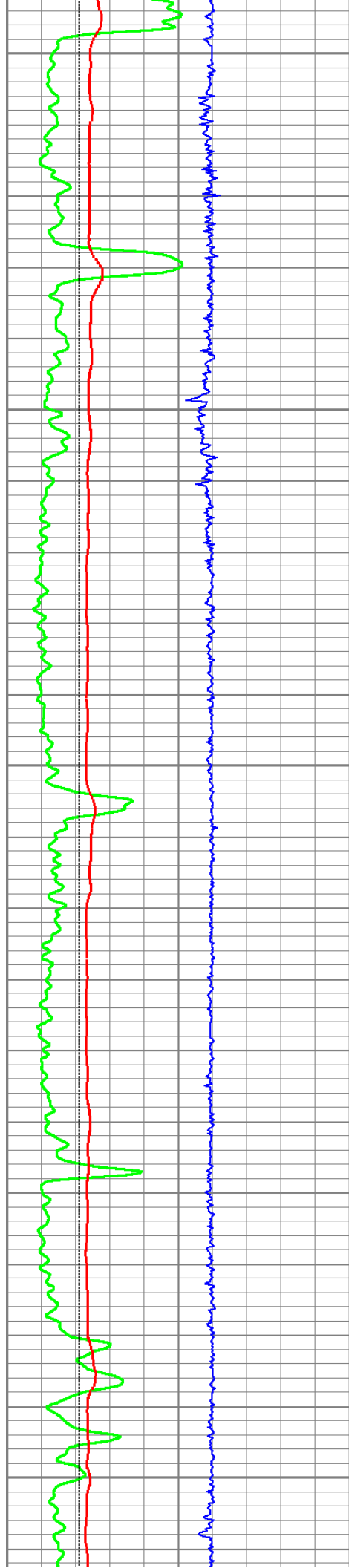
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103

103

103





8400

8450

8500

8550

8600

103

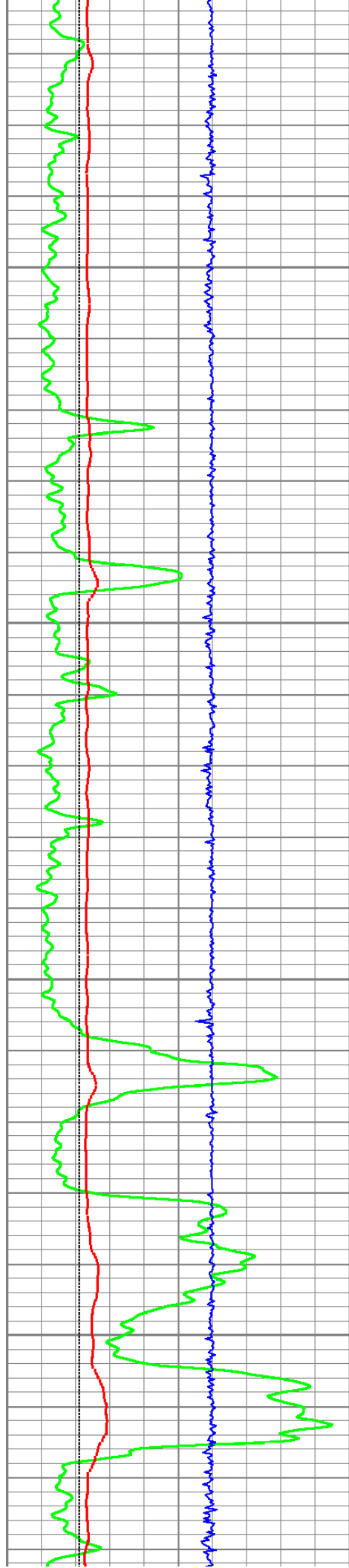
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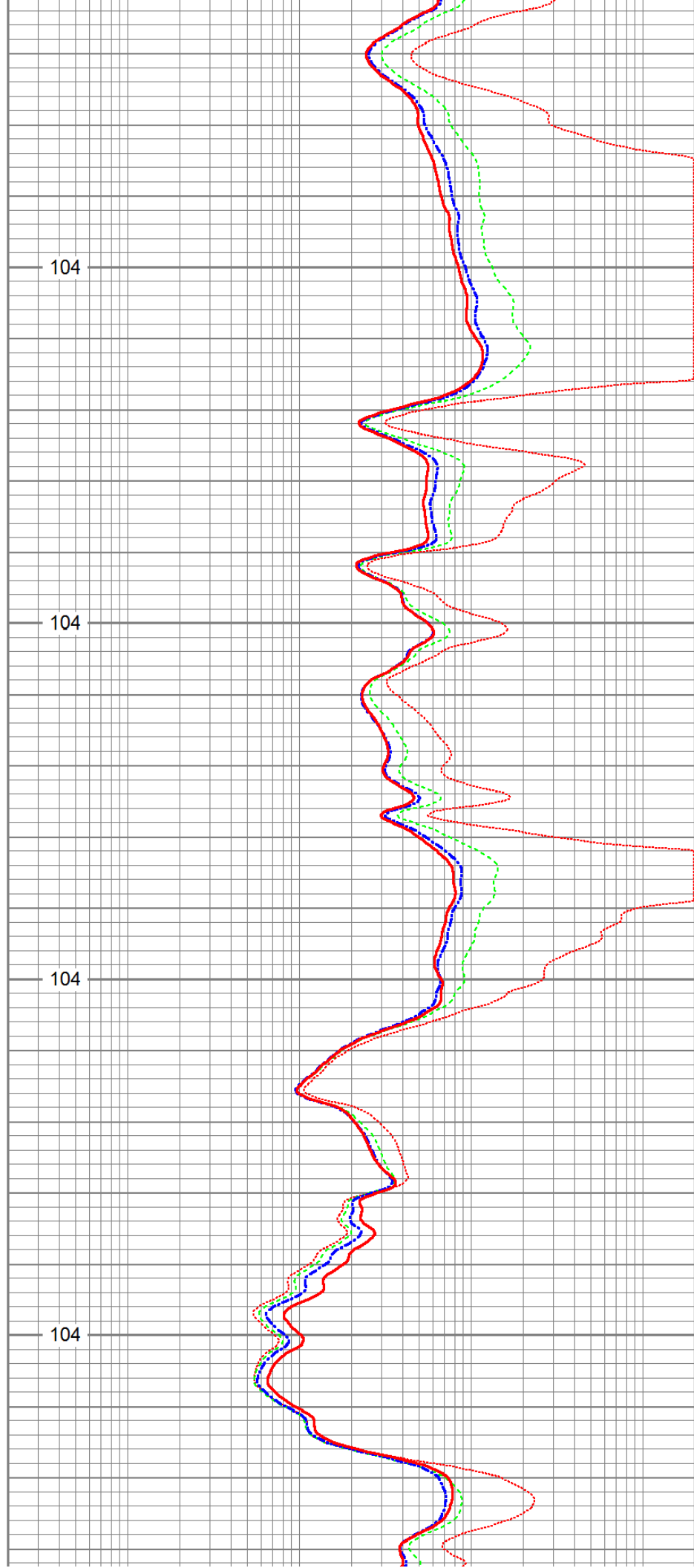


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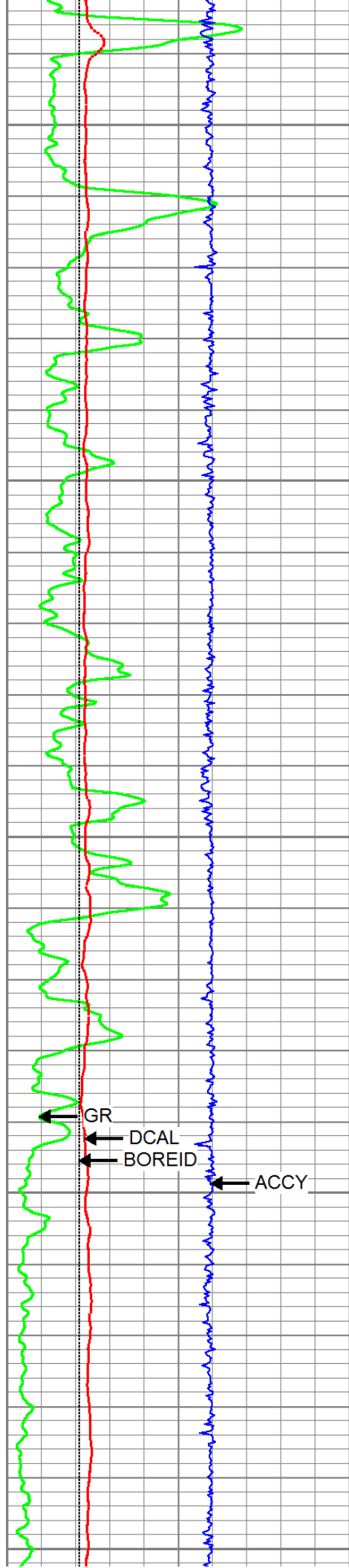


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9000

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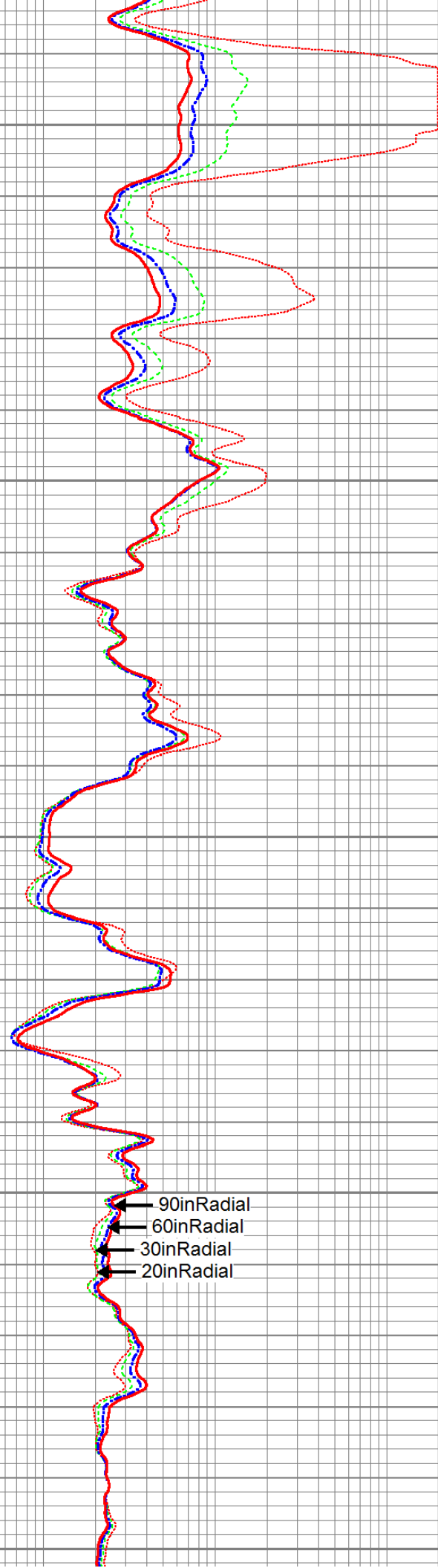
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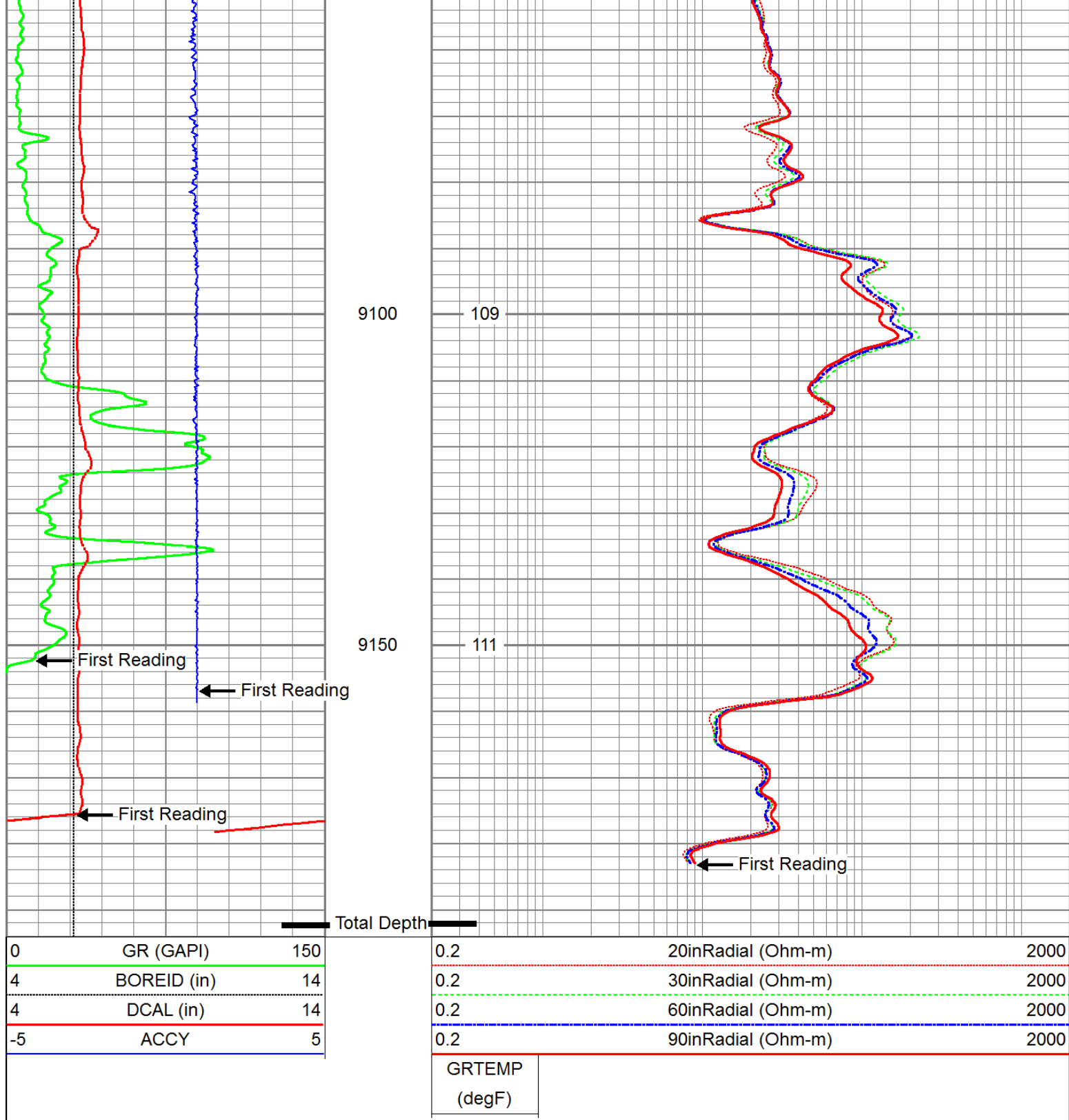
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104





Log Variables

Database: c:\users\kris.wetzel\desktop\taylor 3406 3-29h\sandridge_taylor_3406_3-29h_mem.db
Dataset: field/well/proc1/pass1.2

Top - Bottom

A	BHCOR	BHFL_TYPE	BHFLRES	BHFLRESSRC	BHIDSRC	BOREID
1	On	WBM	Ohm-m	MUDCELL	CURVE	in
			1			6.125
BOTTEMP	CASED?	CASEOD	CASETHCK	CEMWATERSA	CMNTTHCK	DNBHC?
degF		in	in	kppm	in	
108	No	4.5	0	0	0	NO
DPORSEI	FLUIDDEN	FRMSAI IN	IATNOR	M	MATRXDEN	MUIDSAI IN

RF ORCEL	FLUID DEN	FLUID CALIB	FLUID CORR	FLUID	FLUID	FLUID
RHOB	g/cc 1	kppm 0	Off	2	g/cc 2.71	kppm 0.2
MudWgt lb/gal 8.3	NPORSEL Limestone	PEBHC? YES	PERFS 0	RESTMP SRC INTERNAL	SO in 0.5	SRFTEMP degF 65
SZCOR On	TDEPTH ft 9233	TMPCOR On	TOOLPOS Ec-centered			

Calibration Report				
Database File:	c:\users\kris.wetzel\desktop\taylor 3406 3-29h\sandridge_taylor_3406_3-29h_mem.db			
Dataset Pathname:	proc1/pass1.2			
Dataset Creation:	Sun May 26 05:23:01 2013			
ThruBit Induction Calibration Report				
Tool Model-Serial Number:		PS-PS38R		
Shop Calibration Performed:		Fri Mar 01 12:30:29 2013		
BASELINE				
	R	Expected	X	Expected
Freq 1				
A1	-478.4900	[-500.00, -400.00]	175.3190	[-500.00, 500.00]
A2	-135.7360	[-180.00, -100.00]	302.3650	[-500.00, 500.00]
A3	-26.2781	[-50.00, -10.00]	-65.5454	[-500.00, 500.00]
A4	-16.7549	[-30.00, -10.00]	254.1780	[-500.00, 500.00]
A5	-14.3211	[-30.00, -10.00]	151.4720	[-500.00, 500.00]
Freq 2				
A1	-252.3300	[-280.00, -180.00]	90.6894	[-500.00, 500.00]
A2	-86.4805	[-130.00, -50.00]	170.3340	[-500.00, 500.00]
A3	-19.2593	[-50.00, -10.00]	-94.3423	[-500.00, 500.00]
A4	-19.7630	[-30.00, -10.00]	78.5474	[-500.00, 500.00]
A5	-19.2330	[-30.00, -10.00]	2.2441	[-500.00, 500.00]
Freq 3				
A1	-162.5760	[-180.00, -80.00]	-2.4436	[-500.00, 500.00]
A2	-65.8174	[-130.00, -30.00]	84.6667	[-500.00, 500.00]
A3	-15.1583	[-50.00, -10.00]	-126.5820	[-500.00, 500.00]
A4	-21.2009	[-30.00, -10.00]	-38.0339	[-500.00, 500.00]
A5	-21.8735	[-30.00, -10.00]	-105.2590	[-500.00, 500.00]
Freq 4				
A1	-89.4241	[-120.00, -40.00]	-152.8680	[-500.00, 500.00]
A2	-46.8994	[-110.00, -10.00]	-29.1757	[-500.00, 500.00]
A3	-12.3098	[-50.00, -10.00]	-189.9740	[-500.00, 500.00]
A4	-23.7794	[-30.00, -10.00]	-211.1800	[-500.00, 500.00]
A5	-26.9272	[-30.00, -10.00]	-283.6760	[-500.00, 500.00]

CALIBRATION COEFFICIENTS				
	R	Expected	X	Expected
Freq 1				
A1	0.9910	[0.95, 1.05]	0.0019	[-0.05, 0.05]
A2	0.9910	[0.95, 1.05]	0.0018	[-0.05, 0.05]
A3	1.0009	[0.95, 1.05]	-0.0054	[-0.05, 0.05]
A4	0.9885	[0.95, 1.05]	0.0047	[-0.05, 0.05]

A5	0.9939	[0.95, 1.05]	0.0015	[-0.05, 0.05]
Freq 2				
A1	0.9860	[0.95, 1.05]	-0.0059	[-0.05, 0.05]
A2	0.9858	[0.95, 1.05]	-0.0055	[-0.05, 0.05]
A3	0.9901	[0.95, 1.05]	-0.0051	[-0.05, 0.05]
A4	0.9836	[0.95, 1.05]	-0.0030	[-0.05, 0.05]
A5	0.9887	[0.95, 1.05]	-0.0069	[-0.05, 0.05]
Freq 3				
A1	0.9930	[0.95, 1.05]	-0.0045	[-0.05, 0.05]
A2	0.9931	[0.95, 1.05]	-0.0041	[-0.05, 0.05]
A3	0.9966	[0.95, 1.05]	-0.0041	[-0.05, 0.05]
A4	0.9891	[0.95, 1.05]	-0.0015	[-0.05, 0.05]
A5	0.9978	[0.95, 1.05]	-0.0052	[-0.05, 0.05]
Freq 4				
A1	0.9848	[0.95, 1.05]	-0.0070	[-0.05, 0.05]
A2	0.9844	[0.95, 1.05]	-0.0066	[-0.05, 0.05]
A3	0.9901	[0.95, 1.05]	-0.0084	[-0.05, 0.05]
A4	0.9809	[0.95, 1.05]	-0.0036	[-0.05, 0.05]
A5	0.9965	[0.95, 1.05]	-0.0100	[-0.05, 0.05]
Temperature	34.5229 degC			

ThruBit Density Calibration Report			
Tool Model-Serial Number:		PS-PS01D	
Source Number:			
Shop Calibration Performed:		Fri May 17 09:36:11 2013	
REFERENCE			
	Density	Units	
Aluminium	2.607	g/cc	
Magnesium	1.752	g/cc	
READINGS			
Outputs	Counts	Units	Expected
SS1 Background	133.63	cps	[130.00, 170.00]
LS1 Background	143.47	cps	[130.00, 170.00]
LS4 Background	30.64	cps	[27.00, 35.00]
SS1 Aluminium	4869.52	cps	[4500.00, 5500.00]
LS1 Aluminium	900.79	cps	[750.00, 950.00]
LS4 Aluminium	1058.65	cps	[843.00, 1068.00]
SS1 Magnesium	7940.15	cps	[7000.00, 9000.00]
LS1 Magnesium	5747.93	cps	[5250.00, 6250.00]
LS1 Al + Fe	779.29	cps	[650.00, 800.00]
LS4 Al + Fe	491.38	cps	[382.00, 471.00]
RESULTS			
SS Slope	1.71		[1.52, 1.77]
LS Slope	0.43		[0.38, 0.45]
PEF K Factor	5.113		[3.510, 6.170]
PEF B Factor	-0.619		[-0.700, -0.410]

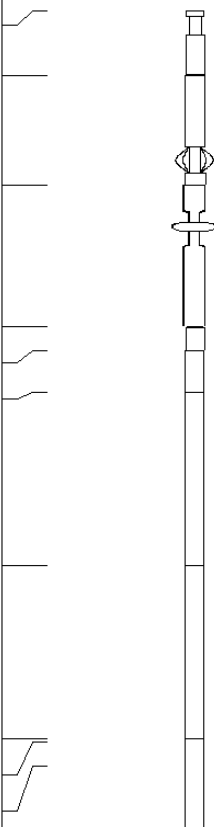
RESULTS		
Caliper Shop Calibration performed:	Fri May 17 09:36:11 2013	

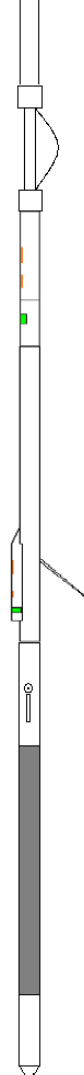
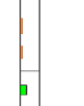
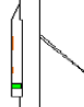
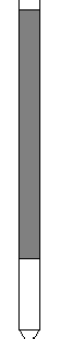
Reference	Reading	Units	
12.00	1827.26	in	
9.00	1981.10	in	
6.00	2149.14	in	
DENSITY PRE-SURVEY CHECK Performed: Wed May 22 17:56:53 2013			
Outputs	Counts	Units	Expected
SS1 Background	132.62	cps	[129.62, 137.64]
LS1 Background	142.86	cps	[139.17, 147.78]
LS4 Background	30.42	cps	[28.80, 32.48]
CALIPER PRE-SURVEY CHECK Performed: Wed May 22 17:57:11 2013			
Reference	Readings	Units	Expected
6.00	5.96	in	[5.80, 6.20]
Compensated Neutron Calibration Report			
Tool Model-Serial Number:		PS-PS14N	
Source Number:			
Calibration Tank Temperature:		71.8 degF	
Shop Calibration Performed:		Thu May 23 10:51:50 2013	
BACKGROUND MEASUREMENT			
Outputs	Measured	Units	Expected
SS Counts	0.0	cps	<10
LS Counts	0.0	cps	<4
WATER TANK REFERENCE			
Outputs	Measured	Units	Expected
SS Counts	751.8	cps	
LS Counts	25.4	cps	
Tank Ratio Ref	30.9580	SS/LS	
Tank Ratio	29.5738	SS/LS	
Tank Ratio Gain	1.0468		[0.85, 1.15]
ALUMINUM SLEEVE REFERENCE			
Outputs	Measured	Units	Expected
SS Counts	8361.0	cps	
LS Counts	807.3	cps	
Al Ratio Ref	10.797	SS/LS	
Al Ratio	10.841	SS/LS	
Al Ratio Gain	1.00		[0.90, 1.10]
Sleeve Porosity	14.46	pu	

PRE-SURVEY BACKGROUND CHECK Performed:				Thu May 23 10:56:59 2013			
Outputs		Measured	Units		Expected		
SS Counts		0.0	cps		<10		
LS Counts		0.1	cps		<4		

Gamma Ray Calibration Report							
Tool Model-Serial Number:		ENP-ENP5T					
Performed:		Wed Apr 24 10:34:01 2013					
Calibrator Value:		165.0	GAPI				
Background Reading:		68.2	cps				
Calibrator Reading:		447.3	cps				
Sensitivity:		0.3650	GAPI/cps				

Inclinometer Calibration Report							
Performed:		Sun Jun 13 14:33:21 1993					
		Low Read.	High Read.	Low Ref.		High Ref.	
X Accelerometer		0.00	1.00	0.00		1.00	gee
Y Accelerometer		0.00	1.00	0.00		1.00	gee
Z Accelerometer		0.00	1.00	0.00		1.00	gee

Sensor	Offset (ft)	Schematic		Description	Len (ft)	OD (in)	Wt (lb)
Thrubit	66.92			Cablehead-S	2.31	2.13	5.00
Thrubit	64.61			Solid Weakpoint			
				PSBDOT	3.87	2.25	35.00
Thrubit	60.75			HangOff_Tool	5.00	2.38	60.00
Thrubit	55.75			10-1	0.88	2.13	3.95
Thrubit	54.87			Universal Joint	1.46	2.06	15.00
TBBAT	53.41			TBBAT-A (PS13B) Thrubit Battery	6.13	2.13	38.20
TBBAT2	47.29			TBBAT2-A (PS33B) Thrubit Battery	6.13	2.13	40.00
TMG	41.16			TMG-ENP (ENP5T)	6.13	2.13	45.00
GR	41.04						
GRTEMP	40.20						

ThruBit	35.04		TMS-ENI (ENI 51) ThruBit Telemetry Gamma Ray	0.15	2.13	40.00
			Decentralizer Decentralizer (Small)	4.50	2.13	70.00
CNLSC	28.60		TBN-PS (PS14N) ThruBit Neutron	4.77	2.13	63.00
			TBD-PS (PS01D) ThruBit Density	10.48	2.13	91.00
LSW1	18.04					
DCAL	17.13					
A1_P	10.60		TBI-PS (PS38R) ThruBit Induction	15.29	2.13	94.00
A2_P	10.10					
A3_P	9.35					
A4_P	8.35					
A5_P	6.60					
Dataset: sandridge_taylor_3406_3-29h_mem.db: field/well/proc1/pass1.2						
Total Length: 66.92 ft						
Total Weight: 560.15 lb						
O.D.: 2.38 in						

 ThruBit A Schlumberger Company	Company	SANDRIDGE ENERGY
	Well	TAYLOR 3406 3-29H
	Field	EASTHAM
	County	HARPER
	State	KANSAS

 MAIN PASS	
Database File:	c:\users\kris.wetzel\desktop\taylor 3406 3-29h\sandridge_taylor_3406
Dataset Pathname:	proc1/pass1.2
Presentation Format:	6_1r_chk
Dataset Creation:	Sun May 26 05:23:01 2013
Charted by:	Depth in Feet scaled 1:1200
0 GR (GAPI) 150	20in 2ft Res
4 DCAL (in) 14	50 (Ohm-m) 500
-5 ACCY 5	90in 2ft Res
GRTEMP	50 (Ohm-m) 500
(degF)	1000 DEEP COND (mmho/m) 0
	0 20in 2ft Res (Ohm-m) 50
	0 90in 2ft Res (Ohm-m) 50
	

