

# Schlumberger

Company: **Battelle Pacific Northwest Lab**

Well: **Wallula Basalt Pilot #1**

Field: **Wildcat**

County: **Walla Walla**

State: **Washington**

## FORMATION MICRO IMAGER

County: Walla Walla  
 Field: Wildcat  
 Location: SOUTHWEST 1/4 OF SECTION  
 Well: Wallula Basalt Pilot #1  
 Company: Battelle Pacific Northwest Lab

LOCATION		SOUTHWEST 1/4 OF SECTION 10		Elev.: K.B. 5.50 ft G.L. D.F.	
Permanent Datum:	GROUND LEVEL	Elev.:	above Perm. Datum		
Log Measured From:	FLANGE TOP				
Drilling Measured From:	KELLY BUSHING				
API Serial No.	Section 10	Township 7	Range 31E		

Logging Date	Run Number	Run 1	Run 2	Run
18-Apr-2009	TWO			
Depth Driller	4105 ft			
Schlumberger Depth	4105 ft			
Bottom Log Interval	4103 ft			
Top Log Interval	1108 ft			
Casing Driller Size @ Depth	14,000 in @ 1108 ft			
Casing Schlumberger	1108 ft			
Bit Size	12.250 in			
Type Fluid In Hole	FRESH WATER			
Density	8.4 lbm/gal			
Fluid Loss	PH			
Source Of Sample	MUD TANK			
RM @ Measured Temperature	23.100 ohm.m @ 64 degF			
RMF @ Measured Temperature	@ @			
RMC @ Measured Temperature	@ @			
Source RMF	RMC			
RM @ MRT	RMF @ MRT @ @			
Maximum Recorded Temperatures				
Circulation Stopped	Time			
Logger On Bottom	Time	18-Apr-2009	22:46	
Unit Number	Location	3152	SACRAMENTO	
Recorded By		BEN GRAU		
Witnessed By		CHARLOTTE SULLIVAN		

## DEPTH SUMMARY LISTING

Date Created: 19-APR-2009 2:22:51

### Depth System Equipment

Depth Measuring Device	Tension Device	Logging Cable
Type: IDW-B Serial Number: 6347 Calibration Date: Calibrator Serial Number: 1 Calibration Cable Type: 7-39Z LXS Wheel Correction 1: -4 Wheel Correction 2: -3	Type: CMTD-B/A Serial Number: 2205 Calibration Date: Calibrator Serial Number: 185 Number of Calibration Points: 0	Type: 7-39Z LXS Serial Number: 3152 Length: 17700 FT Conveyance Method: Wireline Rig Type: LAND

### Depth Control Parameters

Log Sequence: Subsequent Log In the Well
Reference Log Name:
Reference Log Run Number:
Reference Log Date:

### Depth Control Remarks

1. ALL SCHLUMBERGER DEPTH CONTROL PROCEDURES FOLLOWED
2.
3.
4.
5.
6.

#### DISCLAIMER

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE OF AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

OTHER SERVICES1 OS1: OS2: OS3: OS4: OS5:	OTHER SERVICES2 OS1: OS2: OS3: OS4: OS5:
REMARKS: RUN NUMBER 1 TOOL STRING RAN AS PER TOOL SKETCH	REMARKS: RUN NUMBER 2
MATRIX: LIMESTONE	
DENSITY: 2.71 G/CC	
ICV CALCULATED USING FCD = 9.625"	
TOOLS RAN AT APPROX. 1200 FT/HR	

THANK YOU FOR USING SCHLUMBERGER!!

RUN 1			RUN 2		
SERVICE ORDER #:		AZJT00051	SERVICE ORDER #:		
PROGRAM VERSION:		17C0-154	PROGRAM VERSION:		
FLUID LEVEL:			FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

## EQUIPMENT DESCRIPTION

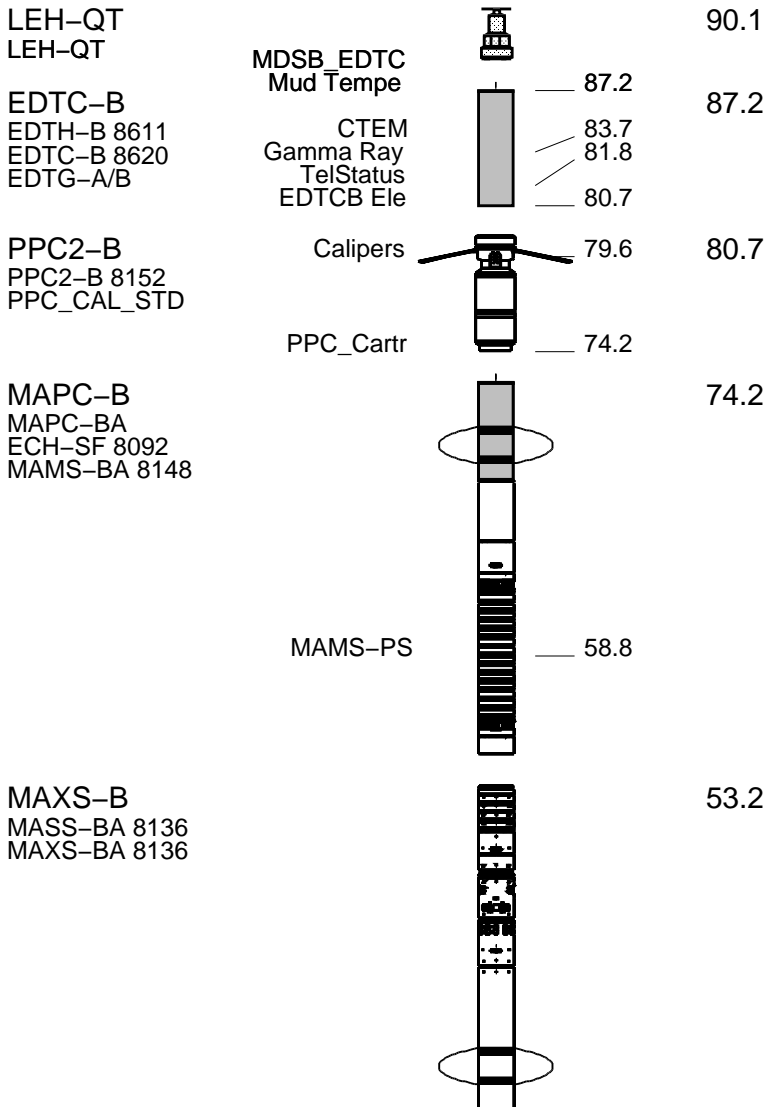
RUN 1

RUN 2

### SURFACE EQUIPMENT

WITM (EDTS)-A

### DOWNHOLE EQUIPMENT



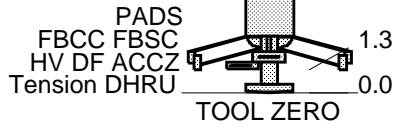
MAXS-PS  32.9

Calipers  31.8 32.9

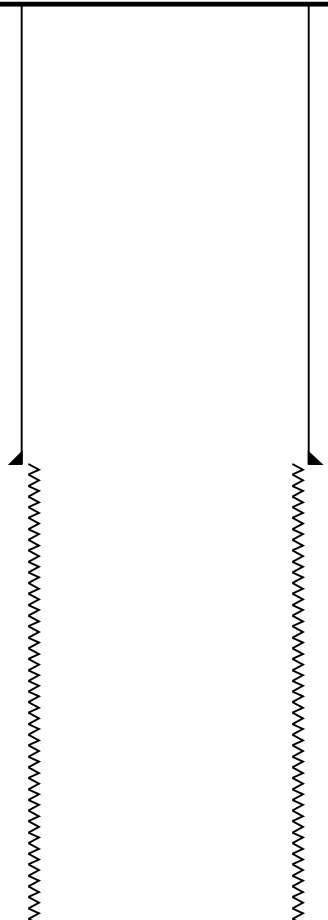
PPC\_Cartr  26.4

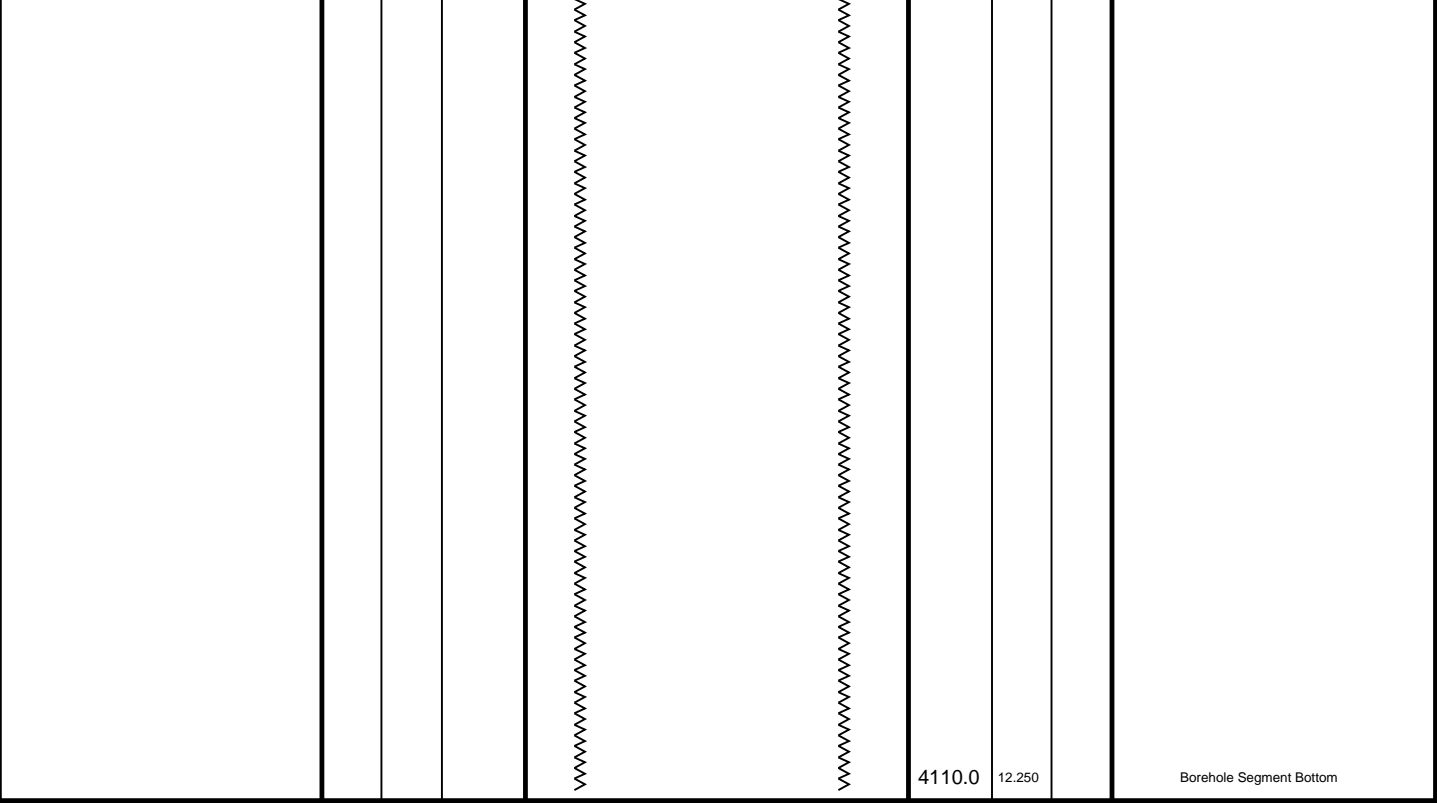
PPC1-B  
PPC1-B 8334  
PPC\_CAL\_STD

FBST-B 26.4  
ECH-MRA 5881  
FBCC-A  
AH-184  
AH-185 1773  
FBSH-A 1730  
GPIC-F  
FBSC-B  
FBSS-B



MAXIMUM STRING DIAMETER 5.00 IN  
MEASUREMENTS RELATIVE TO TOOL ZERO  
ALL LENGTHS IN FEET

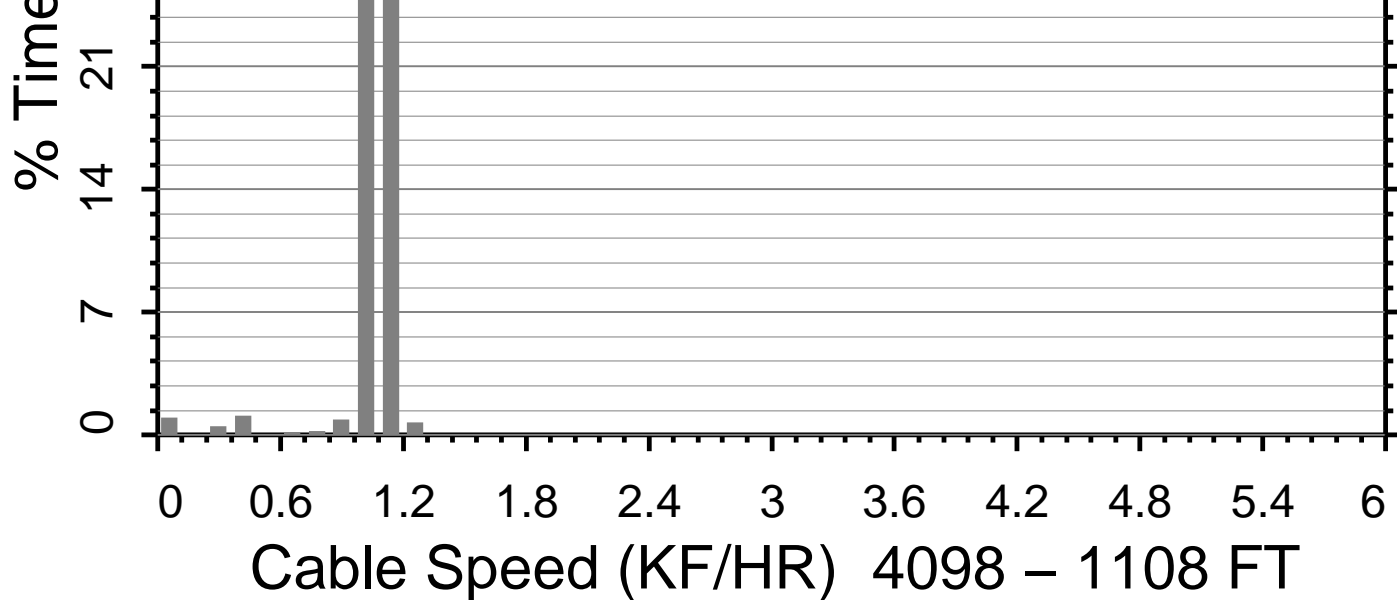
Production String	(in)			Well Schematic	(ft)			Casing String
	OD	ID	MD		MD	OD	ID	
					0.0	13.325		Casing String
					1108.0	13.325		Casing Shoe
					1108.0	12.250		Borehole Segment



ALL DEPTHS ARE DRILLERS DEPTHS

Sequence # 052 (Apr 19 03:29:10 2009)





**Schlumberger**

**LOG QUALITY CONTROL**

MAXIS Field Log

Company: Battelle Pacific Northwest Lab

Well: Wallula Basalt Pilot #1

**Input DLIS Files**

FMI	FMI_CAL_MAXS_MAPC_045LUP	FN:48	PRODUCER	18-Apr-2009 22:46	4096.0 FT	88.0 FT
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**Output DLIS Files**

DEFAULT	FMI_CAL_MAXS_MAPC_052PUP	FN:64	PRODUCER	19-Apr-2009 03:26	4098.0 FT	1108.0 FT
FMI	FMI_CAL_MAXS_MAPC_052PUP	FN:65	PRODUCER	19-Apr-2009 03:26	4098.0 FT	1108.0 FT
MSIP	FMI_CAL_MAXS_MAPC_052PUP	FN:66	PRODUCER	19-Apr-2009 03:26	4098.0 FT	1108.0 FT

**OP System Version: 17C0-154**

FBST-B	SRPC-3779-Q1_2009_OP17	PPC1-B	17C0-154
MAXS-B	SKK-3704-MAST	MAPC-B	SKK-3704-MAST
PPC2-B	17C0-154	EDTC-B	17C0-154

**PIP SUMMARY**

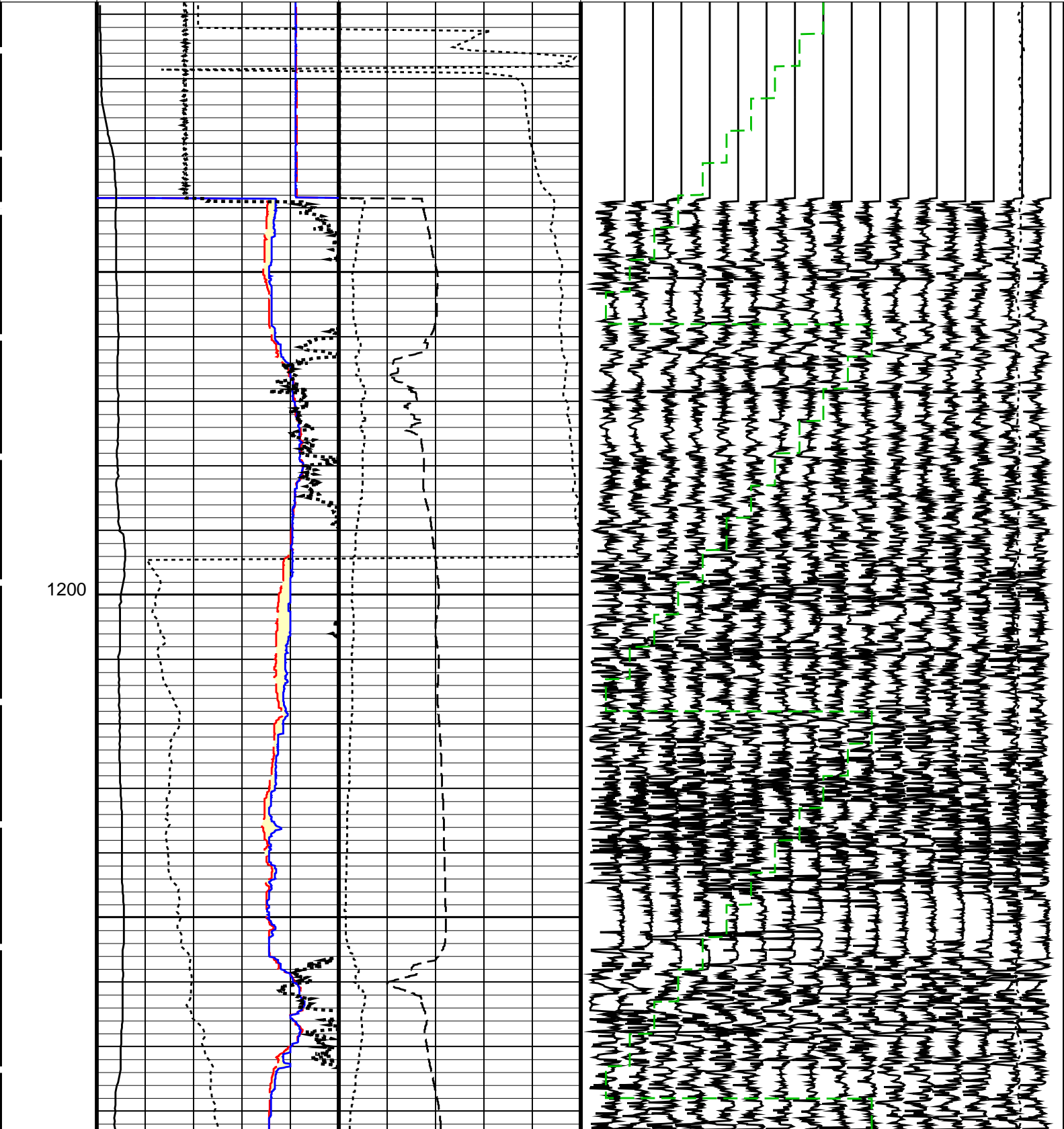
Time Mark Every 60 S

FMI Correlation Resistance (LOG) (FBCR) (KOHM)		2	2000
<b>Relative Bearing (RB) (DEG)</b>			
		-180	180
<b>Pad One Azimuth (P1AZ_FBST) (DEG)</b>			
		-40	360
<b>Hole Azimuth (HAZIM) (DEG)</b>			
		-40	360

Tool/Tot. Drag From D4T to STIA	Deviation (DEVIM) (DEG)		Tension (TENS) (LBF)	
	0	10	10000	0

Cable Drag From D4T to STIT	Caliper 2 (C2) (IN)	EMEX Intensity (EI) (AMPS)	FMI resistivity buttons #1 to 16															
	6 16	0 10	RB16 RB15 RB14 RB13 RB12 RB11 RB10 RB9 RB8 RB7 RB6 RB5 RB4 RB3 RB2 RB1															

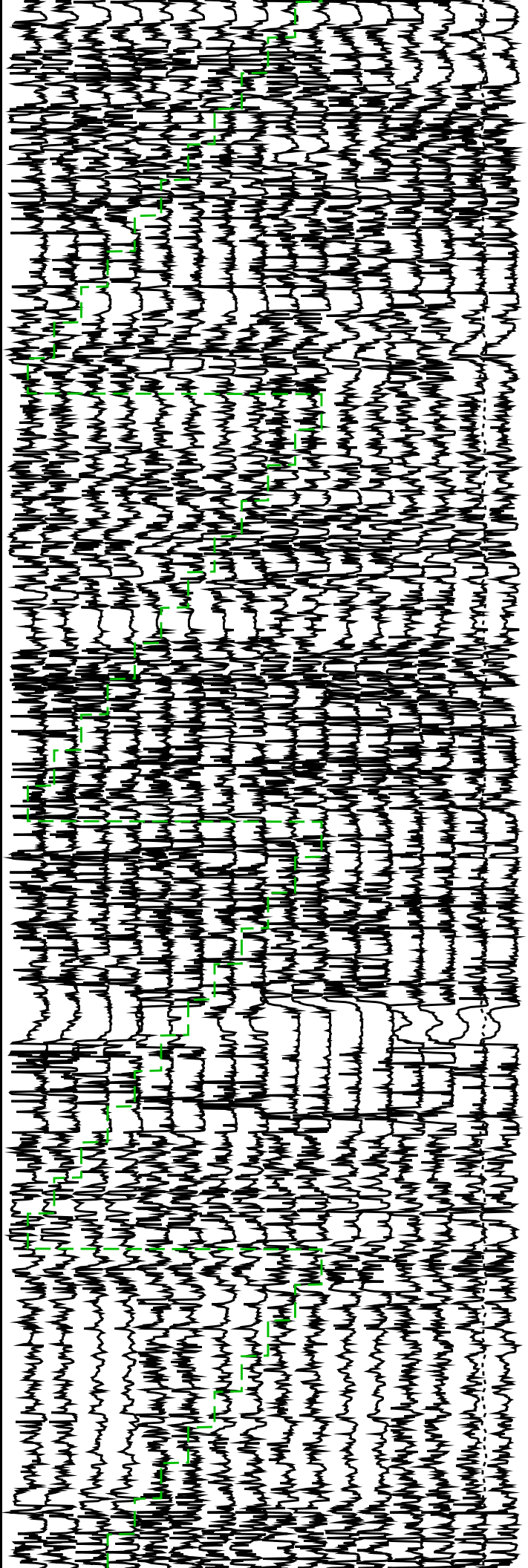
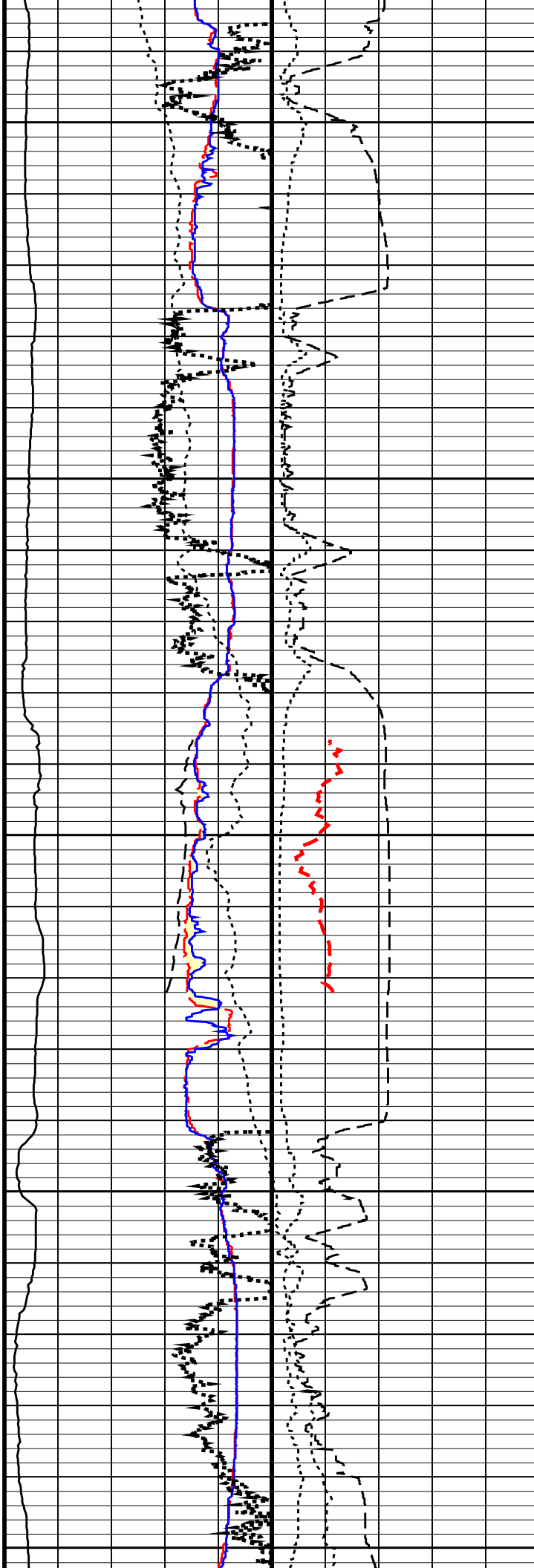
Stuck Stretch (STIT) (F)	Caliper 1 (C1) (IN)	EMEX Voltage (EV) (V)	FMI RBS Value (RBSV)	
	6 16	0 50	0 20	



1300

1400

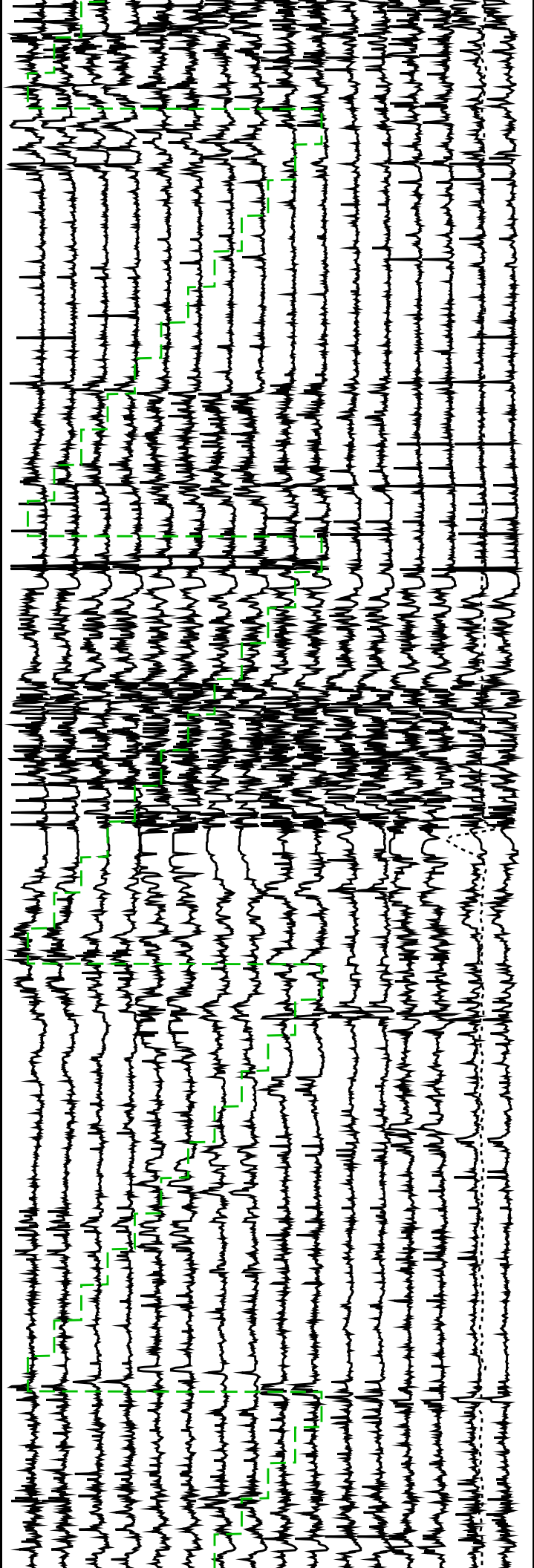
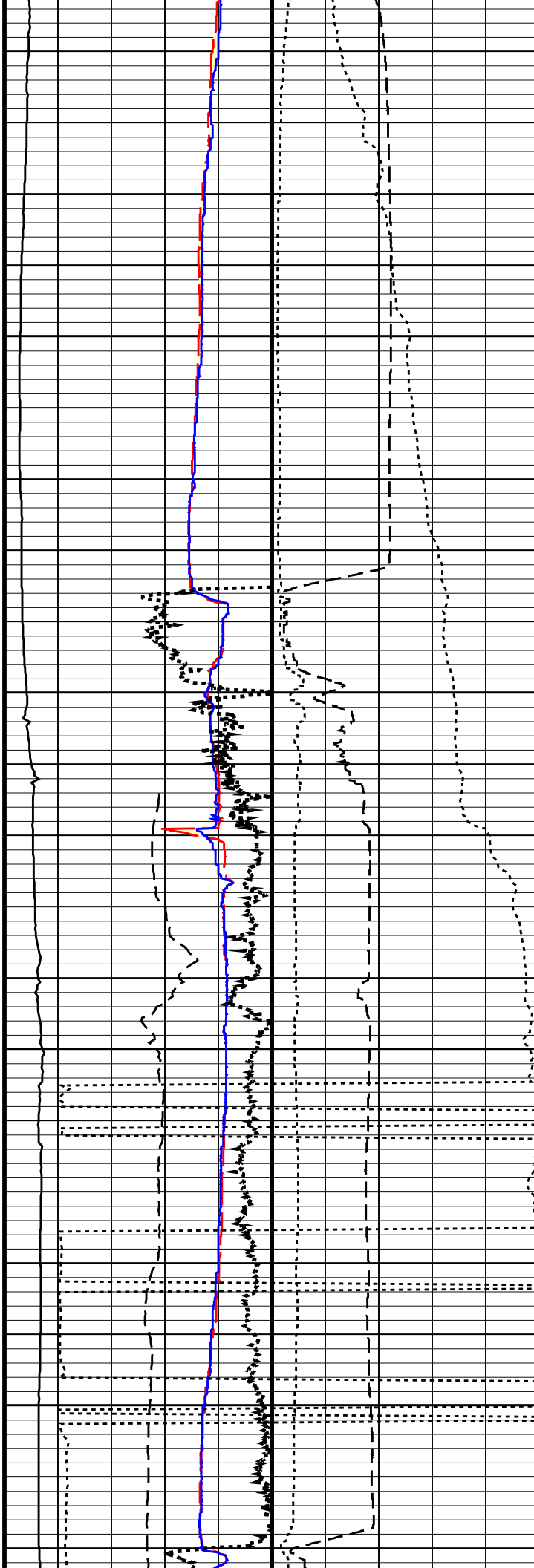
1500





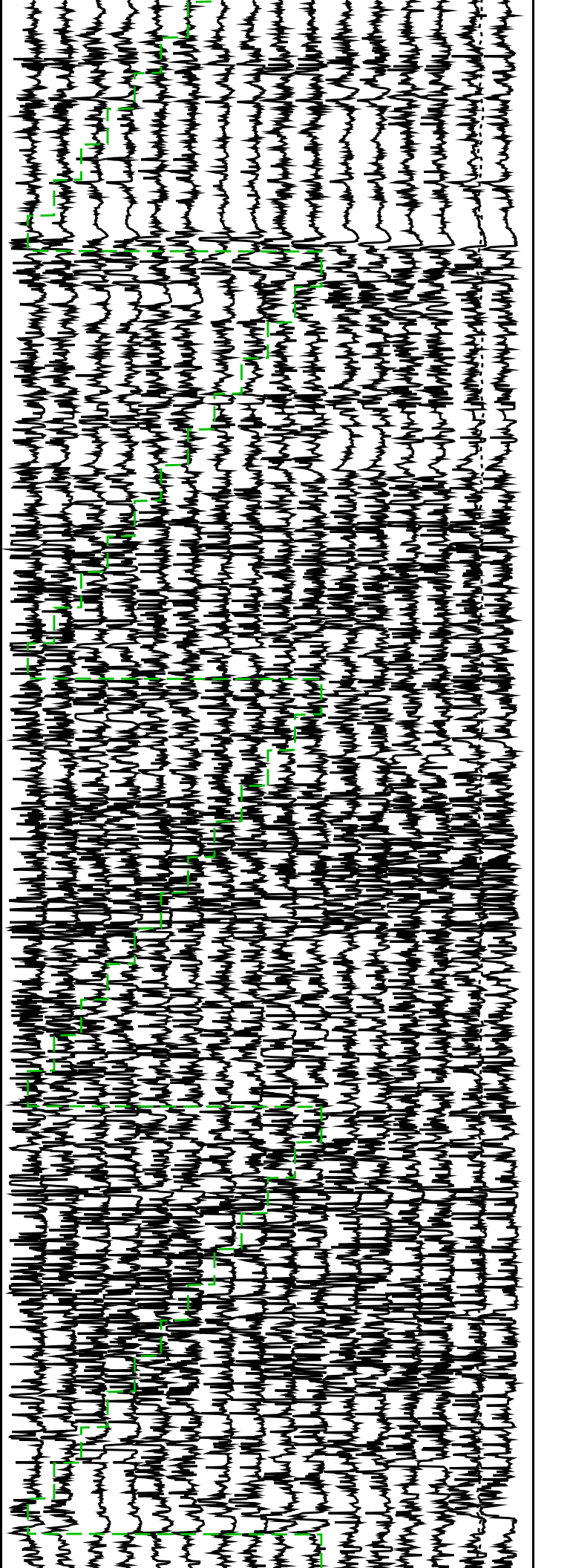
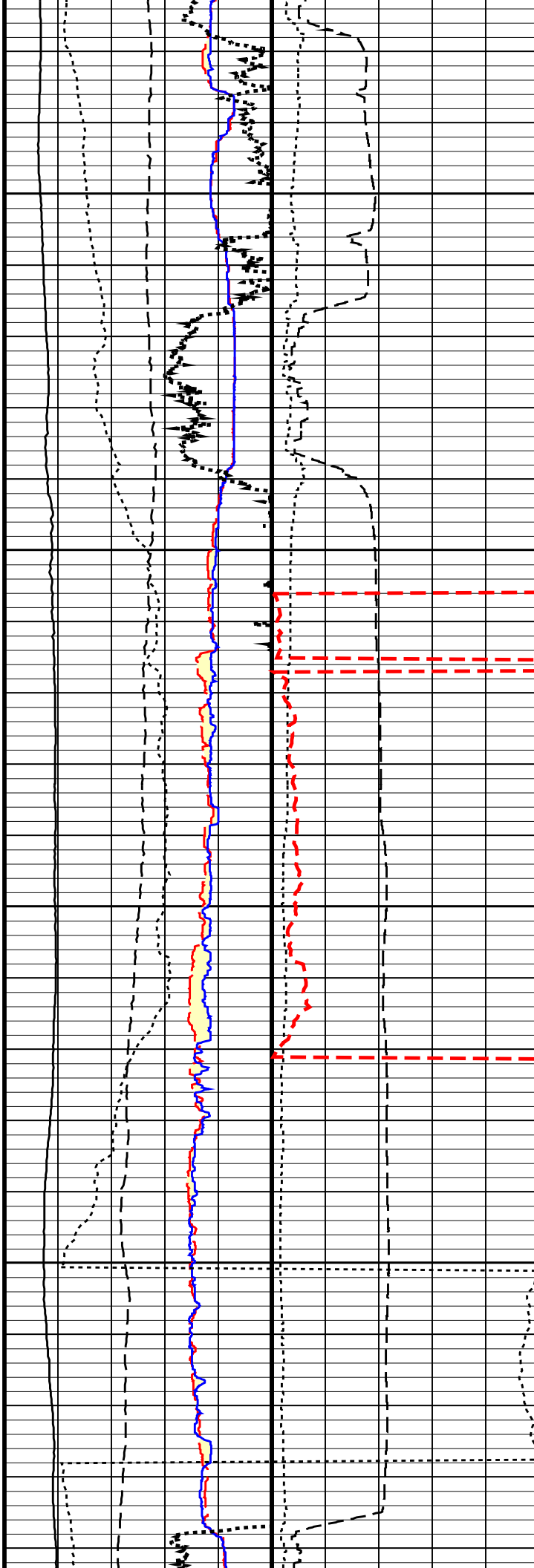
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1700



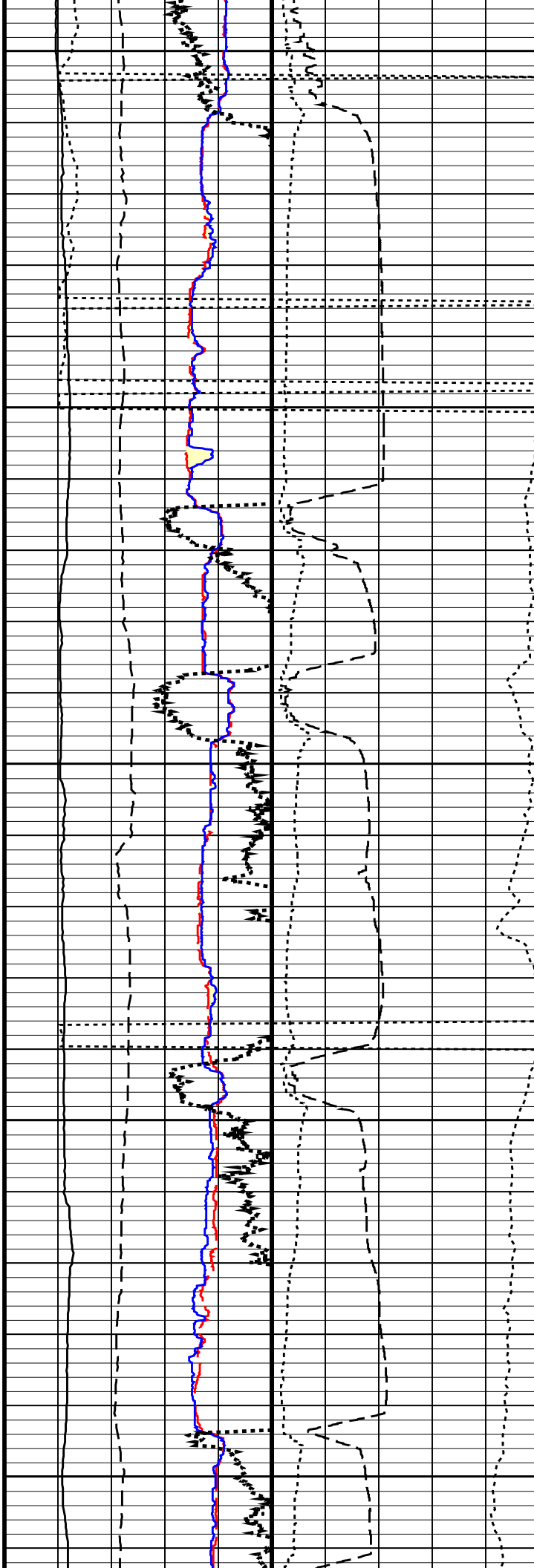
1800

1900



2000

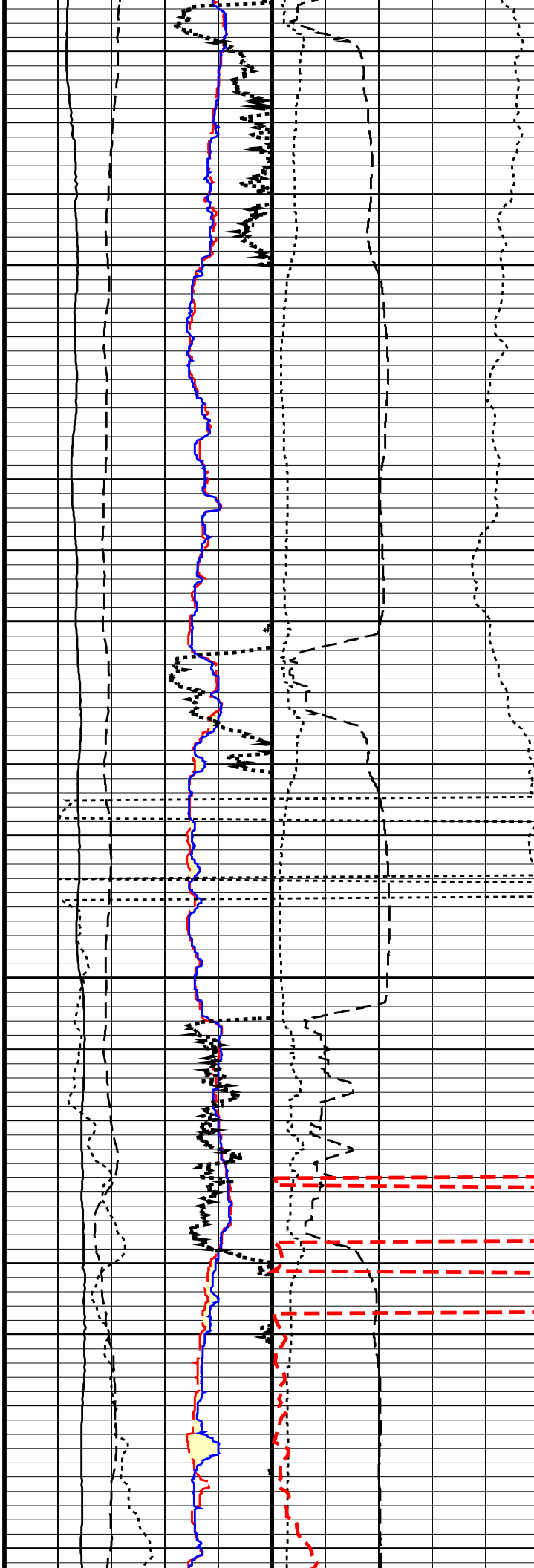
2100



Handwritten notes in black ink, oriented vertically on the right side of the page. The text is dense and appears to be a detailed description or calculation related to the technical drawing on the left. The notes are written in a cursive style and include various symbols and numbers.

2200

2300

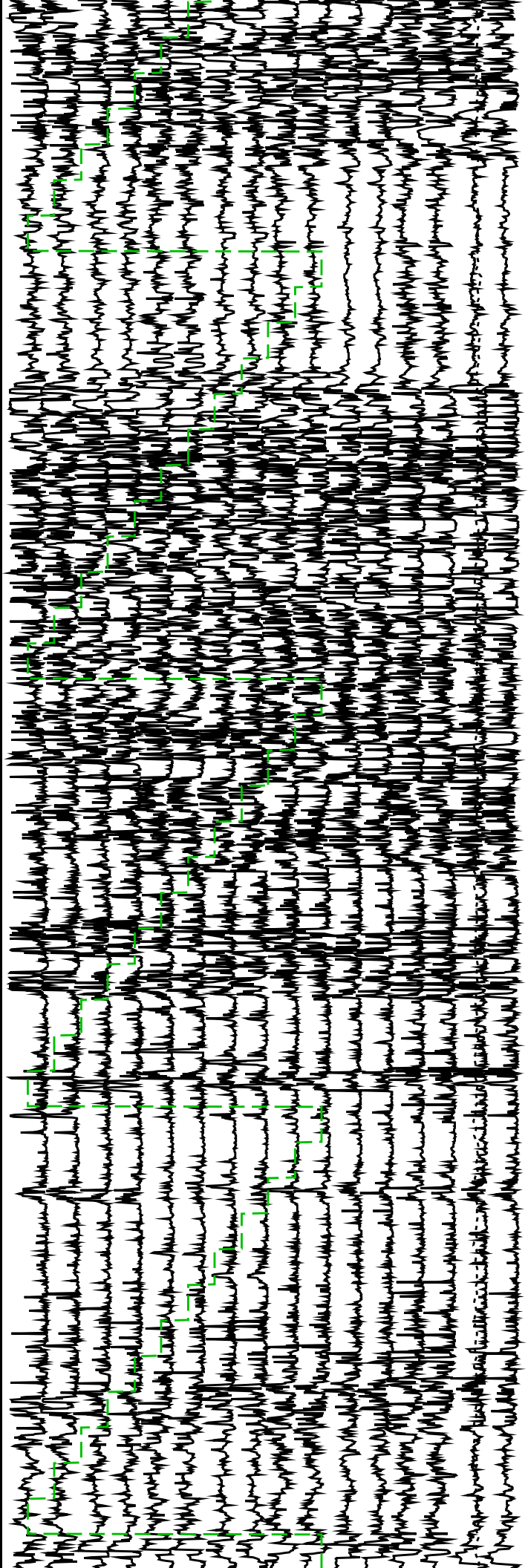
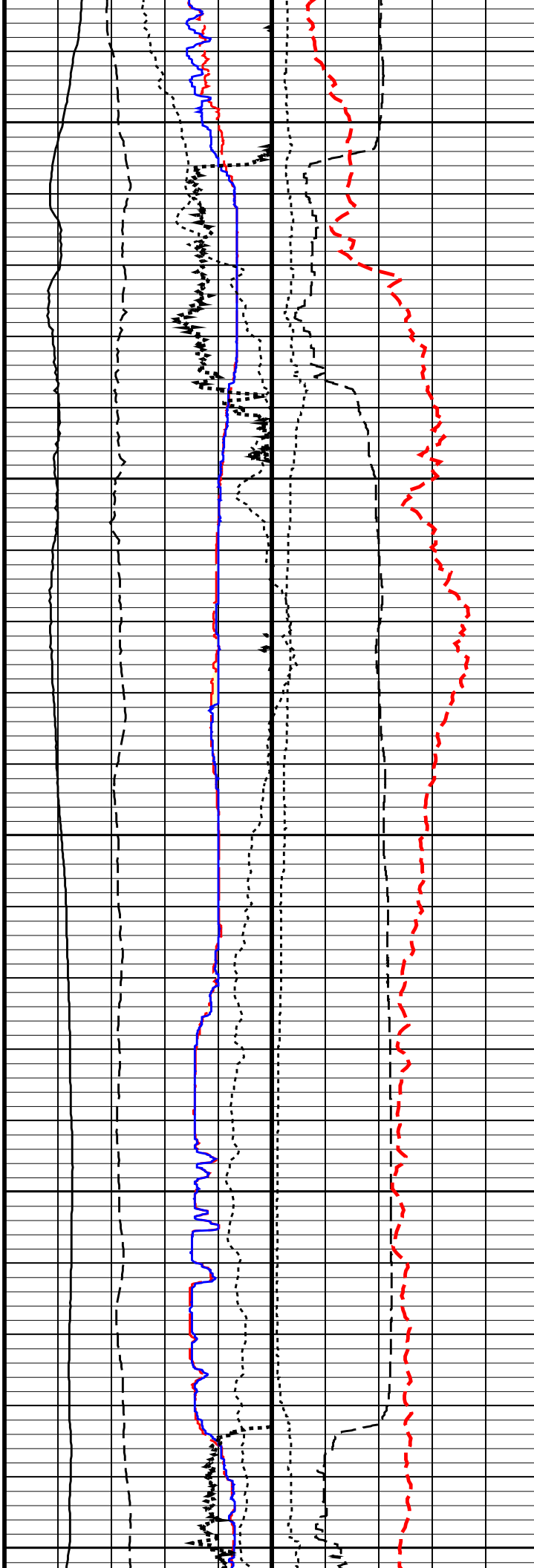


Handwritten notes in cursive script, oriented vertically on the page. The text is dense and covers the right side of the drawing. Some words are underlined in green ink. The notes appear to be a detailed description or analysis of the profile shown in the drawing, possibly related to a geological or engineering cross-section.

2400

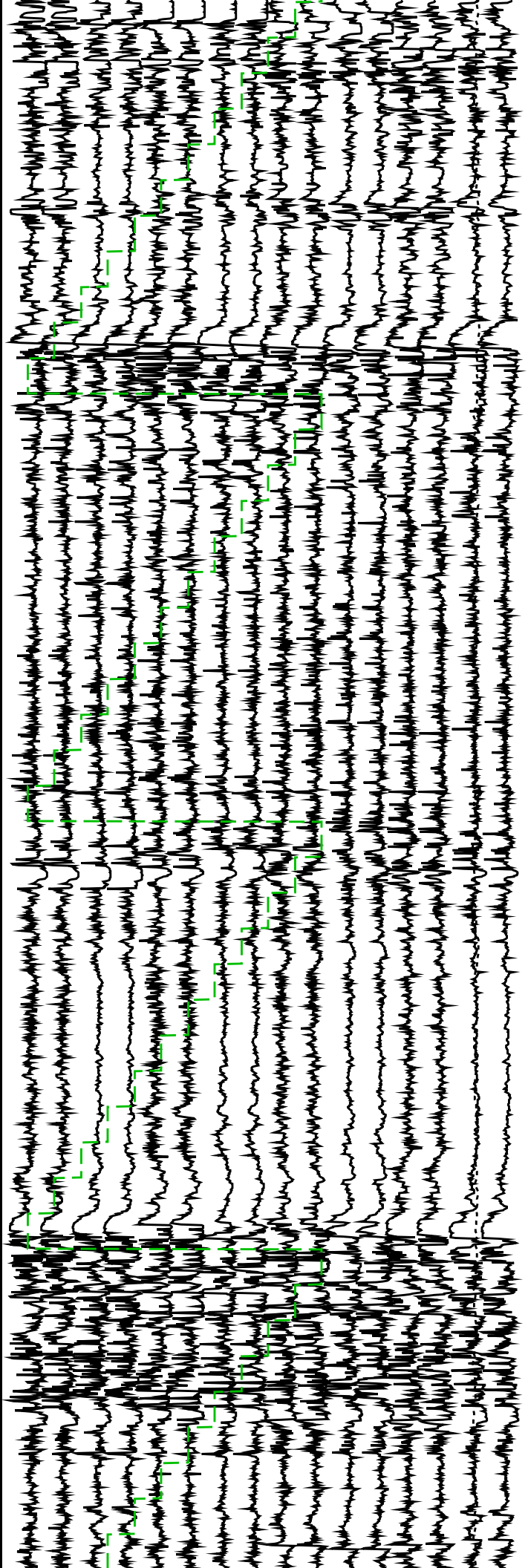
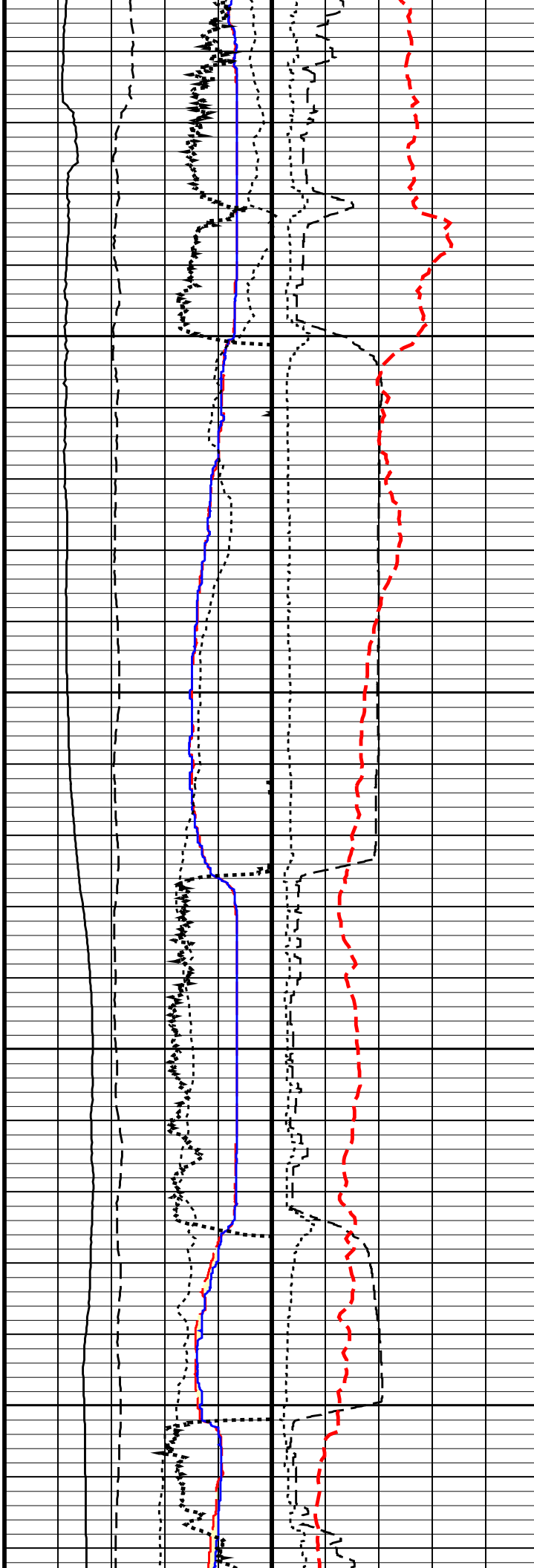
2500

2600



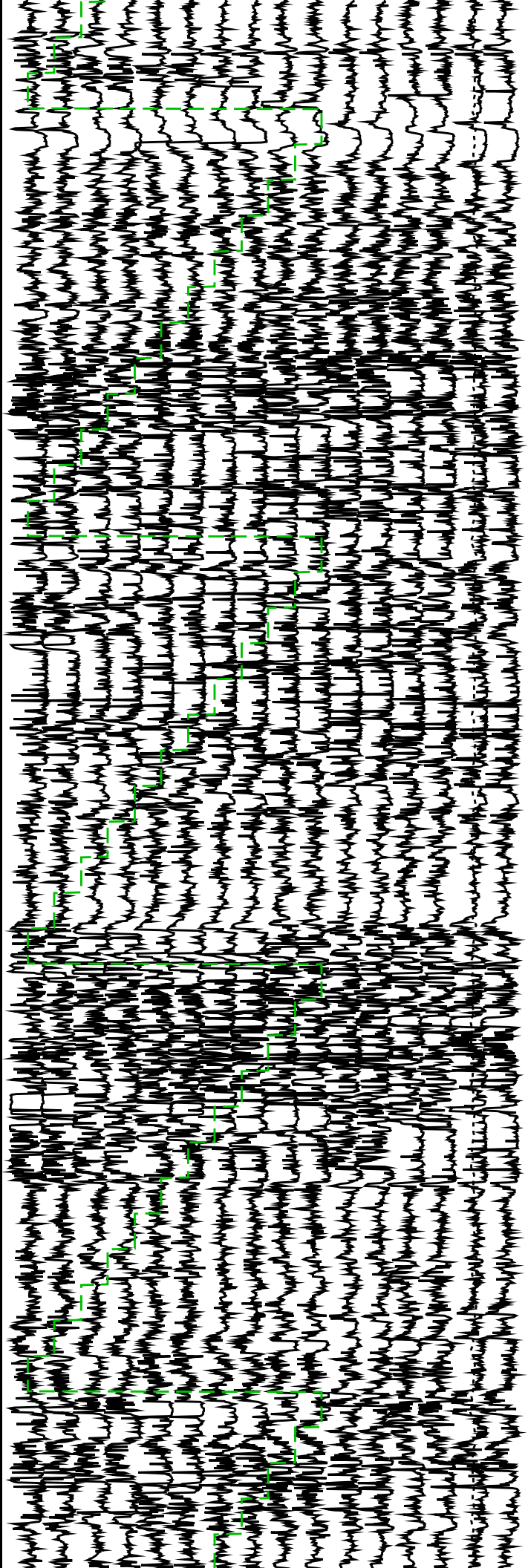
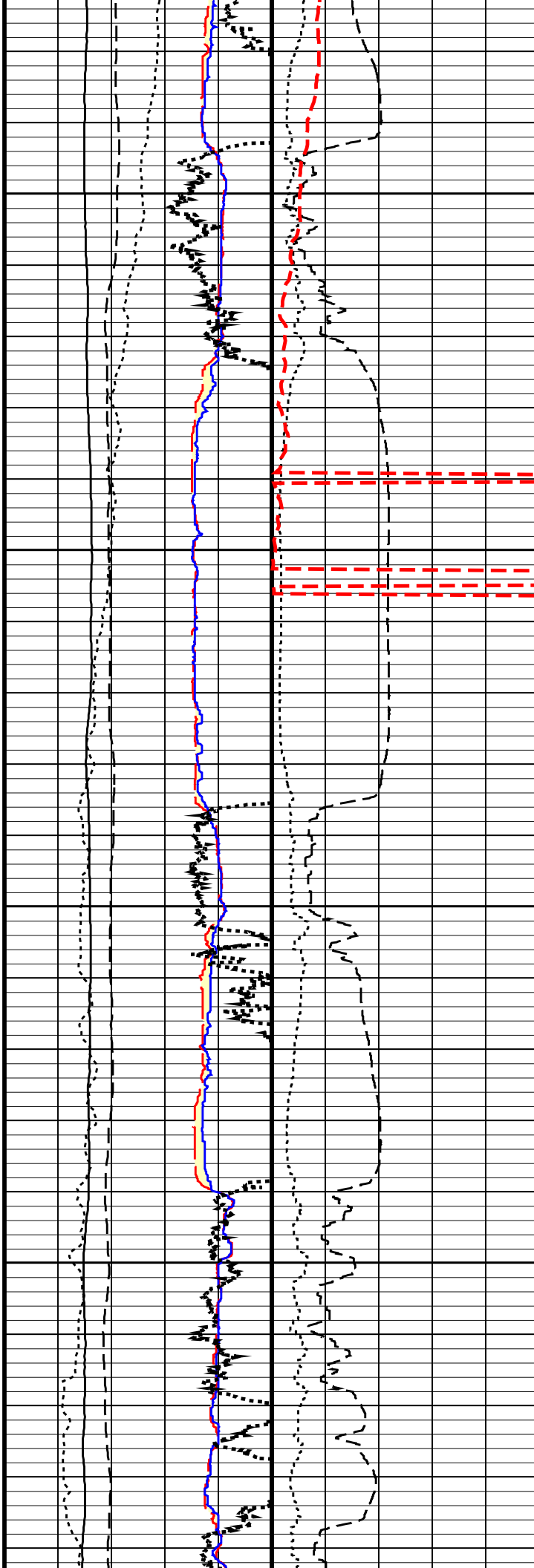
2700

2800



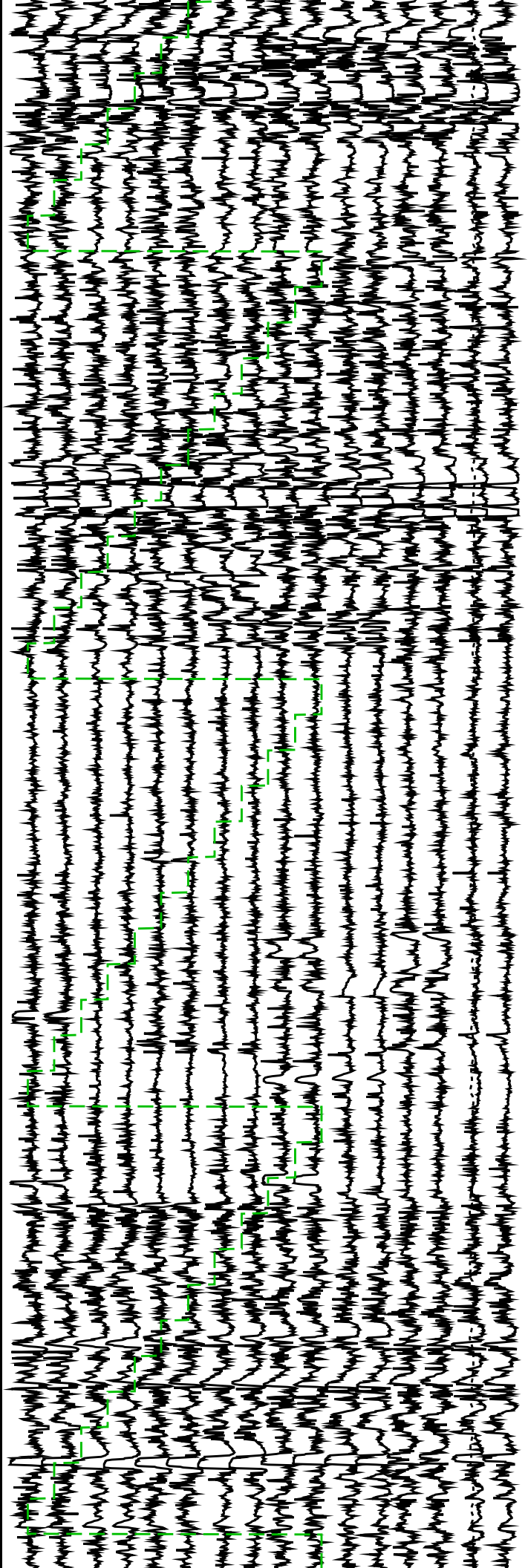
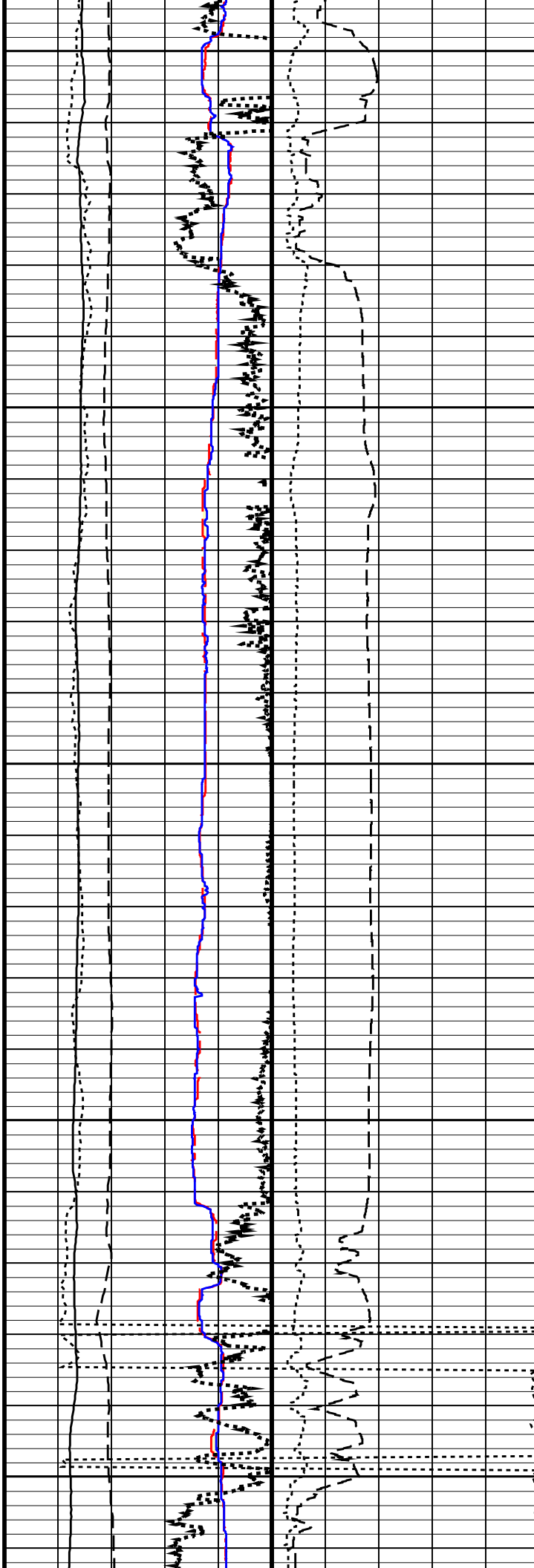
2900

3000



3100

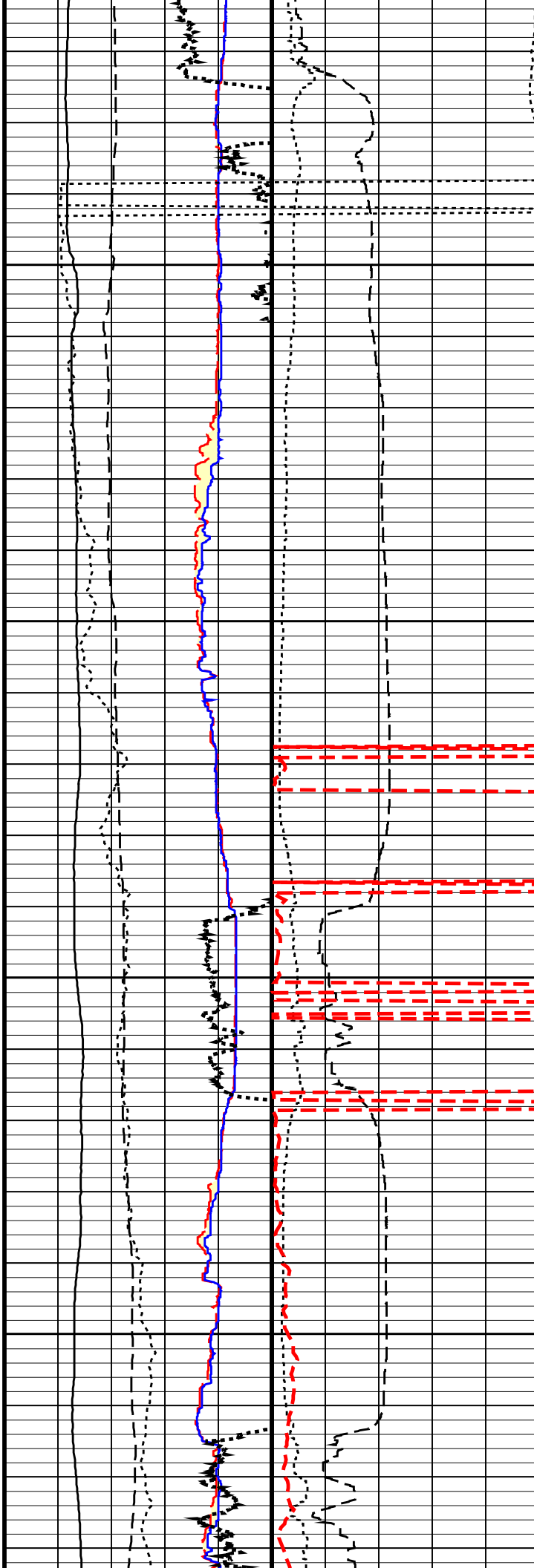
3200





3300

3400

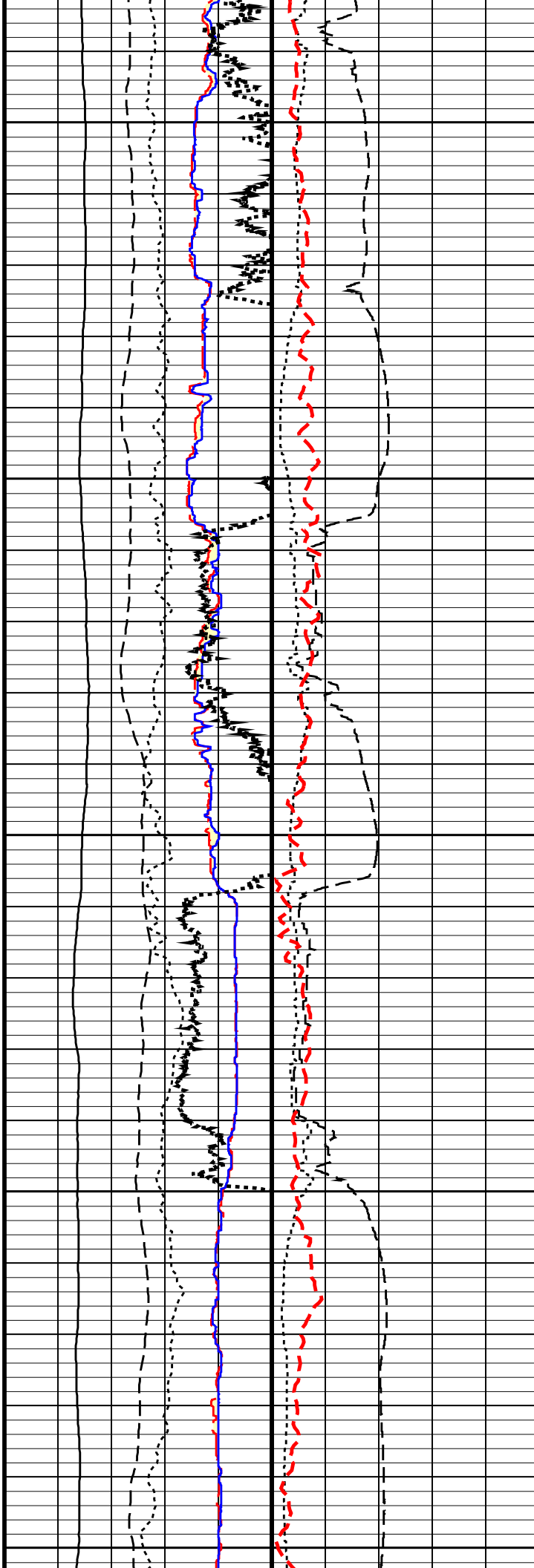


Handwritten notes in a cursive script, oriented vertically on the right side of the page. The text is dense and appears to be a detailed description or calculation related to the technical drawing on the left. Some words are underlined in green ink. The notes are written in black ink on a white background.

3500

3600

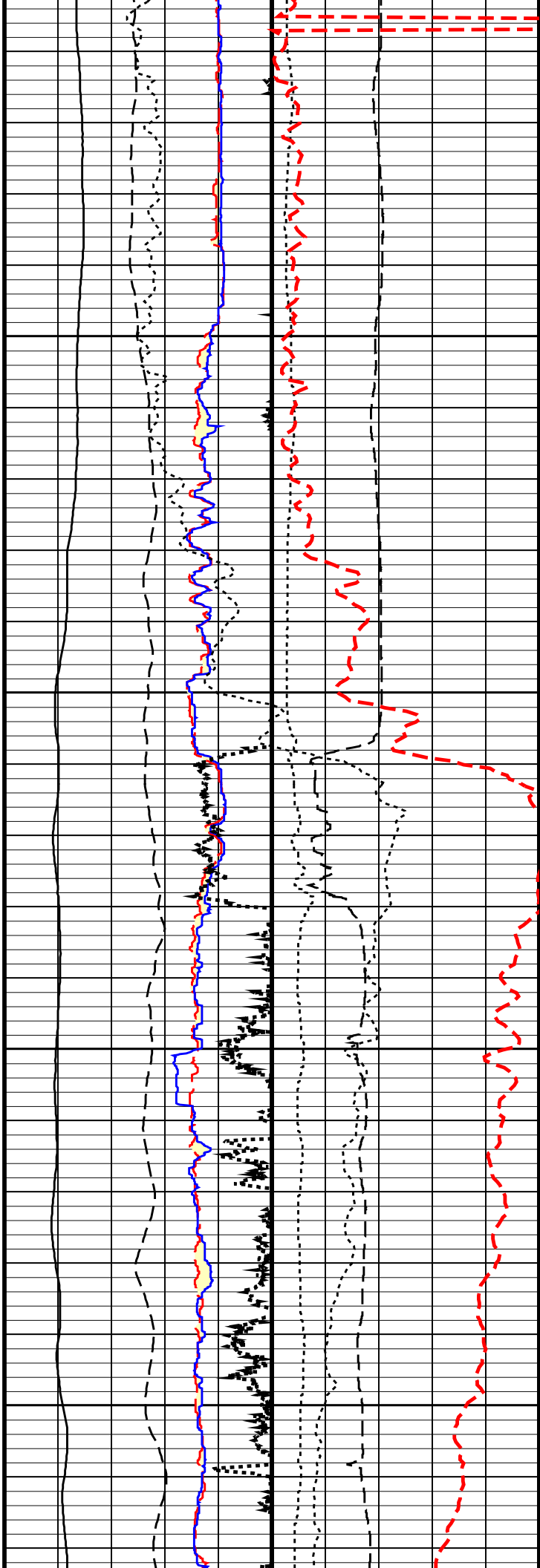
3700



Handwritten notes in cursive script, written vertically along the right side of the page. The text is dense and appears to be a detailed record or analysis related to the data shown in the plot. Some words are underlined in green ink. The notes are written in black ink on a white background.

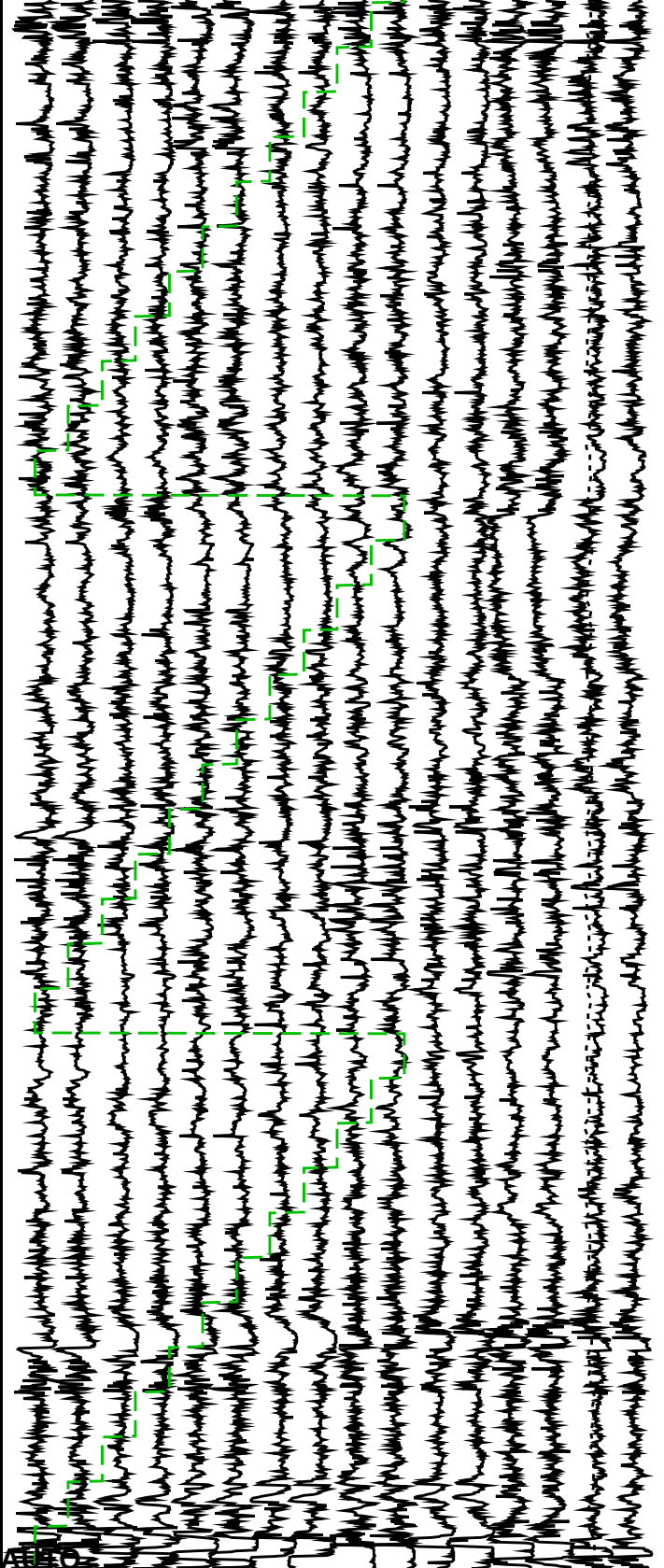
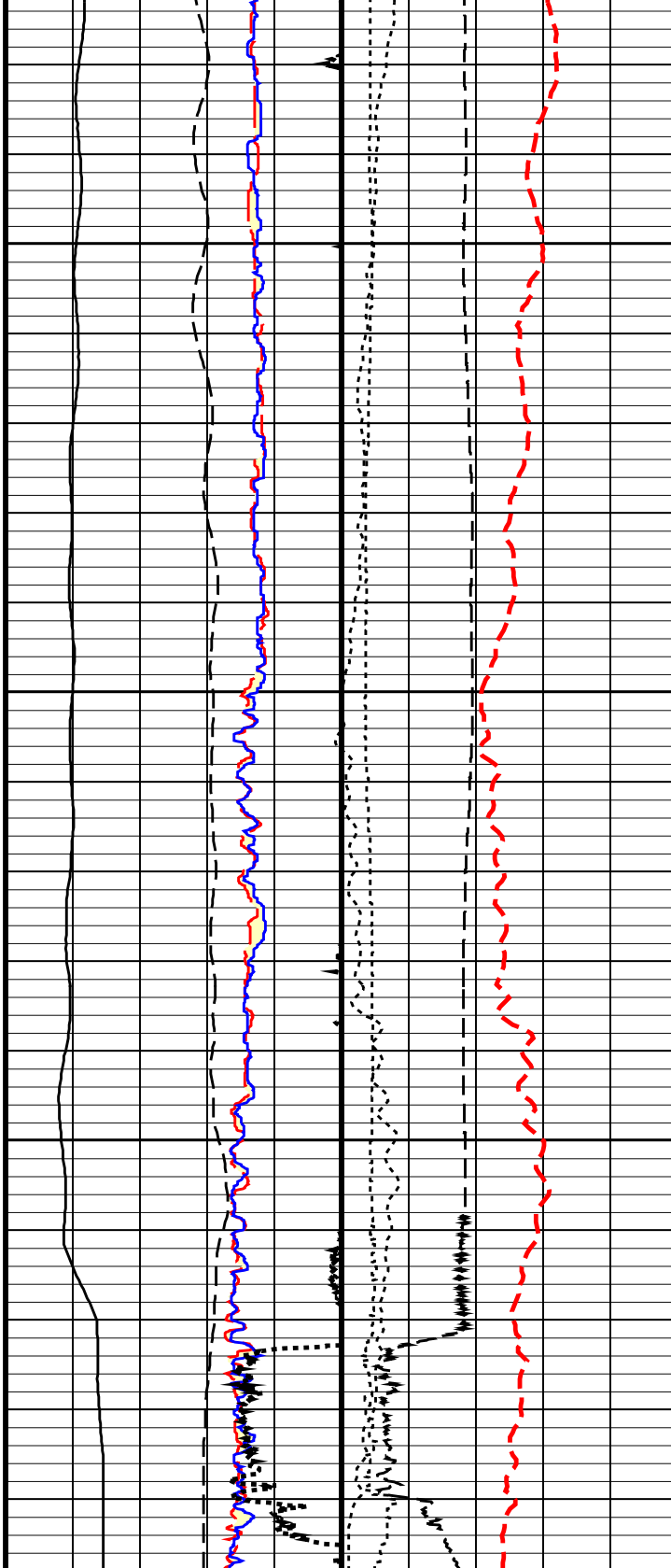
3800

3900



The attached data shows the results of the test run on the 10/10/10 test set. The model achieved a score of 0.85 on the test set, which is a significant improvement over the baseline score of 0.75. This indicates that the model is capable of generalizing to new data and is not overfitting to the training set. The results are consistent with the findings of the previous test run, suggesting that the model is stable and reliable. The data also shows that the model is able to handle a wide range of input data and is not sensitive to small changes in the input. This is a desirable property for a model in a real-world application. The results are also consistent with the findings of the previous test run, suggesting that the model is stable and reliable. The data also shows that the model is able to handle a wide range of input data and is not sensitive to small changes in the input. This is a desirable property for a model in a real-world application.

4000



Stuck Stretch (STIT) (F)	0	50	Caliper 1 (C1) (IN)	6	16	EMEX Voltage (EV) (V)	0	50	FMI RBS Value (RBSV)	0	20
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Cable Drag From D4T to STIT	6	16	Caliper 2 (C2) (IN)	6	16	EMEX Intensity (EI) (AMPS)	0	10	FMI resistivity buttons #1 to 16	RB16	RB15	RB14	RB13	RB12	RB11	RB10	RB9	RB8	RB7	RB6	RB5	RB4	RB3	RB2	RB1
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Tool/Tot. Drag From D4T to STIA	0	10	Deviation (DEVIM) (DEG)	0	10	Tension (TENS) (LBF)	10000	0
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Hole Azimuth (HAZIM)	
-40	360
(DEG)	
Pad One Azimuth (P1AZ_FBST)	
-40	360
(DEG)	
Relative Bearing (RB)	
-180	180
(DEG)	
FMI Correlation Resistance	
(LOG) (FBCR)	
2	2000
(KOHM)	

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
FBST-B: Full-Bore Scanner - I		
AFMO	Accelerometer Filtering Mode	MOVING_AVERAGE
FBEF	FMI EMEX filtering activation	OFF
FLM	FMI Logging Mode	8PAD
ICMO	Inclinometry Computation Mode	AUTOMATIC_SELECTION
MDEC	Magnetic Field Declination	15.8635 DEG
RBS	Resistivity Button Selection	AUTO
RBSI	Auto RBS Change Interval	10
SOFF	Standoff	0 IN
XGMO	EMEX & Gain Modes	EmexManu_GainManu
XVOL	EMEX Voltage	0 V
DIR: Directional Survey Computation		
SPVD	TVD of Starting Point	0 FT
TIMD	Along-hole depth of Tie-in Point	0 FT
TIVD	TVD of Tie-in Point	0 FT
STI: Stuck Tool Indicator		
LBFR	Trigger for MAXIS First Reading Label	STI
STKT	STI Stuck Threshold	2.5 FT
TDD	Total Depth - Driller	4105.00 FT
TDL	Total Depth - Logger	4105.00 FT
System and Miscellaneous		
DO	Depth Offset for Playback	2.0 FT
PP	Playback Processing	RECOMPUTE

Format: FMI\_LQC Vertical Scale: 5" per 100' Graphics File Created: 19-Apr-2009 03:26

OP System Version: 17C0-154

FBST-B	SRPC-3779-Q1_2009_OP17	PPC1-B	17C0-154
MAXS-B	SKK-3704-MAST	MAPC-B	SKK-3704-MAST
PPC2-B	17C0-154	EDTC-B	17C0-154

Input DLIS Files

FMI	FMI_CAL_MAXS_MAPC_045LUP	FN:48	PRODUCER	18-Apr-2009 22:46	4096.0 FT	88.0 FT
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Output DLIS Files

DEFAULT	FMI_CAL_MAXS_MAPC_052PUP	FN:64	PRODUCER	19-Apr-2009 03:26
FMI	FMI_CAL_MAXS_MAPC_052PUP	FN:65	PRODUCER	19-Apr-2009 03:26
MSIP	FMI_CAL_MAXS_MAPC_052PUP	FN:66	PRODUCER	19-Apr-2009 03:26



GPIT

Company: Battelle Pacific Northwest Lab Well: Wallula Basalt Pilot #1

### Input DLIS Files

FMI	FMI_CAL_MAXS_MAPC_045LUP	FN:48	PRODUCER	18-Apr-2009 22:46	4096.0 FT	88.0 FT
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### Output DLIS Files

DEFAULT	FMI_CAL_MAXS_MAPC_052PUP	FN:64	PRODUCER	19-Apr-2009 03:26	4098.0 FT	1108.0 FT
FMI	FMI_CAL_MAXS_MAPC_052PUP	FN:65	PRODUCER	19-Apr-2009 03:26	4098.0 FT	1108.0 FT
MSIP	FMI_CAL_MAXS_MAPC_052PUP	FN:66	PRODUCER	19-Apr-2009 03:26	4098.0 FT	1108.0 FT

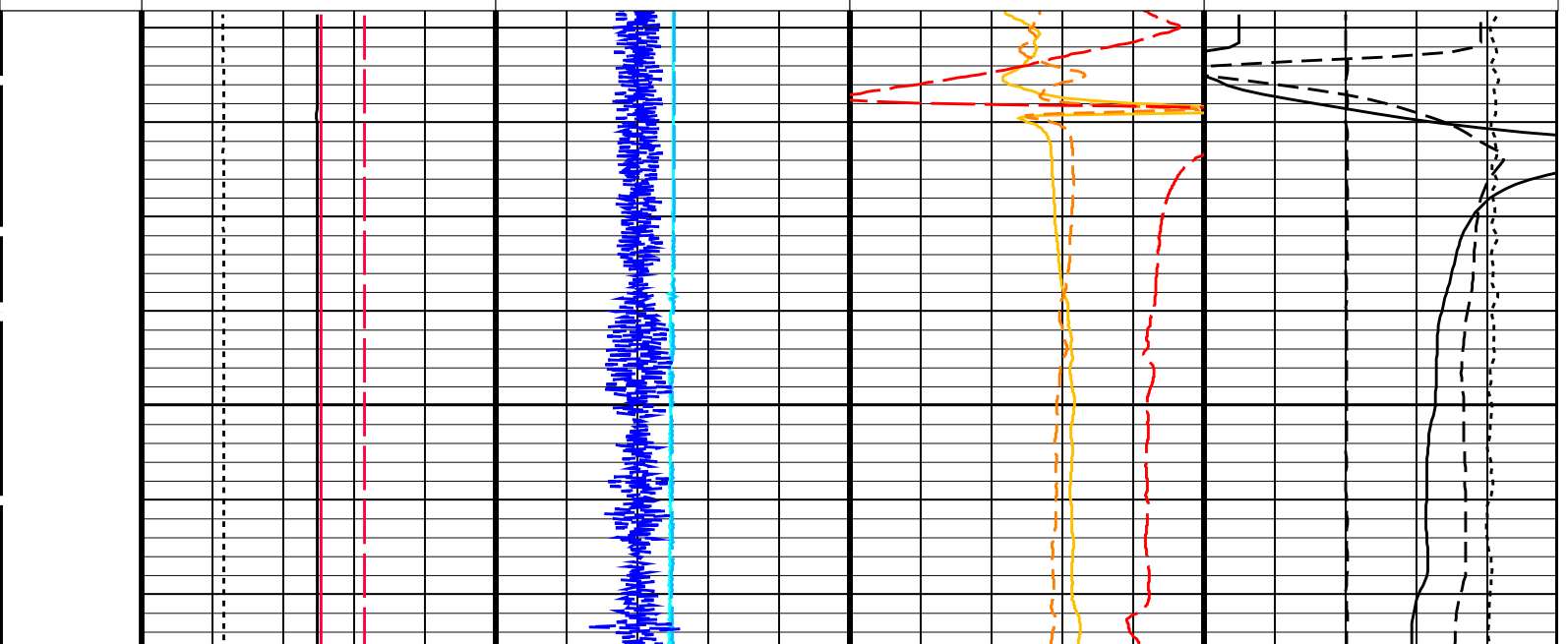
### OP System Version: 17C0-154

FBST-B	SRPC-3779-Q1_2009_OP17	PPC1-B	17C0-154
MAXS-B	SKK-3704-MAST	MAPC-B	SKK-3704-MAST
PPC2-B	17C0-154	EDTC-B	17C0-154

#### PIP SUMMARY

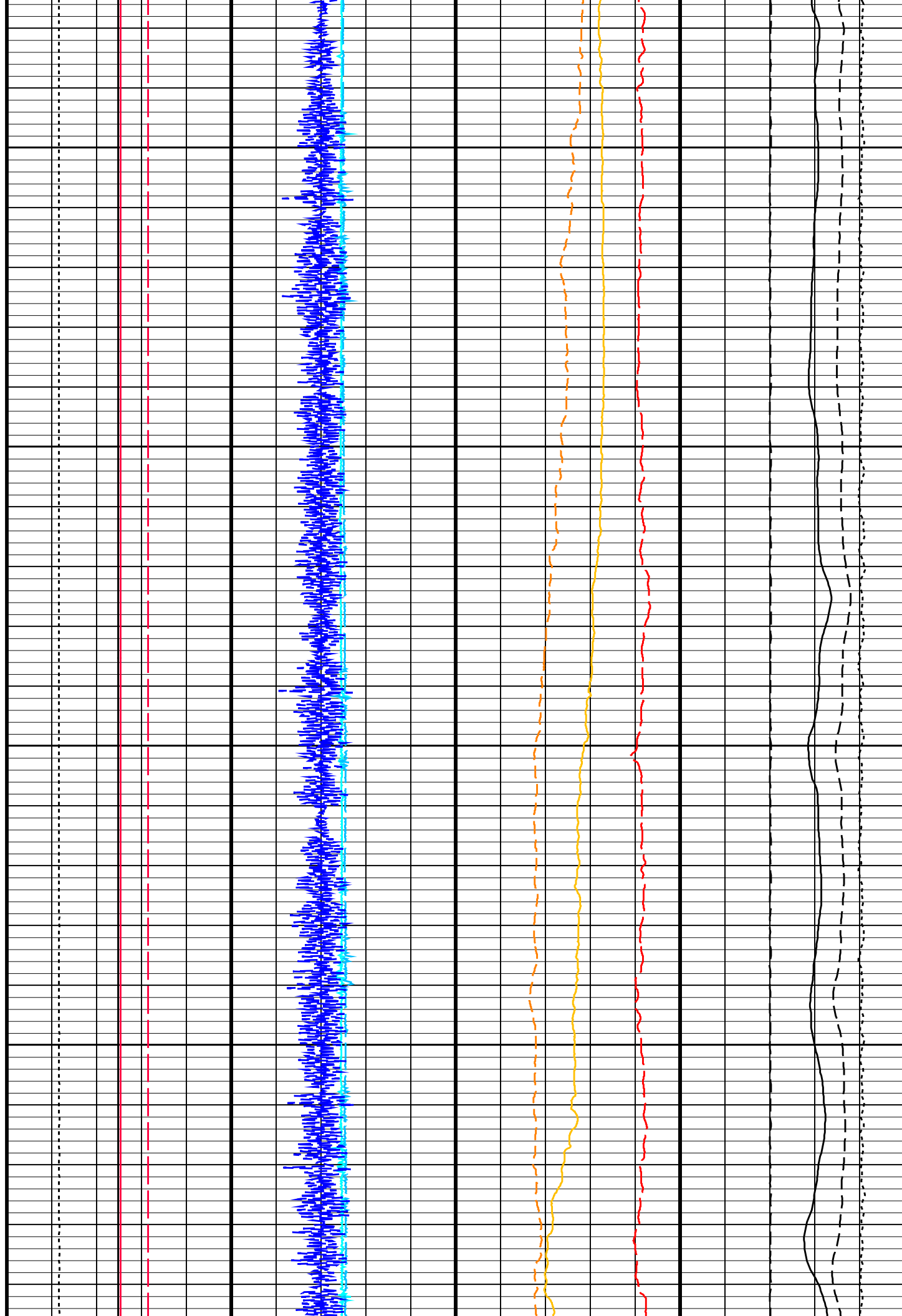
Time Mark Every 60 S

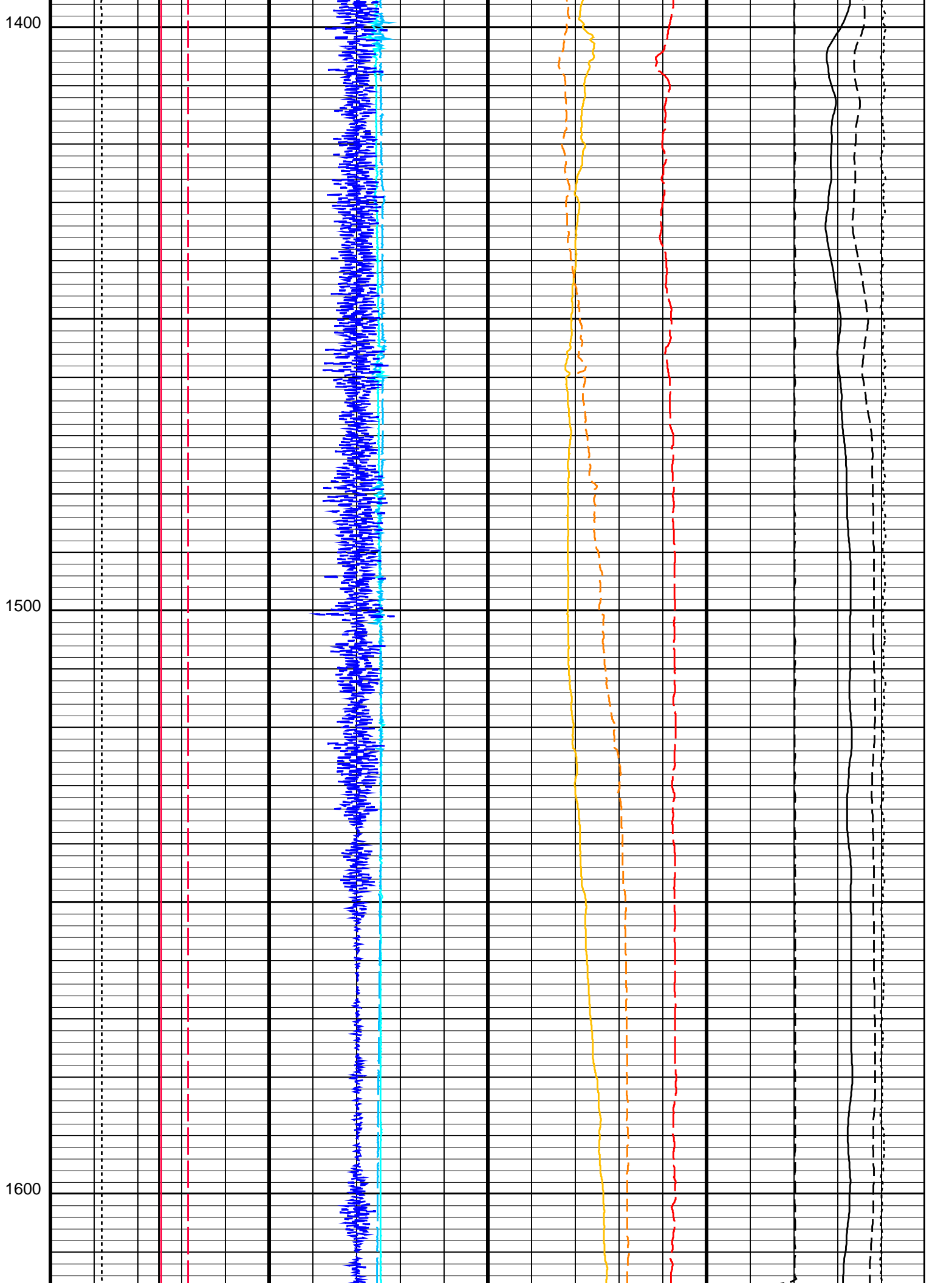
	GPIT +5V Logic (PLUS_5V_LOG_GPITF) 4 (V) 6					
	GPIT +12V Analogic (PLUS_12V_ANA_GPITF) 11 (V) 13				Tension (TENS) 10000 (LBF) 0	
Tool/Tot. Drag From D4T to STIA	GPIT Magnetometer Temperature (MAGTEMP) 100 (DEGF) 300	Z-Axis Accelerometer (AZ) 9 (M/S2) 11	Z-Axis Magnetometer (FZ) -0.7 (OER) 0.7	Magnetic Field Inclination (FINC) 0 (DEG) 90		
Cable Drag From D4T to STIT	GPIT -12V Analogic (MINUS_12V_ANA_GPITF) -13 (V) -11	Y-Axis Accelerometer (AY) -3 (M/S2) 3	Y-Axis Magnetometer (FY) -0.7 (OER) 0.7	Magnetometer Norme (FNOR) 0.2 (OER) 0.7		
Stuck Stretch (STIT)	Accelerometer Temperature (ACTE) 0 (DEGF) 400	X-Axis Accelerometer (AX) -3 (M/S2) 3	X-Axis Magnetometer (FX) -0.7 (OER) 0.7	Accelerometer Norme (ANOR) 9 (M/S2) 11		



1200

1300

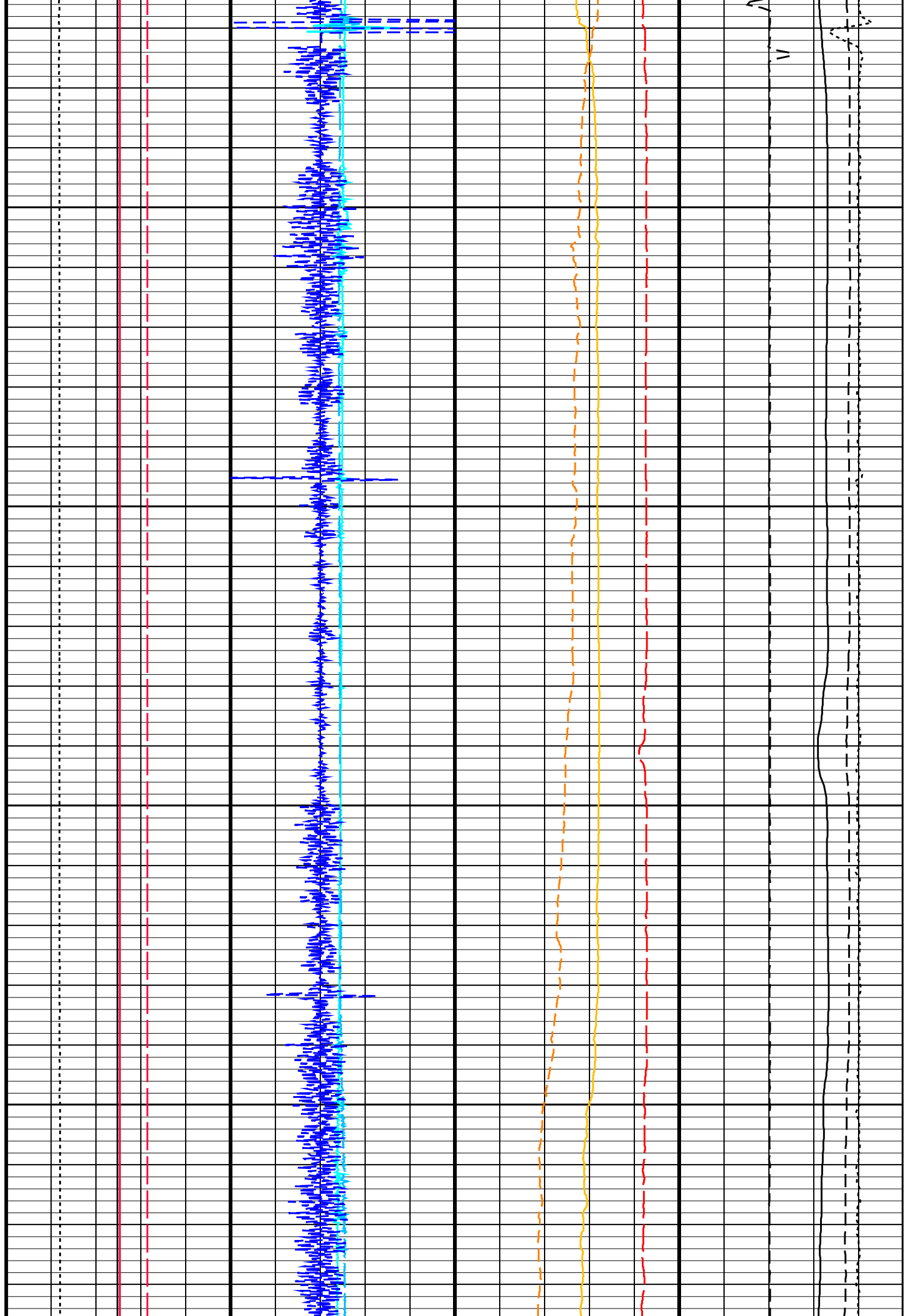






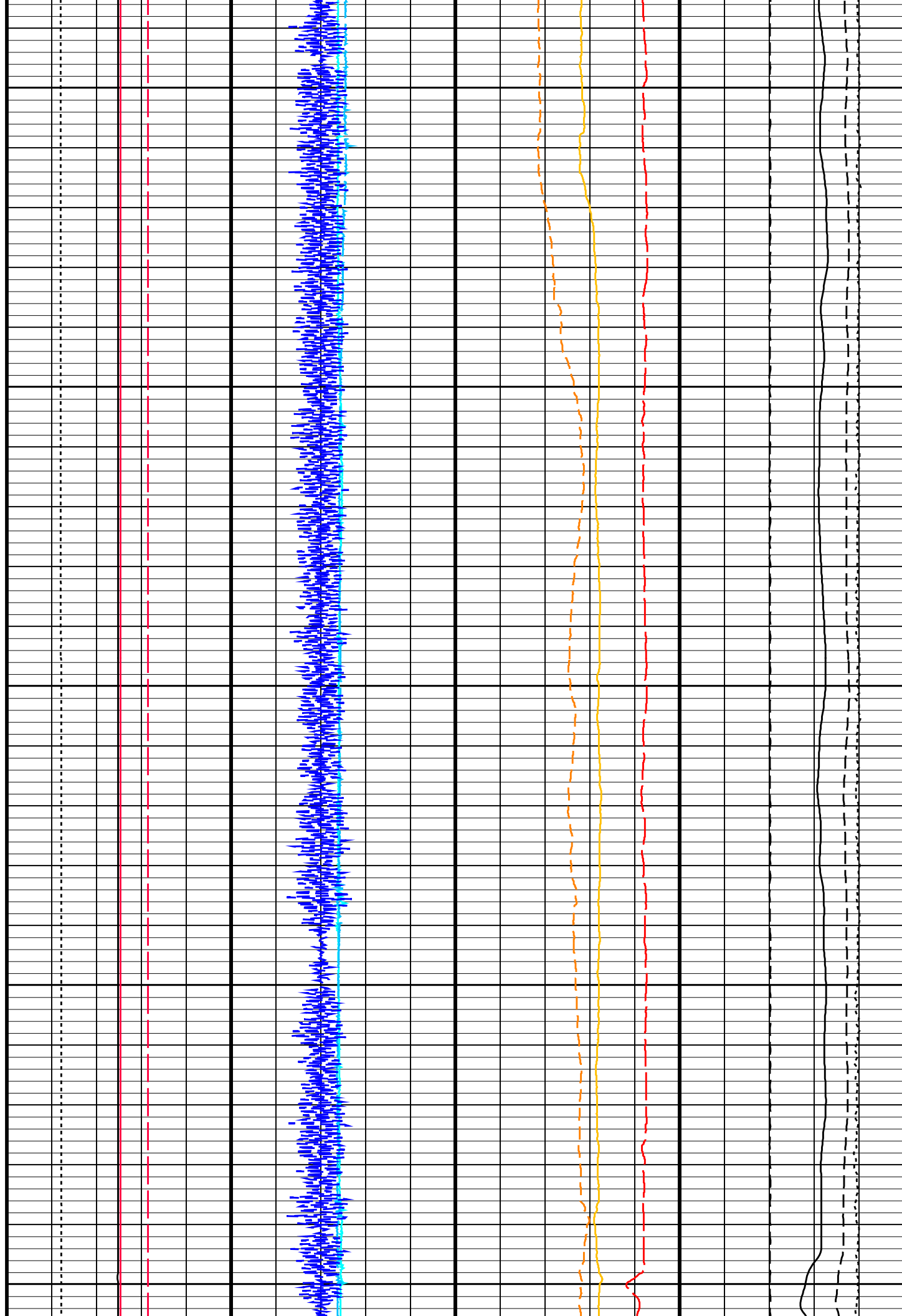
1700

1800



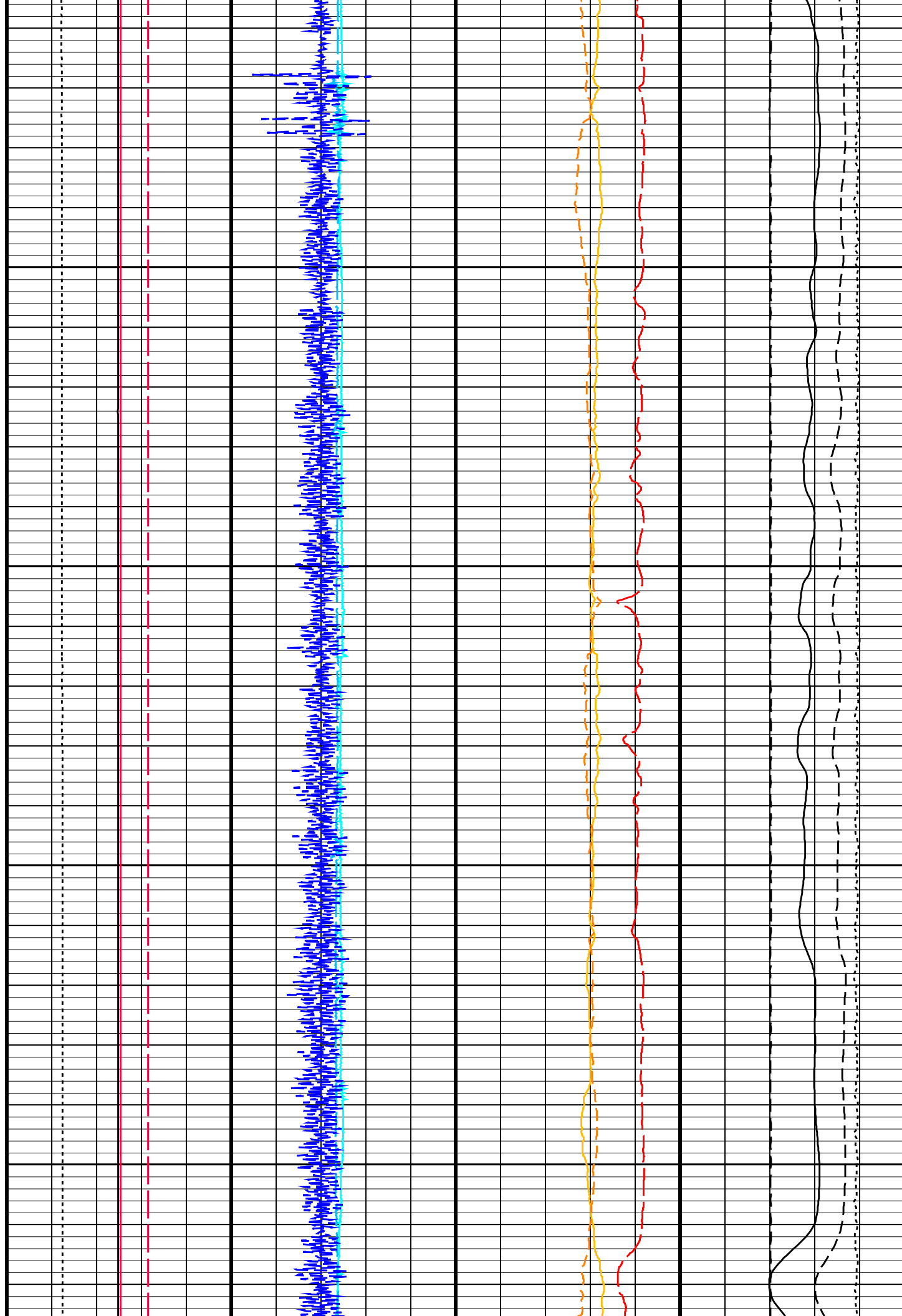
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2000



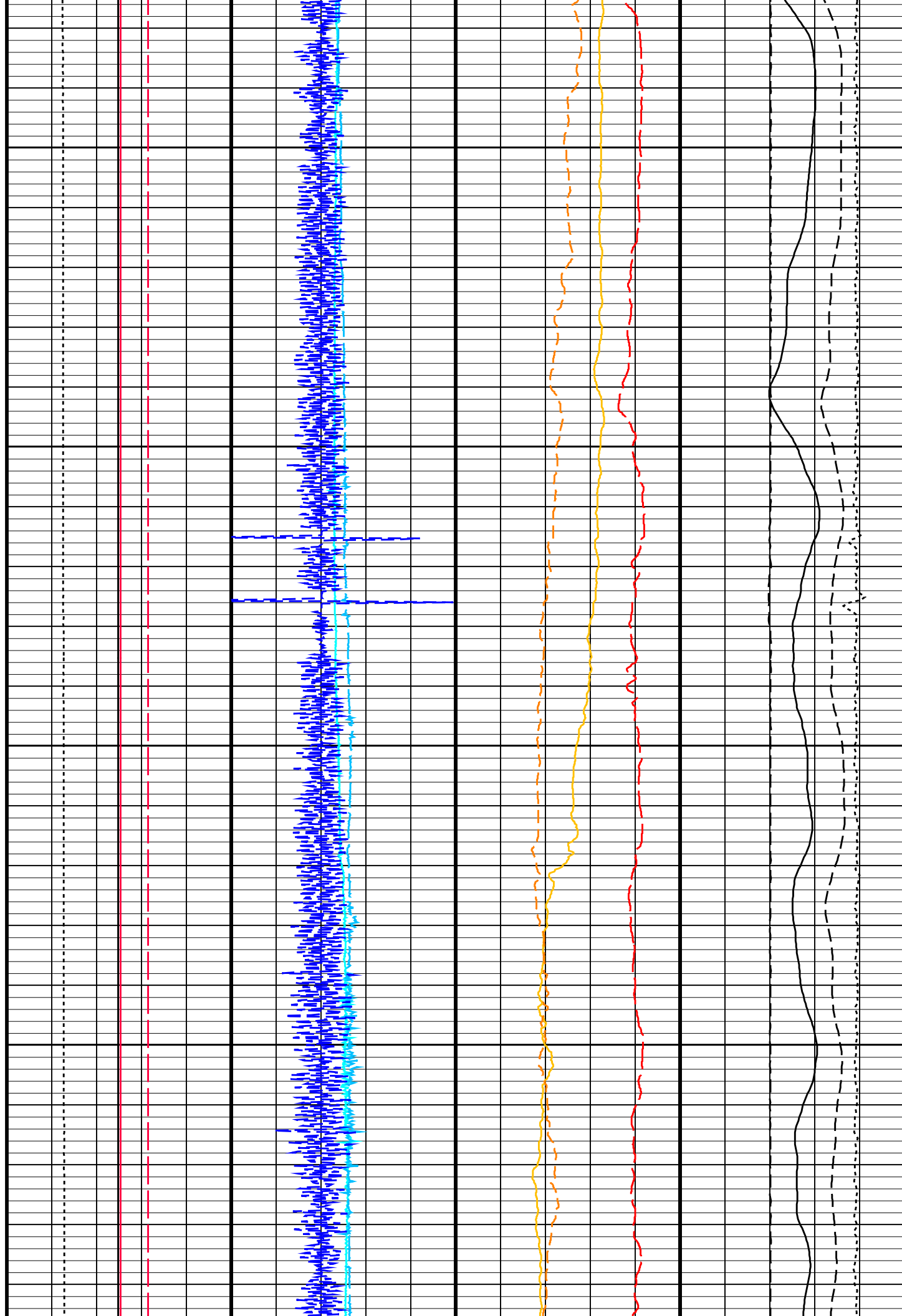
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2200



2300

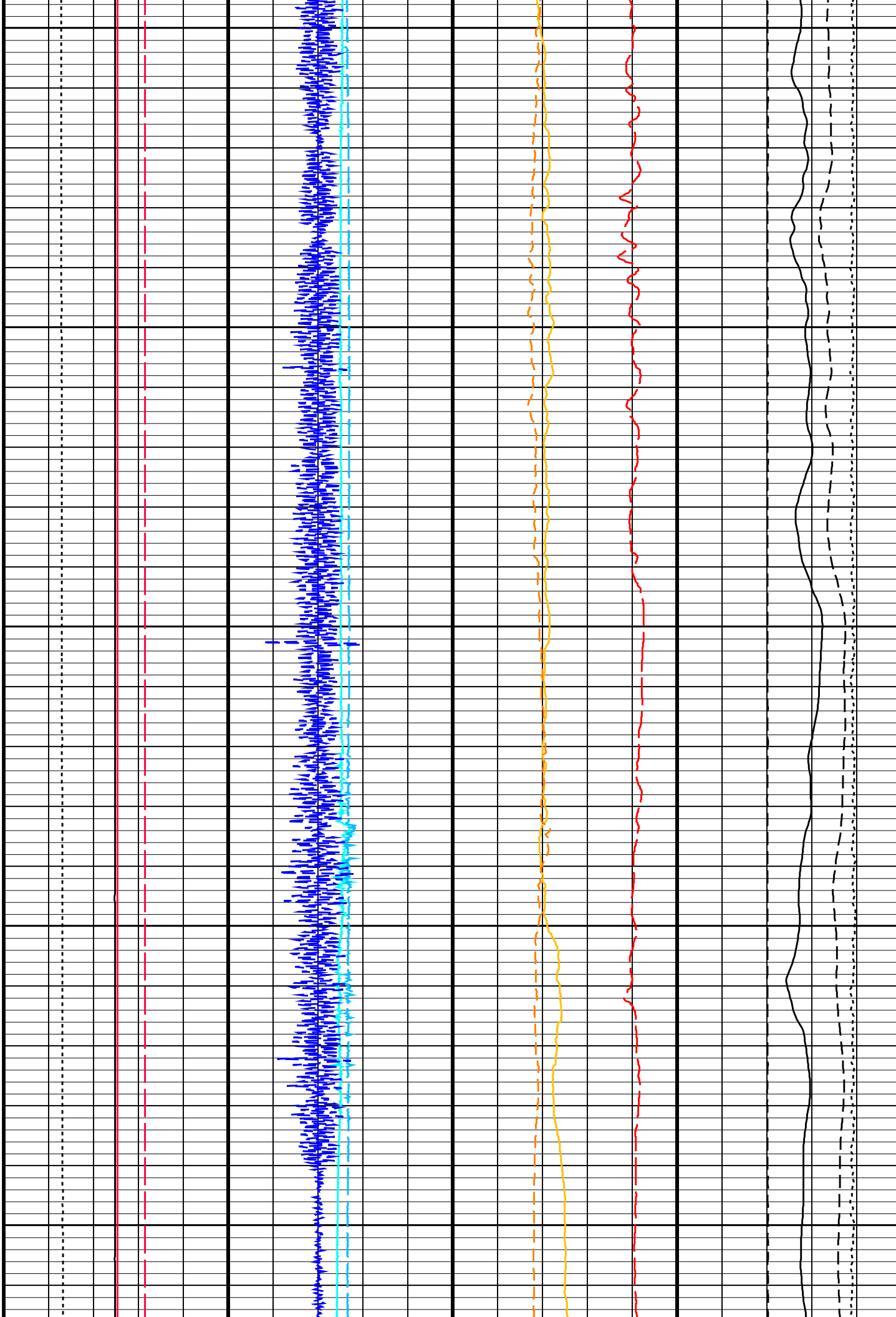
2400



2500

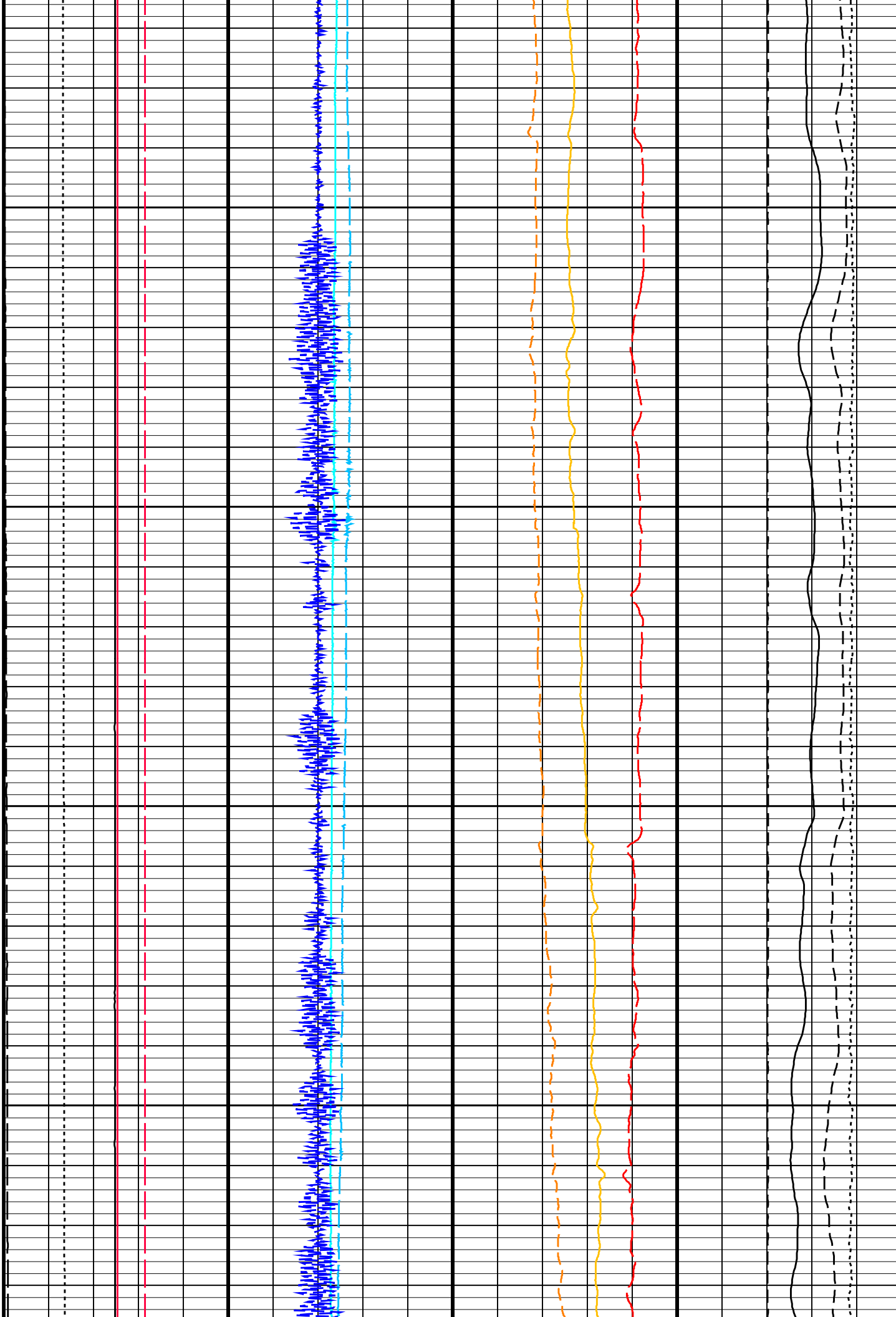
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2700



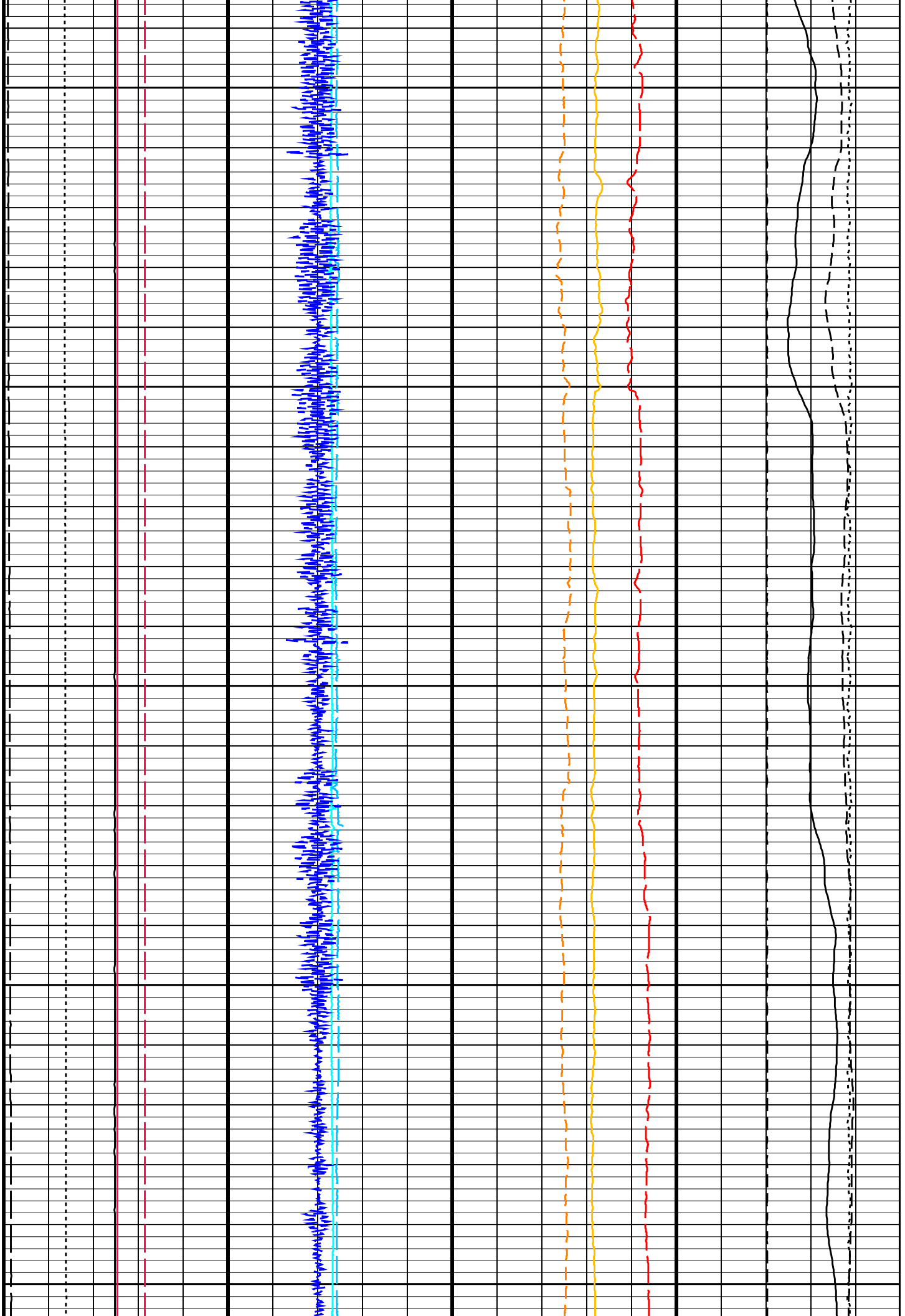
2800

2900



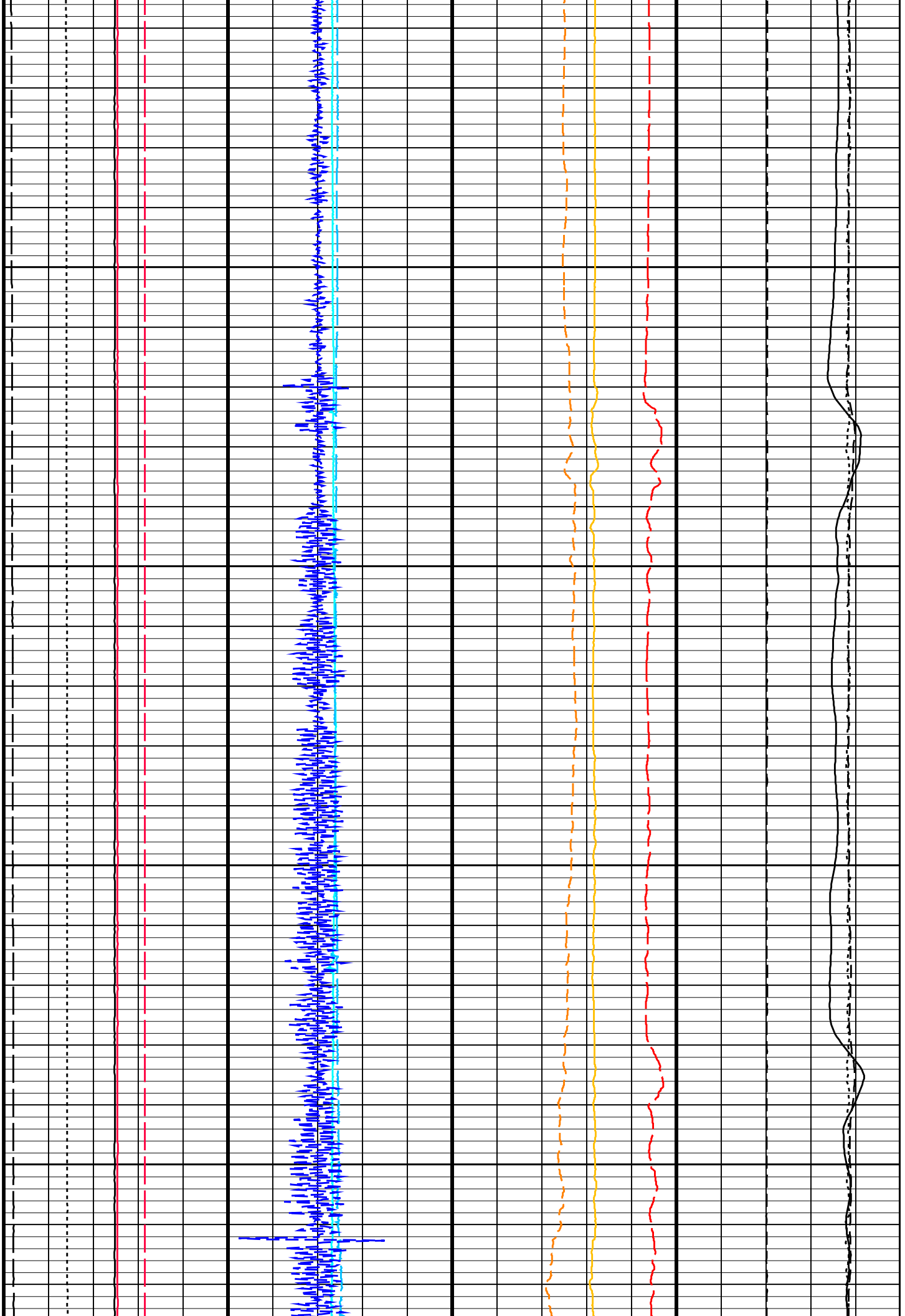
3000

3100



3200

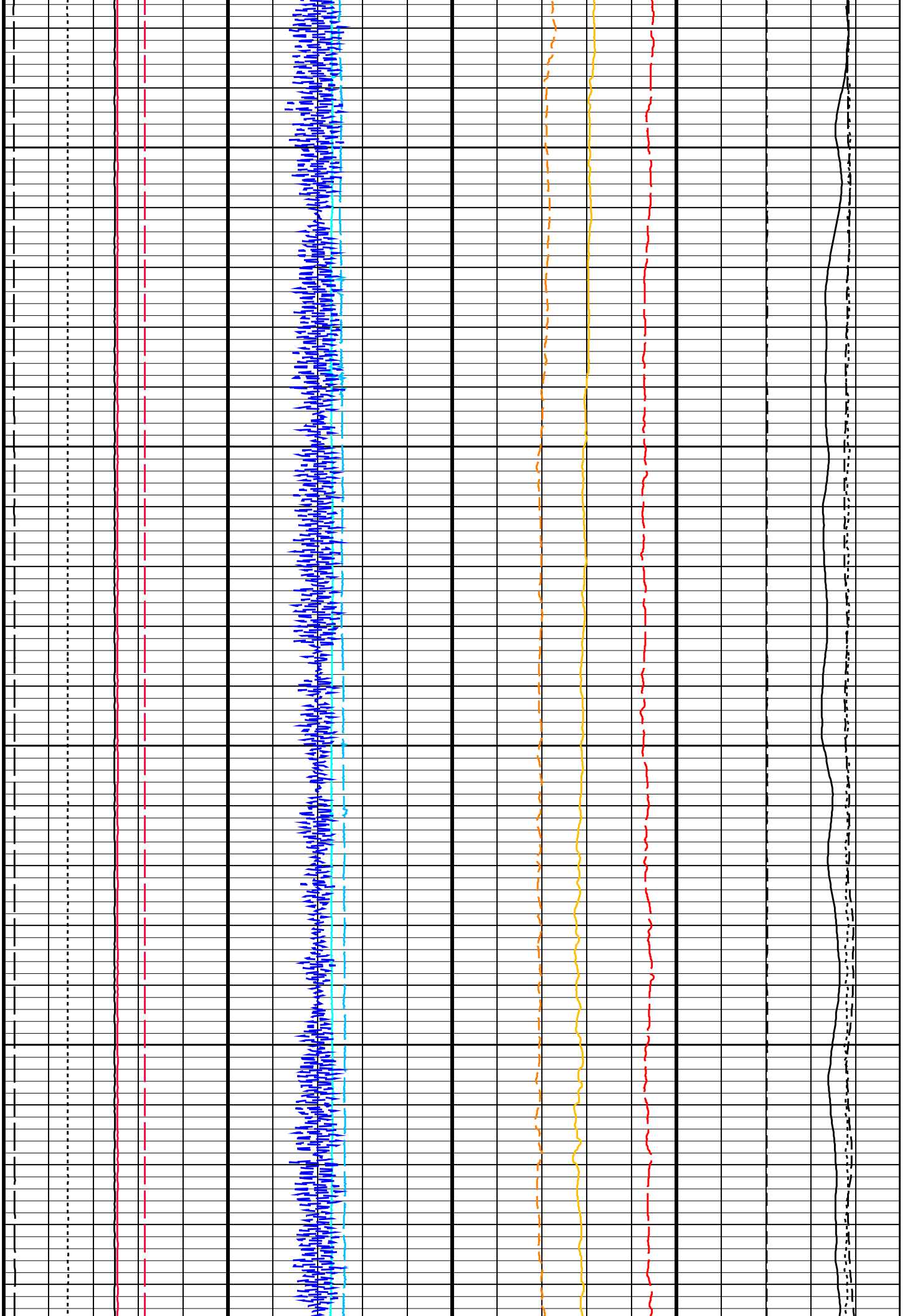
3300





3400

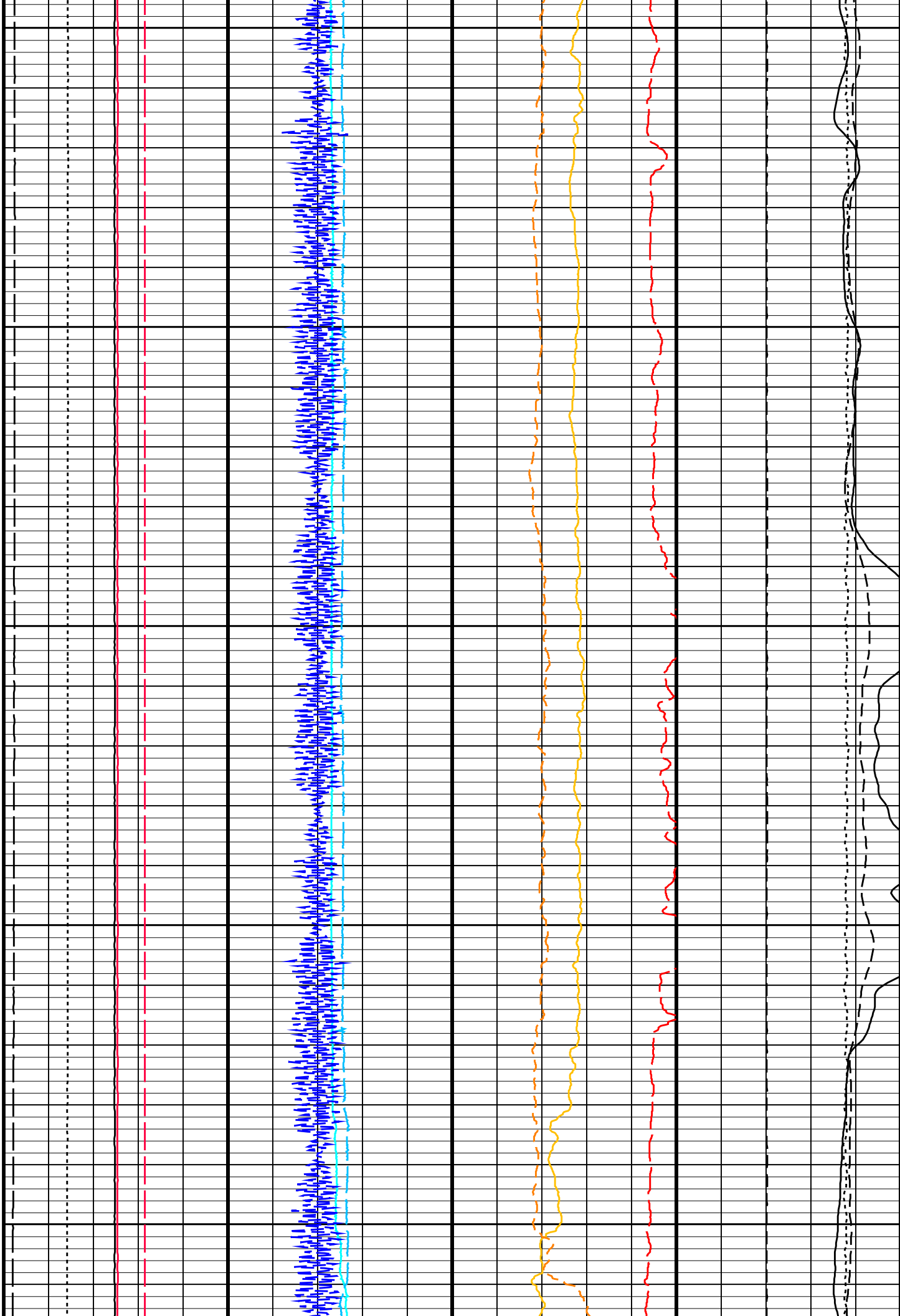
3500



3600

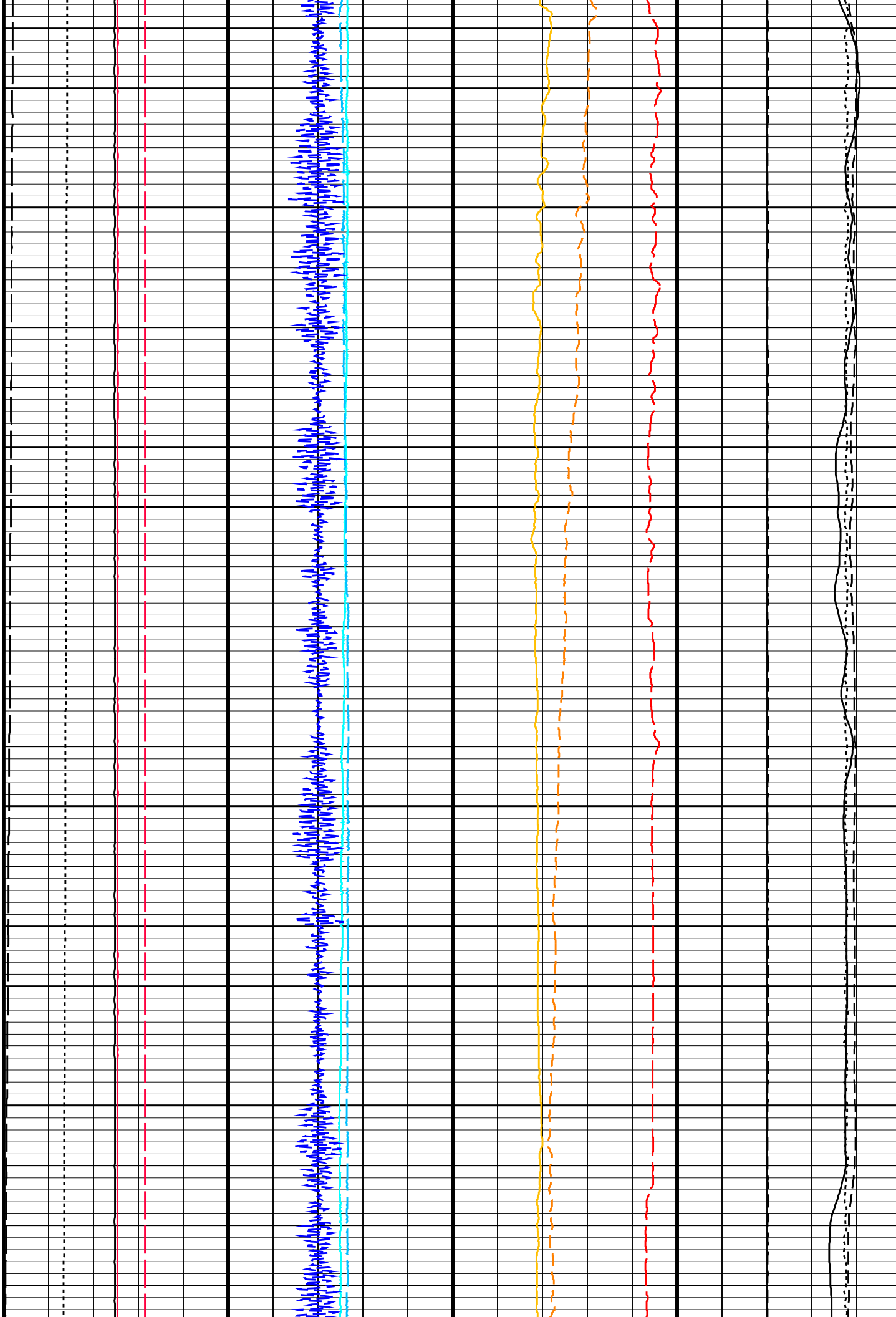
3700

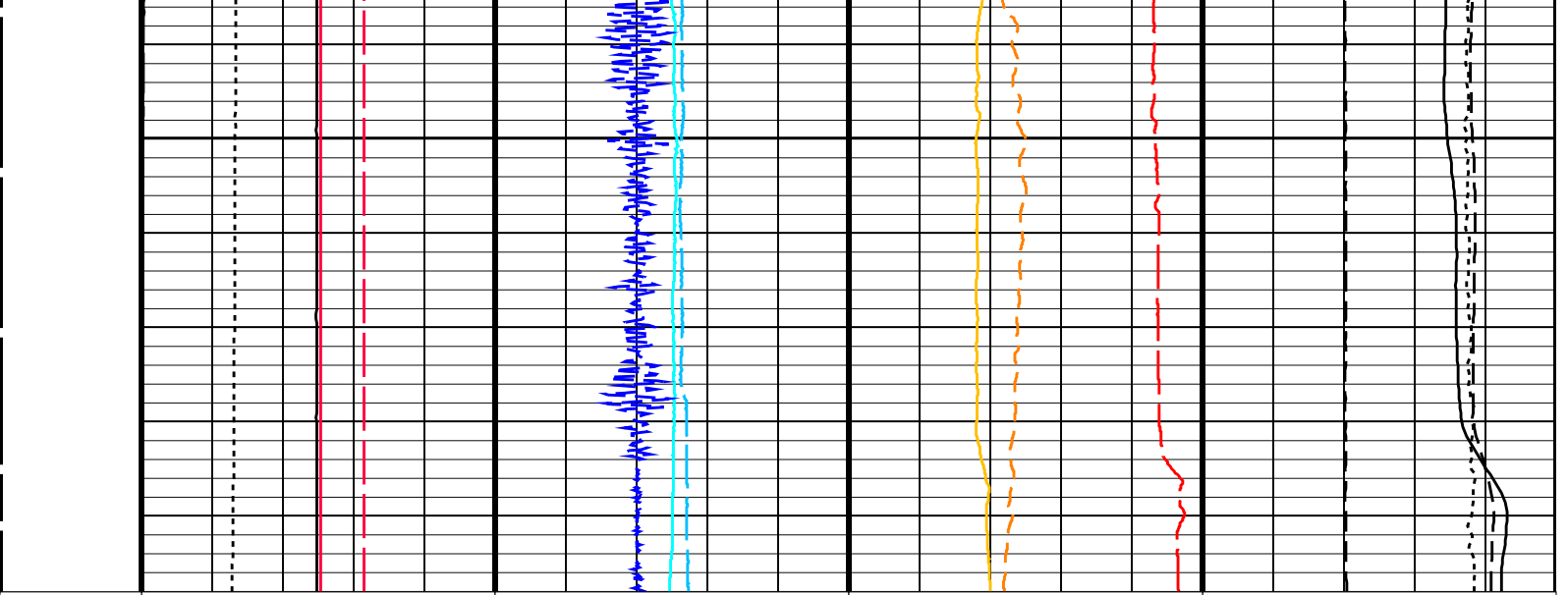
3800



3900

4000





Stuck Stretch (STIT)	Accelerometer Temperature (ACTE)	X-Axis Accelerometer (AX)	X-Axis Magnetometer (FX)	Accelerometer Norme (ANOR)
	(DEGF)	(M/S2)	(OER)	(M/S2)
0 (F) 50	0 400	-3 3	-0.7 0.7	9 11
Cable Drag From D4T to STIT	GPIT -12V Analogic (MINUS_12V_ANA_GPITF)	Y-Axis Accelerometer (AY)	Y-Axis Magnetometer (FY)	Magnetometer Norme (FNOR)
	(V)	(M/S2)	(OER)	(OER)
-13 -11	-3 3	-0.7 0.7	0.2 0.7	
Tool/Tot. Drag From D4T to STIA	GPIT Magnetometer Temperature (MAGTEMP)	Z-Axis Accelerometer (AZ)	Z-Axis Magnetometer (FZ)	Magnetic Field Inclination (FINC)
	(DEGF)	(M/S2)	(OER)	(DEG)
100 300	9 11	-0.7 0.7	0 90	
	GPIT +12V Analogic (PLUS_12V_ANA_GPITF)			Tension (TENS)
	(V)			(LBF)
	11 13			10000 0
	GPIT +5V Logic (PLUS_5V_LOG_GPITF)			
	(V)			
	4 6			

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
FBST-B: Full-Bore Scanner - E		
AFMO	Accelerometer Filtering Mode	MOVING_AVERAGE
ICMO	Inclinometry Computation Mode	AUTOMATIC_SELECTION
MDEC	Magnetic Field Declination	15.8635 DEG
DIR: Directional Survey Computation		
SPVD	TVD of Starting Point	0 FT
TIMD	Along-hole depth of Tie-in Point	0 FT
TIVD	TVD of Tie-in Point	0 FT
STI: Stuck Tool Indicator		
LBFR	Trigger for MAXIS First Reading Label	STI
STKT	STI Stuck Threshold	2.5 FT
TDD	Total Depth - Driller	4105.00 FT
TDL	Total Depth - Logger	4105.00 FT
System and Miscellaneous		
DO	Depth Offset for Playback	2.0 FT
PP	Playback Processing	RECOMPUTE

Format: GPIT Vertical Scale: 5" per 100'

Graphics File Created: 19-Apr-2009 03:26

OP System Version: 17C0-154

### Input DLIS Files

FMI	FMI_CAL_MAXS_MAPC_045LUP	FN:48	PRODUCER	18-Apr-2009 22:46	4096.0 FT	88.0 FT
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### Output DLIS Files

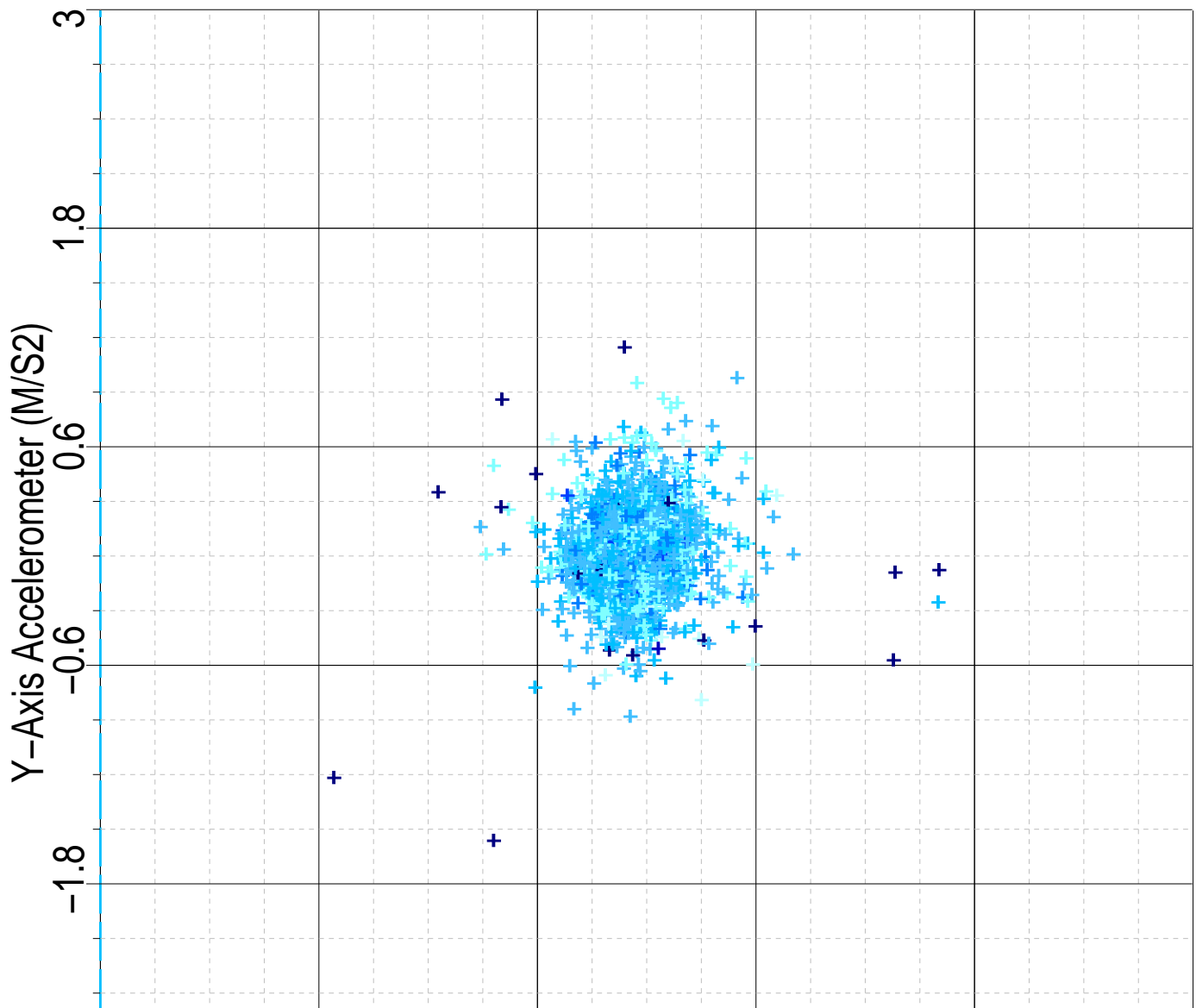
DEFAULT	FMI_CAL_MAXS_MAPC_052PUP	FN:64	PRODUCER	19-Apr-2009 03:26
FMI	FMI_CAL_MAXS_MAPC_052PUP	FN:65	PRODUCER	19-Apr-2009 03:26
MSIP	FMI_CAL_MAXS_MAPC_052PUP	FN:66	PRODUCER	19-Apr-2009 03:26

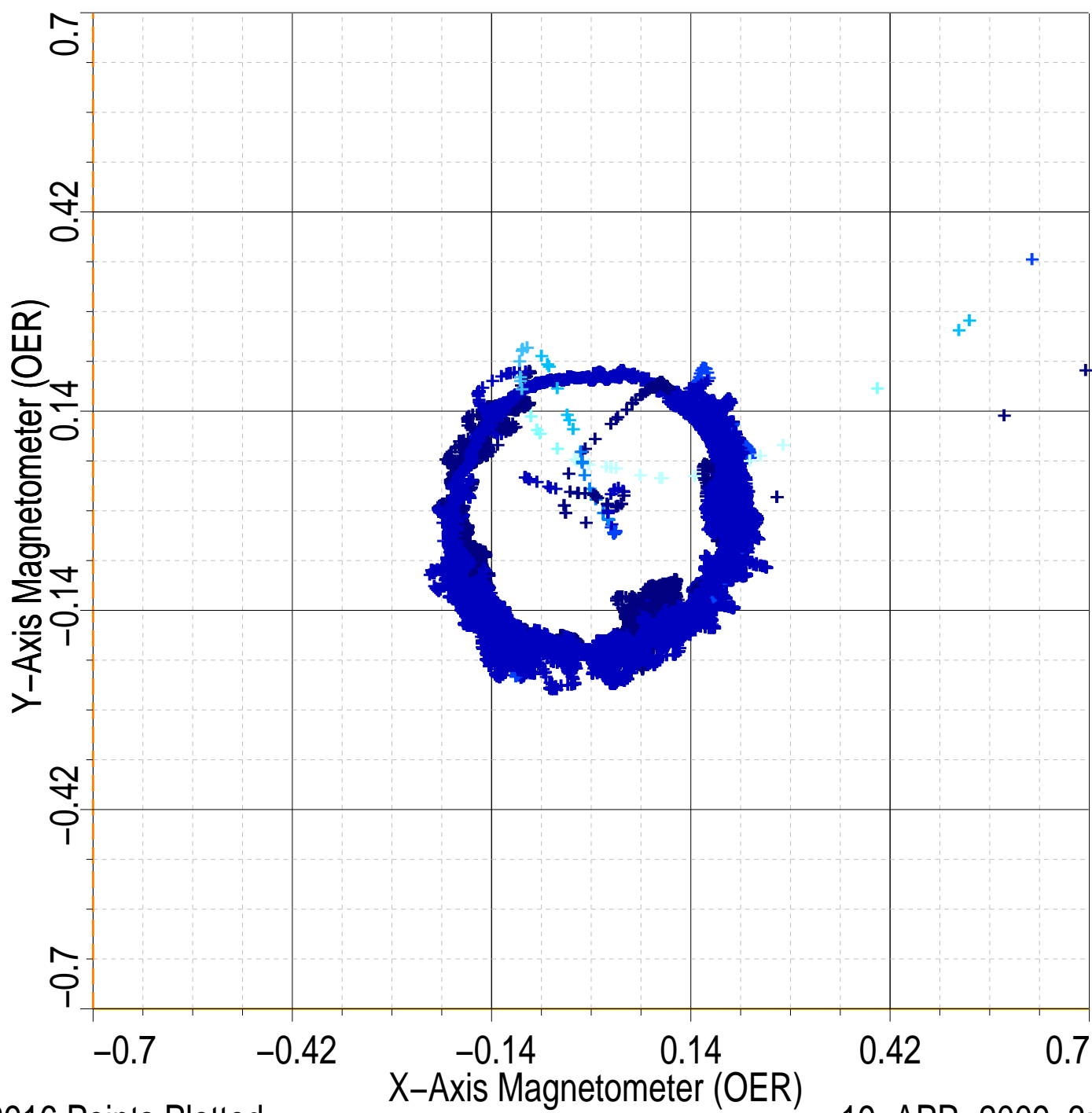
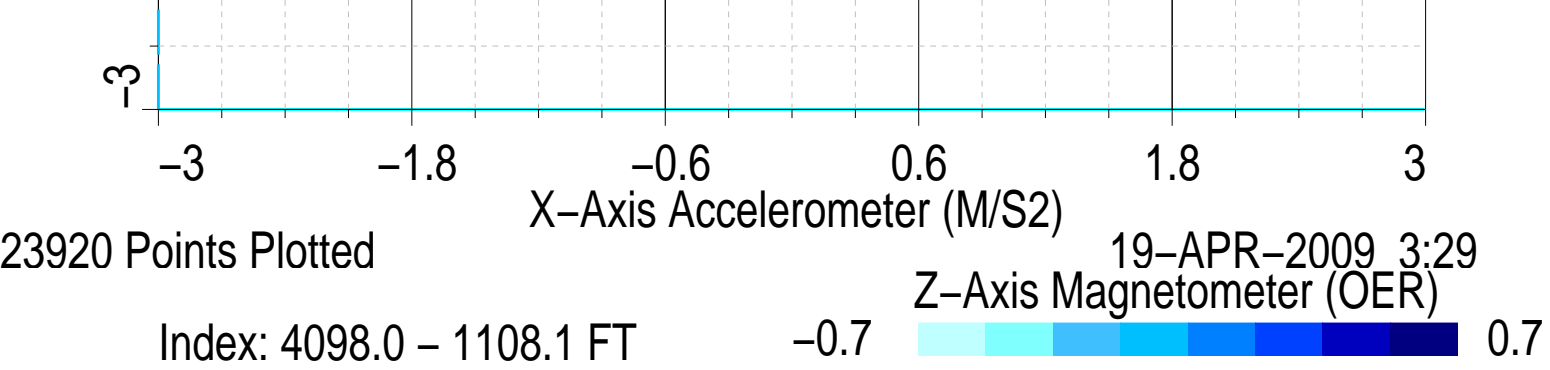


# CROSSPLOTS

MAXIS Field Log

Index: 4098.0 – 1108.1 FT      9. 11.      Z-Axis Accelerometer (M/S2)





Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
<b>Full-Bore Scanner – B Wellsite Calibration – Caliper Calibration</b>							
Before: 15-Apr-2009 17:30							
Caliper 1 Small Jig	8.000	N/A	7.983	N/A	N/A	N/A	IN
Caliper 2 Small Jig	8.000	N/A	7.560	N/A	N/A	N/A	IN
Caliper 1 Large Jig	12.00	N/A	11.75	N/A	N/A	N/A	IN
Caliper 2 Large Jig	12.00	N/A	11.38	N/A	N/A	N/A	IN
<b>Powered Positioning Device/Caliper 1 Wellsite Calibration – PPC1 Caliper Calibration</b>							
Before: 15-Apr-2009 17:43							
PPC1 Radius 1 Raw Small Radius	3.500	N/A	4.321	N/A	N/A	0.5000	IN
PPC1 Radius 1 Raw Large Radius	8.000	N/A	8.676	N/A	N/A	0.5000	IN
PPC1 Radius 2 Raw Small Radius	3.500	N/A	3.305	N/A	N/A	0.5000	IN
PPC1 Radius 2 Raw Large Radius	8.000	N/A	7.689	N/A	N/A	0.5000	IN
PPC1 Radius 3 Raw Small Radius	3.500	N/A	4.219	N/A	N/A	0.5000	IN
PPC1 Radius 3 Raw Large Radius	8.000	N/A	8.524	N/A	N/A	0.5000	IN
PPC1 Radius 4 Raw Small Radius	3.500	N/A	3.110	N/A	N/A	0.5000	IN
PPC1 Radius 4 Raw Large Radius	8.000	N/A	7.663	N/A	N/A	0.5000	IN
<b>Powered Positioning Device/Caliper 2 Wellsite Calibration – PPC2 Caliper Calibration</b>							
Before: 15-Apr-2009 19:33							
PPC2 Radius 1 Raw Small Radius	3.500	N/A	4.301	N/A	N/A	0.5000	IN
PPC2 Radius 1 Raw Large Radius	8.000	N/A	8.579	N/A	N/A	0.5000	IN
PPC2 Radius 2 Raw Small Radius	3.500	N/A	3.102	N/A	N/A	0.5000	IN
PPC2 Radius 2 Raw Large Radius	8.000	N/A	7.612	N/A	N/A	0.5000	IN
PPC2 Radius 3 Raw Small Radius	3.500	N/A	4.656	N/A	N/A	0.5000	IN
PPC2 Radius 3 Raw Large Radius	8.000	N/A	8.966	N/A	N/A	0.5000	IN
PPC2 Radius 4 Raw Small Radius	3.500	N/A	3.159	N/A	N/A	0.5000	IN
PPC2 Radius 4 Raw Large Radius	8.000	N/A	7.632	N/A	N/A	0.5000	IN
<b>Enhanced DTS Cartridge Wellsite Calibration – EDTC Accelerometer Calibration</b>							
Before: Calibration not done							
EDTC Z-Axis Acceleration	32.19	N/A	32.17	N/A	N/A	N/A	F/S2
<b>Enhanced DTS Cartridge Wellsite Calibration – Detector Calibration</b>							
Before: 15-Apr-2009 14:34							
Gamma Ray (Jig – Bkg)	159.8	N/A	159.8	N/A	N/A	14.52	GAPI
Gamma Ray (Calibrated)	165.0	N/A	165.0	N/A	N/A	15.00	GAPI

Full-Bore Scanner – B / Equipment Identification

Primary Equipment:

FullBore Scanner Sonde	FBSS – B	
FullBore Scanner Sonde Upper part	FBSH – A	1730
FullBore Scanner Sonde Cartridge	FBSC – B	
GPIT Cartridge – F	GPIC – F	
Insulating Sub	AH – 185	1773
Flex Joint	AH – 184	
FullBore Scanner Control Cartridge	FBCC – A	

Auxiliary Equipment:

Electronics Cartridge Housing	ECH – MRA	5881
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Full-Bore Scanner – B Wellsite Calibration

Caliper Calibration

Phase	Caliper 1 Small Jig IN	Value	Phase	Caliper 2 Small Jig IN	Value
Before		7.983	Before		7.560
	6.800 (Minimum)	8.000 (Nominal)		6.800 (Minimum)	8.000 (Nominal)
		9.200 (Maximum)			9.200 (Maximum)
Phase	Caliper 1 Large Jig IN	Value	Phase	Caliper 2 Large Jig IN	Value
Before		11.75	Before		11.38

10.20 (Minimum)	12.00 (Nominal)	13.80 (Maximum)	10.20 (Minimum)	12.00 (Nominal)	13.80 (Maximum)
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Before: 15-Apr-2009 17:30

Powered Positioning Device/Caliper 1 / Equipment Identification









Primary Equipment:

PPC Powered Positioning Device/Caliper  
PPC1 Caliper Standard

PPC1 - B  
PPC\_ -

8334

Auxiliary Equipment:

Powered Positioning Device/Caliper 1 Wellsite Calibration						
PPC1 Caliper Calibration						
Phase	PPC1 Radius 1 Raw Small Radius IN	Value	Phase	PPC1 Radius 1 Raw Large Radius IN	Value	
Before		4.321	Before		8.676	
	1.200 (Minimum)	3.500 (Nominal)	5.600 (Maximum)	6.100 (Minimum)	8.000 (Nominal)	9.700 (Maximum)
Phase	PPC1 Radius 2 Raw Small Radius IN	Value	Phase	PPC1 Radius 2 Raw Large Radius IN	Value	
Before		3.305	Before		7.689	
	1.200 (Minimum)	3.500 (Nominal)	5.600 (Maximum)	6.100 (Minimum)	8.000 (Nominal)	9.700 (Maximum)
Phase	PPC1 Radius 3 Raw Small Radius IN	Value	Phase	PPC1 Radius 3 Raw Large Radius IN	Value	
Before		4.219	Before		8.524	
	1.200 (Minimum)	3.500 (Nominal)	5.600 (Maximum)	6.100 (Minimum)	8.000 (Nominal)	9.700 (Maximum)
Phase	PPC1 Radius 4 Raw Small Radius IN	Value	Phase	PPC1 Radius 4 Raw Large Radius IN	Value	
Before		3.110	Before		7.663	
	1.200 (Minimum)	3.500 (Nominal)	5.600 (Maximum)	6.100 (Minimum)	8.000 (Nominal)	9.700 (Maximum)

Before: 15-Apr-2009 17:43

Multimode Array Sonic Power Cartridge / Equipment Identification

Primary Equipment:

Multimode Array Sonic Minimum Service So  
Multimode Array Sonic Control Cartridge

MAMS - BA  
MAPC - BA

8148

Auxiliary Equipment:

Electronics Cartridge Housing

ECH - SF

8092

Powered Positioning Device/Caliper 2 / Equipment Identification

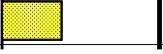




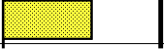
Primary Equipment:

PPC Powered Positioning Device/Caliper  
PPC2 Caliper Standard

PPC2 - B  
PPC\_ -

8152

Auxiliary Equipment:

Powered Positioning Device/Caliper 2 Wellsite Calibration						
PPC2 Caliper Calibration						
Phase	PPC2 Radius 1 Raw Small Radius IN	Value	Phase	PPC2 Radius 1 Raw Large Radius IN	Value	
Before		4.301	Before		8.579	
	1.200 (Minimum)	3.500 (Nominal)	5.600 (Maximum)	6.100 (Minimum)	8.000 (Nominal)	9.700 (Maximum)
Phase	PPC2 Radius 2 Raw Small Radius IN	Value	Phase	PPC2 Radius 2 Raw Large Radius IN	Value	
Before		3.102	Before		7.612	
	1.200 (Minimum)	3.500 (Nominal)	5.600 (Maximum)	6.100 (Minimum)	8.000 (Nominal)	9.700 (Maximum)
Phase	PPC2 Radius 3 Raw Small Radius IN	Value	Phase	PPC2 Radius 3 Raw Large Radius IN	Value	
Before		4.656	Before		8.966	
	1.200 (Minimum)	3.500 (Nominal)	5.600 (Maximum)	6.100 (Minimum)	8.000 (Nominal)	9.700 (Maximum)



Phase	PPC2 Radius 4 Raw Small Radius IN	Value	Phase	PPC2 Radius 4 Raw Large Radius IN	Value
Before		3.159	Before		7.632
	1.200 (Minimum)			6.100 (Minimum)	
	3.500 (Nominal)			8.000 (Nominal)	
	5.600 (Maximum)			9.700 (Maximum)	

Before: 15-Apr-2009 19:33

### Enhanced DTS Cartridge / Equipment Identification

**Primary Equipment:**

EDTC Gamma Ray Detector  
Enhanced DTS Cartridge

EDTG - A/B

EDTC - B

8620

**Auxiliary Equipment:**

EDTC Housing

EDTH - B

8611

Enhanced DTS Cartridge Wellsite Calibration		
EDTC Accelerometer Calibration		
Phase	EDTC Z-Axis Acceleration F/S2	Value
Before		32.17
	31.53 (Minimum)	
	32.19 (Nominal)	
	32.84 (Maximum)	

Before: Calibration not done

Enhanced DTS Cartridge Wellsite Calibration											
Detector Calibration											
Phase	Gamma Ray Background	GAPI	Value	Phase	Gamma Ray (Jig - Bkg)	GAPI	Value	Phase	Gamma Ray (Calibrated)	GAPI	Value
Before			35.72	Before			159.8	Before			165.0
	0 (Minimum)				145.2 (Minimum)				150.0 (Minimum)		
	30.00 (Nominal)				159.8 (Nominal)				165.0 (Nominal)		
	120.0 (Maximum)				174.3 (Maximum)				180.0 (Maximum)		

Before: 15-Apr-2009 14:34

**Company: Battelle Pacific Northwest Lab**

**Schlumberger**

**Well: Wallula Basalt Pilot #1**

**Field: Wildcat**

**County: Walla Walla**

**State: Washington**

**FORMATION MICRO IMAGER**