SlimPulse - Gamma Ray

1 in / 100 ft & 5 in / 100 ft True Vertical Depth

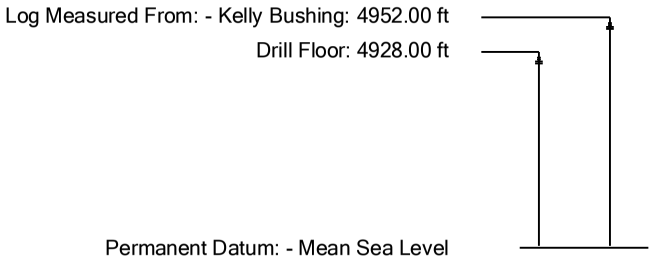
Recorded Mode, Composite Log

Schlumberger

Company:	Noble Energy
Well:	Oscar Y10-72HN
Field:	Wattenberg
County:	Weld
State:	Colorado
Country:	USA

Section:	10	APIN:	0512337941
Township:	2N	Rig Name:	H&P 277
Range:	64W	Rig Type:	Top Drive

FL:	NAD83 Colorado State Plane, Northern Zone, US Feet
FL1:	Latitude: N 40° 9' 7.99" Northing: 1299776.84 ftUS
FL2:	Longitude: W 104° 31' 51.78" Easting: 3270843.53 ftUS



Acquisition Dates:	08-Nov-2014 -- 17-Nov-2014
Log Interval:	1156(ft)TVD to 6919(ft)TVD
Index Types:	True Vertical Depth
Index Scales:	1:1200 1" / 100', 1:240 5" / 100'
Depth Source:	Driller's Depth
Depth Sensor:	PASON
Print Type:	Final
Spud Date:	27-Oct-2014

Other Services:

Directional Drilling

Surveys / Continuous D&I

Downhole Temperature

Downhole Shocks

Country: USA
State: Colorado
County: Weld
Field: Wattenberg
Well: Oscar Y10-72HN
Company: Noble Energy

Disclaimer

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 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.

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Borehole Size/Casing Record

Bit						
Bit Size (in)	13.75	8.75	6.125			
Top Driller (ft)	0	1600	7170			
Bottom Driller (ft)	1600	7170	14445			
Casing						
Size (in)	9.625	7				
Weight (lbm/ft)	36	26				
Inner Diameter (in)	8.921	6.276				
Grade	J55	P110				
Top Driller (ft)	0	1150				
Bottom Driller (ft)	1150	7163				

Operational Run Summary

Parameter (unit)	Run001	Run002				
Date Log Started	08-Nov-2014	13-Nov-2014				
Time Log Started	15:58:33	07:18:30				
Date Log Finished	10-Nov-2014	17-Nov-2014				
Time Log Finished	16:42:40	07:11:26				
Bit Size (in)	8.750	6.125				
Bit Start Depth (ft)	1156.00	7170.00				
Bit Stop Depth (ft)	7170.00	14445.00				
Top Log Interval (ft)	1156.00	7107.00				
Bottom Log Interval (ft)	7107.00	14395.00				
Max Hole Deviation (deg)	80.71	94.58				
Azimuth of Max Deviation (deg)	3.85	357.47				
Logging Unit Number	Command Center	Command Center				
Logging Unit Location	Zone 2	Zone 2				
Recorded By	C. Welty	C. Welty				
Witnessed By	Cliff	Cliff				
Service Order Number	14CCO0657	14CCO0657				

Borehole Fluids

Parameter(unit)	Run001	Run002				
Fluid Type	Water	Oil				
Fluid Name	Salt Brine					
Fluid Name		Diesel				
Max Recorded Temperatures (degF)	177.8	244.4				

(degF)						
Source of Sample	Active Tank	Active Tank				
Salinity (ppm)	2100	64000				
Density (lbm/gal)	Zoned	Zoned				
Funnel Viscosity (s)	46	62				
Fluid Loss (cm3)						
PH	9.7	0				
Source RMF						
RMC	Pressed	Pressed				
RM @ Meas Temp (ohm.m@degF)	0.2 @ 68	N/A				
RMF @ Meas Temp (ohm.m@degF)	0.15 @ 68	N/A				
RMC @ Meas Temp (ohm.m@degF)		N/A				
RM @ BHT (ohm.m@degF)	0.07 @ 212	N/A				
RMF @ BHT (ohm.m@degF)	0.05 @ 212	N/A				
RMC @ BHT (ohm.m@degF)	NaN @ 212	N/A				
Electricity Stability (V)		252				
Oil/Water		63/37 (1.67)				
Total Solid (%)	8.1	7				
High Gravity Solids (%)	4.4	4.1				

Zoned Borehole Fluids

Run001

Parameter	Value	Start
Density	8.9	11/8/2014 3:58:33 PM
Density	9.3	11/9/2014 2:30:00 AM
Density	10	11/9/2014 2:00:00 PM
Density	10.5	11/10/2014 2:00:00 AM

Run002

Parameter	Value	Start
Density	9.3	11/13/2014 7:18:30 AM
Density	9.55	11/14/2014 1:00:00 PM
Density	9.5	11/15/2014 2:30:00 AM
Density	9.4	11/15/2014 1:30:00 PM
Density	9.5	11/16/2014 2:30:00 AM

Remarks and Equipment Summary

Data presented is from tool memory and acquired while drilling from 1156 ft to 14445 ft.

Depth Reference: Driller's Depth

Environmental Corrections: Gamma Ray is corrected for bit size, mud weight, and tool collar thickness. Barite and Potassium in the mud affect Gamma Ray readings.

Run001: Remarks	Run002: Remarks
Run Objective: Drill the vertical and curve to the landing point	Run Objective: Drill lateral to well TD
Bit to Gamma Ray: 62.62 ft Bit to D&I: 59.59 ft	Bit to Gamma Ray: 49.07 ft Bit to D&I: 46.04 ft
Drilled from:1156 ft to 7170 ft Logged from:1156 ft to 7107 ft	Drilled from: 7170 ft to 14445 ft Logged from: 7107 ft to 14395 ft
SlimPulse Software: 110C01	SlimPulse Software: 110C01
SlimPulse D&I calibrated on: Sep 21, 2014 SlimPulse GR calibrated on: Sep 21, 2014	SlimPulse D&I calibrated on: Oct 16, 2014 SlimPulse GR calibrated on: Oct 28, 2014
Reason for POOH: Section TD	Reason for POOH: Well TD
PathFinder a Schlumberger Co. Personnel:	PathFinder a Schlumberger Co. Personnel:

Pathfinder a Schlumberger Co. Personnel:
DD: Jordan Timbs & Mike Hicks
MWD: Chad Welty & Eric Wahlquist

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DD: Jordan Timbs & Mike Hicks
MWD: Chad Welty & Eric Wahlquist

Run001: Toolstring

Equip name	Length	MP name	Offset
Flex DC: 6 3/4"[2]:DR18671	139.2	NMFC	
Flex DC: 6 3/4"[1]:DR20317	108.14	NMFC	

Run002: Toolstring

Equip name	Length	MP name	Offset
Flt Sub: 4 3/4":DR13563	128.1	NM Float	
NMDC: 4 3/4"[2]:DR21166	124.6	NMDC	

SPULSE-GEN:DR8945 77.04
FLOWSUB:DR22497
SPCOLLAR:DR8945
SPMA:318
SPEC:H686
SPBA:Q01500
UBHO:675U291

GR 62.62

D&I 59.59

Flt Sub: 6 3/4":DR21309 41.3 NM FLOAT

NMDC: 6 3/4":DR13223 38.06 NM Pony

Motor:FH70B0056 26.9 G2 Fixed

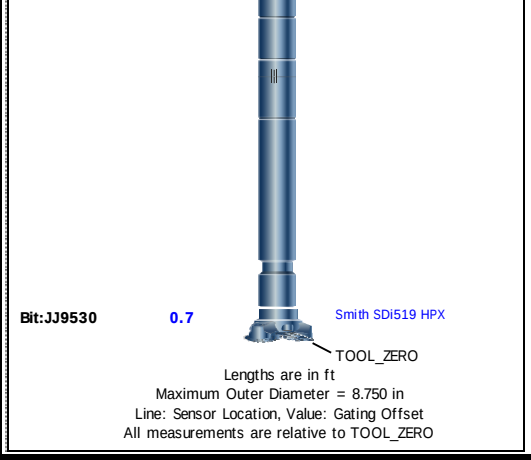
NMDC: 4 3/4"[1]:DR28105 94.48 NMDC

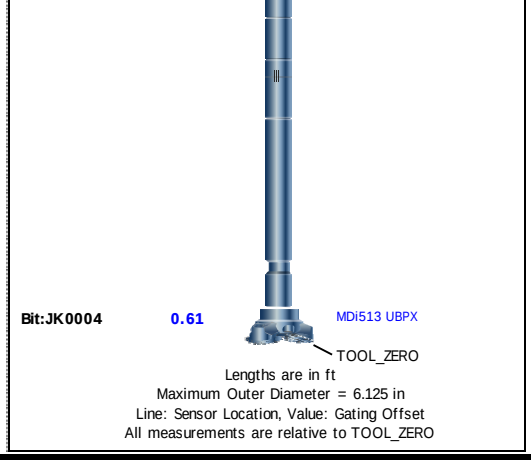
SPULSE-GEN:DR23997 63.37
FLOWSUB:DR22486
SPCOLLAR:DR23997
SPMA:528
SPEC:6189
SPBA:Q02200
UBHO:475U127

GR 49.07

D&I 46.04

Motor 27.44 PF G2 Motor





Well Composite

Software Version

Acquisition System	Version
MaxWell	4.0.9163.3000
Application Patch	Patch-SP-10767_26570-4.0.9163.3001
	Patch-Hotfix_MRT_SP4-27464-4.0.9575.3002

Tool Elements	Description	Software Version	Firmware Version
DRILLING_SURFACE	DRILLING_SURFACE	4.0.9469.3000	
SPEC	SlimPulse Electronics Cartridge	4.0.9469.3000	

Composite Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	Include Parallel Data
Run001	Drilling	Down	1156.00 ft	7169.92 ft	08-Nov-2014 6:14:47 PM	10-Nov-2014 4:42:40 PM	No
Run002	Drilling	Down	7169.00 ft	14445.25 ft	13-Nov-2014 7:18:30 AM	17-Nov-2014 7:11:26 AM	No
Run002	Ream Down 1	Down	7067.75 ft	7170.00 ft	13-Nov-2014 12:12:04 PM	13-Nov-2014 3:15:09 PM	No

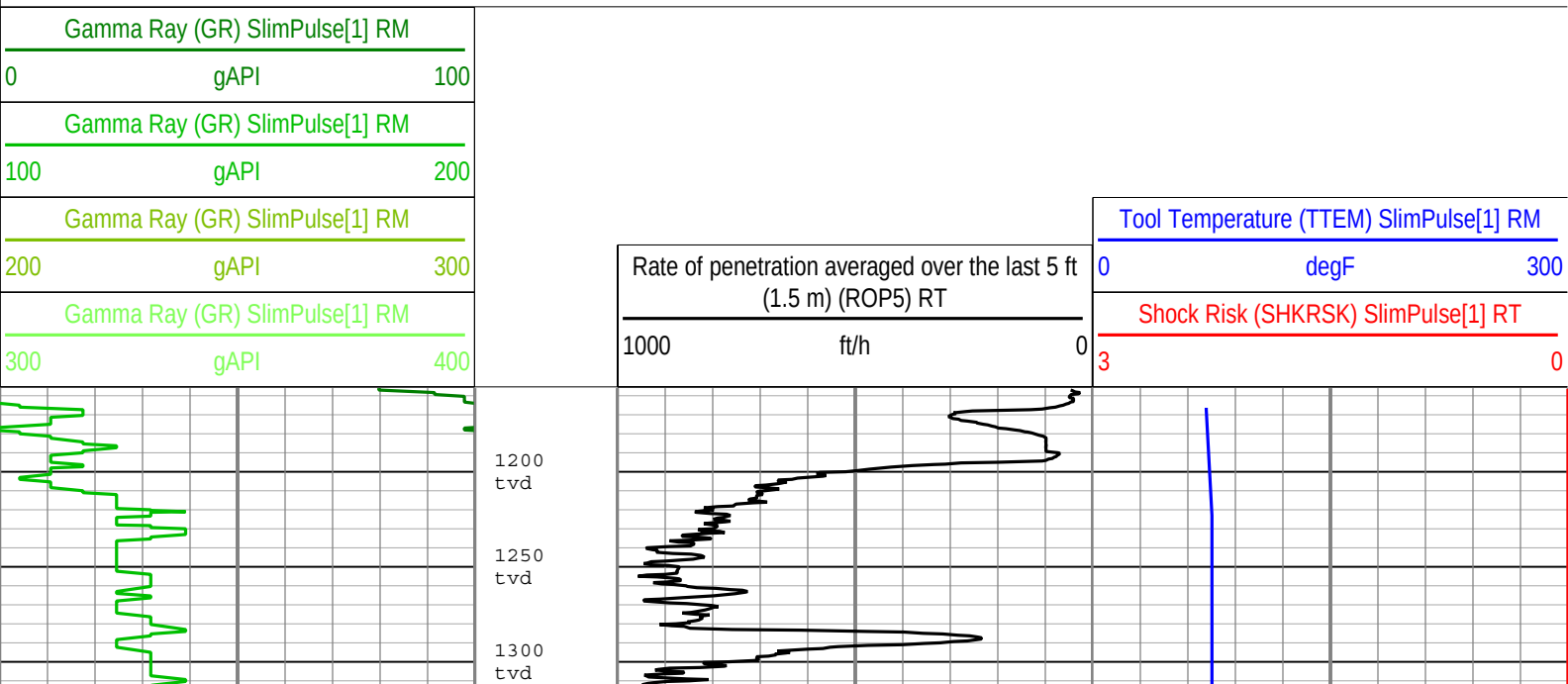
All depths are referenced to toolstring zero

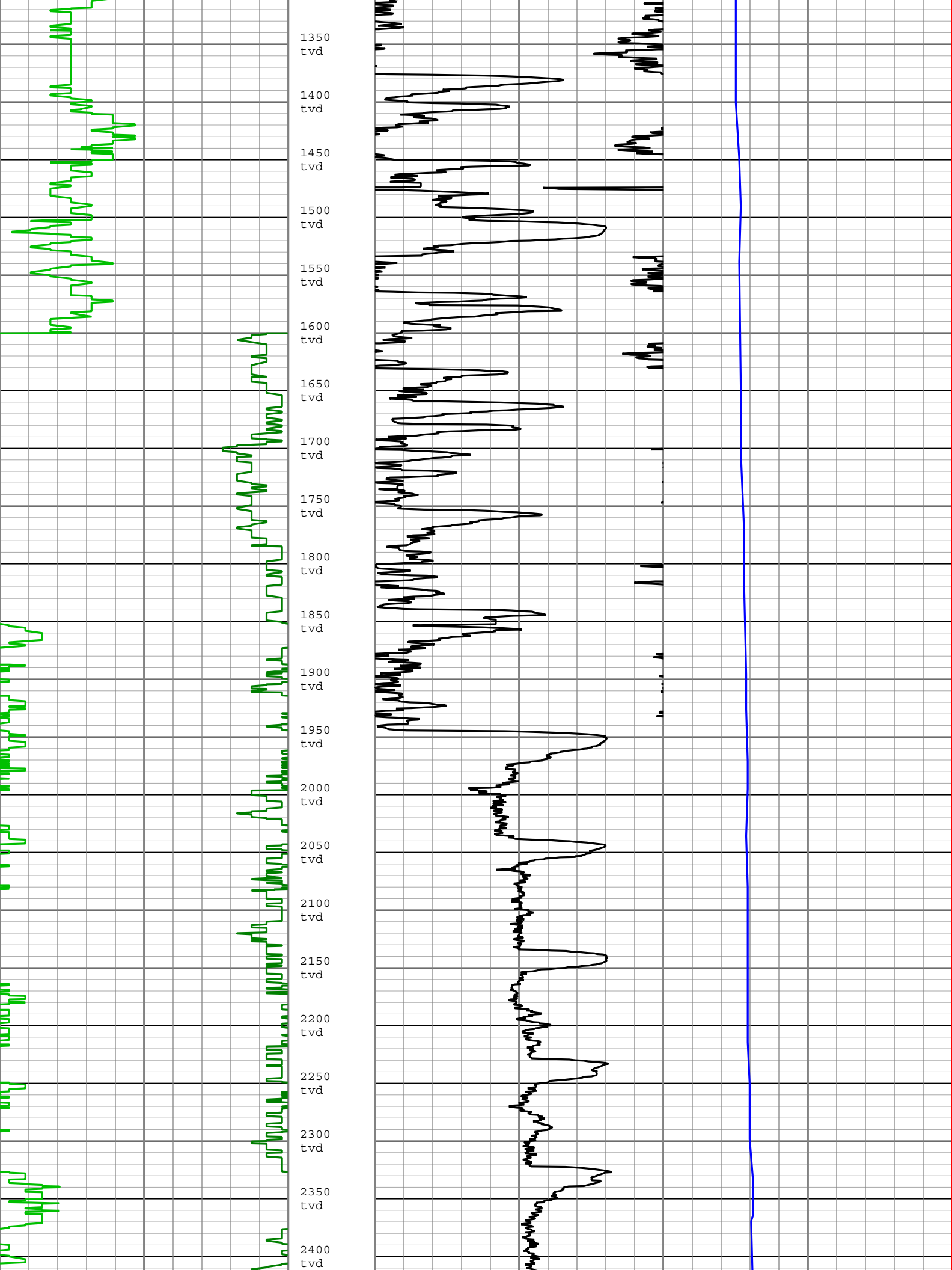
Log

Company:Noble Energy Well:Oscar Y10-72HN

Well Composite:S308

Description: SlimPulse Gamma Ray 1 Format: Log (Final TVD Log) Index Scale: 1 in per 100 ft Index Unit: ft Index Type: TVD Creation Date: 18-Nov-2014 08:50:42

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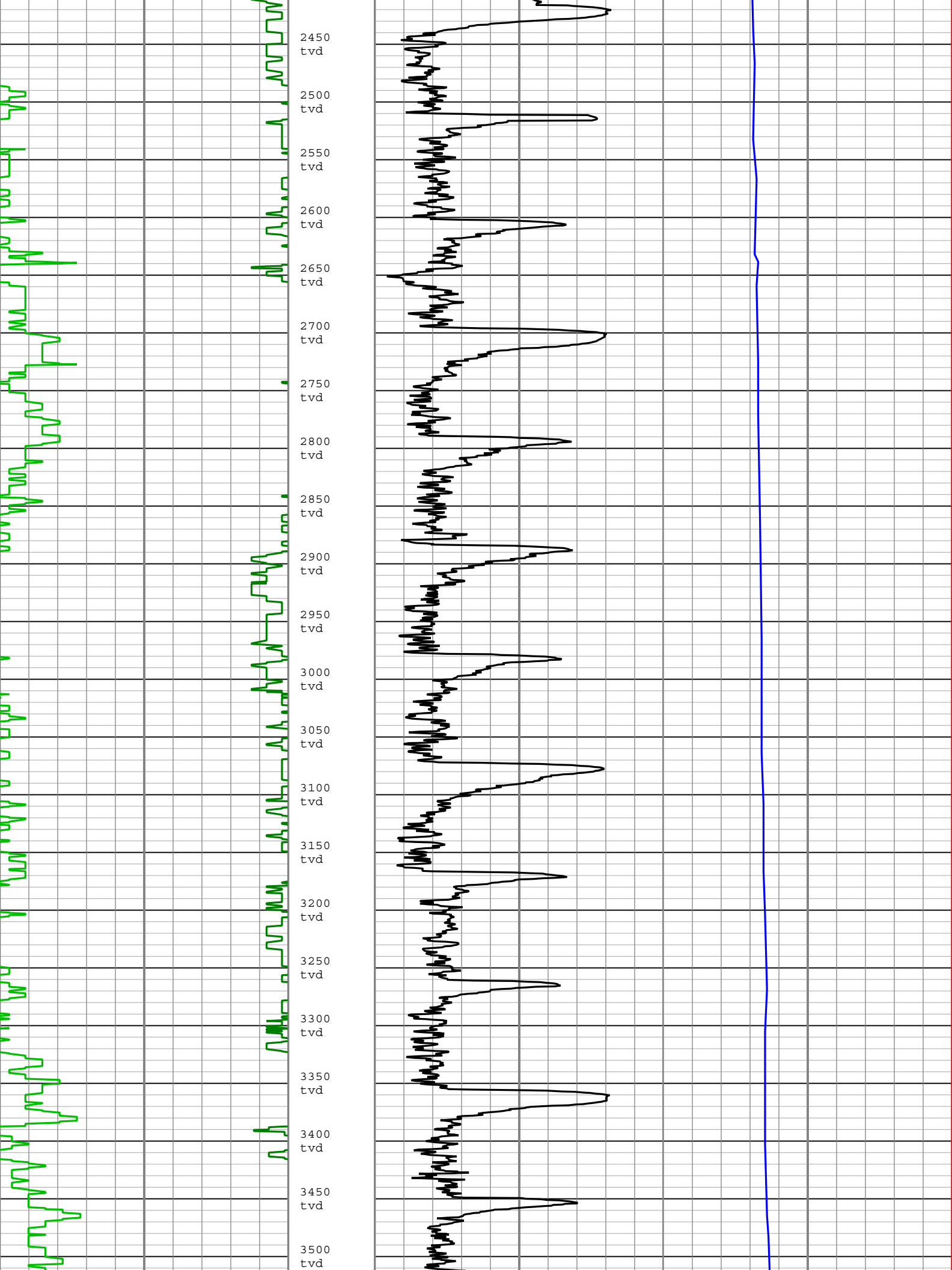
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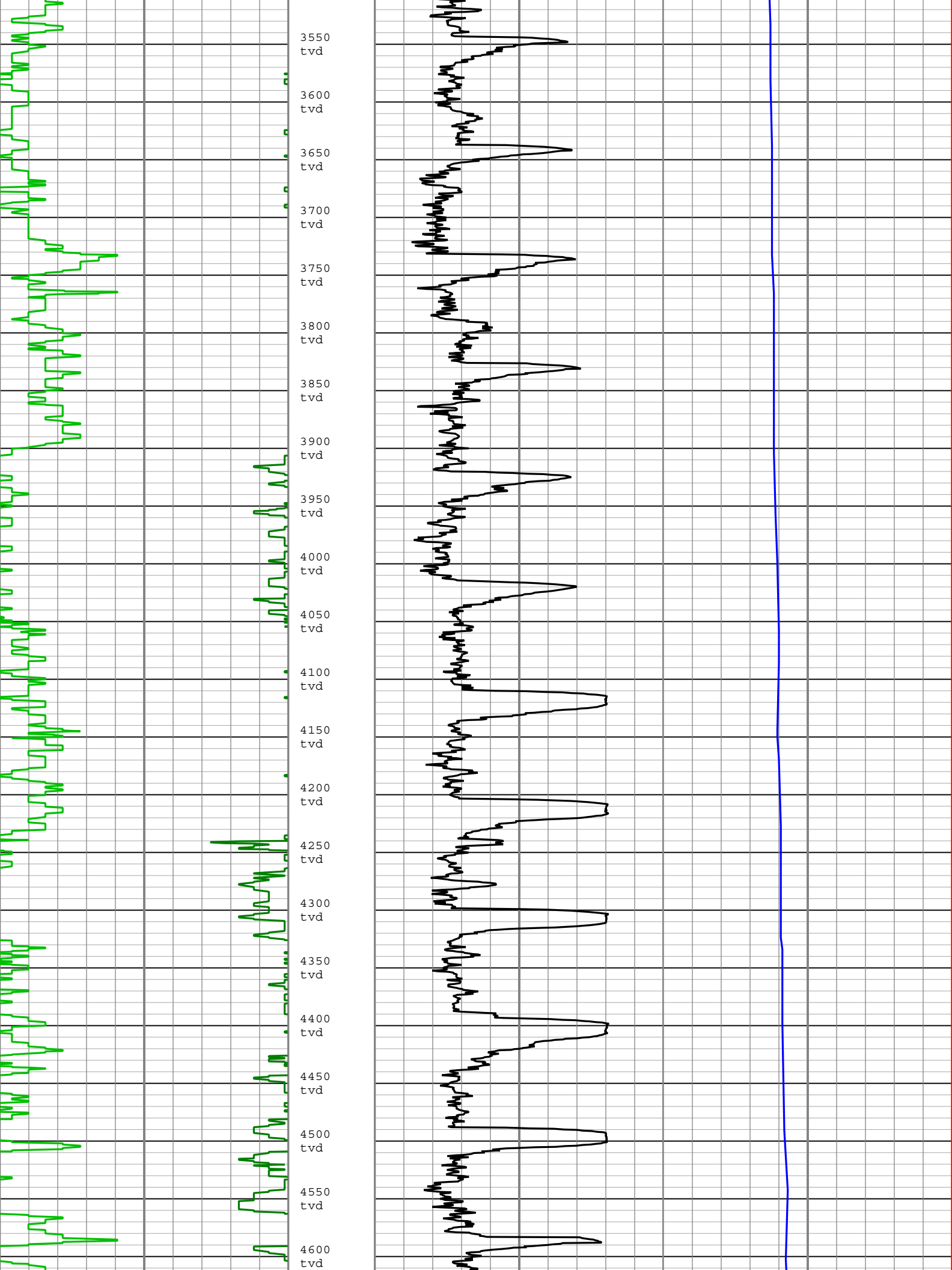
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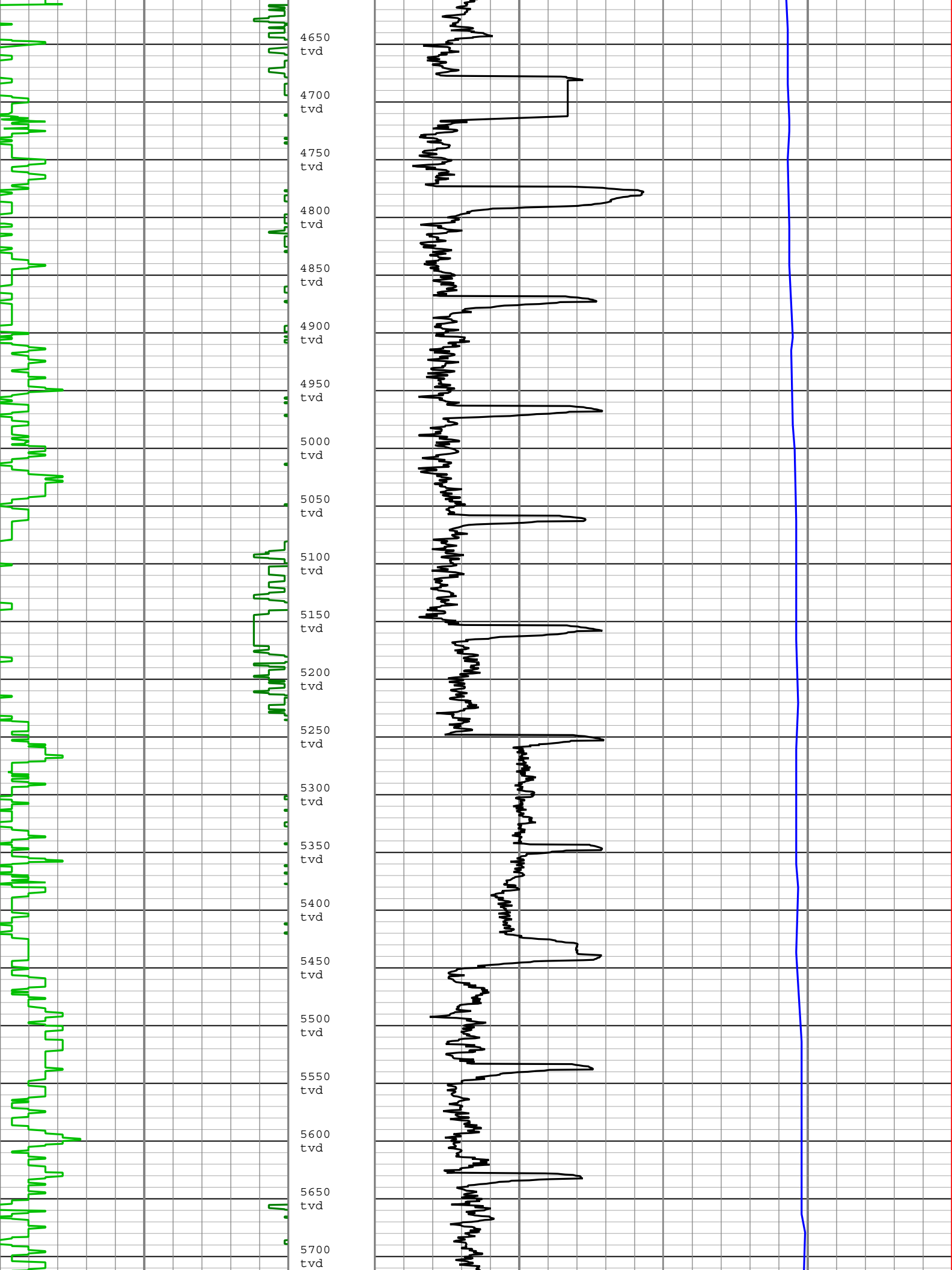
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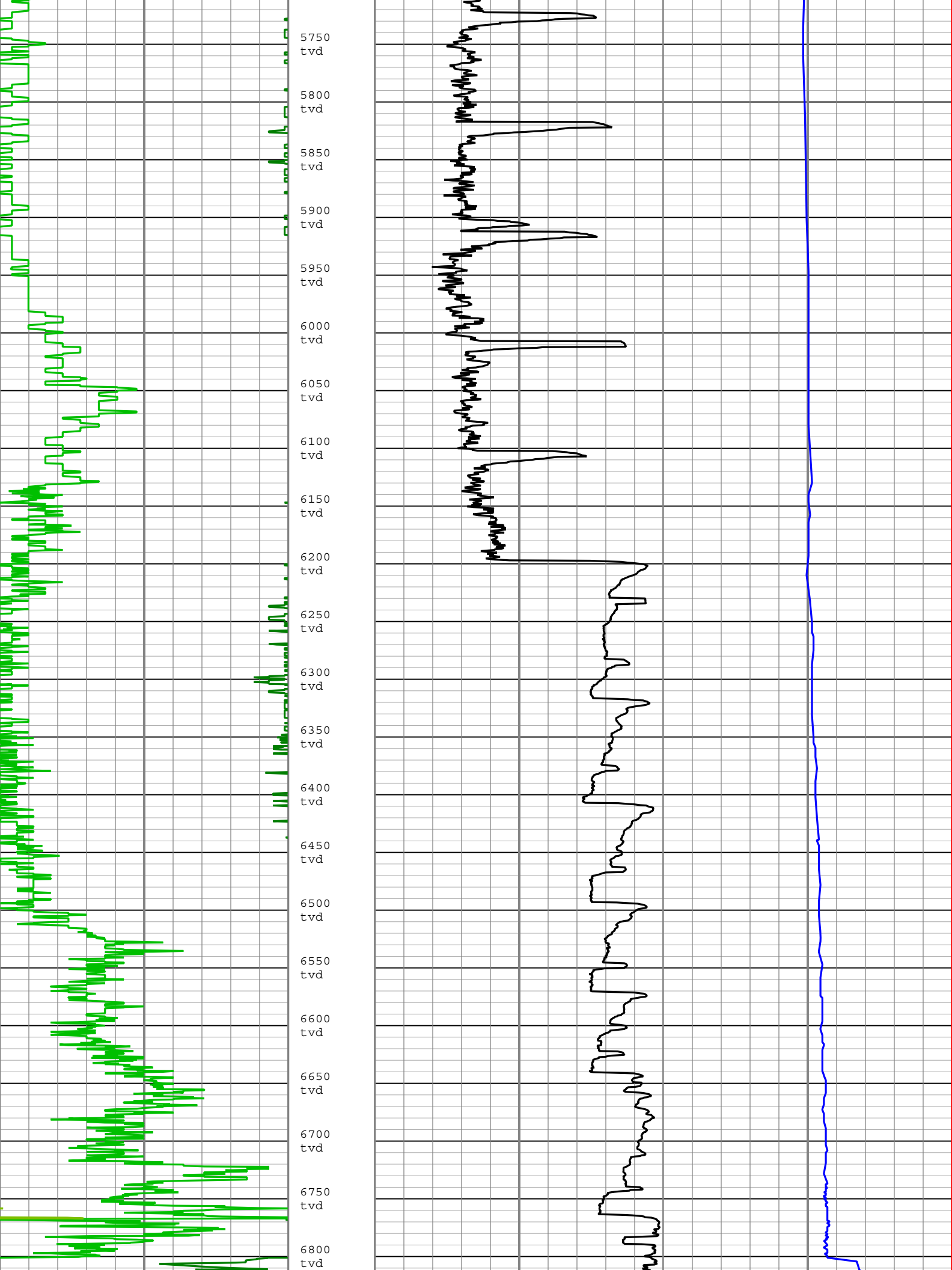
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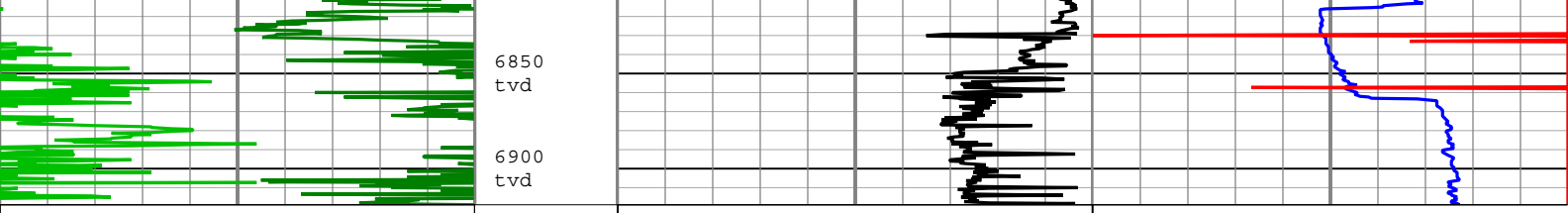


Gamma Ray (GR) SlimPulse[1] RM
0 gAPI 100

Gamma Ray (GR) SlimPulse[1] RM
100 gAPI 200

Gamma Ray (GR) SlimPulse[1] RM
200 gAPI 300

Gamma Ray (GR) SlimPulse[1] RM
300 gAPI 400

Rate of penetration averaged over the last 5 ft (1.5 m) (ROP5) RT
1000 ft/h 0

Tool Temperature (TTEM) SlimPulse[1] RM
0 degF 300

Shock Risk (SHKRSK) SlimPulse[1] RT
3 0

Description: SlimPulse Gamma Ray 1 Format: Log (Final TVD Log) Index Scale: 1 in per 100 ft Index Unit: ft Index Type: TVD Creation Date: 18-Nov-2014 08:50:42

Channel Processing Parameters

Run001: Parameters

Parameter	Description	Tool	Value	Unit
BS	Bit Size	DNMSESSION	Depth Zoned	in
DFD	Drilling Fluid Density	Borehole	Time Zoned	lbm/gal
GR_SRC	GR Source Selection	SPULSE-GEN	GAMMA_EXT	

Run001Depth Zoned Parameters

Parameter	Value	Start (ft)	Stop (ft)
BS	13.75	1156.05	1600.01
BS	8.75	1600.01	6831.4

All depth are actual.

Run001Time Zoned Parameters

Pass Drilling

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
DFD	8.9	08-Nov-2014 18:14:47	09-Nov-2014 02:30:00	1156	3458.75
DFD	9.3	09-Nov-2014 02:30:00	09-Nov-2014 14:00:00	3458.75	6427.58
DFD	10	09-Nov-2014 14:00:00	10-Nov-2014 02:00:00	6427.58	7066.67
DFD	10.5	10-Nov-2014 02:00:00	10-Nov-2014 16:42:40	7066.67	7169.92

All depth are at tool zero.

Run002: Parameters

Parameter	Description	Tool	Value	Unit
BS	Bit Size	DNMSESSION	Depth Zoned	in
DFD	Drilling Fluid Density	Borehole	Time Zoned	lbm/gal
GR_SRC	GR Source Selection	SPULSE-GEN	GAMMA_EXT	

Run002Depth Zoned Parameters

Parameter	Value	Start (ft)	Stop (ft)
BS	8.75	6771.78	6831.5
BS	6.125	6831.5	6919.33

All depth are actual.

Run002Time Zoned Parameters

Pass Drilling

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
DFD	9.3	13-Nov-2014 07:18:30	14-Nov-2014 13:00:00	7169	9561.33
DFD	9.55	14-Nov-2014 13:00:00	15-Nov-2014 02:30:00	9561.33	10983
DFD	9.5	15-Nov-2014 02:30:00	15-Nov-2014 13:30:00	10983	12040.33
DFD	9.4	15-Nov-2014 13:30:00	16-Nov-2014 02:30:00	12040.33	13086.75
DFD	9.5	16-Nov-2014 02:30:00	17-Nov-2014 07:11:26	13086.75	14445.25

Pass Ream Down 1

DFD	9.3	13-Nov-2014 12:13:59	13-Nov-2014 15:15:09	7067.75	7169.57

All depth are at tool zero.

Tool Control Parameters

Well Composite

Software Version

Acquisition System	Version
MaxWell	4.0.9163.3000
Application Patch	Patch-SP-10767_26570-4.0.9163.3001
	Patch-Hotfix_MRT_SP4-27464-4.0.9575.3002

Tool Elements	Description	Software Version	Firmware Version
DRILLING_SURFACE	DRILLING_SURFACE	4.0.9469.3000	
SPEC	SlimPulse Electronics Cartridge	4.0.9469.3000	

Composite Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	Include Parallel Data
Run001	Drilling	Down	1156.00 ft	7169.92 ft	08-Nov-2014 6:14:47 PM	10-Nov-2014 4:42:40 PM	No
Run002	Drilling	Down	7169.00 ft	14445.25 ft	13-Nov-2014 7:18:30 AM	17-Nov-2014 7:11:26 AM	No
Run002	Ream Down 1	Down	7067.75 ft	7170.00 ft	13-Nov-2014 12:12:04 PM	13-Nov-2014 3:15:09 PM	No

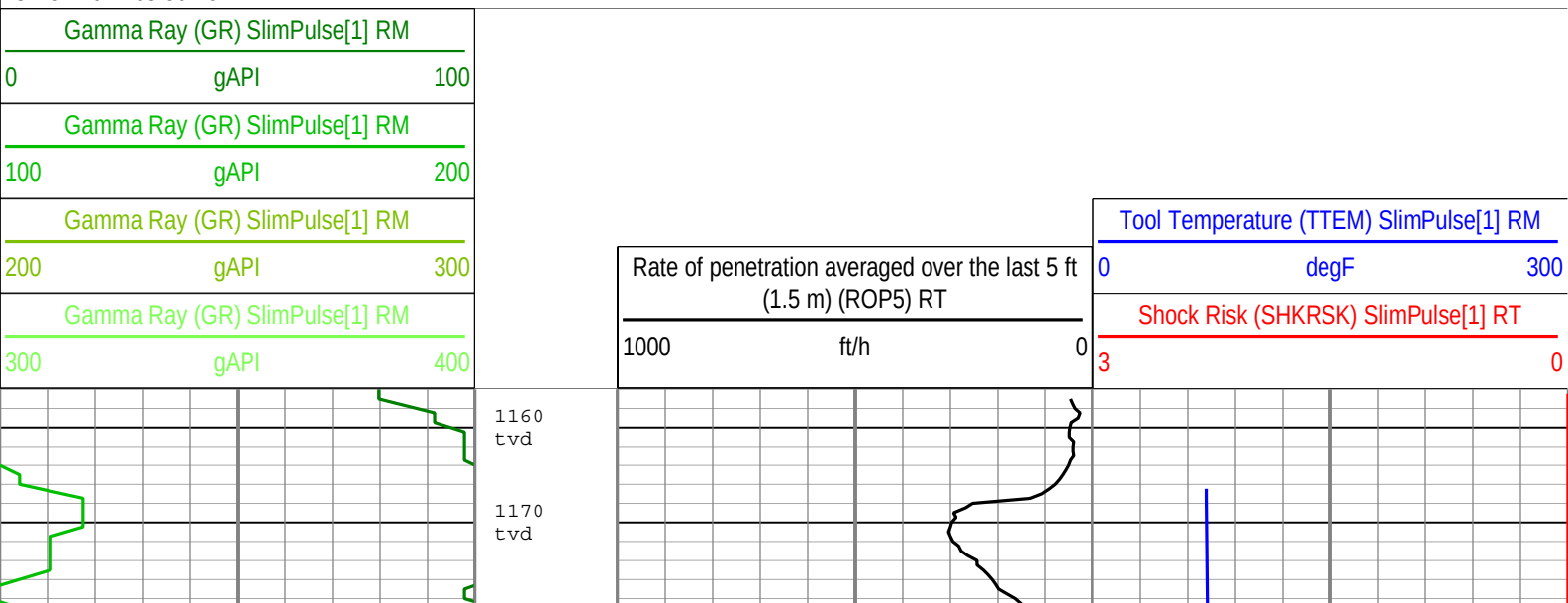
All depths are referenced to toolstring zero

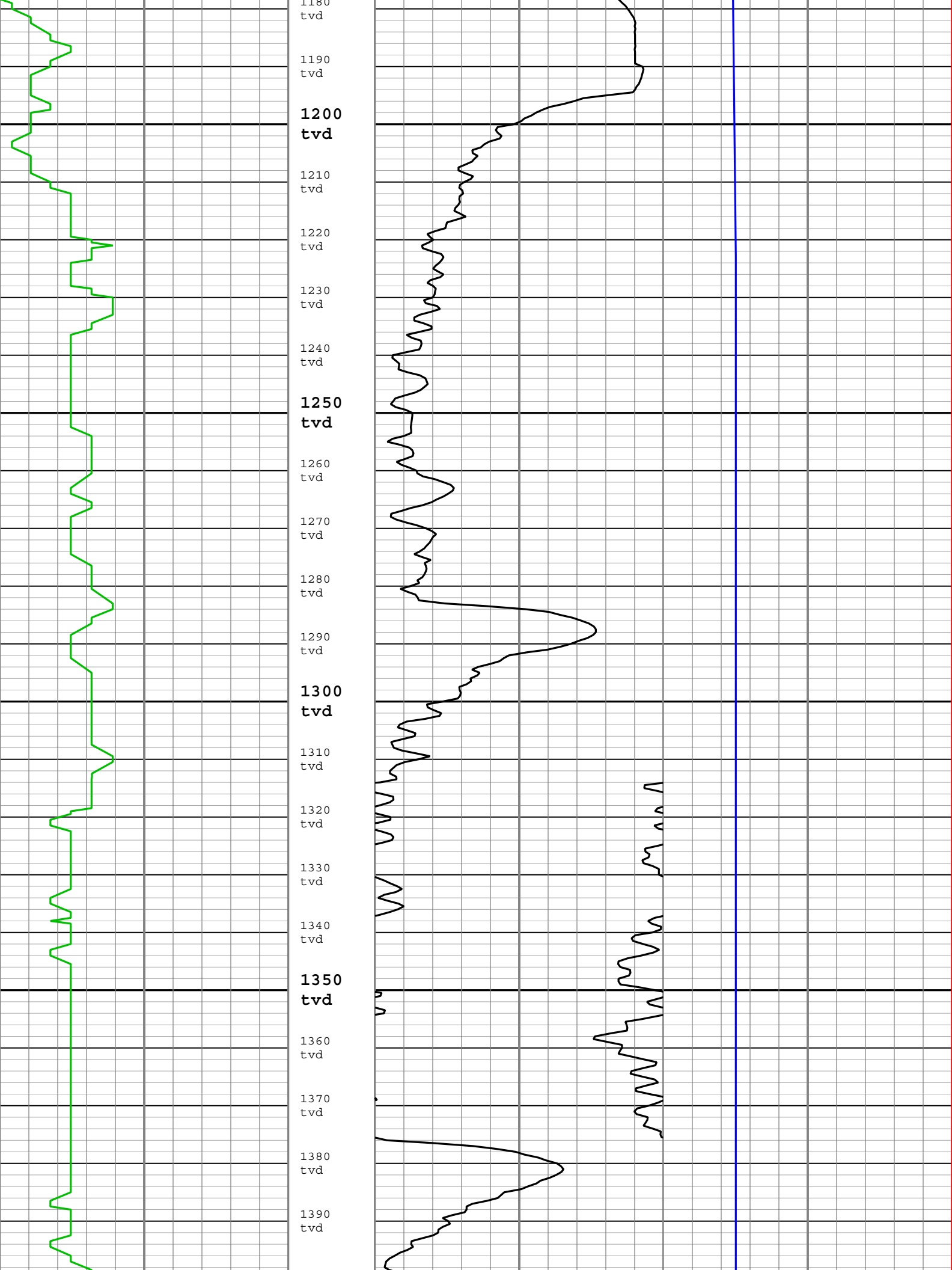
Log

Company:Noble Energy Well:Oscar Y10-72HN

Well Composite:S308

Description: SlimPulse Gamma Ray 1 Format: Log (Final TVD Log) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: TVD Creation Date: 18-Nov-2014 08:50:46

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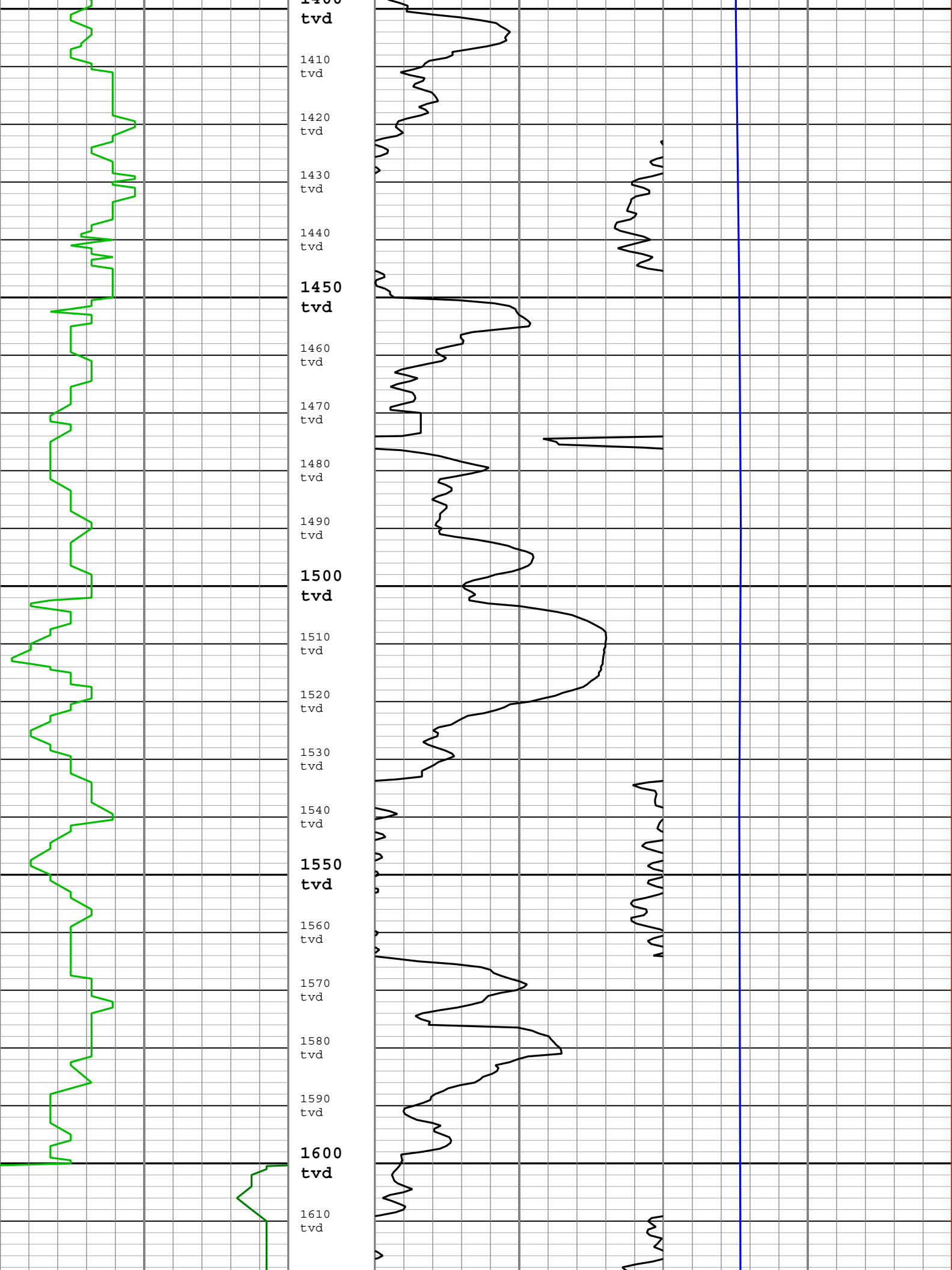
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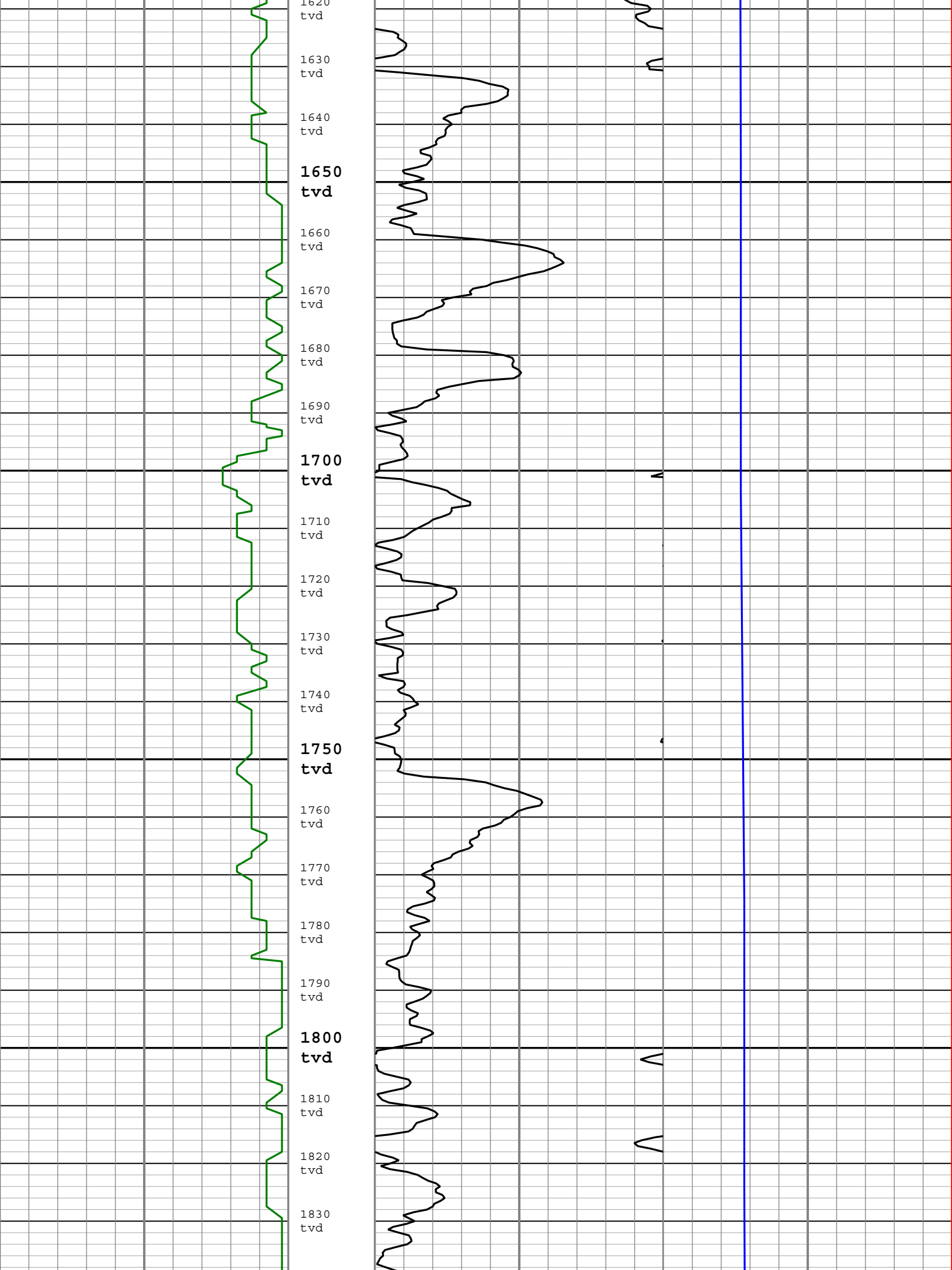
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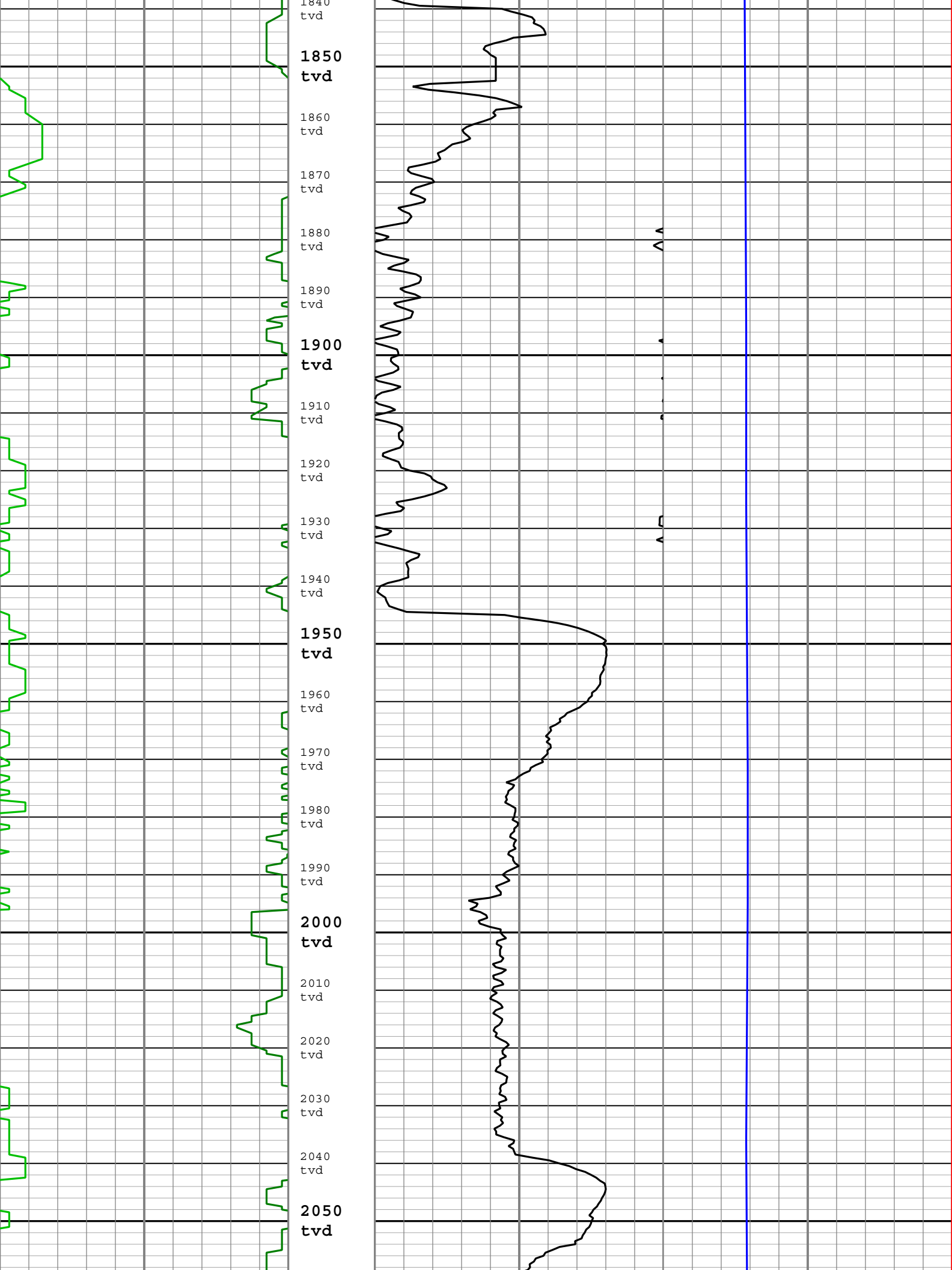
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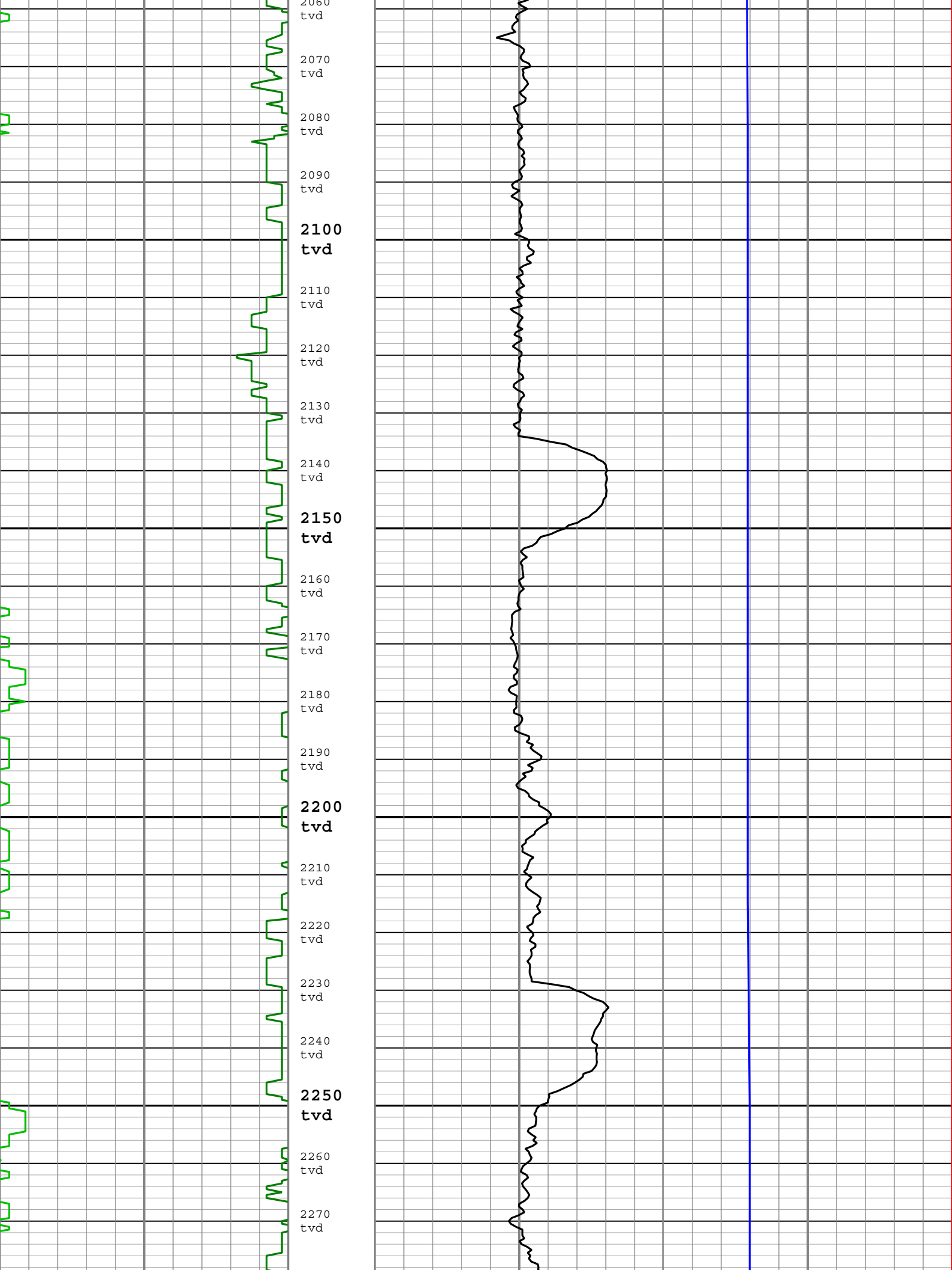
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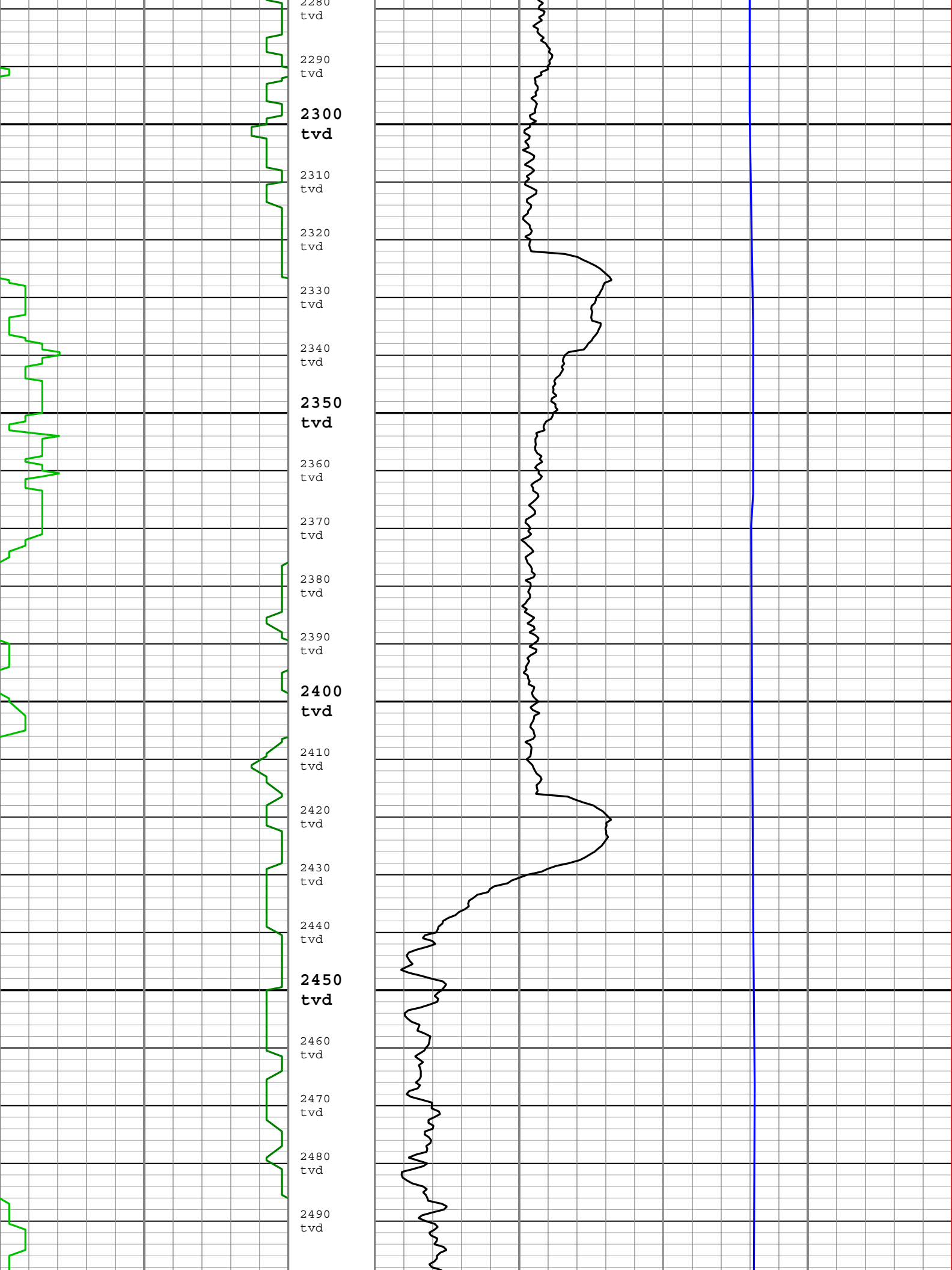
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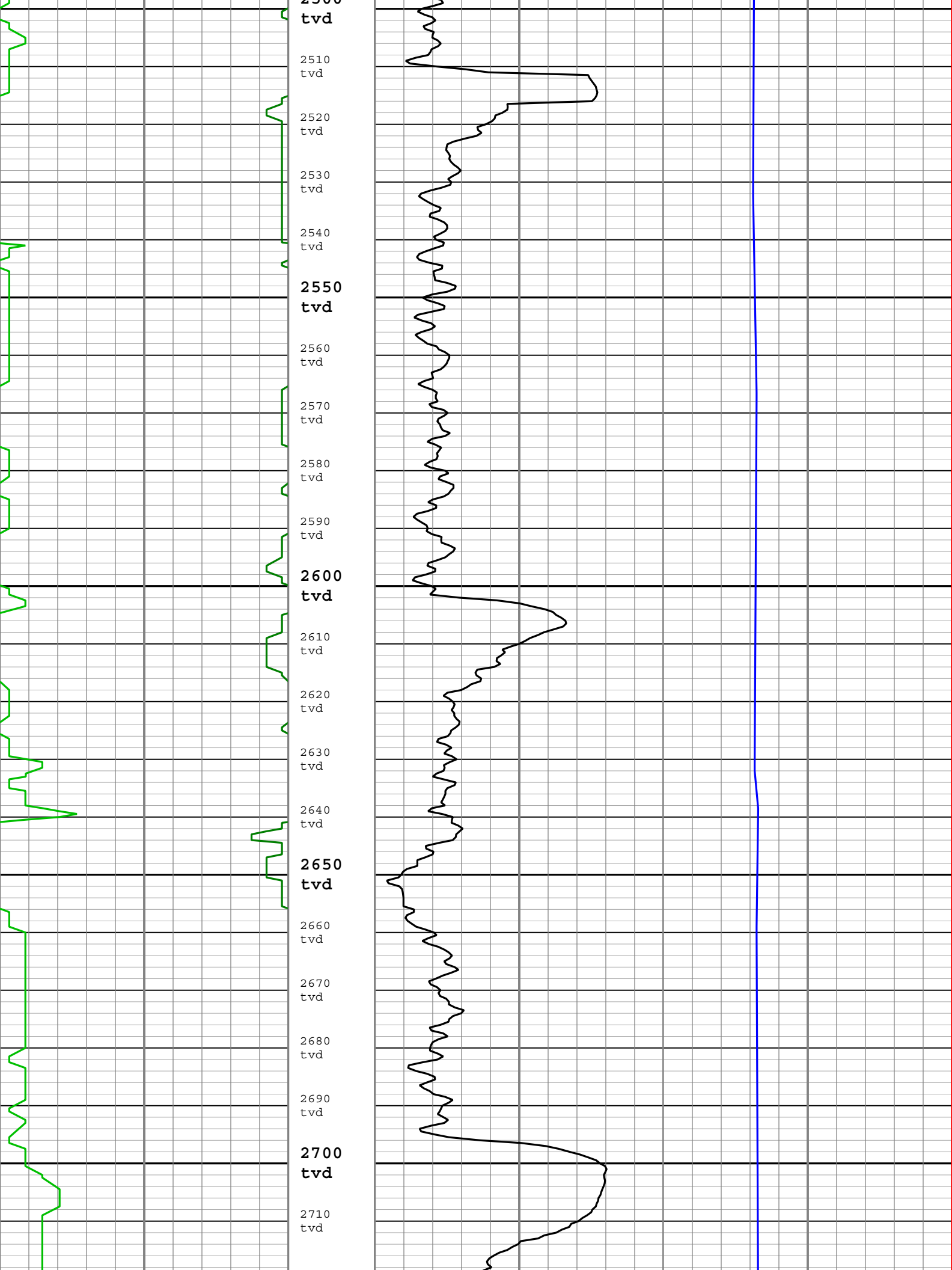
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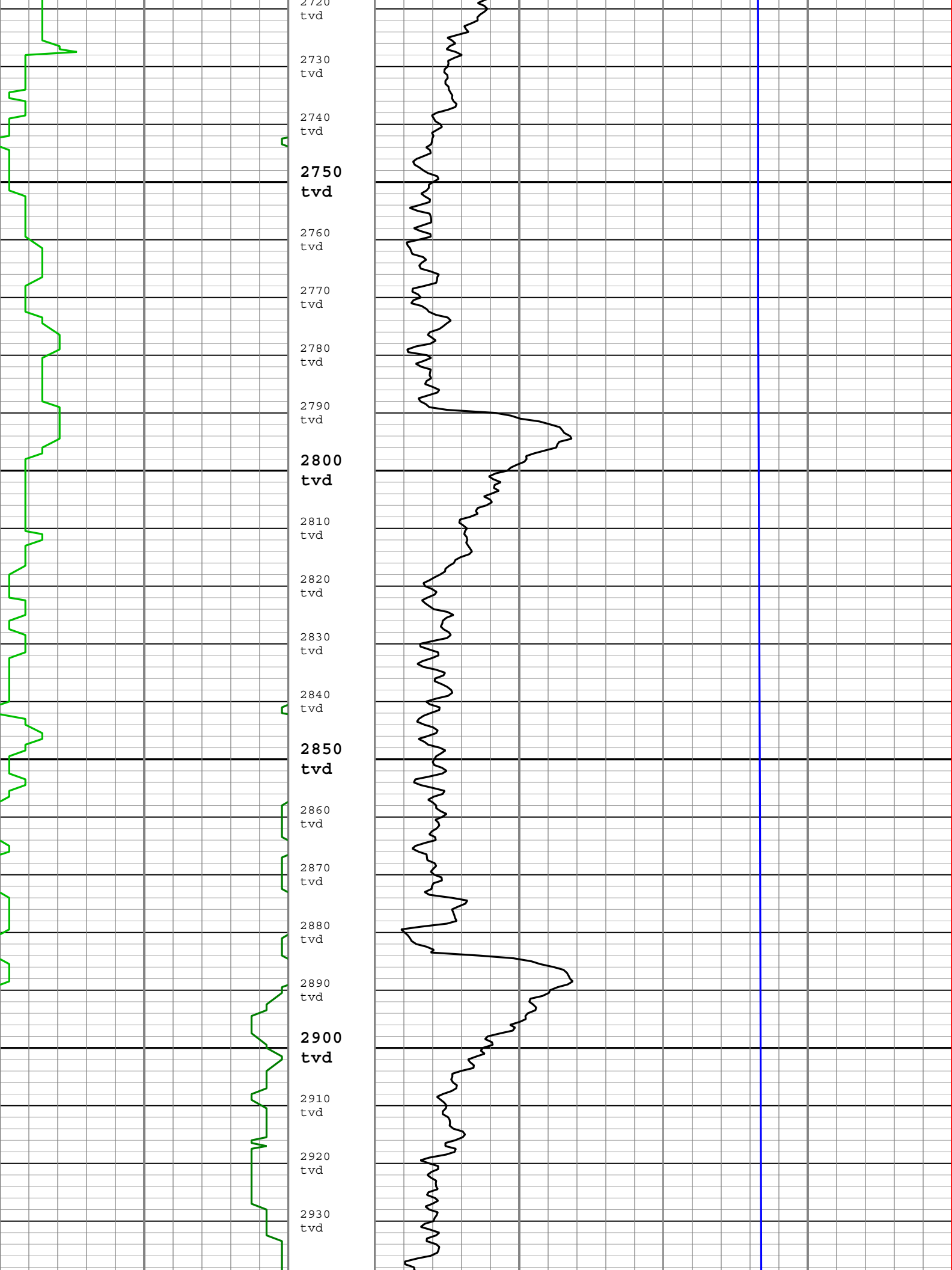
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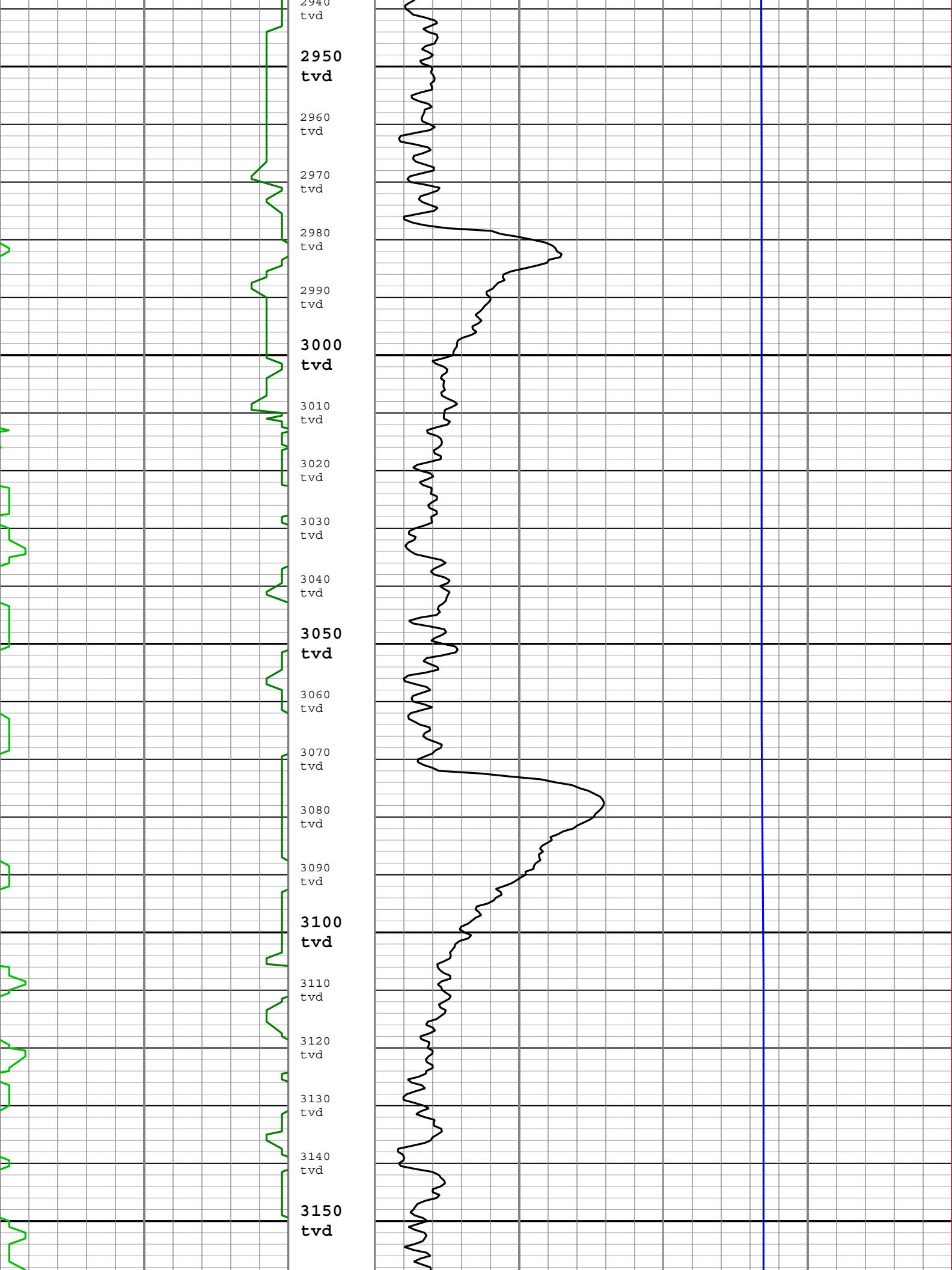
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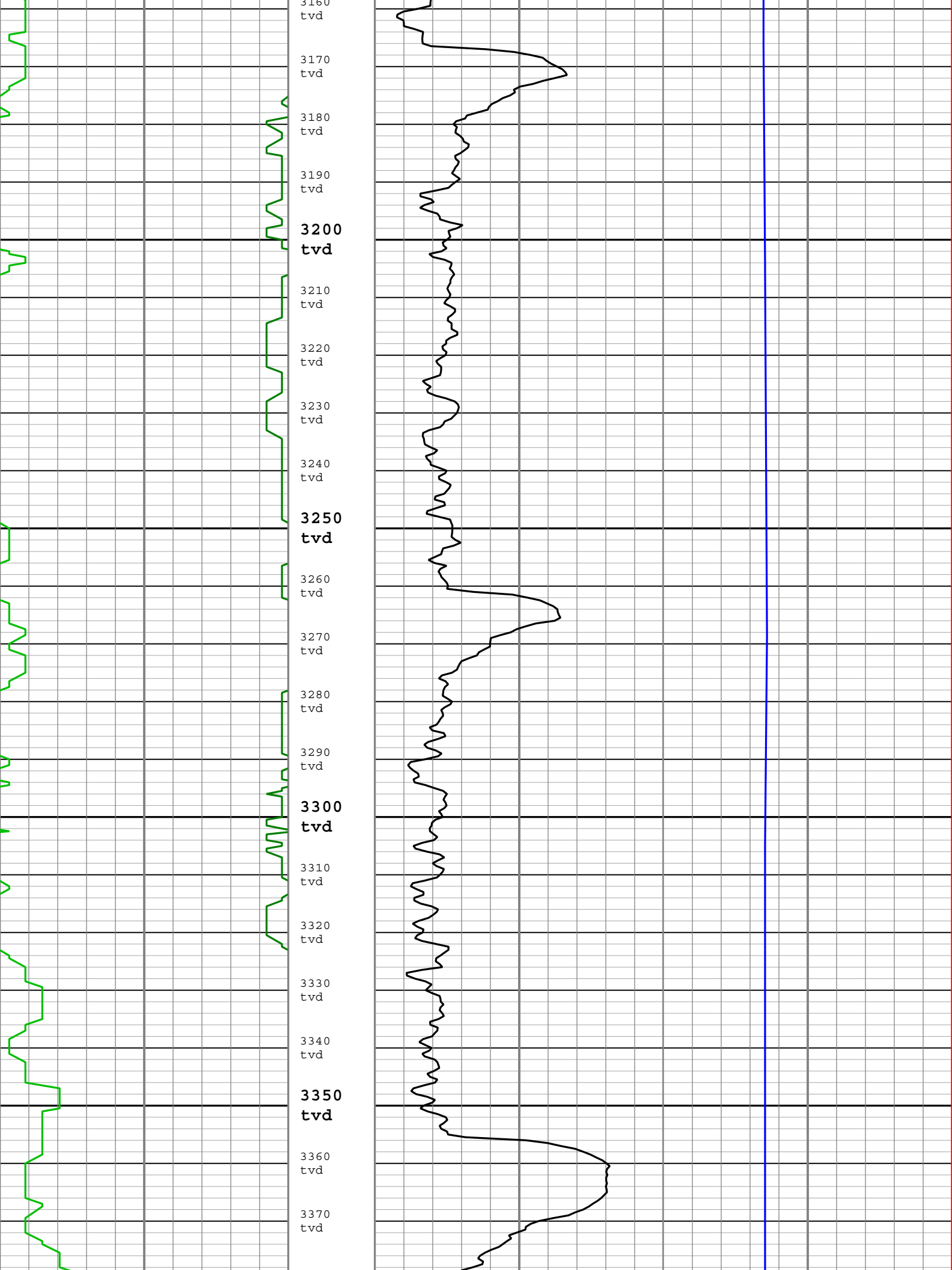
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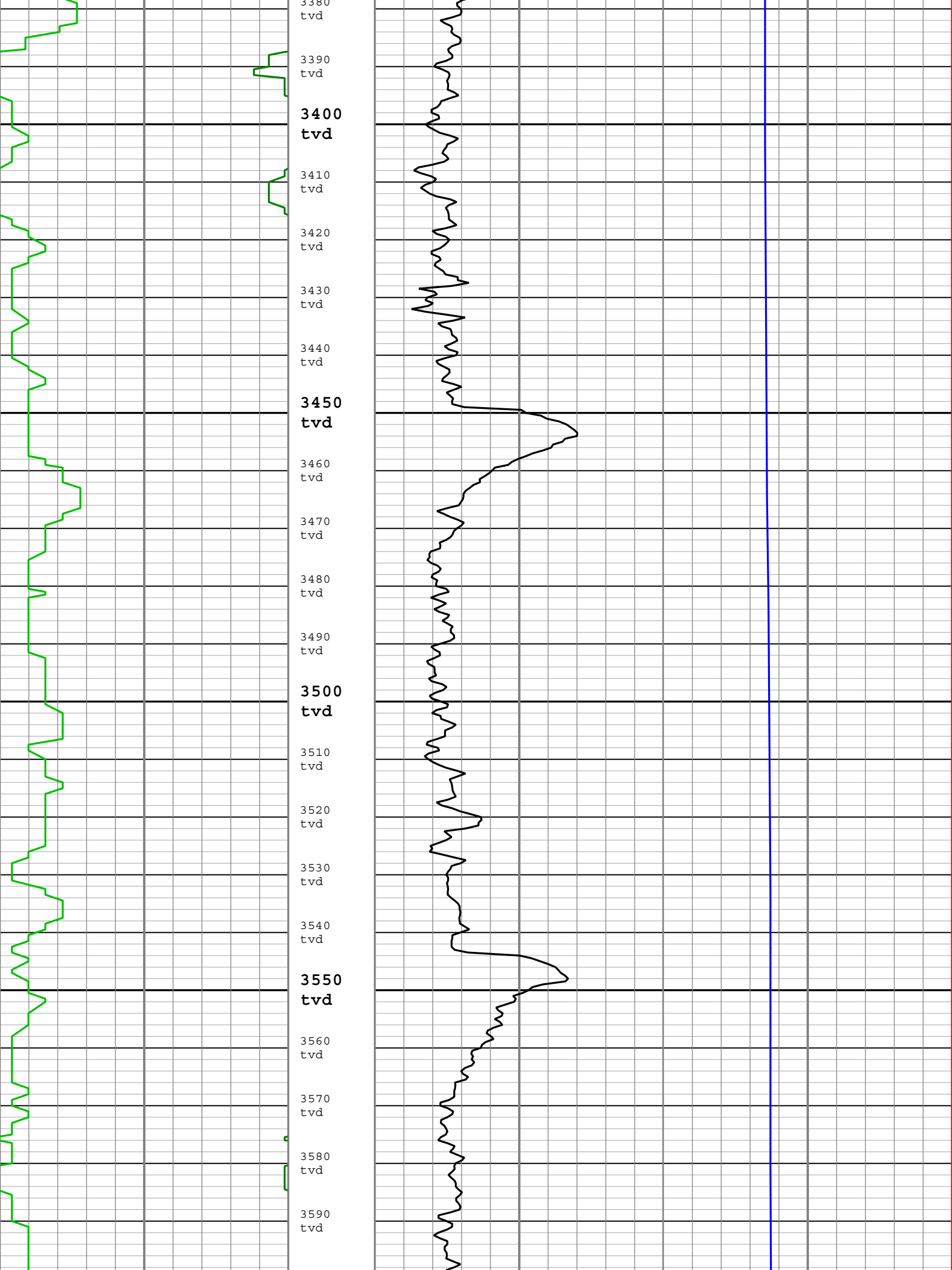
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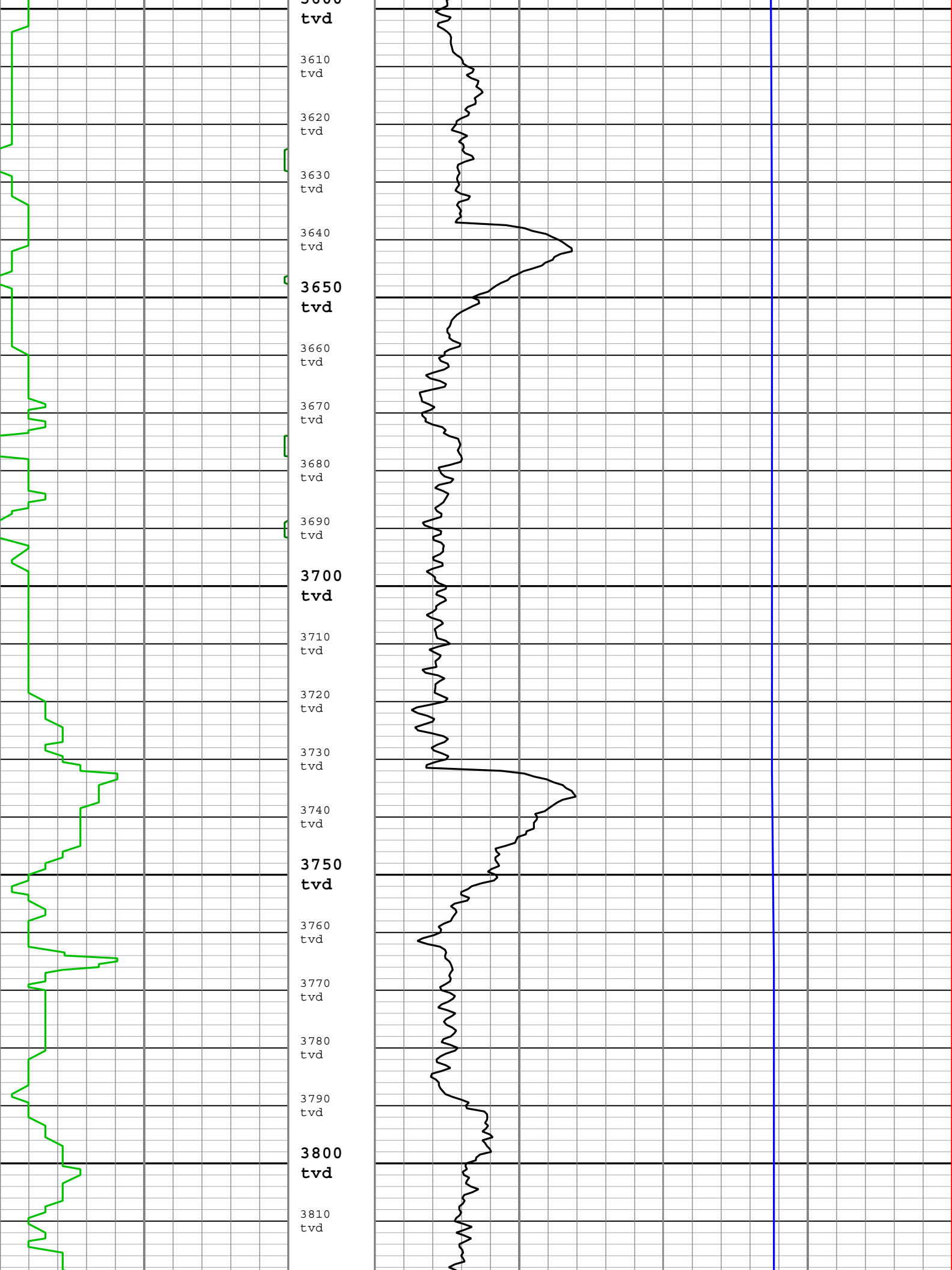
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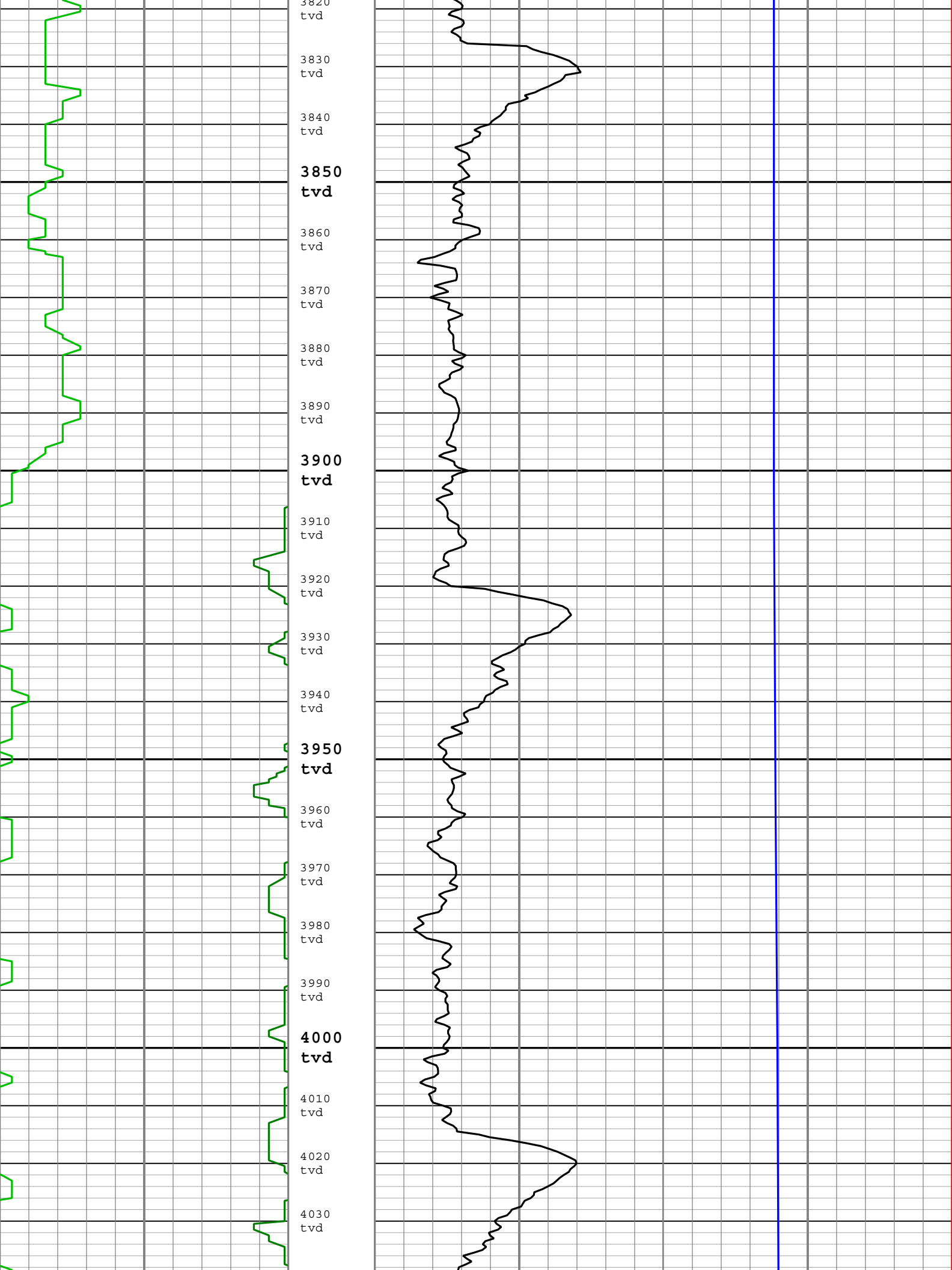
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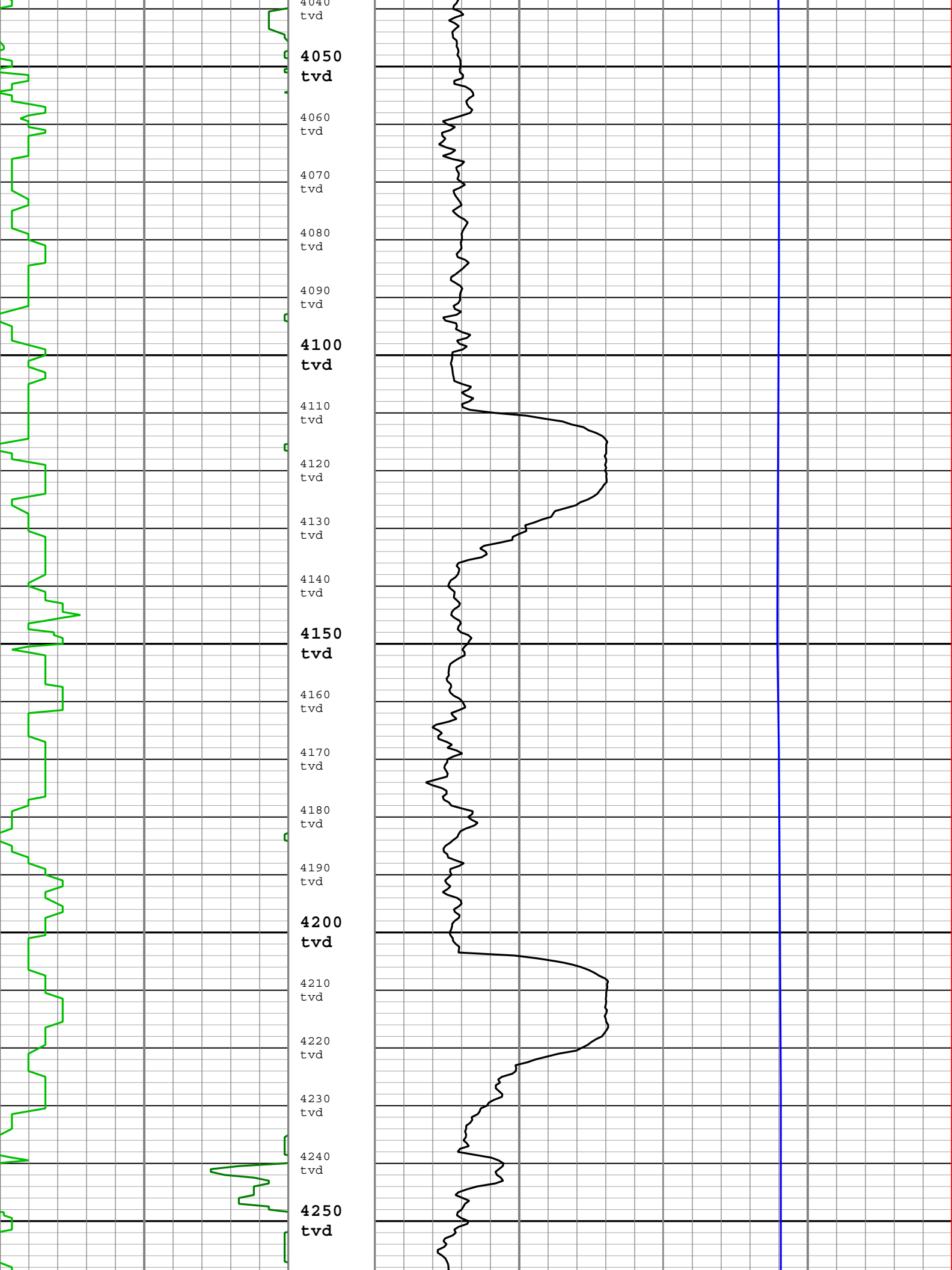
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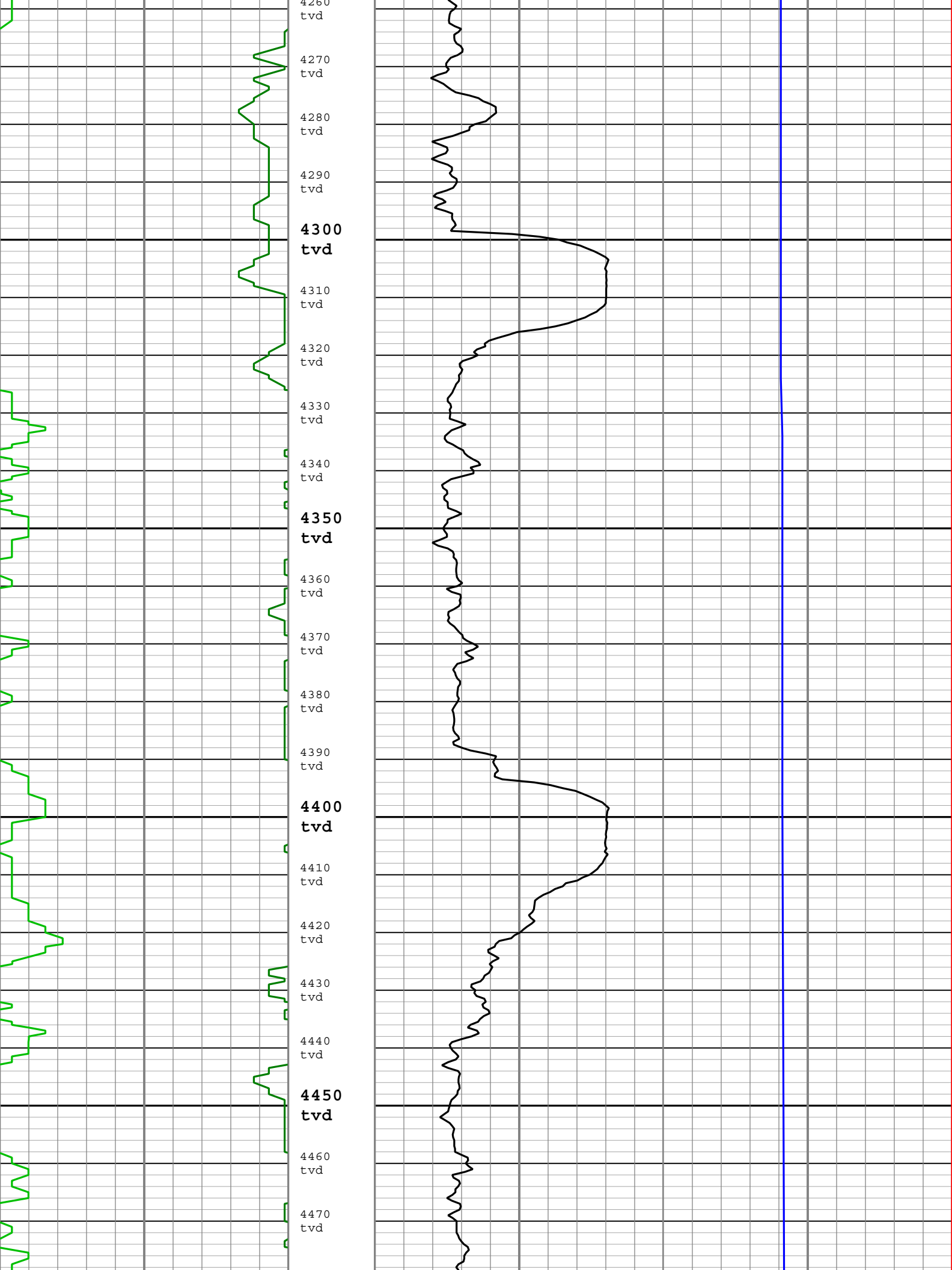
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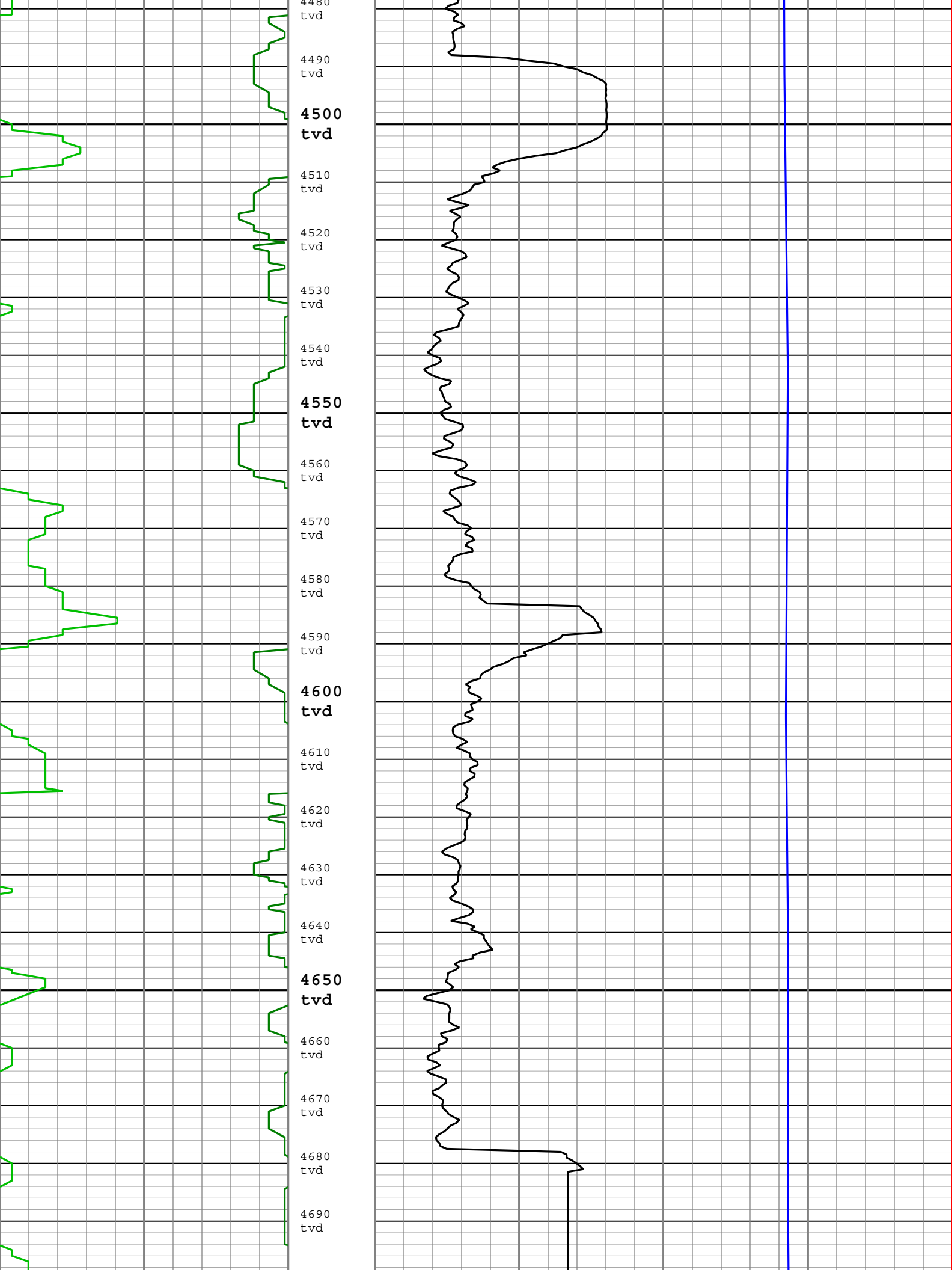
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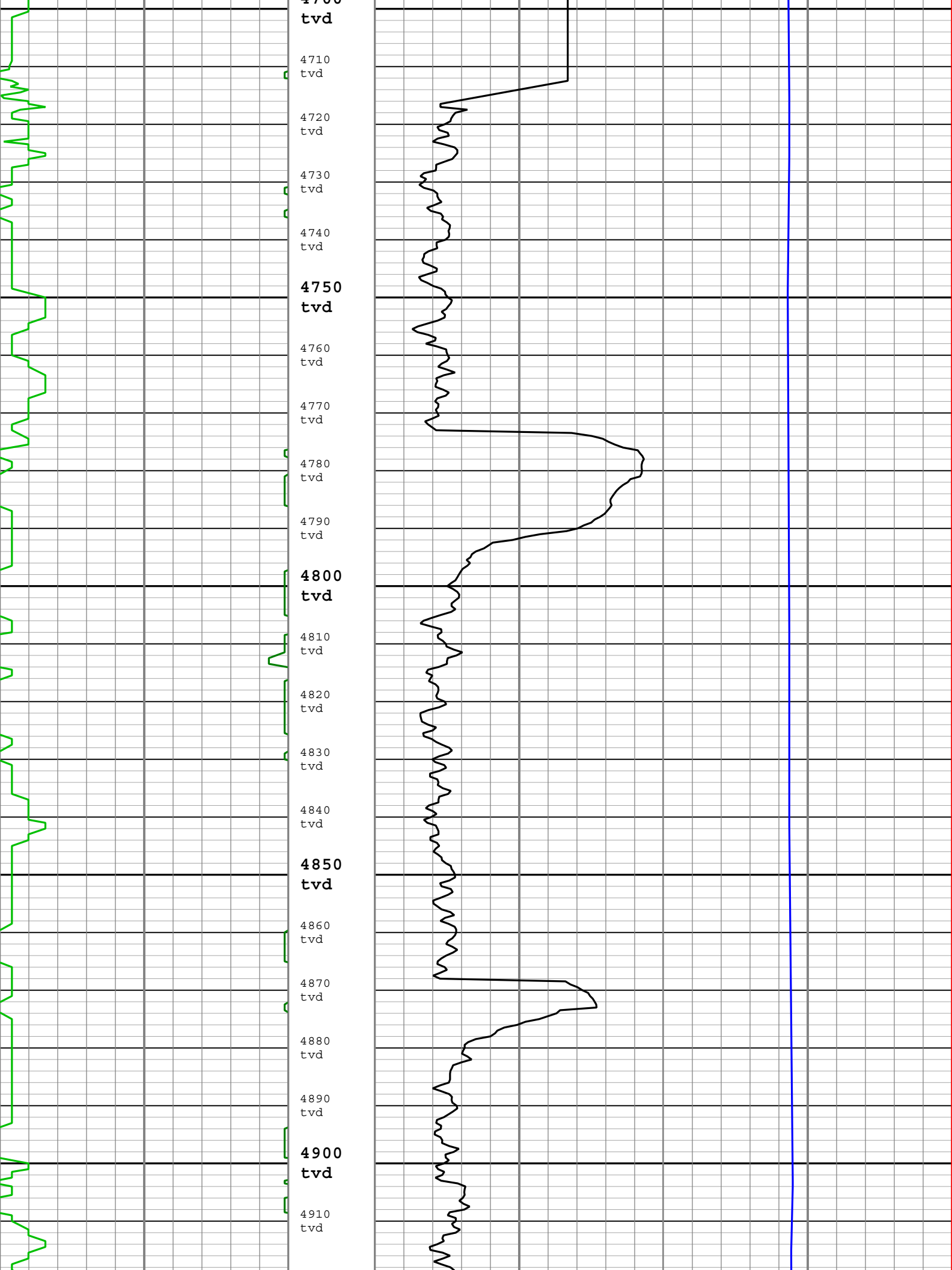
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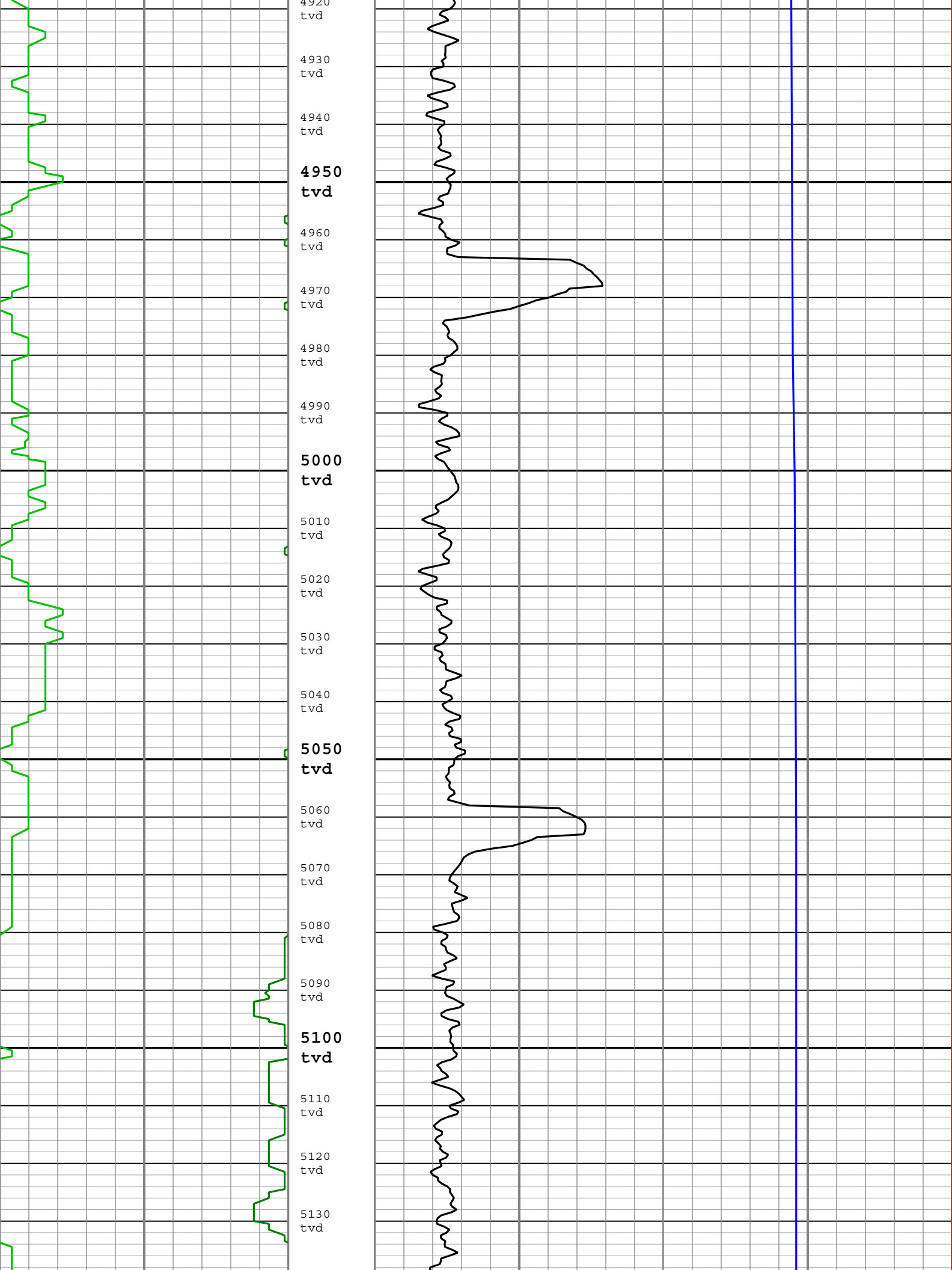
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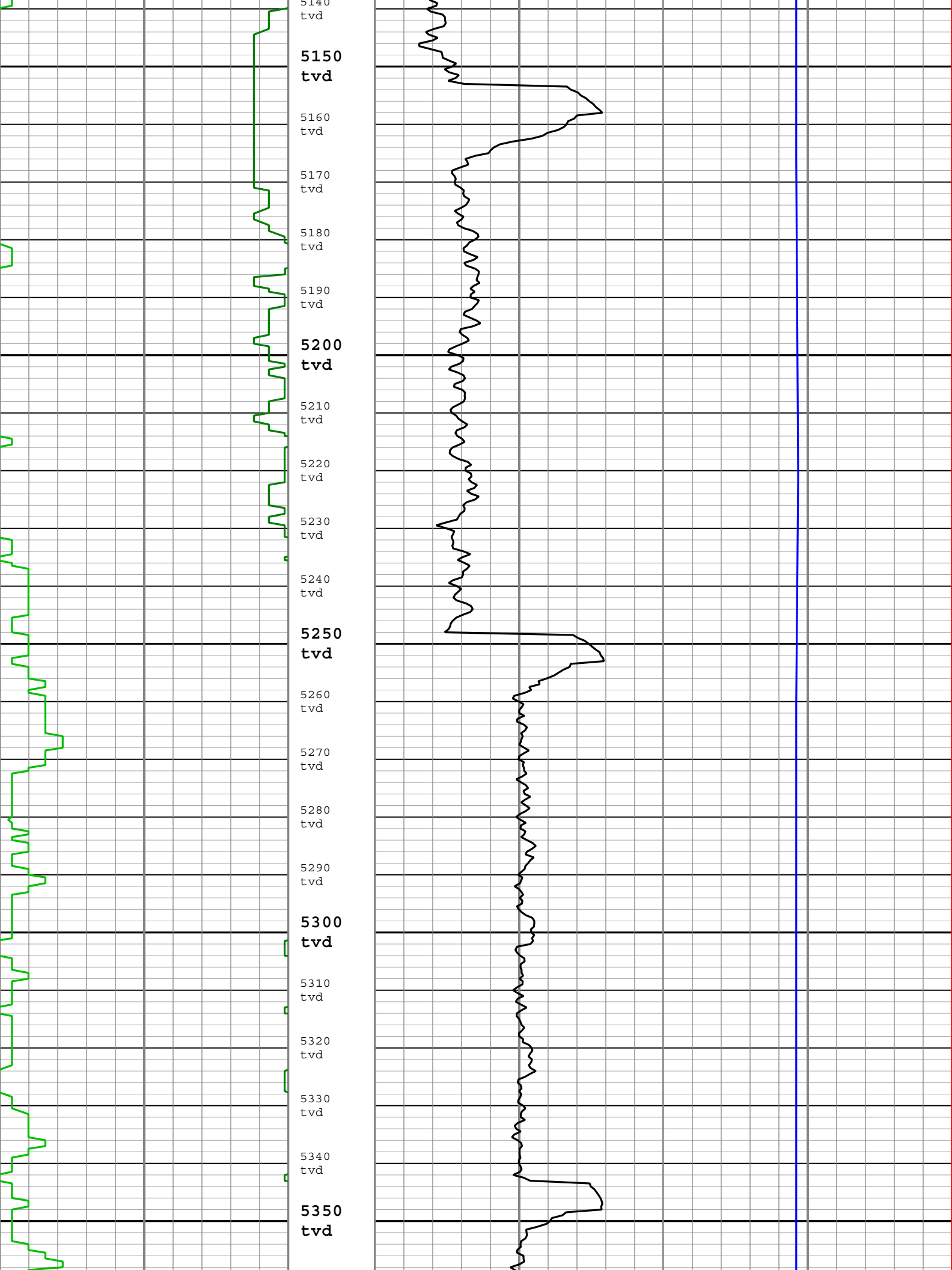
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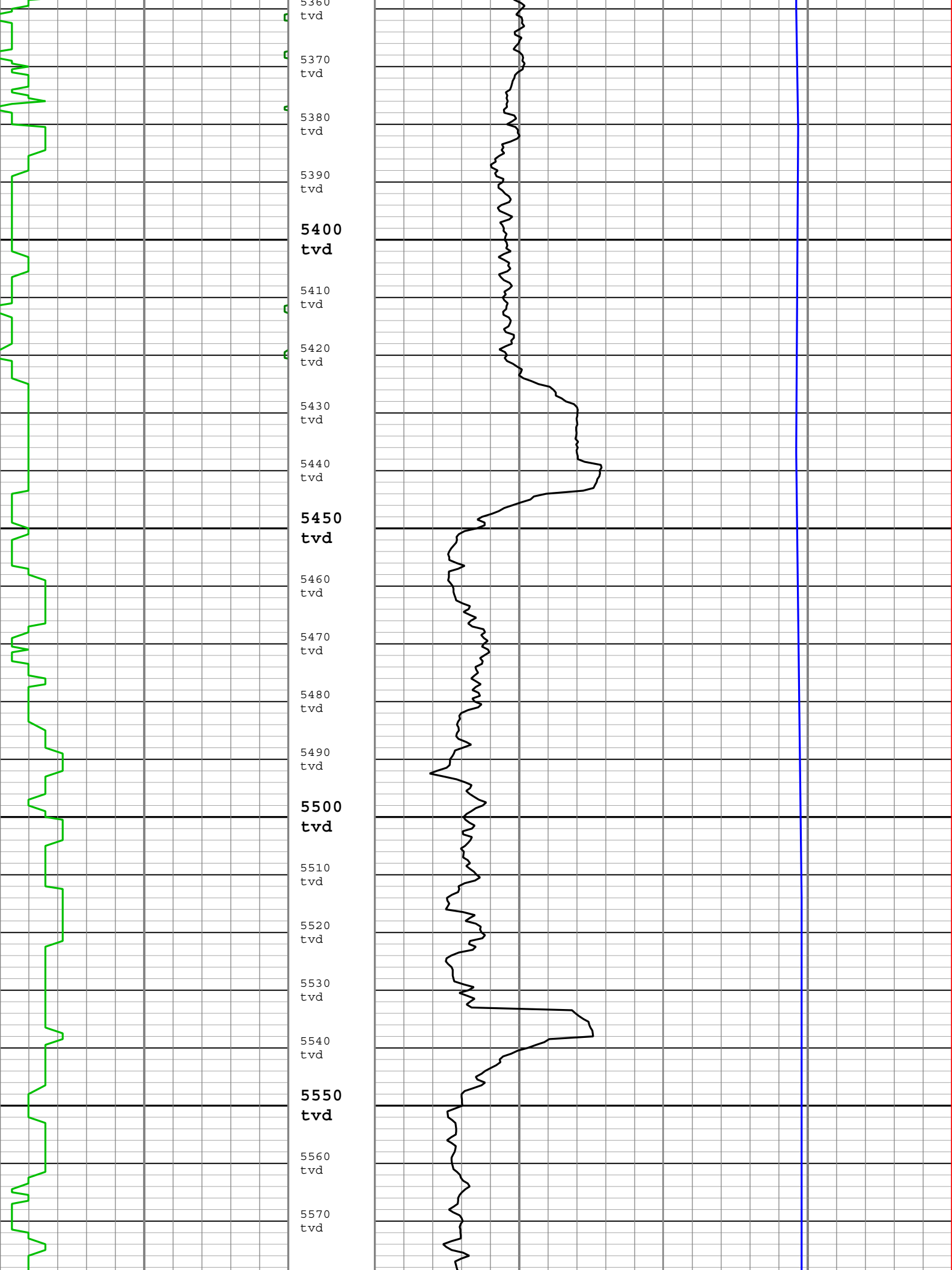
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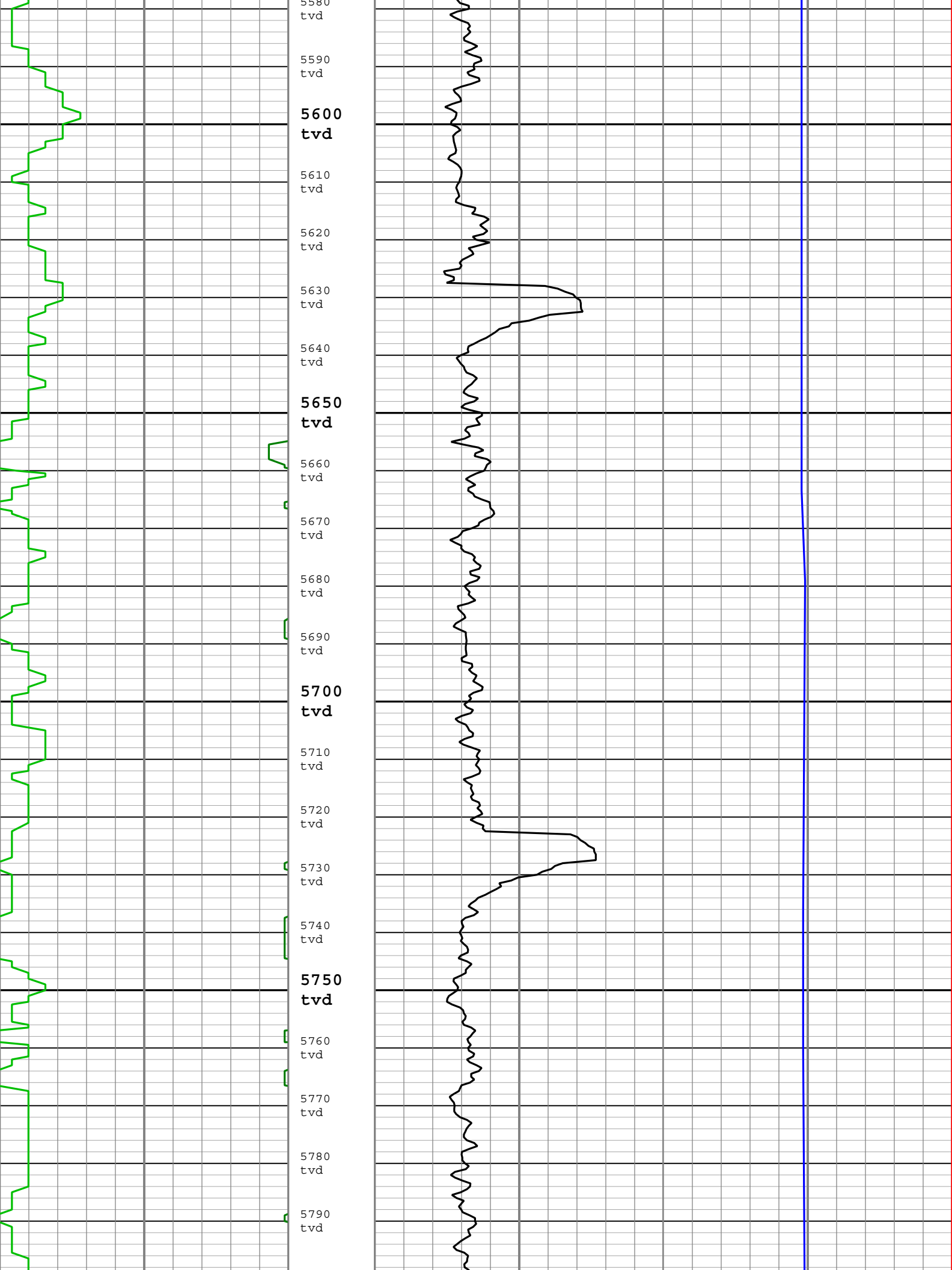
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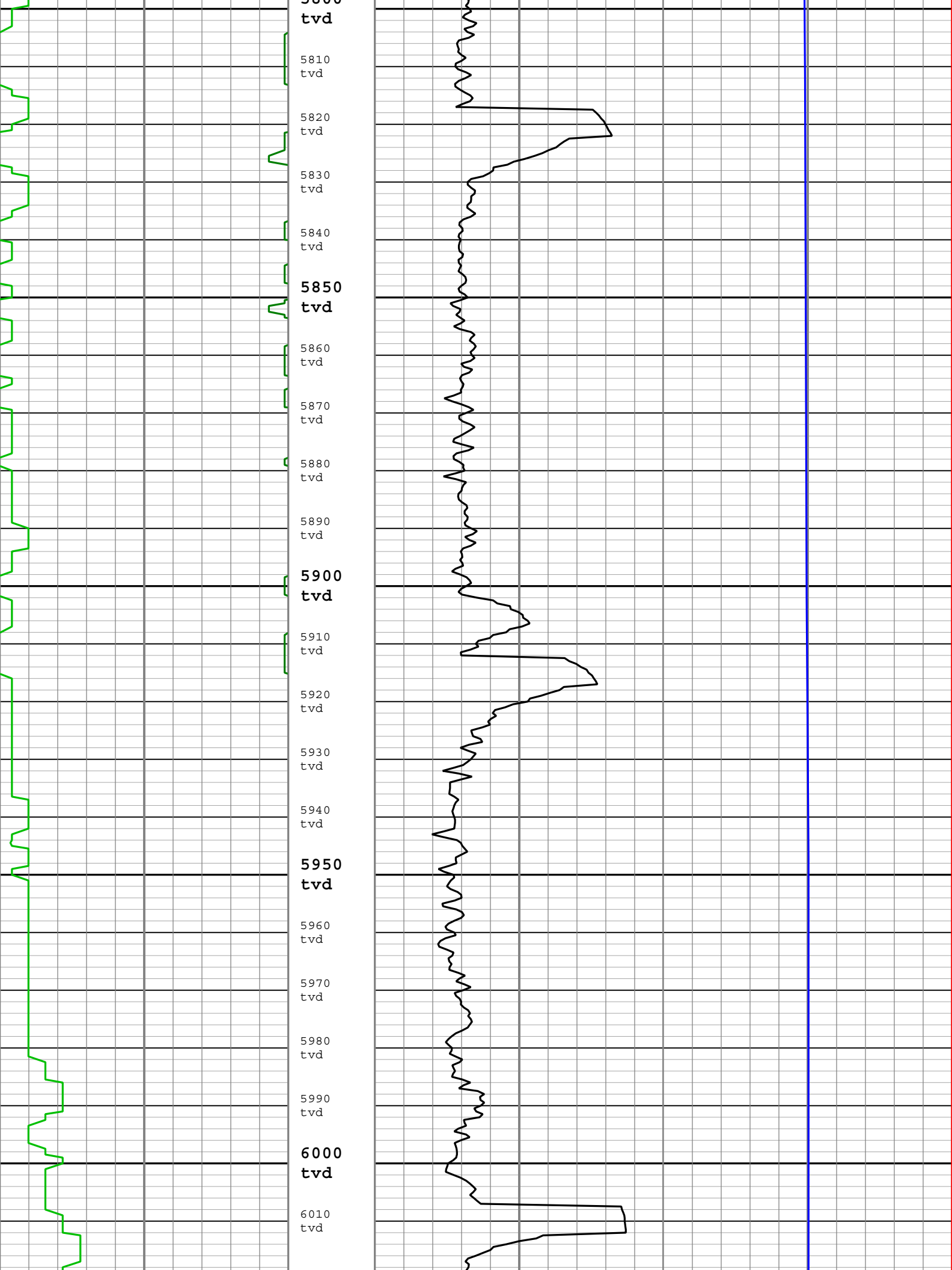
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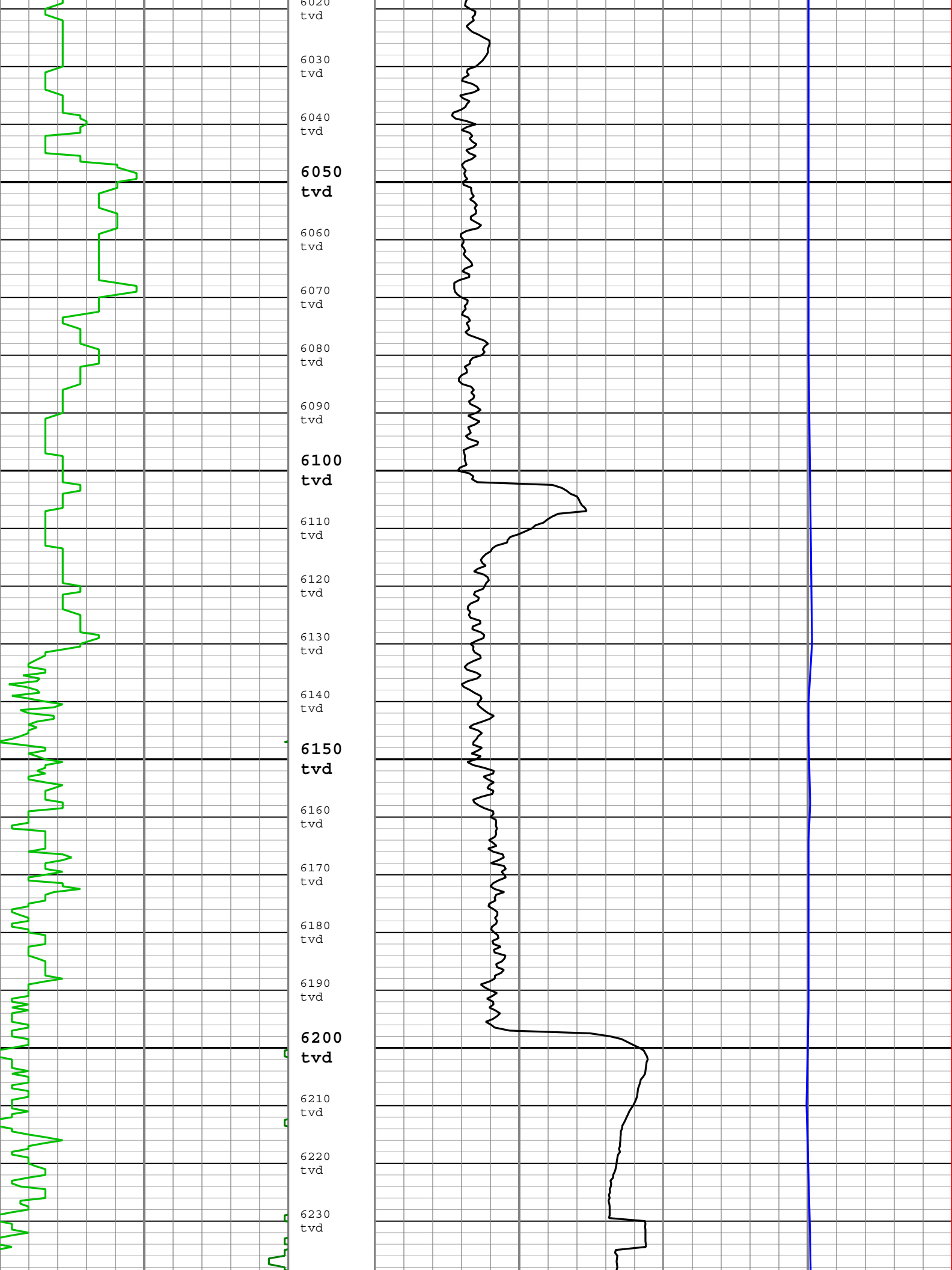
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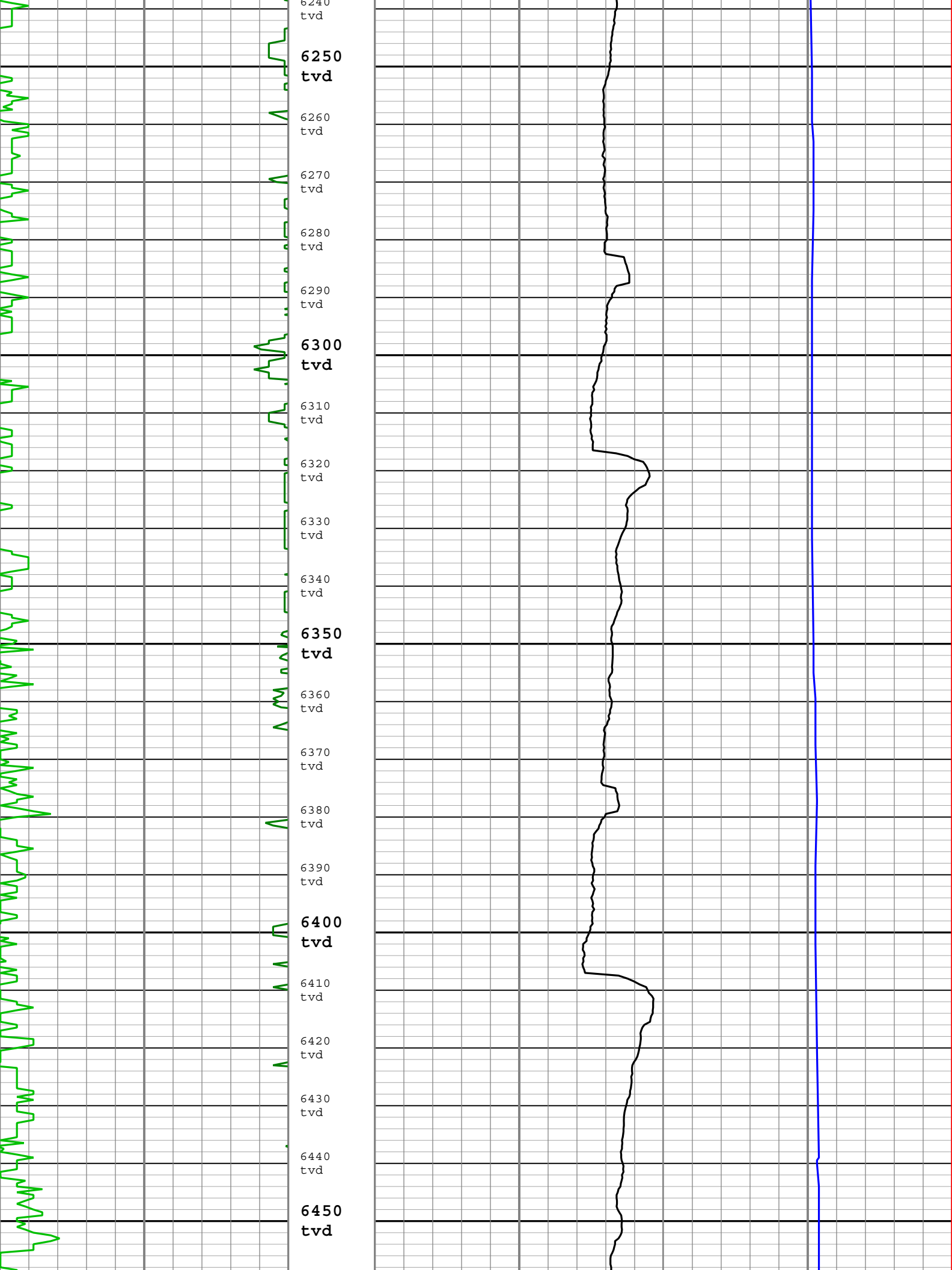
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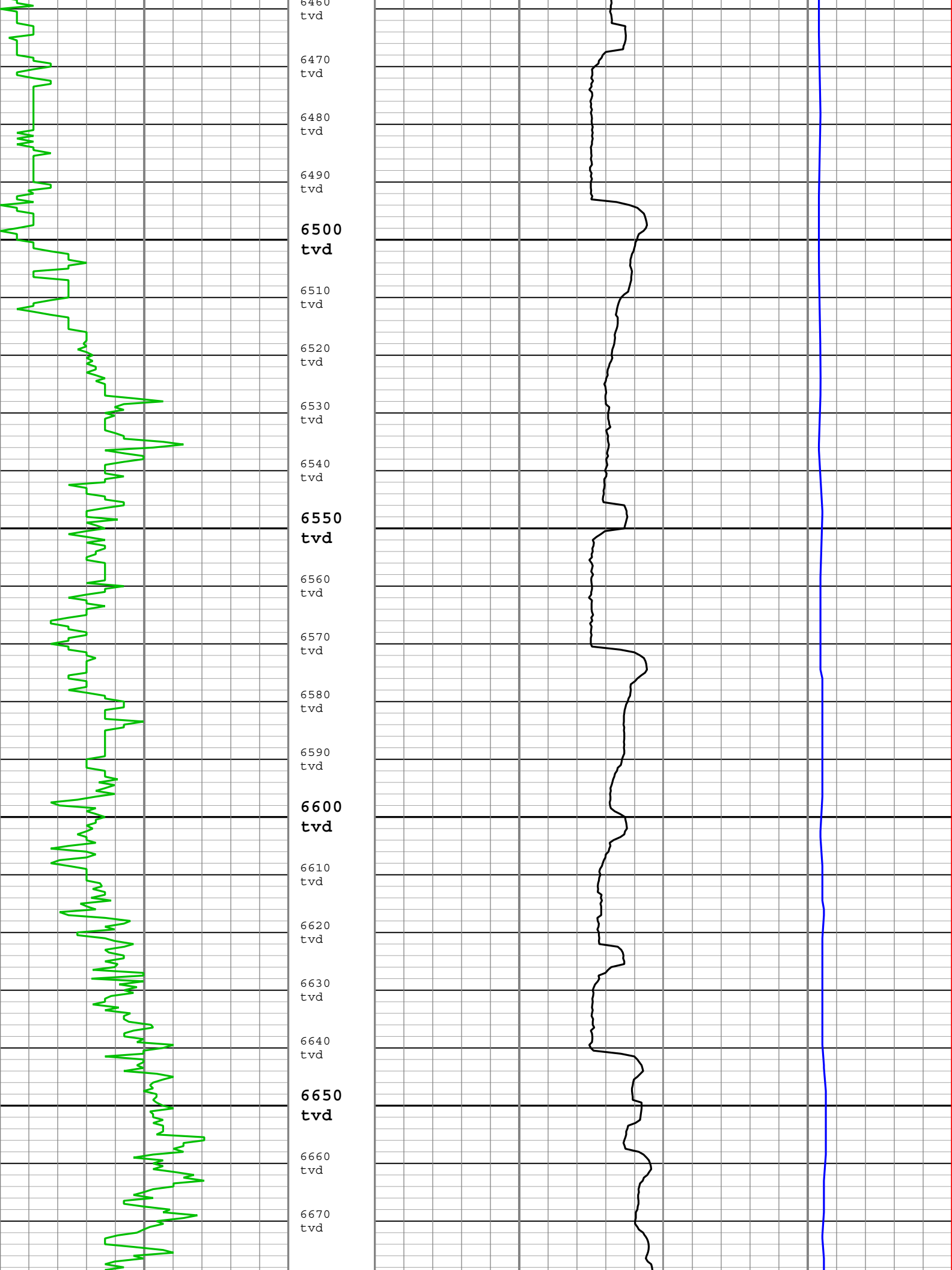
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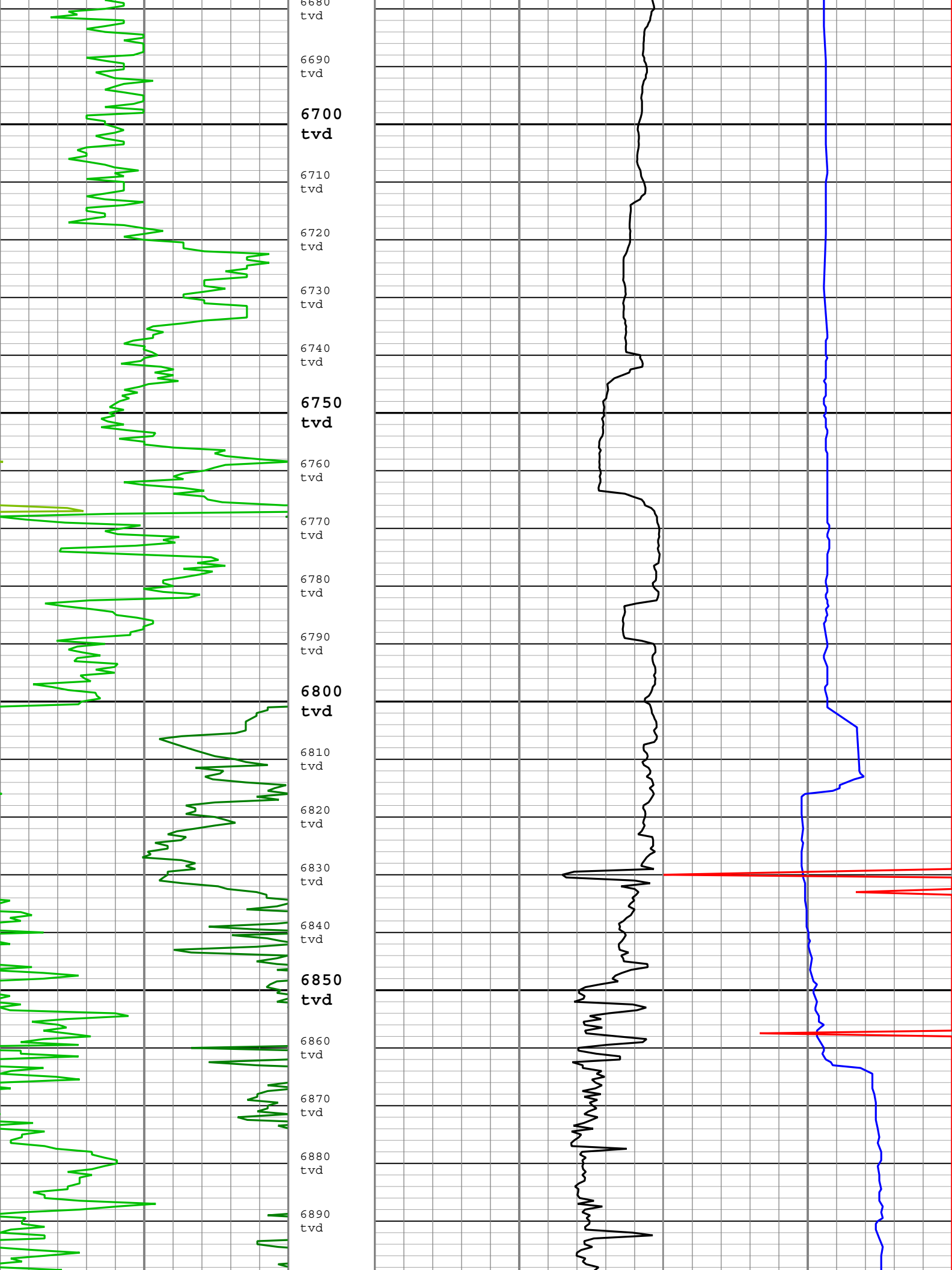
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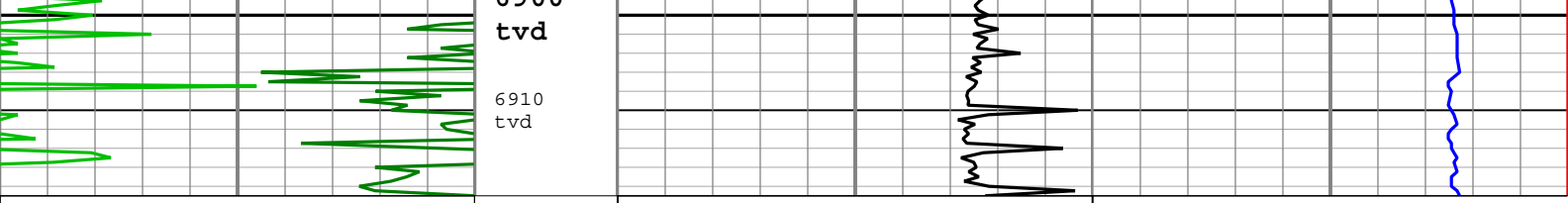

Gamma Ray (GR) SlimPulse[1] RM
0 gAPI 100

Gamma Ray (GR) SlimPulse[1] RM
100 gAPI 200

Gamma Ray (GR) SlimPulse[1] RM
200 gAPI 300

Gamma Ray (GR) SlimPulse[1] RM
300 gAPI 400

Rate of penetration averaged over the last 5 ft (1.5 m) (ROP5) RT
1000 ft/h 0

Tool Temperature (TTEM) SlimPulse[1] RM
0 degF 300

Shock Risk (SHKRSK) SlimPulse[1] RT
3 0

Description: SlimPulse Gamma Ray 1 Format: Log (Final TVD Log) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: TVD Creation Date: 18-Nov-2014 08:50:46

Channel Processing Parameters

Run001: Parameters

Parameter	Description	Tool	Value	Unit
BS	Bit Size	DNMSESSION	Depth Zoned	in
DFD	Drilling Fluid Density	Borehole	Time Zoned	lbm/gal
GR_SRC	GR Source Selection	SPULSE-GEN	GAMMA_EXT	

Run001Depth Zoned Parameters

Parameter	Value	Start (ft)	Stop (ft)
BS	13.75	1156.05	1600.01
BS	8.75	1600.01	6831.4

All depth are actual.

Run001Time Zoned Parameters

Pass Drilling

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
DFD	8.9	08-Nov-2014 18:14:47	09-Nov-2014 02:30:00	1156	3458.75
DFD	9.3	09-Nov-2014 02:30:00	09-Nov-2014 14:00:00	3458.75	6427.58
DFD	10	09-Nov-2014 14:00:00	10-Nov-2014 02:00:00	6427.58	7066.67
DFD	10.5	10-Nov-2014 02:00:00	10-Nov-2014 16:42:40	7066.67	7169.92

All depth are at tool zero.

Run002: Parameters

Parameter	Description	Tool	Value	Unit
BS	Bit Size	DNMSESSION	Depth Zoned	in
DFD	Drilling Fluid Density	Borehole	Time Zoned	lbm/gal
GR_SRC	GR Source Selection	SPULSE-GEN	GAMMA_EXT	

Run002Depth Zoned Parameters

Parameter	Value	Start (ft)	Stop (ft)
BS	8.75	6771.78	6831.5
BS	6.125	6831.5	6919.33

All depth are actual.

Run002Time Zoned Parameters

Pass Drilling

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
DFD	9.3	13-Nov-2014 07:18:30	14-Nov-2014 13:00:00	7169	9561.33
DFD	9.55	14-Nov-2014 13:00:00	15-Nov-2014 02:30:00	9561.33	10983
DFD	9.5	15-Nov-2014 02:30:00	15-Nov-2014 13:30:00	10983	12040.33
DFD	9.4	15-Nov-2014 13:30:00	16-Nov-2014 02:30:00	12040.33	13086.75
DFD	9.5	16-Nov-2014 02:30:00	17-Nov-2014 07:11:26	13086.75	14445.25

Pass Ream Down 1

DFD	9.3	13-Nov-2014 12:13:59	13-Nov-2014 15:15:09	7067.75	7169.57

All depth are at tool zero.

Tool Control Parameters

Survey Record

Survey Calculation

Method :	Minimum Radius of Curvature	DLS Method :	Lubinski
North Reference :	Grid North	Total Correction Formula :	Magnetic Dec - Grid Convergence
Grid Convergence :	0.63 deg		

Rig Location

Latitude :	40° 9' 7.99" N	Longitude :	104° 31' 51.78" W

Tie In Point

Measured Depth:	0.00 ft	Inclination:	0.00 deg	Azimuth:	0.00 deg
True Vertical Depth:	0.00 ft	North Displacement:	0.00 ft	East Displacement:	0.00 ft
N/-S VSec Origin:	0.00 ft	E/-W VSec Origin:	0.00 ft	Vertical Section Azimuth:	0.77 deg

D&I Inits Computed and Values Used - Run001

Geomagnetic Model :	BGGM 2014	Geomagnetic Date :	07-Nov-2014
Computed Location B :	52555.75 nT +/- 300.00nT	Used Location B :	52555.75 nT +/- 300.00nT
Computed Location G :	999.52 mgn +/- 2.50mgn	Used Location G :	999.52 mgn +/- 2.50mgn
Computed Magnetic Dip :	66.76 deg +/- 0.45deg	Used Magnetic Dip :	66.76 deg +/- 0.45deg
Computed Magnetic Dec :	8.36 deg	Used Magnetic Dec :	8.36 deg
Computed Total Correction :	7.73 deg	Used Total Correction :	7.73 deg

D&I Inits Computed and Values Used - Run002

Geomagnetic Model :	BGGM 2014	Geomagnetic Date :	11-Nov-2014
Computed Location B :	52554.28 nT +/- 300.00nT	Used Location B :	52593.00 nT +/- 300.00nT
Computed Location G :	999.52 mgn +/- 2.50mgn	Used Location G :	999.52 mgn +/- 2.50mgn
Computed Magnetic Dip :	66.76 deg +/- 0.45deg	Used Magnetic Dip :	66.73 deg +/- 0.45deg
Computed Magnetic Dec :	8.36 deg	Used Magnetic Dec :	8.33 deg
Computed Total Correction :	7.73 deg	Used Total Correction :	7.7 deg

Survey Quality Index

2 : Long Survey failed mag criteria 9 : Manual 28 : Tie-In Point

Survey Correction Index

0 : No correction

Survey Description Index

0 : Not Flagged Survey 7 : Projection to Bit

Seq	MD (ft)	Incl (deg)	Azim (deg)	Course (ft)	TVD (ft)	V Sec (ft)	N/ -S (ft)	E/ -W (ft)	Closure (ft)	at Azim (deg)	DLS deg/100ft	Tool Type	QI	CI	DI
1	0.00	0.00	0.00	- - - -	0.00	0.00	0.00	0.00	0.00	90.00	0.00	TIP	28	0	0
2	308.00	0.30	254.03	308.00	308.00	-0.23	-0.22	-0.78	0.82	254.03	0.10	Other	9	0	0
3	592.00	0.40	296.73	284.00	591.99	-0.01	0.02	-2.38	2.36	270.47	0.10	Other	9	0	0
4	887.00	0.60	314.73	295.00	886.98	1.51	1.57	-4.39	4.66	289.66	0.09	Other	9	0	0
5	1141.00	0.60	302.33	254.00	1140.97	3.13	3.22	-6.46	7.22	296.47	0.05	Other	9	0	0
6	1225.00	0.61	280.10	84.00	1224.96	3.43	3.53	-7.27	8.07	295.89	0.28	SlimPulse	2	0	0
7	1319.00	0.55	266.36	94.00	1318.96	3.48	3.59	-8.22	8.96	293.59	0.16	SlimPulse	2	0	0
8	1413.00	0.59	262.20	94.00	1412.95	3.37	3.50	-9.16	9.81	290.89	0.06	SlimPulse	2	0	0
9	1508.00	0.48	113.72	95.00	1507.95	3.14	3.27	-9.28	9.84	289.41	1.08	SlimPulse	2	0	0
10	1602.00	1.91	107.75	94.00	1601.93	2.53	2.63	-7.43	7.87	289.52	1.53	SlimPulse	2	0	0

11	1697.00	1.92	108.61	95.00	1696.88	1.58	1.64	-4.41	4.69	290.43	0.03	SlimPulse	2	0	0
12	1791.00	1.98	106.35	94.00	1790.82	0.66	0.68	-1.35	1.51	296.71	0.10	SlimPulse	2	0	0
13	1885.00	1.94	100.52	94.00	1884.77	-0.04	-0.07	1.77	1.77	92.15	0.22	SlimPulse	2	0	0
14	1980.00	2.81	71.12	95.00	1979.69	0.47	0.39	5.55	5.54	85.95	1.54	SlimPulse	2	0	0
15	2074.00	3.49	48.17	94.00	2073.55	3.18	3.05	9.86	10.30	72.82	1.51	SlimPulse	2	0	0
16	2168.00	4.23	30.29	94.00	2167.34	8.14	7.95	13.74	15.88	59.94	1.49	SlimPulse	2	0	0
17	2262.00	5.15	29.24	94.00	2261.02	14.86	14.63	17.55	22.83	50.19	0.98	SlimPulse	2	0	0
18	2355.00	6.36	16.78	93.00	2353.56	23.48	23.20	21.08	31.33	42.25	1.86	SlimPulse	2	0	0
19	2450.00	6.94	18.91	95.00	2447.92	34.00	33.67	24.46	41.60	35.99	0.67	SlimPulse	2	0	0
20	2545.00	6.64	15.76	95.00	2542.25	44.76	44.39	27.81	52.40	32.06	0.50	SlimPulse	2	0	0
21	2639.00	6.30	16.28	94.00	2635.65	54.98	54.57	30.73	62.63	29.38	0.37	SlimPulse	2	0	0
22	2734.00	7.03	26.02	95.00	2730.01	65.26	64.80	34.74	73.52	28.20	1.42	SlimPulse	2	0	0
23	2829.00	6.99	26.89	95.00	2824.30	75.71	75.19	39.91	85.10	27.96	0.12	SlimPulse	2	0	0
24	2924.00	6.66	26.13	95.00	2918.63	85.88	85.29	44.95	96.39	27.79	0.36	SlimPulse	2	0	0
25	3019.00	6.72	26.20	95.00	3012.98	95.88	95.22	49.83	107.48	27.62	0.07	SlimPulse	2	0	0
26	3113.00	7.26	26.47	94.00	3106.28	106.20	105.47	54.91	118.90	27.50	0.58	SlimPulse	2	0	0
27	3208.00	6.98	24.79	95.00	3200.55	116.88	116.08	60.00	130.68	27.33	0.37	SlimPulse	2	0	0
28	3302.00	6.76	25.42	94.00	3293.87	127.12	126.26	64.77	141.90	27.16	0.25	SlimPulse	2	0	0
29	3397.00	7.69	27.83	95.00	3388.12	137.86	136.93	70.14	153.84	27.12	1.03	SlimPulse	2	0	0
30	3492.00	7.37	30.69	95.00	3482.30	148.80	147.79	76.21	166.27	27.28	0.52	SlimPulse	2	0	0
31	3587.00	7.01	29.33	95.00	3576.55	159.18	158.09	82.16	178.15	27.46	0.43	SlimPulse	2	0	0
32	3682.00	6.43	29.39	95.00	3670.90	168.94	167.78	87.61	189.27	27.57	0.61	SlimPulse	2	0	0
33	3776.00	5.95	30.24	94.00	3764.35	177.80	176.57	92.65	199.41	27.69	0.52	SlimPulse	2	0	0
34	3871.00	5.82	28.92	95.00	3858.85	186.33	185.04	97.46	209.12	27.78	0.20	SlimPulse	2	0	0
35	3966.00	6.12	29.66	95.00	3953.34	195.01	193.65	102.29	219.00	27.84	0.33	SlimPulse	2	0	0
36	4061.00	6.27	28.41	95.00	4047.78	204.04	202.62	107.27	229.27	27.90	0.21	SlimPulse	2	0	0
37	4156.00	5.79	40.18	95.00	4142.26	212.34	210.84	112.83	239.14	28.15	1.39	SlimPulse	2	0	0
38	4250.00	4.54	43.43	94.00	4235.88	218.75	217.17	118.45	247.38	28.61	1.37	SlimPulse	2	0	0
39	4345.00	3.36	53.47	95.00	4330.65	223.20	221.56	123.27	253.54	29.09	1.44	SlimPulse	2	0	0
40	4439.00	2.51	34.12	94.00	4424.53	226.59	224.91	126.64	258.10	29.38	1.38	SlimPulse	2	0	0
41	4534.00	1.37	19.09	95.00	4519.47	229.41	227.71	128.18	261.32	29.38	1.30	SlimPulse	2	0	0
42	4628.00	1.24	4.79	94.00	4613.45	231.49	229.79	128.64	263.35	29.24	0.37	SlimPulse	2	0	0
43	4723.00	1.23	15.27	95.00	4708.43	233.51	231.80	128.99	265.26	29.10	0.24	SlimPulse	2	0	0
44	4818.00	0.14	200.52	95.00	4803.42	234.39	232.67	129.22	266.14	29.05	1.45	SlimPulse	2	0	0
45	4912.00	0.33	179.79	94.00	4897.42	234.01	232.29	129.18	265.78	29.08	0.21	SlimPulse	2	0	0
46	5007.00	0.73	198.55	95.00	4992.41	233.17	231.45	128.99	264.96	29.13	0.45	SlimPulse	2	0	0
47	5102.00	0.91	216.32	95.00	5087.40	231.98	230.27	128.35	263.62	29.13	0.33	SlimPulse	2	0	0
48	5196.00	0.88	215.67	94.00	5181.39	230.77	229.08	127.48	262.17	29.10	0.04	SlimPulse	2	0	0
49	5291.00	0.94	203.93	95.00	5276.38	229.46	227.77	126.74	260.66	29.09	0.21	SlimPulse	2	0	0
50	5386.00	1.00	199.00	95.00	5371.37	227.95	226.28	126.15	259.06	29.14	0.10	SlimPulse	2	0	0
51	5481.00	0.83	177.36	95.00	5466.36	226.48	224.81	125.92	257.68	29.25	0.40	SlimPulse	2	0	0
52	5670.00	0.61	199.63	189.00	5655.34	224.17	222.50	125.64	255.51	29.45	0.19	SlimPulse	2	0	0
53	5765.00	0.75	188.92	95.00	5750.33	223.08	221.41	125.37	254.43	29.52	0.20	SlimPulse	2	0	0
54	5859.00	0.60	183.12	94.00	5844.33	221.97	220.31	125.25	253.41	29.62	0.18	SlimPulse	2	0	0
55	5954.00	0.74	197.29	95.00	5939.32	220.89	219.23	125.04	252.40	29.70	0.23	SlimPulse	2	0	0
56	6049.00	0.82	198.44	95.00	6034.31	219.65	218.00	124.65	251.12	29.76	0.09	SlimPulse	2	0	0
57	6144.00	1.01	203.22	95.00	6129.30	218.23	216.58	124.10	249.61	29.81	0.22	SlimPulse	2	0	0
58	6238.00	4.96	348.47	94.00	6223.20	221.44	219.81	122.96	251.87	29.22	6.20	SlimPulse	2	0	0
59	6333.00	14.35	349.13	95.00	6316.75	237.02	235.43	119.91	264.21	26.99	9.88	SlimPulse	2	0	0
60	6428.00	20.81	352.90	95.00	6407.26	265.30	263.77	115.60	287.99	23.67	6.90	SlimPulse	2	0	0
61	6523.00	27.74	355.41	95.00	6493.81	304.08	302.61	111.74	322.57	20.27	7.37	SlimPulse	2	0	0
62	6617.00	35.40	358.96	94.00	6573.85	353.15	351.71	109.49	368.37	17.29	8.38	SlimPulse	2	0	0
63	6712.00	43.78	359.41	95.00	6647.00	413.61	412.19	108.65	426.28	14.77	8.82	SlimPulse	2	0	0
64	6806.00	55.49	359.20	94.00	6707.77	485.09	483.68	107.83	495.57	13.57	13.46	SlimPulse	2	0	0

64	6806.00	55.49	359.29	94.00	6707.77	485.09	483.68	107.83	495.57	12.57	12.46	SlimPulse	2	0	0
65	6901.00	64.08	358.82	95.00	6755.54	567.07	565.69	106.46	575.62	10.66	9.05	SlimPulse	2	0	0
66	6996.00	69.38	358.59	95.00	6793.06	654.25	652.90	104.49	661.22	9.09	5.58	SlimPulse	2	0	0
67	7091.00	78.62	2.68	95.00	6819.23	745.44	744.09	105.58	751.54	8.08	10.57	SlimPulse	2	0	0
68	7109.00	80.71	3.85	18.00	6822.46	763.13	761.77	106.59	769.19	7.97	13.25	SlimPulse	2	0	0
69	7249.00	84.32	4.65	140.00	6840.70	901.66	900.17	116.88	907.74	7.40	2.64	SlimPulse	9	0	0
70	7343.00	85.70	4.10	94.00	6848.88	995.12	993.54	124.03	1001.25	7.12	1.58	SlimPulse	9	0	0
71	7438.00	86.80	3.27	95.00	6855.09	1089.79	1088.14	130.12	1095.90	6.82	1.45	SlimPulse	9	0	0
72	7533.00	87.56	1.11	95.00	6859.77	1184.64	1182.95	133.74	1190.49	6.45	2.41	SlimPulse	9	0	0
73	7628.00	89.59	0.27	95.00	6862.13	1279.60	1277.90	134.89	1285.01	6.03	2.31	SlimPulse	9	0	0
74	7723.00	89.52	359.42	95.00	6862.87	1374.59	1372.90	134.63	1379.49	5.60	0.90	SlimPulse	9	0	0
75	7817.00	89.66	359.73	94.00	6863.54	1468.56	1466.90	133.93	1473.00	5.22	0.36	SlimPulse	9	0	0
76	7912.00	91.65	358.50	95.00	6862.45	1563.51	1561.87	132.47	1567.49	4.85	2.46	SlimPulse	9	0	0
77	8006.00	92.30	358.07	94.00	6859.21	1657.37	1655.77	129.65	1660.83	4.48	0.83	SlimPulse	9	0	0
78	8101.00	93.54	357.99	95.00	6854.37	1752.13	1750.59	126.39	1755.15	4.13	1.31	SlimPulse	9	0	0
79	8289.00	91.99	358.49	188.00	6845.30	1939.72	1938.28	120.63	1942.03	3.56	0.87	SlimPulse	9	0	0
80	8384.00	90.65	356.35	95.00	6843.12	2034.53	2033.15	116.35	2036.48	3.28	2.66	SlimPulse	9	0	0
81	8478.00	91.44	357.58	94.00	6841.40	2128.30	2127.00	111.38	2129.92	3.00	1.55	SlimPulse	9	0	0
82	8573.00	90.17	358.26	95.00	6840.07	2223.17	2221.92	107.93	2224.54	2.78	1.52	SlimPulse	9	0	0
83	8666.00	88.59	359.25	93.00	6841.07	2316.11	2314.89	105.91	2317.32	2.62	2.00	SlimPulse	9	0	0
84	8761.00	88.56	1.89	95.00	6843.44	2411.07	2409.85	106.85	2412.20	2.54	2.78	SlimPulse	9	0	0
85	8856.00	89.28	1.72	95.00	6845.23	2506.04	2504.79	109.84	2507.19	2.51	0.78	SlimPulse	9	0	0
86	8951.00	89.73	1.46	95.00	6846.05	2601.02	2599.75	112.48	2602.17	2.48	0.55	SlimPulse	9	0	0
87	9045.00	88.66	1.72	94.00	6847.37	2695.00	2693.70	115.09	2696.16	2.45	1.17	SlimPulse	9	0	0
88	9139.00	89.07	1.86	94.00	6849.23	2788.97	2787.63	118.02	2790.12	2.42	0.46	SlimPulse	9	0	0
89	9233.00	90.48	4.12	94.00	6849.60	2882.89	2881.50	122.93	2884.12	2.44	2.83	SlimPulse	9	0	0
90	9328.00	88.80	2.33	95.00	6850.20	2977.79	2976.34	128.27	2979.10	2.47	2.58	SlimPulse	9	0	0
91	9422.00	88.69	0.12	94.00	6852.26	3071.76	3070.29	130.28	3073.06	2.43	2.35	SlimPulse	9	0	0
92	9516.00	88.97	0.09	94.00	6854.17	3165.73	3164.27	130.45	3166.96	2.36	0.30	SlimPulse	9	0	0
93	9704.00	89.04	358.34	188.00	6857.44	3353.63	3352.21	127.88	3354.66	2.18	0.93	SlimPulse	9	0	0
94	9798.00	88.73	1.00	94.00	6859.27	3447.59	3446.19	127.33	3448.52	2.12	2.85	SlimPulse	9	0	0
95	9893.00	88.49	2.45	95.00	6861.57	3542.54	3541.11	130.19	3543.50	2.11	1.55	SlimPulse	9	0	0
96	9987.00	90.07	1.53	94.00	6862.75	3636.51	3635.04	133.46	3637.50	2.10	1.94	SlimPulse	9	0	0
97	10082.00	90.31	1.51	95.00	6862.44	3731.50	3730.01	135.98	3732.48	2.09	0.25	SlimPulse	9	0	0
98	10271.00	92.30	0.79	189.00	6858.14	3920.44	3918.91	139.77	3921.39	2.04	1.12	SlimPulse	9	0	0
99	10366.00	92.82	359.53	95.00	6853.89	4015.33	4013.82	140.03	4016.27	2.00	1.43	SlimPulse	9	0	0
100	10461.00	91.62	0.70	95.00	6850.21	4110.25	4108.74	140.23	4111.12	1.95	1.76	SlimPulse	9	0	0
101	10555.00	89.69	358.28	94.00	6849.14	4204.21	4202.72	139.39	4205.02	1.90	3.29	SlimPulse	9	0	0
102	10650.00	90.83	358.18	95.00	6848.71	4299.12	4297.67	136.45	4299.84	1.82	1.20	SlimPulse	9	0	0
103	10744.00	90.38	356.81	94.00	6847.71	4392.96	4391.57	132.35	4393.57	1.73	1.53	SlimPulse	9	0	0
104	10839.00	89.11	357.26	95.00	6848.14	4487.75	4486.44	127.43	4488.25	1.63	1.42	SlimPulse	9	0	0
105	10934.00	86.97	357.11	95.00	6851.39	4582.50	4581.27	122.77	4582.91	1.54	2.26	SlimPulse	9	0	0
106	11028.00	86.32	359.92	94.00	6856.89	4676.26	4675.06	120.34	4676.61	1.47	3.06	SlimPulse	9	0	0
107	11133.00	86.39	359.60	105.00	6863.56	4781.03	4779.85	119.90	4781.36	1.44	0.31	SlimPulse	9	0	0
108	11217.00	86.66	359.65	84.00	6868.65	4864.86	4863.70	119.35	4865.16	1.41	0.33	SlimPulse	9	0	0
109	11312.00	86.66	359.95	95.00	6874.19	4959.68	4958.53	119.02	4959.97	1.37	0.32	SlimPulse	9	0	0
110	11502.00	86.94	359.67	190.00	6884.80	5149.36	5148.24	118.39	5149.61	1.32	0.21	SlimPulse	9	0	0
111	11596.00	87.39	359.76	94.00	6889.44	5243.23	5242.12	117.92	5243.44	1.29	0.49	SlimPulse	9	0	0
112	11691.00	86.18	359.26	95.00	6894.77	5338.06	5336.96	117.11	5338.25	1.26	1.38	SlimPulse	9	0	0
113	11785.00	86.49	359.42	94.00	6900.78	5431.83	5430.77	116.03	5432.02	1.22	0.37	SlimPulse	9	0	0
114	11880.00	86.42	359.35	95.00	6906.66	5526.62	5525.58	115.01	5526.77	1.19	0.10	SlimPulse	9	0	0
115	11974.00	87.42	0.36	94.00	6911.71	5620.47	5619.44	114.78	5620.60	1.17	1.51	SlimPulse	9	0	0
116	12069.00	89.11	359.20	95.00	6914.58	5715.41	5714.39	114.41	5715.55	1.15	2.16	SlimPulse	9	0	0
117	12164.00	87.87	358.86	95.00	6917.09	5810.33	5809.34	112.80	5810.43	1.11	1.35	SlimPulse	9	0	0

118	12259.00	89.55	358.33	95.00	6919.22	5905.24	5904.29	110.47	5905.31	1.07	1.85	SlimPulse	9	0	0
119	12354.00	91.20	358.44	95.00	6918.60	6000.15	5999.24	107.80	6000.20	1.03	1.74	SlimPulse	9	0	0
120	12449.00	91.31	358.54	95.00	6916.52	6095.05	6094.19	105.29	6095.11	0.99	0.16	SlimPulse	9	0	0
121	12543.00	91.68	358.40	94.00	6914.07	6188.94	6188.12	102.79	6188.98	0.95	0.42	SlimPulse	9	0	0
122	12638.00	91.41	0.19	95.00	6911.51	6283.87	6283.07	101.62	6283.89	0.93	1.90	SlimPulse	9	0	0
123	12733.00	92.27	0.42	95.00	6908.46	6378.82	6378.02	102.12	6378.84	0.92	0.94	SlimPulse	9	0	0
124	12827.00	91.34	1.88	94.00	6905.50	6472.77	6471.95	104.01	6472.80	0.92	1.84	SlimPulse	9	0	0
125	12922.00	92.17	1.57	95.00	6902.59	6567.71	6566.87	106.87	6567.75	0.93	0.93	SlimPulse	9	0	0
126	13017.00	93.37	359.89	95.00	6898.00	6662.59	6661.74	108.08	6662.63	0.93	2.17	SlimPulse	9	0	0
127	13111.00	91.10	1.30	94.00	6894.33	6756.51	6755.66	109.05	6756.53	0.92	2.84	SlimPulse	9	0	0
128	13206.00	91.62	1.58	95.00	6892.08	6851.48	6850.60	111.44	6851.51	0.93	0.62	SlimPulse	9	0	0
129	13301.00	92.30	1.32	95.00	6888.83	6946.42	6945.51	113.84	6946.46	0.94	0.77	SlimPulse	9	0	0
130	13395.00	92.96	0.87	94.00	6884.51	7040.31	7039.40	115.64	7040.35	0.94	0.85	SlimPulse	9	0	0
131	13490.00	91.41	0.44	95.00	6880.89	7135.24	7134.32	116.72	7135.27	0.94	1.69	SlimPulse	9	0	0
132	13585.00	89.35	359.97	95.00	6880.26	7230.23	7229.31	117.06	7230.25	0.93	2.22	SlimPulse	9	0	0
133	13680.00	89.73	359.39	95.00	6881.02	7325.21	7324.30	116.53	7325.23	0.91	0.73	SlimPulse	9	0	0
134	13775.00	88.56	358.78	95.00	6882.44	7420.16	7419.28	115.01	7420.18	0.89	1.39	SlimPulse	9	0	0
135	13869.00	90.48	358.18	94.00	6883.23	7514.07	7513.24	112.52	7514.07	0.86	2.14	SlimPulse	9	0	0
136	13964.00	91.34	357.76	95.00	6881.72	7608.95	7608.17	109.16	7608.96	0.82	1.01	SlimPulse	9	0	0
137	14059.00	92.58	359.41	95.00	6878.47	7703.82	7703.08	106.81	7703.81	0.79	2.17	SlimPulse	9	0	0
138	14153.00	92.89	359.05	94.00	6873.99	7797.67	7796.96	105.55	7797.67	0.78	0.51	SlimPulse	9	0	0
139	14248.00	93.44	358.62	95.00	6868.74	7892.48	7891.80	103.62	7892.49	0.75	0.73	SlimPulse	9	0	0
140	14343.00	93.68	357.71	95.00	6862.84	7987.19	7986.56	100.58	7987.20	0.72	0.99	SlimPulse	9	0	0
141	14397.00	94.58	357.47	54.00	6858.95	8040.97	8040.37	98.32	8040.98	0.70	1.72	SlimPulse	9	0	0
142	14445.00	94.58	357.47	48.00	6855.12	8088.74	8088.17	96.21	8088.75	0.68	0.00	Other	9	0	7

Calibration Report

SPULSE-GEN (SlimPulse with Generic Collar) Calibration - Run Run001

Primary Equipment :

Elec. cartridge, 150C max with GR SPEC H686

GRGain - Gamma Ray: Blanket

Master (Time Frame File): 12:00:00 21-Sep-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
Gamma Ray Calibration Gain		Master	1.0000	0.9000	1.0590	1.1000

SPULSE-GEN (SlimPulse with Generic Collar) Calibration - Run Run002

Primary Equipment :

Elec. cartridge, 150C max with GR SPEC 6189

GRGain - Gamma Ray: Blanket

Master (Time Frame File): 12:00:00 28-Oct-2014

Measurement	Unit	Phase	Nominal	Low Limit	Actual	High Limit
Gamma Ray Calibration Gain		Master	1.0000	0.9000	1.0309	1.1000

Company:	Noble Energy
Well:	Oscar Y10-72HN
Field:	Wattenberg
County:	Weld
State:	Colorado
Country:	USA

Schlumberger

SlimPulse - Gamma Ray

1 in / 100 ft & 5 in / 100 ft True Vertical Depth

Recorded Mode, Composite Log