

Company:	Vecta Oil & Gas Ltd
Well:	Torreys 31-4
Field:	Wildcat
County:	Cheyenne

State: **Colorado**

County:	Cheyenne				
Field:	Wildcat				
Location:	Sec 4, T14S, R47W				
Well:	Torreys 31-4				
Company:	Vecta Oil & Gas Ltd				
<div>Platform Express Array Induction with Linear Correlation</div>					
				LOCATION	
				Sec 4, T14S, R47W SHL:354' FNI X 1623' FEL NWNE Lat/Long: 38.865740/-102.672720	Elev.: K.B. 4312.00 ft G.L. 4297.00 ft D.F. 4311.00 ft
				Permanent Datum: _____ Log Measured From: _____ Drilling Measured From: _____	Ground Level _____ Kelly Bushing _____ Kelly Bushing _____
API Serial No. 05-017-07705-0000	Section 4	Township 14S	Range 47W		

[illegible]

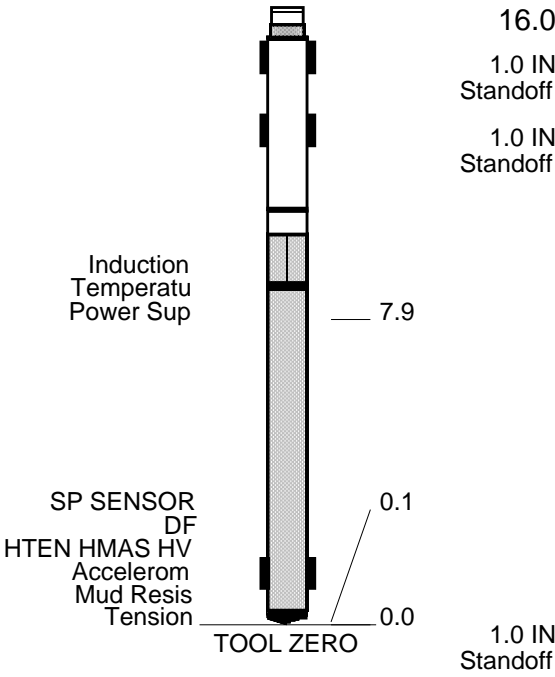
Logging Date	2-Aug-2011					
Run Number	1					
Depth Driller	5530 ft					
Schlumberger Depth	5528 ft					
Bottom Log Interval	5522 ft					
Top Log Interval	435 ft					
Casing Driller Size @ Depth	8.625 in @			437 ft	@	
Casing Schlumberger	435 ft					
Bit Size	7.875 in					
Type Fluid In Hole	Water Based Mud					
Density	Viscosity	9.2 lbm/gal		52 s		
Fluid Loss	PH	8 cm3		10		
Source Of Sample	ALT Sensor					
RM @ Measured Temperature	0.783 ohm.m			@	106 degF	@
RMF @ Measured Temperature	0.587 ohm.m			@	106 degF	@
RMC @ Measured Temperature	1.174 ohm.m			@	106 degF	@
Source RMF	RMC	Calculated				
RM @ MRT	RMF @ MRT	0.607 @ 139	0.456	@ 139	@	@
Maximum Recorded Temperatures	139 degF					
Circulation Stopped	Time	2-Aug-2011		13:00		
Logger On Bottom	Time	2-Aug-2011		17:00		
Unit Number	Location	3055	Fort Morgan, CO			
Recorded By	Phillip Grant					
Witnessed By	Matt Goolsby					

Logging Date							
Run Number							
Depth Driller							
Schlumberger Depth							
Bottom Log Interval							
Top Log Interval							
Casing Driller Size @ Depth		@					
Casing Schlumberger							
Bit Size							
Type Fluid In Hole							
Density	Viscosity						
Fluid Loss	PH						
MUD							
Source Of Sample							
RM @ Measured Temperature							
RMF @ Measured Temperature							
RMC @ Measured Temperature							
Source RMF		RMC					
RM @ MRT	RMF @ MRT	@		@			
Maximum Recorded Temperatures							
Circulation Stopped				Time			
Logger On Bottom				Time			
Unit Number	Location						
Recorded By							
Witnessed By							

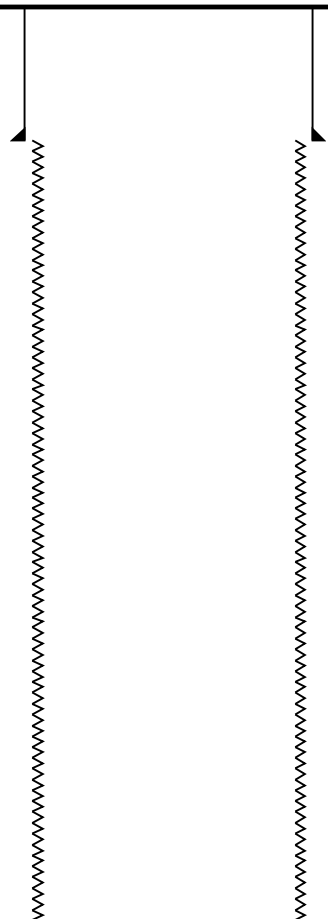
OTHER SERVICES1	OTHER SERVICES2
OS1: MSIP	OS1:
OS2:	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
Tool run as per tool sketch.	
This is the first run in hole and primary depth reference.	
Data may be affected by hole rugosity.	
Matrix: Limestone 2.71	



AIT-M  
AMIS-A 1270  
AMRM-A



MAXIMUM STRING DIAMETER 5.88 IN  
MEASUREMENTS RELATIVE TO TOOL ZERO  
ALL LENGTHS IN FEET

Production String	(in)		(ft)	Well Schematic	(ft)	(in)		Casing String
	OD	ID	MD		MD	OD	ID	
					0.0	8.625	8.097	Casing String
					437.0 437.0	8.625 7.875	8.097	Casing Shoe Borehole Segment

[illegible]

## All Depths are Drillers

## Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_007LUP	FN:6	PRODUCER	02-Aug-2011 16:19	5550.0 FT	411.0 FT
DEFAULT	AIT_TLD_MCFL_CNL_005PUP	FN:4	PRODUCER	02-Aug-2011 16:10	5545.5 FT	4904.0 FT

## Integrated Hole/Cement Volume Summary

**Hole Volume = 1798.91 ft3**

**Cement Volume = 958.68 ft<sup>3</sup> (assuming 5.50 in casing O.D.)**

Computed from 5527.5 ft to 435.0 ft

**OP System Version: 18C0-147**

AITM	18C0-147	HILTD	18C0-147
DTCH	18C0-147		

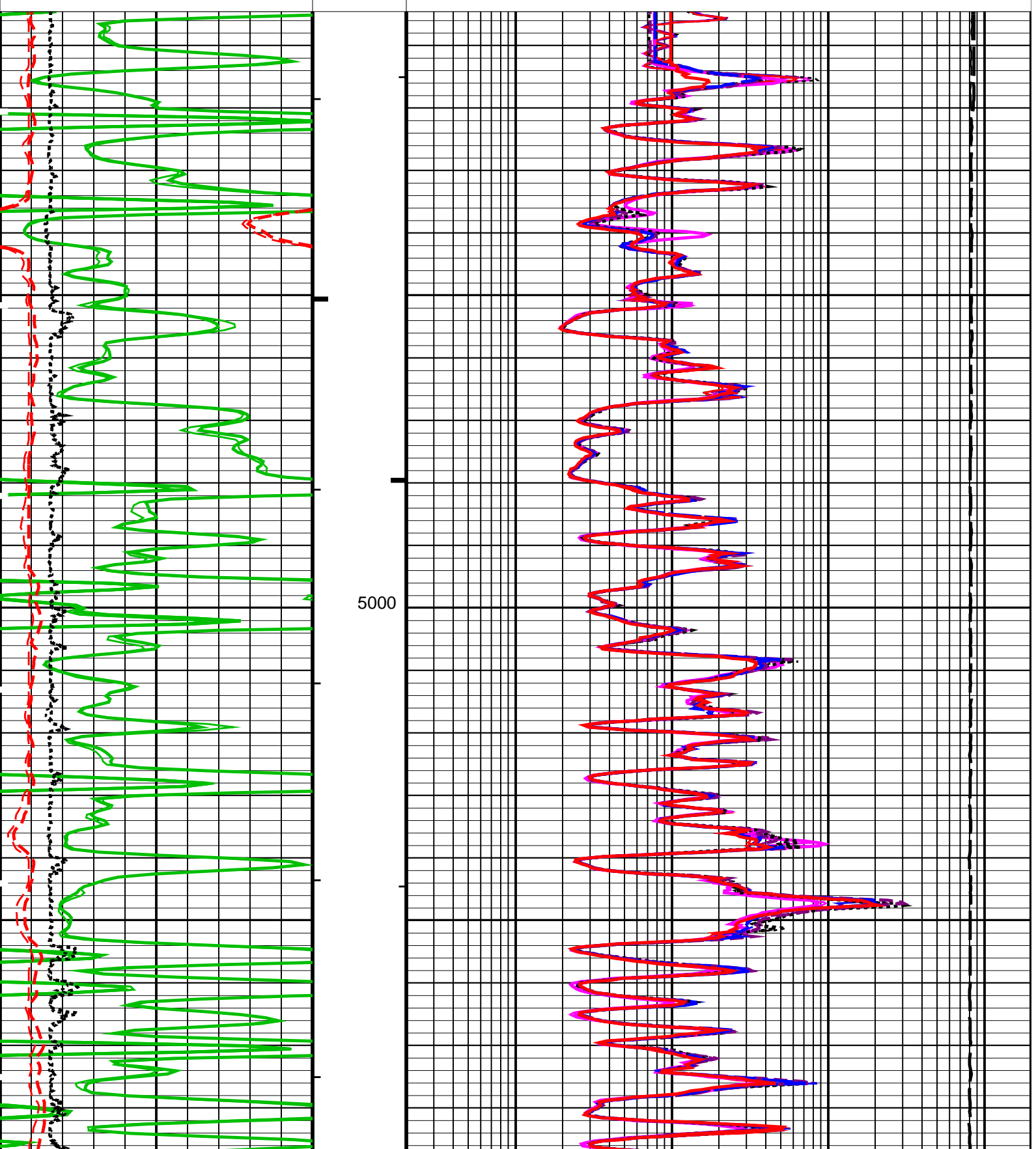
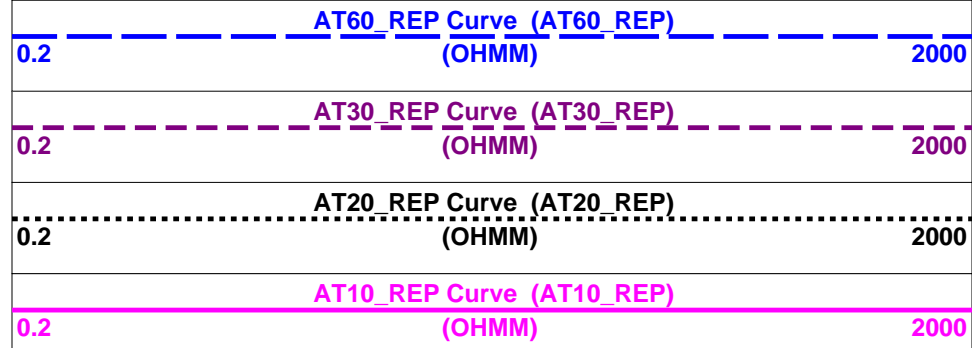
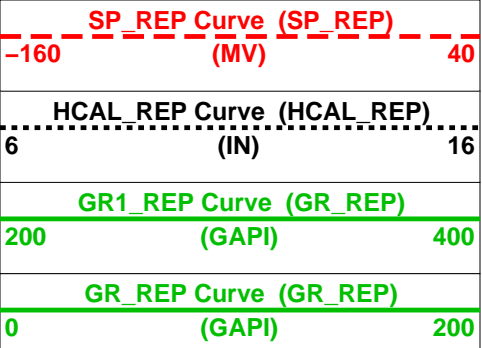
## PIP SUMMARY

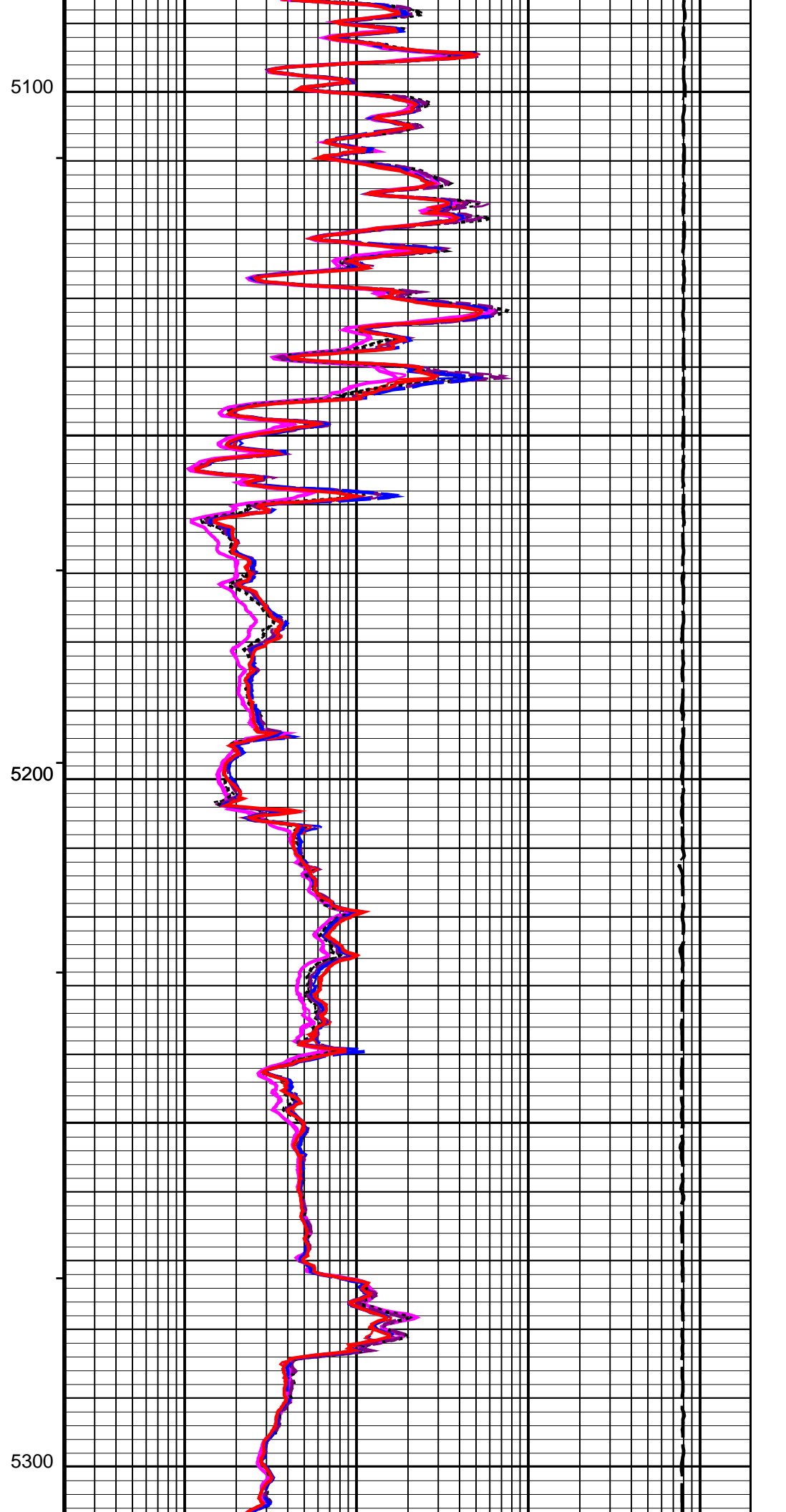
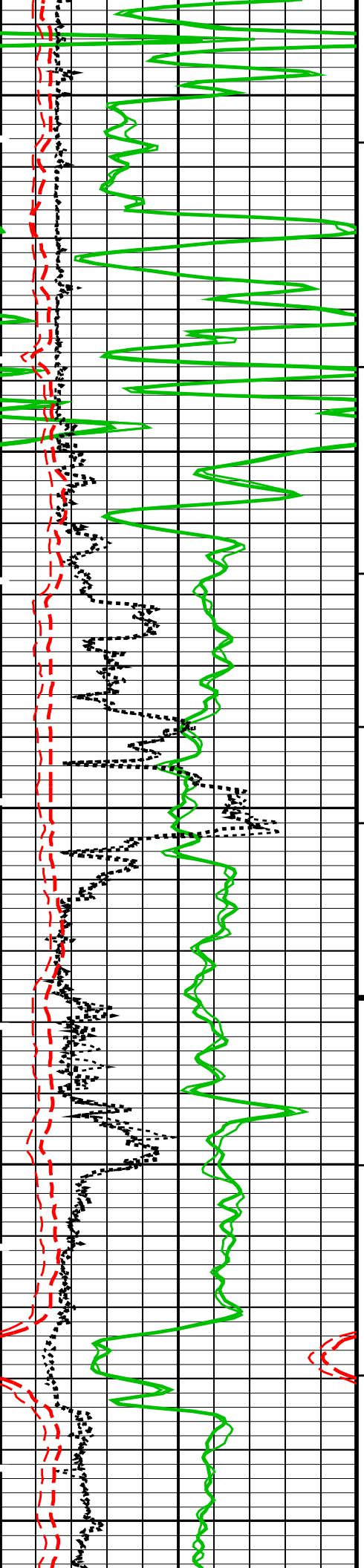
- └ Integrated Hole Volume Minor Pip Every 10 F3
- └ Integrated Hole Volume Major Pip Every 100 F3
  - └ Integrated Cement Volume Minor Pip Every 10 F3
  - └ Integrated Cement Volume Major Pip Every 100 F3

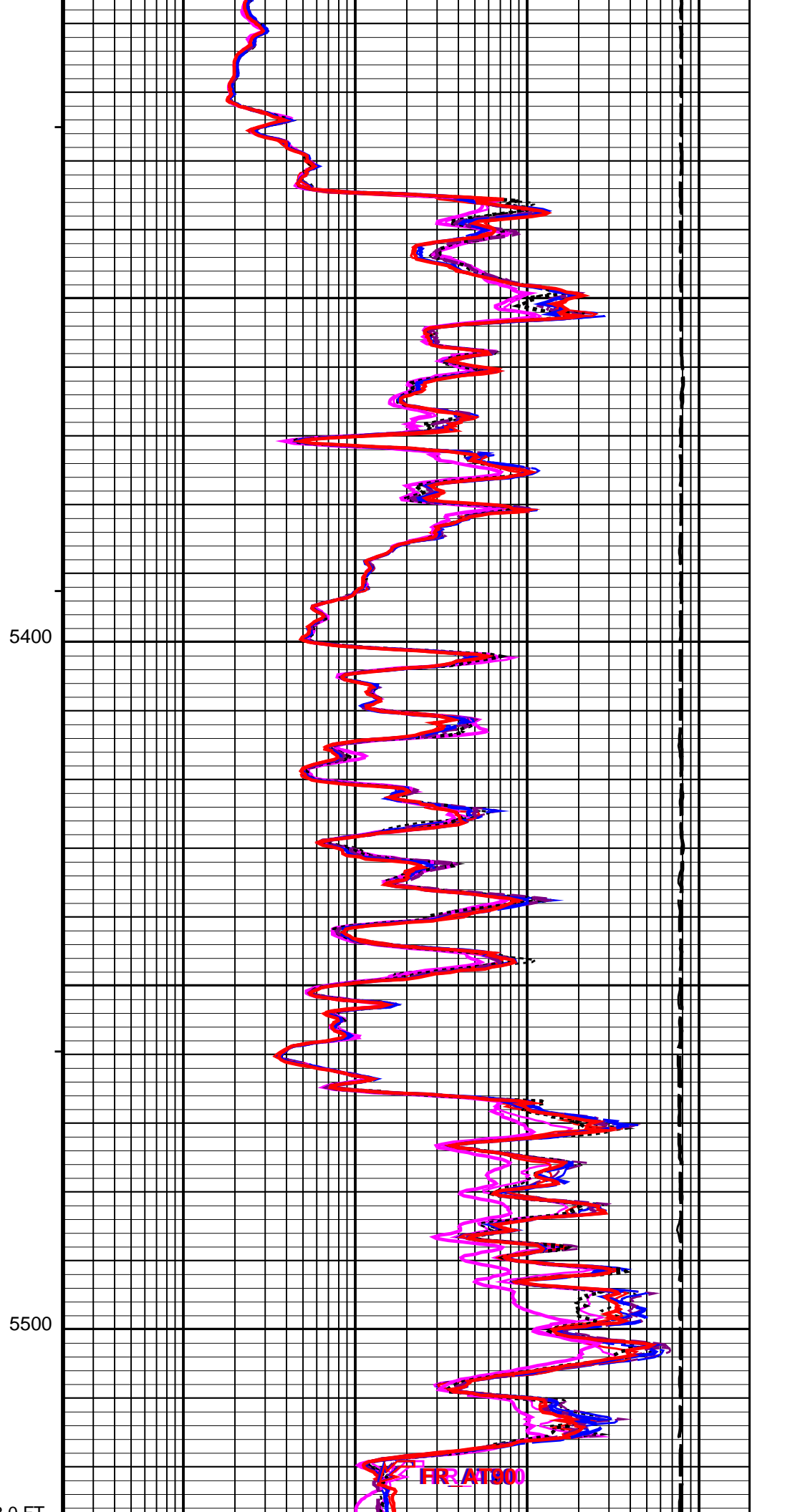
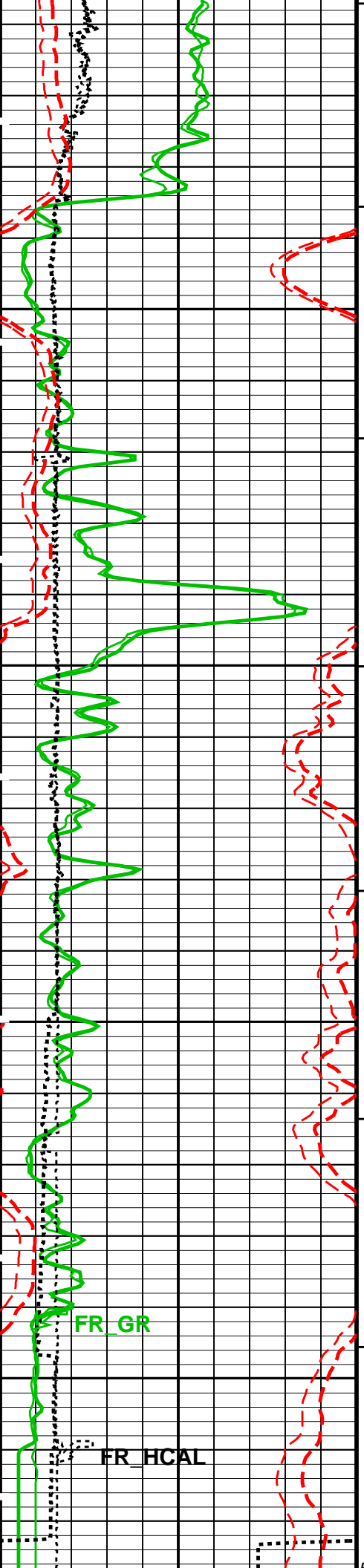
**Time Mark Every 60 S**

TENS\_REP Curve (TENS\_REP)

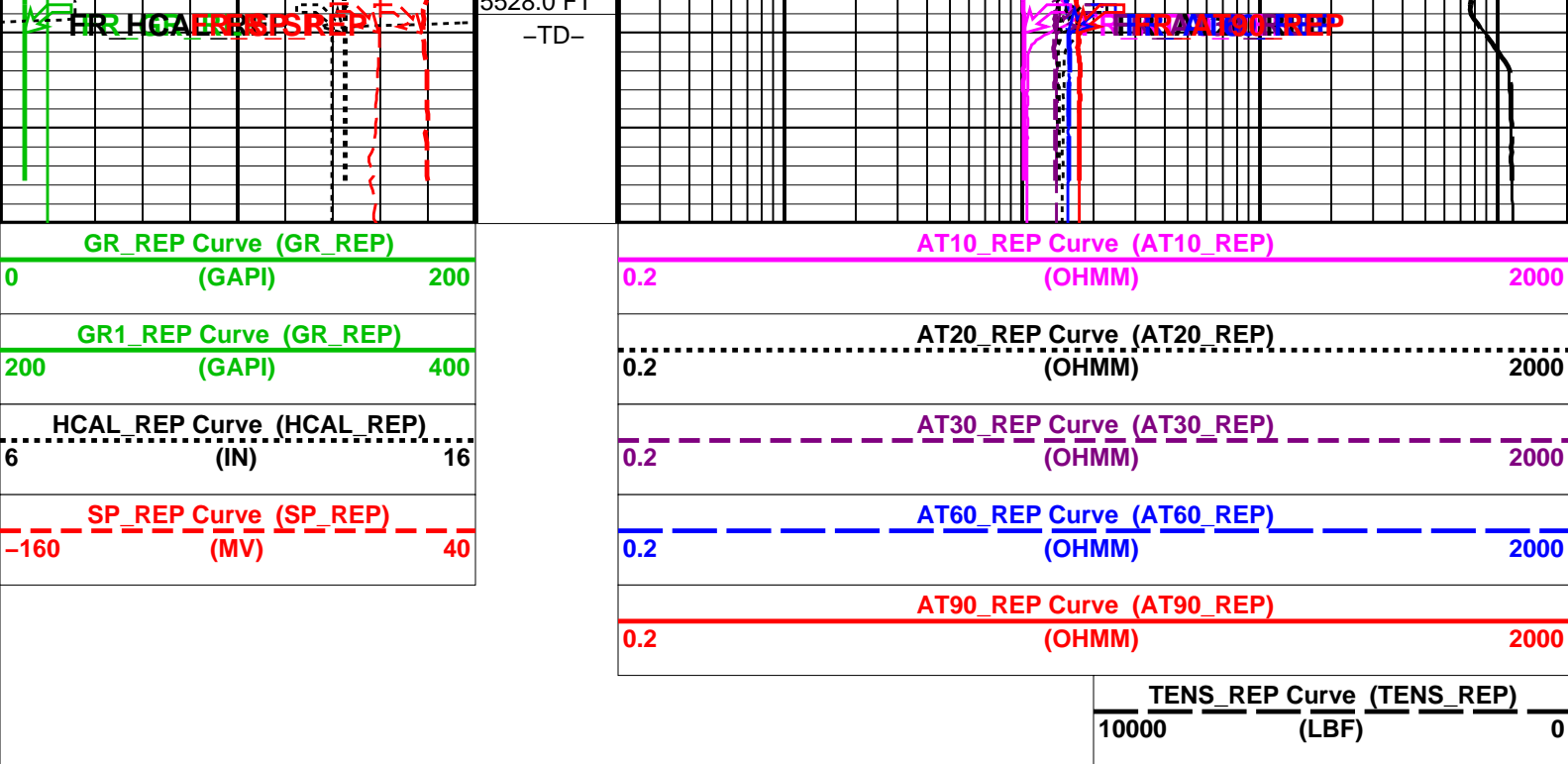
AT90_REP Curve (AT90_REP)		
0.2	(OHMM)	2000











PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 10 F3
- Integrated Hole Volume Major Pip Every 100 F3
- Integrated Cement Volume Minor Pip Every 10 F3
- Integrated Cement Volume Major Pip Every 100 F3

Time Mark Every 60 S

Parameters		
DLIS Name	Description	Value
AIT-M: Array Induction Tool - M		
ABHM	Array Induction Borehole Correction Mode	2 COMPUTESTANDOFF
ABHV	Array Induction Borehole Correction Code Version Number	900
ABLM	Array Induction Basic Logs Mode	6_ONE_TWO_AND_FOUR
ABLV	Array Induction Basic Logs Code Version Number	223
ACDE	Array Induction Casing Detection Enable	NO
ACEN	Array Induction Tool Centering Flag (in Borehole)	ECCENTERED
AETP	Array Induction Enable Sonde Error Temp&Pres Corr	YES
AFRSV	Array Induction Response Set Version for Four ft Resolution	41.70.24.20
AIGS	Array Induction Select Akima Interpolation Gating	ON
AMRF	Array Induction Mud Resistivity Factor	1.000
AORSV	Array Induction Response Set Version for One ft Resolution	41.70.24.20
ARFV	Array Induction Radial Profiling Code Version Number	701
ARPV	Array Induction Radial Parametrization Code Version Number	232
ASP	Array Induction Suspend Answer Product Processing	0_NOSUSPENSION
ASTA	Array Induction Tool Standoff	0.250 in
ATRSV	Array Induction Response Set Version for Two ft Resolution	41.70.24.20
ATSE	Array Induction Temperature Selection(Sonde Error Correction)	INTERNAL
AULV	Array Induction User Level Control	NORMAL
AZRSV	Array Induction Response Set Version for Z Resolution	00.10.25.00
BHT	Bottom Hole Temperature (used in calculations)	212.0 degF
FEXP	Form Factor Exponent	2.000
FNUM	Form Factor Numerator	1.000
GCSE	Generalized Caliper Selection	HCAL
GDEV	Average Angular Deviation of Borehole from Normal	0.000 deg
GGRD	Geothermal Gradient	0.010 degF/ft
GRSE	Generalized Mud Resistivity Selection	AMF_AITM
GTSE	Generalized Temperature Selection	HSTS_HTEM
SHT	Surface Hole Temperature	68.000 degF
SPDR	SP Drift	0.000 mV/ft
SPNV	SP Next Value	0.000 mV
HILTB-FTB: High resolution Integrated Logging Tool-DTS		
BHT	Bottom Hole Temperature (used in calculations)	212.0 degF
FEXP	Form Factor Exponent	2.000
FNUM	Form Factor Numerator	1.000
GCSE	Generalized Caliper Selection	HCAL
GDEV	Average Angular Deviation of Borehole from Normal	0.000 deg
GGRD	Geothermal Gradient	0.010 degF/ft
GRSE	Generalized Mud Resistivity Selection	AMF_AITM

GTSE	Generalized Temperature Selection	HSTS_HTEM	68.000	degF
SHT	Surface Hole Temperature			
	FEQL: Formation Evaluation Quick Look			
FEXP	Form Factor Exponent		2.000	
FNUM	Form Factor Numerator		1.000	
	HOLEV: Integrated Hole/Cement Volume			
BHT	Bottom Hole Temperature (used in calculations)		212.0	degF
GCSE	Generalized Caliper Selection		HCAL	
GDEV	Average Angular Deviation of Borehole from Normal		0.000	deg
GGRD	Geothermal Gradient		0.010	degF/ft
GRSE	Generalized Mud Resistivity Selection	AMF_AITM		
GTSE	Generalized Temperature Selection	HSTS_HTEM		
SHT	Surface Hole Temperature		68.000	degF
	PERT: Preliminary Evaluation – Real Time			
BHT	Bottom Hole Temperature (used in calculations)		212.0	degF
FEXP	Form Factor Exponent		2.000	
FNUM	Form Factor Numerator		1.000	
GCSE	Generalized Caliper Selection		HCAL	
GDEV	Average Angular Deviation of Borehole from Normal		0.000	deg
GGRD	Geothermal Gradient		0.010	degF/ft
GRSE	Generalized Mud Resistivity Selection	AMF_AITM		
GTSE	Generalized Temperature Selection	HSTS_HTEM		
SHT	Surface Hole Temperature		68.000	degF
	System and Miscellaneous			
ACSED	Array Induction Casing Shoe Estimated Depth			
BS	Bit Size		7.875	in
DFD	Drilling Fluid Density		9.200	lbm/gal
FLEV	Fluid Level			
MST	Mud Sample Temperature		106.2	degF
TD	Total Depth		5528.0	ft

Format: GRES\_REP    Vertical Scale: 5" per 100'    Graphics File Created: 02-Aug-2011 18:56

## OP System Version: 18C0-147

AITM	18C0-147	HILTD	18C0-147
DTCH	18C0-147		

### Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_007LUP	FN:6	PRODUCER	02-Aug-2011 16:19	5550.0 FT	411.0 FT
DEFAULT	AIT_TLD_MCFL_CNL_005PUP	FN:4	PRODUCER	02-Aug-2011 16:10	5545.5 FT	4904.0 FT

### Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_007LUP	FN:6	PRODUCER	02-Aug-2011 16:19	5550.0 FT	411.0 FT
DEFAULT	AIT_TLD_MCFL_CNL_005PUP	FN:4	PRODUCER	02-Aug-2011 16:10	5545.5 FT	4904.0 FT

## Integrated Hole/Cement Volume Summary

Hole Volume = 1798.91 ft3

Cement Volume = 958.68 ft3 (assuming 5.50 in casing O.D.)

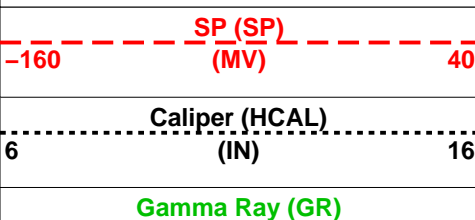
Computed from 5527.5 ft to 435.0 ft

## OP System Version: 18C0-147

AITM	18C0-147	HILTD	18C0-147
DTCH	18C0-147		

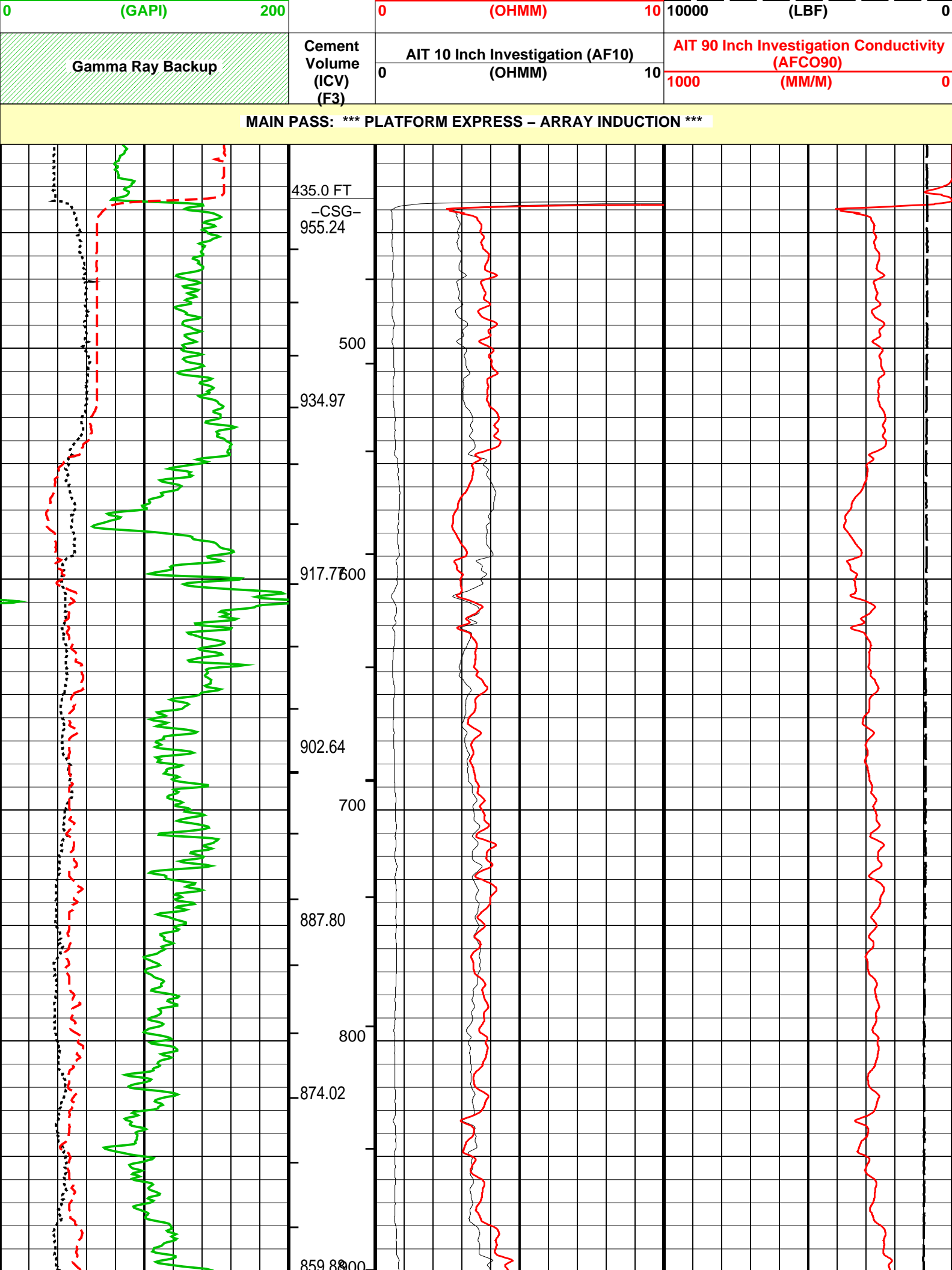
### PIP SUMMARY

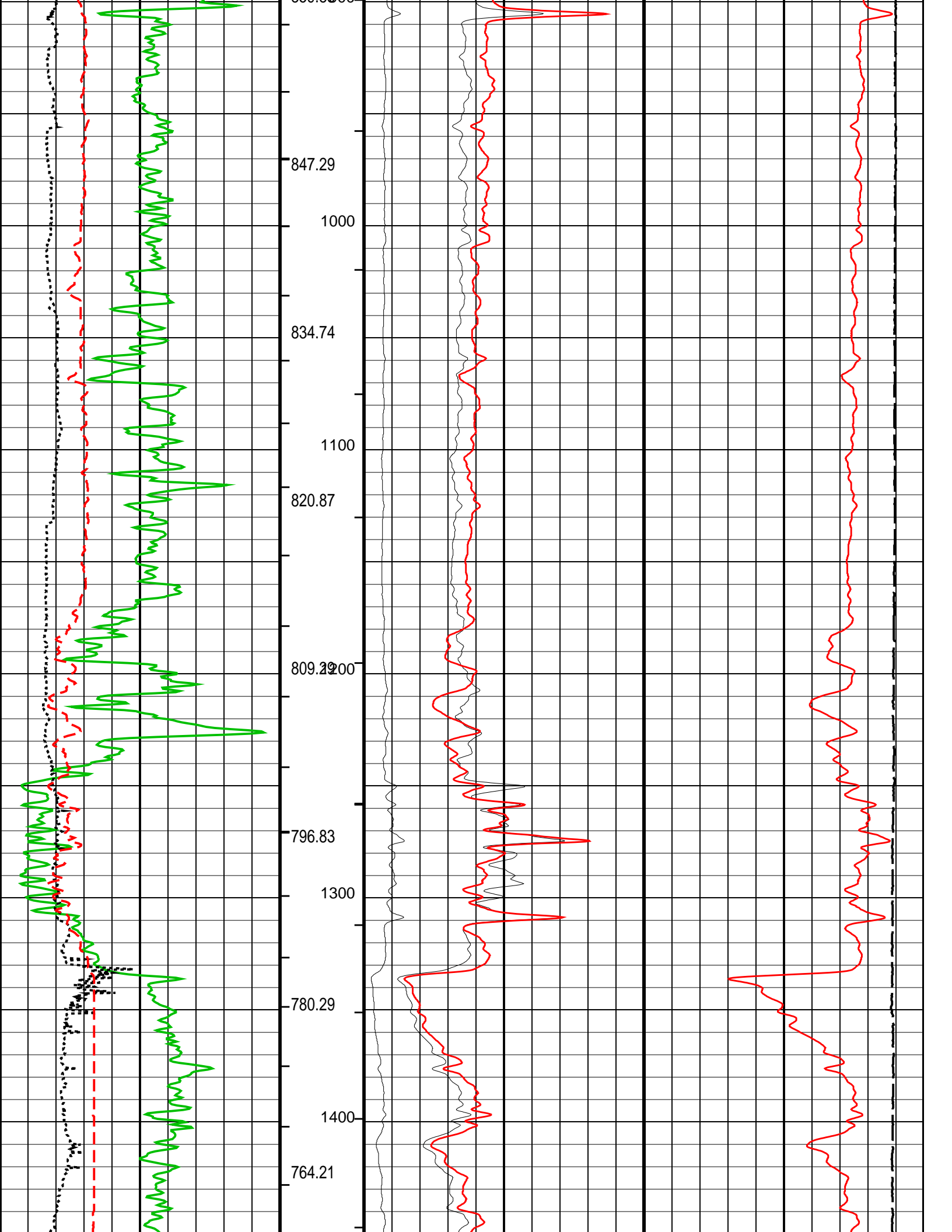
- └ Integrated Cement Volume Major Pip Every 100 F3
- └ Integrated Cement Volume Minor Pip Every 10 F3
- └ Integrated Hole Volume Major Pip Every 100 F3
- └ Integrated Hole Volume Minor Pip Every 10 F3

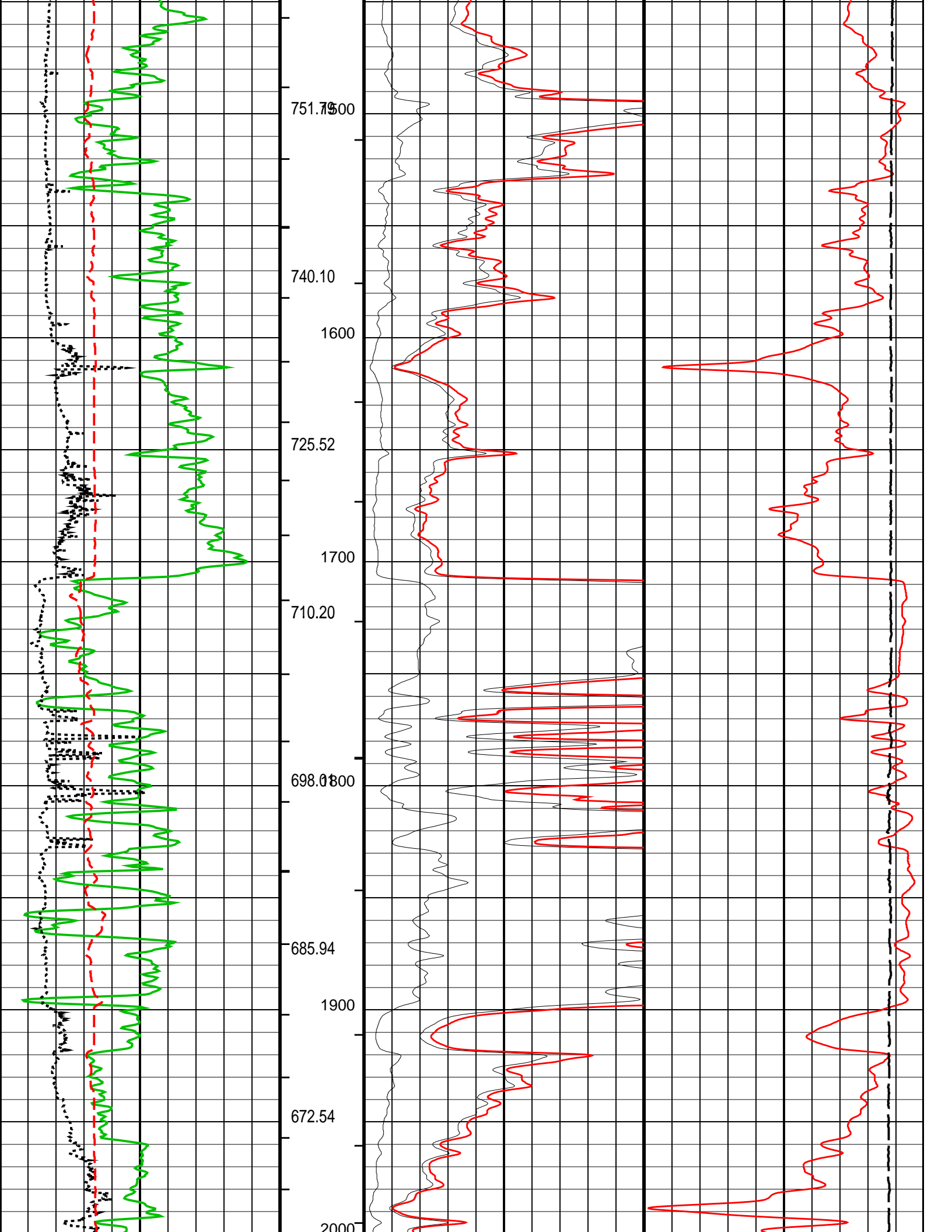


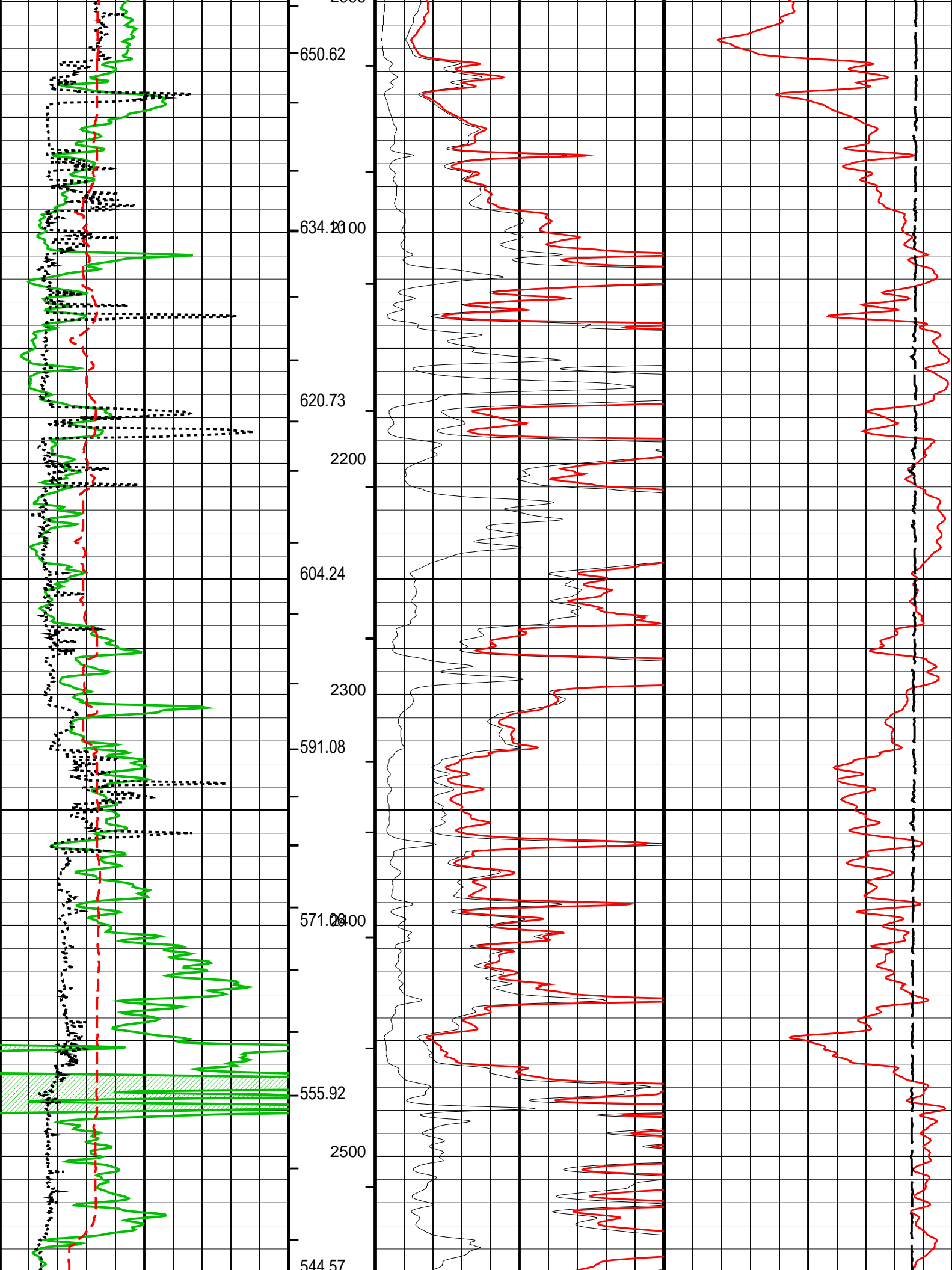
AIT 10 Inch Investigation (AF10)	
0	50
AIT 90 Inch Investigation (AF90)	

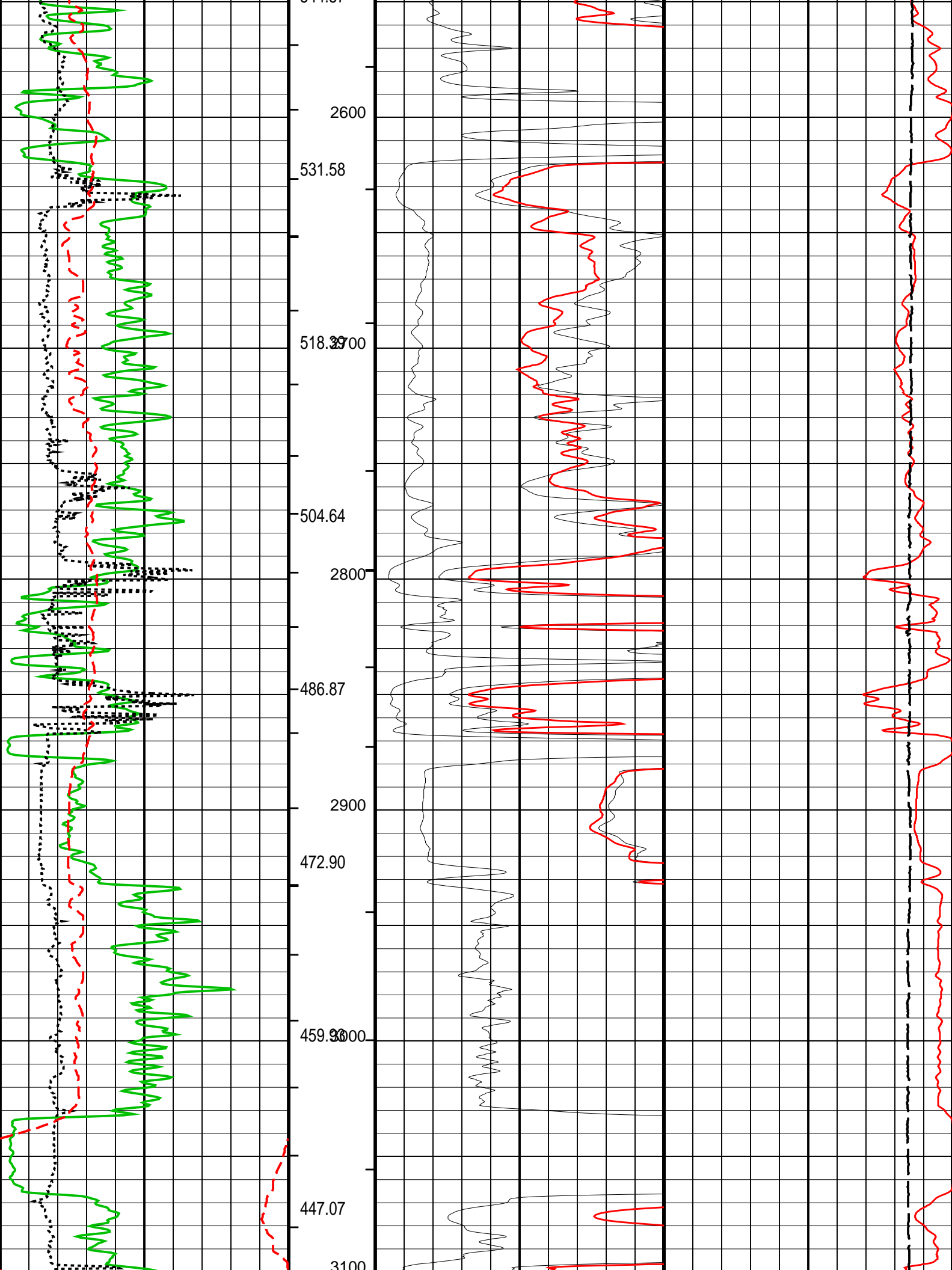
Tension (TENS)

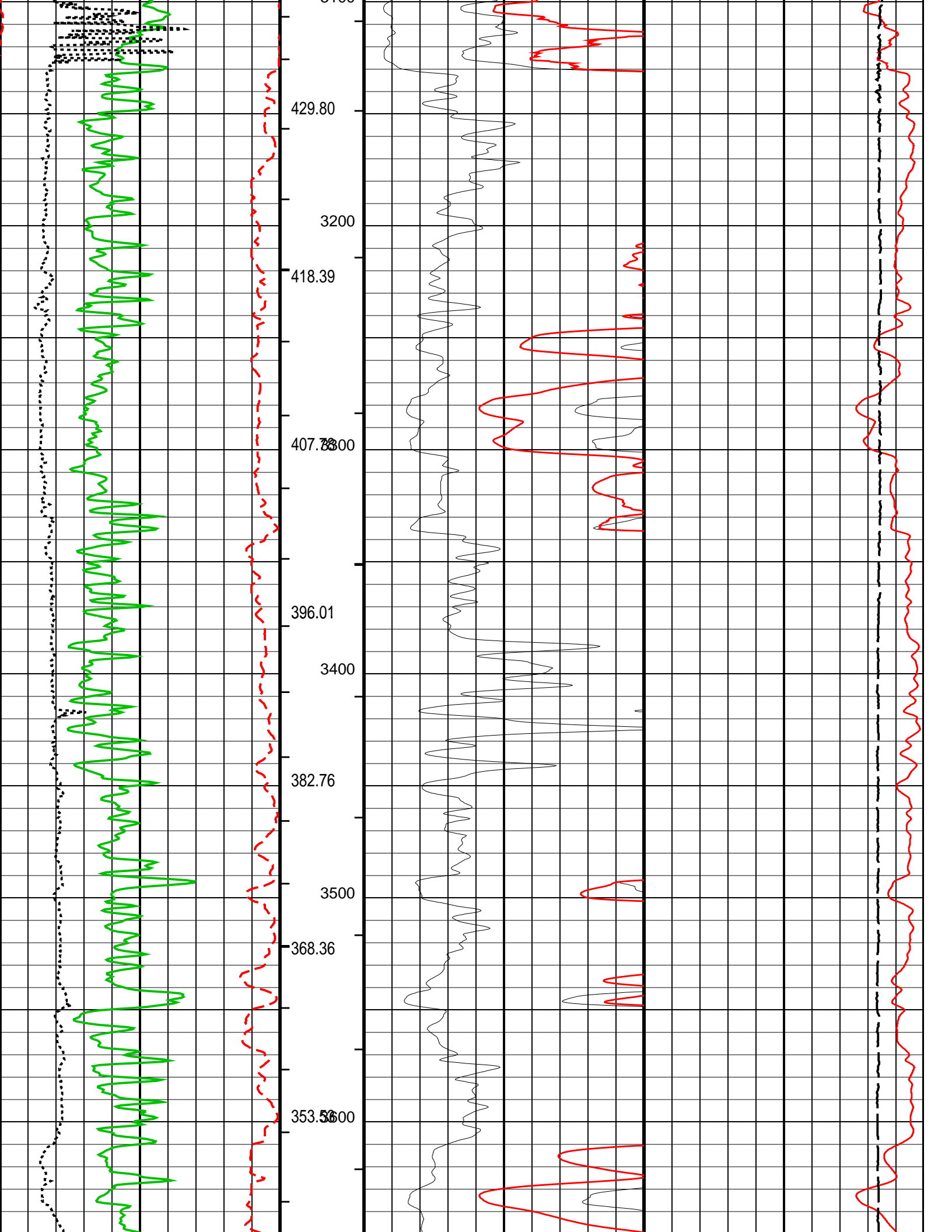




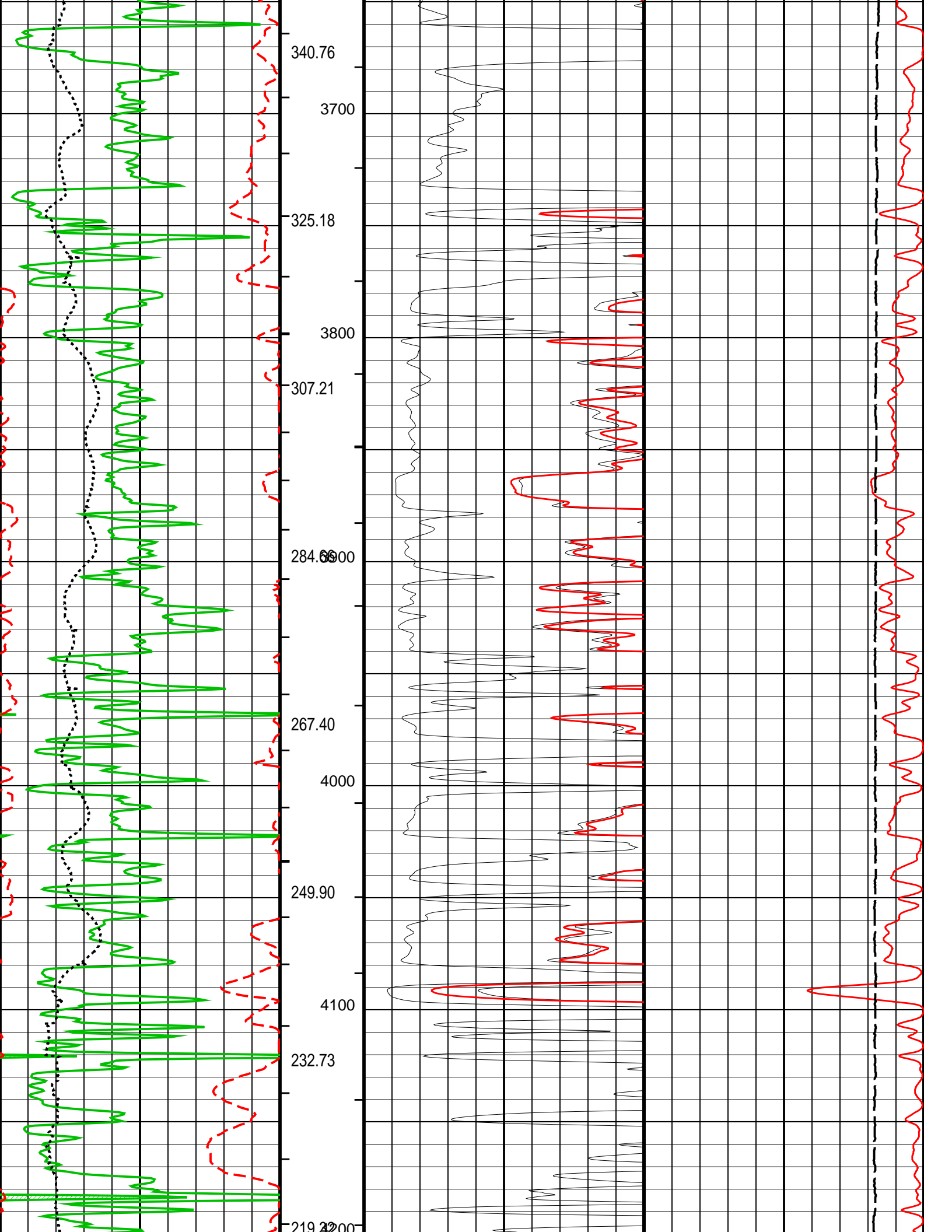


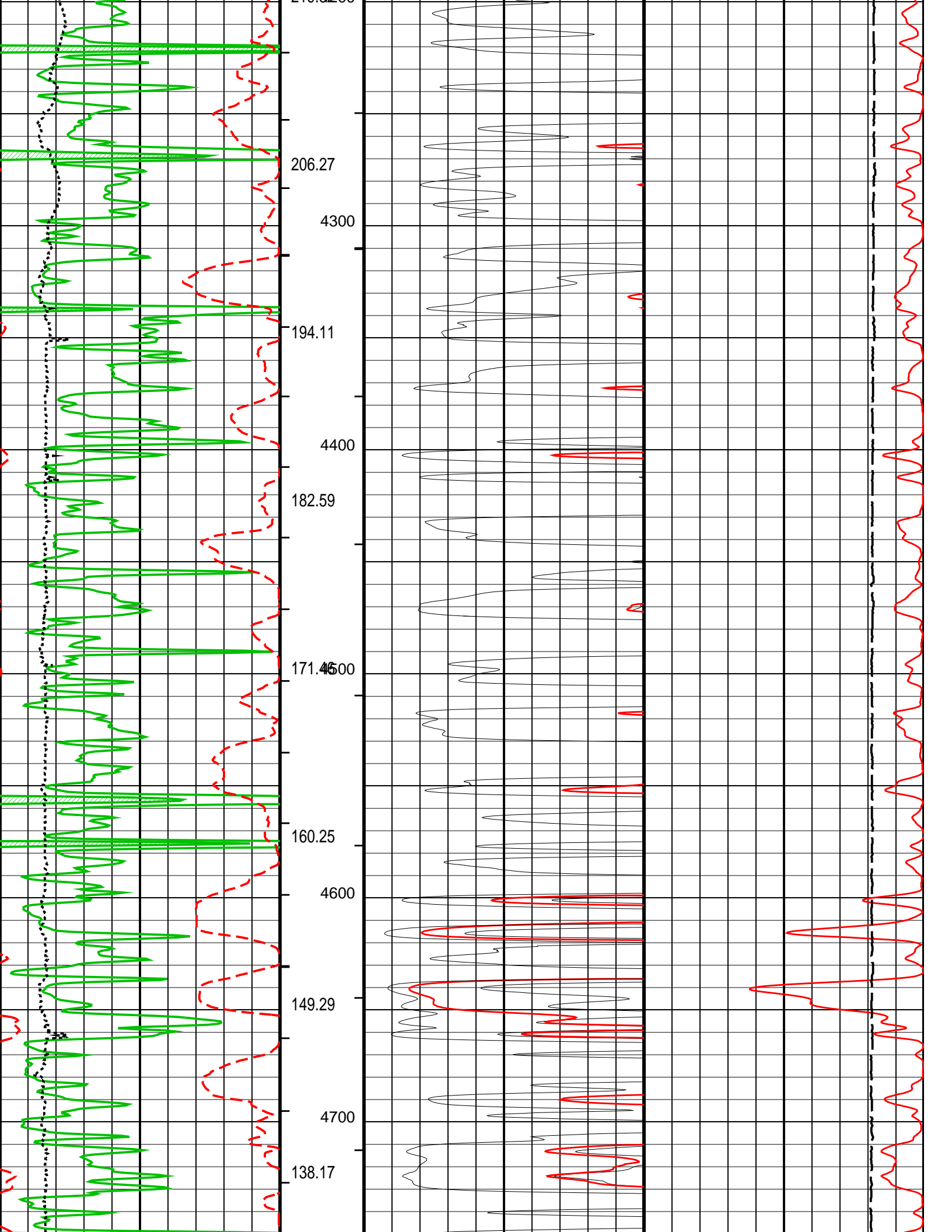


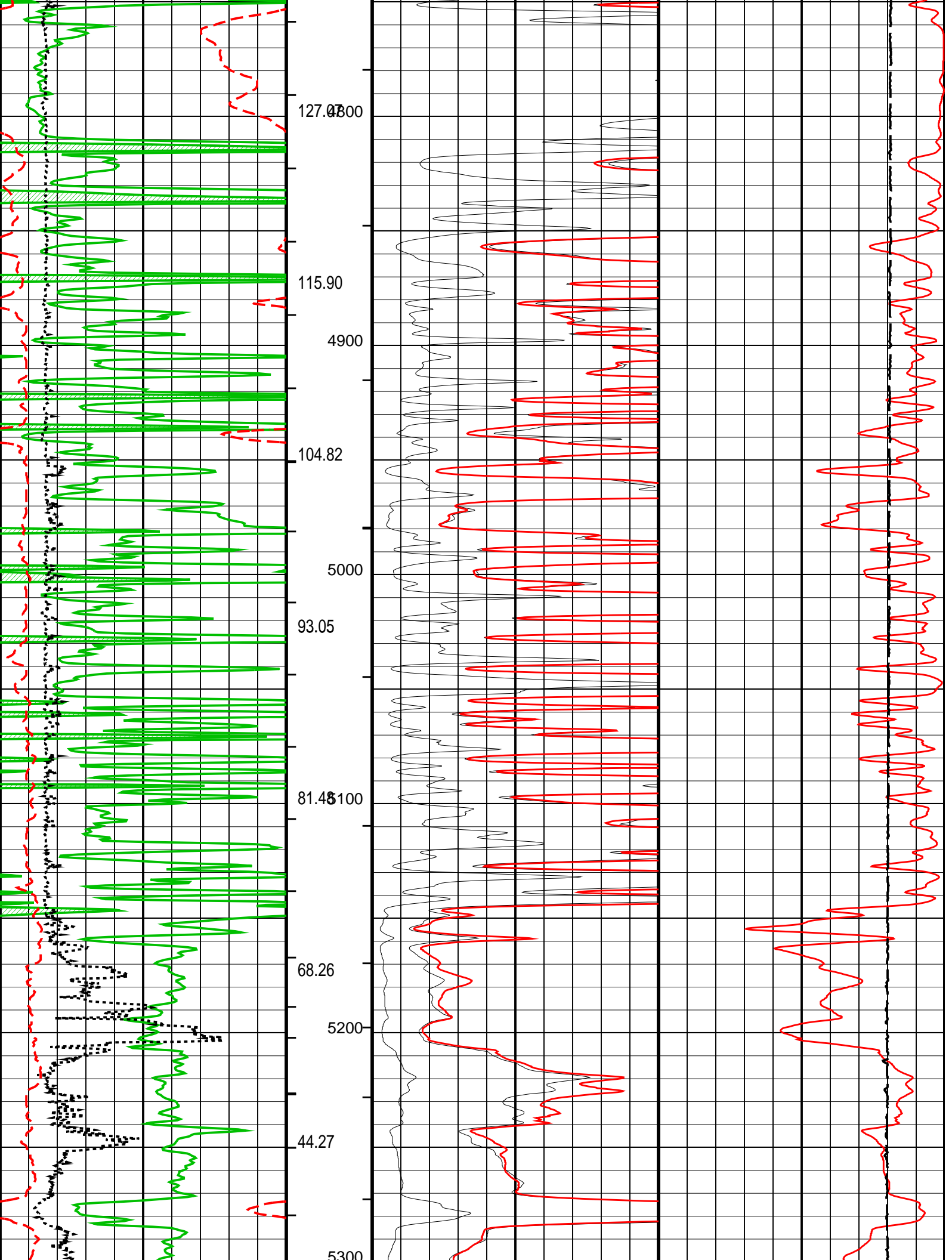


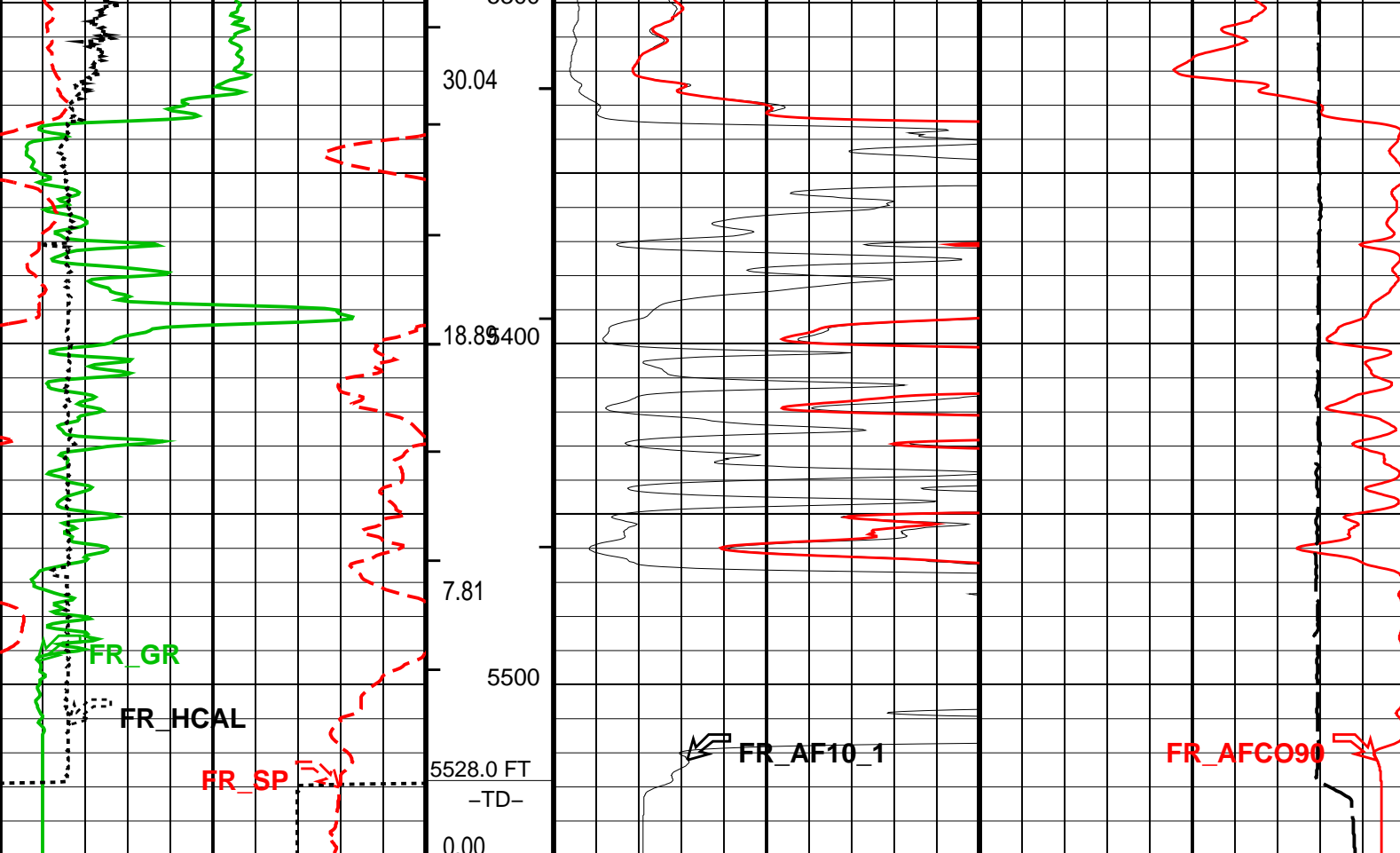












MAIN PASS: \*\*\* PLATFORM EXPRESS – ARRAY INDUCTION \*\*\*

Gamma Ray Backup	Cement Volume (ICV) (F3)	AIT 10 Inch Investigation (AF10) (OHMM)	AIT 90 Inch Investigation Conductivity (AF90) (MM/M)
0 200		0 10	1000 0
Gamma Ray (GR) (GAPI)		AIT 90 Inch Investigation (AF90) (OHMM)	Tension (TENS) (LBF)
0 200		0 10	10000 0
Caliper (HCAL) (IN)		AIT 10 Inch Investigation (AF10) (OHMM)	
6 16		0 50	
SP (SP) (MV)			
-160 40			

#### PIP SUMMARY

- Integrated Cement Volume Major Pip Every 100 F3
- Integrated Cement Volume Minor Pip Every 10 F3
- Integrated Hole Volume Major Pip Every 100 F3
- Integrated Hole Volume Minor Pip Every 10 F3

#### Parameters

DLIS Name	Description	Value
AIT-M: Array Induction Tool – M		
ABHM	Array Induction Borehole Correction Mode	2_COMPUTESTANDOFF
ABHV	Array Induction Borehole Correction Code Version Number	900
ABLM	Array Induction Basic Logs Mode	6_ONE_TWO_AND_FOUR
ABLV	Array Induction Basic Logs Code Version Number	223
ACDE	Array Induction Casing Detection Enable	NO
ACEN	Array Induction Tool Centering Flag (in Borehole)	ECCENTERED
AETP	Array Induction Enable Sonde Error Temp&Pres Corr	YES
AFRSV	Array Induction Response Set Version for Four ft Resolution	41.70.24.20
AIGS	Array Induction Select Akima Interpolation Gating	ON
AMRF	Array Induction Mud Resistivity Factor	1.000
AORSV	Array Induction Response Set Version for One ft Resolution	41.70.24.20
ARFV	Array Induction Radial Profiling Code Version Number	701
ARPV	Array Induction Radial Parametrization Code Version Number	232
ASAP	Array Induction Suspend Answer Product Processing	0_NOSUSPENSION

ASTA	Array Induction Tool Standoff	0.250	in
ATRSV	Array Induction Response Set Version for Two ft Resolution	41.70.24.20	
ATSE	Array Induction Temperature Selection(Sonde Error Correction)	INTERNAL	
AULV	Array Induction User Level Control	NORMAL	
AZRSV	Array Induction Response Set Version for Z Resolution	00.10.25.00	
BHT	Bottom Hole Temperature (used in calculations)	212.0	degF
FEXP	Form Factor Exponent	2.000	
FNUM	Form Factor Numerator	1.000	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0.000	deg
GGRD	Geothermal Gradient	0.010	degF/ft
GRSE	Generalized Mud Resistivity Selection	AMF_AITM	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
SHT	Surface Hole Temperature	68.000	degF
SPDR	SP Drift	0.000	mV/ft
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HILTB-FTB: High resolution Integrated Logging Tool-DTS			
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Format: ERES\_S2      Vertical Scale: 2" per 100'      Graphics File Created: 02-Aug-2011 18:56

## OP System Version: 18C0-147

AITM	18C0-147	HILTD	18C0-147
DTCH	18C0-147		

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DEFAULT	AIT_TLD_MCFL_CNL_005PUP	FN:4	PRODUCER	02-Aug-2011 16:10	5545.5 FT	4904.0 FT

**Schlumberger**

**MAIN RESISTIVITY LOG 5" = 100'**

## Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_007LUP	FN:6	PRODUCER	02-Aug-2011 16:19	5550.0 FT	411.0 FT
DEFAULT	AIT_TLD_MCFL_CNL_005PUP	FN:4	PRODUCER	02-Aug-2011 16:10	5545.5 FT	4904.0 FT

## Integrated Hole/Cement Volume Summary

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Computed from 5527.5 ft to 435.0 ft

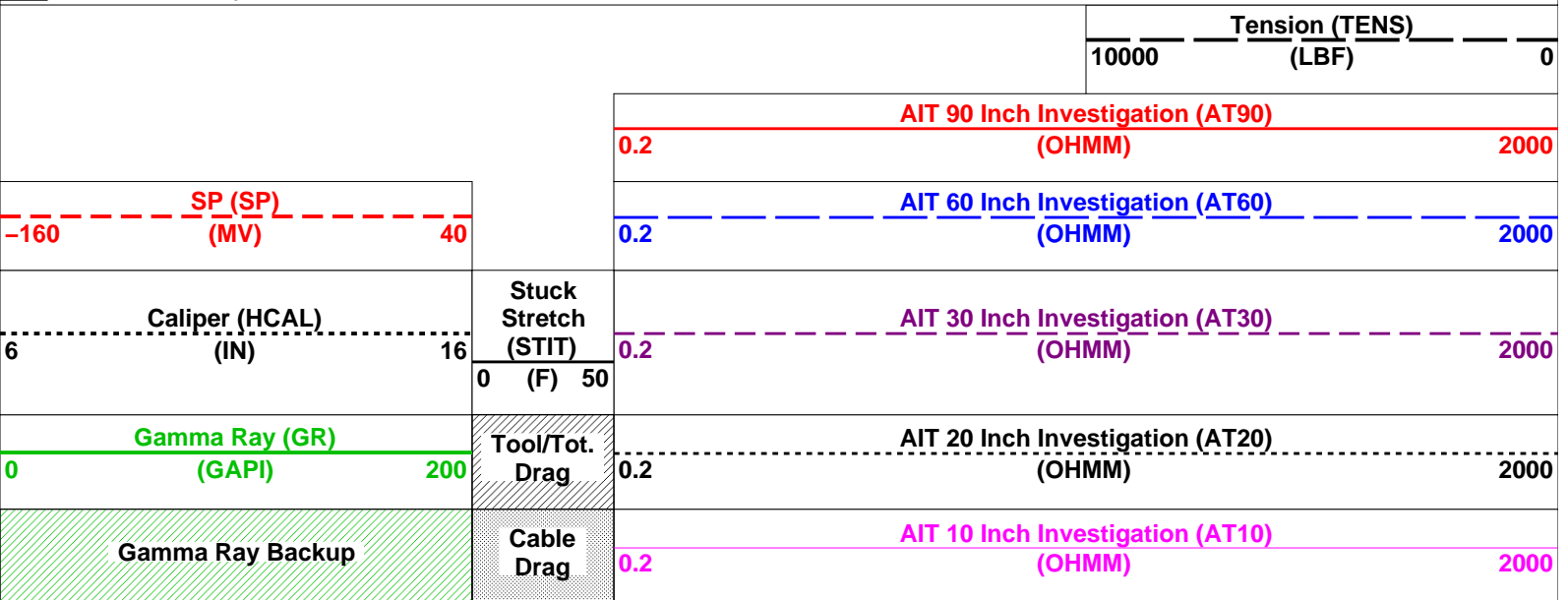
## OP System Version: 18C0-147

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DTCH	18C0-147		

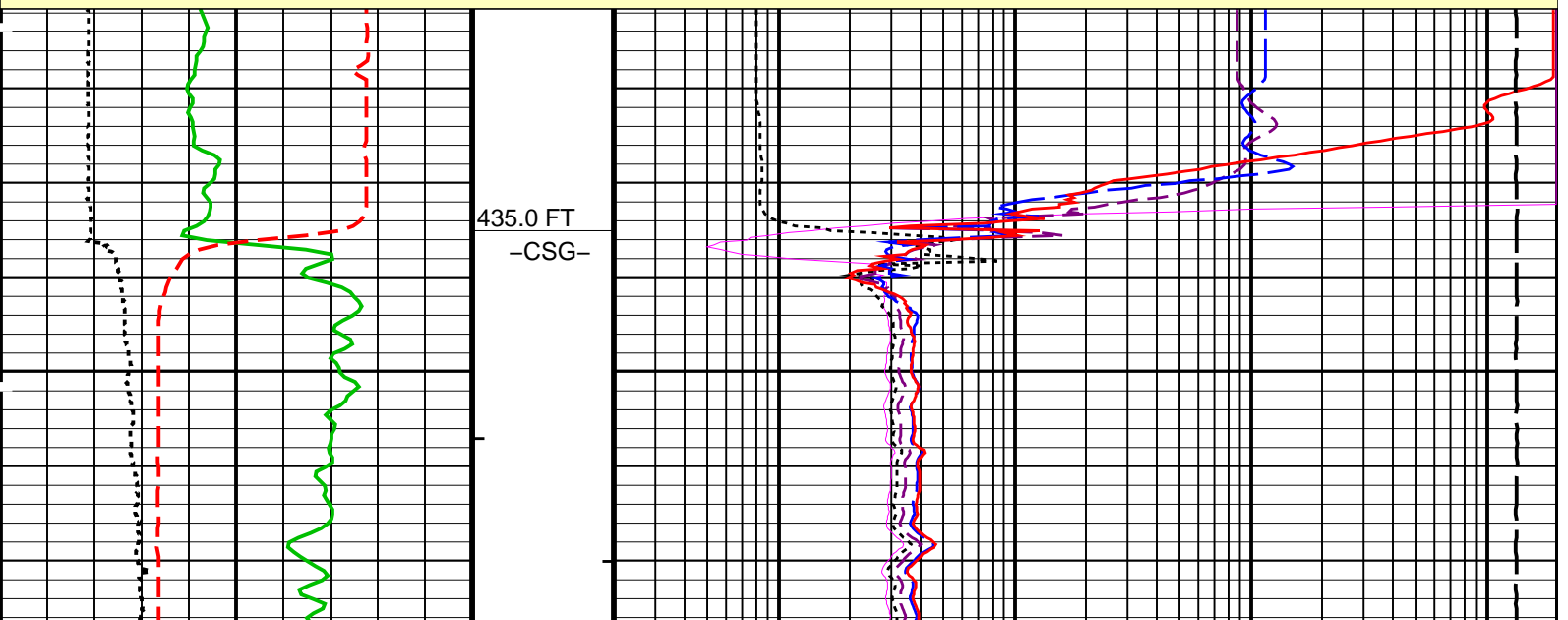
### PIP SUMMARY

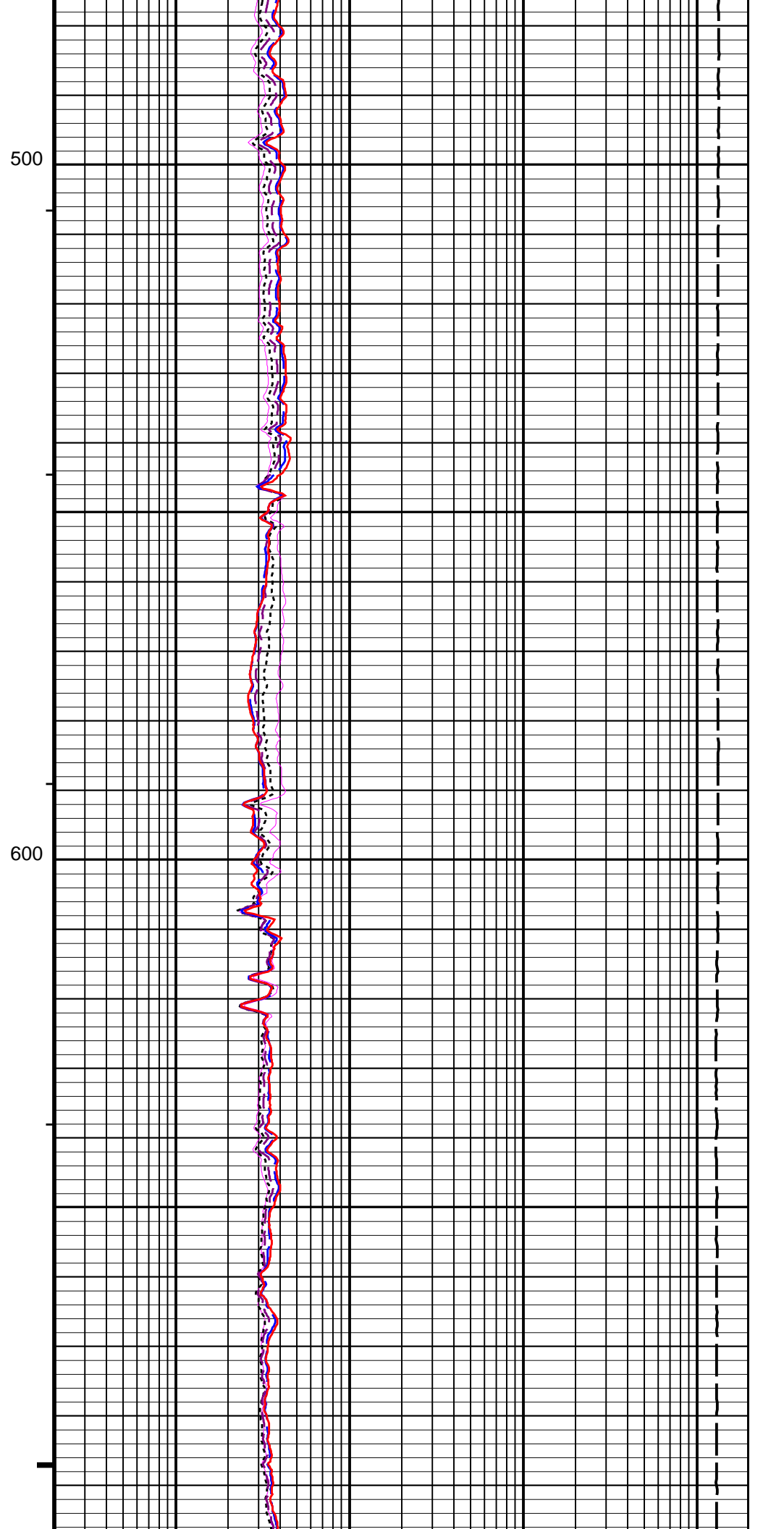
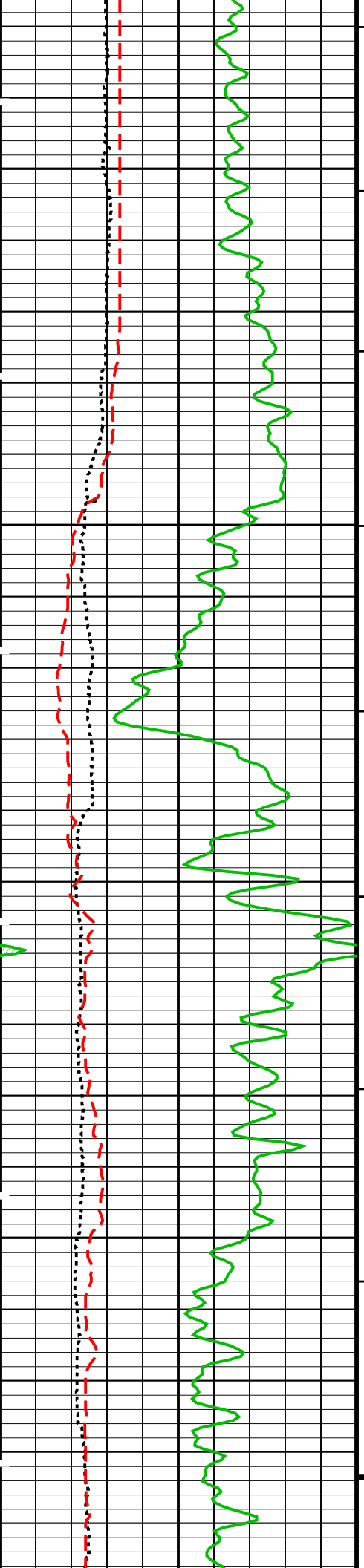
- └ Integrated Hole Volume Minor Pip Every 10 F3
- └ Integrated Hole Volume Major Pip Every 100 F3
  - └ Integrated Cement Volume Minor Pip Every 10 F3
  - └ Integrated Cement Volume Major Pip Every 100 F3

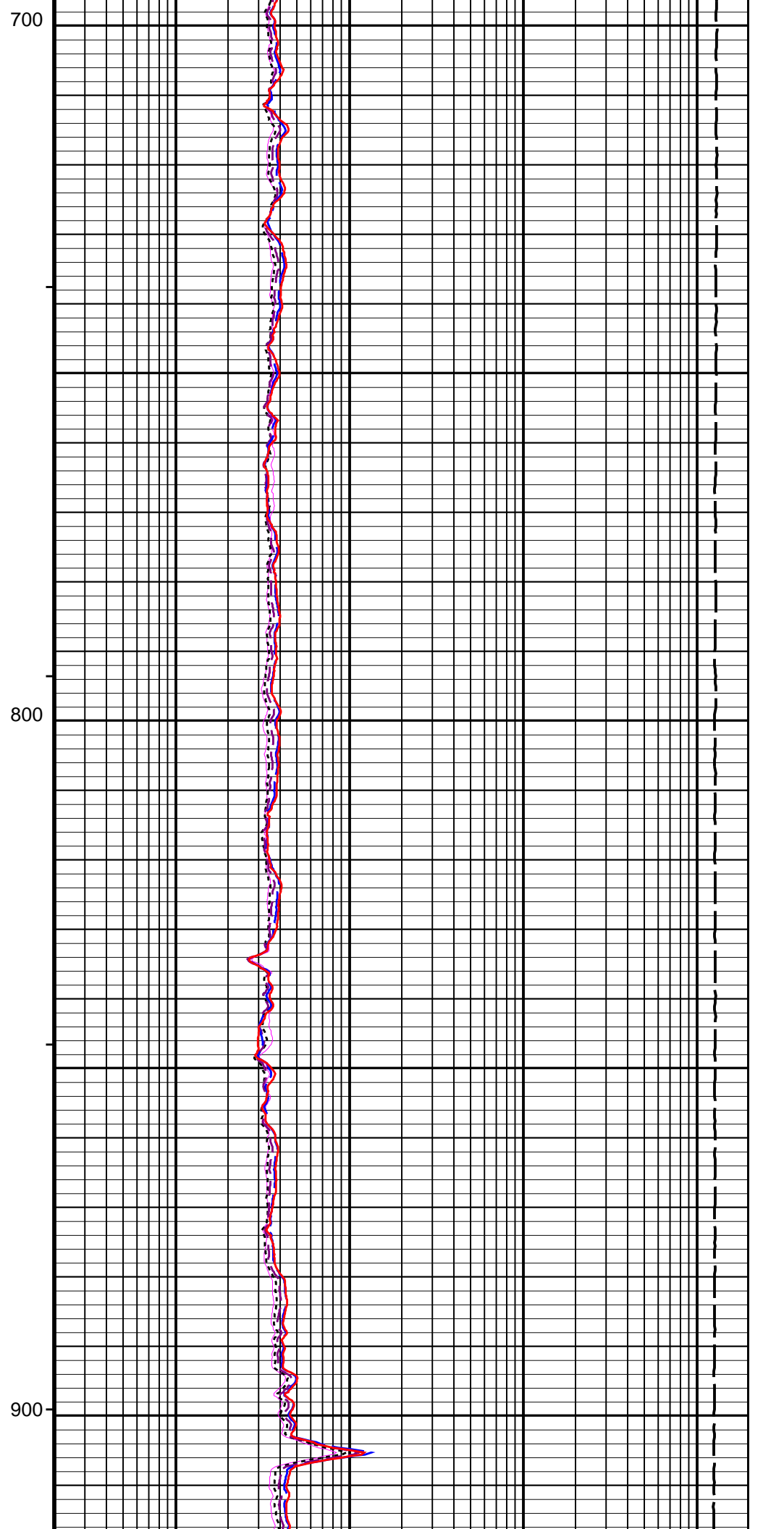
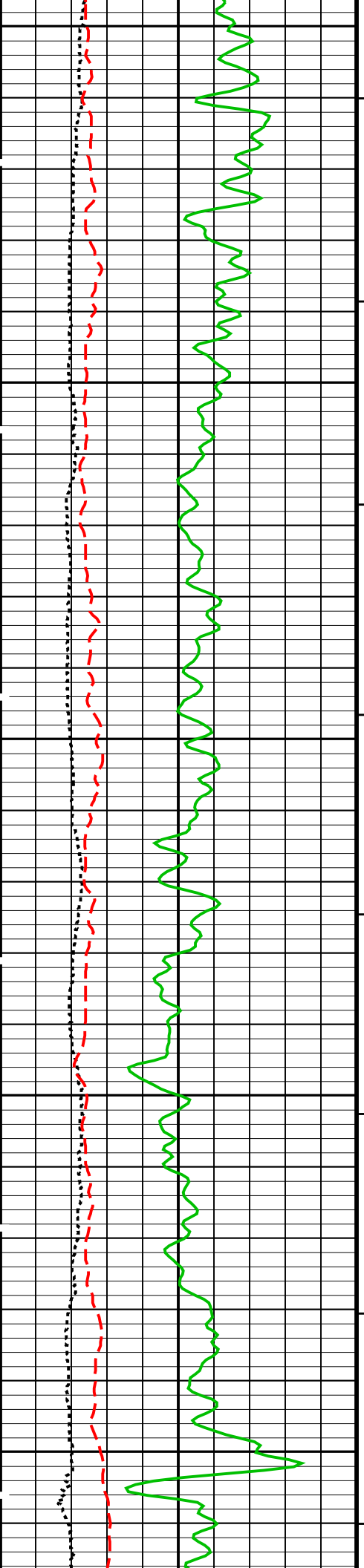
Time Mark Every 60 S



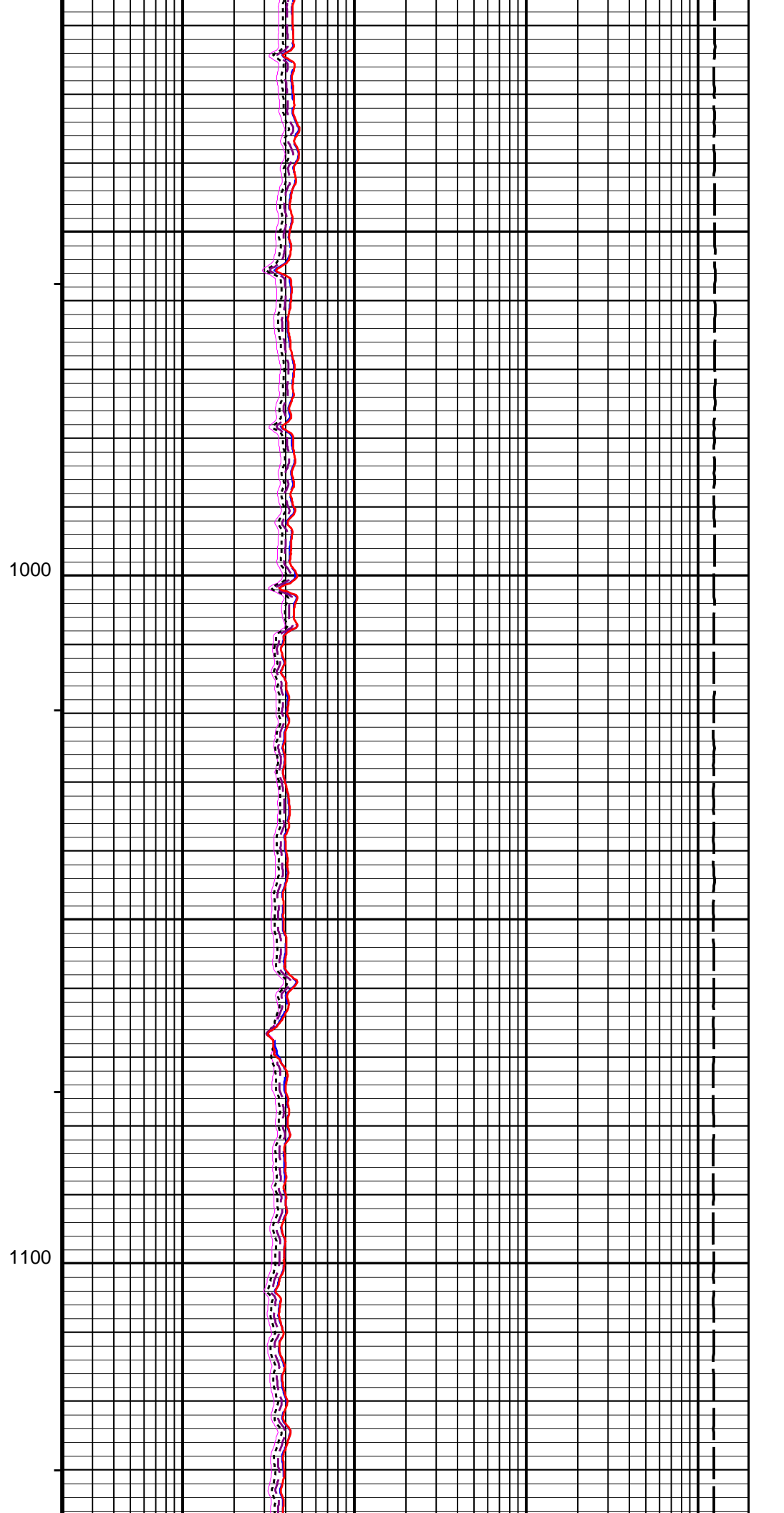
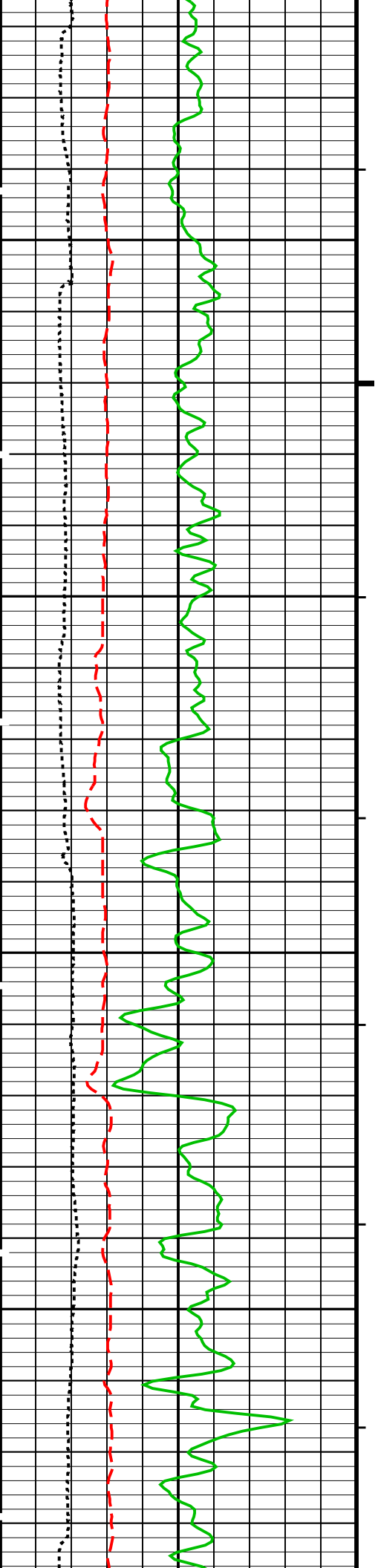
MAIN PASS: \*\*\* PLATFORM EXPRESS – ARRAY INDUCTION \*\*\*

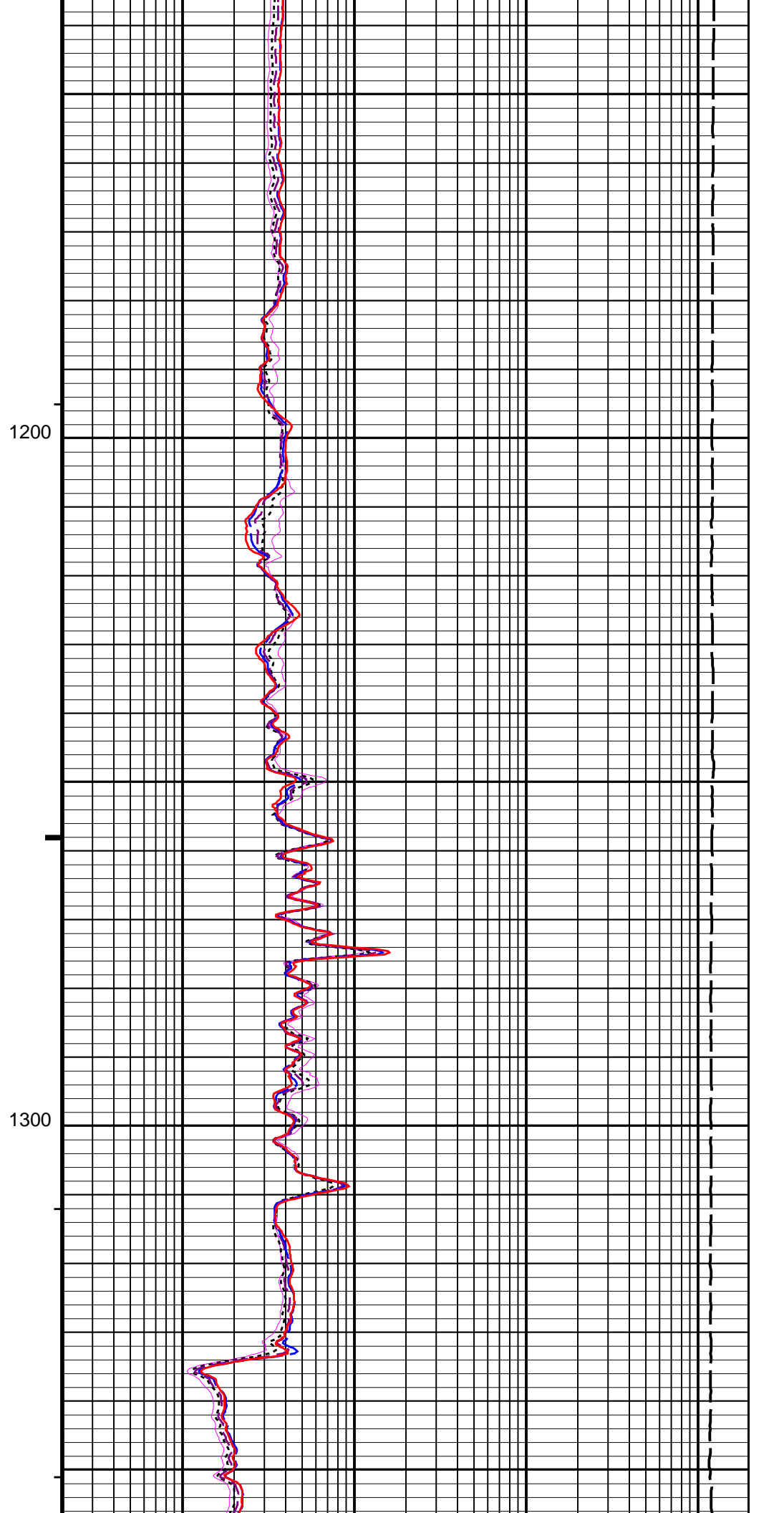
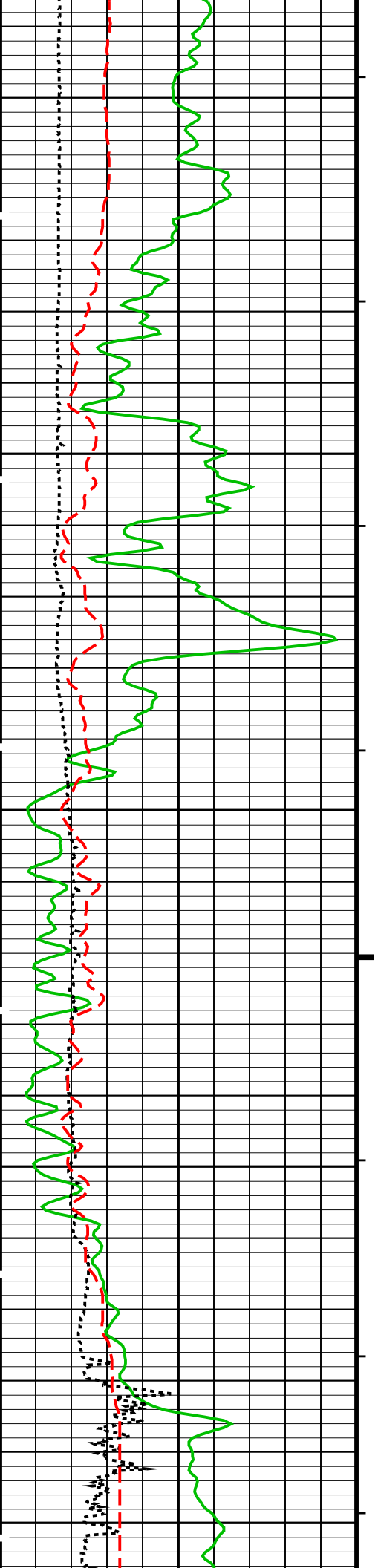


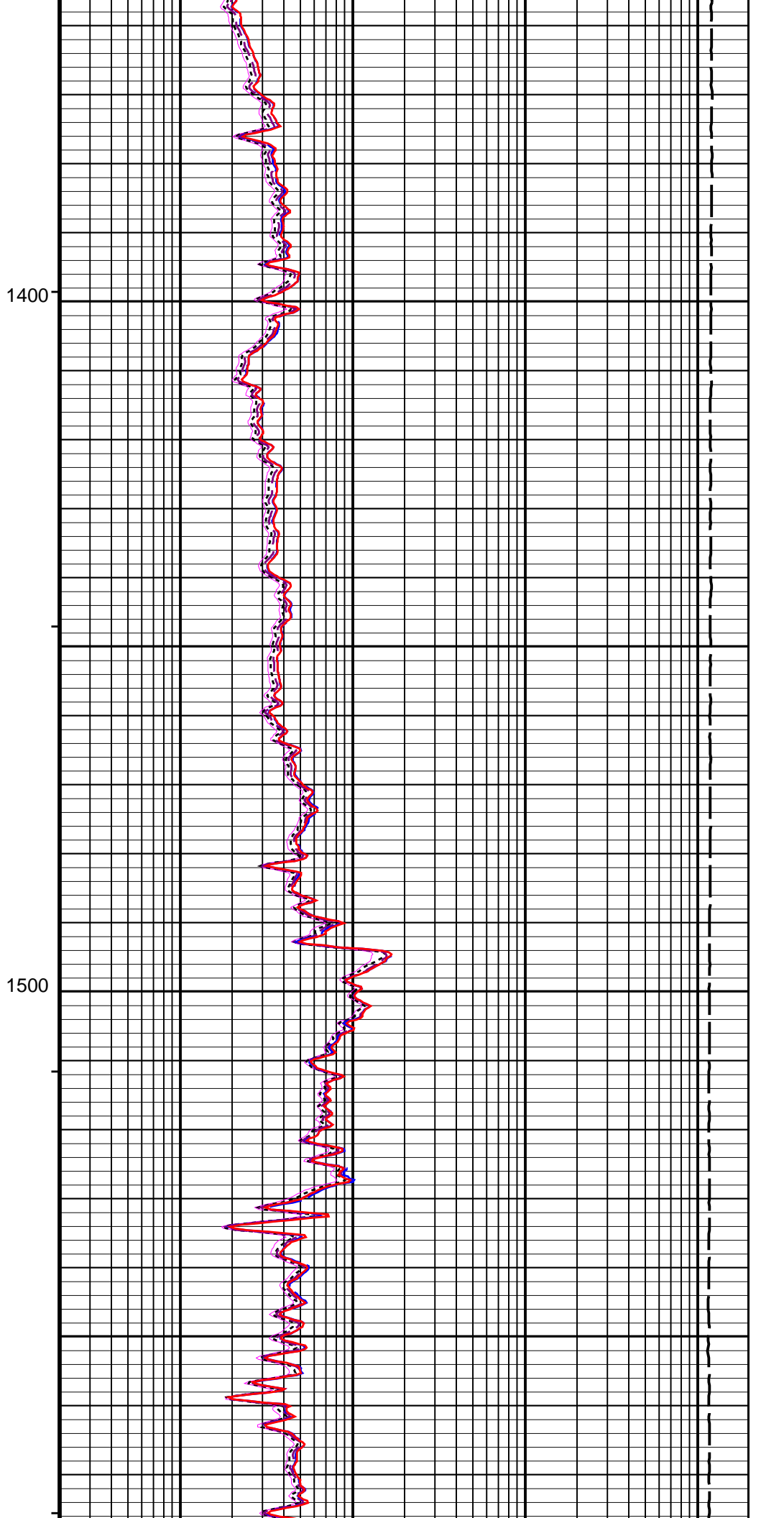
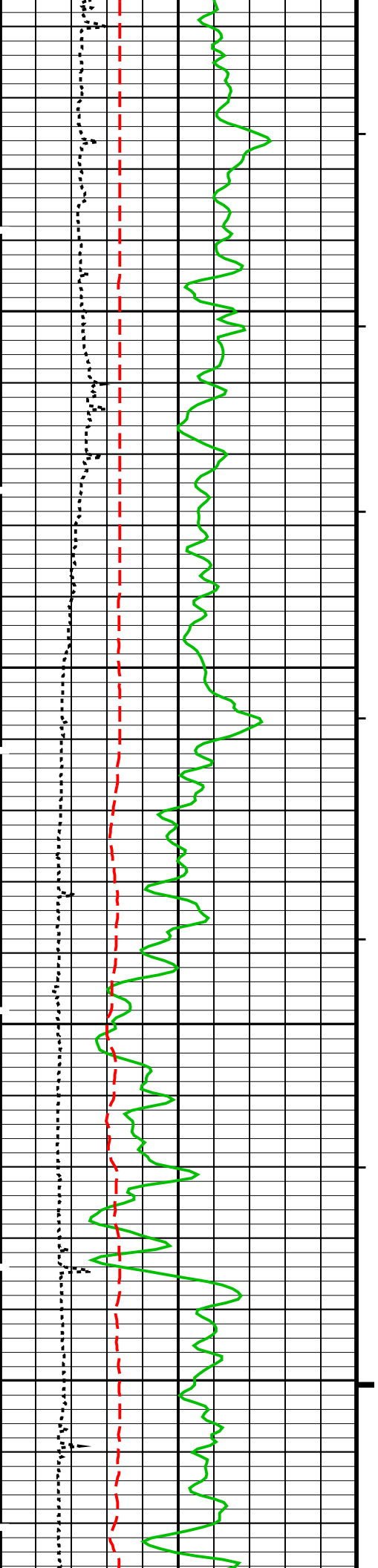


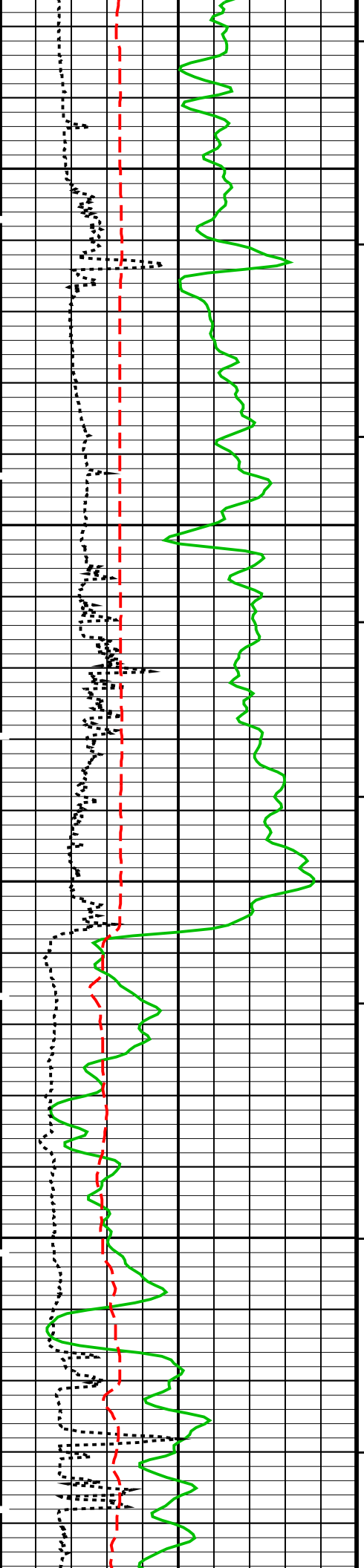






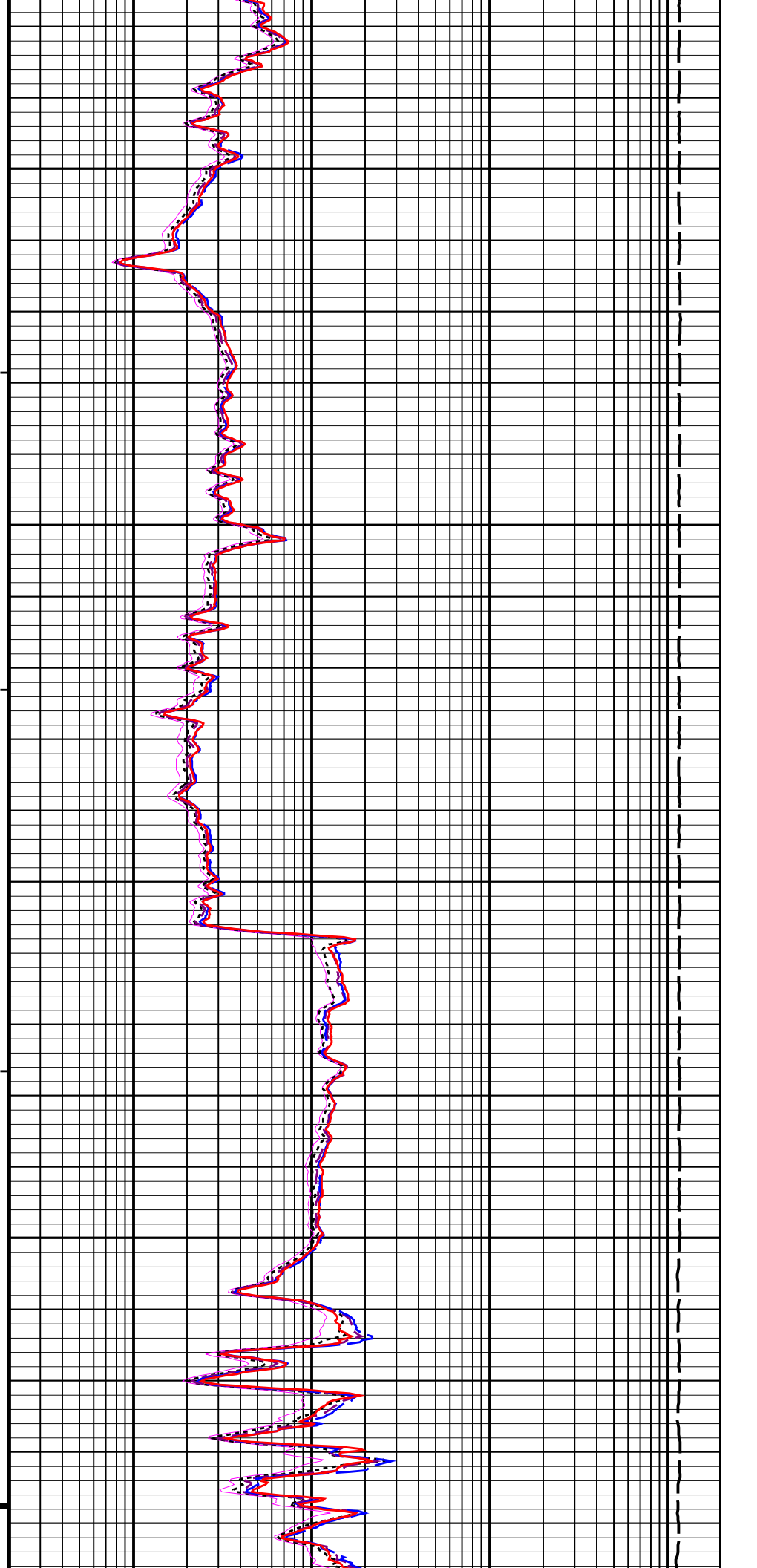


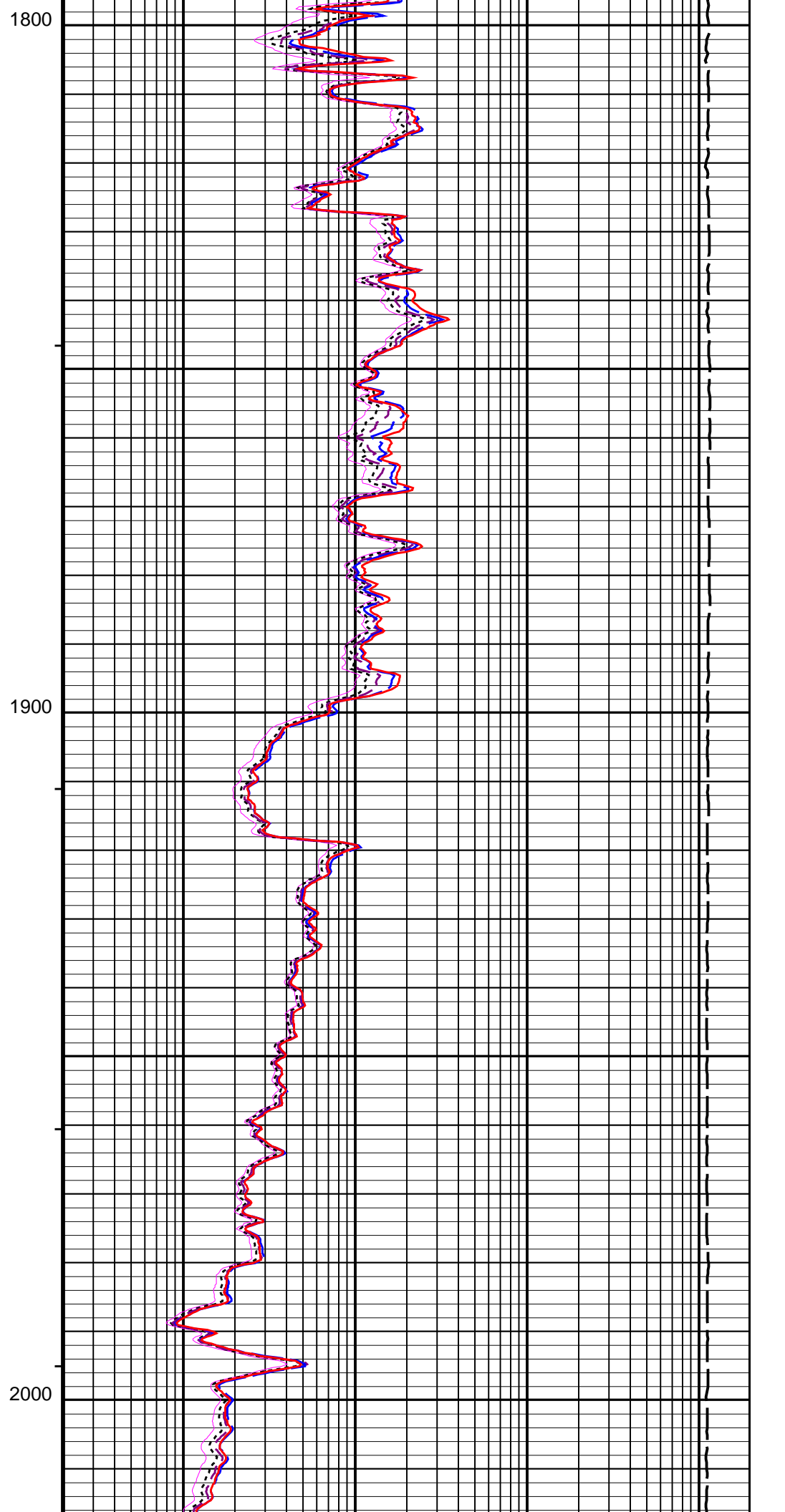
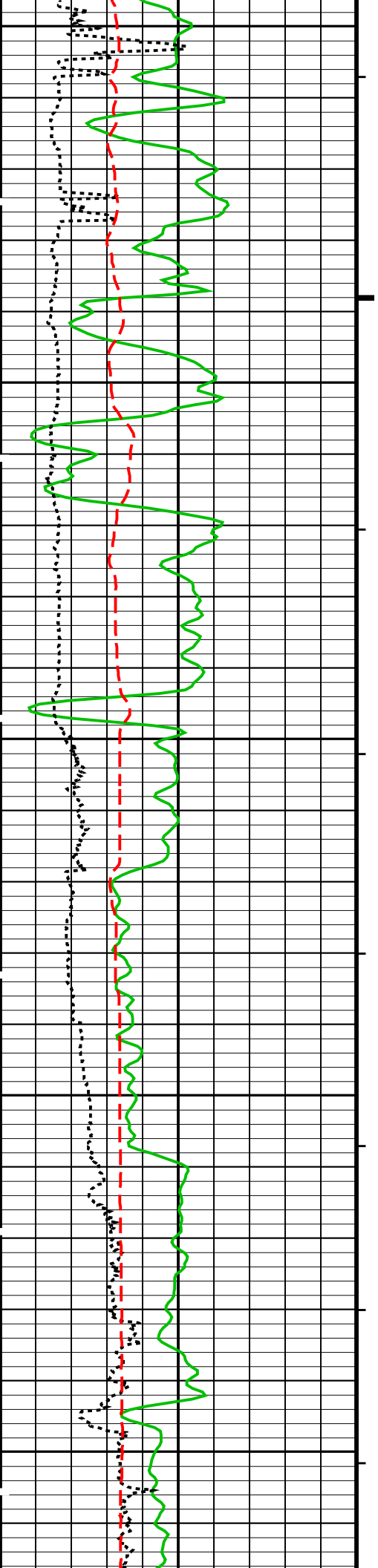


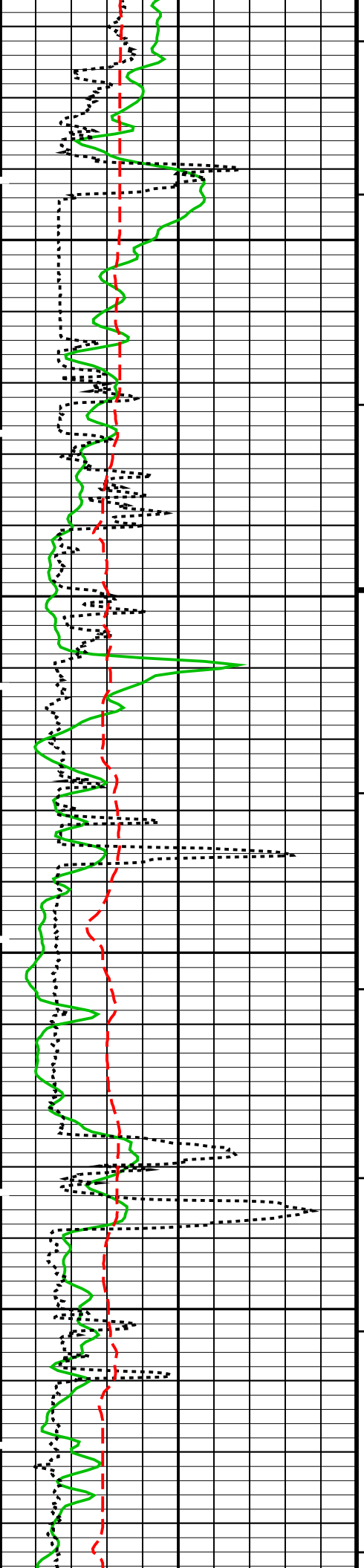


1600

1700

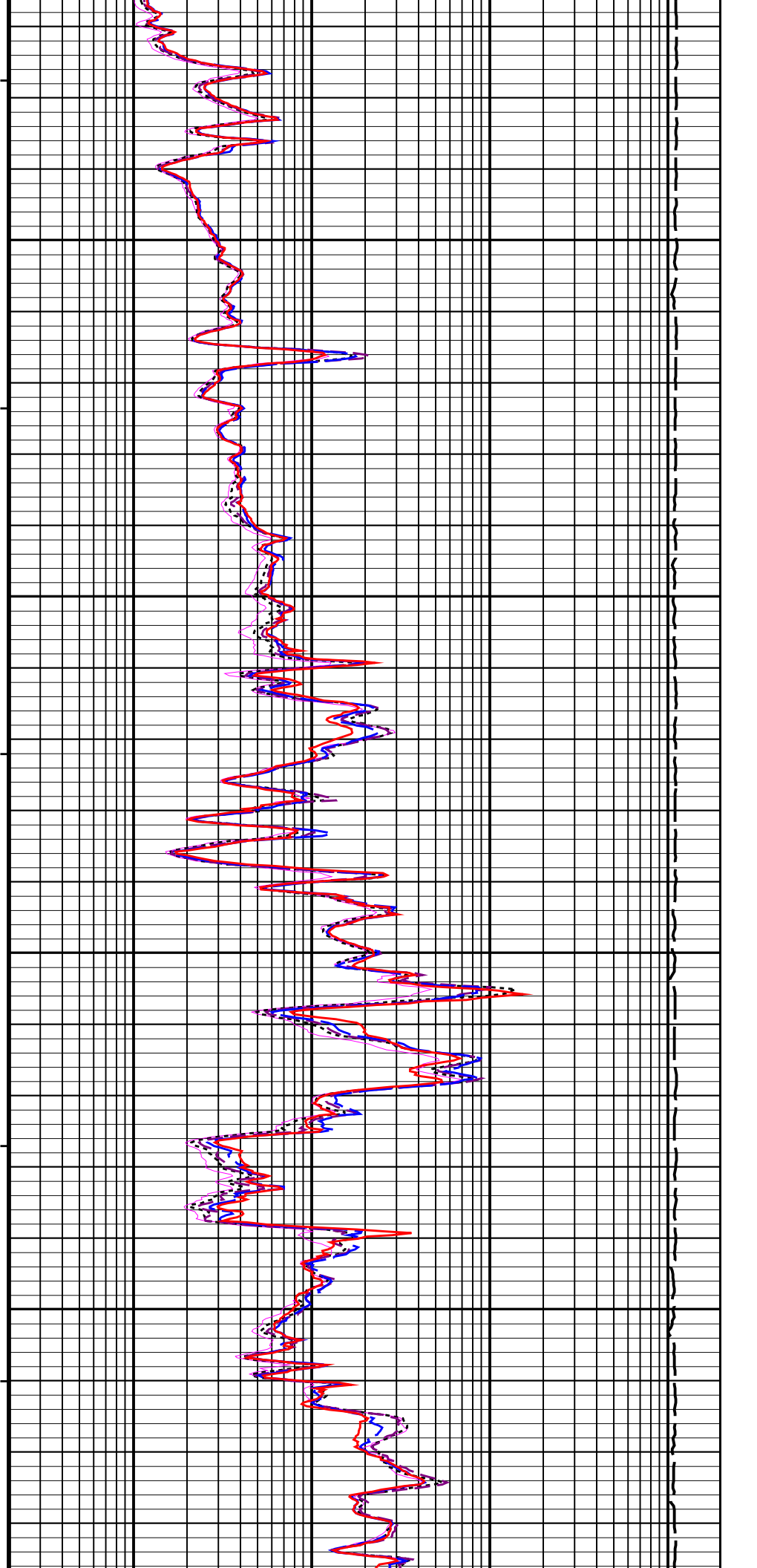


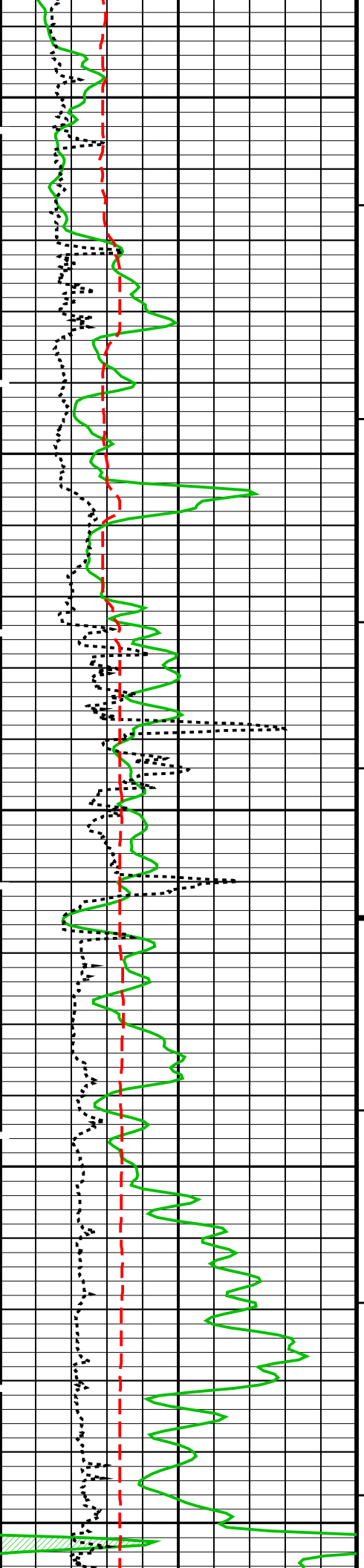




2100

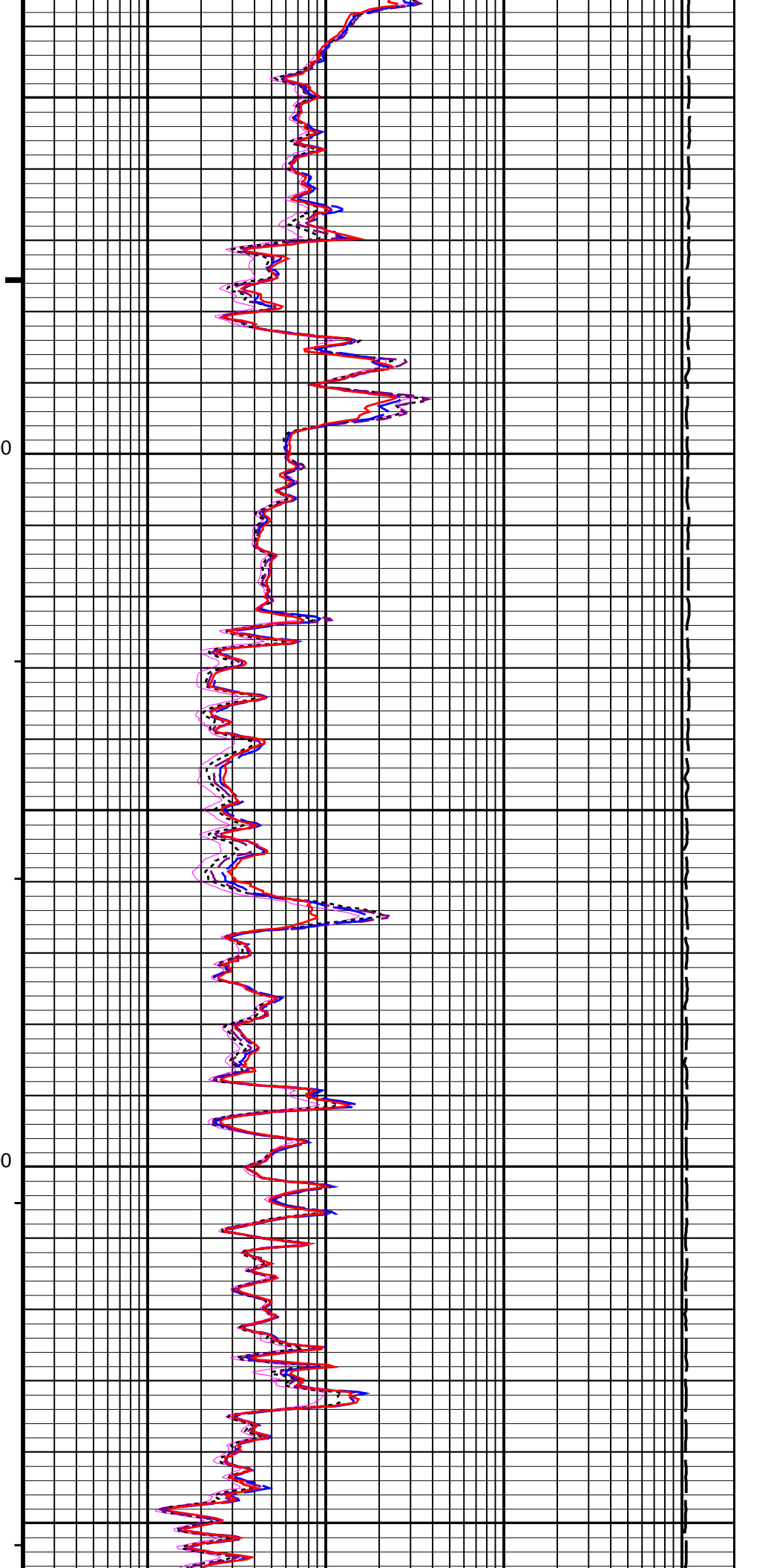
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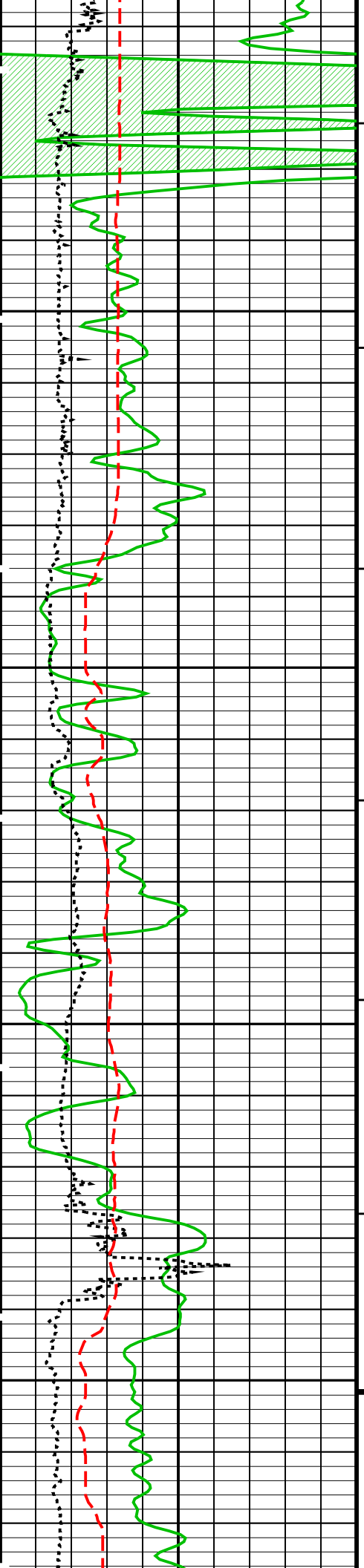




2300

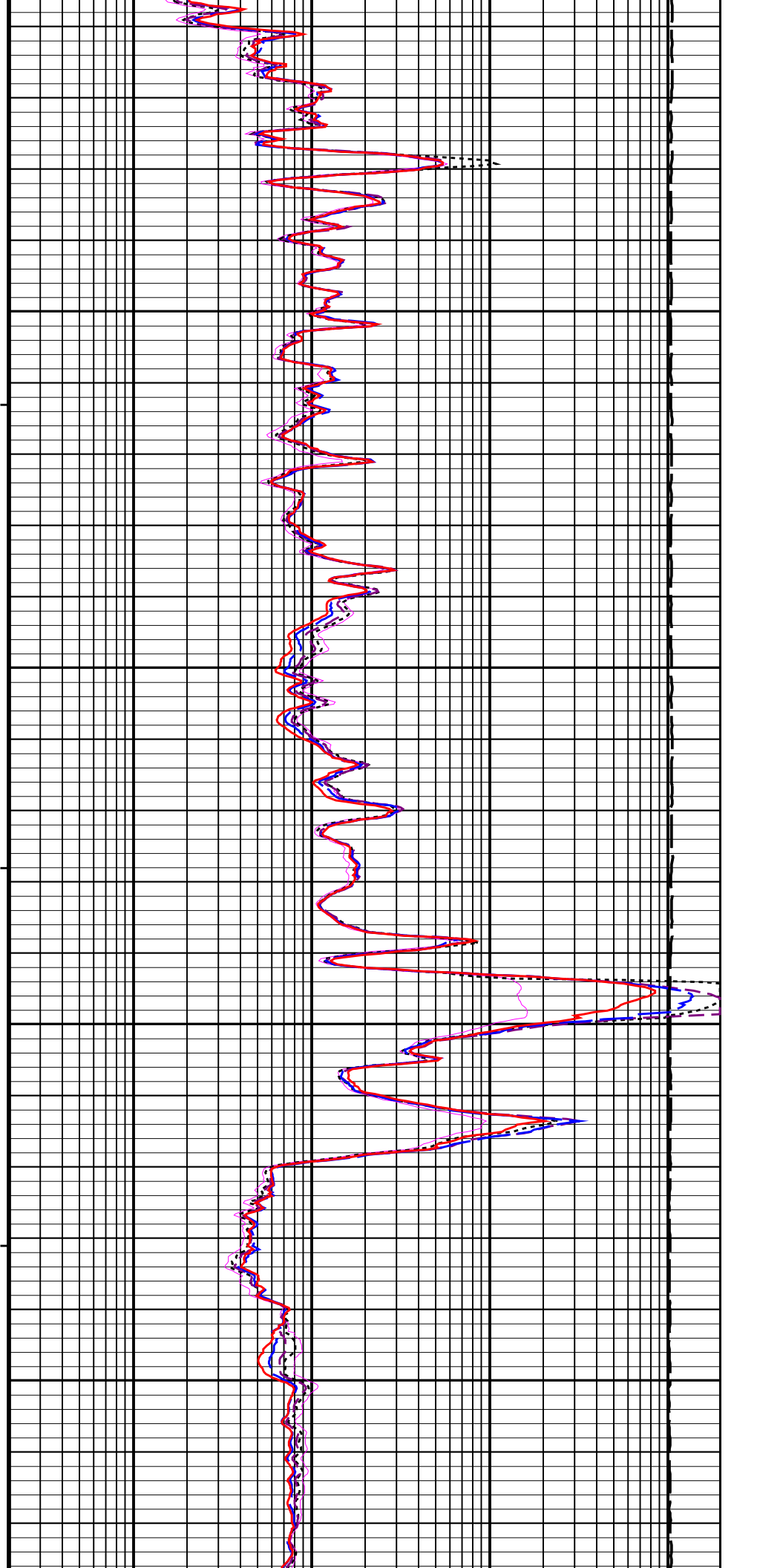
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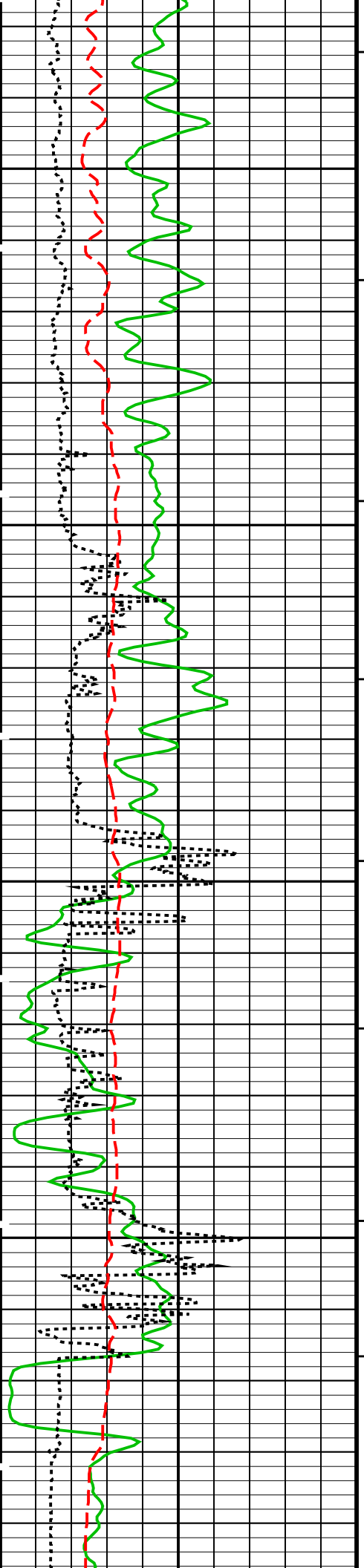


2500

2600

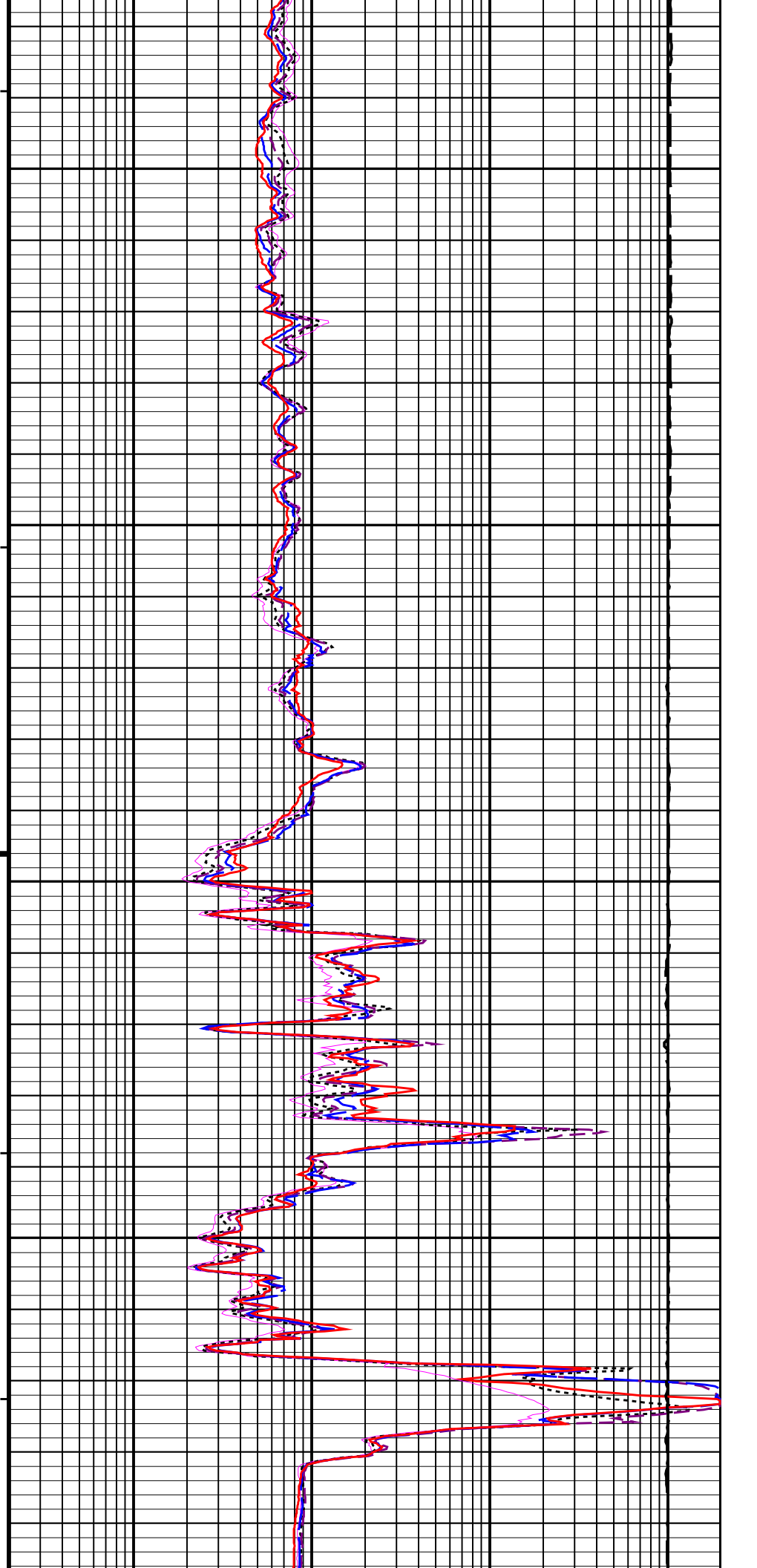


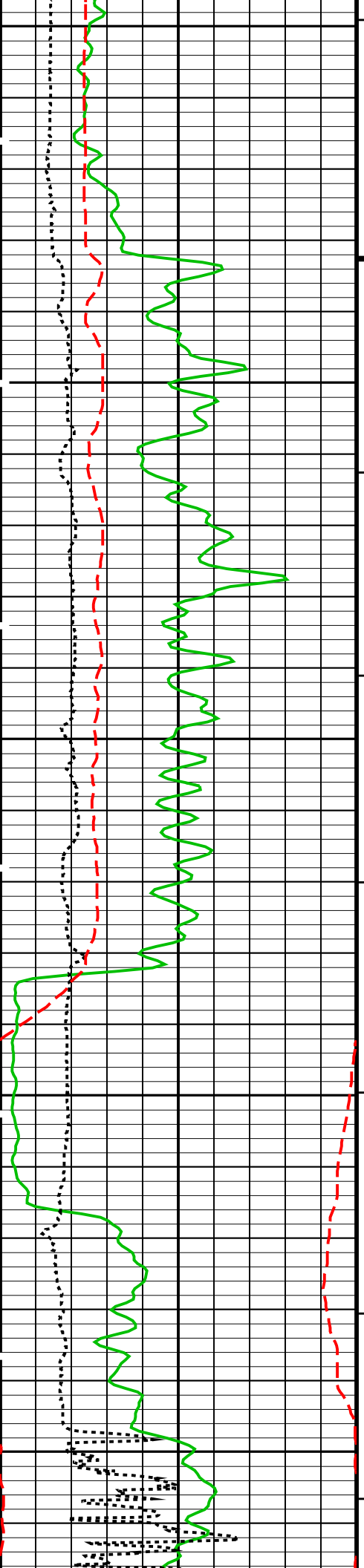




2700

2800

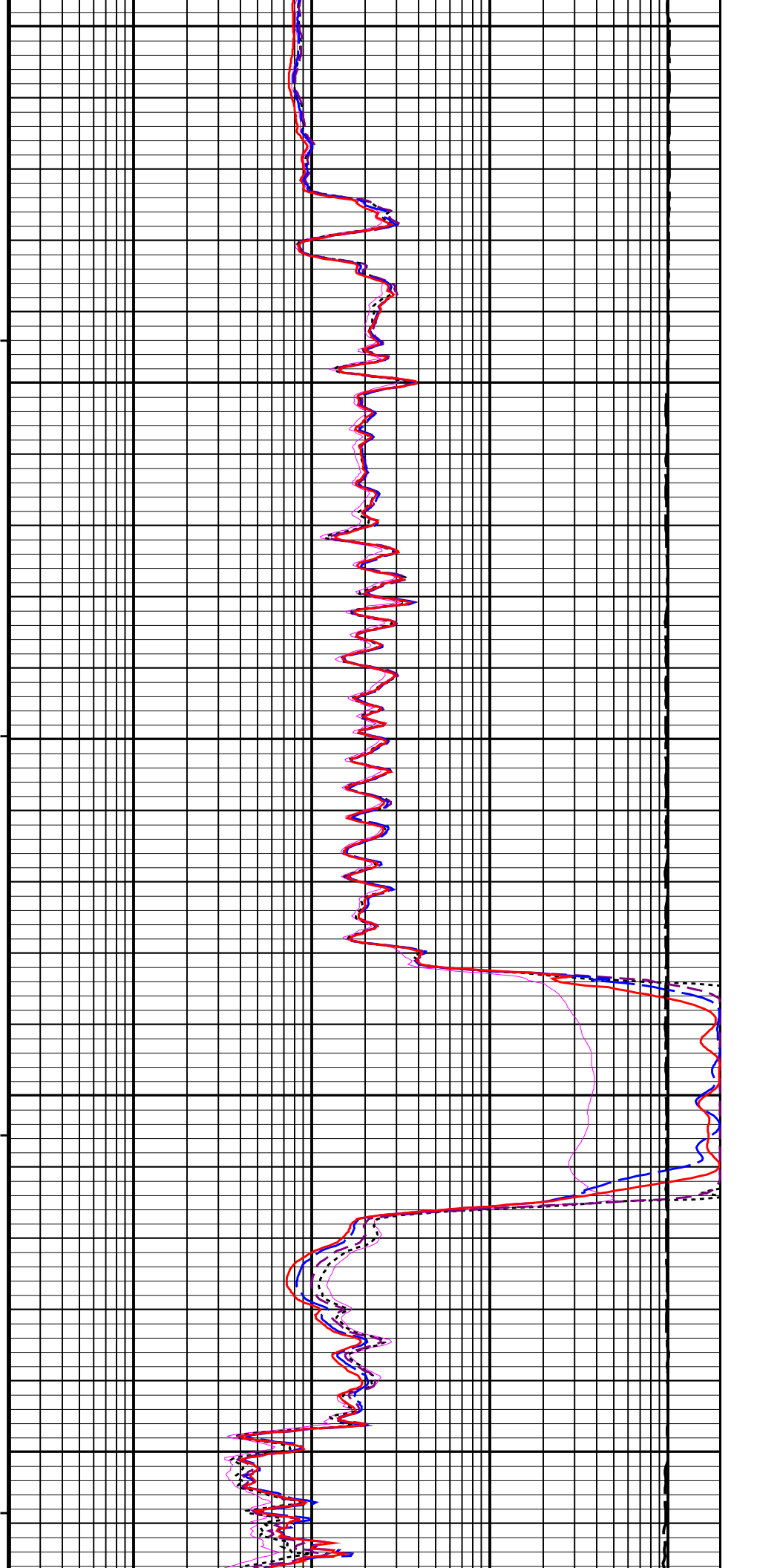


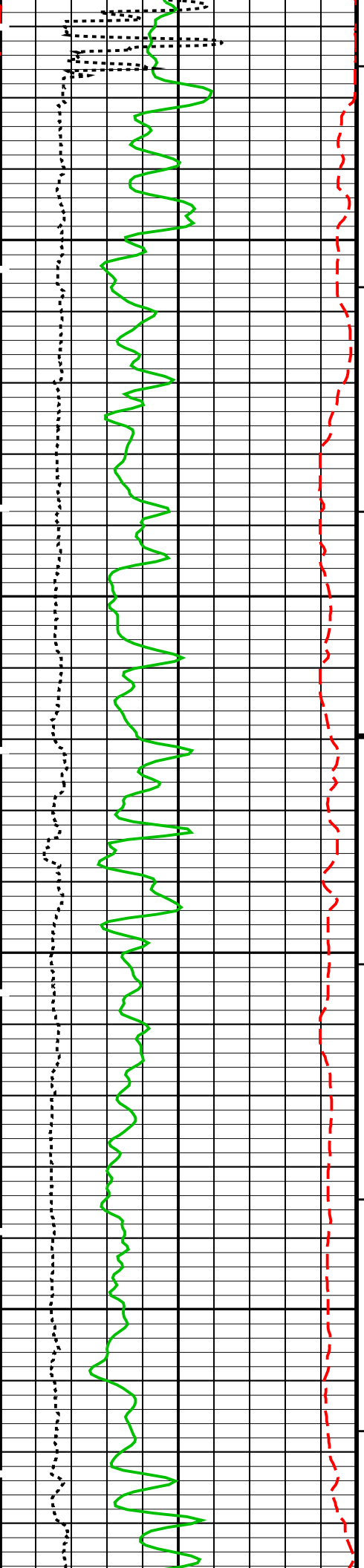


2900

3000

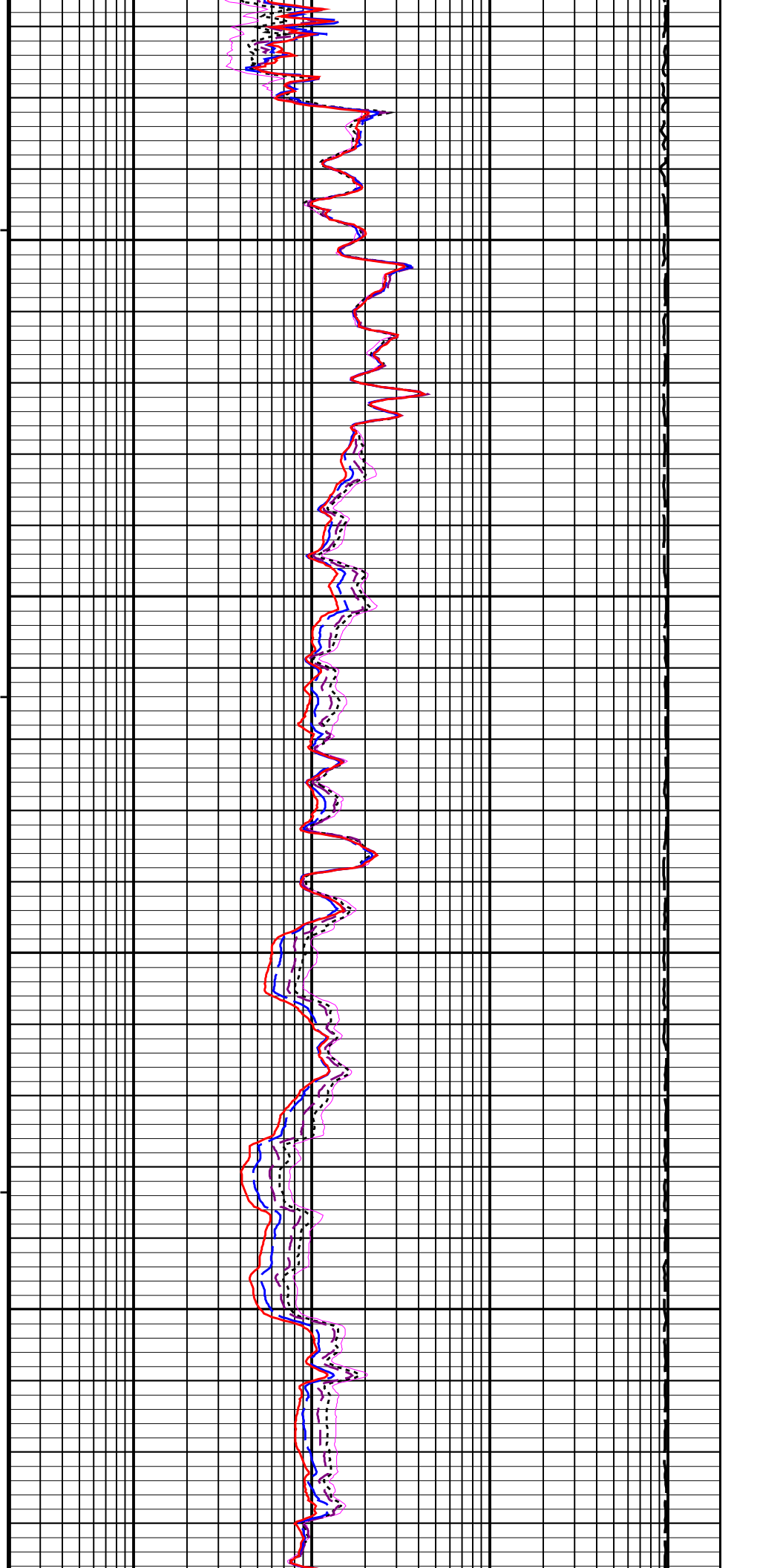
3100

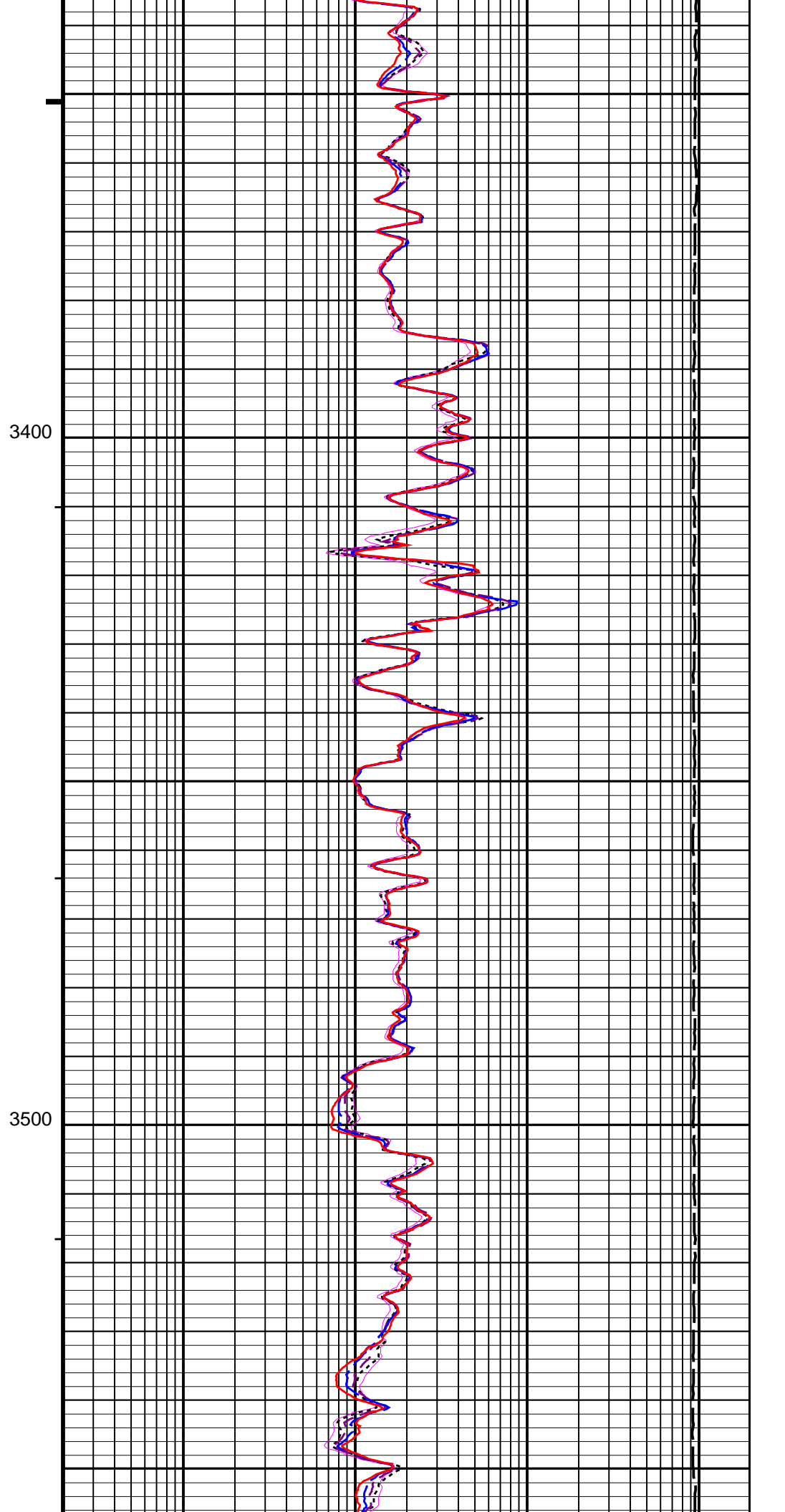
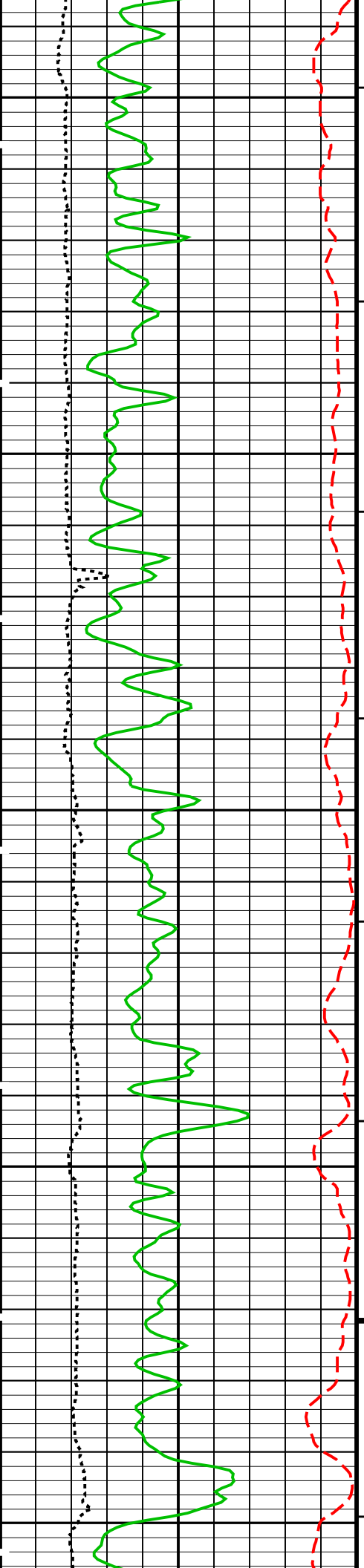


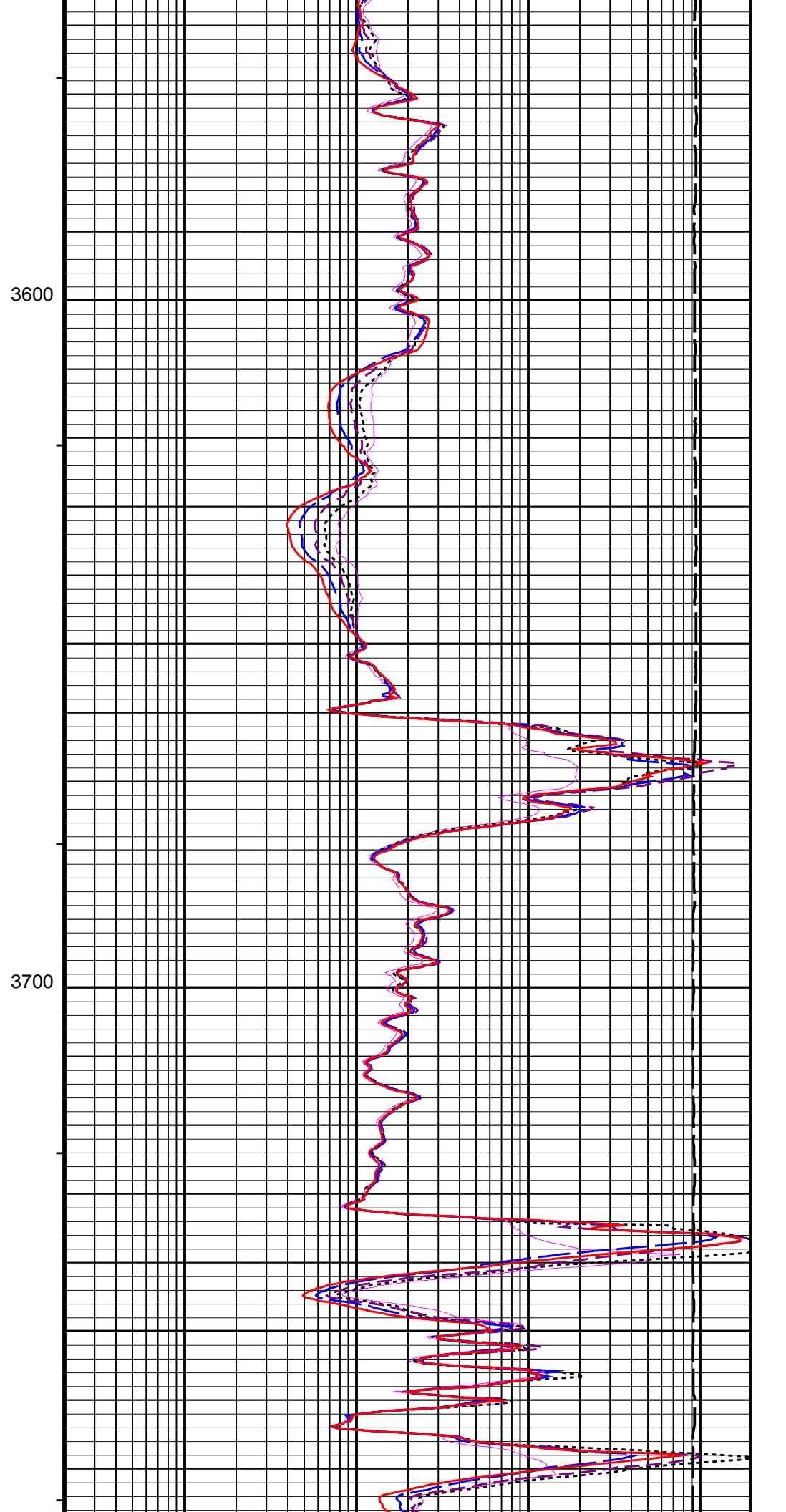
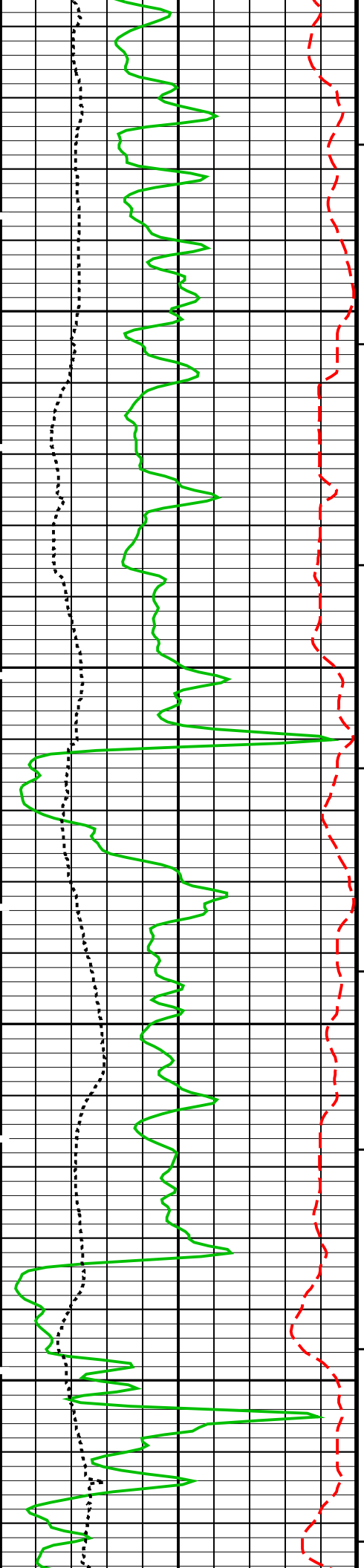


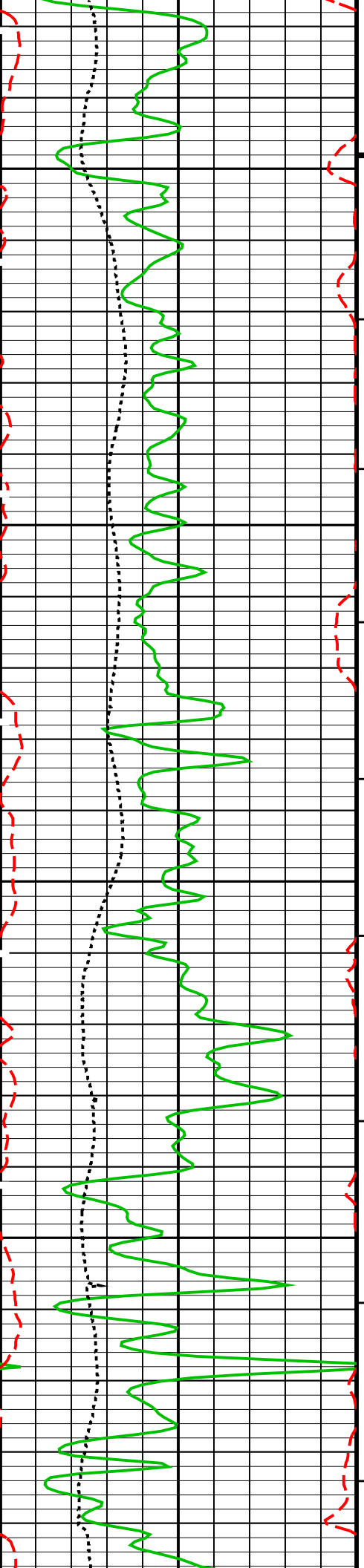
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3300



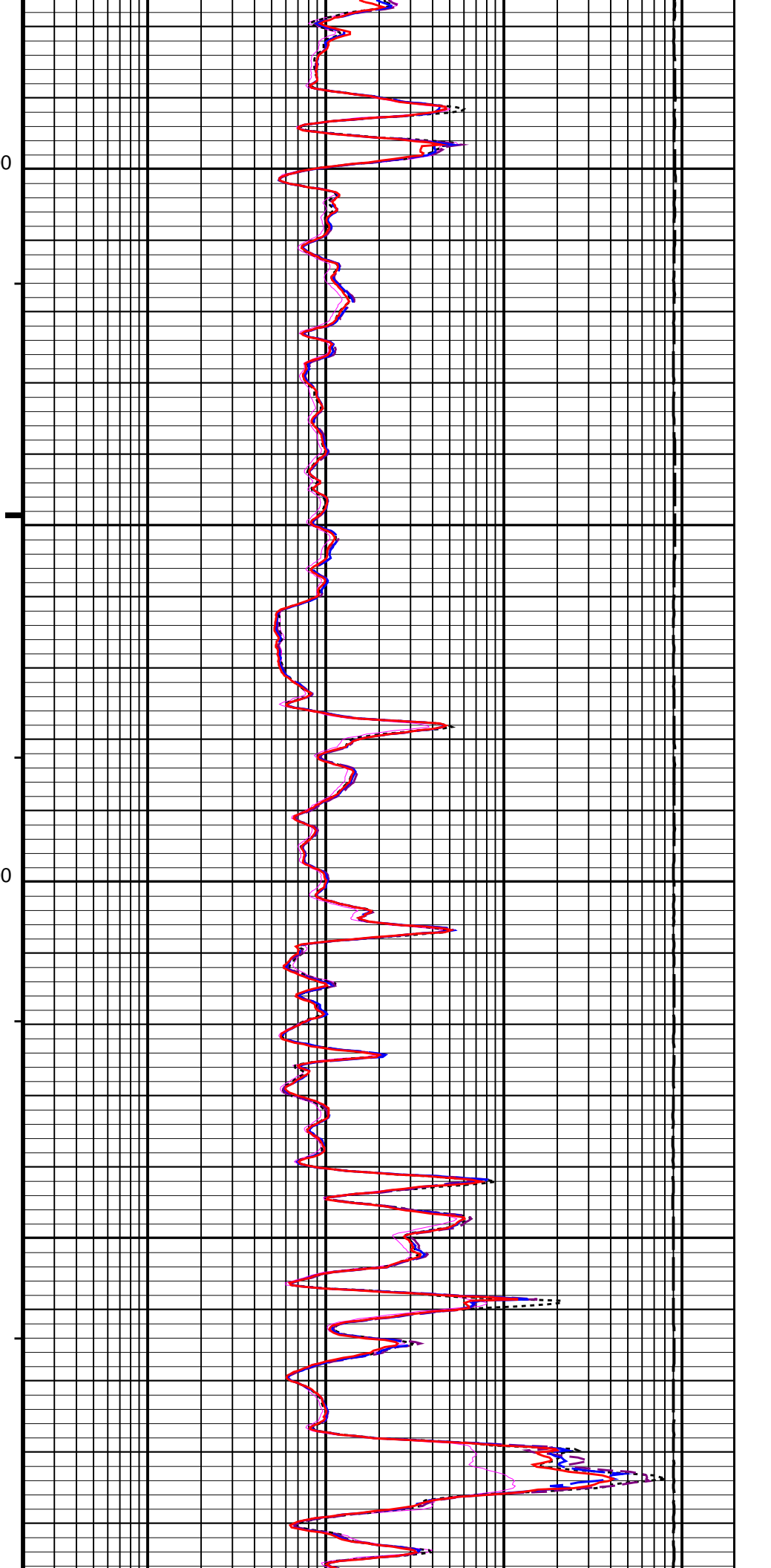


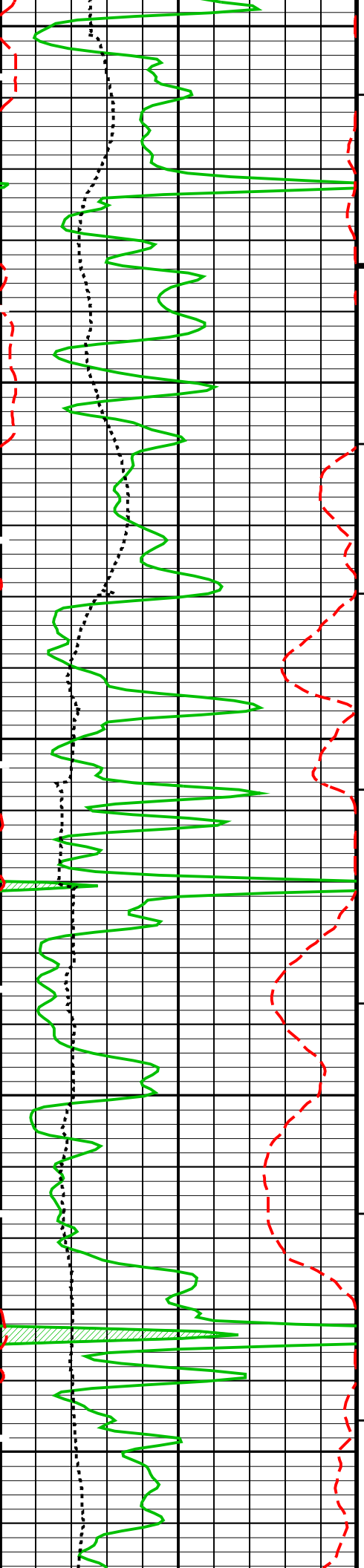




3800

3900

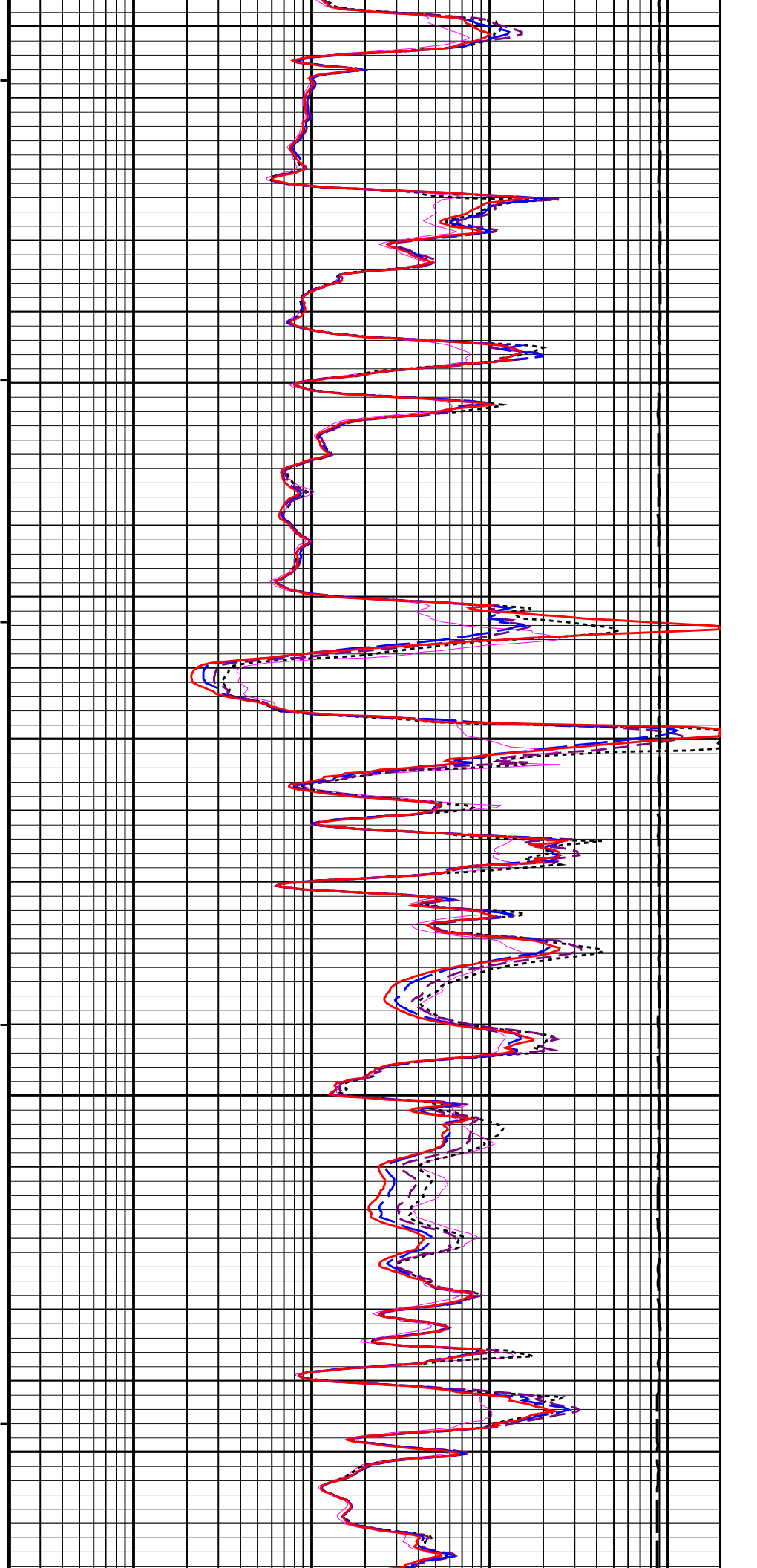


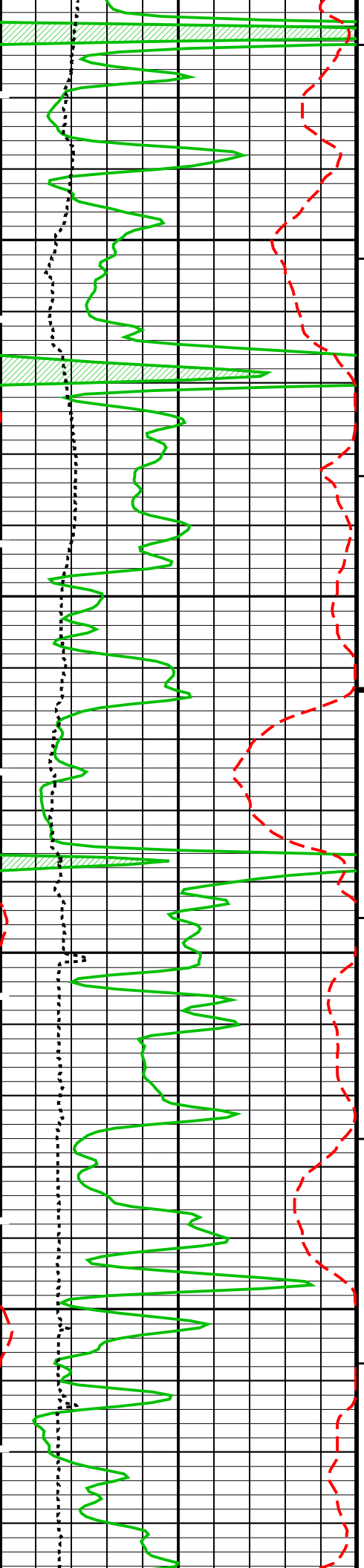


4000

4100

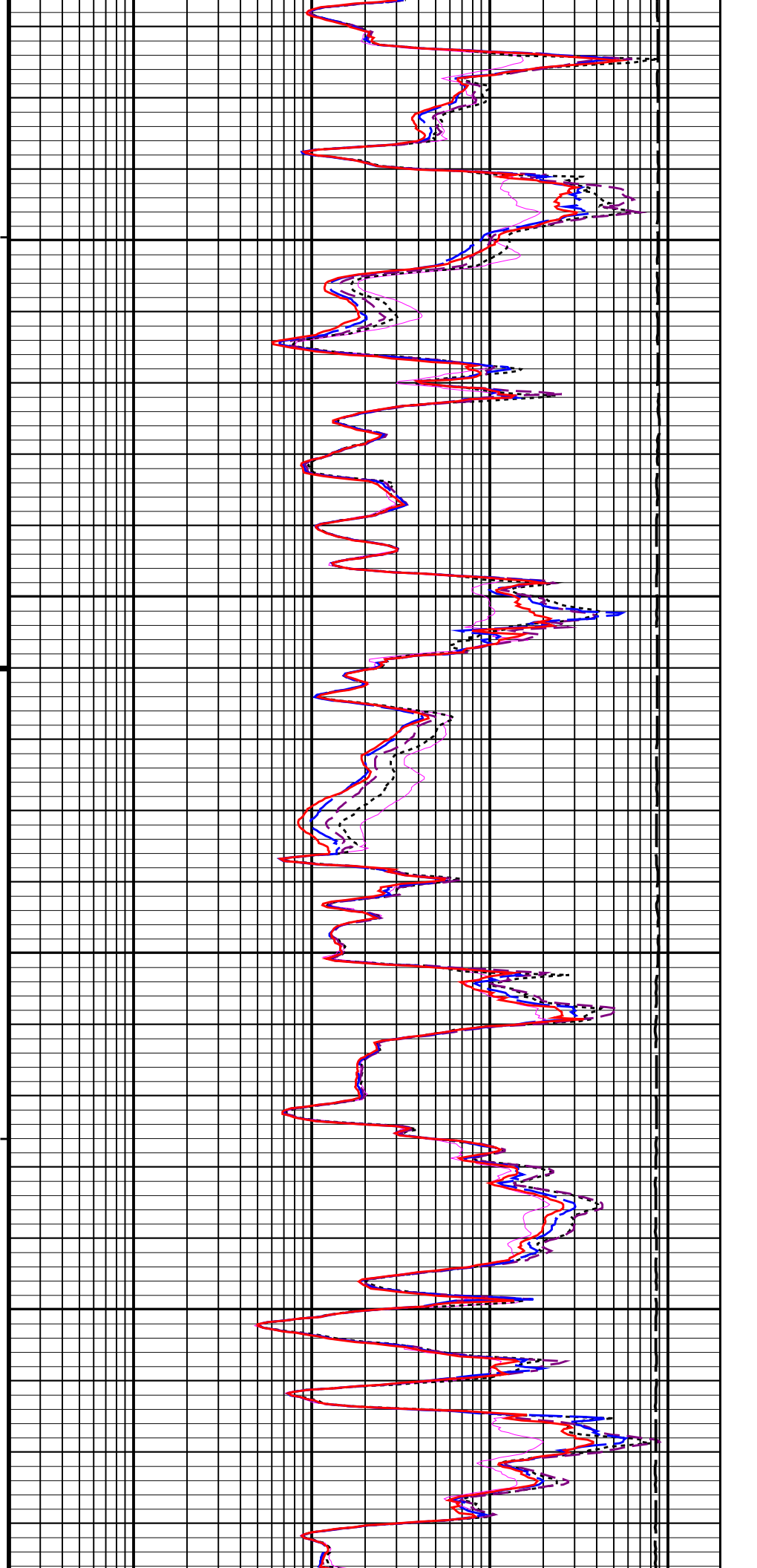
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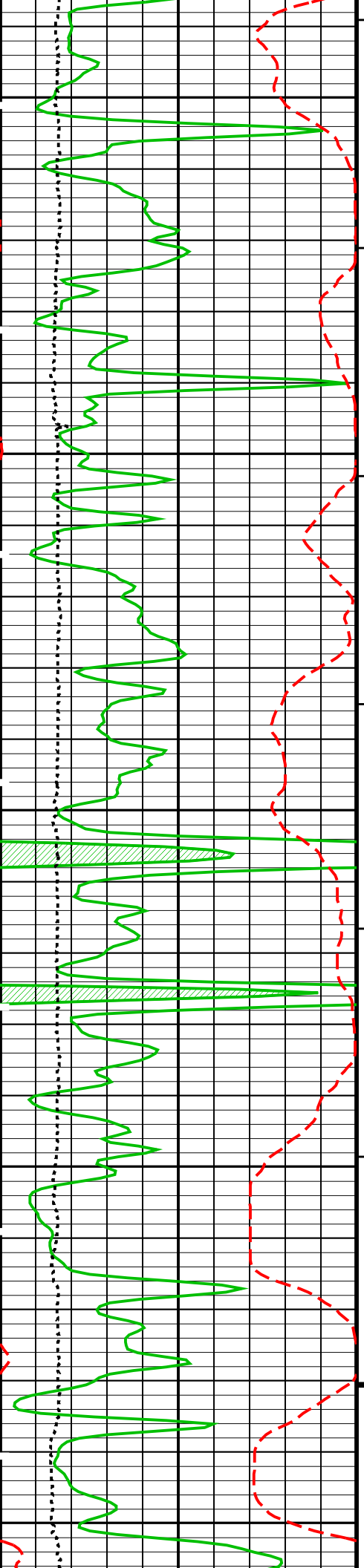


4300

4400

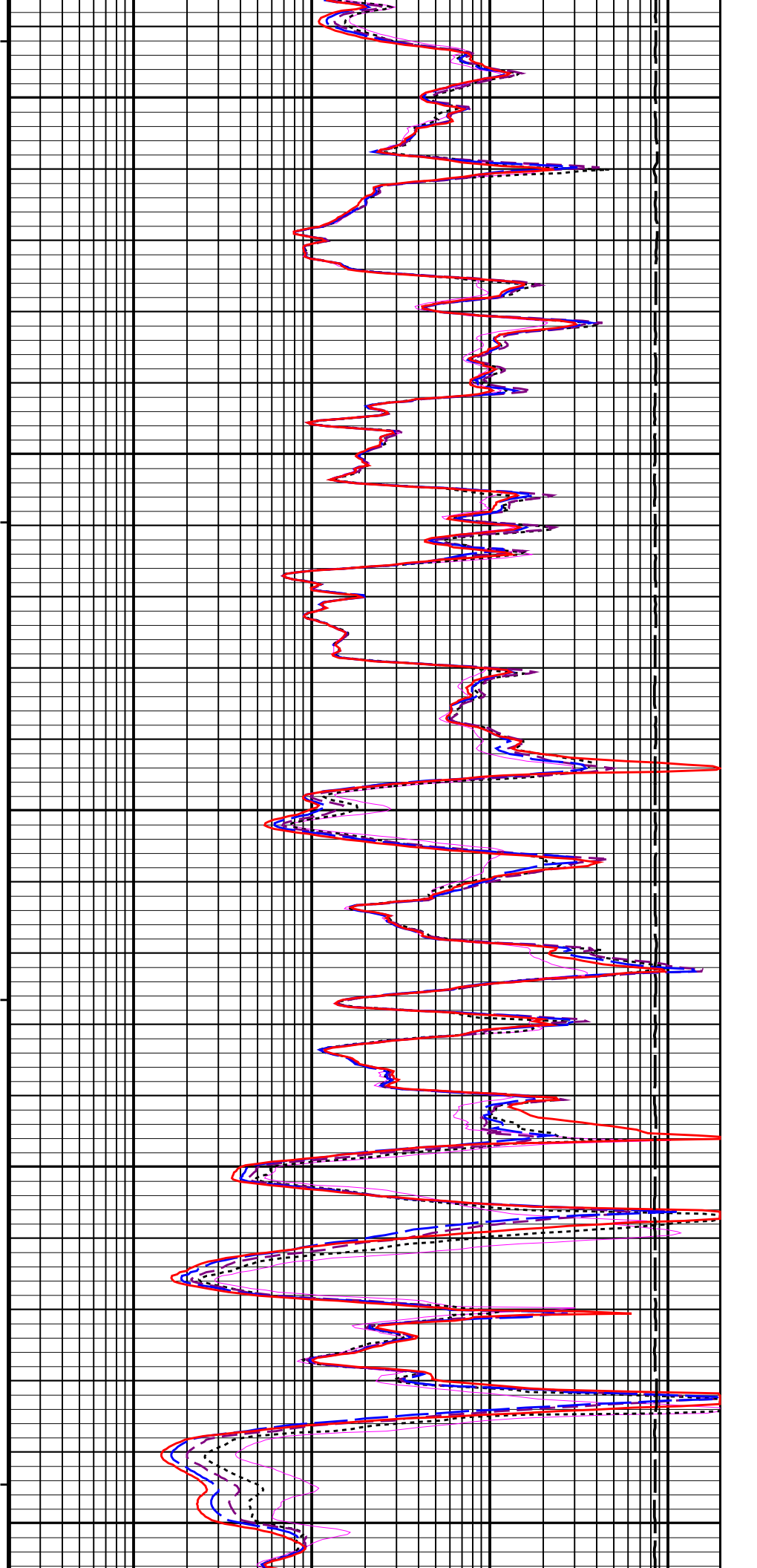


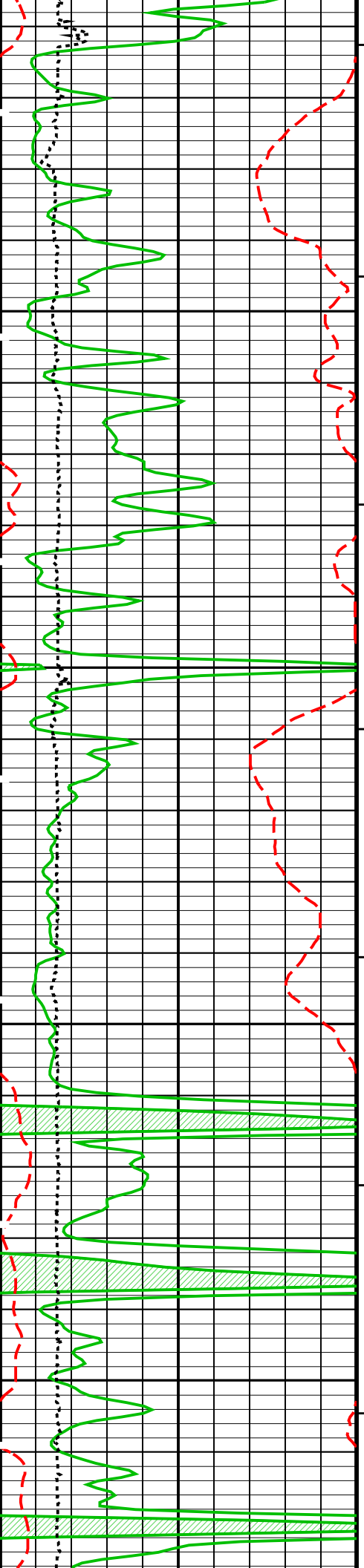




4500

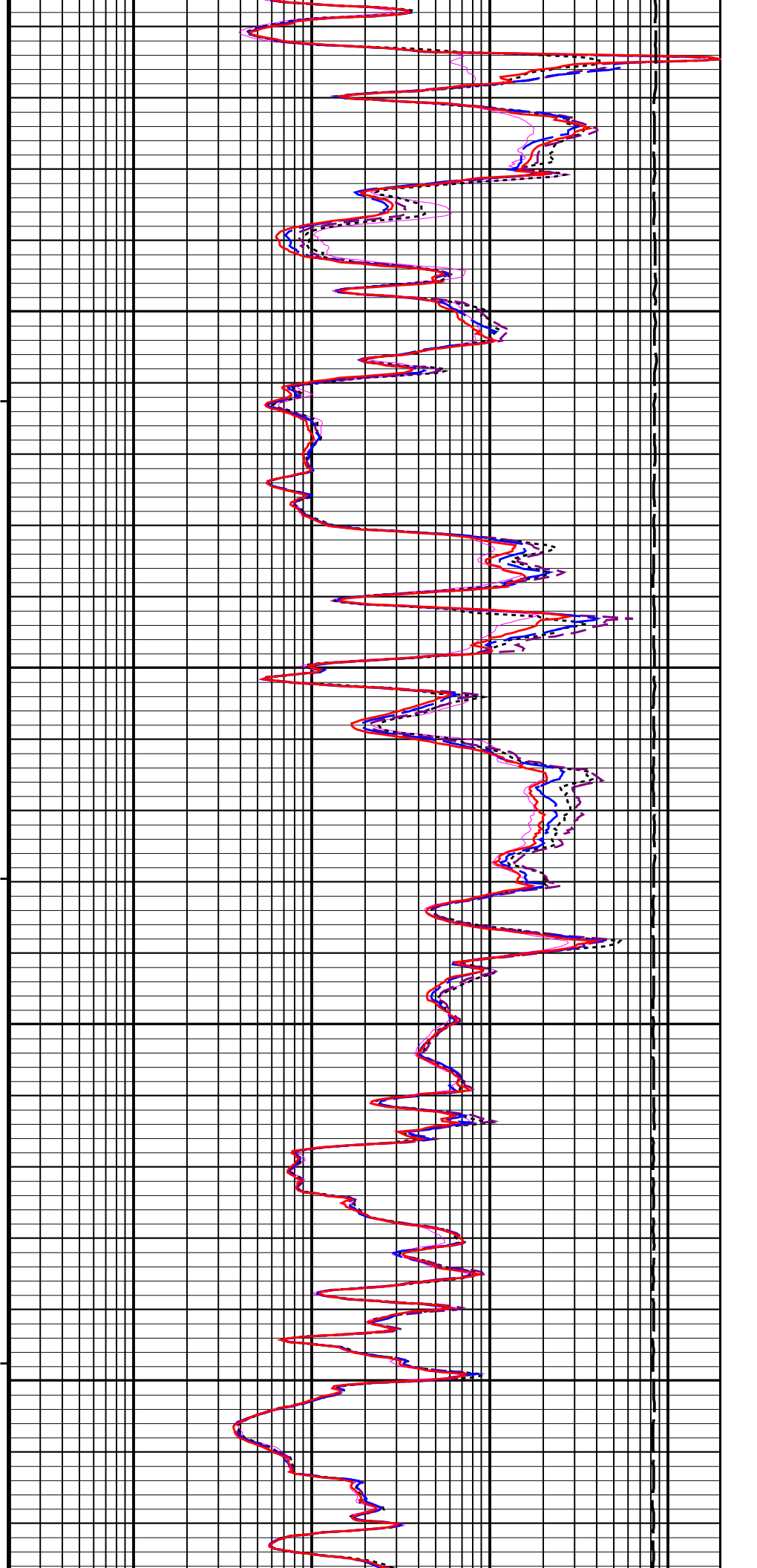
4600

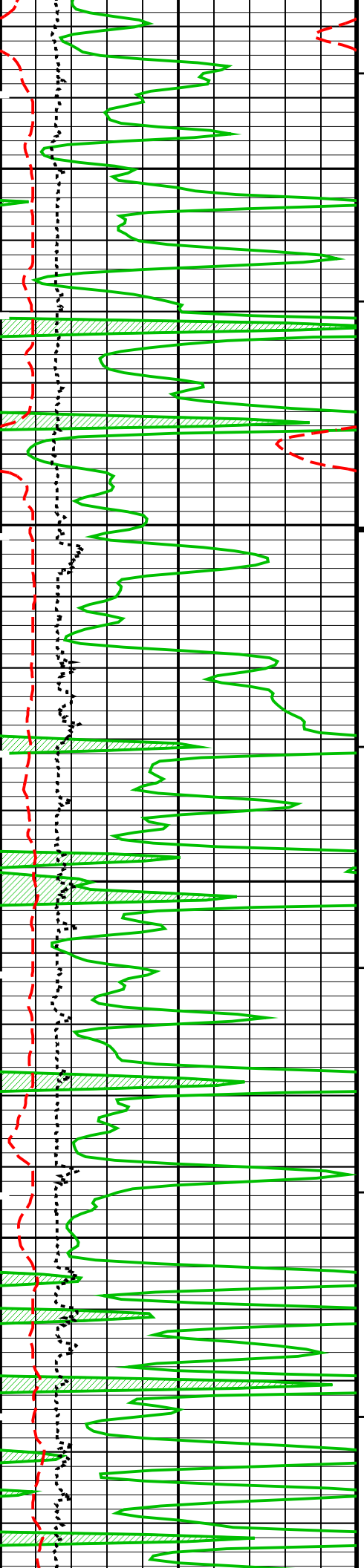




4700

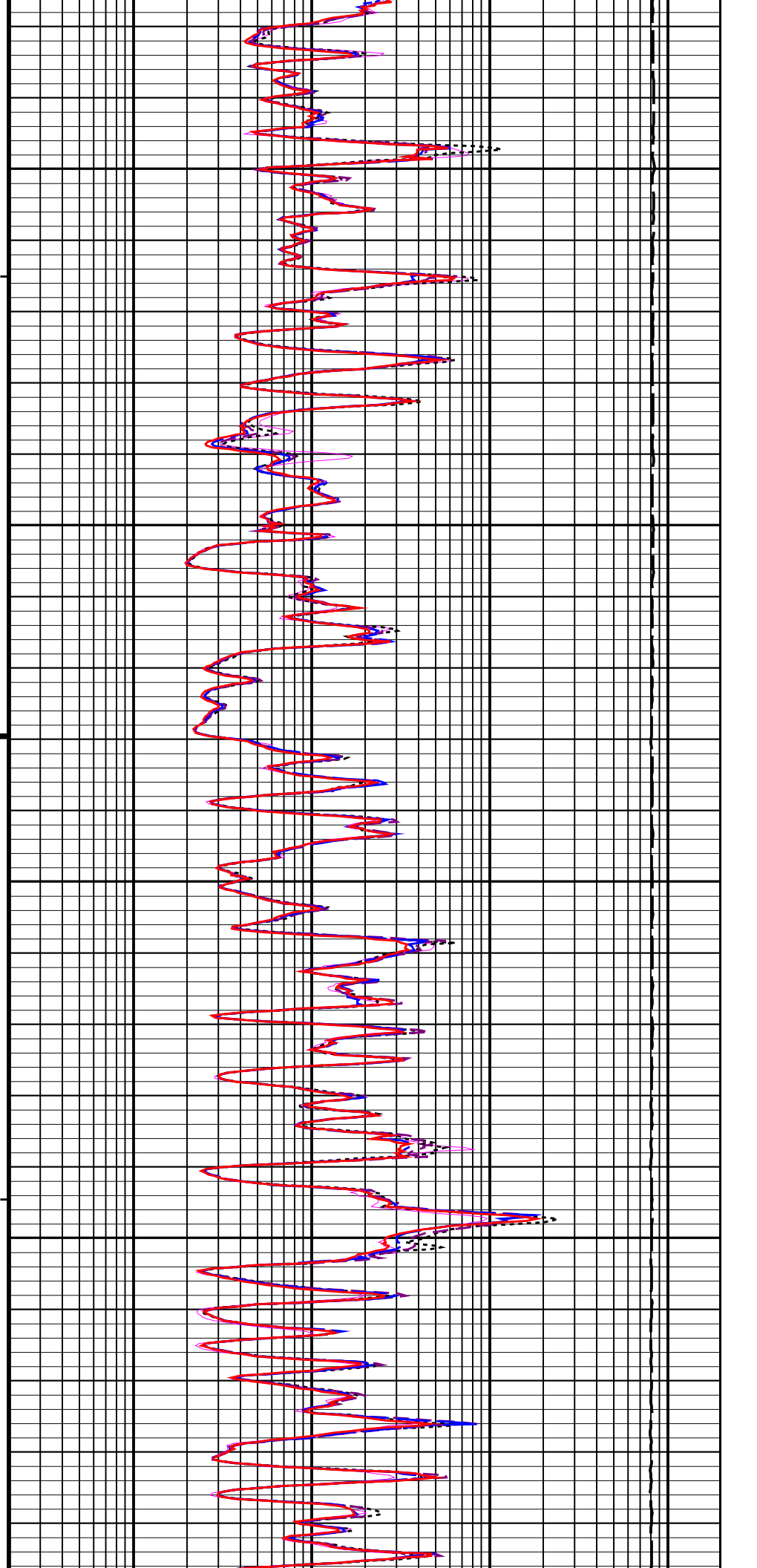
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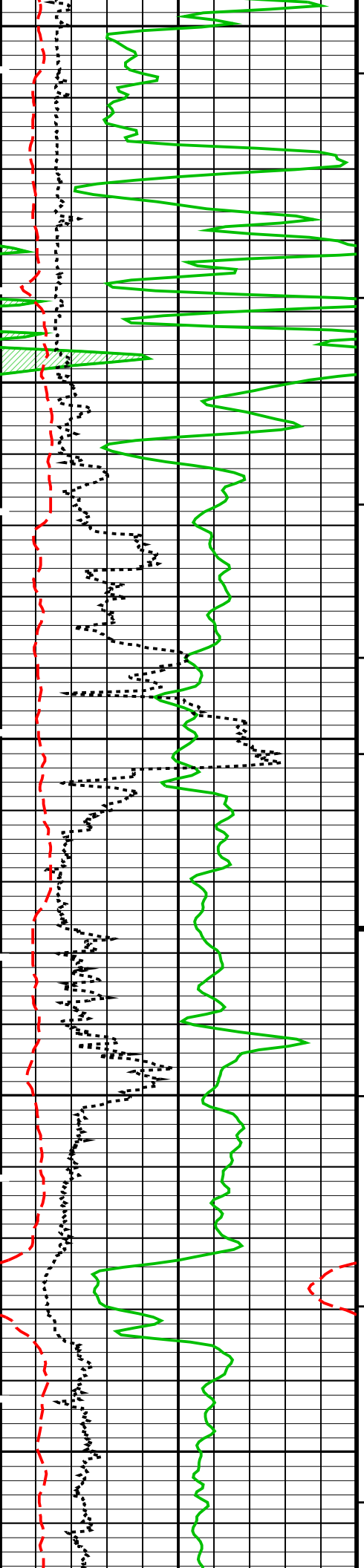




4900

5000

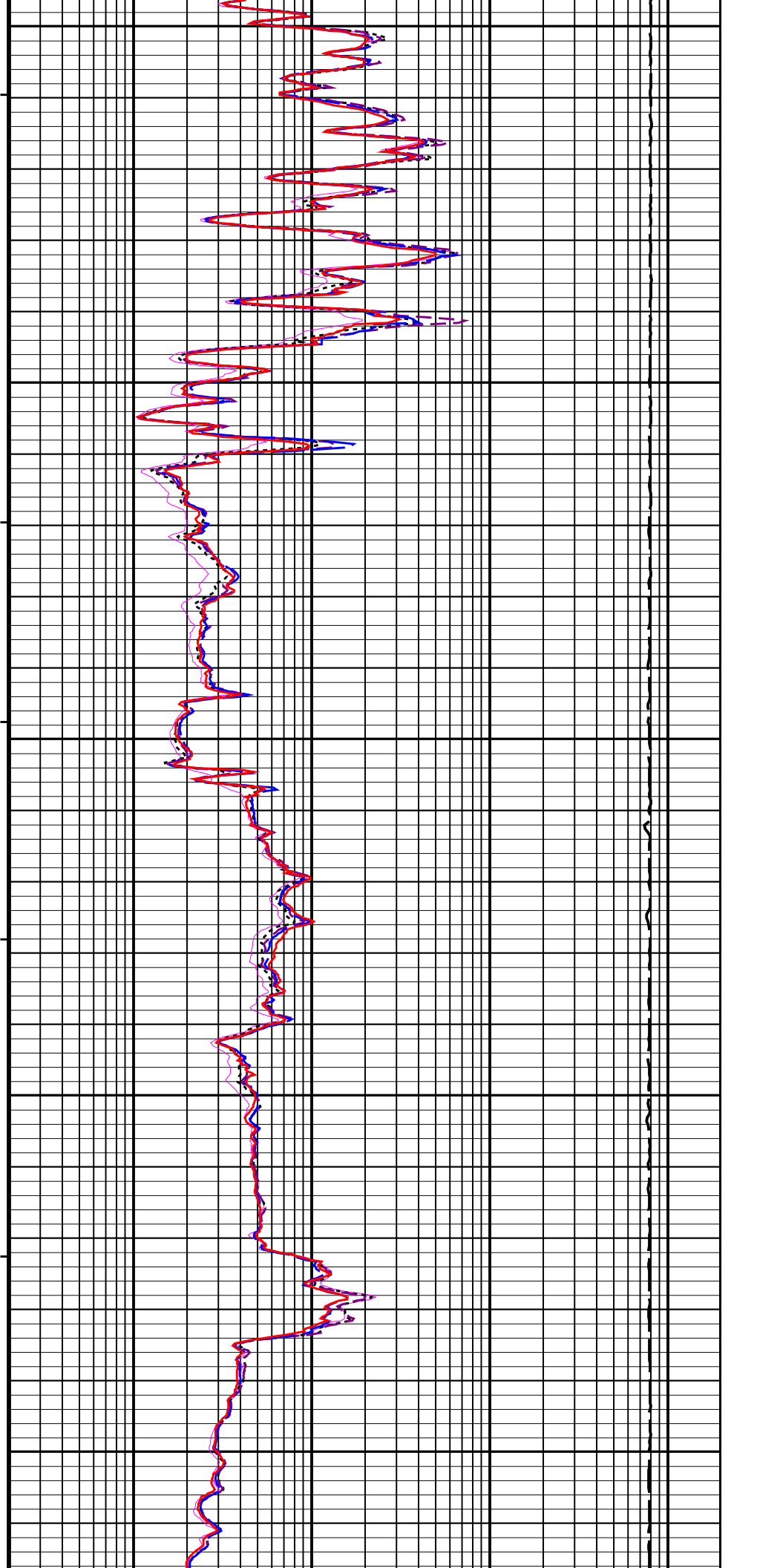


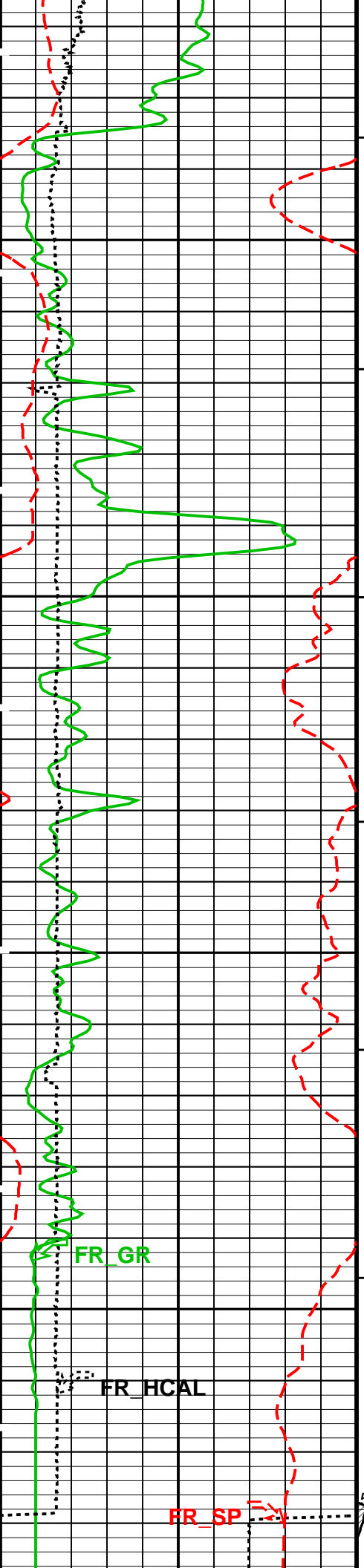


5100

5200

5300

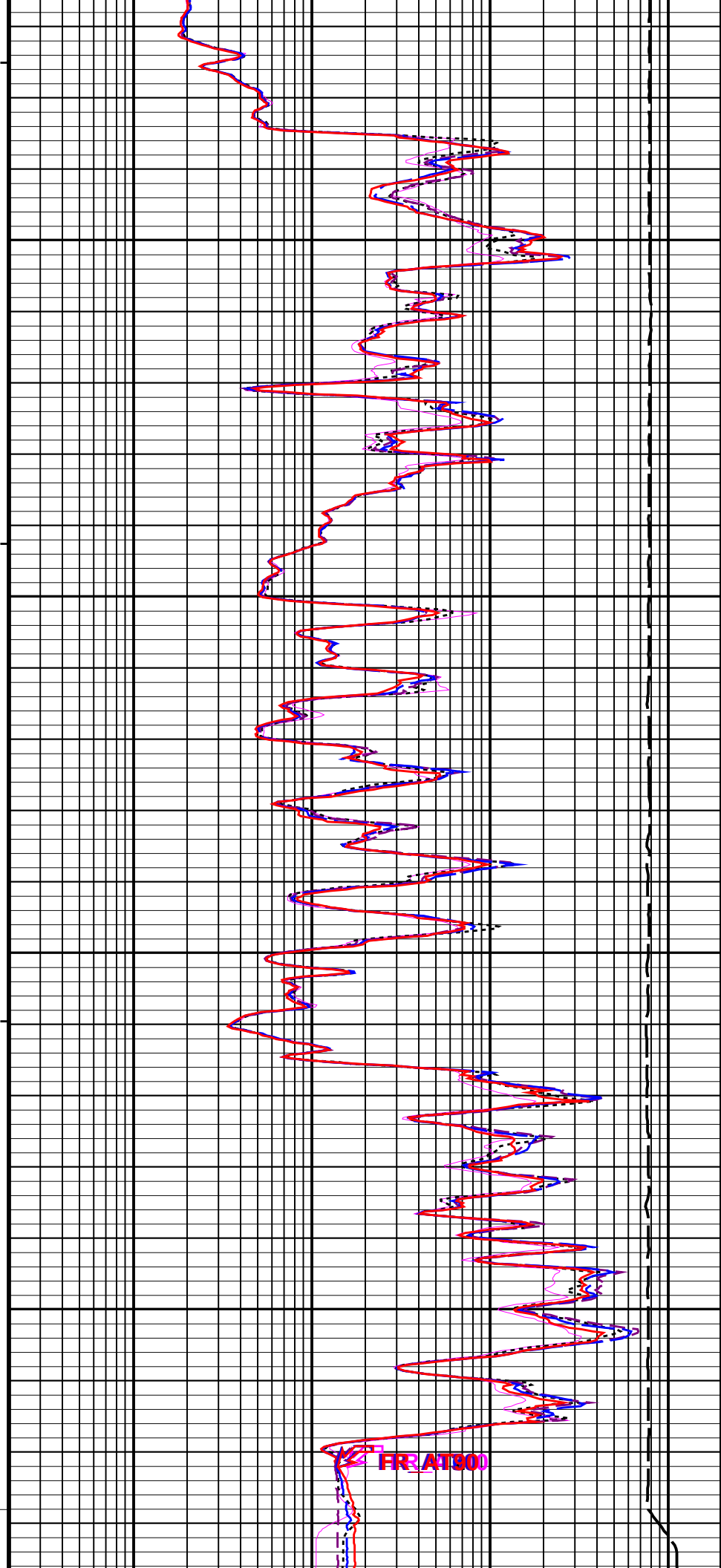




5400

5500

5528.0 FT  
-TD-



FR\_AT300

**MAIN PASS: \*\*\* PLATFORM EXPRESS – ARRAY INDUCTION \*\*\***

## PIP SUMMARY

- └ Integrated Hole Volume Minor Pip Every 10 F3
- └ Integrated Hole Volume Major Pip Every 100 F3
  - └ Integrated Cement Volume Minor Pip Every 10 F3
  - └ Integrated Cement Volume Major Pip Every 100 F3

**Time Mark Every 60 S**

## Parameters

DLIS Name	Description	Value	
AIT-M: Array Induction Tool – M			
ABHM	Array Induction Borehole Correction Mode	2_COMPUTESTANDOFF	
ABHV	Array Induction Borehole Correction Code Version Number	900	
ABLM	Array Induction Basic Logs Mode	6_ONE_TWO_AND_FOUR	
ABLV	Array Induction Basic Logs Code Version Number	223	
ACDE	Array Induction Casing Detection Enable	NO	
ACEN	Array Induction Tool Centering Flag (in Borehole)	ECCENTERED	
AETP	Array Induction Enable Sonde Error Temp&Pres Corr	YES	
AFRSV	Array Induction Response Set Version for Four ft Resolution	41.70.24.20	
AIGS	Array Induction Select Akima Interpolation Gating	ON	
AMRF	Array Induction Mud Resistivity Factor	1.000	
AORSV	Array Induction Response Set Version for One ft Resolution	41.70.24.20	
ARFV	Array Induction Radial Profiling Code Version Number	701	
ARPV	Array Induction Radial Parametrization Code Version Number	232	
ASAP	Array Induction Suspend Answer Product Processing	0_NOSUSPENSION	
ASTA	Array Induction Tool Standoff	0.250	in
ATRSV	Array Induction Response Set Version for Two ft Resolution	41.70.24.20	
ATSE	Array Induction Temperature Selection(Sonde Error Correction)	INTERNAL	
AULV	Array Induction User Level Control	NORMAL	
AZRSV	Array Induction Response Set Version for Z Resolution	00.10.25.00	
BHT	Bottom Hole Temperature (used in calculations)	212.0	degF
FEXP	Form Factor Exponent	2.000	
FNUM	Form Factor Numerator	1.000	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0.000	deg
GGRD	Geothermal Gradient	0.010	degF/ft
GRSE	Generalized Mud Resistivity Selection	AMF_AITM	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
SHT	Surface Hole Temperature	68.000	degF
SPDR	SP Drift	0.000	mV/ft
SPNV	SP Next Value	0.000	mV
HILTB-FTB: High resolution Integrated Logging Tool-DTS			
BHT	Bottom Hole Temperature (used in calculations)	212.0	degF
FEXP	Form Factor Exponent	2.000	
FNUM	Form Factor Numerator	1.000	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0.000	deg
GGRD	Geothermal Gradient	0.010	degF/ft

GRSE	Generalized Mud Resistivity Selection	AMF_AITM	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
SHT	Surface Hole Temperature	68.000	degF
FEQL: Formation Evaluation Quick Look			
FEXP	Form Factor Exponent	2.000	
FNUM	Form Factor Numerator	1.000	
HOLEV: Integrated Hole/Cement Volume			
BHT	Bottom Hole Temperature (used in calculations)	212.0	degF
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0.000	deg
GGRD	Geothermal Gradient	0.010	degF/ft
GRSE	Generalized Mud Resistivity Selection	AMF_AITM	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
SHT	Surface Hole Temperature	68.000	degF
PERT: Preliminary Evaluation – Real Time			
BHT	Bottom Hole Temperature (used in calculations)	212.0	degF
FEXP	Form Factor Exponent	2.000	
FNUM	Form Factor Numerator	1.000	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0.000	deg
GGRD	Geothermal Gradient	0.010	degF/ft
GRSE	Generalized Mud Resistivity Selection	AMF_AITM	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
SHT	Surface Hole Temperature	68.000	degF
STI: Stuck Tool Indicator			
STKT	STI Stuck Threshold	2.500	ft
TDD	Total Depth – Driller	5530.0	ft
TDL	Total Depth – Logger	5528.0	ft
System and Miscellaneous			
ACSED	Array Induction Casing Shoe Estimated Depth		
BS	Bit Size	7.875	in
DFD	Drilling Fluid Density	9.200	lbm/gal
FLEV	Fluid Level		
MST	Mud Sample Temperature	106.2	degF
TD	Total Depth	5528.0	ft

Format: GRES    Vertical Scale: 5" per 100'    Graphics File Created: 02-Aug-2011 18:56

## OP System Version: 18C0-147

AITM	18C0-147	HILTD	18C0-147
DTCH	18C0-147		

## Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_007LUP	FN:6	PRODUCER	02-Aug-2011 16:19	5550.0 FT	411.0 FT
DEFAULT	AIT_TLD_MCFL_CNL_005PUP	FN:4	PRODUCER	02-Aug-2011 16:10	5545.5 FT	4904.0 FT

**Schlumberger**

## EXTRA REPEAT ANALYSIS

MAXIS Field Log

**Schlumberger**

## RESISTIVITY LINEAR 2" = 100'

MAXIS Field Log

## MAXIS Field Log

## Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Array Induction Tool – M Wellsite Calibration – Electronics Calibration Check – Thru Cal Mag. & Phase							
Master: 16-Jun-2011 9:20 Before: 1-Aug-2011 4:59							
Thru Cal Magnitude – 0	0	0.6232	0.6232	N/A	N/A	N/A	V
Thru Cal Magnitude – 1	0	1.277	1.277	N/A	N/A	N/A	V
Thru Cal Magnitude – 2	0	0.6338	0.6338	N/A	N/A	N/A	V
Thru Cal Magnitude – 3	0	0.7158	0.7159	N/A	N/A	N/A	V
Thru Cal Magnitude – 4	0	1.343	1.343	N/A	N/A	N/A	V
Thru Cal Magnitude – 5	0	1.953	1.953	N/A	N/A	N/A	V
Thru Cal Magnitude – 6	0	1.956	1.956	N/A	N/A	N/A	V
Thru Cal Magnitude – 7	0	1.427	1.427	N/A	N/A	N/A	V
Thru Cal Phase – 0	0	187.1	186.8	N/A	N/A	N/A	DEG
Thru Cal Phase – 1	0	186.1	185.8	N/A	N/A	N/A	DEG
Thru Cal Phase – 2	0	182.5	182.2	N/A	N/A	N/A	DEG
Thru Cal Phase – 3	0	181.8	181.4	N/A	N/A	N/A	DEG
Thru Cal Phase – 4	0	175.6	175.3	N/A	N/A	N/A	DEG
Thru Cal Phase – 5	0	174.0	173.7	N/A	N/A	N/A	DEG
Thru Cal Phase – 6	0	174.0	173.7	N/A	N/A	N/A	DEG
Thru Cal Phase – 7	0	173.0	172.7	N/A	N/A	N/A	DEG

## Array Induction Tool – M Wellsite Calibration – Electronics Calibration Check – Auxiliary

Master: 16-Jun-2011 9:20 Before: 1-Aug-2011 4:59

Array Induction SPA Plus	991.0	992.6	992.6	N/A	N/A	N/A	MV
Array Induction SPA Zero	0	0.6312	0.6546	N/A	N/A	N/A	MV
Array Induction Temperature PI	0.9170	0.9195	0.9196	N/A	N/A	N/A	V
Array Induction Temperature Ze	0	0.0006374	0.0007223	N/A	N/A	N/A	V

## Array Induction Tool – M Wellsite Calibration – Test Loop Gain Correction

Master: 16-Jun-2011 9:20

Test Loop Gain Correctio – 0	0	1.043	N/A	N/A	N/A	N/A	V
Test Loop Gain Correctio – 1	0	1.017	N/A	N/A	N/A	N/A	V
Test Loop Gain Correctio – 2	0	1.026	N/A	N/A	N/A	N/A	V
Test Loop Gain Correctio – 3	0	1.021	N/A	N/A	N/A	N/A	V
Test Loop Gain Correctio – 4	0	1.002	N/A	N/A	N/A	N/A	V
Test Loop Gain Correctio – 5	0	0.9904	N/A	N/A	N/A	N/A	V
Test Loop Gain Correctio – 6	0	0.9975	N/A	N/A	N/A	N/A	V
Test Loop Gain Correctio – 7	0	1.006	N/A	N/A	N/A	N/A	V
Test Loop Gain Correctio – 0	0	0.4529	N/A	N/A	N/A	N/A	DEG
Test Loop Gain Correctio – 1	0	0.7686	N/A	N/A	N/A	N/A	DEG
Test Loop Gain Correctio – 2	0	0.05323	N/A	N/A	N/A	N/A	DEG
Test Loop Gain Correctio – 3	0	0.1755	N/A	N/A	N/A	N/A	DEG
Test Loop Gain Correctio – 4	0	0.08051	N/A	N/A	N/A	N/A	DEG
Test Loop Gain Correctio – 5	0	-0.09107	N/A	N/A	N/A	N/A	DEG
Test Loop Gain Correctio – 6	0	0.2852	N/A	N/A	N/A	N/A	DEG
Test Loop Gain Correctio – 7	0	-0.07289	N/A	N/A	N/A	N/A	DEG

## Array Induction Tool – M Wellsite Calibration – Sonde Error Correction

Master: 16-Jun-2011 9:20

R Sonde Error Correction – 0	0	-83.51	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 1	0	161.1	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 2	0	110.8	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 3	0	68.40	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 4	0	27.47	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 5	0	12.19	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 6	0	9.946	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 7	0	-1.793	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 0	0	-403.9	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 1	0	-99.44	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 2	0	64.35	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 3	0	-104.3	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 4	0	-21.13	N/A	N/A	N/A	N/A	MM/M



X Sonde Error Correction – 5	0	–14.49	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 6	0	–9.579	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 7	0	–3.504	N/A	N/A	N/A	N/A	MM/M

#### Array Induction Tool – M Wellsite Calibration – Mud Gain Correction

Master: 16–Jun–2011 9:20

Coarse – Mag, Real, Imag – 0	0	0.8589	N/A	N/A	N/A	N/A	
Coarse – Mag, Real, Imag – 1	0	0.8589	N/A	N/A	N/A	N/A	
Coarse – Mag, Real, Imag – 2	0	0.8589	N/A	N/A	N/A	N/A	
Fine – Mag, Real, Imag – 0	0	0.8618	N/A	N/A	N/A	N/A	
Fine – Mag, Real, Imag – 1	0	0.8619	N/A	N/A	N/A	N/A	
Fine – Mag, Real, Imag – 2	0	0.8619	N/A	N/A	N/A	N/A	

#### High resolution Integrated Logging Tool–DTS Wellsite Calibration – Stab Measurement Summary

Before: 1–Aug–2011 5:01

BS Window Ratio	0.7278	N/A	0.7271	N/A	N/A	N/A	
BS Window Sum	9473	N/A	9480	N/A	N/A	N/A	CPS
SS Window Ratio	0.4775	N/A	0.4778	N/A	N/A	N/A	
SS Window Sum	9398	N/A	9390	N/A	N/A	N/A	CPS
LS Window Ratio	0.2927	N/A	0.2887	N/A	N/A	N/A	
LS Window Sum	1040	N/A	1042	N/A	N/A	N/A	CPS

#### High resolution Integrated Logging Tool–DTS Wellsite Calibration – Photo–multiplier High Voltages Calibrations

Before: 1–Aug–2011 5:01

BS PM High Voltage (Command)	1664	N/A	1676	N/A	N/A	N/A	V
SS PM High Voltage (Command)	1426	N/A	1433	N/A	N/A	N/A	V
LS PM High Voltage (Command)	1530	N/A	1528	N/A	N/A	N/A	V

#### High resolution Integrated Logging Tool–DTS Wellsite Calibration – Crystal Quality Resolutions Calibration

Before: 1–Aug–2011 5:01

BS Crystal Resolution	11.56	N/A	11.63	N/A	N/A	N/A	%
SS Crystal Resolution	10.01	N/A	10.03	N/A	N/A	N/A	%
LS Crystal Resolution	8.870	N/A	8.954	N/A	N/A	N/A	%

#### High resolution Integrated Logging Tool–DTS Wellsite Calibration – MCFL Calibration

Before: 1–Aug–2011 5:02

Raw B0 Resistivity	3875	N/A	3868	N/A	N/A	N/A	OHMM
Raw B1 Resistivity	3830	N/A	3806	N/A	N/A	N/A	OHMM
Raw B2 Resistivity	3830	N/A	3801	N/A	N/A	N/A	OHMM

#### High resolution Integrated Logging Tool–DTS Wellsite Calibration – HILT Caliper Calibration

Before: 1–Aug–2011 4:56

HILT Caliper Zero Measurement	8.000	N/A	8.608	N/A	N/A	N/A	IN
HILT Caliper Plus Measurement	12.00	N/A	12.84	N/A	N/A	N/A	IN

#### High resolution Integrated Logging Tool–DTS Wellsite Calibration – Detector Calibration

Before: 1–Aug–2011 4:57

Gamma Ray Background	30.00	N/A	74.76	N/A	N/A	N/A	GAPI
Gamma Ray (Jig – Bkgd)	165.0	N/A	179.5	N/A	N/A	15.00	GAPI

#### High resolution Integrated Logging Tool–DTS Wellsite Calibration – Zero Measurement

Master: 26–Jul–2011 8:44 Before: 1–Aug–2011 4:58

CNTC Background	28.13	28.13	26.81	N/A	N/A	4.220	CPS
CFTC Background	25.95	25.95	25.73	N/A	N/A	3.893	CPS

#### High resolution Integrated Logging Tool–DTS Wellsite Calibration – Ratio Measurement

Master: 26–Jul–2011 8:44

Thermal Near Corr. (Tank)	5800	4840	N/A	N/A	N/A	N/A	CPS
Thermal Far Corr. (Tank)	2400	2064	N/A	N/A	N/A	N/A	CPS
CNTC/CFTC (Tank)	2.159	2.345	N/A	N/A	N/A	N/A	

#### High resolution Integrated Logging Tool–DTS Wellsite Calibration – Accelerometer Calibration

Before: 2–Aug–2011 15:23

Z–Axis Acceleration	32.19	N/A	32.12	N/A	N/A	N/A	F/S2
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#### High resolution Integrated Logging Tool–DTS Master Calibration – Inversion results

Master: 28–Jul–2011 15:04

Rho Aluminum	2.596	2.597	---	---	---	---	G/C3
Rho Magnesium	1.686	1.688	---	---	---	---	G/C3
Pe Aluminum	2.570	2.539	---	---	---	---	
Pe Magnesium	2.650	2.629	---	---	---	---	

#### High resolution Integrated Logging Tool–DTS Master Calibration – Deviation Summary

Master: 28–Jul–2011 15:04

BS Average Deviation	0	0.4013	---	---	---	---	%
BS Max Deviation	0	0.8638	---	---	---	---	%
SS Average Deviation	0	0.3115	---	---	---	---	%
SS Max Deviation	0	0.8795	---	---	---	---	%
LS Average Deviation	0	0.5381	---	---	---	---	%
LS Max Deviation	0	1.410	---	---	---	---	%

The GLS-VJ source activity is acceptable.

The HGNS Neutron Master Calibration was done with the following parameters :

NCT-B Water Temperature    70.0    DEGF.  
Thermal Housing Size        3.372   IN.  
NSR-F serial number        5068









Array Induction Tool – M / Equipment Identification

Primary Equipment:  
Rm/SP Bottom Nose  
Array Induction Sonde

















AMRM – A  
AMIS – A  
1270

Auxiliary Equipment:

Array Induction Tool – M Wellsite Calibration							
Electronics Calibration Check – Thru Cal Mag. & Phase							
Idx	Phase	Value	Thru Cal Magnitude V	Nominal	Value	Thru Cal Phase DEG	Nominal
0	Master	0.6232		0.6100	187.1		197.0
	Before	0.6232			186.8		
1	Master	1.277		1.270	186.1		196.0
	Before	1.277			185.8		
2	Master	0.6338		0.6200	182.5		192.0
	Before	0.6338			182.2		
3	Master	0.7158		0.7000	181.8		191.0
	Before	0.7159			181.4		
4	Master	1.343		1.340	175.6		185.0
	Before	1.343			175.3		
5	Master	1.953		1.960	174.0		182.0
	Before	1.953			173.7		
6	Master	1.956		1.960	174.0		181.0
	Before	1.956			173.7		
7	Master	1.427		1.410	173.0		175.0
	Before	1.427			172.7		
		60.00 % (Minimum)	(Nominal)	140.0 % (Maximum)	Nom -60.00 (Minimum)	(Nominal)	Nom + 60.00 (Maximum)
Master: 16-Jun-2011 9:20				Before: 1-Aug-2011 4:59			

















Array Induction Tool – M Wellsite Calibration							
Electronics Calibration Check – Auxiliary							
Phase	Array Induction SPA Plus MV		Value	Phase	Array Induction SPA Zero MV		Value
Master			992.6	Master			0.6312
Before			992.6	Before			0.6546
941.0 (Minimum)				-50.00 (Minimum)			
991.0 (Nominal)				0 (Nominal)			
1040 (Maximum)				50.00 (Maximum)			
Phase	Array Induction Temperature Plus V		Value	Phase	Array Induction Temperature Zero V		Value
Master			0.9195	Master			0.0006374
Before			0.9196	Before			0.0007223
0.8710 (Minimum)				-0.05000 (Minimum)			
0.9170 (Nominal)				0 (Nominal)			
0.9630 (Maximum)				0.05000 (Maximum)			
Master: 16-Jun-2011 9:20				Before: 1-Aug-2011 4:59			

Array Induction Tool – M Wellsite Calibration





Test Loop Gain Correction							
Idx	Value	Test Loop Gain Correction Magnitude			Value	Test Loop Gain Correction Phase DEG	
0	1.043				0.4529		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
1	1.017				0.7686		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
2	1.026				0.05323		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
3	1.021				0.1755		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
4	1.002				0.08051		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
5	0.9904				-0.09107		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
6	0.9975				0.2852		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
7	1.006				-0.07289		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)

Master: 16-Jun-2011 9:20

Master: 16-Jun-2011 9:20

Array Induction Tool – M Wellsite Calibration							
Sonde Error Correction							
Idx	Value	R Sonde Error Correction MM/M			Value	X Sonde Error Correction MM/M	
0	-83.51				-403.9		
		-231.0 (Minimum)	-56.00 (Nominal)	119.0 (Maximum)	-2250 (Minimum)	0 (Nominal)	2250 (Maximum)
1	161.1				-99.44		
		114.0 (Minimum)	159.0 (Nominal)	204.0 (Maximum)	-625.0 (Minimum)	0 (Nominal)	625.0 (Maximum)
2	110.8				64.35		
		66.00 (Minimum)	111.0 (Nominal)	156.0 (Maximum)	-350.0 (Minimum)	0 (Nominal)	350.0 (Maximum)
3	68.40				-104.3		
		39.00 (Minimum)	64.00 (Nominal)	89.30 (Maximum)	-250.0 (Minimum)	0 (Nominal)	250.0 (Maximum)
4	27.47				-21.13		
		15.00 (Minimum)	25.00 (Nominal)	35.00 (Maximum)	-63.00 (Minimum)	0 (Nominal)	63.00 (Maximum)
5	12.19				-14.49		
		4.000 (Minimum)	14.00 (Nominal)	24.00 (Maximum)	-50.00 (Minimum)	0 (Nominal)	50.00 (Maximum)
6	9.946				-9.579		
		5.000 (Minimum)	10.00 (Nominal)	15.00 (Maximum)	-30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)
7	-1.793				-3.504		
		-5.000 (Minimum)	0 (Nominal)	5.000 (Maximum)	-30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)
Master: 16-Jun-2011 9:20							

Master: 16-Jun-2011 9:20

Array Induction Tool – M Wellsite Calibration									
Mud Gain Correction									
Idx	Value	Coarse – Mag, Real, Imag			Value	Fine – Mag, Real, Imag			
0	0.8589				0.8618				
		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)	
1	0.8589				0.8619				
		0.8000	1.000	1.200		0.8000	1.000	1.200	

















Master: 16-Jun-2011 9:20

Master: 16-Jun-2011 9:20

Master: 16-Jun-2011 9:20







Master: 16-jup-2011 9:20

Array Induction Tool – M Master Calibration

Sonde Error Correction							
Idx	Value	R Sonde Error Correction MM/M			Value	X Sonde Error Correction MM/M	
0	-83.51				-403.9		
	-231.0 (Minimum)	-56.00 (Nominal)	119.0 (Maximum)		-2250 (Minimum)	0 (Nominal)	2250 (Maximum)
1	161.1				-99.44		
	114.0 (Minimum)	159.0 (Nominal)	204.0 (Maximum)		-625.0 (Minimum)	0 (Nominal)	625.0 (Maximum)
2	110.8				64.35		
	66.00 (Minimum)	111.0 (Nominal)	156.0 (Maximum)		-350.0 (Minimum)	0 (Nominal)	350.0 (Maximum)
3	68.40				-104.3		
	39.00 (Minimum)	64.00 (Nominal)	89.30 (Maximum)		-250.0 (Minimum)	0 (Nominal)	250.0 (Maximum)
4	27.47				-21.13		
	15.00 (Minimum)	25.00 (Nominal)	35.00 (Maximum)		-63.00 (Minimum)	0 (Nominal)	63.00 (Maximum)
5	12.19				-14.49		
	4.000 (Minimum)	14.00 (Nominal)	24.00 (Maximum)		-50.00 (Minimum)	0 (Nominal)	50.00 (Maximum)
6	9.946				-9.579		
	5.000 (Minimum)	10.00 (Nominal)	15.00 (Maximum)		-30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)
7	-1.793				-3.504		
	-5.000 (Minimum)	0 (Nominal)	5.000 (Maximum)		-30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)

Master: 16-Jun-2011 9:20

Master: 16-Jun-2011 9:20

Array Induction Tool – M Master Calibration							
Mud Gain Correction							
Idx	Value	Coarse – Mag, Real, Imag			Value	Fine – Mag, Real, Imag	
0	0.8589				0.8618		
	0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)
1	0.8589				0.8619		
	0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)
2	0.8589				0.8619		
	0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)
Master: 16-Jun-2011 9:20							

Master: 16-Jun-2011 9:20

High resolution Integrated Logging Tool–DTS / Equipment Identification

Primary Equipment:

HILT high–Resolution Mechanical Sonde  
HILT Rxo Gamma–ray Device  
HILT Micro Cylindrically Focused Log Dev  
GR Logging Source  
HILT High Res. Control Cartridge  
HILT Gamma–Ray Neutron Sonde–DTS  
HGNS Gamma–Ray Device  
HGNS Neutron Detector with Alpha Source

HRMS – B  
HRGD – B  
MCFL –  
GLS – VJ  
HRCC – B  
HGNS – B  
HGR –  
HCNT –





5094




Auxiliary Equipment:




Neutron Calibration Tank  
Gamma Source Radioactive  
HGNS Housing




NCT – B  
GSR – U/Y  
HGNH –

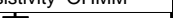
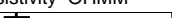
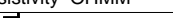
High resolution Integrated Logging Tool–DTS Wellsite Calibration



Stab Measurement Summary									
Phase	BS Window Ratio			Value	Phase	SS Window Ratio			Value
Before				0.7271	Before				0.4778
	0.6914 (Minimum)	0.7278 (Nominal)	0.7642 (Maximum)			0.4537 (Minimum)	0.4775 (Nominal)	0.5014 (Maximum)	
Phase	BS Window Sum CPS			Value	Phase	SS Window Sum CPS			Value
Before				0.2887	Before				0.2887
	0.2781 (Minimum)	0.2927 (Nominal)	0.3073 (Maximum)			0.2781 (Minimum)	0.2927 (Nominal)	0.3073 (Maximum)	
Phase	LS Window Sum CPS			Value	Phase	LS Window Sum CPS			Value



Before		9480	Before		9390	Before		1042
9000 (Minimum)	9473 (Nominal)	9947 (Maximum)	8928 (Minimum)	9398 (Nominal)	9868 (Maximum)	987.9 (Minimum)	1040 (Nominal)	1092 (Maximum)
Before: 1–Aug–2011 5:01								





High resolution Integrated Logging Tool–DTS Wellsite Calibration														
Photo–multiplier High Voltages Calibrations														
Phase	BS PM High Voltage (Command) V			Value	Phase	SS PM High Voltage (Command) V			Value	Phase	LS PM High Voltage (Command) V			Value
Before				1676	Before				1433	Before				1528
	1564 (Minimum)	1664 (Nominal)	1764 (Maximum)			1326 (Minimum)	1426 (Nominal)	1526 (Maximum)			1430 (Minimum)	1530 (Nominal)	1630 (Maximum)	
Before: 1–Aug–2011 5:01														




High resolution Integrated Logging Tool–DTS Wellsite Calibration											
Crystal Quality Resolutions Calibration											
Phase	BS Crystal Resolution %		Value	Phase	SS Crystal Resolution %		Value	Phase	LS Crystal Resolution %		Value
Before			11.63	Before			10.03	Before			8.954
	10.56 (Minimum)	11.56 (Nominal)	12.56 (Maximum)		9.007 (Minimum)	10.01 (Nominal)	11.01 (Maximum)		7.870 (Minimum)	8.870 (Nominal)	9.870 (Maximum)
Before: 1–Aug–2011 5:01											

High resolution Integrated Logging Tool–DTS Wellsite Calibration														
MCFL Calibration														
Phase	Raw B0 Resistivity OHMM			Value	Phase	Raw B1 Resistivity OHMM			Value	Phase	Raw B2 Resistivity OHMM			Value
Before				3868	Before				3806	Before				3801
	3565 (Minimum)	3875 (Nominal)	4185 (Maximum)			3524 (Minimum)	3830 (Nominal)	4136 (Maximum)			3524 (Minimum)	3830 (Nominal)	4136 (Maximum)	
Before: 1-Aug-2011 5:02														


High resolution Integrated Logging Tool–DTS Wellsite Calibration							
HILT Caliper Calibration							
Phase	HILT Caliper Zero Measurement IN		Value	Phase	HILT Caliper Plus Measurement IN		Value
Before			8.608	Before			12.84
	6.000 (Minimum)	8.000 (Nominal)	10.00 (Maximum)		9.000 (Minimum)	12.00 (Nominal)	15.00 (Maximum)
Before: 1–Aug–2011 4:56							





High resolution Integrated Logging Tool–DTS Wellsite Calibration									
Detector Calibration									
Phase	Gamma Ray Background GAPI			Value	Phase	Gamma Ray (Jig – Bkgd) GAPI			Value
Before				74.76	Before				179.5
0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)			157.1 (Minimum)	165.0 (Nominal)	206.3 (Maximum)		
Before: 1–Aug–2011 4:57									

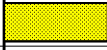





High resolution Integrated Logging Tool–DTS Wellsite Calibration									
Zero Measurement									
Phase	CNTC Background CPS			Value	Phase	CFTC Background CPS			Value
Master				28.13	Master				25.95
Before				26.81	Before				25.73
5.000 (Minimum)				28.13 (Nominal)	40.00 (Maximum)				
Master: 26–Jul–2011 8:44					Before: 1–Aug–2011 4:58				



High resolution Integrated Logging Tool–DTS Wellsite Calibration														
Ratio Measurement														
Phase	Thermal Near Corr. (Tank) CPS			Value	Phase	Thermal Far Corr. (Tank) CPS			Value	Phase	CNTC/CFTC (Tank)			Value
Master				4840	Master				2064	Master				2.345
	4700 (Minimum)	5800 (Nominal)	6900 (Maximum)			1900 (Minimum)	2400 (Nominal)	2900 (Maximum)			2.120 (Minimum)	2.159 (Nominal)	2.540 (Maximum)	
Master: 26–Jul–2011 8:44														




High resolution Integrated Logging Tool–DTS Wellsite Calibration
Accelerometer Calibration

Phase	Z-Axis Acceleration F/S2	Value
Before		32.12
	31.53 (Minimum) 32.19 (Nominal) 32.84 (Maximum)	
Before: 2-Aug-2011 15:23		

High resolution Integrated Logging Tool-DTS Master Calibration					
Inversion results					
Phase	Rho Aluminum G/C3	Value	Phase	Rho Magnesium G/C3	Value
Master		2.597	Master		1.688
	2.586 (Minimum) 2.596 (Nominal) 2.606 (Maximum)			1.676 (Minimum) 1.686 (Nominal) 1.696 (Maximum)	
Phase	Pe Aluminum	Value	Phase	Pe Magnesium	Value
Master		2.539	Master		2.629
	2.470 (Minimum) 2.570 (Nominal) 2.670 (Maximum)			2.550 (Minimum) 2.650 (Nominal) 2.750 (Maximum)	
Master: 28-Jul-2011 15:04					

High resolution Integrated Logging Tool-DTS Master Calibration									
Deviation Summary									
Phase	BS Average Deviation %	Value	Phase	SS Average Deviation %	Value	Phase	LS Average Deviation %	Value	
Master		0.4013	Master		0.3115	Master		0.5381	
	-0.6000 (Minimum) 0 (Nominal) 0.6000 (Maximum)			-1.000 (Minimum) 0 (Nominal) 1.000 (Maximum)			-1.500 (Minimum) 0 (Nominal) 1.500 (Maximum)		
Phase	BS Max Deviation %	Value	Phase	SS Max Deviation %	Value	Phase	LS Max Deviation %	Value	
Master		0.8638	Master		0.8795	Master		1.410	
	-1.600 (Minimum) 0 (Nominal) 1.600 (Maximum)			-2.500 (Minimum) 0 (Nominal) 2.500 (Maximum)			-3.500 (Minimum) 0 (Nominal) 3.500 (Maximum)		
Master: 28-Jul-2011 15:04									

High resolution Integrated Logging Tool-DTS Master Calibration					
Zero Measurement					
Phase	CNTC Background CPS	Value	Phase	CFTC Background CPS	Value
Master		28.13	Master		25.95
	5.000 (Minimum) 28.13 (Nominal) 40.00 (Maximum)			5.000 (Minimum) 25.95 (Nominal) 40.00 (Maximum)	
Master: 26-Jul-2011 8:44					

High resolution Integrated Logging Tool-DTS Master Calibration									
Tank Measurement									
Phase	Thermal Near Corr. (Tank) CPS	Value	Phase	Thermal Far Corr. (Tank) CPS	Value	Phase	CNTC/CFTC (Tank)	Value	
Master		4840	Master		2064	Master		2.345	
	4700 (Minimum) 5800 (Nominal) 6900 (Maximum)			1900 (Minimum) 2400 (Nominal) 2900 (Maximum)			2.120 (Minimum) 2.159 (Nominal) 2.540 (Maximum)		
Master: 26-Jul-2011 8:44									

#### DTS Telemetry Tool / Equipment Identification

##### Primary Equipment:

DTC-H Auxiliary Cartridge  
DTC-H Telemetry Cartridge

DTCH - A  
DTCH - A

##### Auxiliary Equipment:

DTCH Telemetry Cartridge Housing

ECH - KC

Well: **Torreys 31-4**  
Field: **Wildcat**  
County: **Cheyenne**  
State: **Colorado**

Platform Express  
Array Induction  
with Linear Correlation