

# Schlumberger

Company: **Santos Ltd**

## 12.25 in. Section

# Netherby-1

Field:

# Rig: Ocean Patriot

State:

# Victoria

Rig:	Ocean Patriot			
Field:	Otway			
Location:	Otway Basin			
Well:	Netherby-1			
Company:	Santos Ltd			

<div style="text-align: center;"> <b>VISION Resistivity</b>  <b>1:200 True Vertical Depth</b>  <b>Recorded Mode Log</b> </div>				
Location				
Total depth:	1875.0 m	Elevation		K.B. Top Drive
Spud date:	15-July-08			G.L. -66.1 m
Runs:	2 To 4			D.F. 20.8 m
Permanent datum:	Mean Sea Level	Elev.:		0.0 m
Log measured from:	Drill Floor			20.8 m above Perm. datum
Depth reference:	Driller's Depth			
Job Number.	X = E 642,694.06 m	Longitude	Latitude	
08ASQ0003	Y = N 5,717,438.49 m	E 142° 38' 25.745"S	38° 40' 48.578"	

Depth logged: 642.0 m		To 1852.4 m		Mag decl: 10.777 deg.		Other services:	
Date logged: 21-Jul-08		To 31-Jul-08		Mag dip: -69.86 deg.		See Remarks	
Bore hole record				Casing record			
Hole size	from	to	Size	Density	from	to	
36.0 in.	88.0 m	130.9 m	30.0 in.	310.0 lbm/m	88.0 m	130.9 m	
17.5 in.	130.9 m	647.5 m	13.375 in.	223.0 lbm/m	88.0 m	642.0 m	
12.25 in.	647.5 m	1875.0 m					
Mud record							
Type	from	to	Mln	Max	from	to	
Sea Water	88.0 m	969.0 m	0.34 deg.	0.94 deg.	130.9 m	647.5 m	
KCl/HPA/Glycol	969.0 m	1875.0 m	0.52 deg.	35.39 deg.	647.5 m	1875.0 m	
Surface equipment				Software record			
Unit	A3518-1/06	IDEAL W/s	ID13_OC_08				
Depth system	Geolograph+GTE+CLT	SPM	HSPM13_OC_03				
		LWD	See Remarks				
		MWD	See Remarks				

## Bit Run Summary

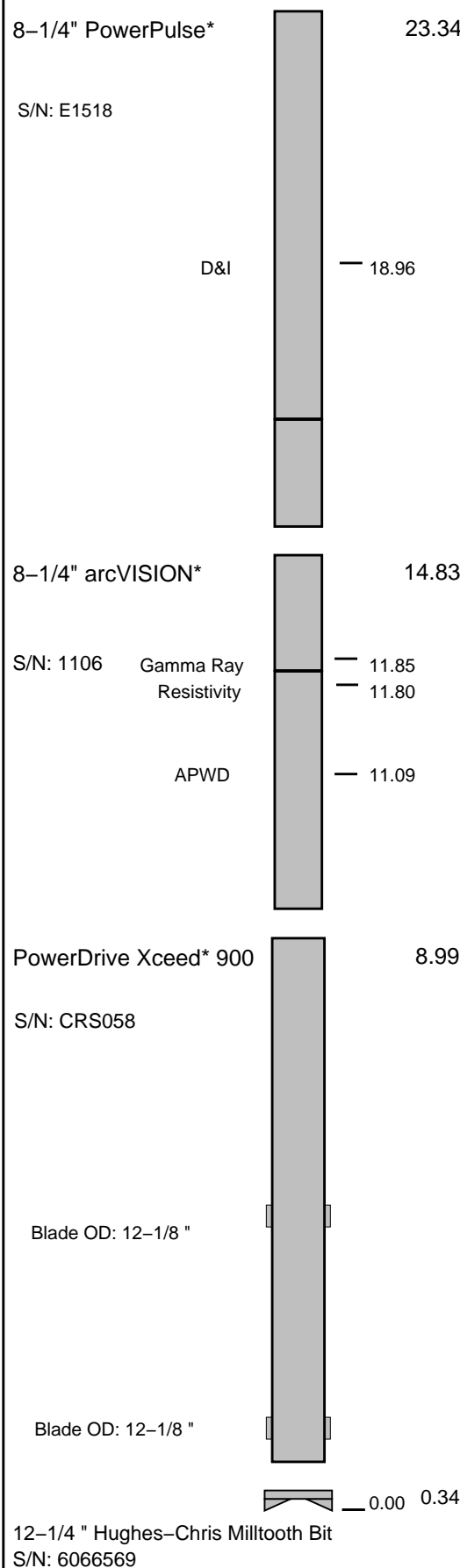
Run number		2	3	4						
Bit size	in	12.25	12.25	12.25						
Bit start depth	m	647.5	1421.0	1870.0						
Bit end depth	m	1421.0	1870.0	1875.0						
Top interval logged	m	642.0	1409.9	1750.0						
Bottom interval logged	m	1409.9	1859.0	1838.0						
Begin log: time		06:00	21:45	12:00						
Begin log: date		21-Jul-08	23-Jul-08	30-Jul-08						
End log: time		16:05	23:10	23:00						
End log: date		23-Jul-08	24-Jul-08	31-Jul-08						
<b>Mud data</b>										
Depth	m	1421.0	1870.0	1875						
Type		KCl/Glycol	KCl/Glycol	KCl/Glycol						
Mud weight	ppg	9.4	11.0	11.0						
Solids	%	8.20	10.75	10.75						
Chlorides	mg/L	47000	48000	45000						
Rm	ohm.m@°C	0.098@19.5	0.110@21.6	0.1285@15.4						
Rmf	ohm.m@°C	0.095@20.0	0.087@21.7	0.1054@15.2						
Rmc	ohm.m@°C	0.100@20.1	0.129@21.6	0.1490@15.6						

Potassium	%	4.723	4.513	4.356						
<b>Environmental data</b>										
<b>GR</b>										
Mud weight	ppg	9.4	11.0	11.0						
Bit size	in	12.25	12.25	12.25						
<b>Resistivity</b>										
<b>Neutron porosity</b>										
Hole Size	in	12.25	12.25	12.25						
Mud weight	ppg	9.4	11.0	11.0						
Temperature	°C	56	77	77						
Mud salinity	ppk	n/a	n/a	72.75						
Formation salinity	n/a	n/a	n/a	n/a						
Recording rate 1	SEC	6	6	6 (ARC)						
Recording rate 2	SEC	n/a	n/a	5 (SADN)						
Filtering GR		3 Points	3 Points	3 Points						
Filtering density		n/a	n/a	3 Points						
Filtering Neutron		n/a	n/a	3 Points						
Company representative		C. Roots	N. Peri							
Anadrill personnel		J. Oldridge	Z. Rudd	A. Kohli	A. Stroud	A. Partono				

<p style="text-align: center;"><b>DISCLAIMER</b></p> <p>THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE OF AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.</p>		
<b>OTHER SERVICES FOR RUN2</b> Directional Drilling Direction Surveys Shock & Vibrations APWD	<b>OTHER SERVICES FOR RUN3</b> Directional Drilling Direction Surveys Shock & Vibrations APWD	<b>OTHER SERVICES FOR RUN4</b> Directional Drilling Direction Surveys Shock & Vibrations APWD
<b>REMARKS: RUN NUMBER 2</b> Depth is referenced to Driller's Depth  Gamma Ray is corrected for mud weight, bit size, tool collar size and potassium content in mud.  Resistivity is borehole compensated and environmentally corrected for bit size, mud resistivity and temperature.  POOH to change bit	<b>REMARKS: RUN NUMBER 3</b> Depth is referenced to Driller's Depth  Gamma Ray is corrected for mud weight, bit size, tool collar size and potassium content in mud.  Resistivity is borehole compensated and environmentally corrected for bit size, mud resistivity and temperature.  POOH at Well TD	<b>REMARKS: RUN NUMBER 4</b> Depth is referenced to Driller's Depth  Gamma Ray is corrected for mud weight, bit size, tool collar size and potassium content in mud.  Resistivity is borehole compensated and environmentally corrected for bit size, mud resistivity and temperature.  Thermal neutron porosity (TNPH) is corrected for bit size, temperature, mud salinity and mud hydrogen index (a factor of mud weight, mud pressure, and mud temperature).  Neutron porosity is calculated using a limestone matrix density of 2.71 gg/cm3.  Reamed down from 1750–1870m to relog.  Drilled from 1870–1875m .  POOH at completion of logging.

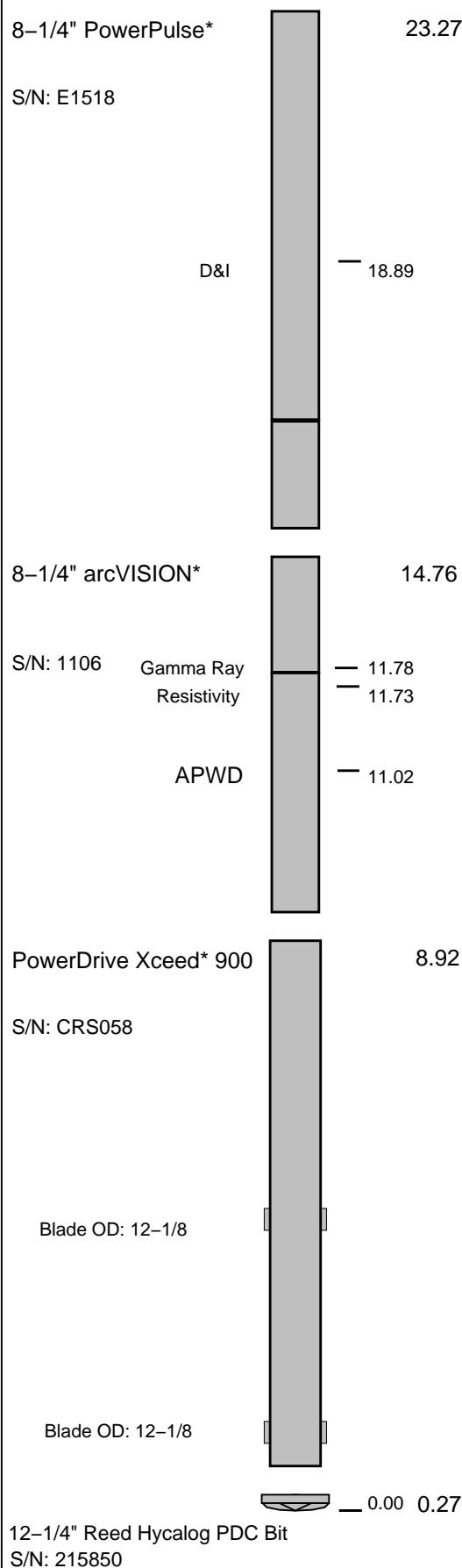
EQUIPMENT DESCRIPTION		
RUN2	RUN3	RUN4
DOWNHOLE EQUIPMENT	DOWNHOLE EQUIPMENT	DOWNHOLE EQUIPMENT

## DOWNHOLE EQUIPMENT



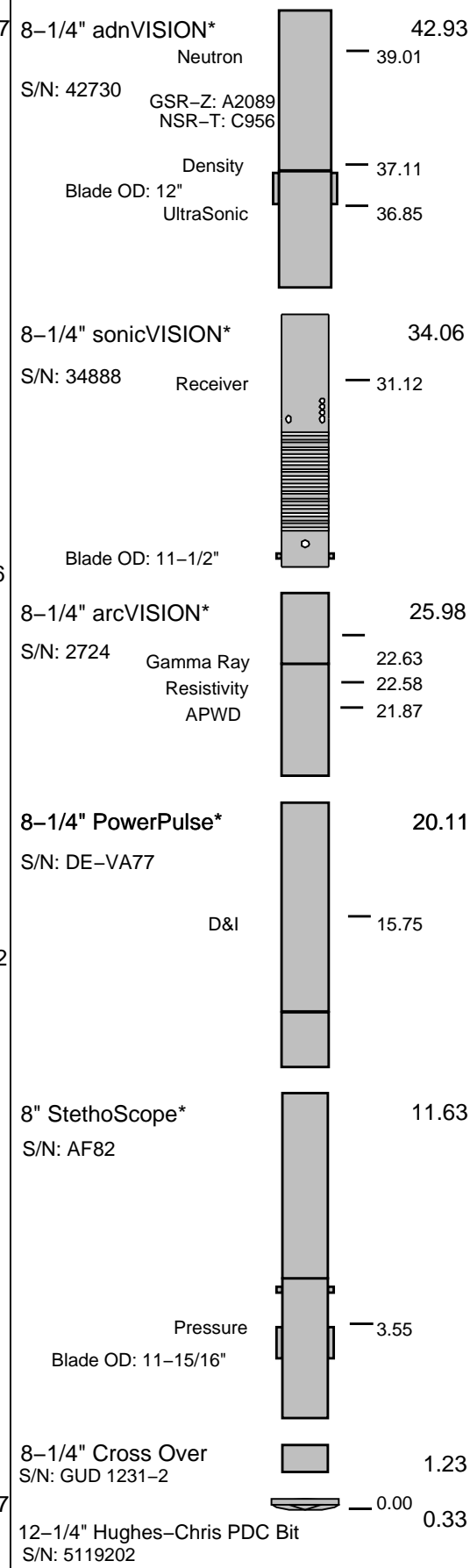
Maximum string diameter 12.25 in.  
All lengths in Meters

## DOWNHOLE EQUIPMENT



Maximum string diameter 12.25 in.  
All lengths in Meters

## DOWNHOLE EQUIPMENT



Maximum string diameter 12.25 in.  
All lengths in Meters

VISION Resistivity RM 200TVD

IDF

ARC8A-AA

id13\_0c\_02

MWD\_10

id13\_0c\_02

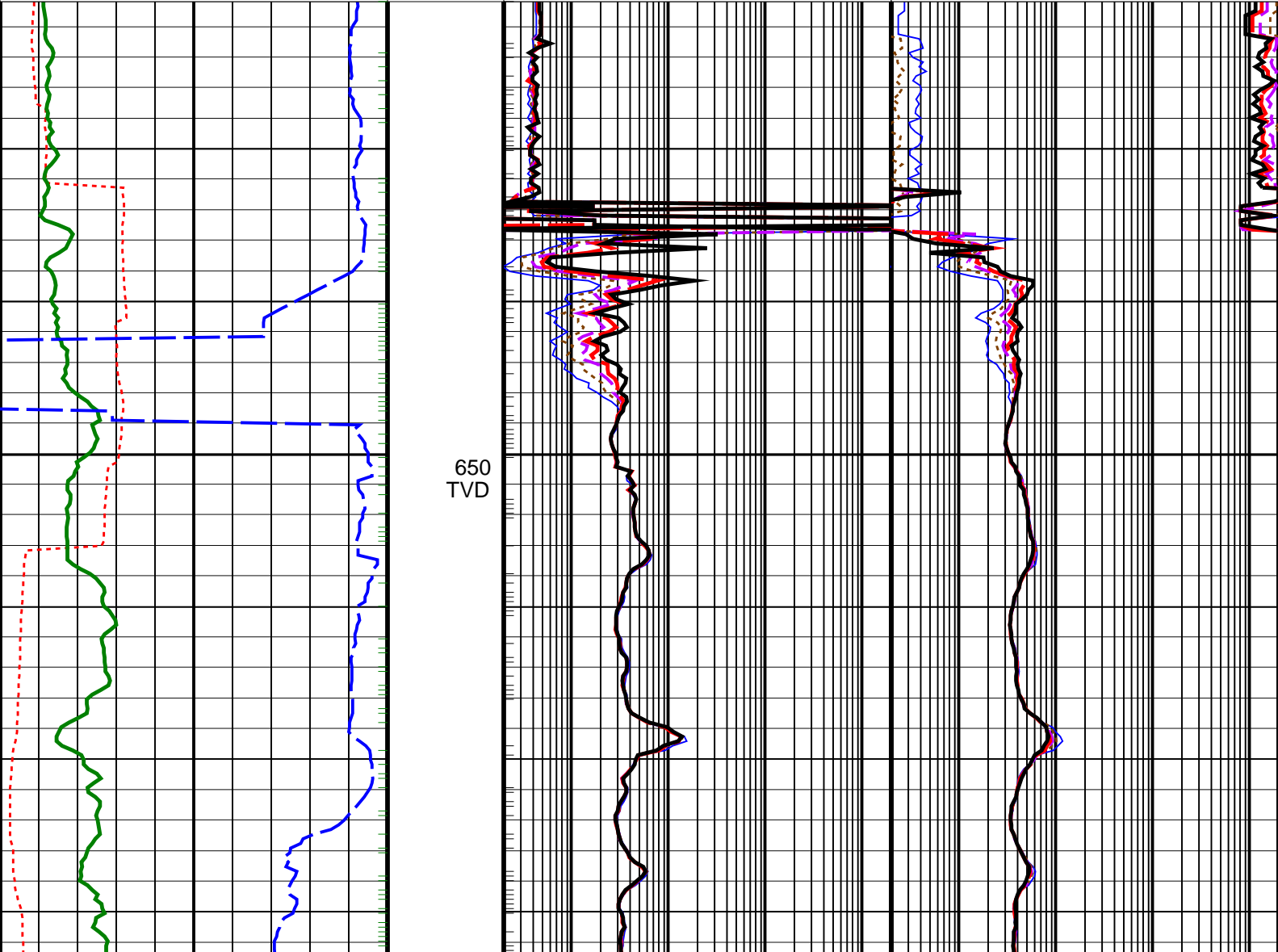
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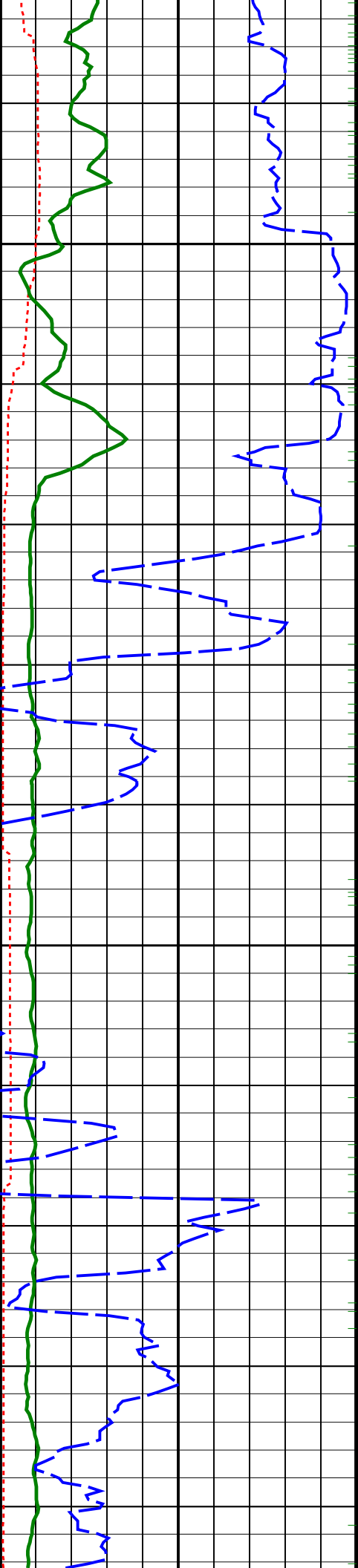
PIP SUMMARY

- ARC Gamma Ray Samples
- ARC Resistivity Samples

	ARC Phase-Shift Resistivity 40-in. at 2 MHz (P40H)	ARC Attenuation Resistivity 40-in. at 2 MHz (A40H)
	0.2 (OHMM) 200	0.2 (OHMM) 200
	ARC Phase-Shift Resistivity 34-in. at 2 MHz (P34H)	ARC Attenuation Resistivity 34-in. at 2 MHz (A34H)
	0.2 (OHMM) 200	0.2 (OHMM) 200
	ARC Phase-Shift Resistivity 28-in. at 2 MHz (P28H)	ARC Attenuation Resistivity 28-in. at 2 MHz (A28H)
	0.2 (OHMM) 200	0.2 (OHMM) 200
	ARC Phase-Shift Resistivity 22-in. at 2 MHz (P22H)	ARC Attenuation Resistivity 22-in. at 2 MHz (A22H)
	0.2 (OHMM) 200	0.2 (OHMM) 200
	ARC Phase-Shift Resistivity 16-in. at 2 MHz (P16H)	ARC Attenuation Resistivity 16-in. at 2 MHz (A16H)
	0.2 (OHMM) 200	0.2 (OHMM) 200

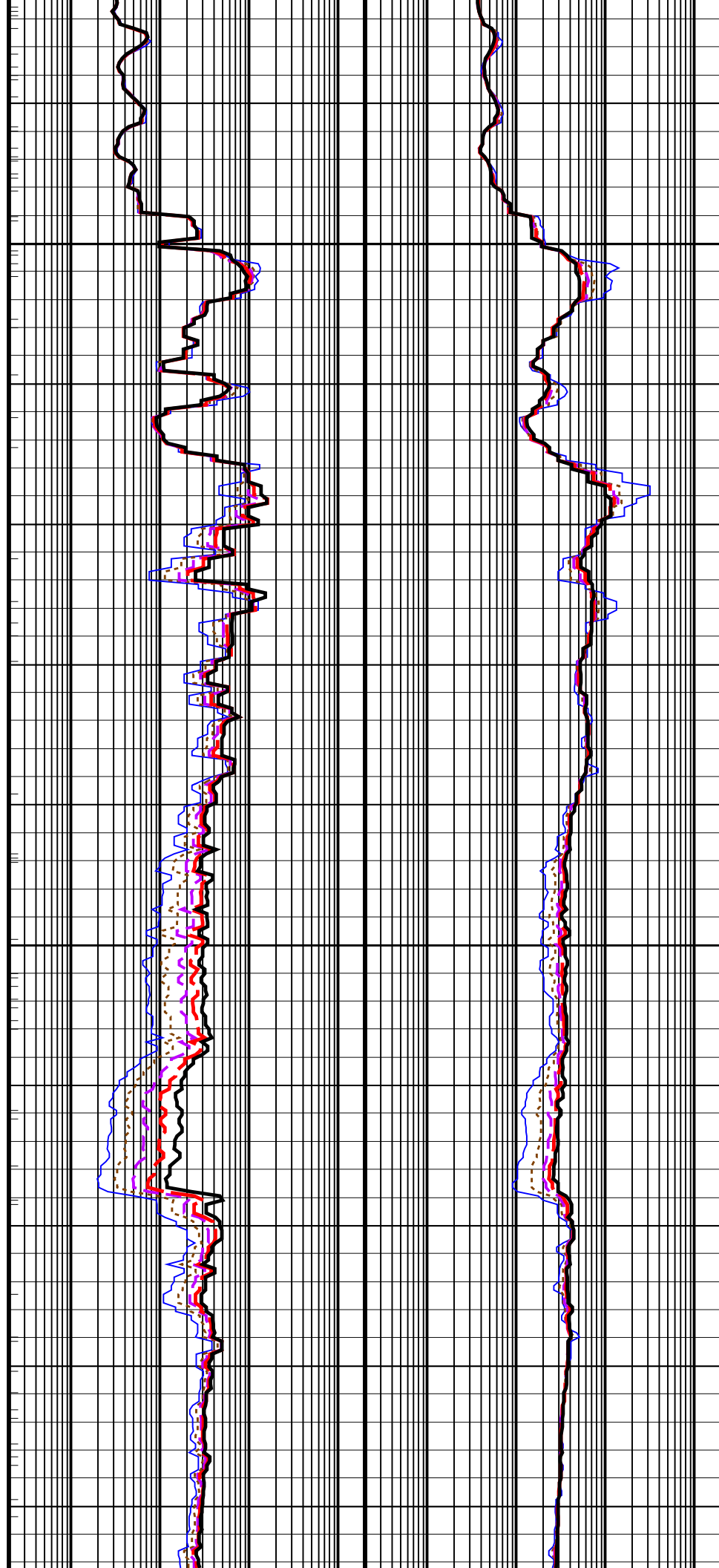
Rate of Penetration, Averaged over Last 5ft (ROP5_RM)
200 (M/HR) 0
ARC Resistivity Time After Bit (TAB_ARC_RES)
0 (HR) 10
ARC Gamma Ray (GR_ARC)
0 (GAPI) 200

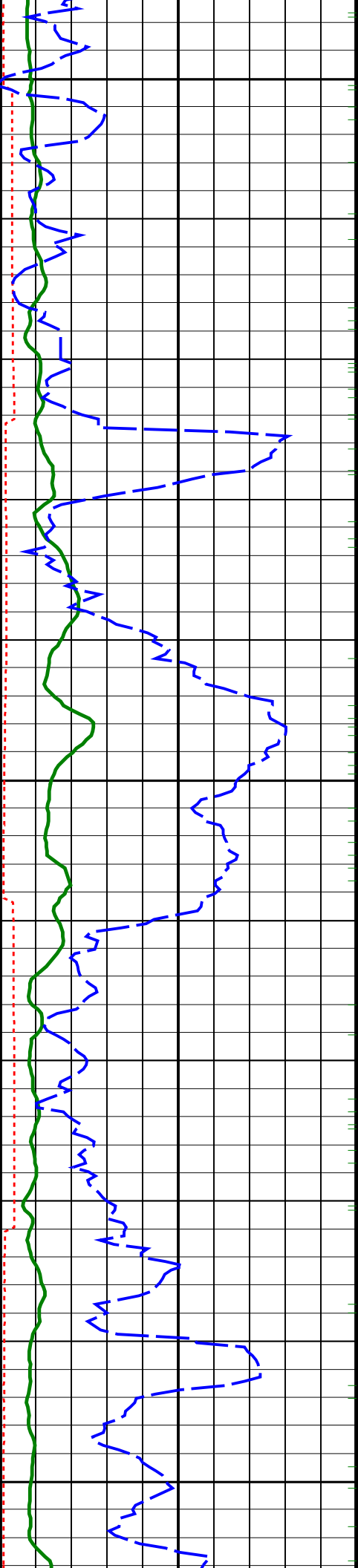




675  
TVD

700  
TVD

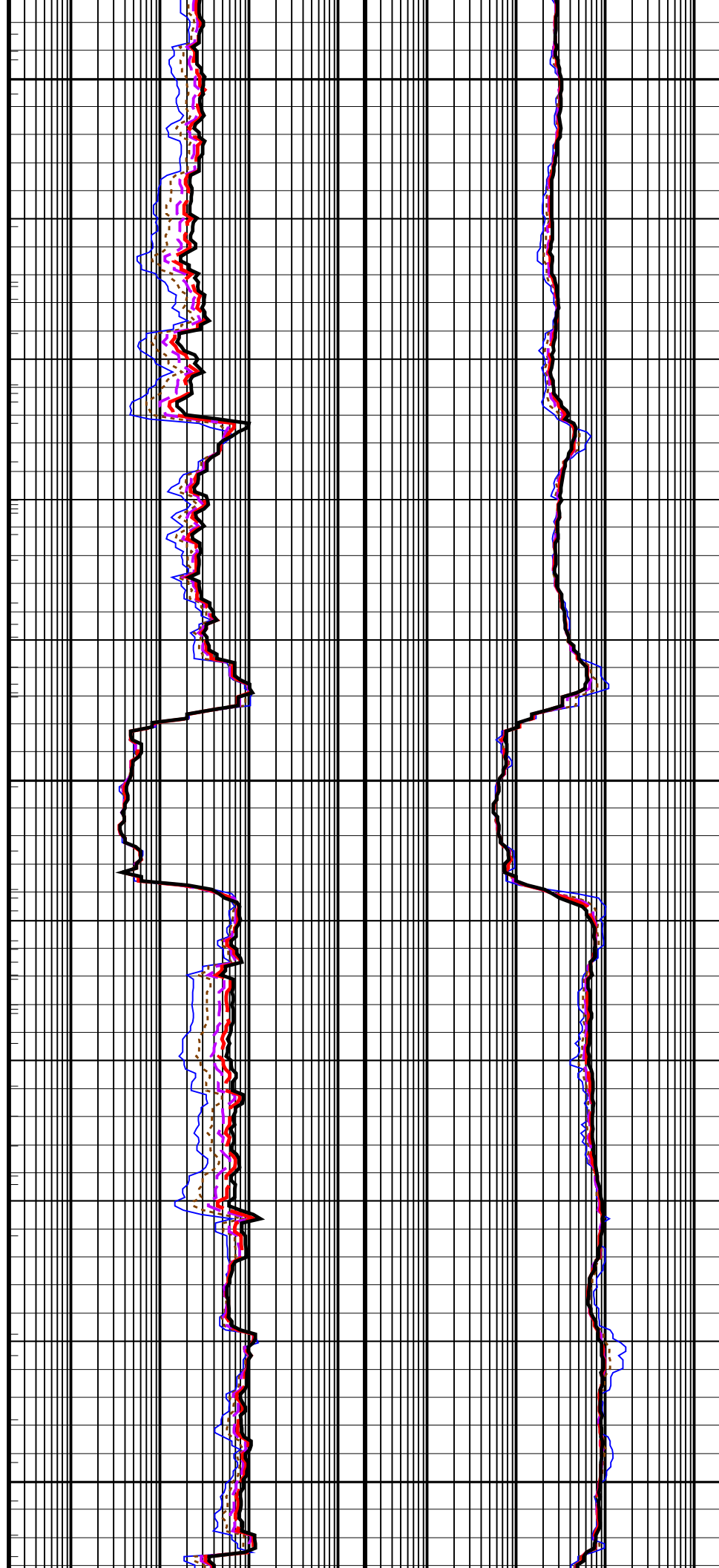


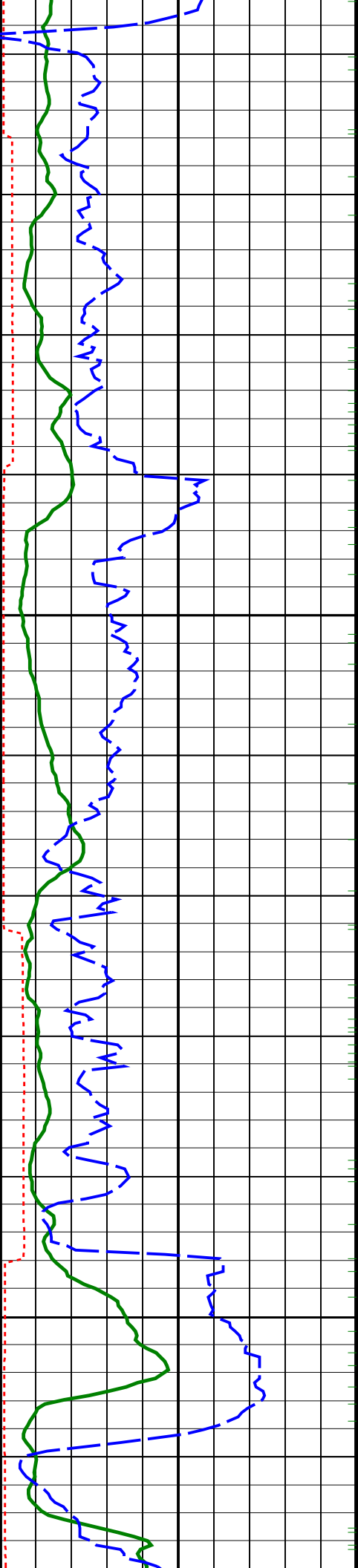


725  
TVD

750  
TVD

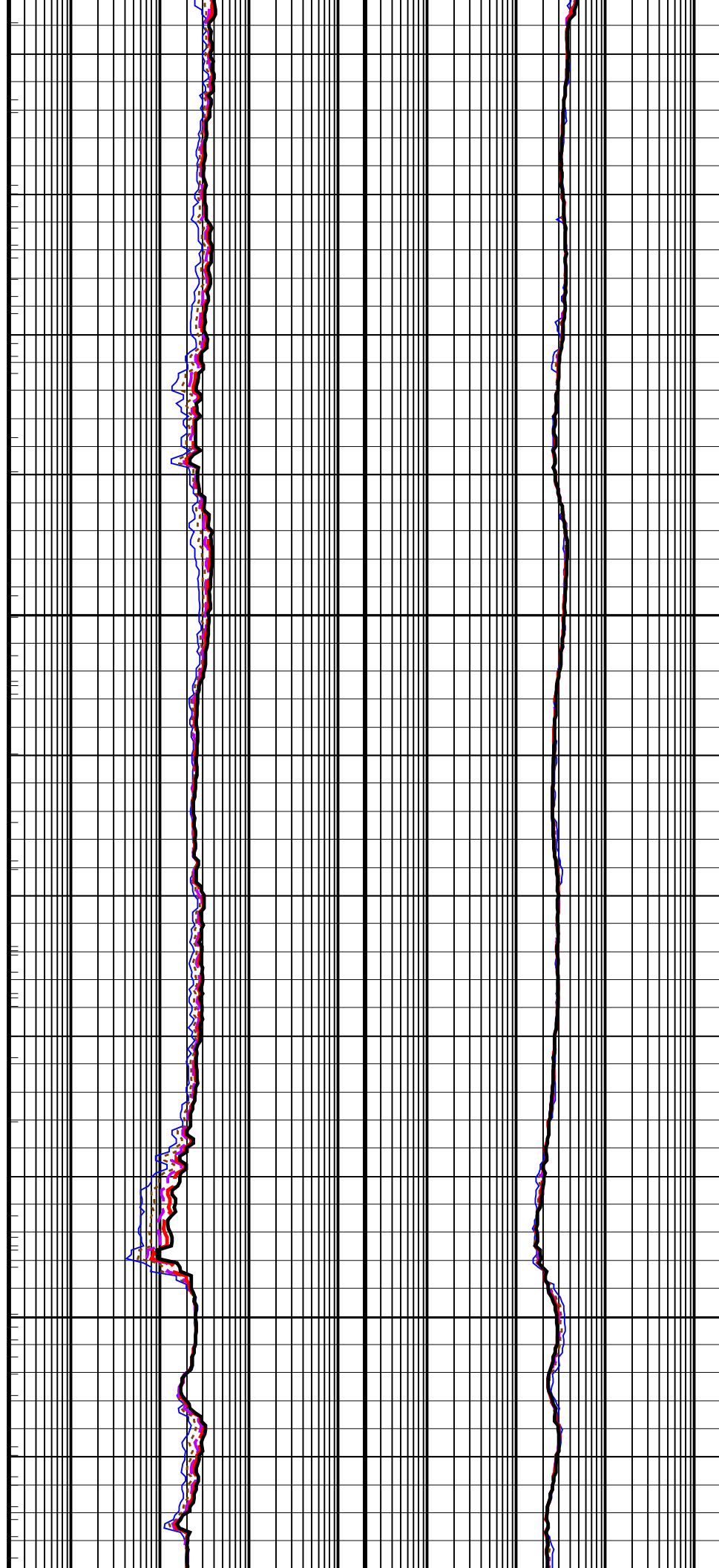
775  
TVD

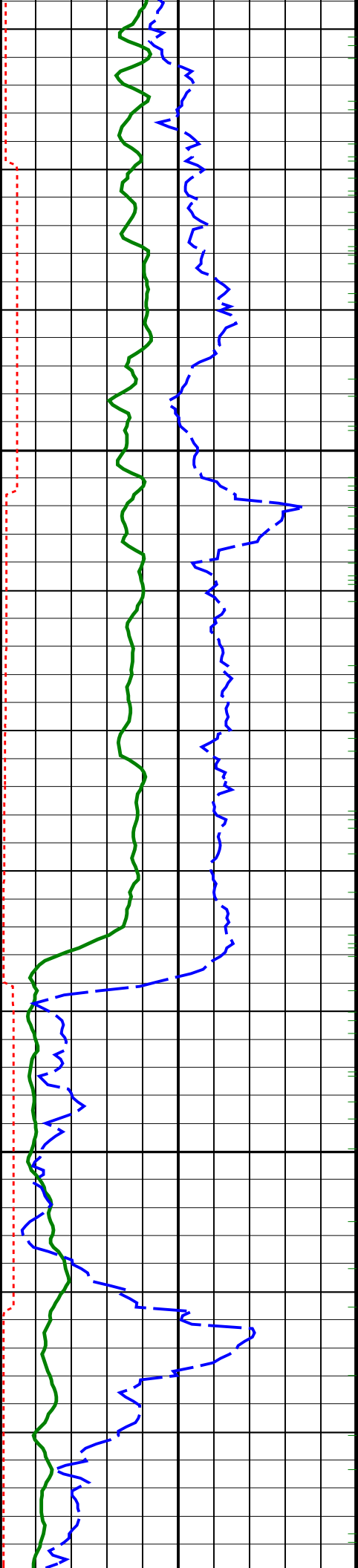




800  
TVD

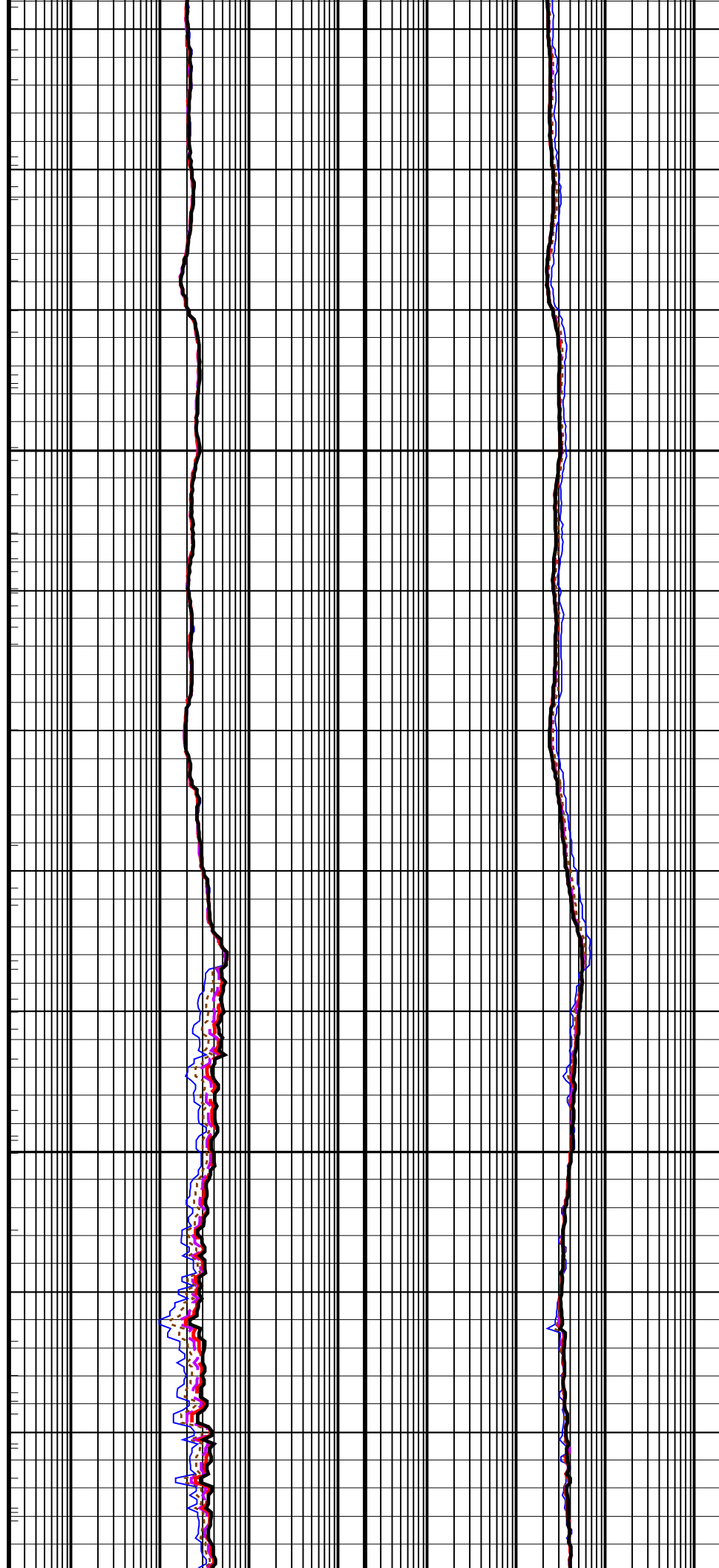
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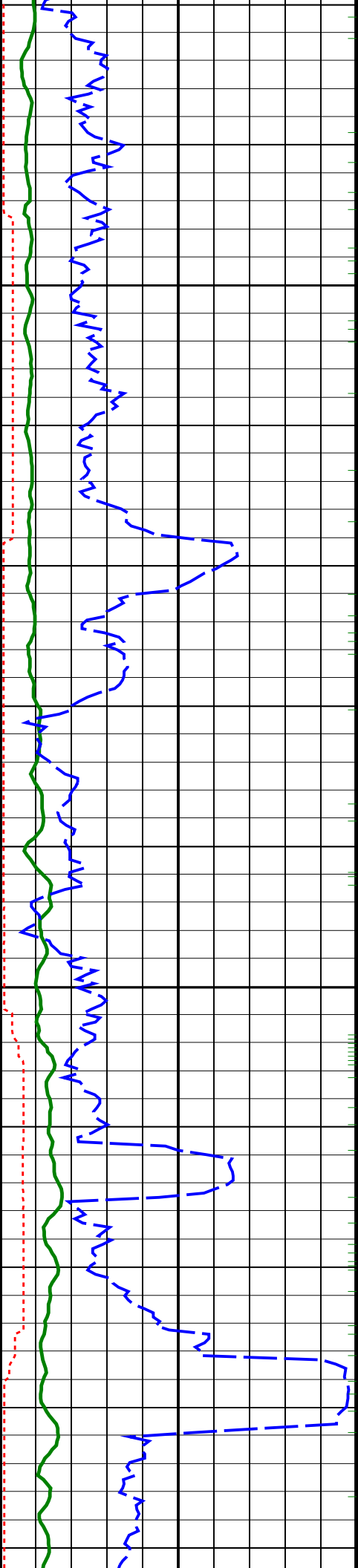


850  
TVD

875  
TVD

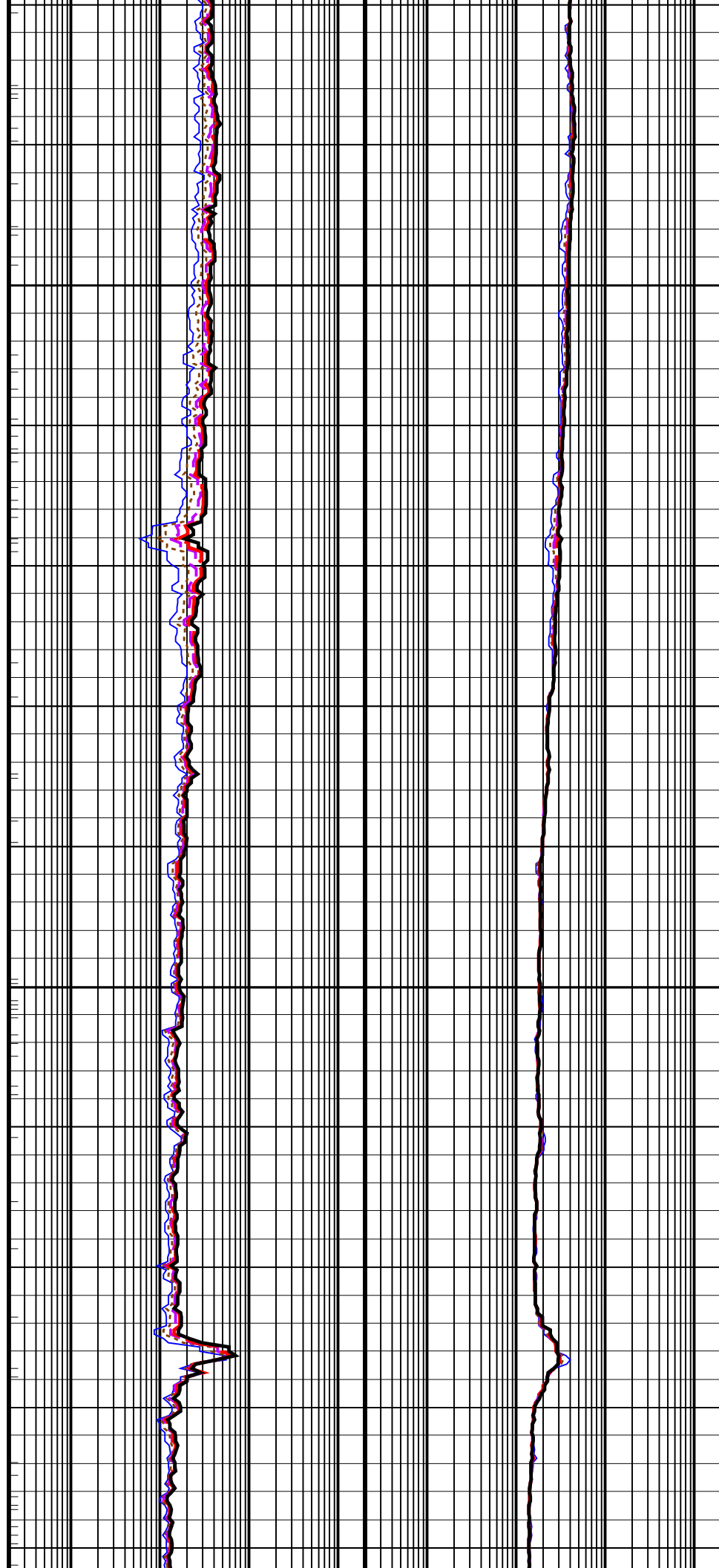


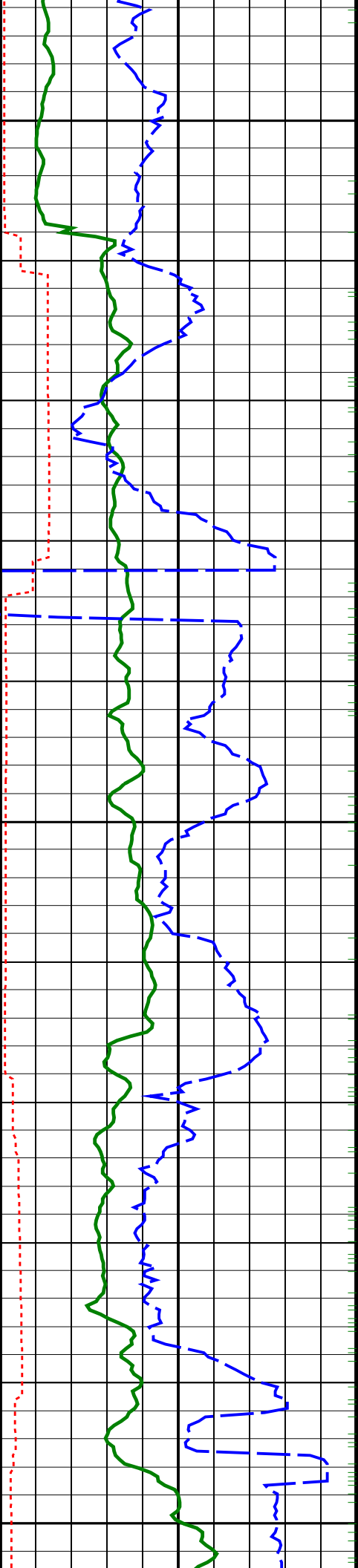




900  
TVD

925  
TVD

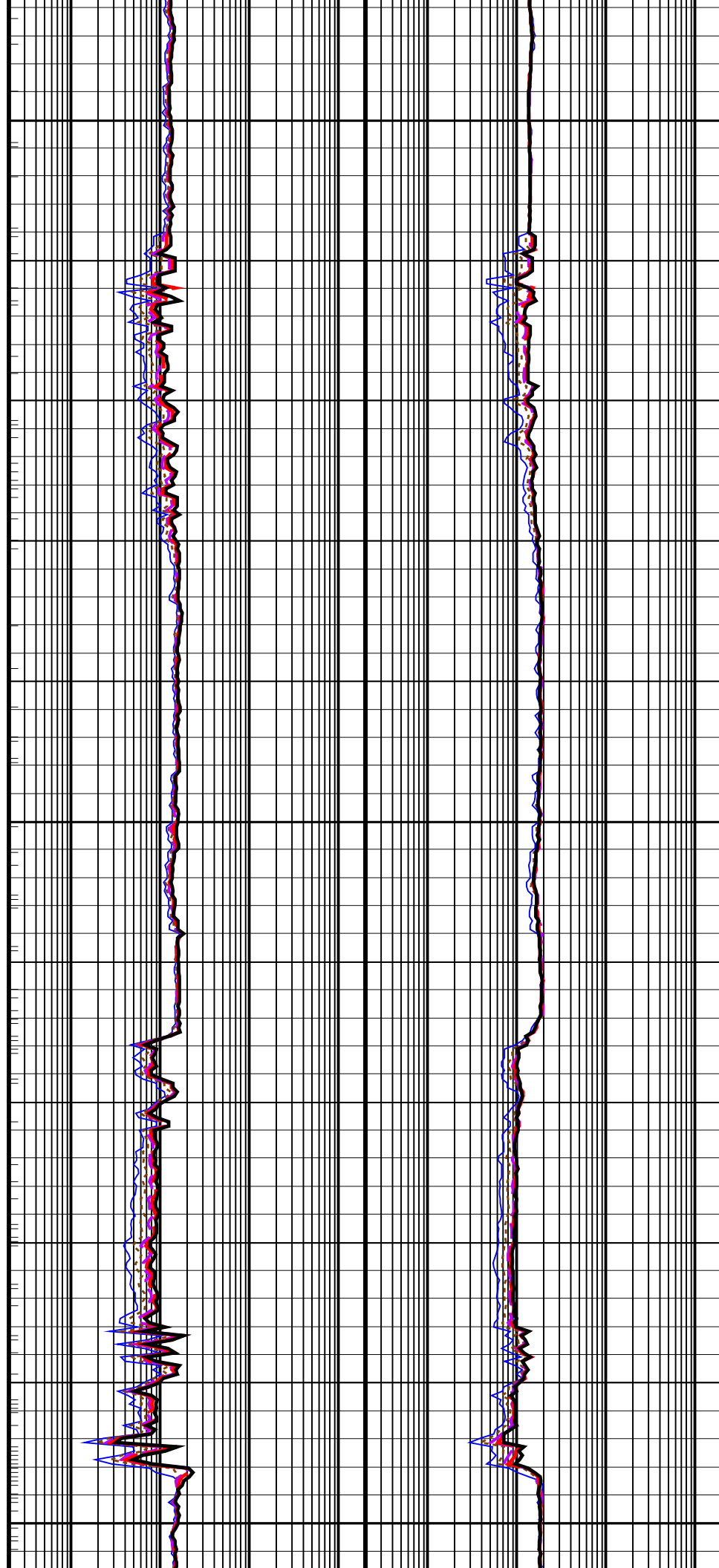


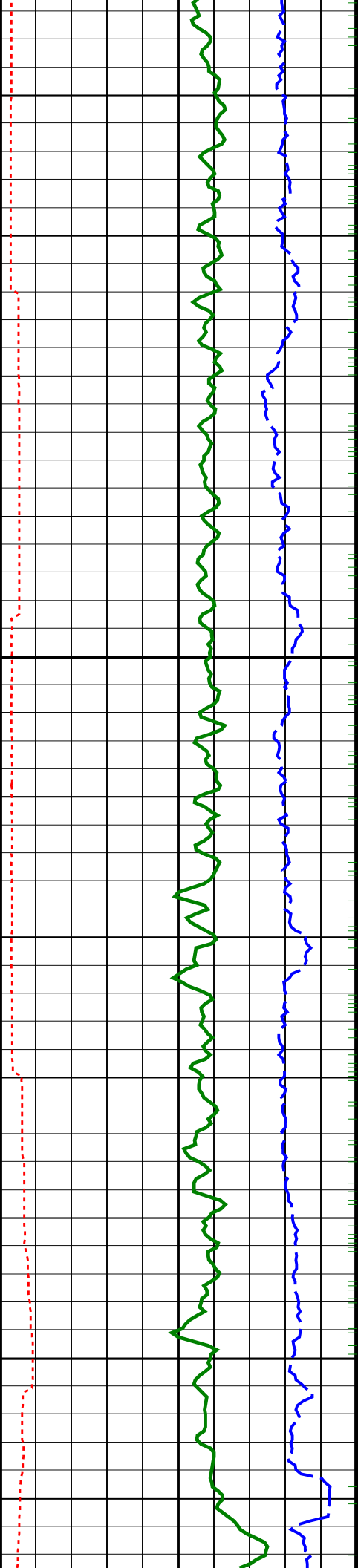


950  
TVD

975  
TVD

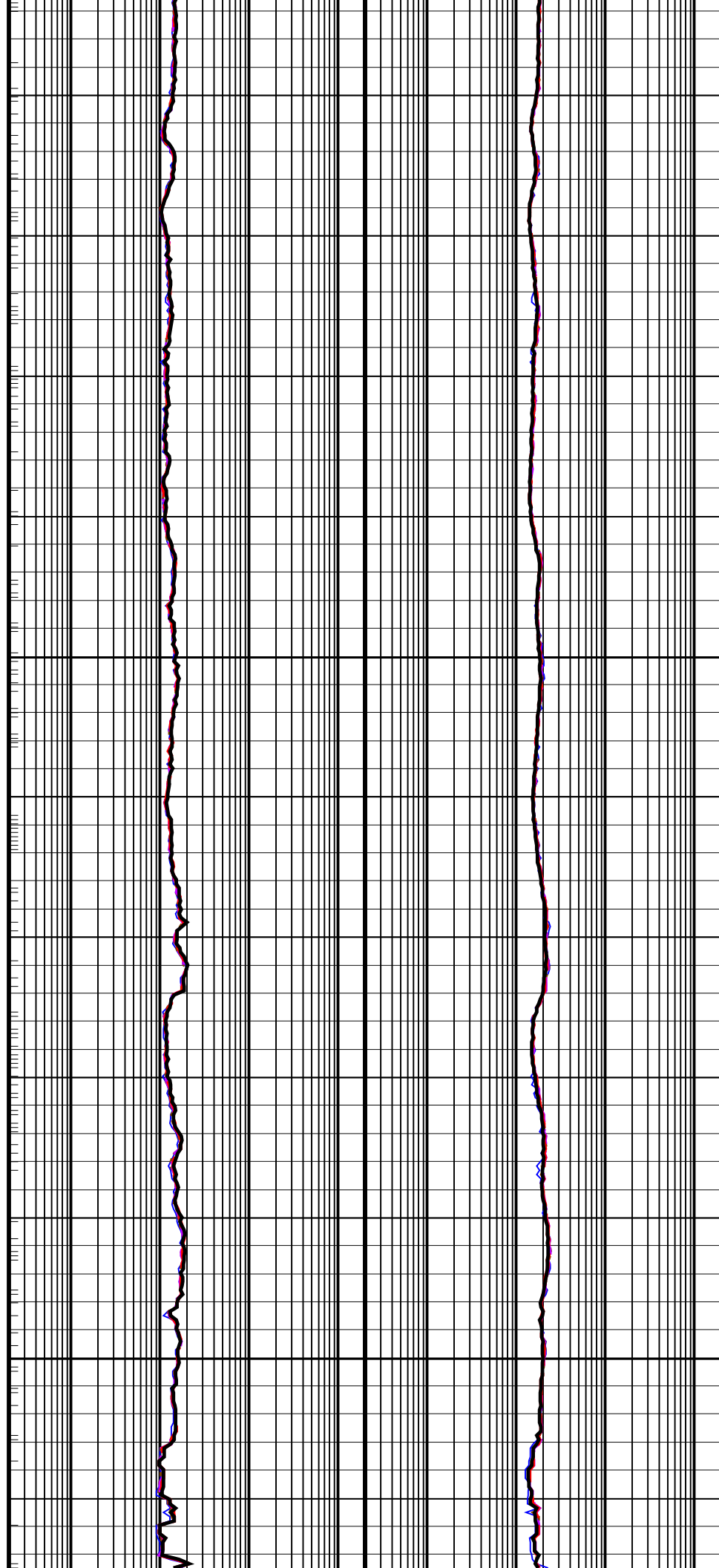
1000  
TVD

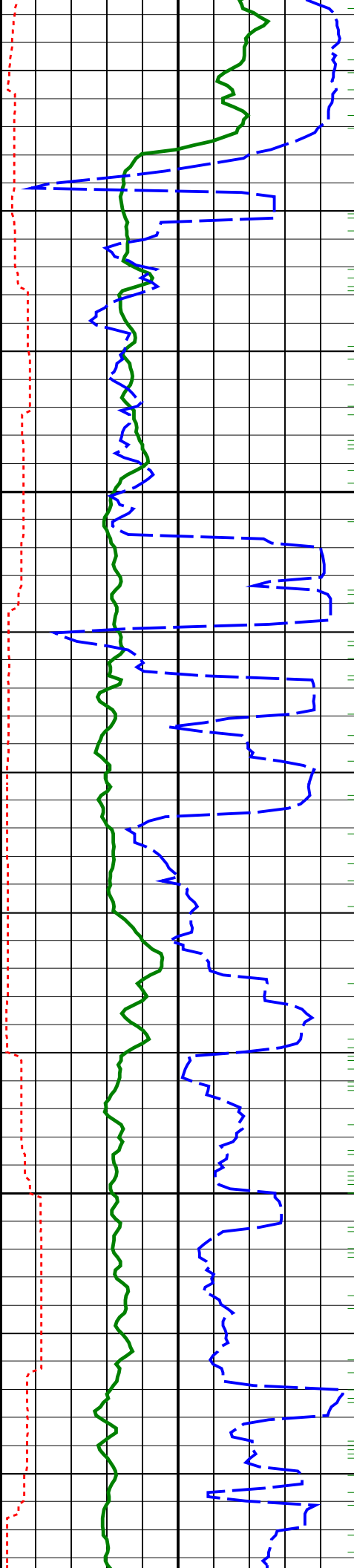




1025  
TVD

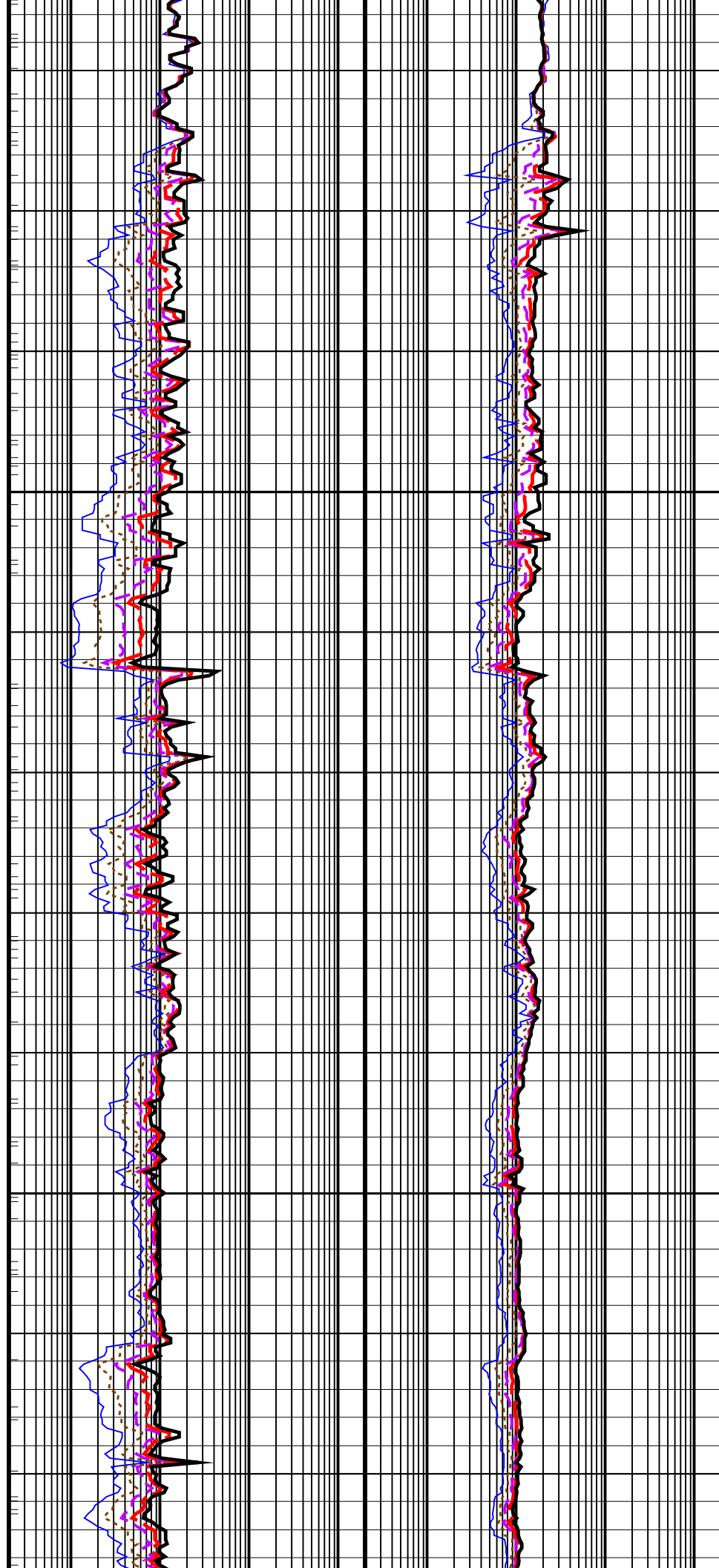
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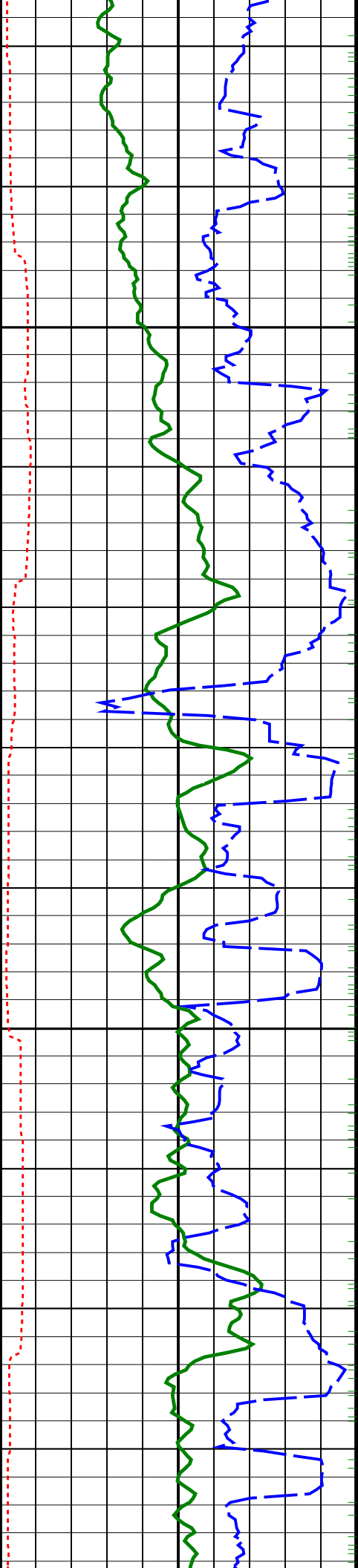




1075  
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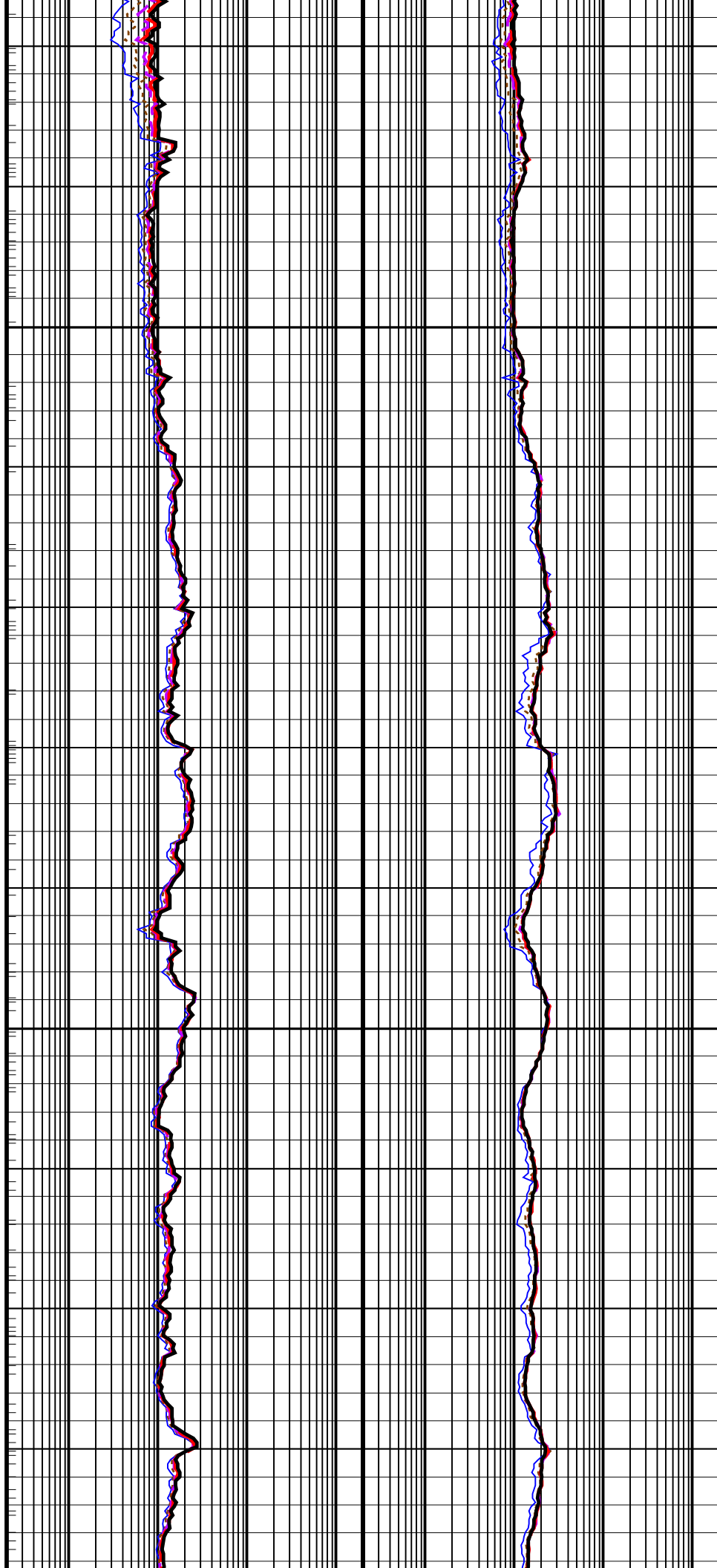
1100  
TVD

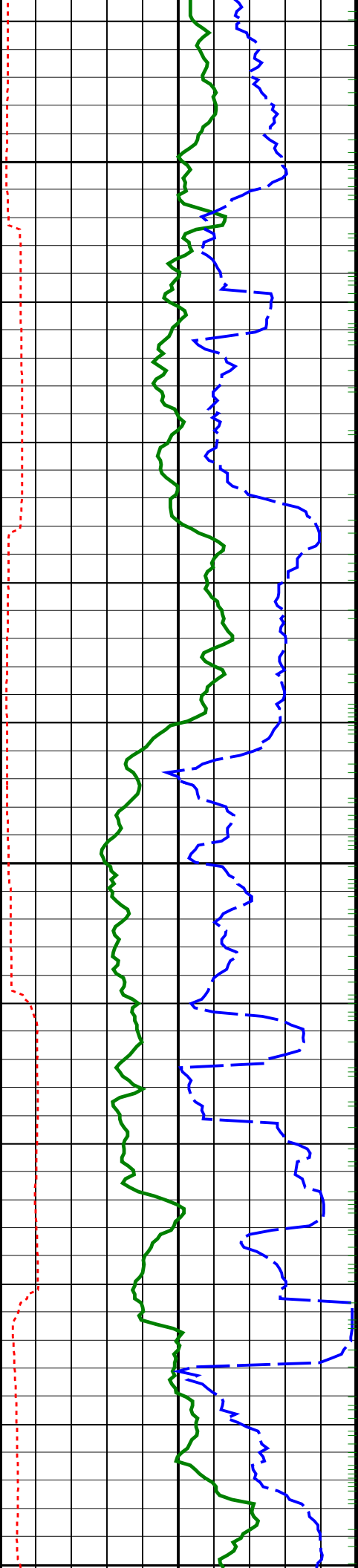




1125  
TVD

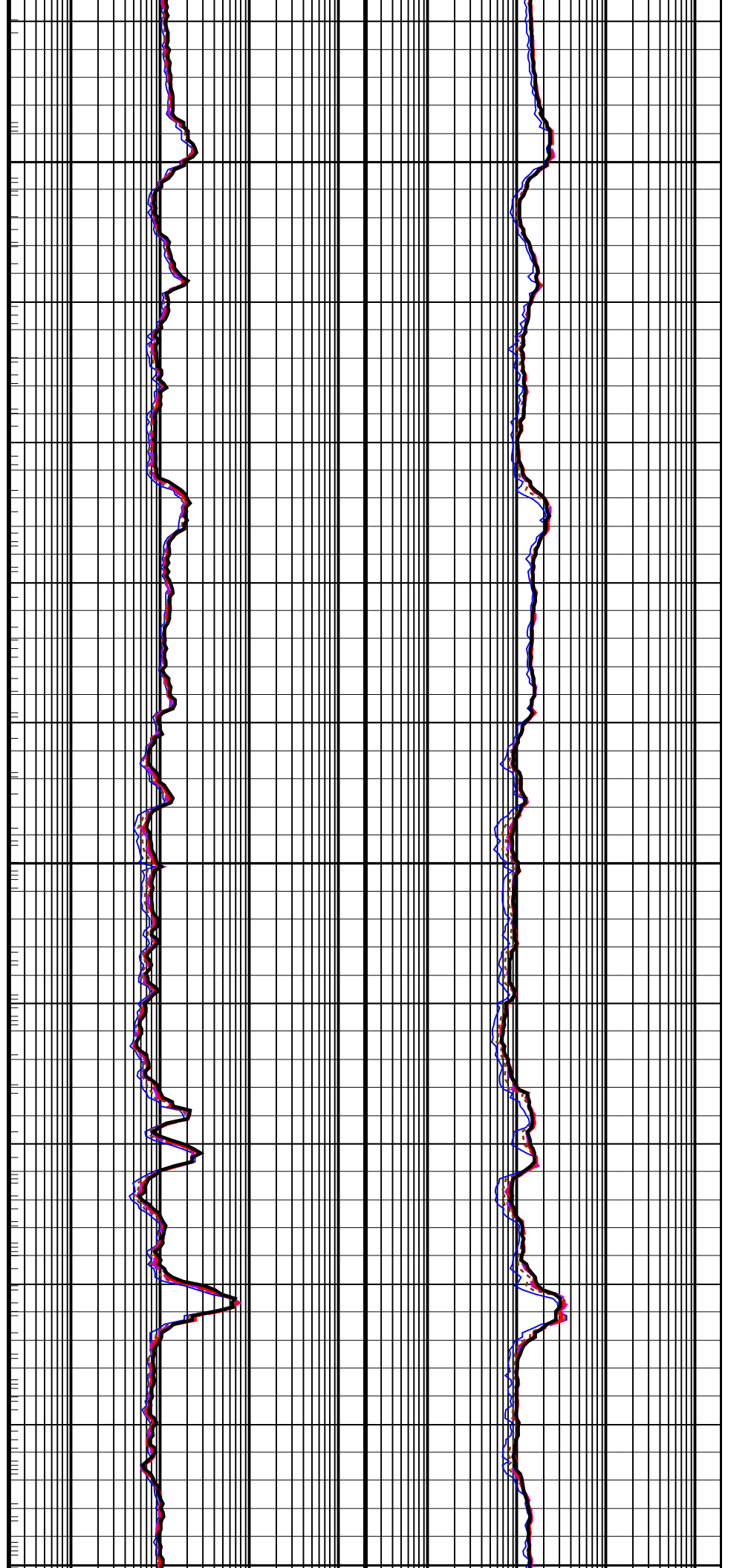
1150  
TVD

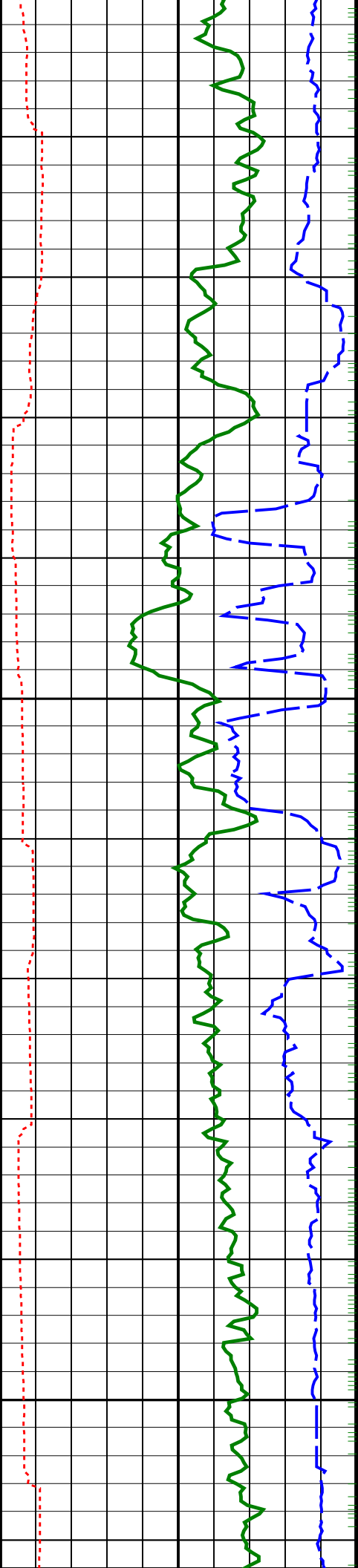


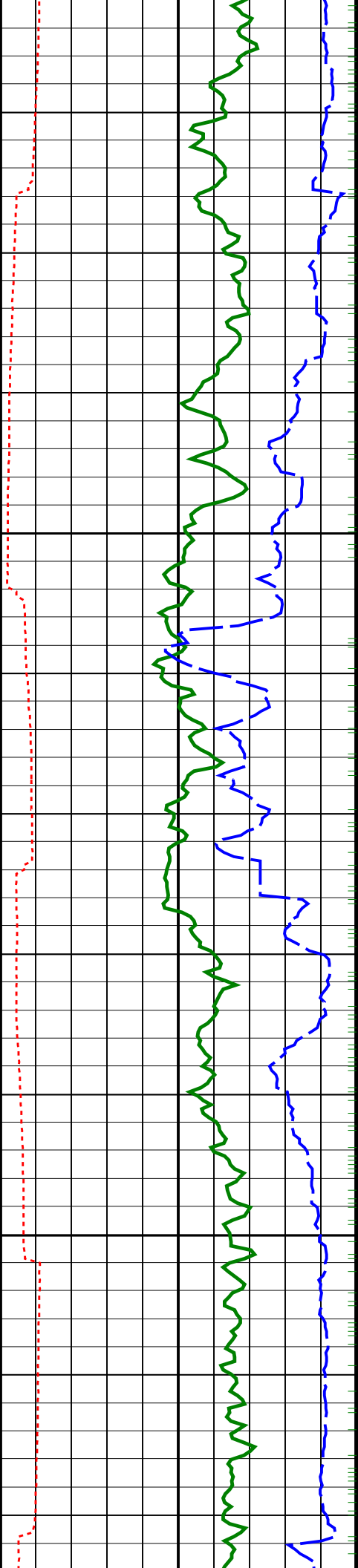


1175  
TVD

1200  
TVD

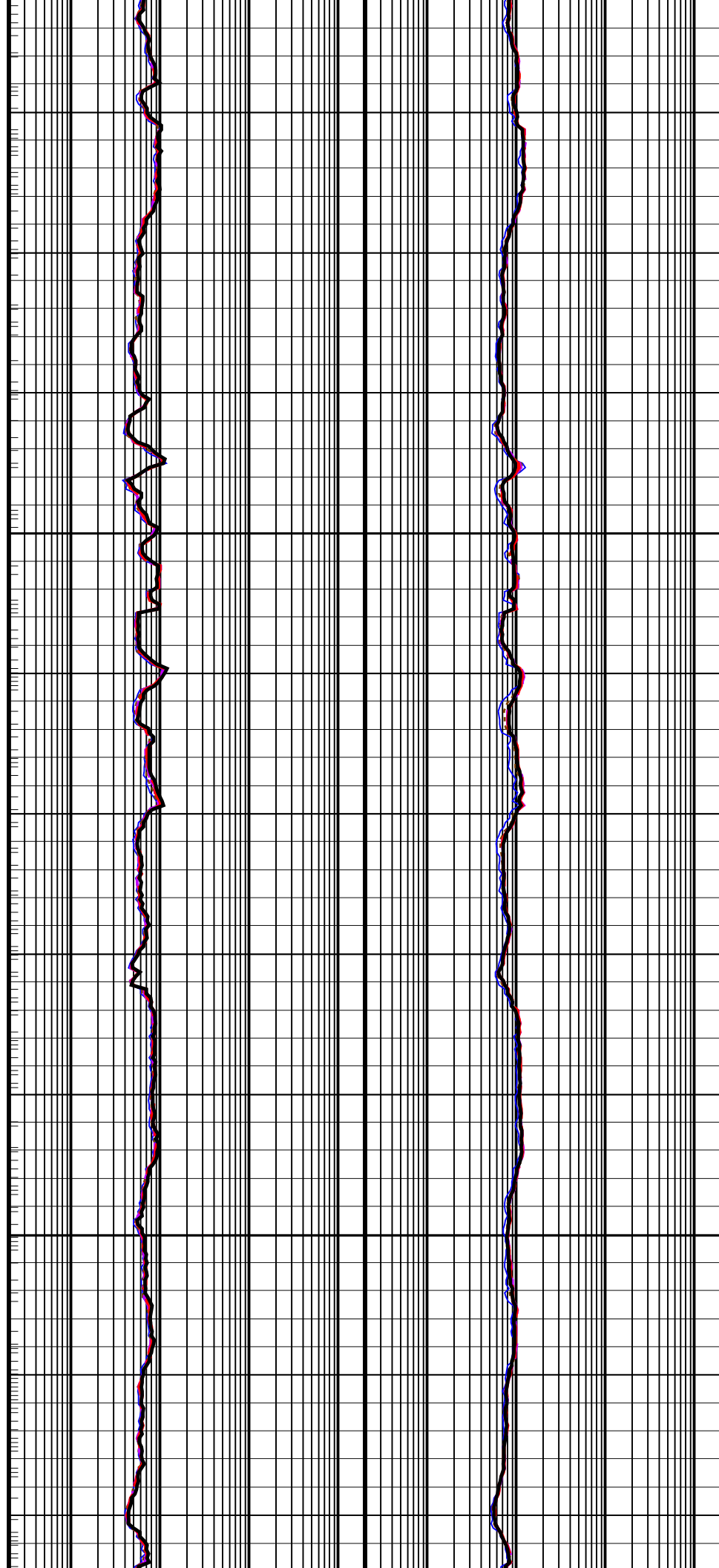




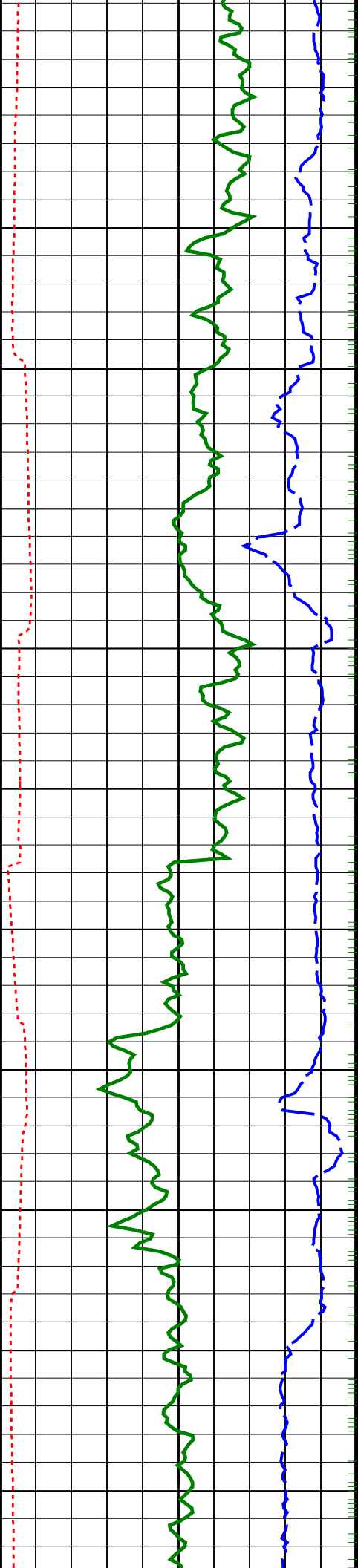


1300  
TVD

1325  
TVD

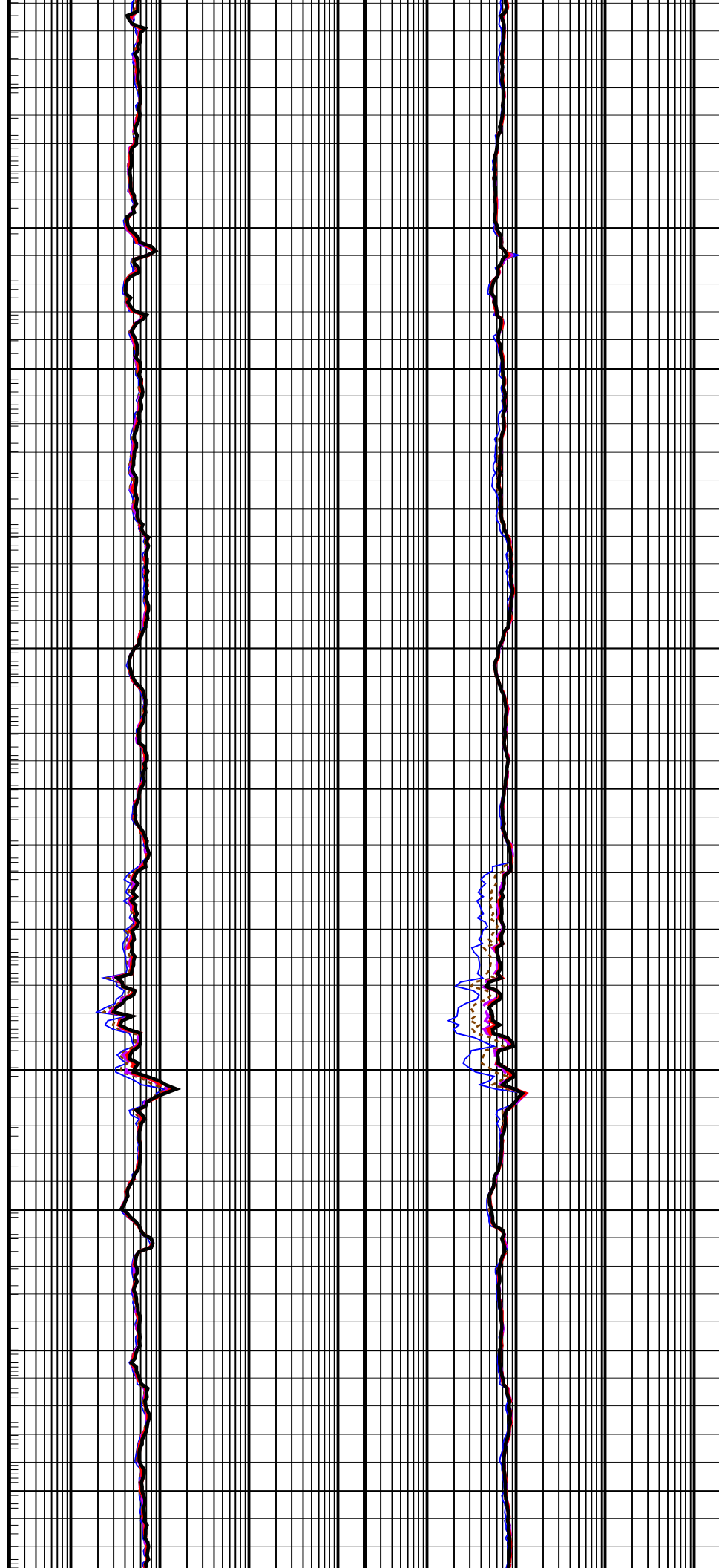


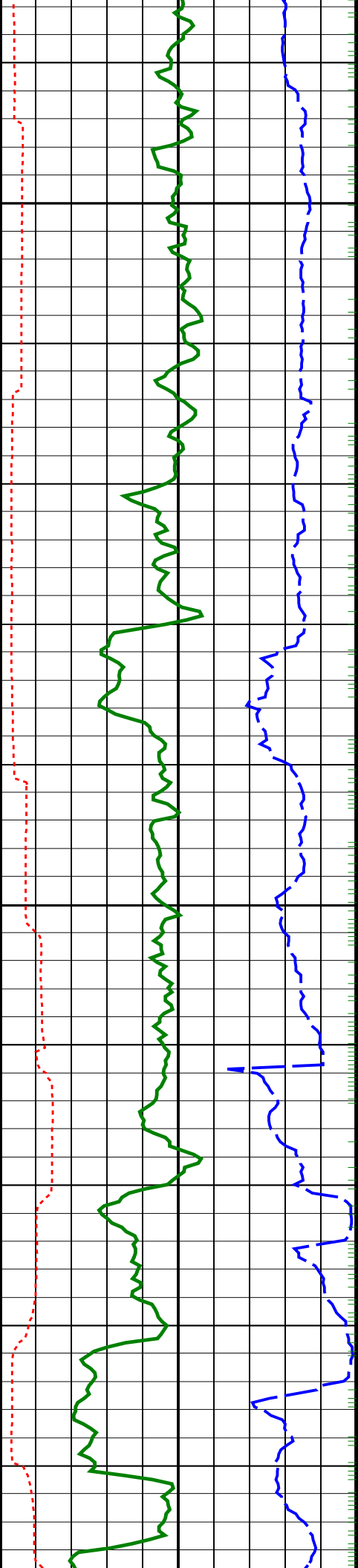




1350  
TVD

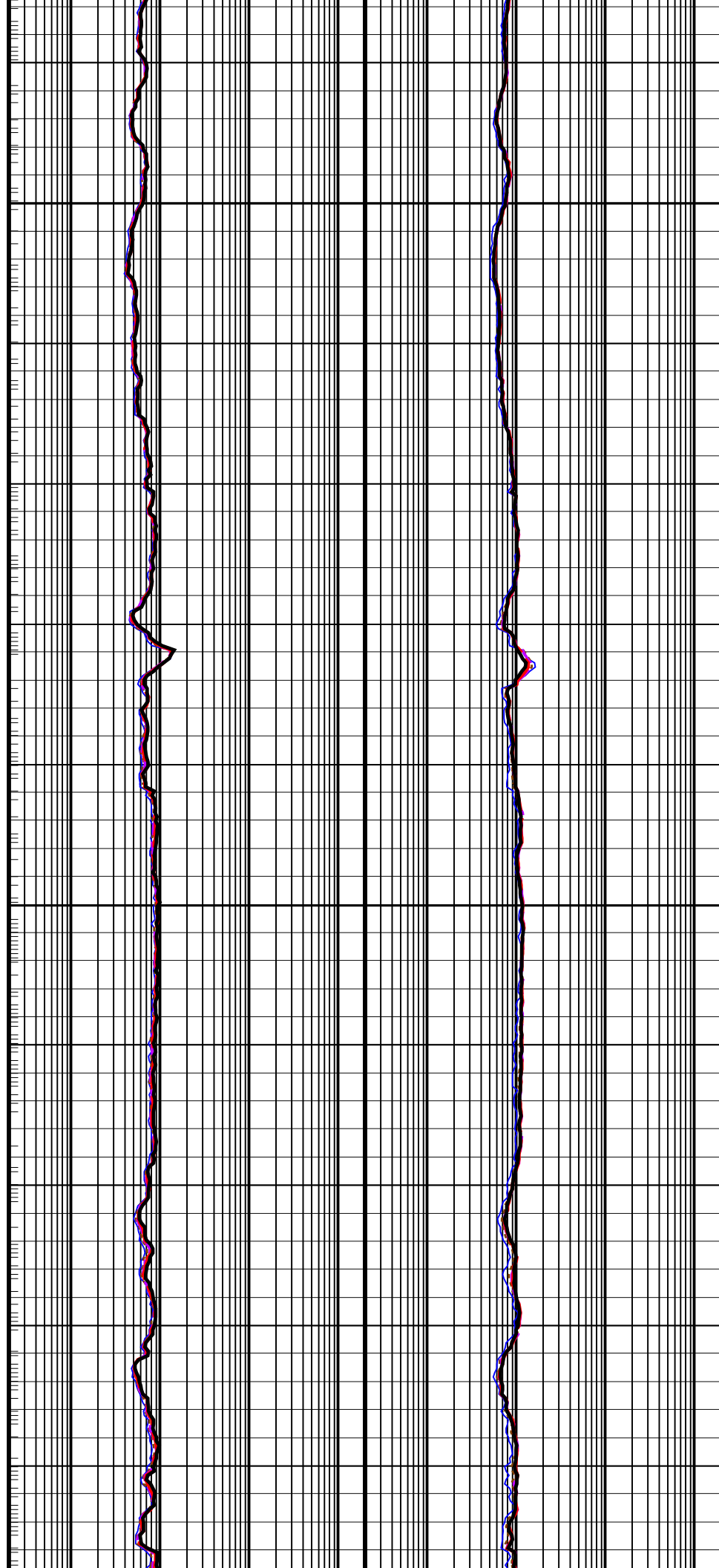
1375  
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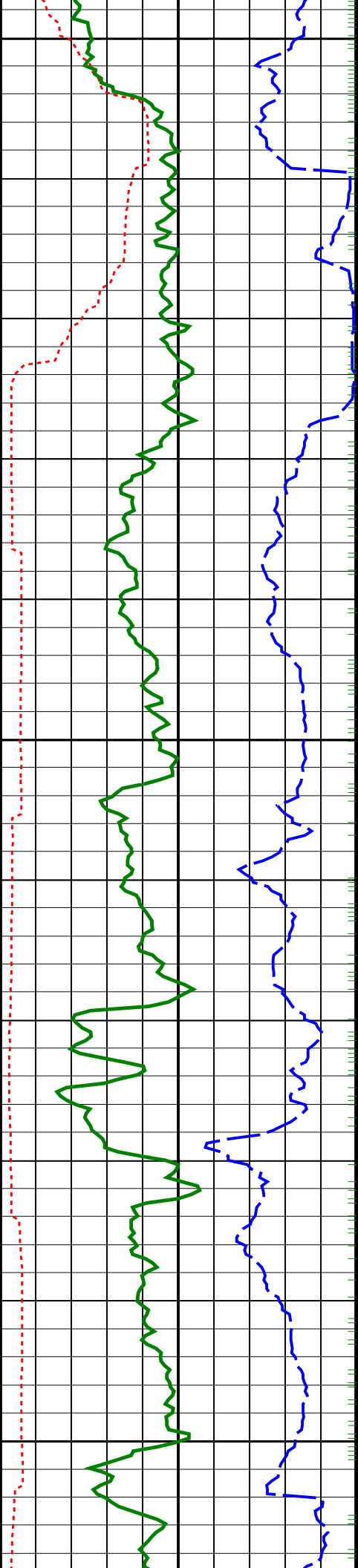




1400  
TVD

1425  
TVD

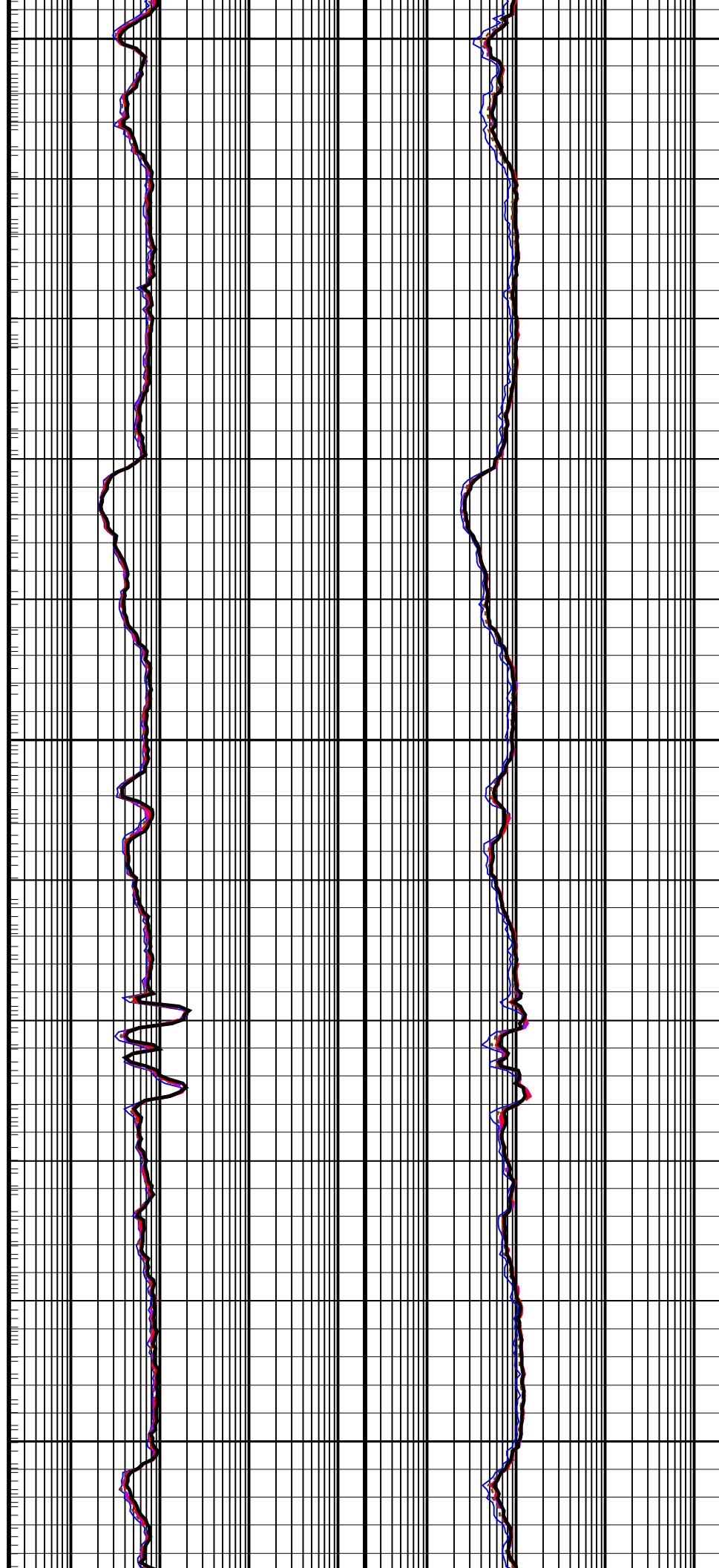


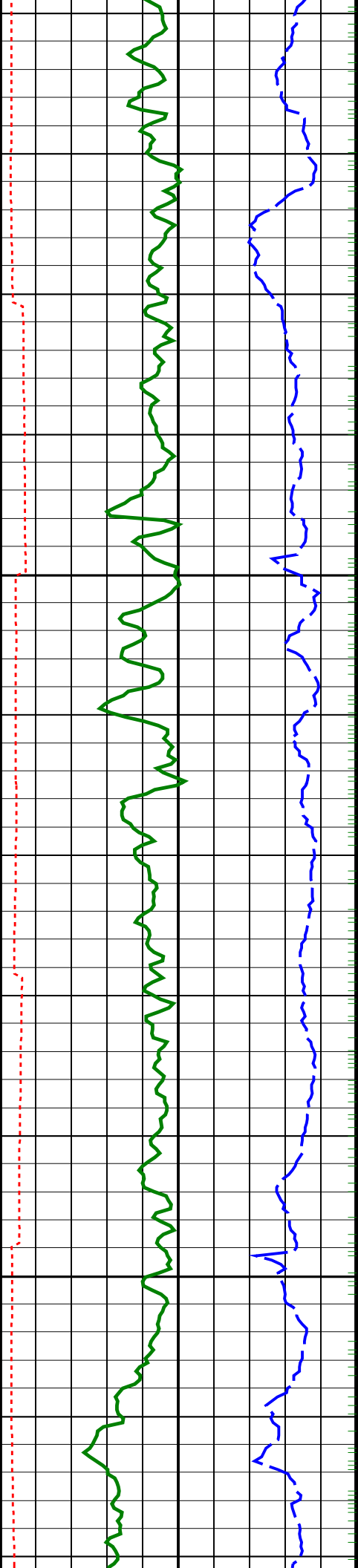


1450  
TVD

1475  
TVD

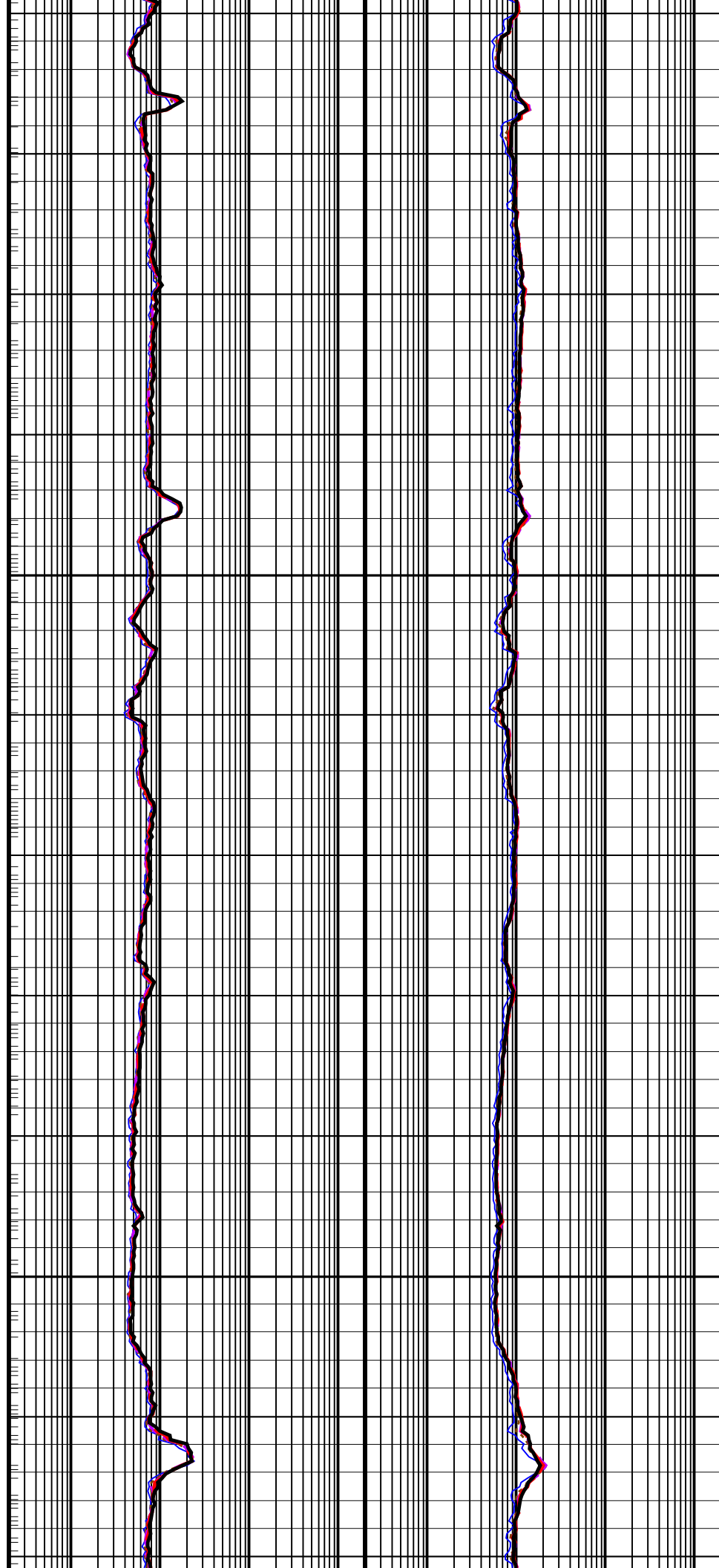
1500  
TVD

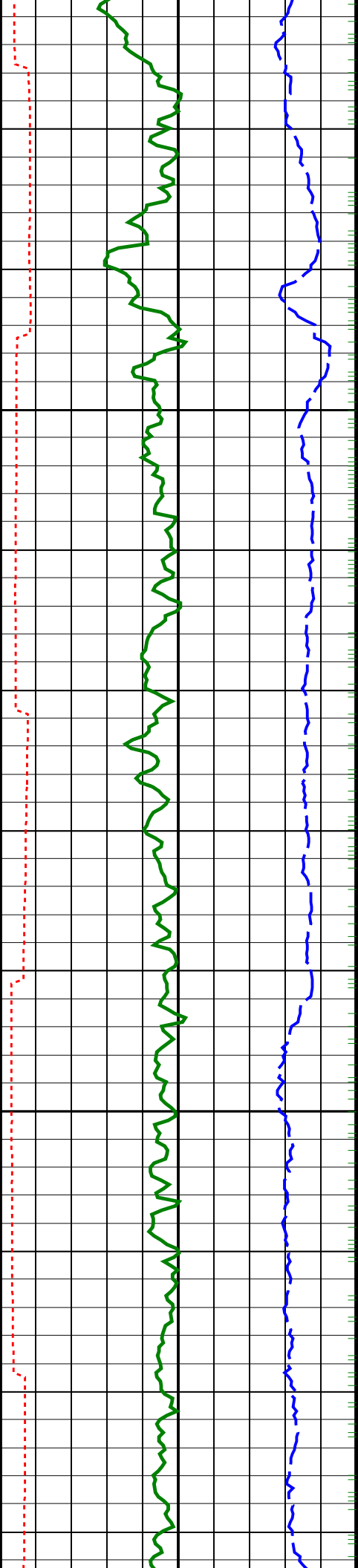




1525  
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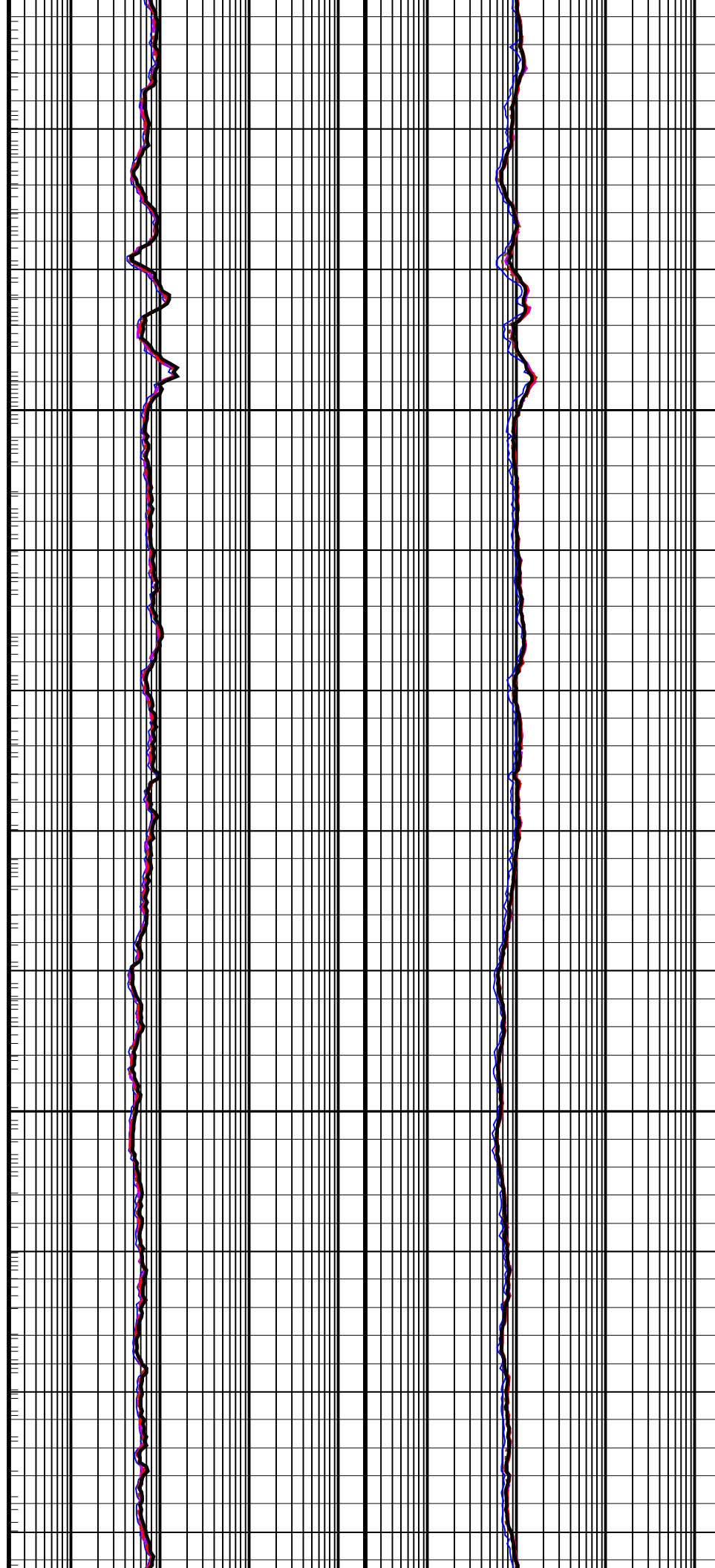
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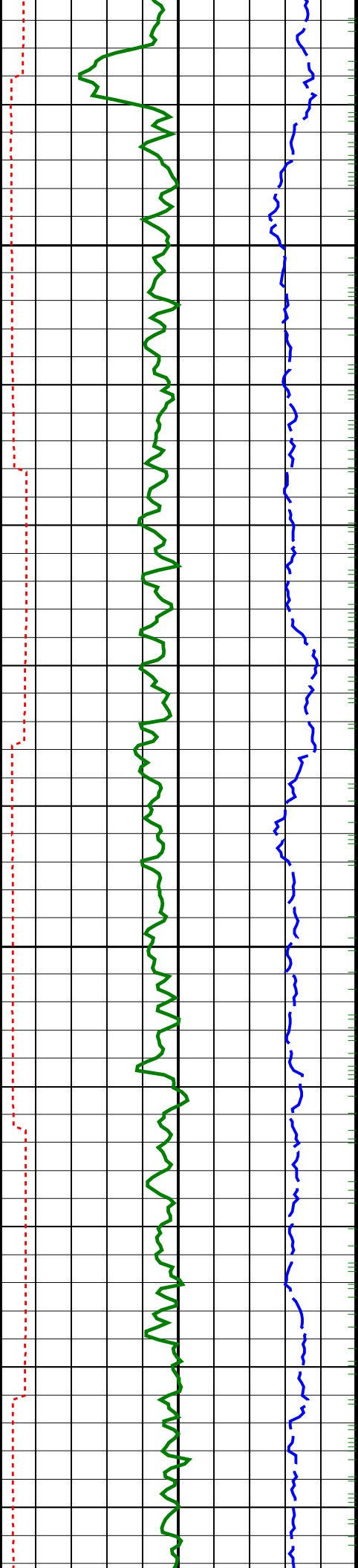




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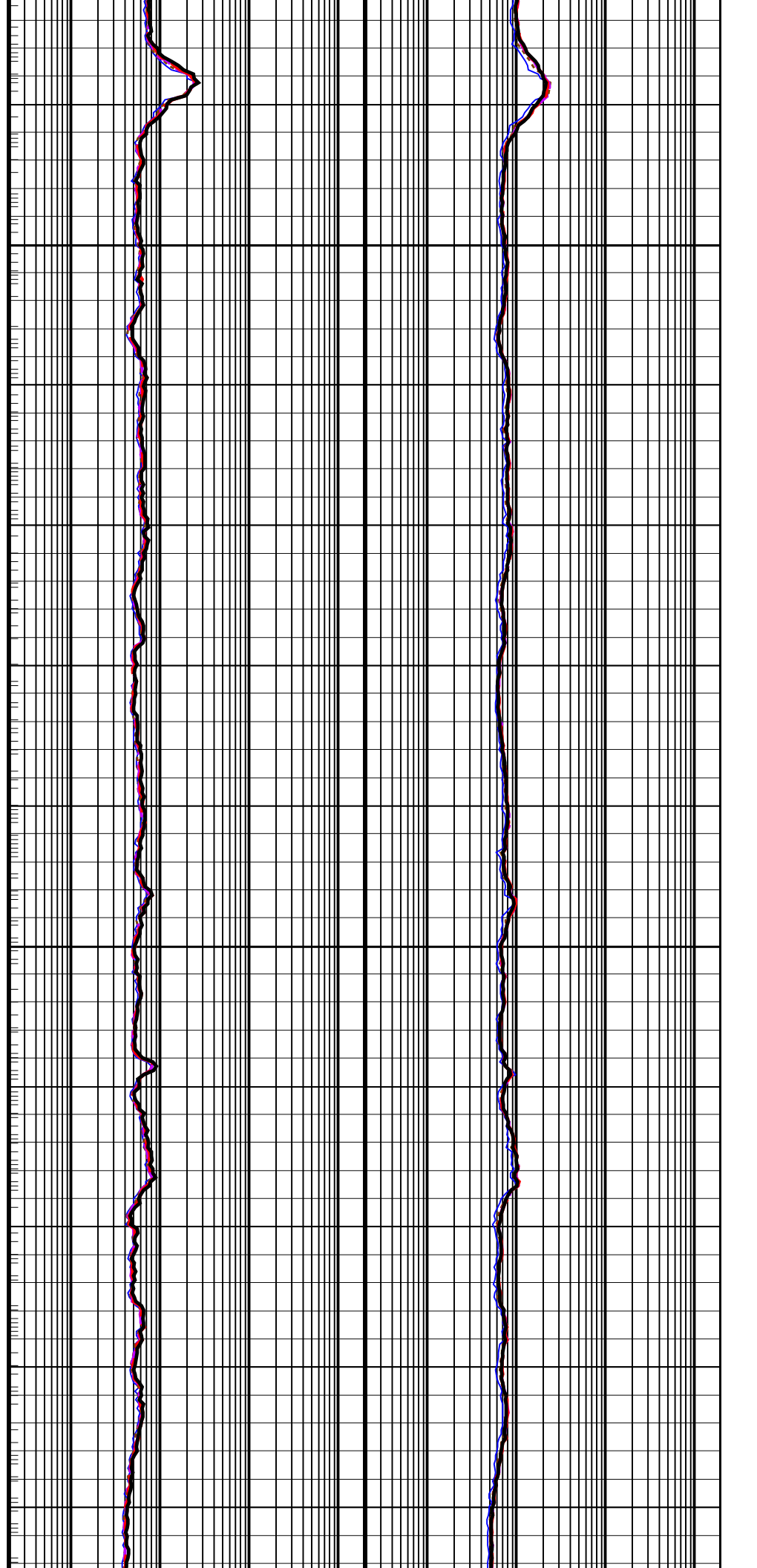
1600  
TVD

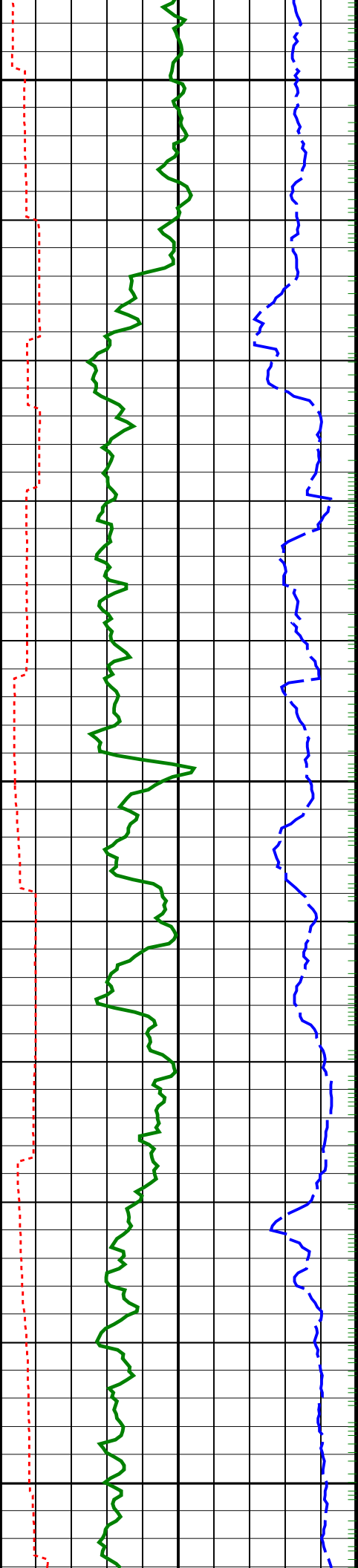




1625  
TVD

1650  
TVD

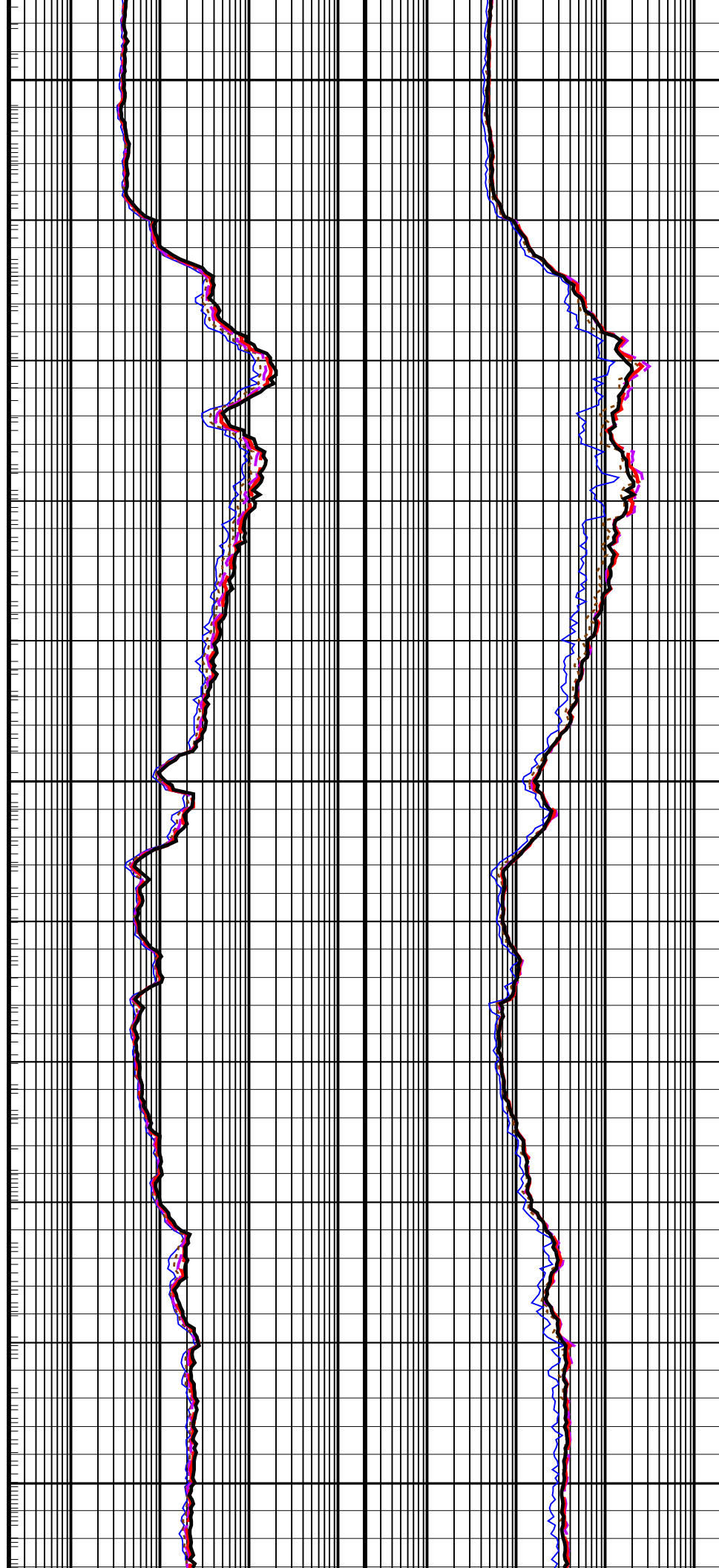


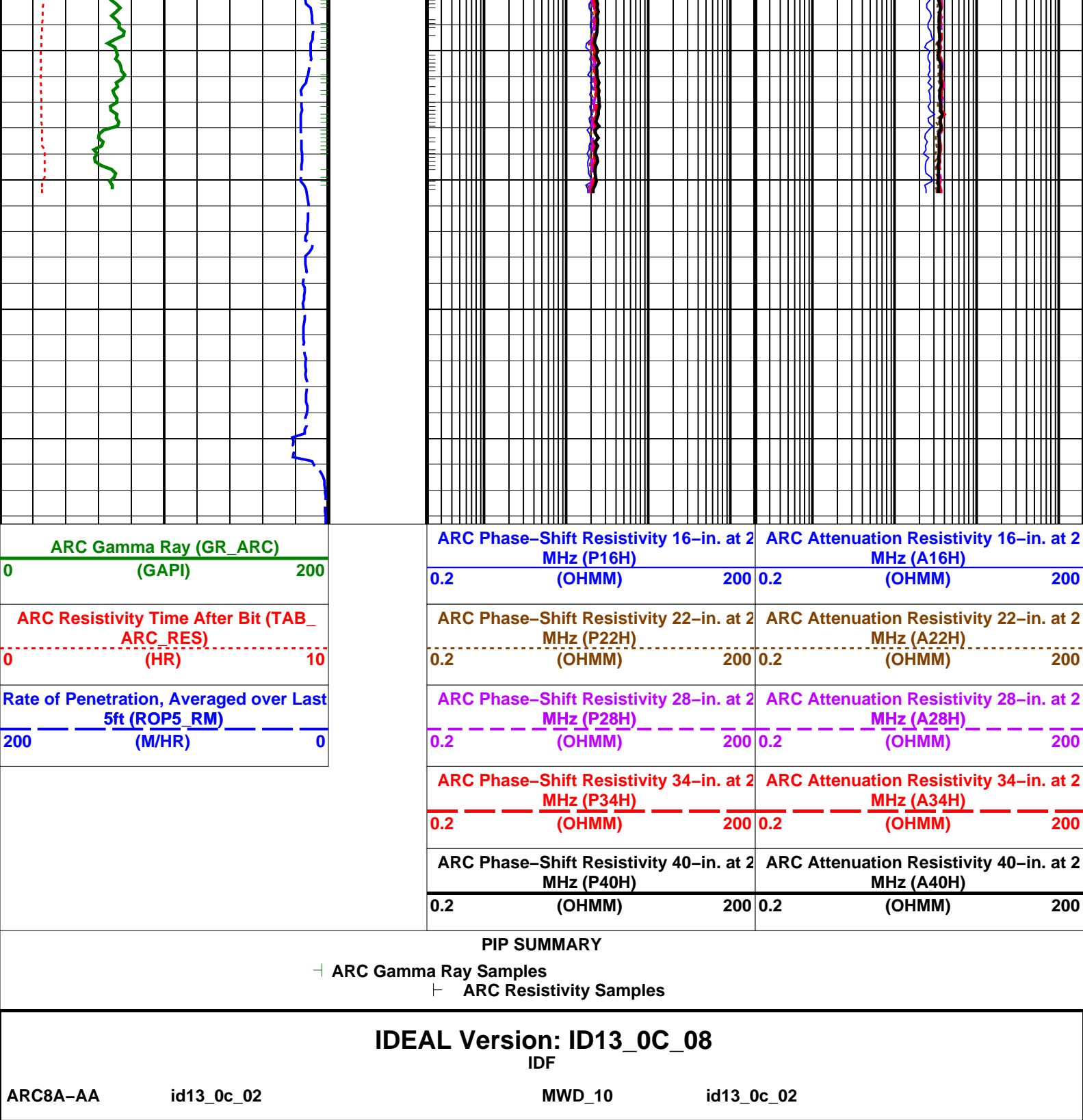


1675  
TVD

1700  
TVD

1725  
TVD





Variable Name	Variable Description	Run Name & Value			
	Run Number		2	3	4
	General Information				
BHT_RM	Bottom Hole Temperature (RM)	DEGC	56.000	77.000	63.000
BSAL_RM	Mud Salinity (RM)	PPK	0.000	0.000	72.750
BS_RM	Bit Size (RM)	IN	12.250	12.250	12.250
COEF_M	User Defined FEXP in Clean Sand	----	1.650	1.650	1.650
C_WS	Overpressure correction to Sw and M	----	1.000	1.000	1.000
FEXP	Formation Factor Exponent (RM)	----	2.000	2.000	2.000
FNUM	Formation Factor Enumerator (RM)	----	1.000	1.000	1.000
FPHI_RM	Formation Factor Porosity Source (RM)	----	XPLOT	XPLOT	XPLOT
MST_RM	Mud Sample temperature (RM)	DEGC	19.500	21.600	15.400
MW_RM	Mud Weight (RM)	LB/G	9.400	11.000	11.100
OBMF_RM	Oil Based Mud (RM)	----	NO	NO	NO
RHOE_RM	Mud Filtrate Density (RM)	G/C3	1.000	1.000	1.000



RHOI_RM	Matrix density (RM)	G/C3	1.000	1.000	1.000
RHOM_RM	Matrix density (RM)	G/C3	2.710	2.710	2.710
RMS_RM	Resistivity of Mud Sample (RM)	OHMM	0.098	0.110	0.128
RWA_COMP_M	Rwa computation model				
RWA_DEN_AD	Rwa Density Input ADN				
RWA_DEN_CD	Rwa Density Input CDN				
RWA_DEN_IN	Rwa Density Input				
RWA_FORM_M	Rwa computation formation model				
RWA_RES_IN	Rwa computation resistivity input				
RWS_RM	Resistivity of Connate Water (RM)	OHMM	1.000	1.000	1.000
SHT_RM	Ground Level Temperature (Mud-Line When Offshore ) (RM)	DEGC	10.000	10.000	10.000
TD_RM	Total Measured Depth (RM)	M	1421.000	1870.000	1875.000
TWS_RM	Temperature of Connate Water (RM)	DEGC	23.889	23.889	23.889
VF_ILLI	Fraction of illite in shales	----	0.500	0.500	0.500
VF_KAOL	Fraction of kaolinite in shales	----	0.500	0.500	0.500
VF_MONT	Fraction of montmorillonite in shales	----	0.000	0.000	0.000
XPDM_RM	Cross plot density porosity multiplier	----	0.675	0.675	0.675
XPNM_RM	Cross plot neutron porosity multiplier	----	0.325	0.325	0.325
ARC					
A12A	ARC Air Cal Attenuation From T1 at 2 MHz	DB	8.020	8.020	8.267
A14A	ARC Air Cal Attenuation From T1 at 400 KHz	DB	7.994	7.994	8.197
A22A	ARC Air Cal Attenuation From T2 at 2 MHz	DB	6.677	6.677	6.374
A24A	ARC Air Cal Attenuation From T2 at 400 KHz	DB	6.710	6.710	6.450
A32A	ARC Air Cal Attenuation From T3 at 2 MHz	DB	4.724	4.724	4.991
A34A	ARC Air Cal Attenuation From T3 at 400 KHz	DB	4.692	4.692	4.915
A42A	ARC Air Cal Attenuation From T4 at 2 MHz	DB	4.625	4.625	4.337
A44A	ARC Air Cal Attenuation From T4 at 400 KHz	DB	4.657	4.657	4.410
A52A	ARC Air Cal Attenuation From T5 at 2 MHz	DB	3.309	3.309	3.582
A54A	ARC Air Cal Attenuation From T5 at 400 KHz	DB	3.289	3.289	3.513
ABNT	Abnormal Transmitter Indicator	----	No_Tx_Failed	No_Tx_Failed	No_Tx_Failed
ADHS	ARC Down Hole Software Version	----	9.3B13	9.3B13	9.3B13
AM2A	ARC Air Cal Amplitude Offset at 2 MHz	----	-50000.000	-50000.000	-50000.000
ANISO_COMPUTE	Anisotropy Computation Option	----	YES	YES	YES
APICG	ARC5 Gamma Ray Gain Factor	----	1.054	1.054	1.078
APIG	ARC Gamma Ray API Gain Factor	----	-1.000	-1.000	-1.000
ARC_DATA_FIX	ARC: Create A Corrected ARC Time Data File	----	NO	NO	NO
ARC_DATA_LTB	ARC: Create An ARC LTB Data File	----	NO	NO	NO
ATMP_ARC	ARC Select Temperature Channel	----	Annulus_Temp	Annulus_Temp	Annulus_Temp
ATRN	ARC Tool Run Number	----	1	2	1
ATSN	ARC Tool Serial Number	----	1106	1106	2724
AZMF	Formation DIP Azimuth	DEG	0.000	0.000	0.000
BH_COMPUTE	Borehole Inversion Computation Option	----	YES	YES	YES
CALG	ARC Gamma Ray Cal Gain Factor	----	1.054	1.054	1.078
CALI_SLCT_ARC	ARC Caliper Selection	----	BITSIZE	BITSIZE	BITSIZE
CDPTH_ARC	Process Start Depth	M	30.480	30.480	30.480
DIELEC_COMPUTE	Dielectric Computation Option	----	YES	YES	YES
DIPF	Formation DIP Angle	DEG	0.000	0.000	0.000
ERRCT	Percentage Error Cutoff	----	4.500	4.500	4.500
GRSH	GR Shale (Invasion Computation Cutoff)	GAPI	1000.000	1000.000	1000.000
HIGH_BLEND	High Resistivity Threshold for Blending	OHMM	2.000	2.000	2.000
INCLIN_B0	ARC Bias Constant (mg)	----	0.000	0.000	0.000
INCLIN_B1	ARC Bias First-order Coefficient (mg/degC)	----	0.000	0.000	0.000
INCLIN_B2	ARC Bias Secod-order Coeeficient (mg/degC)	----	0.000	0.000	0.000
INCLIN_B3	ARC Bias Third-order Coeeficient (mg/degC)	----	0.000	0.000	0.000
INCLIN_C0	ARC Current Scale Factor Constant (mA/g)	----	1.000	1.000	1.000
INCLIN_C1	ARC Scale First-order Coeeficient (mA/g/degC)	----	0.000	0.000	0.000
INCLIN_C2	ARC Scale Second-order Coeeficient (mA/g/degC)	----	0.000	0.000	0.000
INCLIN_C3	ARC Scale Third-order Coeeficient (mA/g/degC)	----	0.000	0.000	0.000
INVAS_COMPUTE	Invasion Computation Option	----	YES	YES	YES
JSD_ARC	ARC Acquisition start date	----	21-Jul-08	23-Jul-08	30-Jul-08
KPER	Potassium Concentration (RM)	----	4.723	4.513	4.356
LOW_BLEND	Low Resistivity Threshold for Blending	OHMM	1.000	1.000	1.000
MSWS	ARC Wizard Model Switch Window	M	1.524	1.524	1.524
MULTIEFFECT_COM	Multi Effect Option	----	YES	YES	YES
P11AC_RM	ARC: Air Calibration For Phase T1 to R1	DEG	-999.250	-999.250	-999.250
P12A	ARC Air Cal Phase-Shift From T1 at 2 MHz	DEG	1.960	1.960	-1.295
P14A	ARC Air Cal Phase-Shift From T1 at 400 KHz	DEG	0.491	0.491	1.663
P22A	ARC Air Cal Phase-Shift From T2 at 2 MHz	DEG	-1.862	-1.862	1.364
P24A	ARC Air Cal Phase-Shift From T2 at 400 KHz	DEG	-0.572	-0.572	-1.688
P32A	ARC Air Cal Phase-Shift From T3 at 2 MHz	DEG	1.851	1.851	-1.375
P34A	ARC Air Cal Phase-Shift From T3 at 400 KHz	DEG	0.506	0.506	1.672
P42A	ARC Air Cal Phase-Shift From T4 at 2 MHz	DEG	-1.940	-1.940	1.321
P44A	ARC Air Cal Phase-Shift From T4 at 400 KHz	DEG	-0.578	-0.578	-1.701
P52A	ARC Air Cal Phase-Shift From T5 at 2 MHz	DEG	1.831	1.831	-1.400
P54A	ARC Air Cal Phase-Shift From T5 at 400 KHz	DEG	0.511	0.511	1.648
POFFSET_ARC	ARC: Pressure Offset	PSI	0.000	0.000	0.000
PRTD	Preferred Resistivity Log for Rt Display while Multi-Effects	----	P34B	P34B	P34B
PSOF_ADJ_T1	ARC: User Input Phase offset	DEG	0.000	0.000	0.000
RESTIK	ARC resistivity tick source	----	Phase	Phase	Phase
RSD	LWD run start date dd-mmm-yy	----	21-Jul-08	23-Jul-08	30-Jul-08
RWA_COMP_MOD	Rwa computation model	----	BASIC	BASIC	BASIC
RWA_DEN_ADN	Rwa Density Input	----	RHOB	RHOB	RHOB
RWA_DEN_CDN	Rwa Density Input	----	RHOB	RHOB	RHOB
RWA_DEN_INPUT	Rwa Density Input	----	RHOB	RHOB	RHOB
RWA_FORM_MOD	Rwa computation formation model	----	CLASTIC	CLASTIC	CLASTIC
RWA_RES_INPUT	Rwa computation resistivity input	----	RT	RT	RT
SHIG	ARC High Shock Risk Level	CPS	0.500	0.500	0.500
SMED	ARC Medium Shock Risk Level	CPS	0.330	0.330	0.330
SMIN	ARC Minimum Shock Risk Level	CPS	0.160	0.160	0.160
SUPD	ARC Real Time Shock Update Rate	S	30.000	30.000	30.000
TCODE_ARC	ARC Tool File Code	S	30.000	30.000	30.000
TSIZ_ARC	ARC Tool Size	IN	8.250	8.250	8.250
UNIFORM_COMPUTE	Uniform Rock Option	----	YES	YES	YES
VERS_ARC	ARC Down hole software version Number	----	9.300	9.300	9.300
WRK	to Report Potassium Concentration (RM)	----	K_by_Wgt_%	K_by_Wgt_%	K_by_Wgt_%

SAD

ADN_CHASSIS_STR	Type String	Chassis	ADN
ADN_COLLAR_STR	Type String	Collar	ADN
ADN_DATA_FIX	ADN: Create A Corrected ADN Time Data File	----	NO
ADN_DATA_LTB	ADN: Create An ADN LTB Data File	----	NO
ADN_STAB_STR	ADN Stabilizer Type String	----	NO
ALPHA_COMPUTE_D	Perform Density Enhanced Vertical Resolution process ?	----	NO
ALPHA_COMPUTE_N	Perform Neutron Enhanced Vertical Resolution process ?	----	NO
AVE_ADN	ADN/Array Channels: perform averaging(RM) :	----	YES
A_DHS	ADN Down Hole Software Version String	----	YES
CHI_RM	Caliper High limit from BS (RM)	IN	3.000
CLO_RM	Caliper Low limit from BS (RM)	IN	0.000
DEVI	Well Section Deviation	DEG	21.560
DTIK_SEL	ADN: Density Tick Channel Name	----	LSAZ
DTMUD	Delta-T for Mud	US/F	189.270
DYN_IMG_COMPUTE	Generate Dynamic Normalized Image?	----	NO
ENVCOR	Neutron Processing: Environmental Correction?	----	YES
EVRL	EVR Process averaging number of samples (RM)	----	49
FAZ1_AVAIL	ADN8 Neutron Far Tube 1 Available?	----	YES
FAZ2_AVAIL	ADN8 Neutron Far Tube 2 Available?	----	YES
FAZ3_AVAIL	ADN8 Neutron Far Tube 3 Available?	----	YES
FCD	Future Casing (Outer) Diameter	IN	0.000
GCSE	Generalized Caliper Selection	----	BS
IDQT	Image Derived Quality Threshold	----	1.000
IHVS	Integrated Hole Volume Start Value(RM)	F3	0.000
IMAGE_MAX_SOA	Image SOA (Quadrant) Right Scale	IN	2.500
IMAGE_MAX_SPEF	Image PEF(Segment) Right Scale	----	6.000
IMAGE_MAX_SRHOB	Image RHOB(Segment) Right Scale	G/C3	2.650
IMAGE_MIN_SOA	Image SOA (Quadrant) Left Scale	IN	0.000
IMAGE_MIN_SPEF	Image PEF(Segment) Left Scale	----	2.000
IMAGE_MIN_SRHOB	Image RHOB(Segment) Left Scale	G/C3	2.050
JSD_ADN	ADN Acquisition start date	----	30-Jul-08
LITHO_TYPE_ADN	Lithology (RM)	----	LIME
N1FTU_6_RM	ADN: Neutron Bank 1 Far Tubes used :	----	1-2-3
N2FTU_6_RM	ADN: Neutron Bank 2 Far Tubes used :	----	1-2-3
NNTU_8_RM	ADN: Neutron Near Tube used :	----	1-2-3
NTIK_SEL	ADN: Neutron Tick Channel Name	----	FAZ1
SOCNL	Standoff Distance of the CNL Tool	----	1.000
SSIZ_ADN	ADN Stabilizer Size	IN	12.000
STOH	ADN Density Top of Hole Sector (Left Boundary):	----	SECTOR_0
TRPM_RM	Average Tool Rotational Speed	RPM	20.000
USMIN_RM	ADN:Minimum Ultrasonic standoff (RM)	IN	0.180
USWF_RM	ADN:Process Ultrasonic Waveform?	----	YES
VERS_ADN	ADN Downhole Software Version	----	V8.3A02
WSDI	Window Size of Dynamic Normalization Image	M	4.572

Schlumberger Drilling &amp; Measurements

ID13 Parameter Insert Header Software version 3.0c

## 8.25-in. Array Resistivity Compensated / Equipment Identification

Primary Equipment:




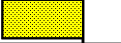






Tool Name and Serial Number  
ARC825 Calibration StatusARC8 – AA  
Valid

8084

Master: 16-Jul-2008 15:02

## 8.25-in. Array Resistivity Compensated Calibration

Resistivity: Air


Phase	Phase-Shift T1	Value	Phase	Phase-Shift T2	Value	Phase	Phase-Shift T3	Value	
Master		1.960	Master		-1.862	Master		1.851	
	-3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)	-3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)	-3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)
Phase	Phase-Shift T4	Value	Phase	Phase-Shift T5	Value	Phase	Phase-Shift T1 at 400KHz	Value	
Master		-1.940	Master		1.831	Master		0.4912	
	-3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)	-3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)	-3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)
Phase	Phase-Shift T2 at 400KHz	Value	Phase	Phase-Shift T3 at 400KHz	Value	Phase	Phase-Shift T4 at 400KHz	Value	
Master		-0.5722	Master		0.5060	Master		-0.5776	
	-3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)	-3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)	-3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)
Phase	Phase-Shift T5 at 400KHz	Value							
Master		0.5110							
	-3.900 (Minimum)	0.1000 (Nominal)							4.100 (Maximum)

Master: 16-Jul-2008 15:02

## 8.25-in. Array Resistivity Compensated Calibration

Resistivity: Air														
Phase	Attenuation T1			Value	Phase	Attenuation T2			Value	Phase	Attenuation T3			Value
Master	<div><div></div></div>			8.020	Master	<div><div></div></div>			6.677	Master	<div><div></div></div>			4.724
	6.500 (Minimum)	8.500 (Nominal)	10.50 (Maximum)		4.500 (Minimum)	6.500 (Nominal)	8.500 (Maximum)			2.500 (Minimum)	4.500 (Nominal)	6.500 (Maximum)		
Phase	Attenuation T4			Value	Phase	Attenuation T5			Value	Phase	Attenuation T1 at 400KHz			Value
Master	<div><div></div></div>			4.625	Master	<div><div></div></div>			3.309	Master	<div><div></div></div>			7.994
	2.600 (Minimum)	4.600 (Nominal)	6.600 (Maximum)		1.600 (Minimum)	3.600 (Nominal)	5.600 (Maximum)			6.500 (Minimum)	8.500 (Nominal)	10.50 (Maximum)		
Phase	Attenuation T2 at 400KHz			Value	Phase	Attenuation T3 at 400KHz			Value	Phase	Attenuation T4 at 400KHz			Value
Master	<div><div></div></div>			6.710	Master	<div><div></div></div>			4.692	Master	<div><div></div></div>			4.657
	4.500 (Minimum)	6.500 (Nominal)	8.500 (Maximum)		2.500 (Minimum)	4.500 (Nominal)	6.500 (Maximum)			2.600 (Minimum)	4.600 (Nominal)	6.600 (Maximum)		
Phase	Attenuation T5 at 400KHz			Value										
Master	<div><div></div></div>			3.289										
	1.600 (Minimum)	3.600 (Nominal)	5.600 (Maximum)											

Master: 15-Jun-2008 17:32

8.25-in. Array Resistivity Compensated Calibration			
Gamma Ray: Blanket			
Phase	Gamma ray factor (equals Calibration Gain multiplied by API Gain Factor) CPS		Value
Master			7.590
	4.960 (Minimum)	7.200 (Nominal)	9.650 (Maximum)











## 8.25-in. Array Resistivity Compensated / Equipment Identification

## Primary Equipment:







Tool Name and Serial Number  
ARC825 Calibration StatusARC8 – AA  
Valid

8316

Master: 17-Jul-2008 15:03

8.25-in. Array Resistivity Compensated Calibration															
Resistivity: Air															
Phase	Phase-Shift T1			Value	Phase	Phase-Shift T2			Value	Phase	Phase-Shift T3			Value	
Master				-1.295	Master				1.364	Master				-1.375	
	-3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)		-3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)		-3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)		-3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)
Phase	Phase-Shift T4			Value	Phase	Phase-Shift T5			Value	Phase	Phase-Shift T1 at 400KHz			Value	
Master				1.321	Master				-1.400	Master				1.663	
	-3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)		-3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)		-3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)		-3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)
Phase	Phase-Shift T2 at 400KHz			Value	Phase	Phase-Shift T3 at 400KHz			Value	Phase	Phase-Shift T4 at 400KHz			Value	
Master				-1.688	Master				1.672	Master				-1.701	
	-3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)		-3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)		-3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)		-3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)
Phase	Phase-Shift T5 at 400KHz			Value											
Master				1.648											
	-3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)												

Master: 17-Jul-2008 15:03

8.25-in. Array Resistivity Compensated Calibration														
Resistivity: Air														
Phase	Attenuation T1			Value	Phase	Attenuation T2			Value	Phase	Attenuation T3			Value
Master				8.267	Master				6.374	Master				4.991
	6.500 (Minimum)	8.500 (Nominal)	10.50 (Maximum)		4.500 (Minimum)	6.500 (Nominal)	8.500 (Maximum)			2.500 (Minimum)	4.500 (Nominal)	6.500 (Maximum)		
Phase	Attenuation T4			Value	Phase	Attenuation T5			Value	Phase	Attenuation T1 at 400KHz			Value
														



Departure (E/W-):.....: 11.81 degrees  
 Total az corr (+E/W-):.....: 11.81 degrees  
 Azimuth from Vsect Origin to target: 0.00 degrees (Total az corr = magnetic dec – grid conv)  
 Survey Correction Type ....:  
 I=Sag Corrected Inclination  
 M=Schlumberger Magnetic Correction  
 S=Shell Magnetic Correction  
 F=Failed Axis Correction  
 R=Magnetic Resonance Tool Correction  
 D=Dmag Magnetic Correction

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 SCHLUMBERGER Survey Report

25-Jul-2008 05:53:28

Page 2 of 4

Seq #	Measured depth (m)	Incl angle (deg)	Azimuth angle (deg)	Course length (m)	TVD depth (m)	Vertical section (m)	Displ +N/S- (m)	Displ +E/W- (m)	Total displ (m)	At Azim (deg)	DLS (deg/100f)	Srvy tool	Tool Corr
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	TIP	None
2	87.00	0.00	0.00	87.00	87.00	0.00	0.00	0.00	0.00	0.00	0.00	SB	None
3	110.29	0.34	228.85	23.29	110.29	-0.05	-0.05	-0.05	0.07	228.85	0.44	EMS	None
4	139.31	0.48	70.38	29.02	139.31	-0.06	-0.06	-0.00	0.06	182.21	0.85	EMS	None
5	168.50	0.56	302.02	29.19	168.50	0.06	0.06	-0.01	0.06	351.63	0.98	EMS	None
6	196.58	0.62	250.43	28.08	196.58	0.08	0.08	-0.27	0.28	286.10	0.56	EMS	None
7	224.66	0.70	303.64	28.08	224.66	0.12	0.12	-0.55	0.57	282.37	0.65	EMS	None
8	252.74	0.64	294.72	28.08	252.73	0.28	0.28	-0.84	0.88	288.58	0.13	EMS	None
9	280.80	0.72	298.73	28.06	280.79	0.43	0.43	-1.14	1.22	290.84	0.10	EMS	None
10	309.51	0.65	287.17	28.71	309.50	0.57	0.57	-1.45	1.56	291.36	0.16	EMS	None
11	337.98	0.69	292.15	28.47	337.97	0.68	0.68	-1.76	1.89	291.08	0.08	EMS	None
12	366.89	0.70	359.25	28.91	366.88	0.92	0.92	-1.93	2.14	295.57	0.81	EMS	None
13	395.80	0.92	12.26	28.91	395.78	1.32	1.32	-1.88	2.30	305.19	0.30	EMS	None
14	424.75	0.87	19.30	28.95	424.73	1.76	1.76	-1.76	2.49	315.04	0.13	EMS	None
15	453.68	0.56	88.31	28.93	453.66	1.97	1.97	-1.54	2.50	321.94	0.89	EMS	None
16	482.49	0.59	96.35	28.81	482.47	1.96	1.96	-1.26	2.33	327.35	0.09	EMS	None
17	511.36	0.65	96.56	28.87	511.34	1.92	1.92	-0.94	2.14	333.84	0.06	EMS	None
18	540.27	0.70	100.87	28.91	540.24	1.87	1.87	-0.61	1.97	341.99	0.08	EMS	None
19	569.05	0.71	112.99	28.78	569.02	1.77	1.77	-0.27	1.79	351.27	0.16	EMS	None
20	597.90	0.69	128.34	28.85	597.87	1.59	1.59	0.03	1.59	1.05	0.20	EMS	None
21	617.15	0.84	123.17	19.25	617.12	1.44	1.44	0.24	1.46	9.38	0.26	EMS	None
22	634.46	0.94	124.68	17.31	634.42	1.29	1.29	0.46	1.37	19.65	0.18	EMS	None
23	660.03	0.52	130.06	25.57	659.99	1.10	1.10	0.72	1.31	33.35	0.51	MWD	None
24	745.26	2.31	160.81	85.23	745.19	-0.77	-0.77	1.58	1.76	116.04	0.67	MWD	None
25	773.50	4.27	158.54	28.24	773.39	-2.29	-2.29	2.15	3.14	136.73	2.12	MWD	None
26	801.23	5.89	157.85	27.73	801.01	-4.57	-4.57	3.07	5.50	146.11	1.78	MWD	None
27	831.43	7.57	152.25	30.20	831.00	-7.76	-7.76	4.58	9.01	149.47	1.82	MWD	None
28	859.94	9.31	137.33	28.51	859.20	-11.12	-11.12	7.02	13.15	147.75	2.98	MWD	None
29	889.70	11.19	126.87	29.76	888.49	-14.63	-14.63	10.96	18.28	143.15	2.70	MWD	None
30	919.19	12.15	123.94	29.49	917.37	-18.08	-18.08	15.82	24.02	138.80	1.17	MWD	None

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 SCHLUMBERGER Survey Report

25-Jul-2008 05:53:28

Page 3 of 4

Seq #	Measured depth (m)	Incl angle (deg)	Azimuth angle (deg)	Course length (m)	TVD depth (m)	Vertical section (m)	Displ +N/S- (m)	Displ +E/W- (m)	Total displ (m)	At Azim (deg)	DLS (deg/100f)	Srvy tool	Tool Corr
31	948.90	12.93	122.08	29.71	946.37	-21.59	-21.59	21.23	30.28	135.47	0.90	MWD	None
32	979.41	13.44	120.85	30.51	976.07	-25.22	-25.22	27.17	37.07	132.86	0.58	MWD	None
33	1007.51	14.16	120.45	28.10	1003.36	-28.63	-28.63	32.94	43.64	131.00	0.79	MWD	None
34	1036.14	14.55	118.54	28.63	1031.10	-32.13	-32.13	39.12	50.62	129.40	0.65	MWD	None
35	1065.20	14.60	118.24	29.06	1059.22	-35.60	-35.60	45.55	57.81	128.01	0.09	MWD	None
36	1096.08	14.09	118.27	30.88	1089.14	-39.23	-39.23	52.29	65.37	126.88	0.50	MWD	None
37	1124.66	14.01	116.68	28.58	1116.87	-42.43	-42.43	58.44	72.22	125.98	0.42	MWD	None
38	1153.50	15.82	116.95	28.84	1144.73	-45.78	-45.78	65.07	79.56	125.13	1.91	MWD	None
39	1182.04	19.92	117.65	28.54	1171.89	-49.80	-49.80	72.84	88.24	124.36	4.38	MWD	None
40	1210.10	23.56	117.60	28.06	1197.95	-54.62	-54.62	82.05	98.57	123.65	3.95	MWD	None
41	1239.36	25.76	114.79	29.26	1224.54	-59.99	-59.99	93.01	110.68	122.82	2.60	MWD	None
42	1267.39	29.36	115.62	28.03	1249.39	-65.52	-65.52	104.74	123.54	122.03	3.94	MWD	None
43	1294.27	33.74	116.12	26.88	1272.29	-71.66	-71.66	117.39	137.53	121.40	4.98	MWD	None
44	1322.42	33.97	116.49	28.15	1295.67	-78.61	-78.61	131.45	153.16	120.88	0.33	MWD	None
45	1350.13	34.69	115.42	27.71	1318.55	-85.44	-85.44	145.50	168.73	120.42	1.03	MWD	None
46	1379.95	34.59	115.60	29.82	1343.08	-92.74	-92.74	160.80	185.63	119.98	0.15	MWD	None
47	1408.27	35.05	116.50	28.32	1366.33	-99.85	-99.85	175.32	201.76	119.66	0.74	MWD	None
48	1436.16	34.88	116.15	27.89	1389.19	-106.93	-106.93	189.65	217.72	119.42	0.29	MWD	None
49	1465.63	35.16	116.10	29.47	1413.32	-114.38	-114.38	204.83	234.60	119.18	0.29	MWD	None
50	1494.27	35.09	116.37	28.64	1436.75	-121.67	-121.67	219.61	251.06	118.99	0.18	MWD	None
51	1523.47	35.39	116.22	29.20	1460.60	-129.13	-129.13	234.72	267.89	118.82	0.33	MWD	None
52	1552.94	35.14	115.95	29.47	1484.66	-136.61	-136.61	250.00	284.89	118.65	0.30	MWD	None
53	1581.55	35.10	115.95	28.61	1508.06	-143.81	-143.81	264.80	301.33	118.51	0.04	MWD	None
54	1610.85	35.09	116.84	29.30	1532.03	-151.30	-151.30	279.89	318.17	118.39	0.53	MWD	None

55	1639.13	35.01	117.96	28.28	1555.18	-158.78	-158.78	294.31	334.40	118.35	0.70	MWD	None
56	1668.08	34.91	118.18	28.95	1578.91	-166.58	-166.58	308.94	350.99	118.33	0.17	MWD	None
57	1695.83	34.89	119.39	27.75	1601.67	-174.23	-174.23	322.86	366.87	118.35	0.76	MWD	None
58	1725.28	34.90	120.32	29.45	1625.82	-182.61	-182.61	337.47	383.71	118.42	0.55	MWD	None
59	1753.73	34.99	120.90	28.45	1649.15	-190.91	-190.91	351.49	399.99	118.51	0.37	MWD	None
60	1781.62	35.06	120.66	27.89	1671.98	-199.10	-199.10	365.25	415.99	118.60	0.17	MWD	None

Seq	Measured	Incl	Azimuth	Course	TVD	Vertical	Displ	Displ	Total	At	DLS	Srvy	Tool
#	depth	angle	angle	length	depth	section	+N/S-	+E/W-	displ	Azim	(deg/	tool	Corr
-	(m)	(deg)	(deg)	(m)	(m)	(m)	(m)	(m)	(deg)	100f)	type	(deg)	
61	1811.05	35.22	120.21	29.43	1696.05	-207.68	-207.68	379.85	432.92	118.67	0.32	MWD	None
62	1838.59	35.18	119.41	27.54	1718.56	-215.57	-215.57	393.63	448.79	118.71	0.51	MWD	None
63	1875.00	35.38	119.23	36.41	1748.28	-225.87	-225.87	411.96	469.82	118.74	0.06	Projection	to TD

Company:

Santos Ltd

Well:

Netherby-1

Field:

Otway

Rig:

Ocean Patriot

State:

Victoria

VISION Resistivity

1:200 True Vertical Depth

Recorded Mode Log

Schlumberger

12.25 in. Section