



## DEPTH SUMMARY LISTING

Date Created: 30-MAR-2010 2:31:41

### Depth System Equipment

Depth Measuring Device	Tension Device	Logging Cable
Type: IDW-JA	Type: CMTD-B/A	Type: 7-46P XS
Serial Number: 6530	Serial Number: 2345	Serial Number: 708186
Calibration Date: 12-FEB-2010	Calibration Date: 23-MAR-2010	Length: 9060 M
Calibrator Serial Number: 4	Calibrator Serial Number: 238	Conveyance Method: Wireline
Calibration Cable Type: 7-46P XS	Number of Calibration Points: 10	Rig Type: LAND
Wheel Correction 1: -6	Calibration RMS: 837	
Wheel Correction 2: -4	Calibration Peak Error: 1213	

### Depth Control Parameters

Log Sequence:	First Log In the Well
Rig Up Length At Surface:	0.00 M
Rig Up Length At Bottom:	0.00 M
Rig Up Length Correction:	0.00 M
Stretch Correction:	0.30 M
Tool Zero Check At Surface:	0.10 M

### Depth Control Remarks

1. ALL SCHLUMBERGER DEPTH PROCEDURES FOLLOWED
2. IDW USED FOR PRIMARY DEPTH CONTROL
3. Z-CHART USED AS SECONDARY DEPTH CONTROL
4. MAIN LOG CORRELATED TO DOWNLOG
5. CMTD 10 POINT CALIBRATION
6. IDW IN SERVICE DATE IS 30-MAR-2010

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OTHER SERVICES1	OTHER SERVICES2
OS1: IDFR	OS1:
OS2: ISLT	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2

All tools run as per tool sketch	
ISLF and IDFE run centralized with 3 x ICME's	
ILE-I run above ITGN for eccentralization	
ILDY run with 2 x AH-306 below and 1 x AH-306 above	
Radioactivity horizons confirmed with wellsite geologist	


RUN 1			RUN 2		
SERVICE ORDER #:		AP8D-00212	SERVICE ORDER #:		
PROGRAM VERSION:		17C0-154	PROGRAM VERSION:		
FLUID LEVEL:		0 m	FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

**EQUIPMENT DESCRIPTION**




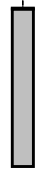

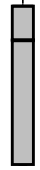


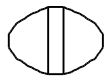

RUN 1

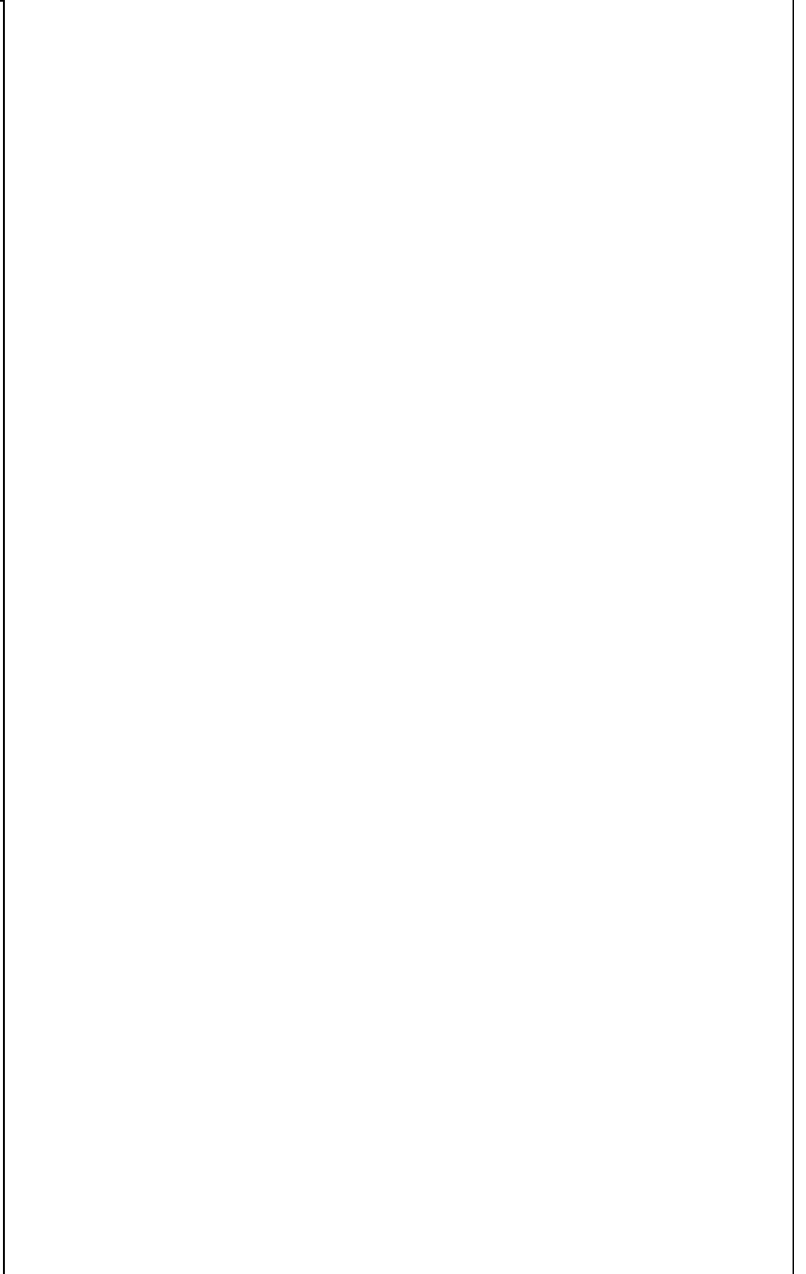
SURFACE EQUIPMENT

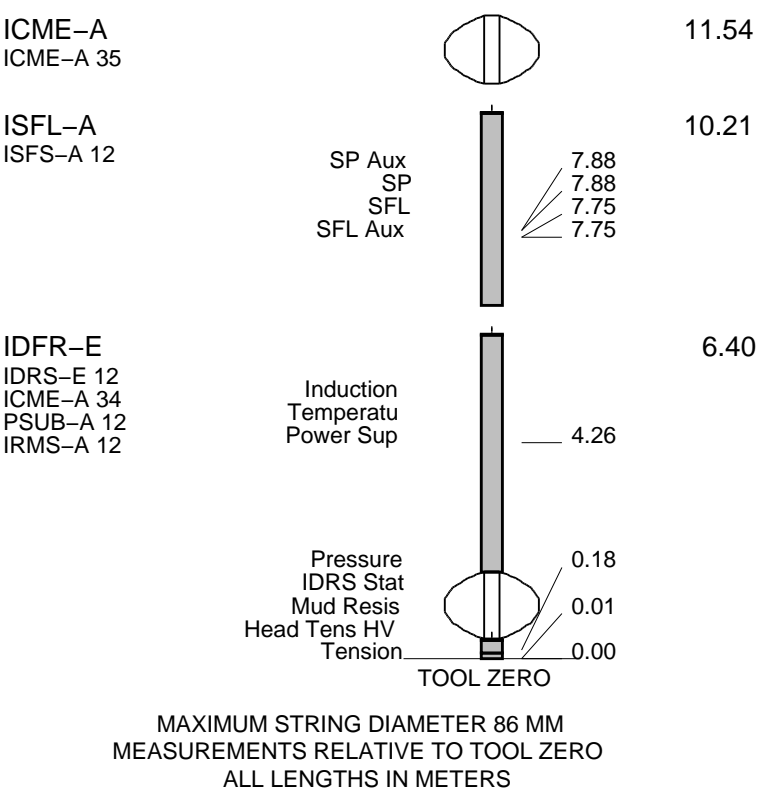
WITM-A  
PSC\_16MHZ

RUN 2

DOWNHOLE EQUIPMENT

LEH-QT LEH-QT		28.33
AH-307		27.44
ILE-I ILE-I		27.17
ITGN-B PSC-ATS 9 PSC-A ITNH-B 9 ITNS-B 9 NNLS-B	Detail MT TelStatus PSTC CTEM GR CCL  Far Near Epi Status Head Temp	24.97 24.49 24.03  22.47 22.32  21.85
AH-306		21.85
ILD-T-B ICEC-B 25 IMCS-A 25 GGLS-C 2434 IPDP-A 25	ICEC Stat PEFL Caliper LS PEFS SS  IMCS Stat	20.70 19.14 19.03 19.00 18.90 18.88  18.24
AH-306		18.24
AH-306		17.76
ICME-A ICME-A		17.28
ISLT-B ISLS-B ISLC-B ISLH-B	 RX_ARRAY	15.94    14.32





**Main Pass**  
**1:600**

MAXIS Field Log

**Input DLIS Files**

DEFAULT	IDL_SFL_SLT_LDL_CNL_020LUP	FN:19	PRODUCER	30-Mar-2010 02:57	449.6 M	85.5 M
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**Output DLIS Files**

DEFAULT	IDL_SFL_SLT_LDL_CNL_032PUP	FN:31	PRODUCER	31-Mar-2010 13:38	448.1 M	83.5 M
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**Integrated Hole/Cement Volume Summary**

Hole Volume = 2.50 M3  
 Cement Volume = 2.50 M3 (assuming 0.00 MM casing O.D.)  
 Computed from 445.8 M to 101.0 M using data channel(s) CALI

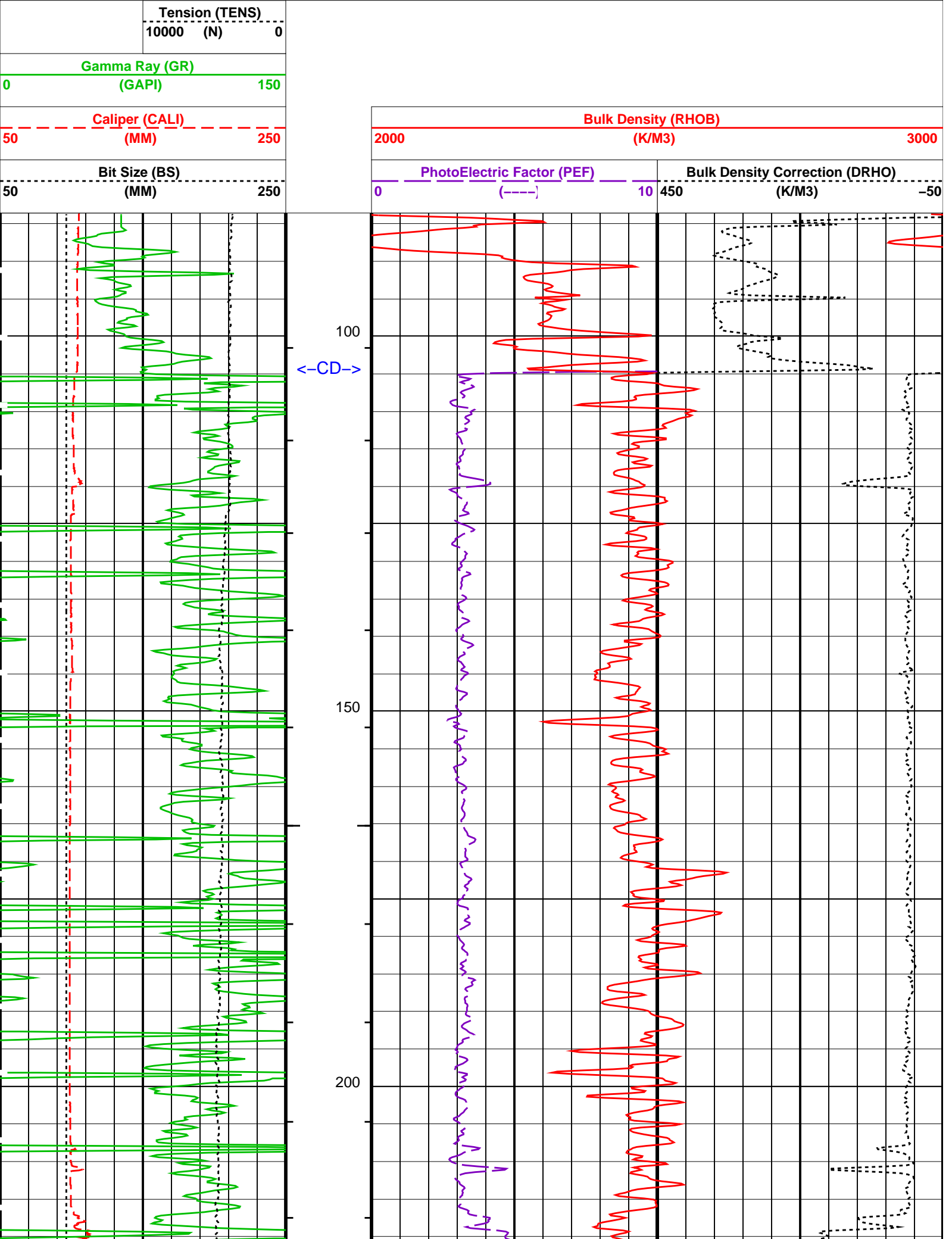
**OP System Version: 17C0-154**

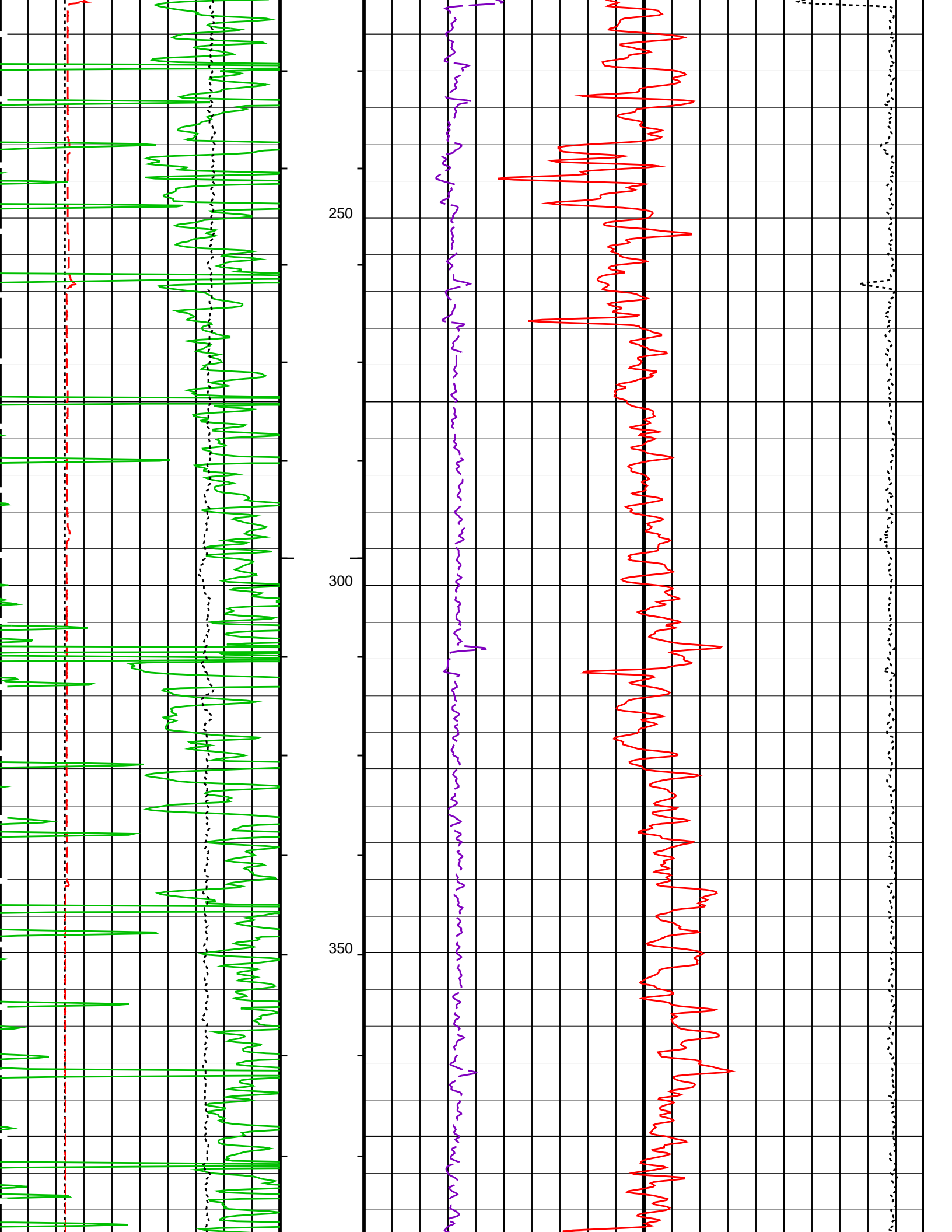
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ISLT-B	SPC-3951-IFLEX_b	ILDT-B	SPC-3951-IFLEX_b
ITGN-B	SPC-3951-IFLEX_b		

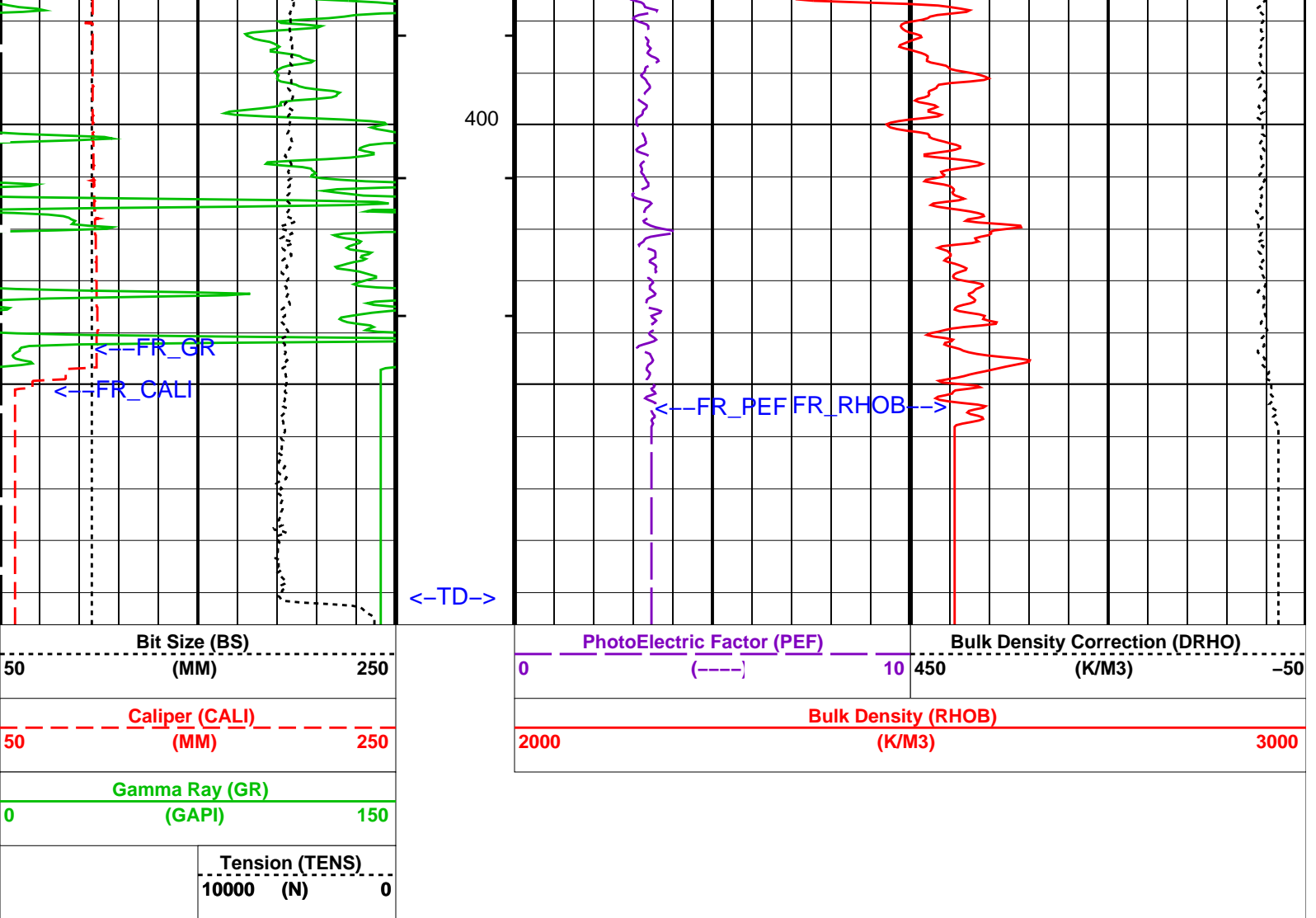
**PIP SUMMARY**

- ┆ 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







**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
<b>IDFR-E: iFlex Dual Formation Resistivity Tool</b>		
BHS	Borehole Status	OPEN
DFT_IFLEX	Drilling Fluid Type	WATER
GCSE	Generalized Caliper Selection	CALI
<b>ISLT-B: iFlex Sonic Logging Tool</b>		
BHS	Borehole Status	OPEN
DFT_IFLEX	Drilling Fluid Type	WATER
GCSE	Generalized Caliper Selection	CALI
<b>ILD-T-B: iFlex Litho Density Tool</b>		
BHS	Borehole Status	OPEN
DFT_IFLEX	Drilling Fluid Type	WATER
DHNV_ICEC	ICEC Firmware Version	08.15.16
DHNV_IPDP	IPDP Firmware Version	06.15.16
FD	Fluid Density	1000 K/M3
GCSE	Generalized Caliper Selection	CALI
MDEN	Matrix Density	2650 K/M3
PVN_ICEC	ICEC Computation Version	1.000
PVN_IPDP	IPDP Computation Version	2.008
TBHDS_ILDT	ILD-T Tool Borehole Diameter Source	CALI
<b>ITGN-B: iFlex Telemetry Gamma Neutron Tool</b>		
BARI_ITGN	Barite Mud Presence Flag	YES
BHS	Borehole Status	OPEN
DFT_IFLEX	Drilling Fluid Type	WATER
GCSE	Generalized Caliper Selection	CALI
NICO	Neutron Interference Correction Option	YES
PVN_ITGN	ITGN Computation Version	1.005
SDAT	Standoff Data Source	SOCN

SDAT	Standoff Data Source	SOCD	0	IN
SOCN	Standoff Distance	CALI		
TBHDS	Tool Borehole Diameter Source	GTSE		
TBHTS	Tool Borehole Temperature Source			
	HOLEV: Integrated Hole/Cement Volume			
BHS	Borehole Status	OPEN		
FCD	Future Casing (Outer) Diameter	0		MM
GCSE	Generalized Caliper Selection	CALI		
HVCS	Integrated Hole Volume Caliper Selection	CALI		
	System and Miscellaneous			
BS	Bit Size	96.000		MM
DFD	Drilling Fluid Density	1170.00		K/M3
DO	Depth Offset for Playback	-2.2		M
PP	Playback Processing	NORMAL		
TD	Total Depth	445.8		M

Format: DENS    Vertical Scale: 1:600    Graphics File Created: 31-Mar-2010 13:38

### OP System Version: 17C0-154

IDFR-E	SPC-3951-IFLEX_b	ISFL-A	SPC-3951-IFLEX_b
ISLT-B	SPC-3951-IFLEX_b	ILDT-B	SPC-3951-IFLEX_b
ITGN-B	SPC-3951-IFLEX_b		

#### Input DLIS Files

DEFAULT	IDL_SFL_SLT_LDL_CNL_020LUP	FN:19	PRODUCER	30-Mar-2010 02:57	449.6 M	85.5 M
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#### Output DLIS Files

DEFAULT	IDL_SFL_SLT_LDL_CNL_032PUP	FN:31	PRODUCER	31-Mar-2010 13:38		
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**Main Pass**  
**1:240**

MAXIS Field Log

#### Input DLIS Files

DEFAULT	IDL_SFL_SLT_LDL_CNL_020LUP	FN:19	PRODUCER	30-Mar-2010 02:57	449.6 M	85.5 M
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#### Output DLIS Files

DEFAULT	IDL_SFL_SLT_LDL_CNL_032PUP	FN:31	PRODUCER	31-Mar-2010 13:38	448.1 M	83.5 M
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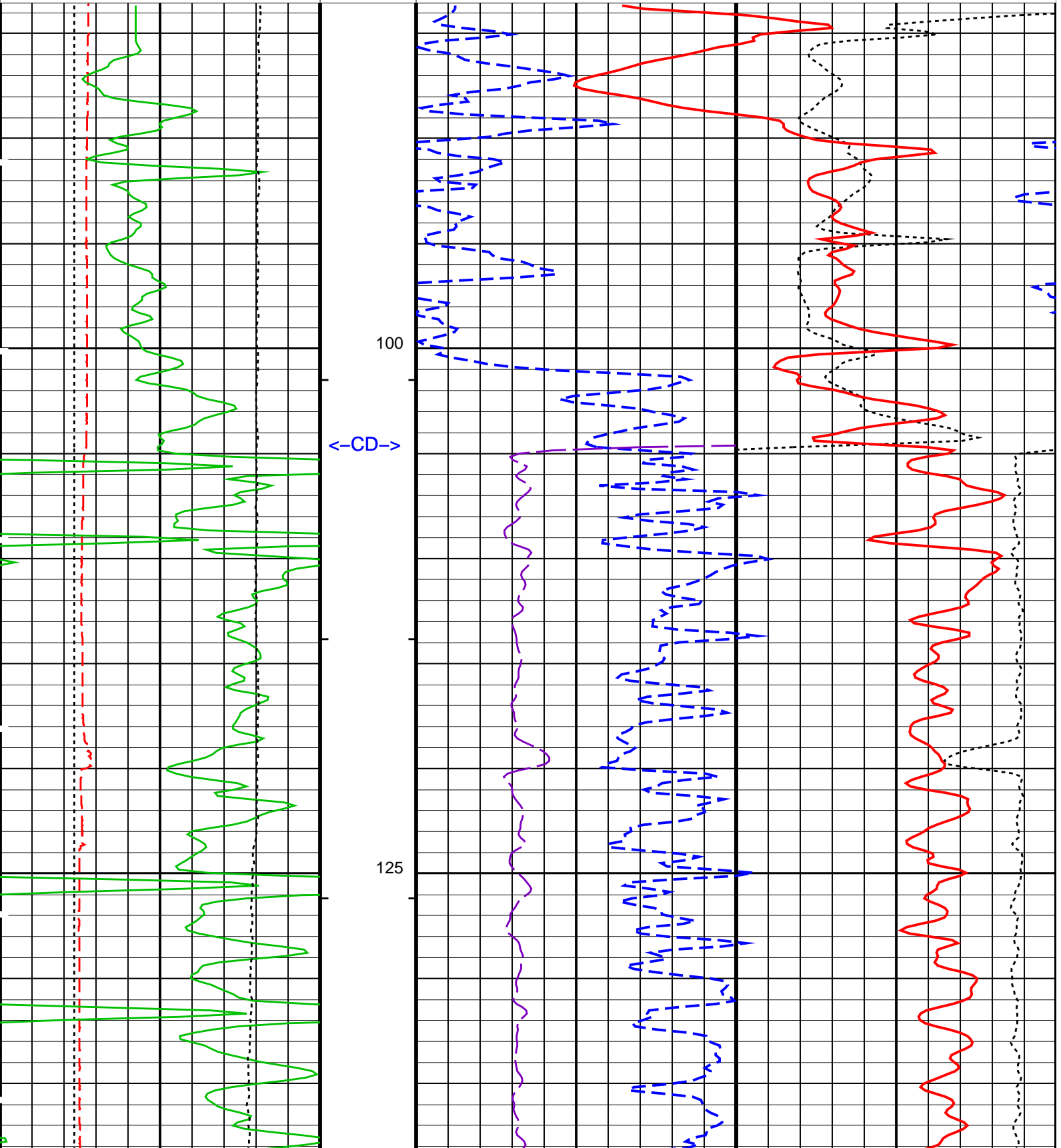
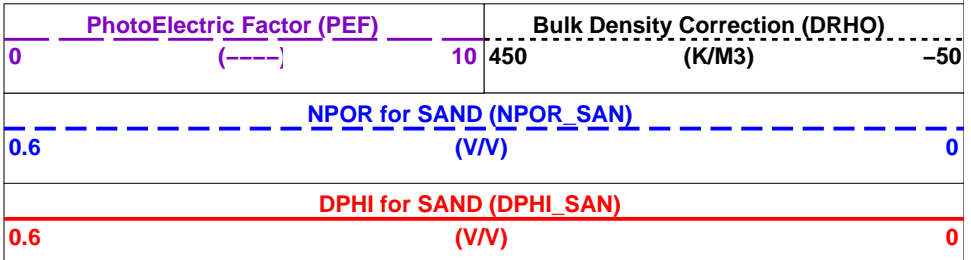
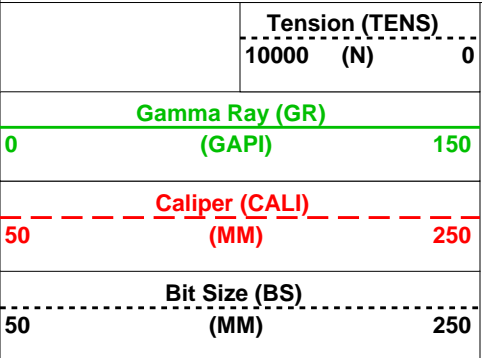
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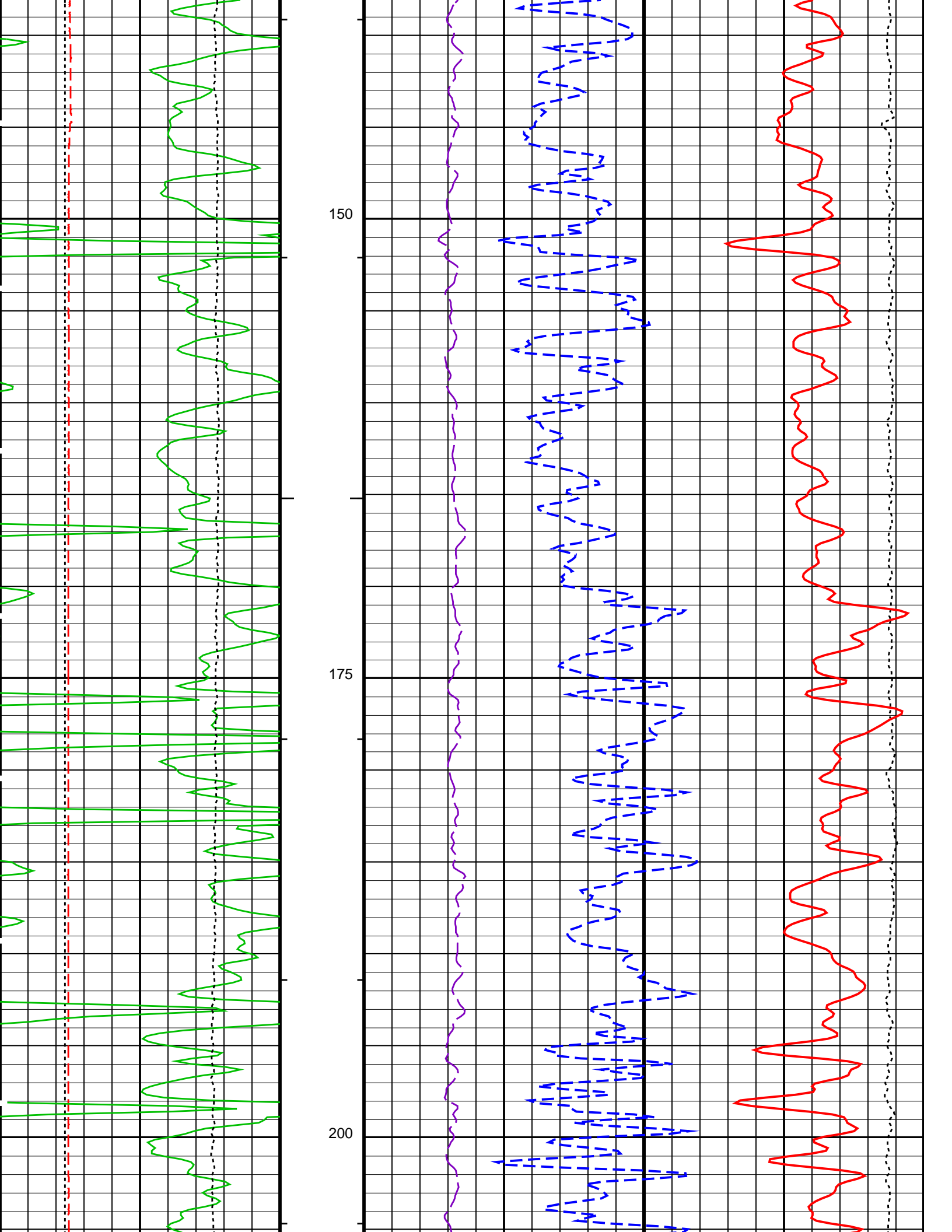
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ISLT-B	SPC-3951-IFLEX_b	ILDT-B	SPC-3951-IFLEX_b
ITGN-B	SPC-3951-IFLEX_b		

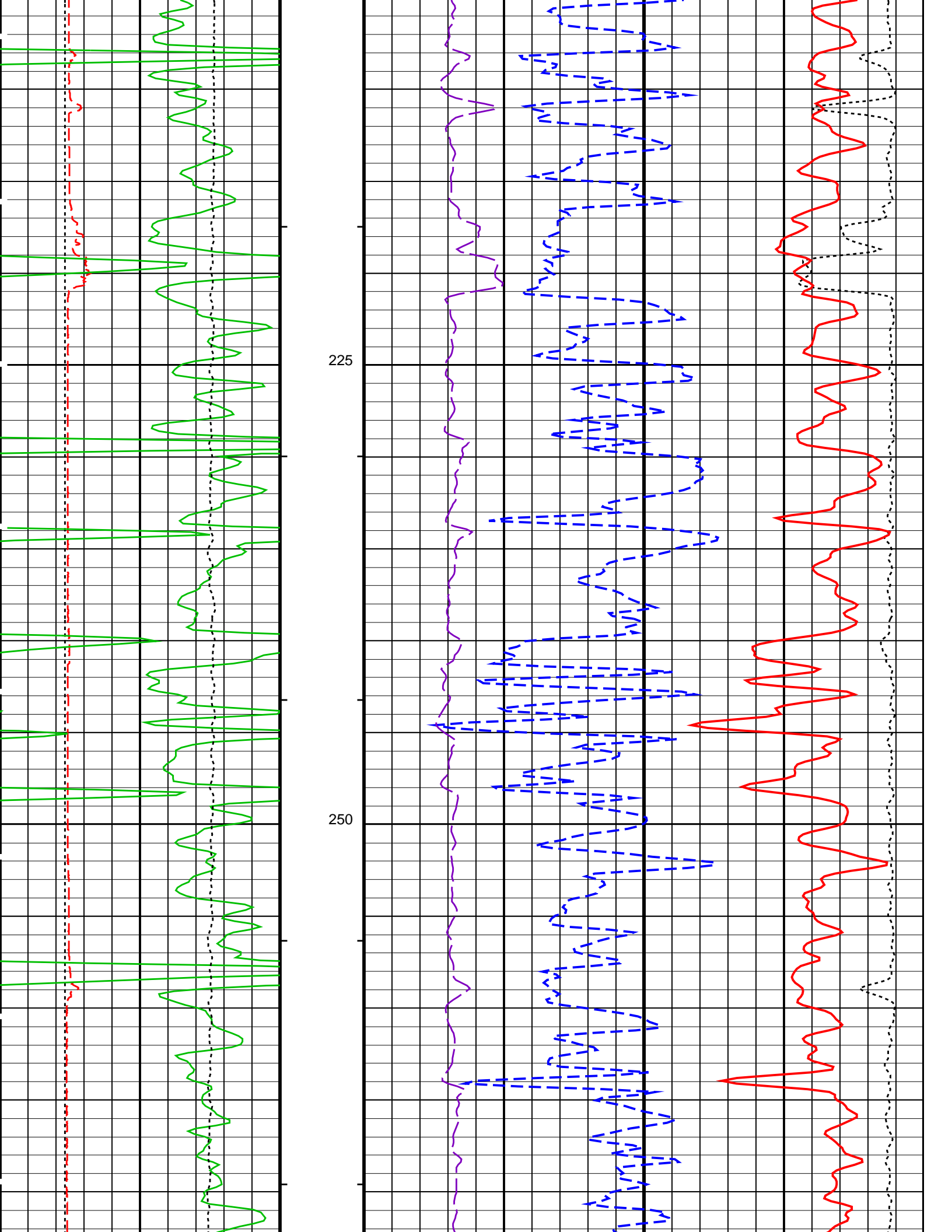
#### PIP SUMMARY

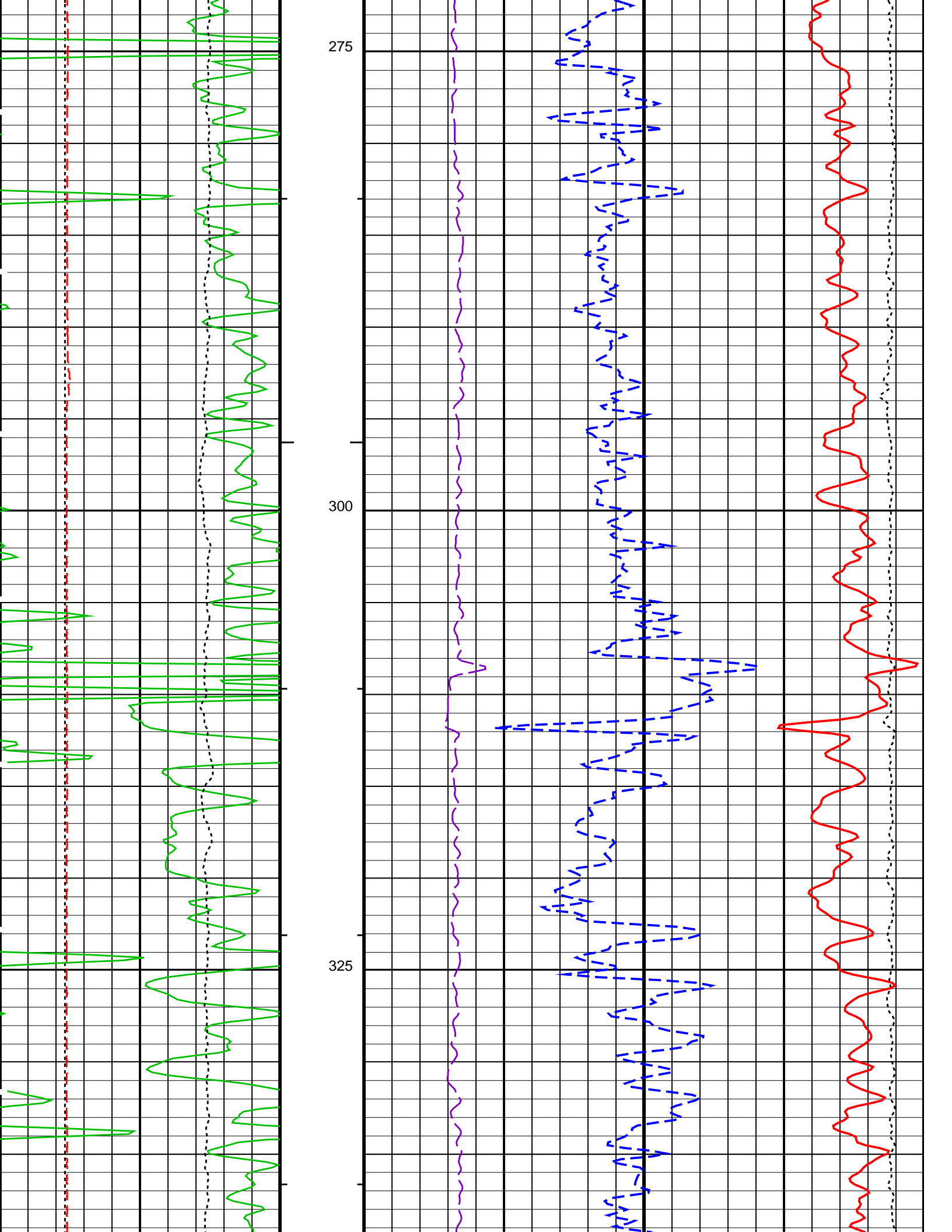
- ┆ Integrated Hole Volume Minor Pip Every 0.1 M3
- ┆ Integrated Hole Volume Major Pip Every 1 M3
  - ┆ Integrated Cement Volume Minor Pip Every 0.1 M3
  - ┆ Integrated Cement Volume Major Pip Every 1 M3

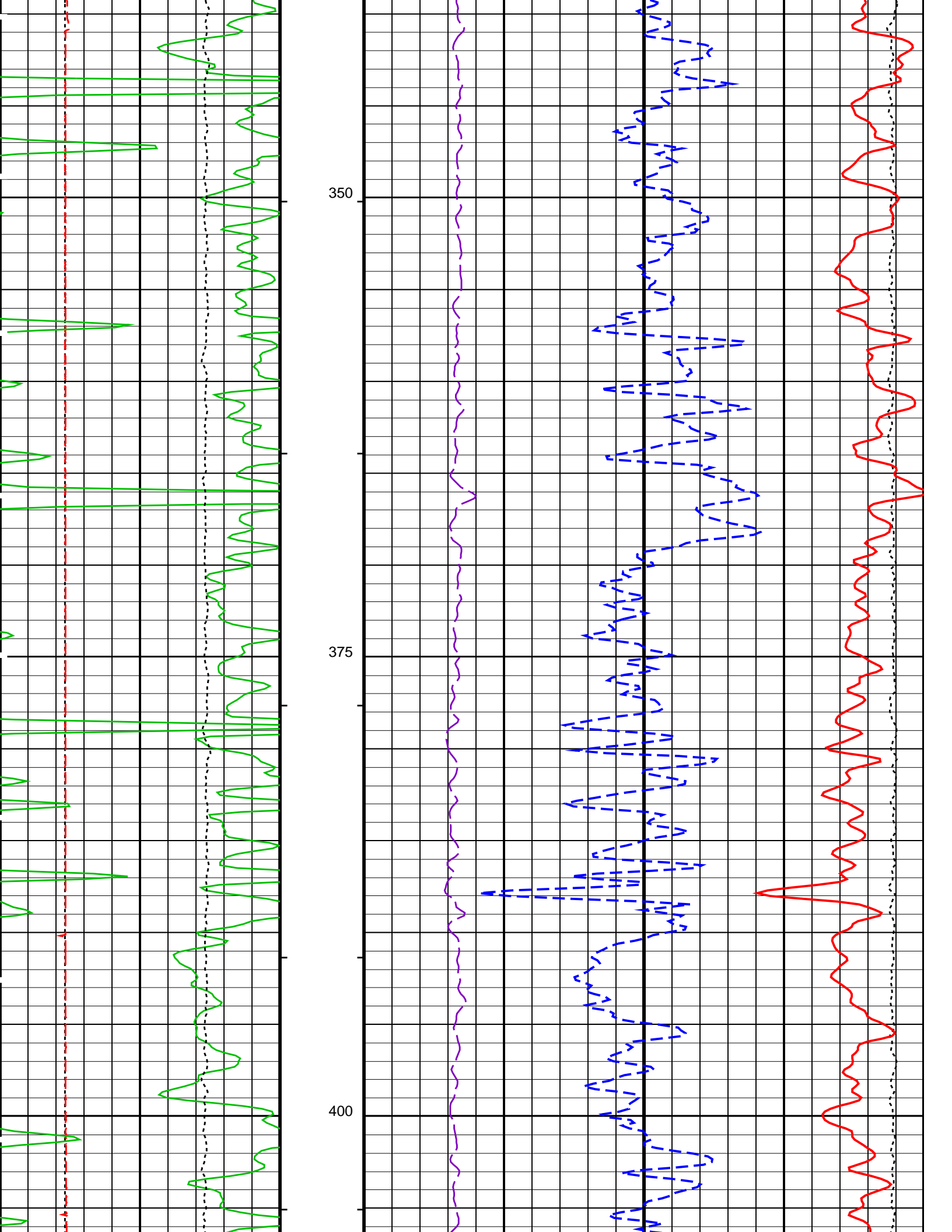


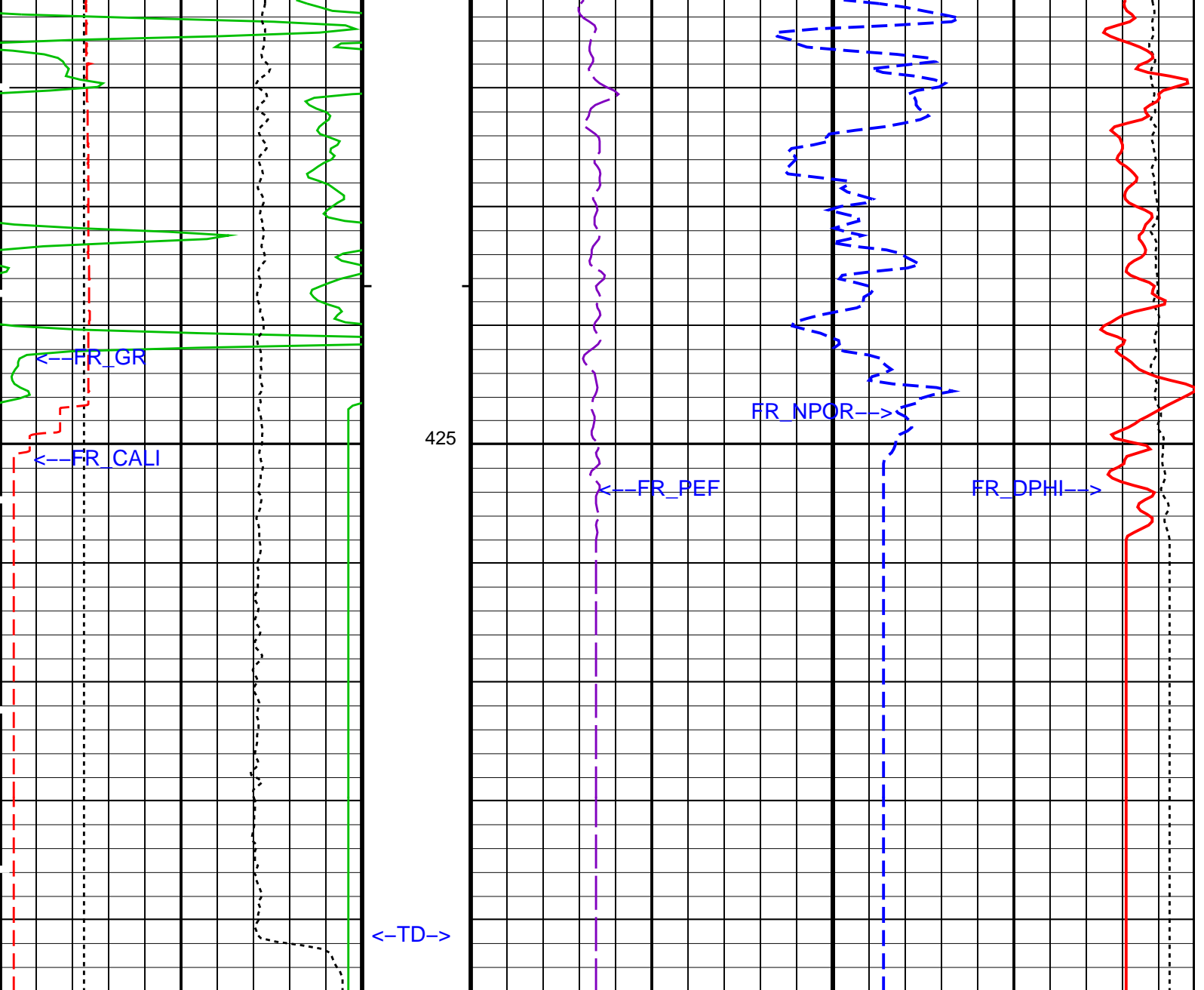












Bit Size (BS)		250	
(MM)			
50			
Caliper (CALI)		250	
(MM)			
50			
Gamma Ray (GR)		150	
(GAPI)			
0			
Tension (TENS)		0	
10000 (N)			

DPHI for SAND (DPHI_SAN)		0	
0.6		(V/V)	
NPOR for SAND (NPOR_SAN)		0	
0.6		(V/V)	
PhotoElectric Factor (PEF)		Bulk Density Correction (DRHO)	
0		450	
(----)		(K/M3)	
10		-50	

**PIP SUMMARY**

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- ┆ Integrated Cement Volume Minor Pip Every 0.1 M3
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Time Mark Every 60 S

**Parameters**

DLIS Name	Description	Value
IDFR-E:	iFlex Dual Formation Resistivity Tool	
ABHV	Array Induction Borehole Correction Code Version Number	900
ABLV	Array Induction Basic Logs Code Version Number	223
ACEN	Array Induction Tool Centering Flag (in Borehole)	Centered

ADITM	Array Induction Desired Tool Mode	0x00_Log_MudAutoMode_000	
AETP	Array Induction Enable Sonde Error Temp&Pres Corr	Temp_On_Pres_On	
AFRSV	Array Induction Response Set Version for Four ft Resolution	03.00.02.00	
AIGS	Array Induction Select Akima Interpolation Gating	On	
AIGS_SFL_IDFR	SFL Select Akima Interpolation Gating	On	
ALNV	Array Induction Log Not Valid Flag	Log_Not_Valid-Default_Parameters	
ARTS	AIT Rt Selection (for ALLRES computation)	IDFR_TwoResADeep	
ATRSV	Array Induction Response Set Version for Two ft Resolution	03.00.02.00	
ATSE_IDFR	IDFR Temperature RTD Selection(Sonde Error Correction)	RTD1	
AULV	Array Induction User Level Control	Normal	
BHC_SIGMA_T_INPUT	IDFR BHC Formation Conductivity Input	13R	
BHPRSRC_IDFR	IDFR Pressure Source	BHPR_IDFR	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	40	DEGC
CRTM_IDFR	IDFR Current Tool Mode	0x00_Log_MudAutoMode_000	
DFT_IFLEX	Drilling Fluid Type	WATER	
DHNV_IDFR	IDFR Firmware Version	05.15.24	
DPPM_IFLEX	iFlex Density Porosity Processing Mode	HIRS	
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
FPHI	Form Factor Porosity Source	DPHI	
GCSE	Generalized Caliper Selection	CALI	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	IDFR_RESIST	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
ISOD	Induction Standoff Outer Diameter	57.15	MM
ISSBAR	Barite Mud Switch	BARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
MFSZ_IDFR	IDFR Num Median Filter Elements	Disable	
PRTM_IDFR	IDFR Previous Tool Mode	0x00_Log_MudAutoMode_000	
PSTP	PSTC Tool Position on CAN Bus	1	
PVN_IDFR	IDFR Computation Version	No Version Available	
RTCO	RTCO - Rt Invasion Correction	YES	
SHT	Surface Hole Temperature	20	DEGC
SPNV	SP Next Value	0	MV
TEMPSM_IDFR	IDFR Temperature RTD Selection Mode	Automatic	
ISLT-B: iFlex Sonic Logging Tool			
ACSR	Array Cycle Skip Recovery	ON	
ADPS	A/D Conversion Phase Shift	NONE	
AMSG	Auxilliary Minimum Sliding Gate	180	US
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	40	DEGC
BRUL_FT	Baseline Removal Upper Limit - Far Tx	0	US
BRUL_LT	Baseline Removal Upper Limit - Lower Tx	0	US
BRUL_UT	Baseline Removal Upper Limit - Upper Tx	0	US
CBAF	CBL Adjustment Factor	1	
CBLG	CBL Gate Width	50	US
CDTS	C-Delta-T Shale	328.084	US/M
CLUSTER_INT	Clustering Interval	6.096	M
COLL	Label Slowness Lower Limit - P & S Comp	131.234	US/M
COUL	Label Slowness Upper Limit - P & S Comp	590.551	US/M
DDE1	Digitizing Delay 1 - Upper Tx	40	US
DDE2	Digitizing Delay 2 - Lower Tx	40	US
DETE	Detection Peak	E2	
DFAD	DFAD Computation Control	DSP	
DFAD_ATC	DFAD Automatic Threshold Control	ON	
DFAD_INTERVAL_MODE	Detection Interval Mode for first arrival	TRACK	
DFT_IFLEX	Drilling Fluid Type	WATER	
DHNV_ISLT	ISLT Firmware Version	03.13.10	
DLSR	Depth Log Sampling Rate	TT1.5_WF6	
DPPM_IFLEX	iFlex Density Porosity Processing Mode	HIRS	
DSIN	Digitizing Sample Interval	10	US
DTCM	Delta-T Computation Mode	FULL	
DTCS	Compressional Delta-T Source	DT	
DTF	Delta-T Fluid	670.932	US/M
DTM	Delta-T Matrix	183.727	US/M
DTMAX	Maximum Valid Value for DT	656.168	US/M
DTMIN	Minimum Valid Value for DT	131.234	US/M
DTSS	Shear Delta-T Source	DTS_RA_UTx	
DWCO	Digitizing Word Count	256	
FILG	Label Fill Gap Control - P & S	COMP_SHEAR	
FIL LENG	STC Filter Length	21	
FULT	FTB Uplink Throughput for Sonic Tool	150	KB/S
GA11	Gain Control 1 - Upper Tx	HIGH	
GA12	Gain Control 2 - Lower Tx	HIGH	
GBHCL	Group BHC Limit	0.9	
GCSE	Generalized Caliper Selection	CALI	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GNFL	Group Near-Far Limit	0.9	
GRSE	Generalized Mud Resistivity Selection	IDFR_RESIST	
GSEPL	Group Separation Limit	65.6168	US/M
GSIZL	Group Size Limit	0.3	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	

HOLE_DIA	Hole Diameter		0	MM
ISSBAR	Barite Mud Switch	BARITE		
ITTS	Integrated Transit Time Source	DT		
ITWI_FT	STC Integration Time Window - Far Tx	200		US
ITWI_LT	STC Integration Time Window - Lower Tx	160		US
ITWI_UT	STC Integration Time Window - Upper Tx	160		US
LFC	Label Formation Character - P & S	COMP_FIRST		
LPM_FT	Label Processing Mode - Far Tx	NONE		
LPM_LT	Label Processing Mode - Lower Tx	RECEIVER		
LPM_UT	Label Processing Mode - Upper Tx	RECEIVER		
MAHTR	Manual High Threshold Reference	40		
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE		
MNHTR	Minimum High Threshold Reference	30		
MODE	Sonic Firing Mode	STC_BHC_DT_256WF_1800FPH		
NFLG	STC Wave Normalization Flag	OFF		
NFLIM	Near-Far boundary distance	2.1336		M
NFPI_L5	Free Pipe amplitude for LT-R5	2500		
NFPI_U1	Free Pipe amplitude for UT-R1	2500		
NMSG	Near Minimum Sliding Gate	250		US
NMXG	Near Maximum Sliding Gate	750		US
NUMP	Number of Detection Passes	2		
NWI	Number of Waveform Items	6		
POWER_SAVE_TEST	ISLT Powersave test Mode	OFF		
PROC_INT	Processing Interval	3.048		M
PSTP	PSTC Tool Position on CAN Bus	1		
R42R	R4 to R2 Sensitivity Ratio	0		DB/M
RACO	Ray Angle Compensation	0.0109547		M
RATE	Sonic Firing Rate	12.5		HZ
REJREP	Reject Repeated Transit Times	ALLOW		
RSMN	Label Shear/Comp Minimum Ratio - P & S	1.4		
RSMX	Label Shear/Comp Maximum Ratio - P & S	2.12		
SALL	Sonic Amplitude Lower Limit	20		
SBOF_FT	STC Search Band Offset - Far Tx	230		US
SBOF_LT	STC Search Band Offset - Lower Tx	190		US
SBOF_UT	STC Search Band Offset - Upper Tx	190		US
SBWI_FT	STC Search Band Width - Far Tx	1580		US
SBWI_LT	STC Search Band Width - Lower Tx	860		US
SBWI_UT	STC Search Band Width - Upper Tx	860		US
SDL	Standard Deviation Acceptance Limit	2.5		
SDTH	Switch Down Threshold	29490		
SEMTHR	STC Semblance Threshold	0.25		
SENSOR_DIA	Sensor Diameter	19.05		MM
SFAF	Sonic Formation Attenuation Factor	0		DB/M
SGAD	Sliding Gate Allow/Disallow	ON		
SGCL	Sliding Gate Closing Delta-T	558		US/M
SGCW	Sliding Gate Closing Width	33		US
SGDT	Sliding Gate Delta-T	131		US/M
SGW	Sliding Gate Width	80		US
SHLL	Label Slowness Lower Limit - P & S Shear	246.063		US/M
SHORT_FRAME_MODE	ISLT Short Frame Mode	OFF		
SHT	Surface Hole Temperature	20		DEGC
SHUL	Label Slowness Upper Limit - P & S Shear	787.402		US/M
SLEV	Signal Level for Threshold Control	5000		
SLL	STC Slowness Lower Limit	131.234		US/M
SNRLL	Signal-to-Noise Ratio Lower Limit	25		DB
SPFS	Sonic Porosity Formula	RAYMER_HUNT		
SPM_FT	STC Processing Mode - Far Tx	NONE		
SPM_LT	STC Processing Mode - Lower Tx	RECEIVER		
SPM_UT	STC Processing Mode - Upper Tx	RECEIVER		
SPSO	Sonic Porosity Source	DTCO		
SSTE	STC Slowness Step	6.56168		US/M
STC_LCF	STC Low Cutoff Freq.	2000		HZ
STHR	Separation Threshold	32.8084		US/M
SUL	STC Slowness Upper Limit	787.402		US/M
SUTH	Switch Up Threshold	3276		
SWID_FT	STC Slowness Width - Far Tx	65.6168		US/M
SWID_LT	STC Slowness Width - Lower Tx	65.6168		US/M
SWID_UT	STC Slowness Width - Upper Tx	65.6168		US/M
T12_TTMAX	T12 TT Intercept Maximum	492.126		US/M
T12_TTMIN	T12 TT Intercept Minimum	-164.042		US/M
T3_TTMAX	T3 TT Intercept Maximum	656.168		US/M
T3_TTMIN	T3 TT Intercept Minimum	-164.042		US/M
TBF_FT	STC Time for Baseline Fill - Far Tx	0		US
TBF_LT	STC Time for Baseline Fill - Lower Tx	0		US
TBF_UT	STC Time for Baseline Fill - Upper Tx	0		US
TFSI	Filter Sample Interval	0.3048		M
TFWL	Filter Window Length	0.6096		M
TLL_FT	STC Time Lower Limit - Far Tx	280		US
TLL_LT	STC Time Lower Limit - Lower Tx	120		US
TLL_UT	STC Time Lower Limit - Upper Tx	120		US
TP_FRAME	ISLT Test Phase Frame	OFF		
TSTE	STC Time Step	40		US
TTPROC_ALGSEL	Algorithm Select	CLUSTER		
TUL_FT	STC Time Upper Limit - Far Tx	2590		US
TUL_LT	STC Time Upper Limit - Lower Tx	480		US
TUL_UT	STC Time Upper Limit - Upper Tx	480		US



TUL_UT	STC Time Upper Limit - Lower Tx	1340	US
TUL_UT	STC Time Upper Limit - Upper Tx	1340	US
TWID_FT	STC Time Width - Far Tx	1190	US
TWID_LT	STC Time Width - Lower Tx	660	US
TWID_UT	STC Time Width - Upper Tx	660	US
ULTR	Upper to Lower Tx Power Ratio	0	DB/M
VDLG	VDL Manual Gain	5	
VDM	VDL Display Mode	NONE	
WMAG	DFAD Waveform Magnifier	1	
WPS1	Waveform Plot Selection 1	R1	
WPS2	Waveform Plot Selection 2	R5	
ZCGW	Zero Crossing Gate Width	100	US
ZCTT	Option to compute Zero Crossing Transit Time	OFF	

**ILD-T-B: iFlex Litho Density Tool**

BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	40	DEGC
DALPO	Density Alpha Processing Option	NO	
DFT_IFLEX	Drilling Fluid Type	WATER	
DHC	Density Hole Correction	BS	
DHNV_ICEC	ICEC Firmware Version	08.15.16	
DHNV_IPDP	IPDP Firmware Version	06.15.16	
DPPM_IFLEX	iFlex Density Porosity Processing Mode	HIRS	
FD	Fluid Density	1000	K/M3
GCSE	Generalized Caliper Selection	CALI	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	IDFR_RESIST	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
ISSBAR	Barite Mud Switch	BARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
MDEN	Matrix Density	2650	K/M3
PSTP	PSTC Tool Position on CAN Bus	1	
PVN_ICEC	ICEC Computation Version	1.000	
PVN_IPDP	IPDP Computation Version	2.008	
SHT	Surface Hole Temperature	20	DEGC
TBHDS_ILDT	ILD-T Tool Borehole Diameter Source	CALI	

**ITGN-B: iFlex Telemetry Gamma Neutron Tool**

BARI_ITGN	Tractor Available in Tool String	YES	
BARI_ITGN	Barite Mud Presence Flag	YES	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	40	DEGC
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	YES	
CCLD	CCL reset delay	12	IN
CCLT	CCL Detection Level	0.3	V
CSID	Casing Size I.D.	4.13386	IN
DFT_IFLEX	Drilling Fluid Type	WATER	
DHNV_ITGN	ITGN Firmware Version	06.15.15	
DPPM_IFLEX	iFlex Density Porosity Processing Mode	HIRS	
FSAL	Formation Salinity	-50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	CALI	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	IDFR_RESIST	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO	Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	BARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
MCCO	Mud Cake Correction Option	NO	
MWCO	Mud Weight Correction Option	NO	
NICO	Neutron Interference Correction Option	YES	
PSTP	PSTC Tool Position on CAN Bus	1	
PTCO	Pressure Temperature Correction Option	NO	
PVN_ITGN	ITGN Computation Version	1.005	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	20	DEGC
SOCN	Standoff Distance	0	IN
SOCO	Standoff Correction Option	NO	
TBHDS	Tool Borehole Diameter Source	CALI	
TBHTS	Tool Borehole Temperature Source	GTSE	

**HOLEV: Integrated Hole/Cement Volume**

BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	40	DEGC
FCD	Future Casing (Outer) Diameter	0	MM
GCSE	Generalized Caliper Selection	CALI	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	IDFR_RESIST	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HVCS	Integrated Hole Volume Caliper Selection	CALI	
ISSBAR	Barite Mud Switch	BARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
SHT	Surface Hole Temperature	20	DEGC

STI: Stuck Tool Indicator

LBFR	Trigger for MAXIS First Reading Label	TDL	
STKT	STI Stuck Threshold	0.762	M
TDD	Total Depth - Driller	444.80	M
TDL	Total Depth - Logger	445.80	M
<b>System and Miscellaneous</b>			
ALTDPCCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	96.000	MM
BSAL	Borehole Salinity	-50000.00	PPM
CSIZ	Current Casing Size	114.300	MM
CWEI	Casing Weight	40.00	KG/M
DFD	Drilling Fluid Density	1170.00	K/M3
DO	Depth Offset for Playback	-2.2	M
FLEV	Fluid Level	0.00	M
MST	Mud Sample Temperature	10.00	DEGC
PBVSADP	Use alternate depth channel for playback	NO	
PP	Playback Processing	NORMAL	
RMFS	Resistivity of Mud Filtrate Sample	0.3200	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	445.8	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: SAND\_60 Vertical Scale: 1:240 Graphics File Created: 31-Mar-2010 13:38

**OP System Version: 17C0-154**

IDFR-E	SPC-3951-IFLEX_b	ISFL-A	SPC-3951-IFLEX_b
ISLT-B	SPC-3951-IFLEX_b	ILDT-B	SPC-3951-IFLEX_b
ITGN-B	SPC-3951-IFLEX_b		

**Input DLIS Files**

DEFAULT	IDL_SFL_SLT_LDL_CNL_020LUP	FN:19	PRODUCER	30-Mar-2010 02:57	449.6 M	85.5 M
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**Output DLIS Files**

DEFAULT	IDL_SFL_SLT_LDL_CNL_032PUP	FN:31	PRODUCER	31-Mar-2010 13:38		
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**REPEAT ANALYSIS**

MAXIS Field Log

**Input DLIS Files**

DEFAULT	IDL_SFL_SLT_LDL_CNL_018LUP	FN:17	PRODUCER	30-Mar-2010 02:35	448.1 M	321.9 M
DEFAULT	IDL_SFL_SLT_LDL_CNL_032PUP	FN:31	PRODUCER	31-Mar-2010 13:38	448.1 M	83.5 M

**Output DLIS Files**

DEFAULT	IDL_SFL_SLT_LDL_CNL_038PUP	FN:37	PRODUCER	31-Mar-2010 15:41	446.5 M	319.9 M
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**Integrated Hole/Cement Volume Summary**

Hole Volume = 0.83 M3  
 Cement Volume = 0.83 M3 (assuming 0.00 MM casing O.D.)  
 Computed from 445.8 M to 320.0 M using data channel(s) CALI

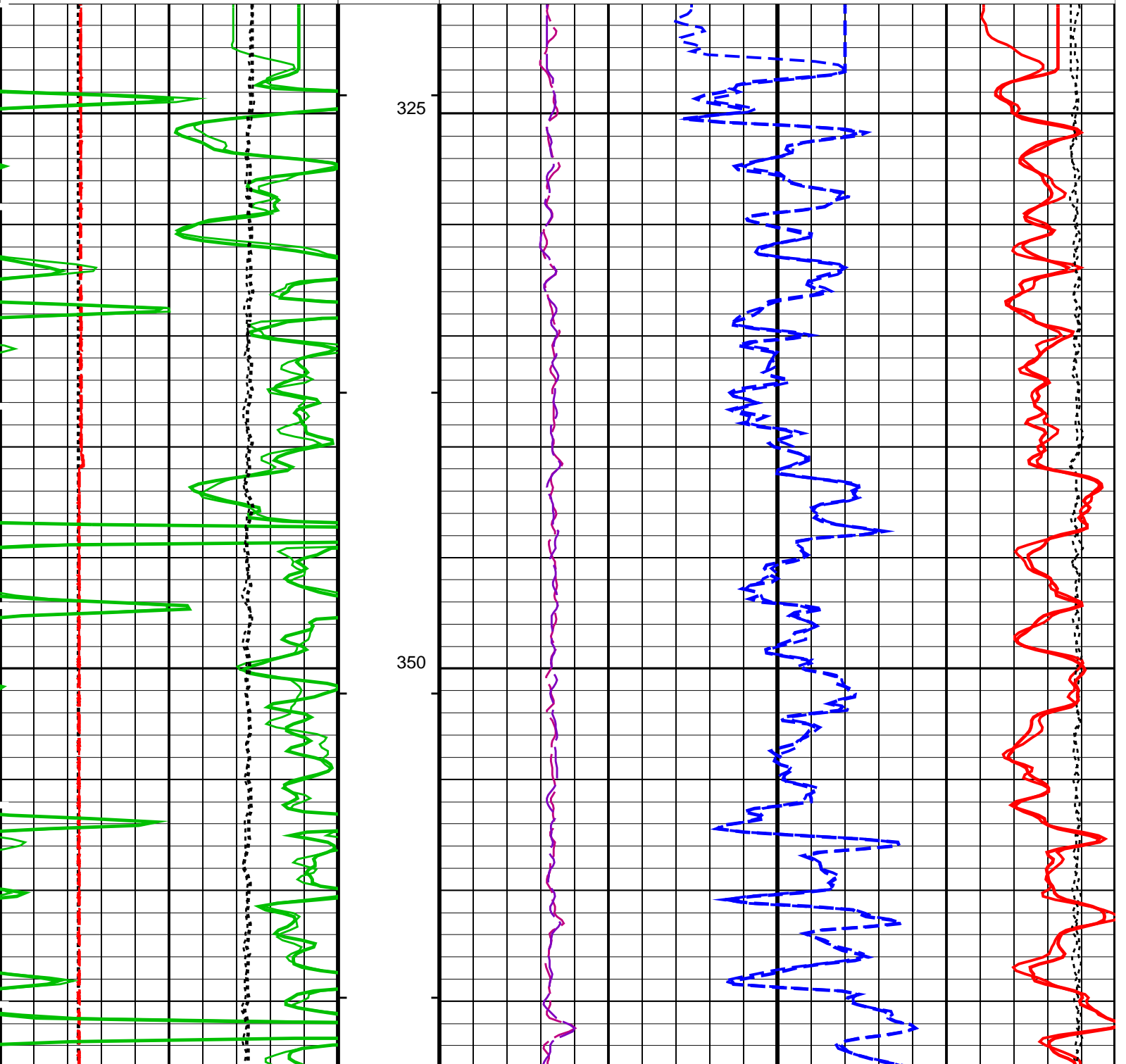
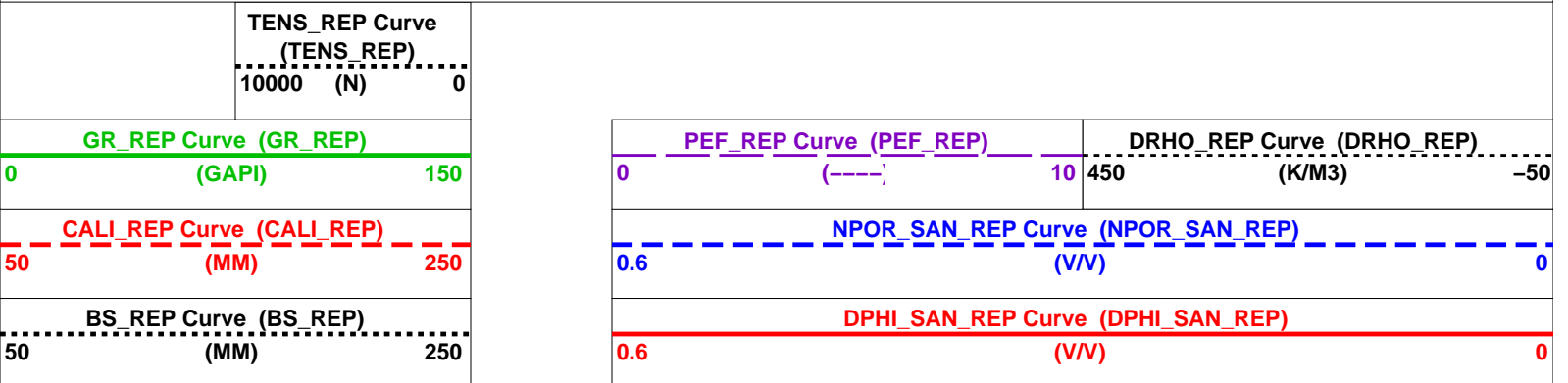
**OP System Version: 17C0-154**

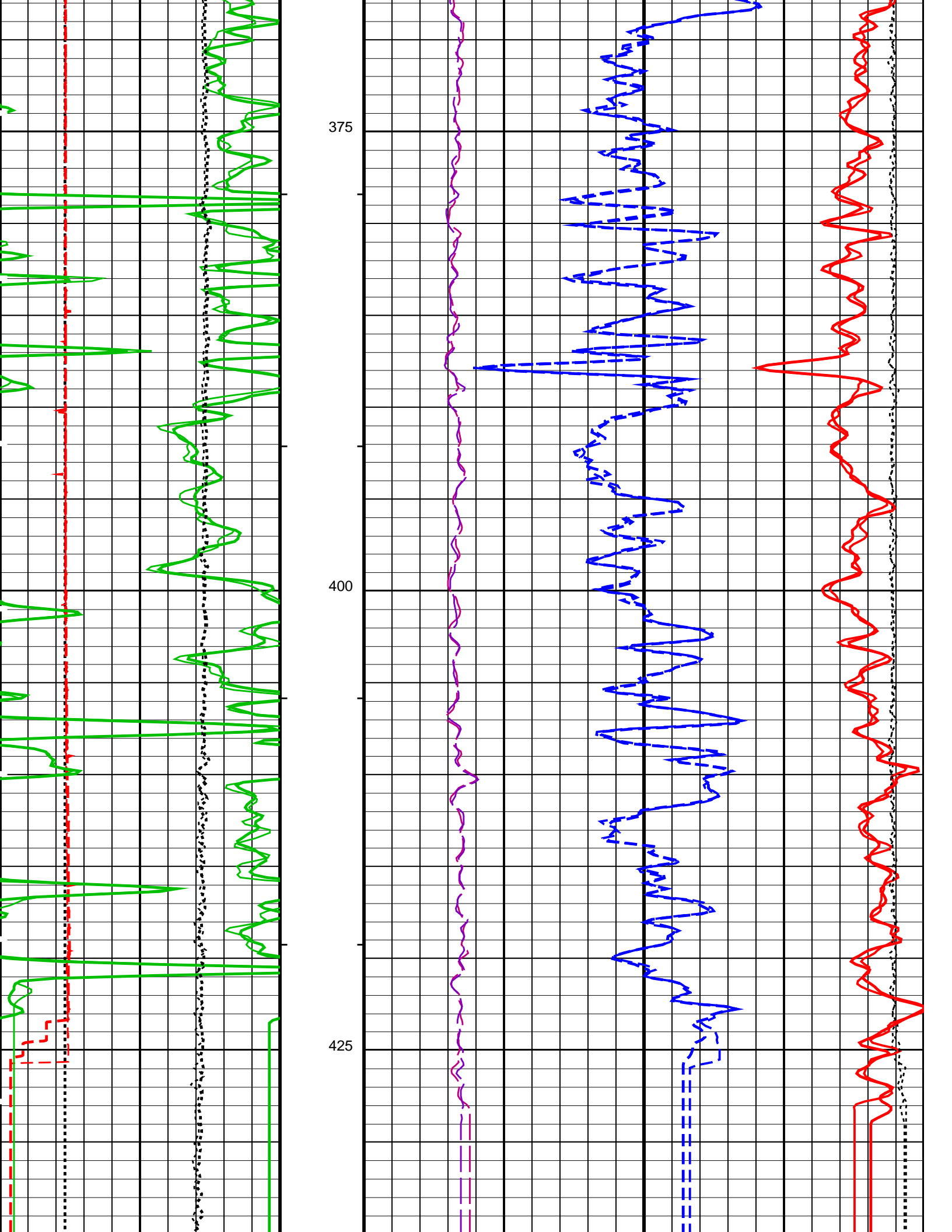
IDFR-E	SPC-3951-IFLEX_b	ISFL-A	SPC-3951-IFLEX_b
ISLT-B	SPC-3951-IFLEX_b	ILDT-B	SPC-3951-IFLEX_b
ITGN-B	SPC-3951-IFLEX_b		

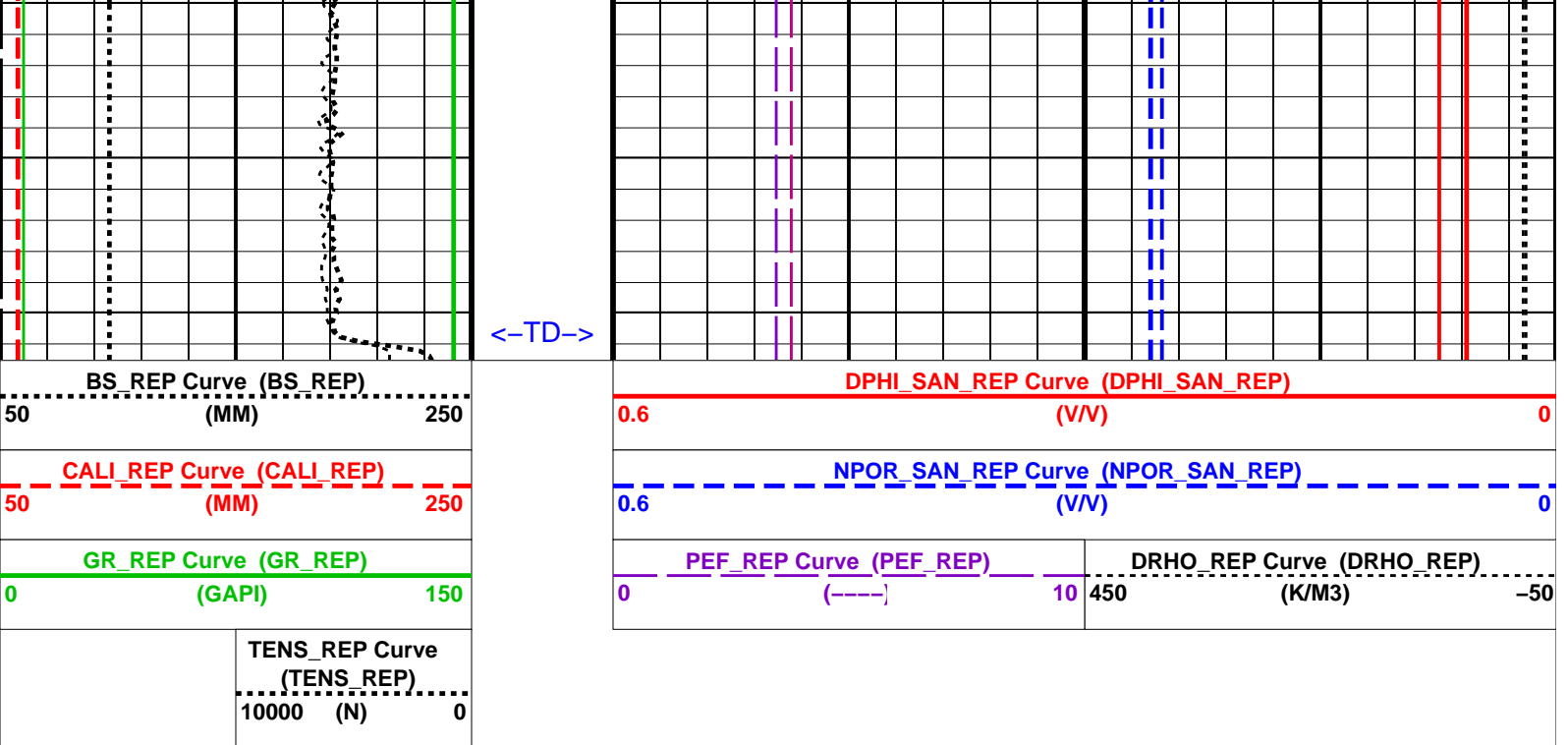
### PIP SUMMARY

- ┌ 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







**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
<b>IDFR-E: iFlex Dual Formation Resistivity Tool</b>		
BHS	Borehole Status	OPEN
DFT_IFLEX	Drilling Fluid Type	WATER
GCSE	Generalized Caliper Selection	CALI
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE
<b>ISLT-B: iFlex Sonic Logging Tool</b>		
BHS	Borehole Status	OPEN
DFT_IFLEX	Drilling Fluid Type	WATER
GCSE	Generalized Caliper Selection	CALI
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE
<b>ILDLT-B: iFlex Litho Density Tool</b>		
BHS	Borehole Status	OPEN
DFT_IFLEX	Drilling Fluid Type	WATER
DHNV_ICEC	ICEC Firmware Version	08.15.16
DHNV_IPDP	IPDP Firmware Version	06.15.16
FD	Fluid Density	1000 K/M3
GCSE	Generalized Caliper Selection	CALI
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE
MDEN	Matrix Density	2650 K/M3
PVN_ICEC	ICEC Computation Version	1.000
PVN_IPDP	IPDP Computation Version	2.008
TBHDS_ILDT	ILDT Tool Borehole Diameter Source	CALI
<b>ITGN-B: iFlex Telemetry Gamma Neutron Tool</b>		
BARI_ITGN	Barite Mud Presence Flag	YES
BHS	Borehole Status	OPEN
BSCO	Borehole Salinity Correction Option	NO
CCCO	Casing & Cement Thickness Correction Option	YES
DFT_IFLEX	Drilling Fluid Type	WATER
FSAL	Formation Salinity	-50000 PPM
FSCO	Formation Salinity Correction Option	NO
GCSE	Generalized Caliper Selection	CALI
HSCO	Hole Size Correction Option	YES
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE
MCCO	Mud Cake Correction Option	NO
MWCO	Mud Weight Correction Option	NO
NICO	Neutron Interference Correction Option	YES
PTCO	Pressure Temperature Correction Option	NO
PVN_ITGN	ITGN Computation Version	1.005
SDAT	Standoff Data Source	SOCN
SOCN	Standoff Distance	0 IN
SOCO	Standoff Correction Option	NO

TBHD	Tool Borehole Diameter Source	CALI	
TBHTS	Tool Borehole Temperature Source	GTSE	
	HOLEV: Integrated Hole/Cement Volume		
BHS	Borehole Status	OPEN	
FCD	Future Casing (Outer) Diameter	0	MM
GCSE	Generalized Caliper Selection	CALI	
HVCS	Integrated Hole Volume Caliper Selection	CALI	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
	System and Miscellaneous		
BS	Bit Size	96.000	MM
BSAL	Borehole Salinity	-50000.00	PPM
CSIZ	Current Casing Size	114.300	MM
CWEI	Casing Weight	40.00	KG/M
DFD	Drilling Fluid Density	1170.00	K/M3
DO	Depth Offset for Playback	-2.0	M
DORL	Depth Offset for Repeat Analysis	0.0	M
MST	Mud Sample Temperature	10.00	DEGC
PP	Playback Processing	NORMAL	
RMFS	Resistivity of Mud Filtrate Sample	0.3200	OHMM
TD	Total Depth	445.8	M

Format: SAND\_60\_REP    Vertical Scale: 1:240    Graphics File Created: 31-Mar-2010 15:41

**OP System Version: 17C0-154**

IDFR-E	SPC-3951-IFLEX_b	ISFL-A	SPC-3951-IFLEX_b
ISLT-B	SPC-3951-IFLEX_b	ILDT-B	SPC-3951-IFLEX_b
ITGN-B	SPC-3951-IFLEX_b		

**Input DLIS Files**

DEFAULT	IDL_SFL_SLT_LDL_CNL_018LUP	FN:17	PRODUCER	30-Mar-2010 02:35	448.1 M	321.9 M
DEFAULT	IDL_SFL_SLT_LDL_CNL_032PUP	FN:31	PRODUCER	31-Mar-2010 13:38	448.1 M	83.5 M

**Output DLIS Files**

DEFAULT	IDL_SFL_SLT_LDL_CNL_038PUP	FN:37	PRODUCER	31-Mar-2010 15:41		
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**High Resolution Pass**  
1:120

MAXIS Field Log

**Input DLIS Files**

DEFAULT	IDL_SFL_SLT_LDL_CNL_020LUP	FN:19	PRODUCER	30-Mar-2010 02:57	449.6 M	85.5 M
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**Output DLIS Files**

DEFAULT	IDL_SFL_SLT_LDL_CNL_032PUP	FN:31	PRODUCER	31-Mar-2010 13:38	448.1 M	83.5 M
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**Integrated Hole/Cement Volume Summary**

Hole Volume = 2.50 M3  
 Cement Volume = 2.50 M3 (assuming 0.00 MM casing O.D.)  
 Computed from 445.8 M to 101.0 M using data channel(s) CALI

**OP System Version: 17C0-154**

IDFR-E	SPC-3951-IFLEX_b	ISFL-A	SPC-3951-IFLEX_b
ISLT-B	SPC-3951-IFLEX_b	ILDT-B	SPC-3951-IFLEX_b
ITGN-B	SPC-3951-IFLEX_b		

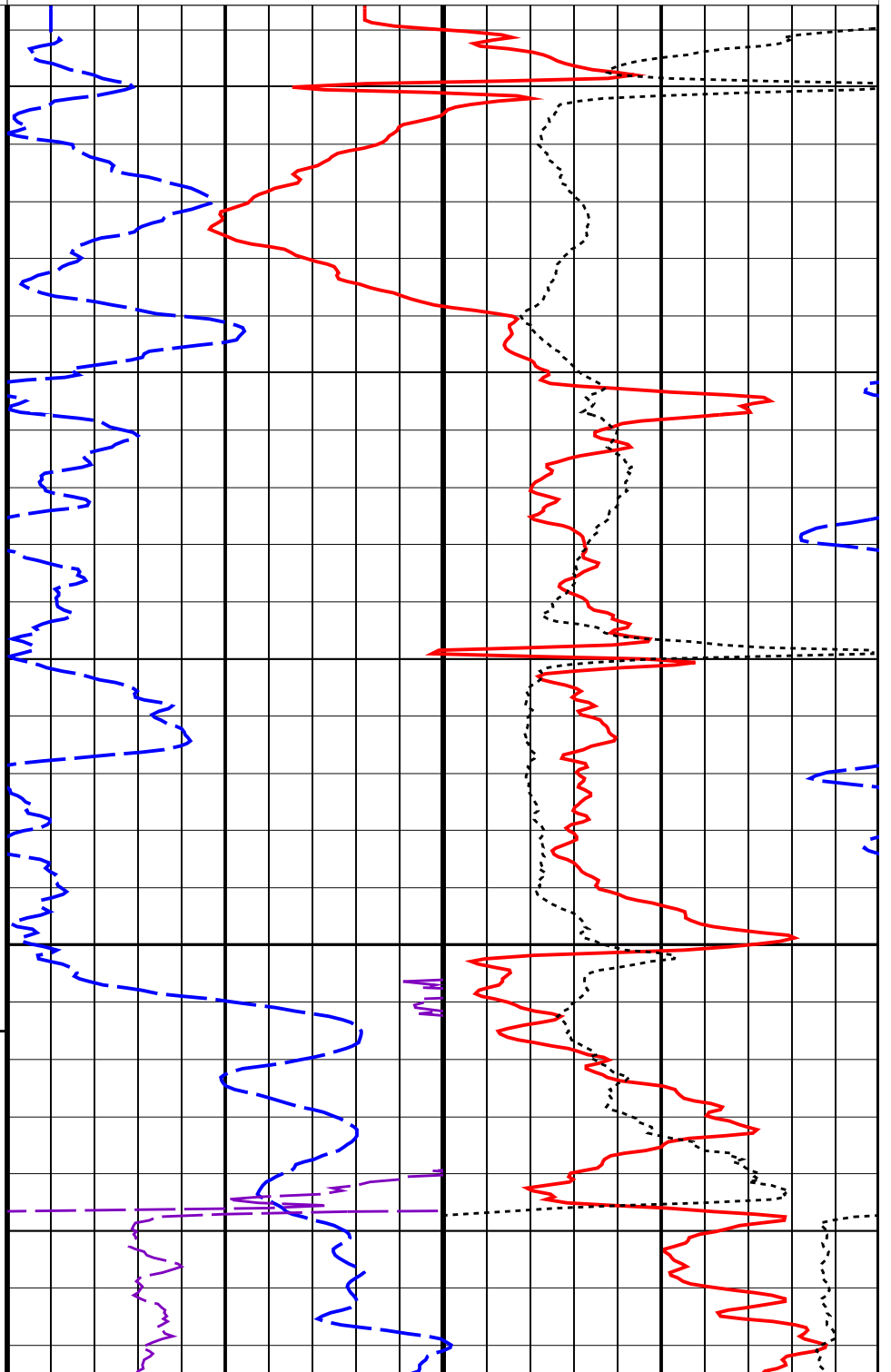
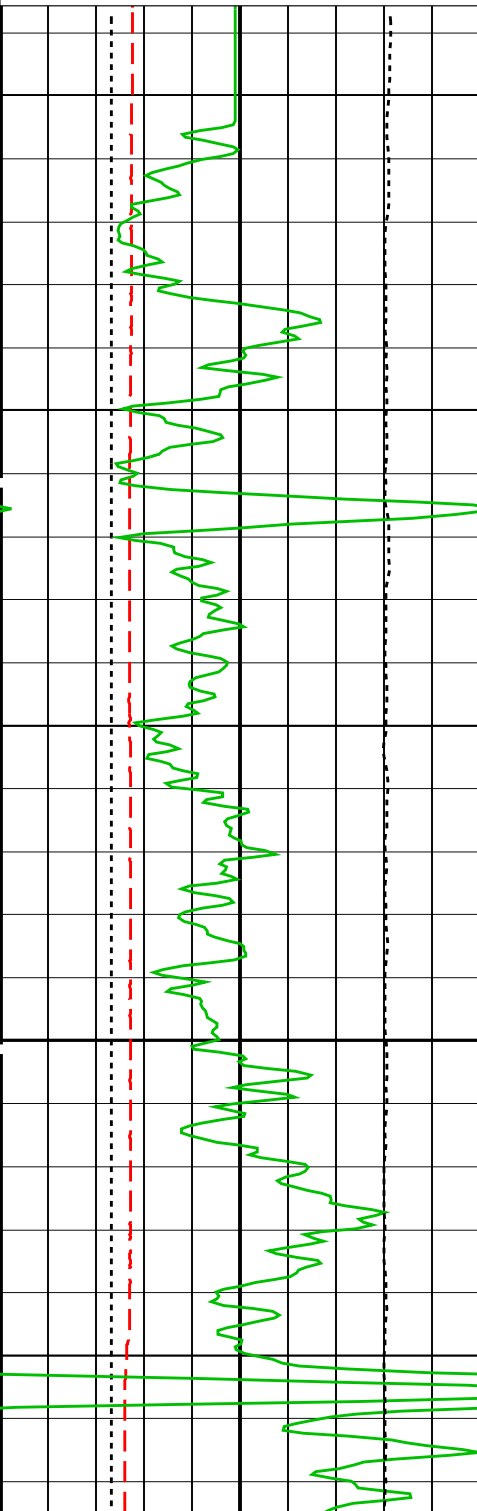
PIP SUMMARY

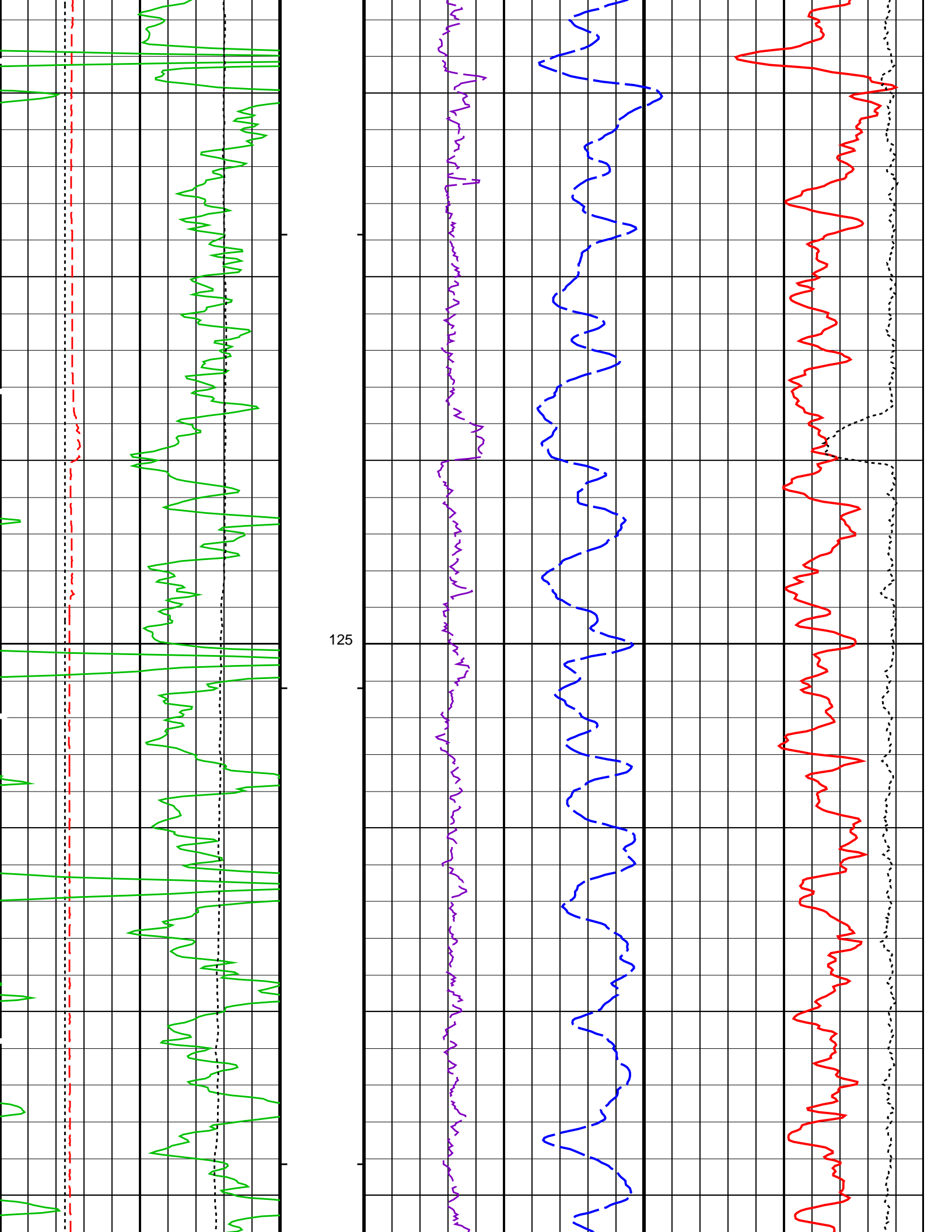
- ┆ Integrated Hole Volume Minor Pip Every 0.1 M3
- ┆ Integrated Hole Volume Major Pip Every 1 M3
- ┆ Integrated Cement Volume Minor Pip Every 0.1 M3
- ┆ Integrated Cement Volume Major Pip Every 1 M3

Time Mark Every 60 S

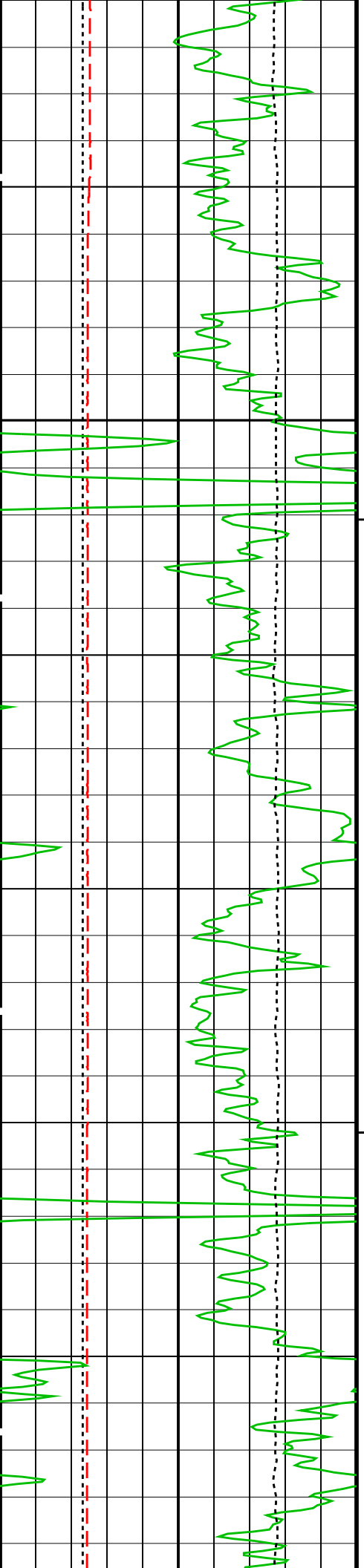
Tension (TENS)	
10000 (N)	0
HiRes GammaRay (HGR)	
0 (GAPI)	150
Caliper (CALI)	
50 (MM)	250
Bit Size (BS)	
50 (MM)	250

High Resolution Photoelectric Factor (HPEF)		High Resolution Bulk Density Correction (HDRH)	
0 (----)	10	450	-50 (K/M3)
HNPO for SAND (HTNP_SAN)			
0.6 (V/V)			0
HDPH for SAND (HDPH_SAN)			
0.6 (V/V)			0

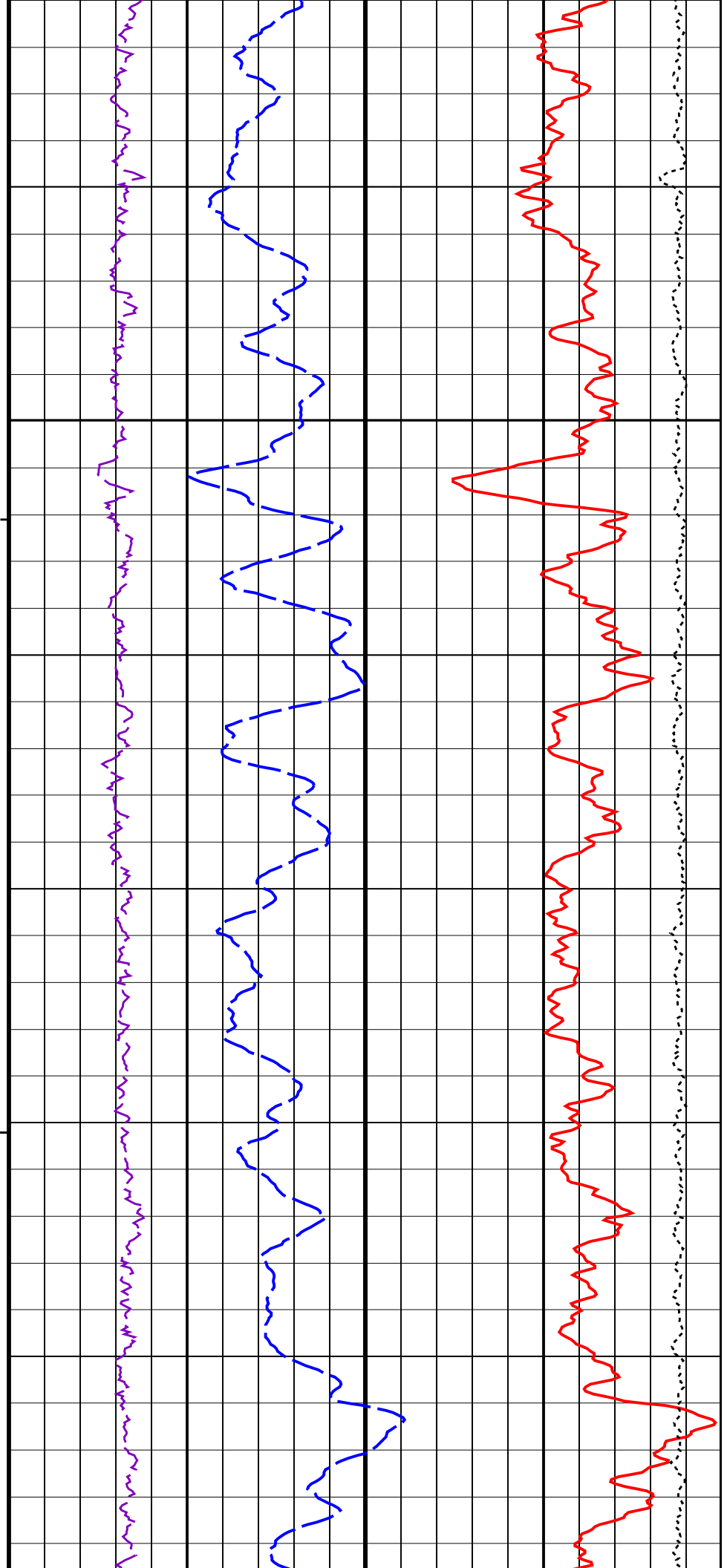


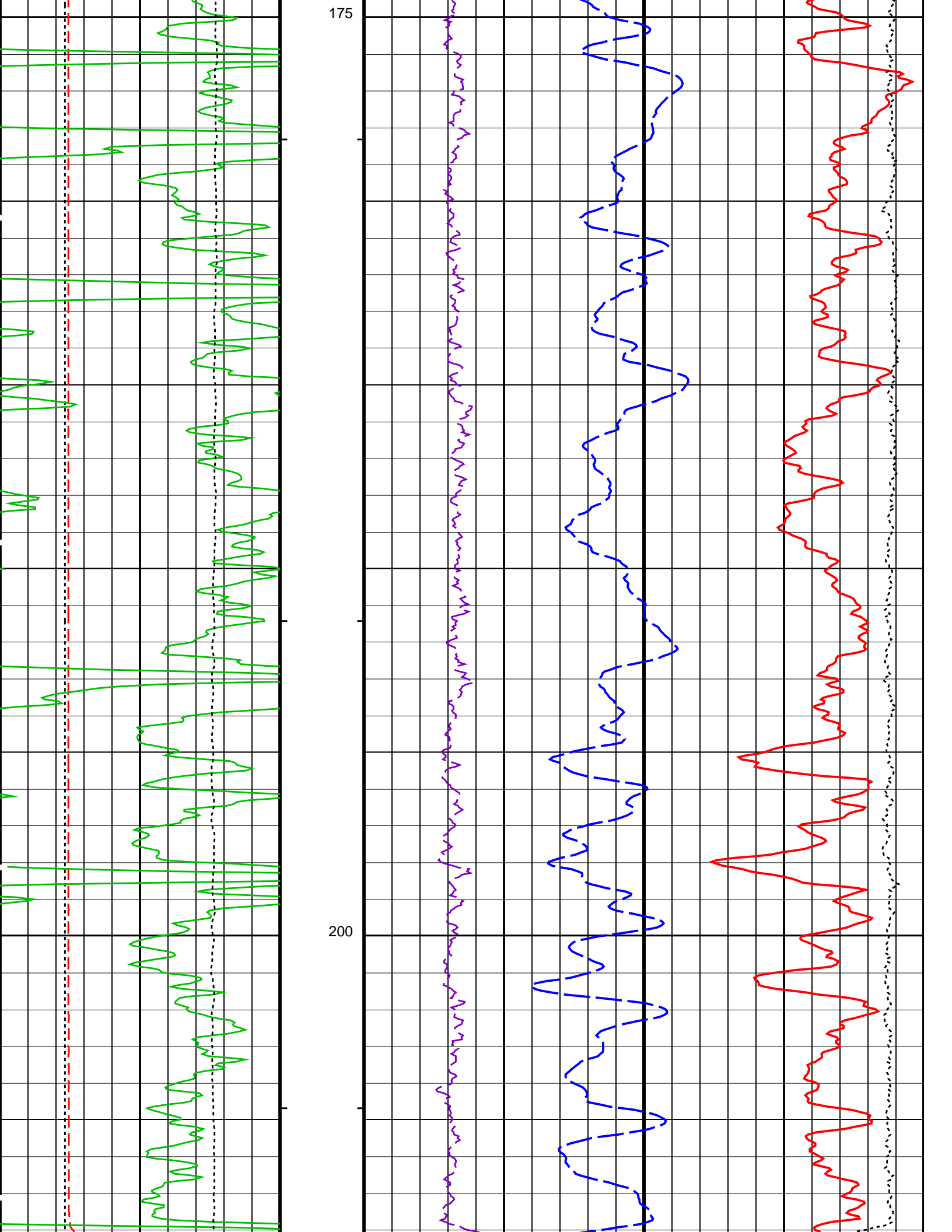


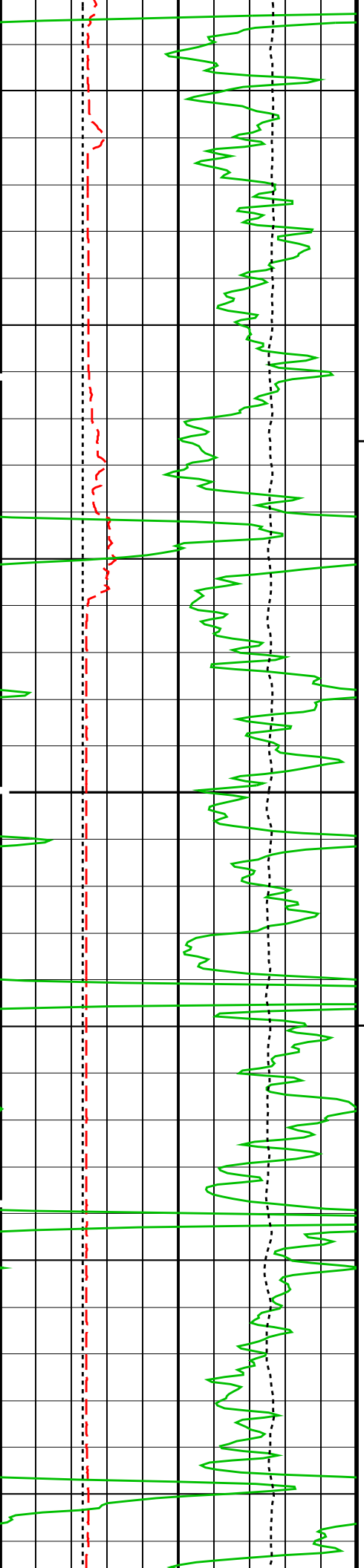




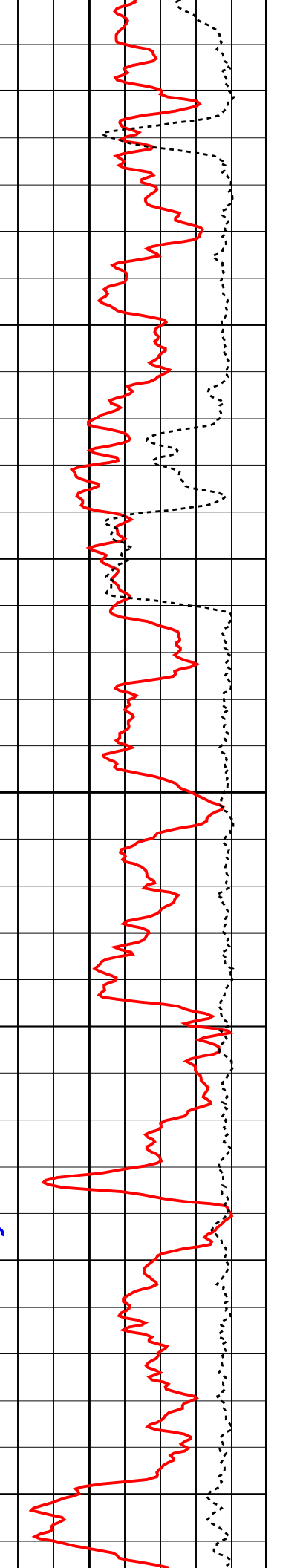
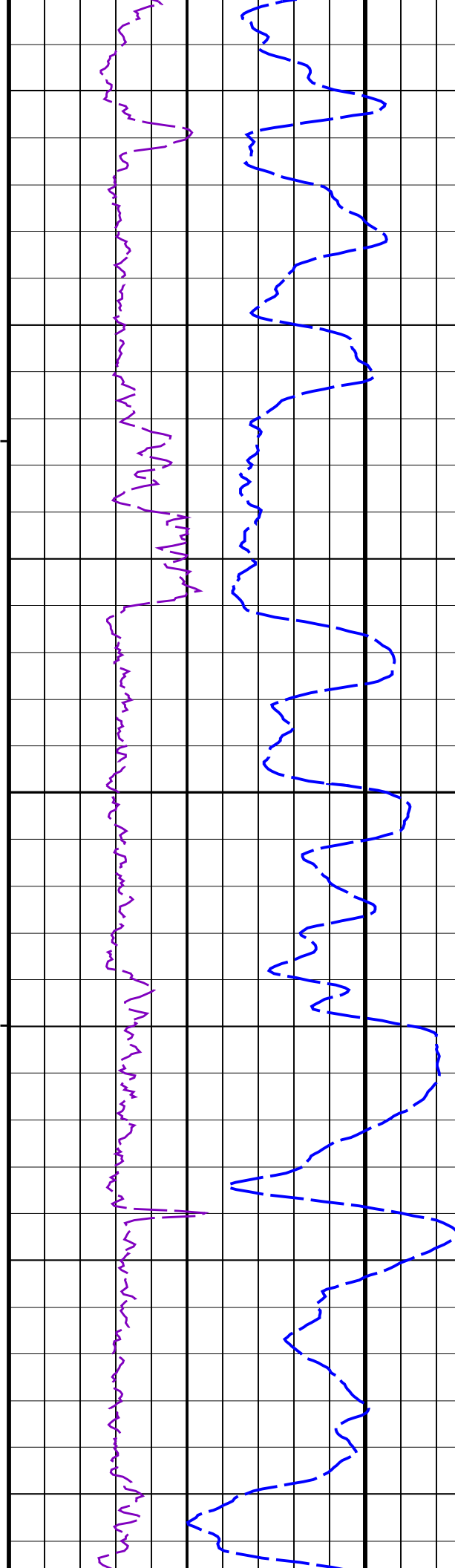
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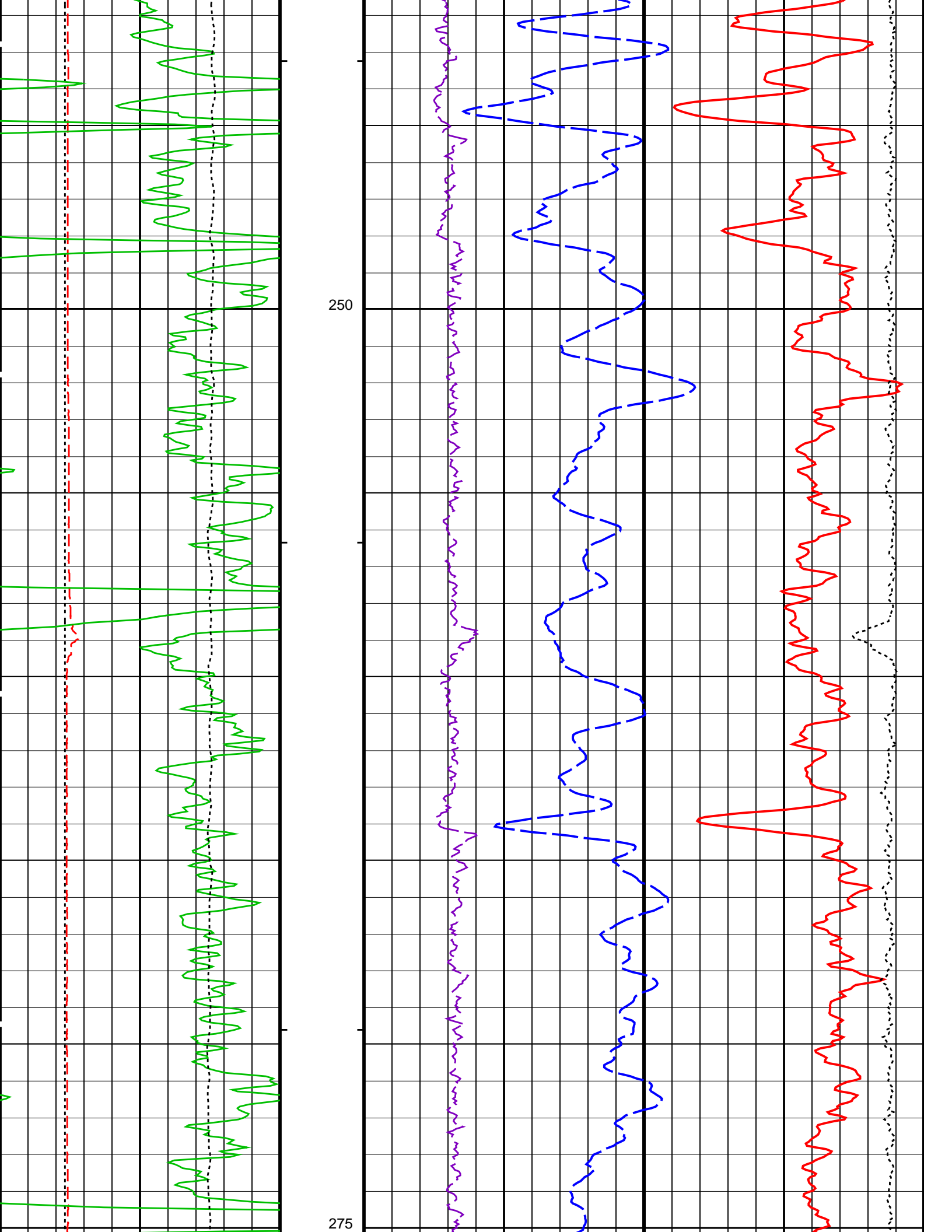


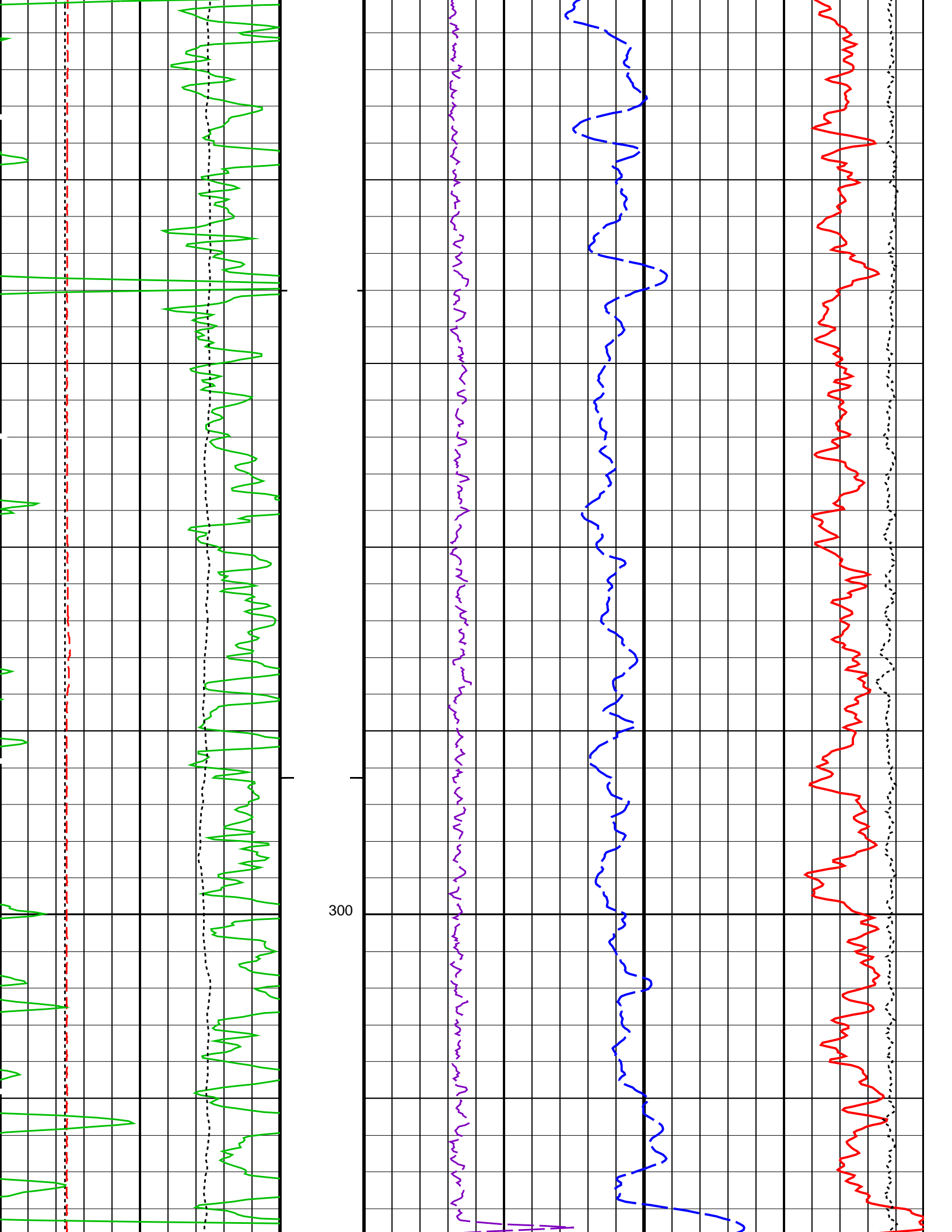




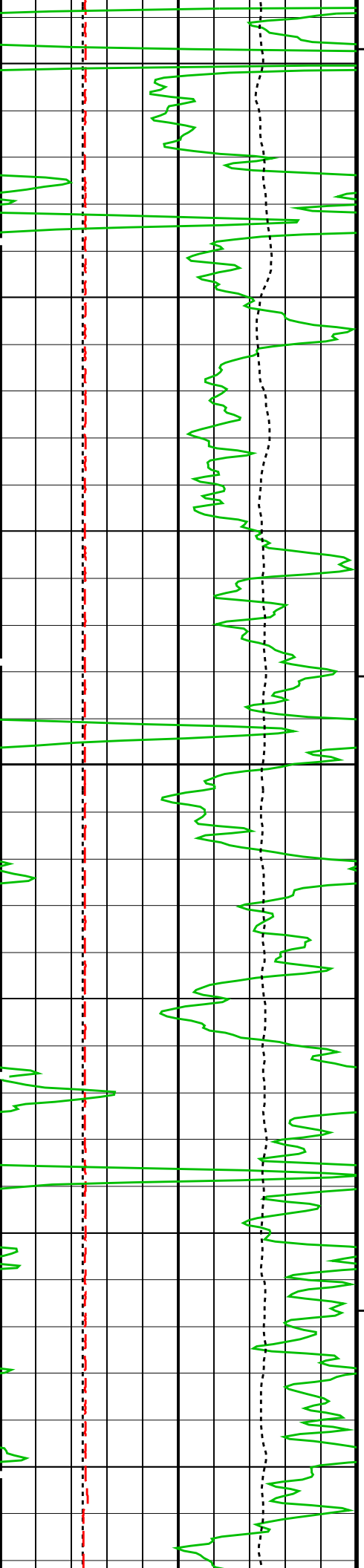
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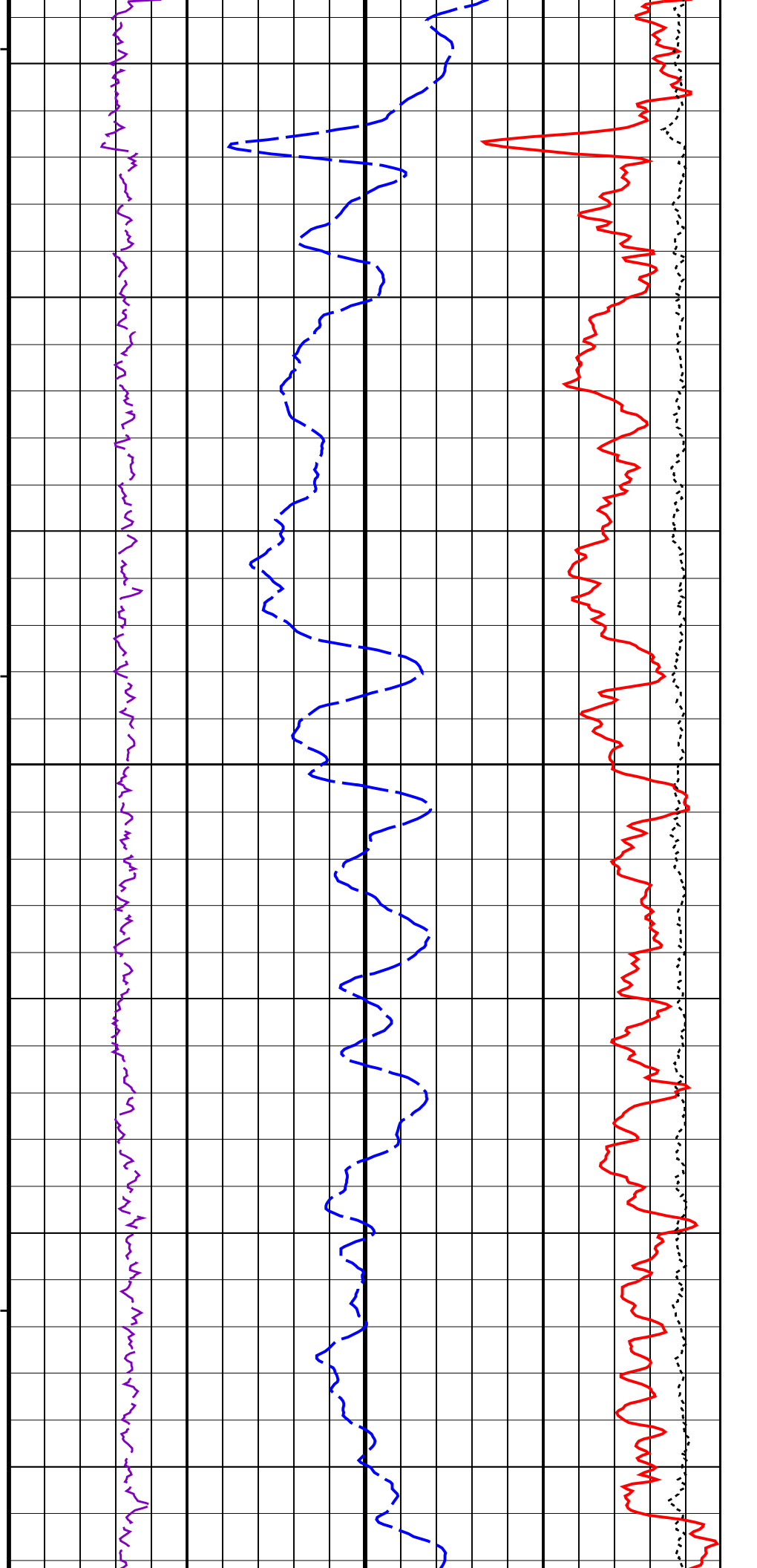


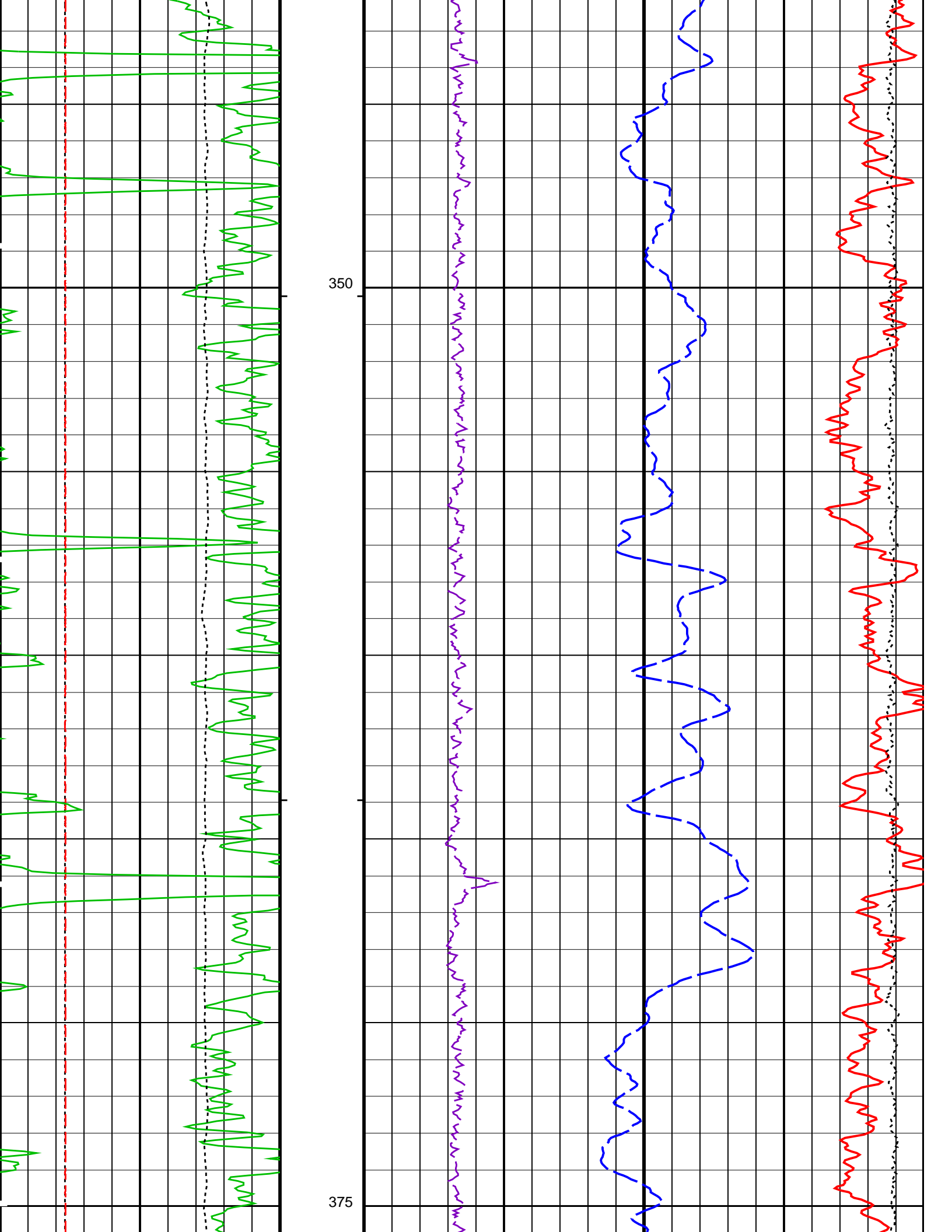


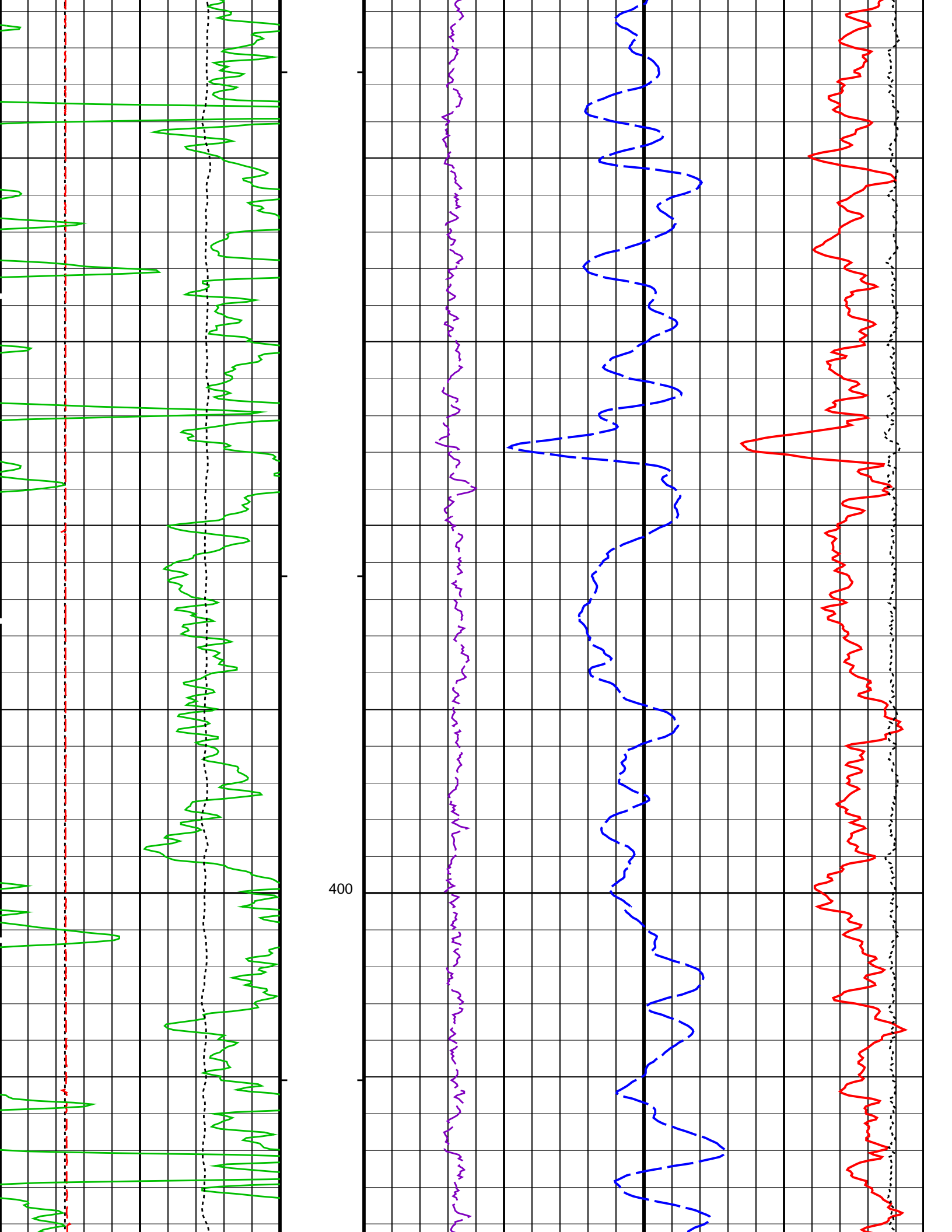
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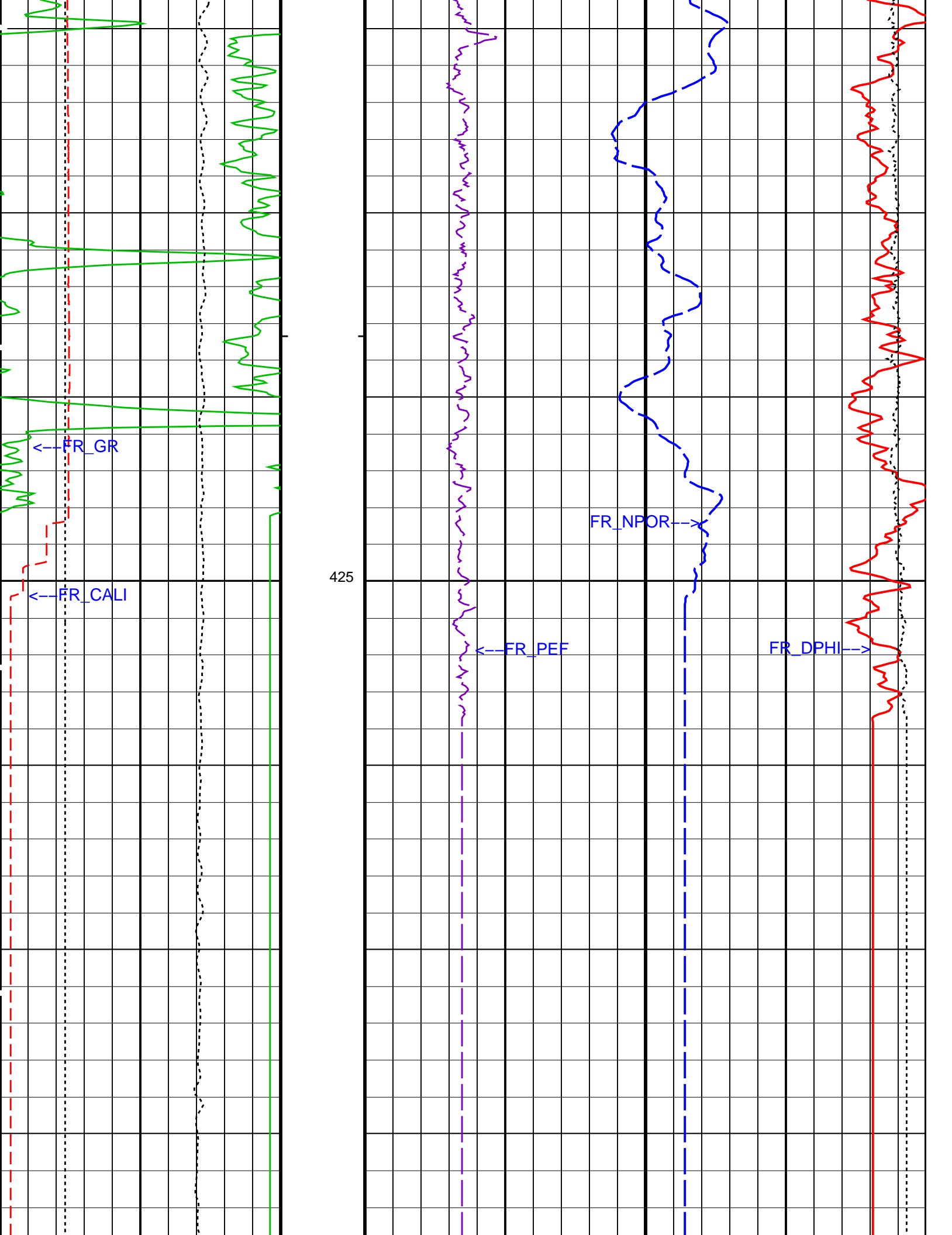
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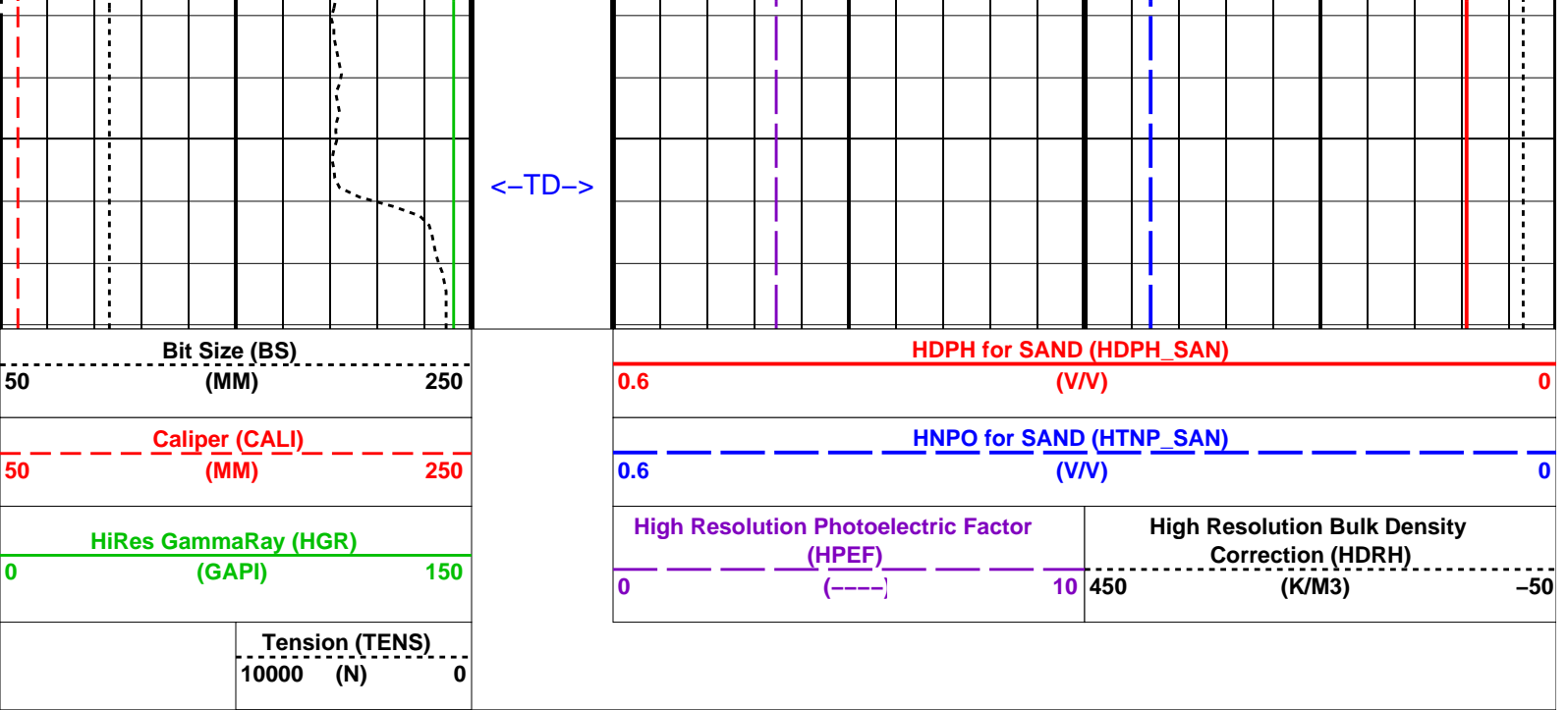












**PIP SUMMARY**

- ┆ 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
<b>IDFR-E: iFlex Dual Formation Resistivity Tool</b>		
BHS	Borehole Status	OPEN
DFT_IFLEX	Drilling Fluid Type	WATER
GCSE	Generalized Caliper Selection	CALI
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE
<b>ISLT-B: iFlex Sonic Logging Tool</b>		
BHS	Borehole Status	OPEN
DFT_IFLEX	Drilling Fluid Type	WATER
GCSE	Generalized Caliper Selection	CALI
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE
<b>ILDLT-B: iFlex Litho Density Tool</b>		
BHS	Borehole Status	OPEN
DFT_IFLEX	Drilling Fluid Type	WATER
DHNV_ICEC	ICEC Firmware Version	08.15.16
DHNV_IPDP	IPDP Firmware Version	06.15.16
FD	Fluid Density	1000 K/M3
GCSE	Generalized Caliper Selection	CALI
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE
MDEN	Matrix Density	2650 K/M3
PVN_ICEC	ICEC Computation Version	1.000
PVN_IPDP	IPDP Computation Version	2.008
TBHDS_ILDT	ILDLT Tool Borehole Diameter Source	CALI
<b>ITGN-B: iFlex Telemetry Gamma Neutron Tool</b>		
BARI_ITGN	Barite Mud Presence Flag	YES
BHS	Borehole Status	OPEN
BSCO	Borehole Salinity Correction Option	NO
CCCO	Casing & Cement Thickness Correction Option	YES
DFT_IFLEX	Drilling Fluid Type	WATER
FSAL	Formation Salinity	-50000 PPM
FSCO	Formation Salinity Correction Option	NO
GCSE	Generalized Caliper Selection	CALI
HSCO	Hole Size Correction Option	YES
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE
MCCO	Mud Cake Correction Option	NO
MWCO	Mud Weight Correction Option	NO
NICO	Neutron Interference Correction Option	YES
PTCO	Pressure Temperature Correction Option	NO
PVN_ITGN	ITGN Computation Version	1.005
SDAT	Standoff Data Source	SOCN
SOCN	Standoff Distance	0 IN
SOCO	Standoff Correction Option	NO
TBHDS	Tool Borehole Diameter Source	CALI

IBHTS	HOLEV: Integrated Hole/Cement Volume	Tool Borehole Temperature Source	GTSE	
BHS	Borehole Status	Borehole Status	OPEN	
FCD	Future Casing (Outer) Diameter	Future Casing (Outer) Diameter	0	MM
GCSE	Generalized Caliper Selection	Generalized Caliper Selection	CALI	
HVCS	Integrated Hole Volume Caliper Selection	Integrated Hole Volume Caliper Selection	CALI	
MATR	Rock Matrix for Neutron Porosity Corrections	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
<b>STI: Stuck Tool Indicator</b>				
LBFR	Trigger for MAXIS First Reading Label	Trigger for MAXIS First Reading Label	TDL	
STKT	STI Stuck Threshold	STI Stuck Threshold	0.762	M
TDD	Total Depth – Driller	Total Depth – Driller	444.80	M
TDL	Total Depth – Logger	Total Depth – Logger	445.80	M
<b>System and Miscellaneous</b>				
BS	Bit Size	Bit Size	96.000	MM
BSAL	Borehole Salinity	Borehole Salinity	-50000.00	PPM
CSIZ	Current Casing Size	Current Casing Size	114.300	MM
CWEI	Casing Weight	Casing Weight	40.00	KG/M
DFD	Drilling Fluid Density	Drilling Fluid Density	1170.00	K/M3
DO	Depth Offset for Playback	Depth Offset for Playback	-2.2	M
MST	Mud Sample Temperature	Mud Sample Temperature	10.00	DEGC
PP	Playback Processing	Playback Processing	NORMAL	
RMFS	Resistivity of Mud Filtrate Sample	Resistivity of Mud Filtrate Sample	0.3200	OHMM
TD	Total Depth	Total Depth	445.8	M

Format: HIRS\_SAND\_60 Vertical Scale: 1:120 Graphics File Created: 31-Mar-2010 13:38

### OP System Version: 17C0-154

IDFR-E	SPC-3951-IFLEX_b	ISFL-A	SPC-3951-IFLEX_b
ISLT-B	SPC-3951-IFLEX_b	ILDT-B	SPC-3951-IFLEX_b
ITGN-B	SPC-3951-IFLEX_b		

### Input DLIS Files

DEFAULT	IDL_SFL_SLT_LDL_CNL_020LUP	FN:19	PRODUCER	30-Mar-2010 02:57	449.6 M	85.5 M
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### Output DLIS Files

DEFAULT	IDL_SFL_SLT_LDL_CNL_032PUP	FN:31	PRODUCER	31-Mar-2010 13:38		
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## Calibrations

### MAXIS Field Log

#### Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
<b>iFlex Dual Formation Resistivity Tool Wellsite Calibration – Test Loop Gain Correction</b>							
Master: 6-Mar-2010 4:30							
Test Loop Gain Correctio – 0	0	0.9956	N/A	N/A	N/A	N/A	V
Test Loop Gain Correctio – 1	0	1.014	N/A	N/A	N/A	N/A	V
Test Loop Gain Correctio – 2	0	1.011	N/A	N/A	N/A	N/A	V
Test Loop Gain Correctio – 0	0	-1.461	N/A	N/A	N/A	N/A	V
Test Loop Gain Correctio – 1	0	-0.9576	N/A	N/A	N/A	N/A	V
Test Loop Gain Correctio – 2	0	-2.034	N/A	N/A	N/A	N/A	V
<b>iFlex Dual Formation Resistivity Tool Wellsite Calibration – Sonde Error Correction</b>							
Master: 6-Mar-2010 4:50							
R Sonde Error Correction – 0	0	208.2	N/A	N/A	N/A	N/A	MS/M
R Sonde Error Correction – 1	0	40.05	N/A	N/A	N/A	N/A	MS/M
R Sonde Error Correction – 2	0	21.61	N/A	N/A	N/A	N/A	MS/M
X Sonde Error Correction – 0	0	5.258	N/A	N/A	N/A	N/A	MS/M
X Sonde Error Correction – 1	0	50.23	N/A	N/A	N/A	N/A	MS/M

**iFlex Dual Formation Resistivity Tool Wellsite Calibration – Mud Gain Correction**

Master: 6–Mar–2010 5:34

Mud Gain – Coarse	1.000	1.118	N/A	N/A	N/A	N/A	N/A
Mud Gain – Fine	1.000	0.9545	N/A	N/A	N/A	N/A	N/A

**iFlex Litho Density Tool Wellsite Calibration – Detector Calibration**

Master: 24–Mar–2010 14:44

SS Window 1 Count Rate Bkg	1140	1236	N/A	N/A	N/A	N/A	CPS
SS Window 2 Count Rate Bkg	1470	1563	N/A	N/A	N/A	N/A	CPS
SS Window 3 Count Rate Bkg	760.0	806.6	N/A	N/A	N/A	N/A	CPS
SS Window 4 Count Rate Bkg	770.0	829.8	N/A	N/A	N/A	N/A	CPS
LS Window 1 Count Rate Bkg	79.00	80.18	N/A	N/A	N/A	N/A	CPS
LS Window 2 Count Rate Bkg	94.00	96.29	N/A	N/A	N/A	N/A	CPS
LS Window 3 Count Rate Bkg	280.0	274.5	N/A	N/A	N/A	N/A	CPS
LS Window 4 Count Rate Bkg	146.0	145.6	N/A	N/A	N/A	N/A	CPS

**iFlex Litho Density Tool Wellsite Calibration – Detector Calibration**

Master: 24–Mar–2010 15:07

SS Window 1 Count Rate Water L	27000	24820	N/A	N/A	N/A	N/A	CPS
SS Window 2 Count Rate Water L	23000	20000	N/A	N/A	N/A	N/A	CPS
SS Window 3 Count Rate Water L	13400	11620	N/A	N/A	N/A	N/A	CPS
SS Window 4 Count Rate Water L	11800	10290	N/A	N/A	N/A	N/A	CPS
LS Window 1 Count Rate Water L	1210	1128	N/A	N/A	N/A	N/A	CPS
LS Window 2 Count Rate Water L	1600	1396	N/A	N/A	N/A	N/A	CPS
LS Window 3 Count Rate Water L	2100	1843	N/A	N/A	N/A	N/A	CPS
LS Window 4 Count Rate Water L	530.0	476.5	N/A	N/A	N/A	N/A	CPS

**iFlex Litho Density Tool Wellsite Calibration – Detector Calibration**

Master: 24–Mar–2010 15:16

SS Window 1 Count Rate Water H	23000	17170	N/A	N/A	N/A	N/A	CPS
SS Window 2 Count Rate Water H	22000	17390	N/A	N/A	N/A	N/A	CPS
SS Window 3 Count Rate Water H	12800	10220	N/A	N/A	N/A	N/A	CPS
SS Window 4 Count Rate Water H	11300	9089	N/A	N/A	N/A	N/A	CPS
LS Window 1 Count Rate Water H	950.0	740.9	N/A	N/A	N/A	N/A	CPS
LS Window 2 Count Rate Water H	1380	1127	N/A	N/A	N/A	N/A	CPS
LS Window 3 Count Rate Water H	2000	1634	N/A	N/A	N/A	N/A	CPS
LS Window 4 Count Rate Water H	500.0	435.2	N/A	N/A	N/A	N/A	CPS

**iFlex Litho Density Tool Wellsite Calibration – Detector Calibration**

Master: 24–Mar–2010 15:25

SS Window 1 Count Rate Magnesi	28000	25650	N/A	N/A	N/A	N/A	CPS
SS Window 2 Count Rate Magnesi	24000	21330	N/A	N/A	N/A	N/A	CPS
SS Window 3 Count Rate Magnesi	13500	11690	N/A	N/A	N/A	N/A	CPS
SS Window 4 Count Rate Magnesi	11000	9573	N/A	N/A	N/A	N/A	CPS
LS Window 1 Count Rate Magnesi	5400	4837	N/A	N/A	N/A	N/A	CPS
LS Window 2 Count Rate Magnesi	6900	6031	N/A	N/A	N/A	N/A	CPS
LS Window 3 Count Rate Magnesi	8500	7422	N/A	N/A	N/A	N/A	CPS
LS Window 4 Count Rate Magnesi	1500	1321	N/A	N/A	N/A	N/A	CPS

**iFlex Telemetry Gamma Neutron Tool Wellsite Calibration – Background**

Master: 5–Mar–2010 22:15 Before: 29–Mar–2010 23:44

Near Thermal Count Rate Master	27.00	26.42	26.00	N/A	N/A	N/A	CPS
Far Thermal Count Rate Master	10.00	10.11	10.96	N/A	N/A	N/A	CPS
Epithermal Count Rate Master B	27.00	27.07	25.65	N/A	N/A	N/A	CPS

**iFlex Telemetry Gamma Neutron Tool Wellsite Calibration – Plateau Setting**

Master: 5–Mar–2010 21:47

Neutron Set Point Plat Set	2205	2217	N/A	N/A	N/A	N/A	V
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**iFlex Telemetry Gamma Neutron Tool Wellsite Calibration – Tank Measurement**

Master: 5–Mar–2010 22:04

Tank Temperature Tank Meas	20.00	16.50	N/A	N/A	N/A	N/A	DEGC
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**iFlex Telemetry Gamma Neutron Tool Wellsite Calibration – Tank Measurement**

Master: 5–Mar–2010 22:06

Near Thermal Count Rate Tank M	14600	13730	N/A	N/A	N/A	N/A	CPS
Far Thermal Count Rate Tank Me	5410	5025	N/A	N/A	N/A	N/A	CPS
Epithermal Count Rate Tank Mea	1570	1472	N/A	N/A	N/A	N/A	CPS

**iFlex Dual Formation Resistivity Tool / Equipment Identification**

Primary Equipment:

iFlex Resistivity Mud Sensor	IRMS – A	12
iFlex Resistivity Pressure Sub	PSUB – A	12
iFlex Dual Formation Resistivity Sonde	IDRS – E	12

iFlex Dual Formation Resistivity Tool Wellsite Calibration								
Test Loop Gain Correction								
Idx	Value	Test Loop Gain Correction Magnitude V			Value	Test Loop Gain Correction Phase V		
0	0.9956				-1.461			
		0.9000 (Minimum)	1.000 (Nominal)	1.100 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
1	1.014				-0.9576			
		0.9000 (Minimum)	1.000 (Nominal)	1.100 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
2	1.011				-2.034			
		0.9000 (Minimum)	1.000 (Nominal)	1.100 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)

Master: 6-Mar-2010 4:30

iFlex Dual Formation Resistivity Tool Wellsite Calibration								
Sonde Error Correction								
Idx	Value	R Sonde Error Correction MS/M			Value	X Sonde Error Correction MS/M		
0	208.2				5.258			
		0 (Minimum)	150.0 (Nominal)	300.0 (Maximum)		-900.0 (Minimum)	0 (Nominal)	900.0 (Maximum)
1	40.05				50.23			
		0 (Minimum)	45.00 (Nominal)	90.00 (Maximum)		-300.0 (Minimum)	0 (Nominal)	300.0 (Maximum)
2	21.61				-98.73			
		0 (Minimum)	15.00 (Nominal)	30.00 (Maximum)		-150.0 (Minimum)	0 (Nominal)	150.0 (Maximum)

Master: 6-Mar-2010 4:50

iFlex Dual Formation Resistivity Tool Wellsite Calibration								
Mud Gain Correction								
Phase	Mud Gain - Coarse			Value	Phase	Mud Gain - Fine		Value
Master				1.118	Master			0.9545
	0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)			0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)

Master: 6-Mar-2010 5:34

iFlex Dual Formation Resistivity Tool Master Calibration								
Test Loop Gain Correction								
Idx	Value	Test Loop Gain Correction Magnitude V			Value	Test Loop Gain Correction Phase V		
0	0.9956				-1.461			
		0.9000 (Minimum)	1.000 (Nominal)	1.100 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
1	1.014				-0.9576			
		0.9000 (Minimum)	1.000 (Nominal)	1.100 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)
2	1.011				-2.034			
		0.9000 (Minimum)	1.000 (Nominal)	1.100 (Maximum)		-3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)

Master: 6-Mar-2010 4:30

iFlex Dual Formation Resistivity Tool Master Calibration								
Sonde Error Correction								
Idx	Value	R Sonde Error Correction MS/M			Value	X Sonde Error Correction MS/M		
0	208.2				5.258			
		0 (Minimum)	150.0 (Nominal)	300.0 (Maximum)		-900.0 (Minimum)	0 (Nominal)	900.0 (Maximum)
1	40.05				50.23			
		0 (Minimum)	45.00 (Nominal)	90.00 (Maximum)		-300.0 (Minimum)	0 (Nominal)	300.0 (Maximum)
2	21.61				-98.73			
		0 (Minimum)	15.00 (Nominal)	30.00 (Maximum)		-150.0 (Minimum)	0 (Nominal)	150.0 (Maximum)

Master: 6-Mar-2010 4:50

iFlex Dual Formation Resistivity Tool Master Calibration						
Mud Gain Correction						
Phase	Mud Gain – Coarse		Value	Phase	Mud Gain – Fine	
Master			1.118	Master		
	0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)		0.8000 (Minimum)	1.000 (Nominal)
Master: 6-Mar-2010 5:34						

iFlex Litho Density Tool / Equipment Identification		
Primary Equipment:		
Mechanical Control Sonde	IMCS – A	25
Gamma Gamma Logging Source	GGLS – C	2434
Powered Density Pad	IPDP – A	25
Caliper Electronics Cartridge	ICEC – B	25
Auxiliary Equipment:		

iFlex Litho Density Tool Wellsite Calibration														
Detector Calibration														
Phase	SS Window 1 Count Rate Bkg CPS			Value	Phase	SS Window 2 Count Rate Bkg CPS			Value	Phase	SS Window 3 Count Rate Bkg CPS			Value
Master				1236	Master				1563	Master				806.6
	730.0 (Minimum)	1140 (Nominal)	1370 (Maximum)			990.0 (Minimum)	1470 (Nominal)	1720 (Maximum)			490.0 (Minimum)	760.0 (Nominal)	900.0 (Maximum)	
Phase	SS Window 4 Count Rate Bkg CPS			Value	Phase	LS Window 1 Count Rate Bkg CPS			Value	Phase	LS Window 2 Count Rate Bkg CPS			Value
Master				829.8	Master				80.18	Master				96.29
	480.0 (Minimum)	770.0 (Nominal)	940.0 (Maximum)			47.00 (Minimum)	79.00 (Nominal)	99.00 (Maximum)			54.00 (Minimum)	94.00 (Nominal)	121.0 (Maximum)	
Phase	LS Window 3 Count Rate Bkg CPS			Value	Phase	LS Window 4 Count Rate Bkg CPS			Value					
Master				274.5	Master				145.6					
	150.0 (Minimum)	280.0 (Nominal)	360.0 (Maximum)			83.00 (Minimum)	146.0 (Nominal)	190.0 (Maximum)						
Master: 24-Mar-2010 14:44														

iFlex Litho Density Tool Wellsite Calibration														
Detector Calibration														
Phase	SS Window 1 Count Rate Water Low PE Insert CPSValue			Phase	SS Window 2 Count Rate Water Low PE Insert CPSValue			Phase	SS Window 3 Count Rate Water Low PE Insert CPSValue					
Master				24820	Master				20000	Master				
	18000 (Minimum)	27000 (Nominal)	30000 (Maximum)			16000 (Minimum)	23000 (Nominal)	25000 (Maximum)			9800 (Minimum)	13400 (Nominal)	14500 (Maximum)	
Phase	SS Window 4 Count Rate Water Low PE Insert CPSValue			Phase	LS Window 1 Count Rate Water Low PE Insert CPSValue			Phase	LS Window 2 Count Rate Water Low PE Insert CPSValue					
Master				10290	Master				1128	Master				
	8600 (Minimum)	11800 (Nominal)	12900 (Maximum)			820.0 (Minimum)	1210 (Nominal)	1400 (Maximum)			1050 (Minimum)	1600 (Nominal)	1800 (Maximum)	
Phase	LS Window 3 Count Rate Water Low PE Insert CPSValue			Phase	LS Window 4 Count Rate Water Low PE Insert CPSValue									
Master				1843	Master				476.5					
	1450 (Minimum)	2100 (Nominal)	2400 (Maximum)			380.0 (Minimum)	530.0 (Nominal)	580.0 (Maximum)						
Master: 24-Mar-2010 15:07														

iFlex Litho Density Tool Wellsite Calibration														
Detector Calibration														
Phase	SS Window 1 Count Rate Water High PE Insert CPSValue			Phase	SS Window 2 Count Rate Water High PE Insert CPSValue			Phase	SS Window 3 Count Rate Water High PE Insert CPSValue					
Master				17170	Master				17390	Master				
	16000 (Minimum)	23000 (Nominal)	26000 (Maximum)			15000 (Minimum)	22000 (Nominal)	24000 (Maximum)			9300 (Minimum)	12800 (Nominal)	13900 (Maximum)	
Phase	SS Window 4 Count Rate Water High PE Insert CPSValue			Phase	LS Window 1 Count Rate Water High PE Insert CPSValue			Phase	LS Window 2 Count Rate Water High PE Insert CPSValue					
Master				9089	Master				740.9	Master				
	8200 (Minimum)	11300 (Nominal)	12400 (Maximum)			640.0 (Minimum)	950.0 (Nominal)	1100 (Maximum)			930.0 (Minimum)	1380 (Nominal)	1600 (Maximum)	
Phase	LS Window 3 Count Rate Water High PE Insert CPSValue			Phase	LS Window 4 Count Rate Water High PE Insert CPSValue									
Master				1634	Master				435.2					
	1350 (Minimum)	2000 (Nominal)	2300 (Maximum)			360.0 (Minimum)	500.0 (Nominal)	550.0 (Maximum)						

iFlex Litho Density Tool Wellsite Calibration											
Detector Calibration											
Phase	SS Window 1 Count Rate	Magnesium Low PE Insert	CPS Value	SS Window 2 Count Rate	Magnesium Low PE Insert	CPS Value	SS Window 3 Count Rate	Magnesium Low PE Insert	CPS Value		
Master			25650			21330			11690		
	19000 (Minimum)	28000 (Nominal)	31000 (Maximum)	17000 (Minimum)	24000 (Nominal)	27000 (Maximum)	9900 (Minimum)	13500 (Nominal)	14700 (Maximum)		
Phase	SS Window 4 Count Rate	Magnesium Low PE Insert	CPS Value	LS Window 1 Count Rate	Magnesium Low PE Insert	CPS Value	LS Window 2 Count Rate	Magnesium Low PE Insert	CPS Value		
Master			9573			4837			6031		
	8000 (Minimum)	11000 (Nominal)	12000 (Maximum)	3600 (Minimum)	5400 (Nominal)	6200 (Maximum)	4600 (Minimum)	6900 (Nominal)	8000 (Maximum)		
Phase	SS Window 3 Count Rate	Magnesium Low PE Insert	CPS Value	LS Window 4 Count Rate	Magnesium Low PE Insert	CPS Value					
Master			7422			1321					
	5700 (Minimum)	8500 (Nominal)	9900 (Maximum)	1030 (Minimum)	1500 (Nominal)	1800 (Maximum)					

Master: 24-Mar-2010 15:25

iFlex Litho Density Tool Master Calibration											
Detector Calibration											
Phase	SS Window 1 Count Rate	Bkg CPS	Value	Phase	SS Window 2 Count Rate	Bkg CPS	Value	Phase	SS Window 3 Count Rate	Bkg CPS	Value
Master			1236	Master			1563	Master			806.6
	730.0 (Minimum)	1140 (Nominal)	1370 (Maximum)		990.0 (Minimum)	1470 (Nominal)	1720 (Maximum)		490.0 (Minimum)	760.0 (Nominal)	900.0 (Maximum)
Phase	SS Window 4 Count Rate	Bkg CPS	Value	Phase	LS Window 1 Count Rate	Bkg CPS	Value	Phase	LS Window 2 Count Rate	Bkg CPS	Value
Master			829.8	Master			80.18	Master			96.29
	480.0 (Minimum)	770.0 (Nominal)	940.0 (Maximum)		47.00 (Minimum)	79.00 (Nominal)	99.00 (Maximum)		54.00 (Minimum)	94.00 (Nominal)	121.0 (Maximum)
Phase	LS Window 3 Count Rate	Bkg CPS	Value	Phase	LS Window 4 Count Rate	Bkg CPS	Value				
Master			274.5	Master			145.6				
	150.0 (Minimum)	280.0 (Nominal)	360.0 (Maximum)		83.00 (Minimum)	146.0 (Nominal)	190.0 (Maximum)				

Master: 24-Mar-2010 14:44

iFlex Litho Density Tool Master Calibration											
Detector Calibration											
SS Window 1 Count Rate	Water Low PE Insert	CPS Value	SS Window 2 Count Rate	Water Low PE Insert	CPS Value	SS Window 3 Count Rate	Water Low PE Insert	CPS Value			
Master		24820	Master		20000	Master		11620			
	18000 (Minimum)	27000 (Nominal)	30000 (Maximum)		16000 (Minimum)	23000 (Nominal)	25000 (Maximum)		9800 (Minimum)	13400 (Nominal)	14500 (Maximum)
SS Window 4 Count Rate	Water Low PE Insert	CPS Value	LS Window 1 Count Rate	Water Low PE Insert	CPS Value	LS Window 2 Count Rate	Water Low PE Insert	CPS Value			
Master		10290	Master		1128	Master		1396			
	8600 (Minimum)	11800 (Nominal)	12900 (Maximum)		820.0 (Minimum)	1210 (Nominal)	1400 (Maximum)		1050 (Minimum)	1600 (Nominal)	1800 (Maximum)
LS Window 3 Count Rate	Water Low PE Insert	CPS Value	LS Window 4 Count Rate	Water Low PE Insert	CPS Value						
Master		1843	Master		476.5						
	1450 (Minimum)	2100 (Nominal)	2400 (Maximum)		380.0 (Minimum)	530.0 (Nominal)	580.0 (Maximum)				

Master: 24-Mar-2010 15:07

iFlex Litho Density Tool Master Calibration											
Detector Calibration											
SS Window 1 Count Rate	Water High PE Insert	CPS Value	SS Window 2 Count Rate	Water High PE Insert	CPS Value	SS Window 3 Count Rate	Water High PE Insert	CPS Value			
Master		17170	Master		17390	Master		10220			
	16000 (Minimum)	23000 (Nominal)	26000 (Maximum)		15000 (Minimum)	22000 (Nominal)	24000 (Maximum)		9300 (Minimum)	12800 (Nominal)	13900 (Maximum)
SS Window 4 Count Rate	Water High PE Insert	CPS Value	LS Window 1 Count Rate	Water High PE Insert	CPS Value	LS Window 2 Count Rate	Water High PE Insert	CPS Value			
Master		9089	Master		740.9	Master		1127			
	8200 (Minimum)	11300 (Nominal)	12400 (Maximum)		640.0 (Minimum)	950.0 (Nominal)	1100 (Maximum)		930.0 (Minimum)	1380 (Nominal)	1600 (Maximum)
LS Window 3 Count Rate	Water High PE Insert	CPS Value	LS Window 4 Count Rate	Water High PE Insert	CPS Value						
Master		1634	Master		435.2						
	1350 (Minimum)	2000 (Nominal)	2300 (Maximum)		360.0 (Minimum)	500.0 (Nominal)	550.0 (Maximum)				

iFlex Litho Density Tool Master Calibration											
Detector Calibration											
Phase	Window	Count Rate	Magnesium Low PE Insert	CPS	Value	Phase	Window	Count Rate	Magnesium Low PE Insert	CPS	Value
Master	1				25650	Master	2				21330
		19000 (Minimum)	28000 (Nominal)	31000 (Maximum)				17000 (Minimum)	24000 (Nominal)	27000 (Maximum)	
Master	3				11690						
		9900 (Minimum)	13500 (Nominal)	14700 (Maximum)							
Phase	Window	Count Rate	Magnesium Low PE Insert	CPS	Value	Phase	Window	Count Rate	Magnesium Low PE Insert	CPS	Value
Master	4				9573	Master	1				4837
		8000 (Minimum)	11000 (Nominal)	12000 (Maximum)				3600 (Minimum)	5400 (Nominal)	6200 (Maximum)	
Master	2				6031						
		4600 (Minimum)	6900 (Nominal)	8000 (Maximum)							
Phase	Window	Count Rate	Magnesium Low PE Insert	CPS	Value	Phase	Window	Count Rate	Magnesium Low PE Insert	CPS	Value
Master	3				7422	Master	4				1321
		5700 (Minimum)	8500 (Nominal)	9900 (Maximum)				1030 (Minimum)	1500 (Nominal)	1800 (Maximum)	

iFlex Telemetry Gamma Neutron Tool / Equipment Identification			
<b>Primary Equipment:</b>			
Telemetry Gamma Neutron Sonde	ITNS - B	9	
Neutron Neutron Logging Source - contain	NNLS - B		
Telemetry Gamma Neutron Housing	ITNH - B	9	
PSP Supply and Telemetry Cartridge	PSTC - A		
PSP Telemetry Cartridge	PSC - ATS	9	
PSC 16.384MHz oscillator	PSC -		
<b>Auxiliary Equipment:</b>			

iFlex Telemetry Gamma Neutron Tool Wellsite Calibration														
Background														
Phase	Thermal Count Rate	Master Bkgd	CPS	Value	Phase	Thermal Count Rate	Master Bkgd	CPS	Value	Phase	Epithermal Count Rate	Master Bkgd	CPS	Value
Master				26.42	Master				10.11	Master				27.07
Before				26.00	Before				10.96	Before				25.65
	20.00 (Minimum)	27.00 (Nominal)	40.00 (Maximum)			7.000 (Minimum)	10.00 (Nominal)	17.00 (Maximum)			20.00 (Minimum)	27.00 (Nominal)	40.00 (Maximum)	

iFlex Telemetry Gamma Neutron Tool Wellsite Calibration														
Tank Measurement														
Phase	Thermal Count Rate	Tank Meas	CPS	Value	Phase	Thermal Count Rate	Tank Meas	CPS	Value	Phase	Epithermal Count Rate	Tank Meas	CPS	Value
Master				13730	Master				5025	Master				1472
	13400 (Minimum)	14600 (Nominal)	15700 (Maximum)			4900 (Minimum)	5410 (Nominal)	5900 (Maximum)			1440 (Minimum)	1570 (Nominal)	1700 (Maximum)	

iFlex Telemetry Gamma Neutron Tool Master Calibration														
Tank Measurement														
Phase	Thermal Count Rate	Tank Meas	CPS	Value	Phase	Thermal Count Rate	Tank Meas	CPS	Value	Phase	Epithermal Count Rate	Tank Meas	CPS	Value
Master				13730	Master				5025	Master				1472
	13400 (Minimum)	14600 (Nominal)	15700 (Maximum)			4900 (Minimum)	5410 (Nominal)	5900 (Maximum)			1440 (Minimum)	1570 (Nominal)	1700 (Maximum)	



Well: **Werner Hatch 1**  
Field: **Deer Lake Basin**  
Rig: **Logan Hydro 44**  
Province: **Newfoundland**

MULTI-EXPRESS  
NUCLEAR LOG  
COMPENSATED NEUTRON – LITHODENSITY