

LWD Composite Log



Azimuthal Gamma Ray  
Drilling Dynamics  
Gamma Ray  
Gamma Ray Image  
Wellbore Survey

Scale:

1:1200 MD

Company: Cub Creek Energy

Well: Markham 6

Depth Reference:

Field: Weld County

Driller's Depth

County: Weld County State: Colorado

Status:

Final Print

Surface Location:

Latitude:

Longitude:

Other Services:

API No: 05-123-43244-00

Directional VSS

Job ID: 8071531

SEC: 32

TWN: 4N

RGE: 68W

Permanent Datum (P.D.): Ground Level

Elevation:

5041.00 ft

KB:

DF:

5058.00 ft

Log Measured From: Rig Floor

Above P.D.

17.00 ft

GL:

5041.00 ft

Dates

Interval Logged

Magnetic Field Reference

Date From:

2016-09-04

Top: (ft)

1548.00

Azi Reference North: True

Dip Angle: (deg)

66.75

Date To:

2016-09-07

Bottom: (ft)

12023.00

Total Magnetic Field Strength: (nT)

52427

Spud Date:

2016-07-30

Mag to Reference North Correction: (deg)

8.58 E

Borehole Record

Casing Record

Hole Size (in)

From (ft)

To (ft)

Size (in)

Weight (lb/ft)

From (ft)

To (ft)

8.750

1561.00

12023.00

9.625

36.00

17.00

1551.00

13.500

97.00

1561.00

Mud Record

Deviation Record

Type

From (ft)

To (ft)

Hole Size (in)

Interval (ft)

Inc | Az (Start)

Inc | Az (End)

Water Based Mud

1561.00

12023.00

13.500

1464.00

0.36 | 38.12

9.23 | 123.20

8.750

10462.00

9.23 | 123.20

93.02 | 268.88

Acquisition System

Software Version

Other

Baker Hughes Cadence

G3.3

Rig: Xtreme 18

PlotStudio

3.3.7410.1

Contractor: Xtreme Coil Drilling

Unit: D&E

District: RMD

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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)			
2	2	8.750	PDC	2.00	AutoTrak Curve	1548.47	2143.05	1561.24	2149.65	2016-09-04 02:36	2016-09-04 09:32	6.38
3	3	8.750	PDC	3.00	AutoTrak Curve	2138.00	12023.00	2150.00	12023.00	2016-09-04 14:32	2016-09-07 14:04	70.00

Crew

Name		Arrive Wellsite	Depart Wellsite	Name		Arrive Wellsite	Depart Wellsite	Name		Arrive Wellsite	Depart Wellsite
Adam Harris		2016-09-03	2016-09-08	Austin Small		2016-09-03	2016-09-08	Matthew Delmore		2016-09-03	2016-09-08
Wade Ditton		2016-09-03	2016-09-08								

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+ (%)
2016-09-03 13:56	2	1561.24	Water Based Mud	8.6	28	10.5	65.0	0/1	Active Pit	800	0.00
2016-09-04 10:26	3	2149.65	Water Based Mud	8.6	28	10.5	65.0	0/1	Active Pit	800	0.00
2016-09-05 15:30	3	6719.87	Water Based Mud	9.9	41	10	6.6	1/91.5	Active Pit	1500	0.00
2016-09-06 16:00	3	8932.77	Water Based Mud	9.9	35	9.5	5.6	0.5/91.9	Active Pit	1500	0.00
2016-09-07 03:30	3	10406.60	Water Based Mud	9.9	39	9.3	5.6	1.2/90.8	Active Pit	1500	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)
2	ATC_SU	11813726	Near Bit VSS	5.93	6.60	7.000	4.330
2	ATC_SU	11813726	Near Bit Inclination	5.93	6.60	7.000	4.330
2	ATC_MWD	12441474	Gamma (single)	2.75	12.77	7.000	3.250
2	ATC_MWD	12441474	Directional (mag)	12.27	22.29	7.000	3.250
3	ATC_SU	12232313	Near Bit VSS	5.93	6.64	7.000	4.330
3	ATC_SU	12232313	Near Bit Inclination	5.93	6.64	7.000	4.330
3	ATC_MWD	11993917	Gamma (single)	2.20	12.26	7.000	3.250
3	ATC_MWD	11993917	Directional (mag)	12.27	22.33	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

Comments


- 1 Baker Hughes Run 1 utilized an 8 inch NaviTrak (Directional, VSS) assembly behind a 13.5 inch bit from 97 ft MD to 1561 ft MD (97 ft TVD to 1559.50 ft TVD). No logging services were provided for Run 1.
- 2 Baker Hughes Runs 2 and 3 utilized a 6.75 inch AutoTrak Curve Rotary Steerable Assembly behind a 8.75 inch bit from 1561 ft MD to 12023 ft MD (1559.50 ft TVD to 7064.88 ft TVD).
- 3 Depth Measurements obtained from a depth control system not supplied or operated by Baker Hughes. Due to lack of control by Baker Hughes logging engineers depth calibrations and measurements could not be independently verified.

Remarks

Number	Measured Depth (ft)	Hole Section (in)	Run No.	Remark
1	1548.00	8.750	2	The interval from 1548 ft MD to 1561 ft MD (1546.66 ft TVD to 1559.50 ft TVD) has no surface data due to Gamma Ray bit sensor offset.
2	2150.00	8.750	3	The interval from 2137 ft MD to 2150 ft MD (2128.42 ft TVD to 2141.29 ft TVD) was logged up to 5 hours after being drilled due to tripping out of the hole for new bit and changing AutoTraks.
3	12011.00	8.750	3	The interval from 12011 ft MD to 12023 ft MD (7065.51 ft TVD to 7064.88 ft TVD) was not logged due to gamma sensor offset at TD.

Curve Mnemonics

Presented Curves	Description	Units
ROPA	Depth Averaged ROP 3 ft Average	ft/h
GRADM	Azimuthal Gamma Ray - Apparent - Down Quadrant 3 ft Average	API
GRAM	Gamma Ray - Apparent 3 ft Average	API
GRAUM	Azimuthal Gamma Ray - Apparent - Up Quadrant 3 ft Average	API
TCDM	Downhole Temperature	degF
TVD	True Vertical Depth	ft
WOBA	Weight On Bit, Average 1 ft Average	klb



Company

Well

Interval

Created

Cub Creek Energy

Markham 6

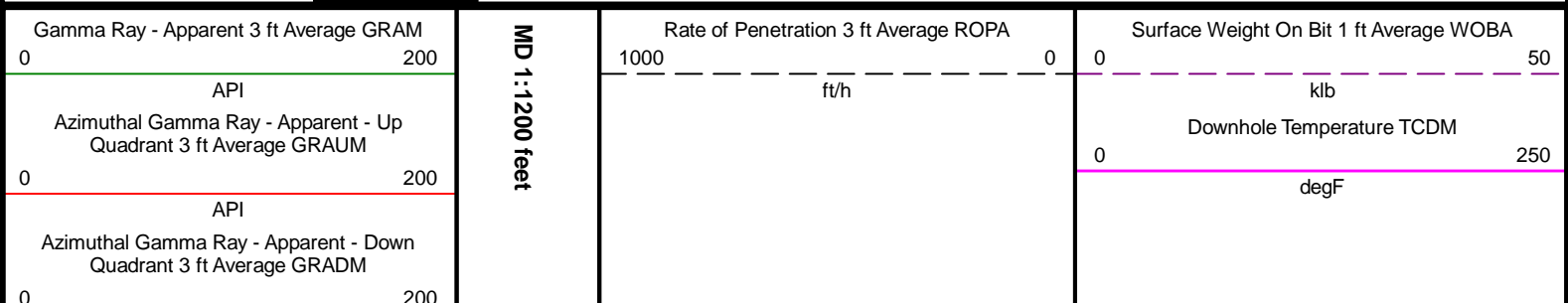
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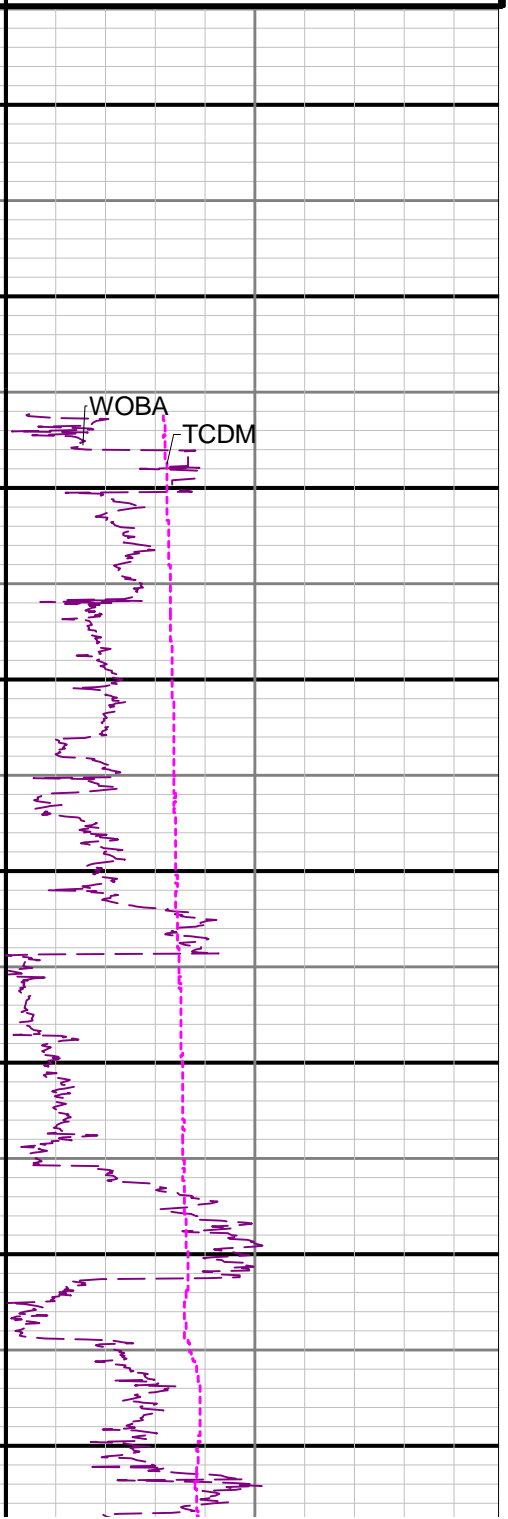
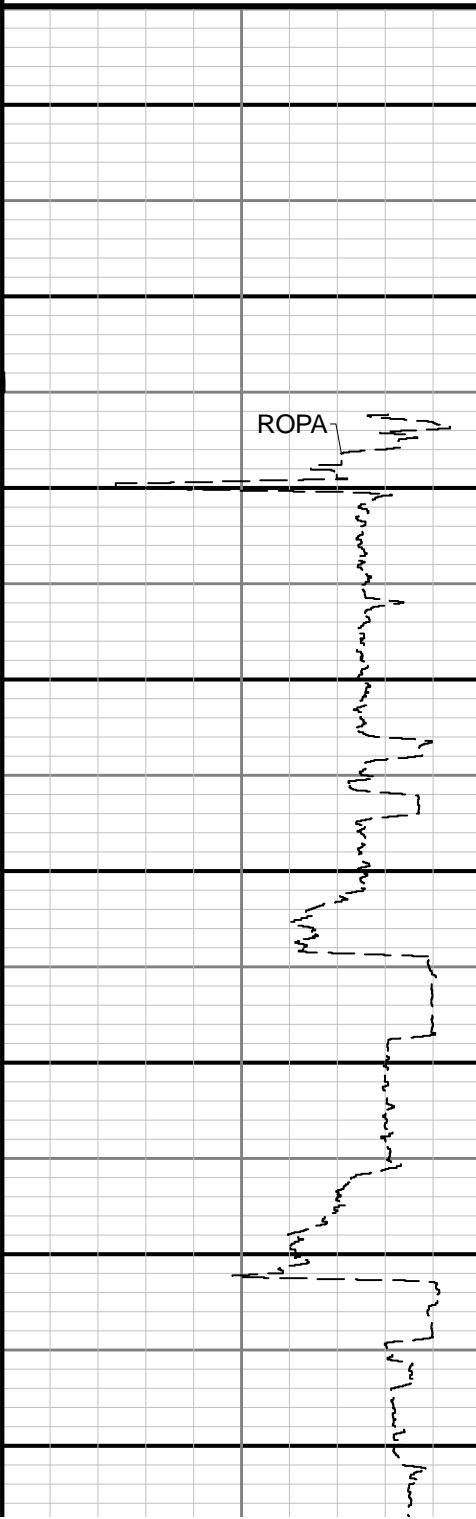
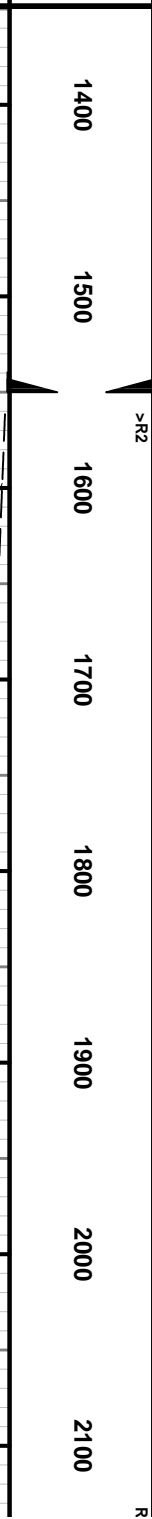
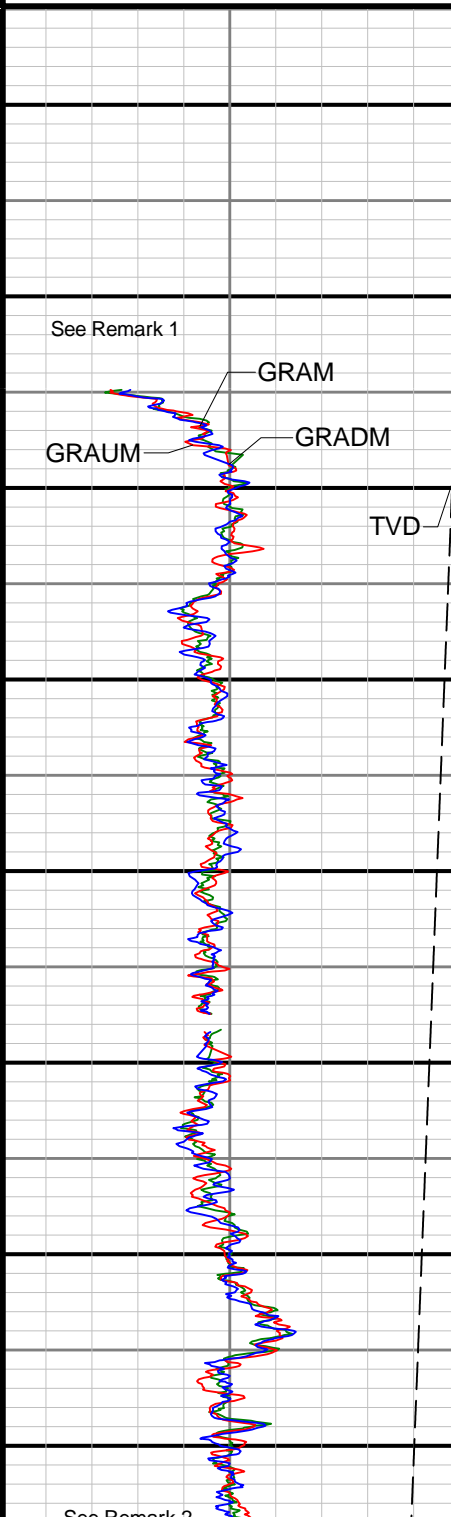
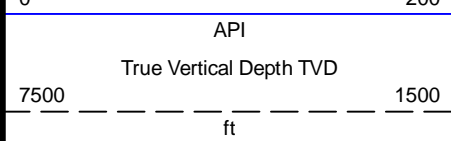
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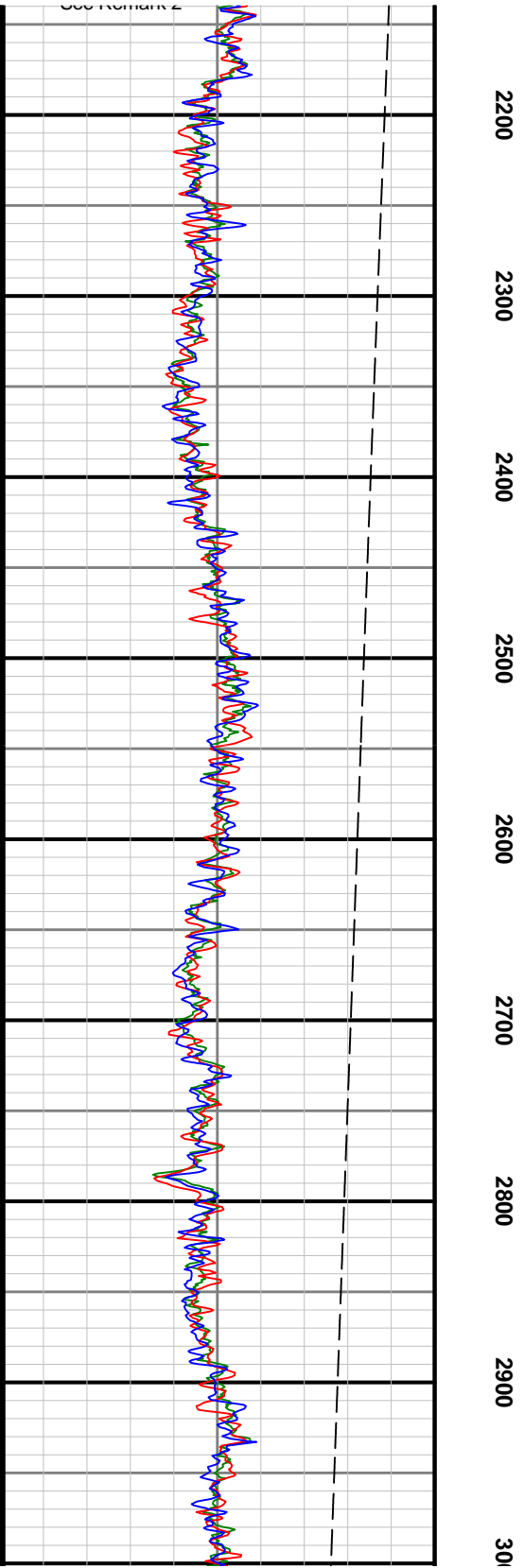
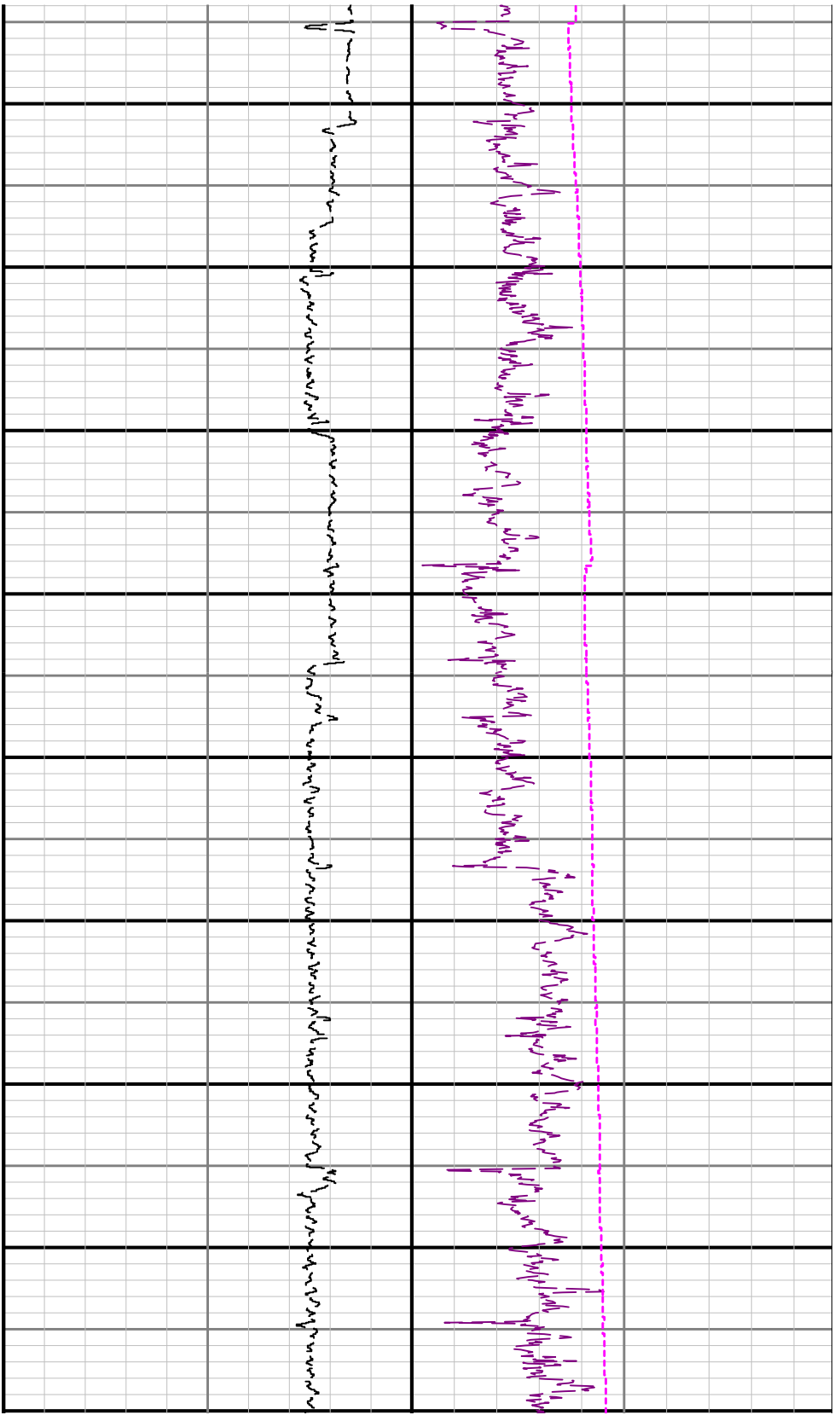
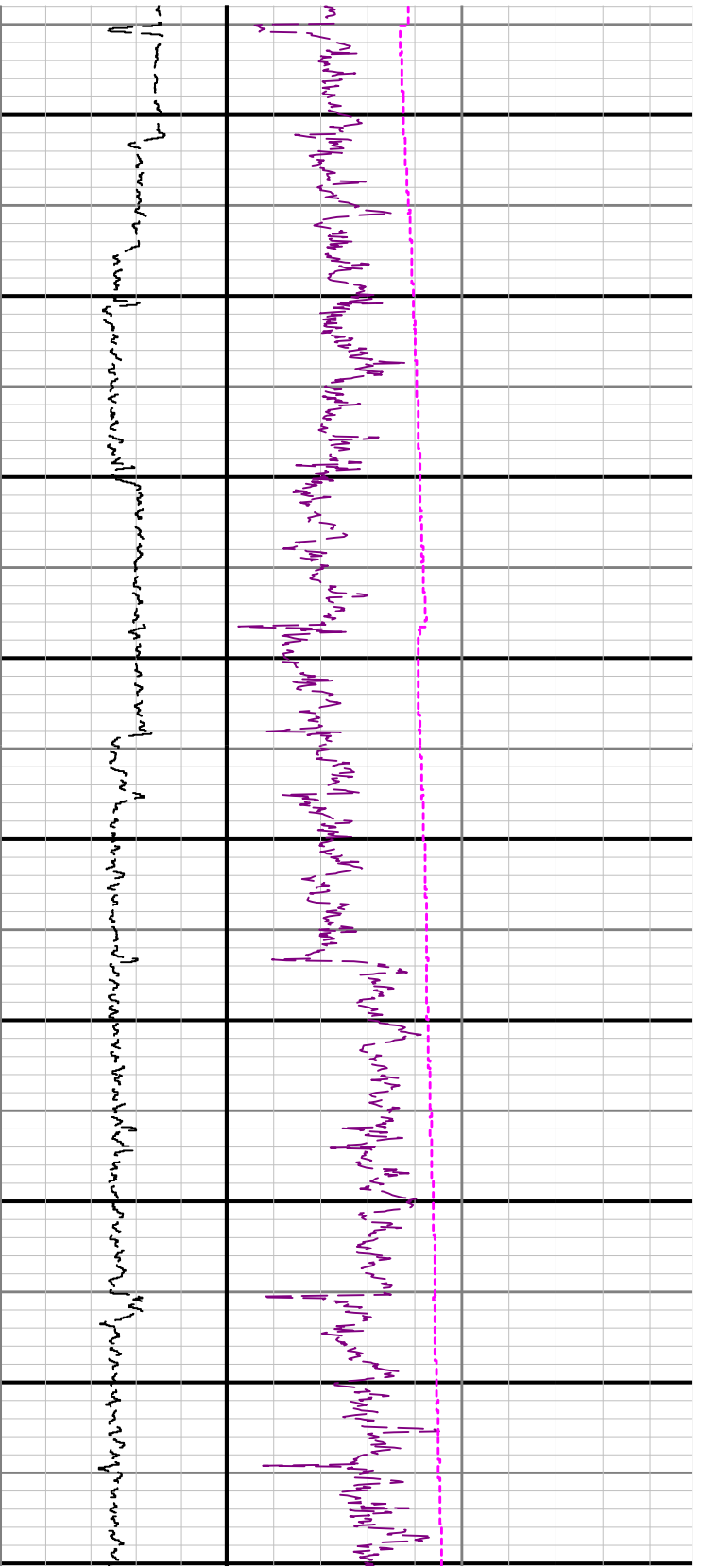
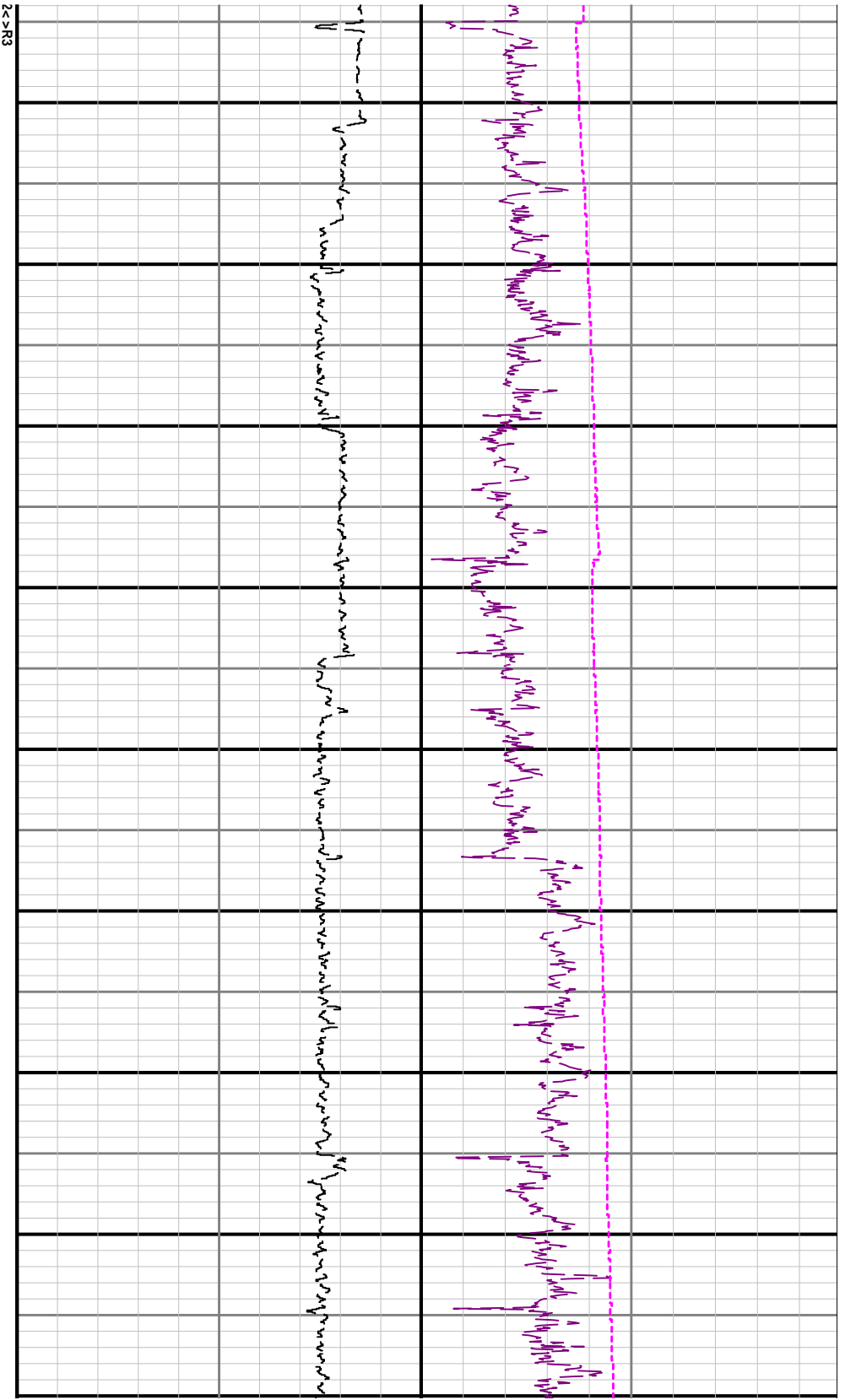
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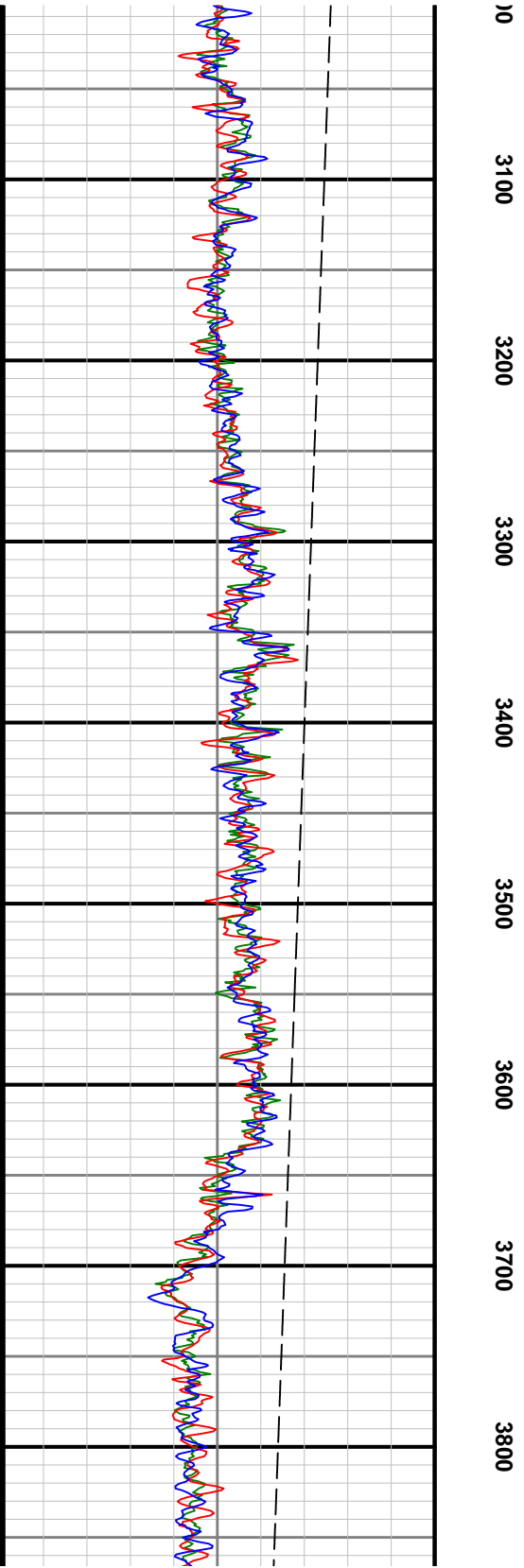
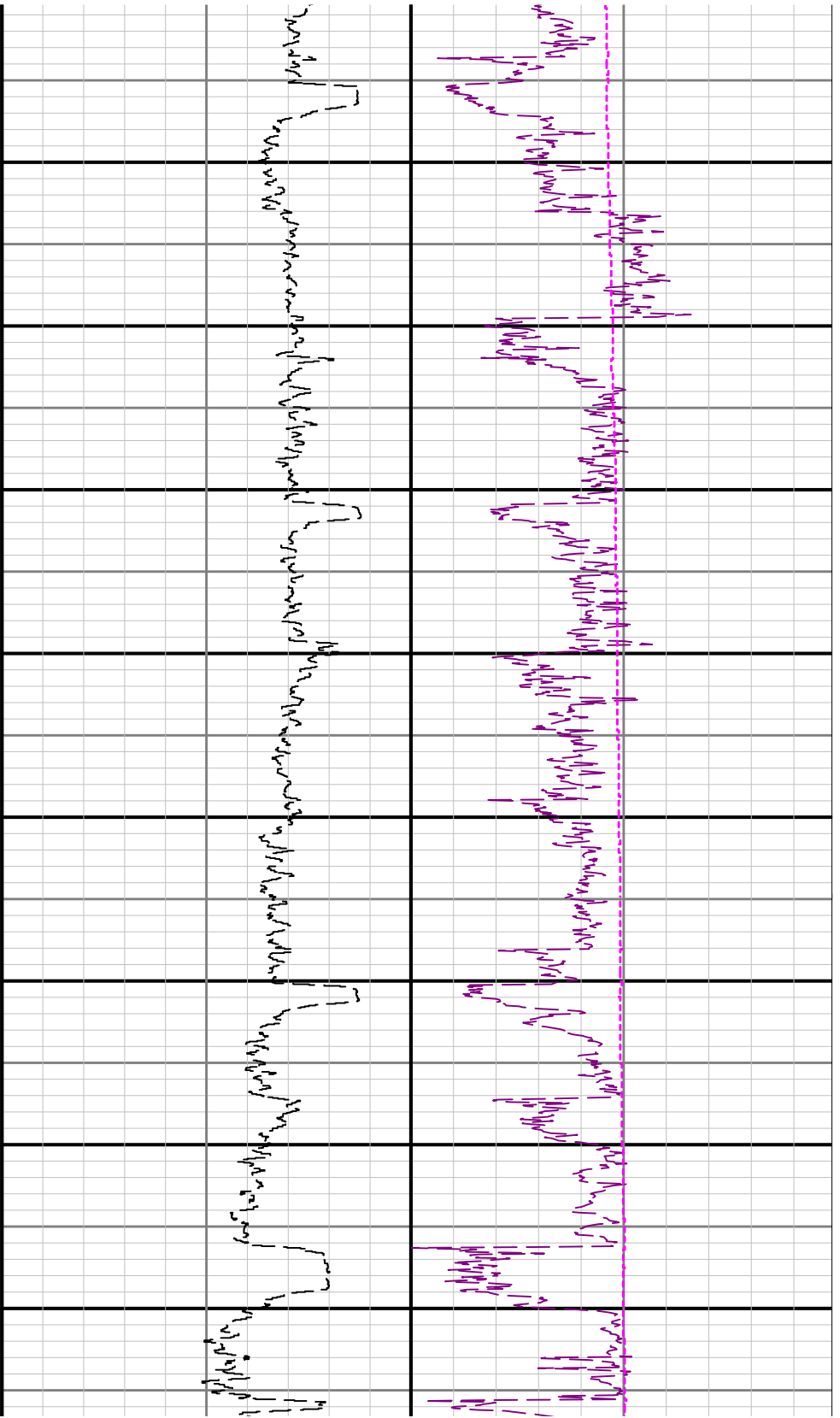
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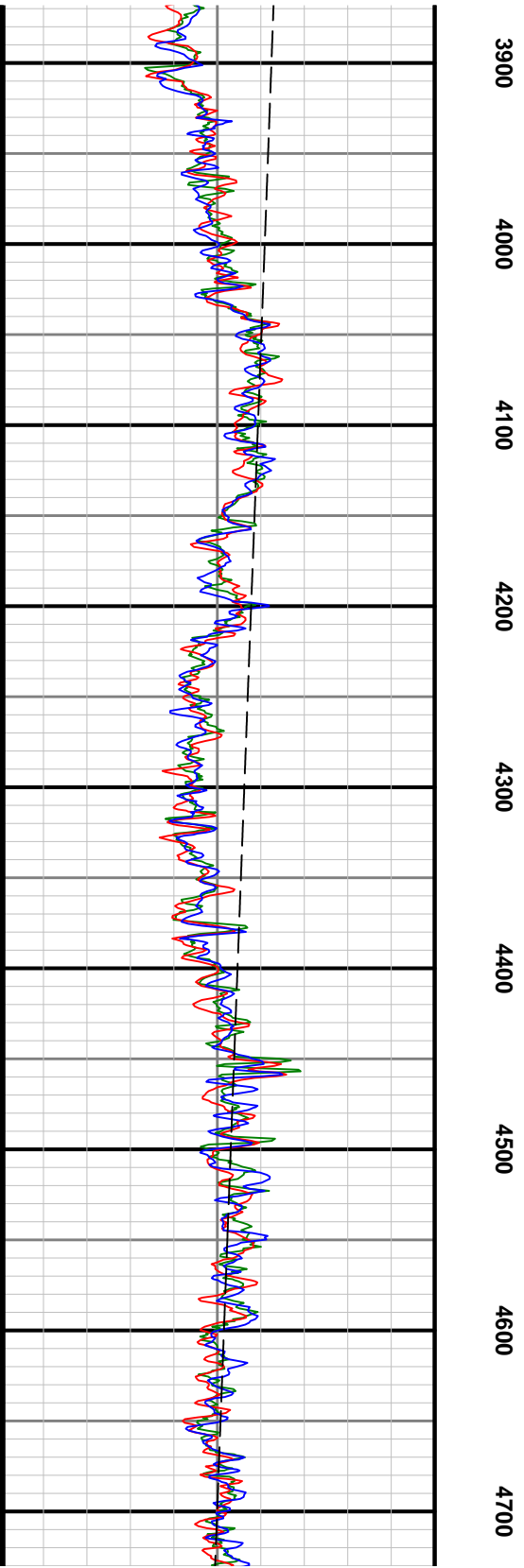
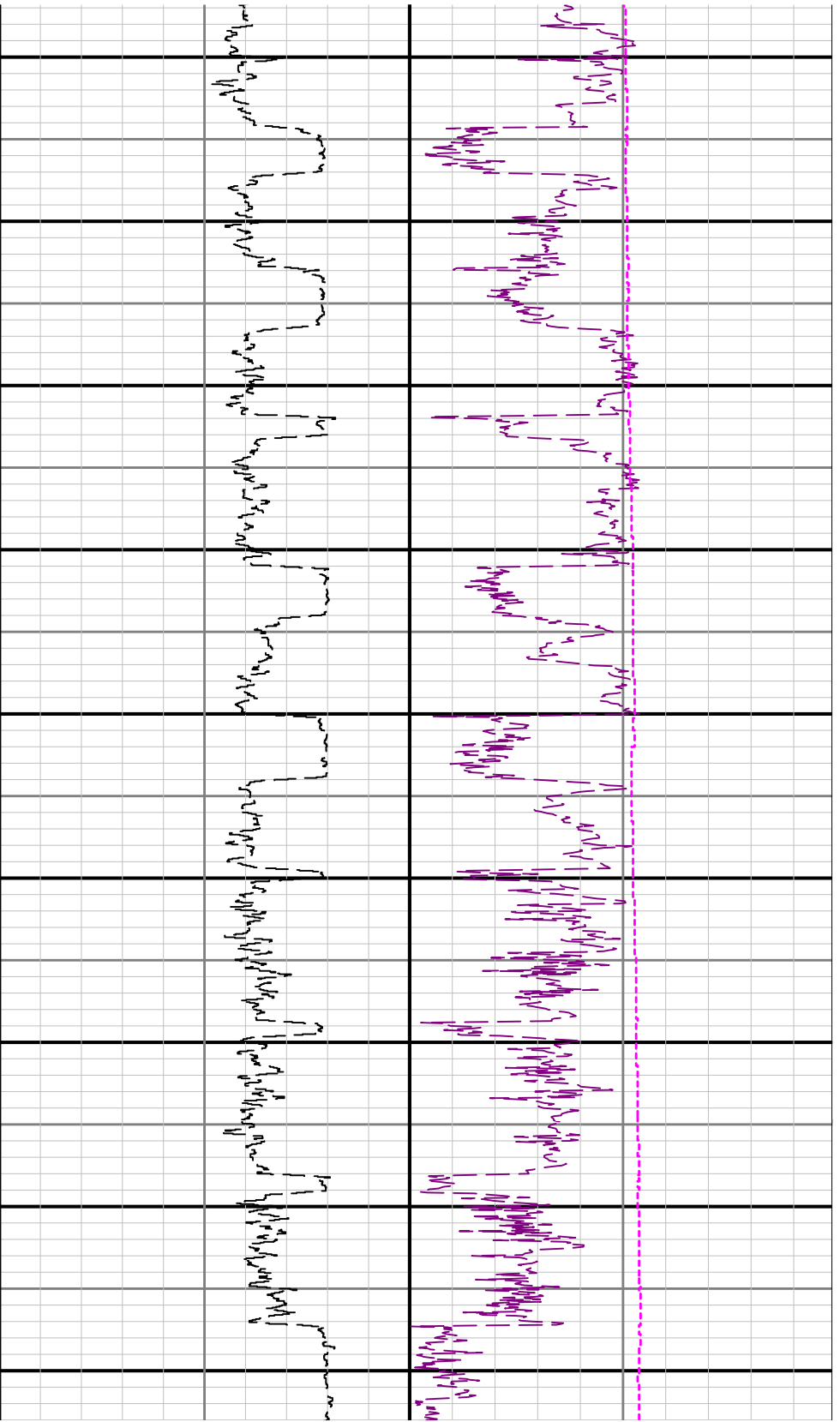
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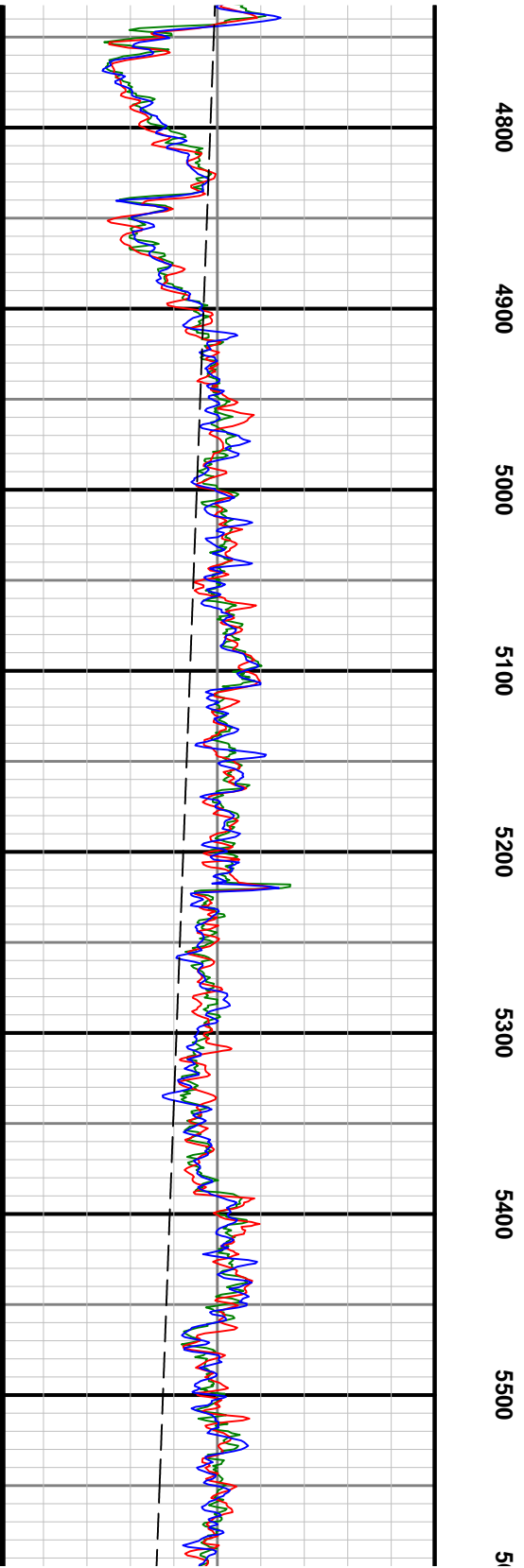
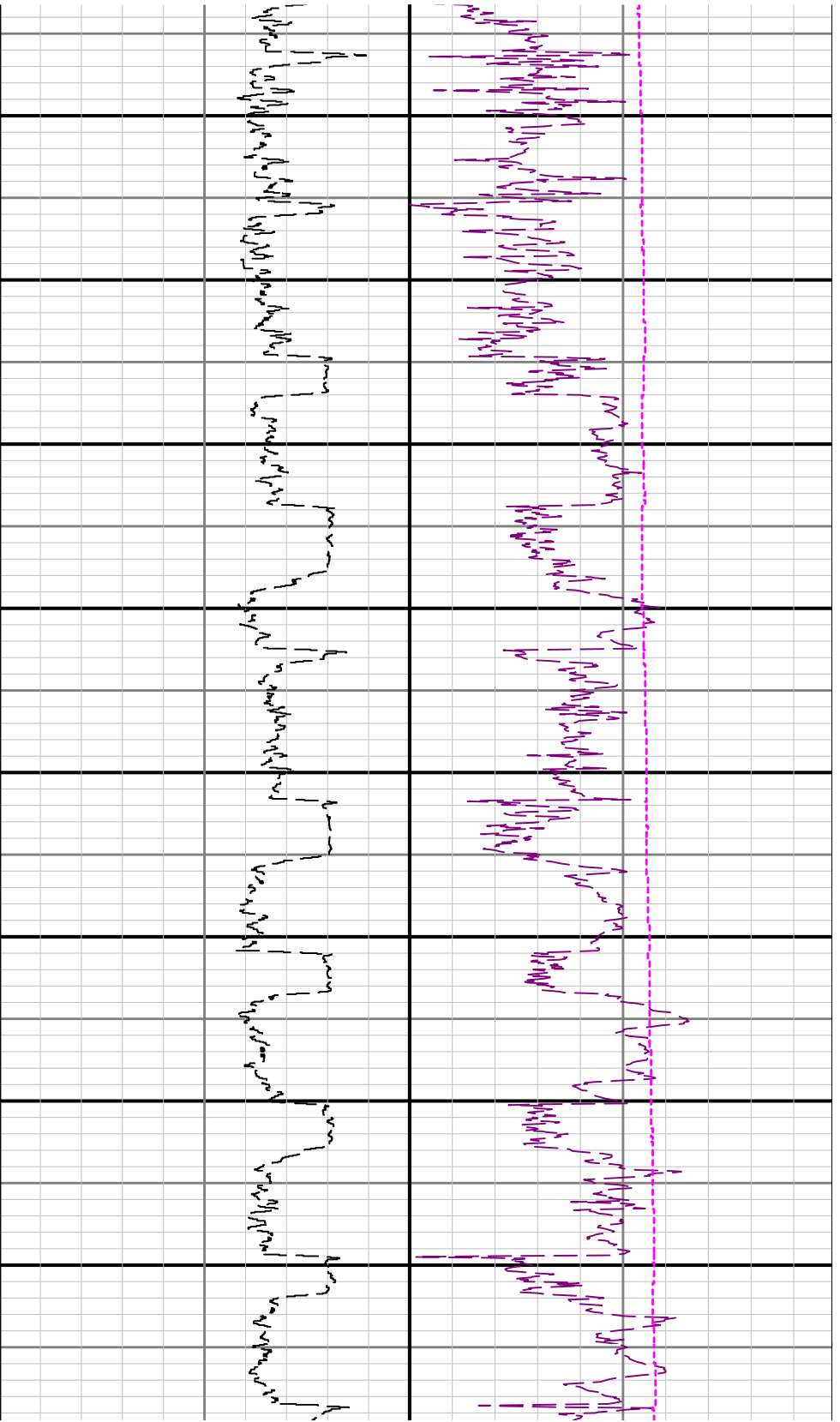




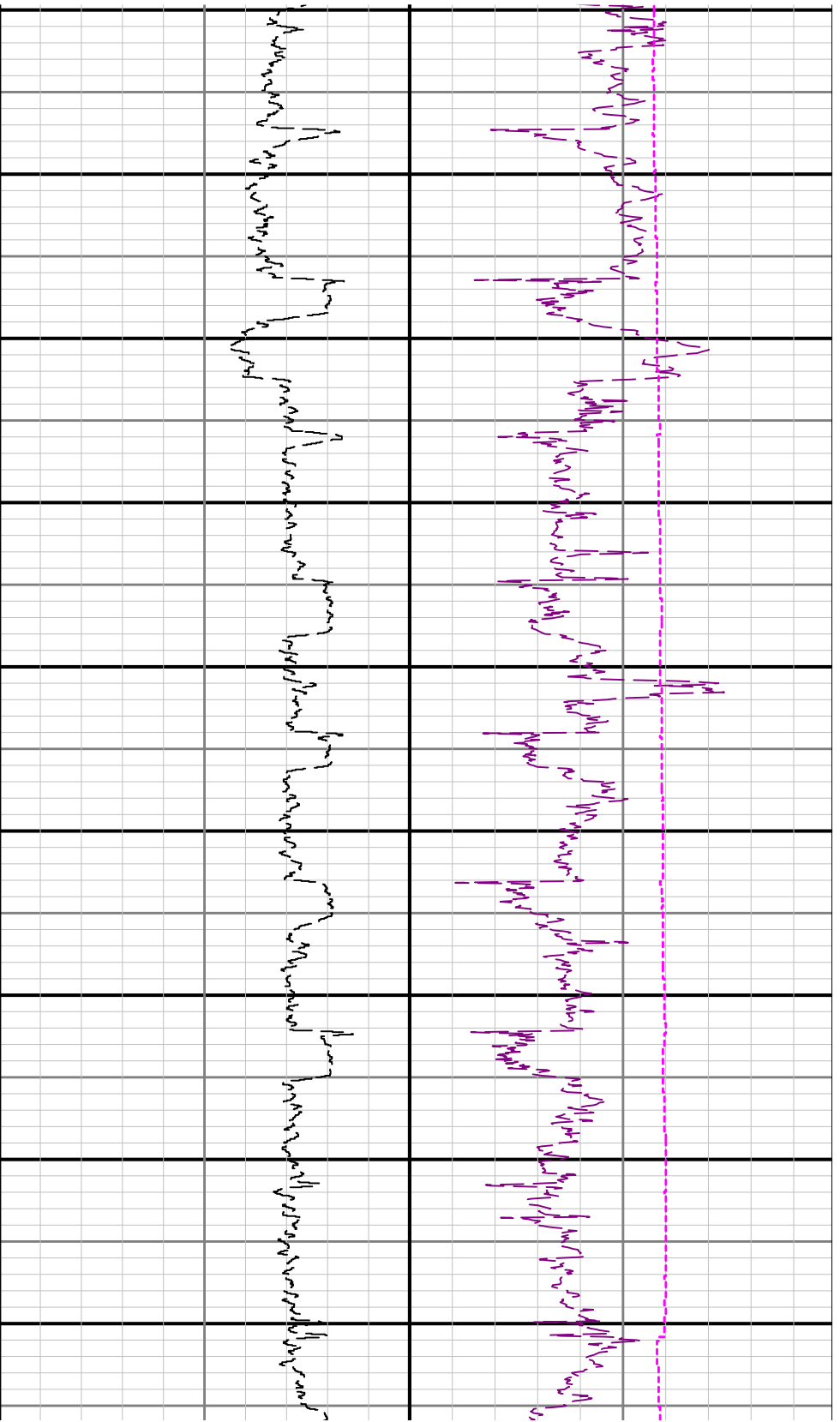












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