

**BAKER
HUGHES**



**COMPENSATED NEUTRON LOG
GAMMA RAY LOG**

Baker Atlas

FILE NO: 1823
 COMPANY: MARATHON OIL COMPANY
 WELL: 596-29C-25
 FIELD: GRAND VALLEY
 COUNTY: GARFIELD
 STATE: COLORADO

Ver. 3.87
 PAD: 897-29C
 LOCATION: S11: 1765' FSL & 1448' PML
 SEC 29 TWP 5S RGE 98W

PERMANENT DATUM: G.L. ELEVATION 8180 FT
 LOG MEASURED FROM: K.B. 24 FT ABOVE P.D.
 DRILL MEAS. FROM: KELLY BUSHING

ELEVATIONS:
 KB 8204 FT
 DF 8203 FT
 OL 8180 FT

DATE	08-Feb-2010
RUN	1
TRIP	1
SERVICE ORDER	5579679
DEPTH DRILLER	9798 FT
DEPTH LOGGER	9878 FT
BOTTOM LOGGED INTERVAL	9878 FT
TOP LOGGED INTERVAL	2175 FT
TIME STARTED	20:00
TIME FINISHED	23:40
OPERATOR RIG TIME	2
TYPE OF FLUID IN HOLE	WATER
FLUID DENSITY	8.80 LB/G
FLUID SALINITY	NA
FLUID LEVEL	NA
LOGGED CEMENT TOP	NA
WELLHEAD PRESSURE	0 PSI
MAXIMUM HOLE DEVIATION	NA
NOMINAL LOGGING SPEED	30 F/MIN
MAX. RECORDED TEMP.	249 DEGF
REFERENCE LOG	ATLAS BOND LOG
REFERENCE LOG DATE	08-JAN-2010
EQUIP. NO.	6870
LOCATION	VENAL, UT
RECORDED BY	CUMMINGS
WITNESSED BY	PENELL

IN MAKING INTERPRETATIONS OF LOGS OUR EMPLOYEES WILL GIVE 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.

BOREHOLE RECORD		
BIT SIZE	FROM	TO
8.75 IN	0 FT	9798 FT

CASING RECORD				
SIZE	WEIGHT	GRADE	FROM	TO
4.5 IN	11.6 LB/F	P-110	0 FT	9798 FT

REMARKS

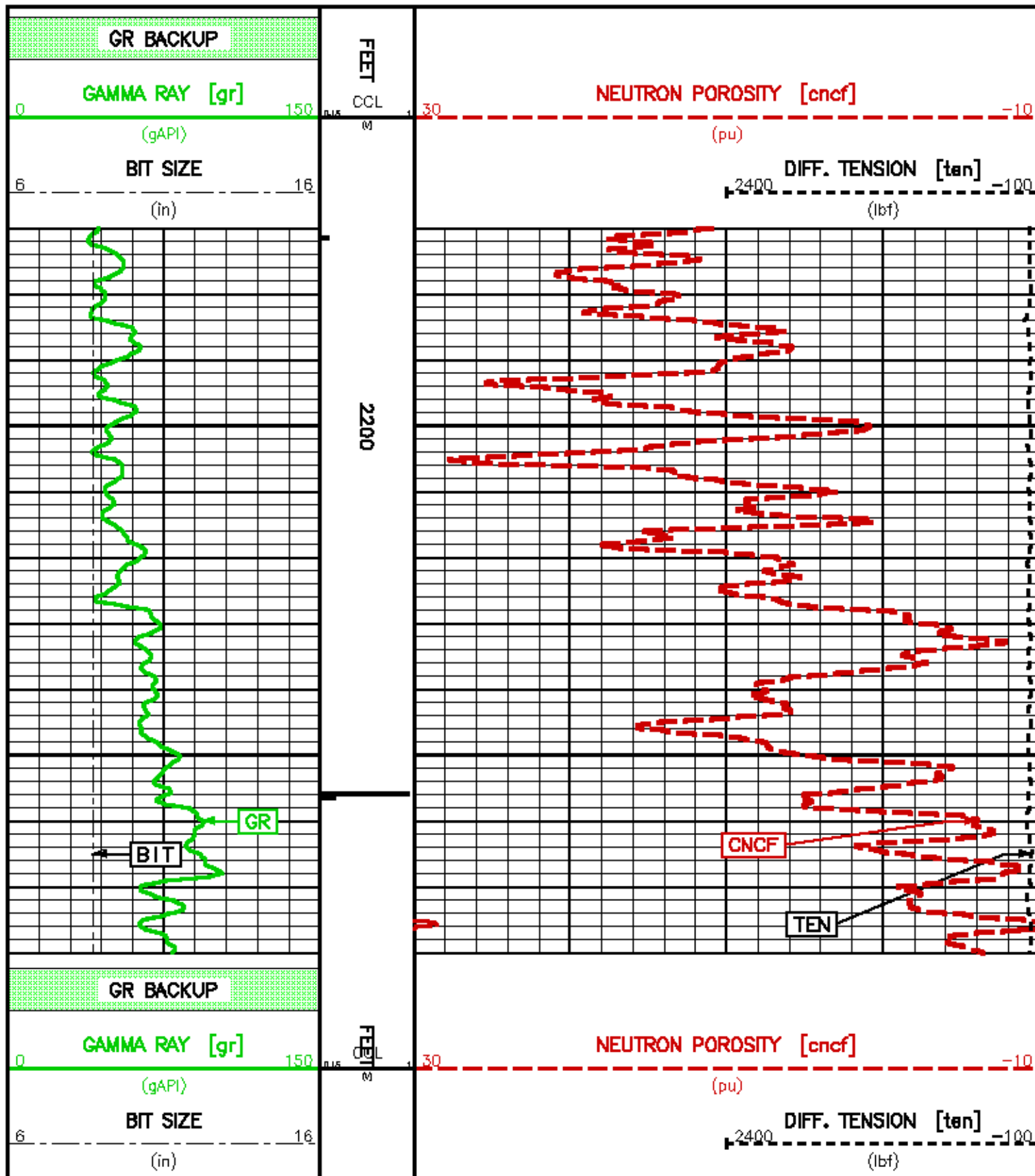
RUN 1 TRIP 1 : DEPTH CORELATED TO BOND LOG DONE ON 08-JAN-2010
 CN RAN FREE DUE TO CASING SIZE
 CREW: ROBERTSON/ MCCORMICK
 THANK YOU FOR CHOOSING BAKER ATLAS

EQUIPMENT DATA					
RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	CEL	23348A	101114233	FREE

BIT 0.00 CNCF GR 1.50 TEN 0.00
 CCL 19.00 GR 7.50

Presentation : c:\p1\data\1623\on_case.pdf [5"/100' Scale]
 Plot Interval : 2170 - 2280 Feet

Data File 1 : F1 : c:\p1\data\1623\k970alc04_case.xif
 Created On : Feb 9 22:59:37 2010
 Company : MARATHON OIL COMPANY
 Well : 506-29C-25
 Field : GRAND VALLEY
 File Interval : 0 - 2280 Feet
 Oct : k970alc



MAIN LOG 5"/100FT SCALE

ECLIPS 6.01 Feb 21, 2008
 Updates: 1,40,41 Patches: 1,2,4,5,6

Wed Feb 10 10:02:02 2010

Perpllt /main/62

Cplot

Pdf_Cpp /main/16

Fileview 5.42

PARAMETER AND FILTER SUMMARY REPORT

FILE: /data/1823/k970mlc03.prm
 LOGGING MODE: DEPTH DIRECTION: UP
 TOP DEPTH: 8248.156 ft BOTTOM DEPTH: 9086.153 ft

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
GR LOW RES	FILTER (.1)	medium (1)		TOP	BOTTOM
GR MED RES	FILTER ()	medium (1)		''	''
TENSION	FILTER ()	medium (1)		''	''
CN LOW RES	FILTER (.1)	medium (1)		''	''
CN MED RES	FILTER ()	medium (1)		''	''

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
CASING - BOREHOLE & CEMENT VOLUME	CASING O.D.	4.500	1in	TOP	BOTTOM
	CASING THICKNESS	0.250	1in	''	''
BIT SIZE	BIT SIZE	8.750	1in	''	''
BOREHOLE CORR DIAMETER SOURCE	CALIPER/FIXED DIA. (cnbh*)	USE FIXED SIZE		''	''
BOREHOLE CORR DIAMETER	FIXED DIAMETER (cnbh*)	8.750	1in	''	''

ACCELERATION PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
ACCEL CORR SWITCH	ACCEL DEPTH CORR	CORRECTION ON		TOP	BOTTOM

CN PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
CN MATRIX	2456 MATRIX	SANDSTONE		TOP	BOTTOM
CN BOREHOLE CORRECTION	SALINITY	861	ppm	''	''
	BOREHOLE CORRECTION	ON		''	''
CN CASING & CEMENT CORRECTION	CORRECTION	ON		''	''
	BIT SIZE BEHIND CSNG	8.750	1in	''	''

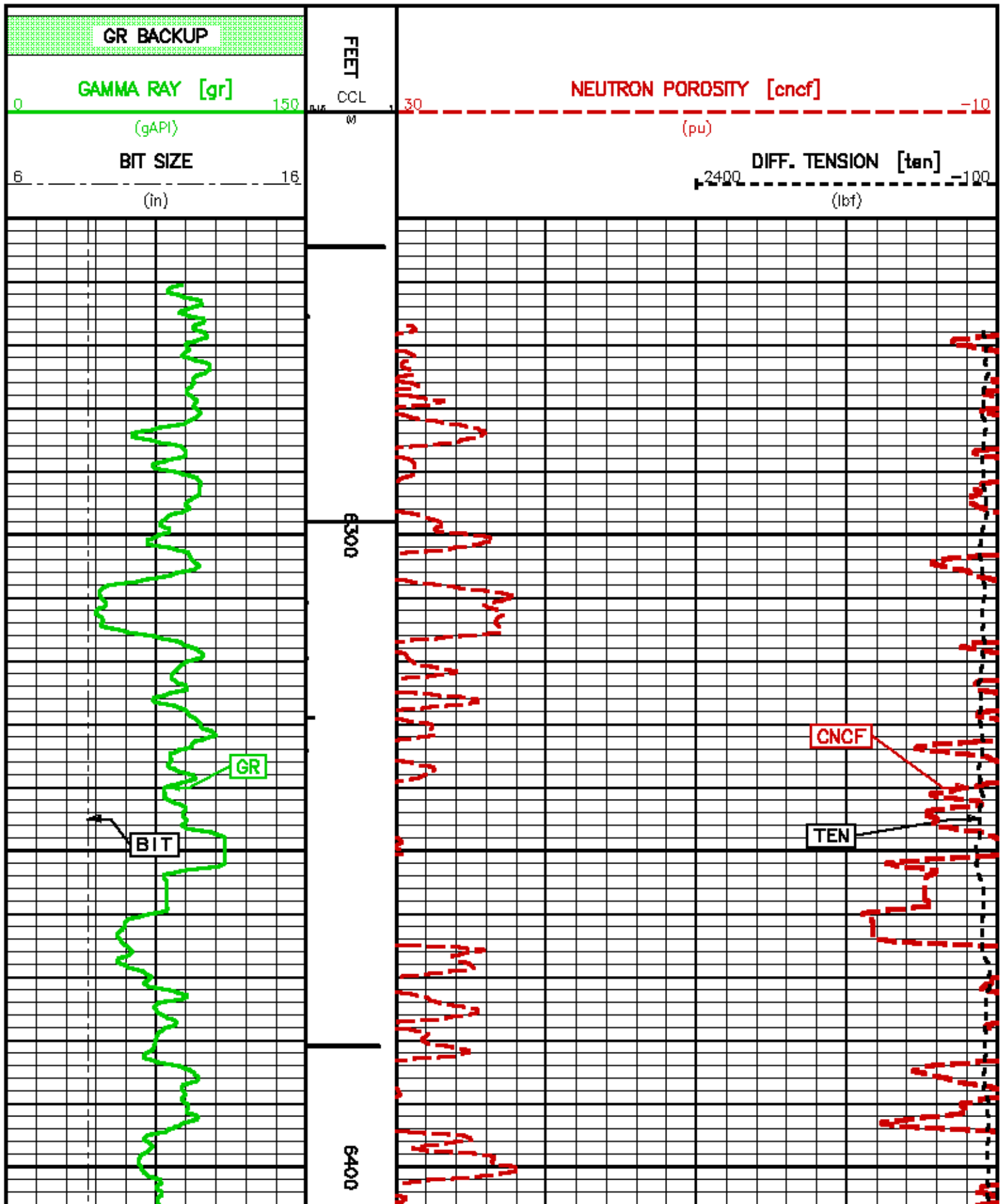
CURVE DESCRIPTION REPORT

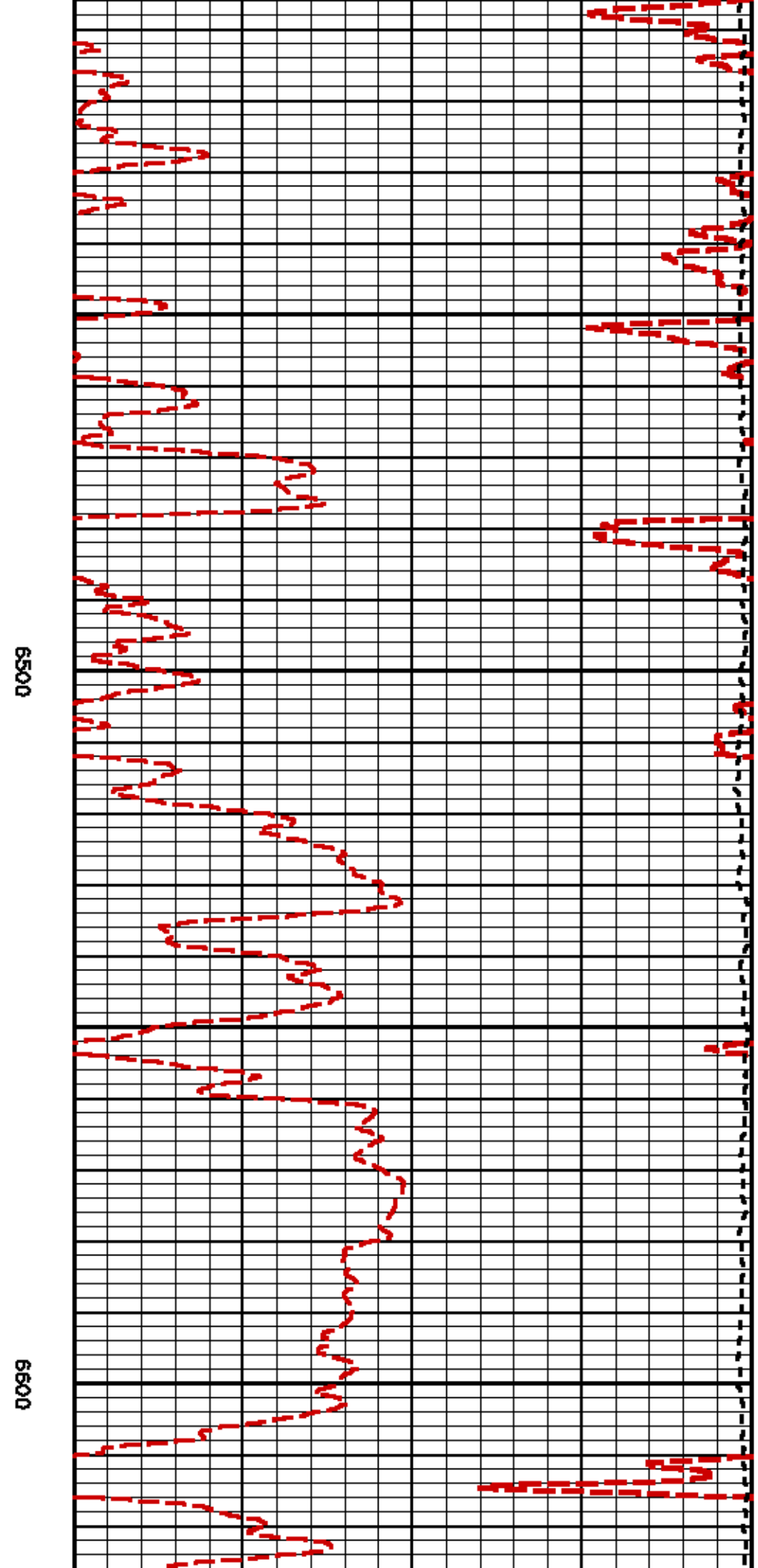
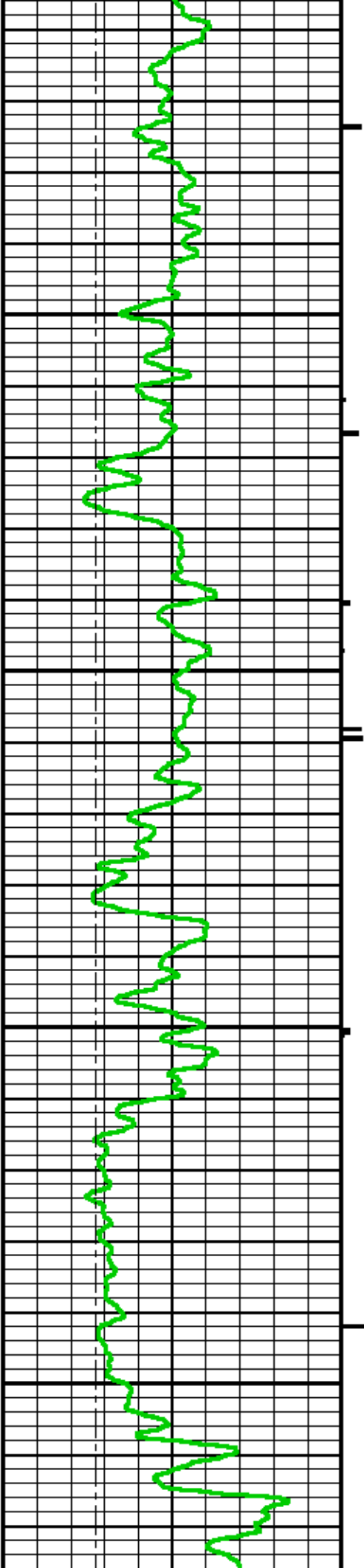
CURVE NAME	CURVE ALIAS	CREATION DATE	CURVE DESCRIPTION
F1:BIT	BIT	Feb 9 21:23:07 2010	BIT SIZE
F1:CCL	CCL	Feb 9 21:23:07 2010	CASING COLLAR LOCATOR
F1:CNCF	CNCF	Feb 9 21:23:07 2010	FIELD NORMALIZED COMPENSATED NEUTRON POROSITY
F1:GR	GR	Feb 9 21:23:07 2010	GAMMA RAY
F1:TEN	TEN	Feb 9 21:23:07 2010	DIFFERENTIAL TENSION

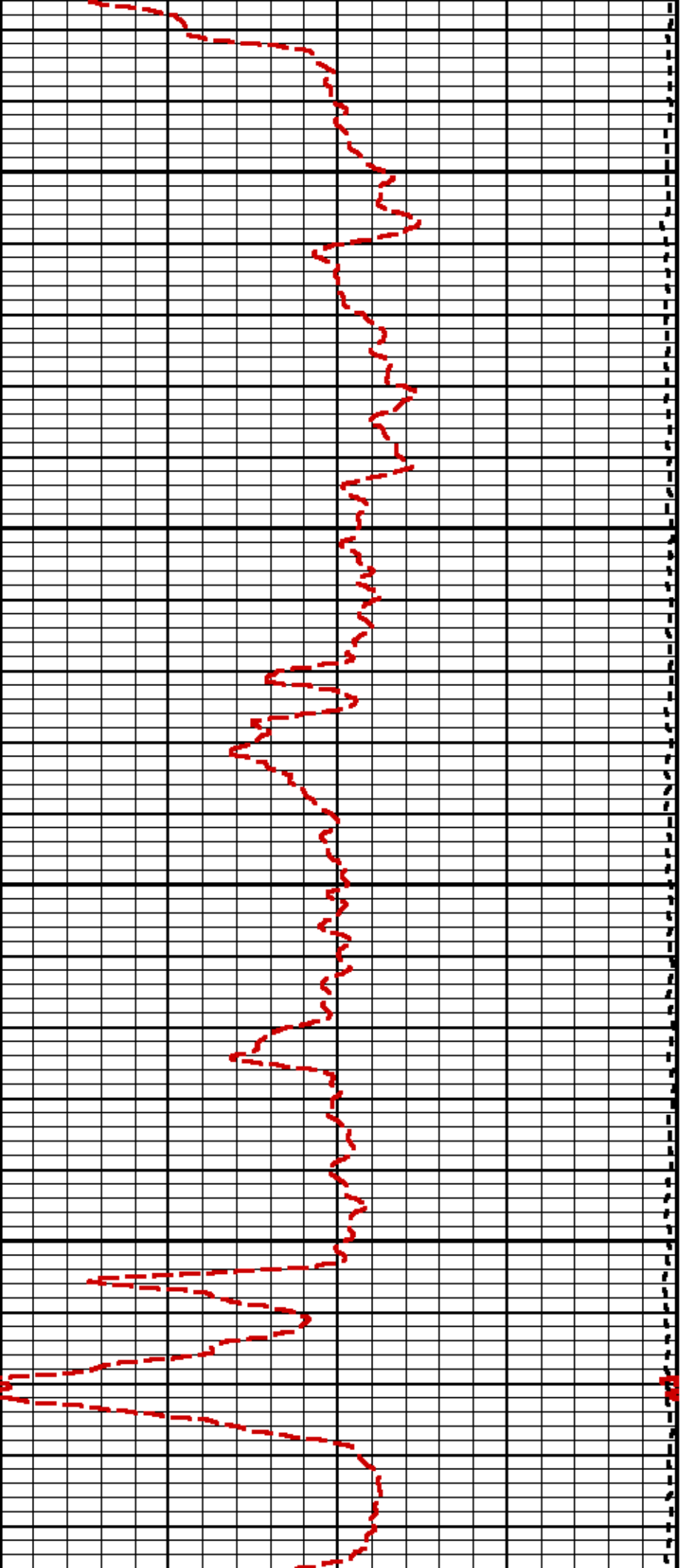
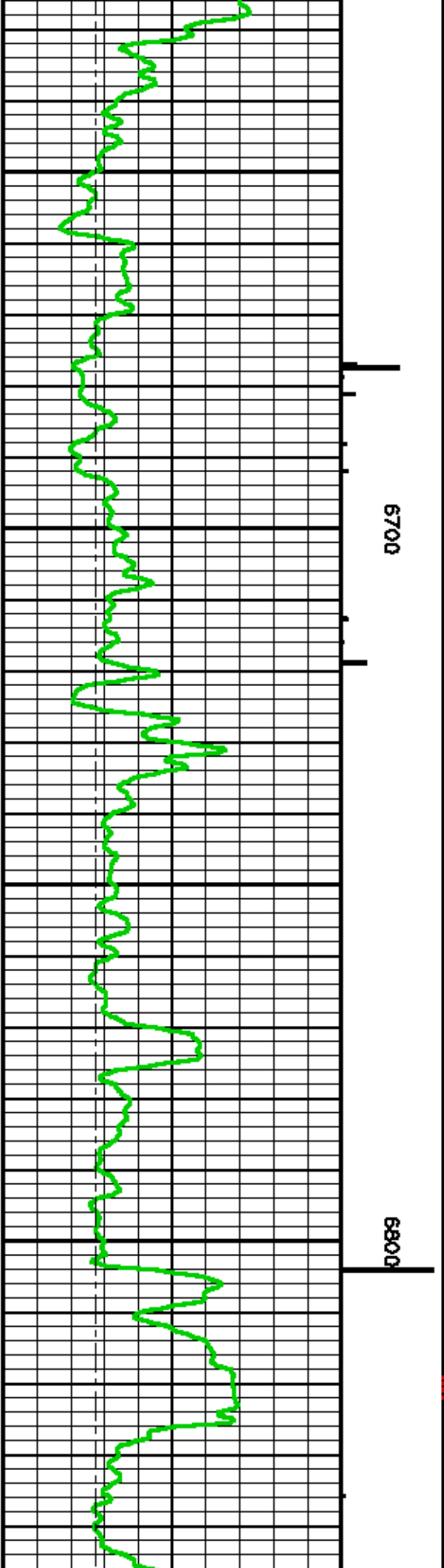
CURVE MEASURE POINT OFFSET

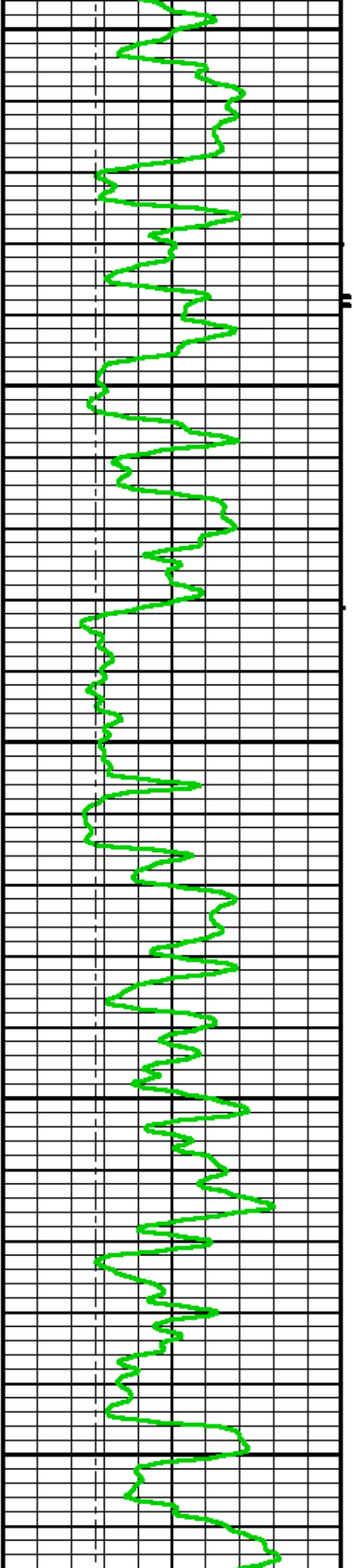
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
BIT	0.00	CNCF	1.50	TEN	0.00		
CCL	19.00	GR	7.50				

Presentation : epu1:/data/1623/k870calc03_main.tif
 Plot Interval : 6250 - 9688.75 Feet
 Data File 1 : F1 : epu1:/data/1623/k870calc03_main.tif
 Created On : Feb 9 21:23:07 2010
 Company : MARATHON OIL COMPANY
 Well : 596-29C-25
 Field : GRAND VALLEY
 File Interval : 0 - 9681 Feet
 Oct : k870calc



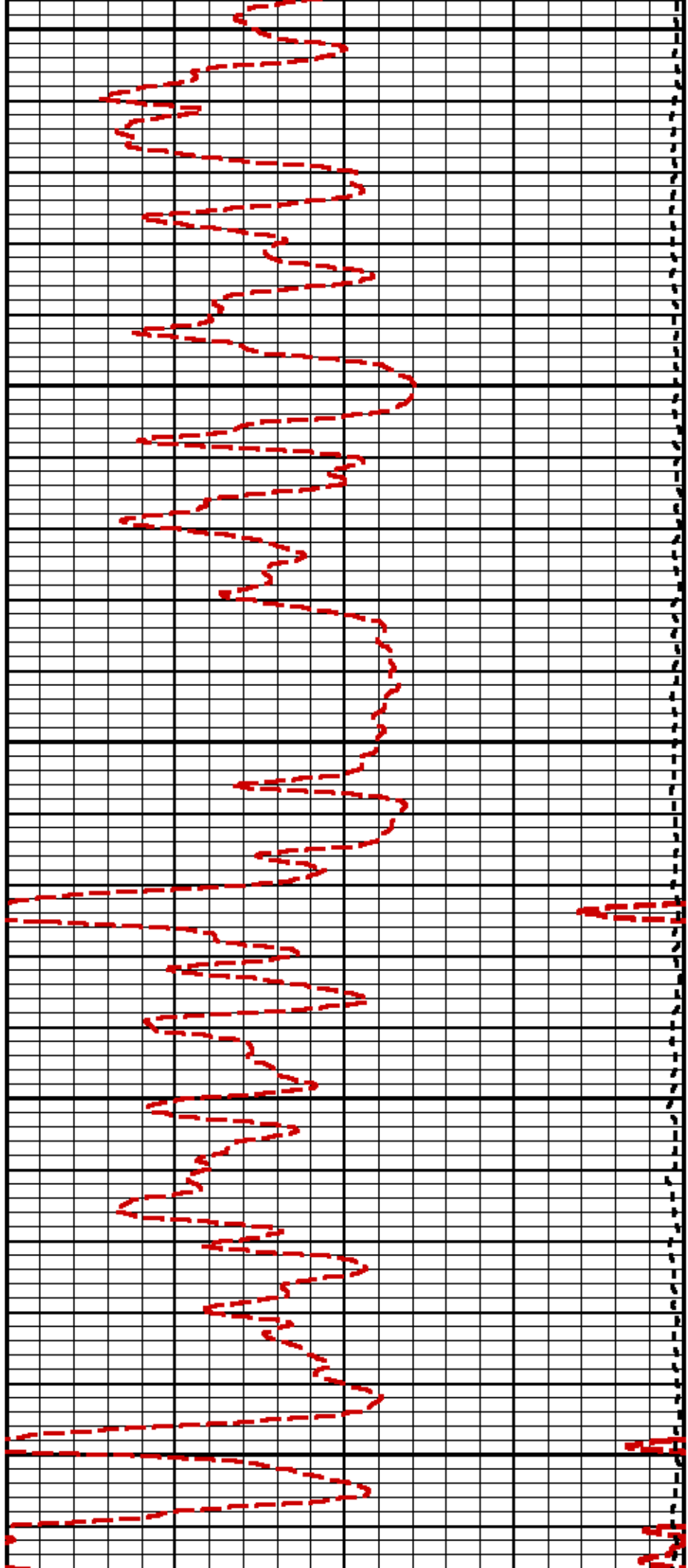


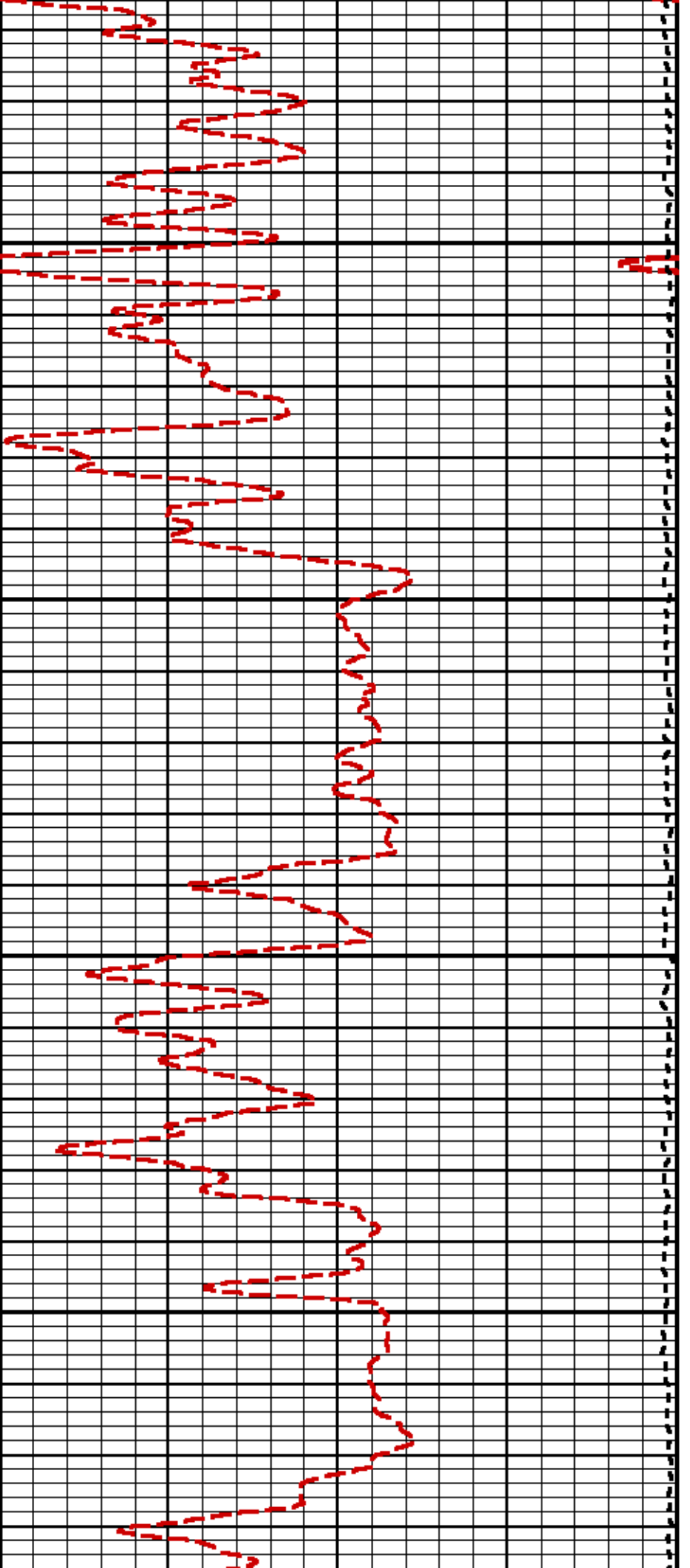
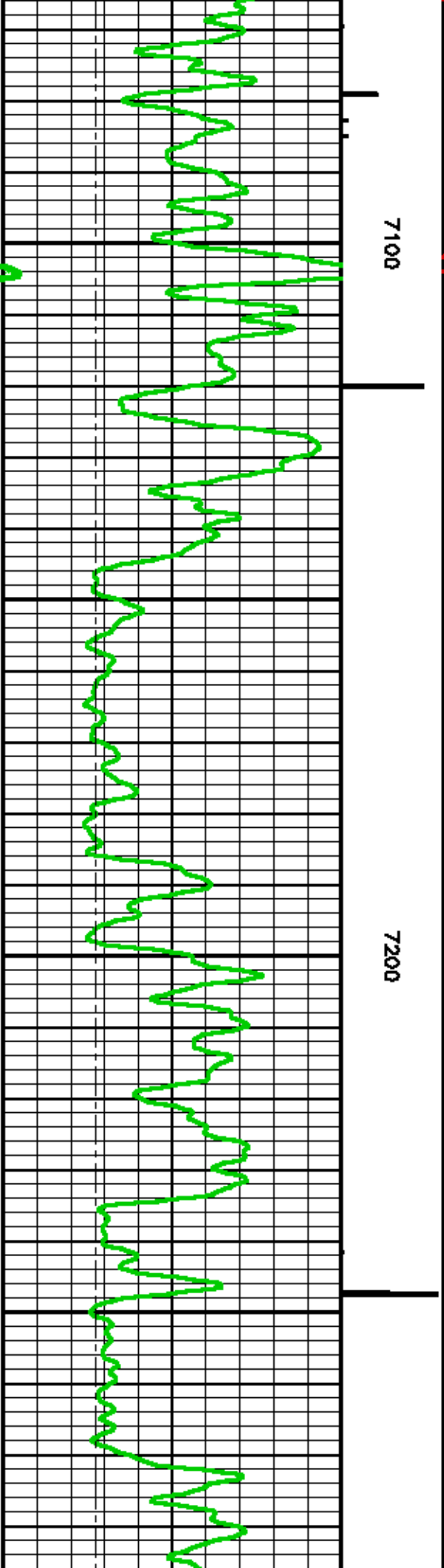


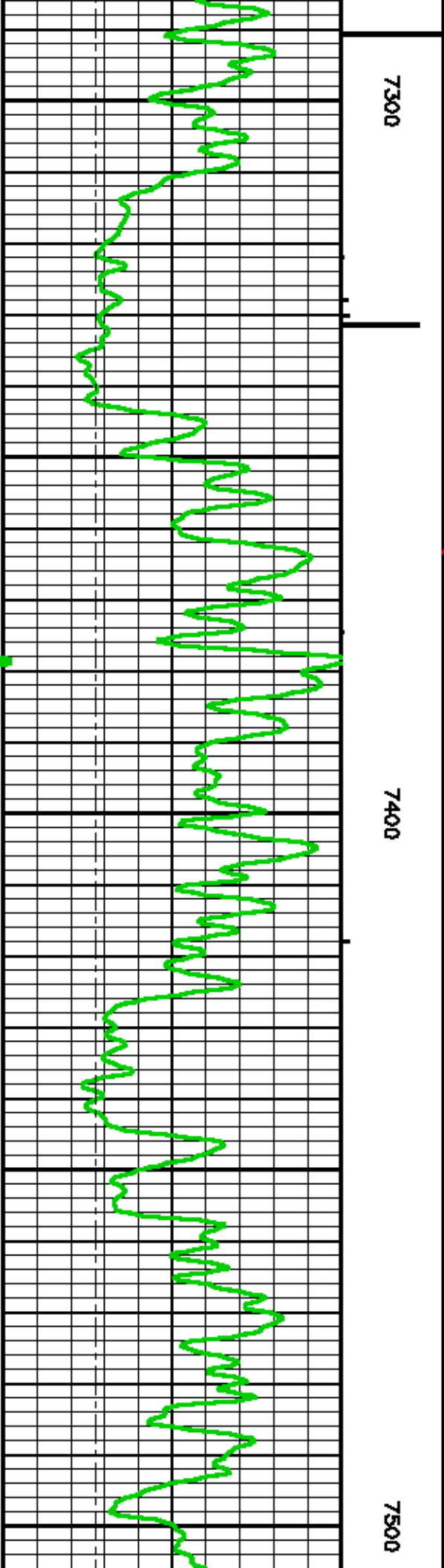
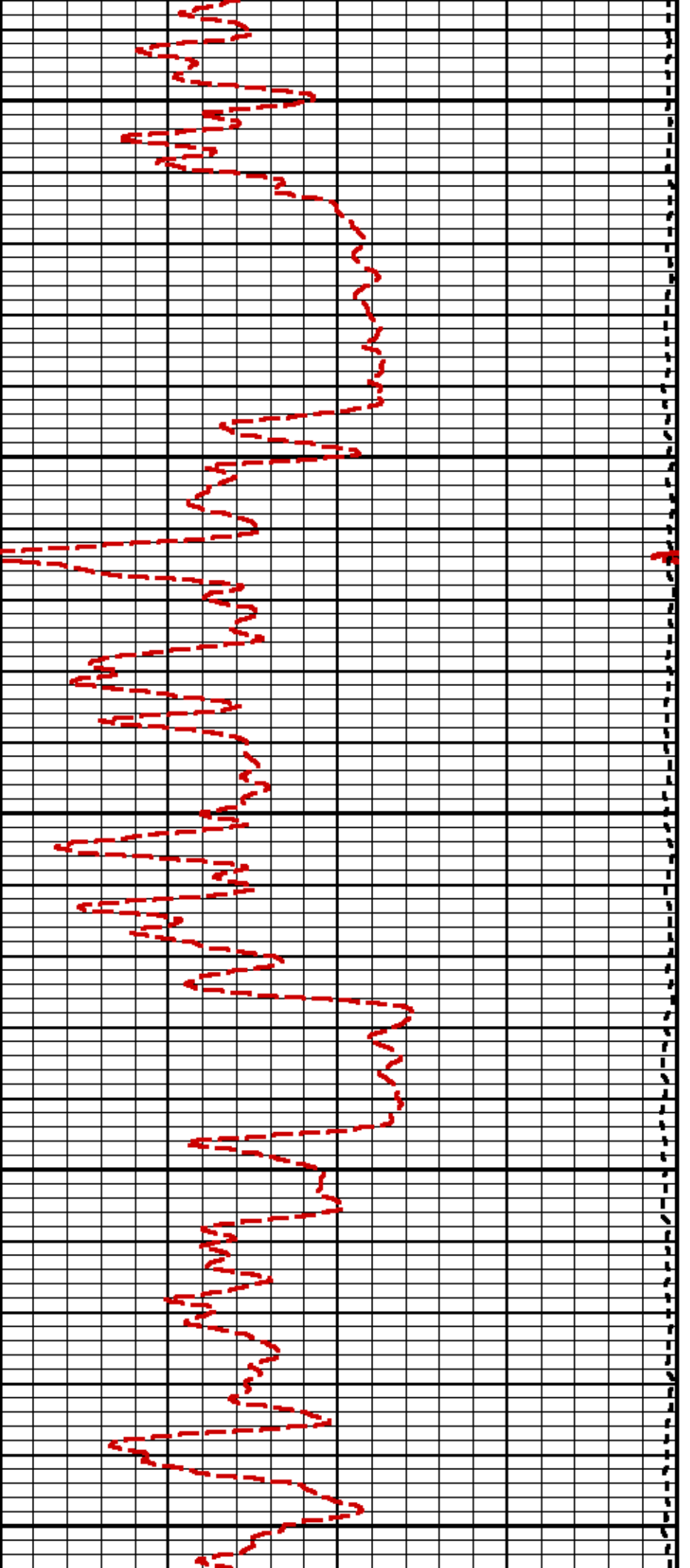


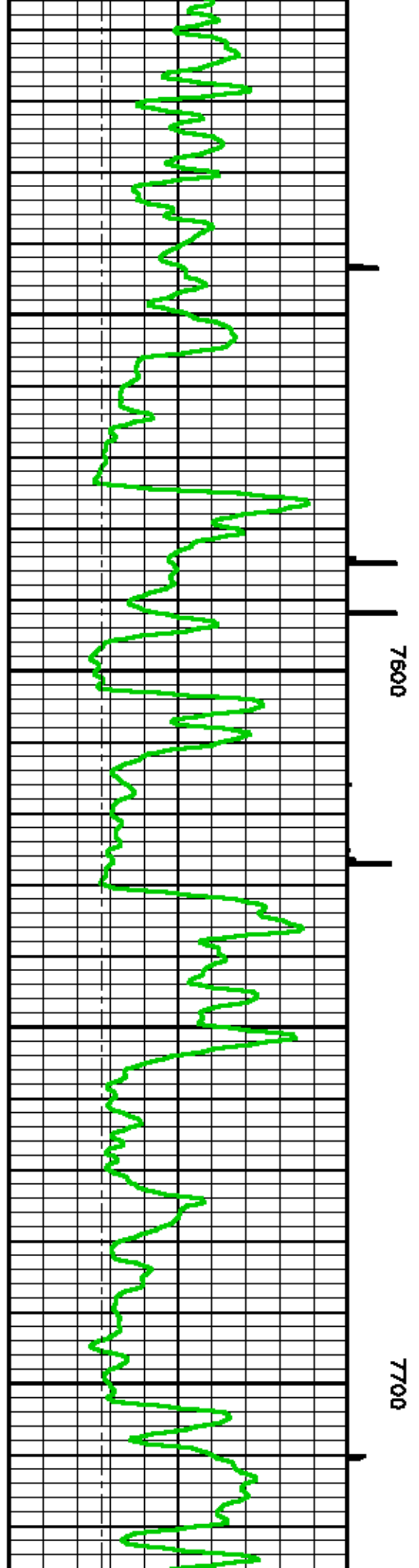
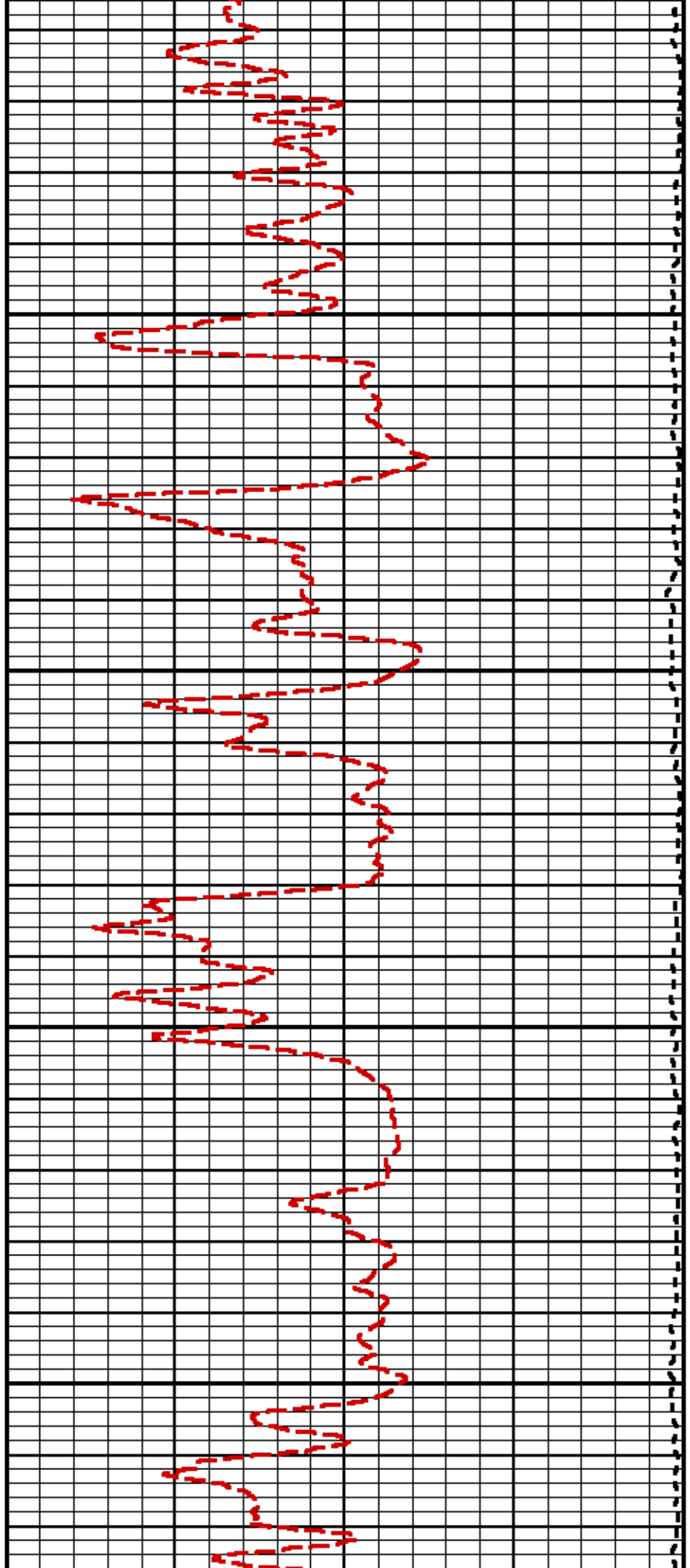
6900

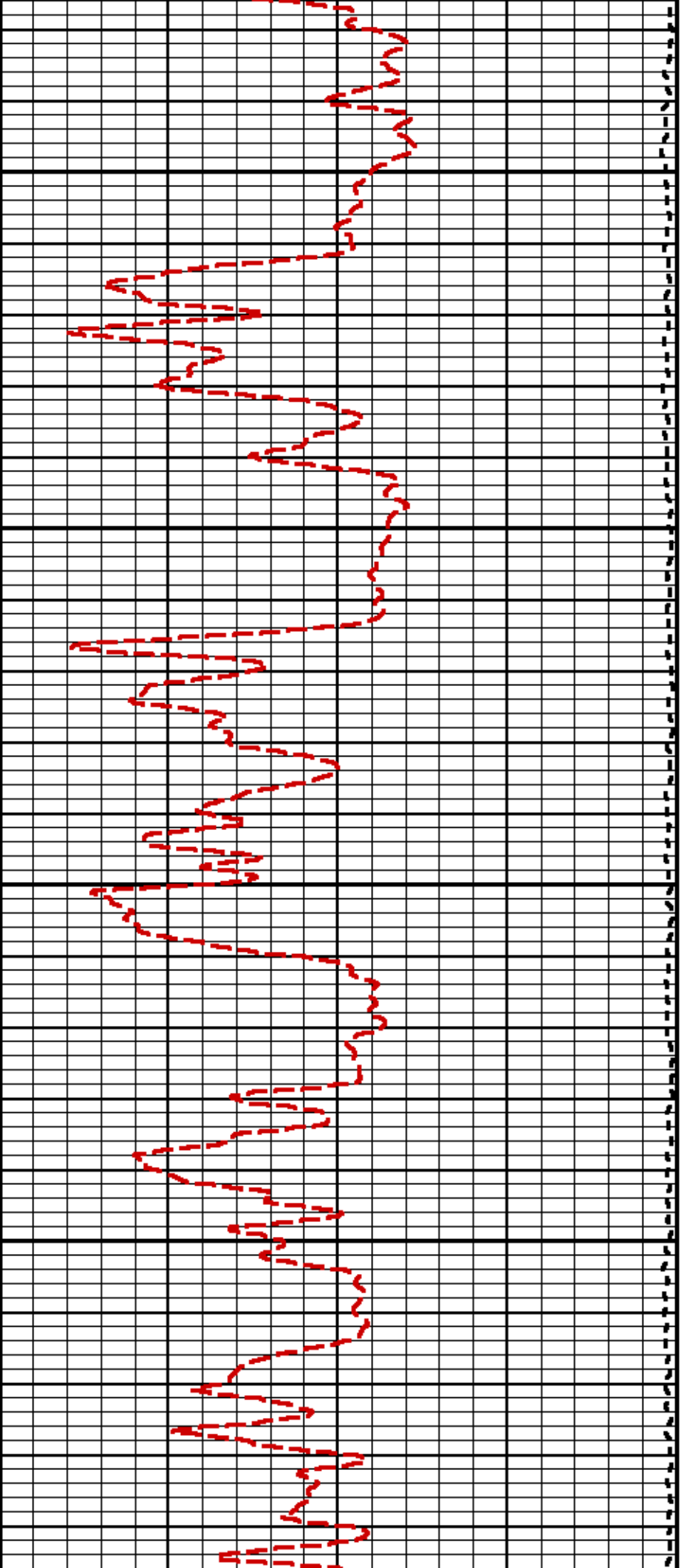
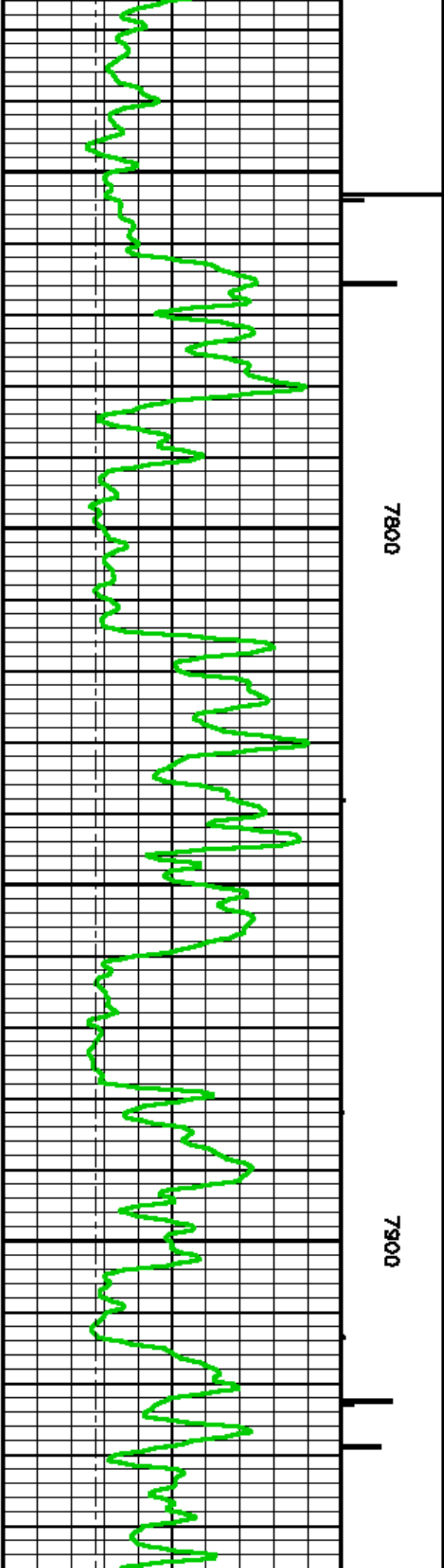
7000

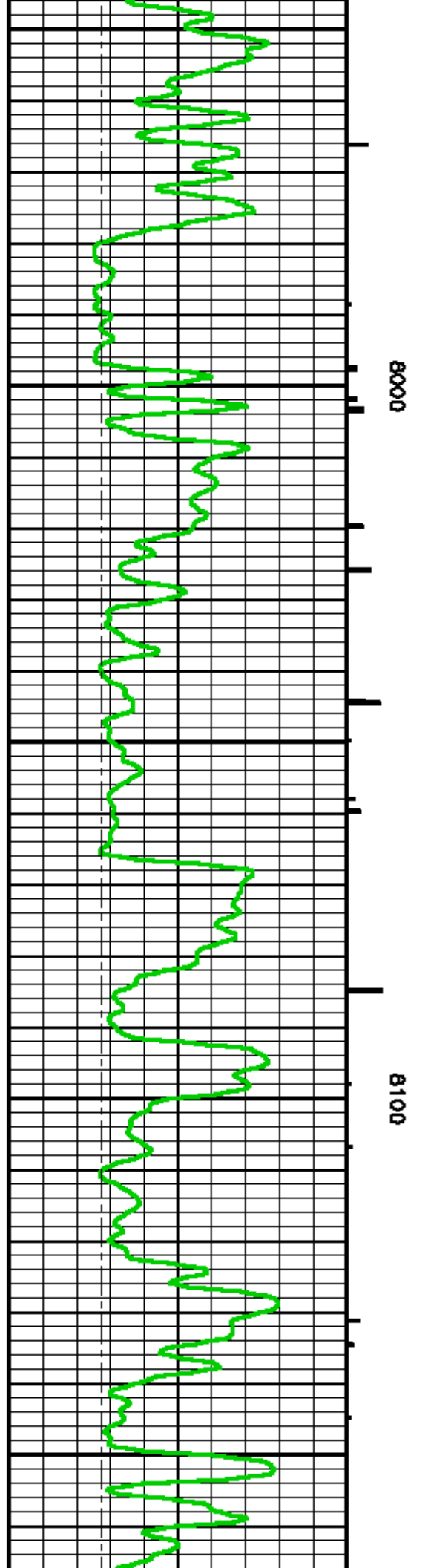
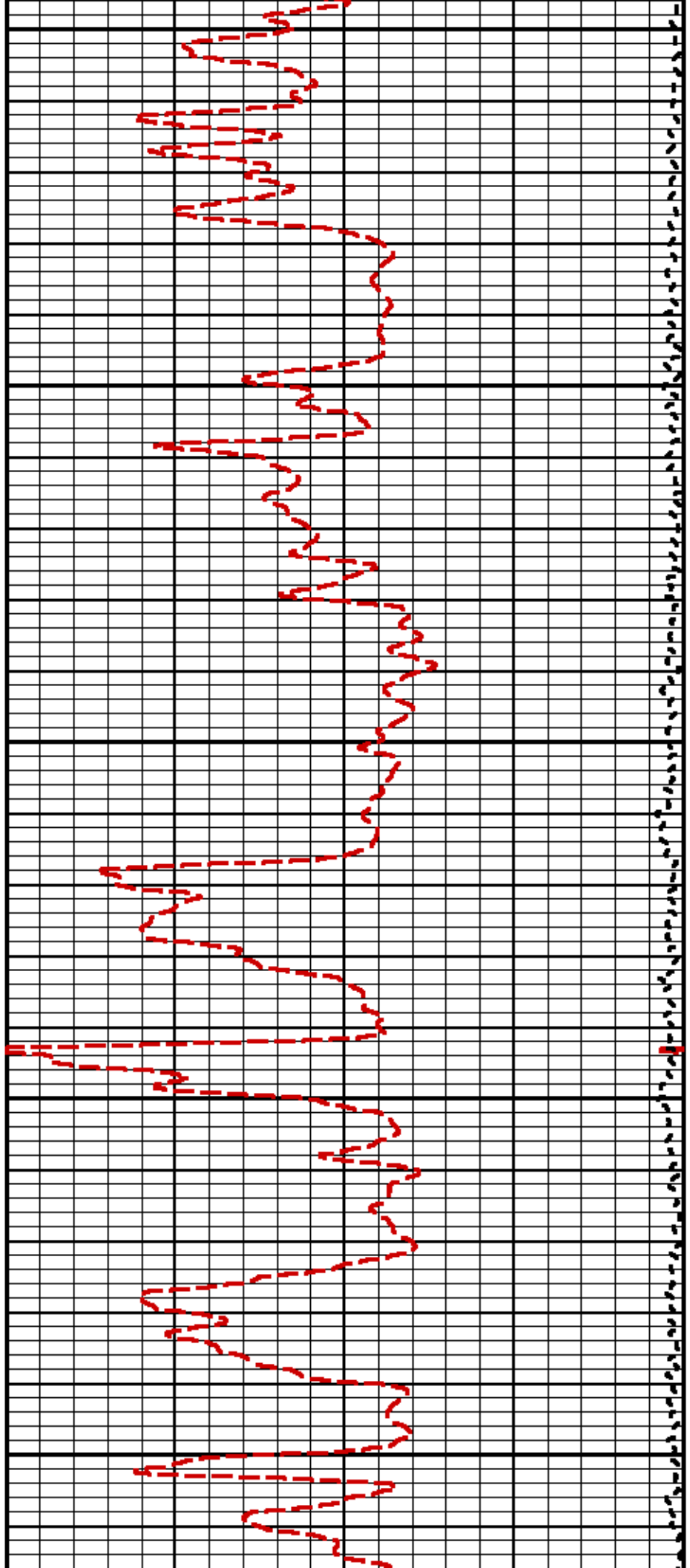


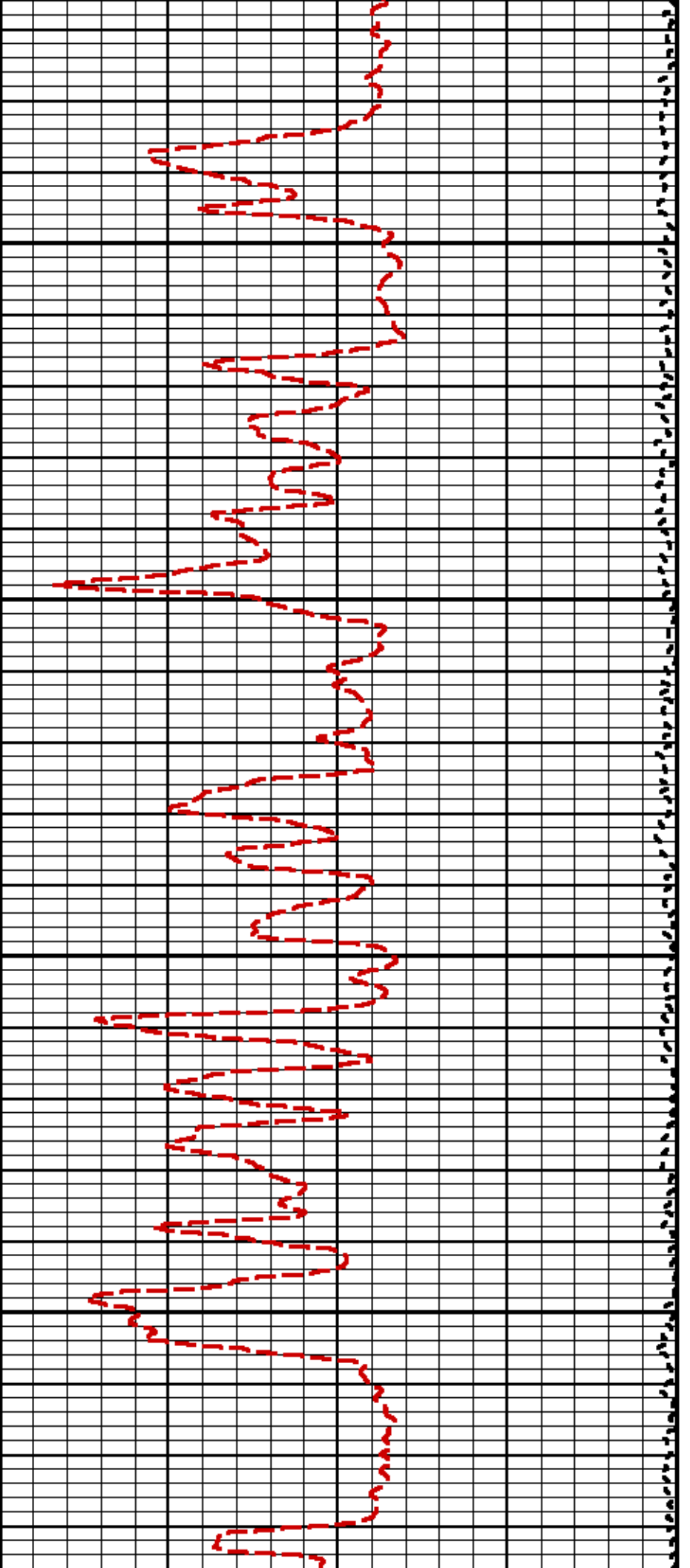






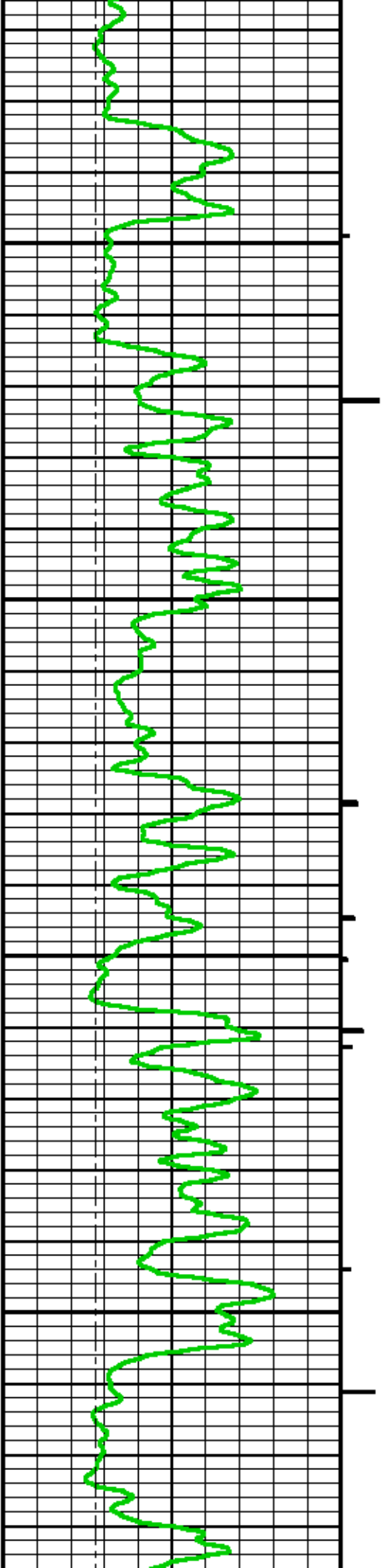


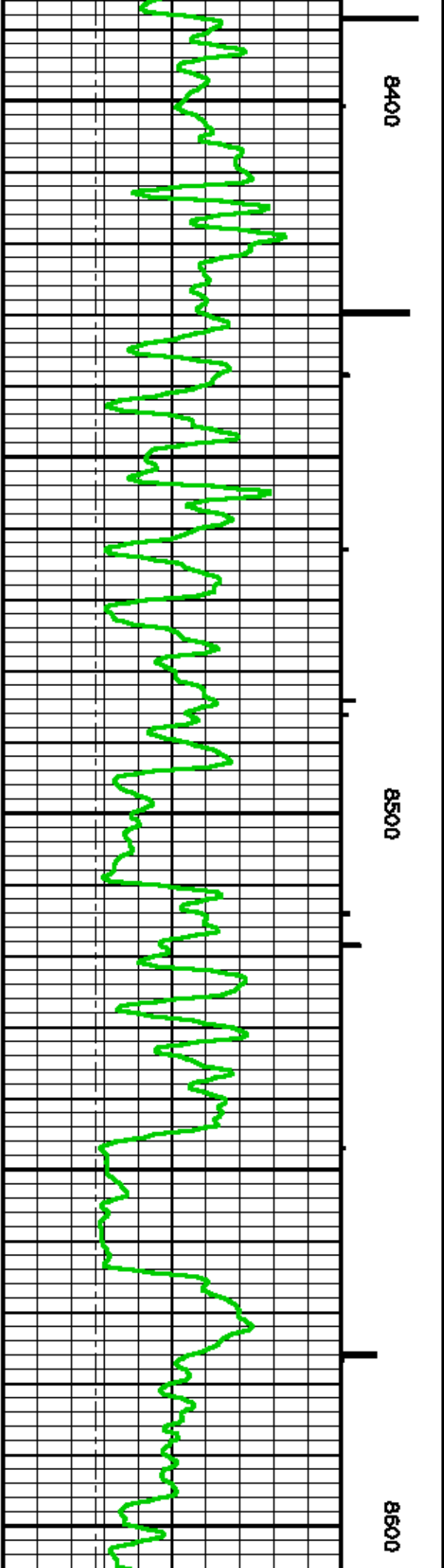
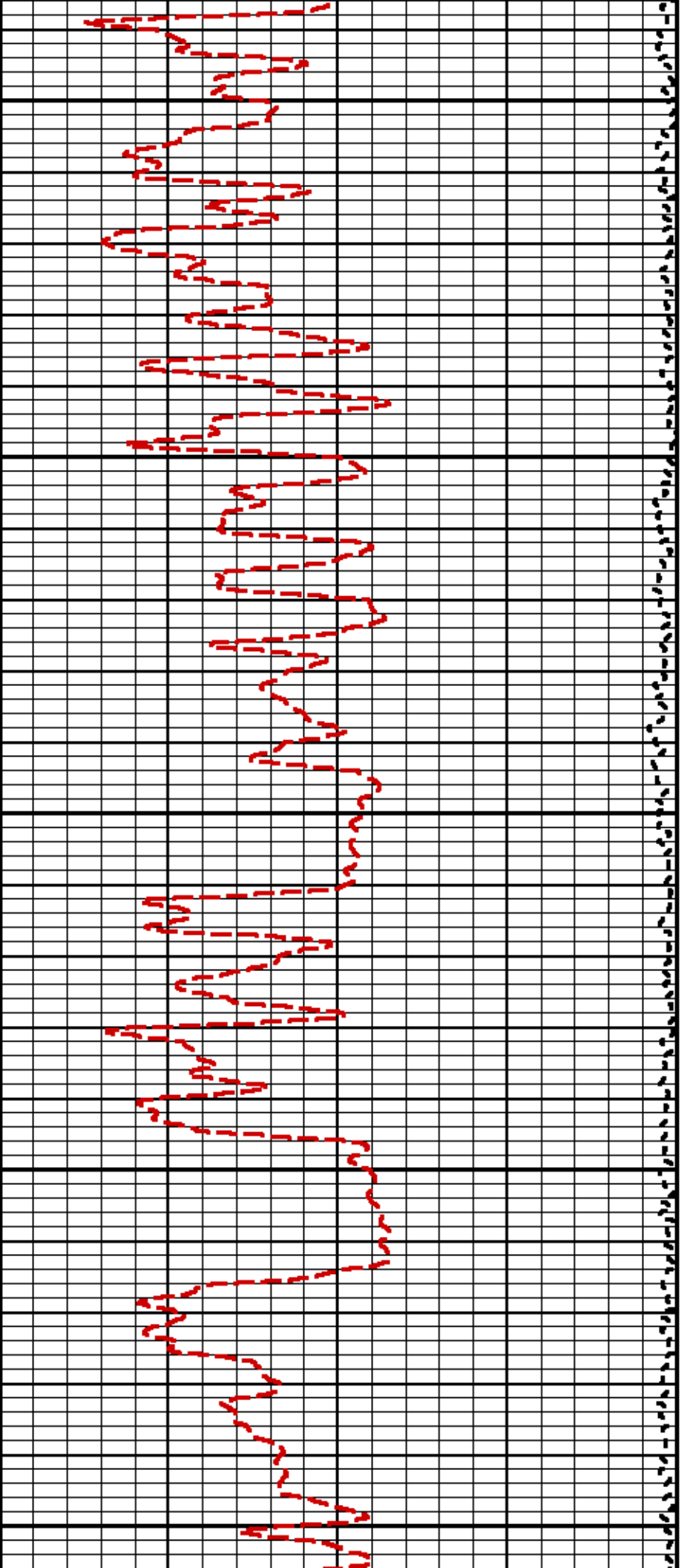


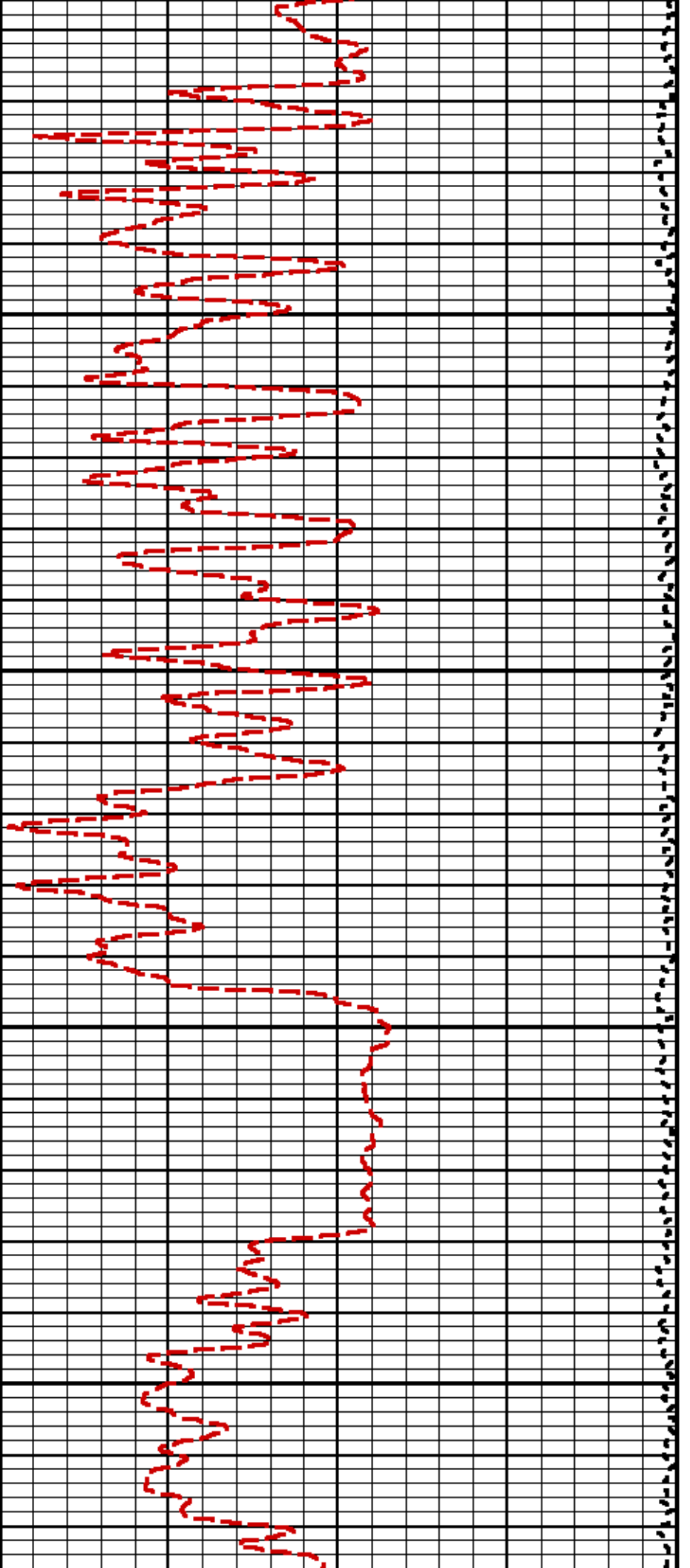
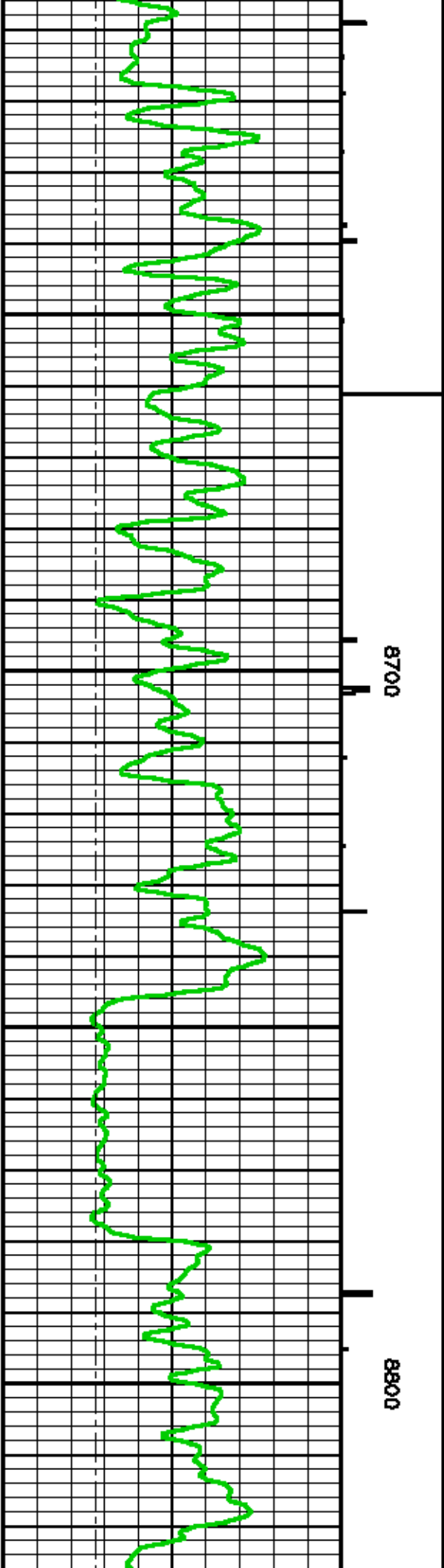


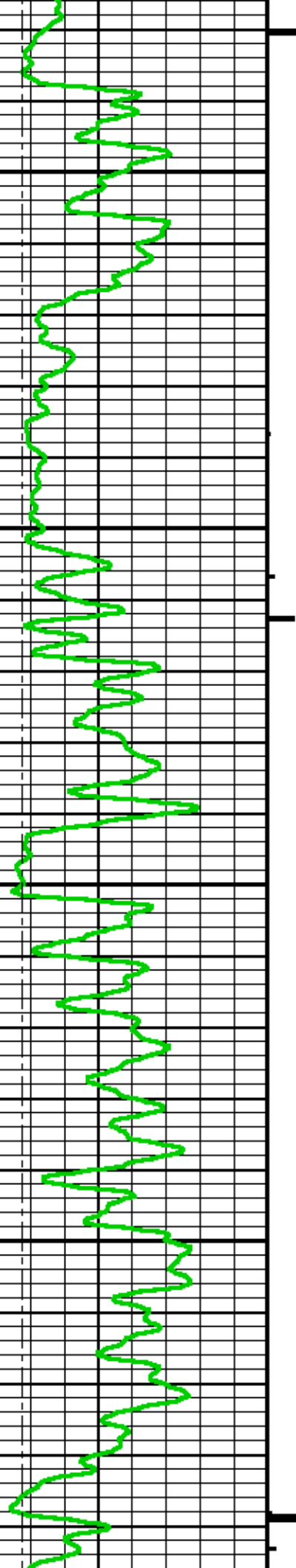
8200

8300



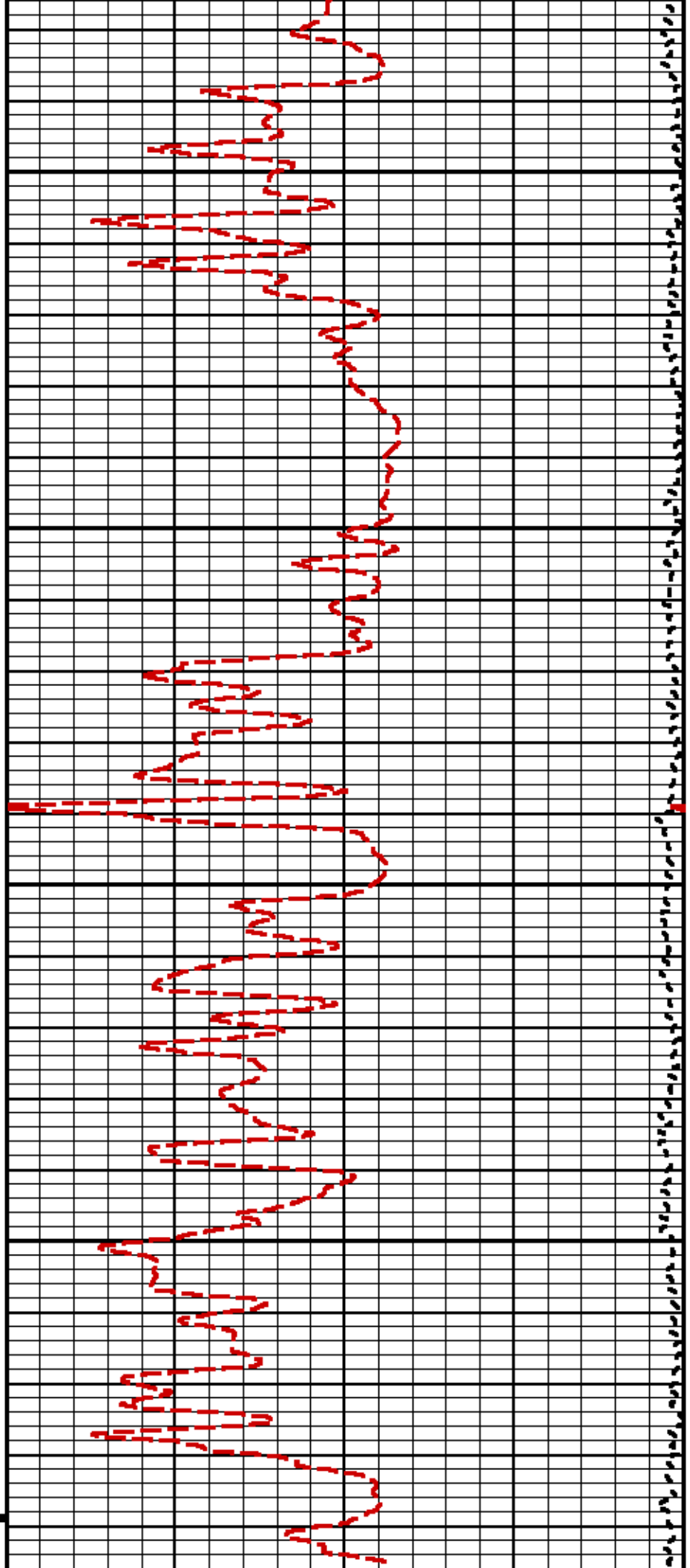


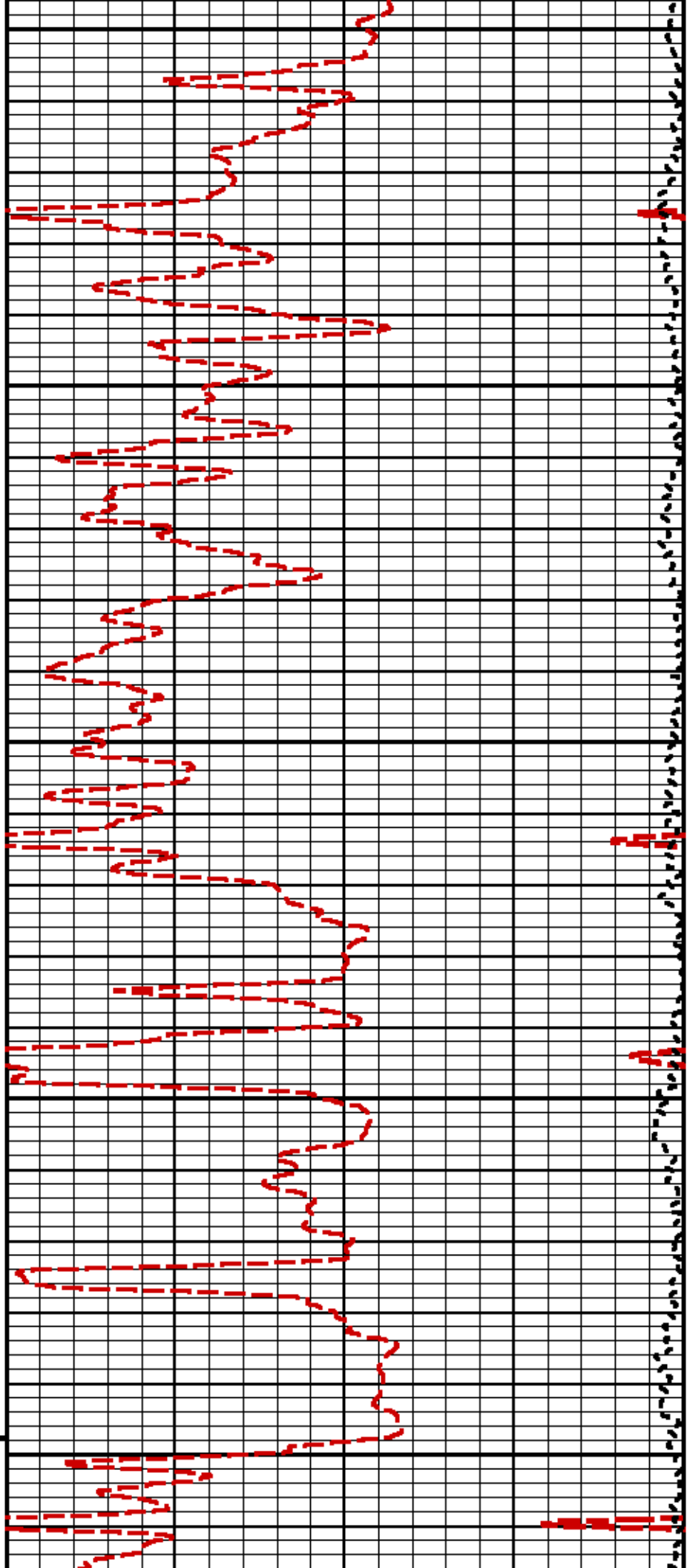




0058

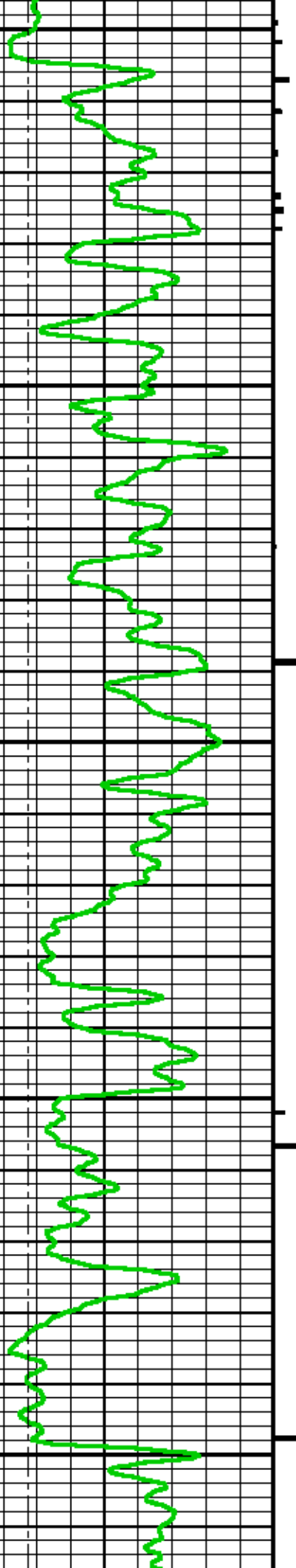
0005

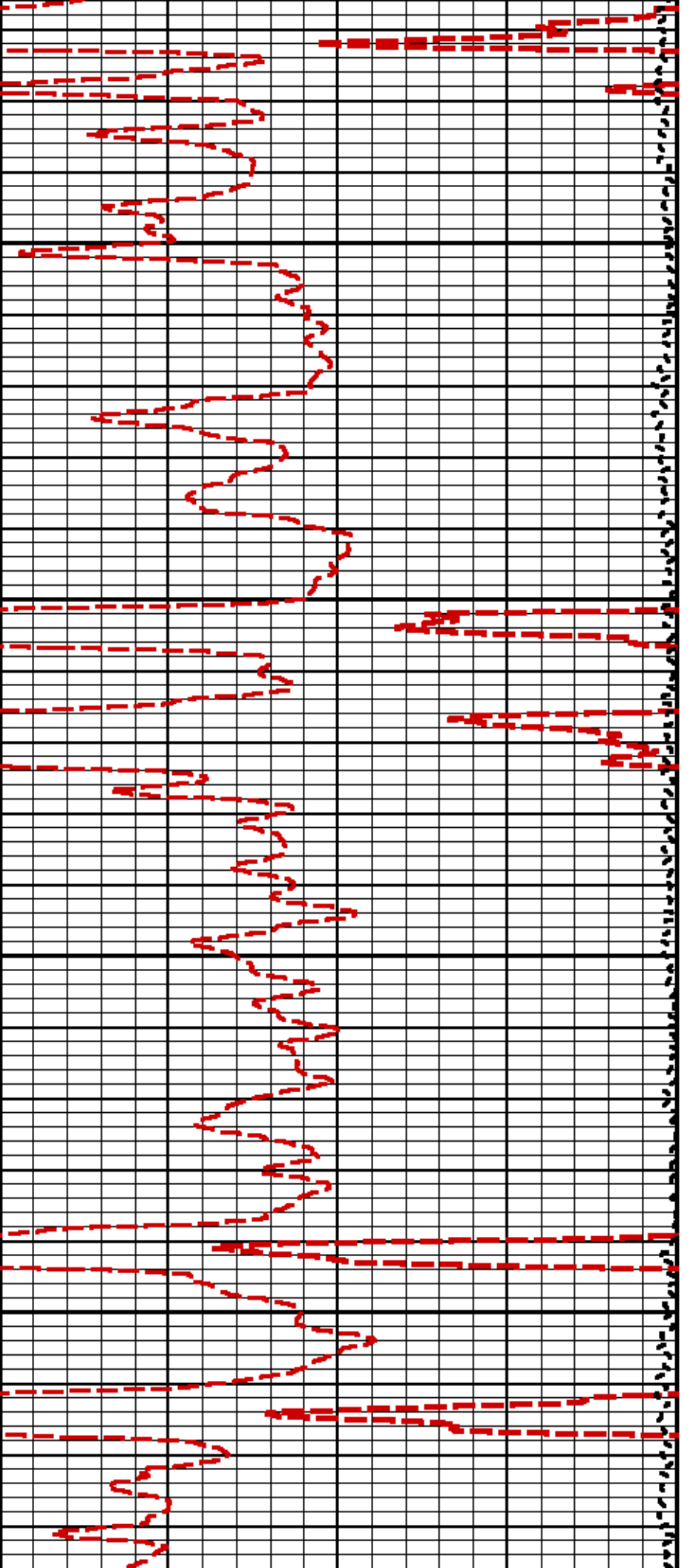




9100

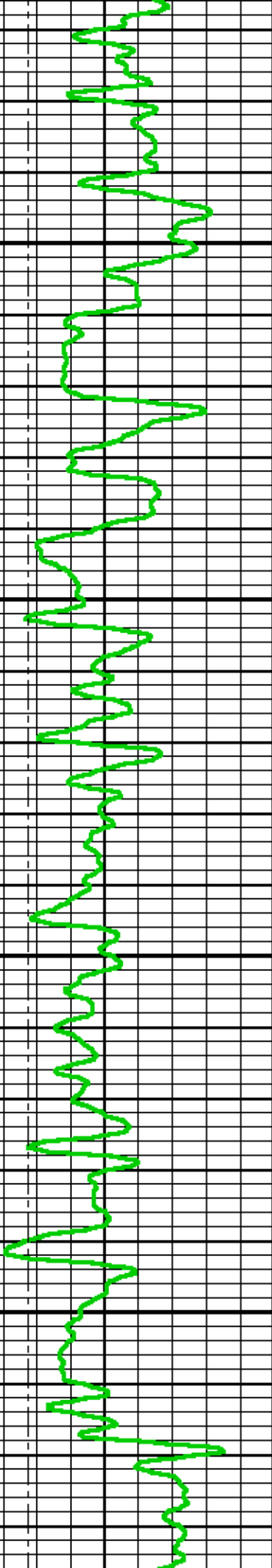
9200

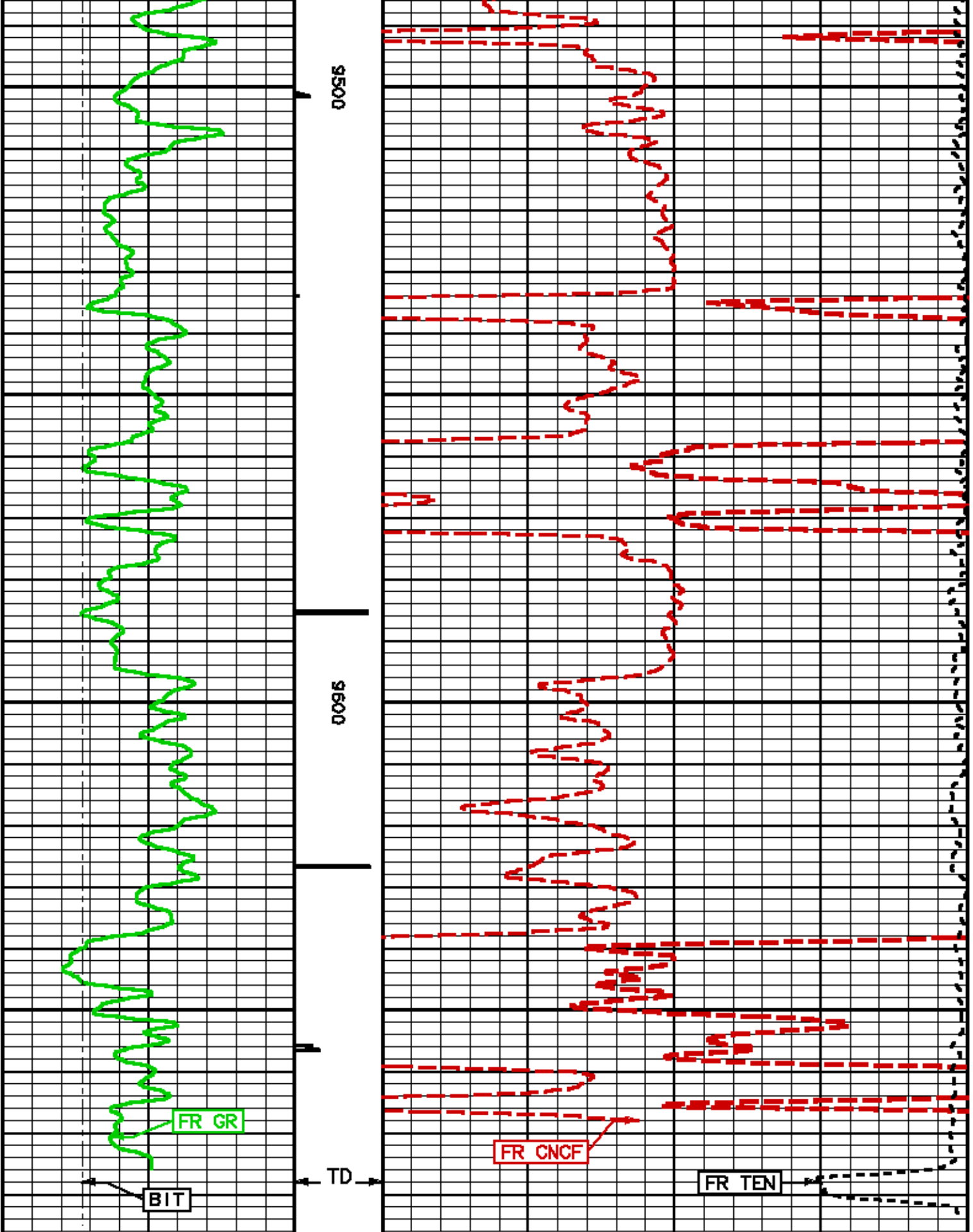




9300

9400





GR BACKUP

GAMMA RAY [gr]

NEUTRON POROSITY [cncf]

BIT

TD

FR CNCF

FR TEN

FR GR

9500

9600

0 150

30 -10

(GAP) BIT SIZE 6-----16 (in)	(lb) DIFF. TENSION [ten] 2400-----100 (lbf)
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REPEAT LOG 5"/100FT SCALE

ECLIPS 6.01 Feb 21, 2008
Updates: 1,40,41 Patches: 1,2,4,5,6

Wed Feb 10 10:06:34 2010

Perplf /main/62

Cplot

Pdf_Cpp /main/16

Fileview 5.42

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/1823/k970a1a02.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 8344.000 ft BOTTOM DEPTH: 8687.148 ft

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
GR LOW RES	FILTER (.1)	medium (1)		TOP	BOTTOM
GR MED RES	FILTER ()	medium (1)		"	"
TENSION	FILTER ()	medium (1)		"	"
CN LOW RES	FILTER (.1)	medium (1)		"	"
CN MED RES	FILTER ()	medium (1)		"	"

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
CASING - BOREHOLE & CEMENT VOLUME	CASING O.D.	4.500	1n	TOP	BOTTOM
	CASING THICKNESS	0.250	1n	"	"
BIT SIZE	BIT SIZE	8.750	1n	"	"
BOREHOLE CORR DIAMETER SOURCE	CALIPER/FIXED DIA. (cnbh*)	USE FIXED SIZE		"	"
BOREHOLE CORR DIAMETER	FIXED DIAMETER (cnbh*)	8.750	1n	"	"

ACCELERATION PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
ACCEL CORR SWITCH	ACCEL DEPTH CORR	CORRECTION ON		TOP	BOTTOM

CN PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
CN MATRIX	2436 MATRIX	SANDSTONE		TOP	BOTTOM
CN BOREHOLE CORRECTION	SALINITY	881	ppm	"	"
	BOREHOLE CORRECTION	ON		"	"
CN CASING & CEMENT CORRECTION	CORRECTION	ON		"	"
	BIT SIZE BEHIND CSNG	8.750	1n	"	"

CURVE DESCRIPTION REPORT

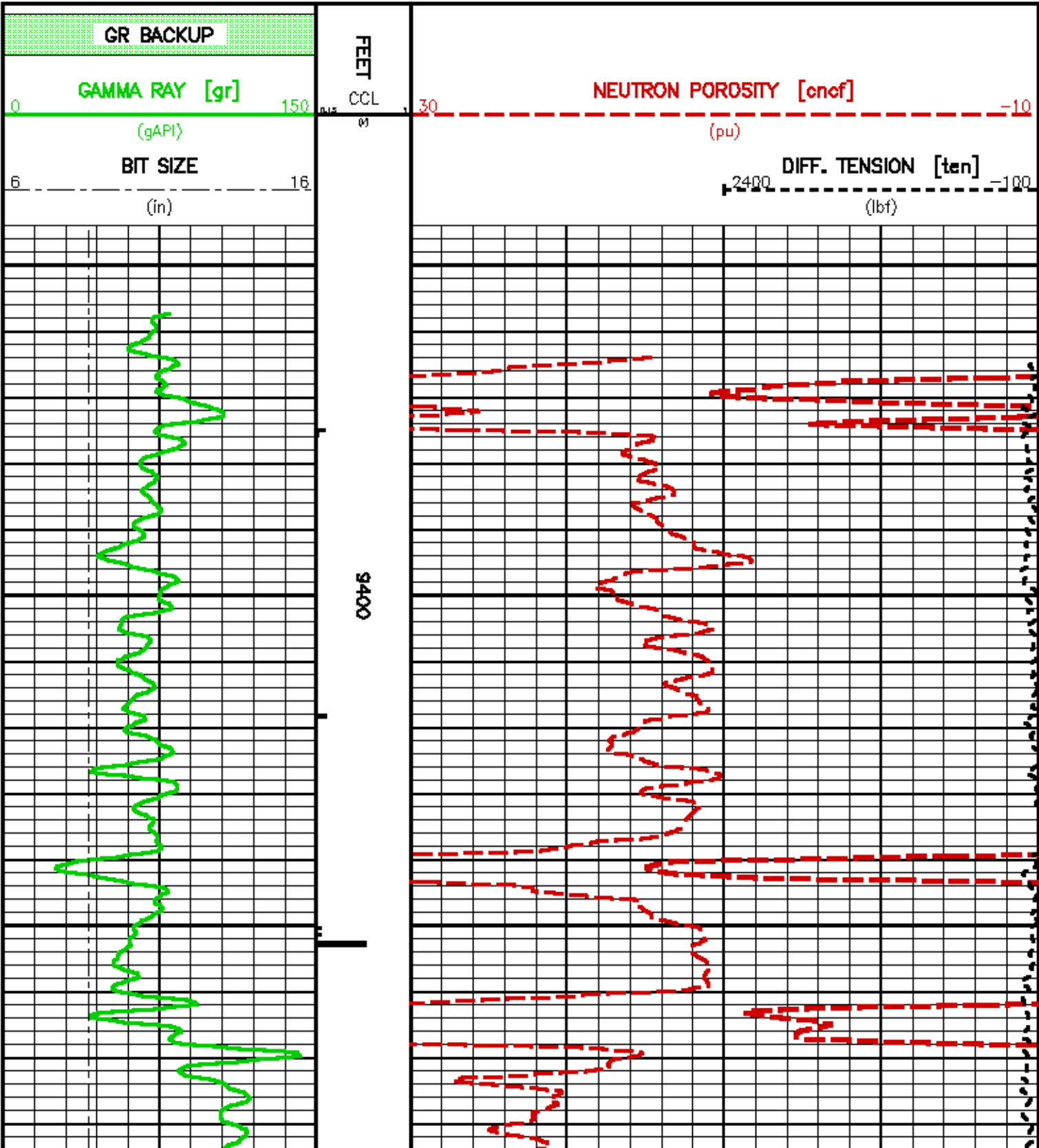
CURVE NAME	CURVE ALIAS	CREATION DATE	CURVE DESCRIPTION
F1:BIT	BIT	Feb 9 21:08:53 2010	BIT SIZE
F1:CCL	CCL	Feb 9 21:08:53 2010	CASING COLLAR LOCATOR
F1:CNCF	CNCF	Feb 9 21:08:53 2010	FIELD NORMALIZED COMPENSATED NEUTRON POROSITY
F1:GR	GR	Feb 9 21:08:53 2010	GAMMA RAY
F1:TEN	TEN	Feb 9 21:08:53 2010	DIFFERENTIAL TENSION

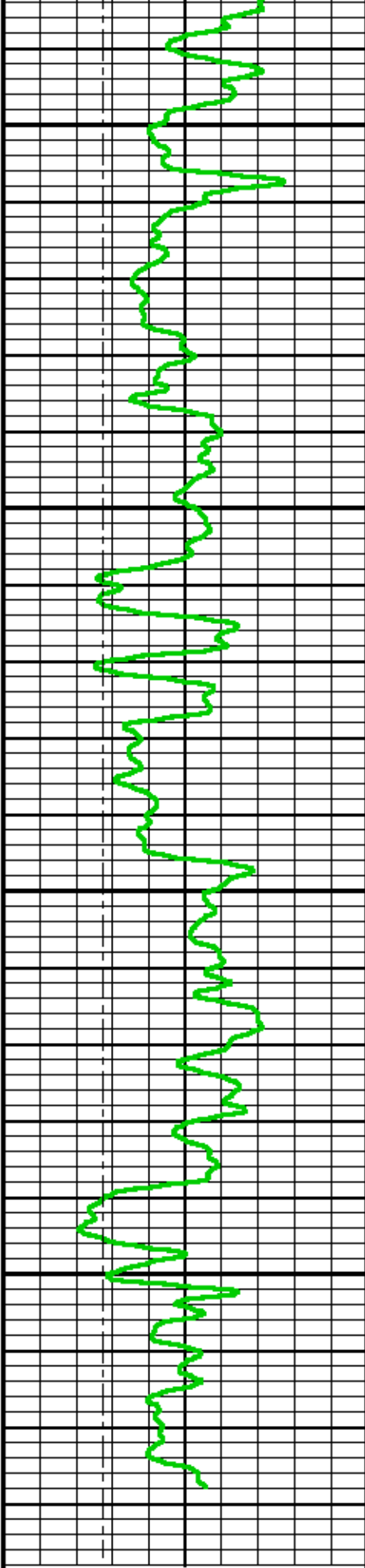
CURVE MEASURE POINT OFFSET

CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
BIT	0.00	CNCF	1.50	TEN	0.00		
CCL	19.00	GR	7.50				

Presentation : epul:/dat/a/1623/cn_report.pdf [5"/100' Scale]
 Plot Interval : 8344.75 - 9891.75 Feet

Data File 1 : F1 : epul:/dat/a/1623/k870calc02_report.tif
 Created On : Feb 9 21:08:53 2010
 Company : MARATHON OIL COMPANY
 Well : 596-29C-25
 Field : GRAND VALLEY
 File Interval : 8332 - 9893 Feet
 Oct : k870calc





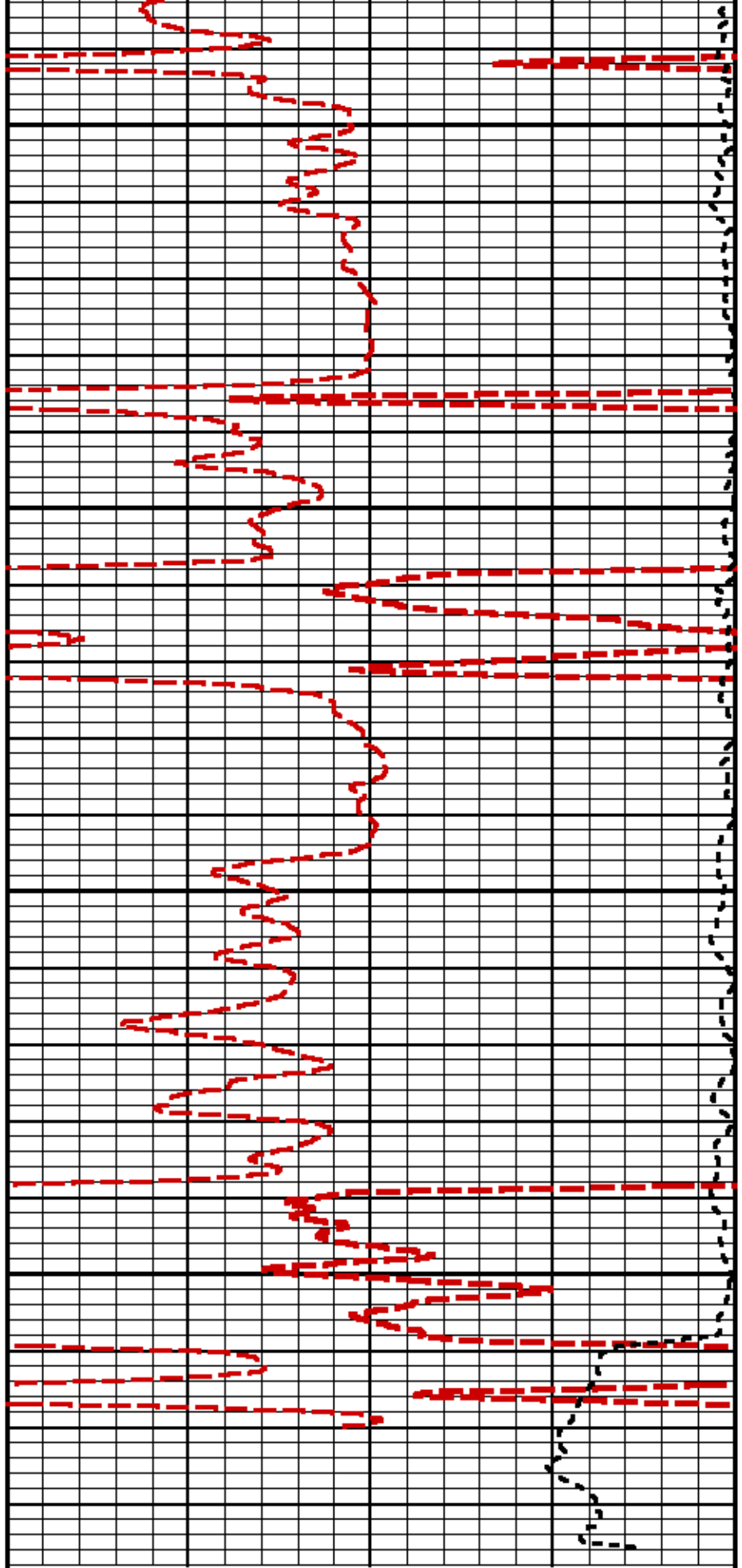
9500

9600

FE

GR BACKUP

GAMMA RAY [gr]



NEUTRON POROSITY [cnf]

(gAPI)	150	M	30	(pu)	-10
BIT SIZE	6			DIFF. TENSION [tan]	-100
(in)	16			(lbf)	2400

CALIBRATION / VERIFICATION SUMMARY

Source File: /data/1822/1879cal.a1

TTMA PRIMARY CALIBRATION SUMMARY

TOOL #: 3980XA 10380720 DATE/TIME PERFORMED: Wed Oct 8 08:07:05 2008

UNIT #: 3882TD HL6670 ACCEL #: 3980XA 10380720 ACCEL CAL DATE: 13:54 07/16/2007

	GAIN	OFFSET
RM K FACTORS	<u>0.14570</u>	<u>-0.01679</u>
	<small>(ohm-m)</small>	

TTMA BEFORE LOG VERIFICATION SUMMARY

TOOL #: 3980XA 10380720 DATE/TIME PERFORMED: Tue Feb 9 20:24:02 2010 DAYS SINCE CAL: 489

UNIT #: 3882TD HL6670

	CHT (lbf)	MUD TEMP (degF)	RES M Q (ohm)	ACCEL Q
CAL	<u>19148</u>	<u>498.69</u>	<u>10.00</u>	<u>996.39</u>
	<small>18340 19940</small>	<small>491.00 505.40</small>	<small>8.00 14.00</small>	<small>980.00 1020.00</small>
ZERO	<u>-24112</u>	<u>-436.02</u>	<u>0.250</u>	<u>1001.392</u>
	<small>-24912 -23312</small>	<small>-443.80 -428.80</small>	<small>0.200 0.300</small>	<small>980.000 1020.000</small>

TTMA AFTER LOG VERIFICATION SUMMARY

TOOL #: 3980XA 10380720 DATE/TIME PERFORMED: Tue Feb 9 23:11:12 2010 DAYS SINCE CAL: 489

UNIT #: 3882TD HL6670

	CHT (lbf)	MUD TEMP (degF)	RES M Q (ohm)	ACCEL Q
CAL	<u>19131</u>	<u>499.08</u>	<u>10.00</u>	<u>1001.74</u>
	<small>18340 19940</small>	<small>491.00 505.40</small>	<small>8.00 14.00</small>	<small>980.00 1020.00</small>
ZERO	<u>-24112</u>	<u>-436.02</u>	<u>0.250</u>	<u>998.634</u>
	<small>-24912 -23312</small>	<small>-443.80 -428.80</small>	<small>0.200 0.300</small>	<small>980.000 1020.000</small>

GR PRIMARY CALIBRATION SUMMARY

Tool #: 3518XG 10081345 DATE/TIME PERFORMED: Mon Feb 8 15:29:59 2010

Unit #: 3882TD HL6670 Jig Series: 4702NK DA-321

Background	Calibrator ON	Jig Value	Mult	Background	Calibrator ON
		(gAPI)		(gAPI)	
<u>129.56</u>	<u>650.74</u>	<u>183</u>	<u>0.257</u>	<u>33.23</u>	<u>216.23</u>
			<small>0.250 0.260</small>		

GR BEFORE LOG VERIFICATION SUMMARY

TOOL #: 3518XG 10081345 DATE/TIME PERFORMED: Tue Feb 9 20:23:12 2010 DAYS SINCE CAL: 1

UNIT #: 3882TD HL6670 Jig: INTRNL N/A

Counts	TEMP (degF)	HV (V)
<u>976.67</u>	<u>53.80</u>	<u>1361.74</u>
<small>928.00 1027.00</small>	<small>530.00</small>	<small>1237.00 1512.00</small>

GR AFTER LOG VERIFICATION SUMMARY

TOOL #: 3518XG 10081345 DATE/TIME PERFORMED: Tue Feb 9 23:11:27 2010 DAYS SINCE CAL: 1

UNIT #: 3682TD HL6670 Jig: INTRNL N/A

Counts	TEMP (degF)	HV (V)
976.67	115.32	1363.22
929.00	1027.00	629.00
		1237.00
		1812.00

CN PRIMARY CALIBRATION SUMMARY

TOOL #: 2436XA 10124368 DATE/TIME PERFORMED: Mon Feb 8 15:57:04 2010

UNIT #: 3682TD HL6670 CALIBRATOR #: 2437XB 112674 SOURCE #: 4716XA ON-B97

SSN DT CPS	LSN DT CPS	SSN/LSN	MCF	CNRATIO	CN PU
4611.90	804.98	5.72937	1.00133	5.73700	25.241
			0.95000	1.05000	

CN BEFORE LOG VERIFICATION SUMMARY

TOOL #: 2436XA 10124368 DATE/TIME PERFORMED: Tue Feb 9 20:23:26 2010 DAYS SINCE CAL: 1

UNIT #: 3682TD HL6670 CALIBRATOR #: INTRNL N/A

SSN DT CPS	LSN DT CPS	SSN/LSN	TEMP (degF)	HV (V)	LV (V)
992.41	994.44	0.99797	52.1	1368.6	4.599
		0.85000	280.4	1450.0	4.300
				1450.0	5.000

CN AFTER LOG VERIFICATION SUMMARY

TOOL #: 2436XA 10124368 DATE/TIME PERFORMED: Tue Feb 9 23:11:36 2010 DAYS SINCE CAL: 1

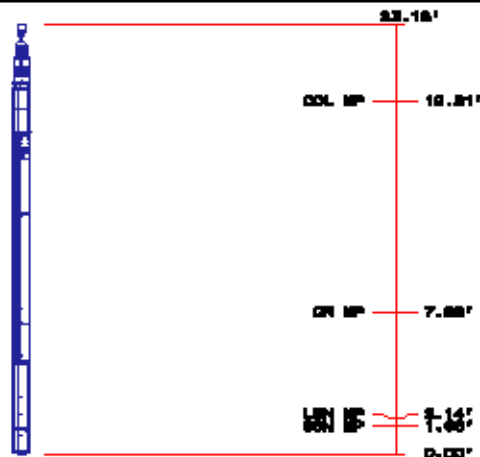
UNIT #: 3682TD HL6670 CALIBRATOR #: INTRNL N/A

SSN DT CPS	LSN DT CPS	SSN/LSN	TEMP (degF)	HV (V)	LV (V)
992.08	994.10	0.99797	125.0	1370.3	4.599
		0.85000	280.4	1450.0	4.300
				1450.0	5.000

INSTRUMENT CONFIGURATION

Source File: c:\dl\1823\14970\dslr-his

- FOUR ONE/HEAD**
 - Series : 001318
 - Manufacturer : OGI
 - Diameter : 3.15"
 - COLLAR LOCATOR**
 - Series : 22940A
 - Manufacturer : OGI
 - FOUR TEN/TWO/HEAD TWO/HEAD**
 - Series : 22940A
 - Manufacturer : ITG
 - Diameter : 2.12"
 - Weight : 61 lbs
 - FOUR TWO/TELEMETRY CAMERA BODY**
 - Series : 221000
 - Manufacturer : OGI
 - Diameter : 2.12"
 - Weight : 28 lbs
 - Measure Points: 2.75' LSH MP
 - FOUR ONE/COMPACTED MEDIUM**
 - Series : 22940A
 - Manufacturer : OGI
 - Diameter : 2.12"
 - Weight : 28 lbs
 - Measure Points: 1.92' LSH MP
- WELL HEAD 3 1/2"**
- TOTAL LENGTH: 33.16'
 TOTAL WEIGHT: 271.3 lbs
 MAX DIAMETER: 3.15"



COMPANY
WELL
FIELD
COUNTY

MARATHON OIL COMPANY
596-29C-25
GRAND VALLEY
BARFIELD

FILE NO:
1823
API NO:

Baker Atlas



COUNTY <u>GARFIELD</u>	STATE <u>COLORADO</u>	<u>05045180950000</u>
LOCATION: SHL: 1765' FSL & 1448' FWL	ELEVATIONS: KB <u>8204 FT</u> DF <u>8203 FT</u> GL <u>8180 FT</u>	PAD: <u>697-29C</u>
SEC <u>28</u> TWP <u>55</u> RGE <u>96W</u>	DATE <u>08-Feb-2010</u>	