



FILE NO: \_\_\_\_\_  
 COMPANY: **CHESAPEAKE APPALCHIA, LLC.**  
 WELL: **JAMES MESSENGER WTZ 3H U**  
 FIELD: **WETZEL**  
 COUNTY: **WETZEL** STATE: **WEST VIRGINIA**

Ver. 3.87  
 SCALE: 5"/100'  
 LOCATION: STATE TOWNSHIP: PROCTOR  
 QUAD: WILEYVILLE  
 LAT 39.673693 N LONG 80.690861 W

PERMANENT DATUM: GL ELEVATION 1495 FT  
 LOG MEASURED FROM: KB 22 FT ABOVE P.D.  
 DRILL. MEAS. FROM: KB

OTHER SERVICES: XMAC/GR/CAL DSL  
 ELEVATIONS: KB 1517 FT, DF 1517 FT, GL 1495 FT

DATE	02-MAY-2014
RUN	3
TRIP	1
SERVICE ORDER	US086078J
DEPTH DRILLER	8951 FT
DEPTH LOGGER	8950 FT
BOTTOM LOGGED INTERVAL	8878 FT
TOP LOGGED INTERVAL	2944 FT
CASING DRILLER	10.75 IN @ 2946 FT
CASING LOGGER	2944 FT
BIT SIZE	9.875 IN
TYPE OF FLUID IN HOLE	KCL 3%
DENSITY	10.3 LBG
VISCOSITY	42 S
PH	10
FLUID LOSS	-
SOURCE OF SAMPLE	TOOL MEASURED
RM AT MEAS. TEMP.	0.039 OHMM @ 75 DEGF
RMC AT MEAS. TEMP.	0.030 OHMM @ 75 DEGF
RMC AT MEAS. TEMP.	0.053 OHMM @ 75 DEGF
SOURCE OF RMC	CALC @
RM AT BHT	0.019 OHMM @ 161.3 DEGF
TIME SINCE CIRCULATION	8 HRS
MAX. RECORDED TEMP.	162.6 DEGF
EQUIP. NO.	4290
LOCATION	CANTON, OH
RECORDED BY	S. PATEL
WITNESSED BY	NICK DOWNS

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.

BIT SIZE	FROM	TO
26 IN	0 FT	130 FT
22 IN	130 FT	822 FT
14.75 IN	806 FT	2953 FT
9.875 IN	2953 FT	8951 FT

SIZE	WEIGHT	GRADE	FROM	TO
24 IN	-	-	0 FT	130 FT
16 IN	-	-	0 FT	806 FT
10.75 IN	-	-	0 FT	2946 FT
7.625 IN	-	-	0 FT	-

**REMARKS**

RUN 3 TRIP 1: CREW: S. PATEL, R. BARNETT, T. WRIGHT  
 RIG: NOMAC 337

OPERATION 1: DSL-CN-ZDL-RTEX-ORIT-XMAC RAN IN COMBINATION

DENSITY POROSITY (PORZ) = 2.71 G/CC  
 NEUTRON POROSITY (CNC) = LIMESTONE MATRIX  
 COMPENSATED NEUTRON (CNC) IS CALIPER CORRECTED  
 DENSITY CURVE (ZDEN)

(CAL) = SINGLE AXIS CALIPER FROM DENSITY TOOL  
 (CVOL) CEMENT VOLUME CALCULATED FOR 7.625" CASING  
 (BVOL) = TOTAL BOREHOLE VOLUME FROM CALIPER

COMPENSATED NEUTRON RAN DECENTRALIZED  
 RESISTIVITY CURVES BOREHOLE CORRECTED USING CALIPER  
 XMAC AND RTEX RAN CENTRALIZED

FLUID LEVEL: SURFACE  
 CHLORIDES: 171,000 PPM

ADDITIONAL CUSTOMER COMMENTS:  
 BOREHOLE RUGOSITY AND WASHOUTS WILL EFFECT POROSITY AND SONIC DATA.

### EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
3	1	DHPA	4430XA	370977	FREE
3	1	TTRM	3981XA	183784	FREE
3	1	COM REMOTE	3514XA	173204	FREE
3	1	GR	1329XA	185486	FREE
3	1	CN	2446XA	179999	DECENTRALIZED
3	1	ISO	4485XA	11885356	DECENTRALIZED
3	1	ZDL	2234XA	Z370835	CALIPER / PAD-DEVICE
3	1	KNUCKLE	3939XA	10269798	FREE
3	1	RTEX	1241XA	10599960	CENTRALIZED
3	1	ORIT	4401XA	10363657	FREE
3	1	ISO	4485XA	10579508	FREE
3	1	XMAC ELEC	1677EA	Z166423	CENTRALIZED
3	1	XMAC REC	1678MC	10038648	CENTRALIZED
3	1	XMAC ISO	1678PB	10193786	FREE
3	1	XMAC TRANS	1678BA	10299609	CENTRALIZED
3	1	XMAC ELEC	1678FA	10299639	CENTRALIZED

## MAIN LOG 5"/100FT SCALE

ECLIPS 6.2i ECLIPS General Release Rel 6.2i Wed Jun 12 12:21:40 CDT 2013

Patches: 5

Plotted: Thu May 1 19:49:23 2014

### PARAMETER AND FILTER SUMMARY REPORT

File: /dat1a/CHESAPEAKE/JAMES MESSENGER\_WTZ\_3H\_R3/QUADSLAM\_RTEX02.prm  
 LOGGING MODE: DEPTH DIRECTION: UP  
 TOP DEPTH: 2825.000 ft BOTTOM DEPTH: 8953.250 ft

#### SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
TTRM	FILTER ()	medium (1)		TOP	BOTTOM
	FILTER (.h)	medium (1)		"	"
	FILTER (.i)	medium (1)		"	"
Y AXIS CALIPER	FILTER ()	medium (1)		"	"
TENSION	FILTER ()	medium (1)		"	"
GR	FILTER ()	medium (1)		"	"
CN	FILTER ()	medium (1)		"	"
CALIPER	FILTER ()	medium (1)		"	"
	FILTER (.h)	medium (1)		"	"
	FILTER (.i)	medium (1)		"	"
ZDL MED RES	FILTER (hrd1*)	medium		"	"
	FILTER (hrd1s*)	medium		"	"
	FILTER (hrd2*)	medium		"	"
	FILTER (hrd2s*)	medium		"	"
	FILTER (soft*)	medium		"	"
RTeX	FILTER ()	light (2a)		"	"

### BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
CASING - BOREHOLE & CEMENT VOLUME	CASING O.D.	7.625	in	TOP	BOTTOM
	CASING THICKNESS	0.000	in	"	"
BIT SIZE	BIT SIZE	9.875	in	"	"
MUD SAMPLE RESISTIVITY	MUD SAMPLE TEMP	77.0	degF	"	"
	MUD SAMPLE RES	1.000	ohm.m	"	"
BOREHOLE TEMP from GRADIENT	Known BH REF TEMP	77.0	degF	"	"
	at BH REF DEPTH	0.0	ft	"	"
	with TEMP GRADIENT	1.050	0.01 degF/ft	"	"
BOREHOLE CORR DIAMETER SOURCE	CALIPER/FIXED DIA. (cnbh*)	USE CALIPER		"	"
	CALIPER/FIXED DIA. (slbh*)	USE CALIPER		"	"
BOREHOLE CORR DIAMETER	FIXED DIAMETER (cnbh*)	9.875	in	"	"
	FIXED DIAMETER (slbh*)	9.875	in	"	"
BH MUD RESISTIVITY SOURCE	RMUD SOURCE	TOOL MEASURED		"	"

### CN PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
2446 CN MATRIX	2446 MATRIX	LIMESTONE		TOP	BOTTOM
CN SALINITY CORRECTION	SALINITY	171000	ppm	"	"
CN TOOL STANDOFF	ENABLE STANDOFF CORR	OFF		"	"
	STANDOFF AMOUNT	0.00	in	"	"
CN CASING & CEMENT CORRECTION	CORRECTION	OFF		"	"
	BIT SIZE BEHIND CSNG	10.750	in	"	"

### ZDL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
DENSITY POROSITY	RHOmatrix	2.710	g/cm3	TOP	BOTTOM
	RHOfluid	1.000	g/cm3	"	"
ZDL	DENX TRACKING	ON		"	"

### RTeX PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
RTeX ADAPTIVE BOREHOLE CORRECTION	BOREHOLE CORRECTION	ON		TOP	BOTTOM
	Rxo Source	RTEX ESTIMATE		"	"

### CURVE DESCRIPTION REPORT

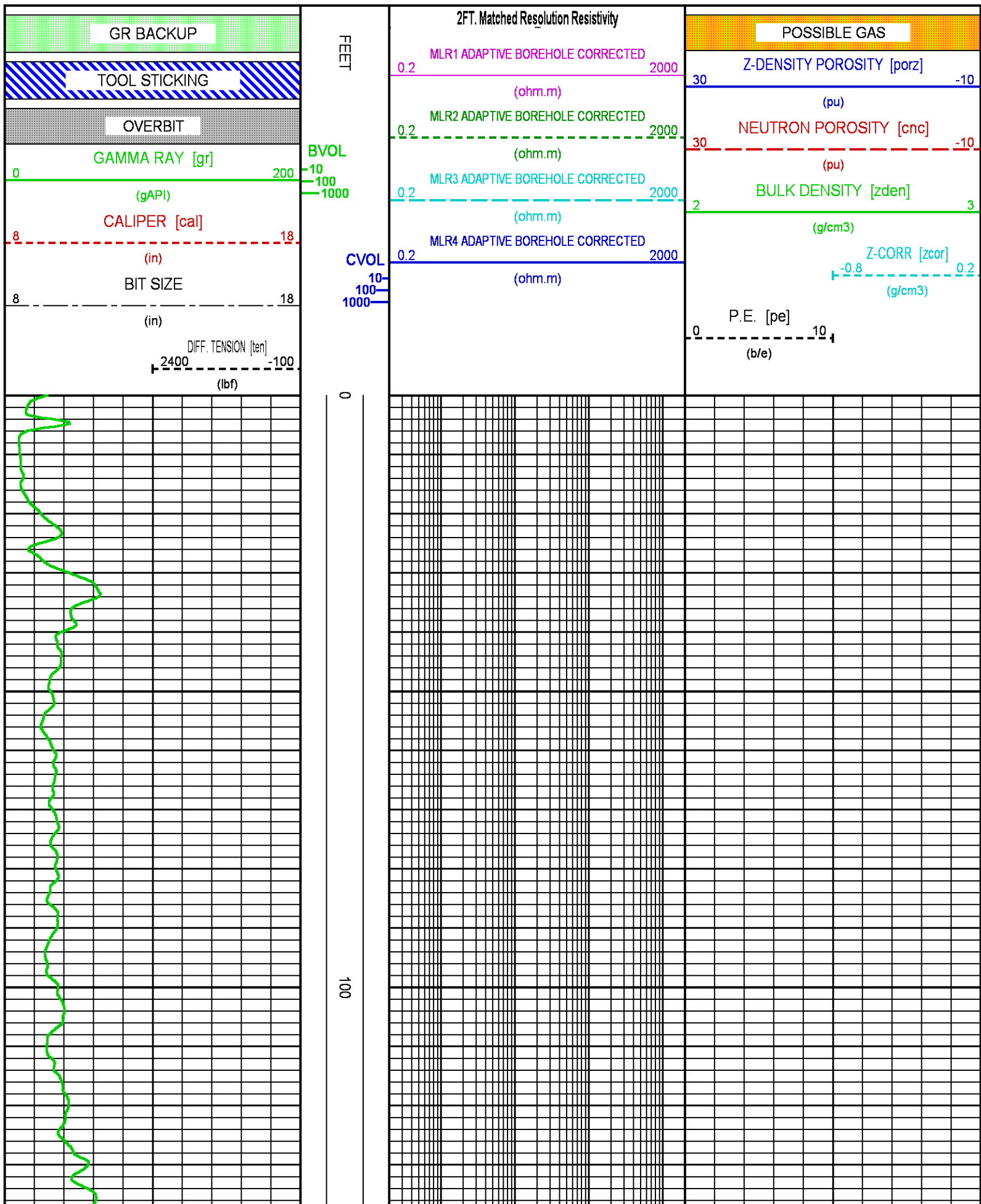
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:BIT	May 1 15:20:46 2014	BIT SIZE
F1:BVOL	May 1 15:20:46 2014	BOREHOLE VOLUME
F1:CAL	May 1 15:20:46 2014	CALIPER
F1:CNC	May 1 15:20:46 2014	BOREHOLE SIZE CORRECTED COMPENSATED NEUTRON POROSITY
F1:CVOL	May 1 15:20:46 2014	CEMENT VOLUME
F1:GR	May 1 15:20:46 2014	GAMMA RAY
F1:MLR1C	May 1 15:20:46 2014	RTEX SHALLOW RESISTIVITY 1, ADAPTIVE BOREHOLE CORRECTION
F1:MLR2C	May 1 15:20:46 2014	RTEX SHALLOW RESISTIVITY 2, ADAPTIVE BOREHOLE CORRECTION
F1:MLR3C	May 1 15:20:46 2014	RTEX MEDIUM RESISTIVITY 3, ADAPTIVE BOREHOLE CORRECTION
F1:MLR4C	May 1 15:20:46 2014	RTEX DEEP RESISTIVITY 4, ADAPTIVE BOREHOLE CORRECTION
F1:PE	May 1 15:20:46 2014	PHOTO ELECTRIC CROSS-SECTION
F1:PORZ	May 1 15:20:46 2014	POROSITY FOR SELECTABLE MATRIX
F1:TEN	May 1 15:20:46 2014	DIFFERENTIAL TENSION
F1:ZCOR	May 1 15:20:46 2014	DENSITY CORRECTION
F1:ZDEN	May 1 15:20:46 2014	FORMATION BULK DENSITY

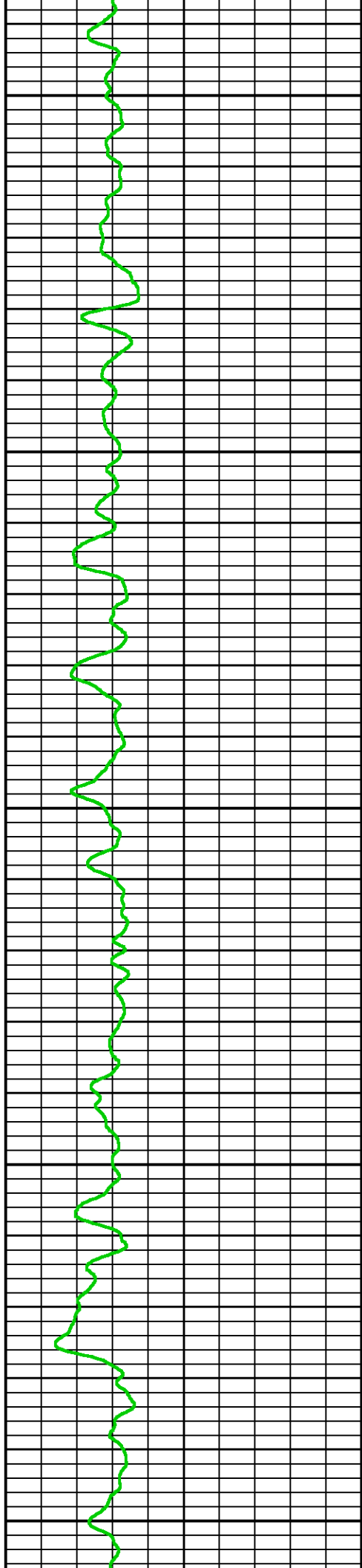
### CURVE MEASURE POINT OFFSET

CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
BIT	0.00	MLR1C	55.75	PE	72.25	ZDEN	72.25
CAL	73.00	MLR2C	55.75	PORZ	72.25		
CNC	85.38	MLR3C	55.75	TEN	0.00		
GR	92.25	MLR4C	55.75	ZCOR	72.25		

<b>Presentation</b>	: sys1:/dat1a/CHESAPEAKE/JAMES_MESSENGER_WTZ_3H_R3/TC_MN.fvpdf [5"/100' Scale]
<b>Plot Interval</b>	: 0 - 8960.25 Feet
<b>Data File 1</b>	: F1 : sys1:/dat1a/CHESAPEAKE/JAMES_MESSENGER_WTZ_3H_R3/QUADSLAM_RTEX02.xtf
<b>Created On</b>	: May 1 15:20:46 2014

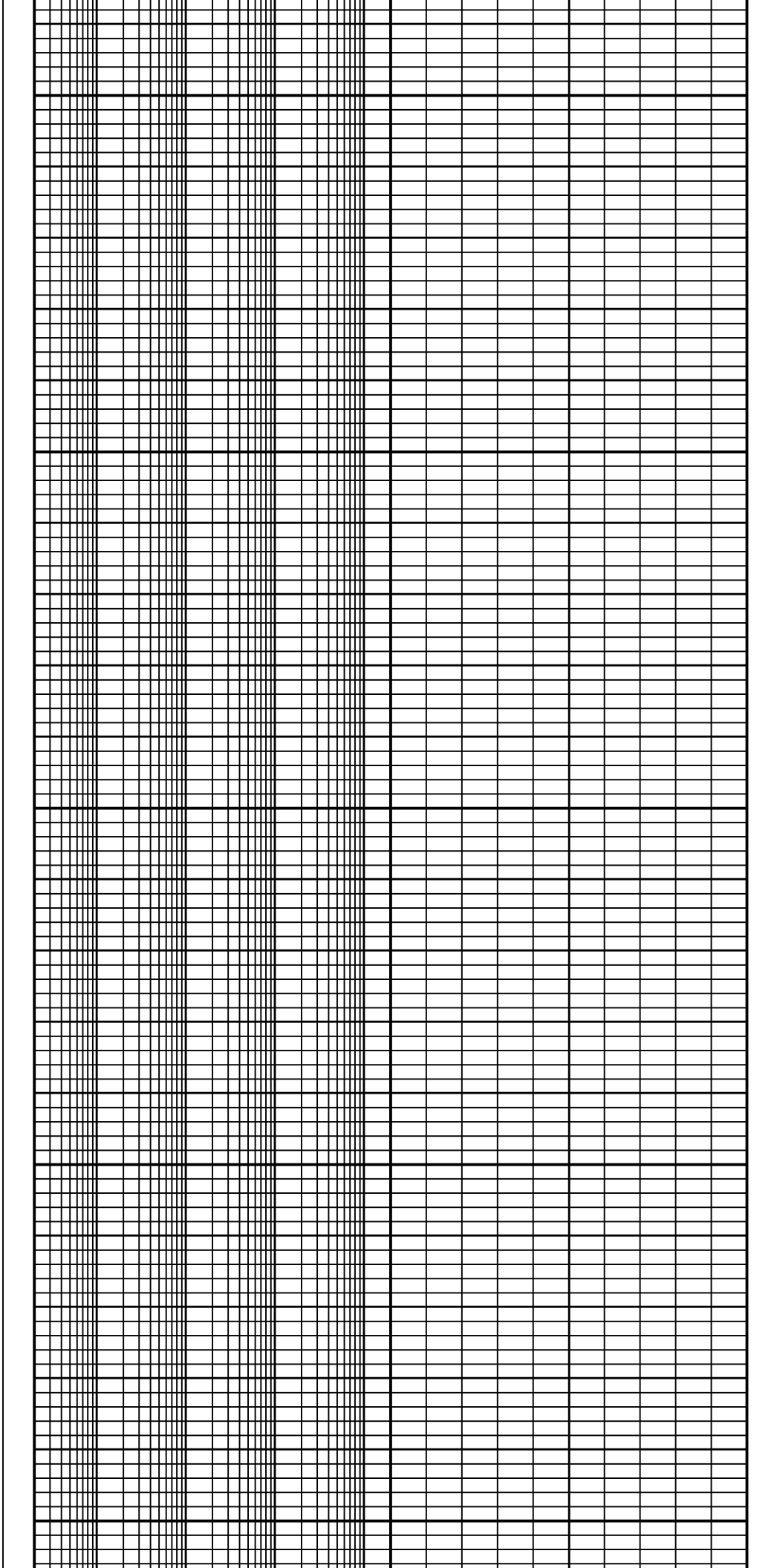
Company : Chesapeake Appalachia LLC  
 Well : JAMES MESSENGER 3H  
 Field : WETZEL  
 File Interval : -32.25 - 8960.25 Feet  
 OCT : QUADSLAM

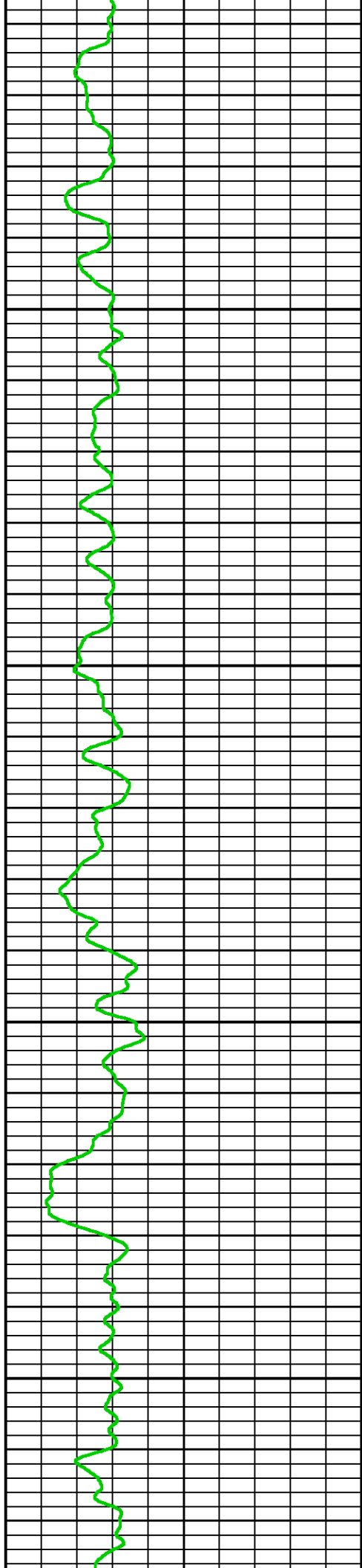




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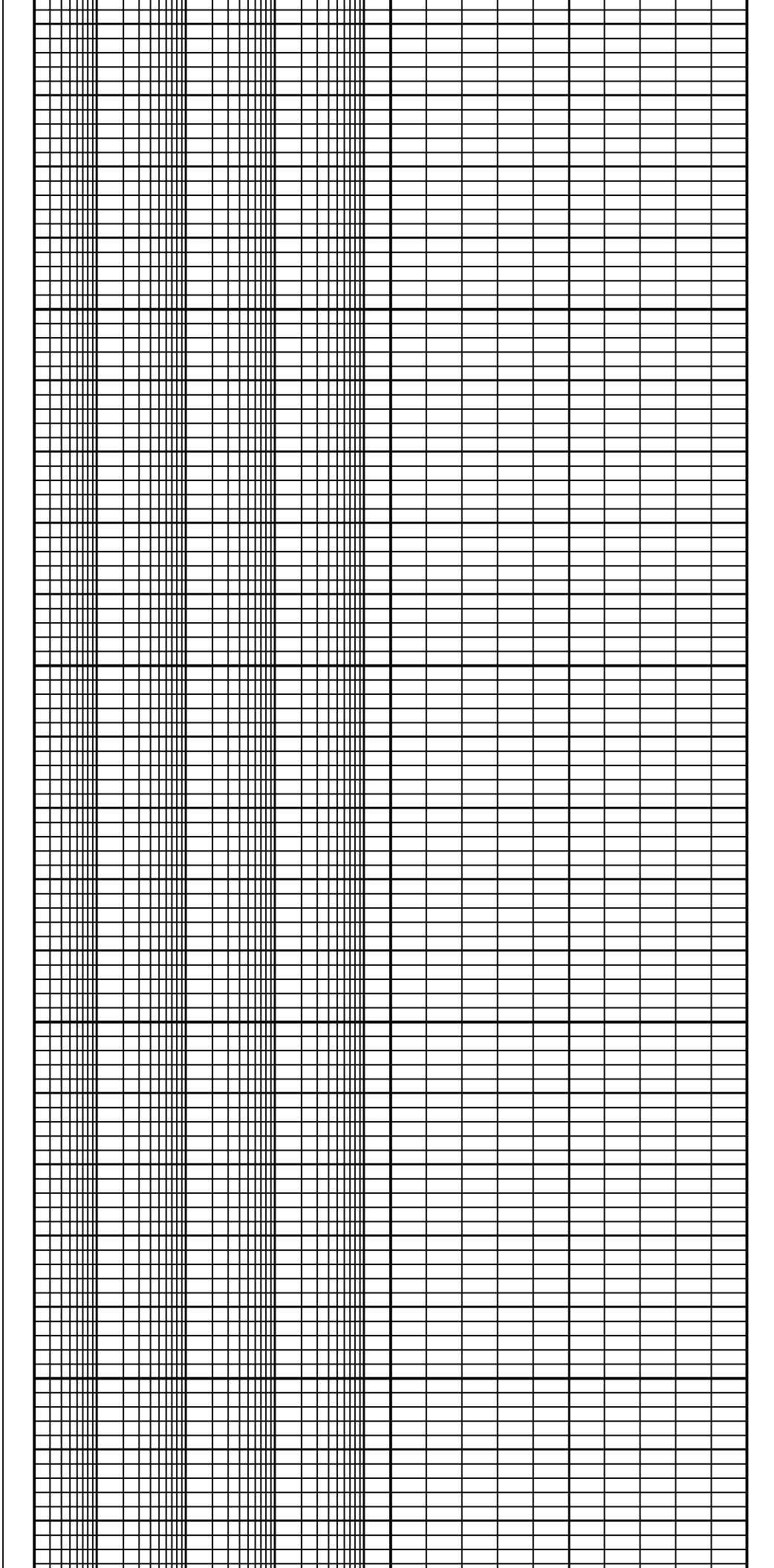
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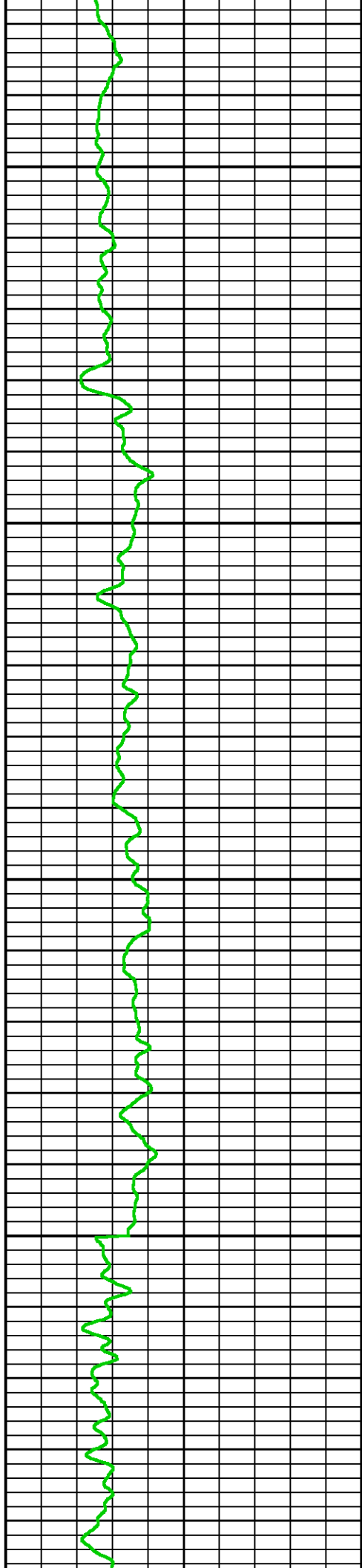




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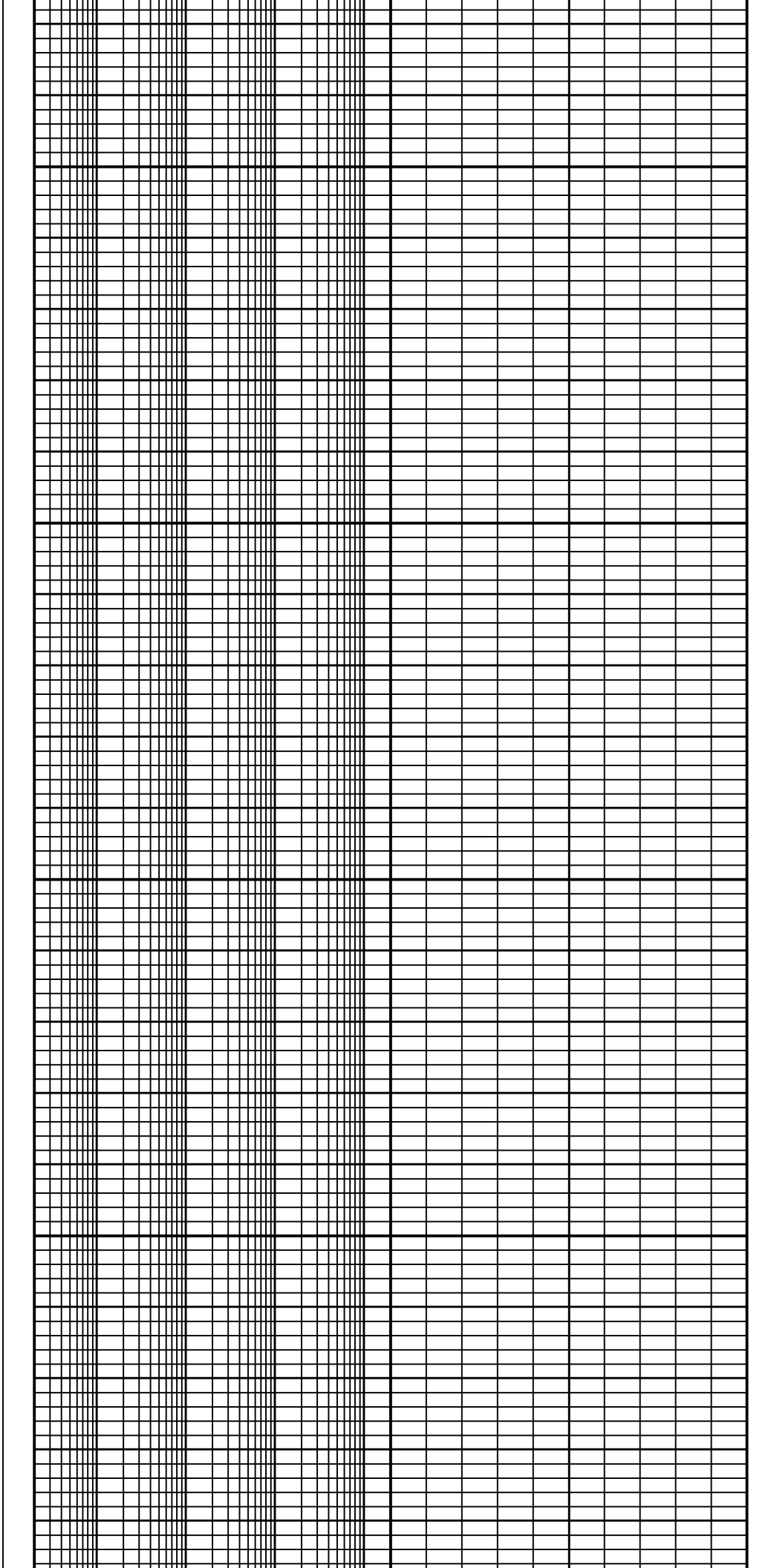
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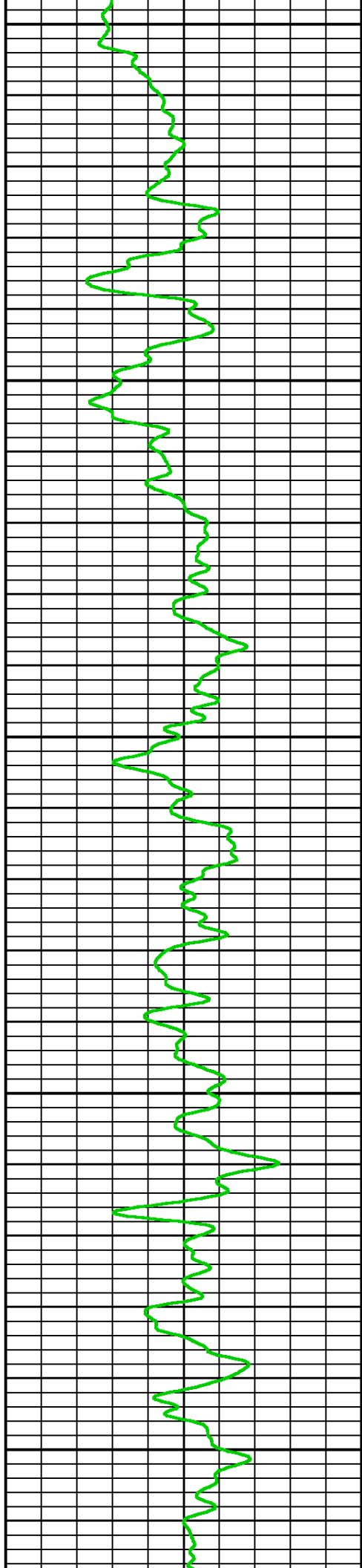




600

700

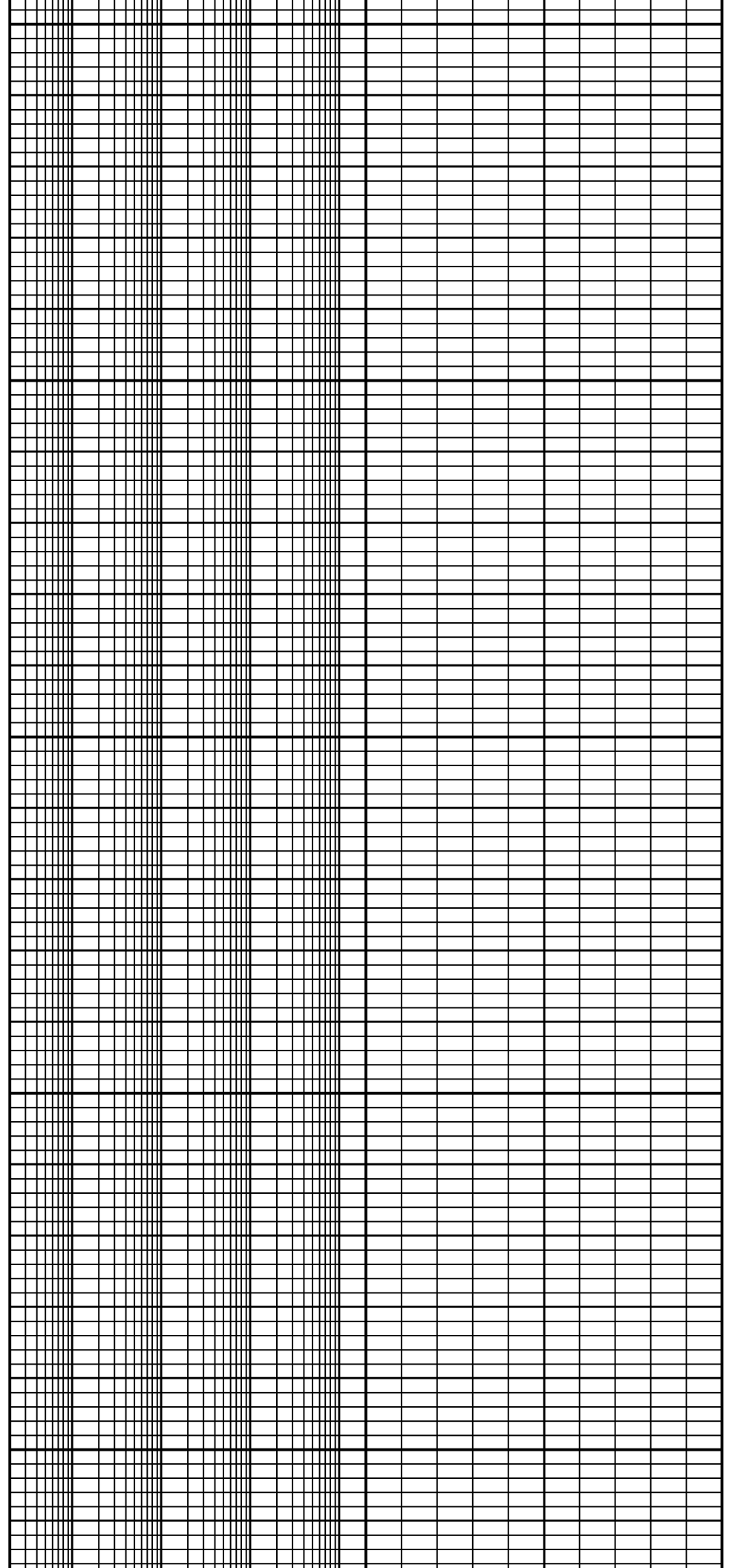




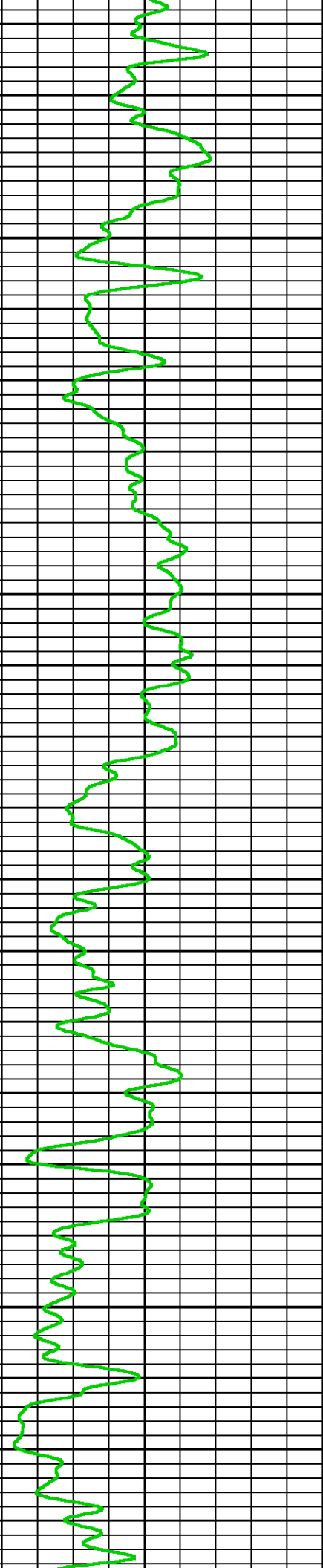
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900

1000





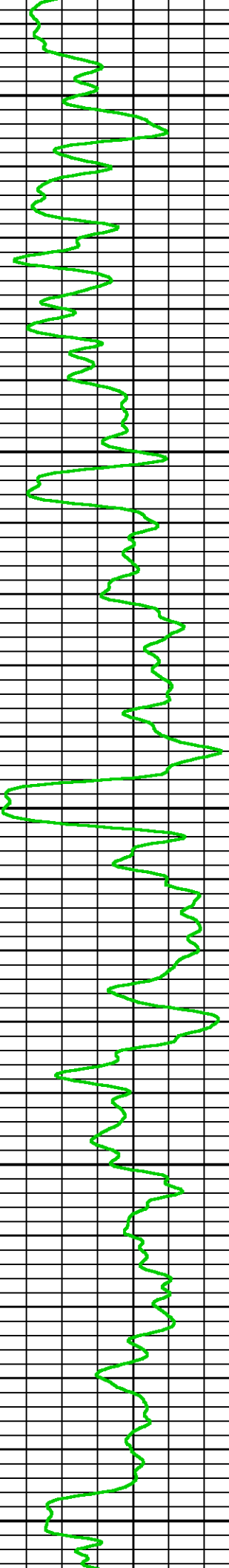


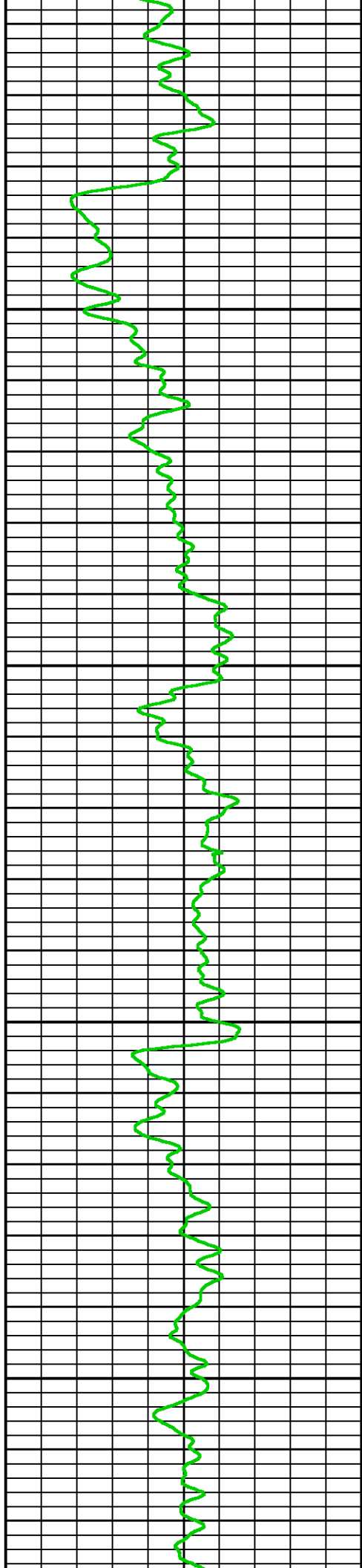
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1200

1300

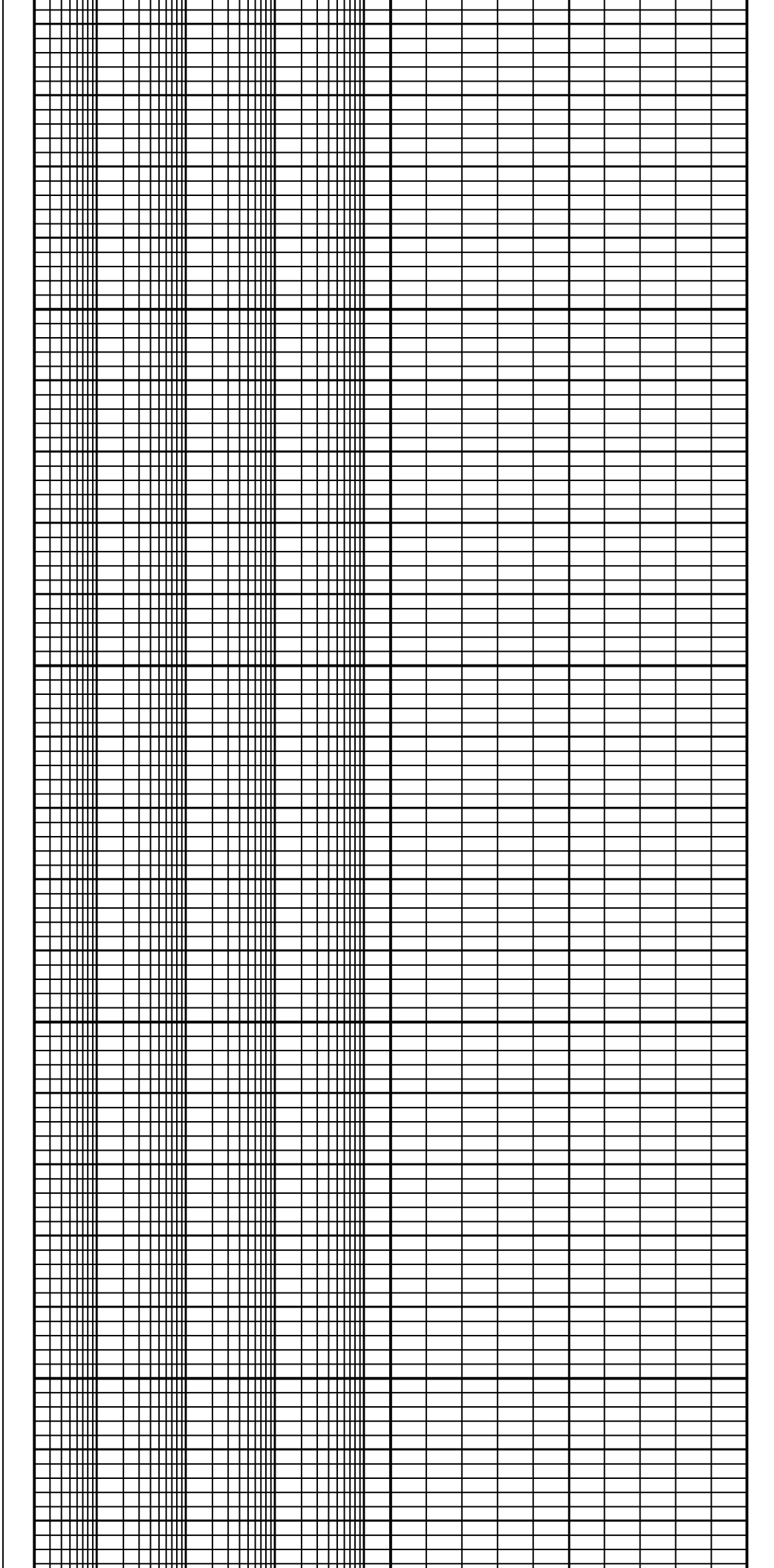
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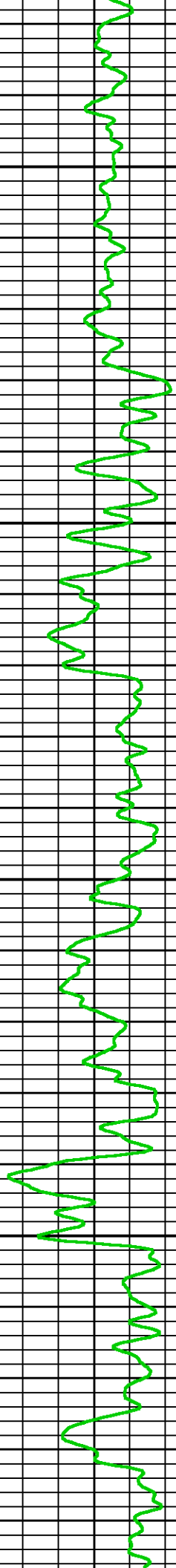




1500

1600





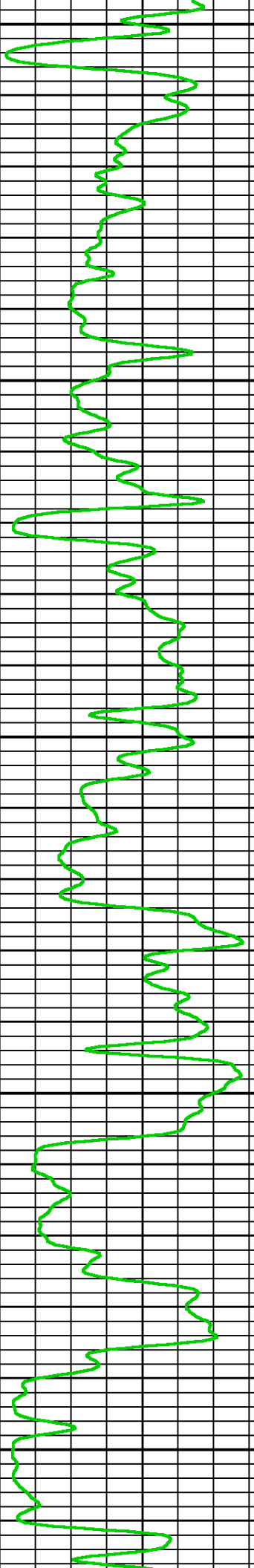
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1800

1900

2000

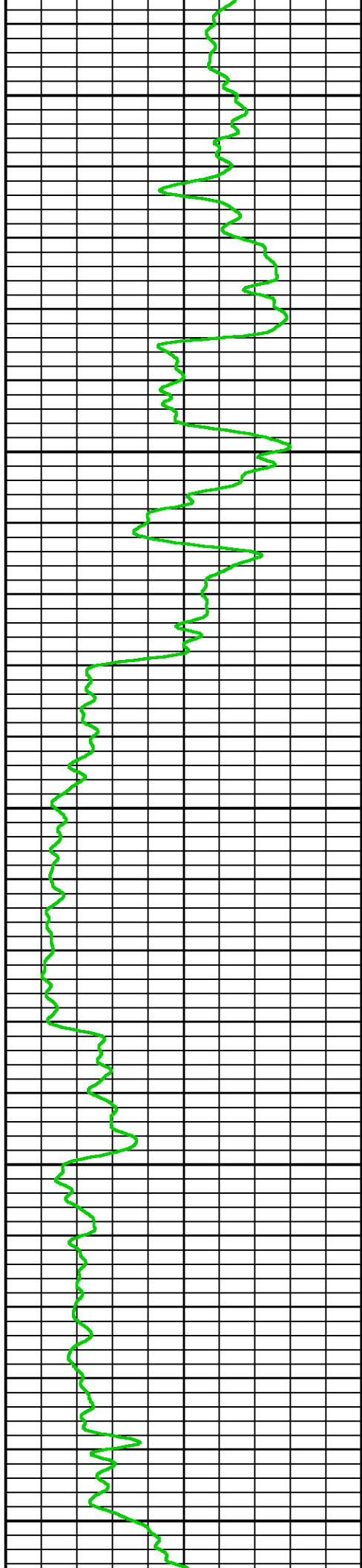
2100



2200

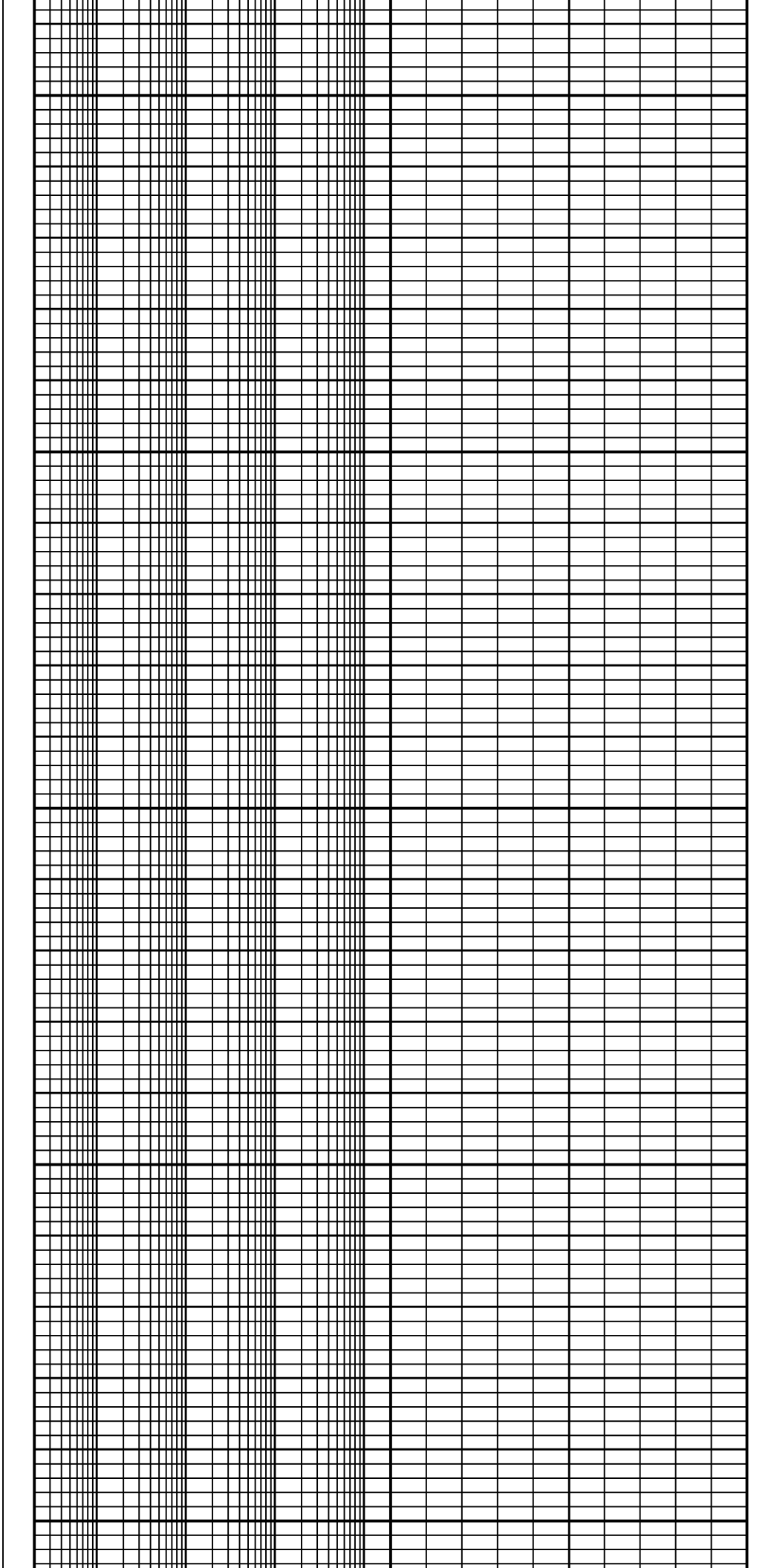
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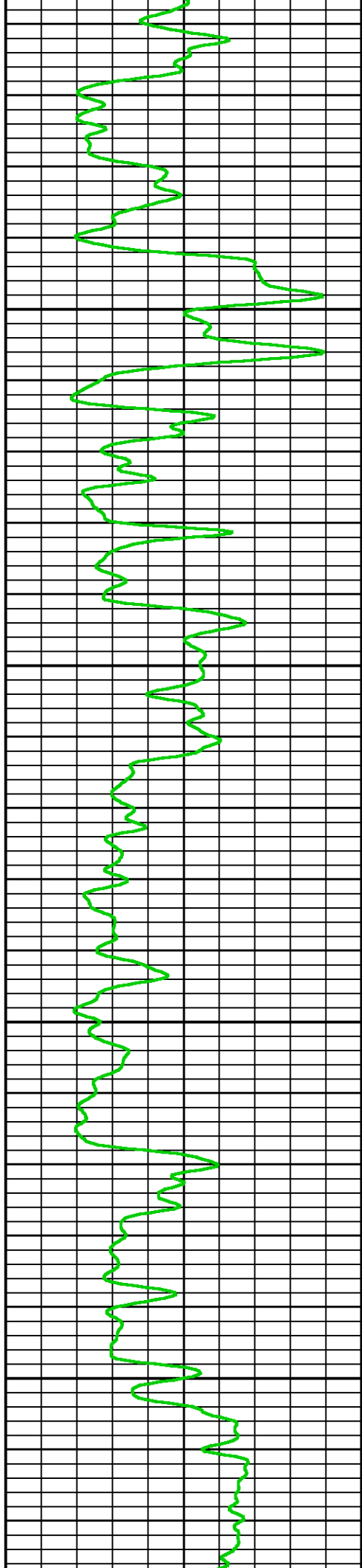




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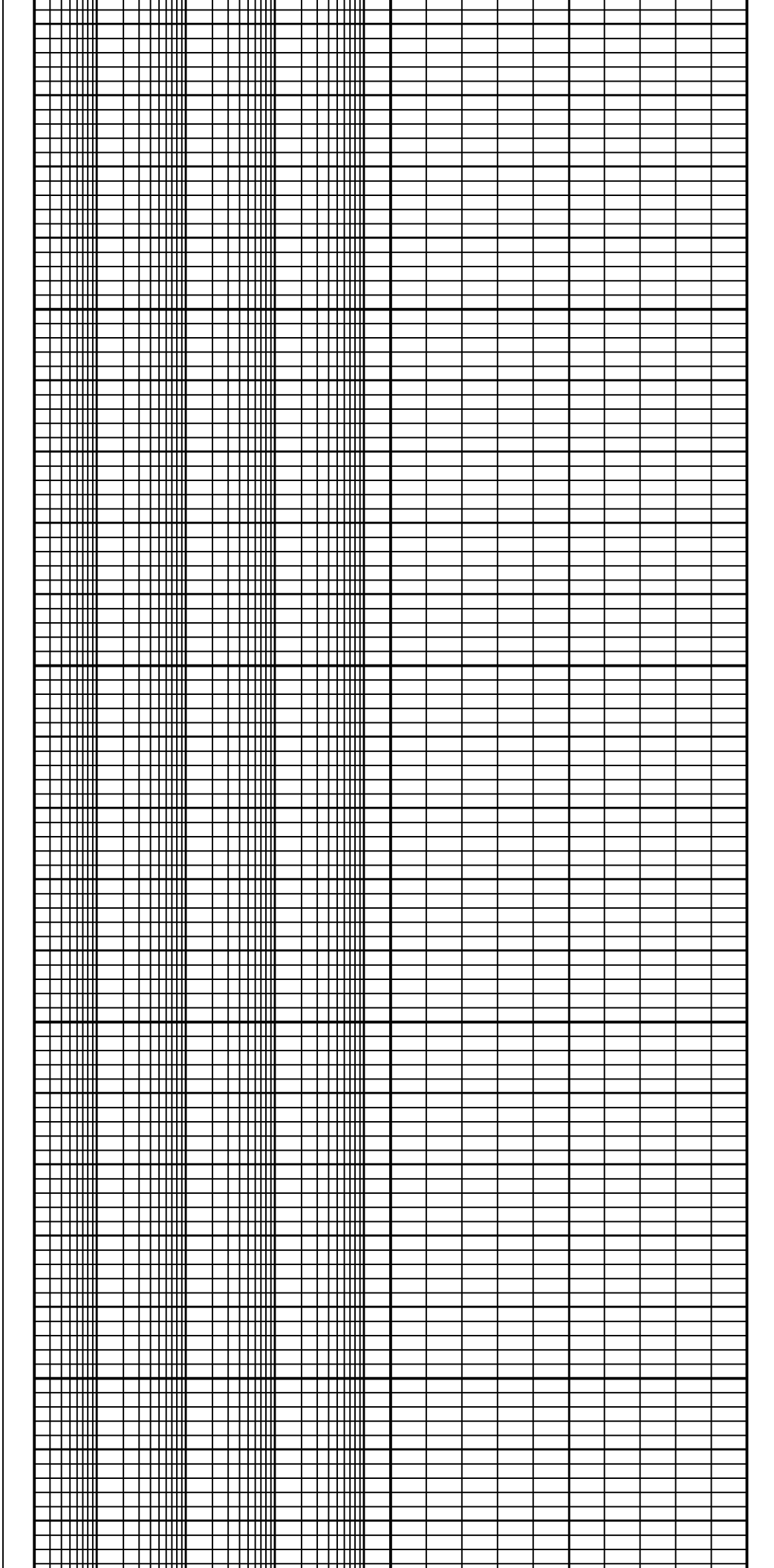
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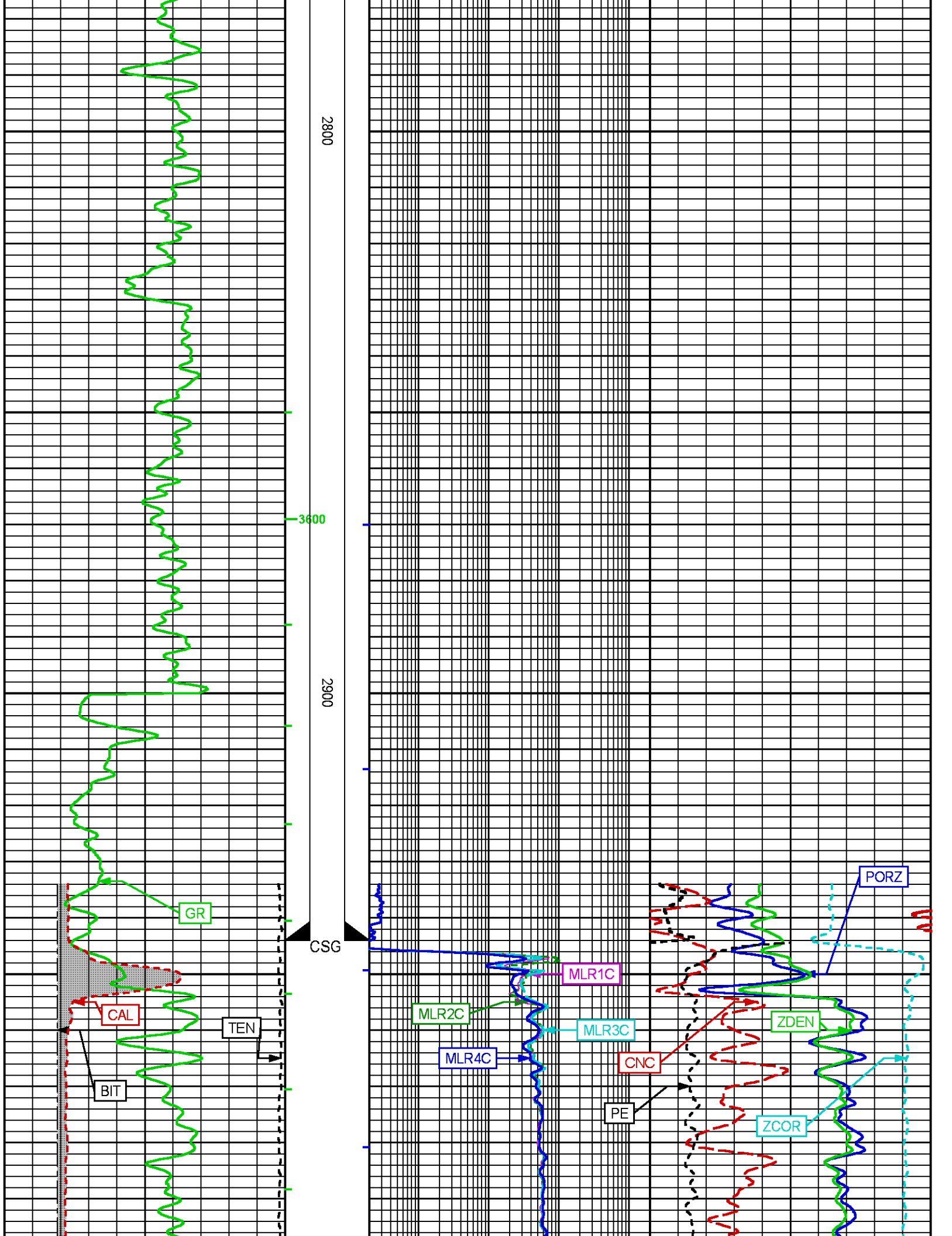


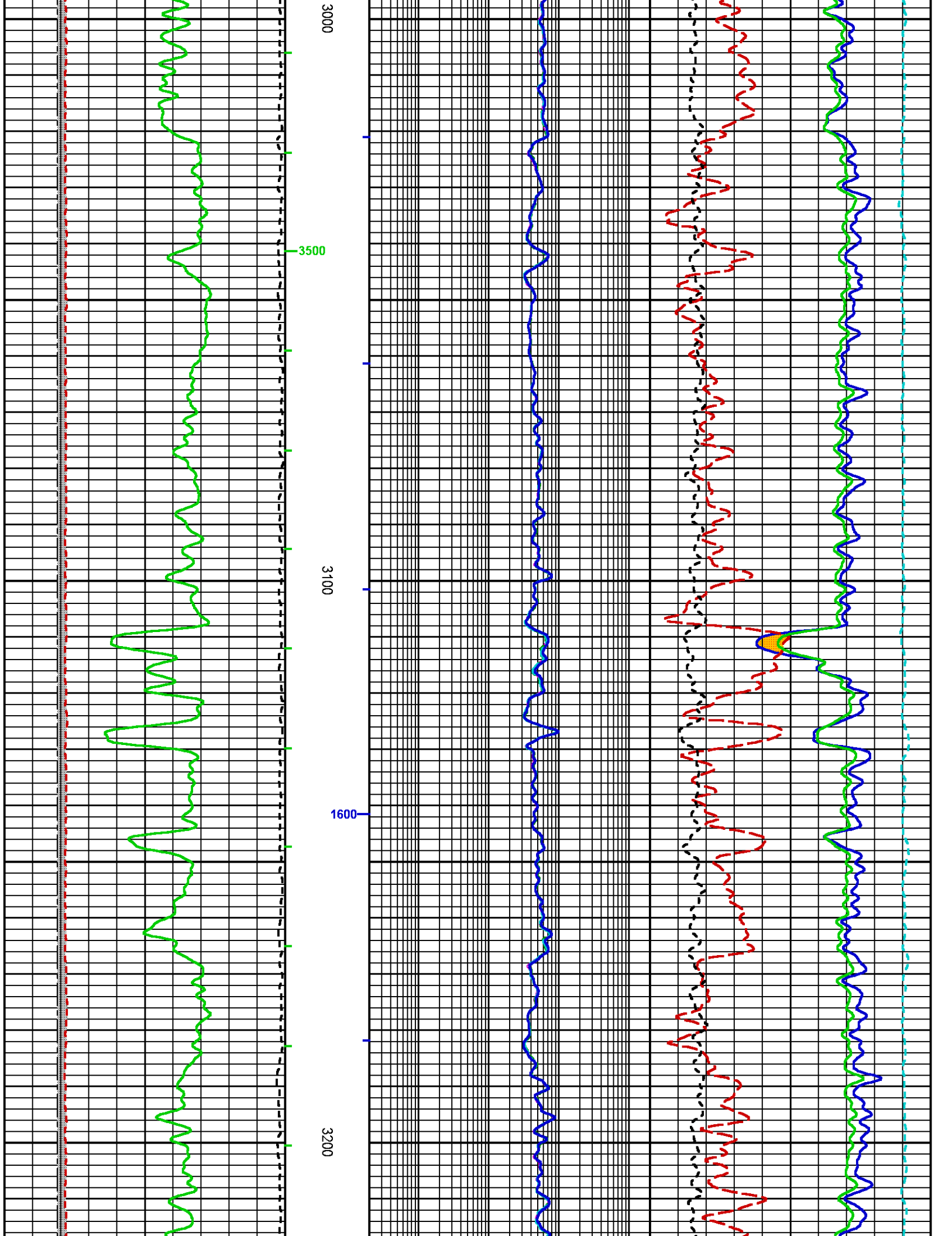
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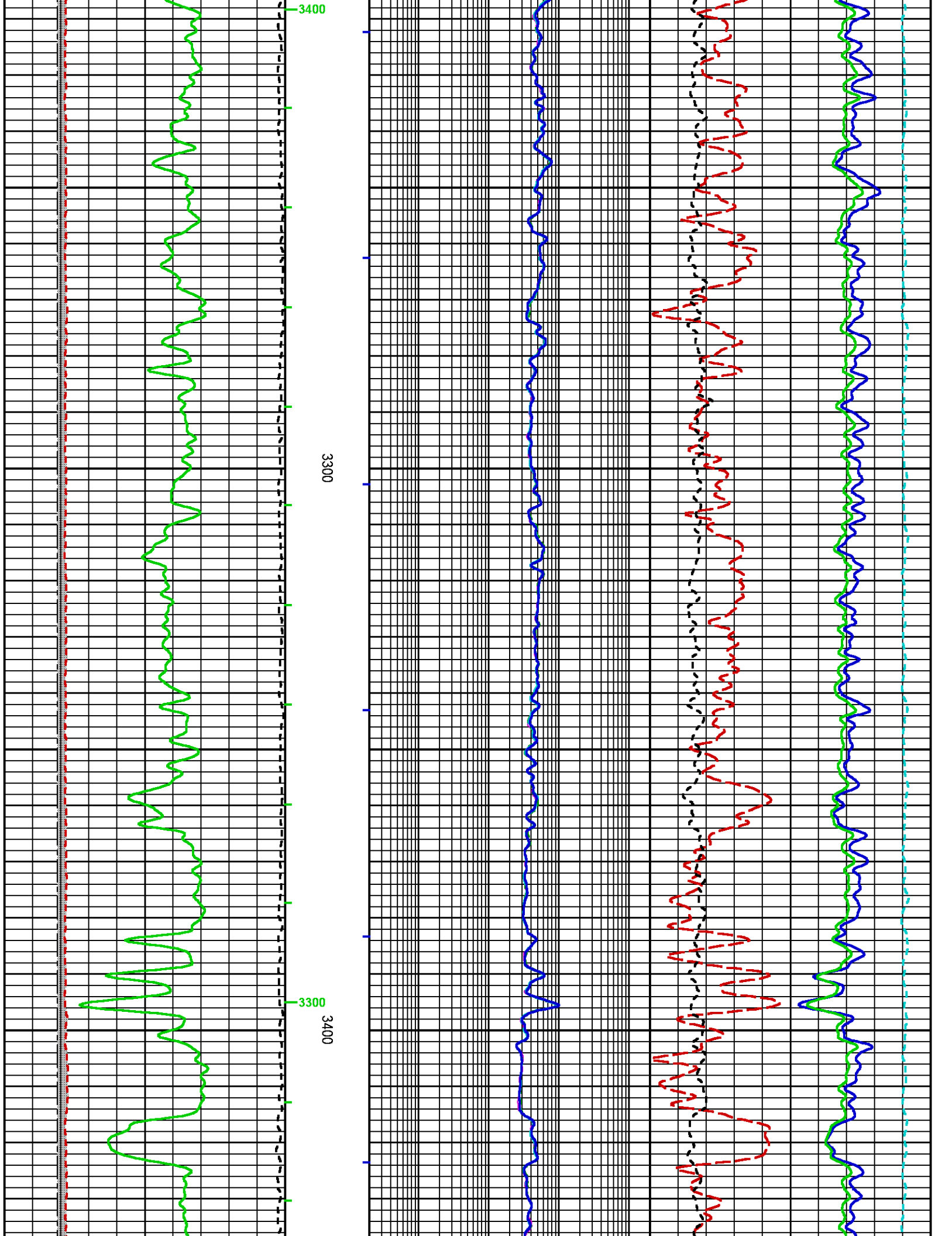
2700

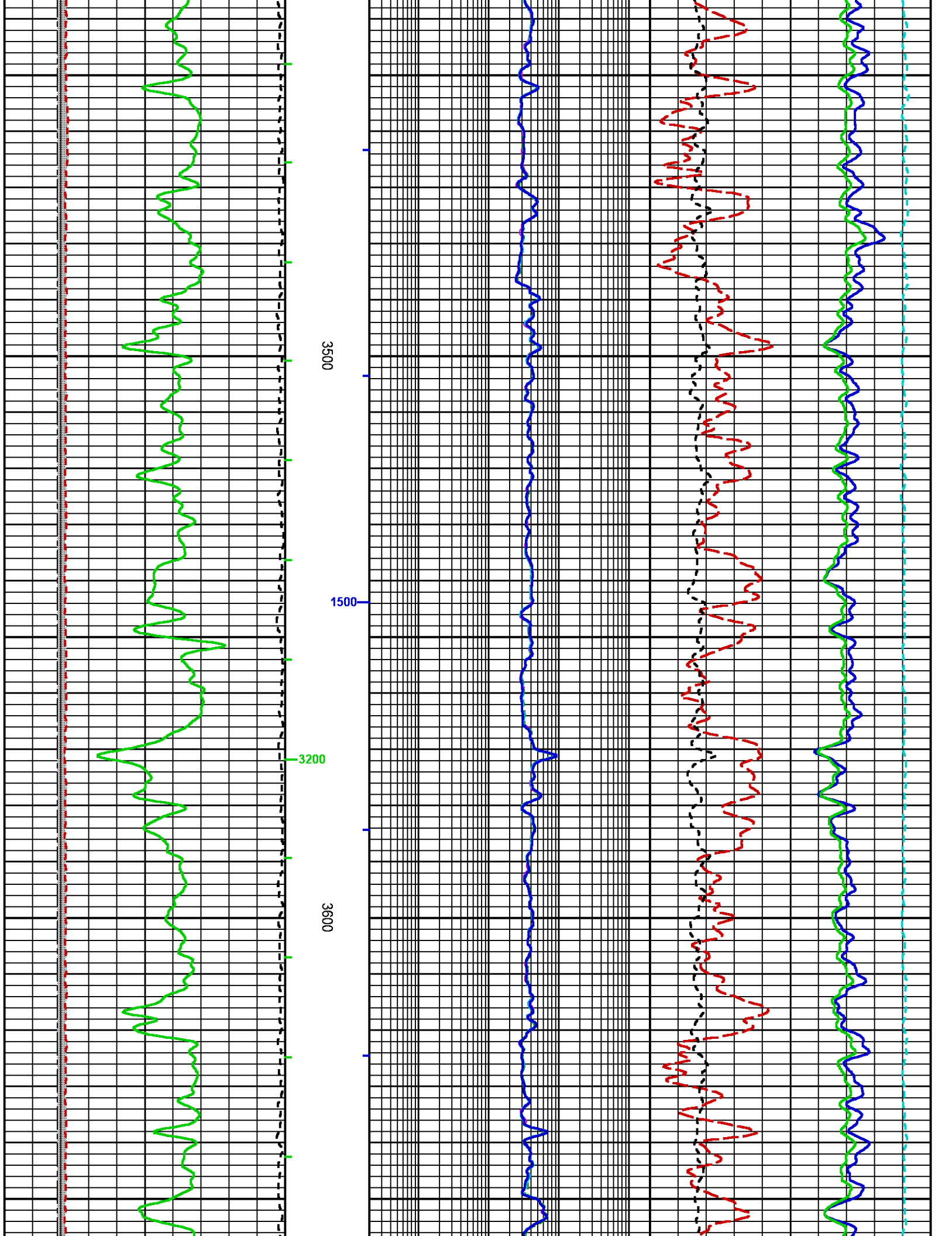


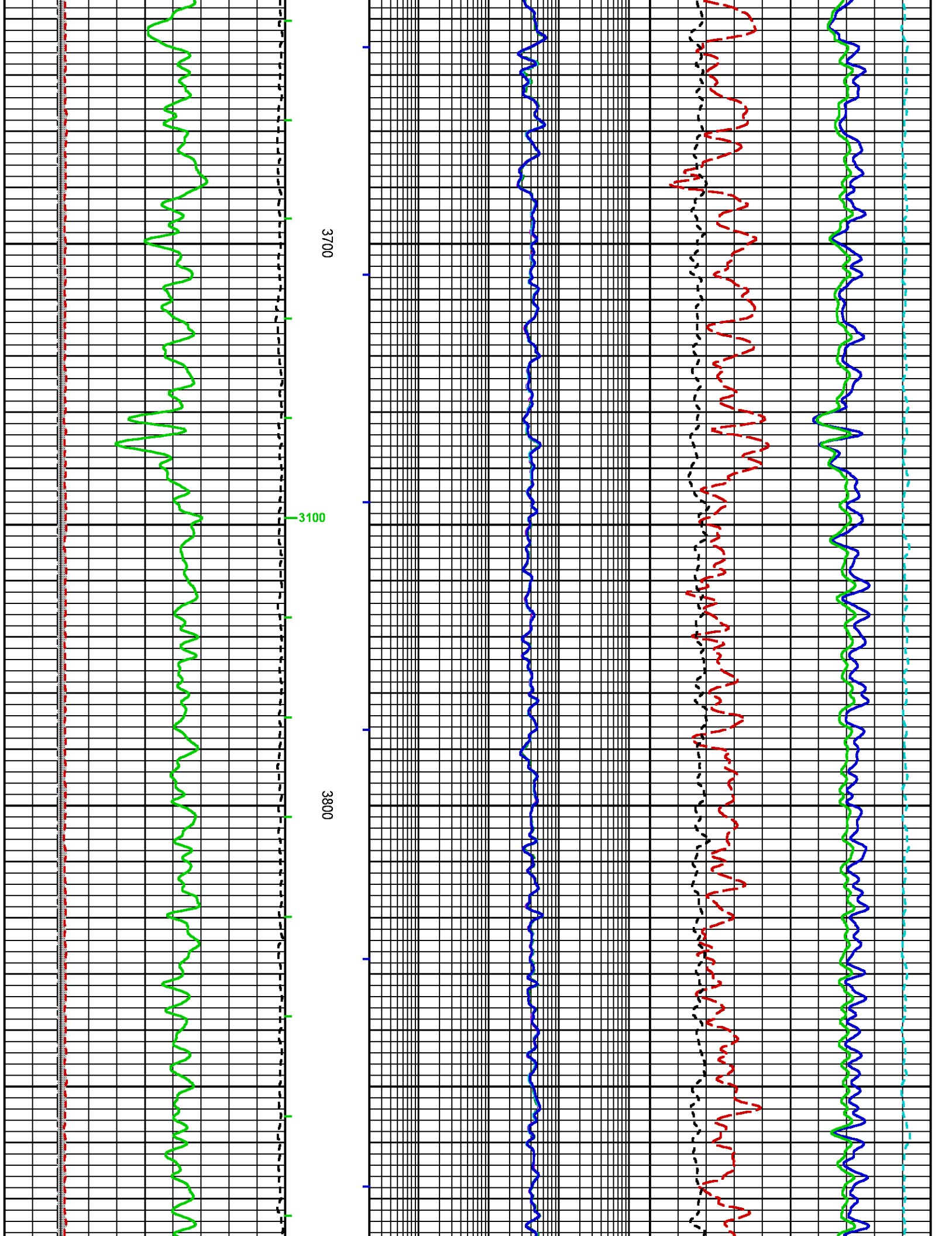


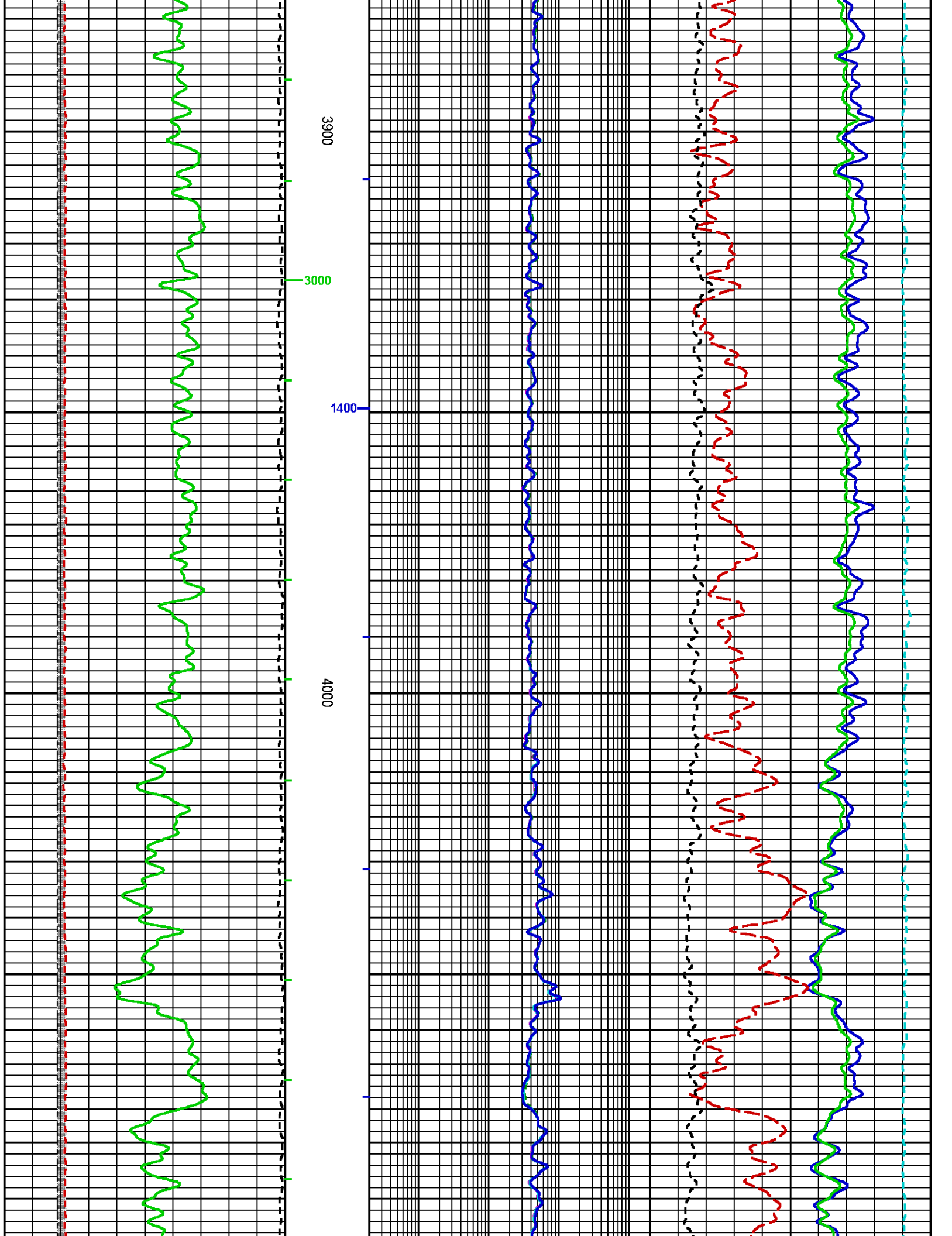


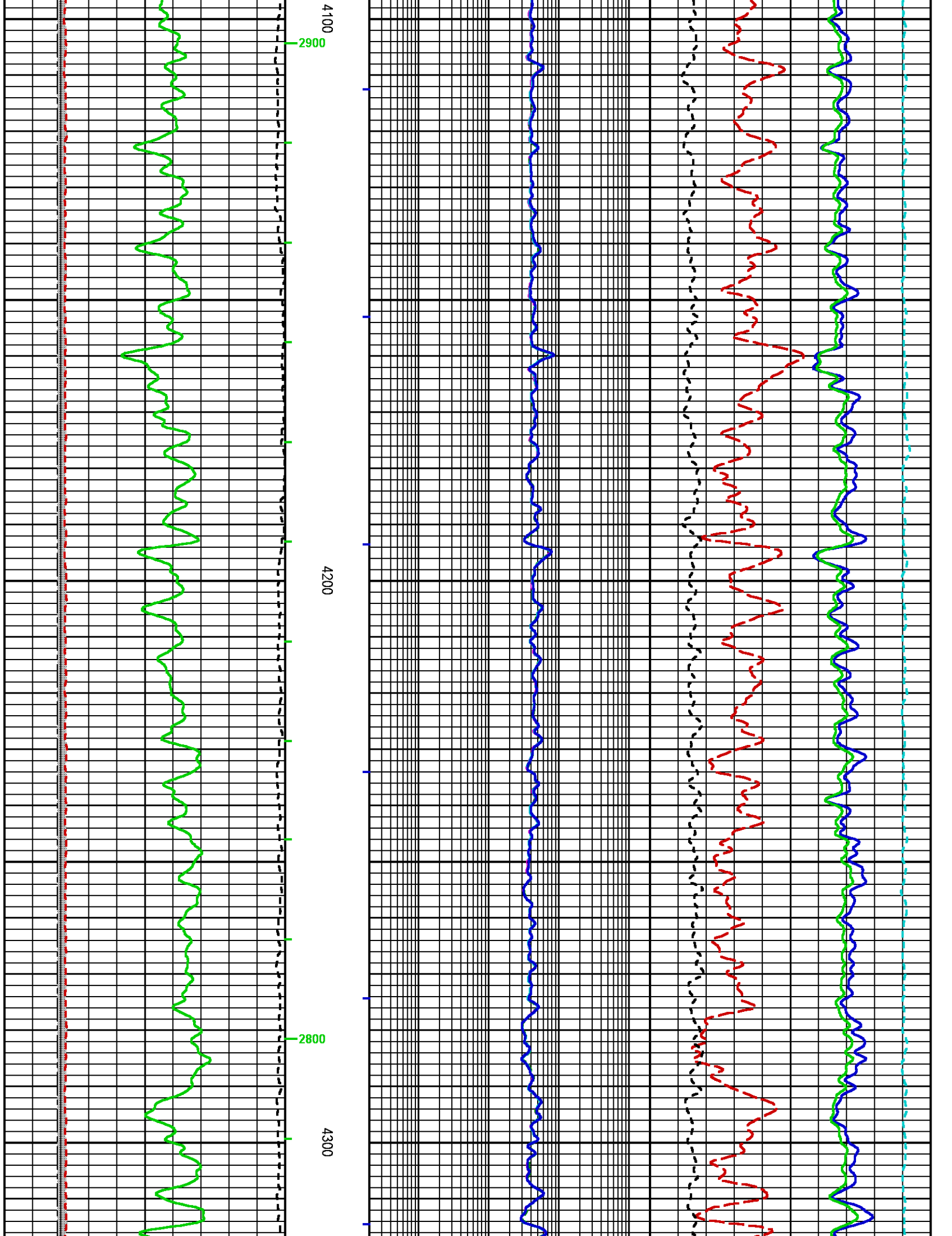




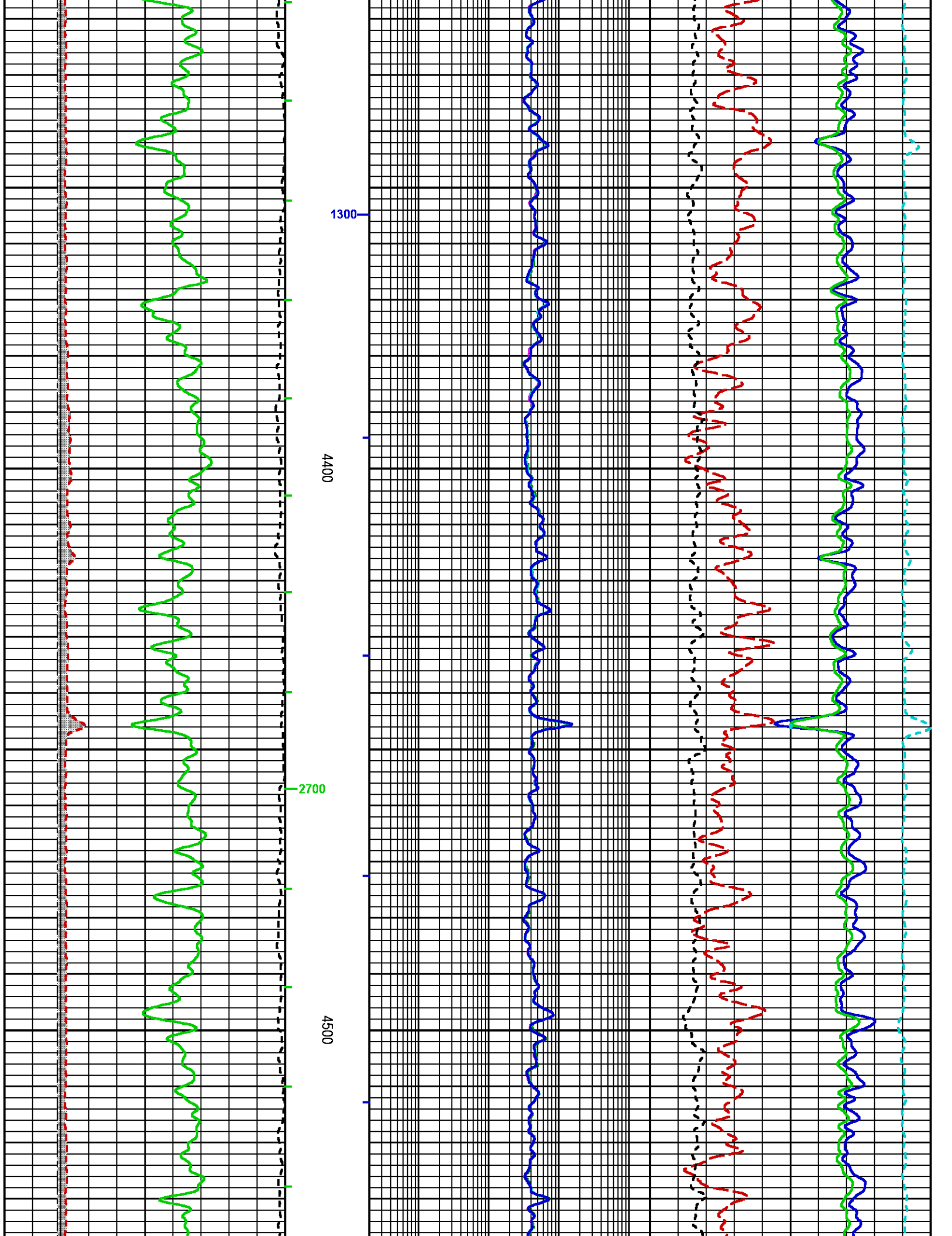




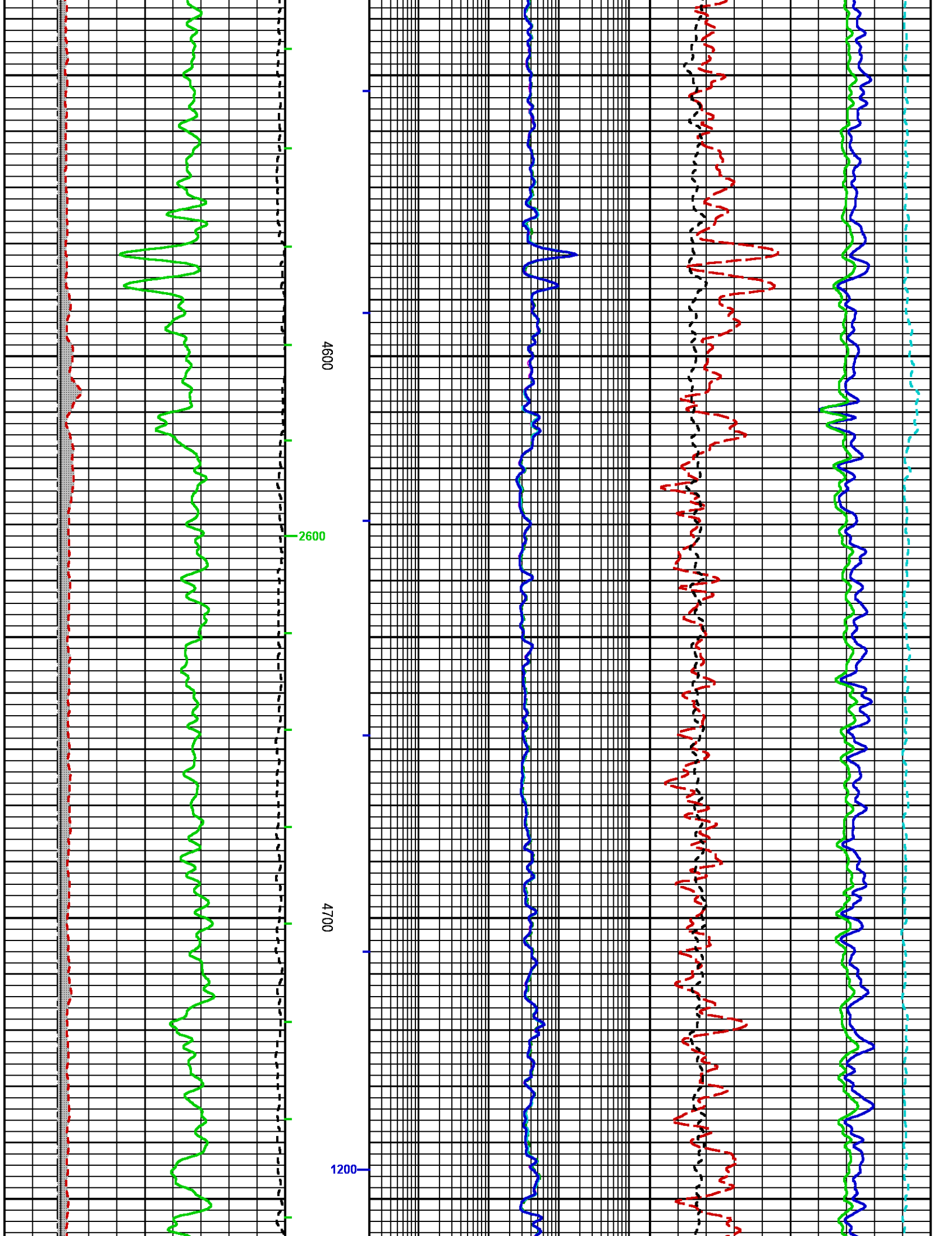


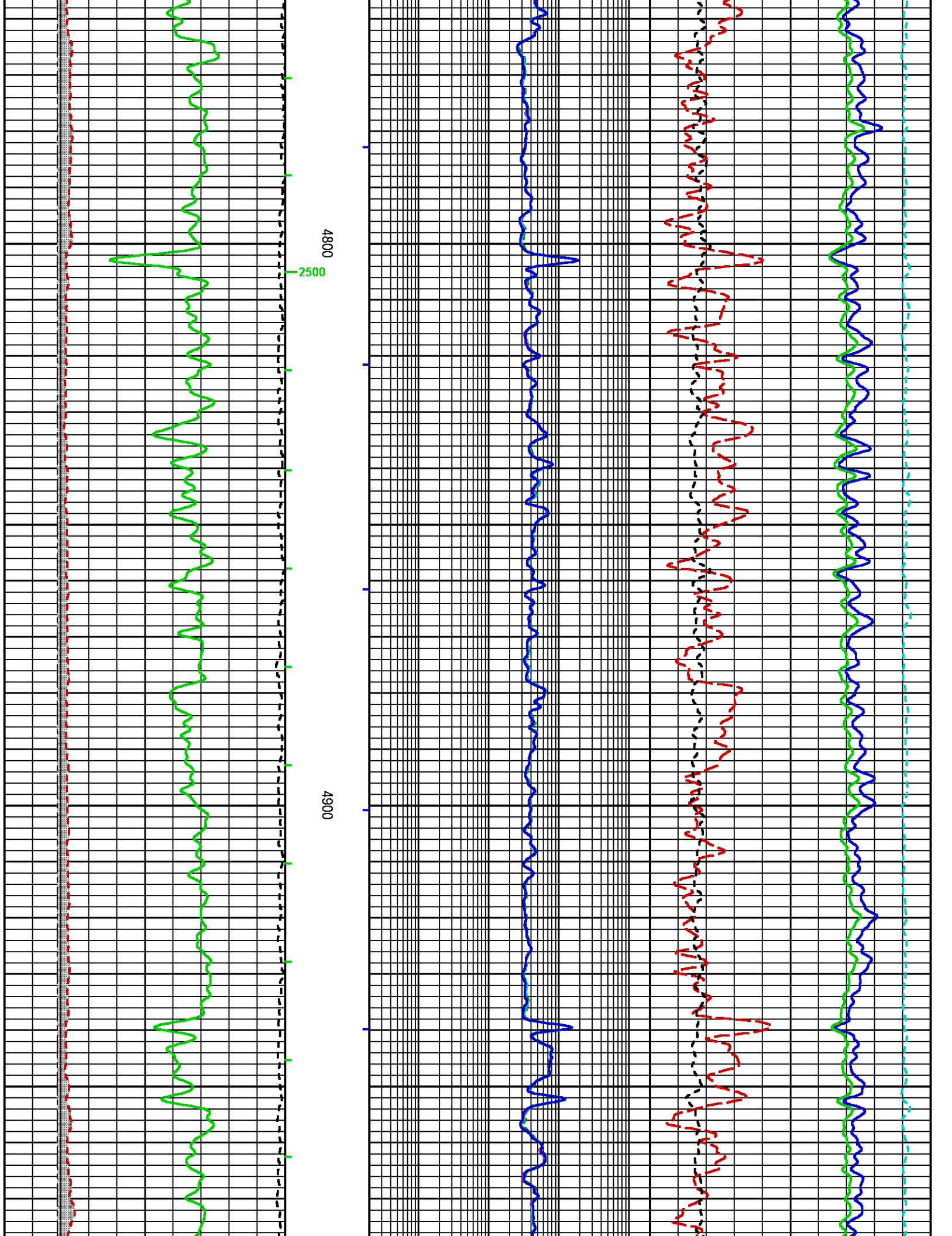


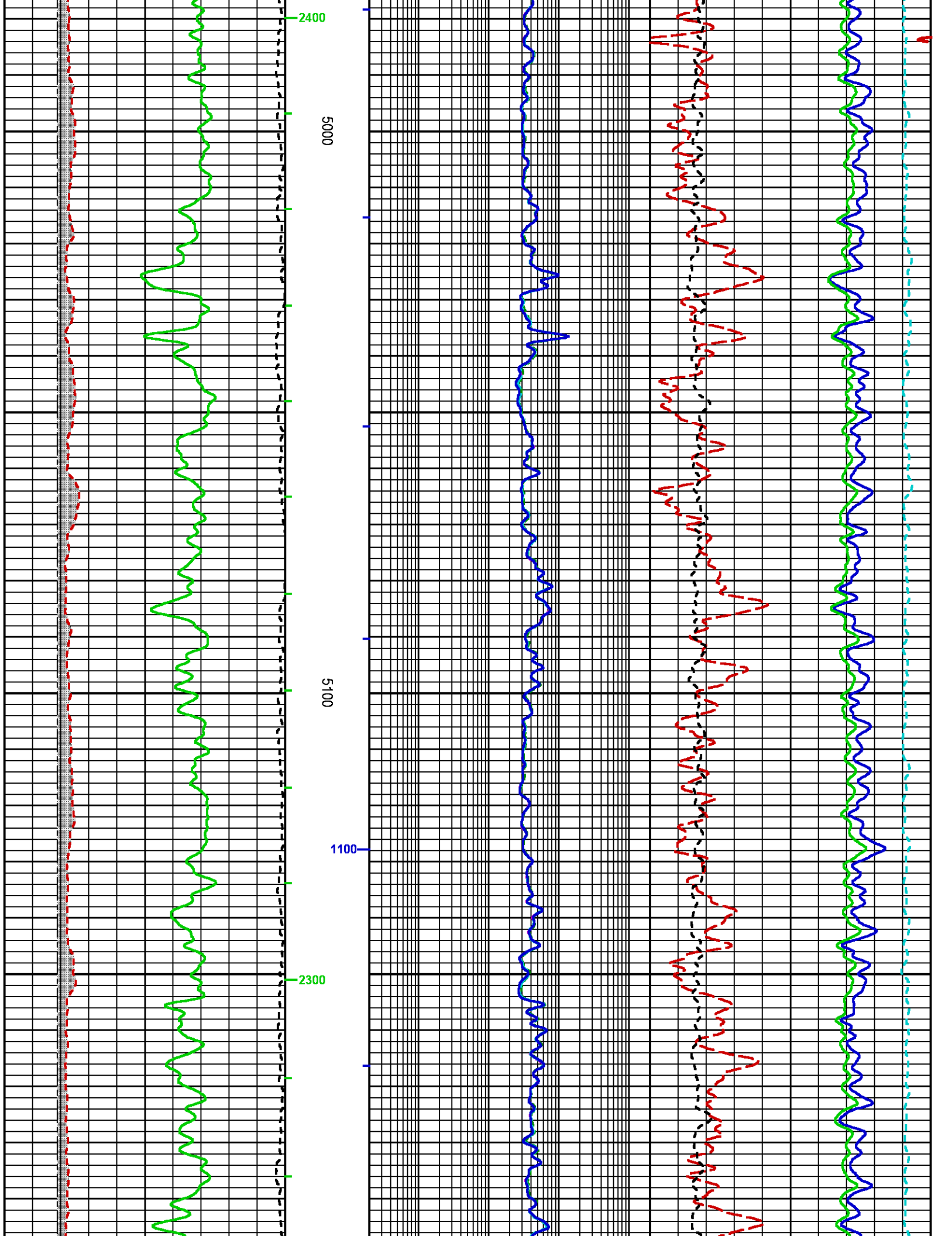


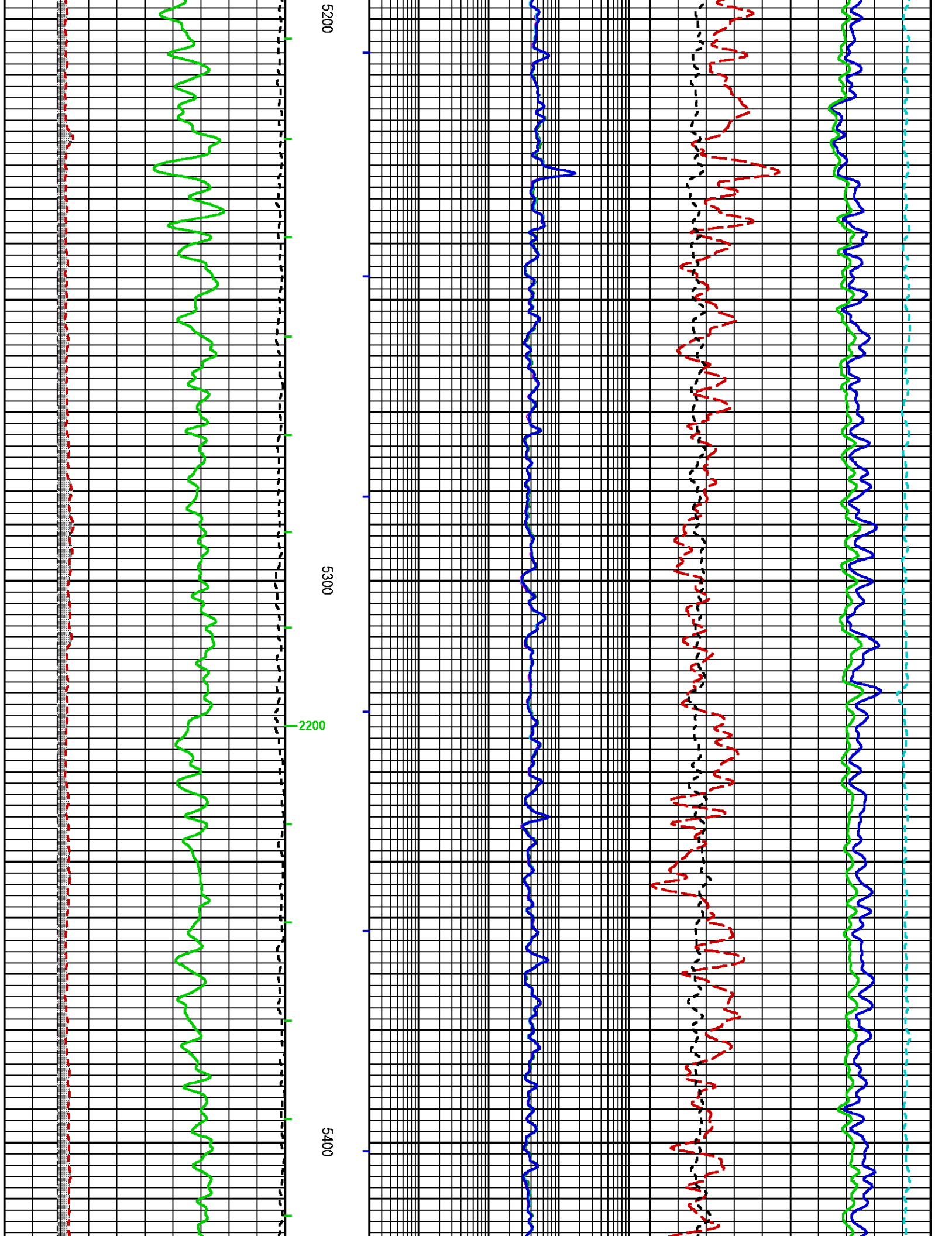


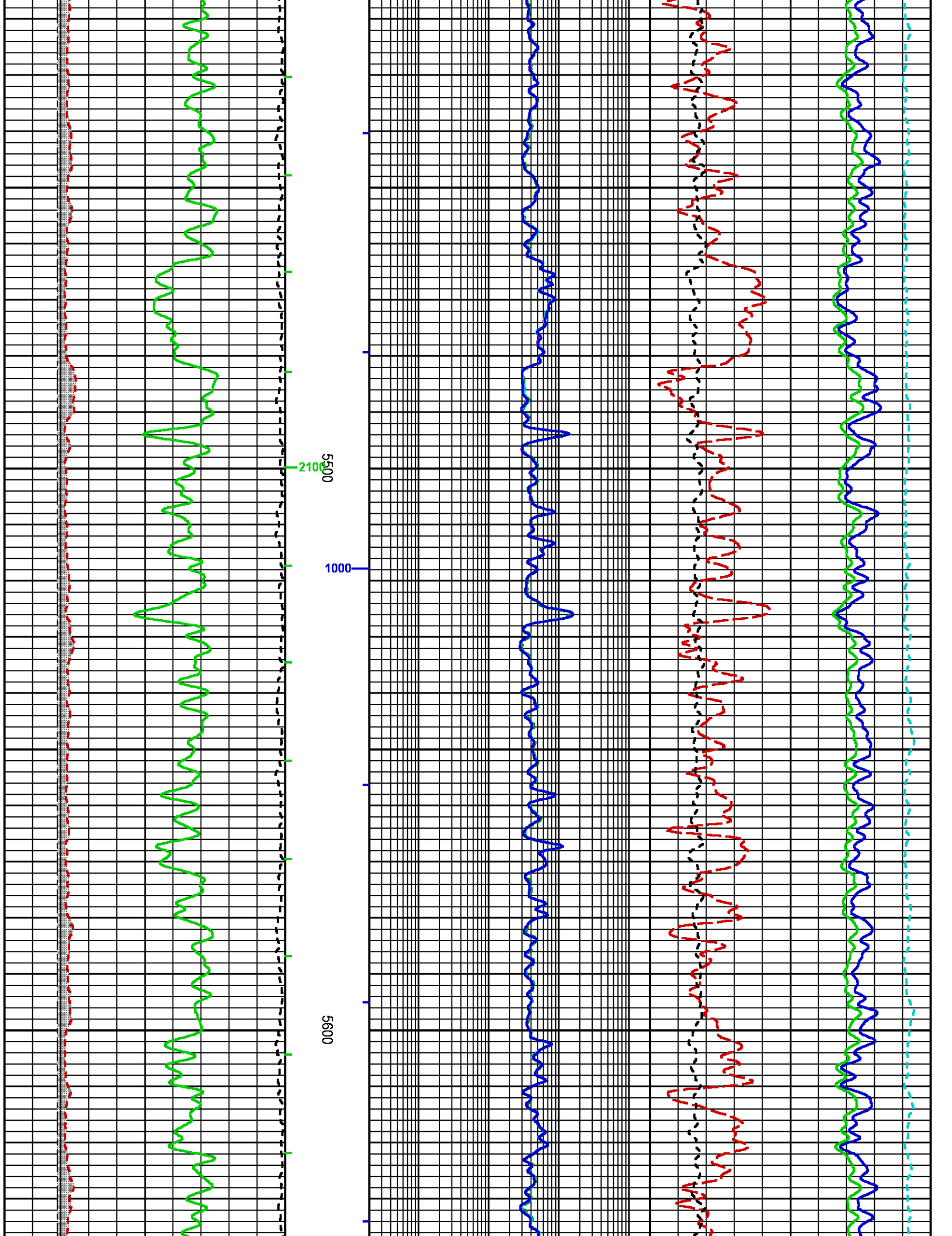


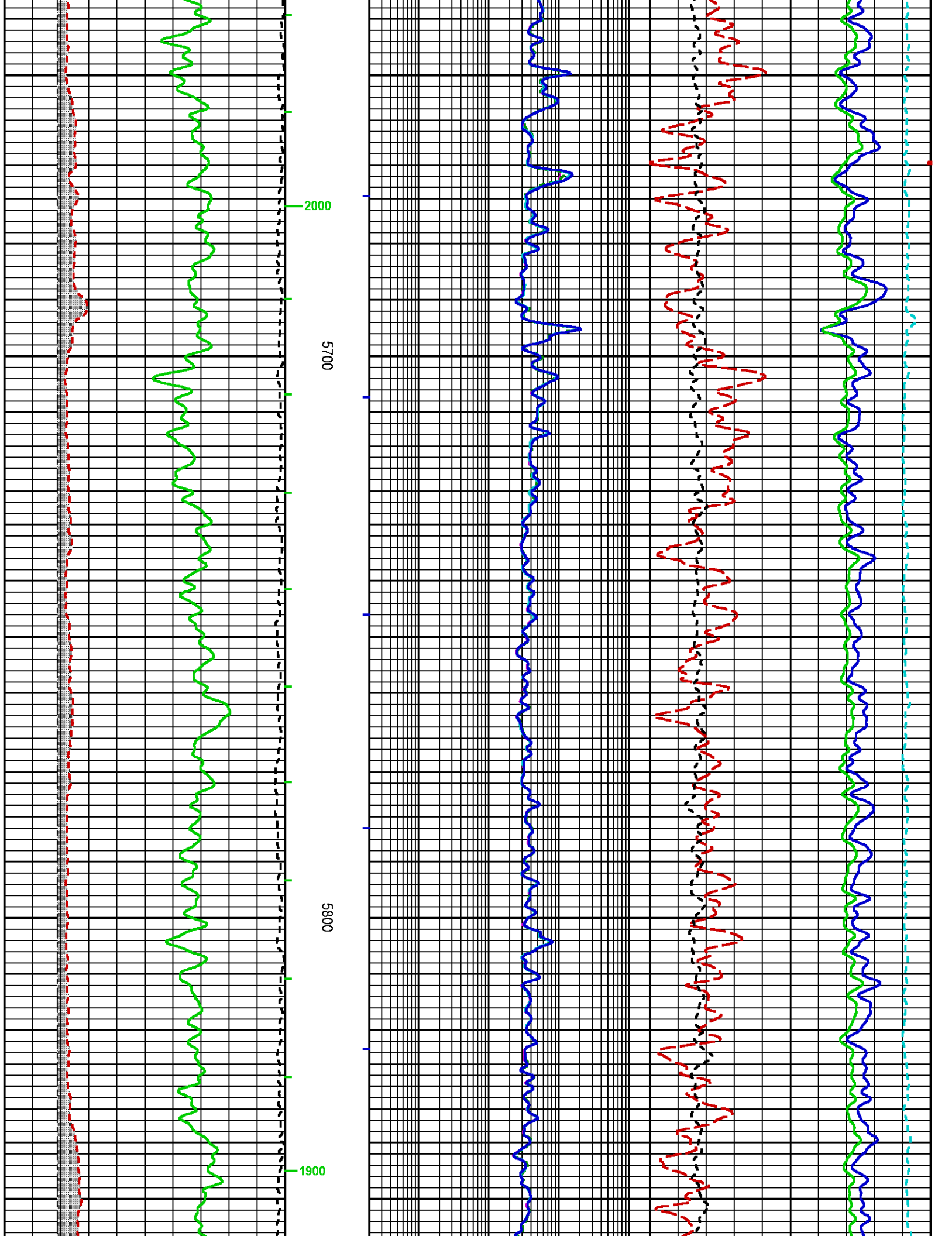




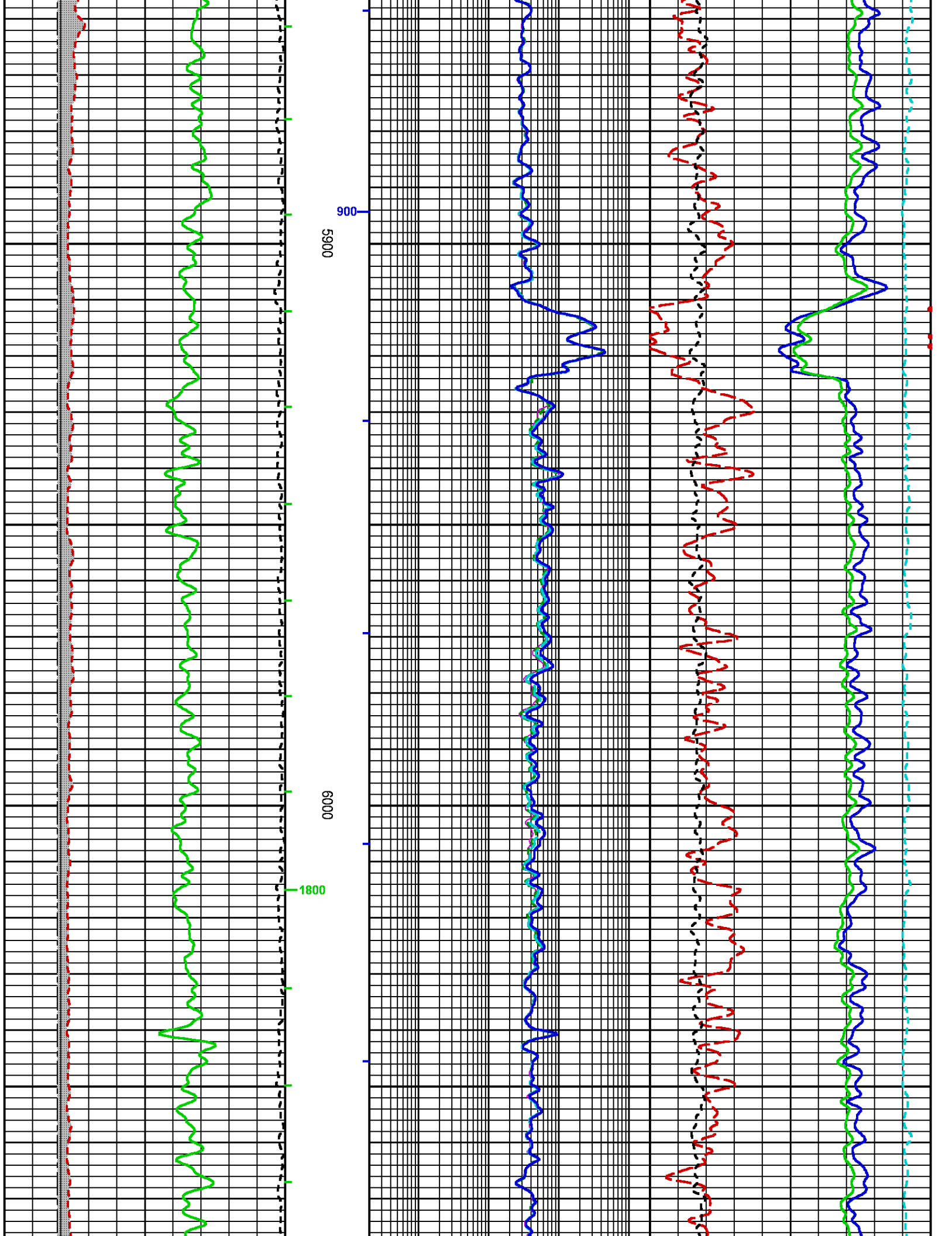


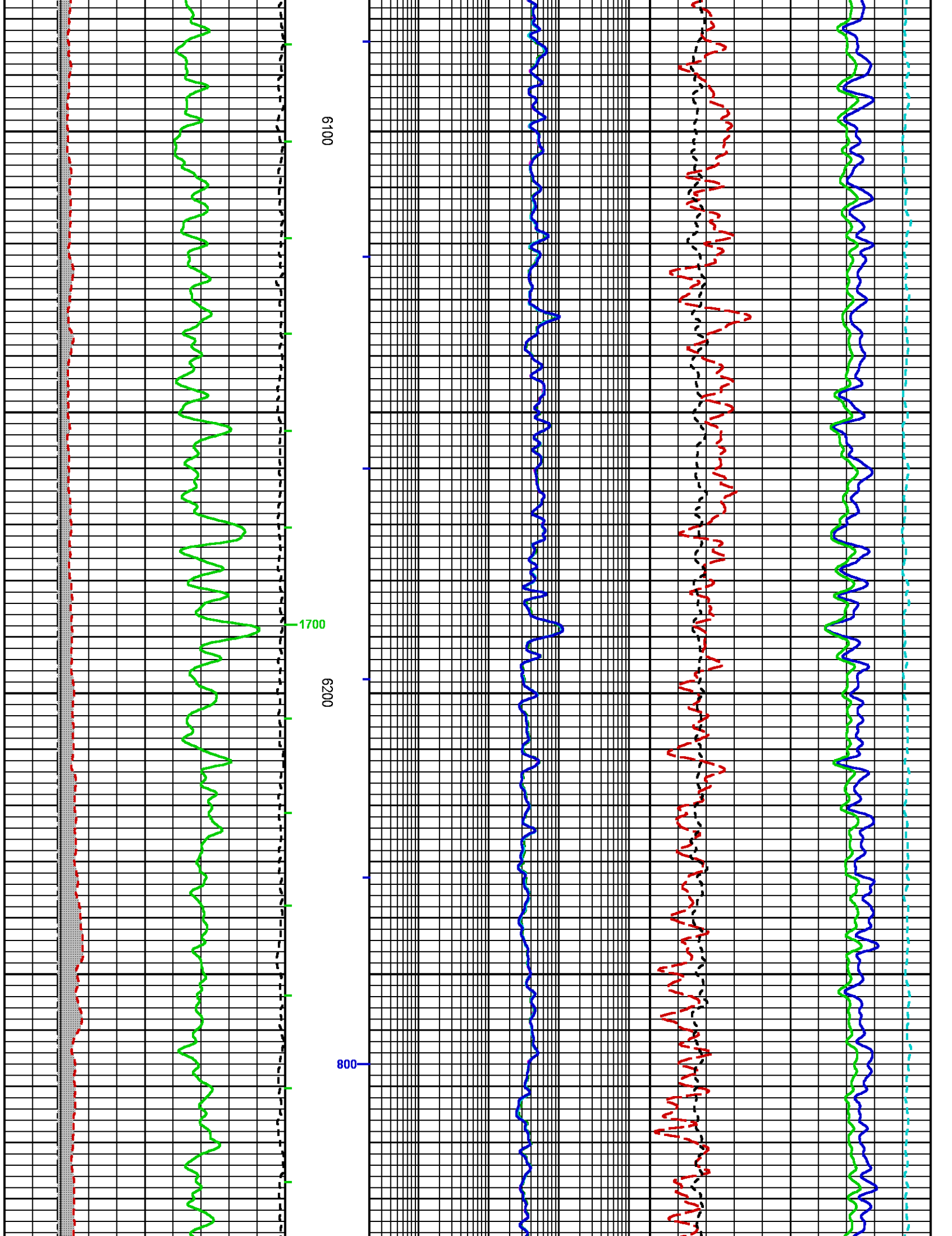




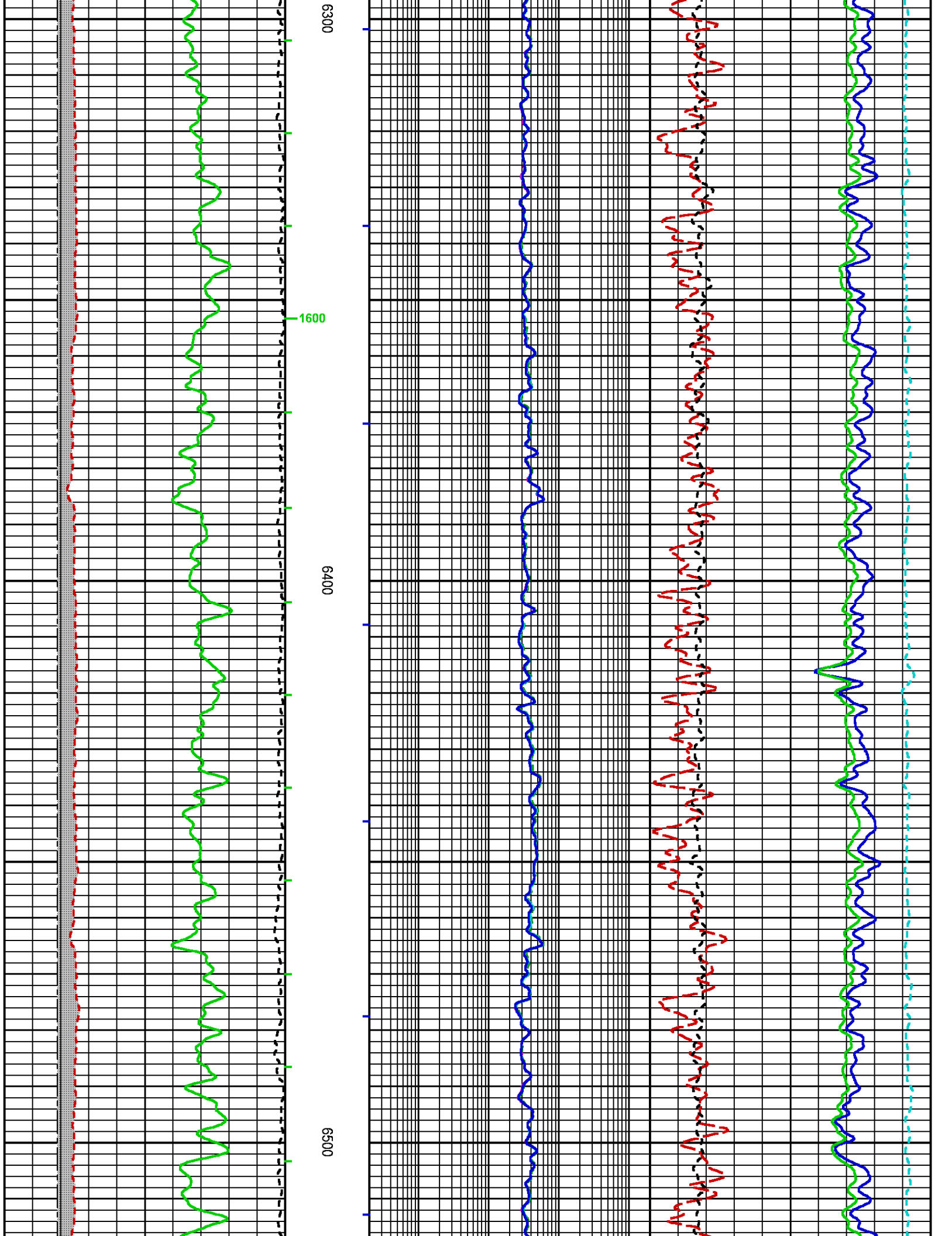


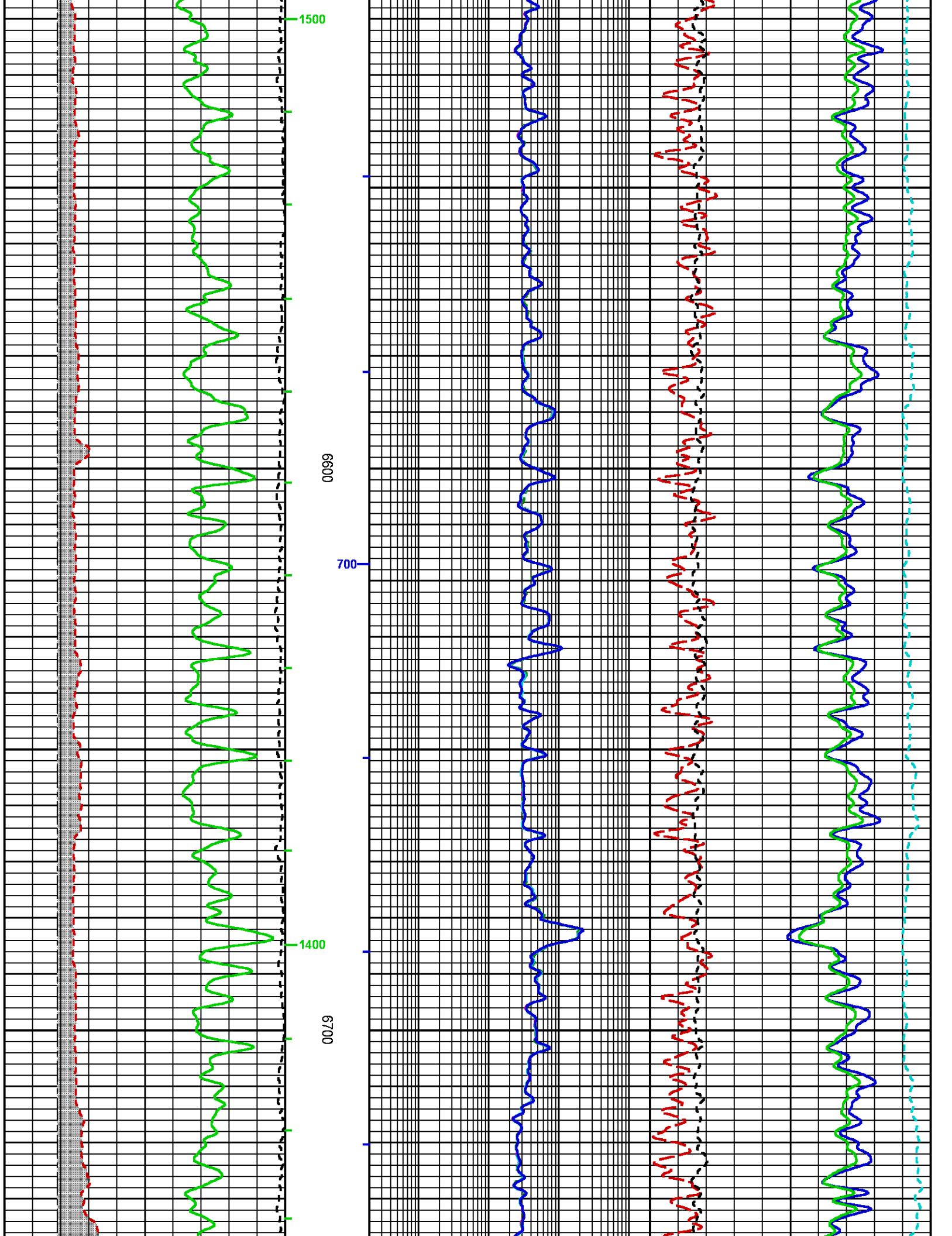


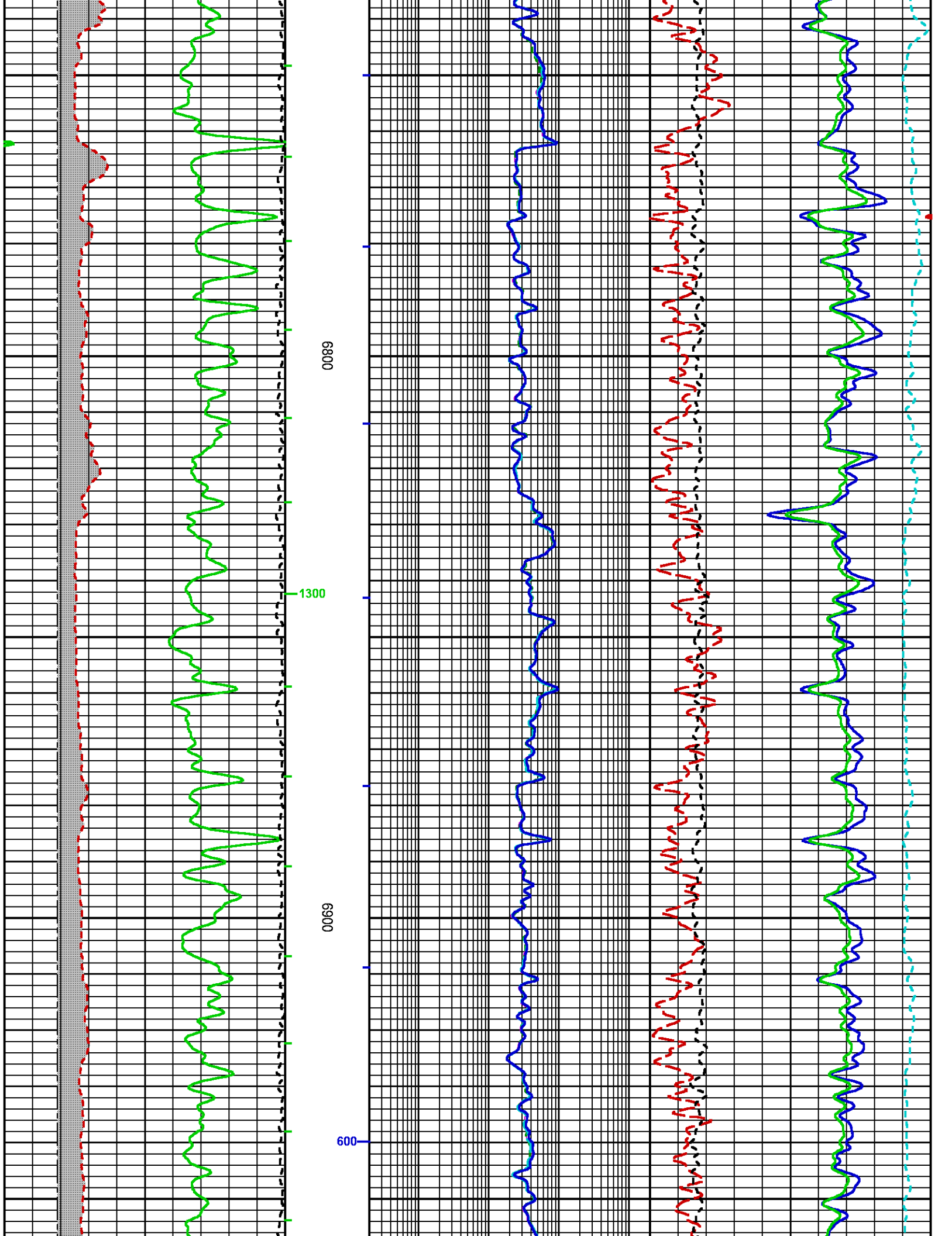


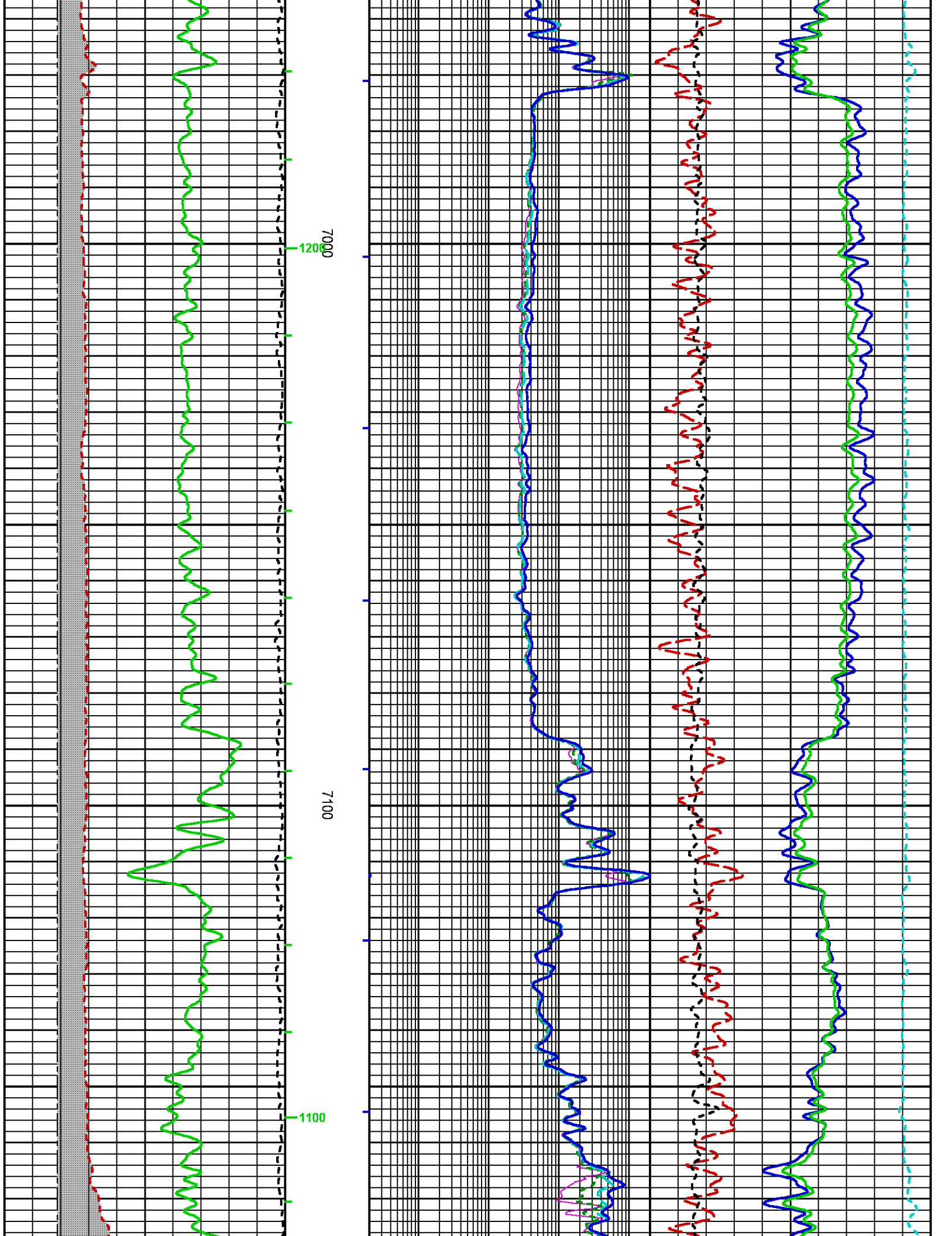






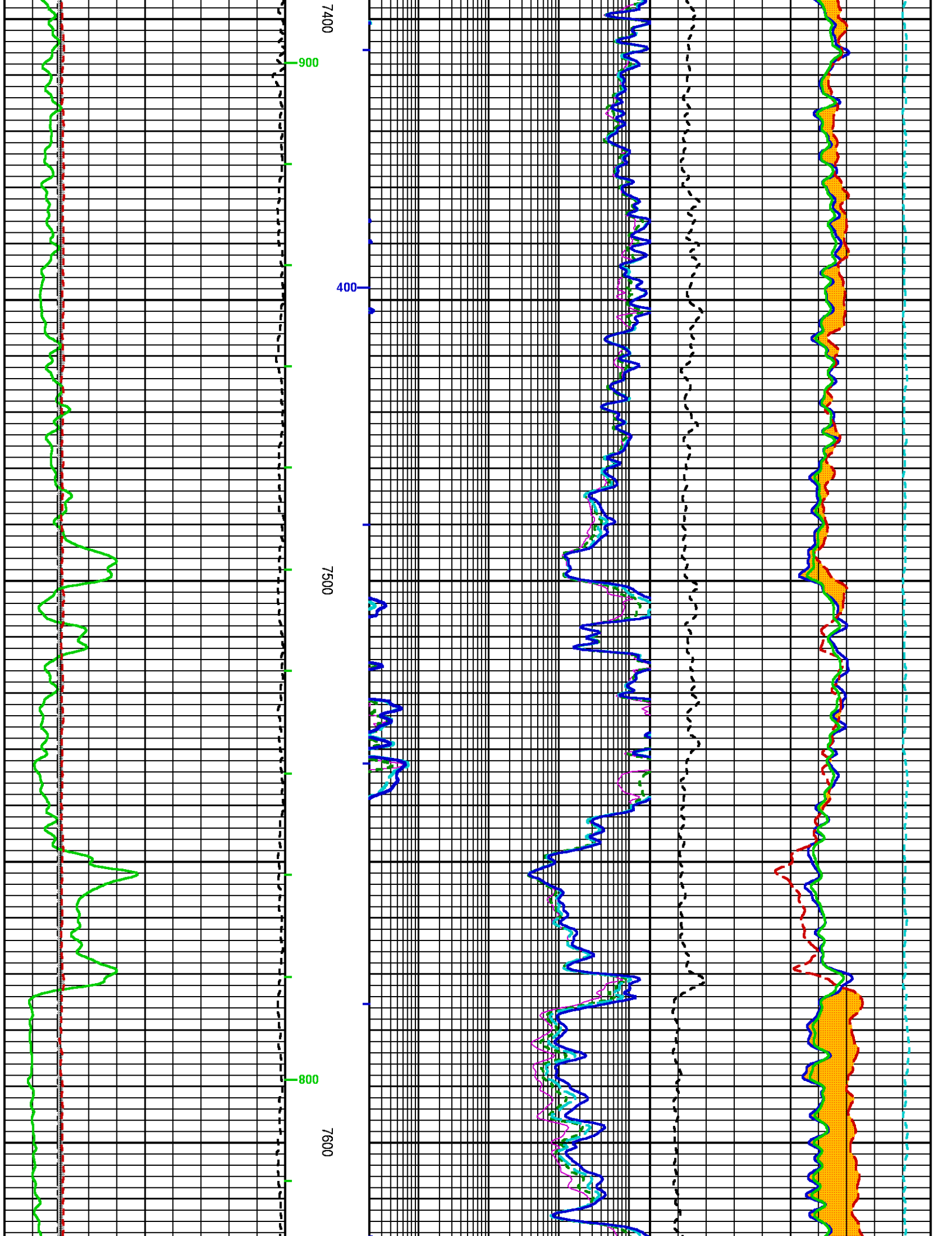


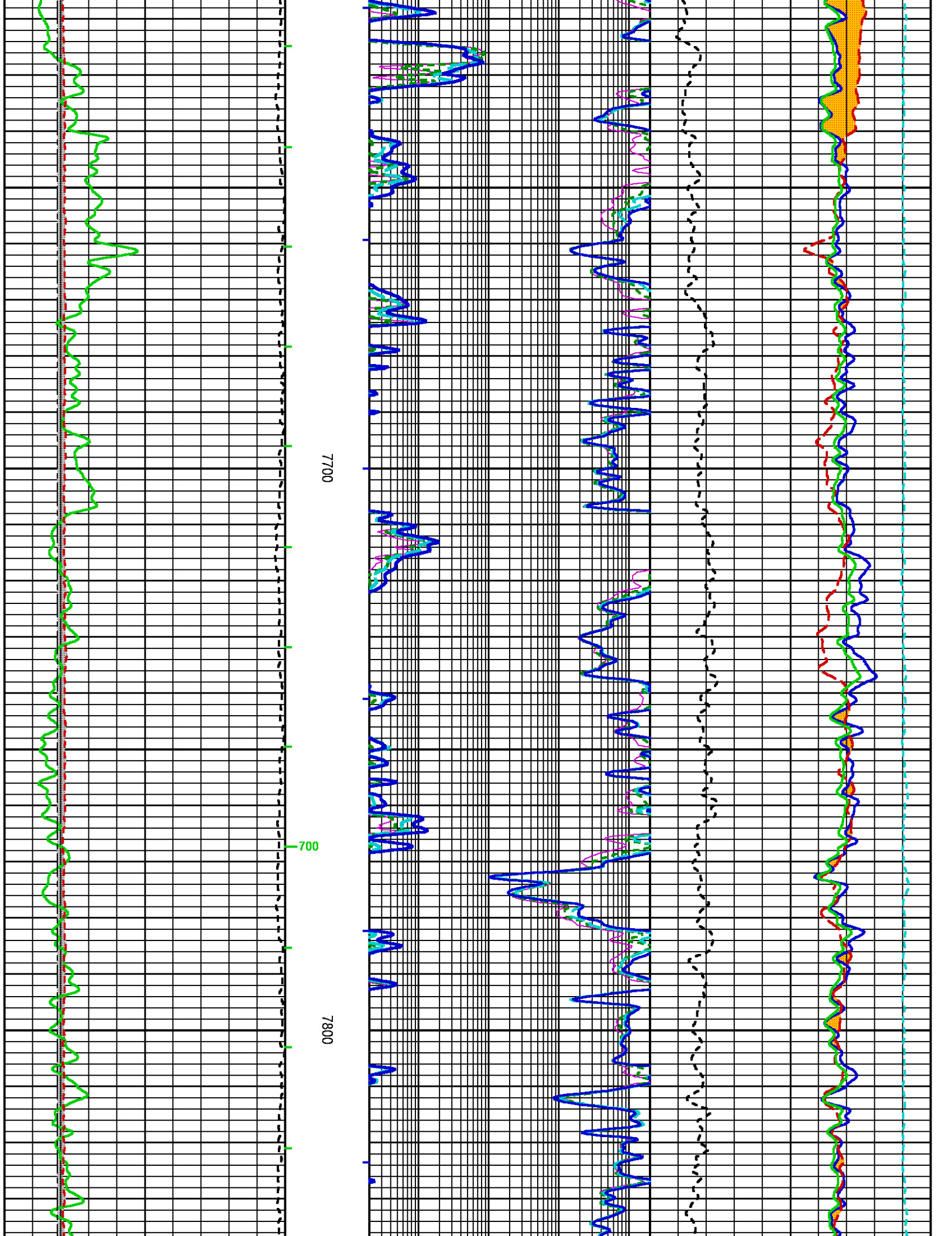


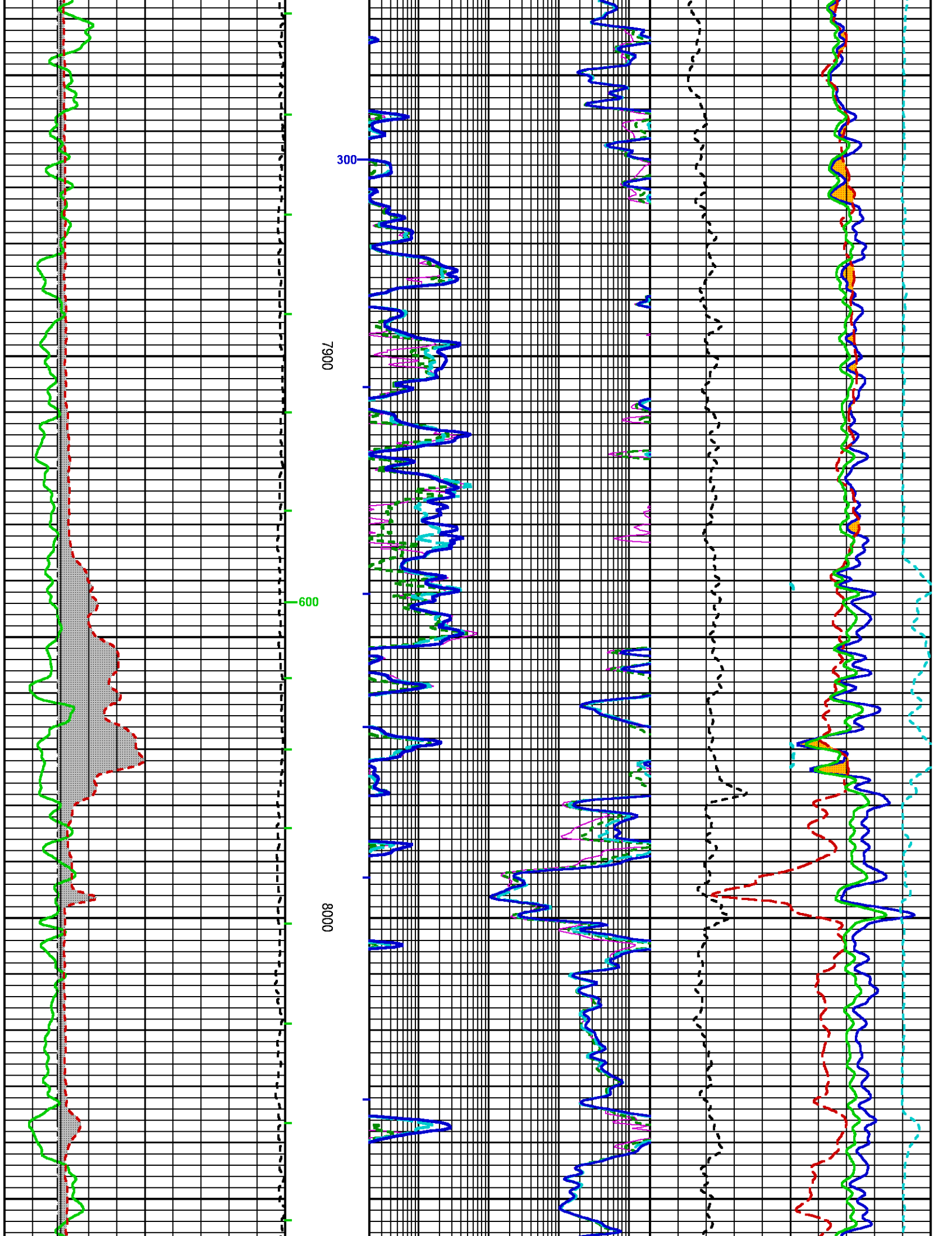




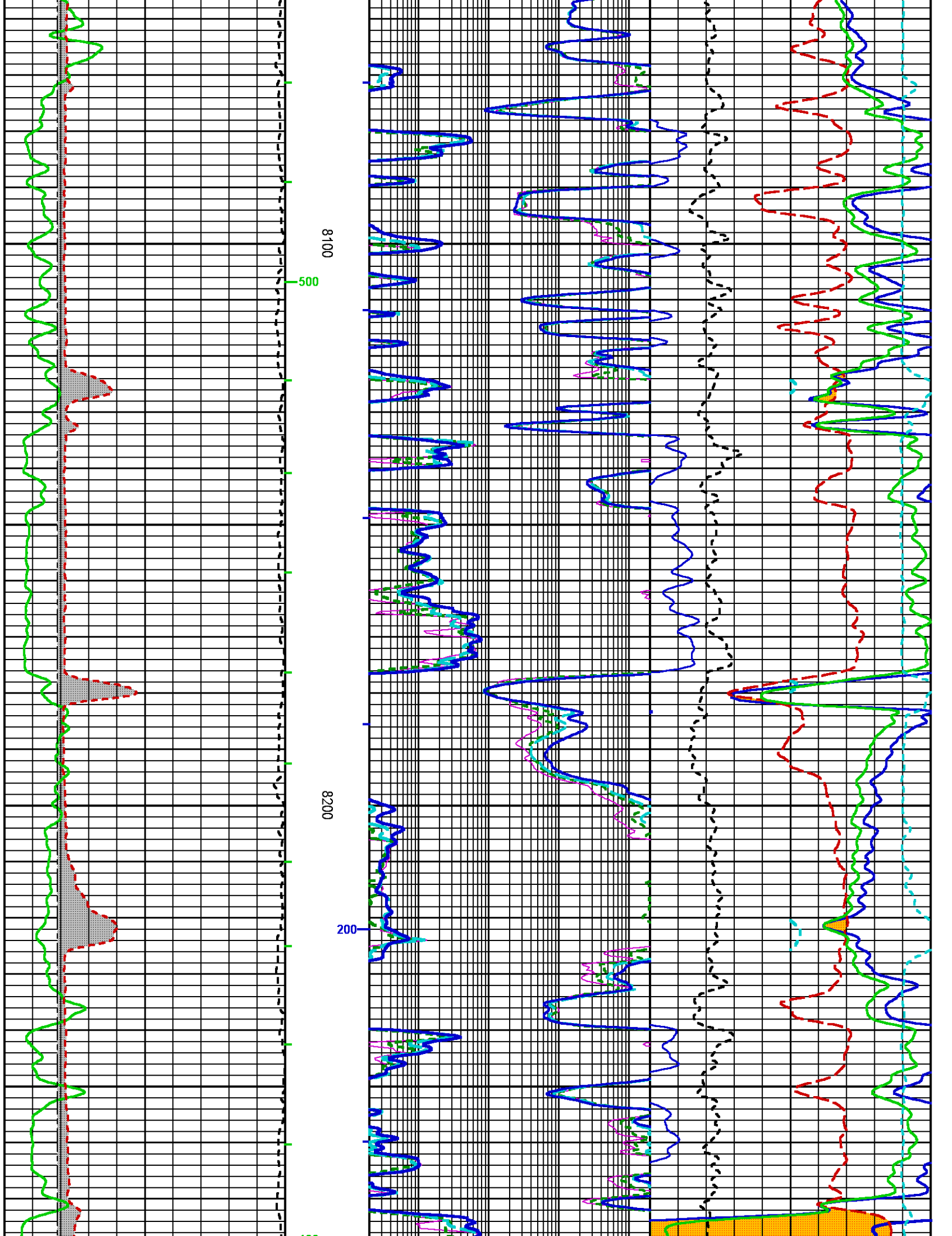


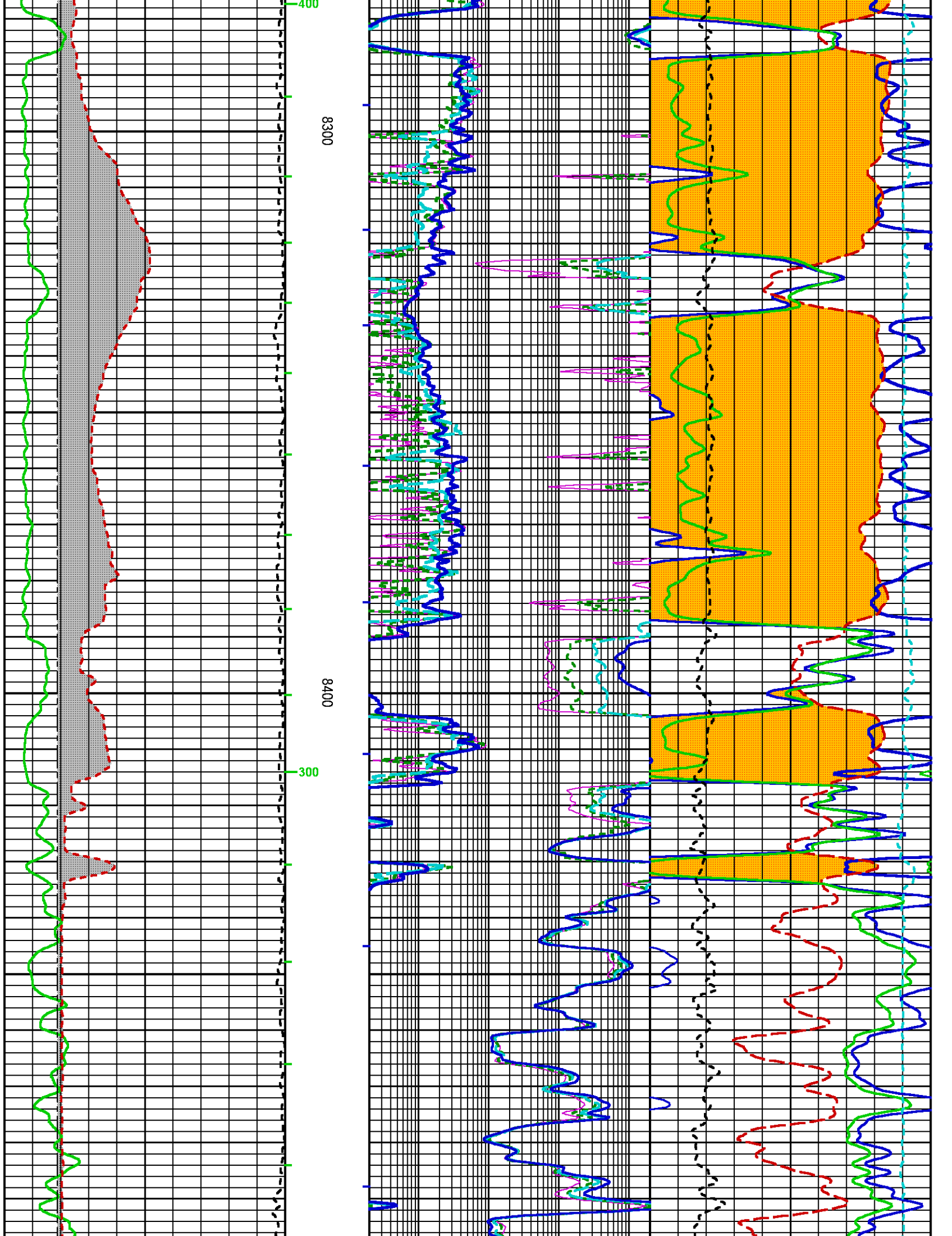


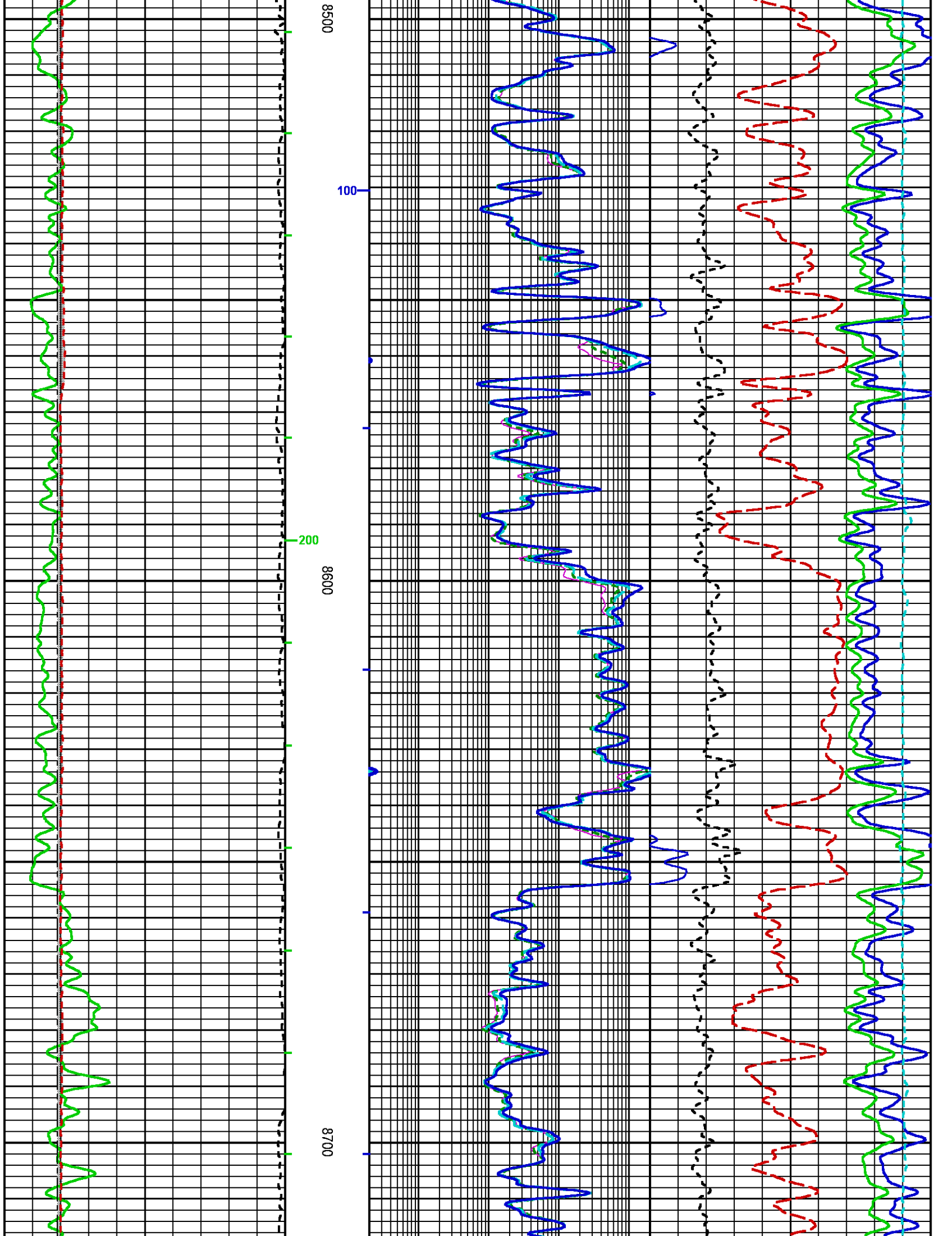


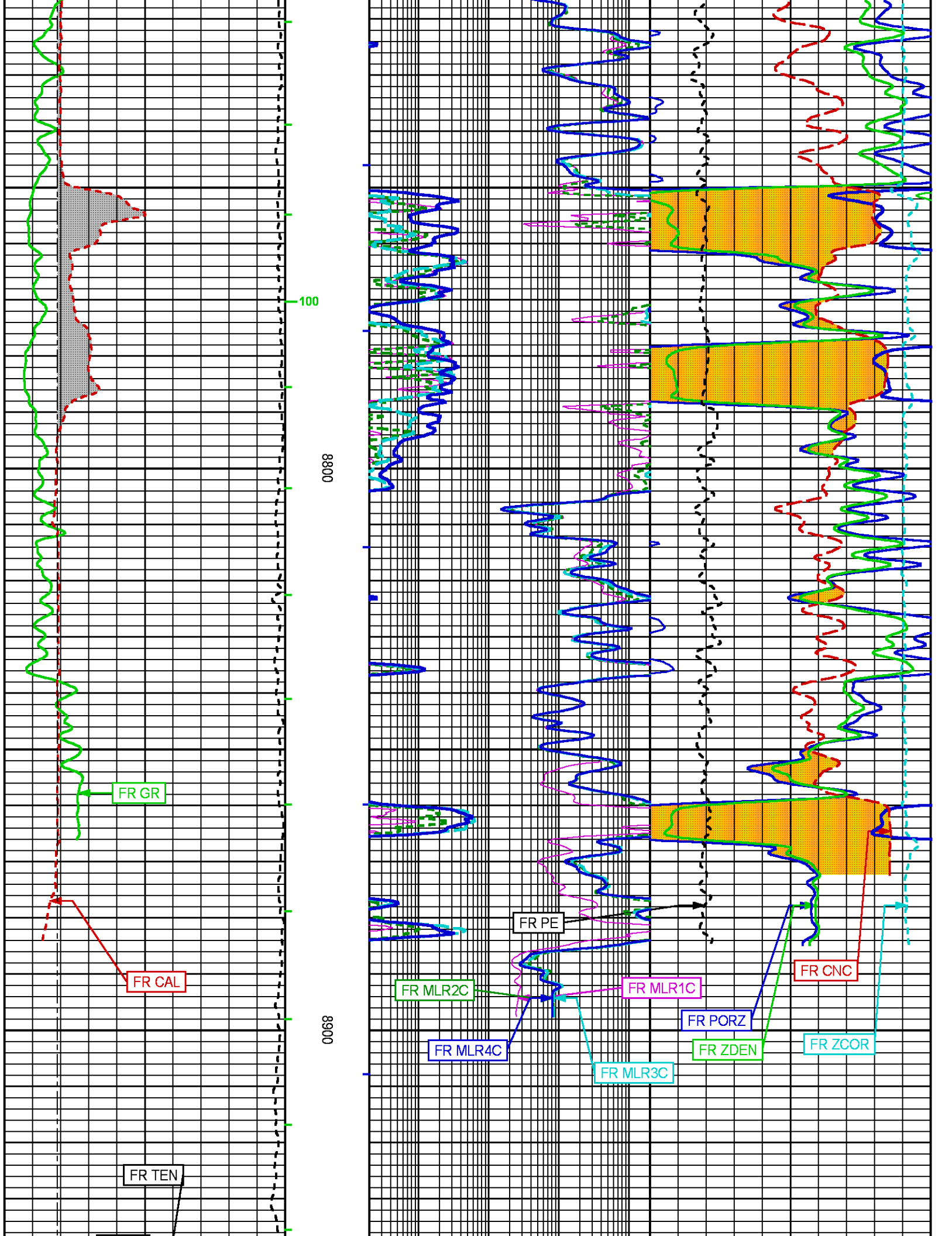


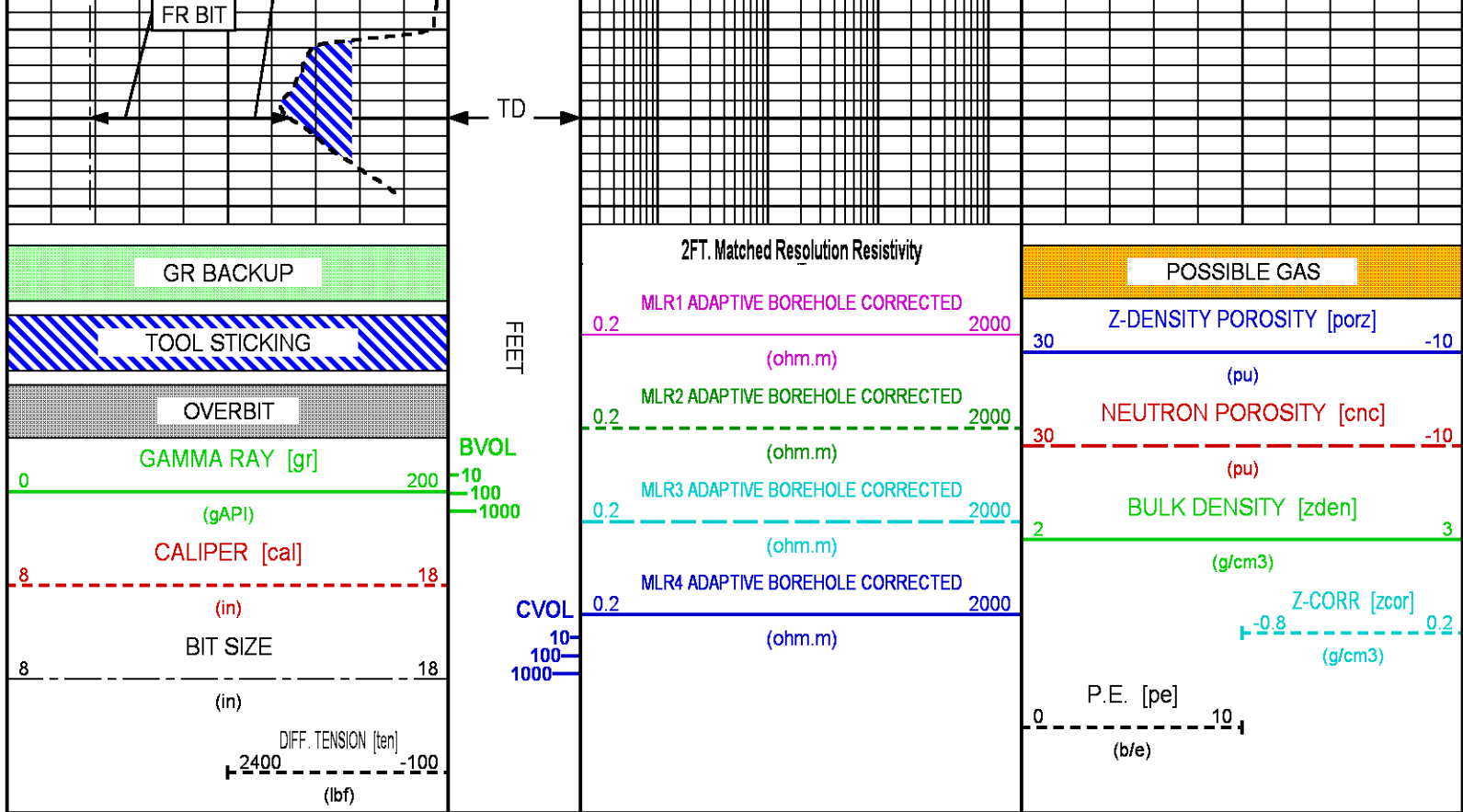












## REPEAT LOG

ECLIPS 6.2i ECLIPS General Release Rel 6.2i Wed Jun 12 12:21:40 CDT 2013  
 Patches: 5

Plotted: Thu May 1 19:04:35 2014

### PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/CHESAPEAKE/JAMES\_MESSENGER\_WTZ\_3H\_R3/QUADSLAM\_RTEX01.prm  
 LOGGING MODE: DEPTH           DIRECTION: UP  
 TOP DEPTH: 8642.750 ft       BOTTOM DEPTH: 8959.750 ft

#### SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
TTRM	FILTER ()	medium (1)		TOP	BOTTOM
	FILTER (.h)	medium (1)		"	"
	FILTER (.i)	medium (1)		"	"
Y AXIS CALIPER	FILTER ()	medium (1)		"	"
TENSION	FILTER ()	medium (1)		"	"
GR	FILTER ()	medium (1)		"	"
CN	FILTER ()	medium (1)		"	"
CALIPER	FILTER ()	medium (1)		"	"
	FILTER (.h)	medium (1)		"	"
	FILTER (.i)	medium (1)		"	"
ZDL MED RES	FILTER (hrd1*)	medium		"	"
	FILTER (hrd1s*)	medium		"	"
	FILTER (hrd2*)	medium		"	"
	FILTER (hrd2s*)	medium		"	"
	FILTER (soft*)	medium		"	"
RTeX	FILTER ()	light (2a)		"	"



## BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
CASING - BOREHOLE & CEMENT VOLUME	CASING O.D.	7.625	in	TOP	BOTTOM
	CASING THICKNESS	0.000	in	"	"
BIT SIZE	BIT SIZE	9.875	in	"	"
MUD SAMPLE RESISTIVITY	MUD SAMPLE TEMP	77.0	degF	"	"
	MUD SAMPLE RES	1.000	ohm.m	"	"
BOREHOLE TEMP from GRADIENT	Known BH REF TEMP	77.0	degF	"	"
	at BH REF DEPTH	0.0	ft	"	"
	with TEMP GRADIENT	1.050	0.01 degF/ft	"	"
BOREHOLE CORR DIAMETER SOURCE	CALIPER/FIXED DIA. (cnbh*)	USE CALIPER		"	"
	CALIPER/FIXED DIA. (sibh*)	USE CALIPER		"	"
BOREHOLE CORR DIAMETER	FIXED DIAMETER (cnbh*)	9.875	in	"	"
	FIXED DIAMETER (sibh*)	9.875	in	"	"
BH MUD RESISTIVITY SOURCE	RMUD SOURCE	TOOL MEASURED		"	"

## CN PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
2446 CN MATRIX	2446 MATRIX	LIMESTONE		TOP	BOTTOM
CN SALINITY CORRECTION	SALINITY	171000	ppm	"	"
CN TOOL STANDOFF	ENABLE STANDOFF CORR	OFF		"	"
	STANDOFF AMOUNT	0.00	in	"	"
CN CASING & CEMENT CORRECTION	CORRECTION	OFF		"	"
	BIT SIZE BEHIND CSNG	10.750	in	"	"

## ZDL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
DENSITY POROSITY	RHOmatrix	2.710	g/cm3	TOP	BOTTOM
	RHOfluid	1.000	g/cm3	"	"
ZDL	DENX TRACKING	ON		"	"

## RTeX PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
RTeX ADAPTIVE BOREHOLE CORRECTION	BOREHOLE CORRECTION	ON		TOP	BOTTOM
	Rxo Source	RTEX ESTIMATE		"	"

## CURVE DESCRIPTION REPORT

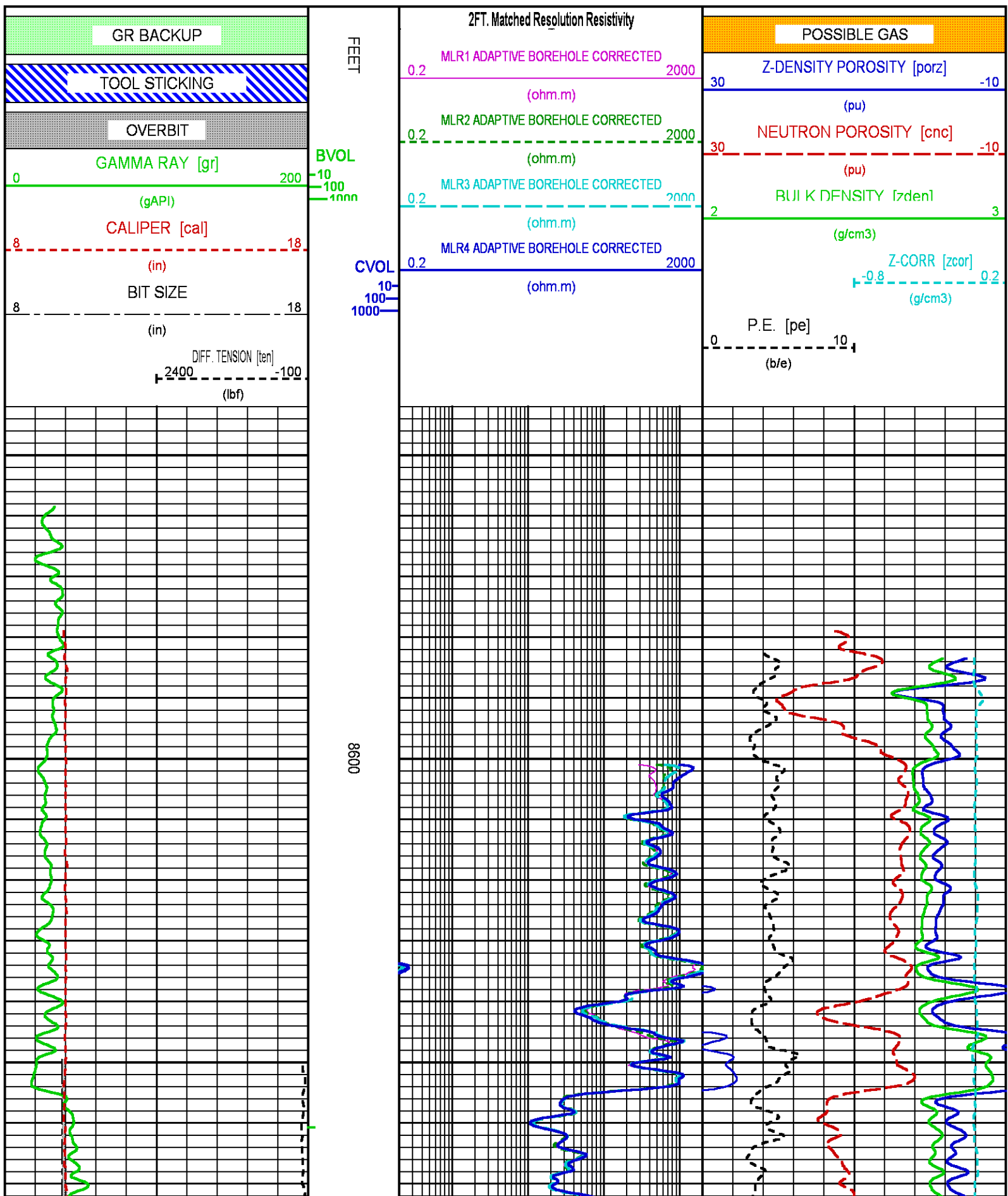
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:BIT	May 1 14:53:25 2014	BIT SIZE
F1:BVOL	May 1 14:53:25 2014	BOREHOLE VOLUME
F1:CAL	May 1 14:53:25 2014	CALIPER
F1:CNC	May 1 14:53:25 2014	BOREHOLE SIZE CORRECTED COMPENSATED NEUTRON POROSITY
F1:CVOL	May 1 14:53:25 2014	CEMENT VOLUME
F1:GR	May 1 14:53:25 2014	GAMMA RAY
F1:MLR1C	May 1 14:53:25 2014	RTEX SHALLOW RESISTIVITY 1, ADAPTIVE BOREHOLE CORRECTION
F1:MLR2C	May 1 14:53:25 2014	RTEX SHALLOW RESISTIVITY 2, ADAPTIVE BOREHOLE CORRECTION
F1:MLR3C	May 1 14:53:25 2014	RTEX MEDIUM RESISTIVITY 3, ADAPTIVE BOREHOLE CORRECTION
F1:MLR4C	May 1 14:53:25 2014	RTEX DEEP RESISTIVITY 4, ADAPTIVE BOREHOLE CORRECTION
F1:PE	May 1 14:53:25 2014	PHOTO ELECTRIC CROSS-SECTION
F1:PORZ	May 1 14:53:25 2014	POROSITY FOR SELECTABLE MATRIX
F1:TEN	May 1 14:53:25 2014	DIFFERENTIAL TENSION
F1:ZCOR	May 1 14:53:25 2014	DENSITY CORRECTION
F1:ZDEN	May 1 14:53:25 2014	FORMATION BULK DENSITY

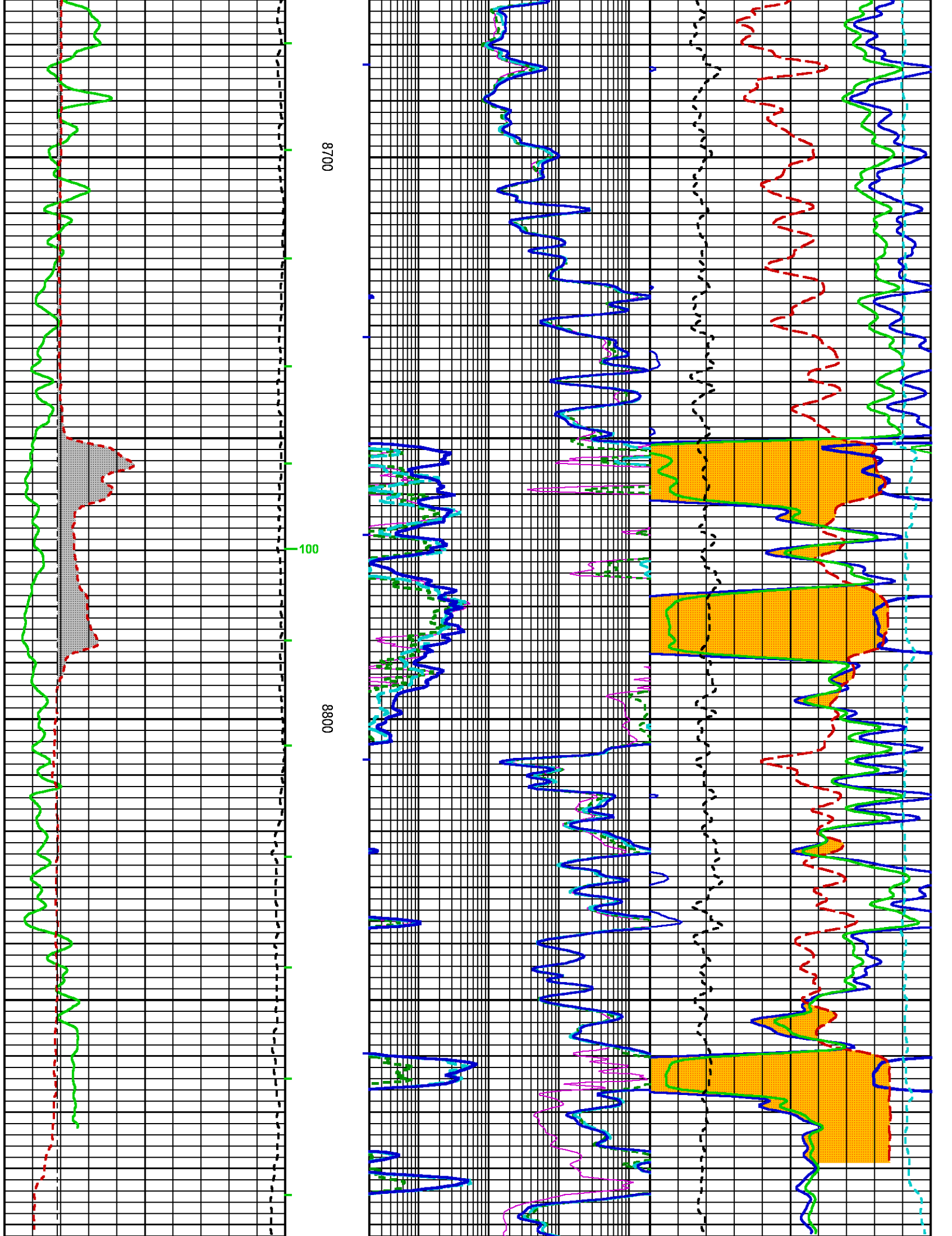
## CURVE MEASURE POINT OFFSET

CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
BIT	0.00	MLR1C	55.75	PE	72.25	ZDEN	72.25
CAL	73.00	MLR2C	55.75	PORZ	72.25		
CNC	85.38	MLR3C	55.75	TEN	0.00		
GR	92.25	MLR4C	55.75	ZCOR	72.25		

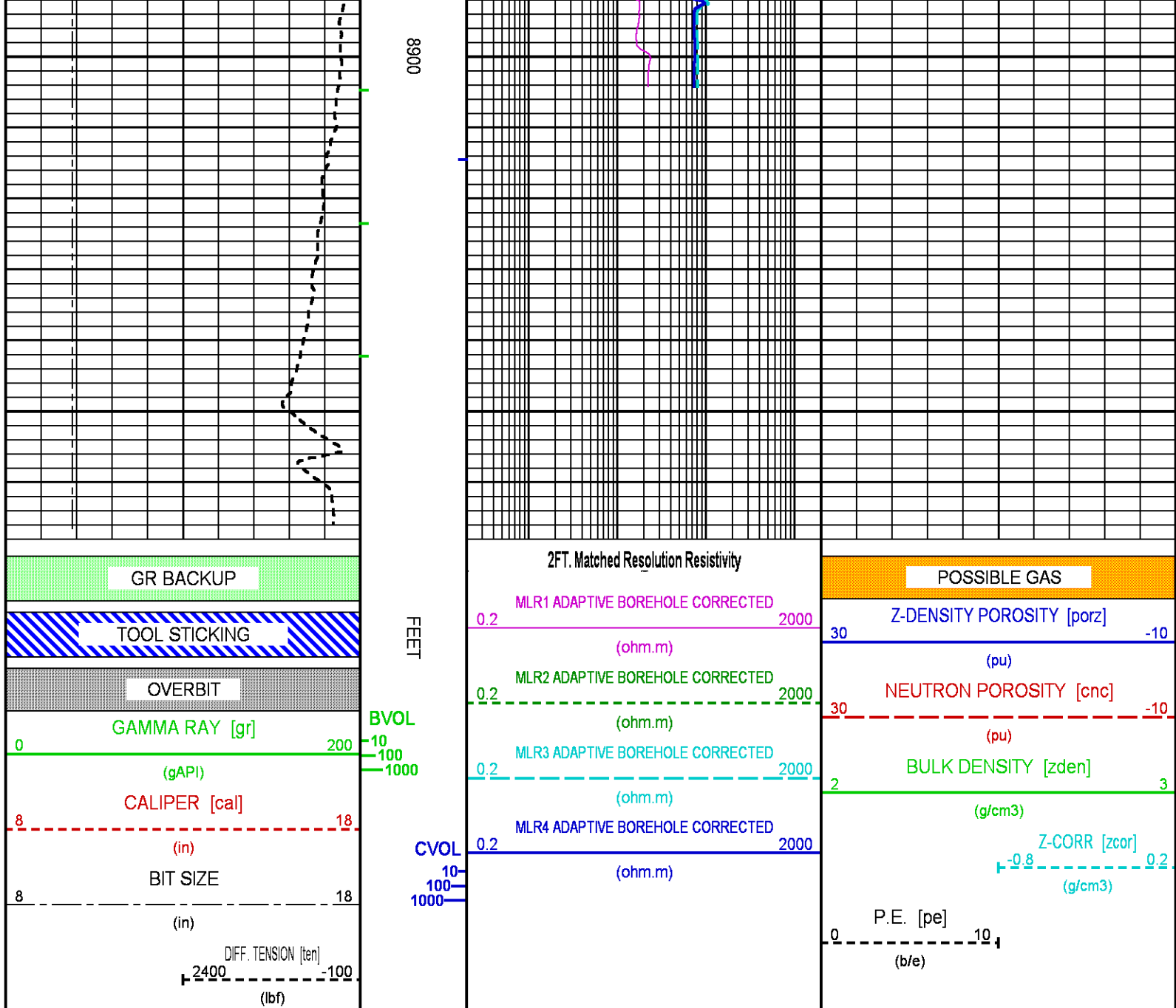
**Presentation** : sys1:/dat1a/CHESAPEAKE/JAMES\_MESSENGER\_WTZ\_3H\_R3/TC\_RPT.fvpdf [5"/100' Scale]  
**Plot Interval** : 8543.75 - 8967 Feet

Data File 1 : F1 : sys1:/dat1a/CHESAPEAKE/JAMES\_MESSENGER\_WTZ\_3H\_R3/QUADSLAM\_RTEX01.xtf  
 Created On : May 1 14:53:25 2014  
 Company : Chesapeake Appalachia LLC  
 Well : JAMES MESSENGER 3H  
 Field : WETZEL  
 File Interval : 8543.75 - 8967 Feet  
 OCT : QUADSLAM









## CALIBRATION / VERIFICATION SUMMARY

Source File: /dat1a/CHESAPEAKE/JAMES\_MESSENGER\_WTZ\_3H\_R3/QUADSLAM\_RTEX.tp1

## GR PRIMARY CALIBRATION SUMMARY

TOOL #: 1329XA 177854

DATE/TIME PERFORMED: Fri Apr 25 11:10:40 2014

UNIT #: 3880TA ML4290

CALB JIG #: 4702NK V1-499-N

BACKGROUND CALBRTR ON

CR DIFF

MULT

BACKGROUND CALBRTR ON

CALBRTR

(c/s)

(c/s)

(c/s)

(c/s)

(c/s)

(c/s)

GR	(cts/s) 168.16	(cts/s) 1058.62	(cts/s) 890.5 830.0 960.0	0.168	(gAPI) 28.33	(gAPI) 178.33	(gAPI) 150
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### GR PRIMARY VERIFICATION SUMMARY

TOOL #: 1329XA 177854      DATE/TIME PERFORMED: Fri Apr 25 11:19:56 2014

UNIT #: 3880TA ML4290      VERI JIG #: 4702NK V1-499-N

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	DIFF. (gAPI)
GR	165.40	1044.58	0.168	27.86	175.96	148.10 140.00 160.00

### CN PRIMARY CALIBRATION SUMMARY

TOOL #: 2446XA 179999      DATE/TIME PERFORMED: Mon Apr 7 10:25:06 2014

UNIT #: 3885TD Z4257      CALIBRATOR #: 2437XB 114695      SOURCE #: 4717XS S42216B

	MEASURED CPS	DEADTM CORR CPS	DTC SSN/LSN	NOMINAL SSN/LSN	CORRECTION FACTOR	POROSITY (pu)
LSN	606.58	615.55				
SSN	1604.14	1657.31				
RATIO			2.69242	2.75100	1.02176 0.97000 1.07000	
CN						21.358

### CAL PRIMARY CALIBRATION SUMMARY

TOOL #: 2234XA 370835      DATE/TIME PERFORMED: Mon Apr 7 10:49:03 2014

UNIT #: 3885TD Z4257

	SMALL RING	LARGE RING	MULT	ADD	SMALL RING (in)	LARGE RING (in)
CALIPER	1418.0	2718.4	0.00769	-4.90434	6.000	16.000

### CAL BEFORE LOG VERIFICATION SUMMARY

TOOL #: 2234XA 370835      DATE/TIME PERFORMED: Thu May 1 14:04:04 2014      DAYS SINCE CAL: 24

UNIT #: 3880TA ML4290

	I.D.	MULT	ADD	I.D. (in)
CALIPER	1956.8	0.00769	-5.34768	9.700

### CAL AFTER LOG VERIFICATION SUMMARY

TOOL #: 2234XA 370835      DATE/TIME PERFORMED: Thu May 1 18:48:19 2014      DAYS SINCE CAL: 24

UNIT #: 3880TA ML4290

	I.D.	MULT	ADD	I.D. (in)
CALIPER	1992.8	0.00769	-5.34768	9.977
				9.200      10.200

### ZDL PRIMARY CALIBRATION SUMMARY

TOOL: 2234XA 370835      DATE/TIME PERFORMED: Mon Apr 7 11:22:18 2014

UNIT: 3885TD Z4257      CALB BLKS: 2225XA W94304F      CS SRC: 4703NT 16064B

SS CS PK (Channel)	LS CS PK (Channel)	SS_BKGD (cps)	LS BKGD (cps)
223.9	224.5	1173.4	1604.1
220.0      230.0	220.0      230.0		

	SS (cps)	LS (cps)	SHR	DEN (g/cm <sup>3</sup> )	CORR (g/cm <sup>3</sup> )	PE (b/e)
MG (LO PE)	22399.1	11596.0	0.628 0.585      0.685	1.699	0.003	2.150
AL	13032.8	1167.5		2.695	-0.009	
AL + SHIM	17938.3	2035.8		2.613	0.157	
MG + SHIM (HI PE)	10874.4	5529.9	0.249 0.210      0.270			8.700
RATIO AL + SHIM/AL	1.38 1.32      1.42	1.74 1.64      1.84				
RATIO MG/AL	1.72 1.65      1.78	9.93 9.40      10.20				

### ZDL BEFORE LOG VERIFICATION SUMMARY

TOOL #: 2234XA 370835      DATE/TIME PERFORMED: Thu May 1 13:38:24 2014      DAYS SINCE CAL: 24

UNIT #: 3880TA ML4290

	TOTAL (cps)	CSPK (Channel)	HV (V)
LS	1591.9 1504.1 1704.1	224.5 220.0 230.0	1186.0 1100.0 1550.0
SS	1172.0 1073.4 1273.4	224.8 220.0 230.0	1222.0 1100.0 1550.0
	LV (V)	PAD CURRENT (mA)	
	5.0 4.8 5.2	70.5 50.0 120.0	

## RTEX\_RES PRIMARY CALIBRATION SUMMARY

TOOL #: 1241XB 10599960

DATE/TIME PERFORMED: Thu May 1 14:44:18 2014

UNIT #: 3880TA ML4290

CAL FACTORS	F1	F2	F3	F4
MI0L Real	10.95 10.57 11.23	10.94 10.57 11.23	10.94 10.57 11.23	10.95 10.57 11.23
MI0L Quad	0.01 -0.19 0.19	0.01 -0.19 0.19	0.01 -0.19 0.19	-0.00 -0.19 0.19
AI0L Real	16.7 -200.0 200.0	4.8 -200.0 200.0	-9.5 -200.0 200.0	8.6 -200.0 200.0
AI0L Quad	3.6 -200.0 200.0	14.1 -200.0 200.0	-0.0 -200.0 200.0	-9.2 -200.0 200.0
MI0M Real	100.3 97.0 103.0	100.3 97.0 103.0	100.3 97.0 103.0	100.3 97.0 103.0
MI0M Quad	0.282 -1.750 1.750	0.556 -1.750 1.750	0.470 -1.750 1.750	-0.035 -1.750 1.750
AI0M Real	3.8 -200.0 200.0	-6.2 -200.0 200.0	6.9 -200.0 200.0	-20.8 -200.0 200.0
AI0M Quad	-7.9 -200.0 200.0	14.2 -200.0 200.0	9.9 -200.0 200.0	1.8 -200.0 200.0
MI0H Real	3999 3857 4095	3998 3857 4095	3998 3857 4095	3999 3857 4095
MI0H Quad	-4.61 -69.40 69.40	-7.72 -69.40 69.40	-6.66 -69.40 69.40	-5.09 -69.40 69.40
AI0H Real	-44 -2000 2000	-57 -2000 2000	146 -2000 2000	210 -2000 2000
AI0H Quad	37 -2000 2000	-276 -2000 2000	87 -2000 2000	-129 -2000 2000
MVML Real	1.000 0.999 1.001	1.000 0.999 1.001	1.000 0.999 1.001	1.000 0.999 1.001
MVML Quad	0.000 -0.001 0.001	0.000 -0.001 0.001	0.000 -0.001 0.001	0.000 -0.001 0.001
AVML Real	11.6 -200.0 200.0	3.5 -200.0 200.0	-12.3 -200.0 200.0	-9.2 -200.0 200.0
AVML Quad	-2.8 -200.0 200.0	14.1 -200.0 200.0	3.0 -200.0 200.0	-2.7 -200.0 200.0

# RTEX\_RES AFTER LOG VERIFICATION SUMMARY

TOOL #: 1241XB 10599960

DATE/TIME PERFORMED: Thu May 1 18:48:28 2014

DAYS SINCE CAL: 0

UNIT #: 3880TA ML4290

VER FACTORS	F1	F2	F3	F4
MIOL Real	10.94 10.57 11.23	10.93 10.57 11.23	10.94 10.57 11.23	10.94 10.57 11.23
MIOL Quad	0.00 -0.19 0.19	0.01 -0.19 0.19	0.01 -0.19 0.19	-0.00 -0.19 0.19
AIOL Real	14.1 -200.0 200.0	-0.8 -200.0 200.0	3.2 -200.0 200.0	-0.0 -200.0 200.0
AIOL Quad	-20.5 -200.0 200.0	-12.0 -200.0 200.0	-16.6 -200.0 200.0	5.4 -200.0 200.0
MIOM Real	100.3 97.0 103.0	100.2 97.0 103.0	100.2 97.0 103.0	100.3 97.0 103.0
MIOM Quad	0.272 -1.750 1.750	0.544 -1.750 1.750	0.452 -1.750 1.750	-0.043 -1.750 1.750
AIOM Real	-25.3 -200.0 200.0	-38.4 -200.0 200.0	19.2 -200.0 200.0	2.3 -200.0 200.0
AIOM Quad	16.7 -200.0 200.0	15.8 -200.0 200.0	-3.5 -200.0 200.0	-23.7 -200.0 200.0
MIOH Real	3997 3857 4095	3997 3857 4095	3997 3857 4095	3997 3857 4095
MIOH Quad	-4.81 -69.40 69.40	-8.47 -69.40 69.40	-7.30 -69.40 69.40	-5.74 -69.40 69.40
AIOH Real	36 -2000 2000	-131 -2000 2000	138 -2000 2000	93 -2000 2000
AIOH Quad	-111 -2000 2000	238 -2000 2000	44 -2000 2000	-141 -2000 2000
MVML Real	1.000 0.999 1.001	1.000 0.999 1.001	1.000 0.999 1.001	1.000 0.999 1.001
MVML Quad	0.000 -0.001 0.001	0.000 -0.001 0.001	0.000 -0.001 0.001	0.000 -0.001 0.001
AVML Real	-12.6 -200.0 200.0	-10.3 -200.0 200.0	2.3 -200.0 200.0	-23.7 -200.0 200.0
AVML Quad	-1.1 -200.0 200.0	37.7 -200.0 200.0	14.2 -200.0 200.0	-6.9 -200.0 200.0

## INSTRUMENT CONFIGURATION

**CABLEHEAD**

Diameter : 3.38"  
Length : 5.50'  
Weight : 24 lbs  
Series : CABL338  
Mnemonic : CBLH  
Measure Point: 2.75': CABLEHEAD TOP

CABLEHEAD TOP 116.58'

**DOWNHOLE POWER ADAPTER**

Diameter : 3.62"  
Length : 5.27'  
Weight : 86 lbs  
Series : 4430XB  
Mnemonic : DHPA

**TTRM SUB**

Diameter : 3.63"  
Length : 3.83'  
Weight : 62 lbs  
Series : 3981XA  
Mnemonic : TTRM  
Measure Point: 1.38': TEMP MP  
Measure Point: 1.13': RM MP

TEMP MP 106.11'  
RM MP 105.86'

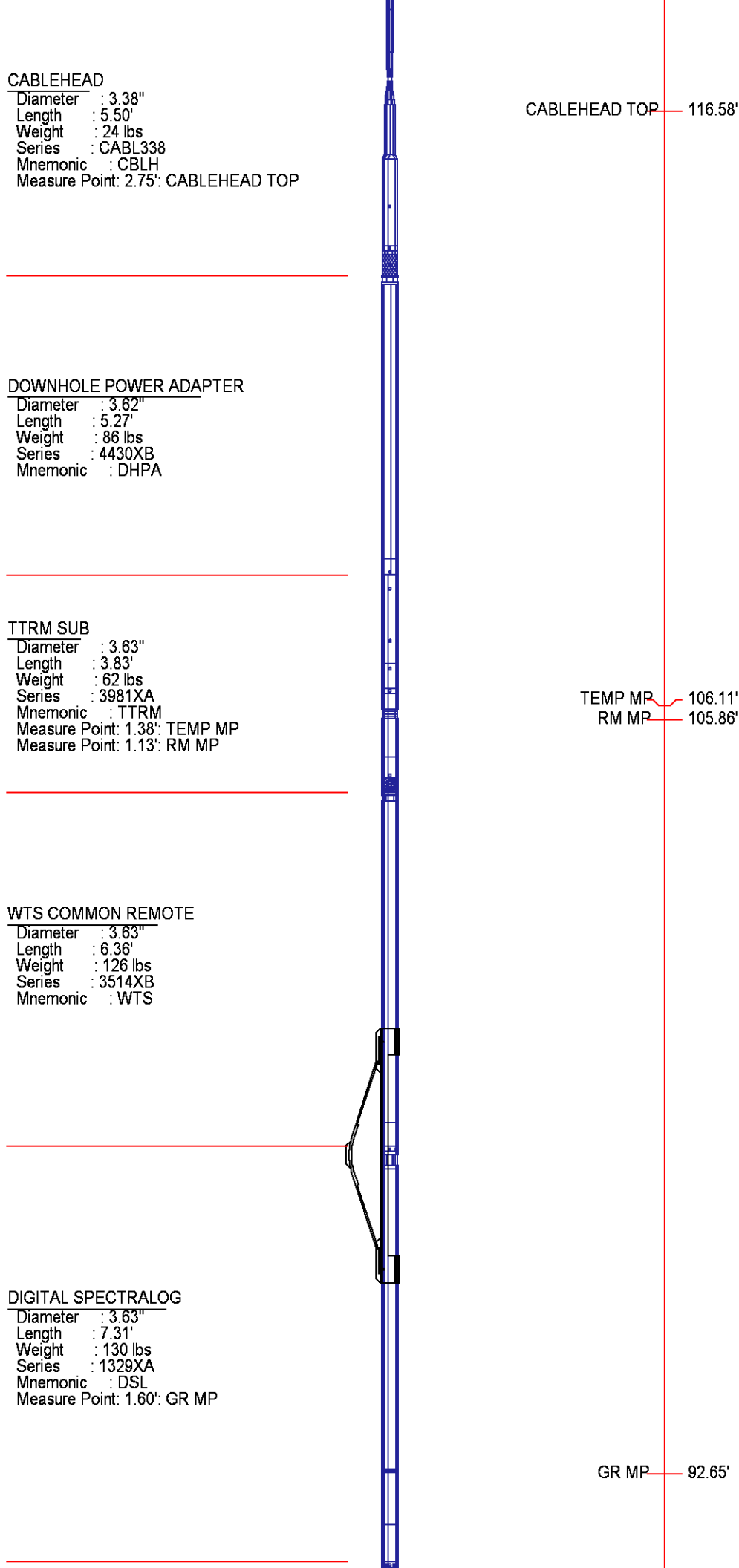
**WTS COMMON REMOTE**

Diameter : 3.63"  
Length : 6.36'  
Weight : 126 lbs  
Series : 3514XB  
Mnemonic : WTS

**DIGITAL SPECTRALOG**

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

GR MP 92.65'



**COMPENSATED NEUTRON**

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

LSN MP — 86.09'  
SSN MP — 85.69'

**MASS ISOLATION SUB**

Diameter : 3.63"  
Length : 2.09'  
Weight : 50 lbs  
Series : 4485XA  
Mnemonic : ISSB

**Z-DENSILOG**

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

CAL MP — 73.35'  
LSD MP — 72.63'  
SSD MP — 72.23'

**KNUCKLE JOINT (DOUBLE)**

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

**WTS RT EXPLORER POWER ADAPTER**

Diameter : 3.63"  
Length : 2.83'  
Weight : 40 lbs  
Series : 1241PA  
Mnemonic : RTEY



Mnemonic : RTEX

WTS RT EXPLORER

Diameter : 4.00"  
Length : 13.54'  
Weight : 210 lbs  
Series : 1241XB  
Mnemonic : RTEX  
Measure Point: 6.93': RTEX mp

RTEX mp 56.06'

DIGITAL ORIENTATION

Diameter : 3.38"  
Length : 10.81'  
Weight : 110 lbs  
Series : 4401XB  
Mnemonic : ORIT  
Measure Point: 0.00': ORIENT MP

ORIENT MP 38.32'

MASS ISOLATION SUB

Diameter : 3.63"  
Length : 2.09'  
Weight : 50 lbs  
Series : 4485XA  
Mnemonic : ISSB



ARRAY ACOUSTILOG ELECTRONICS, 8 CHANNEL

Diameter : 3.38"  
Length : 7.82'  
Weight : 102 lbs  
Series : 1677EA  
Mnemonic : XMAC

CROSS MULTIPOLE ARRAY ACOUSTILOG

Diameter : 3.75"  
Length : 10.91'  
Weight : 224 lbs  
Series : 1678MC  
Mnemonic : XMF1  
Measure Point: 5.50': R8  
Measure Point: 5.00': R7  
Measure Point: 4.50': R6  
Measure Point: 4.00': R5  
Measure Point: 3.50': R4  
Measure Point: 3.00': R3  
Measure Point: 2.50': R2  
Measure Point: 2.00': R1

R8 — 23.01'  
R7 — 22.51'  
R6 — 22.01'  
R5 — 21.51'  
R4 — 21.01'  
R3 — 20.51'  
R2 — 20.01'  
R1 — 19.51'

SHEAR WAVE ACOUSTILOG

Diameter : 3.63"  
Length : 5.00'  
Weight : 135 lbs  
Series : 1678PB  
Mnemonic : XMAC

MONOPOLE T2 — 11.01'  
QUADRUPOLE T5 — 11.01'

MULTI-POLE ARRAY ACOUSTIC

Diameter : 3.88"  
Length : 7.92'  
Weight : 170 lbs  
Series : 1678PB

X-DIPOLE T3 — 9.26'  
Y-DIPOLE T4 — 9.26'



Series : 1678BA  
 Mnemonic : XMAC  
 Measure Point: 6.42': QUADRUPOLE T5  
 Measure Point: 6.42': MONOPOLE T2  
 Measure Point: 4.67': Y-DIPOLE T4  
 Measure Point: 4.67': X-DIPOLE T3  
 Measure Point: 2.92': MONOPOLE T1

MONOPOLE T1 7.52'

MULTI-POLE ARRAY ACOUSTIC


Diameter : 3.38"  
 Length : 4.32'  
 Weight : 58 lbs  
 Series : 1678FA  
 Mnemonic : MAC



BULL PLUG 3 3/8

0.00'

TOTAL LENGTH: 119.33'  
 TOTAL WEIGHT: 2222 lbs  
 MAX DIAMETER: 0'4.88"

	<b>COMPANY</b> <u>CHESAPEAKE APPALCHIA, LLC.</u> <b>WELL</b> <u>JAMES MESSENGER WTZ 3H U</u> <b>FIELD</b> <u>WETZEL</u> <b>COUNTY</b> <u>WETZEL</u> STATE <u>WEST VIRGINIA</u>	<b>FILE NO:</b> <hr/> <b>API NO:</b> <u>47-103-02973</u>
	<b>LOCATION:</b> STATE TOWNSHIP: PROCTOR QUAD: WILEYVILLE LAT <u>39.673693 N</u> LONG <u>80.690861 W</u>	<b>ELEVATIONS:</b> KB 1517 FT DF 1517 FT GL 1495 FT DATE <u>02-MAY-2014</u>