



BOREHOLE PROFILE

FILE NO: MD11798	COMPANY HOLLY FRONTIER - NAVAJO
API NO: 30-015-44677	WELL NAVAJO REFINING WDW #4
	FIELD ARTESIA
	COUNTY EDDY
	STATE NEW MEXICO

Ver. 4.10	LOCATION: 1217' FSL & 2443' FWL SECTION 23, T17S, R27E N.M.P.M. SURVEY	OTHER SERVICES STAR
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PERMANENT DATUM	GL	ELEVATION	3565.8 FT	ELEVATIONS: KB 3585.8 FT DF 3584.8 FT GL 3565.8 FT
LOG MEASURED FROM	KB	20 FT	ABOVE P.D.	
DRILL. MEAS. FROM	KB			

DATE	RUN	TRIP	16-JUN-2018	29-JUN-2018
SERVICE ORDER	2	1	134536	134542
DEPTH DRILLER	9739 FT		10360 FT	10360 FT
DEPTH LOGGER	9740 FT		10360 FT	10360 FT
BOTTOM LOGGED INTERVAL	9740 FT		10360 FT	10360 FT
TOP LOGGED INTERVAL	1680 FT		9740 FT	1680 FT
CASING DRILLER	13.375 IN	@ 1680 FT	13.375 IN	@ 1680 FT
CASING LOGGER	1680 FT		1680 FT	
BIT SIZE	12.25 IN		12.25 IN	
TYPE OF FLUID IN HOLE	WBM		WBM	
DENSITY	9.8 LB/G	46 CP	9.7 LB/G	44 CP
PH	10	N/A	10	N/A
SOURCE OF SAMPLE	FLOWLINE		FLOWLINE	
RM AT MEAS. TEMP.	0.036 OHMM	@ 75 DEGF	0.091 OHMM	@ 75 DEGF
RMF AT MEAS. TEMP.	0.031 OHMM	@ 75 DEGF	0.077 OHMM	@ 75 DEGF
RMC AT MEAS. TEMP.	0.048 OHMM	@ 75 DEGF	0.122 OHMM	@ 75 DEGF
SOURCE OF RMF	RMC	MEASURED	MEASURED	MEASURED
RM AT BHT	0.066 OHMM	@ 132 DEGF	0.193 OHMM	@ 167 DEGF
TIME SINCE CIRCULATION	8 HRS		9 HRS	
MAX. RECORDED TEMP.	135 DEGF		168 DEGF	
EQUIP. NO.	HL6845	MIDLAND, TX	HL6690	MIDLAND, TX
RECORDED BY	JKOSKI		JKOSKI	
WITNESSED BY	R COOK		K COOK	

IN MAKING INTERPRETATIONS OF LOGS OUR EMPLOYEES WILL GIVE THE CUSTOMER THE BENEFIT OF THEIR BEST JUDGEMENT. BUT SINCE ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS, WE CANNOT, AND WE DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION. WE SHALL NOT BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COST, DAMAGES, OR EXPENSES WHATSOEVER INCURRED OR SUSTAINED BY THE CUSTOMER RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR EMPLOYEES.

REMARKS

RUN 2 TRIP 1: DATA TIED INTO RUN 1 DATA

BOREHOLE AND CEMENT VOLUME PRESENTED (TOTAL VOLUME LESS 9.625" CASING)
1 SMALL TICK = 10 CUBIC FEET
1 MEDIUM TICK = 100 CUBIC FEET
1 LARGE TICK = 1000 CUBIC FEET

PORZC AND CNC RECORDED AND PRESENTED ON A LIMESTONE MATRIX
CNC IS CALIPER AND CASING CORRECTED

RIG: PATRIOT #4
CREW: J. ESPINOZA / R. SANCHEZ

RUN 3 TRIP 1: DATA TIED INTO RUN 2 DATA

BOREHOLE AND CEMENT VOLUME PRESENTED (TOTAL VOLUME LESS THAN 9.625" CASING)
1 SMALL TICK = 10 CU. FT
1 MEDIUM TICK = 100 CU. FT
1 LARGE TICK = 1000 CU. FT

PORZC & CNC RECORDED ON A LIMESTONE MATRIX
CNC IS CASING AND CALIPER CORRECTED

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	TTRM	3981XA	10570248	FREE
1	1	COMM	3514XA	Z173226	FREE
1	1	GAMMA	1329XA	Z179409	D.CENT
1	1	CN	2446XA	Z154181	D.CENT
1	1	ZDL	2234XA	10495292	PAD DEVICE
1	1	DBL KNUCK	3939XA	10335551	FREE
1	1	6CAL	4243XA	12408673	CENTRALIZED
1	1	RTEX	1249XA	12554838	CENTRALIZED
1	1	MLL	1243XA	13647991	PAD DEVICE

INSTRUMENT CONFIGURATION

Source File: /dat1a/md11798R3/p87cc~wsp-tdg

CABLEHEAD

Diameter : 3.38"
Length : 5.50'
Weight : 24 lbs
Series : CABL338
Mnemonic : CBLH
Volume Disp. : 9.7 L

TTRM SUB

Diameter : 3.63"
Length : 3.83'
Weight : 62 lbs
Series : 3981XA
Mnemonic : TTRM

WTS COMMON REMOTE

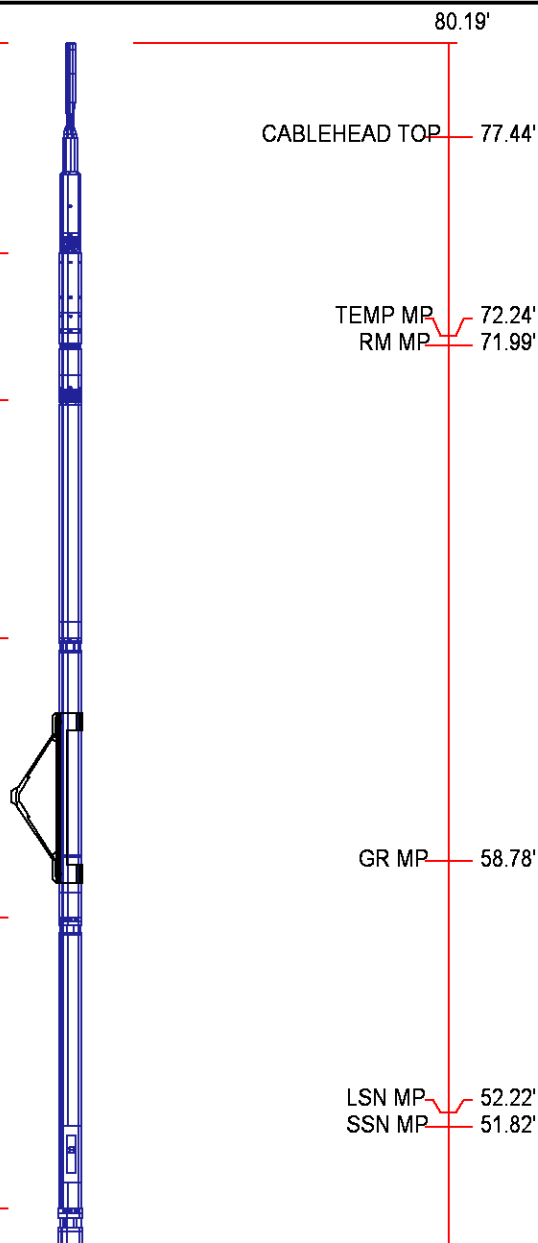
Diameter : 3.63"
Length : 6.36'
Weight : 126 lbs
Series : 3514XB
Mnemonic : WTS
Volume Disp. : 13.0 L

DIGITAL SPECTRALOG

Diameter : 3.63"
Length : 7.31'
Weight : 130 lbs
Series : 1329XA
Mnemonic : DSL
Volume Disp. : 14.9 L
Measure Point: 1.60': GR MP

COMPENSATED NEUTRON

Diameter : 3.63"
Length : 7.59'
Weight : 150 lbs
Series : 2446XA
Mnemonic : CN
Volume Disp. : 15.4 L
Measure Point: 2.63': LSN MP
Measure Point: 2.24': SSN MP



Z-DENSILOG

Diameter : 4.88"
Length : 11.22'
Weight : 360 lbs
Series : 2234XA
Mnemonic : ZDL
Volume Disp.: 41.3 L
Measure Point: 3.19': CAL MP
Measure Point: 2.47': LSD MP
Measure Point: 2.07': SSD MP

CAL MP 41.56'
LSD MP 40.84'
SSD MP 40.44'

MASS ISOLATION SUB

Diameter : 3.63"
Length : 2.09'

KNUCKLE JOINT (DOUBLE)

Diameter : 3.38"
Length : 4.65'
Weight : 90 lbs
Series : 3939XA
Mnemonic : KNJT

4 ARM BOW SPRING CENTRALIZER

Diameter : 3.38"
Length : 4.12'
Weight : 72 lbs
Series : 4341XA
Mnemonic : CENT

WTS RT EXPLORER

Diameter : 4.00"
Length : 14.00'
Weight : 246 lbs
Series : 1249XA
Mnemonic : RTEX
Volume Disp.: 34.6 L
Measure Point: 7.09': RTEX MP

RTEX MP 20.60'

WTS MICROLATEROLOG

Diameter : 4.00"
Length : 11.25'
Weight : 258 lbs
Series : 1243XA
Mnemonic : MLL
Volume Disp.: 27.8 L
Measure Point: 1.55': MP

MP 3.82'

MASS ISOLATION SUB

Diameter : 3.63"
Length : 2.09'

BULL PLUG 2 5/8

0.00'

TOTAL LENGTH: 80.19'
TOTAL WEIGHT: 1642 lbs
MAX DIAMETER: 0'4.88"
TOTAL VOLUME DISPLACEMENT: 188.4 L (1.2 bbl) Est.

MAIN LOG 2"/100FT SCALE

ECLIPS 7.0i ECLIPS General Release Rel 7.0i Thu Jun 08 20:36:10 CDT 2017
 Updates: 32 Patches: 4

Plotted: Fri Jun 29 11:07:46 2018

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/md11798R3/p87cc03.prm
 LOGGING MODE: DEPTH DIRECTION: UP
 TOP DEPTH: 9691.591 ft BOTTOM DEPTH: 9691.591 ft

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
TENSION	FILTER ()	medium (1)		TOP	BOTTOM
GR	FILTER ()	medium (1)		"	"

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
CASING - BOREHOLE & CEMENT VOLUME	CASING O.D.	9.625	in	TOP	BOTTOM
X-Y COMBINED CALIPER PROCESSING	X-Y Caliper	X-Axis		"	"
BIT SIZE	BIT SIZE	12.250	in	"	"

CURVE DESCRIPTION REPORT

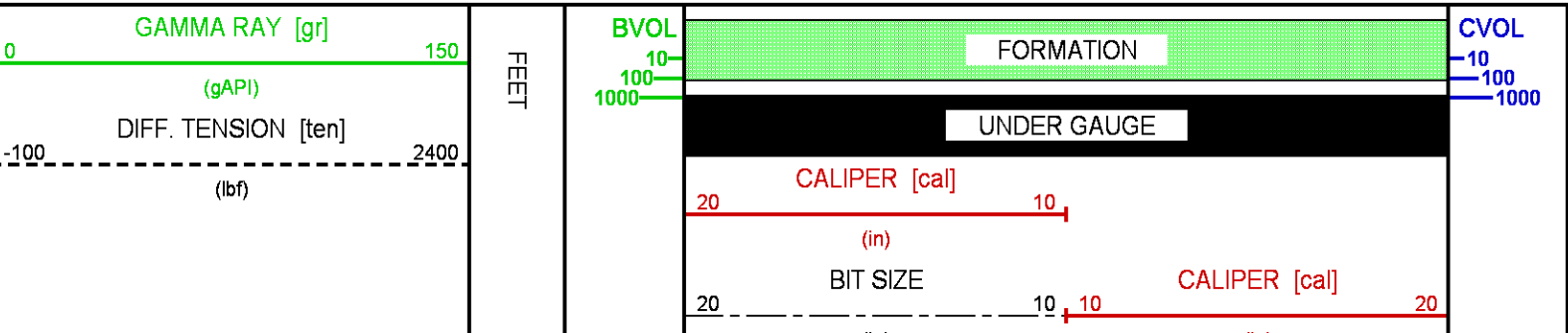
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:BIT	N/A	BIT SIZE
F1:BVOL	N/A	BOREHOLE VOLUME
F1:CAL	N/A	CALIPER
F1:CVOL	N/A	CEMENT VOLUME
F1:GR	N/A	GAMMA RAY
F1:TEN	N/A	DIFFERENTIAL TENSION

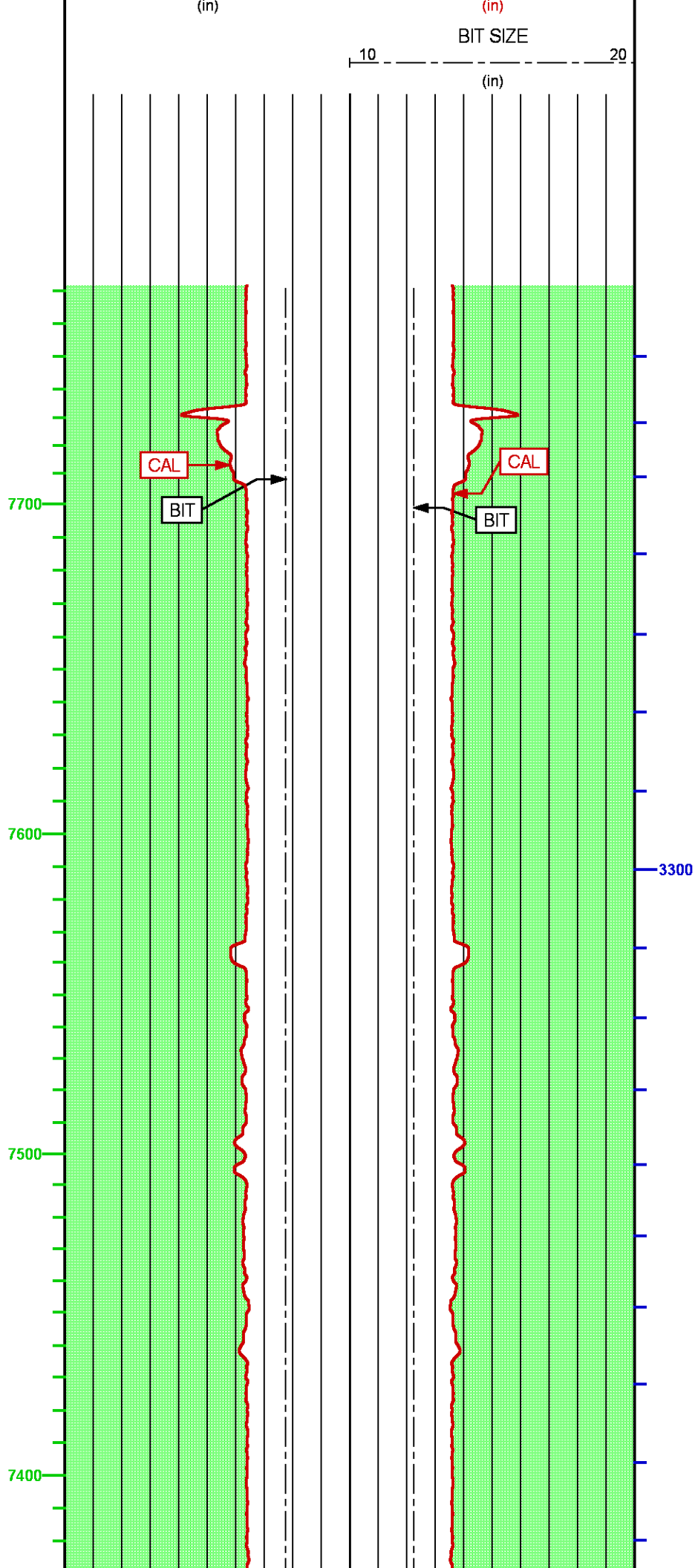
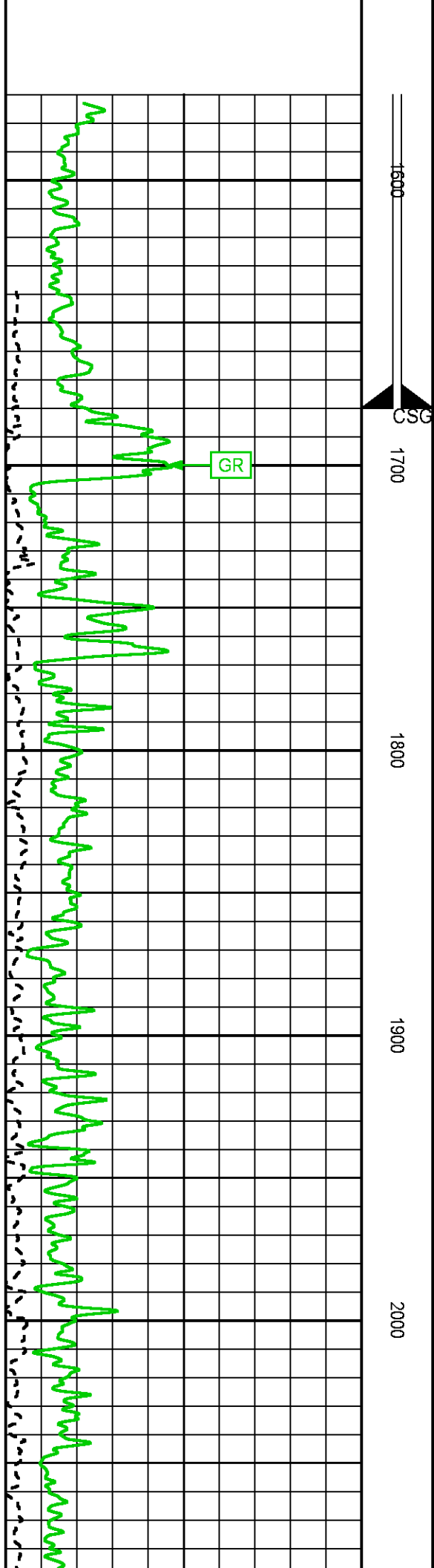
CURVE MEASURE POINT OFFSET

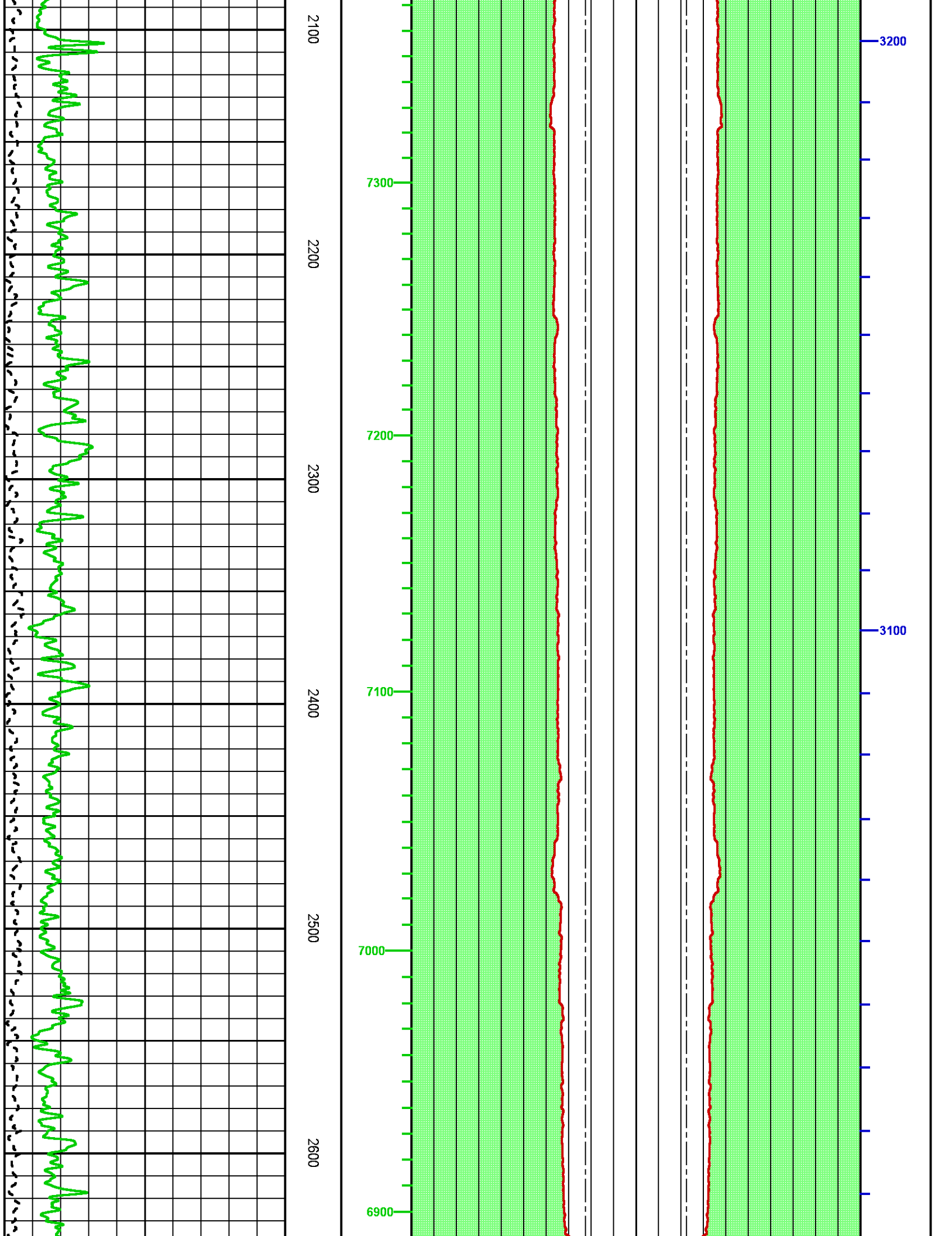
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
BIT	0.00	CAL	-3.50	GR	-66.25	TEN	0.00

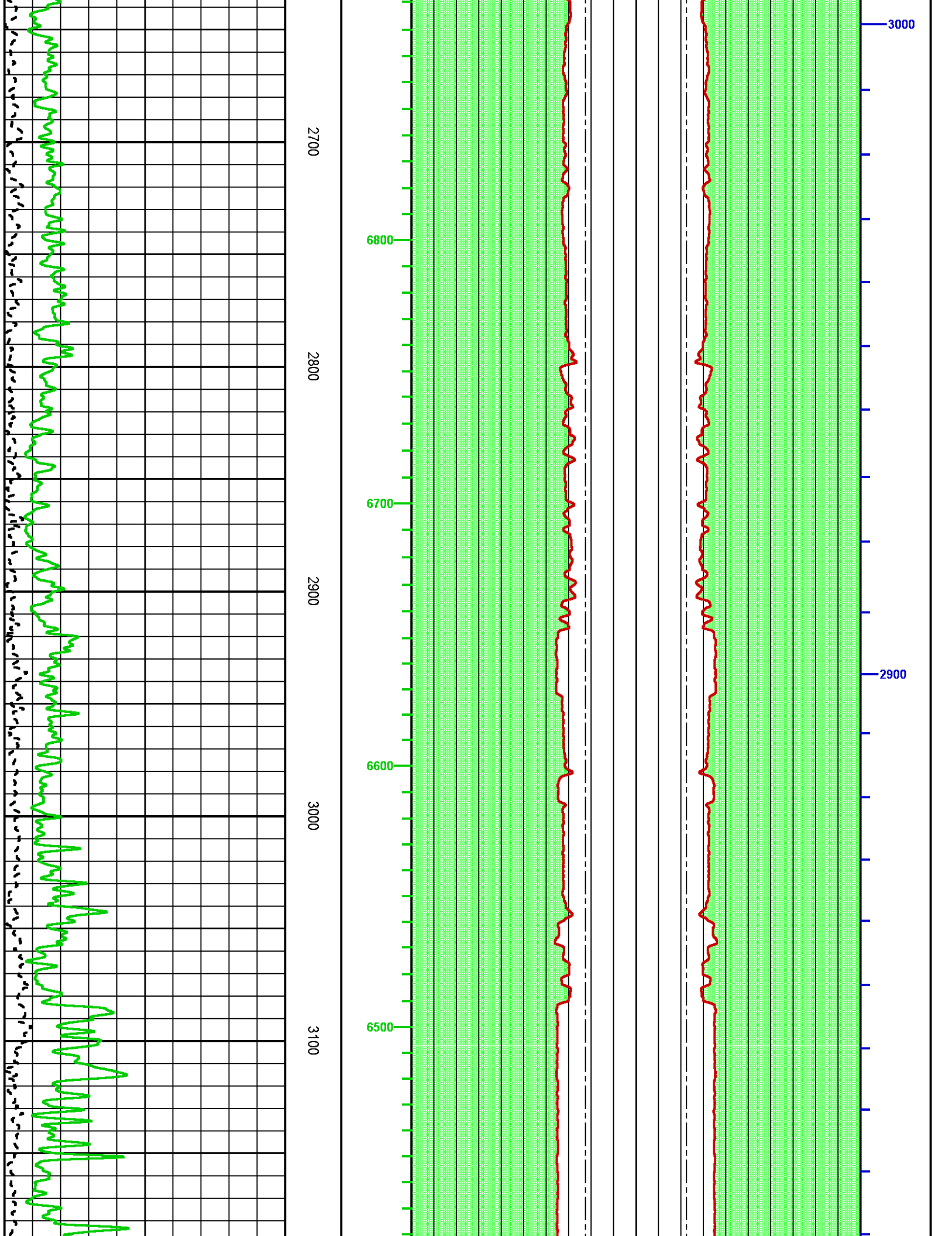
Presentation : HL6690:/dat1a/md11798R3/bhp1cal.fvpdf [2"/100' Scale]
 Plot Interval : 1573 - 10373.2 Feet

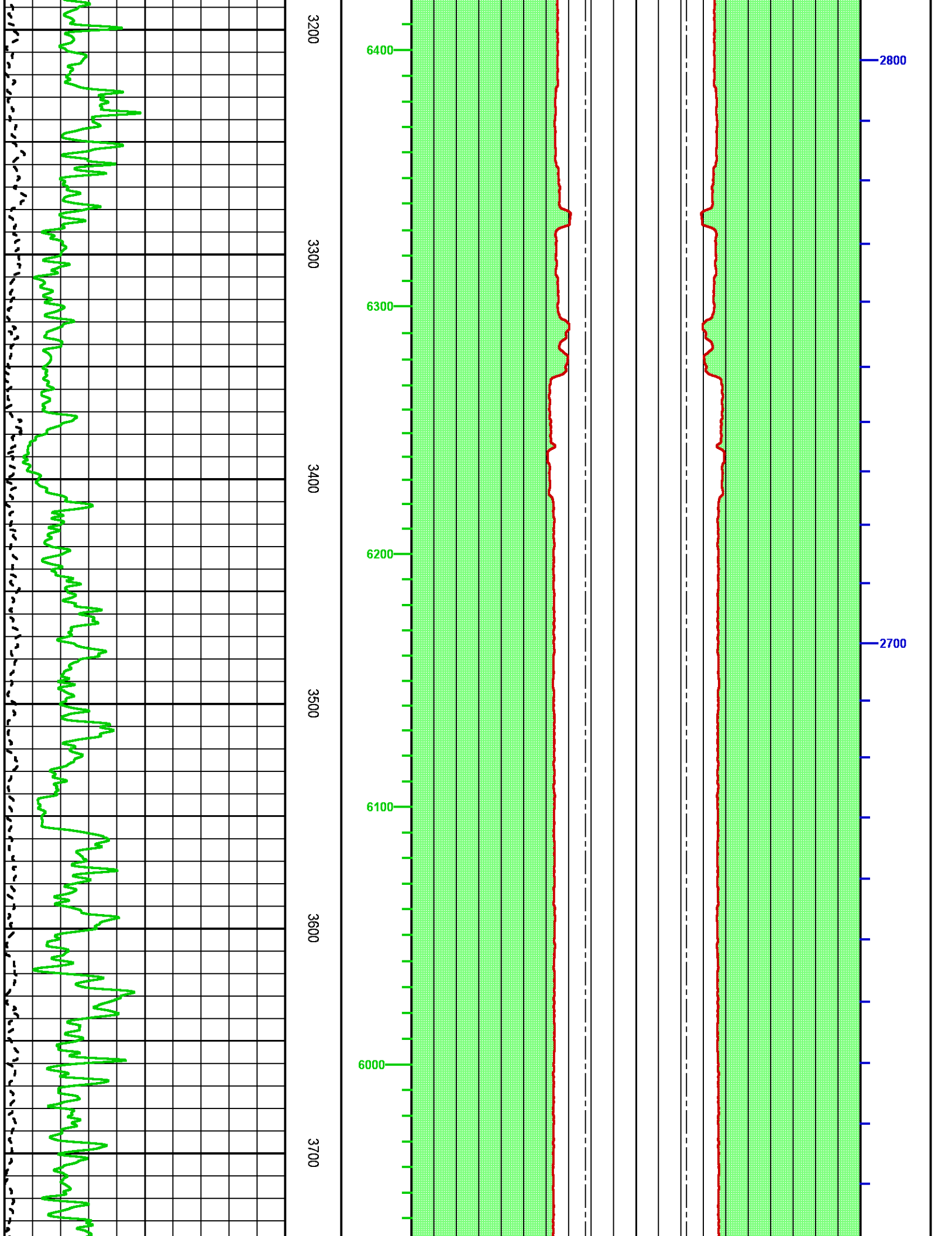
Data File 1 : F1 : HL6690:/dat1a/md11798R3/R2.xtf
 Created On : N/A
 Company : HOLLY FRONTIER - NAVAJO
 Well : NAVAJO REFINING WDW #4
 Field : ARTESIA
 File Interval : 1558.5 - 10373.2 Feet
 OCT : p87cc

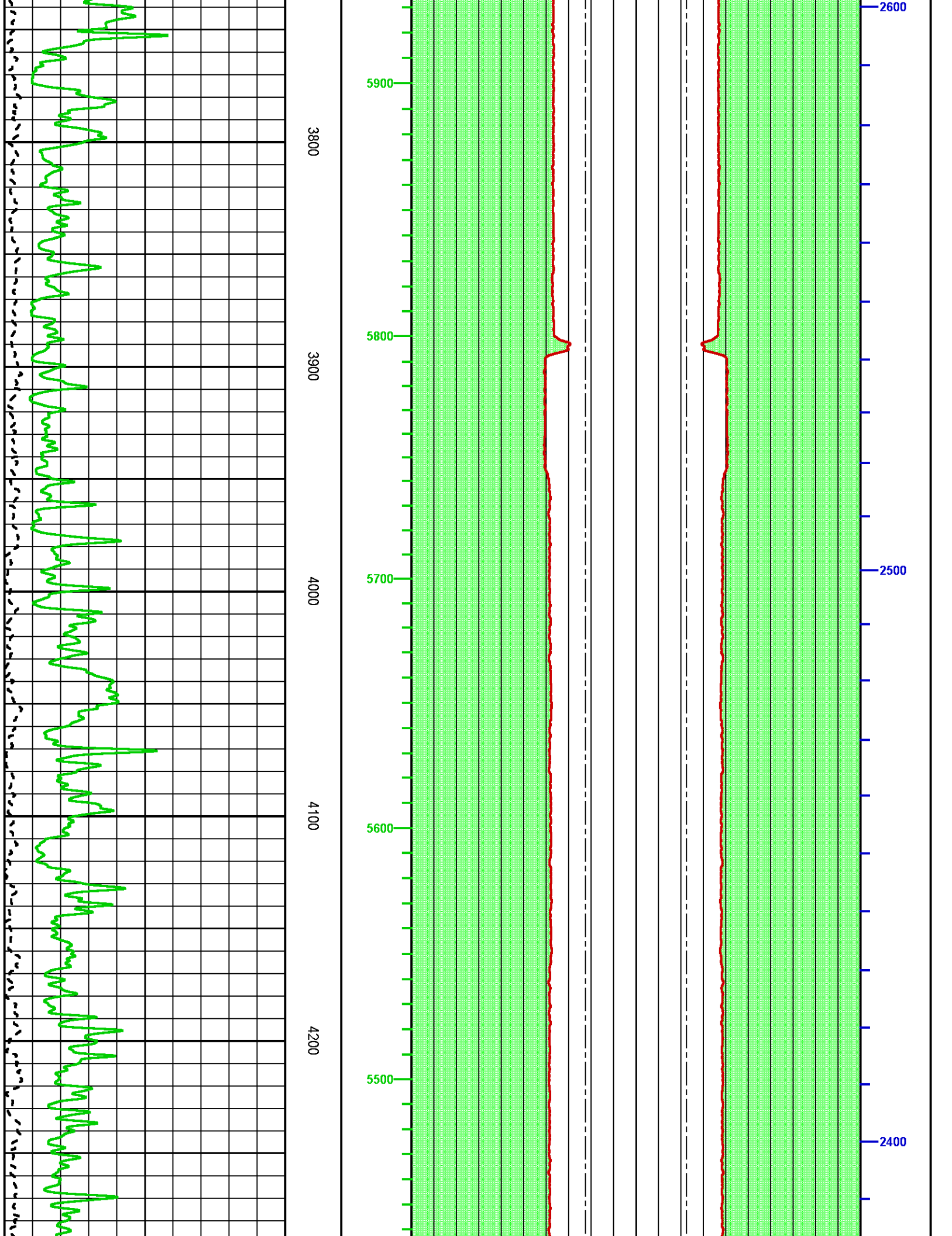


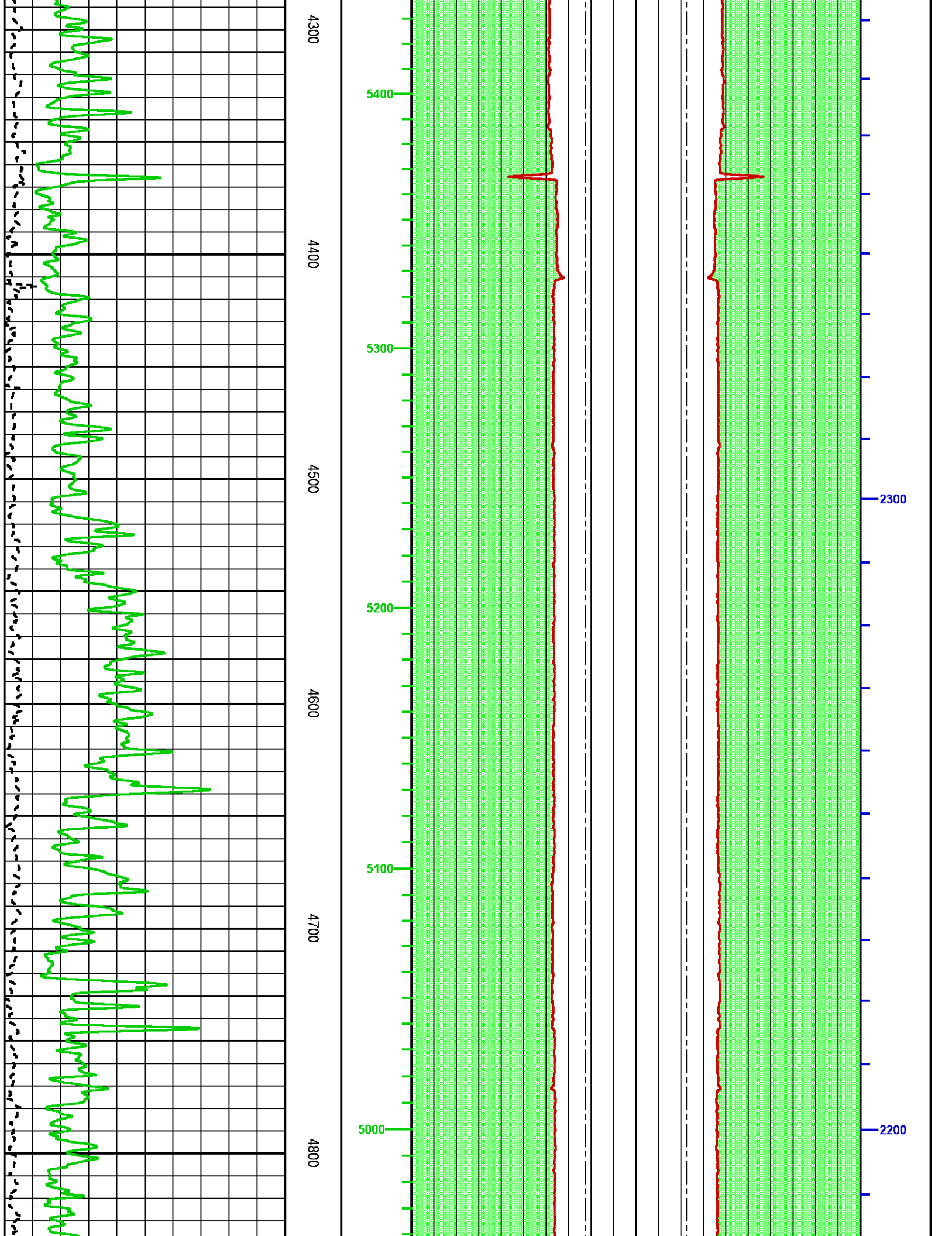


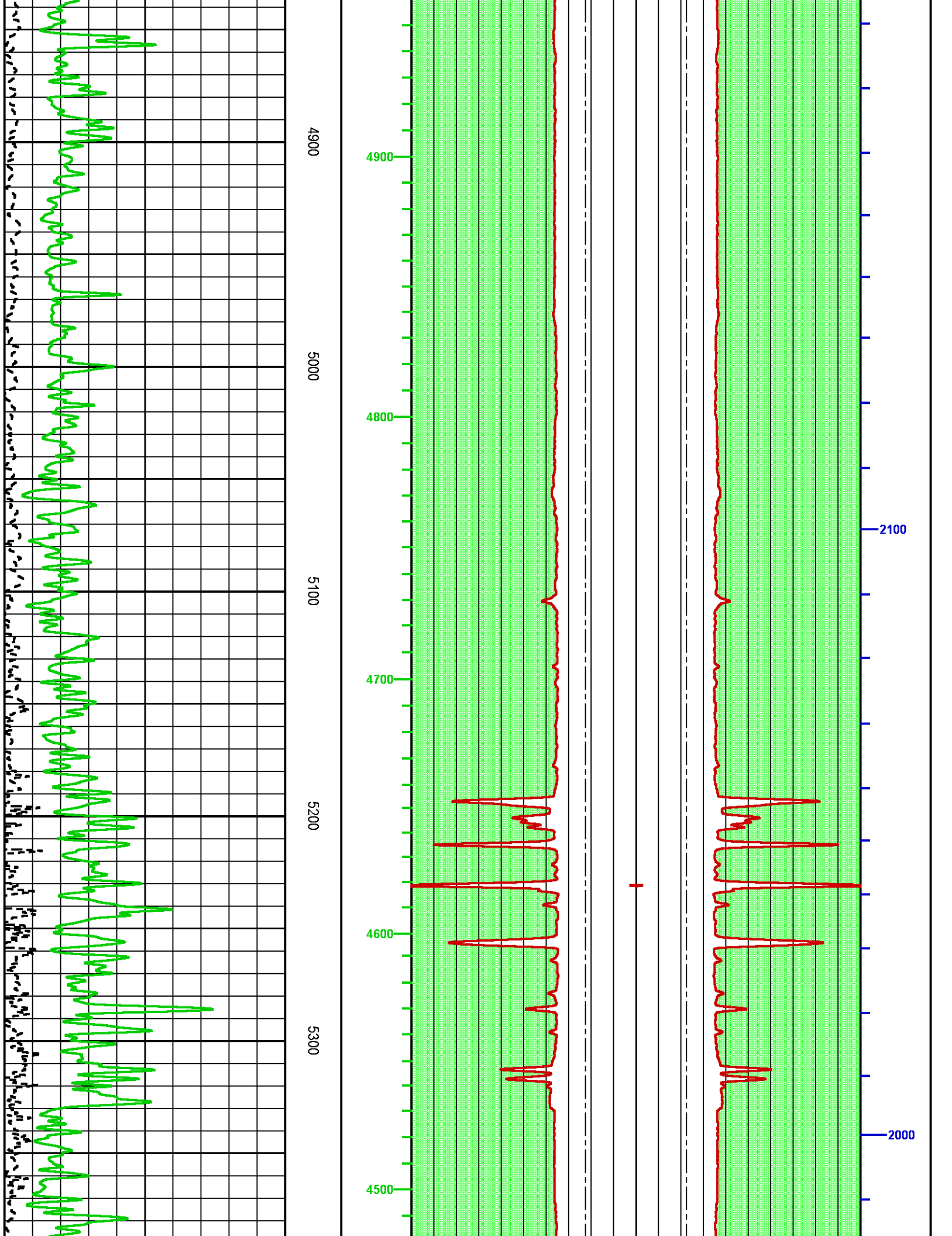


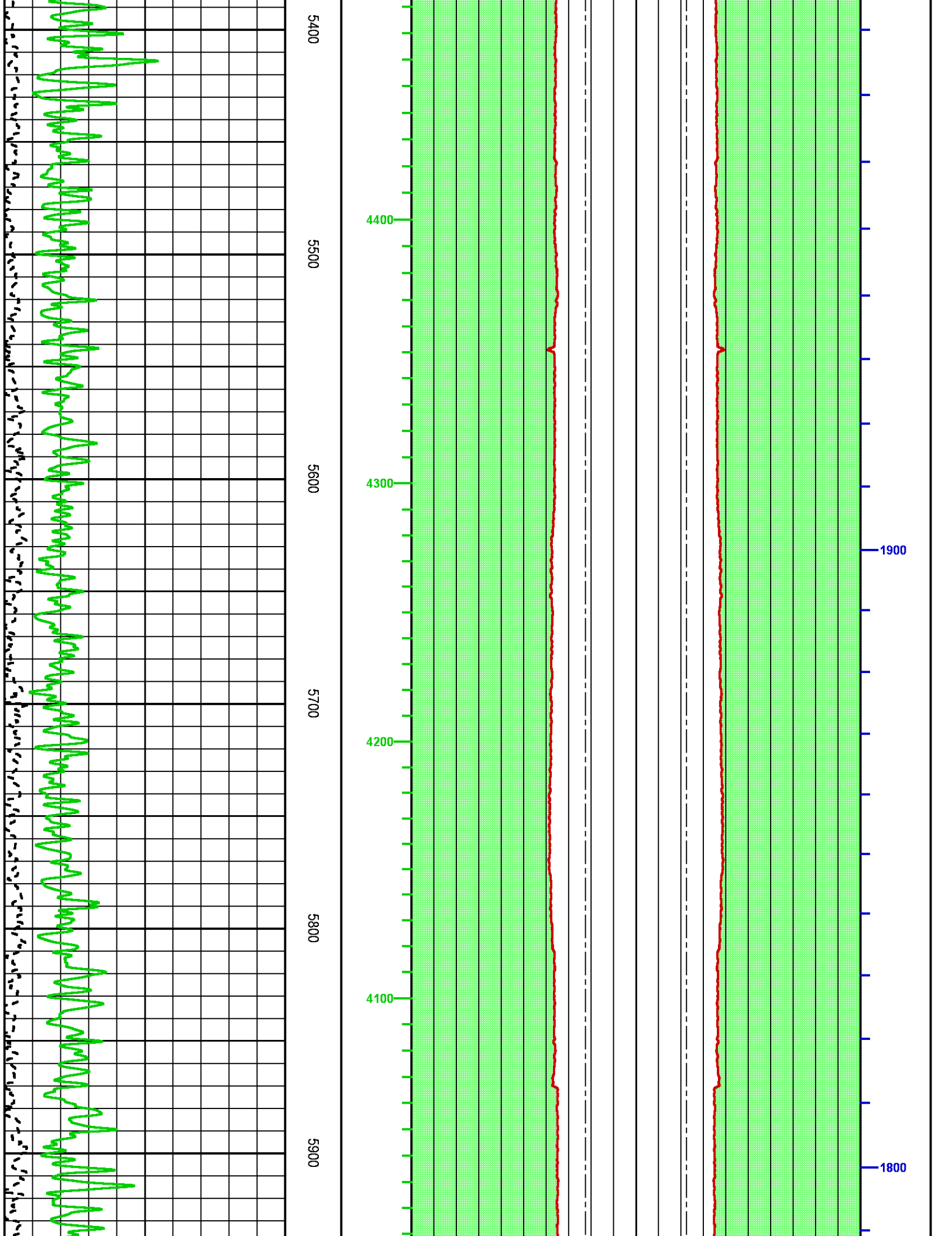


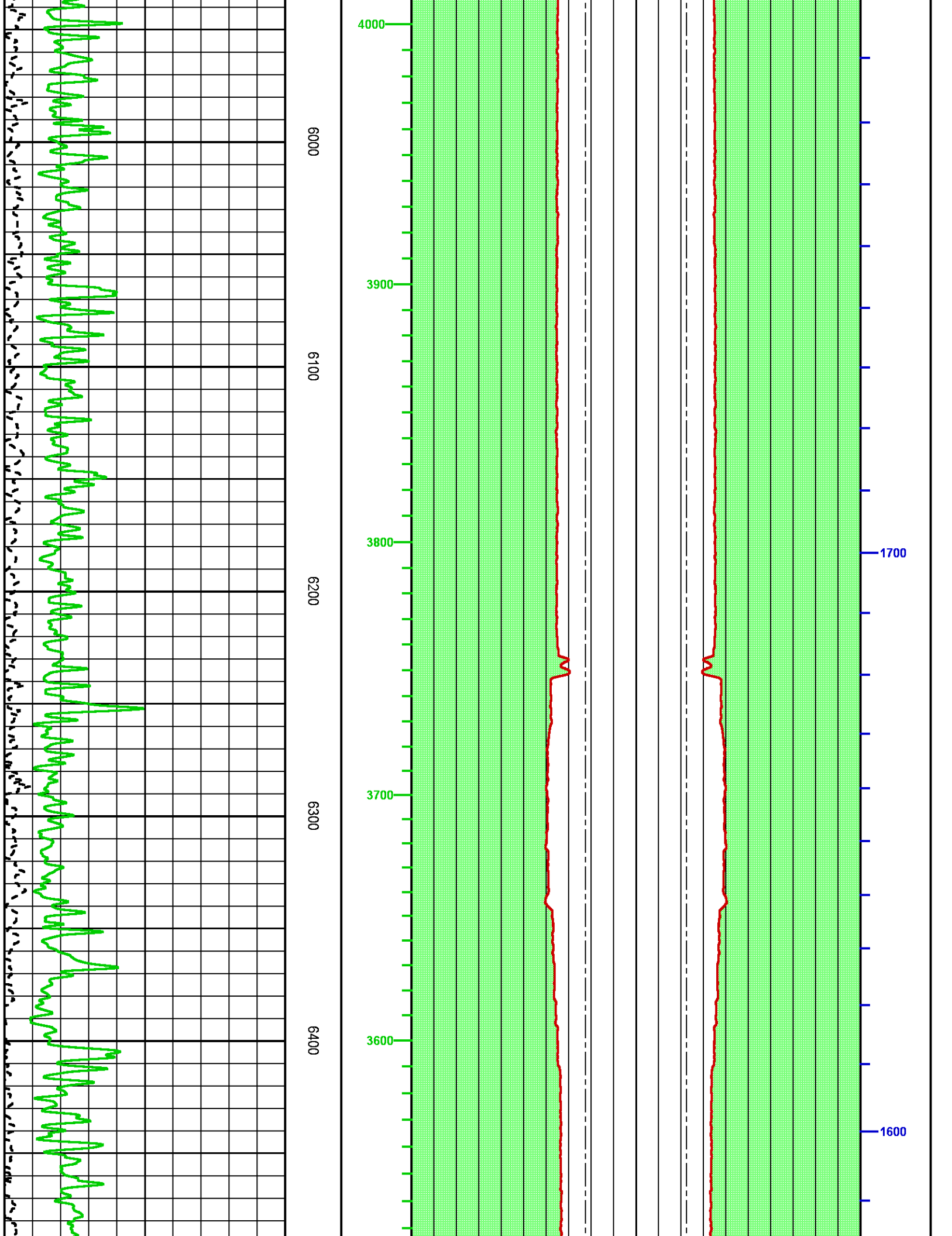


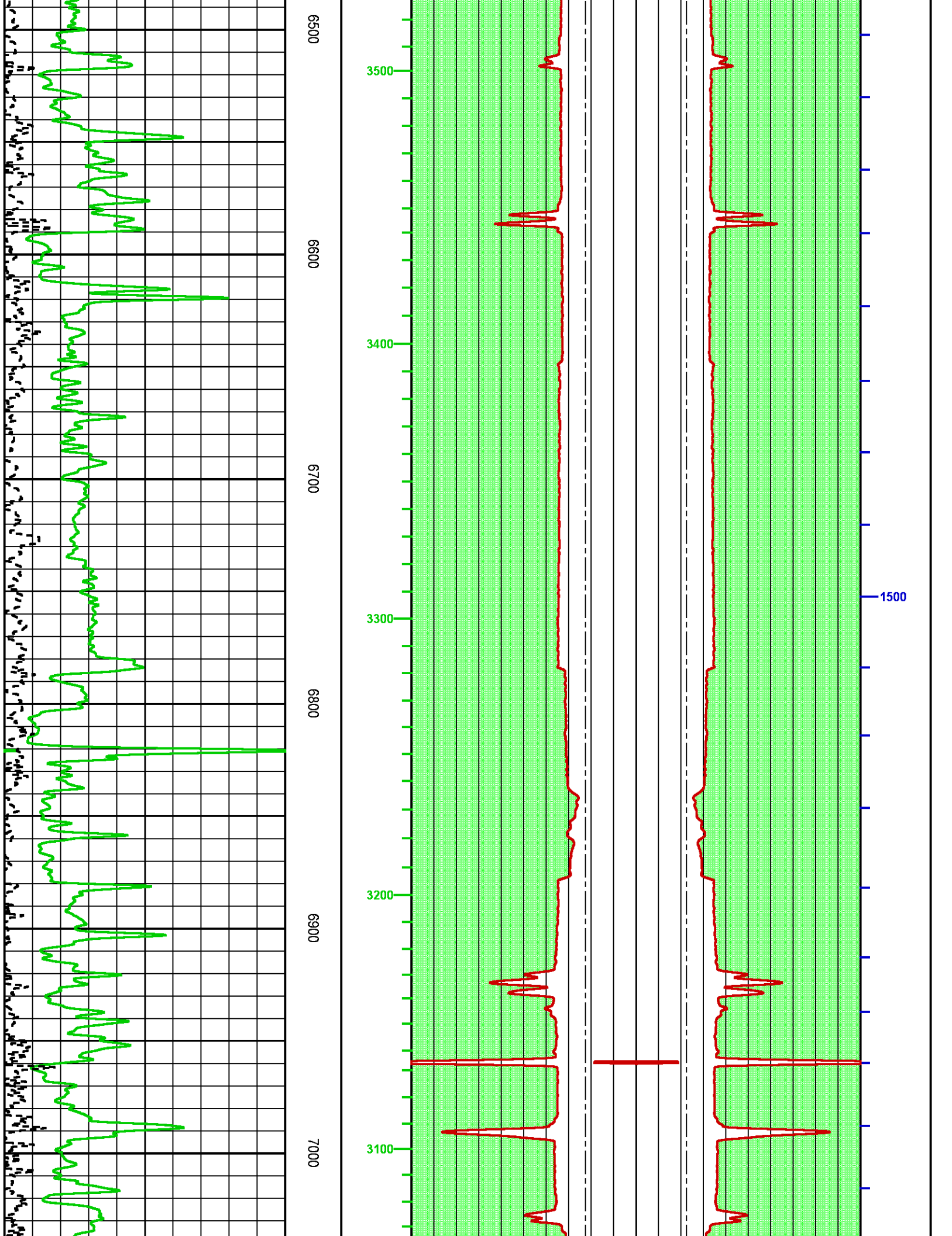


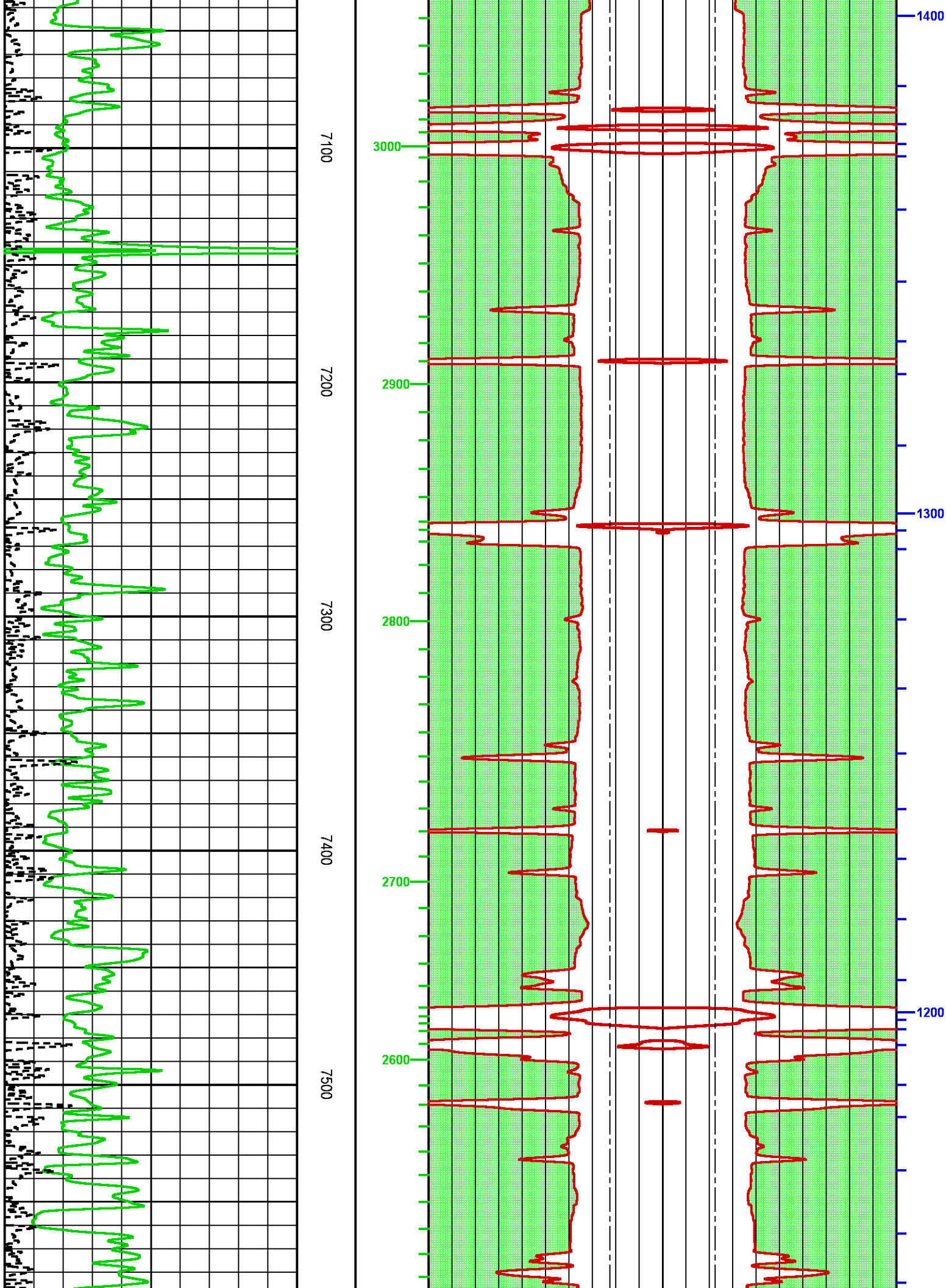


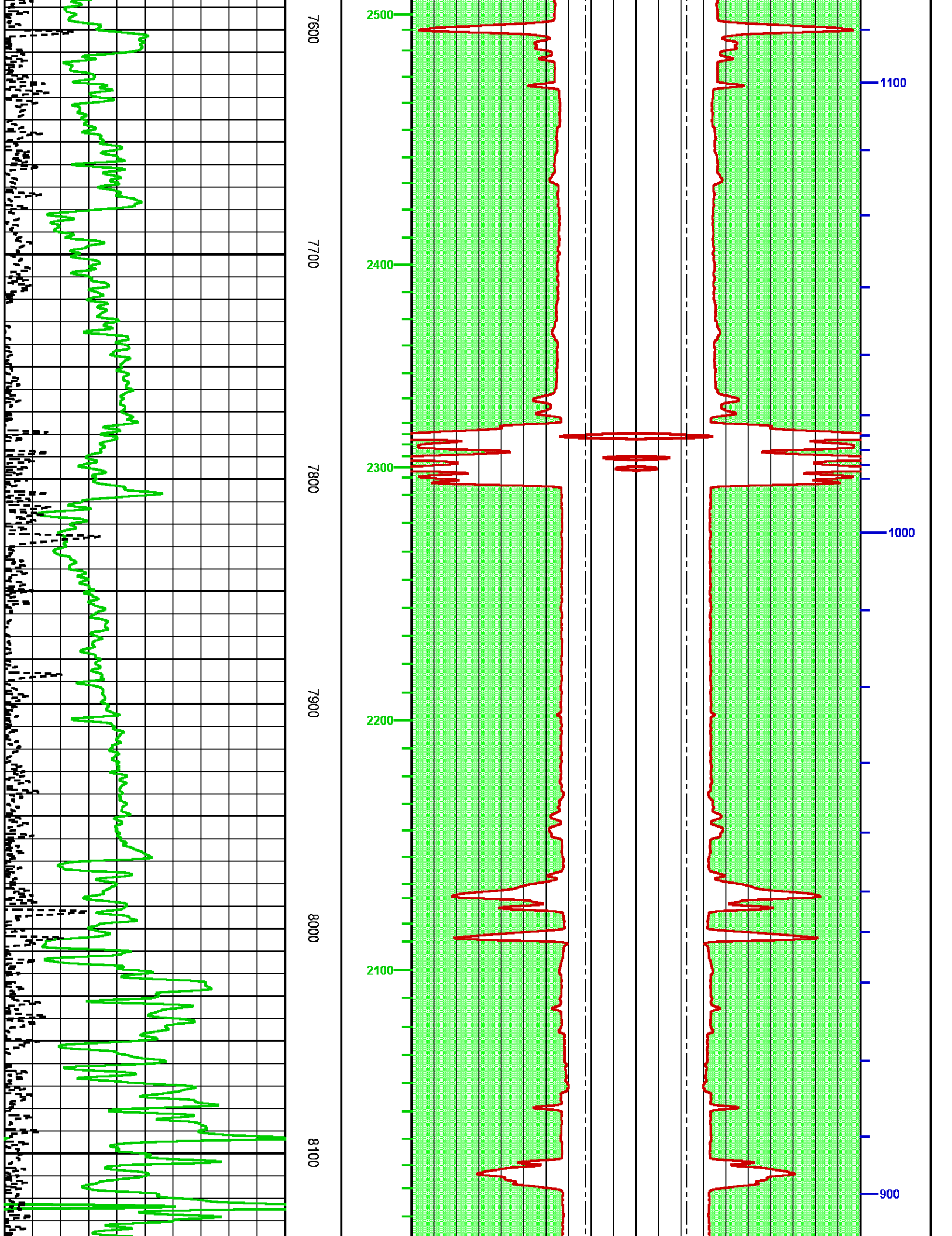


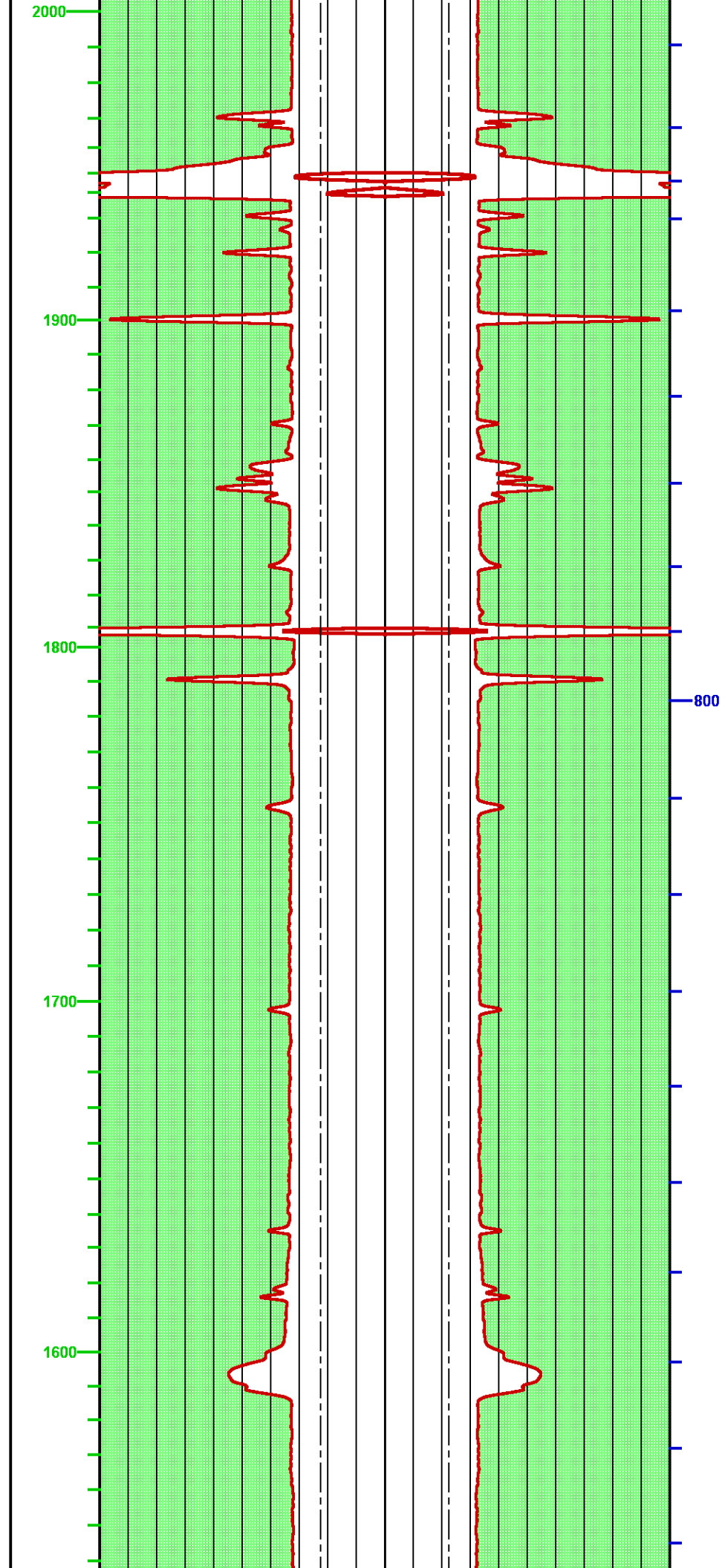
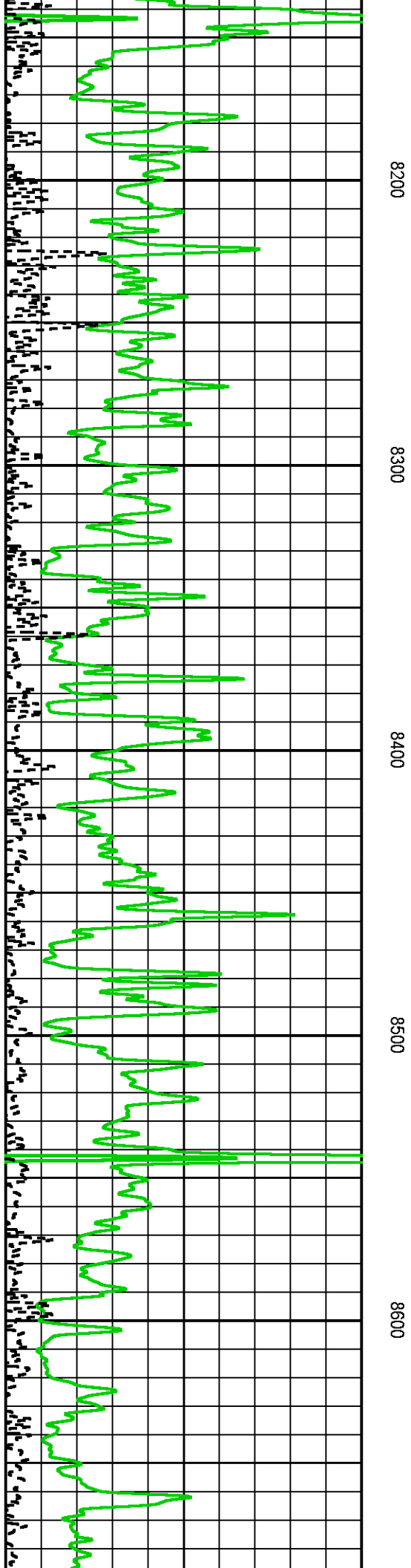


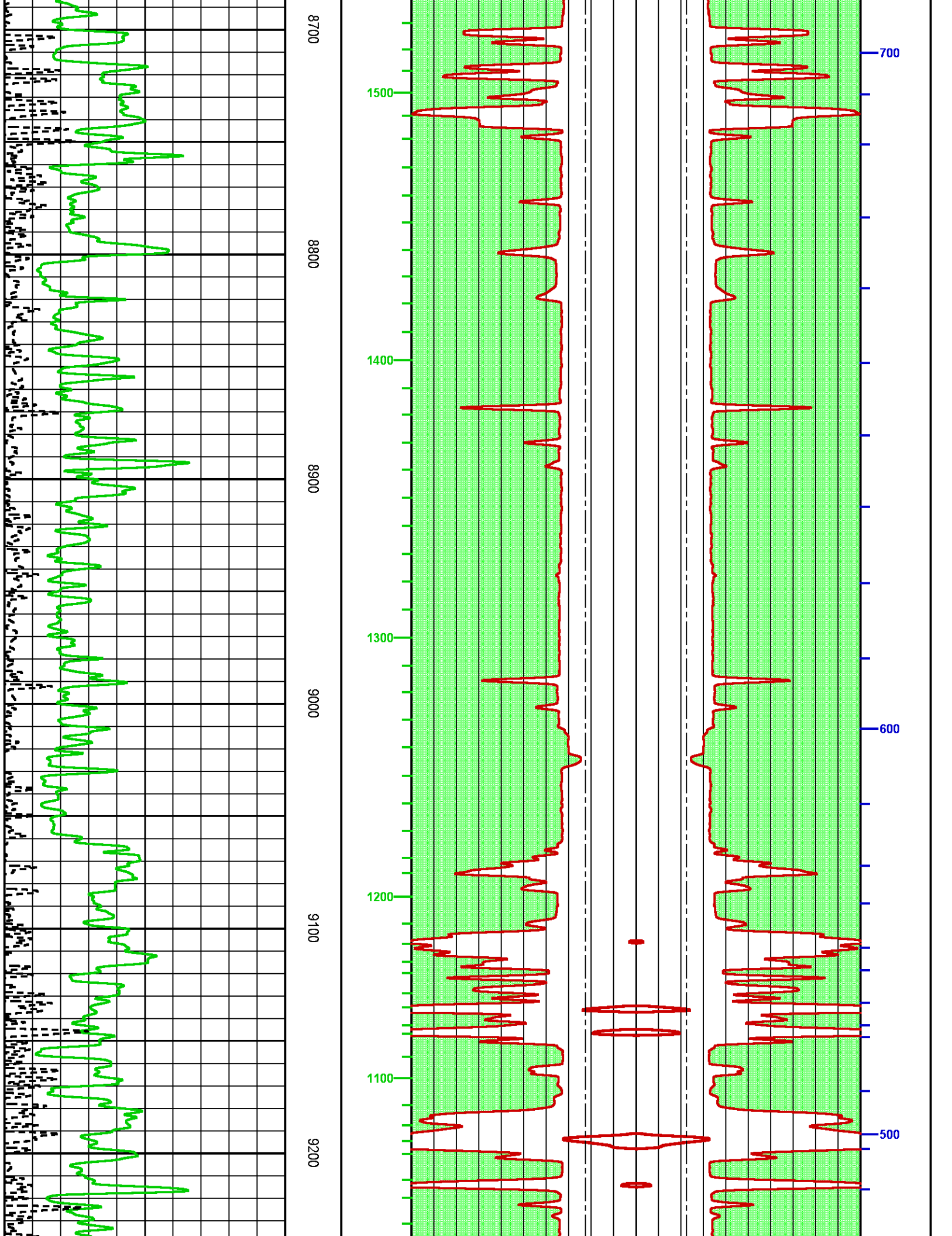


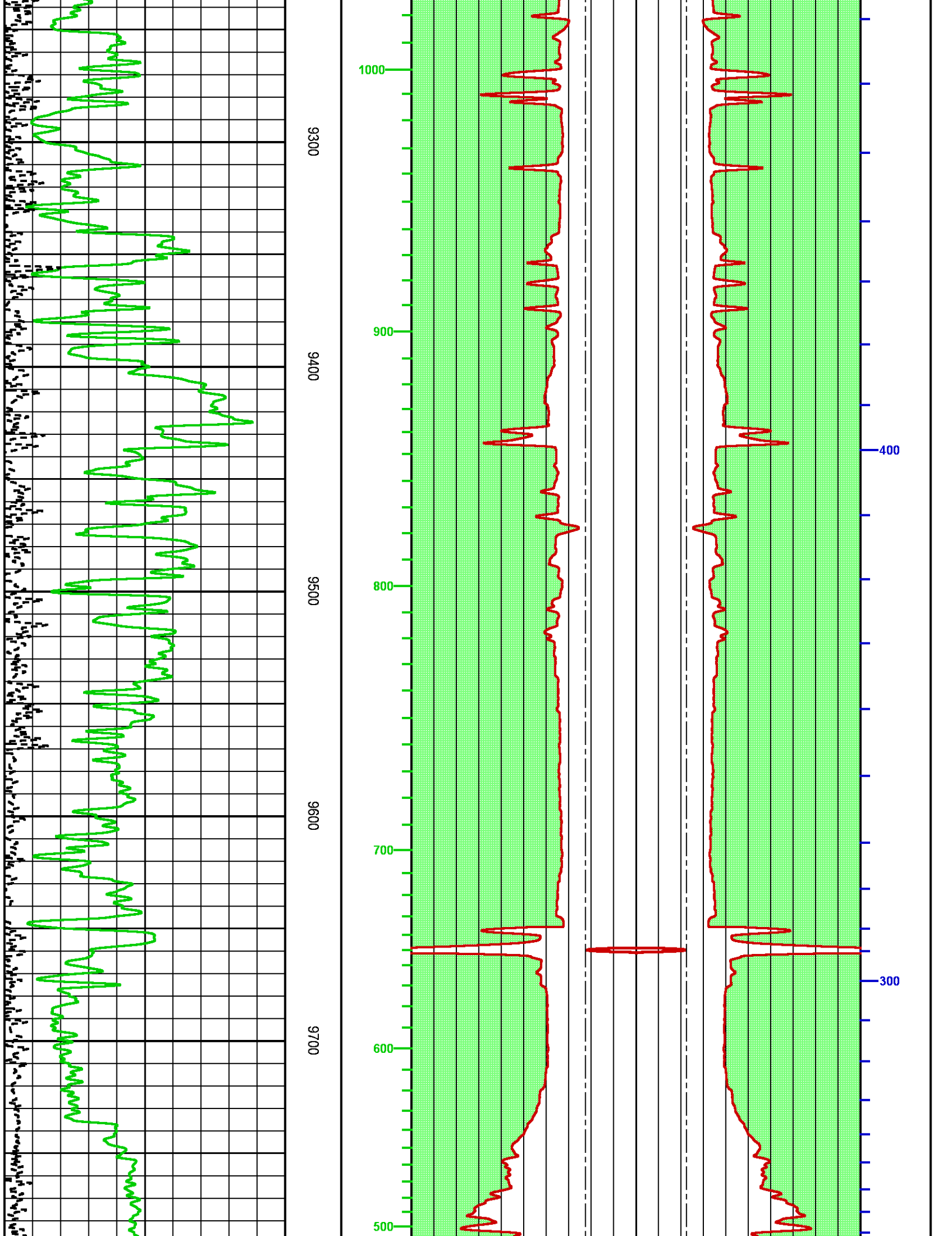


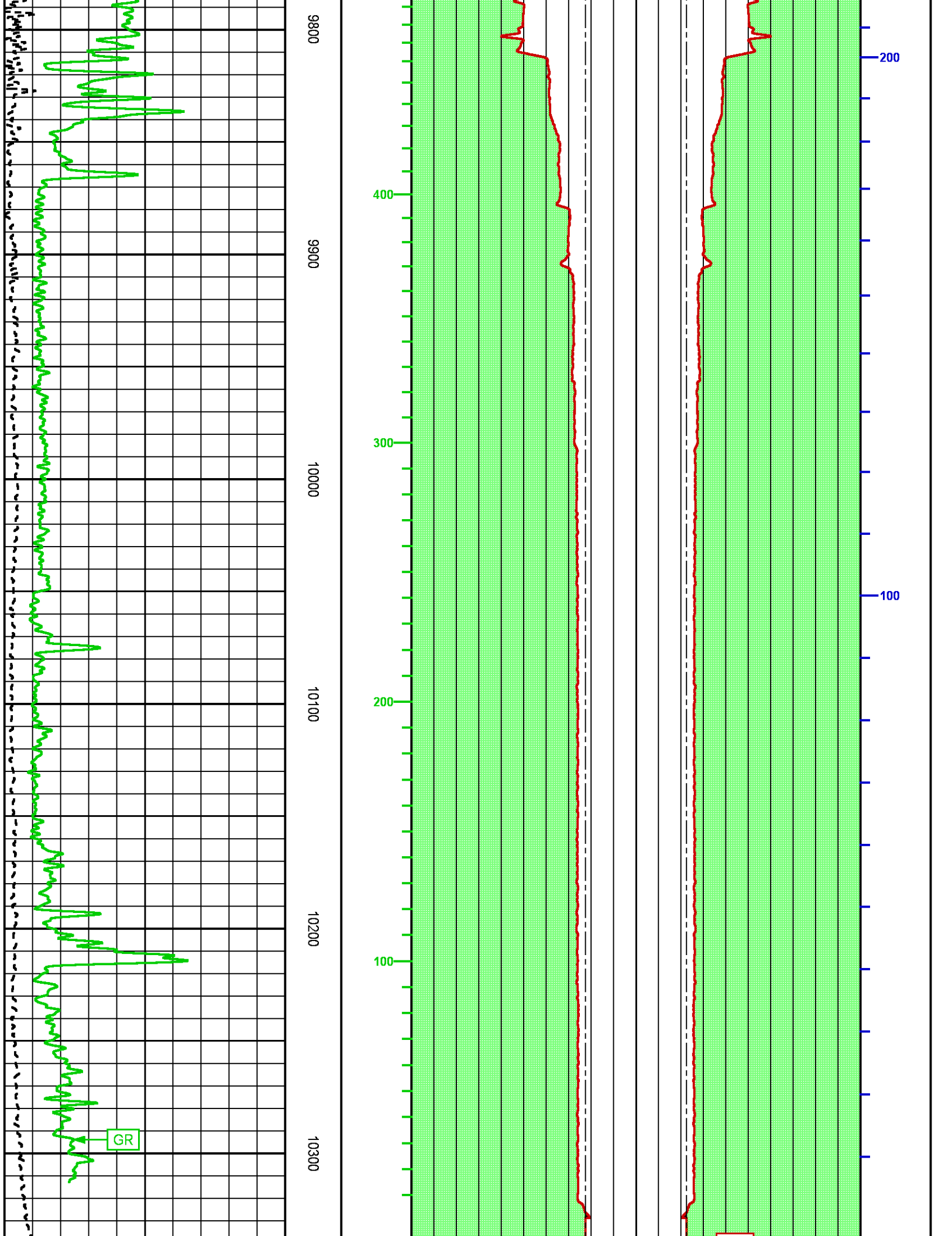


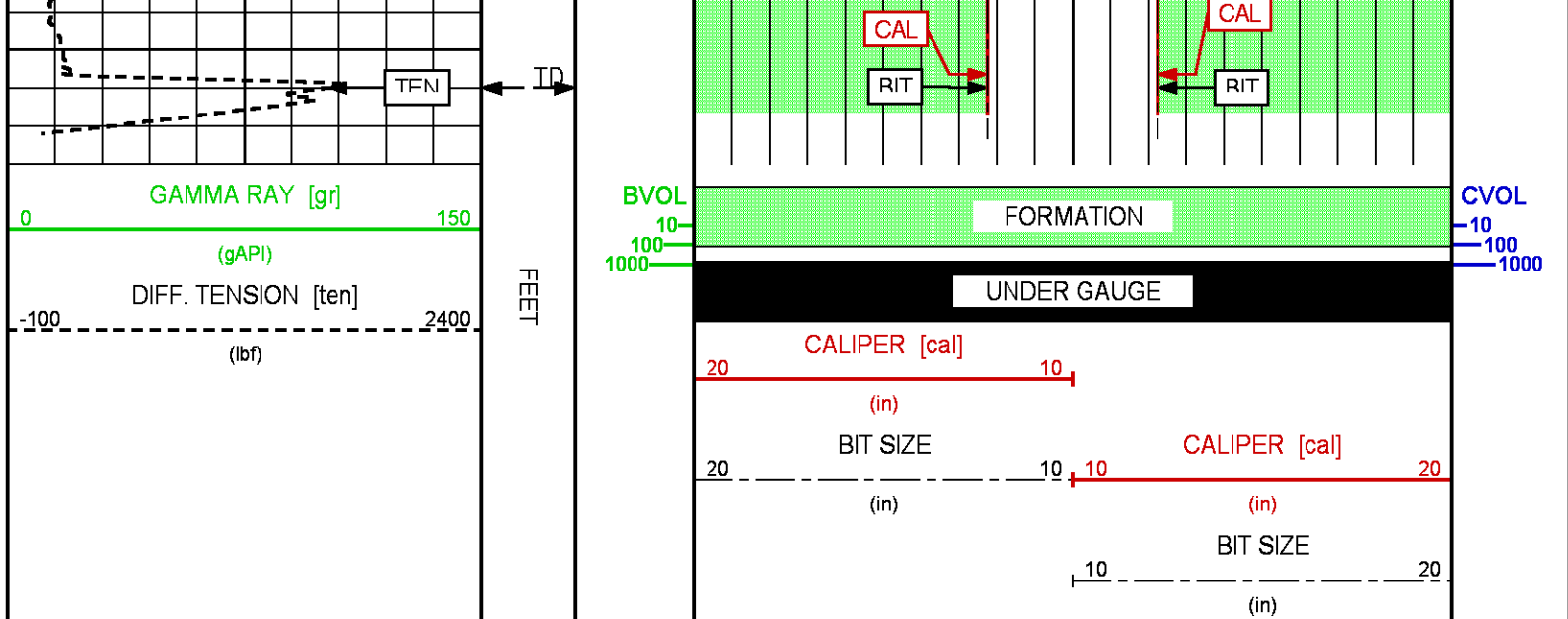












CALIBRATION / VERIFICATION SUMMARY

Source File: /dat1a/md11798R3/p87cc.tp1

GR PRIMARY CALIBRATION SUMMARY

TOOL #: 1329XA 179409

DATE/TIME PERFORMED: Wed May 23 12:06:32 2018

UNIT #: 3882TD HL6690

CALB JIG #: 4702NK DA-434

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	CR DIFF (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	CALBRTR (gAPI)
GR	278.98	1190.93	912.0 830.0 960.0	0.164	45.89	195.89	150

GR PRIMARY VERIFICATION SUMMARY

TOOL #: 1329XA 179409

DATE/TIME PERFORMED: Wed May 23 12:12:49 2018

UNIT #: 3882TD HL6690

VERI JIG #: 4702NK DA-434

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	DIFF. (gAPI)
GR	282.71	1184.62	0.164	46.50	194.85	148.35 140.00 160.00

CAL PRIMARY CALIBRATION SUMMARY

CALIBRATION SUMMARY

TOOL #: 2234XA 10495292

DATE/TIME PERFORMED: Wed May 23 10:56:44 2018

UNIT #: 3882TD HL6690

	SMALL RING	LARGE RING	MULT	ADD	SMALL RING	LARGE RING
					(in)	(in)
CALIPER	925.2	1411.6	0.00874	-0.20909	7.875	12.125

CAL BEFORE LOG VERIFICATION SUMMARY

TOOL #: 2234XA 10495292

DATE/TIME PERFORMED: Fri Jun 29 01:51:38 2018

DAYS SINCE CAL: 36

UNIT #: 3882TD HL6690

	I.D.	MULT	ADD	I.D.
				(in)
CALIPER	1450.0	0.00874	-0.05461	12.615

BAKER HUGHES a GE company 	COMPANY WELL FIELD COUNTY HOLLY FRONTIER - NAVAJO NAVAJO REFINING WDW #4 ARTESIA EDDY STATE NEW MEXICO	FILE NO: MD11798 API NO: 30-015-44677	
	LOCATION: 1217' FSL & 2443' FWL SECTION 23, T17S, R27E N.M.P.M. SURVEY	ELEVATIONS: KB 3585.8 FT DF 3584.8 FT GL 3565.8 FT	
	DATE 16-JUN-2018		