

DEPTH SUMMARY LISTING

Date Created: 3-MAR-2007 9:28:42

Depth System Equipment

Depth Measuring Device	Tension Device	Logging Cable
Type: IDW-B Serial Number: 6423 Calibration Date: 09-JAN-2007 Calibrator Serial Number: 4 Calibration Cable Type: 7-46P-XS Wheel Correction 1: -6 Wheel Correction 2: -7	Type: CMTD-B/A Serial Number: 2565 Calibration Date: 06-FEB-2007 Calibrator Serial Number: 1111 Calibration Gain: 0.84 Calibration Offset: -14.00	Type: 7-46P-XS Serial Number: -999 Length: 6399.89 M Conveyance Method: Wireline Rig Type: LAND

Depth Control Parameters

Log Sequence:	First Log In the Well
Stretch Correction:	0.40 M
Tool Zero Check At Surface:	0.20 M

Depth Control Remarks

1. SPEED CORRECTION NOT APPLIED ON WELLSITE
2. UPLOG CORRELATED TO DOWNLOG
- 3.
- 4.
- 5.
- 6.

DISCLAIMER

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OTHER SERVICES1	OTHER SERVICES2
OS1: AIT-TLD-HGNS-CMR-EM:	OS1:
OS2:	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
AIT LOGGED WITH 2.5in STANDOFF AND ECCENTERED WITH NON-CONDUCTIVE BOWSPRING	
TLD HAS LARGE HOLE KIT CALIPER INSTALLED	
HGNS HAS LARGE HOLE KIT INSTALLED	
CMR ECCENTERED WITH LARGE HOLE ECCENTRALIZER	
EMS HAS LARGE HOLE KIT INSTALLED	

BS = 14.25" FROM 900-1133M
 BS = 9.875" FROM 1133-1147M

SLB ONLY LOGGED DOWN TO 1133M

REPEAT PERFORMED OVER 950-1050M

RIG: AKITA 62
 CREW: JAMES MACDONALD / MARK KIMBALL / MIKE KLOC

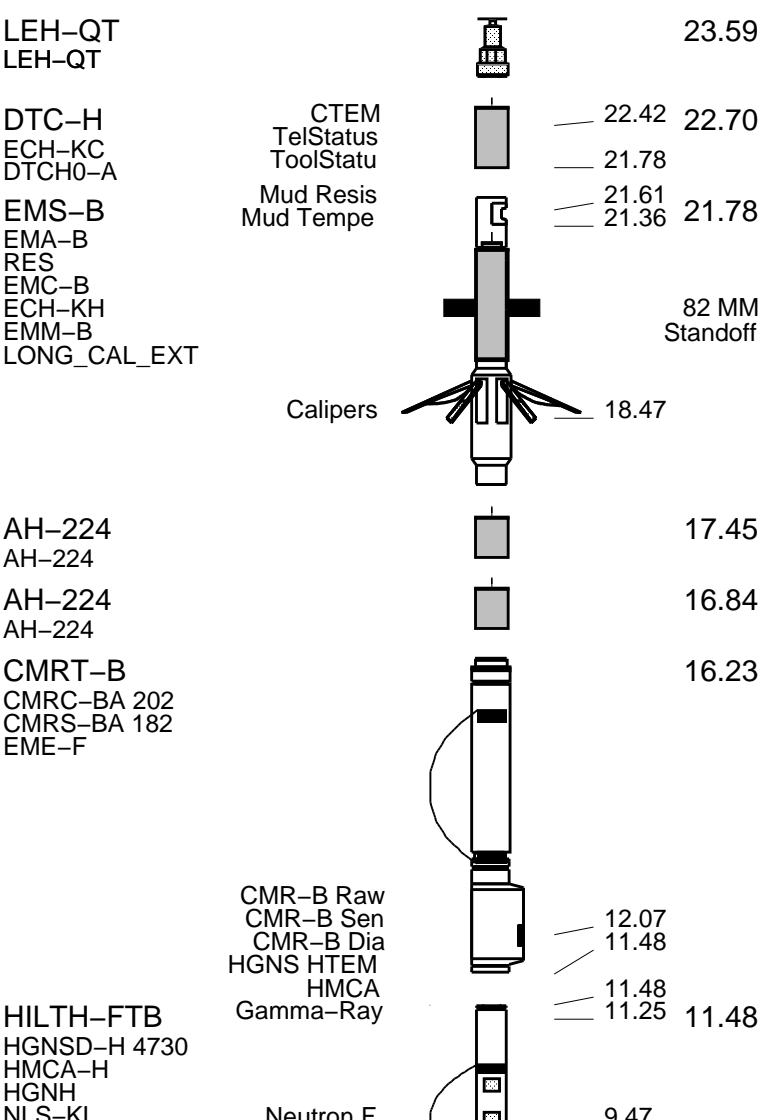
RUN 1			RUN 2		
SERVICE ORDER #:		11709032	SERVICE ORDER #:		
PROGRAM VERSION:		14C0-302	PROGRAM VERSION:		
FLUID LEVEL:			FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

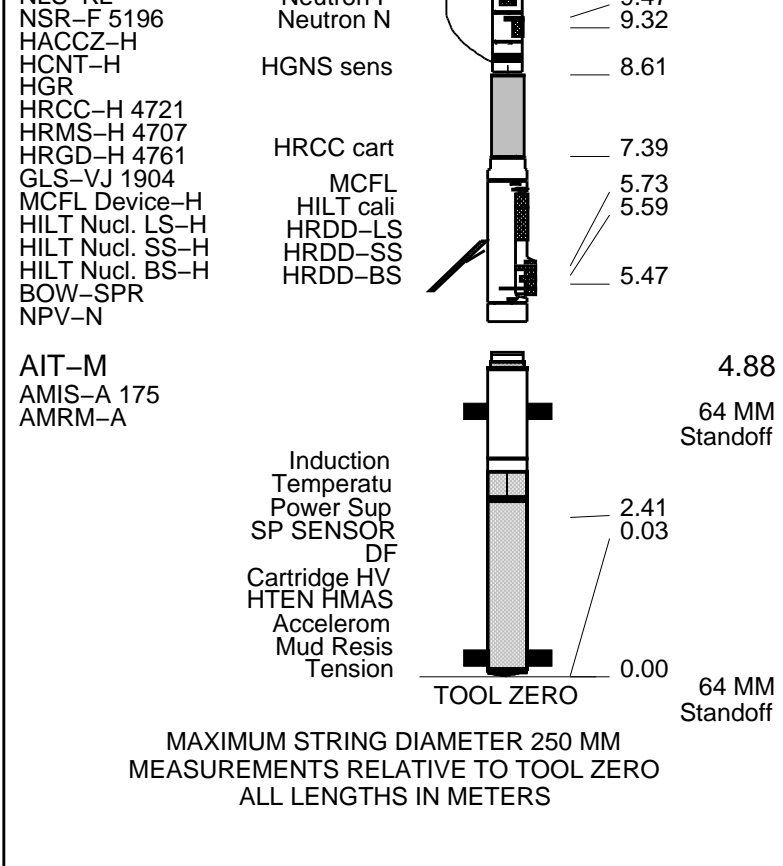
EQUIPMENT DESCRIPTION

RUN 1 RUN 2

SURFACE EQUIPMENT
 GSR-U/Y 6710 WITM (DTS)-A
 NCT-B
 CNB-AB
 NCS-VB

DOWNHOLE EQUIPMENT





MAIN PASS: LITHOLOGY DENSITY

MAXIS Field Log

Input DLIS Files

DEFAULT	SPLICE_AIT_TLD_MCFL_089	FN:1	PRODUCER	03-Mar-2007 11:47	1134.3 M	622.9 M
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Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_091PUP	FN:110	PRODUCER	03-Mar-2007 11:51	1134.3 M	624.7 M
CUST	AIT_TLD_MCFL_CNL_091PUP	FN:111	PRODUCER	03-Mar-2007 11:51	1134.3 M	624.7 M

Integrated Hole/Cement Volume Summary

Hole Volume = 63.80 M3
 Cement Volume = 42.33 M3 (assuming 244.50 MM casing O.D.)
 Computed from 1134.3 M to 677.1 M using data channel(s) RD1 RD2 RD3 RD4 RD5 RD6

OP System Version: 14C0-302

MCM

AIT-M	14C0-302	HILTH-FTB	14C0-302
EMS-B	14C0-302	DTC-H	14C0-302

PIP SUMMARY

- ┌ Integrated Hole Volume Minor Pip Every 0.1 M3
- ┌ Integrated Hole Volume Major Pip Every 1 M3
- ┌ Integrated Cement Volume Minor Pip Every 0.1 M3
- ┌ Integrated Cement Volume Major Pip Every 1 M3

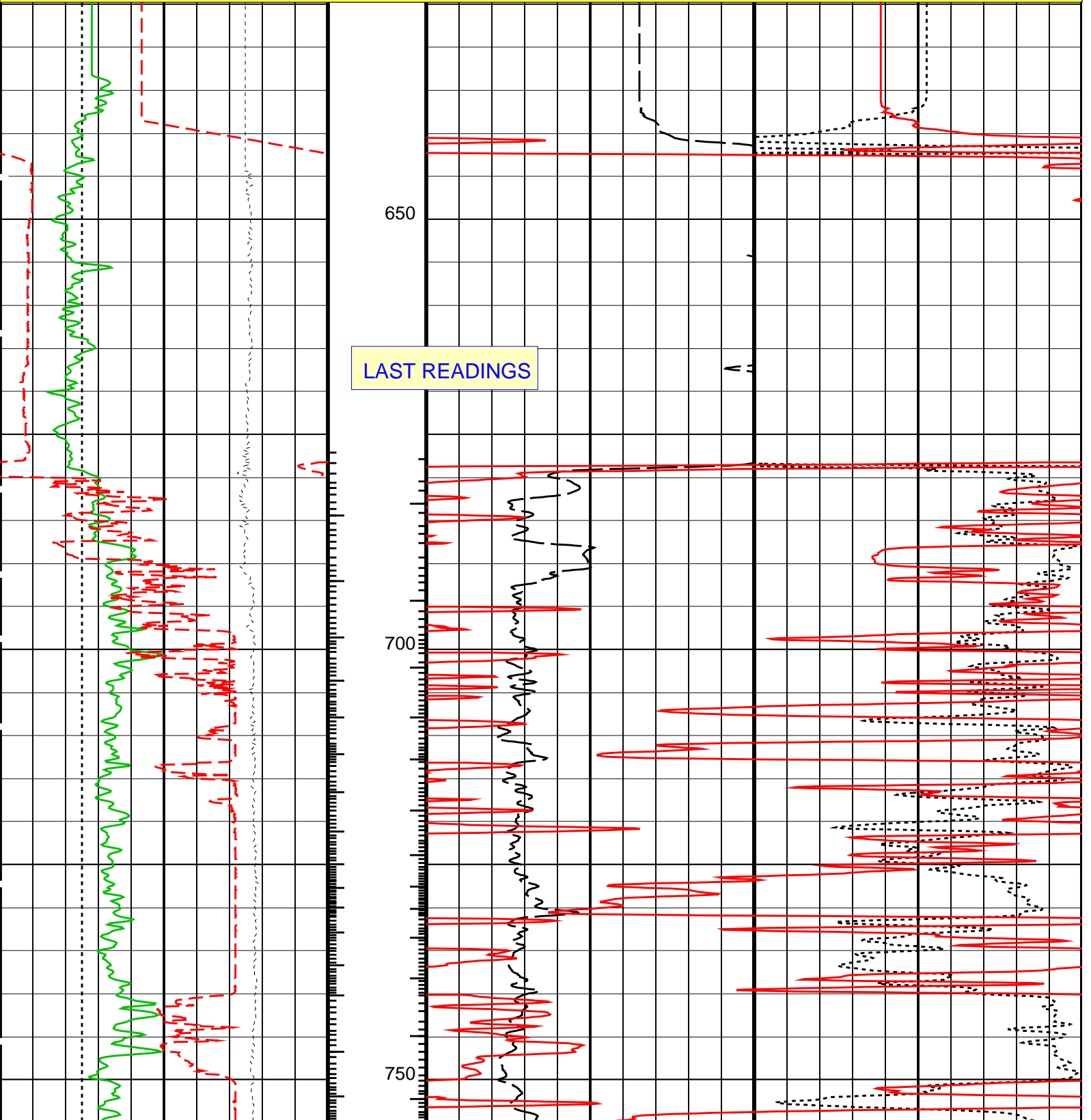
Time Mark Every 60 S

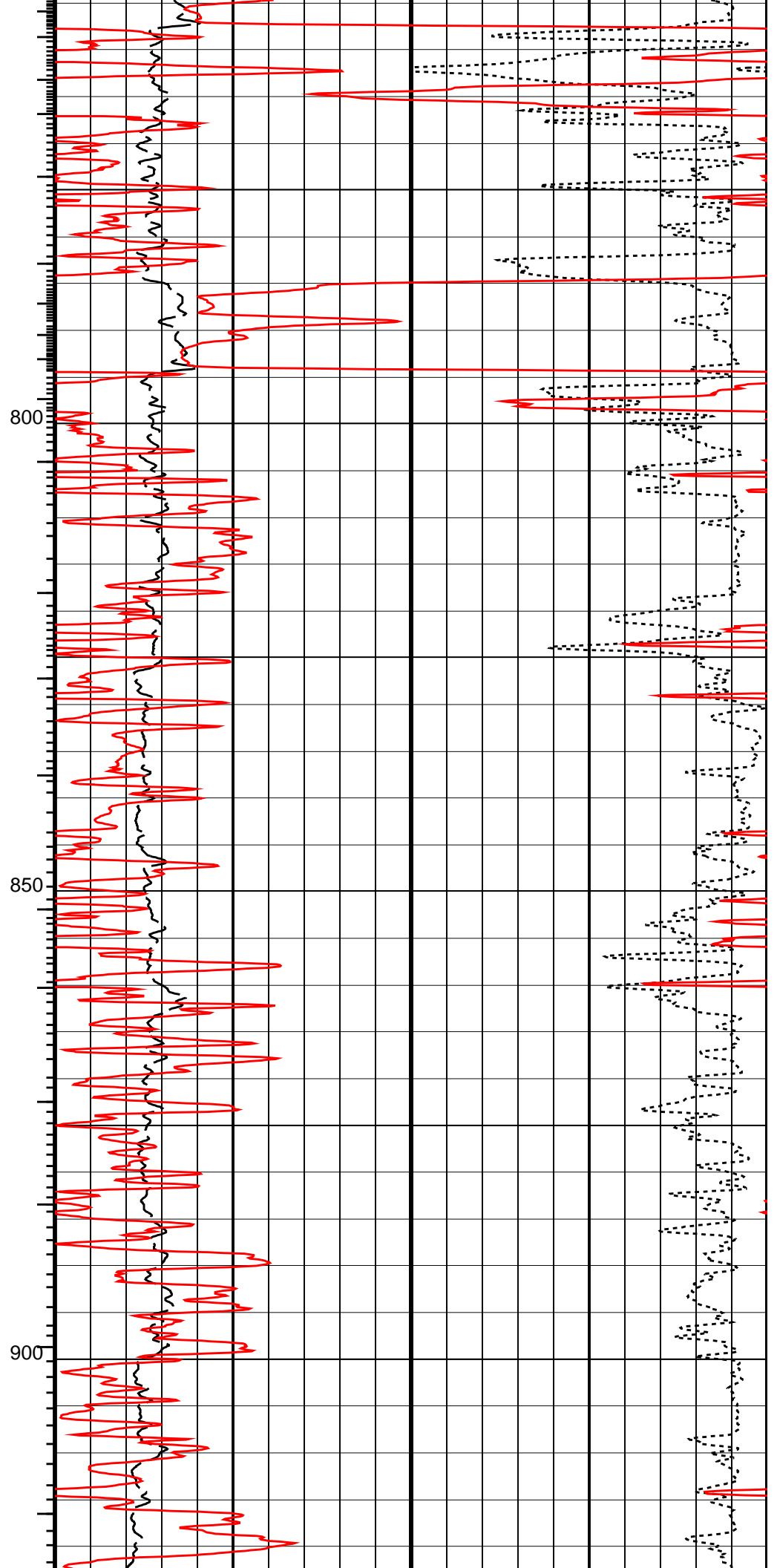
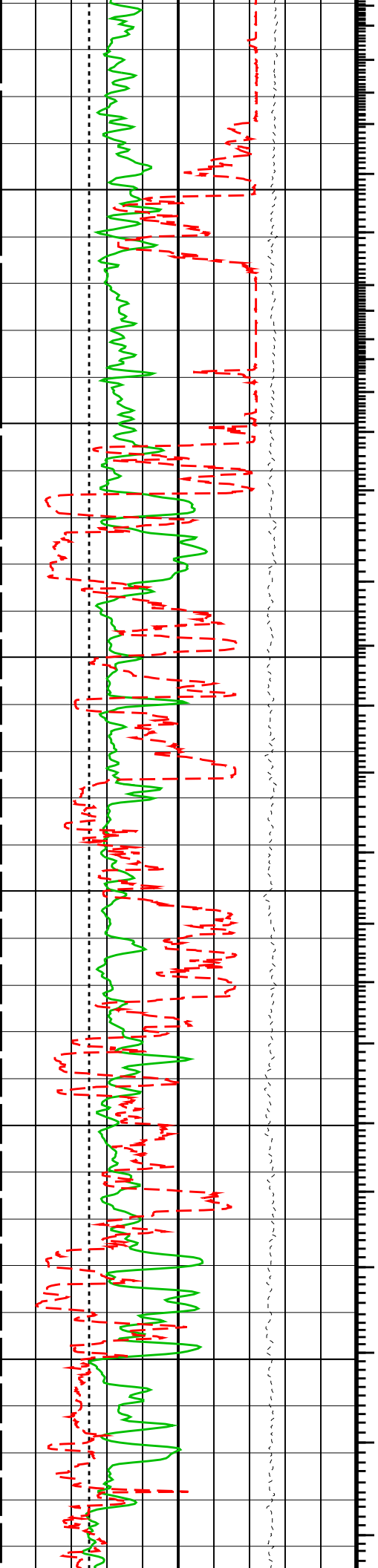
Integrated Cement Volume Major Pip Every 1 M3

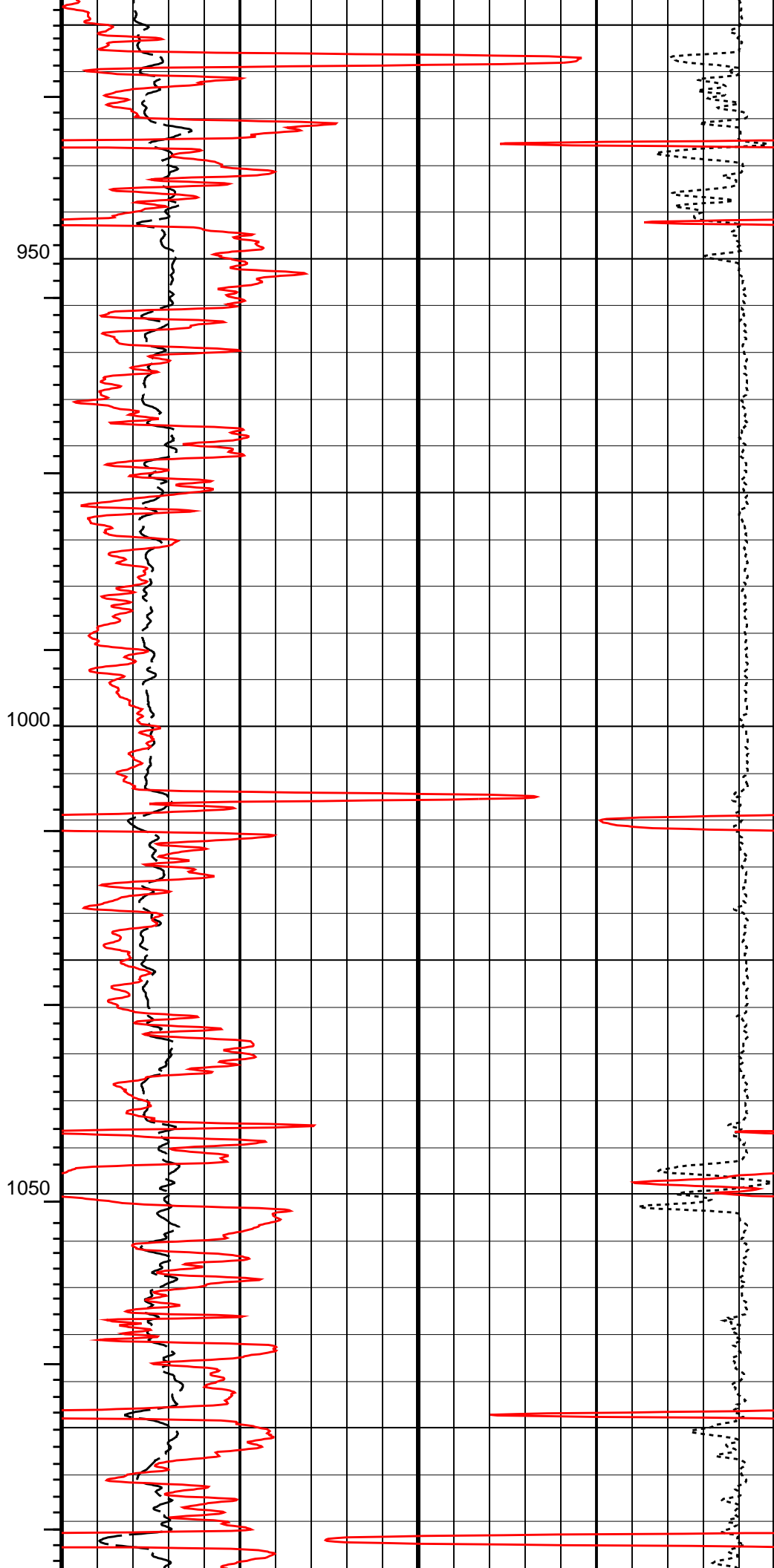
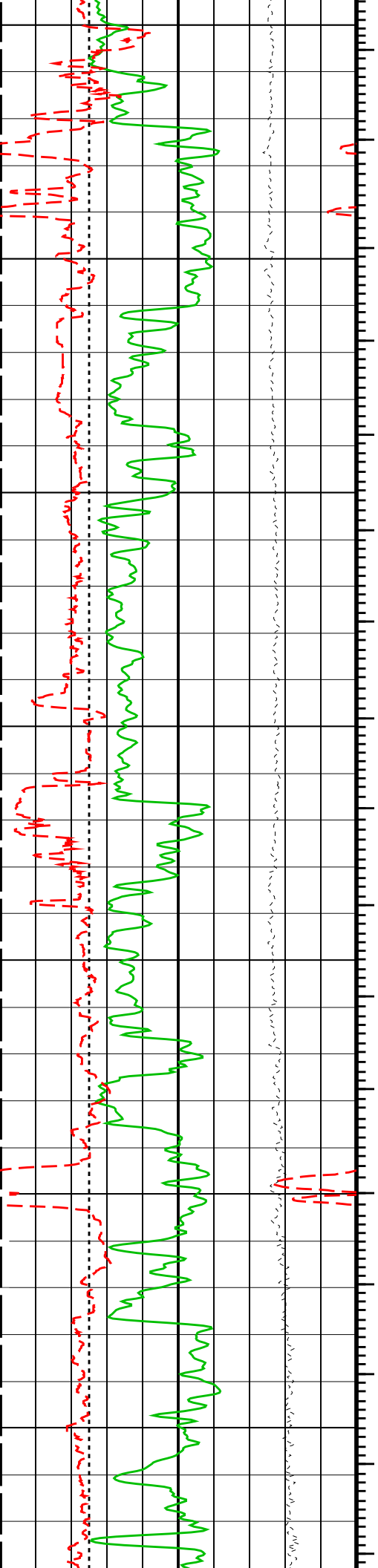
Tension (TENS)	
25000 (N)	0
Caliper (HCAL)	
300 (MM)	550
Gamma Ray (GR)	
0 (GAPI)	150
Bit Size (BS)	
300 (MM)	550

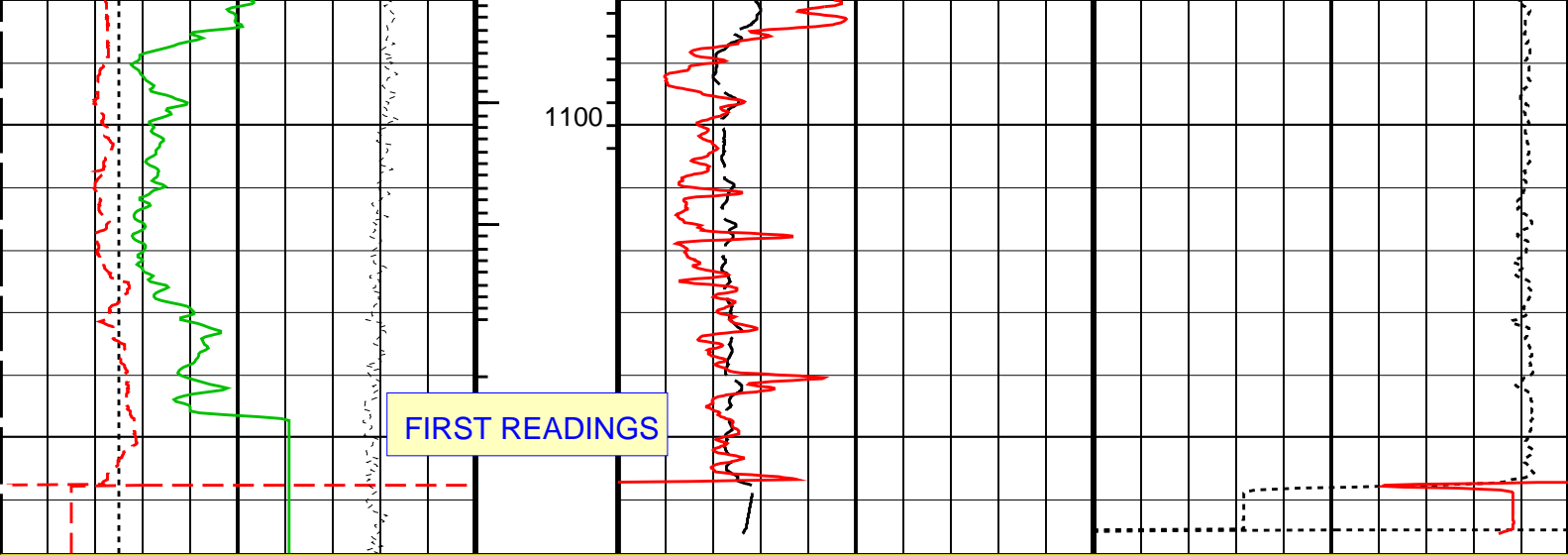
Std. Res. Formation Density (RHOZ)	
2000 (K/M3)	3000
Std. Res. Formation Pe (PEFZ)	Density Correction (HDRA)
0 (----)	450 (K/M3)
10	-50

MAIN PASS: *** DENSITY - SANDSTONE 2650 KG/M3***









MAIN PASS: *** DENSITY - SANDSTONE 2650 KG/M3***

Bit Size (BS) (MM)		550	Std. Res. Formation Pe (PEFZ)		10 450	Density Correction (HDRA) (K/M3)		-50	
Gamma Ray (GR) (GAPI)		150	Std. Res. Formation Density (RHOZ) (K/M3)						3000
Caliper (HCAL) (MM)		550							
Tension (TENS) 25000 (N)		0							

PIP SUMMARY

- └ Integrated Hole Volume Minor Pip Every 0.1 M3
- └ Integrated Hole Volume Major Pip Every 1 M3
 - └ Integrated Cement Volume Minor Pip Every 0.1 M3
 - └ Integrated Cement Volume Major Pip Every 1 M3

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
HILTH-FTB: High resolution Integrated Logging Tool-DTS			
BHFL_TLD	HILT Nuclear Mud Base	WATER	
DHC	Density Hole Correction	BS	
NAAC	HRDD APS Activation Correction	OFF	
NMT	HILT Nuclear Mud Type	NOBARITE	
NPRM	HRDD Processing Mode	HiRes	
NSAR	HRDD Depth Sampling Rate	25.4	MM
EMS-B: Environment Measurement Sonde			
FCD	Future Casing (Outer) Diameter	244.5	MM
HVCS	Integrated Hole Volume Caliper Selection	EMS_Calipers	
HOLEV: Integrated Hole/Cement Volume			
FCD	Future Casing (Outer) Diameter	244.5	MM
HVCS	Integrated Hole Volume Caliper Selection	EMS_Calipers	
System and Miscellaneous			
BS	Bit Size	361.950	MM
DFD	Drilling Fluid Density	1120.00	K/M3
DO	Depth Offset for Playback	0.0	M
DORL	Depth Offset for Repeat Analysis	0.0	M
PP	Playback Processing	RECOMPUTE	
TD	Total Depth	1147	M

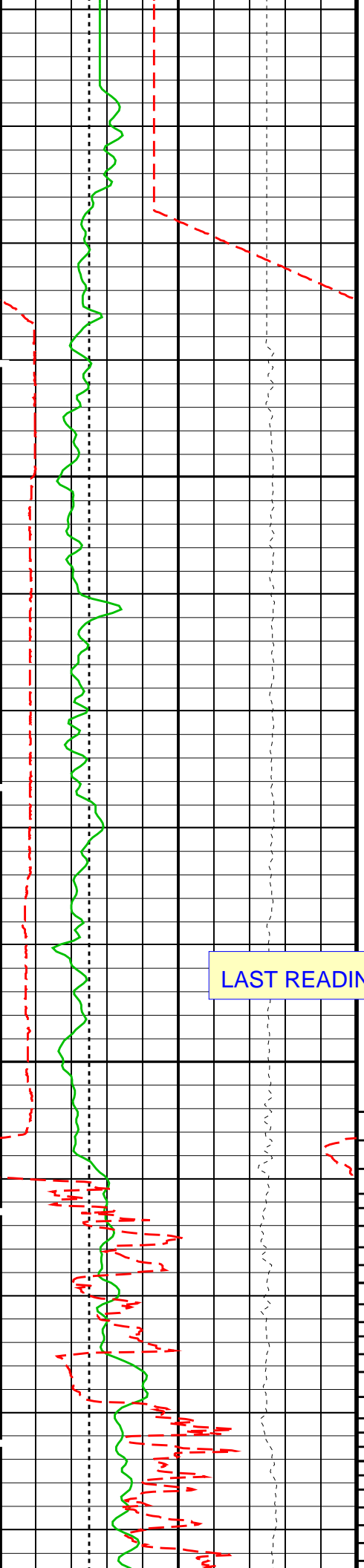
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Graphics File Created: 03-Mar-2007 11:51

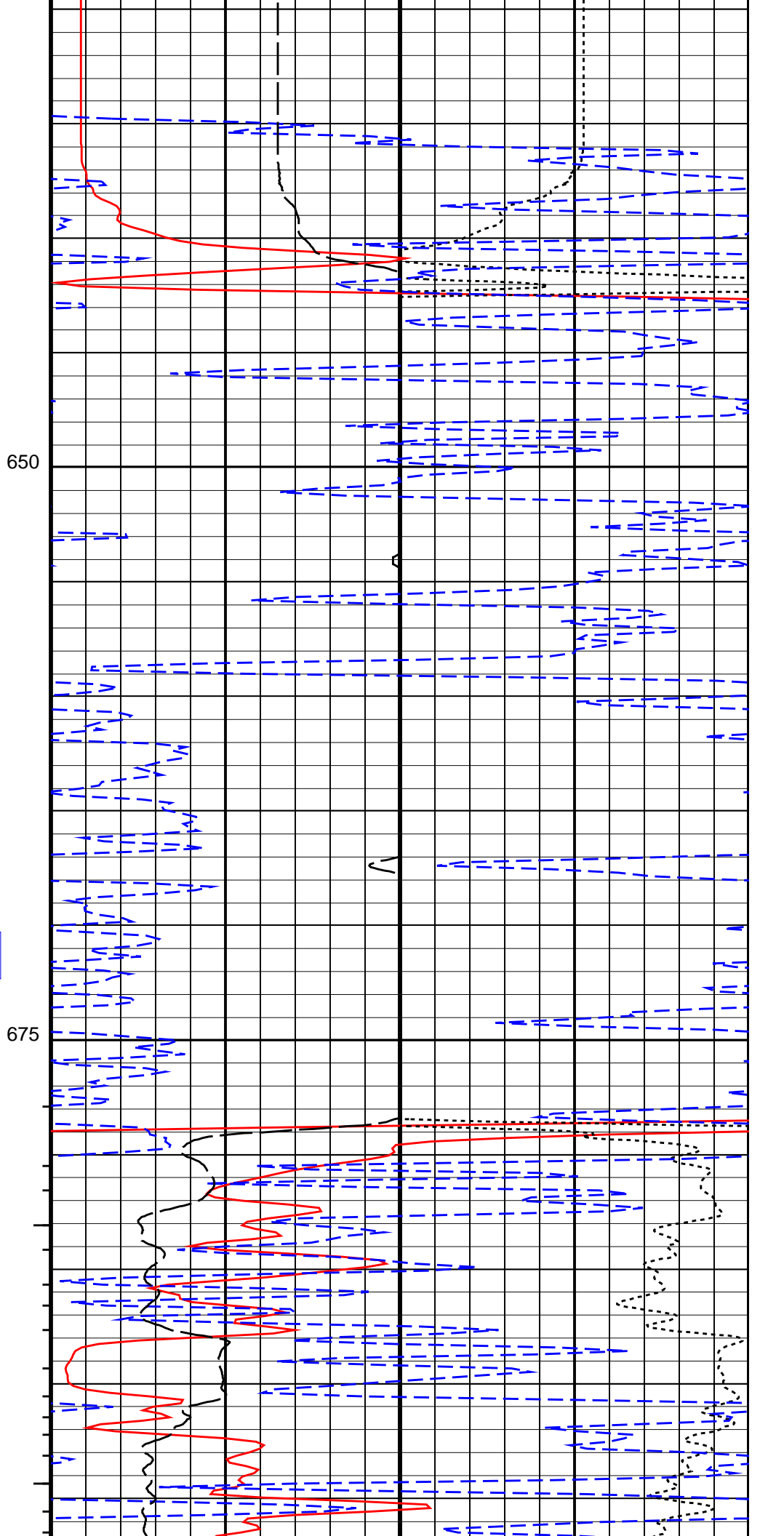
OP System Version: 14C0-302
MCM

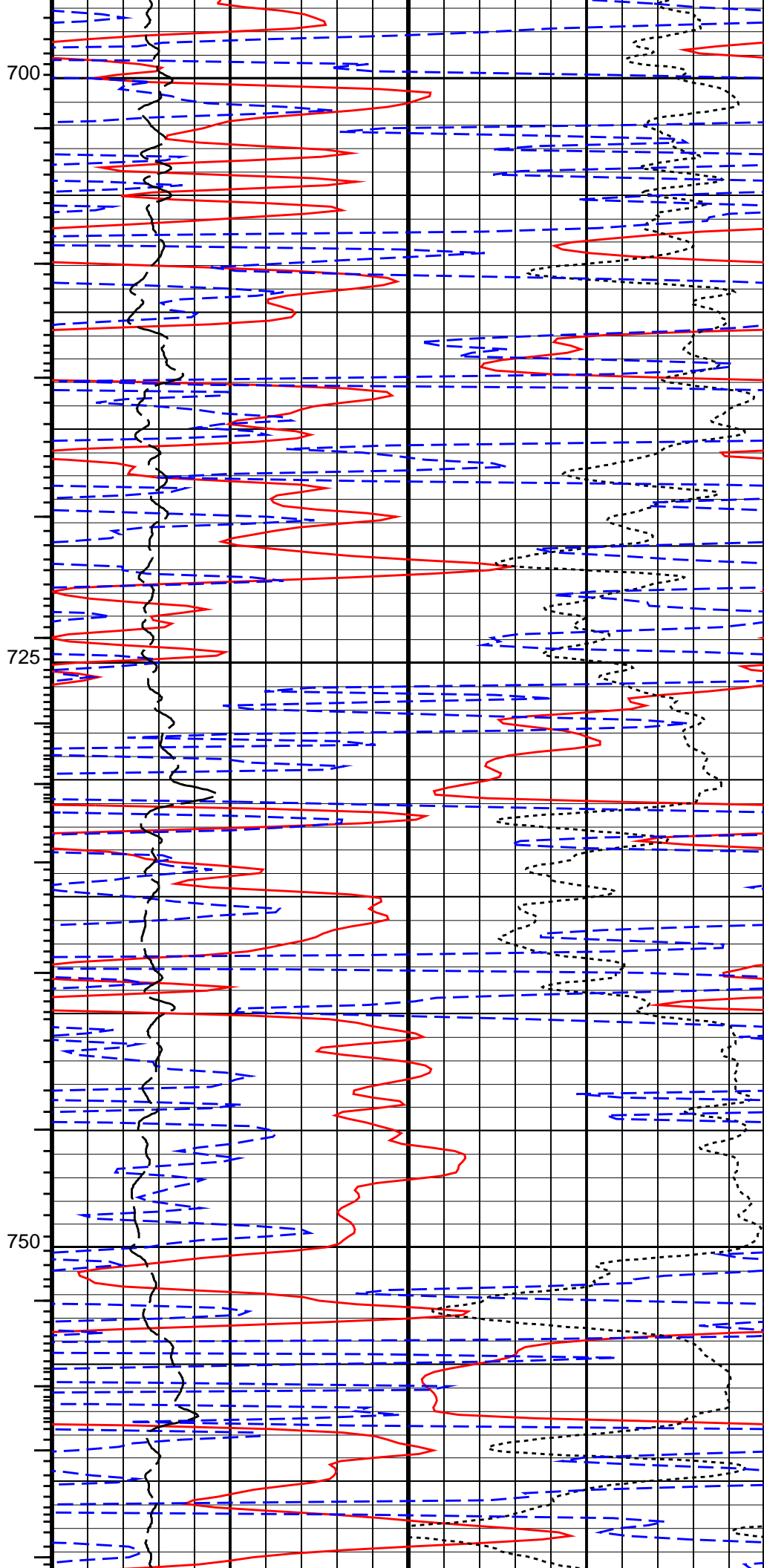
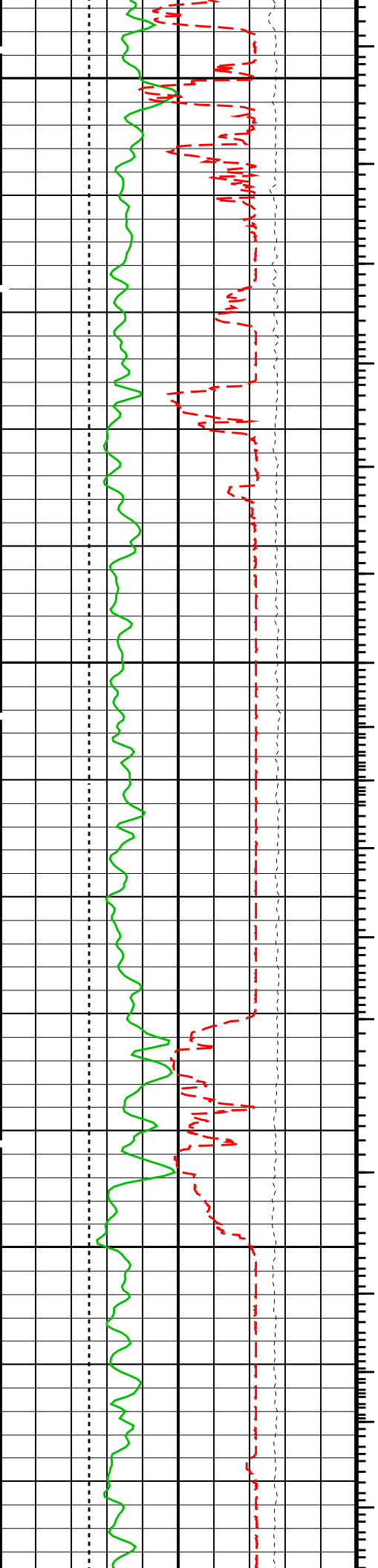
AIT-M	14C0-302	HILTH-FTB	14C0-302
EMS-B	14C0-302	DTC-H	14C0-302

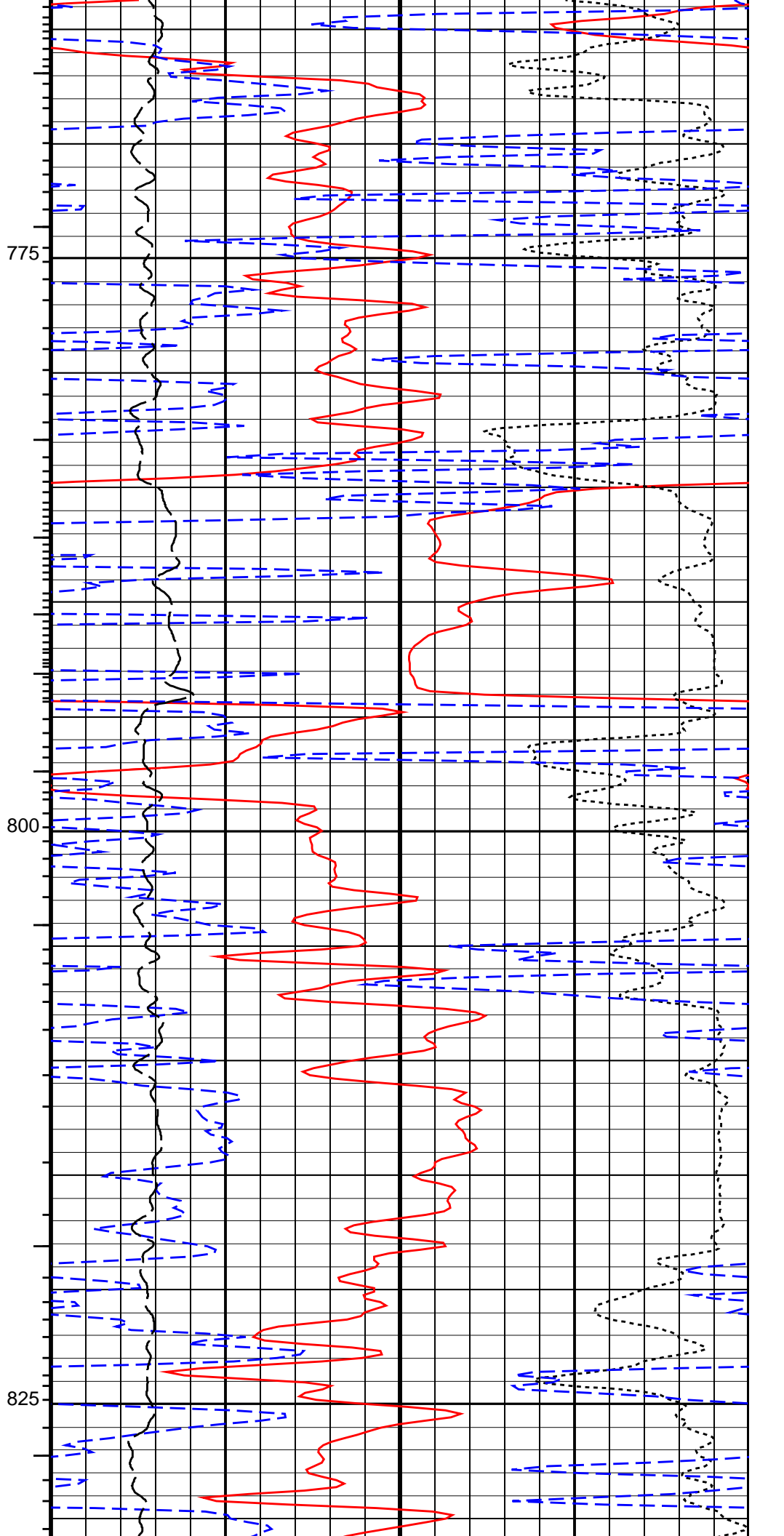
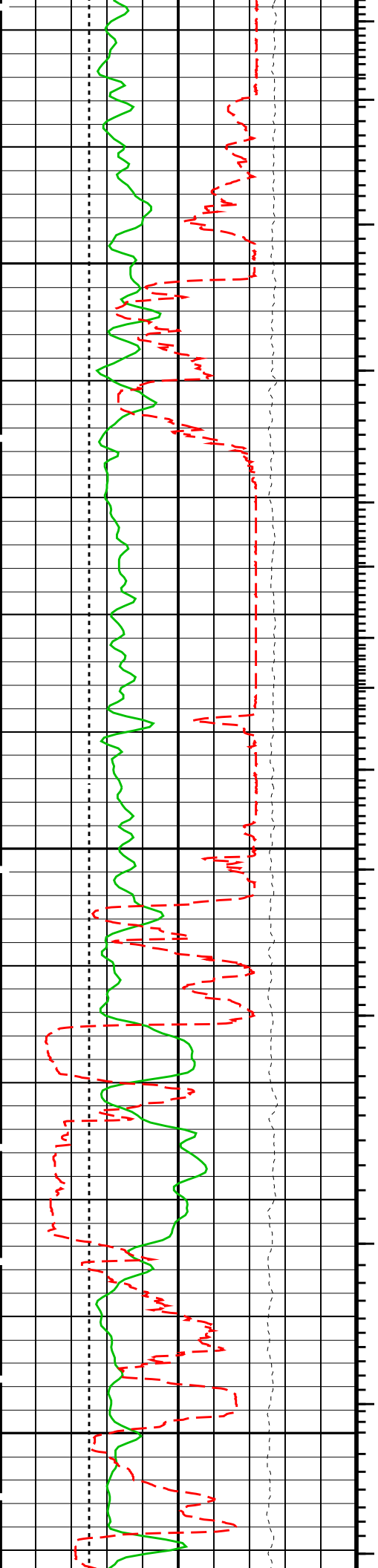
Input DLIS Files

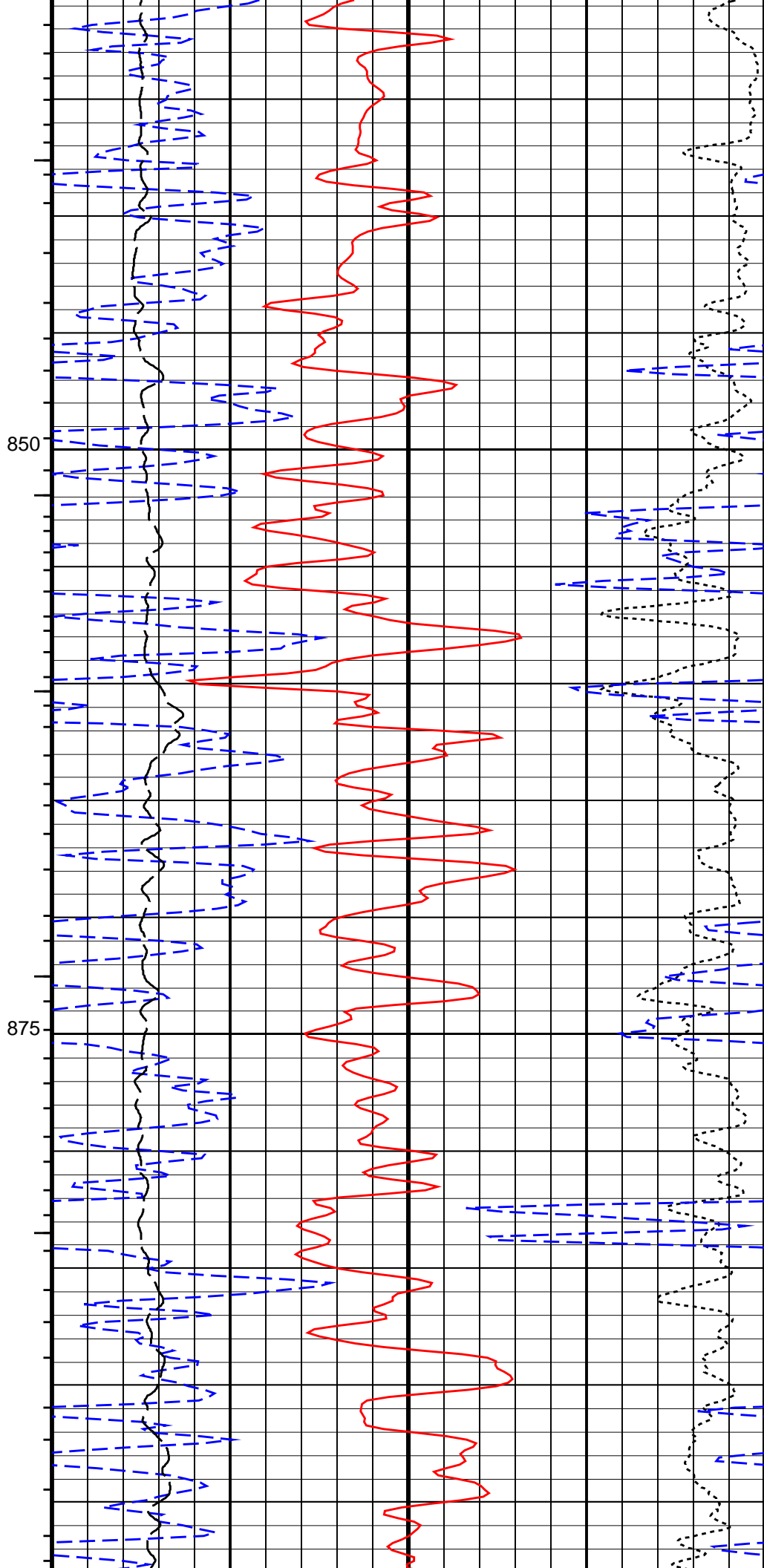
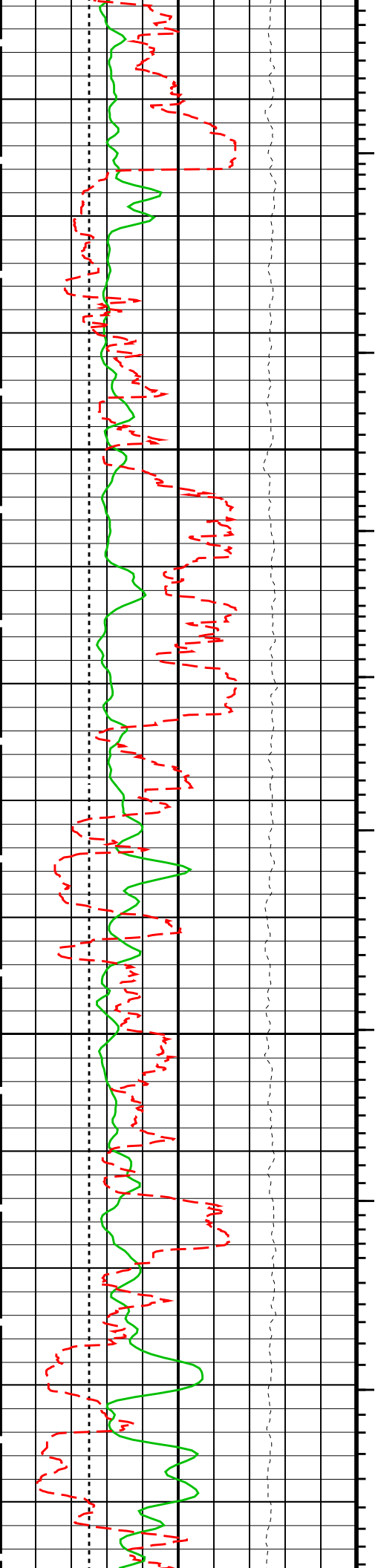


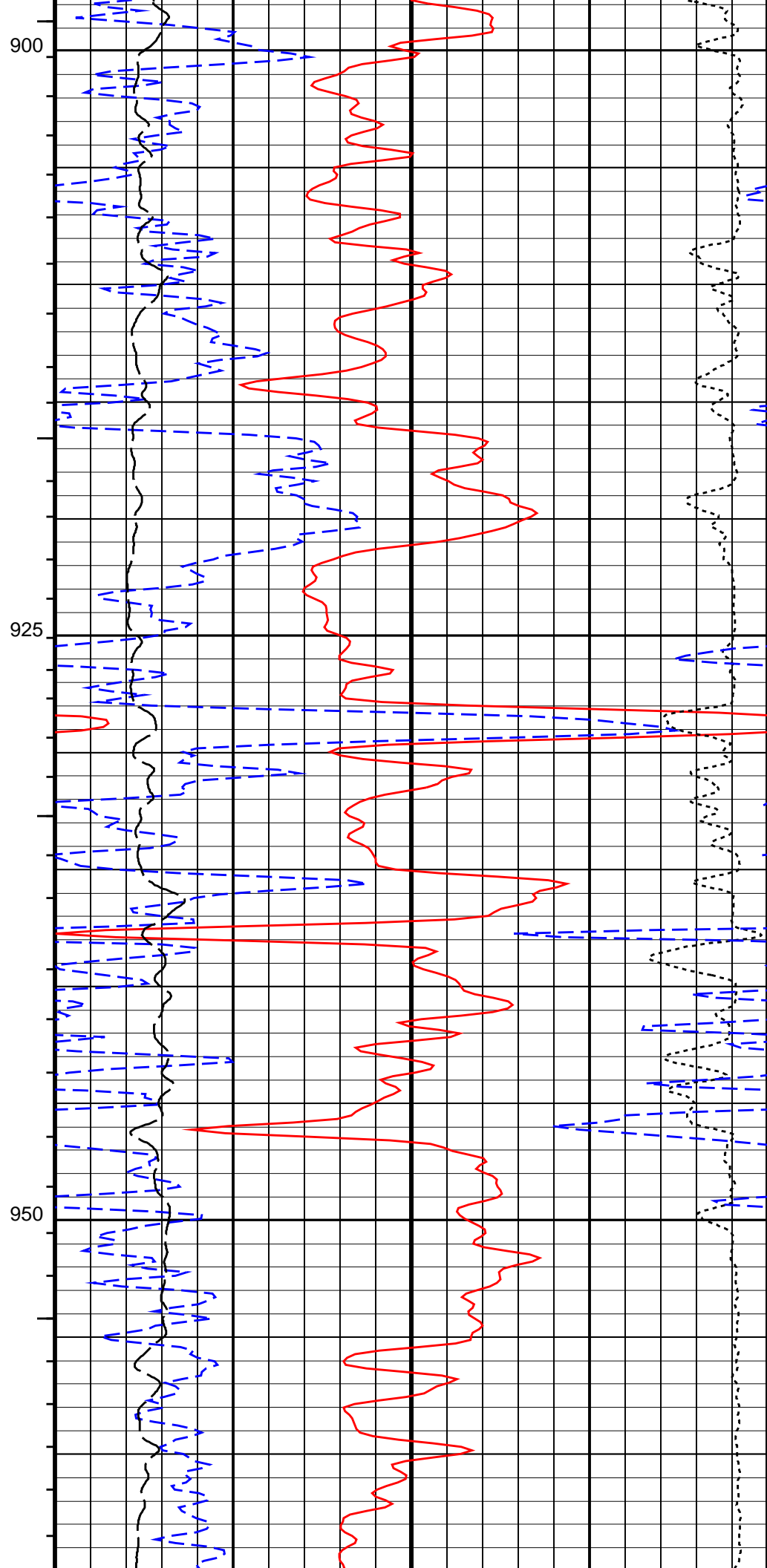
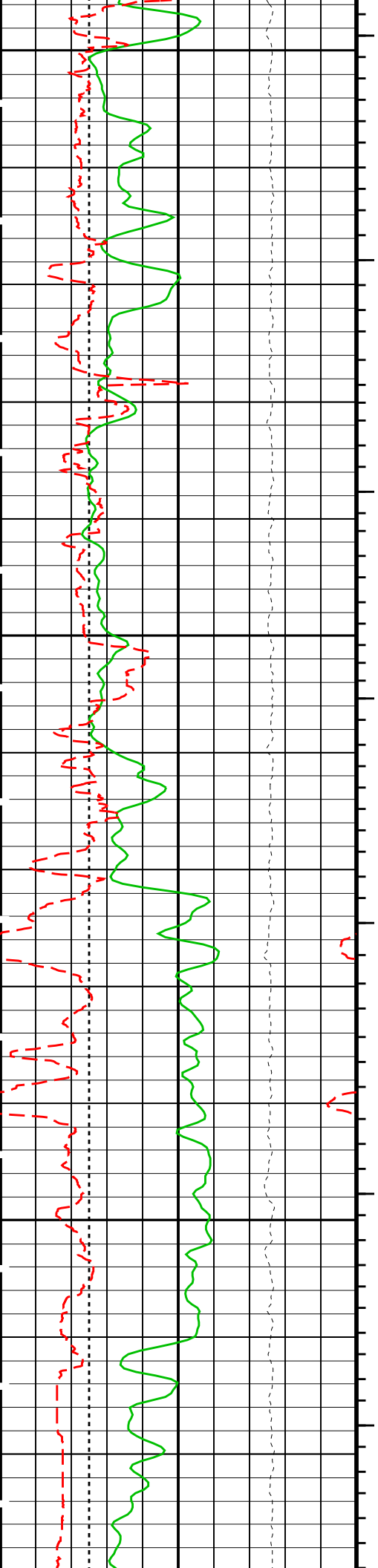
LAST READINGS

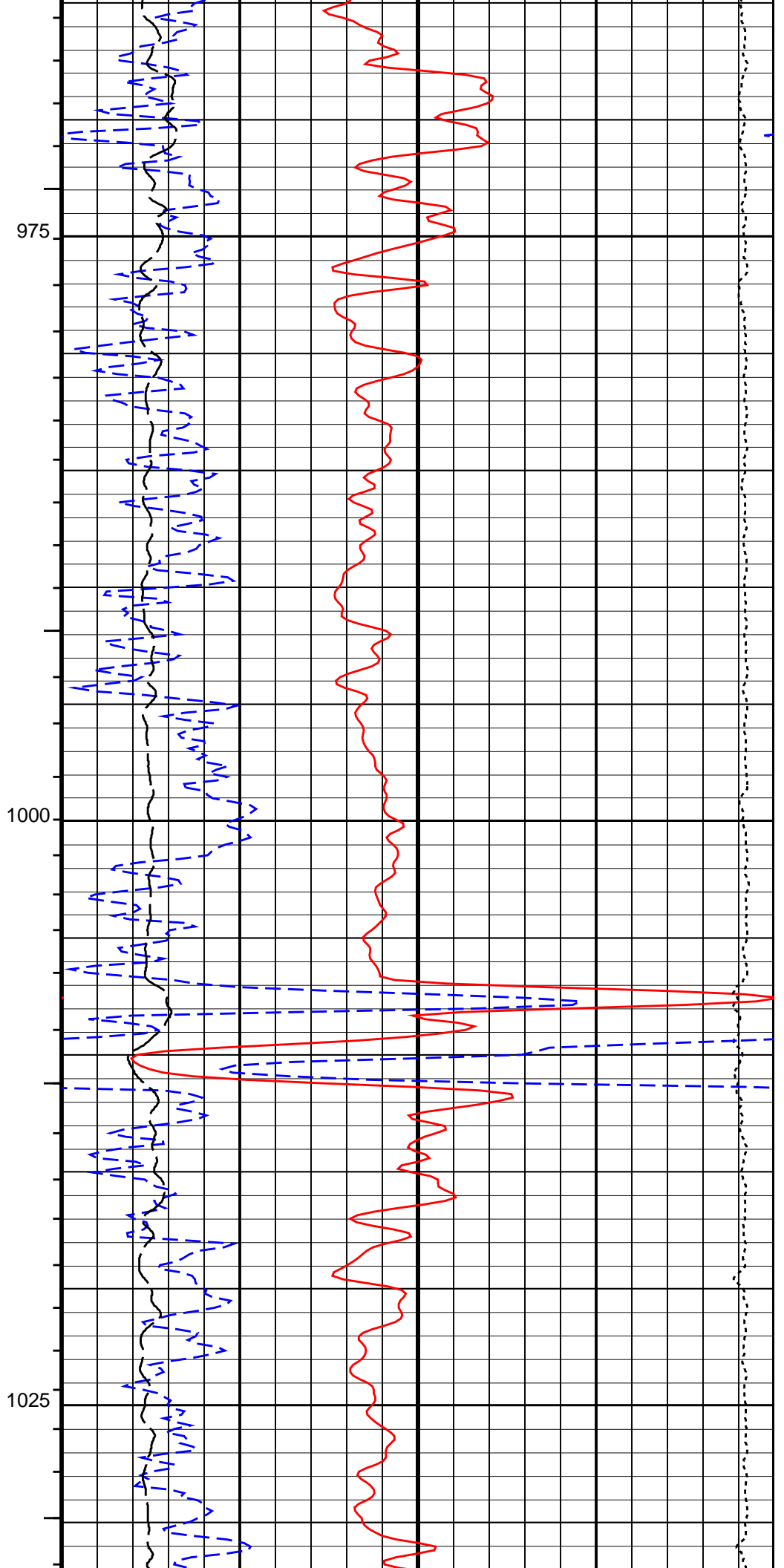
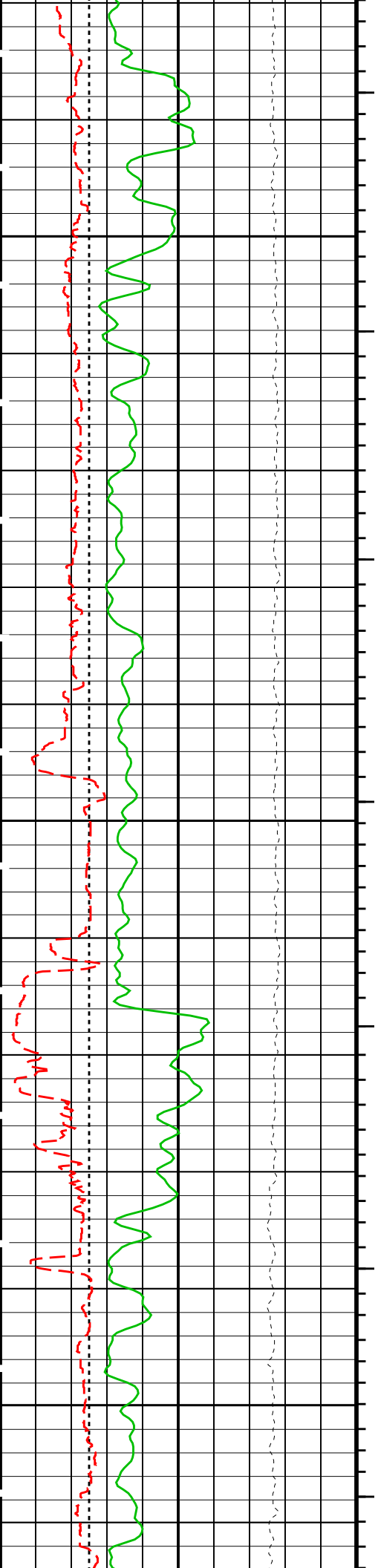


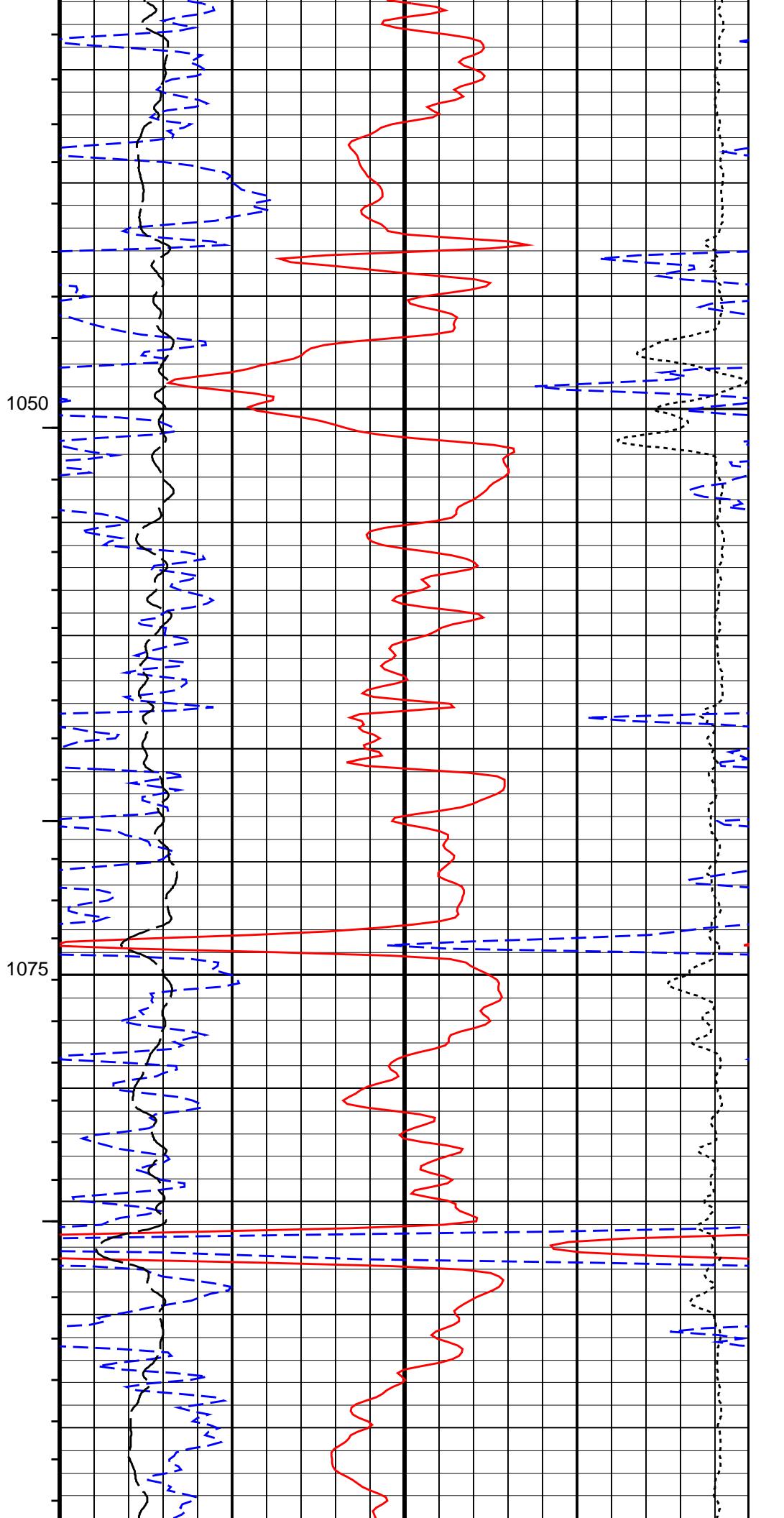
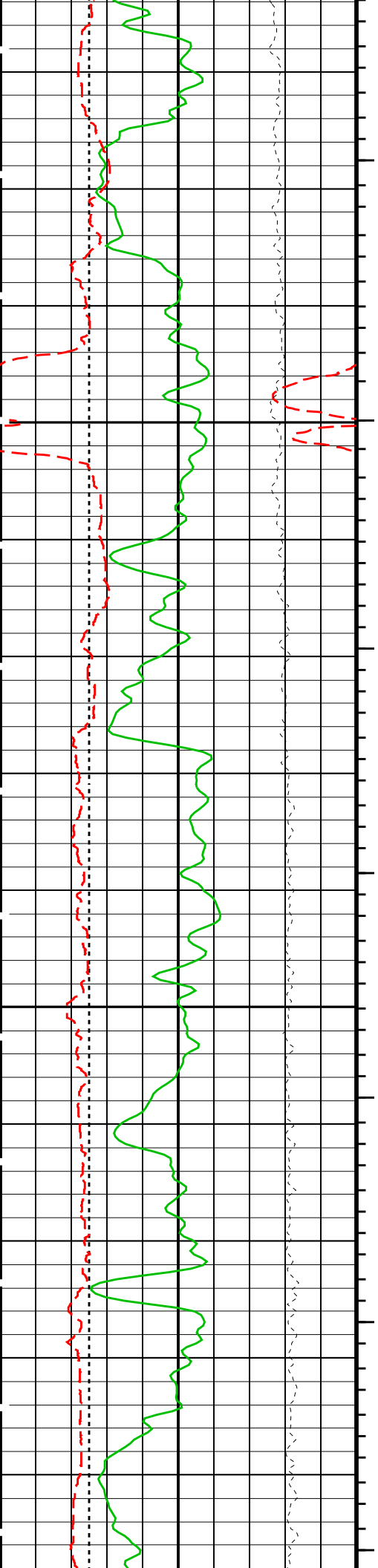


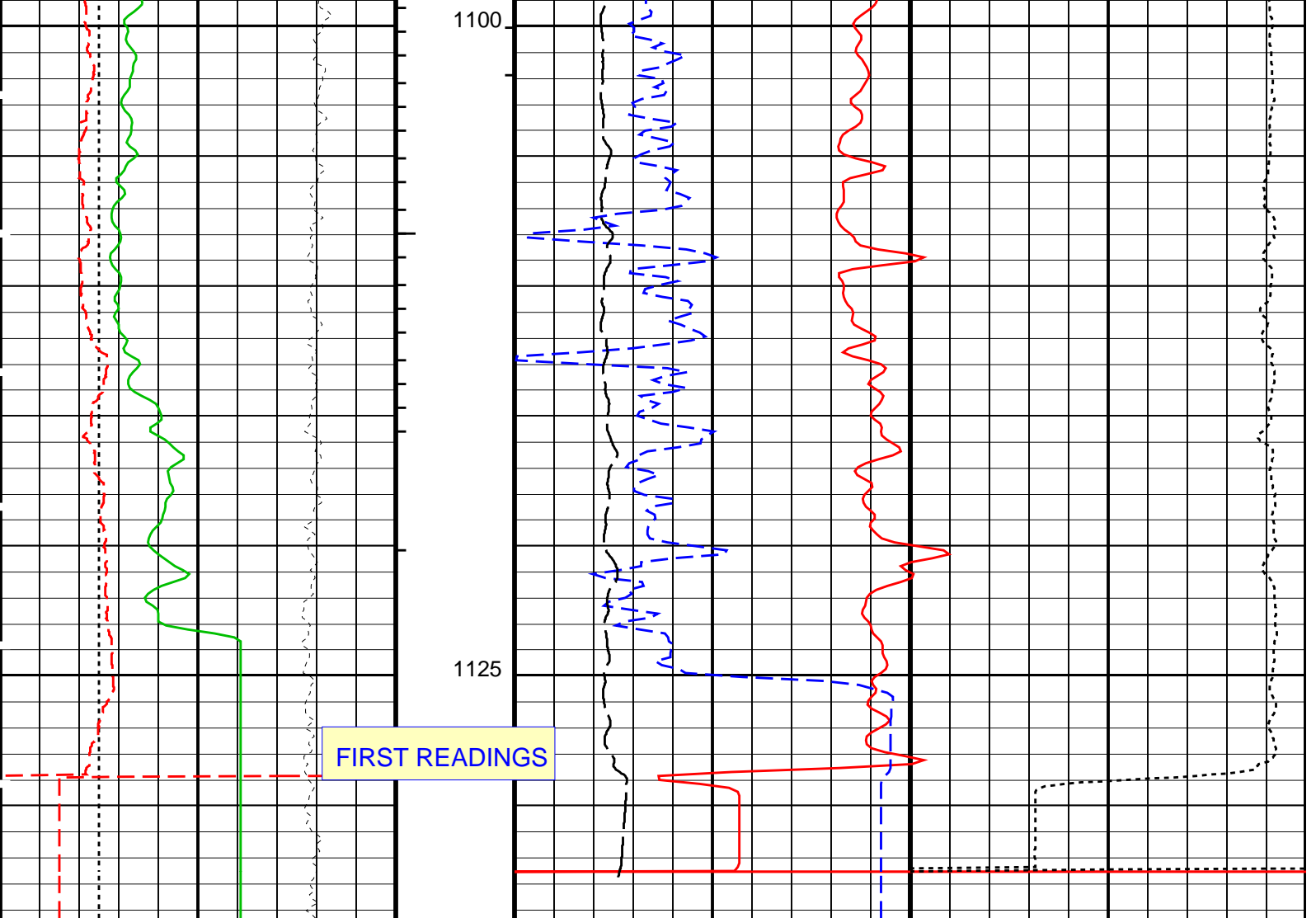












MAIN PASS: ***PEX DENSITY POROSITY - SANDSTONE 2650 KG/M3 ***

Bit Size (BS) (MM)	550	DPHI for SAND (DPHI_SAN) (V/V)		0
Gamma Ray (GR) (GAPI)	150	NPOR for SAND (NPOR_SAN) (V/V)		0
Caliper (HCAL) (MM)	550	Std. Res. Formation Pe (PEFZ)	10	Density Correction (HDRA) (K/M3)
Tension (TENS) 25000 (N)	0	0	450	-50

PIP SUMMARY

- └ Integrated Cement Volume Major Pip Every 1 M3
- └ Integrated Cement Volume Minor Pip Every 0.1 M3
- └ Integrated Hole Volume Major Pip Every 1 M3
- └ Integrated Hole Volume Minor Pip Every 0.1 M3

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
AIT-M	Array Induction Tool - M	
BHS	Borehole Status	OPEN
GDEV	Average Angular Deviation of Borehole from Normal	0 DEG
GGRD	Geothermal Gradient	0.018227 DC/M
HILTH-FTB	High resolution Integrated Logging Tool-DTS	
BHFL	Borehole Fluid Type	WATER
BHFL_TLD	HILT Nuclear Mud Base	WATER
BHS	Borehole Status	OPEN
BSCO	Borehole Salinity Correction Option	NO
CCCO	Casing & Cement Thickness Correction Option	NO

DHC	Density Hole Correction	BS	
FD	Fluid Density	1000	K/M3
FSAL	Formation Salinity	-50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
HSCO	Hole Size Correction Option	YES	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MWCO	Mud Weight Correction Option	NO	
NAAC	HRDD APS Activation Correction	OFF	
NMT	HILT Nuclear Mud Type	NOBARITE	
NPRM	HRDD Processing Mode	HiRes	
NSAR	HRDD Depth Sampling Rate	25.4	MM
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SOCN	Standoff Distance	3.175	MM
SOCO	Standoff Correction Option	YES	
EMS-B: Environment			
BHS	Borehole Status	OPEN	
FCD	Future Casing (Outer) Diameter	244.5	MM
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
HVCS	Integrated Hole Volume Caliper Selection	EMS_Calipers	
HOLEV: Integrated Hole/Cement Volume			
FCD	Future Casing (Outer) Diameter	244.5	MM
HVCS	Integrated Hole Volume Caliper Selection	EMS_Calipers	
STI: Stuck Tool Indicator			
TDL	Total Depth - Logger	1133.00	M
System and Miscellaneous			
BS	Bit Size	361.950	MM
BSAL	Borehole Salinity	-50000.00	PPM
CSIZ	Current Casing Size	339.700	MM
CWEI	Casing Weight	81.11	KG/M
DFD	Drilling Fluid Density	1120.00	K/M3
DO	Depth Offset for Playback	0.0	M
DORL	Depth Offset for Repeat Analysis	0.0	M
MST	Mud Sample Temperature	20.50	DEGC
PP	Playback Processing	RECOMPUTE	
RMFS	Resistivity of Mud Filtrate Sample	0.1500	OHMM
TD	Total Depth	1147	M

Format: PORO-SAND45-CAN Vertical Scale: 1:240 Graphics File Created: 03-Mar-2007 11:51

OP System Version: 14C0-302

MCM

AIT-M	14C0-302	HILTH-FTB	14C0-302
EMS-B	14C0-302	DTC-H	14C0-302

Input DLIS Files

DEFAULT	SPLICE_AIT_TLD_MCFL_089	FN:1	PRODUCER	03-Mar-2007 11:47	1134.3 M	622.9 M
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Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_091PUP	FN:110	PRODUCER	03-Mar-2007 11:51
CUST	AIT_TLD_MCFL_CNL_091PUP	FN:111	PRODUCER	03-Mar-2007 11:51

**HIRES: NUCLEAR POROSITY
SANDSTONE 2650 KG/M3**

MAXIS Field Log

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_048LUP	FN:55	PRODUCER	03-Mar-2007 08:10	1133.9 M	781.5 M
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Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_065PUP	FN:74	PRODUCER	03-Mar-2007 10:31	1134.3 M	760.5 M
CUST	AIT_TLD_MCFL_CNL_065PUP	FN:75	PRODUCER	03-Mar-2007 10:31	1134.3 M	760.5 M

Integrated Hole/Cement Volume Summary

Hole Volume = 38.74 M3

Cement Volume = 22.24 M3 (assuming 244.50 MM casing O.D.)

Computed from 1134.3 M to 783.0 M using data channel(s) RD1 RD2 RD3 RD4 RD5 RD6

OP System Version: 14C0-302

MCM

AIT-M	14C0-302	HILTH-FTB	14C0-302
CMRT-B	SPC-3239-CMR	EMS-B	14C0-302
DTC-H	14C0-302		

PIP SUMMARY

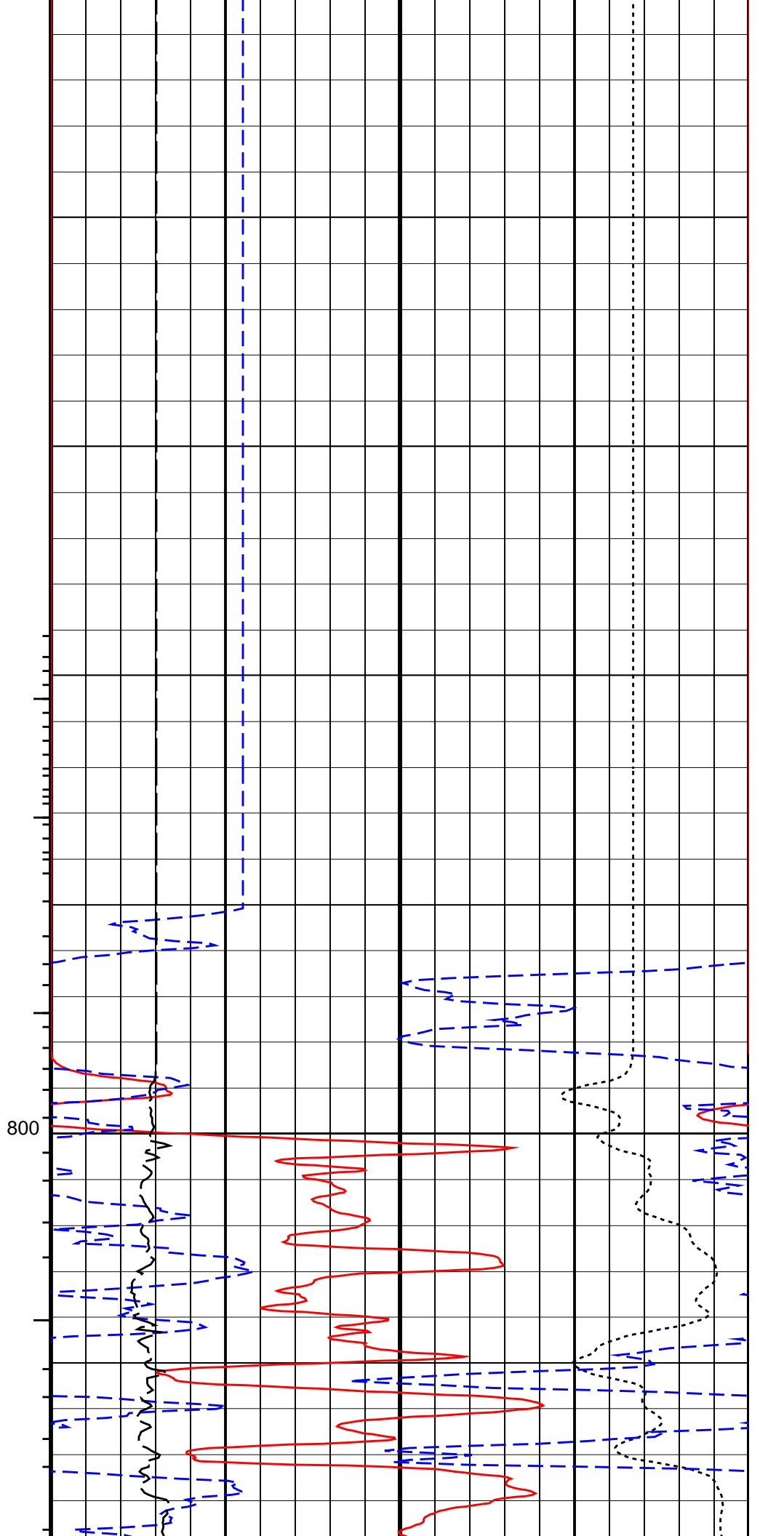
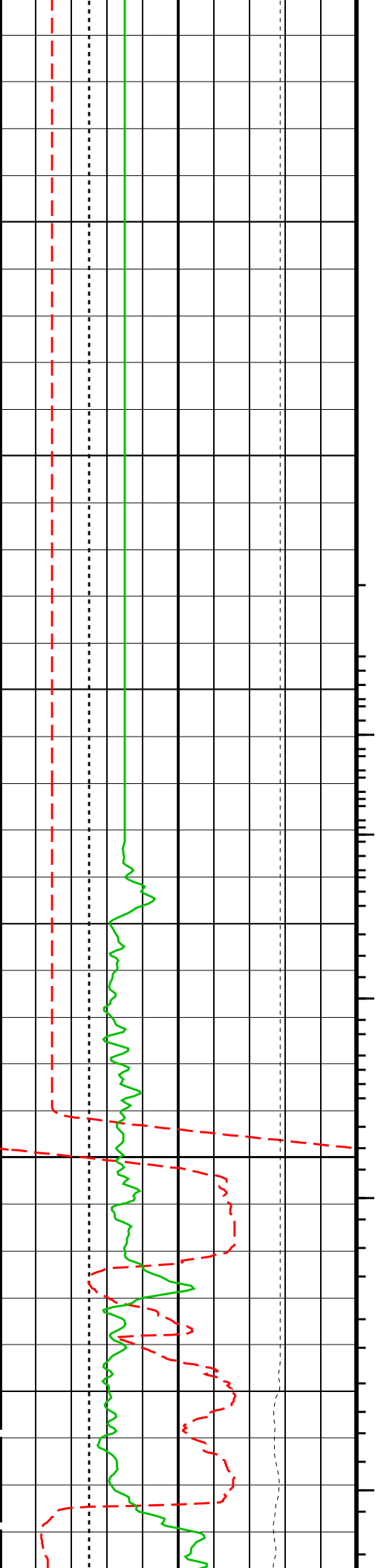
- └ Integrated Cement Volume Major Pip Every 1 M3
- └ Integrated Cement Volume Minor Pip Every 0.1 M3
- └ Integrated Hole Volume Major Pip Every 1 M3
- └ Integrated Hole Volume Minor Pip Every 0.1 M3

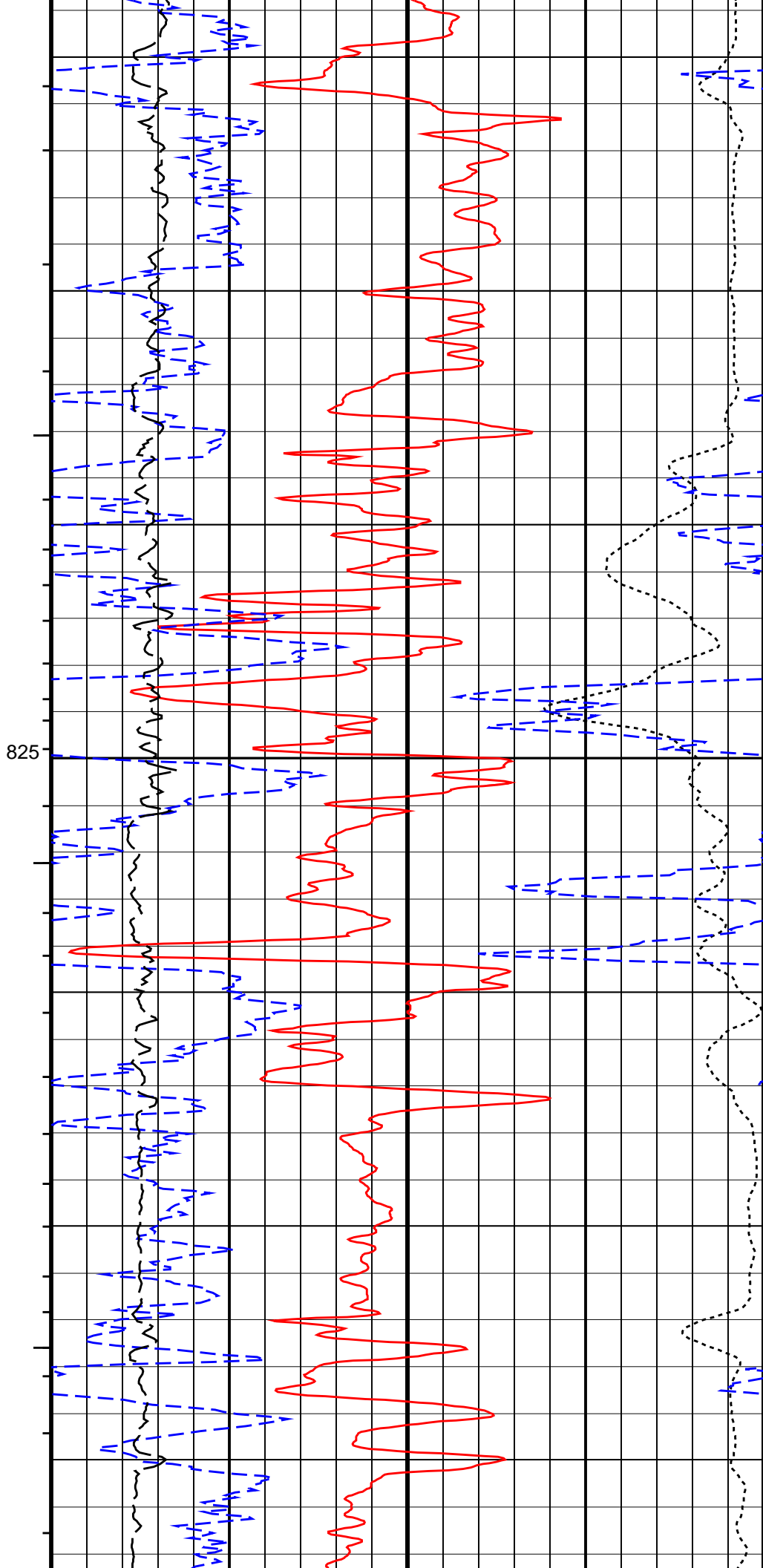
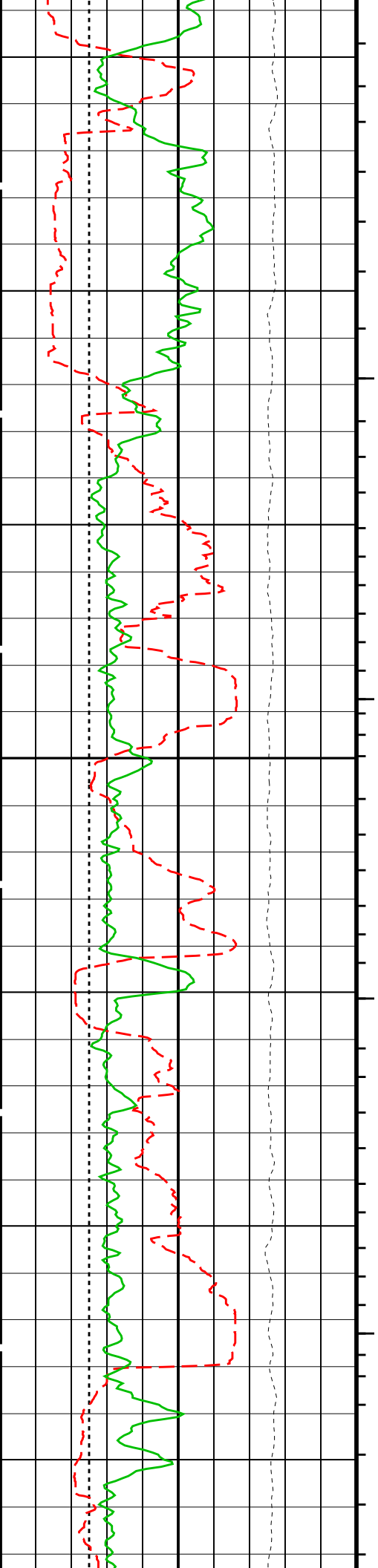
Time Mark Every 60 S

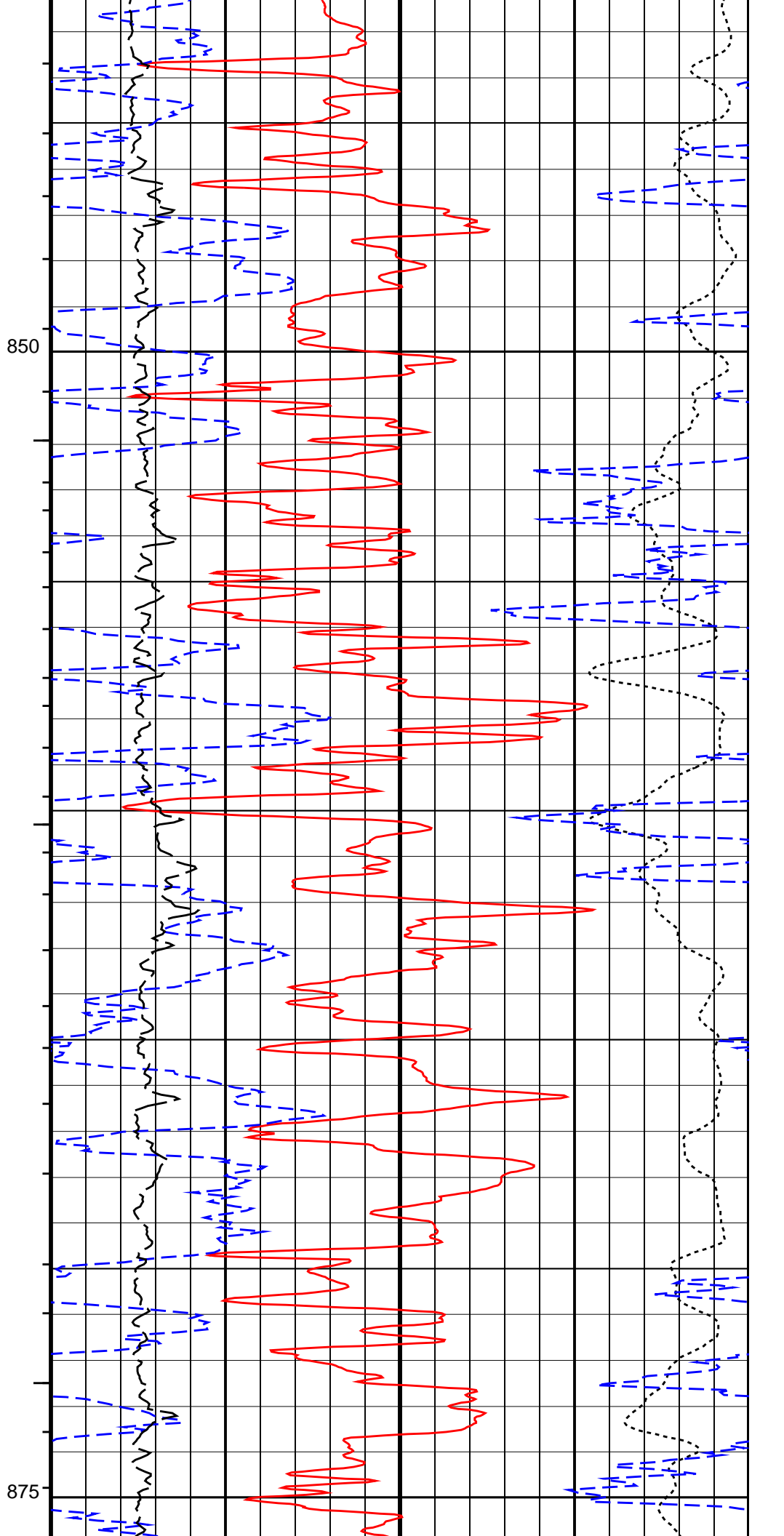
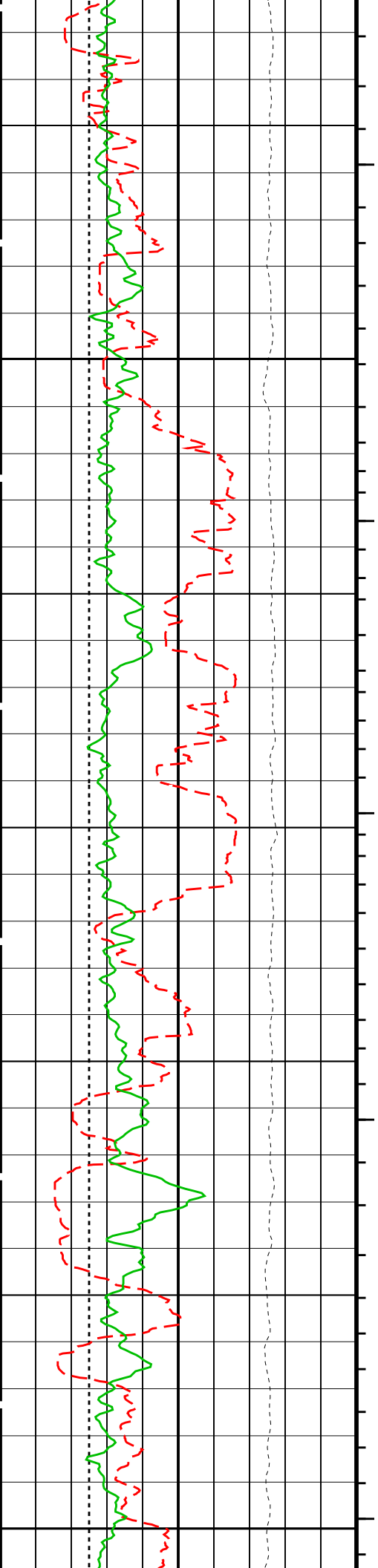
	Tension (TENS)				
	25000 (N)	0			
0	Gamma Ray (HGR) (GAPI)	150	0	10	450
			0.6		-50
300	Caliper (HCAL) (MM)	550			
			0.6		0
300	Bit Size (BS) (MM)	550			
			0.6		0

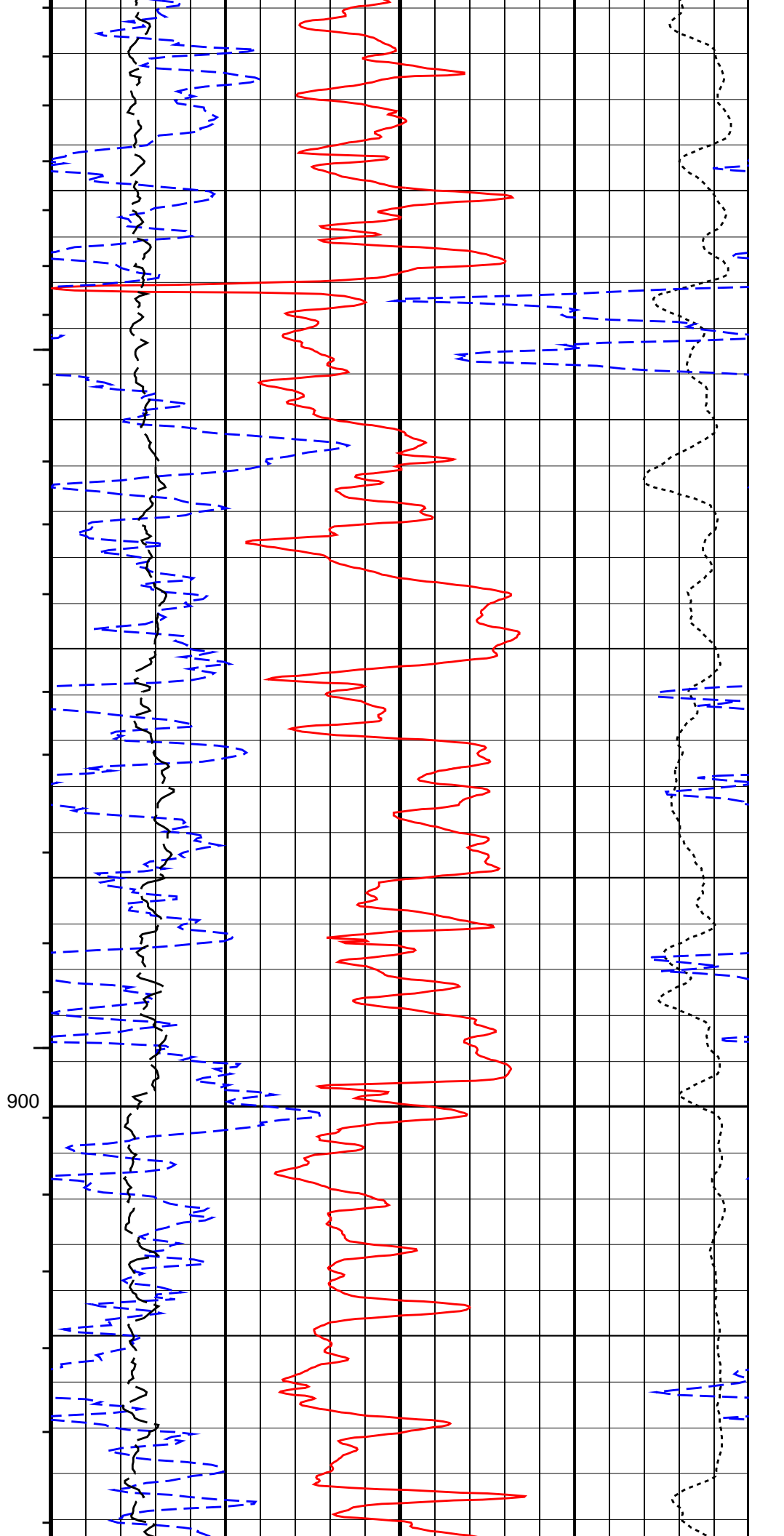
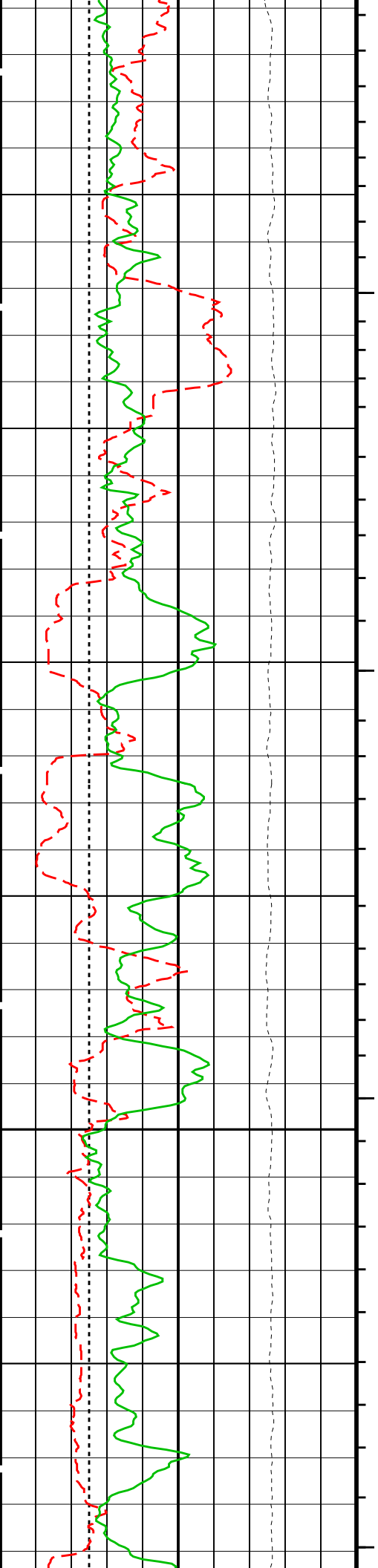
HIRES PASS: *** PEX - DENSITY POROSITY - SANDSTONE 2650 KG/M3 ***

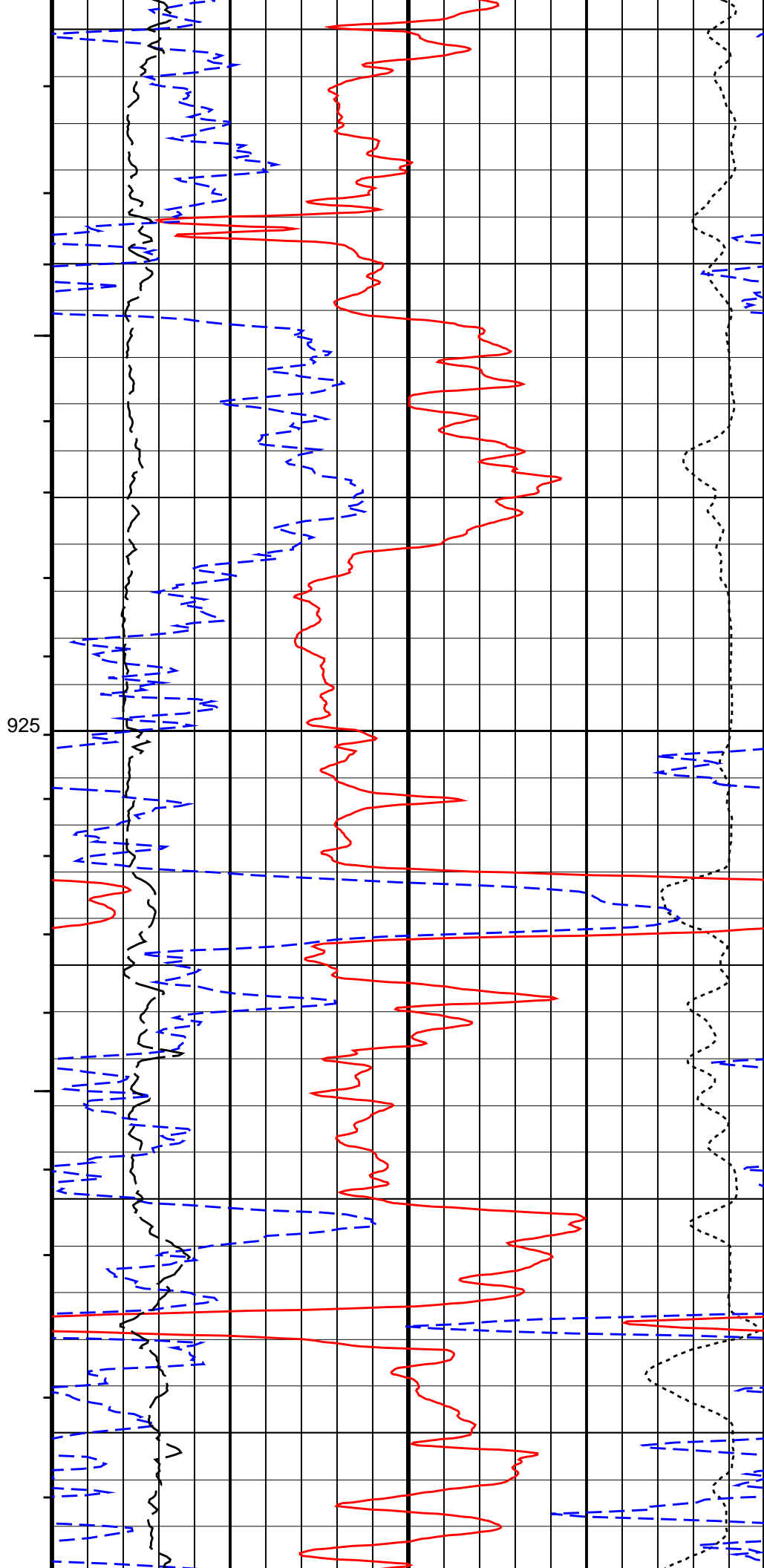
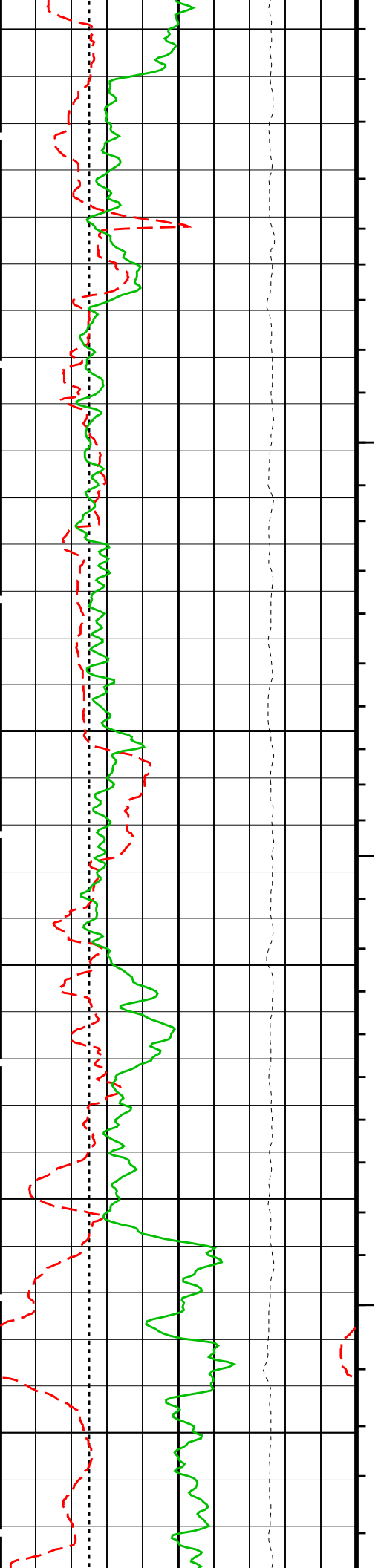
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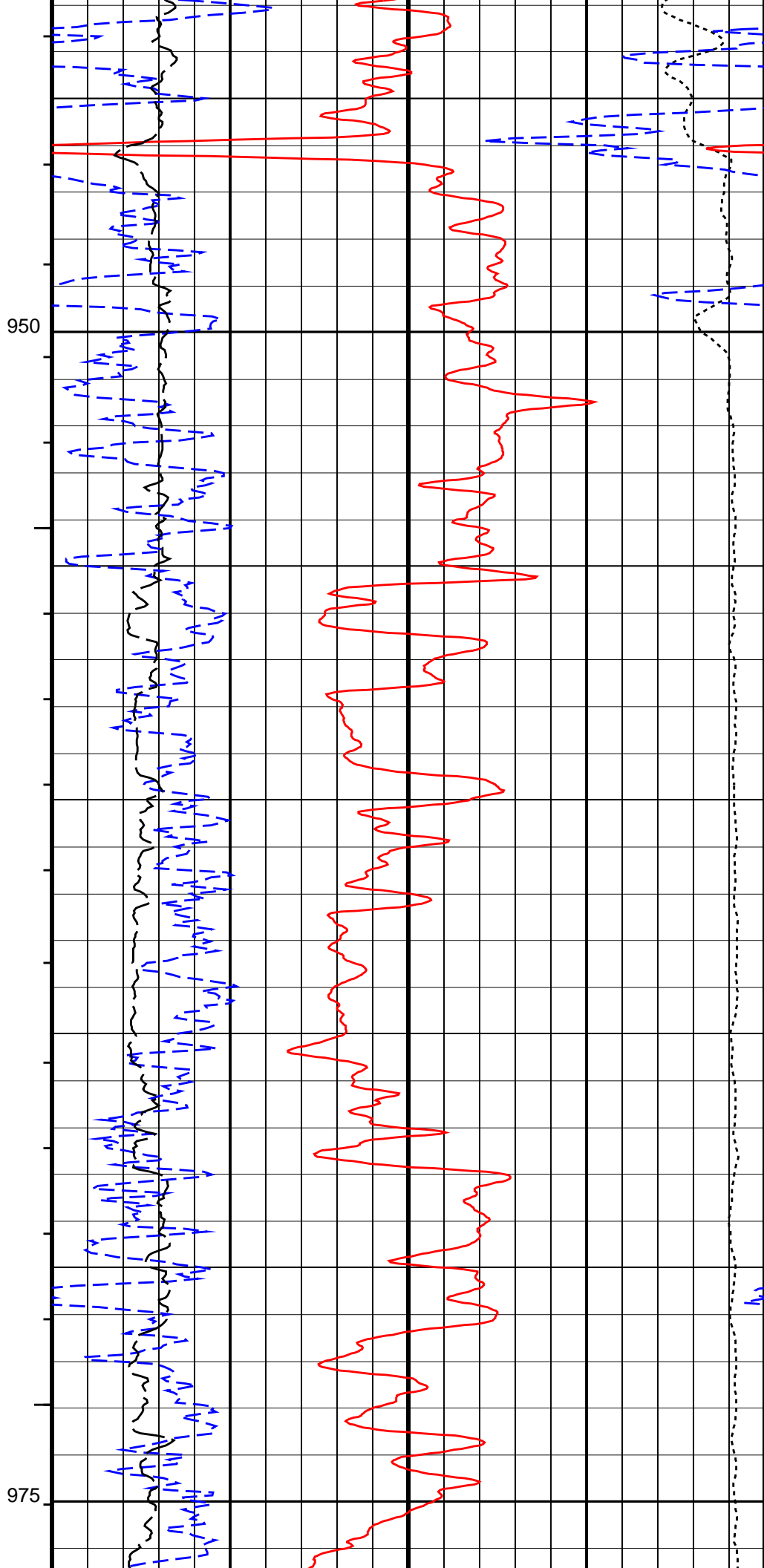
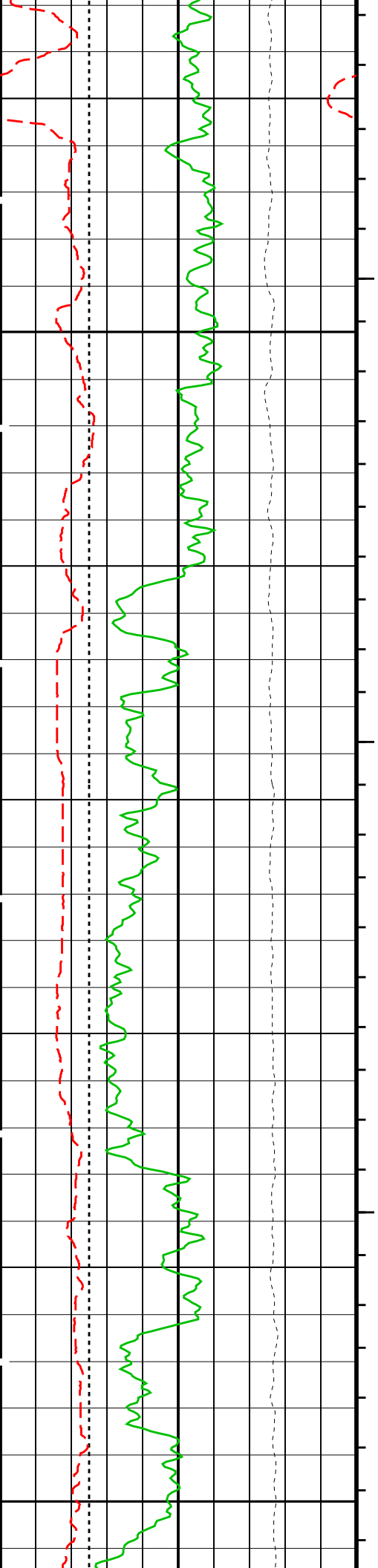






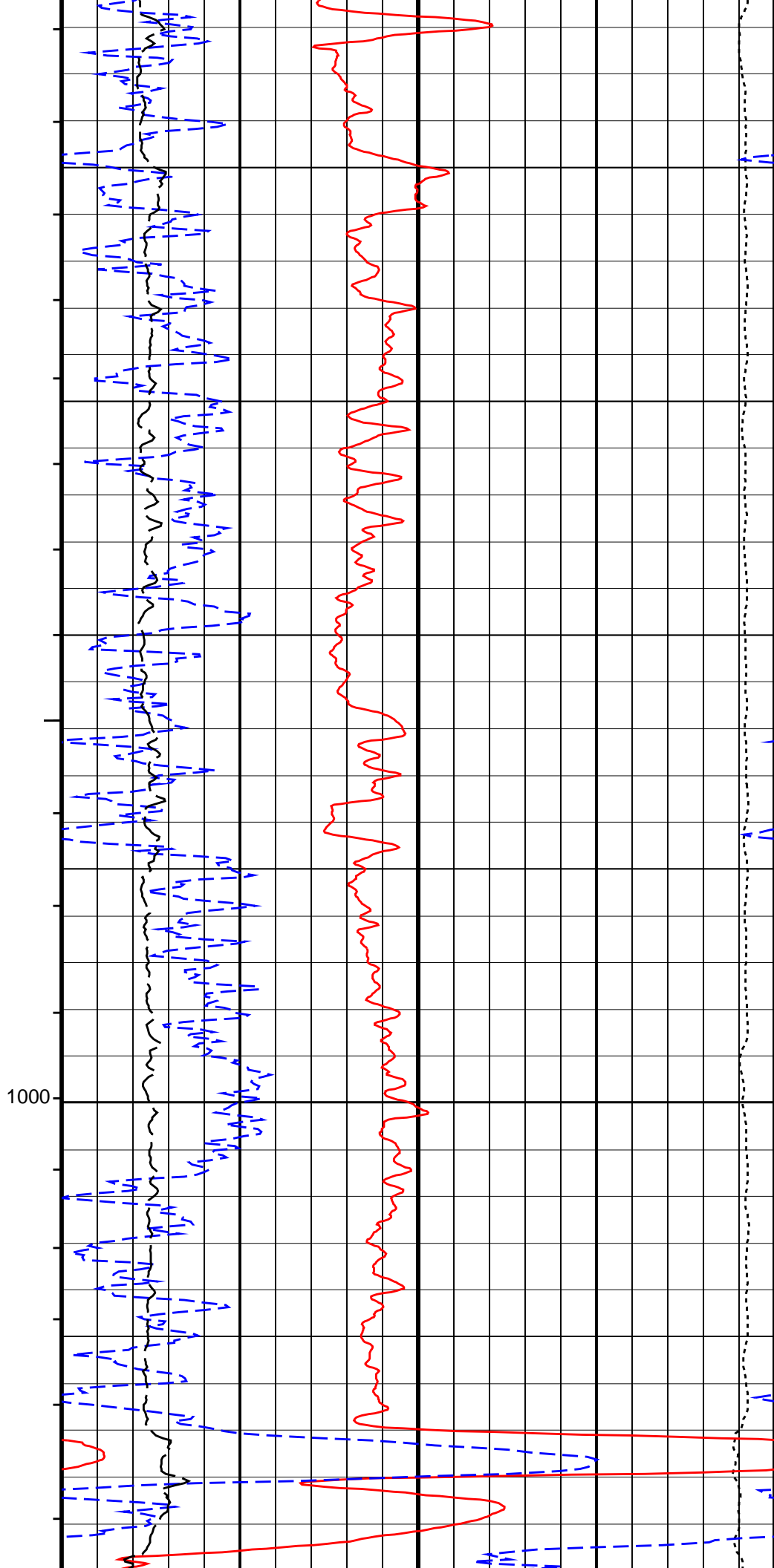
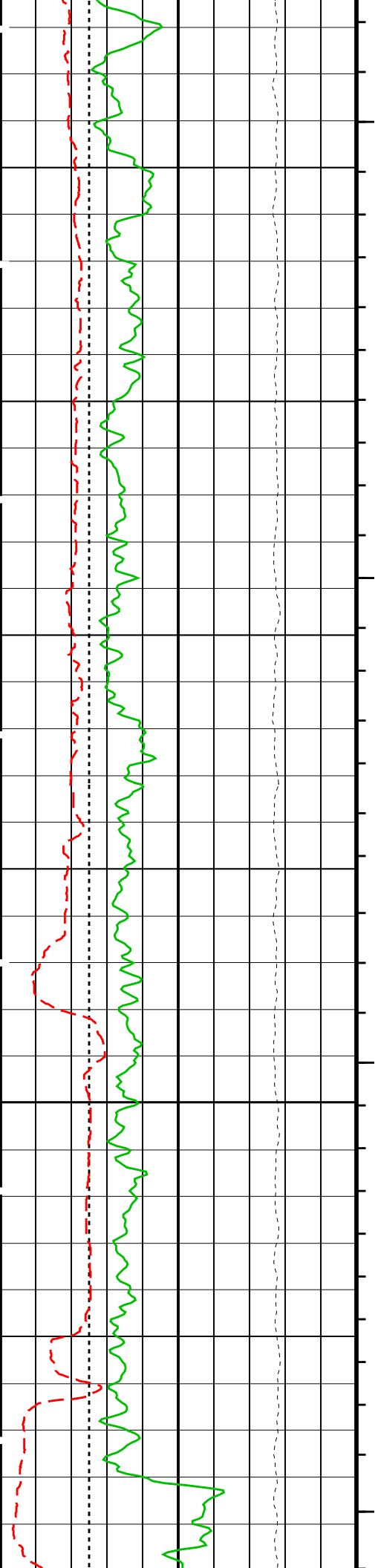


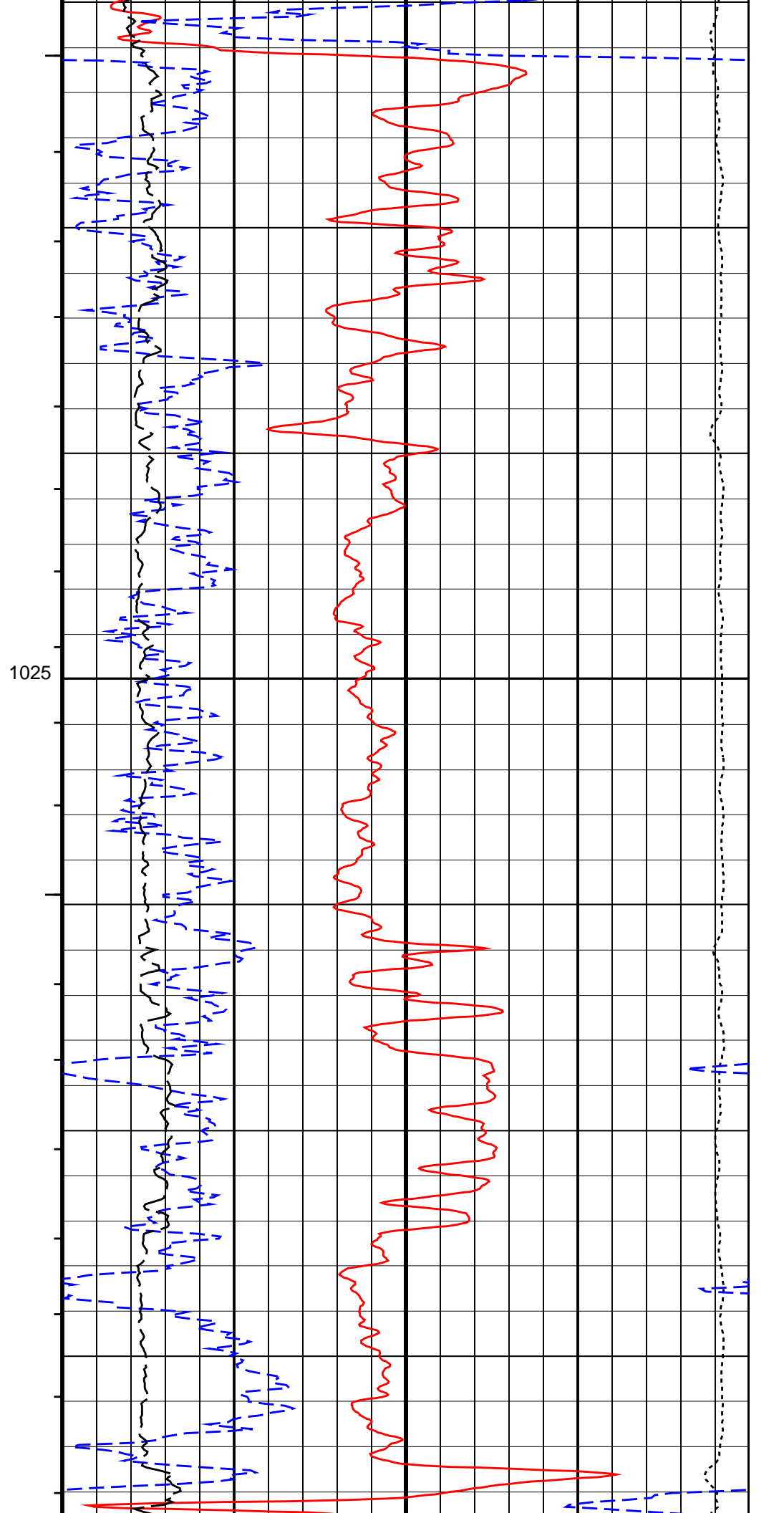
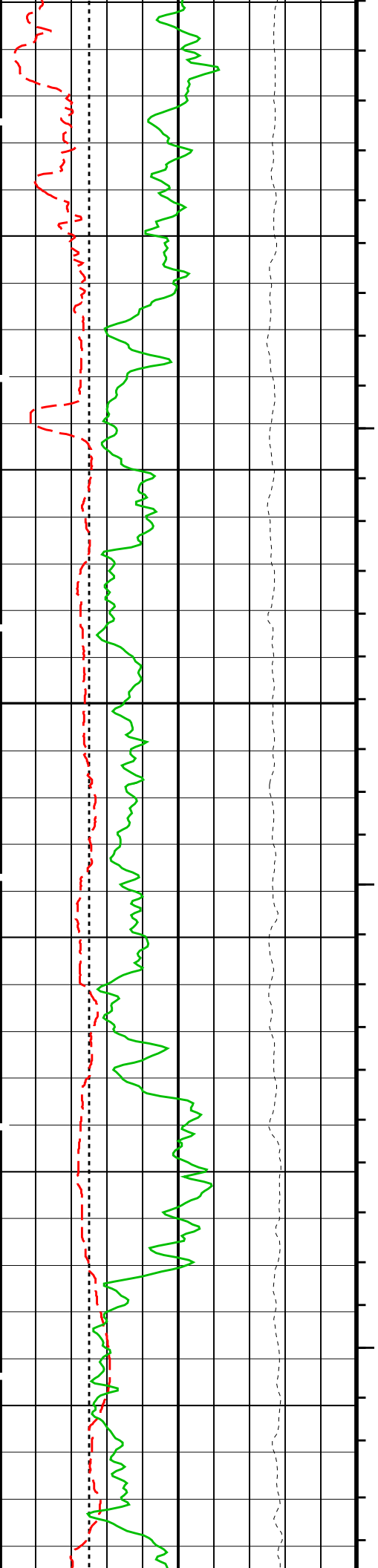


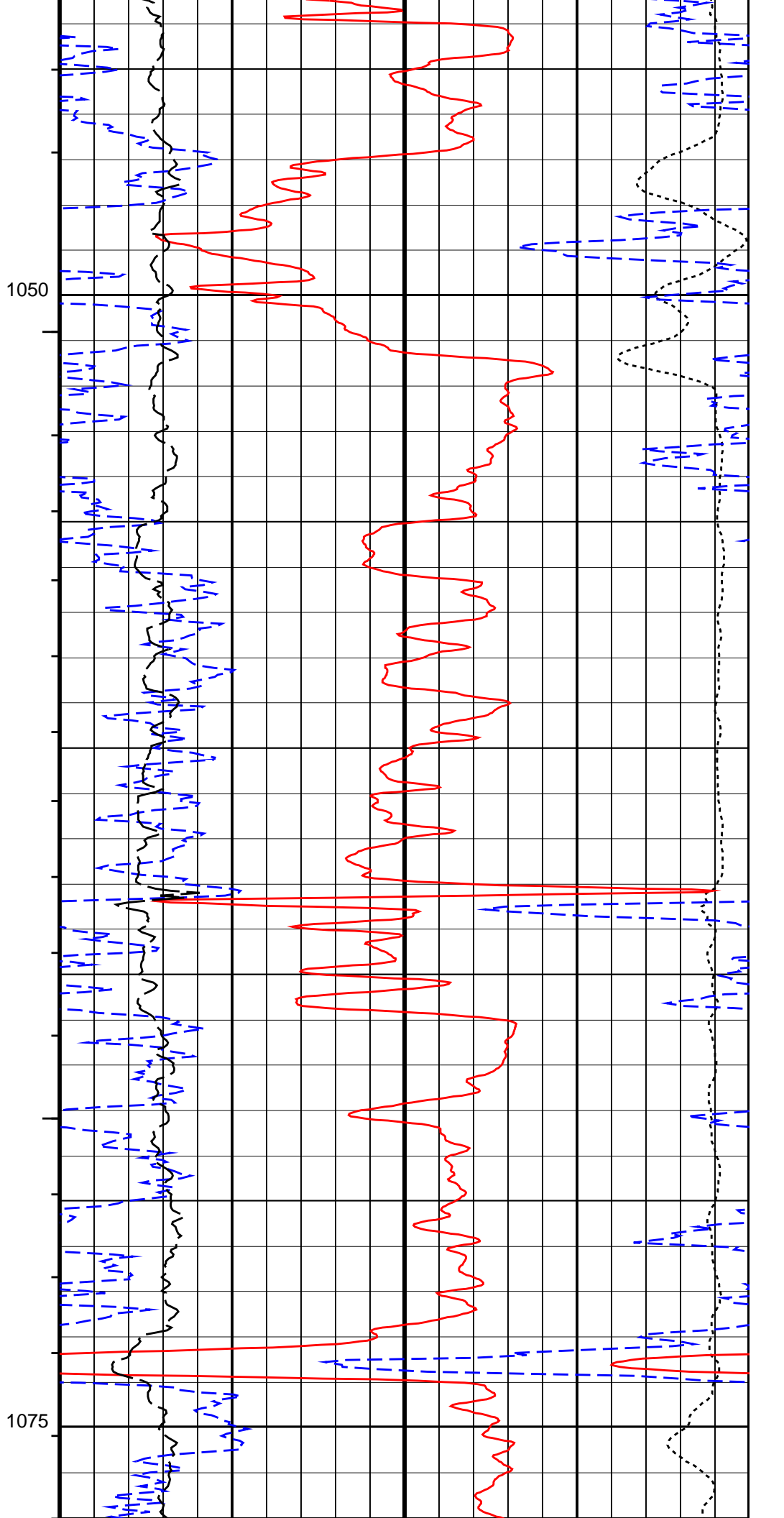
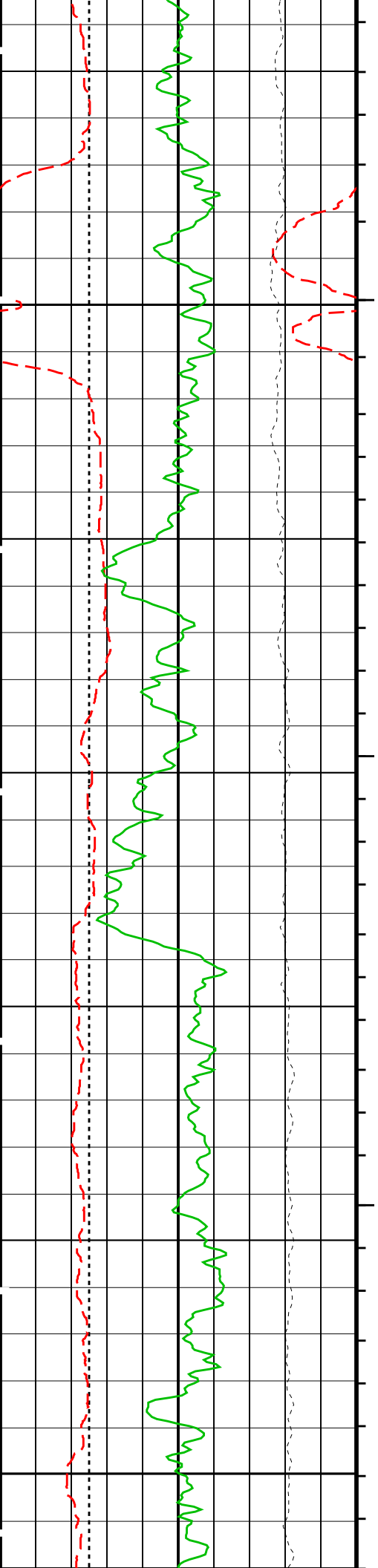


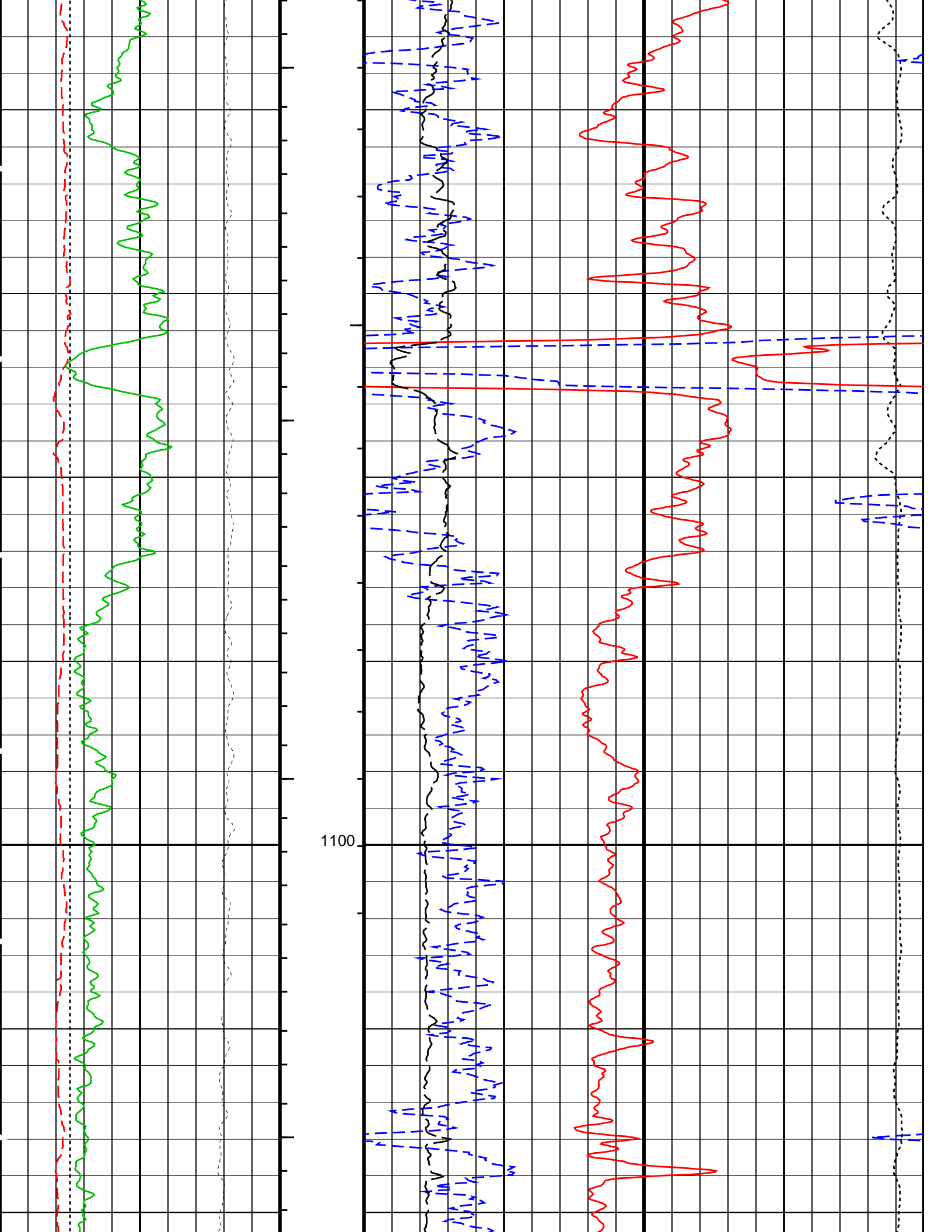
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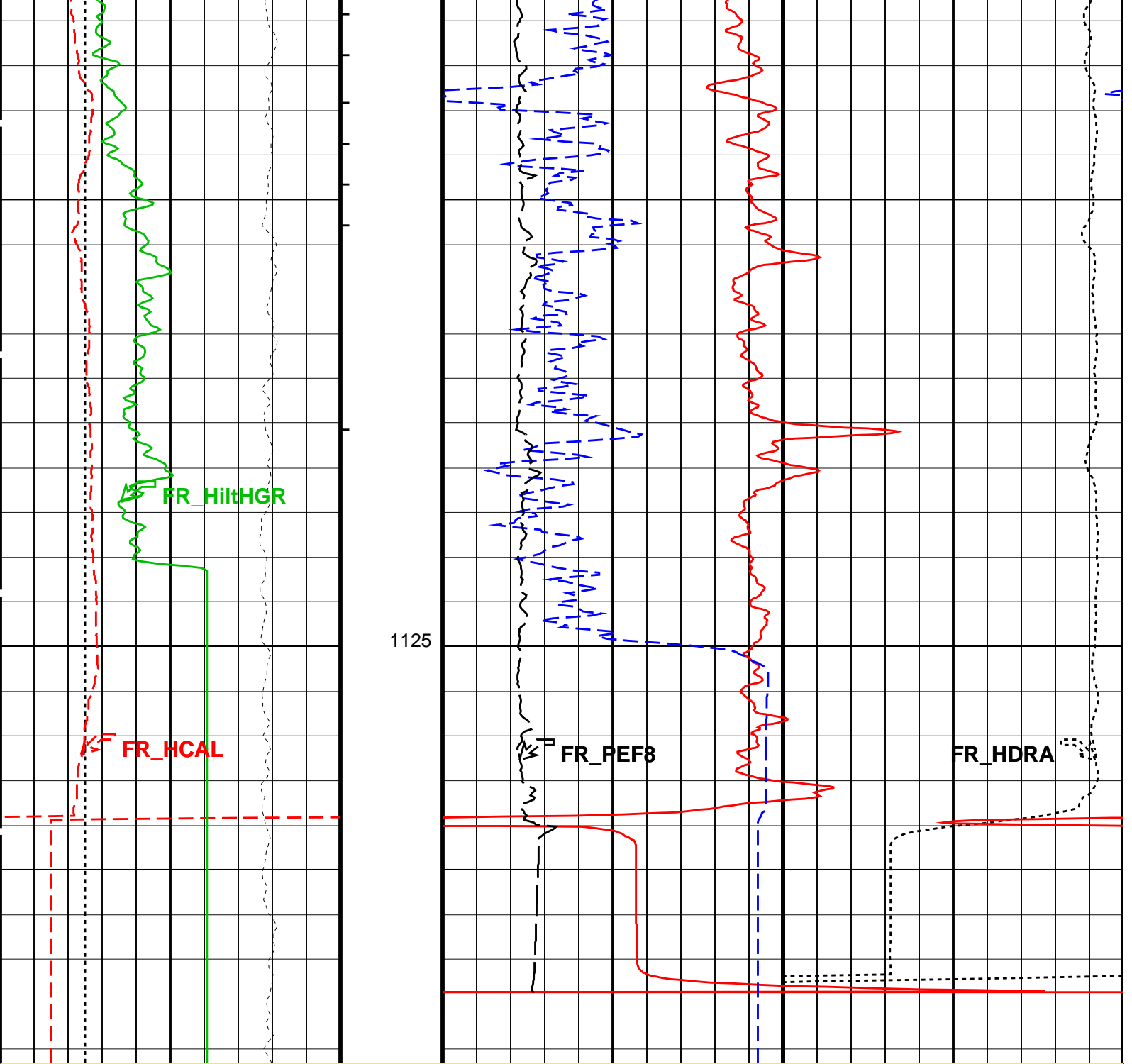
975











HIRES PASS: *** PEX - DENSITY POROSITY - SANDSTONE 2650 KG/M3 ***

300	Bit Size (BS) (MM)	550
300	Caliper (HCAL) (MM)	550
0	Gamma Ray (HGR) (GAPI)	150
25000	Tension (TENS) (N)	0

0.6	HDPH for SAND (HDPH_SAN) (V/V)	0
0.6	HNPO for SAND (HNPO_SAN) (V/V)	0
0	H. Res. Formation Pe (PEF8) (----	10 450
	Density Correction (HDRA) (K/M3)	-50

PIP SUMMARY

- ┌ Integrated Cement Volume Major Pip Every 1 M3
- └ Integrated Cement Volume Minor Pip Every 0.1 M3
- ┌ Integrated Hole Volume Major Pip Every 1 M3
- └ Integrated Hole Volume Minor Pip Every 0.1 M3

Parameters

DLIS Name	Description	Value	
AIT-M: Array Induction Tool - M			
BHS	Borehole Status	OPEN	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
HILTH-FTB: High resolution Integrated Logging Tool-DTS			
BHFL	Borehole Fluid Type	WATER	
BHFL_TLD	HILT Nuclear Mud Base	WATER	
BHS	Borehole Status	OPEN	
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
DHC	Density Hole Correction	BS	
FD	Fluid Density	1000	K/M3
FSAL	Formation Salinity	-50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
HSCO	Hole Size Correction Option	YES	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MWCO	Mud Weight Correction Option	NO	
NAAC	HRDD APS Activation Correction	OFF	
NMT	HILT Nuclear Mud Type	NOBARITE	
NPRM	HRDD Processing Mode	HiRes	
NSAR	HRDD Depth Sampling Rate	25.4	MM
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SOCN	Standoff Distance	3.175	MM
SOCO	Standoff Correction Option	YES	
CMRT-B: Combinable Magnetic Resonance Tool - B			
BHS	Borehole Status	OPEN	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
EMS-B: Environment Measurement Sonde			
FCD	Future Casing (Outer) Diameter	244.5	MM
HVCS	Integrated Hole Volume Caliper Selection	EMS_Calipers	
HOLEV: Integrated Hole/Cement Volume			
FCD	Future Casing (Outer) Diameter	244.5	MM
HVCS	Integrated Hole Volume Caliper Selection	EMS_Calipers	
STI: Stuck Tool Indicator			
LBFR	Trigger for MAXIS First Reading Label	TDL	
STKT	STI Stuck Threshold	1.524	M
TDD	Total Depth - Driller	1147.00	M
TDL	Total Depth - Logger	1133.00	M
System and Miscellaneous			
BS	Bit Size	361.950	MM
BSAL	Borehole Salinity	-50000.00	PPM
CSIZ	Current Casing Size	339.700	MM
CWEI	Casing Weight	81.11	KG/M
DFD	Drilling Fluid Density	1120.00	K/M3
DO	Depth Offset for Playback	0.4	M
MST	Mud Sample Temperature	20.50	DEGC
PP	Playback Processing	NORMAL	
RMFS	Resistivity of Mud Filtrate Sample	0.1500	OHMM
TD	Total Depth	1147	M

Format: HIRS-SAND45-CAN Vertical Scale: 1:120 Graphics File Created: 03-Mar-2007 10:31

OP System Version: 14C0-302

MCM

AIT-M	14C0-302	HILTH-FTB	14C0-302
CMRT-B	SPC-3239-CMR	EMS-B	14C0-302
DTC-H	14C0-302		

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_048LUP	FN:55	PRODUCER	03-Mar-2007 08:10	1133.9 M	781.5 M
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Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_065PUP	FN:74	PRODUCER	03-Mar-2007 10:31	
CUST	AIT_TLD_MCFL_CNL_065PUP	FN:75	PRODUCER	03-Mar-2007 10:31	

MAXIS Field Log

Input DLIS Files

DEFAULT	SPLICE_AIT_TLD_MCFL_089	FN:1	PRODUCER	03-Mar-2007 11:47	1134.3 M	622.9 M
DEFAULT	AIT_TLD_MCFL_CNL_067PUP	FN:78	PRODUCER	03-Mar-2007 10:38	1050.0 M	928.4 M

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_091PUP	FN:110	PRODUCER	03-Mar-2007 11:51
CUST	AIT_TLD_MCFL_CNL_091PUP	FN:111	PRODUCER	03-Mar-2007 11:51

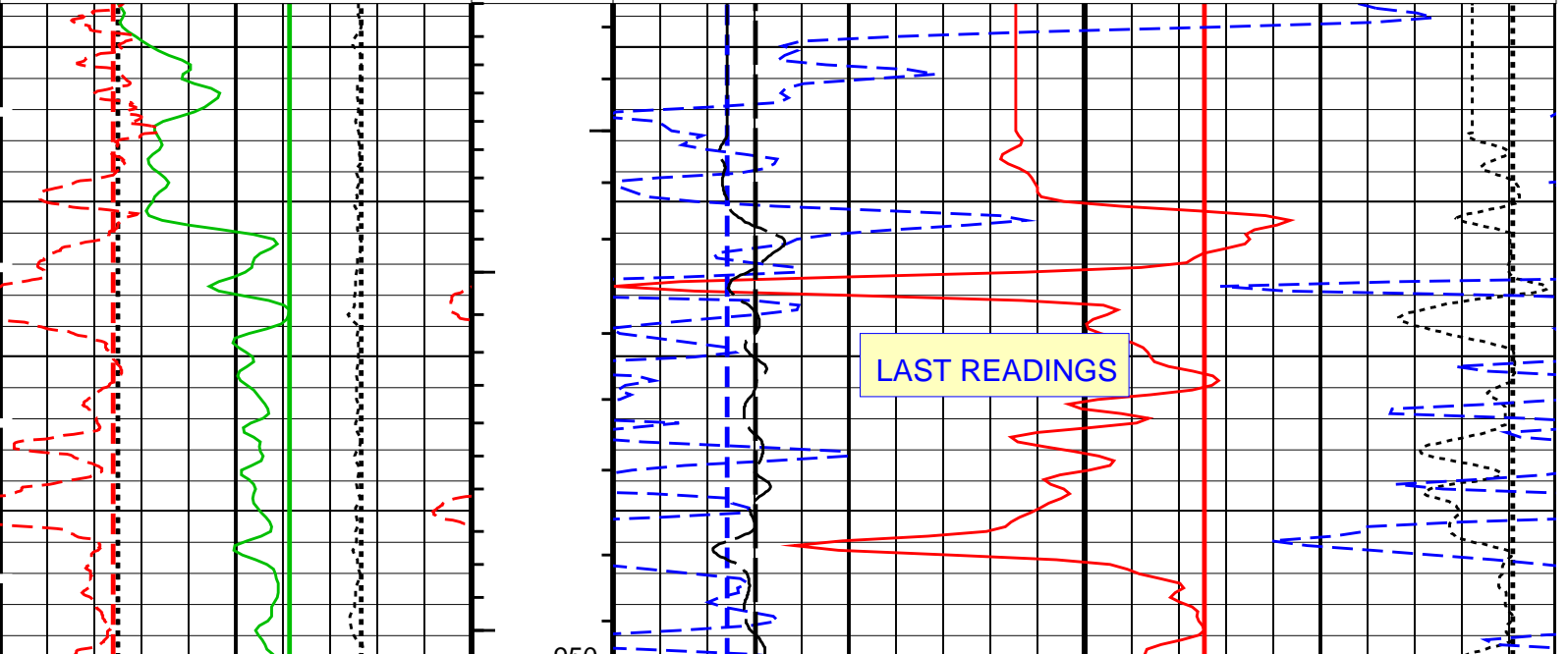
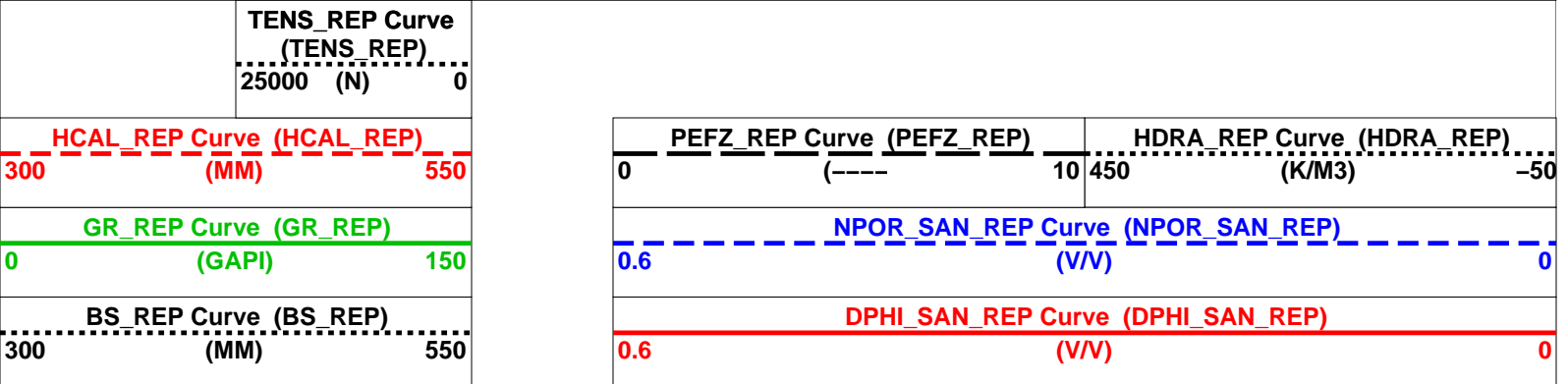
OP System Version: 14C0-302
MCM

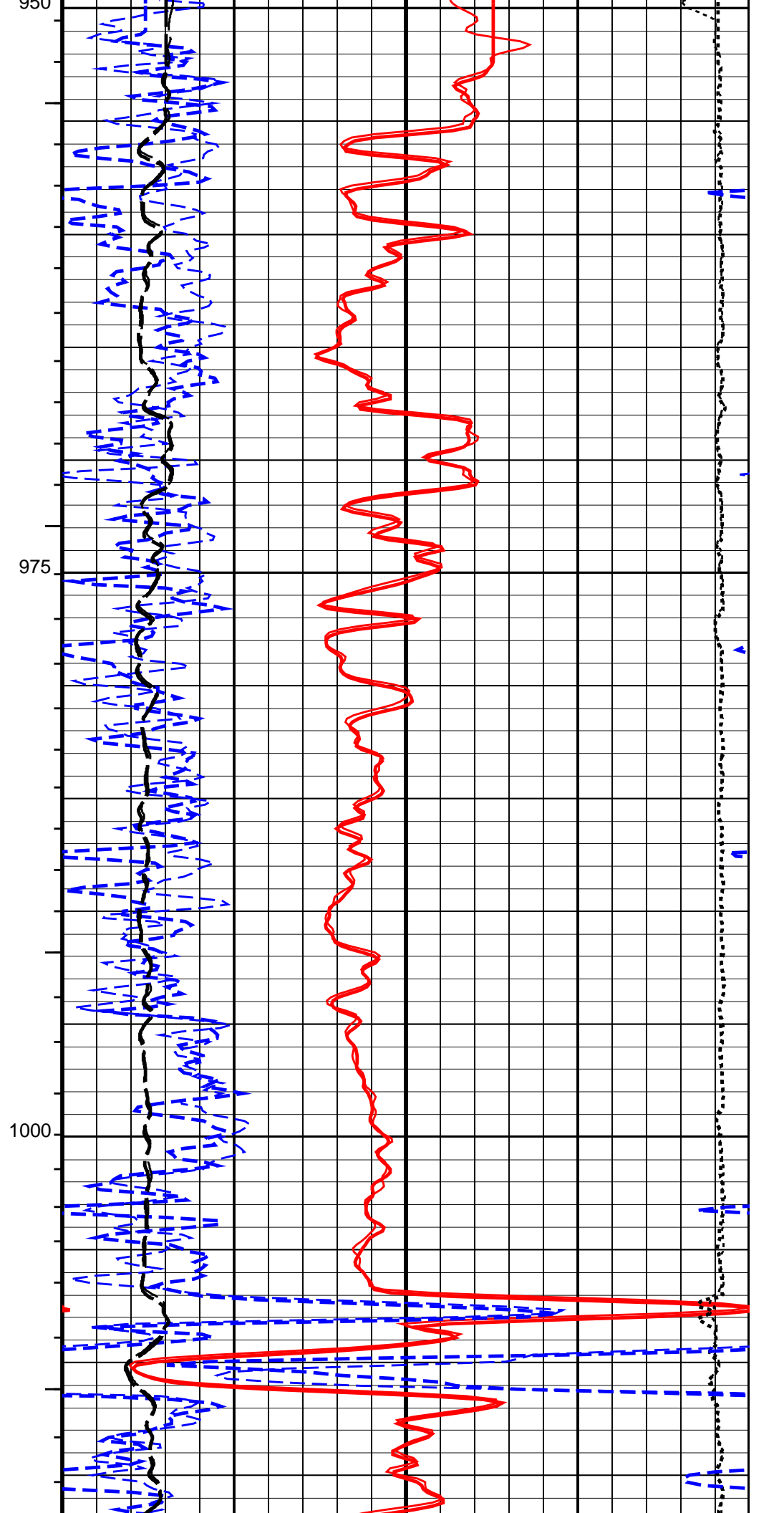
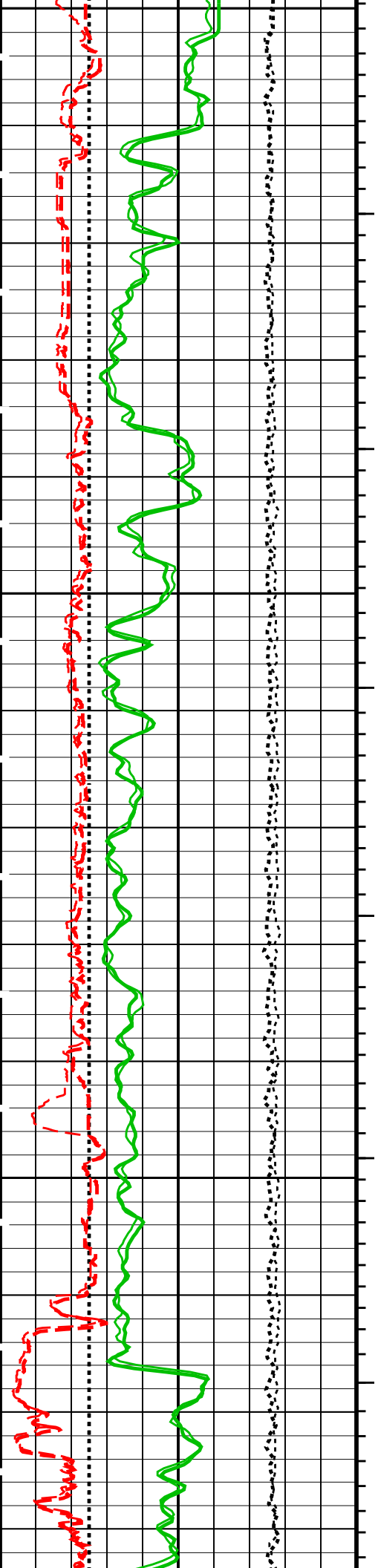
AIT-M	14C0-302	HILTH-FTB	14C0-302
EMS-B	14C0-302	DTC-H	14C0-302

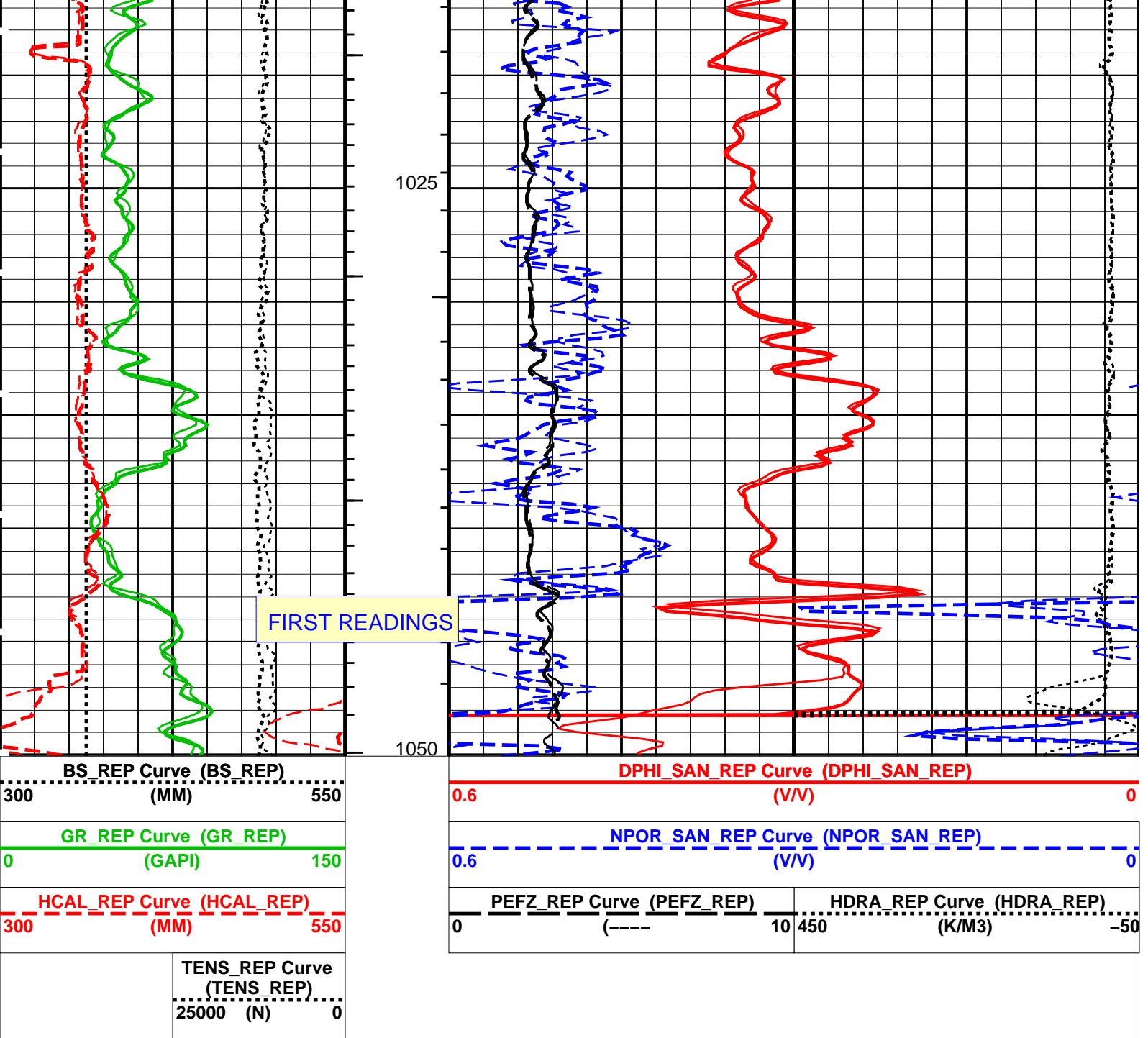
PIP SUMMARY

- └ Integrated Cement Volume Major Pip Every 1 M3
- └ Integrated Cement Volume Minor Pip Every 0.1 M3
- └ Integrated Hole Volume Major Pip Every 1 M3
- └ Integrated Hole Volume Minor Pip Every 0.1 M3

Time Mark Every 60 S







PIP SUMMARY

- └ Integrated Cement Volume Major Pip Every 1 M3
- └ Integrated Cement Volume Minor Pip Every 0.1 M3
- └ Integrated Hole Volume Major Pip Every 1 M3
- └ Integrated Hole Volume Minor Pip Every 0.1 M3

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
AIT-M: Array Induction Tool - M		
BHS	Borehole Status	OPEN
GDEV	Average Angular Deviation of Borehole from Normal	0 DEG
GGRD	Geothermal Gradient	0.018227 DC/M
HILTH-FTB: High resolution Integrated Logging Tool-DTS		
BHFL	Borehole Fluid Type	WATER
BHFL_TLD	HILT Nuclear Mud Base	WATER
BHS	Borehole Status	OPEN
BSCO	Borehole Salinity Correction Option	NO
CCCO	Casing & Cement Thickness Correction Option	NO
DHC	Density Hole Correction	BS
FD	Fluid Density	1000 K/M3
FSAL	Formation Salinity	-50000 PPM
FSCC	Formation Salinity Correction Option	NO

FSCO	Formation Salinity Correction Option	NO	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
HSCO	Hole Size Correction Option	YES	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MWCO	Mud Weight Correction Option	NO	
NAAC	HRDD APS Activation Correction	OFF	
NMT	HILT Nuclear Mud Type	NOBARITE	
NPRM	HRDD Processing Mode	HiRes	
NSAR	HRDD Depth Sampling Rate	25.4	MM
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SOCN	Standoff Distance	3.175	MM
SOCO	Standoff Correction Option	YES	
EMS-B: Environment	Measurement Sonde		
BHS	Borehole Status	OPEN	
FCD	Future Casing (Outer) Diameter	244.5	MM
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
HVCS	Integrated Hole Volume Caliper Selection	EMS_Calipers	
HOLEV: Integrated Hole/Cement Volume			
FCD	Future Casing (Outer) Diameter	244.5	MM
HVCS	Integrated Hole Volume Caliper Selection	EMS_Calipers	
STI: Stuck Tool Indicator			
TDL	Total Depth - Logger	1133.00	M
System and Miscellaneous			
BS	Bit Size	361.950	MM
BSAL	Borehole Salinity	-50000.00	PPM
CSIZ	Current Casing Size	339.700	MM
CWEI	Casing Weight	81.11	KG/M
DFD	Drilling Fluid Density	1120.00	K/M3
DO	Depth Offset for Playback	0.0	M
DORL	Depth Offset for Repeat Analysis	0.0	M
MST	Mud Sample Temperature	20.50	DEGC
PP	Playback Processing	RECOMPUTE	
RMFS	Resistivity of Mud Filtrate Sample	0.1500	OHMM
TD	Total Depth	1147	M

Format: PORO-SAND45-CAN_REP Vertical Scale: 1:240 Graphics File Created: 03-Mar-2007 11:51

OP System Version: 14C0-302
MCM

AIT-M	14C0-302	HILTH-FTB	14C0-302
EMS-B	14C0-302	DTC-H	14C0-302

Input DLIS Files

DEFAULT	SPLICE_AIT_TLD_MCFL_089	FN:1	PRODUCER	03-Mar-2007 11:47	1134.3 M	622.9 M
DEFAULT	AIT_TLD_MCFL_CNL_067PUP	FN:78	PRODUCER	03-Mar-2007 10:38	1050.0 M	928.4 M

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_091PUP	FN:110	PRODUCER	03-Mar-2007 11:51
CUST	AIT_TLD_MCFL_CNL_091PUP	FN:111	PRODUCER	03-Mar-2007 11:51



CALIBRATIONS

MAXIS Field Log

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
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Array Induction Tool – M Wellsite Calibration – Electronics Calibration Check – Thru Cal Mag. & Phase

Master: 9–Jan–2007 16:33 Before: 2–Mar–2007 21:07

Thru Cal Magnitude – 0	0	0.6106	0.6119	N/A	N/A	N/A	V
Thru Cal Magnitude – 1	0	1.251	1.254	N/A	N/A	N/A	V
Thru Cal Magnitude – 2	0	0.6204	0.6215	N/A	N/A	N/A	V
Thru Cal Magnitude – 3	0	0.6999	0.7012	N/A	N/A	N/A	V
Thru Cal Magnitude – 4	0	1.310	1.313	N/A	N/A	N/A	V
Thru Cal Magnitude – 5	0	1.909	1.912	N/A	N/A	N/A	V
Thru Cal Magnitude – 6	0	1.905	1.909	N/A	N/A	N/A	V
Thru Cal Magnitude – 7	0	1.370	1.372	N/A	N/A	N/A	V
Thru Cal Phase – 0	0	194.5	192.9	N/A	N/A	N/A	DEG
Thru Cal Phase – 1	0	193.4	191.8	N/A	N/A	N/A	DEG
Thru Cal Phase – 2	0	189.7	188.2	N/A	N/A	N/A	DEG
Thru Cal Phase – 3	0	189.0	187.4	N/A	N/A	N/A	DEG
Thru Cal Phase – 4	0	182.7	181.1	N/A	N/A	N/A	DEG
Thru Cal Phase – 5	0	181.0	179.4	N/A	N/A	N/A	DEG
Thru Cal Phase – 6	0	181.1	179.5	N/A	N/A	N/A	DEG
Thru Cal Phase – 7	0	180.5	178.8	N/A	N/A	N/A	DEG

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

Master: 9–Jan–2007 16:33 Before: 2–Mar–2007 21:07

Array Induction SPA Plus	991.0	992.5	992.9	N/A	N/A	N/A	MV
Array Induction SPA Zero	0	-0.1065	-0.06589	N/A	N/A	N/A	MV
Array Induction Temperature PI	0.9170	0.9193	0.9197	N/A	N/A	N/A	V
Array Induction Temperature Ze	0	-0.0001016	-0.00007390	N/A	N/A	N/A	V

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

Master: 9–Jan–2007 16:33

Test Loop Gain Correctio – 0	0	1.044	N/A	N/A	N/A	N/A	V
Test Loop Gain Correctio – 1	0	1.044	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	1.018	N/A	N/A	N/A	N/A	V
Test Loop Gain Correctio – 4	0	1.005	N/A	N/A	N/A	N/A	V
Test Loop Gain Correctio – 5	0	1.004	N/A	N/A	N/A	N/A	V
Test Loop Gain Correctio – 6	0	1.013	N/A	N/A	N/A	N/A	V
Test Loop Gain Correctio – 7	0	1.025	N/A	N/A	N/A	N/A	V
Test Loop Gain Correctio – 0	0	0.7534	N/A	N/A	N/A	N/A	DEG
Test Loop Gain Correctio – 1	0	0.6562	N/A	N/A	N/A	N/A	DEG
Test Loop Gain Correctio – 2	0	0.06160	N/A	N/A	N/A	N/A	DEG
Test Loop Gain Correctio – 3	0	0.1409	N/A	N/A	N/A	N/A	DEG
Test Loop Gain Correctio – 4	0	0.1225	N/A	N/A	N/A	N/A	DEG
Test Loop Gain Correctio – 5	0	0.05437	N/A	N/A	N/A	N/A	DEG
Test Loop Gain Correctio – 6	0	0.4129	N/A	N/A	N/A	N/A	DEG
Test Loop Gain Correctio – 7	0	0.09432	N/A	N/A	N/A	N/A	DEG

Array Induction Tool – M Wellsite Calibration – Sonde Error Correction

Master: 9–Jan–2007 16:33

R Sonde Error Correction – 0	0	-18.53	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 1	0	176.7	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 2	0	101.8	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 3	0	56.95	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 4	0	23.72	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 5	0	11.78	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 6	0	9.211	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 7	0	-2.205	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 0	0	186.1	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 1	0	-10.08	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 2	0	2.897	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 3	0	-11.83	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 4	0	45.25	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 5	0	4.755	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 6	0	4.629	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 7	0	5.289	N/A	N/A	N/A	N/A	MM/M

Array Induction Tool – M Wellsite Calibration – Mud Gain Correction

Master: 9–Jan–2007 16:33

Coarse – Mag, Real, Imag – 0	0	1.054	N/A	N/A	N/A	N/A
Coarse – Mag, Real, Imag – 1	0	1.067	N/A	N/A	N/A	N/A
Coarse – Mag, Real, Imag – 2	0	1.067	N/A	N/A	N/A	N/A
Fine – Mag, Real, Imag – 0	0	1.077	N/A	N/A	N/A	N/A
Fine – Mag, Real, Imag – 1	0	1.077	N/A	N/A	N/A	N/A
Fine – Mag, Real, Imag – 2	0	1.077	N/A	N/A	N/A	N/A

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

Before: 2–Mar–2007 21:28

BS Window Ratio	0.7427	N/A	0.7435	N/A	N/A	N/A	
BS Window Sum	29280	N/A	29240	N/A	N/A	N/A	CPS
SS Window Ratio	0.4849	N/A	0.4833	N/A	N/A	N/A	
SS Window Sum	13080	N/A	13060	N/A	N/A	N/A	CPS
LS Window Ratio	0.3035	N/A	0.2974	N/A	N/A	N/A	
LS Window Sum	1545	N/A	1536	N/A	N/A	N/A	CPS

High resolution Integrated Logging Tool–DTS Wellsite Calibration – Photo–multiplier High Voltages Calibrations							
Before: 2–Mar–2007 21:28							
BS PM High Voltage (Command)	1376	N/A	1352	N/A	N/A	N/A	V
SS PM High Voltage (Command)	1421	N/A	1410	N/A	N/A	N/A	V
LS PM High Voltage (Command)	1301	N/A	1310	N/A	N/A	N/A	V
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Crystal Quality Resolutions Calibration							
Before: 2–Mar–2007 21:28							
BS Crystal Resolution	10.78	N/A	10.84	N/A	N/A	N/A	%
SS Crystal Resolution	8.916	N/A	8.780	N/A	N/A	N/A	%
LS Crystal Resolution	8.952	N/A	9.048	N/A	N/A	N/A	%
High resolution Integrated Logging Tool–DTS Wellsite Calibration – MCFL Calibration							
Before: 2–Mar–2007 21:29							
Raw B0 Resistivity	3875	N/A	3870	N/A	N/A	N/A	OHMM
Raw B1 Resistivity	3830	N/A	3819	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–DTS Wellsite Calibration – HILT Caliper Calibration							
Before: 2–Mar–2007 21:51							
HILT Caliper Zero Measurement	254.0	N/A	199.8	N/A	N/A	N/A	MM
HILT Caliper Plus Measurement	508.0	N/A	382.4	N/A	N/A	N/A	MM
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Detector Calibration							
Before: 2–Mar–2007 21:25							
Gamma Ray Background	30.00	N/A	23.72	N/A	N/A	N/A	GAPI
Gamma Ray (Jig – Bkg)	185.1	N/A	185.1	N/A	N/A	16.83	GAPI
Gamma Ray (Calibrated)	165.0	N/A	165.0	N/A	N/A	15.00	GAPI
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Zero Measurement							
Master: 10–Jan–2007 15:23 Before: 2–Mar–2007 21:23							
CNTC Background	26.53	26.53	26.48	N/A	N/A	3.980	CPS
CFTC Background	29.66	29.66	29.06	N/A	N/A	4.449	CPS
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Ratio Measurement							
Master: 10–Jan–2007 15:23							
Thermal Near Corr. (Tank)	6031	6292	N/A	N/A	N/A	N/A	CPS
Thermal Far Corr. (Tank)	2793	2647	N/A	N/A	N/A	N/A	CPS
CNTC/CFTC (Tank)	2.159	2.377	N/A	N/A	N/A	N/A	
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Accelerometer Calibration							
Before: 3–Mar–2007 6:35							
Z–Axis Acceleration	9.810	N/A	9.812	N/A	N/A	N/A	M/S2
High resolution Integrated Logging Tool–DTS Master Calibration – Inversion results							
Master: 14–Feb–2007 15:55							
Rho Aluminum	2596	2599	--	--	--	--	K/M3
Rho Magnesium	1686	1686	--	--	--	--	K/M3
Pe Aluminum	2.570	2.556	--	--	--	--	
Pe Magnesium	2.650	2.631	--	--	--	--	
High resolution Integrated Logging Tool–DTS Master Calibration – Deviation Summary							
Master: 14–Feb–2007 15:55							
BS Average Deviation	0	0.2316	--	--	--	--	%
BS Max Deviation	0	0.7406	--	--	--	--	%
SS Average Deviation	0	0.2254	--	--	--	--	%
SS Max Deviation	0	1.106	--	--	--	--	%
LS Average Deviation	0	0.6026	--	--	--	--	%
LS Max Deviation	0	1.170	--	--	--	--	%
Combinable Magnetic Resonance Tool – B Master Calibration – Calibration Fixture Measurement							
Master: 3–Mar–2007 6:32							
Tool Temperature MCAL	27.00	25.19	--	--	--	--	DEGC
LOOP Measurement MCAL	2300	1870	--	--	--	--	
Hall Probe B0 MCAL	52.00	52.68	--	--	--	--	MTES
Cal. Fixture Amplitude MCAL	37.50	28.32	--	--	--	--	%
Environment Measurement Sonde Wellsite Calibration – EMS Caliper Calibration							
Before: 2–Mar–2007 22:46							
Radius 1 Short Radius	101.6	N/A	100.3	N/A	N/A	5.080	MM
Radius 1 Long Radius	152.4	N/A	160.0	N/A	N/A	5.080	MM
Radius 2 Short Radius	152.4	N/A	165.1	N/A	N/A	5.080	MM
Radius 2 Long Radius	101.6	N/A	100.0	N/A	N/A	5.080	MM
Radius 3 Short Radius	101.6	N/A	94.47	N/A	N/A	5.080	MM
Radius 3 Long Radius	152.4	N/A	155.7	N/A	N/A	5.080	MM
Radius 4 Short Radius	152.4	N/A	160.1	N/A	N/A	5.080	MM
Radius 4 Long Radius	101.6	N/A	104.3	N/A	N/A	5.080	MM
Radius 5 Short Radius	101.6	N/A	107.8	N/A	N/A	5.080	MM
Radius 5 Long Radius	152.4	N/A	165.1	N/A	N/A	5.080	MM
Radius 6 Short Radius	152.4	N/A	162.4	N/A	N/A	5.080	MM

The GLS-VJ source activity is acceptable.

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

NCT-B Water Temperature 18.0 DEGC.
 Thermal Housing Size 85.725 MM.
 NSR-F serial number 5196

Array Induction Tool – M / Equipment Identification

Primary Equipment:
 Rm/SP Bottom Nose AMRM – A
 Array Induction Sonde AMIS – A 175

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	0.6106		0.6100	194.5		197.0
	Before	0.6119			192.9		
1	Master	1.251		1.270	193.4		196.0
	Before	1.254			191.8		
2	Master	0.6204		0.6200	189.7		192.0
	Before	0.6215			188.2		
3	Master	0.6999		0.7000	189.0		191.0
	Before	0.7012			187.4		
4	Master	1.310		1.340	182.7		185.0
	Before	1.313			181.1		
5	Master	1.909		1.960	181.0		182.0
	Before	1.912			179.4		
6	Master	1.905		1.960	181.1		181.0
	Before	1.909			179.5		
7	Master	1.370		1.410	180.5		175.0
	Before	1.372			178.8		
		60.00 % (Minimum)	(Nominal)	140.0 % (Maximum)	Nom -60.00 (Minimum)	(Nominal)	Nom + 60.00 (Maximum)
Master: 9-Jan-2007 16:33				Before: 2-Mar-2007 21:07			

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		992.5	Master		-0.1065
Before		992.9	Before		-0.06589
941.0 (Minimum)		991.0 (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		0.9193	Master		-0.0001016
Before		0.9197	Before		-7.390E-00
0.8710 (Minimum)		0.9170 (Nominal)	0.9630 (Maximum)	-0.05000 (Minimum) 0 (Nominal) 0.05000 (Maximum)	
Master: 9 Jan 2007 16:33			Before: 2 Mar 2007 21:07		

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	1.044				0.7534		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
1	1.044				0.6562		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
2	1.026				0.06160		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
3	1.018				0.1409		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
4	1.005				0.1225		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
5	1.004				0.05437		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
6	1.013				0.4129		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
7	1.025				0.09432		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)

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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	-18.53				186.1		
		-231.0 (Minimum)	-56.00 (Nominal)	119.0 (Maximum)	-2250 (Minimum)	0 (Nominal)	2250 (Maximum)
1	176.7				-10.08		
		114.0 (Minimum)	159.0 (Nominal)	204.0 (Maximum)	-625.0 (Minimum)	0 (Nominal)	625.0 (Maximum)
2	101.8				2.897		
		66.00 (Minimum)	111.0 (Nominal)	156.0 (Maximum)	-350.0 (Minimum)	0 (Nominal)	350.0 (Maximum)
3	56.95				-11.83		
		39.00 (Minimum)	64.00 (Nominal)	89.30 (Maximum)	-250.0 (Minimum)	0 (Nominal)	250.0 (Maximum)
4	23.72				45.25		
		15.00 (Minimum)	25.00 (Nominal)	35.00 (Maximum)	-63.00 (Minimum)	0 (Nominal)	63.00 (Maximum)
5	11.78				4.755		
		4.000 (Minimum)	14.00 (Nominal)	24.00 (Maximum)	-50.00 (Minimum)	0 (Nominal)	50.00 (Maximum)
6	9.211				4.629		
		5.000 (Minimum)	10.00 (Nominal)	15.00 (Maximum)	-30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)
7	-2.205				5.289		
		-5.000 (Minimum)	0 (Nominal)	5.000 (Maximum)	-30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)

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Array Induction Tool – M Wellsite Calibration							
Mud Gain Correction							
Idx	Value	Coarse – Mag, Real, Imag			Value	Fine – Mag, Real, Imag	
0	1.054				1.077		
		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)	0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)

1	1.067	0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)	1.077	0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)
2	1.067	0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)	1.077	0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)

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Array Induction Tool – M Master Calibration								
Electronics Calibration Check – Thru Cal Mag. & Phase								
Idx	Phase	Value	Thru Cal Magnitude V	Nominal	Value	Thru Cal Phase DEG	Nominal	
0	Master	0.6106		0.6100	194.5		197.0	
1	Master	1.251		1.270	193.4		196.0	
2	Master	0.6204		0.6200	189.7		192.0	
3	Master	0.6999		0.7000	189.0		191.0	
4	Master	1.310		1.340	182.7		185.0	
5	Master	1.909		1.960	181.0		182.0	
6	Master	1.905		1.960	181.1		181.0	
7	Master	1.370		1.410	180.5		175.0	
		60.00 % (Minimum)	(Nominal)	140.0 % (Maximum)	Nom -60.00 (Minimum)		(Nominal)	Nom + 60.00 (Maximum)

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Array Induction Tool – M Master Calibration						
Electronics Calibration Check – Auxiliary						
Phase	Array Induction SPA Plus MV	Value	Phase	Array Induction SPA Zero MV	Value	
Master		992.5	Master		-0.1065	
		941.0 (Minimum)	991.0 (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		0.9193	Master		-0.0001016	
		0.8710 (Minimum)	0.9170 (Nominal)	0.9630 (Maximum)		
				-0.05000 (Minimum)	0 (Nominal)	0.05000 (Maximum)

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Array Induction Tool – M Master Calibration							
Test Loop Gain Correction							
Idx	Value	Test Loop Gain Correction Magnitude V	Value	Test Loop Gain Correction Phase DEG			
0	1.044		0.7534				
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)			
				-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)	
1	1.044		0.6562				
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)			
				-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)	
2	1.026		0.06160				
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)			
				-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)	
3	1.018		0.1409				
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)			
				-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)	
4	1.005		0.1225				
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)			
				-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)	
5	1.004		0.05437				
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)			
				-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)	
6	1.013		0.4129				
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)			
				-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)	
7	1.025		0.09432				
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)			
				-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)	

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	-18.53				186.1			
		-231.0 (Minimum)	-56.00 (Nominal)	119.0 (Maximum)		-2250 (Minimum)	0 (Nominal)	2250 (Maximum)
1	176.7				-10.08			
		114.0 (Minimum)	159.0 (Nominal)	204.0 (Maximum)		-625.0 (Minimum)	0 (Nominal)	625.0 (Maximum)
2	101.8				2.897			
		66.00 (Minimum)	111.0 (Nominal)	156.0 (Maximum)		-350.0 (Minimum)	0 (Nominal)	350.0 (Maximum)
3	56.95				-11.83			
		39.00 (Minimum)	64.00 (Nominal)	89.30 (Maximum)		-250.0 (Minimum)	0 (Nominal)	250.0 (Maximum)
4	23.72				45.25			
		15.00 (Minimum)	25.00 (Nominal)	35.00 (Maximum)		-63.00 (Minimum)	0 (Nominal)	63.00 (Maximum)
5	11.78				4.755			
		4.000 (Minimum)	14.00 (Nominal)	24.00 (Maximum)		-50.00 (Minimum)	0 (Nominal)	50.00 (Maximum)
6	9.211				4.629			
		5.000 (Minimum)	10.00 (Nominal)	15.00 (Maximum)		-30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)
7	-2.205				5.289			
		-5.000 (Minimum)	0 (Nominal)	5.000 (Maximum)		-30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)

Master: 9-Jan-2007 16:33

Array Induction Tool – M Master Calibration								
Mud Gain Correction								
Idx	Value	Coarse – Mag, Real, Imag			Value	Fine – Mag, Real, Imag		
0	1.054				1.077			
		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)
1	1.067				1.077			
		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)
2	1.067				1.077			
		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)		0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)

Master: 9-Jan-2007 16:33

High resolution Integrated Logging Tool–DTS / Equipment Identification

Primary Equipment:

HILT high-Resolution Mechanical Sonde	HRMS – H	4707
HILT Rxo Gamma-ray Device	HRGD – H	4761
HILT Micro Cylindrically Focused Log Dev	MCFL – H	
GR Logging Source	GLS – VJ	1904
HILT High Res. Control Cartridge	HRCC – H	4721
HILT Gamma-Ray Neutron Sonde–DTS	HGNS – H	4730
HILT Gamma-Ray Device	HGR –	
HILT Neutron Detector with Alpha Source	HCNT – H	

Auxiliary Equipment:

Neutron Calibration Tank	NCT – B	
Gamma Source Radioactive	GSR – U/Y	6710

High resolution Integrated Logging Tool–DTS Wellsite Calibration									
Stab Measurement Summary									
Phase	BS Window Ratio			Value	Phase	SS Window Ratio			Value
Before				0.7435	Before				0.4833
	0.7056 (Minimum)	0.7427 (Nominal)	0.7799 (Maximum)			0.4606 (Minimum)	0.4849 (Nominal)	0.5091 (Maximum)	
					Before				0.2974
						0.2883 (Minimum)	0.3035 (Nominal)	0.3186 (Maximum)	

BS Window Sum CPS			Value	SS Window Sum CPS			Value	LS Window Sum CPS			Value
Before		29240	Before		13060	Before		1536			
27820 (Minimum)	29280 (Nominal)	30740 (Maximum)		12430 (Minimum)	13080 (Nominal)	13740 (Maximum)		1468 (Minimum)	1545 (Nominal)	1622 (Maximum)	

Before: 2-Mar-2007 21:28

High resolution Integrated Logging Tool-DTS Wellsite Calibration											
Photo-multiplier High Voltages Calibrations											
BS PM High Voltage (Command) V			Value	SS PM High Voltage (Command) V			Value	LS PM High Voltage (Command) V			Value
Before		1352	Before		1410	Before		1310			
1276 (Minimum)	1376 (Nominal)	1476 (Maximum)		1321 (Minimum)	1421 (Nominal)	1521 (Maximum)		1201 (Minimum)	1301 (Nominal)	1401 (Maximum)	

Before: 2-Mar-2007 21:28

High resolution Integrated Logging Tool-DTS Wellsite Calibration											
Crystal Quality Resolutions Calibration											
BS Crystal Resolution %			Value	SS Crystal Resolution %			Value	LS Crystal Resolution %			Value
Before		10.84	Before		8.780	Before		9.048			
9.775 (Minimum)	10.78 (Nominal)	11.78 (Maximum)		7.916 (Minimum)	8.916 (Nominal)	9.916 (Maximum)		7.952 (Minimum)	8.952 (Nominal)	9.952 (Maximum)	

Before: 2-Mar-2007 21:28

High resolution Integrated Logging Tool-DTS Wellsite Calibration											
MCFL Calibration											
Raw B0 Resistivity OHMM			Value	Raw B1 Resistivity OHMM			Value	Raw B2 Resistivity OHMM			Value
Before		3870	Before		3819	Before		3828			
3565 (Minimum)	3875 (Nominal)	4185 (Maximum)		3524 (Minimum)	3830 (Nominal)	4136 (Maximum)		3524 (Minimum)	3830 (Nominal)	4136 (Maximum)	

Before: 2-Mar-2007 21:29

High resolution Integrated Logging Tool-DTS Wellsite Calibration					
HILT Caliper Calibration					
HILT Caliper Zero Measurement MM		Value	HILT Caliper Plus Measurement MM		Value
Before		199.8	Before		382.4
190.5 (Minimum)	254.0 (Nominal)	317.5 (Maximum)	381.0 (Minimum)	508.0 (Nominal)	635.0 (Maximum)

Before: 2-Mar-2007 21:51

High resolution Integrated Logging Tool-DTS Wellsite Calibration											
Detector Calibration											
Gamma Ray Background GAPI			Value	Gamma Ray (Jig - Bkg) GAPI			Value	Gamma Ray (Calibrated) GAPI			Value
Before		23.72	Before		185.1	Before		165.0			
0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)		168.3 (Minimum)	185.1 (Nominal)	201.9 (Maximum)		150.0 (Minimum)	165.0 (Nominal)	180.0 (Maximum)	

Before: 2-Mar-2007 21:25

High resolution Integrated Logging Tool-DTS Wellsite Calibration					
Zero Measurement					
CNTC Background CPS		Value	CFTC Background CPS		Value
Master		26.53	Master		29.66
Before		26.48	Before		29.06
5.000 (Minimum)	26.53 (Nominal)	40.00 (Maximum)	5.000 (Minimum)	29.66 (Nominal)	40.00 (Maximum)

Master: 10-Jan-2007 15:23

Before: 2-Mar-2007 21:23

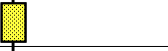
High resolution Integrated Logging Tool-DTS Wellsite Calibration											
Ratio Measurement											
Thermal Near Corr. (Tank) CPS			Value	Thermal Far Corr. (Tank) CPS			Value	CNTC/CFTC (Tank)			Value
Master		6292	Master		2647	Master		2.377			
5000 (Minimum)	6031 (Nominal)	7200 (Maximum)		2075 (Minimum)	2793 (Nominal)	3125 (Maximum)		2.120 (Minimum)	2.159 (Nominal)	2.540 (Maximum)	

Master: 10-Jan-2007 15:23

High resolution Integrated Logging Tool-DTS

Wellsite Calibration





Accelerometer Calibration

Phase	Z-Axis Acceleration M/S2	Value
Before		9.812
	9.610 (Minimum) 9.810 (Nominal) 10.01 (Maximum)	

Before: 3-Mar-2007 6:35

High resolution Integrated Logging Tool-DTS Master Calibration


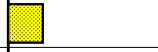
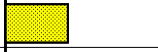



Inversion results

Phase	Rho Aluminum K/M3	Value	Phase	Rho Magnesium K/M3	Value
Master		2599	Master		1686
	2586 (Minimum) 2596 (Nominal) 2606 (Maximum)			1676 (Minimum) 1686 (Nominal) 1696 (Maximum)	
Phase	Pe Aluminum	Value	Phase	Pe Magnesium	Value
Master		2.556	Master		2.631
	2.470 (Minimum) 2.570 (Nominal) 2.670 (Maximum)			2.550 (Minimum) 2.650 (Nominal) 2.750 (Maximum)	

Master: 14-Feb-2007 15:55

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		0.2316	Master		0.2254	Master		0.6026
	-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		0.7406	Master		1.106	Master		1.170
	-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: 14-Feb-2007 15:55

High resolution Integrated Logging Tool-DTS Master Calibration



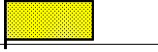
Zero Measurement

Phase	CNTC Background CPS	Value	Phase	CFTC Background CPS	Value
Master		26.53	Master		29.66
	5.000 (Minimum) 26.53 (Nominal) 40.00 (Maximum)			5.000 (Minimum) 29.66 (Nominal) 40.00 (Maximum)	

Master: 10-Jan-2007 15:23

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		6292	Master		2647	Master		2.377
	5000 (Minimum) 6031 (Nominal) 7200 (Maximum)			2075 (Minimum) 2793 (Nominal) 3125 (Maximum)			2.120 (Minimum) 2.159 (Nominal) 2.540 (Maximum)	

Master: 10-Jan-2007 15:23

Combinable Magnetic Resonance Tool - B / Equipment Identification

Primary Equipment:

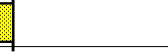
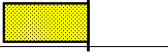
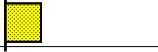
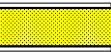
CMR-B Sonde
CMR Cartridge

CMRS - BA 182
CMRC - BA 202

Auxiliary Equipment:

Combinable Magnetic Resonance Tool - B Master Calibration

Calibration Fixture Measurement

Phase	Tool Temperature MCAL DEGC	Value	Phase	LOOP Measurement MCAL	Value	Phase	Hall Probe B0 MCAL MTES	Value
Master		25.19	Master		1870	Master		52.68
	10.00 (Minimum) 27.00 (Nominal) 44.00 (Maximum)			1500 (Minimum) 2300 (Nominal) 2900 (Maximum)			50.00 (Minimum) 52.00 (Nominal) 55.00 (Maximum)	
Phase	Cal. Fixture Amplitude MCAL %	Value						
Master		28.32						

Environment Measurement Sonde / Equipment Identification

Primary Equipment:

EMS Mechanical EMM - B
 EMS Long Caliper Extention LONG -
 EMS Cartridge EMC - B
 EMS Adaptor EMA - B
 Resistivity Meter RES -

Auxiliary Equipment:

Electronics Cartridge Housing ECH - KH

Environment Measurement Sonde Wellsite Calibration

EMS Caliper Calibration

Phase	Radius 1 Short Radius MM	Value	Phase	Radius 1 Long Radius MM	Value
Before		100.3	Before		160.0
	76.20 (Minimum) 101.6 (Nominal) 127.0 (Maximum)			127.0 (Minimum) 152.4 (Nominal) 177.8 (Maximum)	
Phase	Radius 2 Short Radius MM	Value	Phase	Radius 2 Long Radius MM	Value
Before		165.1	Before		100.0
	127.0 (Minimum) 152.4 (Nominal) 177.8 (Maximum)			76.20 (Minimum) 101.6 (Nominal) 127.0 (Maximum)	
Phase	Radius 3 Short Radius MM	Value	Phase	Radius 3 Long Radius MM	Value
Before		94.47	Before		155.7
	76.20 (Minimum) 101.6 (Nominal) 127.0 (Maximum)			127.0 (Minimum) 152.4 (Nominal) 177.8 (Maximum)	
Phase	Radius 4 Short Radius MM	Value	Phase	Radius 4 Long Radius MM	Value
Before		160.1	Before		104.3
	127.0 (Minimum) 152.4 (Nominal) 177.8 (Maximum)			76.20 (Minimum) 101.6 (Nominal) 127.0 (Maximum)	
Phase	Radius 5 Short Radius MM	Value	Phase	Radius 5 Long Radius MM	Value
Before		107.8	Before		165.1
	76.20 (Minimum) 101.6 (Nominal) 127.0 (Maximum)			127.0 (Minimum) 152.4 (Nominal) 177.8 (Maximum)	
Phase	Radius 6 Short Radius MM	Value	Phase	Radius 6 Long Radius MM	Value
Before		162.4	Before		103.8
	127.0 (Minimum) 152.4 (Nominal) 177.8 (Maximum)			76.20 (Minimum) 101.6 (Nominal) 127.0 (Maximum)	

Before: 2-Mar-2007 22:46

Company: **JOGMEC**



Well: **AURORA/JOGMEC/NRCAN MALLIK 2L-38**

Field: **MALLIK**

Province: **NWT**

PLATFORM EXPRESS:
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