

W	R	C	J	O	N	R	S	R	R	R	R	S	MUD	H	T	B	O	O	T	B	S	D	R	L
---	---	---	---	---	---	---	---	---	---	---	---	---	-----	---	---	---	---	---	---	---	---	---	---	---

Kerr-McGee Oil & Gas Onshore, LP

Kerr-McGee Oil & Gas Onshore, LP

Well: Brehon 18-18

Field: **Hambert**County: **Weld**

State: **Colorado**

Platform Express Micro Log

Field:	Hambert				
Location:	Sec. 18, T4N, R65W				
Well:	Brehon 18-18				
Company:	Kerr-McGee Oil & Gas				
API Serial No. 05-123-29284-000C	LOCATION				
	Sec. 18, T4N, R65W		Elev.:	K.B.	4721.00 ft
	SHL: 1860' FNL X 579' FWL SWNW			G.L.	4706.00 ft
	BHL: 1336' FNL X 1309' FWL SWNW			D.F.	4720.00 ft
	Permanent Datum:	Ground Level	Elev.:	4706.00 ft	
Log Measured From:	Kelly Bushing	15.00 ft	above Perm. Datum		
Drilling Measured From:	Kelly Bushing				
	Section 18	Township 4N	Range 65W		

[illegible]

Logging Date	16-Mar-2010				
Run Number	1				
Depth Driller	7822 ft				
Schlumberger Depth	7804 ft				
Bottom Log Interval	7796 ft				
Top Log Interval	522 ft				
Logging Driller Size @ Depth	8.625 in	@	521 ft	@	
Logging Schlumberger	522 ft				
Drill Bit Size	7.875 in				
Type Fluid In Hole	Gel & Chemical				
Density	8.4 lbm/gal	25 s			
Fluid Loss	PH				
Source Of Sample	Mud Tank				
RM @ Measured Temperature	1.460 ohm.m	@	66 degF	@	
RMF @ Measured Temperature	1.095 ohm.m	@	66 degF	@	
MMC @ Measured Temperature	2.190 ohm.m	@	66 degF	@	
Source RMF	Calculated	Calculated			
RM @ MRT	0.478 @ 216	0.358 @ 216		@	@
Maximum Recorded Temperatures	216 degF				
Circulation Stopped	16-Mar-2010		16:00		
Logger On Bottom	16-Mar-2010		23:00		
Unit Number	3055	Ft. Morgan, CO			
Recorded By	P. Grant				
Witnessed By	Rick Masters, Robbin Brackman				

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				
Fluid Loss	PH			
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				

DEPTH SUMMARY LISTING	
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Date Created: 16-MAR-2010 23:33:49

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW-B	Type:	CMTD-B/A	Type:	7-39P LXS
Serial Number:	799	Serial Number:	1223	Serial Number:	708273
Calibration Date:	1-Oct-2009	Calibration Date:	11-Feb-10	Length:	16360 FT
Calibrator Serial Number:	33	Calibrator Serial Number:	100513		
Calibration Cable Type:	7-46P	Number of Calibration Points:	0	Conveyance Method:	Wireline
Wheel Correction 1:	-4			Rig Type:	LAND
Wheel Correction 2:	-5				

Depth Control Parameters	
--------------------------	--

Log Sequence:	First Log In the Well
Rig Up Length At Surface:	0.00 FT
Rig Up Length At Bottom:	0.00 FT
Rig Up Length Correction:	0.00 FT
Stretch Correction:	6.00 FT
Tool Zero Check At Surface:	0.00 FT

Depth Control Remarks

1. All Schlumberger depth policy procedures applied
2. This is the primary depth reference
- 3.
- 4.
- 5.
- 6.

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

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

OTHER SERVICES1 OS1: None OS2: OS3: OS4: OS5:	OTHER SERVICES2 OS1: OS2: OS3: OS4: OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
This is first run in hole	
Toolstring run as per tool sketch	
Toolstring run without bowspring and standoffs due to client request on deviated wells	
Matrix changes noted on porosity print	

Rig: Xtreme Rig 11					
Crew: Dave Marquez, Tim Ludgate					
RUN 1			RUN 2		
SERVICE ORDER #: PROGRAM VERSION: FLUID LEVEL:			SERVICE ORDER #: PROGRAM VERSION: FLUID LEVEL:		
B8ED-00020 17C0-154					
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION

RUN 1

RUN 2

SURFACE EQUIPMENT

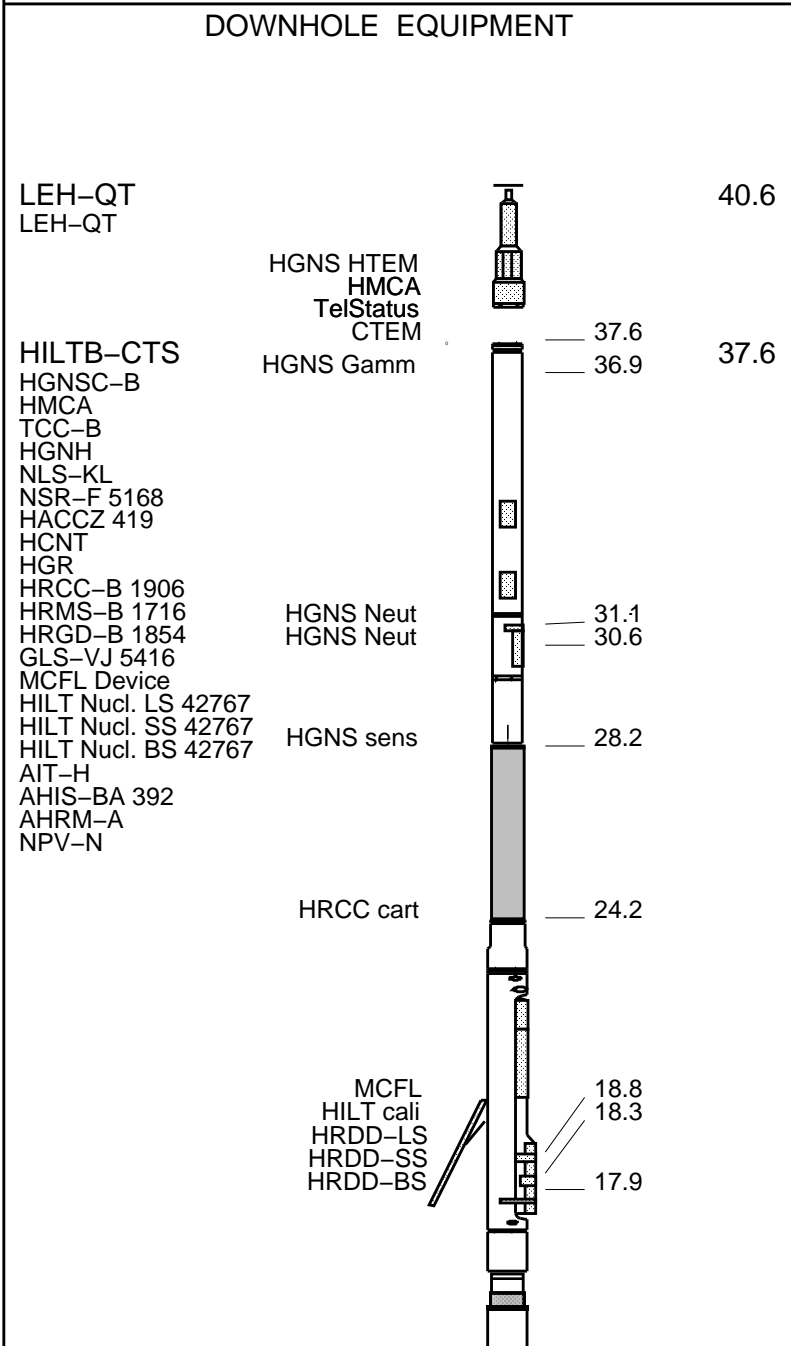
WITM (CTS)-A

GSR-U/Y

NCT-B

CNB-AB

NCS-VB



Induction
Temperatu
Power Sup

7.9

SP SENSOR
HTEN HMAS
Accelerom HV
Mud Resis
Tension

0.1

0.0

TOOL ZERO

MAXIMUM STRING DIAMETER 4.63 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN FEET

Production String

(in) (ft)
OD ID MD

Well Schematic

(ft) (in)
MD OD ID

Casing String

Casing String

Casing Shoe
Borehole Segment

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All depths are driller's depths

Schlumberger

UPPER MICROLOG 5" = 100'

MAXIS Field Log

Input DLIS Files

DEFAULT AIT_TLD_MCFL_CNL_033PUP FN:28 PRODUCER 17-Mar-2010 00:36 7825.5 FT 391.5 FT

Integrated Hole/Cement Volume Summary

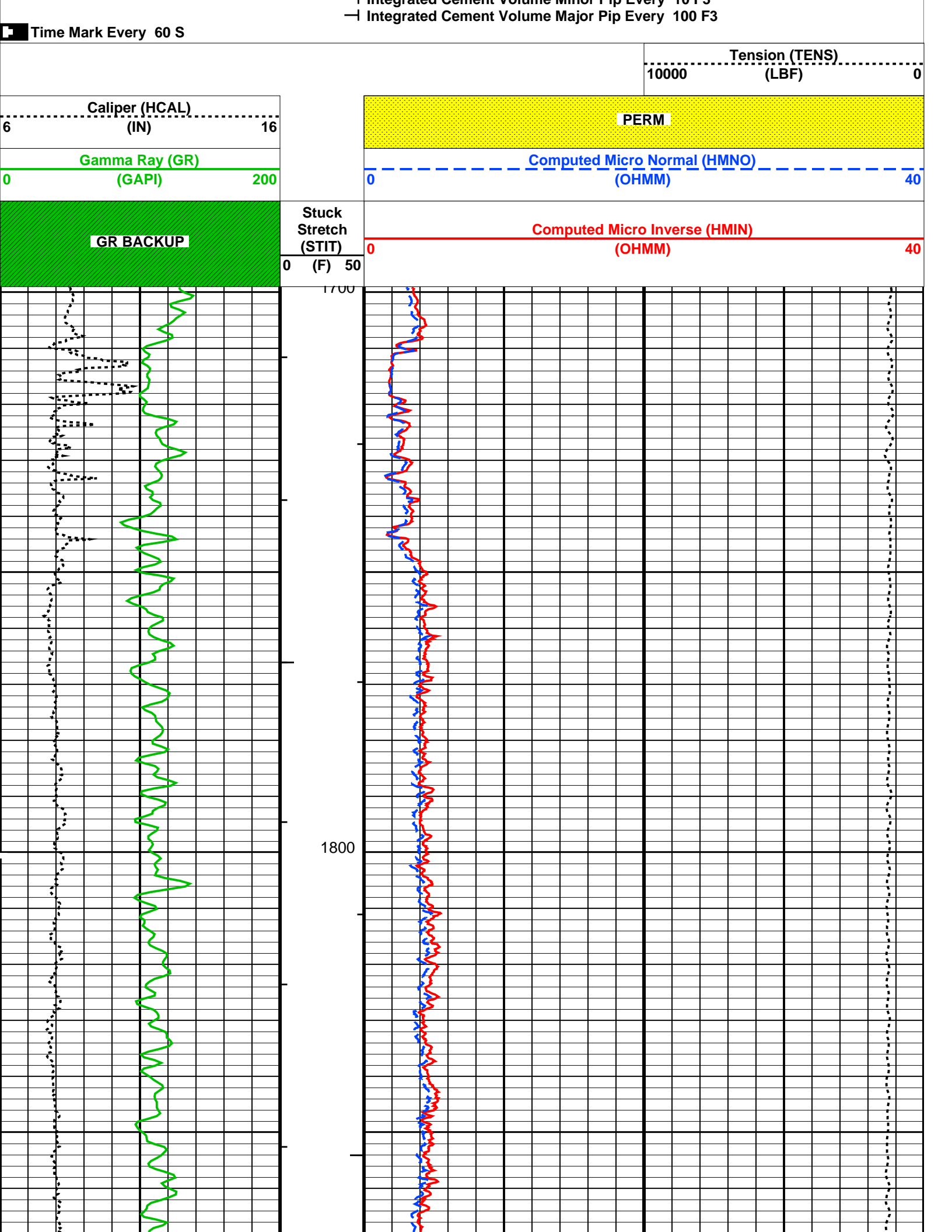
Hole Volume = 1226.74 ft3
Cement Volume = 839.56 ft3 (assuming 4.50 in casing O.D.)
Computed from 5199.5 ft to 1694.5 ft

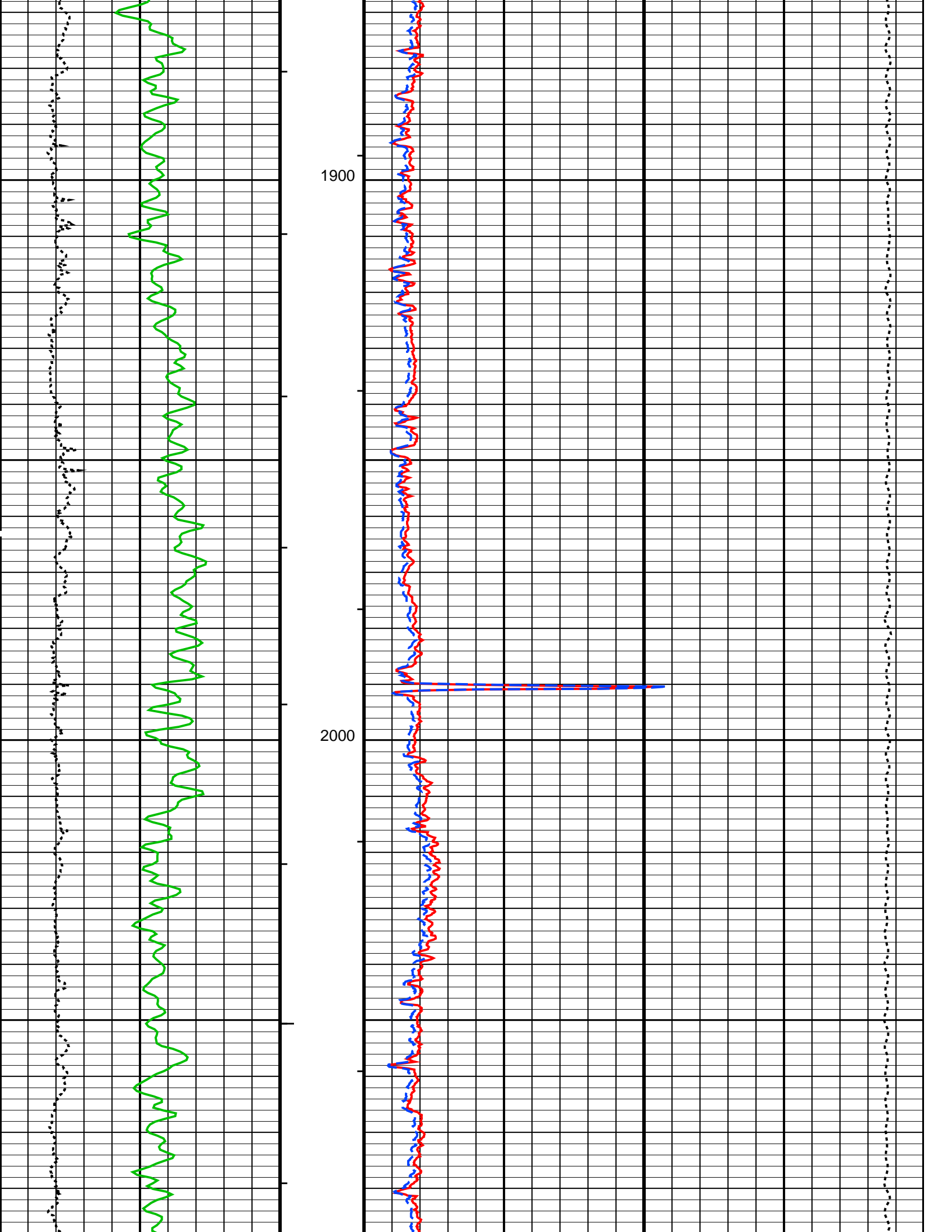
OP System Version: 17C0-154

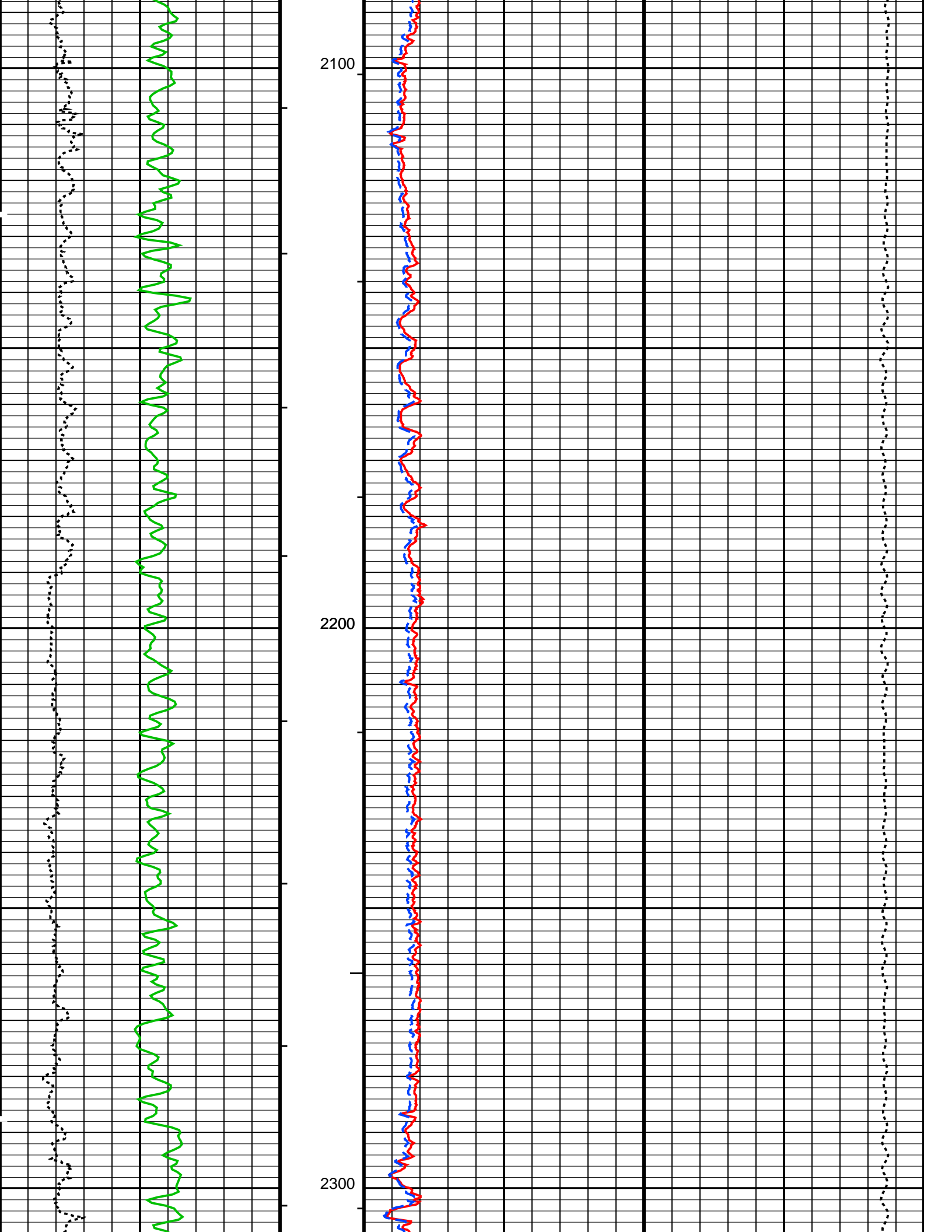
HILTC 17C0-154

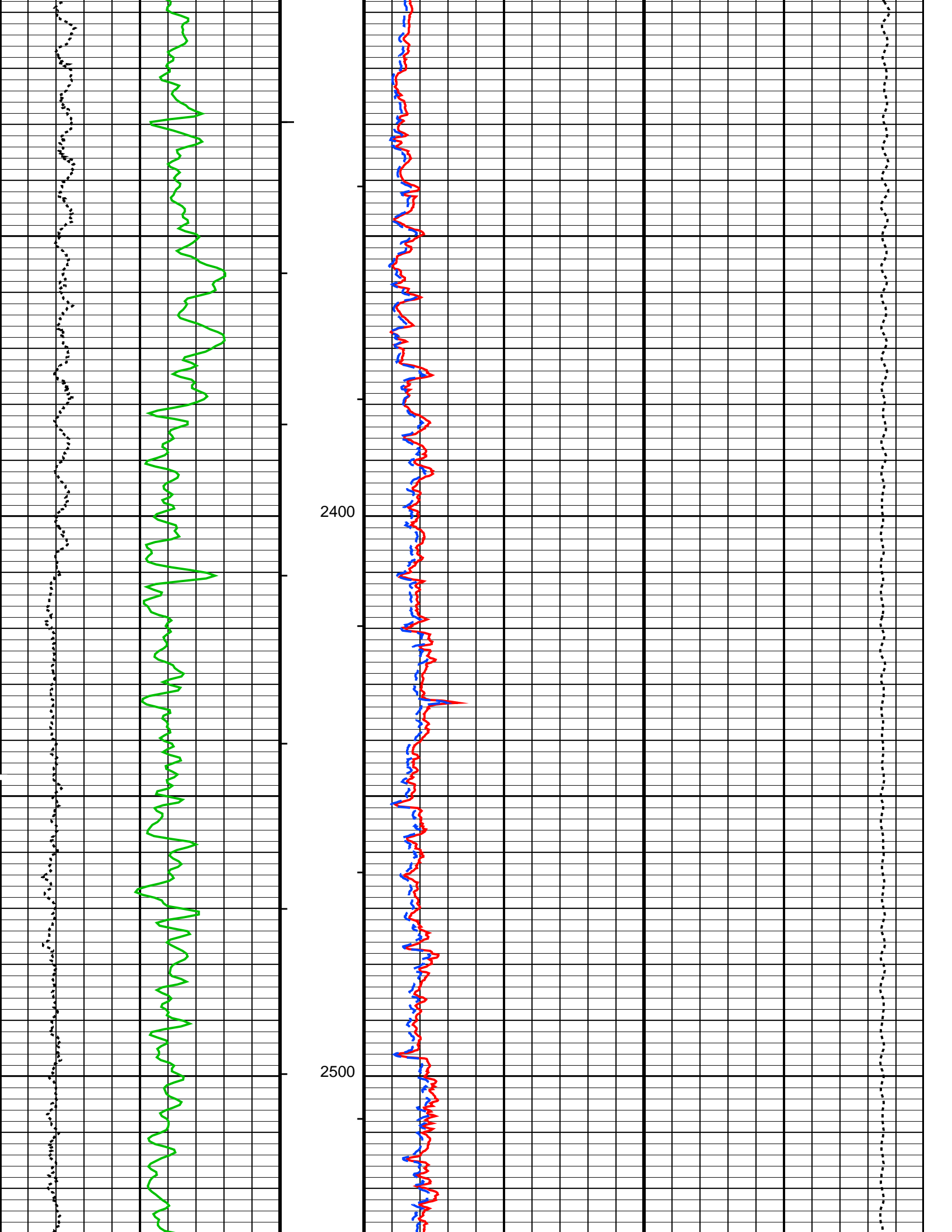
PIP SUMMARY

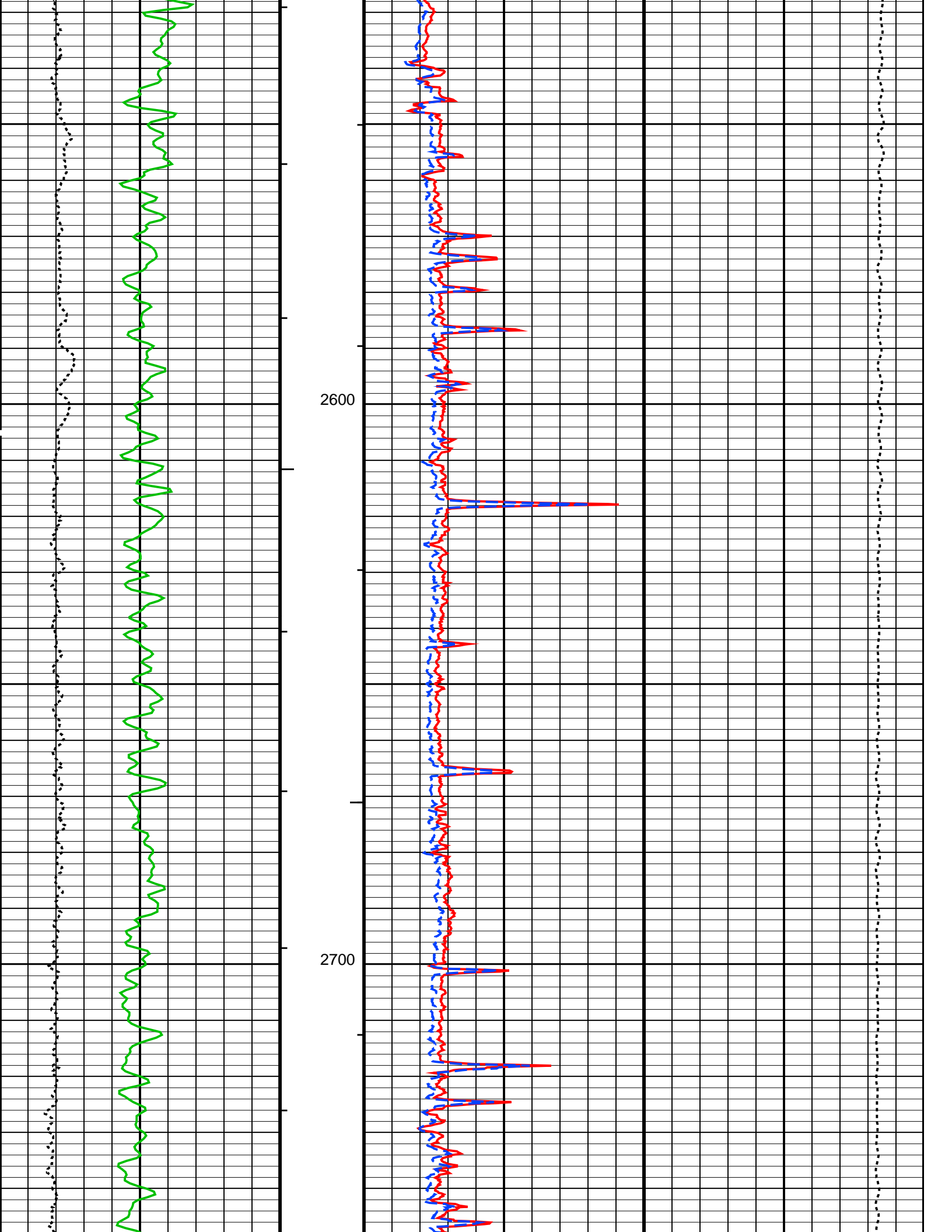
- └ Integrated Hole Volume Minor Pip Every 10 F3
- └ Integrated Hole Volume Major Pip Every 100 F3
- └ Integrated Cement Volume Minor Pip Every 10 F3

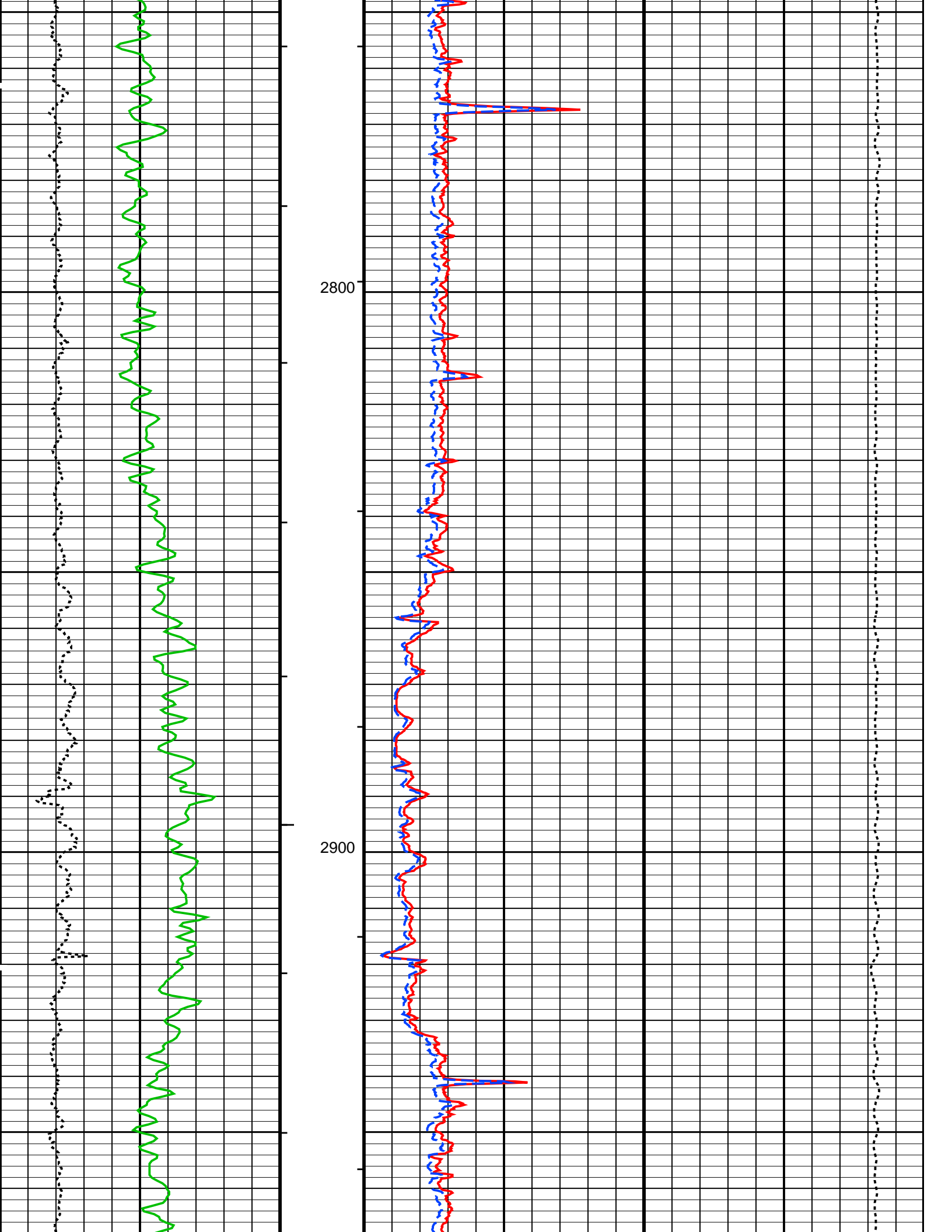


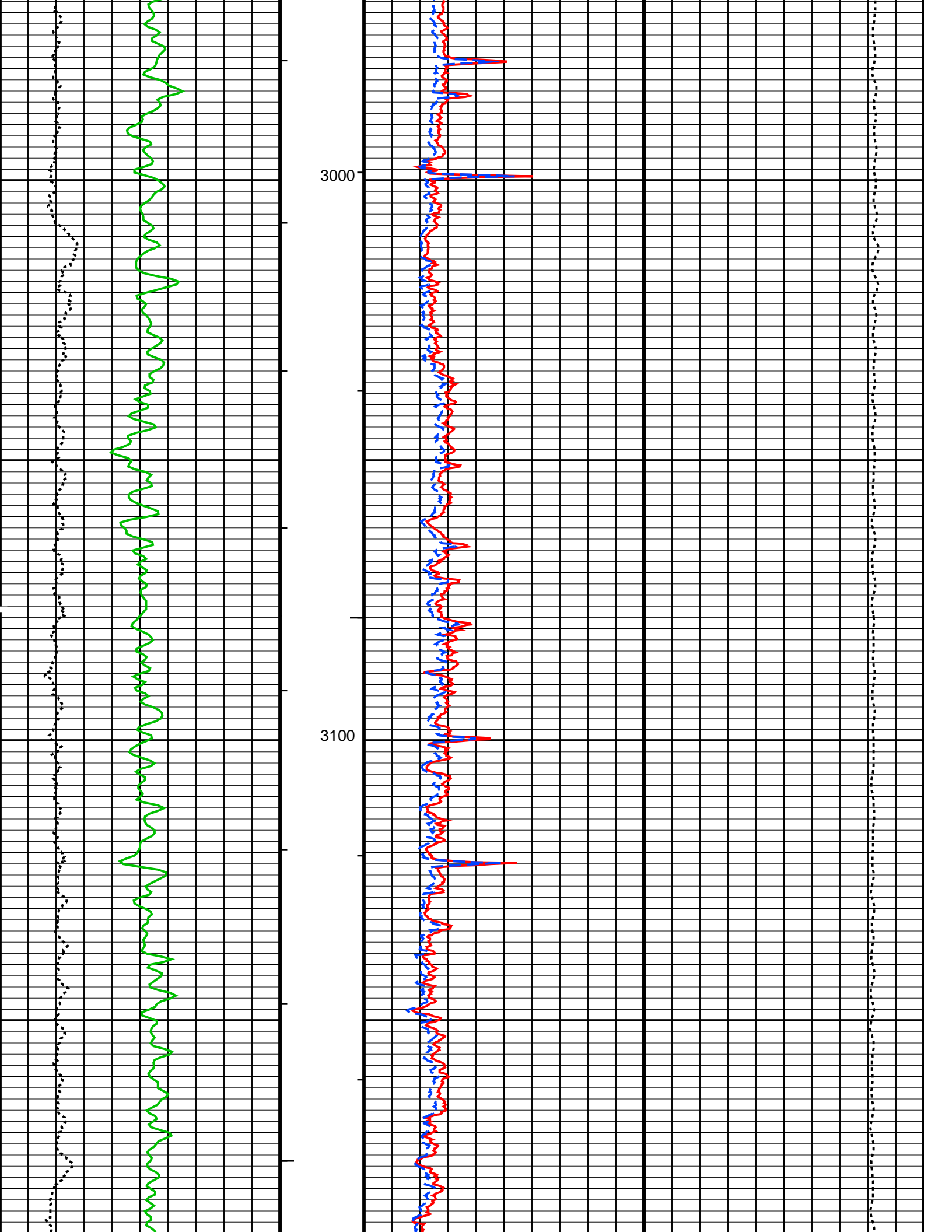


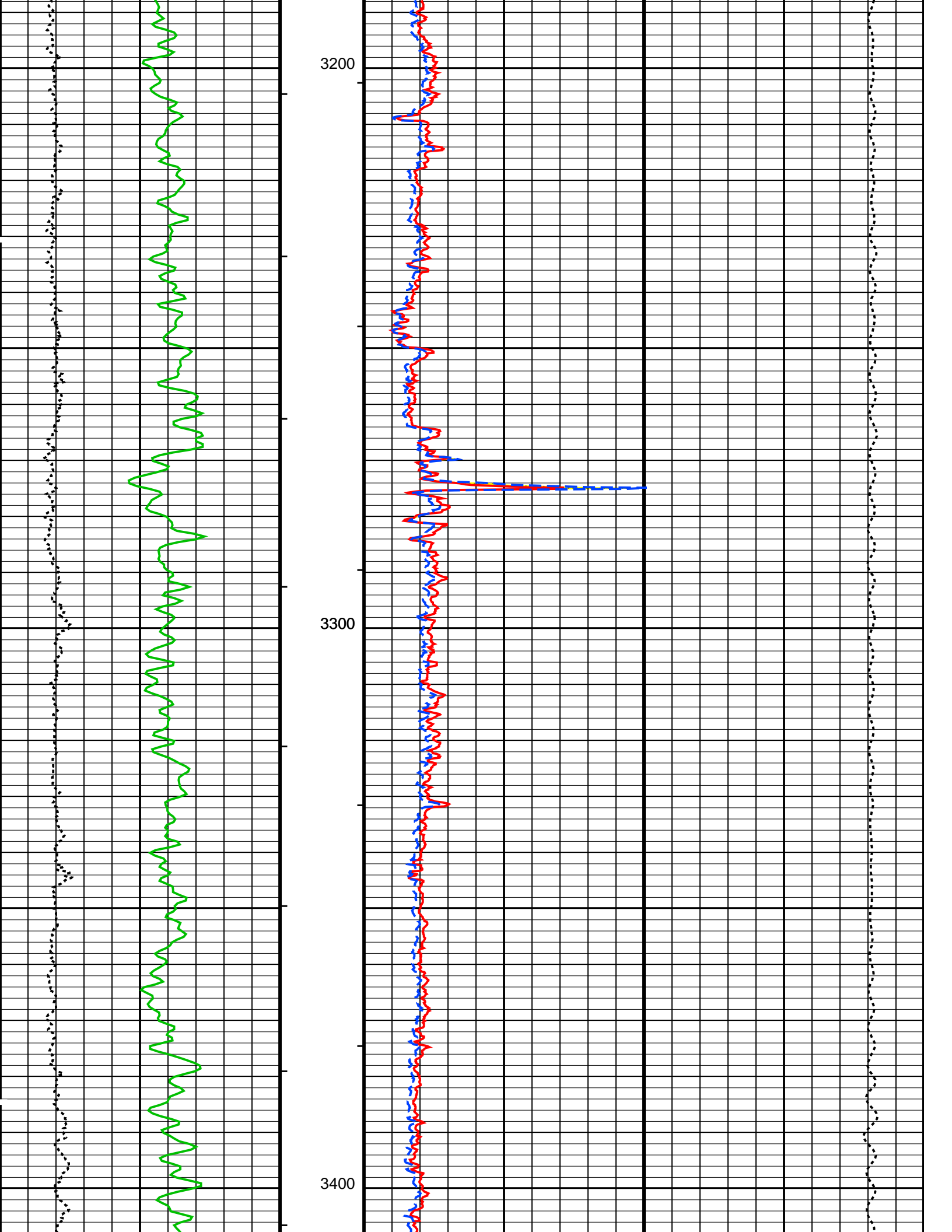


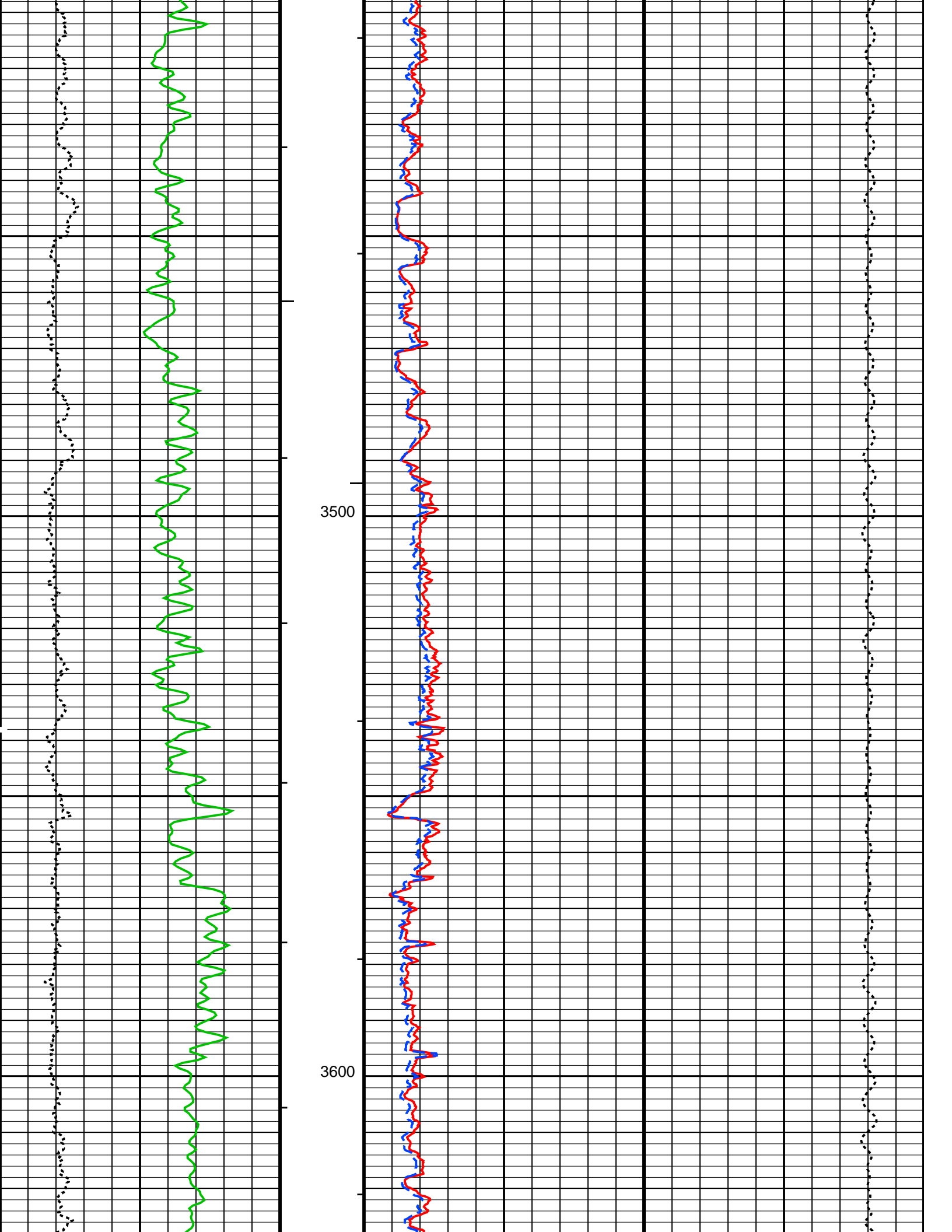


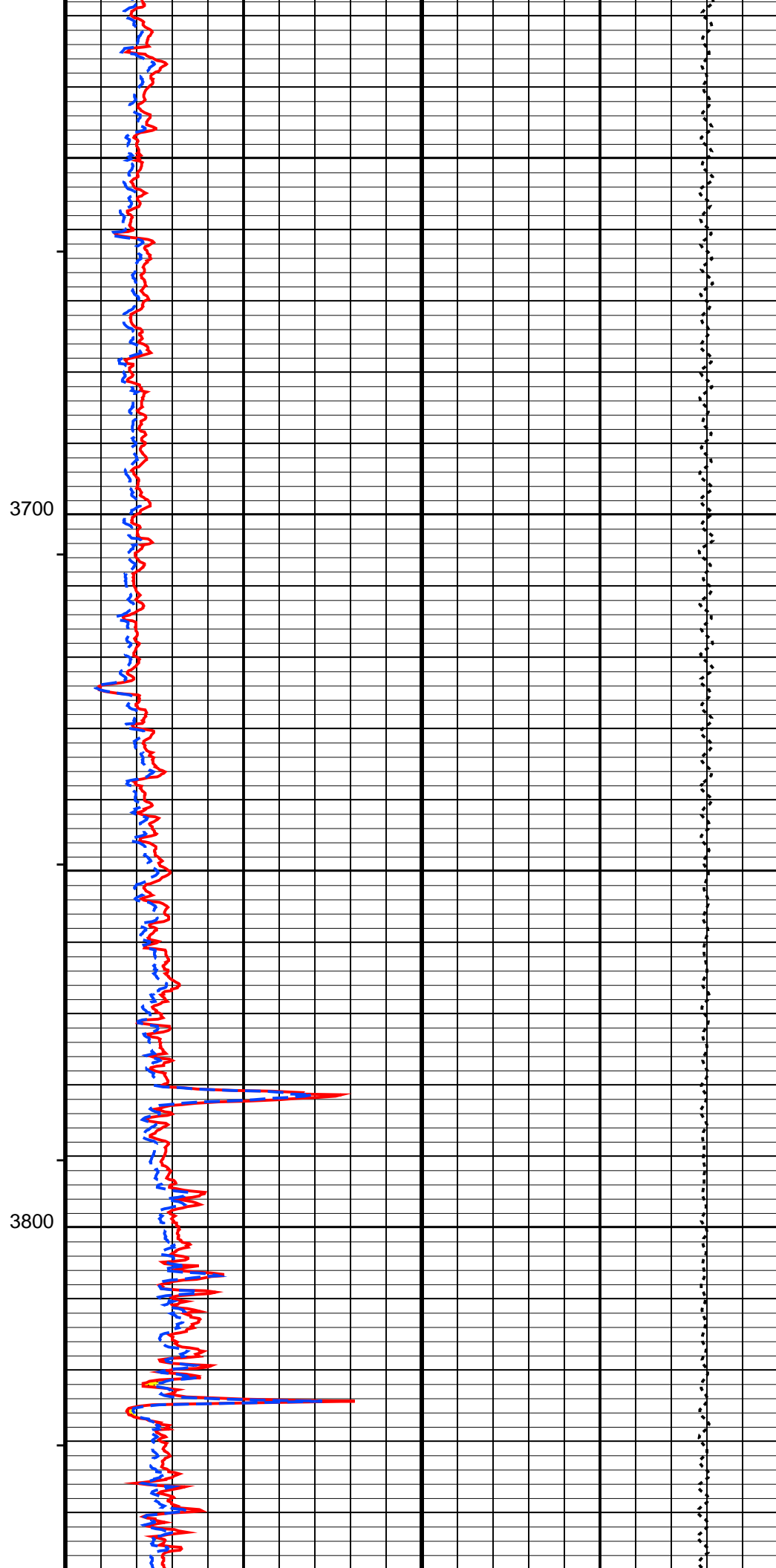
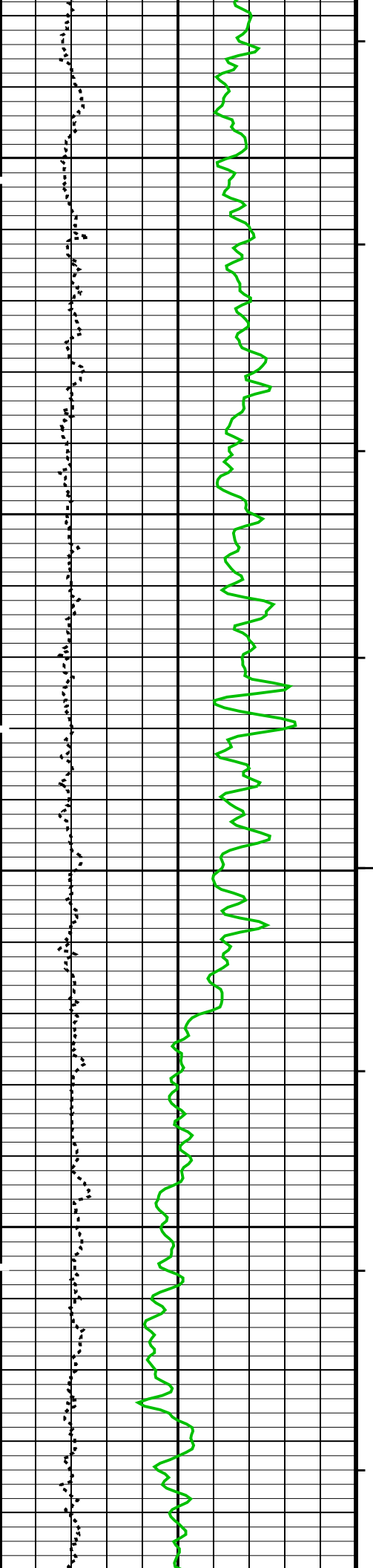


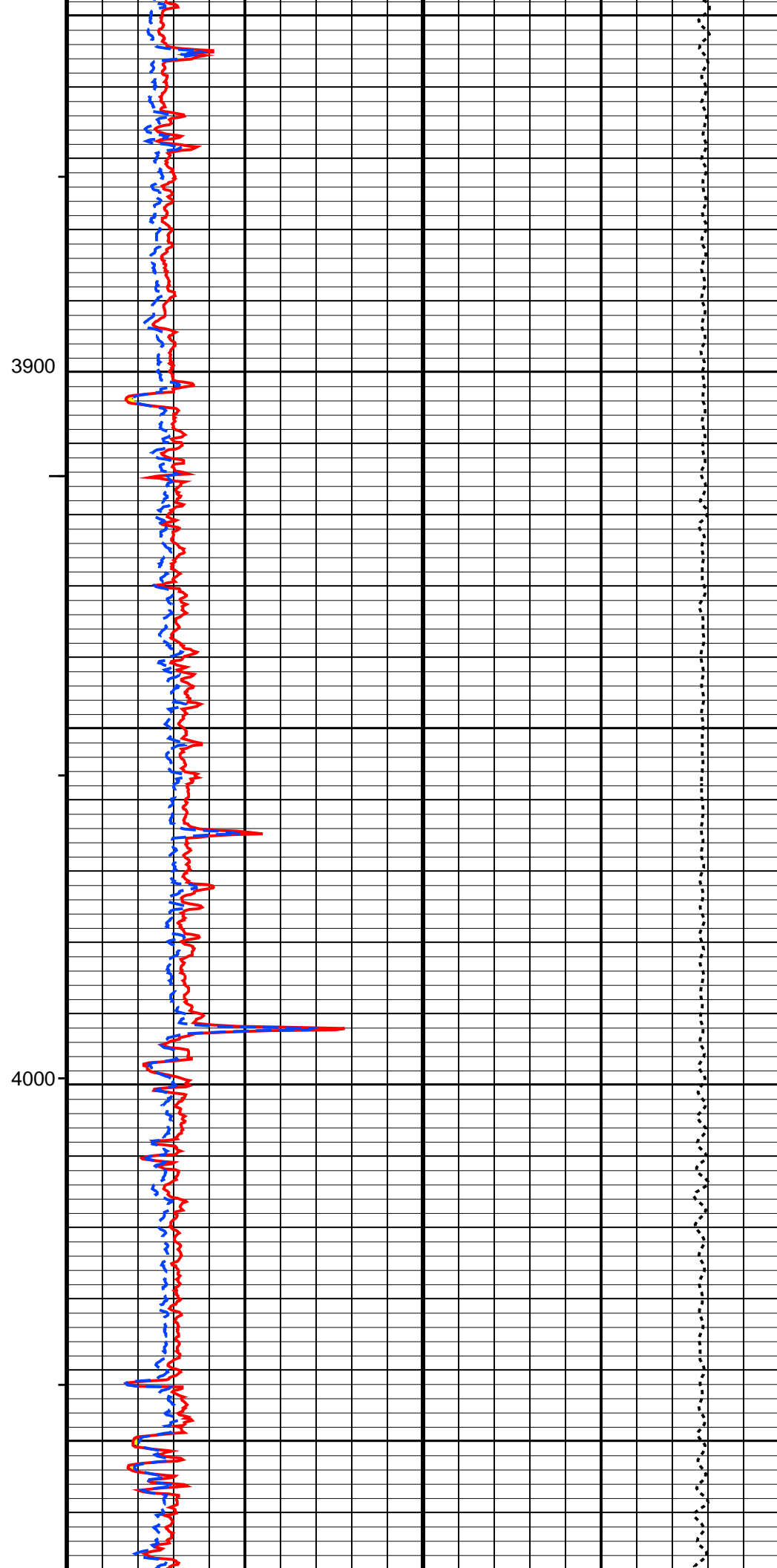
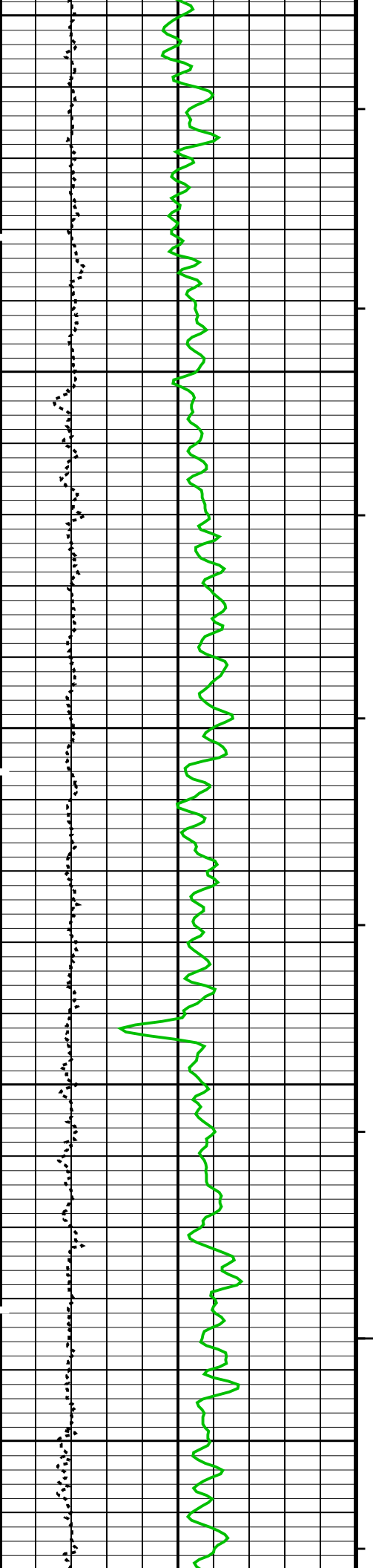


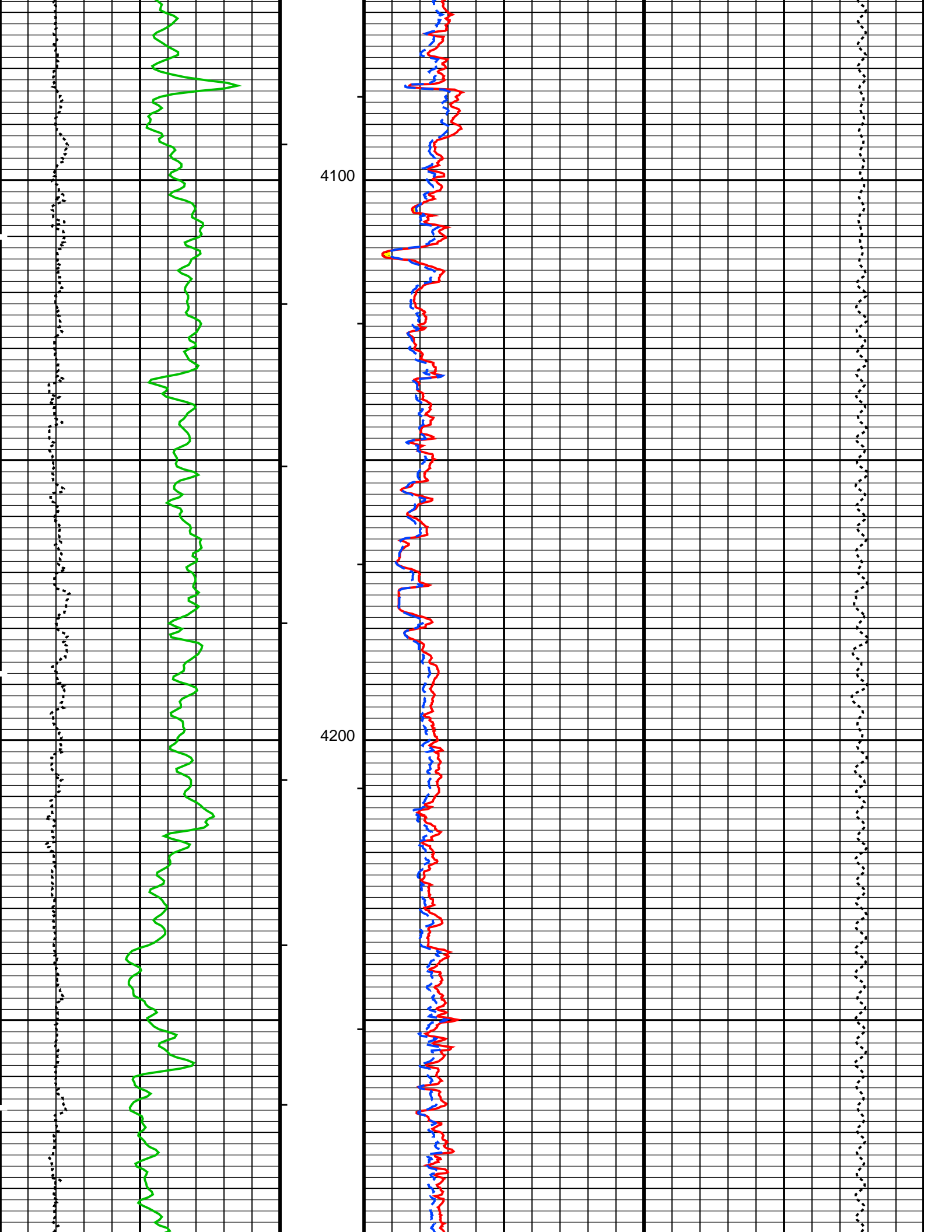


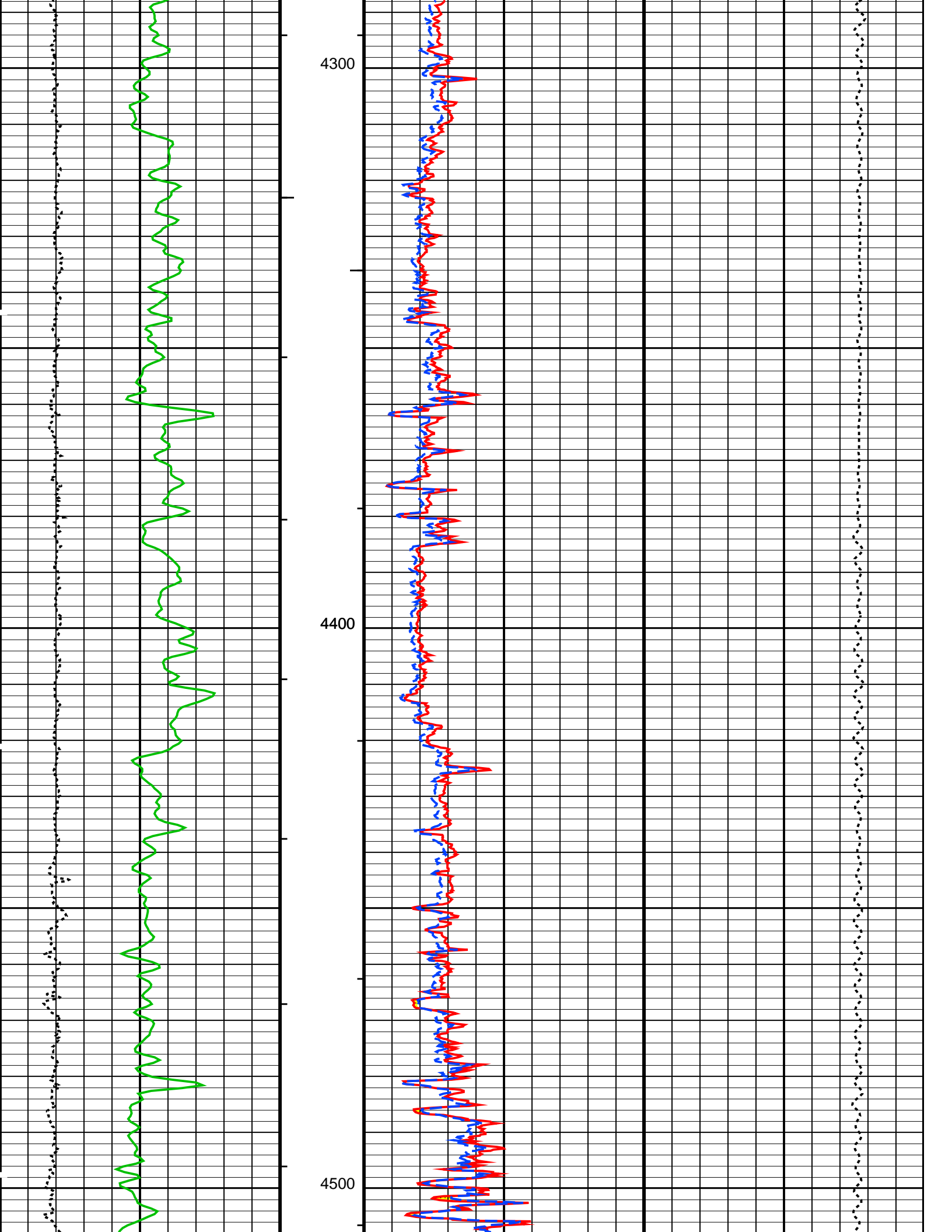


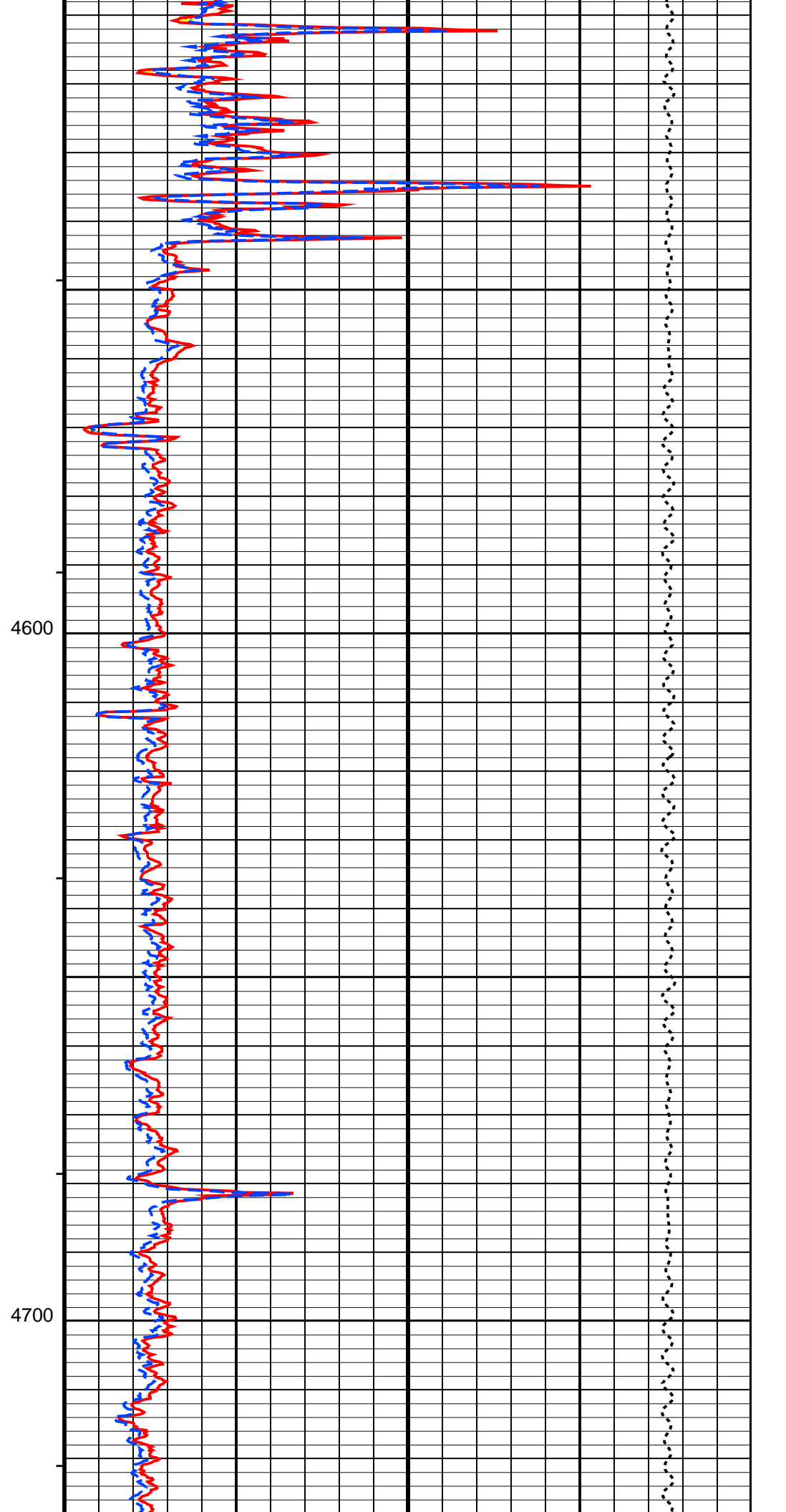
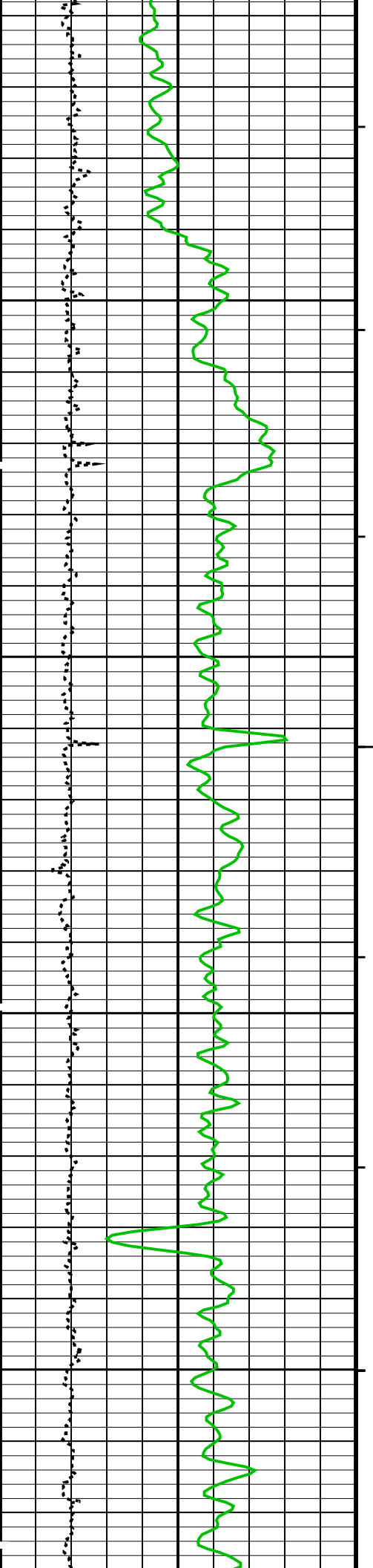


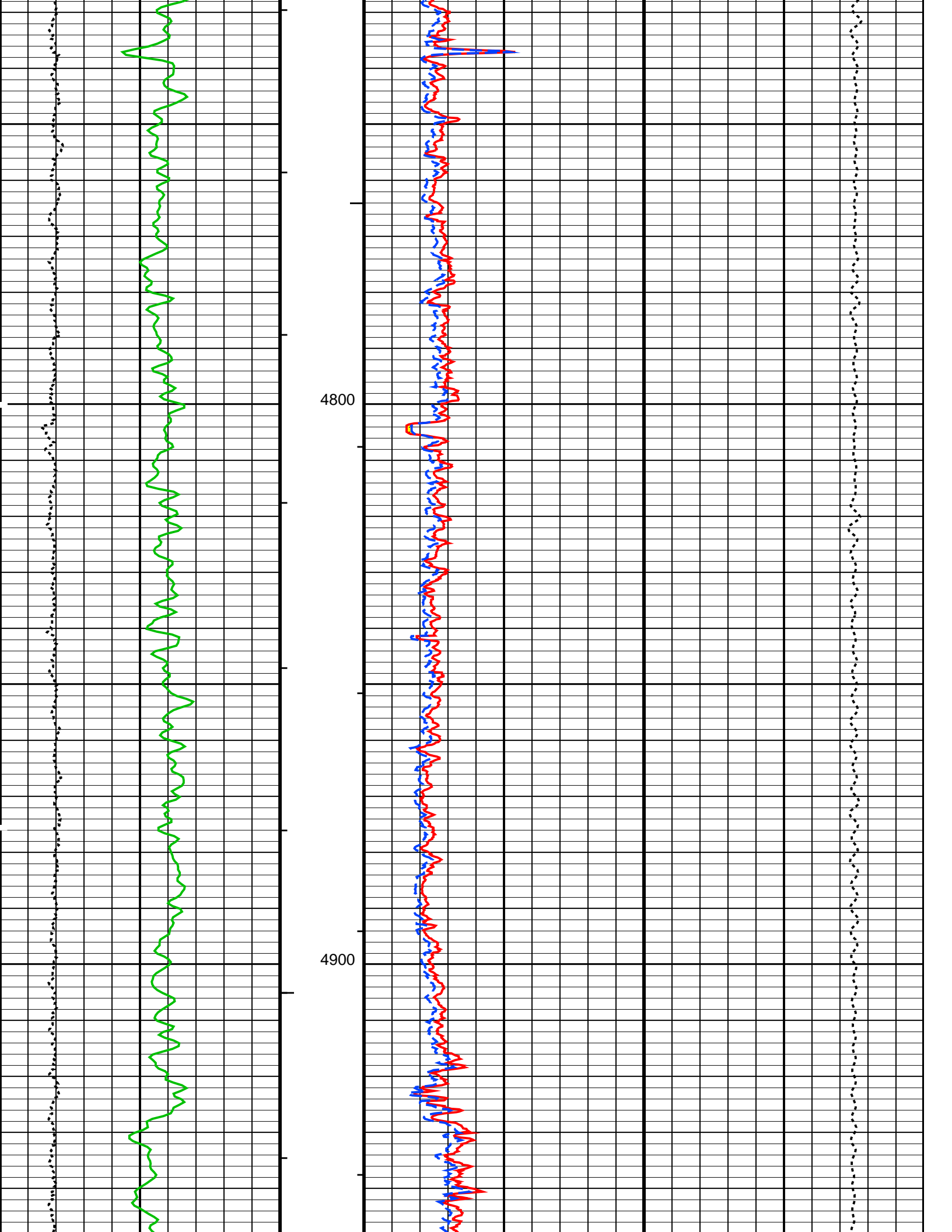


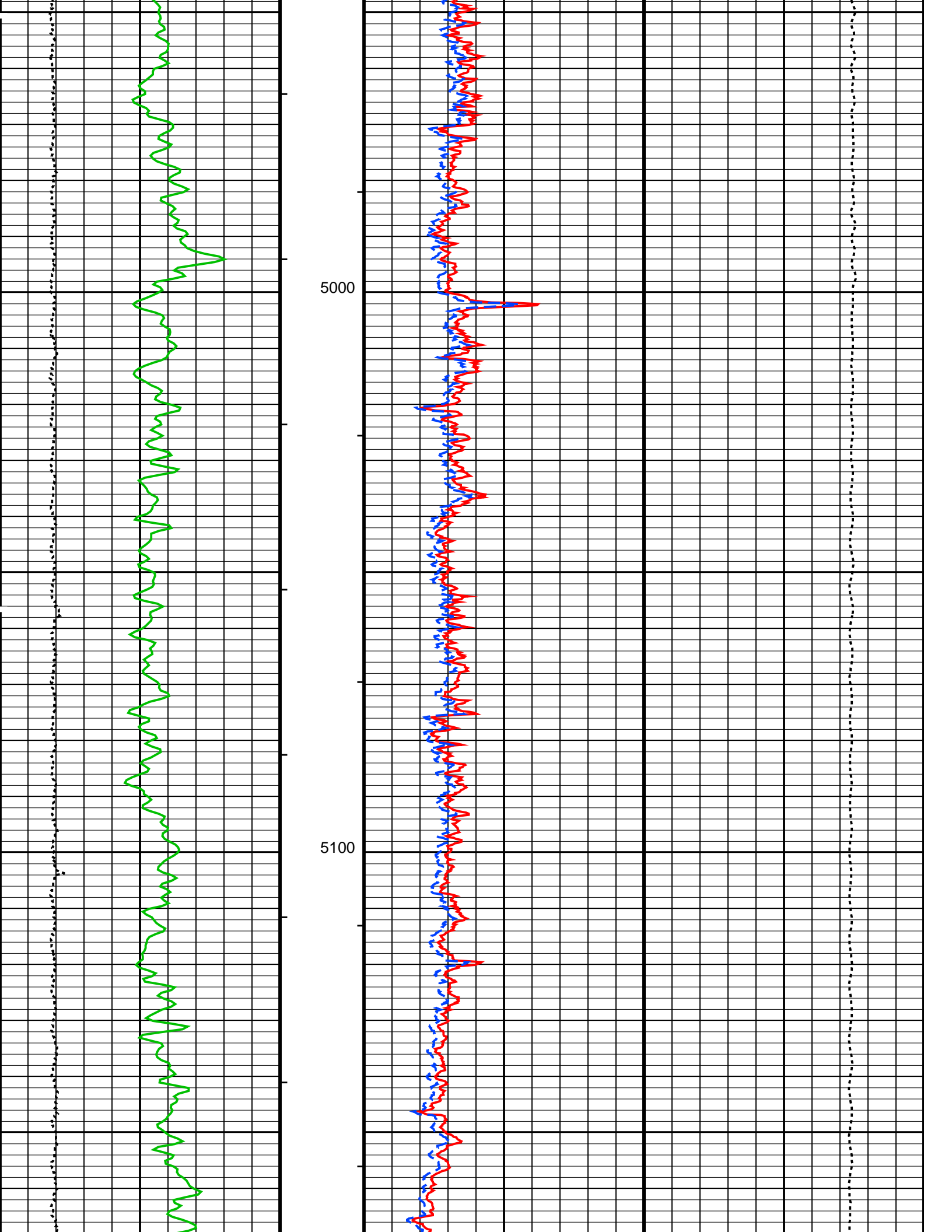


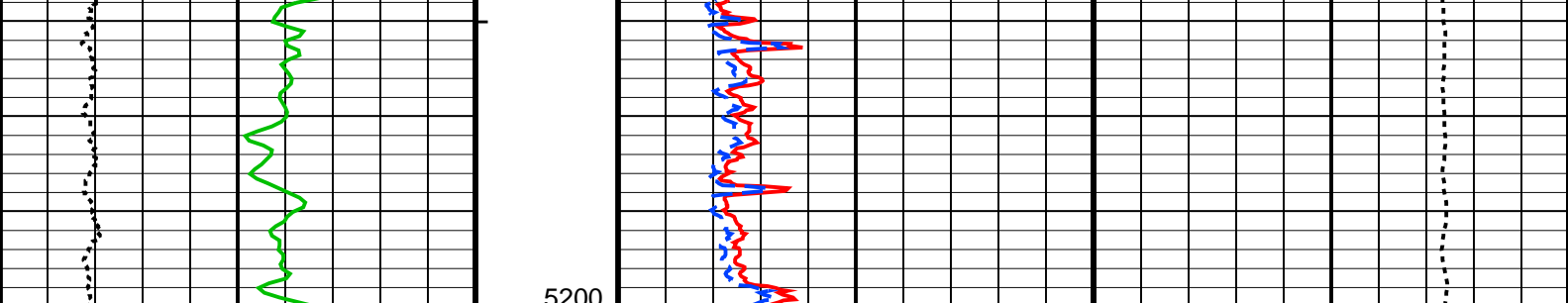












GR BACKUP		5200	Computed Micro Inverse (HMIN)	
0		Stuck Stretch (STIT) (F) 50	0	40
Gamma Ray (GR) (GAPI)			Computed Micro Normal (HMNO)	
0			0	40
Caliper (HCAL) (IN)			PERM	
6				
			Tension (TENS) (LBF)	
			10000	0

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
MPOF	HILTB-CTS: High resolution Integrated Logging Tool-CTS	ON
	MCFL Processing Operation Mode	
STKT	STI: Stuck Tool Indicator	
TDD	STI Stuck Threshold	2.500 ft
TDL	Total Depth - Driller	7822.0 ft
	Total Depth - Logger	7804.0 ft
BS	System and Miscellaneous	
	Bit Size	7.875 in

Format: UPPER_MLT Vertical Scale: 5" per 100' Graphics File Created: 17-Mar-2010 00:57

OP System Version: 17C0-154

HILTC 17C0-154

Input DLIS Files						
DEFAULT	AIT_TLD_MCFL_CNL_033PUP	FN:28	PRODUCER	17-Mar-2010 00:36	7825.5 FT	391.5 FT



MAIN MICROLOG 5" = 100'

MAXIS Field Log

Input DLIS Files						
DEFAULT	AIT TLD MCFL CNL 025LUP	FN:21	PRODUCER	16-Mar-2010 23:29	7824.0 FT	390.5 FT

Output DLIS Files

DEFAULT AIT_TLD_MCFL_CNL_033PUP FN:28 PRODUCER 17-Mar-2010 00:36

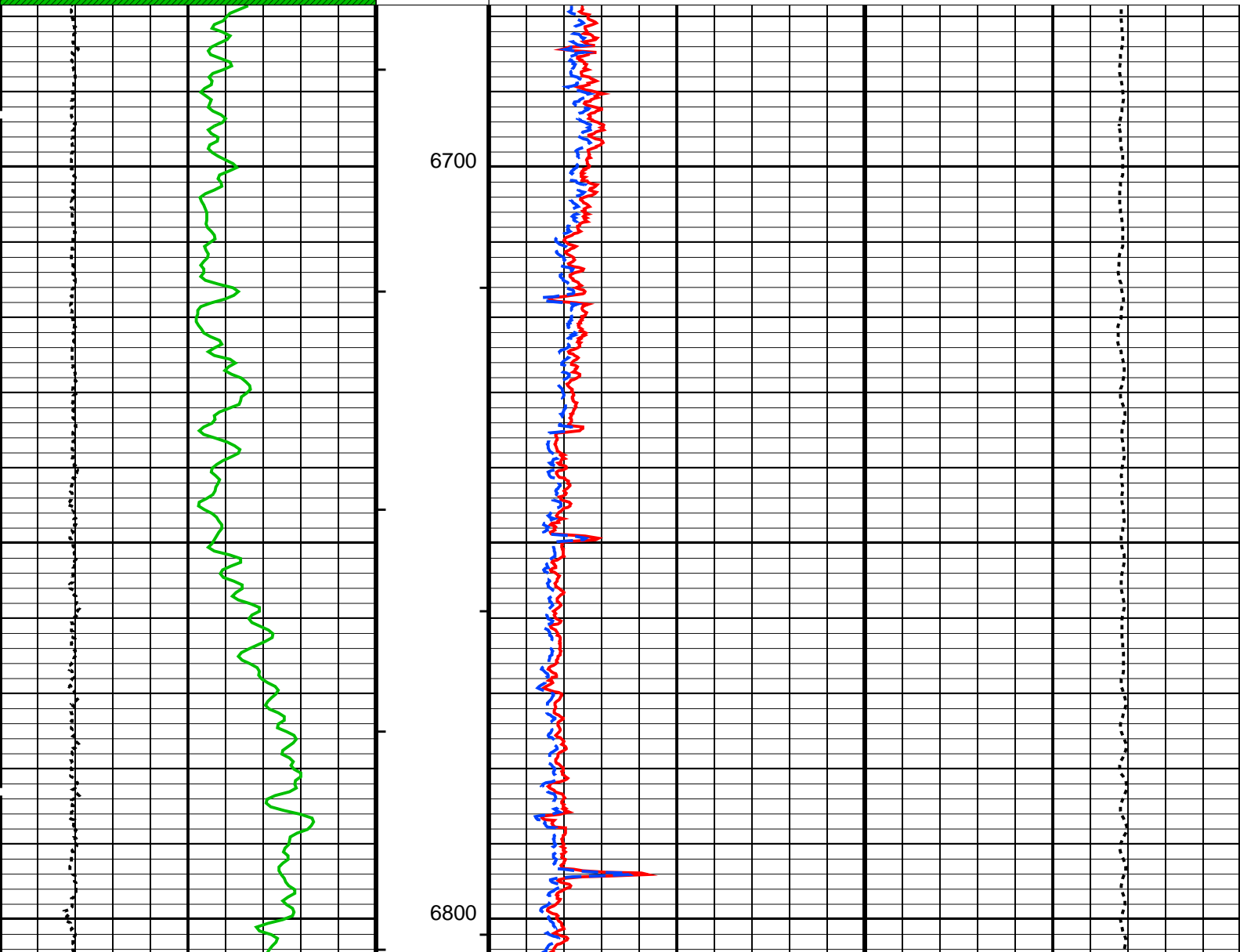
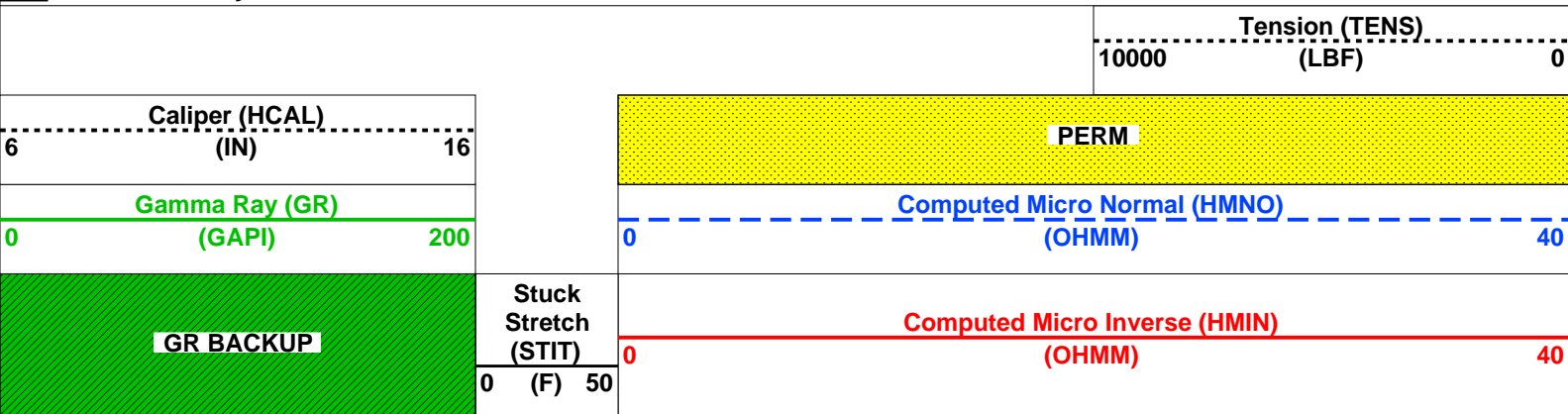
OP System Version: 17C0-154

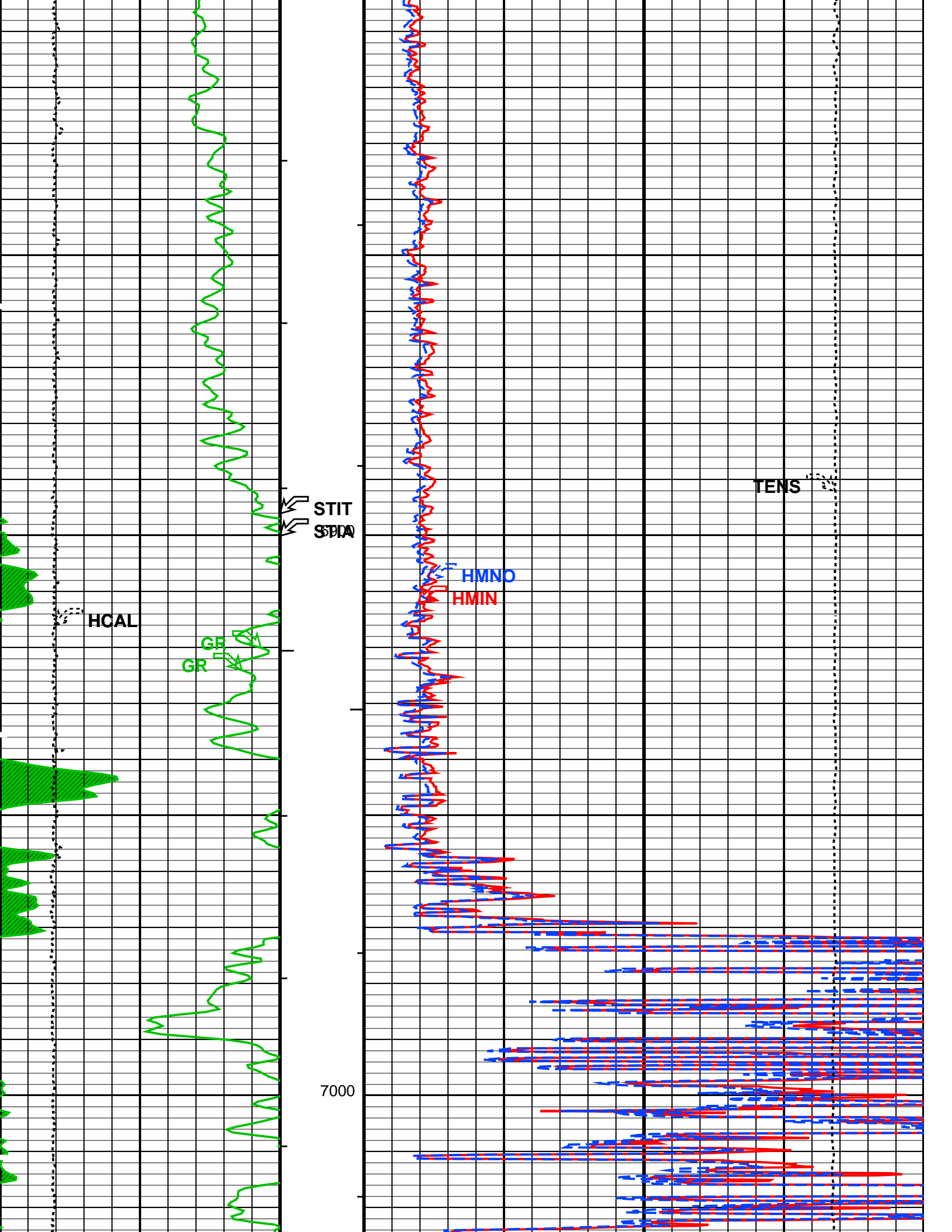
HILTB-CTS 17C0-154

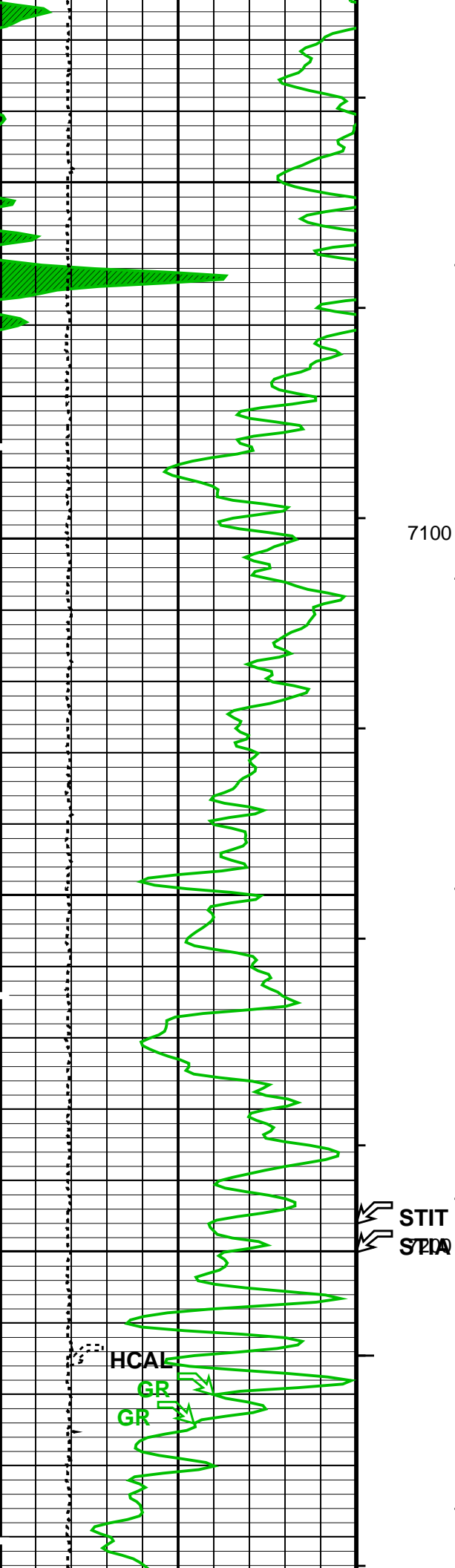
PIP SUMMARY

- └ 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

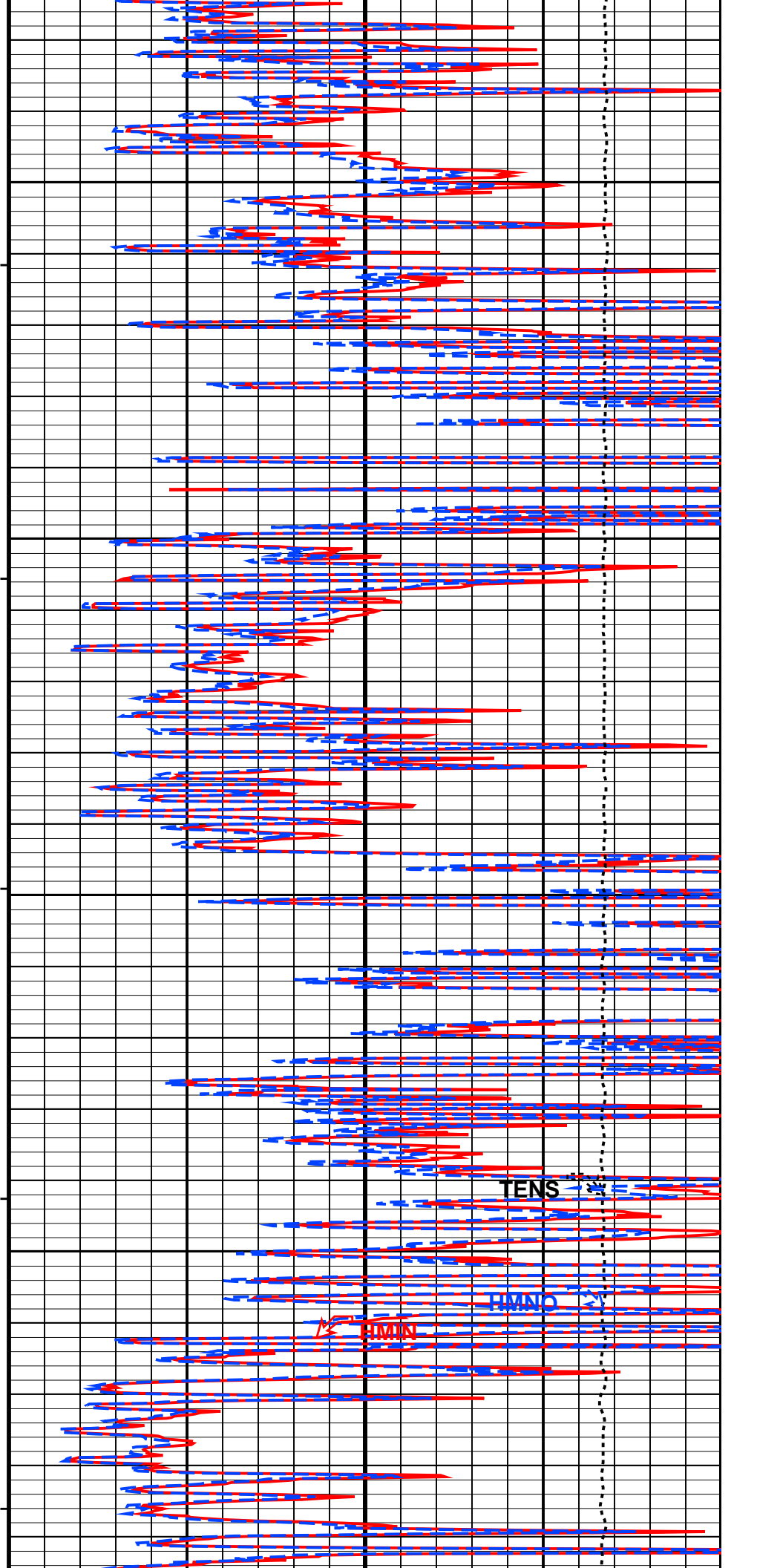
Time Mark Every 60 S

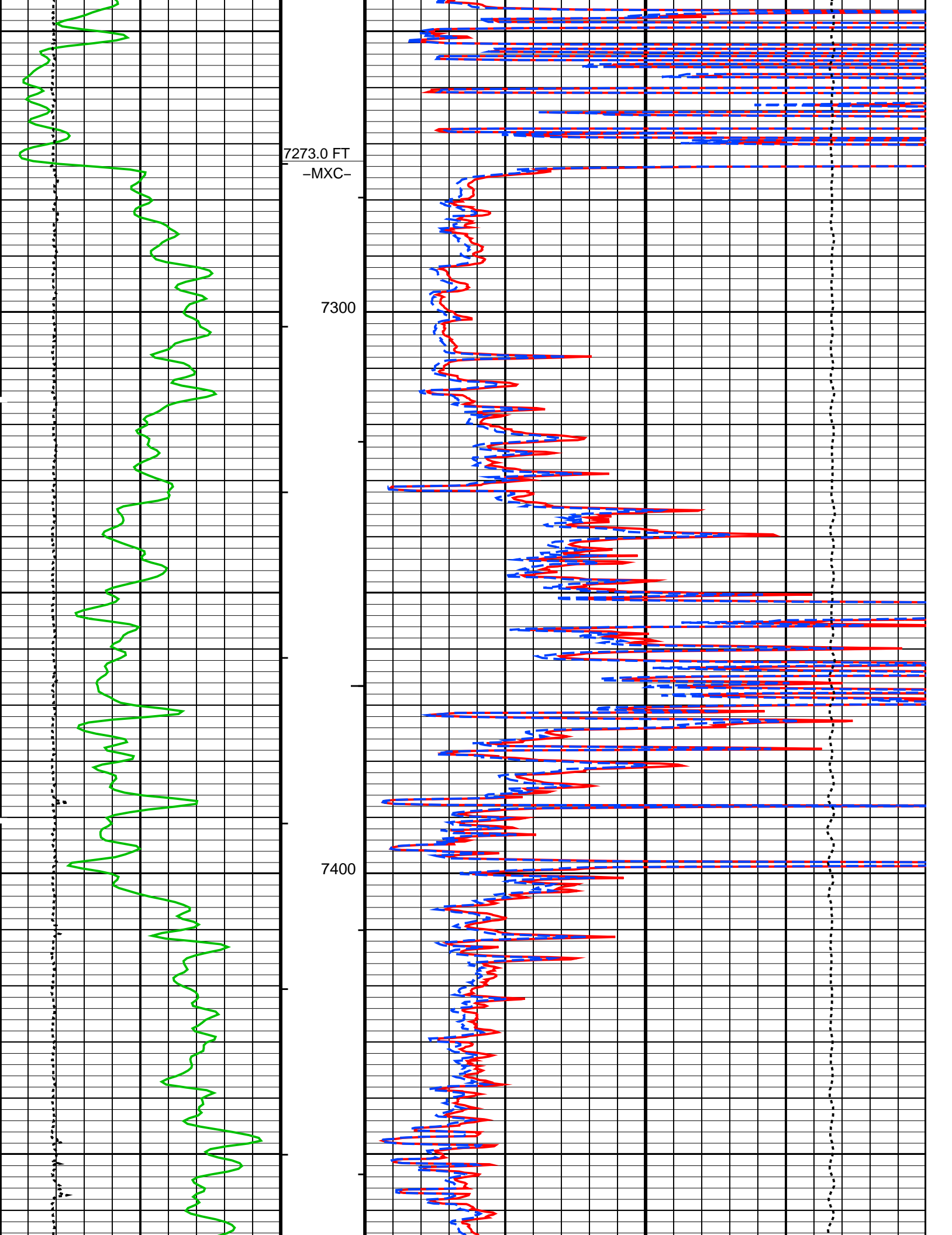


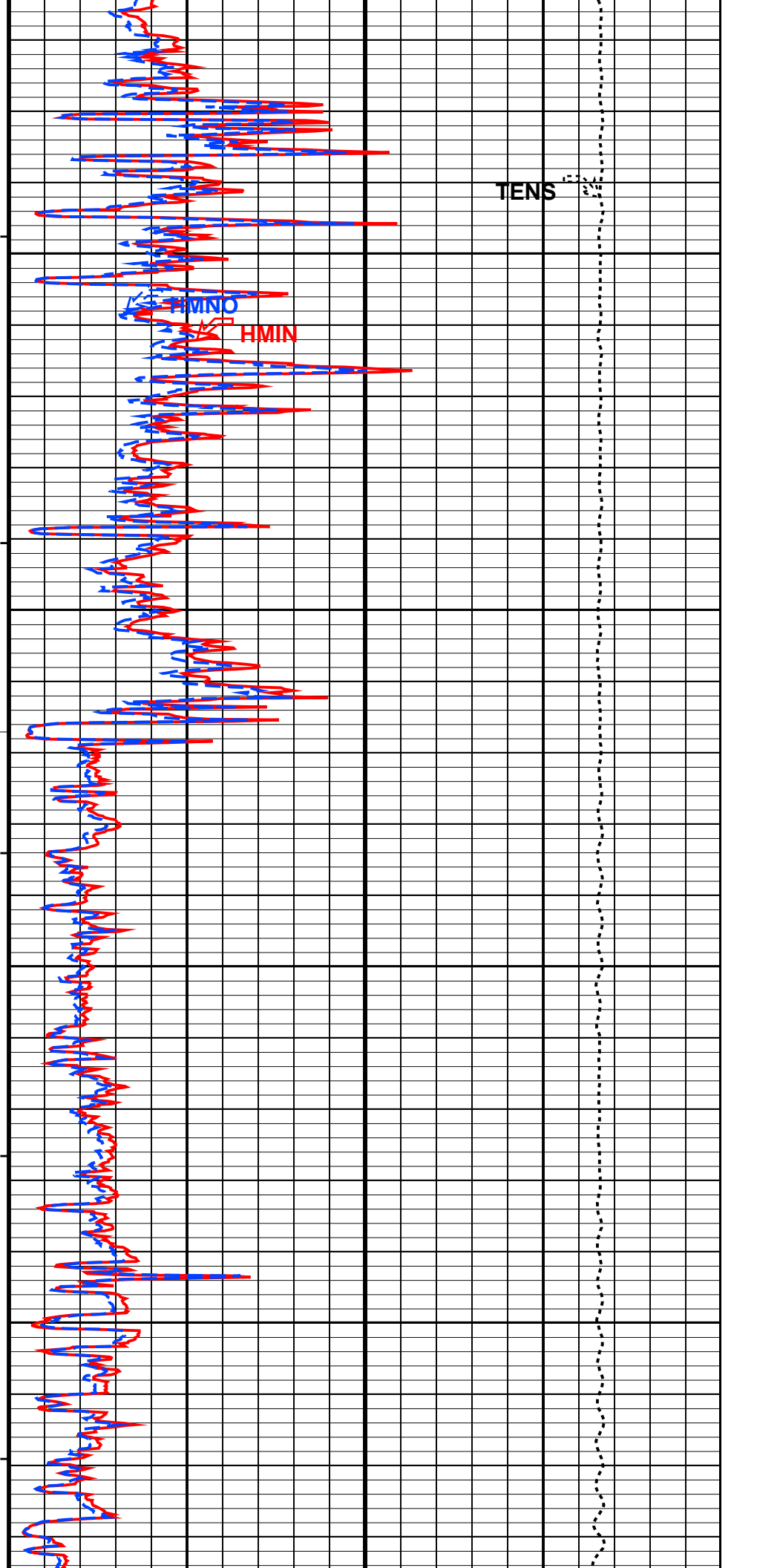
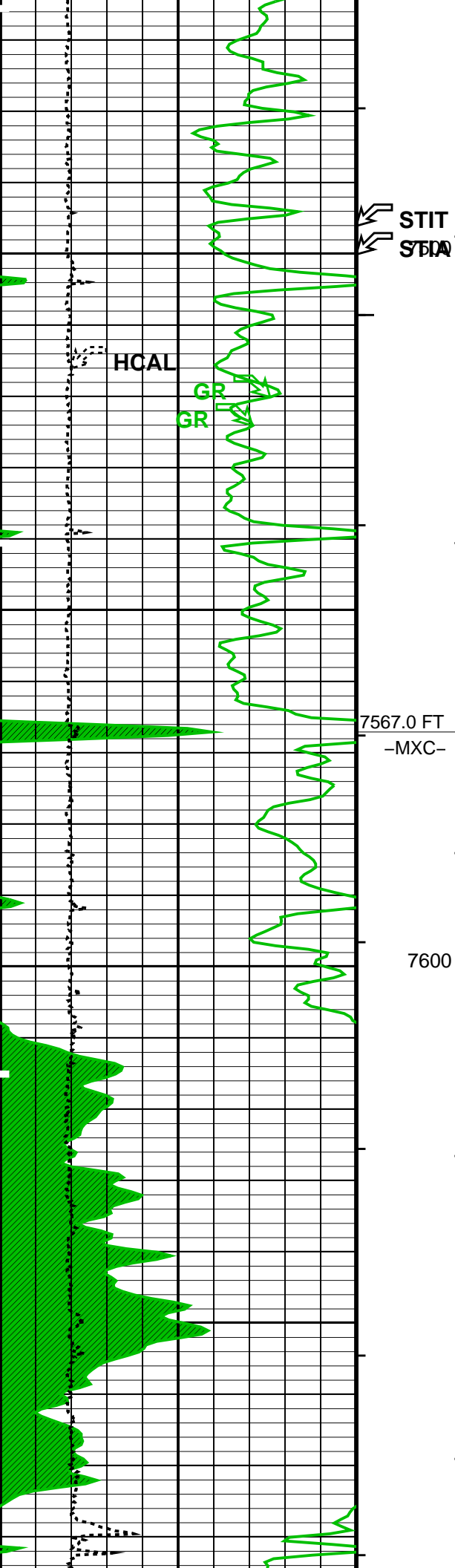


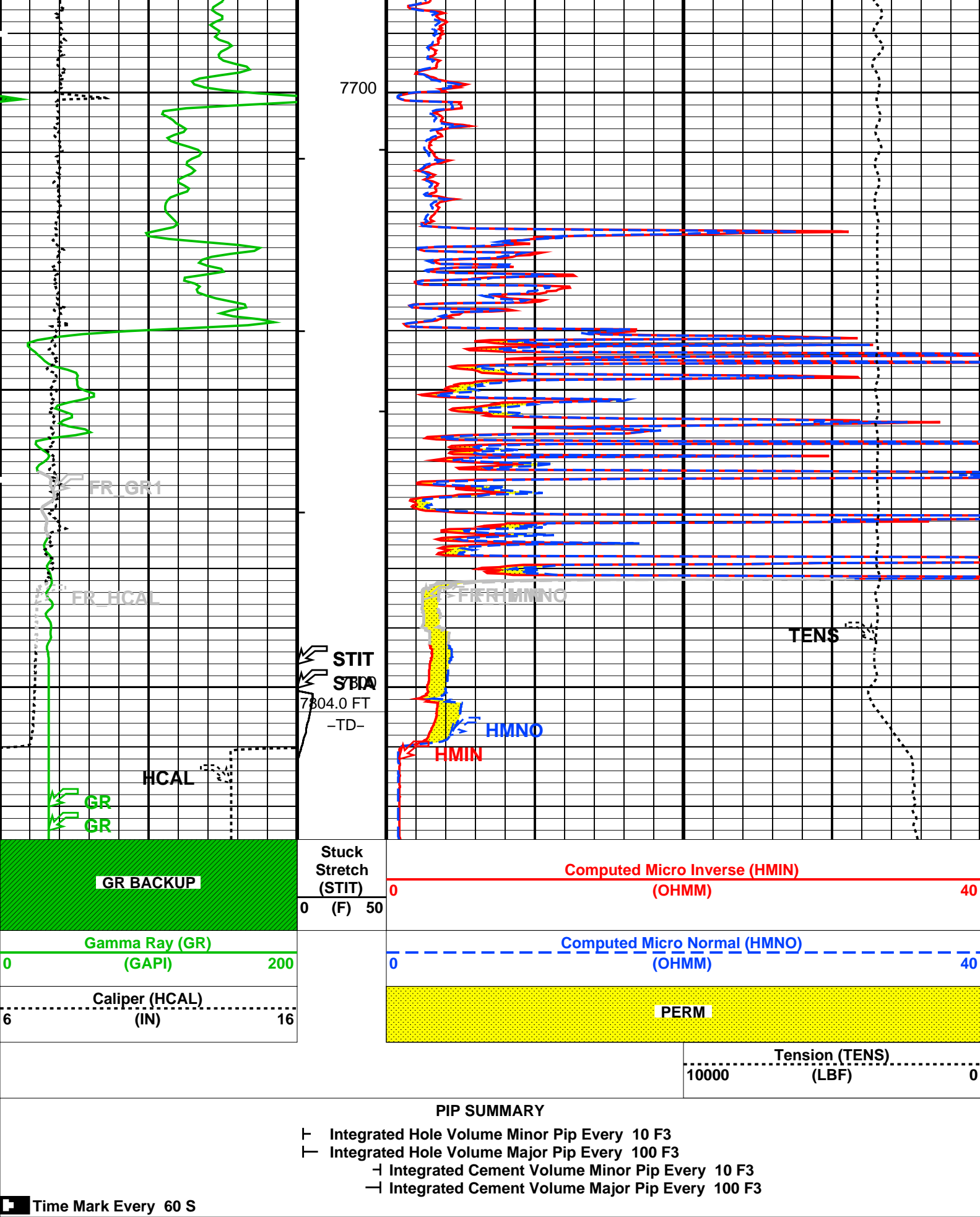


7100









Parameters

DLIS Name	Description	Value
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MPOF	HILTB-CTS: High resolution Integrated Logging Tool-CTS	MCFL Processing Operation Mode	ON	
FCD	HOLEV: Integrated Hole/Cement Volume	Future Casing (Outer) Diameter	4.5	IN
HVCS		Integrated Hole Volume Caliper Selection	AUTOMATIC	
LBFR	STI: Stuck Tool Indicator	Trigger for MAXIS First Reading Label	TDL	
STKT		STI Stuck Threshold	2.5	FT
TDD		Total Depth – Driller	7822.00	FT
TDL		Total Depth – Logger	7804.00	FT
	System and Miscellaneous			
BS		Bit Size	7.875	IN
DO		Depth Offset for Playback	1.0	FT
DORL		Depth Offset for Repeat Analysis	0.0	FT
PP		Playback Processing	NORMAL	
TD		Total Depth	7804	FT


Format: LOWER_MLT

Vertical Scale: 5" per 100'

Graphics File Created: 17-Mar-2010 00:36

OP System Version: 17C0-154				
HILTB-CTS	17C0-154			

Input DLIS Files						
DEFAULT	AIT_TLD_MCFL_CNL_025LUP	FN:21	PRODUCER	16-Mar-2010 23:29	7824.0 FT	390.5 FT
Output DLIS Files						
DEFAULT	AIT_TLD_MCFL_CNL_033PUP	FN:28	PRODUCER	17-Mar-2010 00:36		



REPEAT ANALYSIS

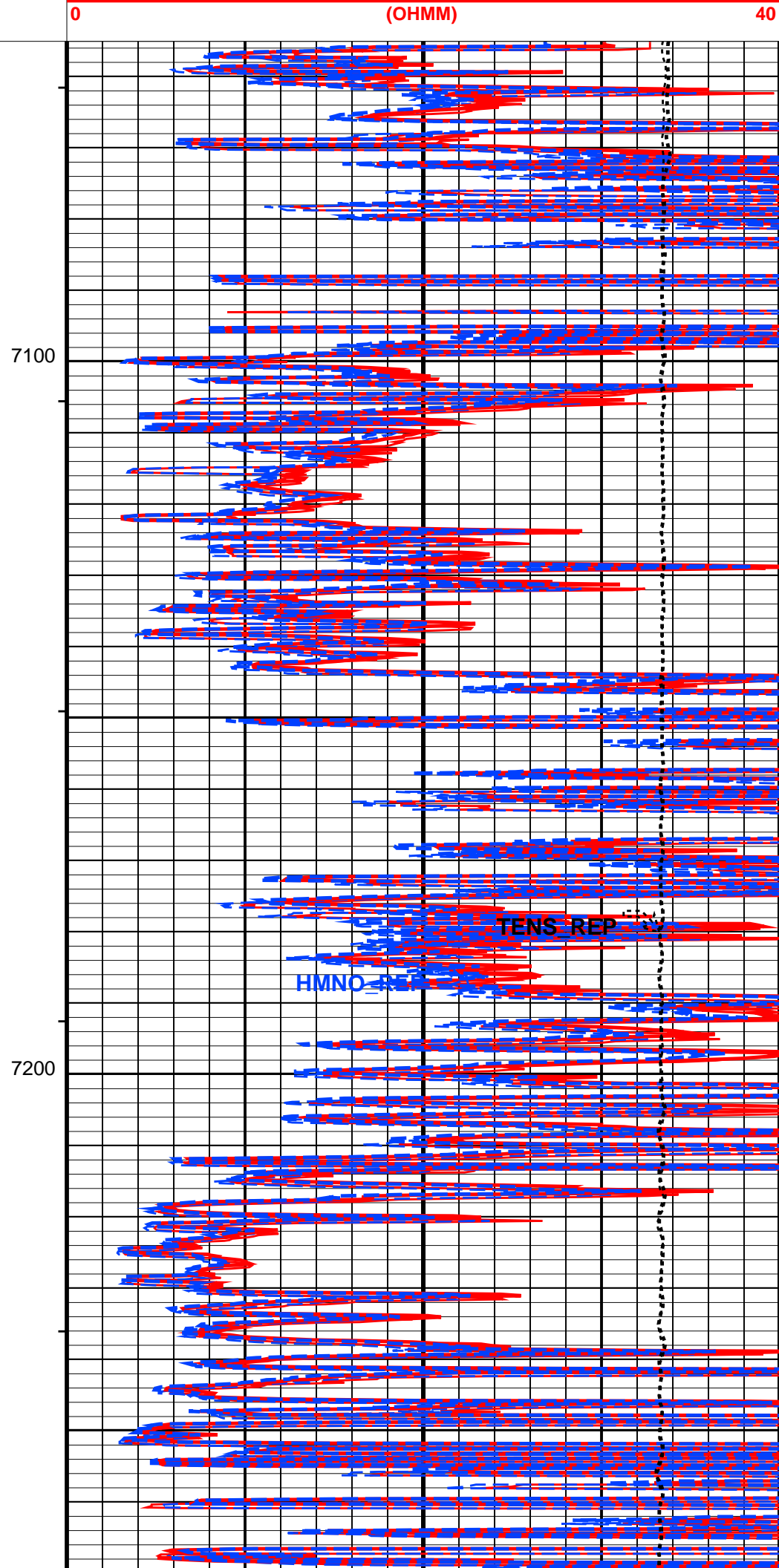
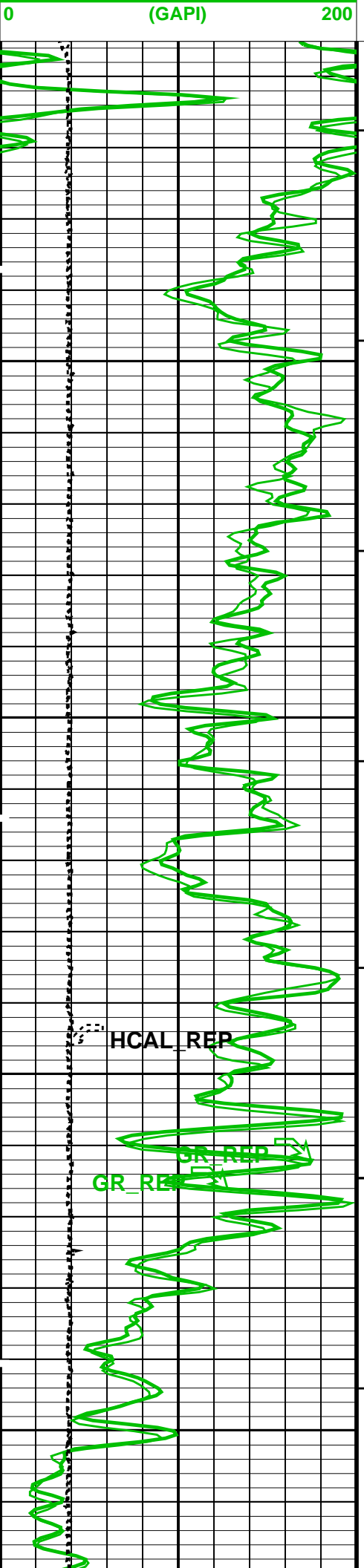
MAXIS Field Log

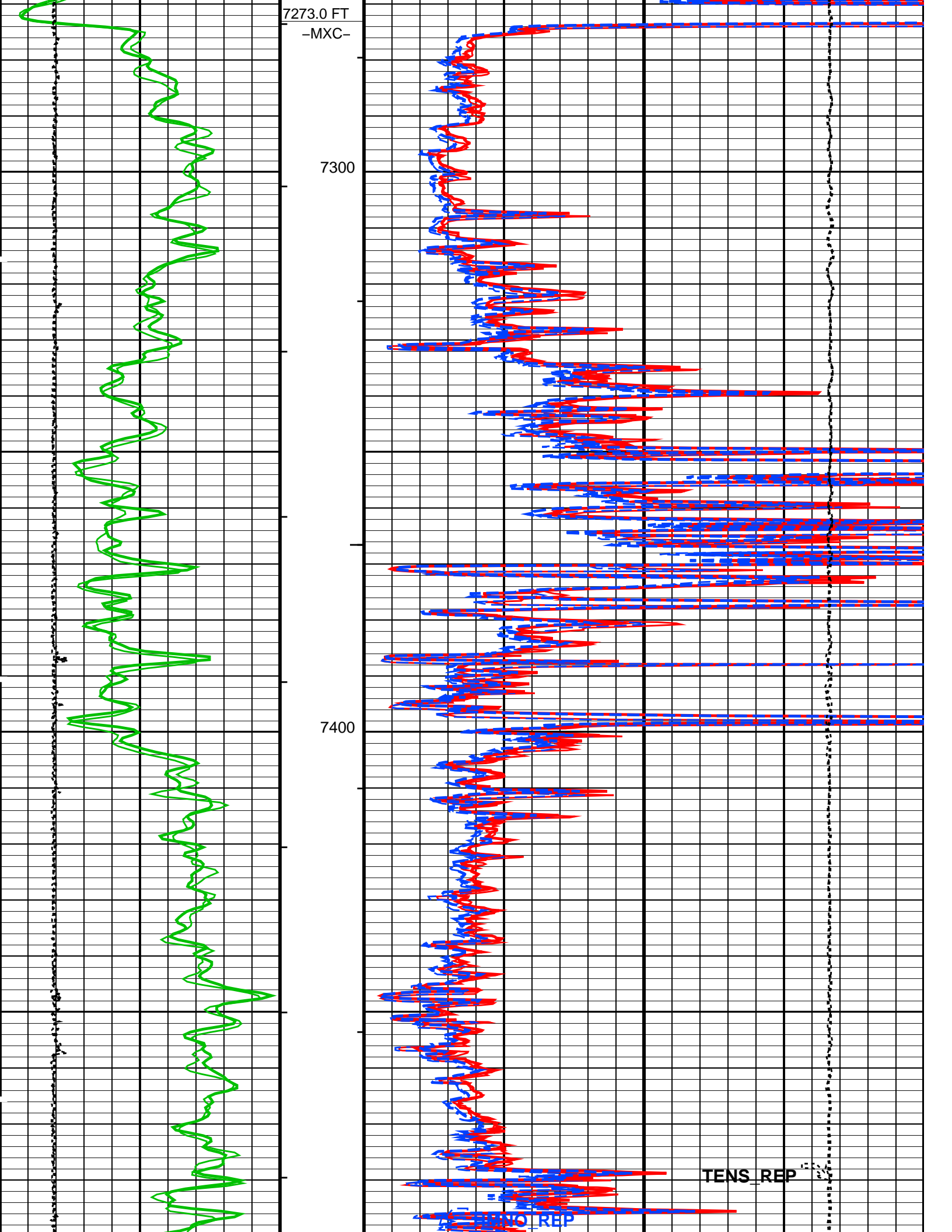
Input DLIS Files						
DEFAULT	AIT_TLD_MCFL_CNL_025LUP	FN:21	PRODUCER	16-Mar-2010 23:29	7824.0 FT	390.5 FT
DEFAULT	AIT_TLD_MCFL_CNL_024PUP	FN:20	PRODUCER	16-Mar-2010 23:25	7830.0 FT	7054.5 FT
Output DLIS Files						
DEFAULT	AIT_TLD_MCFL_CNL_033PUP	FN:28	PRODUCER	17-Mar-2010 00:36		

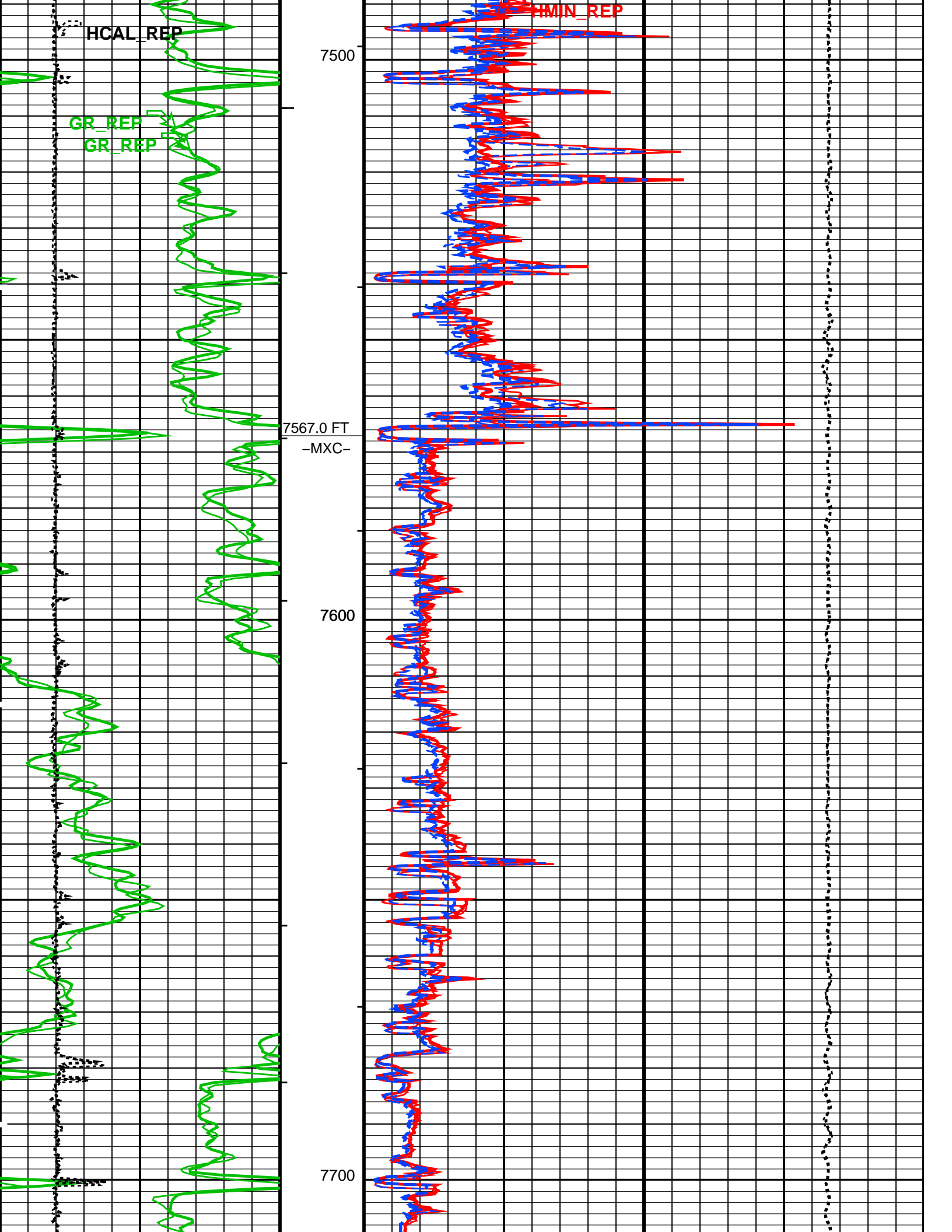
OP System Version: 17C0-154				
HILTB-CTS	17C0-154			

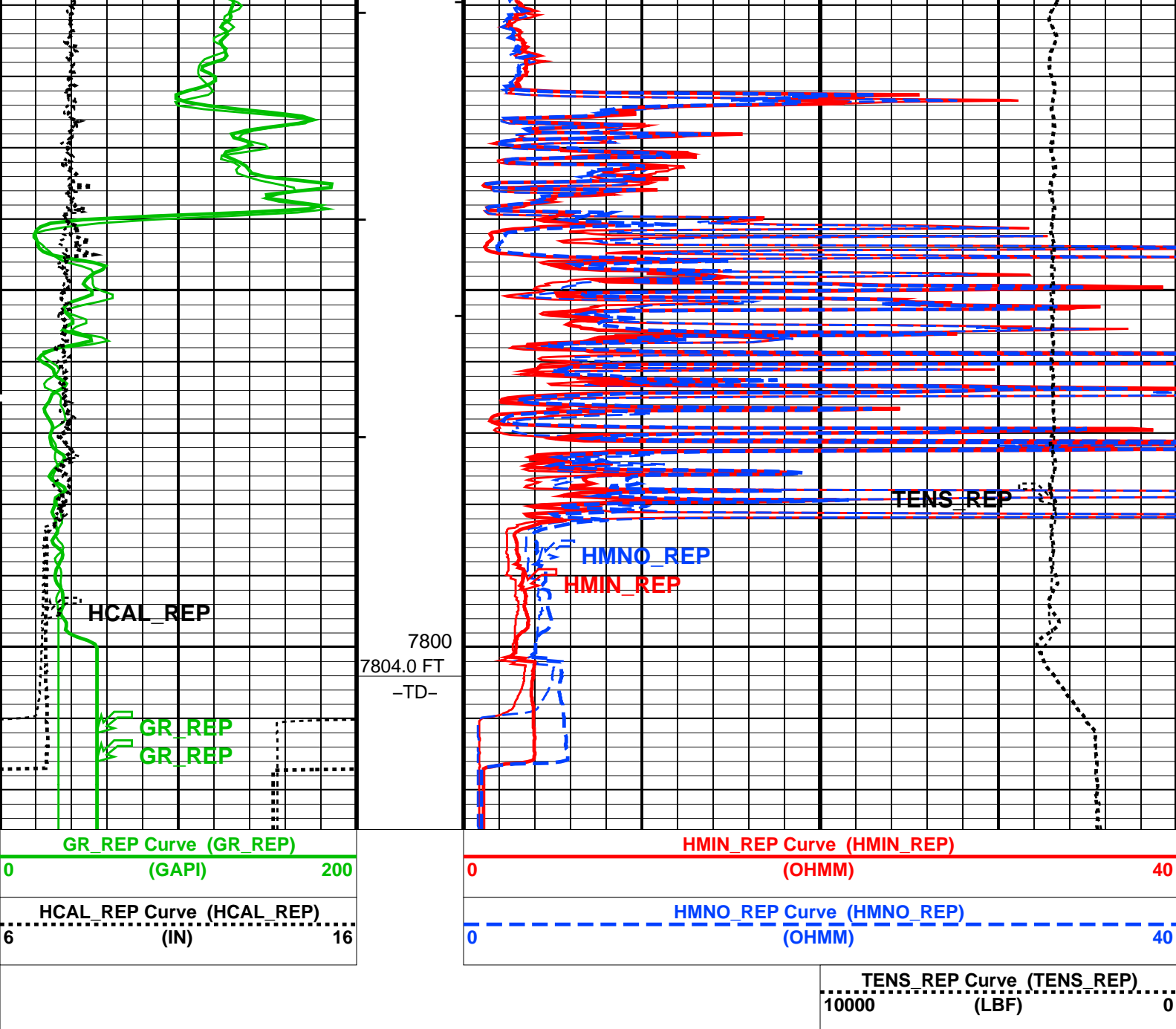
PIP SUMMARY	
└ Integrated Hole Volume Minor Pip Every 10 F3	
└ Integrated Hole Volume Major Pip Every 100 F3	
└ Integrated Cement Volume Minor Pip Every 10 F3	
└ Integrated Cement Volume Major Pip Every 100 F3	
■ Time Mark Every 60 S	











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	
MPOF	HILTB-CTS: High resolution Integrated Logging Tool-CTS	ON	
	MCFL Processing Operation Mode	ON	
FCD	HOLEV: Integrated Hole/Cement Volume	4.5	
HVCS	Future Casing (Outer) Diameter	IN	
	Integrated Hole Volume Caliper Selection	AUTOMATIC	
	System and Miscellaneous		
BS	Bit Size	7.875	IN
DO	Depth Offset for Playback	1.0	FT
DORL	Depth Offset for Repeat Analysis	0.0	FT
PP	Playback Processing	NORMAL	
TD	Total Depth	7804	FT

Format: MLT_REP Vertical Scale: 5" per 100'

Graphics File Created: 17-Mar-2010 00:36

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_025LUP	FN:21	PRODUCER	16-Mar-2010 23:29	7824.0 FT	390.5 FT
DEFAULT	AIT_TLD_MCFL_CNL_024PUP	FN:20	PRODUCER	16-Mar-2010 23:25	7830.0 FT	7054.5 FT

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_033PUP	FN:28	PRODUCER	17-Mar-2010 00:36
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BEFORE CALIBRATIONS

MAXIS Field Log

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
High resolution Integrated Logging Tool-CTS Wellsite Calibration – Electronics Calibration Check – Thru Cal Mag. & Phase							
Master: 18-Feb-2010 13:50 Before: 16-Mar-2010 14:13							
Thru Cal Magnitude – 0	0	0.6164	0.6168	N/A	N/A	N/A	V
Thru Cal Magnitude – 1	0	1.260	1.261	N/A	N/A	N/A	V
Thru Cal Magnitude – 2	0	0.6288	0.6291	N/A	N/A	N/A	V
Thru Cal Magnitude – 3	0	0.7109	0.7114	N/A	N/A	N/A	V
Thru Cal Magnitude – 4	0	1.324	1.325	N/A	N/A	N/A	V
Thru Cal Magnitude – 5	0	1.929	1.930	N/A	N/A	N/A	V
Thru Cal Magnitude – 6	0	1.928	1.929	N/A	N/A	N/A	V
Thru Cal Magnitude – 7	0	1.378	1.379	N/A	N/A	N/A	V
Phase – 0	0	72.68	72.79	N/A	N/A	N/A	DEG
Phase – 1	0	71.58	71.69	N/A	N/A	N/A	DEG
Phase – 2	0	67.85	67.96	N/A	N/A	N/A	DEG
Phase – 3	0	67.06	67.17	N/A	N/A	N/A	DEG
Phase – 4	0	60.79	60.91	N/A	N/A	N/A	DEG
Phase – 5	0	58.89	59.02	N/A	N/A	N/A	DEG
Phase – 6	0	58.91	59.03	N/A	N/A	N/A	DEG
Phase – 7	0	55.41	55.58	N/A	N/A	N/A	DEG
High resolution Integrated Logging Tool-CTS Wellsite Calibration – Electronics Calibration Check – Auxilliary							
Master: 18-Feb-2010 13:50 Before: 16-Mar-2010 14:13							
Array Induction SPA Plus	990.5	993.5	993.6	N/A	N/A	N/A	MV
Array Induction SPA Zero	0	0.04114	0.04538	N/A	N/A	N/A	MV
Array Induction Temperature PI	0.9150	0.9202	0.9203	N/A	N/A	N/A	V
Array Induction Temperature Ze	0	0.00004296	0.00004538	N/A	N/A	N/A	V
High resolution Integrated Logging Tool-CTS Wellsite Calibration – Test Loop Gain Correction							
Master: 18-Feb-2010 13:50							
Test Loop Gain Magnitude – 0	0	1.033	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude – 1	0	1.025	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude – 2	0	1.022	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude – 3	0	1.019	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude – 4	0	1.009	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude – 5	0	0.9882	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude – 6	0	0.9962	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude – 7	0	1.008	N/A	N/A	N/A	N/A	V
Phase – 0	0	0.5184	N/A	N/A	N/A	N/A	DEG
Phase – 1	0	0.4801	N/A	N/A	N/A	N/A	DEG
Phase – 2	0	0.04542	N/A	N/A	N/A	N/A	DEG
Phase – 3	0	0.007685	N/A	N/A	N/A	N/A	DEG
Phase – 4	0	0.02438	N/A	N/A	N/A	N/A	DEG
Phase – 5	0	-0.2104	N/A	N/A	N/A	N/A	DEG
Phase – 6	0	0.1914	N/A	N/A	N/A	N/A	DEG

Phase – 7	0	–0.3366	N/A	N/A	N/A	N/A	DEG
High resolution Integrated Logging Tool–CTS Wellsite Calibration – Sonde Error Correction							
Master: 18–Feb–2010 13:50							
R Sonde Error Correction – 0	0	–80.17	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 1	0	193.6	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 2	0	109.9	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 3	0	67.39	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 4	0	26.23	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 5	0	14.13	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 6	0	9.933	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 7	0	–1.518	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 0	0	–414.3	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 1	0	–63.48	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 2	0	–81.94	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 3	0	39.49	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 4	0	–40.86	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 5	0	5.345	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 6	0	–4.595	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 7	0	–6.732	N/A	N/A	N/A	N/A	MM/M
High resolution Integrated Logging Tool–CTS Wellsite Calibration – Mud Gain Correction							
Master: 18–Feb–2010 13:50							
Coarse – Mag, Real, Imag – 0	0	0.9412	N/A	N/A	N/A	N/A	
Coarse – Mag, Real, Imag – 1	0	0.9412	N/A	N/A	N/A	N/A	
Coarse – Mag, Real, Imag – 2	0	0.9412	N/A	N/A	N/A	N/A	
Fine – Mag, Real, Imag – 0	0	0.9507	N/A	N/A	N/A	N/A	
Fine – Mag, Real, Imag – 1	0	0.9507	N/A	N/A	N/A	N/A	
Fine – Mag, Real, Imag – 2	0	0.9507	N/A	N/A	N/A	N/A	
High resolution Integrated Logging Tool–CTS Wellsite Calibration – Stab Measurement Summary							
Before: 16–Mar–2010 14:55							
BS Window Ratio	0.7398	N/A	0.7392	N/A	N/A	N/A	
BS Window Sum	10720	N/A	10710	N/A	N/A	N/A	CPS
SS Window Ratio	0.4726	N/A	0.4731	N/A	N/A	N/A	
SS Window Sum	10190	N/A	10190	N/A	N/A	N/A	CPS
LS Window Ratio	0.2985	N/A	0.3031	N/A	N/A	N/A	
LS Window Sum	1157	N/A	1154	N/A	N/A	N/A	CPS
High resolution Integrated Logging Tool–CTS Wellsite Calibration – Photo–multiplier High Voltages Calibrations							
Before: 16–Mar–2010 14:55							
BS PM High Voltage (Command)	1478	N/A	1494	N/A	N/A	N/A	V
SS PM High Voltage (Command)	1788	N/A	1788	N/A	N/A	N/A	V
LS PM High Voltage (Command)	1906	N/A	1903	N/A	N/A	N/A	V
High resolution Integrated Logging Tool–CTS Wellsite Calibration – Crystal Quality Resolutions Calibration							
Before: 16–Mar–2010 14:55							
BS Crystal Resolution	10.87	N/A	10.98	N/A	N/A	N/A	%
SS Crystal Resolution	11.25	N/A	11.22	N/A	N/A	N/A	%
LS Crystal Resolution	9.790	N/A	9.656	N/A	N/A	N/A	%
High resolution Integrated Logging Tool–CTS Wellsite Calibration – MCFL Calibration							
Before: 16–Mar–2010 14:10							
Raw B0 Resistivity	3875	N/A	3856	N/A	N/A	N/A	OHMM
Raw B1 Resistivity	3830	N/A	3812	N/A	N/A	N/A	OHMM
Raw B2 Resistivity	3830	N/A	3828	N/A	N/A	N/A	OHMM
High resolution Integrated Logging Tool–CTS Wellsite Calibration – HILT Caliper Calibration							
Before: 16–Mar–2010 14:17							
HILT Caliper Zero Measurement	8.000	N/A	8.869	N/A	N/A	N/A	IN
HILT Caliper Plus Measurement	12.00	N/A	13.01	N/A	N/A	N/A	IN
High resolution Integrated Logging Tool–CTS Wellsite Calibration – Detector Calibration							
Before: 16–Mar–2010 14:52							
Gamma Ray Background	30.00	N/A	89.93	N/A	N/A	N/A	GAPI
Gamma Ray (Jig – Bkgd)	165.0	N/A	173.3	N/A	N/A	15.00	GAPI
High resolution Integrated Logging Tool–CTS Wellsite Calibration – Zero Measurement							
Master: 26–Feb–2010 18:38 Before: 16–Mar–2010 14:14							
CNTC Background	32.75	32.75	28.48	N/A	N/A	4.913	CPS
CFTC Background	31.37	31.37	26.44	N/A	N/A	4.706	CPS
High resolution Integrated Logging Tool–CTS Wellsite Calibration – Ratio Measurement							
Master: 26–Feb–2010 18:38							
Thermal Near Corr. (Tank)	5800	5578	N/A	N/A	N/A	N/A	CPS
Thermal Far Corr. (Tank)	2400	2403	N/A	N/A	N/A	N/A	CPS
CNTC/CFTC (Tank)	2.159	2.321	N/A	N/A	N/A	N/A	
High resolution Integrated Logging Tool–CTS Wellsite Calibration – Accelerometer Calibration							
Before: Calibration not done							
Z–Axis Acceleration	32.19	N/A	32.19	N/A	N/A	N/A	F/S2

High resolution Integrated Logging Tool–CTS Master Calibration – Inversion results
Master: 23–Feb–2010 17:51

Rho Aluminum	2.596	2.602	--	--	--	--	G/C3
Rho Magnesium	1.686	1.687	--	--	--	--	G/C3
Pe Aluminum	2.570	2.581	--	--	--	--	
Pe Magnesium	2.650	2.608	--	--	--	--	

High resolution Integrated Logging Tool–CTS Master Calibration – Deviation Summary
Master: 23–Feb–2010 17:51

BS Average Deviation	0	0.2623	--	--	--	--	%
BS Max Deviation	0	0.5063	--	--	--	--	%
SS Average Deviation	0	0.3740	--	--	--	--	%
SS Max Deviation	0	1.860	--	--	--	--	%
LS Average Deviation	0	0.9565	--	--	--	--	%
LS Max Deviation	0	2.096	--	--	--	--	%

Density Master Calibration is obsolete !

The GLS–VJ source activity is acceptable.































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

NCT–B Water Temperature 62.5 DEGF.
Thermal Housing Size 3.367 IN.
NSR–F serial number 5068









High resolution Integrated Logging Tool–CTS / Equipment Identification

















Primary Equipment:			
Array Induction Tool – H		AIT – H	
Rm/SP Bottom Nose		AHRM – A	
Array Induction Sonde		AHIS – BA	392
HILT high–Resolution Mechanical Sonde		HRMS – B	1716
HILT Rxo Gamma–ray Device		HRGD – B	1854
HILT Micro Cylindrically Focused Log Dev		MCFL –	
GR Logging Source		GLS – VJ	5416
HILT High Res. Control Cartridge		HRCC – B	1906













Auxiliary Equipment:

High resolution Integrated Logging Tool–CTS Wellsite Calibration							
Electronics Calibration Check – Thru Cal Mag. & Phase							
Idx	Phase	Value	Thru Cal Magnitude V	Nominal	Value	Phase DEG	Nominal
0	Master	0.6164		0.6050	72.68		71.00
	Before	0.6168			72.79		
1	Master	1.260		1.270	71.58		70.00
	Before	1.261			71.69		
2	Master	0.6288		0.6230	67.85		66.00
	Before	0.6291			67.96		
3	Master	0.7109		0.7040	67.06		65.00
	Before	0.7114			67.17		
4	Master	1.324		1.337	60.79		59.00
	Before	1.325			60.91		
5	Master	1.929		1.955	58.89		57.00
	Before	1.930			59.02		
6	Master	1.928		1.955	58.91		57.00
	Before	1.929			59.03		
7	Master	1.378		1.415	55.41		53.00
	Before	1.379			55.58		
		60.00 %		140.0 %	Nom – 60.00	Nom + 60.00	

80.00 (Minimum)	90.00 (Nominal)	100.00 (Maximum)	140.00 (Minimum)	150.00 (Nominal)	160.00 (Maximum)
Master: 18-Feb-2010 13:50			Before: 16-Mar-2010 14:13		

High resolution Integrated Logging Tool-CTS Wellsite Calibration							
Electronics Calibration Check – Auxilliary							
Phase	Array Induction SPA Plus MV		Value	Phase	Array Induction SPA Zero MV		Value
Master			993.5	Master			0.04114
Before			993.6	Before			0.04538
	941.0 (Minimum)	990.5 (Nominal)	1040 (Maximum)		-50.00 (Minimum)	0 (Nominal)	50.00 (Maximum)
Phase	Array Induction Temperature Plus V		Value	Phase	Array Induction Temperature Zero V		Value
Master			0.9202	Master			4.296E-00
Before			0.9203	Before			4.538E-00
	0.8700 (Minimum)	0.9150 (Nominal)	0.9600 (Maximum)		-0.05000 (Minimum)	0 (Nominal)	0.05000 (Maximum)
Master: 18-Feb-2010 13:50			Before: 16-Mar-2010 14:13				

High resolution Integrated Logging Tool-CTS Wellsite Calibration						
Test Loop Gain Correction						
Idx	Value	Test Loop Gain Magnitude V			Value	Phase DEG
0	1.033				0.5184	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
1	1.025				0.4801	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
2	1.022				0.04542	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
3	1.019				0.007685	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
4	1.009				0.02438	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
5	0.9882				-0.2104	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
6	0.9962				0.1914	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
7	1.008				-0.3366	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
Master: 18-Feb-2010 13:50						

High resolution Integrated Logging Tool-CTS Wellsite Calibration						
Sonde Error Correction						
Idx	Value	R Sonde Error Correction MM/M			Value	X Sonde Error Correction MM/M
0	-80.17				-414.3	
		-231.0 (Minimum)	-56.00 (Nominal)	119.0 (Maximum)	-2250 (Minimum)	0 (Nominal) 2250 (Maximum)
1	193.6				-63.48	
		114.0 (Minimum)	159.0 (Nominal)	204.0 (Maximum)	-625.0 (Minimum)	0 (Nominal) 625.0 (Maximum)
2	109.9				-81.94	
		66.00 (Minimum)	111.0 (Nominal)	156.0 (Maximum)	-350.0 (Minimum)	0 (Nominal) 350.0 (Maximum)
3	67.39				39.49	
		39.00 (Minimum)	64.00 (Nominal)	89.00 (Maximum)	-250.0 (Minimum)	0 (Nominal) 250.0 (Maximum)
4	26.23				-40.86	
		15.00 (Minimum)	25.00 (Nominal)	35.00 (Maximum)	-63.00 (Minimum)	0 (Nominal) 63.00 (Maximum)
5	11.12				7.05	
		0.00 (Minimum)	10.50 (Nominal)	21.00 (Maximum)	-10.00 (Minimum)	0 (Nominal) 10.00 (Maximum)

Master: 18-Feb-2010 13:50

Master: 18-Feb-2010 13:50

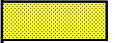

Before: 16-Mar-2010 14:55





Before: 16-Mar-2010 14:55




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
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















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Before: 16-Mar-2010 14:17					





High resolution Integrated Logging Tool-CTS Wellsite Calibration					
Detector Calibration					
Phase	Gamma Ray Background GAPI	Value	Phase	Gamma Ray (Jig - Bkgd) GAPI	Value
Before		89.93	Before		173.3
	0 (Minimum) 30.00 (Nominal) 120.0 (Maximum)			157.1 (Minimum) 165.0 (Nominal) 206.3 (Maximum)	
Before: 16-Mar-2010 14:52					

High resolution Integrated Logging Tool-CTS Wellsite Calibration					
Zero Measurement					
Phase	CNTC Background CPS	Value	Phase	CFTC Background CPS	Value
Master		32.75	Master		31.37
Before		28.48	Before		26.44
	5.000 (Minimum) 32.75 (Nominal) 40.00 (Maximum)			5.000 (Minimum) 31.37 (Nominal) 40.00 (Maximum)	
Master: 26-Feb-2010 18:38			Before: 16-Mar-2010 14:14		

High resolution Integrated Logging Tool-CTS Wellsite Calibration									
Ratio Measurement									
Phase	Thermal Near Corr. (Tank) CPS	Value	Phase	Thermal Far Corr. (Tank) CPS	Value	Phase	CNTC/CFTC (Tank)	Value	
Master		5578	Master		2403	Master		2.321	
	4700 (Minimum) 5800 (Nominal) 6900 (Maximum)			1900 (Minimum) 2400 (Nominal) 2900 (Maximum)			2.120 (Minimum) 2.159 (Nominal) 2.540 (Maximum)		
Master: 26-Feb-2010 18:38									

High resolution Integrated Logging Tool-CTS Wellsite Calibration		
Accelerometer Calibration		
Phase	Z-Axis Acceleration F/S2	Value
Before		32.19
	31.53 (Minimum) 32.19 (Nominal) 32.84 (Maximum)	
Before: Calibration not done		

High resolution Integrated Logging Tool-CTS Master Calibration							
Electronics Calibration Check - Thru Cal Mag. & Phase							
Idx	Phase	Value	Thru Cal Magnitude V	Nominal	Value	Phase DEG	Nominal
0	Master	0.6164		0.6050	72.68		71.00
1	Master	1.260		1.270	71.58		70.00
2	Master	0.6288		0.6230	67.85		66.00
3	Master	0.7109		0.7040	67.06		65.00
4	Master	1.324		1.337	60.79		59.00
5	Master	1.929		1.955	58.89		57.00
6	Master	1.928		1.955	58.91		57.00
7	Master	1.378		1.415	55.41		53.00
		60.00 % (Minimum)	140.0 % (Nominal)		Nom -60.00 (Minimum)	Nom + 60.00 (Maximum)	
Master: 18-Feb-2010 13:50							

High resolution Integrated Logging Tool-CTS Master Calibration					
Electronics Calibration Check - Auxilliary					
Phase	Array Induction SPA Plus MV	Value	Phase	Array Induction SPA Zero MV	Value
Master		993.5	Master		0.04114
	941.0 (Minimum) 990.5 (Nominal) 1040 (Maximum)			-50.00 (Minimum) 0 (Nominal) 50.00 (Maximum)	
Phase	Array Induction Temperature Plus V	Value	Phase	Array Induction Temperature Zero V	Value
Master		0.9202	Master		4.296E-00
	0.8700 0.9150 0.9600			-0.05000 0 0.05000	

High resolution Integrated Logging Tool-CTS Master Calibration							
Test Loop Gain Correction							
Idx	Value	Test Loop Gain Magnitude V			Value	Phase DEG	
0	1.033				0.5184		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
1	1.025				0.4801		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
2	1.022				0.04542		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
3	1.019				0.007685		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
4	1.009				0.02438		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
5	0.9882				-0.2104		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
6	0.9962				0.1914		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
7	1.008				-0.3366		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
Master: 18-Feb-2010 13:50							

High resolution Integrated Logging Tool-CTS Master Calibration							
Sonde Error Correction							
Idx	Value	R Sonde Error Correction MM/M			Value	X Sonde Error Correction MM/M	
0	-80.17				-414.3		
		-231.0 (Minimum)	-56.00 (Nominal)	119.0 (Maximum)	-2250 (Minimum)	0 (Nominal)	2250 (Maximum)
1	193.6				-63.48		
		114.0 (Minimum)	159.0 (Nominal)	204.0 (Maximum)	-625.0 (Minimum)	0 (Nominal)	625.0 (Maximum)
2	109.9				-81.94		
		66.00 (Minimum)	111.0 (Nominal)	156.0 (Maximum)	-350.0 (Minimum)	0 (Nominal)	350.0 (Maximum)
3	67.39				39.49		
		39.00 (Minimum)	64.00 (Nominal)	89.00 (Maximum)	-250.0 (Minimum)	0 (Nominal)	250.0 (Maximum)
4	26.23				-40.86		
		15.00 (Minimum)	25.00 (Nominal)	35.00 (Maximum)	-63.00 (Minimum)	0 (Nominal)	63.00 (Maximum)
5	14.13				5.345		
		4.000 (Minimum)	14.00 (Nominal)	24.00 (Maximum)	-50.00 (Minimum)	0 (Nominal)	50.00 (Maximum)
6	9.933				-4.595		
		5.000 (Minimum)	10.00 (Nominal)	15.00 (Maximum)	-30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)
7	-1.518				-6.732		
		-5.000 (Minimum)	0 (Nominal)	5.000 (Maximum)	-30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)
Master: 18-Feb-2010 13:50							

High resolution Integrated Logging Tool-CTS Master Calibration							
Mud Gain Correction							
Idx	Value	Coarse – Mag, Real, Imag			Value	Fine – Mag, Real, Imag	
0	0.9412				0.9507		
		0.8000	1.000	1.200	0.8000	1.000	1.200

	0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)
1	0.9412			0.9507			
	0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)	0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)	
2	0.9412			0.9507			
	0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)	0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)	
Master: 18-Feb-2010 13:50							

High resolution Integrated Logging Tool-CTS Master Calibration							
Inversion results							
Phase	Rho Aluminum G/C3		Value	Phase	Rho Magnesium G/C3		Value
Master			2.602	Master			1.687
	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			2.581	Master			2.608
	2.470 (Minimum)	2.570 (Nominal)	2.670 (Maximum)		2.550 (Minimum)	2.650 (Nominal)	2.750 (Maximum)
Master: 23-Feb-2010 17:51							

High resolution Integrated Logging Tool-CTS Master Calibration														
Deviation Summary														
Phase	BS Average Deviation %			Value	Phase	SS Average Deviation %			Value	Phase	LS Average Deviation %			Value
Master	<div><div></div></div>			0.2623	Master	<div><div></div></div>			0.3740	Master	<div><div></div></div>			0.9565
-0.6000			0	0.6000	-1.000			0	1.000	-1.500			0	1.500
(Minimum)			(Nominal)	(Maximum)	(Minimum)			(Nominal)	(Maximum)	(Minimum)			(Nominal)	(Maximum)
Phase	BS Max Deviation %			Value	Phase	SS Max Deviation %			Value	Phase	LS Max Deviation %			Value
Master	<div><div></div></div>			0.5063	Master	<div><div></div></div>			1.860	Master	<div><div></div></div>			2.096
-1.600			0	1.600	-2.500			0	2.500	-3.500			0	3.500
(Minimum)			(Nominal)	(Maximum)	(Minimum)			(Nominal)	(Maximum)	(Minimum)			(Nominal)	(Maximum)
Master: 23-Feb-2010 17:51														

High resolution Integrated Logging Tool-CTS Master Calibration							
Zero Measurement							
Phase	CNTC Background CPS		Value	Phase	CFTC Background CPS		Value
Master			32.75	Master			31.37
	5.000 (Minimum)	32.75 (Nominal)	40.00 (Maximum)		5.000 (Minimum)	31.37 (Nominal)	40.00 (Maximum)
Master: 26-Feb-2010 18:38							

High resolution Integrated Logging Tool-CTS Master Calibration														
Tank Measurement														
Phase	Thermal Near Corr. (Tank) CPS			Value	Phase	Thermal Far Corr. (Tank) CPS			Value	Phase	CNTC/CFTC (Tank)			Value
Master	<div><div></div></div>			5578	Master	<div><div></div></div>			2403	Master	<div><div></div></div>			2.321
	4700 (Minimum)	5800 (Nominal)	6900 (Maximum)		1900 (Minimum)	2400 (Nominal)	2900 (Maximum)			2.120 (Minimum)	2.159 (Nominal)	2.540 (Maximum)		
Master: 26-Feb-2010 18:38														

Company: **Kerr-McGee Oil & Gas Onshore, LP**

Schlumberger

Well: **Brehon 18-18**

Field: **Hambert**

County: **Weld**

State: **Colorado**

Platform Express
Micro Log