



LWD MEMORY LOG

Gamma Ray

Scale: Company: ConocoPhillips

1:1200 MD Well: BIG\_SANDY\_3-65\_36-31\_1DH

Depth Reference: Field: Adams

Driller's Depth County: Adams Country: United States

State: Colorado

Status: Surface Location: Other Services:

Final Print

Latitude: Longitude: Directional

API No: 05001101020000

Job ID: 8976762 SEC: 35 TVN: 3S RGE: 65W

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. DF: 5549.00 ft Elev. GL: 5524.00 ft

Dates Interval Logged Magnetic Field Reference

Date From: 2018-04-01 Top: (ft) 2090.00 Azi Reference North: True Dip Angle: (deg) 66.34

Date To: 2018-04-05 Bottom: (ft) 15399.00 Total Magnetic Field Strength: (nT) 51765

Spud Date: 2018-03-31 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)	From (ft)	To (ft)
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13.500	25.00	2090.00	9.625	36.00	25.00	2080.00
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8.500	2090.00	15399.00				
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Mud Record

Deviation Record

Type	From (ft)	To (ft)	Hole Size (in)	Interval (ft)	Inc   Az (Start)	Inc   Az (End)
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Oil Based Mud	2090.00	15399.00	8.500	13309.00	1.05   325.24	90.92   88.85
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Acquisition System Software Version

Other

Baker Hughes Cadence

RT4.1

Plot Studio 4.1.7763.3

Rig: Nabors B16

Contractor: Nabors Drilling

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 (ft)	Bottom (ft)	From (ft)	To (ft)	Start Logging	End Logging	
1	1	8.500	PDC	6.00	AutoTrak Curve	2030.00	15385.00	2090.00	15399.00	2018-04-01 19:00	2018-04-05 03:01	78.45

Crew								
Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite
Adewale Adedeji	2018-04-01	2018-04-06						

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+ (%)
2018-04-01 17:00	1	2090.00	Oil Based Mud	10.5	19	N/A	N/A	60/40	Active Pit	74000	0.00
2018-04-02 05:00	1	3836.00	Oil Based Mud	10.0	21	N/A	N/A	59.8/40.2	Active Pit	68000	0.00
2018-04-02 17:00	1	6501.00	Oil Based Mud	10.0	27	N/A	N/A	59.2/40.8	Active Pit	65000	0.00
2018-04-03 05:00	1	8135.00	Oil Based Mud	9.9	21	N/A	N/A	59.5/40.5	Active Pit	63000	0.00
2018-04-03 17:00	1	10224.00	Oil Based Mud	10.0	22	N/A	N/A	59/41	Active Pit	64000	0.00
2018-04-04 05:00	1	12039.00	Oil Based Mud	10.2	24	N/A	N/A	58/42	Active Pit	64000	0.00
2018-04-04 17:00	1	13918.00	Oil Based Mud	10.3	25	N/A	N/A	59/41	Active Pit	67000	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	14236914	Near Bit VSS	5.93	6.93	7.000	4.330	
1	ATC_SU	14236914	Near Bit Inclination	5.93	6.93	7.000	4.330	
1	ATC_MWD	14131212	Gamma (single)	2.76	13.10	7.000	3.250	
1	ATC_MWD	14131212	Directional (mag)	12.28	22.62	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, a GE Company (BHGE). Due to the lack of control by BHGE logging engineers, depth calibrations and measurements could not be independently verified.
2	BHGE LWD run 1 utilized 6.75 inch NaviGamma Services (Gamma Ray and Directional) behind a 8.5 inch bit and Rotary steerable assembly from 2090 to 15399 feet MD (2089 to 7551 feet TVD)

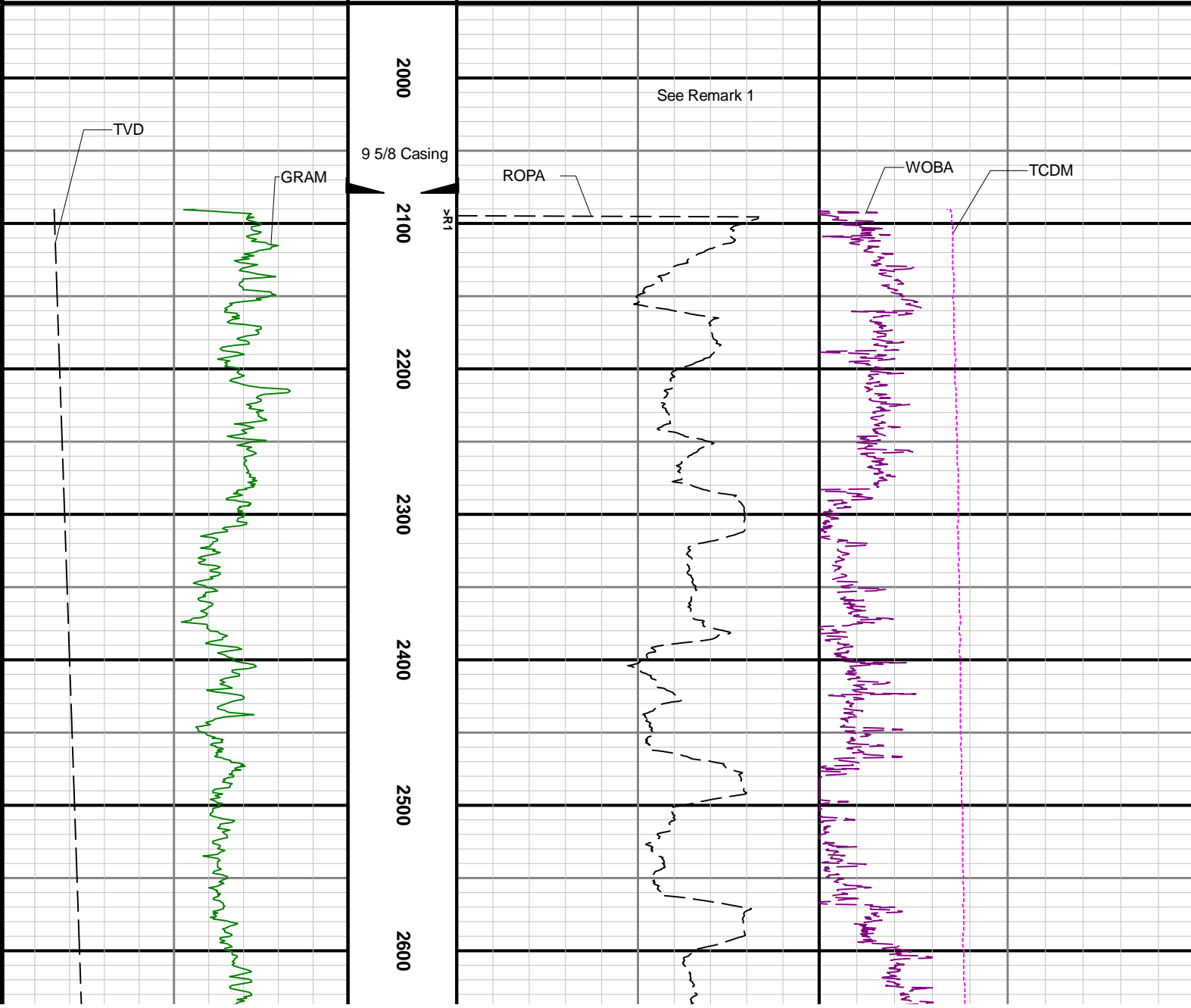
Remarks				
Number	Measured Depth (ft)	Hole Section (in)	Run No.	Remark
1	2090.00	8.500	1	BHGE logging services began at 2090 feet MD (2089 feet TVD) per customer request.
2	15385.00	8.500	1	The interval from 15385 to 15399 feet MD (7551 to 7551 feet TVD) was not logged due to sensor to bit offset at TD.

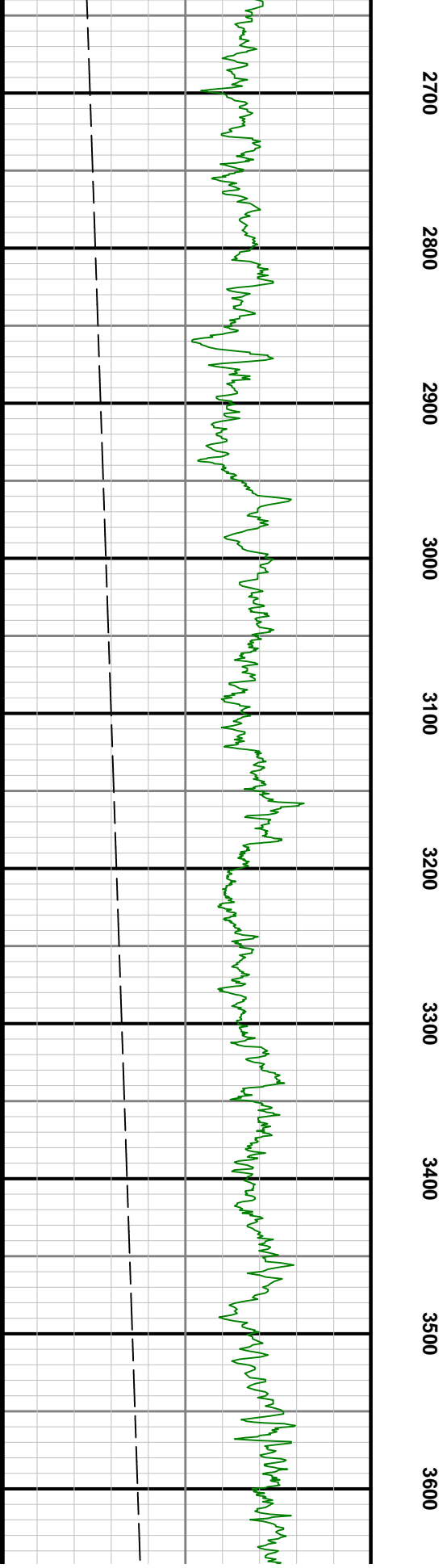
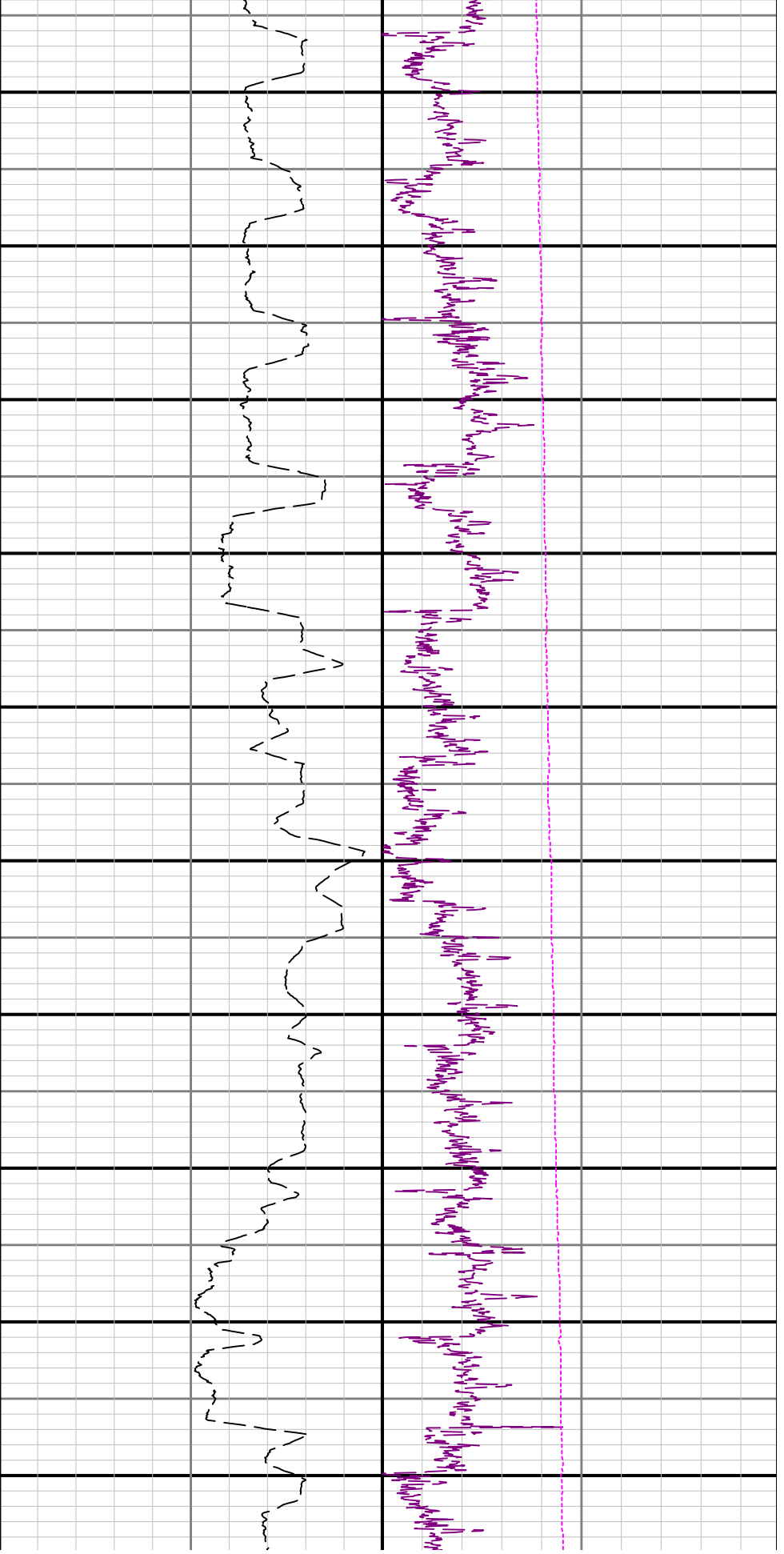
Curve Mnemonics		
Presented Curves	Description	Units
ROPA	Depth Averaged ROP 10 ft Average	ft/h

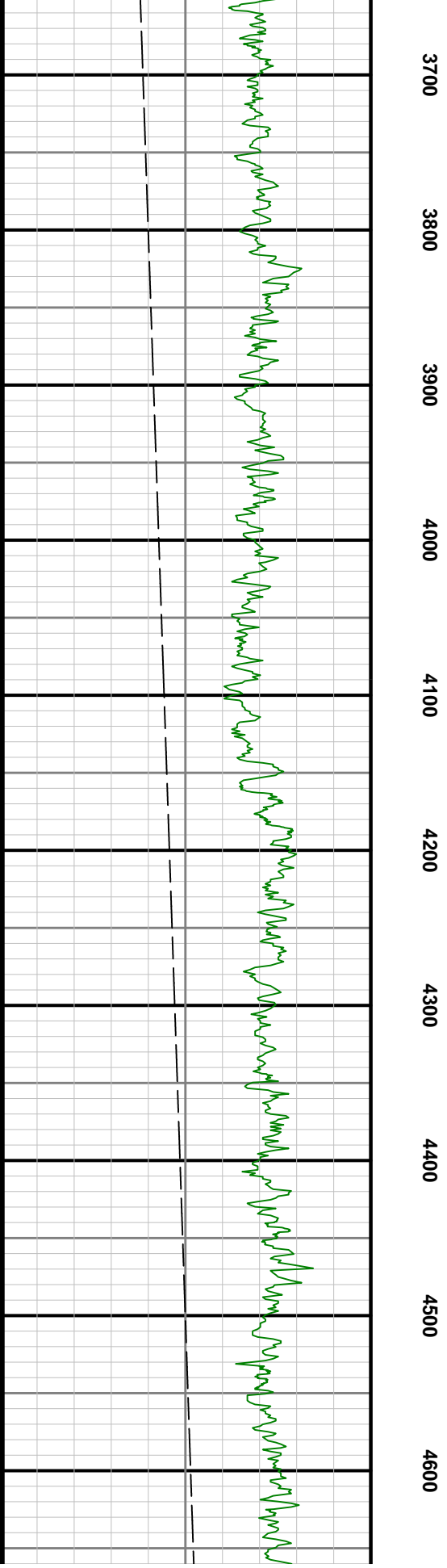
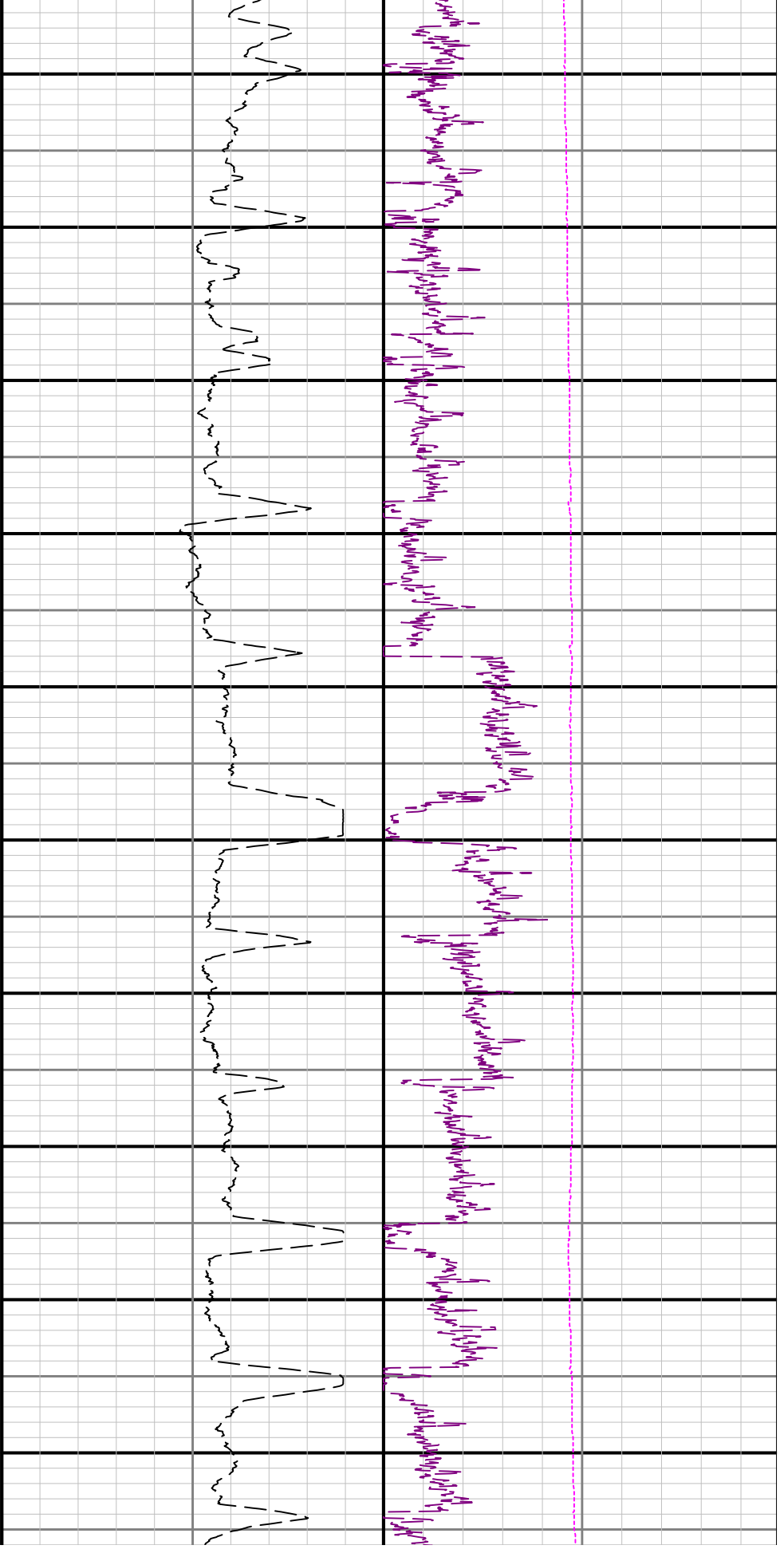
TVD	True Vertical Depth	ft
WOBA	Weight On Bit, Average 1 ft Average	klb
GRAM	Gamma Ray - Apparent - Memory 3 ft Average	API
TCDM	Downhole Temperature	degF

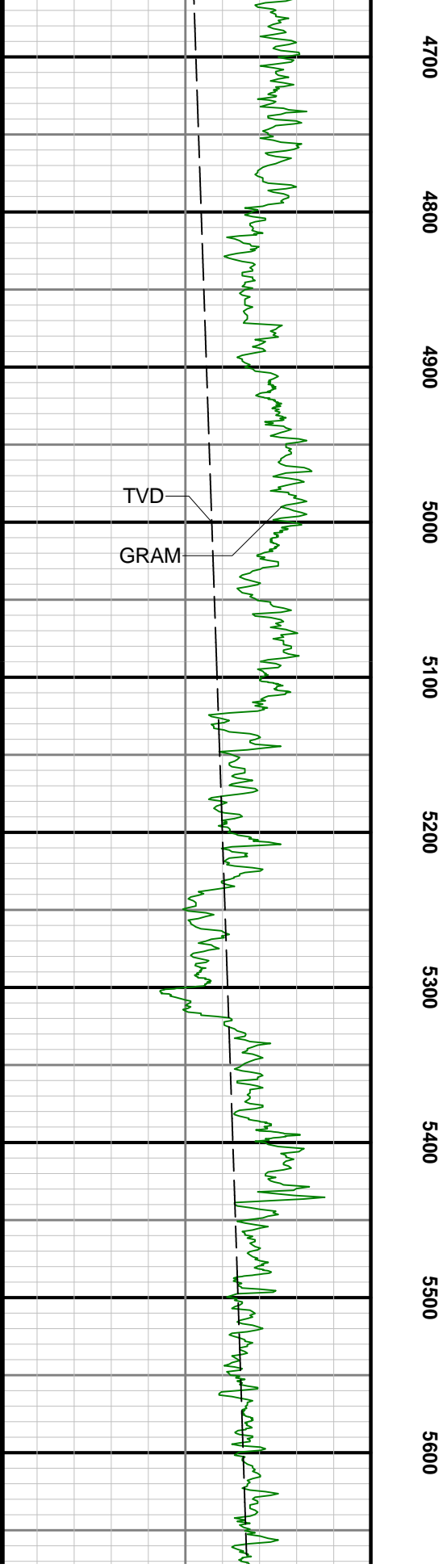
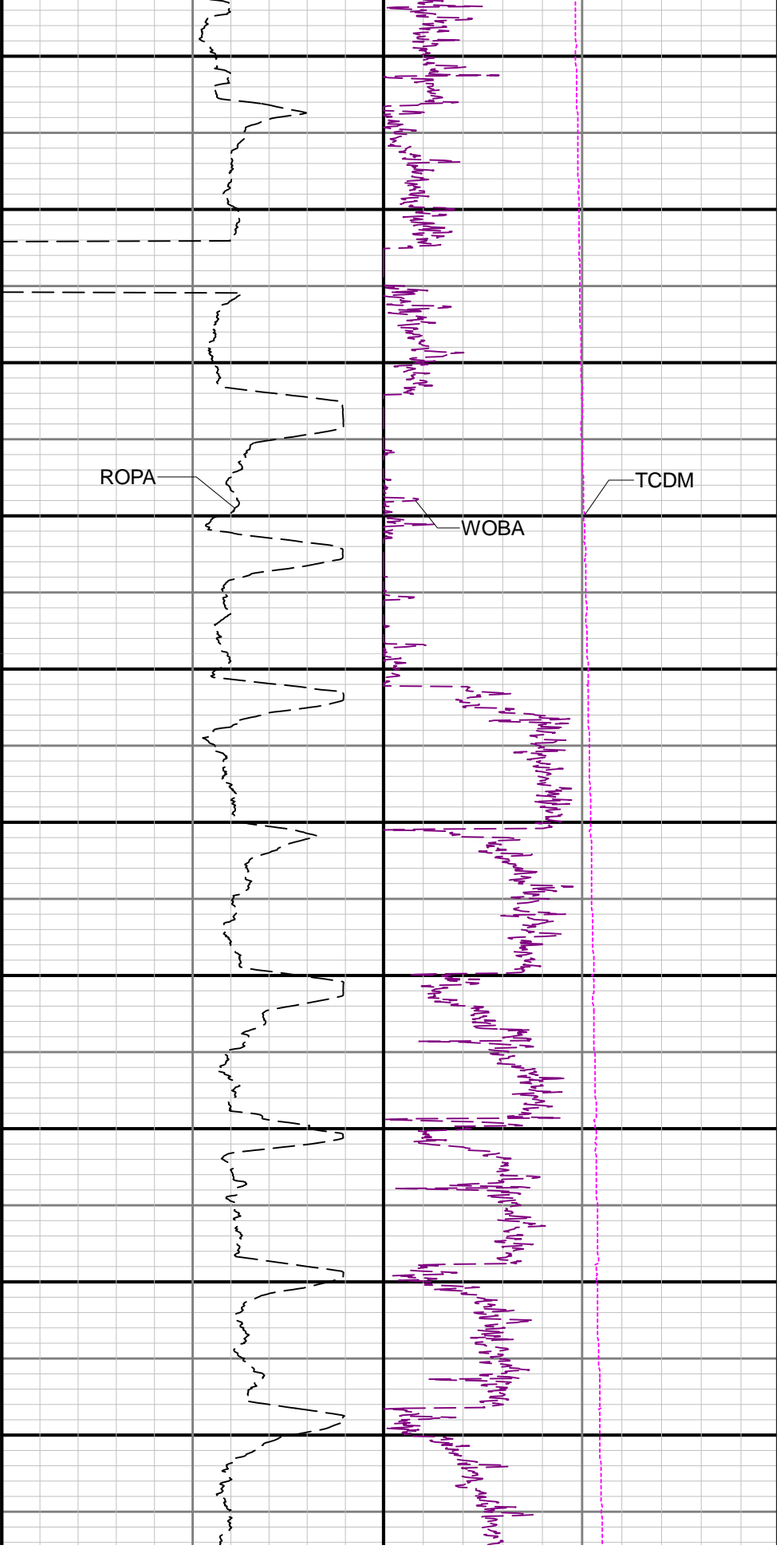
<div><div>BAKER HUGHES</div><div>a GE company</div></div> <div></div>	Company	ConocoPhillips			
	Well	BIG_SANDY_3-65_36-31_1DH			
	Interval	Date From:	2018-04-01 14:49:35	Top:	2108.00
		Date To:	2018-04-05 21:01:03	Bottom:	15399.00
	Created	2018-04-09 12:39:53			

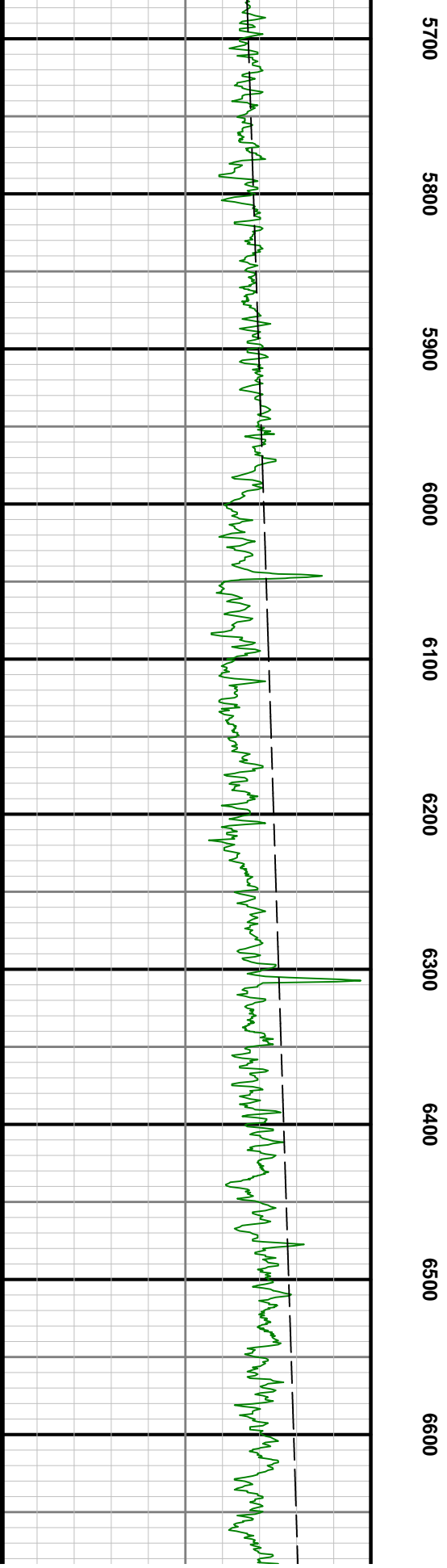
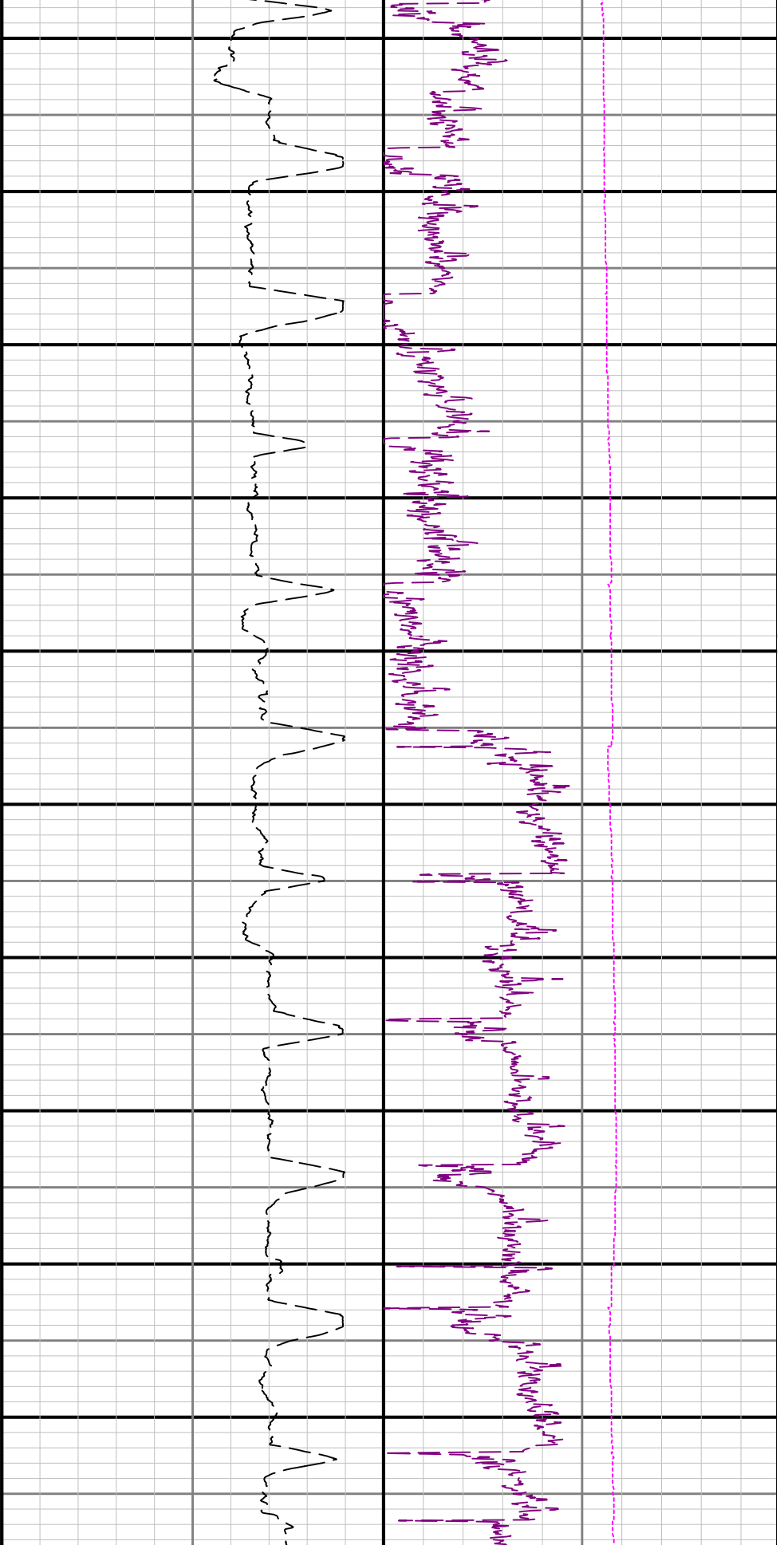
Gamma Ray - Apparent 3 ft Average GRAM	MID 1:1200 feet	Depth Averaged ROP 10 ft Average ROPA	Weight On Bit, Average 1 ft Average WOBA
0 200		1000 0	0 50
API		ft/h	klb
True Vertical Depth TVD			Downhole Temperature TCDM
1000 8000			0 300
ft			degF

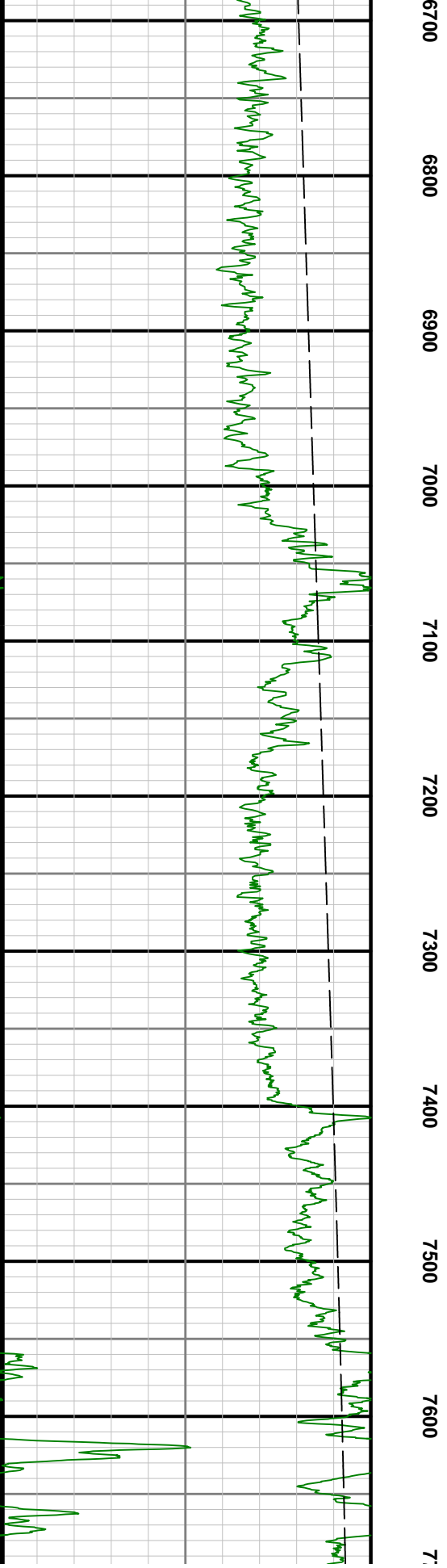
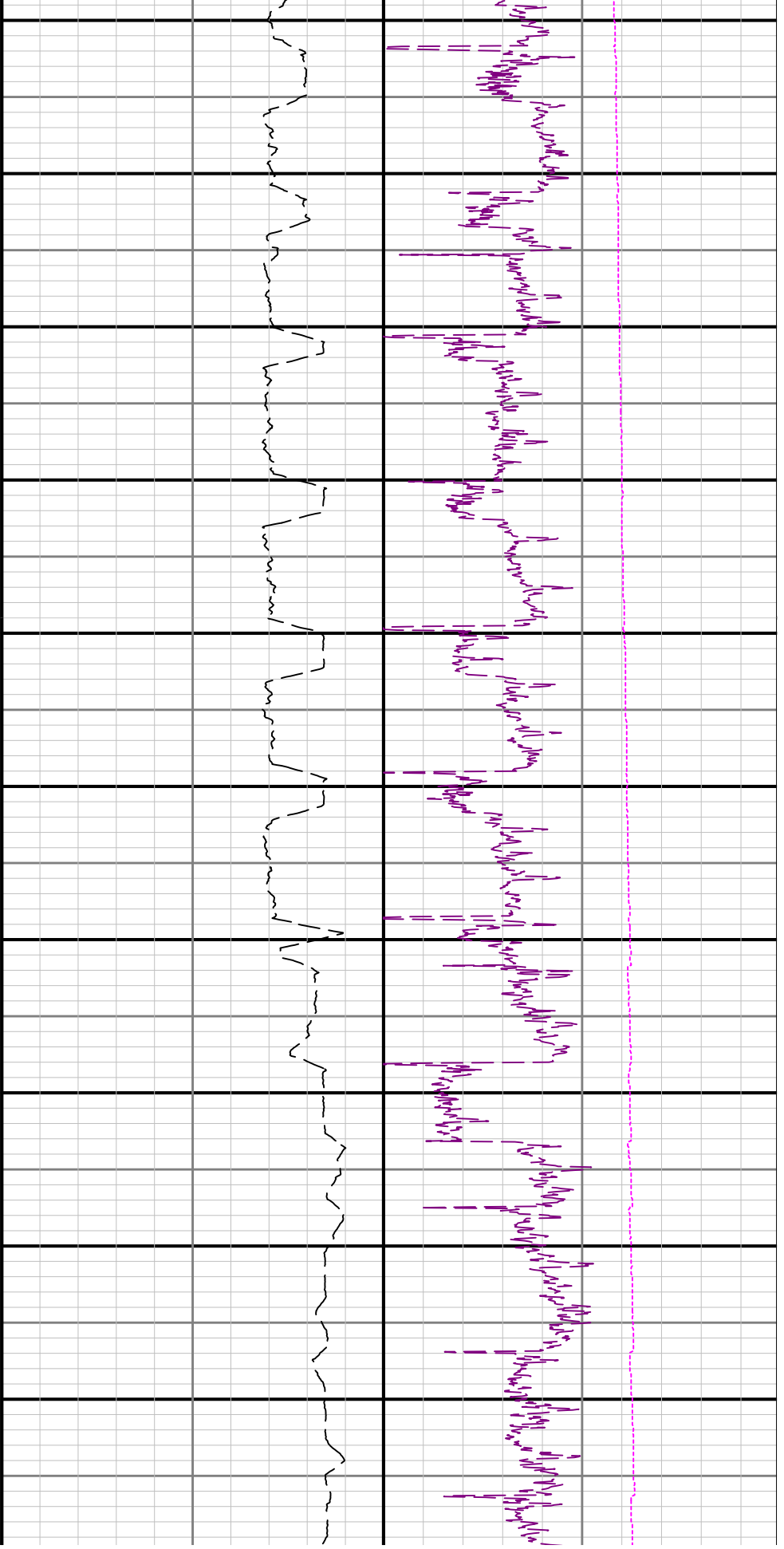




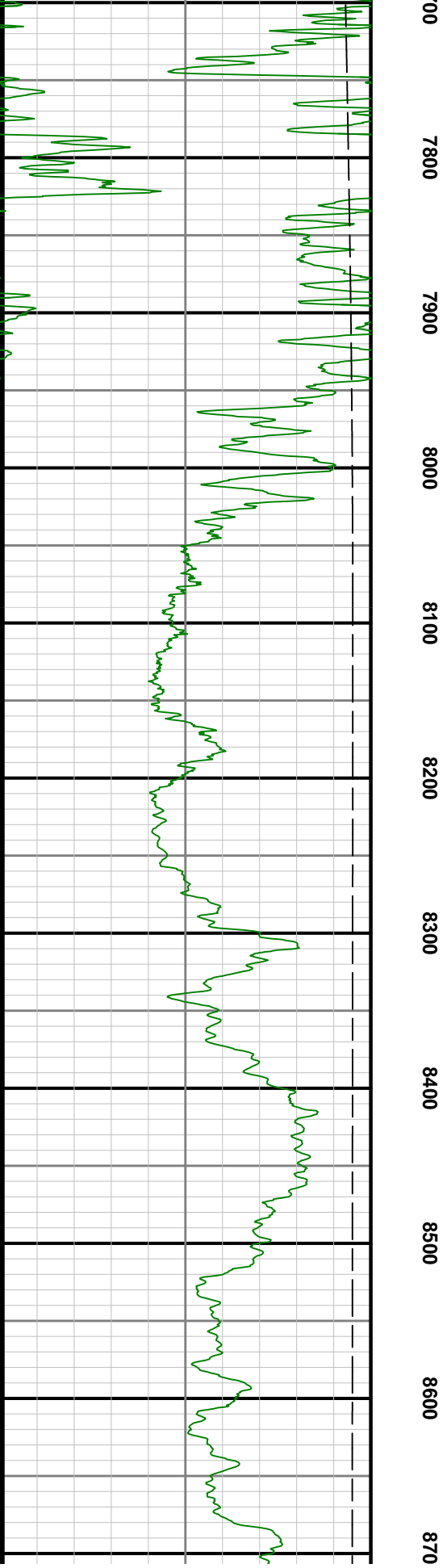
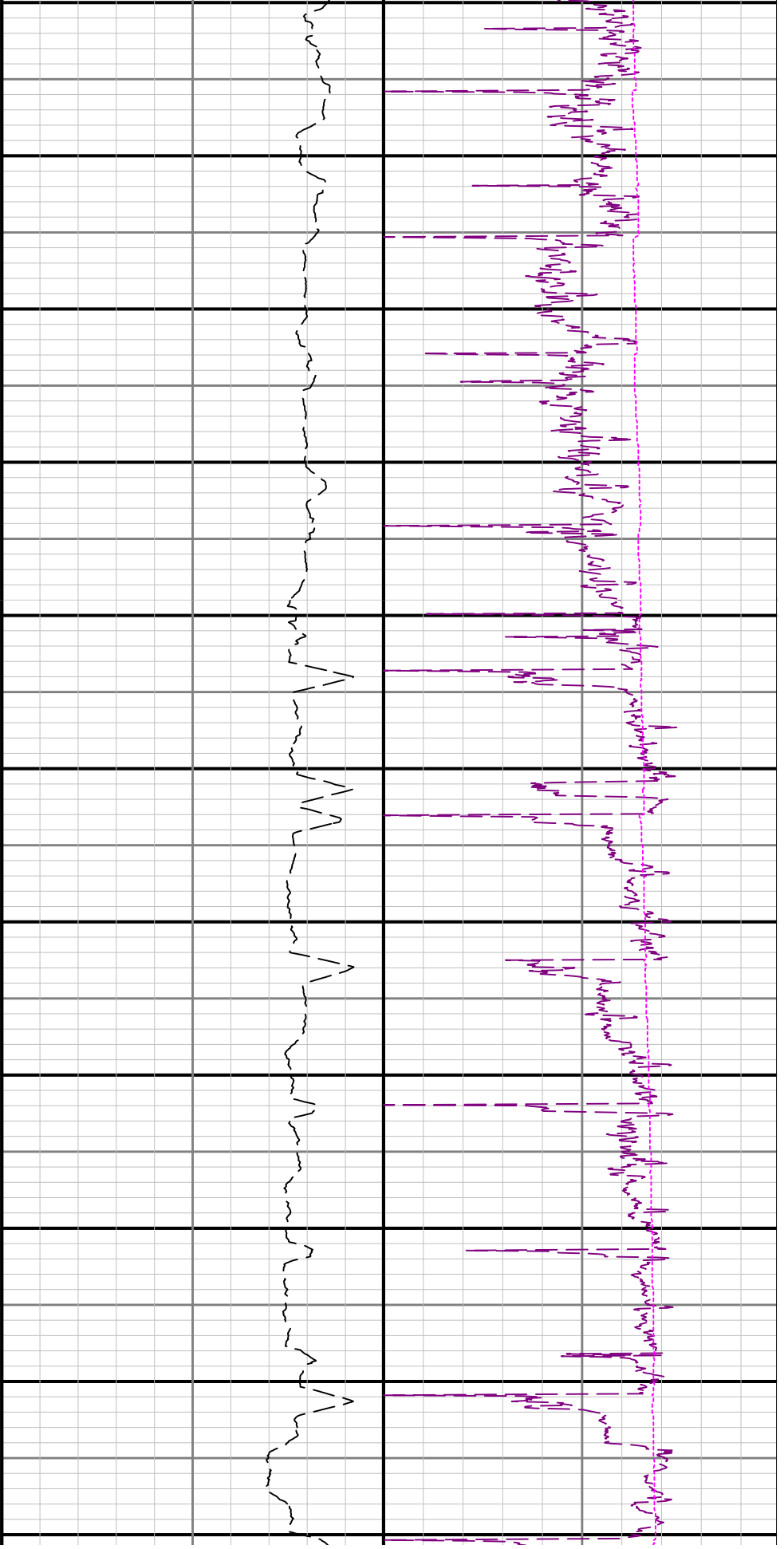


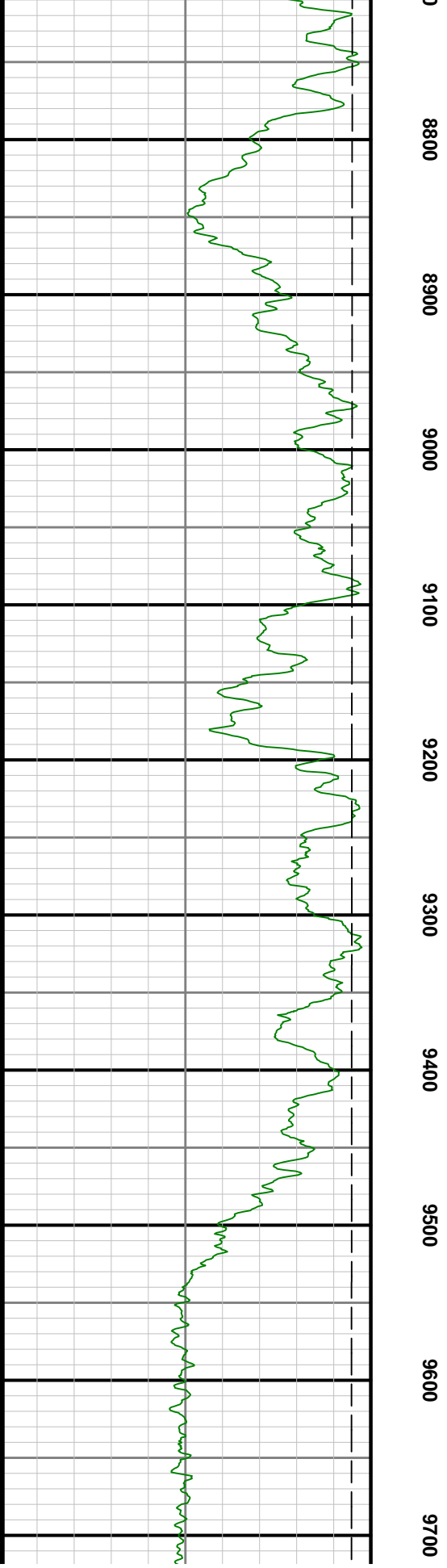
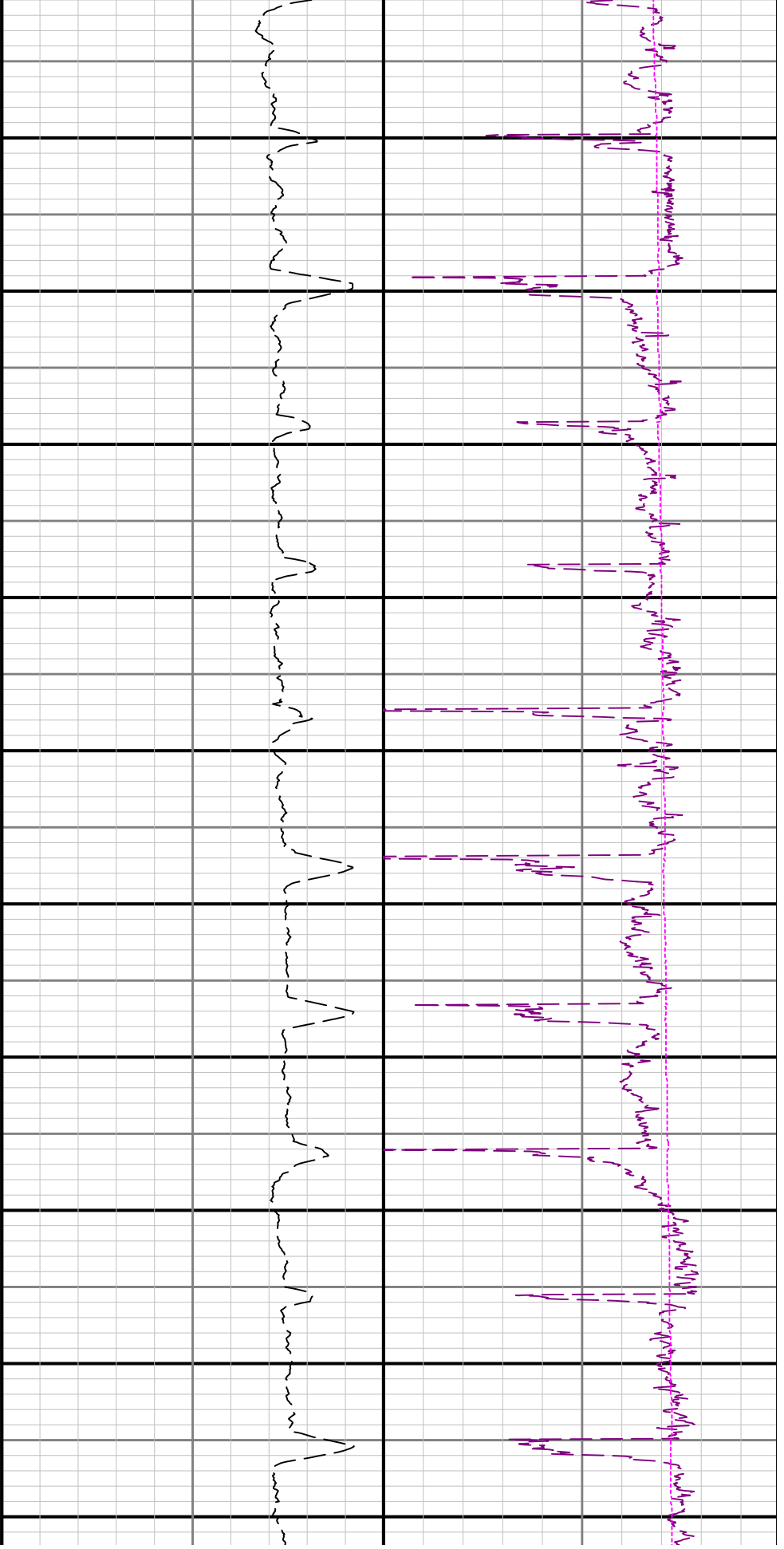


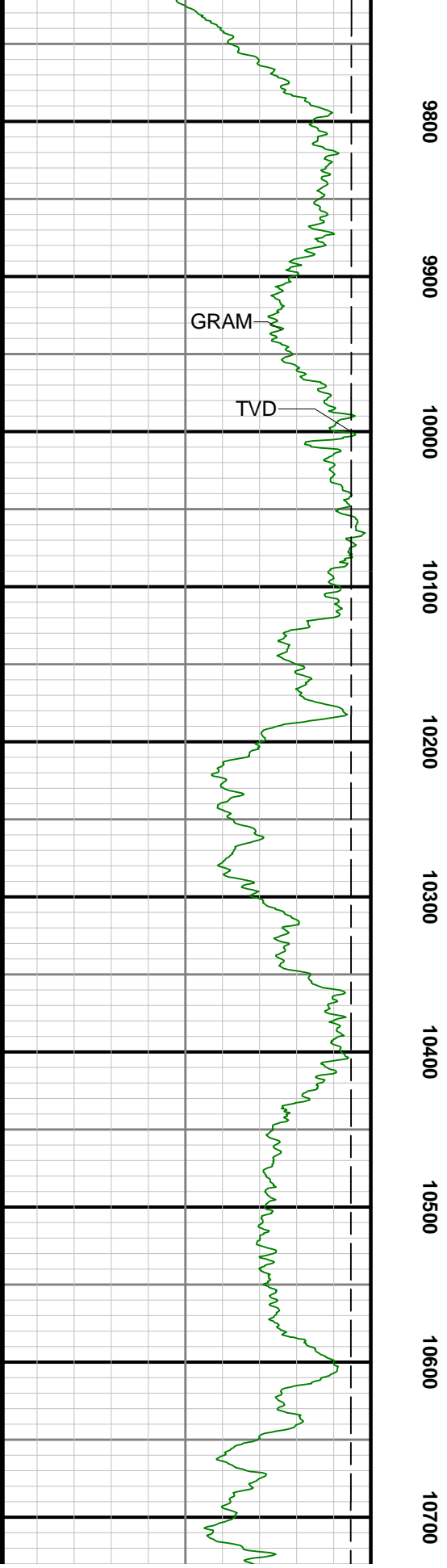
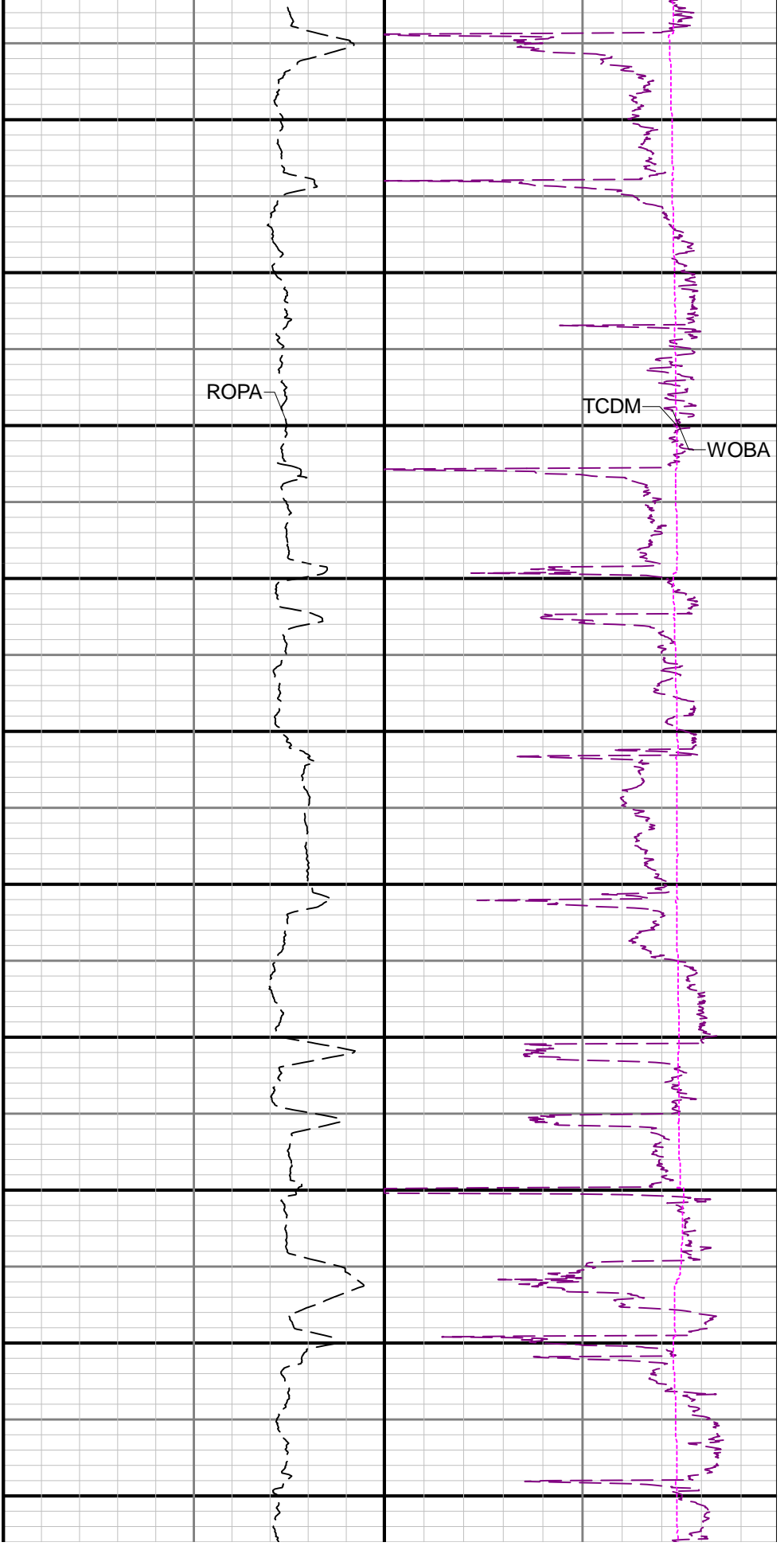


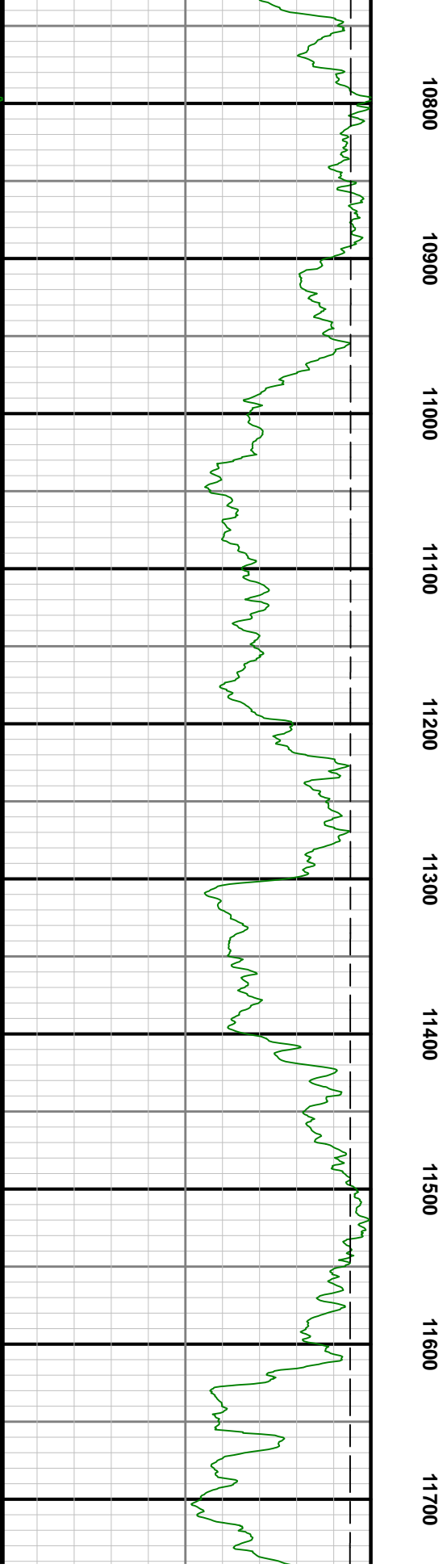
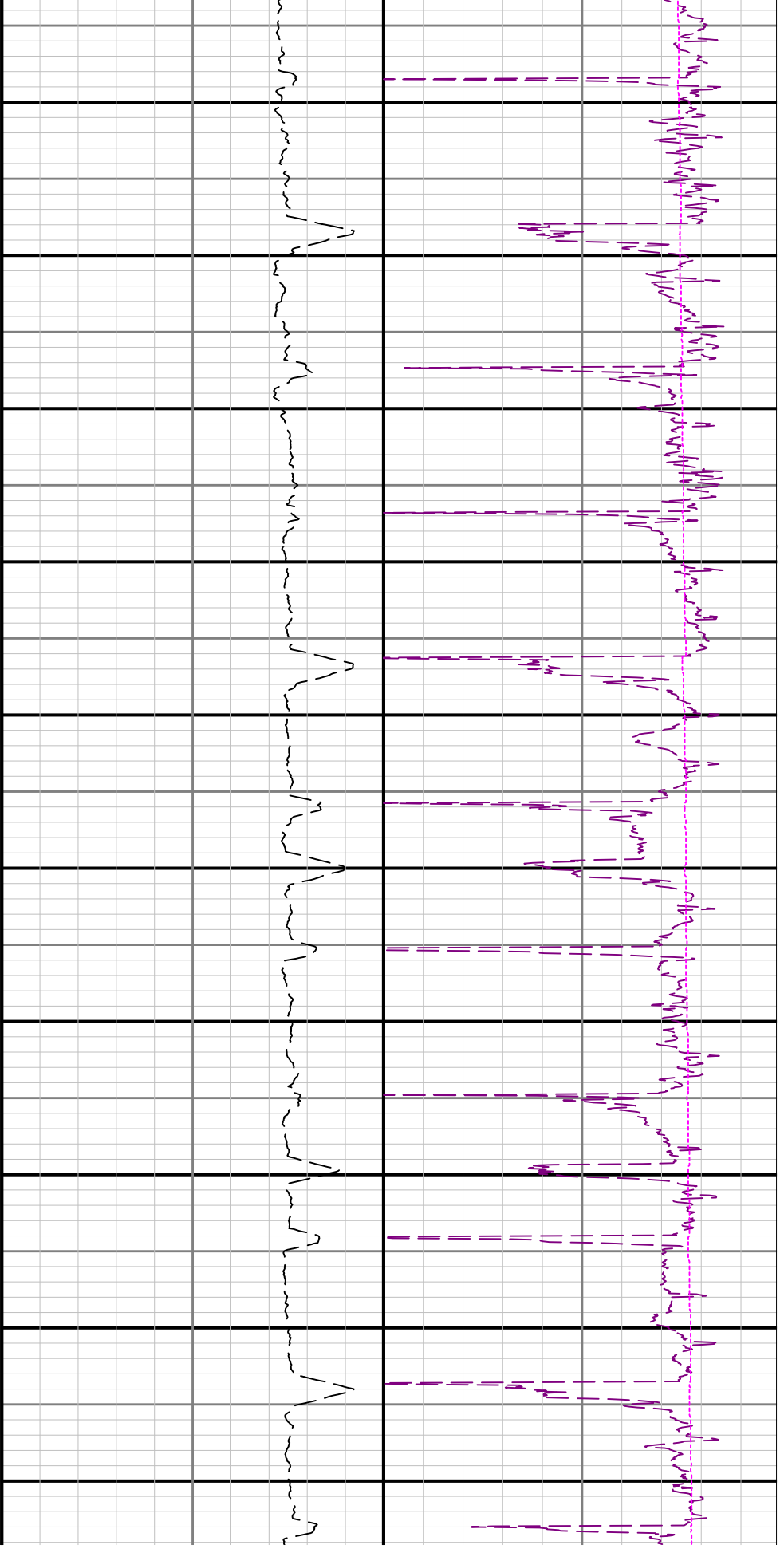


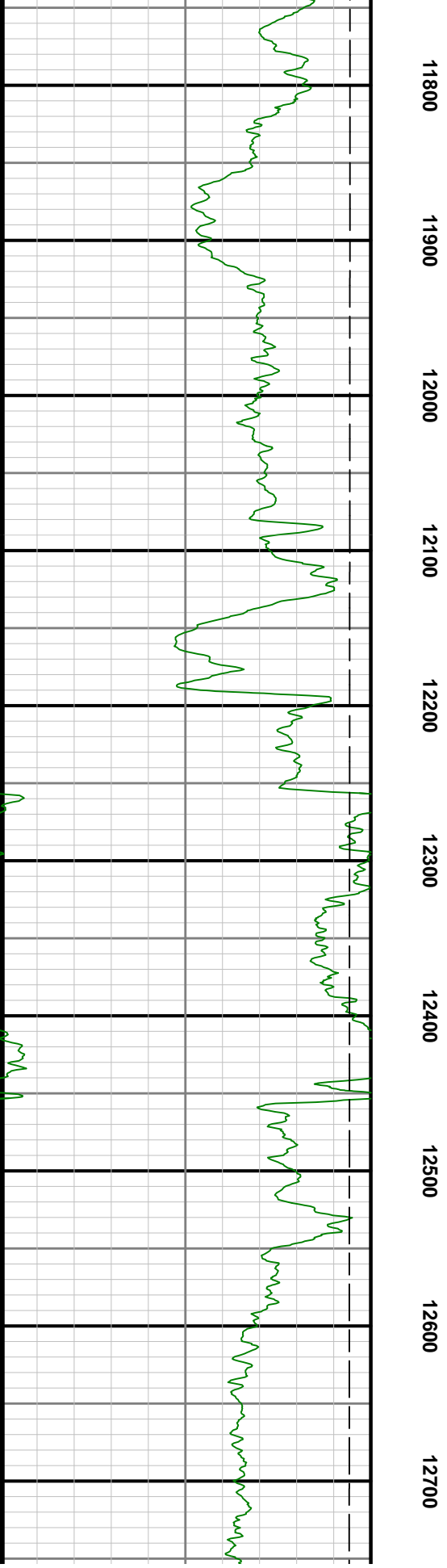
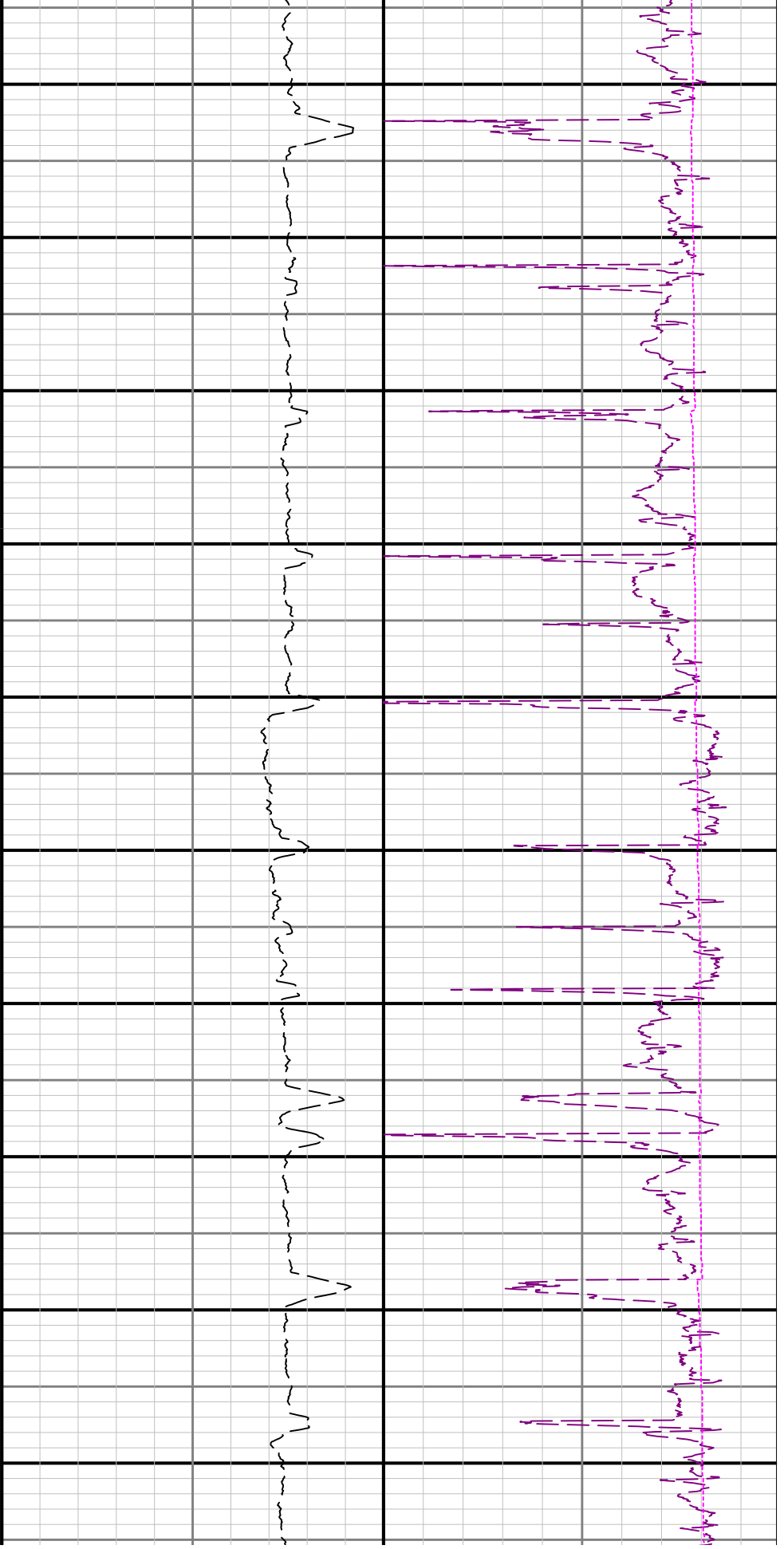


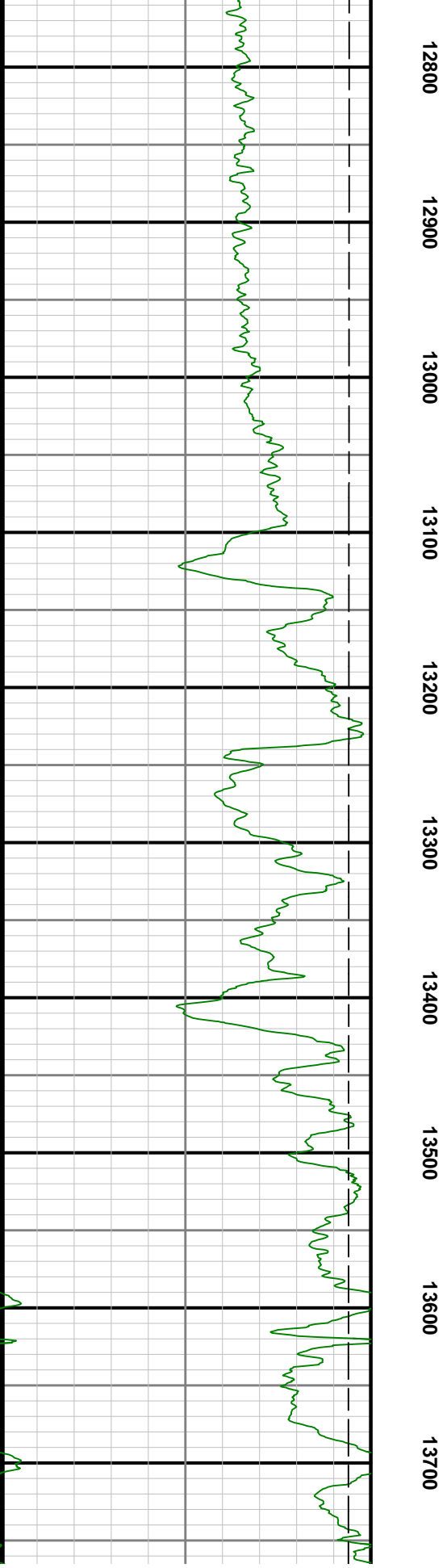
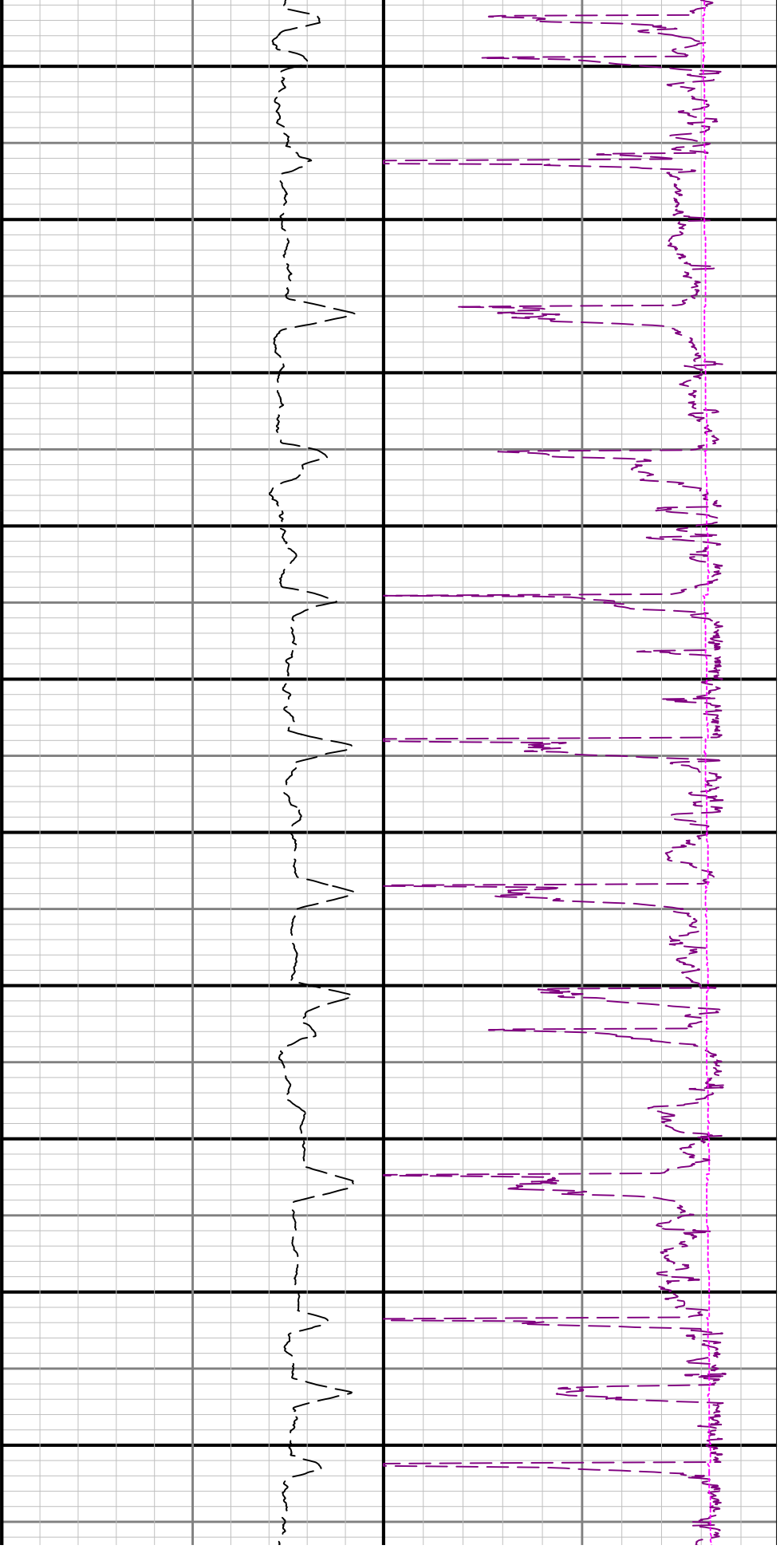


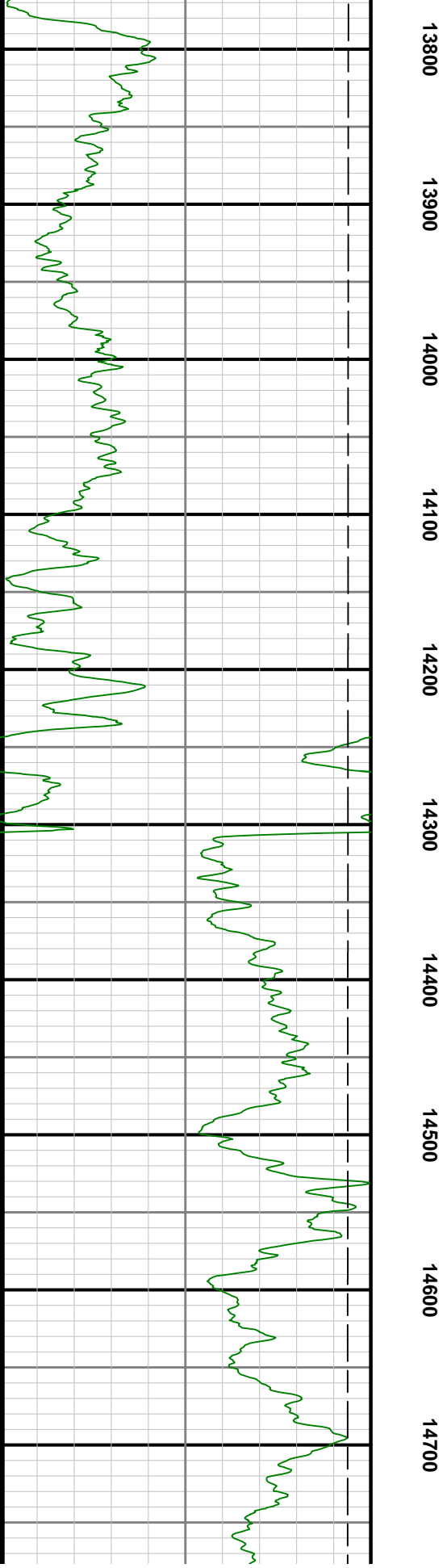
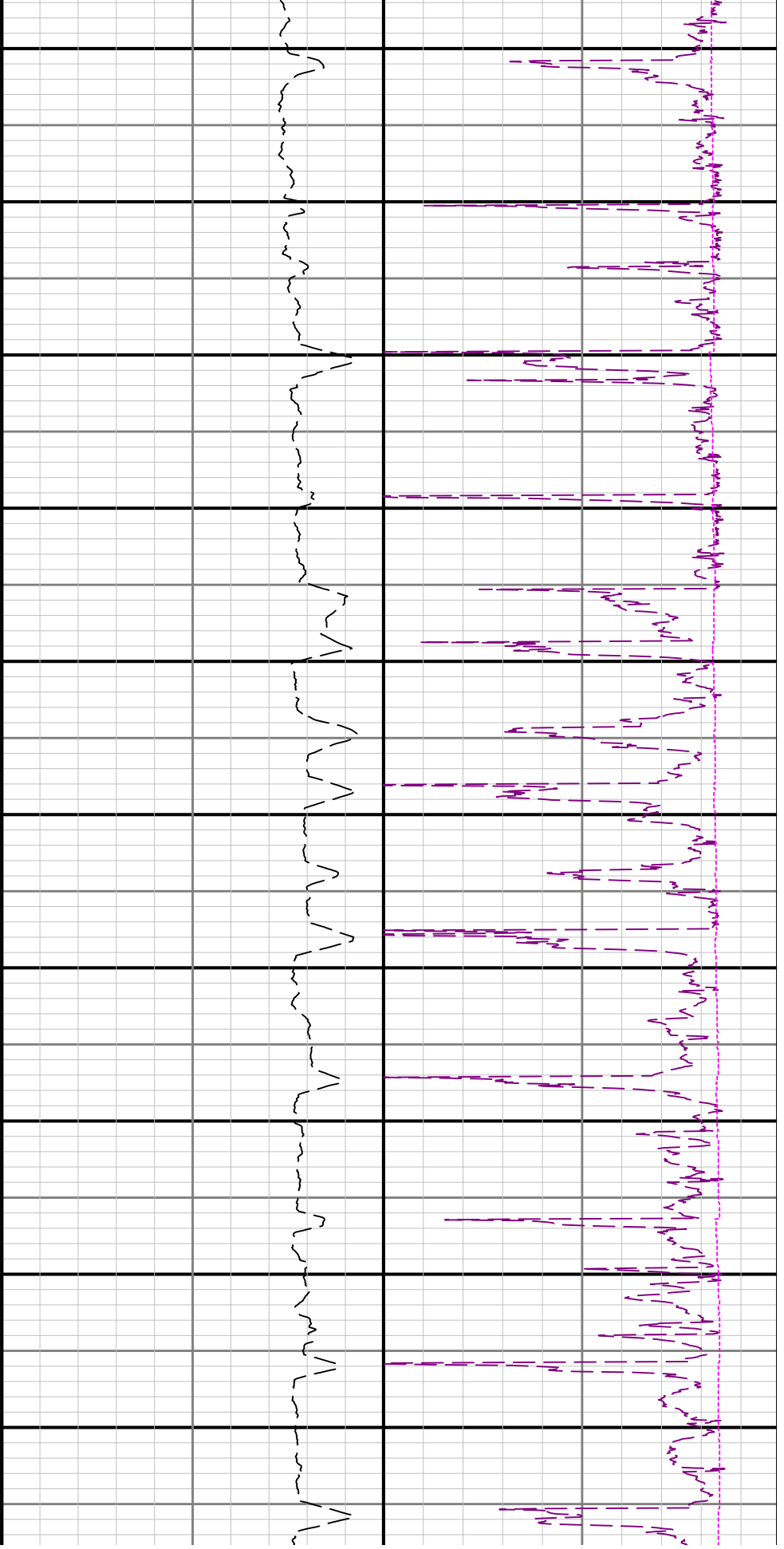


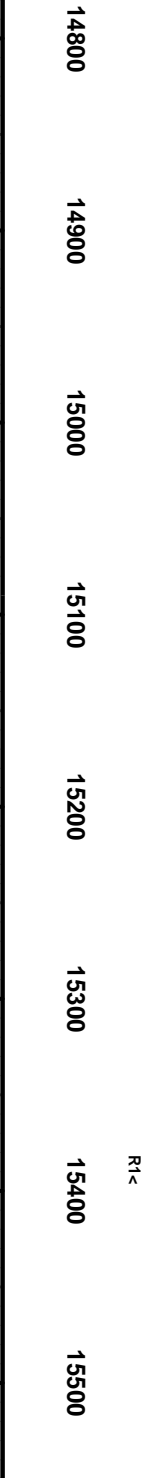
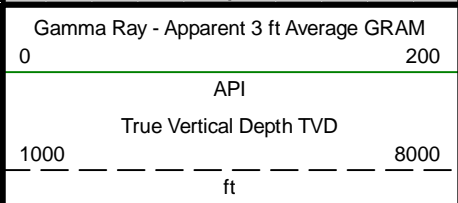
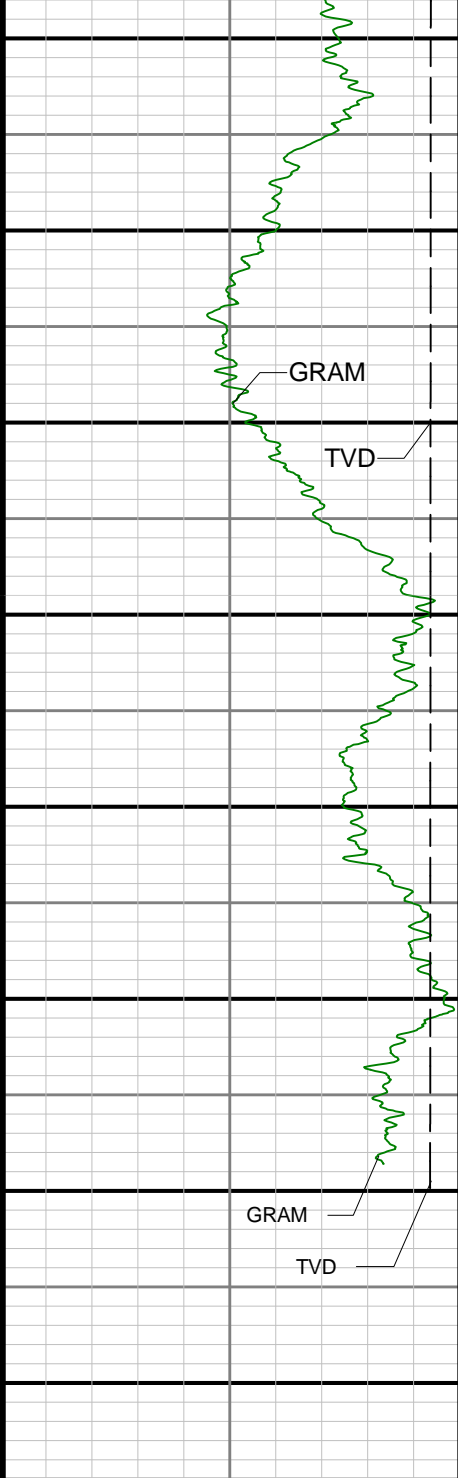












MID 1:1200 feet

