



ThruBit
A Schlumberger Company

DUAL SPACED NEUTRON SPECTRAL DENSITY GAMMA RAY MEMORY LOG

Company	SANDRIDGE ENERGY	Company	SANDRIDGE ENERGY
Well	BRAD 3508 2-12H	Well	BRAD 3508 2-12H
Field	BOUSE	Field	BOUSE
County	HARPER	County	HARPER
State	KANSAS	State	KANSAS
Location:	API # : 15-077-21898-0100 2440' FNL & 660' FWL	Other Services THRUBIT PORTAL BIT	
Permanent Datum	SEC 12 TWP 35S RGE 8W	Elevation	
Log Measured From	G.L. K.B. 15' ABOVE PERM DATUM	K.B. 1295'	
Drilling Measured From	K.B.	D.F. 1295'	
		G.L. 1280'	
Date	4 JAN 2013		
Run Number	ONE		
Depth Driller	9211'		
Depth Logger	9181'		
Bottom Logged Interval	9160'		
Top Log Interval	2800'		
Casing Driller	7" @ 5267'		
Casing Logger	5260'		
Bit Size	6.125"		
Type Fluid in Hole	WBM		
Density / Viscosity	8.3 / 27		
pH / Fluid Loss	9.0 / N/C		
Source of Sample	MUD SENSOR		
Rm @ Meas. Temp	2.24 OHM @ 65 DEGF		
Rmt @ Meas. Temp	2.01 OHM @ 65 DEGF		
Rmc @ Meas. Temp	2.53 OHM @ 65 DEGF		
Source of Rmt / Rmc	CALCULATED		
Rm @ BHT	1.66 OHM @ 139 DEGF		
Time Circulation Stopped	20:42 3 DEC 2013		
Time Logger on Bottom	21:45 3 DEC 2013		
Maximum Recorded Temperature	139 DEGF		
Equipment Number	T005		
Location	OKC, OK		
Recorded By	C.PARKER		
Witnessed By	B.SEGCREST		

<<< Fold Here >>>

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: 9170" LOGGED TO: 2800'
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 R.CRESSWELL R.WILSON



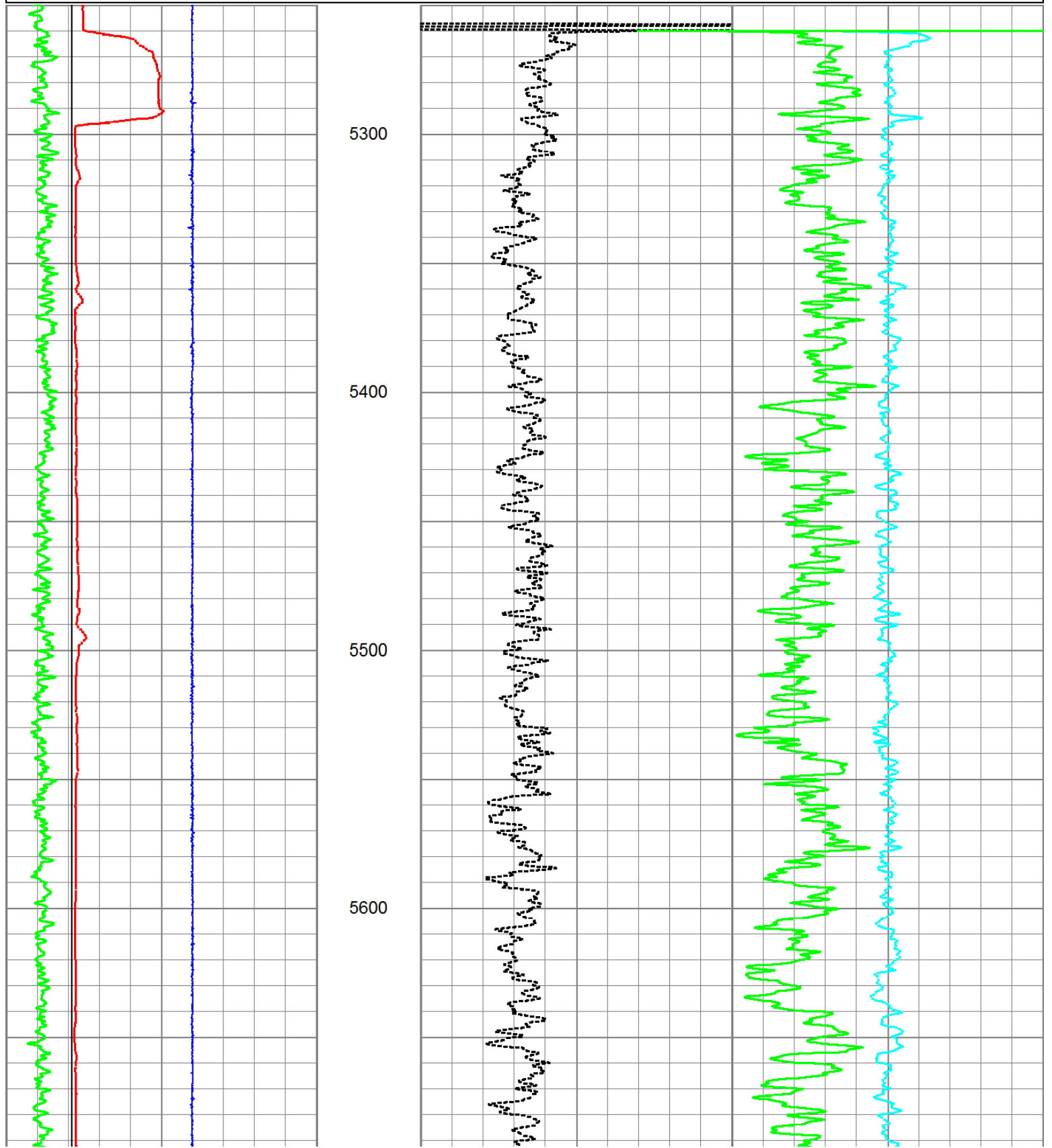
ThruBit
A Schlumberger Company

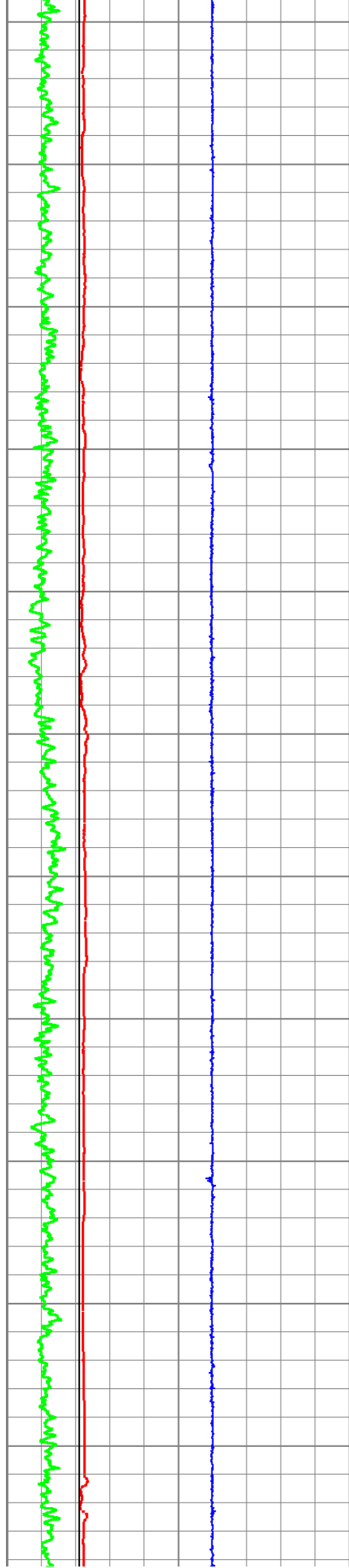
MAIN PASS

Database File: c:\users\kris.wetzel\desktop\brad 3508 2-12h\sandridge_brad_3598_2_12h_mem.db
Dataset Pathname: proc1/pass1.2
Presentation Format: 6_2n_chk
Dataset Creation: Fri Jan 04 05:20:57 2013
Charted by: Depth in Feet scaled 1:600

0	GR (GAPI)	150
4	DCAL (in)	14
4	BOREID (in)	14
-5	ACCY	5

0	PEF (barn)	10	-0.5	DRHO (g/cc)	0.5
2	RHOB (g/cc)				3





5700

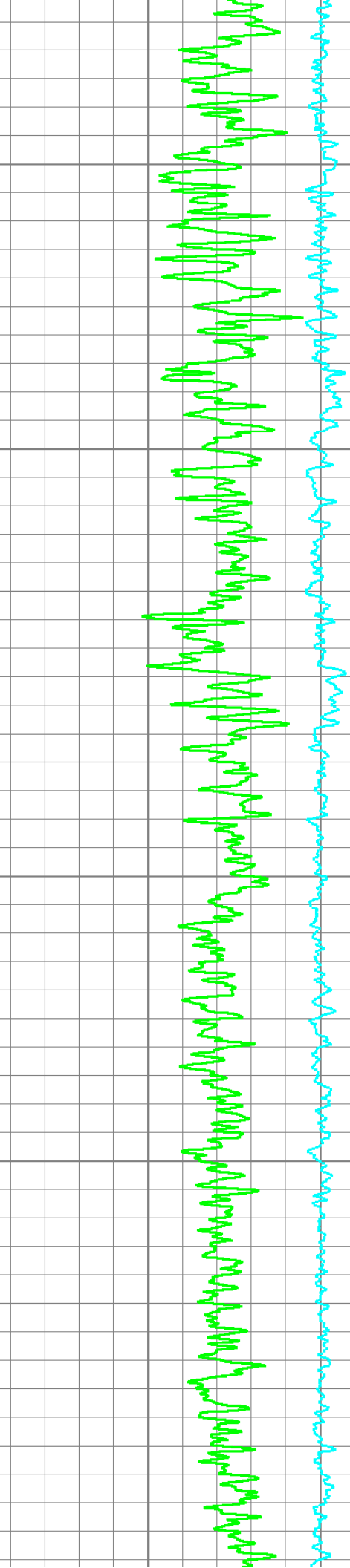
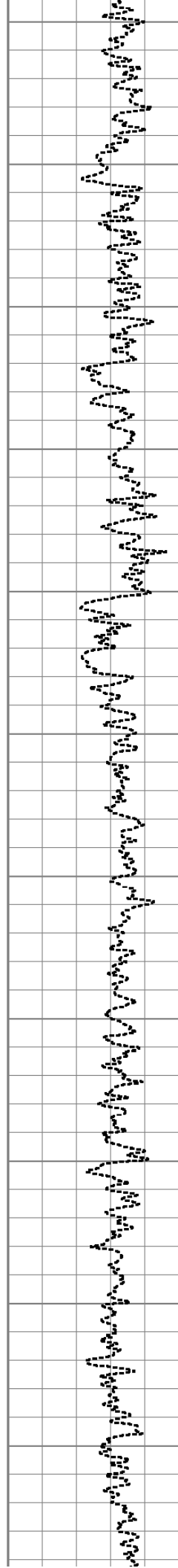
5800

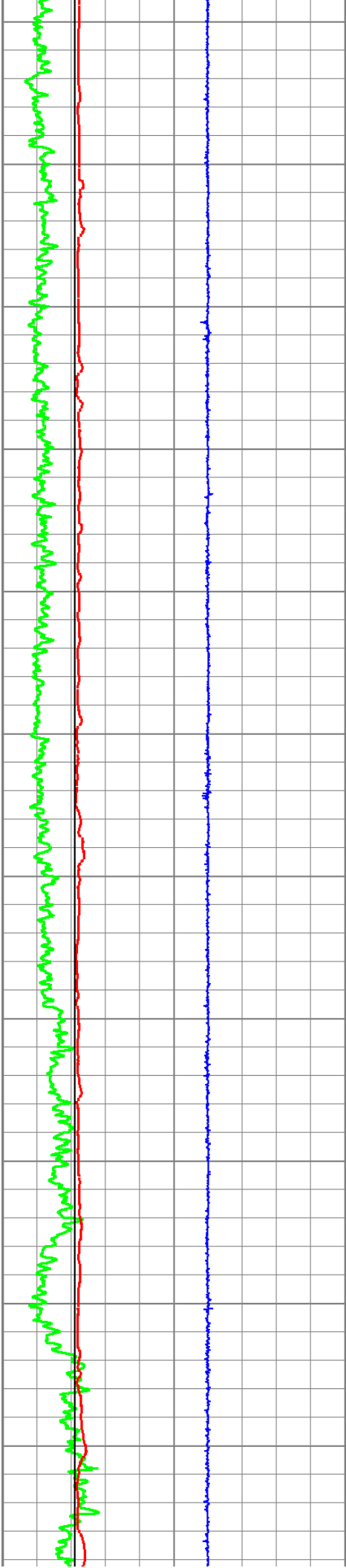
5900

6000

6100

6200





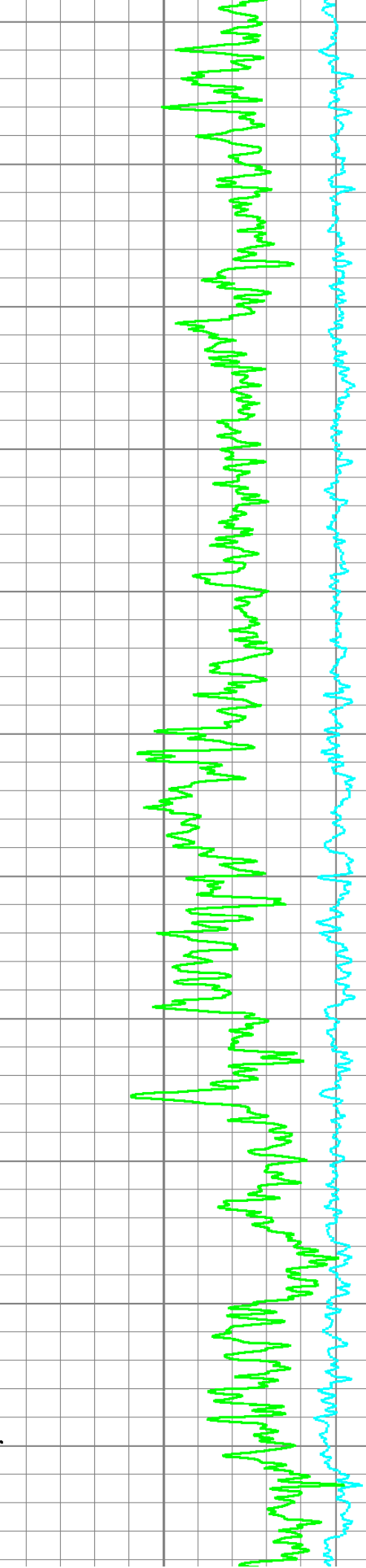
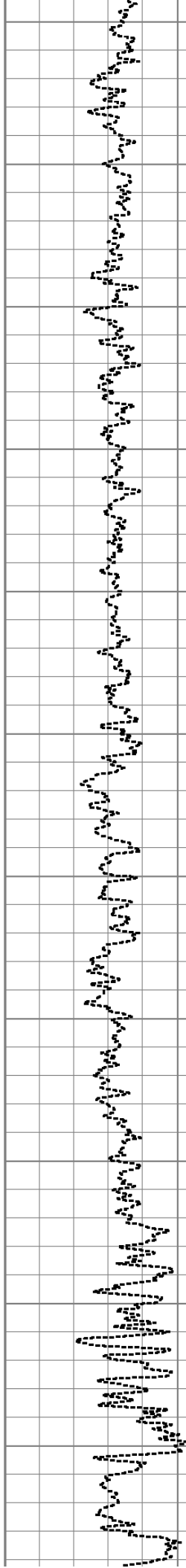
6300

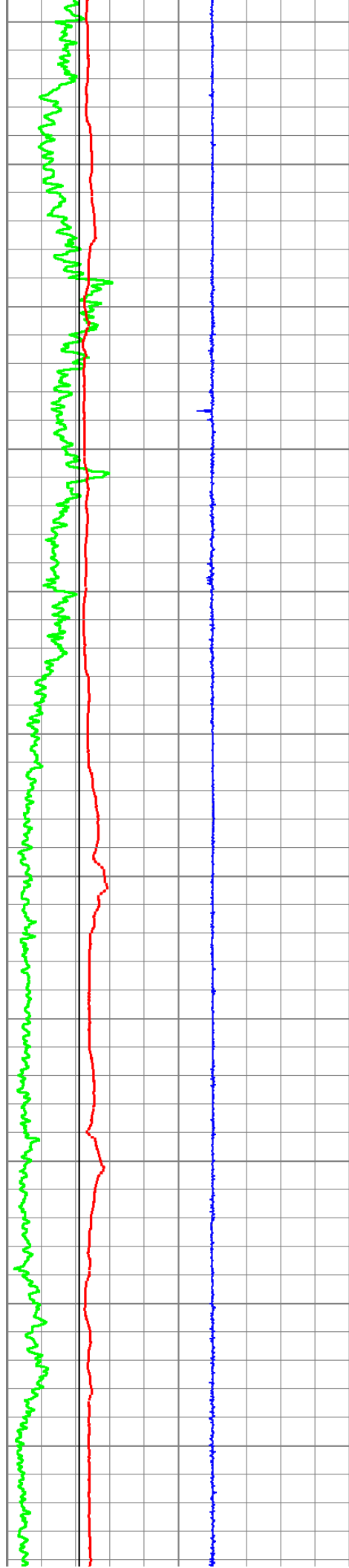
6400

6500

6600

6700





6800

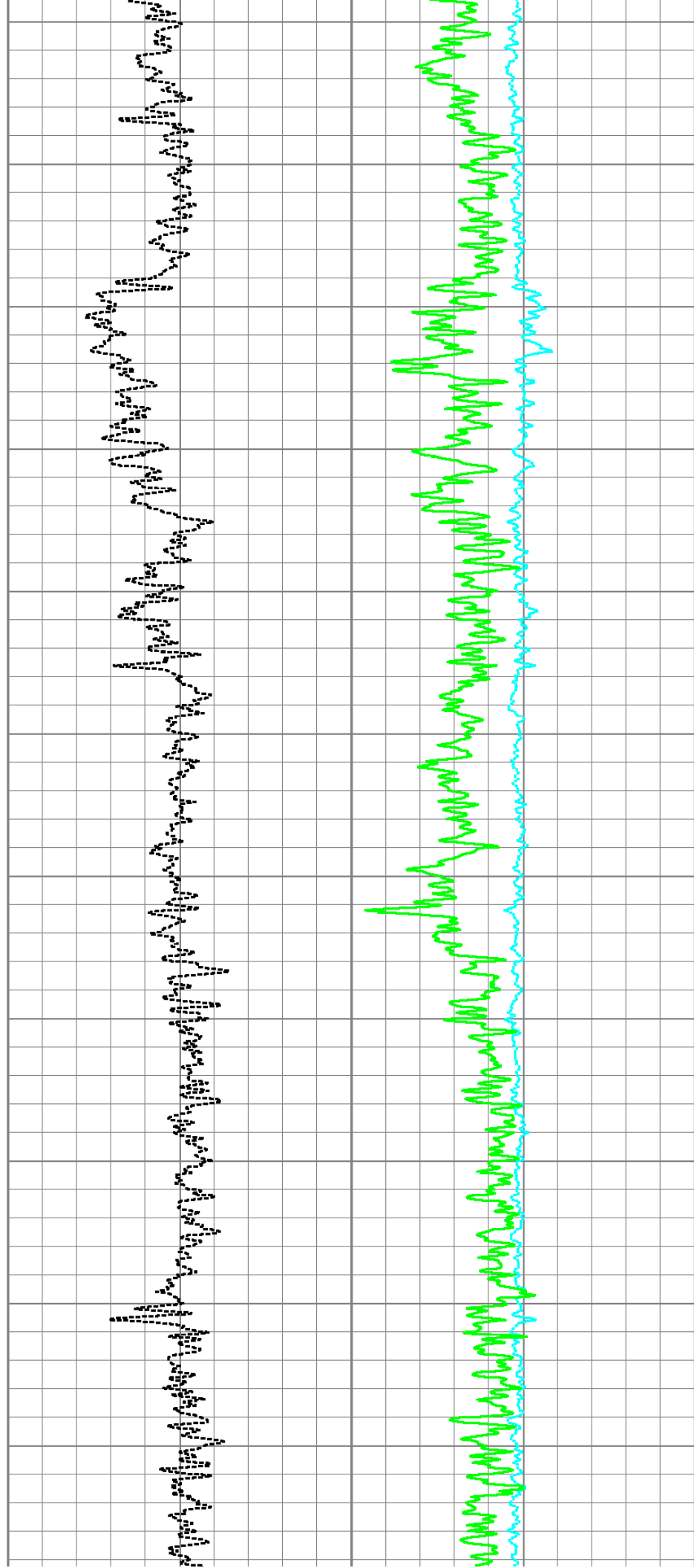
6900

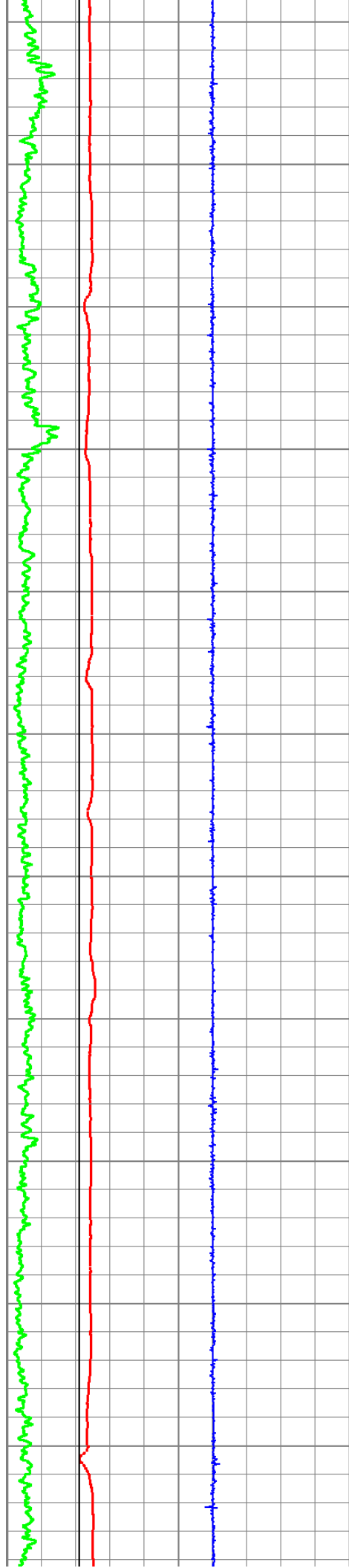
7000

7100

7200

7300





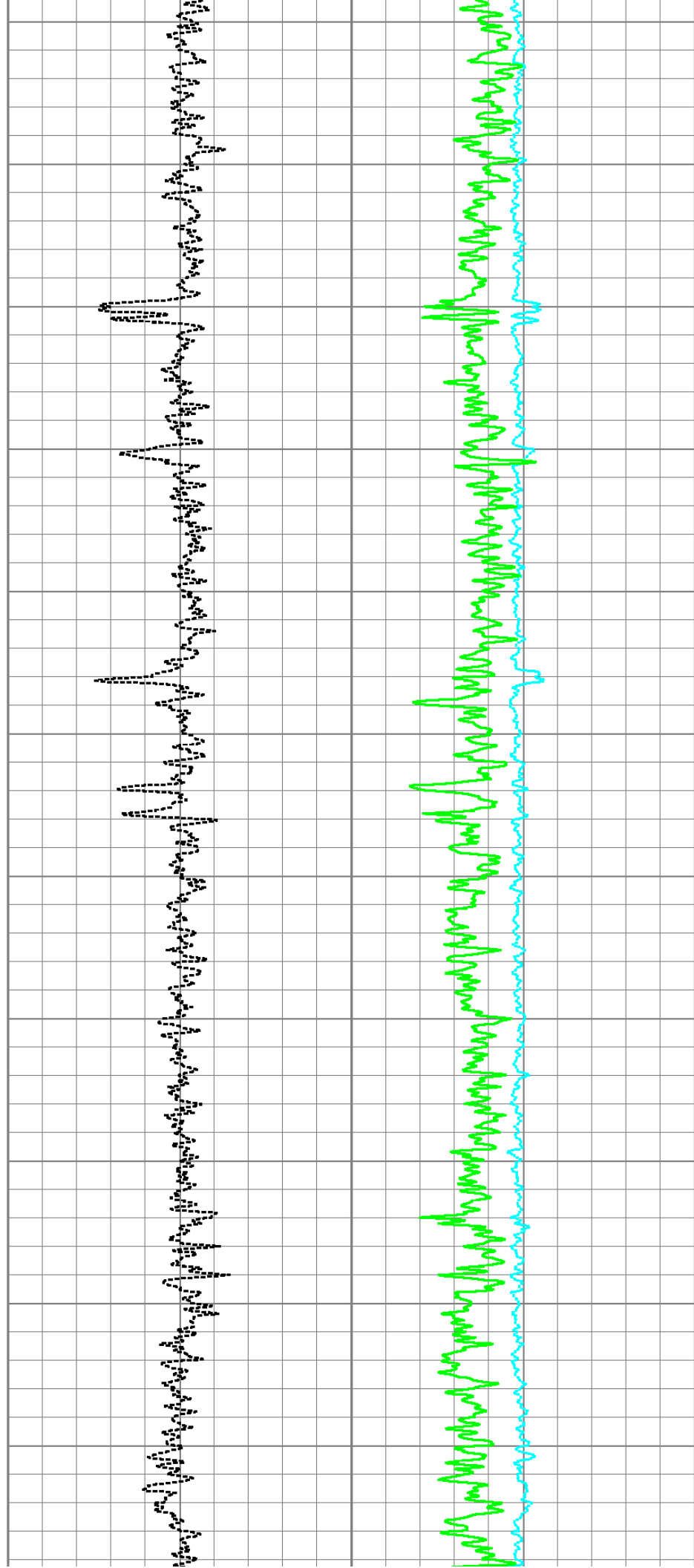
7400

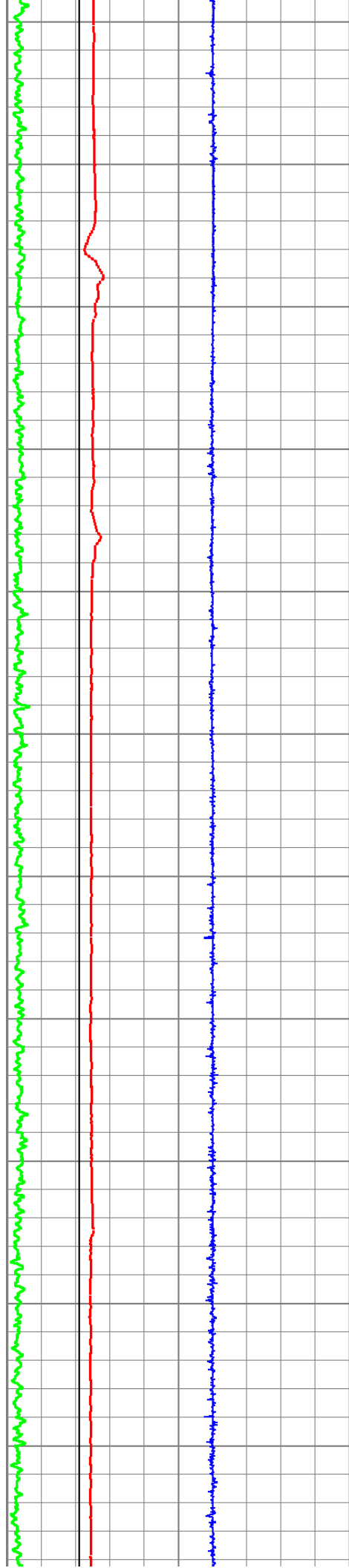
7500

7600

7700

7800





7900

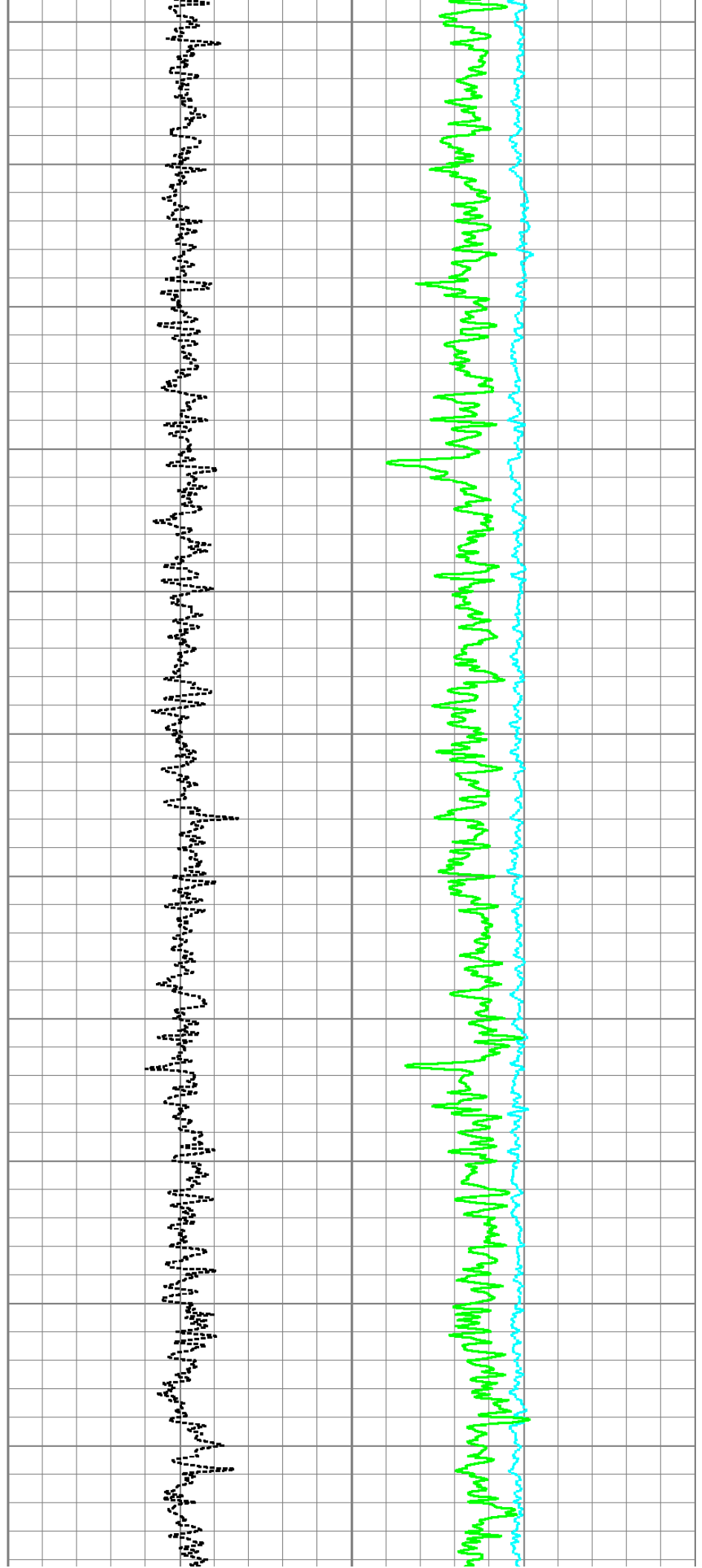
8000

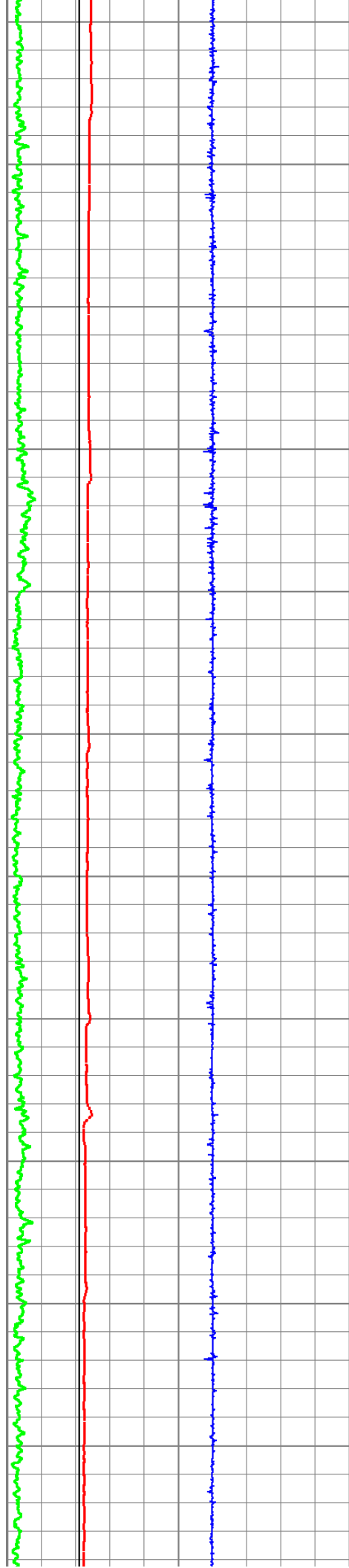
8100

8200

8300

8400





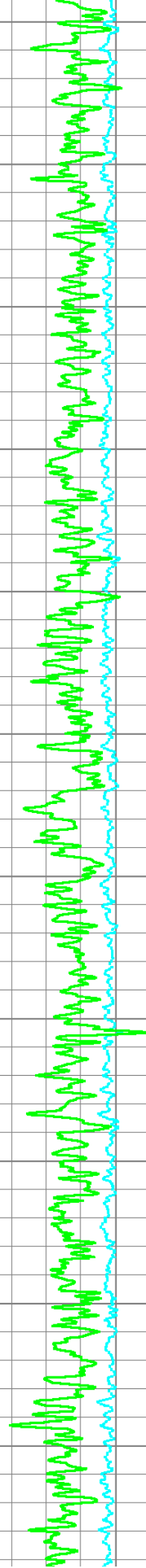
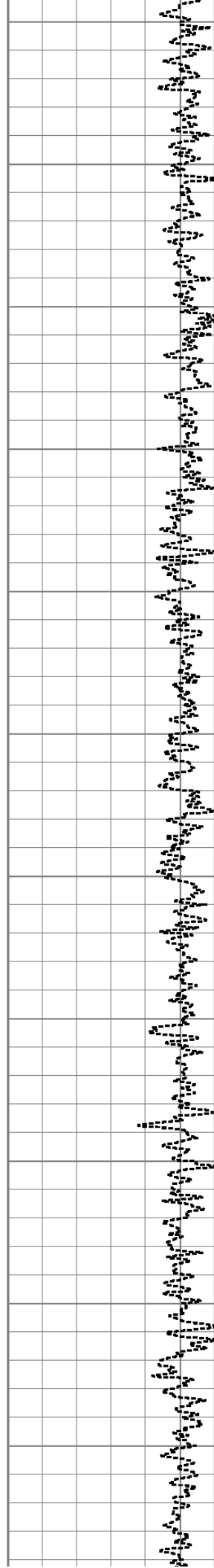
8500

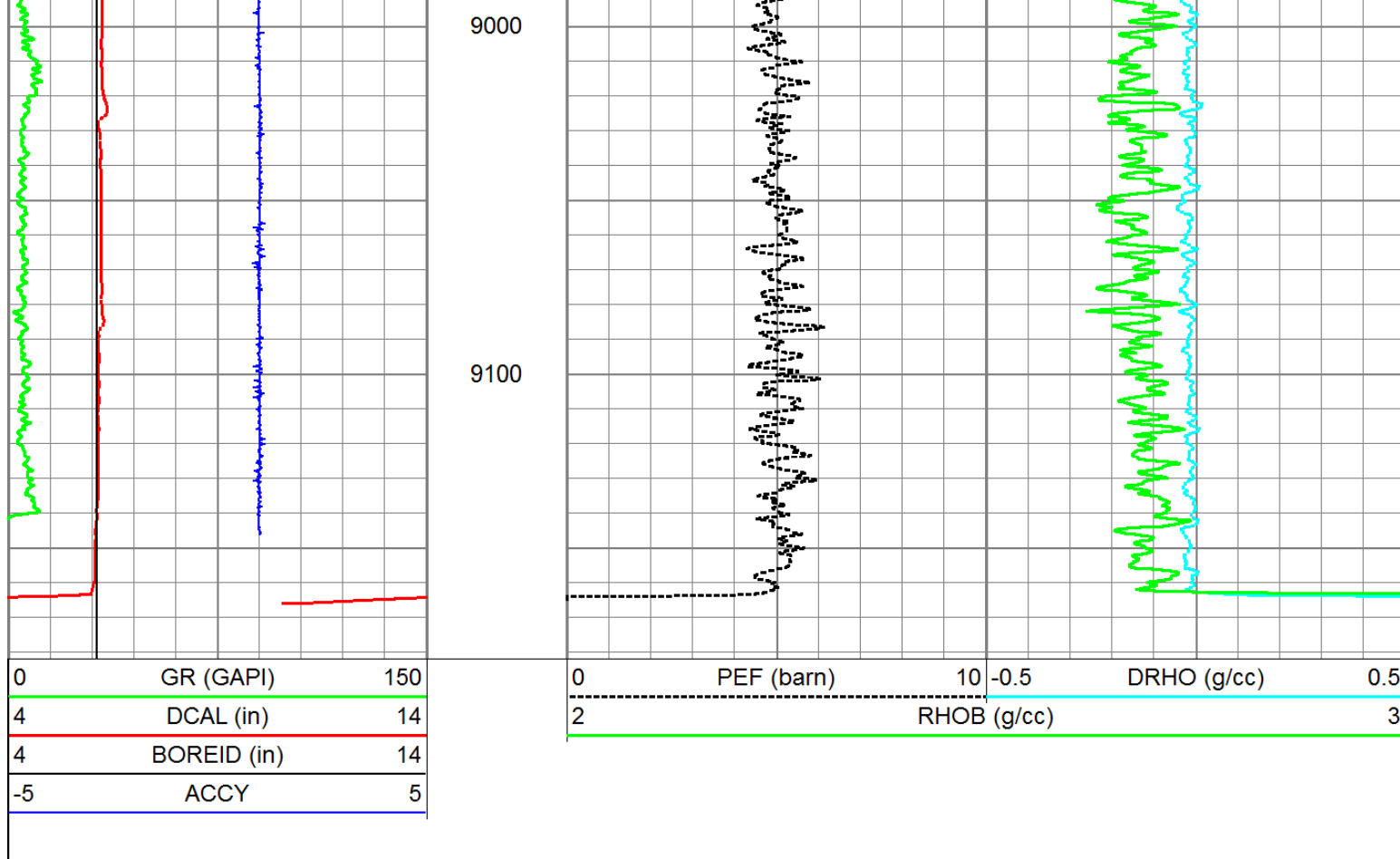
8600

8700

8800

8900

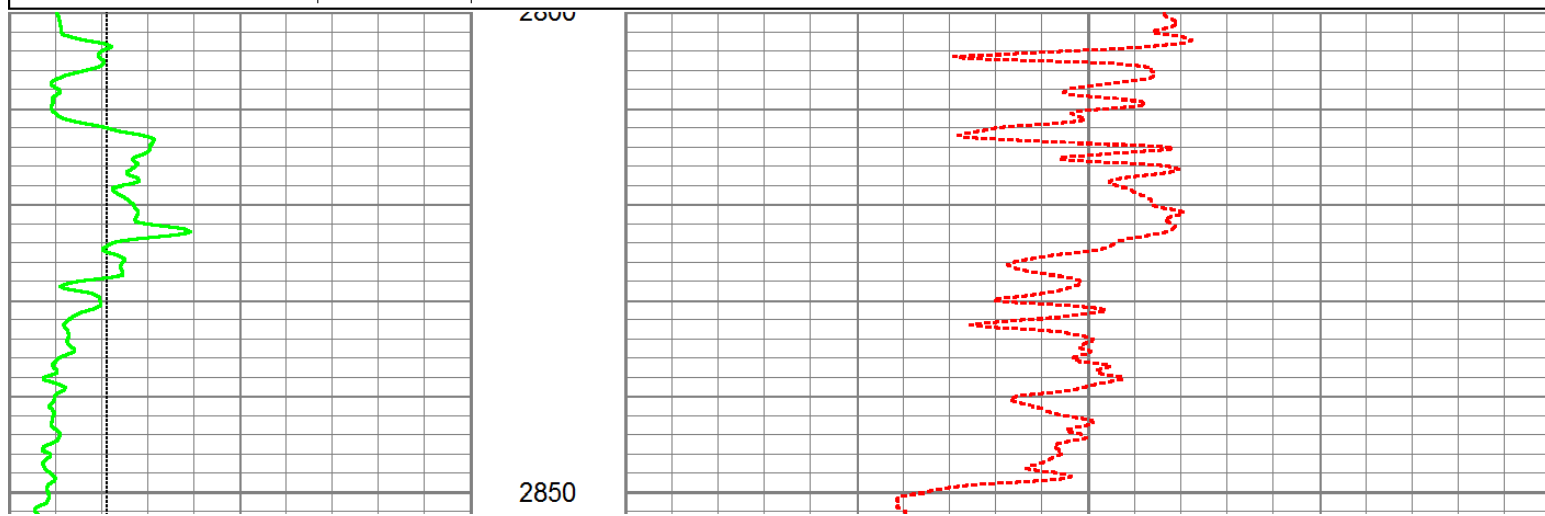


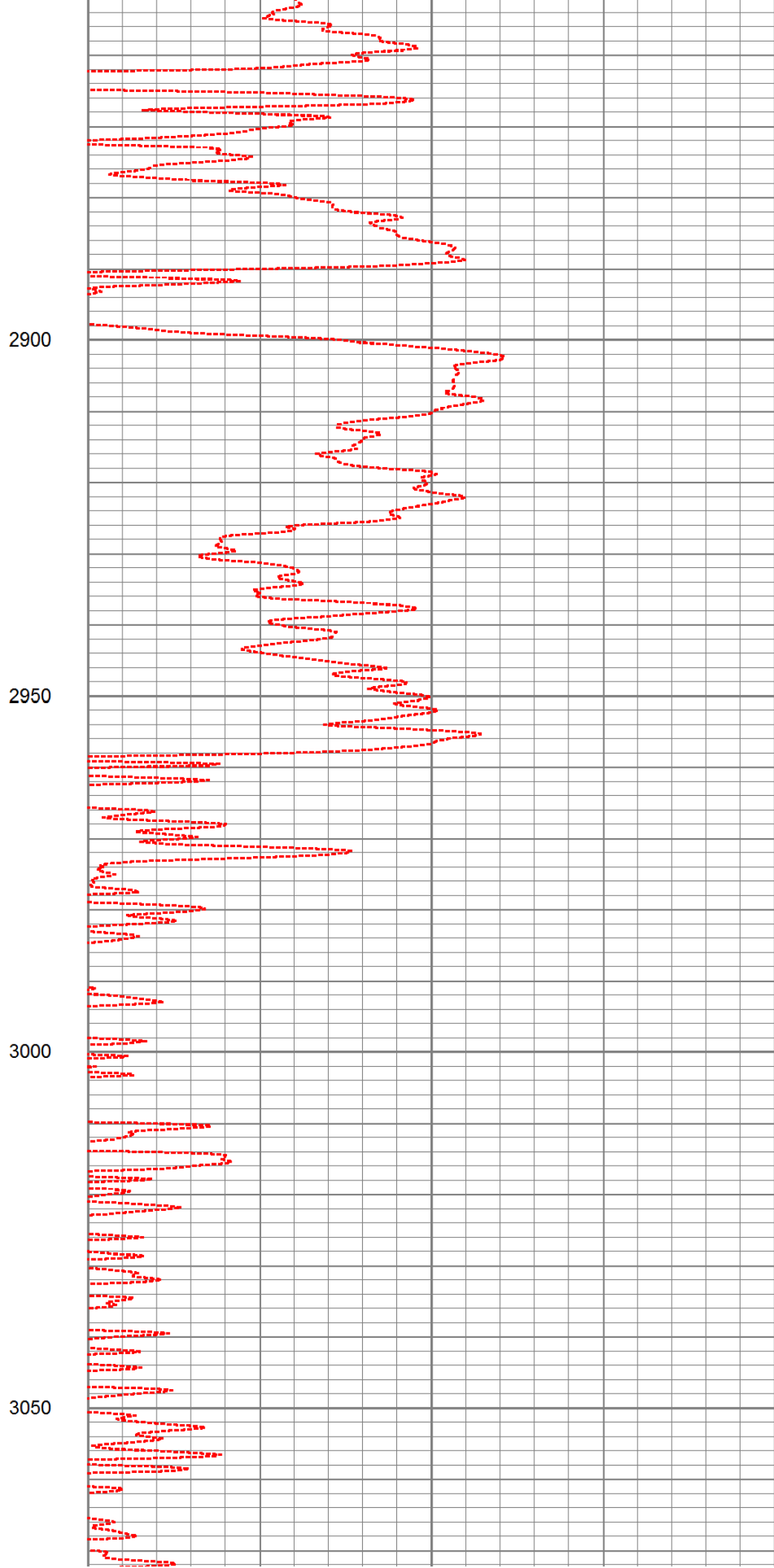
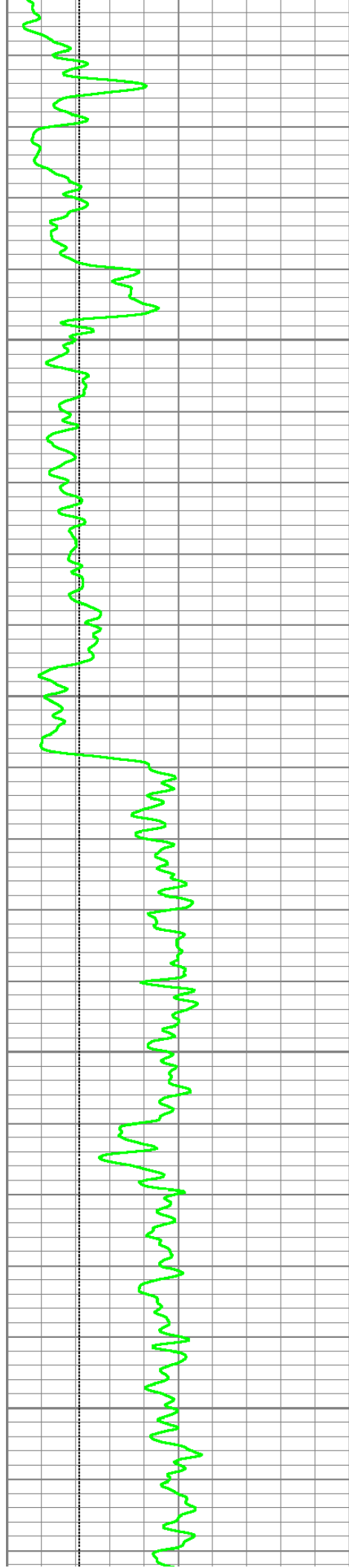


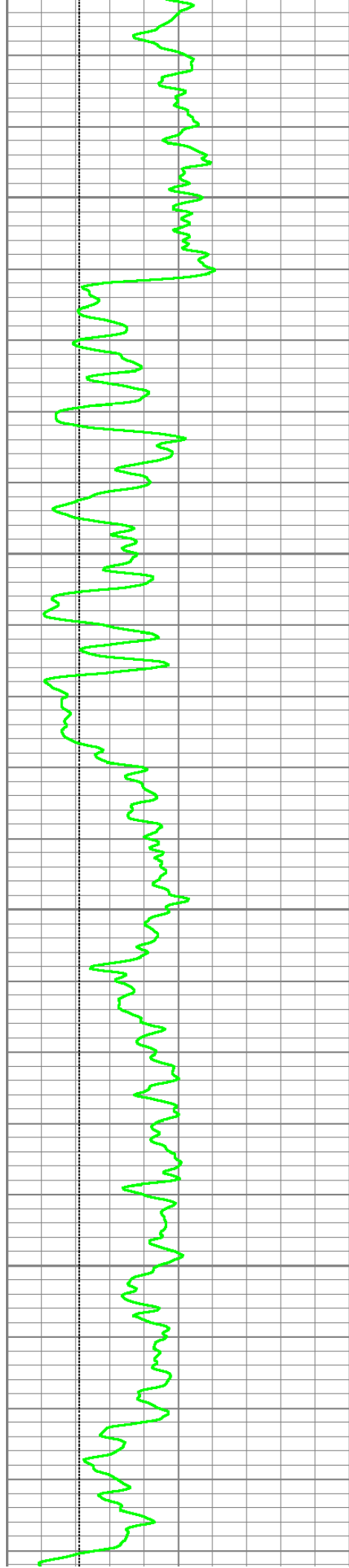
MAIN PASS

Database File: c:\users\kris.wetzel\desktop\brad 3508 2-12h\sandridge_brad_3598_2_12h_mem.db
 Dataset Pathname: proc1/pass1.2
 Presentation Format: 6_5n_chk
 Dataset Creation: Fri Jan 04 05:20:57 2013
 Charted by: Depth in Feet scaled 1:240

4	DCAL (in)	14	30	CNPOR (pu)	-10
4	BOREID (in)	14	30	DPHI (pu)	-10
0	GR (GAPI)	150	0	PEF (barn)	10 -0.5
-5	ACCY	5		DRHO (g/cc)	0.5
			ABHV (ft3)		
	TBHV (ft3)				





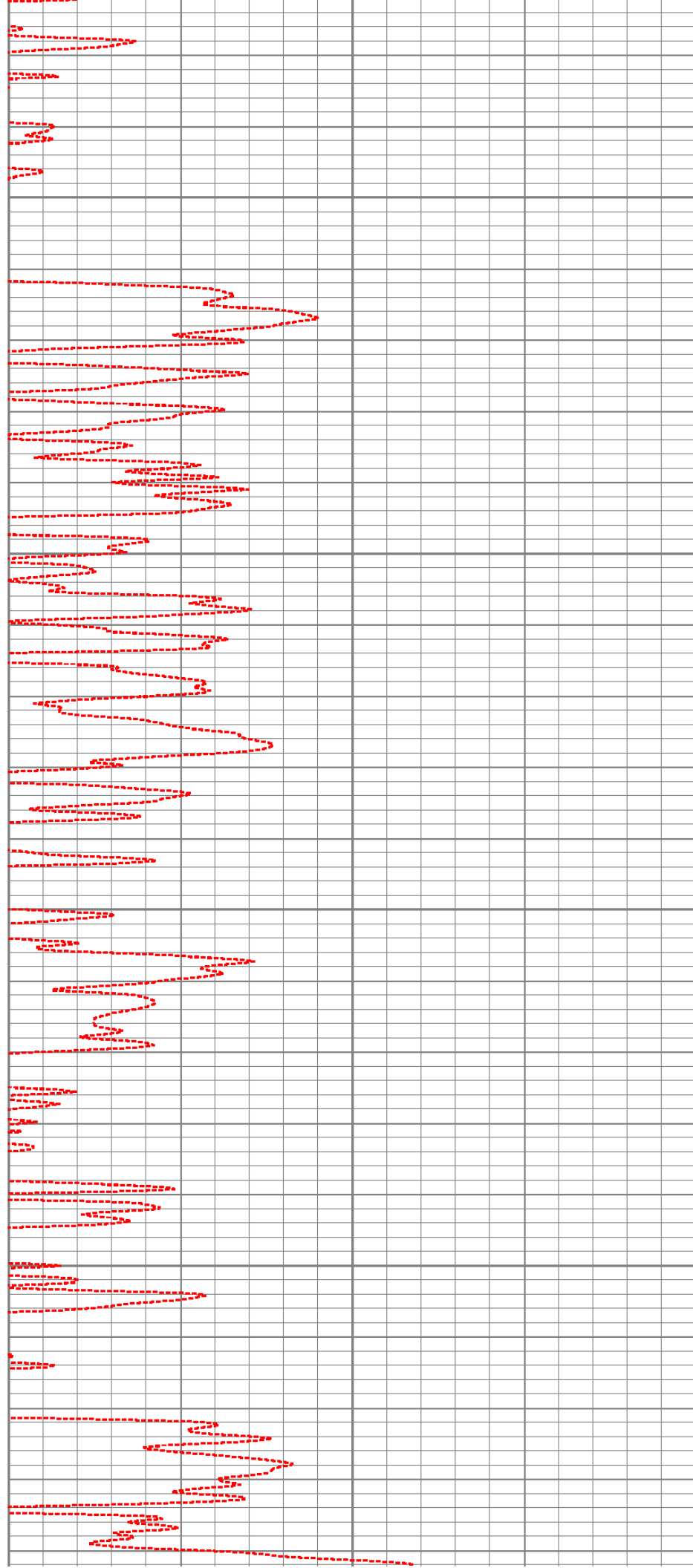


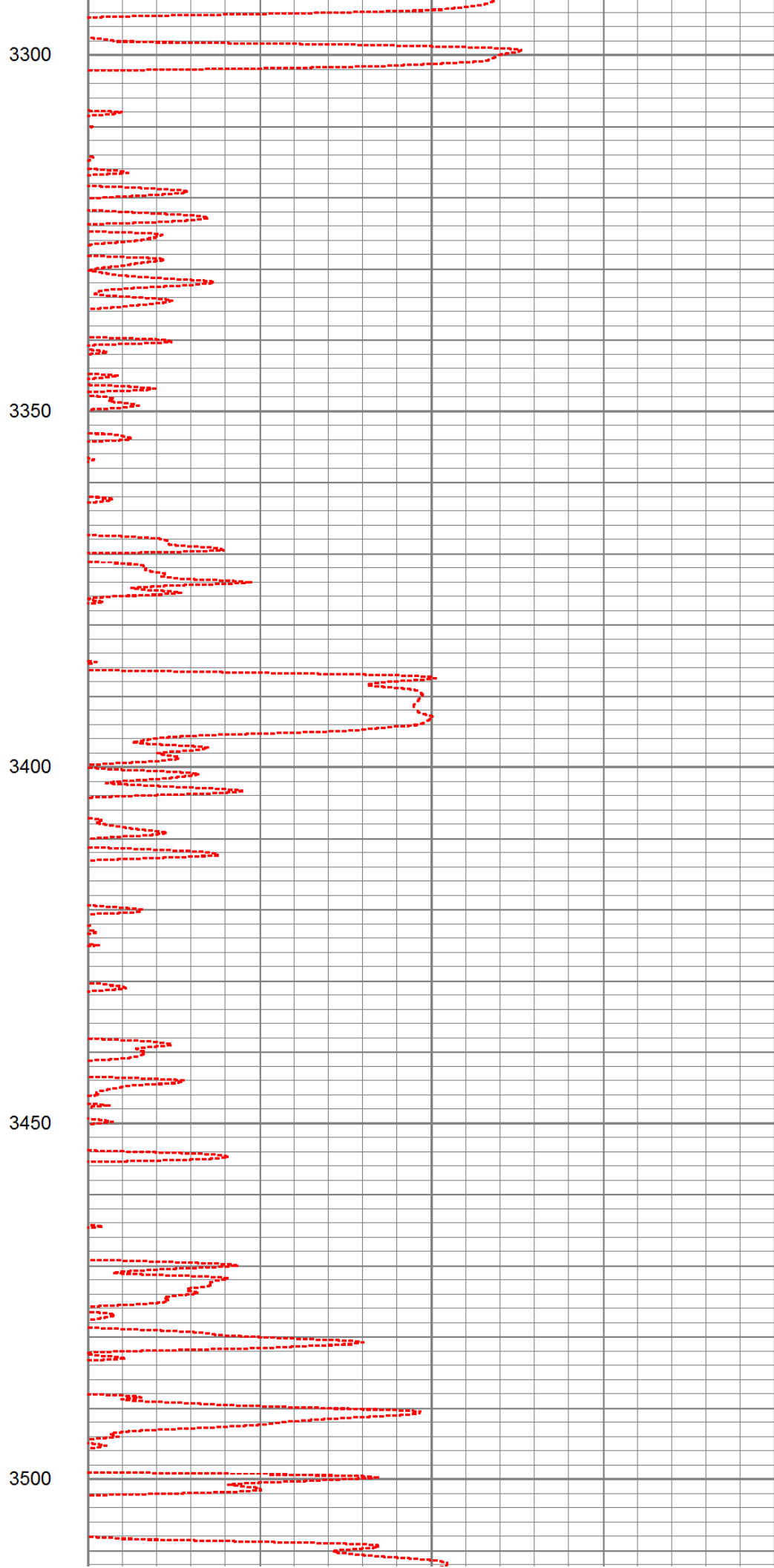
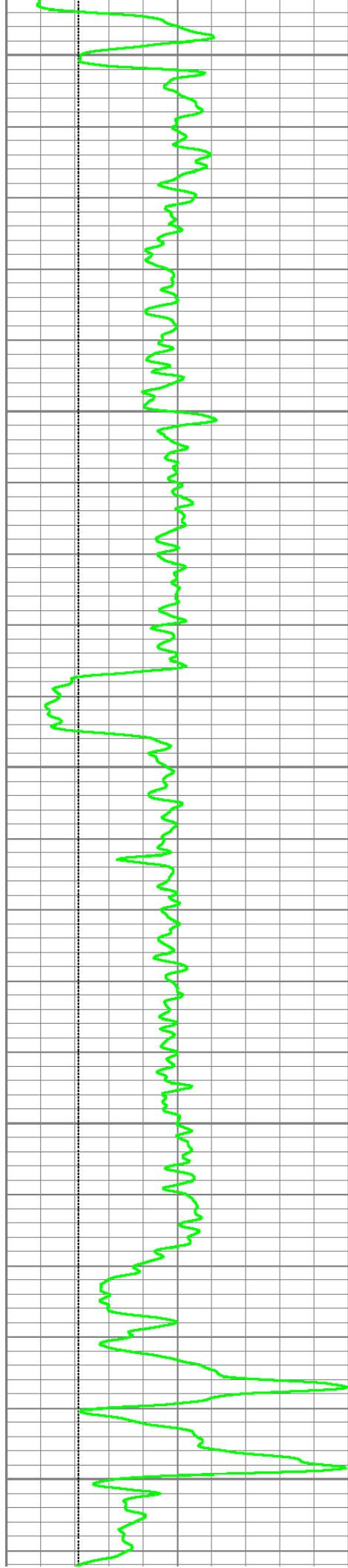
3100

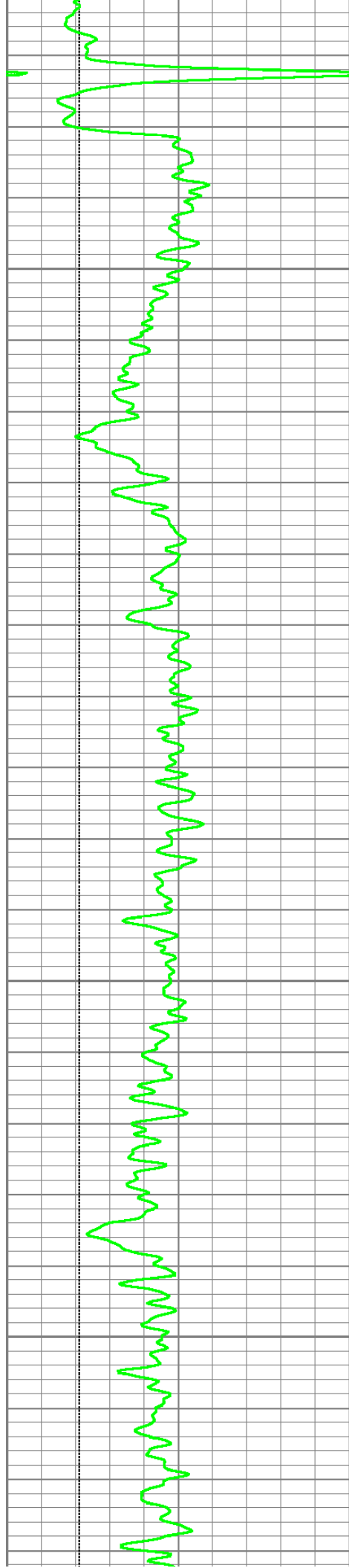
3150

3200

3250





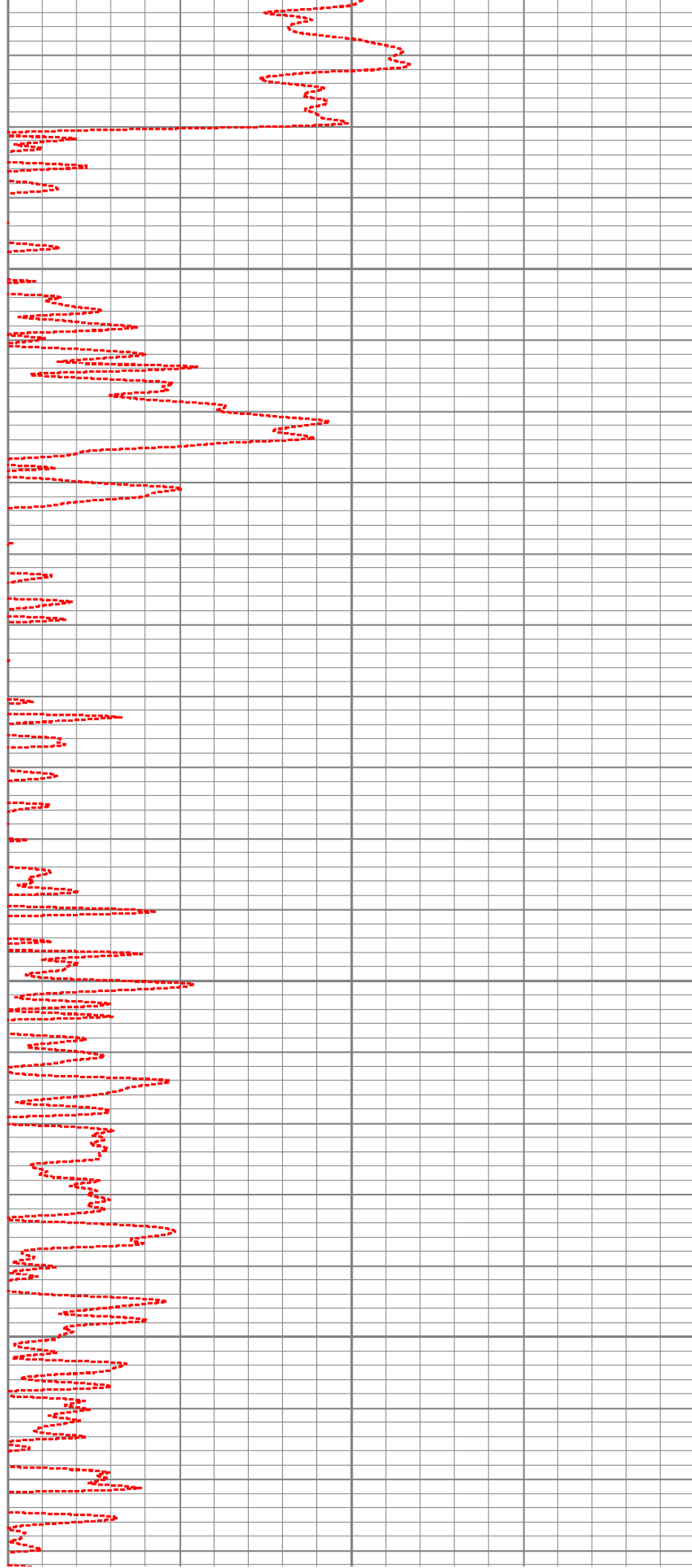


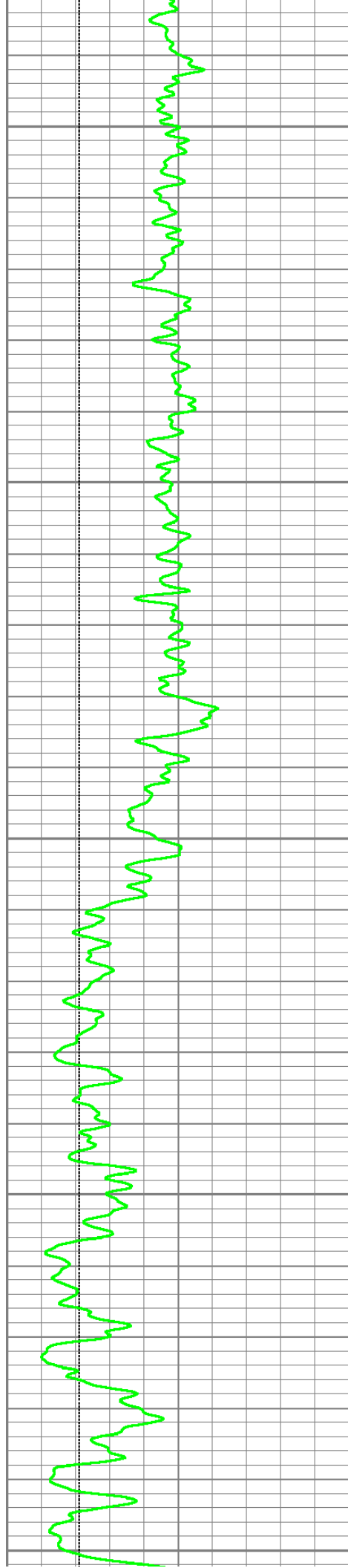
3550

3600

3650

3700





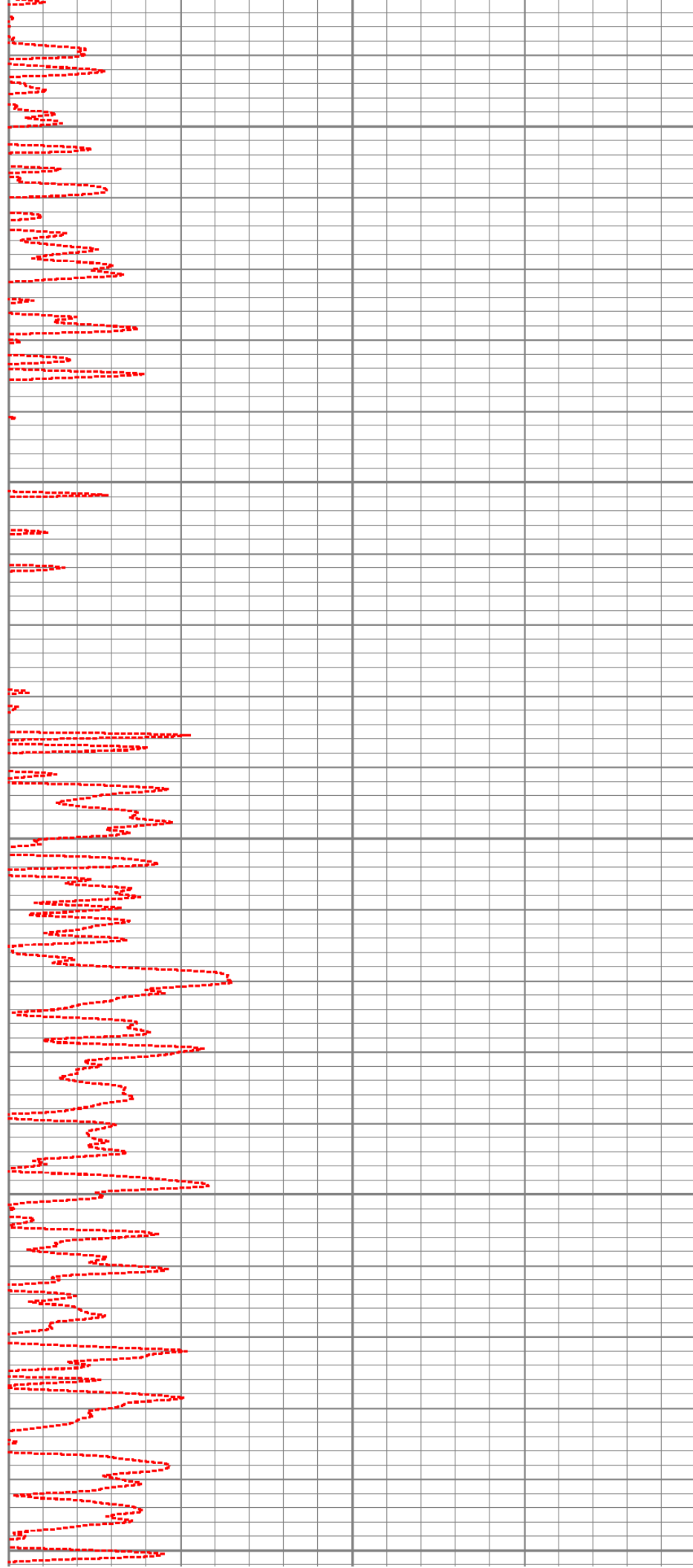
3750

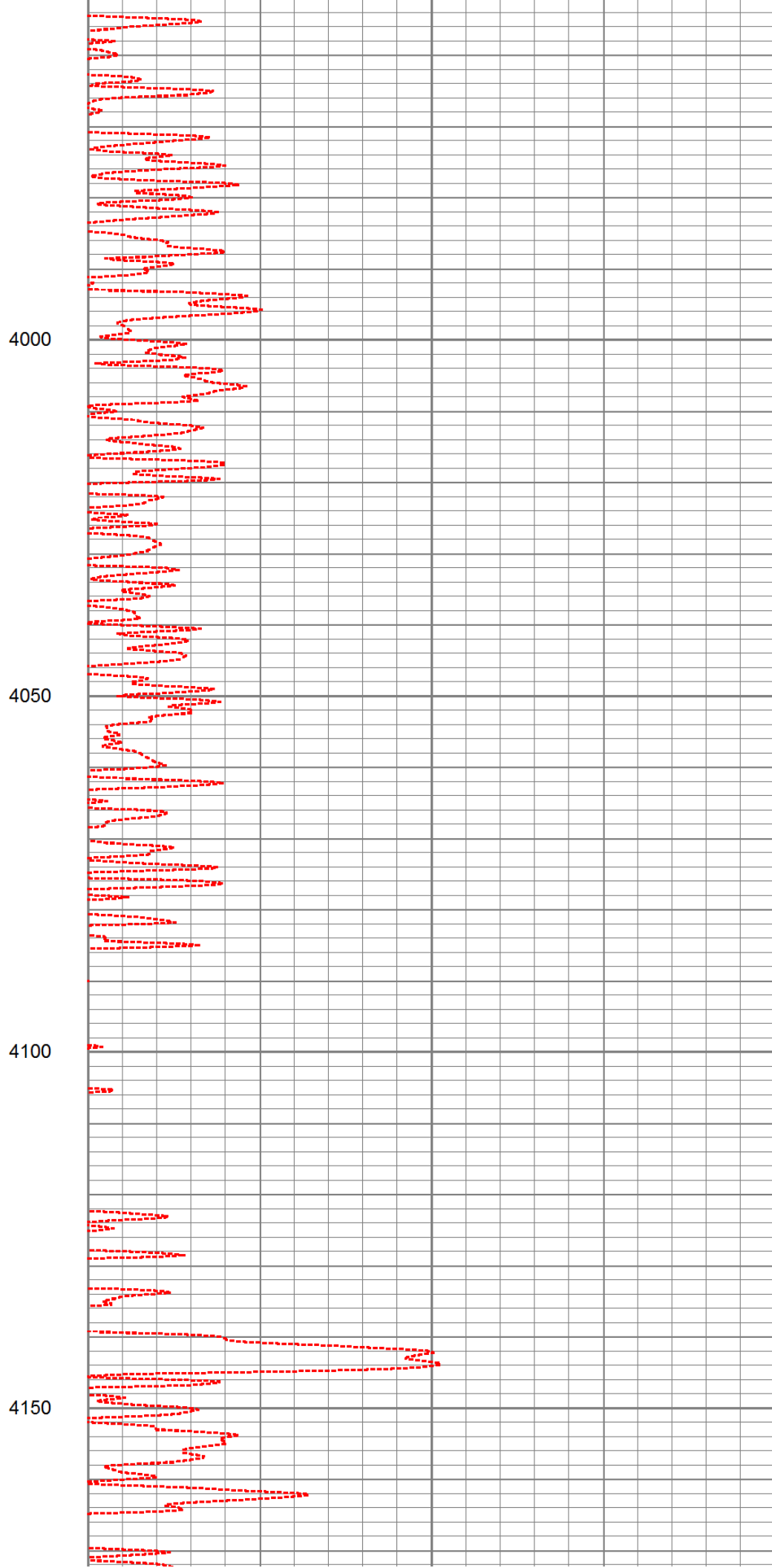
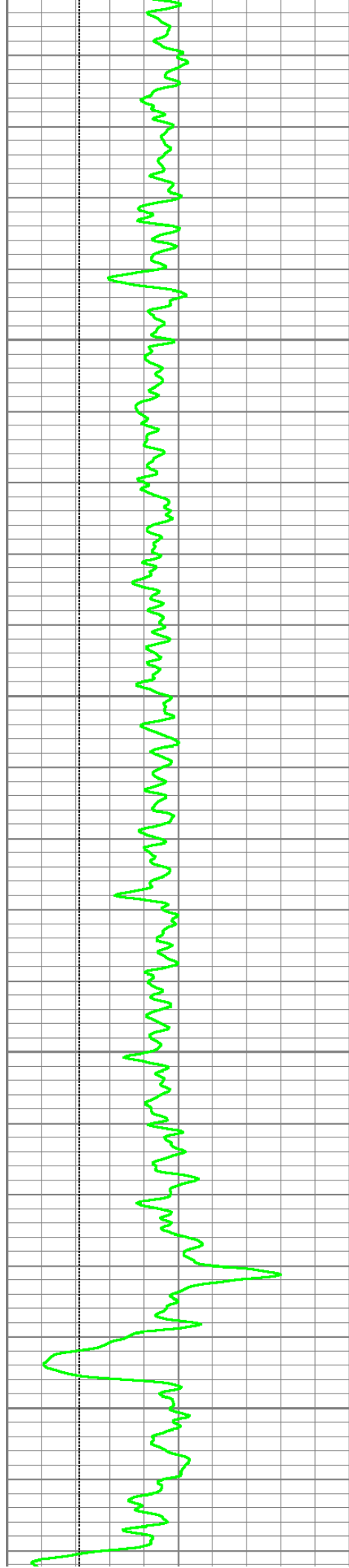
3800

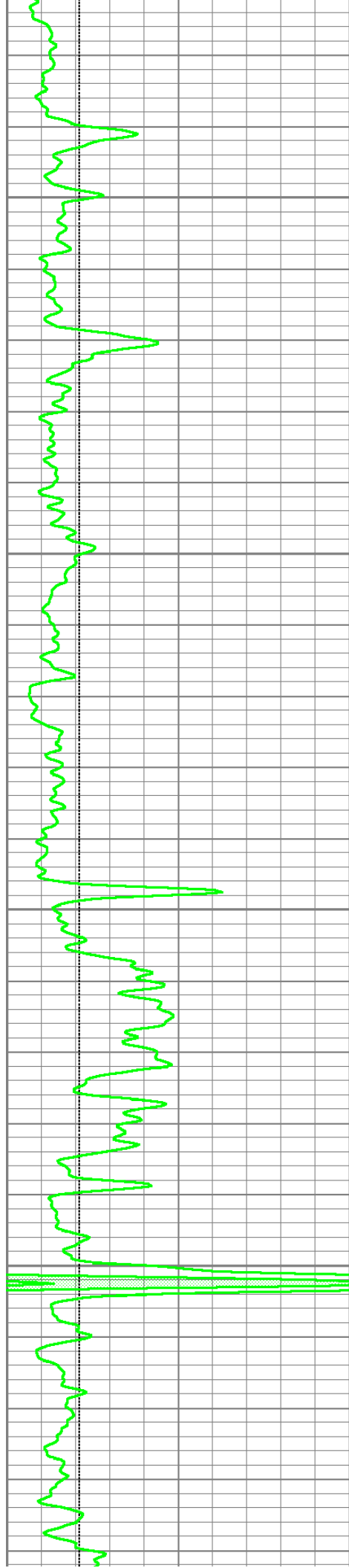
3850

3900

3950





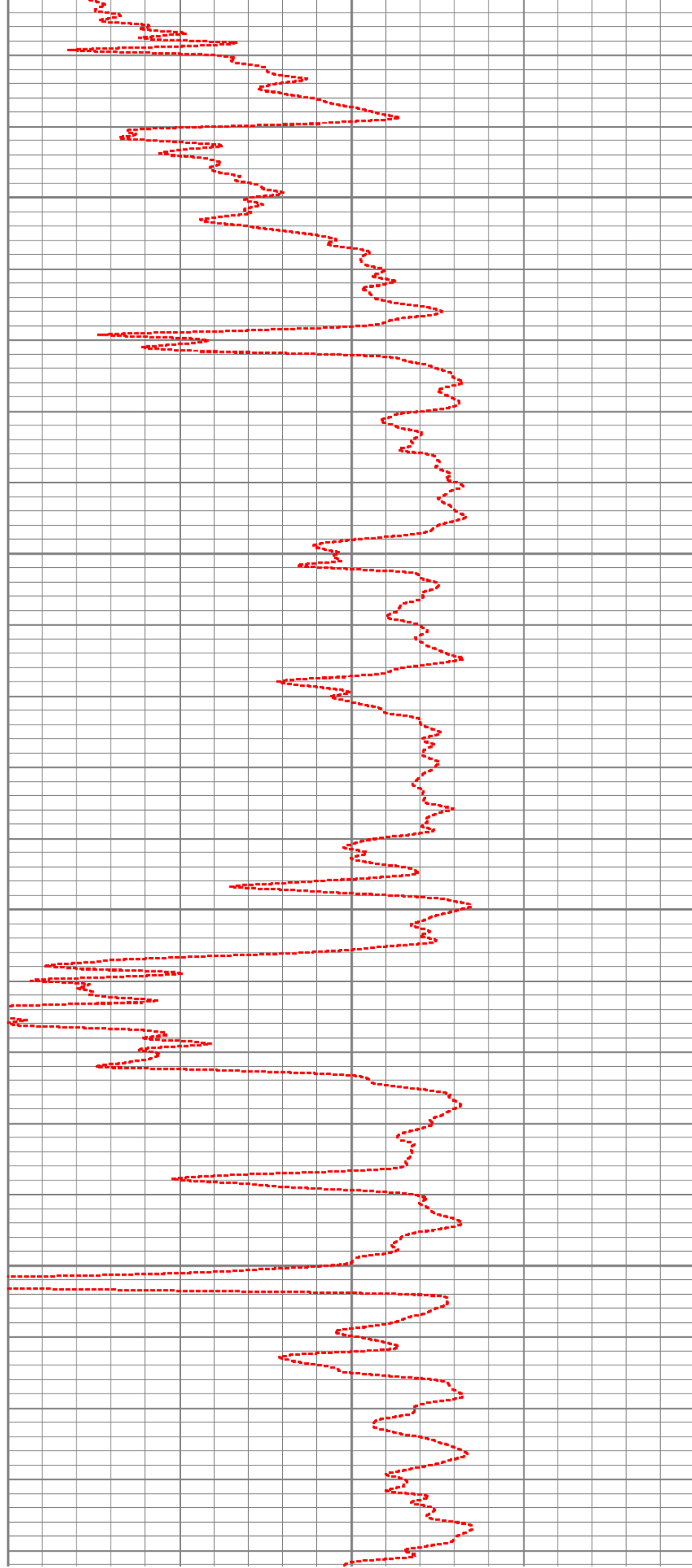


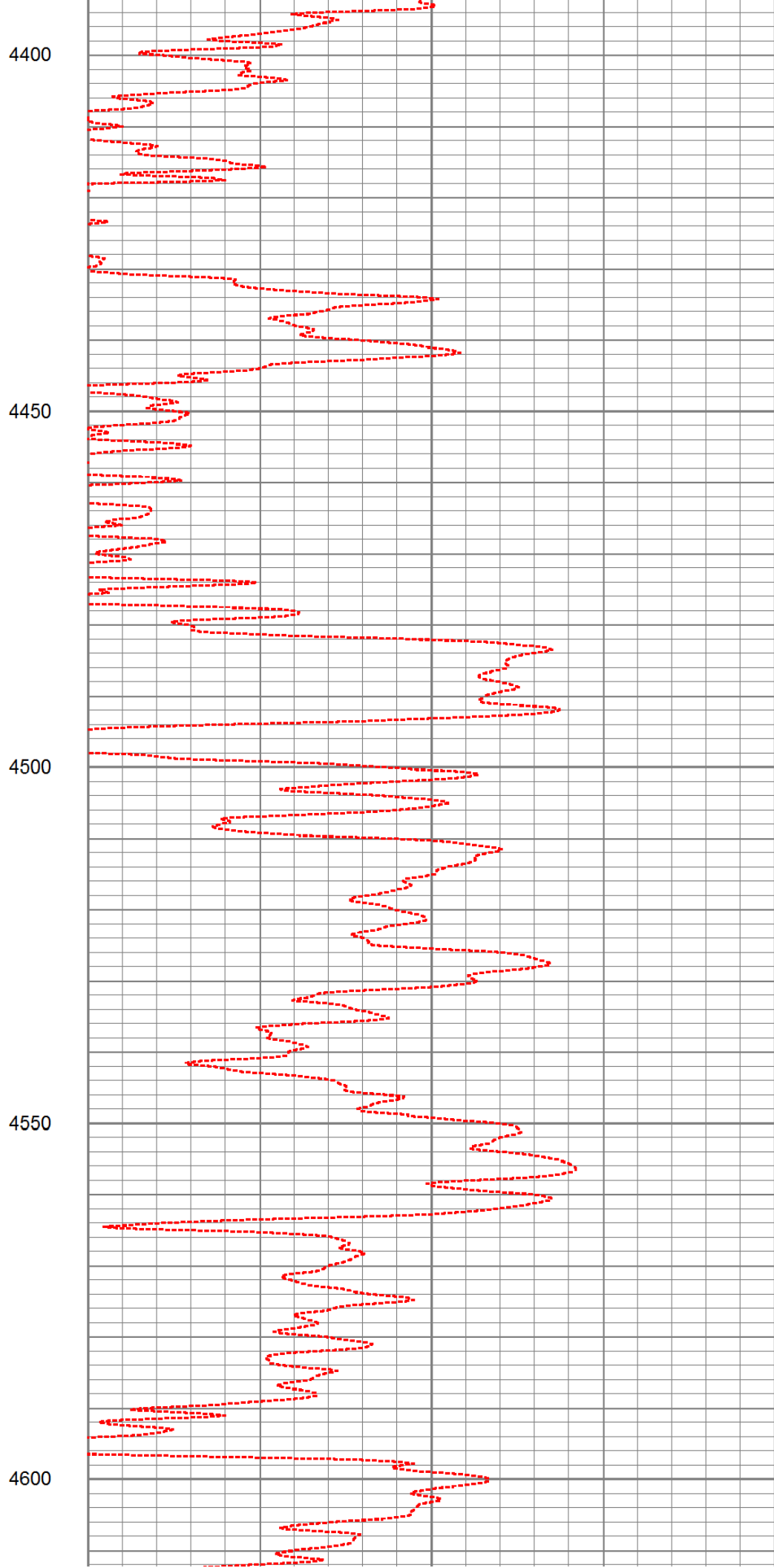
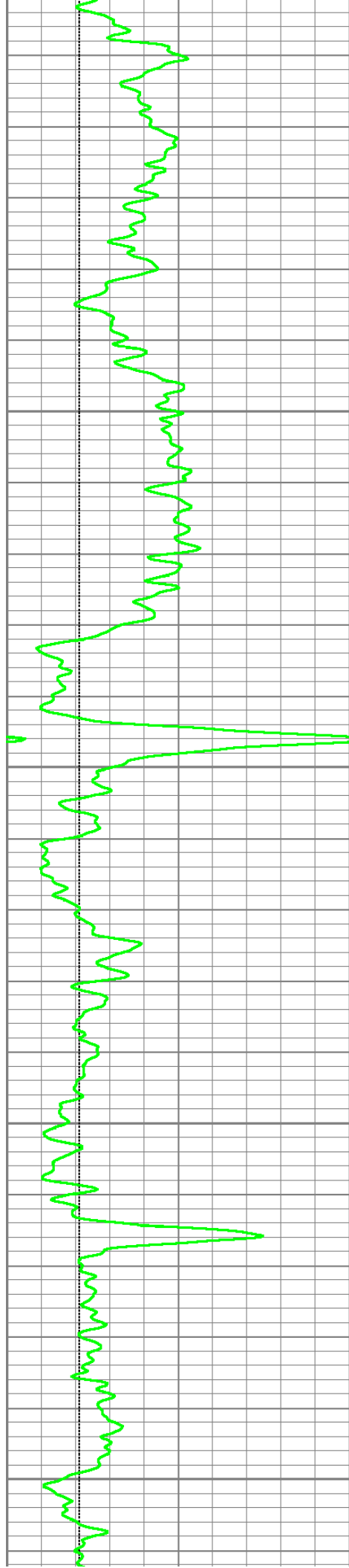
4200

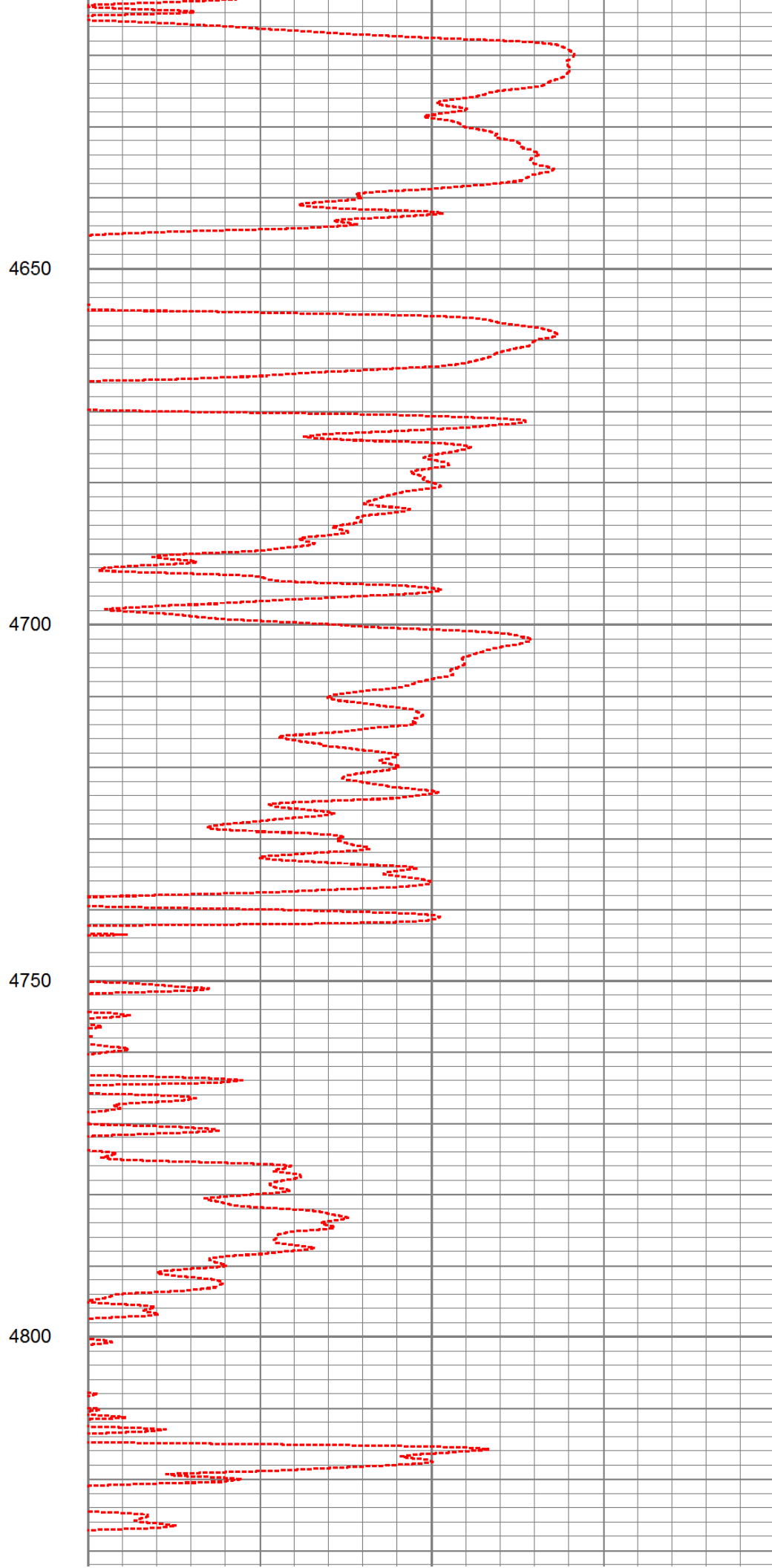
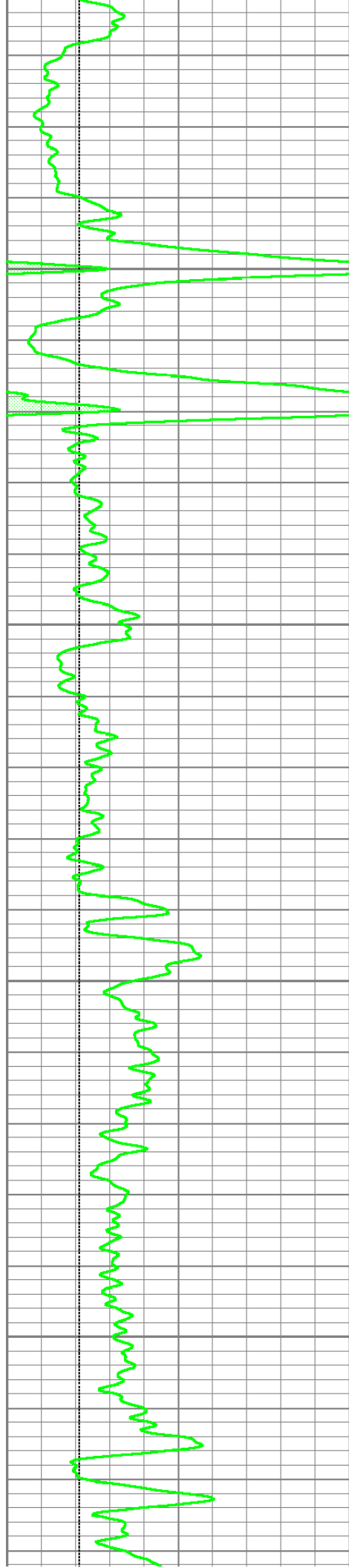
4250

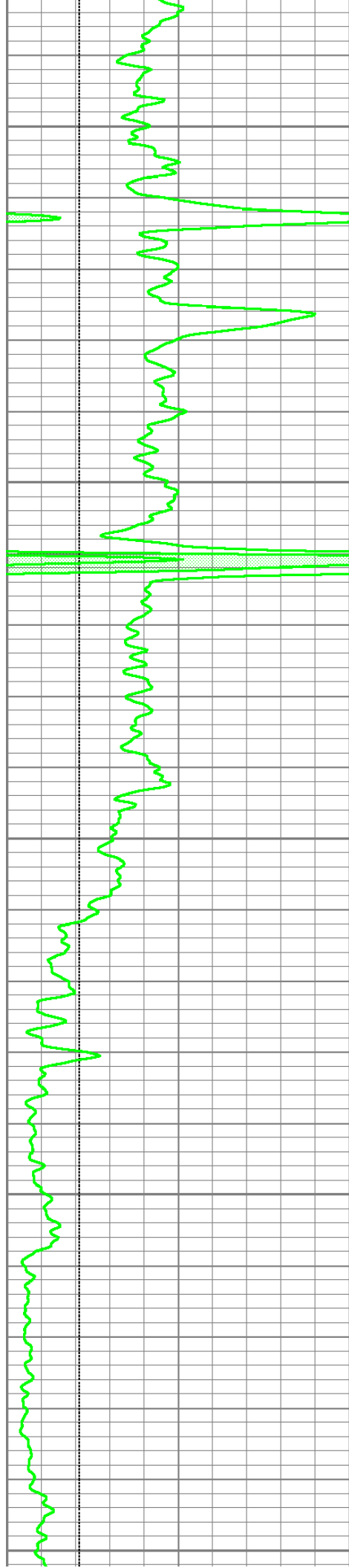
4300

4350









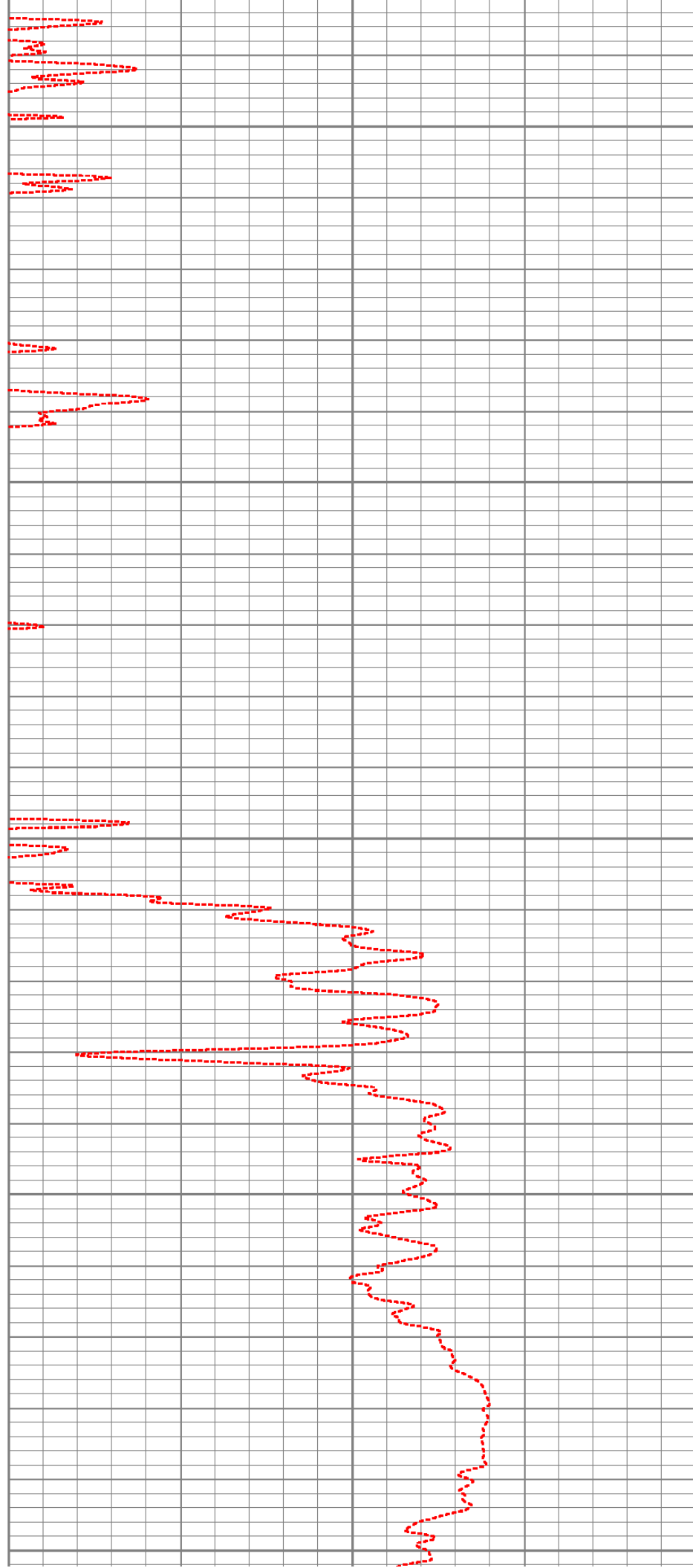
4850

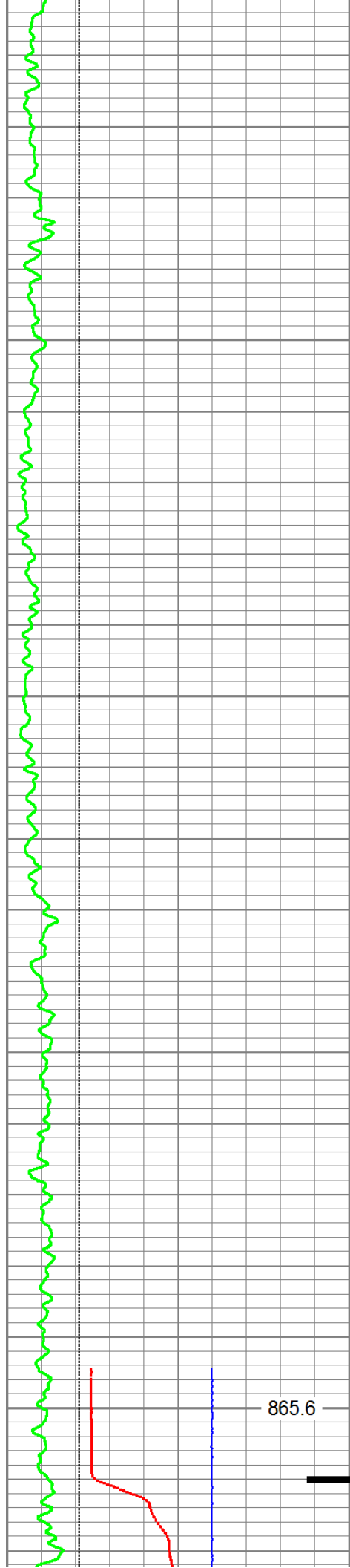
4900

4950

5000

5050





865.6

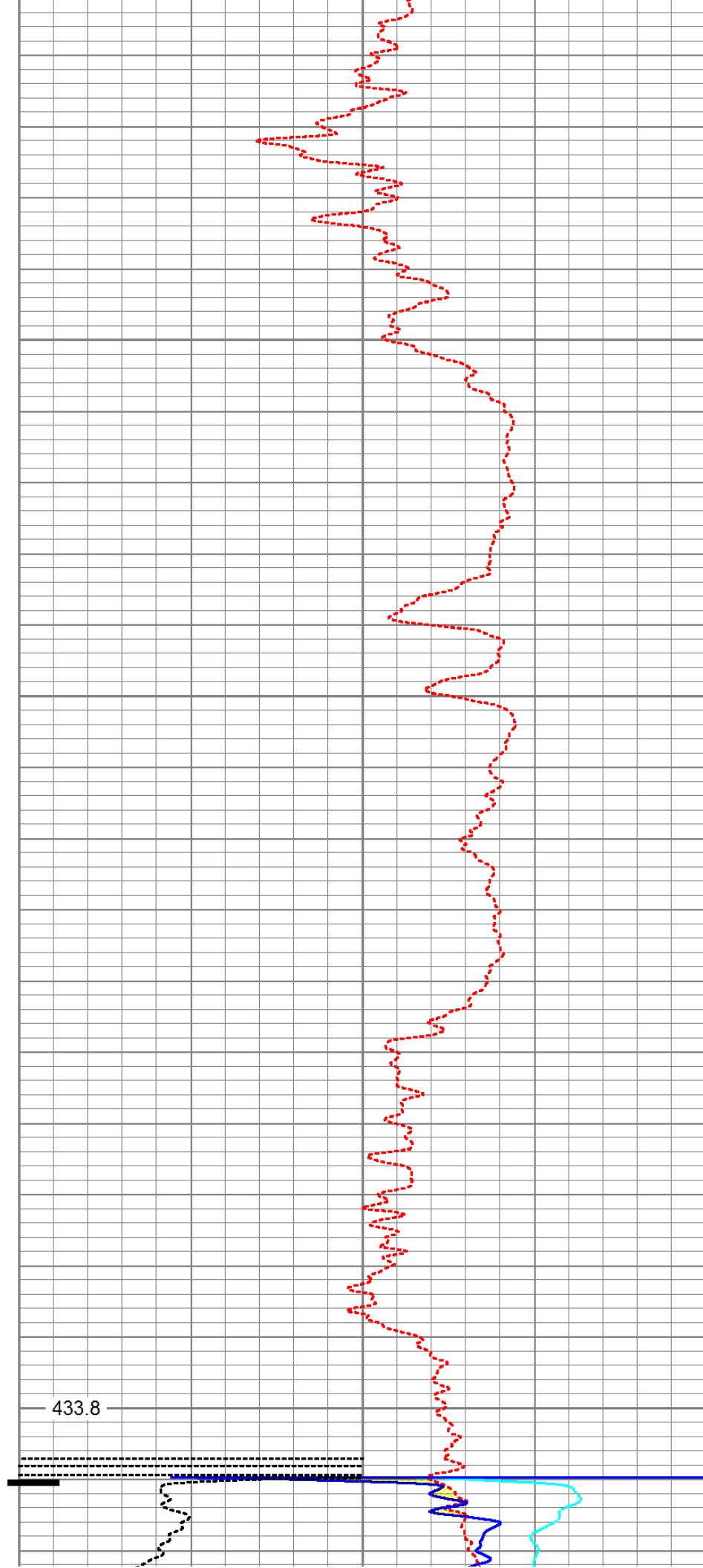
5100

5150

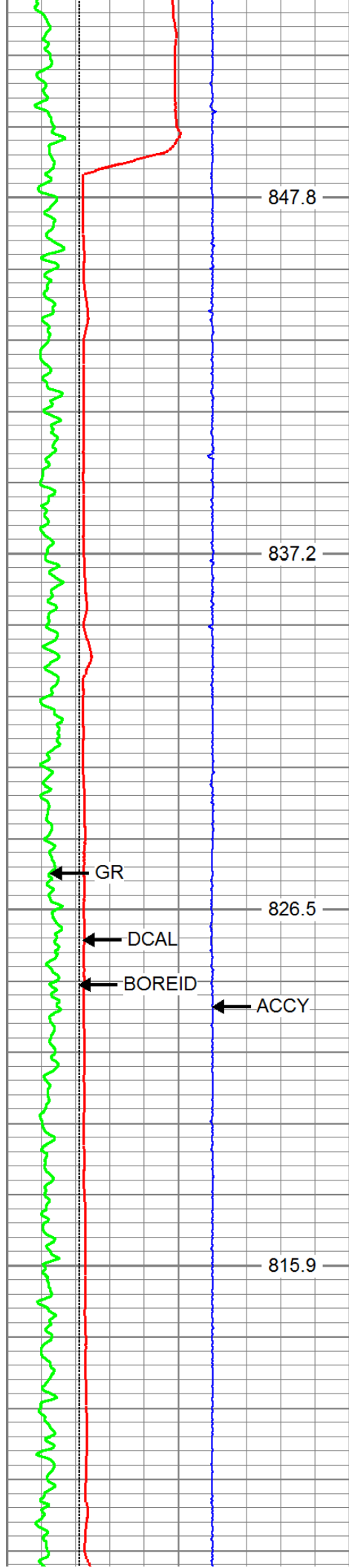
5200

5250

CSG



433.8

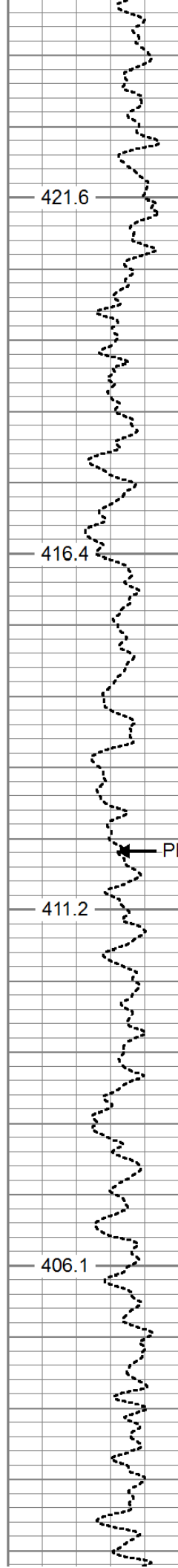


5300

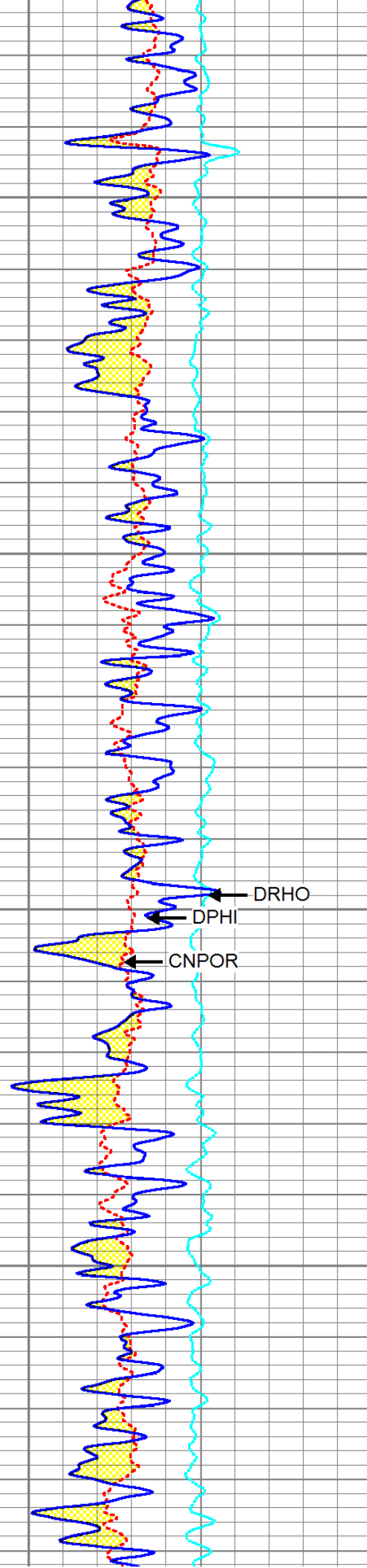
5350

5400

5450



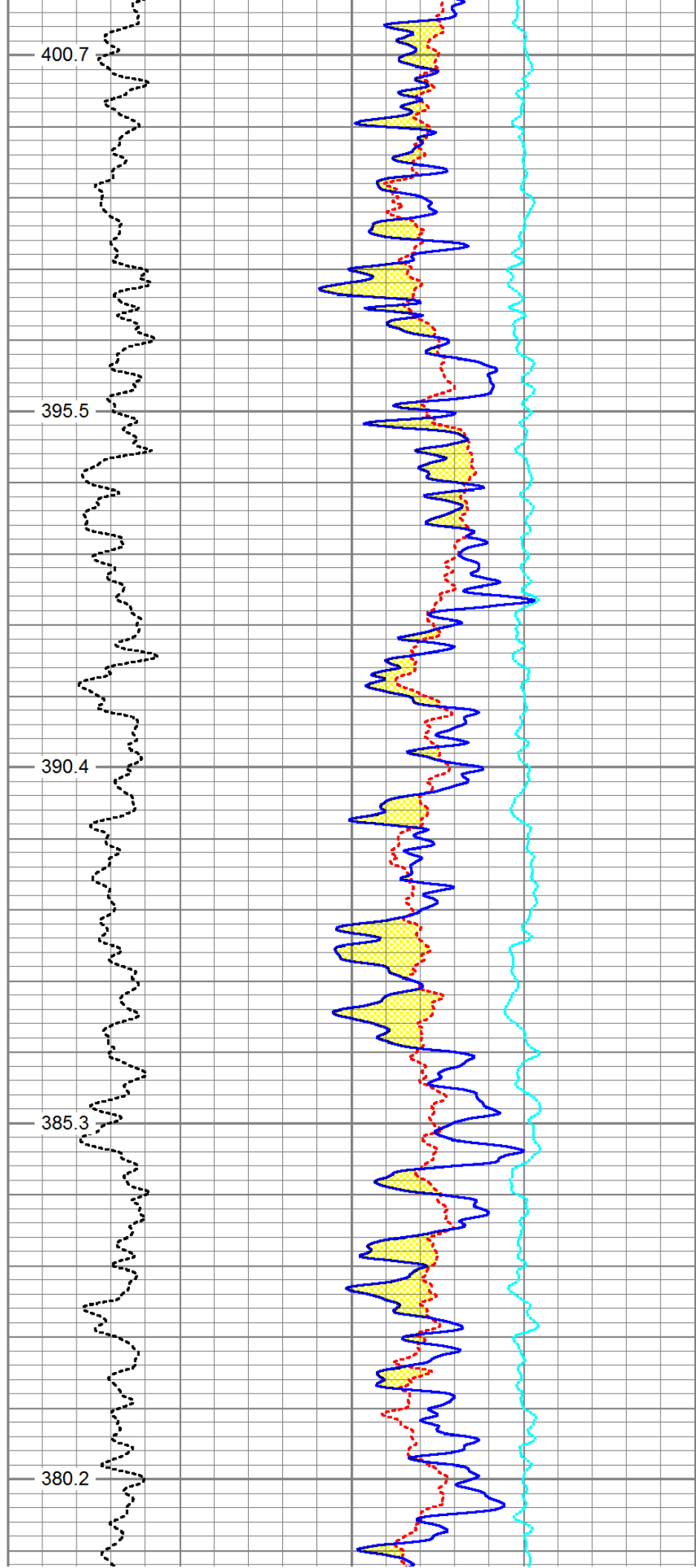
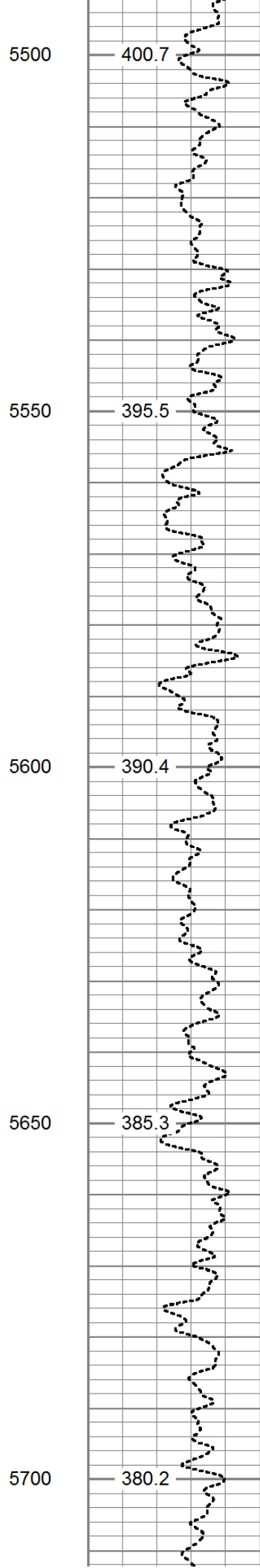
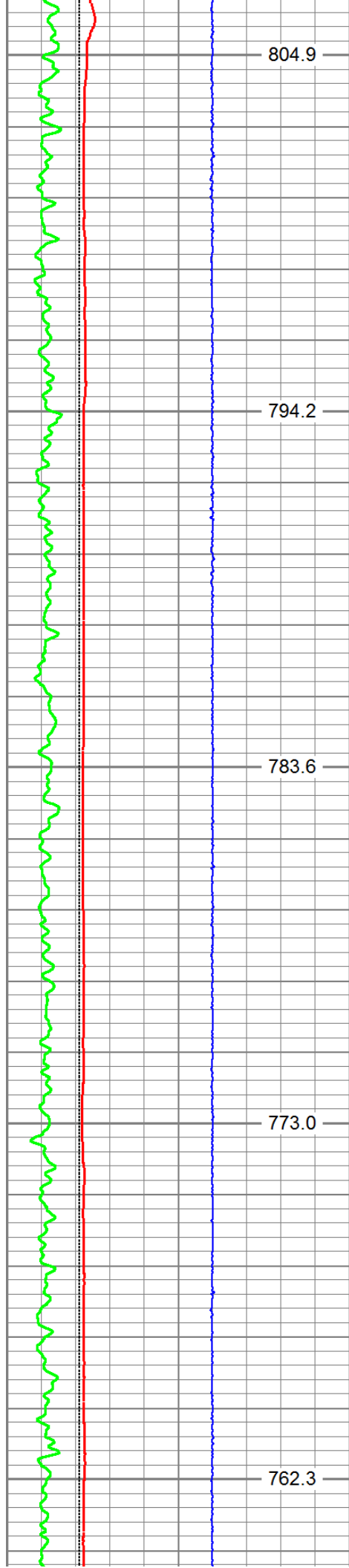
PEF

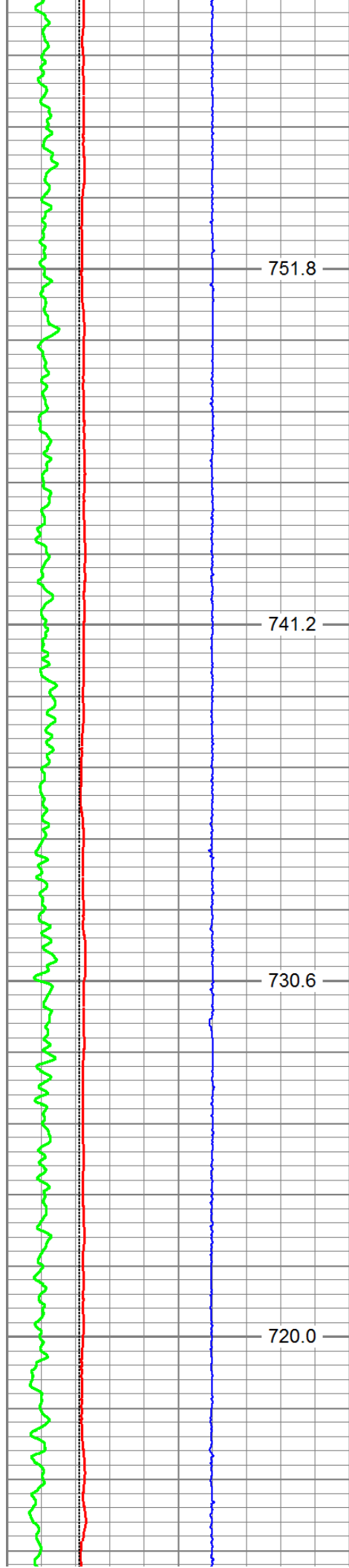


DRHO

DPHI

CNPOR



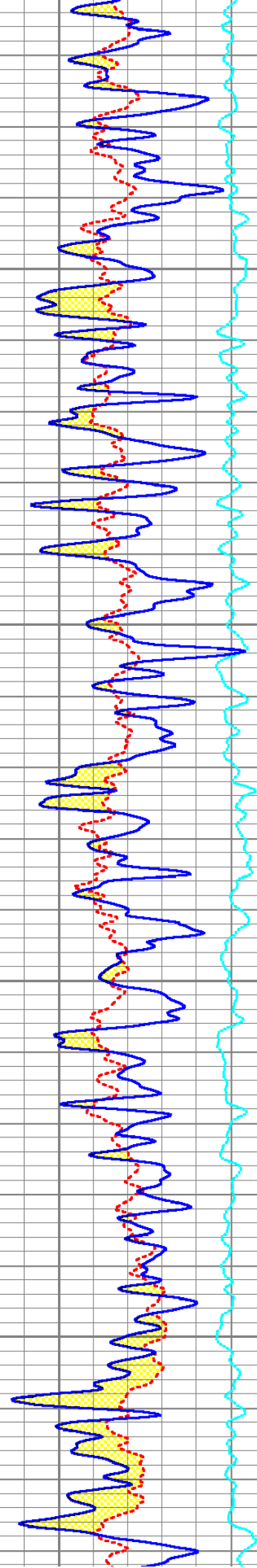
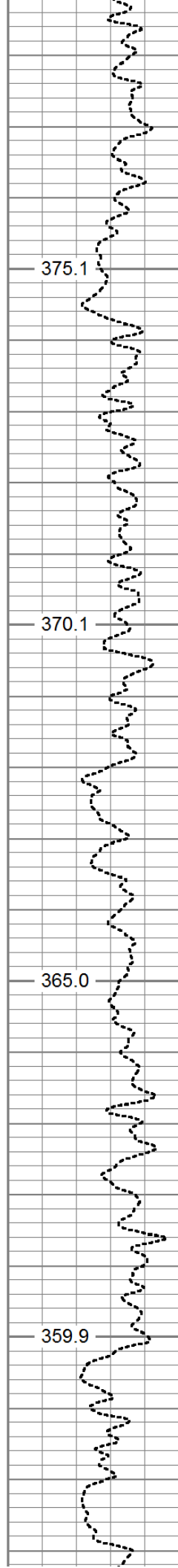


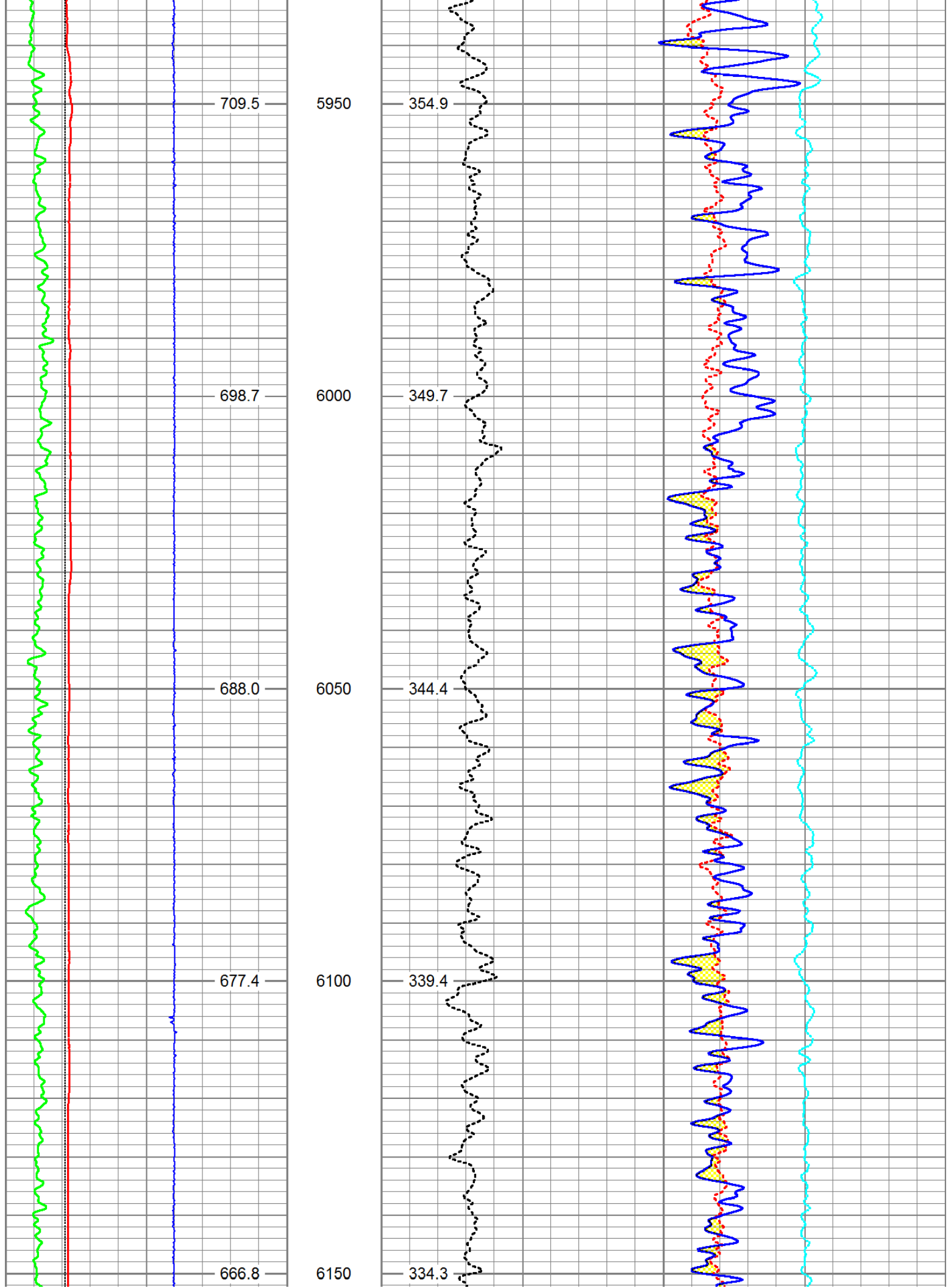
5750

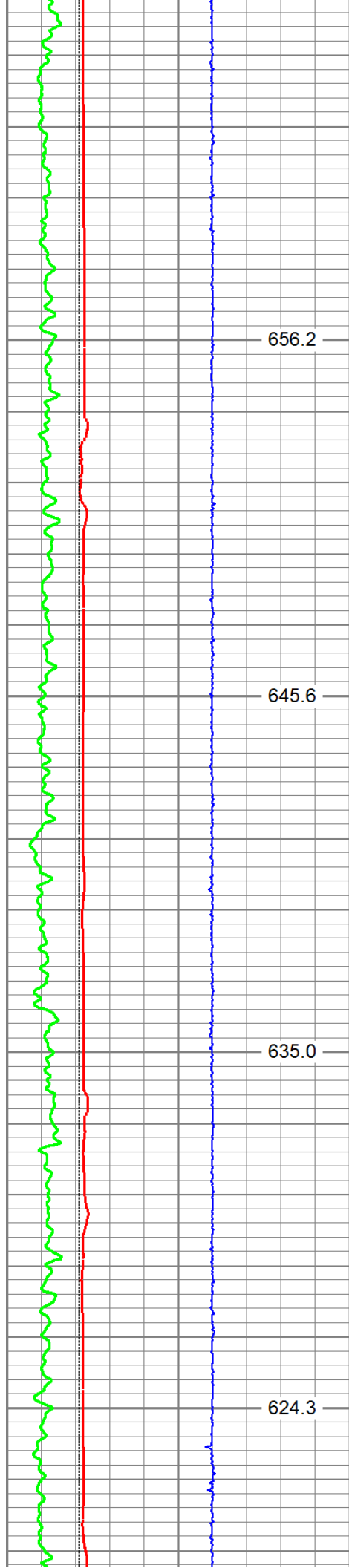
5800

5850

5900





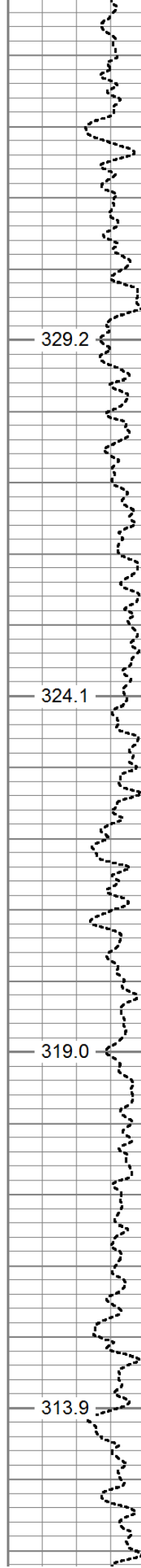


6200

6250

6300

6350

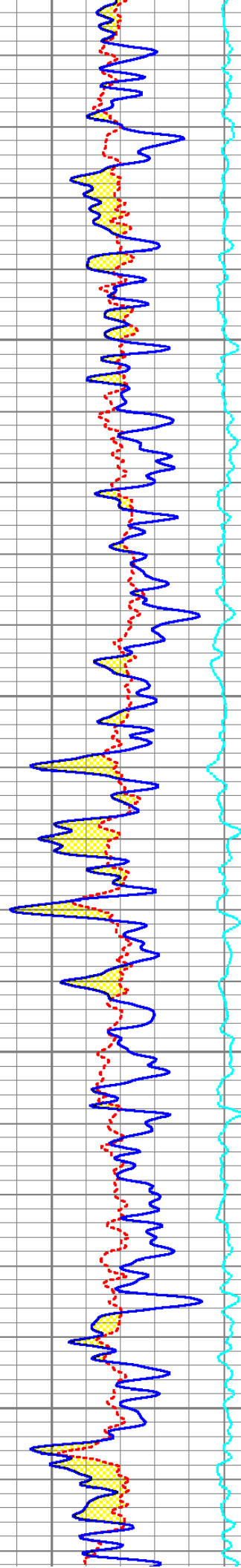


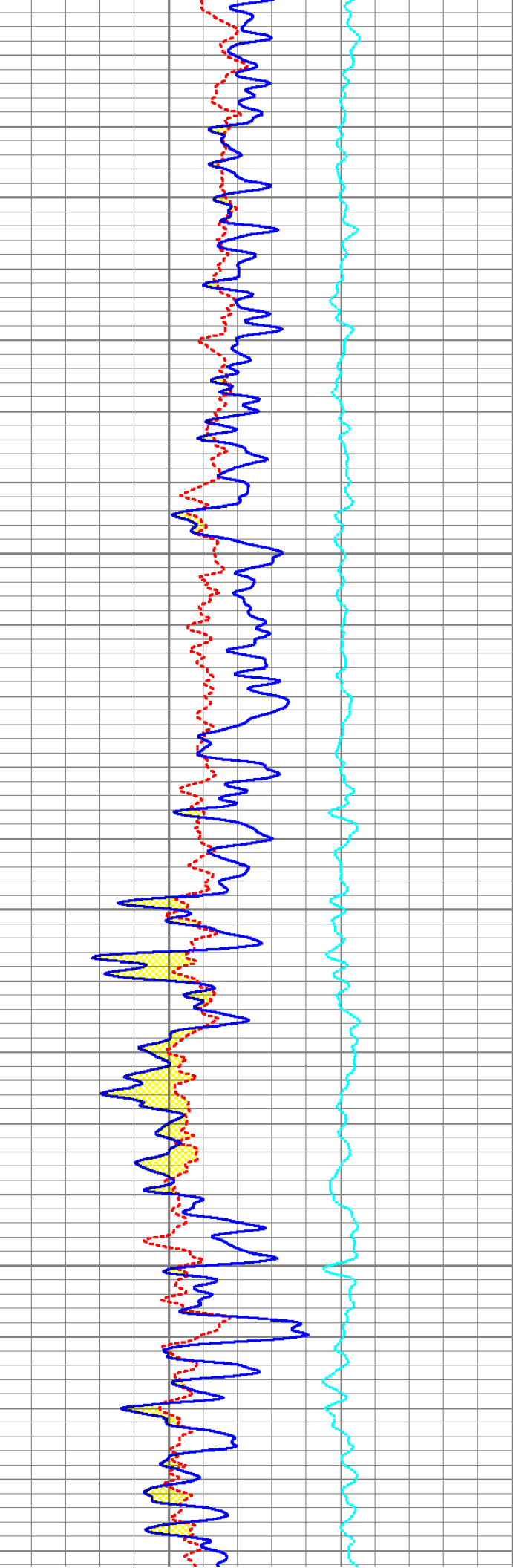
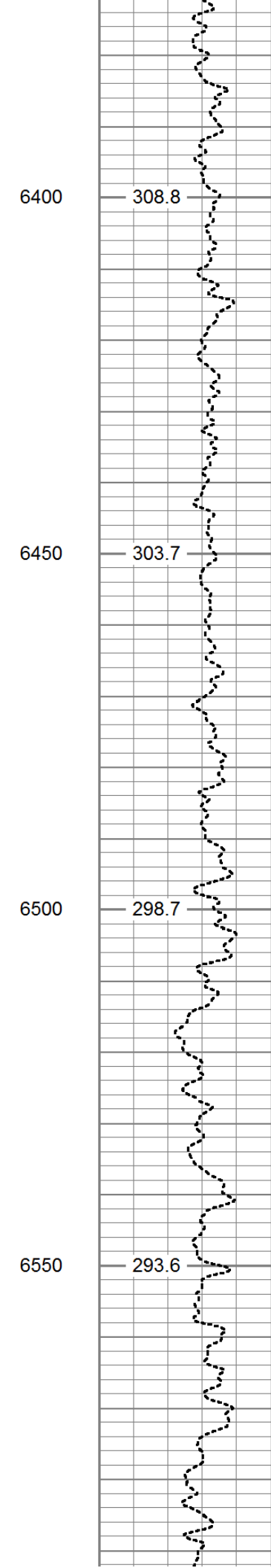
329.2

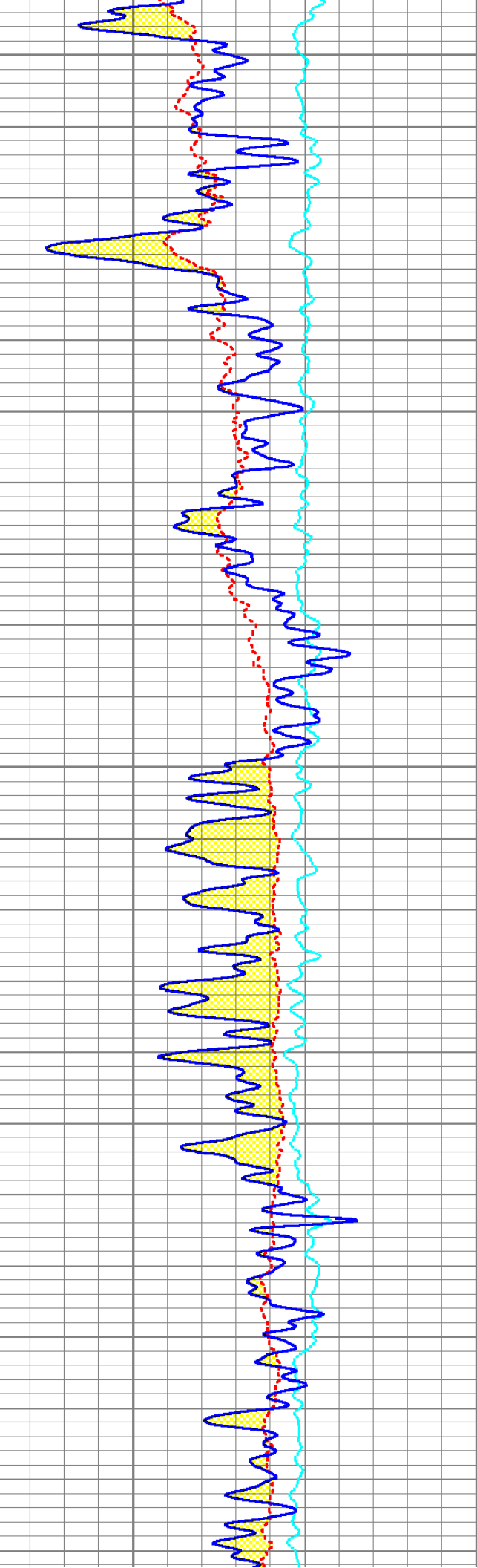
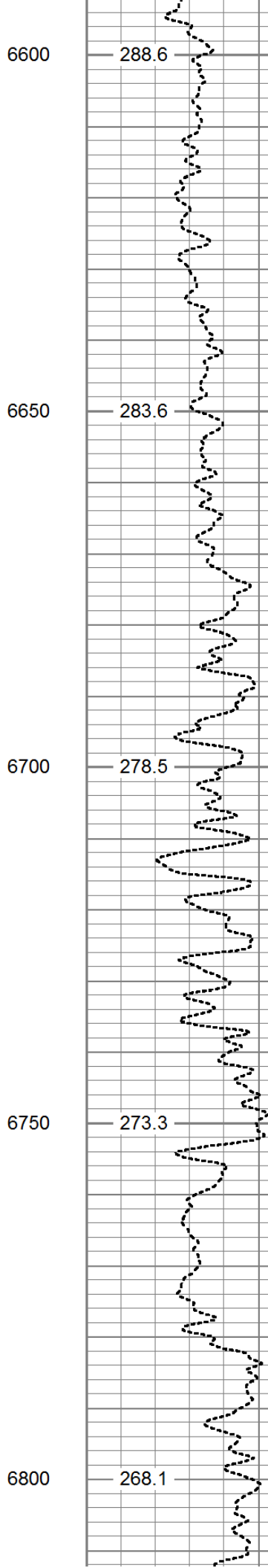
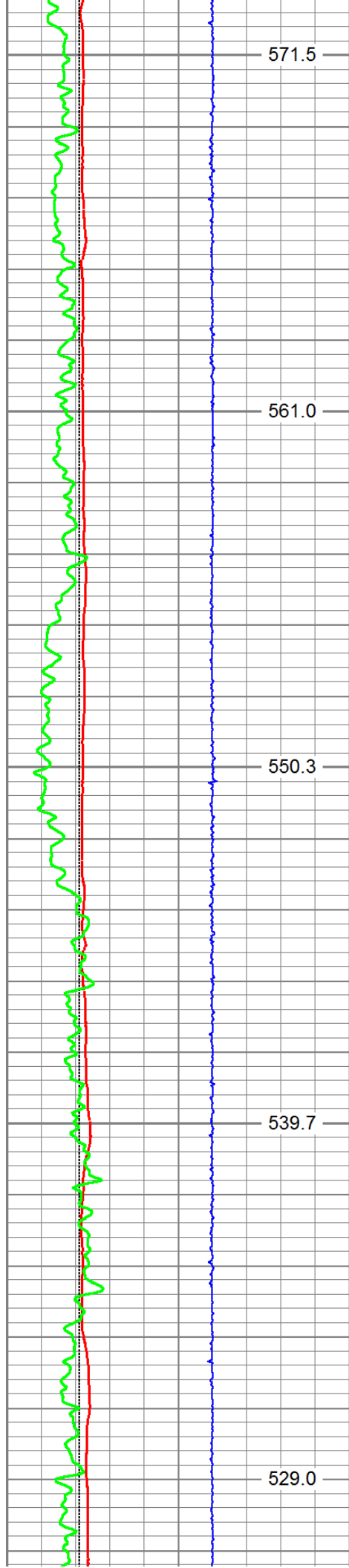
324.1

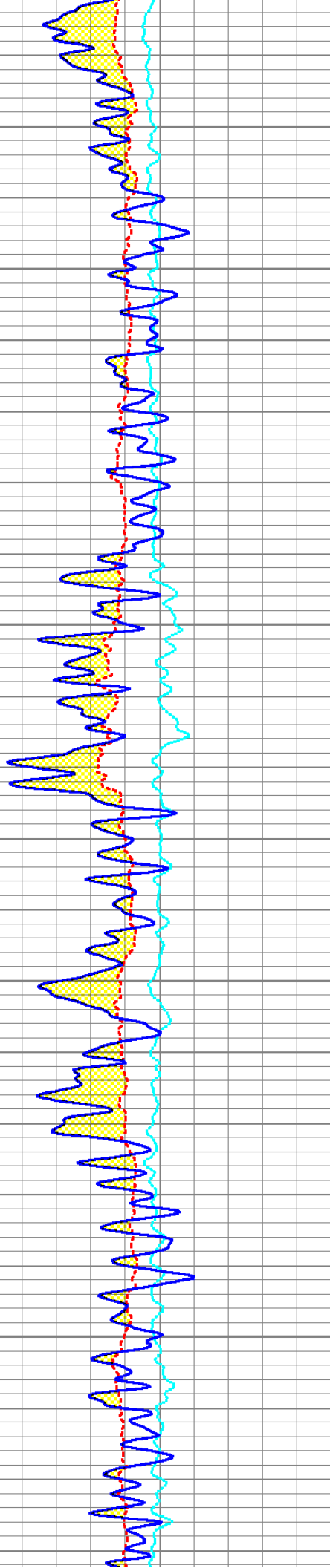
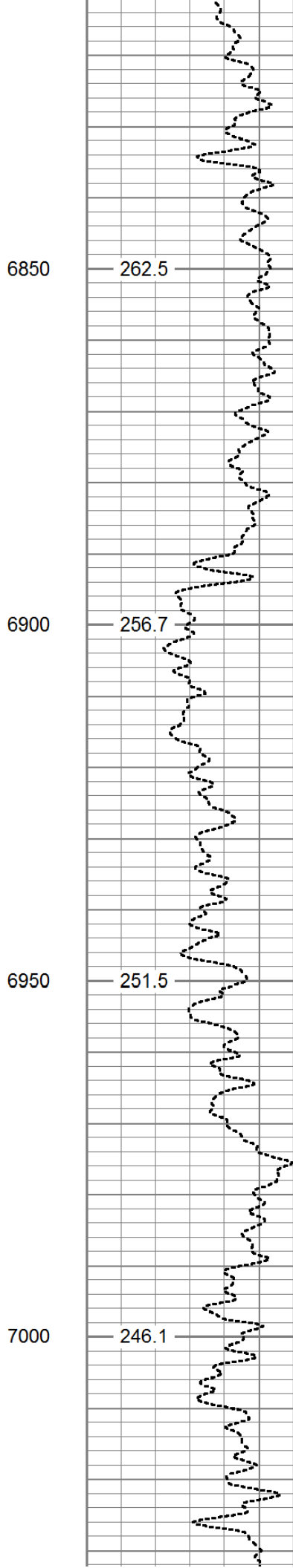
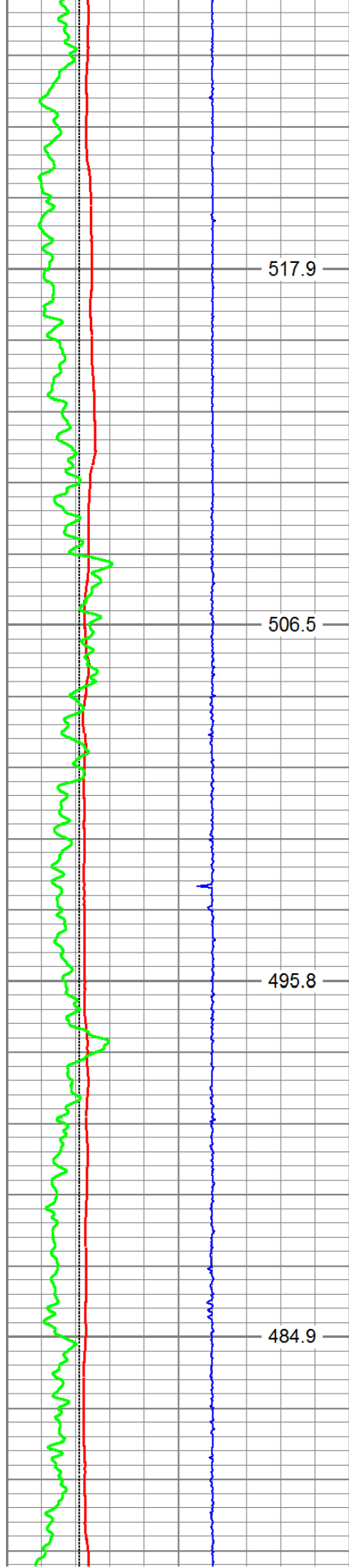
319.0

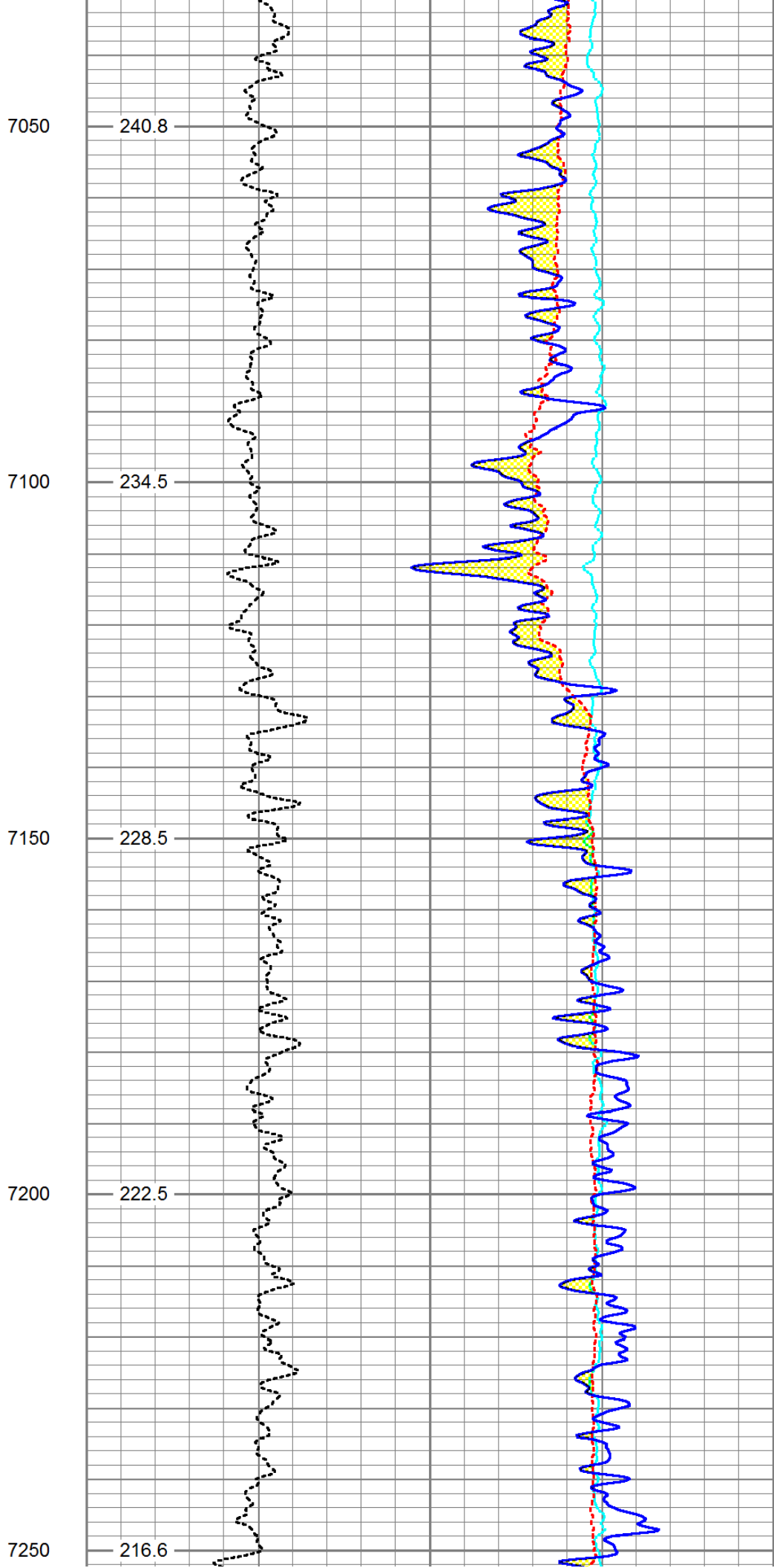
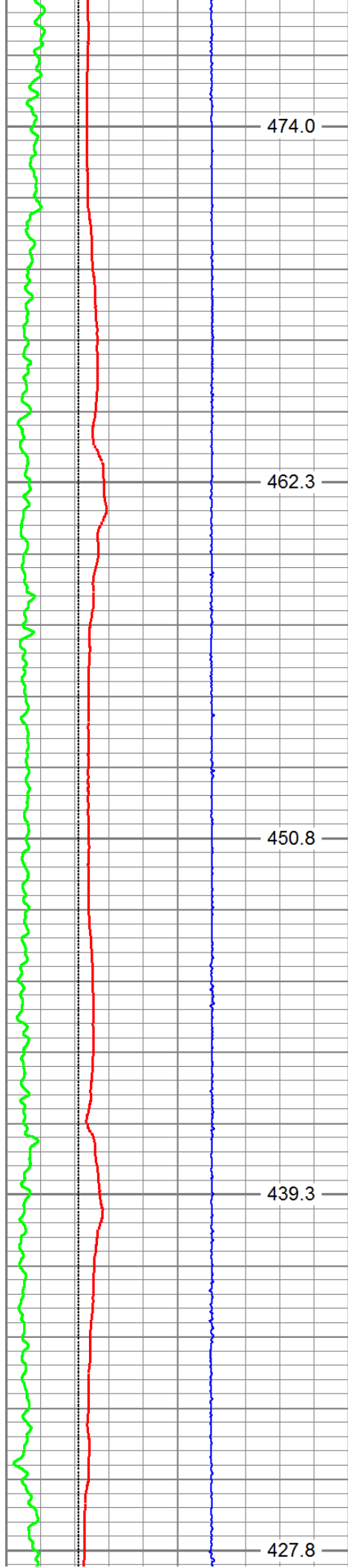
313.9

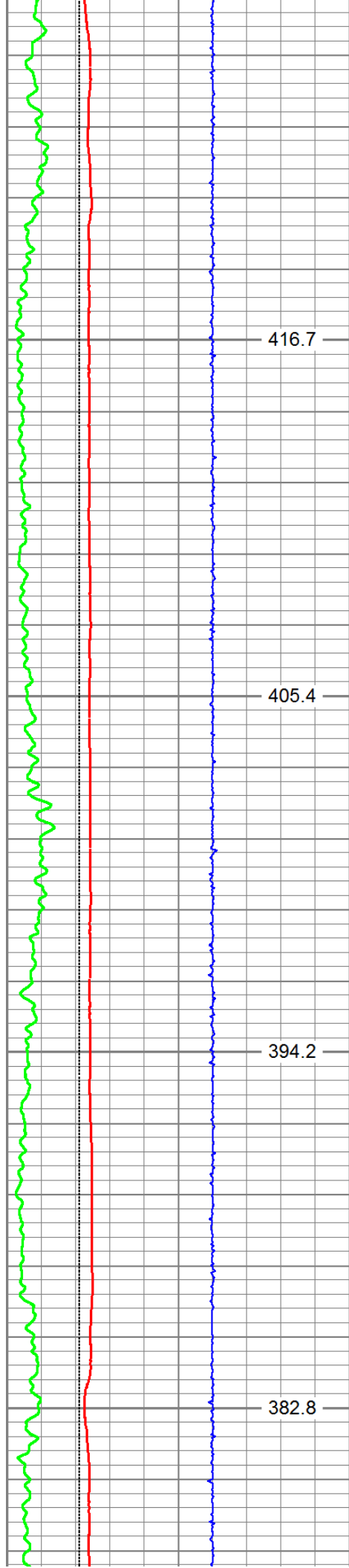










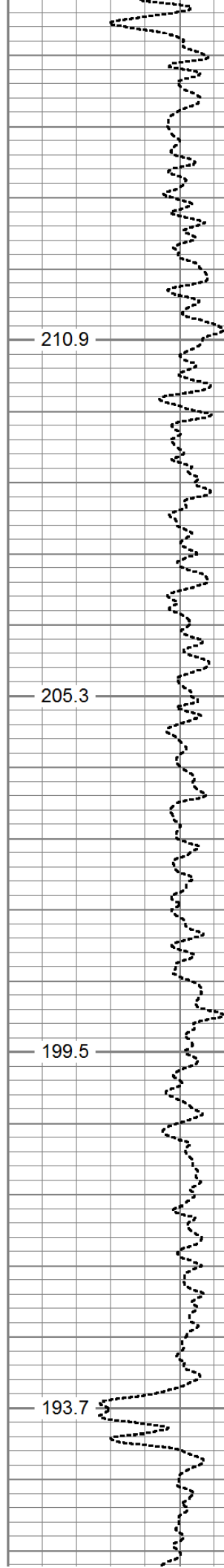


7300

7350

7400

7450

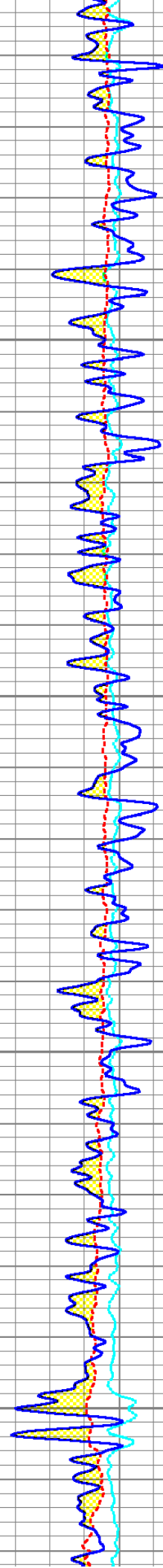


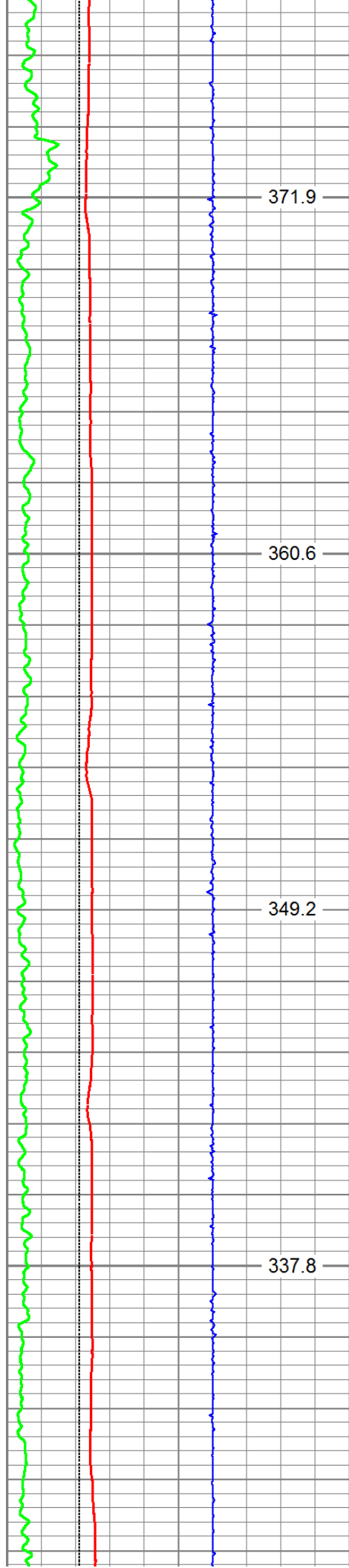
210.9

205.3

199.5

193.7



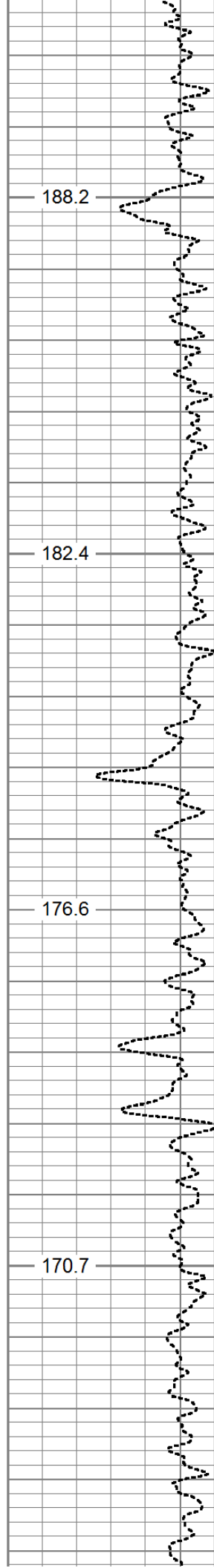


7500

7550

7600

7650

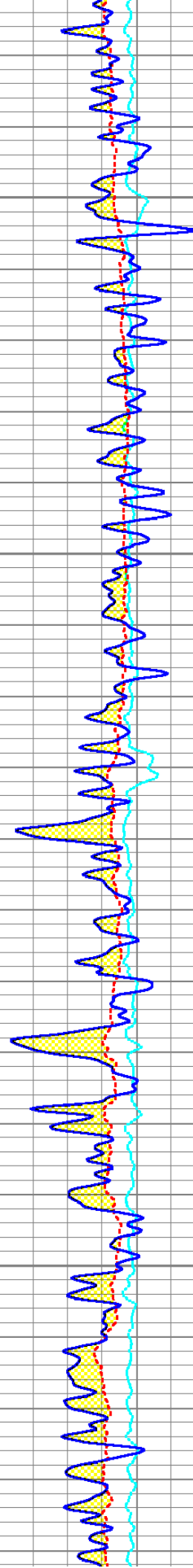


188.2

182.4

176.6

170.7

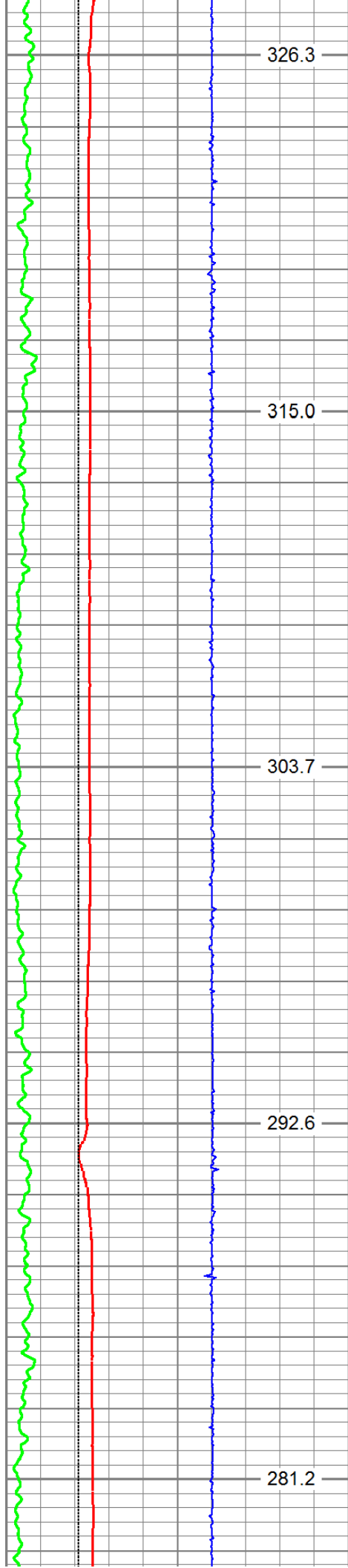


188.2

182.4

176.6

170.7



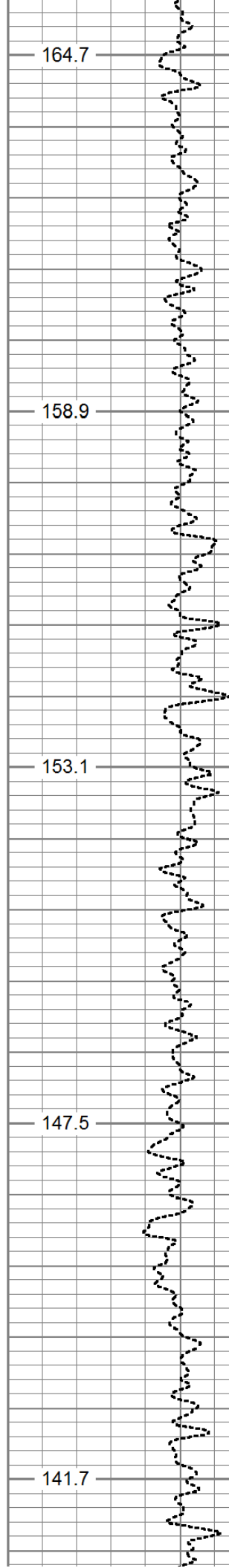
7700

7750

7800

7850

7900



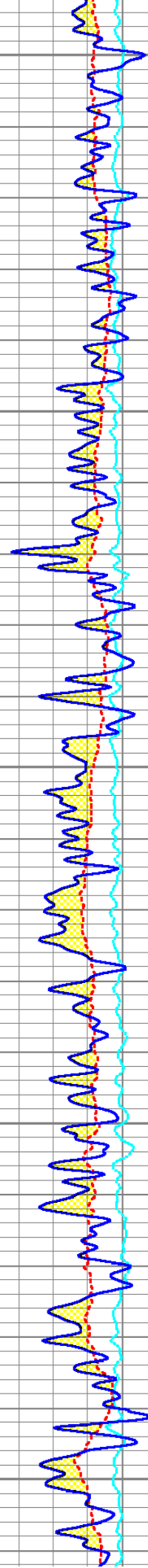
164.7

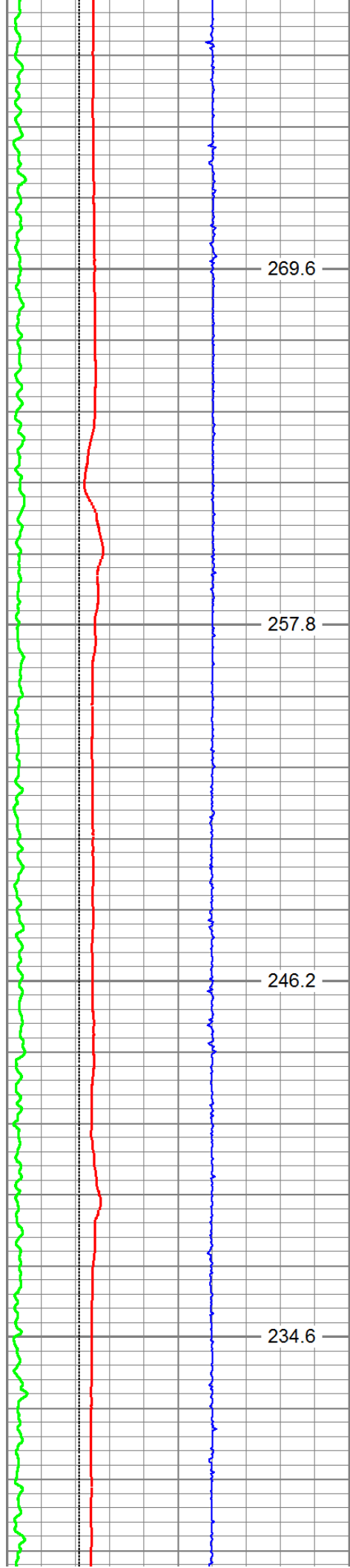
158.9

153.1

147.5

141.7



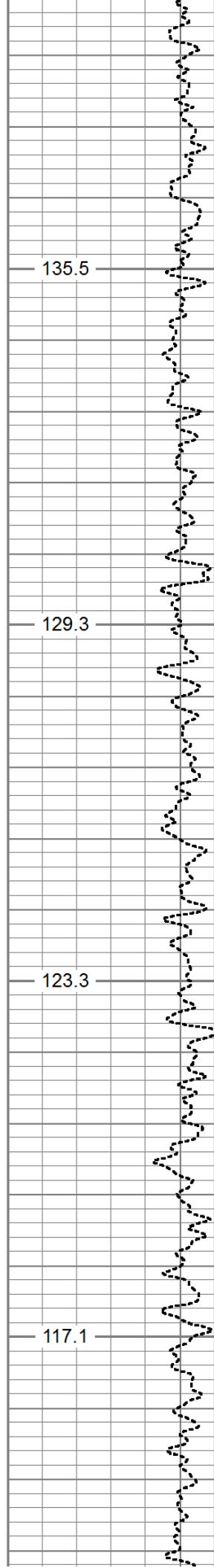


7950

8000

8050

8100

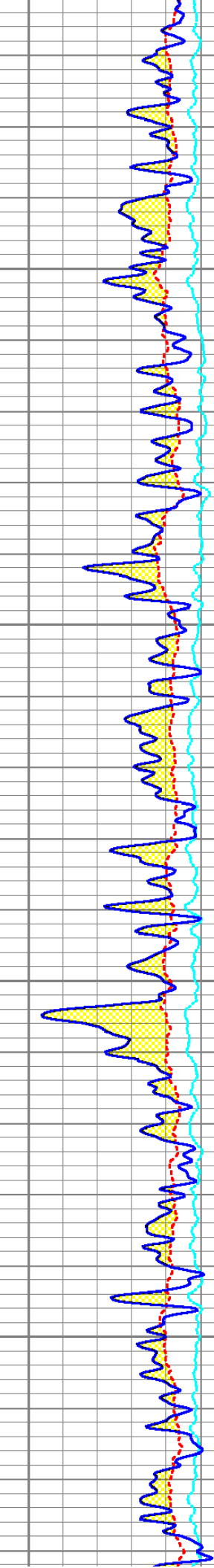


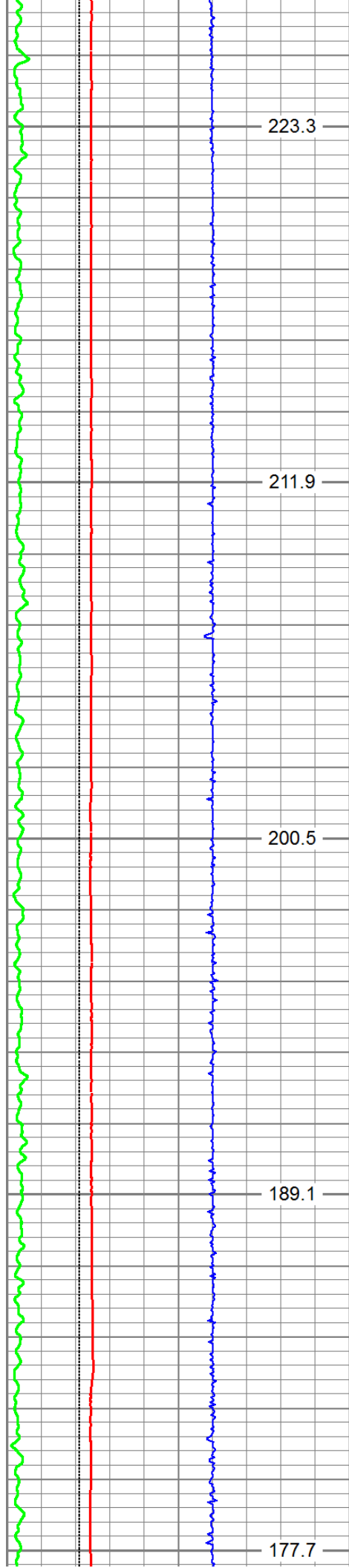
135.5

129.3

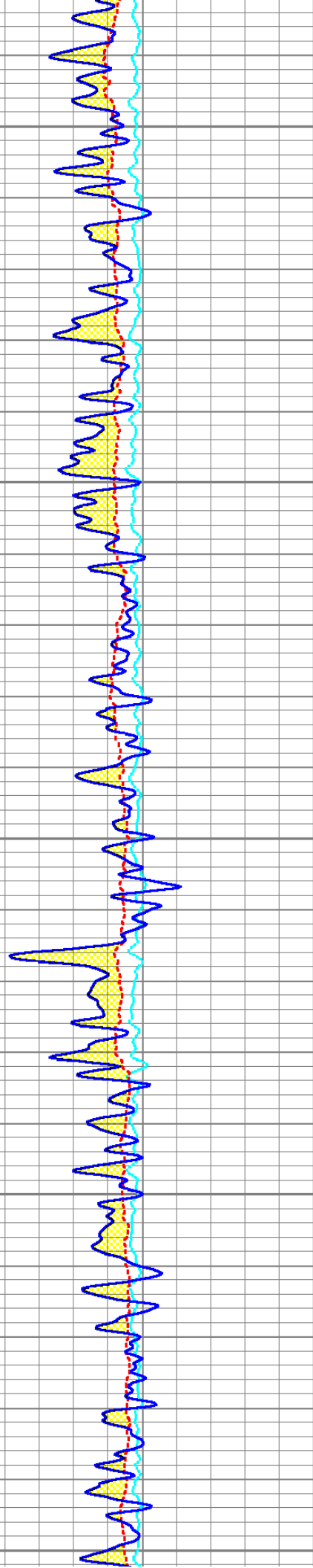
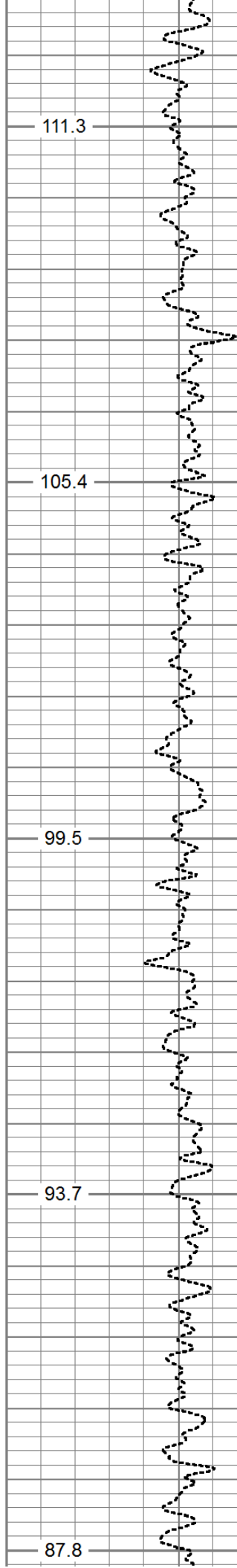
123.3

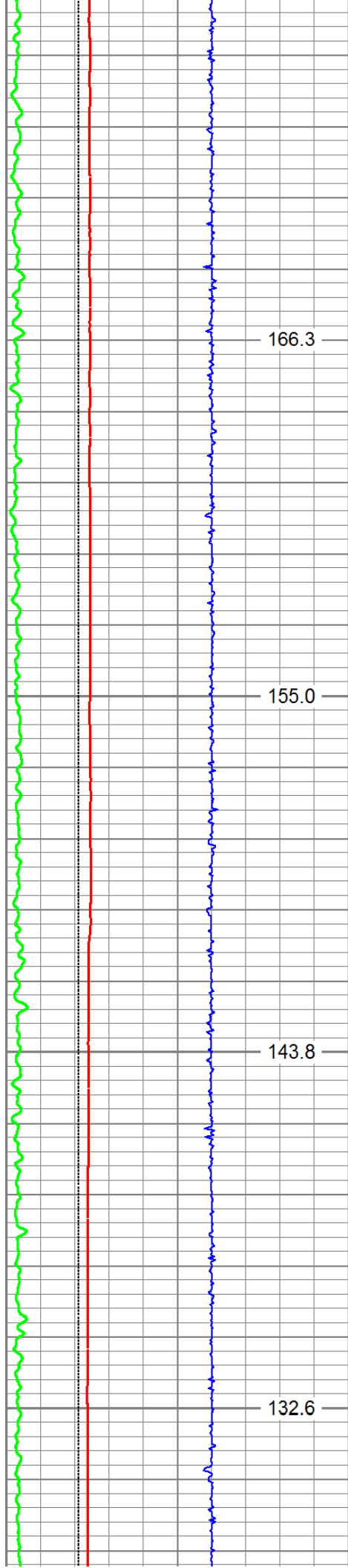
117.1





8150
8200
8250
8300
8350



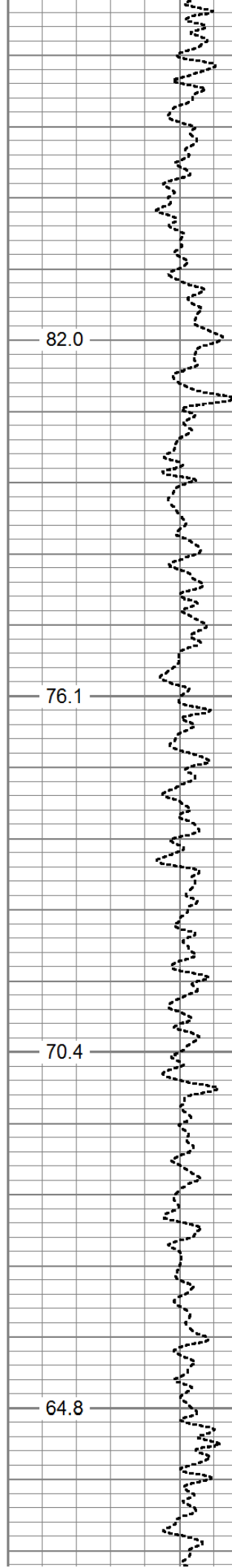


8400

8450

8500

8550

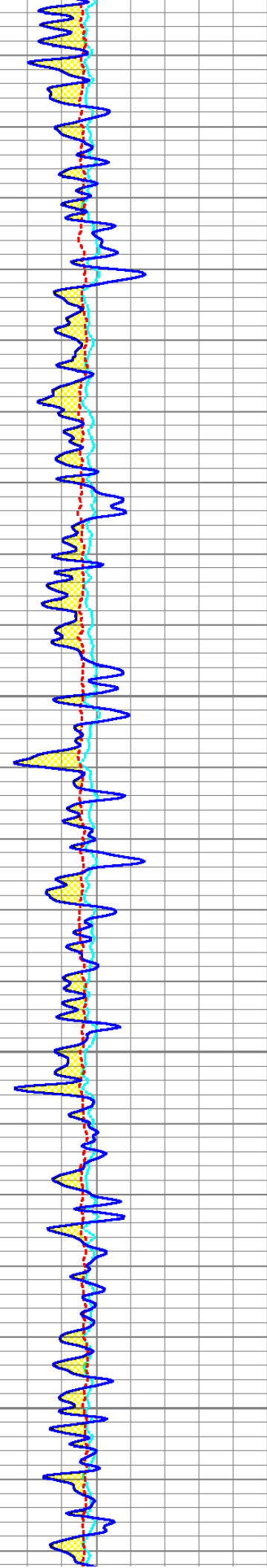


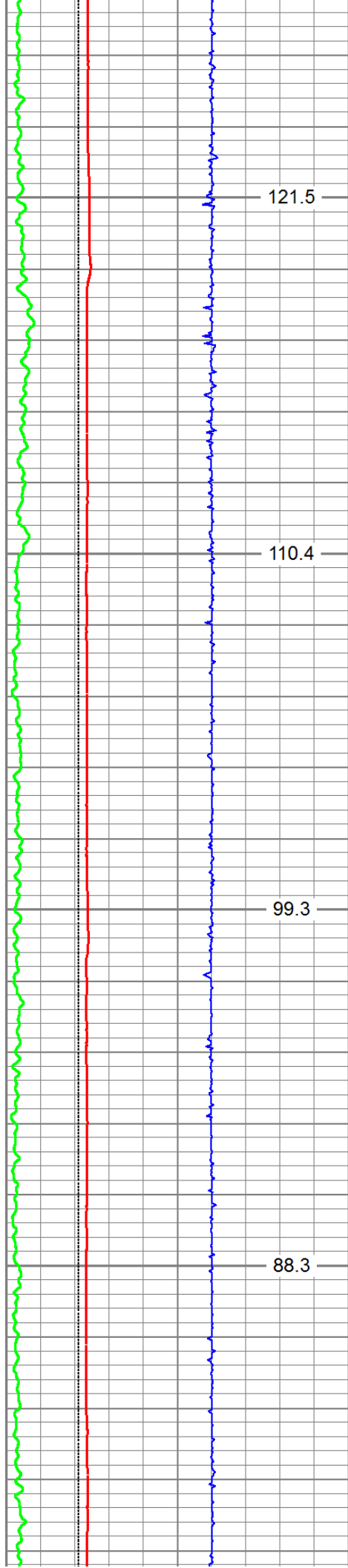
82.0

76.1

70.4

64.8





8600

8650

8700

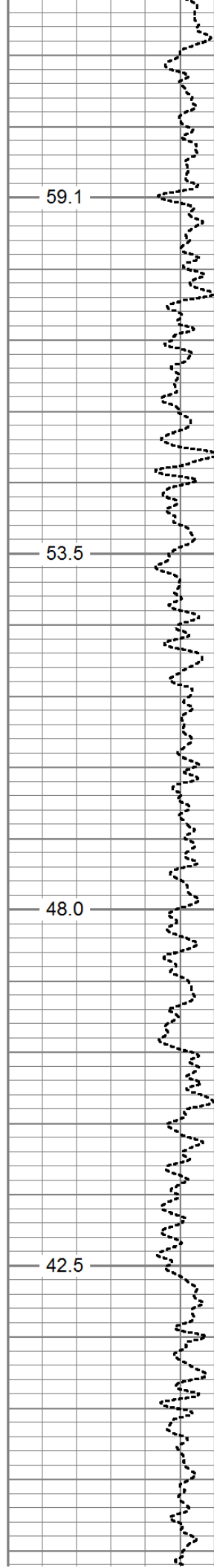
8750

121.5

110.4

99.3

88.3

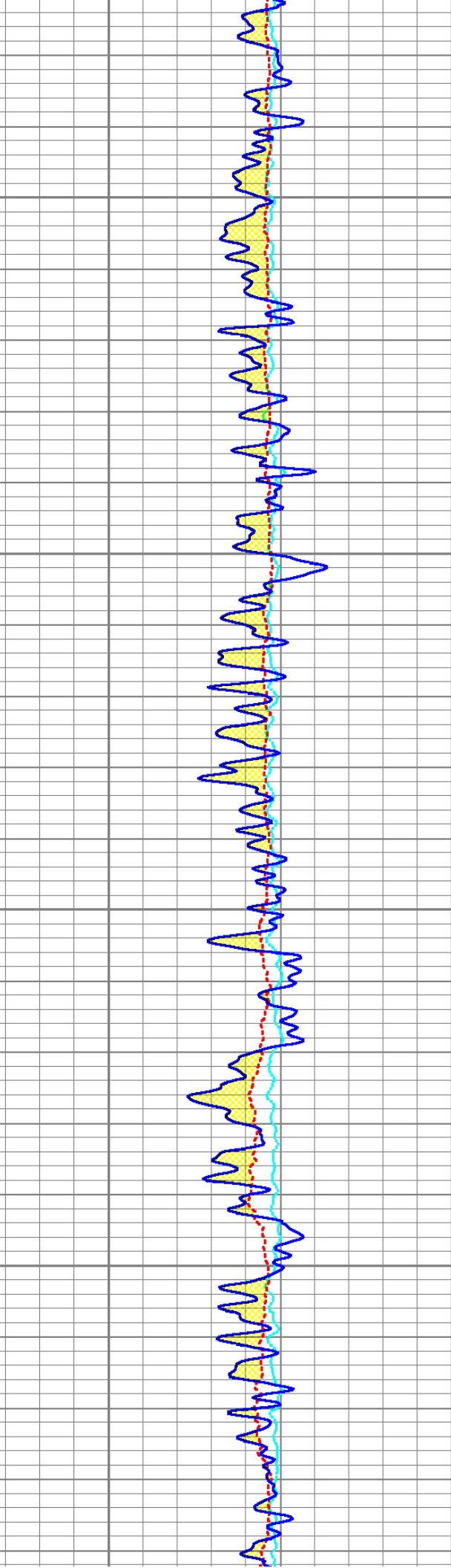


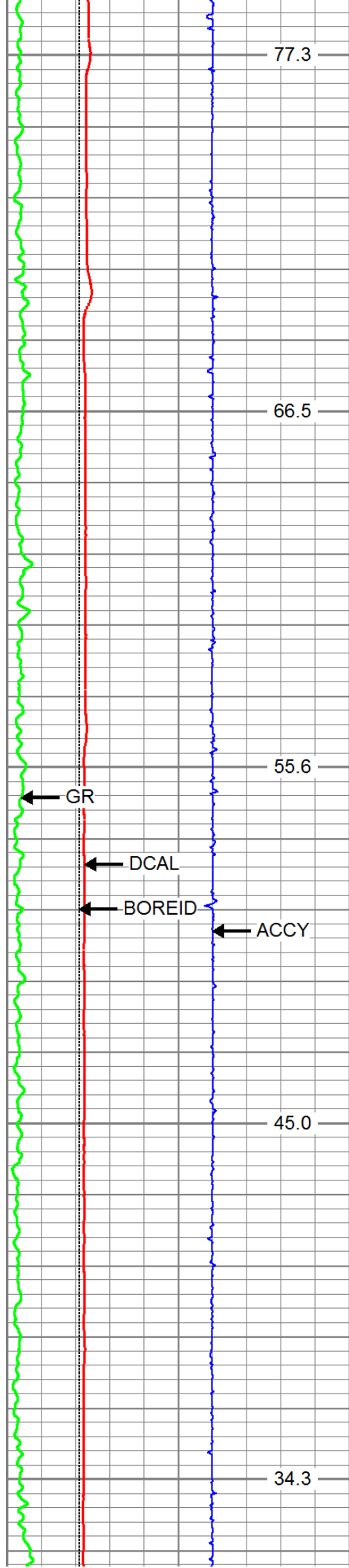
59.1

53.5

48.0

42.5





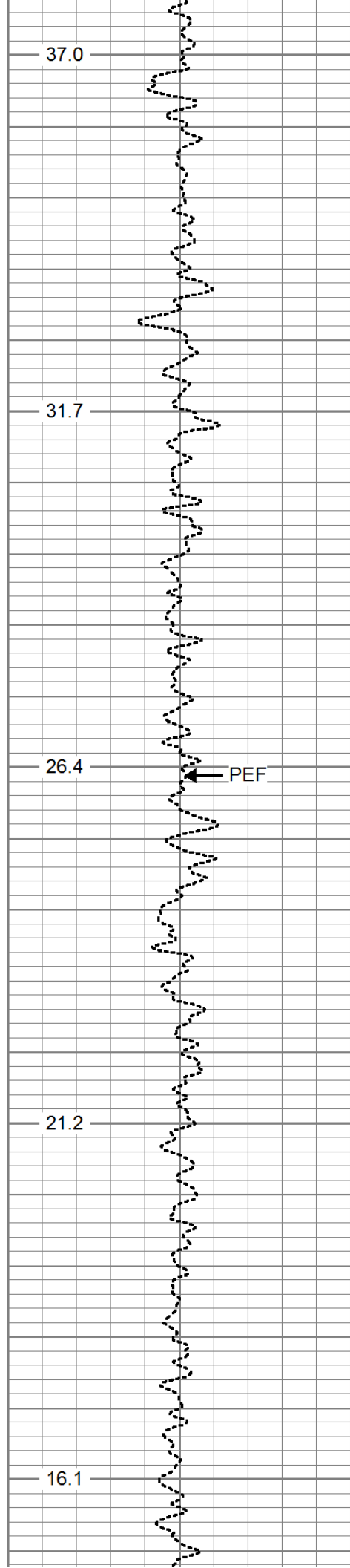
8800

8850

8900

8950

9000



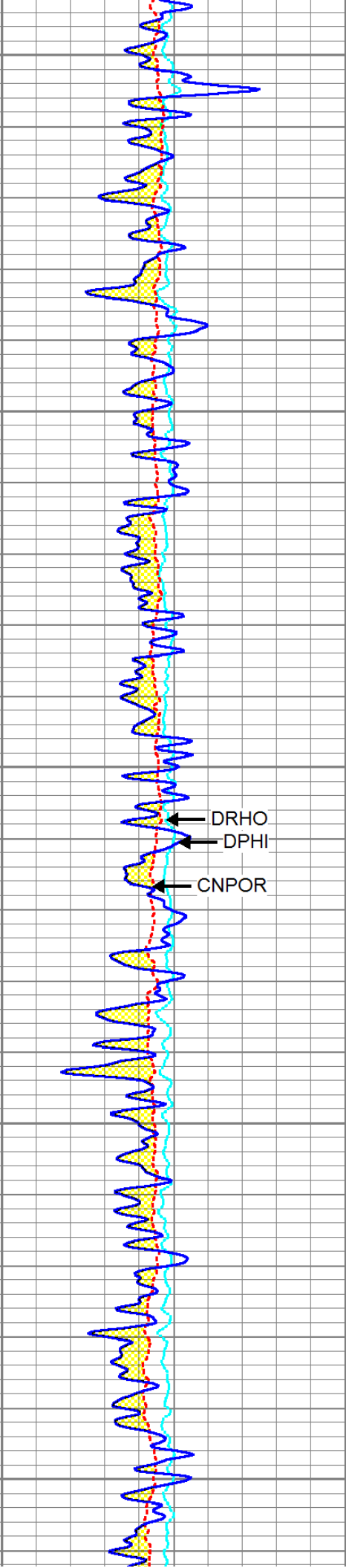
37.0

31.7

26.4

21.2

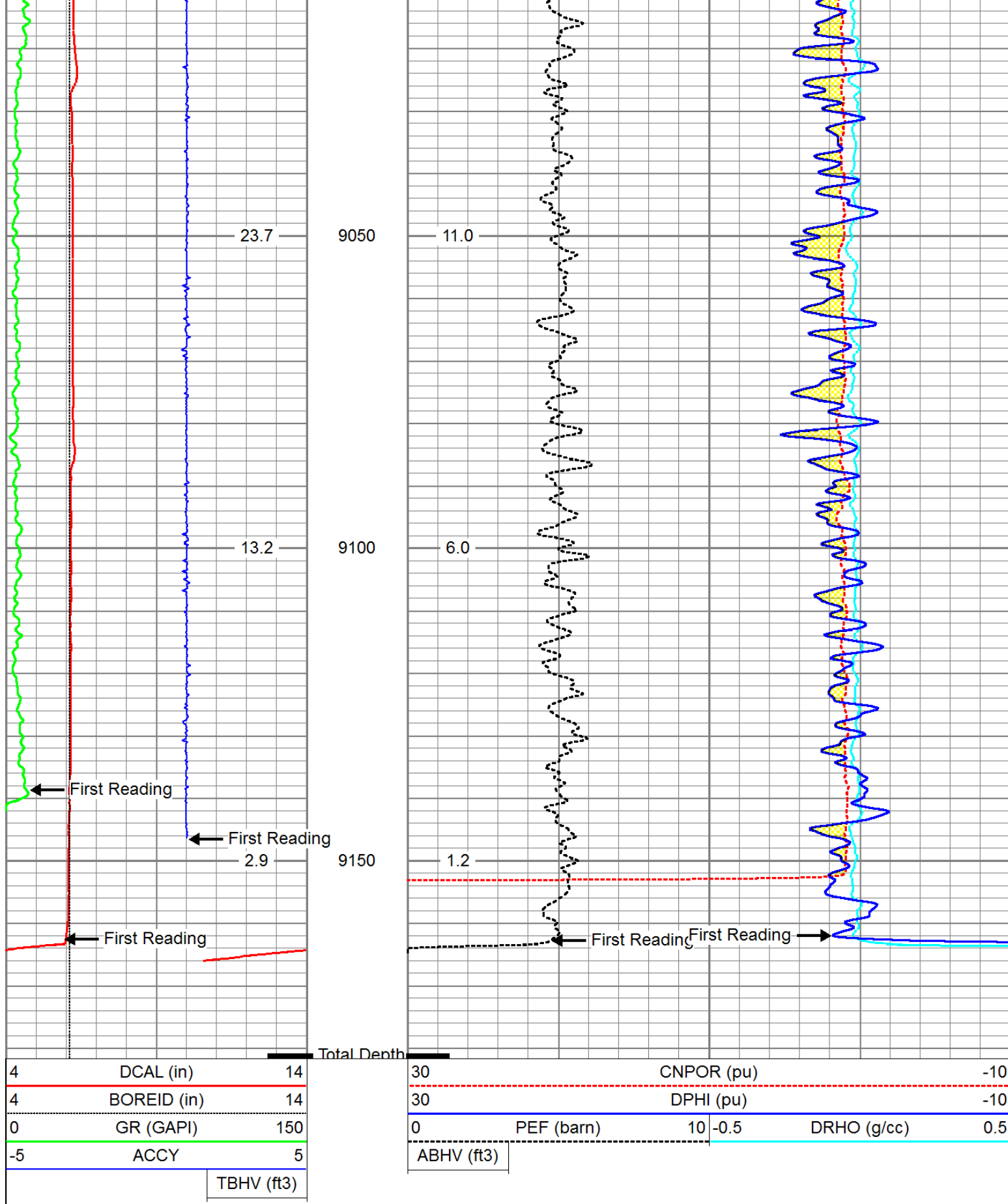
16.1



DRHO

DPHI

CNPOR



Log Variables

Database: c:\users\kris.wetzel\desktop\brad 3508 2-12h\sandridge_brad_3598_2_12h_mem.db
Dataset: field/well/proc1/pass1.2

Top - Bottom

A	BHCOR	BHFL_TYPE	BHFLRES Ohm-m	BHFLRESSRC	BHIDSRC	BOREID in
---	-------	-----------	------------------	------------	---------	--------------

1	On	WBM	1	MUDCELL	CURVE	6.125
BOTTEMP degF 139	CASED? No	CASEOD in 4.5	CASETHCK in 0	CEMWATERSA kppm 0	CMNTTHCK in 0	DNBHC? NO
DPORSEL RHOB	FLUIDDEN g/cc 1	FRMSALIN kppm 0	LATNOR Off	M 2	MATRXDEN g/cc 2.71	MUDSALIN kppm 0.75
MudWgt lb/gal 8.3	NPORSEL Limestone	PEBHC? YES	PERFS 0	RESTMPsrc INTERNAL	SO in 0.5	SRFTEMP degF 65
SZCOR On	TDEPTH ft 9211	TMPCOR On	TOOLPOS Ec-centered			

Calibration Report				
Database File:	c:\users\kris.wetzel\desktop\brad 3508 2-12h\sandridge_brad_3598_2_12h_mem.db			
Dataset Pathname:	proc1/pass1.2			
Dataset Creation:	Fri Jan 04 05:20:57 2013			
ThruBit Induction Calibration Report				
Tool Model-Serial Number:		PS-PS33R		
Shop Calibration Performed:		Mon Sep 17 17:43:26 2012		
BASELINE				
	R	Expected	X	Expected
Freq 1				
A1	-462.8340	[-500.00, -400.00]	368.7990	[-500.00, 500.00]
A2	-140.3220	[-180.00, -100.00]	335.5340	[-500.00, 500.00]
A3	-23.3732	[-50.00, -10.00]	47.0749	[-500.00, 500.00]
A4	-15.7522	[-30.00, -10.00]	230.8150	[-500.00, 500.00]
A5	-13.0059	[-30.00, -10.00]	103.4250	[-500.00, 500.00]
Freq 2				
A1	-239.7640	[-280.00, -180.00]	214.3450	[-500.00, 500.00]
A2	-89.4889	[-130.00, -50.00]	193.0120	[-500.00, 500.00]
A3	-17.5704	[-50.00, -10.00]	-18.2748	[-500.00, 500.00]
A4	-19.0066	[-30.00, -10.00]	64.1851	[-500.00, 500.00]
A5	-18.4206	[-30.00, -10.00]	-30.9540	[-500.00, 500.00]
Freq 3				
A1	-150.3860	[-180.00, -80.00]	92.9270	[-500.00, 500.00]
A2	-67.7934	[-130.00, -30.00]	102.2420	[-500.00, 500.00]
A3	-14.7812	[-50.00, -10.00]	-69.0802	[-500.00, 500.00]
A4	-20.8919	[-30.00, -10.00]	-47.6626	[-500.00, 500.00]
A5	-21.3030	[-30.00, -10.00]	-131.6200	[-500.00, 500.00]
Freq 4				
A1	-80.1984	[-120.00, -40.00]	-91.0663	[-500.00, 500.00]
A2	-48.3632	[-110.00, -10.00]	-17.0021	[-500.00, 500.00]
A3	-11.5826	[-50.00, -10.00]	-149.9760	[-500.00, 500.00]
A4	-23.4522	[-30.00, -10.00]	-215.9070	[-500.00, 500.00]
A5	-26.9293	[-30.00, -10.00]	-306.0460	[-500.00, 500.00]
CALIBRATION COEFFICIENTS				

	R	Expected	X	Expected
Freq 1				
A1	0.9956	[0.95, 1.05]	0.0019	[-0.05, 0.05]
A2	0.9965	[0.95, 1.05]	0.0026	[-0.05, 0.05]
A3	1.0083	[0.95, 1.05]	-0.0047	[-0.05, 0.05]
A4	0.9968	[0.95, 1.05]	0.0047	[-0.05, 0.05]
A5	1.0020	[0.95, 1.05]	0.0013	[-0.05, 0.05]
Freq 2				
A1	0.9900	[0.95, 1.05]	-0.0068	[-0.05, 0.05]
A2	0.9906	[0.95, 1.05]	-0.0059	[-0.05, 0.05]
A3	0.9964	[0.95, 1.05]	-0.0059	[-0.05, 0.05]
A4	0.9921	[0.95, 1.05]	-0.0038	[-0.05, 0.05]
A5	0.9981	[0.95, 1.05]	-0.0082	[-0.05, 0.05]
Freq 3				
A1	0.9993	[0.95, 1.05]	-0.0029	[-0.05, 0.05]
A2	1.0001	[0.95, 1.05]	-0.0019	[-0.05, 0.05]
A3	1.0058	[0.95, 1.05]	-0.0023	[-0.05, 0.05]
A4	1.0017	[0.95, 1.05]	0.0005	[-0.05, 0.05]
A5	1.0078	[0.95, 1.05]	-0.0034	[-0.05, 0.05]
Freq 4				
A1	0.9845	[0.95, 1.05]	-0.0049	[-0.05, 0.05]
A2	0.9851	[0.95, 1.05]	-0.0045	[-0.05, 0.05]
A3	0.9927	[0.95, 1.05]	-0.0071	[-0.05, 0.05]
A4	0.9882	[0.95, 1.05]	-0.0017	[-0.05, 0.05]
A5	0.9987	[0.95, 1.05]	-0.0089	[-0.05, 0.05]
Temperature	34.2558 degC			

ThruBit Density Calibration Report	
Tool Model-Serial Number:	PS-PS50D
Source Number:	
Shop Calibration Performed:	Thu Dec 27 06:06:11 2012

REFERENCE			
	Density	Units	
Aluminium	2.607	g/cc	
Magnesium	1.752	g/cc	
READINGS			
Outputs	Counts	Units	Expected
SS1 Background	125.08	cps	[130.00, 170.00]
LS1 Background	132.68	cps	[130.00, 170.00]
LS4 Background	27.55	cps	[27.00, 35.00]
SS1 Aluminium	5026.04	cps	[4500.00, 5500.00]
LS1 Aluminium	885.98	cps	[750.00, 950.00]
LS4 Aluminium	957.29	cps	[843.00, 1068.00]
SS1 Magnesium	8268.06	cps	[7000.00, 9000.00]
LS1 Magnesium	5859.46	cps	[5250.00, 6250.00]
LS1 Al + Fe	757.05	cps	[650.00, 800.00]
LS4 Al + Fe	443.15	cps	[382.00, 471.00]
RESULTS			
SS Slope	1.68		[1.52, 1.77]
LS Slope	0.42		[0.38, 0.45]

LS Slope	0.12	[0.00, 0.10]
PEF K Factor	4.601	[3.510, 6.170]
PEF B Factor	-0.580	[-0.700, -0.410]

RESULTS Caliper Shop Calibration performed: Thu Dec 27 06:06:11 2012			
Reference	Reading	Units	
12.00	1867.75	in	
9.00	2023.04	in	
6.00	2181.57	in	

DENSITY PRE-SURVEY CHECK Performed: Mon Dec 31 11:08:16 2012			
Outputs	Counts	Units	Expected
SS1 Background	123.97	cps	[121.32, 128.83]
LS1 Background	132.24	cps	[128.70, 136.66]
LS4 Background	27.63	cps	[25.90, 29.20]

CALIPER PRE-SURVEY CHECK Performed: Mon Dec 31 11:08:45 2012			
Reference	Readings	Units	Expected
6.00	6.02	in	[5.80, 6.20]

Compensated Neutron Calibration Report
--

Tool Model-Serial Number: Source Number:	PS-PS14N
Calibration Tank Temperature: Shop Calibration Performed:	61.7 degF Thu Dec 20 14:04:16 2012

BACKGROUND MEASUREMENT			
Outputs	Measured	Units	Expected
SS Counts	0.0	cps	<10
LS Counts	0.1	cps	<4

WATER TANK REFERENCE			
Outputs	Measured	Units	Expected
SS Counts	831.5	cps	
LS Counts	27.5	cps	
Tank Ratio Ref	30.9580	SS/LS	
Tank Ratio	30.2825	SS/LS	
Tank Ratio Gain	1.0223		[0.85, 1.15]

ALUMINUM SLEEVE REFERENCE			
Outputs	Measured	Units	Expected
SS Counts	9319.4	cps	
LS Counts	876.4	cps	

AI Ratio Ref	10.797	SS/LS	
AI Ratio	10.870	SS/LS	
AI Ratio Gain	0.99		[0.90, 1.10]
Sleeve Porosity	14.46	pu	

PRE-SURVEY BACKGROUND CHECK Performed: Mon Dec 31 11:14:58 2012			
Outputs	Measured	Units	Expected
SS Counts	0.0	cps	<10
LS Counts	0.1	cps	<4

Gamma Ray Calibration Report			
Tool Model-Serial Number:	PS-PS27T		
Performed:	Fri Oct 05 13:51:54 2012		
Calibrator Value:	150.0	GAPI	
Background Reading:	75.0	cps	
Calibrator Reading:	350.0	cps	
Sensitivity:	0.3750	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 Solid Weakpoint	2.31	2.13	5.00
Thrubit	64.61		PSBDOT	3.87	2.25	35.00
Thrubit	60.75		HangOff_Tool	5.00	2.38	60.00
Thrubit	55.75		Universal Joint	1.46	2.06	15.00
Thrubit	54.29		10-1	0.88	2.13	3.95
TBBAT	53.41		TBBAT-A (PS11B) Thrubit Battery	6.13	2.13	38.20
TBBAT2	47.29					

			TBBAT2-A (PS34B) ThruBit Battery	6.13	2.13	40.00
TMG	41.16					
GR	41.04					
GRTEMP	40.20		TMG-PS (PS27T) ThruBit Telemetry Gamma Ray	6.13	2.13	45.00
ThruBit	35.04					
			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 (PS50D) ThruBit Density	10.48	2.13	91.00
LSW1	18.04					
DCAL	17.13					
A1_P	10.60					
A2_P	10.10					
A3_P	9.35					
A4_P	8.35		TBI-PS (PS33R) ThruBit Induction	15.29	2.13	94.00
A5_P	6.60					
Dataset: sandridge_brad_3598_2_12h_mem.db: field/well/proc1/pass1.2 Total Length: 66.92 ft Total Weight: 560.15 lb O.D. 2.38 in						

	Company	SANDRIDGE ENERGY
	Well	BRAD 3508 2-12H
	Field	BOUSE
	County	HARPER
	State	KANSAS