Schlumberger

Company: **ESSO Australia Pty Ltd**

9.875 in. Section

Well: **WKF W12A**

Field: **WEST KINGFISH**

Rig: **ISDL 175** State: **Victoria**

Rig: ISDL 175
Field: WEST KINGFISH
Location: Bass Strait
Well: WKF W12A
Company: ESSO Australia Pty Ltd

VISION Service
1:200 True Vertical Depth (Trip Out)
Recorded Mode Log

Location

Total depth:	2440.00 m
Spud date:	21−Nov−09
Run:	1

Elevation

K.B.	Top Drive
G.L.	−77.00 m
D.F.	41.70 m

Permanent datum:	Mean Sea Level	Elev.:	0.00 m
Log measured from:	Drill Floor	41.70 m	above Perm. datum
Depth reference:	Driller's Depth		

Service Order no.	X = E 596,267.198 m	Longitude	Latitude
09ASQ0036	Y = N 5,727,808.731 m	E 148° 6' 19.497"	S 38° 35' 34.768"

Depth logged:	626.53 m	To	2429.67 m	Mag decl:	13.22 deg.
Date logged:	21−Nov−09	To	24−Nov−09	Mag dip:	−69.00 deg.

Other services: See Remarks

Bore hole record

Hole size	from	to
9.875 in.	553.00 m	2440.00 m

Casing record

Size	Density	from	to
10.75 in.	40.50 lbm/ft	20.53 m	626.53 m

Mud record

Type	from	to
Accolade SBM	553.00 m	2440.00 m

Borehole deviation record

Min	Max	from	to
0.47 deg.	9.70 deg.	626.53 m	2440.00 m

Surface equipment

Unit	OLU−KC−0801
Depth system	PDA/CLT

Software record

IDEAL Wis	ID14_0C_25
HSPM	14_1C_03
LWD	See Remarks
MWD	9.2C02

Bit Run Summary

Run number		1
Bit size	in	9.875
Bit start depth	m	553.0
Bit end depth	m	2440.0
Top interval logged	m	626.53
Bottom interval logged	m	2429.67
Begin log: time		09:07
Begin log: date		21−Nov−09
End log: time		06:51
End log: date		24−Nov−09
Mud data		
Depth	m	2227.0
Type		Accolade SBM
Mud weight	ppg	11.50
Solids	%	17.6
Chlorides	mg/L	48,603
Rm	ohm.m@°C	n.a
Rmf	ohm.m@°C	n.a
Rmc	ohm.m@°C	n.a

Potassium	%	n.a									
Environmental data											
GR											
Mud weight	ppg	11.50									
Bit size	in	9.875									
Resistivity											
Neutron porosity											
Hole Size	in	9.875									
Mud weight	ppg	11.50									
Temperature	°C	20									
Mud salinity	ppk	61.350									
Formation salinity		n.a									
Recording rate 1	SEC	6 (arc)									
Recording rate 2	SEC	5 (adn) 10 (sonic)									
Filtering GR		3 pts.									
Filtering density		3 pts.									
Filtering Neutron		3 pts.									
Company representative		A. Choy	D. Daniels	M. Calicutt							
D&M personnel		M. Sihite	D.Perkins	W.Chehabi	C. Soper	D.B. Khanh					

OTHER SERVICES FOR RUN1

Directional Drilling
Directional Surveys
Annular Pressure & Temperature
Shock & Vibrations

REMARKS: RUN NUMBER 1

Depth is referenced to Driller's depth

Gamma ray is corrected for mud weight, tool size and bit size

Resistivity is borehole compensated and environmentally corrected

Neutron porosity is corrected for the effects of borehole size (bit size), temperature, mud salinity and mud hydrogen index (a factor of mud weight, mud temperature and pressure)

Neutron porosity is calculated using a limestone matrix density of 2.71 g/cm3

ADN was run with 9−5/8" clamp on stabilizer

Delta−T is borehole compensated

Ultrasonic sensor failure

Density caliper presented instead

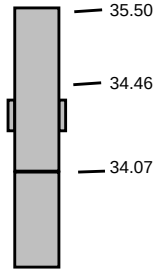
POOH upon reaching TD of WKF W12A

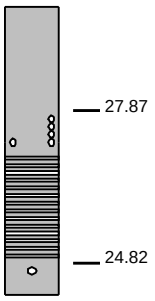
EQUIPMENT DESCRIPTION

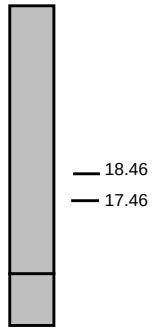
RUN1

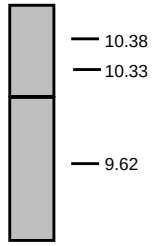
DOWNHOLE EQUIPMENT

DOWNHOLE EQUIPMENT









6−3/4" adnVISION* 9−5/8" Stabilizer DHS: V8.4 S/N: 141	35.50 34.46 34.07	37.48
6−3/4" sonicVISION* DHS: V6.8 S/N: 42256	27.87 24.82	30.96
9−5/8" NM−ILS S/N: ASQ9009		23.66
6−3/4" TeleScope* DHS: V9.2 S/N: E0330	18.46 17.46	22.82
9−5/8" NM−ILS S/N: OSS090215		14.71
6−3/4" arcVISION* DHS: V9.4 S/N: 2065	10.38 10.33 9.62	13.74
6−3/4" PowerDrive Xceed S/N: DN182		7.96
9−7/8" Reed Hycalog PDC Bit S/N: 126965	0.00	0.31

Maximum string diameter 9.88 in.

All lengths in Meters

Variable Name	Variable Description	Run Name & Value		
	Run Number			1
	General Information			
BHT_RM	Bottom Hole Temperature (RM)		DEGC	91.000
BSAL_RM	Mud Salinity (RM)		PPK	61.350
BS_RM	Bit Size (RM)		IN	9.875
COEF_M	User Defined FEXP in Clean Sand		----	1.650
C_WS	Overpressure correction to Sw and M		----	1.000
FEXP	Formation Factor Exponent(RM)		----	2.000
FNUM	Formation Factor Enumerator(RM)		----	1.000
FPHI_RM	Formation Factor Porosity Source (RM)		----	XPLOT
MST_RM	Mud Sample temperature (RM)		DEGC	20.000
MW_RM	Mud Weight (RM)		LB/G	11.500
OBMF_RM	Oil Based Mud (RM)		----	YES
RHOF_RM	Mud Filtrate Density (RM)		G/C3	1.000
RHOM_RM	Matrix density (RM)		G/C3	2.710
RMS_RM	Resistivity of Mud Sample (RM)		OHMM	1000.000
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
SHT_RM	Ground Level Temperature (Mud-Line When Offshore) (RM)		DEGC	10.000
TD_RM	Total Measured Depth (RM)		M	2440.000
TWS_RM	Temperature of Connate Water (RM)		DEGC	23.889
VF_ILLI	Fraction of illite in shales		----	0.500
VF_KAOL	Fraction of kaolinite in shales		----	0.500
VF_MONT	Fraction of montmorillonite in shales		----	0.000
XPDM_RM	Cross plot density porosity multiplier		----	0.675
XPNM_RM	Cross plot neutron porosity multiplier		----	0.325
	ARC			
A12A	ARC Air Cal Attenuation From T1 at 2 MHz		DB	8.342
A14A	ARC Air Cal Attenuation From T1 at 400 KHz		DB	8.321
A22A	ARC Air Cal Attenuation From T2 at 2 MHz		DB	6.600
A24A	ARC Air Cal Attenuation From T2 at 400 KHz		DB	6.628
A32A	ARC Air Cal Attenuation From T3 at 2 MHz		DB	4.967
A34A	ARC Air Cal Attenuation From T3 at 400 KHz		DB	4.939
A42A	ARC Air Cal Attenuation From T4 at 2 MHz		DB	4.506
A44A	**ARC Air Cal Attenuation From T4 at 400 KHz**		**DB**	**4.530**
A52A	**ARC Air Cal Attenuation From T5 at 2 MHz**		**DB**	**3.519**
A54A	ARC Air Cal Attenuation From T5 at 400 KHz		DB	3.500
ABNT	Abnormal Transmitter Indicator		----	No_Tx_Failed
ADHS	ARC Down Hole Software Version		----	9.4
AM2A	ARC Air Cal Amplitude Offset at 2 MHz		----	-50000.000
ANISO_COMPUTE	Anisotropy Computation Option		----	YES
APICG	ARC5 Gamma Ray Gain Factor		----	1.027
APIG	ARC Gamma Ray API Gain Factor		----	-1.000
ARC_DATA_FIX	ARC: Create A Corrected ARC Time Data File		----	NO
ARC_DATA_LTB	ARC: Create An ARC LTB Data File		----	NO
ATMP_ARC	ARC Select Temperature Channel		----	Annulus_Temp
ATRN	ARC Tool Run Number		----	1
ATSN	ARC Tool Serial Number		----	2065
AZMF	Formation DIP Azimuth		DEG	0.000
BH_COMPUTE	Borehole Inversion Computation Option		----	YES
CALG	ARC Gamma Ray Cal Gain Factor		----	1.027
CALI_SLCT_ARC	ARC Caliper Selection		----	BITSIZE
CDPTH_ARC	Process Start Depth		M	30.480
DIELEC_COMPUTE	Dielectric Computation Option		----	YES
DIPF	Formation DIP Angle		DEG	0.000
ERRCT	Percentage Error Cutoff		----	4.500
GRSH	GR Shale (Invasion Computation Cutoff)		GAPI	1000.000
HIGH_BLEND	High Resistivity Threshold for Blending		OHMM	2.000
INCLIN_B0	ARC Bias Constant (mg)		----	0.000
INCLIN_B1	ARC Bias First-order Coefficient (mg/degC)		----	0.000
INCLIN_B2	ARC Bias Secod-order Coeeficient (mg/degC)		----	0.000
INCLIN_B3	ARC Bias Third-order Coeeficient (mg/degC)		----	0.000
INCLIN_C0	ARC Current Scale Factor Constant (mA/g)		----	1.000
INCLIN_C1	ARC Scale First-order Coeeficient (mA/g/degC)		----	0.000
INCLIN_C2	ARC Scale Second-order Coeeficient (mA/g/degC)		----	0.000
INCLIN_C3	ARC Scale Third-order Coeeficient (mA/g/degC)		----	0.000
INVAS_COMPUTE	Invasion Computation Option		----	YES
JSD_ARC	ARC Acquisition start date		----	21-NOV-09
KPER	Potassium Concentration (RM)		----	0.000
LOW_BLEND	Low Resistivity Threshold for Blending		OHMM	1.000
MSWS	ARC Wizard Model Switch Window		M	1.524
MULTIEFFECT_COM	Multi Effect Option		----	YES
P11AC_RM	ARC: Air Calibration For Phase T1 to R1		DEG	-999.250
P12A	ARC Air Cal Phase-Shift From T1 at 2 MHz		DEG	1.783
P14A	ARC Air Cal Phase-Shift From T1 at 400 KHz		DEG	-0.414
P22A	ARC Air Cal Phase-Shift From T2 at 2 MHz		DEG	-1.661
P24A	ARC Air Cal Phase-Shift From T2 at 400 KHz		DEG	0.291
P32A	ARC Air Cal Phase-Shift From T3 at 2 MHz		DEG	1.696
P34A	ARC Air Cal Phase-Shift From T3 at 400 KHz		DEG	-0.373
P42A	ARC Air Cal Phase-Shift From T4 at 2 MHz		DEG	-1.703
P44A	ARC Air Cal Phase-Shift From T4 at 400 KHz		DEG	0.290
P52A	ARC Air Cal Phase-Shift From T5 at 2 MHz		DEG	1.660
P54A	ARC Air Cal Phase-Shift From T5 at 400 KHz		DEG	-0.378

POFFSET_ARC	ARC: Pressure Offset	PSI	0.000
PRTD	Preferred Resistivity Log for Rt Display while Multi-Effects	----	P34B
PSOF_ADJ_T1	ARC: User Input Phase offset	DEG	0.000
RESTIK	ARC resistivity tick source	----	Phase
RSD	LWD run start date dd-mmm-yy	----	21-NOV-09
RWA_COMP_MOD	Rwa computation model	----	BASIC
RWA_DEN_ADN	Rwa Density Input	----	RHOB
RWA_DEN_CDN	Rwa Density Input	----	RHOB
RWA_DEN_INPUT	Rwa Density Input	----	RHOB
RWA_FORM_MOD	Rwa computation formation model	----	CLASTIC
RWA_RES_INPUT	Rwa computation resistivity input	----	RT
SHIG	ARC High Shock Risk Level	CPS	0.500
SMED	ARC Medium Shock Risk Level	CPS	0.330
SMIN	ARC Minimum Shock Risk Level	CPS	0.160
SUPD	ARC Real Time Shock Update Rate	S	30.000
TCODE_ARC	ARC Tool File Code	S	30.000
TSIZ_ARC	ARC Tool Size	IN	6.750
UNIFORM_COMPUTE	Uniform Rock Option	----	YES
VERS_ARC	ARC Down hole software version Number	----	9.400
WRK	to Report Potassium Concentration (RM)	----	K_by_Wgt_%

ADN

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_ORIENTATION	ADN Image Orientation	----	TOH
ADN_STAB_STR	ADN Stabilizer Type String	----	TOH
ALPHA_COMPUTE_D	Perform Density Enhanced Vertical Resolution process ?	----	YES
ALPHA_COMPUTE_N	Perform Neutron Enhanced Vertical Resolution process ?	----	YES
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	6.930
DTIK_SEL	ADN: Density Tick Channel Name	----	LSAZ
DTMUD	Delta-T for Mud	US/F	207.909
DYN_IMG_COMPUTE	Generate Dynamic Normalized Image?	----	YES
ECC_CORR_ADN	Perform Eccentering Correction for TNPH?	----	YES
ENVCOR	Neutron Processing: Environmental Correction?	----	YES
EVRL	EVR Process averaging number of samples (RM)	----	49
FCD	Future Casing (Outer) Diameter	IN	7.000
GCSE	Generalized Caliper Selection	----	BS
HPS	ADSE-EB (High Pressure Inconel Chassis)?	----	NO
IBS	Intergal Blade Stabilizer Collar?	----	NO
IDQT	Image Derived Quality Threshold	----	2.000
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	G/C3	2.050
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_RM	ADN Neutron Near Banks Used	----	1-2
NTIK_SEL	ADN: Neutron Tick Channel Name	----	FR11
SOCNL	Standoff Distance of the CNL Tool	----	1.000
SSIZ_ADN	ADN Stabilizer Size	IN	9.480
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	----	8.400
WSDI	Window Size of Dynamic Normalization Image	M	15.240

True Vertical Depth Log

IDEAL Version: ID14_0C_25

IDF

ARC6A−AA **Id14_0c_25** **ADN** **Id14_0c_25**

Format: VISION Service RM Log **Vertical Scale: 1:200** **Graphics File Created: 25−Nov−2009 10:52**

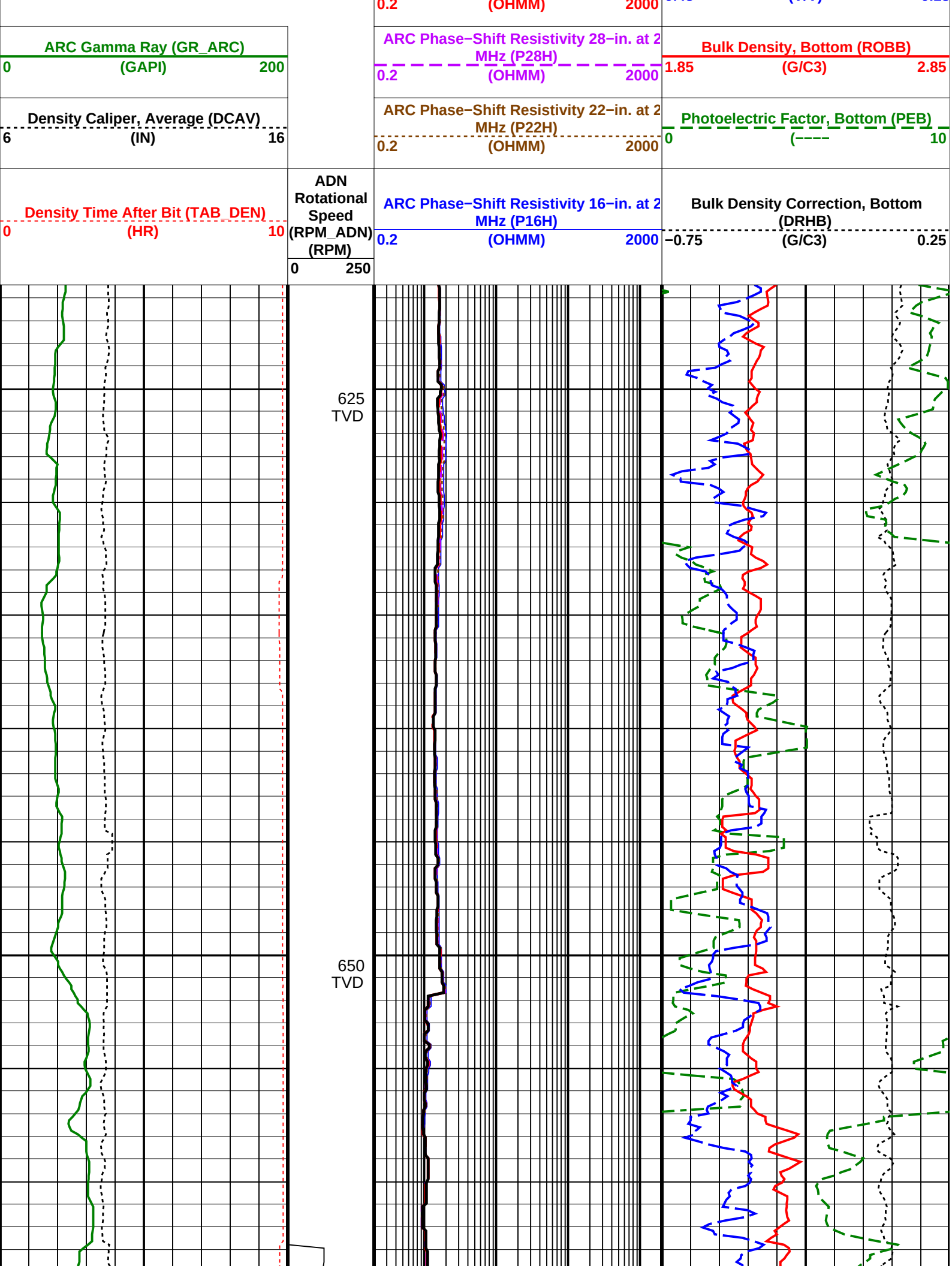
ARC Phase−Shift Resistivity 40−in. at 2 MHz (P40H)

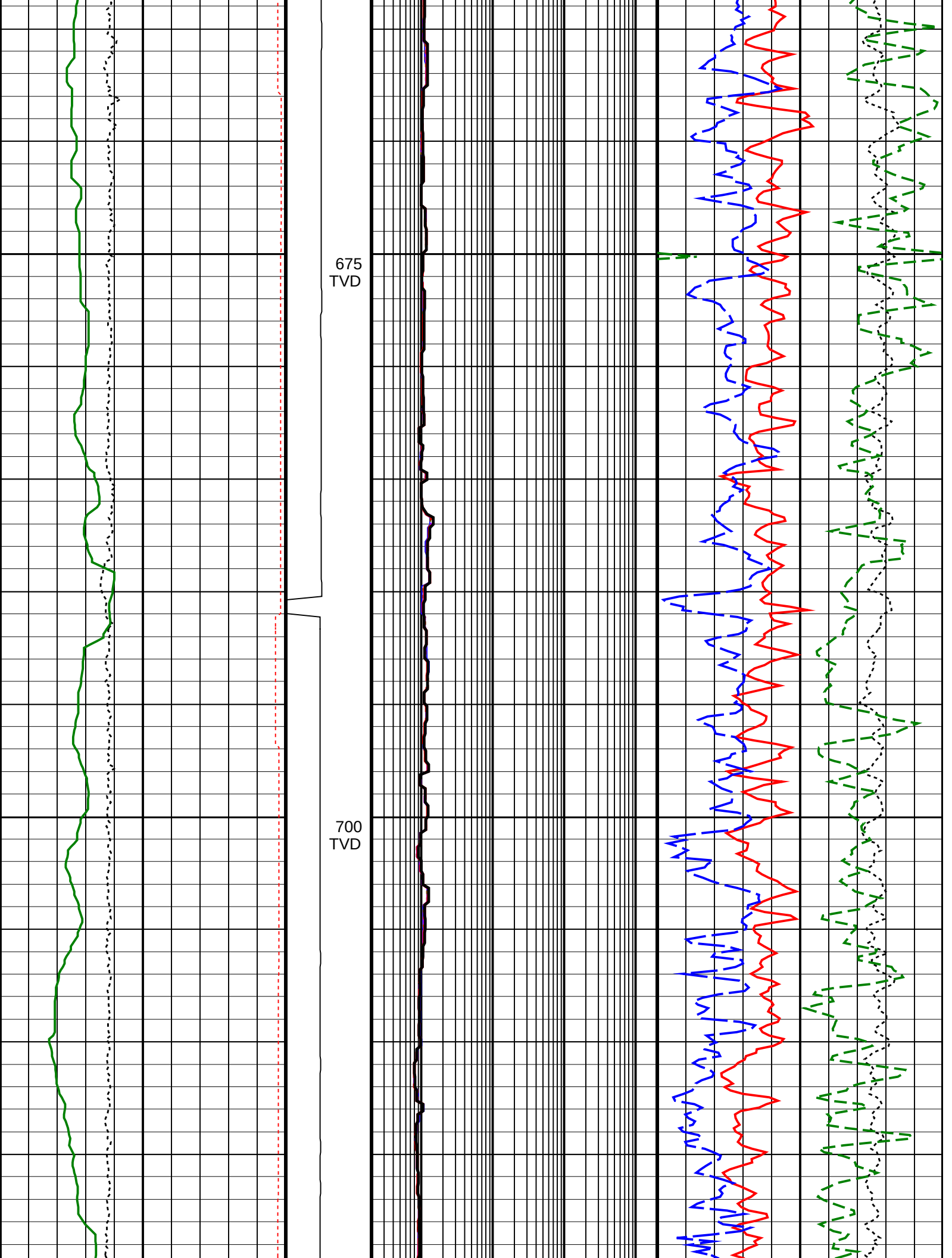
0.2 **(OHMM)** **2000**

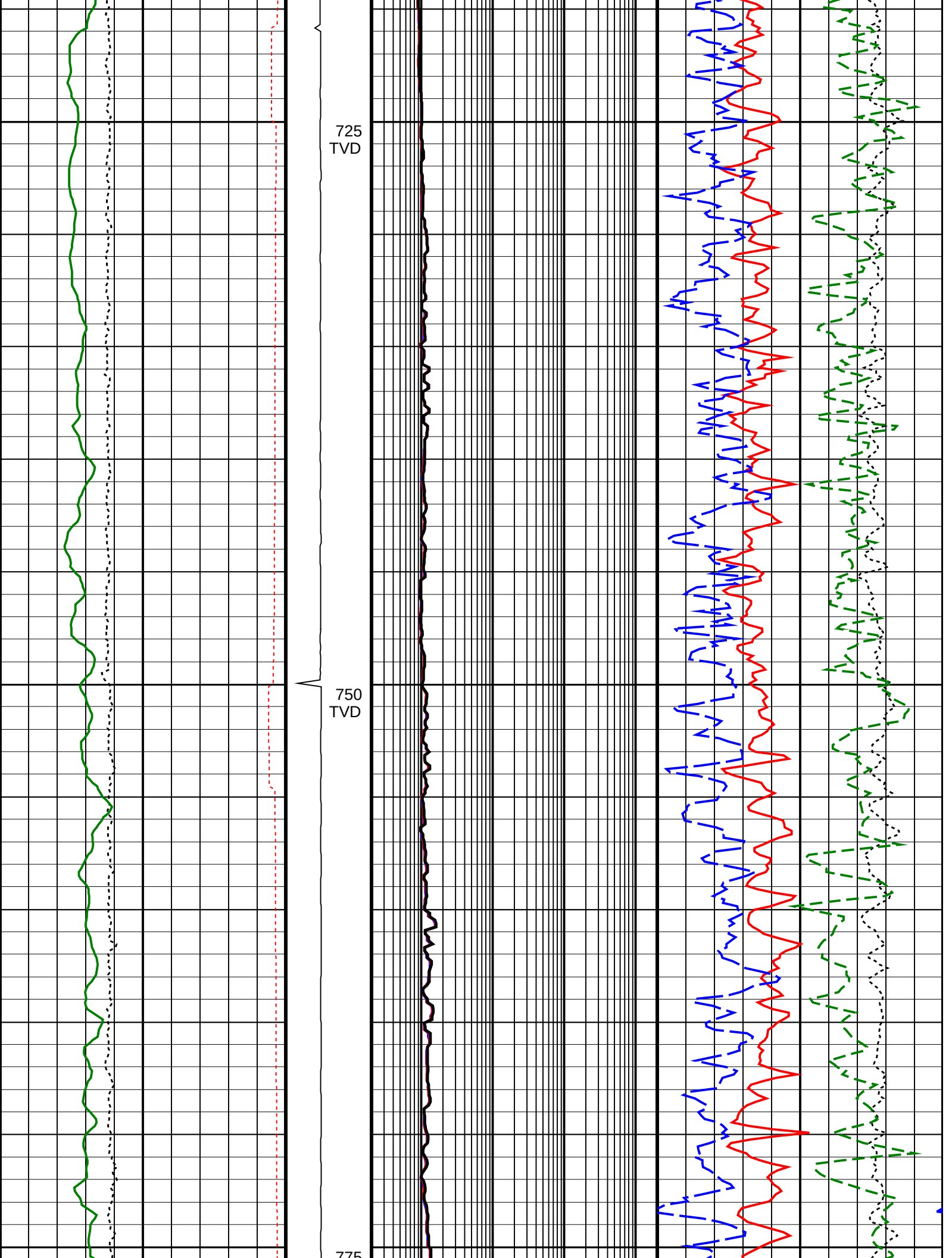
ARC Phase−Shift Resistivity 34−in. at 2 MHz (P34H)

Thermal Neutron Porosity (TNPH)

0.45 **(V/V)** **−0.15**


0.2 (OHMM) 2000
ARC Gamma Ray (GR_ARC)
0 (GAPI) 200
ARC Phase−Shift Resistivity 28−in. at 2 MHz (P28H)
0.2 (OHMM) 2000
Bulk Density, Bottom (ROBB)
1.85 (G/C3) 2.85
Density Caliper, Average (DCAV)
6 (IN) 16
ARC Phase−Shift Resistivity 22−in. at 2 MHz (P22H)
0.2 (OHMM) 2000
Photoelectric Factor, Bottom (PEB)
0 (−−−− 10
Density Time After Bit (TAB_DEN)
0 (HR) 10
ADN Rotational Speed (RPM_ADN) (RPM)
0 250
ARC Phase−Shift Resistivity 16−in. at 2 MHz (P16H)
0.2 (OHMM) 2000
Bulk Density Correction, Bottom (DRHB)
−0.75 (G/C3) 0.25
625 TVD
650 TVD


675
TVD
700
TVD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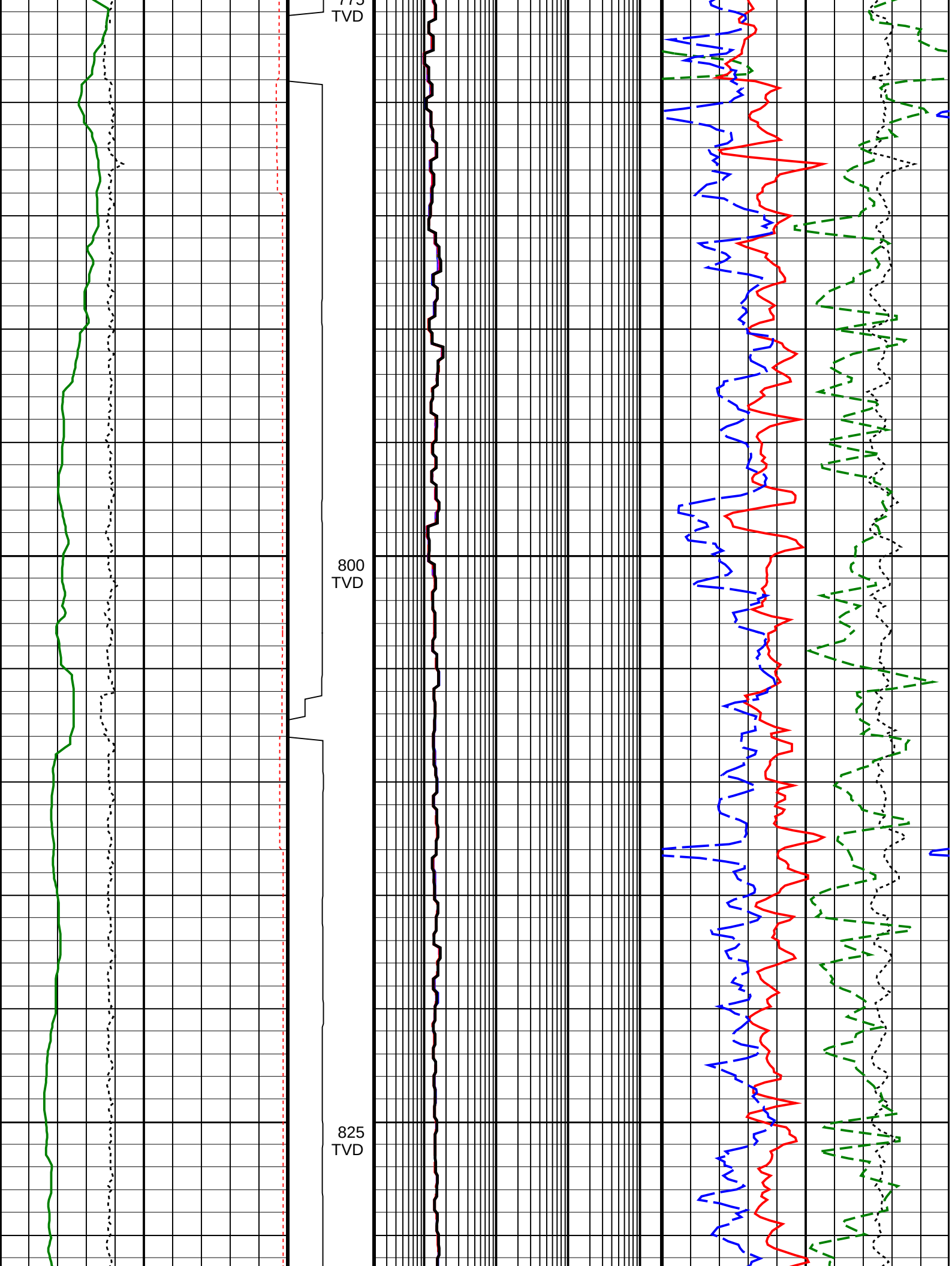
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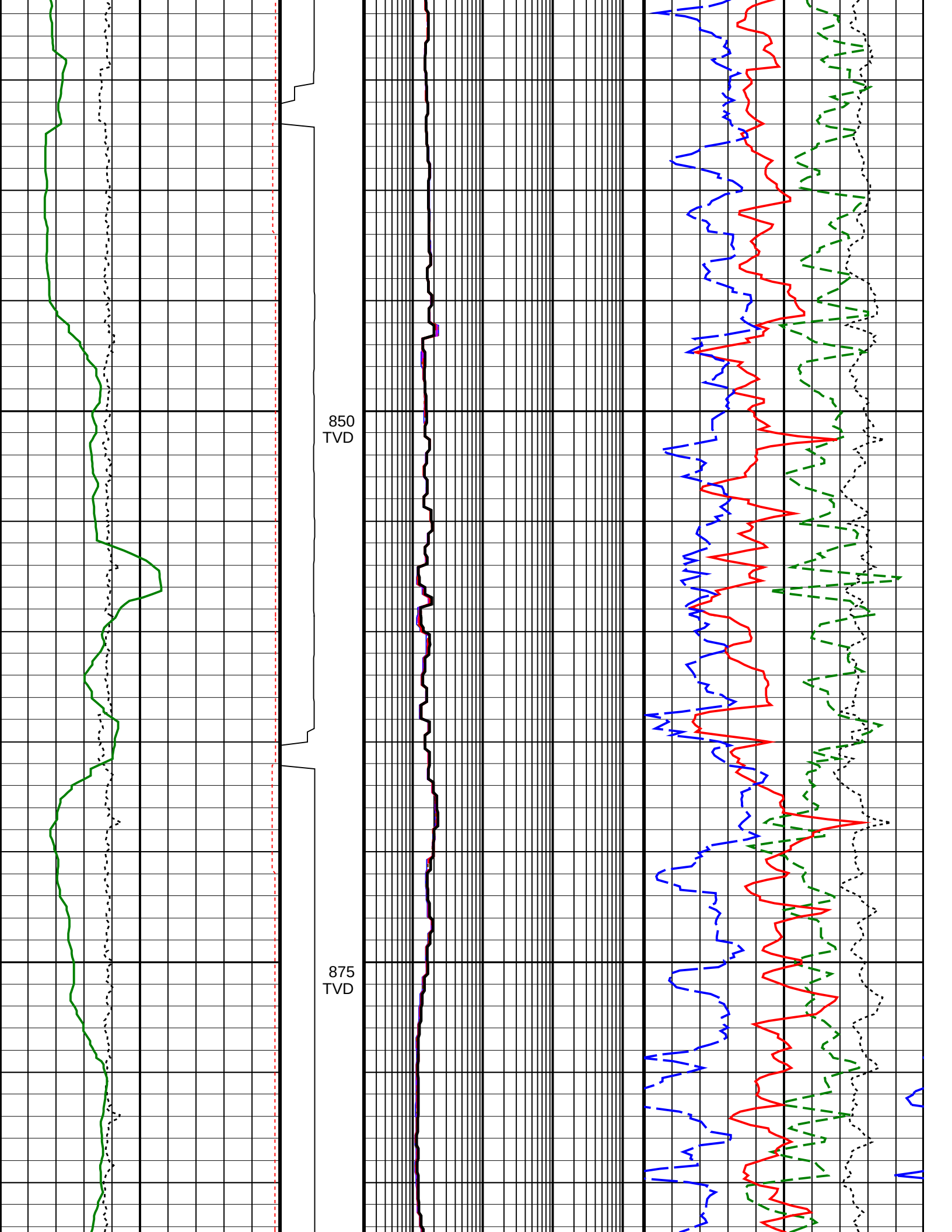
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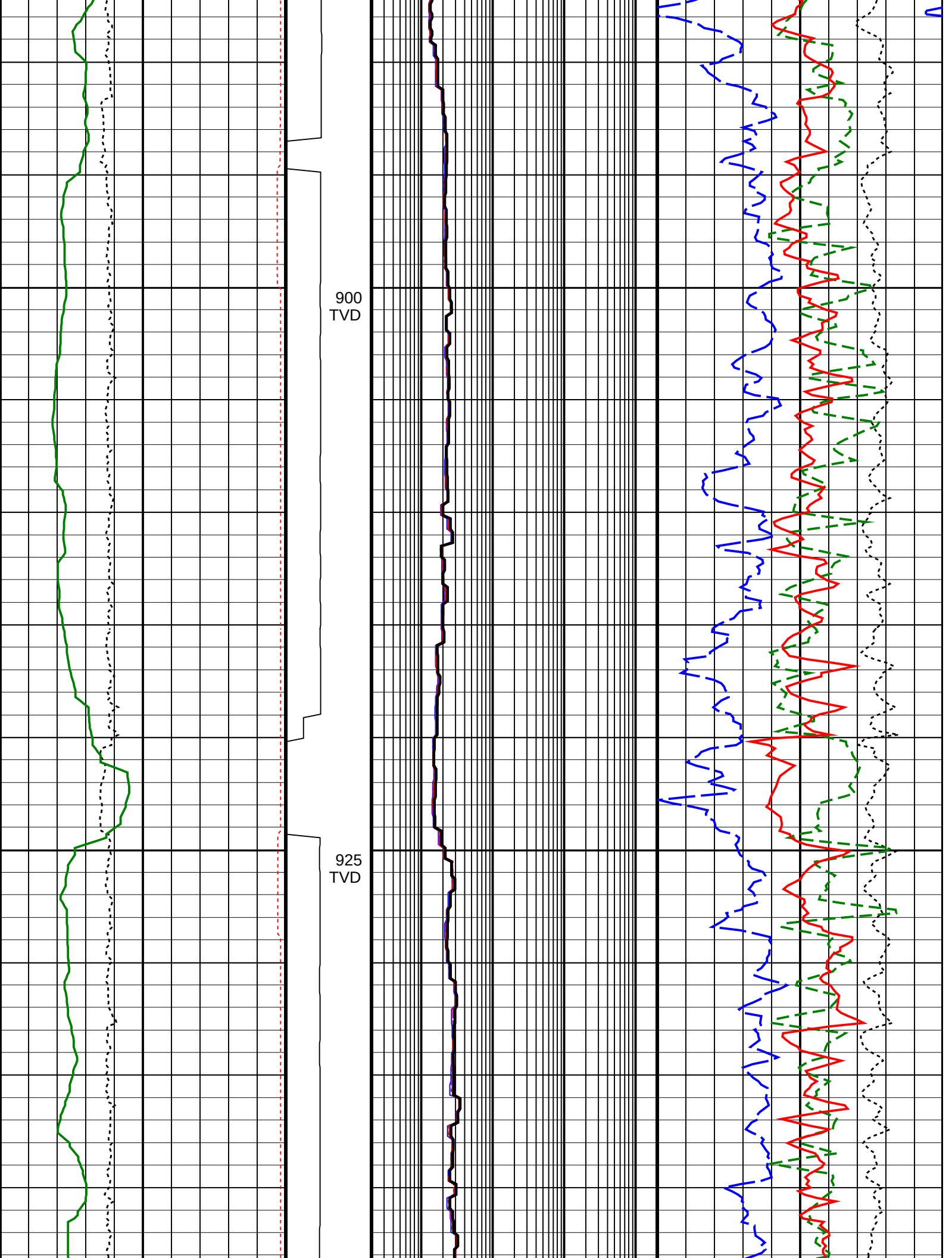
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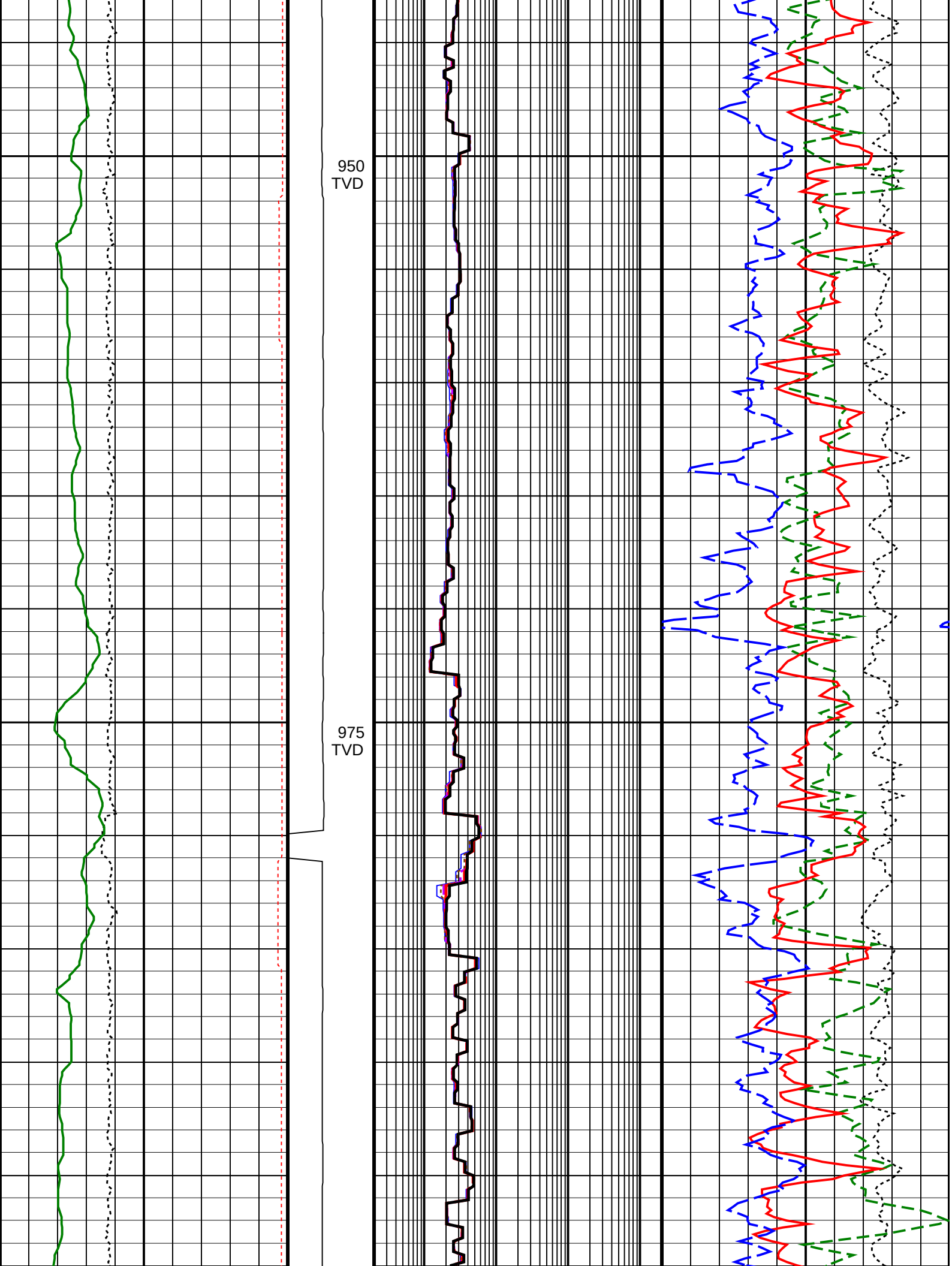
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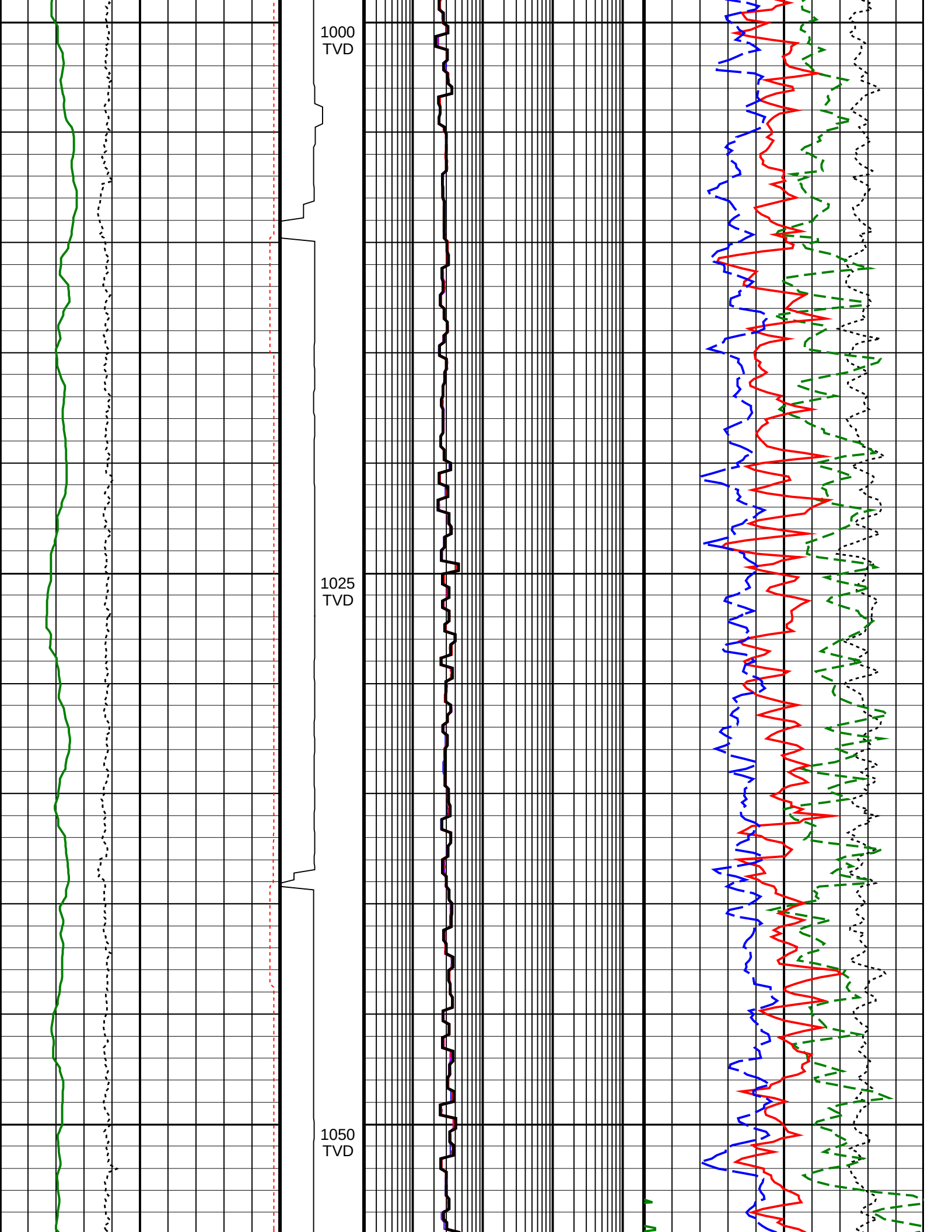
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TVD
1050
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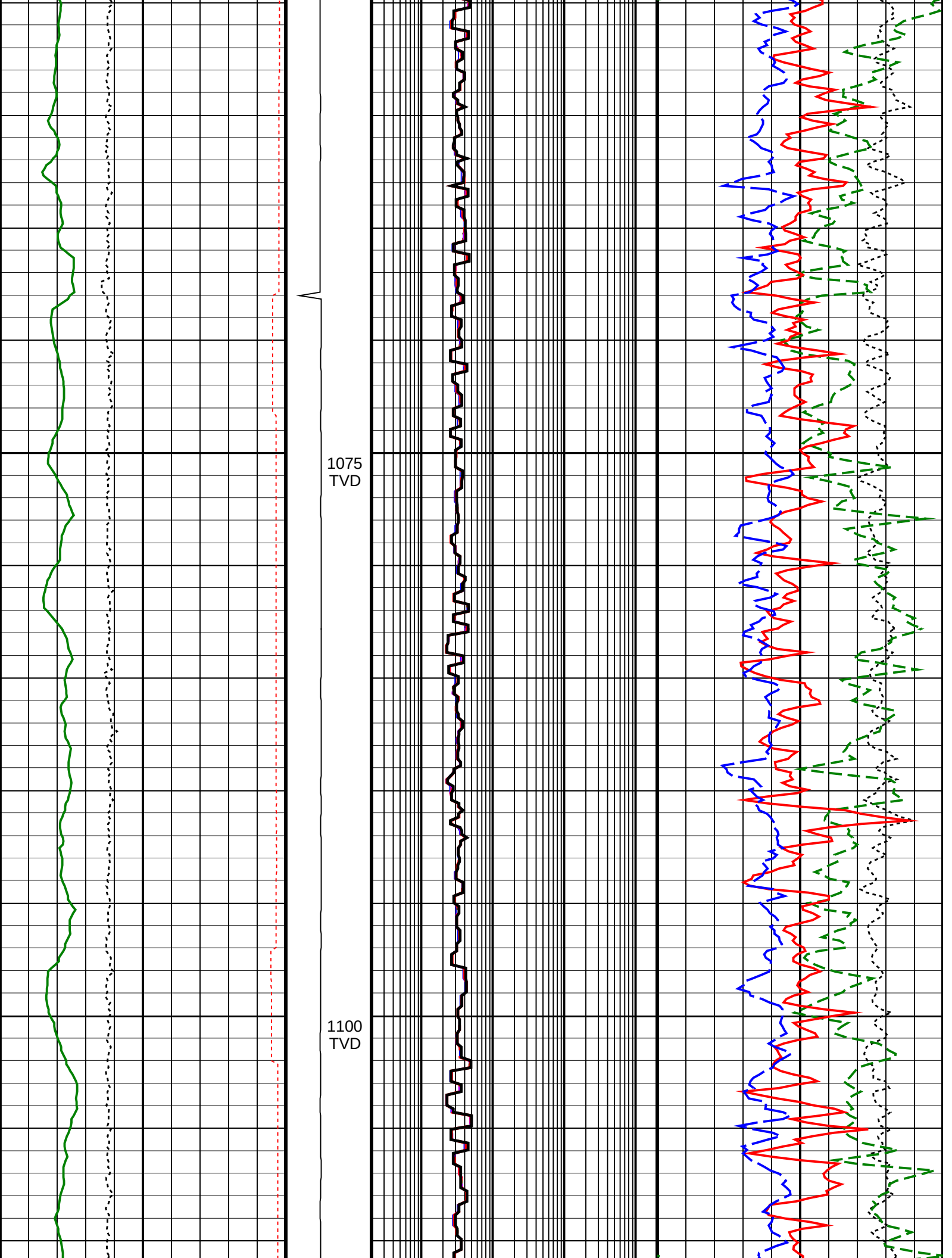
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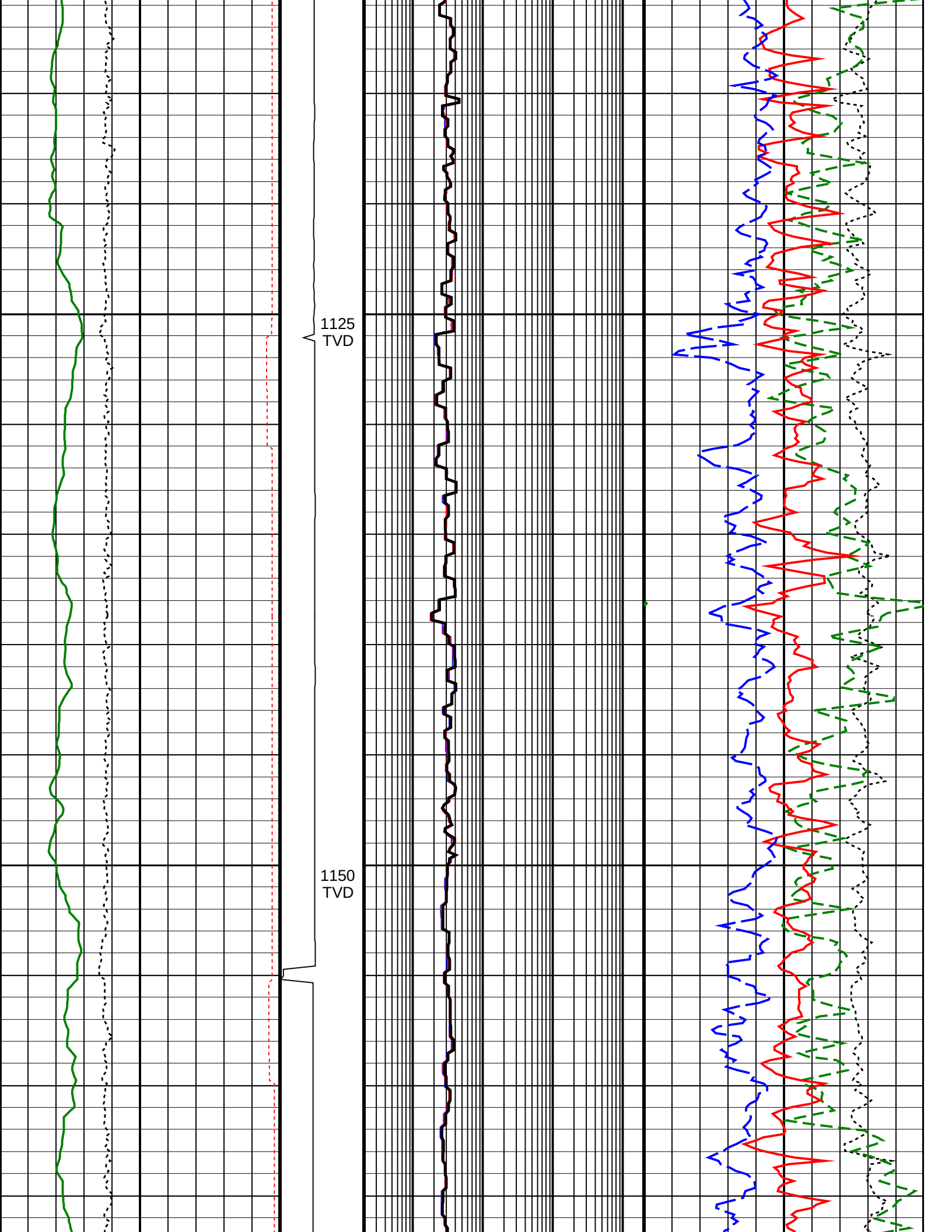
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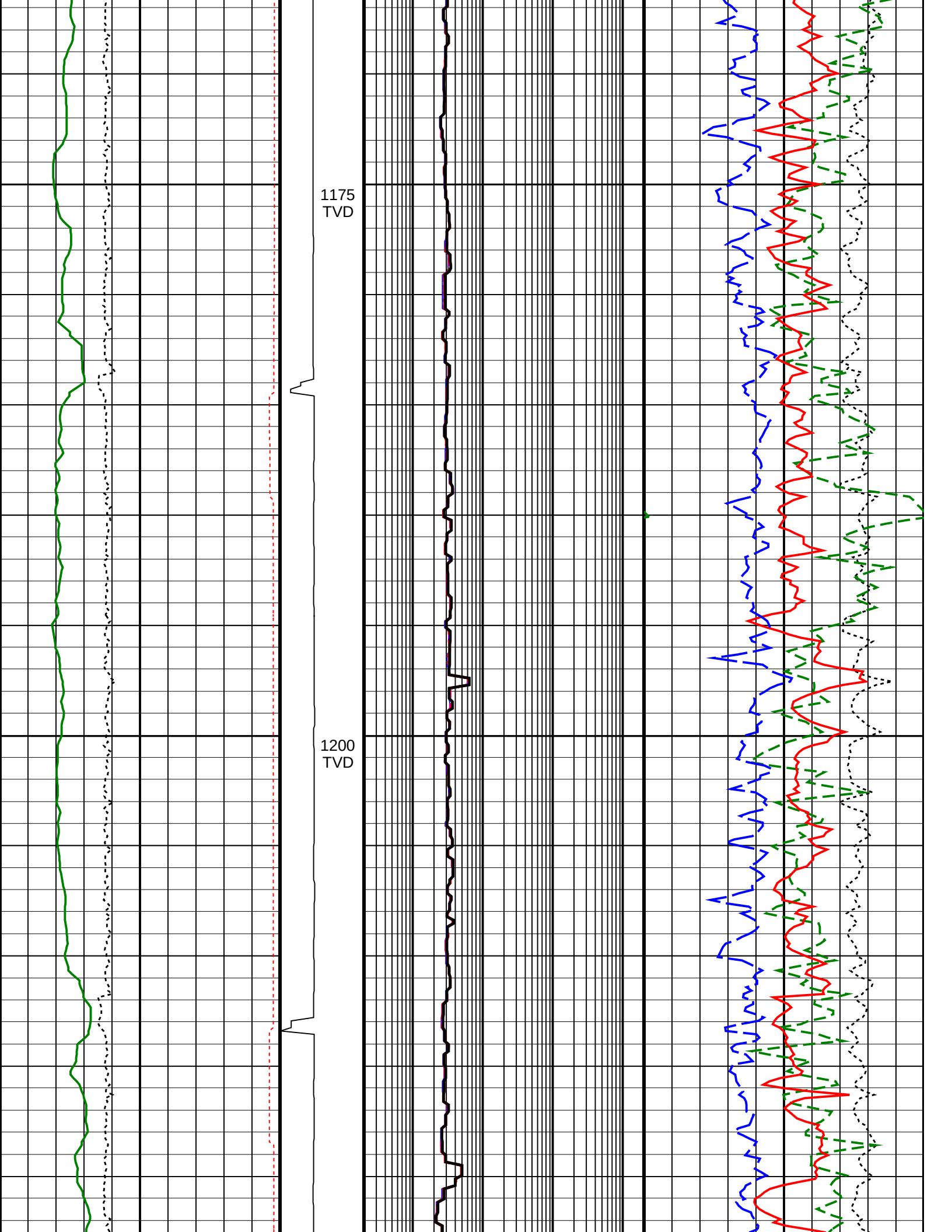
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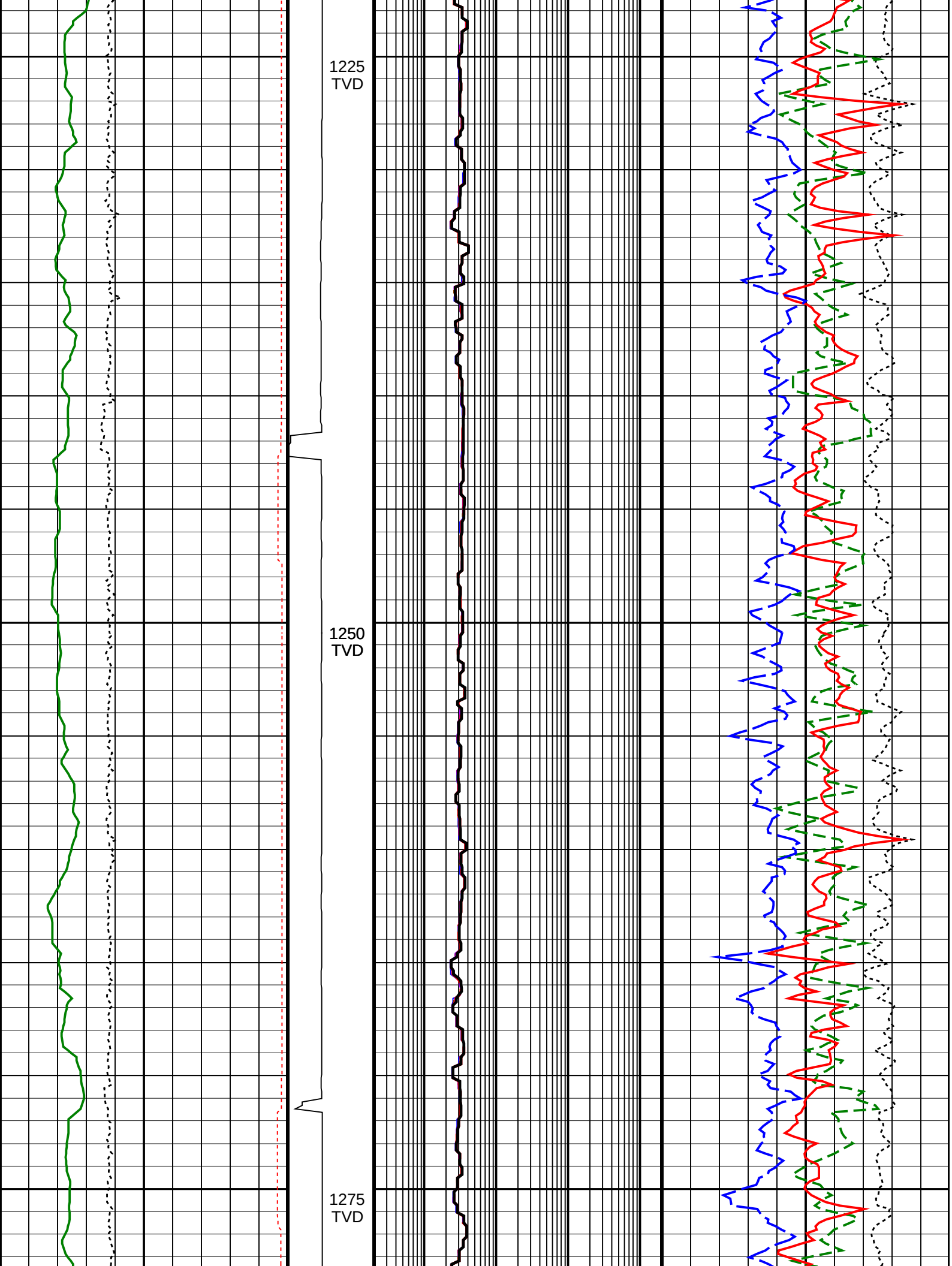
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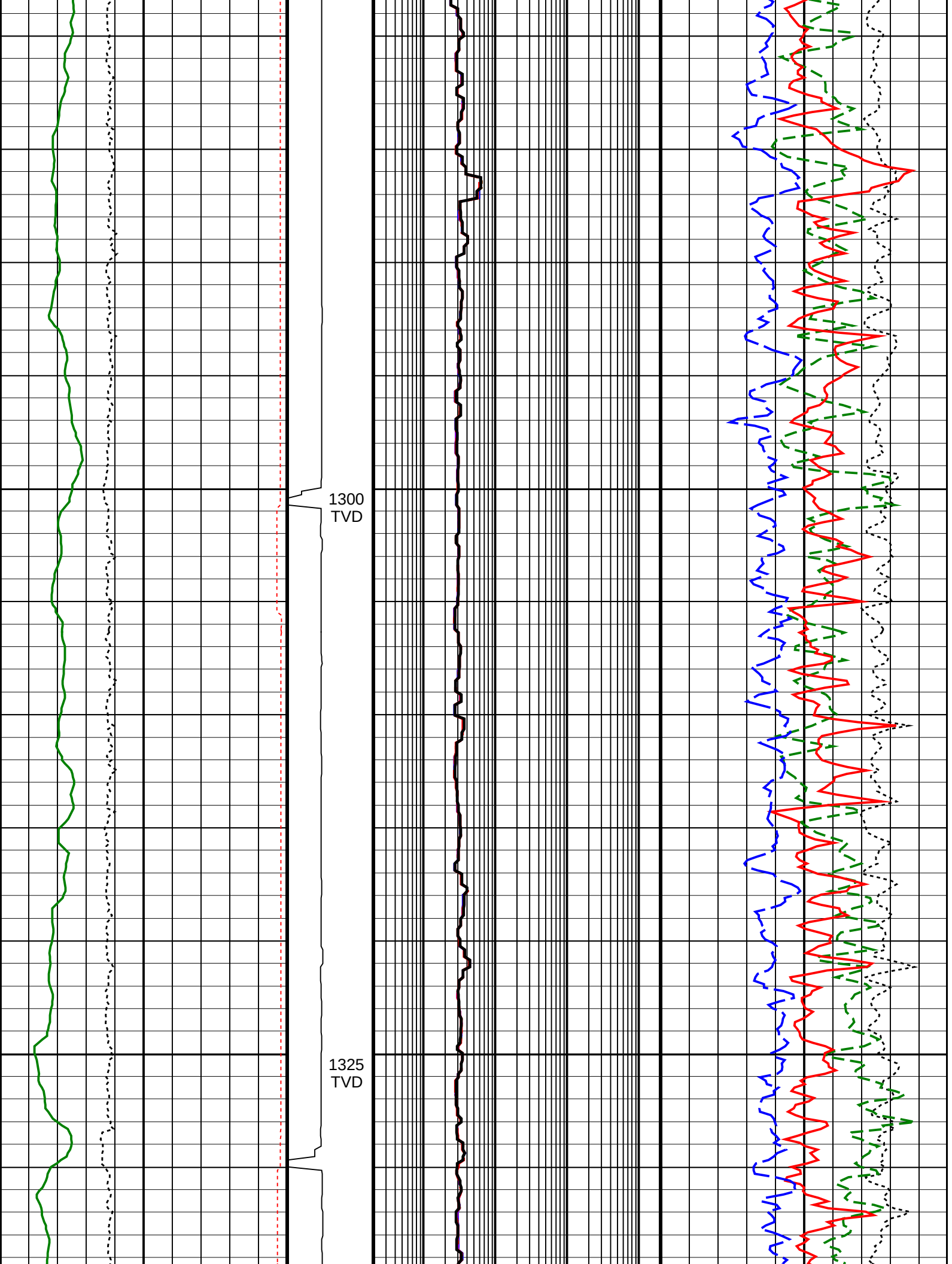
1250
TVD
1275
TVD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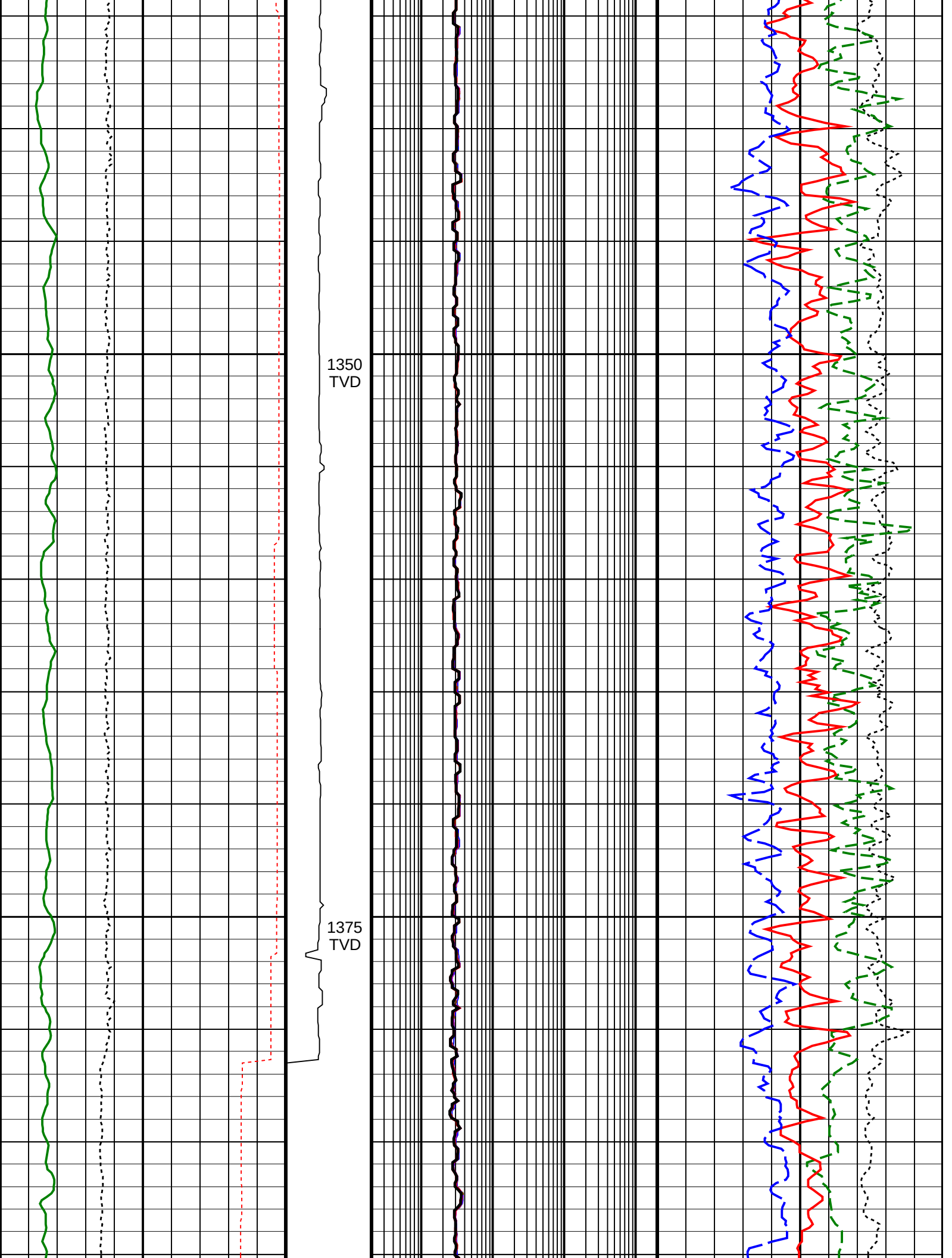
TVD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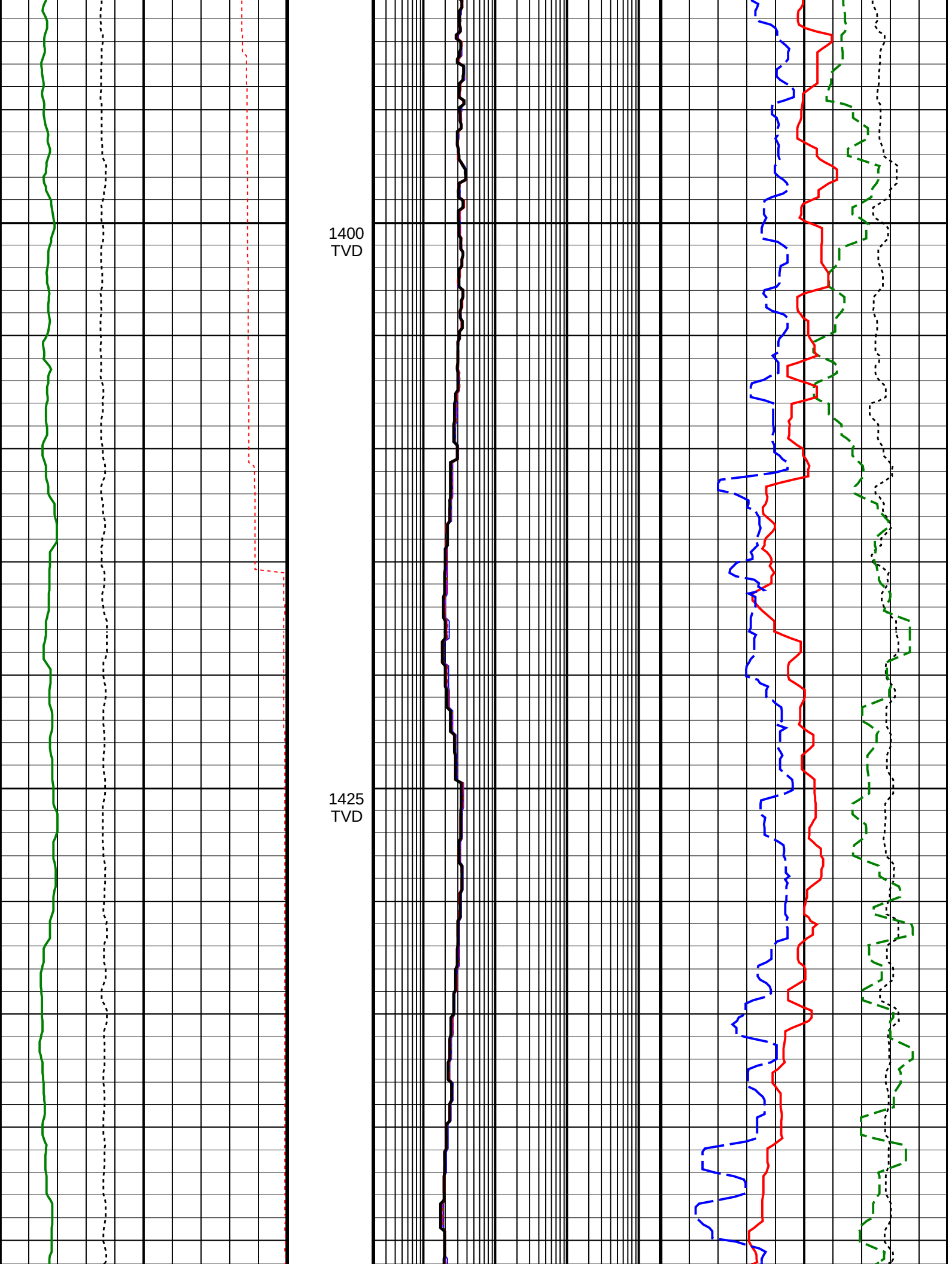
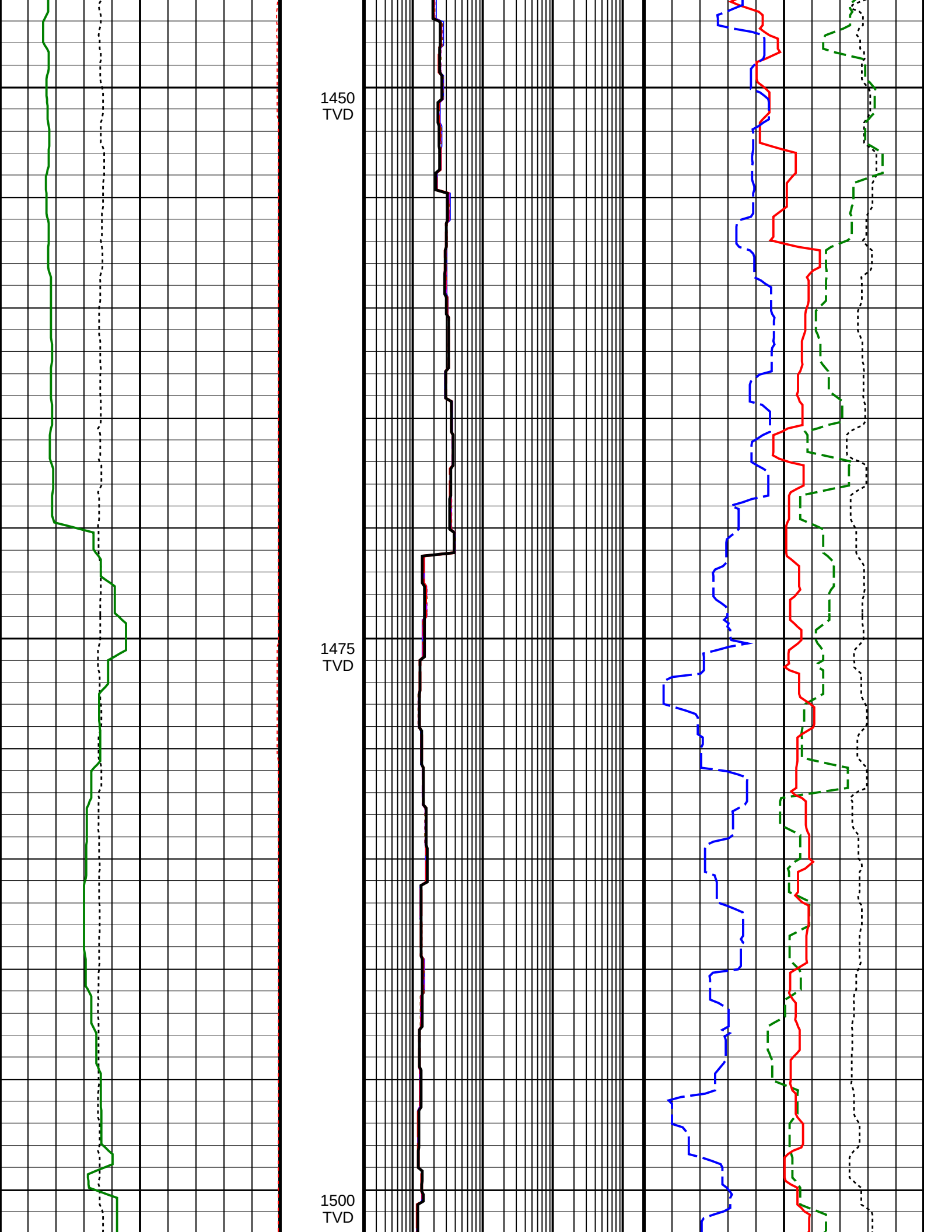
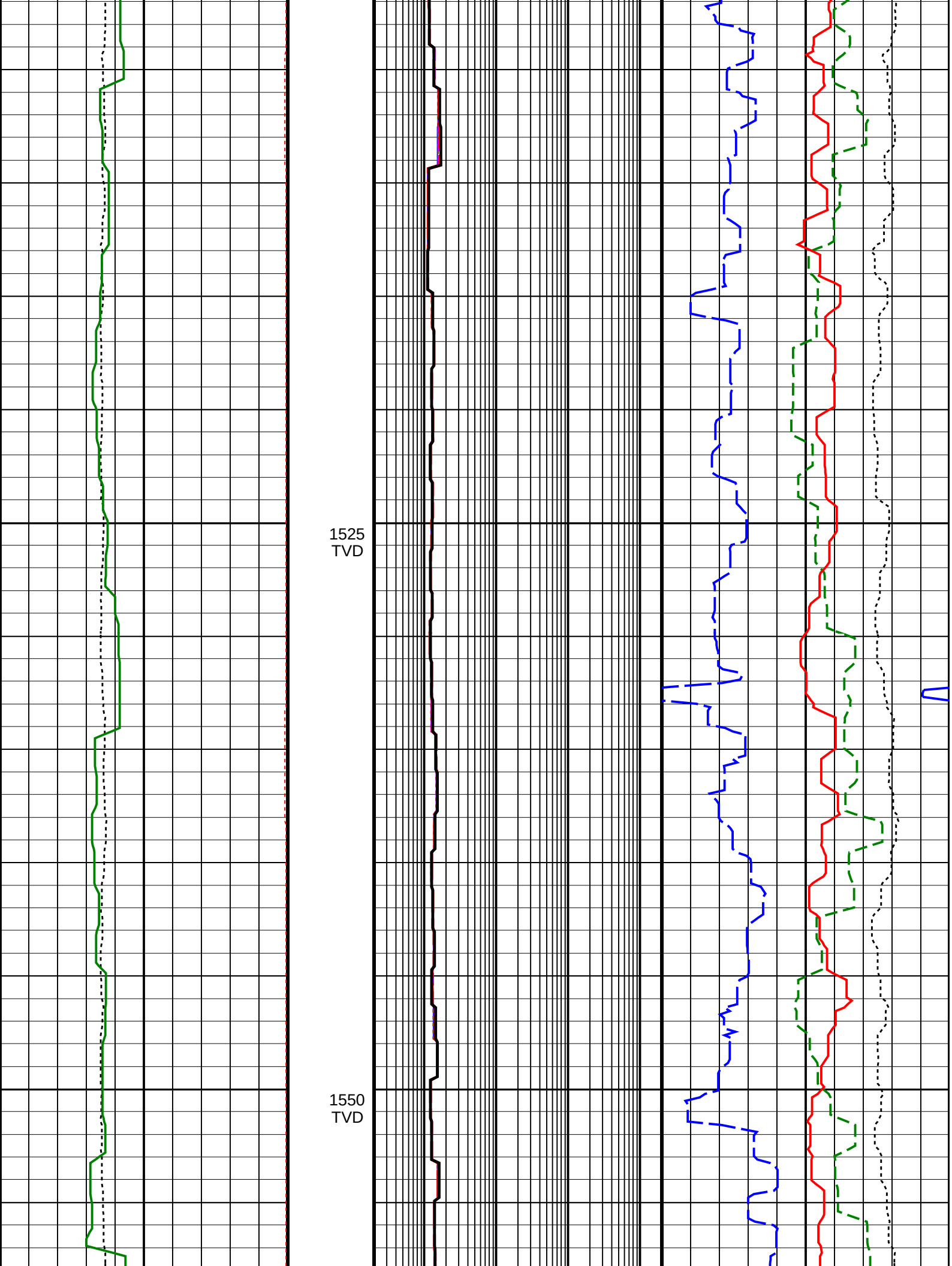
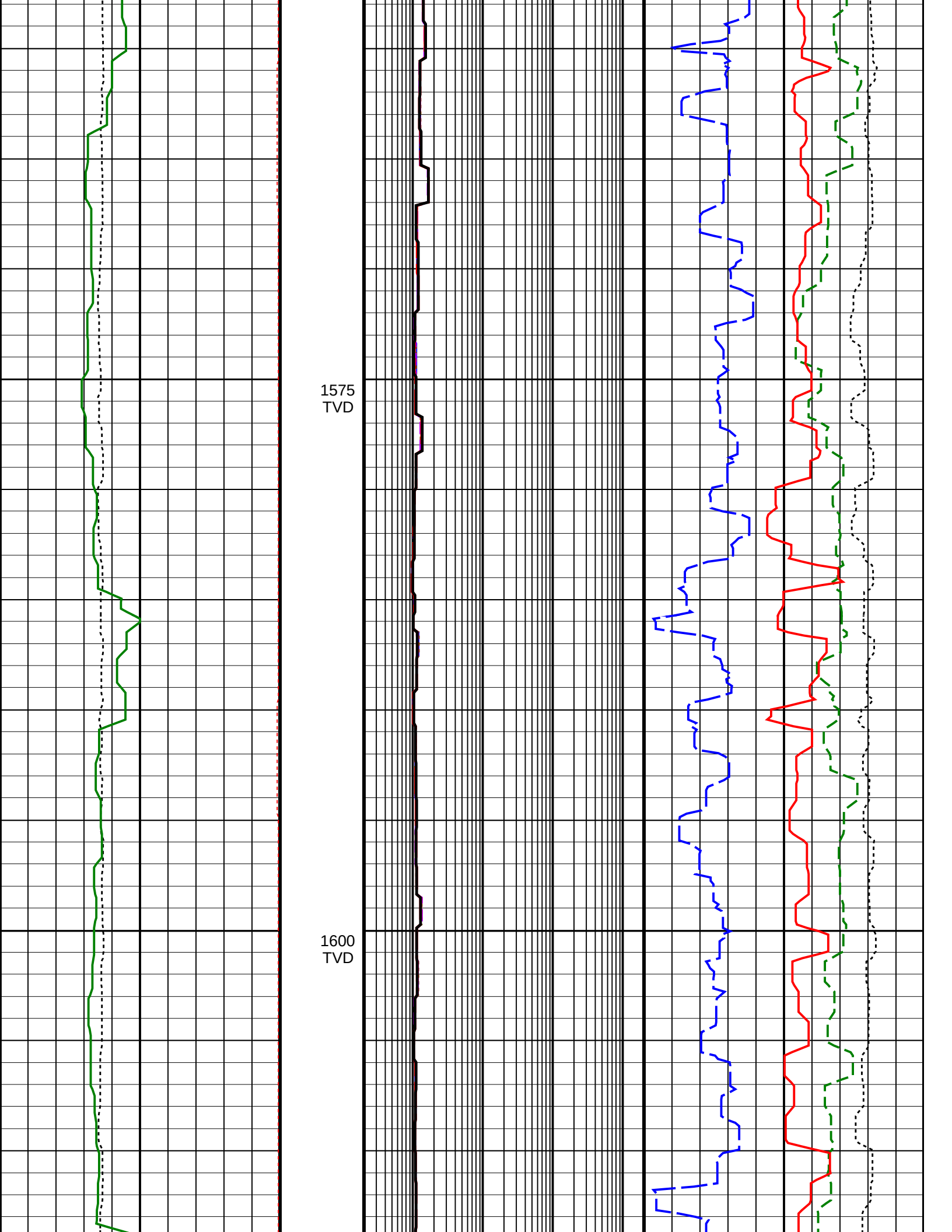
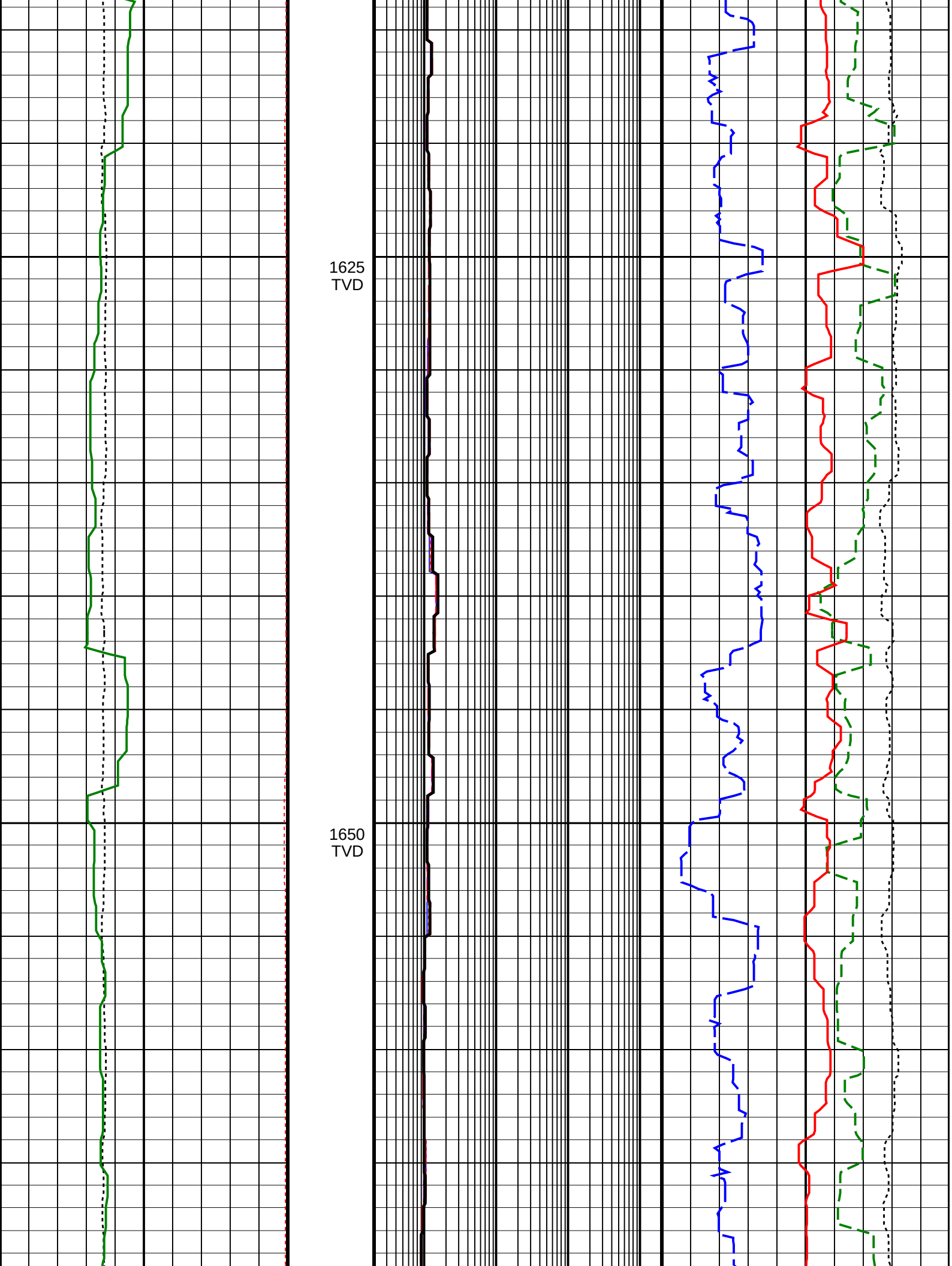
TVD

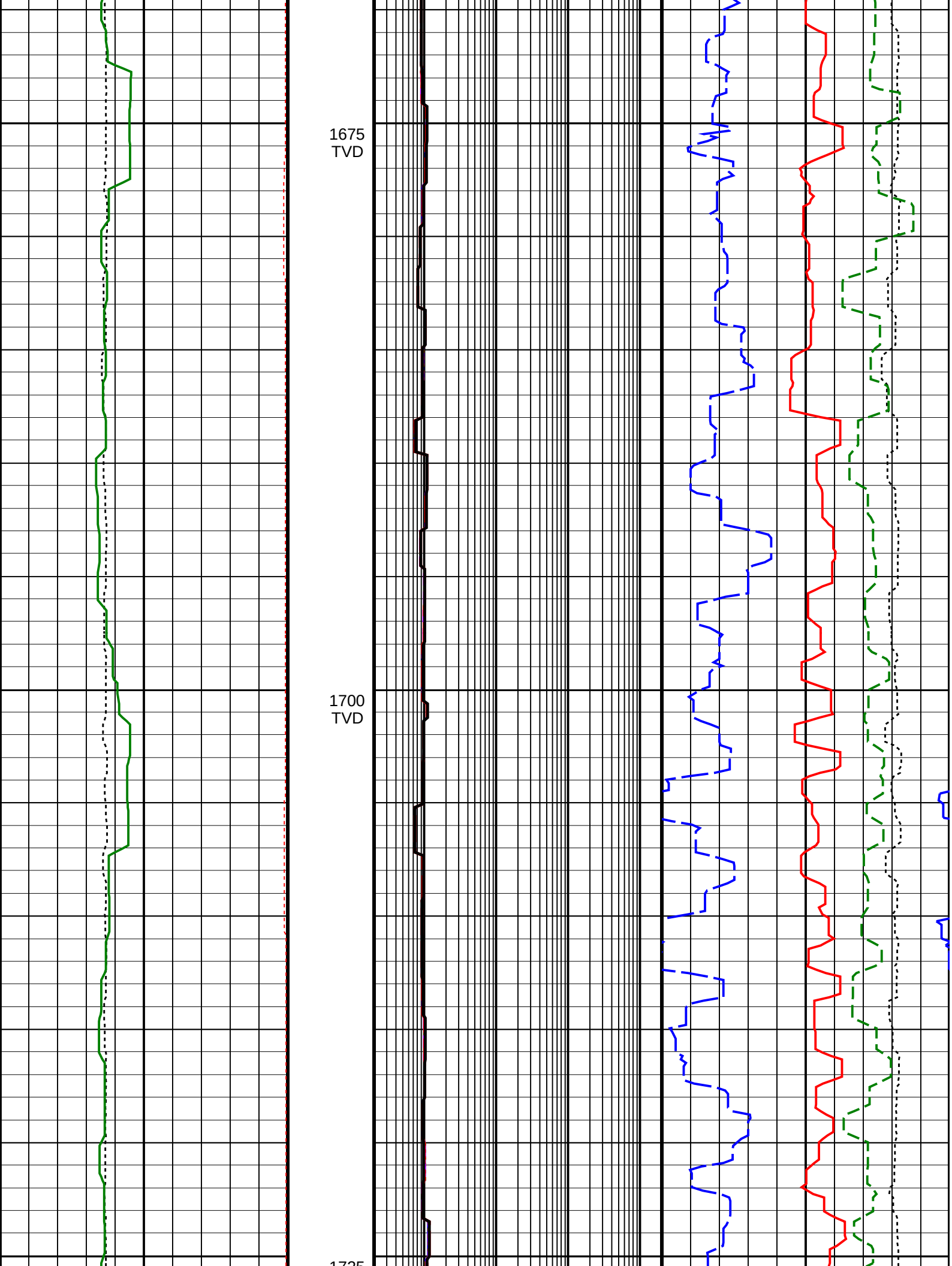

1400
TVD
1425
TVD

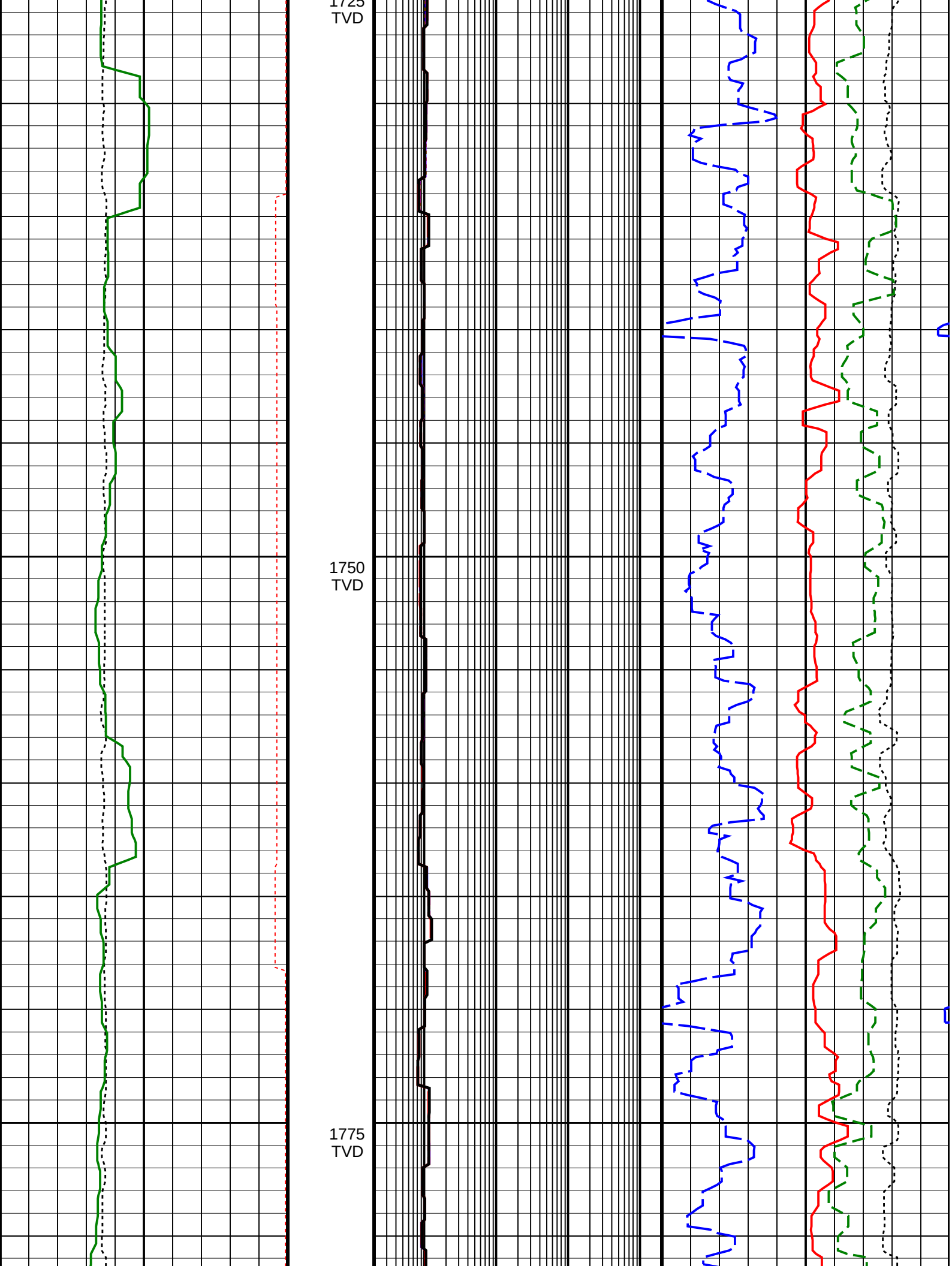

1450
TVD
1475
TVD
1500
TVD

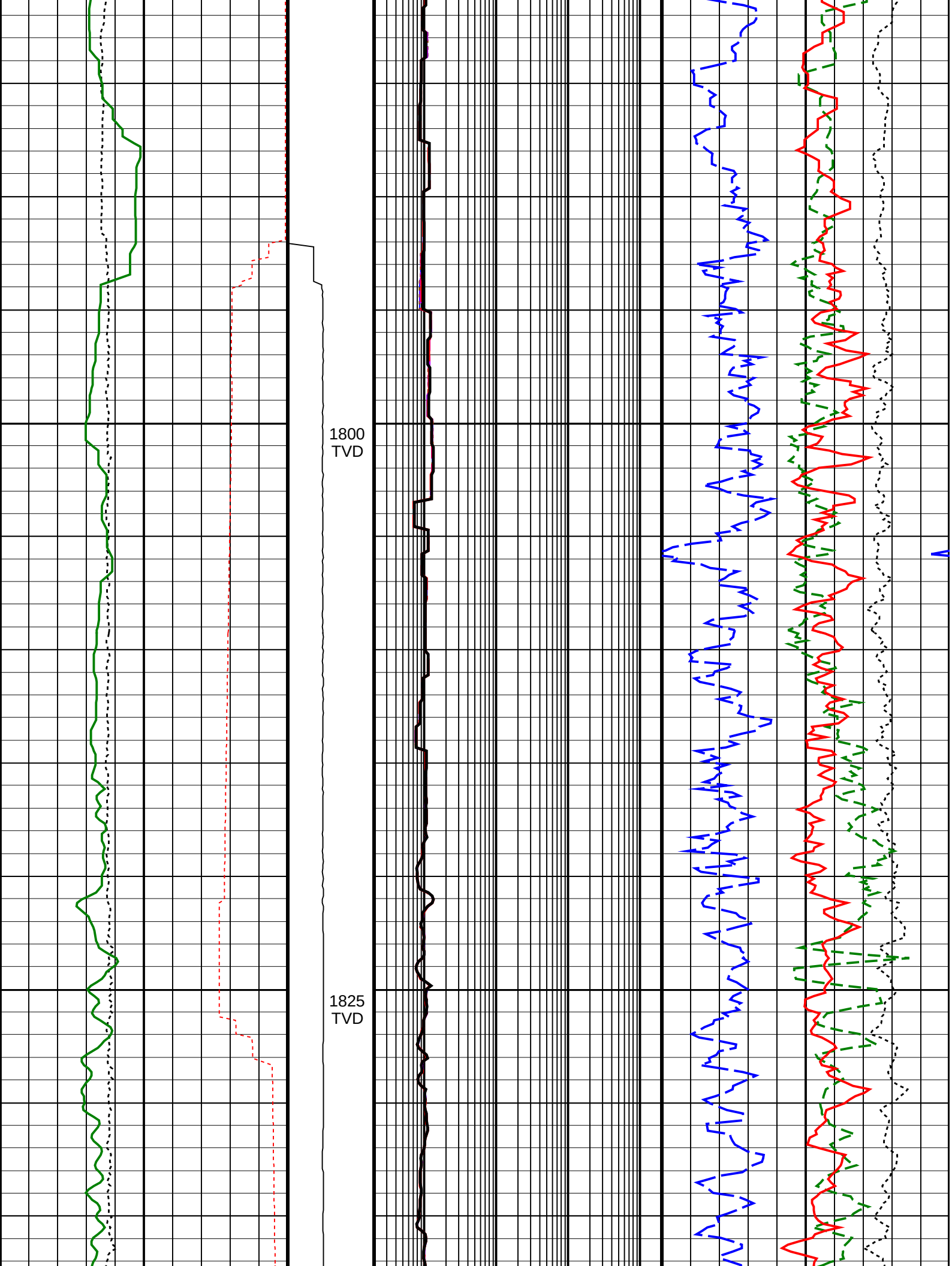

1525
TVD
1550
TVD

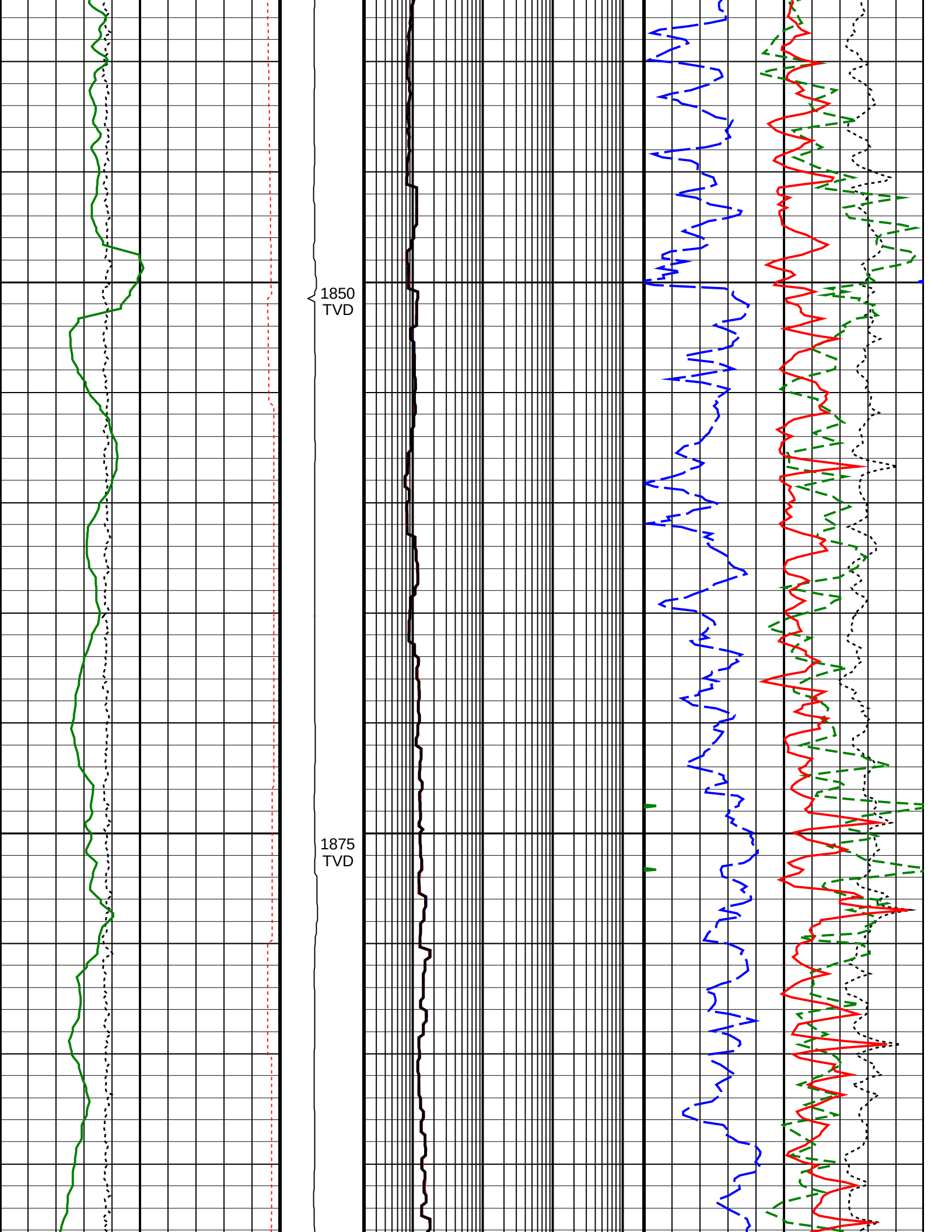

1575
TVD
1600
TVD

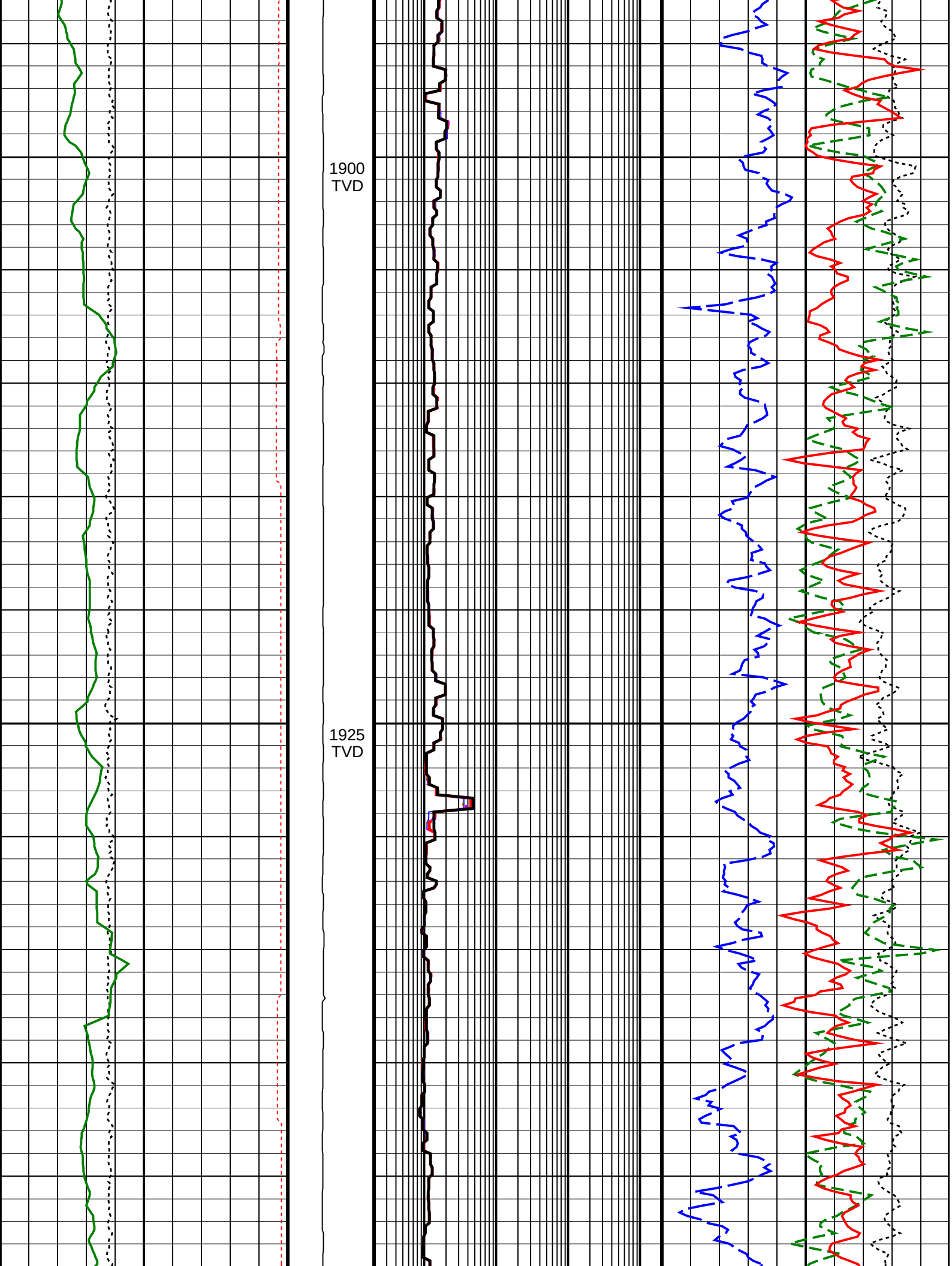

1625
TVD
1650
TVD

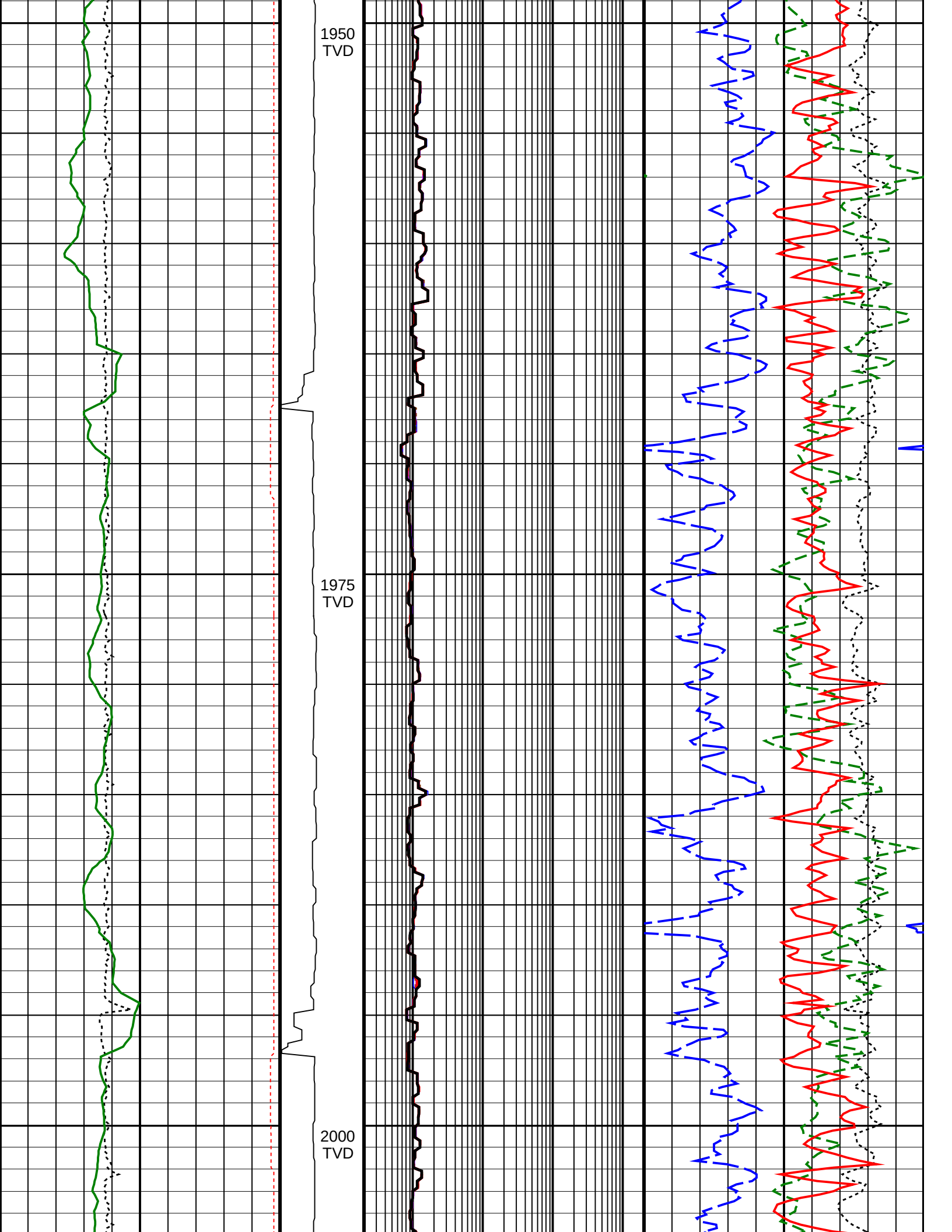

1675
TVD
1700
TVD

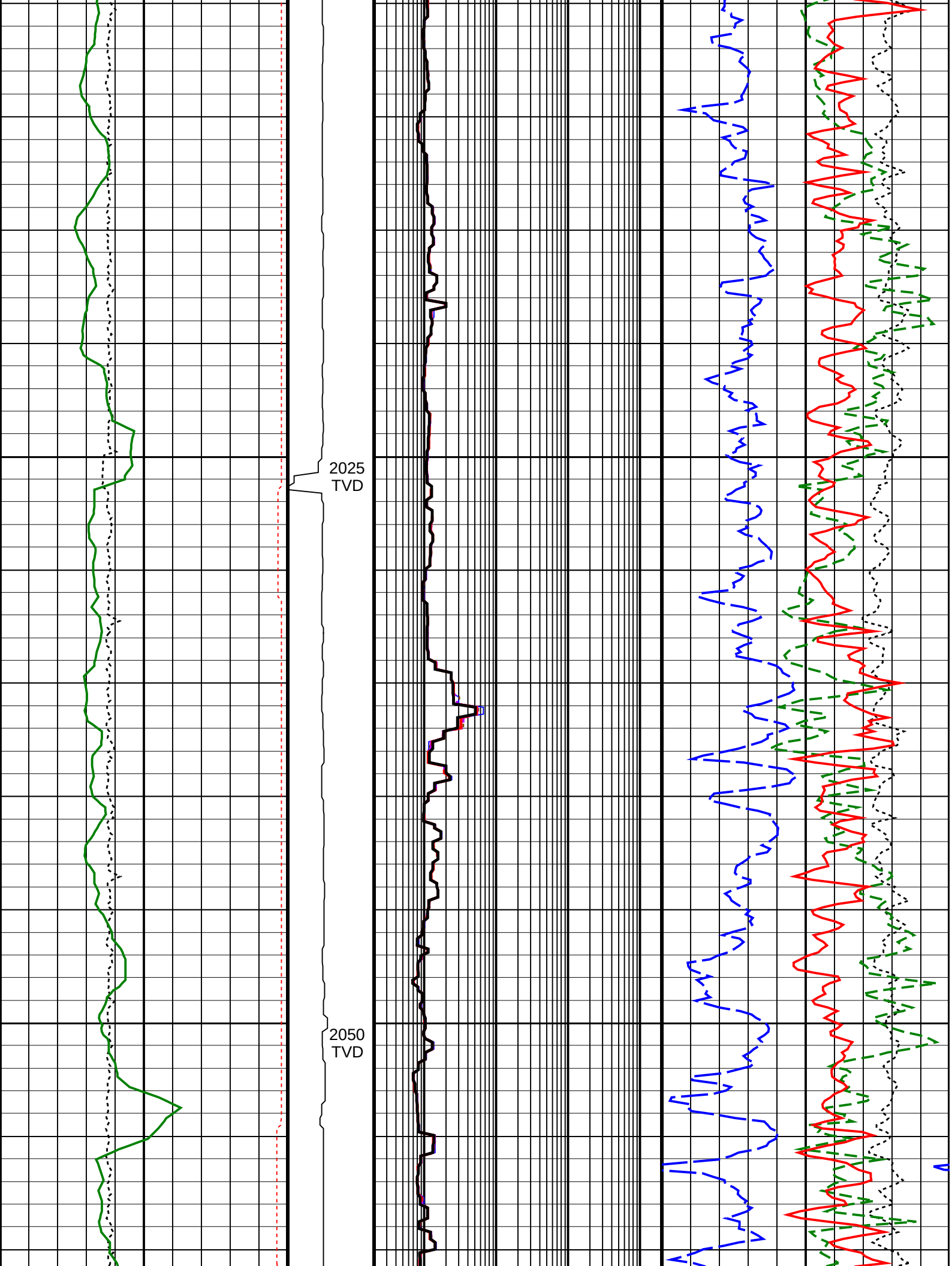

1725
TVD
1750
TVD
1775
TVD

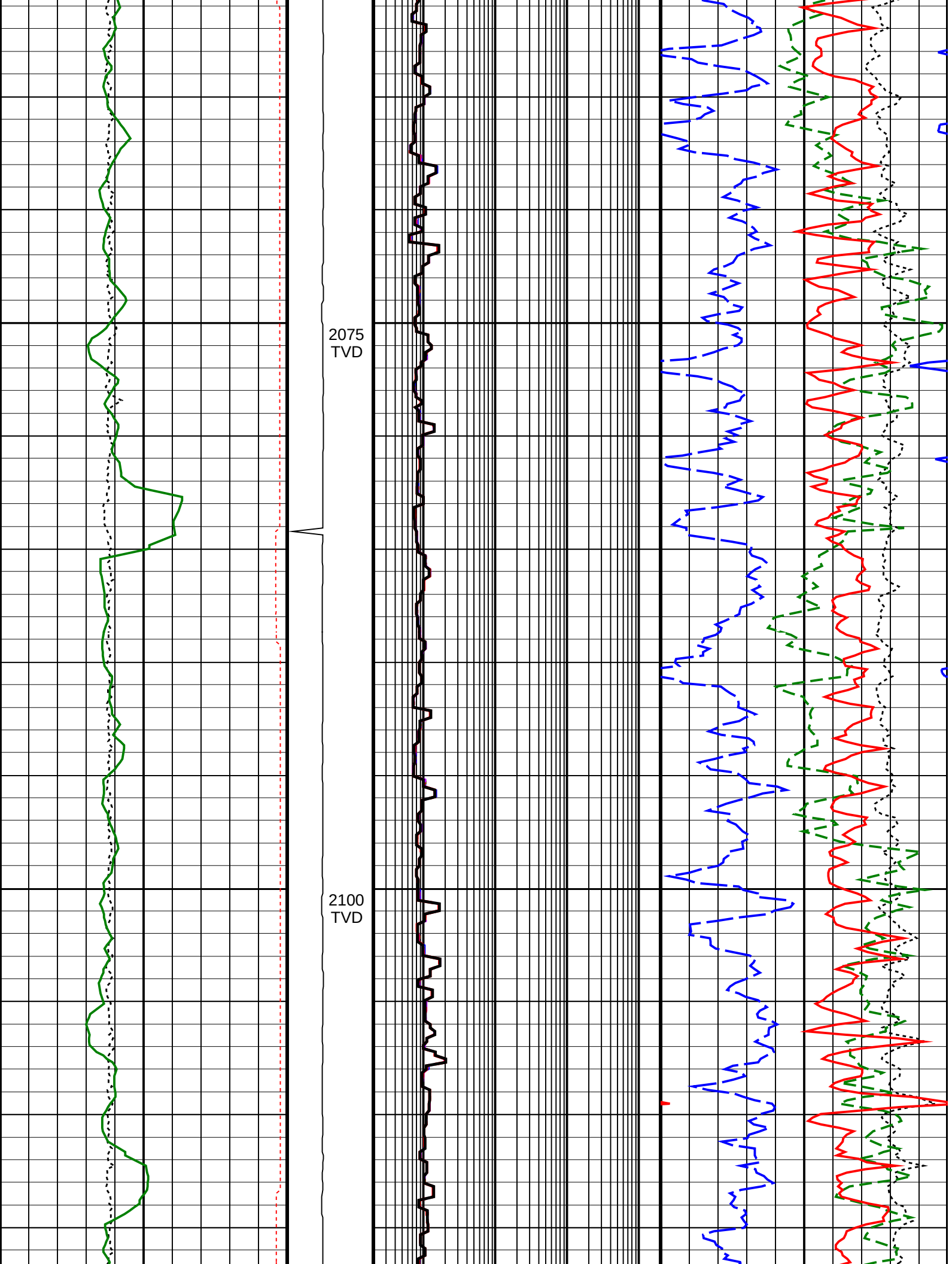

1800
TVD
1825
TVD

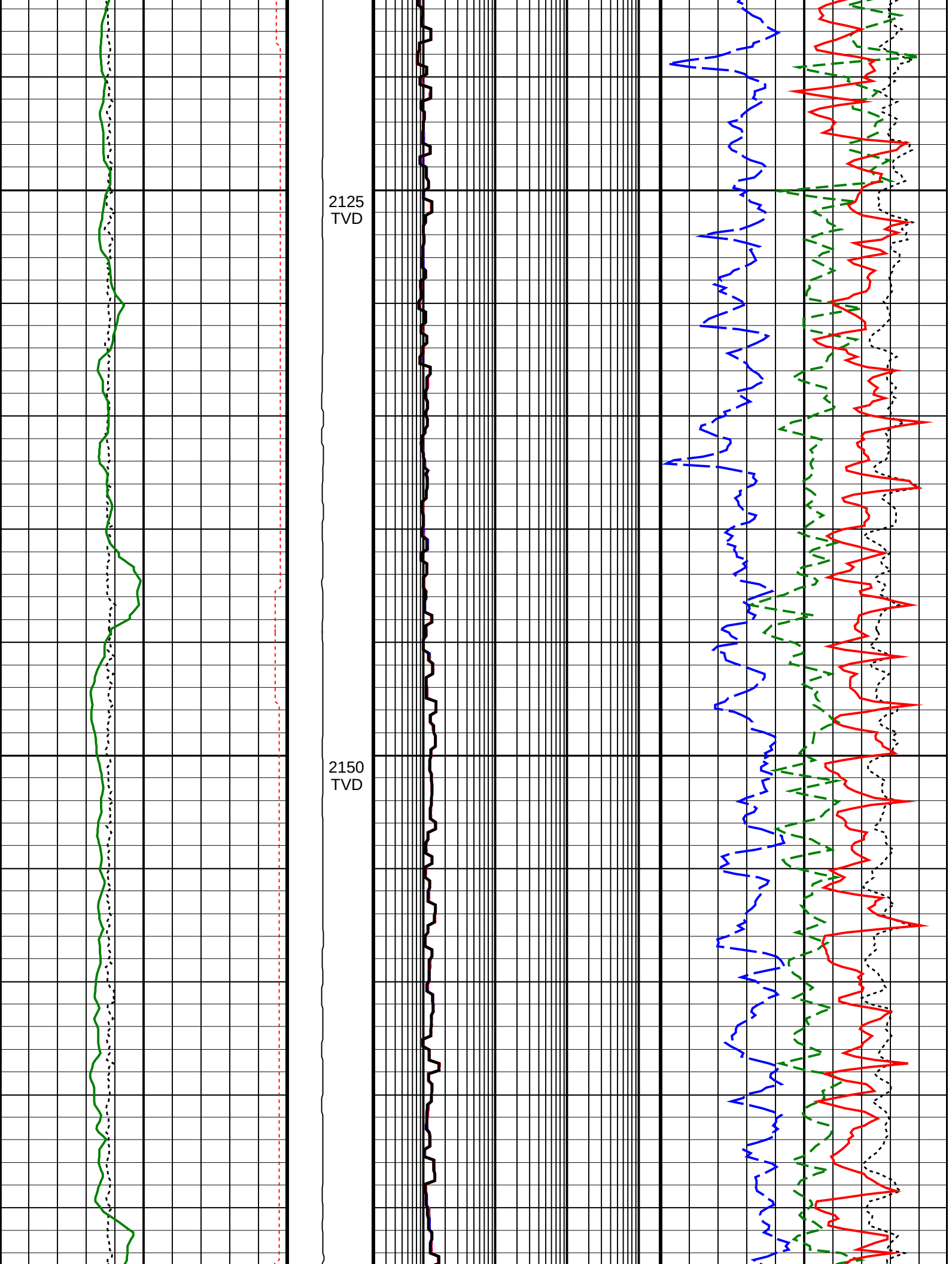

1850
TVD
1875
TVD

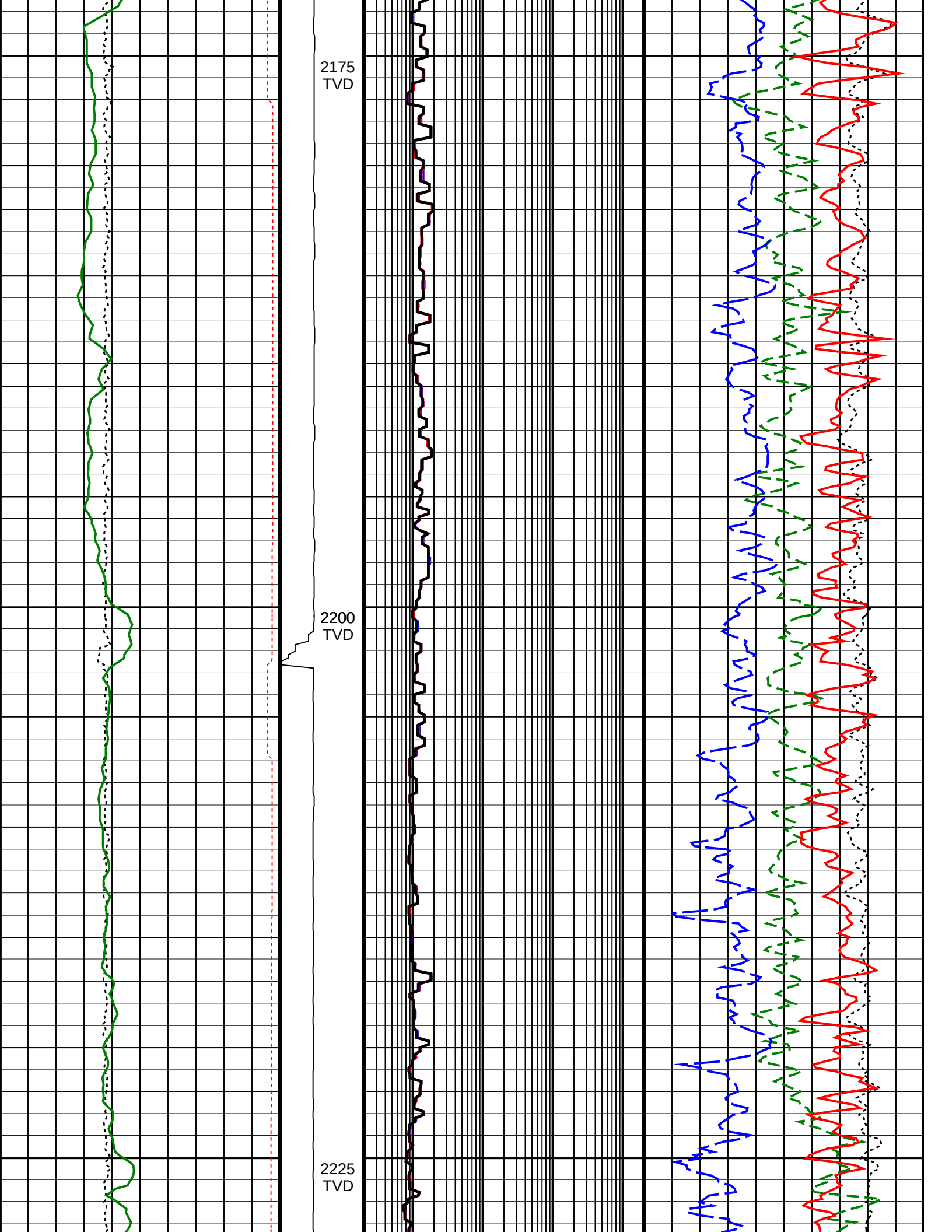

1900
TVD
1925
TVD

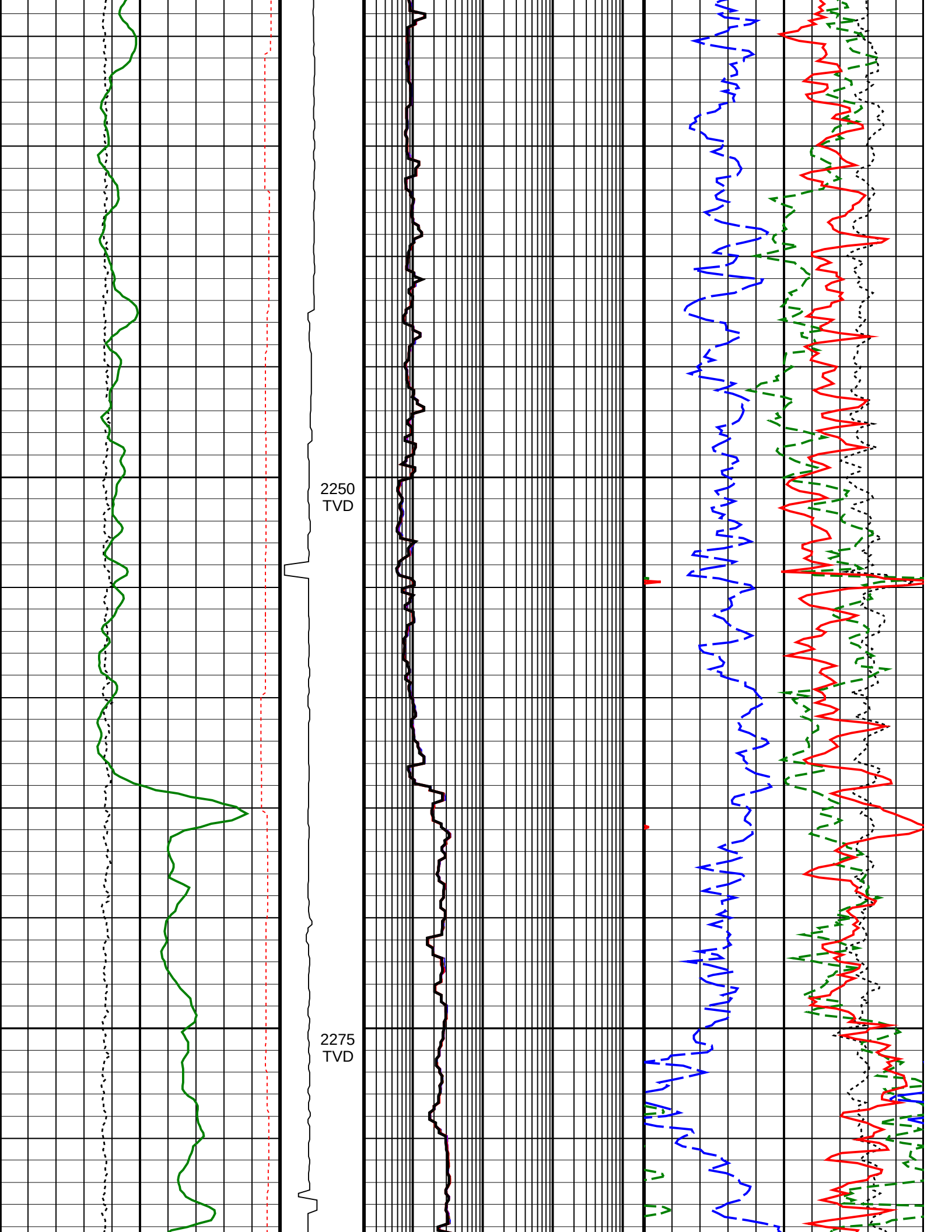

1950
TVD
1975
TVD
2000
TVD

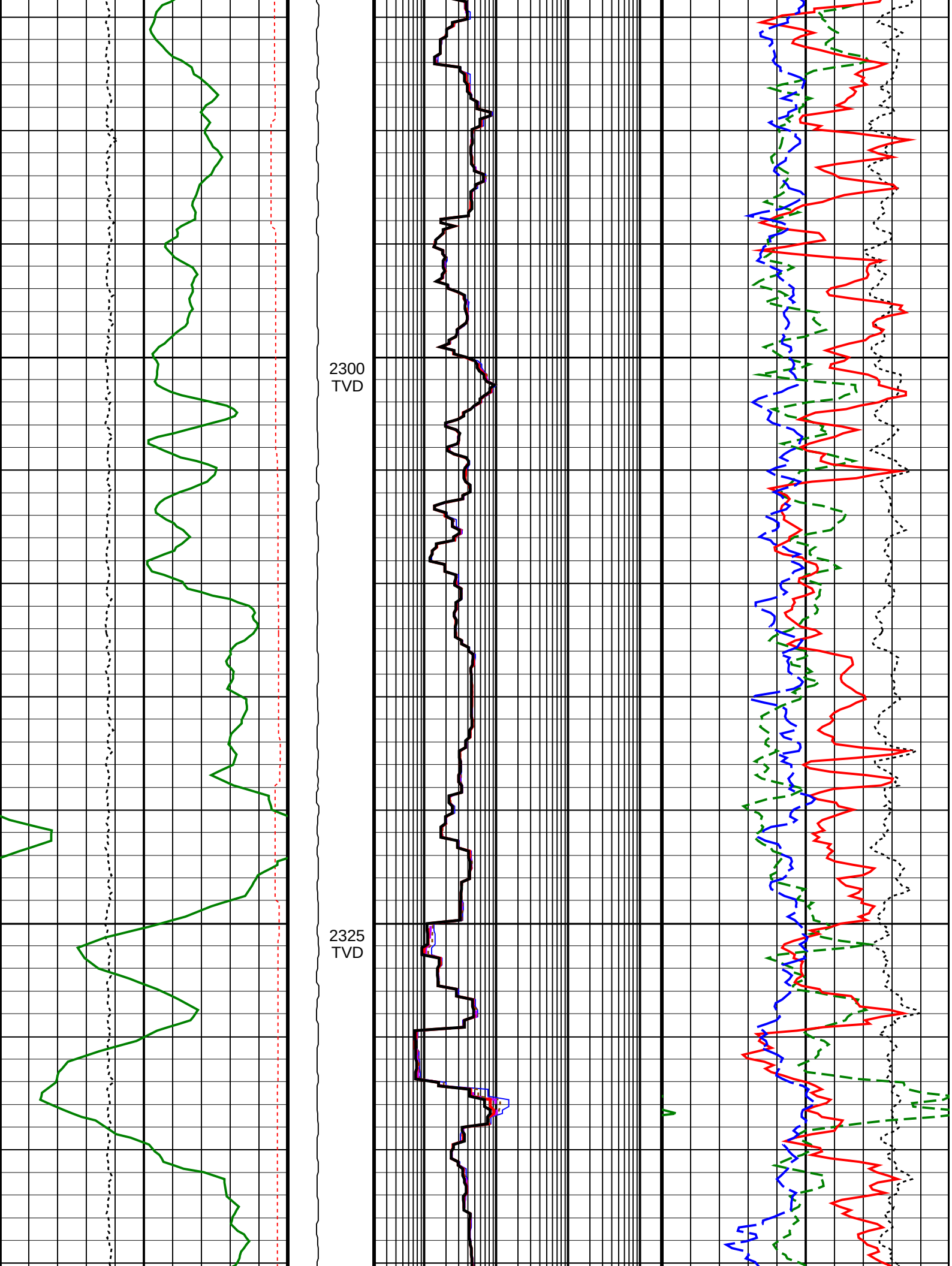

2025
TVD
2050
TVD

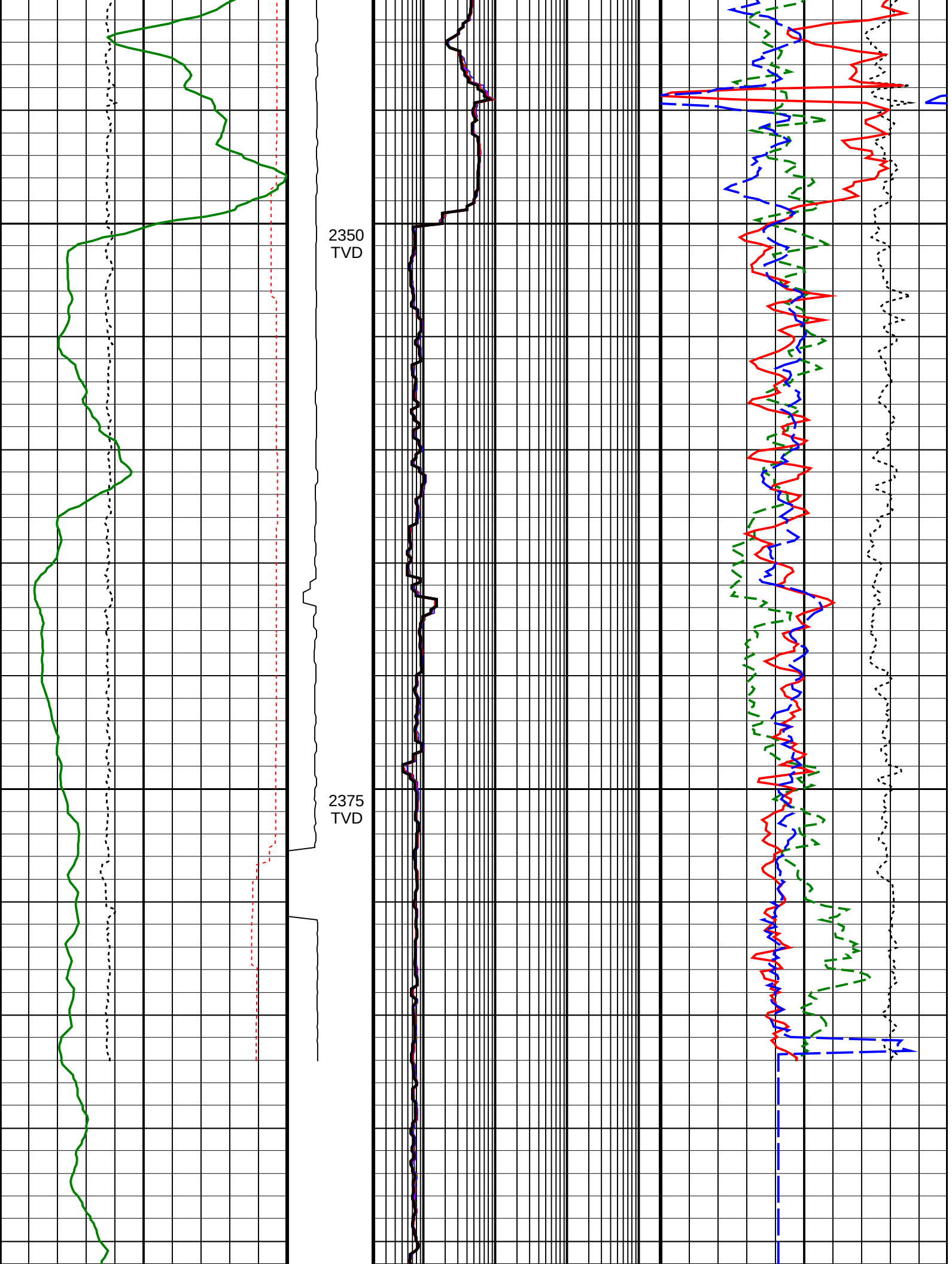

2075
TVD
2100
TVD

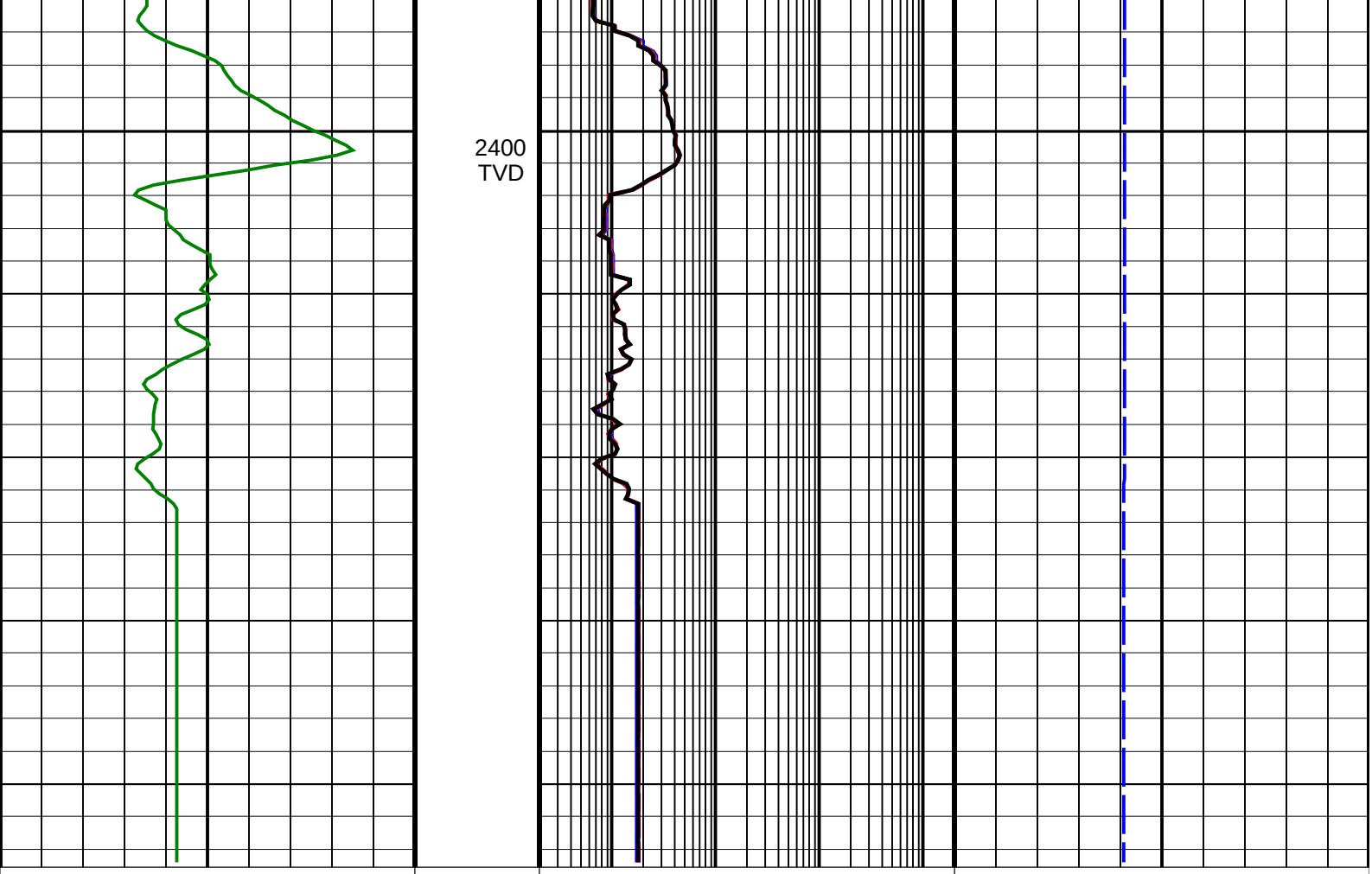

2125
TVD
2150
TVD


2175
TVD
2200
TVD
2225
TVD


2250
TVD
2275
TVD


2300
TVD
2325
TVD


2350
TVD
2375
TVD



Density Time After Bit (TAB_DEN) 0 (HR) 10	ADN Rotational Speed (RPM_ADN) (RPM) 0 250	ARC Phase−Shift Resistivity 16−in. at 2 MHz (P16H) 0.2 (OHMM) 2000
		Bulk Density Correction, Bottom (DRHB) −0.75 (G/C3) 0.25
Density Caliper, Average (DCAV) 6 (IN) 16		ARC Phase−Shift Resistivity 22−in. at 2 MHz (P22H) 0.2 (OHMM) 2000
		Photoelectric Factor, Bottom (PEB) 0 (−−−− 10
ARC Gamma Ray (GR_ARC) 0 (GAPI) 200		ARC Phase−Shift Resistivity 28−in. at 2 MHz (P28H) 0.2 (OHMM) 2000
		Bulk Density, Bottom (ROBB) 1.85 (G/C3) 2.85
		ARC Phase−Shift Resistivity 34−in. at 2 MHz (P34H) 0.2 (OHMM) 2000
		Thermal Neutron Porosity (TNPH) 0.45 (V/V) −0.15
		ARC Phase−Shift Resistivity 40−in. at 2 MHz (P40H) 0.2 (OHMM) 2000

IDEAL Version: ID14_0C_25

IDF

ARC6A−AA	Id14_0c_25	ADN	Id14_0c_25

True Vertical Depth Log

6.75−in. Azimuthal Density Neutron / Equipment Identification

Primary Equipment:

Tool Name and Serial Number	ADN6 − CA	
Collar Type and Serial Number	ADDC − AA	141
Chassis Type and Serial Number	ADSE − EA	18
Stabilizer Type and Serial Number	−	1

Neutron Logging Source	NSR – M	202
Density Logging Source	GSR – J/Z	1994
Stabilizer Size	9.48 – in.	
Calibration Status	AUTO –	

Master: 19−Nov−2009 14:55

6.75−in. Azimuthal Density Neutron Calibration

Density: Magnesium Block

Phase	LS window 3 − Mg CPS	Value	Phase	SS window 1 − Mg CPS	Value	Phase	SS window 3 − Mg CPS	Value
Master		506.9	Master		1408	Master		3796
	250.0 (Minimum) 4125 (Nominal) 8000 (Maximum)			700.0 (Minimum) 9350 (Nominal) 18000 (Maximum)			2500 (Minimum) 23750 (Nominal) 45000 (Maximum)	

Master: 19−Nov−2009 14:55

6.75−in. Azimuthal Density Neutron Calibration

Density: Aluminum Block

Phase	LS window 3 − Al CPS	Value	Phase	SS window 1 − Al CPS	Value	Phase	SS window 3 − Al CPS	Value
Master		86.44	Master		820.1	Master		2668
	50.00 (Minimum) 725.0 (Nominal) 1400 (Maximum)			500.0 (Minimum) 4250 (Nominal) 8000 (Maximum)			1500 (Minimum) 15750 (Nominal) 30000 (Maximum)	

Master: 19−Nov−2009 14:55

6.75−in. Azimuthal Density Neutron Calibration

Density: Background

Phase	LS window 3 − Background CPS	Value	Phase	SS window 1 − Background CPS	Value	Phase	SS window 3 − Background CPS	Value
Master		30.61	Master		96.64	Master		429.4
	15.00 (Minimum) 82.50 (Nominal) 150.0 (Maximum)			40.00 (Minimum) 220.0 (Nominal) 400.0 (Maximum)			150.0 (Minimum) 825.0 (Nominal) 1500 (Maximum)	

Master: 19−Nov−2009 14:55

6.75−in. Azimuthal Density Neutron Calibration

Density: Water Block Check

Phase	Long spacing water density G/C3	Value	Phase	Short spacing water density G/C3	Value
Master		1.003	Master		1.085
	1.003 (Minimum) 1.018 (Nominal) 1.033 (Maximum)			1.080 (Minimum) 1.110 (Nominal) 1.140 (Maximum)	

Master: 19−Nov−2009 14:55

6.75−in. Azimuthal Density Neutron Calibration

Neutron: 3−Point Calibration

Phase	Far 1 tube 1 Air Point Measure CPS	Value	Phase	Far 1 tube 1 Rod Point Measure CPS	Value	Phase	Far 1 tube 1 H2O Point Measure CPS	Value
Master		17.53	Master		4.570	Master		2.063
	13.30 (Minimum) 19.05 (Nominal) 24.70 (Maximum)			3.400 (Minimum) 4.857 (Nominal) 6.200 (Maximum)			1.600 (Minimum) 2.363 (Nominal) 3.100 (Maximum)	
Phase	Far 1 tube 2 Air Point Measure CPS	Value	Phase	Far 1 tube 2 Rod Point Measure CPS	Value	Phase	Far 1 tube 2 H2O Point Measure CPS	Value
Master		18.20	Master		4.636	Master		2.134
	13.30 (Minimum) 19.05 (Nominal) 24.70 (Maximum)			3.400 (Minimum) 4.857 (Nominal) 6.200 (Maximum)			1.600 (Minimum) 2.363 (Nominal) 3.100 (Maximum)	
Phase	Far 1 tube 3 Air Point Measure CPS	Value	Phase	Far 1 tube 3 Rod Point Measure CPS	Value	Phase	Far 1 tube 3 H2O Point Measure CPS	Value
Master		17.69	Master		4.489	Master		2.135
	13.30 (Minimum) 19.05 (Nominal) 24.70 (Maximum)			3.400 (Minimum) 4.857 (Nominal) 6.200 (Maximum)			1.600 (Minimum) 2.363 (Nominal) 3.100 (Maximum)	
Phase	Far 2 tube 1 Air Point Measure CPS	Value	Phase	Far 2 tube 1 Rod Point Measure CPS	Value	Phase	Far 2 tube 1 H2O Point Measure CPS	Value
Master		17.61	Master		4.449	Master		2.094
	13.30 (Minimum) 19.05 (Nominal) 24.70 (Maximum)			3.400 (Minimum) 4.857 (Nominal) 6.200 (Maximum)			1.600 (Minimum) 2.363 (Nominal) 3.100 (Maximum)	
Phase	Far 2 tube 2 Air Point Measure CPS	Value	Phase	Far 2 tube 2 Rod Point Measure CPS	Value	Phase	Far 2 tube 2 H2O Point Measure CPS	Value
Master		18.12	Master		4.559	Master		2.040
	13.30 (Minimum) 19.05 (Nominal) 24.70 (Maximum)			3.400 (Minimum) 4.857 (Nominal) 6.200 (Maximum)			1.600 (Minimum) 2.363 (Nominal) 3.100 (Maximum)	
Phase	Far 2 tube 3 Air Point Measure CPS	Value	Phase	Far 2 tube 3 Rod Point Measure CPS	Value	Phase	Far 2 tube 3 H2O Point Measure CPS	Value
Master		17.19	Master		4.617	Master		2.104
	13.30 (Minimum) 19.05 (Nominal) 24.70 (Maximum)			3.400 (Minimum) 4.857 (Nominal) 6.200 (Maximum)			1.600 (Minimum) 2.363 (Nominal) 3.100 (Maximum)	
Phase	Near 1 tube 1 Air Point Measure CPS	Value	Phase	Near 1 tube 1 Rod Point Measure CPS	Value	Phase	Near 1 tube 1 H2O Point Measure CPS	Value
Master		463.5	Master		702.6	Master		325.0

Phase	Near 2 tube 1 Air Point Measure CPS	Value
Master		453.0
345.0 (Minimum)	487.5 (Nominal)	595.0 (Maximum)

Phase	Near 2 tube 1 Rod Point Measure CPS	Value
Master		700.6
535.0 (Minimum)	768.8 (Nominal)	925.0 (Maximum)

Phase	Near 2 tube 1 H2O Point Measure CPS	Value
Master		323.0
230.0 (Minimum)	343.7 (Nominal)	430.0 (Maximum)

Master: 19−Nov−2009 14:55

6.75−in. Azimuthal Density Neutron Calibration

Neutron: Water Block Check

Phase	Far Neutron water porosity PU	Value
Master		109.4
90.00 (Minimum)	100.0 (Nominal)	125.0 (Maximum)

6.75−in. Array Resistivity Compensated / Equipment Identification

Primary Equipment:

Tool Name and Serial Number	ARC6 − BA	1708
ARC675 Calibration Status	AUTO −	

Master: 18−Sep−2009 12:48

6.75−in. Array Resistivity Compensated Calibration

Resistivity: Air

Phase	Phase−Shift T1	Value
Master		1.783
−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Phase	Phase−Shift T2	Value
Master		−1.661
−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Phase	Phase−Shift T3	Value
Master		1.696
−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Phase	Phase−Shift T4	Value
Master		−1.703
−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Phase	Phase−Shift T5	Value
Master		1.660
−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Phase	Phase−Shift T1 at 400KHz	Value
Master		−0.4140
−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Phase	Phase−Shift T2 at 400KHz	Value
Master		0.2910
−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Phase	Phase−Shift T3 at 400KHz	Value
Master		−0.3730
−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Phase	Phase−Shift T4 at 400KHz	Value
Master		0.2900
−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Phase	Phase−Shift T5 at 400KHz	Value
Master		−0.3780
−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Master: 18−Sep−2009 12:48

6.75−in. Array Resistivity Compensated Calibration

Resistivity: Air

Phase	Attenuation T1	Value
Master		8.342
6.500 (Minimum)	8.500 (Nominal)	10.50 (Maximum)

Phase	Attenuation T2	Value
Master		6.600
4.500 (Minimum)	6.500 (Nominal)	8.500 (Maximum)

Phase	Attenuation T3	Value
Master		4.967
2.500 (Minimum)	4.500 (Nominal)	6.500 (Maximum)

Phase	Attenuation T4	Value
Master		4.506
2.600 (Minimum)	4.600 (Nominal)	6.600 (Maximum)

Phase	Attenuation T5	Value
Master		3.519
1.600 (Minimum)	3.600 (Nominal)	5.600 (Maximum)

Phase	Attenuation T1 at 400KHz	Value
Master		8.321
6.500 (Minimum)	8.500 (Nominal)	10.50 (Maximum)

Phase	Attenuation T2 at 400KHz	Value
Master		6.628
4.500 (Minimum)	6.500 (Nominal)	8.500 (Maximum)

Phase	Attenuation T3 at 400KHz	Value
Master		4.939
2.500 (Minimum)	4.500 (Nominal)	6.500 (Maximum)

Phase	Attenuation T4 at 400KHz	Value
Master		4.530
2.600 (Minimum)	4.600 (Nominal)	6.600 (Maximum)

Phase	Attenuation T5 at 400KHz	Value

Phase		Value
Master	3.500	
	1.600 (Minimum) 3.600 (Nominal) 5.600 (Maximum)	

Master: 28-Sep-2009 14:11

6.75-in. Array Resistivity Compensated Calibration

Gamma Ray: Blanket

Phase	Gamma ray factor (equals Calibration Gain multiplied by API Gain Factor) CPS	Value
Master		4.929
	2.780 (Minimum) 4.800 (Nominal) 6.000 (Maximum)	

SCHLUMBERGER

Survey report

Client.....: ESSO Australia Pty Ltd
Field.....: WEST KINGFISH

Well.....: WKF W12A
API number.....: N/A
Engineer.....: MRG/DP/WC

COUNTY:.....: N/A
STATE:.....: VIC

Spud date.....: 21-NOV-09
Last survey date.....: 25-Nov-09
Total accepted surveys...: 84
MD of first survey.....: 0.00 m
MD of last survey.....: 2440.00 m

----- Survey calculation methods-----
Method for positions.....: Minimum curvature
Method for DLS.....: Mason & Taylor

----- Depth reference -----
Permanent datum.....: MEAN SEA LEVEL
Depth reference.....: DRILLER'S DEPTH
GL above permanent.....: 77.00 m
KB above permanent.....: -41.73 m
DF above permanent.....: -41.73 m

----- Vertical section origin-----
Latitude (+N/S-).....: -2.32 m
Departure (+E/W-).....: 4.16 m

----- Platform reference point-----
Latitude (+N/S-).....:
Departure (+E/W-).....:

Azimuth from Vsect Origin to target: 19.15 degrees

----- Geomagnetic data -----
Magnetic model.....: BGGM version 2009
Magnetic date.....: 20-Nov-2009
Magnetic field strength..: 60057.39 GAMA
Magnetic dec (+E/W-).....: 13.22 degrees
Magnetic dip.....: -69.00 degrees

----- MWD survey Reference Criteria -----
Reference G.....: 1000.06 mGal
Reference H.....: 60057.50 GAMA
Reference Dip.....: -69.00 degrees
Tolerance of G.....: (+/-) 2.50 mGal
Tolerance of H.....: (+/-)300.00 GAMA
Tolerance of Dip.....: (+/-) 0.45 degrees

----- Corrections -----
Magnetic dec (+E/W-).....: 13.22 degrees
Grid convergence (+E/W-).: -0.69 degrees
Total az corr (+E/W-)....: 13.91 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

SCHLUMBERGER Survey Report

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 type	Tool Corr (deg
1	0.00	0.00	0.00	0.00	0.00	0.00	-2.32	4.16	4.76	119.15	0.00	TIP	None
2	7.50	0.00	0.00	7.50	7.50	0.00	-2.32	4.16	4.76	119.15	0.00	PHOTO-GSS	No
3	206.50	3.00	260.00	199.00	206.41	-2.54	-3.22	-0.97	3.37	196.73	0.46	PHOTO-GSS	No
4	216.50	4.50	273.00	10.00	216.39	-2.77	-3.25	-1.62	3.63	206.48	5.23	PHOTO-GSS	No
5	234.50	7.00	287.00	18.00	234.30	-3.01	-2.89	-3.37	4.44	229.40	4.82	PHOTO-GSS	No
6	243.50	8.50	288.00	9.00	243.21	-3.05	-2.53	-4.53	5.19	240.86	5.10	PHOTO-GSS	No
7	253.50	8.50	288.00	10.00	253.10	-3.07	-2.07	-5.94	6.29	250.78	0.00	PHOTO-GSS	No
8	263.50	8.75	289.00	10.00	262.99	-3.09	-1.59	-7.36	7.53	257.78	0.89	PHOTO-GSS	No
9	282.50	9.25	293.00	19.00	281.76	-2.99	-0.53	-10.13	10.14	267.03	1.28	PHOTO-GSS	No
10	300.50	9.75	292.00	18.00	299.51	-2.82	0.61	-12.88	12.89	272.71	0.89	PHOTO-GSS	No
11	321.50	11.00	293.00	21.00	320.17	-2.60	2.06	-16.37	16.50	277.17	1.83	PHOTO-GSS	No
12	341.50	10.25	292.00	20.00	339.82	-2.38	3.47	-19.77	20.08	279.96	1.18	PHOTO-GSS	No
13	360.50	9.75	291.00	19.00	358.53	-2.24	4.68	-22.84	23.32	281.58	0.85	PHOTO-GSS	No
14	389.50	10.00	291.00	29.00	387.11	-2.08	6.46	-27.49	28.24	283.23	0.26	PHOTO-GSS	No
15	418.50	9.50	291.00	29.00	415.69	-1.93	8.22	-32.07	33.11	284.38	0.53	PHOTO-GSS	No
16	447.50	8.75	292.00	29.00	444.32	-1.74	9.91	-36.35	37.68	285.25	0.81	PHOTO-GSS	No
17	466.50	7.50	289.00	19.00	463.13	-1.67	10.85	-38.86	40.35	285.60	2.12	PHOTO-GSS	No
18	505.50	5.50	293.00	39.00	501.88	-1.55	12.41	-42.99	44.75	286.10	1.60	PHOTO-GSS	No

19	562.50	3.00	296.00	57.00	558.71	-1.19	14.13	-46.85	48.93	286.79	1.34	PHOTO-GSS	No
20	626.53	2.02	301.08	64.03	622.68	-0.76	15.45	-49.32	51.68	287.39	0.48	PHOTO-GSS	No
21	646.77	3.66	20.88	20.24	642.90	-0.04	16.24	-49.40	52.00	288.20	5.80	MWD+GMAG	Nor
22	656.61	4.55	22.13	9.84	652.72	0.67	16.89	-49.14	51.96	288.97	2.77	MWD+GMAG	Nor
23	685.69	8.33	21.52	29.08	681.61	3.92	19.92	-47.93	51.90	292.57	3.96	MWD+GMAG	Nor
24	714.73	9.35	21.05	29.04	710.30	8.38	24.08	-46.31	52.20	297.47	1.07	MWD+GMAG	Nor
25	744.08	9.70	21.95	29.35	739.25	13.24	28.60	-44.53	52.92	302.71	0.40	MWD+GMAG	Nor
26	773.27	9.46	16.40	29.19	768.03	18.09	33.18	-42.93	54.26	307.70	1.00	MWD+GMAG	Nor
27	802.85	9.26	13.23	29.58	797.22	22.88	37.83	-41.70	56.30	312.21	0.57	MWD+GMAG	Nor
28	832.02	9.27	11.81	29.17	826.01	27.55	42.42	-40.68	58.77	316.19	0.24	MWD+GMAG	Nor
29	861.40	9.32	11.66	29.38	855.00	32.25	47.06	-39.72	61.58	319.84	0.06	MWD+GMAG	Nor
30	890.64	8.69	12.79	29.24	883.88	36.80	51.53	-38.75	64.48	323.06	0.68	MWD+GMAG	Nor
31	919.93	9.08	19.27	29.29	912.82	41.31	55.87	-37.50	67.29	326.13	1.12	MWD+GMAG	Nor
32	949.14	8.96	17.29	29.21	941.67	45.89	60.22	-36.06	70.19	329.09	0.35	MWD+GMAG	Nor
33	978.16	8.79	14.85	29.02	970.34	50.36	64.52	-34.82	73.32	331.65	0.43	MWD+GMAG	Nor
34	1007.71	9.41	13.06	29.55	999.52	55.01	69.06	-33.70	76.84	333.99	0.70	MWD+GMAG	Nor
35	1036.88	8.46	15.85	29.17	1028.34	59.52	73.45	-32.57	80.34	336.08	1.09	MWD+GMAG	Nor
36	1066.29	8.66	31.20	29.41	1057.42	63.85	77.42	-30.83	83.33	338.28	2.37	MWD+GMAG	Nor
37	1095.65	9.11	41.94	29.36	1086.43	68.15	81.04	-28.14	85.79	340.85	1.78	MWD+GMAG	Nor
38	1125.06	9.44	34.42	29.41	1115.46	72.63	84.76	-25.22	88.43	343.43	1.30	MWD+GMAG	Nor
39	1154.05	9.63	27.44	28.99	1144.05	77.32	88.88	-22.75	91.74	345.64	1.23	MWD+GMAG	Nor
40	1183.48	9.60	20.06	29.43	1173.07	82.21	93.37	-20.78	95.65	347.45	1.28	MWD+GMAG	Nor
41	1212.66	8.94	14.68	29.18	1201.87	86.90	97.84	-19.37	99.74	348.80	1.14	MWD+GMAG	Nor
42	1241.60	9.05	16.97	28.94	1230.45	91.42	102.20	-18.13	103.79	349.94	0.39	MWD+GMAG	Nor
43	1271.30	8.65	20.23	29.70	1259.80	95.99	106.53	-16.68	107.82	351.10	0.66	MWD+GMAG	Nor
44	1300.70	8.80	20.89	29.40	1288.86	100.45	110.70	-15.11	111.73	352.23	0.19	MWD+GMAG	Nor
45	1329.76	8.90	19.33	29.06	1317.57	104.91	114.90	-13.58	115.70	353.26	0.27	MWD+GMAG	Nor
46	1358.94	8.89	6.87	29.18	1346.40	109.38	119.27	-12.56	119.93	353.99	2.01	MWD+GMAG	Nor
47	1388.26	8.69	2.85	29.32	1375.38	113.72	123.73	-12.18	124.33	354.38	0.67	MWD+GMAG	Nor
48	1417.51	8.70	10.24	29.25	1404.29	118.02	128.11	-11.68	128.65	354.79	1.16	MWD+GMAG	Nor
49	1446.94	9.09	7.11	29.43	1433.37	122.49	132.61	-10.99	133.07	355.26	0.64	MWD+GMAG	Nor
50	1476.39	7.76	8.46	29.45	1462.50	126.72	136.89	-10.41	137.28	355.65	1.39	MWD+GMAG	Nor
51	1505.59	8.16	16.27	29.20	1491.42	130.73	140.83	-9.54	141.15	356.12	1.20	MWD+GMAG	Nor
52	1534.75	8.56	23.45	29.16	1520.27	134.96	144.80	-8.10	145.03	356.80	1.17	MWD+GMAG	Nor
53	1563.84	8.66	24.16	29.09	1549.03	139.30	148.79	-6.34	148.92	357.56	0.15	MWD+GMAG	Nor
54	1593.11	8.70	24.23	29.27	1577.97	143.70	152.82	-4.53	152.88	358.30	0.04	MWD+GMAG	Nor
55	1622.65	8.89	25.65	29.54	1607.16	148.20	156.91	-2.63	156.93	359.04	0.30	MWD+GMAG	Nor
56	1651.82	8.95	26.68	29.17	1635.98	152.68	160.97	-0.63	160.97	359.78	0.18	MWD+GMAG	Nor
57	1680.83	8.98	28.50	29.01	1664.63	157.16	164.98	1.46	164.98	0.51	0.30	MWD+GMAG	Nor
58	**1708.19**	**8.68**	**23.13**	**27.36**	**1691.67**	**161.32**	**168.75**	**3.29**	**168.79**	**1.12**	**0.98**	**MWD+GMAG**	**Nor**
59	**1739.30**	**8.17**	**17.30**	**31.11**	**1722.44**	**165.87**	**173.02**	**4.87**	**173.09**	**1.61**	**0.97**	**MWD+GMAG**	**Nor**
60	1768.35	7.62	16.34	29.05	1751.22	169.86	176.84	6.03	176.94	1.95	0.59	MWD+GMAG	Nor
61	1798.01	6.99	12.87	29.66	1780.64	173.62	180.49	6.98	180.62	2.22	0.79	MWD+GMAG	Nor
62	1827.32	5.13	18.45	29.31	1809.78	176.70	183.47	7.80	183.64	2.43	2.03	MWD+GMAG	Nor
63	1856.68	0.47	246.72	29.36	1839.11	177.93	184.67	8.10	184.85	2.51	5.66	MWD+GMAG	Nor
64	1885.99	1.59	215.04	29.31	1868.41	177.46	184.29	7.76	184.45	2.41	1.26	MWD+GMAG	Nor
65	1915.16	1.46	221.69	29.17	1897.57	176.73	183.68	7.28	183.82	2.27	0.23	MWD+GMAG	Nor
66	1944.22	1.30	222.87	29.06	1926.62	176.09	183.16	6.81	183.29	2.13	0.17	MWD+GMAG	Nor
67	1973.72	1.39	211.95	29.50	1956.11	175.43	182.61	6.39	182.72	2.00	0.28	MWD+GMAG	Nor
68	2002.95	1.52	193.94	29.23	1985.34	174.70	181.94	6.11	182.04	1.92	0.49	MWD+GMAG	Nor
69	2032.09	1.45	194.05	29.14	2014.47	173.95	181.20	5.93	181.30	1.87	0.07	MWD+GMAG	Nor
70	2061.55	1.41	184.15	29.46	2043.92	173.22	180.48	5.81	180.57	1.84	0.26	MWD+GMAG	Nor
71	2090.54	1.49	174.99	28.99	2072.90	172.54	179.75	5.82	179.84	1.85	0.26	MWD+GMAG	Nor
72	2119.85	1.78	315.16	29.31	2102.20	172.39	179.69	5.53	179.78	1.76	3.20	MWD+GMAG	Nor
73	2149.01	3.15	2.86	29.16	2131.34	173.36	180.81	5.25	180.89	1.66	2.46	MWD+GMAG	Nor
74	2178.44	3.05	18.34	29.43	2160.72	174.92	182.36	5.54	182.45	1.74	0.87	MWD+GMAG	Nor
75	2207.86	2.78	34.08	29.42	2190.11	176.39	183.70	6.18	183.80	1.93	0.87	MWD+GMAG	Nor
76	2236.90	2.88	47.90	29.04	2219.11	177.71	184.77	7.12	184.91	2.21	0.72	MWD+GMAG	Nor
77	2266.43	0.53	239.21	29.53	2248.63	178.25	185.20	7.55	185.35	2.33	3.51	MWD+GMAG	Nor
78	2295.88	1.69	192.64	29.45	2278.08	177.72	184.70	7.34	184.85	2.28	1.43	MWD+GMAG	Nor
79	2325.11	0.82	120.08	29.23	2307.30	177.25	184.18	7.43	184.33	2.31	1.71	MWD+GMAG	Nor
80	2354.24	0.97	52.46	29.13	2336.43	177.42	184.22	7.80	184.39	2.42	1.05	MWD+GMAG	Nor
81	2383.41	1.30	312.00	29.17	2365.59	177.75	184.60	7.75	184.76	2.40	1.84	MWD+GMAG	Nor
82	2412.83	1.25	268.22	29.42	2395.01	177.77	184.81	7.18	184.95	2.23	0.99	MWD+GMAG	Nor
83	2421.16	0.95	126.31	8.33	2403.34	177.71	184.77	7.15	184.90	2.22	7.62	MWD+GMAG	Nor
84	2440.00	0.90	30.30	18.84	2422.17	177.81	184.80	7.35	184.95	2.28	2.23	Proj. to TD	

Field:	**WEST KINGFISH**	
Rig:	**ISDL 175**	**9.875 in. Section**
State:	**Victoria**	

VISION Service
1:200 True Vertical Depth (Trip Out)
Recorded Mode Log