

[illegible]

Schlumberger

Company: **Orr Energy, LLC**

Well: **South 6-23D**

Field: **Wattenberg**

County: **Weld** State: **Colorado**

Platform Express Micro Log			
Field:	Wattenberg		
Location:	NESW Sec. 6, T5N, R66W		
Well:	South 6-23D		
Company:	Orr Energy, LLC		
LOCATION			
NESW Sec. 6, T5N, R66W SURF: 2613' FNL X 2657' FWL BHL: 2037' FSL X 2070' FWL (Projected)		Elev.: K.B. 4811 ft G.L. 4795 ft D.F. 4810 ft	
Permanent Datum:	Ground Level	Elev.: 4795 ft	
Log Measured From:	Kelly Bushing	16.0 ft above Perm. Datum	
Drilling Measured From:	Kelly Bushing		
API Serial No. 05-123-25983-000C	Section 6	Township 5N	Range 66W

[illegible]










Logging Date			28-Nov-2007									Logging Date								
Run Number			1									Run Number								
Depth Driller			7770 ft									Depth Driller								
Schlumberger Depth			7813 ft									Schlumberger Depth								
Bottom Log Interval			7805 ft									Bottom Log Interval								
Top Log Interval			832 ft									Top Log Interval								
Casing Driller Size @ Depth			8.625 in @ 833 ft									Casing Driller Size @ Depth			@					
Casing Schlumberger			832 ft									Casing Schlumberger								
Bit Size			7.875 in									Bit Size								
Type Fluid In Hole			Gel & Chemical									Type Fluid In Hole								
Density			9.1 lbm/gal			60 s						Density			Viscosity					
Fluid Loss			PH									Fluid Loss			PH					
Source Of Sample			AIT - Mud Sensor									Source Of Sample								
RM @ Measured Temperature			1.321 ohm.m @ 78 degF									RM @ Measured Temperature			@					
RMF @ Measured Temperature			0.991 ohm.m @ 78 degF									RMF @ Measured Temperature			@					
RMC @ Measured Temperature			1.982 ohm.m @ 78 degF									RMC @ Measured Temperature			@					
Source RMF			RMC									Source RMF			RMC					
RM @ MRT			0.498 @ 218 0.374 @ 218									RM @ MRT			RMF @ MRT					
Maximum Recorded Temperatures			218 degF									Maximum Recorded Temperatures			@			@		
Circulation Stopped			28-Nov-2007			9:00						Circulation Stopped			Time					
Logger On Bottom			28-Nov-2007			18:58						Logger On Bottom			Time					
Unit Number			3055			Ft. Morgan, CO						Unit Number			Location					
Recorded By			John Adams									Recorded By								
Witnessed By			Don Libhart & Mark Scanniello									Witnessed By								

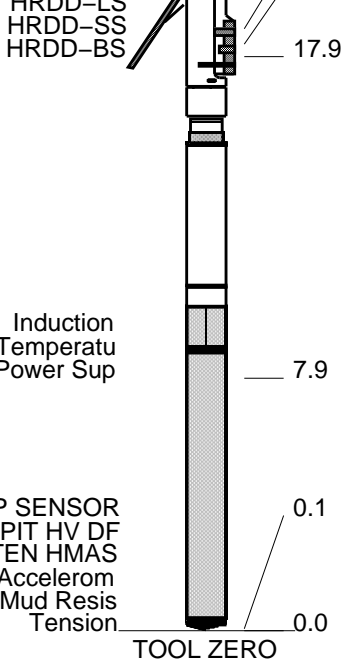
Rig: Ensign 7	
Crew: Tim Ludgate & Mark Hoffman	

RUN 1			RUN 2		
SERVICE ORDER #:		11911893	SERVICE ORDER #:		
PROGRAM VERSION:		15C0-309	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 390	WITM (DTS)-A
NCT-B	
CNB-AB	
NCS-VB	

DOWNHOLE EQUIPMENT			
LEH-QT			51.6
LEH-QT			
DTC-H	CTEM		47.7 48.6
ECH-KC	TelStatus		
DTCH0-A 8980	ToolStatu		45.6
DTCH1-A			
AH-4NM			45.6
AH-4NM			
GPIT-C			41.6
GPIC-C			
GPIH-B			
HILTB-FTB	HGNS HTEM		37.6
HGNSD-B 863	HMCA		36.9
HMCA	HGNS Gamm		
HGNH			
NLS-KL			
NSR-F			
HACCZ			
HCNT			
HGR	HGNS Neut		31.1
HRCC-B 1873	HGNS Neut		30.6
HRMS-B 1847			
HRGD-B 1938			
GLS-VJ	HGNS sens		28.2
MCFL Device			
HILT Nucl. LS			
HILT Nucl. SS			
HILT Nucl. BS			
AIT-H 236	HRCC cart		24.2
AHIS-BA			
AHRM-A			
NPV-N			
	MCFL		18.8
	HILT cali		18.3
	UPDD LC		



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

Production String	(in)		(ft)	Well Schematic	(ft)	(in)		Casing String
	OD	ID	MD		MD	OD	ID	
					0.0	8.625	8.097	Casing String
					833.0	8.625	8.097	Casing Shoe
					833.0	7.875		Borehole Segment

All depths are driller's depths

UPPER MICROLOG 5" = 100'

MAXIS Field Log

Input DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_006LUP	FN:5	PRODUCER	28-Nov-2007 19:20	7842.0 FT	0.0 FT
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Integrated Hole/Cement Volume Summary

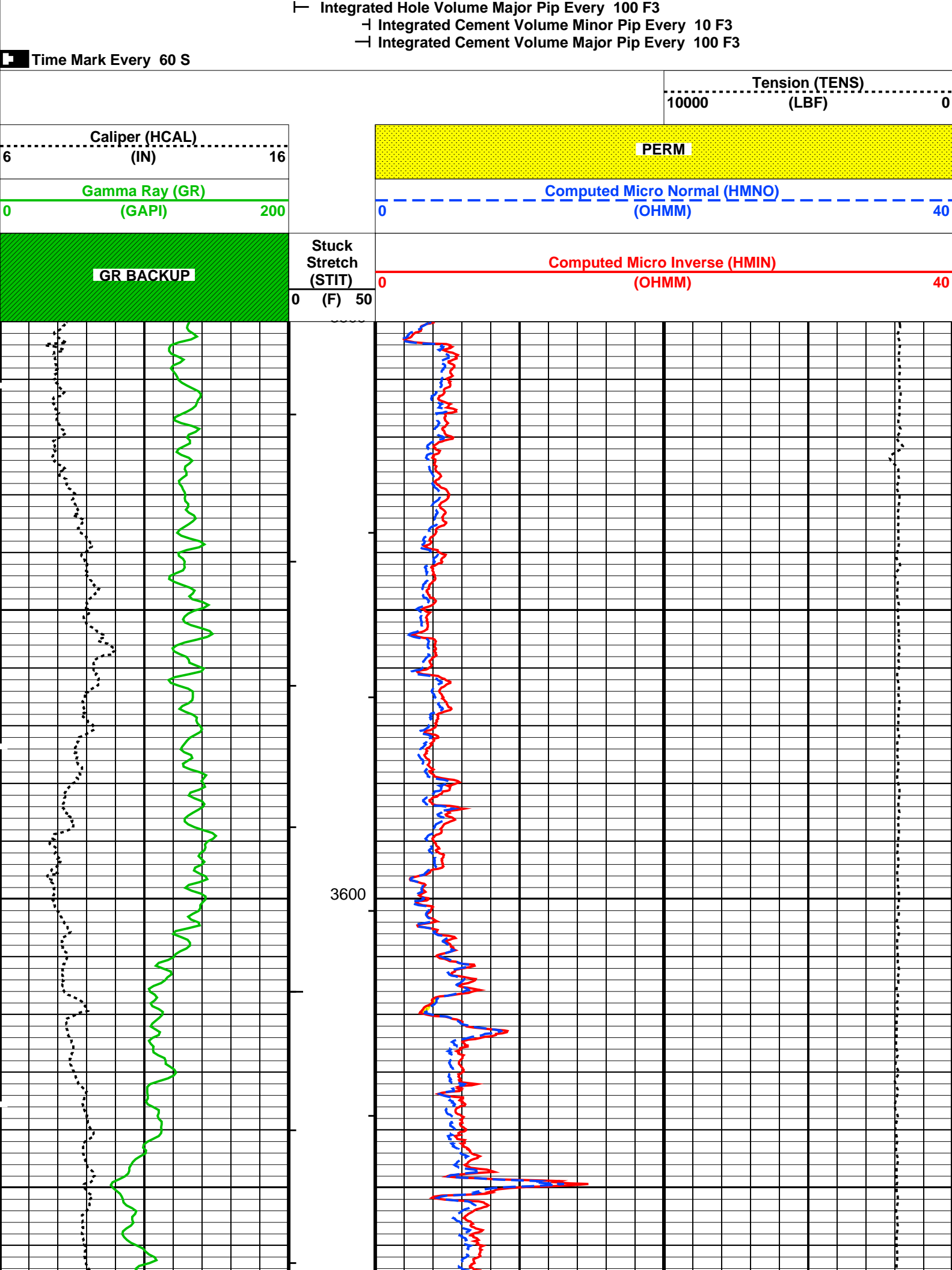
Hole Volume = 1547.22 ft3
Cement Volume = 1070.32 ft3 (assuming 4.50 in casing O.D.)
Computed from 4999.5 ft to 3495.5 ft

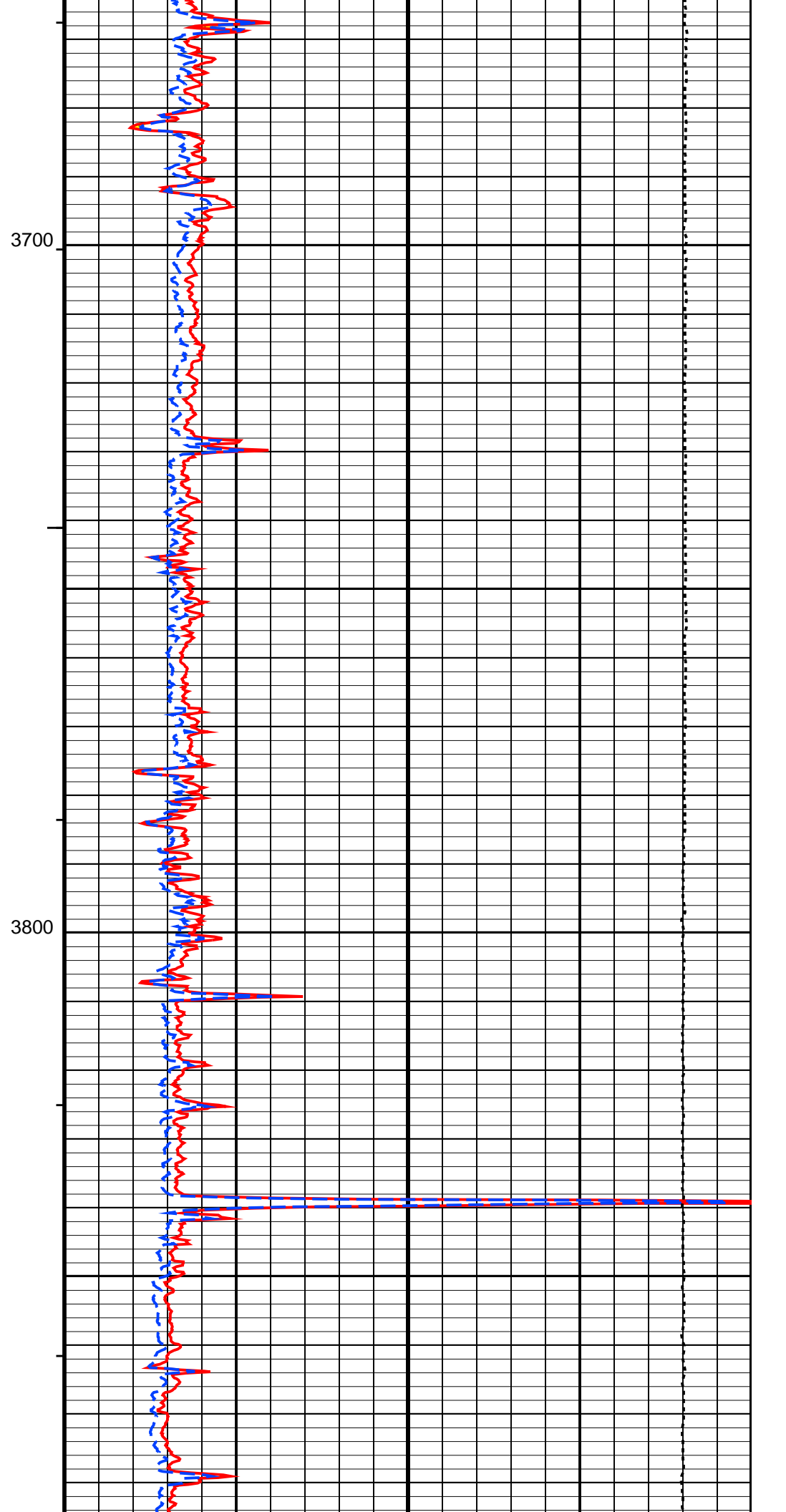
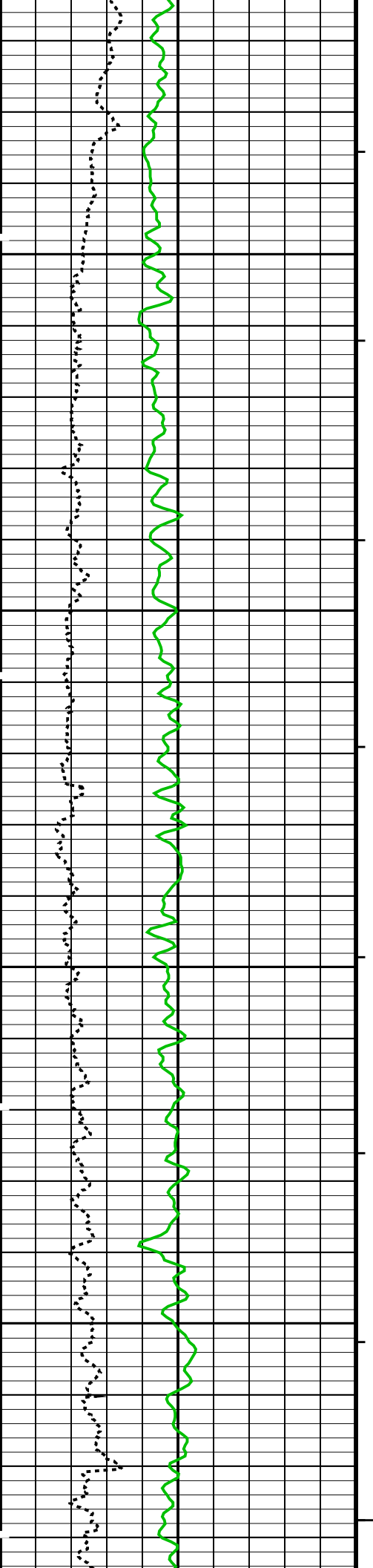
OP System Version: 15C0-309
MCM

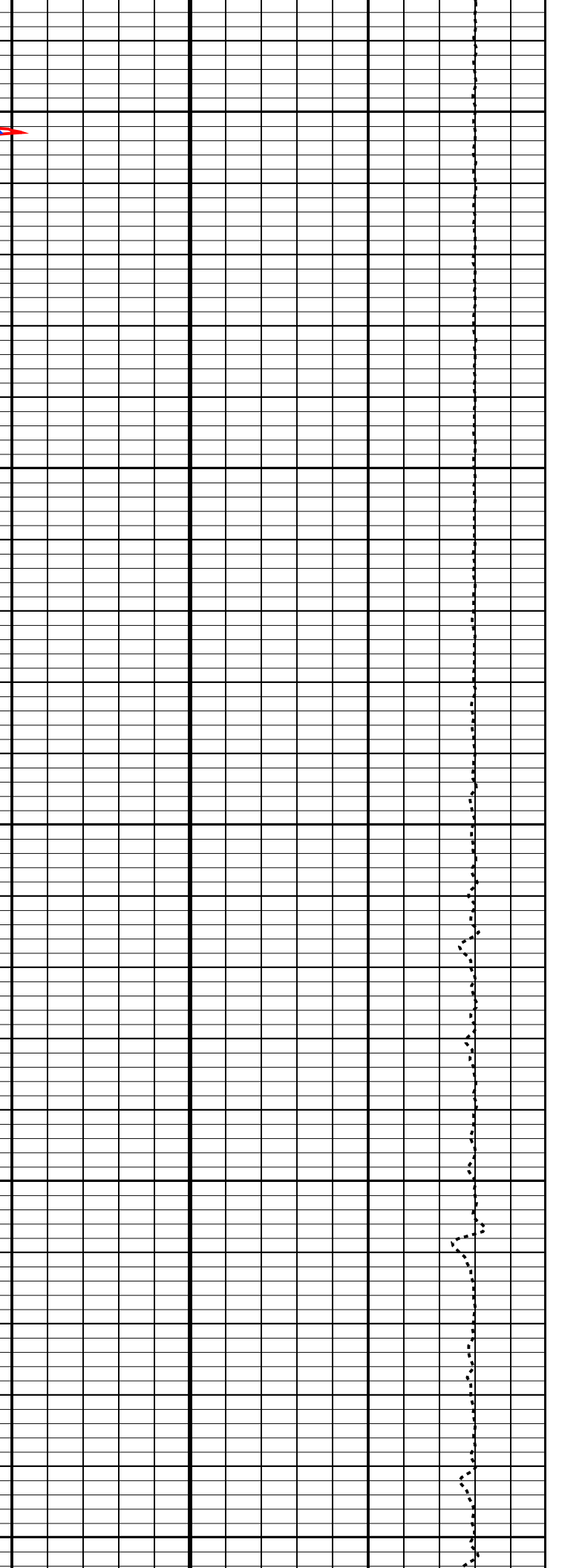
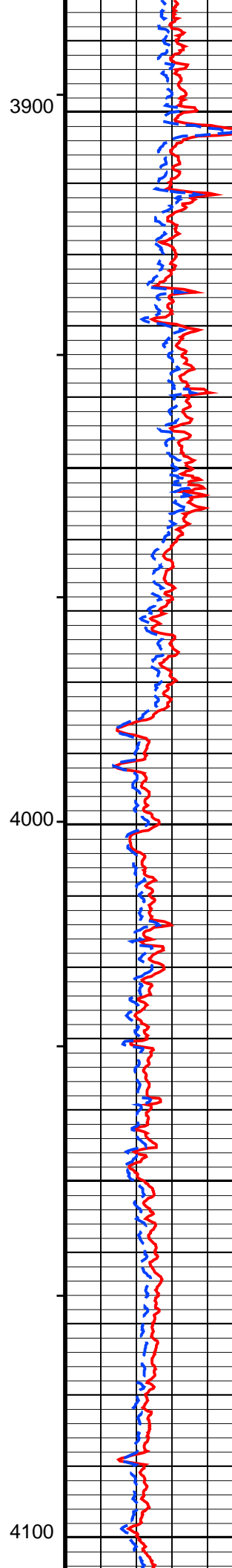
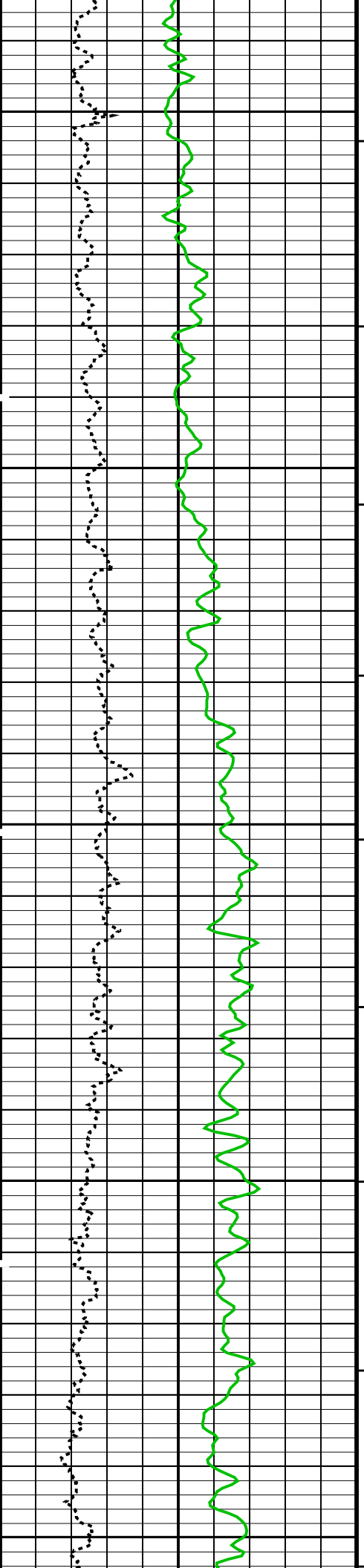
HILTD	SRPC-3497-NOV_2007	GPIT-C	SRPC-3497-NOV_2007
DTCH	SRPC-3497-NOV_2007		

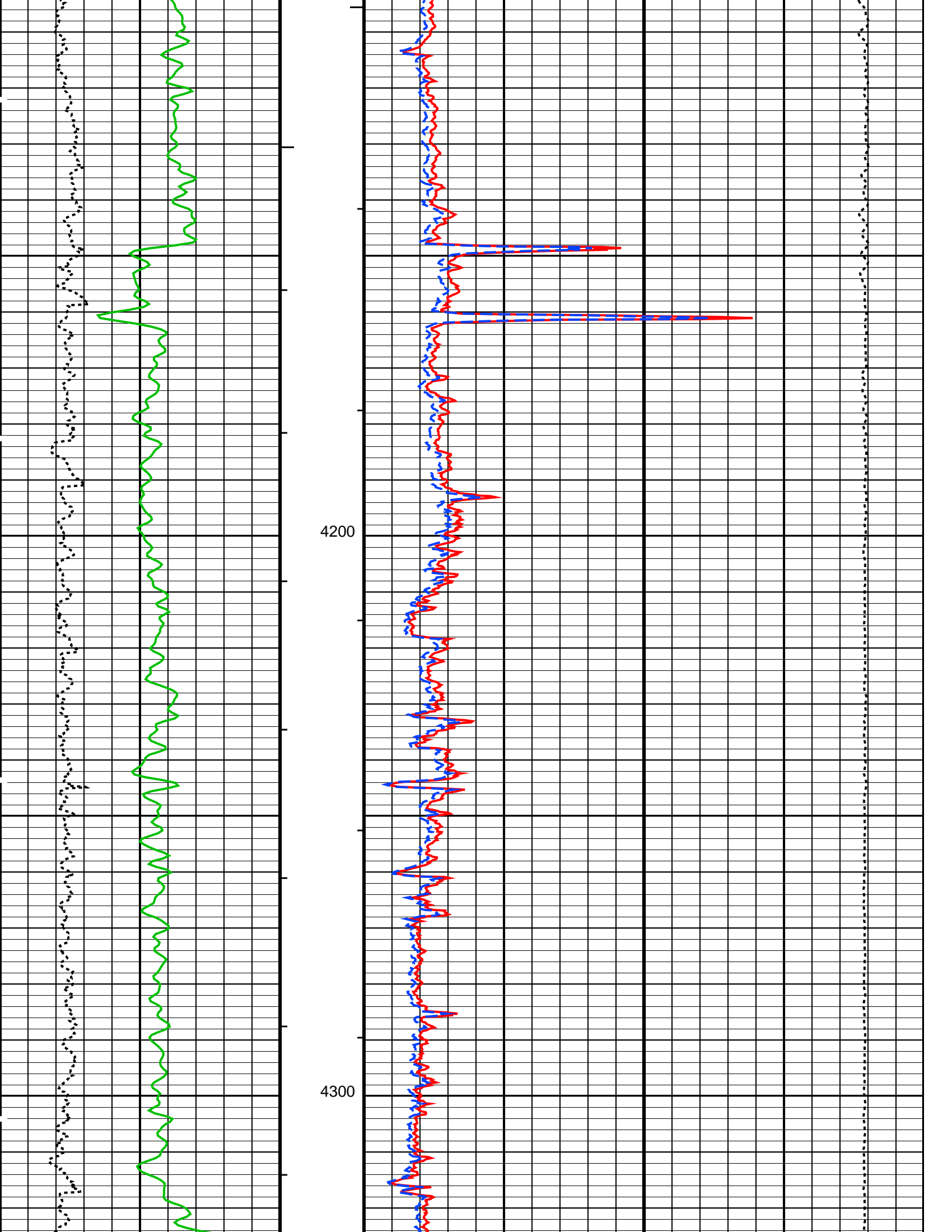
PIP SUMMARY

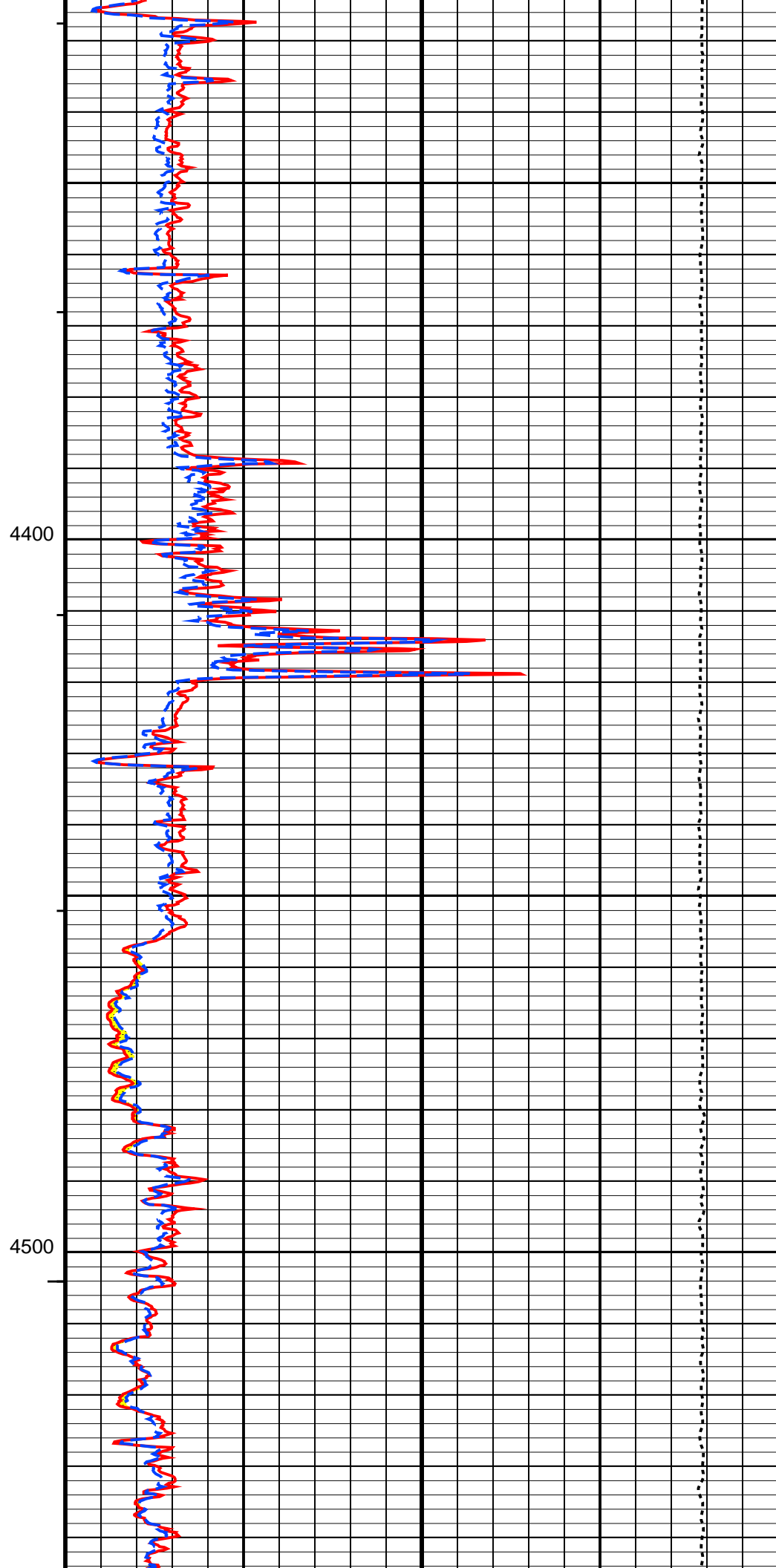
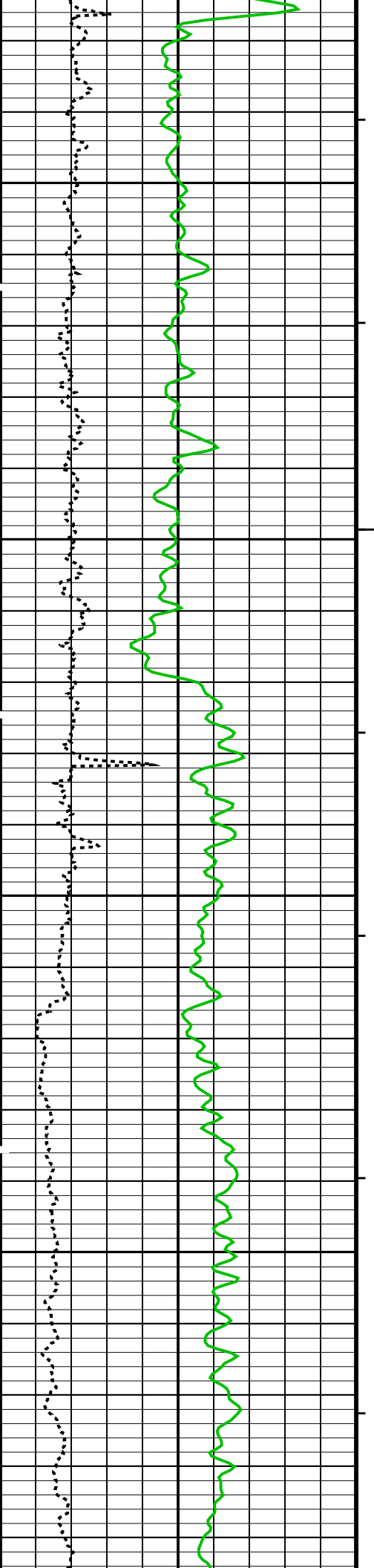
Integrated Hole Volume Minor Pip Every 10 F3

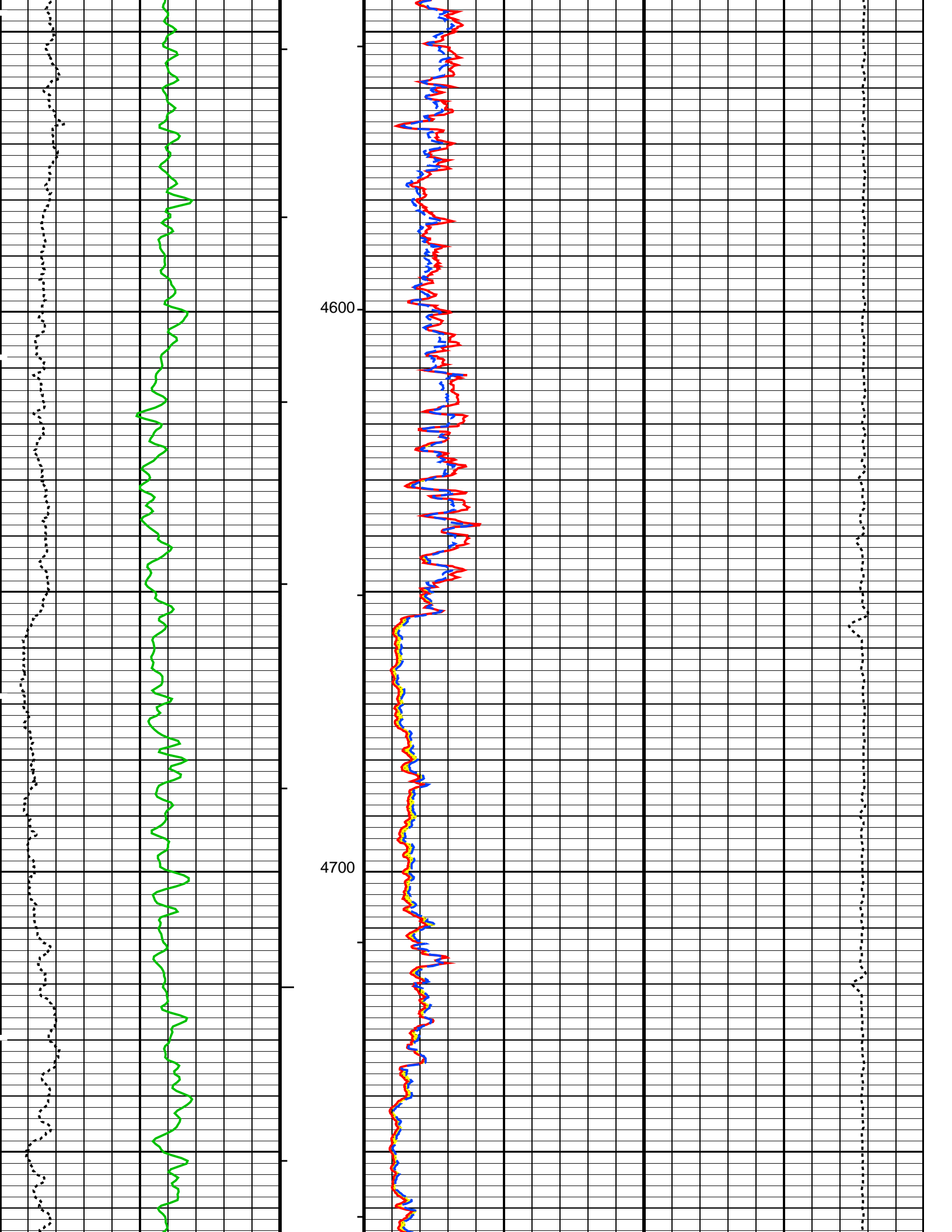


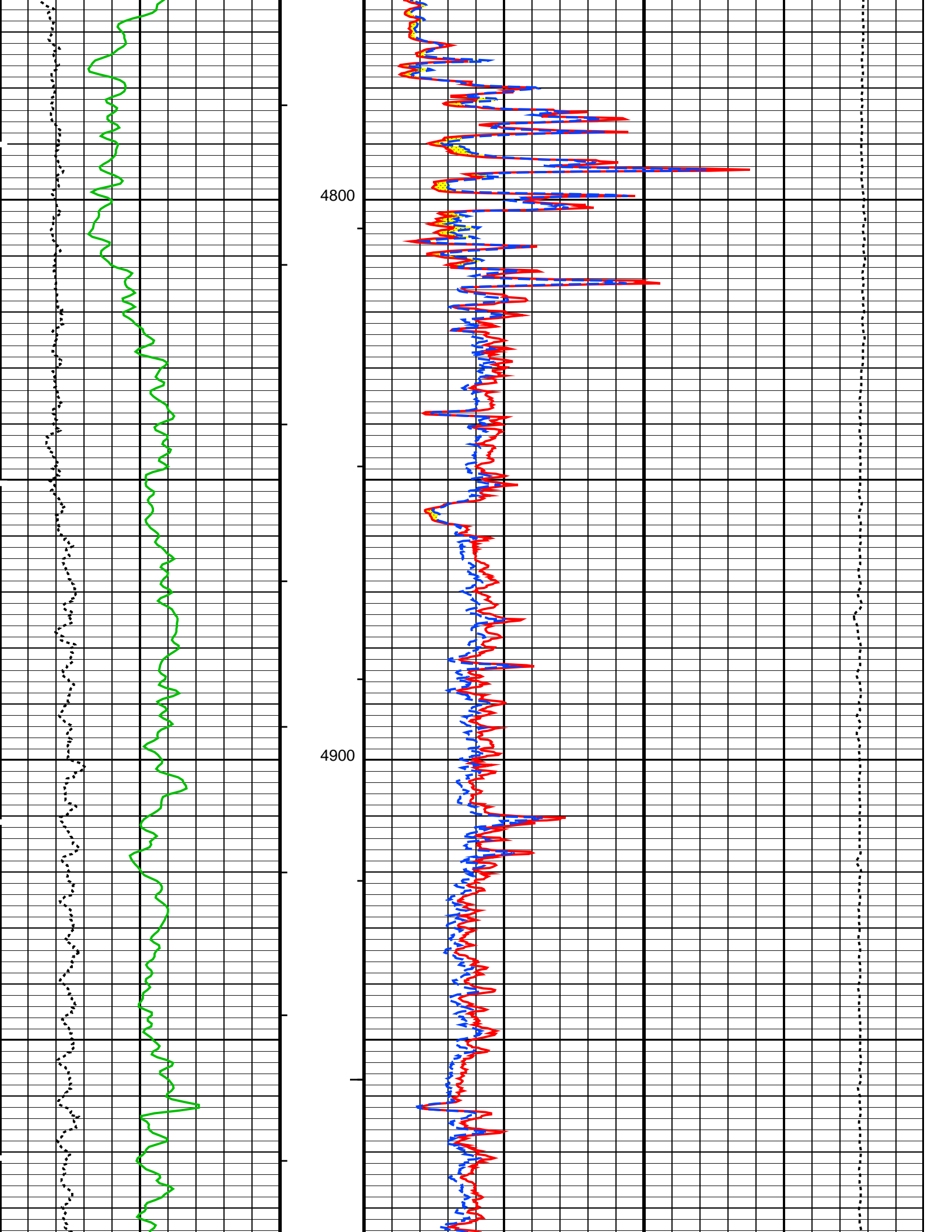


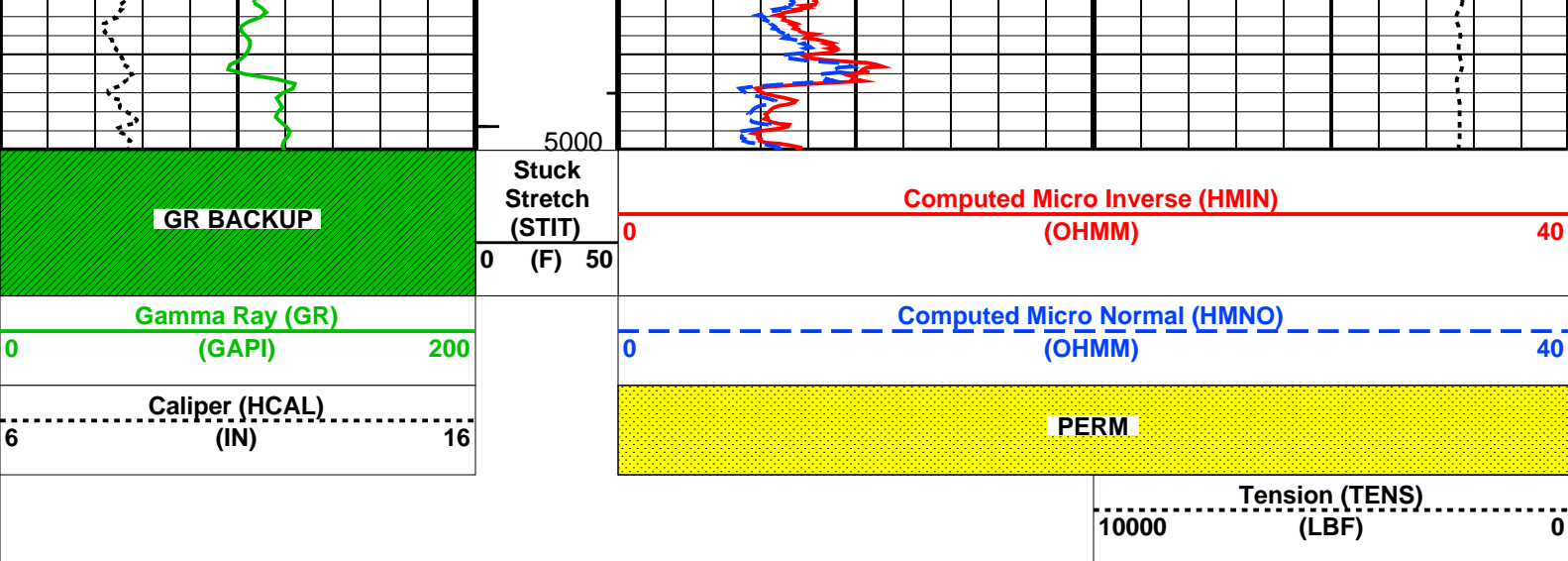












PIP SUMMARY

- └ 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-FTB: High resolution Integrated Logging Tool-DTS MCFL Processing Operation Mode	ON
STKT	STI: Stuck Tool Indicator	
TDD	STI Stuck Threshold	2.500 ft
TDL	Total Depth - Driller	7770.0 ft
	Total Depth - Logger	7813.0 ft
BS	System and Miscellaneous	
	Bit Size	7.875 in

Format: MLT Vertical Scale: 5" per 100' Graphics File Created: 28-Nov-2007 20:38

OP System Version: 15C0-309
MCM

HILTD	SRPC-3497-NOV_2007	GPIT-C	SRPC-3497-NOV_2007
DTCH	SRPC-3497-NOV_2007		

Input DLIS Files						
DEFAULT	AIT_TLD_MCFL_CNL_006LUP	FN:5	PRODUCER	28-Nov-2007 19:20	7842.0 FT	0.0 FT

MAIN MICROLOG 5" = 100'

MAXIS Field Log

Output DLIS Files				
DEFAULT	AIT_TLD_MCFL_CNL_006LUP	FN:5	PRODUCER	28-Nov-2007 19:20

OP System Version: 15C0-309
MCM

PIP SUMMARY

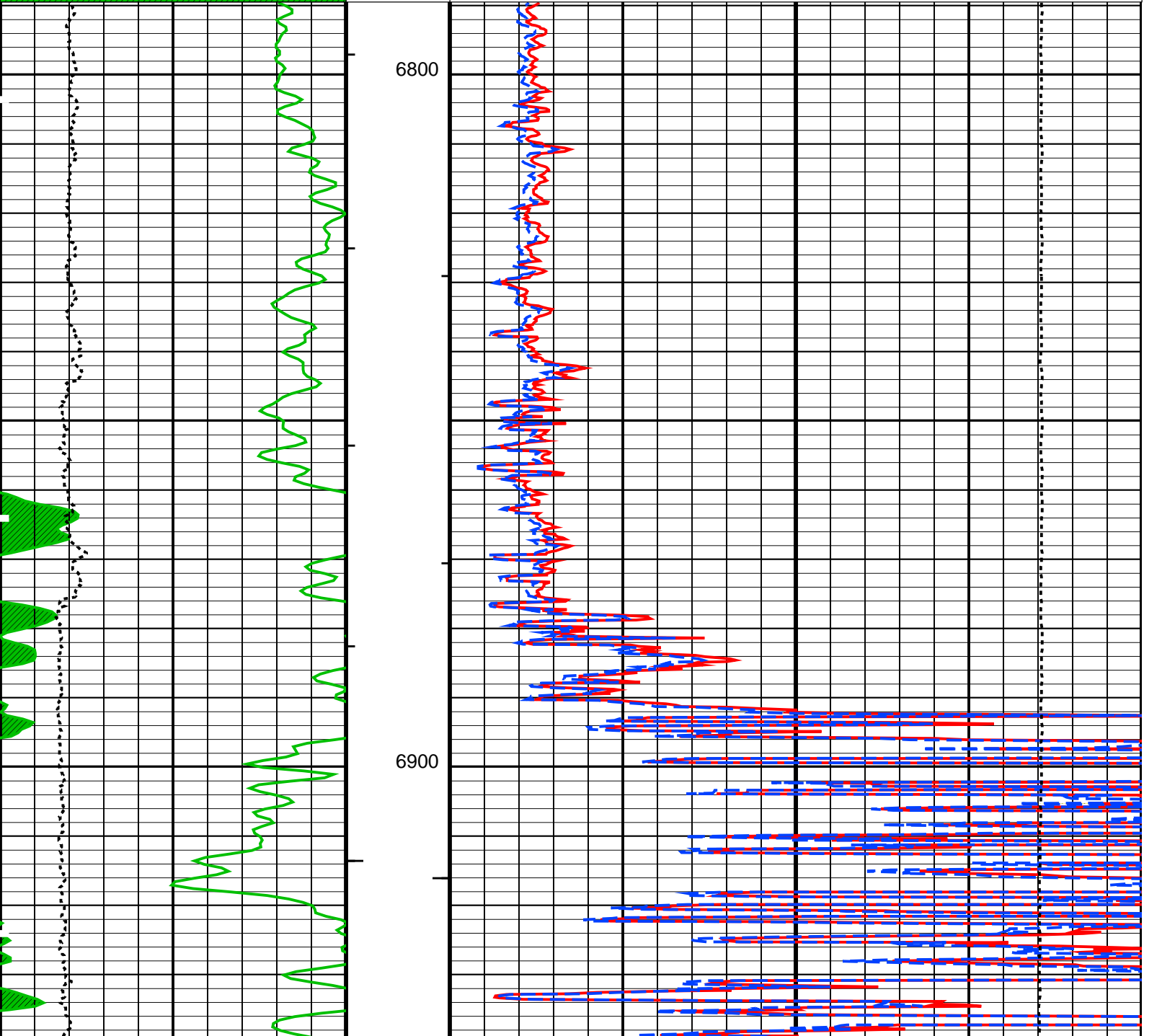
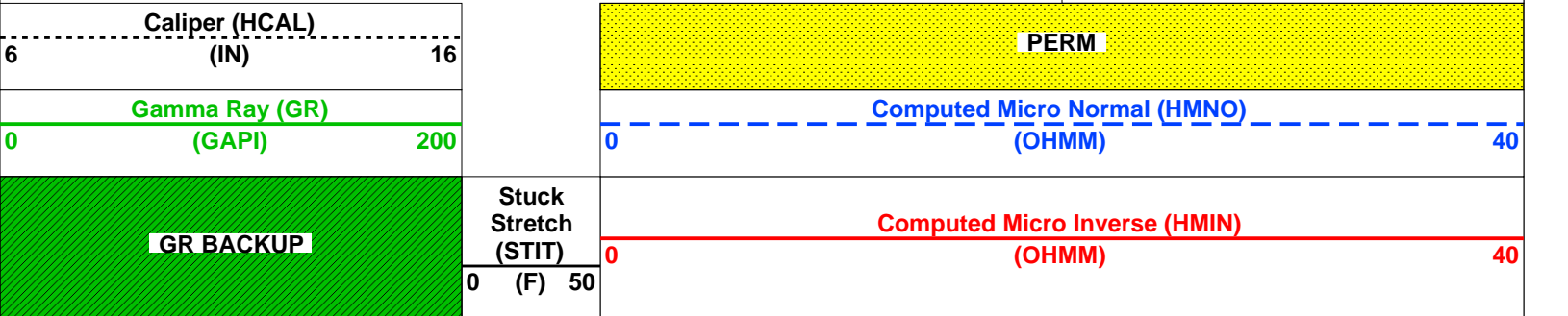
└ Integrated Hole Volume Minor Pip Every 10 F3

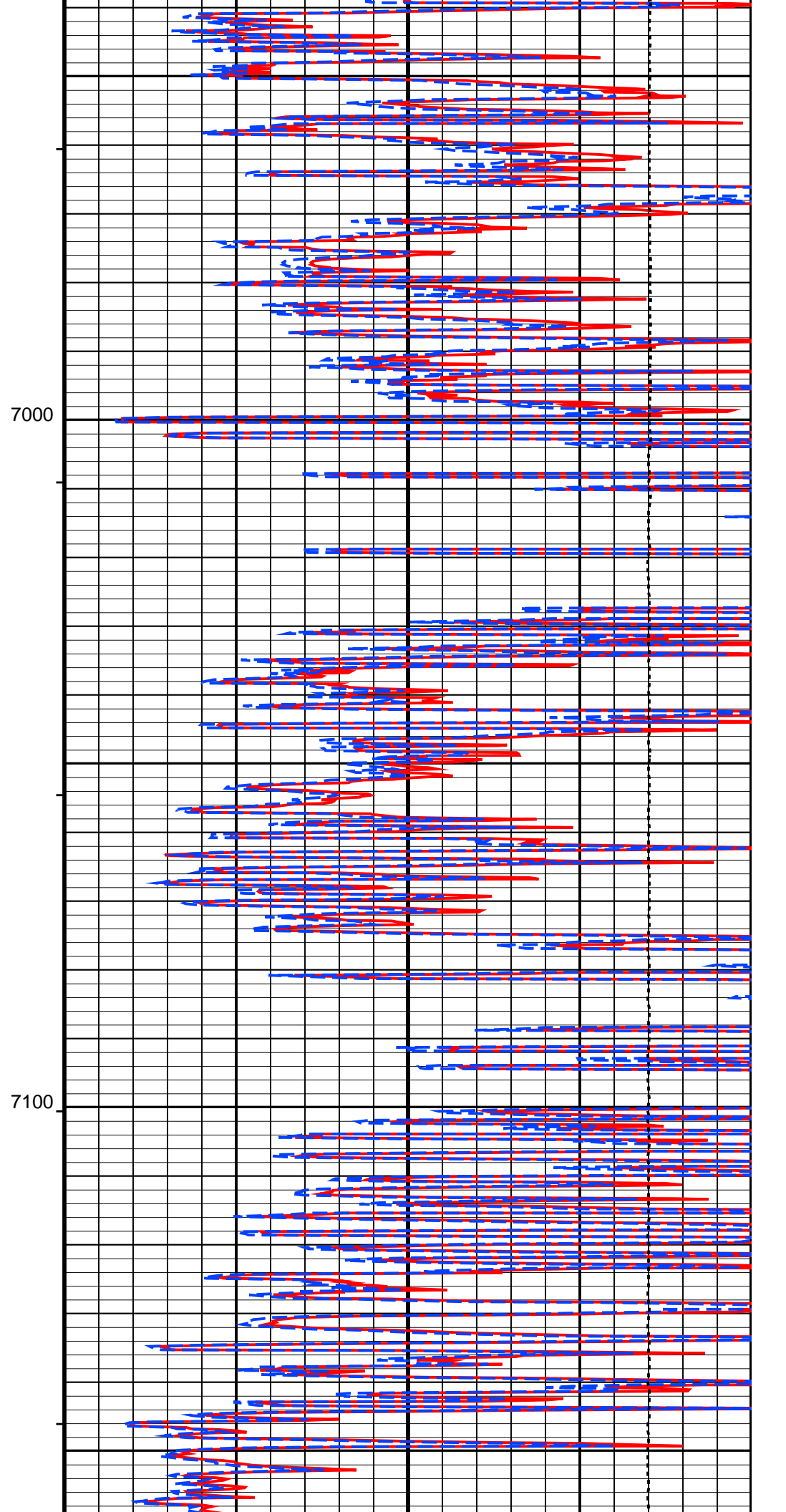
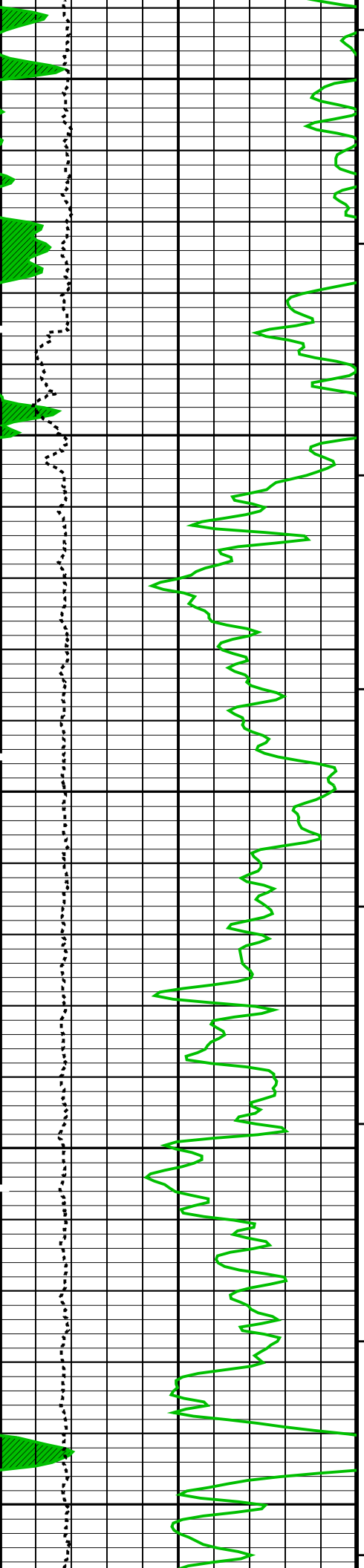
└ Integrated Hole Volume Major Pip Every 100 F3

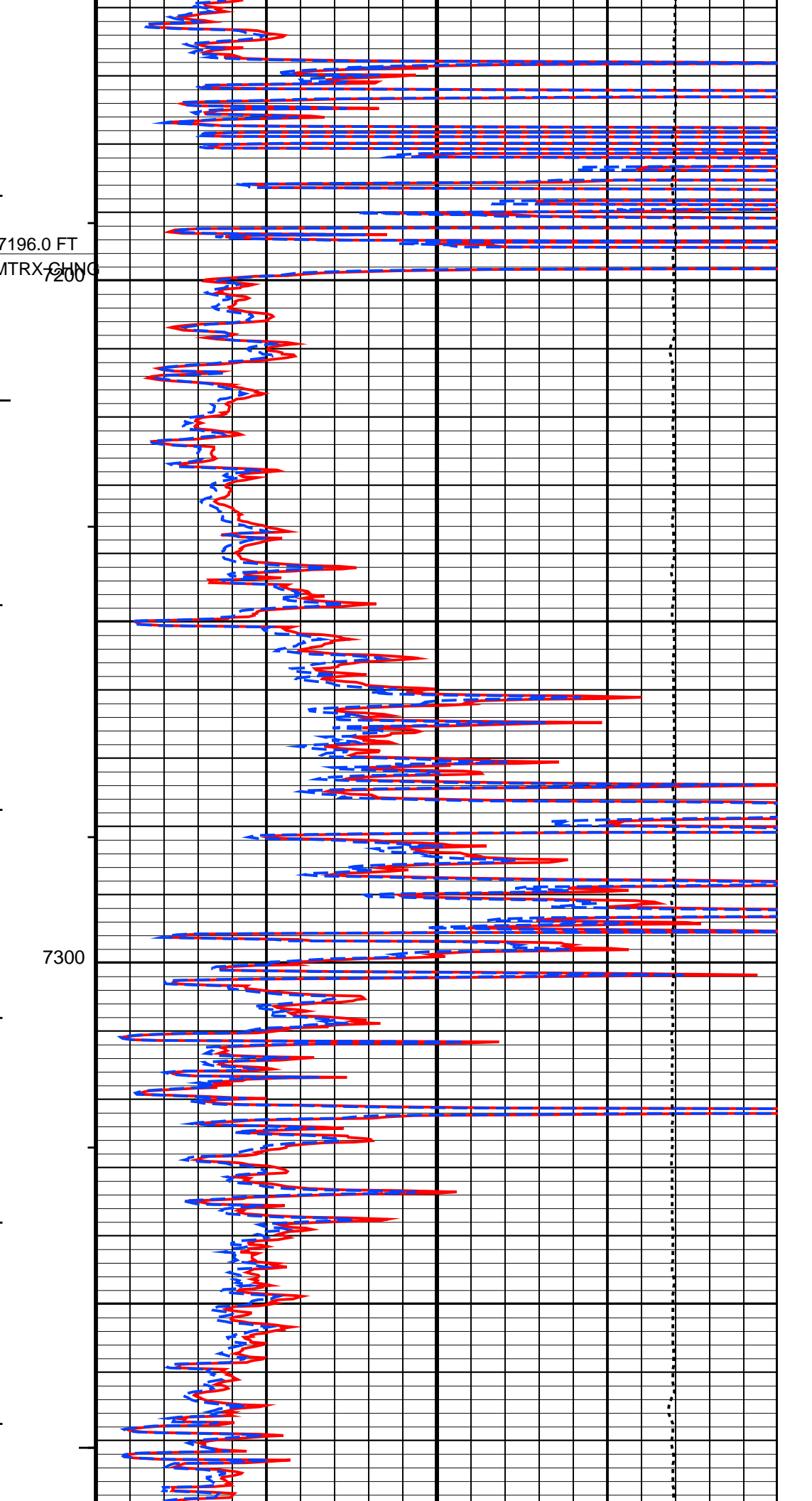
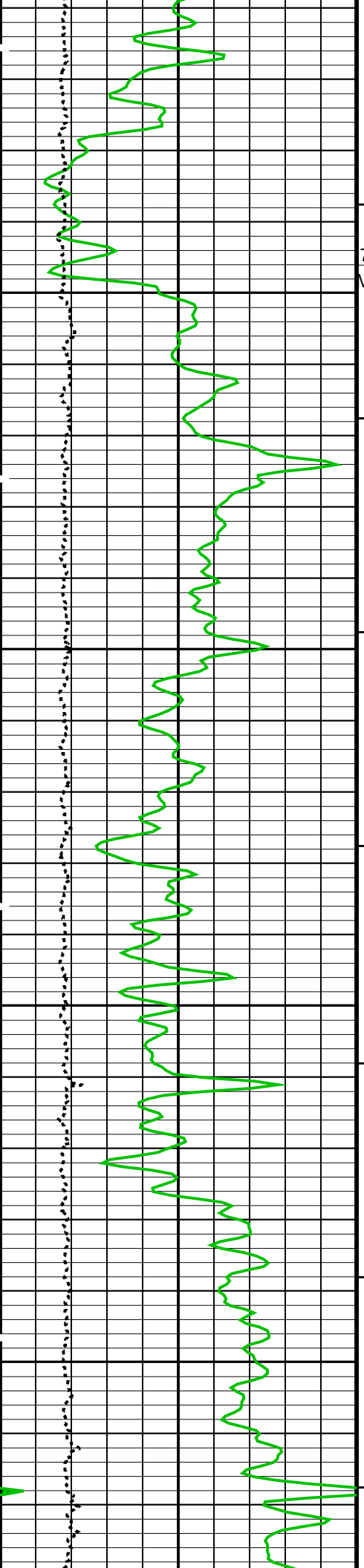
└ Integrated Cement Volume Minor Pip Every 10 F3

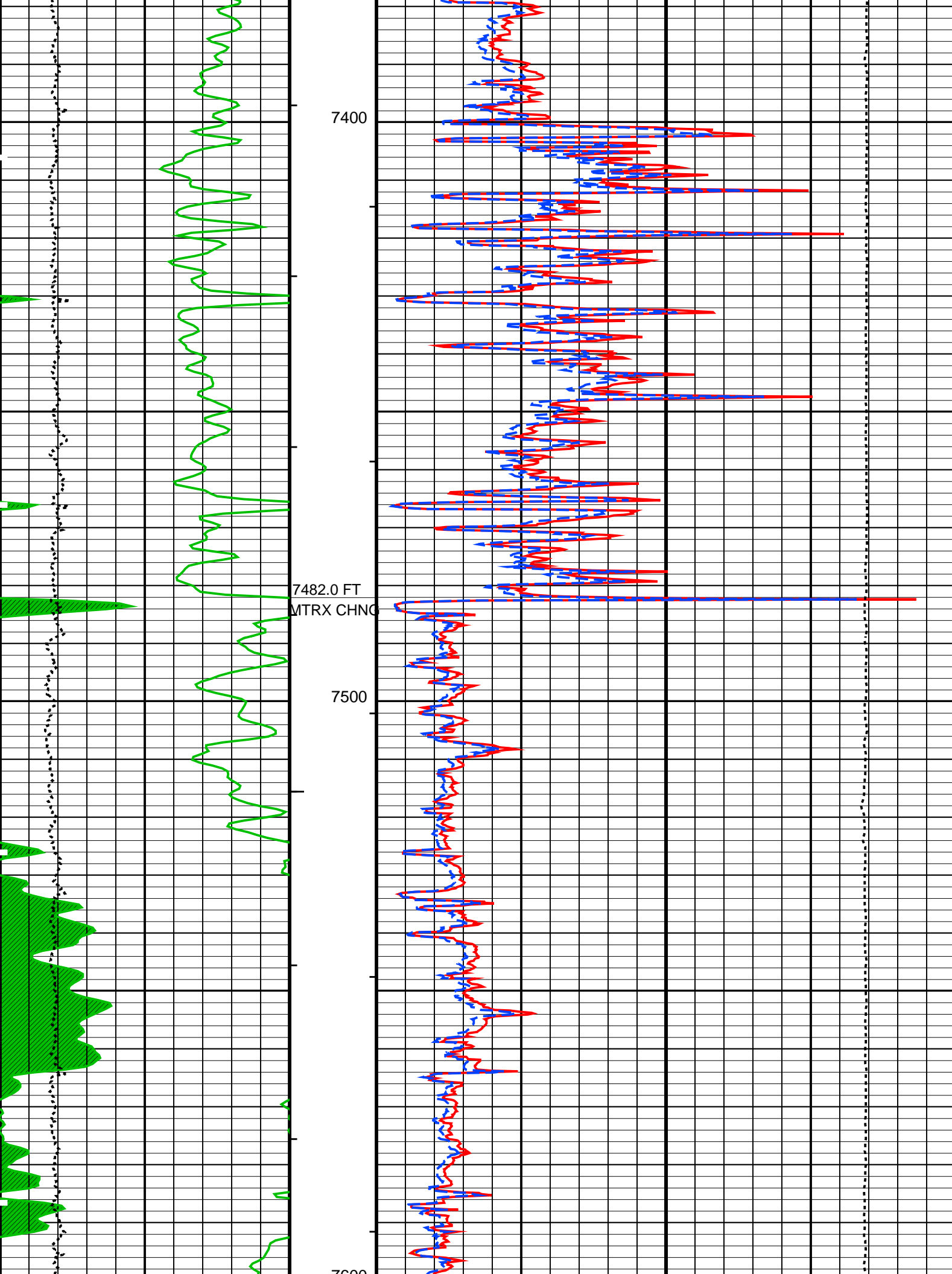
└ Integrated Cement Volume Major Pip Every 100 F3

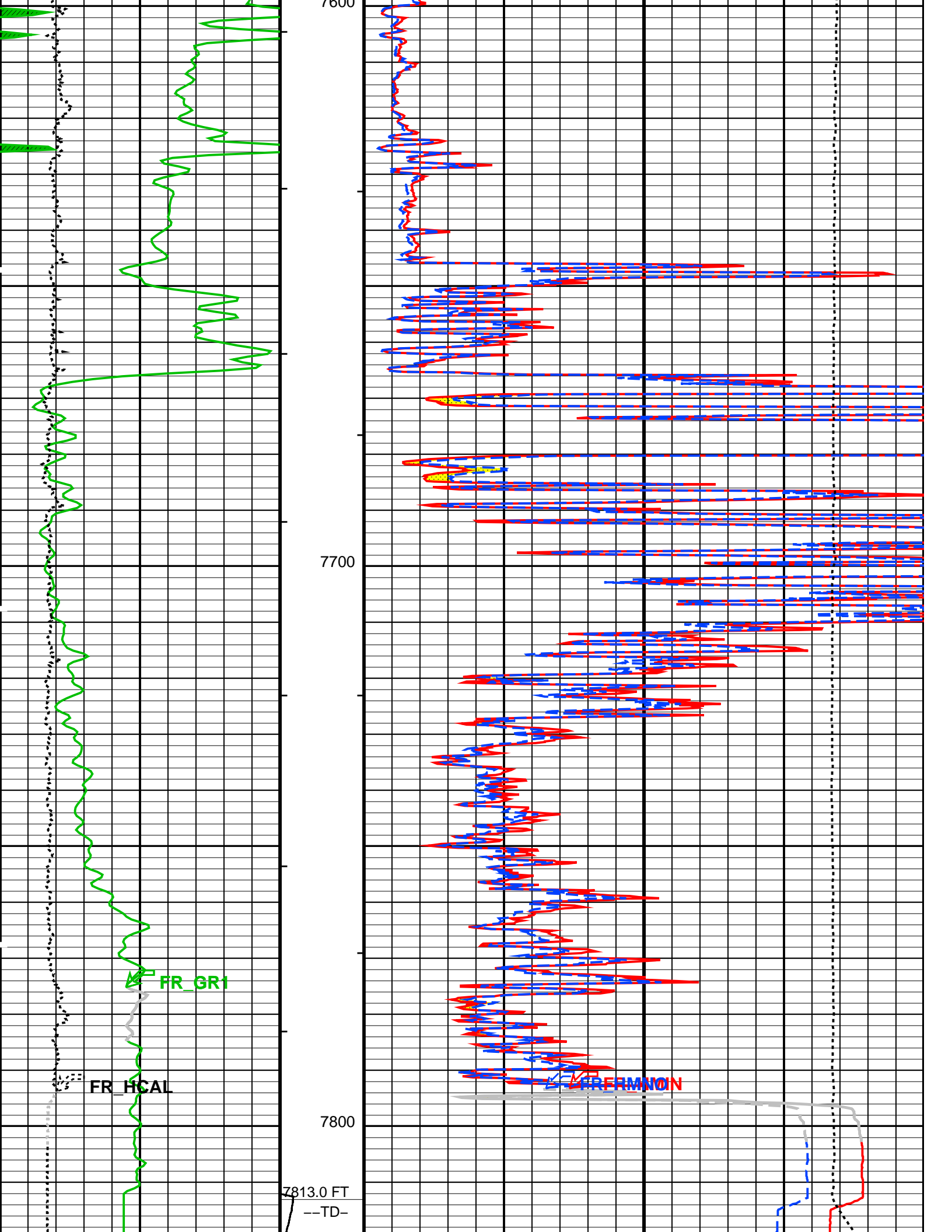
Time Mark Every 60 S

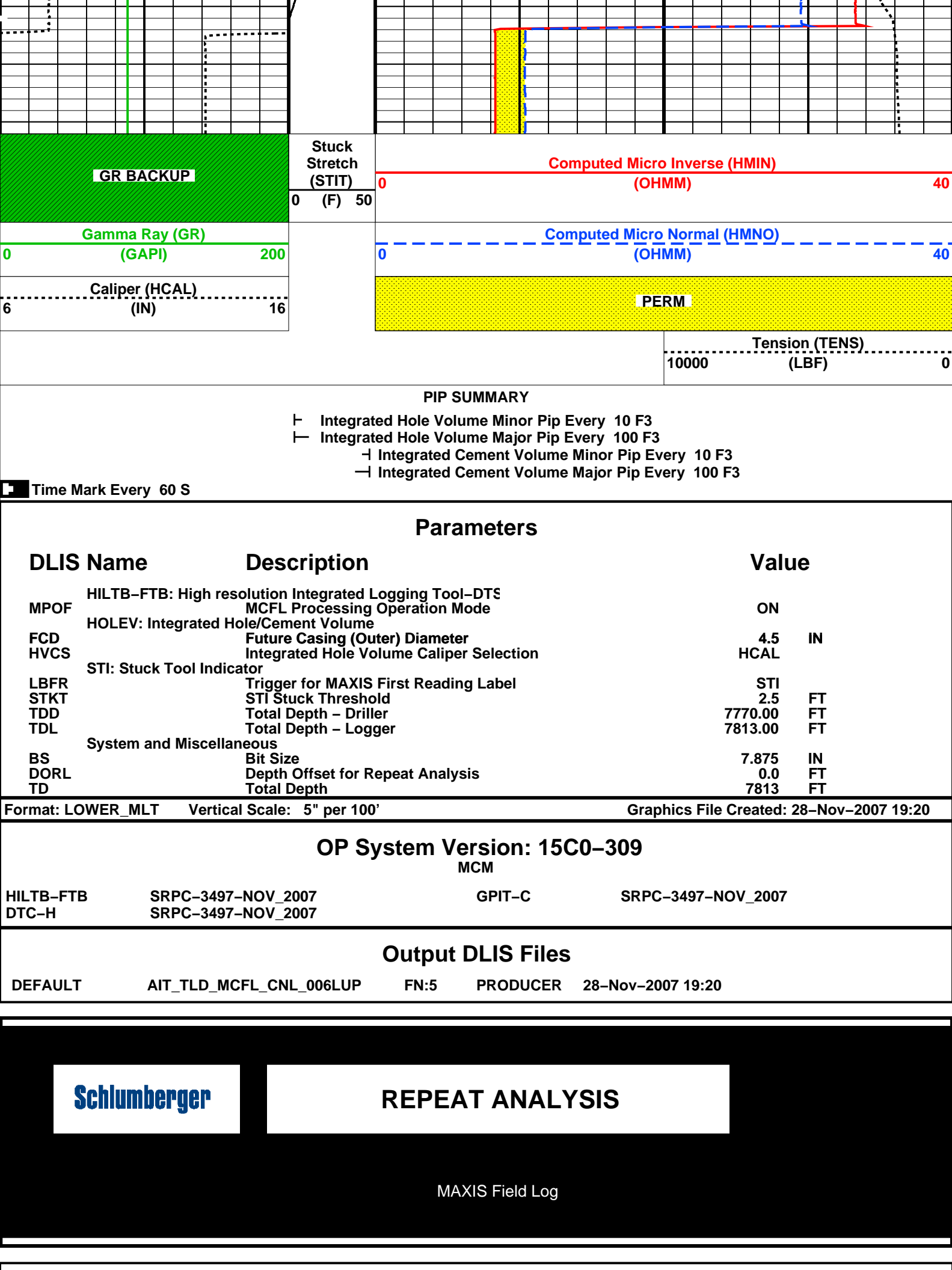












Input DLIS Files

DEFAULT AIT_TLD_MCFL_CNL_005PUP FN:4 PRODUCER 28-Nov-2007 19:19 7842.0 FT 7355.0 FT

Output DLIS Files

DEFAULT AIT_TLD_MCFL_CNL_006LUP FN:5 PRODUCER 28-Nov-2007 19:20

OP System Version: 15C0-309

MCM

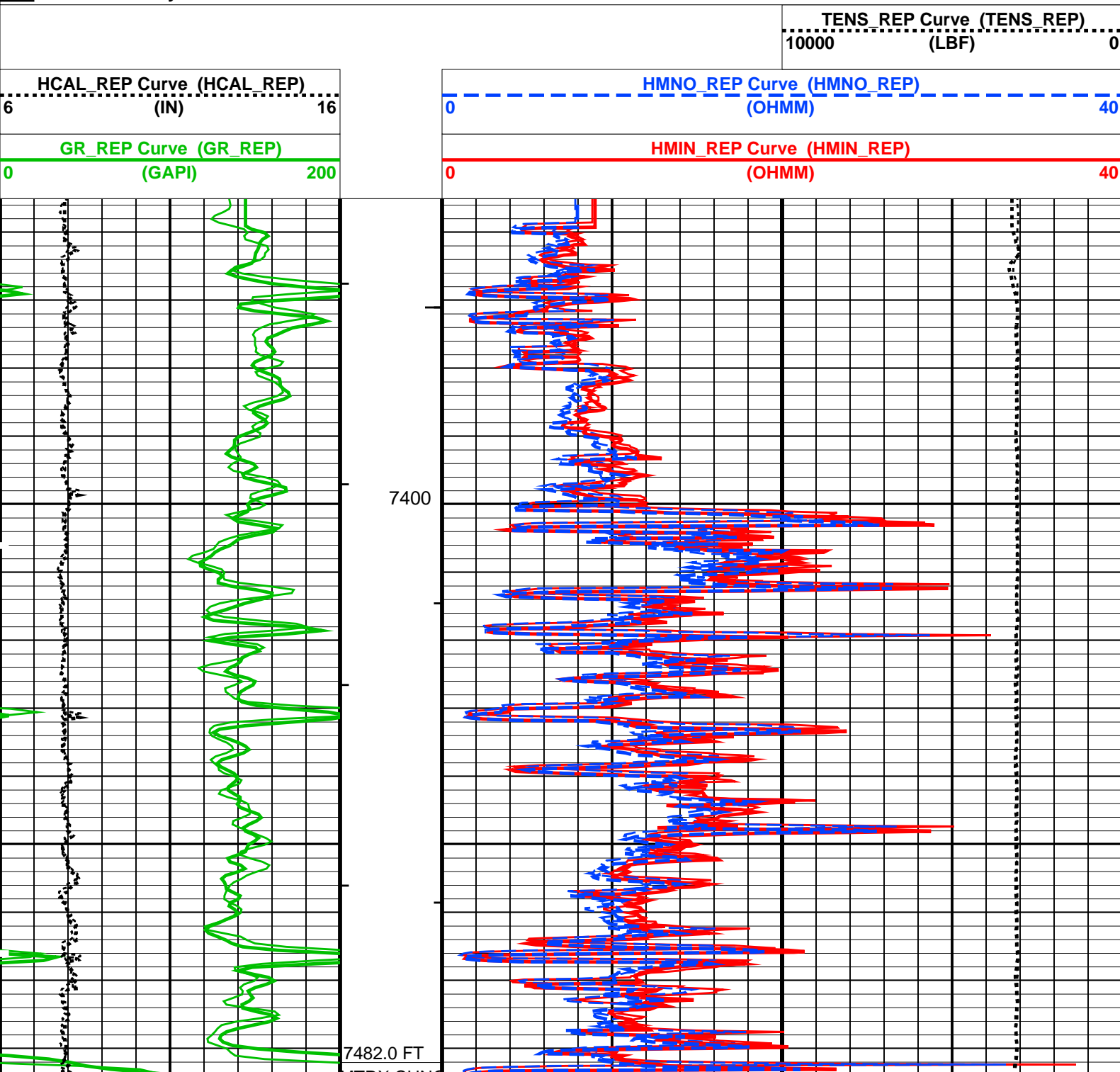
HILTB-FTB SRPC-3497-NOV_2007
DTC-H SRPC-3497-NOV_2007

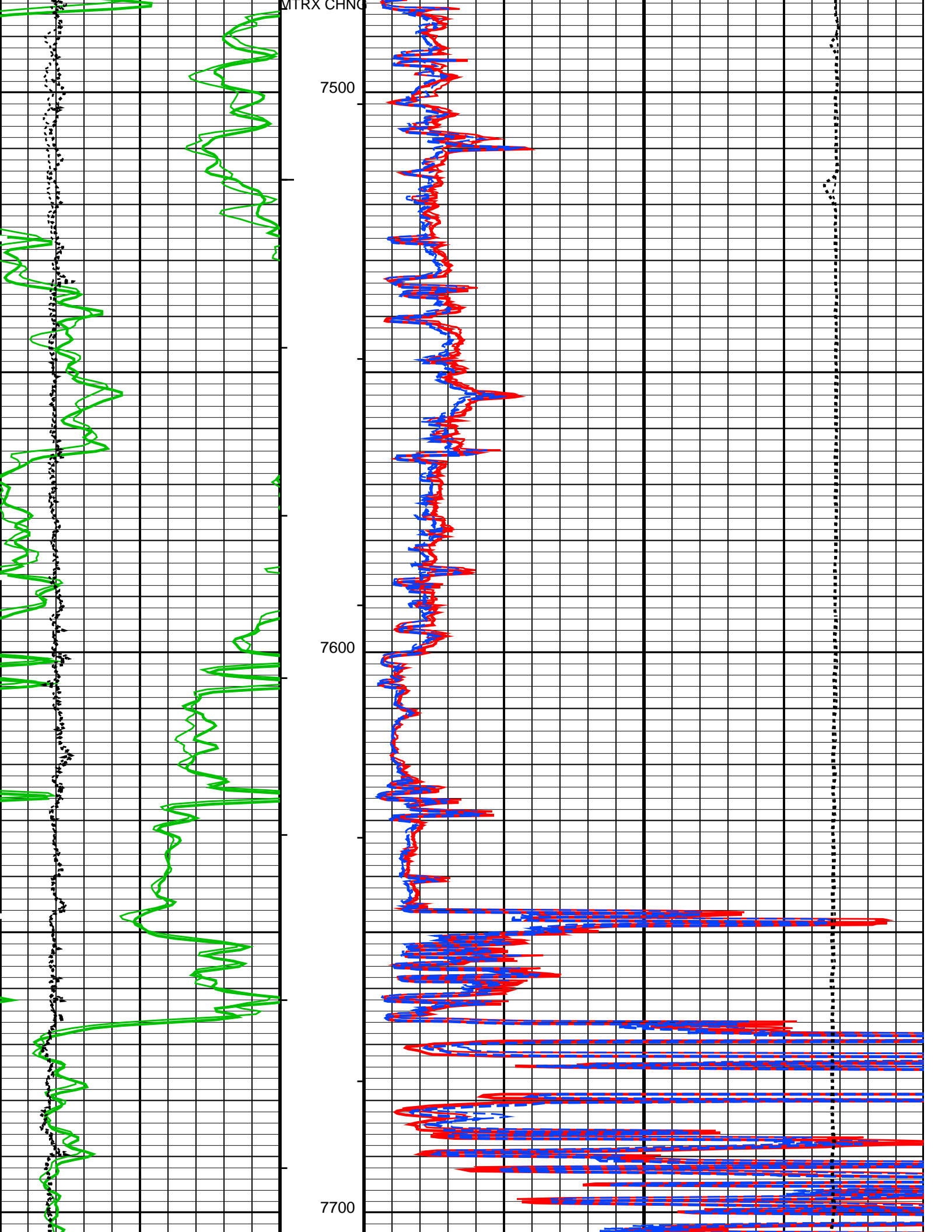
GPIT-C SRPC-3497-NOV_2007

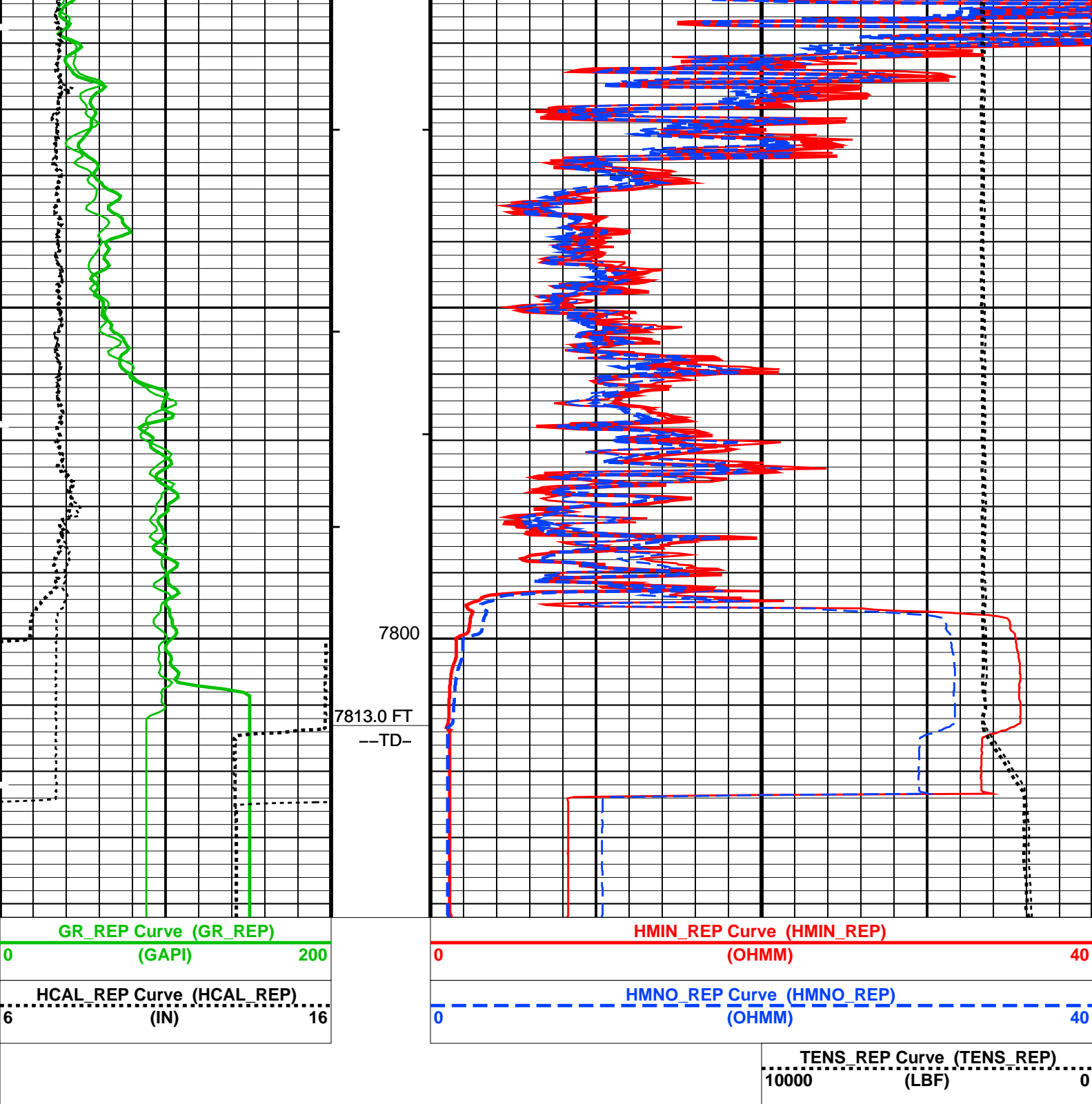
PIP SUMMARY

- └ 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-FTB: High resolution Integrated Logging Tool-DTS	ON
	MCFL Processing Operation Mode	
	HOLEV: Integrated Hole/Cement Volume	
FCD	Future Casing (Outer) Diameter	4.5 IN
HVCS	Integrated Hole Volume Caliper Selection	HCAL
	System and Miscellaneous	
BS	Bit Size	7.875 IN

DORL TD	Depth Offset for Repeat Analysis Total Depth				0.0 7813	FT FT
Format: MLT_REP		Vertical Scale: 5" per 100'			Graphics File Created: 28-Nov-2007 19:20	
OP System Version: 15C0-309						
MCM						
HILTB-FTB DTC-H	SRPC-3497-NOV_2007 SRPC-3497-NOV_2007		GPIT-C		SRPC-3497-NOV_2007	
Input DLIS Files						
DEFAULT	AIT_TLD_MCFL_CNL_005PUP	FN:4	PRODUCER	28-Nov-2007 19:19	7842.0 FT	7355.0 FT
Output DLIS Files						
DEFAULT	AIT_TLD_MCFL_CNL_006LUP	FN:5	PRODUCER	28-Nov-2007 19:20		

Schlumberger

BEFORE CALIBRATIONS

MAXIS Field Log

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
High resolution Integrated Logging Tool-DTS Wellsite Calibration – Electronics Calibration Check – Thru Cal Mag. & Phase							
Master: 19-Oct-2007 13:32 Before: 26-Nov-2007 22:31							
Thru Cal Magnitude – 0	0	0.5995	0.6013	N/A	N/A	N/A	V
Thru Cal Magnitude – 1	0	1.232	1.236	N/A	N/A	N/A	V
Thru Cal Magnitude – 2	0	0.6130	0.6144	N/A	N/A	N/A	V
Thru Cal Magnitude – 3	0	0.6925	0.6944	N/A	N/A	N/A	V
Thru Cal Magnitude – 4	0	1.292	1.296	N/A	N/A	N/A	V
Thru Cal Magnitude – 5	0	1.881	1.886	N/A	N/A	N/A	V
Thru Cal Magnitude – 6	0	1.880	1.885	N/A	N/A	N/A	V
Thru Cal Magnitude – 7	0	1.356	1.361	N/A	N/A	N/A	V
Phase – 0	0	49.97	49.32	N/A	N/A	N/A	DEG
Phase – 1	0	48.85	48.21	N/A	N/A	N/A	DEG
Phase – 2	0	45.08	44.45	N/A	N/A	N/A	DEG
Phase – 3	0	44.30	43.68	N/A	N/A	N/A	DEG
Phase – 4	0	38.02	37.42	N/A	N/A	N/A	DEG
Phase – 5	0	36.05	35.48	N/A	N/A	N/A	DEG
Phase – 6	0	36.05	35.49	N/A	N/A	N/A	DEG
Phase – 7	0	31.87	31.51	N/A	N/A	N/A	DEG

High resolution Integrated Logging Tool-DTS Wellsite Calibration – Electronics Calibration Check – Auxilliary

Master: 19-Oct-2007 13:32 Before: 26-Nov-2007 22:31

Array Induction SPA Plus	990.5	991.2	992.1	N/A	N/A	N/A	MV
Array Induction SPA Zero	0	-0.1071	-0.1264	N/A	N/A	N/A	MV
Array Induction Temperature PI	0.9150	0.9179	0.9188	N/A	N/A	N/A	V
Array Induction Temperature Ze	0	-0.0001071	-0.0001162	N/A	N/A	N/A	V

High resolution Integrated Logging Tool-DTS Wellsite Calibration – Test Loop Gain Correction

Master: 19-Oct-2007 13:32

Test Loop Gain Magnitude – 0	0	1.017	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude – 1	0	1.018	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude – 2	0	1.021	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude – 3	0	1.018	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude – 4	0	1.000	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude – 5	0	0.9898	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude – 6	0	1.004	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude – 7	0	1.015	N/A	N/A	N/A	N/A	V
Phase – 0	0	0.5399	N/A	N/A	N/A	N/A	DEG

Phase – 1	0	0.4573	N/A	N/A	N/A	N/A	DEG
Phase – 2	0	–0.04606	N/A	N/A	N/A	N/A	DEG
Phase – 3	0	–0.02562	N/A	N/A	N/A	N/A	DEG
Phase – 4	0	–0.06781	N/A	N/A	N/A	N/A	DEG
Phase – 5	0	–0.2042	N/A	N/A	N/A	N/A	DEG
Phase – 6	0	0.1840	N/A	N/A	N/A	N/A	DEG
Phase – 7	0	–0.1538	N/A	N/A	N/A	N/A	DEG

High resolution Integrated Logging Tool–DTS Wellsite Calibration – Sonde Error Correction

Master: 19–Oct–2007 13:32

R Sonde Error Correction – 0	0	–72.39	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 1	0	147.5	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 2	0	111.9	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 3	0	62.53	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 4	0	24.68	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 5	0	12.73	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 6	0	9.639	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction – 7	0	–0.3564	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 0	0	41.86	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 1	0	310.7	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 2	0	11.24	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 3	0	76.46	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 4	0	–2.490	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 5	0	5.547	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 6	0	6.804	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction – 7	0	6.486	N/A	N/A	N/A	N/A	MM/M

High resolution Integrated Logging Tool–DTS Wellsite Calibration – Mud Gain Correction

Master: 19–Oct–2007 13:32

Coarse – Mag, Real, Imag – 0	0	0.9880	N/A	N/A	N/A	N/A
Coarse – Mag, Real, Imag – 1	0	0.9880	N/A	N/A	N/A	N/A
Coarse – Mag, Real, Imag – 2	0	0.9880	N/A	N/A	N/A	N/A
Fine – Mag, Real, Imag – 0	0	0.9844	N/A	N/A	N/A	N/A
Fine – Mag, Real, Imag – 1	0	0.9845	N/A	N/A	N/A	N/A
Fine – Mag, Real, Imag – 2	0	0.9845	N/A	N/A	N/A	N/A

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

Before: 26–Nov–2007 22:31

BS Window Ratio	0.7331	N/A	0.7338	N/A	N/A	N/A	
BS Window Sum	12680	N/A	12630	N/A	N/A	N/A	CPS
SS Window Ratio	0.4968	N/A	0.4966	N/A	N/A	N/A	
SS Window Sum	10270	N/A	10270	N/A	N/A	N/A	CPS
LS Window Ratio	0.3019	N/A	0.3009	N/A	N/A	N/A	
LS Window Sum	1214	N/A	1216	N/A	N/A	N/A	CPS

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

Before: 26–Nov–2007 22:31

BS PM High Voltage (Command)	1263	N/A	1274	N/A	N/A	N/A	V
SS PM High Voltage (Command)	1544	N/A	1554	N/A	N/A	N/A	V
LS PM High Voltage (Command)	1403	N/A	1412	N/A	N/A	N/A	V

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

Before: 26–Nov–2007 22:31

BS Crystal Resolution	10.35	N/A	10.41	N/A	N/A	N/A	%
SS Crystal Resolution	10.06	N/A	10.03	N/A	N/A	N/A	%
LS Crystal Resolution	9.145	N/A	9.085	N/A	N/A	N/A	%

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

Before: 26–Nov–2007 22:31

Raw B0 Resistivity	3875	N/A	3837	N/A	N/A	N/A	OHMM
Raw B1 Resistivity	3830	N/A	3827	N/A	N/A	N/A	OHMM
Raw B2 Resistivity	3830	N/A	3820	N/A	N/A	N/A	OHMM

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

Before: 26–Nov–2007 22:26

HILT Caliper Zero Measurement	8.000	N/A	8.664	N/A	N/A	N/A	IN
HILT Caliper Plus Measurement	12.00	N/A	12.78	N/A	N/A	N/A	IN

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

Before: 26–Nov–2007 22:26

Gamma Ray Background	30.00	N/A	86.73	N/A	N/A	N/A	GAPI
Gamma Ray (Jig – Bkg)	172.4	N/A	172.4	N/A	N/A	15.67	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: 6–Oct–2007 13:03 Before: 26–Nov–2007 22:28

CNTC Background	28.27	28.27	27.52	N/A	N/A	4.241	CPS
CFTC Background	26.87	26.87	27.54	N/A	N/A	4.031	CPS

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























Master: 6–Oct–2007 13:03

Thermal Noise Corr. (Temp)	5899	5129	N/A	N/A	N/A	N/A	CPS
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Thermal Near Corr. (Tank)	5800	5129	N/A	N/A	N/A	N/A	CPS
Thermal Far Corr. (Tank)	2400	2135	N/A	N/A	N/A	N/A	
CNTC/CFTC (Tank)	2.159	2.402	N/A	N/A	N/A	N/A	
High resolution Integrated Logging Tool–DTS Wellsite Calibration – Accelerometer Calibration							
Before: 28–Nov–2007 18:35							
Z–Axis Acceleration	32.19	N/A	31.77	N/A	N/A	N/A	F/S2
High resolution Integrated Logging Tool–DTS Master Calibration – Inversion results							
Master: 12–Nov–2007 15:02							
Rho Aluminum	2.596	2.595	--	--	--	--	G/C3
Rho Magnesium	1.686	1.689	--	--	--	--	G/C3
Pe Aluminum	2.570	2.585	--	--	--	--	
Pe Magnesium	2.650	2.606	--	--	--	--	
High resolution Integrated Logging Tool–DTS Master Calibration – Deviation Summary							
Master: 12–Nov–2007 15:02							
BS Average Deviation	0	0.2381	--	--	--	--	%
BS Max Deviation	0	0.8210	--	--	--	--	%
SS Average Deviation	0	0.3072	--	--	--	--	%
SS Max Deviation	0	0.9479	--	--	--	--	%
LS Average Deviation	0	0.6327	--	--	--	--	%
LS Max Deviation	0	1.485	--	--	--	--	%
General Purpose Inclinator Wellsite Calibration – CROUZET ACCELEROMETER PROM HAS BEEN READ CORRECTLY							
Before: 28–Nov–2007 18:35							
TEMPERATURE REFERENCE :	N/A	N/A	68	N/A	N/A	N/A	DEGF
YEAR OF CALIBRATION :	N/A	N/A	5	N/A	N/A	N/A	
MONTH OF CALIBRATION :	N/A	N/A	5	N/A	N/A	N/A	
SERIAL NUMBER :	N/A	N/A	905	N/A	N/A	N/A	
General Purpose Inclinator Wellsite Calibration – CROUZET MAGNETOMETER PROM HAS BEEN READ CORRECTLY							
Before: 28–Nov–2007 18:35							
TEMPERATURE REFERENCE :	N/A	N/A	72	N/A	N/A	N/A	DEGF
YEAR OF CALIBRATION :	N/A	N/A	1	N/A	N/A	N/A	
MONTH OF CALIBRATION :	N/A	N/A	6	N/A	N/A	N/A	
SERIAL NUMBER :	N/A	N/A	449	N/A	N/A	N/A	
The GLS–VJ source activity is acceptable.							
The HGNS Neutron Master Calibration was done with the following parameters :							
NCT–B Water Temperature	72.1	DEGF.					
Thermal Housing Size	3.342	IN.					
NSR–F serial number	0						

High resolution Integrated Logging Tool–DTS / Equipment Identification			
Primary Equipment:			
Array Induction Tool – H	AIT – H	236	
Rm/SP Bottom Nose	AHRM – A		
Array Induction Sonde	AHIS – BA	236	
HILT high–Resolution Mechanical Sonde	HRMS – B	1847	
HILT Rxo Gamma–ray Device	HRGD – B	1938	
HILT Micro Cylindrically Focused Log Dev	MCFL –		
GR Logging Source	GLS – VJ		
HILT High Res. Control Cartridge	HRCC – B	1873	
Auxiliary Equipment:			

High resolution Integrated Logging Tool–DTS Wellsite Calibration							
Electronics Calibration Check – Thru Cal Mag. & Phase							
Idx	Phase	Value	Thru Cal Magnitude V	Nominal	Value	Phase DEG	Nominal
0	Master	0.5995		0.6050	49.97		71.00
	Before	0.6013			49.32		
1	Master	1.232		1.270	48.85		70.00
	Before	1.236			48.21		
2	Master	0.6130		0.6220	45.08		66.00

3	Before	0.6144		0.7040	44.45		65.00
	Master	0.6925			44.30		
	Before	0.6944			43.68		
4	Master	1.292		1.337	38.02		59.00
	Before	1.296			37.42		
5	Master	1.881		1.955	36.05		57.00
	Before	1.886			35.48		
6	Master	1.880		1.955	36.05		57.00
	Before	1.885			35.49		
7	Master	1.356		1.415	31.87		53.00
	Before	1.361			31.51		
		60.00 % (Minimum)	(Nominal)	140.0 % (Maximum)	Nom -60.00 (Minimum)	(Nominal)	Nom + 60.00 (Maximum)
Master: 19-Oct-2007 13:32				Before: 26-Nov-2007 22:31			




High resolution Integrated Logging Tool-DTS Wellsite Calibration											
Electronics Calibration Check – Auxilliary											
Phase	Array Induction SPA Plus MV			Value	Phase	Array Induction SPA Zero MV			Value		
Master				991.2	Master				-0.1071		
Before				992.1	Before				-0.1264		
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				0.9179	Master				-0.0001071		
Before				0.9188	Before				-0.0001162		
0.8700 (Minimum)				0.9150 (Nominal)	0.9600 (Maximum)				-0.05000 (Minimum)	0 (Nominal)	0.05000 (Maximum)
Master: 19-Oct-2007 13:32					Before: 26-Nov-2007 22:31						

High resolution Integrated Logging Tool-DTS Wellsite Calibration						
Test Loop Gain Correction						
Idx	Value	Test Loop Gain Magnitude V			Value	Phase DEG
0	1.017				0.5399	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
1	1.018				0.4573	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
2	1.021				-0.04606	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
3	1.018				-0.02562	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
4	1.000				-0.06781	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
5	0.9898				-0.2042	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
6	1.004				0.1840	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
7	1.015				-0.1538	
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal) 3.000 (Maximum)
Master: 19-Oct-2007 13:32						



High resolution Integrated Logging Tool-DTS Wellsite Calibration					
Sonde Error Correction					

9.348 (Minimum)	10.35 (Nominal)	11.35 (Maximum)	9.062 (Minimum)	10.06 (Nominal)	11.06 (Maximum)	8.145 (Minimum)	9.145 (Nominal)	10.14 (Maximum)
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Before: 26–Nov–2007 22:31

High resolution Integrated Logging Tool–DTS Wellsite Calibration														
MCFL Calibration														
Phase	Raw B0 Resistivity OHMM			Value	Phase	Raw B1 Resistivity OHMM			Value	Phase	Raw B2 Resistivity OHMM			Value
Before				3837	Before				3827	Before				3820
	3565 (Minimum)	3875 (Nominal)	4185 (Maximum)		3524 (Minimum)	3830 (Nominal)	4136 (Maximum)		3524 (Minimum)	3830 (Nominal)	4136 (Maximum)			
Before: 26-Nov-2007 22:31														





Before: 26–Nov–2007 22:31

High resolution Integrated Logging Tool—DTS Wellsite Calibration									
HILT Caliper Calibration									
Phase	HILT Caliper Zero Measurement IN			Value	Phase	HILT Caliper Plus Measurement IN			Value
Before				8.664	Before				12.78
6.000 (Minimum)		8.000 (Nominal)		10.00 (Maximum)	9.000 (Minimum)		12.00 (Nominal)		15.00 (Maximum)
Before: 26—Nov—2007 22:26									

Before: 26–Nov–2007 22:26




High resolution Integrated Logging Tool–DTS Wellsite Calibration														
Detector Calibration														
Phase	Gamma Ray Background GAPI			Value	Phase	Gamma Ray (Jig – Bkg) GAPI			Value	Phase	Gamma Ray (Calibrated) GAPI			Value
Before				86.73	Before				172.4	Before				165.0
	0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)		156.7 (Minimum)	172.4 (Nominal)	188.0 (Maximum)			150.0 (Minimum)	165.0 (Nominal)	180.0 (Maximum)		
Before: 26-Nov-2007 22:26														

Before: 26–Nov–2007 22:26


High resolution Integrated Logging Tool–DTS Wellsite Calibration									
Zero Measurement									
Phase	CNTC Background CPS			Value	Phase	CFTC Background CPS			Value
Master				28.27	Master				26.87
Before				27.52	Before				27.54
5.000 28.27 40.00 (Minimum) (Nominal) (Maximum)					5.000 26.87 40.00 (Minimum) (Nominal) (Maximum)				
Master: 6–Oct–2007 13:03					Before: 26–Nov–2007 22:28				

Master: 6–Oct–2007 13:03











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High resolution Integrated Logging Tool–DTS Wellsite Calibration														
Ratio Measurement														
Phase	Thermal Near Corr. (Tank) CPS			Value	Phase	Thermal Far Corr. (Tank) CPS			Value	Phase	CNTC/CFTC (Tank)			Value
Master				5129	Master				2135	Master				2.402
4700 (Minimum) 5800 (Nominal) 6900 (Maximum)					1900 (Minimum) 2400 (Nominal) 2900 (Maximum)					2.120 (Minimum) 2.159 (Nominal) 2.540 (Maximum)				
Master: 6–Oct–2007 13:03														

Master: 6–Oct–2007 13:03





High resolution Integrated Logging Tool–DTS Wellsite Calibration		
Accelerometer Calibration		
Phase	Z–Axis Acceleration F/S2	Value
Before		31.77
	31.53 (Minimum)	32.19 (Nominal)
		32.84 (Maximum)
Before: 28–Nov–2007 18:35		

Before: 28–Nov–2007 18:35

High resolution Integrated Logging Tool–DTS Master Calibration							
Electronics Calibration Check – Thru Cal Mag. & Phase							
Idx	Phase	Value	Thru Cal Magnitude V	Nominal	Value	Phase DEG	Nominal
0	Master	0.5995		0.6050	49.97		71.00
1	Master	1.232		1.270	48.85		70.00
2	Master	0.6130		0.6230	45.08		66.00
3	Master	0.6925		0.7040	44.30		65.00
4	Master	1.292		1.337	38.02		59.00

5	Master	1.881		1.955	36.05		57.00
6	Master	1.880		1.955	36.05		57.00
7	Master	1.356		1.415	31.87		53.00
		60.00 % (Minimum)	(Nominal)	140.0 % (Maximum)	Nom -60.00 (Minimum)	(Nominal)	Nom + 60.00 (Maximum)











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High resolution Integrated Logging Tool—DTS Master Calibration							
Electronics Calibration Check – Auxilliary							
Phase	Array Induction SPA Plus MV		Value	Phase	Array Induction SPA Zero MV		Value
Master			991.2	Master			-0.1071
	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			0.9179	Master			-0.0001071
	0.8700 (Minimum)	0.9150 (Nominal)	0.9600 (Maximum)		-0.05000 (Minimum)	0 (Nominal)	0.05000 (Maximum)
Master: 19-Oct-2007 13:32							

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High resolution Integrated Logging Tool-DTS Master Calibration							
Test Loop Gain Correction							
Idx	Value	Test Loop Gain Magnitude V			Value	Phase DEG	
0	1.017				0.5399		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
1	1.018				0.4573		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
2	1.021				-0.04606		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
3	1.018				-0.02562		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
4	1.000				-0.06781		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
5	0.9898				-0.2042		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
6	1.004				0.1840		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
7	1.015				-0.1538		
		0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)	-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)

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High resolution Integrated Logging Tool–DTS Master Calibration						
Sonde Error Correction						
Idx	Value	R Sonde Error Correction MM/M		Value	X Sonde Error Correction MM/M	
0	-72.39			41.86		
	-231.0 (Minimum)	-56.00 (Nominal)	119.0 (Maximum)	-2250 (Minimum)	0 (Nominal)	2250 (Maximum)
1	147.5			310.7		
	114.0 (Minimum)	159.0 (Nominal)	204.0 (Maximum)	-625.0 (Minimum)	0 (Nominal)	625.0 (Maximum)
2	111.9			11.24		
	66.00 (Minimum)	111.0 (Nominal)	156.0 (Maximum)	-350.0 (Minimum)	0 (Nominal)	350.0 (Maximum)
3	62.53			76.46		
	39.00 (Minimum)	64.00 (Nominal)	89.00 (Maximum)	-250.0 (Minimum)	0 (Nominal)	250.0 (Maximum)
4	24.68			-2.490		
	15.00 (Minimum)	25.00 (Nominal)	35.00 (Maximum)	-63.00 (Minimum)	0 (Nominal)	63.00 (Maximum)

5	12.73	(Minimum)	(Nominal)	(Maximum)	5.547	(Minimum)	(Nominal)	(Maximum)
	4.000	14.00	24.00		-50.00	0	50.00	
	(Minimum)	(Nominal)	(Maximum)		(Minimum)	(Nominal)	(Maximum)	
6	9.639	(Minimum)	(Nominal)	(Maximum)	6.804	(Minimum)	(Nominal)	(Maximum)
	5.000	10.00	15.00		-30.00	0	30.00	
	(Minimum)	(Nominal)	(Maximum)		(Minimum)	(Nominal)	(Maximum)	
7	-0.3564	(Minimum)	(Nominal)	(Maximum)	6.486	(Minimum)	(Nominal)	(Maximum)
	-5.000	0	5.000		-30.00	0	30.00	
	(Minimum)	(Nominal)	(Maximum)		(Minimum)	(Nominal)	(Maximum)	

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High resolution Integrated Logging Tool-DTS Master Calibration								
Mud Gain Correction								
Idx	Value	Coarse – Mag, Real, Imag			Value	Fine – Mag, Real, Imag		
0	0.9880	(Minimum)	(Nominal)	(Maximum)	0.9844	(Minimum)	(Nominal)	(Maximum)
	0.8000	1.000	1.200		0.8000	1.000	1.200	
	(Minimum)	(Nominal)	(Maximum)		(Minimum)	(Nominal)	(Maximum)	
1	0.9880	(Minimum)	(Nominal)	(Maximum)	0.9845	(Minimum)	(Nominal)	(Maximum)
	0.8000	1.000	1.200		0.8000	1.000	1.200	
	(Minimum)	(Nominal)	(Maximum)		(Minimum)	(Nominal)	(Maximum)	
2	0.9880	(Minimum)	(Nominal)	(Maximum)	0.9845	(Minimum)	(Nominal)	(Maximum)
	0.8000	1.000	1.200		0.8000	1.000	1.200	
	(Minimum)	(Nominal)	(Maximum)		(Minimum)	(Nominal)	(Maximum)	



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High resolution Integrated Logging Tool-DTS Master Calibration								
Inversion results								
Phase	Rho Aluminum G/C3			Value	Phase	Rho Magnesium G/C3		
Master	(Minimum)	(Nominal)	(Maximum)	2.595	Master	(Minimum)	(Nominal)	(Maximum)
	2.586	2.596	2.606			1.676	1.686	1.696
	(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(Maximum)
Phase	Pe Aluminum			Value	Phase	Pe Magnesium		
Master	(Minimum)	(Nominal)	(Maximum)	2.585	Master	(Minimum)	(Nominal)	(Maximum)
	2.470	2.570	2.670			2.550	2.650	2.750
	(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(Maximum)

Master: 12-Nov-2007 15:02

High resolution Integrated Logging Tool-DTS Master Calibration									
Deviation Summary									
Phase	BS Average Deviation %			Value	Phase	SS Average Deviation %			Value
Master	(Minimum)	(Nominal)	(Maximum)	0.2381	Master	(Minimum)	(Nominal)	(Maximum)	0.3072
	-0.6000	0	0.6000			-1.000	0	1.000	
	(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(Maximum)	
Phase	BS Max Deviation %			Value	Phase	SS Max Deviation %			Value
Master	(Minimum)	(Nominal)	(Maximum)	0.8210	Master	(Minimum)	(Nominal)	(Maximum)	0.9479
	-1.600	0	1.600			-2.500	0	2.500	
	(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(Maximum)	
Phase	LS Average Deviation %			Value	Phase	LS Max Deviation %			Value
Master	(Minimum)	(Nominal)	(Maximum)	0.6327	Master	(Minimum)	(Nominal)	(Maximum)	1.485
	-1.500	0	1.500			-3.500	0	3.500	
	(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(Maximum)	

Master: 12-Nov-2007 15:02

High resolution Integrated Logging Tool—DTS Master Calibration									
Zero Measurement									
Phase	CNTC Background CPS			Value	Phase	CFTC Background CPS			Value
Master				28.27	Master				26.87
	5.000 (Minimum)	28.27 (Nominal)	40.00 (Maximum)	5.000 (Minimum)		26.87 (Nominal)	40.00 (Maximum)		

Master: 6-Oct-2007 13:03

High resolution Integrated Logging Tool-DTS Master Calibration									
Tank Measurement									
Phase	Thermal Near Corr. (Tank) CPS			Value	Phase	Thermal Far Corr. (Tank) CPS			Value
Master	(Minimum)	(Nominal)	(Maximum)	5129	Master	(Minimum)	(Nominal)	(Maximum)	2135
	4700	5800	6900			1900	2400	2900	
	(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(Maximum)	
Phase	CNTC/CFTC (Tank)			Value	Phase	CNTC/CFTC (Tank)			Value
Master	(Minimum)	(Nominal)	(Maximum)	2.402	Master	(Minimum)	(Nominal)	(Maximum)	2.402
	2.120	2.159	2.540			2.120	2.159	2.540	
	(Minimum)	(Nominal)	(Maximum)			(Minimum)	(Nominal)	(Maximum)	

Master: 6-Oct-2007 13:03

General Purpose Inclinator / Equipment Identification

Primary Equipment:	
GPIT Cartridge – C	GPIC – C
Auxiliary Equipment:	
GPIT Housing	GPIH – B

DTS Telemetry Tool / Equipment Identification

Primary Equipment:		
DTC–H Auxiliary Cartridge	DTCH – A	
DTC–H Telemetry Cartridge	DTCH – A	8980
Auxiliary Equipment:		
DTCH Telemetry Cartridge Housing	ECH – KC	

Company: **Orr Energy, LLC**

Schlumberger

Well: **South 6–23D**
Field: **Wattenberg**
County: **Weld**
State: **Colorado**

Platform Express
Micro Log