



Drilling Dynamics

Gamma Ray

LWD REALTIME/MEMORY LOG - 8.500" SECTION

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<div><div><div><div><div><div>BAKER HUGHES</div><div>a GE company</div></div><div><div><div><div><div></div><div></div><div></div></div></div><div><div><div><div></div><div></div><div></div></div></div></div></div></div><div><div><div><div></div><div></div><div></div></div></div></div></div></div></div></div>				<div>Drilling Dynamics Gamma Ray</div>					
Scale:				Company: ConocoPhillips					
1:1200 MD				Well: BIG_SANDY_3-65_36-31_2AH					
Depth Reference:				Field: Adams County (NAD 83/TN)					
Driller's Depth				County: Adams County Country: United States					
				State: Colorado					
Status:		Surface Location:			Other Services:				
Final Print		Latitude:			039° 44' 48.470" N				
API No: 05001101010000		Longitude:			104 ° 37' 24.560" W				
Job ID: 8976734		SEC: 35		TWN: 3S		RGE: 6SW			
Permanent Datum (P.D.): Ground Level		Elevation:		5524.00 ft		Elev. KB:		N/A	
Log Measured From: Rig Floor		Above P.D.		25.00 ft		Elev. D.F:		5549.00 ft	
						Elev. GL:		5524.00 ft	
Dates				Interval Logged			Magnetic Field Reference		
Date From: 2018-03-14		Top: (ft) 2091.00		Azi Reference North: True		Dip Angle: (deg) 66.34			
Date To: 2018-03-20		Bottom: (ft) 18177.00		Total Magnetic Field Strength: (nT)		51777			
Spud Date: 2018-03-01				Mag to Reference North Correction: (deg)		8.35 E			
Borehole Record				Casing Record					
Hole Size (in)		From (ft)		To (ft)		Size (in)		Weight (lb/ft)	
13.500		25.00		2091.00		9.625		36.00	
8.500		2091.00		18177.00					
Mud Record				Deviation Record					
Type		From (ft)		To (ft)		Hole Size (in)		Interval (ft)	
Oil Based Mud		2091.00		18177.00		8.500		16086.00	
								0.29 296.34	
								90.49 91.14	
Acquisition System				Software Version			Other		
Baker Hughes Cadence		RT4.1		Rig: B 16		Contractor: Nabors Drilling			
Pilot Studio		4.1.7763.3		District: RMA		Unit: D&E			

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Log Run Summary

Run No	Bit Run No.	Bit Size (in)	Bit Type	Bit Gauge Length (in)	Assembly Type	Logged Interval		Bit Depth Interval		Date / Time		Circ. Hours (h)
						Top	Bottom	From	To	Start Logging	End Logging	
						(ft)	(ft)	(ft)	(ft)			
1	1	8.500	PDC	6.00	AutoTrak Curve	2077.90	11212.14	2091.00	11225.24	2018-03-14 11:07	2018-03-16 14:46	47.39
2	2	8.500	PDC	6.00	AutoTrak Curve	11212.14	14942.34	11225.24	14955.44	2018-03-17 19:25	2018-03-18 19:37	27.26
3	3	8.500	PDC	6.00	AutoTrak Curve	14942.34	18163.90	14955.44	18177.00	2018-03-19 20:33	2018-03-20 15:31	23.82

Crew

Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite
Brent Cass	2018-03-12	2018-03-20						

Mud Properties Record

Date / Time	Run No.	Measured Depth (ft)	Mud Type	Density (ppg)	Viscosity (cP)	pH	Fluid Loss (cm3)	Oil / Water	Source	Total Chlorides (ppm)	K+ (%)
2018-03-14 05:01	1	2091.00	Oil Based Mud	9.8	16	0	5.0	70.5/29.5	Active Pit	56000	0.00
2018-03-15 05:16	1	6121.02	Oil Based Mud	9.7	18	0	2.8	69.5/30.5	Active Pit	53000	0.00
2018-03-17 00:54	2	11225.00	Oil Based Mud	9.7	16	0	3.8	72.3/27.7	Active Pit	66000	0.00
2018-03-19 11:17	3	14953.00	Oil Based Mud	9.7	21	0	32.8	68.1/31.9	Active Pit	63000	0.00
2018-03-20 05:24	3	16335.41	Oil Based Mud	9.7	18	0	4.3	68.9/31.1	Active Pit	61000	0.00

Equipment and Service Data

Run No.	Tool	Serial Number	Measurement	Sensor Offset (ft)	Bit Offset (ft)	Max O.D. (in)	Min I.D. (in)
1	ATC_SU	12653420	Near Bit VSS	5.93	6.93	7.000	4.330
1	ATC_SU	12653420	Near Bit Inclination	5.93	6.93	7.000	4.330
1	ATC_MWD	14219820	Gamma (single)	2.76	13.10	7.000	3.250
1	ATC_MWD	14219820	Directional (mag)	12.27	22.61	7.000	3.250
2	ATC_SU	14169950	Near Bit VSS	0.00	1.00	7.000	4.330
2	ATC_SU	14169950	Near Bit Inclination	5.93	6.93	7.000	4.330
2	ATC_MWD	12899370	Gamma (single)	2.76	13.10	7.000	3.250
2	ATC_MWD	12899370	Directional (mag)	12.27	22.61	7.000	3.250
3	ATC_SU	14381513	Near Bit VSS	5.93	6.93	7.000	4.330
3	ATC_SU	14381513	Near Bit Inclination	5.93	6.93	7.000	4.330
3	ATC_MWD	14340039	Gamma (single)	2.76	13.10	7.000	3.250
3	ATC_MWD	14340039	Directional (mag)	12.27	22.61	7.000	3.250

Service and Tool Mnemonics

Mnemonic	Name	Description
ATC_SU	ATC_SU	Auto Trak Curve Steering Unit
ATC_MWD	ATC_MWD	Auto Trak Curve MWD
ATC_LCPM	ATC_LCPM	Auto Trak Curve LCPM

Comments

1	Depth measurements were obtained from a depth control system not supplied or operated by Baker Hughes Drilling Services. Due to the lack of control by Baker Hughes logging engineers, depth calibrations and measurements could not be independently verified and the unverified depths as supplied to Baker Hughes are being used to present logging data.
2	Baker Hughes LWD Runs 1, 2 and 3 utilized a 6.75 inch NaviGamma Service (Directional and Gamma Ray) behind an 8.5 inch bit and Rotary Steerable Assembly from 2081 to 18177 feet MD (2081 to 7527 feet TVD).

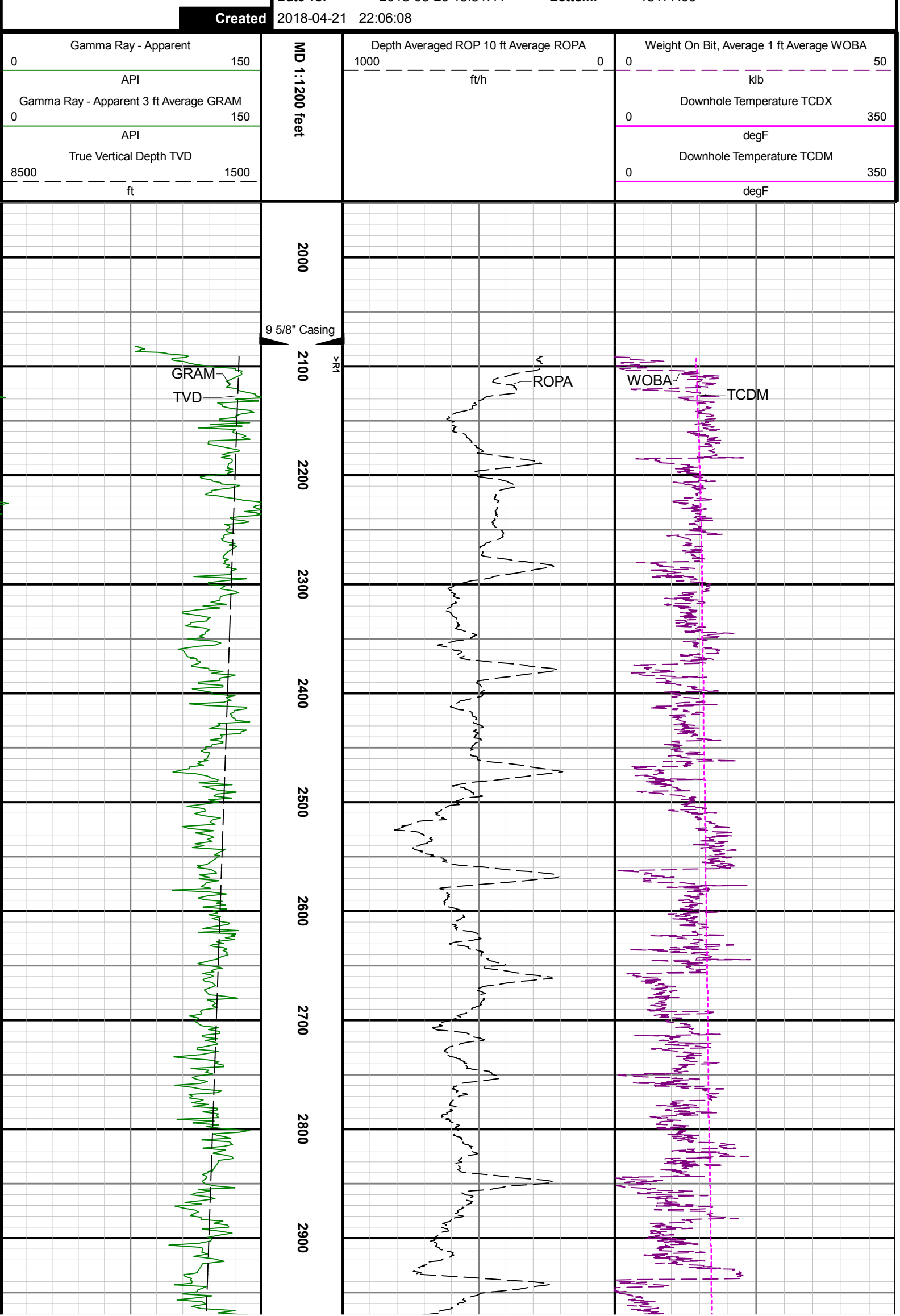
Remarks

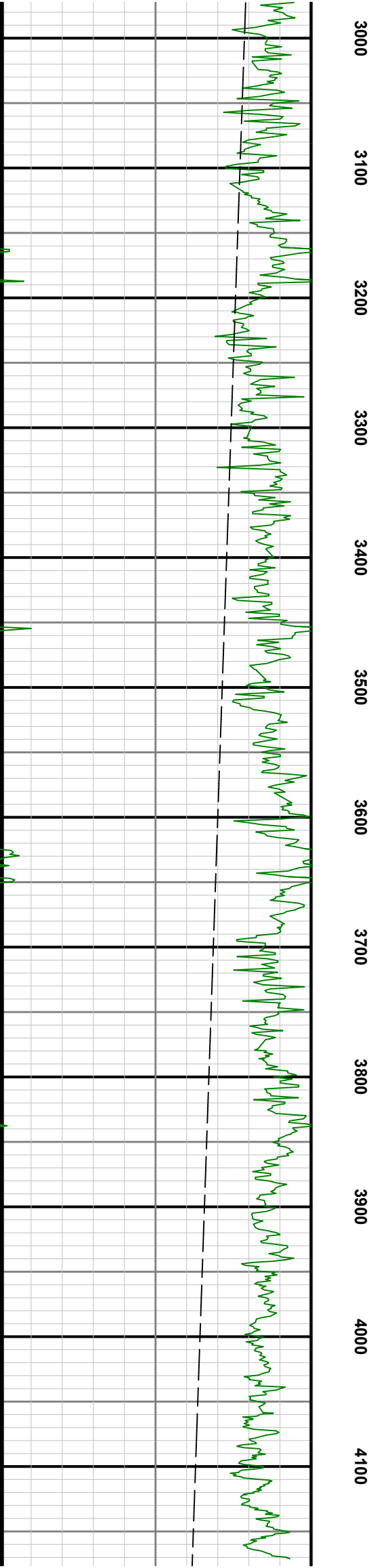
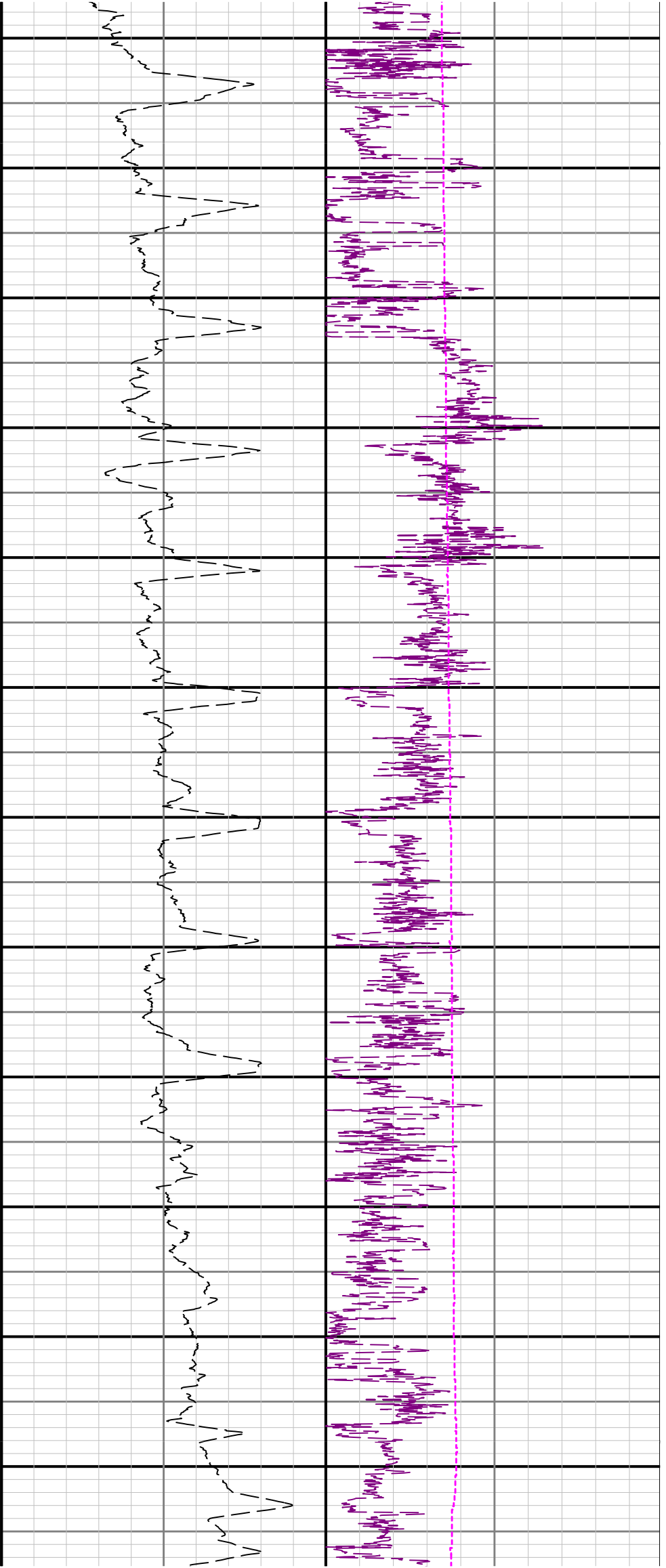
Number	Measured Depth (ft)	Hole Section (in)	Run No.	Remark
1	18177.00	8.500	1	The interval from 18164 to 18177 feet MD (7528 to 7527 feet TVD) was not logged due to the sensor to bit offset at well TD.

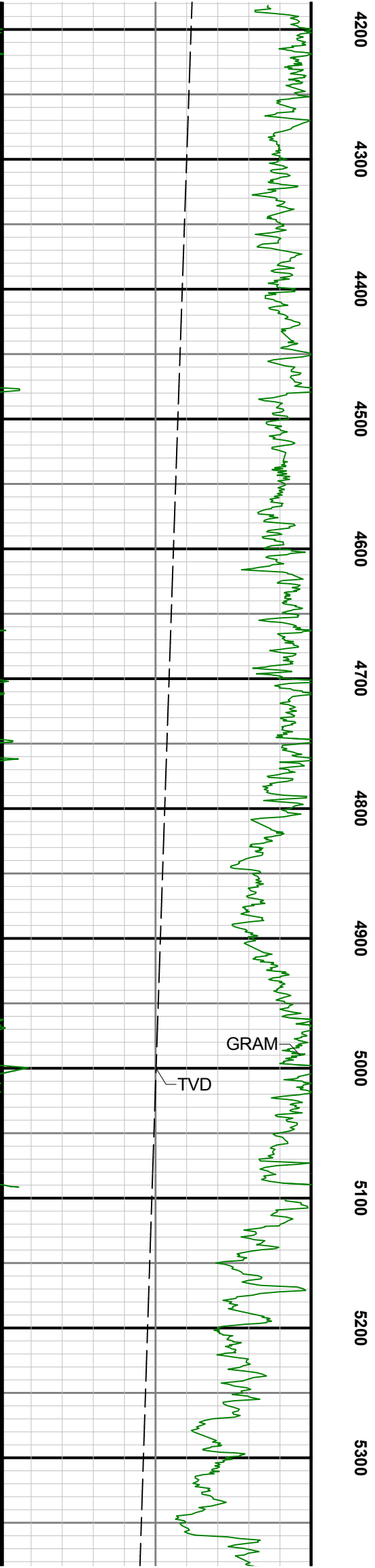
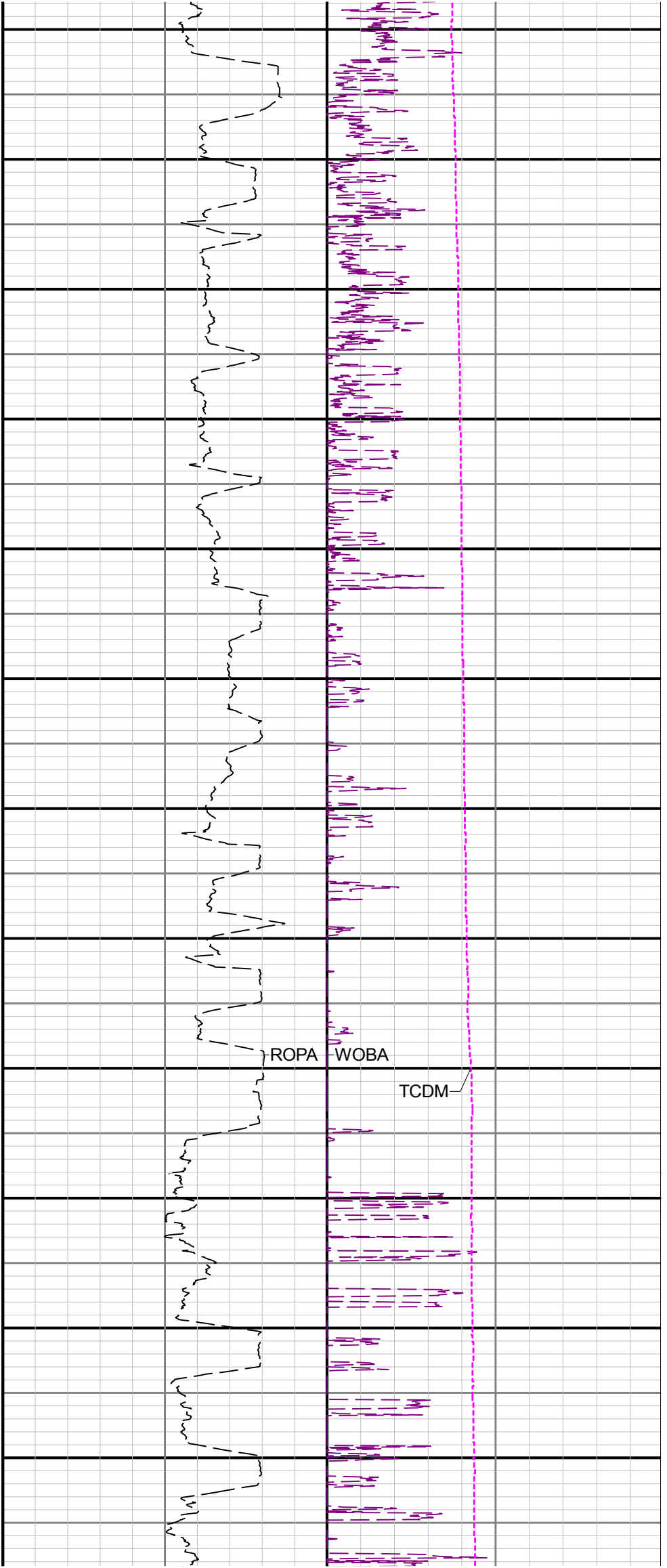
Curve Mnemonics

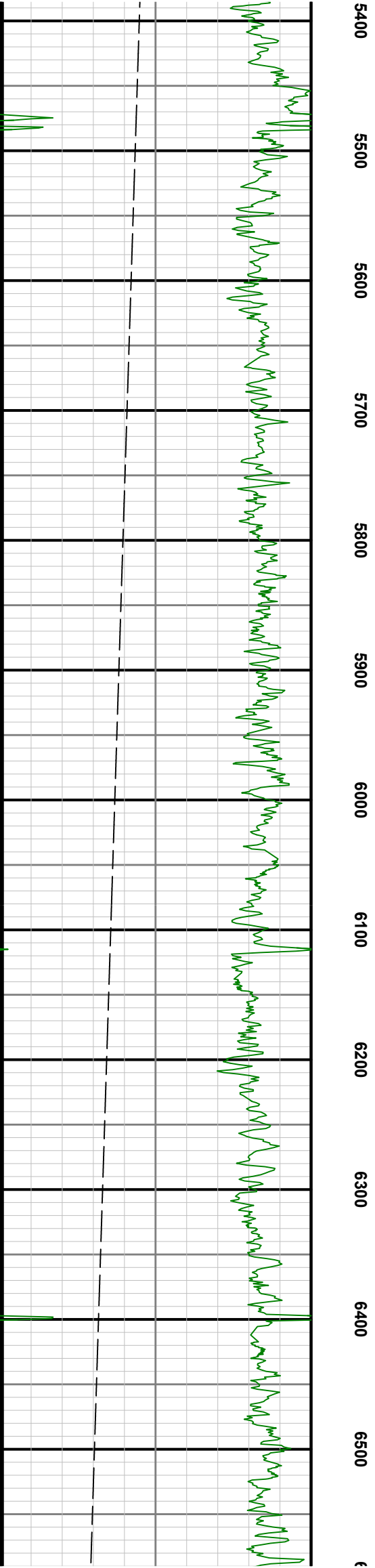
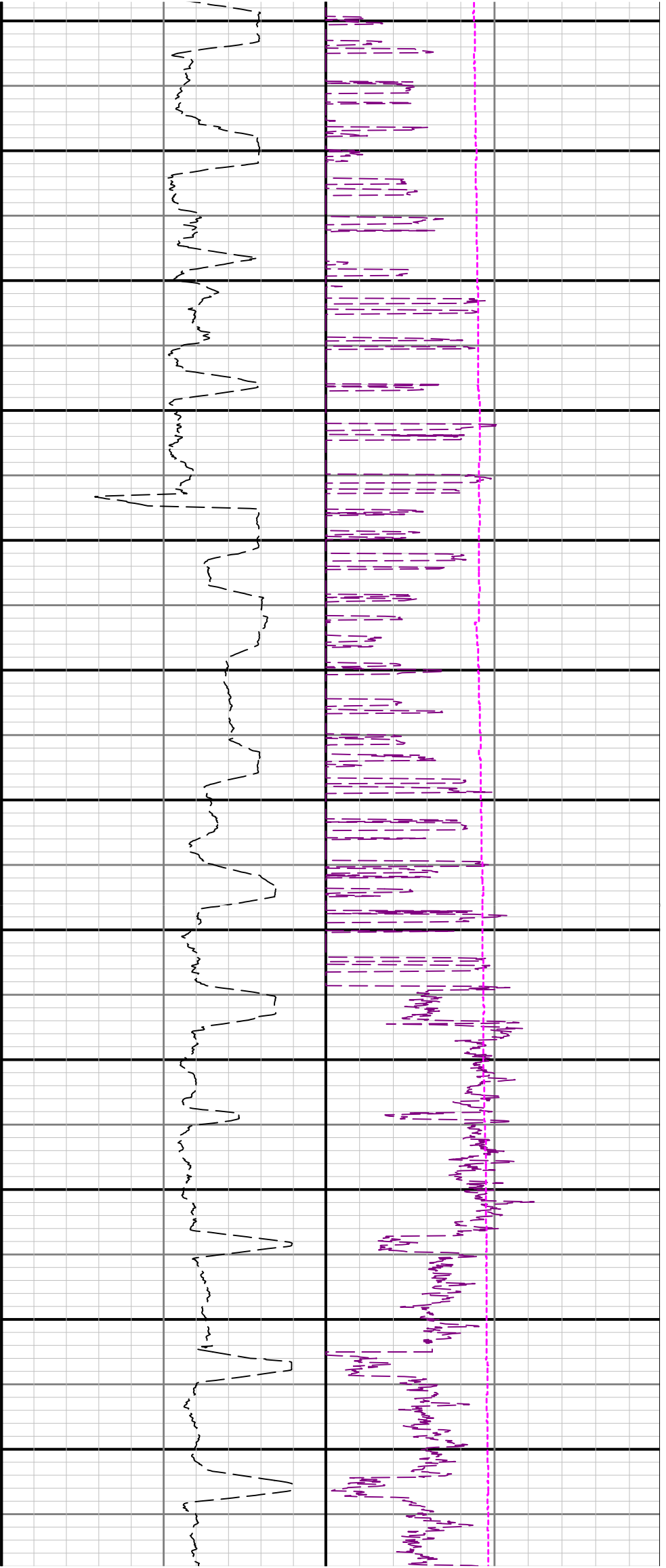
Presented Curves	Description	Units
TCDX	Downhole Temperature	degF
ROPA	Depth Averaged ROP 10 ft Average	ft/h
TVD	True Vertical Depth	ft
WOBA	Weight On Bit, Average 1 ft Average	klb
GRAM	Gamma Ray - Apparent - Memory 3 ft Average	API
GRAX	Gamma Ray - Apparent - Real-Time	API
TCDM	Downhole Temperature	degF

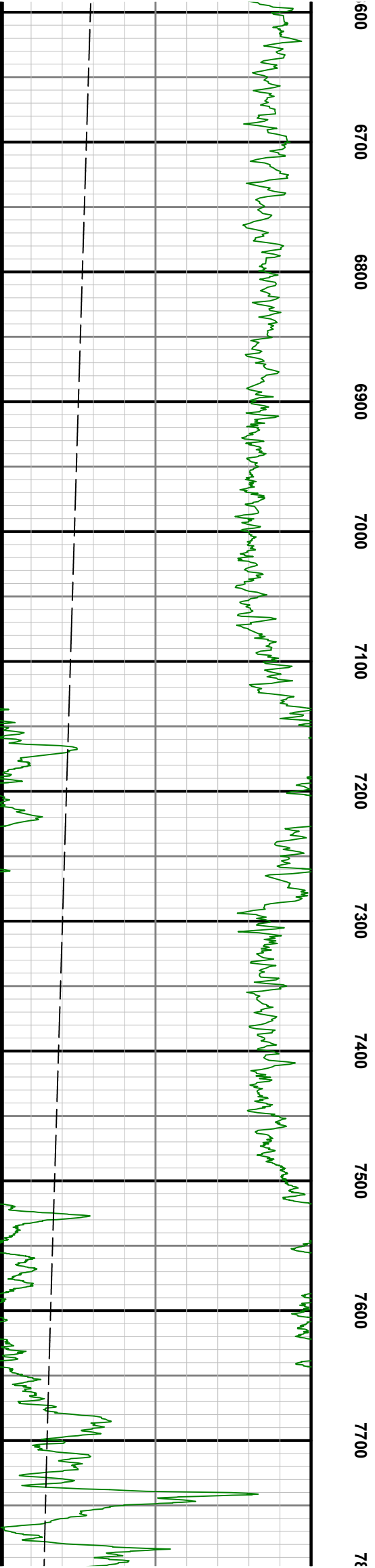
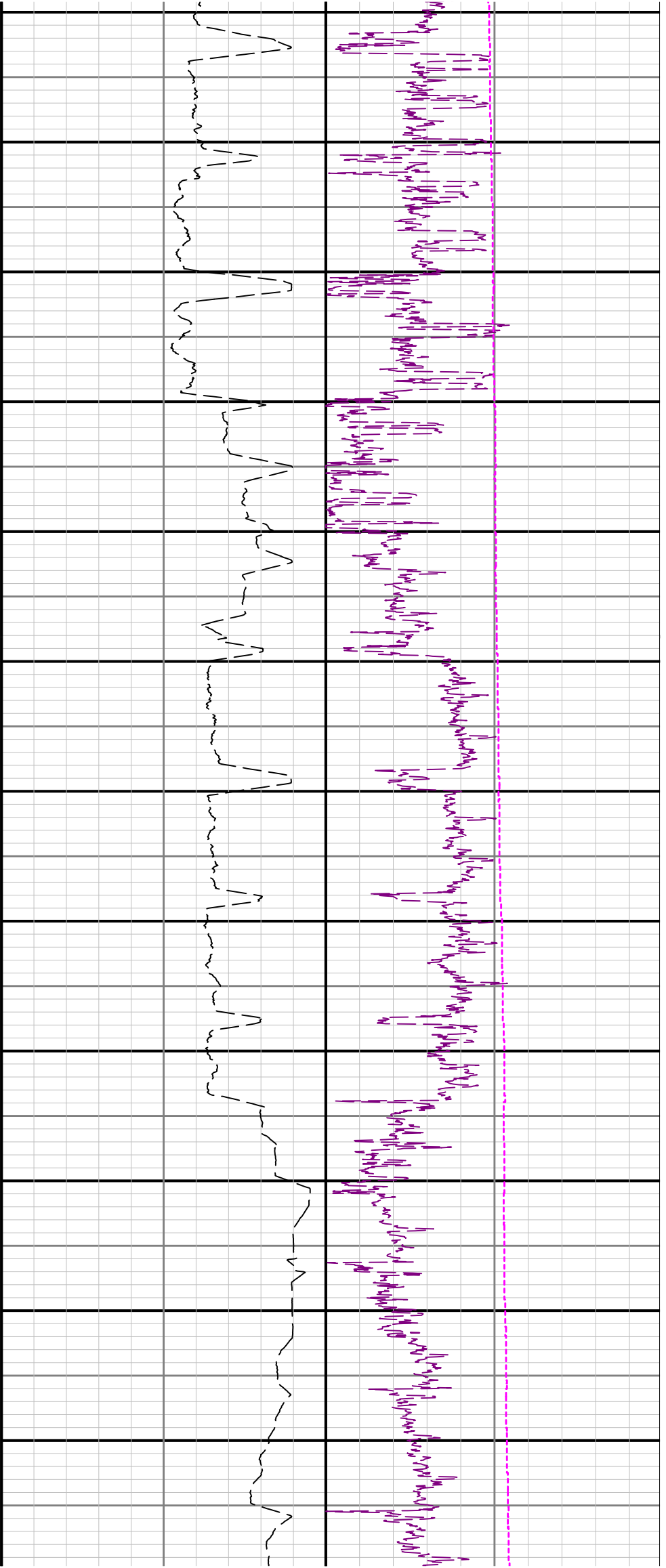
<div> <div>BAKER HUGHES</div> <div>a GE company</div> </div>	Company	ConocoPhillips		
	Well	BIG_SANDY_3-65_36-31_2AH		
	Interval	<div> <div>Date From:</div> <div>2018-03-14 11:07:08</div> </div> <div> <div>Date To:</div> <div>2018-03-20 15:31:41</div> </div>	<div> <div>Top:</div> <div>2081.00</div> </div> <div> <div>Bottom:</div> <div>18177.00</div> </div>	

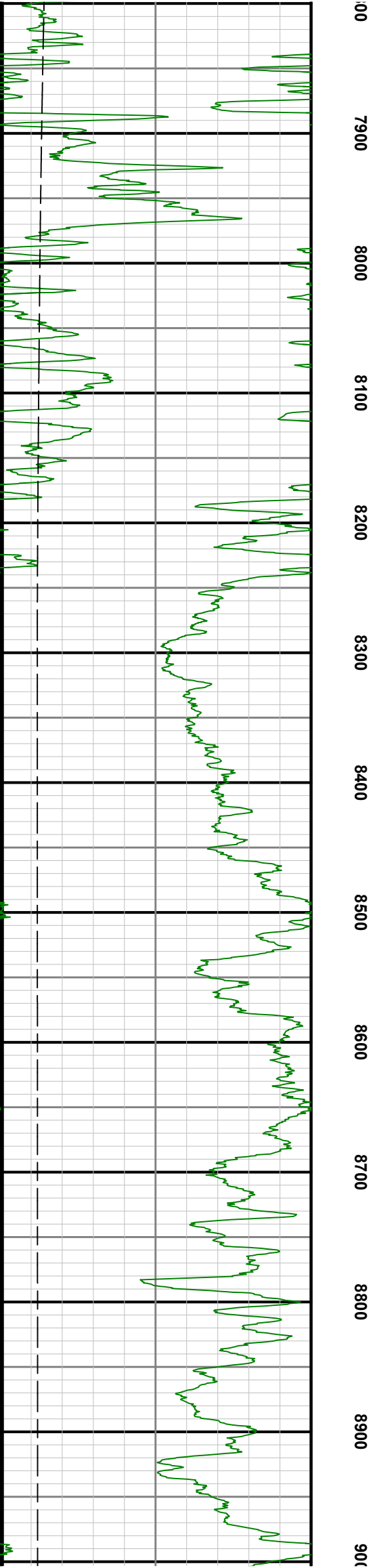
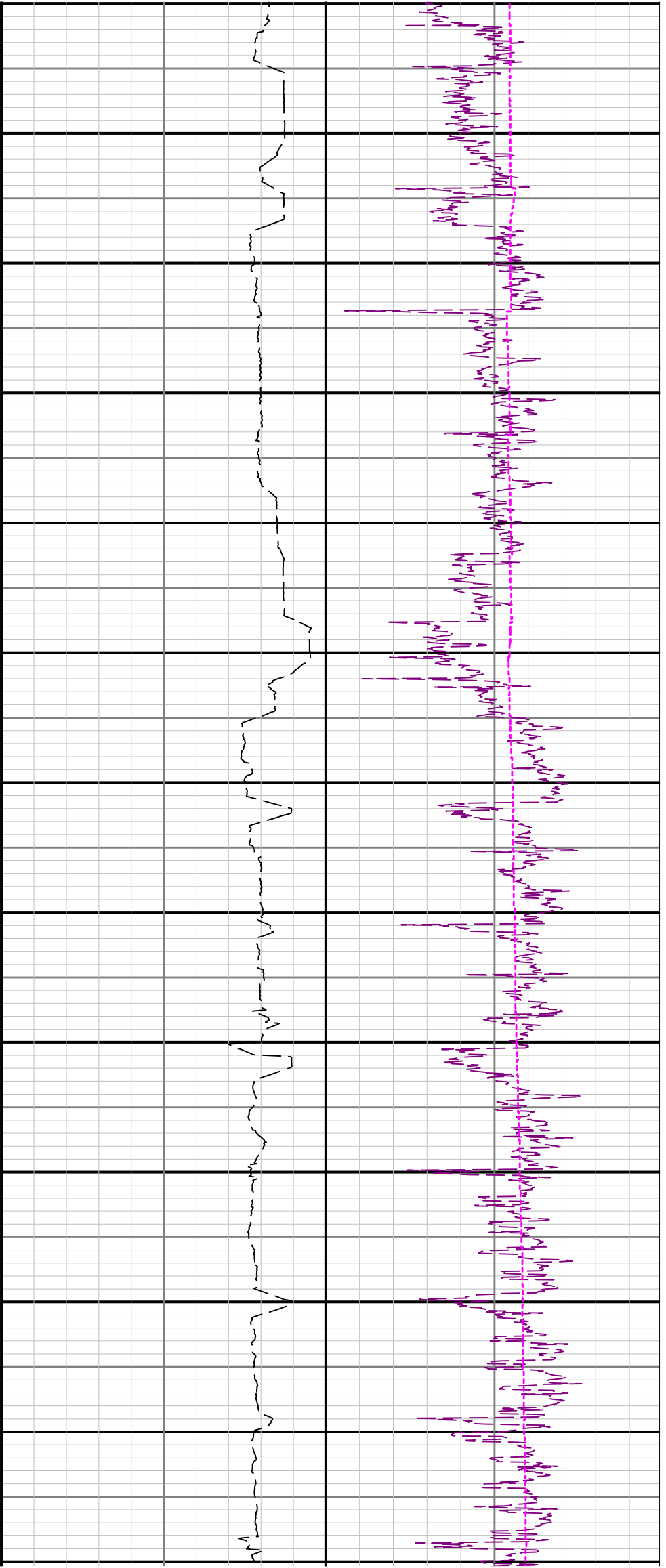


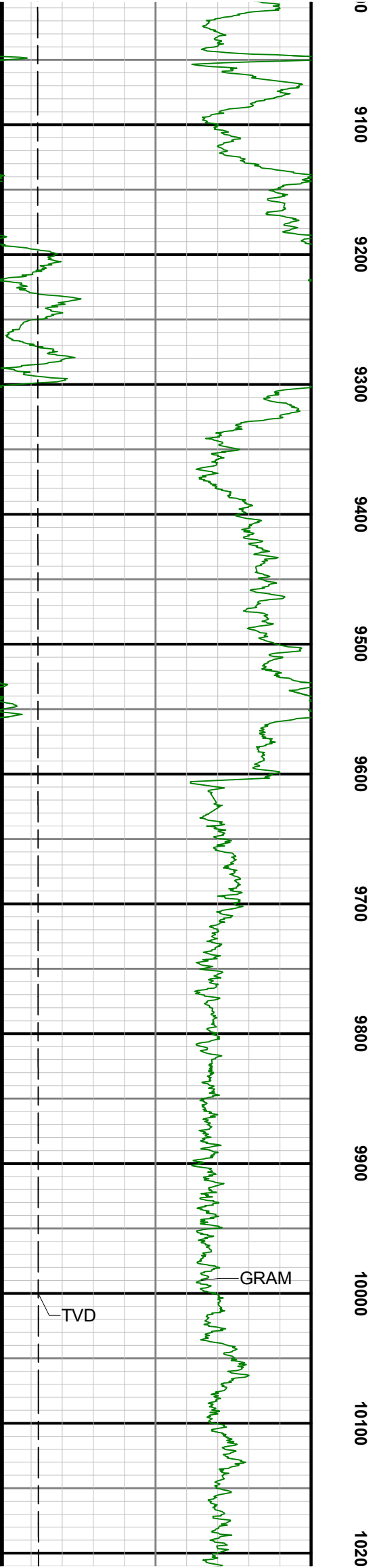
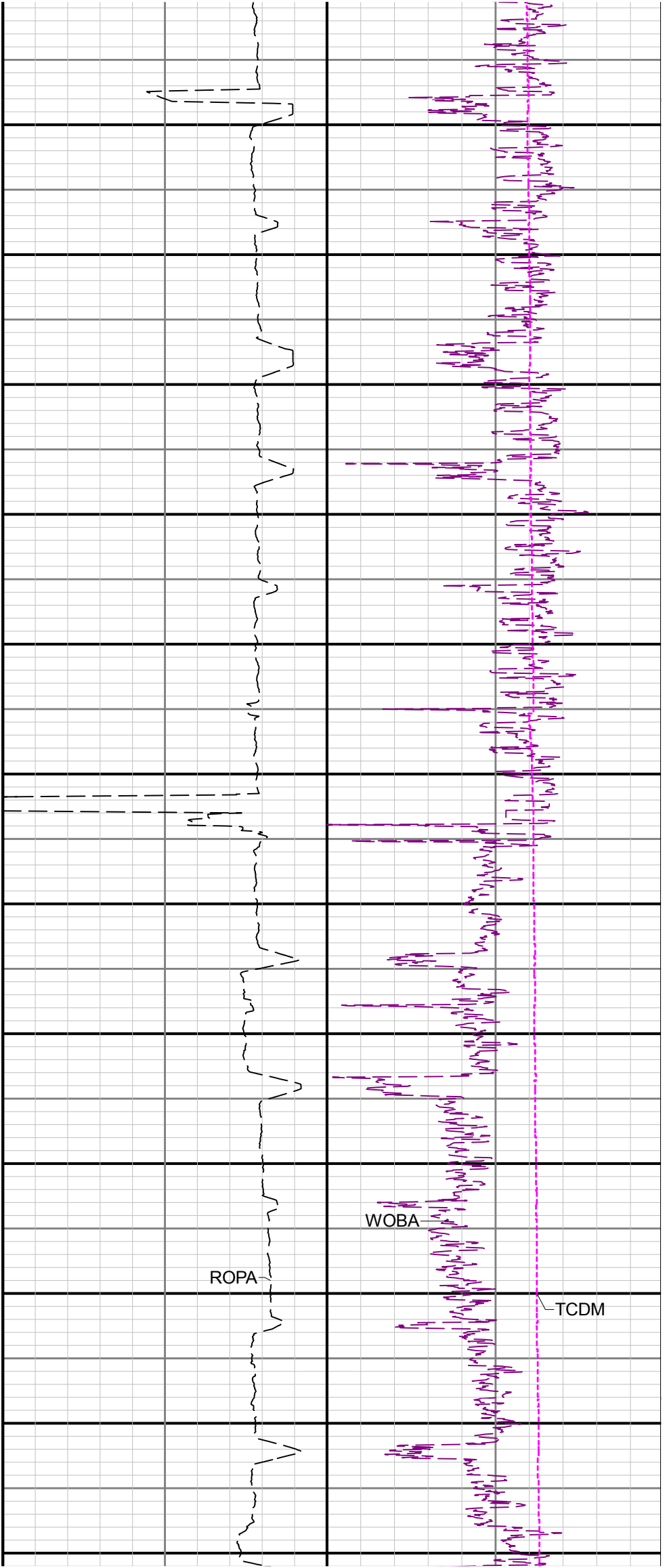


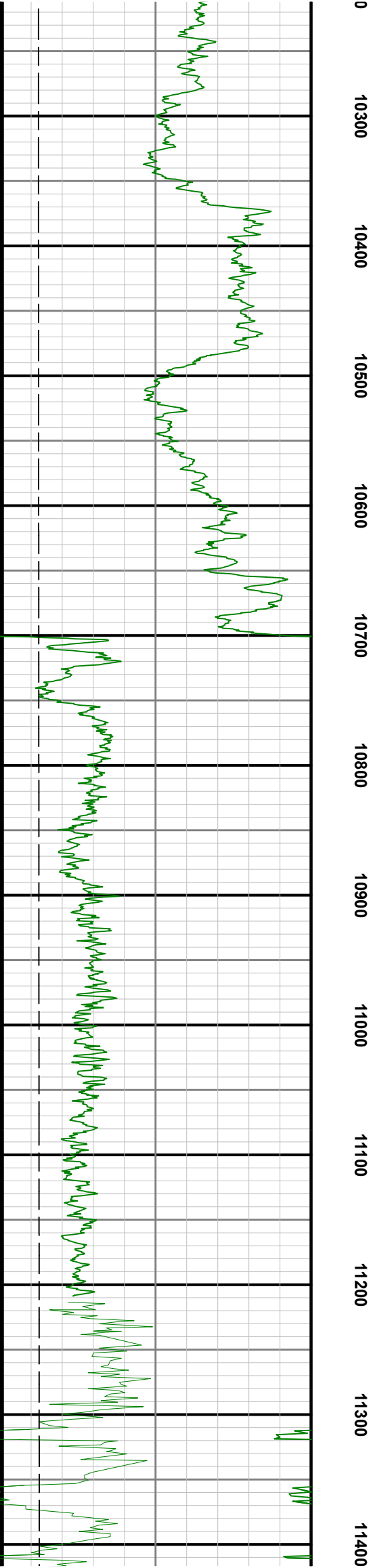
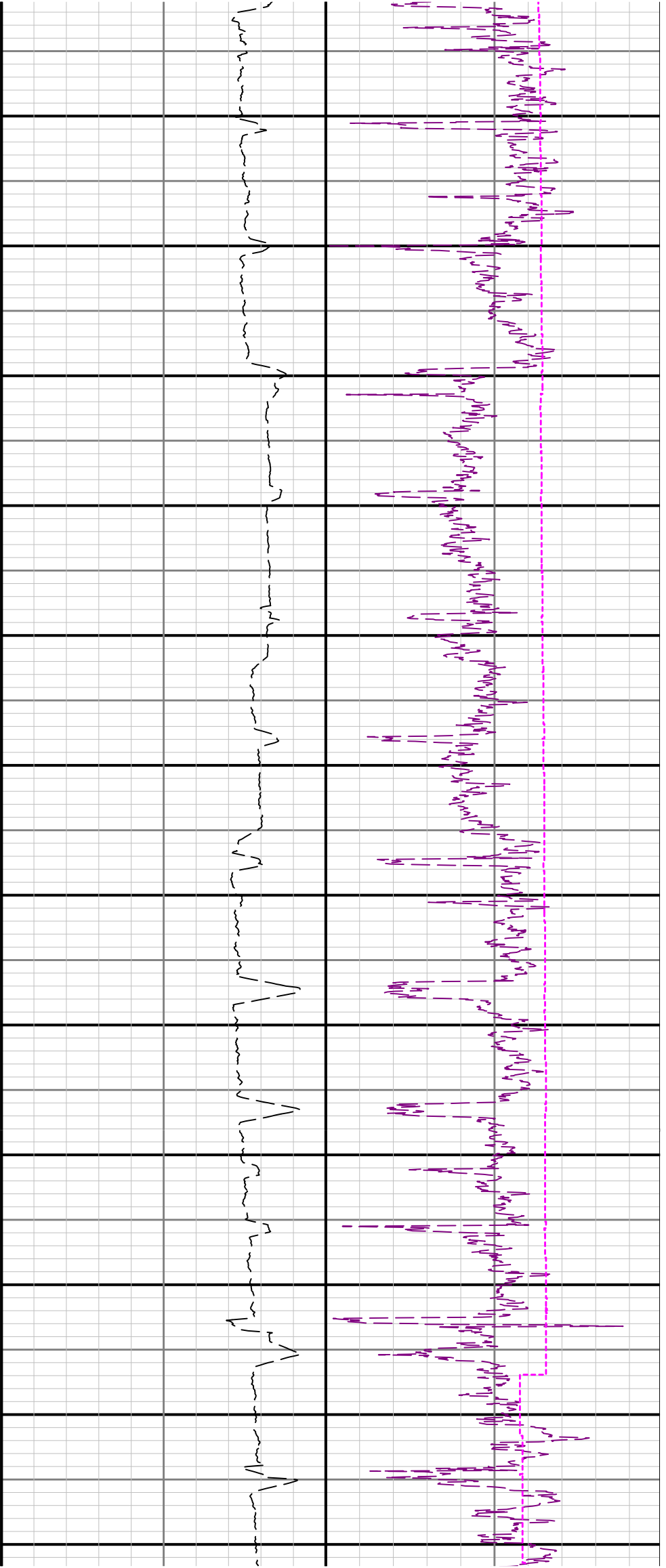


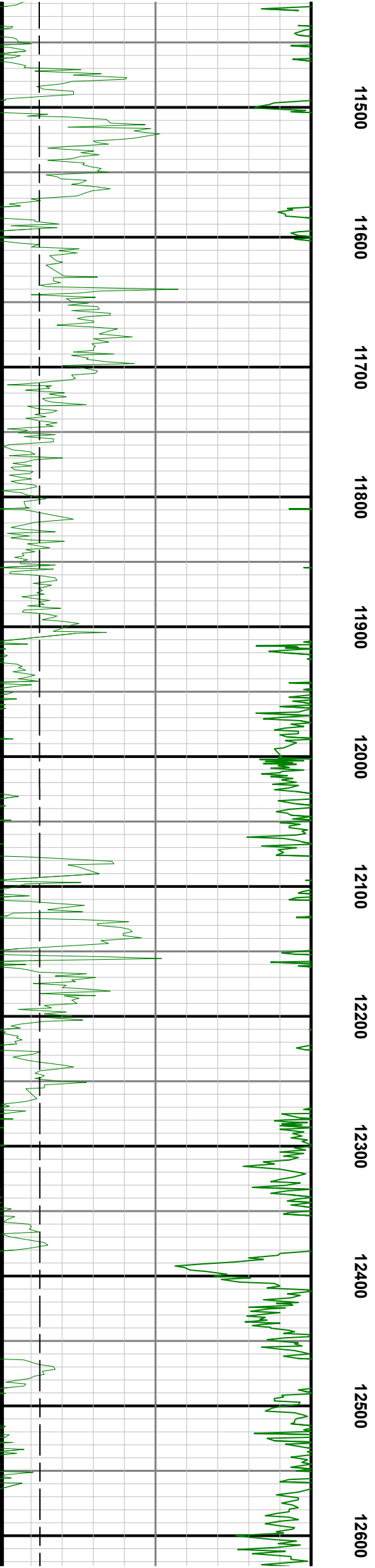
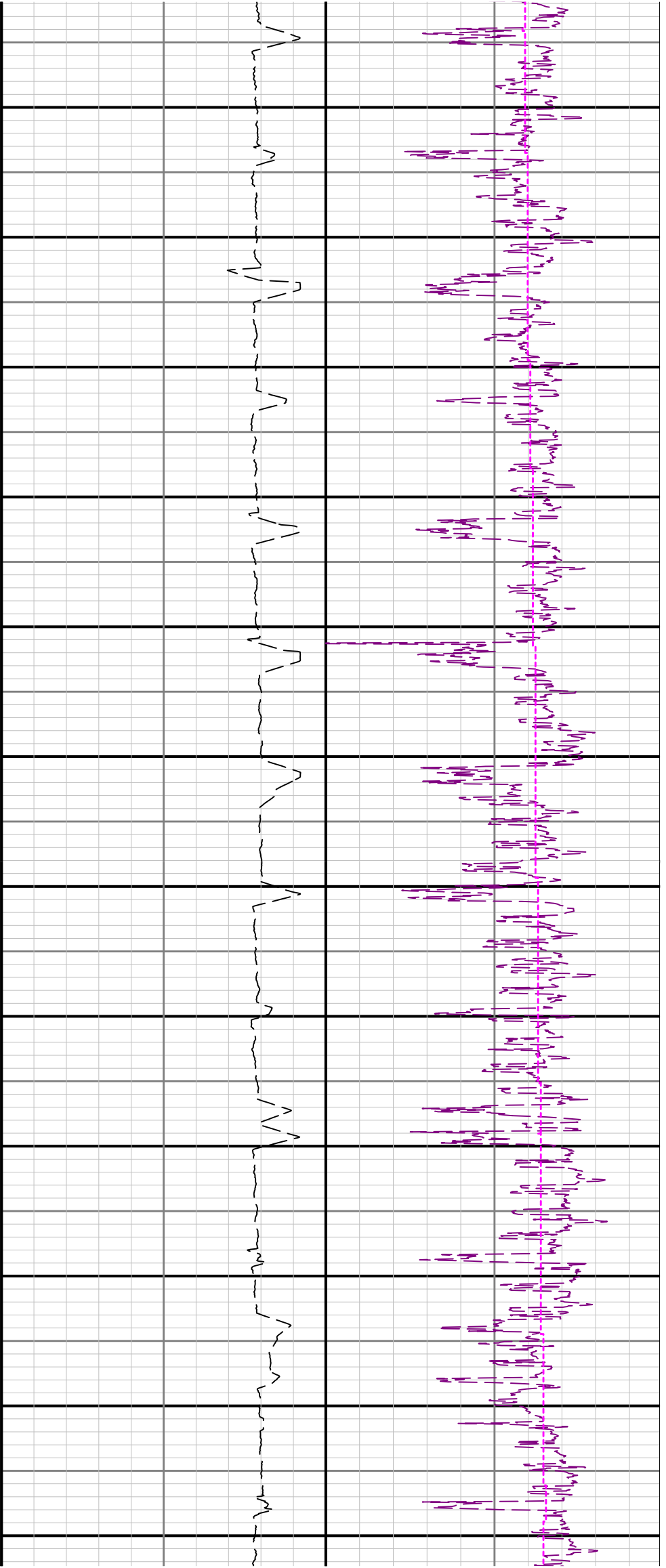


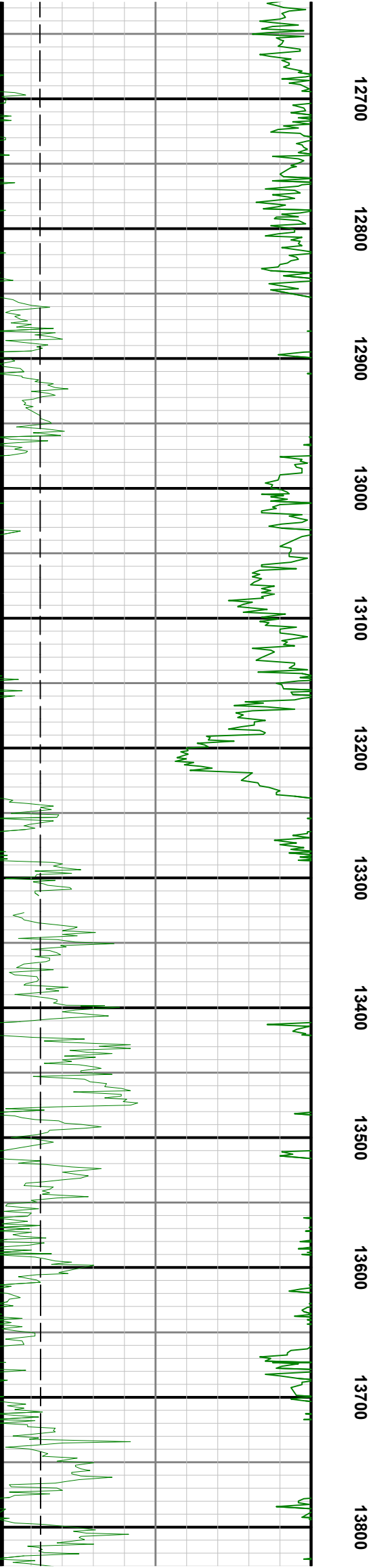
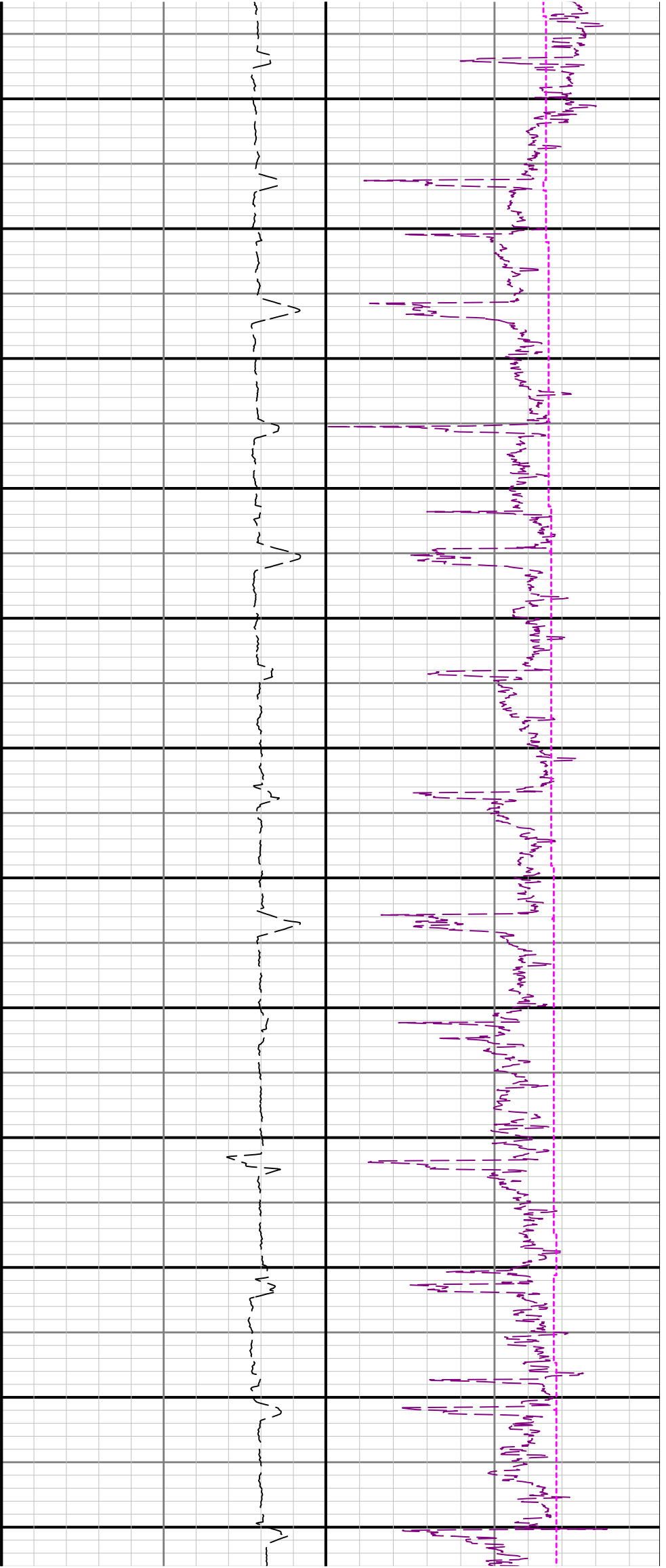


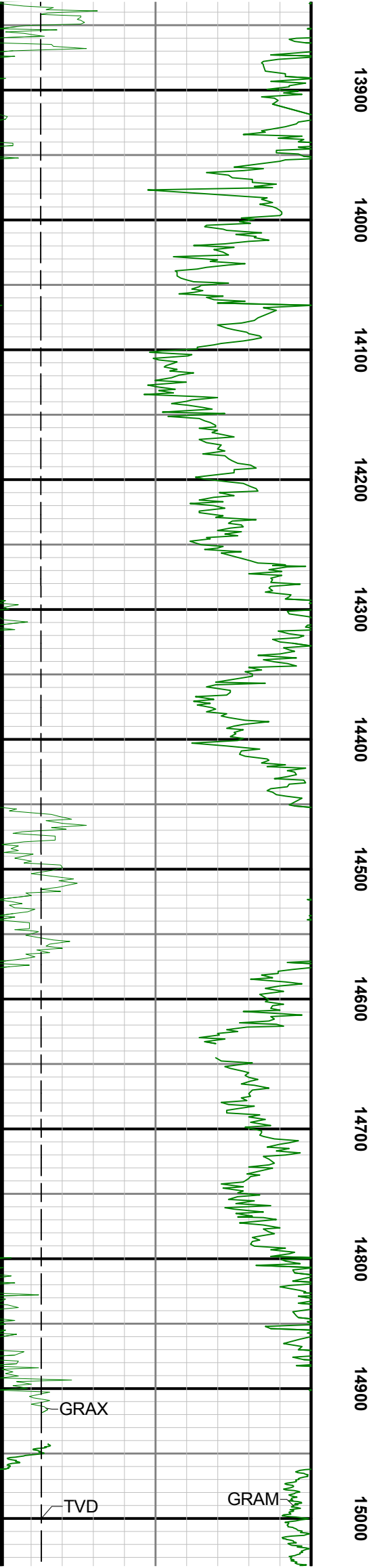
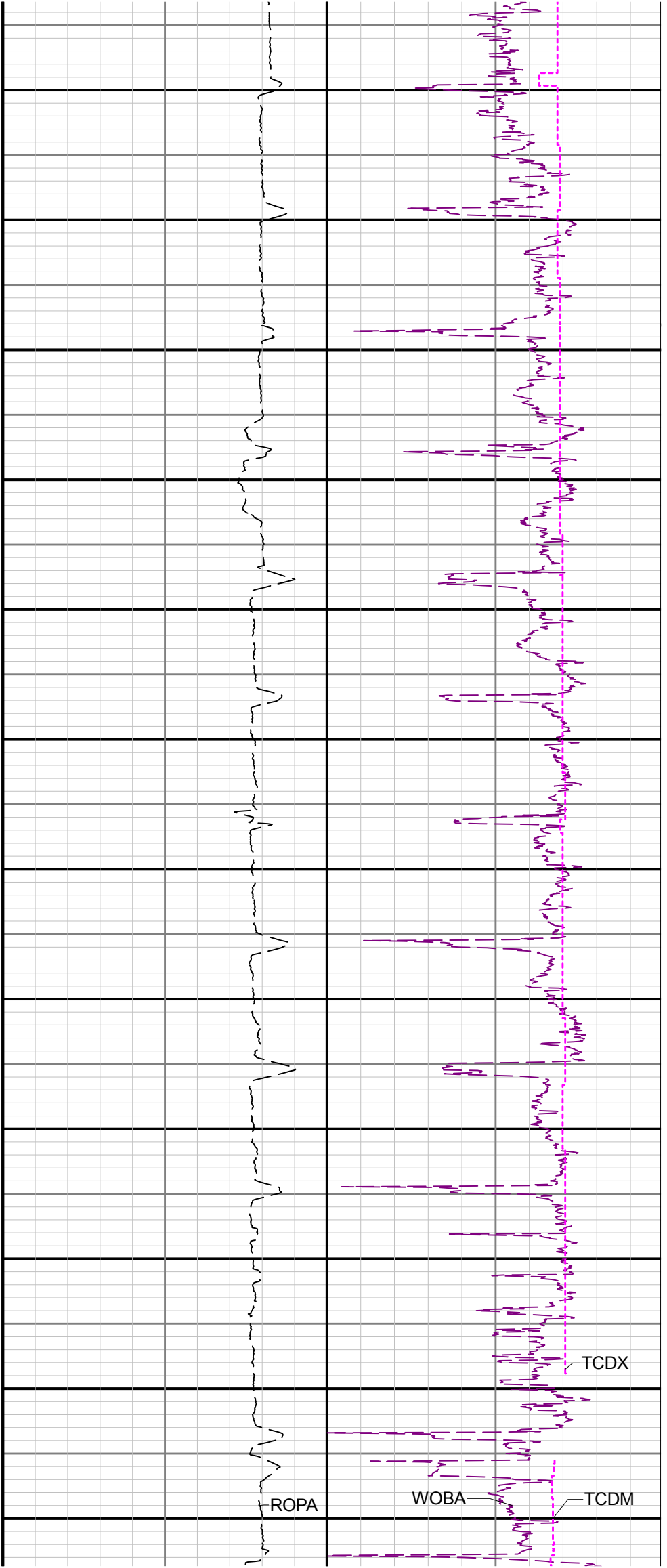












R2<>R3

