

**Three Detector Litho-Density Log/
Compensated Neutron Log
Final Composite 5''**

Company: PB ENERGY STORAGE SERVICES, INC

Well: DCP Linam Ranch AGI #2

Field: AGI; Bone Spring-Wolfcamp

County: Lea State: New Mexico

Three Detector Litho-Density

Compensated Neutron Log

Final Composite [5"-100'] MD

County:	Lea			
Field:	AGI; Bone Spring-Wolfcamp			
Location:	1600' FSL & 1750' FWL			
Well:	DCP Linam Ranch AGI #2			
Company:	PB ENERGY STORAGE SERVICES, INC			
Location:		1600' FSL & 1750' FWL	Elev.:	K.B. 3763.00 ft
				G.L. 3738.00 ft
				D.F. 3762.00 ft
		Permanent Datum:	Ground Level	Elev.: 3738.00 f
		Log Measured From:	Kelly Bushing	25.00 ft above Perm. Datum
		Drilling Measured From:	Kelly Bushing	
		API Serial No.	Section:	Township:
		30-025-42139	30	18S
				Range:
				37E
Logging Date	01-Nov-2014	30-Nov-2014		

Run Number	One	Two	10-Dec-2014	Run 3a
Depth Driller	3220.00 ft	8630.00 ft		9234.00 ft
Schlumberger Depth	3226.75 ft	8630.00 ft		9234.00 ft
Bottom Log Interval	3205.84 ft	8587.00 ft		9247.00 ft
Top Log Interval	1580.67 ft	3219.50 ft		8594.00 ft
Casing Driller Size @ Depth	20 in @ 1570.00 ft	13.375 in @ 3220.00 ft		9.625 in @ 8604.00 ft
Casing Schlumberger	1580.67 ft	3219.5 ft		8594 ft
Bit Size	17.5 in	12.25 in		8.5 in
Type Fluid In Hole	Salt Brine	Salt Brine		Fresh Water
Density	9.8 lbm/gal	8.8 lbm/gal		10.1 lbm/gal
Fluid Loss	0 cm3	0 cm3		0 cm3
Source of Sample	Active Tank	Active Tank		Active Tank
RM @ Meas Temp	0.06 ohm.m @ 64.5 degF	9 ohm.m @ 80 degF		1.09 ohm.m @ 62.2 degF
RMF @ Meas Temp	0.04 ohm.m @ 75 degF	7.5 ohm.m @ 80 degF		0.75 ohm.m @ 75 degF
RMC @ Meas Temp	0.06 ohm.m @ 75 degF	0.06 ohm.m @ 75 degF		0.89 ohm.m @ 75 degF
Source RMF	RMC	Pressed		Calculated
RM @ BHT	RMF @ BHT	Pressed		Calculated
Max Recorded Temperatures	107.3 degF	125 degF		138 degF
Circulation Stopped	Time	19:00:00		08:00:00
Logger on Bottom	Time	05:26:09		04:38:04
Unit Number	Location:	2133		2381
Recorded By	Enril Ludick	Tyler Bolton		Matt Clardy/ Phil Lacasse
Witnessed By	Russell Bentley	Russell Bentley		Russell Bentley

RUN 1

Disclaimer

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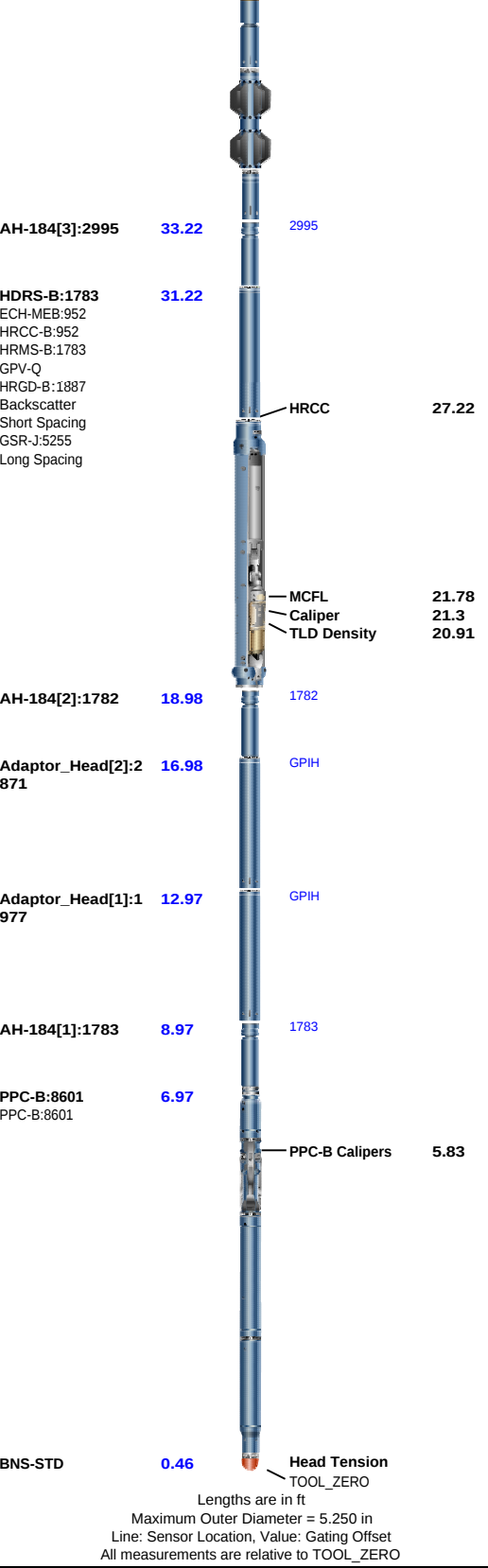
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Remarks and Equipment Summary

One: Toolstring				One: Remarks
Equip name LEH-QT:3338 LEH-QT:3338	Length 76.17	MP name	Offset	THANK YOU FOR CHOOSING SCHLUMBERGER!
AH-369:1858	73.25			LOGGER REQUESTED: 00:00 01-NOV-2014 LOGGER ARRIVED: 18:00 31-OCT-2014 RIG READY: 03:00 01-NOV-2014 RIG: PRECISION 107
DTC-H:8131 ECH-KC:10149 DTC-H:8131	71.83	CTEM HV	70.93 0.00	CREW: E. LUDICK, M. MARTINEZ, J. MENDOZA
HGNS-B:3960 HGNH:3721 NPV-N NSR-F:5061 HMCA-B HGNS-B:3960 HACCZ-B:4001	68.83	ToolStatus TelStatus Temperature GR	68.82 68.82 68.8 68.08	TOOLS RUN AS PER TOOL SKETCH AND PRESENTATIONS AS PER CLIENT REQUES
		CNL Porosity	61.75	CALIPERS CHECKED IN CASING WITH INNER CASING ID OF 19.00 INCHES.
AH-107:3858	59.42	HGNS HMCA Accelerometer 3858	59.42 59.42 0.00	HRLA RUN WITH 4 FOUR FIN 1.5 INCH STANDOFFS. HGNS ECCENTRALIZED WITH STANDARD BOWSPRING. HGNS TEMP. SENSOR USED TO DETERMINE MAXIMUM BOREHOLE TEMPE
HRLT-B:1884 HRUH-B:994 HRUC-B:979 HRLS-B:1884 HRLH-B:790 HRLC-B:790 AH-270:959	57.42			HGNS WEAR RING 0.125". MATRIX LIMESTONE GIVEN BY CLIENT WITH LOGS PRESENTED ON LIMESTONE COMPATIBLE SCALE.
		Resistivity	45.65	MATRIX LIMESTONE DENSITY 2.71 g/cc AND FLUID DENSITY 1.1 g/cc.
				PPC USED TO DETERMIN HOLE VOLUME.



Depth Summary

One			
Depth Measuring Device			
Type	IDW-B		
Serial Number	6307		
Calibration Date	02-SEP-2014		
Calibrator Serial Number			
Calibration Cable Type	7-46P-XS		
Wheel Correction 1	-2		
Wheel Correction 2	-1		
Tension Device			
Type	CMTR-D/A		

Type	CMTD-B/A		
Serial Number	3872		
Calibration Date	03-OCT-2014		
Calibrator Serial Number	1019		
Number of Calibration Points	0		

Logging Cable			
Type	7-46P-XS		
Serial Number	U713011		
Length	19700.00 ft		
Conveyance Type	Wireline		
Rig Type	Land		

One:Depth Control Parameters		Depth Control Remarks
Log Sequence	Subsequent Trip To the Well	IDW USED AS PRIMARY DEPTH CONTROL DEVICE.
Reference Log Name	AIT	Z-CHART USED AS SECONDARY DEPTH CONTROL DEVICE.
Reference Log Run Number	One	FOLLOWED SCHLUMBERGER FULL DEPTH CONTROL POLICY DATED APRIL 7TH, 2012.
Reference Log Date	12-Oct-2014	STRETCH CORRECTION OF 3.59 ft APPLIED BY COMPARING MAIN PASS TO CORRELATION LOG.
Subsequent Trip Down Log Correction		ALL LOGS CORRELATED CORRELATION LOG.

Disclaimer	RUN 2
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Remarks and Equipment Summary	
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Two: Toolstring				Two: Remarks
Equip name LEH-QC:1317	Length 82.94	MP name	Offset	Toolstring run as per toolsketch.
				Bowstring used to eccentralize HGNS.
EDTC-B:9071	80.48			0.125" standoff created by wear-ring on LGNS

EDTH-B:8196
EDTG-A:79243
EDTC-B:9071

HNGS-BA:84
HEH-K:1035
HNGS-BA:84

HNGC-B:610
HNGH-A:4094
HNGC-B:610

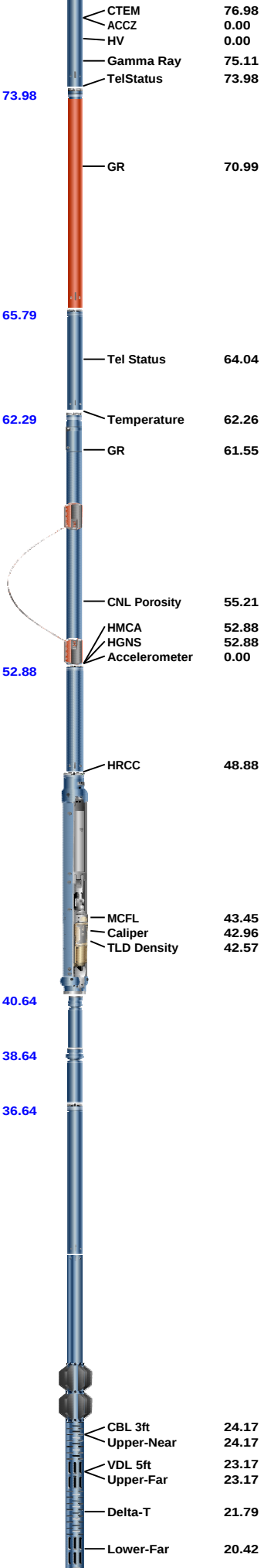
HGNS-B:951
HGNH:3894
NPV-N
NSR-F:2683
HACCZ-B:448
HMCA-B
HGNS-B:951

HDRS-B:1829
ECH-MEB:952
HRCC-B:839
HRMS-B:1829
Short Spacing:27483
Backscatter
Long Spacing:28774
GSR-J:5339
HRGD-B:3968
GPV-Q

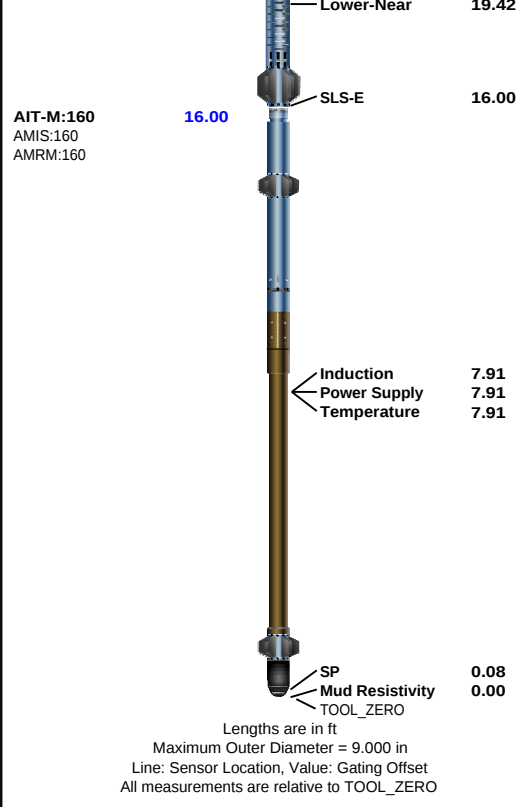
AH-184:4882

AH-107

DSL-T-H:8091
ECH-KH:8585
DSL-C-H:8091
SLS-E:1561



HGNS.
1.5" standoffs used on AIT, and DSLT.
Porosity computed on a Limestone scale with density of 2.71 g/cc and slowness of 47.6 us/ft.
Rig: Precision 107
Your Schlumberger Crew: Tyler Bolton, Adam Jaramillo, Jose Gomez.



Depth Summary			
		Two	
Depth Measuring Device			
Type	IDW-JA		
Serial Number	5910		
Calibration Date	02-Jun-2014		
Calibrator Serial Number			
Calibration Cable Type	7-46P XS		
Wheel Correction 1	-2		
Wheel Correction 2	-1		
Tension Device			
Type	CMTD-B/A		
Serial Number	5044		
Calibration Date	18-Oct-2014		
Calibrator Serial Number	80725A		
Number of Calibration Points	10		
Calibration Root Mean Square Error	19		
Calibration Peak Error	36		
Logging Cable			
Type	7-46P-XS		
Serial Number	U711059		
Length	15500.00 ft		
Conveyance Type	Wireline		
Rig Type	Land		
Two:Depth Control Parameters		Depth Control Remarks	
Log Sequence	Subsequent Trip To the Well	All primary and secondary depth control procedures followed. IDW used as primary depth control device. Z-chart used as secondary depth control device.	
Reference Log Name	Platform Express-CNL		
Reference Log Run Number	One		
Reference Log Date	01-Nov-2014		
Subsequent Trip Down Log Correction	7.29 ft		

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Operational Run Summary

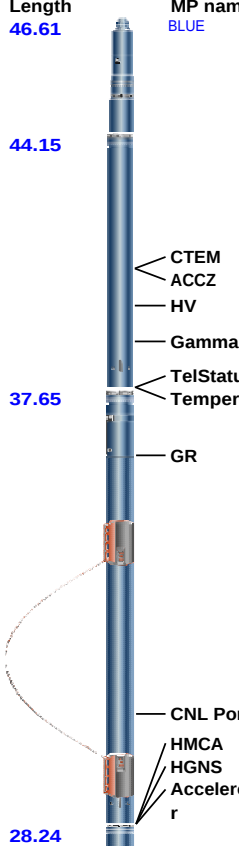
Parameter (unit)	Run 3a					
Date Log Started	10-Dec-2014					
Time Log Started	03:52:06					
Date Log Finished	10-Dec-2014					
Time Log Finished	06:35:47					
Top Log Interval (ft)	8594.00					
Bottom Log Interval (ft)	9247.00					
Total Depth (ft)	9247.00					
Max Hole Deviation (deg)	0.00					
Azimuth of Max Deviation (deg)	0.00					
Bit Size (in)	8.500					
Logging Unit Number	2381					
Logging Unit Location	Midland, TX					
Recorded By	Matt Clardy/ Phil Lacasse					
Witnessed By	Russell Bentley					
Service Order Number	D0M2-00023					

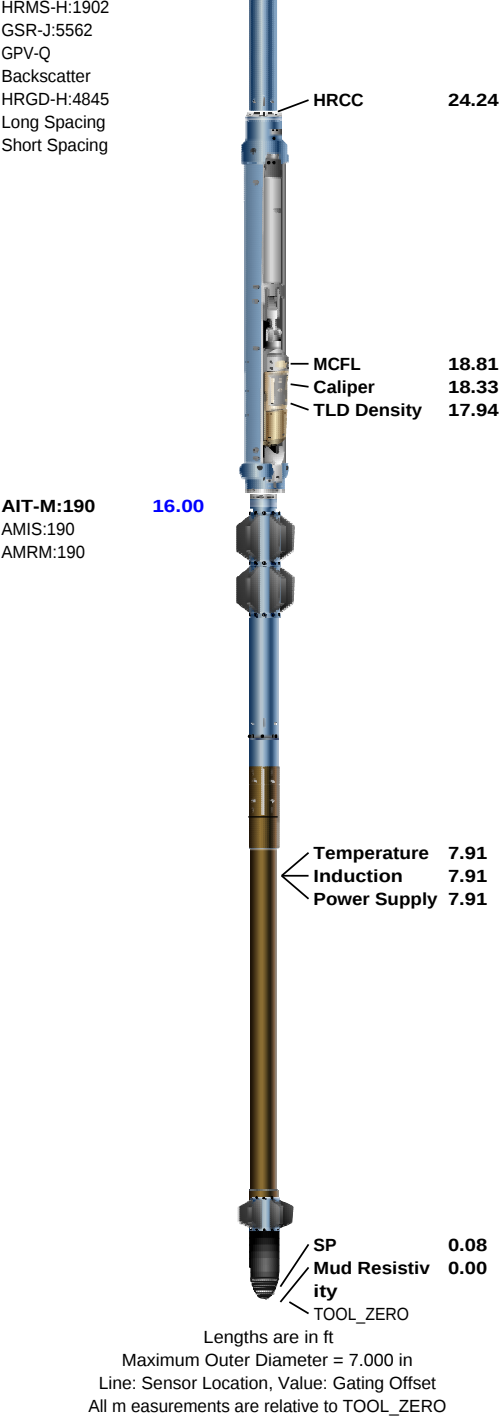
Borehole Fluids

Parameter(unit)	Run 3a					
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Fluid Type	Water					
Fluid Name	Fresh Water					
Max Recorded Temperatures (degF)	138					
Source of Sample	Active Tank					
Salinity (ppm)	500					
Density (lbm/gal)	10.1					
Funnel Viscosity (s)	42					
Fluid Loss (cm3)	0					
PH	10.5					
Date/Time Circulation Stopped	09-Dec-2014 08:00:00					
Date Logger on Bottom	10-Dec-2014					
Time Logger on Bottom	04:38:04					
Source RMF	Calculated					
RMC	Calculated					
RM @ Meas Temp (ohm.m@degF)	1.09 @ 62.2					
RMF @ Meas Temp (ohm.m@degF)	0.75 @ 75					
RMC @ Meas Temp (ohm.m@degF)	0.89 @ 75					
RM @ BHT (ohm.m@degF)	0.52 @ 138					
RMF @ BHT (ohm.m@degF)	0.42 @ 138					
RMC @ BHT (ohm.m@degF)	0.5 @ 138					
Total Solid (%)	10					
High Gravity Solids (%)						

Remarks and Equipment Summary

Run 3a: Toolstring				Run 3a: Remarks
Equip name LEH-QC	Length 46.61	MP name BLUE	Offset	Max recorded temperature from downhole thermometer = 138 degF.
EDTC-B:8101 EDTH-B:8101 EDTG-A:77002 EDTC-B:8101	44.15			Tool String run as per tool sketch (3x 1.5 in Standoffs, Bowspring).
				Cement volume calculated using 7.0 inch future casing diameter.
				Hole size and standoff correction applied to neutron porosity.
				Logs Run from 9247 ft to Casing as per client request. Repeat performed for 300ft from 9247 ft as per client request.
HGNS-H:3720 HGNH:3917 NPV-N NSR-F:5317 HGNS-H:3720 HMCA-H HACCZ-H:4665	37.65			Thank you for choosing Schlumberger! Schlumberger Wireline - Midland, TX - 432-694-0000
				Rig: Precision #107. Schlumberger Crew: Mohammed, Ozzy, Matt & Phil.
				Logs performed on a Limestone matrix (2.71 g/cc). Mud Properties: MW = 10.1 lb/gal; FD = 1.00 g/cc.
HDRS-H:1902 ECH-MEB:3979 HRCC-H:3931	28.24			



Depth Summary

Run 3a

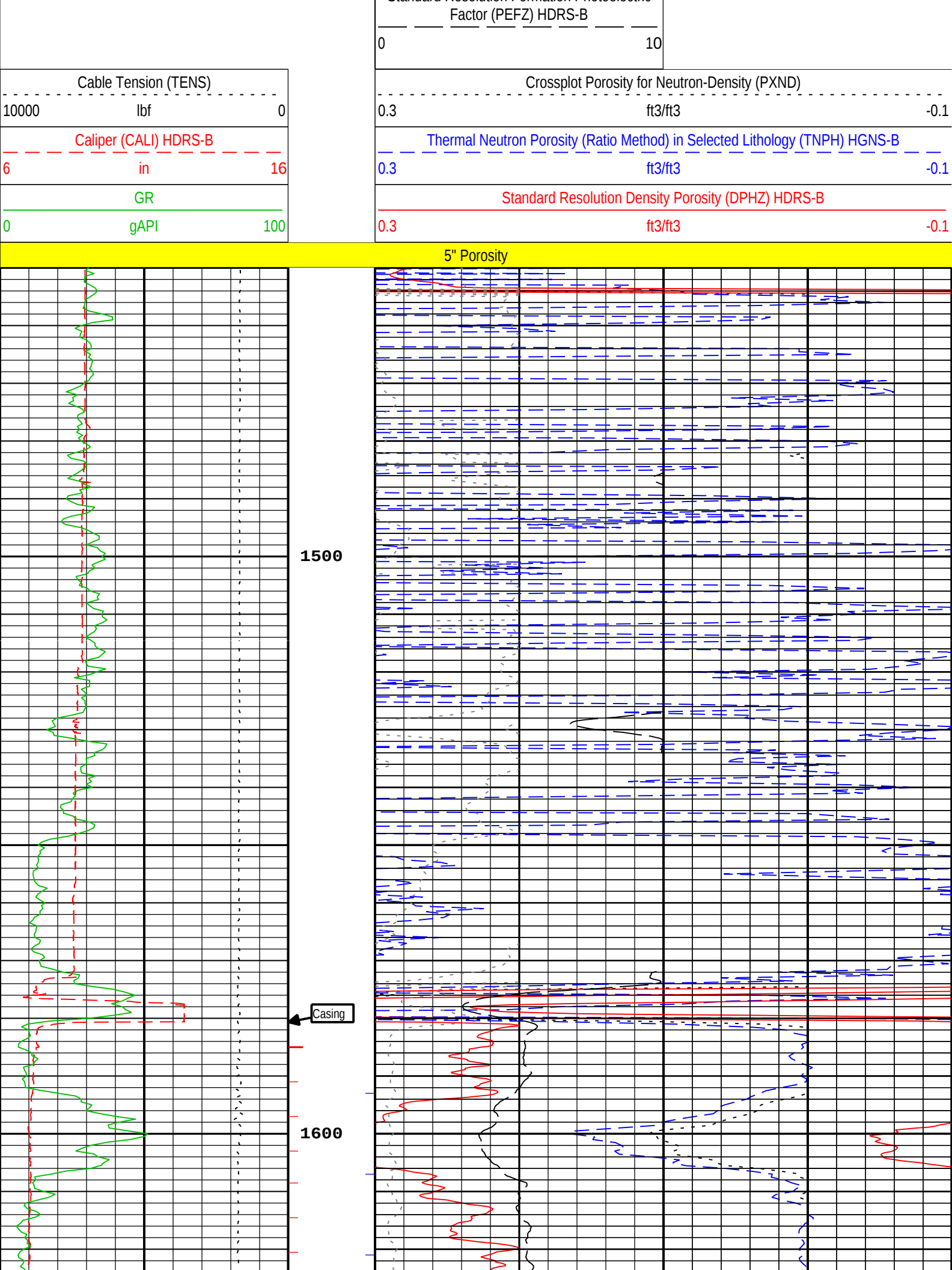
Depth Measuring Device

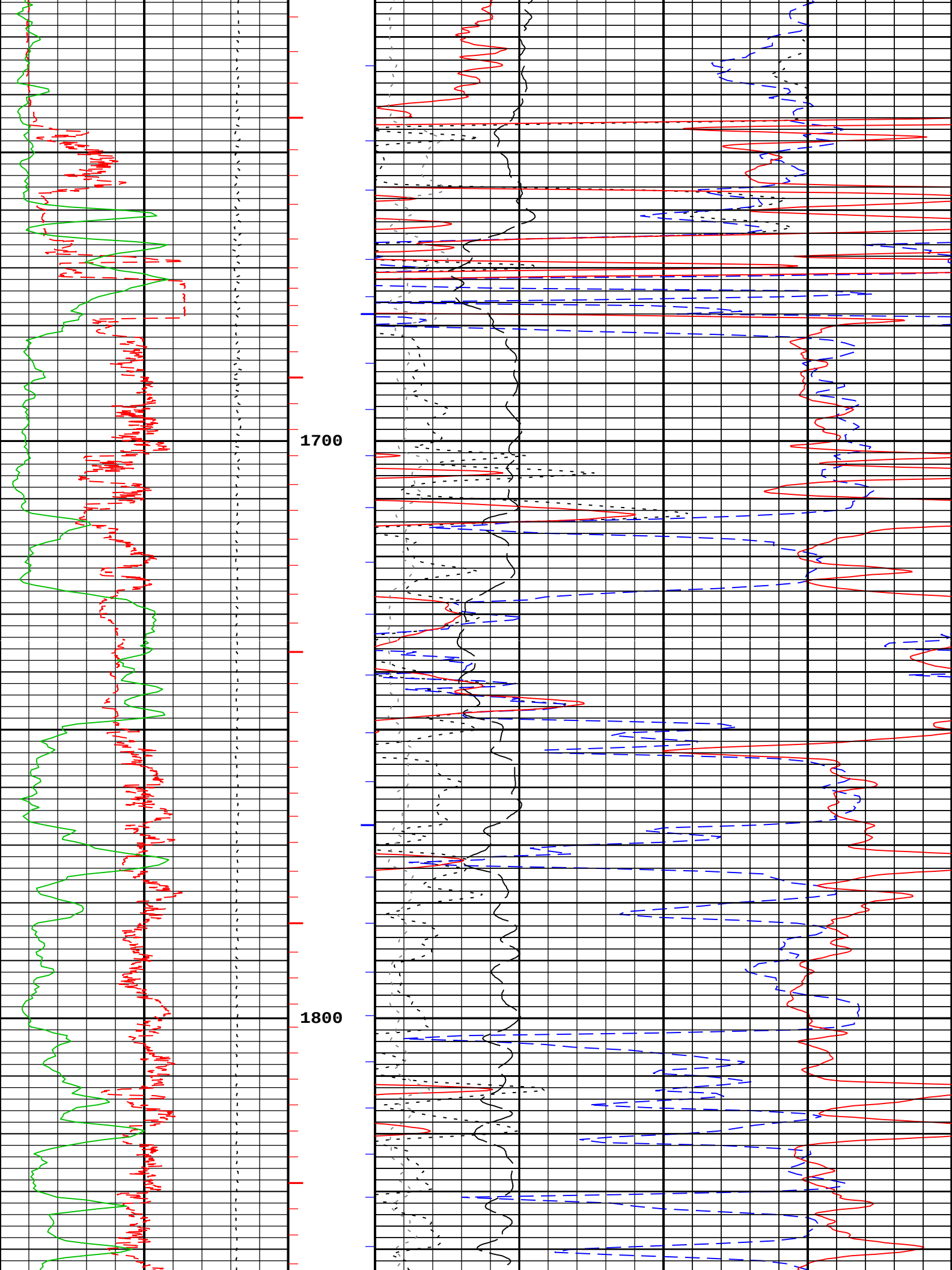
Type	IDW-B		
Serial Number	6568		
Calibration Date	28-Jul-2014		
Calibrator Serial Number			
Calibration Cable Type	7-46P/AXS		
Wheel Correction 1	-4		
Wheel Correction 2	-3		

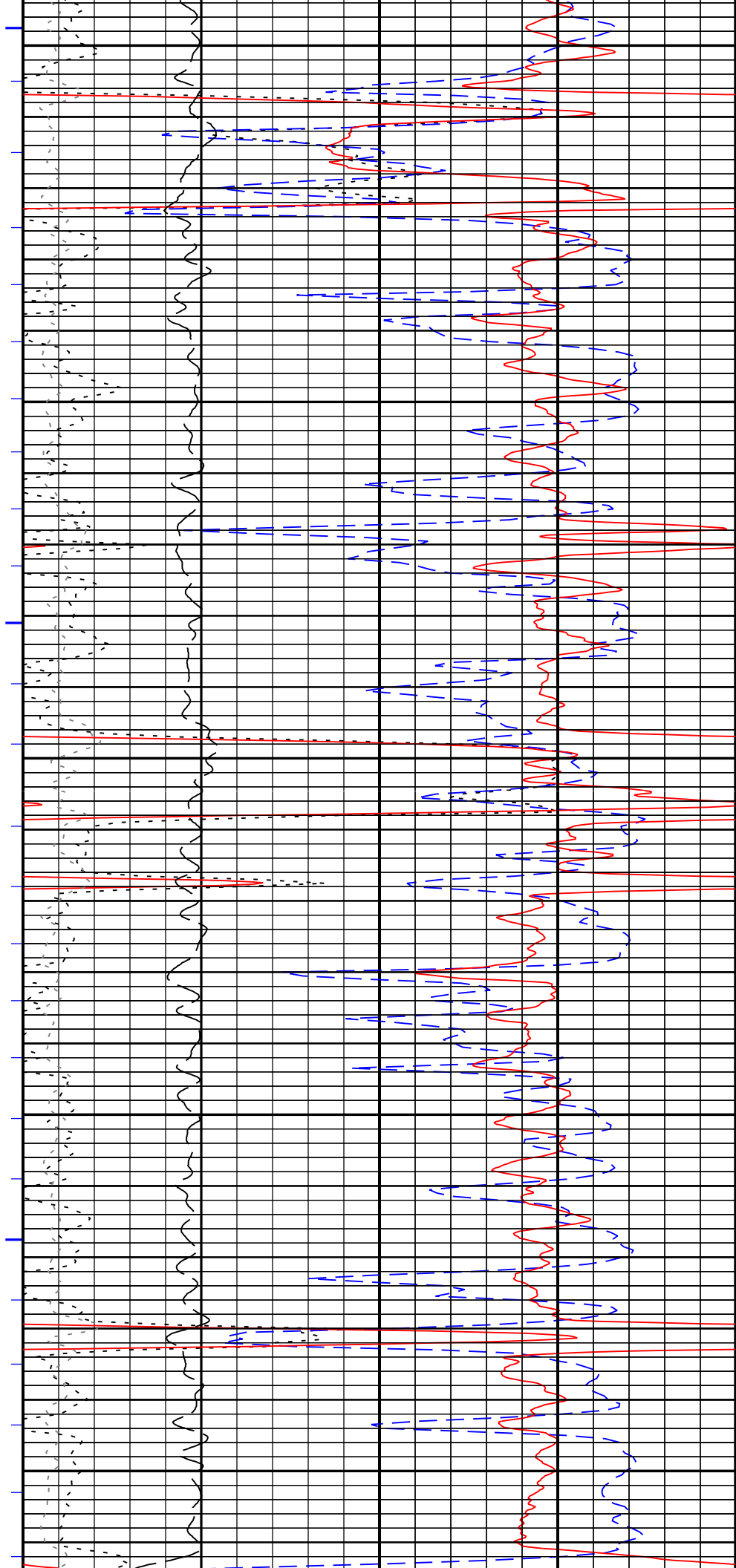
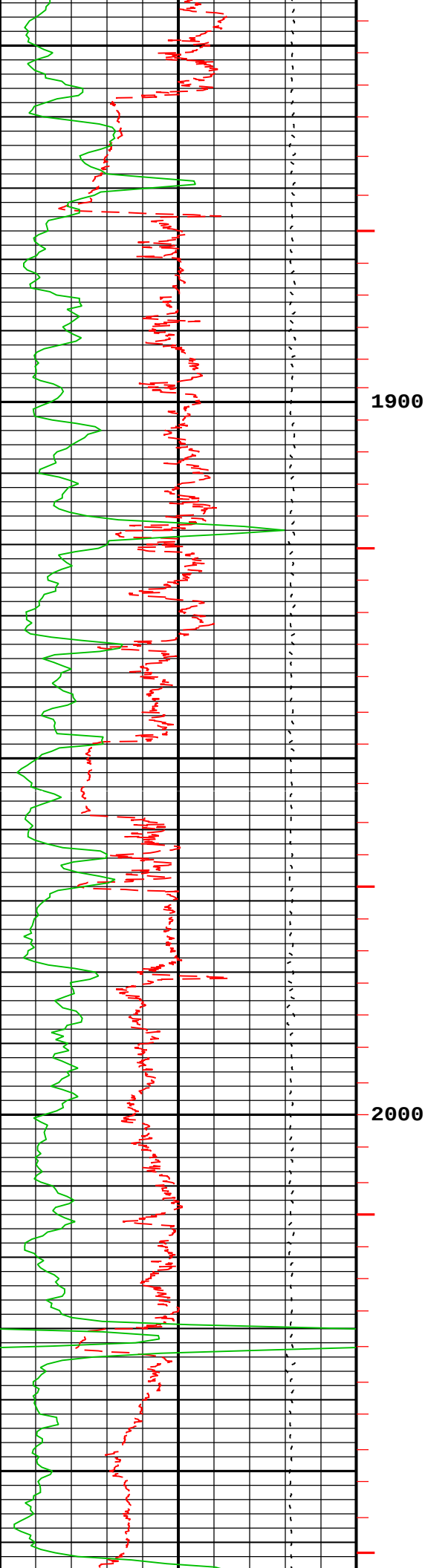
Tension Device

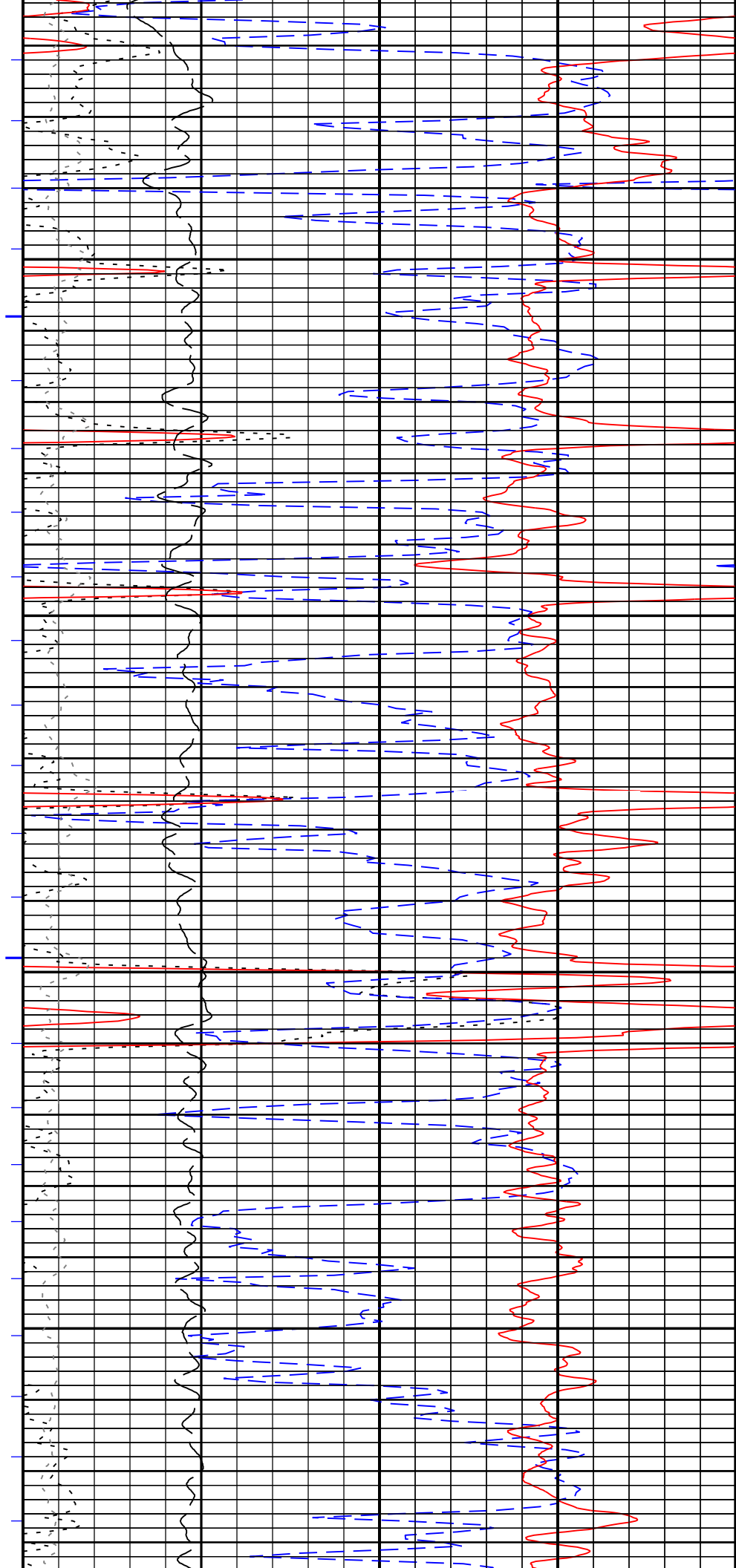
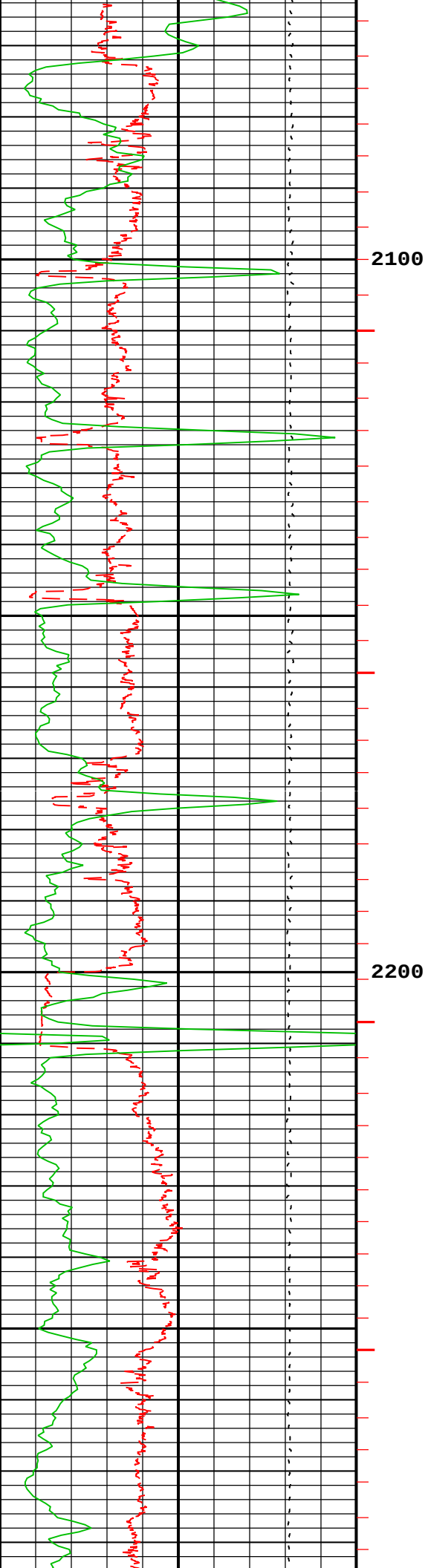
Type	CMTD-B/A		
Serial Number	8100		
Calibration Date	18-Nov-2014		
Calibrator Serial Number	U713032		
Number of Calibration Points	10		
Calibration Root Mean Square Error	16		

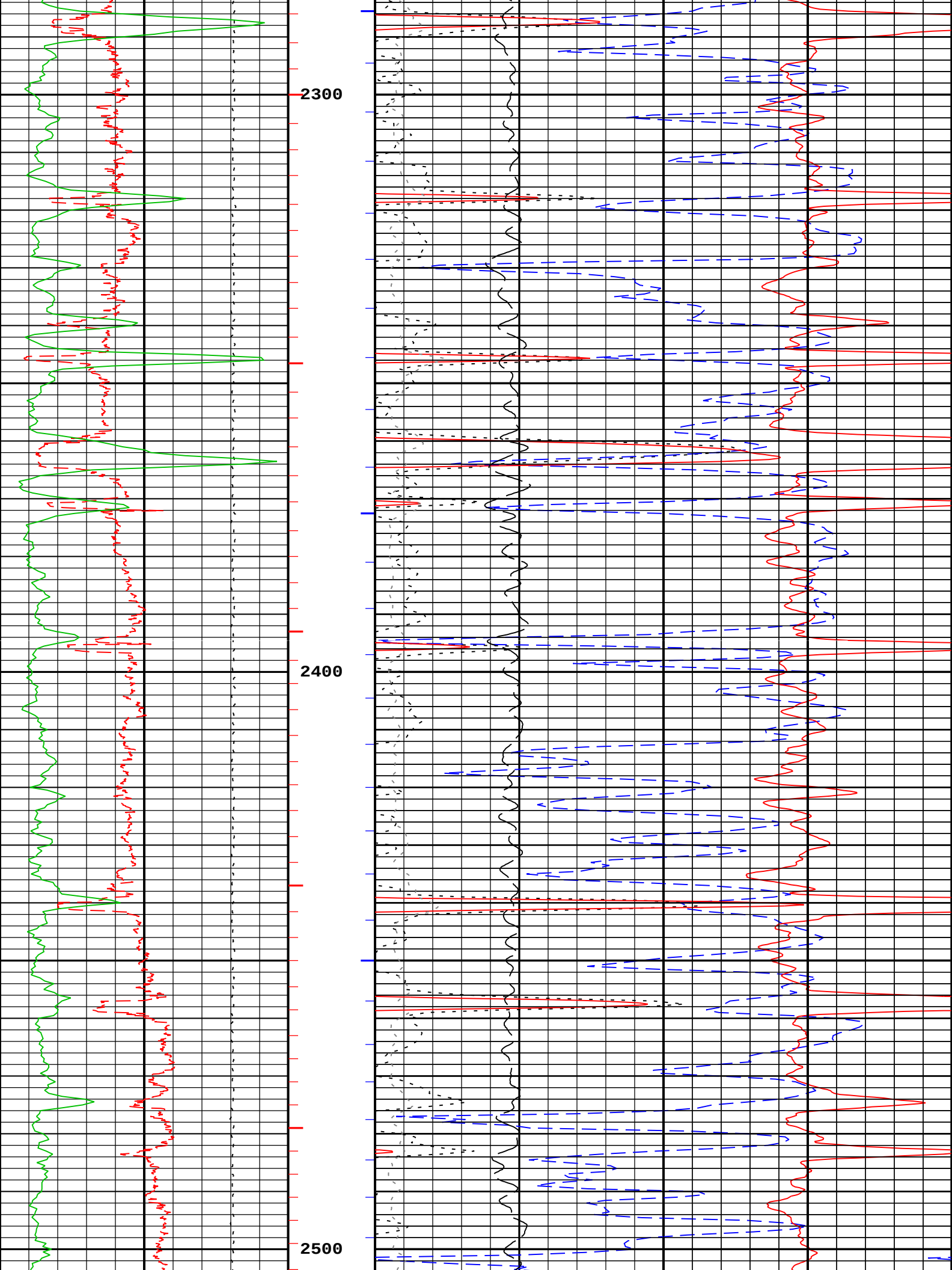
Calibration Peak Error		20							
Logging Cable									
Type		7-46P-XS							
Serial Number		U713032							
Length		23800.00 ft							
Conveyance Type		Wireline							
Rig Type									
Run 3a:Depth Control Parameters					Depth Control Remarks				
Log Sequence		First Log In the Well			All Schlumberger depth control procedures to date followed. All passes correlated to previous SLB log in well dated 11/30/14. CMTD used as primary tension control. CMTD last calibrated on 11-Nov-2014. IDW used as primary means of depth control. Z-chart used as secondary means of depth control. IDW calibrated on 28-Jul-2014.				
Rig Up Length At Surface									
Rig Up Length At Bottom									
Rig Up Length Correction									
Stretch Correction									
Tool Zero Check At Surface									
Main Pass 5" = 100'									
Integration Summary									
Output Channel(s)		Output Description		Input Parameter		Output Value		Unit	
ICV		Integrated Cement Volume		HVAS, FCD		1889.09		ft3	
IHV		Integrated Hole Volume		HVAS		3507.4		ft3	
Pass Summary									
Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Main[5]:Up	Up	810.48 ft	3245.53 ft	01-Nov-2014 5:51:35 AM	01-Nov-2014 6:34:07 AM	ON	3.59 ft	Yes
All depths are referenced to toolstring zero									
Log	Company:PB ENERGY STORAGE SERVICES, INC Well:DCP Linam Ranch AGI #2 One: Main[5]:Up:S012								
Description: HRLT BASIC LOG Format: Log (Porosity_5_Inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 01-Nov-2014 06:53:37									
Channel	Source	Sampling							
CALI	HDRS-B:HRCC-B:HRCC-B	1in							
DPHZ	HDRS-B:HRMS-B:HRGD-B	2in							
GR_CAL	HGNS-B:HGNS-B:HGNS-B	6in							
HDRA	HDRS-B:HRMS-B:HRGD-B	2in							
ICV	Borehole	6in							
IHV	Borehole	6in							
PEFZ	HDRS-B:HRMS-B:HRGD-B	2in							
PXND	PEQL	6in							
TENS	WLWorkflow	1in							
TNPH	HGNS-B:HGNS-B:HGNS-B	6in							
— IHV - Integrated Hole Volume every 100.00 (ft3) — IHV - Integrated Hole Volume every 10.00 (ft3) — ICV - Integrated Cement Volume every 100.00 (ft3) — ICV - Integrated Cement Volume every 10.00 (ft3) TIME_1900 - Time Marked every 60.00 (s) Density Standoff Correction (HDRA) HDRS-B ----- -0.05 g/cm3 0.45 Standard Resolution Formation Photoelectric RUN 1									

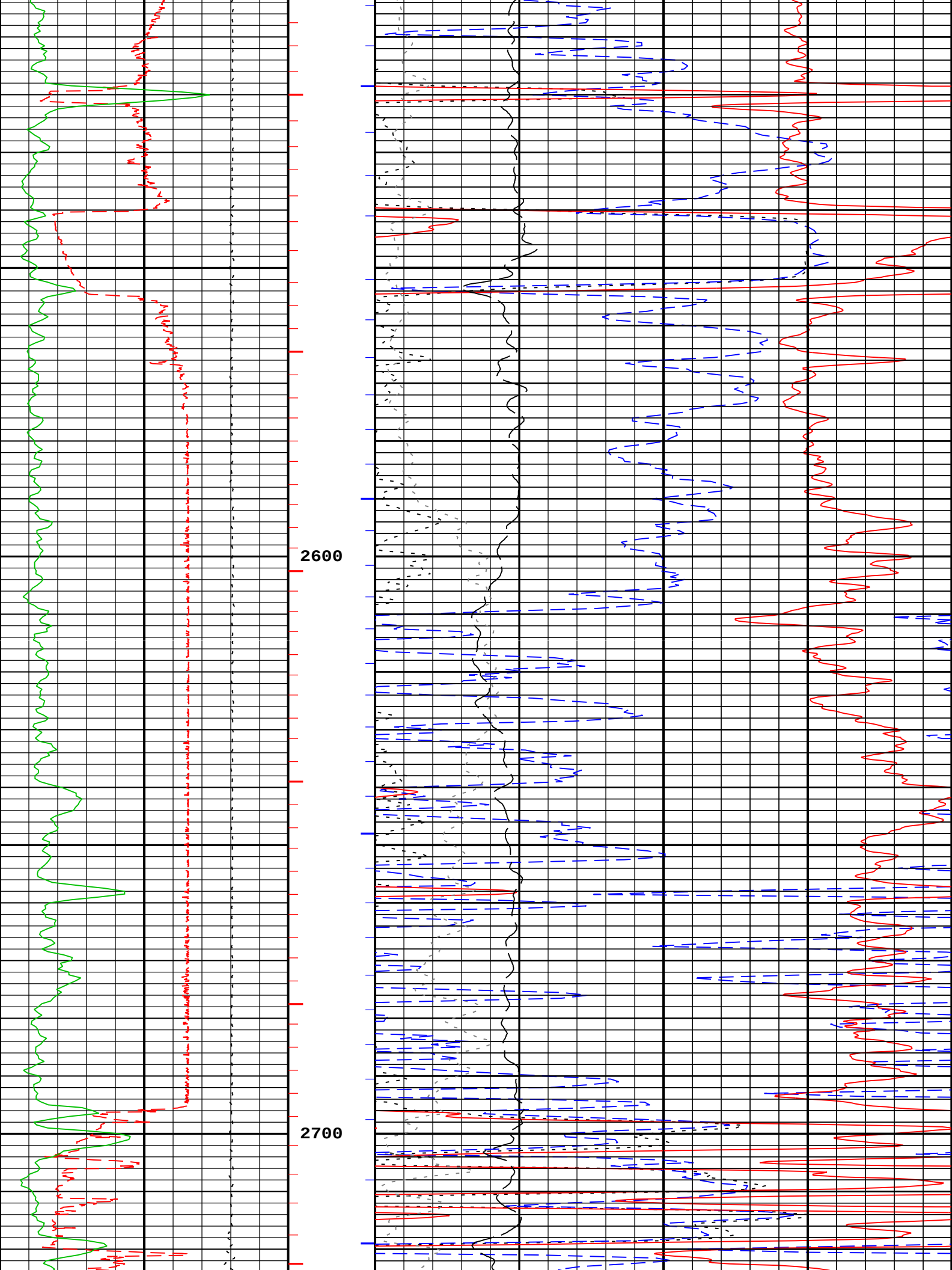


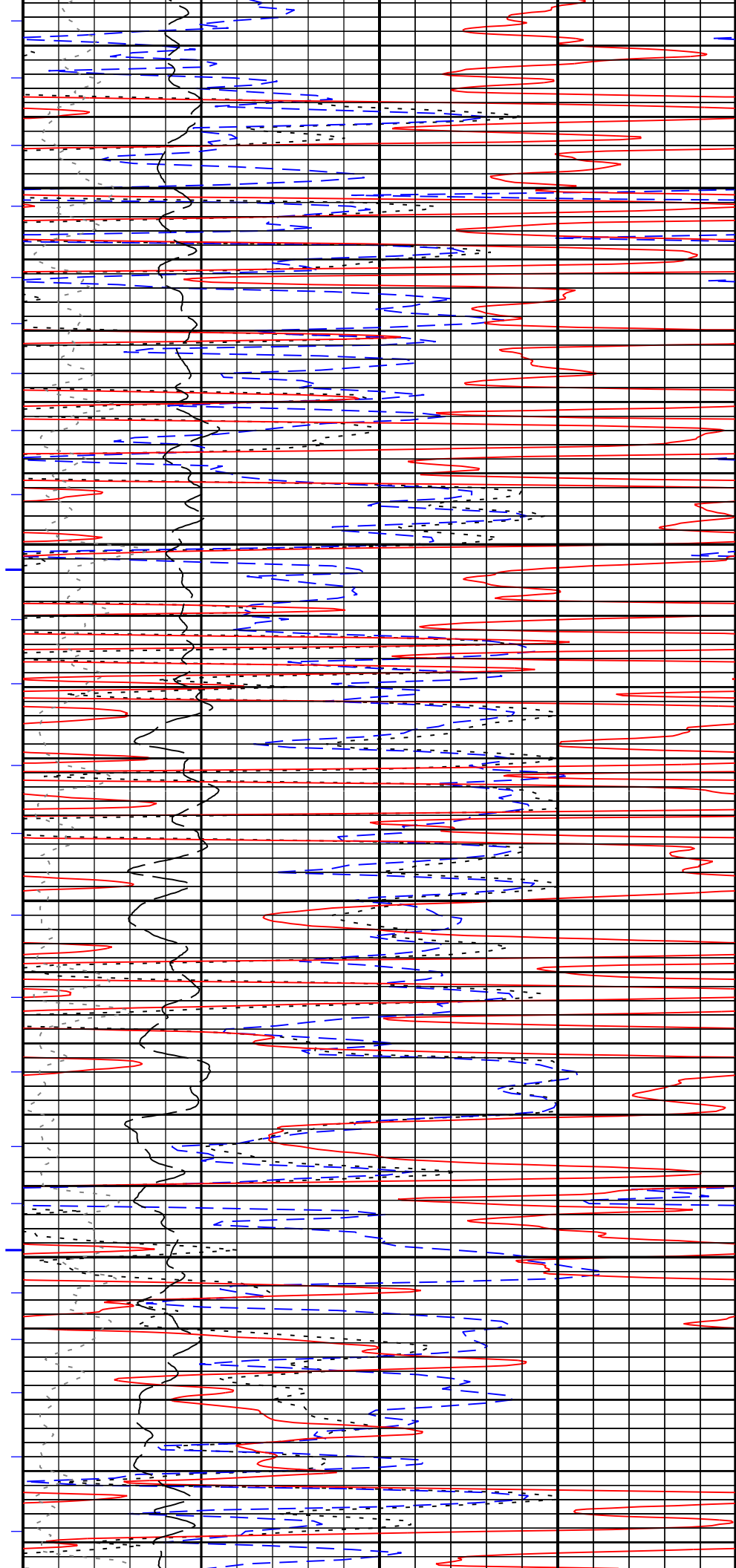
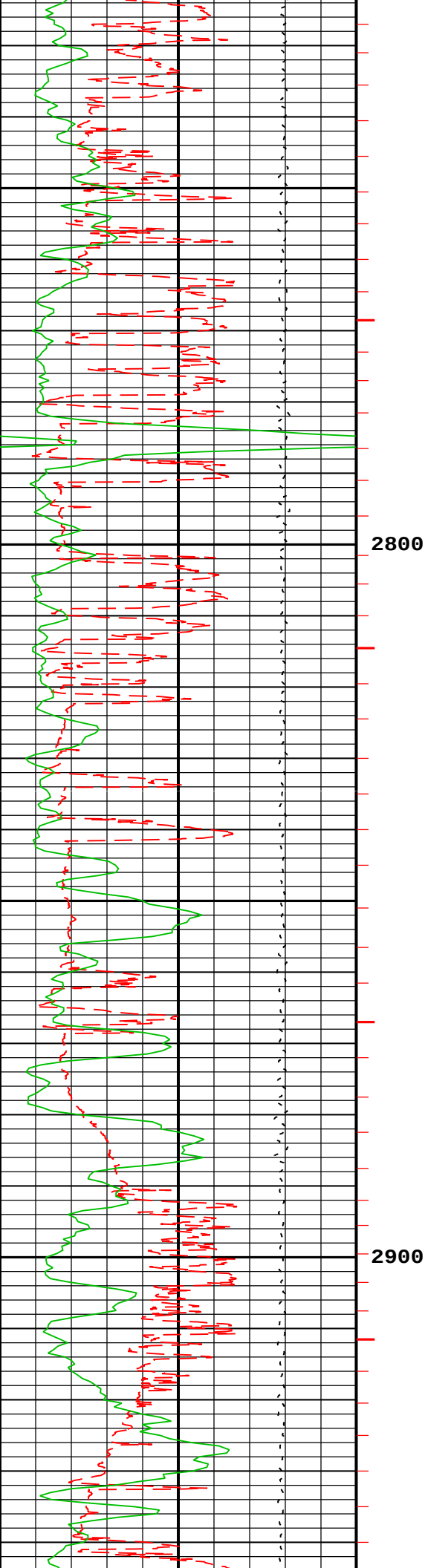


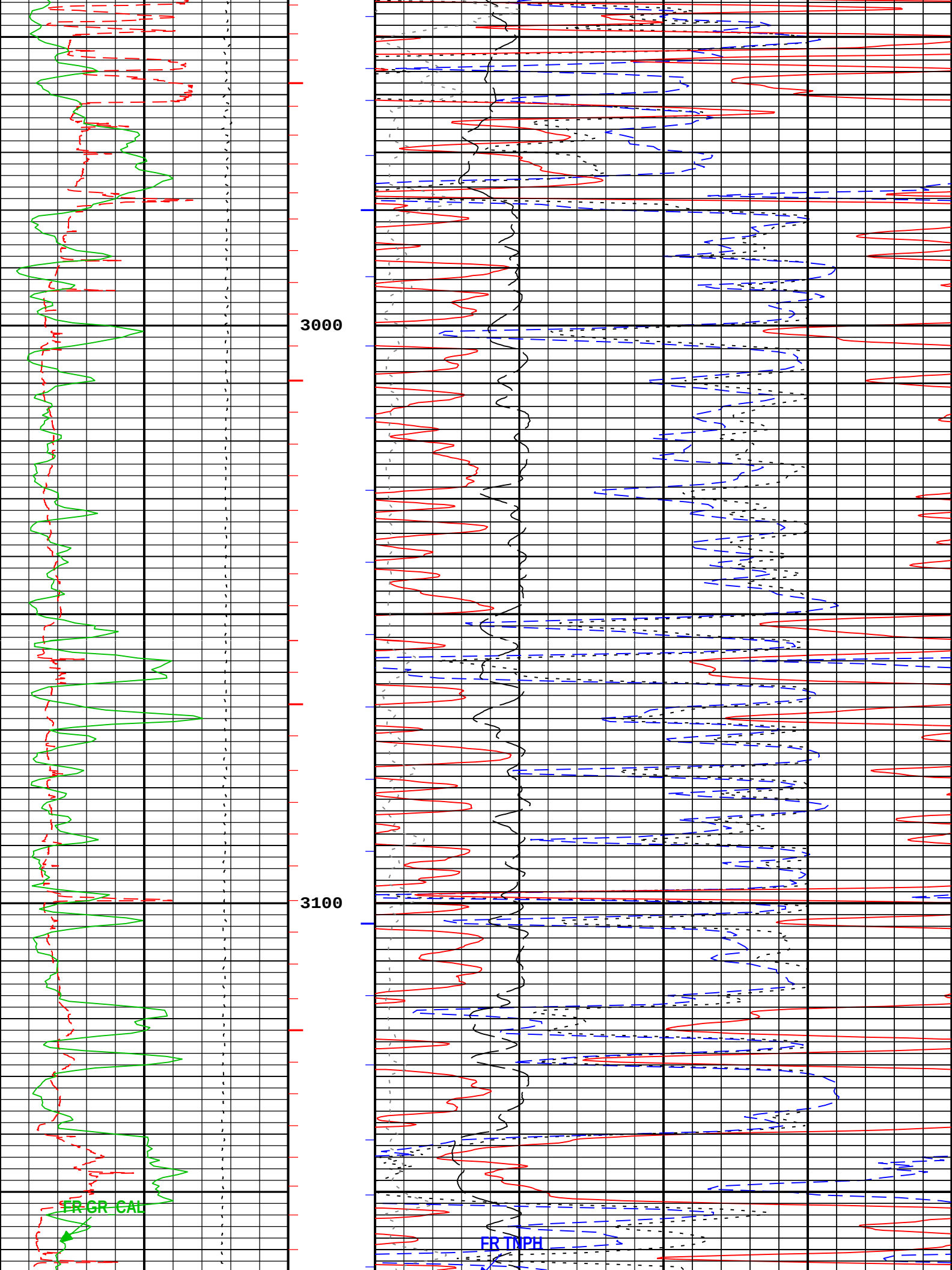


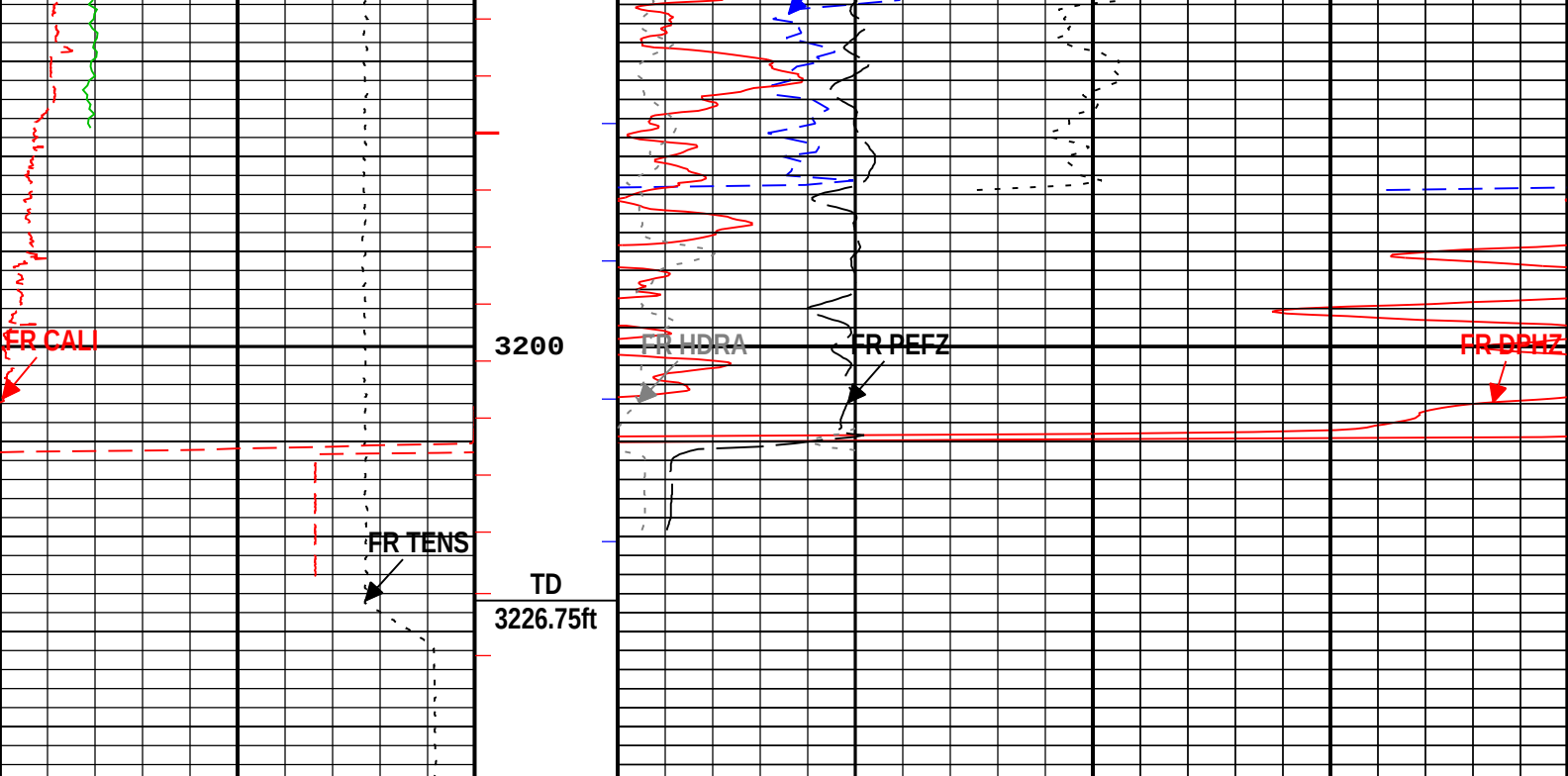












5" Porosity

Cable Tension (TENS)		
10000	lbf	0
Caliper (CALI) HDRS-B		
6	in	16
GR		
0	gAPI	100

Crossplot Porosity for Neutron-Density (PXND)		
0.3	ft3/ft3	-0.1
Thermal Neutron Porosity (Ratio Method) in Selected Lithology (TNPH) HGNS-B		
0.3	ft3/ft3	-0.1
Standard Resolution Density Porosity (DPHZ) HDRS-B		
0.3	ft3/ft3	-0.1
Standard Resolution Formation Photoelectric Factor (PEFZ) HDRS-B		
0		10
Density Standoff Correction (HDRA) HDRS-B		
-0.05	g/cm3	0.45

TIME_1900 - Time Marked every 60.00 (s)

—|ICV - Integrated Cement Volume every 10.00 (ft3)

—|ICV - Integrated Cement Volume every 100.00 (ft3)

—|IHV - Integrated Hole Volume every 10.00 (ft3)

—|IHV - Integrated Hole Volume every 100.00 (ft3)

Description: HRLT BASIC LOG Format: Log (Porosity_5_Inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 01-Nov-2014 06:53:37

Channel Processing Parameters				
Parameter	Description	Tool	Value	Unit
BARI	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Depth Zoned	
BHT	Bottom Hole Temperature	Borehole	107.3	degF
BS	Bit Size	WLSESSION	Depth Zoned	in
BSAL	Borehole Salinity	Borehole	160000	ppm
CALI_SHIFT	CALI Supplementary Offset	HDRS-B	-0.285	in
CBLO	Casing Bottom (Logger)	WLSESSION	1580.67	ft

CDELO	Casing Bottom (Logger)	WLSESSION	1300.07	ft
CSODDRL	Casing Outer Diameter - Zoned along driller depths	WLSESSION	20	in
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	9.8	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	
DFT_WATER	Drilling Fluid Water Type	Borehole	Salt Brine	
DHC	Density Hole Correction	HDRS-B	Bit Size	
FCD	Future Casing (Outer) Diameter	WLSESSION	13.375	in
FD	Fluid Density	Borehole	1.1	g/cm3
FSAL	Formation Salinity	Borehole	0	ppm
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	CALI	
GRSE	Generalized Mud Resistivity Selection, from Measured or Computed Mud Resistivity	Borehole	MRES	
GTSE	Generalized Temperature Selection, from Measured or Computed Temperature	Borehole	CTEM	
HRLT_PROCRM	Mud Resistivity Select	HRLT-B	HRLT Compute	
HSCO	Hole Size Correction Option	HGNS-B	Yes	
HVAS	Borehole area measurement selector for hole volume computation	Borehole	AREA	
HVCS	Integrated Hole Volume Caliper Selection	Borehole	Measured Area	
KFAC_HRLT	HRLT Geometrical Factor Option	HRLT-B	Sonde	
MATR	Rock Matrix for Neutron Porosity Corrections	Borehole	LIMESTONE	
MDEN	Matrix Density for Density Porosity	Borehole	2.71	g/cm3
MFST	Mud Filtrate Sample Temperature	Borehole	75	degF
NPRM	HRDD Nuclear Processing Mode	HDRS-B	High Resolution	
PROCMSO	Mechanical Standoff Size	HRLT-B	1.5	in
PROCSP0	Sonde Position	HRLT-B	Eccentered	
RMFS	Resistivity of Mud Filtrate Sample	Borehole	0.04	ohm.m
SOCO	Standoff Correction Option	HGNS-B	Yes	

Depth Zone Parameters

Parameter	Value	Start (ft)	Stop (ft)
BHS	Cased	1450	1580.67
BHS	Open	1580.67	3245.5
BS	26	1450	1570
BS	17.5	1570	3226.75

All depth are actual.

Tool Control Parameters

Parameter	Description	Tool	Value	Unit
HMCA_BRD_TYPE	HMCA Board Type	HGNS-B	1	
HRGD_BRD_TYPE	HRGD Board Type	HDRS-B	WITHOUT_HET	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	1800	ft/h
STSO_HRDD	Temperature Source for the Density Algorithm	HDRS-B	Decaytime algorithm	

Main Pass 5" = 100'

Integration Summary

Output Channel(s)	Output Description	Input Parameter	Output Value	Unit
ICV	Integrated Cement Volume	HVAS, FCD		ft3
IHV	Integrated Hole Volume	HVAS		ft3

Log

Company:PB ENERGY STORAGE SERVICES, INC

Well:DCP Linam Ranch AGI #2

Two: Main[3]:Up:S021

Description: HRLT BASIC LOG Format: Log (Porosity_5_Inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date:

Channel	Source	Sampling
CALI	HDRS-B:HRCC-B:HRCC-B	1in
CGR	HNGS-BA:HNGS-BA:HNGS-BA	6in
DPHZ	HDRS-B:HRMS-B:HRGD-B	2in
HDRA	HDRS-B:HRMS-B:HRGD-B	2in
ICV	Borehole	6in
IHV	Borehole	6in
PEFZ	HDRS-B:HRMS-B:HRGD-B	2in
PXND	PEQL	6in
SGR	HNGS-BA:HNGS-BA:HNGS-BA	6in
TENS	WLWorkflow	1in
TNPH	HGNS-B:HGNS-B:HGNS-B	6in

RUN 2

— IHV - Integrated Hole Volume every 100.00 (ft3)

— IHV - Integrated Hole Volume every 10.00 (ft3)

— ICV - Integrated Cement Volume every 100.00 (ft3)

— ICV - Integrated Cement Volume every 10.00 (ft3)

TIME_1900 - Time Marked every 60.00 (s)

Uranium Indicator		
Cable Tension (TENS)		
10000	lbf	0
Caliper (CALI) HDRS-B		
6	in	16
Gamma Ray Contribution from Thorium and Potassium (CGR) HNGS-BA		
0	gAPI	100
Spectroscopy Gamma Ray (SGR) HNGS-BA		
0	gAPI	100

Density Standoff Correction (HDRA) HDRS-B		
-0.05	g/cm3	0.45

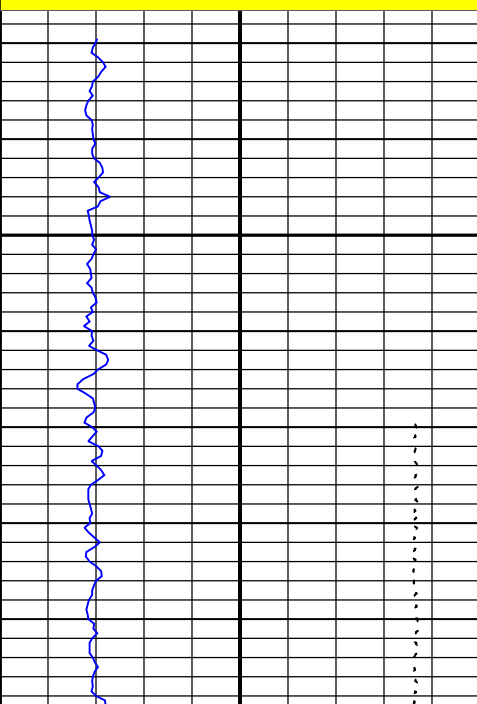
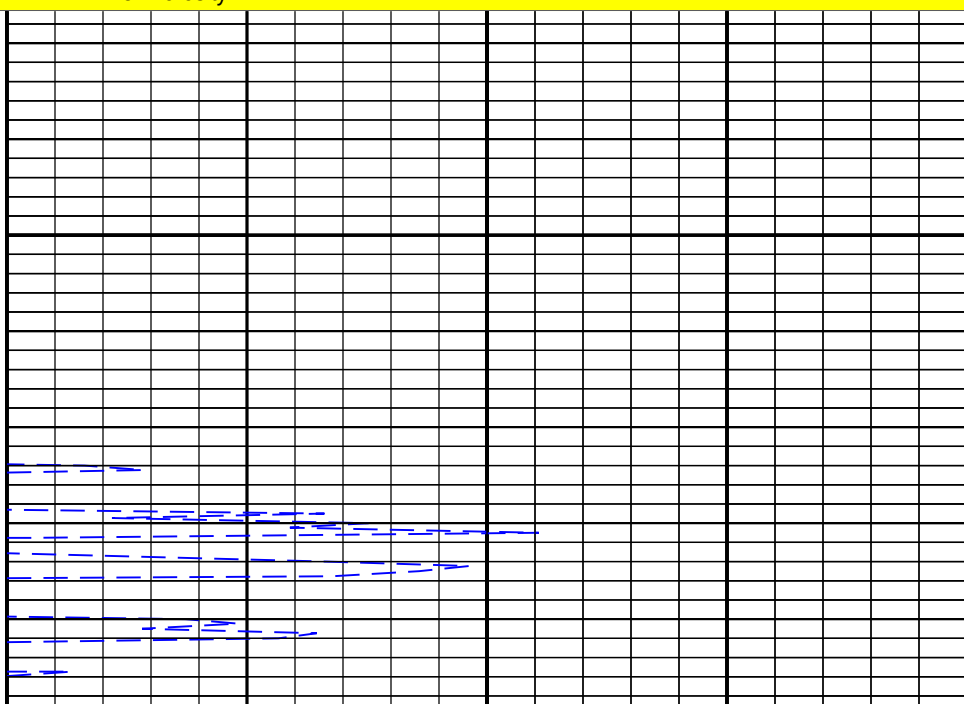
Standard Resolution Formation Photoelectric Factor (PEFZ) HDRS-B		
0		10

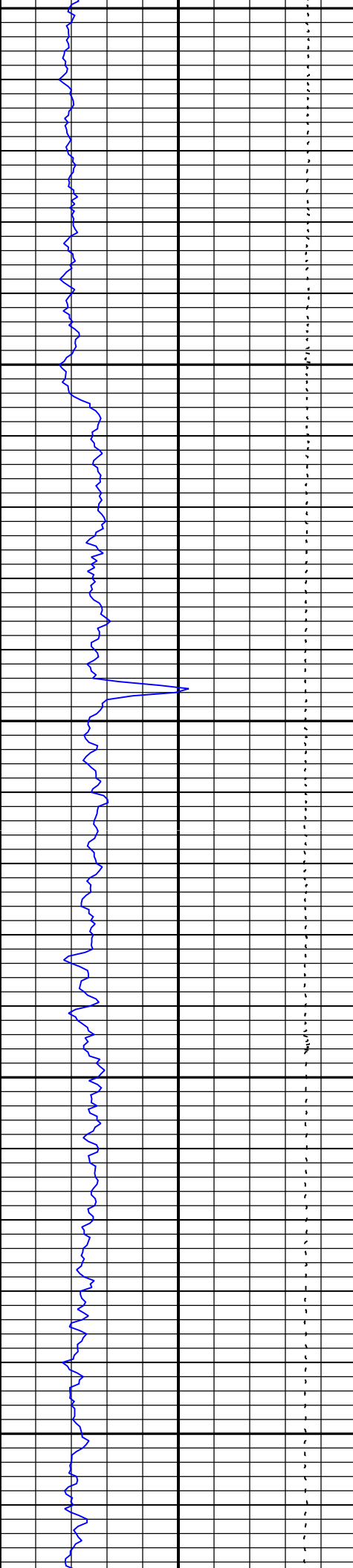
Crossplot Porosity for Neutron-Density (PXND)		
0.3	ft3/ft3	-0.1

Thermal Neutron Porosity (Ratio Method) in Selected Lithology (TNPH) HGNS-B		
0.3	ft3/ft3	-0.1

Standard Resolution Density Porosity (DPHZ) HDRS-B		
0.3	ft3/ft3	-0.1

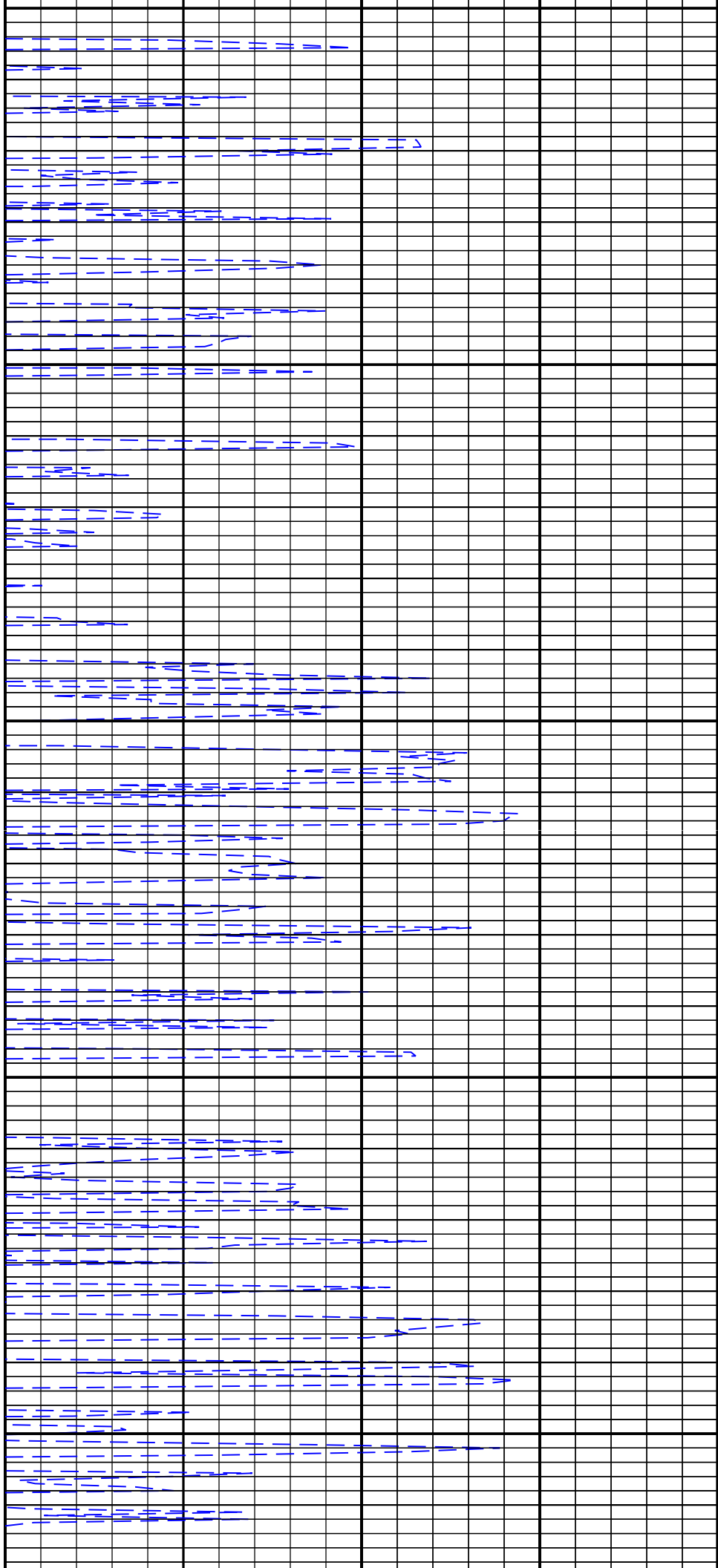
5" Porosity

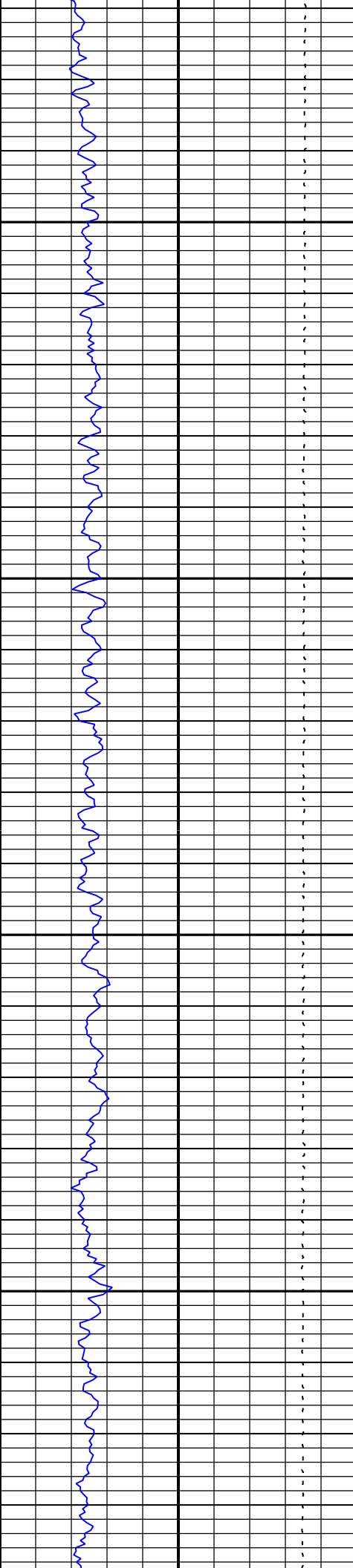
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200

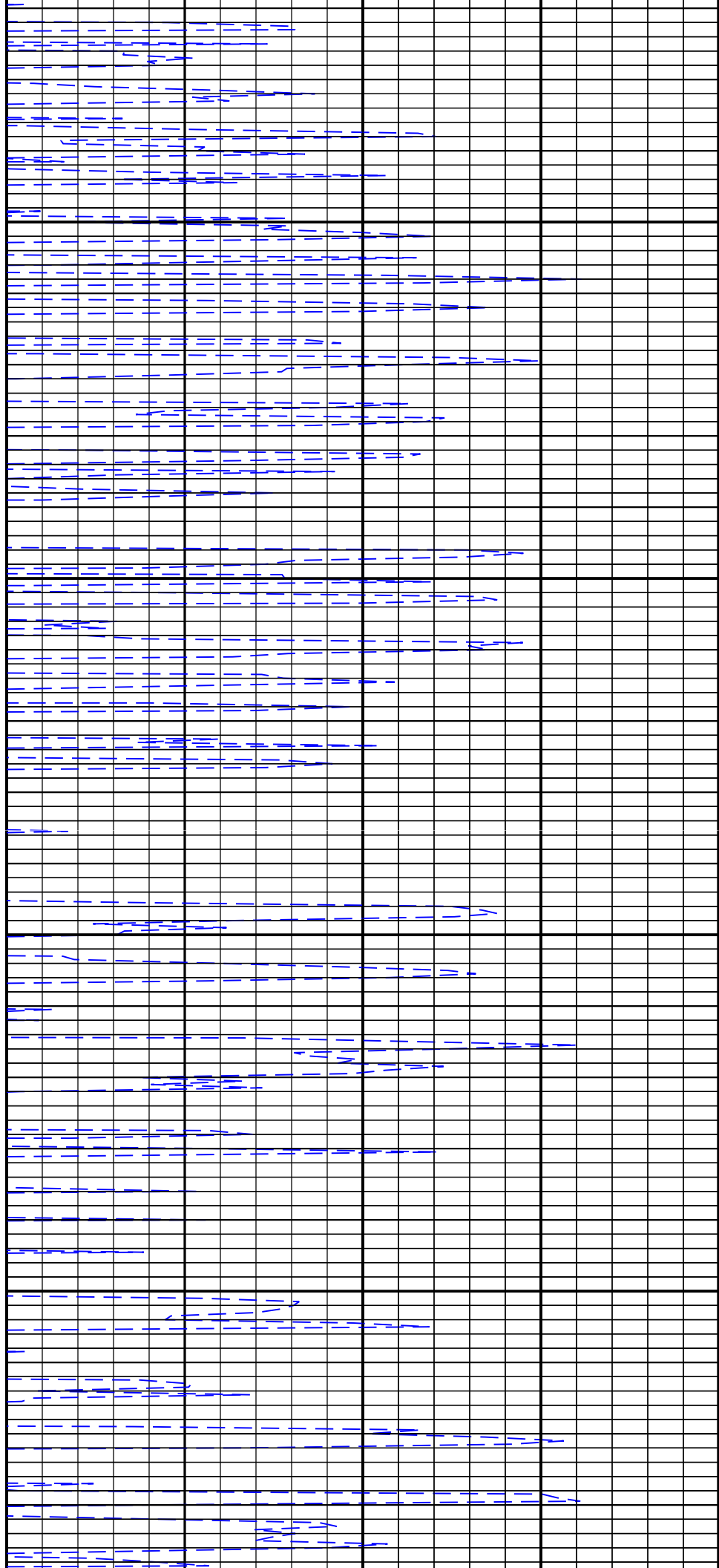
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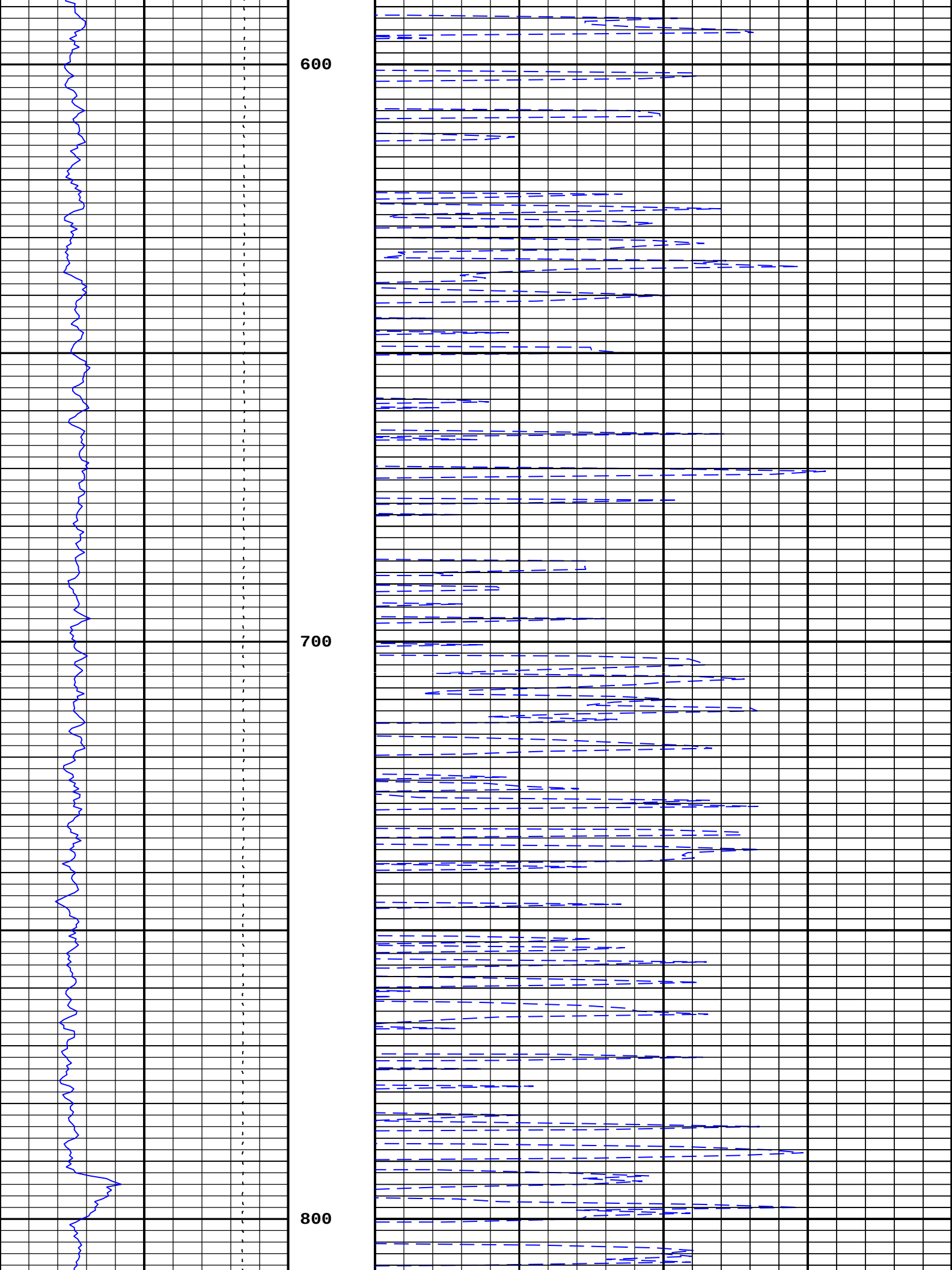


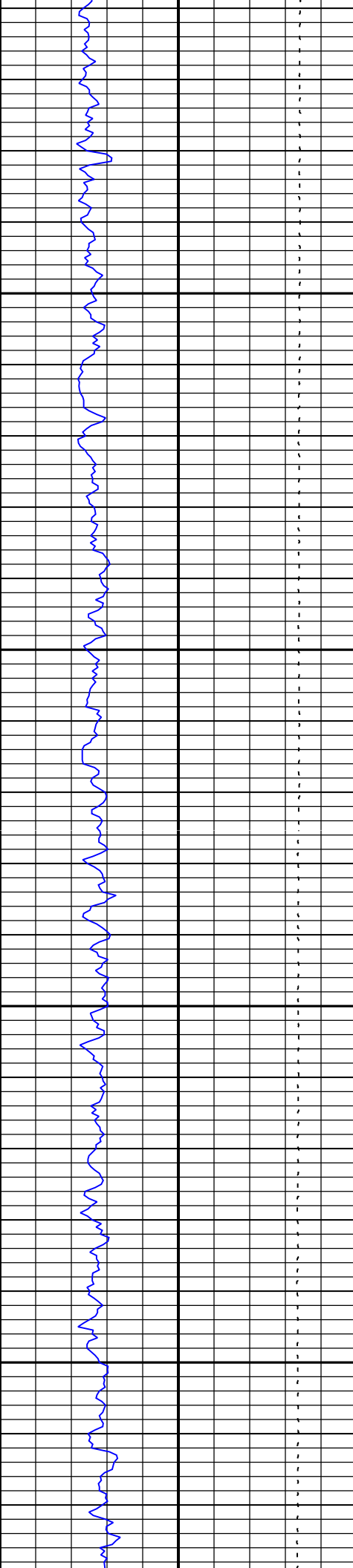


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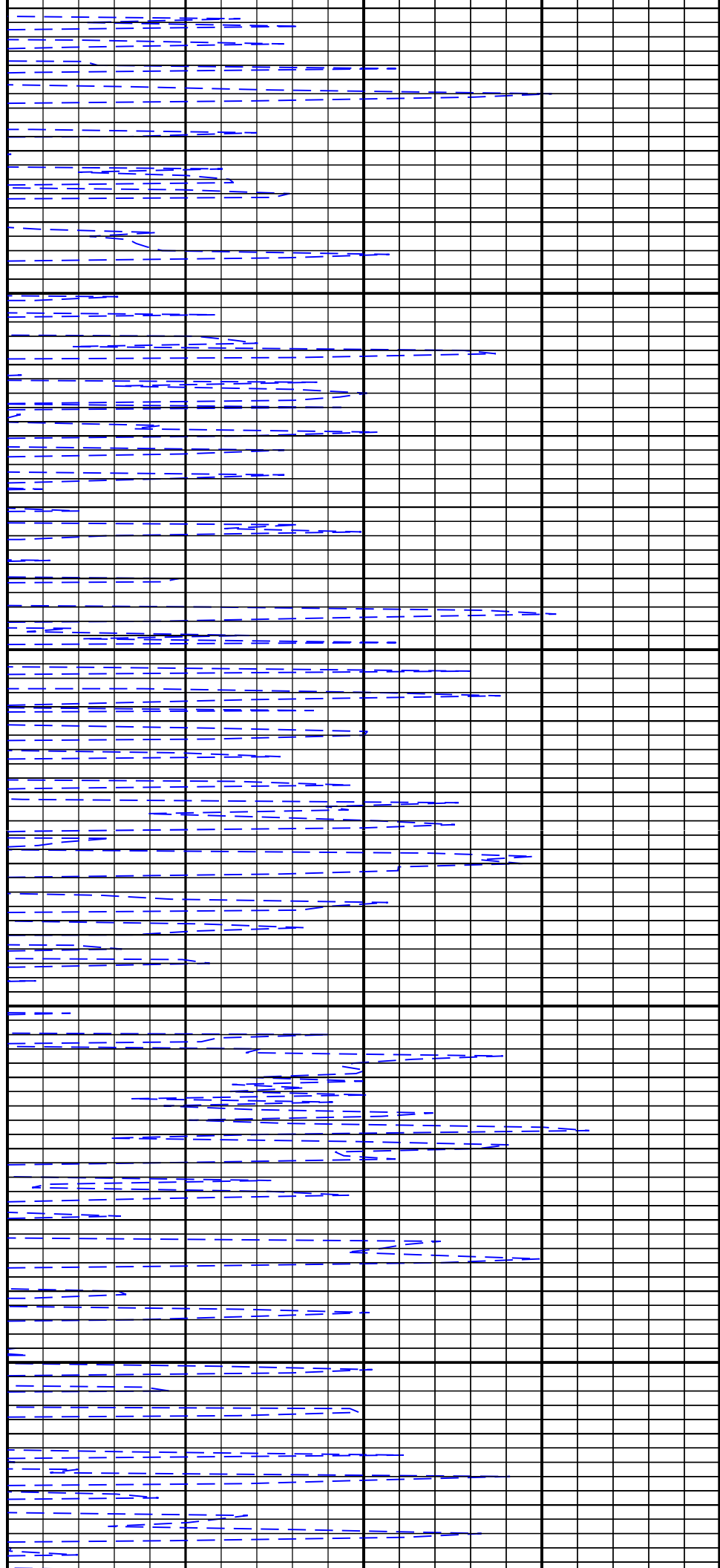


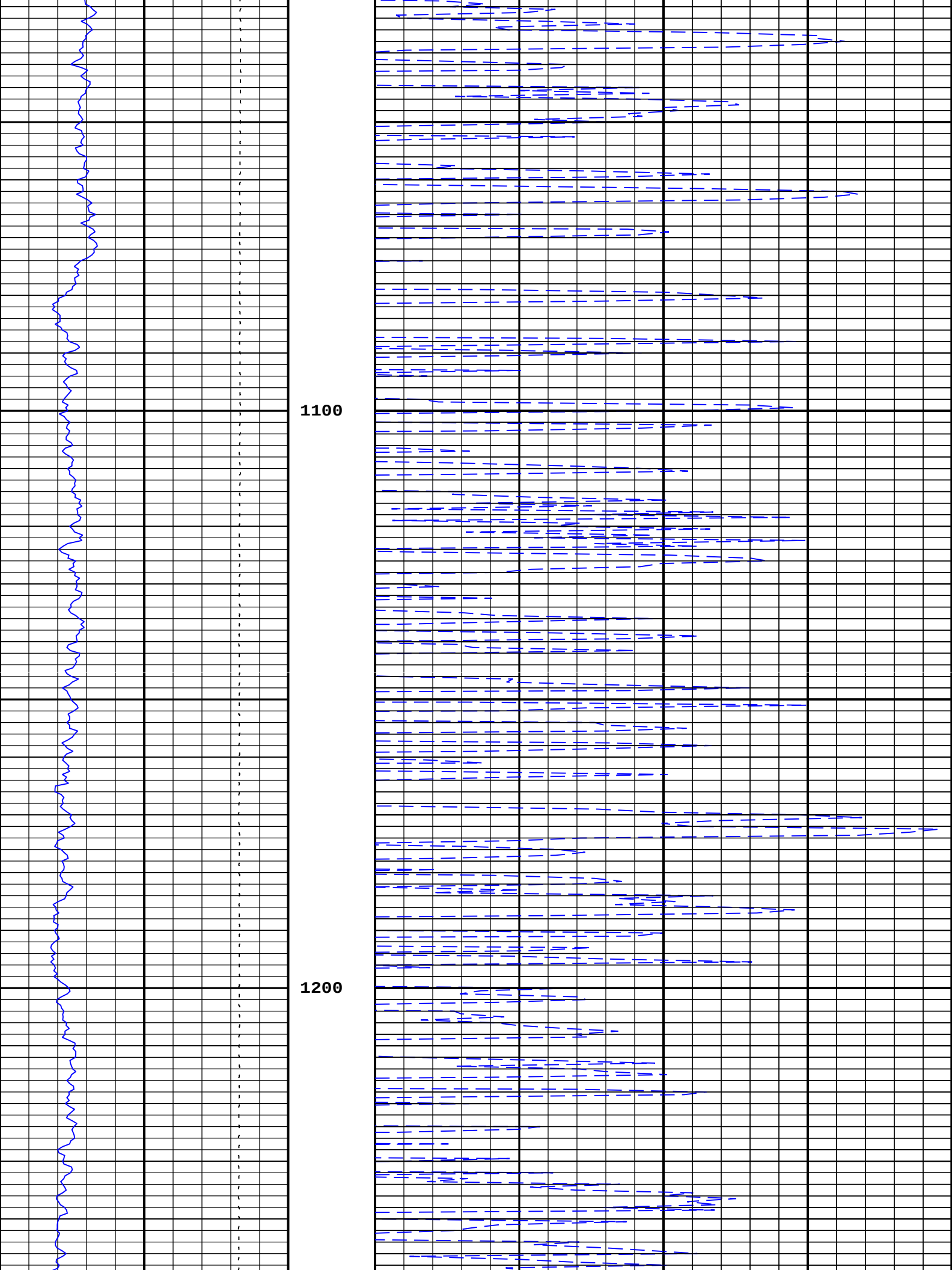


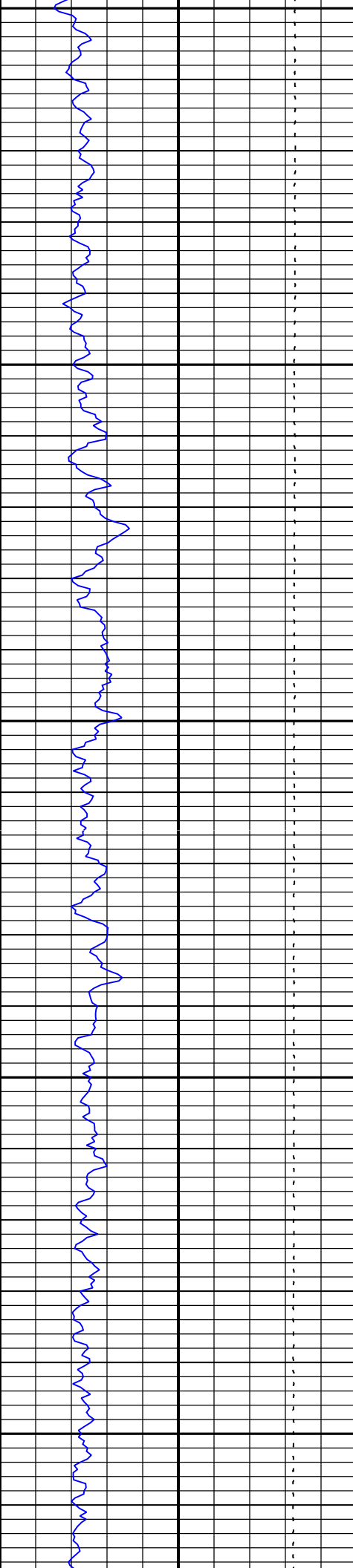


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1000

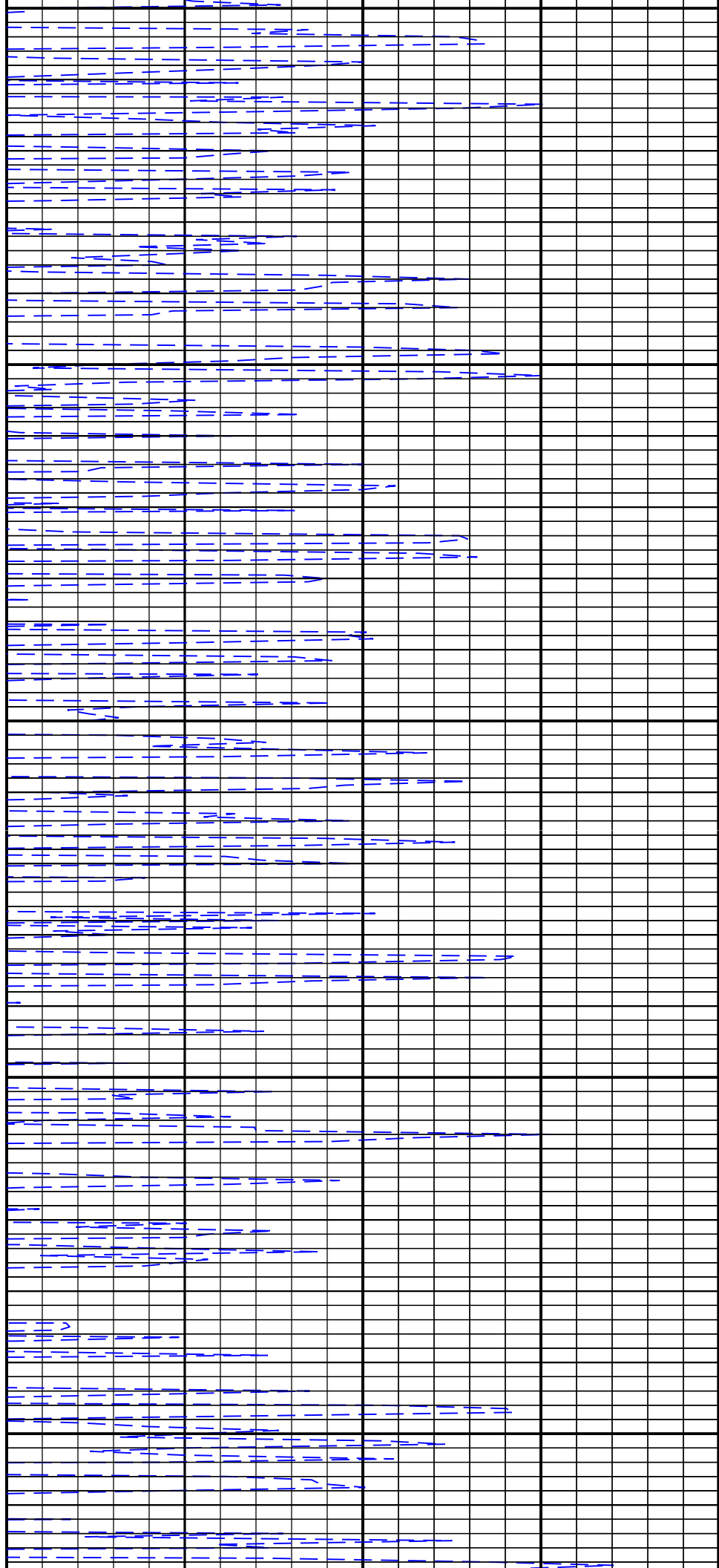


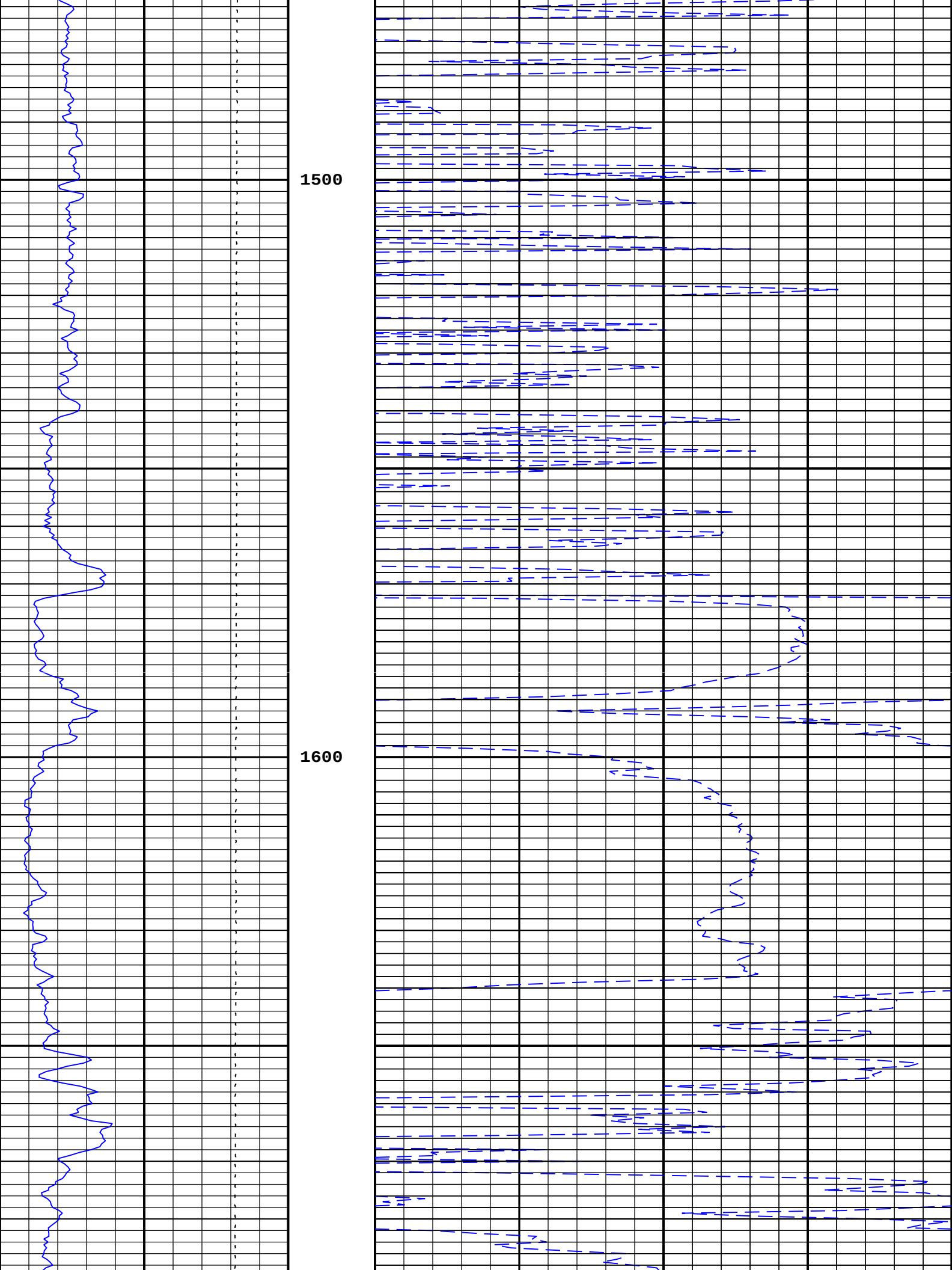


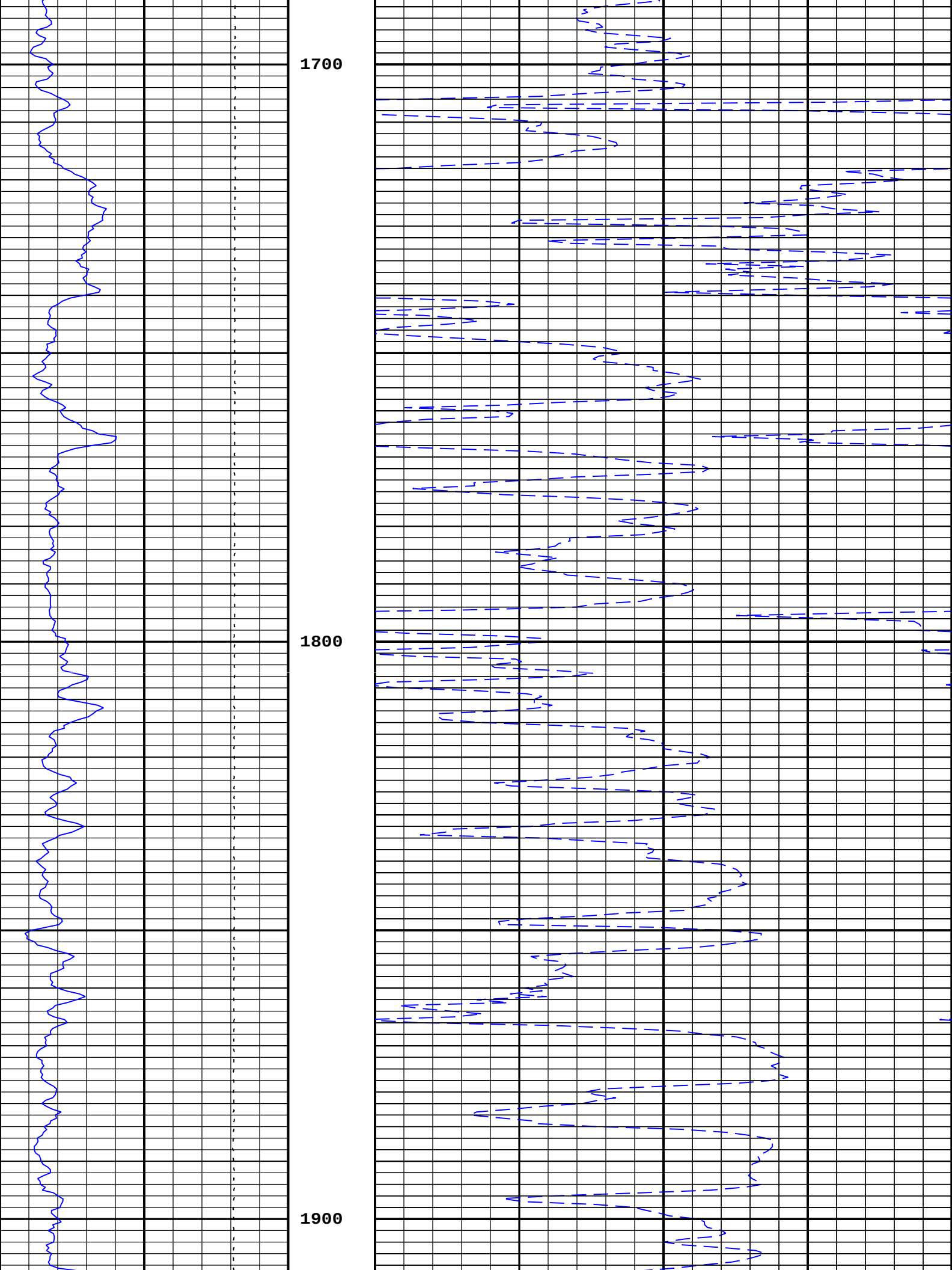


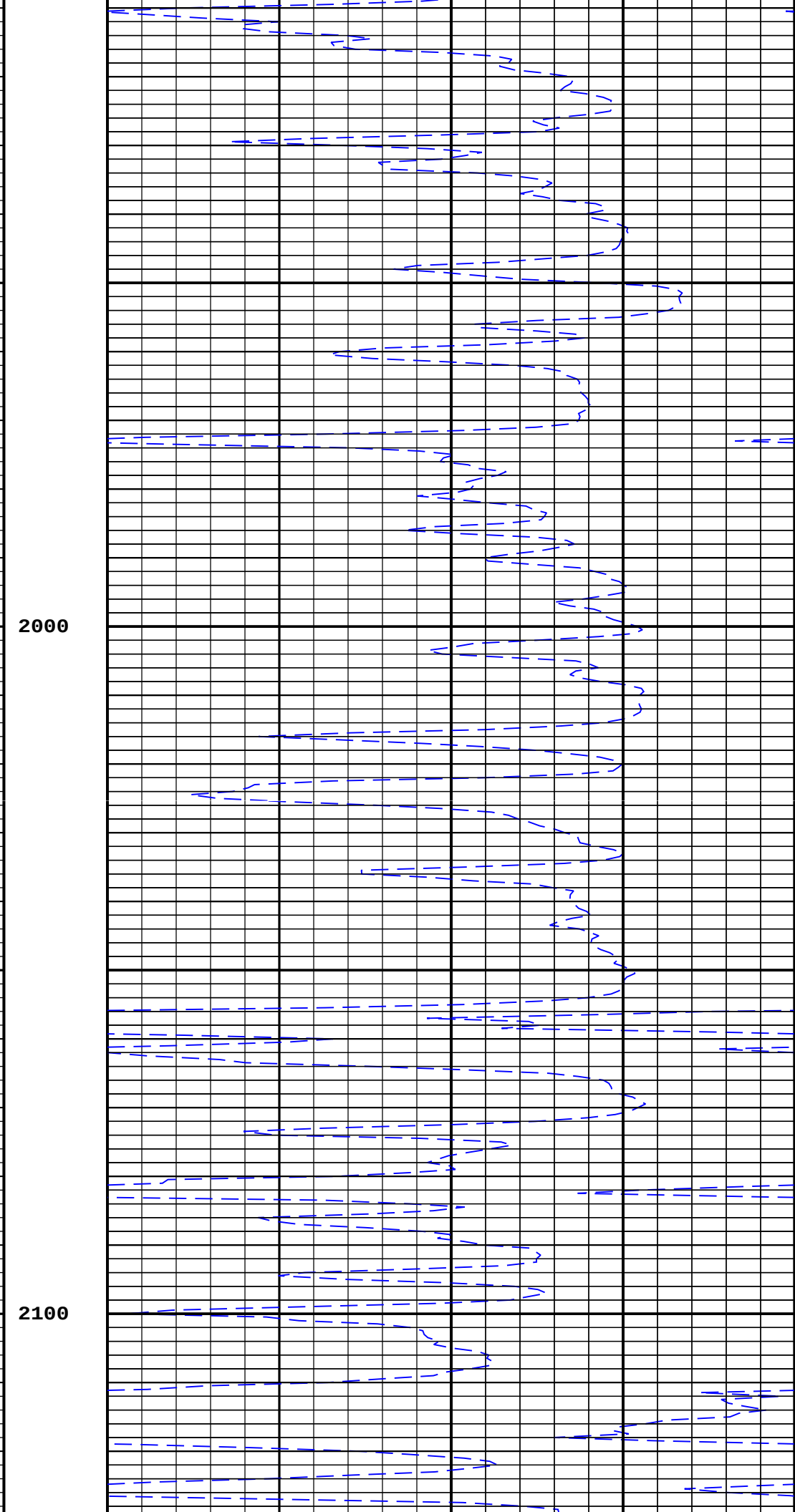
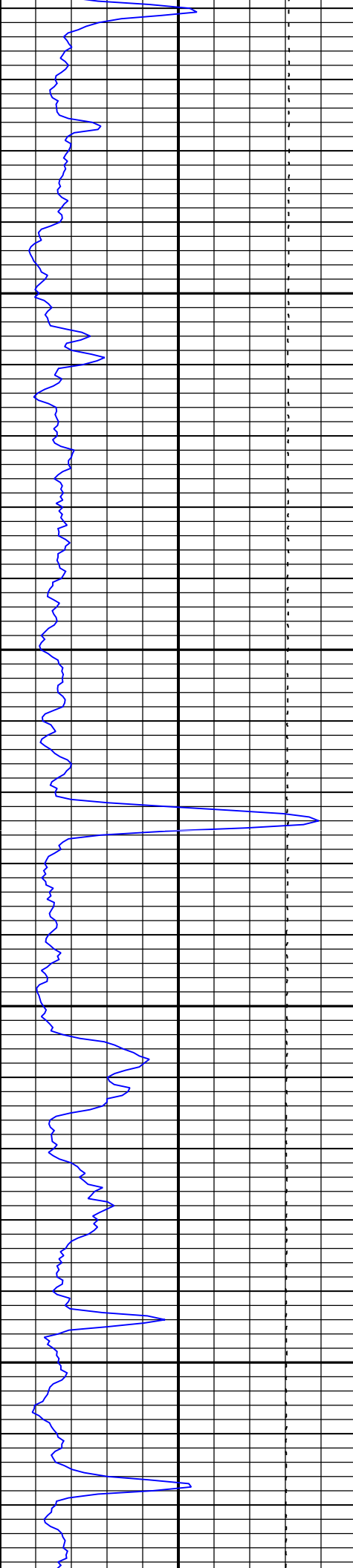
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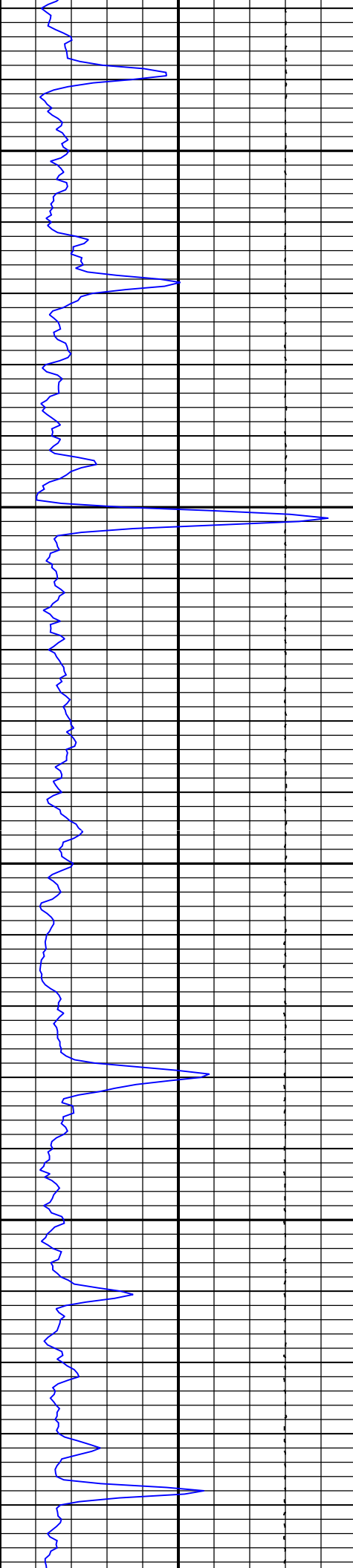
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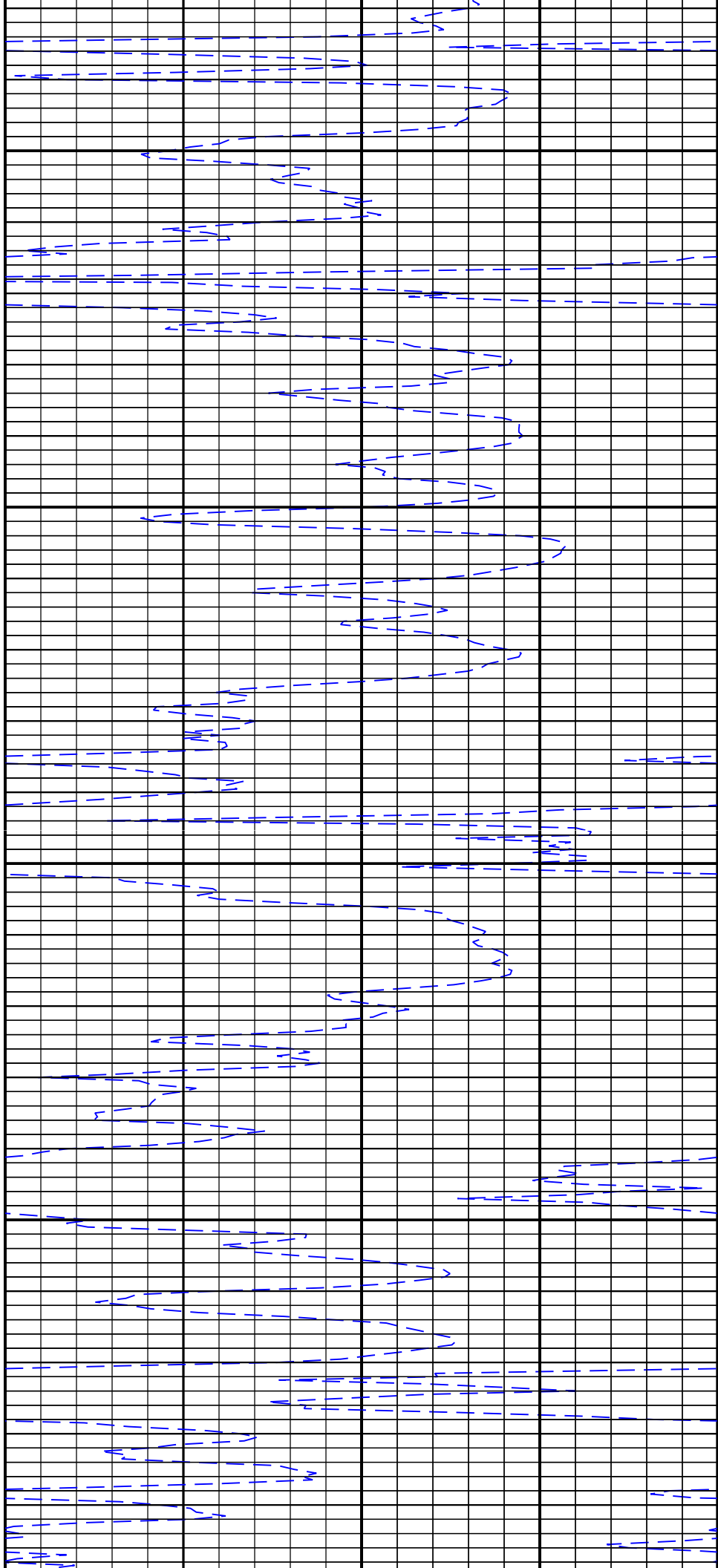


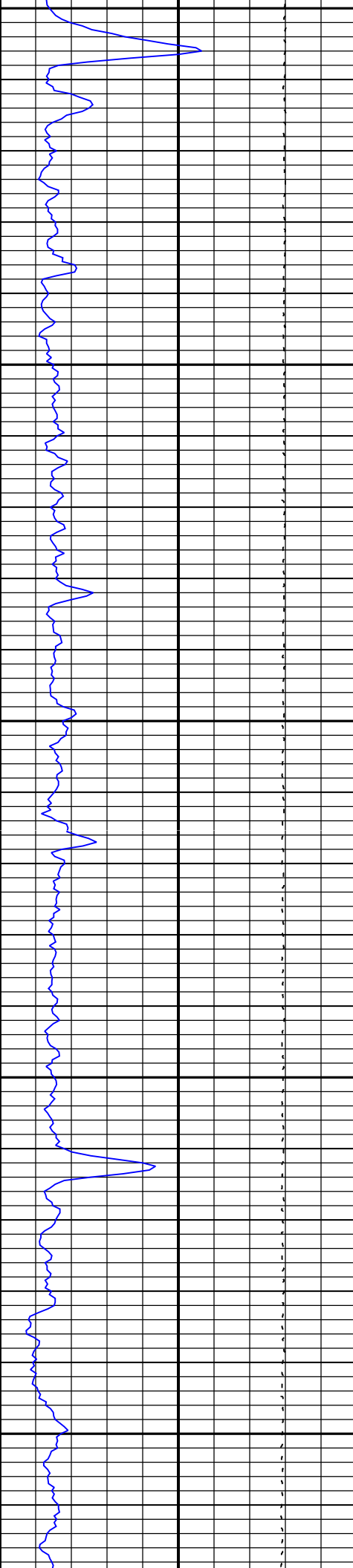




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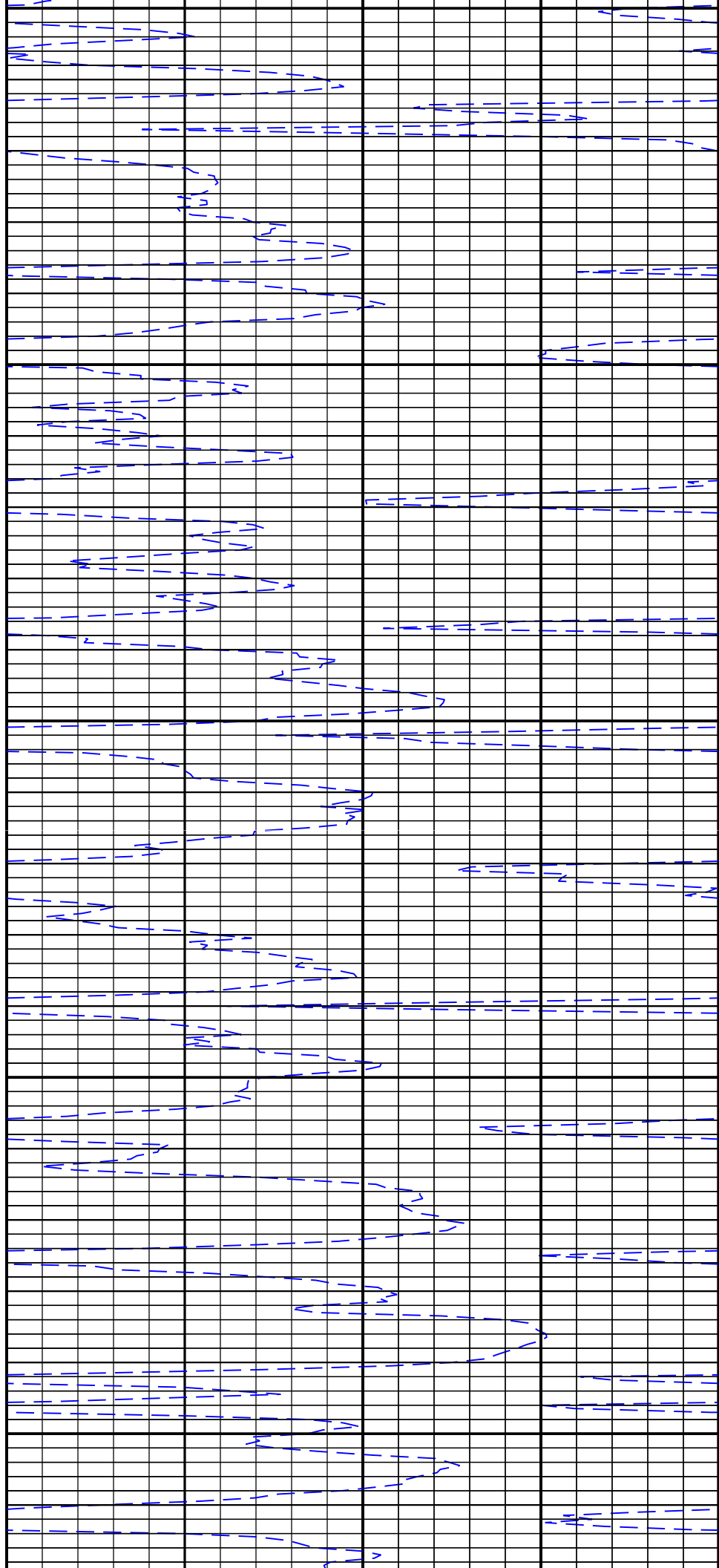
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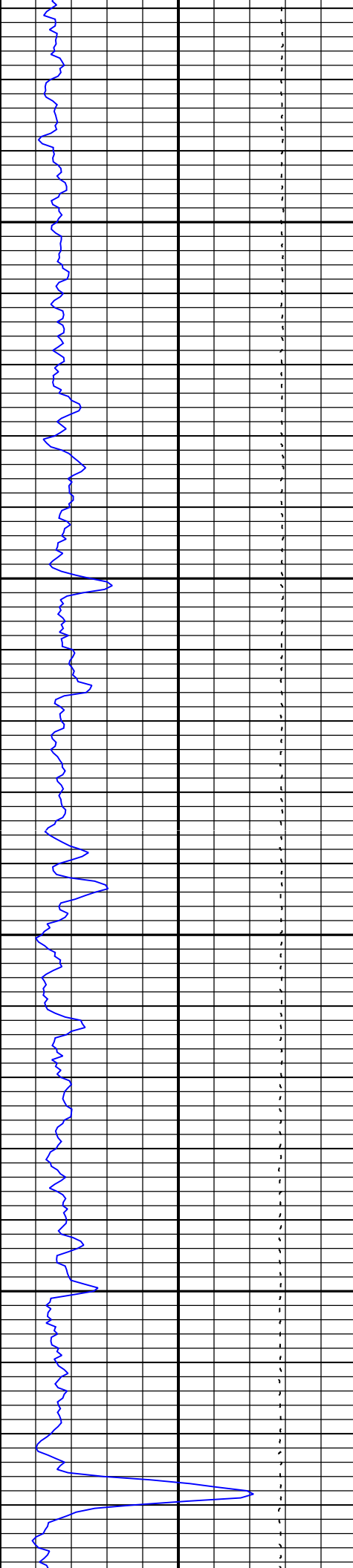




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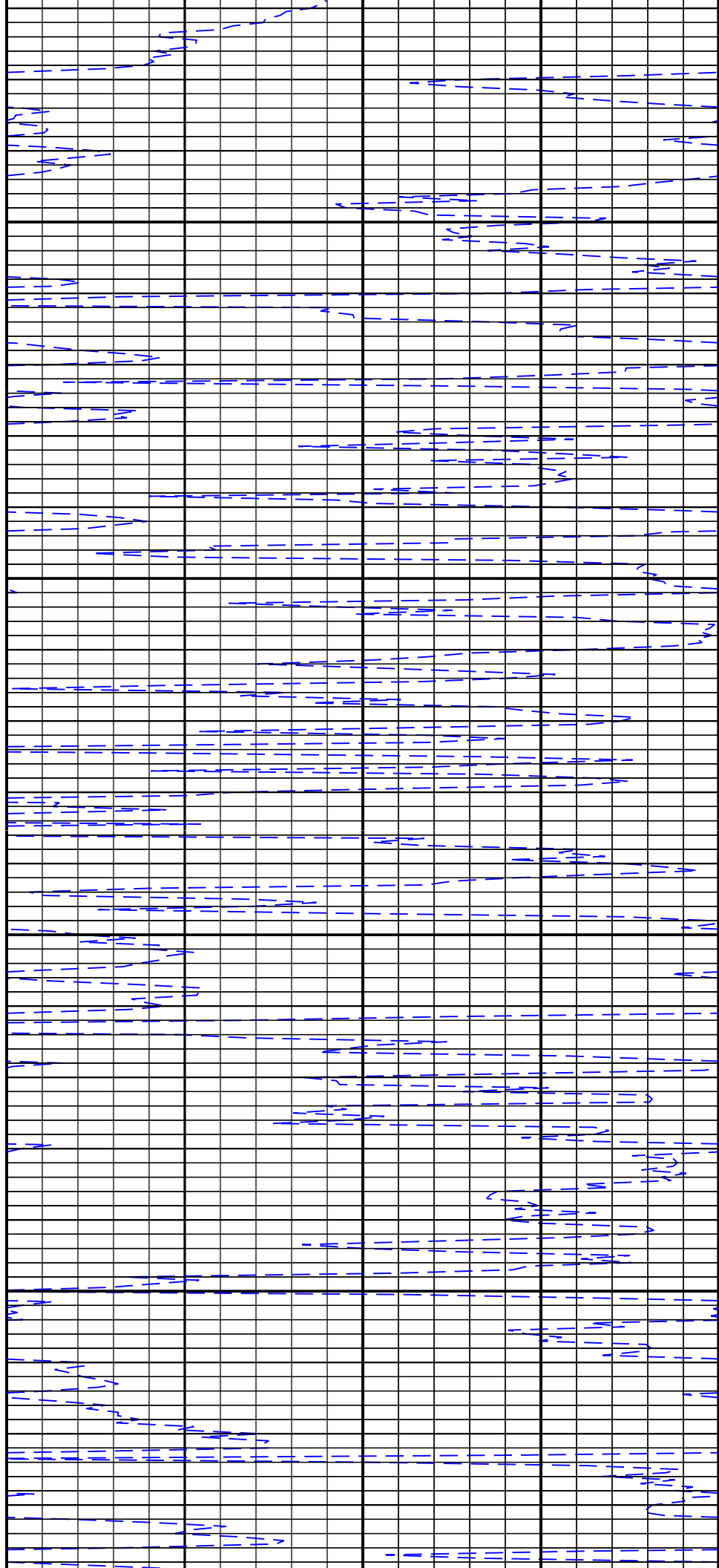
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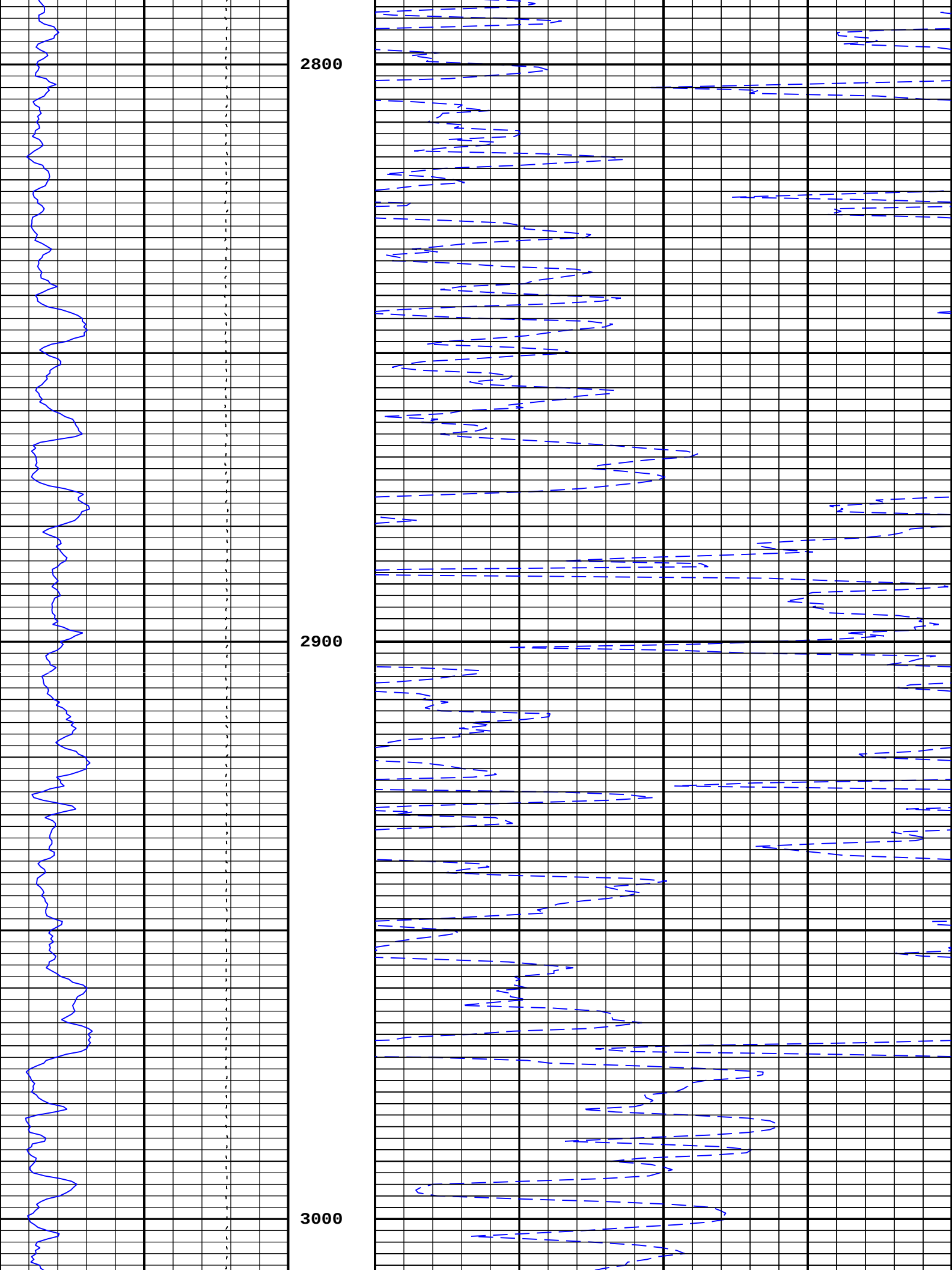


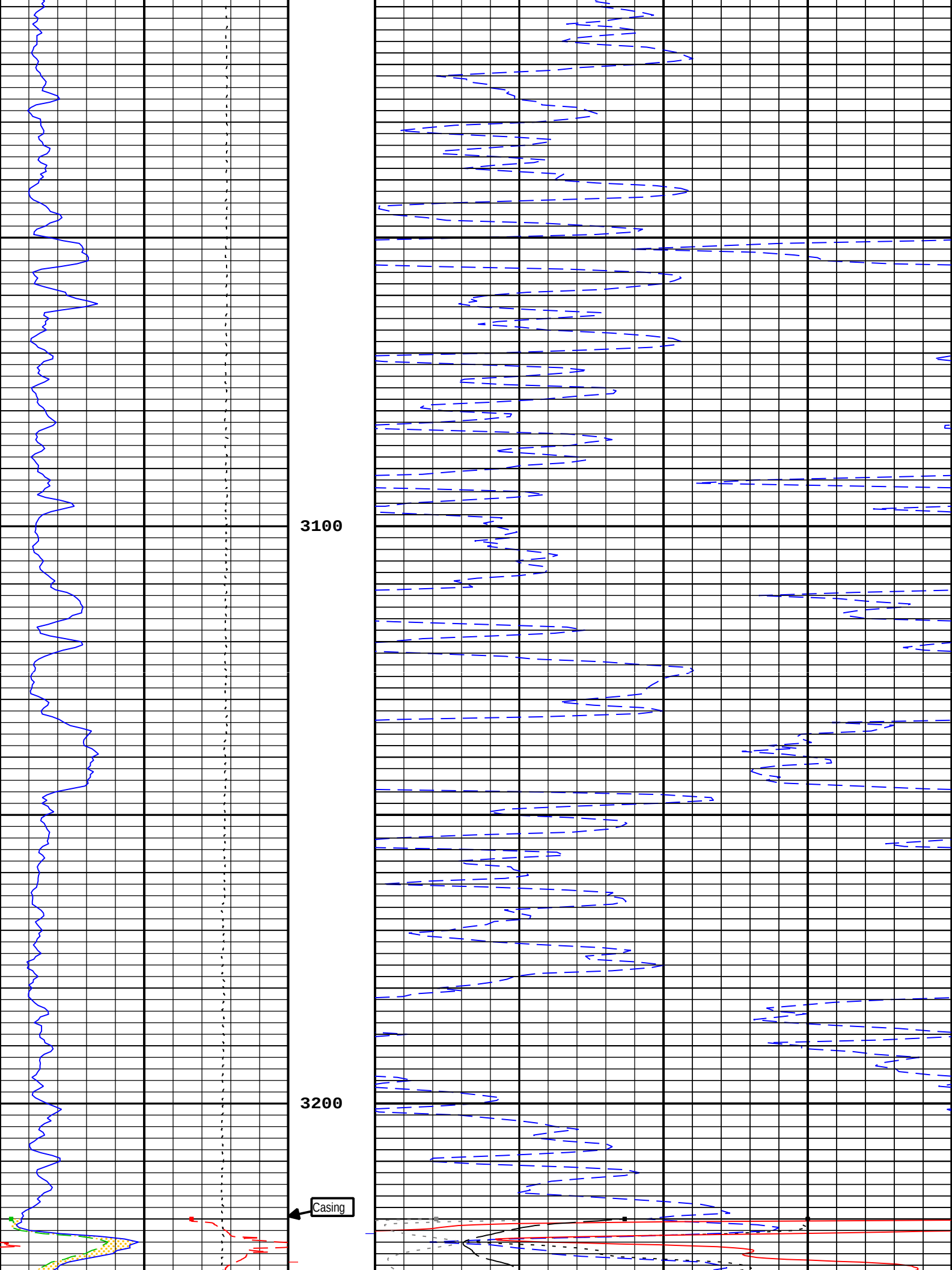


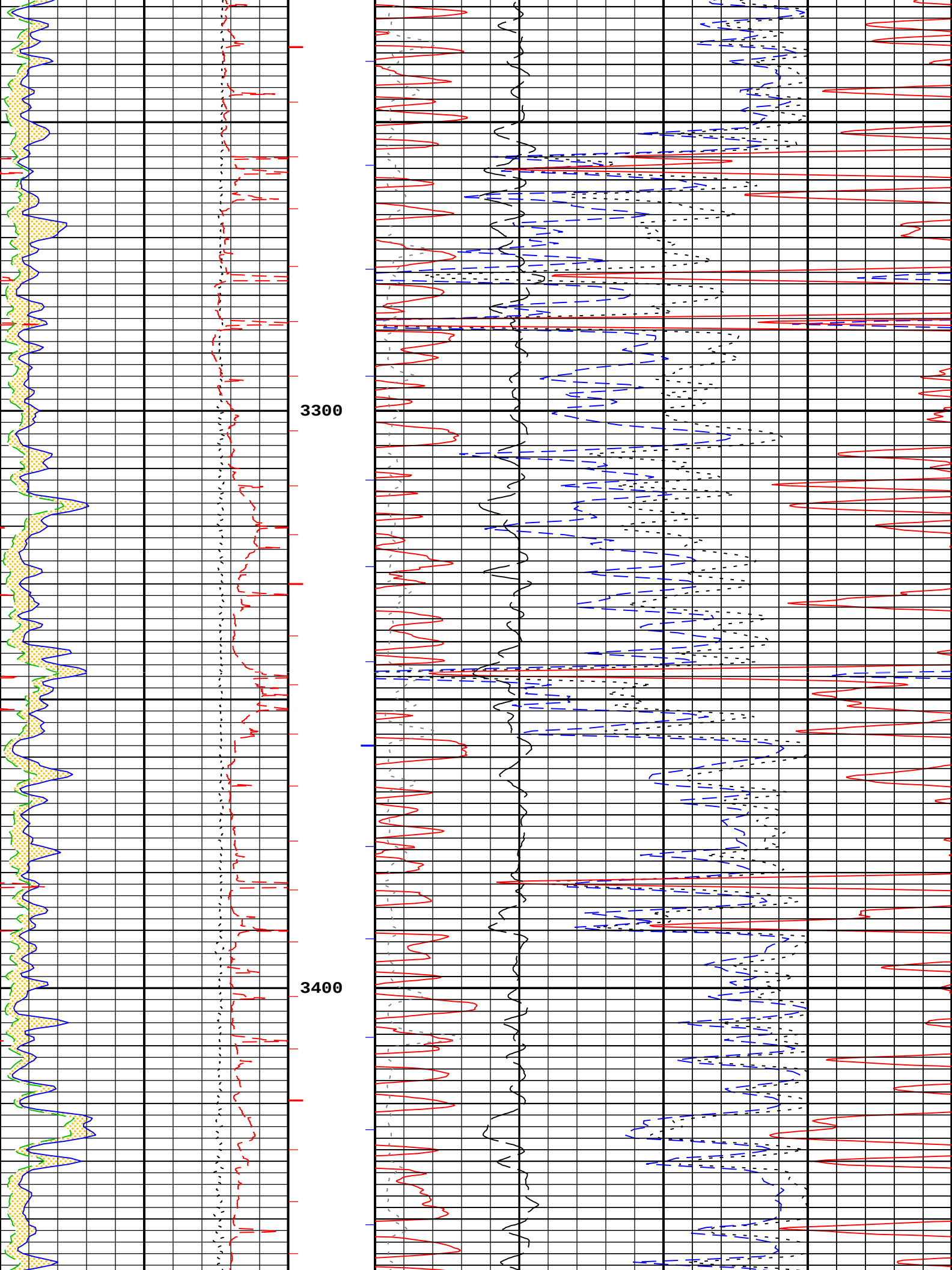
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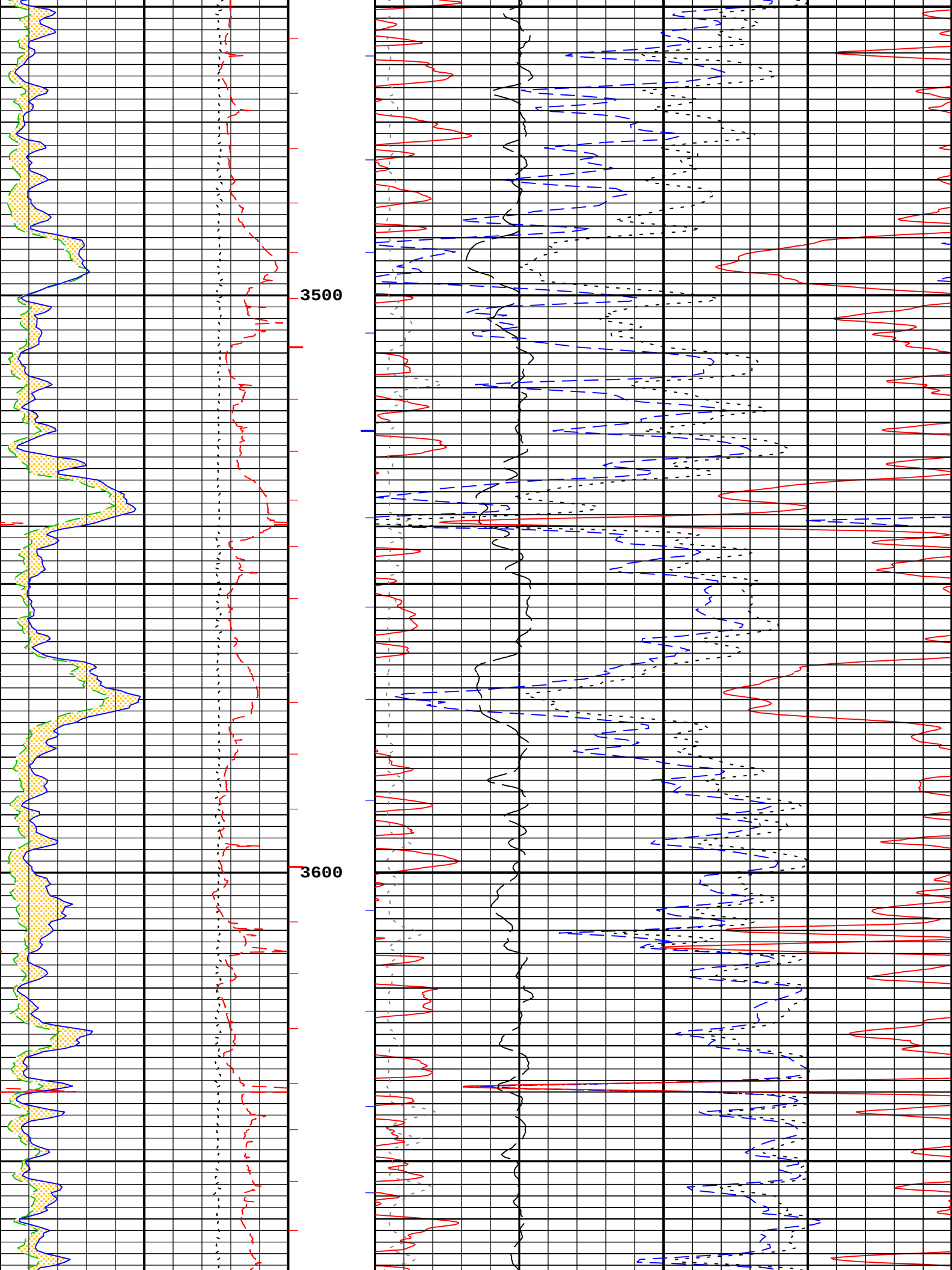
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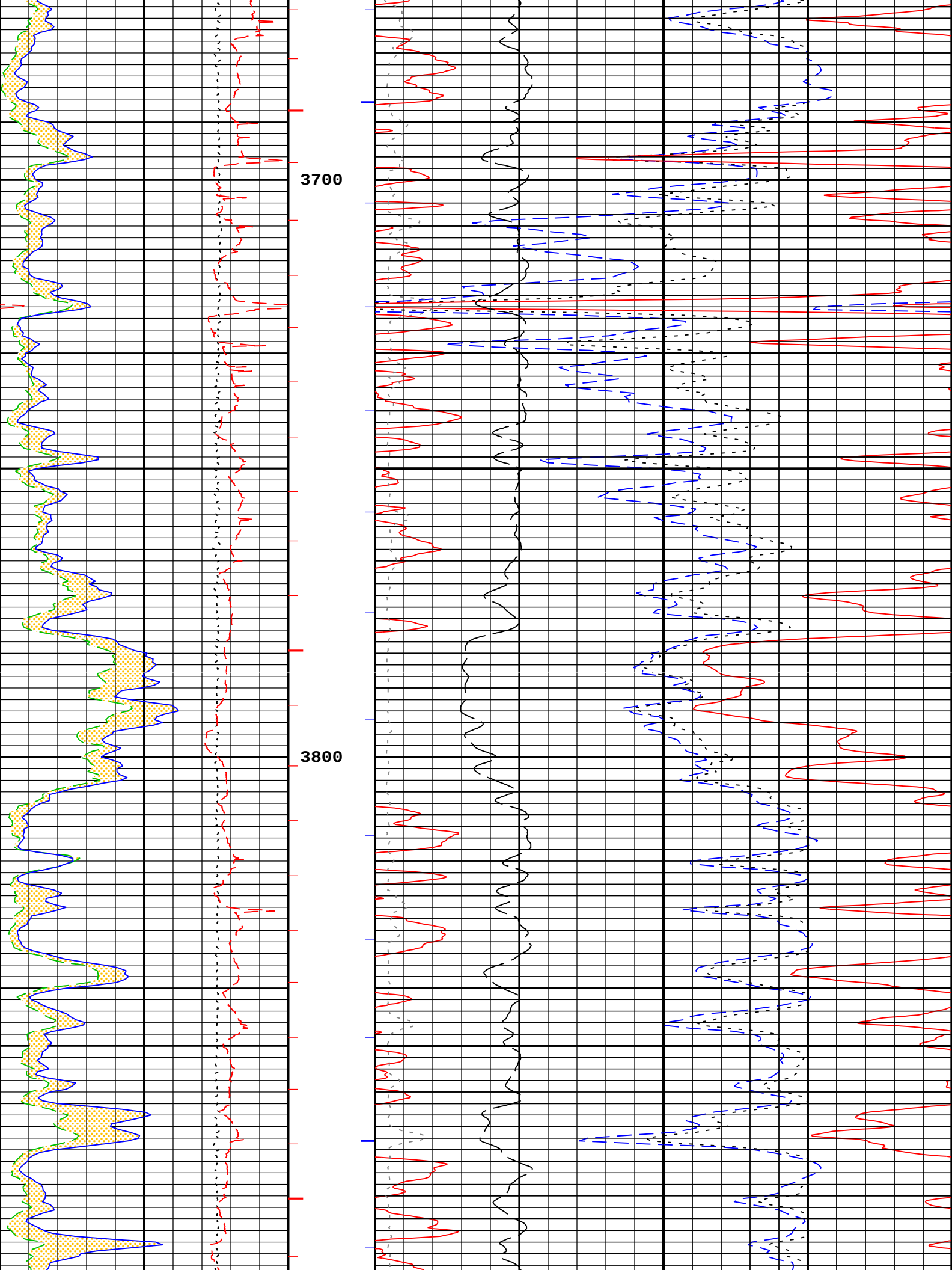


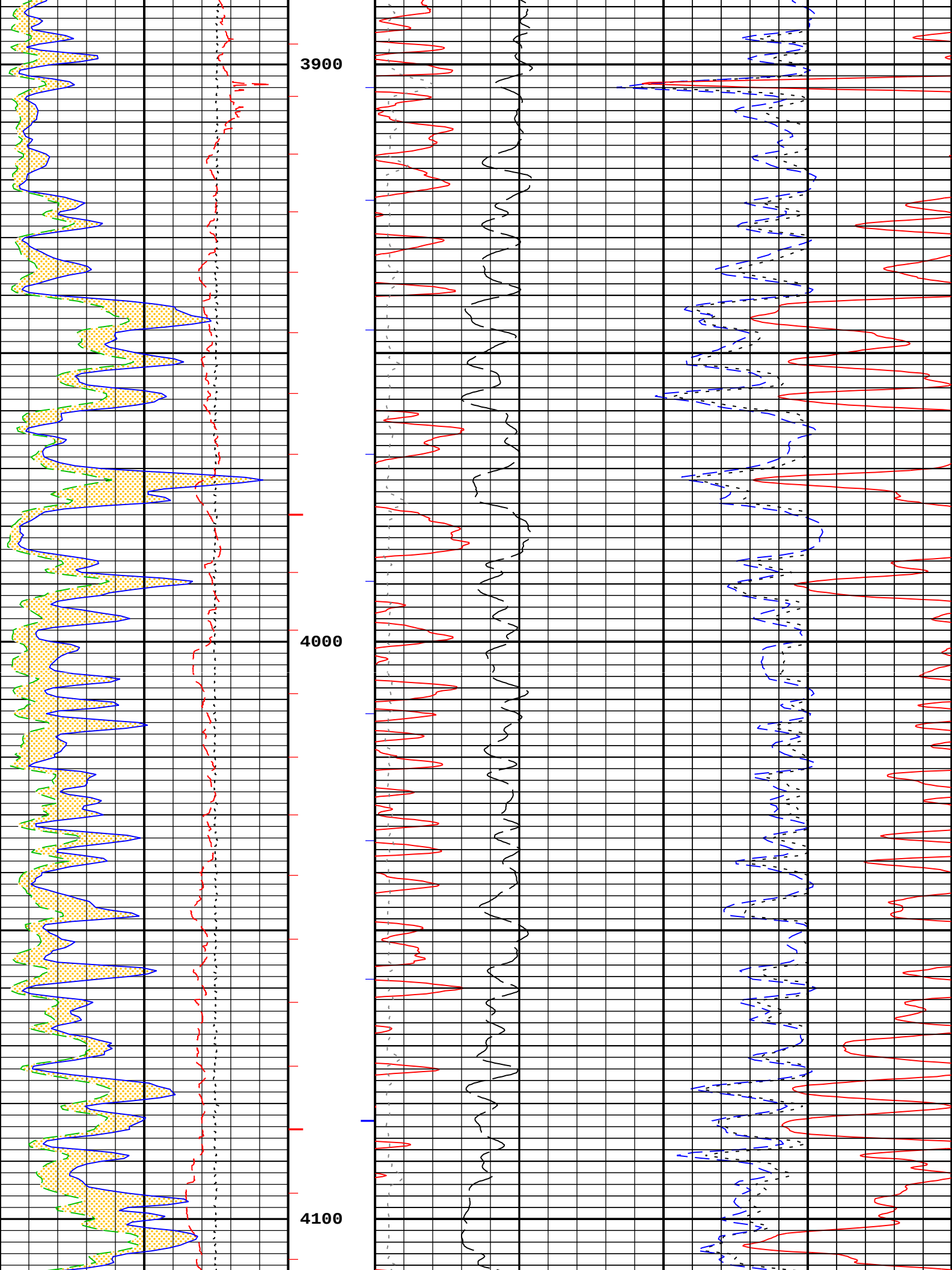


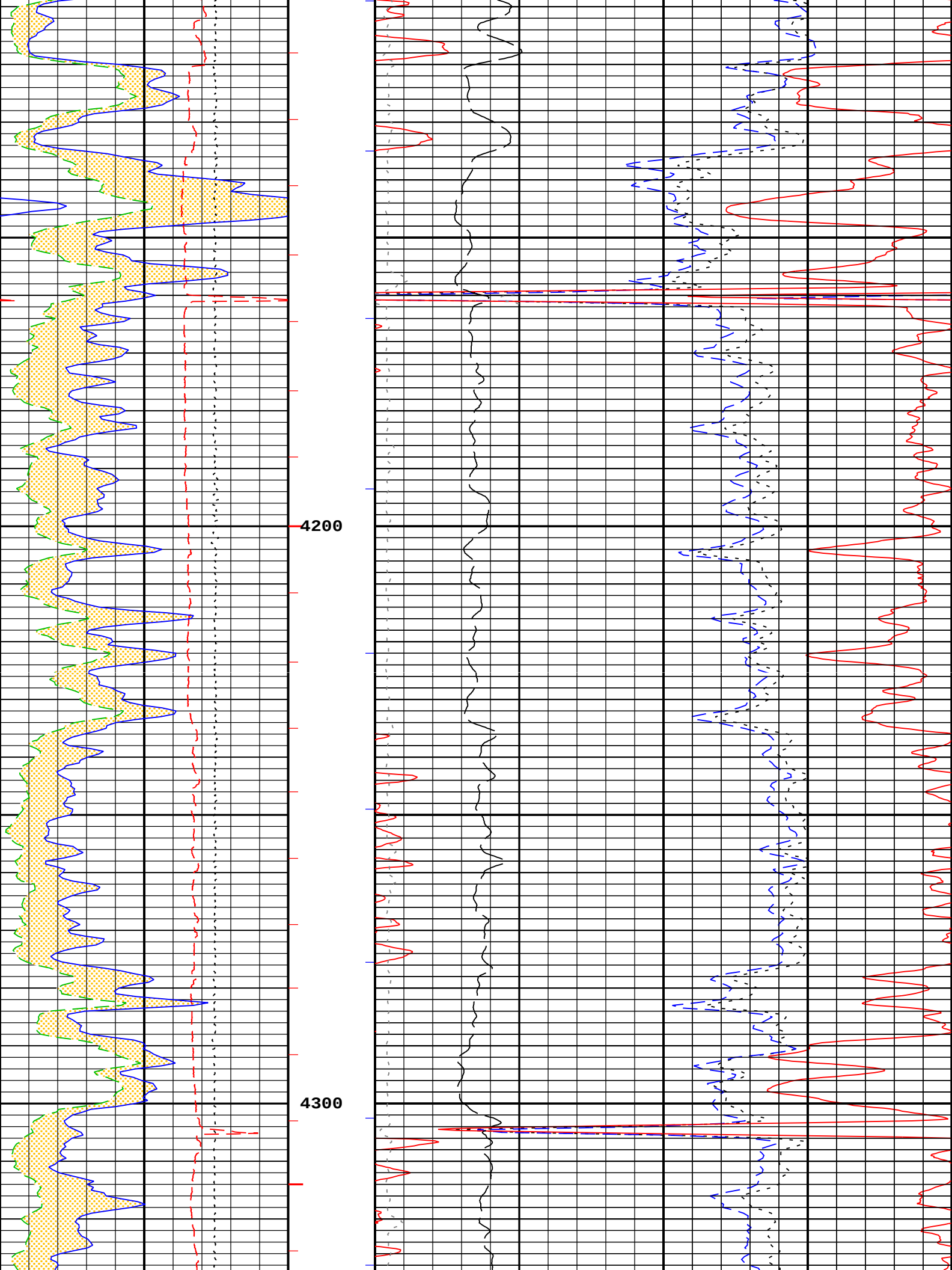


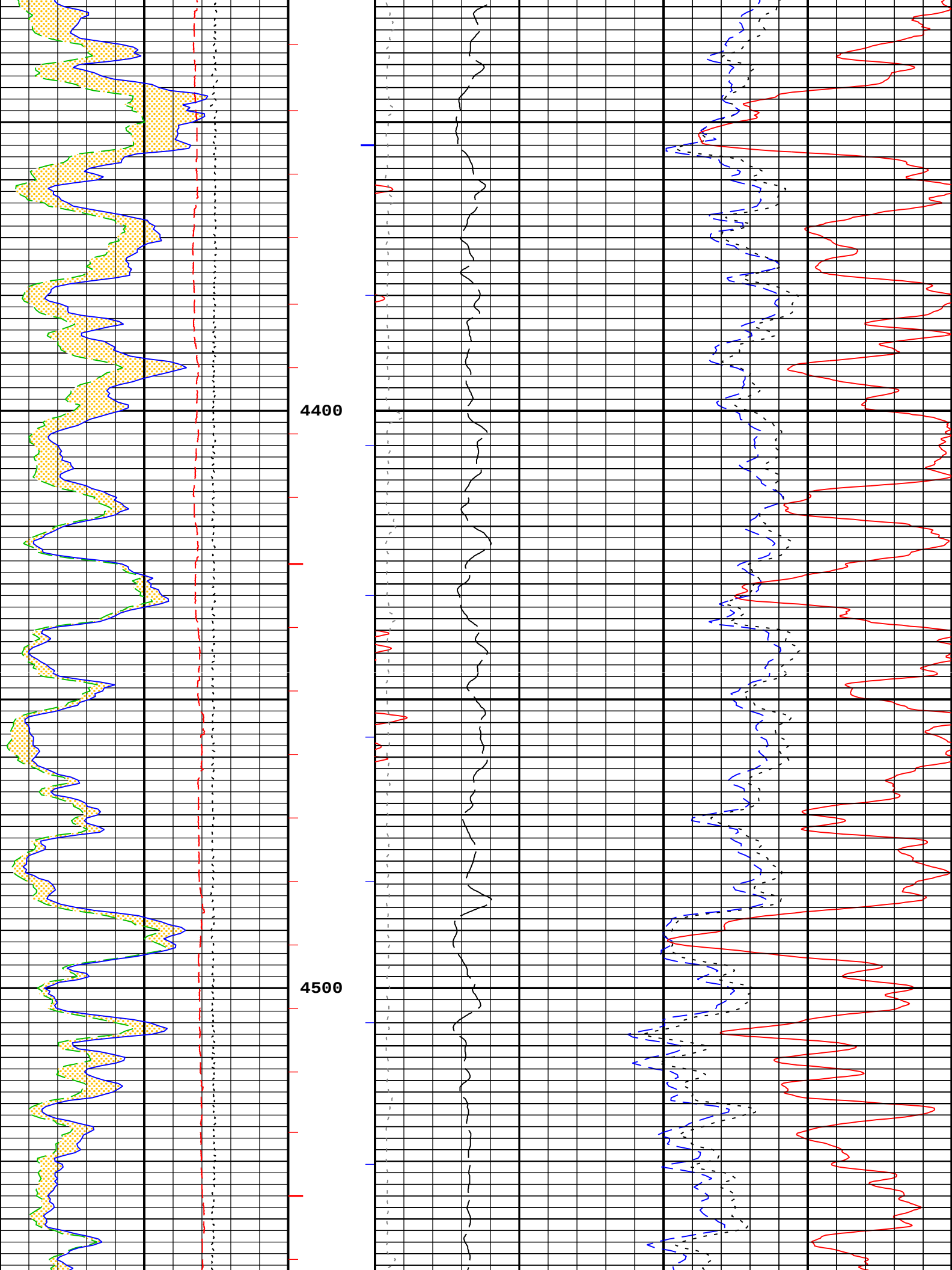


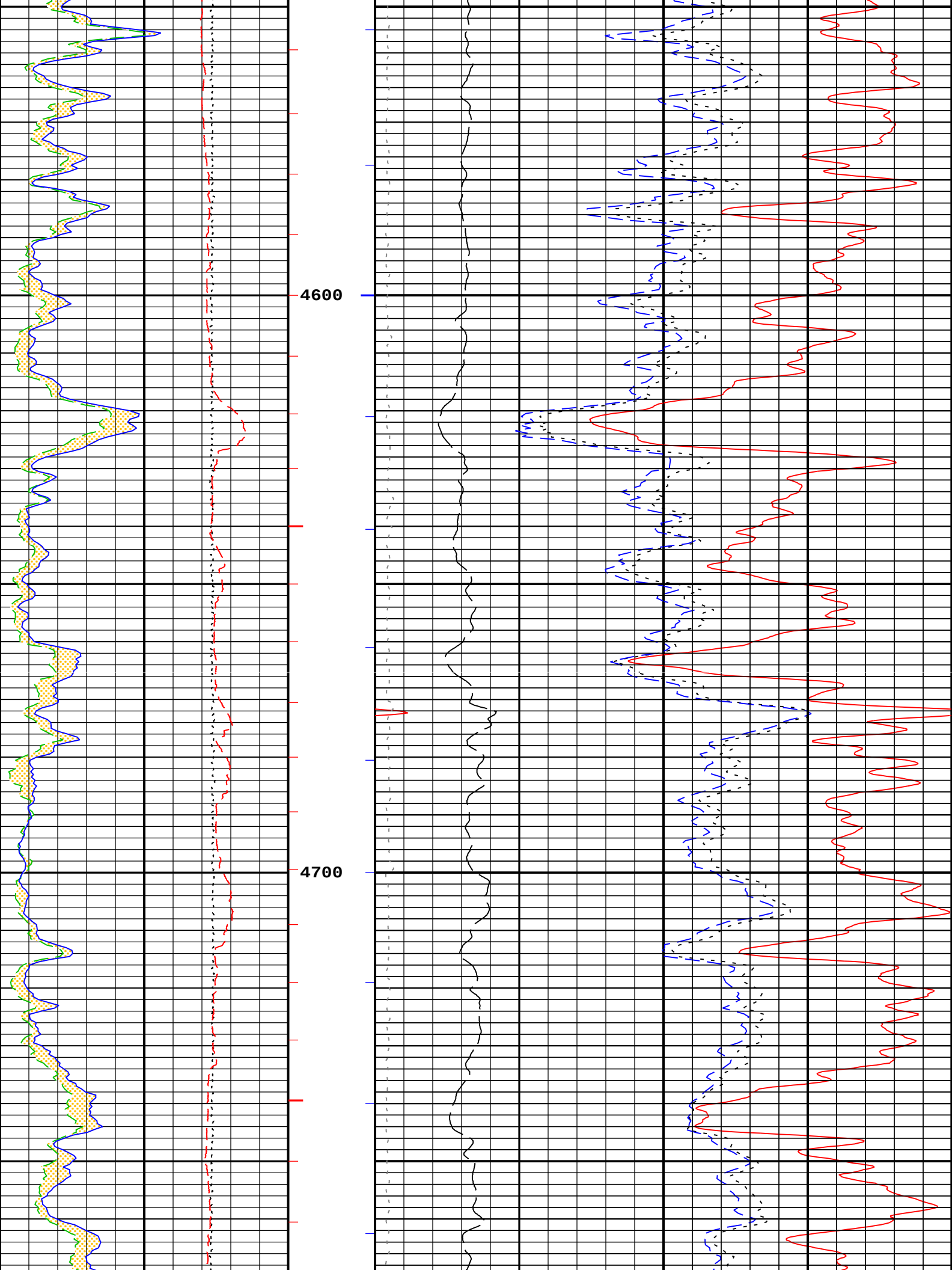


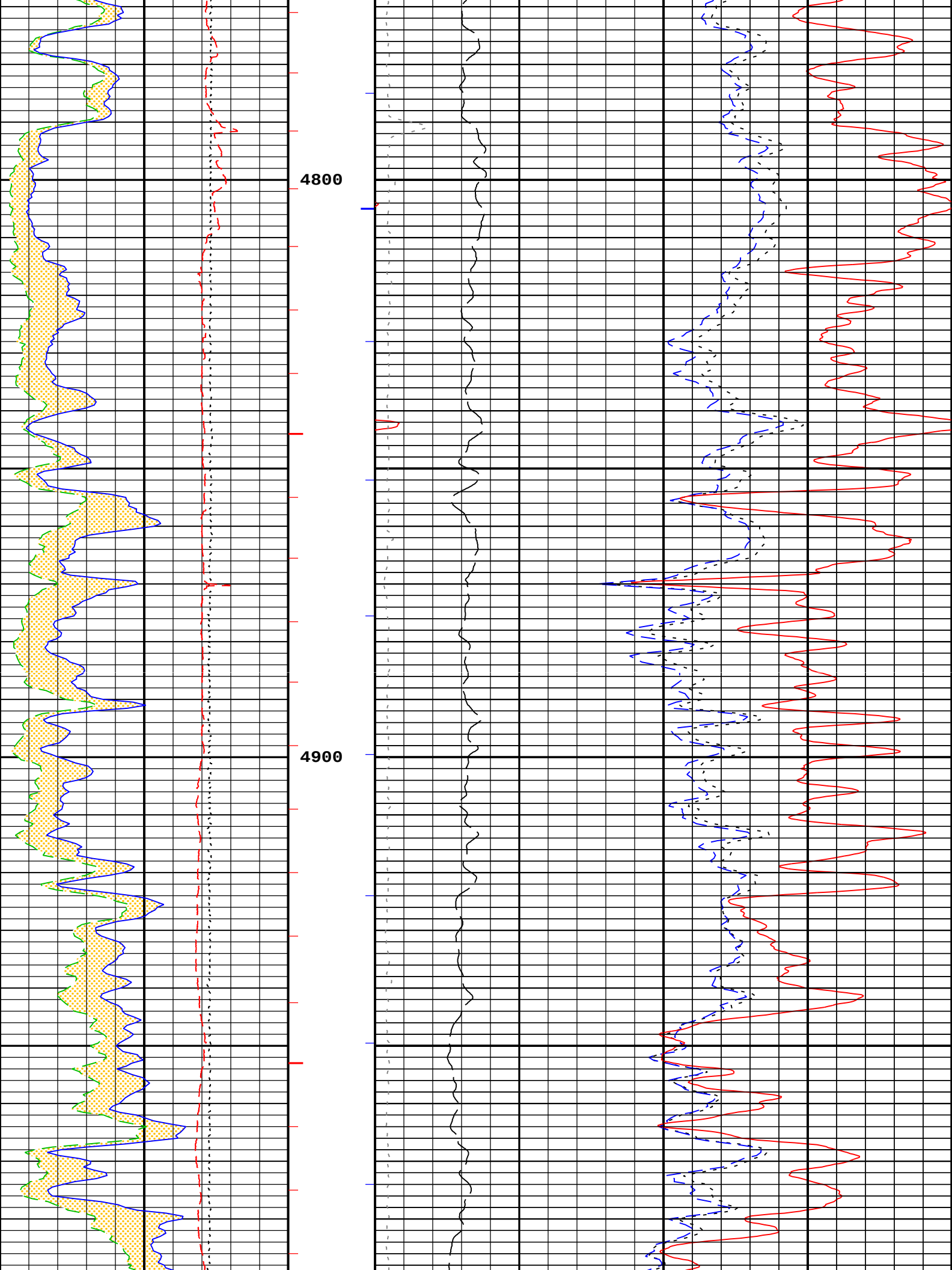


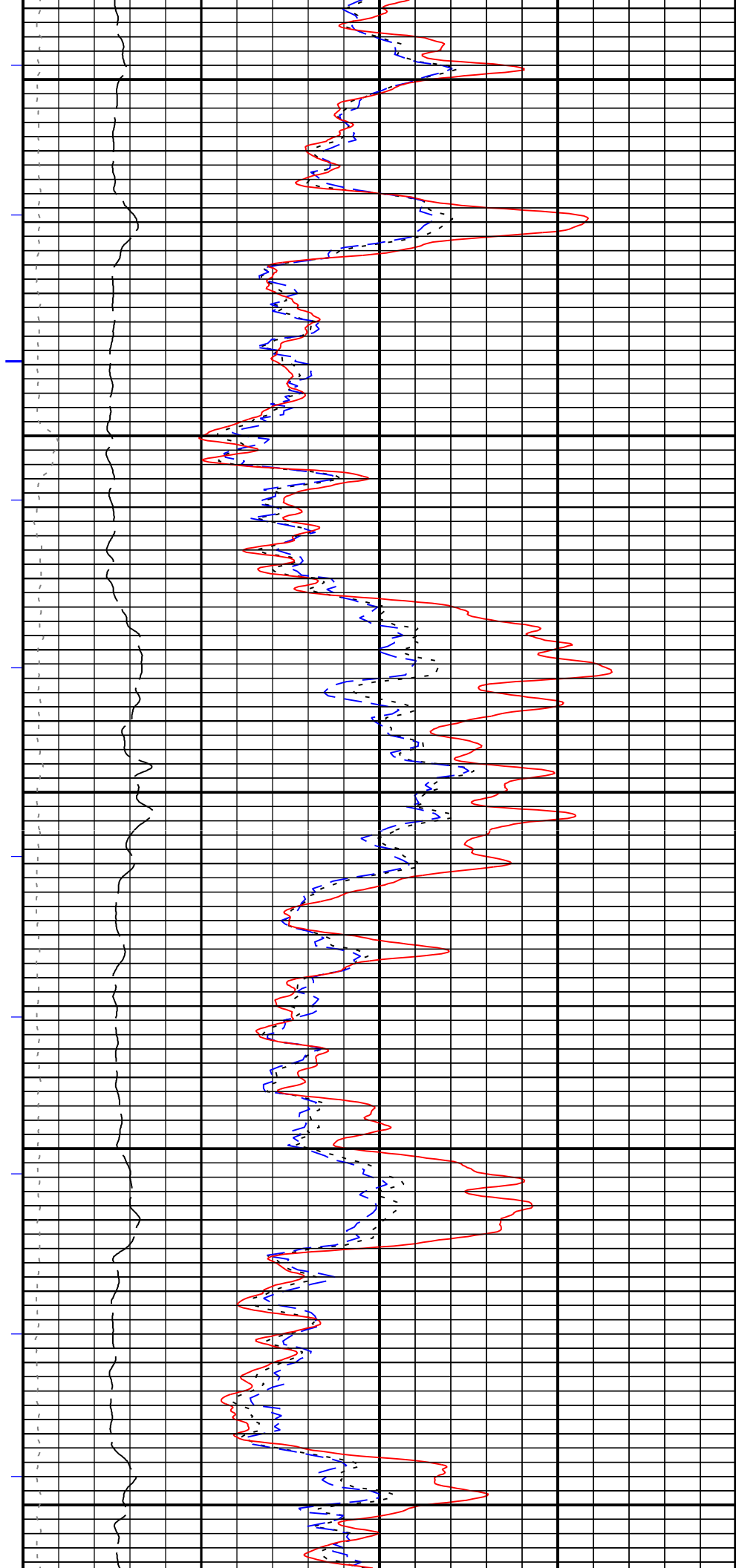
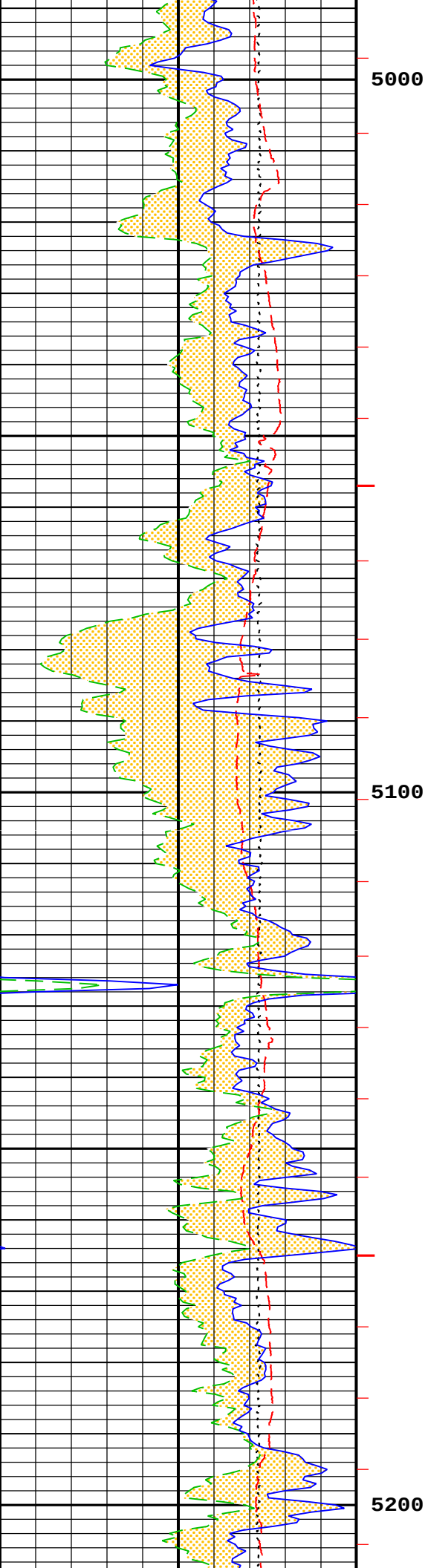


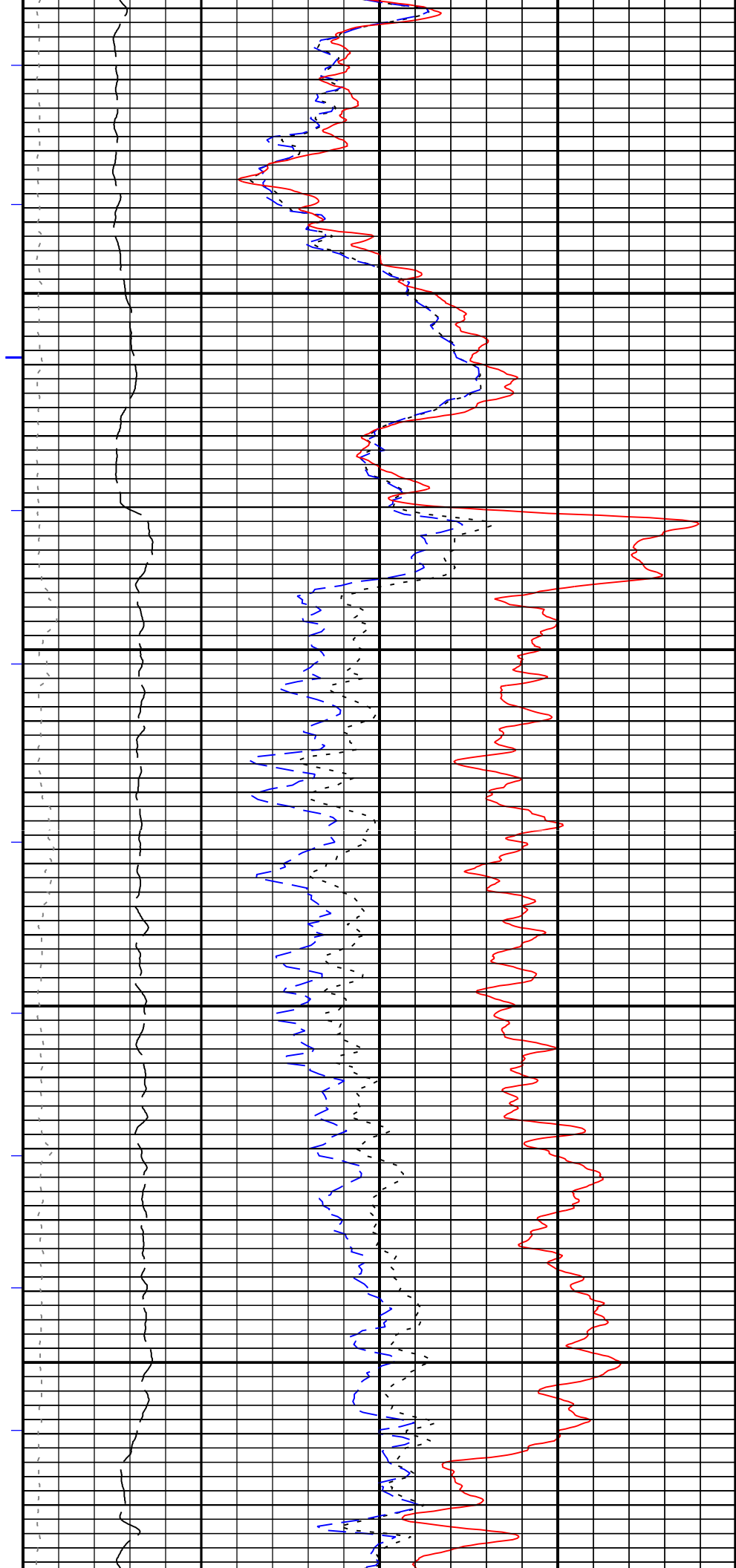
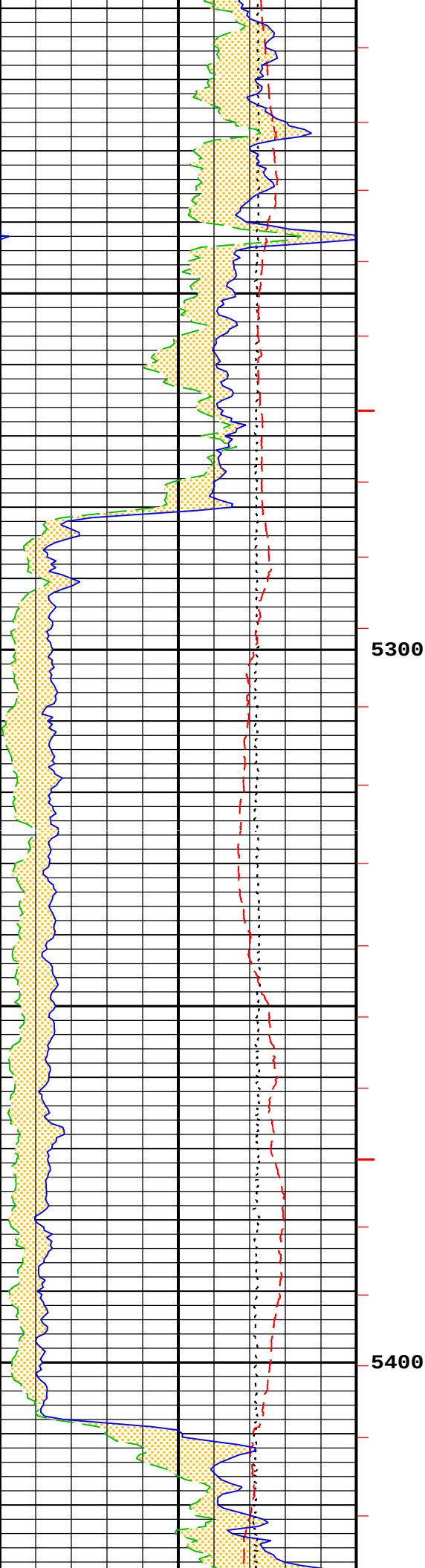


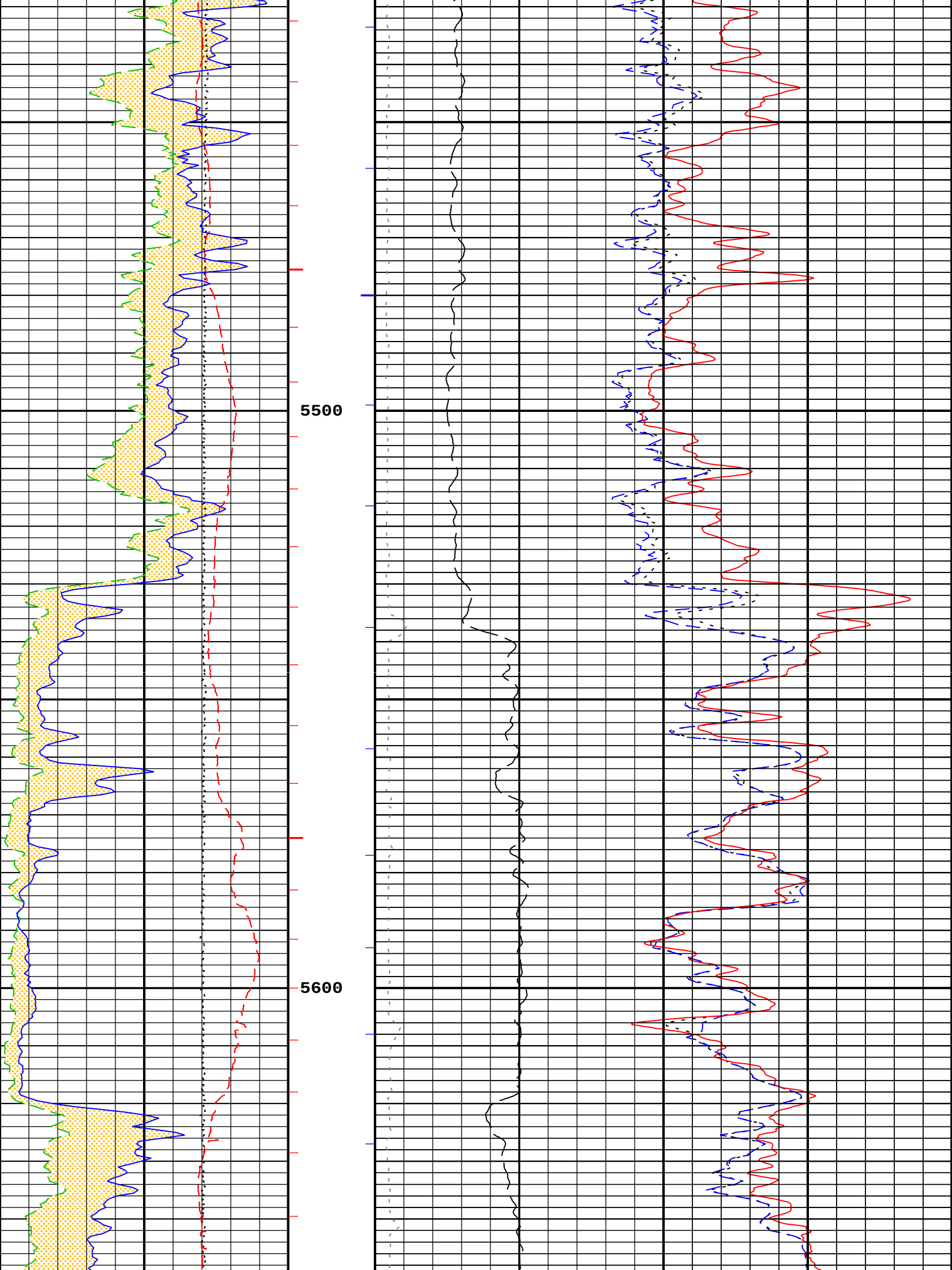


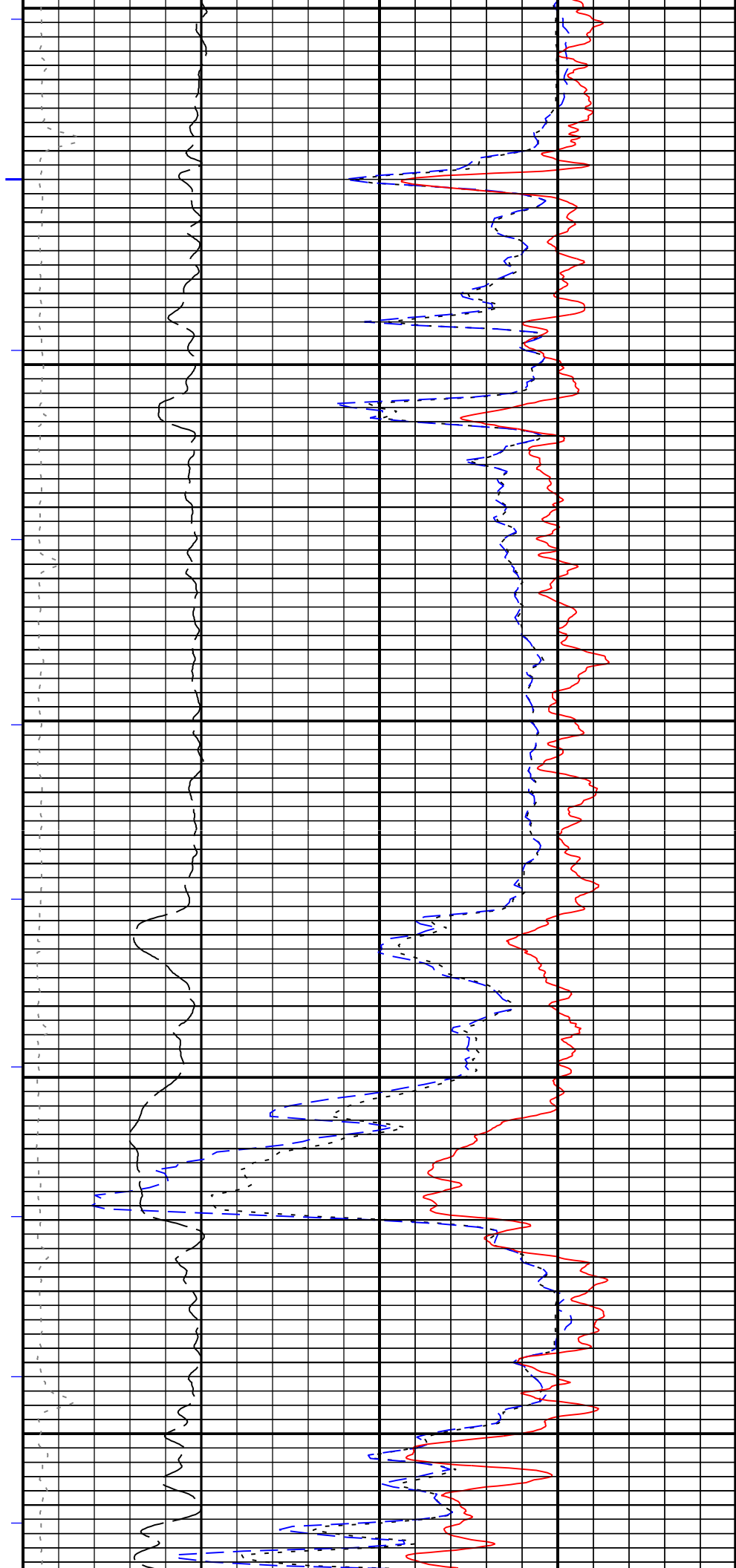
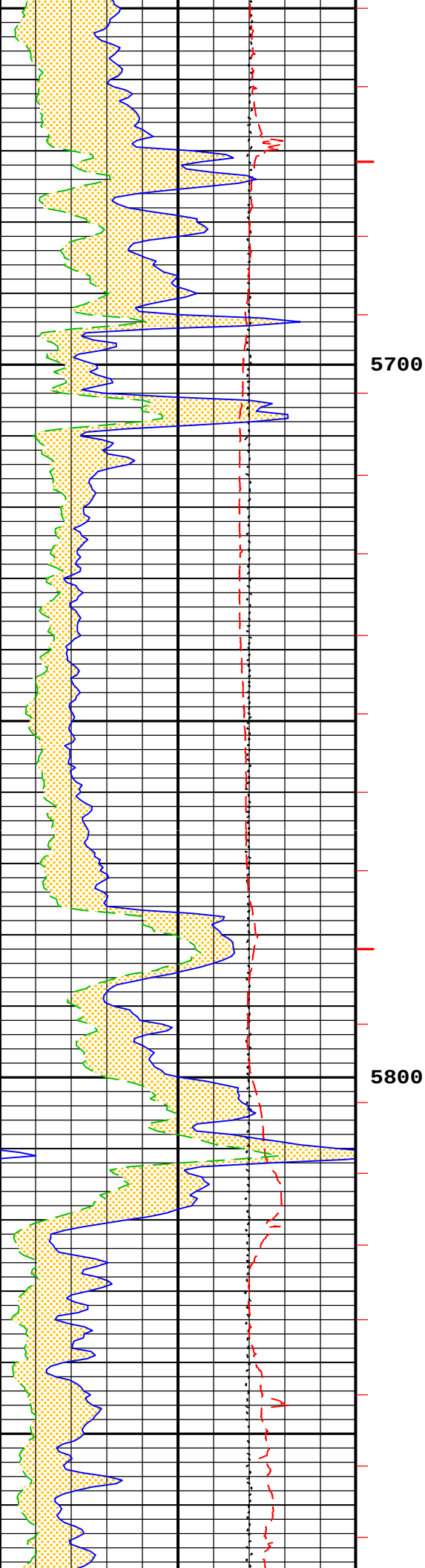


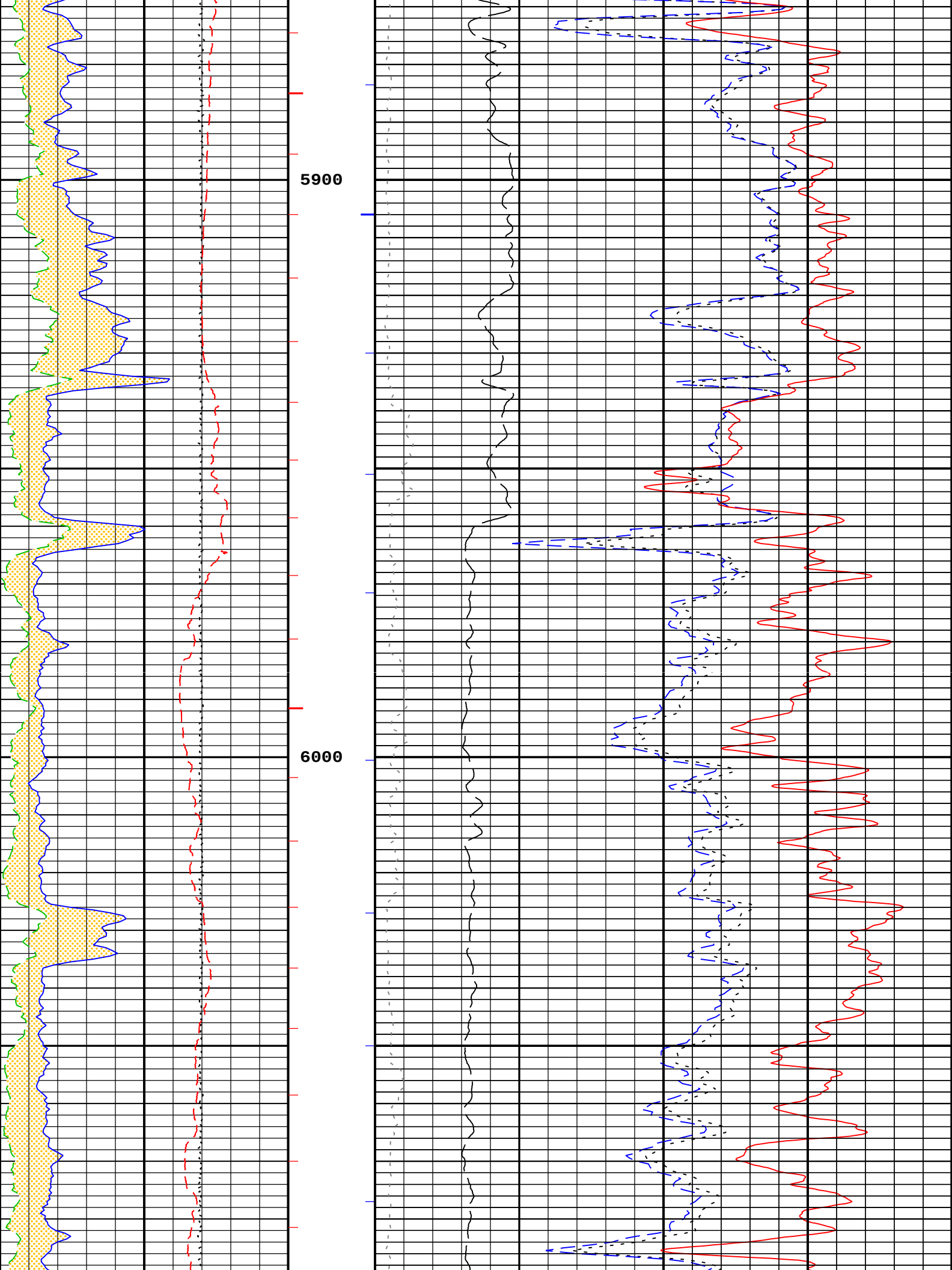


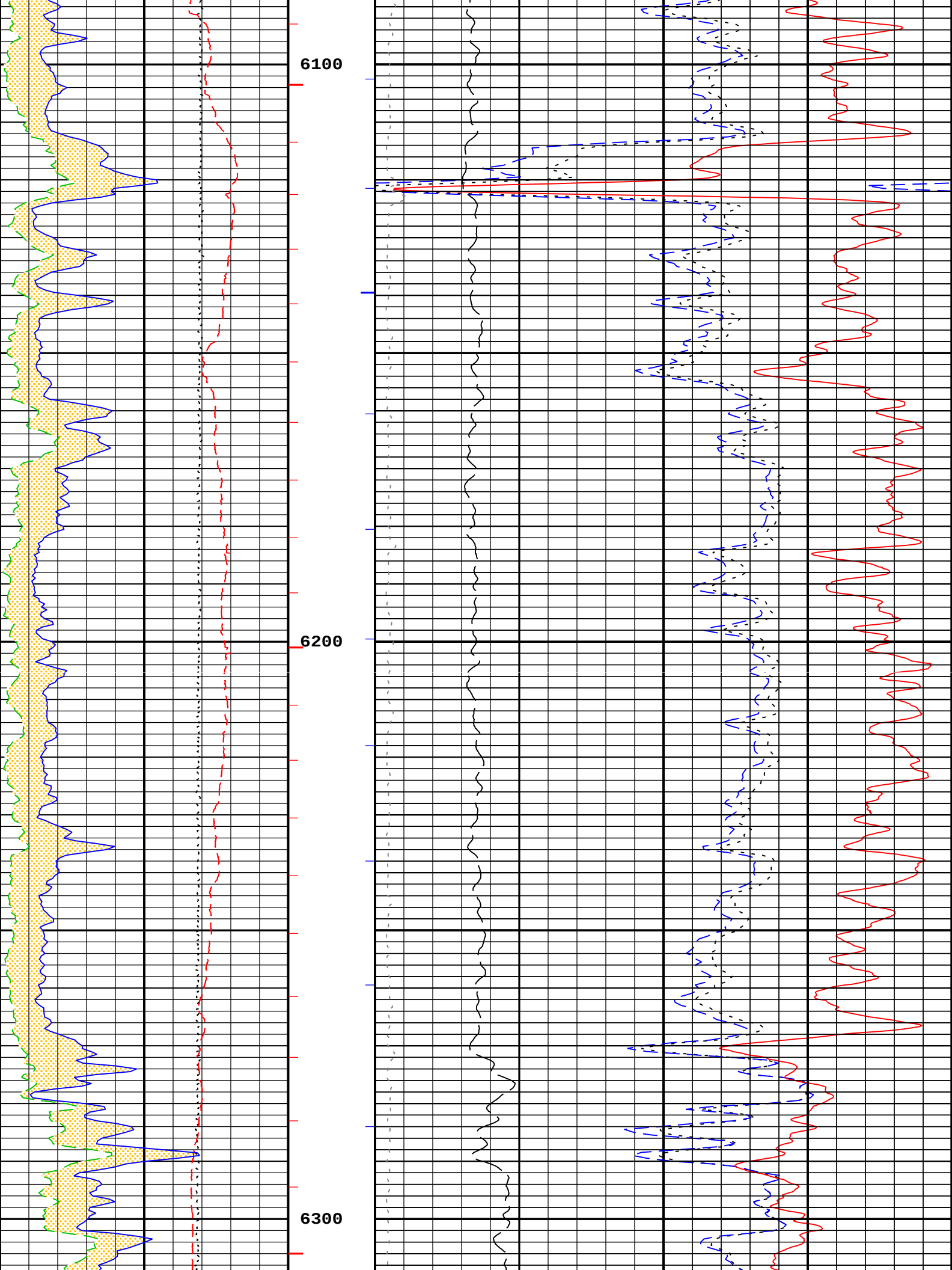


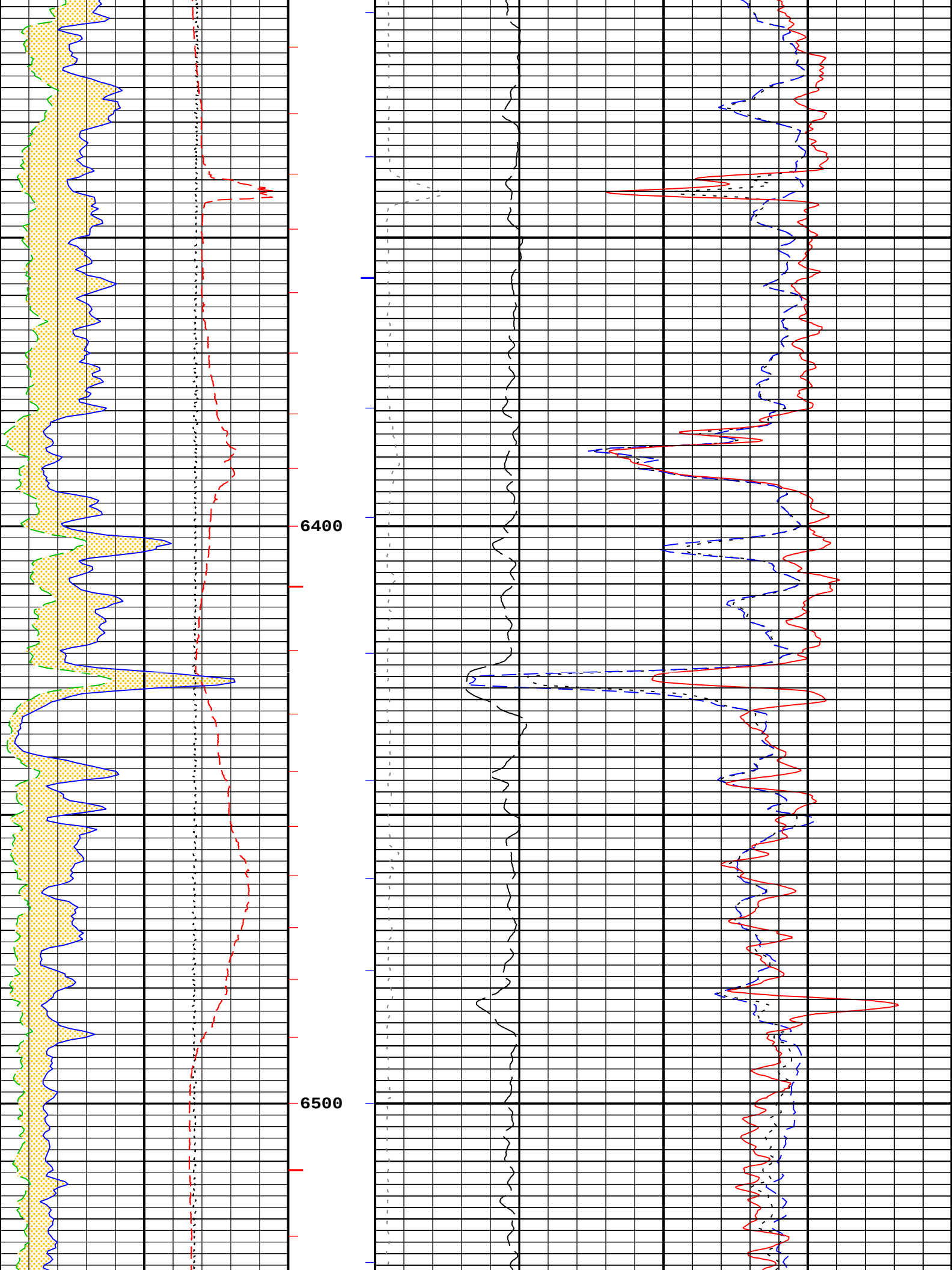


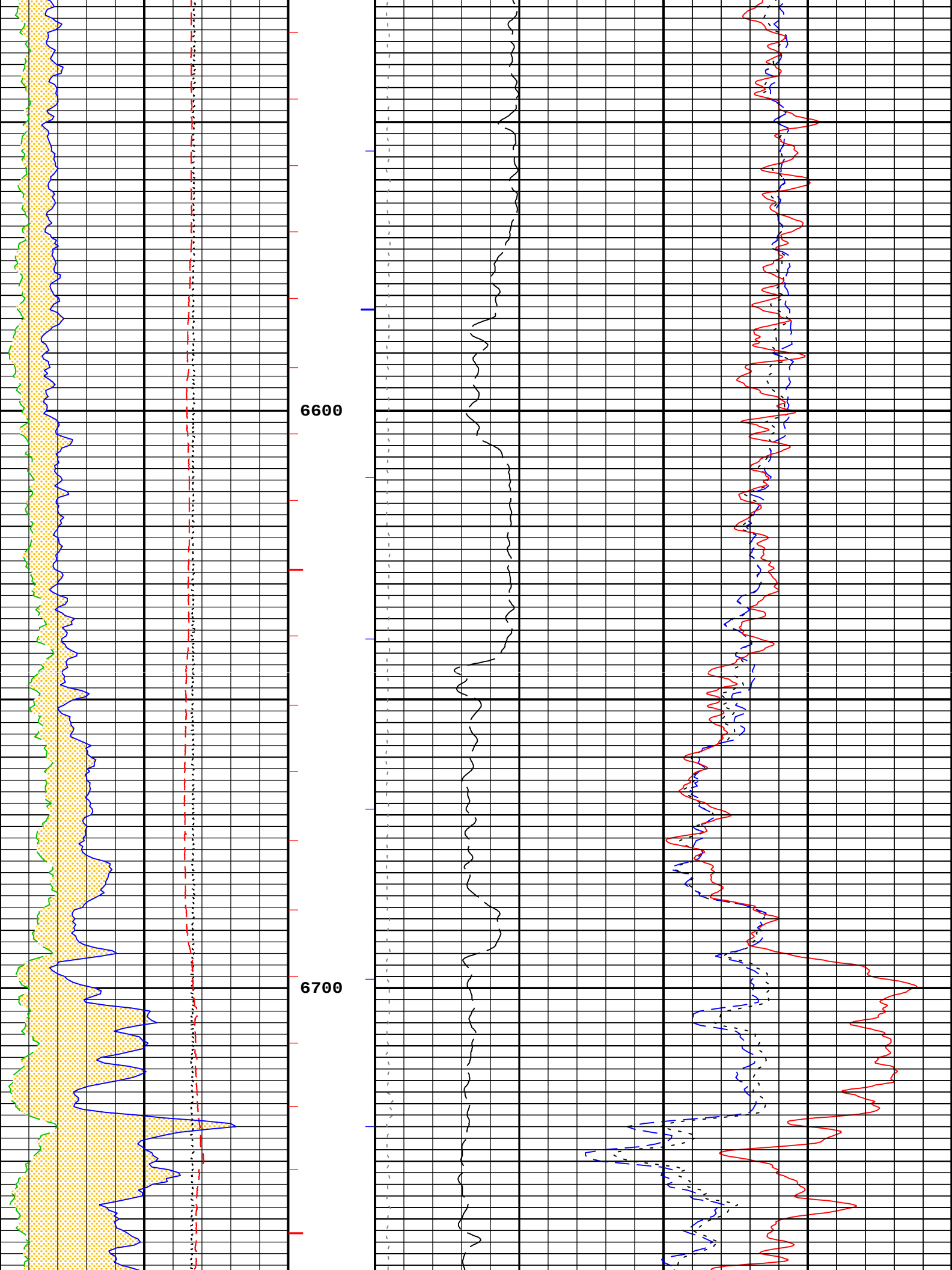


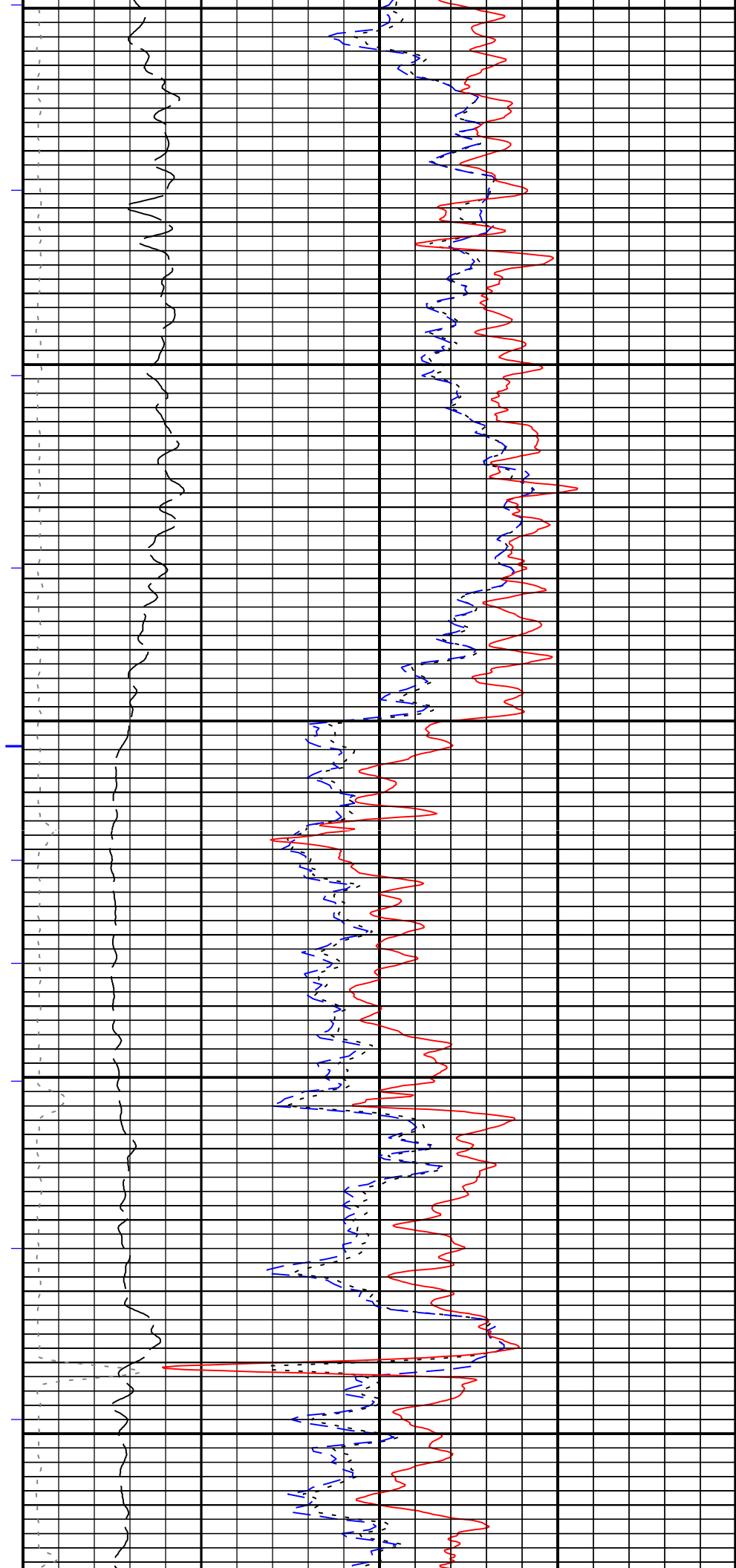
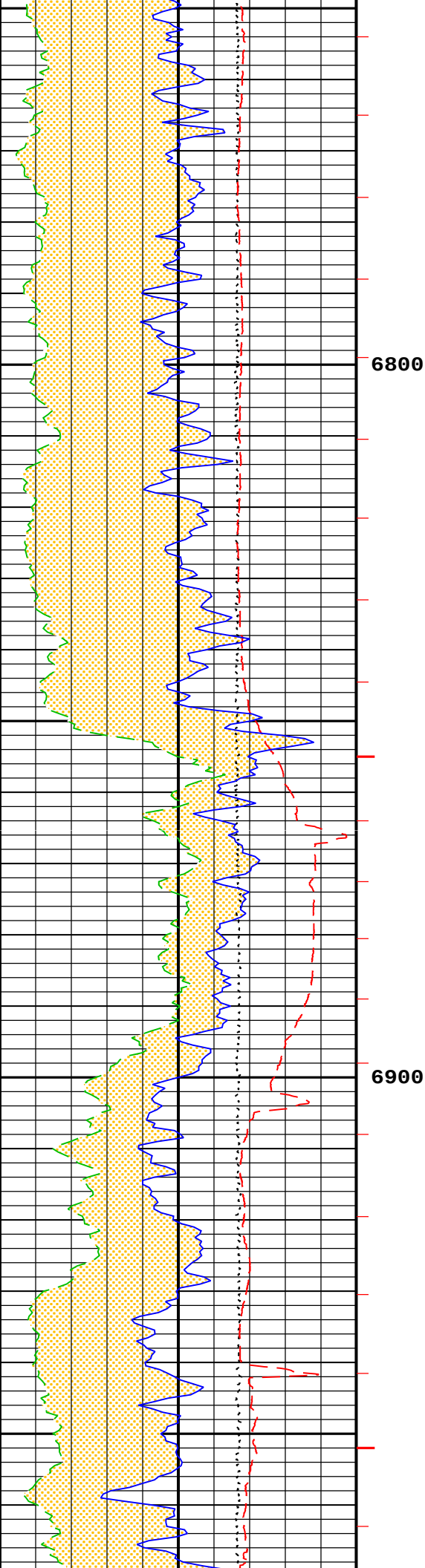


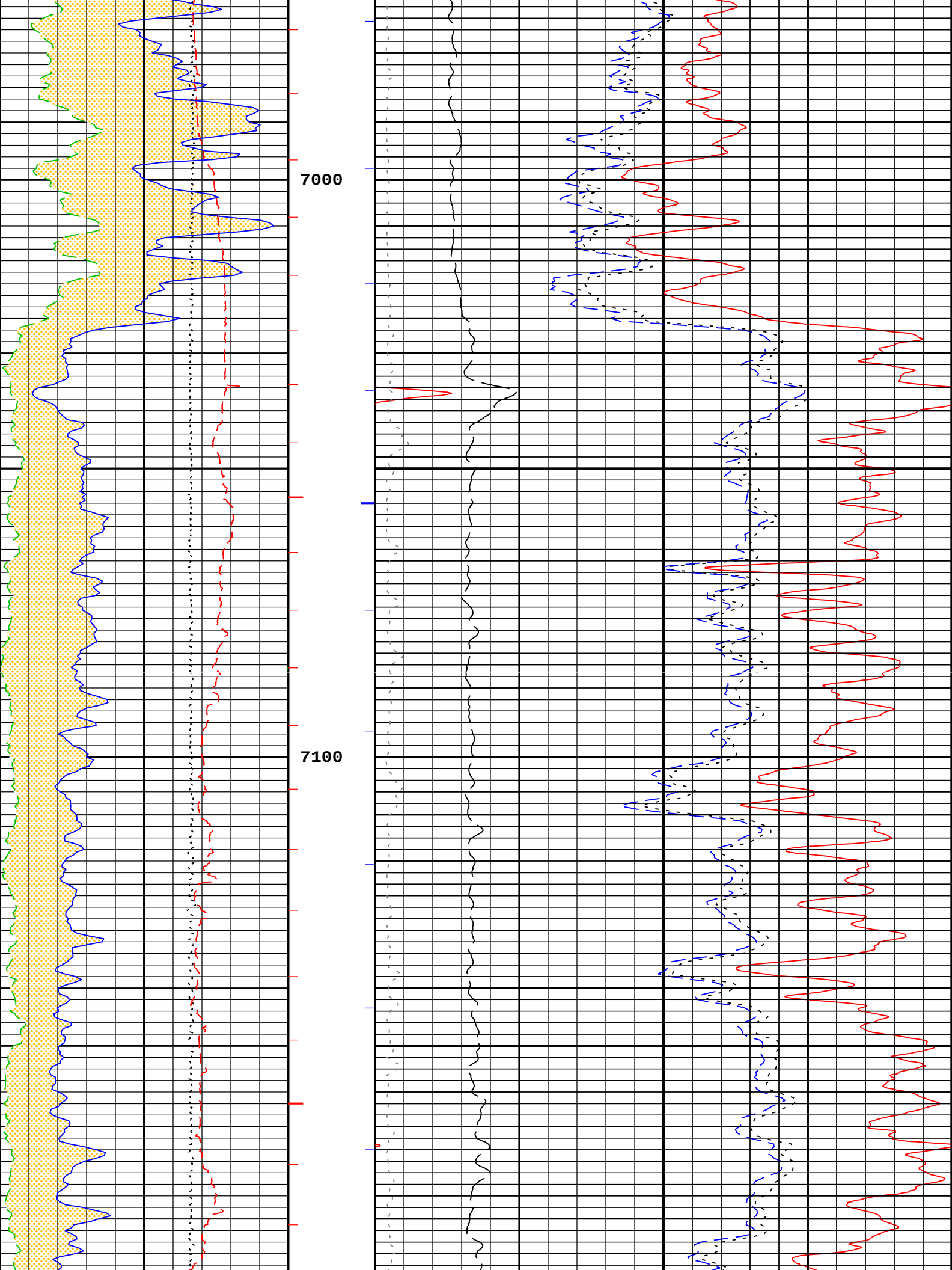


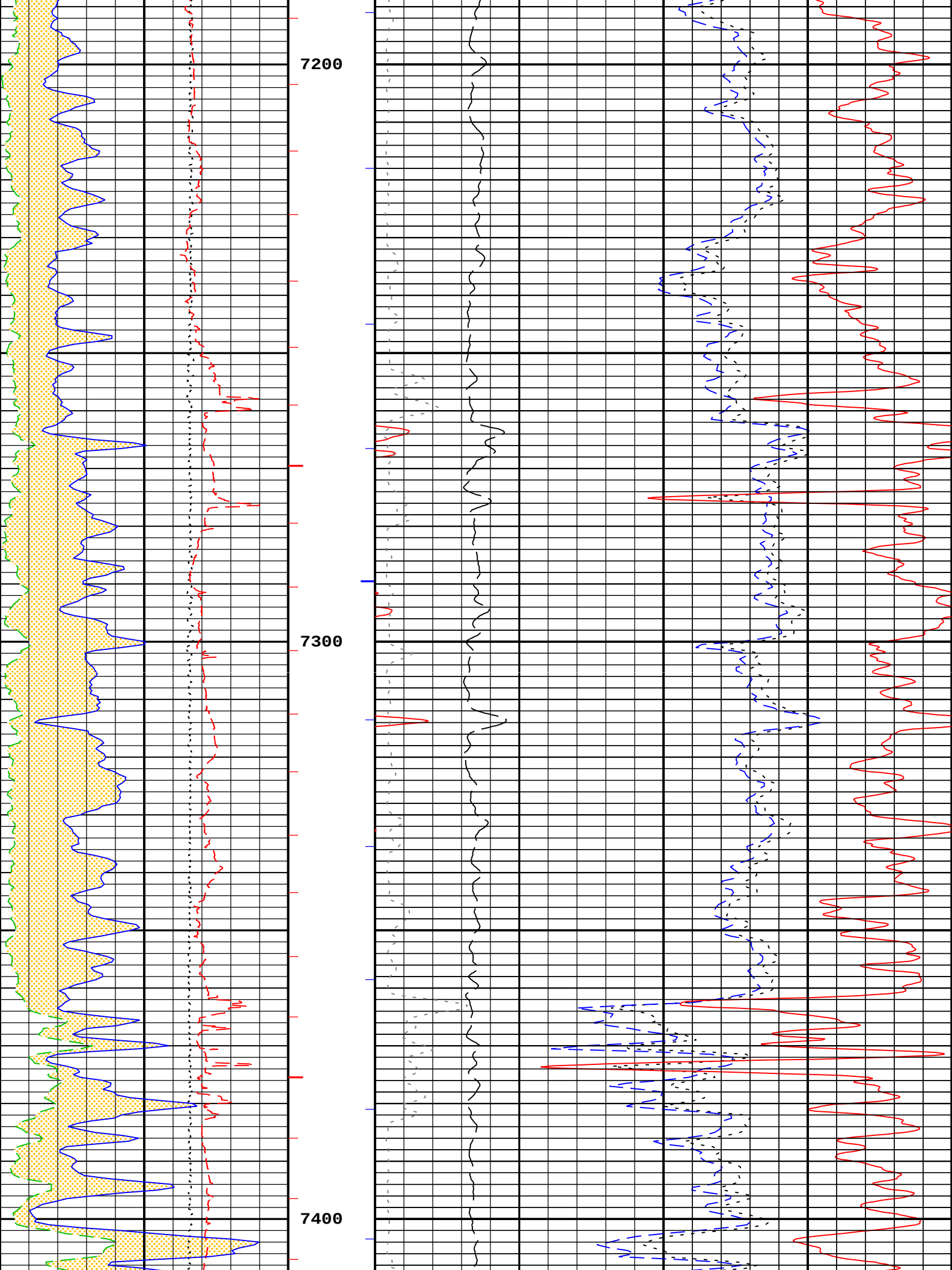


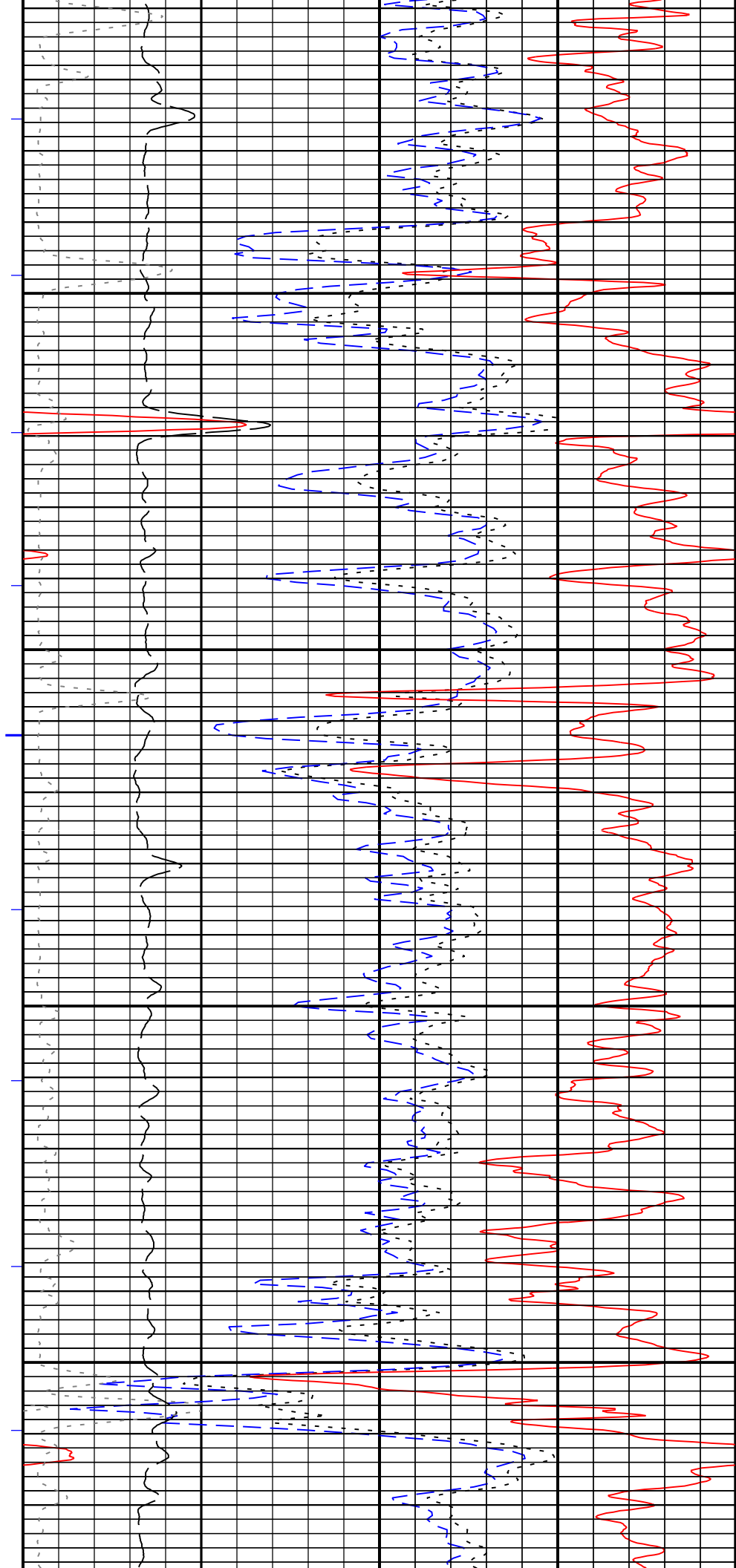
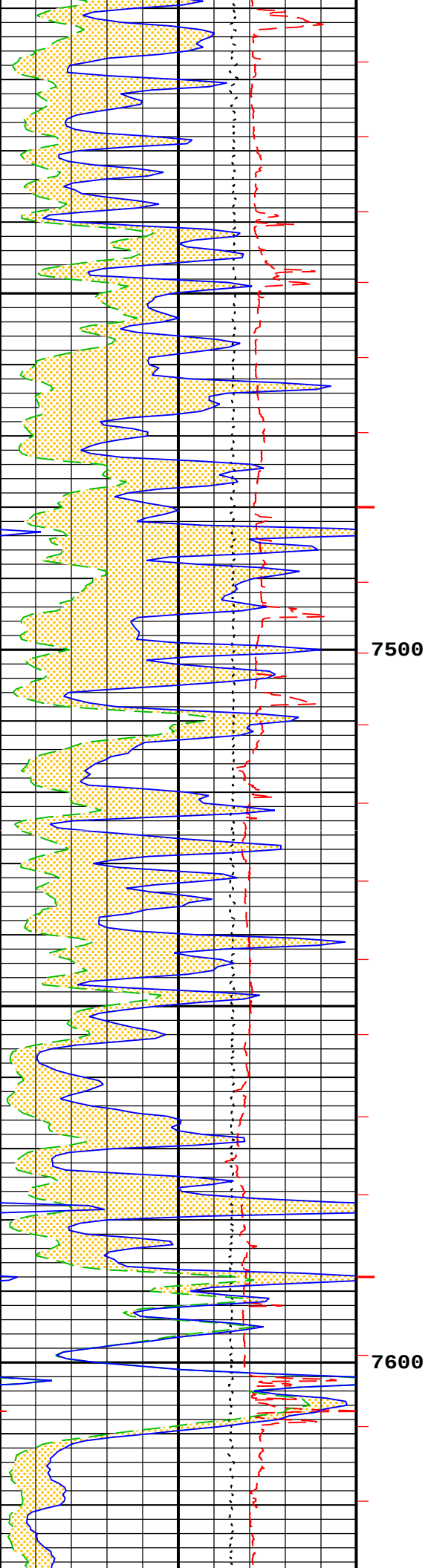


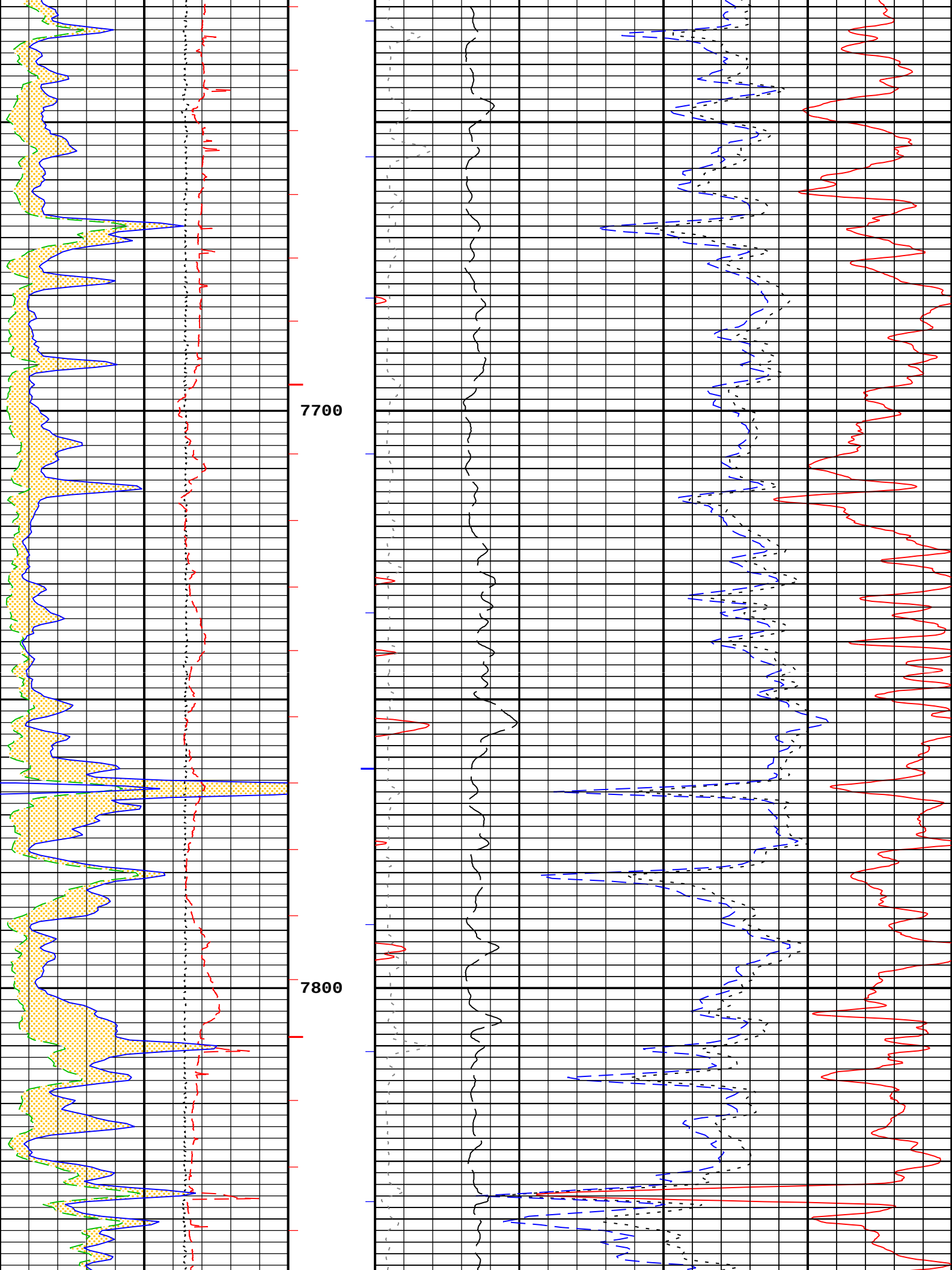


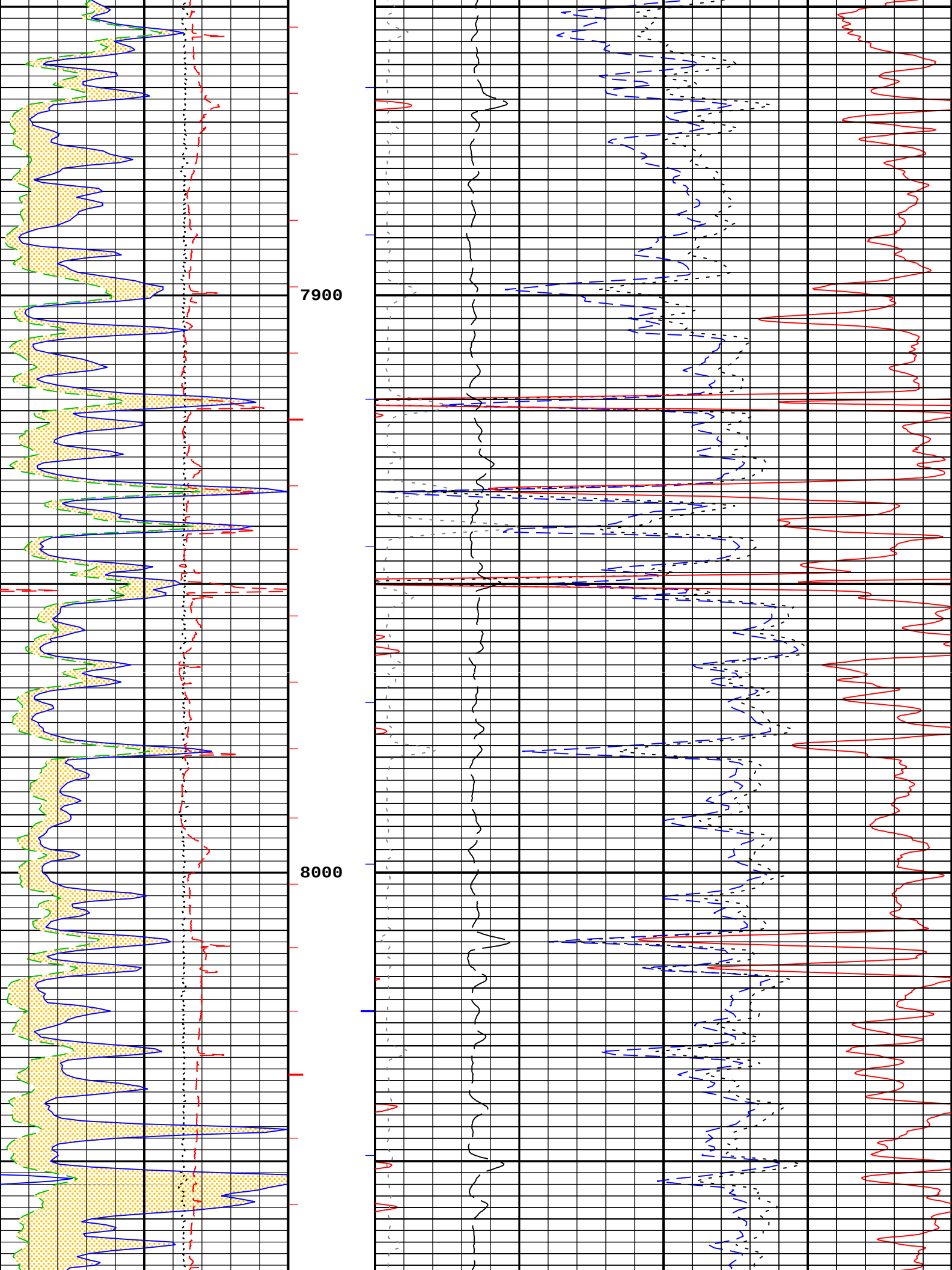


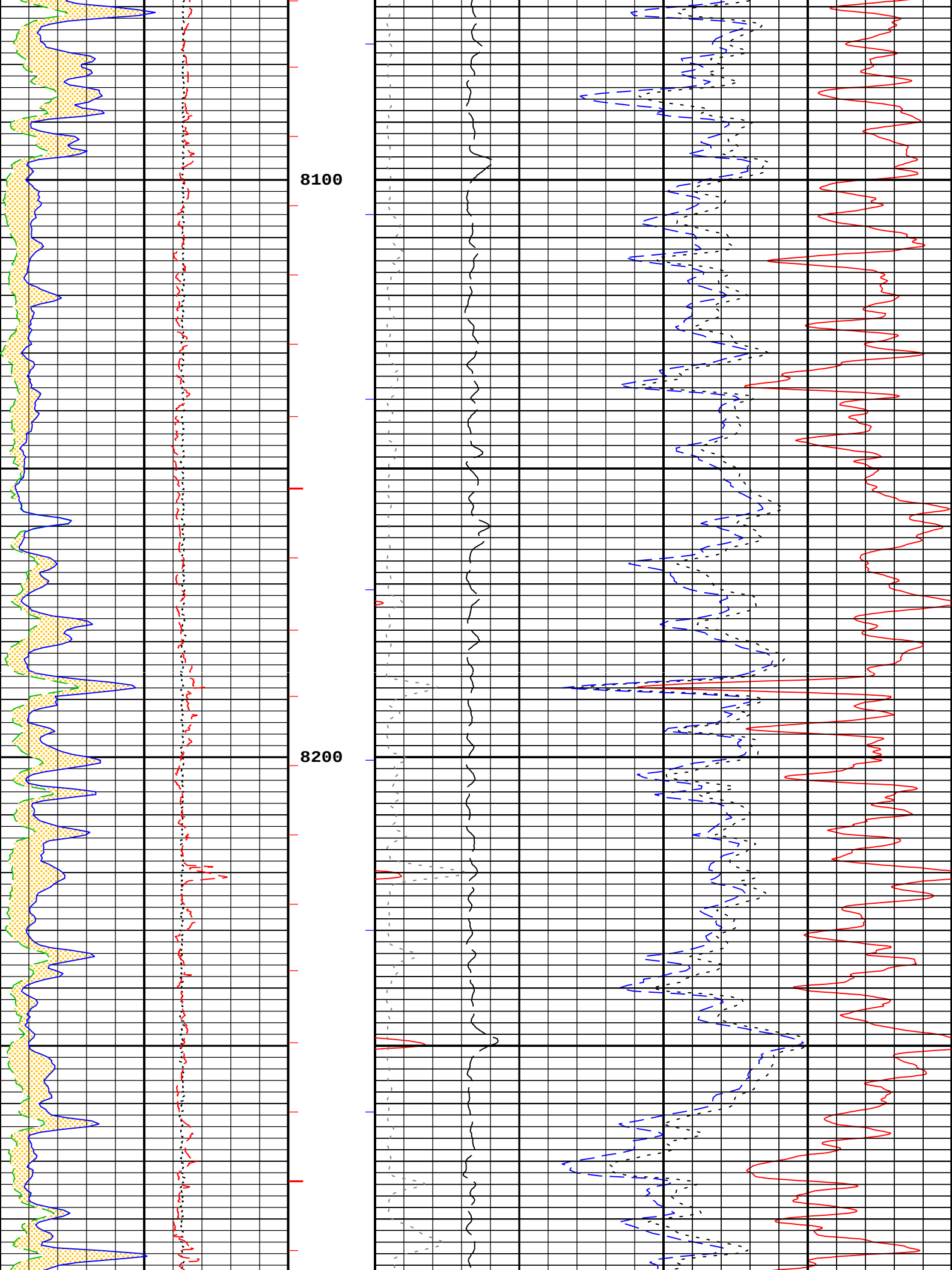


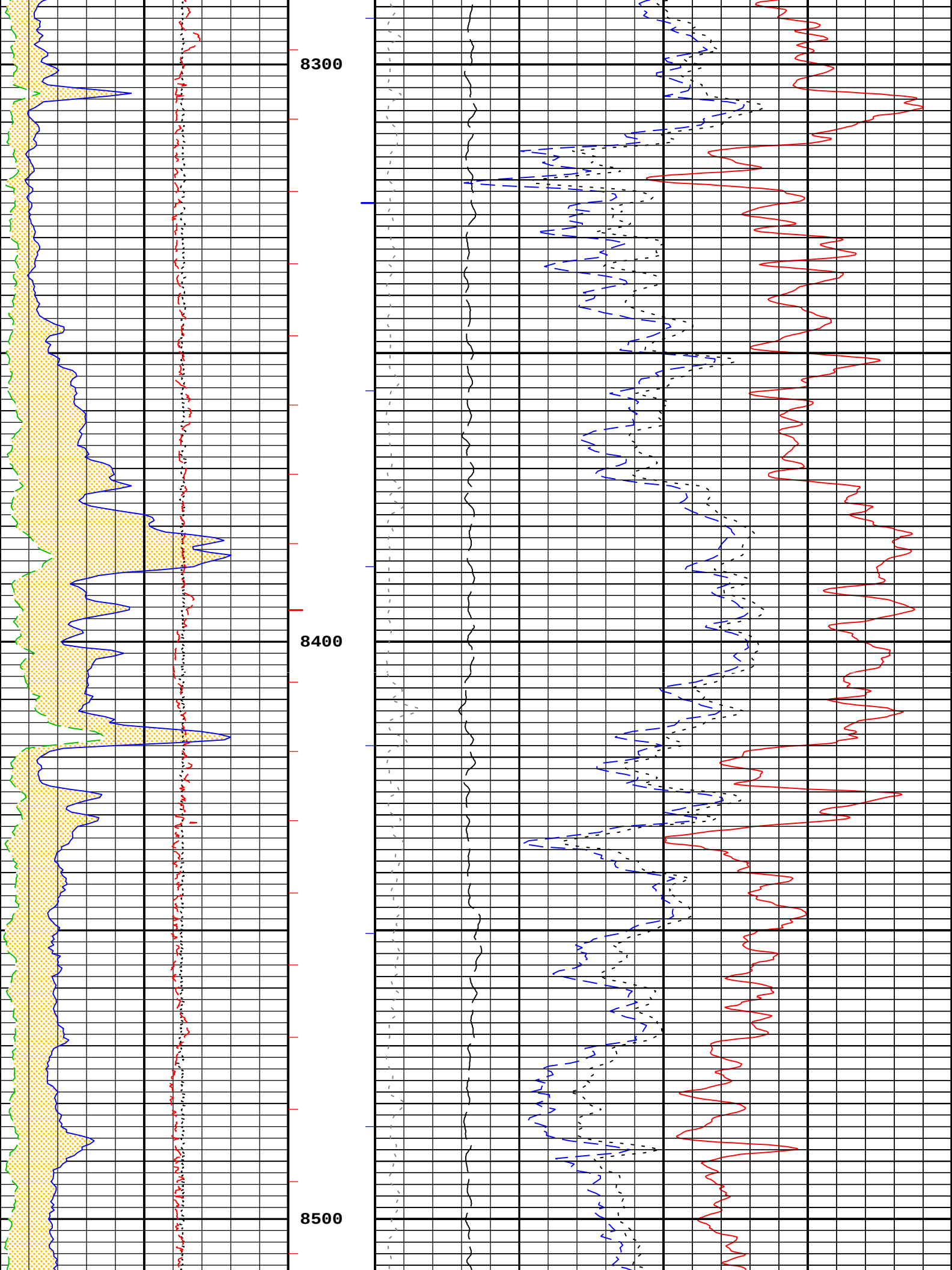


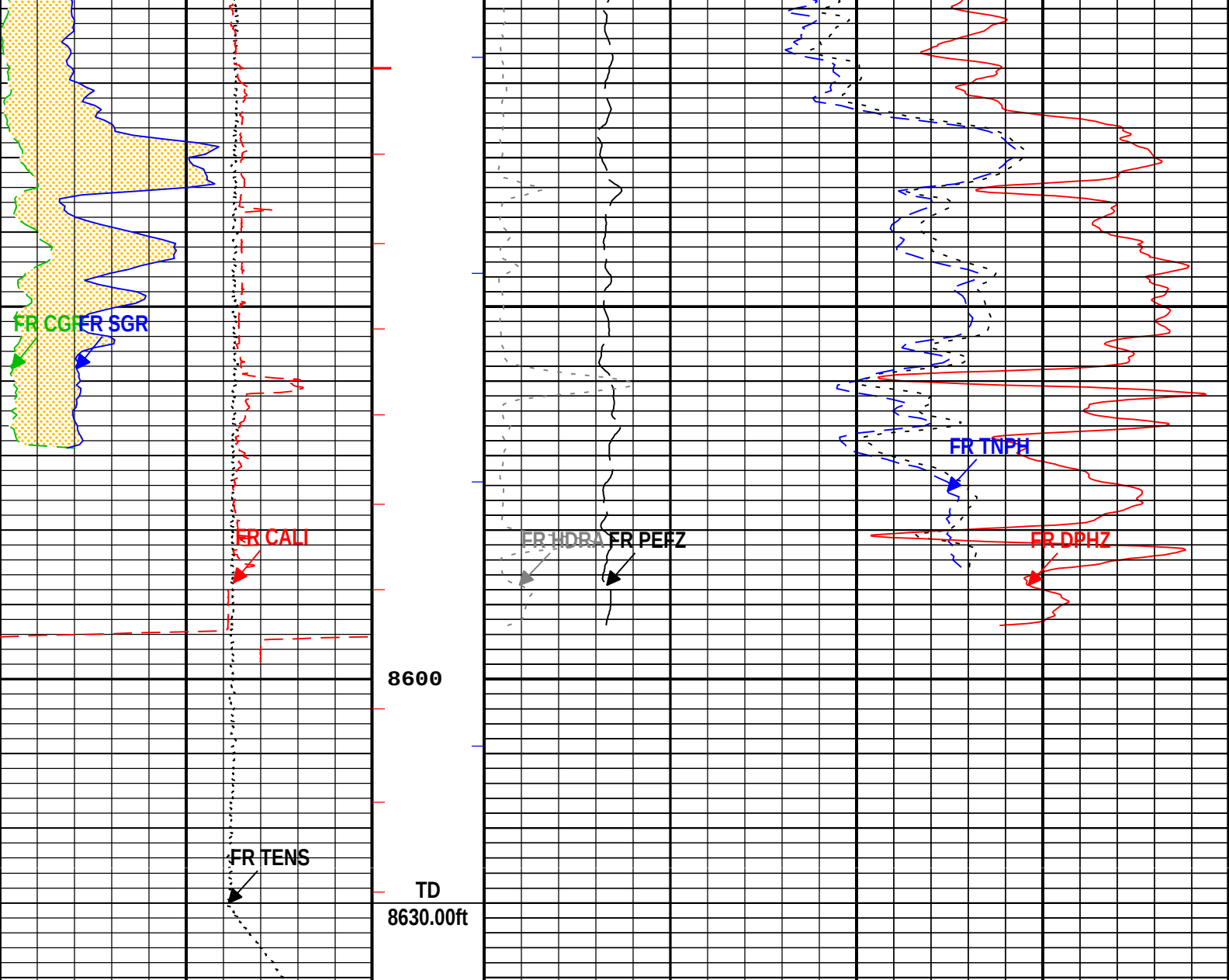












5" Porosity

Uranium Indicator		
Cable Tension (TENS)		
10000	lbf	0
Caliper (CALI) HDRS-B		
6	in	16
Gamma Ray Contribution from Thorium and Potassium (CGR) HGNS-BA		
0	gAPI	100
Spectroscopy Gamma Ray (SGR) HGNS-BA		
0	gAPI	100

Crossplot Porosity for Neutron-Density (PXND)		
0.3	ft3/ft3	-0.1
Thermal Neutron Porosity (Ratio Method) in Selected Lithology (TNPH) HGNS-B		
0.3	ft3/ft3	-0.1
Standard Resolution Density Porosity (DPHZ) HDRS-B		
0.3	ft3/ft3	-0.1
Standard Resolution Formation Photoelectric Factor (PEFZ) HDRS-B		
0		10
Density Standoff Correction (HDRA) HDRS-B		
-0.05	g/cm3	0.45

TIME_1900 - Time Marked every 60.00 (s)

—|ICV - Integrated Cement Volume every 10.00 (ft3)
—|ICV - Integrated Cement Volume every 100.00 (ft3)

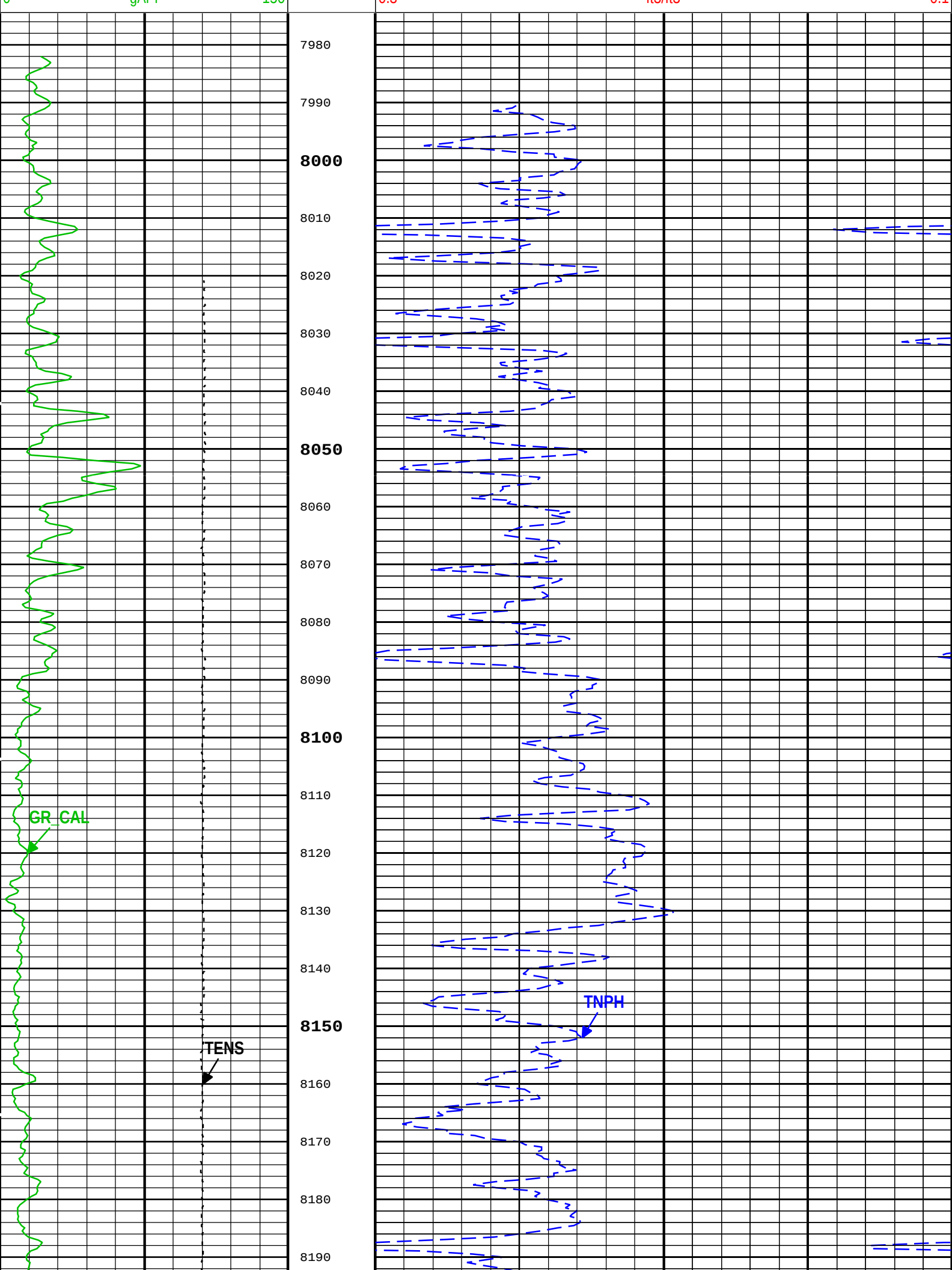
—|IHV - Integrated Hole Volume every 10.00 (ft3)

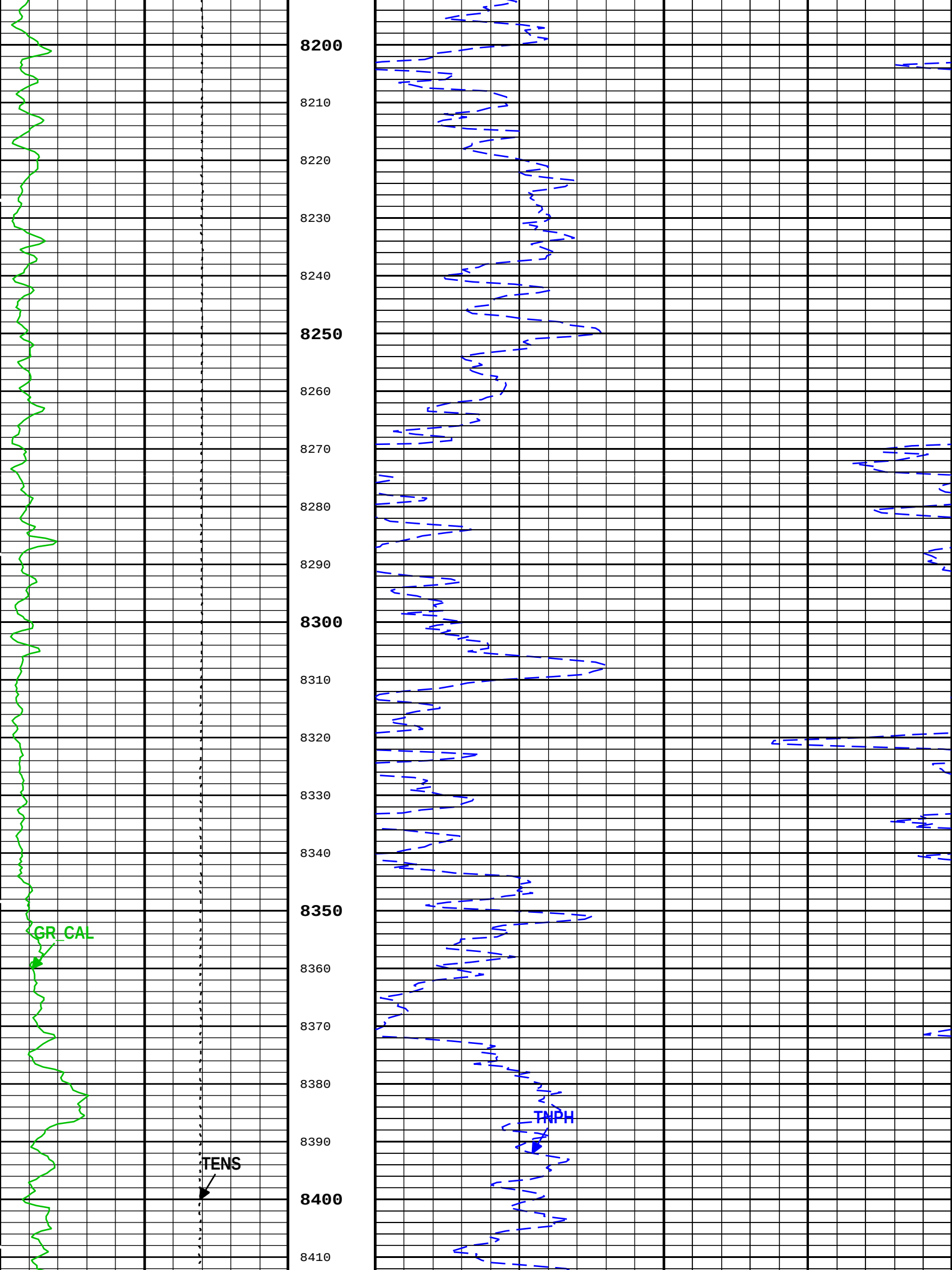
Channel Processing Parameters				
Parameter	Description	Tool	Value	Unit
BARI	Barite Mud Presence Flag	Borehole	No	
BHK	Drilling Fluid Potassium Concentration	Borehole	0	%
BHS	Borehole Status (Open or Cased Hole)	Borehole	Depth Zoned	
BHT	Bottom Hole Temperature	Borehole	107.3	degF
BS	Bit Size	WLSESSION	Depth Zoned	in
BSAL	Borehole Salinity	Borehole	500	ppm
CALI_SHIFT	CALI Supplementary Offset	HDRS-B	0.168	in
CBLO	Casing Bottom (Logger)	WLSESSION	3219.5	ft
CSODDRL	Casing Outer Diameter - Zoned along driller depths	WLSESSION	Depth Zoned	in
DBCC	Barite Constant Correction Flag	HNGS-BA	None	
DFD	Drilling Fluid Density	Borehole	8.8	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	
DFT_WATER	Drilling Fluid Water Type	Borehole	Salt Brine	
DHC	Density Hole Correction	HDRS-B	Bit Size	
FCD	Future Casing (Outer) Diameter	WLSESSION	9.625	in
FD	Fluid Density	Borehole	1	g/cm3
FSAL	Formation Salinity	Borehole	0	ppm
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	CALI	
GRSE	Generalized Mud Resistivity Selection, from Measured or Computed Mud Resistivity	Borehole	AMF	
GTSE	Generalized Temperature Selection, from Measured or Computed Temperature	Borehole	CTEM	
HCRB	Apply Borehole Potassium Correction	HNGS-BA	None	
HEMA	Hematite Presence Flag	Borehole	No	
HSCO	Hole Size Correction Option	HGNS-B	Yes	
HVCS	Integrated Hole Volume Caliper Selection	Borehole	Measured Area	
MATR	Rock Matrix for Neutron Porosity Corrections	Borehole	LIMESTONE	
MDEN	Matrix Density for Density Porosity	Borehole	2.71	g/cm3
MFST	Mud Filtrate Sample Temperature	Borehole	80	degF
NPRM	HRDD Nuclear Processing Mode	HDRS-B	High Resolution	
RMFS	Resistivity of Mud Filtrate Sample	Borehole	7.5	ohm.m
SGRC	Standard Gamma Ray Correction Flag	HNGS-BA	Yes	
SOCO	Standoff Correction Option	HGNS-B	Yes	

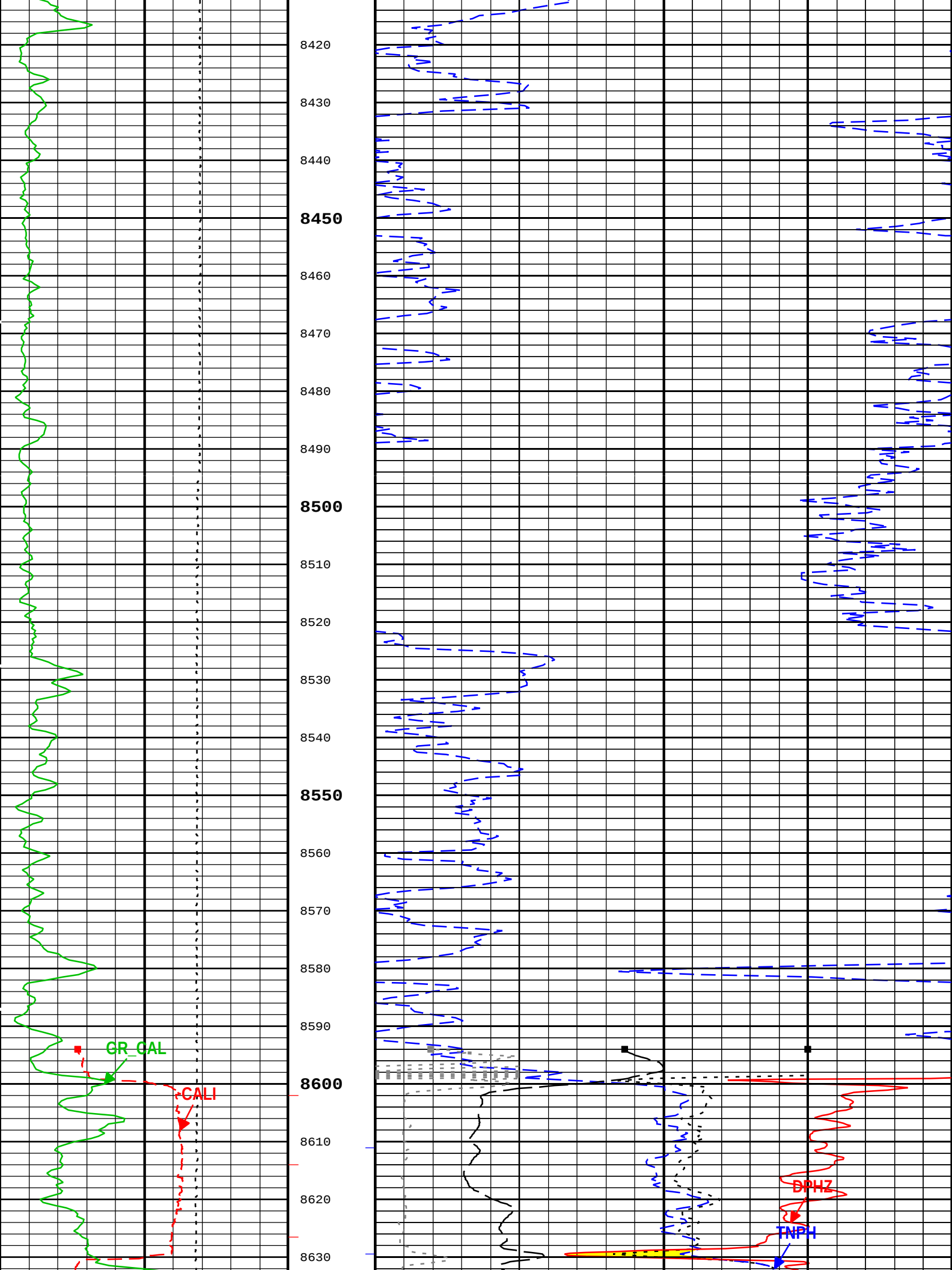
Depth Zone Parameters			
Parameter	Value	Start (ft)	Stop (ft)
BHS	Cased	0	3520
BHS	Open	3520	8640.75
BS	26	0	1570
BS	17.5	1570	3226.75
BS	12.25	3226.75	8630
CSODDRL	20	0	1570
CSODDRL	13.375	1570	3220
All depth are actual.			

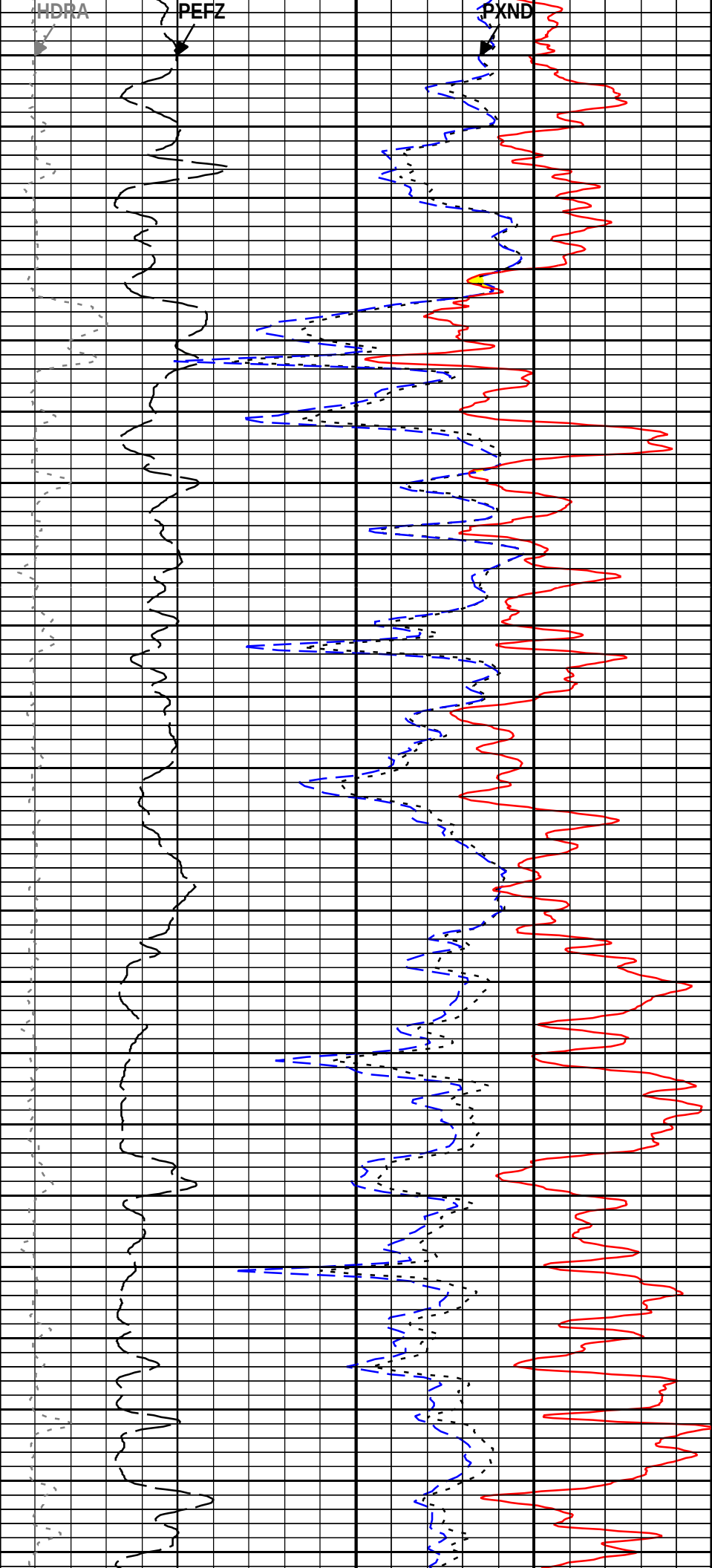
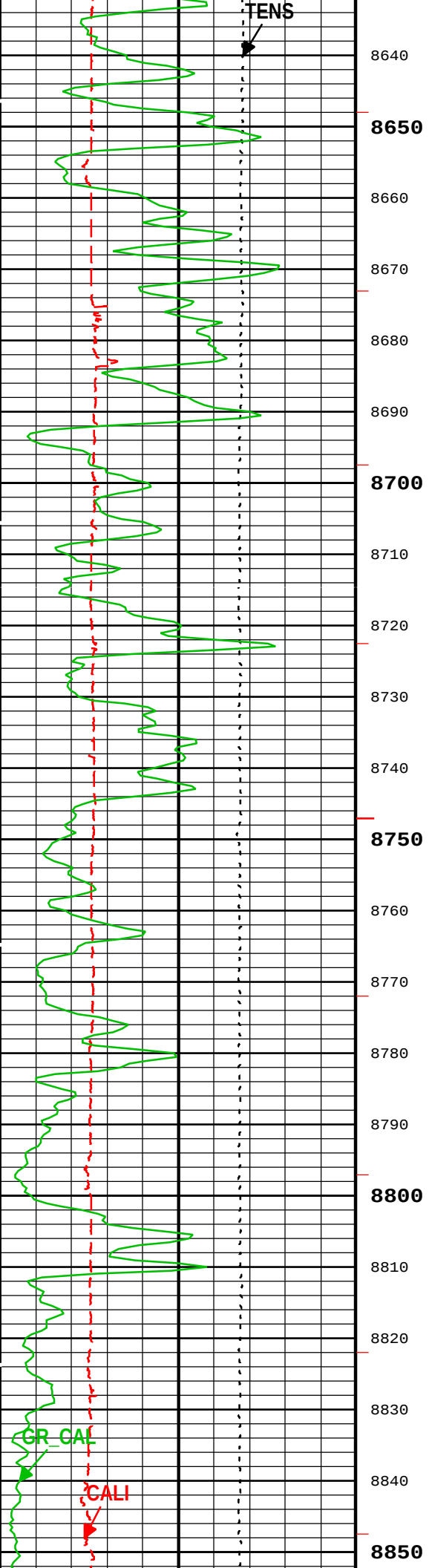
Tool Control Parameters				
Parameter	Description	Tool	Value	Unit

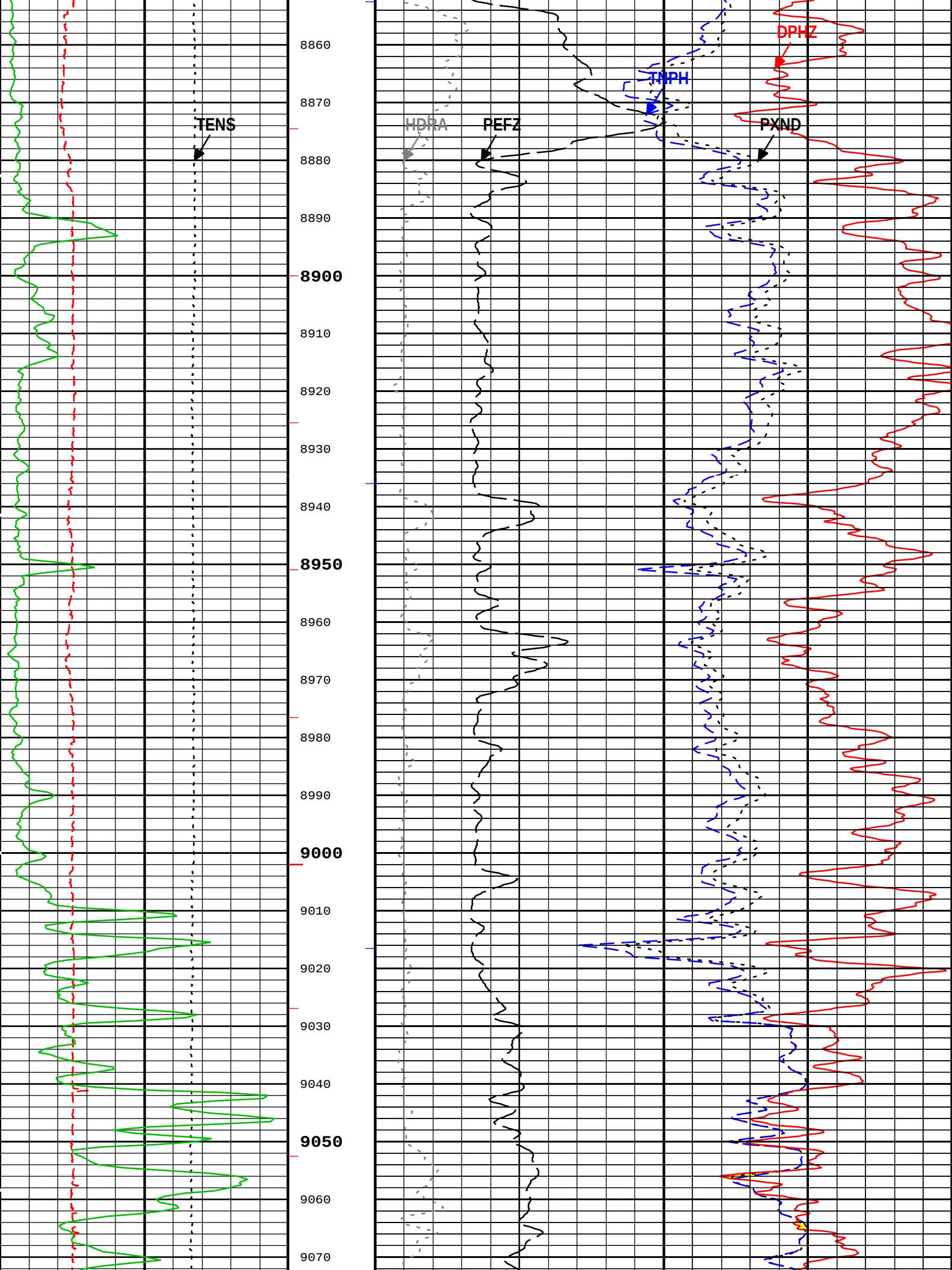
Calibrated Gamma Ray (GR_CAL) EDTC-B			Standard Resolution Density Porosity (DPHZ) HDRS-H		
0	gAPI	150	0.3	ft3/ft3	-0.1

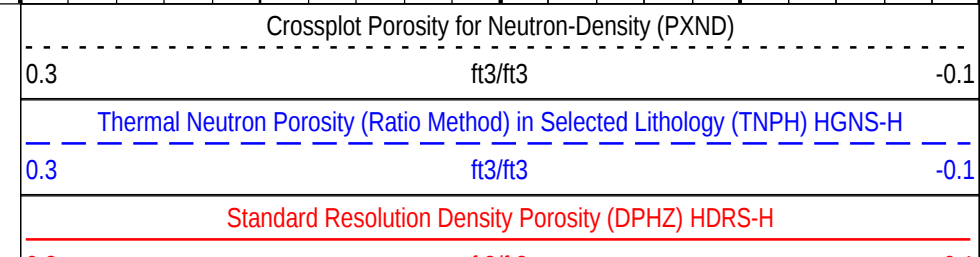
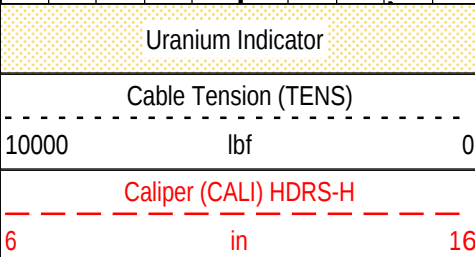
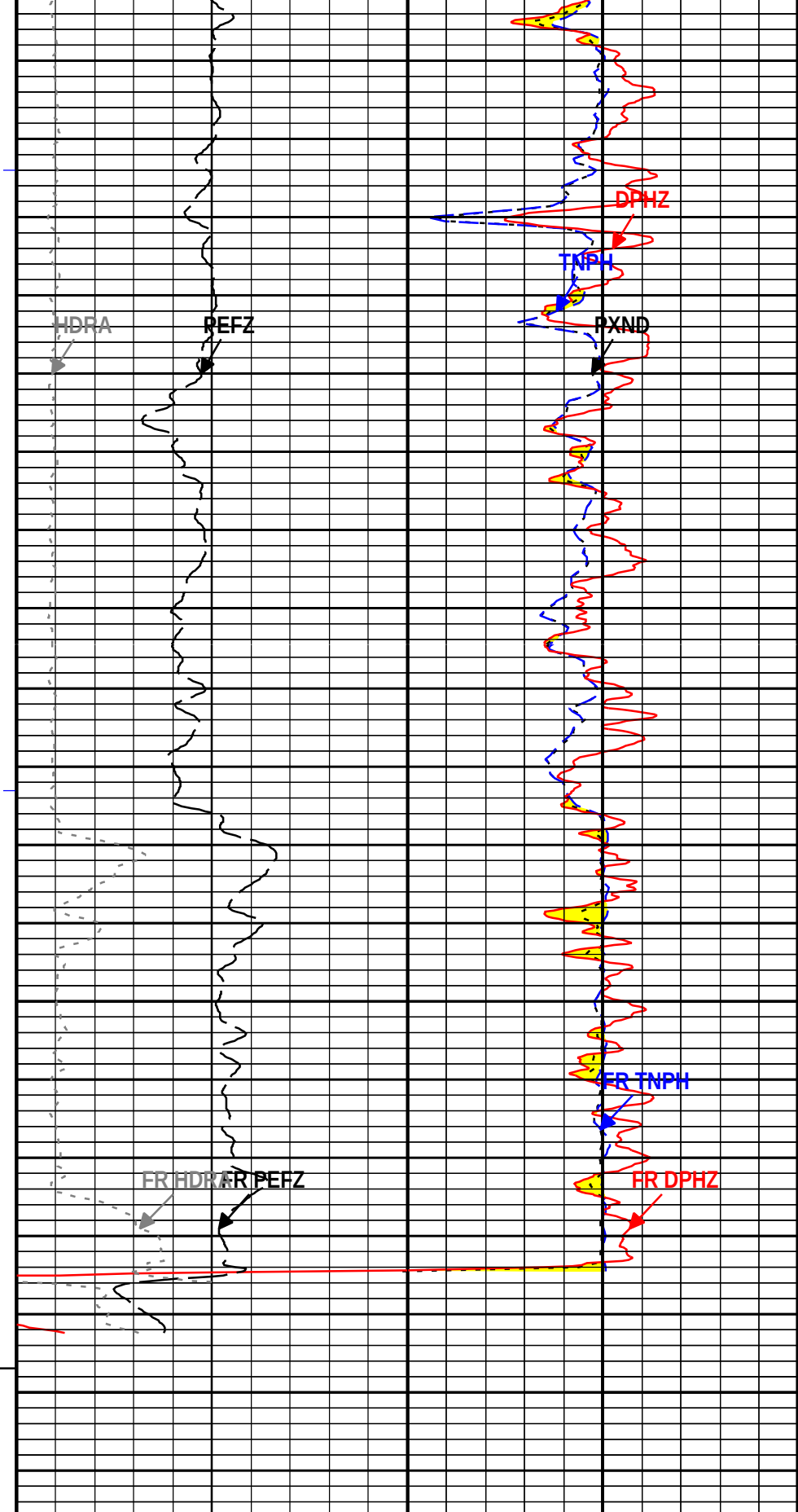
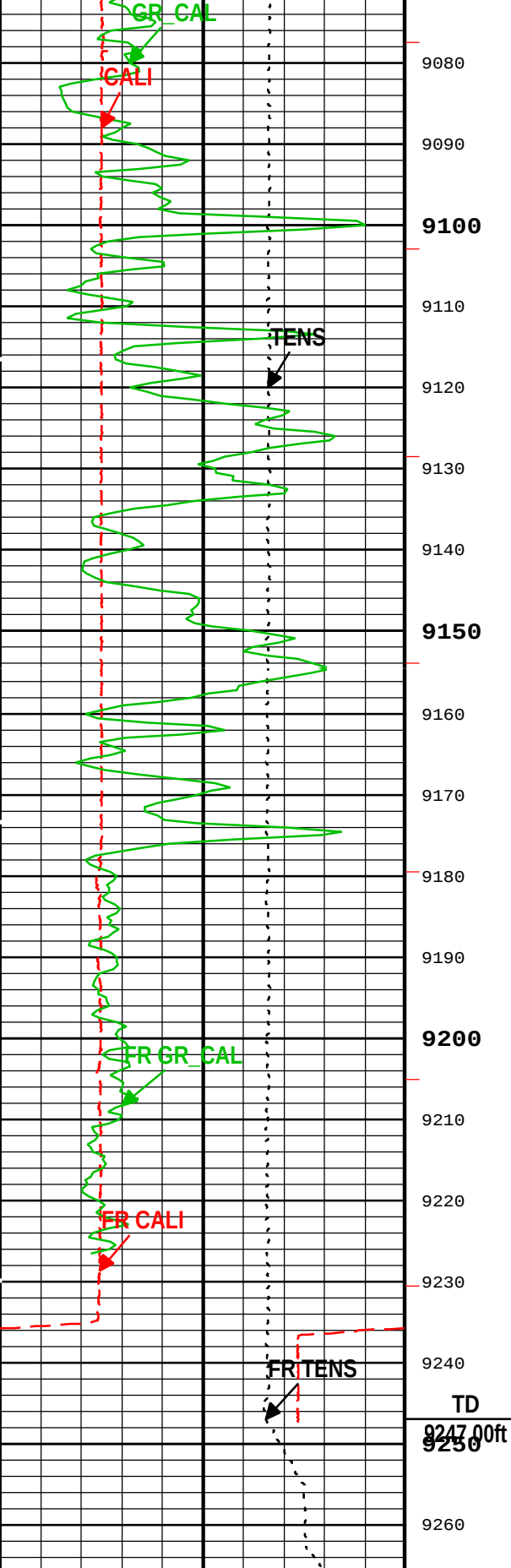












Calibrated Gamma Ray (GR_CAL) EDTC-B		
0	gAPI	150

0.3		ft3	
Standard Resolution Formation Photoelectric Factor (PEFZ) HDRS-H			
0		10	
Density Standoff Correction (HDRA) HDRS-H			

-0.05	g/cm3	0.2	

└─ICV - Integrated Cement Volume every 10.00 (ft3)

└─ICV - Integrated Cement Volume every 100.00 (ft3)

TIME_1900 - Time Marked every 60.00 (s)

└─IHV - Integrated Hole Volume every 10.00 (ft3)

└─IHV - Integrated Hole Volume every 100.00 (ft3)

Description: HRLT BASIC LOG Format: Log (Porosity_5_Inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 10-Dec-2014 09:18:59

Channel Processing Parameters				
Parameter	Description	Tool	Value	Unit
BARI	Barite Mud Presence Flag	Borehole	Yes	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open	
BHT	Bottom Hole Temperature	Borehole	138	degF
BS	Bit Size	WLSESSION	8.5	in
BSAL	Borehole Salinity	Borehole	500	ppm
CALI_SHIFT	CALI Supplementary Offset	HDRS-H	0.2	in
CBLO	Casing Bottom (Logger)	WLSESSION	8594	ft
CSODDRL	Casing Outer Diameter - Zoned along driller depths	WLSESSION	9.625	in
DFD	Drilling Fluid Density	Borehole	10.1	lbm/gal
DFT	Drilling Fluid Type	Borehole	Water	
DFT_WATER	Drilling Fluid Water Type	Borehole	Fresh Water	
DHC	Density Hole Correction	HDRS-H	Bit Size	
FCD	Future Casing (Outer) Diameter	WLSESSION	7	in
FD	Fluid Density	Borehole	1	g/cm3
FSAL	Formation Salinity	Borehole	0	ppm
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	CALI	
GRSE	Generalized Mud Resistivity Selection, from Measured or Computed Mud Resistivity	Borehole	AMF	
GTSE	Generalized Temperature Selection, from Measured or Computed Temperature	Borehole	CTEM	
HSCO	Hole Size Correction Option	HGNS-H	Yes	
MATR	Rock Matrix for Neutron Porosity Corrections	Borehole	LIMESTONE	
MDEN	Matrix Density for Density Porosity	Borehole	2.71	g/cm3
MFST	Mud Filtrate Sample Temperature	Borehole	75	degF
RMFS	Resistivity of Mud Filtrate Sample	Borehole	0.75	ohm.m
SOCO	Standoff Correction Option	HGNS-H	Yes	

Tool Control Parameters				
Parameter	Description	Tool	Value	Unit
HMCA_BRD_TYPE	HMCA Board Type	HGNS-H	1	
HRGD_BRD_TYPE	HRGD Board Type	HDRS-H	WITH_HET	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	3600	ft/h

Repeat Analysis 5" = 100'

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Repeat[3]:Up	Up	2765.83 ft	3243.33 ft	01-Nov-2014 5:23:07 AM	01-Nov-2014 5:34:18 AM	ON	0.00 ft	Yes
One	Main[5]:Up	Up	810.48 ft	3245.53 ft	01-Nov-2014 5:51:35 AM	01-Nov-2014 6:34:07 AM	ON	3.59 ft	Yes

All depths are referenced to toolstring zero

Log

Company:PB ENERGY STORAGE SERVICES, INC Well:DCP Linam Ranch AGI #2
One: Main[5]:Up:S012

Description: HRLT BASIC LOG Format: Log (Porosity_5_Inch RA) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 01-Nov-2014 06:53:38

RUN 1

- IHV - Integrated Hole Volume every 100.00 (ft3)
- IHV - Integrated Hole Volume every 10.00 (ft3)
- ICV - Integrated Cement Volume every 100.00 (ft3)
- ICV - Integrated Cement Volume every 10.00 (ft3)

TIME_1900 - Time Marked every 60.00 (s)

Main To Repeat

Repeat To Main

Caliper (CALI) HDRS-B

6in16

Main To Repeat

Repeat To Main

Cable Tension (TENS)

10000lbf0

Main To Repeat

Repeat To Main

Calibrated Gamma Ray (GR) HGNS-B

0gAPI100

Main To Repeat

Repeat To Main

Density Standoff Correction (HDRA) HDRS-B

-0.05g/cm30.45

Main To Repeat

Repeat To Main

Standard Resolution Formation Photoelectric Factor (PEFZ) HDRS-B

010

Main To Repeat

Repeat To Main

Crossplot Porosity for Neutron-Density (PXND)

0.3ft3/ft3-0.1

Main To Repeat

Repeat To Main

Standard Resolution Density Porosity (DPHZ) HDRS-B

0.3ft3/ft3-0.1

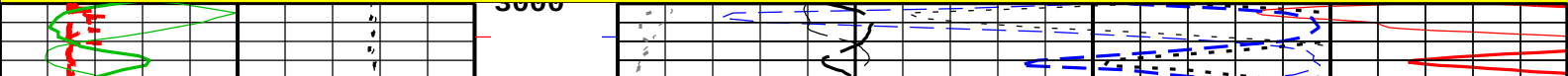
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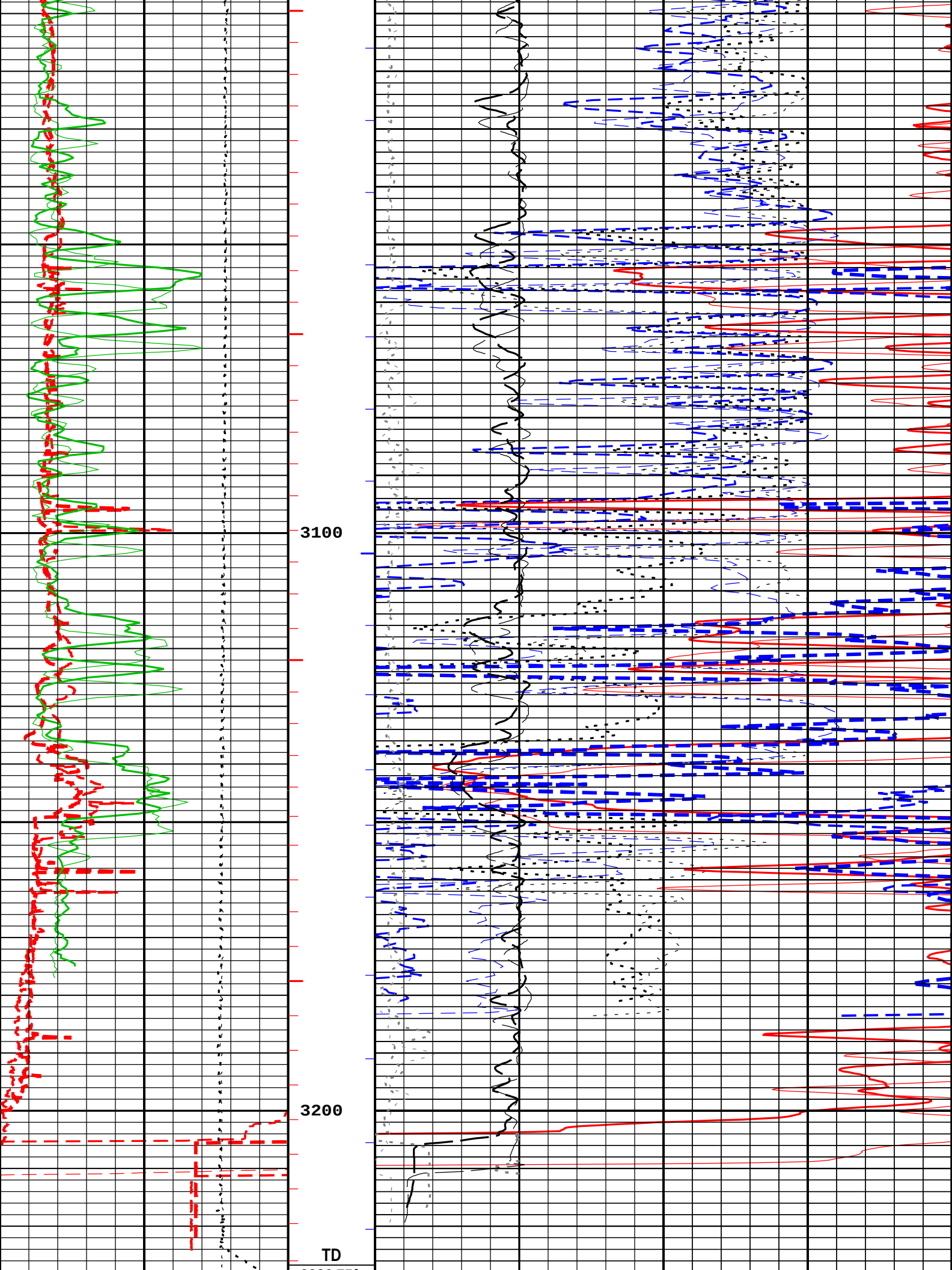
Repeat To Main

Thermal Neutron Porosity (Ratio Method) in Selected Lithology (TNPH) HGNS-B

0.3ft3/ft3-0.1

Repeat Analysis





TIME_1900 - Time Marked every 60.00 (s)

— IHV - Integrated Hole Volume every 10.00 (ft3)

— ICV - Integrated Cement Volume every 100.00 (ft3)

— ICV - Integrated Cement Volume every 10.00 (ft3)

Main To Repeat

Repeat To Main

Density Standoff
Correction (HDRA)
HDRS-B

-0.05 g/cm3 0.45

Main To Repeat

Repeat To Main

Standard Resolution Formation Photoelectric
Factor (PEFZ) HDRS-B

0

10

Main To Repeat

Repeat To Main

Caliper (CALI) HDRS-B

6

in

16

Main To Repeat

Repeat To Main

Cable Tension (TENS)

10000

lbf

0

Main To Repeat

Repeat To Main

Calibrated Gamma Ray (GR) EDTC-B

0

gAPI

100

Main To Repeat

Repeat To Main

Crossplot Porosity for Neutron-Density (PXND)

0.3

ft3/ft3

-0.1

Main To Repeat

Repeat To Main

Standard Resolution Density Porosity (DPHZ) HDRS-B

0.3

ft3/ft3

-0.1

Main To Repeat

Repeat To Main

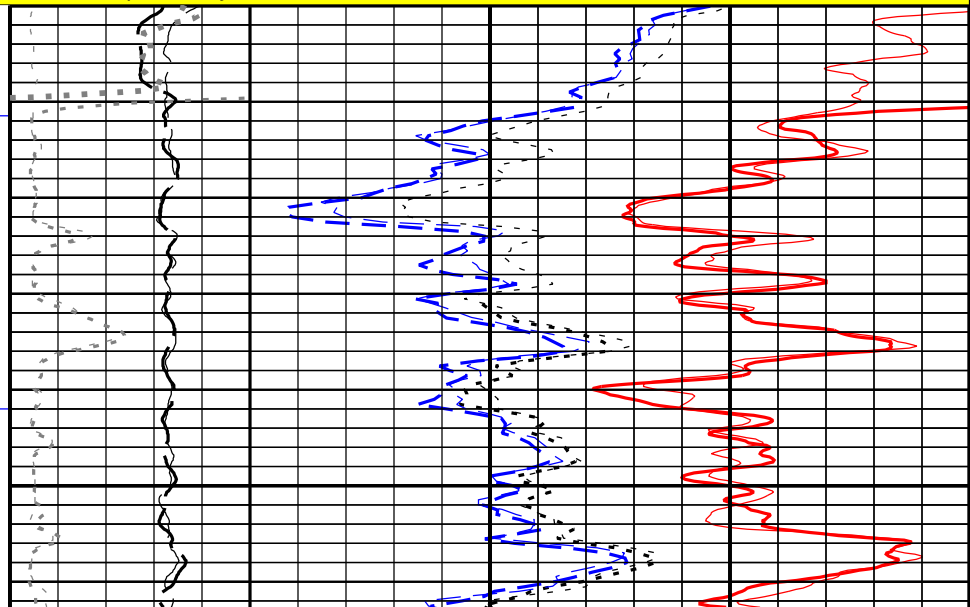
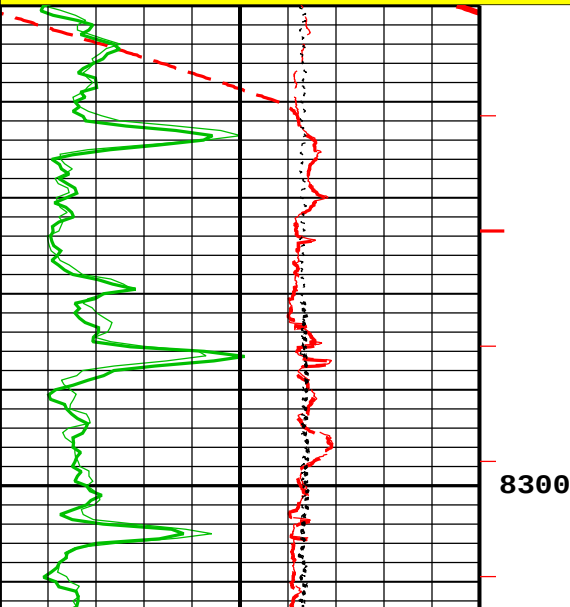
Thermal Neutron Porosity (Ratio Method) in Selected Lithology (TNPH) HGNS-B

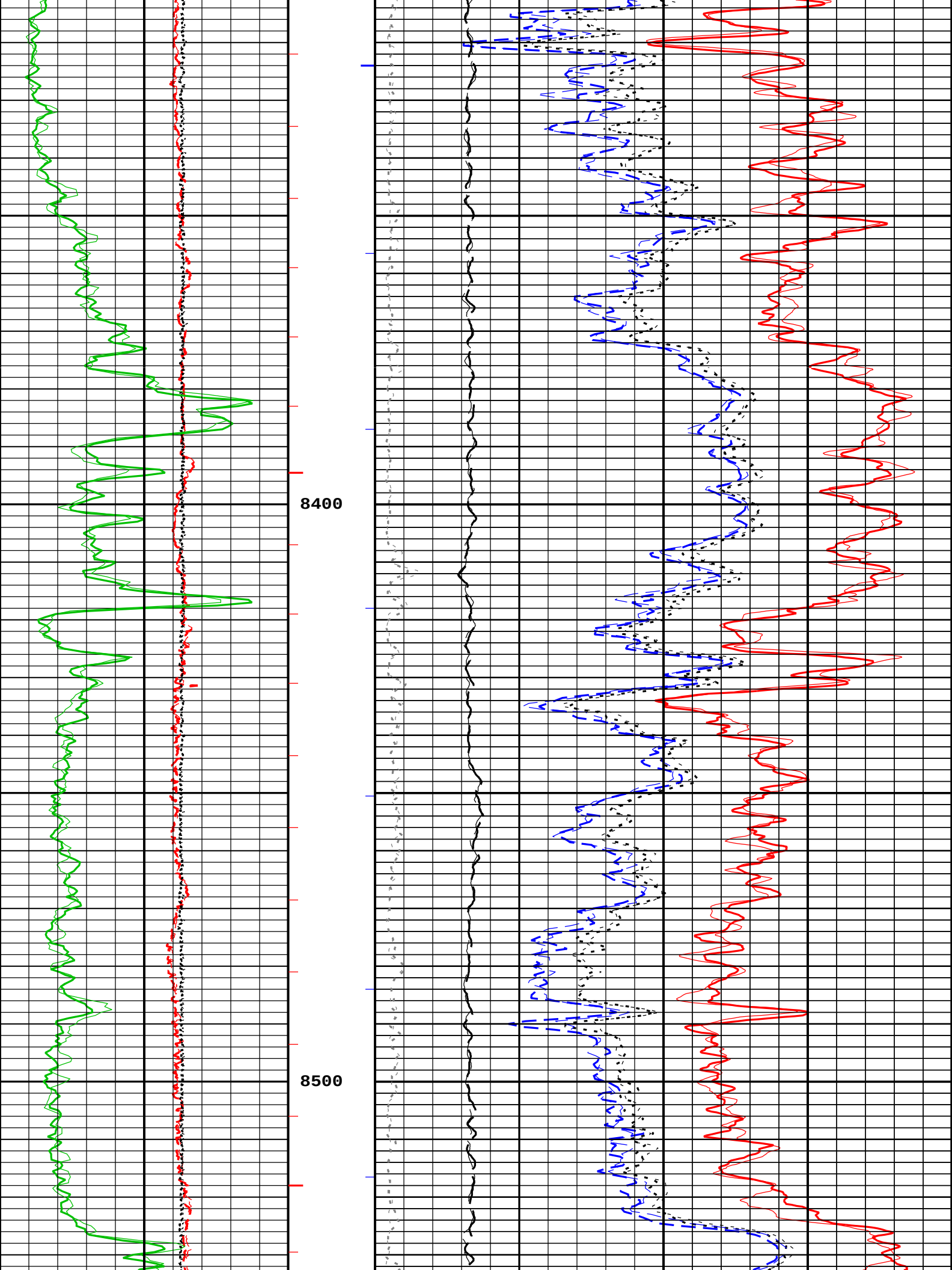
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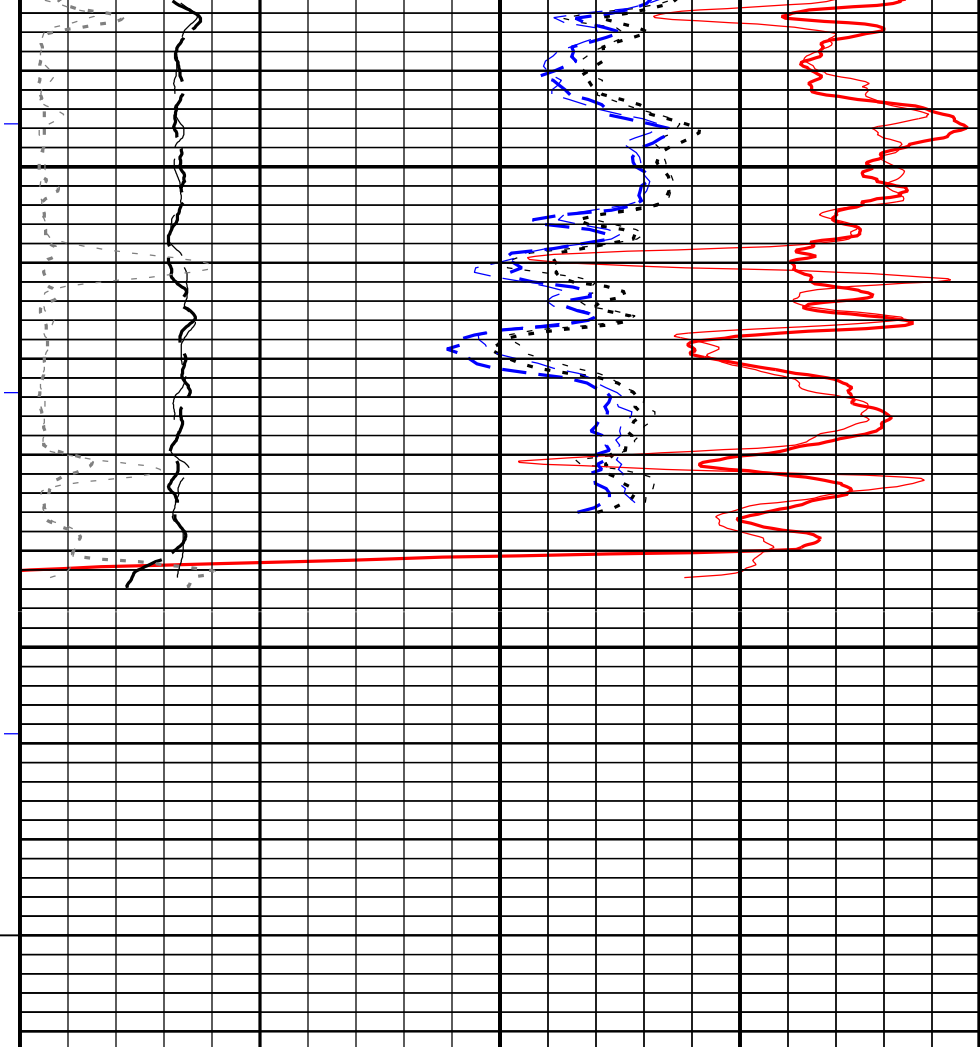
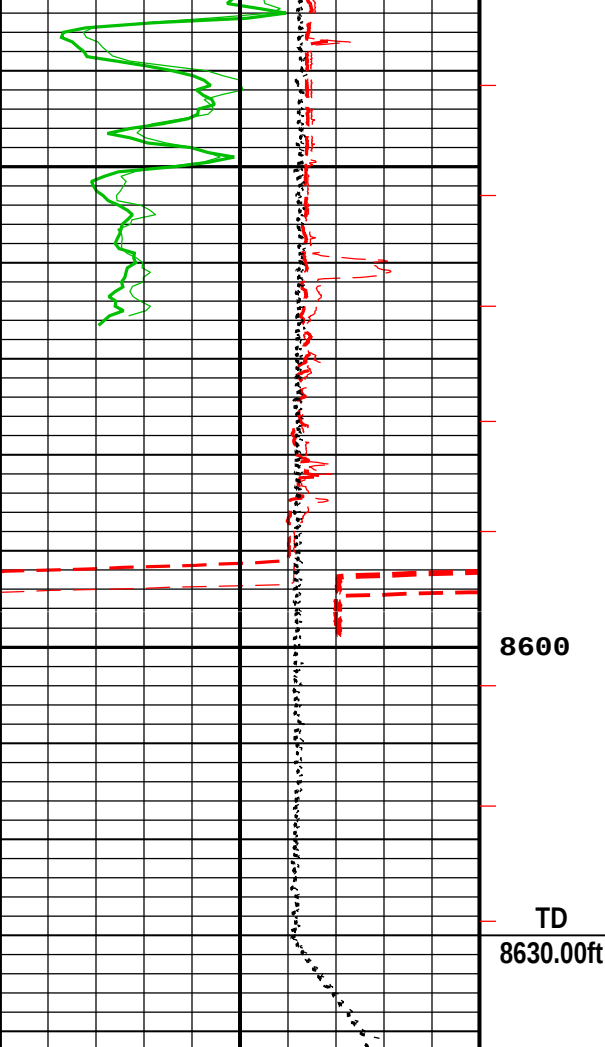
ft3/ft3

-0.1

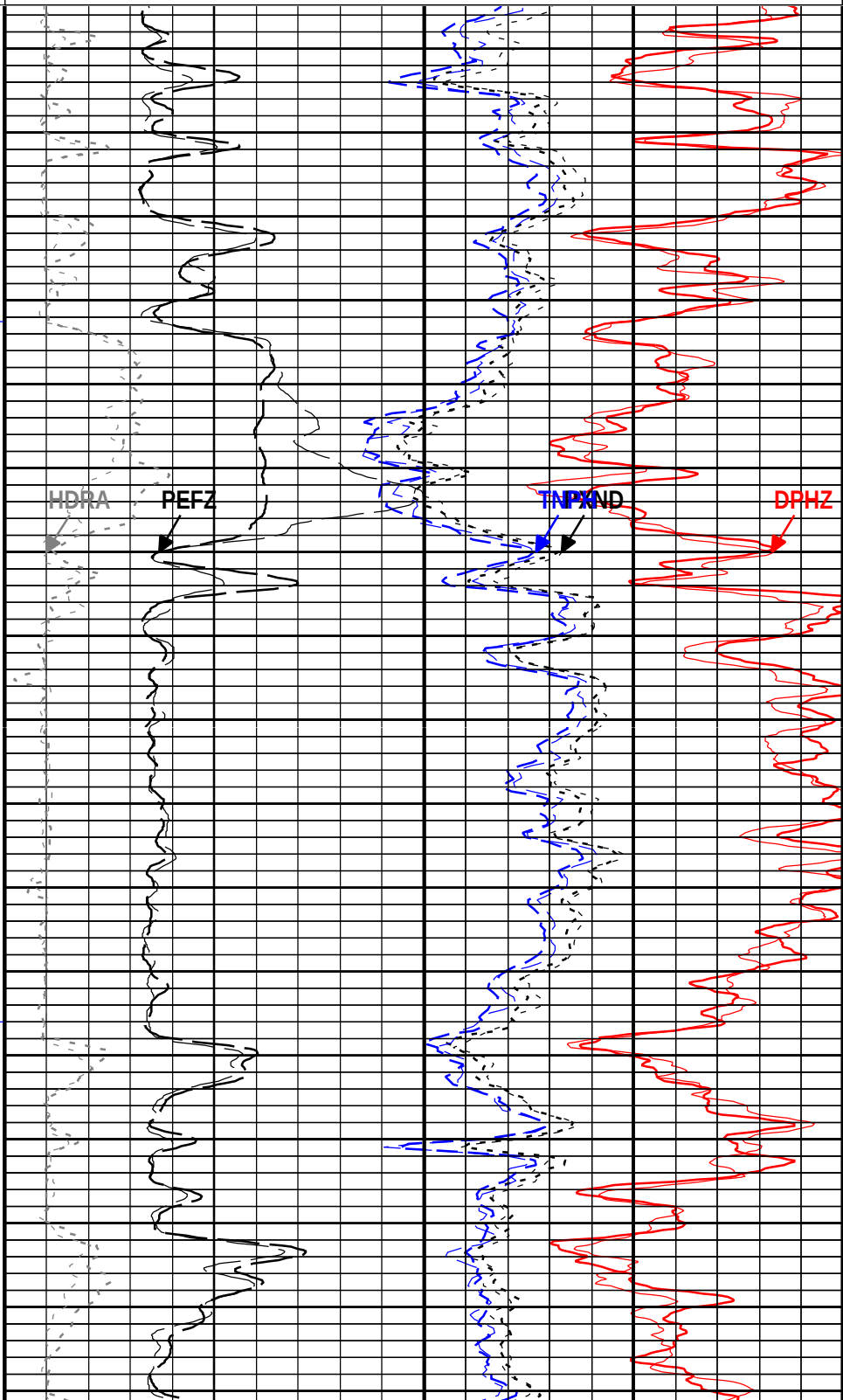
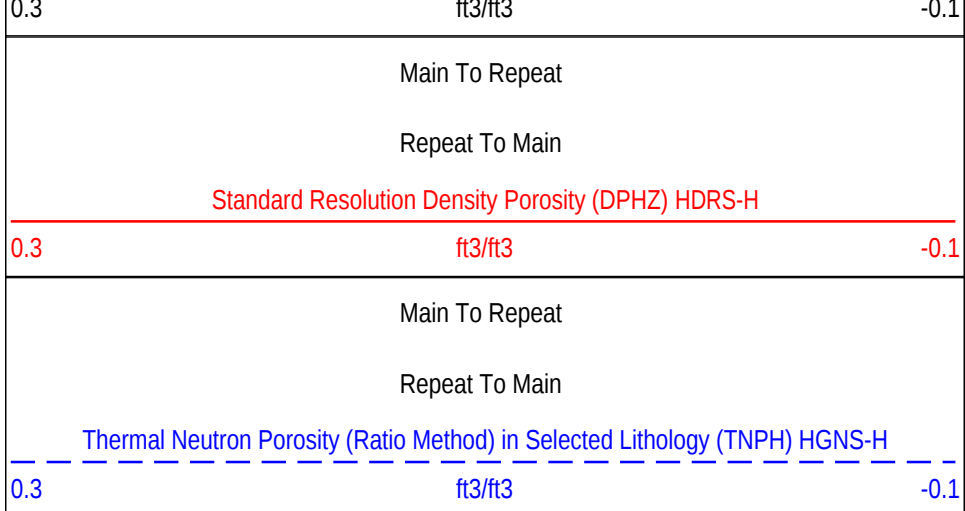
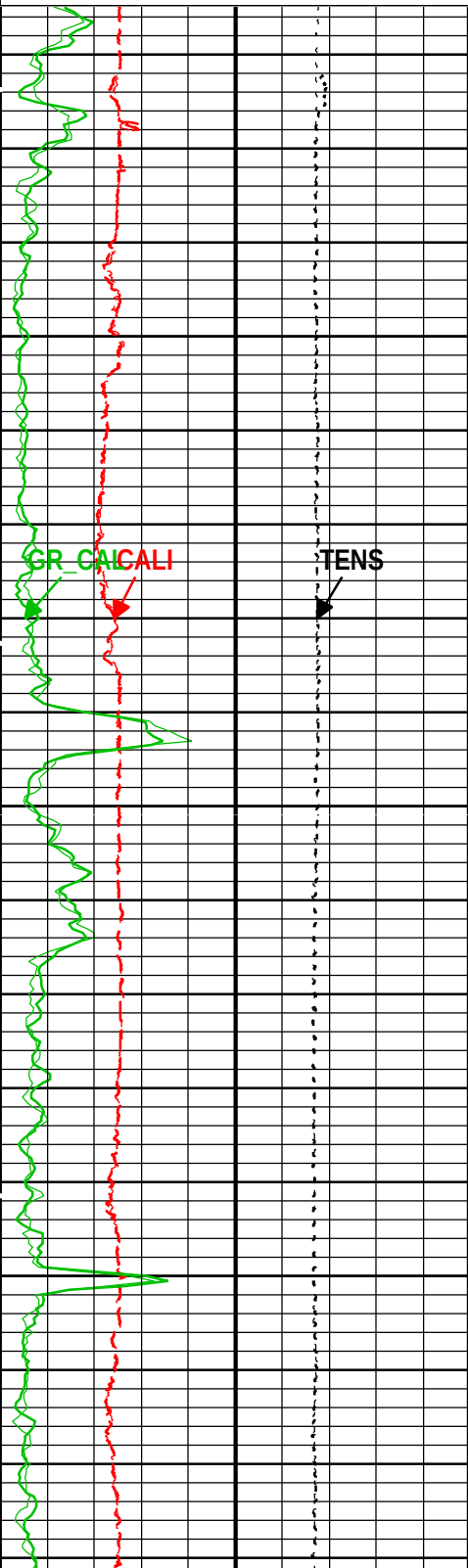
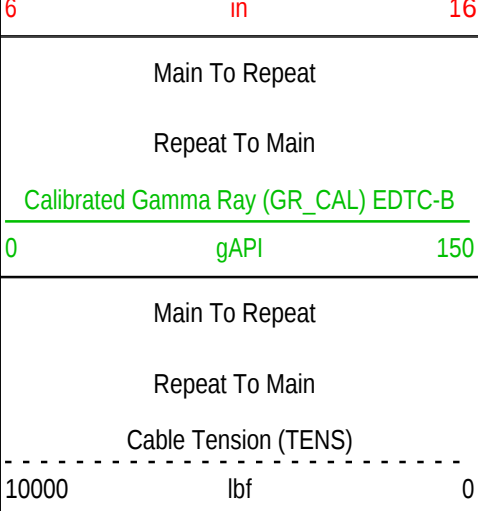
Repeat Analysis

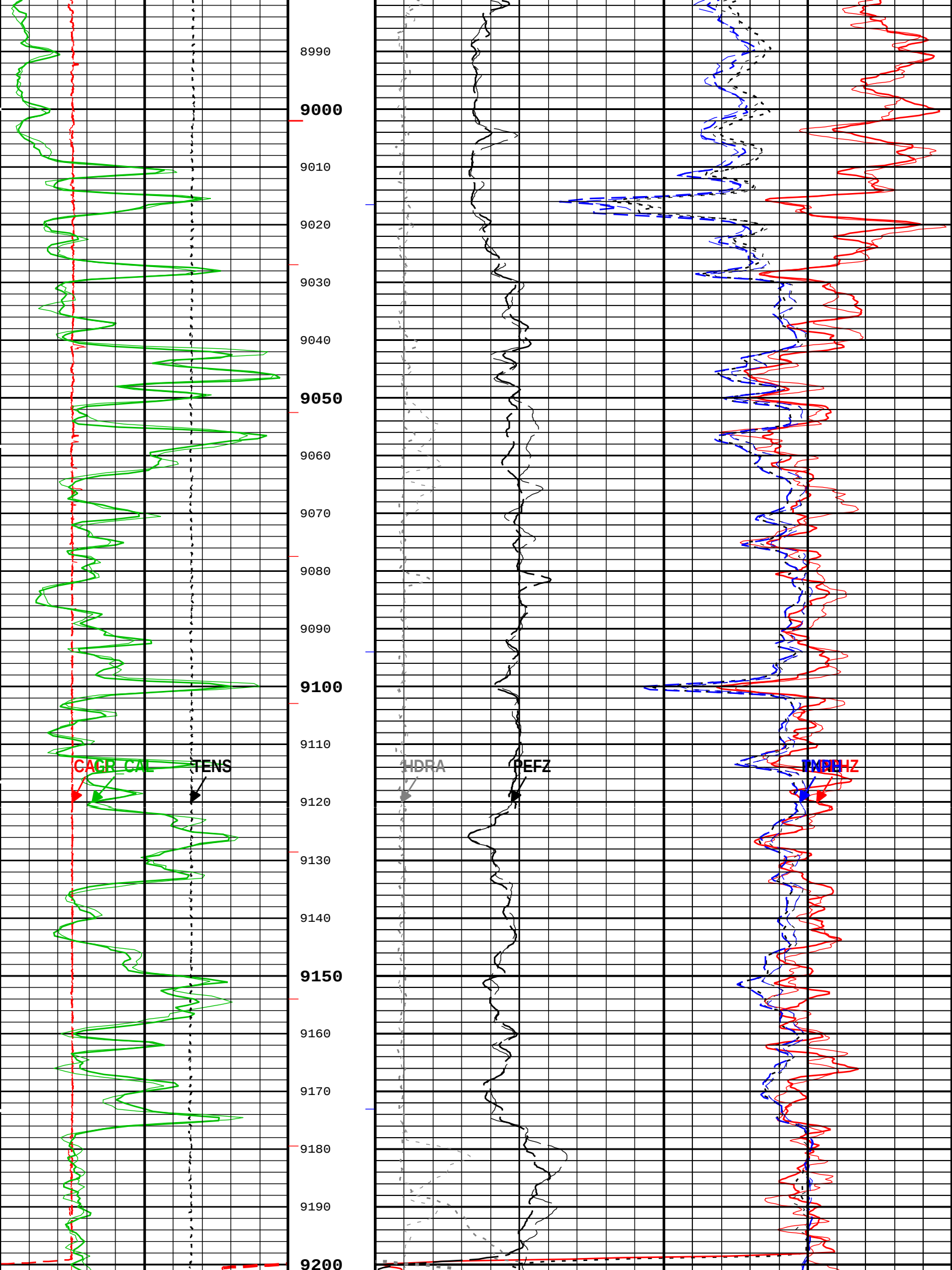


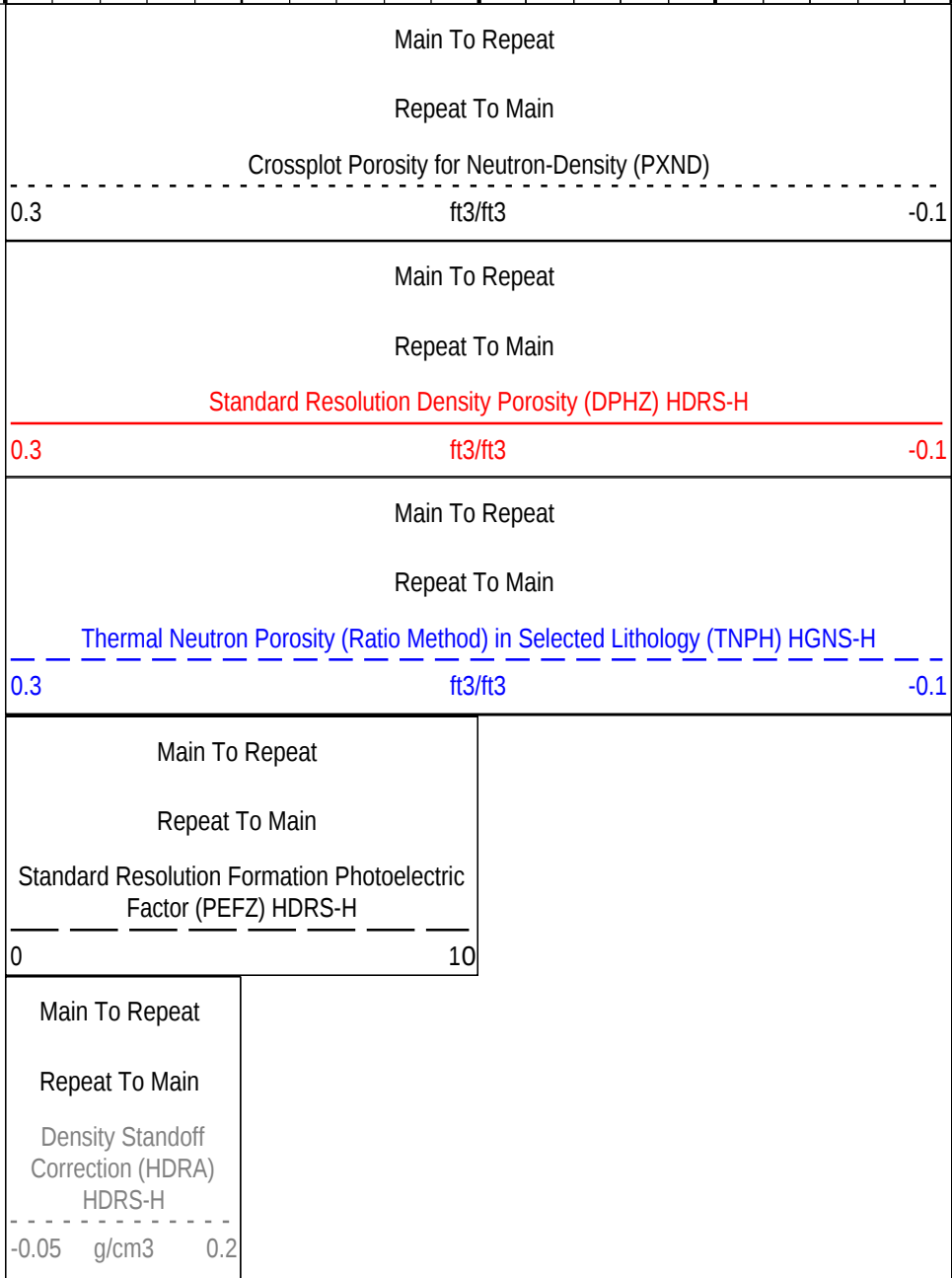
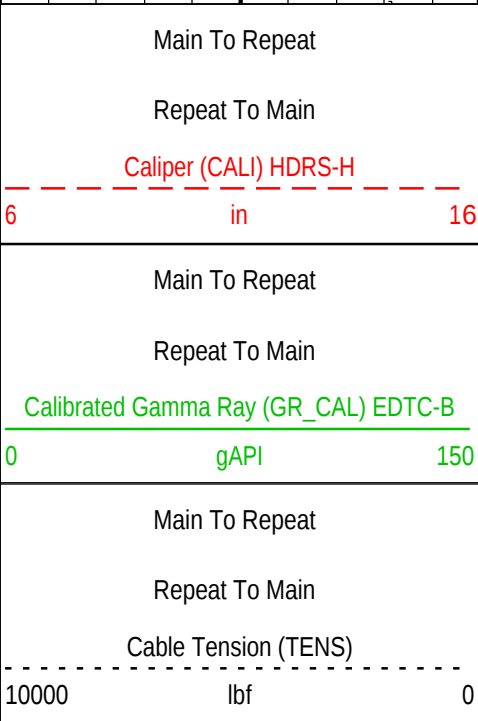
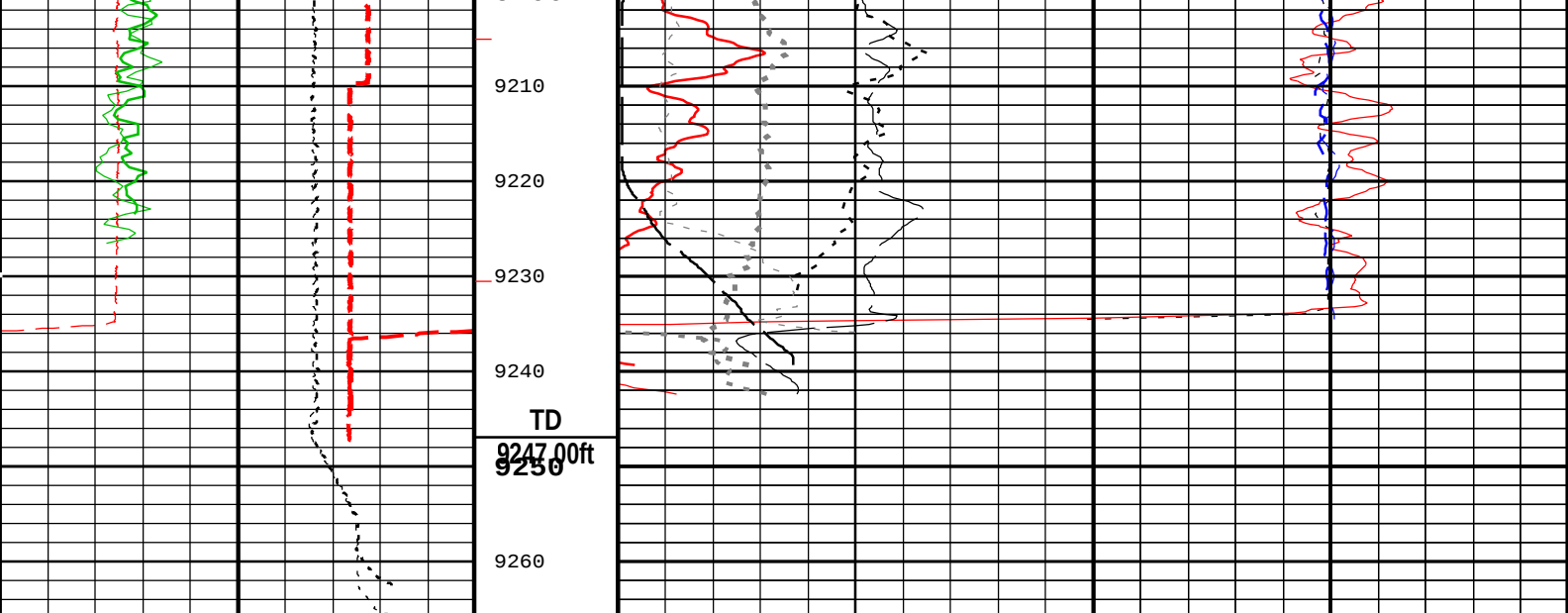




Repeat Analysis			
Main To Repeat Repeat To Main Caliper (CALI) HDRS-B 6 in 16		Main To Repeat Repeat To Main Crossplot Porosity for Neutron-Density (PXND) 0.3 ft3/ft3 -0.1	
Main To Repeat Repeat To Main Cable Tension (TENS) 10000 lbf 0		Main To Repeat Repeat To Main Standard Resolution Density Porosity (DPHZ) HDRS-B 0.3 ft3/ft3 -0.1	
Main To Repeat Repeat To Main Calibrated Gamma Ray (GR) EDTC-B 0 gAPI 100		Main To Repeat Repeat To Main Thermal Neutron Porosity (Ratio Method) in Selected Lithology (TNPH) HGNS-B 0.3 ft3/ft3 -0.1	
Main To Repeat Repeat To Main Standard Resolution Formation Photoelectric Factor (PEFZ) HDRS-B 0 10		Main To Repeat Repeat To Main Standard Resolution Formation Photoelectric Factor (PEFZ) HDRS-B 0 10	
Main To Repeat Repeat To Main		Main To Repeat Repeat To Main	







TIME_1900 - Time Marked every 60.00 (s)

—ICV - Integrated Cement Volume every 10.00 (ft3)

—ICV - Integrated Cement Volume every 100.00 (ft3)

—IHV - Integrated Hole Volume every 10.00 (ft3)

Description: HRLT BASIC LOG Format: Log (Porosity_5_Inch RA) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 10-Dec-2014 09:19:07

Calibration Report

RUN 1

HDRS-B (HILT Density and Rxo Sonde, 125 degC) Calibration - Run One

Primary Equipment :

HILT High-Resolution Control Cartridge, 125 degC	HRCC-B	952
15 kpsi, tungsten shielding	HRGD-B	1887

Auxiliary Equipment :

HRDD Backscatter Detector	Backscatter	
HRDD Long Spacing Detector	Long Spacing	
HRDD Short Spacing Detector	Short Spacing	
Cesium 137 Gamma-Ray Logging Source	GSR-J	5255
HILT High-Resolution Control Cartridge, 125 degC	HRCC-B	952
HRMS, 125 degC, 10 kpsi	HRMS-B	1783

Calibration Parameter :

Small Ring Size (Caliper Calibration Small Ring)	8.00
Large Ring Size (Caliper Calibration Large Ring)	12.00

HDRS Caliper Calibration - Caliper Accumulations

Before (Measured): **16:50:42 28-Oct-2014** Expired by 2 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Small Ring	in	Before	8.00	6.00	8.56	10.00	
Large Ring	in	Before	12.00	9.00	12.69	15.00	

HDRS Density Calibration - Inversion Results

Master (EEPROM): 11:44:00 05-Oct-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Rho Aluminum	g/cm3	Master	2.596	2.586	2.601	2.606	
Rho Magnesium	g/cm3	Master	1.686	1.676	1.688	1.696	
Pe Aluminum		Master	2.570	2.470	2.569	2.670	
Pe Magnesium		Master	2.650	2.550	2.613	2.750	

HDRS Density Calibration - Deviation Summary

Master (EEPROM): 11:44:00 05-Oct-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Average Deviation	%	Master	0	-0.6000	0.5757	0.6000	
BS Max Deviation	%	Master	0	-1.6000	1.0025	1.6000	
SS Average Deviation	%	Master	0	-1.0000	0.3376	1.0000	
SS Max Deviation	%	Master	0	-2.5000	1.2887	2.5000	
LS Average Deviation	%	Master	0	-1.5000	0.7484	1.5000	
LS Max Deviation	%	Master	0	-3.5000	1.7239	3.5000	

HDRS Density Calibration - Background Summary

Master (EEPROM): 11:44:00 05-Oct-2014

Before (Measured): **16:52:00 28-Oct-2014** Expired by 2 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Window Ratio		Master	1.0000		0.7501		
		Before	0.7501	0.7126	0.7496	0.7876	
		Before-Master	-----	-----	-0.0005	-----	
BS Window Sum	1/s	Master	1		9803		
		Before	9803	9313	9788	10294	
		Before-Master	-----	-----	-15	-----	
SS Window Ratio		Master	1.0000		0.4876		
		Before	0.4876	0.4633	0.4877	0.5120	
		Before-Master	-----	-----	0.0001	-----	
SS Window Sum	1/s	Master	1		9586		
		Before	9586	9106	9561	10065	
		Before-Master	-----	-----	-25	-----	
LS Window Ratio		Master	1.0000		0.2943		
		Before	0.2943	0.2796	0.2917	0.3090	
		Before-Master	-----	-----	-0.0026	-----	
LS Window Sum	1/s	Master	1		1003		

LS Window Sum	1/3	Master Before	1003	953	1003 997 -6	1053	
		Before-Master	-----	-----			

HDRS Density Calibration - Photo-multiplier High Voltages

Master (EEPROM):		11:44:00 05-Oct-2014		Before (Measured):		16:52:00 28-Oct-2014 Expired by 2 days	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS PM High Voltage	V	Master		1000	1649	2400	
		Before		1000	1653	2400	
		Before-Master	-----	-100	4	100	
SS PM High Voltage	V	Master		1000	1717	2400	
		Before		1000	1741	2400	
		Before-Master	-----	-100	24	100	
LS PM High Voltage	V	Master		1000	1421	2400	
		Before		1000	1428	2400	
		Before-Master	-----	-100	7	100	

HDRS Density Calibration - Crystal Quality Resolutions

Master (EEPROM):		11:44:00 05-Oct-2014		Before (Measured):		16:52:00 28-Oct-2014 Expired by 2 days	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Crystal Resolution	%	Master		5.00	10.63	25.00	
		Before		5.00	10.56	25.00	
		Before-Master	-----	-1.00	-0.07	1.00	
SS Crystal Resolution	%	Master		5.00	9.16	20.00	
		Before		5.00	9.09	20.00	
		Before-Master	-----	-1.00	-0.07	1.00	
LS Crystal Resolution	%	Master		5.00	9.05	20.00	
		Before		5.00	8.90	20.00	
		Before-Master	-----	-1.00	-0.15	1.00	

HDRS MCFL Calibration - MCFL Accumulations

Before (Measured):		04:49:11 01-Nov-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Main Resistivity	ohm.m	Before	3875	3565	3832	4185	
Deep Resistivity	ohm.m	Before	3830	3524	3840	4136	
Shallow Resistivity	ohm.m	Before	3830	3524	3864	4136	

HGNS-B (HILT Gamma-Ray and Neutron Sonde, 125 degC) Calibration - Run One

Primary Equipment :			
HILT Gamma-Ray and Neutron Sonde, 125 degC	HGNS-B	3960	
Auxiliary Equipment :			
HGNS Accelerometer, 125 degC	HACCZ-B	4001	
AmBe Neutron Logging Source	NSR-F	5061	
Calibration Parameter :			
Water Temperature			
Housing Size			
JIG-BKG (Jig minus background reference)	165		

HGNS Accelerometer Calibration - Accelerometer Accumulations

Before (Measured):		04:47:29 01-Nov-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
AZ Vertical Measurement	ft/s2	Before	32.2	31.5	32.1	32.8	

HGNS Accelerometer EEPROM - Accelerometer EEPROM Read

Master (EEPROM):		00:00:00 15-Jun-2005					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Accelerometer Manufacturer		Master			QAT_160		
Accelerometer Reference Temperature	degF	Master		30.2	77.0	122.0	
Accelerometer Coefficients - 0		Master	-----	-----	6944.000	-----	
Accelerometer Coefficients - 1		Master	-----	-----	-3.986	-----	
Accelerometer Coefficients - 2		Master	-----	-----	0.087	-----	
Accelerometer Coefficients - 3		Master	-----	-----	0.000	-----	
Accelerometer Coefficients - 4		Master	-----	-----	2.729	-----	
Accelerometer Coefficients - 5		Master	-----	-----	0.000	-----	

Accelerometer Coefficients - 6		Master	-----	-----	0.000	-----	
Accelerometer Coefficients - 7		Master	-----	-----	0.000	-----	
Accelerometer Coefficients - 8		Master	-----	-----	298.700	-----	
Accelerometer Coefficients - 9		Master	-----	-----	0.994	-----	

HGNS Neutron Calibration - HGNS Neutron Accumulations

Master (EEPROM):		10:25:24 26-Sep-2014		Before (Measured):		16:48:20 28-Oct-2014 Expired by 2 days	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Near Zero Measurement	1/s	Master	0	5.0	26.4	40.0	
		Before	0	5.0	25.8	40.0	
		Before-Master	-----	-4.0	-0.6	4.0	
Far Zero Measurement	1/s	Master	0	5.0	26.9	40.0	
		Before	0	5.0	27.0	40.0	
		Before-Master	-----	-4.0	0.1	4.0	
Near Plus Measurement	1/s	Master	6031.0	4700.0	5168.0	6900.0	
		Before	-----	-----	-----	-----	
		Before-Master	-----	-----	-----	-----	
Far Plus Measurement	1/s	Master	2793.0	1900.0	2147.0	2900.0	
		Before	-----	-----	-----	-----	
		Before-Master	-----	-----	-----	-----	
Near Corrected Plus Measurement	1/s	Master		4700.0	5109.0	6900.0	
		Before	-----	-----	-----	-----	
		Before-Master	-----	-----	-----	-----	
Far Corrected Plus Measurement	1/s	Master		1900.0	2098.0	2900.0	
		Before	-----	-----	-----	-----	
		Before-Master	-----	-----	-----	-----	

HGNS Gamma-Ray Calibration - Gamma-Ray Accumulations

Before (Measured):		16:56:26 28-Oct-2014 Expired by 2 days					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
RGR Zero Measurement	gAPI	Before	30.0	0	41.2	120.0	
RGR Plus Measurement	gAPI	Before	185.4	157.1	159.4	206.3	
GR Calibration Gain		Before	0.89	0.80	1.04	1.05	

Calibration Report RUN 2

HDRS-B (HILT Density and Rxo Sonde, 125 degC) Calibration - Run Two

Primary Equipment :			
	HILT High-Resolution Control Cartridge, 125 degC	HRCC-B	839
	15 kpsi, tungsten shielding	HRGD-B	3968
Auxiliary Equipment :			
	HRDD Backscatter Detector	Backscatter	
	HRDD Long Spacing Detector	Long Spacing	28774
	HRDD Short Spacing Detector	Short Spacing	27483
	Cesium 137 Gamma-Ray Logging Source	GSR-J	5339
	HILT High-Resolution Control Cartridge, 125 degC	HRCC-B	839
	HRMS, 125 degC, 10 kpsi	HRMS-B	1829
Calibration Parameter :			
	Small Ring Size (Caliper Calibration Small Ring)	8.00	
	Large Ring Size (Caliper Calibration Large Ring)	12.00	

HDRS Caliper Calibration - Caliper Accumulations

Before (Measured):		10:47:41 26-Nov-2014 Expired by 3 days					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Small Ring	in	Before	8.00	6.00	8.43	10.00	
Large Ring	in	Before	12.00	9.00	12.60	15.00	

HDRS Density Calibration - Inversion Results

Master (EEPROM):		19:43:00 07-Nov-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Rho Aluminum	g/cm3	Master	2.596	2.586	2.600	2.606	
Rho Magnesium	g/cm3	Master	1.686	1.676	1.690	1.696	
Pe Aluminum		Master	2.570	2.470	2.565	2.670	

HDRS Density Calibration - Deviation Summary

Master (EEPROM): 19:43:00 07-Nov-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
BS Average Deviation	%	Master	0	-0.6000	0.2183	0.6000		
BS Max Deviation	%	Master	0	-1.6000	0.5835	1.6000		
SS Average Deviation	%	Master	0	-1.0000	0.3844	1.0000		
SS Max Deviation	%	Master	0	-2.5000	2.0238	2.5000		
LS Average Deviation	%	Master	0	-1.5000	0.7605	1.5000		
LS Max Deviation	%	Master	0	-3.5000	1.8937	3.5000		

HDRS Density Calibration - Background Summary

Master (EEPROM): 19:43:00 07-Nov-2014

Before (Measured):

10:27:31 26-Nov-2014 Expired by 3 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Window Ratio		Master Before Before-Master	1.0000 0.7478 -----	 0.7104 -----	0.7478 0.7506 0.0028	 0.7851 -----	
BS Window Sum	1/s	Master Before Before-Master	1 23005 -----	 21854 -----	23005 23204 199	 24155 -----	
SS Window Ratio		Master Before Before-Master	1.0000 0.4775 -----	 0.4537 -----	0.4775 0.4805 0.0030	 0.5014 -----	
SS Window Sum	1/s	Master Before Before-Master	1 10860 -----	 10317 -----	10860 10860 0	 11403 -----	
LS Window Ratio		Master Before Before-Master	1.0000 0.2972 -----	 0.2824 -----	0.2972 0.2931 -0.0041	 0.3121 -----	
LS Window Sum	1/s	Master Before Before-Master	1 1200 -----	 1140 -----	1200 1197 -3	 1260 -----	

HDRS Density Calibration - Photo-multiplier High Voltages

Master (EEPROM):	19:43:00 07-Nov-2014
------------------	----------------------

Before (Measured):

10:27:31 26-Nov-2014 Expired by 3 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
BS PM High Voltage	V	Master		1000	1841	2400		
		Before		1000	1848	2400		
		Before-Master	-----	-100	7	100		
SS PM High Voltage	V	Master		1000	1788	2400		
		Before		1000	1802	2400		
		Before-Master	-----	-100	14	100		
LS PM High Voltage	V	Master		1000	1314	2400		
		Before		1000	1314	2400		
		Before-Master	-----	-100	0	100		

HDRS Density Calibration - Crystal Quality Resolutions

Master (EEPROM): 19:43:00 07-Nov-2014

Before (Measured):

10:27:31 26-Nov-2014 Expired by 3 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
BS Crystal Resolution	%	Master		5.00	11.23	25.00		
		Before		5.00	11.07	25.00		
		Before-Master	-----	-1.00	-0.16	1.00		
SS Crystal Resolution	%	Master		5.00	9.80	20.00		
		Before		5.00	9.86	20.00		
		Before-Master	-----	-1.00	0.06	1.00		
LS Crystal Resolution	%	Master		5.00	8.65	20.00		
		Before		5.00	8.62	20.00		
		Before-Master	-----	-1.00	-0.03	1.00		

HDRS MCFL Calibration - MCFL Accumulations

Before (Measured): 10:27:46 26-Nov-2014 Expired by 3 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
Main Resistivity	ohm.m	Before	3875	3565	3851	4185		
Deep Resistivity	ohm.m	Before	3830	3524	3800	4136		
Shallow Resistivity	ohm.m	Before	3830	3524	3811	4136		

HGNS-B (HILT Gamma-Ray and Neutron Sonde, 125 degC) Calibration - Run Two

Primary Equipment :	HILT Gamma-Ray and Neutron Sonde, 125 degC	HGNS-B	951
Auxiliary Equipment :	HGNS Accelerometer, 125 degC	HACCZ-B	448
Calibration Parameter :	Water Temperature		
	Housing Size		
	JIG-BKG (Jig minus background reference)	165	

HGNS Accelerometer Calibration - Accelerometer Accumulations

Before (Measured):	12:29:12 30-Nov-2014						
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
AZ Vertical Measurement	ft/s2	Before	32.2	31.5	32.1	32.8	

HGNS Accelerometer EEPROM - Accelerometer EEPROM Read

Master (EEPROM):	00:00:00 15-Dec-1996						
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Accelerometer Manufacturer		Master			Sunstrand		
Accelerometer Reference Temperature	degF	Master		30.2	68.0	122.0	
Accelerometer Coefficients - 0		Master	----	----	3515.000	----	
Accelerometer Coefficients - 1		Master	----	----	10.230	----	
Accelerometer Coefficients - 2		Master	----	----	0.026	----	
Accelerometer Coefficients - 3		Master	----	----	0.000	----	
Accelerometer Coefficients - 4		Master	----	----	2.177	----	
Accelerometer Coefficients - 5		Master	----	----	0.000	----	
Accelerometer Coefficients - 6		Master	----	----	0.000	----	
Accelerometer Coefficients - 7		Master	----	----	0.000	----	
Accelerometer Coefficients - 8		Master	----	----	295.800	----	
Accelerometer Coefficients - 9		Master	----	----	0.992	----	

HGNS Neutron Calibration - HGNS Neutron Accumulations

Master (Manual Entry):	10:25:24 26-Sep-2014	Before (Measured):	10:24:21 26-Nov-2014	Expired by 3 days			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Near Zero Measurement - 0	1/s	Master Before Before-Master	----- 0 -----	----- 5.0 -----	----- 27.9 -----	----- 40.0 -----	
Far Zero Measurement - 0	1/s	Master Before Before-Master	----- 0 -----	----- 5.0 -----	----- 28.7 -----	----- 40.0 -----	
Near Plus Measurement - 0	1/s	Master Before Before-Master	----- ----- -----	----- ----- -----	----- ----- -----	----- ----- -----	
Far Plus Measurement - 0	1/s	Master Before Before-Master	----- ----- -----	----- ----- -----	----- ----- -----	----- ----- -----	
Near Corrected Plus Measurement	1/s	Master Before Before-Master	----- ----- -----	4700.0 ----- -----	5109.0 ----- -----	6900.0 ----- -----	
Far Corrected Plus Measurement	1/s	Master Before Before-Master	----- ----- -----	1900.0 ----- -----	2098.0 ----- -----	2900.0 ----- -----	

HGNS Gamma-Ray Calibration - Gamma-Ray Accumulations

Before (Measured):	10:53:42 26-Nov-2014	Expired by 3 days					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
RGR Zero Measurement	gAPI	Before	30.0	0	58.6	120.0	
RGR Plus Measurement	gAPI	Before	185.4	157.1	157.7	206.3	
GR Calibration Gain		Before	0.89	0.80	1.05	1.05	

Calibration Report

RUN 3

AIT-M (Array Induction Tool - M) Calibration - Run Run 3a

Primary Equipment :	File code for AIT-MA Sonde Tool Element	AMIS	190
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Auxiliary Equipment :

File code for AIT Bottom Nose Tool Element

AMRM

190

AIT Sonde Calibration - Test Loop Gain

Master (EEPROM): 17:36:04 30-Sep-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
Test Loop Gain - 0		Master	1.000	0.950	1.014	1.050		
Test Loop Phase - 0	deg	Master	0	-3.000	0.418	3.000		
Test Loop Gain - 1		Master	1.000	0.950	1.015	1.050		
Test Loop Phase - 1	deg	Master	0	-3.000	0.577	3.000		
Test Loop Gain - 2		Master	1.000	0.950	1.019	1.050		
Test Loop Phase - 2	deg	Master	0	-3.000	0.033	3.000		
Test Loop Gain - 3		Master	1.000	0.950	1.010	1.050		
Test Loop Phase - 3	deg	Master	0	-3.000	0.073	3.000		
Test Loop Gain - 4		Master	1.000	0.950	0.993	1.050		
Test Loop Phase - 4	deg	Master	0	-3.000	0.018	3.000		
Test Loop Gain - 5		Master	1.000	0.950	0.991	1.050		
Test Loop Phase - 5	deg	Master	0	-3.000	-0.179	3.000		
Test Loop Gain - 6		Master	1.000	0.950	0.997	1.050		
Test Loop Phase - 6	deg	Master	0	-3.000	0.169	3.000		
Test Loop Gain - 7		Master	1.000	0.950	1.012	1.050		
Test Loop Phase - 7	deg	Master	0	-3.000	-0.085	3.000		

AIT Sonde Calibration - Sonde Error Correction

Master (EEPROM): 17:36:04 30-Sep-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
Sonde Error Correction Real - 0	mS/m	Master	-----	-231.000	-72.320	119.000		
Sonde Error Correction Quad - 0		Master	-----	-2250.000	471.445	2250.000		
Sonde Error Correction Real - 1	mS/m	Master	-----	114.000	156.354	204.000		
Sonde Error Correction Quad - 1		Master	-----	-625.000	115.055	625.000		
Sonde Error Correction Real - 2	mS/m	Master	-----	66.000	96.325	156.000		
Sonde Error Correction Quad - 2		Master	-----	-350.000	19.762	350.000		
Sonde Error Correction Real - 3	mS/m	Master	-----	39.000	54.757	89.000		
Sonde Error Correction Quad - 3		Master	-----	-250.000	55.331	250.000		
Sonde Error Correction Real - 4	mS/m	Master	-----	15.000	26.613	35.000		
Sonde Error Correction Quad - 4		Master	-----	-63.000	-32.308	63.000		
Sonde Error Correction Real - 5	mS/m	Master	-----	4.000	12.139	24.000		
Sonde Error Correction Quad - 5		Master	-----	-50.000	12.501	50.000		
Sonde Error Correction Real - 6	mS/m	Master	-----	5.000	9.213	15.000		
Sonde Error Correction Quad - 6		Master	-----	-30.000	-0.591	30.000		
Sonde Error Correction Real - 7	mS/m	Master	-----	-5.000	-0.072	5.000		
Sonde Error Correction Quad - 7		Master	-----	-30.000	10.011	30.000		

AIT Mud Calibration - Mud Calibration Gain

Master (EEPROM): 17:36:04 30-Sep-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
Coarse Gain		Master	1.000	0.800	0.843	1.200		
Fine Gain		Master	1.000	0.800	1.141	1.200		

AIT Electronics Check - Thru Calibration Check

Master (EEPROM): 17:36:04 30-Sep-2014

Before (Measured):

11:26:48 09-Dec-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
Thru Cal Mag - 0	V	Master	-----	0.366	0.615	0.854		
		Before	-----	0.366	0.614	0.854		
		Before-Master	-----	-----	-0.001	-----		
Thru Cal Phase - 0	deg	Master	-----	137.000	-168.553	-103.000		
		Before	-----	137.000	-167.835	-103.000		
		Before-Master	-----	-----	0.718	-----		
Thru Cal Mag - 1	V	Master	-----	0.762	1.259	1.778		
		Before	-----	0.762	1.257	1.778		
		Before-Master	-----	-----	-0.002	-----		
Thru Cal Phase - 1	deg	Master	-----	136.000	-169.646	-104.000		
		Before	-----	136.000	-168.921	-104.000		
		Before-Master	-----	-----	0.725	-----		
Thru Cal Mag - 2	V	Master	-----	0.372	0.623	0.868		
		Before	-----	0.372	0.623	0.868		

		Before-Master	-----	-----	0.000	-----			
Thru Cal Phase - 2	deg	Master	-----	132.000	-173.235	-108.000			
		Before	-----	132.000	-172.515	-108.000			
		Before-Master	-----	-----	0.720	-----			
Thru Cal Mag - 3	V	Master	-----	0.420	0.705	0.980			
		Before	-----	0.420	0.704	0.980			
		Before-Master	-----	-----	-0.001	-----			
Thru Cal Phase - 3	deg	Master	-----	131.000	-174.017	-109.000			
		Before	-----	131.000	-173.294	-109.000			
		Before-Master	-----	-----	0.723	-----			
Thru Cal Mag - 4	V	Master	-----	0.804	1.321	1.876			
		Before	-----	0.804	1.319	1.876			
		Before-Master	-----	-----	-0.002	-----			
Thru Cal Phase - 4	deg	Master	-----	125.000	179.735	-115.000			
		Before	-----	125.000	-179.531	-115.000			
		Before-Master	-----	-----	-359.266	-----			
Thru Cal Mag - 5	V	Master	-----	1.176	1.922	2.744			
		Before	-----	1.176	1.919	2.744			
		Before-Master	-----	-----	-0.003	-----			
Thru Cal Phase - 5	deg	Master	-----	122.000	178.096	-118.000			
		Before	-----	122.000	178.840	-118.000			
		Before-Master	-----	-----	0.744	-----			
Thru Cal Mag - 6	V	Master	-----	1.176	1.921	2.744			
		Before	-----	1.176	1.919	2.744			
		Before-Master	-----	-----	-0.002	-----			
Thru Cal Phase - 6	deg	Master	-----	121.000	178.112	-119.000			
		Before	-----	121.000	178.855	-119.000			
		Before-Master	-----	-----	0.743	-----			
Thru Cal Mag - 7	V	Master	-----	0.846	1.379	1.974			
		Before	-----	0.846	1.377	1.974			
		Before-Master	-----	-----	-0.002	-----			
Thru Cal Phase - 7	deg	Master	-----	115.000	177.306	-125.000			
		Before	-----	115.000	178.128	-125.000			
		Before-Master	-----	-----	0.822	-----			
SPA Zero	mV	Master		-50.000	-0.302	50.000			
		Before		-50.000	-0.279	50.000			
		Before-Master	-----	-----	0.023	-----			
SPA Plus	mV	Master		941.000	989.155	1040.000			
		Before		941.000	988.934	1040.000			
		Before-Master	-----	-----	-0.221	-----			
Temperature Zero	V	Master		-0.050	0.000	0.050			
		Before		-0.050	0.000	0.050			
		Before-Master	-----	-----	0.000	-----			
Temperature Plus	V	Master		0.870	0.916	0.960			
		Before		0.870	0.916	0.960			
		Before-Master	-----	-----	0.000	-----			

HDRS-H (HILT Density and Rxo Sonde, 150 degC) Calibration - Run Run 3a		
Primary Equipment :		
HILT High-Resolution Control Cartridge, 150 degC	HRCC-H	3931
HILT Resistivity Gamma-Ray Density Device, 150 degC	HRGD-H	4845
Auxiliary Equipment :		
HRDD Backscatter Detector	Backscatter	
HRDD Long Spacing Detector	Long Spacing	
HRDD Short Spacing Detector	Short Spacing	
Cesium 137 Gamma-Ray Logging Source	GSR-J	5562
HILT High-Resolution Control Cartridge, 150 degC	HRCC-H	3931
HILT High-Resolution Mechanical Sonde, 150 degC	HRMS-H	1902
Calibration Parameter :		
Small Ring Size (Caliper Calibration Small Ring)	8.00	
Large Ring Size (Caliper Calibration Large Ring)	12.00	
HDRS Online Calibration - Online Assemblations		

HDRS Caliper Calibration - Caliper Accumulations

Before (Measured):		11:31:36 09-Dec-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Small Ring	in	Before	8.00	6.00	8.90	10.00	
Large Ring	in	Before	12.00	9.00	13.09	15.00	

HDRS Density Calibration - Inversion Results

Master (EEPROM):		15:15:24 20-Nov-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Rho Aluminum	g/cm3	Master	2.596	2.586	2.598	2.606	
Rho Magnesium	g/cm3	Master	1.686	1.676	1.692	1.696	
Pe Aluminum		Master	2.570	2.470	2.571	2.670	
Pe Magnesium		Master	2.650	2.550	2.607	2.750	

HDRS Density Calibration - Deviation Summary

Master (EEPROM):		15:15:24 20-Nov-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Average Deviation	%	Master	0	-0.6000	0.4423	0.6000	
BS Max Deviation	%	Master	0	-1.6000	0.9281	1.6000	
SS Average Deviation	%	Master	0	-1.0000	0.4341	1.0000	
SS Max Deviation	%	Master	0	-2.5000	1.0900	2.5000	
LS Average Deviation	%	Master	0	-1.5000	0.9471	1.5000	
LS Max Deviation	%	Master	0	-3.5000	2.3977	3.5000	

HDRS Density Calibration - Background Summary

Master (EEPROM):		15:15:24 20-Nov-2014		Before (Measured):		11:28:44 09-Dec-2014	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Window Ratio		Master	1.0000		0.7368		
		Before	0.7368	0.6999	0.7395	0.7736	
		Before-Master	-----	-----	0.0027	-----	
BS Window Sum	1/s	Master	1		26616		
		Before	26616	25285	26601	27947	
		Before-Master	-----	-----	-15	-----	
SS Window Ratio		Master	1.0000		0.4786		
		Before	0.4786	0.4547	0.4784	0.5025	
		Before-Master	-----	-----	-0.0002	-----	
SS Window Sum	1/s	Master	1		11664		
		Before	11664	11080	11630	12247	
		Before-Master	-----	-----	-34	-----	
LS Window Ratio		Master	1.0000		0.2988		
		Before	0.2988	0.2839	0.3061	0.3138	
		Before-Master	-----	-----	0.0073	-----	
LS Window Sum	1/s	Master	1		1261		
		Before	1261	1198	1255	1324	
		Before-Master	-----	-----	-6	-----	

HDRS Density Calibration - Photo-multiplier High Voltages

Master (EEPROM):		15:15:24 20-Nov-2014		Before (Measured):		11:28:44 09-Dec-2014	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS PM High Voltage	V	Master		1000	1674	2400	
		Before		1000	1674	2400	
		Before-Master	-----	-100	0	100	
SS PM High Voltage	V	Master		1000	1389	2400	
		Before		1000	1410	2400	
		Before-Master	-----	-100	21	100	
LS PM High Voltage	V	Master		1000	1545	2400	
		Before		1000	1548	2400	
		Before-Master	-----	-100	3	100	

HDRS Density Calibration - Crystal Quality Resolutions

Master (EEPROM):		15:15:24 20-Nov-2014		Before (Measured):		11:28:44 09-Dec-2014	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
BS Crystal Resolution	%	Master		5.00	11.12	25.00	
		Before		5.00	11.09	25.00	
		Before-Master	-----	-1.00	-0.03	1.00	
SS Crystal Resolution	%	Master		5.00	9.78	20.00	
		Before		5.00	9.92	20.00	
		Before-Master	-----	-1.00	0.14	1.00	
LS Crystal Resolution	%	Master		5.00	9.86	20.00	
		Before		5.00	9.86	20.00	
		Before-Master	-----	-1.00	0.00	1.00	

LS Crystal Resolution	%	Master	5.00	8.91	20.00	
		Before	5.00	8.98	20.00	
		Before-Master	-----	0.07	1.00	

HDRS MCFL Calibration - MCFL Accumulations							
Before (Measured):		11:24:42 09-Dec-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Main Resistivity	ohm.m	Before	3875	3565	3856	4185	
Deep Resistivity	ohm.m	Before	3830	3524	3806	4136	
Shallow Resistivity	ohm.m	Before	3830	3524	3810	4136	

HGNS-H (HILT Gamma-Ray and Neutron Sonde, 150 degC) Calibration - Run Run 3a			
Primary Equipment :			
HILT Gamma-Ray and Neutron Sonde, 150 degC		HGNS-H	3720
Auxiliary Equipment :			
HGNS Accelerometer, 150 degC		HACCZ-H	4665
AmBe Neutron Logging Source		NSR-F	5317
Calibration Parameter :			
Water Temperature			
Housing Size			
JIG-BKG (Jig minus background reference)		165	

HGNS Accelerometer Calibration - Accelerometer Accumulations							
Before (Measured):		21:05:11 09-Dec-2014					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
AZ Vertical Measurement	ft/s2	Before	32.2	31.5	32.3	32.8	

HGNS Accelerometer EEPROM - Accelerometer EEPROM Read							
Master (EEPROM):		00:00:00 15-Jan-2009					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Accelerometer Manufacturer		Master			QAT_160		
Accelerometer Reference Temperature	degF	Master		30.2	77.0	122.0	
Accelerometer Coefficients - 0		Master	-----	-----	3418.000	-----	
Accelerometer Coefficients - 1		Master	-----	-----	11.746	-----	
Accelerometer Coefficients - 2		Master	-----	-----	-0.011	-----	
Accelerometer Coefficients - 3		Master	-----	-----	0.000	-----	
Accelerometer Coefficients - 4		Master	-----	-----	2.742	-----	
Accelerometer Coefficients - 5		Master	-----	-----	0.000	-----	
Accelerometer Coefficients - 6		Master	-----	-----	0.000	-----	
Accelerometer Coefficients - 7		Master	-----	-----	0.000	-----	
Accelerometer Coefficients - 8		Master	-----	-----	298.700	-----	
Accelerometer Coefficients - 9		Master	-----	-----	0.996	-----	

HGNS Neutron Calibration - HGNS Neutron Accumulations							
Master (EEPROM):		20:15:56 24-Sep-2014		Before (Measured):		11:26:59 09-Dec-2014	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Near Zero Measurement	1/s	Master	0	5.0	26.6	40.0	
		Before	0	5.0	27.4	40.0	
		Before-Master	-----	-4.0	0.8	4.0	
Far Zero Measurement	1/s	Master	0	5.0	28.3	40.0	
		Before	0	5.0	29.7	40.0	
		Before-Master	-----	-4.2	1.4	4.2	
Near Plus Measurement	1/s	Master	6031.0	4700.0	5651.0	6900.0	
		Before	-----	-----	-----	-----	
		Before-Master	-----	-----	-----	-----	
Far Plus Measurement	1/s	Master	2793.0	1900.0	2353.0	2900.0	
		Before	-----	-----	-----	-----	
		Before-Master	-----	-----	-----	-----	

HGNS Gamma-Ray Calibration - Gamma-Ray Accumulations							
Near Corrected Plus Measurement		16:56:26 28-Oct-2014 Expired Before 16 days					
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Far Corrected Plus Measurement	1/s	Master		1900.0	2266.0	2900.0	
		Before	-----	-----	-----	-----	

Company:	PB ENERGY STORAGE SERVICES, INC	
Well:	DCP Linam Ranch AGI #2	
Field:	AGI; Bone Spring-Wolfcamp	
County:	Lea	
State:	New Mexico	

Three Detector Litho-Density

Compensated Neutron Log

Final Composite [5"=100']

**Spectral Gamma Ray
Final Composite 5''**

Company: PB ENERGY STORAGE SERVICES, INC

Well: DCP Linam Ranch AGI #2

Field: AGI, Bone Spring-Wolfcamp

County: Lea State: New Mexico

Spectral Gamma Ray

Final Composite [5"=100]

County:		Lea			
Field:		AGI; Bone Spring-Wolfcamp			
Location:		1600' FSL & 1750' FWL			
Well:		DCP Linam Ranch AGI #2			
Company:		PB ENERGY STORAGE SERVICES, INC			
Final Composite [5"=100]		Location:			
		1600' FSL & 1750' FWL			
		Permanent Datum:			
		Log Measured From:			
		Drilling Measured From:			
API Serial No.	Section:	Ground Level	Elev.:	K.B.	3763.00 ft
30-025-42139	30	Kelly Bushing	25.00 ft	G.L.	3738.00 ft
				D.F.	3762.00 ft

Run Number	Two	Run 3c
Depth Driller	8630.00 ft	9234.00 ft
Schlumberger Depth	8630.00 ft	9234.00 ft
Bottom Log Interval	8560.00 ft	9247.00 ft
Top Log Interval	3520.00 ft	8594.00 ft
Casing Driller Size @ Depth	13.375 in @ 3220.00 ft	9.625 in @ 8604.00 ft
Casing Schlumberger	3219.5 ft	8594 ft
Bit Size	12.25 in	8.5 in
Type Fluid In Hole	Salt Brine	Fresh Water
Density	8.8 lbm/gal	10.1 lbm/gal
Fluid Loss	0 cm3	10.5
PH	10	
Source of Sample	Active Tank	Active Tank
RM @ Meas Temp	9 ohm.m @ 80 degF	1.09 ohm.m @ 62.2 degF
RMF @ Meas Temp	7.5 ohm.m @ 80 degF	0.75 ohm.m @ 75 degF
RMC @ Meas Temp	0.06 ohm.m @ 75 degF	0.89 ohm.m @ 75 degF
Source RMF	RMC	Calculated
RM @ BHT	6.85 @ 107.3	0.52 @ 138
RMF @ BHT	5.71 @ 107.3	0.42 @ 138
Max Recorded Temperatures	125 degF	138 degF
Circulation Stopped	30-Nov-2014	02:00:00
Time	30-Nov-2014	13:10:30
Logger on Bottom	2133	2381
Unit Number	Location:	Midland, TX
Recorded By	Tyler Bolton	Matt Clardy/Phil Lacasse
Witnessed By	Russell Bentley	Russell Bentley

Disclaimer

RUN 2

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 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.

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Remarks and Equipment Summary

Two: Toolstring				Two: Remarks
Equip name	Length	MP name	Offset	Toolstring run as per toolsketch.
LEH-QC:1317	82.94			Bowspring used to eccentralize HGNS.
				0.125" standoff created by wear-ring on HGNS.
EDTC-B:9071	80.48			1.5" standoffs used on AIT, and DSLT.
EDTH-B:8196				Porosity computed on a Limestone scale with density of 2.71 g/cc and slowness of 47.6 us/ft.
EDTG-A:79243				Rig: Precision 107
EDTC-B:9071				Your Schlumberger Crew: Tyler Bolton, Adam Jaramillo, Jose Gomez.
		CTEM	76.98	
		ACCZ	0.00	
		HV	0.00	
		Gamma Ray	75.11	
		TelStatus	73.98	
HNGS-BA:84	73.98			
HEH-K:1035				
HNGS-BA:84				
		GR	70.99	
HNGC-B:610	65.79			
HNGH-A:4094				
HNGC-B:610				
		Tel Status	64.04	
HGNS-B:951	62.29	Temperature	62.26	
HGNH:3894				
NPV-N		GR	61.55	
NSR-F:2683				
HACCZ-B:448				
HMCA-B				
HGNS-B:951				
		CNL Porosity	55.21	
		HMCA	52.88	
		HGNS	52.88	
		Acceleromete	0.00	
		r		
HDRS-B:1829	52.88			
ECH-MEB:952				
HRCC-B:839				
HRMS-B:1829				
Short Spacing:274				
83				
Backscatter				
Long Spacing:287				
74				
GSR-J:5339		HRCC	48.88	
HRGD-B:3968				
GPV-Q				



MCFL 43.45
Caliper 42.96
TLD Density 42.57

AH-184:4882 40.64

AH-107 38.64

DSLTH:8091 36.64
ECH-KH:8585
DSLCH:8091
SLS-E:1561

CBL 3ft 24.17
Upper-Near 24.17
VDL 5ft 23.17
Upper-Far 23.17
Delta-T 21.79
Lower-Far 20.42
Lower-Near 19.42

AIT-M:160 16.00
AMIS:160
AMRM:160

SLS-E 16.00

Induction 7.91
Power Supply 7.91
Temperature 7.91



SP 0.08
Mud Resistivity 0.00
TOOL_ZERO

Lengths are in ft
Maximum Outer Diameter = 9.000 in
Line: Sensor Location, Value: Gating Offset
All measurements are relative to TOOL_ZERO

Depth Summary

Two

Depth Measuring Device

Type	IDW-JA		
Serial Number	5910		
Calibration Date	02-Jun-2014		
Calibrator Serial Number			
Calibration Cable Type	7-46P XS		
Wheel Correction 1	-2		
Wheel Correction 2	-1		

Tension Device

Type	CMTD-B/A		
Serial Number	5044		
Calibration Date	18-Oct-2014		
Calibrator Serial Number	80725A		
Number of Calibration Points	10		
Calibration Root Mean Square Error	19		
Calibration Peak Error	36		

Logging Cable

Type	7-46P-XS		
Serial Number	U711059		
Length	15500.00 ft		
Conveyance Type	Wireline		
Rig Type	Land		

Two:Depth Control Parameters

Depth Control Remarks

Log Sequence	Subsequent Trip To the Well	All primary and secondary depth control procedures followed.
Reference Log Name	Platform Express-CNL	IDW used as primary depth control device.
Reference Log Run Number	One	Z-chart used as secondary depth control device.
Reference Log Date	01-Nov-2014	
Subsequent Trip Down Log Correction	7.29 ft	

Disclaimer

RUN 3

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 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.

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 - 8.1 Integration Summary
 - 8.2 Software Version
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- 8.4 Log (Spectral 5 inch)
- 8.5 Parameter Listing
- 9. Calibration Report
- 10. Tail

Operational Run Summary

Parameter (unit)	Run 3c					
Date Log Started	10-Dec-2014					
Time Log Started	10:36:42					
Date Log Finished	10-Dec-2014					
Time Log Finished	12:34:32					
Top Log Interval (ft)	8594.00					
Bottom Log Interval (ft)	9247.00					
Total Depth (ft)	9247.00					
Max Hole Deviation (deg)	0.00					
Azimuth of Max Deviation (deg)	0.00					
Bit Size (in)	8.500					
Logging Unit Number	2381					
Logging Unit Location	Midland, TX					
Recorded By	Matt Clardy/Phil Lacasse					
Witnessed By	Russell Bentley					
Service Order Number	D0M2-00023					

Borehole Fluids

Parameter(unit)	Run 3c					
Fluid Type	Water					
Fluid Name	Fresh Water					
Max Recorded Temperatures (degF)	138					
Source of Sample	Active Tank					
Salinity (ppm)	500					
Density (lbm/gal)	10.1					
Funnel Viscosity (s)	42					
Fluid Loss (cm3)	0					
PH	10.5					
Date/Time Circulation Stopped	09-Dec-2014 08:00:00					
Date Logger on Bottom	10-Dec-2014					
Time Logger on Bottom	11:36:00					

Source RMF	Calculated					
RMC	Calculated					
RM @ Meas Temp (ohm.m@degF)	1.09 @ 62.2					
RMF @ Meas Temp (ohm.m@degF)	0.75 @ 75					
RMC @ Meas Temp (ohm.m@degF)	0.89 @ 75					
RM @ BHT (ohm.m@degF)	0.52 @ 138					
RMF @ BHT (ohm.m@degF)	0.42 @ 138					
RMC @ BHT (ohm.m@degF)	0.5 @ 138					
Total Solid (%)	10					
High Gravity Solids (%)						

Remarks and Equipment Summary

Run 3c: Toolstring				Run 3c: Remarks	
Equip name LEH-QC	Length 93.87	MP name BLUE	Offset	Max recorded temperature from downhole thermometer = 138 degF.	
				Tool String run as per tool sketch (3x 1.5 in Standoffs, Bowspring).	
				Cement volume calculated using 7.0 inch future casing diameter.	
				Hole size and standoff correction applied to neutron porosity.	
EDTC-B:8101 EDTH-B:8101 EDTG-A:77002 EDTC-B:8101	91.42			Logs Run from 9247 ft to Casing as per client request. Repeat performed for 300ft from 9247 ft as per client request.	
				Thank you for choosing Schlumberger! Schlumberger Wireline - Midland, TX - 432-694-0000	
				Rig: Precision #107. Schlumberger Crew: Mohammed, Ozzy, Matt & Phil.	
				As per discussion with client, repeat pass skipped due to concerns over reopening calipers.	
HNGS-BA:165 HEH-K:162 HNGS-BA:165	84.92			Logs run from TD to CSG as per client request.	
				PPC and FMI used for powered centralization, CME-Z's and Standoffs for Passive Centraliztion.	
HNGC-B:383 HNGH-A:326 HNGC-B:383	76.72				
PPC-B:8163 PPC-B:8163	73.22				

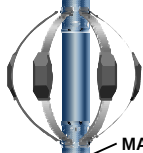
MAST-B:8256
ECH-SF:8115
MAPC-BA:8115
MAMS-BA:8256
MASS-BA:8327
MAXS-BA:8344

66.71



MAMS

51.27

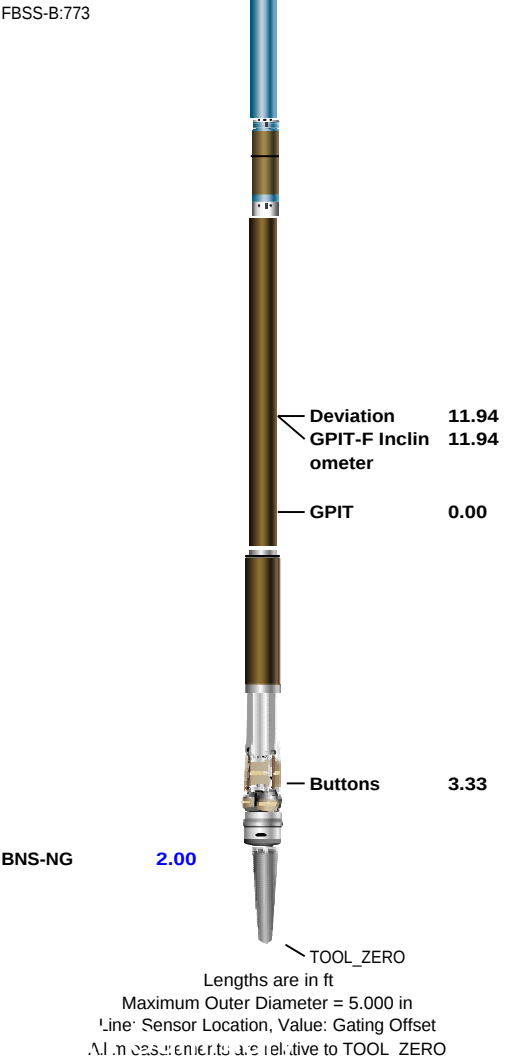


MAXS

25.42

FBST-E:773
ECH-MJA:3852
FBPC-A:766
AH-287
FBSH-D:810
FBAC-B:825
DHRU-F:1956

25.42



Depth Summary

TWO

Run 3c

Depth Measuring Device

Type	IDW-B		
Serial Number	6568		
Calibration Date	28-Jul-2014		
Calibrator Serial Number			
Calibration Cable Type	7-46P/AXS		
Wheel Correction 1	-4		
Wheel Correction 2	-3		

Tension Device

Type	CMTD-B/A		
Serial Number	8100		
Calibration Date	18-Nov-2014		
Calibrator Serial Number	U713032		
Number of Calibration Points	10		
Calibration Root Mean Square Error	16		
Calibration Peak Error	20		

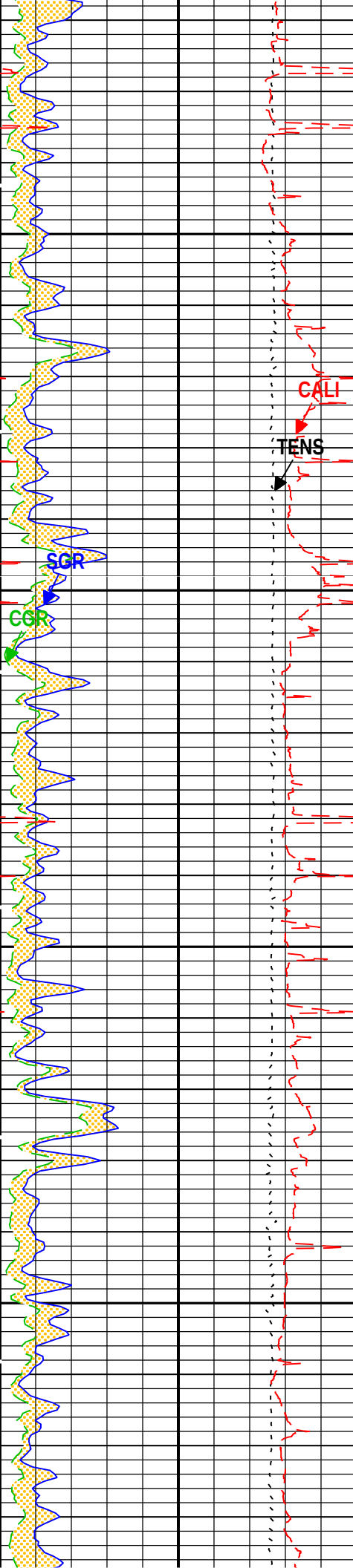
Logging Cable

Type	7-46P-XS		
Serial Number	U713032		
Length	23800.00 ft		
Conveyance Type	Wireline		
Rig Type			

Run 3c:Depth Control Parameters

Depth Control Remarks

Log Sequence	Subsequent Log In the Well	All Schlumberger depth control procedures to date followed. All passes correlated to Run 1A download.	
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3300

CALI

TENS

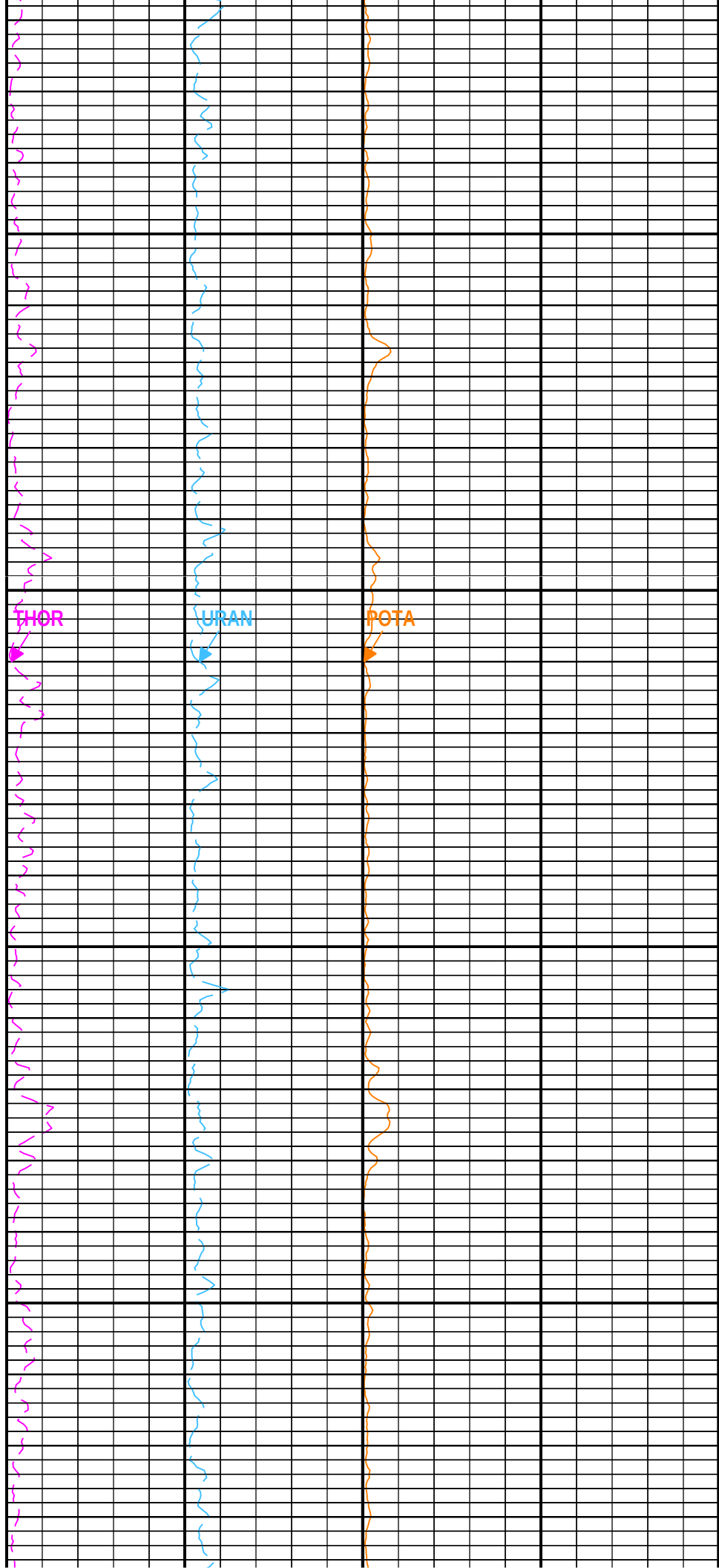
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SGR

CCR

3400

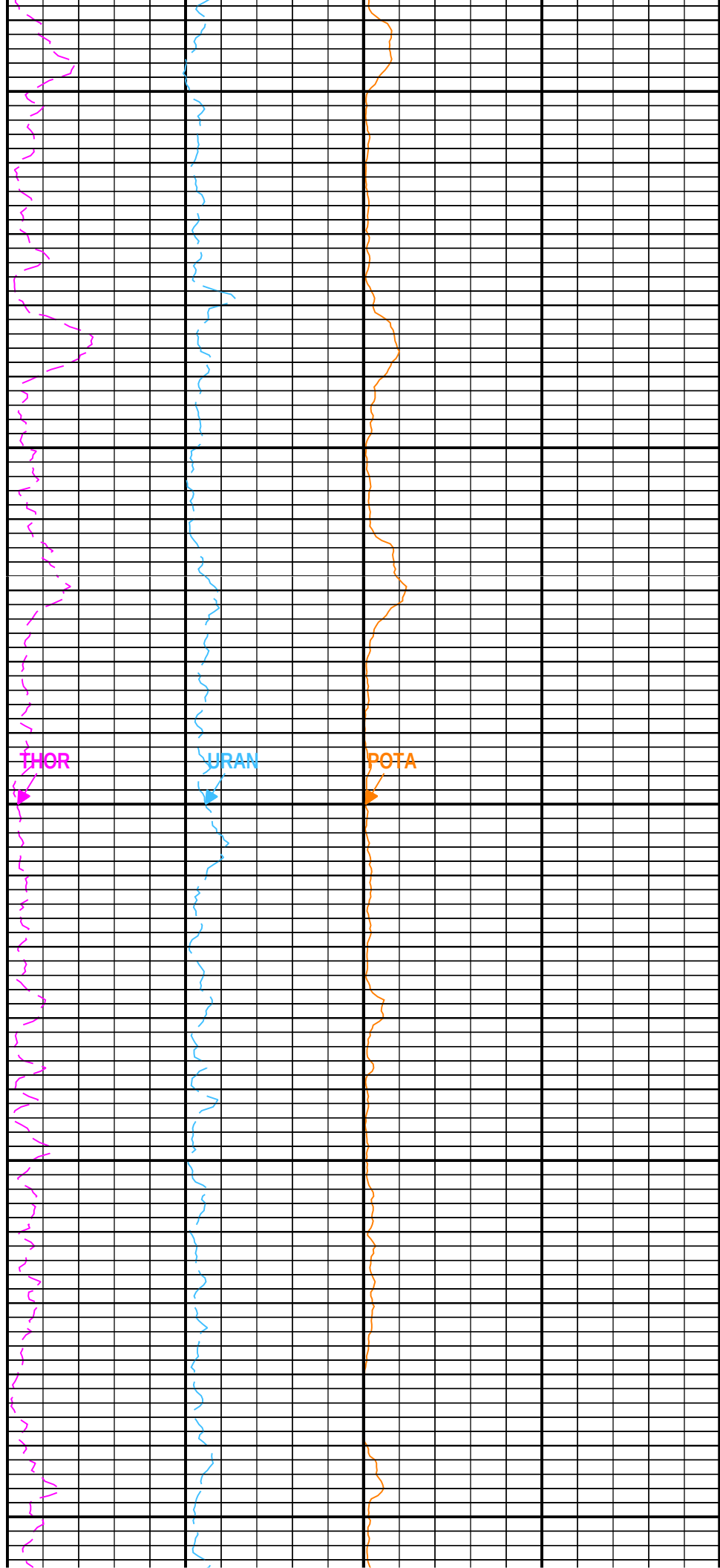
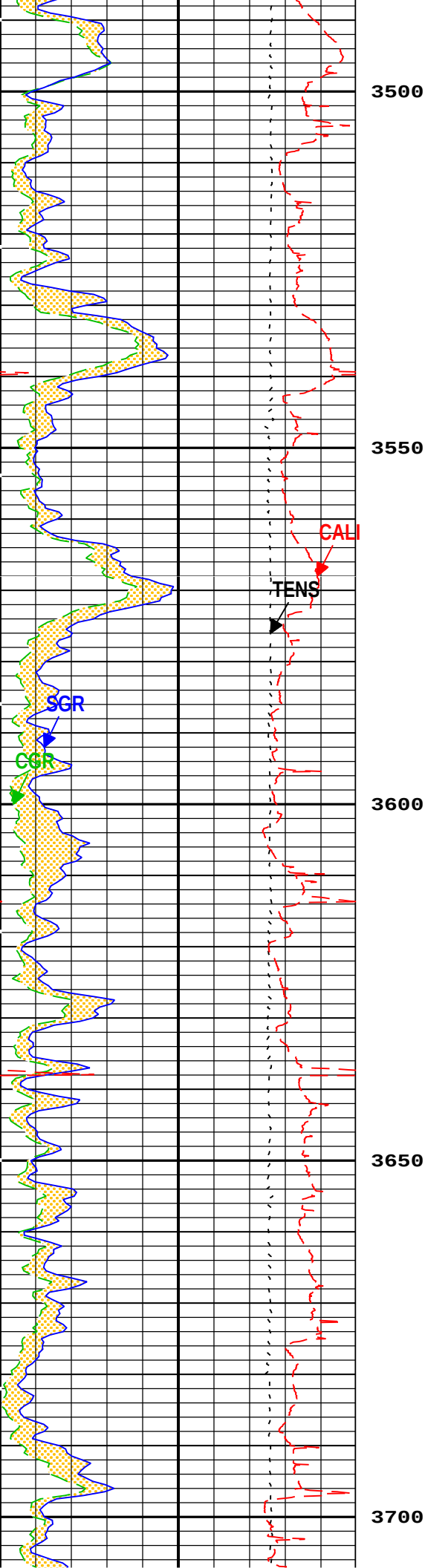
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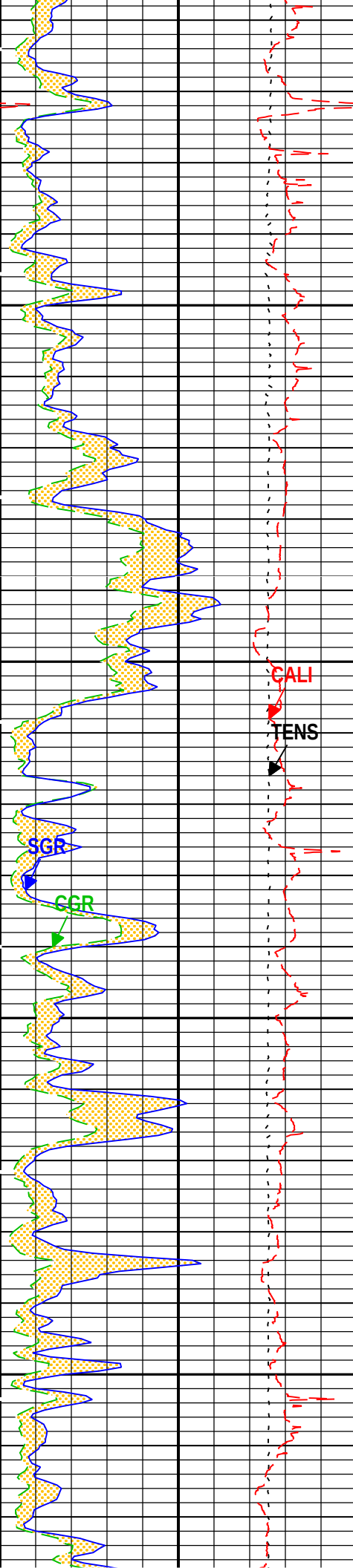


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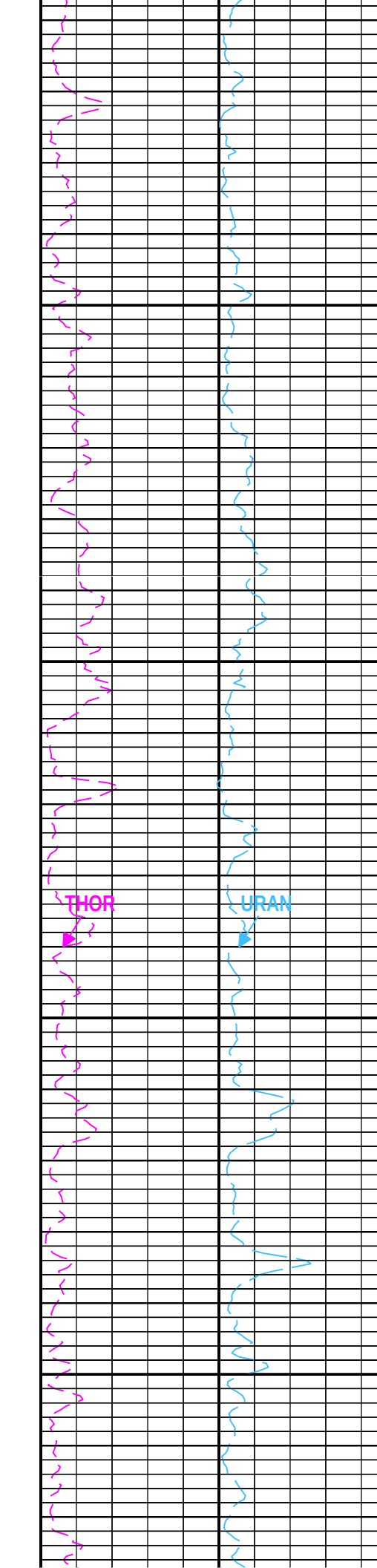


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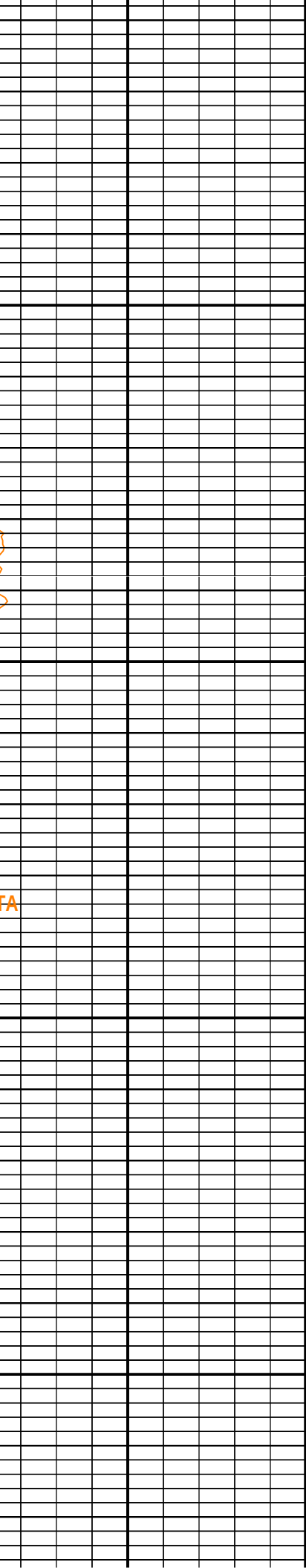
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3850

3900

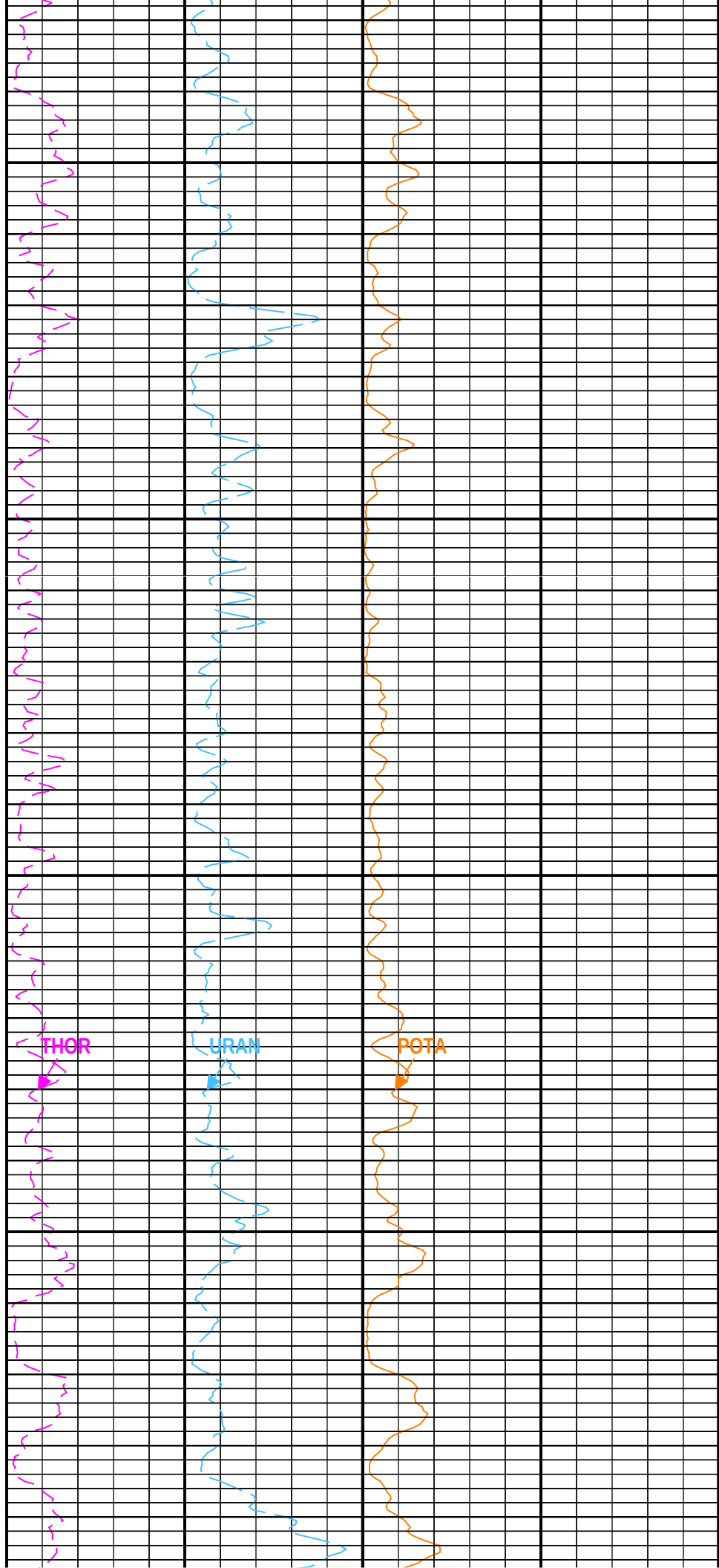
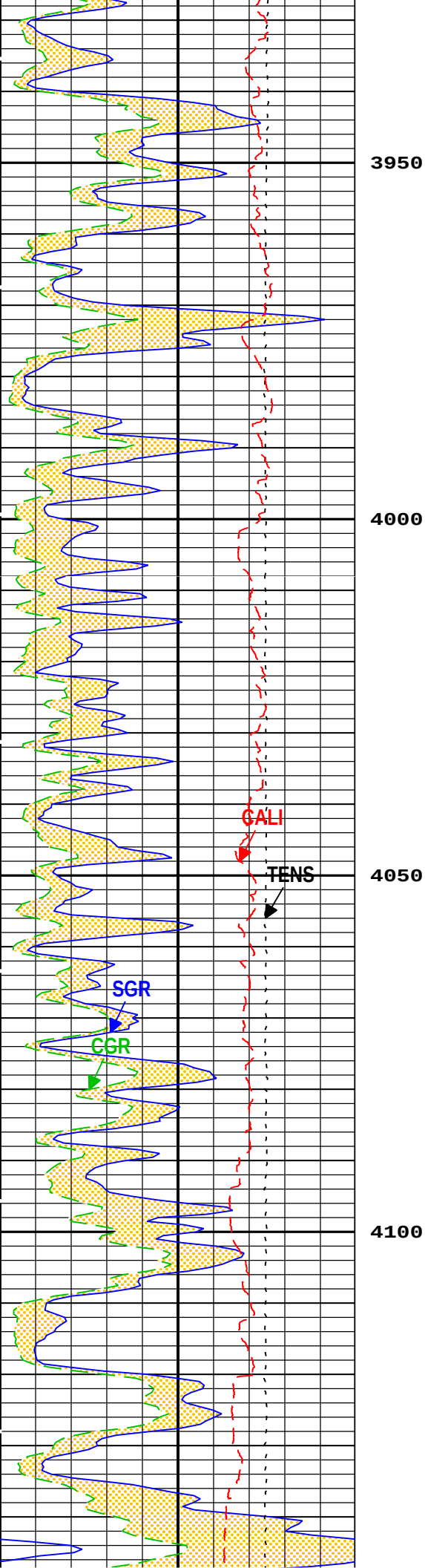


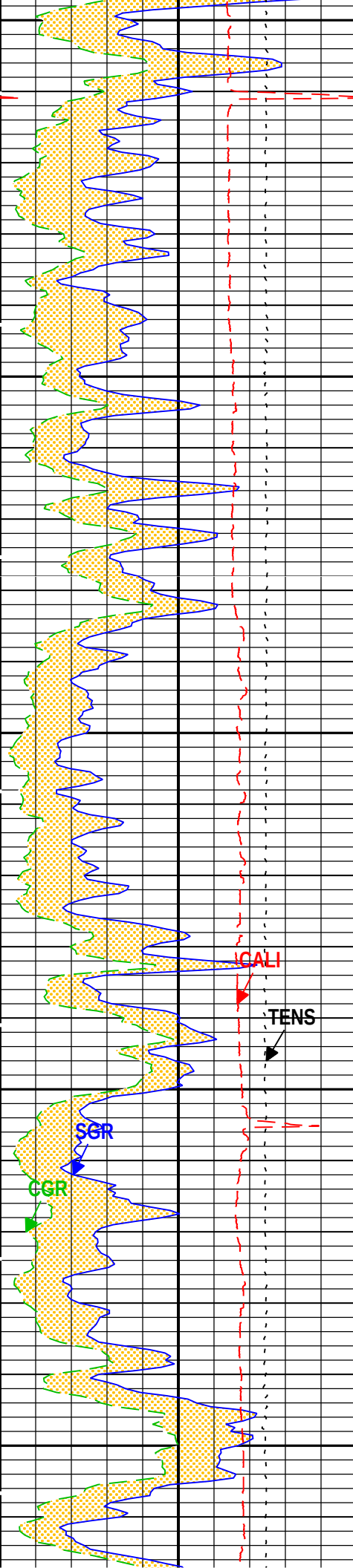
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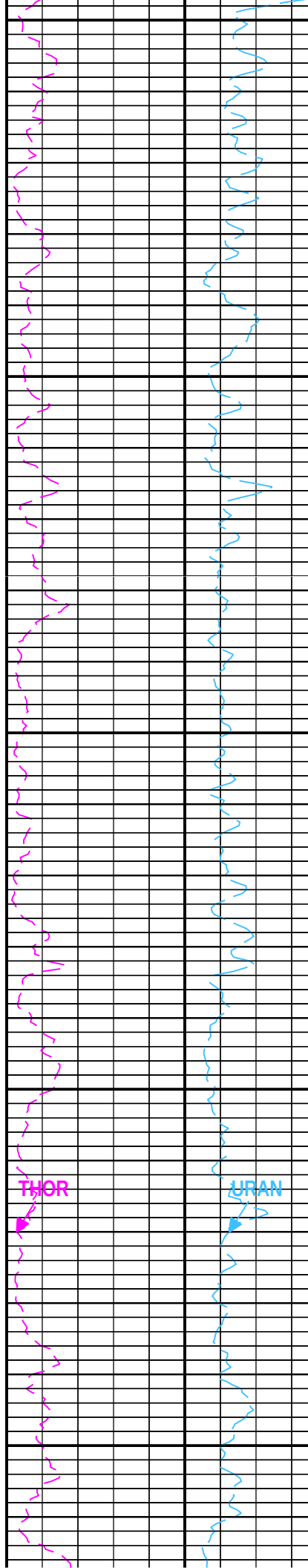
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4200

4250

4300

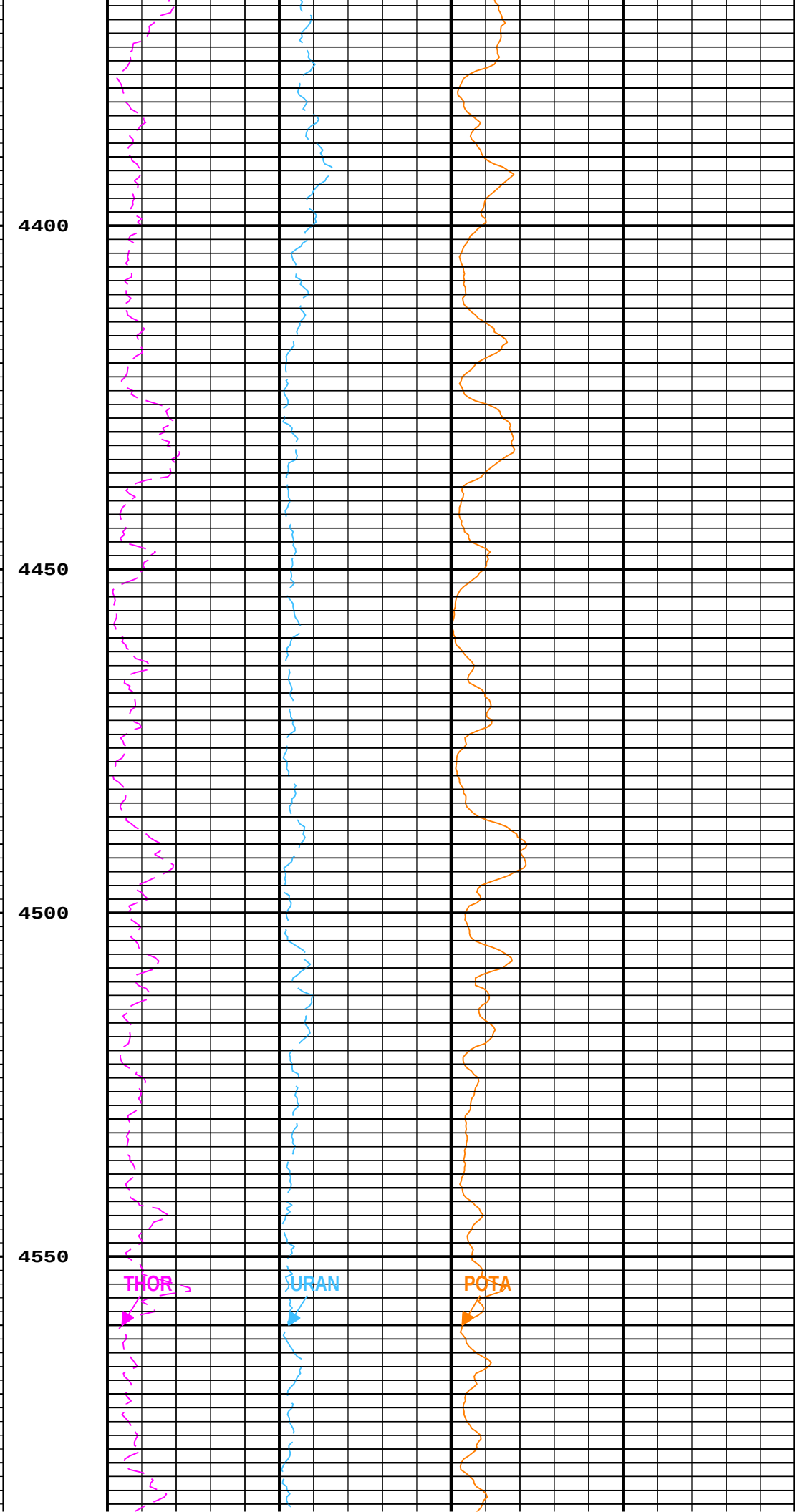
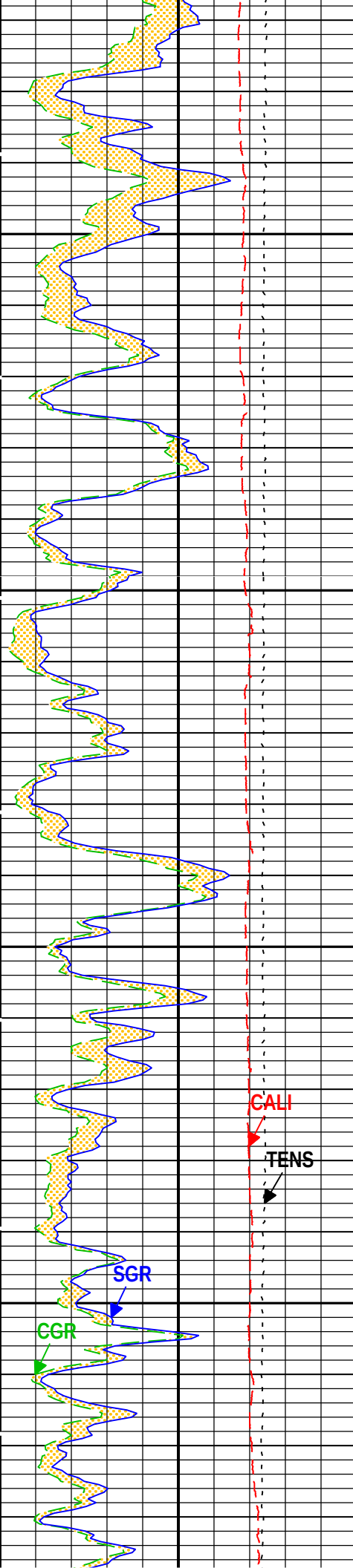
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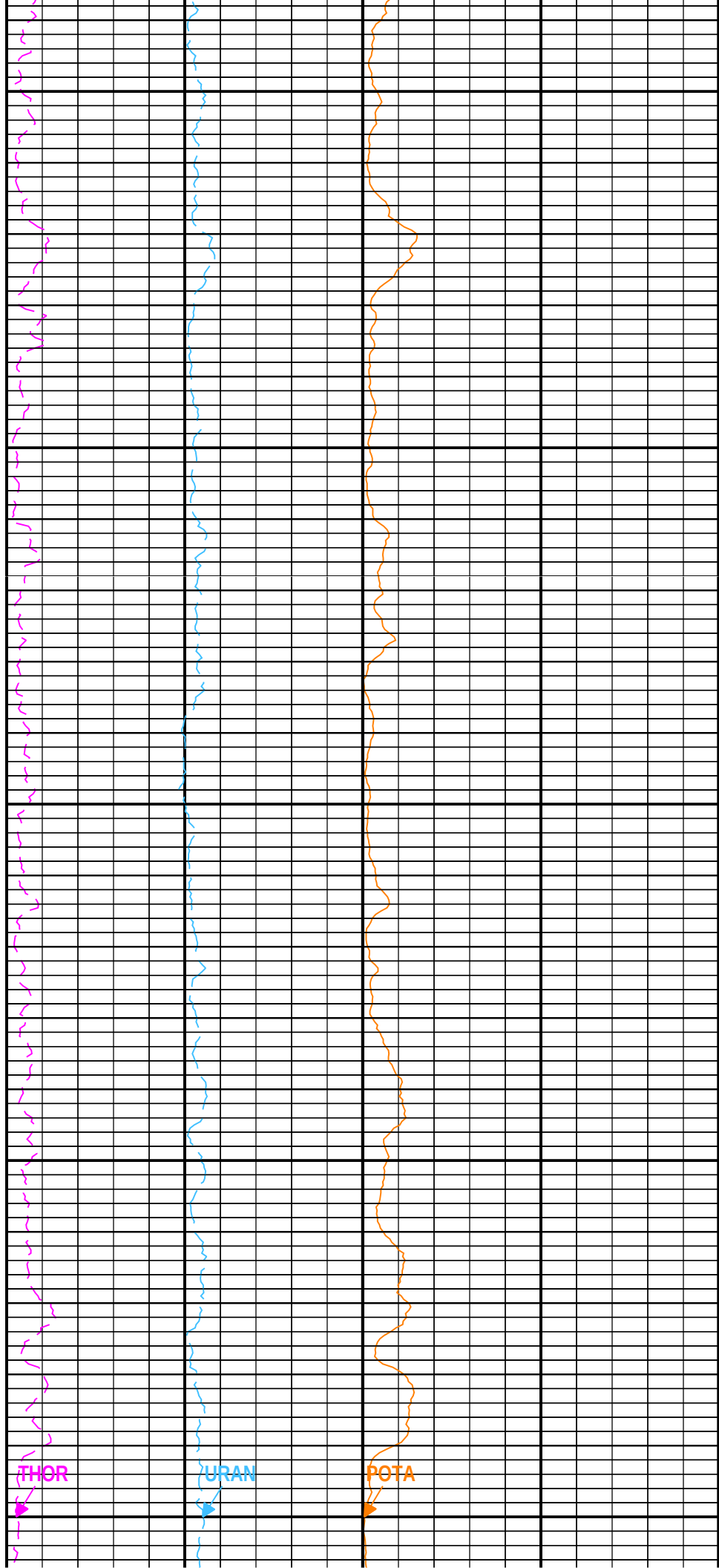
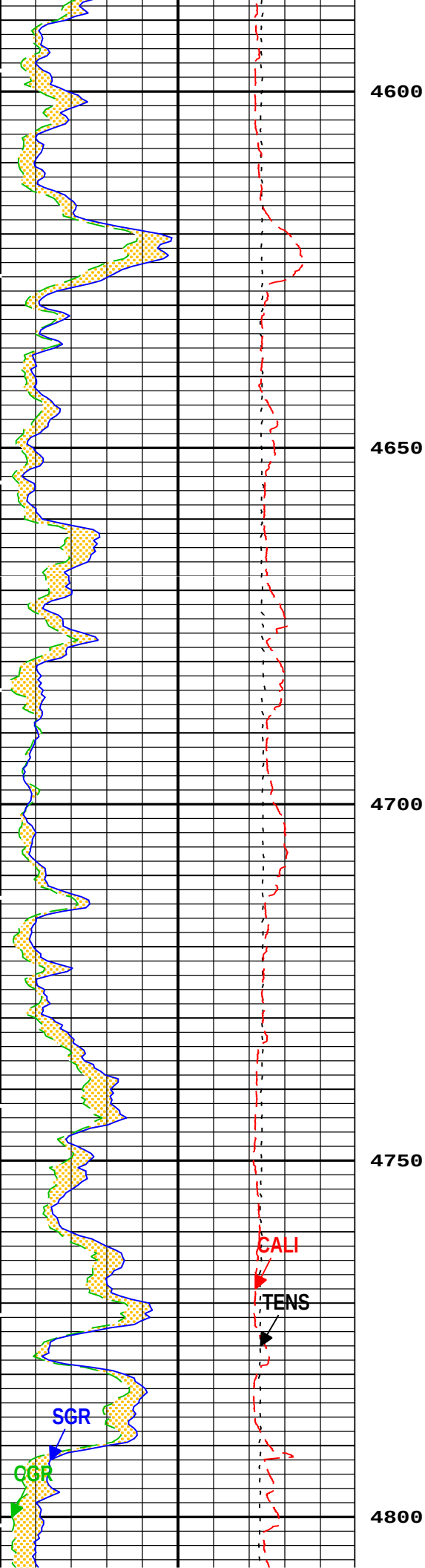


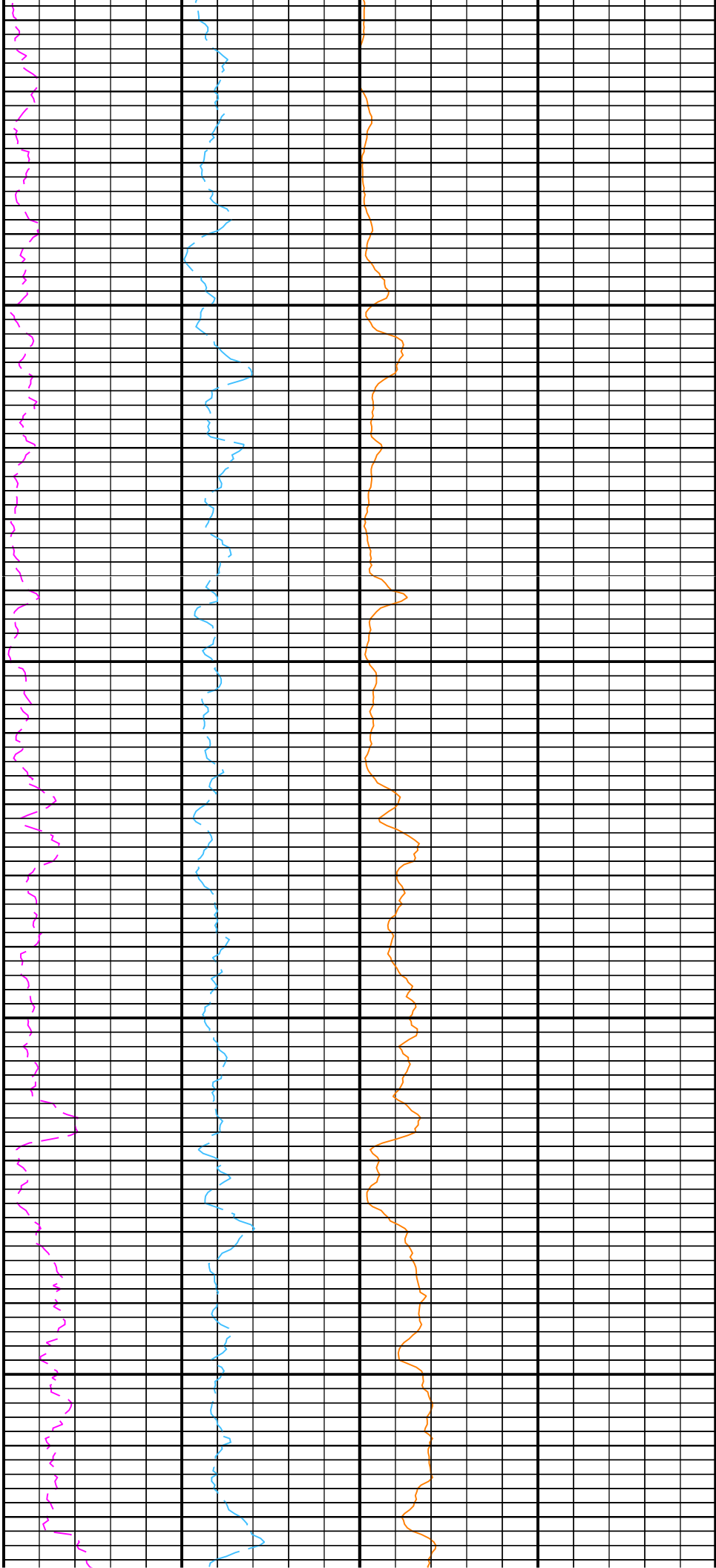
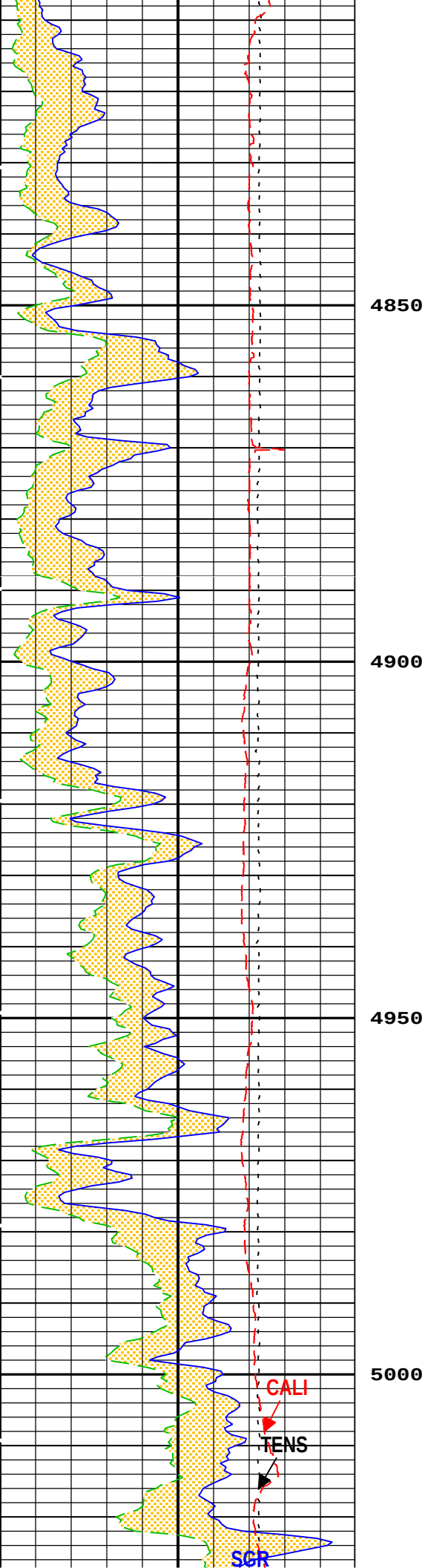
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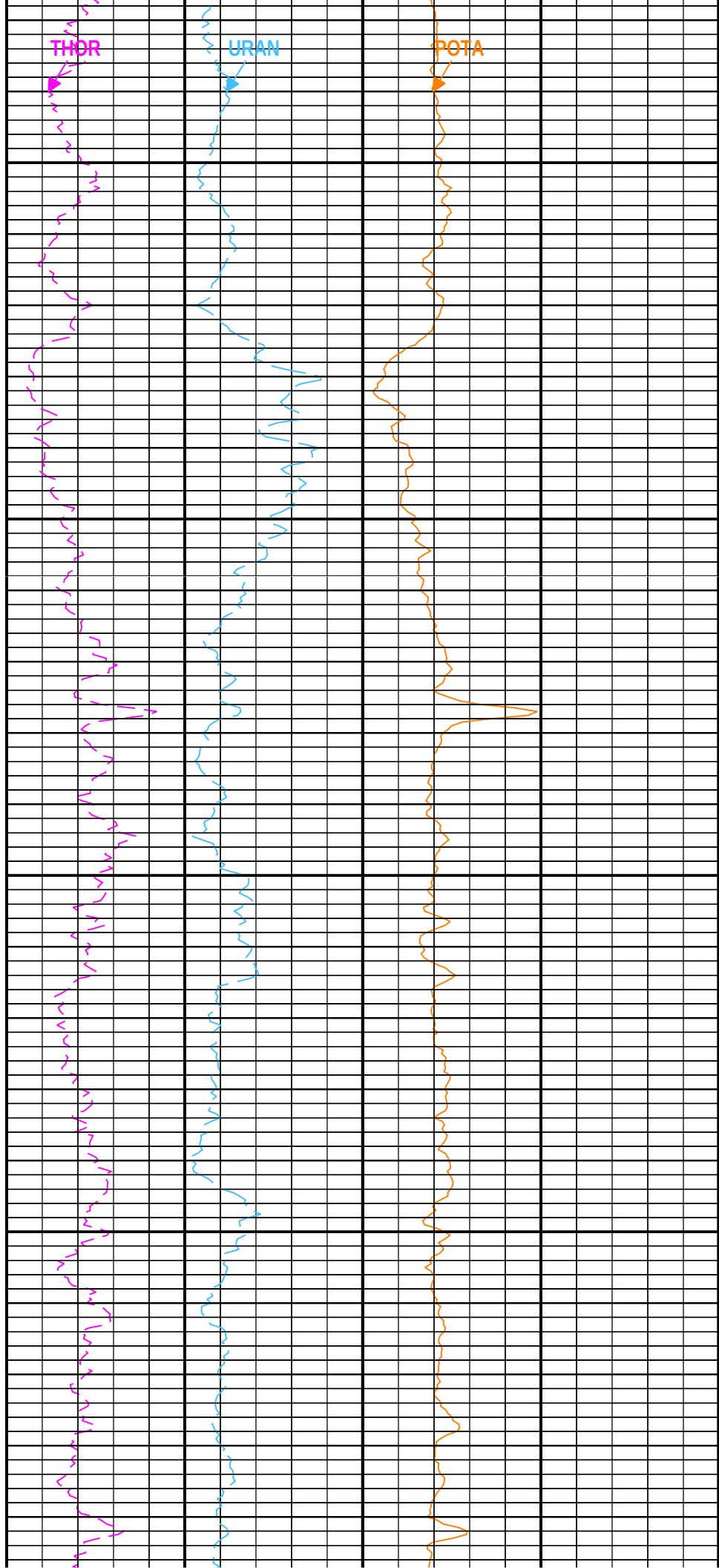
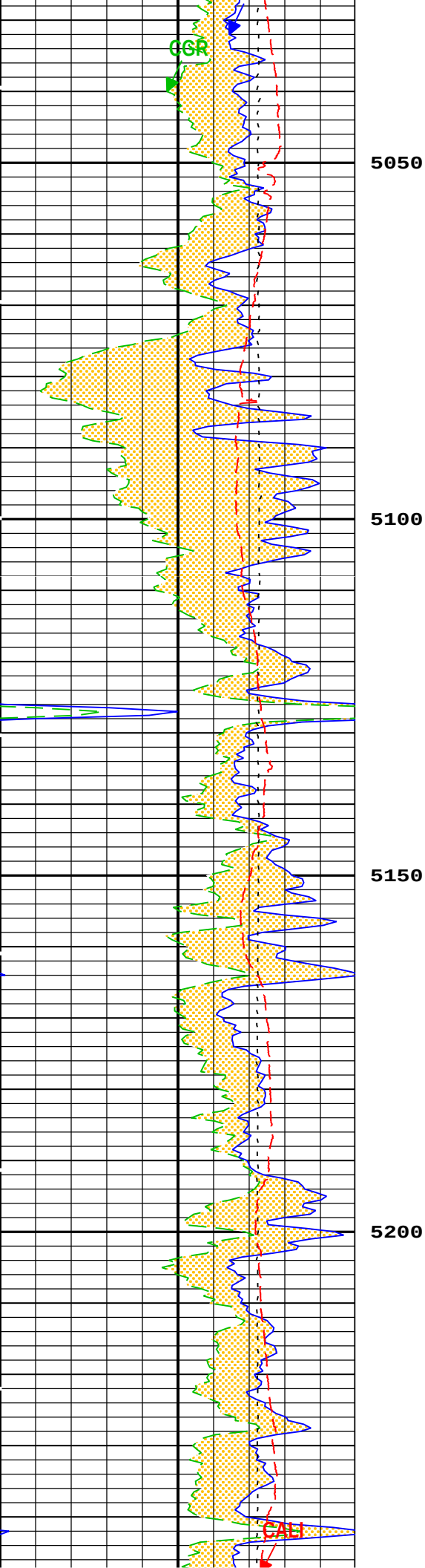
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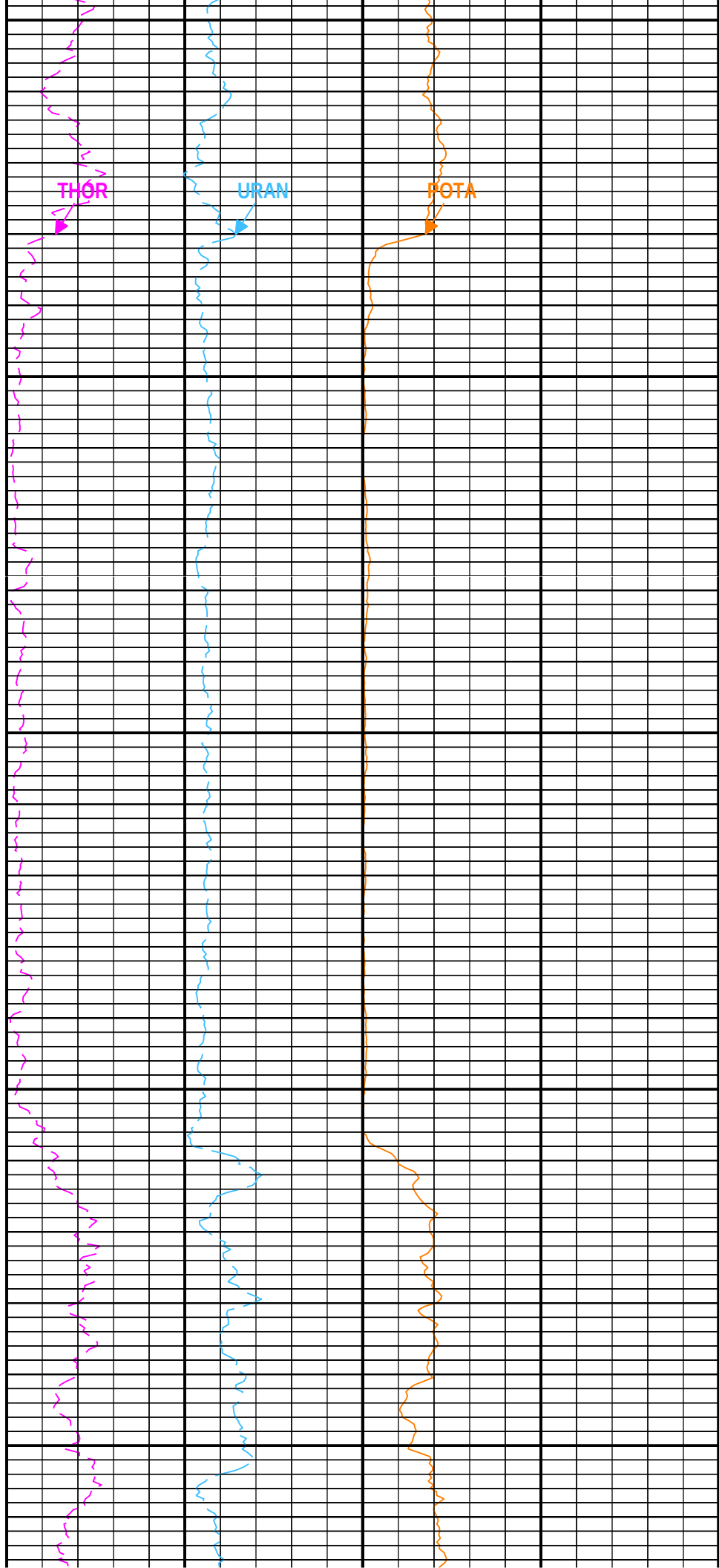
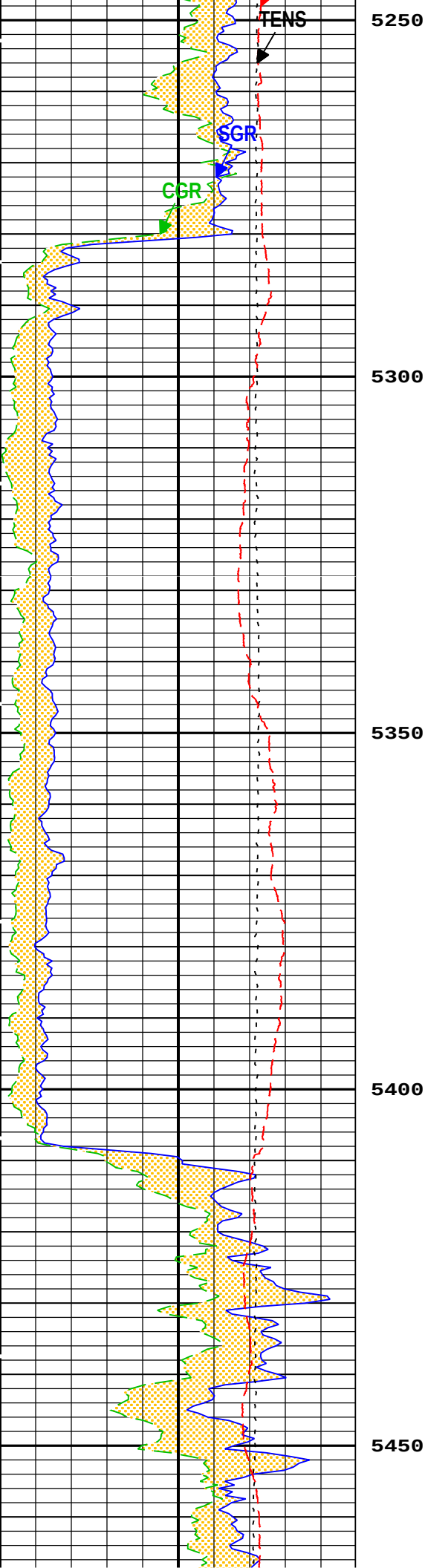
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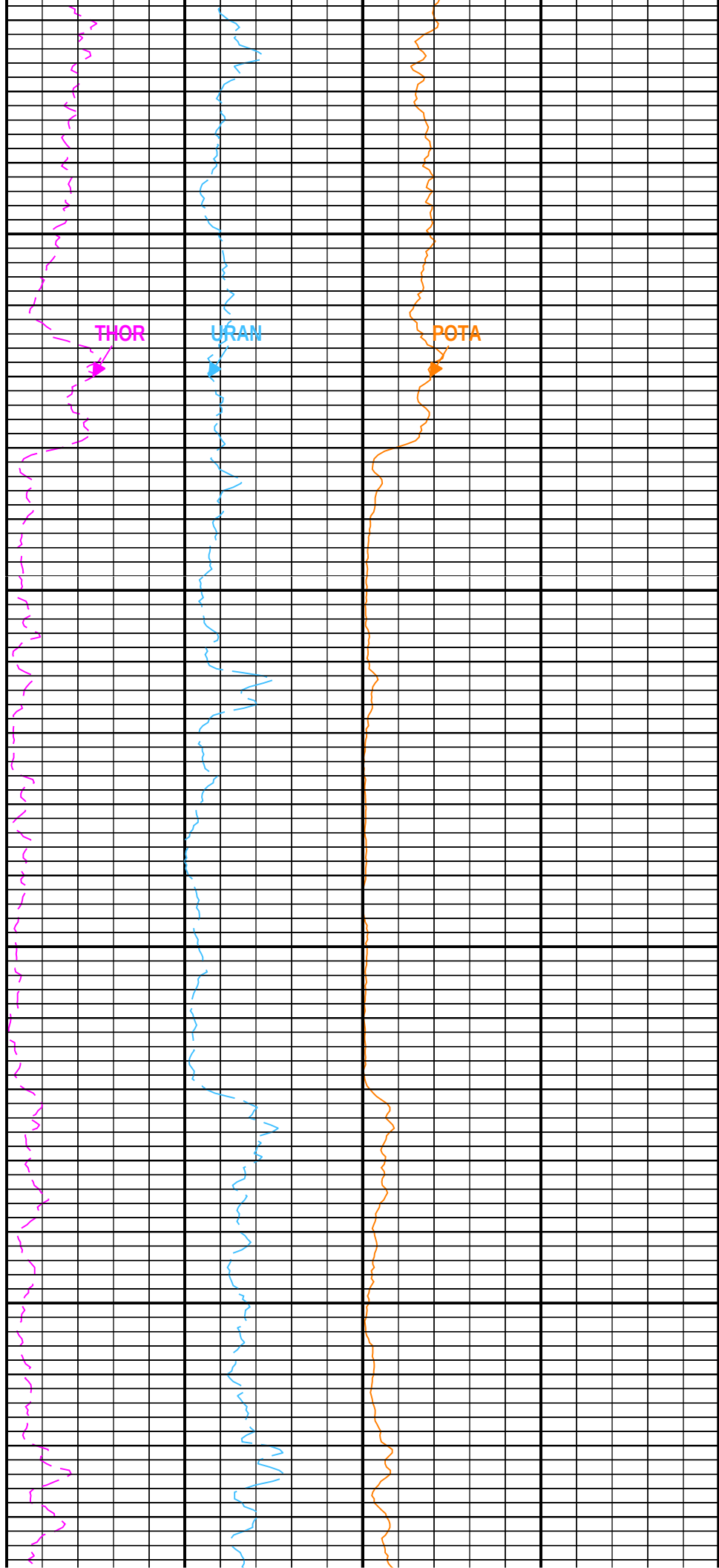
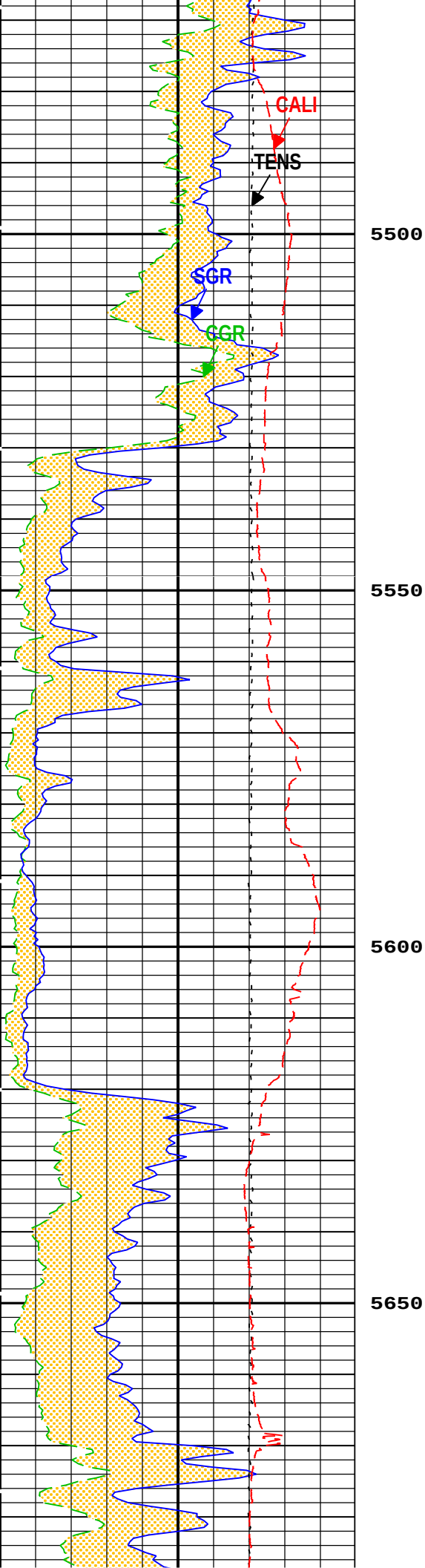


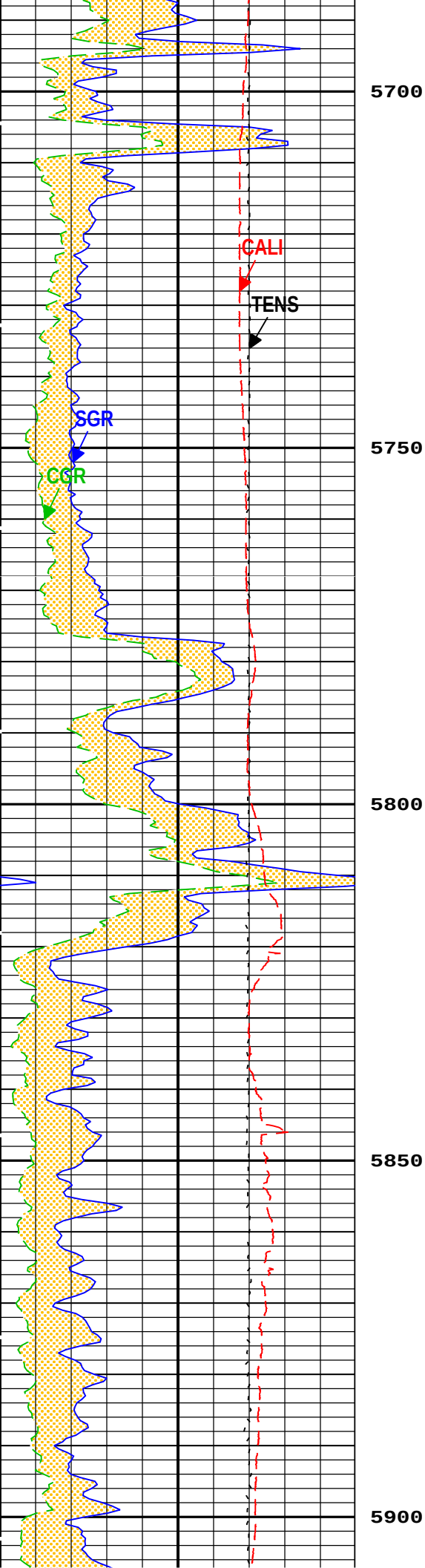












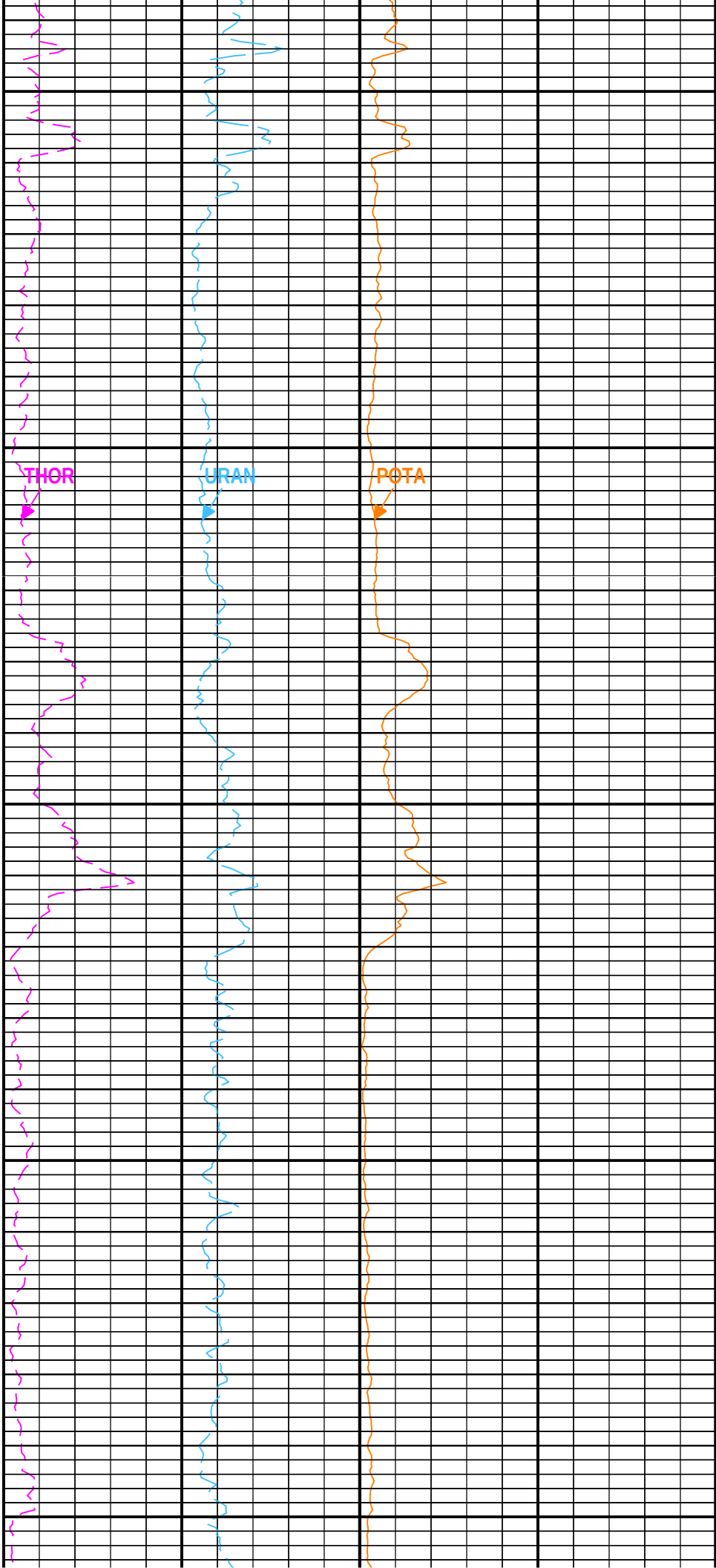
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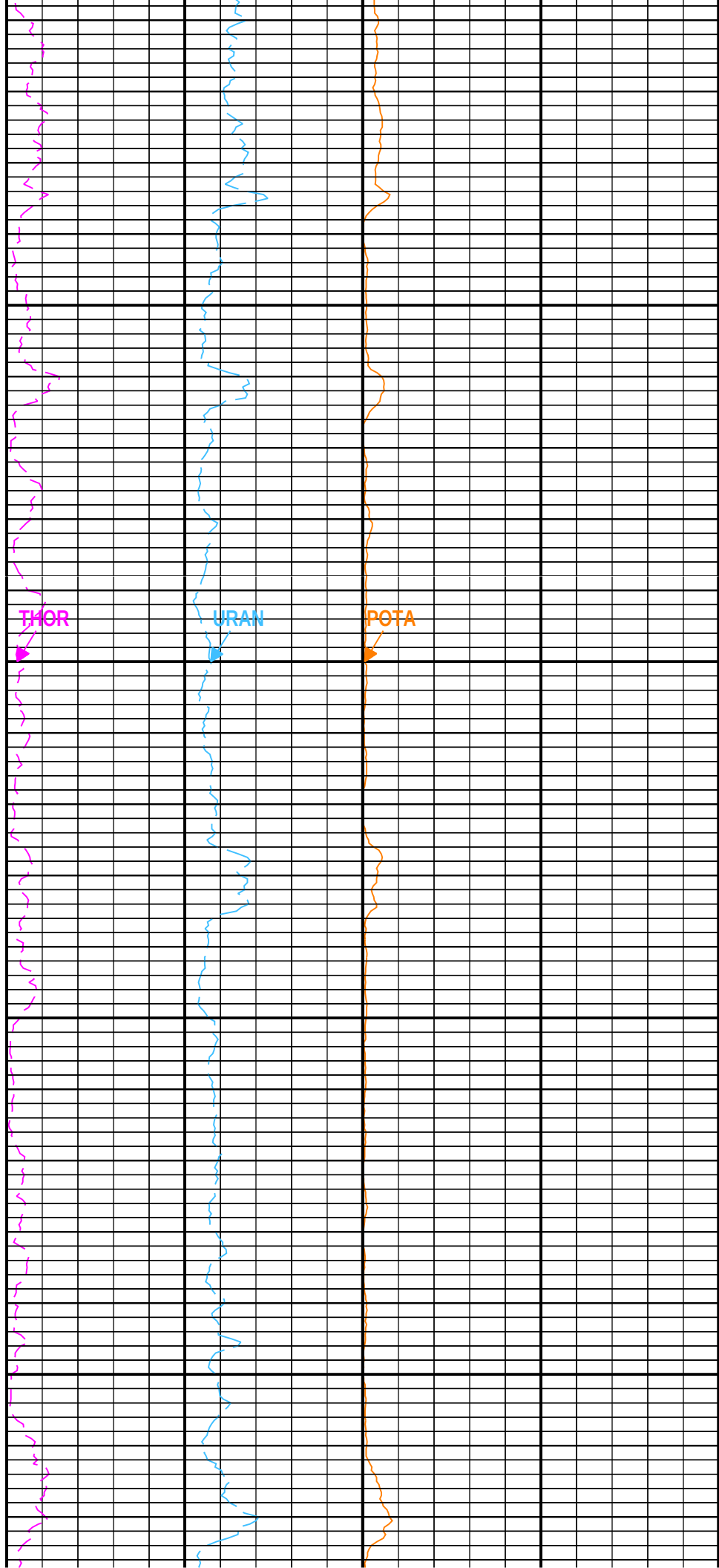
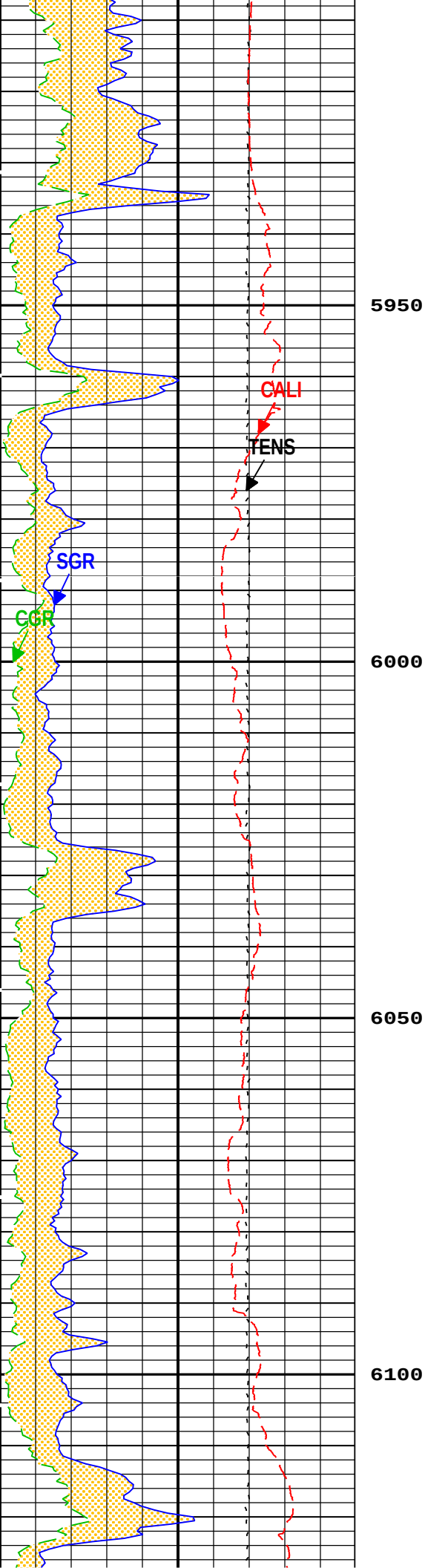
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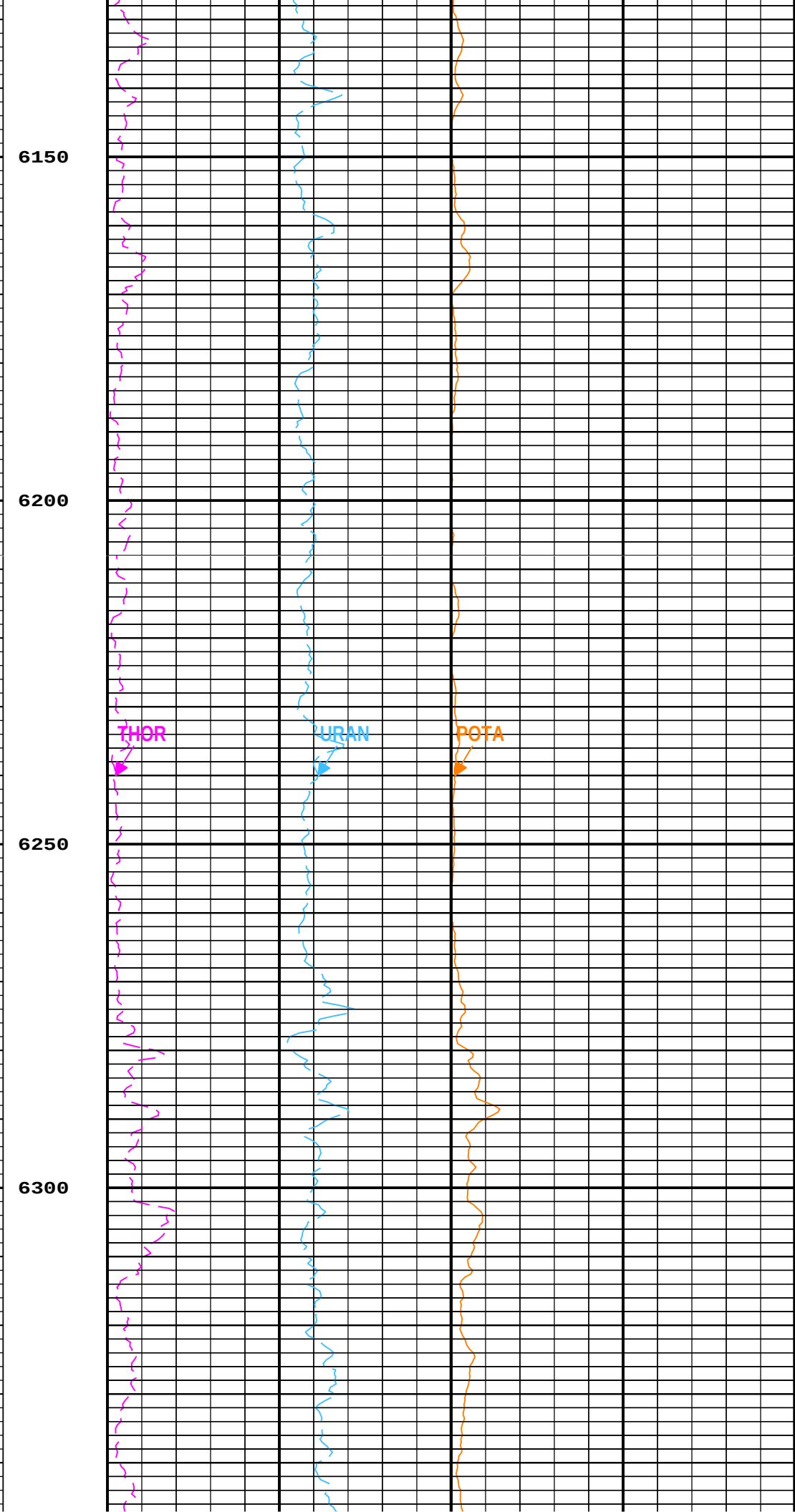
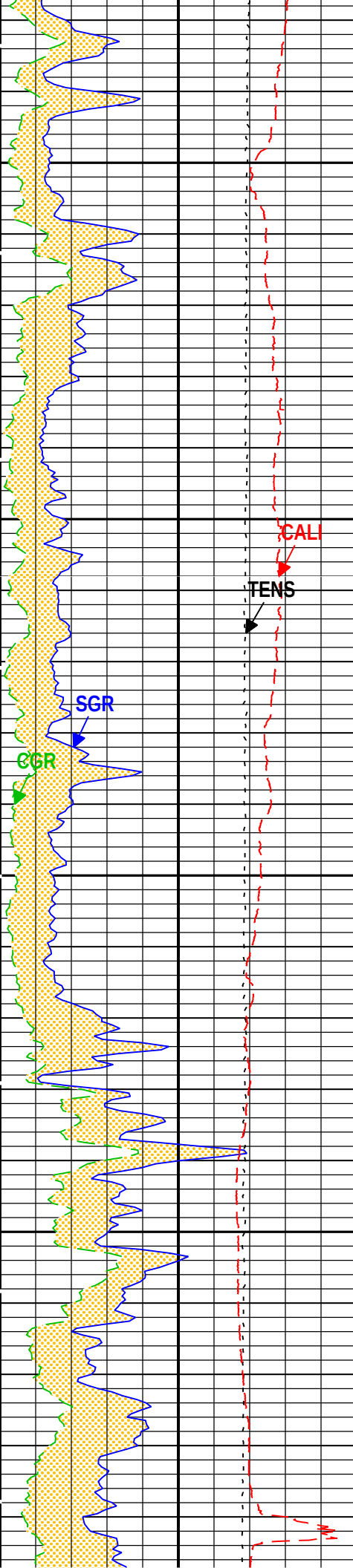


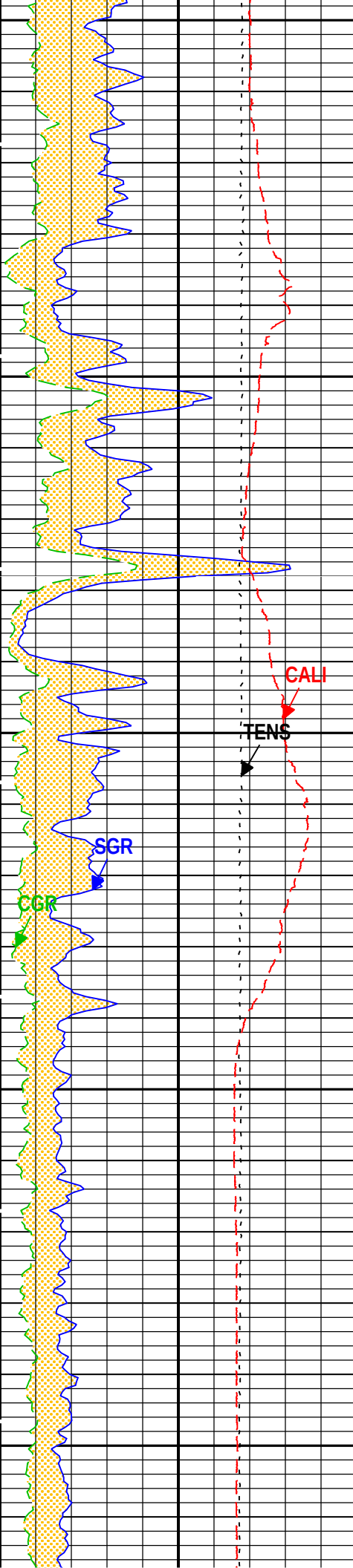
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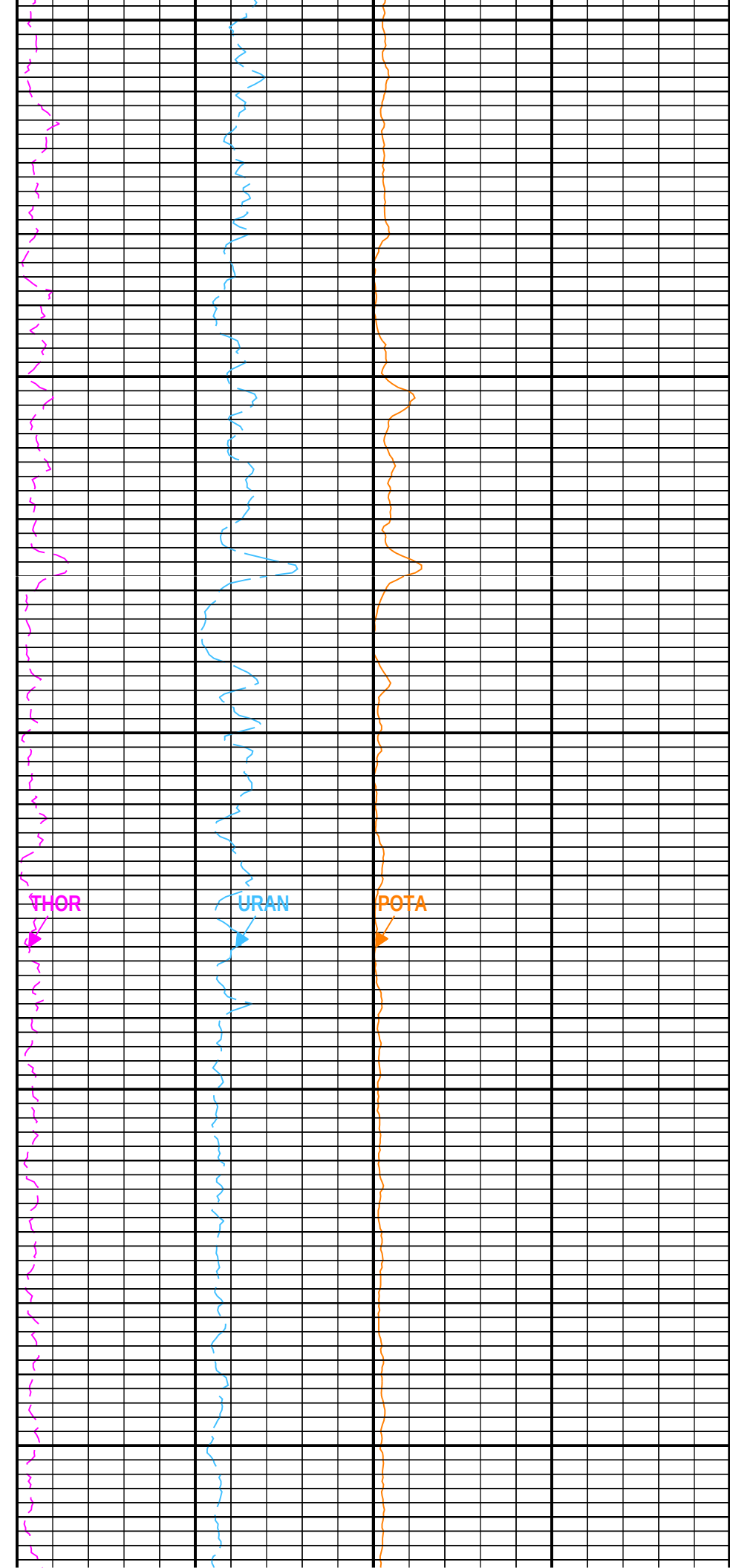
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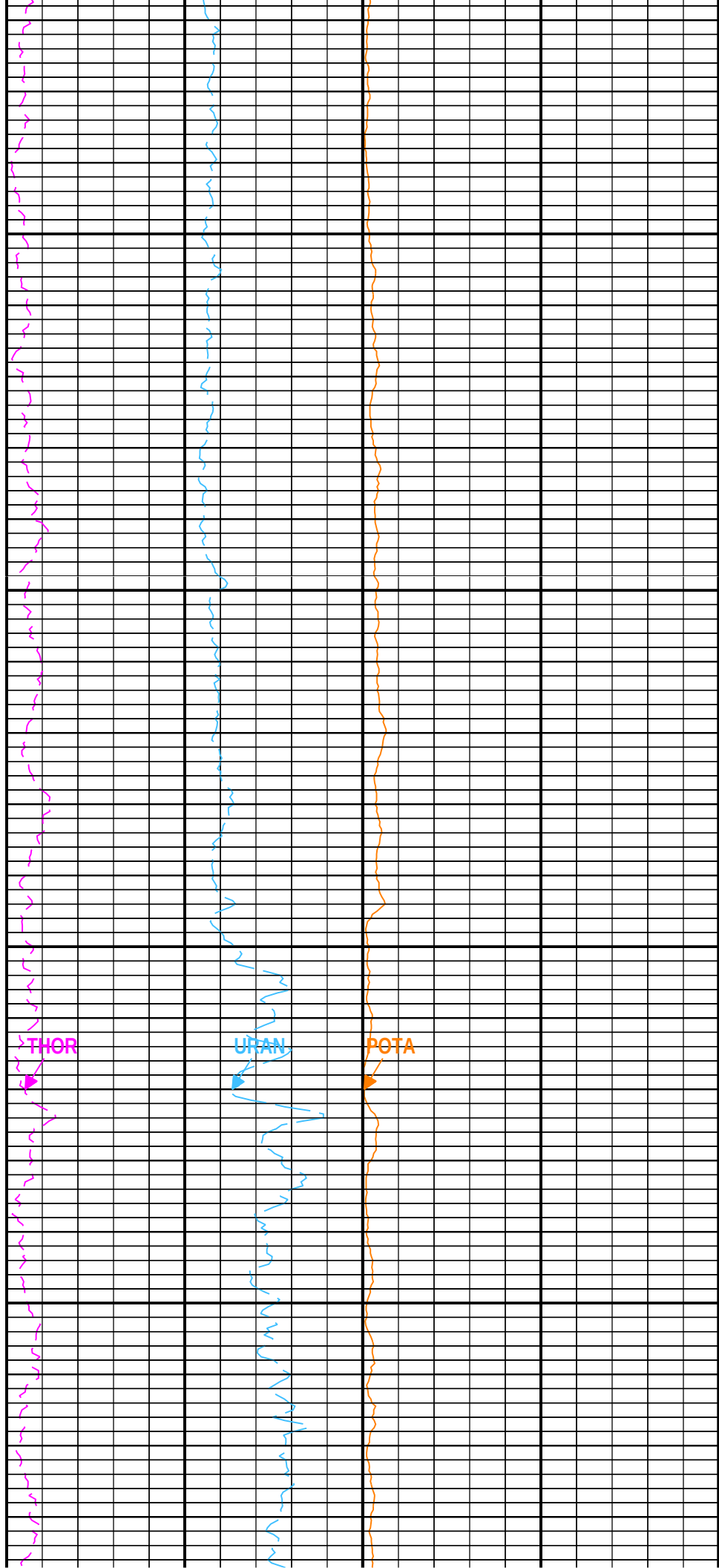
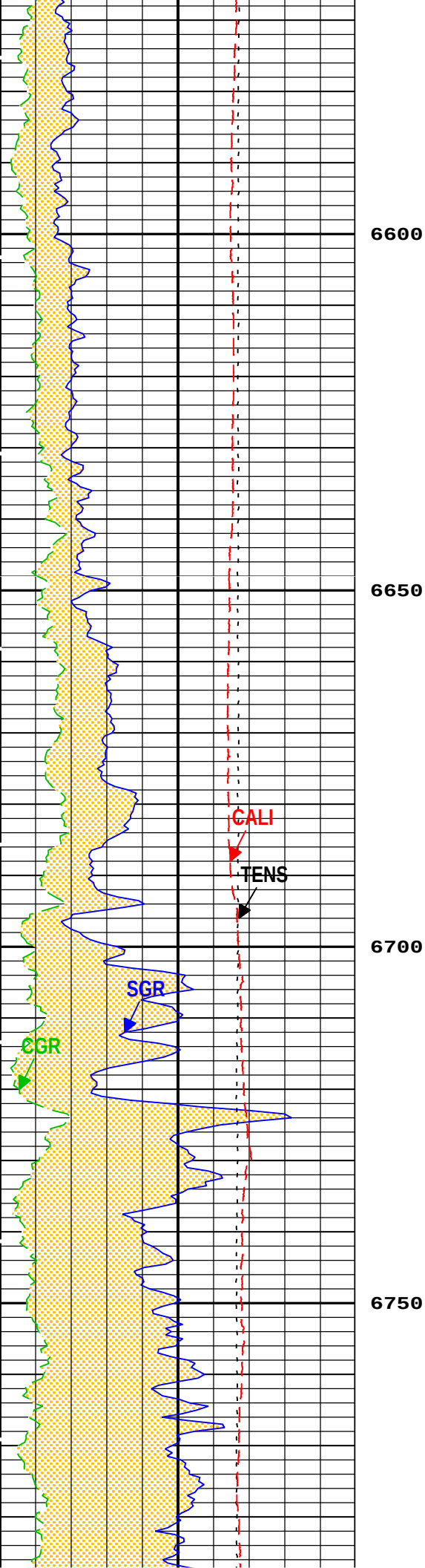
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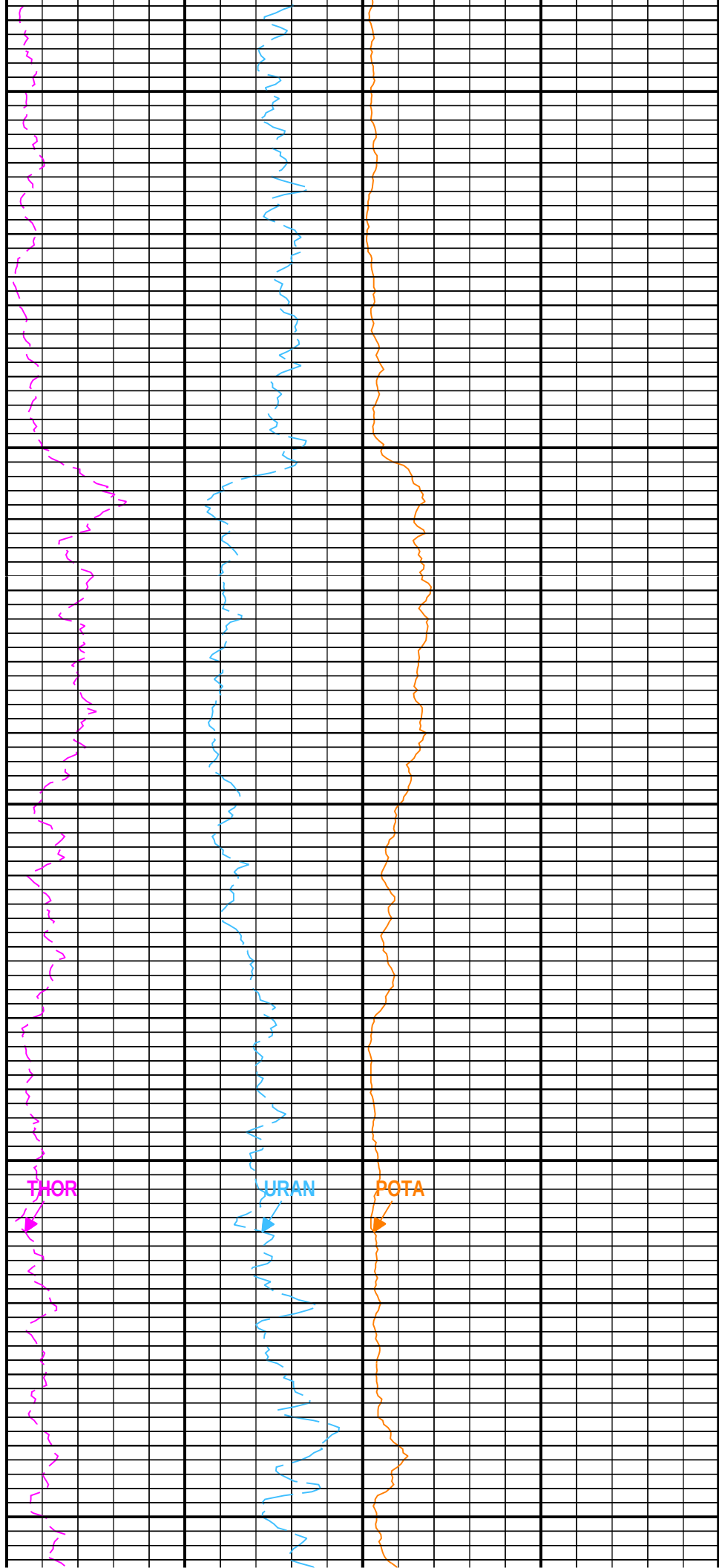
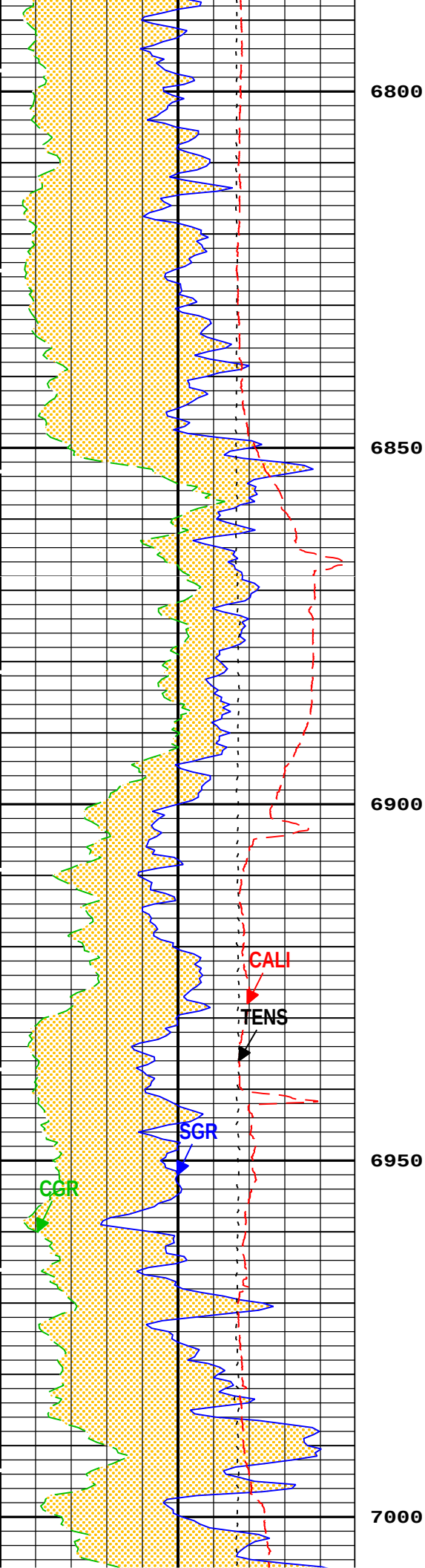
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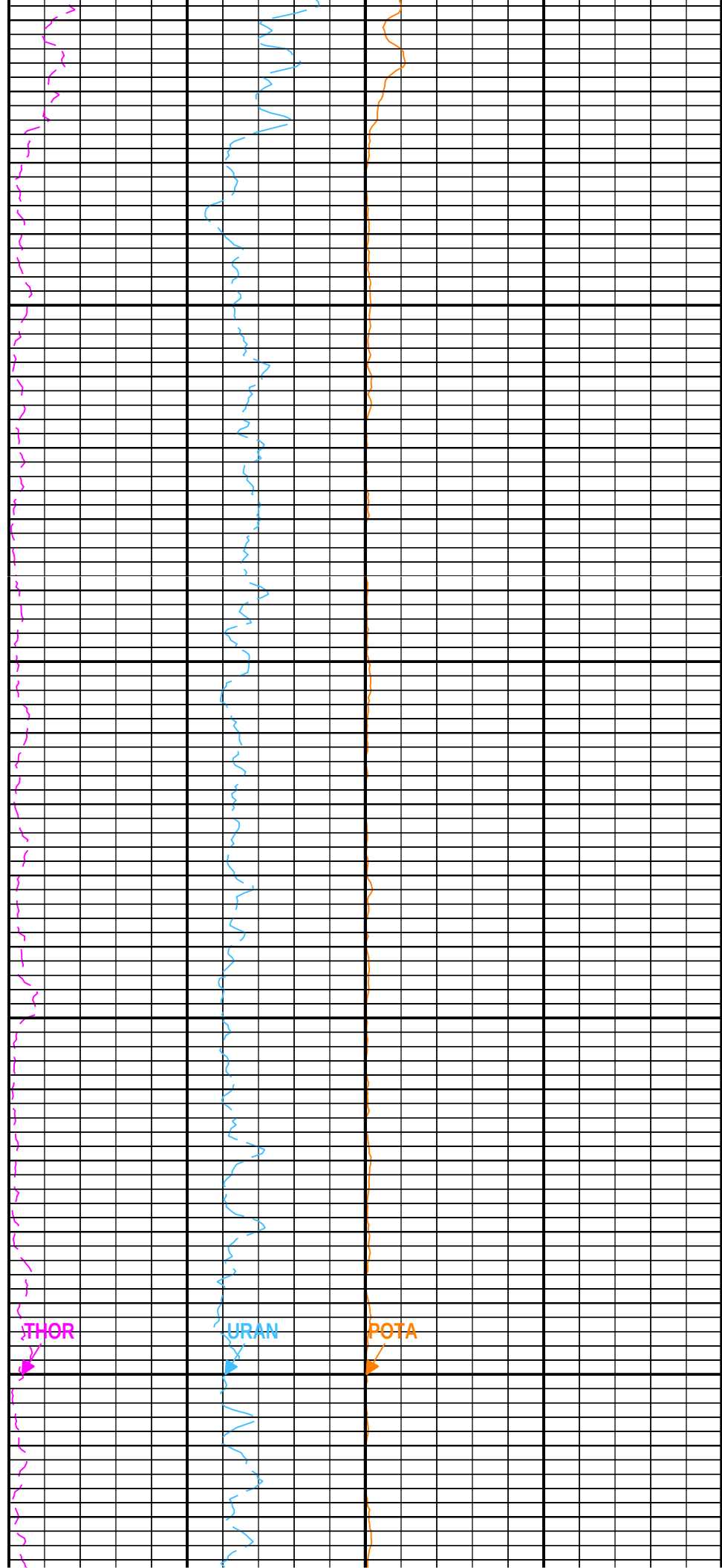
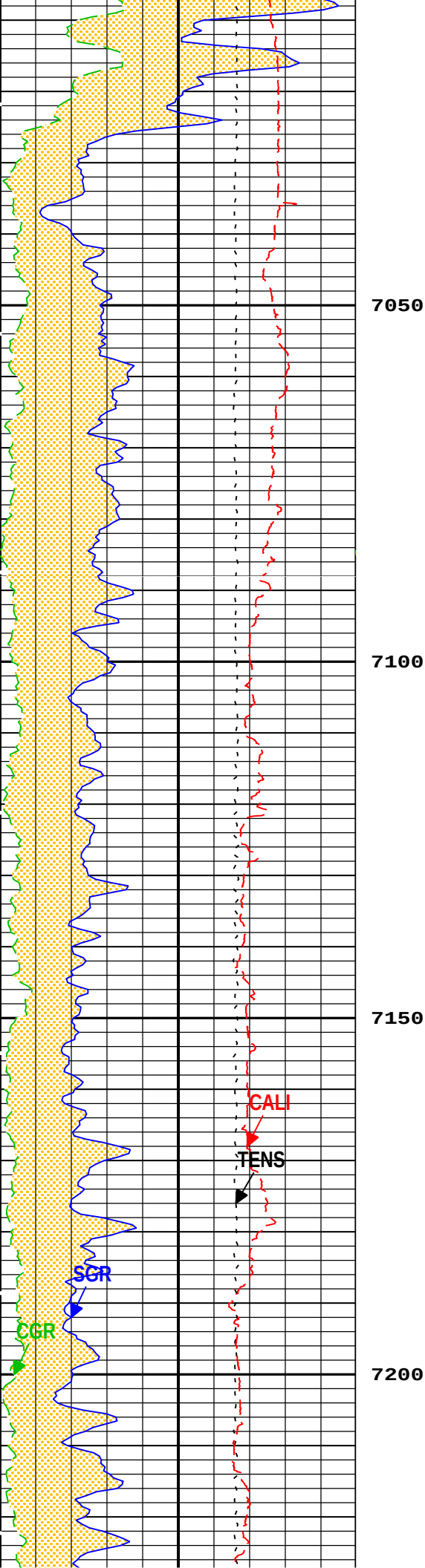
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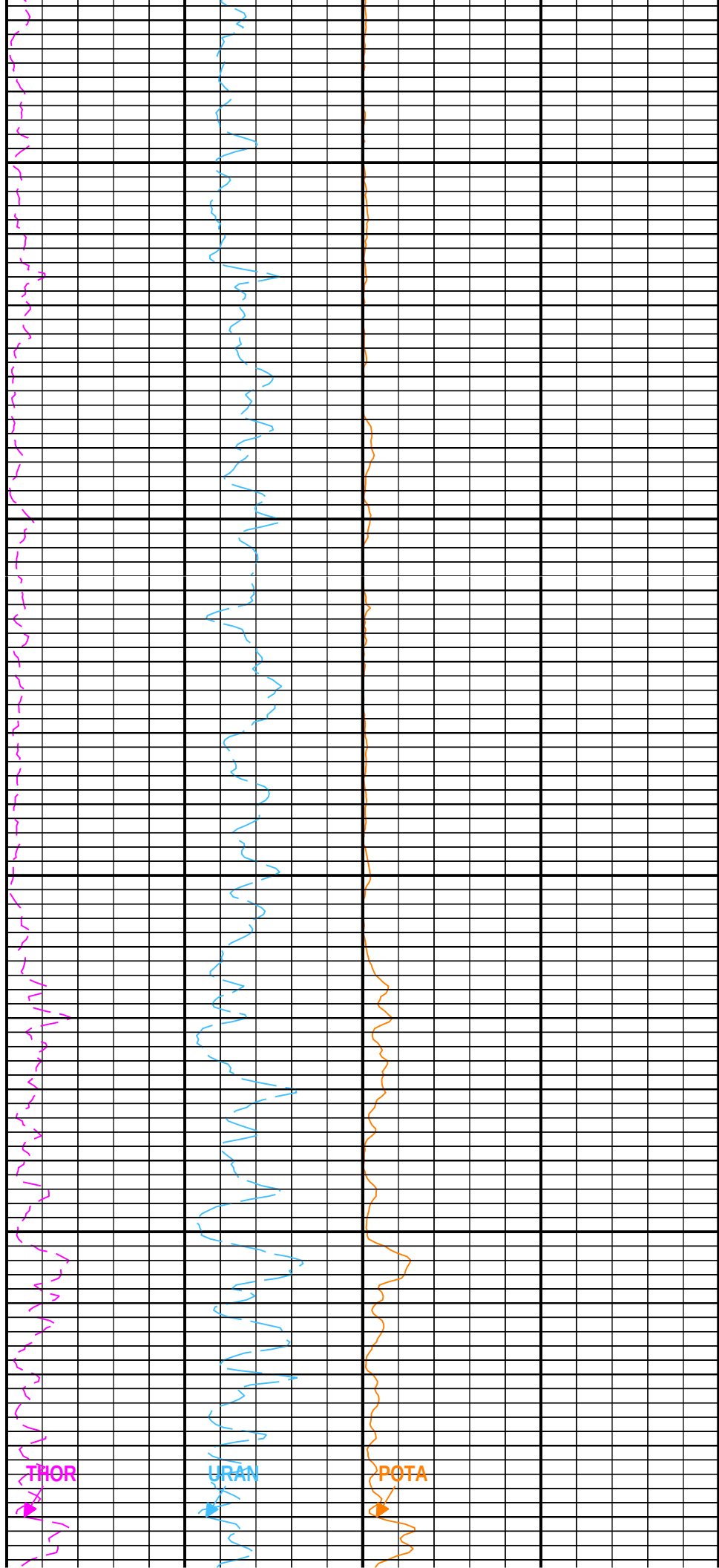
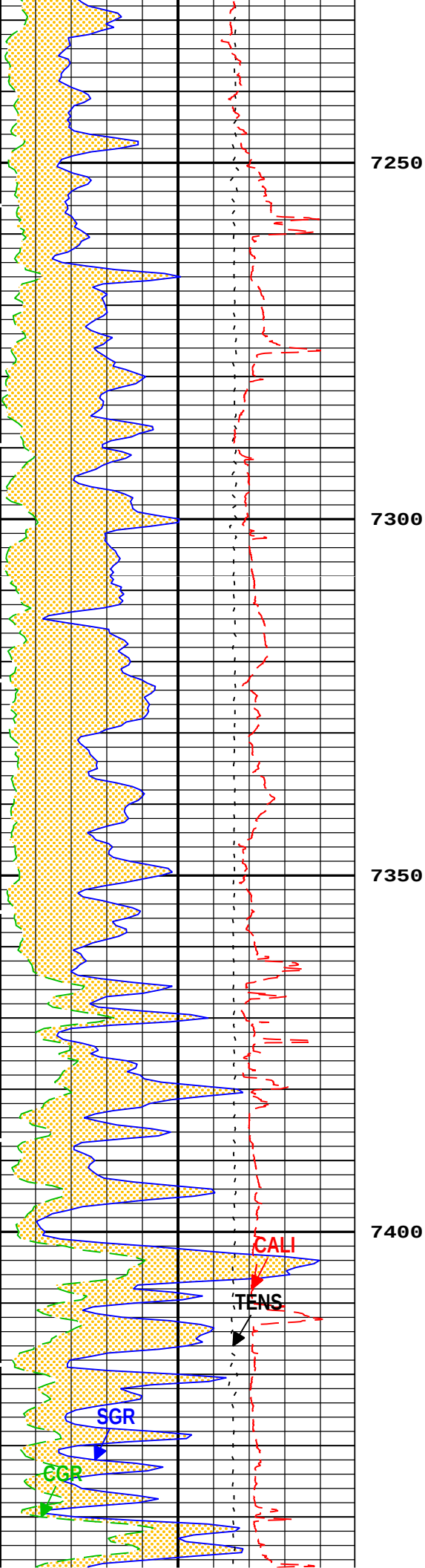
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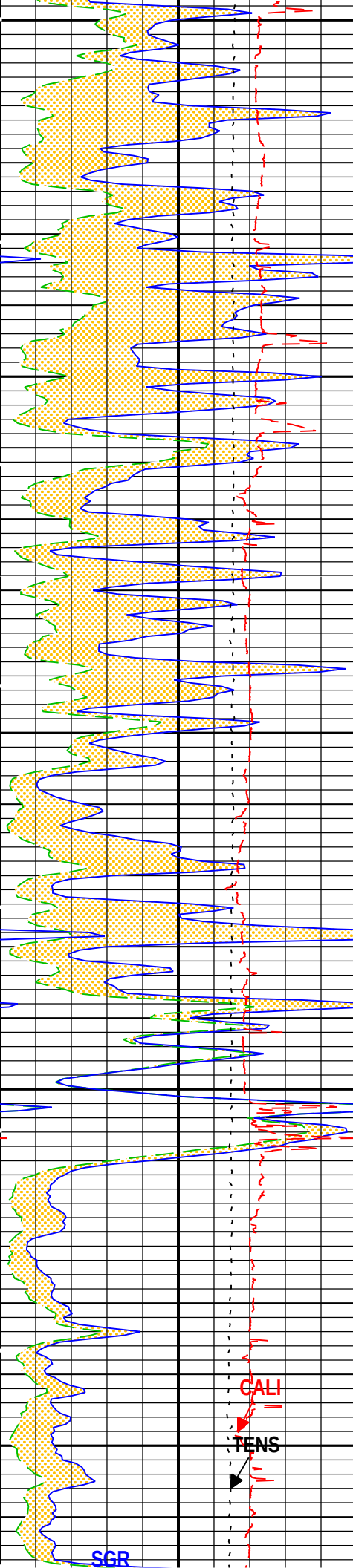












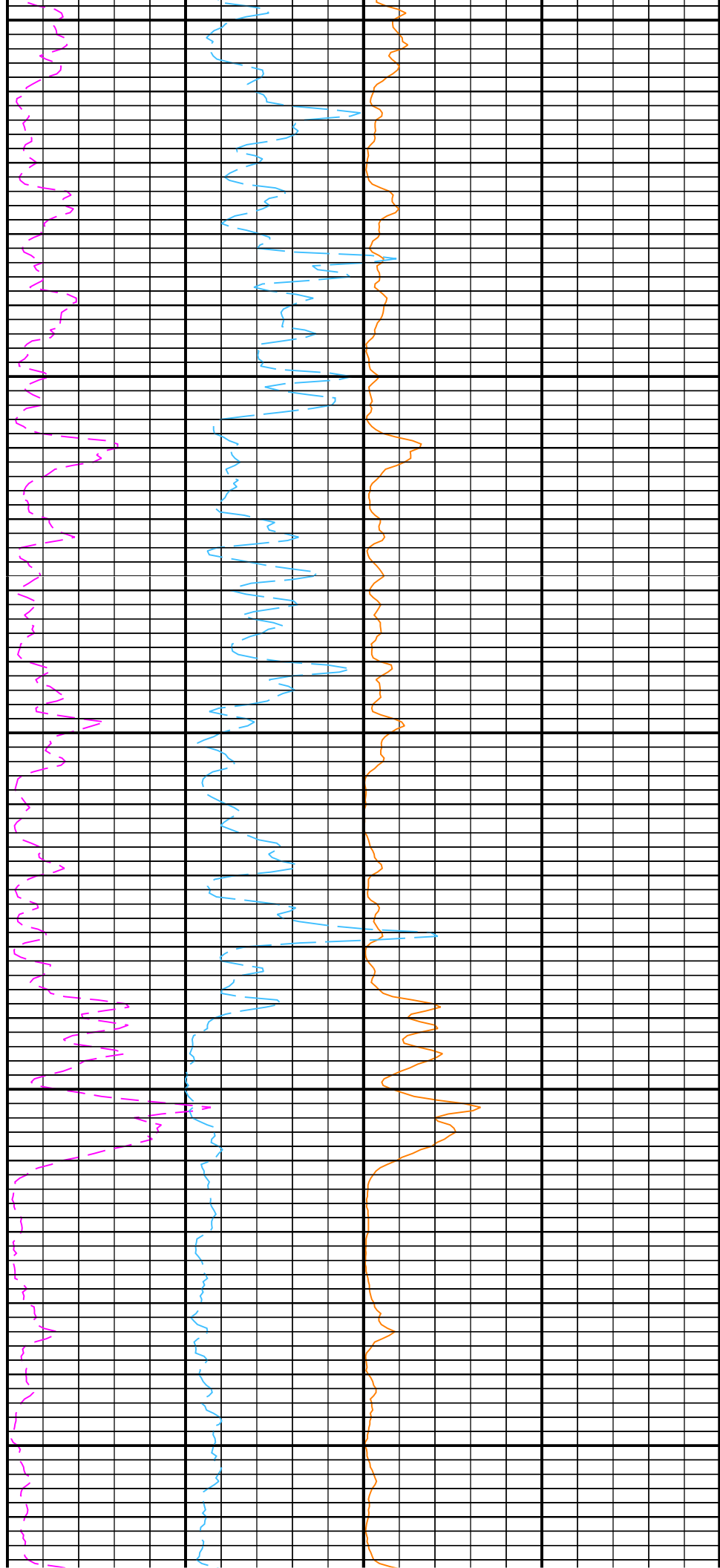
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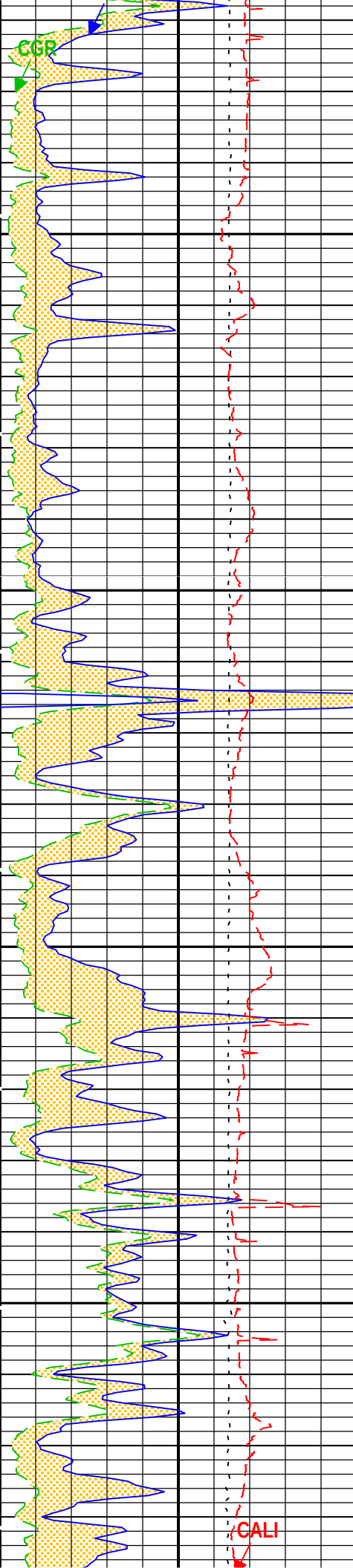
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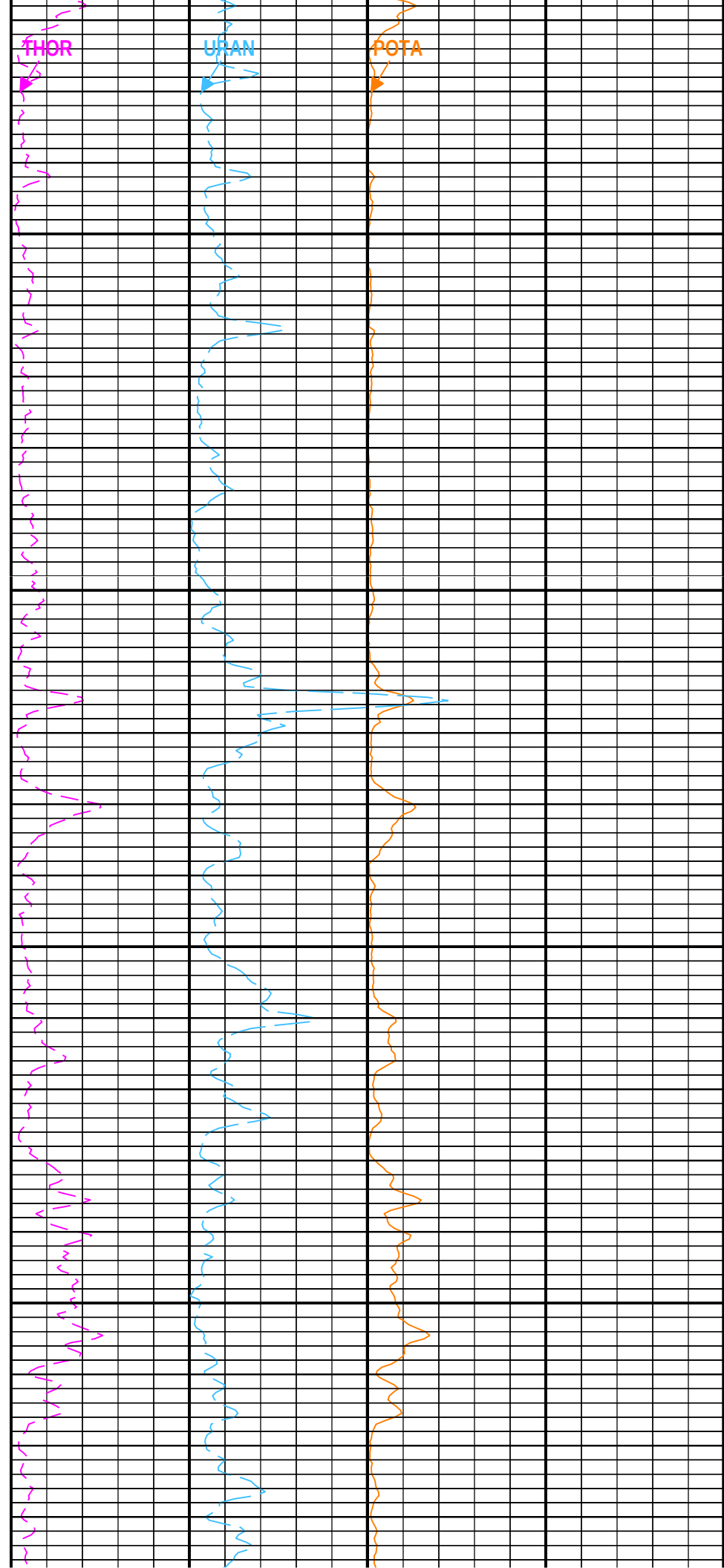


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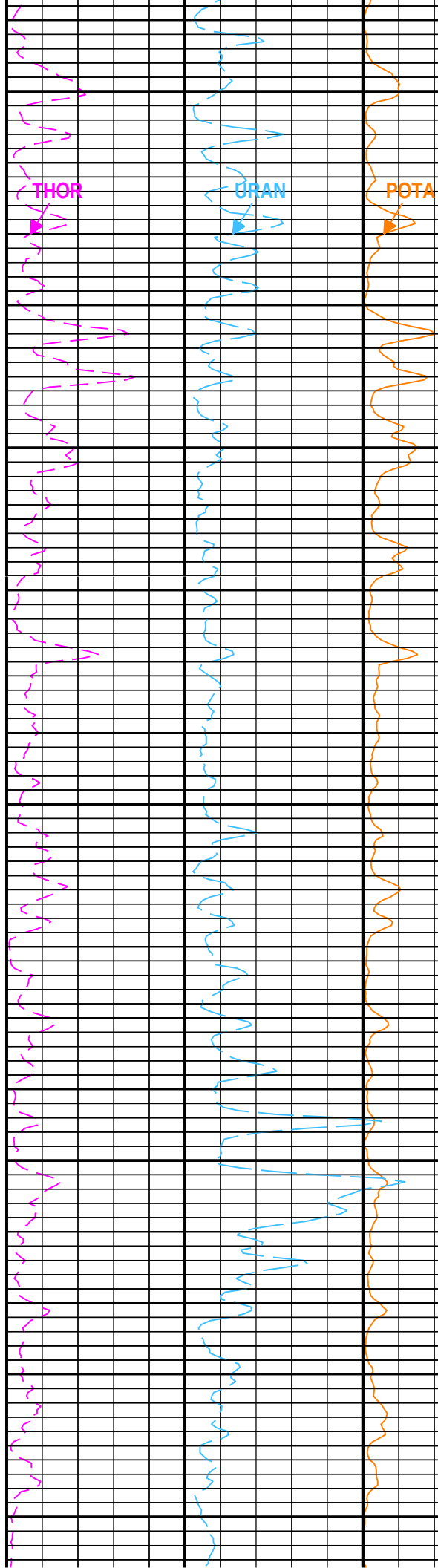
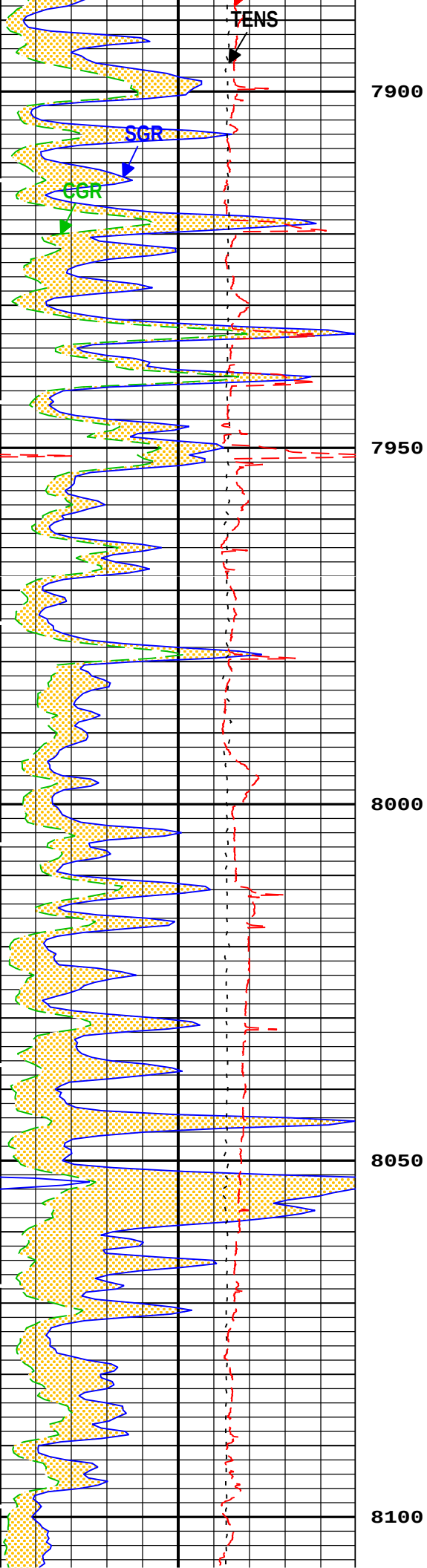
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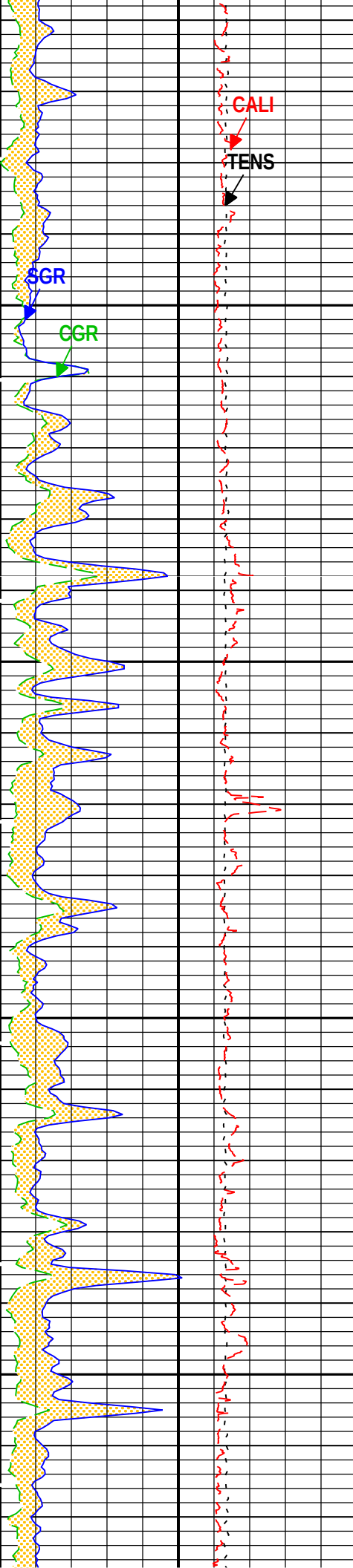


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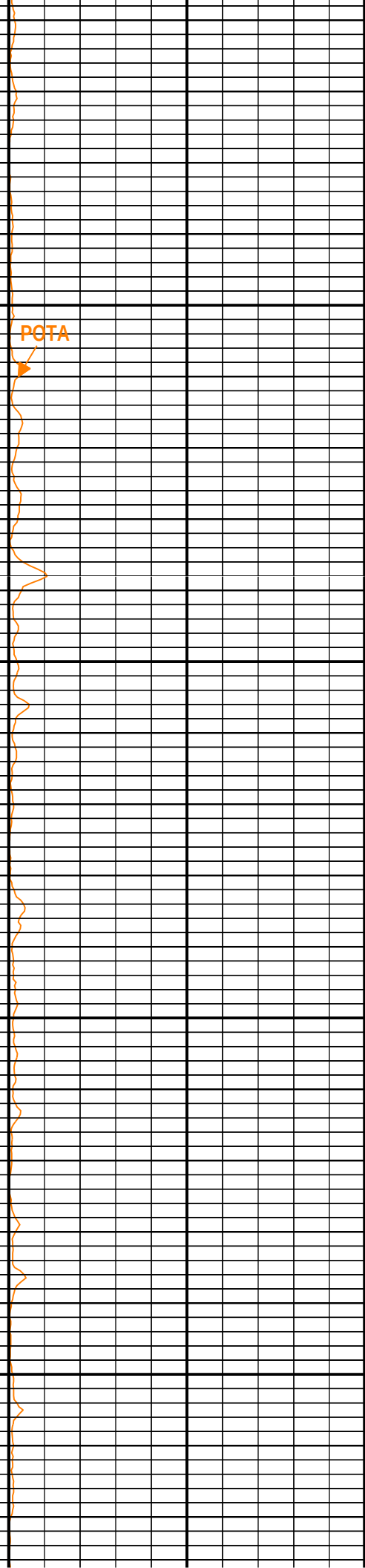
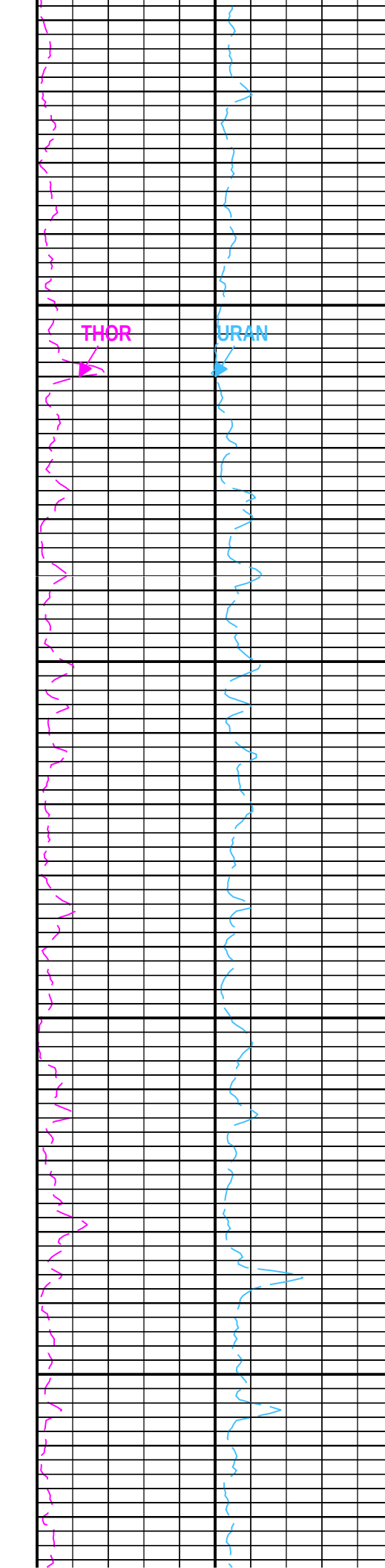


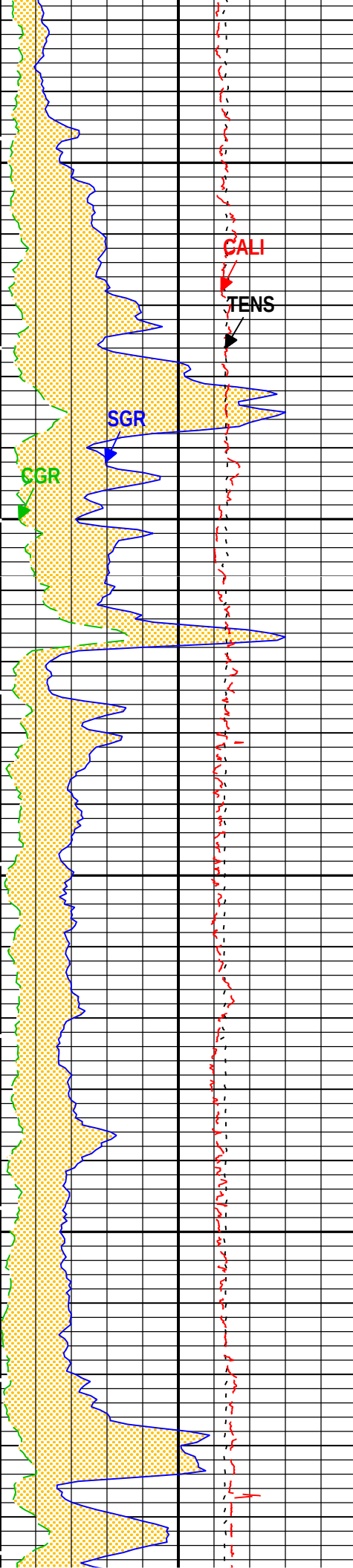
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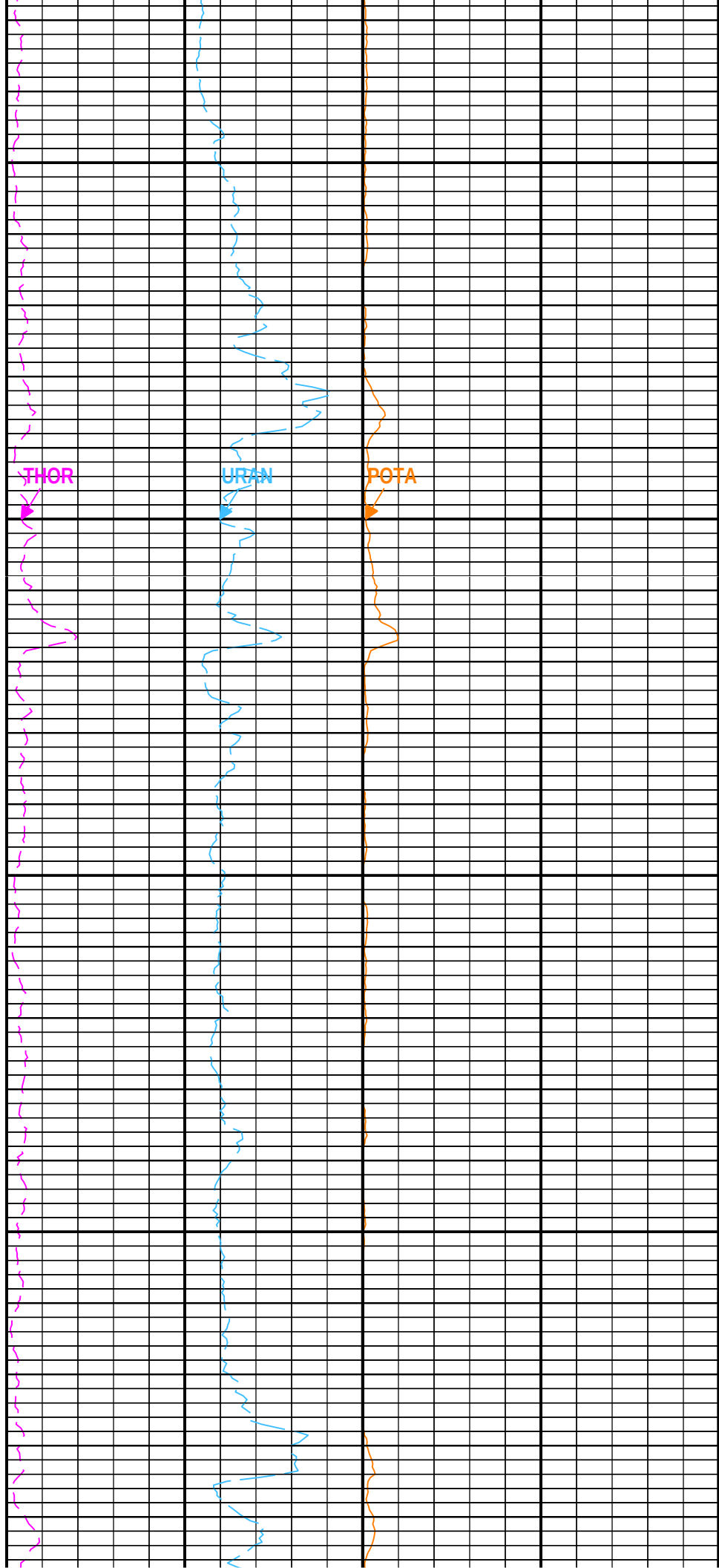


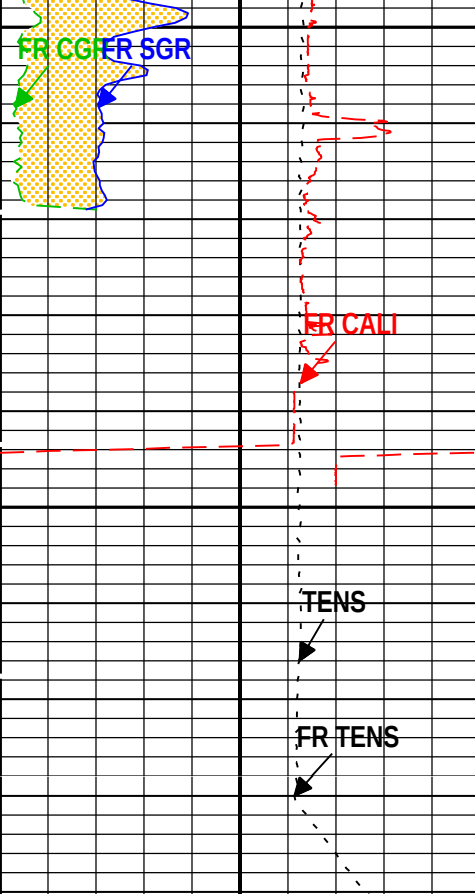
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8400

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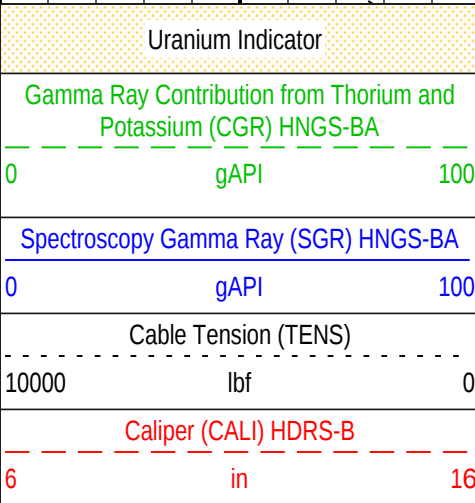
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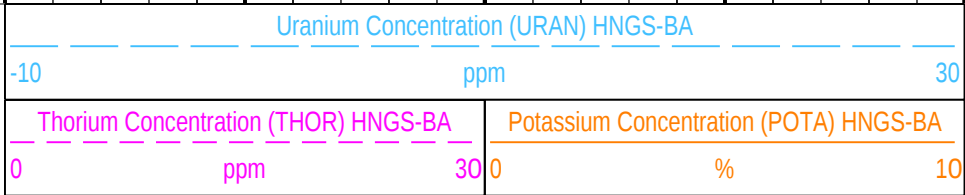
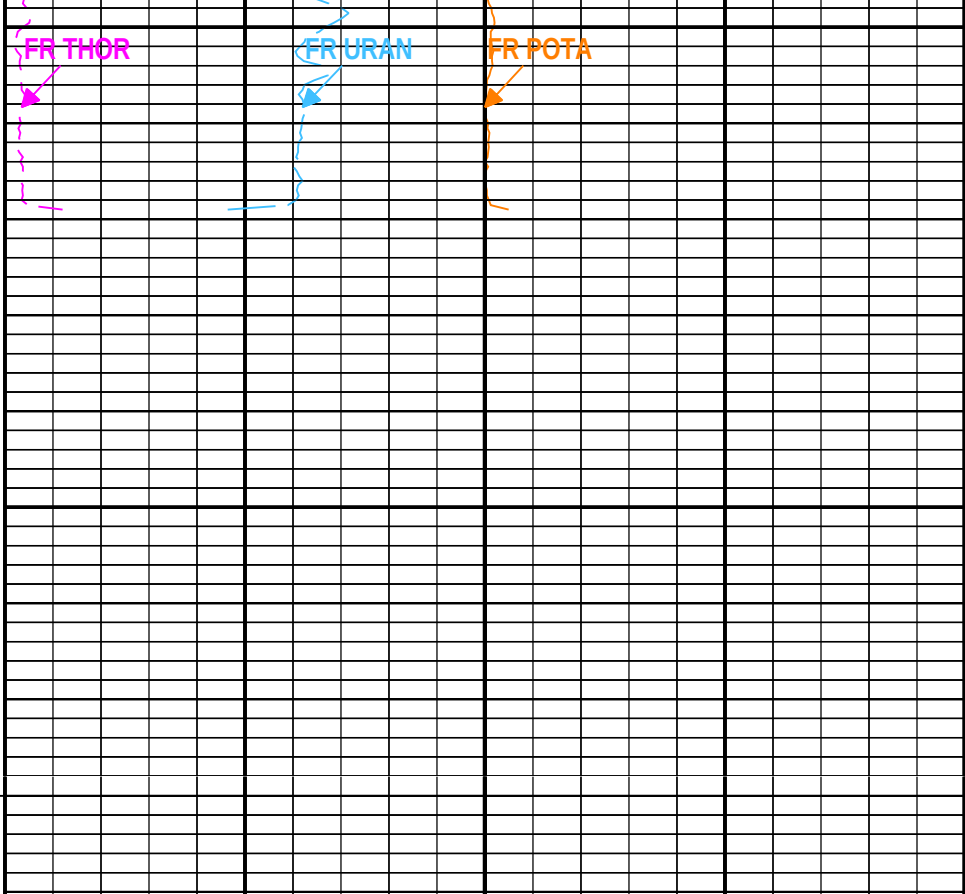
8550

8600

TD
8630.00ft

TIME_1900 - Time Marked every 60.00 (s)

Description: Format: Log (Spectral 5 inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 30-Nov-2014 17:24:44



Channel Processing Parameters				
Parameter	Description	Tool	Value	Unit
BARI	Barite Mud Presence Flag	Borehole	No	
BHK	Drilling Fluid Potassium Concentration	Borehole	0	%
BHS	Borehole Status (Open or Cased Hole)	Borehole	Depth Zoned	
BS	Bit Size	WLSESSION	Depth Zoned	in
CALI_SHIFT	CALI Supplementary Offset	HDRS-B	0.168	in
CBLO	Casing Bottom (Logger)	WLSESSION	3219.5	ft
DBCC	Barite Constant Correction Flag	HNGS-BA	None	
DFD	Drilling Fluid Density	Borehole	8.8	lbm/gal
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	CALI	
HCRB	Apply Borehole Potassium Correction	HNGS-BA	None	
HEMA	Hematite Presence Flag	Borehole	No	

SGRC	Standard Gamma Ray Correction Flag	HNGS-BA	Yes	
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Depth Zone Parameters

Parameter	Value	Start (ft)	Stop (ft)
BHS	Cased	0	3520
BHS	Open	3520	8640.5
BS	26	0	1570
BS	17.5	1570	3226.75
BS	12.25	3226.75	8630

All depth are actual.

Tool Control Parameters

Parameter	Description	Tool	Value	Unit
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	1800	ft/h

Main Pass 5" = 100'

Software Version

Acquisition System	Version
MaxWell	4.0.9163.3000
Application Patch	Patch-SP-10767_26570-4.0.9163.3001 Patch-TestKit_MSCT_KinematicUpgrade_2013C4-28999-4.0.9575.3002

Tool Elements	Description	Software Version	Firmware Version
HNGS-BA	HNGS Sonde Element	4.0.9469.3000	2.0

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
Run 3c	Repeat[2]:Up	Up	8501.97 ft	9265.19 ft	10-Dec-2014 11:36:38 AM	10-Dec-2014 12:12:34 PM	ON	7.18 ft	Yes

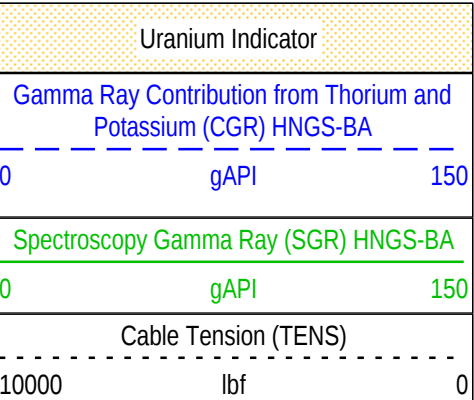
All depths are referenced to toolstring zero

Log	Company:PB ENERGY STORAGE SERVICES, INC Well:DCP Linam Ranch AGI #2 Run 3c: Repeat[2]:Up:S017
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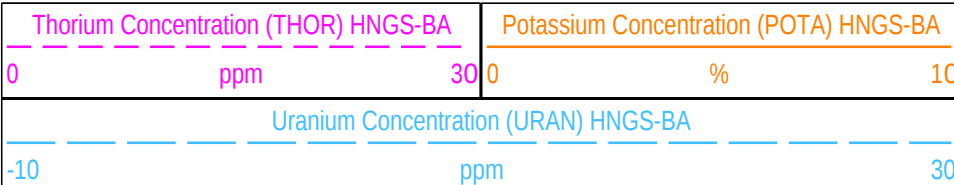
Description: Format: Log (Spectral 5 inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 10-Dec-2014 13:25:06

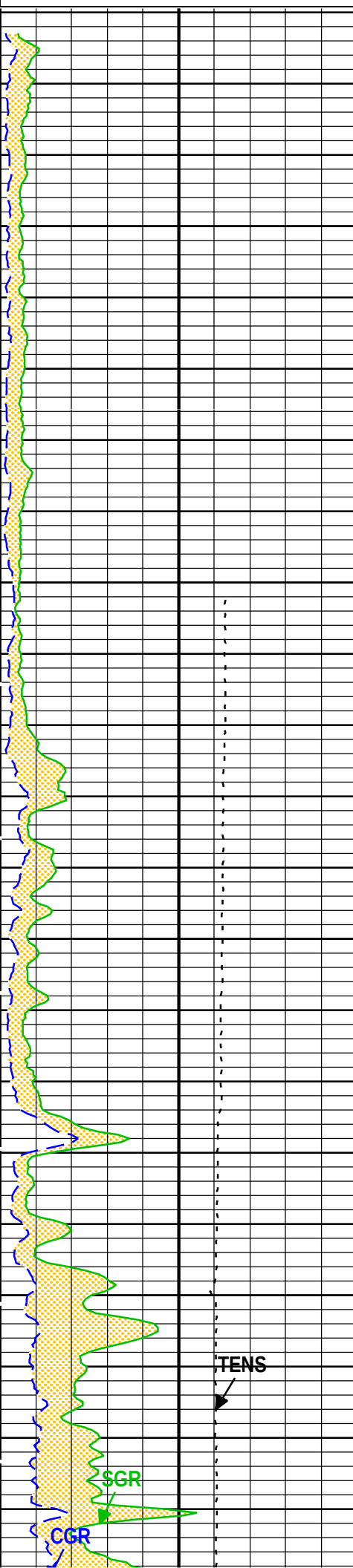
Channel	Source	Sampling
CGR	HNGS-BA:HNGS-BA:HNGS-BA	6in
POTA	HNGS-BA:HNGS-BA:HNGS-BA	6in
SGR	HNGS-BA:HNGS-BA:HNGS-BA	6in
TENS	WLWorkflow	6in
THOR	HNGS-BA:HNGS-BA:HNGS-BA	6in
TIME_1900	WLWorkflow	0.1in
URAN	HNGS-BA:HNGS-BA:HNGS-BA	6in

TIME_1900 - Time Marked every 60.00 (s)

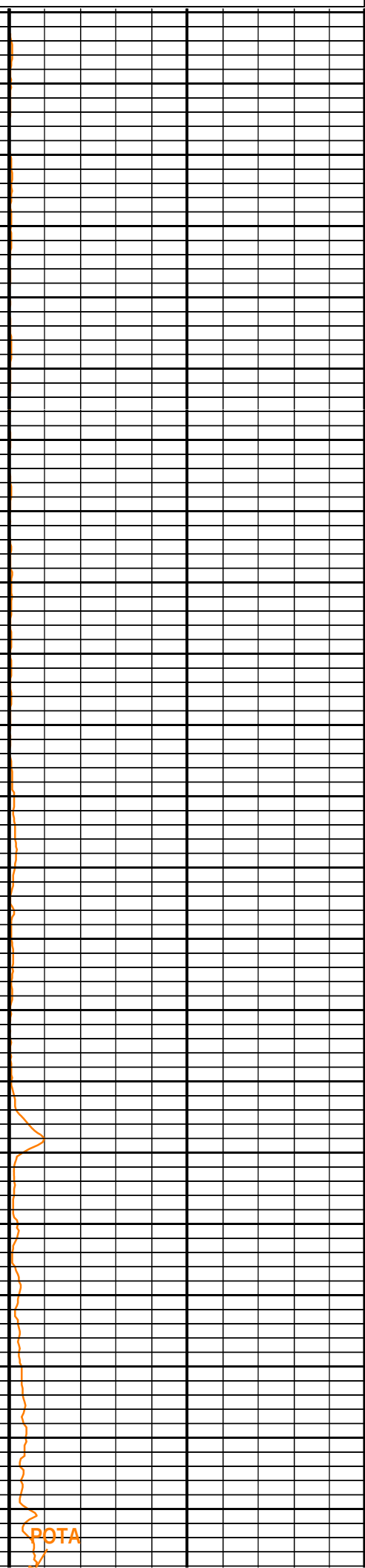
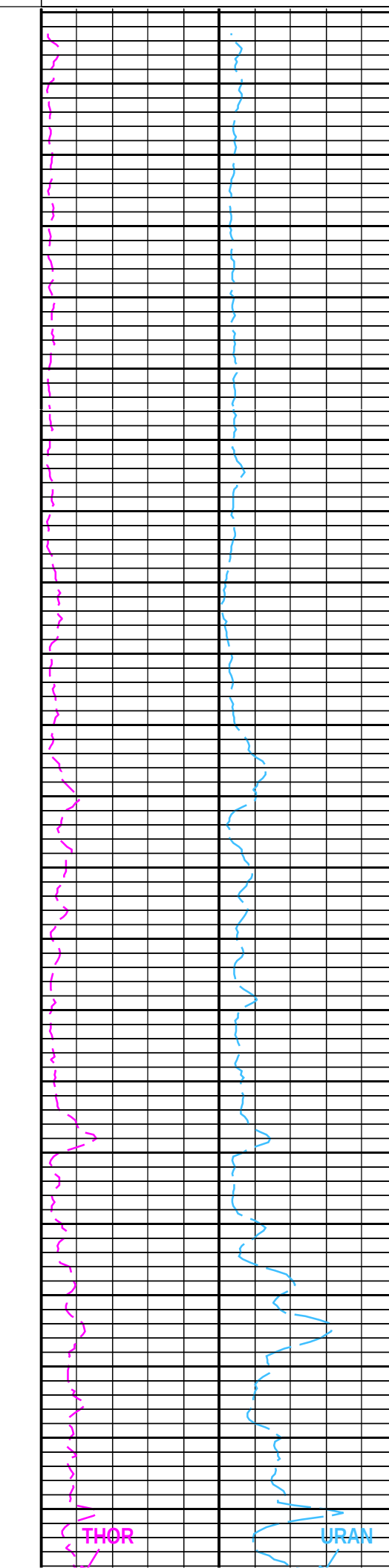


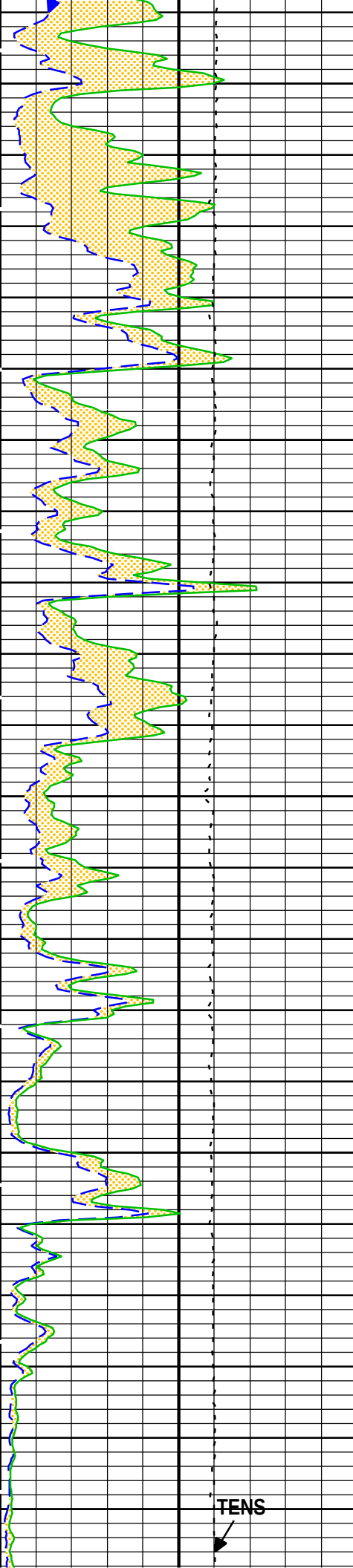
RUN 3



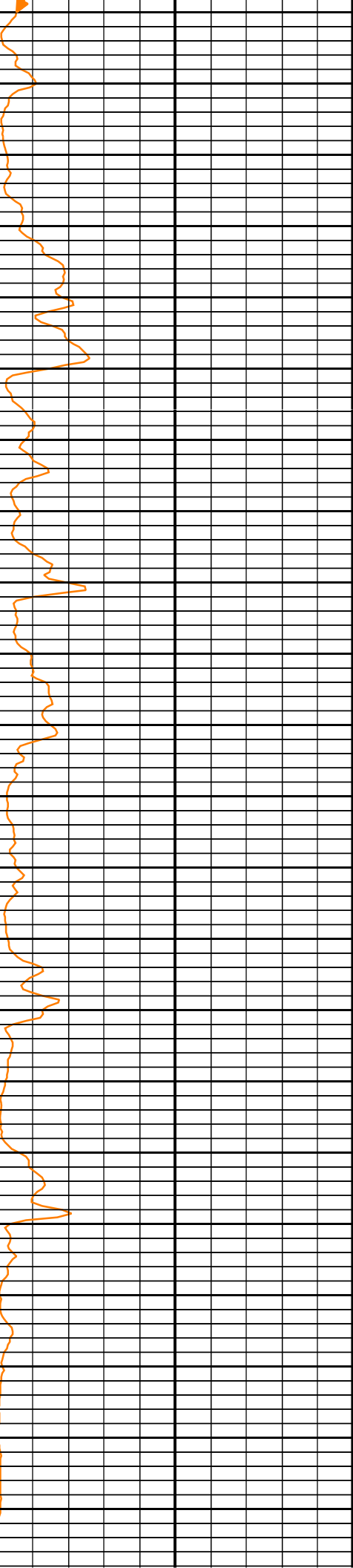
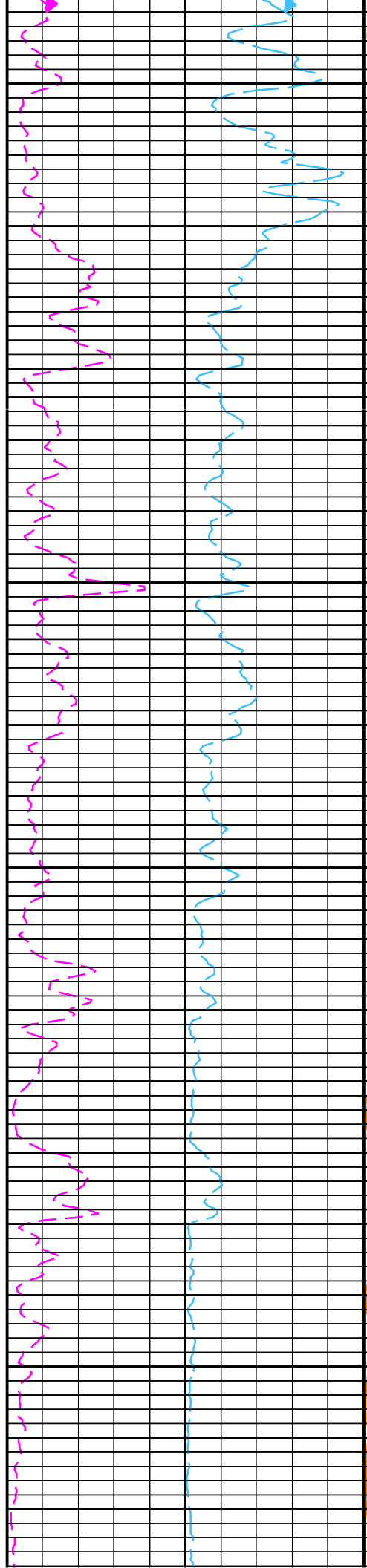


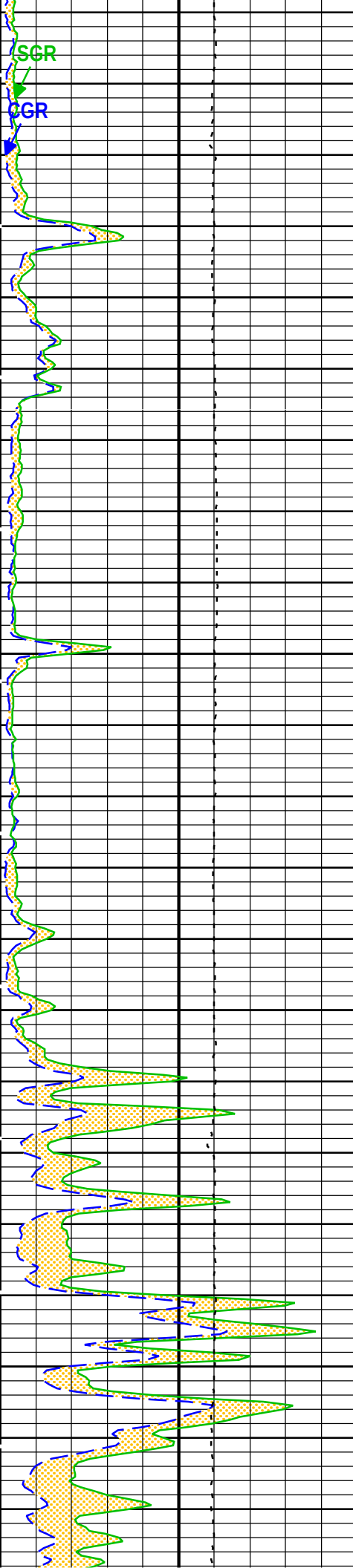
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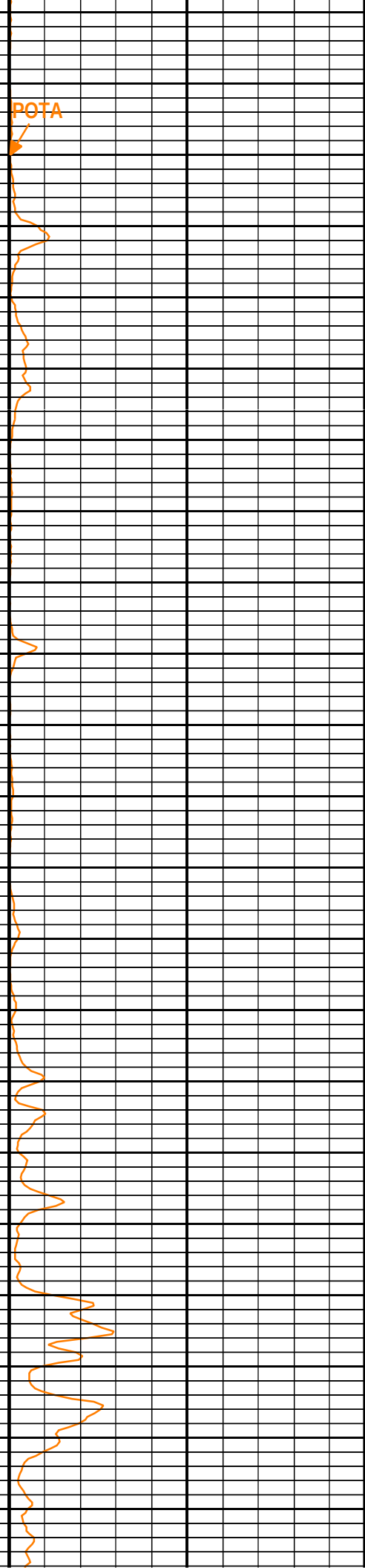
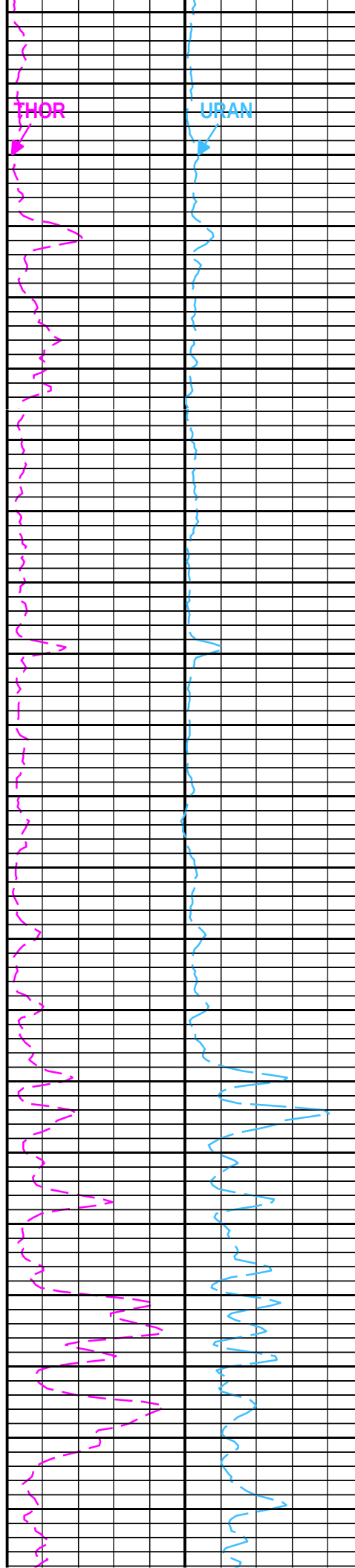


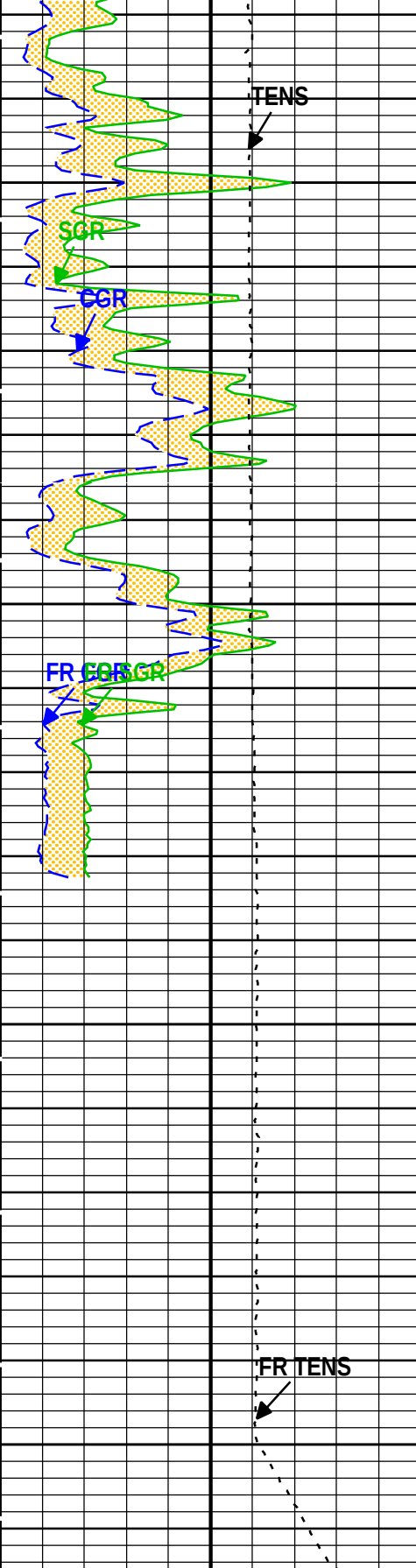
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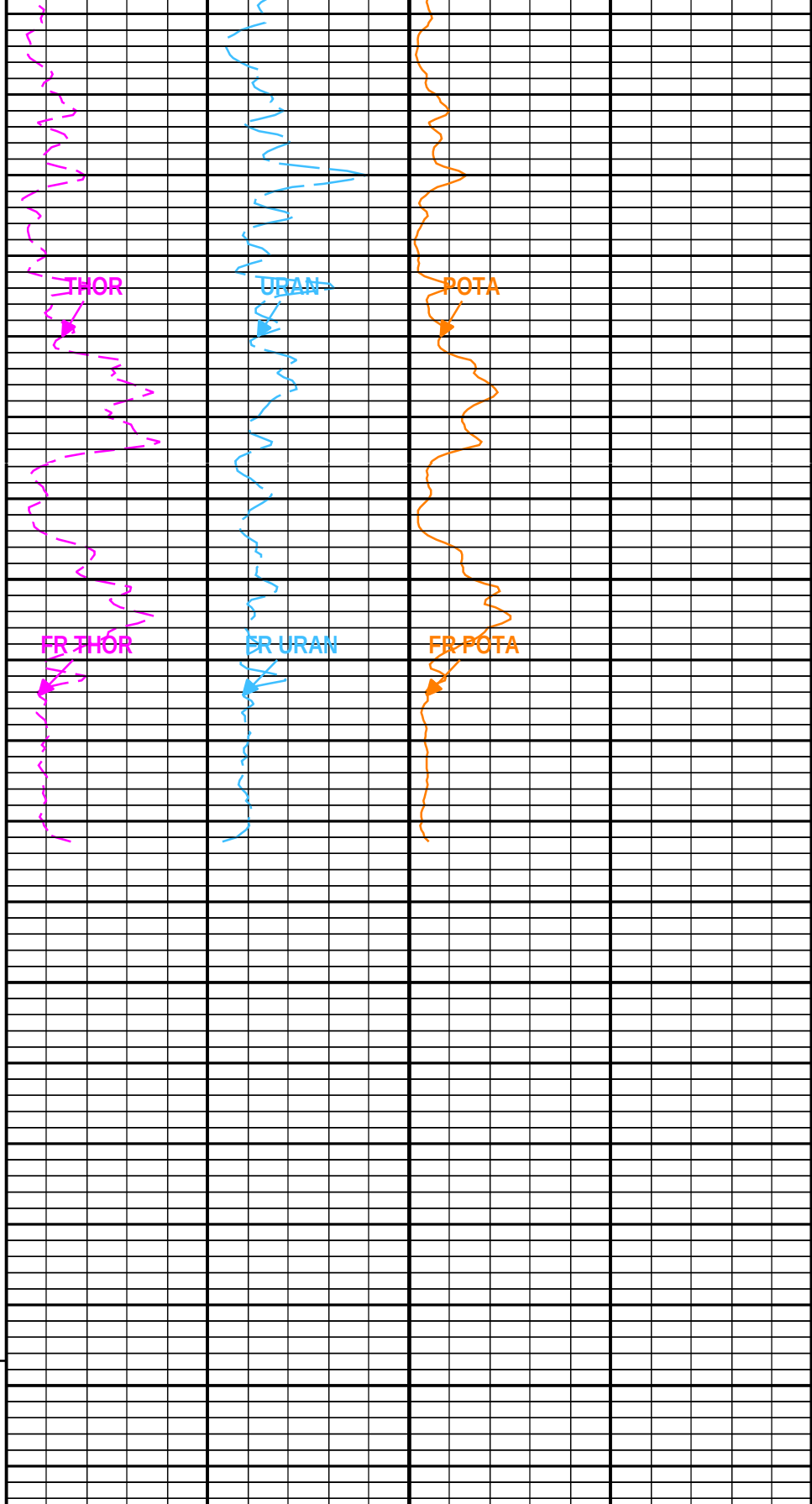


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9190
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9220
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9240
TD
9247.00ft
9250
9260



Uranium Indicator		
Gamma Ray Contribution from Thorium and Potassium (CGR) HNGS-BA		
0	gAPI	150
Spectroscopy Gamma Ray (SGR) HNGS-BA		
0	gAPI	150

Uranium Concentration (URAN) HNGS-BA		
-10	ppm	30
Thorium Concentration (THOR) HNGS-BA		Potassium Concentration (POTA) HNGS-BA
0	ppm	30
		0
		%
		10

Cable Tension (TENS)					

10000		lbf	0		
TIME_1900 - Time Marked every 60.00 (s)					
Description: Format: Log (Spectral 5 inch) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 10-Dec-2014 13:25:06					
Channel Processing Parameters					
Parameter	Description	Tool	Value	Unit	
BAR1	Detector 1 Barite Constant	HNGS-BA	1		
BAR2	Detector 2 Barite Constant	HNGS-BA	1		
BARI	Barite Mud Presence Flag	Borehole	Yes		
BHK	Drilling Fluid Potassium Concentration	Borehole	0	%	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Open		
BS	Bit Size	WLSESSION	8.5	in	
C1_SHIFT	C1 Caliper Supplementary Offset	FBST-E	-0.13	in	
C2_SHIFT	C2 Caliper Supplementary Offset	FBST-E	-0.13	in	
CBLO	Casing Bottom (Logger)	WLSESSION	8594	ft	
DBCC	Barite Constant Correction Flag	HNGS-BA	None		
DFD	Drilling Fluid Density	Borehole	10.1	lbm/gal	
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS		
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	C1		
H1P	Detector 1 Allow/Disallow in Processing	HNGS-BA	Allow		
H2P	Detector 2 Allow/Disallow in Processing	HNGS-BA	Allow		
HALF	Alpha Filter Length	HNGS-BA	60	in	
HATIM	Marquardt Accumulation Time	HNGS-BA	600	s	
HCRB	Apply Borehole Potassium Correction	HNGS-BA	None		
HEMA	Hematite Presence Flag	Borehole	No		
SGRC	Standard Gamma Ray Correction Flag	HNGS-BA	Yes		
TPOS	Tool Position: Centered or Eccentered	HNGS-BA	Eccentered		
Tool Control Parameters					
Parameter	Description	Tool	Value	Unit	
AMIP	Adaptive Mode Initial Phase	FBST-E	0	deg	
APM	Acquisition Phase Mode	FBST-E	WBM - Adaptive Phase Control	Unit	
EMEXREG	EMEX Regulation Level	FBST-E	9	V	
EMXGMOD	EMEX and Gain Modes	FBST-E	Time Zoned		
FBEF	EMEX Filtering Activation	FBST-E	Off		
FBST_SIGPROC	Signal Processing Mode	FBST-E	In-Phase		
FDFL	DSP Filter Length	FBST-E	1		
FLM	Logging Mode	FBST-E	Full Image Mode		
GAIN_FBST	Electronic Gain Value in Manual Mode	FBST-E	18 dB		
GARM_A	Electronic Gain Value for Arm A	FBST-E	18 dB		
GARM_B	Electronic Gain Value for Arm B	FBST-E	18 dB		
GARM_C	Electronic Gain Value for Arm C	FBST-E	18 dB		
GARM_D	Electronic Gain Value for Arm D	FBST-E	18 dB		
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	Time Zoned	ft/h	
MPSC	Manual Phase Shift Compensation	FBST-E	0	deg	
XVOL	EMEX Voltage	FBST-E	Time Zoned	V	
Time Zone Parameters					
Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
EMXGMOD	EMEX= Manual and Gain=	10-Dec-2014 11:26:38	10-Dec-2014 11:28:48	9265.19	9225.97

EMXGMOD	EMEX= Manual and Gain= Manual	10-Dec-2014 11:38:38	10-Dec-2014 11:38:48	9225.97	8589.24
EMXGMOD	EMEX= Auto and Gain= Auto	10-Dec-2014 11:38:48	10-Dec-2014 12:08:33	9225.97	8589.24
EMXGMOD	EMEX= Manual and Gain= Manual	10-Dec-2014 12:08:33	10-Dec-2014 12:12:34	8589.24	8501.97
MAX_LOG_SPEED	1360	10-Dec-2014 11:36:38	10-Dec-2014 11:55:01	9265.19	8889.59
MAX_LOG_SPEED	1457	10-Dec-2014 11:55:01	10-Dec-2014 12:05:18	8889.59	8660.64
MAX_LOG_SPEED	1380	10-Dec-2014 12:05:18	10-Dec-2014 12:12:34	8660.64	8501.97
XVOL	20	10-Dec-2014 11:36:38	10-Dec-2014 11:38:48	9265.19	9225.97
XVOL	0	10-Dec-2014 11:38:48	10-Dec-2014 12:12:34	9225.97	8501.97

All depth are at tool zero.

Repeat Pass 5" = 100'

Log

Company:PB ENERGY STORAGE SERVICES, INC

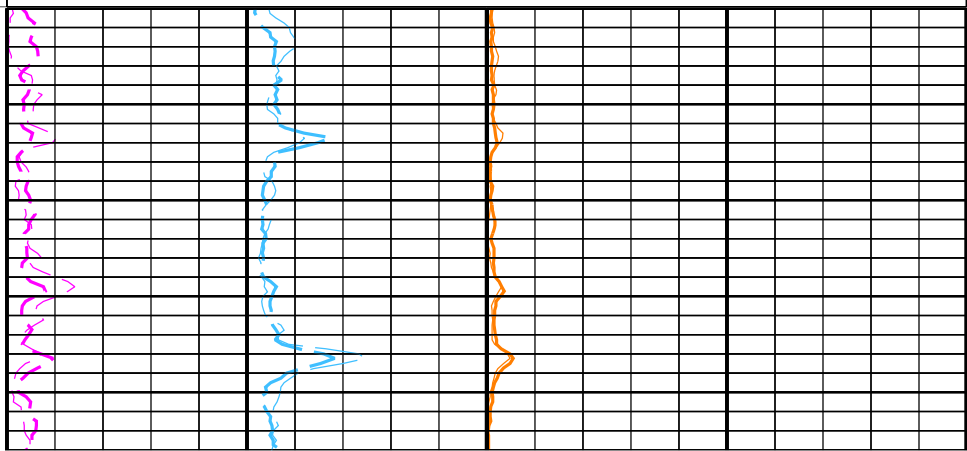
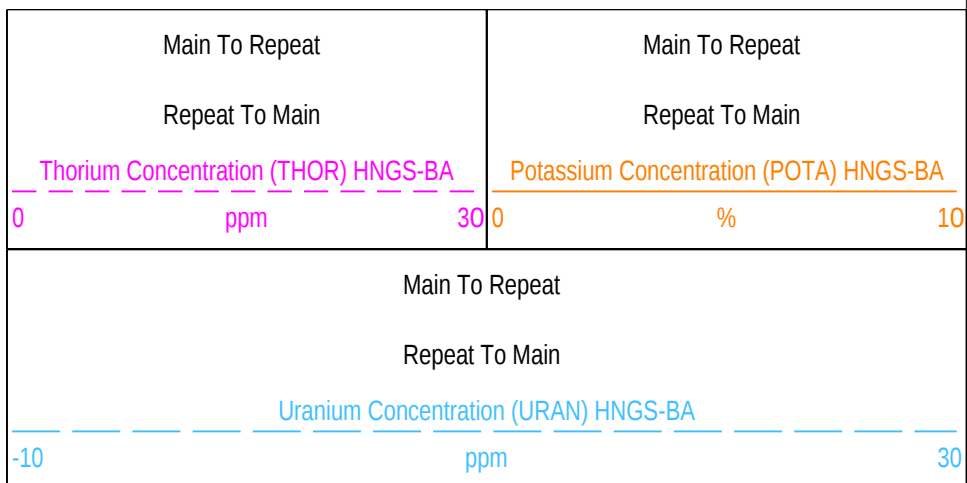
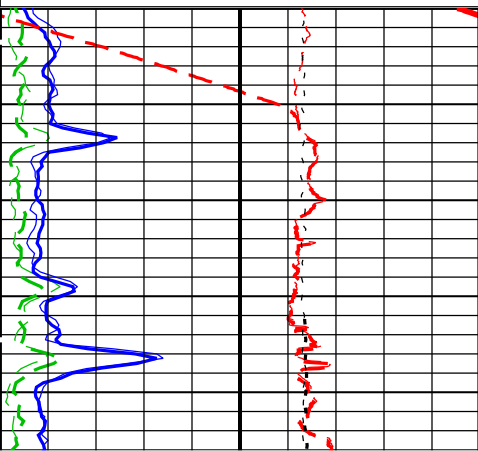
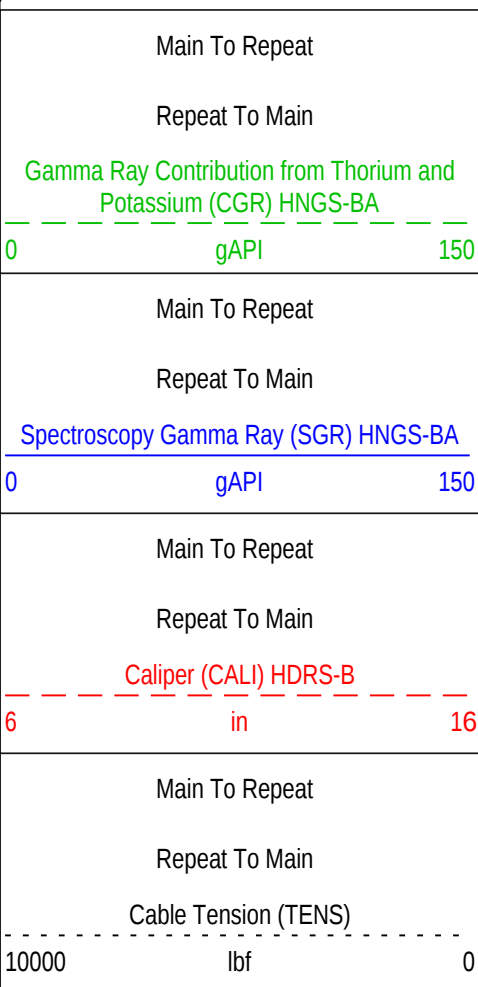
Well:DCP Linam Ranch AGI #2

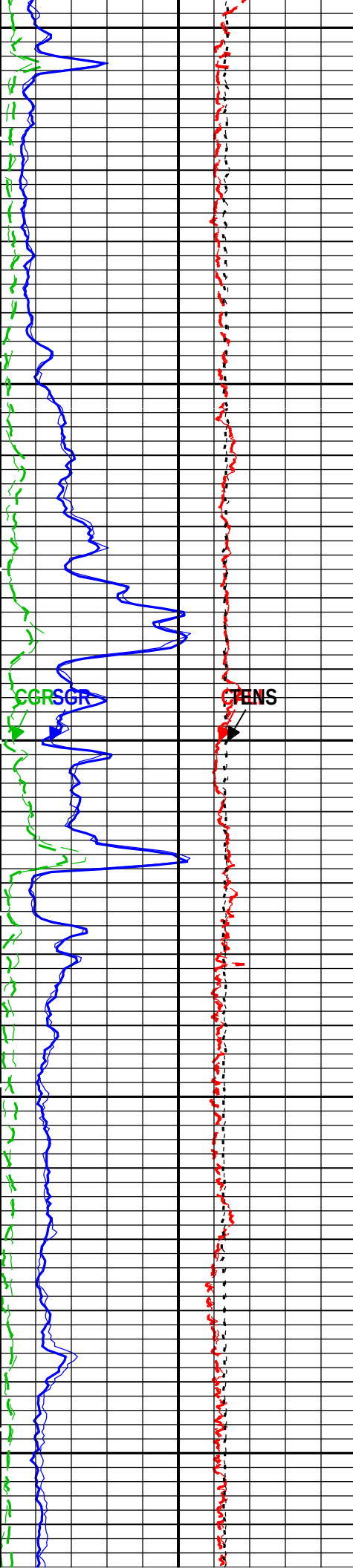
Two: Main[3];Up:S021

Description: Format: Log (Spectral 5 inch RA) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 30-Nov-2014 17:24:46

TIME_1900 - Time Marked every 60.00 (s)

RUN 2

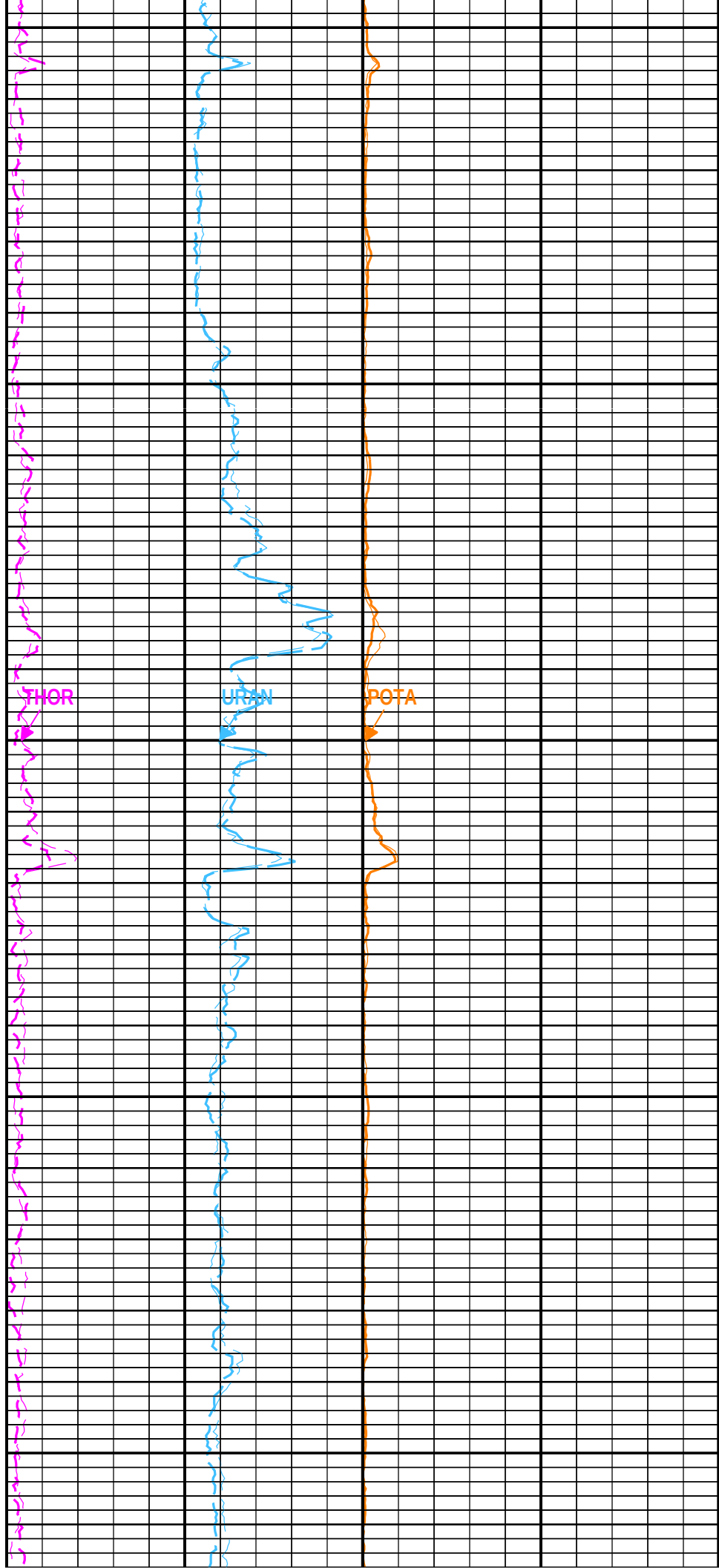


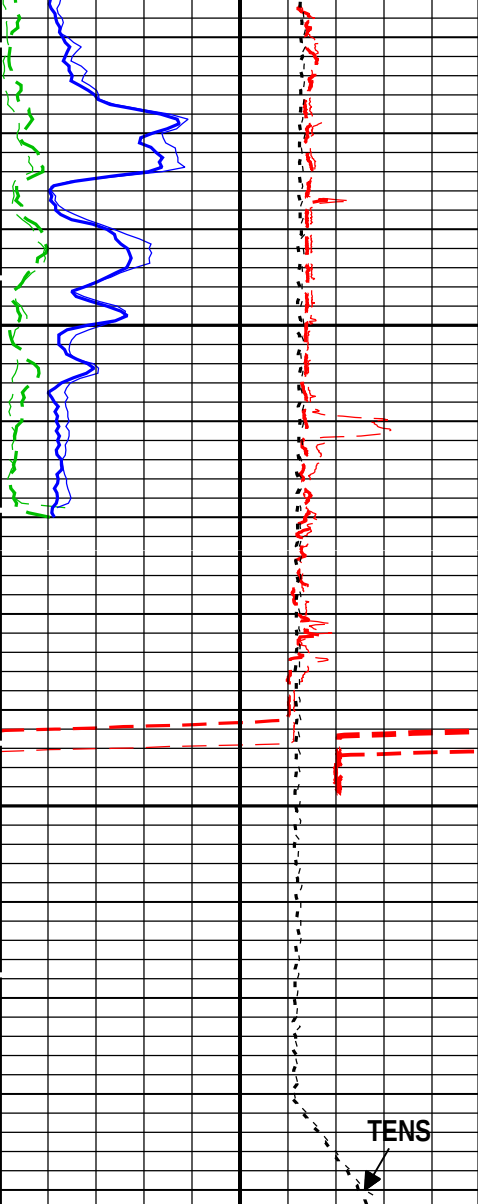


8300

8400

8500

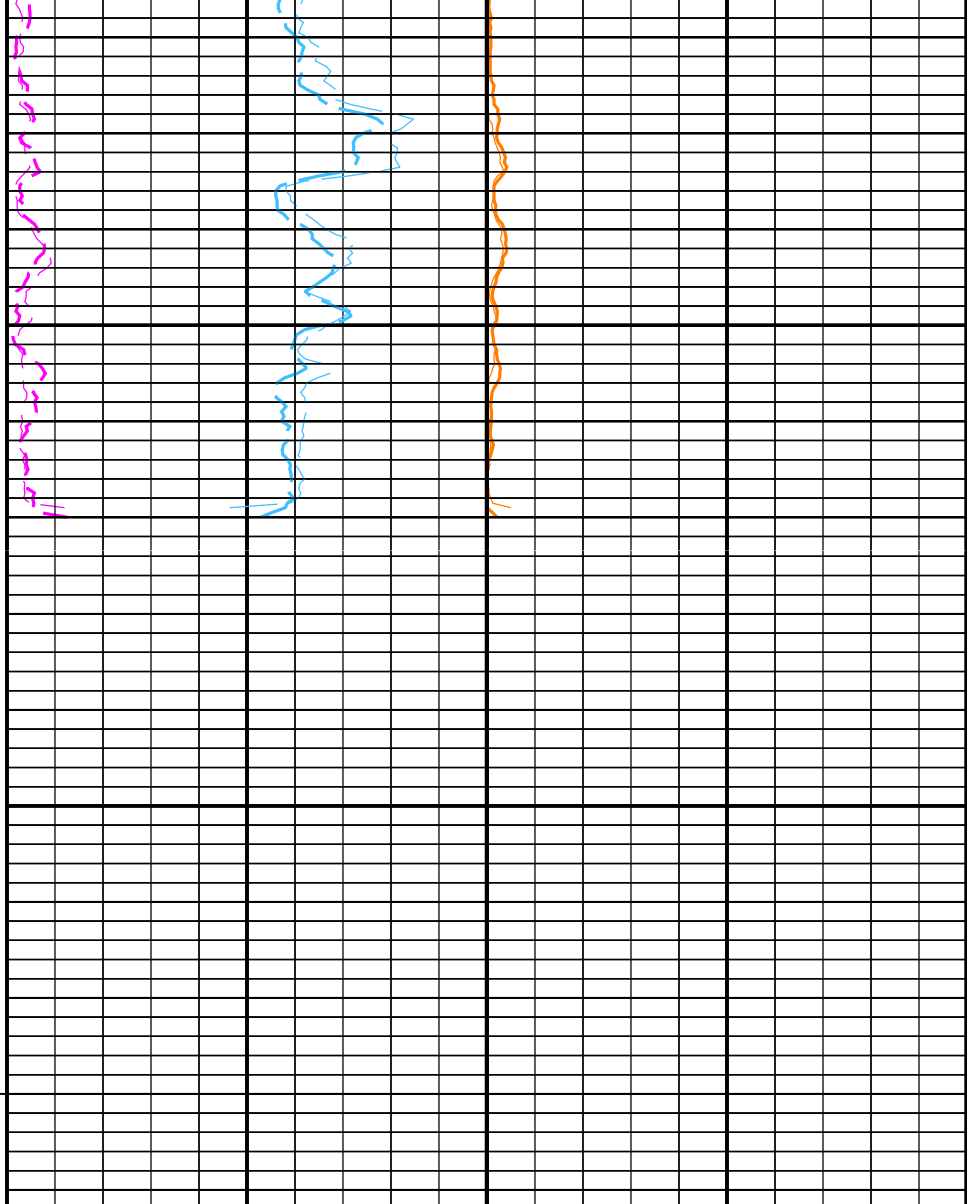
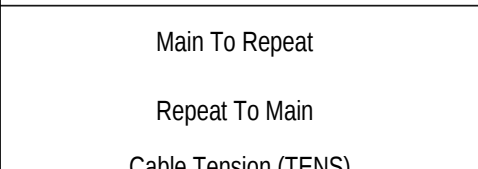
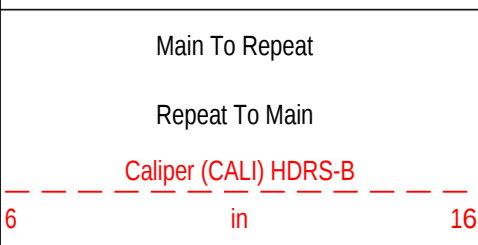
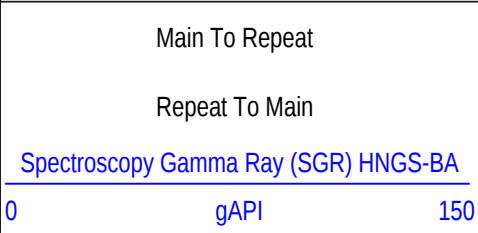
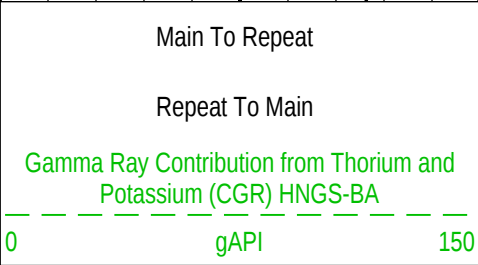




8600

TD
8630.00ft

TENS



Main To Repeat

Repeat To Main

Uranium Concentration (URAN) HNGS-BA

-10 ppm 30

Main To Repeat

Repeat To Main

Thorium Concentration (THOR) HNGS-BA

0 ppm 30

Main To Repeat

Repeat To Main

Potassium Concentration (POTA) HNGS-BA

0 % 10

Cable Tension (TENS)	
10000	lbf
	0

TIME_1900 - Time Marked every 60.00 (s)

Description: Format: Log (Spectral 5 inch RA) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 30-Nov-2014 17:24:46

Calibration Report		RUN 2	
HNGS-BA (Hostile-environment Natural Gamma-ray Sonde) Calibration - Run Two			
Primary Equipment :			
HNGS Sonde Element	HNGS-BA	84	
Auxiliary Equipment :			
Hostile Natural Gamma Ray Cartridge	HNGC-B	610	
HNGS Housing Element	HEH-K	1035	
		0	
Housing for the HNGC	HNGH-A	4094	

HNGS Background and Na22 Set Point Determination - Detector 1 Check							
Master (EEPROM):		08:19:35 16-Oct-2014		Before (Measured):		10:25:53 26-Nov-2014	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Na 511 Peak Location		Master	40.000	37.500	40.630	42.500	
		Before	40.000	37.500	40.756	42.500	
		Before-Master	-----	-----	0.126	-----	
Na 511 Peak Resolution	%	Master	15.500	12.000	16.191	19.000	
		Before	15.500	12.000	15.163	19.000	
		Before-Master	-----	-----	-1.028	-----	
High Voltage DAC Value	V	Master			1177.372		
		Before	1150.000	850.000	1156.771	1600.000	
		Before-Master	-----	-----	-20.601	-----	
Na 1785 Peak Location		Master	142.650	135.000	144.204	150.300	
		Before	142.650	135.000	144.844	150.300	
		Before-Master	-----	-----	0.640	-----	
Na 1785 Peak Resolution	%	Master	8.500	7.000	10.443	11.000	
		Before	8.500	7.000	9.146	11.000	
		Before-Master	-----	-----	-1.297	-----	
Temperature - 0	degF	Master	-----	-----	-----	-----	
		Before	59.900	-20.002	59.654	140.000	
		Before-Master	-----	-----	-----	-----	
Na Count Rate	CPS	Master	45.000	10.000	39.856	100.000	
		Before	45.000	10.000	40.517	100.000	
		Before-Master	-----	-----	0.661	-----	

HNGS Background and Na22 Set Point Determination - Detector 2 Check							
Master (EEPROM):		08:19:35 16-Oct-2014		Before (Measured):		10:25:53 26-Nov-2014	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Na 511 Peak Location		Master	40.000	37.500	40.601	42.500	
		Before	40.000	37.500	40.570	42.500	
		Before-Master	-----	-----	-0.031	-----	
Na 511 Peak Resolution	%	Master	15.500	12.000	14.250	19.000	
		Before	15.500	12.000	14.448	19.000	
		Before-Master	-----	-----	0.198	-----	
High Voltage DAC Value	V	Master			1112.869		
		Before	1150.000	850.000	1090.086	1600.000	
		Before-Master	-----	-----	-22.783	-----	
Na 1785 Peak Location		Master	142.650	135.000	144.597	150.300	
		Before	142.650	135.000	144.621	150.300	
		Before-Master	-----	-----	0.024	-----	
Na 1785 Peak Resolution	%	Master	8.500	7.000	8.462	11.000	
		Before	8.500	7.000	8.094	11.000	
		Before-Master	-----	-----	-0.368	-----	
Temperature - 0	degF	Master	-----	-----	-----	-----	
		Before	59.900	-20.002	57.493	140.000	
		Before-Master	-----	-----	-----	-----	
Na Count Rate	CPS	Master	45.000	10.000	40.262	100.000	
		Before	45.000	10.000	40.542	100.000	

		Before-Master	-----	-----	0.280	-----	
HNGS Background and Na22 Set Point Determination - Ratio of Detector 1 to Detector 2							
Master (EEPROM):		08:19:35 16-Oct-2014		Before (Measured):		10:25:53 26-Nov-2014	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Coincidence Count Rate Ratio		Master	1.000	0.950	0.987	1.050	
		Before			0.994		
		Before-Master			0.007		

HNGS Background and Na22 Set Point Determination - Detector 1 Calibration							
Master (EEPROM):		08:19:35 16-Oct-2014		Before (Measured):		10:25:53 26-Nov-2014	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Th Peak Location		Master	209.630	201.000	208.805	218.250	
		Before	-----	-----	-----	-----	
		Before-Master	-----	-----	-----	-----	
Th Peak Resolution	%	Master	7.000	5.000	7.753	9.000	
		Before	-----	-----	-----	-----	
		Before-Master	-----	-----	-----	-----	
Background Count Rate	CPS	Master	142.500	10.000	109.633	265.000	
		Before			190.061		
		Before-Master			80.428		
Gain Ratio		Master	1.000	0.940	0.978	1.060	
		Before	-----	-----	-----	-----	
		Before-Master	-----	-----	-----	-----	

HNGS Background and Na22 Set Point Determination - Detector 2 Calibration							
Master (EEPROM):		08:19:35 16-Oct-2014		Before (Measured):		10:25:53 26-Nov-2014	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Th Peak Location		Master	209.630	201.000	210.075	218.250	
		Before	-----	-----	-----	-----	
		Before-Master	-----	-----	-----	-----	
Th Peak Resolution	%	Master	7.000	5.000	7.198	9.000	
		Before	-----	-----	-----	-----	
		Before-Master	-----	-----	-----	-----	
Background Count Rate	CPS	Master	142.500	10.000	106.568	265.000	
		Before			171.011		
		Before-Master			64.443		
Gain Ratio		Master	1.000	0.940	0.985	1.060	
		Before	-----	-----	-----	-----	
		Before-Master	-----	-----	-----	-----	

HNGS Background and Na22 Set Point Determination - Detector 1 Calibration							
Master (EEPROM):		08:19:35 16-Oct-2014		Before (Measured):		10:25:53 26-Nov-2014	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Na 511 Peak Set Point		Master	40.000	38.000	42.000	43.500	
		Before	-----	-----	-----	-----	
		Before-Master	-----	-----	-----	-----	

HNGS Background and Na22 Set Point Determination - Detector 2 Calibration							
Master (EEPROM):		08:19:35 16-Oct-2014		Before (Measured):		10:25:53 26-Nov-2014	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Na 511 Peak Set Point		Master	40.000	38.000	42.000	43.500	
		Before	-----	-----	-----	-----	
		Before-Master	-----	-----	-----	-----	

Calibration Report		RUN 3	
FBST-E (Full-Bore Scanner Tool E) Calibration - Run Run 3c			
Primary Equipment :			
DHRU-FA	DHRU-F	1956	
FBSS-B	FBSS-B	773	
Calibration Parameter :			
Small Ring Size (Caliper Calibration Small Ring)	8.00		
Large Ring Size (Caliper Calibration Large Ring)	12.00		

FBST-E Caliper Calibration - Caliper Accumulations							
Before (Measured):		12:16:48 09-Dec-2014		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	

Small Ring RC1	in	Before After After-Before	8.00 -----	6.80 -----	8.39 NOT DONE -----	9.20 -----	
Small Ring RC2	in	Before After After-Before	8.00 -----	6.80 -----	8.18 NOT DONE -----	9.20 -----	
Large Ring RC1	in	Before After After-Before	12.00 -----	10.20 -----	12.26 NOT DONE -----	13.80 -----	
Large Ring RC2	in	Before After After-Before	12.00 -----	10.20 -----	12.12 NOT DONE -----	13.80 -----	

Signals and Temperature Correction for Accelerometers

Master (EEPROM):		00:00:00 23-Jan-2012	
GPITF_ACCX_MODEL GPIT-F Accelero X Model (Master)			
	Racx**0	Racx**1	
Temp**0	-0.0282	0.0006682	
Temp**1	0.0002492	-1.022E-07	
Temp**2	2.764E-06	7.076E-10	
Temp**3	-2E-08	-4.129E-12	
GPITF_ACCY_MODEL GPIT-F Accelero Y Model (Master)			
	Racy**0	Racy**1	
Temp**0	0.04095	-0.0006599	
Temp**1	-0.0002796	1.012E-07	
Temp**2	-3.058E-06	-8.079E-10	
Temp**3	2.268E-08	4.483E-12	
GPITF_ACCZ_MODEL GPIT-F Accelero Z Model (Master)			
	Racz**0	Racz**1	
Temp**0	-0.01778	0.0006615	
Temp**1	0.0002041	-9.172E-08	
Temp**2	3.261E-06	6.476E-10	
Temp**3	-1.766E-08	-3.887E-12	

Perpendicular Correction for Accelerometers

Master (EEPROM):		00:00:00 23-Jan-2012					
GPITF_ACC_AXIS_MODE GPIT-F Accelero Axis Model L (Master)							
	Data**0	Data**1	Data**2	Data**3	Data**4	Data**5	Data**6
Temp**0	-2.471E-06	0.0001962	-7.994E-05	0.0005509	0.0003412	-0.0003976	0
Temp**1	3.268E-07	-2.431E-06	7.285E-07	-2.17E-06	1.227E-06	9.623E-07	0

Signals and Temperature Correction for Magnetometer

Master (EEPROM):		00:00:00 23-Jan-2012	
GPITF_MAGX_MODEL GPIT-F Magneto X Model (Master)			
	Rmagx**0	Rmagx**1	
Temp**0	-42.97	4.887	
Temp**1	1.877	-0.0006281	
Temp**2	-0.03634	8.639E-06	
Temp**3	0.00018	-3.369E-08	

GPITF_MAGY_MODEL GPIT-F Magneto Y Model (Master)		
	Rmagy**0	Rmagy**1
Temp**0	9.994	-4.951
Temp**1	-1.036	0.0007384
Temp**2	0.03748	-7.942E-06
Temp**3	-0.0001857	3.094E-08
GPITF_MAGZ_MODEL GPIT-F Magneto Z Model (Master)		
	Rmagz**0	Rmagz**1
Temp**0	8.22	4.881
Temp**1	-0.9947	-0.0006034
Temp**2	-0.01521	7.448E-06
Temp**3	8.634E-05	-2.97E-08

Perpendicular Correction for Magnetometer							
Master (EEPROM): 00:00:00 23-Jan-2012							
GPITF_MAG_AXIS_MODE GPIT-F Magneto Axis Model L (Master)							
	Data**0	Data**1	Data**2	Data**3	Data**4	Data**5	Data**6
Temp**0	-0.0007885	0.00129	0.004576	0.0005439	0.0009971	-0.005232	0
Temp**1	1.531E-06	-4.017E-05	5.438E-06	5.409E-06	-3.255E-06	1.067E-05	0

Master (EEPROM): 00:00:00 21-Jan-2012		
GPITF_ELEC_COEFF1 GPIT-F Electronic Coeff 1 (Master)		
	Data**0	Data**1
Temp**0	-0.7894	249.9
Temp**1	-0.009258	0.008356
Temp**2	0.0002521	-0.000186
Temp**3	-2.724E-06	1.984E-06
Temp**4	9.443E-09	-7.064E-09
GPITF_ELEC_COEFF2 GPIT-F Electronic Coeff 2 (Master)		
	Data**0	Data**1
Temp**0	0.08546	249.8
Temp**1	-0.003069	0.01205
Temp**2	0.0003058	-0.0002645
Temp**3	-3.368E-06	2.669E-06
Temp**4	1.253E-08	-9.093E-09
GPITF_ELEC_COEFF3 GPIT-F Electronic Coeff 3 (Master)		
	Data**0	Data**1
Temp**0	-1.345	249.9
Temp**1	-0.01178	0.01272
Temp**2	0.0003577	-0.000253
Temp**3	-3.596E-06	2.429E-06
Temp**4	1.13E-08	-8.145E-09

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Master (EEPROM): 00:00:00 21-Jan-2012		
GPITF_ELEC_COEFF4 GPIT-F Electronic Coeff 4 (Master)		
	Data**0	Data**1
Temp**0	-0.8136	0.1279
Temp**1	0.03613	4.686E-06
Temp**2	-0.0006053	-1.053E-07
Temp**3	5.573E-06	1.124E-09
Temp**4	-1.898E-08	-4.003E-12
GPITF_ELEC_COEFF5 GPIT-F Electronic Coeff 5 (Master)		
	Data**0	Data**1
Temp**0	-0.8136	0.1279
Temp**1	0.03613	4.686E-06
Temp**2	-0.0006053	-1.053E-07
Temp**3	5.573E-06	1.124E-09
Temp**4	-1.898E-08	-4.003E-12
GPITF_ELEC_COEFF6 GPIT-F Electronic Coeff 6 (Master)		
	Data**0	Data**1
Temp**0	-0.8136	0.1279
Temp**1	0.03613	4.686E-06
Temp**2	-0.0006053	-1.053E-07
Temp**3	5.573E-06	1.124E-09
Temp**4	-1.898E-08	-4.003E-12

MAST-B (Multimode Array Sonic Service Tool) Calibration - Run Run 3c

Primary Equipment :		
MAMS-BA	MAMS-BA	8256

MAST Master Characterization Coefficients - Characterization Coefficients Summary

Master (EEPROM): 11:59:00 03-Jul-2014 Expired by 69 days							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Sensor Sensitivity Correction Factor Minimum		Master	1.000	0.500	0.890	1.700	
Sensor Sensitivity Correction Factor Maximum		Master	1.000	0.500	1.140	1.700	
Sensor Time Delay Factor Minimum	us	Master	0	-2.000	-1.244	2.000	
Sensor Time Delay Factor Maximum	us	Master	0	-2.000	1.422	2.000	
Sensor Sensitivity Correction Factor Low Frequency to High Frequency Ratio Minimum		Master	1.000	0.900	0.919	1.700	
Sensor Sensitivity Correction Factor Low Frequency to High Frequency Ratio Maximum		Master	1.000	0.900	1.103	1.700	

Characterization Coefficients

Master (EEPROM): 11:59:00 03-Jul-2014 Expired by 69 days								
CALI_SSCF (Master) Sensor Sensitivity Correction Factor								
Minimum/Nominal/Maximum 0.500/1.000/1.700							Unit	
	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
SO1	1.007	1.000	1.117	1.014	0.977	0.959	1.014	0.939
SO2	0.960	0.998	1.022	0.977	1.005	1.067	1.042	1.024
SO3	1.047	0.974	1.014	0.970	0.940	1.035	0.997	0.955
SO4	0.996	1.016	0.942	0.953	0.959	1.071	1.060	0.978
SO5	1.016	0.949	0.978	0.951	1.048	1.023	1.002	1.087

SO6	0.907	0.916	1.055	1.038	1.034	1.023	1.045	1.110	
SO7	0.966	0.950	1.058	0.979	1.117	0.948	0.946	0.978	
SO8	1.030	0.968	0.984	1.027	0.970	1.032	0.956	1.005	
SO9	1.009	0.969	1.000	1.003	1.064	0.976	0.990	1.007	
SO10	0.997	1.003	1.058	0.984	1.011	0.958	0.991	1.042	
SO11	0.890	0.996	1.069	1.040	1.016	0.966	0.997	1.049	
SO12	0.955	1.013	0.926	0.954	1.068	1.108	0.962	0.939	
SO13	0.964	0.985	1.140	0.997	1.027	1.000	1.096	1.116	
CALI_STDF (Master) Sensor Time Delay Factor									
Minimum/Nominal/Maximum							-2.000/0/2.000	Unit	us
	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8	
SO1	-0.039	-0.589	-0.233	0.100	0.266	0.319	0.039	-0.126	
SO2	-0.288	-0.671	-0.100	-0.126	0.939	0.774	0.877	0.100	
SO3	-0.418	-0.685	-0.296	0.114	0.619	0.571	0.350	-0.114	
SO4	-0.371	-0.161	-0.390	0.160	0.471	0.692	0.340	-0.185	
SO5	-0.101	-0.150	-0.157	0.353	0.662	0.637	0.079	-0.219	
SO6	-1.095	-0.867	0.152	0.326	0.838	0.335	-0.152	-0.629	
SO7	-0.712	-0.612	0.108	1.009	1.069	0.430	-0.108	-0.537	
SO8	-0.222	-0.533	0.193	1.128	0.815	0.635	-0.217	-0.509	
SO9	-0.520	-0.722	0.275	1.087	1.161	0.329	-0.236	-0.843	
SO10	-0.883	-0.304	0.080	0.618	1.270	0.500	-0.080	-0.287	
SO11	-1.244	-0.958	-0.079	0.281	0.758	0.687	0.079	-0.581	
SO12	-0.572	-0.530	-0.183	0.451	1.422	0.927	0.183	-0.482	
SO13	-1.014	-0.931	-0.487	0.027	0.997	0.701	0.059	-0.027	
CALI_SSCR (Master) Sensor Sensitivity Correction Factor Low Frequency to High Frequency Ratio									
Minimum/Nominal/Maximum							0.900/1.000/1.700	Unit	
	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8	
SO1	0.998	1.014	0.996	0.979	0.969	0.986	1.015	1.039	
SO2	1.071	1.035	0.964	0.979	0.937	1.035	1.013	1.103	
SO3	1.054	1.011	1.024	0.975	0.958	1.010	1.040	1.030	
SO4	1.027	0.931	0.971	0.963	0.974	0.981	1.004	1.028	
SO5	0.981	0.975	1.020	0.996	0.985	0.980	1.014	1.052	
SO6	1.037	1.014	0.943	1.010	0.919	0.984	1.017	1.042	
SO7	1.000	1.012	1.034	0.948	0.980	0.983	0.986	0.998	
SO8	0.924	1.011	1.033	0.972	1.015	1.001	0.977	0.990	
SO9	0.943	1.042	0.995	0.995	0.973	1.034	1.013	1.013	
SO10	0.996	0.934	1.050	1.075	0.987	1.042	0.994	0.930	
SO11	0.936	0.994	0.942	1.053	1.004	1.022	0.985	0.957	
SO12	0.954	0.958	1.082	1.088	1.022	1.072	1.066	1.021	
SO13	1.037	0.937	1.086	1.093	1.028	1.062	1.066	0.944	
CALI_SSCTF (Master) Sensor Sensitivity Correction Transmitter Failure Flag									
Minimum/Nominal/Maximum							0/0/0	Unit	
Monopole Upper Transmitter					0				
Monopole Lower Transmitter					0				
CALI_SSCHF (Master) Sensor Sensitivity Correction High Frequency Diagnostic Failure Flag									
Minimum/Nominal/Maximum							0/0/0	Unit	
	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8	
SO1	0	0	0	0	0	0	0	0	

S02	0	0	0	0	0	0	0	0
S03	0	0	0	0	0	0	0	0
S04	0	0	0	0	0	0	0	0
S05	0	0	0	0	0	0	0	0
S06	0	0	0	0	0	0	0	0
S07	0	0	0	0	0	0	0	0
S08	0	0	0	0	0	0	0	0
S09	0	0	0	0	0	0	0	0
S010	0	0	0	0	0	0	0	0
S011	0	0	0	0	0	0	0	0
S012	0	0	0	0	0	0	0	0
S013	0	0	0	0	0	0	0	0

CALI_SSCLF (Master) Sensor Sensitivity Correction Low Frequency Diagnostic Failure Flag

Minimum/Nominal/Maximum	0/0/0	Unit
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	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
S01	0	0	0	0	0	0	0	0
S02	0	0	0	0	0	0	0	0
S03	0	0	0	0	0	0	0	0
S04	0	0	0	0	0	0	0	0
S05	0	0	0	0	0	0	0	0
S06	0	0	0	0	0	0	0	0
S07	0	0	0	0	0	0	0	0
S08	0	0	0	0	0	0	0	0
S09	0	0	0	0	0	0	0	0
S010	0	0	0	0	0	0	0	0
S011	0	0	0	0	0	0	0	0
S012	0	0	0	0	0	0	0	0
S013	0	0	0	0	0	0	0	0

CALI_SSCHA (Master) Sensor Sensitivity Correction High Frequency Normalized Amplitudes

Minimum/Nominal/Maximum	-----/1.000/-----	Unit
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	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
S01	0.997	1.003	0.899	0.990	1.027	1.046	0.990	1.069
S02	1.056	1.015	0.992	1.037	1.008	0.949	0.972	0.990
S03	0.941	1.012	0.972	1.016	1.049	0.953	0.988	1.032
S04	0.991	0.972	1.048	1.035	1.030	0.922	0.931	1.009
S05	0.994	1.064	1.034	1.062	0.965	0.988	1.008	0.930
S06	1.139	1.128	0.980	0.996	0.999	1.010	0.989	0.931
S07	1.007	1.024	0.920	0.994	0.871	1.027	1.029	0.994
S08	0.968	1.030	1.013	0.971	1.027	0.966	1.043	0.992
S09	0.990	1.031	0.999	0.996	0.939	1.024	1.009	0.992
S010	1.007	1.001	0.949	1.020	0.993	1.049	1.013	0.964
S011	1.132	1.011	0.942	0.968	0.991	1.042	1.009	0.960
S012	1.004	0.946	1.035	1.004	0.898	0.865	0.996	1.021
S013	1.052	1.029	0.889	1.016	0.987	1.013	0.925	0.908

CALI_SSCLA (Master) Sensor Sensitivity Correction Low Frequency Normalized Amplitudes

Minimum/Nominal/Maximum	-----/1.000/-----	Unit
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	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
S01	0.995	1.017	0.895	0.969	0.996	1.031	1.004	1.110

SO1								
SO2	1.130	1.051	0.956	1.015	0.944	0.982	0.985	1.091
SO3	0.992	1.023	0.995	0.991	1.005	0.962	1.027	1.064
SO4	1.017	0.905	1.018	0.997	1.003	0.904	0.935	1.037
SO5	0.975	1.038	1.055	1.058	0.951	0.968	1.022	0.978
SO6	1.182	1.144	0.924	1.006	0.918	0.994	1.006	0.971
SO7	1.008	1.036	0.951	0.943	0.854	1.009	1.014	0.992
SO8	0.895	1.041	1.047	0.944	1.043	0.967	1.018	0.982
SO9	0.933	1.075	0.995	0.991	0.914	1.059	1.022	1.005
SO10	1.004	0.935	0.996	1.096	0.980	1.092	1.007	0.896
SO11	1.059	1.005	0.887	1.019	0.995	1.065	0.995	0.919
SO12	0.958	0.907	1.120	1.092	0.917	0.927	1.062	1.042
SO13	1.091	0.965	0.965	1.110	1.014	1.076	0.986	0.857

CALI_SSTRS (Master)		Sensor Sensitivity Correction Transmitter-Receiver Spacing						
Minimum/Nominal/Maximum		-----/4.000/-----						Unit ft
Monopole Upper Transmitter					2.000			
Monopole Lower Transmitter					2.000			

CALI_TTMUH (Master)		Sensor Sensitivity Transit Time from Monopole Upper Transmitter High Frequency Firing						
Minimum/Nominal/Maximum		0/0/5000.000						Unit us
	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
SO1	503.370	503.920	503.565	503.232	503.065	503.012	503.293	503.457
SO2	474.626	475.009	474.438	474.464	473.398	473.564	473.460	474.238
SO3	445.620	445.886	445.498	445.087	444.583	444.631	444.852	445.316
SO4	416.553	416.285	416.477	415.927	415.531	415.314	415.685	416.284
SO5	387.153	387.293	387.294	386.765	386.454	386.466	387.052	387.315
SO6	358.909	358.686	357.620	357.480	356.957	357.575	358.091	358.482
SO7	329.706	329.621	328.983	328.148	328.145	328.727	329.217	329.551
SO8	300.133	300.347	299.731	298.777	299.192	299.281	300.183	300.453
SO9	271.058	271.268	270.333	269.593	269.560	270.412	270.958	271.515
SO10	242.567	241.938	241.609	241.196	240.579	241.368	241.898	242.013
SO11	213.321	213.118	212.477	212.282	212.021	212.257	212.671	213.090
SO12	183.942	183.773	183.511	183.117	182.525	182.903	183.790	183.949
SO13	154.874	154.391	154.264	153.604	152.528	152.576	153.696	153.493

CALI_TTMLH (Master)		Sensor Sensitivity Transit Time from Monopole Lower Transmitter High Frequency Firing						
Minimum/Nominal/Maximum		0/0/5000.000						Unit us
	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
SO1	153.964	154.796	154.438	154.436	153.398	153.274	153.622	153.901
SO2	183.398	183.838	183.436	183.437	182.571	182.746	182.596	183.532
SO3	212.811	212.805	212.693	212.440	211.992	212.125	212.293	212.517
SO4	241.718	241.567	241.833	241.283	241.058	240.833	241.166	241.616
SO5	270.753	270.709	270.723	270.232	269.925	269.962	270.492	270.826
SO6	300.458	300.224	299.252	299.043	298.544	298.932	299.389	299.951
SO7	329.386	329.271	328.469	327.502	327.384	328.081	328.668	329.192
SO8	357.973	358.381	357.545	356.628	356.840	357.110	357.913	358.227
SO9	387.237	387.431	386.372	385.489	385.374	386.185	386.770	387.426
SO10	416.706	416.176	415.736	415.073	414.387	415.137	415.768	416.066
SO11	445.860	445.574	444.695	444.335	443.858	443.929	444.537	445.197
SO12	474.570	474.528	474.181	473.547	472.575	473.071	473.815	474.480
SO13	503.732	503.649	503.205	502.691	501.720	502.017	502.659	502.744

SO13	555.732	559.348	563.233	567.091	571.723	576.017	580.933	585.777
CALI_AMPMUH (Master) Sensor Sensitivity First Break Amplitude from Monopole Upper Transmitter High Frequency Firing								
Minimum/Nominal/Maximum -50000.000/0/50000.000							Unit	
	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
SO1	4839.605	4872.972	4364.382	4807.336	4989.378	5079.583	4808.057	5189.445
SO2	5295.420	5091.636	4973.998	5201.319	5057.091	4761.521	4877.493	4962.924
SO3	5063.425	5442.144	5227.402	5464.063	5641.045	5123.813	5315.376	5553.157
SO4	5555.004	5380.182	5777.697	5822.750	5658.072	5161.411	5240.318	5551.921
SO5	5636.062	5996.478	5793.821	6085.425	5562.860	5586.836	5834.303	5257.170
SO6	6659.231	6618.093	5697.085	5719.449	5788.851	5952.641	5844.579	5389.179
SO7	6417.355	6641.153	5995.387	6424.845	5715.968	6740.339	6761.778	6471.390
SO8	6355.471	6691.179	6757.792	6319.204	6823.364	6329.730	6949.110	6543.938
SO9	6734.877	7114.166	6782.992	6740.131	6383.200	6921.957	6843.625	6804.867
SO10	7279.311	7148.607	6814.009	7283.571	6996.110	7343.707	7084.314	6802.923
SO11	8263.102	7808.059	7086.907	7329.808	7100.657	7826.455	7500.613	7283.813
SO12	8205.832	7768.641	8066.545	7426.662	6766.579	6260.524	7927.556	7750.903
SO13	8472.755	7925.472	7069.402	7510.882	6503.926	6812.074	6727.117	6237.121
CALI_AMPLH (Master) Sensor Sensitivity First Break Amplitude from Monopole Lower Transmitter High Frequency Firing								
Minimum/Nominal/Maximum -50000.000/0/50000.000							Unit	
	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
SO1	7430.541	8581.311	7620.495	8175.853	6344.660	6356.809	6143.038	6802.683
SO2	7347.055	7075.567	7091.377	6868.596	6866.482	6315.534	6727.610	7446.607
SO3	6932.359	7082.097	7028.783	6965.888	7106.141	6867.540	7074.622	7061.862
SO4	6530.548	6486.301	7021.063	6802.867	6921.974	6080.172	6110.574	6777.434
SO5	6141.396	6612.519	6452.902	6487.787	5855.882	6111.793	6100.522	5755.819
SO6	6477.582	6385.472	5599.166	5764.420	5729.121	5694.841	5561.968	5345.557
SO7	5885.161	5875.216	5252.387	5725.900	4942.738	5820.733	5821.645	5686.357
SO8	5190.245	5573.826	5344.060	5246.117	5442.958	5186.667	5504.012	5289.944
SO9	5059.712	5195.687	5122.475	5118.216	4807.813	5269.478	5174.669	5035.149
SO10	4763.904	4789.400	4516.571	4883.450	4818.772	5117.539	4954.506	4666.763
SO11	5178.753	4628.832	4309.087	4429.606	4533.485	4770.718	4619.845	4392.319
SO12	4592.522	4329.696	4735.815	4595.653	4107.554	3957.721	4558.112	4670.845
SO13	4332.445	4239.556	3662.131	4185.831	4063.745	4174.862	3809.219	3741.704
CALI_AMPMUL (Master) Sensor Sensitivity First Break Amplitude from Monopole Upper Transmitter Low Frequency Firing								
Minimum/Nominal/Maximum -50000.000/0/50000.000							Unit	
	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
SO1	-8190.093	-8430.392	-7003.982	-7194.334	-7746.352	-8182.322	-8174.303	-9098.419
SO2	-10167.620	-9303.451	-8058.677	-8198.979	-7763.242	-8173.960	-8600.425	-9716.758
SO3	-10947.160	-11141.890	-10672.290	-10486.780	-10544.490	-9918.854	-10912.010	-11552.580
SO4	-12303.320	-10919.790	-12208.380	-11803.620	-11772.230	-10555.320	-10809.690	-12488.300
SO5	-11477.480	-12478.250	-12806.580	-12401.420	-11004.510	-11521.330	-11779.690	-11756.250
SO6	-15243.630	-15133.510	-12106.740	-13233.690	-12041.930	-12937.720	-12895.720	-12678.760
SO7	-19286.360	-19835.330	-18208.460	-18040.240	-16338.690	-19317.040	-19403.990	-18990.040
SO8	-16030.150	-18640.650	-18748.360	-16908.360	-18680.150	-17312.510	-18236.360	-17585.630
SO9	-16927.230	-19496.300	-18043.100	-17972.050	-16577.120	-19208.270	-18542.580	-18240.570
SO10	-19588.780	-18251.070	-19446.290	-21397.790	-19121.150	-21316.180	-19653.690	-17483.550
SO11	-22675.200	-21518.070	-18976.860	-21819.850	-21291.600	-22795.870	-21291.180	-19662.720
SO12	-21843.020	-20669.090	-25540.200	-24905.620	-20908.500	-21145.500	-24206.620	-23755.290
SO13	-26316.610	-28613.670	-23028.320	-27123.320	-24837.620	-26315.520	-24115.200	-23025.220

SO10	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE
SO11	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE
SO12	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE
SO13	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE
CALI_SVCLF (After) Sensor Vertical Casing Check Low Frequency Diagnostics Failure Flag (Before/After/BACchange)								
Minimum/Nominal/Maximum 0/0/0							Unit	
	RB1	RB2	RB3	RB4	RB5	RB6	RB7	RB8
SO1	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE
SO2	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE
SO3	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE
SO4	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE
SO5	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE
SO6	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE
SO7	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE
SO8	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE
SO9	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE
SO10	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE
SO11	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE
SO12	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE
SO13	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE	NOT DONE

PPC-B (Powered Positioning device and Caliper.) Calibration - Run Run 3c

Primary Equipment :

PPC-B Element is used for usual logging at wellsite and check/diagnostics.

PPC-B

8163

Auxiliary Equipment :

PPC-B Element is used for usual logging at wellsite and check/diagnostics.

PPC-B

8163

Calibration Parameter :

ZERO_REF (Small Size Ring)

3.500

PLUS_REF (Large Size Ring)

8.000

Equipment Properties :

Caliper Arm Equipment Type for PPC

PPC_CAL_STD

PPC Check - Downhole Electronics Test

Before (Measured): 12:01:47 09-Dec-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
Positive Analog Voltage	V	Before		7	8.6748	9		
Minus Analog Voltage	V	Before		-9	-8.69971	-7		
Digital Voltage	V	Before		3.15	3.37375	3.45		
Digital Voltage for Analog Digital Converter	V	Before		4.5	5.02822	5.5		
Status Word of Analog Digital Converter Offset		Before		-8	0.944444	8		

PPC Check - Cartridge Temperature Test

Before (Measured): 12:01:47 09-Dec-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
Cartridge Temperature	degF	Before		-58	115.184	482		

PPC Check - Power Control LVDT Test

Before (Measured): 12:01:47 09-Dec-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
LVDT5 Caliper Open Position	in	Before			-1.23071			
LVDT5 Full Power Position	in	Before			1.48584			

PPC Diagnostics - Arm Close Position Test

Master:

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
Caliper-arm 1, radius raw - 0	in	Master	-----	-----	-----	-----		
Caliper-arm 2, radius raw - 0	in	Master	-----	-----	-----	-----		
Caliper-arm 3, radius raw - 0	in	Master	-----	-----	-----	-----		
Caliper-arm 4, radius raw - 0	in	Master	-----	-----	-----	-----		
Power Control LVDT - 0	in	Master	-----	-----	-----	-----		
LVDT excitation - 0	V	Master	-----	-----	-----	-----		
PPC Diagnostics - Downhole Electronics Test								
Master:								
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
Positive Analog Voltage - 0	V	Master	-----	-----	-----	-----		
Minus Analog Voltage - 0	V	Master	-----	-----	-----	-----		
Digital Voltage - 0	V	Master	-----	-----	-----	-----		
Digital Voltage for Analog Digital Converter - 0	V	Master	-----	-----	-----	-----		
Status Word of Analog Digital Converter Offset - 0		Master	-----	-----	-----	-----		
PPC Diagnostics - RBS Test								
Master:								
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
Relative Bearing - 0	deg	Master	-----	-----	-----	-----		
Potentiometer Excitation - 0	V	Master	-----	-----	-----	-----		
PPC Diagnostics - Cartridge Temperature Test								
Master:								
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
Cartridge Temperature - 0	degF	Master	-----	-----	-----	-----		
PPC Diagnostics - Power Control LVDT Test								
Master:								
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
LVDT5 Caliper Open Position - 0	in	Master	-----	-----	-----	-----		
LVDT5 Full Power Position - 0	in	Master	-----	-----	-----	-----		
PPC LVDT5 Master Calibration - PPC CaliCoefficients								
Master (EEPROM): 21:42:00 02-Dec-2014								
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
CCS	in	Master	-1.51		-1.45349			
COP	in	Master	-1.31		-1.23071			
CPW	in	Master	1.41		1.48584			
PPC Caliper Calibration - PPC CaliCoefficients								
Before (EEPROM): 21:42:00 02-Dec-2014 After:								
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit		
RD1_GAIN		Before	1	0.85	1.04279	1.15		
		After	-----	-----	-----	-----		
		After-Before	-----	-----	-----	-----		
RD2_GAIN		Before	1	0.85	1.0121	1.15		
		After	-----	-----	-----	-----		
		After-Before	-----	-----	-----	-----		
RD3_GAIN		Before	1	0.85	1.03919	1.15		
		After	-----	-----	-----	-----		
		After-Before	-----	-----	-----	-----		
RD4_GAIN		Before	1	0.85	1.00092	1.15		
		After	-----	-----	-----	-----		
		After-Before	-----	-----	-----	-----		
RD1_OFFSET	in	Before	0	-2.2	-0.923082	2.6		
		After	-----	-----	-----	-----		
		After-Before	-----	-----	-----	-----		
RD2_OFFSET	in	Before	0	-2.2	0.0570495	2.6		
		After	-----	-----	-----	-----		
		After-Before	-----	-----	-----	-----		
RD3_OFFSET	in	Before	0	-2.2	-1.00993	2.6		
		After	-----	-----	-----	-----		
		After-Before	-----	-----	-----	-----		
RD4_OFFSET	in	Before	0	-2.2	0.0777706	2.6		
		After	-----	-----	-----	-----		
		After-Before	-----	-----	-----	-----		

PPC Caliper Calibration - PPC Accumulations

Before (EEPROM):		21:42:00 02-Dec-2014		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Caliper 1 Zero Radius	in	Before	3.5	1.2	4.2416	5.6	
		After	----	----	----	----	
		After-Before	----	----	----	----	
Caliper 2 Zero Radius	in	Before	3.5	1.2	3.40179	5.6	
		After	----	----	----	----	
		After-Before	----	----	----	----	
Caliper 3 Zero Radius	in	Before	3.5	1.2	4.33984	5.6	
		After	----	----	----	----	
		After-Before	----	----	----	----	
Caliper 4 Zero Radius	in	Before	3.5	1.2	3.4191	5.6	
		After	----	----	----	----	
		After-Before	----	----	----	----	
Caliper 1 Plus Radius	in	Before	8	6.1	8.55696	9.7	
		After	----	----	----	----	
		After-Before	----	----	----	----	
Caliper 2 Plus Radius	in	Before	8	6.1	7.848	9.7	
		After	----	----	----	----	
		After-Before	----	----	----	----	
Caliper 3 Plus Radius	in	Before	8	6.1	8.67012	9.7	
		After	----	----	----	----	
		After-Before	----	----	----	----	
Caliper 4 Plus Radius	in	Before	8	6.1	7.91499	9.7	
		After	----	----	----	----	
		After-Before	----	----	----	----	

HNGS-BA (Hostile-environment Natural Gamma-ray Sonde) Calibration - Run Run 3c

Primary Equipment :			
HNGS Sonde Element		HNGS-BA	165
Auxiliary Equipment :			
Hostile Natural Gamma Ray Cartridge		HNGC-B	383
HNGS Housing Element		HEH-K	162
			0
Housing for the HNGC		HNGH-A	326

HNGS Background and Na22 Set Point Determination - Detector 1 Check

Master (EEPROM):	15:49:10 25-Sep-2014	Before (Measured):	12:05:06 09-Dec-2014	After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Na 511 Peak Location		Master	40.000	37.500	38.586	42.500	
		Before	40.000	37.500	38.687	42.500	
		After	40.000	37.500	NOT DONE	42.500	
		Before-Master	----	----	0.101	----	
		After-Before	----	----	----	----	
Na 511 Peak Resolution	%	Master	15.500	12.000	16.635	19.000	
		Before	15.500	12.000	15.433	19.000	
		After	15.500	12.000	NOT DONE	19.000	
		Before-Master	----	----	-1.202	----	
		After-Before	----	----	----	----	
High Voltage DAC Value	V	Master			1390.111		
		Before	1150.000	850.000	1355.188	1600.000	
		After	----	----	----	----	
		Before-Master	----	----	-34.923	----	
		After-Before	----	----	----	----	
Na 1785 Peak Location		Master	142.650	135.000	139.415	150.300	
		Before	142.650	135.000	139.422	150.300	
		After	142.650	135.000	NOT DONE	150.300	
		Before-Master	----	----	0.007	----	
		After-Before	----	----	----	----	
Na 1785 Peak Resolution	%	Master	8.500	7.000	8.156	11.000	
		Before	8.500	7.000	8.184	11.000	
		After	8.500	7.000	NOT DONE	11.000	
		Before-Master	----	----	0.008	----	
		After-Before	----	----	----	----	

		Before-Master After-Before	-----	-----	0.028	-----		
Temperature - 0	degF	Master Before After Before-Master After-Before	----- 59.900 ----- ----- -----	----- -20.002 ----- ----- -----	----- 59.520 ----- ----- -----	----- 140.000 ----- ----- -----		
Na Count Rate	CPS	Master Before After Before-Master After-Before	45.000 45.000 45.000 ----- -----	10.000 10.000 10.000 ----- -----	59.417 55.460 NOT DONE -3.957 -----	100.000 100.000 100.000 ----- -----		

HNGS Background and Na22 Set Point Determination - Detector 2 Check							
Master (EEPROM): 15:49:10 25-Sep-2014		Before (Measured): 12:05:06 09-Dec-2014		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Na 511 Peak Location		Master	40.000	37.500	39.563	42.500	
		Before	40.000	37.500	39.605	42.500	
		After	40.000	37.500	NOT DONE	42.500	
		Before-Master	----	----	0.042	----	
		After-Before	----	----	----	----	
Na 511 Peak Resolution	%	Master	15.500	12.000	16.881	19.000	
		Before	15.500	12.000	16.814	19.000	
		After	15.500	12.000	NOT DONE	19.000	
		Before-Master	----	----	-0.067	----	
		After-Before	----	----	----	----	
High Voltage DAC Value	V	Master			1352.469		
		Before	1150.000	850.000	1319.228	1600.000	
		After	----	----	----	----	
		Before-Master	----	----	-33.241	----	
		After-Before	----	----	----	----	
Na 1785 Peak Location		Master	142.650	135.000	142.052	150.300	
		Before	142.650	135.000	142.314	150.300	
		After	142.650	135.000	NOT DONE	150.300	
		Before-Master	----	----	0.262	----	
		After-Before	----	----	----	----	
Na 1785 Peak Resolution	%	Master	8.500	7.000	9.213	11.000	
		Before	8.500	7.000	8.564	11.000	
		After	8.500	7.000	NOT DONE	11.000	
		Before-Master	----	----	-0.649	----	
		After-Before	----	----	----	----	
Temperature - 0	degF	Master	----	----	----	----	
		Before	59.900	-20.002	59.287	140.000	
		After	----	----	----	----	
		Before-Master	----	----	----	----	
		After-Before	----	----	----	----	
Na Count Rate	CPS	Master	45.000	10.000	59.051	100.000	
		Before	45.000	10.000	55.135	100.000	
		After	45.000	10.000	NOT DONE	100.000	
		Before-Master	----	----	-3.916	----	
		After-Before	----	----	----	----	

HNGS Background and Na22 Set Point Determination - Ratio of Detector 1 to Detector 2									
Master (EEPROM):		15:49:10 25-Sep-2014		Before (Measured):		12:05:06 09-Dec-2014		After:	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit			
Coincidence Count Rate Ratio		Master			1.003				
		Before	1.000	0.950	1.003	1.050			
		After	----	----	----	----			
		Before-Master	----	----	0.000	----			
		After-Before	----	----	----	----			

HNGS Background and Na22 Set Point Determination - Detector 1 Calibration									
Master (EEPROM):		15:49:10 25-Sep-2014		Before (Measured):		12:05:06 09-Dec-2014		After:	
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit			
Th Peak Location		Master	209.630	201.000	208.150	218.250			
		Before	----	----	----	----			
		After	----	----	----	----			
		Before-Master	----	----	----	----			
		After-Before	----	----	----	----			

Th Peak Resolution	%	Master Before After Before-Master After-Before	7.000 ----- ----- ----- -----	5.000 ----- ----- ----- -----	7.417 ----- ----- ----- -----	9.000 ----- ----- ----- -----	
Background Count Rate	CPS	Master Before After Before-Master After-Before	142.500 ----- ----- ----- -----	10.000 ----- ----- ----- -----	113.435 113.791 ----- 0.356 -----	265.000 ----- ----- ----- -----	
Gain Ratio		Master Before After Before-Master After-Before	1.000 ----- ----- ----- -----	0.940 ----- ----- ----- -----	1.026 ----- ----- ----- -----	1.060 ----- ----- ----- -----	

HNGB Background and Na22 Set Point Determination - Detector 2 Calibration

Master (EEPROM): 15:49:10 25-Sep-2014		Before (Measured): 12:05:06 09-Dec-2014		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Th Peak Location		Master Before After Before-Master After-Before	209.630 ----- ----- ----- -----	201.000 ----- ----- ----- -----	207.869 ----- ----- ----- -----	218.250 ----- ----- ----- -----	
Th Peak Resolution	%	Master Before After Before-Master After-Before	7.000 ----- ----- ----- -----	5.000 ----- ----- ----- -----	7.291 ----- ----- ----- -----	9.000 ----- ----- ----- -----	
Background Count Rate	CPS	Master Before After Before-Master After-Before	142.500 ----- ----- ----- -----	10.000 ----- ----- ----- -----	112.271 112.886 ----- 0.615 -----	265.000 ----- ----- ----- -----	
Gain Ratio		Master Before After Before-Master After-Before	1.000 ----- ----- ----- -----	0.940 ----- ----- ----- -----	0.999 ----- ----- ----- -----	1.060 ----- ----- ----- -----	

HNGB Background and Na22 Set Point Determination - Detector 1 Calibration

Master (EEPROM): 15:49:10 25-Sep-2014		Before (Measured): 12:05:06 09-Dec-2014		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Na 511 Peak Set Point		Master Before After Before-Master After-Before	40.000 ----- ----- ----- -----	38.000 ----- ----- ----- -----	40.000 ----- ----- ----- -----	43.500 ----- ----- ----- -----	

HNGB Background and Na22 Set Point Determination - Detector 2 Calibration

Master (EEPROM): 15:49:10 25-Sep-2014		Before (Measured): 12:05:06 09-Dec-2014		After:			
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
Na 511 Peak Set Point		Master Before After Before-Master After-Before	40.000 ----- ----- ----- -----	38.000 ----- ----- ----- -----	41.000 ----- ----- ----- -----	43.500 ----- ----- ----- -----	

EDTC-B (Enhanced Digital Telemetry Cartridge - Version B) Calibration - Run Run 3c

Primary Equipment :			EDTC-B			8101	
Calibration Parameter :			Plus Reference (Jig minus background reference)			165	

EDTC-B Accelerometer Calibration - EDTC-B Accelerometer Calibration

Before (Measured): 15:34:18 05-Dec-2014 Expired by 3 days

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit	
-------------	------	-------	---------	-----------	--------	------------	-------------------------

AZ Vertical Measurement	ft/s2	Before	32.19	31.53	32.03	32.84					
EDTC-B Memory Data - EDTC-B Memory Data											
Master (EEPROM):		10:43:02 10-Dec-2014									
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit					
Initial PMT HV	V	Master			1801.000						
Accelerometer Serial Number		Master			142						
Accelerometer Coefficients - 0		Master	----	----	2.900	----					
Accelerometer Coefficients - 1		Master	----	----	0.000	----					
Accelerometer Coefficients - 2		Master	----	----	0.000	----					
Accelerometer Coefficients - 3		Master	----	----	0.000	----					
Accelerometer Coefficients - 4		Master	----	----	0.000	----					
Accelerometer Coefficients - 5		Master	----	----	0.000	----					
Accelerometer Coefficients - 6		Master	----	----	0.000	----					
Accelerometer Coefficients - 7		Master	----	----	-0.003	----					
Accelerometer Coefficients - 8		Master	----	----	0.000	----					
Accelerometer Coefficients - 9		Master	----	----	0.000	----					
Accelerometer Coefficients - 10		Master	----	----	0.000	----					
Accelerometer Coefficients - 11		Master	----	----	0.000	----					
Gamma-Ray Detector Serial Number		Master			7002						
EDTC-B Gamma-Ray Calibration - Gamma Ray Coefficients											
Before (Measured):		07:53:58 05-Dec-2014		After:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit					
Gamma Ray Gain		Before	1.000	0.900	1.043	1.100					
		After	----	----	----	----					
		After-Before	----	----	----	----					
EDTC-B Gamma-Ray Calibration - Gamma Ray Accumulations											
Before (Measured):		07:53:58 05-Dec-2014		After:							
Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit					
RGR Zero Measurement	gAPI	Before		0	36.808	120.000					
		After	----	----	----	----					
		After-Before	----	----	----	----					
RGR Plus Measurement	gAPI	Before	165.000	150.000	158.171	180.000					
		After			NOT DONE						
		After-Before	----	----	----	----					