BAKER HUGHES

HIGH DEFINITION INDUCTION LOG SM
COMPENSATED Z-DENSILOG SM
COMPENSATED NEUTRON LOG
GAMMA RAY LOG
CALIPER LOG

FILE NO: 633639

API NO: 05045216590000

COMPANY WPX ENERGY
WELL DUGGAN RWF 324-29
FIELD RULISON
COUNTY GARFIELD STATE CO

Version
S29 T6S R94W
PAD: RWF 14-29
RIG: NABORS 573

LOCATION:
SHL: 538' FSL, 599' FWL
BHL: 973' FSL, 2015 FWL

SEC 29 TWP 6S RGE 94W

OTHER SERVICES
NONE

PERMANENT DATUM G.L. ELEVATION 5419.2 FT
LOG MEASURED FROM K.B. 26 FT ABOVE P.D.
DRILL. MEAS. FROM K.B.

ELEVATIONS:
KB 5445.2 FT
DF
GL 5419.2 FT

DATE		23-MAY-2013			
RUN	TRIP	1	1		
SERVICE ORDER		633639			
DEPTH DRILLER		8100 FT			
DEPTH LOGGER		8094 FT			
BOTTOM LOGGED INTERVAL		8078 FT			
TOP LOGGED INTERVAL		0 FT			
CASING DRILLER		9.625 IN @ 1160 FT		@	
CASING LOGGER		1132 FT			
BIT SIZE		8.75 IN			
TYPE OF FLUID IN HOLE		LSND			
DENSITY	VISCOSITY	14.1 LB/G	95 S		
PH	FLUID LOSS	9.7	6.0 C3		
SOURCE OF SAMPLE		FLOWLINE			
RM AT MEAS. TEMP.		1.52 OHMM @ 88 DEGF		@	
RMF AT MEAS. TEMP.		1.14 OHMM @ 88 DEGF		@	
RMC AT MEAS. TEMP.		1.9 OHMM @ 88 DEGF		@	
SOURCE OF RMF	RMC	CALCULATED	CALCULATED		
RM AT BHT		1.123 OHMM @ 190 DEGF		@	
TIME SINCE CIRCULATION		4.5HRS			
MAX. RECORDED TEMP.		192 DEGF			
EQUIP. NO.	LOCATION	6685	ROCK SPRING		
RECORDED BY		PATTON/KRONBERG			
WITNESSED BY		RON			

CASING RECORD

SIZE	WEIGHT	GRADE	FROM	TO
9.625 IN	32.30 LB/F		0 FT	1147 FT

BOREHOLE RECORD

BIT SIZE	FROM	TO
8.75 IN	1147 FT	8100 FT

REMARKS

RUN 1 TRIP 1 : HDIL ZDL CN GR RUN IN COMBINATION

AT 270' HOISTMAN STOPPED AND RESTARTED CAUSING GR SPIKE

BVOL CVOL CALCULATED USING PROPOSED 4.5" CASING
CALIPER VERIFIED IN CASING

REPEAT RECORDED 200' BELOW CASING

HDIL RAN WITH 1.5" STANDOFFS
ABC TO CALCULATE MUD CONDUCTIVITY

RHO MATRIX: 2.68 G/CC
RHO FLUID: 1.00 G/CC

CN MATRIX: SANDSTONE

CN RAN WITH BOWSPRING DECRENTRALIZER

THANK YOU FOR CHOOSING BAKER HUGHES WIRELINE
CREW: PATTON/KRONBERG/COATE/MORTON/FLEMING
RIG: NABORS 573

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	TTMA	3980XA	10120299	FREE
1	1	GR	3518EG	10411092	FREE
1	1	CN	2436XA	10124366	DECENTRALIZED
1	1	ZDL	2223XA	10090664	PAD DEVICE
1	1	HDIL	1530XA	10120519	CENTRALIZED

MAIN LOG 2"/100FT SCALE

ECLIPS 6.1i Aug 06, 2010
Updates: 1,2 Patches: 2

Fri May 24 05:21:12 2013

Pcrplt /main/62 Cplot Pdf_Cpp /main/16 Fileview 5.61

PARAMETER AND FILTER SUMMARY REPORT

File: /data/633639/m970a02.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 979.750 ft BOTTOM DEPTH: 8114.625 ft

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft) TOP	BOTTOM
GR MED RES	FILTER ()	medium (1)		TOP	BOTTOM
CALIPER	FILTER ()	medium (1)		''	''
TENSION	FILTER ()	medium (1)		''	''
SP-SPDH	FILTER ()	heavy (3)		''	''

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft) TOP	BOTTOM
BIT SIZE	BIT SIZE	8.750	in	TOP	BOTTOM
BOREHOLE CORR DIAMETER SOURCE	CALIPER/FIXED DIA. (mbh*)	USE CALIPER		''	''
BOREHOLE CORR DIAMETER	FIXED DIAMETER (mbh*)	8.750	in	''	''
MUD SAMPLE RESISTIVITY	MUD SAMPLE TEMP	88.0	degF	''	''
	MUD SAMPLE RES	1.520	ohm.m	''	''
BH MUD RESISTIVITY SOURCE	RMUD SOURCE (HDIL)	TOOL MEASURED		''	''
BOREHOLE TEMP from GRADIENT	Known BH REF TEMP	88.0	degF	''	''
	at BH REF DEPTH	0.0	ft	''	''
	with TEMP GRADIENT	1.200	0.01 degF/ft	''	''

ACCELERATION PROCESSING

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

HDIL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft) TOP	BOTTOM
HDIL TEMPERATURE CORRECTION	TEMP CORRECTION	ON		TOP	BOTTOM
ADAPTIVE BOREHOLE CORRECTION	ABC PROCESSING	ON		''	''
	ABC to CALCULATE	MUD CONDUCTIVITY		''	''
	STANDOFF	1.50	in	''	''
	TOOL POSITION	ECCENTERED		''	''
	Rmud MULTIPLIER	1.000		''	''

CURVE DESCRIPTION REPORT

CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:GR	May 24 02:11:04 2013	GAMMA RAY
F1:MOC6	May 24 02:11:04 2013	FOCUSED CONDUCTIVITY, 60-INCH DOI
F1:MOR2	May 24 02:11:04 2013	TRUE FOCUSED RESISTIVITY FOR HDIL, 20-INCH DOI
F1:MOR6	May 24 02:11:04 2013	TRUE FOCUSED RESISTIVITY FOR HDIL, 60-INCH DOI
F1:SP	May 24 02:11:04 2013	SPONTANEOUS POTENTIAL
F1:TEN	May 24 02:11:04 2013	DIFFERENTIAL TENSION

CURVE MEASURE POINT OFFSET

CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
GR	35.00	MOR2	2.75	SP	1.25		
MOC6	2.75	MOR6	2.75	TEN	0.00		

Presentation : rks6685:/dat1a/633639/WPX_2IN.pdf [2"/100' Scale]
Plot Interval : -2 - 8120 Feet

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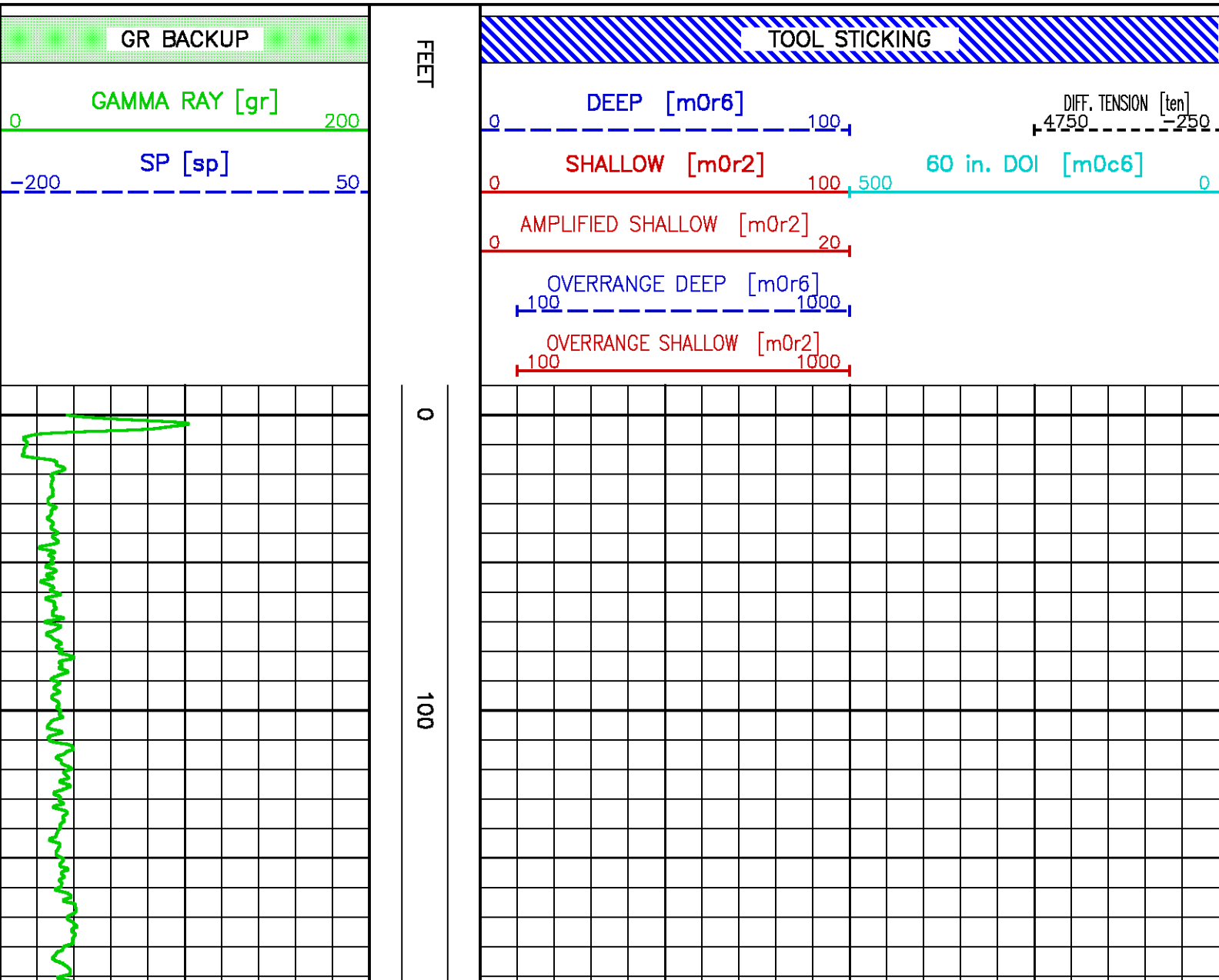
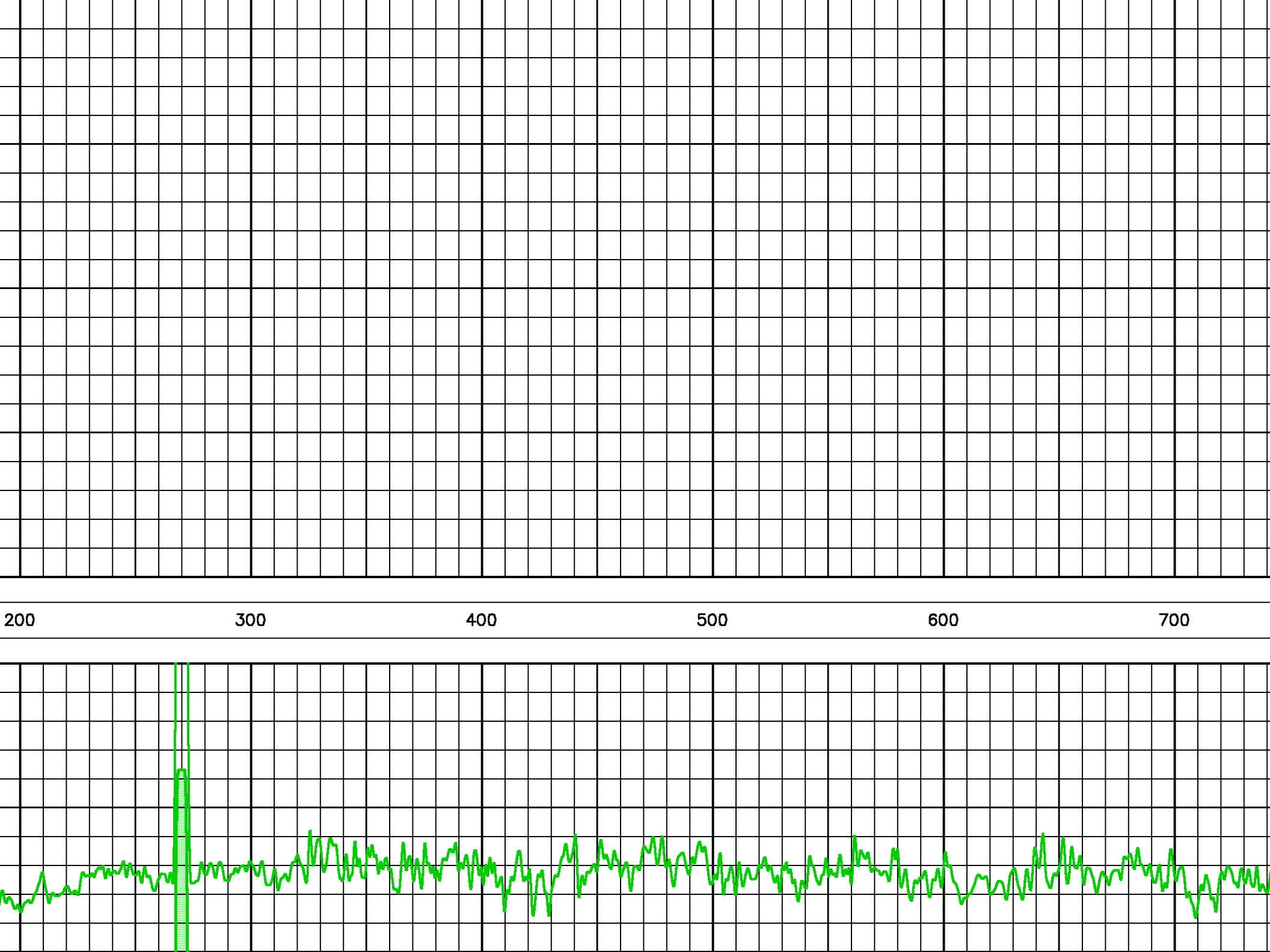
Company : WPX ENERGY
Well : DUGGAN RWF 324-29
Field : RULISON
File Interval : -2 - 8120 Feet
Oct : m970a

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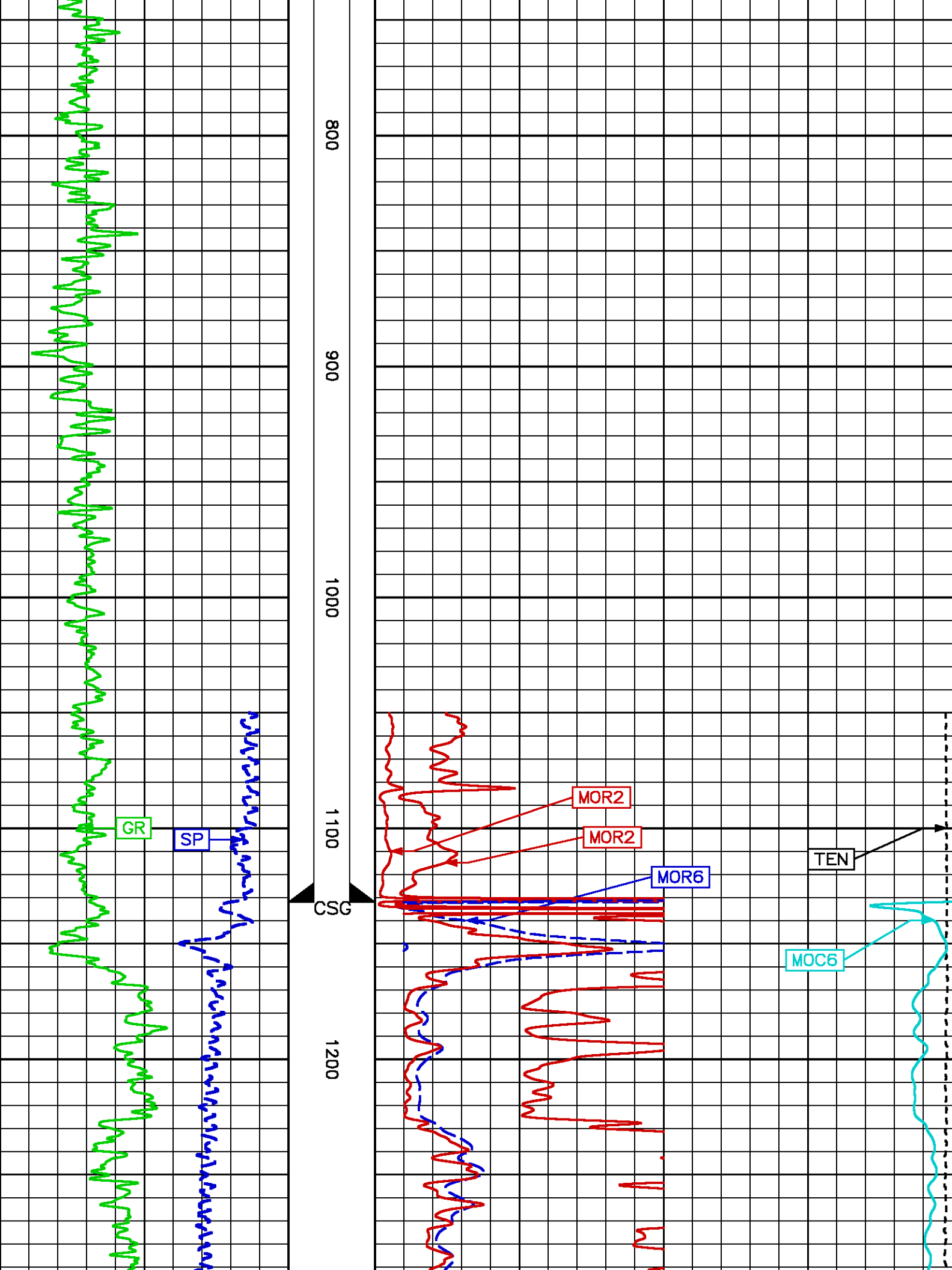
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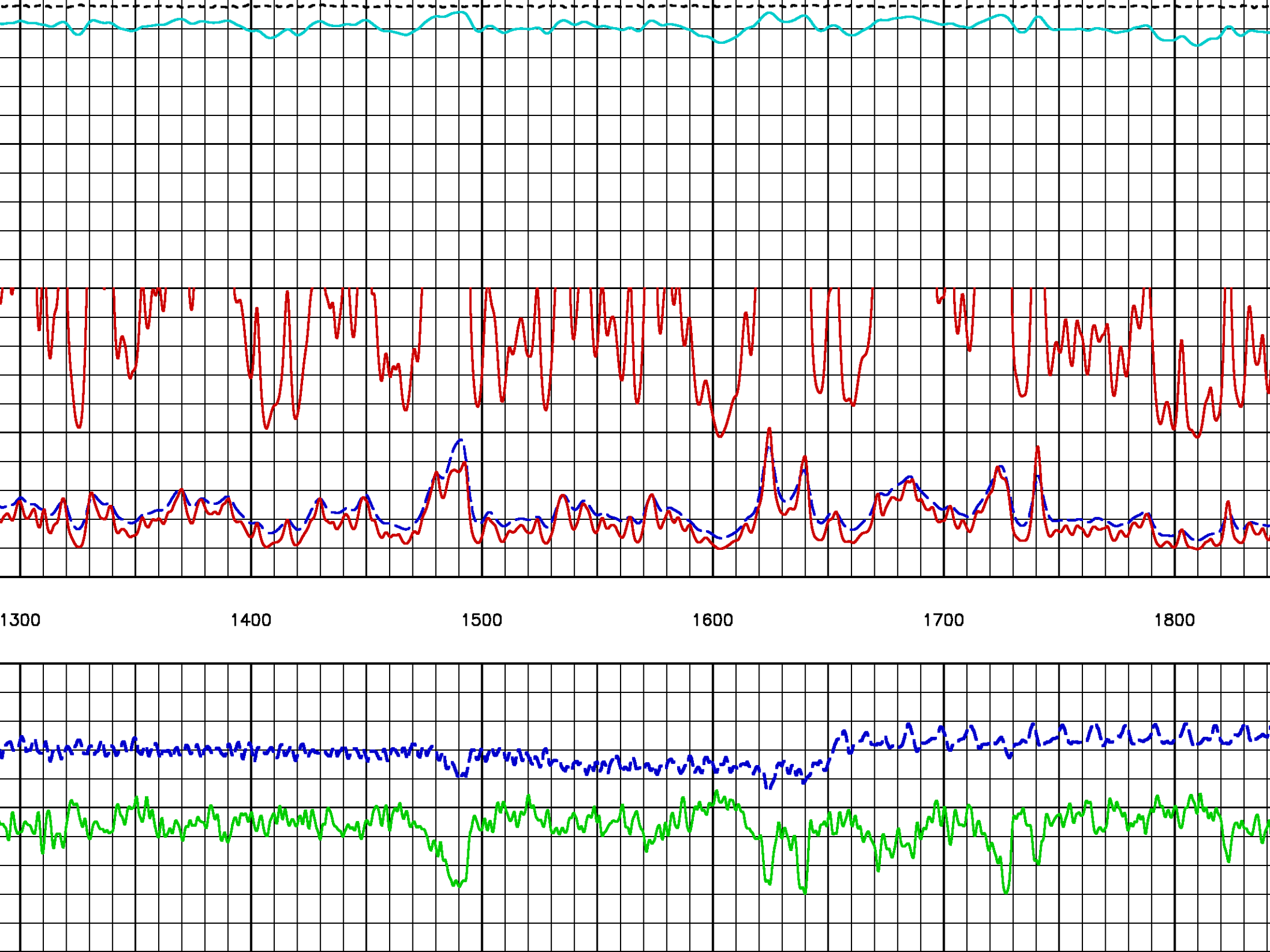
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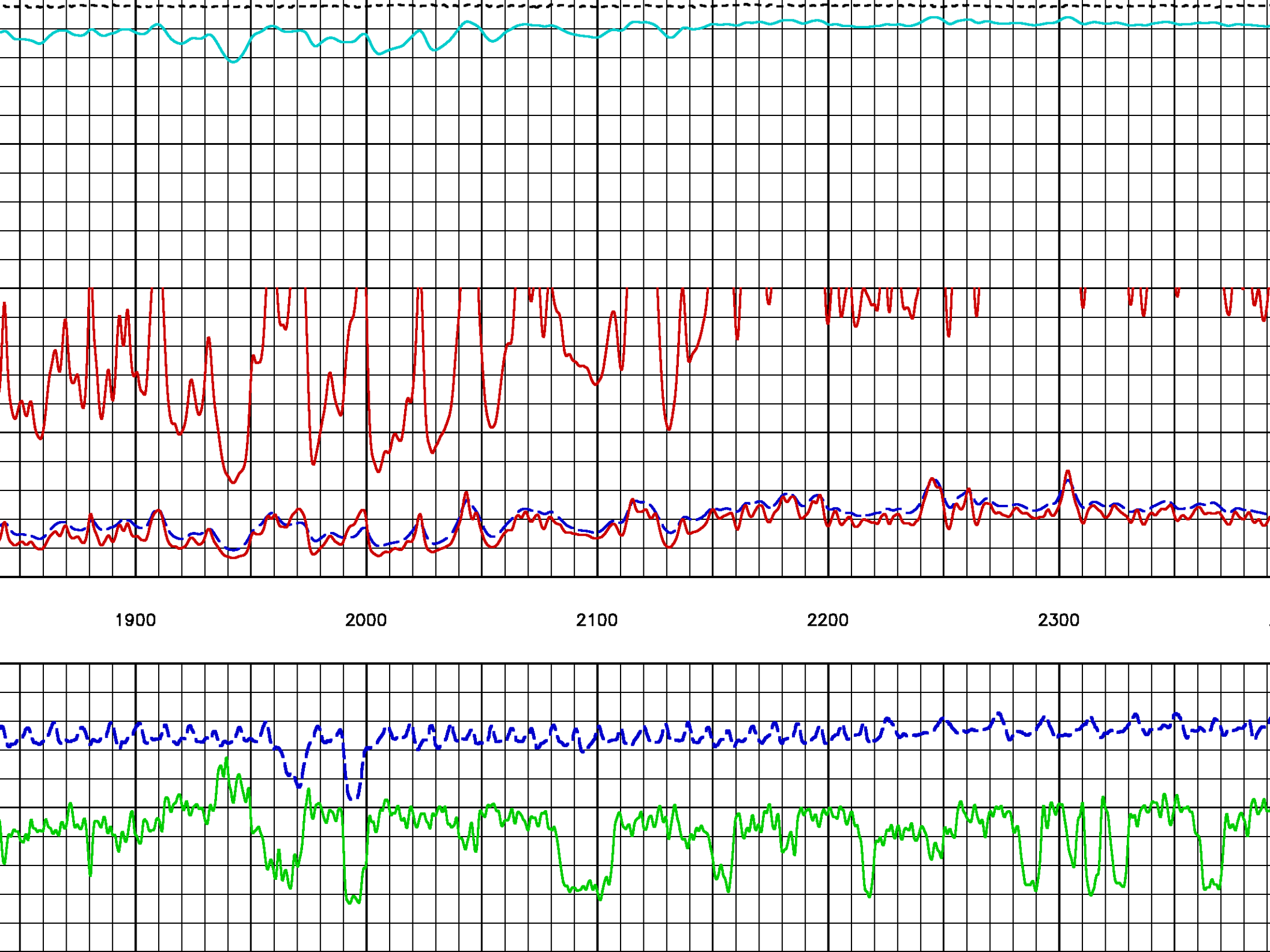
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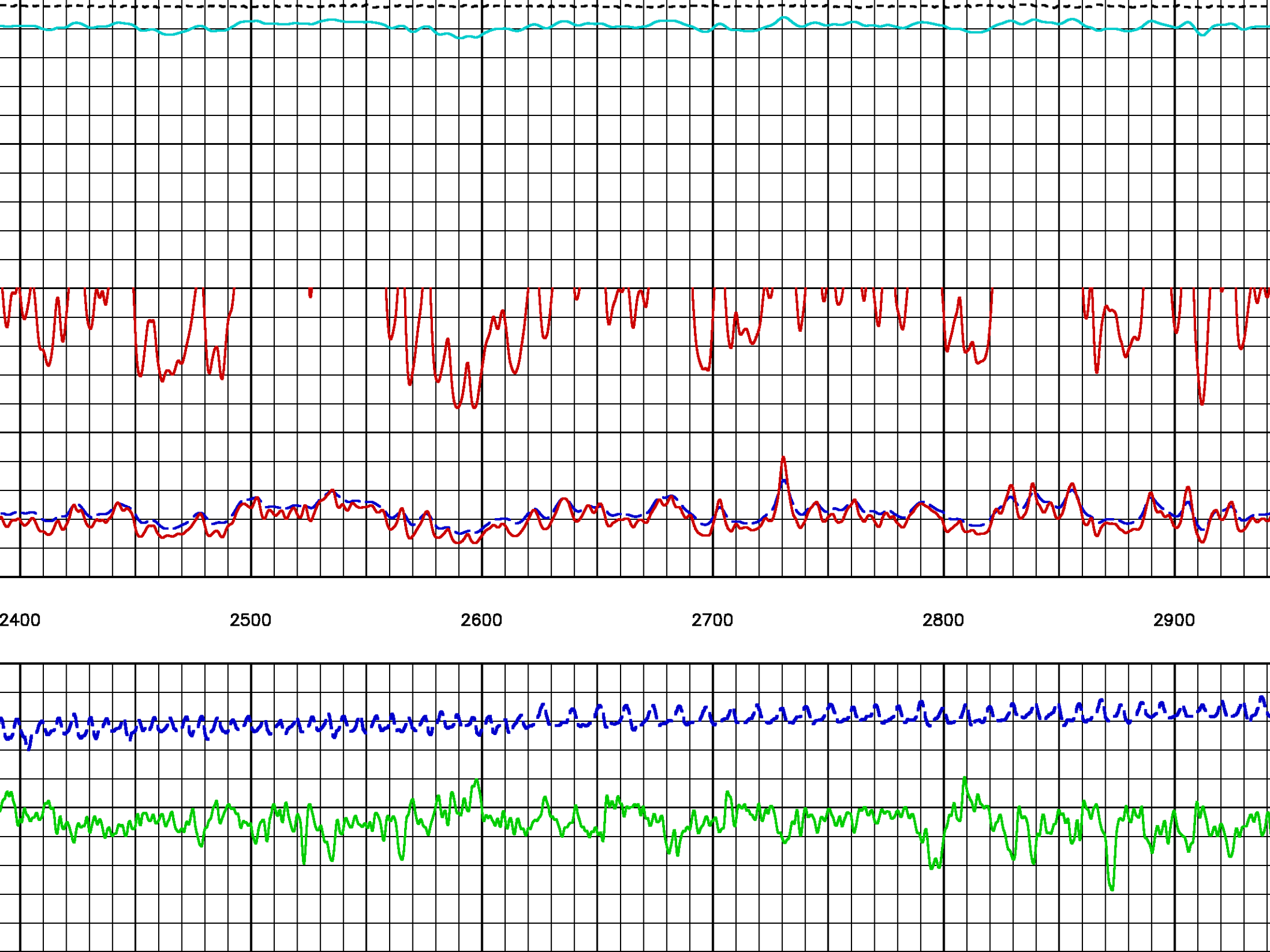
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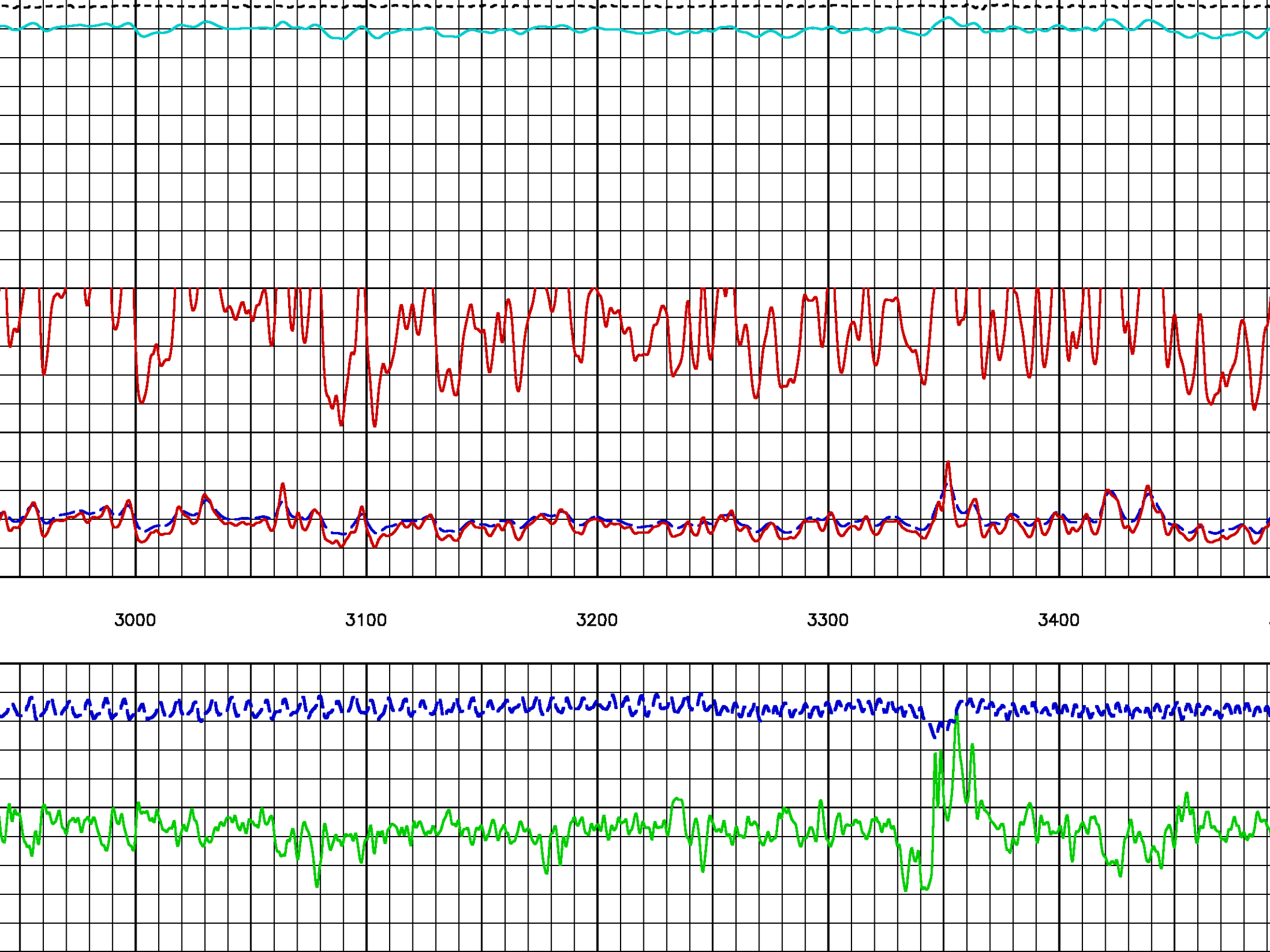
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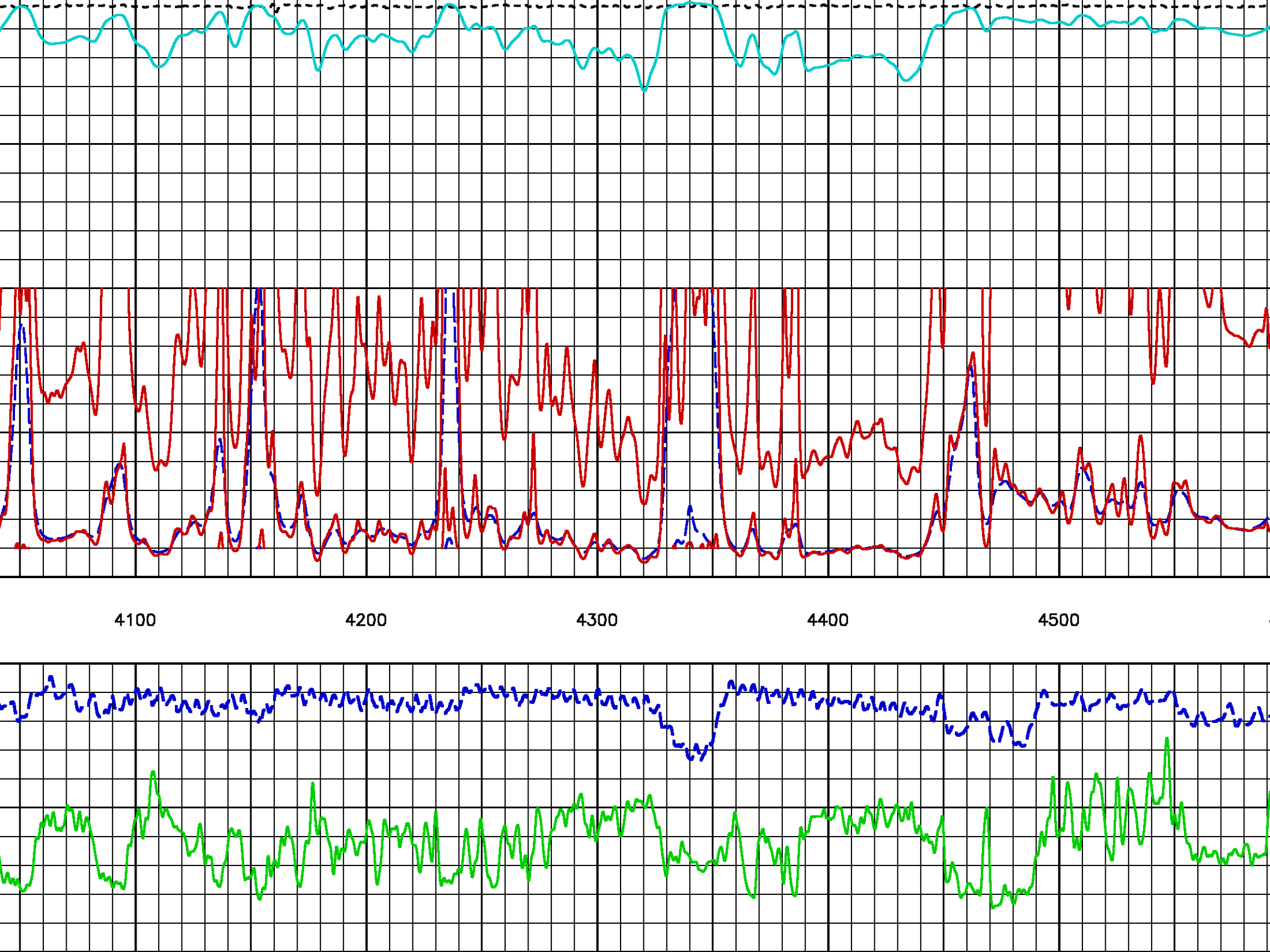
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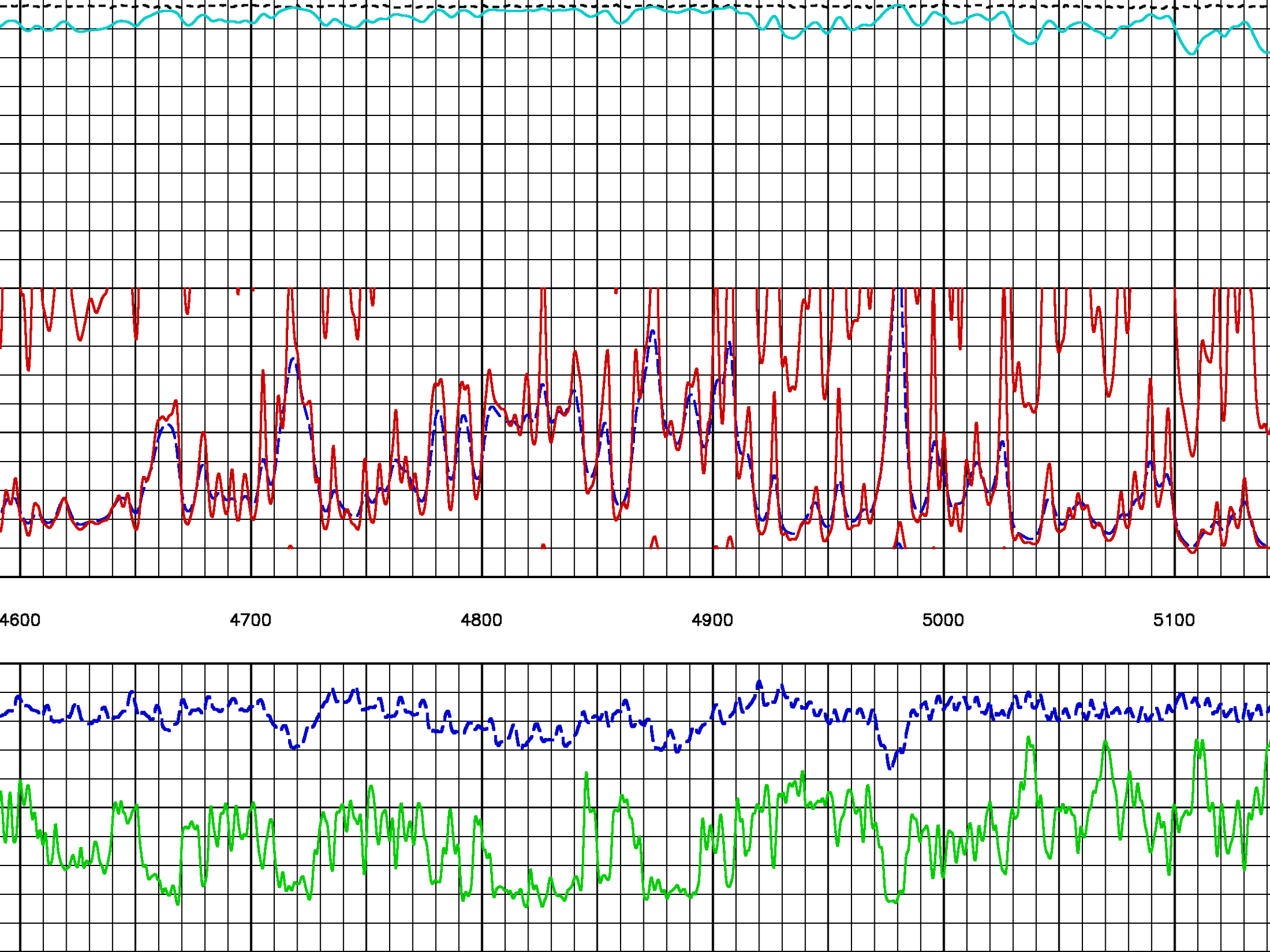
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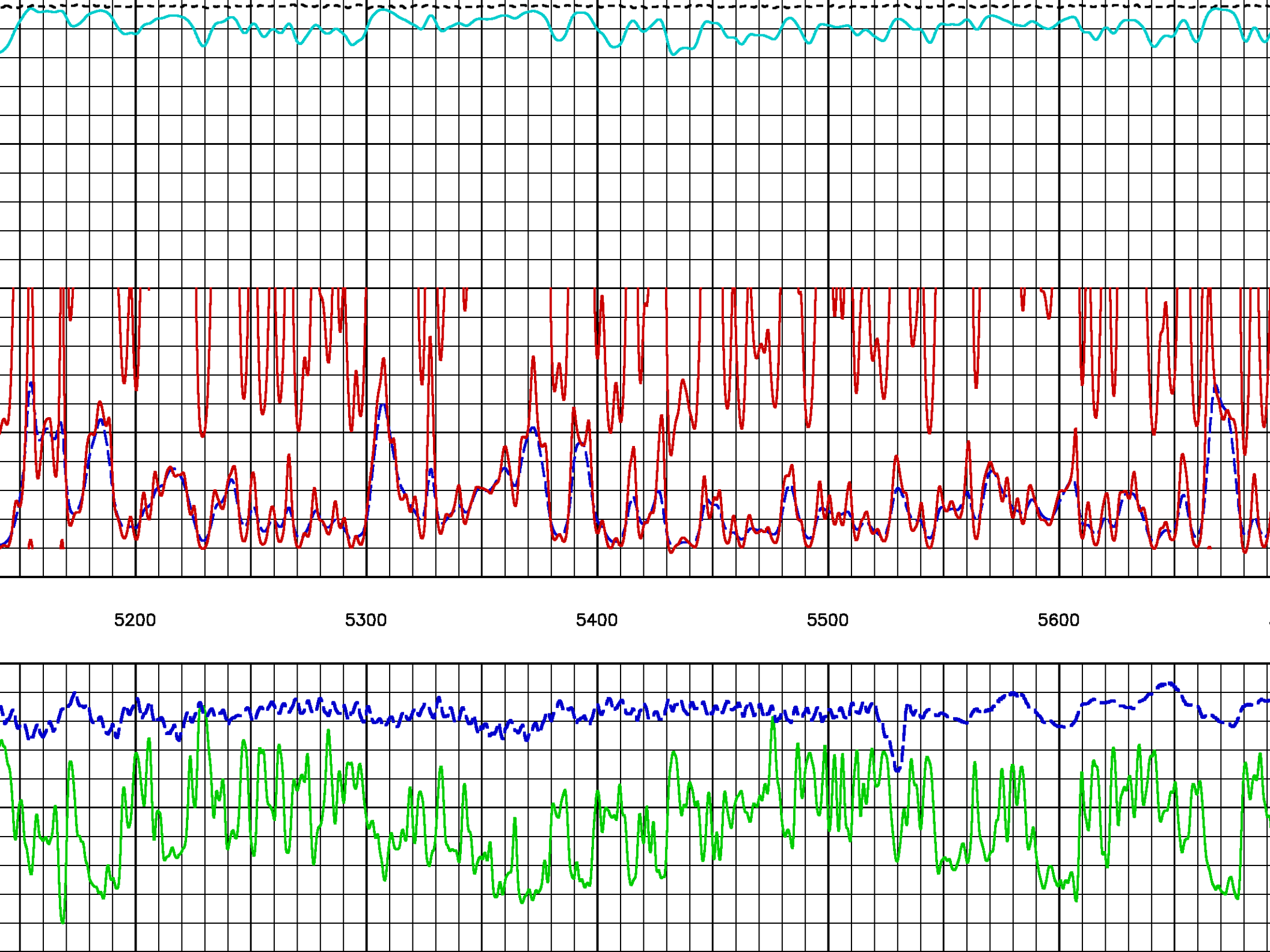
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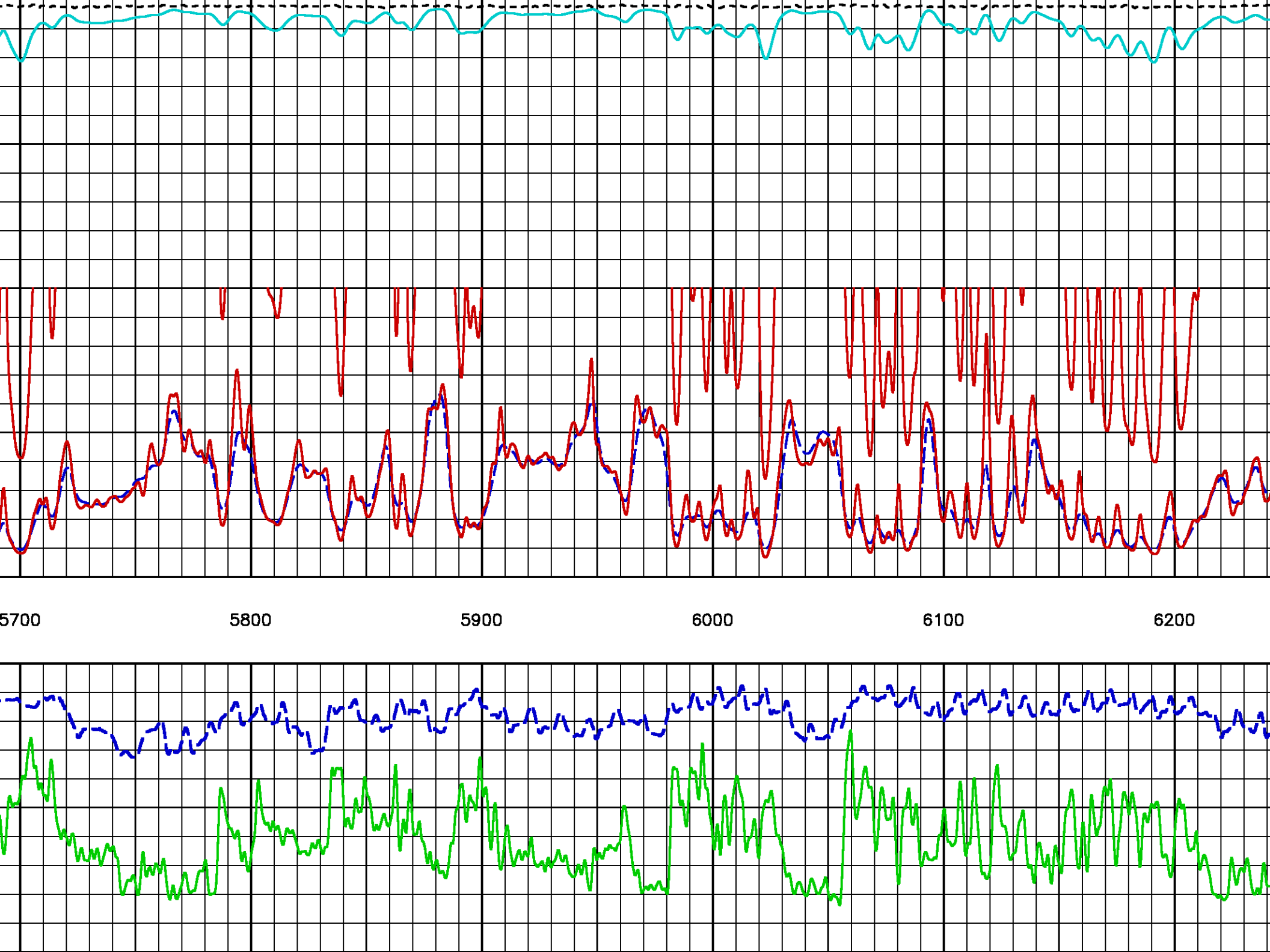
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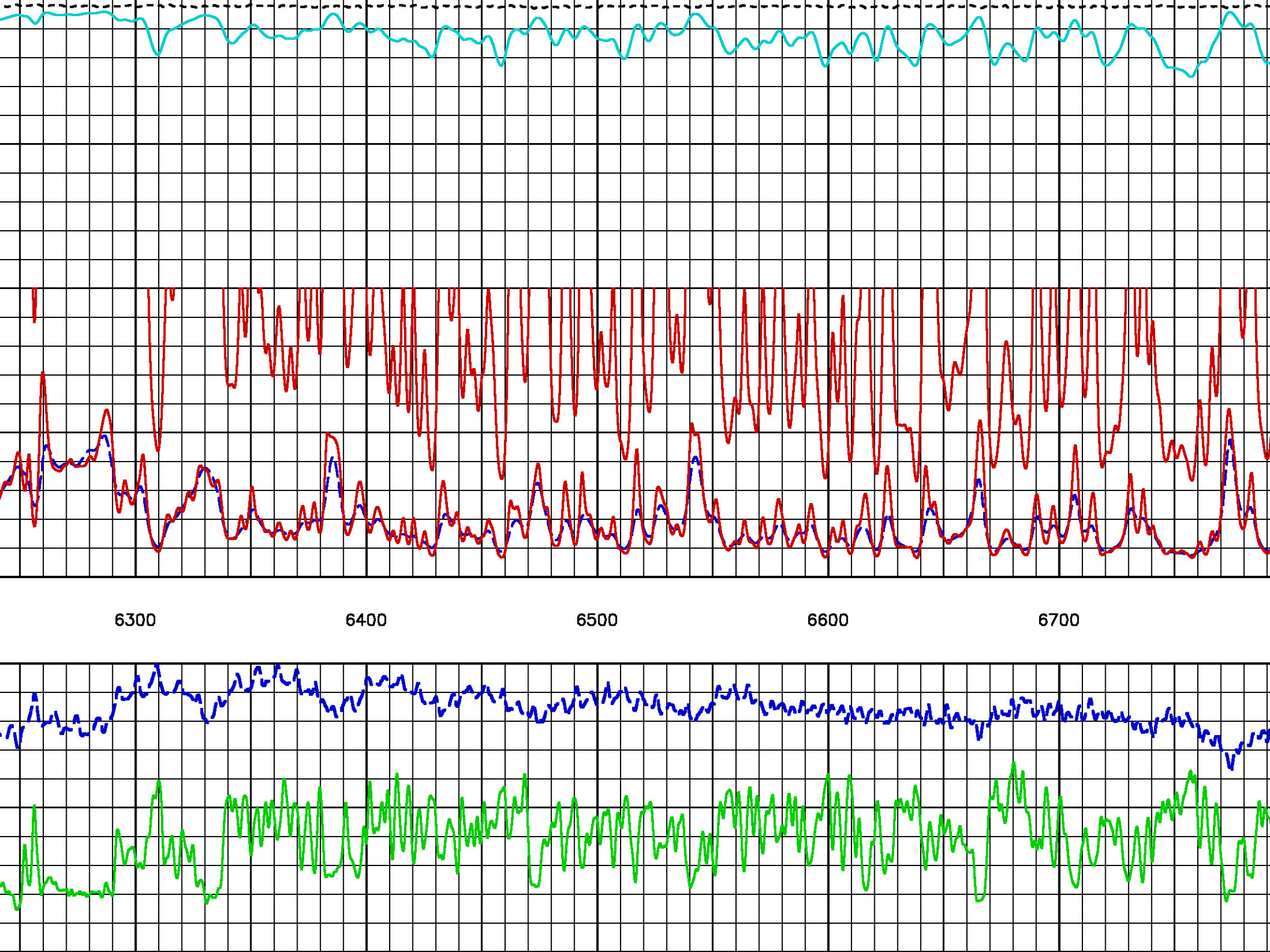
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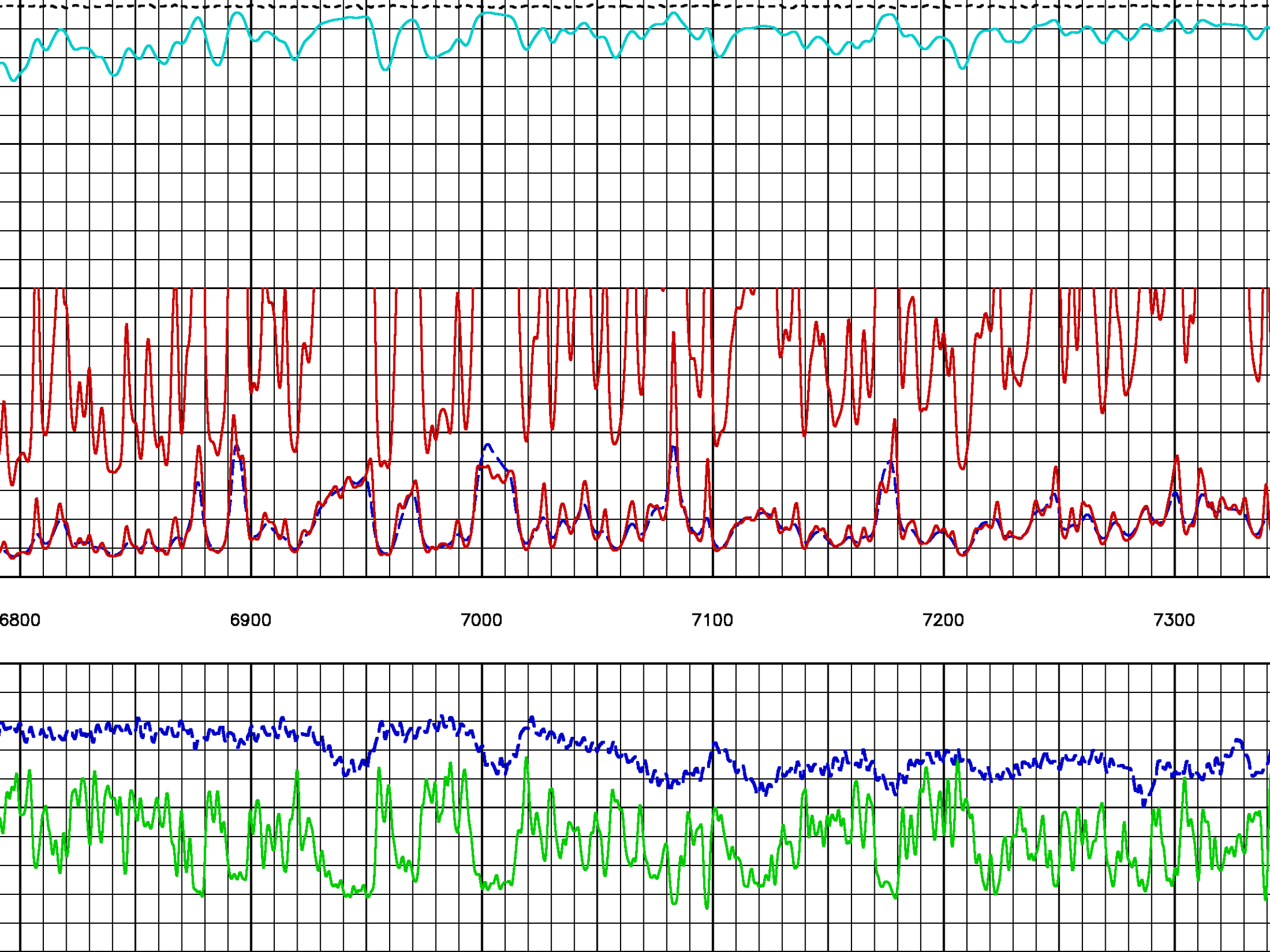
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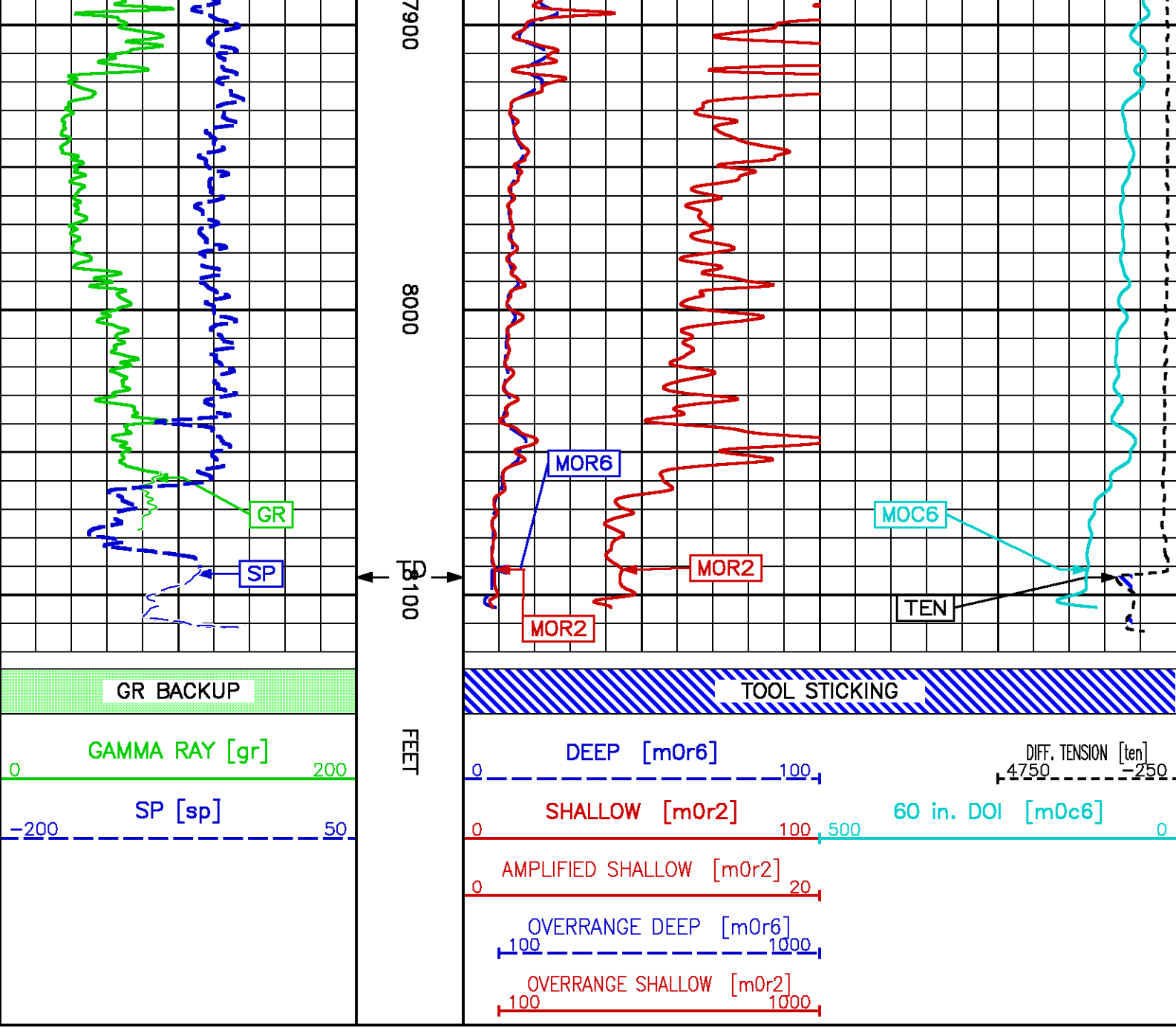

MAIN LOG 5"/100FT SCALE

ECLIPS 6.1i Aug 06, 2010
Updates: 1,2 Patches: 2

Fri May 24 05:22:33 2013

Pcrplt /main/62 Cplot Pdf_Cpp /main/16 Fileview 5.61

PARAMETER AND FILTER SUMMARY REPORT

File: /dat1a/633639/m970a02.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 979.750 ft BOTTOM DEPTH: 8114.625 ft

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)

GR MED RES	FILTER ()	medium (1)		TOP	BOTTOM
CALIPER	FILTER ()	medium (1)		''	''
TENSION	FILTER ()	medium (1)		''	''
CN MED RES	FILTER ()	medium (1)		''	''
ZDL MED RES	FILTER (hrd1*)	medium		''	''
	FILTER (hrd1s*)	medium		''	''
	FILTER (hrd2*)	medium		''	''
	FILTER (hrd2s*)	medium		''	''
	FILTER (soft*)	medium		''	''
SP-SPDH	FILTER ()	heavy (3)		''	''

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
CASING - BOREHOLE & CEMENT VOLUME	CASING O.D.	4.500	in	TOP	BOTTOM
	CASING THICKNESS	0.000	in	''	''
BIT SIZE	BIT SIZE	8.750	in	''	''
BOREHOLE CORR DIAMETER SOURCE	CALIPER/FIXED DIA. (cnbh*)	USE CALIPER		''	''
	CALIPER/FIXED DIA. (mbh*)	USE CALIPER		''	''
BOREHOLE CORR DIAMETER	FIXED DIAMETER (cnbh*)	8.750	in	''	''
	FIXED DIAMETER (mbh*)	8.750	in	''	''
MUD SAMPLE RESISTIVITY	MUD SAMPLE TEMP	88.0	degF	''	''
	MUD SAMPLE RES	1.520	ohm.m	''	''
BH MUD RESISTIVITY SOURCE	RMUD SOURCE (HDIL)	TOOL MEASURED		''	''
BOREHOLE TEMP from GRADIENT	Known BH REF TEMP	88.0	degF	''	''
	at BH REF DEPTH	0.0	ft	''	''
	with TEMP GRADIENT	1.200	0.01 degF/ft	''	''

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	900	ppm	''	''
	BOREHOLE CORRECTION	ON		''	''
CN CASING & CEMENT CORRECTION	CORRECTION	OFF		''	''
	BIT SIZE BEHIND CSNG	8.750	in	''	''

ZDL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
DENSITY POROSITY	Air Filled Borehole	NO		TOP	BOTTOM
	RHOmatrix	2.680	g/cm3	''	''
	RHOfluid	1.000	g/cm3	''	''

HDIL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
HDIL TEMPERATURE CORRECTION	TEMP CORRECTION	ON		TOP	BOTTOM
ADAPTIVE BOREHOLE CORRECTION	ABC PROCESSING	ON		''	''
	ABC to CALCULATE	MUD CONDUCTIVITY		''	''
	STANDOFF	1.50	in	''	''
	TOOL POSITION	ECCENTERED		''	''
	Rmud MULTIPLIER	1.000		''	''

CURVE DESCRIPTION REPORT

CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:BIT	May 24 02:11:04 2013	BIT SIZE
F1:BVOL	May 24 02:11:04 2013	BOREHOLE VOLUME
F1:CAL	May 24 02:11:04 2013	CALIPER
F1:CNCF	May 24 02:11:04 2013	FIELD NORMALIZED COMPENSATED NEUTRON POROSITY
F1:CVOL	May 24 02:11:04 2013	CEMENT VOLUME
F1:GR	May 24 02:11:04 2013	GAMMA RAY
F1:M2R1	May 24 02:11:04 2013	VERTICAL 2-FOOT RESOLUTION MATCHED RESISTIVITY, 10-INCH DOI
F1:M2R6	May 24 02:11:04 2013	VERTICAL 2-FOOT RESOLUTION MATCHED RESISTIVITY, 60-INCH DOI
F1:M2R9	May 24 02:11:04 2013	VERTICAL 2-FOOT RESOLUTION MATCHED RESISTIVITY, 90-INCH DOI

F1:PE	May 24 02:11:04 2013	PHOTO ELECTRIC CROSS-SECTION
F1:PORZ	May 24 02:11:04 2013	POROSITY FOR SELECTABLE MATRIX
F1:SP	May 24 02:11:04 2013	SPONTANEOUS POTENTIAL
F1:TEN	May 24 02:11:04 2013	DIFFERENTIAL TENSION
F1:ZCOR	May 24 02:11:04 2013	DENSITY CORRECTION

CURVE MEASURE POINT OFFSET

CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
BIT	0.00	GR	35.00	M2R9	2.75	SP	1.25
CAL	18.12	M2R1	2.75	PE	18.00	TEN	0.00
CNCF	27.38	M2R6	2.75	PORZ	18.00	ZCOR	18.00

Presentation : rks6685:/dat1a/633639/WPX_MAIN-5IN.pdf [5"/100' Scale]
Plot Interval : -2 - 8120 Feet

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Well : DUGGAN RWF 324-29
Field : RULISON
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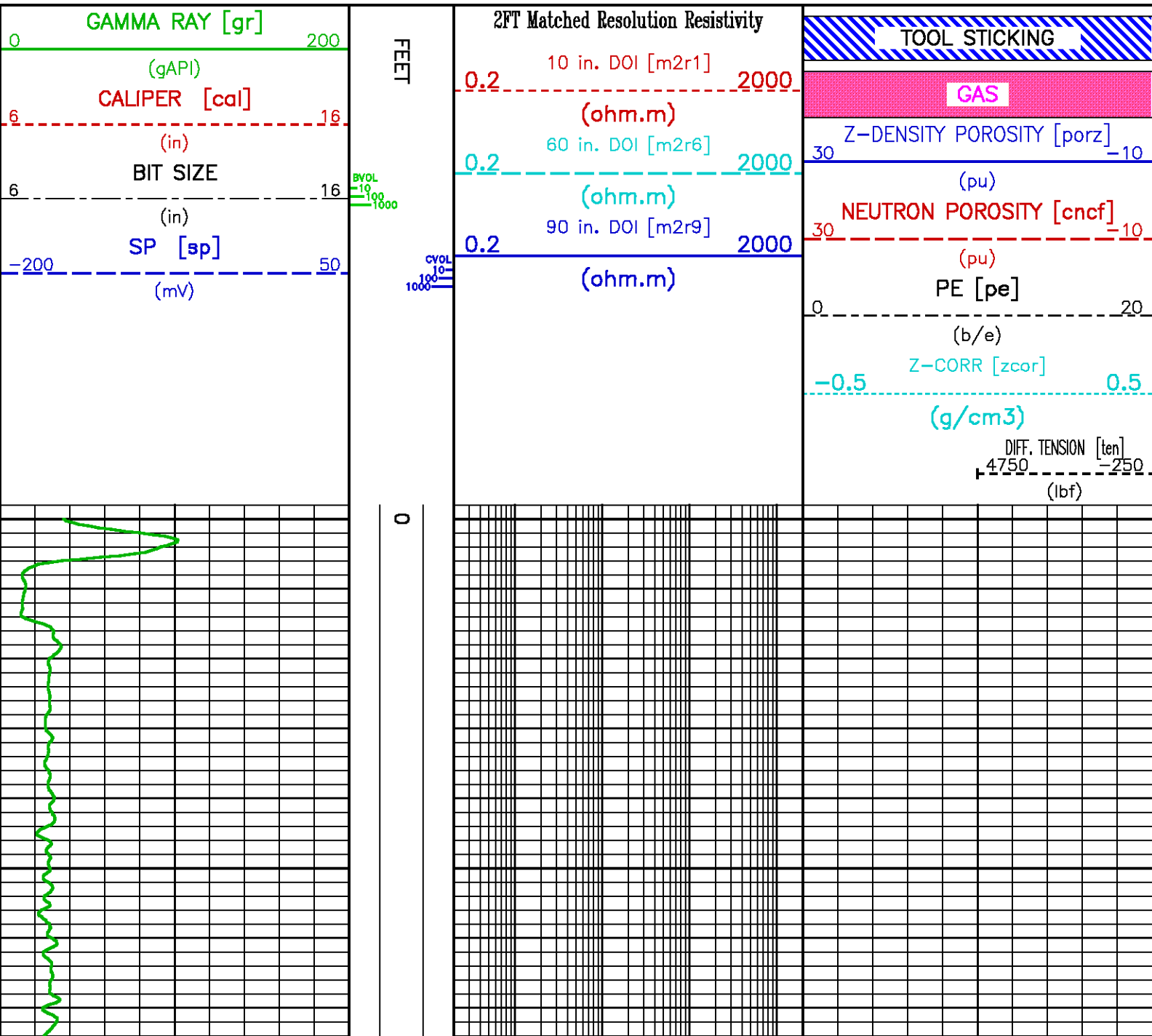
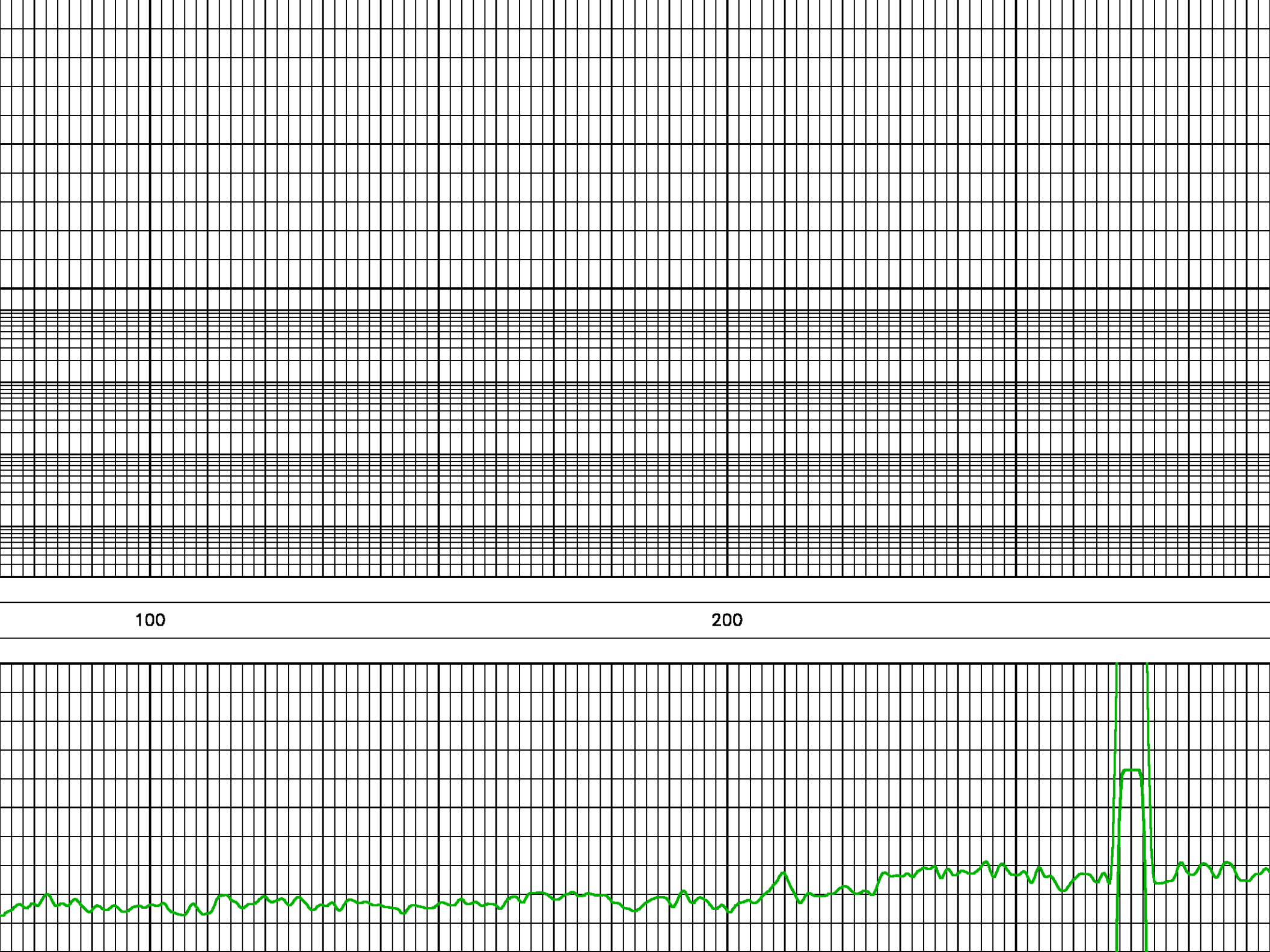
Oct : m970a

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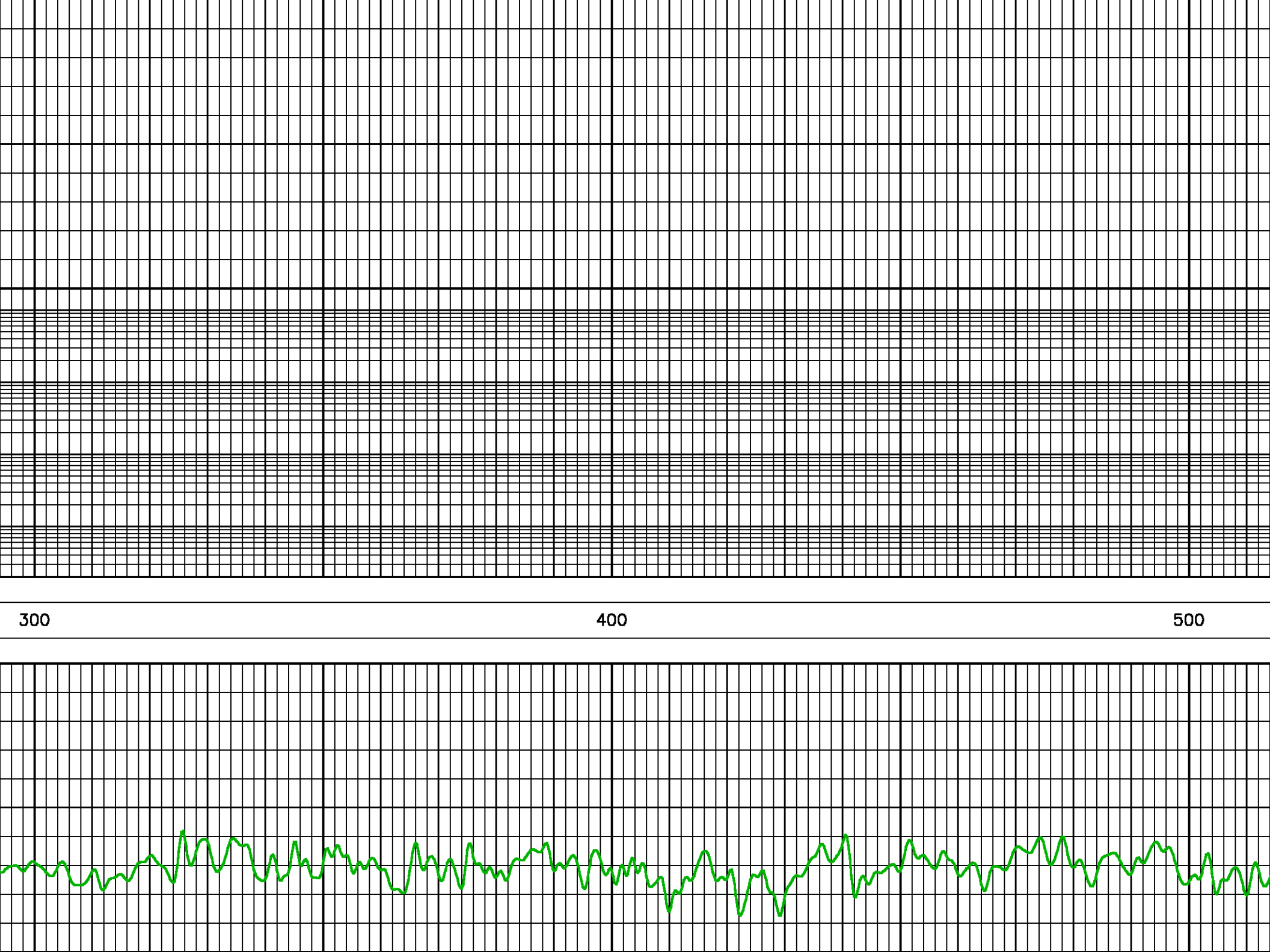
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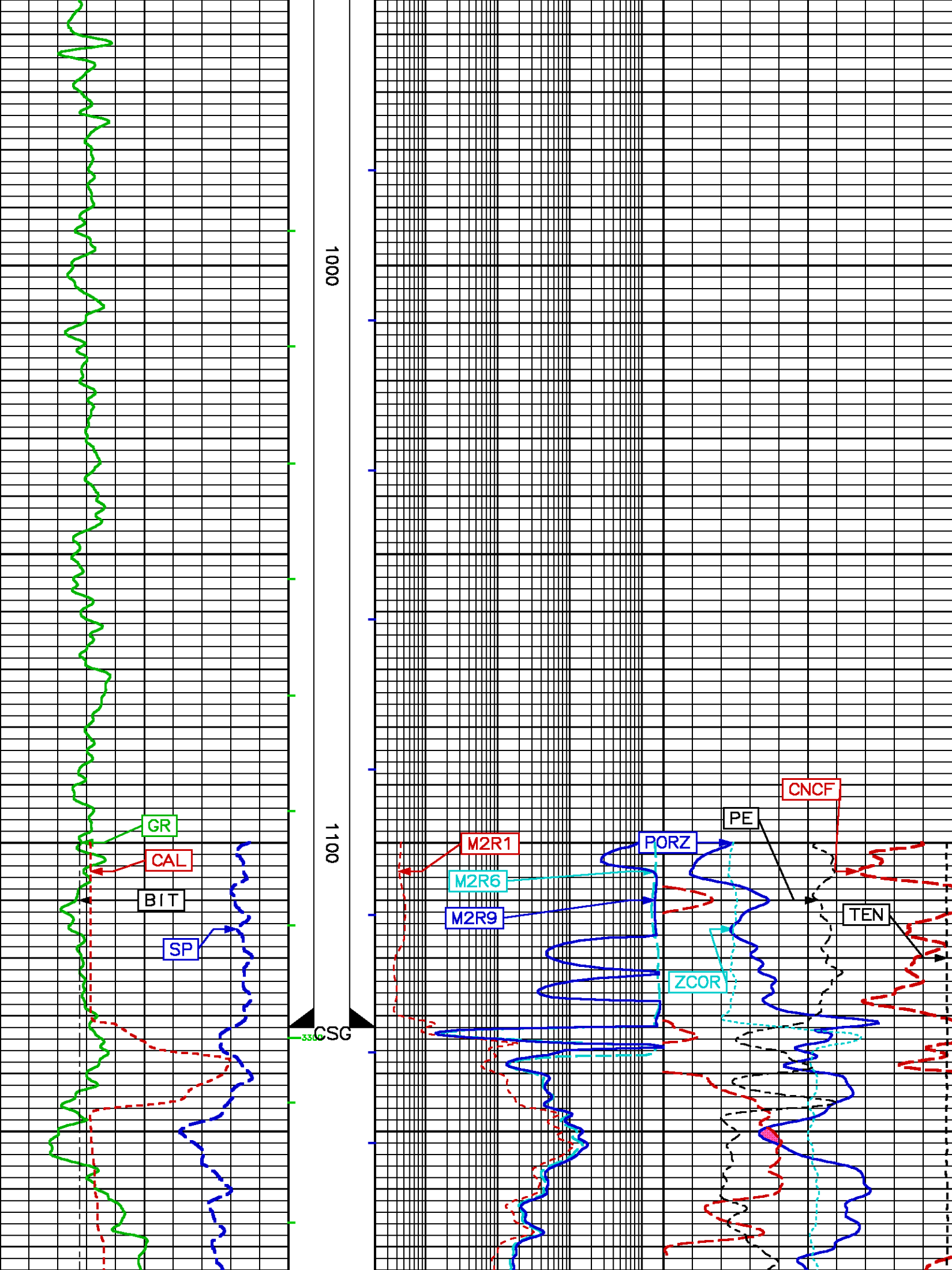
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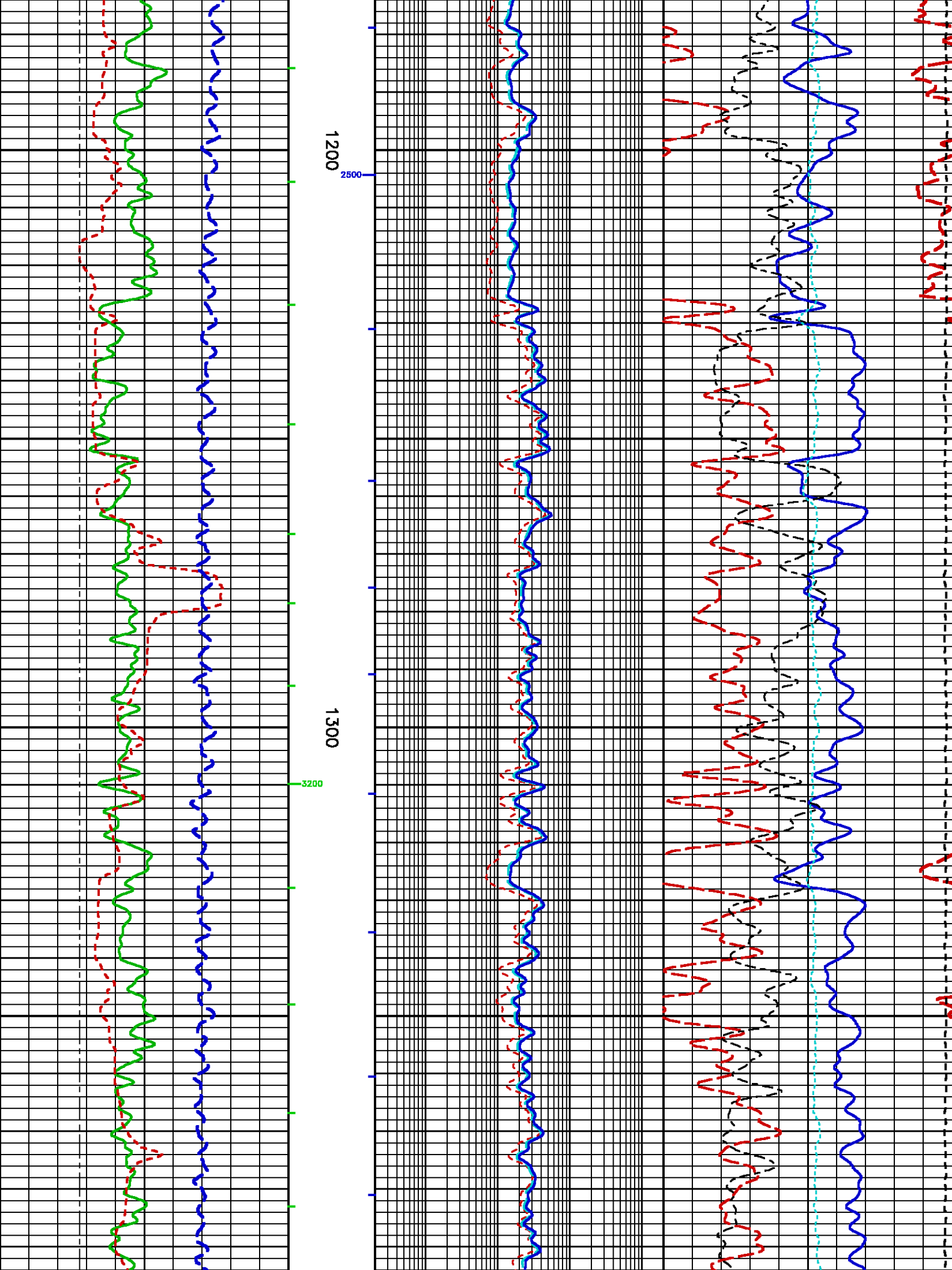
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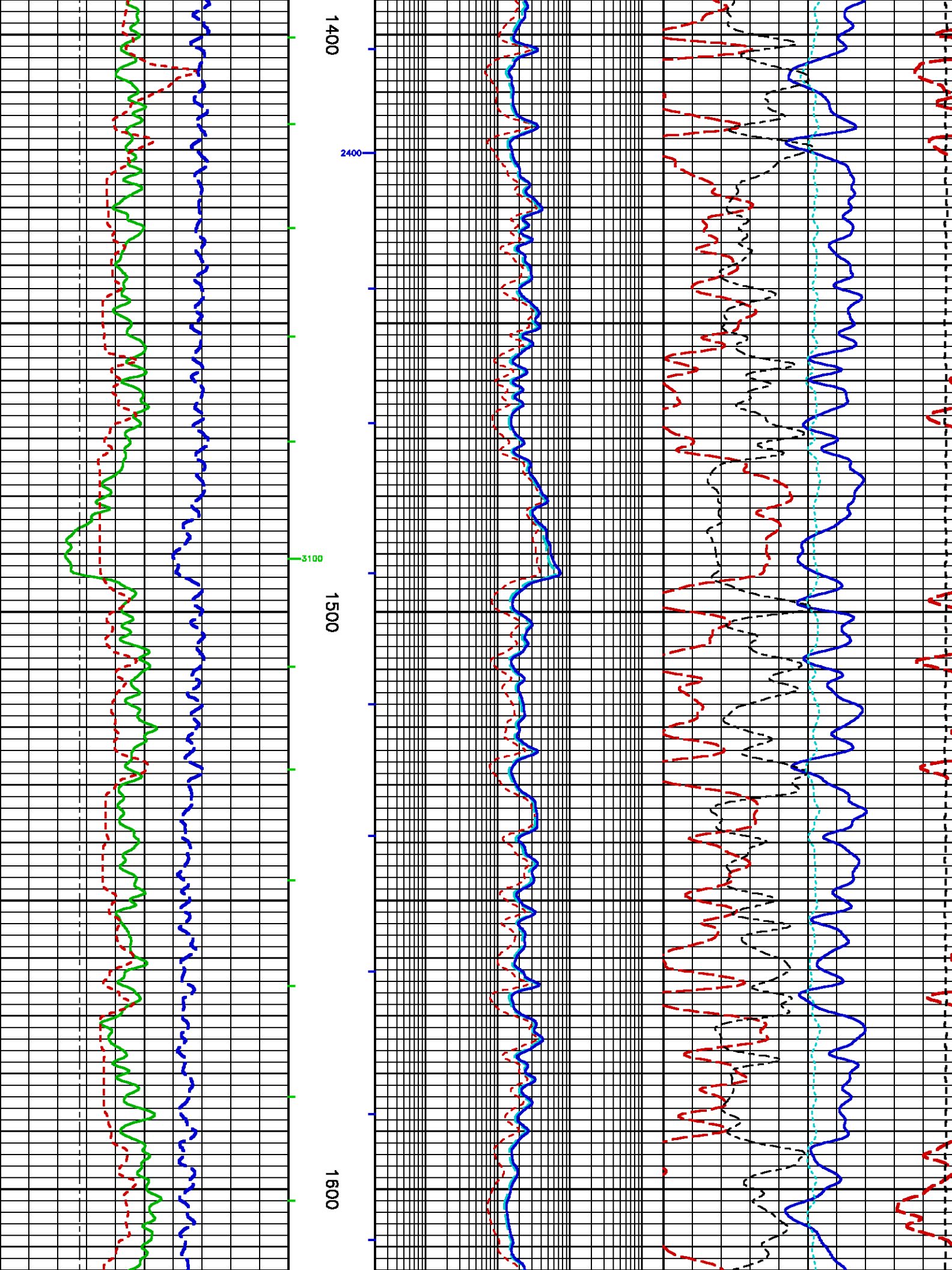
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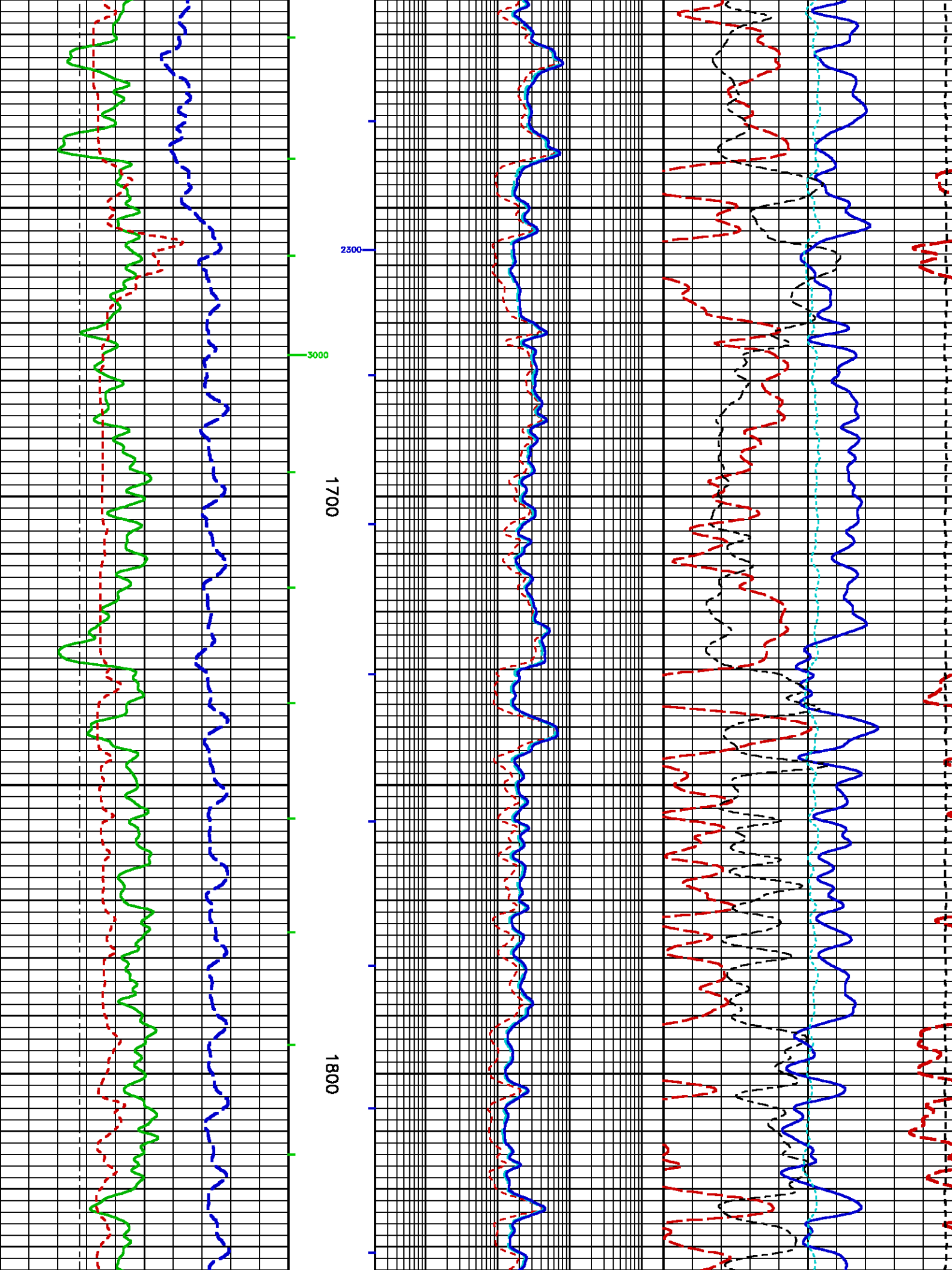
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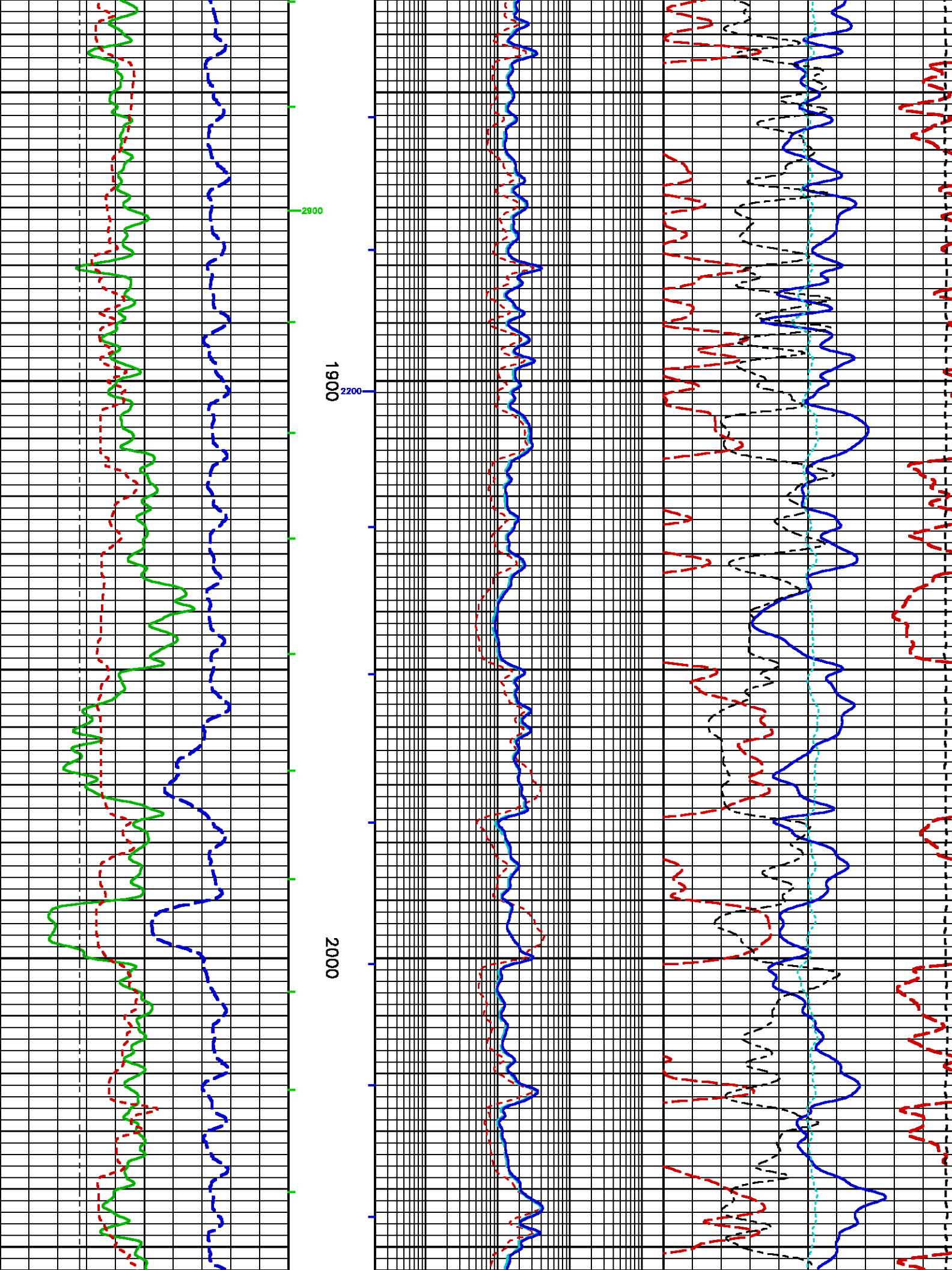
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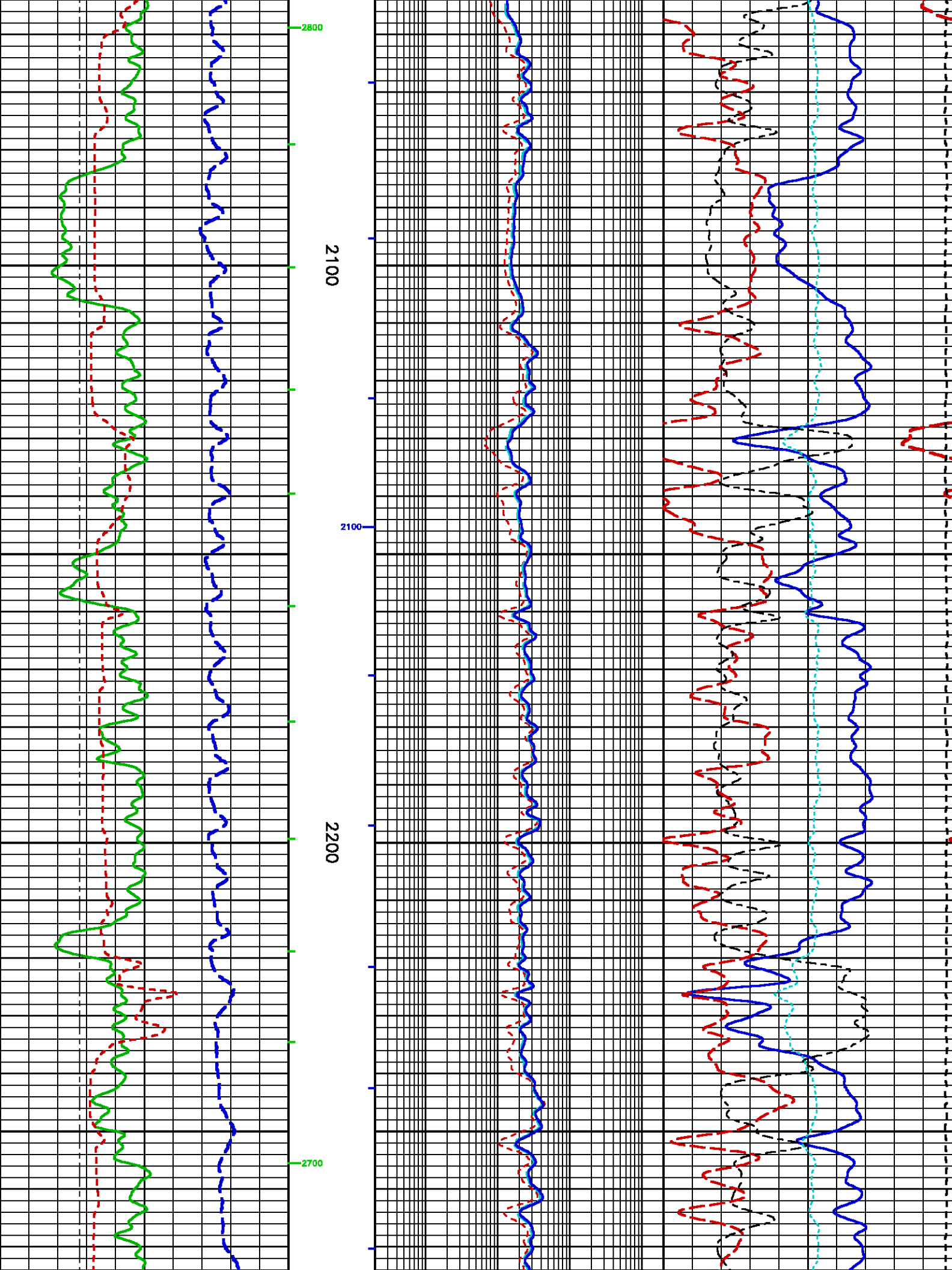
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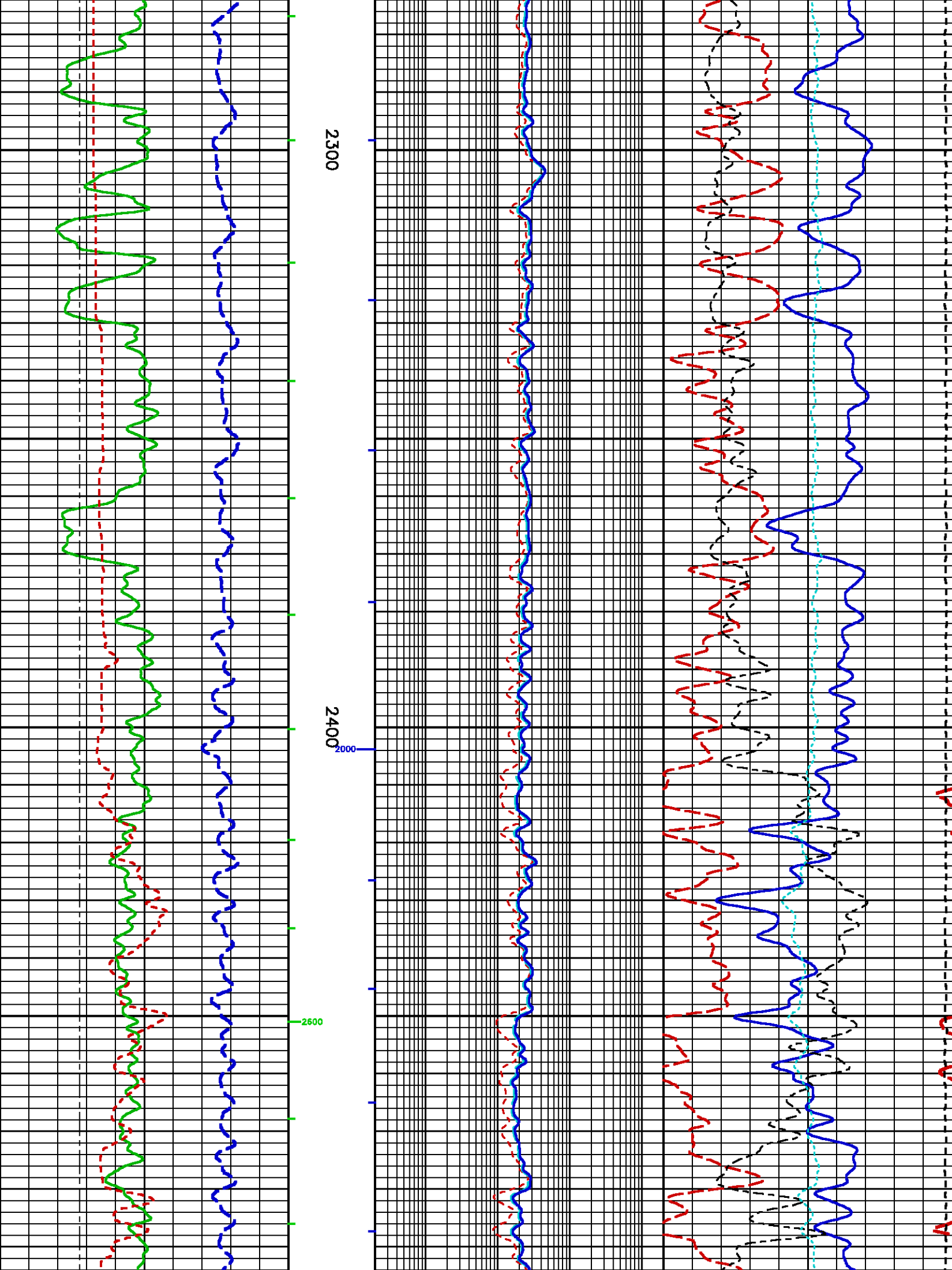
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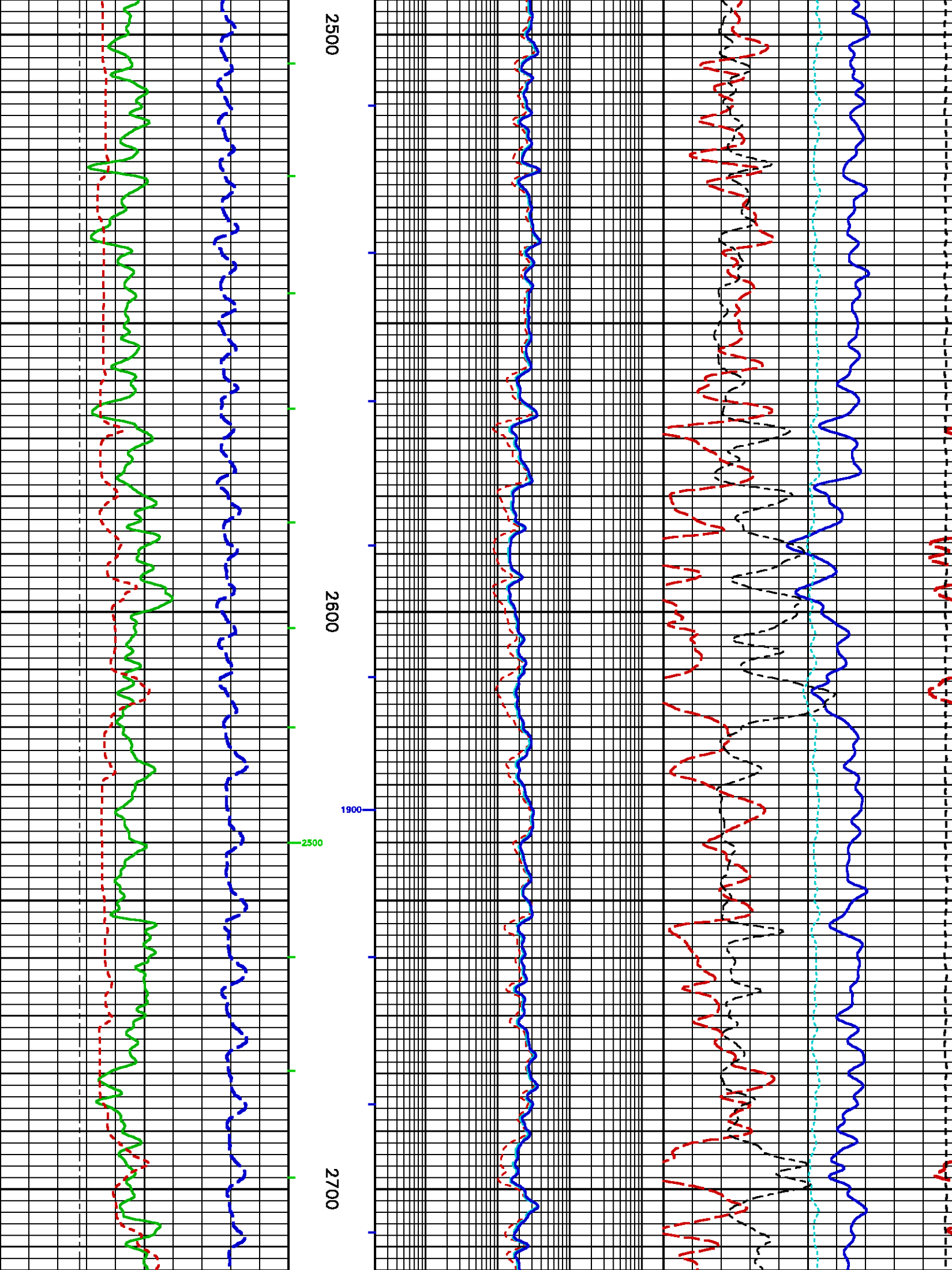
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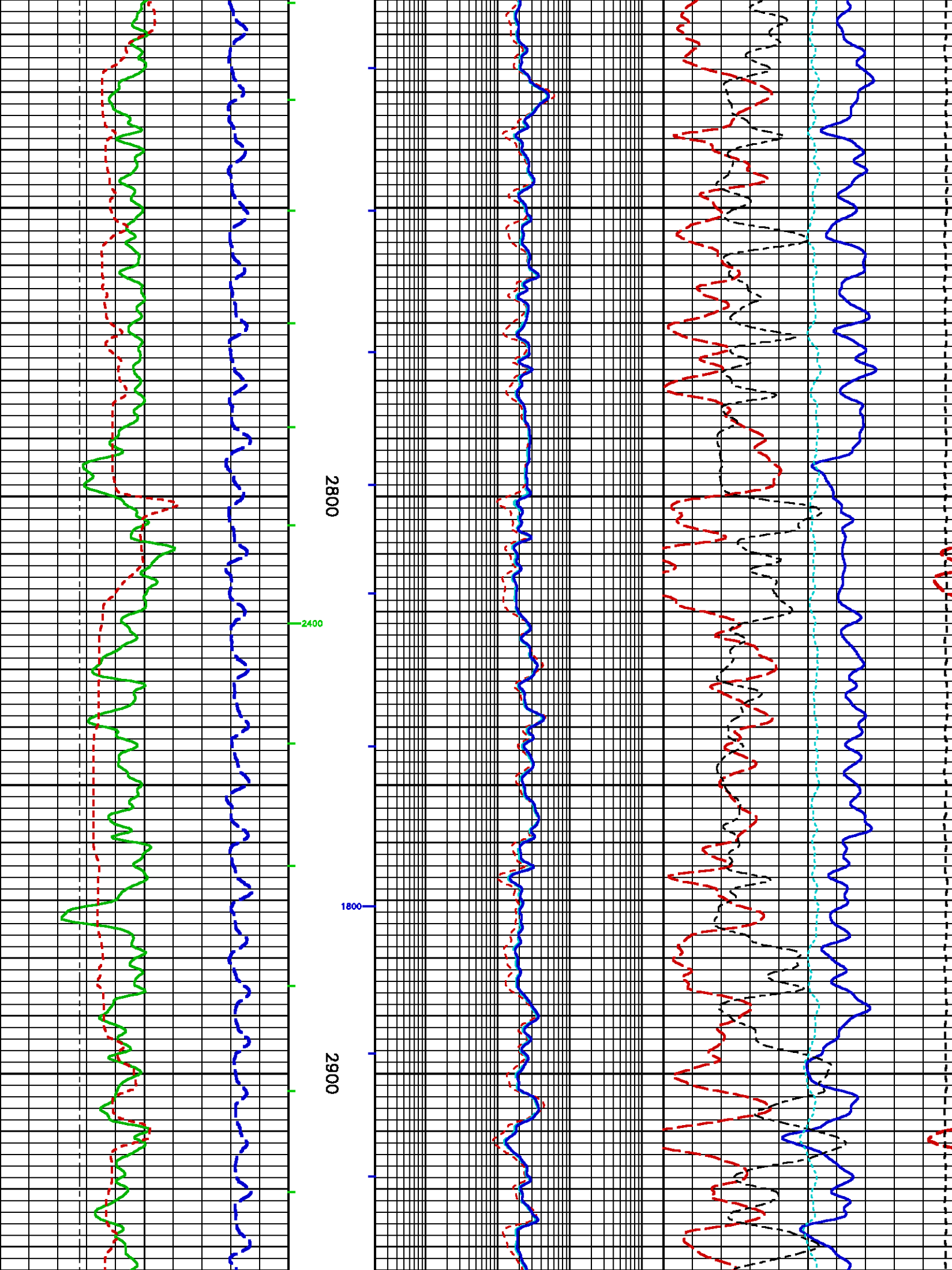
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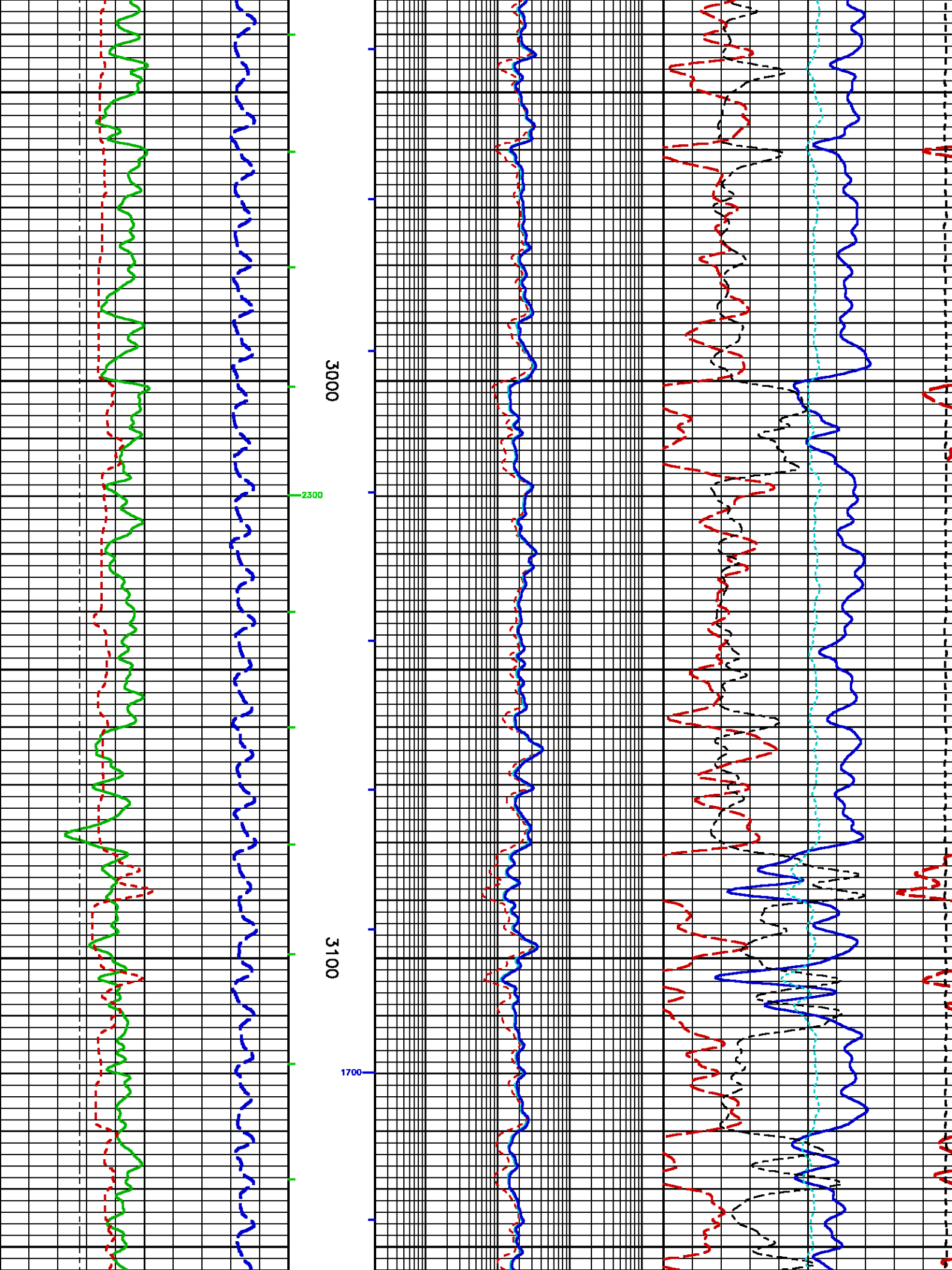
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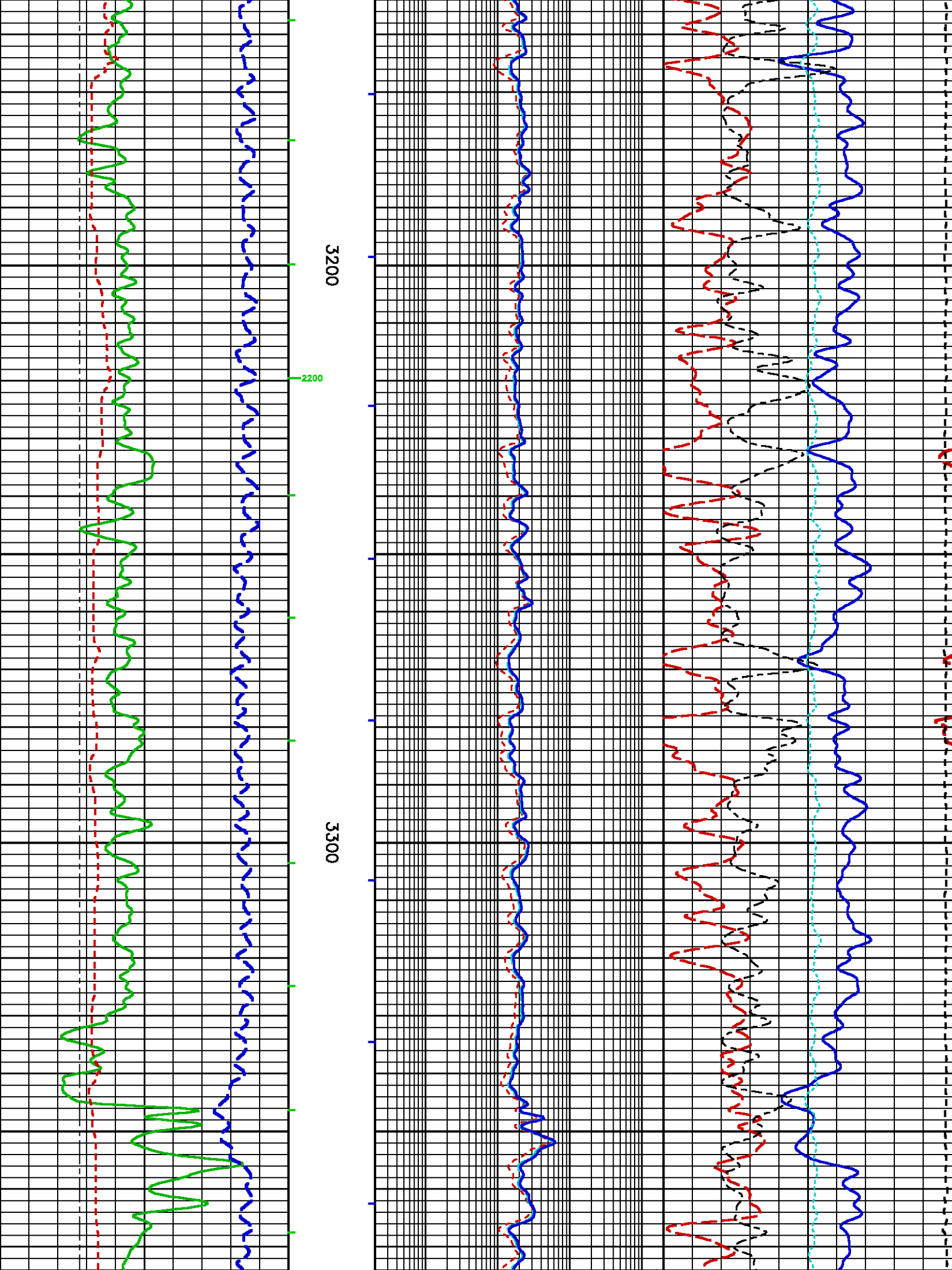
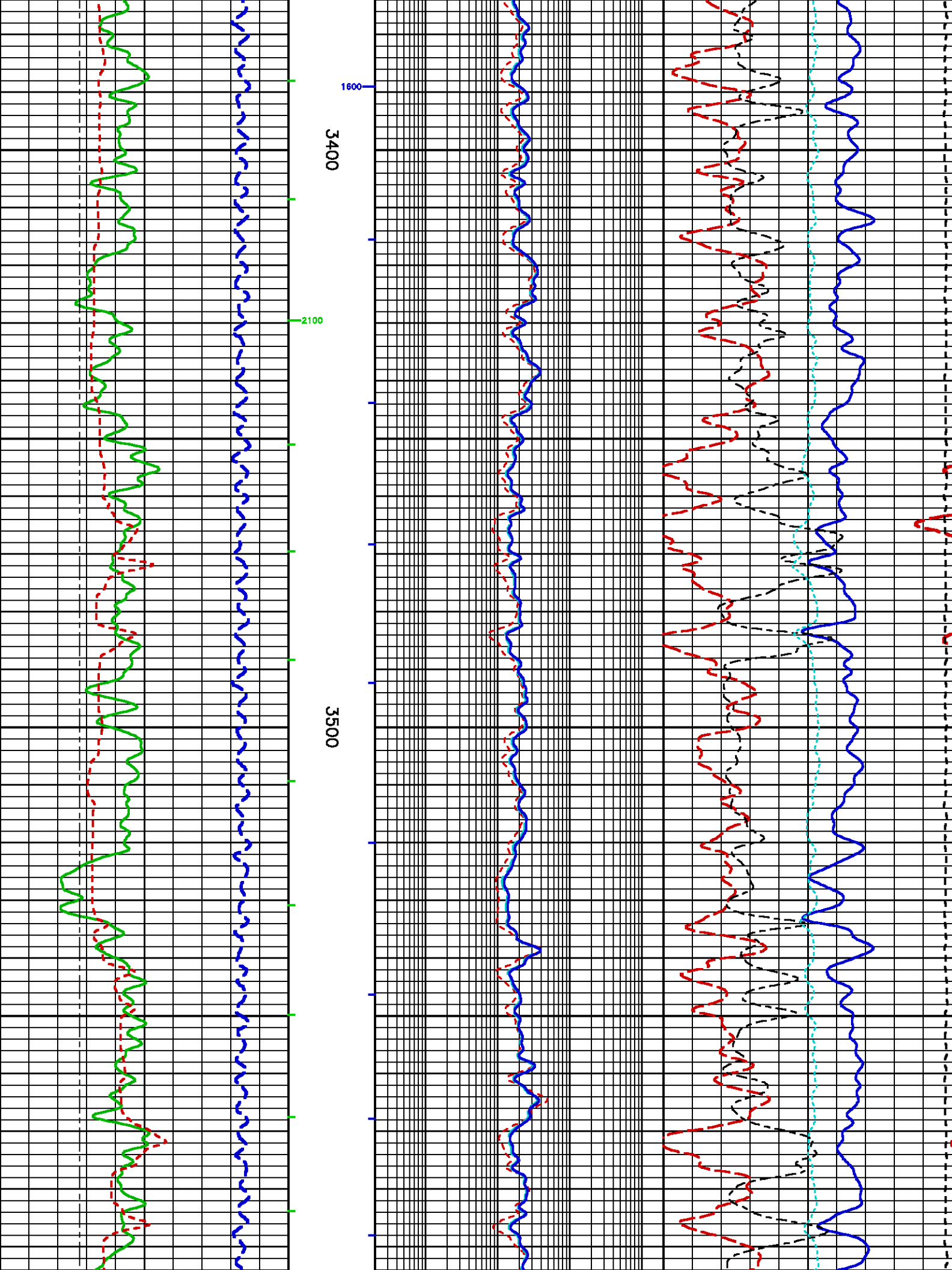
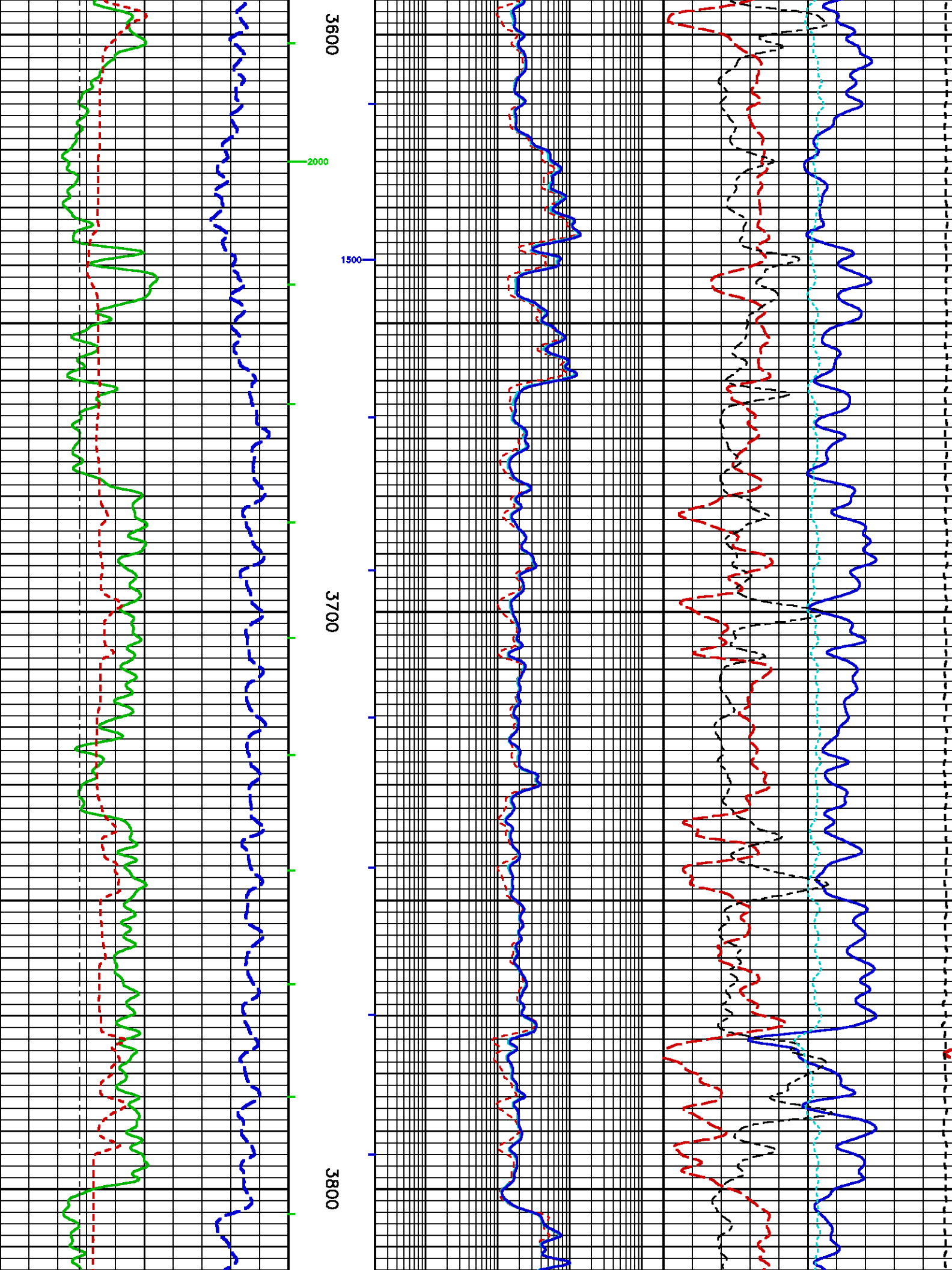

3200
2200
3300


1600
3400
2100
3500


3600
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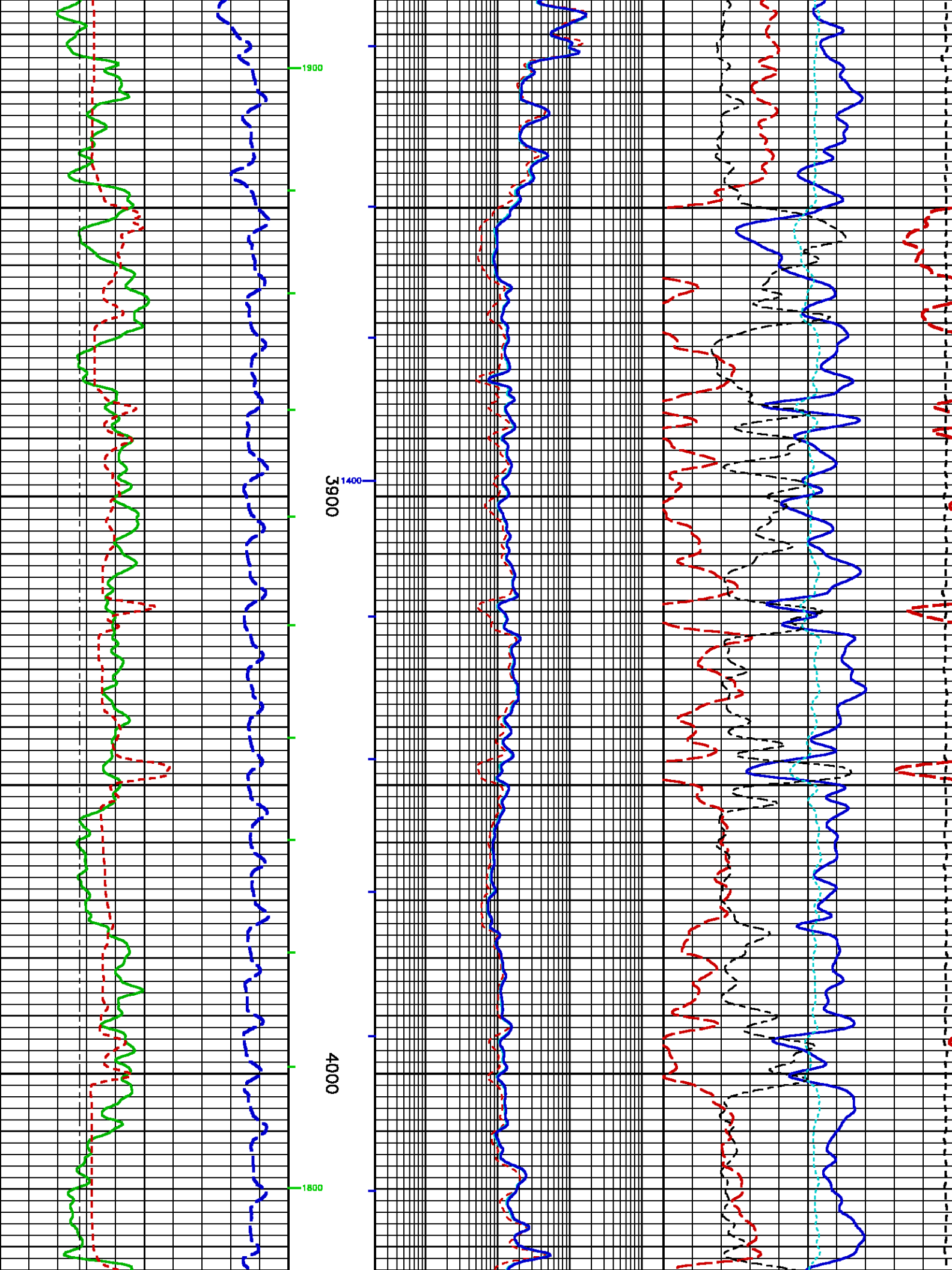
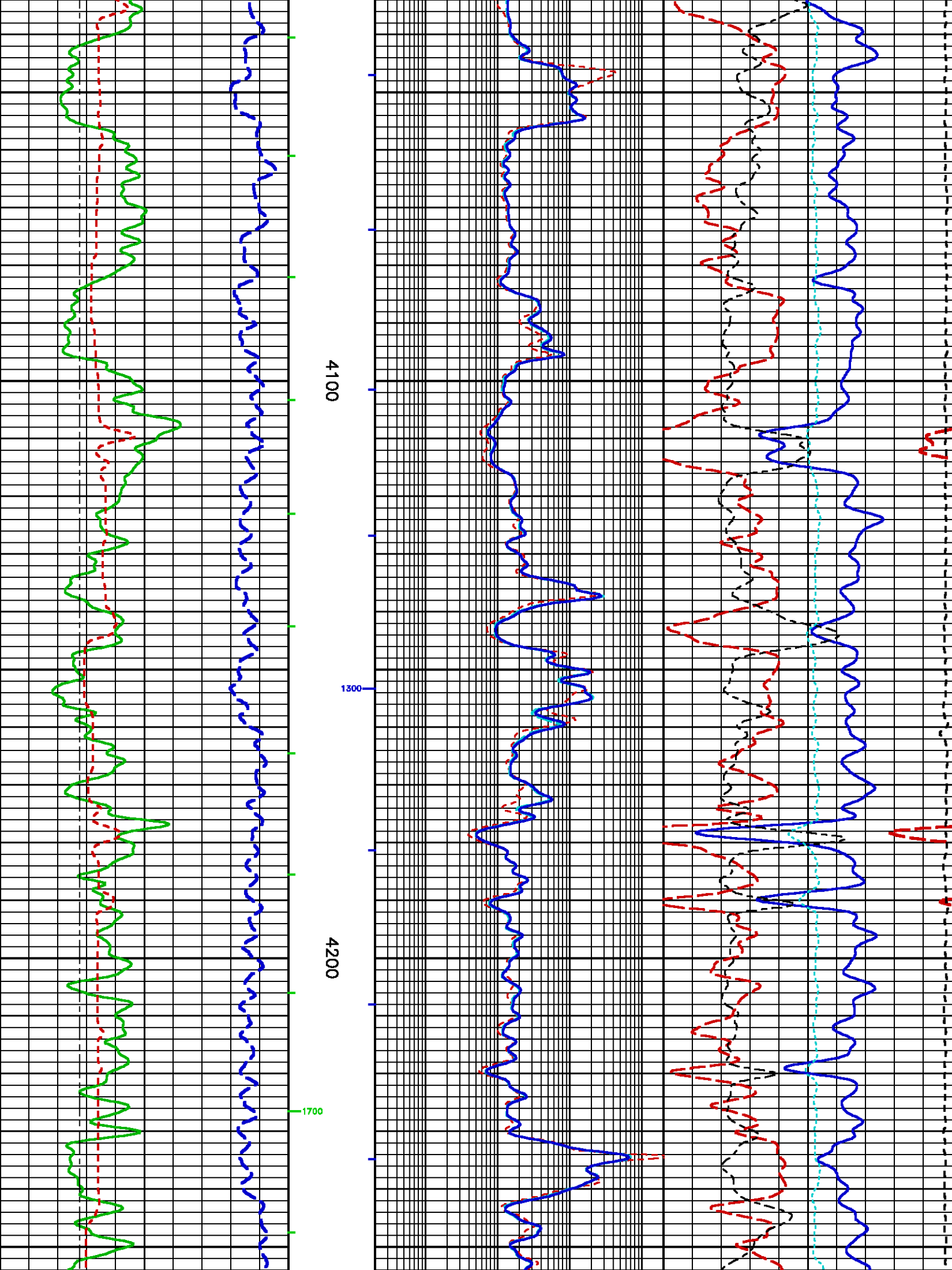
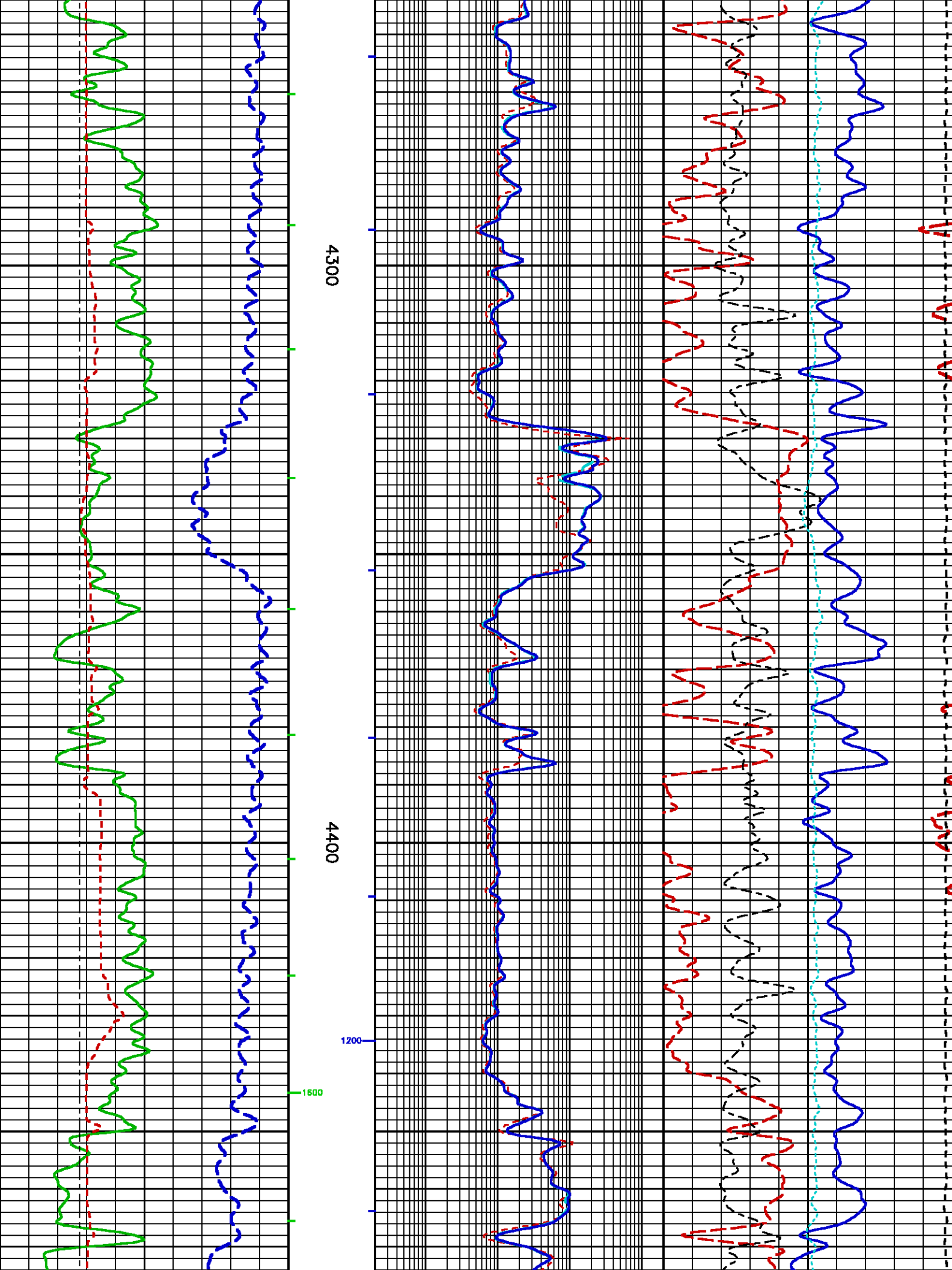
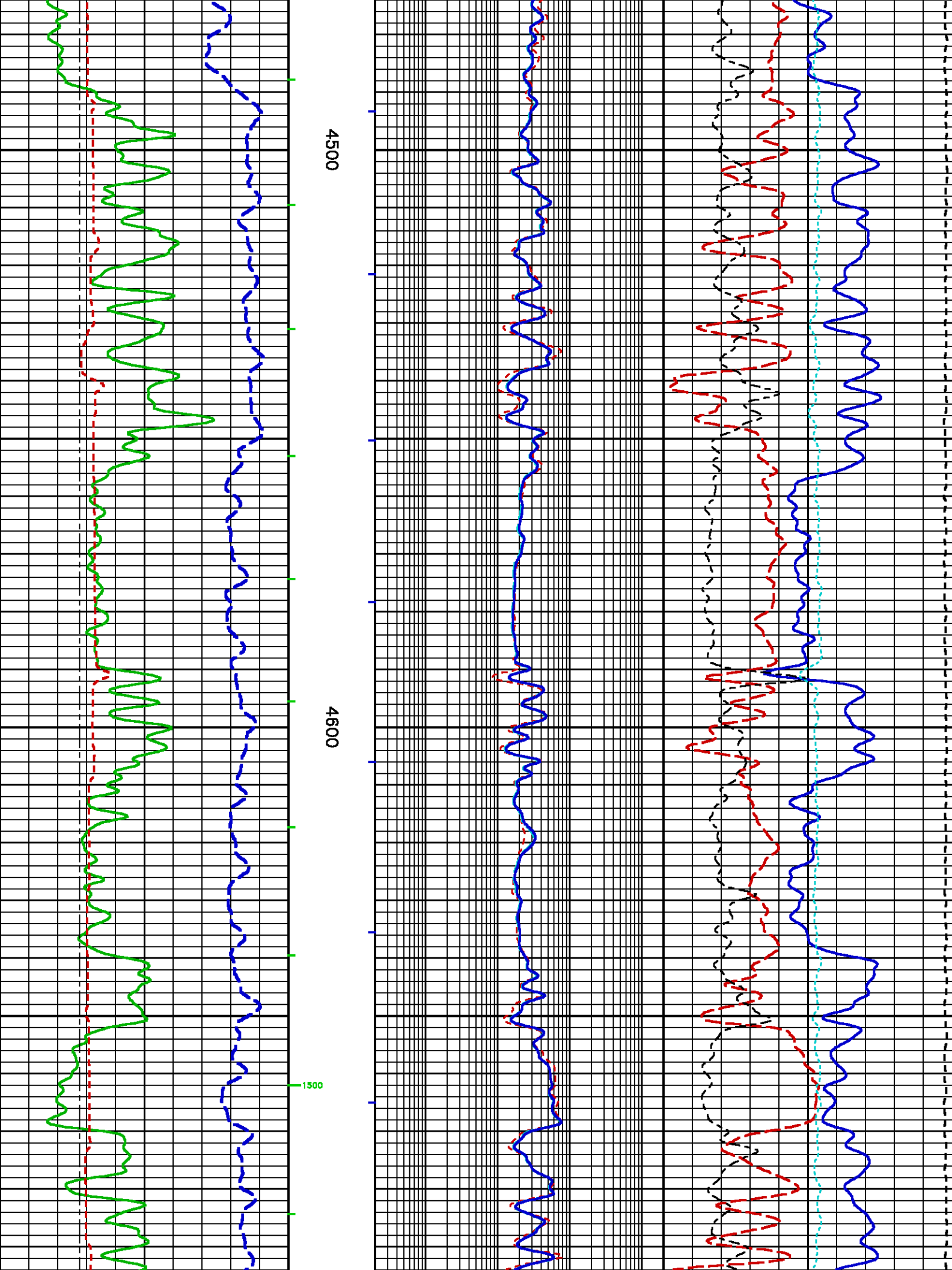
1500
3700
3800


1900
1400
3900
4000
1800


4100
1300
4200
1700


4300
4400
1200
1600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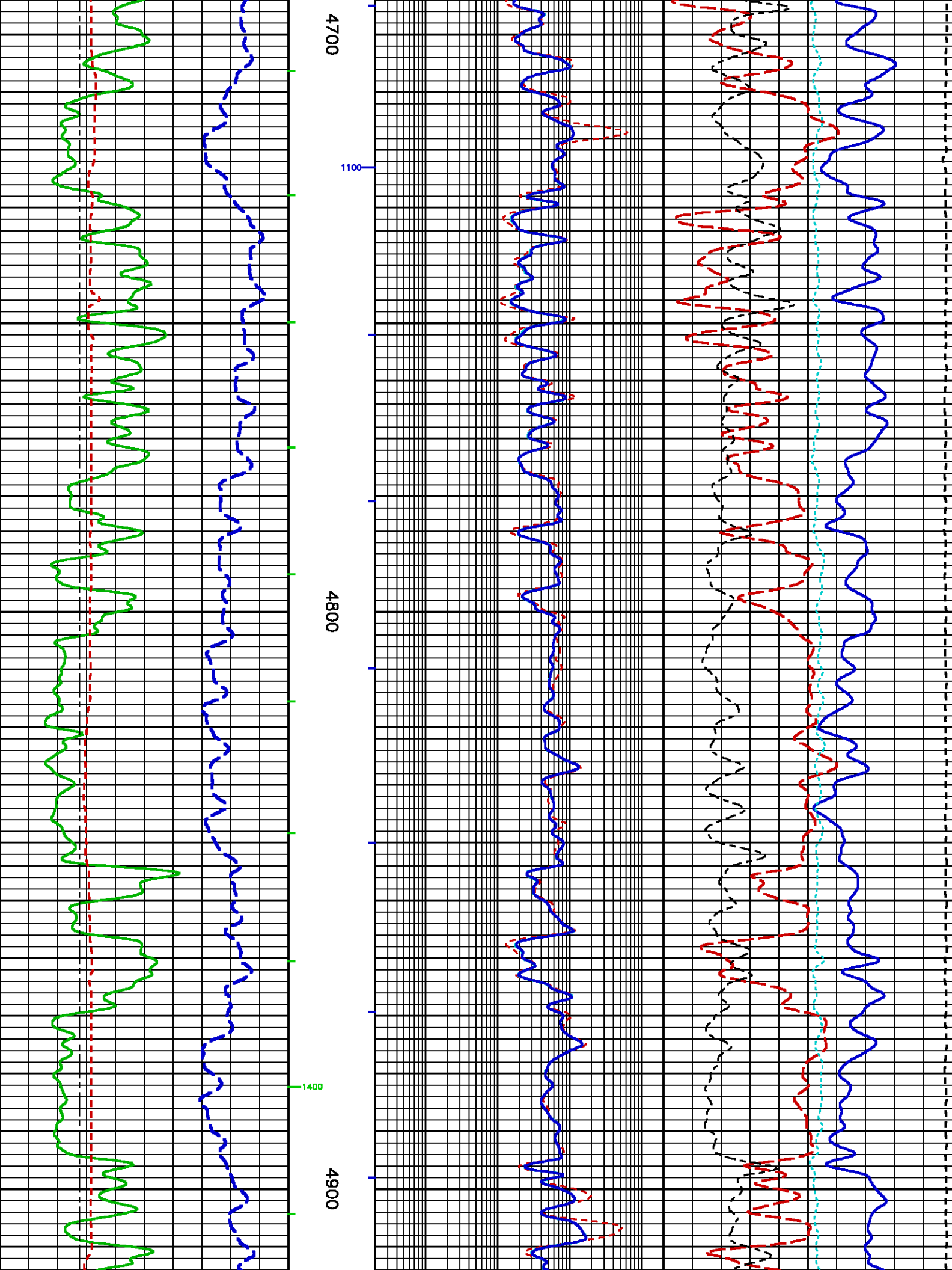
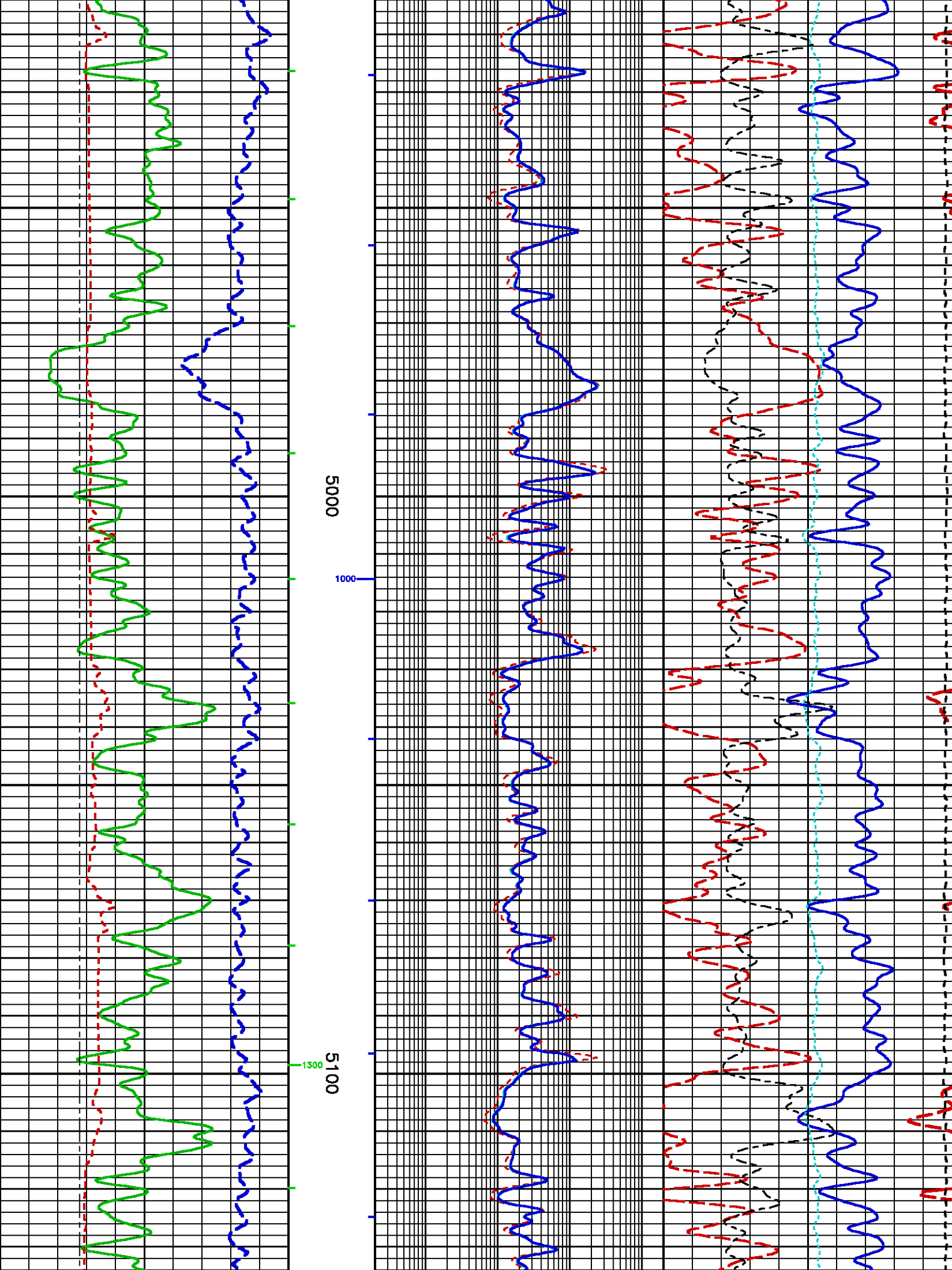
4600
1500


4700
1100
4800
1400
4900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1000
1300
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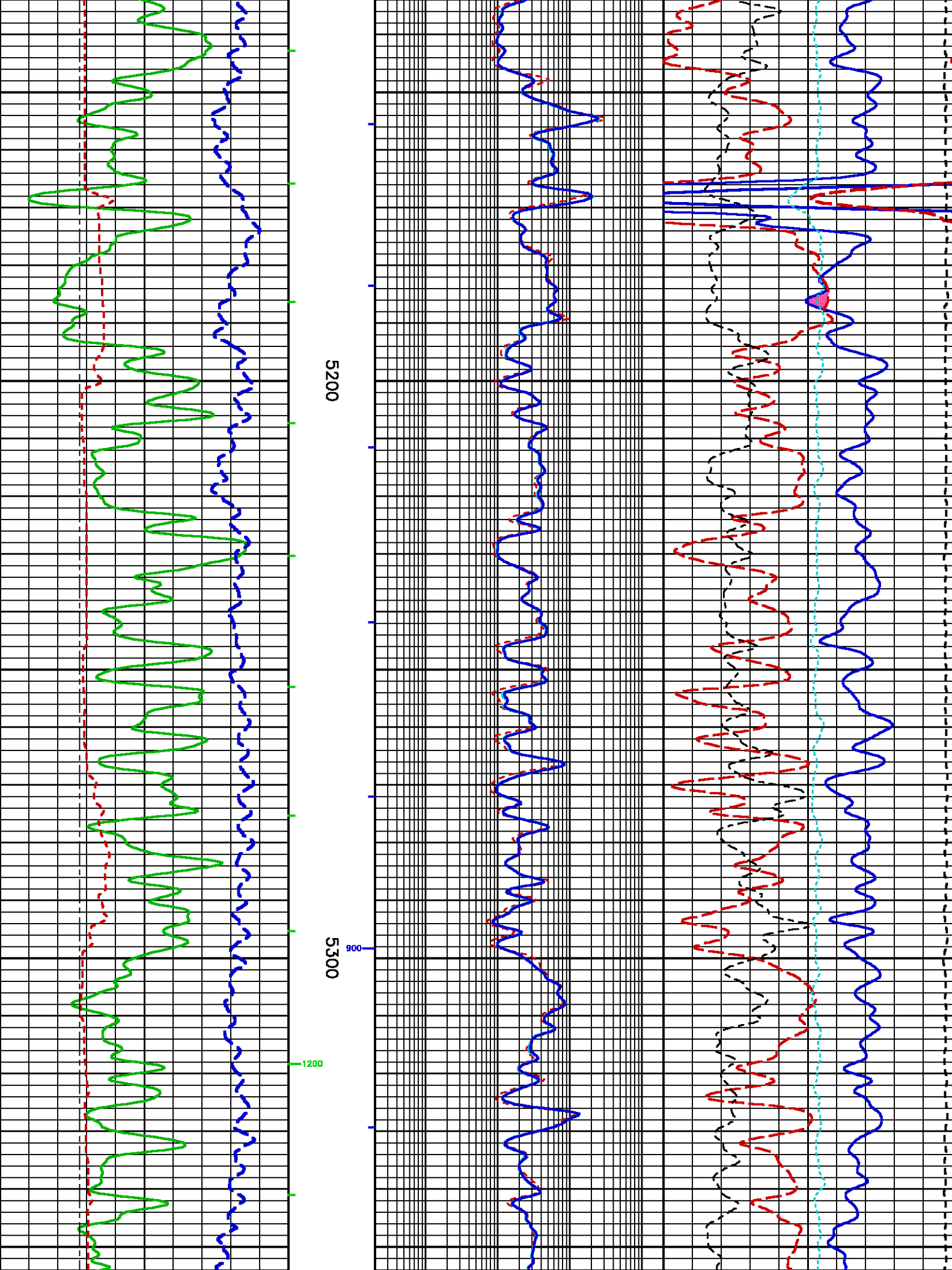
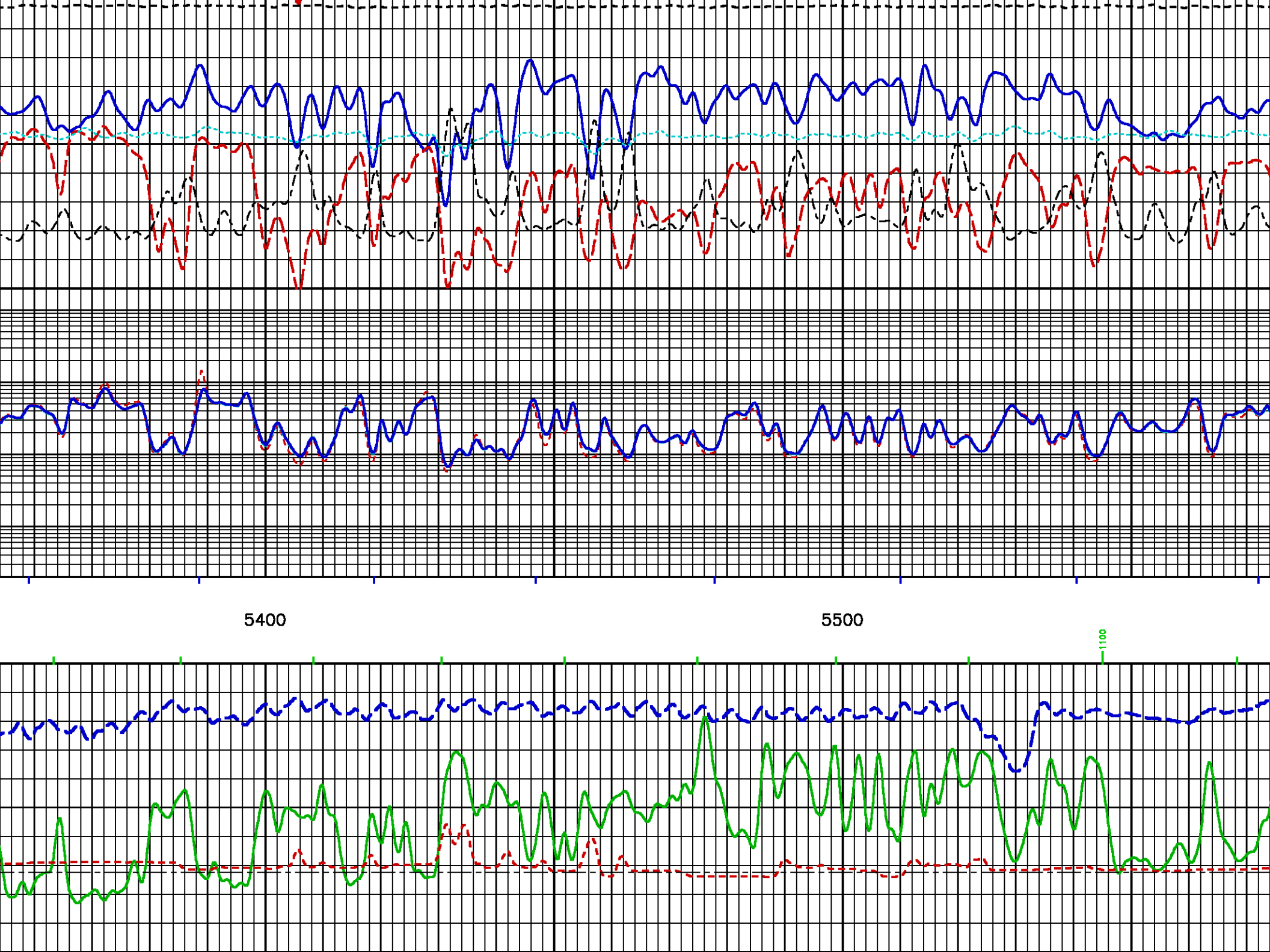
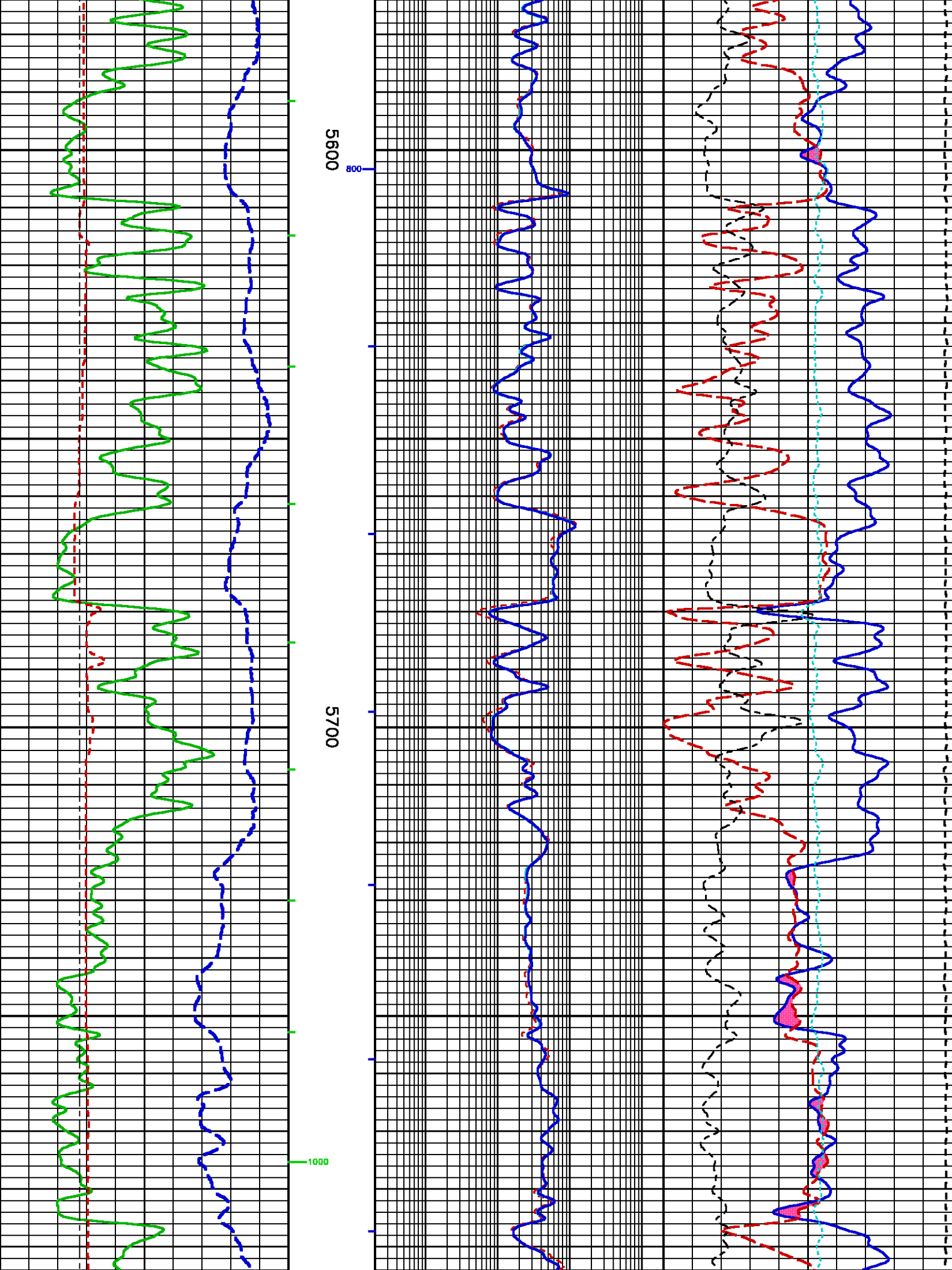
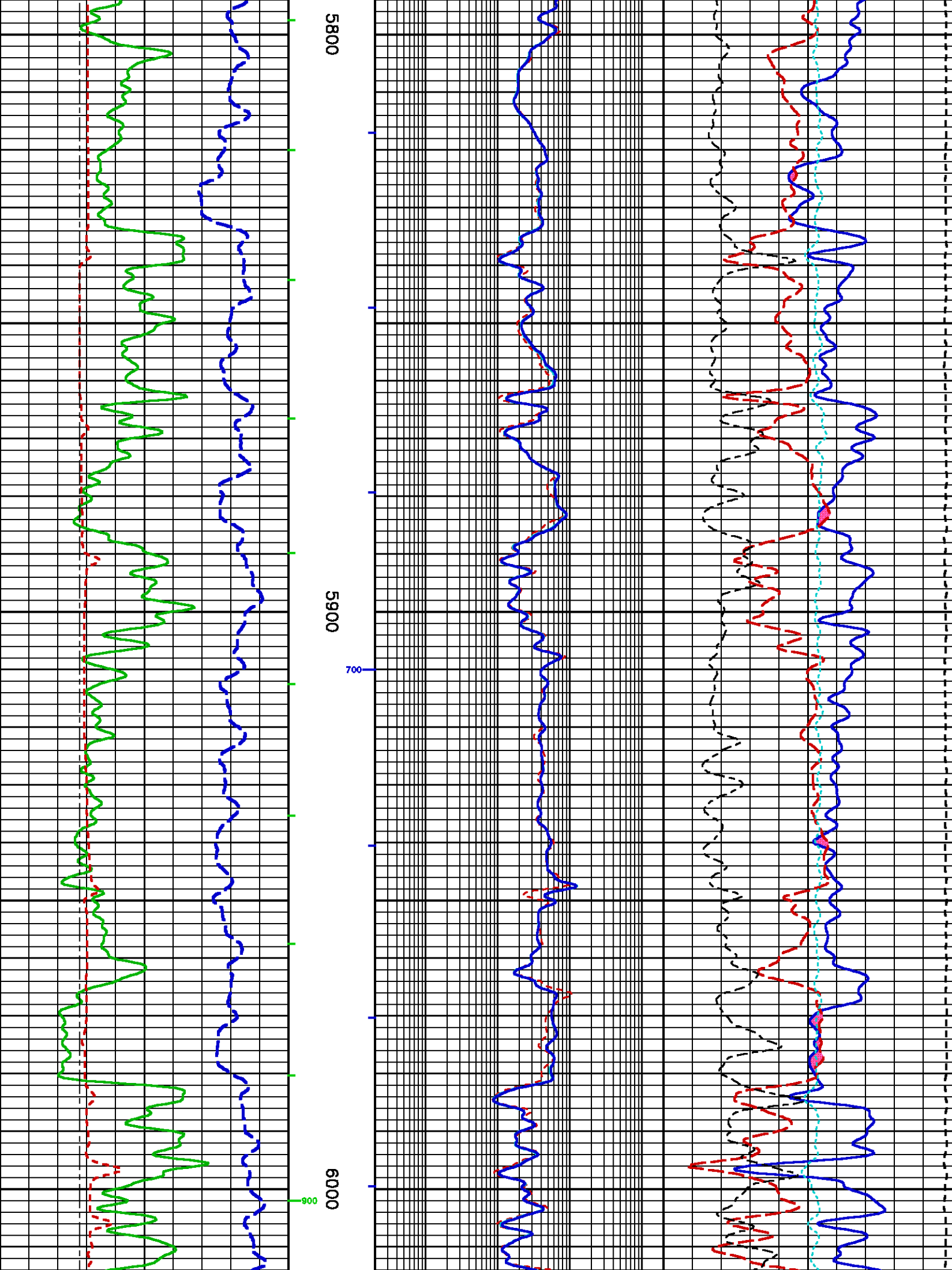
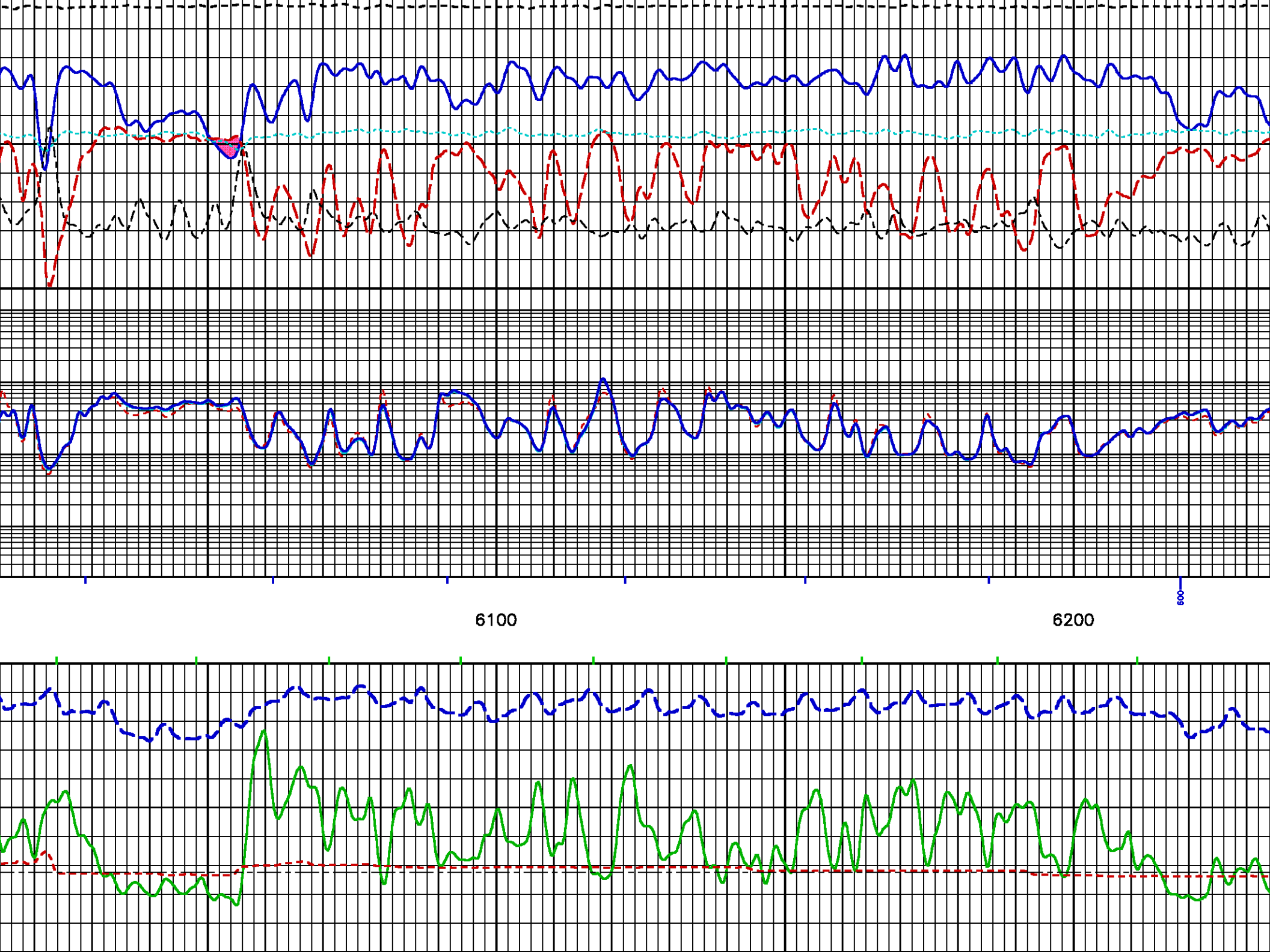
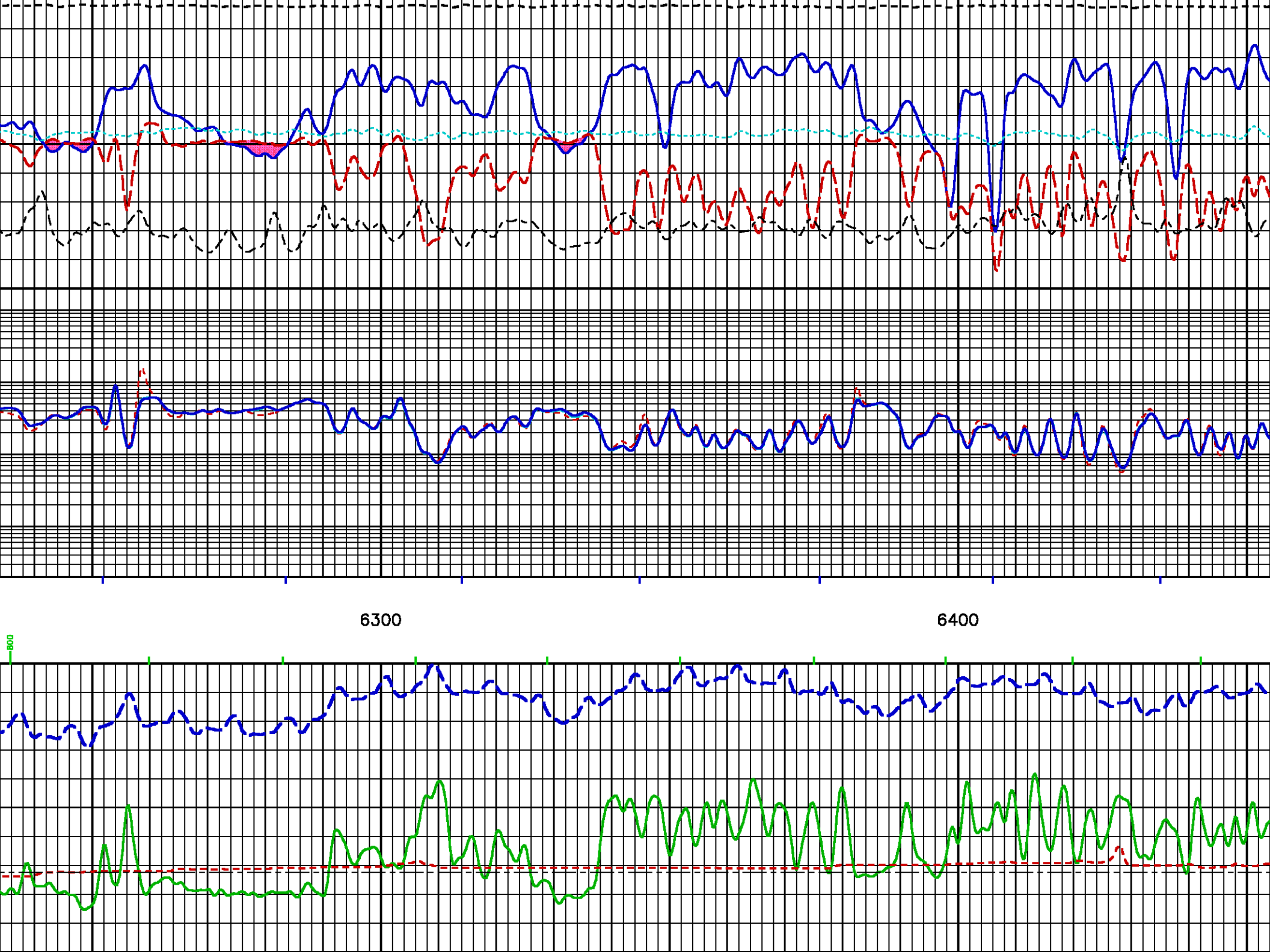

5200
5300
900
1200


5400
5500
1100


5600
800
5700
1000


5800
5900
6000
700
900


6100
6200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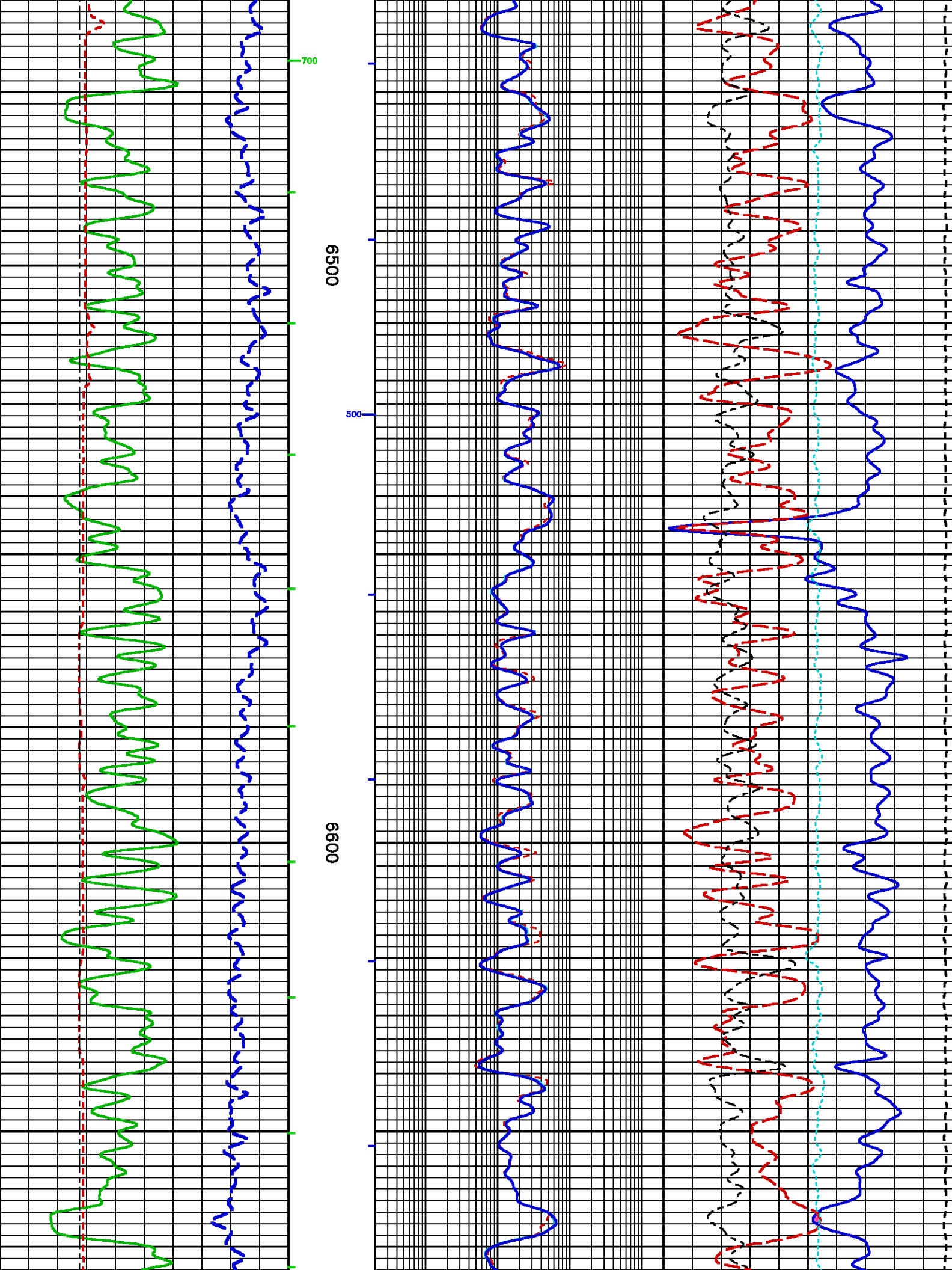
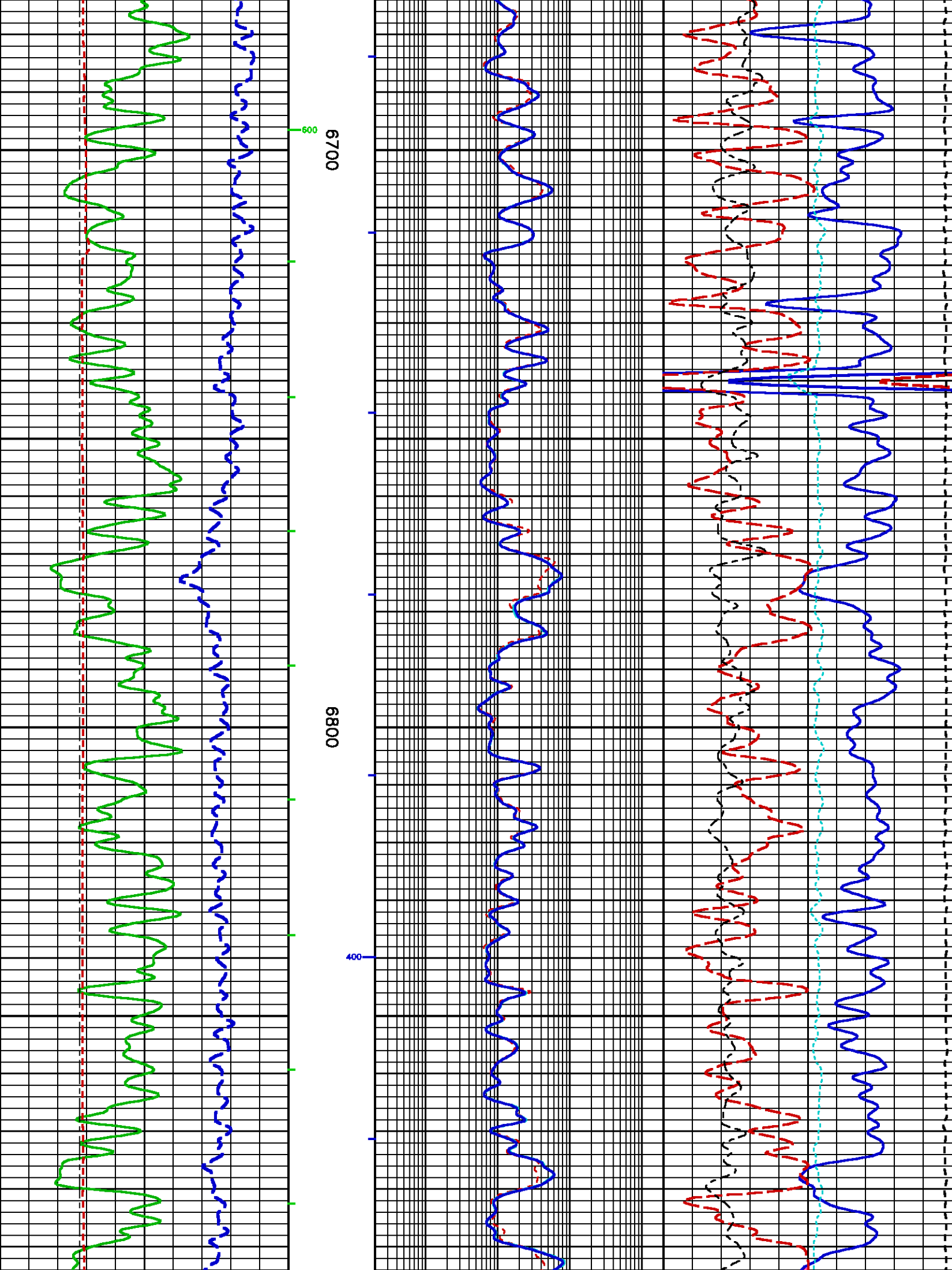
6400


700
6500
500
6600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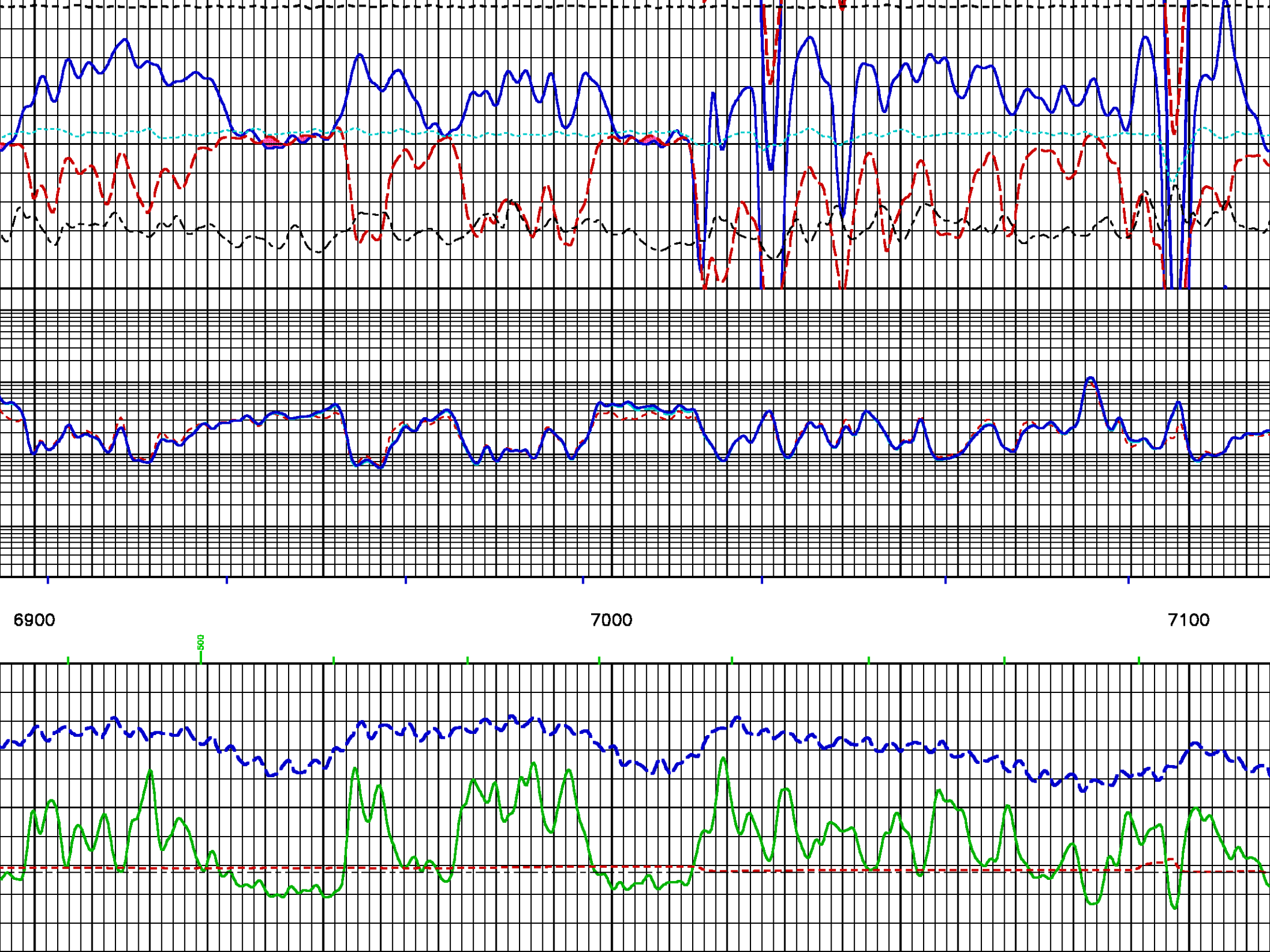
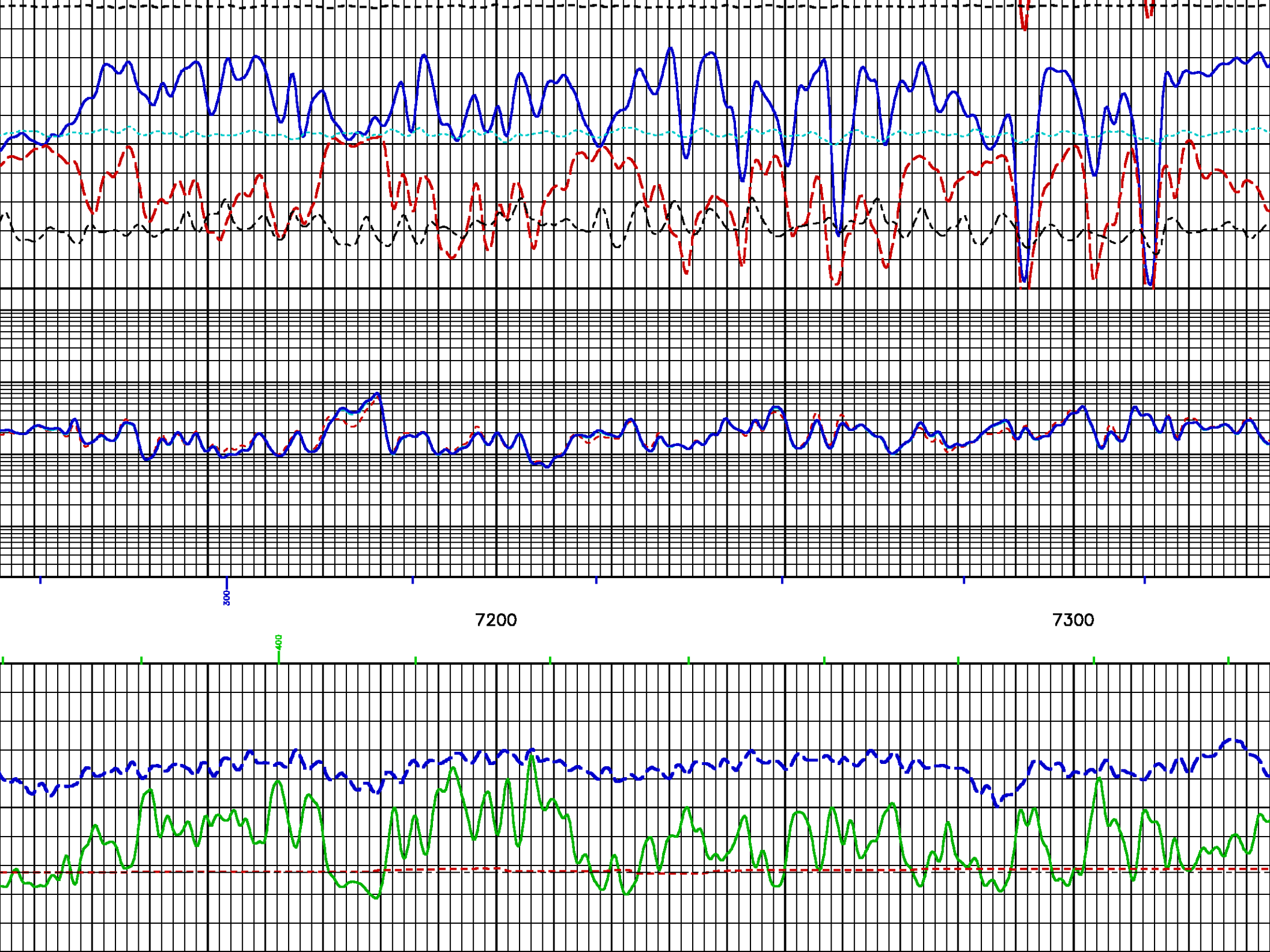
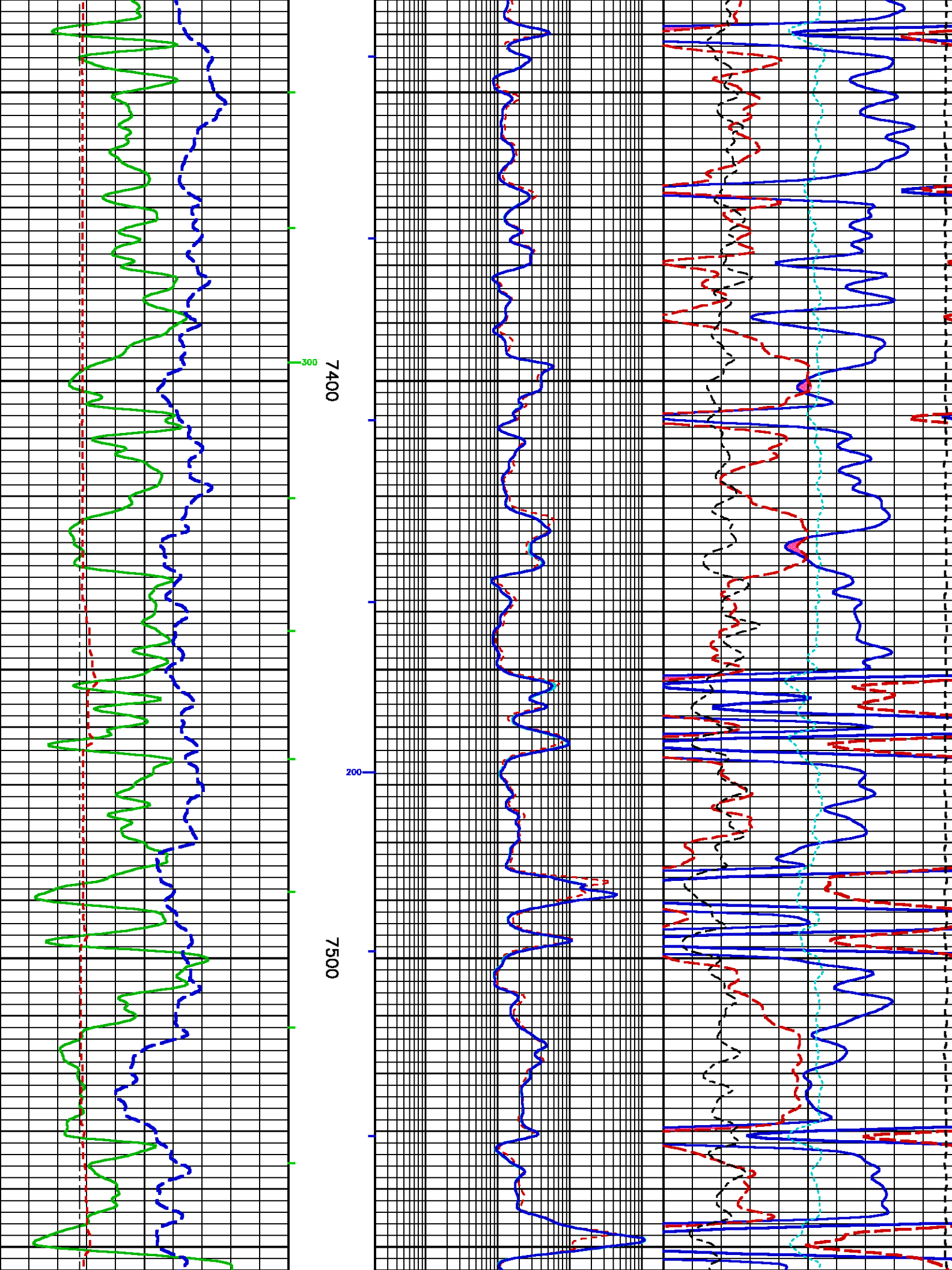
6700
6800
400


6900
7000
7100
500


300
7200
7300
400


300
7400
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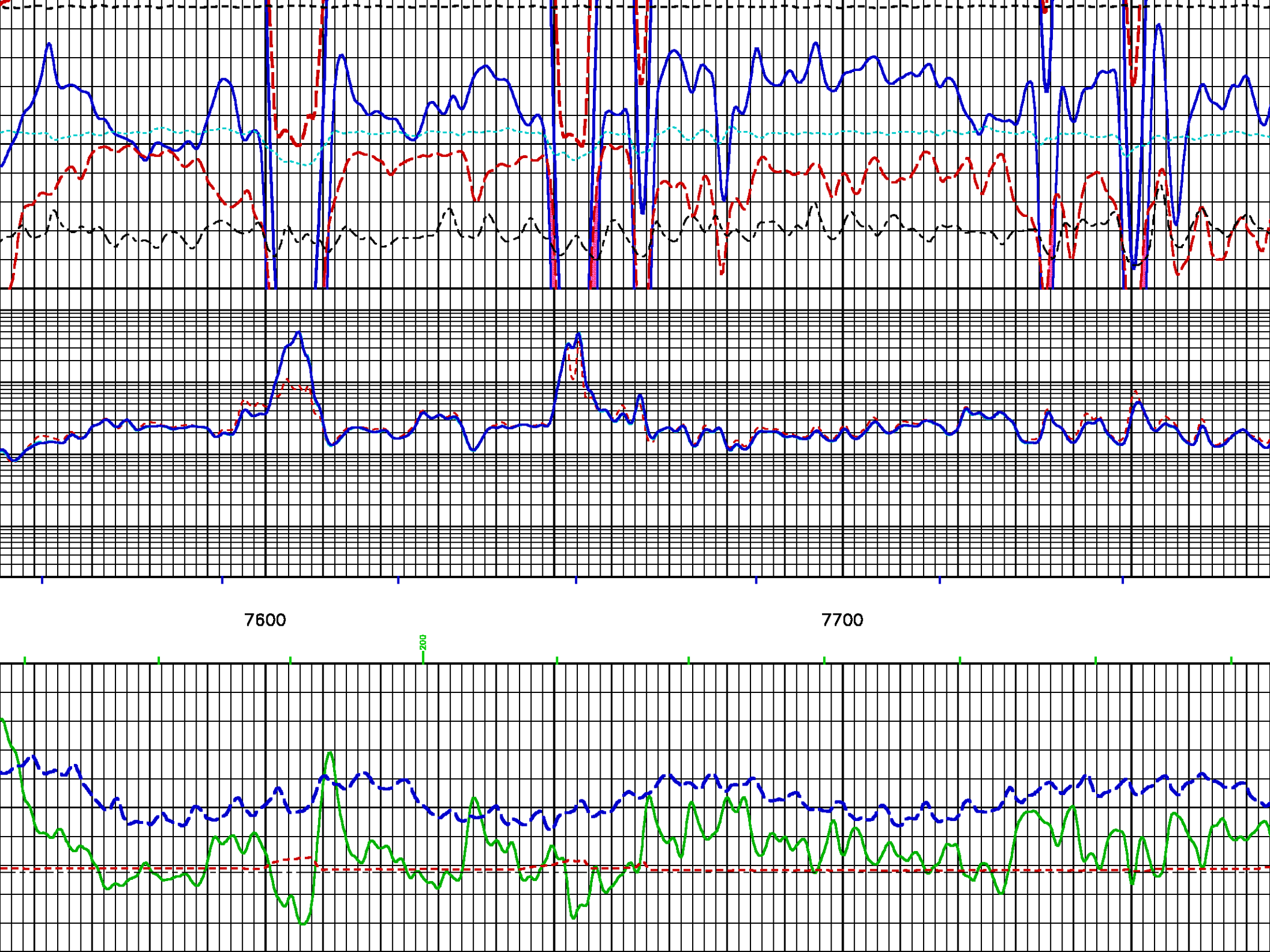
7500


7600
7700
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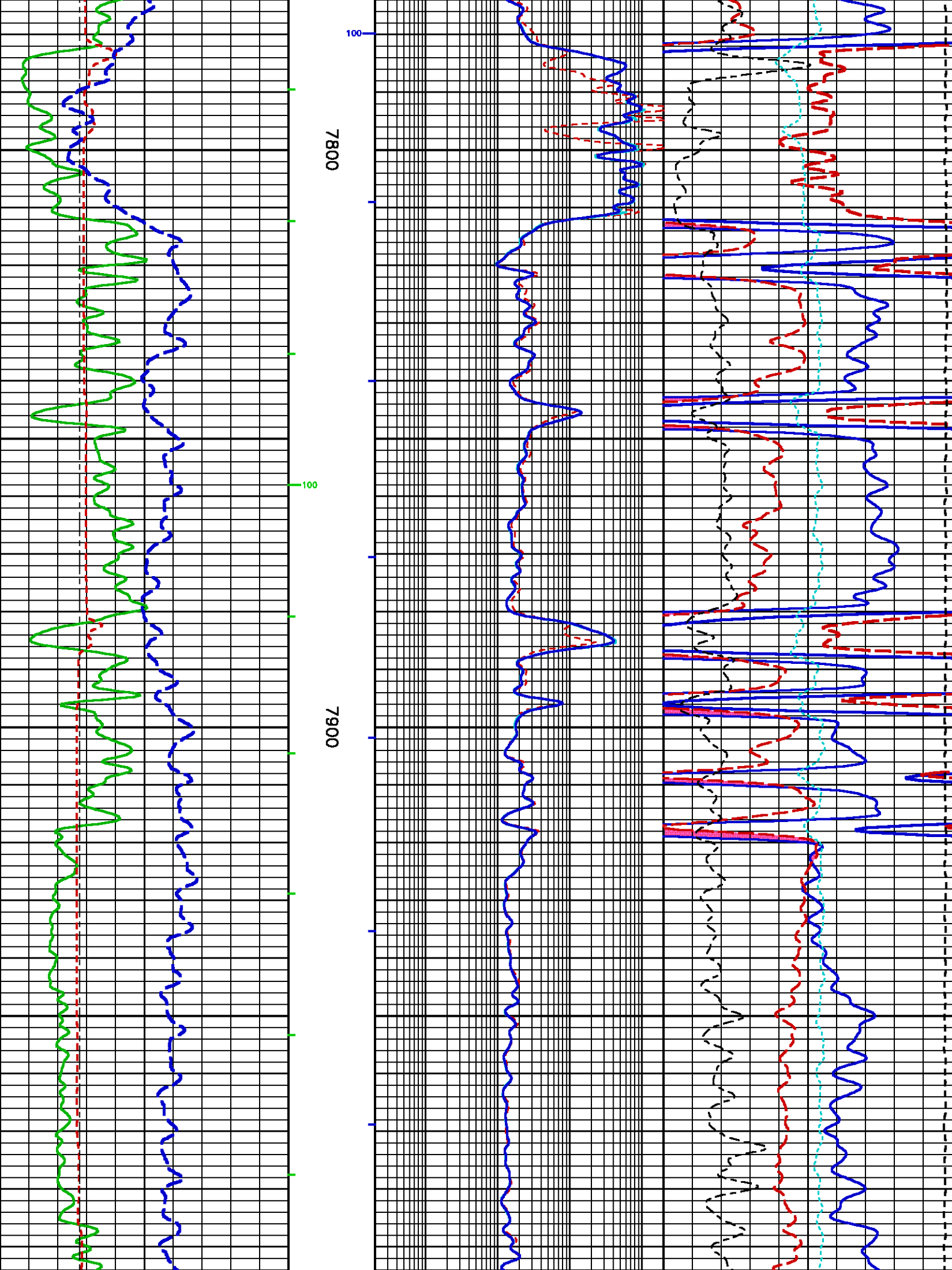
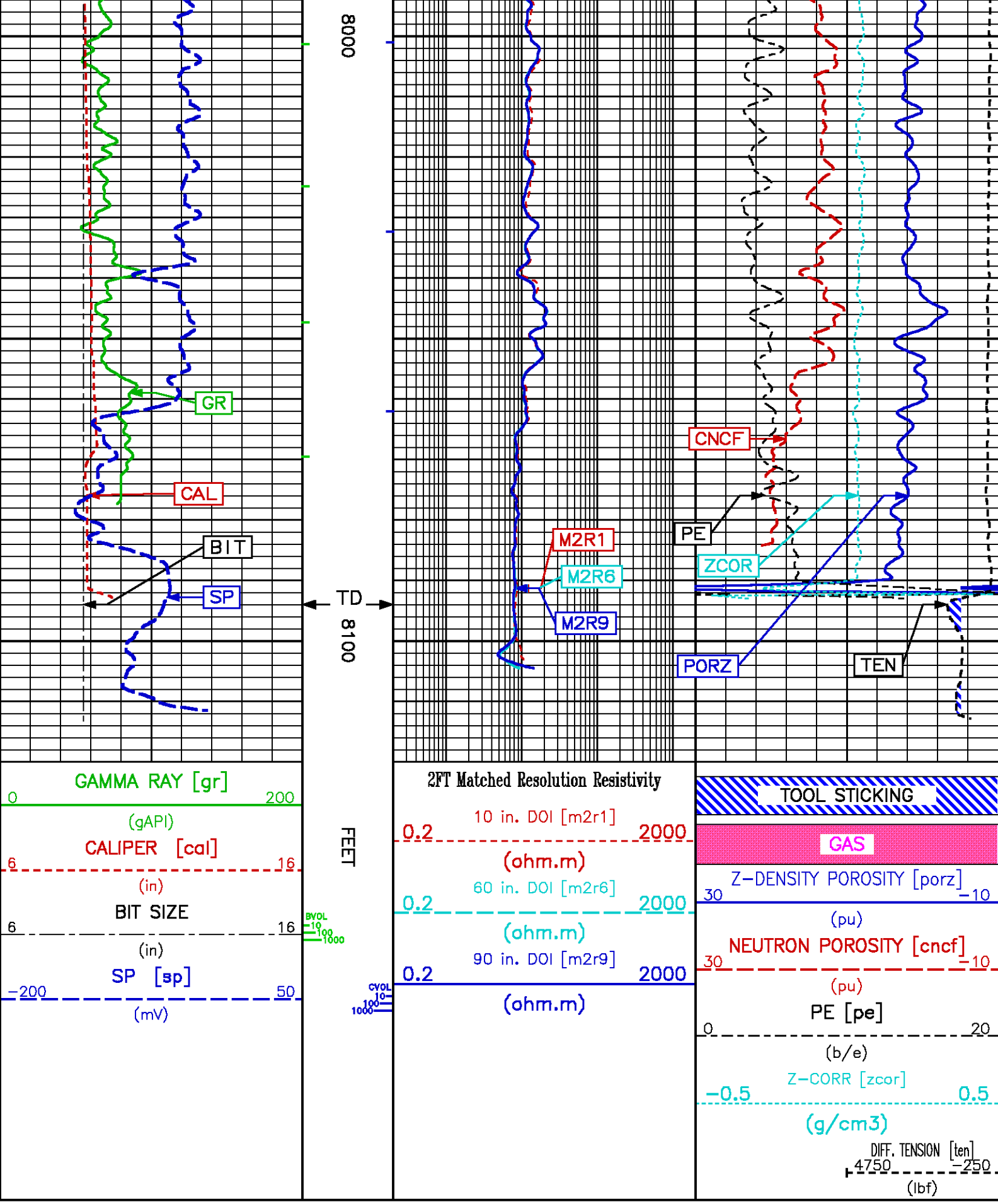

100
7800
100
7900


8000
GR
CAL
BIT
SP
TD
8100
M2R1
M2R6
M2R9
CNCF
PE
ZCOR
PORZ
TEN
GAMMA RAY [gr]
0
200
(gAPI)
CALIPER [cal]
6
16
(in)
BIT SIZE
6
16
(in)
SP [sp]
−200
50
(mV)
BVOL
10
100
1000
FEET
2FT Matched Resolution Resistivity
10 in. DOI [m2r1]
0.2
2000
(ohm.m)
60 in. DOI [m2r6]
0.2
2000
(ohm.m)
90 in. DOI [m2r9]
0.2
2000
(ohm.m)
CVOL
10
100
1000
TOOL STICKING
GAS
Z-DENSITY POROSITY [porz]
30
−10
(pu)
NEUTRON POROSITY [cncf]
30
−10
(pu)
PE [pe]
0
20
(b/e)
Z-CORR [zcor]
−0.5
0.5
(g/cm3)
DIFF. TENSION [ten]
4750
−250
(lbf)

REPEAT LOG 5"/100FT SCALE

ECLIPS 6.1i Aug 06, 2010
Updates: 1,2 Patches: 2

Fri May 24 05:23:27 2013

Pcrplt /main/62 Cplot Pdf_Cpp /main/16 Fileview 5.61

PARAMETER AND FILTER SUMMARY REPORT

File: /dat1a/633639/m970a01.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 969.000 ft BOTTOM DEPTH: 1429.508 ft

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft) TOP	BOTTOM
GR MED RES	FILTER ()	medium (1)		TOP	BOTTOM
CALIPER	FILTER ()	medium (1)		''	''
TENSION	FILTER ()	medium (1)		''	''
CN MED RES	FILTER ()	medium (1)		''	''
ZDL MED RES	FILTER (hrd1*)	medium		''	''
	FILTER (hrd1s*)	medium		''	''
	FILTER (hrd2*)	medium		''	''
	FILTER (hrd2s*)	medium		''	''
	FILTER (soft*)	medium		''	''
SP-SPDH	FILTER ()	heavy (3)		''	''

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft) TOP	BOTTOM
CASING - BOREHOLE & CEMENT VOLUME	CASING O.D.	4.500	in	TOP	BOTTOM
	CASING THICKNESS	0.000	in	''	''
BIT SIZE	BIT SIZE	8.750	in	''	''
BOREHOLE CORR DIAMETER SOURCE	CALIPER/FIXED DIA. (cnbh*)	USE CALIPER		''	''
	CALIPER/FIXED DIA. (mbh*)	USE CALIPER		''	''
BOREHOLE CORR DIAMETER	FIXED DIAMETER (cnbh*)	8.750	in	''	''
	FIXED DIAMETER (mbh*)	8.750	in	''	''
MUD SAMPLE RESISTIVITY	MUD SAMPLE TEMP	88.0	degF	''	''
	MUD SAMPLE RES	1.520	ohm.m	''	''
BH MUD RESISTIVITY SOURCE	RMUD SOURCE (HDIL)	TOOL MEASURED		''	''
BOREHOLE TEMP from GRADIENT	Known BH REF TEMP	88.0	degF	''	''
	at BH REF DEPTH	0.0	ft	''	''
	with TEMP GRADIENT	1.200	0.01 degF/ft	''	''

ACCELERATION PROCESSING

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

CN PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft) TOP	BOTTOM
CN MATRIX	2436 MATRIX	SANDSTONE		TOP	BOTTOM
CN BOREHOLE CORRECTION	SALINITY	600	ppm	''	''
	BOREHOLE CORRECTION	ON		''	''
CN CASING & CEMENT CORRECTION	CORRECTION	OFF		''	''
	BIT SIZE BEHIND CSNG	8.750	in	''	''

ZDL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft) TOP	BOTTOM
DENSITY POROSITY	Air Filled Borehole	NO		TOP	BOTTOM
	RHOmatrix	2.680	g/cm3	''	''
	RHOfluid	1.000	g/cm3	''	''

HDIL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft) TOP	BOTTOM
HDIL TEMPERATURE CORRECTION	TEMP CORRECTION	ON		TOP	BOTTOM
ADAPTIVE BOREHOLE CORRECTION	ABC PROCESSING	ON		''	''

ADAPTIVE BOREHOLE CORRECTION	ON				
ABC to CALCULATE	MUD CONDUCTIVITY		"	"
STANDOFF	1.50	In	"	"
TOOL POSITION	ECCENTERED		"	"
Rmud MULTIPLIER	1.000		"	"

CURVE DESCRIPTION REPORT

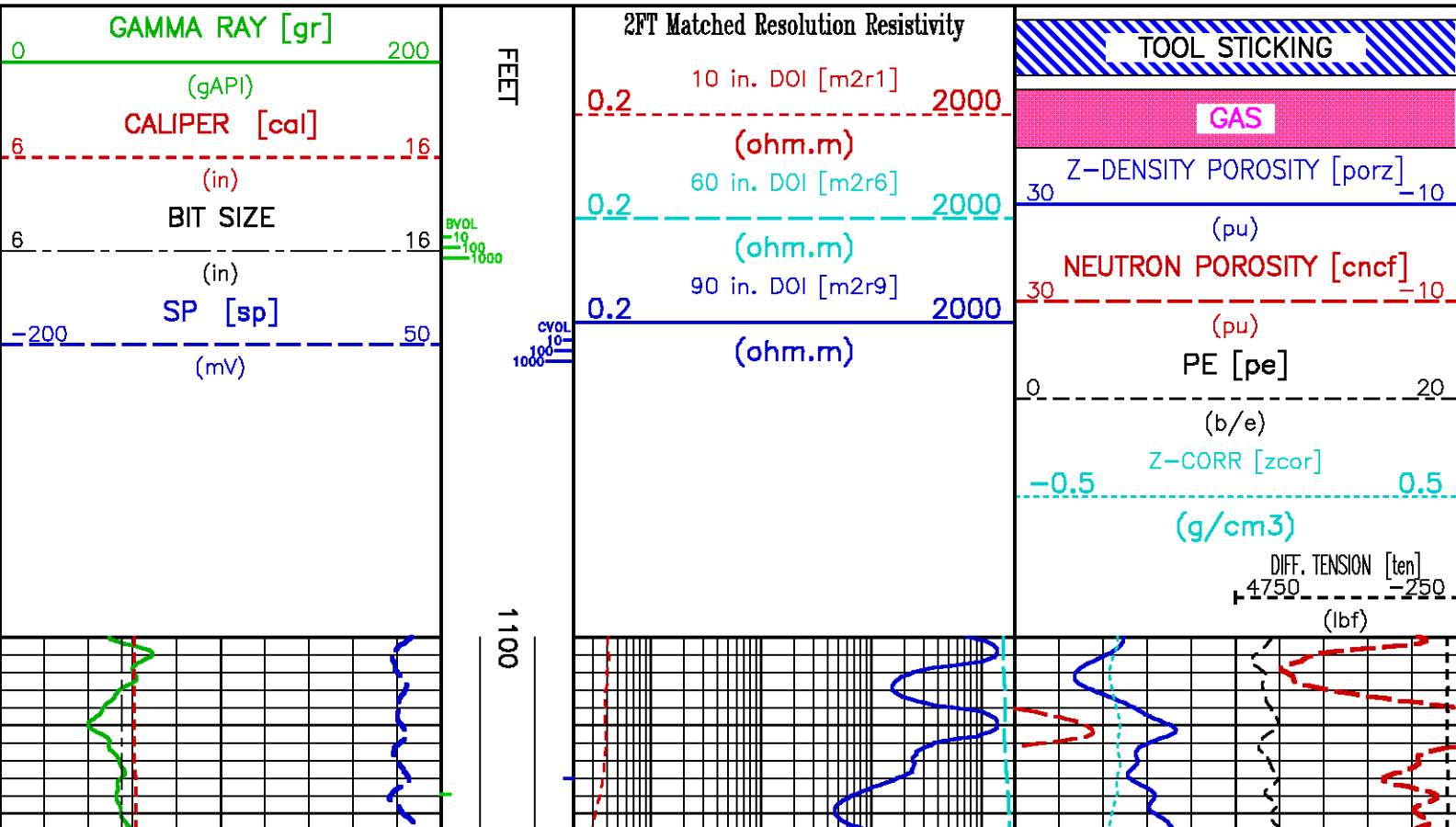
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:BIT	May 24 01:13:02 2013	BIT SIZE
F1:BVOL	May 24 01:13:02 2013	BOREHOLE VOLUME
F1:CAL	May 24 01:13:02 2013	CALIPER
F1:CNCF	May 24 01:13:02 2013	FIELD NORMALIZED COMPENSATED NEUTRON POROSITY
F1:CVOL	May 24 01:13:02 2013	CEMENT VOLUME
F1:GR	May 24 01:13:02 2013	GAMMA RAY
F1:M2R1	May 24 01:13:02 2013	VERTICAL 2-FOOT RESOLUTION MATCHED RESISTIVITY, 10-INCH DOI
F1:M2R6	May 24 01:13:02 2013	VERTICAL 2-FOOT RESOLUTION MATCHED RESISTIVITY, 60-INCH DOI
F1:M2R9	May 24 01:13:02 2013	VERTICAL 2-FOOT RESOLUTION MATCHED RESISTIVITY, 90-INCH DOI
F1:PE	May 24 01:13:02 2013	PHOTO ELECTRIC CROSS-SECTION
F1:PORZ	May 24 01:13:02 2013	POROSITY FOR SELECTABLE MATRIX
F1:SP	May 24 01:13:02 2013	SPONTANEOUS POTENTIAL
F1:TEN	May 24 01:13:02 2013	DIFFERENTIAL TENSION
F1:ZCOR	May 24 01:13:02 2013	DENSITY CORRECTION

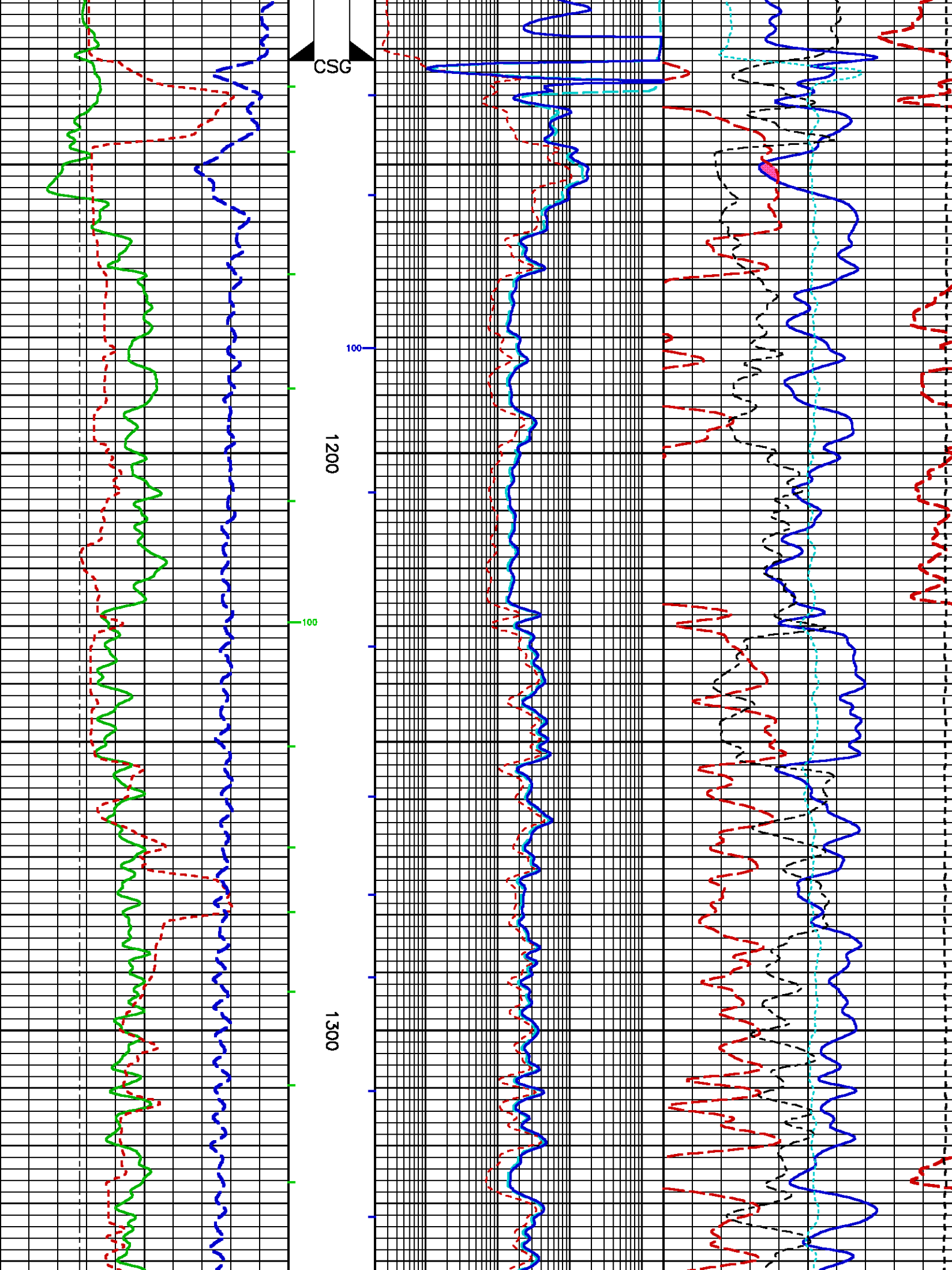
CURVE MEASURE POINT OFFSET

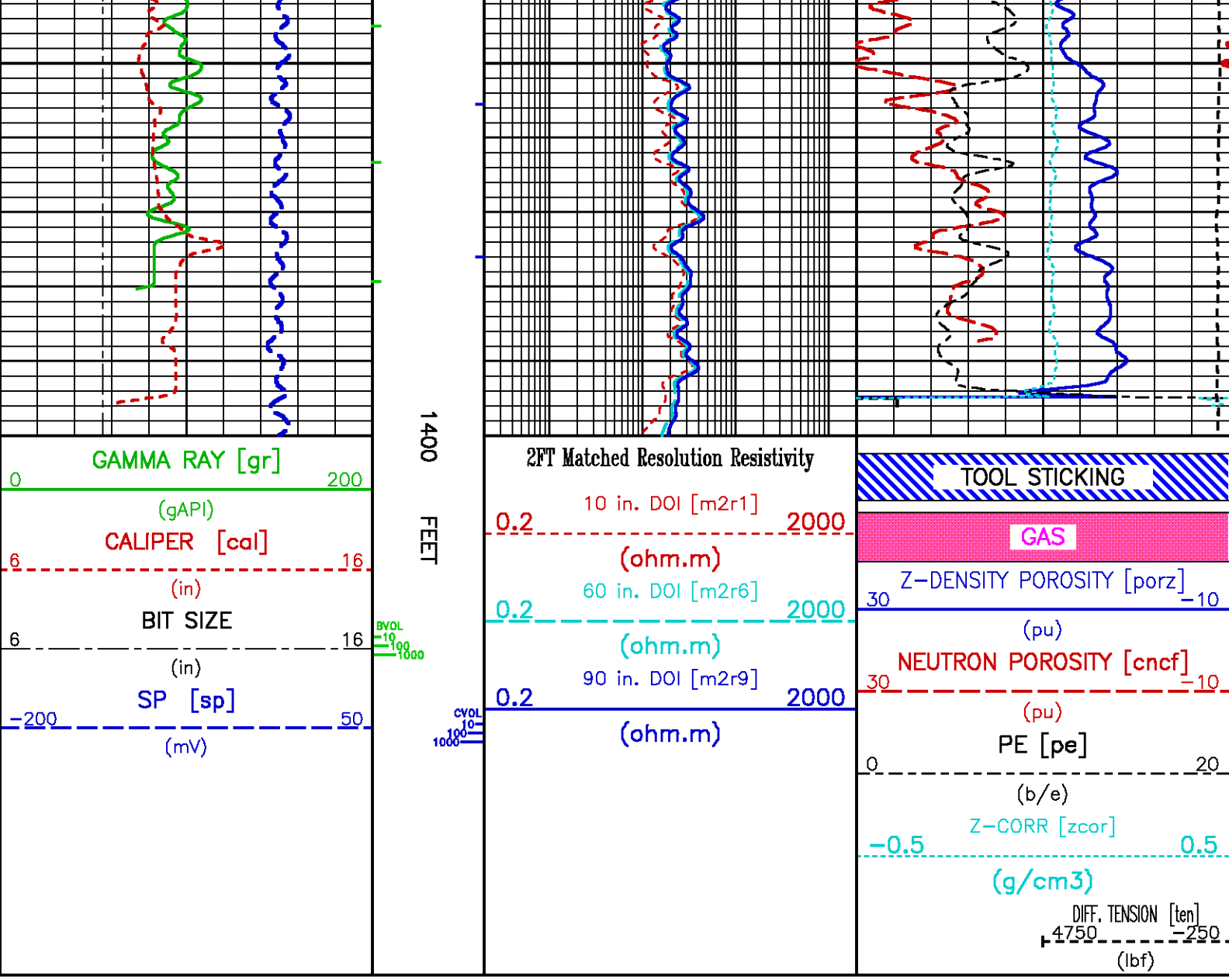
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
BIT	0.00	GR	35.00	M2R9	2.75	SP	1.25
CAL	18.12	M2R1	2.75	PE	18.00	TEN	0.00
CNCF	27.38	M2R6	2.75	PORZ	18.00	ZCOR	18.00

Presentation : rks6685:/dat1a/633639/WPX_REPEAT.pdf [5"/100' Scale]
Plot Interval : 1100 - 1400 Feet

Data File 1 : F1 : rks6685:D:\dat1a\633639\m970a01-REPEAT.xtf
Created On : May 24 01:13:02 2013
Company : WPX ENERGY
Well : DUGGAN RWF 324-29
Field : RULISON
File Interval : 920.5 - 1423 Feet
Oct : m970a




CSG
100
1200
100
1300



CALIBRATION / VERIFICATION SUMMARY

Source File: D:\dat1a\633639\m970a.tp1

TTMA PRIMARY CALIBRATION SUMMARY

TOOL #: 3980XA 10120299 DATE/TIME PERFORMED: Tue Feb 21 22:39:36 2012

UNIT #: 3882TD HL6670 ACCEL #: 3980XA 10120299 ACCEL CAL DATE: 14:43 05/21/2004

	GAIN	OFFSET (ohm.m)
RM K FACTORS	0.14570	-0.01879

TTMA BEFORE LOG VERIFICATION SUMMARY

TOOL #: 3980XA 10120299 DATE/TIME PERFORMED: Fri May 24 00:57:24 2013 DAYS SINCE CAL: 457

UNIT #: 3885TC HL6685

	CHT (lbf)	MUD TEMP (degF)	RES M Q (ohm)	ACCEL Q
CAL	18831	498.91	9.97	997.54
	18030 19630	491.38 505.78	8.00 12.00	980.00 1020.00
ZERO	-23331	-436.02	0.249	997.723
	-24131 -23531	-443.30 -428.50	0.200 0.300	980.000 1020.000

TTMA AFTER LOG VERIFICATION SUMMARY

TOOL #: 3980XA 10120299 DATE/TIME PERFORMED: Fri May 24 04:18:51 2013 DAYS SINCE CAL: 457

UNIT #: 3885TC HL6685

	CHT (lbf)	MUD TEMP (degF)	RES M Q (ohm)	ACCEL Q
CAL	18837	499.93	9.95	997.96
	15030 19630	491.36 505.76	8.00 12.00	980.00 1020.00
ZERO	-23331	-436.02	0.249	997.858
	-24131 -22531	-443.20 -428.80	0.200 0.300	980.000 1020.000

GR PRIMARY CALIBRATION SUMMARY

Tool #: 3518EG 10411092 DATE/TIME PERFORMED: Thu May 23 14:17:39 2013

Unit #: 3885TC HL6685 Jig Series: 4702NK WA-641

Background	Calibrator ON	Jig Value (gAPI)	Mult	Background (gAPI)	Calibrator ON (gAPI)
264.21	962.36	185	0.285	70.01	255.01
			0.230 0.280		

CN PRIMARY CALIBRATION SUMMARY

TOOL #: 2436XA 10124388 DATE/TIME PERFORMED: Thu May 23 14:01:09 2013

UNIT #: 3885TC HL6685 CALIBRATOR #: 2437XB 112674 SOURCE #: 4718XA N-0943

SSN DT CPS	LSN DT CPS	SSN/LSN	MCF	CNRATIO	CN PU
4821.98	824.15	5.85085	0.98054	5.73700	25.241
			0.95000 1.05000		

CN BEFORE LOG VERIFICATION SUMMARY

TOOL #: 2436XA 10124366 DATE/TIME PERFORMED: Fri May 24 00:58:27 2013 DAYS SINCE CAL: 0

UNIT #: 3885TC HL6685 CALIBRATOR #: INTRNL N/A

SSN DT CPS	LSN DT CPS	SSN/LSN	TEMP (degF)	HV (V)	LV (V)
991.06	993.42	0.99762	87.5	1367.4	4.599
		0.95000 1.05000	280.4	1250.0 1450.0	4.300 5.000

CN AFTER LOG VERIFICATION SUMMARY

TOOL #: 2436XA 10124366 DATE/TIME PERFORMED: Fri May 24 04:18:26 2013 DAYS SINCE CAL: 0

UNIT #: 3885TC HL6685 CALIBRATOR #: INTRNL N/A

SSN DT CPS	LSN DT CPS	SSN/LSN	TEMP (degF)	HV (V)	LV (V)
992.07	994.44	0.99762	119.0	1368.8	4.599
		0.95000 1.05000	280.4	1250.0 1450.0	4.300 5.000

CAL PRIMARY CALIBRATION SUMMARY

TOOL #: 2223XA 10090664 DATE/TIME PERFORMED: Thu May 23 15:29:27 2013

UNIT #: 3885TC HL6685

	SIZE (in)	VALUE	MULTIPLIER	ADD
SMALL RING (Arm)	7.000	1200.0		
LARGE RING (Arm)	11.000	2452.0	0.00319	3.16613
PAD CLOSED		1552.0	0.00250	-3.88000

CAL BEFORE LOG VERIFICATION SUMMARY

TOOL #: 2223XA 10090664 DATE/TIME PERFORMED: Fri May 24 01:04:55 2013 DAYS SINCE CAL: 0

UNIT #: 3885TC HL6685

UNIT #: 3885TC HL6685

	VALUE	MULTIPLIER	ADD	SIZE (in)
ARM	1790.8	0.00319	3.16613	8.9
PAD	1688.0	0.00250	-3.88000	0.3

	ACTUAL (in)	MEASURED (in)
DIAMETER (arm+pad)	9.001	9.0 (8.6 – 9.4)

CAL AFTER LOG VERIFICATION SUMMARY

TOOL #: 2223XA 10090664 DATE/TIME PERFORMED: Fri May 24 04:15:42 2013 DAYS SINCE CAL: 0

UNIT #: 3885TC HL6685

	VALUE	MULTIPLIER	ADD	SIZE (in)
ARM	1984.0	0.00319	3.16613	9.4
PAD	1872.0	0.00250	-3.88000	0.3

	ACTUAL (in)	MEASURED (in)
DIAMETER (arm+pad)	9.001	9.0 (8.6 – 9.4)

ZDL PRIMARY CALIBRATION SUMMARY

TOOL: 2223XA 10090664 DATE/TIME PERFORMED: Thu May 23 15:21:29 2013

UNIT: 3885TC HL6685 CALB BLKS: 2225XA 094292F CS SRC: 4705XA 16068B PAD TYPE: PADTYP 7.5" PAD

SS CS PK (Channel)	LS CS PK (Channel)	SS_BKGD (cps)	LS BKGD (cps)
224.8 (220.0 – 230.0)	225.4 (220.0 – 230.0)	1285.8	1669.0

	SS (cps)	LS (cps)	SHR	DEN (g/cm3)	CORR (g/cm3)	PE (b/e)
MG (LO PE)	31880.6	11259.0	0.785 (0.720 – 0.890)	1.879	0.000	1.900
AL	19796.8	1267.2		2.667	-0.016	
AL + SHIM	26449.9	2192.5		2.558	0.098	
MG + SHIM (HI PE)	15773.5	5417.0	0.308 (0.280 – 0.360)			8.550
RATIO AL + SHIM/AL	1.34 (1.30 – 1.40)	1.73 (1.60 – 1.80)				
RATIO MG/AL	1.61 (1.58 – 1.70)	8.88 (8.55 – 9.55)				

ZDL BEFORE LOG VERIFICATION SUMMARY

TOOL #: 2223XA 10090664 DATE/TIME PERFORMED: Fri May 24 00:58:41 2013 DAYS SINCE CAL: 0

UNIT #: 3885TC HL6685

	TOTAL (cps)	CSPK (Channel)	HV (V)
LS	3342.1 (3332.1 – 3352.1)	224.9 (220.0 – 230.0)	1413.0 (1250.0 – 1550.0)
SS	22354.8 (22344.8 – 22384.8)	224.2 (220.0 – 230.0)	1368.0 (1250.0 – 1550.0)

LV (V)	PAD CURRENT (mA)
5.0 (4.8 – 5.3)	73.6 (50.0 – 120.0)

ZDL AFTER LOG VERIFICATION SUMMARY

TOOL #: 2223XA 10090664 DATE/TIME PERFORMED: Fri May 24 04:18:04 2013 DAYS SINCE CAL: 0

UNIT #: 3885TC HL6685

	TOTAL (cps)	CSPK (Channel)	HV (V)
LS	3342.1 (3332.1 – 3352.1)	224.8 (220.0 – 230.0)	1406.5 (1250.0 – 1550.0)

SS	22355.0 (22344.8 – 22384.8)	224.1 (220.0 – 230.0)	1389.5 (1250.0 – 1550.0)

LV (V)	PAD CURRENT (mA)
5.0 (4.8 – 5.3)	76.8 (50.0 – 120.0)

HDIL PRIMARY CALIBRATION SUMMARY

TOOL #: 1530XA 10120519 DATE/TIME PERFORMED: Mon Apr 01 13:17:48 2013

UNIT #: 3885TC HL6885 GRCOND ID & DATE: 30 101 01

ZERO DATA(mv)	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil 0 R	0.0059 (-0.2000 0.2000)	0.0008 (-0.1000 0.1000)	-0.0004 (-0.1000 0.1000)	0.0009 (-0.1000 0.1000)	-0.0010 (-0.1000 0.1000)	-0.0005 (-0.1000 0.1000)	0.0002 (-0.1000 0.1000)	-0.0004 (-0.1000 0.1000)
Coil 0 Q	0.0004 (-0.5000 0.5000)	-0.0008 (-0.2000 0.2000)	-0.0002 (-0.1000 0.1000)	0.0002 (-0.1000 0.1000)	-0.0004 (-0.1000 0.1000)	0.0003 (-0.1000 0.1000)	-0.0007 (-0.1000 0.1000)	-0.0001 (-0.1000 0.1000)
Coil 1 R	0.0181 (-0.2000 0.2000)	0.0002 (-0.1000 0.1000)	-0.0022 (-0.1000 0.1000)	0.0027 (-0.1000 0.1000)	-0.0010 (-0.1000 0.1000)	-0.0001 (-0.1000 0.1000)	-0.0007 (-0.1000 0.1000)	0.0002 (-0.1000 0.1000)
Coil 1 Q	0.0083 (-0.5000 0.5000)	-0.0037 (-0.2000 0.2000)	0.0018 (-0.1000 0.1000)	0.0010 (-0.1000 0.1000)	-0.0009 (-0.1000 0.1000)	0.0001 (-0.1000 0.1000)	-0.0002 (-0.1000 0.1000)	0.0002 (-0.1000 0.1000)
Coil 2 R	0.0154 (-0.2000 0.2000)	-0.0029 (-0.1000 0.1000)	-0.0032 (-0.1000 0.1000)	-0.0019 (-0.1000 0.1000)	0.0001 (-0.1000 0.1000)	-0.0006 (-0.1000 0.1000)	-0.0000 (-0.1000 0.1000)	0.0003 (-0.1000 0.1000)
Coil 2 Q	0.0074 (-0.5000 0.5000)	-0.0013 (-0.2000 0.2000)	0.0001 (-0.1000 0.1000)	0.0017 (-0.1000 0.1000)	-0.0007 (-0.1000 0.1000)	0.0020 (-0.1000 0.1000)	0.0013 (-0.1000 0.1000)	0.0004 (-0.1000 0.1000)
Coil 3 R	0.0530 (-0.3000 0.3000)	-0.0041 (-0.1000 0.1000)	-0.0044 (-0.1000 0.1000)	0.0007 (-0.1000 0.1000)	-0.0054 (-0.1000 0.1000)	0.0017 (-0.1000 0.1000)	-0.0007 (-0.1000 0.1000)	0.0029 (-0.1000 0.1000)
Coil 3 Q	0.0279 (-0.5000 0.5000)	-0.0122 (-0.2000 0.2000)	0.0058 (-0.1000 0.1000)	0.0003 (-0.1000 0.1000)	-0.0045 (-0.1000 0.1000)	-0.0039 (-0.1000 0.1000)	-0.0032 (-0.1000 0.1000)	-0.0009 (-0.1000 0.1000)
Coil 4 R	0.1475 (-0.5000 0.5000)	-0.0008 (-0.2000 0.2000)	-0.0080 (-0.2000 0.2000)	0.0108 (-0.2000 0.2000)	-0.0023 (-0.2000 0.2000)	-0.0011 (-0.2000 0.2000)	0.0067 (-0.2000 0.2000)	-0.0035 (-0.2000 0.2000)
Coil 4 Q	0.0589 (-1.0000 1.0000)	-0.0353 (-0.4000 0.4000)	0.0124 (-0.2000 0.2000)	-0.0063 (-0.2000 0.2000)	-0.0034 (-0.2000 0.2000)	0.0050 (-0.2000 0.2000)	-0.0037 (-0.2000 0.2000)	-0.0009 (-0.2000 0.2000)
Coil 5 R	0.3266 (-1.2000 1.2000)	0.0059 (-0.4000 0.4000)	-0.0383 (-0.4000 0.4000)	0.0225 (-0.4000 0.4000)	-0.0040 (-0.4000 0.4000)	0.0029 (-0.4000 0.4000)	0.0052 (-0.4000 0.4000)	-0.0012 (-0.4000 0.4000)
Coil 5 Q	0.1601 (-1.5000 1.5000)	-0.0830 (-0.8000 0.8000)	0.0178 (-0.4000 0.4000)	0.0045 (-0.4000 0.4000)	-0.0157 (-0.4000 0.4000)	0.0016 (-0.4000 0.4000)	-0.0118 (-0.4000 0.4000)	0.0048 (-0.4000 0.4000)

ELEC. GAINS	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil 0 M	162.99 (136.00 186.00)	161.54 (134.00 184.00)	158.62 (131.00 181.00)	154.31 (126.00 176.00)	148.60 (122.00 170.00)	141.66 (118.00 161.00)	133.47 (112.00 150.00)	124.10 (105.00 139.00)
Coil 0 P	7.899 (6.000 9.000)	25.434 (21.000 30.000)	42.706 (35.000 50.000)	59.926 (49.000 71.000)	77.141 (63.000 91.000)	94.399 (77.000 109.000)	111.623 (92.000 130.000)	128.875 (106.000 151.000)
Coil 1 M	282.53 (236.00 328.00)	279.96 (235.00 325.00)	274.82 (230.00 320.00)	267.13 (225.00 312.00)	257.00 (218.00 302.00)	244.48 (208.00 286.00)	229.85 (196.00 268.00)	213.08 (184.00 244.00)
Coil 1 P	7.759 (6.000 9.000)	25.635 (21.000 30.000)	43.058 (35.000 51.000)	60.433 (49.000 71.000)	77.803 (63.000 92.000)	95.188 (78.000 112.000)	112.549 (93.000 130.000)	129.862 (107.000 151.000)
Coil 2 M	560.55 (479.00 659.00)	555.37 (474.00 654.00)	545.00 (463.00 643.00)	529.65 (450.00 622.00)	509.55 (432.00 602.00)	485.05 (412.00 572.00)	456.38 (390.00 540.00)	423.59 (359.00 499.00)
Coil 2 P	7.865 (6.000 9.000)	25.383 (21.000 31.000)	42.631 (35.000 51.000)	59.814 (49.000 71.000)	76.981 (63.000 92.000)	94.154 (76.000 115.000)	111.311 (92.000 135.000)	128.470 (105.000 155.000)
Coil 3 M	918.71 (772.00 1060.00)	909.66 (764.00 1050.00)	891.58 (752.001030.00)	864.77 (728.00 1010.00)	829.95 (700.00 970.00)	787.45 (665.00 925.00)	738.42 (628.00 868.00)	683.09 (589.00 799.00)
Coil 3 P	7.969 (6.000 10.000)	26.189 (21.000 30.000)	43.952 (35.000 51.000)	61.835 (49.000 72.000)	79.282 (63.000 93.000)	96.905 (76.000 114.000)	114.464 (90.000 135.000)	131.962 (104.000 156.000)
Coil 4 M	1422.5 (1210.0 1700.0)	1410.4 (1205.0 1690.0)	1385.9 (1180.0 1650.0)	1349.1 (1140.0 1590.0)	1300.3 (1120.0 1530.0)	1239.9 (1070.0 1450.0)	1188.4 (1000.0 1350.0)	1086.6 (942.0 1240.0)
Coil 4 P	7.742 (6.000 10.000)	25.600 (21.000 31.000)	43.009 (35.000 52.000)	60.385 (49.000 73.000)	77.776 (63.000 93.000)	95.217 (77.000 114.000)	112.660 (91.000 135.000)	130.110 (105.000 156.000)
Coil 5 M	2953.8 (2450.0 3450.0)	2930.0 (2420.0 3400.0)	2878.9 (2410.0 3320.0)	2802.3 (2350.0 3200.0)	2700.3 (2280.0 3080.0)	2574.4 (2150.0 2950.0)	2425.8 (2020.0 2750.0)	2255.2 (1870.0 2570.0)
Coil 5 P	7.819 (6.000 10.000)	25.801 (20.000 31.000)	43.360 (35.000 52.000)	60.889 (49.000 73.000)	78.406 (63.000 94.000)	95.960 (79.000 113.000)	113.510 (93.000 134.000)	131.066 (106.000 156.000)

AM Factor	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil 0 R	-916 (-3200 940)	-601 (-1400 -20)	-488 (-930 -150)	-419 (-760 -180)	-373 (-860 -130)	-340 (-600 -120)	-314 (-550 -110)	-293 (-520 -92)
Coil 0 Q	282 (-15000 11000)	-189 (-5800 3800)	-241 (-3700 2100)	-261 (-2700 1400)	-273 (-2200 1000)	-284 (-1800 780)	-292 (-1600 620)	-302 (-1500 490)
Coil 1 R	-111 (-750 460)	-135 (-360 83)	-132 (-280 9)	-125 (-230 -10)	-117 (-200 -26)	-111 (-180 -35)	-104 (-160 -46)	-98 (-150 -48)
Coil 1 Q	329 (-3300 3300)	79 (-1100 960)	28 (-630 530)	2 (-470 360)	-14 (-350 260)	-25 (-320 190)	-33 (-290 150)	-38 (-260 120)
Coil 2 R	-0.1 (-85.0 76.0)	-29.4 (-84.0 -0.4)	-32.3 (-57.0 -12.0)	-31.2 (-51.0 -16.0)	-28.9 (-46.0 -17.0)	-26.8 (-42.0 -16.0)	-24.6 (-39.0 -15.0)	-22.9 (-37.0 -13.0)
Coil 2 Q	143.9 (-1500.0 1900.0)	49.3 (-500.0 610.0)	27.6 (-290.0 350.0)	17.8 (-220.0 280.0)	13.0 (-160.0 190.0)	10.5 (-140.0 160.0)	9.7 (-110.0 130.0)	9.7 (-99.0 120.0)
Coil 3 R	-1.9 (-23.0 21.0)	-8.7 (-22.0 1.6)	-9.5 (-21.0 -1.3)	-9.3 (-20.0 -1.8)	-8.9 (-19.0 -2.0)	-8.2 (-19.0 -1.3)	-7.7 (-18.0 -0.8)	-7.5 (-18.0 -0.0)
Coil 3 Q	84.3 (-540.0 530.0)	31.7 (-180.0 180.0)	22.2 (-100.0 110.0)	19.0 (-71.0 81.0)	18.8 (-51.0 66.0)	19.1 (-37.0 58.0)	20.6 (-28.0 53.0)	21.8 (-21.0 51.0)
Coil 4 R	-2.50 (-18.00 13.00)	-2.33 (-12.00 2.70)	-2.20 (-11.00 1.50)	-1.90 (-9.80 0.52)	-3.15 (-9.90 0.96)	-1.73 (-10.00 1.50)	-2.07 (-11.00 2.30)	-1.68 (-11.00 2.60)
Coil 4 Q	30.50 (-250.00 280.00)	11.48 (-79.00 98.00)	8.80 (-43.00 64.00)	8.60 (-27.00 51.00)	9.10 (-15.00 48.00)	9.93 (-11.00 42.00)	10.44 (-5.50 42.00)	11.93 (-1.00 42.00)
Coil 5 R	2.27	-0.99	-0.95	-0.86	-0.38	-0.89	-1.12	-0.71

	-56.00 51.00	-8.40 3.80	-6.90 1.10	-8.90 1.20	-9.30 2.90	-14.00 6.30	-19.00 9.80	-24.00 13.00
Coil 5 Q	4.87 -85.00 69.00	2.64 -26.00 27.00	3.08 -14.00 22.00	4.17 -7.00 22.00	4.85 -2.50 24.00	6.30 1.10 26.00	7.89 4.10 29.00	8.67 7.10 32.00

MM Factor	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil 0 M	0.964 0.850 1.100	0.971 0.860 1.100	0.975 0.870 1.100	0.977 0.880 1.100	0.978 0.880 1.100	0.978 0.880 1.100	0.979 0.880 1.100	0.978 0.880 1.100
Coil 0 P	-0.266 -1.500 1.500	-0.417 -1.500 1.500	-0.323 -1.500 1.500	-0.221 -1.500 1.500	-0.149 -1.500 1.500	-0.071 -1.500 1.500	-0.047 -1.500 1.500	0.005 -1.500 1.500
Coil 1 M	0.960 0.850 1.100	0.967 0.860 1.100	0.971 0.870 1.100	0.973 0.880 1.100	0.973 0.880 1.100	0.973 0.880 1.100	0.974 0.880 1.100	0.972 0.880 1.100
Coil 1 P	-0.237 -1.500 1.500	-0.409 -1.500 1.500	-0.298 -1.500 1.500	-0.196 -1.500 1.500	-0.115 -1.500 1.500	-0.048 -1.500 1.500	-0.022 -1.500 1.500	0.007 -1.500 1.500
Coil 2 M	0.985 0.890 1.100	0.985 0.890 1.100	0.985 0.890 1.100	0.985 0.890 1.100	0.984 0.890 1.100	0.984 0.890 1.100	0.984 0.890 1.100	0.983 0.890 1.100
Coil 2 P	0.065 -1.500 1.500	0.049 -1.500 1.500	0.090 -1.500 1.500	0.125 -1.500 1.500	0.144 -1.500 1.500	0.170 -1.500 1.500	0.159 -1.500 1.500	0.176 -1.500 1.500
Coil 3 M	0.991 0.900 1.100	0.991 0.900 1.100	0.991 0.900 1.100	0.990 0.900 1.100	0.990 0.900 1.100	0.989 0.900 1.100	0.989 0.900 1.100	0.987 0.900 1.100
Coil 3 P	0.076 -1.500 1.500	0.085 -1.500 1.500	0.124 -1.500 1.500	0.168 -1.500 1.500	0.204 -1.500 1.500	0.250 -1.500 1.500	0.267 -1.500 1.500	0.300 -1.500 1.500
Coil 4 M	1.000 0.900 1.100	1.001 0.900 1.100	1.001 0.900 1.100	1.001 0.900 1.100	1.003 0.900 1.100	1.002 0.900 1.100	1.003 0.900 1.100	1.004 0.900 1.100
Coil 4 P	0.892 -1.500 1.500	0.282 -1.500 1.500	0.258 -1.500 1.500	0.277 -1.500 1.500	0.275 -1.500 1.500	0.392 -1.500 1.500	0.412 -1.500 1.500	0.480 -1.500 1.500
Coil 5 M	1.044 0.900 1.100	1.041 0.900 1.100	1.042 0.900 1.100	1.044 0.900 1.100	1.046 0.900 1.100	1.048 0.900 1.100	1.052 0.900 1.100	1.054 0.900 1.100
Coil 5 P	0.125 -1.500 1.500	0.124 -1.500 1.500	0.231 -1.500 1.500	0.329 -1.500 1.500	0.589 -1.500 1.500	0.591 -1.500 1.500	0.697 -1.500 1.500	0.814 -1.500 1.500

PARMS	TCID 0	TCID 1	Cal Temp (degF)	T Factor
IDs	2.733	0.718	77.0	1.00

HDIL BEFORE LOG VERIFICATION SUMMARY

TOOL #: 1530XA 10120519 DATE/TIME PERFORMED: Fri May 24 02:04:58 2013 DAYS SINCE CAL: 52

UNIT #: 3885TC HL6685

ZERO DATA(mv)	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil 0 R	0.004 -0.200 0.200	0.001 -0.100 0.100	-0.001 -0.100 0.100	0.002 -0.100 0.100	0.001 -0.100 0.100	-0.001 -0.100 0.100	-0.000 -0.100 0.100	-0.000 -0.100 0.100
Coil 0 Q	-0.001 -0.500 0.500	-0.001 -0.200 0.200	-0.001 -0.100 0.100	-0.000 -0.100 0.100	-0.000 -0.100 0.100	0.000 -0.100 0.100	0.000 -0.100 0.100	-0.001 -0.100 0.100
Coil 1 R	0.022 -0.200 0.200	-0.001 -0.100 0.100	-0.003 -0.100 0.100	0.002 -0.100 0.100	-0.002 -0.100 0.100	0.000 -0.100 0.100	0.000 -0.100 0.100	-0.001 -0.100 0.100
Coil 1 Q	0.008 -0.500 0.500	-0.005 -0.200 0.200	0.000 -0.100 0.100	-0.000 -0.100 0.100	-0.001 -0.100 0.100	0.002 -0.100 0.100	0.002 -0.100 0.100	0.000 -0.100 0.100
Coil 2 R	0.016 -0.200 0.200	0.001 -0.100 0.100	-0.001 -0.100 0.100	0.001 -0.100 0.100	0.002 -0.100 0.100	-0.000 -0.100 0.100	0.002 -0.100 0.100	-0.000 -0.100 0.100
Coil 2 Q	0.014 -0.500 0.500	-0.006 -0.200 0.200	-0.000 -0.100 0.100	-0.001 -0.100 0.100	-0.002 -0.100 0.100	-0.002 -0.100 0.100	0.001 -0.100 0.100	-0.002 -0.100 0.100
Coil 3 R	0.059 -0.300 0.300	0.002 -0.100 0.100	-0.000 -0.100 0.100	0.001 -0.100 0.100	-0.001 -0.100 0.100	-0.003 -0.100 0.100	-0.001 -0.100 0.100	-0.001 -0.100 0.100
Coil 3 Q	0.033 -0.500 0.500	-0.017 -0.200 0.200	0.004 -0.100 0.100	-0.001 -0.100 0.100	-0.001 -0.100 0.100	0.005 -0.100 0.100	0.002 -0.100 0.100	0.002 -0.100 0.100
Coil 4 R	0.152 -0.500 0.500	0.010 -0.200 0.200	-0.017 -0.200 0.200	0.010 -0.200 0.200	-0.002 -0.200 0.200	-0.003 -0.200 0.200	0.003 -0.200 0.200	-0.004 -0.200 0.200
Coil 4 Q	0.057 -1.000 1.000	-0.038 -0.400 0.400	0.014 -0.200 0.200	-0.001 -0.200 0.200	-0.005 -0.200 0.200	0.008 -0.200 0.200	0.002 -0.200 0.200	-0.002 -0.200 0.200
Coil 5 R	0.342 -1.200 1.200	0.009 -0.400 0.400	-0.041 -0.400 0.400	0.008 -0.400 0.400	-0.003 -0.400 0.400	-0.003 -0.400 0.400	0.016 -0.400 0.400	0.002 -0.400 0.400
Coil 5 Q	0.155 -1.500 1.500	-0.091 -0.800 0.800	0.025 -0.400 0.400	0.004 -0.400 0.400	0.008 -0.400 0.400	0.013 -0.400 0.400	0.003 -0.400 0.400	-0.018 -0.400 0.400

ELEC. GAINS	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil 0 M	162.16 136.00 186.00	160.73 134.00 184.00	157.85 131.00 181.00	153.56 126.00 176.00	147.91 122.00 170.00	140.97 118.00 161.00	132.77 112.00 150.00	123.41 105.00 139.00
Coil 0 P	6.578 -1.000 12.000	25.163 19.000 30.000	42.673 35.000 50.000	60.045 49.000 71.000	77.387 63.000 91.000	94.746 77.000 110.000	112.103 92.000 130.000	128.464 105.000 151.000
Coil 1 M	282.67 237.00 327.00	280.17 235.00 325.00	275.08 230.00 320.00	267.43 225.00 312.00	257.33 216.00 302.00	244.85 208.00 288.00	230.14 196.00 268.00	213.36 184.00 244.00
Coil 1 P	6.851 -1.000 12.000	25.346 19.000 30.000	42.989 35.000 51.000	60.495 49.000 71.000	77.982 63.000 92.000	95.470 77.000 112.000	112.942 92.000 132.000	130.371 105.000 153.000
Coil 2 M	559.04 479.00 659.00	553.99 474.00 654.00	543.73 463.00 643.00	528.48 450.00 622.00	508.53 432.00 602.00	484.12 412.00 572.00	455.36 390.00 540.00	422.60 359.00 499.00
Coil 2 P	6.494 -1.000 12.000	25.077 19.000 31.000	42.546 35.000 51.000	59.863 49.000 71.000	77.150 63.000 92.000	94.420 77.000 114.000	111.699 92.000 135.000	128.959 105.000 156.000
Coil 3 M	917.03 772.00 1060.00	908.21 764.00 1050.00	890.28 752.00 1030.00	863.69 728.00 1010.00	829.03 700.00 970.00	786.81 665.00 925.00	737.50 628.00 868.00	682.24 589.00 799.00
Coil 3 P	6.874 -2.000 13.000	25.898 19.000 31.000	43.868 35.000 52.000	61.876 49.000 72.000	79.422 63.000 93.000	97.148 77.000 114.000	114.802 92.000 135.000	132.405 105.000 156.000
Coil 4 M	1426.0 1210.0 1700.0	1414.2 1205.0 1690.0	1389.8 1180.0 1650.0	1353.0 1140.0 1590.0	1304.2 1120.0 1530.0	1243.7 1070.0 1450.0	1171.7 1000.0 1350.0	1089.2 942.0 1240.0
Coil 4 P	6.839 -2.000 13.000	25.317 19.000 31.000	42.945 35.000 52.000	60.453 49.000 73.000	77.955 63.000 93.000	95.495 78.000 114.000	113.062 92.000 135.000	130.807 105.000 156.000
Coil 5 M	2942.7	2919.4	2869.4	2792.7	2691.5	2565.3	2417.3	2246.0

	2450.0 3450.0	2420.0 3400.0	2410.0 3320.0	2350.0 3200.0	2280.0 3080.0	2150.0 2950.0	2020.0 2750.0	1870.0 2570.0
Coil 5 P	6.748 -2.000 13.000	25.516 19.000 31.000	43.279 35.000 52.000	60.911 49.000 73.000	78.540 63.000 94.000	96.205 79.000 114.000	113.881 93.000 135.000	131.524 106.000 156.000

HDIL AFTER LOG VERIFICATION SUMMARY

TOOL #: 1530XA 10120519 DATE/TIME PERFORMED: Fri May 24 04:18:48 2013 DAYS SINCE CAL: 52

UNIT #: 3885TC HL6685

ZERO DATA(mv)	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil 0 R	0.006 -0.076 0.084	-0.001 -0.059 0.081	0.000 -0.031 0.029	0.002 -0.028 0.032	0.000 -0.029 0.031	-0.001 -0.031 0.029	-0.000 -0.030 0.030	0.000 -0.030 0.030
Coil 0 Q	0.001 -0.041 0.039	-0.001 -0.121 0.119	0.000 -0.031 0.029	0.000 -0.030 0.030	-0.001 -0.030 0.030	0.000 -0.030 0.030	0.001 -0.030 0.030	-0.000 -0.031 0.029
Coil 1 R	0.022 -0.068 0.102	-0.000 -0.051 0.049	-0.002 -0.033 0.027	0.003 -0.028 0.032	-0.001 -0.032 0.028	0.000 -0.030 0.030	0.000 -0.030 0.030	0.000 -0.031 0.029
Coil 1 Q	0.008 -0.391 0.409	-0.004 -0.105 0.095	0.002 -0.030 0.030	-0.002 -0.030 0.030	-0.000 -0.031 0.029	0.001 -0.028 0.032	-0.001 -0.028 0.032	0.001 -0.030 0.030
Coil 2 R	0.014 -0.054 0.086	-0.000 -0.029 0.031	-0.003 -0.031 0.029	0.001 -0.029 0.031	-0.001 -0.028 0.032	-0.001 -0.030 0.030	-0.000 -0.028 0.032	0.002 -0.030 0.030
Coil 2 Q	0.015 -0.336 0.364	-0.003 -0.108 0.094	-0.000 -0.030 0.030	0.001 -0.031 0.029	0.001 -0.032 0.028	0.001 -0.032 0.028	0.000 -0.029 0.031	-0.001 -0.032 0.028
Coil 3 R	0.055 0.019 0.099	-0.004 -0.038 0.042	-0.008 -0.040 0.040	0.000 -0.039 0.041	-0.002 -0.041 0.039	-0.003 -0.043 0.037	0.002 -0.041 0.039	0.001 -0.041 0.039
Coil 3 Q	0.035 -0.187 0.233	-0.011 -0.097 0.083	0.008 -0.036 0.044	-0.001 -0.041 0.039	-0.002 -0.041 0.039	-0.001 -0.036 0.034	-0.003 -0.038 0.032	0.001 -0.038 0.042
Coil 4 R	0.158 0.092 0.212	0.002 -0.050 0.070	-0.012 -0.077 0.043	0.013 -0.050 0.070	-0.002 -0.062 0.058	0.001 -0.053 0.057	0.003 -0.057 0.063	-0.002 -0.064 0.056
Coil 4 Q	0.063 -0.243 0.357	-0.041 -0.138 0.062	0.011 -0.046 0.074	-0.002 -0.061 0.059	-0.007 -0.065 0.055	0.003 -0.052 0.058	-0.003 -0.058 0.052	-0.000 -0.062 0.058
Coil 5 R	0.347 0.222 0.462	0.013 -0.111 0.129	-0.039 -0.181 0.079	0.029 -0.112 0.128	-0.011 -0.123 0.117	-0.010 -0.123 0.117	0.009 -0.104 0.136	-0.007 -0.118 0.122
Coil 5 Q	0.141 -0.445 0.758	-0.090 -0.341 0.159	0.024 -0.095 0.145	0.015 -0.118 0.124	-0.012 -0.112 0.128	0.010 -0.107 0.133	0.001 -0.117 0.123	-0.005 -0.138 0.104

ELEC. GAINS	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil 0 M	162.43 158.92 165.40	160.98 157.52 163.95	158.08 154.69 161.00	153.77 150.49 156.53	148.12 144.95 150.87	141.17 138.15 143.79	132.94 130.11 135.42	123.57 120.94 125.88
Coil 0 P	7.246 3.579 8.579	25.339 22.163 28.163	42.730 39.673 45.673	60.025 57.045 63.045	77.306 74.387 80.387	94.616 91.746 97.746	111.927 109.103 115.103	129.228 126.464 132.464
Coil 1 M	282.54 277.01 288.32	279.98 274.56 285.77	274.86 269.56 280.56	267.21 262.08 272.78	257.07 252.18 262.47	244.62 239.95 249.74	229.82 225.54 234.74	213.07 209.09 217.63
Coil 1 P	7.318 3.651 8.651	25.537 22.348 28.348	43.057 39.989 45.989	60.497 57.495 63.495	77.925 74.982 80.982	95.383 92.470 98.470	112.802 109.942 115.942	130.163 127.371 133.371
Coil 2 M	559.32 547.86 570.22	554.17 542.91 565.07	543.88 532.86 554.61	528.59 517.91 539.05	508.64 498.38 518.70	484.10 474.44 493.60	455.21 446.25 464.47	422.50 414.15 431.05
Coil 2 P	7.176 3.494 9.494	25.271 22.077 28.077	42.819 39.546 45.546	59.871 56.863 62.863	77.094 74.150 80.150	94.341 91.420 97.420	111.573 108.699 114.699	128.782 125.959 131.959
Coil 3 M	917.12 898.69 935.37	908.16 890.05 926.38	890.21 872.47 908.08	863.43 846.41 880.96	828.69 812.45 845.61	786.47 771.07 802.54	737.05 722.75 752.25	681.67 668.60 695.89
Coil 3 P	7.526 3.874 9.874	26.088 22.898 28.898	43.948 40.866 46.866	61.691 58.676 64.676	79.395 76.422 82.422	97.064 94.146 100.146	114.687 111.802 117.802	132.238 129.405 135.405
Coil 4 M	1423.7 1397.5 1454.5	1411.7 1385.9 1442.5	1387.2 1382.0 1417.8	1350.4 1328.0 1380.1	1301.7 1278.1 1330.3	1241.3 1218.9 1268.8	1169.2 1148.3 1195.2	1087.0 1067.4 1110.9
Coil 4 P	7.313 3.639 9.639	25.504 22.317 28.317	43.011 39.945 45.945	60.446 57.453 63.453	77.898 74.955 80.955	95.384 92.495 98.495	112.899 110.082 116.082	130.394 127.607 133.607
Coil 5 M	2948.7 2883.9 3001.8	2923.0 2861.0 2977.5	2872.3 2812.0 2928.7	2795.9 2738.5 2848.6	2694.9 2637.7 2745.4	2568.7 2515.0 2617.8	2418.1 2368.9 2465.6	2248.8 2201.1 2290.9
Coil 5 P	7.407 3.748 9.748	25.711 22.516 28.516	43.355 40.279 46.279	60.925 57.911 63.911	78.501 75.540 81.540	96.144 93.205 99.205	113.755 110.881 116.881	131.327 128.524 134.524

INSTRUMENT CONFIGURATION

Source File: D:\data\633639\m970a~~-tdg

FOCUS CABLEHEAD
- Diameter : 3.12"
- Length : 3.17'
- Weight : 18 lbs

FOCUS SWIVEL
- Diameter : 3.13"
- Length : 2.58'
- Weight : 60 lbs

FOCUS TEN/TEMP/MUD RES/ACCEL
- Diameter : 3.13"
- Length : 4.31'
- Weight : 61 lbs
- Series : 3950XA
- Mnemonic : TTMA

FOCUS TELEMETRY (POWER SECTION)
- Diameter : 3.13"
- Length : 3.71'
- Weight : 48 lbs
- Series : 3518FB

FOCUS EB/EQ TELEMETRY GAMMA RAY
- Diameter : 3.12"

52.34'

Length : 5.85'
Weight : 63 lbs
Series : 3618EQ
Mnemonic : GR
Tensile Str. : 55000 lbs
Compressive : 32000 lbs

FOCUS COMPENSATED NEUTRON
Diameter : 3.13"
Length : 4.81'
Weight : 65 lbs
Series : 2436XA
Mnemonic : CN
Tensile Str. : 50000 lbs

FOCUS Z-DENSILOG
Diameter : 3.75"
Length : 9.58'
Weight : 200 lbs
Series : 2223XA
Mnemonic : ZDL
Tensile Str. : 50000 lbs
Compressive : 28500 lbs

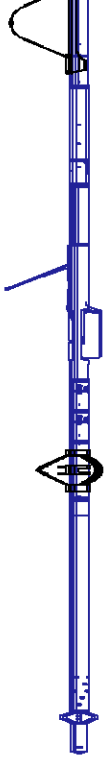
FOCUS KNUCKLE JOINT
Diameter : 3.13"

FOCUS KNUCKLE JOINT
Diameter : 3.13"

FOCUS HIGH DEFINITION INDUCTION TOOL
Diameter : 3.13"
Length : 13.33'
Weight : 118 lbs
Series : 1830XA
Mnemonic : HDIL
Tensile Str. : 66000 lbs
Compressive : 23000 lbs

FOCUS PINEAPPLE / GARBAGE
HOLE FINDER
Diameter : 2.62"

TOTAL LENGTH: 52.34'
TOTAL WEIGHT: 761 lbs
MAX DIAMETER: 0'6.13"



GR MP 38.67'
LSN MP 29.63'
SSN MP 29.38'
CR1 MP 22.67'
LSD / CR2 MP 20.02'
SSD MP 19.63'
COIL 5 MP 9.17'
COIL 4 MP 7.67'
COIL 3 MP 6.17'
COIL 2 MP 5.67'
COIL 1 MP 5.17'
COIL 0 MP 4.67'
SP MP 3.14'
0.00'

BAKER HUGHES
FOLIPS

COMPANY	WPX ENERGY		FILE NO: 633639
WELL	DUGGAN RWF 324-29		API NO: 05045216590000
FIELD	RULISON		
COUNTY	GARFIELD	STATE CO	

LOCATION:
SHL: 538' FSL, 599' FWL
BHL: 973' FSL, 2015 FWL
SEC 29 TWP 6S RGE 94W

ELEVATIONS:
KB 5445.2 FT
DF
GL 5419.2 FT

S29 T6S R94W
PAD: RWF 14-29
RIG: NABORS 573

DATE 23-MAY-2013