Schlumberger

Company: **International Ocean Discovery Program**

Well: **Expedition 369, Site U1513E**
Field: **Australia Cretaceous Climate & Tectonics**
Rig: **JOIDES Resolution** Ocean: **Indian**

Rig: JOIDES Resolution
Field: Australia Cretaceous Climate & T
Location: Latitude: S 33.79365*'
Well: Expedition 369, Site U1513E
Company: International Ocean Discovery Pr

Formation Micro Scanner (FMS)
Gamma Ray (EDTC)
Accelerator Porosity Sonde (APS)

LOCATION

Latitude: S 33.79365*'
Longitude: E 112.48534*

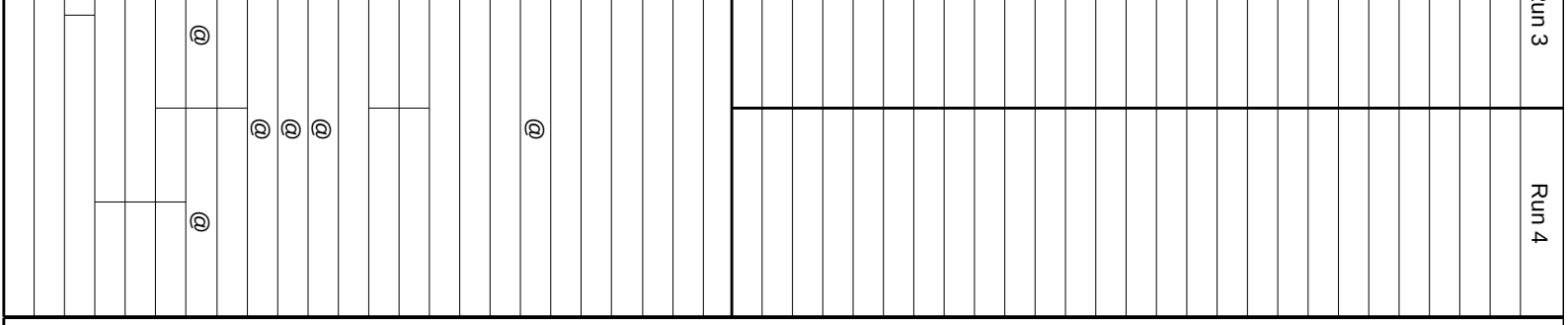
Elev.: K.B. 0.00 m
G.L. −2800.00 m
D.F. 0.00 m

Permanent Datum: Sea Floor — Elev.: −2800.00 m
Log Measured From: Rig Floor — 2800.00 m above Perm. Datum
Drilling Measured From: Rig Floor

API Serial No.	Max. Hole Devi. 1.67 deg	Longitude E 112.48534	Latitude S 33.79365

	Run 1	Run 2	Run 3
Logging Date	24−Nov−2017		
Run Number	1		
Depth Driller	3574 m		
Schlumberger Depth	3410 m		
Bottom Log Interval	3410 m		
Top Log Interval	2800 m		
Casing Driller Size @ Depth	5.500 in @ 3226.5 m	@	@
Casing Schlumberger	3224 m		
Bit Size	9.875 in		
Type Fluid In Hole	Sepiolite		
MUD Density / Viscosity	1.258 g/cm3		
MUD Fluid Loss / PH		8.07	
MUD Source Of Sample	Mudpit		
RM @ Measured Temperature	@ 23 degC	@	@
RMF @ Measured Temperature	@	@	@
RMC @ Measured Temperature	@	@	@
Source RMF / RMC	N/A	N/A	
RM @ MRT / RMF @ MRT	@ 19	@ 19	@ @
Maximum Recorded Temperatures	19 degC		
Circulation Stopped / Time	22−Nov−2017	20:00	
Logger On Bottom / Time	24−Nov−2017	7:30	
Unit Number / Location	627314	Larose, LA	
Recorded By	K. Swain		
Witnessed By	M. Jones, Z. Mateo, L. White		

	Run 1	Run 2	Run 3
Logging Date			
Run Number			
Depth Driller			
Schlumberger Depth			
Bottom Log Interval			
Top Log Interval			
Casing Driller Size @ Depth	@		
Casing Schlumberger			
Bit Size			
Type Fluid In Hole			
MUD Density / Viscosity			
MUD Fluid Loss / PH			
MUD Source Of Sample			
RM @ Measured Temperature	@		
RMF @ Measured Temperature	@		
RMC @ Measured Temperature	@		
Source RMF / RMC			
RM @ MRT / RMF @ MRT	@	@	
Maximum Recorded Temperatures			
Circulation Stopped / Time			
Logger On Bottom / Time			
Unit Number / Location			
Recorded By			
Witnessed By			



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OTHER SERVICES1	OTHER SERVICES2
OS1:	OS1:
OS2:	OS2:
OS3: DSI/HRLA/HLDS/APS	OS3:
OS4: HNGS	OS4:
OS5:	OS5:

REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
Hole drilled with RCB bottom hole assembly (BHA) at 9−7/8" BS	
Bit dropped using Mechanical Bit Release (MBR) prior to logging.	
Drilled TD was 3574mbrf. APS eccentered with ILEF bowspring and knuckle joints.	
Drill pipe set at 3226.5mbrf and also later at 2919.3mbrf.	
Tcombo run with upper part eccentralized, lower centralized with MCD tools. See toolsketch.	
Fluid type was Sepeolite mud weighted with Barite to a density of ppg (g/cc)	
Depth recorded from drill floor; logs presented as−logged without depth corrections or shifts, as per client instructions.	
All logs presented in wireline measured depth below rig floor (MDBRF).	
Caliper opened during upward passes; closed inside pipe.	
Hole size corrections made using caliper measurements for upward passes.	
APS porosity shut off in drill pipe and on downlog to avoid activation.	
AHC used from TD then switched off to facilitate pipe entry.	
10.5 lb/gal mud pumped in hole prior to logging.	
Run 2 VSI/EDTC with 2 air guns at 7m and hydraphone at 9m, see geometry.	
Multiple attempts made with 5 logging runs including VSI and FMS.	
Run 1 utilized a hole finder on bottom of HNGC.	
Run 4 utilized FMS with APS.	

RUN 1		RUN 2	
SERVICE ORDER #:		SERVICE ORDER #:	
PROGRAM VERSION:	19C0−187	PROGRAM VERSION:	
FLUID LEVEL:		FLUID LEVEL:	

LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION

RUN 1 RUN 2

SURFACE EQUIPMENT

SFT−281 1
SFT−178 1
GSR−U 6098
WITM (EDTS)−A 1

DOWNHOLE EQUIPMENT

LEH−QT 29.15
LEH−QT 301

AH−369 28.27

EDTC−B 27.83
EDTH−B 8303

EDTC−B 8317
EDTG−A/B 8305

TelStatus
EDTCB Ele — 25.85

HNGS−BA — 25.85
HNGS−BA 194
HNSH−BA 204

Upper_1 — 25.15
Lower_2 — 24.94

HNGC−B — 23.35
HNGH−A 3

HNGC Stat — 22.82

AH−178 — 22.28

Status
Minitron

APS−C — 21.98
APH−AC 22
APS−C 22
MNTR−F 7341

Near TD
Near Arr
Near — 19.53
Far Arr — 19.46
Far — 19.33
Far TD — 19.23

AH−190 — 18.03

ILE−F — 17.73
ILE−F 8

AH−184 — 15.29

AH−ECH−MRA — 14.68
AH−ECH−MRA 4999

AH−184 — 11.79

AH−MCD1 — 11.18
AH−MCD1 1

DTA−A — 8.90
ECH−KE 8456

MEST−B — 7.68
MEAH−B 769
MEAC−A 804
MEPH−A 701
GPIC−AC 840
MEPC−AB 806
MEDS−B 724

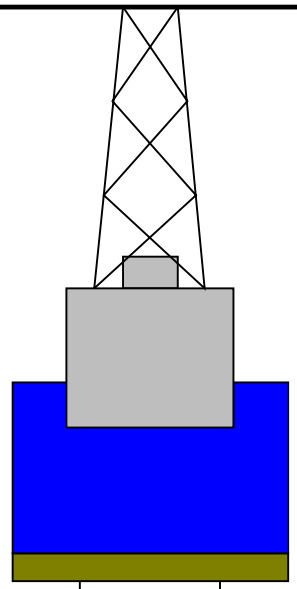
MEDR MEAC
MEPC MEDS−B — 0.46
HV DF ACCZ
Tension GPIT — 0.00

TOOL ZERO

MAXIMUM STRING DIAMETER 3.75 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN METERS

Production String	(in) OD	(in) ID	(M) MD	Well Schematic	(M) MD	(in) OD	(in) ID	Casing String

	OD	ID	MD		MD	OD	ID	
Kelly Bushing Elevation			0					
Derrick Floor Elevation			0					
Mean Sea Level			11					
						4.1		
					2800	4.1		Sea Floor
					2919.3		9.875	Open Hole
					3226.5			
					3574			Total Depth



Input DLIS Files

DEFAULT	Flip_FMS_APS_NGS_058LUP		PRODUCER	25−Nov−2017 17:28	3412.2 M	2747.8 M

Output DLIS Files

DEFAULT	FMS_APS_NGS_064PUP	FN:85	PRODUCER	25−Nov−2017 18:58	3412.2 M	2747.8 M

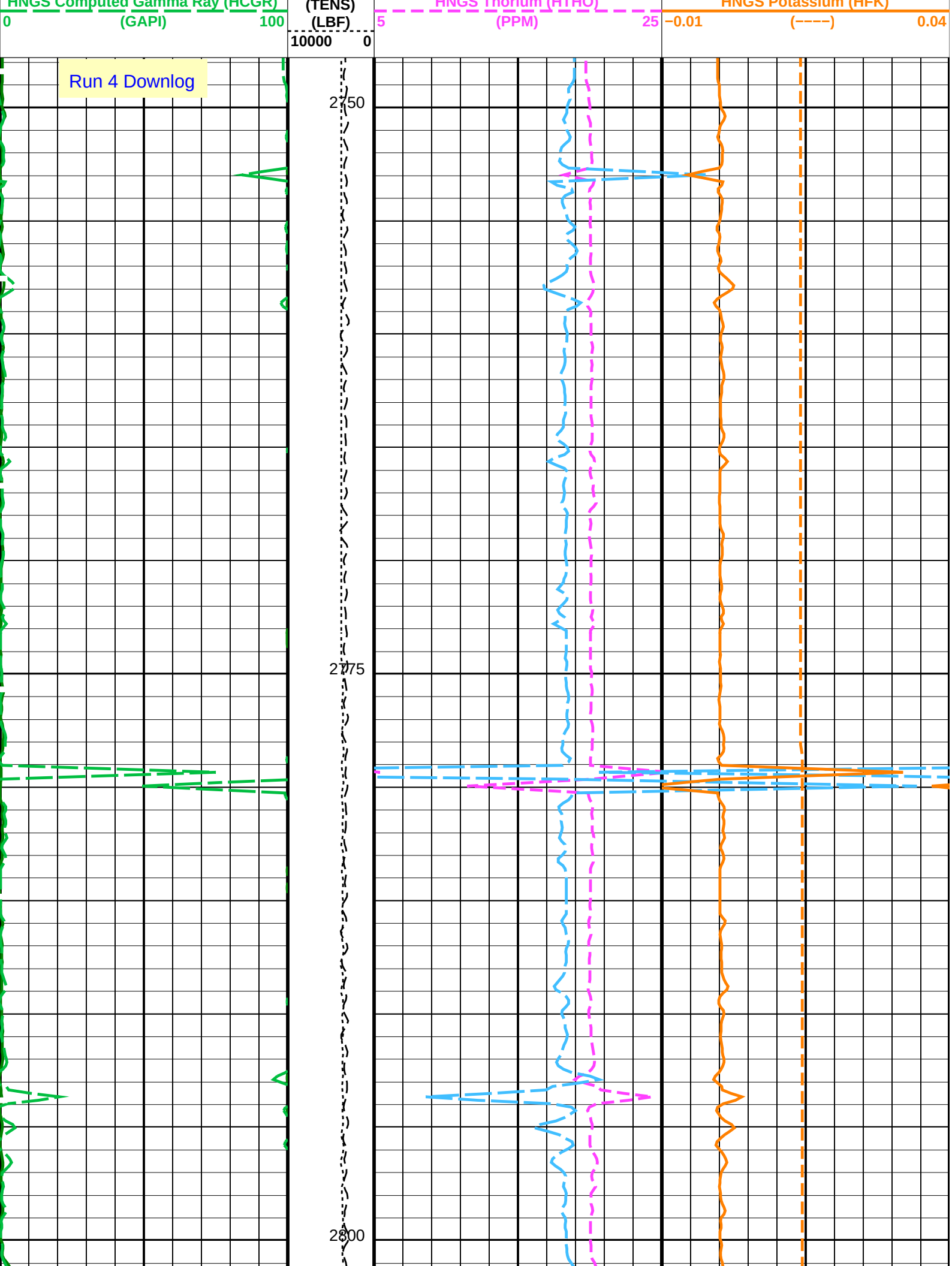
OP System Version: 19C0−187

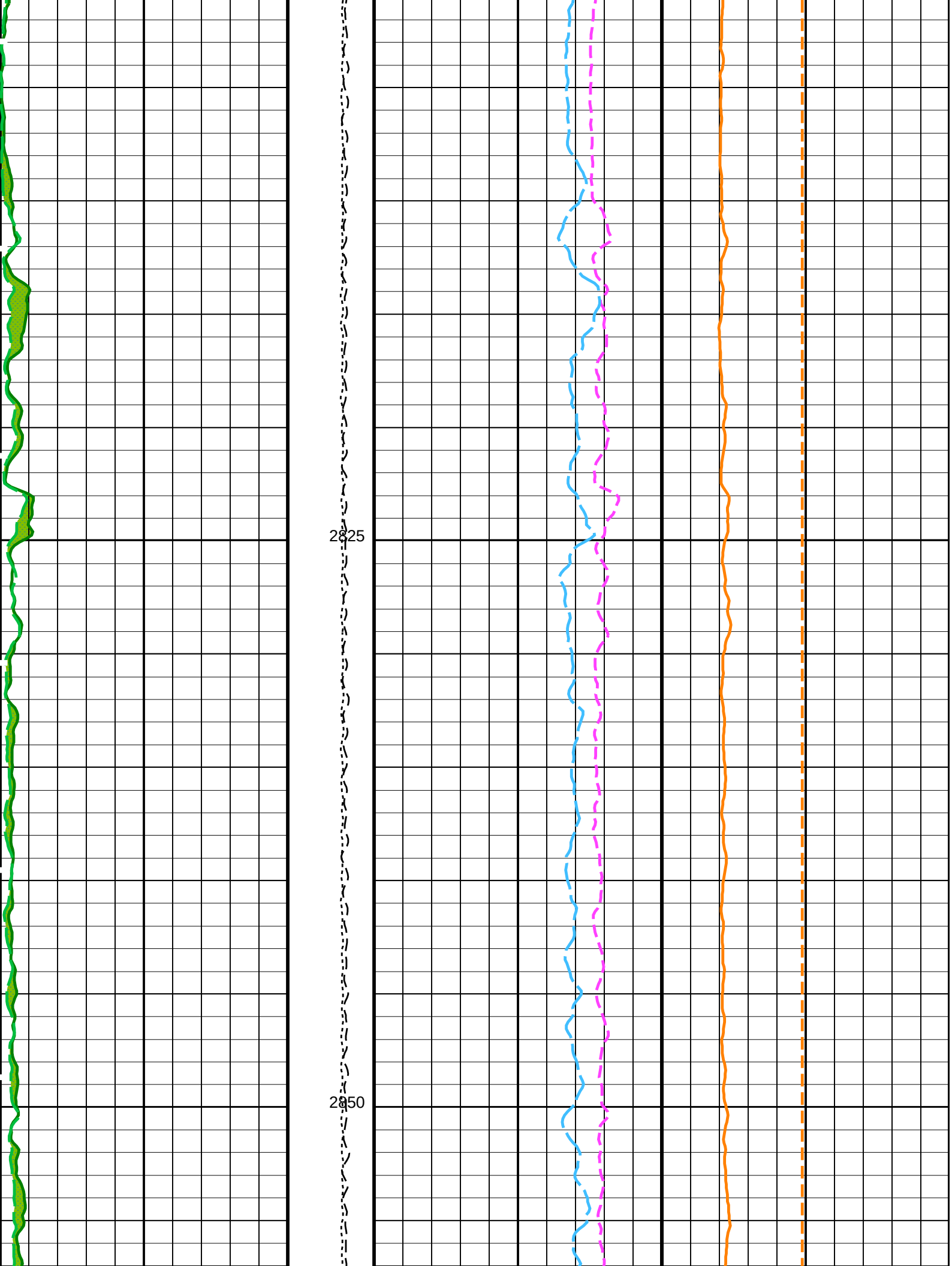
MEST−B	19C0−187	DTA−A	19C0−187
APS−C	19C0−187	HNGC−B	19C0−187
HNGS−BA	19C0−187	EDTC−B	SKK−5169−EDTCB

PIP SUMMARY

Time Mark Every 60 S

HNGS Spectroscopy Gamma Ray (HSGR) 0 (GAPI) 100		HNGS Borehole Potassium (HBHK) −0.05 (−−−−) 0.05
Area1 From HCGR to HSGR	Calibrated Downhole Force (CDF) (LBF) 3000 0	HNGS Uranium (HURA) −5 (PPM) 10
HNGS Computed Gamma Ray (HCGR)	Tension	HNGS Thorium (HTHO) / HNGS Potassium (HFK)


HNGS Computed Gamma Ray (HCGR)
0
(GAPI)
100
(TENS)
(LBF)
10000
0
HNGS Thorium (HTHO)
5
(PPM)
25
HNGS Potassium (HFK)
−0.01
(−−−−)
0.04
Run 4 Downlog
2750
2775
2800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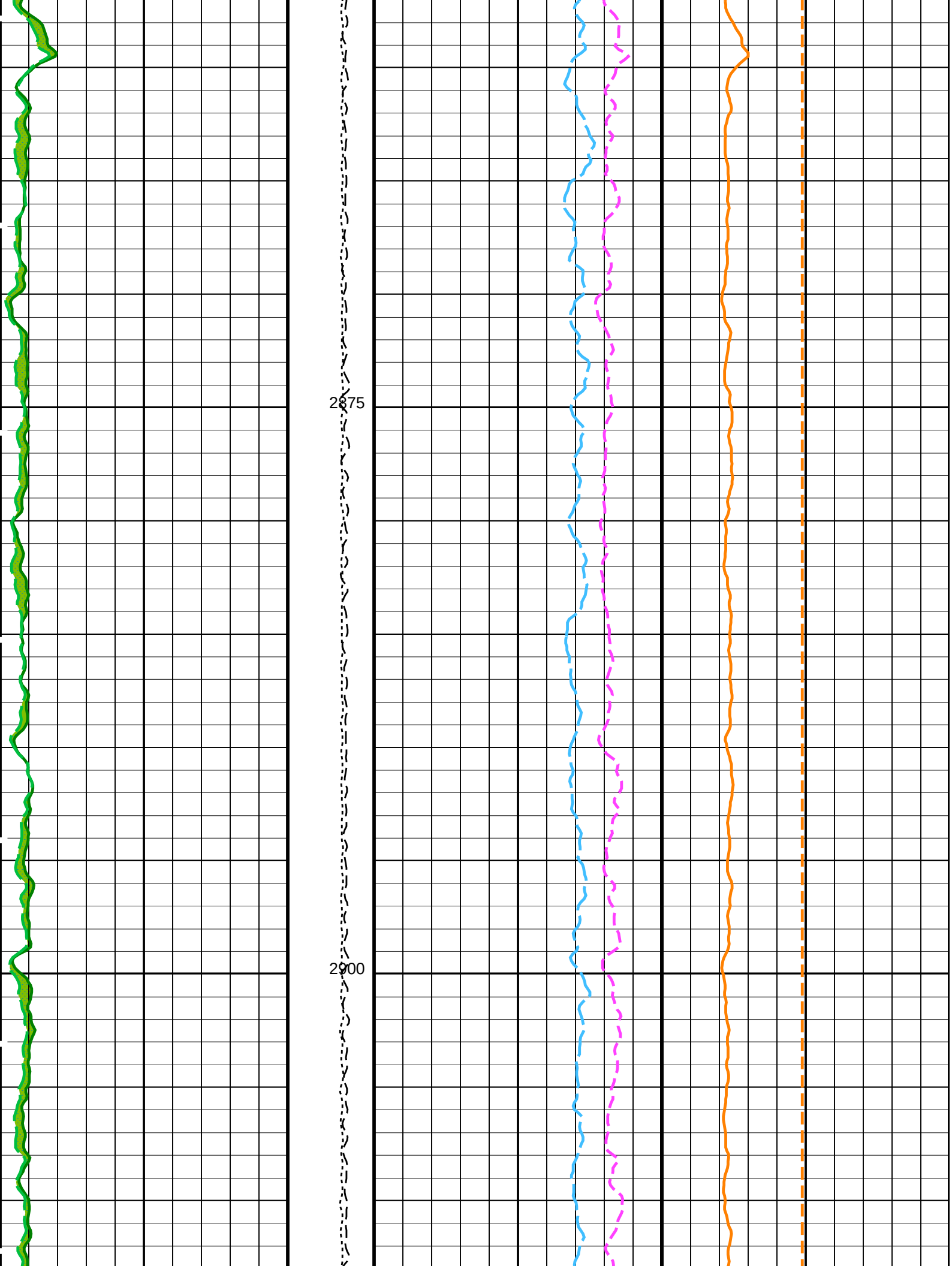
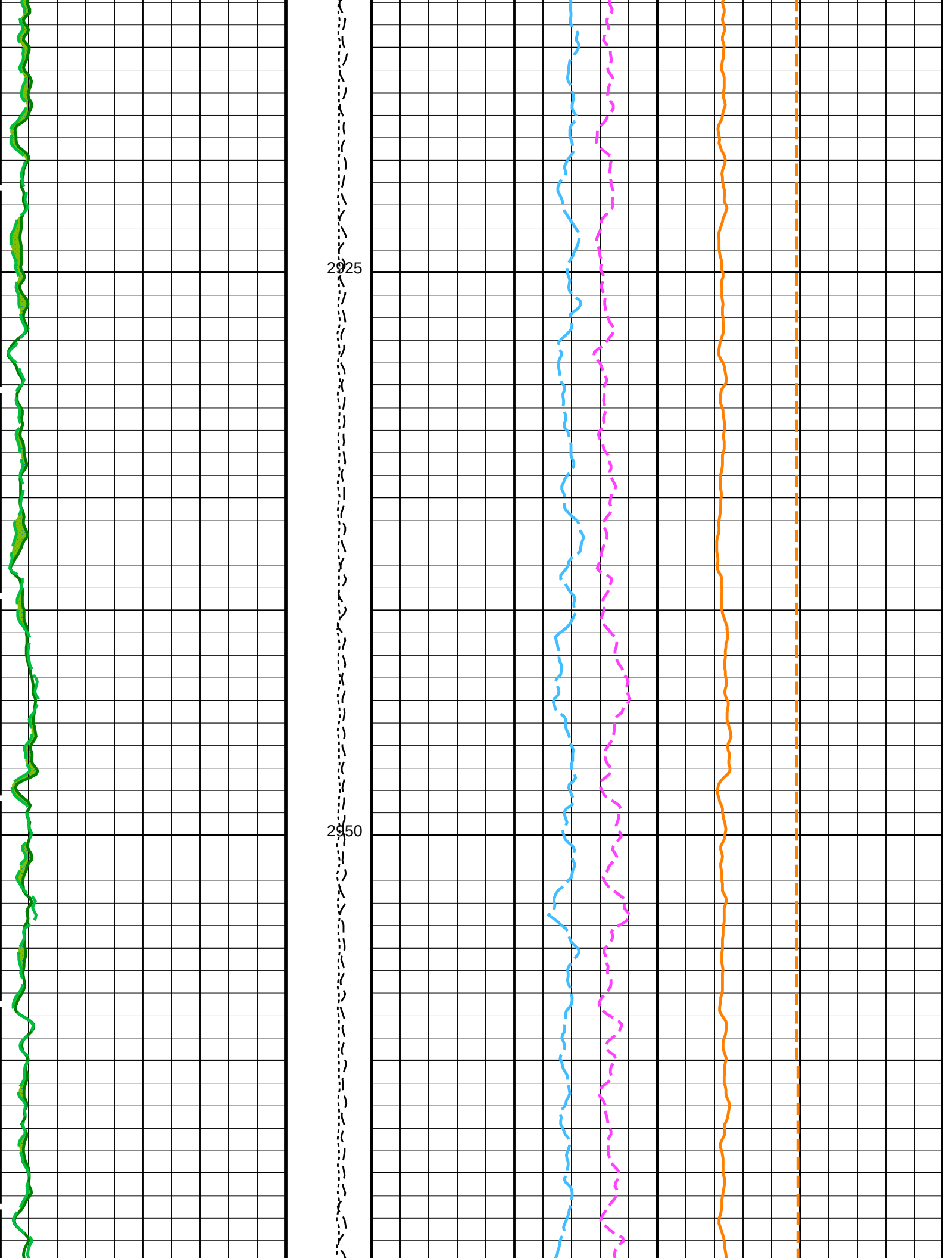

2875
2900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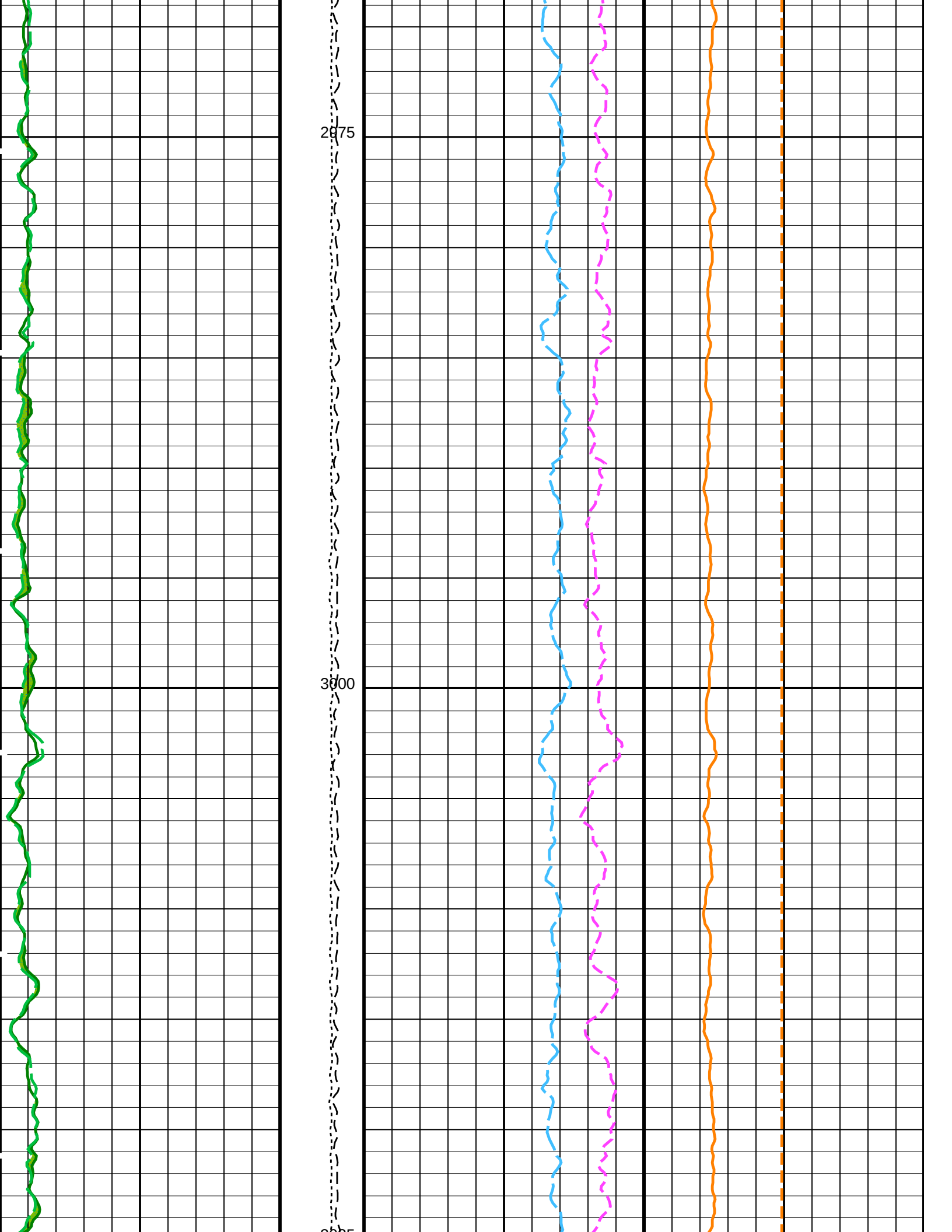
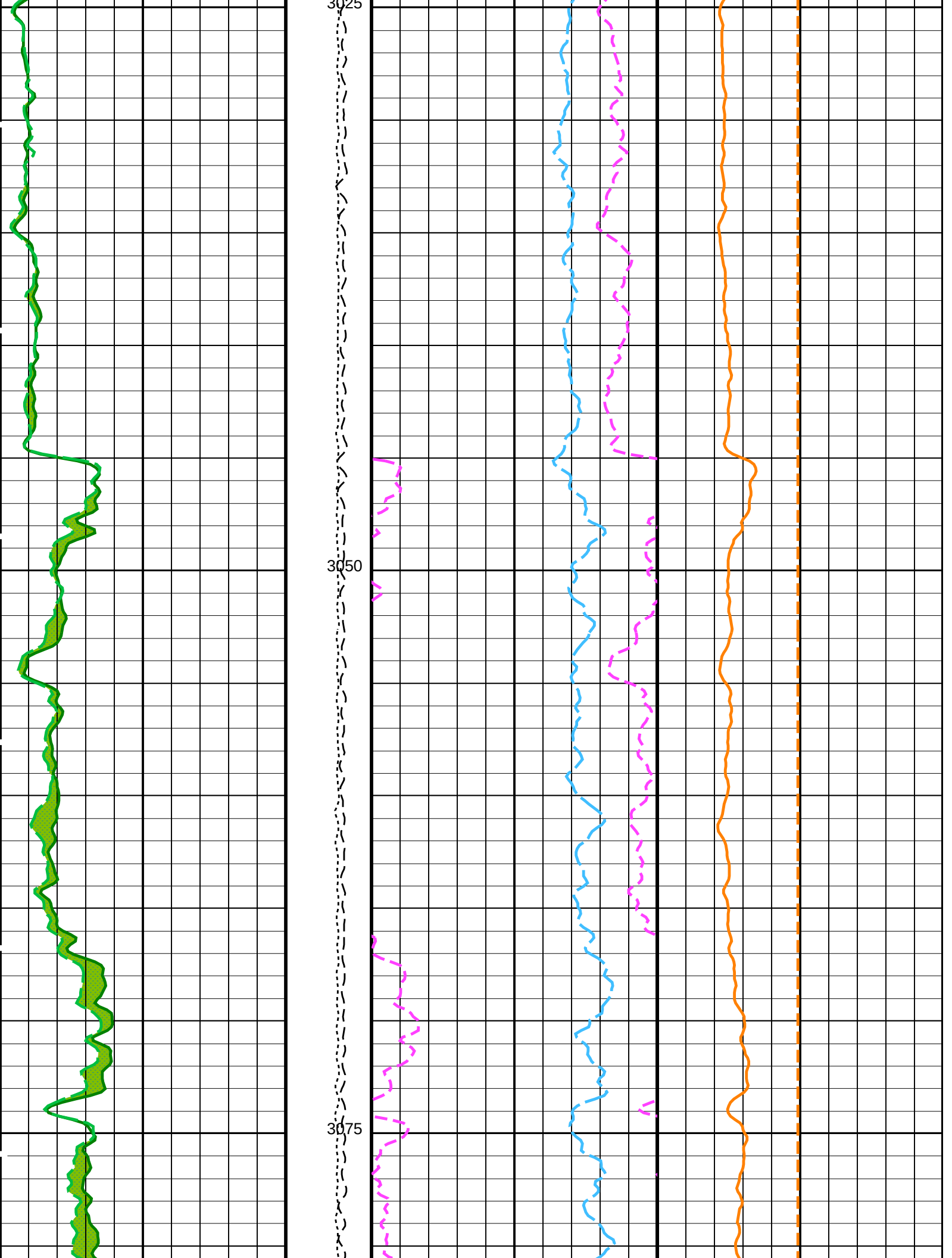

2975
3000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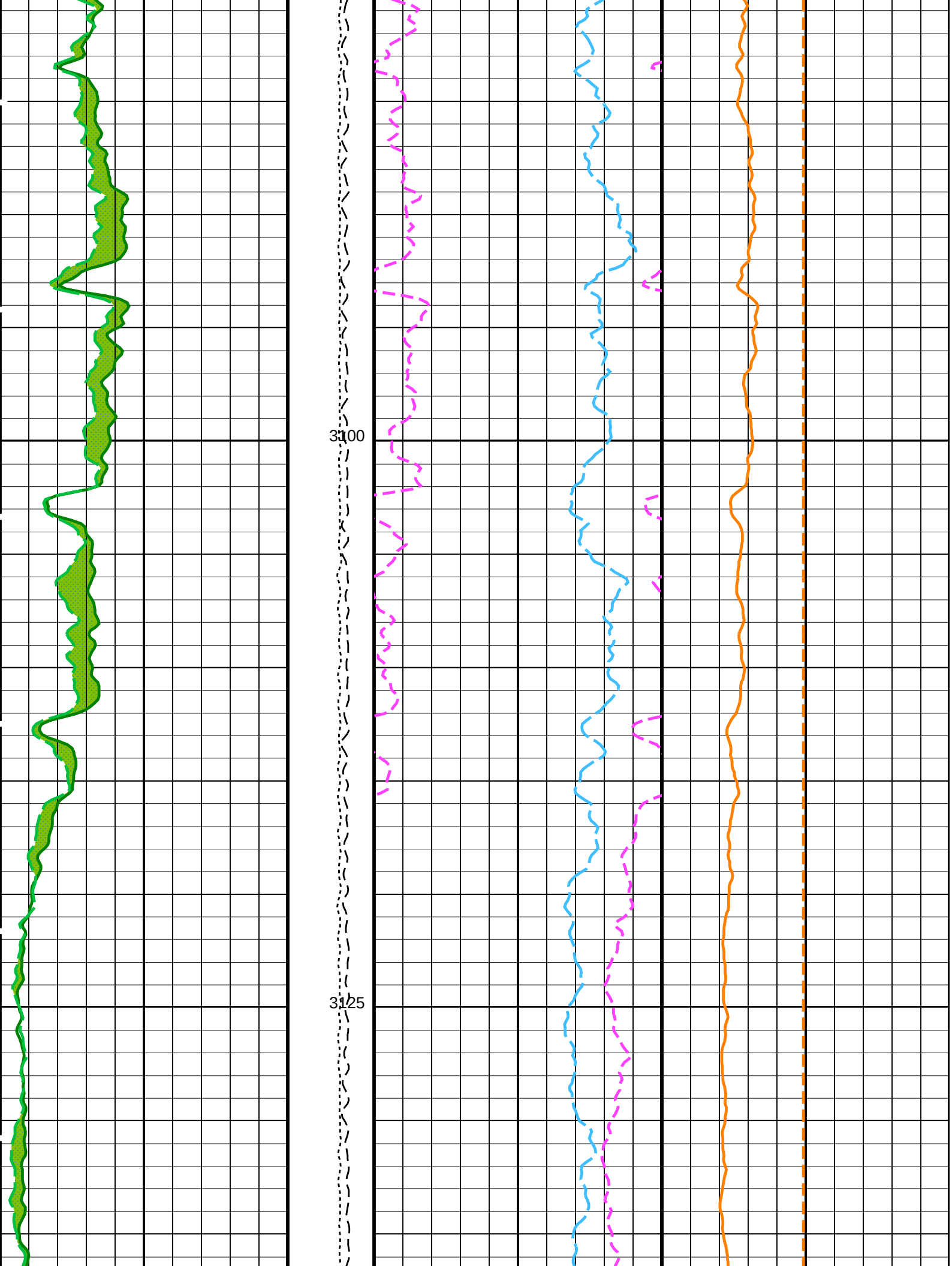
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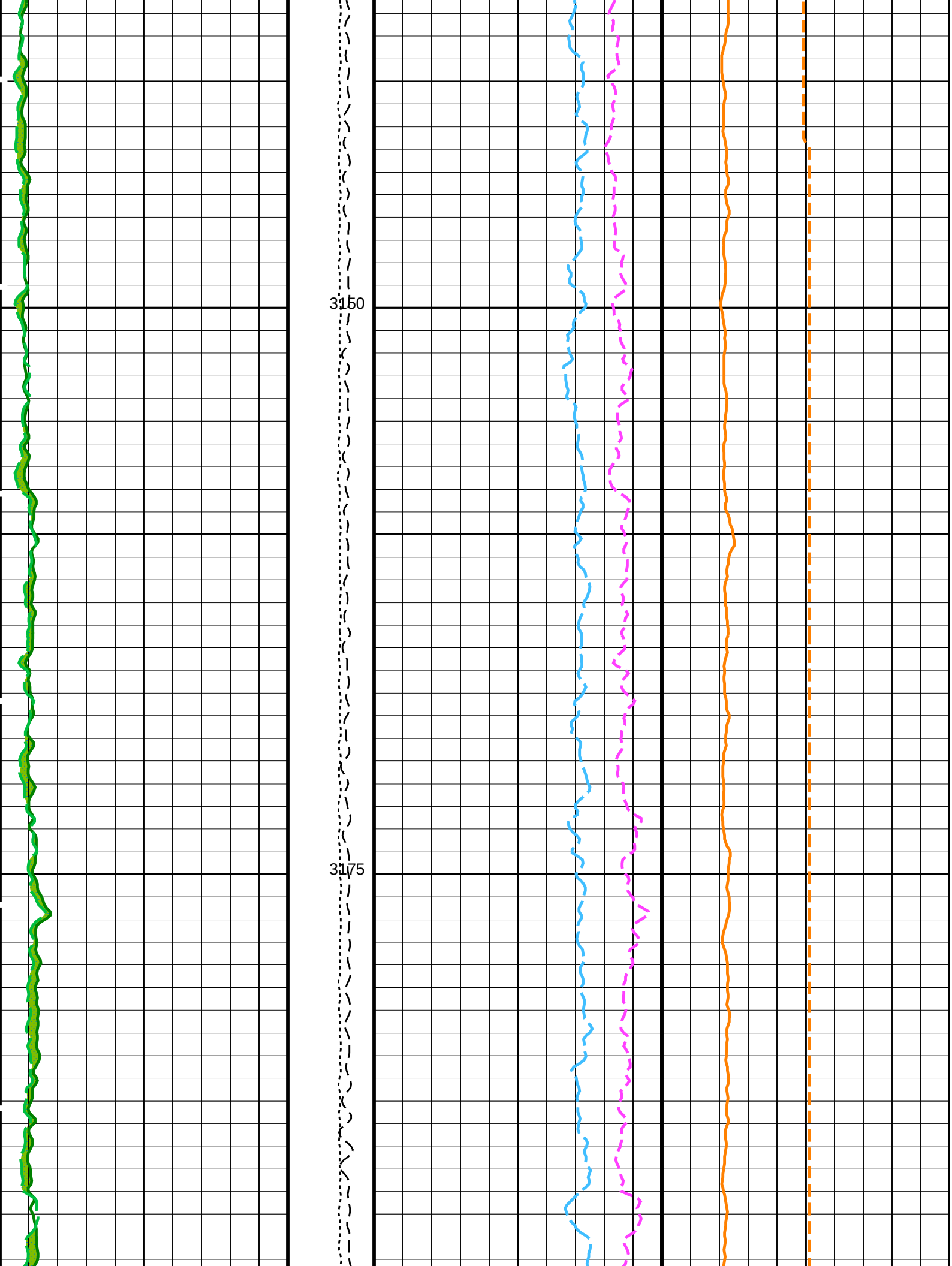
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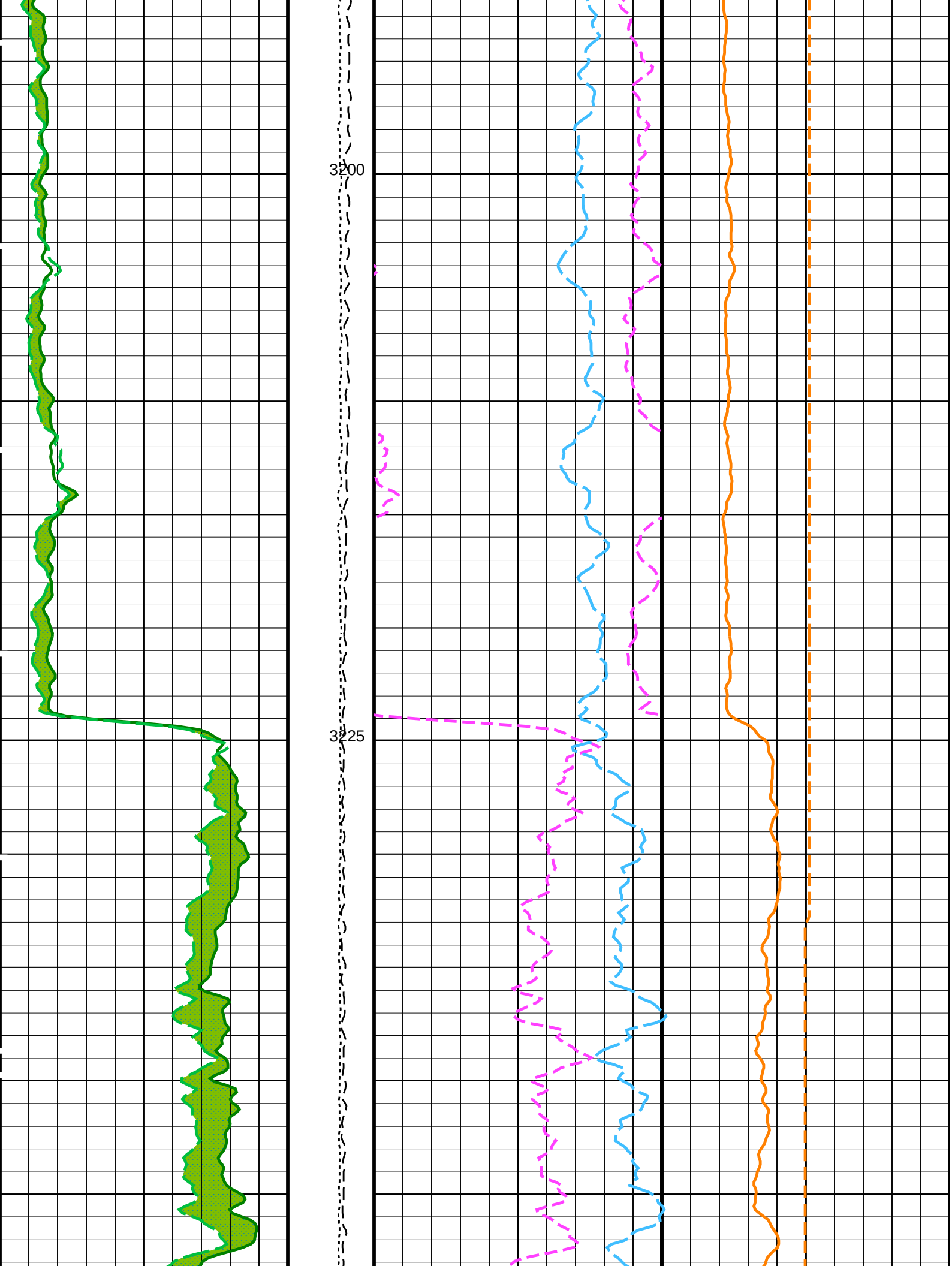
3200
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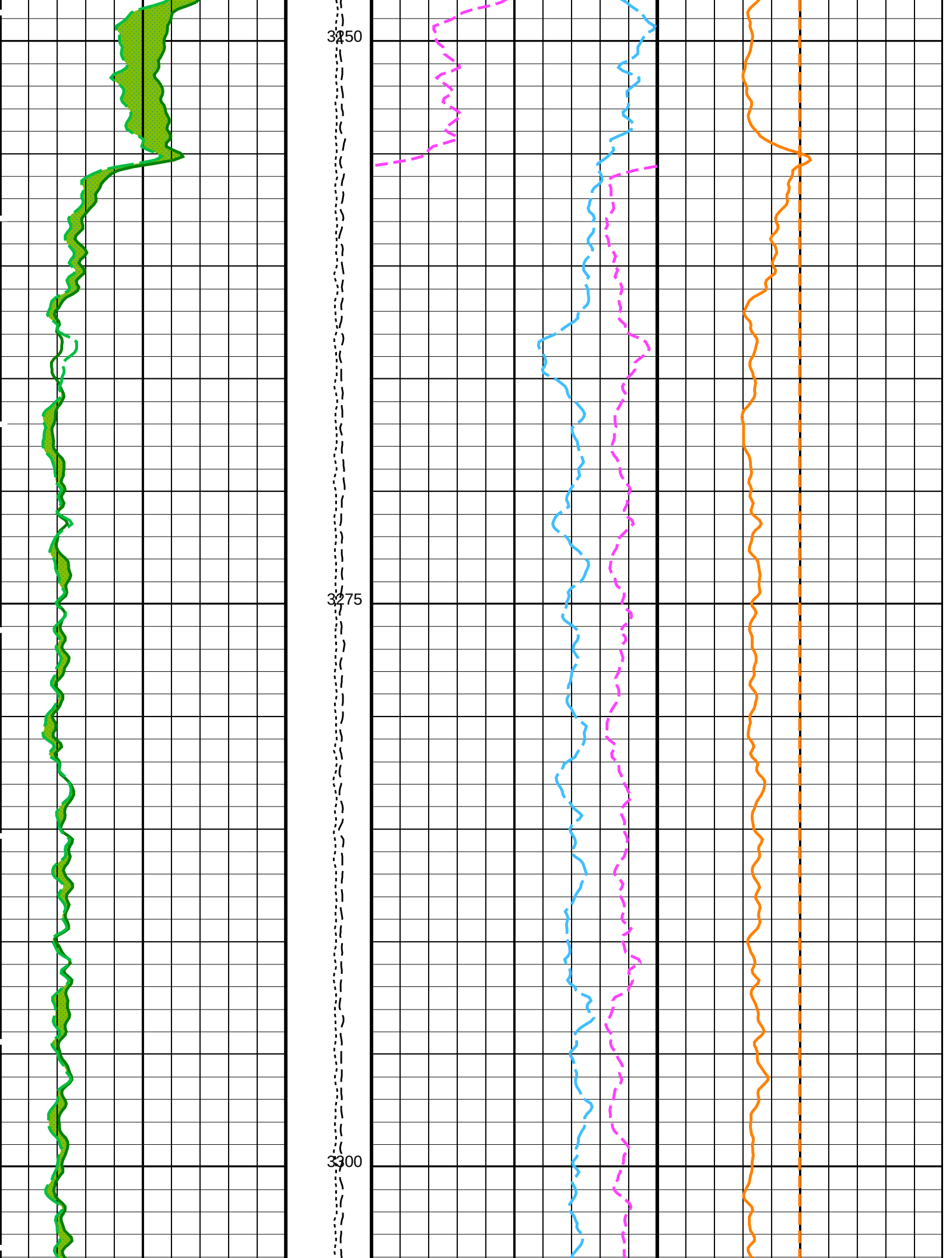
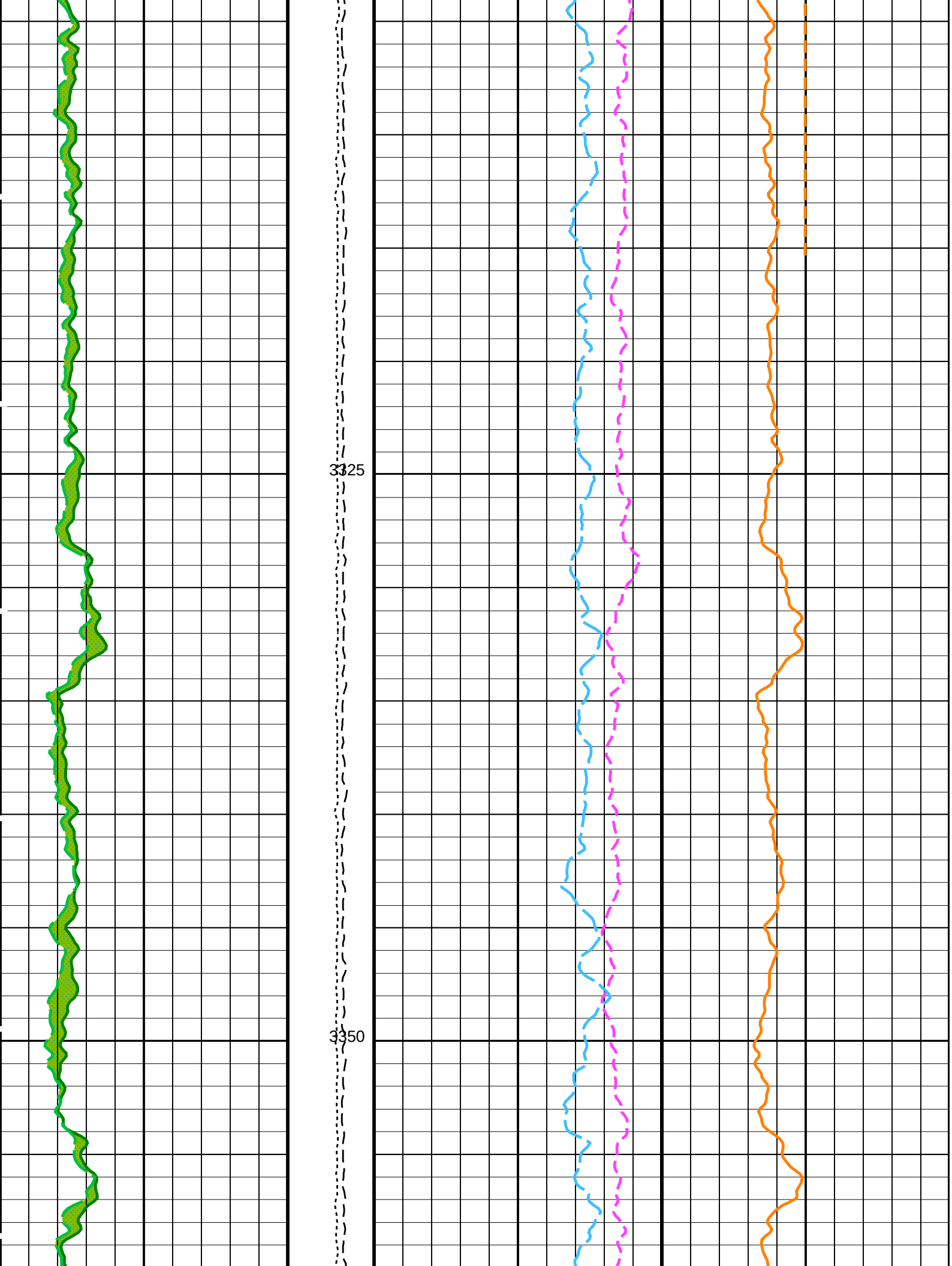

3250
3275
3300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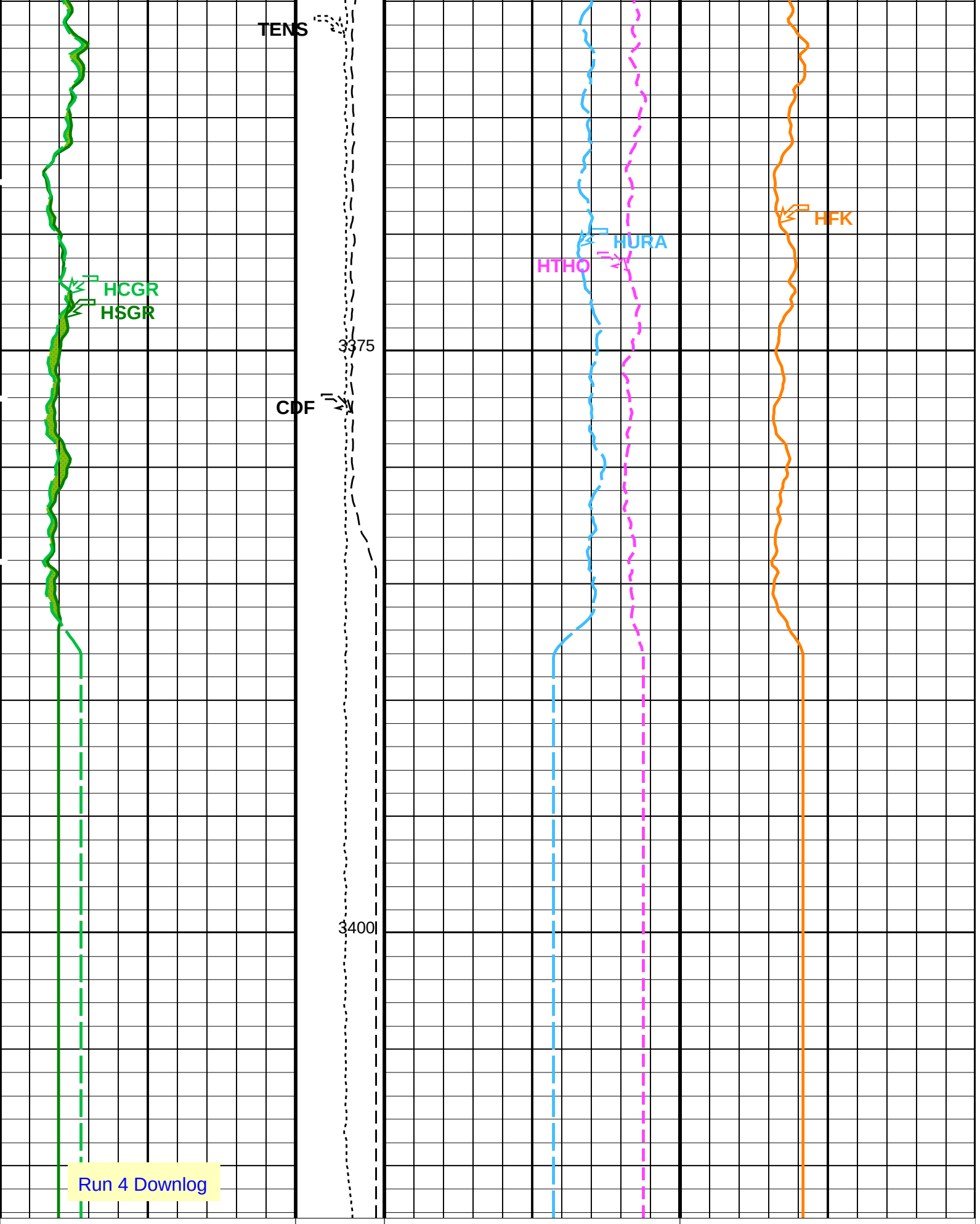

TENS
HCGR
HSGR
3375
CDF
HTHO
HURA
HFK
3400
Run 4 Downlog
HNGS Computed Gamma Ray (HCGR)
0
(GAPI)
100
Tension
(TENS)
(LBF)
10000
0
HNGS Thorium (HTHO)
5
(PPM)
25
HNGS Potassium (HFK)
−0.01
(−−−−)
0.04

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
	APS−C: Accelerator−Porosity Tool		
BHS	Borehole Status	OPEN	
GCSE	Generalized Caliper Selection	BS	
	HNGS−BA: Hostile Natural Gamma Ray Sonde		
BAR1	HNGS Detector 1 Barite Constant	1	
BAR2	HNGS Detector 2 Barite Constant	1	
BHK	HNGS Borehole Potassium Correction Concentration	0	
BHS	Borehole Status	OPEN	
CSD1	Inner Casing Outer Diameter	0	IN
CSD2	Outer Casing Outer Diameter	0	IN
CSW1	Inner Casing Weight	0	LB/F
CSW2	Outer Casing Weight	0	LB/F
DBCC	HNGS Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	BS	
H1P	HNGS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGS Borehole Potassium Running Average	−0.00151551	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	BARI	
HNPE	HNGS Processing Enable	YES	
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGS Standard Gamma−Ray Correction Flag	YES	
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0.976854	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	1.02109	
	EDTC−B: Enhanced DTS Cartridge		
BHS	Borehole Status	OPEN	
GCSE	Generalized Caliper Selection	BS	
	System and Miscellaneous		
BS	Bit Size	9.875	IN
DFD	Drilling Fluid Density	1.26	G/C3
DO	Depth Offset for Playback	0.0	M
PP	Playback Processing	RECOMPUTE	

Format: HNGSYields Vertical Scale: 1:200 Graphics File Created: 25−Nov−2017 18:58

OP System Version: 19C0−187

MEST−B	19C0−187	DTA−A	19C0−187
APS−C	19C0−187	HNGC−B	19C0−187
HNGS−BA	19C0−187	EDTC−B	SKK−5169−EDTCB

Input DLIS Files

DEFAULT	Flip_FMS_APS_NGS_058LUP	PRODUCER	25−Nov−2017 17:28	3412.2 M	2747.8 M

Output DLIS Files

DEFAULT	FMS_APS_NGS_064PUP	FN:85	PRODUCER	25−Nov−2017 18:58

Output DLIS Files

DEFAULT	FMS_APS_NGS_038LUP	FN:57	PRODUCER	24−Nov−2017 11:00	3410.7 M	2791.1 M
BACKUP	FMS_APS_NGS_038LUP	FN:58	PRODUCER	24−Nov−2017 11:00	3410.7 M	2791.1 M

OP System Version: 19C0−187

MEST−B	19C0−187	DTA−A	19C0−187
APS−C	19C0−187	HNGC−B	19C0−187
HNGS−BA	19C0−187	EDTC−B	SKK−5169−EDTCB

Changed Parameter Summary

DLIS Name	New Value	Previous Value	Depth & Time
XVOL	80 V	0 V	3411.4 11:06:15
	0 V	80 V	3150.6 11:37:47

PIP SUMMARY

Time Mark Every 60 S

HNGS Spectroscopy Gamma Ray (HSGR)
0 (GAPI) 100

APS Effective Standoff in Limestone (STOF)
−2.5 (IN) 2.5

Area
From HCGR to HSGR

HNGS Computed Gamma Ray (HCGR)
0 (GAPI) 100

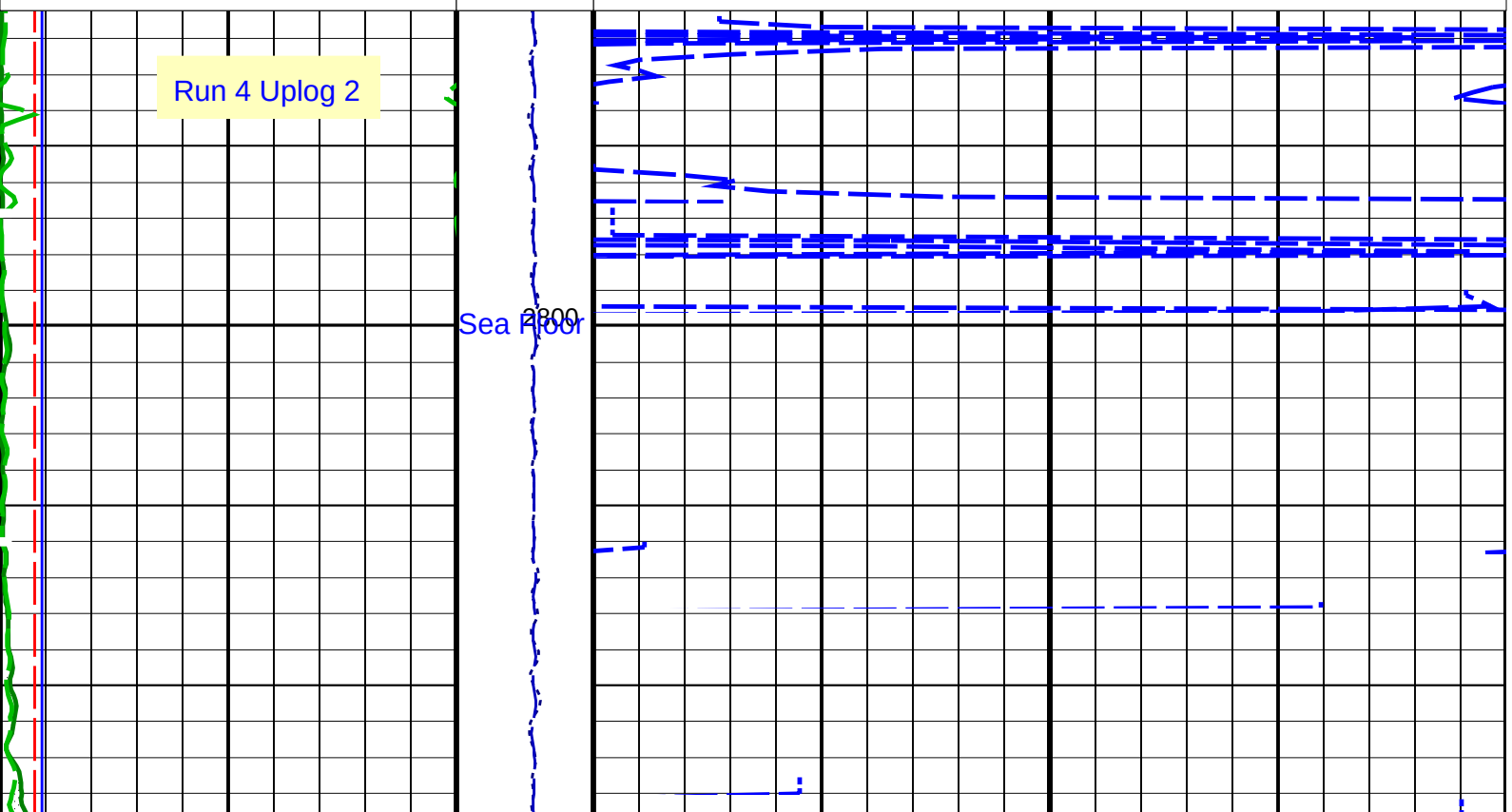
Caliper 2 (C2)
0 (IN) 20

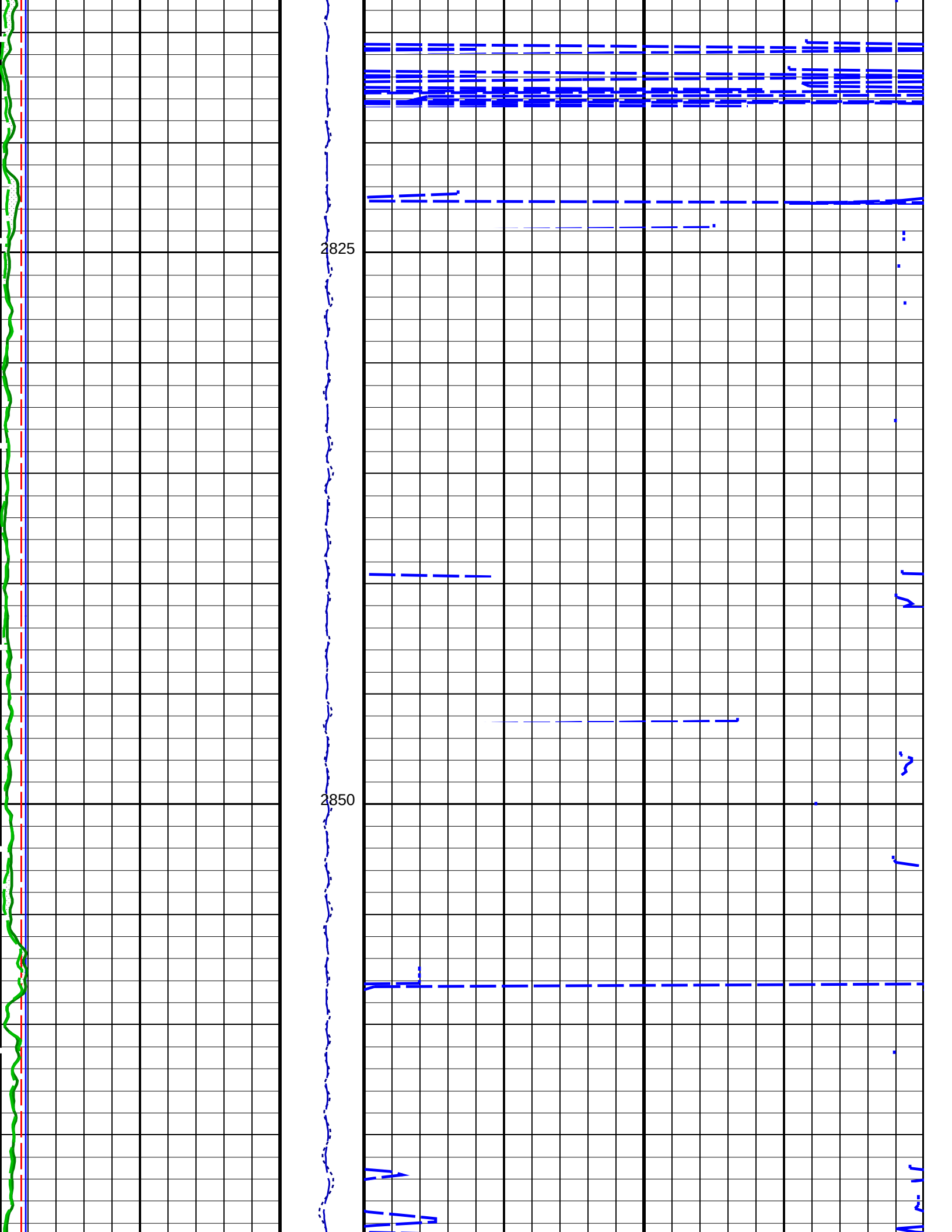
Calibrated Downhole Force (CDF) (LBF)
3000 0

Caliper 1 (C1)
0 (IN) 20

Tension (TENS) (LBF)
10000 0

APS Near/Array Corrected Limestone Porosity (APLC)
0 (PU) 100

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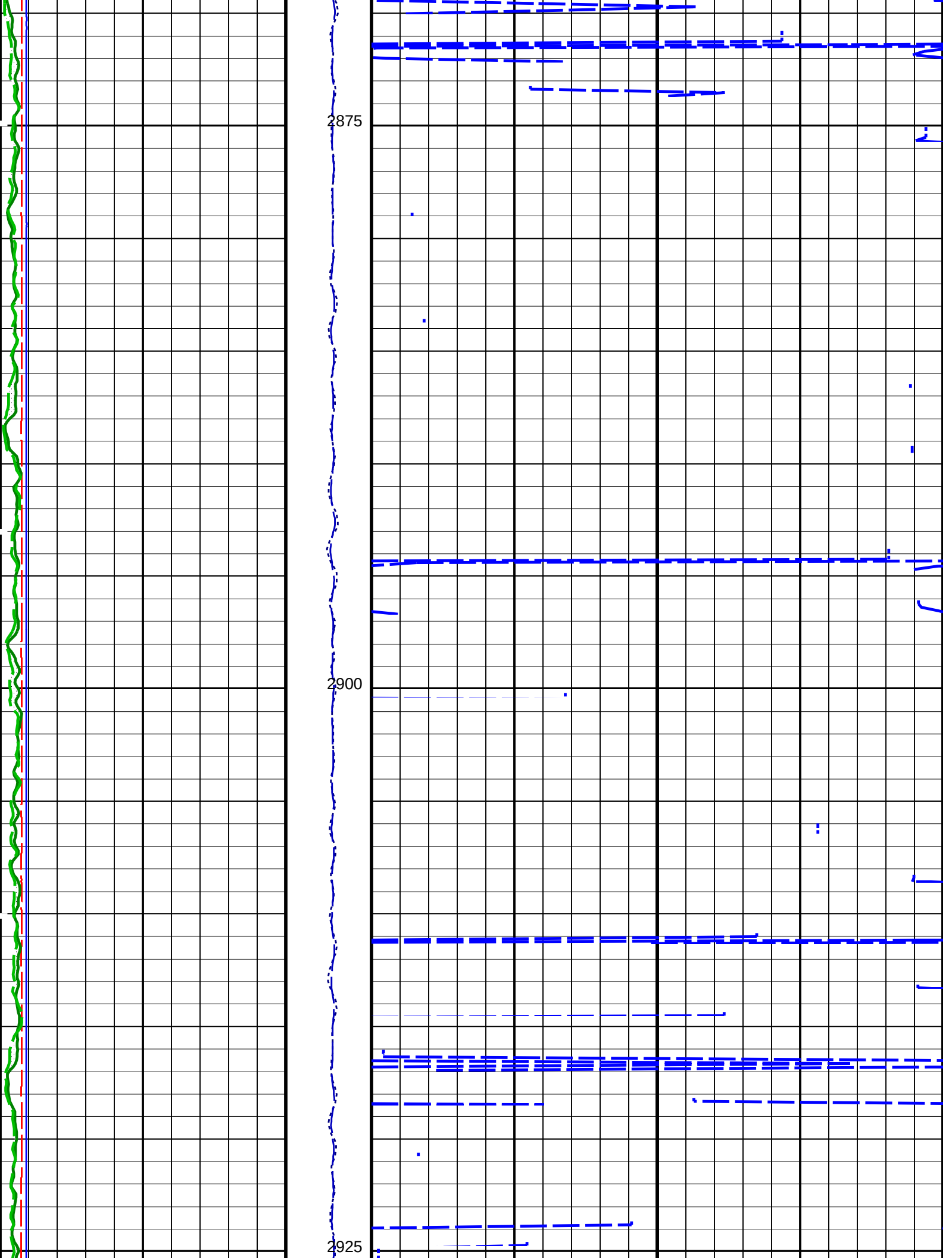
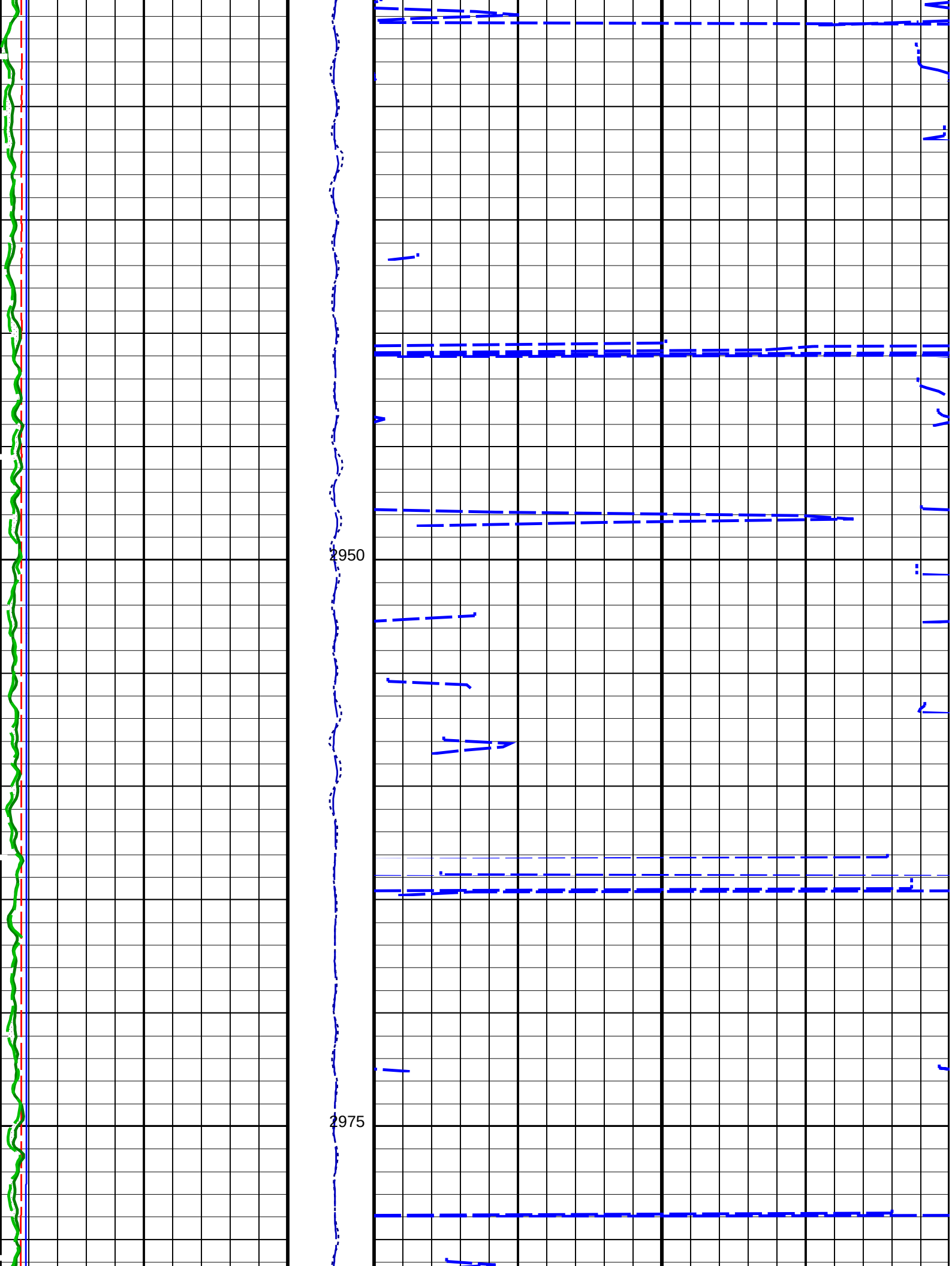

2875
2900
2925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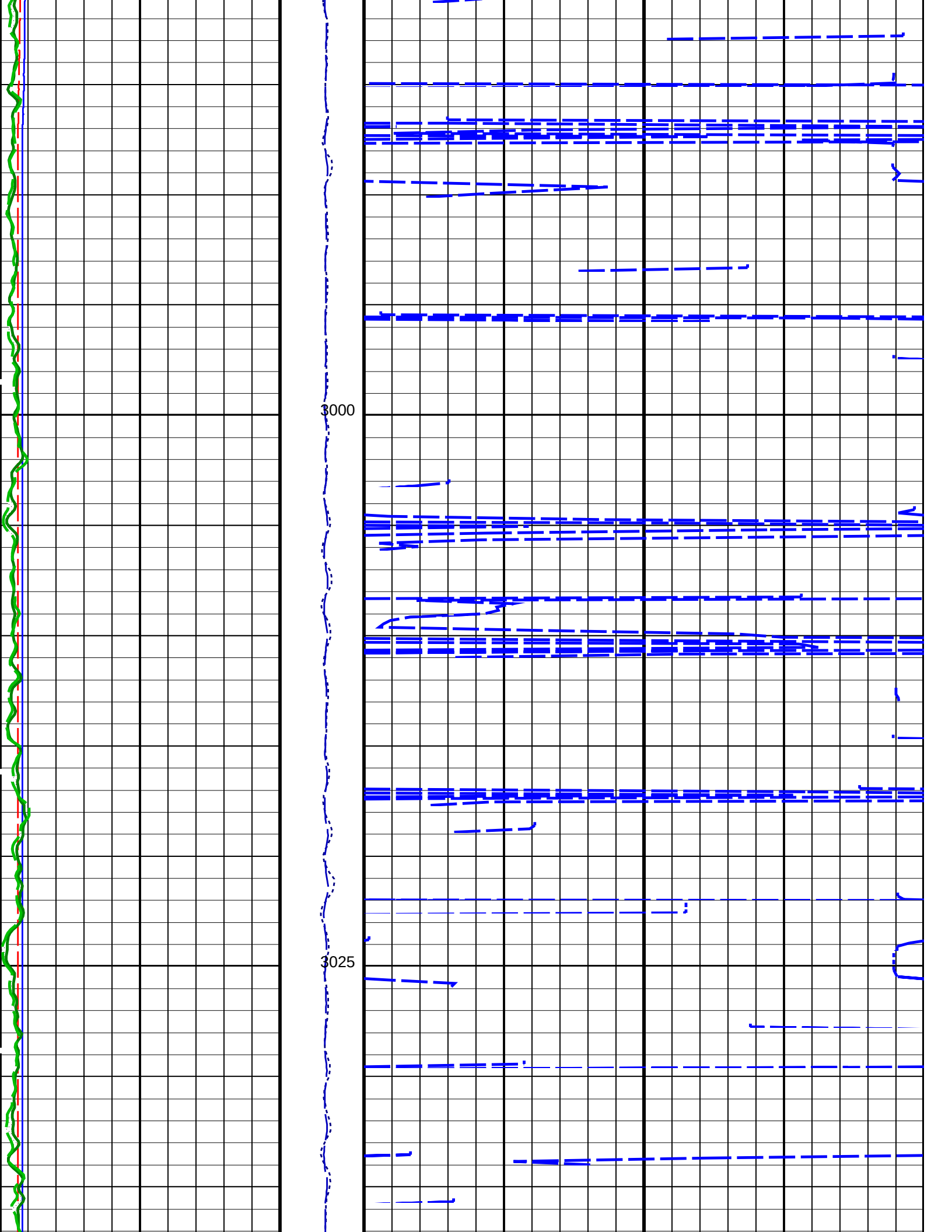
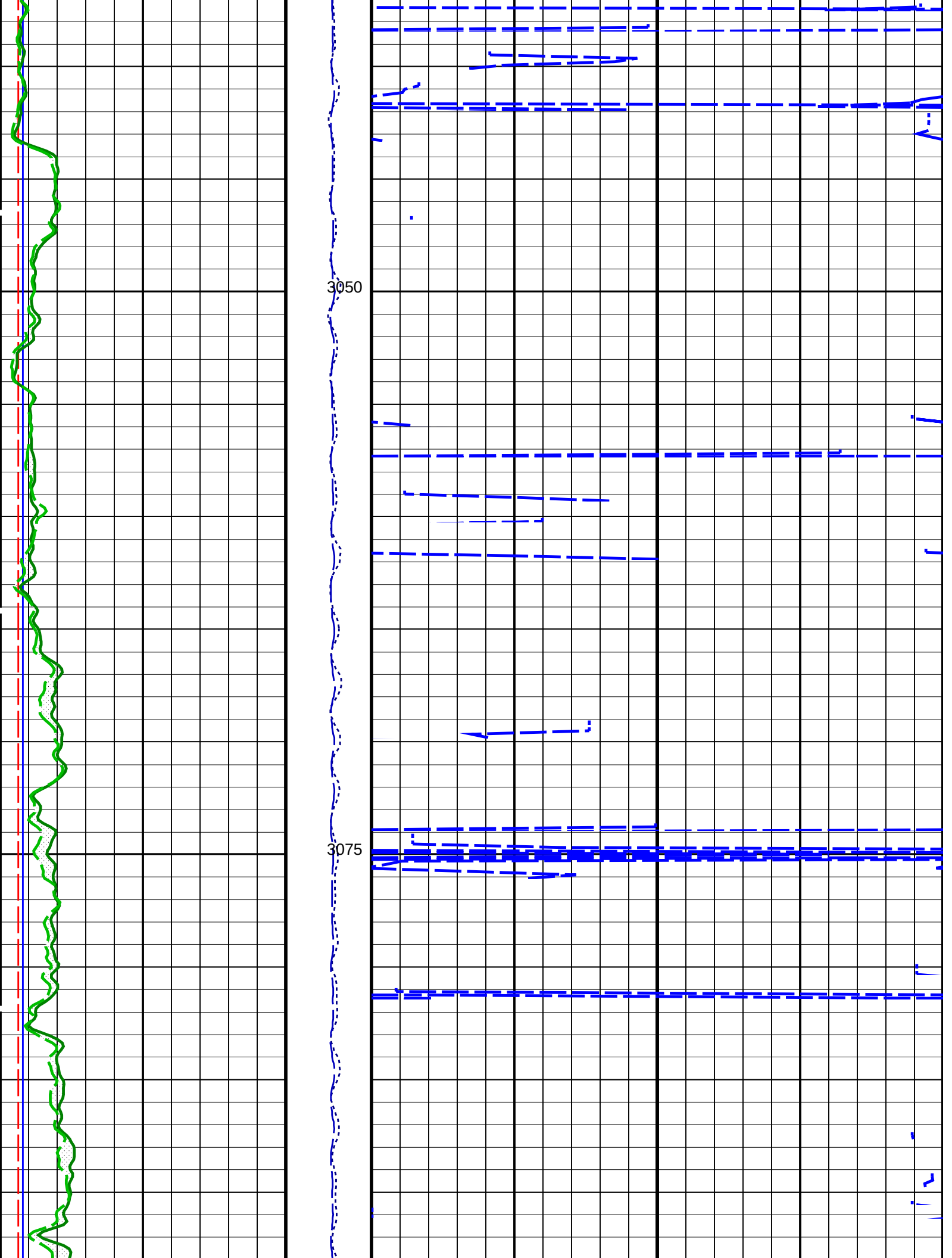

3000
3025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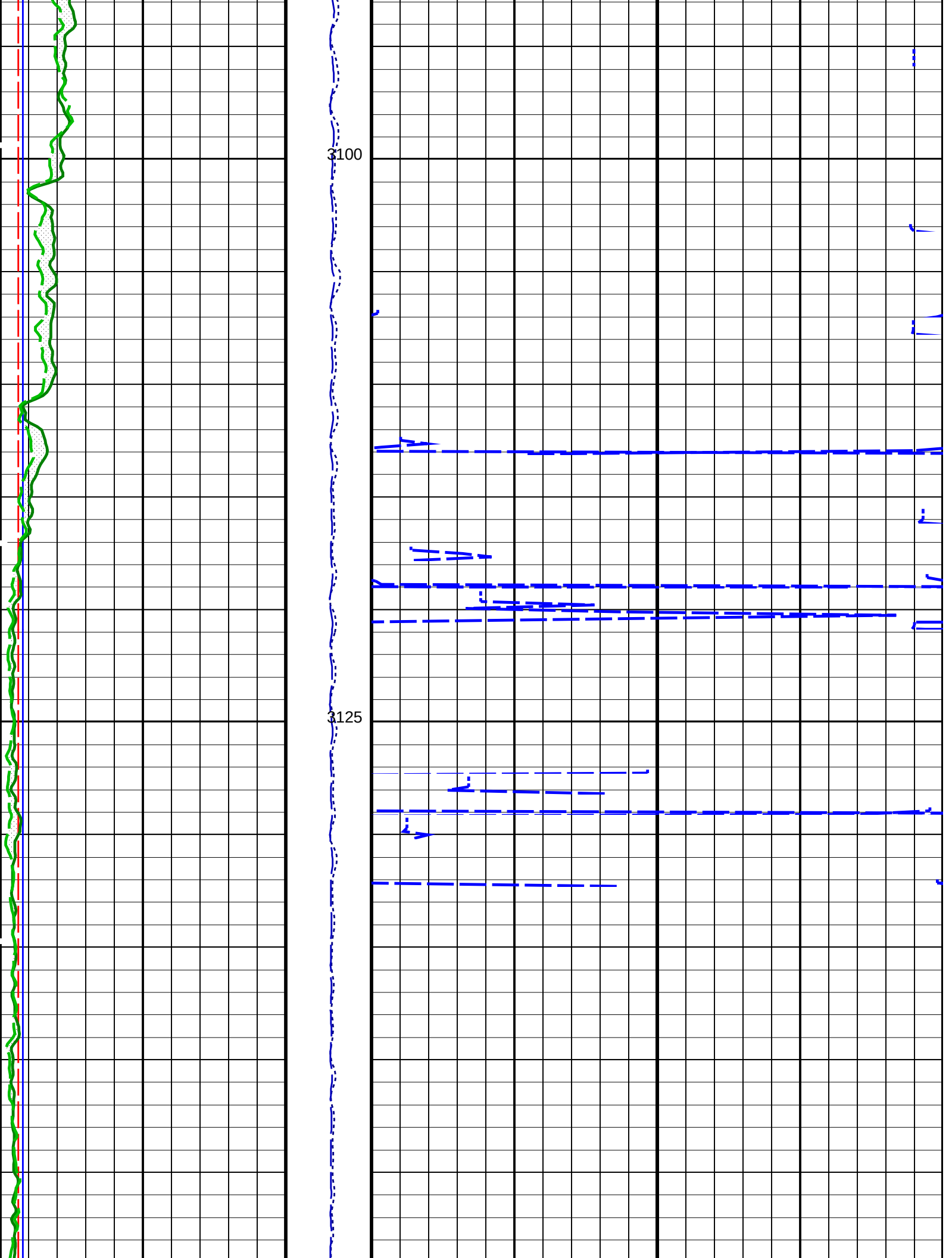
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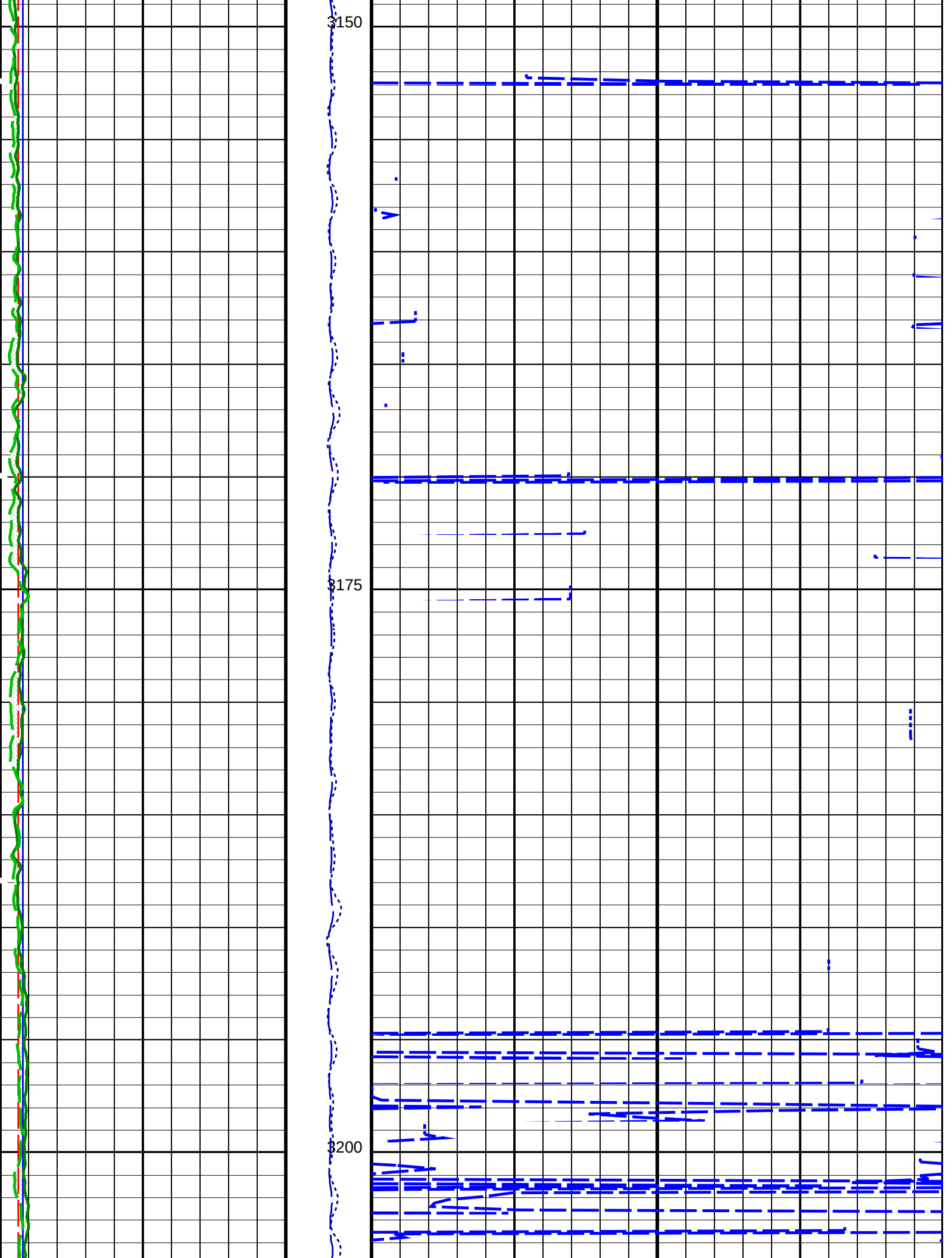
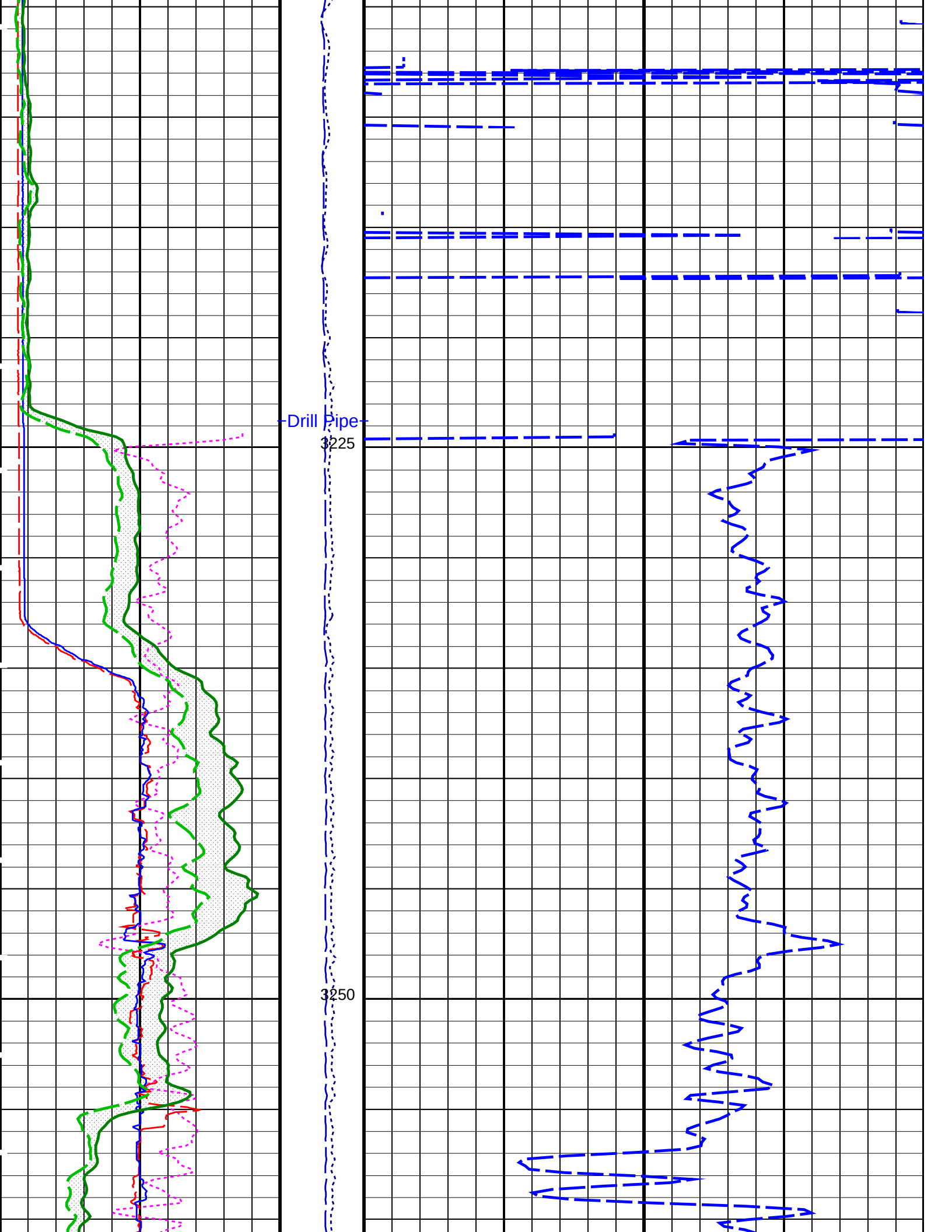
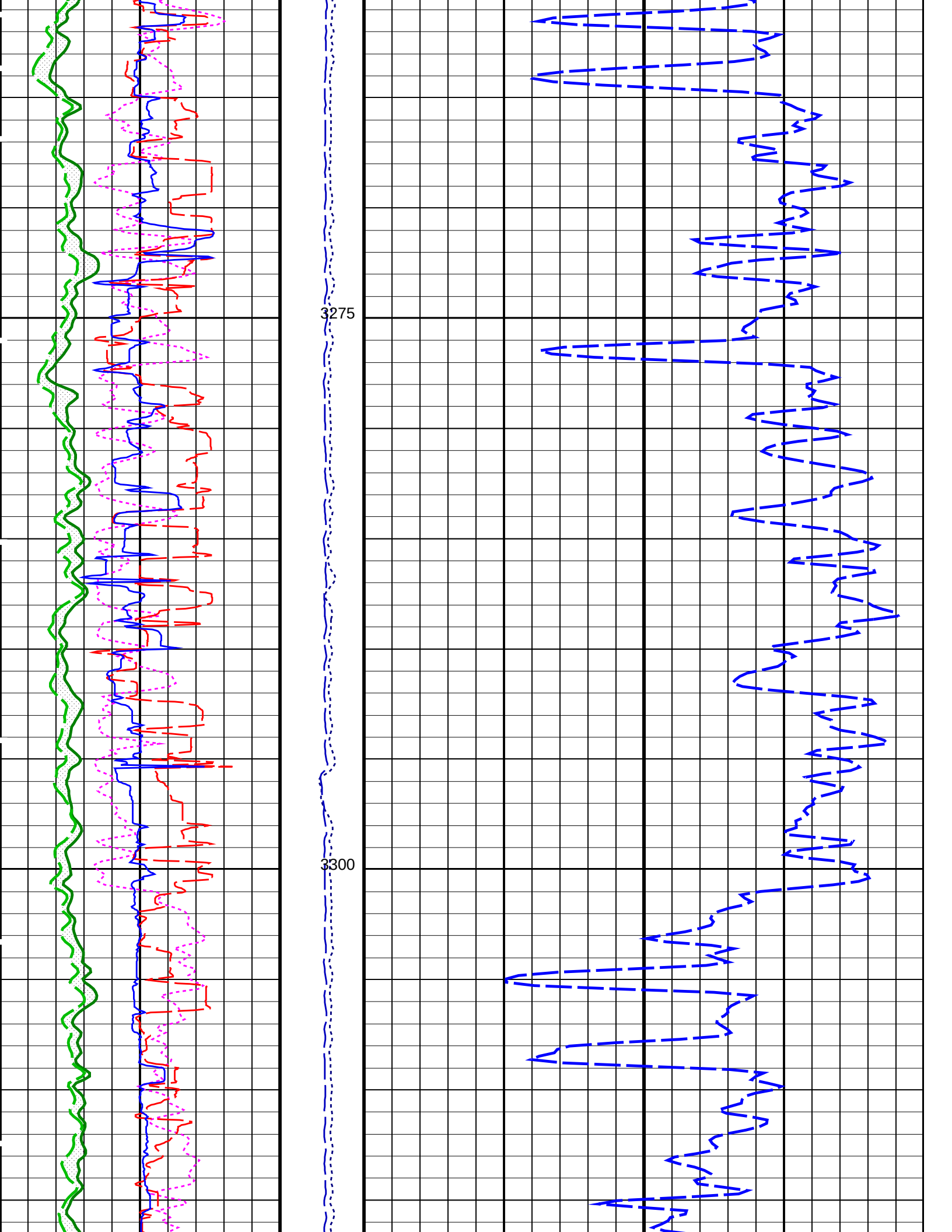

3150
3175
3200


Drill Pipe
3225
3250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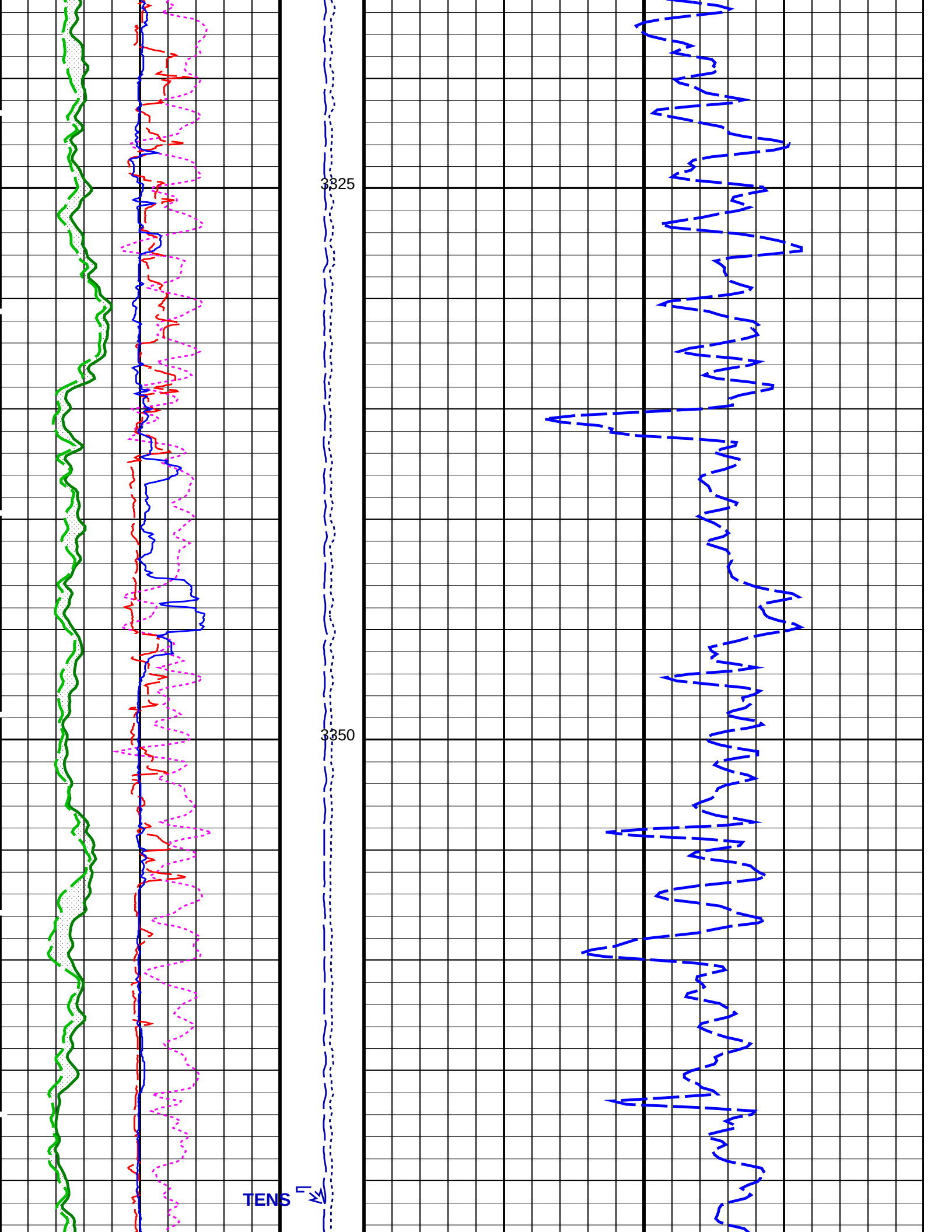
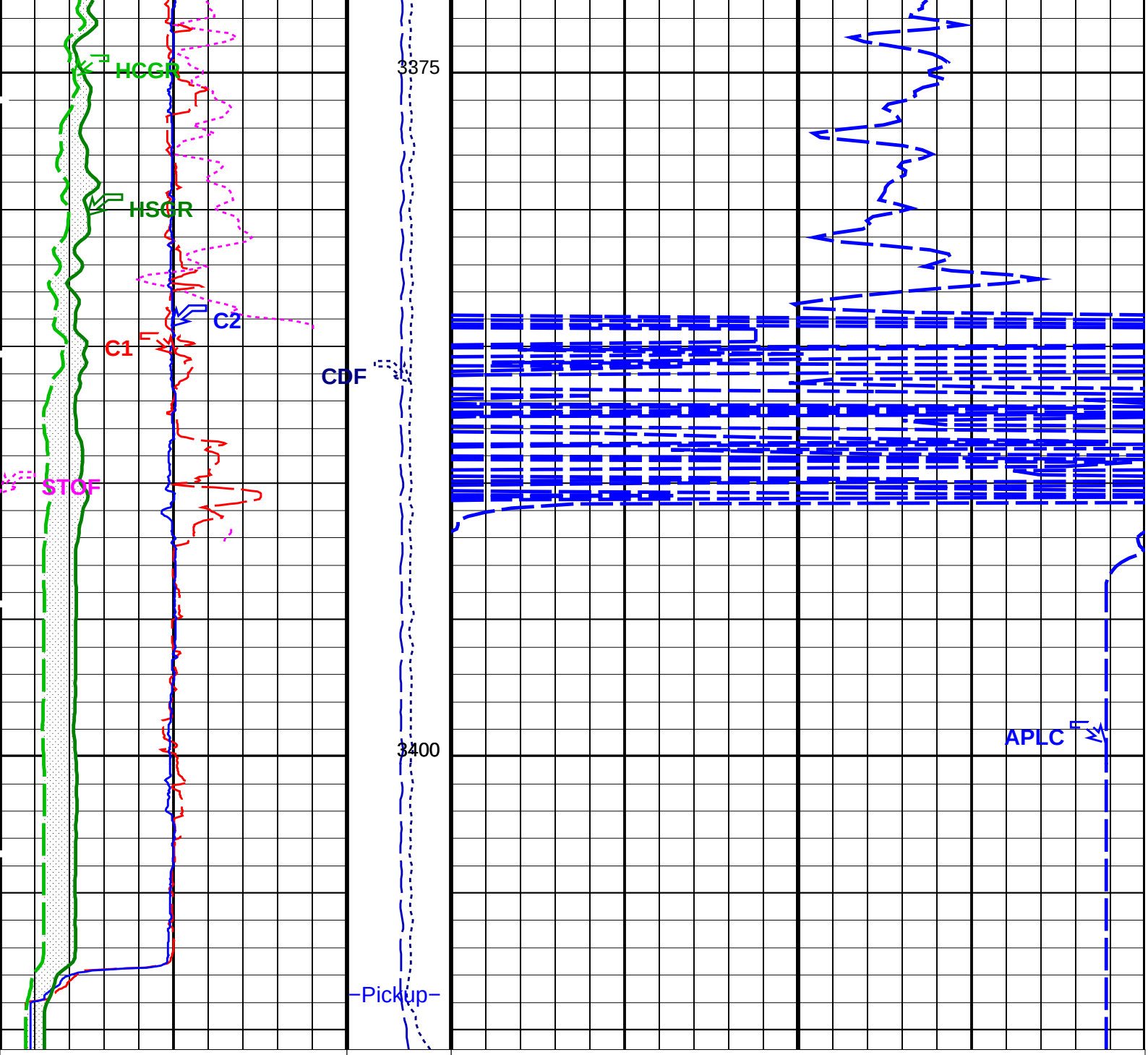

3325
3350
TENS



Caliper 1 (C1)
0 (IN) 20

Tension (TENS) (LBF)
10000 0

APS Near/Array Corrected Limestone Porosity (APLC)
0 (PU) 100

Caliper 2 (C2)
0 (IN) 20

Calibrated Downhole Force (CDF) (LBF)
3000 0

Run 4 Uplog 2

HNGS Computed Gamma Ray (HCGR)
0 (GAPI) 100

Area
From HCGR to HSGR

APS Effective Standoff in Limestone (STOF)
−2.5 (IN) 2.5

HNGS Spectroscopy Gamma Ray

HNGS Spectroscopy Gamma Ray (HSGR)		
0	(GAPI)	100

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
	MEST−B: Micro Electrical Scanner − B (Slim)		
ACPP	Accelerometer PROM Presence	PRESENT	
AFMO	Accelerometer Filtering Mode	MOVING_AVERAGE	
ART	Accelerometer Reference Temperature	20	DEGC
GLM	GPIT Logging Mode	DIPM	
ICMO	Inclinometry Computation Mode	AUTOMATIC_SELECTION	
MAPP	Magnetometer PROM Presence	PRESENT	
MDEC	Magnetic Field Declination	−4.37751	DEG
MLM	MEST Logging Mode	SCAN1800	
MRTE	Magneto Reference Temperature	19	DEGC
PTYP	Pad Type − High Resolution or Medium Extended Coverage	HR_SLIM_0_12_IN	
RBS	Resistivity Button Selection	AUTO	
TEMS	GPIT Temperature Sensor Used	BOTH	
U−GPOF	Playback OLD VERSION GPIT FILE (BEFORE OP14 + SRPC−3098−FEB_2006_C) ?	NO	
XGAI	Gain	GAIN_2	
XMOD	Emex Mode	MANUAL	
XOFF	Offset	OFFSET_0	
XVOL	Emex Voltage	0	V
	APS−C: Accelerator−Porosity Tool		
	APS Software Version	5	
AASD	APS Thermal and Array Detectors High Voltage Setting	1963.18	V
ADSO	APS Array Detectors Data Source Switch	Both	
AFSD	APS Far Detector High Voltage Setting	2080.01	V
AHCS	APS Holesize Correction Source	BS	
AHSS	APS Holesize Correction Switch	ON	
AMTY	APS Environmental Corrections Mud Type	WaterBaseBarite	
ANSD	APS Near Detector High Voltage Setting	1738.35	V
ASOS	APS Standoff Correction Switch	ON	
ATSS	APS Temperature−Pressure−Salinity Correction Switch	ON	
BHFL_APS	APS TNPH Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
BSCO_APS	APS TNPH Borehole Salinity Correction Option	YES	
DPPM	Density Porosity Processing Mode	HIRS	
DSCO_APS	APS TNPH Density Source Correction Option	MEASURED	
FSAL	Formation Salinity	−50000	PPM
FSCO_APS	APS TNPH Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	C1	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO_APS	APS TNPH Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	BARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO_APS	APS TNPH Mud Cake Correction Option	YES	
MCOR_APS	APS TNPH Mud Correction	BARI	
MWCO_APS	APS TNPH Mud Weight Correction Option	YES	
NARC	APS Near/Array Calibration Ratio	1.07112	
NFRC	APS Near/Far Calibration Ratio	0.896577	
PTCO_APS	APS TNPH Pressure/Temperature Correction Option	NO	
SHT	Surface Hole Temperature	55	DEGF
TNCO_APS	APS TNPH Computation Option	YES	
	HNGS−BA: Hostile Natural Gamma Ray Sonde		
BAR1	HNGS Detector 1 Barite Constant	1	
BAR2	HNGS Detector 2 Barite Constant	1	
BHK	HNGS Borehole Potassium Correction Concentration	0	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
CSD1	Inner Casing Outer Diameter	0	IN
CSD2	Outer Casing Outer Diameter	0	IN
CSW1	Inner Casing Weight	0	LB/F
CSW2	Outer Casing Weight	0	LB/F
DBCC	HNGS Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	C1	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
H1P	HNGS Detector 1 Allow/Disallow In Processing	ALLOW	

H2P	HNGS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGS Borehole Potassium Running Average	−0.000195465	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	BARI	
HNPE	HNGS Processing Enable	YES	
ISSBAR	Barite Mud Switch	BARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGS Standard Gamma−Ray Correction Flag	YES	
SHT	Surface Hole Temperature	55	DEGF
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0.976002	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.994936	
EDTC−B: Enhanced DTS Cartridge			
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
DPPM	Density Porosity Processing Mode	HIRS	
FSAL	Formation Salinity	−50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	C1	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO	Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	BARITE	
ISSBAR_EDTC	Nuclear Mud Type	BARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	BARI	
MWCO	Mud Weight Correction Option	YES	
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	55	DEGF
SOCN	Standoff Distance	0.5	IN
SOCO	Standoff Correction Option	NO	
TPOS_EDTC	EDTC Tool Centered/Eccentered	Eccentered	
U−ETELM_EDTS	Telemetry Mode for eWAFE	Standard_EDTS	
U−TELM_EDTS	Telemetry Mode for WAFE	Standard_EDTS	
DIP: Dip Computation			
	DIP Tool	SHDT	
CSBL	CSB DIP Number of Levels	2L	
DPAD	Disabled Pad	NONE	
ELRA	Electrical Radius	0.5	IN
INT	Correlation Interval	1.2192	M
SANG	Correlation Search Angle	35	DEG
SBUT	DIP Set of Buttons	MSD	
SDFA	Side−by−Side Distance Factor	0.9	IN
SPAN	DIP Spanning	1/4	
STDA	Structural DIP Azimuth	0	DEG
STDI	Structural DIP Angle	0	DEG
STEP	Correlation Step	0.6096	M
System and Miscellaneous			
ALTDPCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	9.875	IN
BSAL	Borehole Salinity	38000.00	PPM
CSIZ	Current Casing Size	5.500	IN
CWEI	Casing Weight	168.00	LB/F
DFD	Drilling Fluid Density	1.26	G/C3
FLEV	Fluid Level	−50000.00	M
MST	Mud Sample Temperature	23.00	DEGC
PBVSADP	Use alternate depth channel for playback	NO	
RMFS	Resistivity of Mud Filtrate Sample	−50000.0000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	12409.8	FT
TDD	Total Depth − Driller	3574.00	M
TDL	Total Depth − Logger	3574.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: APSLiquidPorosity_1 Vertical Scale: 1:200 Graphics File Created: 24−Nov−2017 11:00

OP System Version: 19C0−187

MEST−B	19C0−187	DTA−A	19C0−187
APS−C	19C0−187	HNGC−B	19C0−187
HNGS−BA	19C0−187	EDTC−B	SKK−5169−EDTCB

Output DLIS Files

DEFAULT	FMS_APS_NGS_038LUP	FN:57	PRODUCER	24−Nov−2017 11:00
BACKUP	FMS_APS_NGS_038LUP	FN:58	PRODUCER	24−Nov−2017 11:00

Output DLIS Files

DEFAULT	FMS_APS_NGS_037LUP	FN:55	PRODUCER	24−Nov−2017 10:29
BACKUP	FMS_APS_NGS_037LUP	FN:56	PRODUCER	24−Nov−2017 10:29

OP System Version: 19C0−187

MEST−B	19C0−187	DTA−A	19C0−187
APS−C	19C0−187	HNGC−B	19C0−187
HNGS−BA	19C0−187	EDTC−B	SKK−5169−EDTCB

Changed Parameter Summary

DLIS Name	New Value	Previous Value	Depth & Time
XVOL	80 V	0 V	3410.6 10:30:00

PIP SUMMARY

Time Mark Every 60 S

HNGS Spectroscopy Gamma Ray (HSGR)
0 (GAPI) 100

APS Effective Standoff in Limestone (STOF)
−2.5 (IN) 2.5

Area
From HCGR to HSGR

HNGS Computed Gamma Ray (HCGR)
0 (GAPI) 100

Caliper 2 (C2)
0 (IN) 20

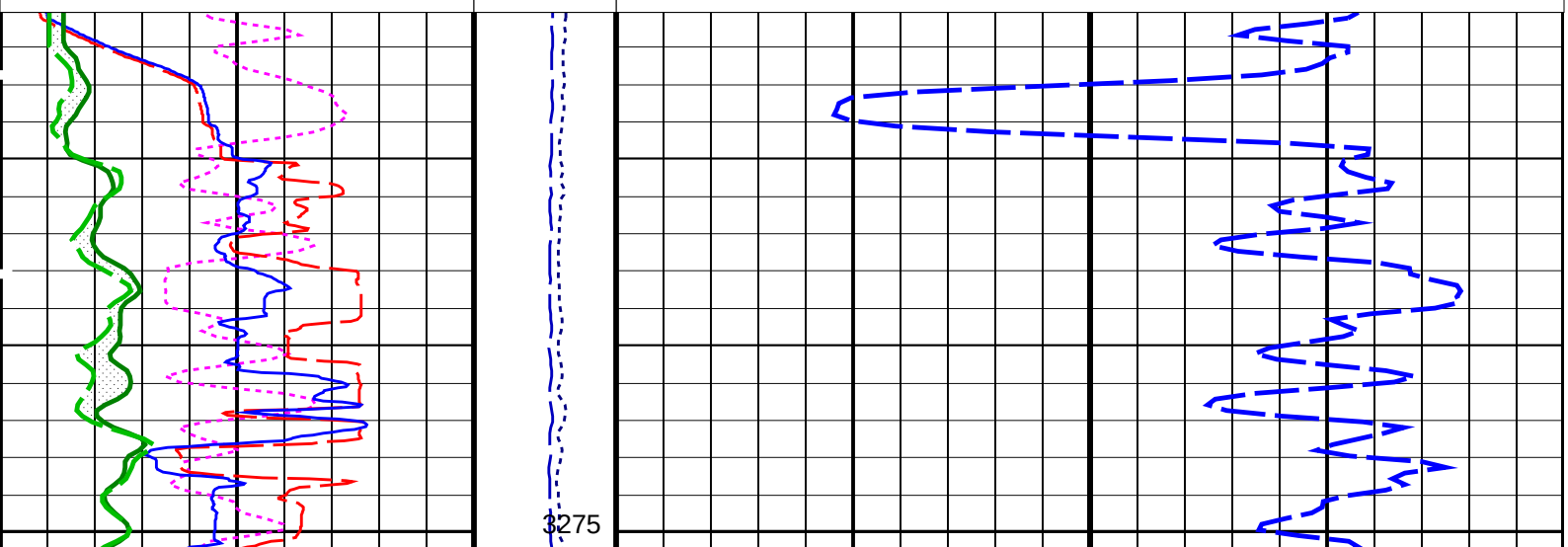
Calibrated Downhole Force (CDF) (LBF)
3000 0

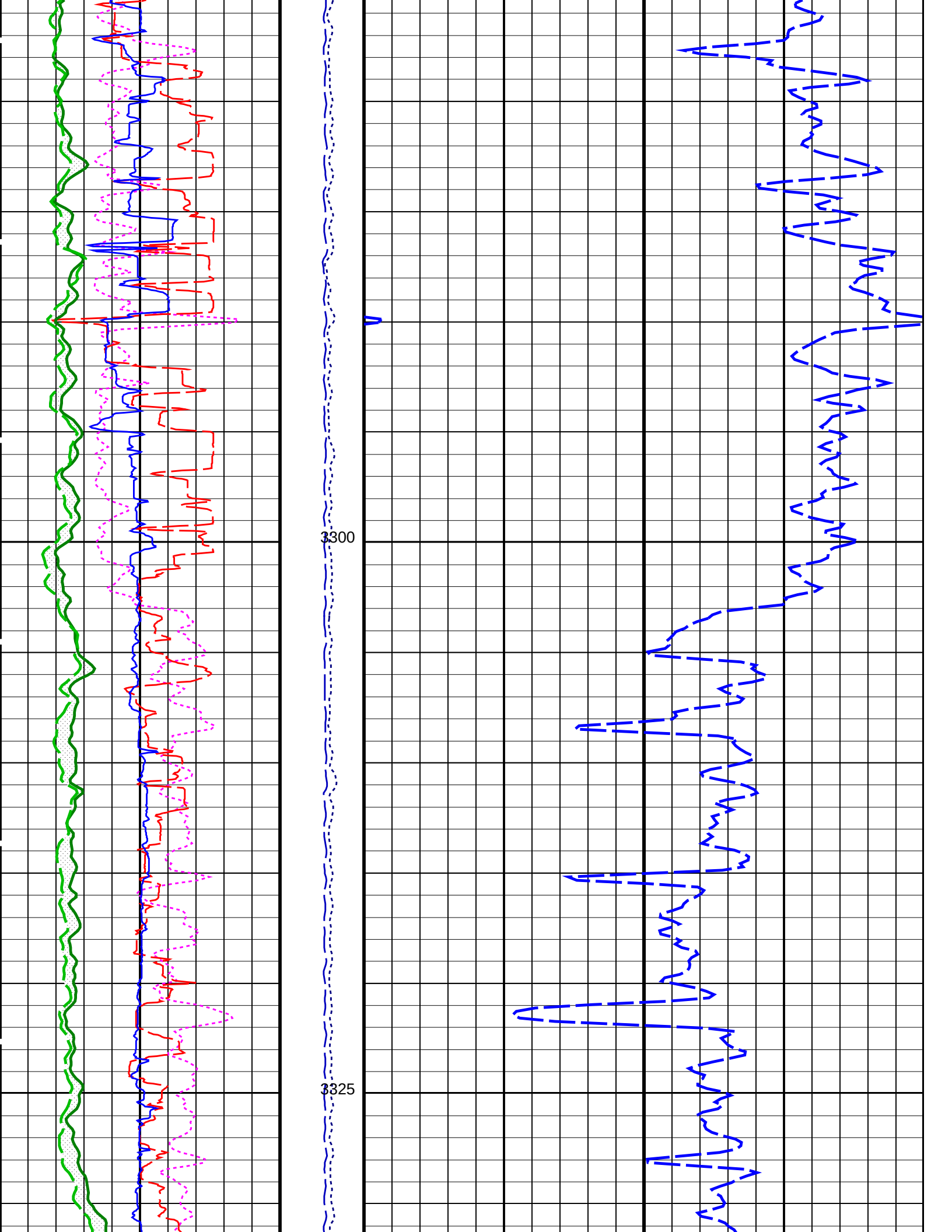
Run 4 Uplog 1

Caliper 1 (C1)
0 (IN) 20

Tension (TENS) (LBF)
10000 0

APS Near/Array Corrected Limestone Porosity (APLC)
0 (PU) 100

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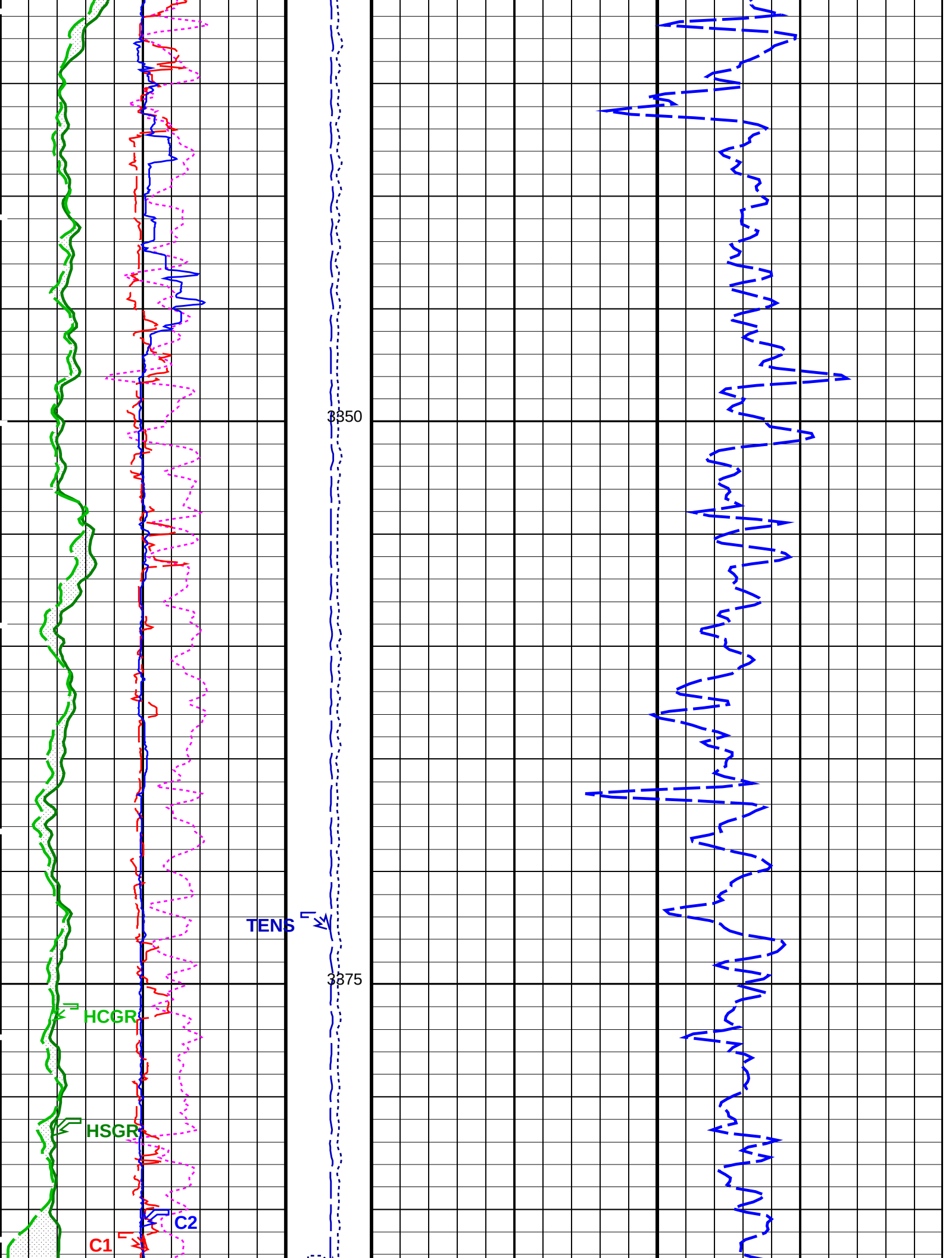
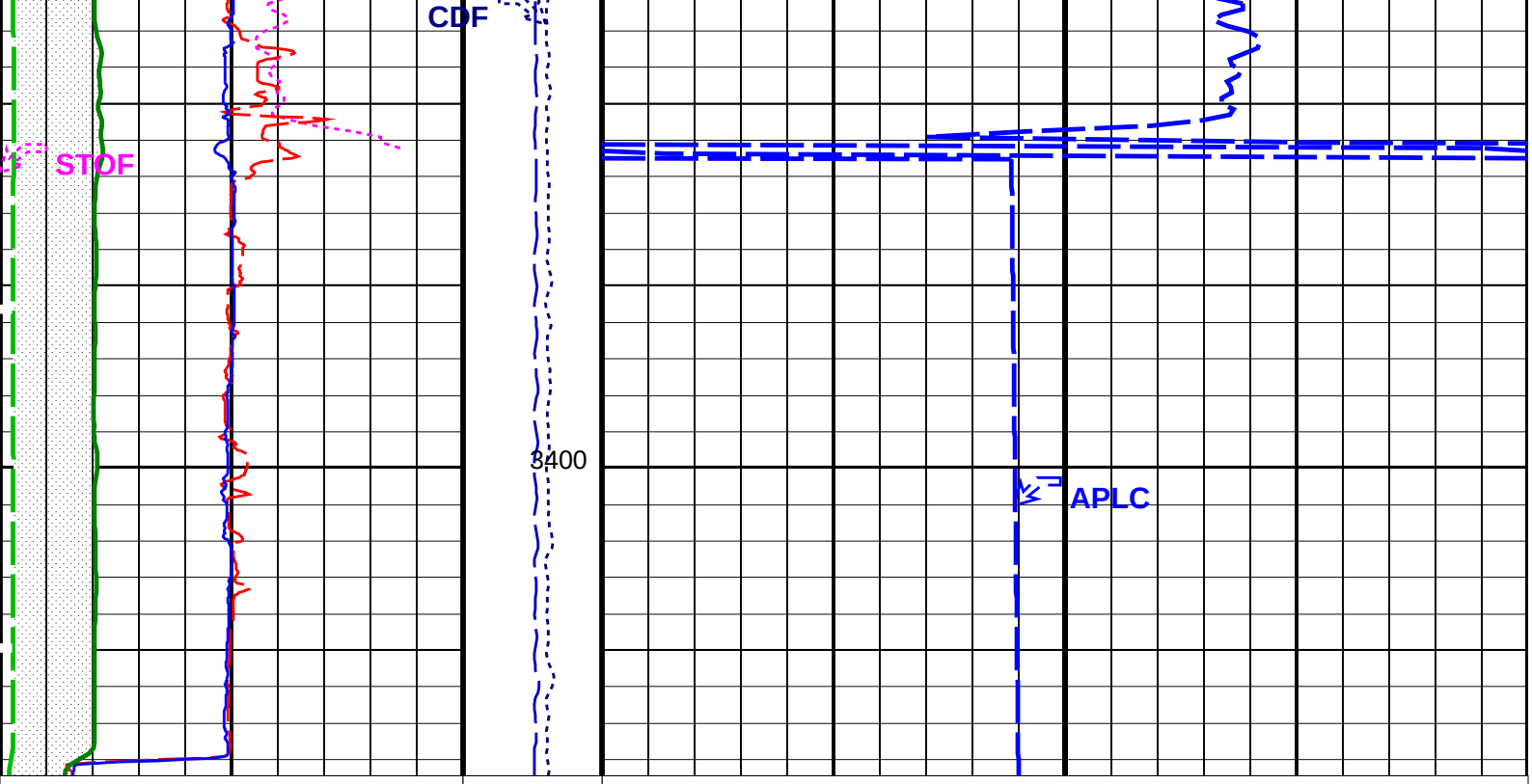

3350
TENS
3375
HCGR
HSGR
C2
C1



Caliper 1 (C1)
0 (IN) 20

Tension (TENS) (LBF)
10000 0

APS Near/Array Corrected Limestone Porosity (APLC)
0 (PU) 100

Caliper 2 (C2)
0 (IN) 20

Calibrated Downhole Force (CDF) (LBF)
3000 0

Run 4 Uplog 1

HNGS Computed Gamma Ray (HCGR)
0 (GAPI) 100

Area
From HCGR to HSGR

APS Effective Standoff in Limestone (STOF)
−2.5 (IN) 2.5

HNGS Spectroscopy Gamma Ray (HSGR)
0 (GAPI) 100

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
	MEST−B: Micro Electrical Scanner − B (Slim)		
ACPP	Accelerometer PROM Presence	PRESENT	
AFMO	Accelerometer Filtering Mode	MOVING_AVERAGE	
ART	Accelerometer Reference Temperature	20	DEGC
GLM	GPIT Logging Mode	DIPM	
ICMO	Inclinometry Computation Mode	AUTOMATIC_SELECTION	
MAPP	Magnetometer PROM Presence	PRESENT	
MDEC	Magnetic Field Declination	−4.37751	DEG
MLM	MEST Logging Mode	SCAN1800	
MRTE	Magneto Reference Temperature	19	DEGC
PTYP	Pad Type − High Resolution or Medium Extended Coverage	HR_SLIM_0_12_IN	
RBS	Resistivity Button Selection	AUTO	

TEMS	GPIT Temperature Sensor Used	BOTH	
U−GPOF	Playback OLD VERSION GPIT FILE (BEFORE OP14 + SRPC−3098−FEB_2006_C) ?	NO	
XGAI	Gain	GAIN_2	
XMOD	Emex Mode	MANUAL	
XOFF	Offset	OFFSET_0	
XVOL	Emex Voltage	0	V
APS−C: Accelerator−Porosity Tool			
	APS Software Version	5	
AASD	APS Thermal and Array Detectors High Voltage Setting	1963.18	V
ADSO	APS Array Detectors Data Source Switch	Both	
AFSD	APS Far Detector High Voltage Setting	2080.01	V
AHCS	APS Holesize Correction Source	BS	
AHSS	APS Holesize Correction Switch	ON	
AMTY	APS Environmental Corrections Mud Type	WaterBaseBarite	
ANSD	APS Near Detector High Voltage Setting	1738.35	V
ASOS	APS Standoff Correction Switch	ON	
ATSS	APS Temperature−Pressure−Salinity Correction Switch	ON	
BHFL_APS	APS TNPH Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
BSCO_APS	APS TNPH Borehole Salinity Correction Option	YES	
DPPM	Density Porosity Processing Mode	HIRS	
DSCO_APS	APS TNPH Density Source Correction Option	MEASURED	
FSAL	Formation Salinity	−50000	PPM
FSCO_APS	APS TNPH Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	C1	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO_APS	APS TNPH Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	BARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO_APS	APS TNPH Mud Cake Correction Option	YES	
MCOR_APS	APS TNPH Mud Correction	BARI	
MWCO_APS	APS TNPH Mud Weight Correction Option	YES	
NARC	APS Near/Array Calibration Ratio	1.07112	
NFRC	APS Near/Far Calibration Ratio	0.896577	
PTCO_APS	APS TNPH Pressure/Temperature Correction Option	NO	
SHT	Surface Hole Temperature	55	DEGF
TNCO_APS	APS TNPH Computation Option	YES	
HNGS−BA: Hostile Natural Gamma Ray Sonde			
BAR1	HNGS Detector 1 Barite Constant	1	
BAR2	HNGS Detector 2 Barite Constant	1	
BHK	HNGS Borehole Potassium Correction Concentration	0	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
CSD1	Inner Casing Outer Diameter	0	IN
CSD2	Outer Casing Outer Diameter	0	IN
CSW1	Inner Casing Weight	0	LB/F
CSW2	Outer Casing Weight	0	LB/F
DBCC	HNGS Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	C1	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
H1P	HNGS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGS Borehole Potassium Running Average	−0.000949057	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	BARI	
HNPE	HNGS Processing Enable	YES	
ISSBAR	Barite Mud Switch	BARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGS Standard Gamma−Ray Correction Flag	YES	
SHT	Surface Hole Temperature	55	DEGF
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0.974837	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	1.0131	
EDTC−B: Enhanced DTS Cartridge			
BHFL	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	212	DEGF
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
DPPM	Density Porosity Processing Mode	HIRS	
FSAL	Formation Salinity	−50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	C1	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG

GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
HSCO	Hole Size Correction Option	YES	
ISSBAR	Barite Mud Switch	BARITE	
ISSBAR_EDTC	Nuclear Mud Type	BARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	BARI	
MWCO	Mud Weight Correction Option	YES	
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	55	DEGF
SOCN	Standoff Distance	0.5	IN
SOCO	Standoff Correction Option	NO	
TPOS_EDTC	EDTC Tool Centered/Eccentered	Eccentered	
U−ETELM_EDTS	Telemetry Mode for eWAFE	Standard_EDTS	
U−TELM_EDTS	Telemetry Mode for WAFE	Standard_EDTS	
DIP: Dip Computation			
	DIP Tool	SHDT	
CSBL	CSB DIP Number of Levels	2L	
DPAD	Disabled Pad	NONE	
ELRA	Electrical Radius	0.5	IN
INT	Correlation Interval	1.2192	M
SANG	Correlation Search Angle	35	DEG
SBUT	DIP Set of Buttons	MSD	
SDFA	Side−by−Side Distance Factor	0.9	IN
SPAN	DIP Spanning	1/4	
STDA	Structural DIP Azimuth	0	DEG
STDI	Structural DIP Angle	0	DEG
STEP	Correlation Step	0.6096	M
System and Miscellaneous			
ALTDPCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	9.875	IN
BSAL	Borehole Salinity	38000.00	PPM
CSIZ	Current Casing Size	5.500	IN
CWEI	Casing Weight	168.00	LB/F
DFD	Drilling Fluid Density	1.26	G/C3
FLEV	Fluid Level	−50000.00	M
MST	Mud Sample Temperature	23.00	DEGC
PBVSADP	Use alternate depth channel for playback	NO	
RMFS	Resistivity of Mud Filtrate Sample	−50000.0000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	12409.8	FT
TDD	Total Depth − Driller	3574.00	M
TDL	Total Depth − Logger	3574.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: APSLiquidPorosity_1 Vertical Scale: 1:200 Graphics File Created: 24−Nov−2017 10:29

OP System Version: 19C0−187

MEST−B	19C0−187	DTA−A	19C0−187
APS−C	19C0−187	HNGC−B	19C0−187
HNGS−BA	19C0−187	EDTC−B	SKK−5169−EDTCB

Output DLIS Files

DEFAULT	FMS_APS_NGS_037LUP	FN:55	PRODUCER	24−Nov−2017 10:29		
BACKUP	FMS_APS_NGS_037LUP	FN:56	PRODUCER	24−Nov−2017 10:29		

Company: International Ocean Discovery Program Well: Expedition 369, Site U1513E

Output DLIS Files

DEFAULT	FMS_APS_NGS_038LUP	FN:57	PRODUCER	24−Nov−2017 11:00	3410.7 M	2791.1 M
BACKUP	FMS_APS_NGS_038LUP	FN:58	PRODUCER	24−Nov−2017 11:00	3410.7 M	2791.1 M

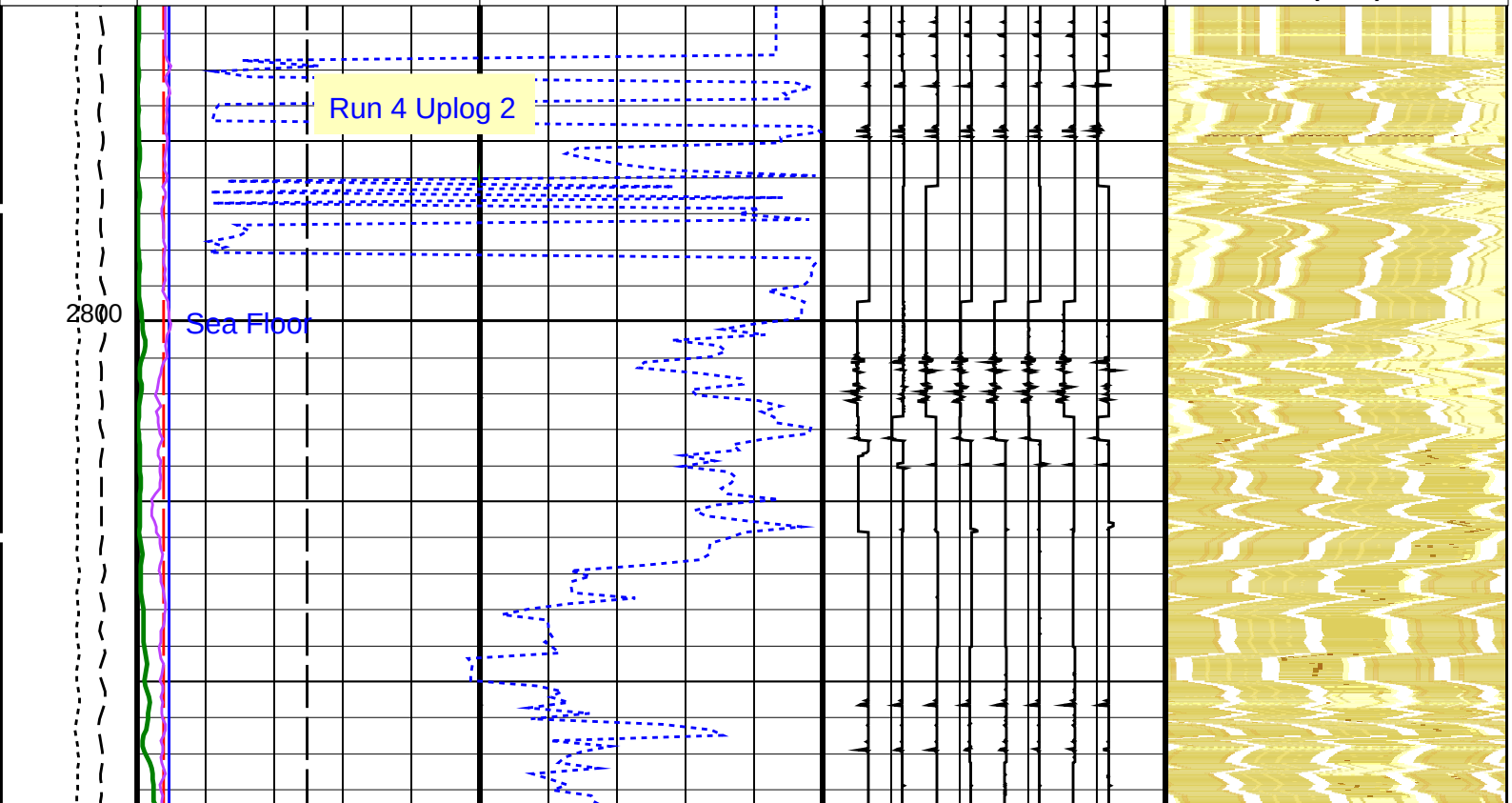
OP System Version: 19C0−187

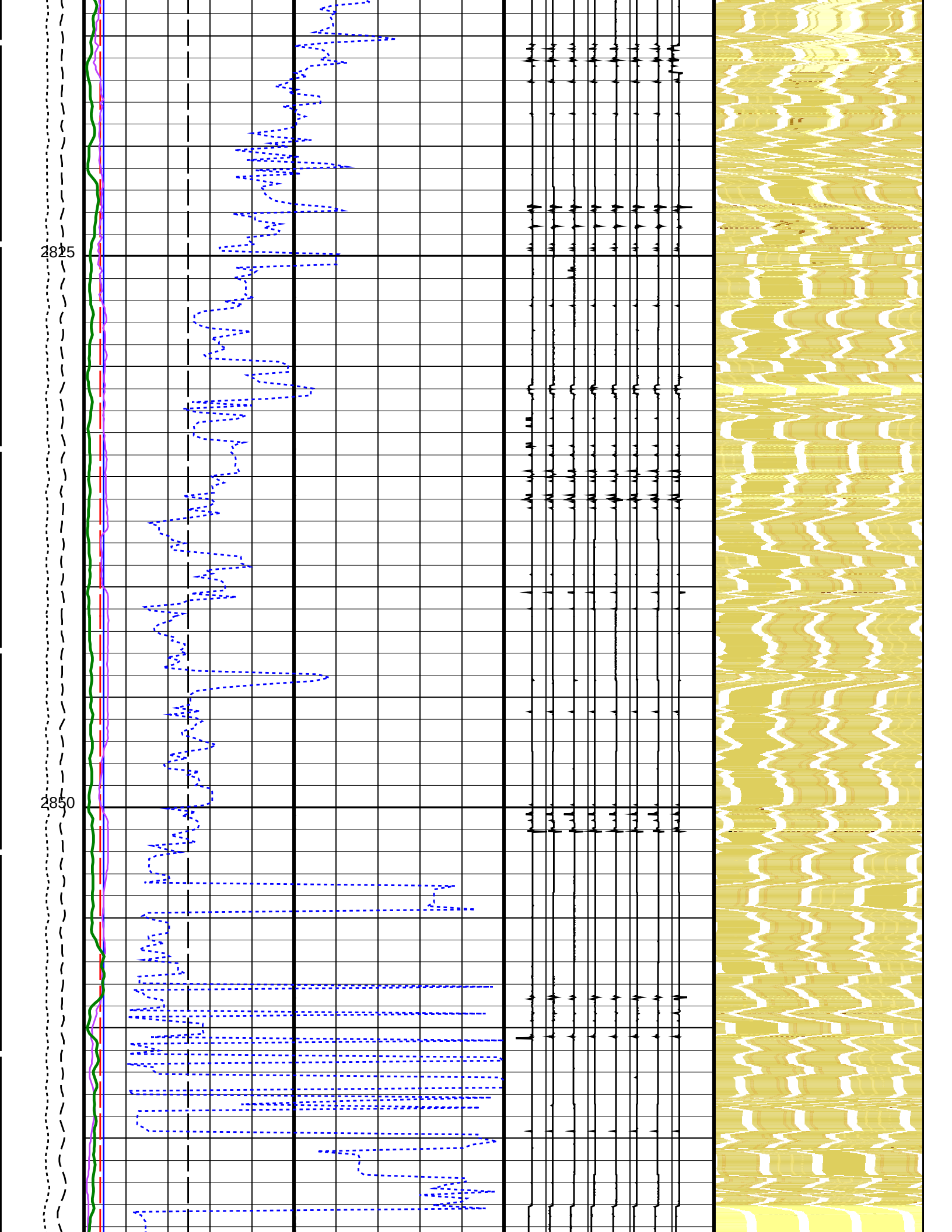
MEST−B	19C0−187	DTA−A	19C0−187
APS−C	19C0−187	HNGC−B	19C0−187
HNGS−BA	19C0−187	EDTC−B	SKK−5169−EDTCB

PIP SUMMARY

Time Mark Every 60 S

	HNGS Spectroscopy Gamma Ray (HSGR) 0 (GAPI) 100		Data Button 8 − Varies with RBS (U−MEST_RB8) −80 (−−−−) 20	
	Relative Bearing (RB_MEST) −40 (DEG) 360		Data Button 7 − Varies with RBS (U−MEST_RB7) −70 (−−−−) 30	
	Pad One Azimuth (P1AZ_MEST) −40 (DEG) 360		Data Button 6 − Varies with RBS (U−MEST_RB6) −60 (−−−−) 40	
	Hole Azimuth (HAZIM) −40 (DEG) 360		Data Button 5 − Varies with RBS (U−MEST_RB5) −50 (−−−−) 50	
	Deviation (DEVIM) 0 (DEG) 10		Data Button 4 − Varies with RBS (U−MEST_RB4) −40 (−−−−) 60	0.3776 1.8629 2.4571 2.9027 3.3482 3.6453 3.9424 4.2394 4.6850 5.1306 5.4277 6.0218 6.6159 7.6557 9.4517 12.4086 MEST_PADD (U−MEST_RESISTIVITY_PADD_DS) (−−−−)
	Caliper 2 (C2) 0 (IN) 20		Data Button 3 − Varies with RBS (U−MEST_RB3) −30 (−−−−) 70	0.3776 1.8629 2.4571 2.9027 3.3482 3.6453 3.9424 4.2394 4.6850 5.1306 5.4277 6.0218 6.6159 7.6557 9.4517 12.4086 MEST_PADC (U−MEST_RESISTIVITY_PADC_DS) (−−−−)
Calibrated Downhole Force (CDF) (LBF) 5000 0	Caliper 1 (C1) 0 (IN) 20	EMEX Intensity (EI) 0 (AMPS) 10	Data Button 2 − Varies with RBS (U−MEST_RB2) −20 (−−−−) 80	0.3776 1.8629 2.4571 2.9027 3.3482 3.6453 3.9424 4.2394 4.6850 5.1306 5.4277 6.0218 6.6159 7.6557 9.4517 12.4086 MEST_PADB (U−MEST_RESISTIVITY_PADB_DS) (−−−−)
Tension (TENS) (LBF) 10000 0	Bit Size (BS) 0 (IN) 20	EMEX Voltage (EV) 0 (V) 50	Data Button 1 − Varies with RBS (U−MEST_RB1) −10 (−−−−) 90	0.3776 1.8629 2.4571 2.9027 3.3482 3.6453 3.9424 4.2394 4.6850 5.1306 5.4277 6.0218 6.6159 7.6557 9.4517 12.4086 MEST_PADA (U−MEST_RESISTIVITY_PADA_DS) (−−−−)

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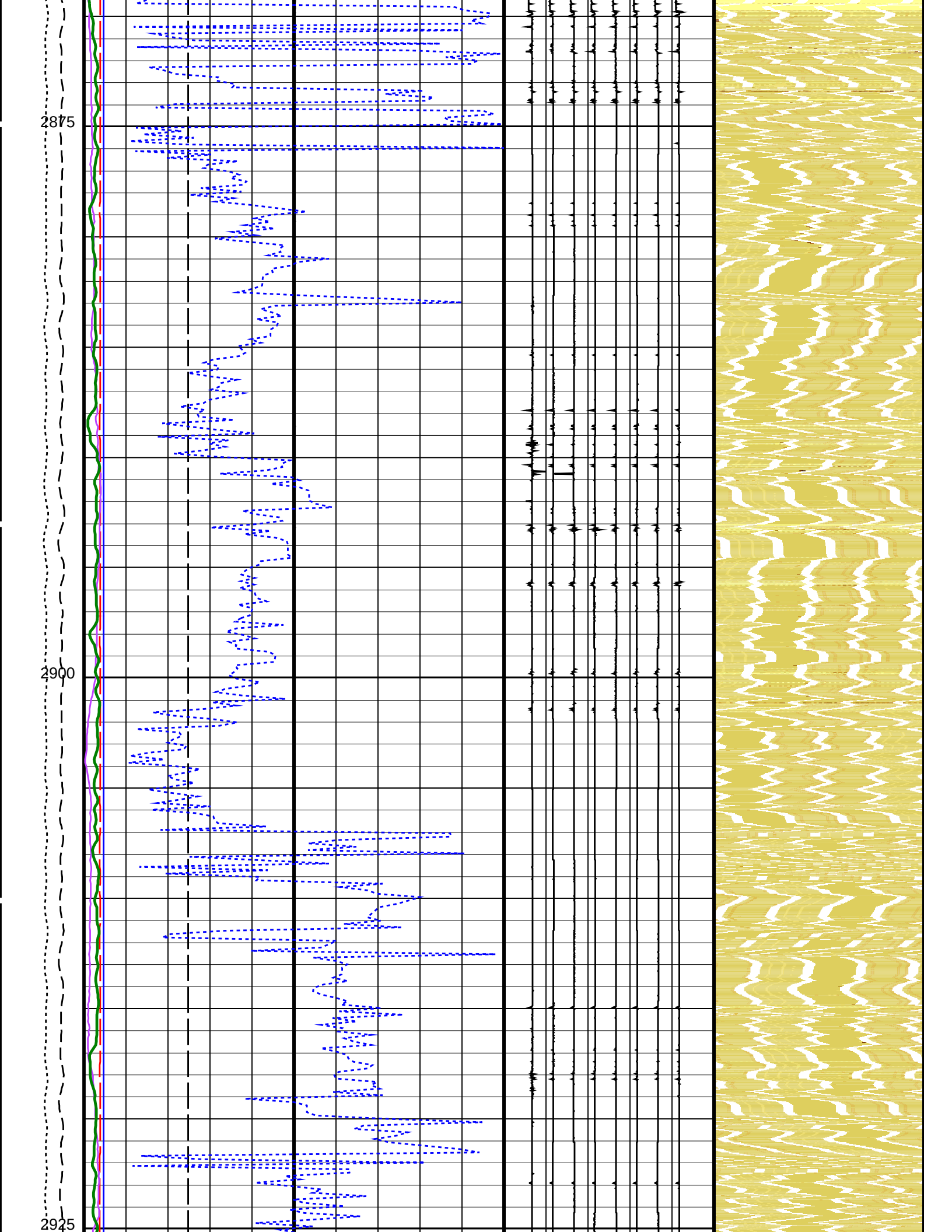
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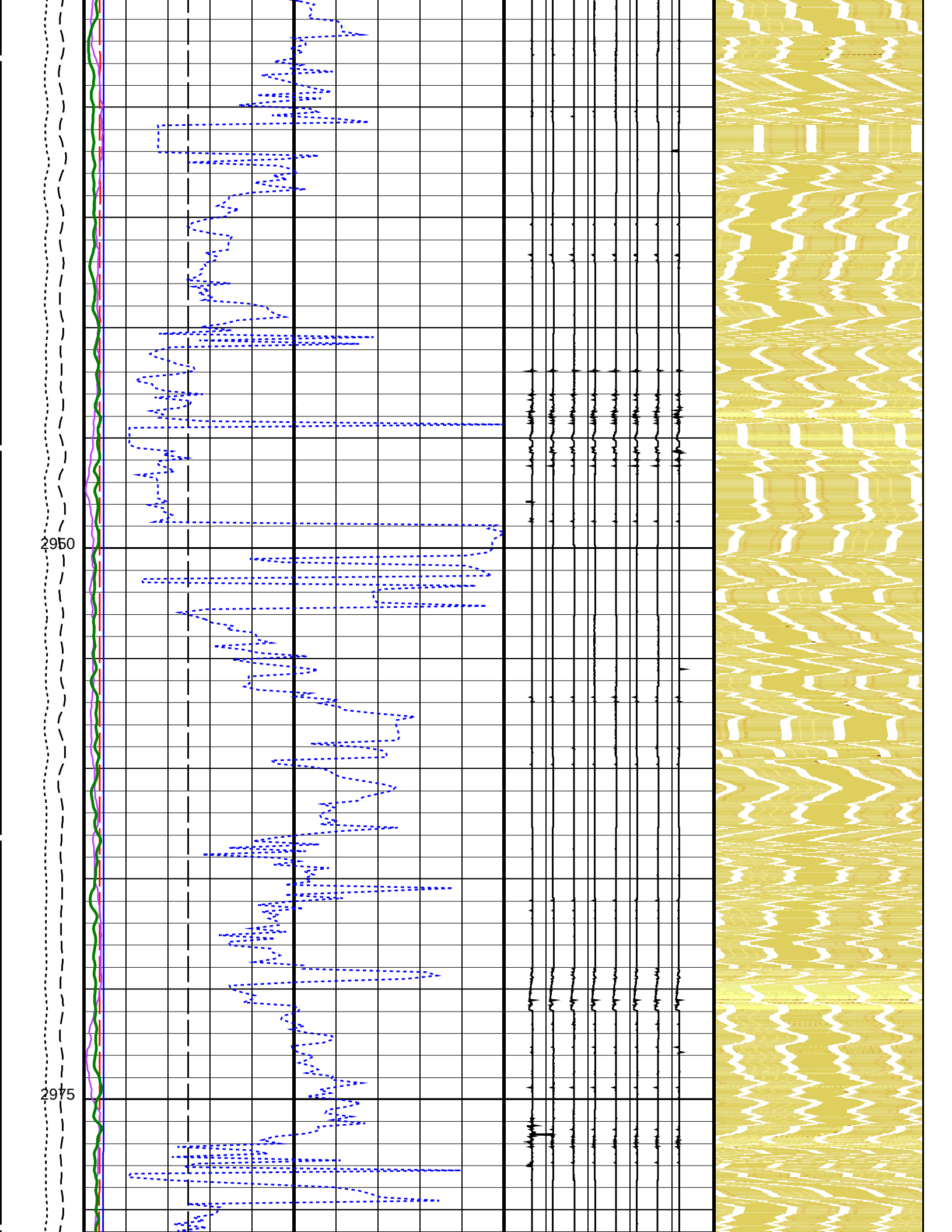
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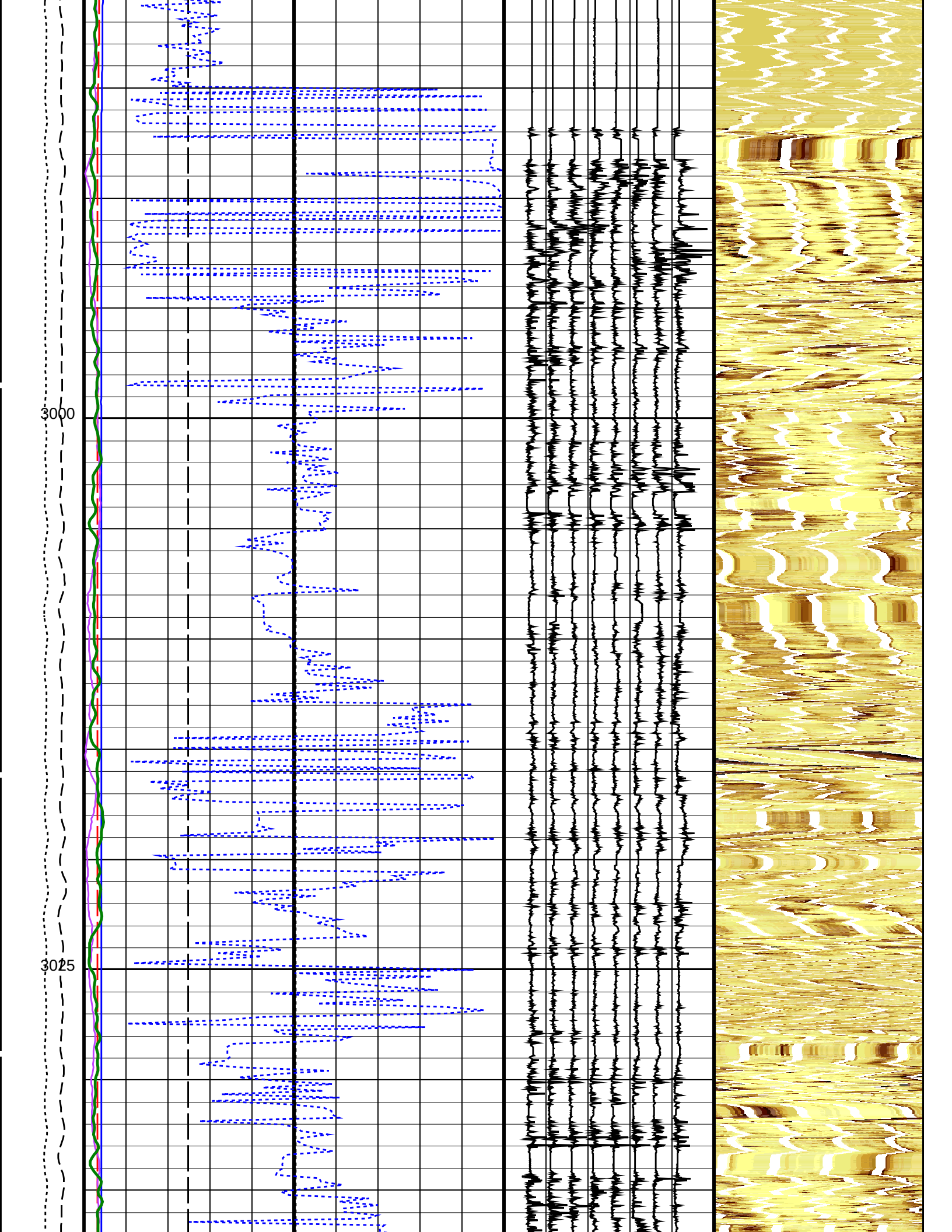
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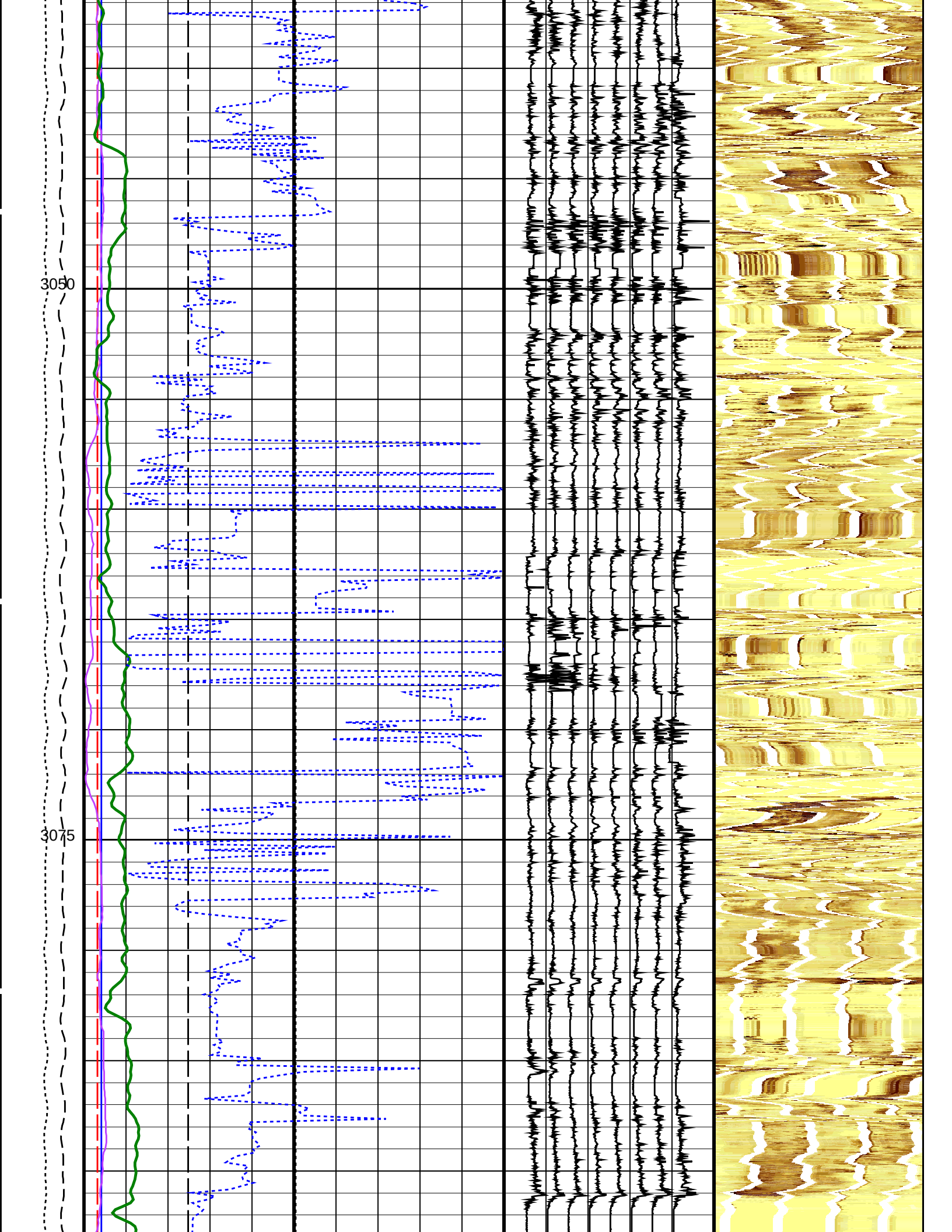
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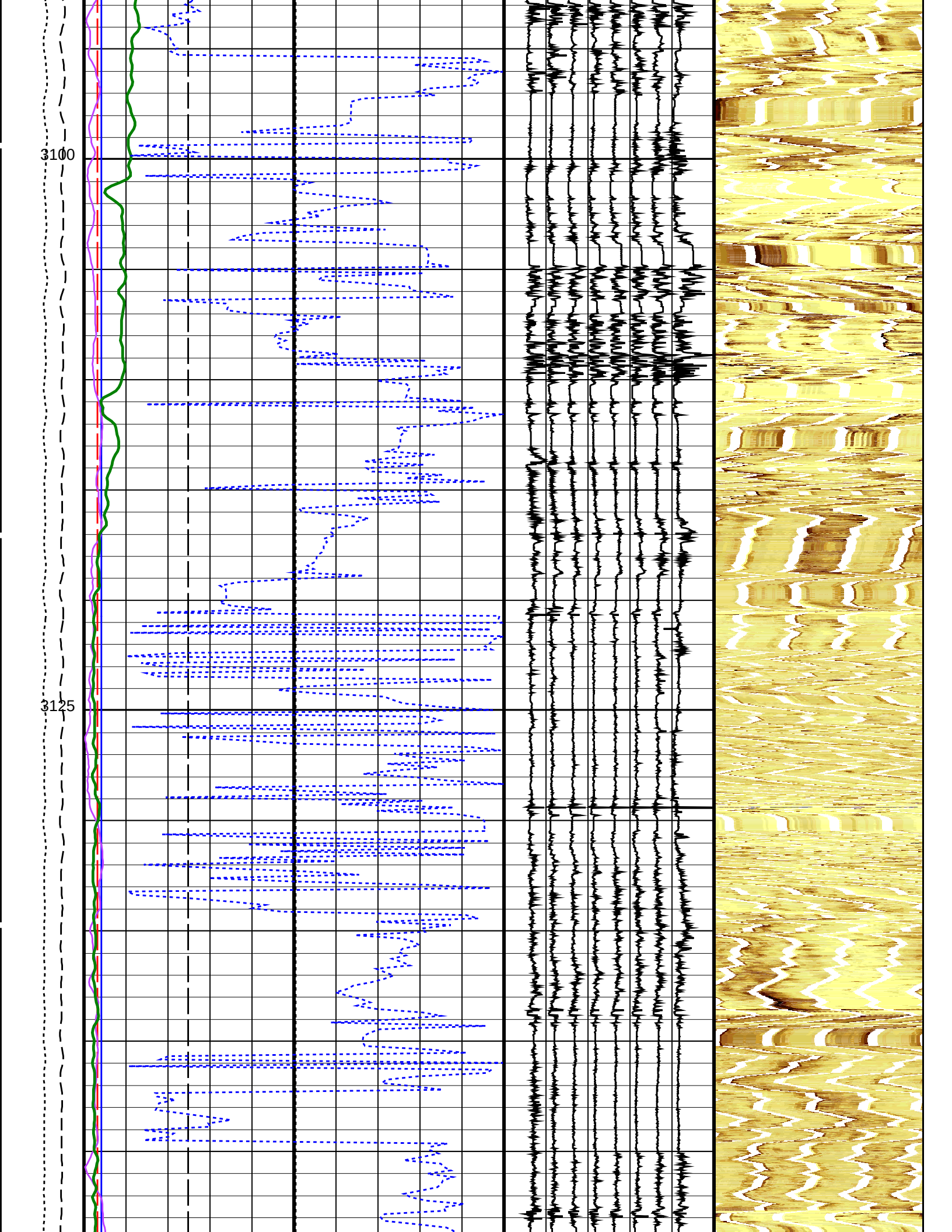
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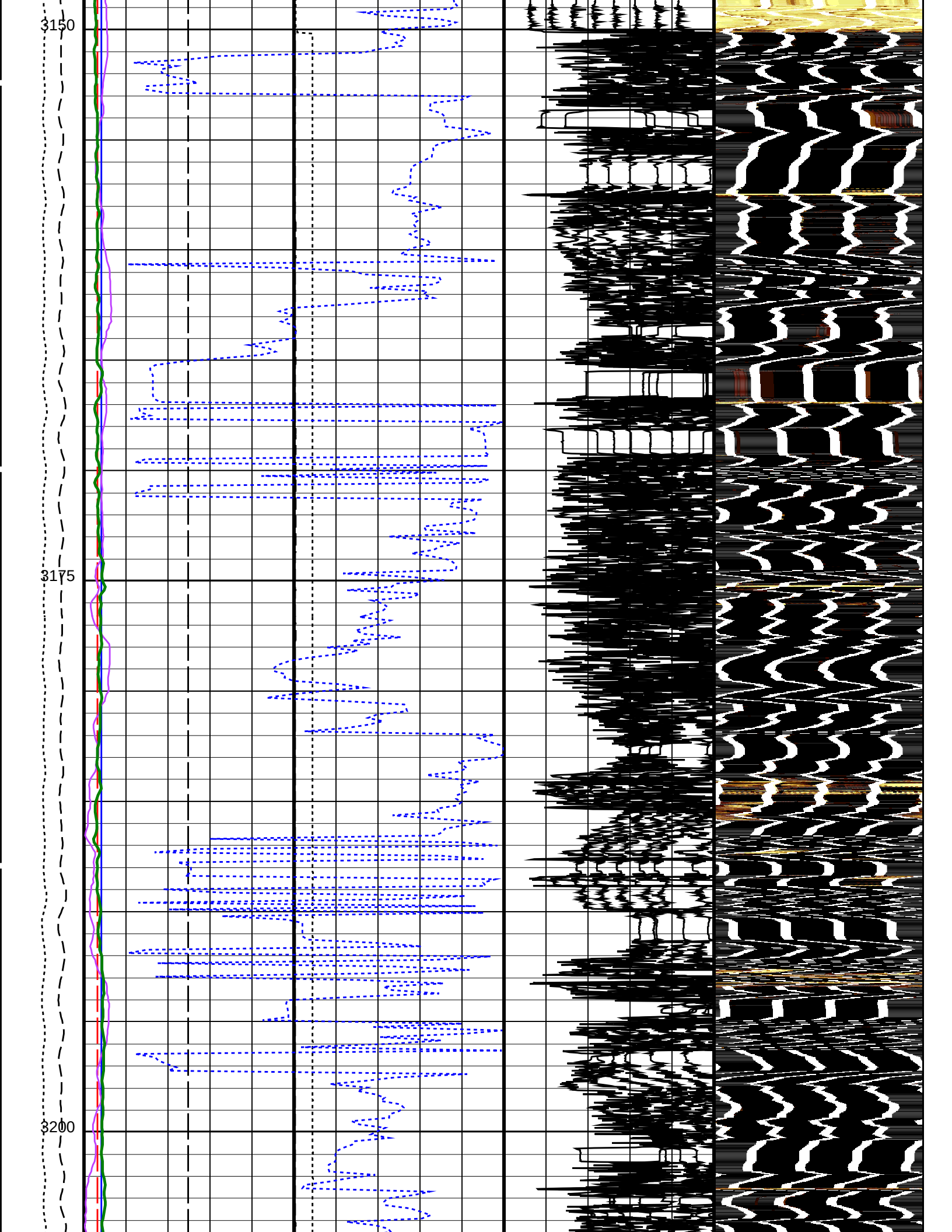
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3175
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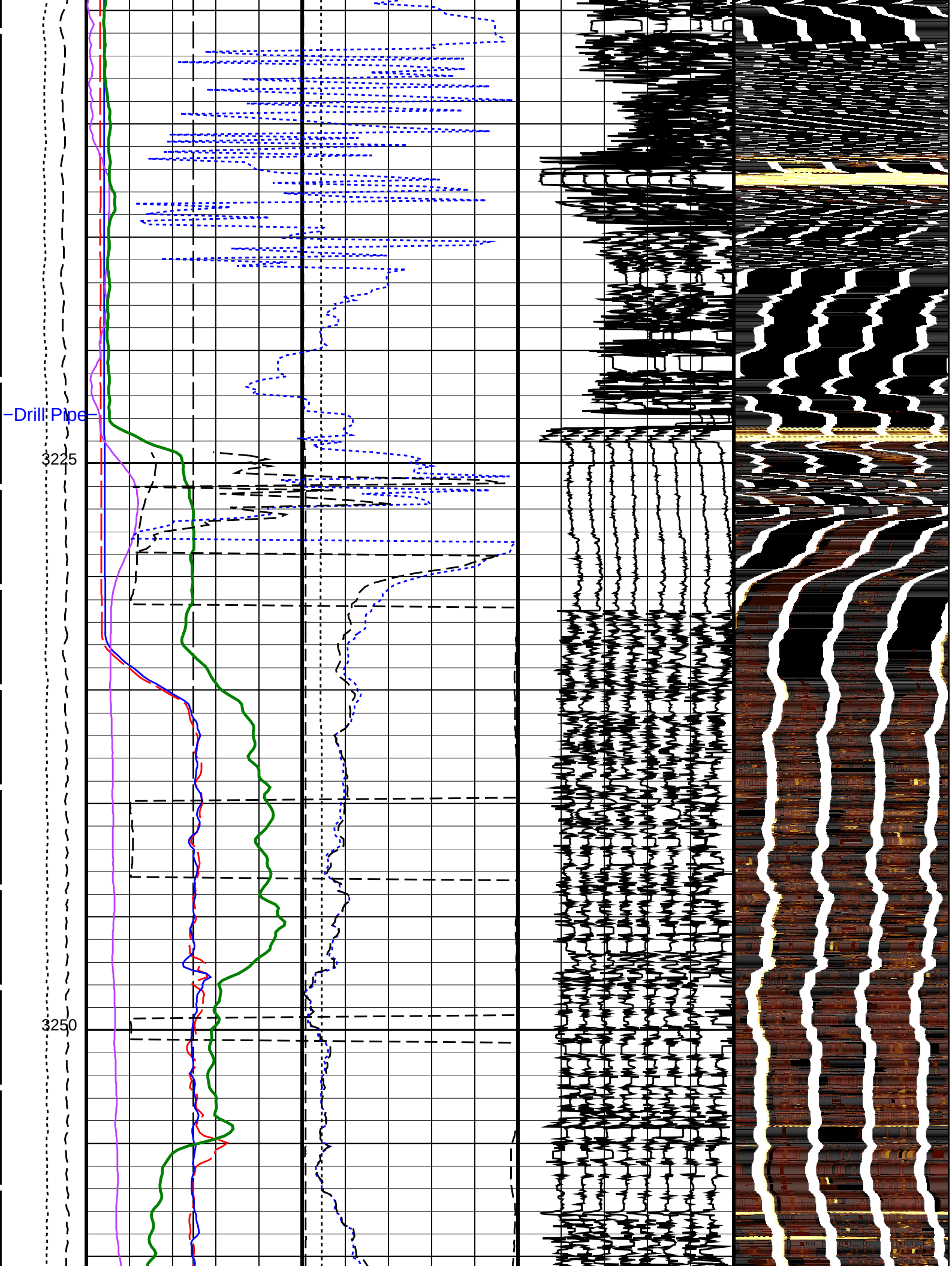
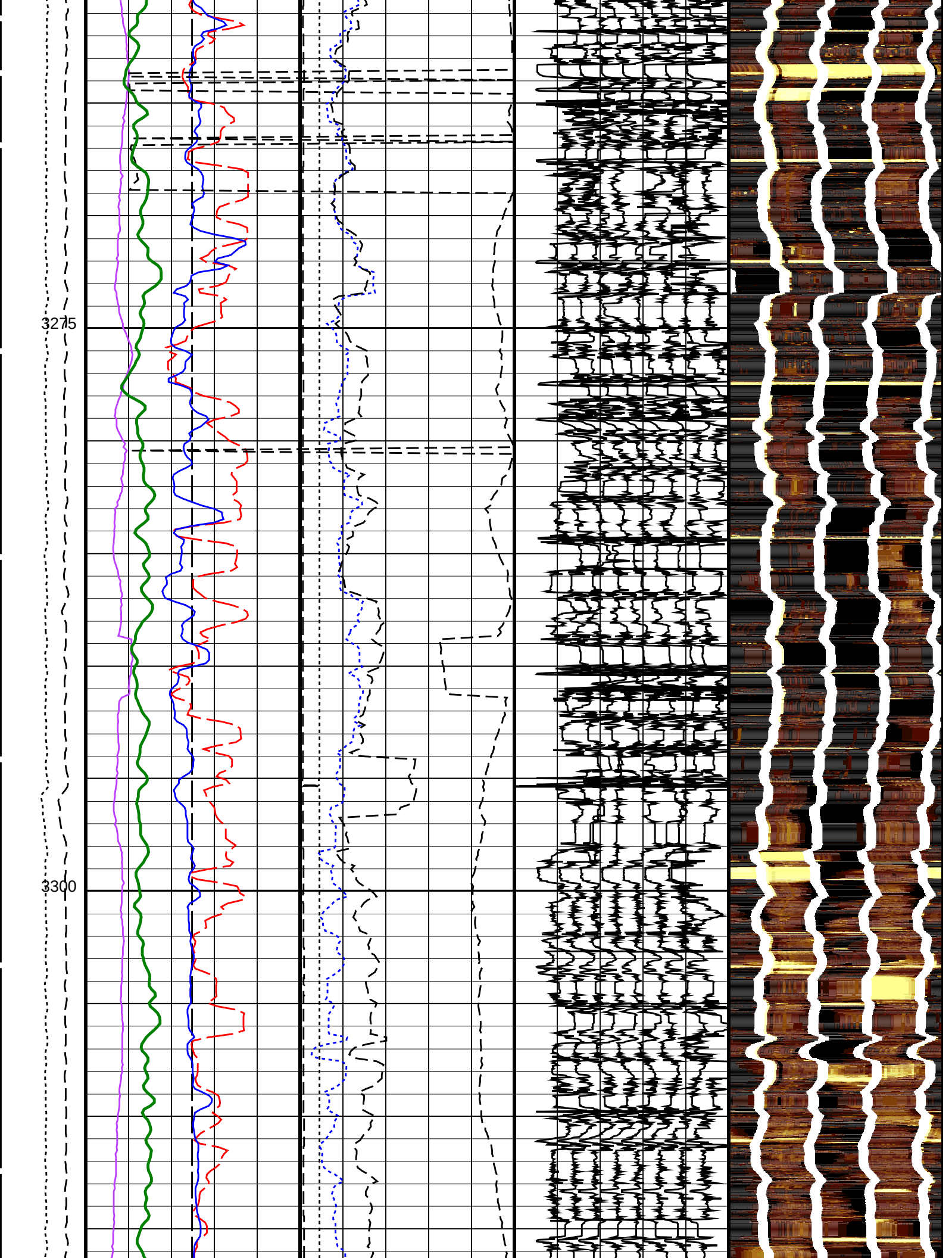

Drill Pipe
3225
3250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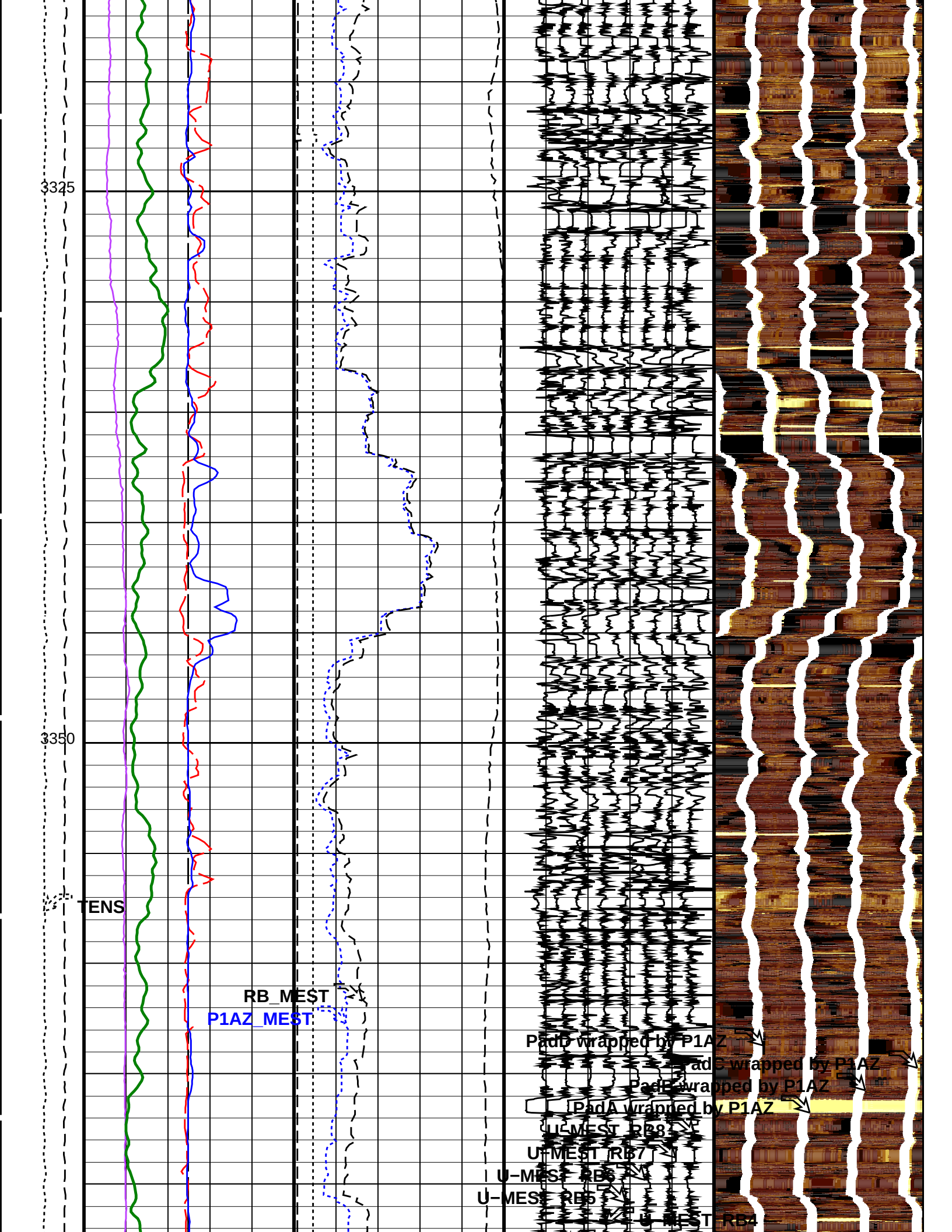
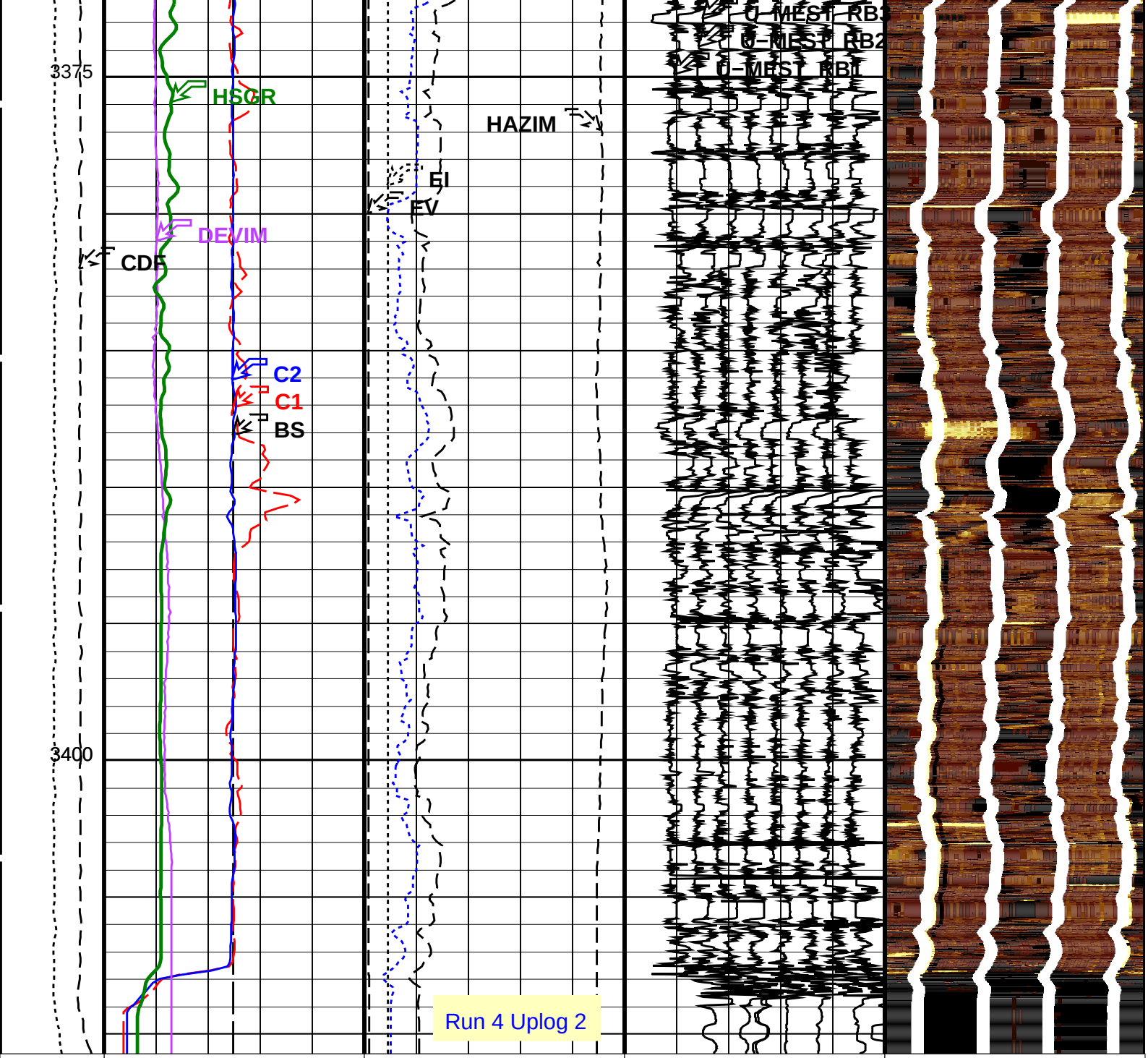
3300


3325
3350
TENS
RB_MEST
P1AZ_MEST
PadD wrapped by P1AZ
PadC wrapped by P1AZ
PadE wrapped by P1AZ
PadA wrapped by P1AZ
U-MEST_RB8
U-MEST_RB7
U-MEST_RB6
U-MEST_RB5
U-MEST_RB4



Tension (TENS) (LBF) 10000 0	Bit Size (BS) 0 (IN) 20	EMEX Voltage (EV) 0 (V) 50	Data Button 1 − Varies with RBS (U−MEST_RB1) −10 (−−−−) 90	MEST_PADA (U−MEST_RESISTIVITY_PADA_DS) (−−−−) 0.3776 1.8629 2.4571 2.9027 3.3482 3.6453 3.9424 4.2394 4.6850 5.1306 5.4277 6.0218 6.6159 7.6557 9.4517 12.4086
Calibrated Downhole Force (CDF) (LBF) 5000 0	Caliper 1 (C1) 0 (IN) 20	EMEX Intensity (EI) 0 (AMPS) 10	Data Button 2 − Varies with RBS (U−MEST_RB2) −20 (−−−−) 80	MEST_PADB (U−MEST_RESISTIVITY_PADB_DS) (−−−−) 0.3776 1.8629 2.4571 2.9027 3.3482 3.6453 3.9424 4.2394 4.6850 5.1306 5.4277 6.0218 6.6159 7.6557 9.4517 12.4086
	Caliper 2 (C2) 0 (IN) 20		Data Button 3 − Varies with RBS (U−MEST_RB3) −30 (−−−−) 70	MEST_PADC (U−MEST_RESISTIVITY_PADC_DS) (−−−−) 0.3776 1.8629 2.4571 2.9027 3.3482 3.6453 3.9424 4.2394 4.6850 5.1306 5.4277 6.0218 6.6159 7.6557 9.4517 12.4086
	Deviation (DEVIM)		Data Button 4 − Varies with	0.3776 1.8629 2.4571 2.9027 3.3482 3.6453 3.9424 4.2394 4.6850 5.1306 5.4277 6.0218 6.6159 7.6557 9.4517 12.4086

0 (DEG) 10	RBS (U−MEST_RB4) −40 (−−−−) 60	MEST_PADD (U−MEST_RESISTIVITY_PADD_DS) (−−−−)
Hole Azimuth (HAZIM) −40 (DEG) 360	Data Button 5 − Varies with RBS (U−MEST_RB5) −50 (−−−−) 50	
Pad One Azimuth (P1AZ_MEST) −40 (DEG) 360	Data Button 6 − Varies with RBS (U−MEST_RB6) −60 (−−−−) 40	
Relative Bearing (RB_MEST) −40 (DEG) 360	Data Button 7 − Varies with RBS (U−MEST_RB7) −70 (−−−−) 30	
HNGS Spectroscopy Gamma Ray (HSGR) 0 (GAPI) 100	Data Button 8 − Varies with RBS (U−MEST_RB8) −80 (−−−−) 20	

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
	MEST−B: Micro Electrical Scanner − B (Slim)		
AFMO	Accelerometer Filtering Mode	MOVING_AVERAGE	
ICMO	Inclinometry Computation Mode	AUTOMATIC_SELECTION	
MDEC	Magnetic Field Declination	−4.37751	DEG
MLM	MEST Logging Mode	SCAN1800	
RBS	Resistivity Button Selection	AUTO	
XGAI	Gain	GAIN_2	
XOFF	Offset	OFFSET_0	
	APS−C: Accelerator−Porosity Tool		
BHS	Borehole Status	OPEN	
GCSE	Generalized Caliper Selection	C1	
	HNGS−BA: Hostile Natural Gamma Ray Sonde		
BAR1	HNGS Detector 1 Barite Constant	1	
BAR2	HNGS Detector 2 Barite Constant	1	
BHK	HNGS Borehole Potassium Correction Concentration	0	
BHS	Borehole Status	OPEN	
CSD1	Inner Casing Outer Diameter	0	IN
CSD2	Outer Casing Outer Diameter	0	IN
CSW1	Inner Casing Weight	0	LB/F
CSW2	Outer Casing Weight	0	LB/F
DBCC	HNGS Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	C1	
H1P	HNGS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGS Borehole Potassium Running Average	−0.000195465	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	BARI	
HNPE	HNGS Processing Enable	YES	
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGS Standard Gamma−Ray Correction Flag	YES	
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0.976002	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.994936	
	EDTC−B: Enhanced DTS Cartridge		
BHS	Borehole Status	OPEN	
GCSE	Generalized Caliper Selection	C1	
	System and Miscellaneous		
BS	Bit Size	9.875	IN
DFD	Drilling Fluid Density	1.26	G/C3

Format: MEST_C_WRAP_BY_P1AZ Vertical Scale: 1:200 Graphics File Created: 24−Nov−2017 11:00

OP System Version: 19C0−187

MEST−B	19C0−187	DTA−A	19C0−187
APS−C	19C0−187	HNGC−B	19C0−187
HNGS−BA	19C0−187	EDTC−B	SKK−5169−EDTCB

Output DLIS Files

DEFAULT	FMS_APS_NGS_038LUP	FN:57	PRODUCER	24−Nov−2017 11:00	
BACKUP	FMS_APS_NGS_038LUP	FN:58	PRODUCER	24−Nov−2017 11:00	

Company: International Ocean Discovery Program — Well: Expedition 369, Site U1513E

Output DLIS Files

DEFAULT	FMS_APS_NGS_037LUP	FN:55	PRODUCER	24−Nov−2017 10:29	3408.4 M	3261.0 M
BACKUP	FMS_APS_NGS_037LUP	FN:56	PRODUCER	24−Nov−2017 10:29	3408.4 M	3261.0 M

OP System Version: 19C0−187

MEST−B	19C0−187	DTA−A	19C0−187
APS−C	19C0−187	HNGC−B	19C0−187
HNGS−BA	19C0−187	EDTC−B	SKK−5169−EDTCB

PIP SUMMARY

Time Mark Every 60 S

HNGS Spectroscopy Gamma Ray (HSGR) 0 (GAPI) 100

Relative Bearing (RB_MEST) −40 (DEG) 360

Pad One Azimuth (P1AZ_MEST) −40 (DEG) 360

Hole Azimuth (HAZIM) −40 (DEG) 360

Deviation (DEVIM) 0 (DEG) 10

Caliper 2 (C2) 0 (IN) 20

Calibrated Downhole Force (CDF) (LBF) 5000 0

Caliper 1 (C1) 0 (IN) 20

EMEX Intensity (EI) 0 (AMPS) 10

Tension (TENS) (LBF) 10000 0

Bit Size (BS) 0 (IN) 20

EMEX Voltage (EV) 0 (V) 50

Data Button 8 − Varies with RBS (U−MEST_RB8) −80 (−−−−) 20

Data Button 7 − Varies with RBS (U−MEST_RB7) −70 (−−−−) 30

Data Button 6 − Varies with RBS (U−MEST_RB6) −60 (−−−−) 40

Data Button 5 − Varies with RBS (U−MEST_RB5) −50 (−−−−) 50

Data Button 4 − Varies with RBS (U−MEST_RB4) −40 (−−−−) 60

Data Button 3 − Varies with RBS (U−MEST_RB3) −30 (−−−−) 70

Data Button 2 − Varies with RBS (U−MEST_RB2) −20 (−−−−) 80

Data Button 1 − Varies with RBS (U−MEST_RB1) −10 (−−−−) 90

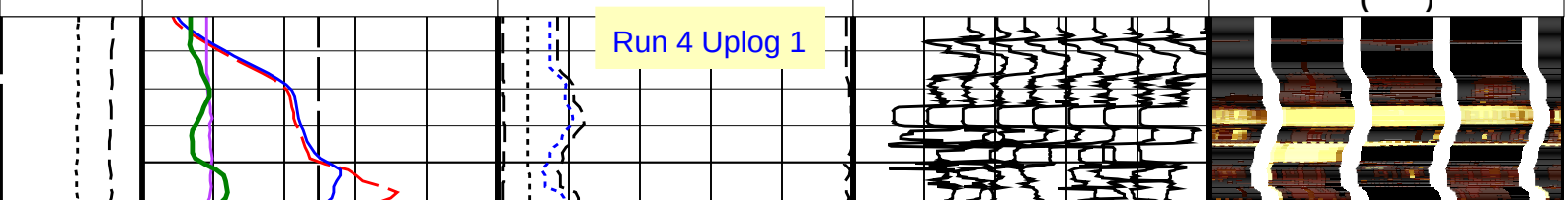
0.3776 1.8629 2.4571 2.9027 3.3482 3.6453 3.9424 4.2394 4.6850 5.1306 5.4277 6.0218 6.6159 7.6557 9.4517 12.4086

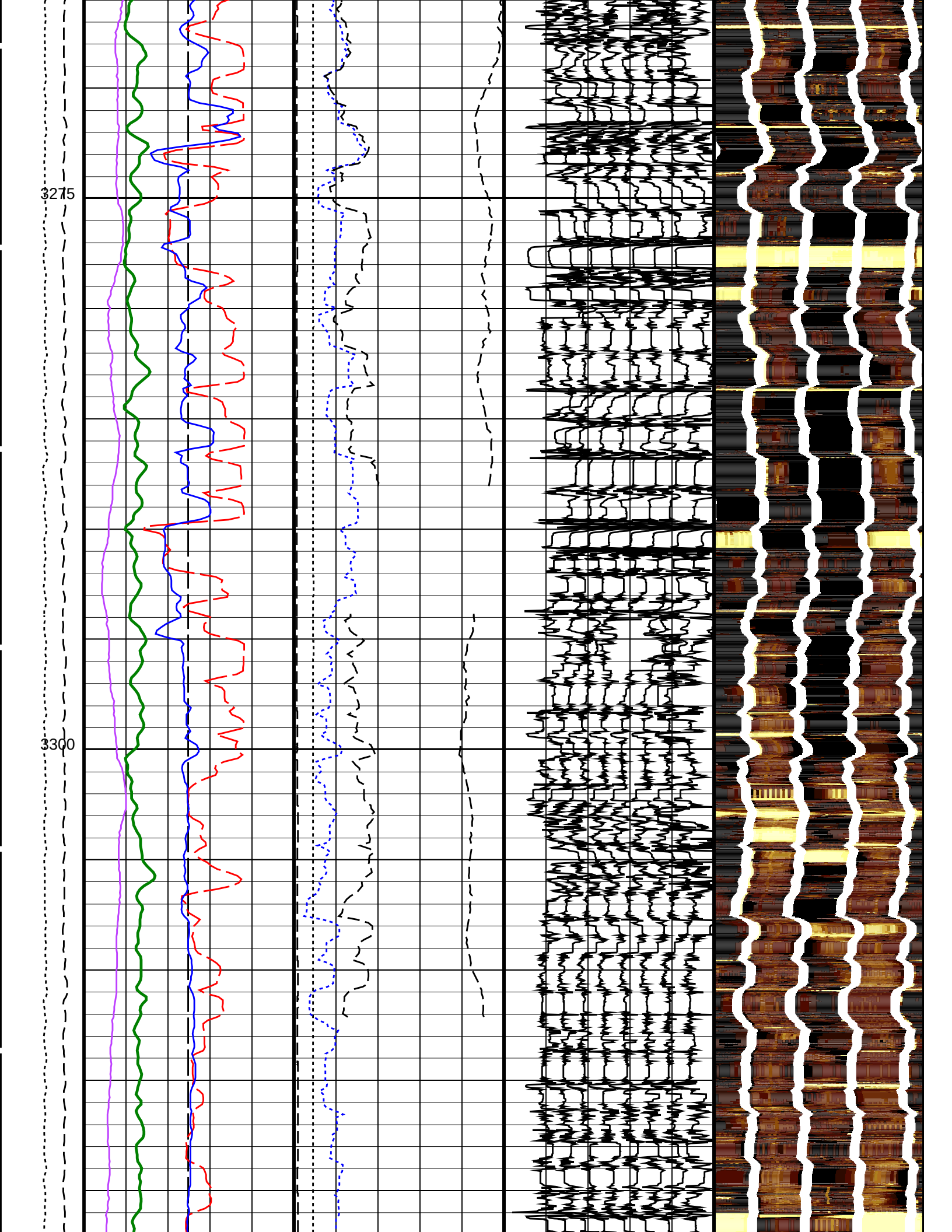
MEST_PADD (U−MEST_RESISTIVITY_PADD_DS) (−−−−)

MEST_PADC (U−MEST_RESISTIVITY_PADC_DS) (−−−−)

MEST_PADB (U−MEST_RESISTIVITY_PADB_DS) (−−−−)

MEST_PADA (U−MEST_RESISTIVITY_PADA_DS) (−−−−)

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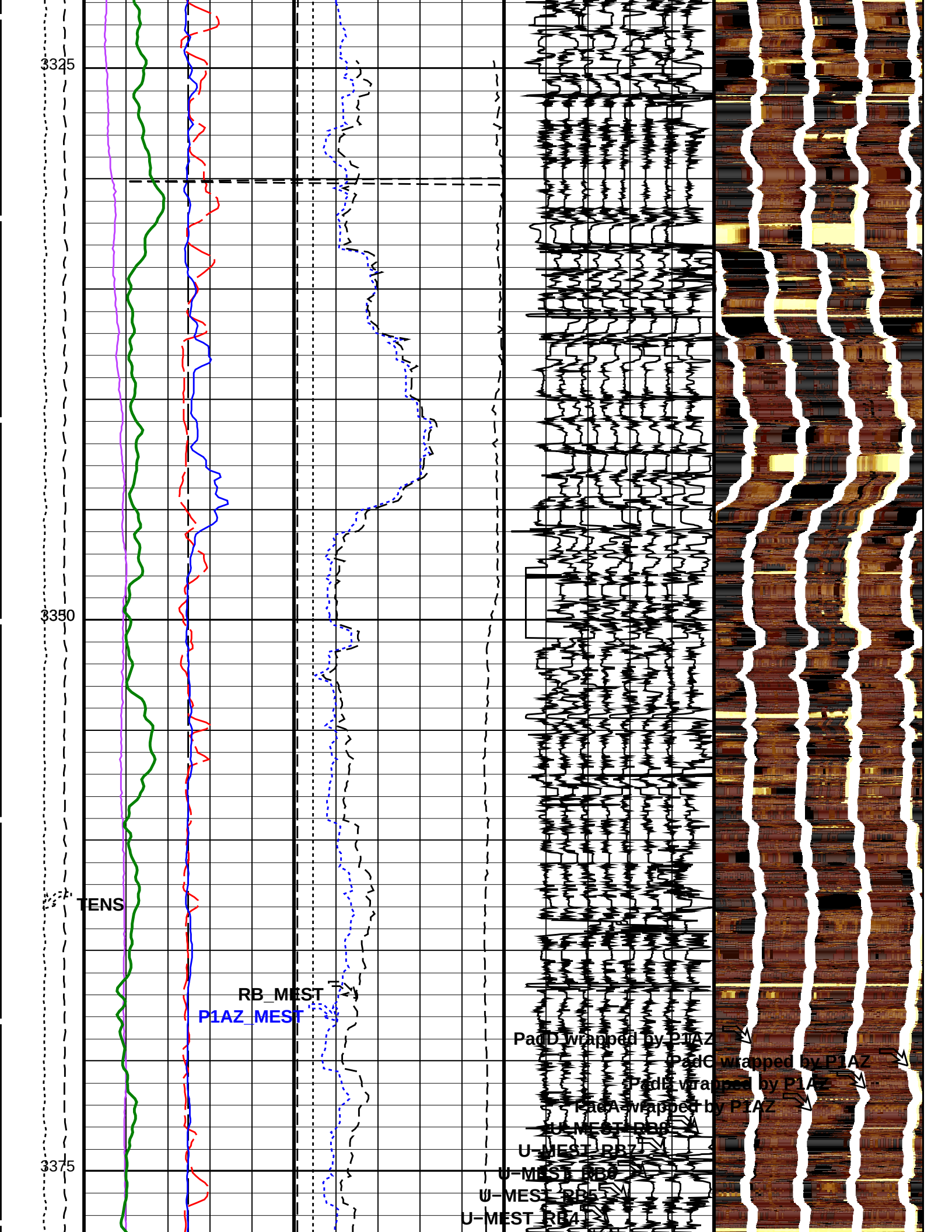
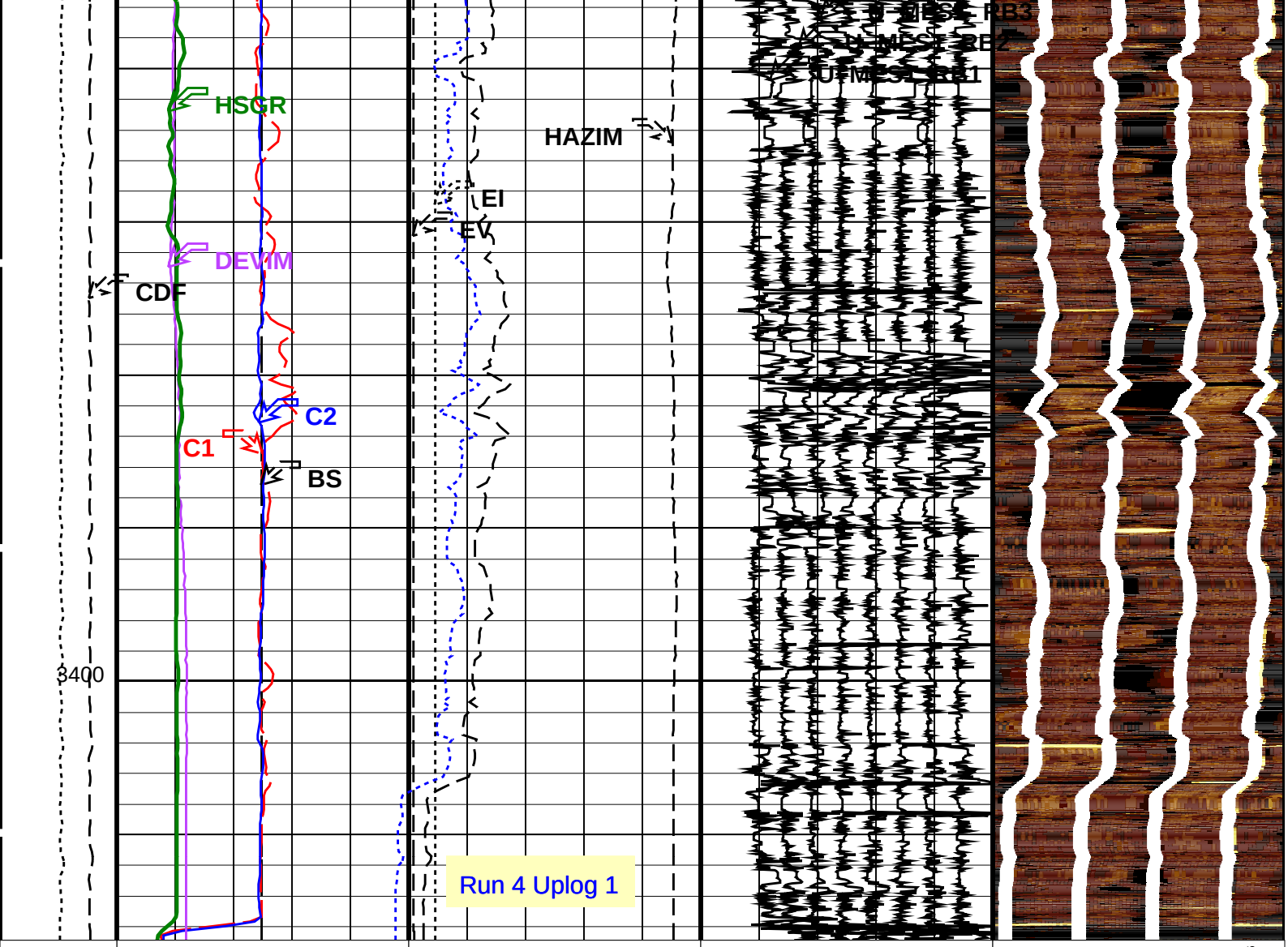
3300


3325
3350
3375
TENS
RB_MEST
P1AZ_MEST
PadD wrapped by P1AZ
PadC wrapped by P1AZ
PadB wrapped by P1AZ
PadA wrapped by P1AZ
U-MEST_RB8
U-MEST_RB7
U-MEST_RB6
U-MEST_RB5
U-MEST_RB4



Tension (TENS) (LBF) 10000 0	Bit Size (BS) 0 (IN) 20	EMEX Voltage (EV) 0 (V) 50	Data Button 1 − Varies with RBS (U−MEST_RB1) −10 (----) 90	MEST_PADA (U−MEST_RESISTIVITY_PADA_DS) (----)
Calibrated Downhole Force (CDF) (LBF) 5000 0	Caliper 1 (C1) 0 (IN) 20	EMEX Intensity (EI) 0 (AMPS) 10	Data Button 2 − Varies with RBS (U−MEST_RB2) −20 (----) 80	MEST_PADB (U−MEST_RESISTIVITY_PADB_DS) (----)
	Caliper 2 (C2) 0 (IN) 20		Data Button 3 − Varies with RBS (U−MEST_RB3) −30 (----) 70	MEST_PADC (U−MEST_RESISTIVITY_PADC_DS) (----)
	Deviation (DEVIM) 0 (DEG) 10		Data Button 4 − Varies with RBS (U−MEST_RB4) −40 (----) 60	MEST_PADD (U−MEST_RESISTIVITY_PADD_DS) (----)
	Hole Azimuth (HAZIM) −40 (DEG) 360		Data Button 5 − Varies with RBS (U−MEST_RB5) −50 (----) 50	
	Pad One Azimuth (P1AZ_MEST) −40 (DEG) 360		Data Button 6 − Varies with RBS (U−MEST_RB6)	

0.3776 1.8629 2.4571 2.9027 3.3482 3.6453 3.9424 4.2394 4.6850 5.1306 5.4277 6.0218 6.6159 7.6557 9.4517 12.4086

40	(DEG)	360

−60	(−−−−)	40

Relative Bearing (RB_MEST)		
−40	(DEG)	360

Data Button 7 − Varies with RBS (U−MEST_RB7)		
−70	(−−−−)	30

HNGS Spectroscopy Gamma Ray (HSGR)		
0	(GAPI)	100

Data Button 8 − Varies with RBS (U−MEST_RB8)		
−80	(−−−−)	20

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
	MEST−B: Micro Electrical Scanner − B (Slim)		
AFMO	Accelerometer Filtering Mode	MOVING_AVERAGE	
ICMO	Inclinometry Computation Mode	AUTOMATIC_SELECTION	
MDEC	Magnetic Field Declination	−4.37751	DEG
MLM	MEST Logging Mode	SCAN1800	
RBS	Resistivity Button Selection	AUTO	
XGAI	Gain	GAIN_2	
XOFF	Offset	OFFSET_0	
	APS−C: Accelerator−Porosity Tool		
BHS	Borehole Status	OPEN	
GCSE	Generalized Caliper Selection	C1	
	HNGS−BA: Hostile Natural Gamma Ray Sonde		
BAR1	HNGS Detector 1 Barite Constant	1	
BAR2	HNGS Detector 2 Barite Constant	1	
BHK	HNGS Borehole Potassium Correction Concentration	0	
BHS	Borehole Status	OPEN	
CSD1	Inner Casing Outer Diameter	0	IN
CSD2	Outer Casing Outer Diameter	0	IN
CSW1	Inner Casing Weight	0	LB/F
CSW2	Outer Casing Weight	0	LB/F
DBCC	HNGS Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	C1	
H1P	HNGS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGS Borehole Potassium Running Average	−0.000949057	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	BARI	
HNPE	HNGS Processing Enable	YES	
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGS Standard Gamma−Ray Correction Flag	YES	
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0.974837	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	1.0131	
	EDTC−B: Enhanced DTS Cartridge		
BHS	Borehole Status	OPEN	
GCSE	Generalized Caliper Selection	C1	
	System and Miscellaneous		
BS	Bit Size	9.875	IN
DFD	Drilling Fluid Density	1.26	G/C3

Format: MEST_C_WRAP_BY_P1AZ Vertical Scale: 1:200 Graphics File Created: 24−Nov−2017 10:29

OP System Version: 19C0−187

MEST−B	19C0−187	DTA−A	19C0−187
APS−C	19C0−187	HNGC−B	19C0−187
HNGS−BA	19C0−187	EDTC−B	SKK−5169−EDTCB

Output DLIS Files

DEFAULT	FMS_APS_NGS_037LUP	FN:55	PRODUCER	24−Nov−2017 10:29
BACKUP	FMS_APS_NGS_037LUP	FN:56	PRODUCER	24−Nov−2017 10:29

Calibration and Check Summary

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Micro Electrical Scanner − B (Slim) Wellsite Calibration − Caliper Calibration							
Before: 19−Nov−2017 11:54							
Caliper 1 Zero Measurement	12.00	N/A	12.47	N/A	N/A	N/A	IN
Caliper 2 Zero Measurement	12.00	N/A	12.37	N/A	N/A	N/A	IN
Caliper 1 Plus Measurement	15.30	N/A	15.60	N/A	N/A	N/A	IN
Caliper 2 Plus Measurement	15.30	N/A	15.55	N/A	N/A	N/A	IN
Micro Electrical Scanner − B (Slim) Wellsite Calibration − CROUZET ACCELEROMETER PROM HAS BEEN READ CORRECTLY							
Before: 24−Nov−2017 7:29							
TEMPERATURE REFERENCE :	N/A	N/A	20	N/A	N/A	N/A	DEGC
YEAR OF CALIBRATION :	N/A	N/A	92	N/A	N/A	N/A	
MONTH OF CALIBRATION :	N/A	N/A	10	N/A	N/A	N/A	
SERIAL NUMBER :	N/A	N/A	448	N/A	N/A	N/A	
Micro Electrical Scanner − B (Slim) Wellsite Calibration − CROUZET MAGNETOMETER PROM HAS BEEN READ CORRECTLY							
Before: 24−Nov−2017 7:29							
TEMPERATURE REFERENCE :	N/A	N/A	19	N/A	N/A	N/A	DEGC
YEAR OF CALIBRATION :	N/A	N/A	99	N/A	N/A	N/A	
MONTH OF CALIBRATION :	N/A	N/A	12	N/A	N/A	N/A	
SERIAL NUMBER :	N/A	N/A	428	N/A	N/A	N/A	
Accelerator−Porosity Tool Wellsite Calibration − Detector Background							
Master: 26−Sep−2017 0:19 Before: 24−Nov−2017 7:43 After: 24−Nov−2017 12:07							
Near Det Bkg Cntrate	30.00	30.87	32.59	33.05	0.4672	N/A	CPS
Far Det Bkg Cntrate	30.00	33.60	31.97	32.64	0.6677	N/A	CPS
Array−1 Det Bkg Cntrate	30.00	28.13	27.15	27.73	0.5838	N/A	CPS
Array−2 Det Bkg Cntrate	30.00	29.86	29.50	27.61	−1.885	N/A	CPS
Array Therm Det Bkg Cntrate	30.00	32.97	32.21	31.09	−1.111	N/A	CPS
Accelerator−Porosity Tool Wellsite Calibration − Calibration Ratios							
Master: 26−Sep−2017 0:19							
Near/Far Calibration Ratio	0.9250	0.8966	N/A	N/A	N/A	N/A	
Near/Array Calibration Ratio	1.030	1.071	N/A	N/A	N/A	N/A	
Near/Array Cal Ratio Up/Down	1.000	1.019	N/A	N/A	N/A	N/A	
Accelerator−Porosity Tool Wellsite Calibration − Tank Check							
Master: 26−Sep−2017 0:19							
Array−1 Standoff Porosity	11.75	10.24	N/A	N/A	N/A	N/A	PU
Array−2 Standoff Porosity	11.75	10.08	N/A	N/A	N/A	N/A	PU
Average Slowing Down Time	6.000	6.107	N/A	N/A	N/A	N/A	US
Array−1 SDT Ratio Up/Down	1.000	0.9723	N/A	N/A	N/A	N/A	
Array−2 SDT Ratio Up/Down	1.000	0.9674	N/A	N/A	N/A	N/A	
Sigma Formation	27.50	33.90	N/A	N/A	N/A	N/A	CU
Accelerator−Porosity Tool Wellsite Calibration − CCR7 signal boxes							
Master: 25−Sep−2017 23:41							
Near Detector Plateau Setting	1650	1738	N/A	N/A	N/A	N/A	V
Far Detector Plateau Setting	2000	2080	N/A	N/A	N/A	N/A	V
Array Detector Plateau Setting	2000	1963	N/A	N/A	N/A	N/A	V
Hostile Natural Gamma Ray Sonde Wellsite Calibration − Detector 1 Check							
Master: 23−Sep−2017 23:26 Before: 9−Oct−2017 23:50 After: 23−Sep−2017 23:36							
Na 511 Peak Loc	40.00	39.76	39.63	39.68	0.05351	1.000	
Na 511 Peak Res	15.50	14.97	14.78	15.12	0.3384	2.000	%
High Voltage	1150	1156	1164	1155	−9.536	N/A	V
Na 1785 Peak Loc	142.6	142.6	142.4	141.8	−0.5373	7.000	
Na 1785 Peak Res	8.500	9.098	8.297	8.997	0.7002	2.000	%
Temperature	15.50	18.30	22.61	18.27	−4.336	N/A	DEGC
Na Count Rate	45.00	27.65	26.76	27.40	0.6426	8.000	CPS
Hostile Natural Gamma Ray Sonde Wellsite Calibration − Detector 2 Check							
Master: 23−Sep−2017 23:26 Before: 9−Oct−2017 23:50 After: 23−Sep−2017 23:36							
Na 511 Peak Loc	40.00	39.51	39.64	39.54	−0.1000	1.000	
Na 511 Peak Res	15.50	15.77	15.02	16.14	1.121	2.000	%
High Voltage	1150	1088	1096	1088	−7.456	N/A	V
Na 1785 Peak Loc	142.6	141.7	140.7	141.7	1.005	7.000	
Na 1785 Peak Res	8.500	8.872	9.283	7.911	−1.371	2.000	%
Temperature	15.50	18.97	23.56	18.96	−4.591	N/A	DEGC
Na Count Rate	45.00	27.04	26.46	27.03	0.5627	8.000	CPS
Hostile Natural Gamma Ray Sonde Wellsite Calibration − Ratio Of Detector 1 To Detector 2							
Master: 23−Sep−2017 23:26 Before: 9−Oct−2017 23:50 After: 23−Sep−2017 23:36							
Coincidence Count Rate Ratio	1.000	1.020	1.012	1.014	0.001632	0.05000	
Hostile Natural Gamma Ray Sonde Master Calibration − Detector 1 Calibration							
Master: 23−Sep−2017 23:22							
Na 511 Peak Set Point	40.00	41.00	−−	−−	−−	−−	
Th Peak Loc	209.6	210.1	−−	−−	−−	−−	

Th Peak Res	7.000	7.030	−−	−−	−−	−−	%
Background Count Rate	142.5	20.14	−−	−−	−−	−−	CPS
Gain Ratio	1.000	1.005	−−	−−	−−	−−	

Hostile Natural Gamma Ray Sonde Master Calibration − Detector 2 Calibration
Master: 23−Sep−2017 23:22

Na 511 Peak Set Point	40.00	41.00	−−	−−	−−	−−	
Th Peak Loc	209.6	208.2	−−	−−	−−	−−	
Th Peak Res	7.000	7.022	−−	−−	−−	−−	%
Background Count Rate	142.5	17.54	−−	−−	−−	−−	CPS
Gain Ratio	1.000	1.003	−−	−−	−−	−−	

Enhanced DTS Cartridge Wellsite Calibration − EDTC Accelerometer Calibration
Before: 24−Nov−2017 7:29

EDTC Z−Axis Acceleration	9.810	N/A	9.770	N/A	N/A	N/A	M/S2

Enhanced DTS Cartridge Wellsite Calibration − Detector Calibration
Before: 20−Nov−2017 8:33 After: 20−Nov−2017 8:42

Gamma Ray (Jig − Bkg)	140.5	N/A	140.5	141.6	1.125	12.77	GAPI
Gamma Ray (Calibrated)	164.0	N/A	164.0	165.3	1.313	15.00	GAPI

Accelerator−Porosity Tool − Detector Plateau Settings :

Near Detector Plateau Setting 1738 V
Far Detector Plateau Setting 2080 V
Array Detector Plateau Setting 1963 V

Micro Electrical Scanner − B (Slim) / Equipment Identification

Primary Equipment:		
MEST Sonde − B	MEDS − B	724
MEST Preamplifier Cartridge − AB	MEPC − AB	806
GPIT Cartridge − AC	GPIC − AC	840
MEST Acquisition Cartridge − A	MEAC − A	804
Auxiliary Equipment:		
MEST−B Preamplifier Cartridge Housing	MEPH − A	701
MEST Acquisition Cartridge Housing (Slim	MEAH − B	769

Accelerator−Porosity Tool / Equipment Identification

Primary Equipment:		
Accelerator−Porosity Sonde	APS − C	22
APS Minitron	MNTR − F	7341
Auxiliary Equipment:		
Accelerator−Porosity Housing	APH − AC	22
APS Calibration Water Tank	SFT − 178	1
APS Aluminum Calibrator Sleeve	SFT − 281	1

Accelerator−Porosity Tool Wellsite Calibration
Detector Background

Phase	Near Det Bkg Cntrate CPS	Value
Master		30.87
Before		32.59
After		33.05
	1.000 (Minimum) 30.00 (Nominal) 50.00 (Maximum)	

Phase	Far Det Bkg Cntrate CPS	Value
Master		33.60
Before		31.97
After		32.64
	1.000 (Minimum) 30.00 (Nominal) 50.00 (Maximum)	

Phase	Array−1 Det Bkg Cntrate CPS	Value
Master		28.13
Before		27.15
After		27.73
	1.000 (Minimum) 30.00 (Nominal) 50.00 (Maximum)	

Phase	Array−2 Det Bkg Cntrate CPS	Value
Master		29.86
Before		29.50
After		27.61
	1.000 (Minimum) 30.00 (Nominal) 50.00 (Maximum)	

Phase	Array Therm Det Bkg Cntrate CPS	Value
Master		32.97
Before		32.21
After		31.09
	1.000 (Minimum) 30.00 (Nominal) 50.00 (Maximum)	

Master: 26−Sep−2017 0:19 Before: 24−Nov−2017 7:43 After: 24−Nov−2017 12:07

Accelerator−Porosity Tool Wellsite Calibration

Calibration Ratios

Phase	Near/Far Calibration Ratio	Value	Phase	Near/Array Calibration Ratio	Value	Phase	Near/Array Cal Ratio Up/Down	Value
Master		0.8966	Master		1.071	Master		1.019
	0.8000 (Minimum) 0.9250 (Nominal) 1.050 (Maximum)			0.9000 (Minimum) 1.030 (Nominal) 1.170 (Maximum)			0.9700 (Minimum) 1.000 (Nominal) 1.030 (Maximum)	

Master: 26−Sep−2017 0:19

Accelerator−Porosity Tool Wellsite Calibration

Tank Check

Phase	Array−1 Standoff Porosity PU	Value	Phase	Array−2 Standoff Porosity PU	Value	Phase	Average Slowing Down Time US	Value
Master		10.24	Master		10.08	Master		6.107
	9.900 (Minimum) 11.75 (Nominal) 13.60 (Maximum)			9.900 (Minimum) 11.75 (Nominal) 13.60 (Maximum)			5.500 (Minimum) 6.000 (Nominal) 6.250 (Maximum)	

Phase	Array−1 SDT Ratio Up/Down	Value	Phase	Array−2 SDT Ratio Up/Down	Value	Phase	Sigma Formation CU	Value
Master		0.9723	Master		0.9674	Master		33.90
	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)			0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)			20.00 (Minimum) 27.50 (Nominal) 35.00 (Maximum)	

Master: 26−Sep−2017 0:19

Accelerator−Porosity Tool Master Calibration

Detector Calibration

Phase	Near/Far Calibration Ratio	Value	Phase	Near/Array Calibration Ratio	Value	Phase	Near/Array Cal Ratio Up/Down	Value
Master		0.8966	Master		1.071	Master		1.019
	0.8000 (Minimum) 0.9250 (Nominal) 1.050 (Maximum)			0.9000 (Minimum) 1.030 (Nominal) 1.170 (Maximum)			0.9700 (Minimum) 1.000 (Nominal) 1.030 (Maximum)	

Master: 26−Sep−2017 0:19

Accelerator−Porosity Tool Master Calibration

Tank Check

Phase	Array−1 Standoff Porosity PU	Value	Phase	Array−2 Standoff Porosity PU	Value	Phase	Average Slowing Down Time US	Value
Master		10.24	Master		10.08	Master		6.107
	9.900 (Minimum) 11.75 (Nominal) 13.60 (Maximum)			9.900 (Minimum) 11.75 (Nominal) 13.60 (Maximum)			5.500 (Minimum) 6.000 (Nominal) 6.250 (Maximum)	

Phase	Array−1 SDT Ratio Up/Down	Value	Phase	Array−2 SDT Ratio Up/Down	Value	Phase	Sigma Formation CU	Value
Master		0.9723	Master		0.9674	Master		33.90
	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)			0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)			20.00 (Minimum) 27.50 (Nominal) 35.00 (Maximum)	

Master: 26−Sep−2017 0:19

Hostile Natural Gamma Ray Cartridge − B / Equipment Identification

Primary Equipment:		
HNGC Cartridge	HNGC − B	304
Auxiliary Equipment:		
HNGC Housing	HNGH − A	3

Hostile Natural Gamma Ray Sonde / Equipment Identification

Primary Equipment:		
HNGS Sonde	HNGS − BA	194
Auxiliary Equipment:		
HNGS Sonde Housing	HNSH − BA	204
Gamma Source Radioactive	GSR − U	6098

Hostile Natural Gamma Ray Sonde Wellsite Calibration

Detector 1 Check

Phase	Na 511 Peak Loc	Value	Phase	Na 511 Peak Res %	Value	Phase	High Voltage V	Value
Master		39.76	Master		14.97	Master		1156
Before		39.63	Before		14.78	Before		1164

Phase	Value
After	39.68

37.50 (Minimum) 40.00 (Nominal) 43.50 (Maximum)

Phase	Value
After	15.12

12.00 (Minimum) 15.50 (Nominal) 19.00 (Maximum)

Phase	Value
After	1155

900.0 (Minimum) 1150 (Nominal) 1600 (Maximum)

Phase	Na 1785 Peak Loc	Value
Master		142.6
Before		142.4
After		141.8

135.0 (Minimum) 142.6 (Nominal) 150.3 (Maximum)

Phase	Na 1785 Peak Res %	Value
Master		9.098
Before		8.297
After		8.997

7.000 (Minimum) 8.500 (Nominal) 11.00 (Maximum)

Phase	Temperature DEGC	Value
Master		18.30
Before		22.61
After		18.27

−28.89 (Minimum) 15.50 (Nominal) 60.00 (Maximum)

Phase	Na Count Rate CPS	Value
Master		27.65
Before		26.76
After		27.40

10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)

Master: 23−Sep−2017 23:26 Before: 9−Oct−2017 23:50 After: 23−Sep−2017 23:36

Hostile Natural Gamma Ray Sonde Wellsite Calibration

Detector 2 Check

Phase	Na 511 Peak Loc	Value
Master		39.51
Before		39.64
After		39.54

37.50 (Minimum) 40.00 (Nominal) 43.50 (Maximum)

Phase	Na 511 Peak Res %	Value
Master		15.77
Before		15.02
After		16.14

12.00 (Minimum) 15.50 (Nominal) 19.00 (Maximum)

Phase	High Voltage V	Value
Master		1088
Before		1096
After		1088

900.0 (Minimum) 1150 (Nominal) 1600 (Maximum)

Phase	Na 1785 Peak Loc	Value
Master		141.7
Before		140.7
After		**141.7**

135.0 (Minimum) 142.6 (Nominal) 150.3 (Maximum)

Phase	Na 1785 Peak Res %	Value
Master		8.872
Before		9.283
After		**7.911**

7.000 (Minimum) 8.500 (Nominal) 11.00 (Maximum)

Phase	Temperature DEGC	Value
Master		18.97
Before		23.56
After		**18.96**

−28.89 (Minimum) 15.50 (Nominal) 60.00 (Maximum)

Phase	Na Count Rate CPS	Value
Master		27.04
Before		26.46
After		27.03

10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)

Master: 23−Sep−2017 23:26 Before: 9−Oct−2017 23:50 After: 23−Sep−2017 23:36

Hostile Natural Gamma Ray Sonde Wellsite Calibration

Ratio Of Detector 1 To Detector 2

Phase	Coincidence Count Rate Ratio	Value
Master		1.020
Before		1.012
After		1.014

0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)

Master: 23−Sep−2017 23:26
Before: 9−Oct−2017 23:50
After: 23−Sep−2017 23:36

Hostile Natural Gamma Ray Sonde Master Calibration

Detector 1 Calibration

Phase	Na 511 Peak Set Point	Value
Master		41.00

38.00 (Minimum) 40.00 (Nominal) 43.00 (Maximum)

Phase	Th Peak Loc	Value
Master		210.1

201.0 (Minimum) 209.6 (Nominal) 218.3 (Maximum)

Phase	Th Peak Res %	Value
Master		7.030

5.000 (Minimum) 7.000 (Nominal) 9.000 (Maximum)

Phase	Background Count Rate CPS	Value
Master		20.14

Phase	Gain Ratio	Value
Master		1.005

10.00 (Minimum)	142.5 (Nominal)	265.0 (Maximum)		0.9400 (Minimum)	1.000 (Nominal)	1.060 (Maximum)					

Master: 23−Sep−2017 23:22

Hostile Natural Gamma Ray Sonde Master Calibration

Detector 2 Calibration

Phase	Na 511 Peak Set Point	Value	Phase	Th Peak Loc	Value	Phase	Th Peak Res %	Value
Master		41.00	Master		208.2	Master		7.022
38.00 (Minimum)	40.00 (Nominal)	43.00 (Maximum)	201.0 (Minimum)	209.6 (Nominal)	218.3 (Maximum)	5.000 (Minimum)	7.000 (Nominal)	9.000 (Maximum)

Phase	Background Count Rate CPS	Value	Phase	Gain Ratio	Value
Master		17.54	Master		1.003
10.00 (Minimum)	142.5 (Nominal)	265.0 (Maximum)	0.9400 (Minimum)	1.000 (Nominal)	1.060 (Maximum)

Master: 23−Sep−2017 23:22

Enhanced DTS Cartridge / Equipment Identification

Primary Equipment:		
EDTC Gamma Ray Detector	EDTG − A/B	8305
Enhanced DTS Cartridge	EDTC − B	8317
Auxiliary Equipment:		
EDTC Housing	EDTH − B	8303

Enhanced DTS Cartridge Wellsite Calibration

EDTC Accelerometer Calibration

Phase	EDTC Z−Axis Acceleration M/S2	Value
Before		9.770
9.610 (Minimum)	9.810 (Nominal)	10.01 (Maximum)

Before: 24−Nov−2017 7:29

Enhanced DTS Cartridge Wellsite Calibration

Detector Calibration

Phase	Gamma Ray Background GAPI	Value	Phase	Gamma Ray (Jig − Bkg) GAPI	Value	Phase	Gamma Ray (Calibrated) GAPI	Value
Before		7.572	Before		140.5	Before		164.0
After		7.441	After		141.6	After		165.3
0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)	127.7 (Minimum)	140.5 (Nominal)	153.2 (Maximum)	149.0 (Minimum)	164.0 (Nominal)	179.0 (Maximum)

Before: 20−Nov−2017 8:33 After: 20−Nov−2017 8:42

Company: **International Ocean Discovery Program**

Schlumberger

Well: **Expedition 369, Site U1513E**
Field: **Australia Cretaceous Climate & Tectonics**
Rig: **JOIDES Resolution**
Ocean: **Indian**

Formation Micro Scanner (FMS)
Gamma Ray (EDTC)
Accelerator Porosity Sonde (APS)