

Schlumberger

Company: **Lamont Doherty**

Well: **Expedition 318 Site U1359D**

Field: **Wilkes Land**

Rig: **JOIDES Resolution** Country: **Antarctica**

Natural Gamma
Spectroscopy
(HNCS)

Rig: JOIDES Resolution
Field: Wilkes Land
Location: Latitude: S 64.904 Deg
Well: Expedition 318 Site U1359D
Company: Lamont Doherty

LOCATION		Elev.:	K.B.	11.00 m
Latitude: S 64.904 Deg		G.L. -3012.00 m		
Longitude: E 143.9593 Deg		D.F. 11.00 m		
Permanent Datum:	Mean Sea Level	Elev.:	0.00 m	
Log Measured From:	Drill Floor	11.00 m above Perm. Datum		
Drilling Measured From:	Drill Floor			
API Serial No.				

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

Logging Date	23-Feb-2010
Run Number	1
Depth Driller	3630 m
Schlumberger Depth	3626 m
Bottom Log Interval	3592 m
Top Log Interval	2970 m
Casing Driller Size @ Depth	0.000 in @ 3119.9 m
Casing Schlumberger	3122 m
Bit Size	9.875 in
Type Fluid In Hole	Sepiolite Sea Water Gel + Barite
Density	1.22 g/cm3
Fluid Loss	
Source Of Sample	
RM @ Measured Temperature	@
RMF @ Measured Temperature	@
RMC @ Measured Temperature	@
Source RMF	RMC
RM @ MRT	RMF @ MRT
Maximum Recorded Temperatures	12 degC @ 12 @ 12 @
Circulation Stopped	Time
Logger On Bottom	23-Feb-2010 4:00
Unit Number	625003 Webster
Recorded By	K. Swain
Witnessed By	T. Williams, A. Fehr

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 OF 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.

OTHER SERVICES1
 OS1: DITE/HLDS/APS
 OS2: FMS/DSI
 OS3: VSI
 OS4:
 OS5:

OTHER SERVICES2
 OS1:
 OS2:
 OS3:
 OS4:
 OS5:

REMARKS: RUN NUMBER 1
 Depths referenced from rig floor in mbrf.
 Tools run slick without stand offs as per normal operation to fit inside pipe.
 Logging is performed through drill pipe for open hole logging.
 Rotary Coring Bit used for drilling. No flapper valve used.
 Downlog used for repeat section/ or pass #2 at client request.
 Downlog flipped and played back to get the depth display in same direction.
 APS neutron activation of gamma ray near TD is noted on log. APS was turned on prior to getting to TD and caused the gamma ray count to be elevated in area above TD as noted.

REMARKS: RUN NUMBER 2

RUN 1

SERVICE ORDER #: _____
 PROGRAM VERSION: 17C0-154
 FLUID LEVEL: _____

LOGGED INTERVAL	START	STOP

RUN 2

SERVICE ORDER #: _____
 PROGRAM VERSION: _____
 FLUID LEVEL: _____

LOGGED INTERVAL	START	STOP


EQUIPMENT DESCRIPTION

RUN 1

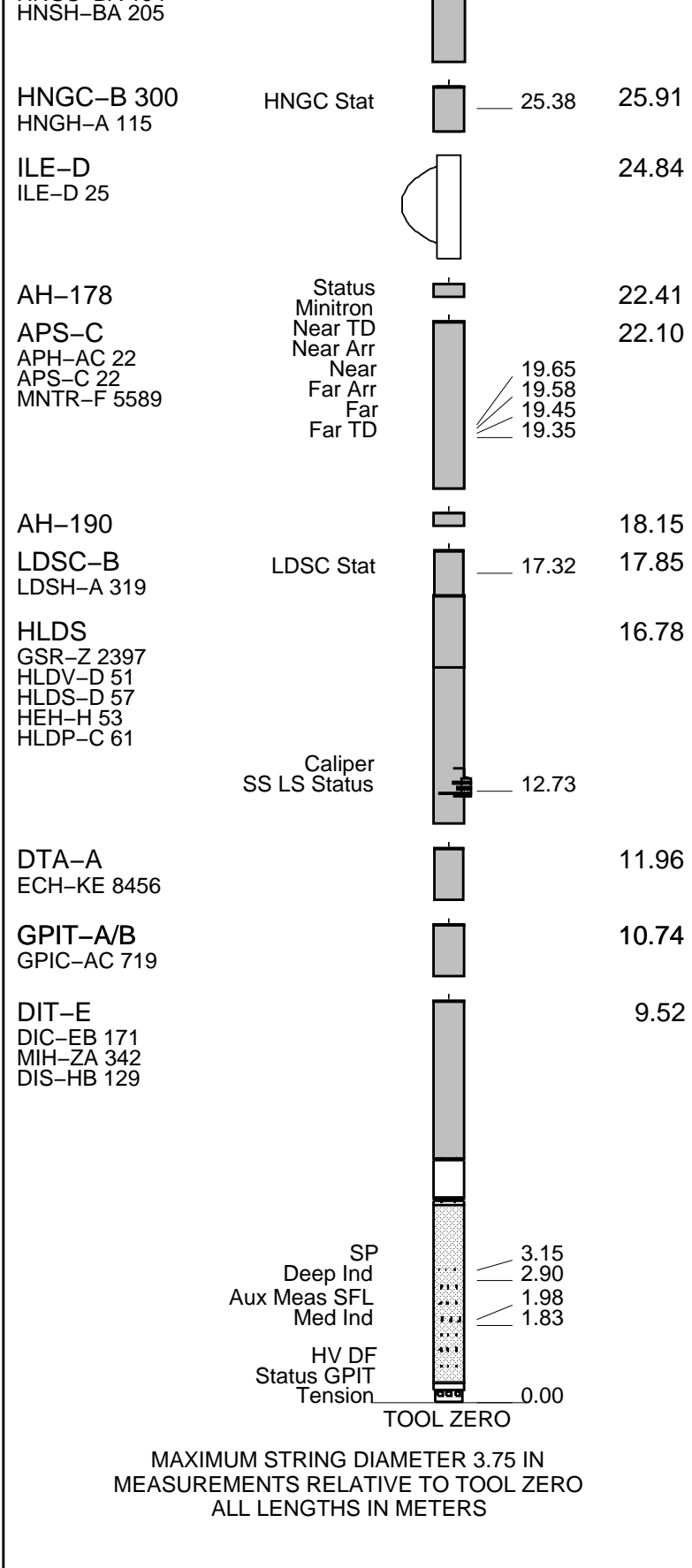
SURFACE EQUIPMENT

SFT-281 2
 SFT-178 2
 GSR-U 616008
 WITM (DTS)-A

DOWNHOLE EQUIPMENT

LEH-QT		30.21
LEH-QT 1750		
DTC-H	CTEM	29.04
ECH-KC 9842	TelStatus	29.32
	ToolStatu	28.41
HNGS-BA 194	Upper_1	27.71
HNGS-BA 194	Lower_2	27.50
		28.41

RUN 2



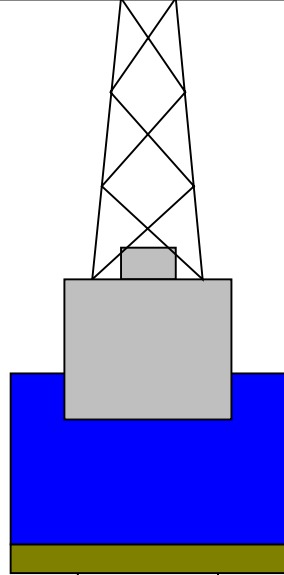
Production String	(in)	(M)	Well Schematic	(M)	(in)	Casing String
	OD	ID		MD	MD	

Kelly Bushing Elevation
Derrick Floor Elevation

Mean Sea Level

11.0
11.0

0.0



3023 4.20

Sea Floor



3023 9.875

3119.9 3.80

Borehole Segment

Open Hole

3625.2

Input DLIS Files

DEFAULT PI_LDL_APS_NGS_010LUP FN:13 PRODUCER 23-Feb-2010 03:58 3625.6 M 2970.1 M

Output DLIS Files

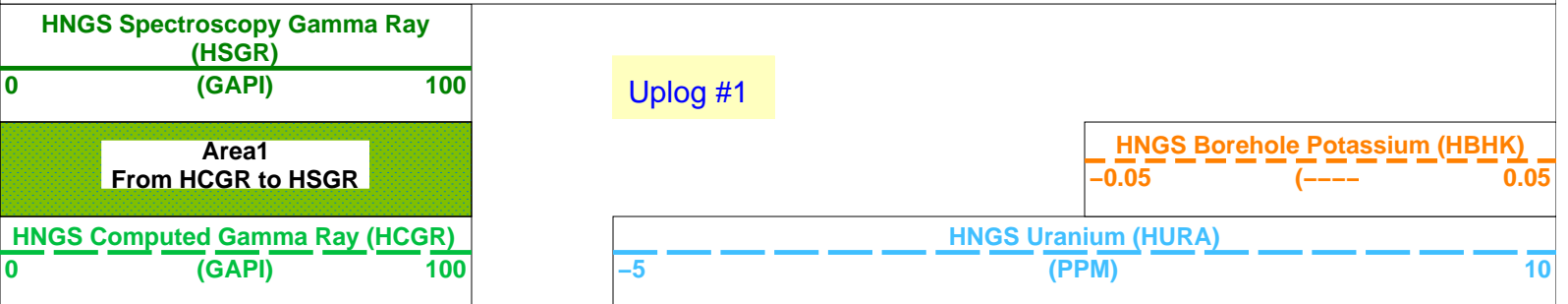
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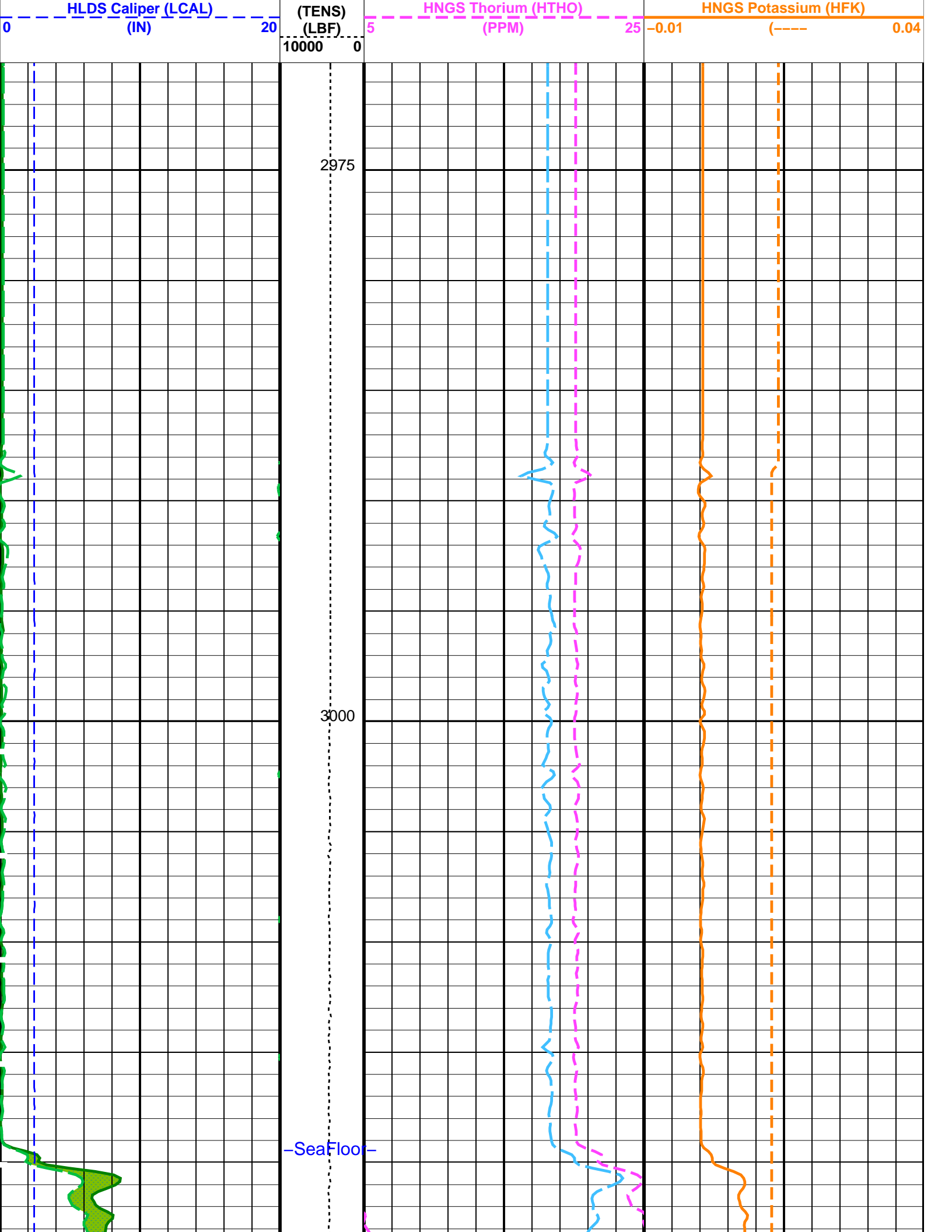
OP System Version: 17C0-154

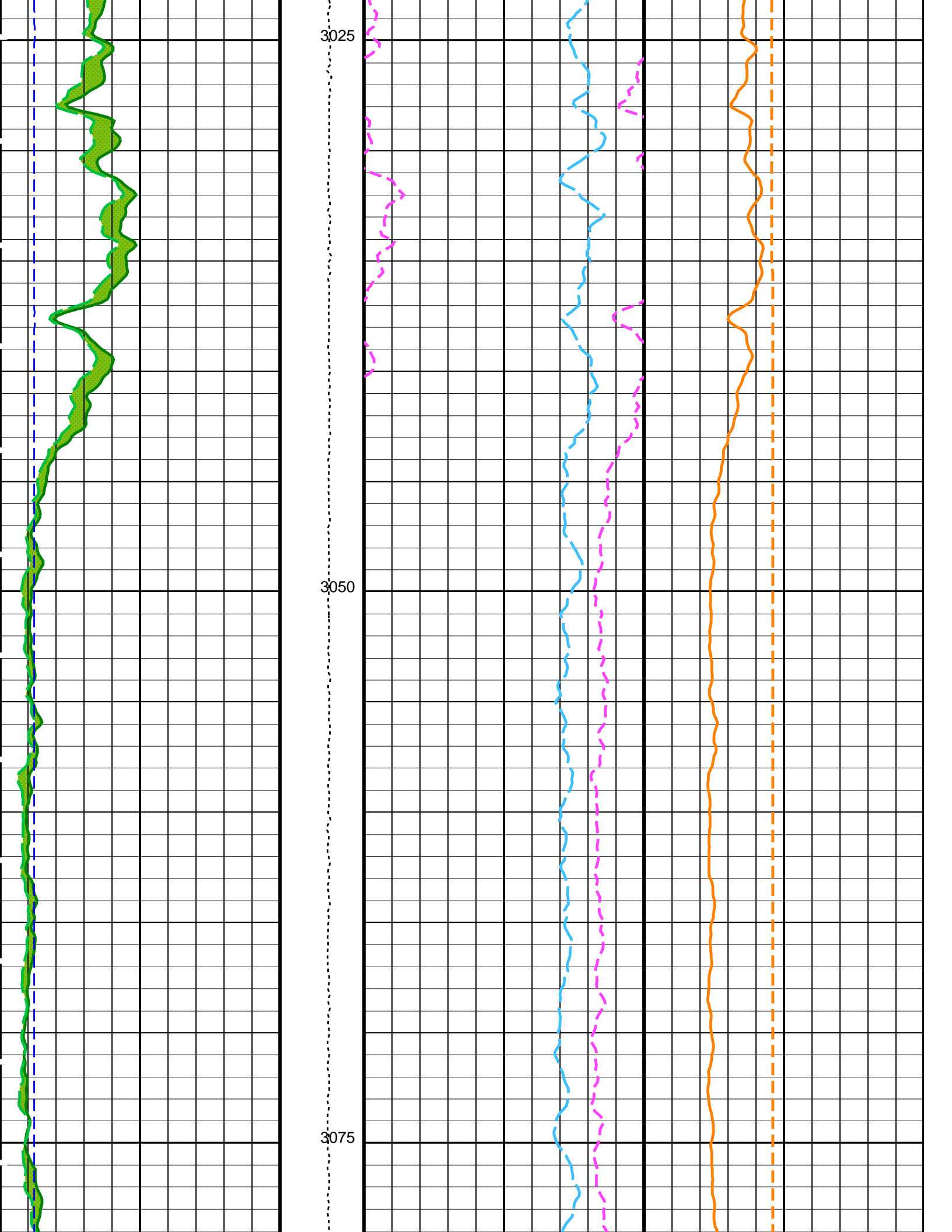
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DTA-A	17C0-154	HLDS	17C0-154
LDSC-B	17C0-154	APS-C	17C0-154
HNGC-B	17C0-154	HNGS-BA	17C0-154
DTC-H	17C0-154		

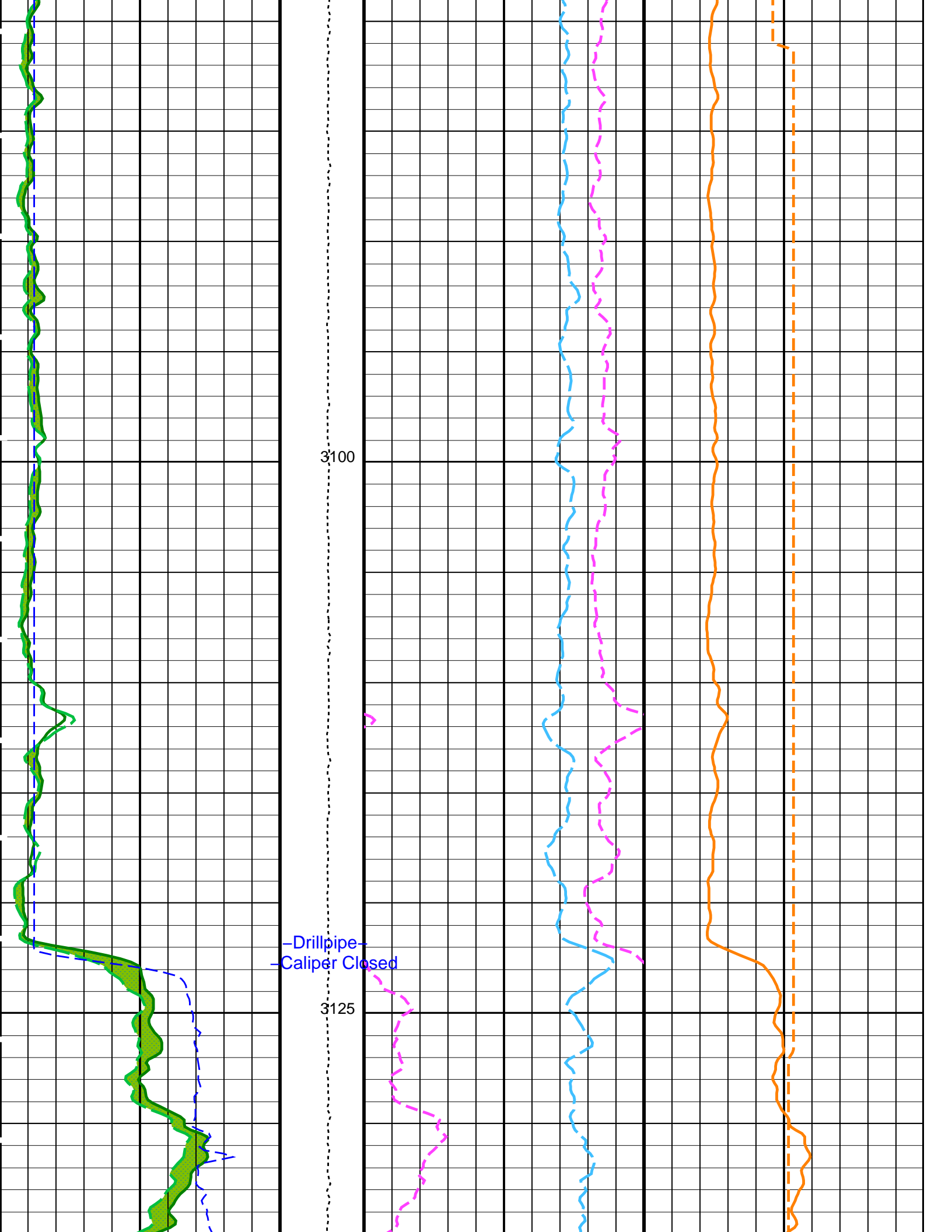
PIP SUMMARY

Time Mark Every 60 S





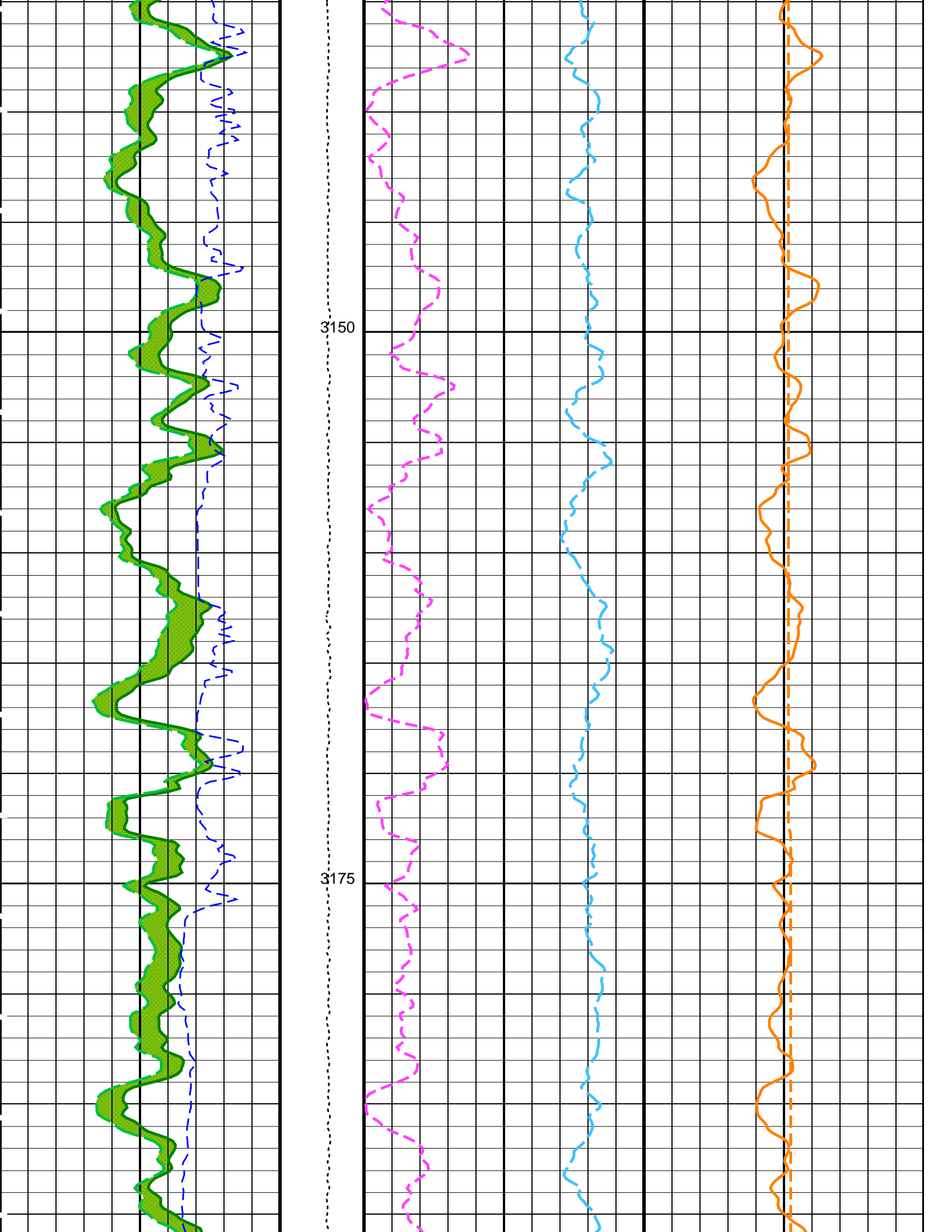


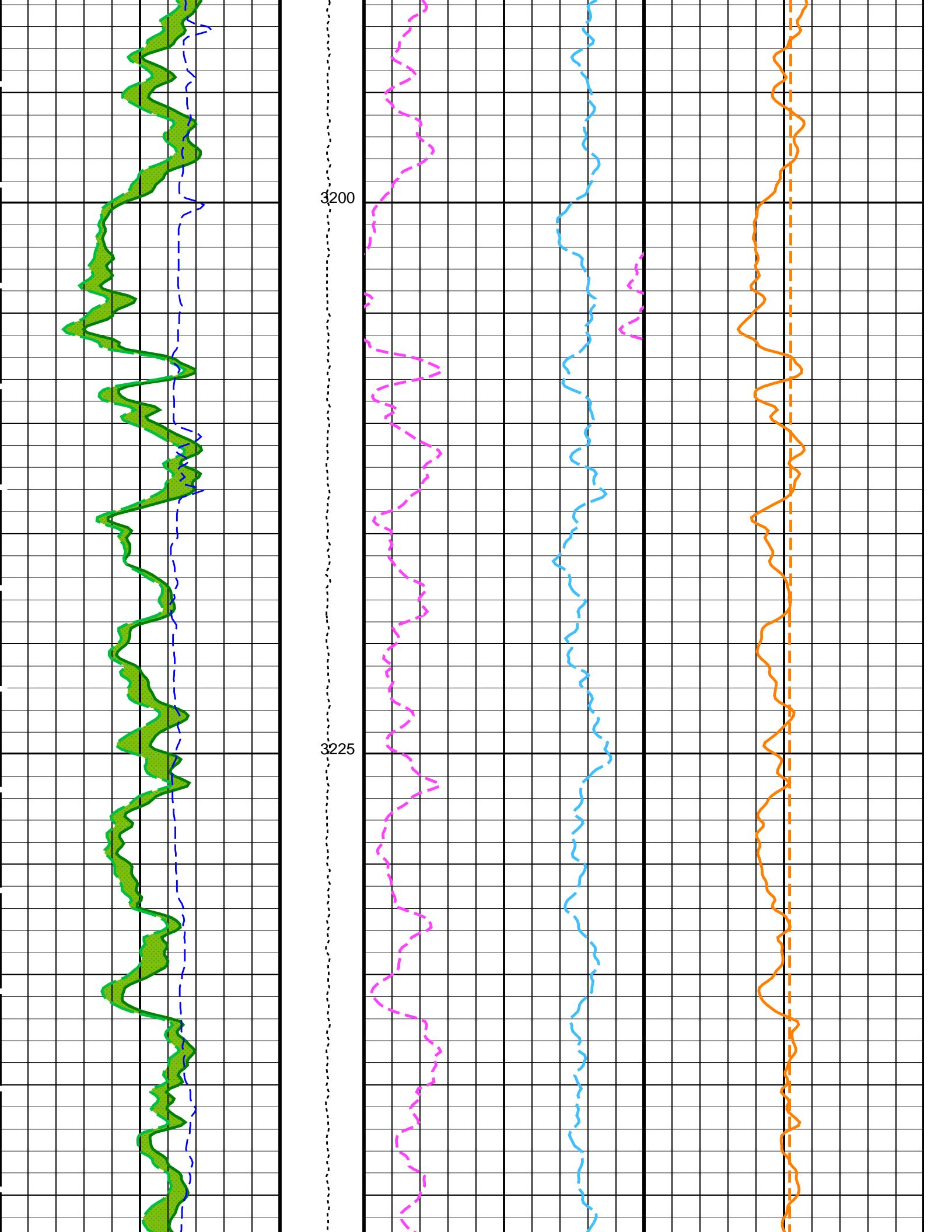


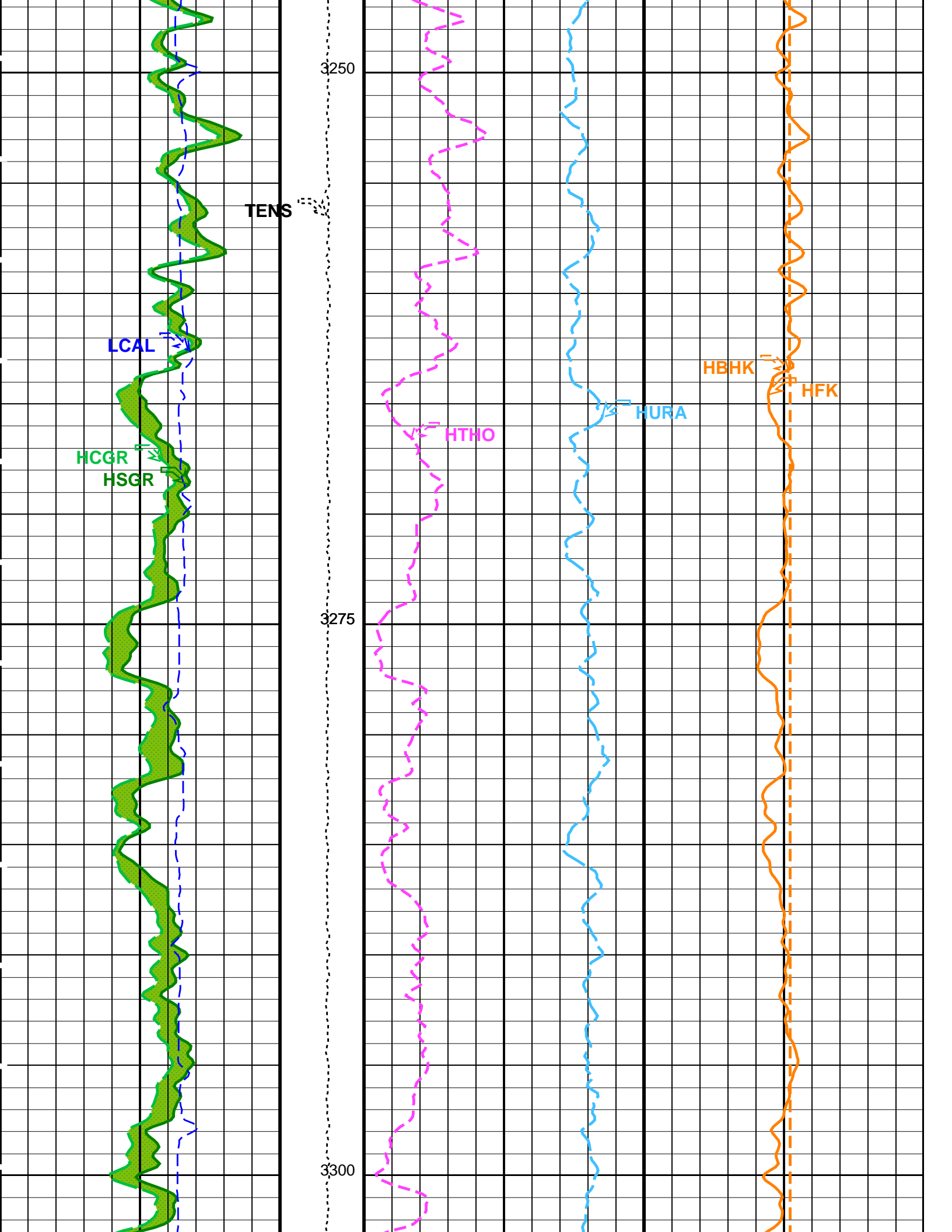
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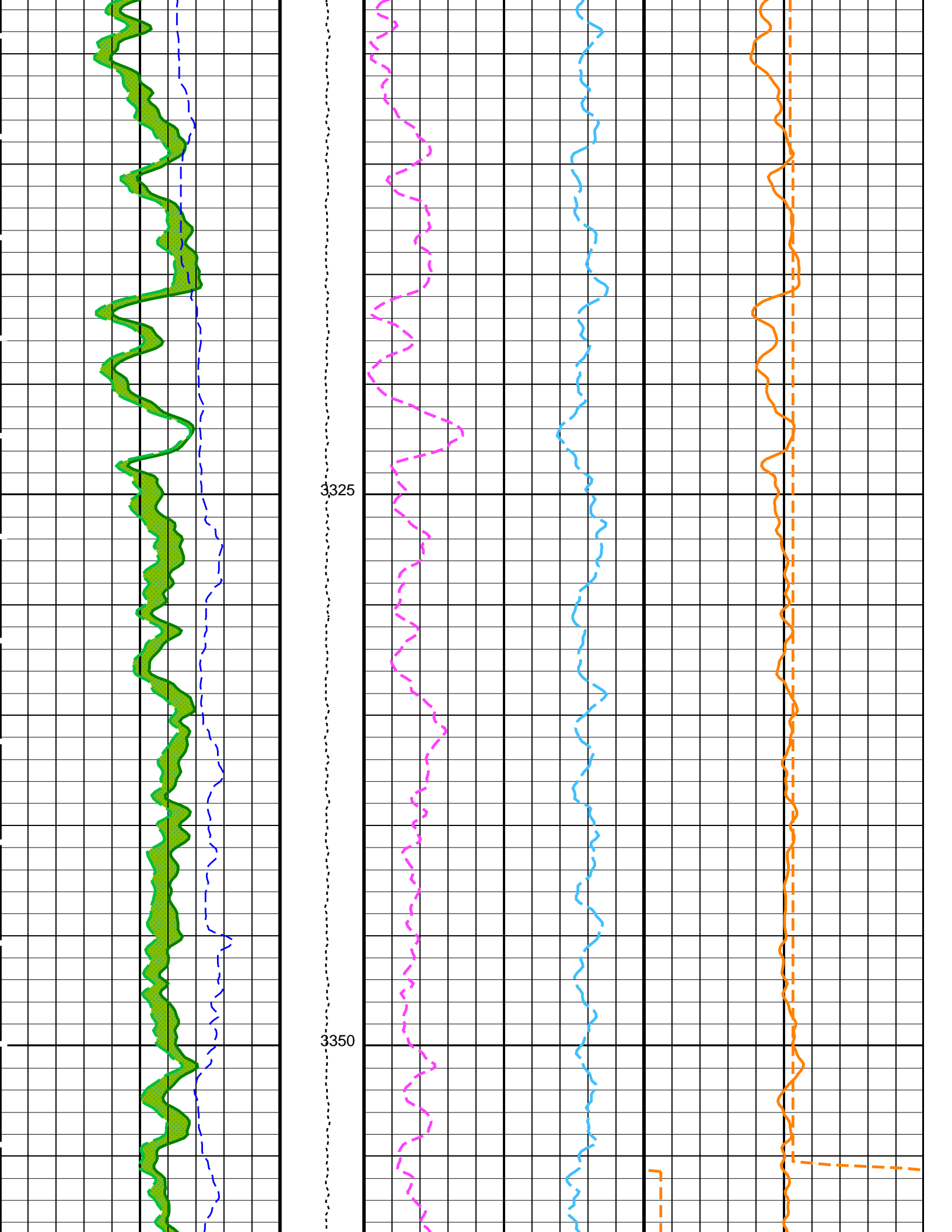
-Drillpipe
-Caliper Closed

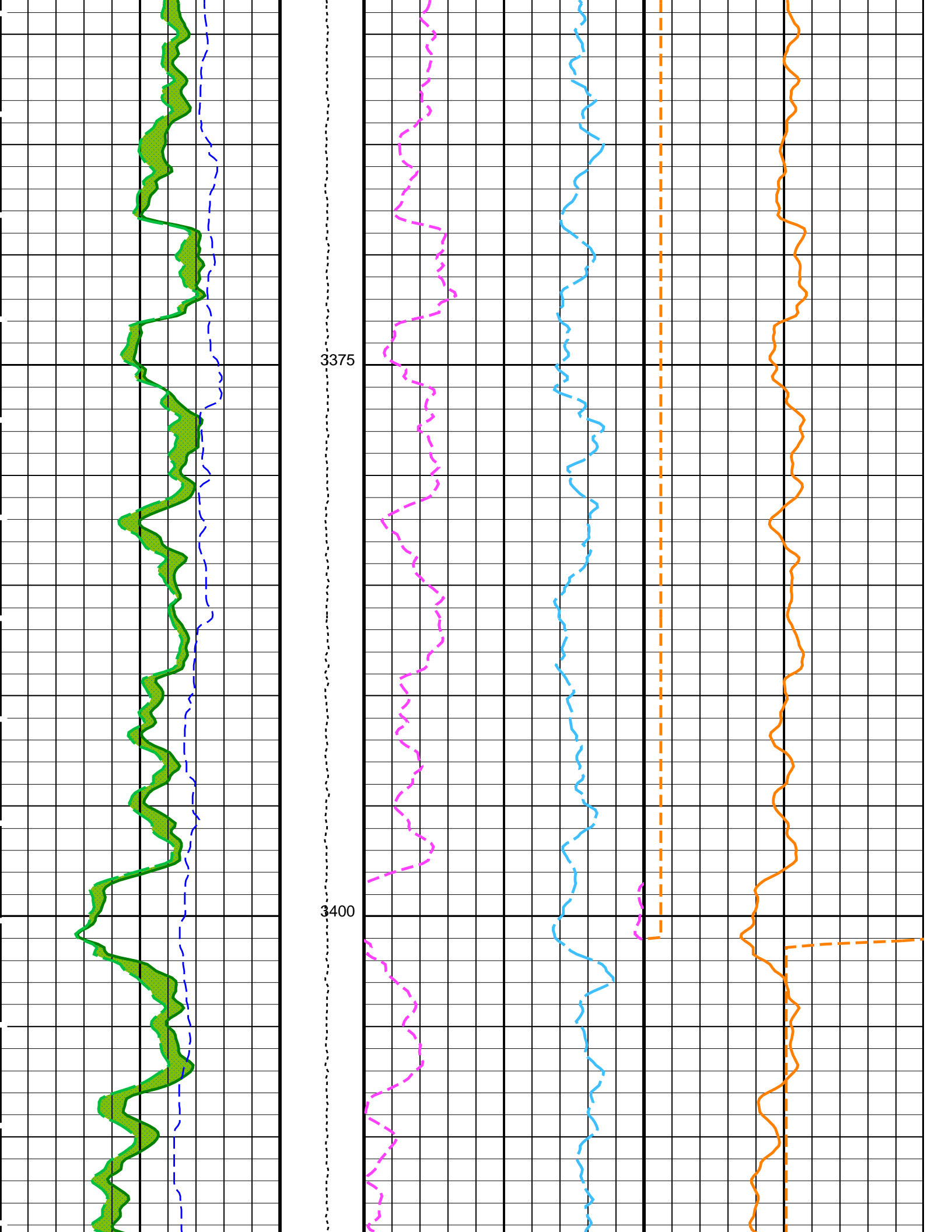
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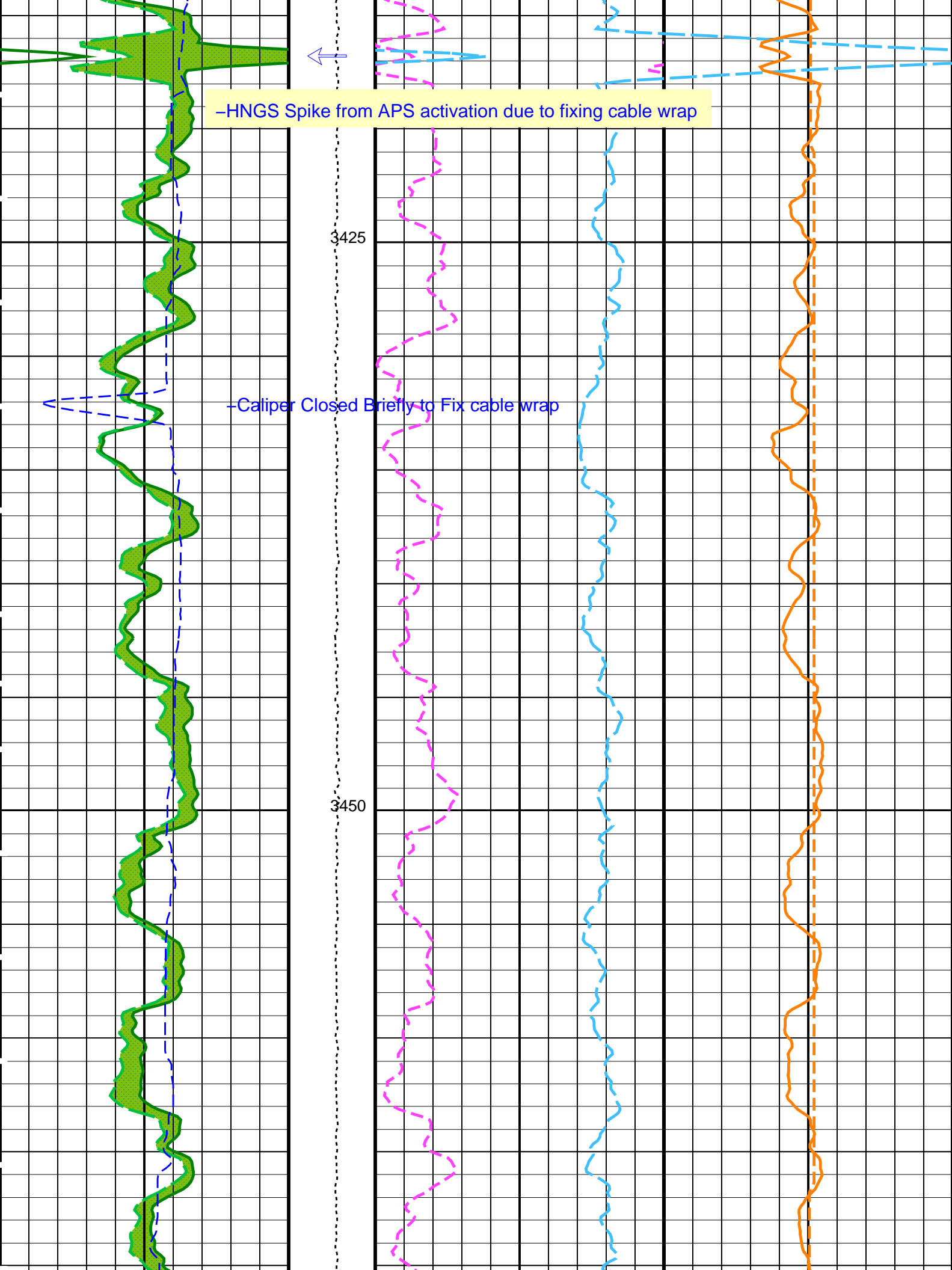










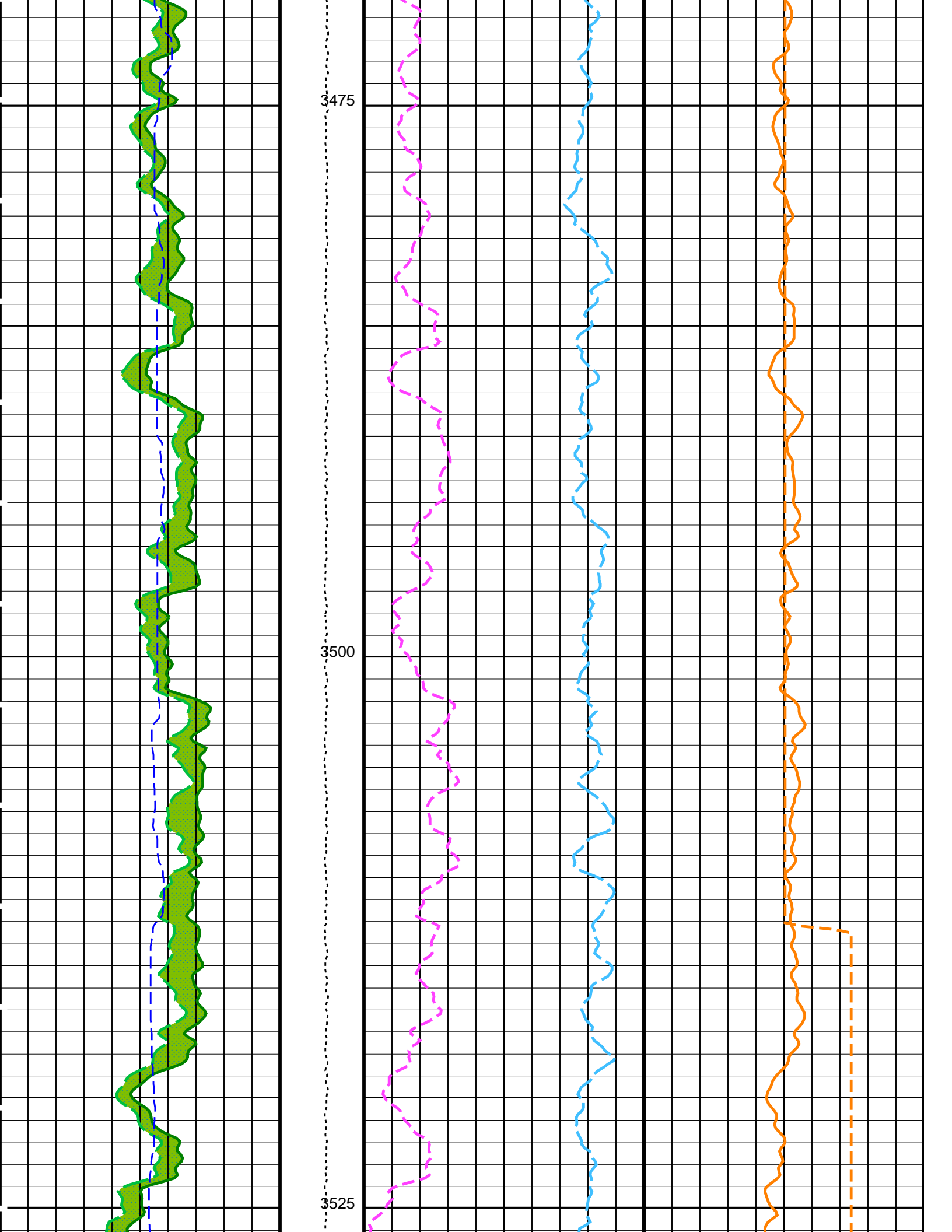


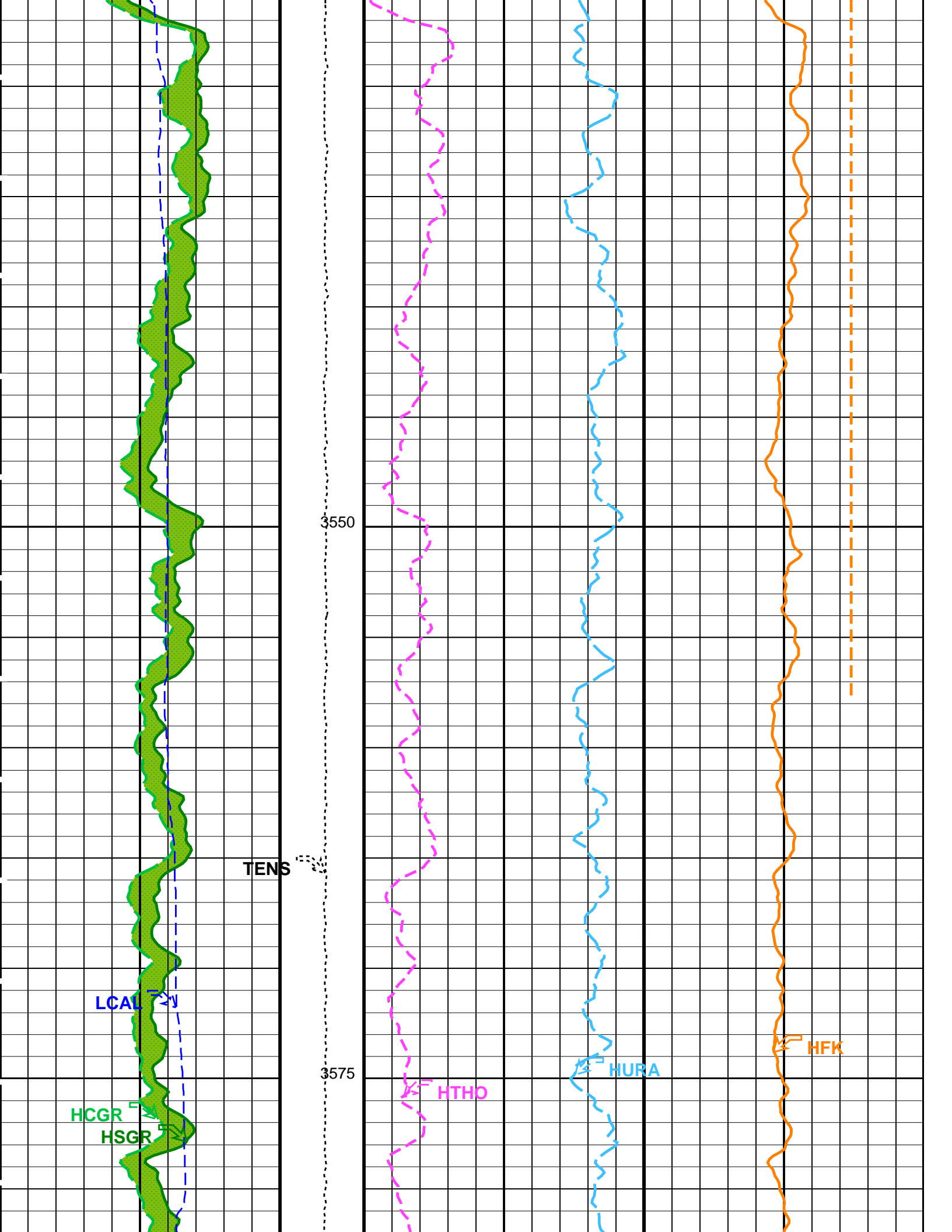
-HNGS Spike from APS activation due to fixing cable wrap

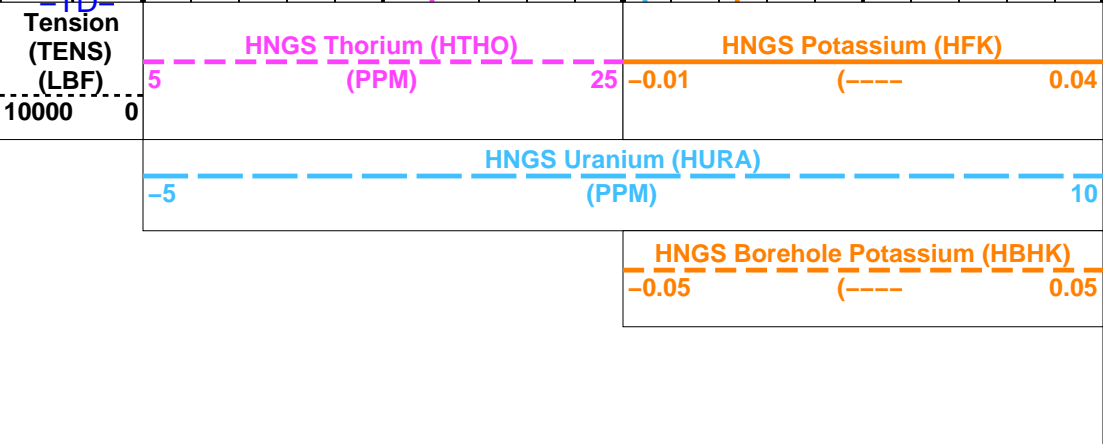
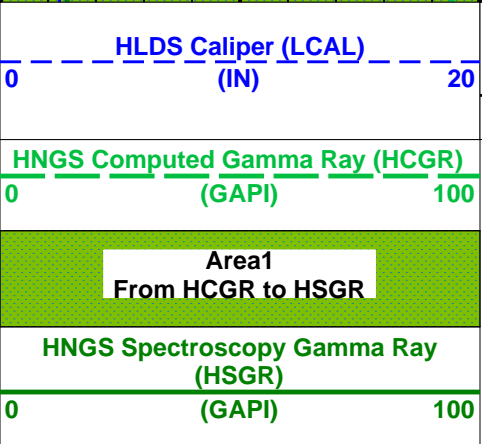
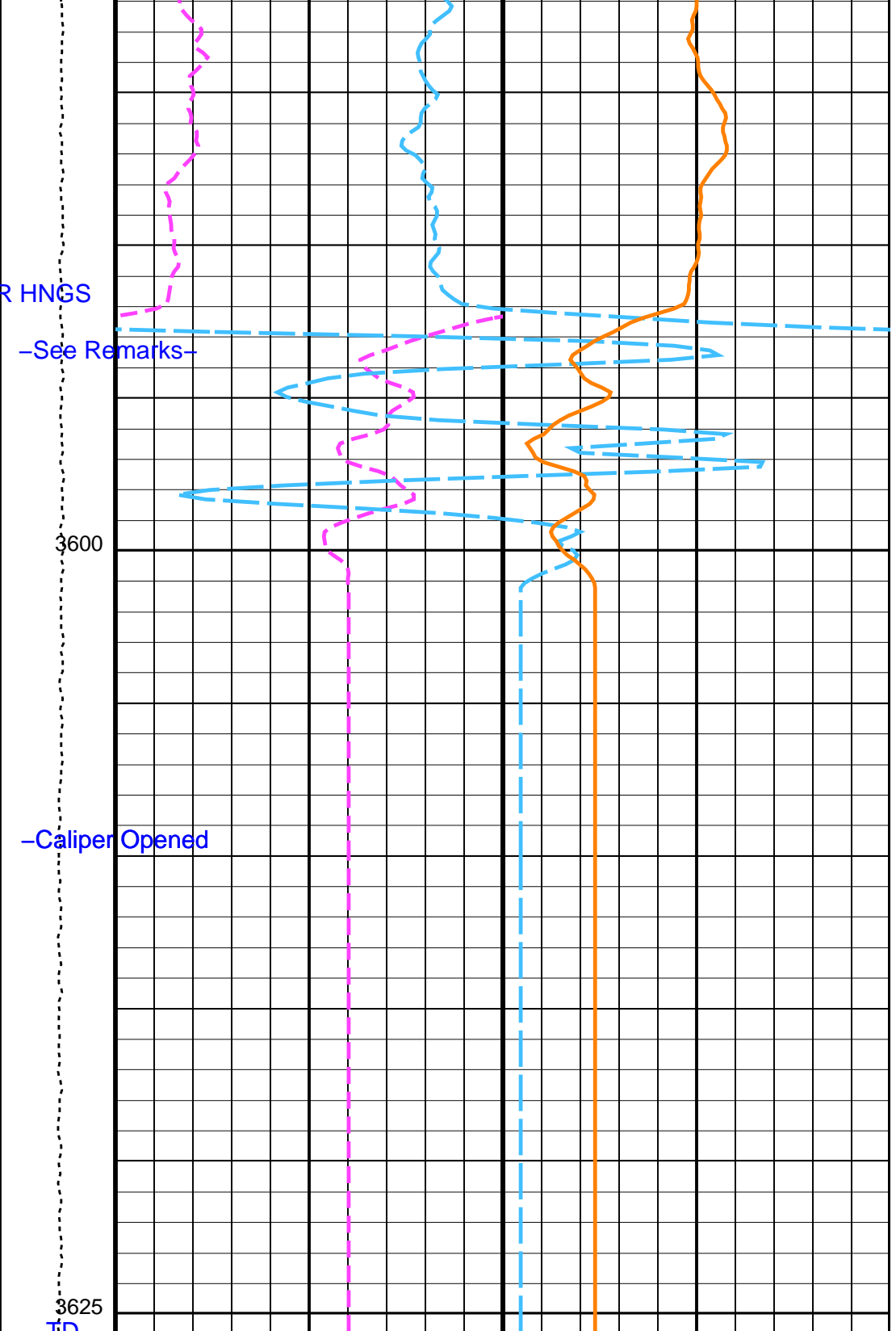
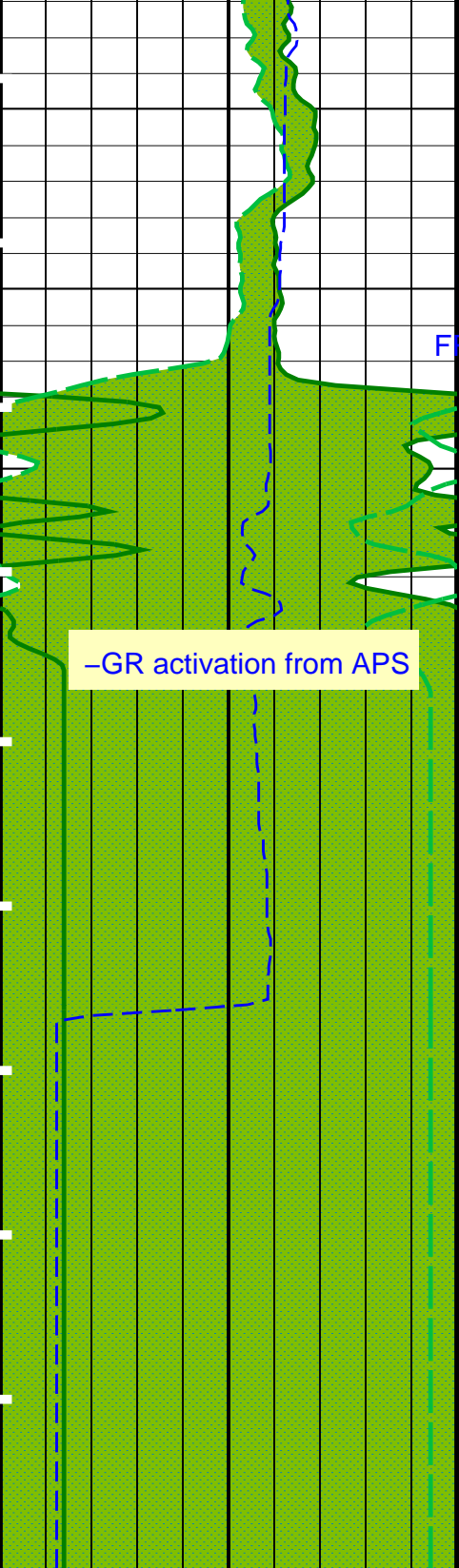
-Caliper Closed Briefly to Fix cable wrap

3425

3450







Parameters

DLIS Name	Description	Value	
DIT-E: Dual Induction - E			
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	15.5556	DEGC
DGF2	Deep 20 kHz Gain Factor	0.979119	
DPH2	Deep 20 kHz Phase Shift	0.0159963	DEG
DRE2	Deep Real 20 kHz Sonde Error Correction	17.0457	MM/M
DSR2	Deep Sigma Reference (20 kHz)	1843	MM/M
DXE2	Deep Quad 20 kHz Sonde Error Correction	136.154	MM/M
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN 9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
IFRS	DIT-E Induction Frequency Selector	20	
IPHA	DIT-E Phasor Processing Mode	ALL	
IPRO	DIT-E Induction Processing Selector	PHASOR	
ISSBAR	Barite Mud Switch	NOBARITE	
ITEN	DIT-E Temperature Enable	ENABLE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MGF2	Medium 20 kHz Gain Factor	0.974788	
MPH2	Medium 20 kHz Phase Shift	-0.199528	DEG
MRE2	Medium Real 20 kHz Sonde Error Correction	11.3259	MM/M
MSR2	Medium Sigma Reference (20 kHz)	3250	MM/M
MXE2	Medium Quad 20 kHz Sonde Error Correction	172.606	MM/M
SBR	Shoulder Bed Resistivity Factor	1	OHMM
SFCR	SFL Channel Ratio	1000	
SFLE	SFL Enable	ENABLE	
SHT	Surface Hole Temperature	3	DEGC
SPAE	DIT-E SPARC Processing Enable	ENABLE	
SPNV	SP Next Value	0	MV
GPIT-A/B: General Purpose Incliner			
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	82.7472	DEG
MRTE	Magneto Reference Temperature	19	DEGC
TEMS	GPIT Temperature Sensor Used	BOTH	
U-GPOF	Playback OLD VERSION GPIT FILE (BEFORE OP14 + SRPC-3098-FEB_2006_C) ?	NO	
HLDS: Hostile Litho-Density Sonde			
CLCL	HLDS LS Control Loop Controller Mode	AUTO_DEFAULT	
CLCS	HLDS SS Control Loop Controller Mode	AUTO_DEFAULT	
CLLS	HLDS Mode Loop Long Spacing	AUTO	
CLSS	HLDS Mode Loop Short Spacing	AUTO	
DHC	Density Hole Correction	BS	
DPPM	Density Porosity Processing Mode	HIRS	
FD	Fluid Density	1	G/C3
LATC	HLDS Activation Correction	ON	
LLDL	HLDS LS Low Level Discriminator DAC	14000	
LLDS	HLDS SS Low Level Discriminator DAC	14000	
LLML	HLDS LS Low Level Discriminator Mode	AUTO	
LLMS	HLDS SS Low Level Discriminator Mode	AUTO	
MDEN	Matrix Density	2.71	G/C3
PHVL	HLDS Long Spacing High Voltage Setting	1000	V
PHVS	HLDS Short Spacing High Voltage Setting	1000	V
PSDL	HLDS LS Pulse Shape Compensation DAC	30000	
PSDS	HLDS SS Pulse Shape Compensation DAC	30000	
PSML	HLDS LS Pulse Shape Compensation Mode	AUTO	
PSMS	HLDS SS Pulse Shape Compensation Mode	AUTO	
APS-C: Accelerator-Porosity Tool			
AASD	APS Software Version	0	
ADSO	APS Thermal and Array Detectors High Voltage Setting	1967.87	V
AFSD	APS Array Detectors Data Source Switch	Both	
AHCS	APS Far Detector High Voltage Setting	2098.2	V
AHSS	APS Holesize Correction Source	BS	
AMTY	APS Holesize Correction Switch	ON	
ANSO	APS Environmental Corrections Mud Type	WaterBaseBarite	
ASOS	APS Near Detector High Voltage Setting	1738.17	V
ATSS	APS Standoff Correction Switch	ON	
BHFL_APS	APS Temperature-Pressure-Salinity Correction Switch	ON	
BHS	APS TNPH Borehole Fluid Type	WATER	
BHT	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	15.5556	DEGC
BSCO_APS	APS TNPH Borehole Salinity Correction Option	NO	

DSCO_APS	APS TNPH Borehole Salinity Correction Option	NO	
DPPM	Density Porosity Processing Mode	HIRS	
DSCO_APS	APS TNPH Density Source	COMPUTED	
FSAL	Formation Salinity	-50000	PPM
FSCO_APS	APS TNPH Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
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	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO_APS	APS TNPH Mud Cake Correction Option	NO	
MCOR_APS	APS TNPH Mud Correction	NATU	
MWCO_APS	APS TNPH Mud Weight Correction Option	YES	
NARC	APS Near/Array Calibration Ratio	1.06031	
NFRC	APS Near/Far Calibration Ratio	0.890147	
PTCO_APS	APS TNPH Pressure/Temperature Correction Option	YES	
SHT	Surface Hole Temperature	3	DEGC
TNCO_APS	APS TNPH Computation Option	NO	
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)	15.5556	DEGC
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	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
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	0.00608072	
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	NOBARITE	
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	3	DEGC
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0.956891	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.947202	
System and Miscellaneous			
ALTDCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	9.875	IN
BSAL	Borehole Salinity	-50000.00	PPM
CSIZ	Current Casing Size	0.000	IN
CWEI	Casing Weight	0.00	LB/F
DFD	Drilling Fluid Density	1.22	G/C3
DO	Depth Offset for Playback	0.0	M
FLEV	Fluid Level	-50000.00	M
MST	Mud Sample Temperature	-50000.00	DEGC
PBVSADP	Use alternate depth channel for playback	NO	
PP	Playback Processing	NORMAL	
RMFS	Resistivity of Mud Filtrate Sample	-50000.0000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	3626	M
TDD	Total Depth - Driller	3630.00	M
TDL	Total Depth - Logger	3630.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: HNGSYields Vertical Scale: 1:200 Graphics File Created: 06-Mar-2010 18:29

OP System Version: 17C0-154

DIT-E	17C0-154	GPIT-A/B	SRPC-3870_Q3_2009_OP17_V3_b
DTA-A	17C0-154	HLDS	17C0-154
LDSC-B	17C0-154	APS-C	17C0-154
HNGC-B	17C0-154	HNGS-BA	17C0-154
DTC-H	17C0-154		

Input DI IS Files

Input DLIS Files

DEFAULT PI_LDL_APS_NGS_010LUP FN:13 PRODUCER 23-Feb-2010 03:58 3625.6 M 2970.1 M

Output DLIS Files

DEFAULT PI_LDL_APS_NGS_035PUP FN:46 PRODUCER 06-Mar-2010 18:29

Input DLIS Files

DEFAULT Flip_PI_LDL_APS_NGS_033LUP PRODUCER 06-Mar-2010 18:19 3623.3 M 2990.1 M

Output DLIS Files

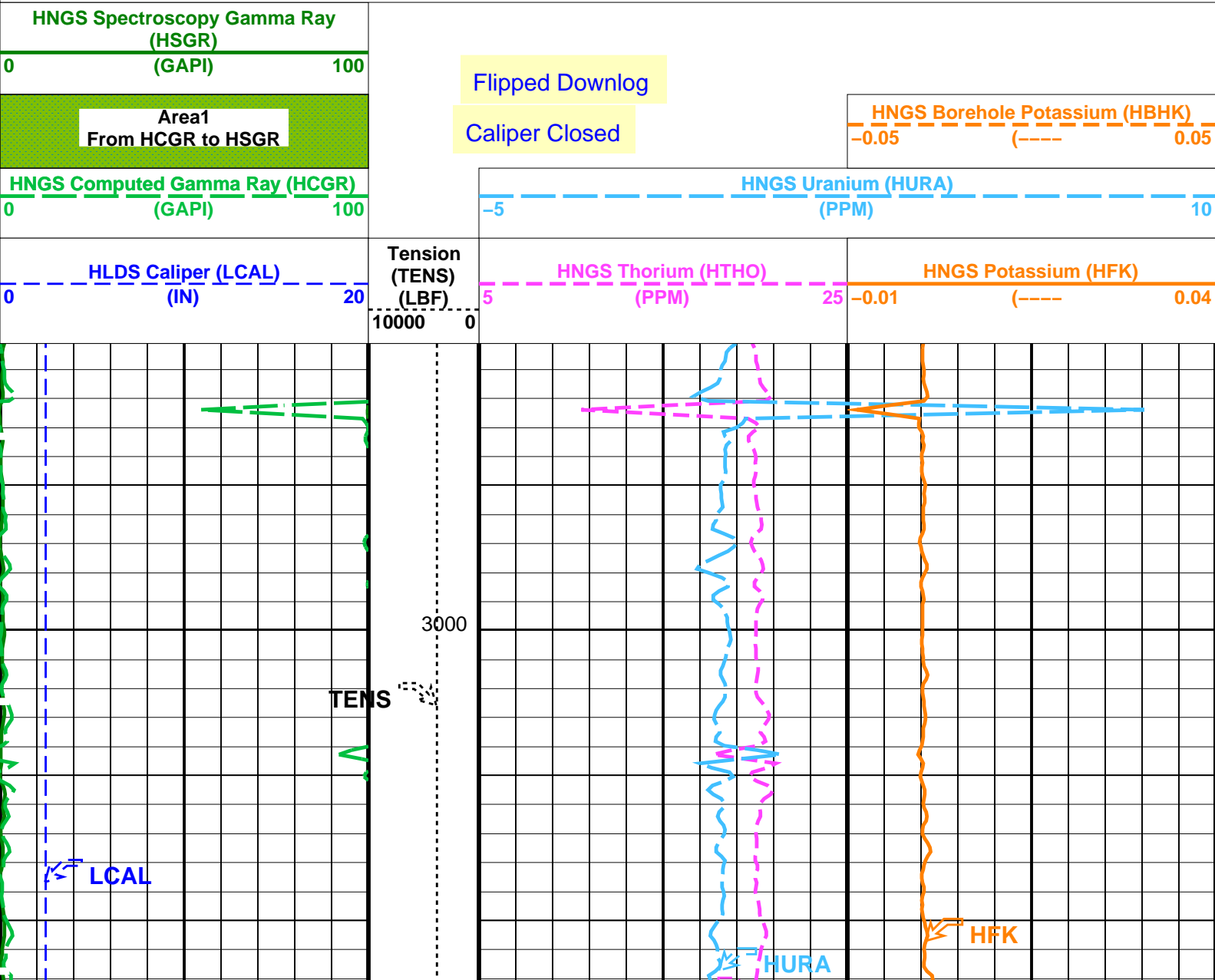
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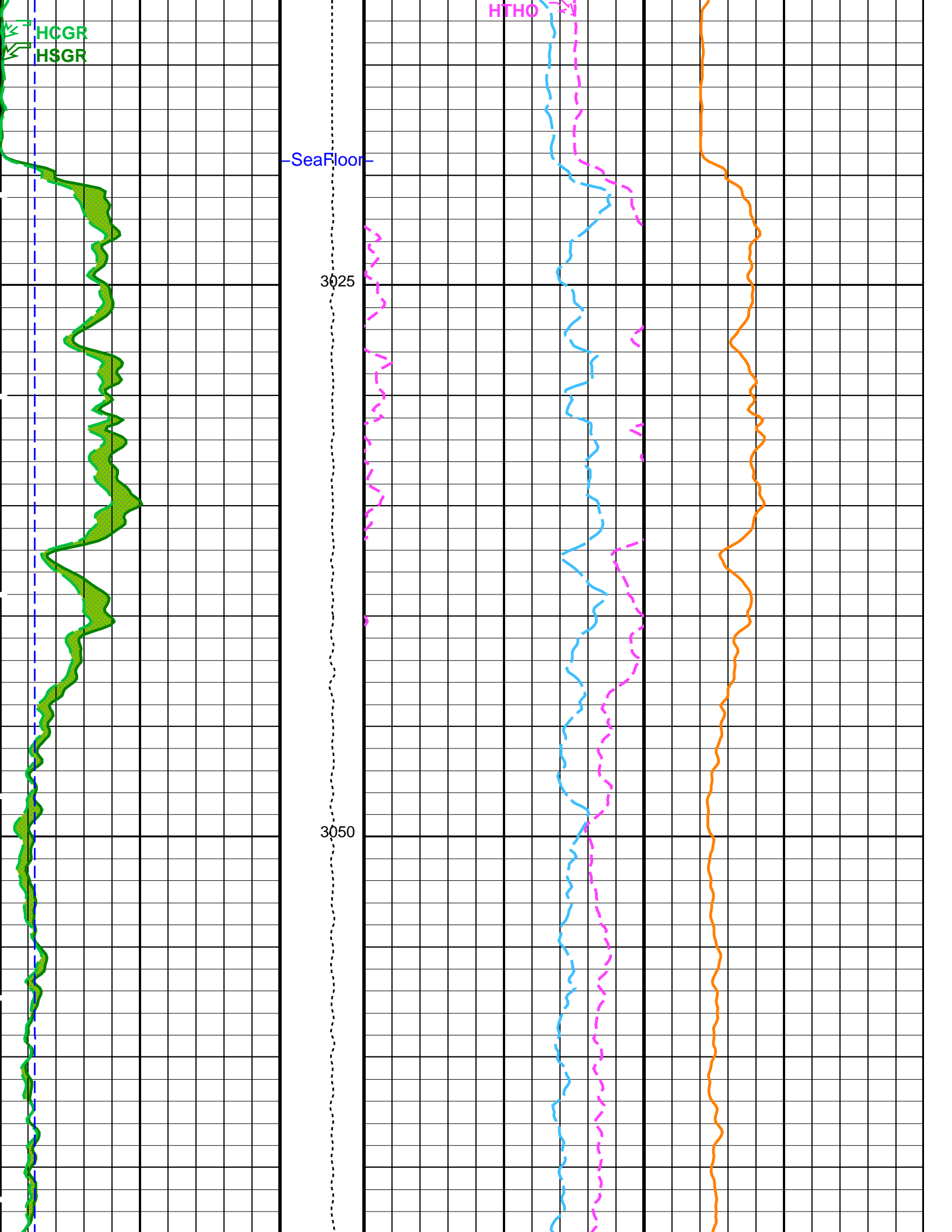
OP System Version: 17C0-154

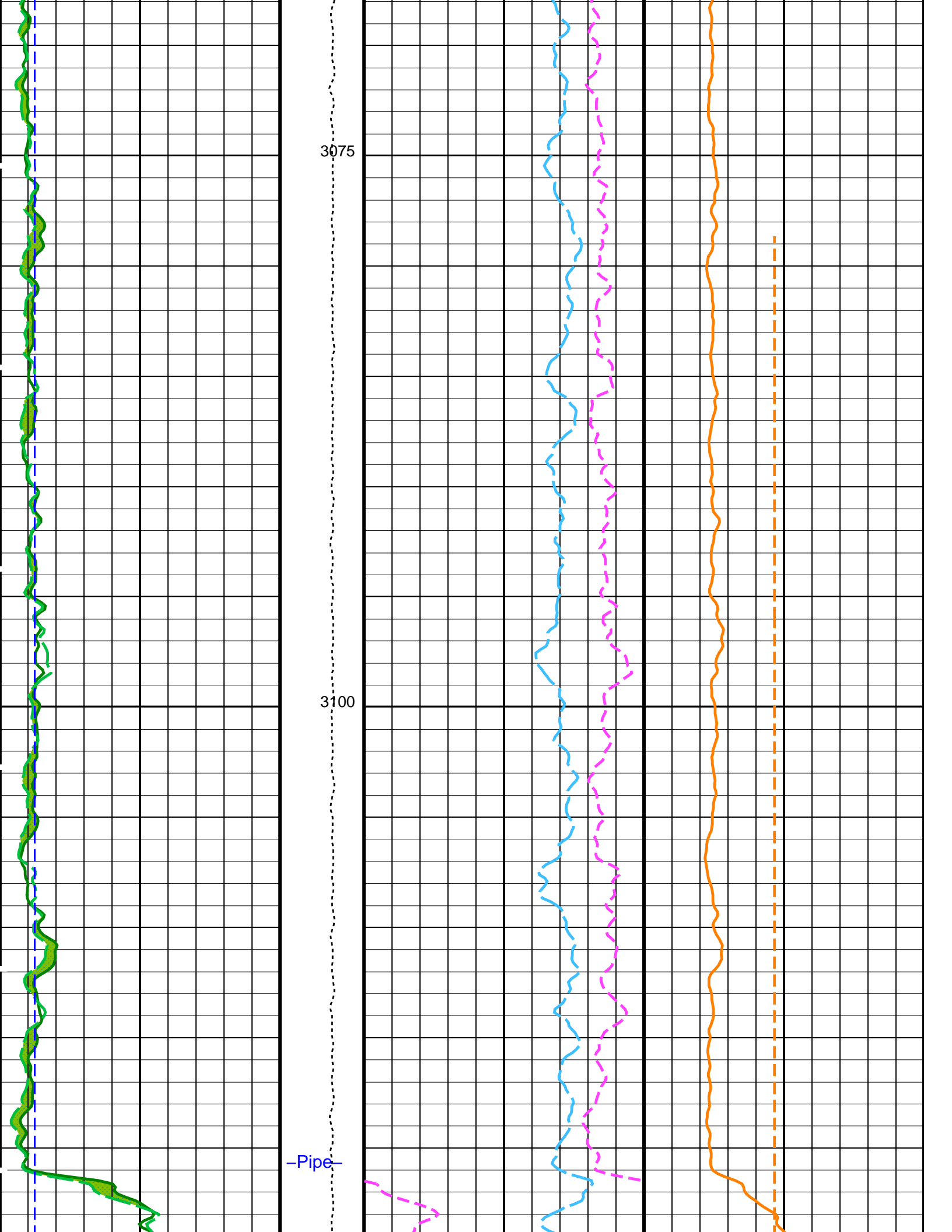
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DTA-A	17C0-154	HLDS	17C0-154
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HNGC-B	17C0-154	HNGS-BA	17C0-154
DTC-H	17C0-154		

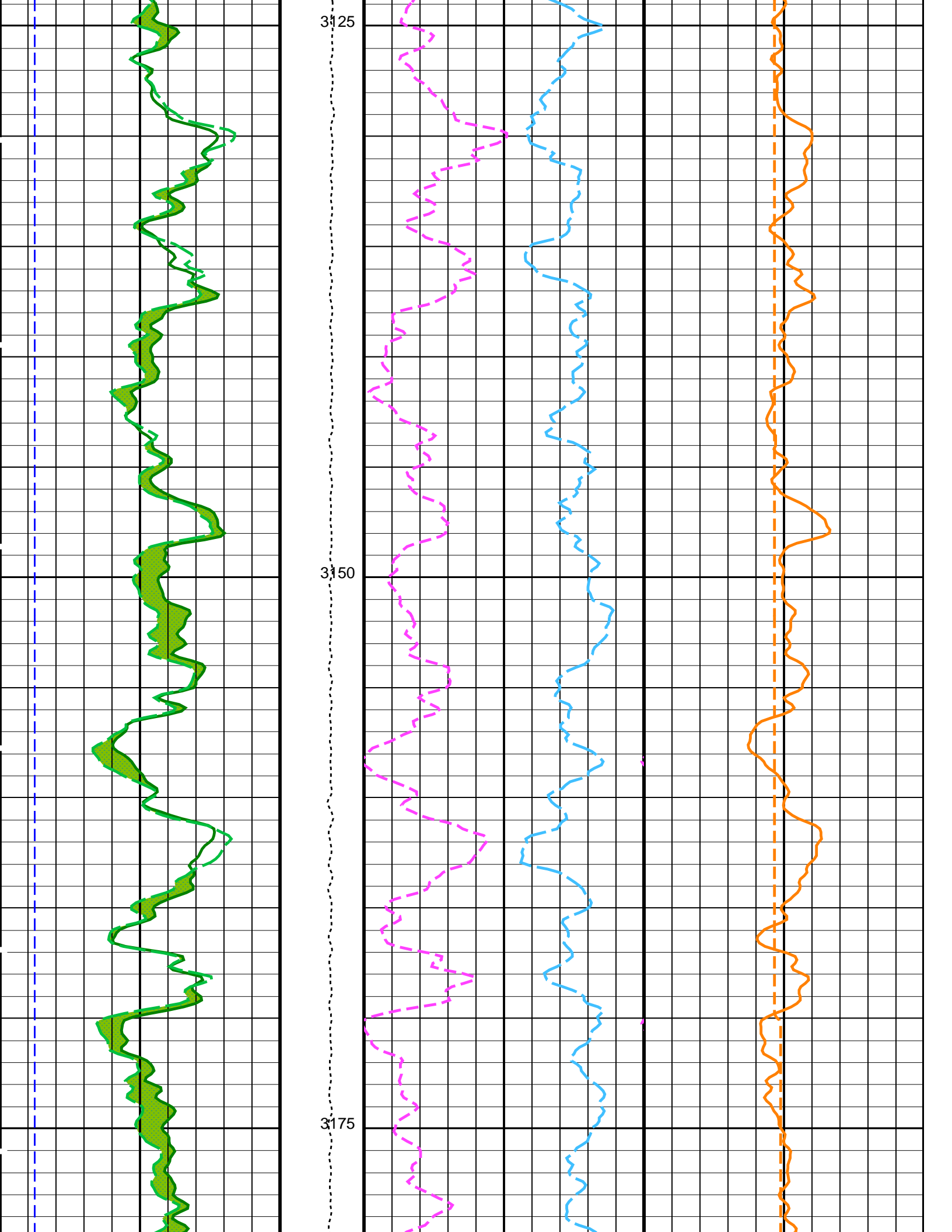
PIP SUMMARY

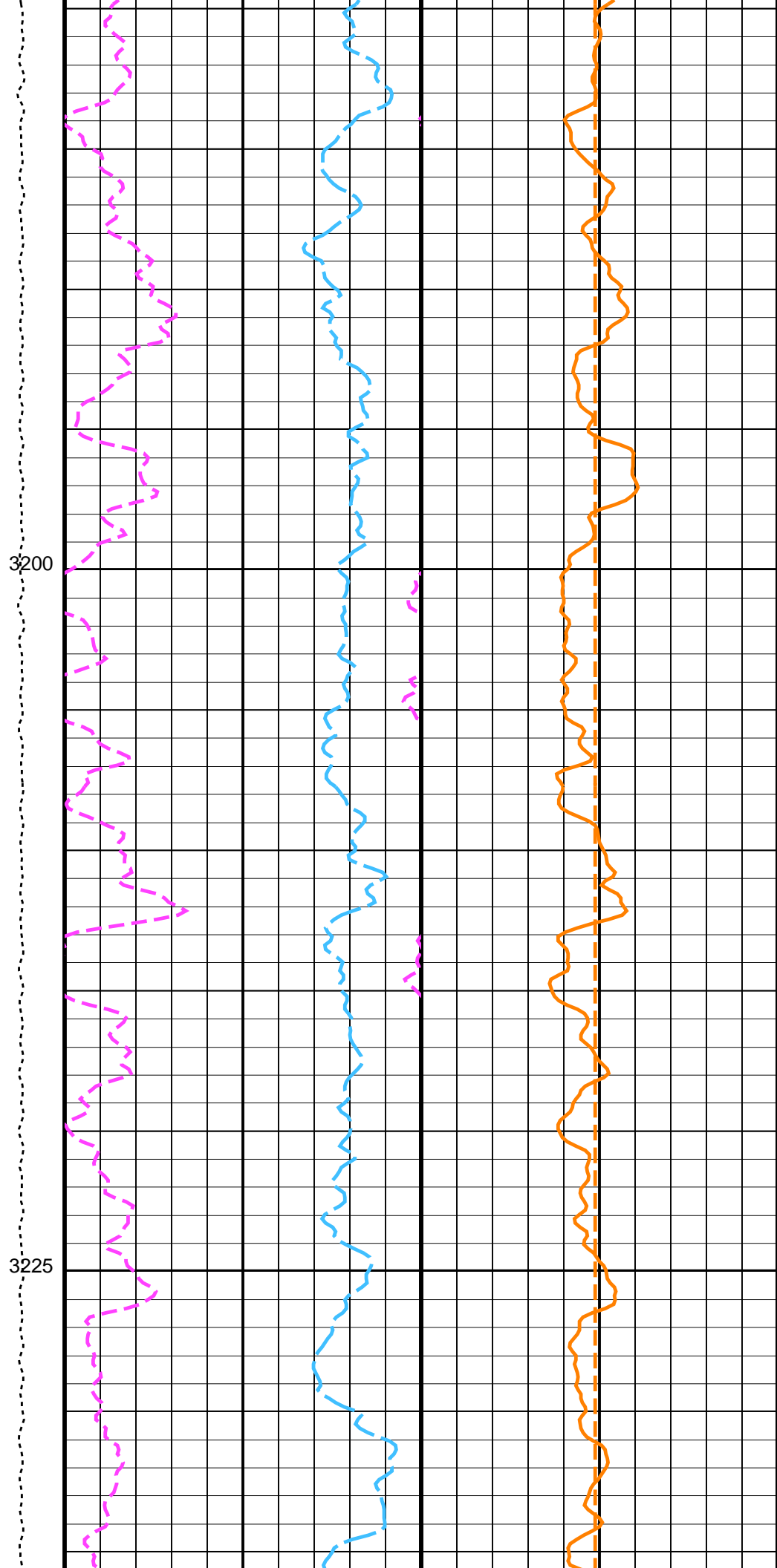
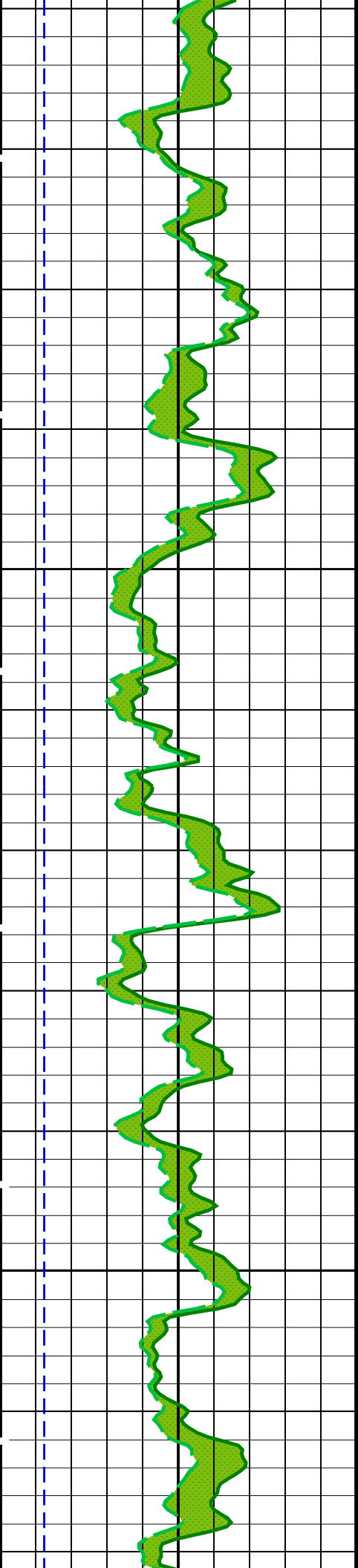
Time Mark Every 60 S

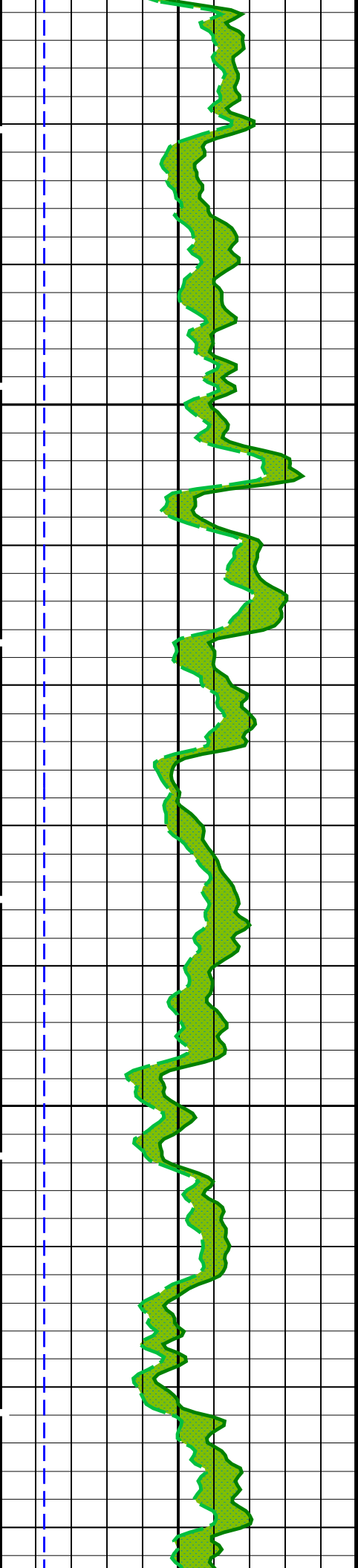






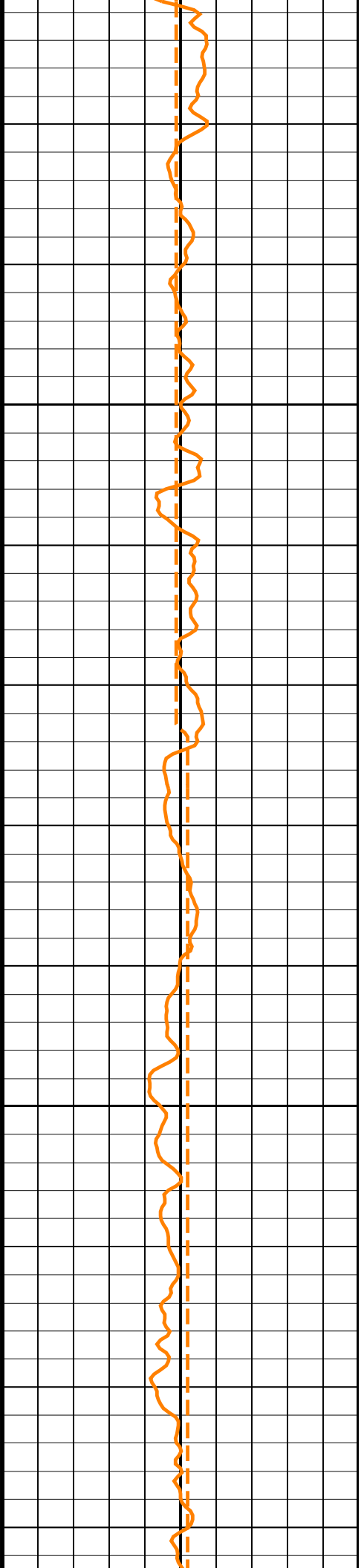
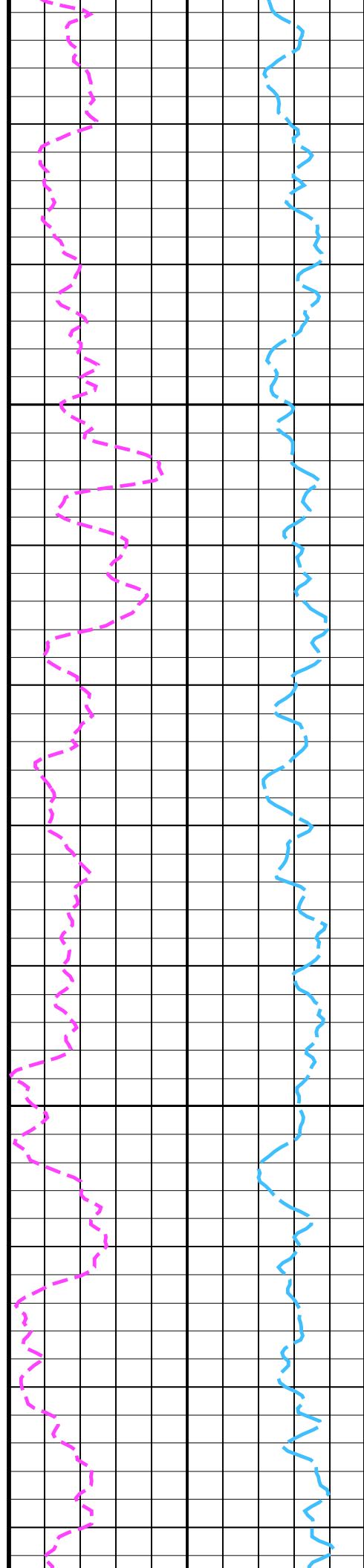


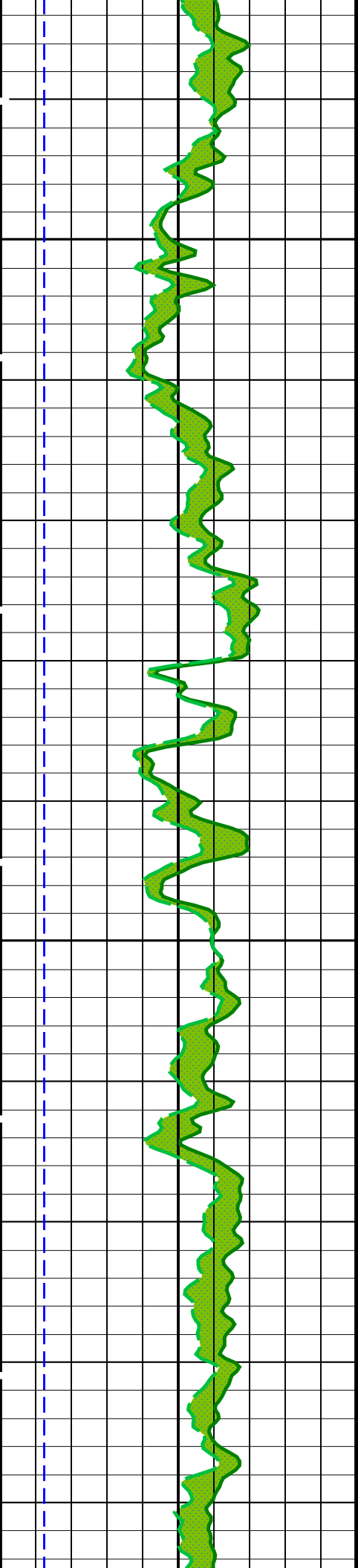




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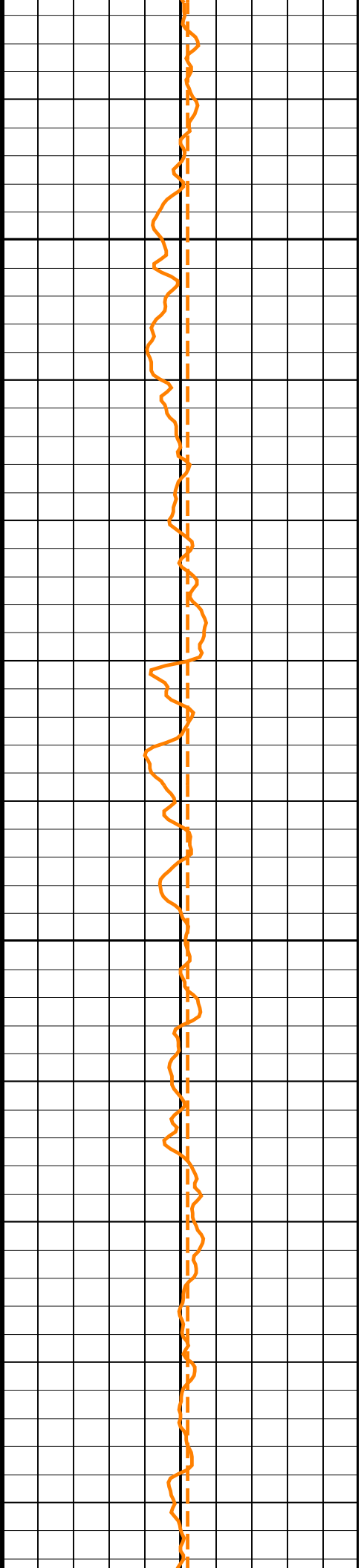
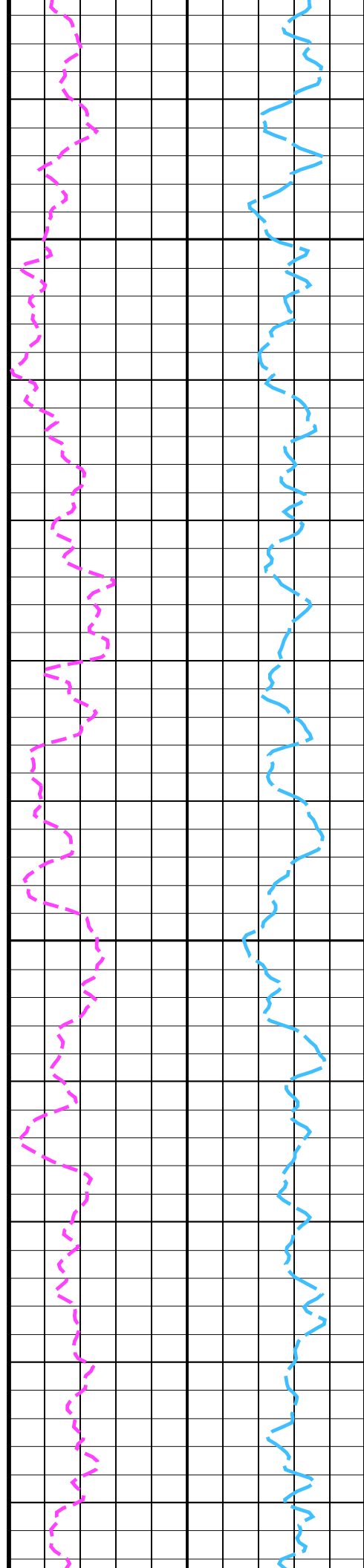
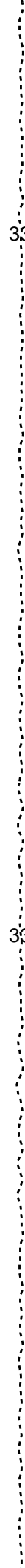
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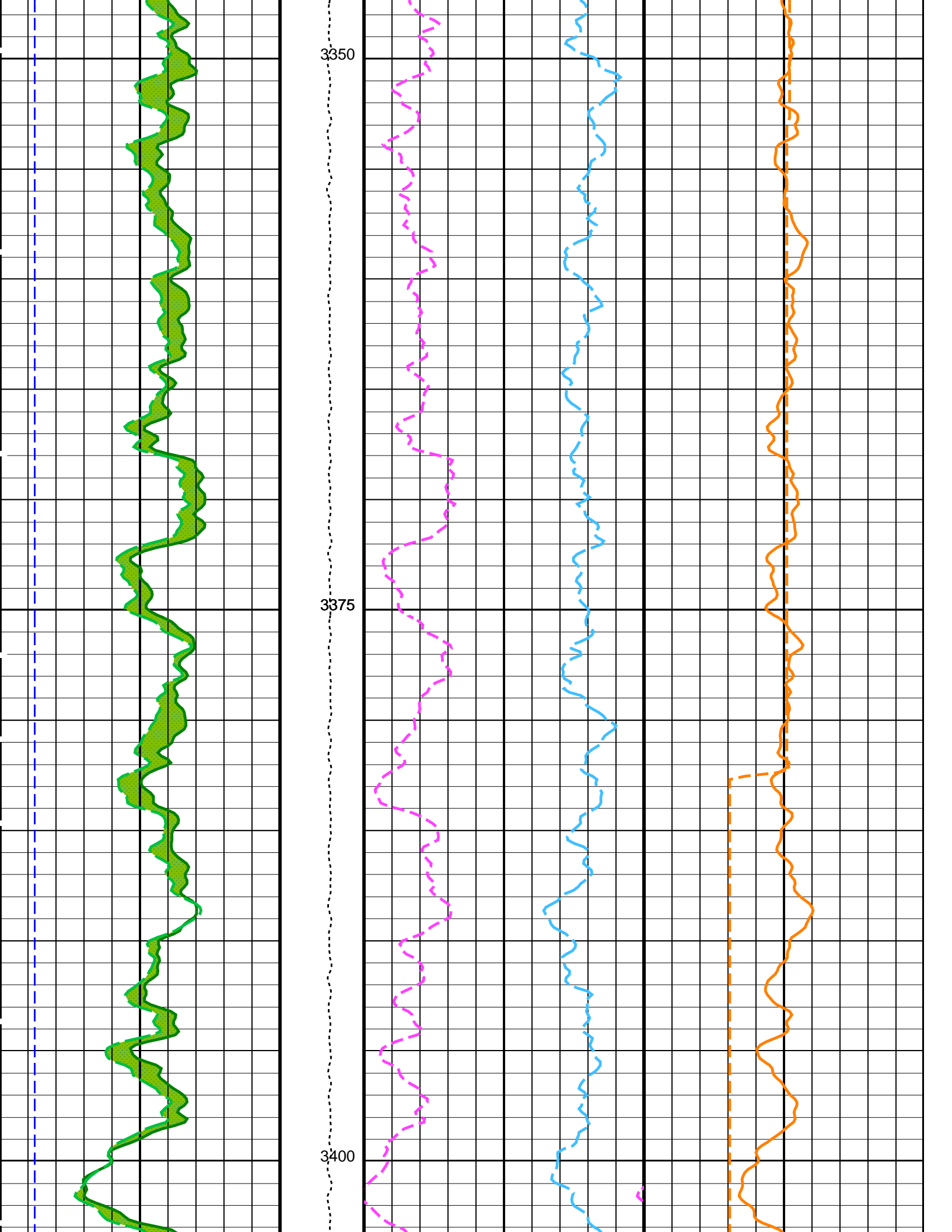


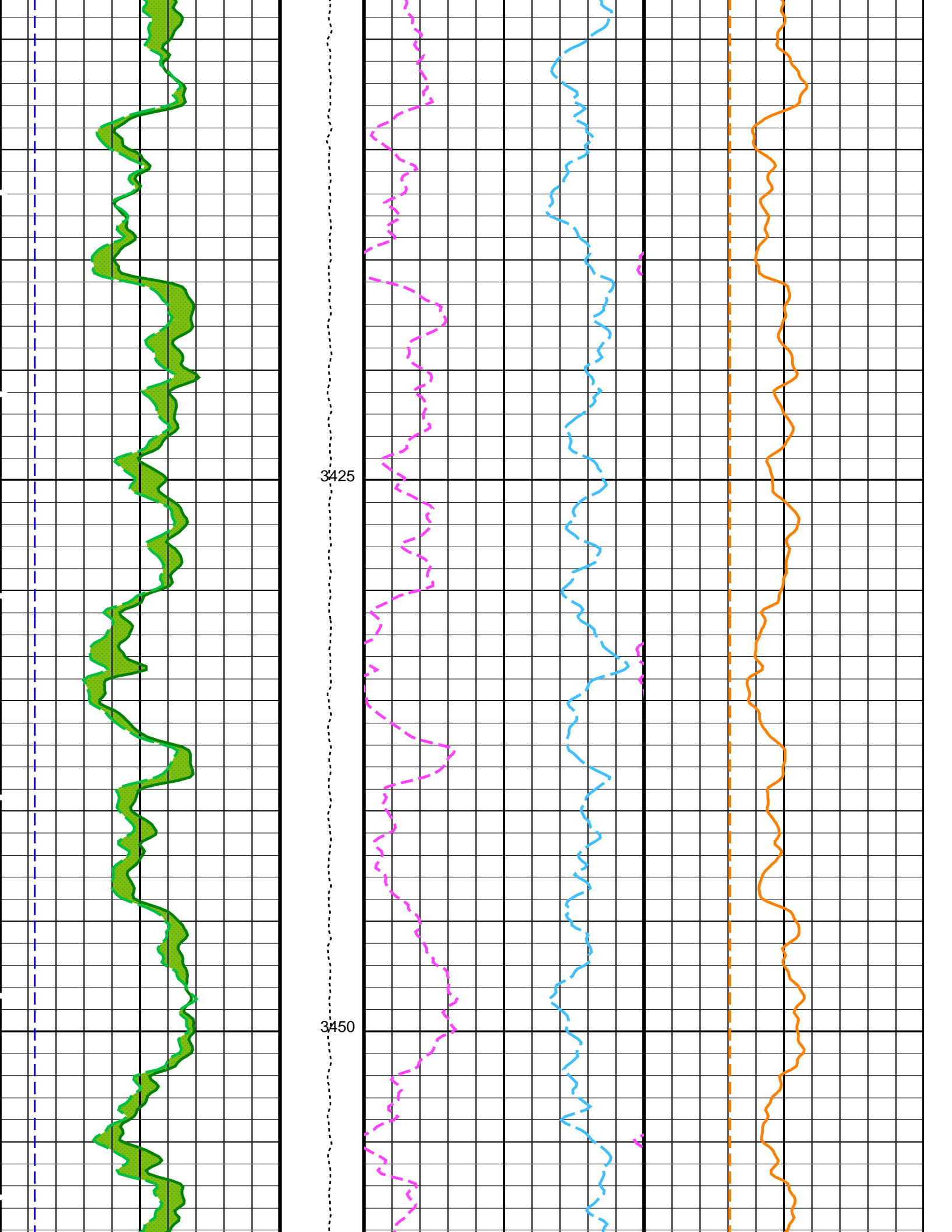


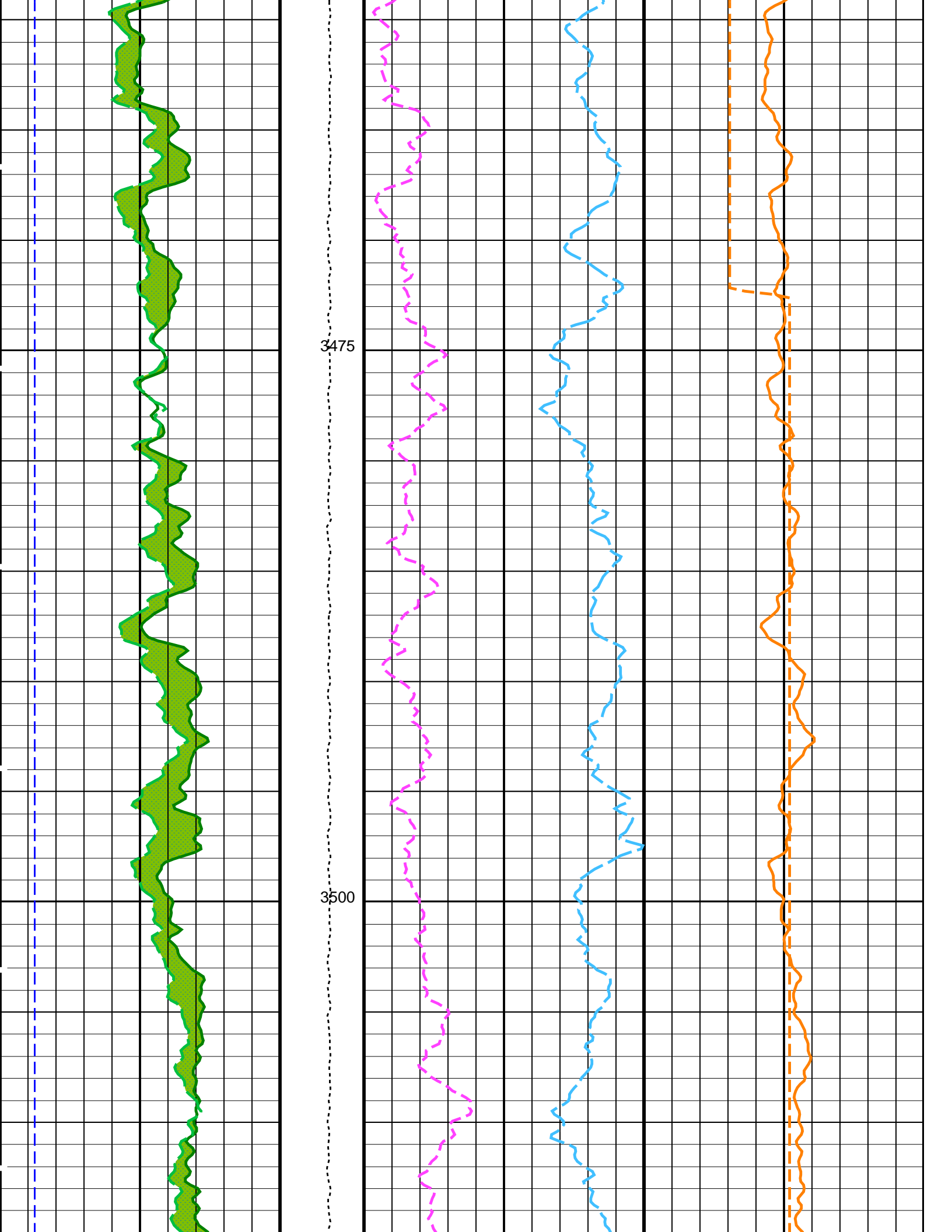
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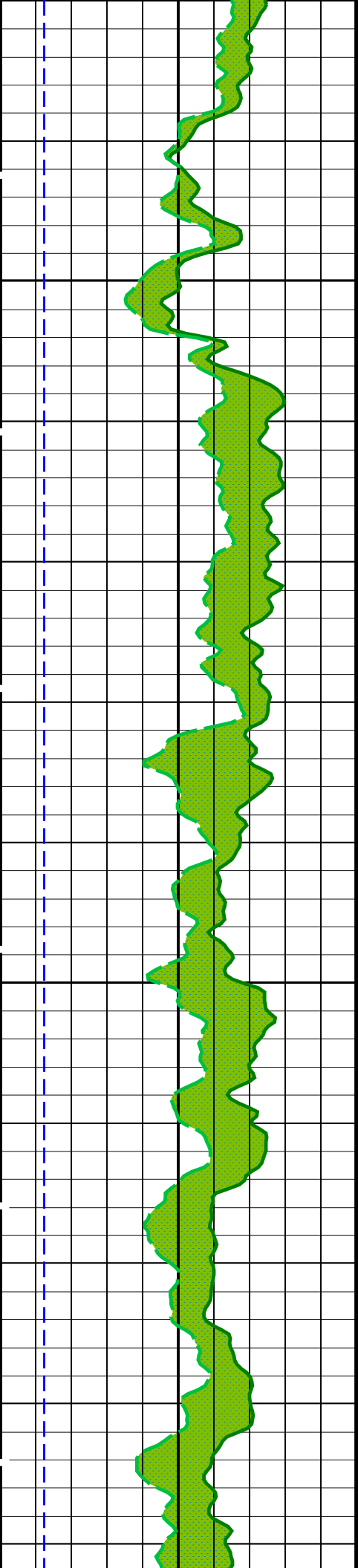
3325





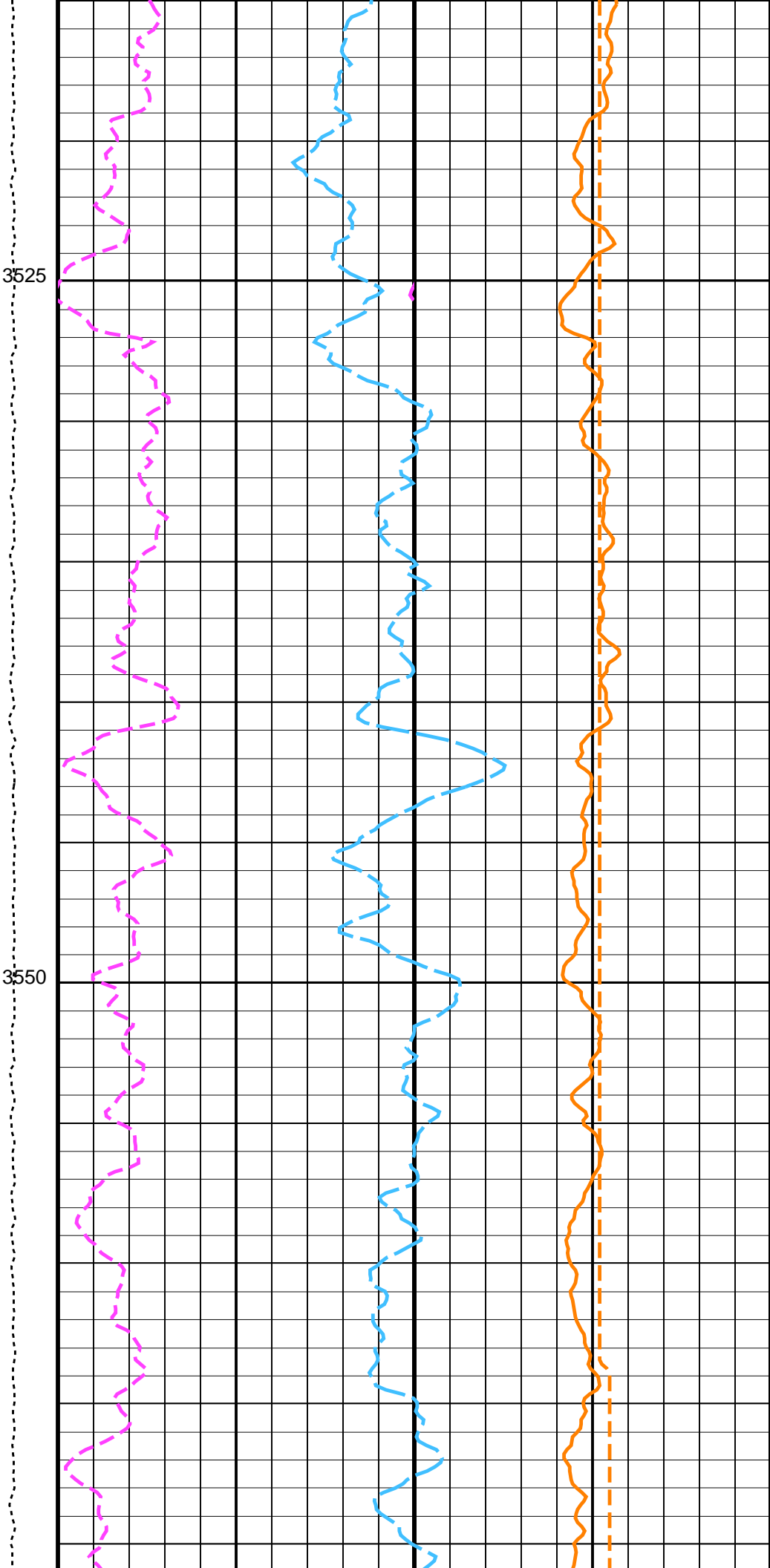


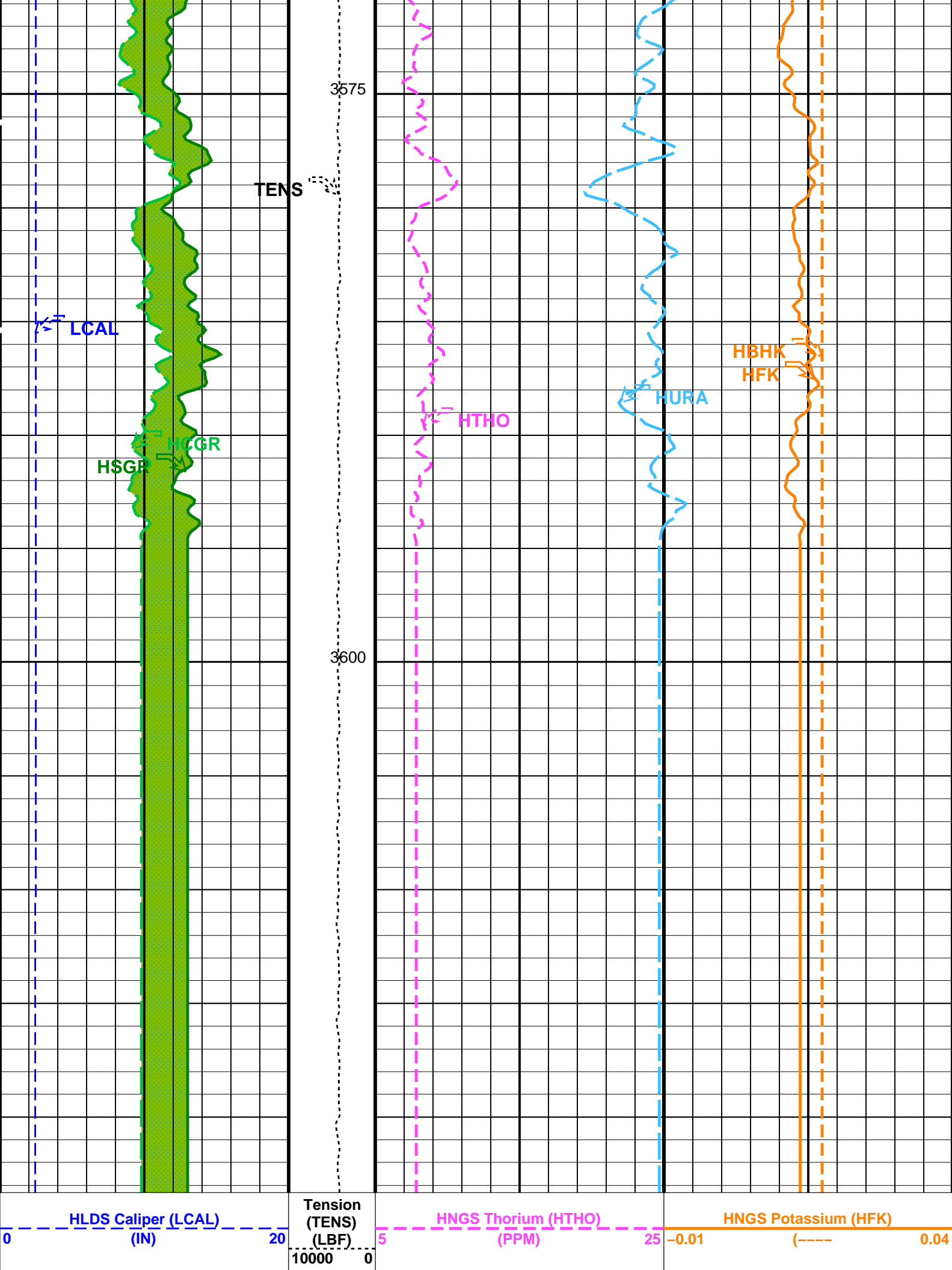




3525

3550





HNGS Computed Gamma Ray (HCGR)		
0	(GAPI)	100
Area1 From HCGR to HSGR		
HNGS Spectroscopy Gamma Ray (HSGR)		
0	(GAPI)	100

HNGS Uranium (HURA)		
-5	(PPM)	10
HNGS Borehole Potassium (HBHK)		
-0.05	(-----)	0.05
Flipped Downlog		
Caliper Closed		

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
DIT-E: Dual Induction - E			
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	15.5556	DEGC
DGF2	Deep 20 kHz Gain Factor	0.979119	
DPH2	Deep 20 kHz Phase Shift	0.0159963	DEG
DRE2	Deep Real 20 kHz Sonde Error Correction	17.0457	MM/M
DSR2	Deep Sigma Reference (20 kHz)	1843	MM/M
DXE2	Deep Quad 20 kHz Sonde Error Correction	136.154	MM/M
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN 9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
IFRS	DIT-E Induction Frequency Selector	20	
IPHA	DIT-E Phasor Processing Mode	ALL	
IPRO	DIT-E Induction Processing Selector	PHASOR	
ISSBAR	Barite Mud Switch	NOBARITE	
ITEN	DIT-E Temperature Enable	ENABLE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MGF2	Medium 20 kHz Gain Factor	0.974788	
MPH2	Medium 20 kHz Phase Shift	-0.199528	DEG
MRE2	Medium Real 20 kHz Sonde Error Correction	11.3259	MM/M
MSR2	Medium Sigma Reference (20 kHz)	3250	MM/M
MXE2	Medium Quad 20 kHz Sonde Error Correction	172.606	MM/M
SBR	Shoulder Bed Resistivity Factor	1	OHMM
SFCR	SFL Channel Ratio	1000	
SFLE	SFL Enable	ENABLE	
SHT	Surface Hole Temperature	3	DEGC
SPAE	DIT-E SPARC Processing Enable	ENABLE	
SPNV	SP Next Value	0	MV
GPIT-A/B: General Purpose Inclinometer			
ACPP	Accelerometer PROM Presence	PRESENT	
AFMO	Accelerometer Referencing 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	82.7472	DEG
MRTE	Magneto Reference Temperature	19	DEGC
TEMS	GPIT Temperature Sensor Used	BOTH	
U-GPOF	Playback OLD VERSION GPIT FILE (BEFORE OP14 + SRPC-3098-FEB_2006_C) ?	NO	
HLDS: Hostile Litho-Density Sonde			
CLCL	HLDS LS Control Loop Controller Mode	AUTO_DEFAULT	
CLCS	HLDS SS Control Loop Controller Mode	AUTO_DEFAULT	
CLLS	HLDS Mode Loop Long Spacing	AUTO	
CLSS	HLDS Mode Loop Short Spacing	AUTO	
DHC	Density Hole Correction	BS	
DPPM	Density Porosity Processing Mode	HIRS	
FD	Fluid Density	1	G/C3
LATC	HLDS Activation Correction	ON	
LLDL	HLDS LS Low Level Discriminator DAC	14000	
LLDS	HLDS SS Low Level Discriminator DAC	14000	
LLML	HLDS LS Low Level Discriminator Mode	AUTO	
LLMS	HLDS SS Low Level Discriminator Mode	AUTO	
MDEN	Matrix Density	2.71	G/C3
PHVL	HLDS Long Spacing High Voltage Setting	1000	V
PHVS	HLDS Short Spacing High Voltage Setting	1000	V
PSDL	HLDS LS Pulse Shape Compensation DAC	30000	
PSDS	HLDS SS Pulse Shape Compensation DAC	30000	
PSML	HLDS LS Pulse Shape Compensation Mode	AUTO	
PSMS	HLDS SS Pulse Shape Compensation Mode	AUTO	
APS-C: Accelerator-Porosity Tool			

AASD	APS Software Version		
ADSO	APS Thermal and Array Detectors High Voltage Setting	1967.87	V
AFSD	APS Array Detectors Data Source Switch	Both	
AHCS	APS Far Detector High Voltage Setting	2098.2	V
AHSS	APS Holesize Correction Source	BS	
AMTY	APS Holesize Correction Switch	ON	
ANSD	APS Environmental Corrections Mud Type	WaterBaseBarite	
ASOS	APS Near Detector High Voltage Setting	1738.17	V
ATSS	APS Standoff Correction Switch	ON	
BHFL_APS	APS Temperature-Pressure-Salinity Correction Switch	ON	
BHS	APS TNPH Borehole Fluid Type	WATER	
BHT	Borehole Status	OPEN	
BSCO_APS	Bottom Hole Temperature (used in calculations)	15.5556	DEGC
DPPM	APS TNPH Borehole Salinity Correction Option	NO	
DSCO_APS	Density Porosity Processing Mode	HIRS	
FSAL	APS TNPH Density Source	COMPUTED	
FSCO_APS	Formation Salinity	-50000	PPM
GCSE	APS TNPH Formation Salinity Correction Option	NO	
GDEV	Generalized Caliper Selection	BS	
GGRD	Average Angular Deviation of Borehole from Normal	0	DEG
GRSE	Geothermal Gradient	0.018227	DC/M
GTSE	Generalized Mud Resistivity Selection	CHART_GEN 9	
HSCO_APS	Generalized Temperature Selection	LINEAR_ESTIMATE	
ISSBAR	APS TNPH Hole Size Correction Option	YES	
MATR	Barite Mud Switch	NOBARITE	
MCCO_APS	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCOR_APS	APS TNPH Mud Cake Correction Option	NO	
MWCO_APS	APS TNPH Mud Correction	NATU	
NARC	APS TNPH Mud Weight Correction Option	YES	
NFRC	APS Near/Array Calibration Ratio	1.06031	
PTCO_APS	APS Near/Far Calibration Ratio	0.890147	
SHT	APS TNPH Pressure/Temperature Correction Option	YES	
TNCO_APS	Surface Hole Temperature	3	DEGC
	APS TNPH Computation Option	NO	
	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)	15.5556	DEGC
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	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
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	0.00608072	
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	NOBARITE	
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	3	DEGC
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0.956891	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.947202	
	System and Miscellaneous		
ALTDPCCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	9.875	IN
BSAL	Borehole Salinity	-50000.00	PPM
CSIZ	Current Casing Size	0.000	IN
CWEI	Casing Weight	0.00	LB/F
DFD	Drilling Fluid Density	1.22	G/C3
DO	Depth Offset for Playback	0.0	M
FLEV	Fluid Level	-50000.00	M
MST	Mud Sample Temperature	-50000.00	DEGC
PBVSADP	Use alternate depth channel for playback	NO	
PP	Playback Processing	NORMAL	
RMFS	Resistivity of Mud Filtrate Sample	-50000.0000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	3626	M
TDD	Total Depth - Driller	3630.00	M
TDL	Total Depth - Logger	3630.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

OP System Version: 17C0-154

DIT-E	17C0-154	GPIT-A/B	SRPC-3870_Q3_2009_OP17_V3_b
DTA-A	17C0-154	HLDS	17C0-154
LDSC-B	17C0-154	APS-C	17C0-154
HNGC-B	17C0-154	HNGS-BA	17C0-154
DTC-H	17C0-154		

Input DLIS Files

DEFAULT	Flip_PI_LDL_APS_NGS_033LUP	PRODUCER	06-Mar-2010 18:19	3623.3 M	2990.1 M
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Output DLIS Files

DEFAULT	PI_LDL_APS_NGS_034PUP	FN:45	PRODUCER	06-Mar-2010 18:28
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Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
General Purpose Inclinometer Wellsite Calibration – CROUZET ACCELEROMETER PROM HAS BEEN READ CORRECTLY							
Before: 23-Feb-2010 0:21							
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	
General Purpose Inclinometer Wellsite Calibration – CROUZET MAGNETOMETER PROM HAS BEEN READ CORRECTLY							
Before: 23-Feb-2010 0:22							
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	
Hostile Litho-Density Sonde Wellsite Calibration – Background Measurement							
Master: 1-Jan-2010 22:54 Before: 17-Jan-2010 0:16							
SS Cs Resolution Bkg	9.000	7.783	7.716	N/A	N/A	1.800	%
LS Cs Resolution Bkg	9.000	8.079	8.019	N/A	N/A	1.800	%
LSW1 Background	100.0	91.64	91.89	N/A	N/A	0.03000	CPS
LSW2 Background	100.0	82.70	82.51	N/A	N/A	0.03000	CPS
LSW3 Background	200.0	187.7	186.7	N/A	N/A	0.03000	CPS
LSW4 Background	250.0	231.1	233.3	N/A	N/A	0.03000	CPS
LSW5 Background	600.0	541.2	543.9	N/A	N/A	0.03000	CPS
SSW1 Background	100.0	90.66	89.76	N/A	N/A	0.03000	CPS
SSW2 Background	200.0	151.1	152.5	N/A	N/A	0.03000	CPS
SSW3 Background	500.0	428.0	428.1	N/A	N/A	0.03000	CPS
SSW4 Background	270.0	227.6	230.6	N/A	N/A	0.03000	CPS
SSW5 Background	200.0	164.5	164.7	N/A	N/A	0.03000	CPS
Hostile Litho-Density Sonde Wellsite Calibration – Aluminum Measurement							
Master: 1-Jan-2010 22:54							
LSW1 Aluminum	600.0	567.9	N/A	N/A	N/A	N/A	CPS
LSW2 Aluminum	900.0	809.6	N/A	N/A	N/A	N/A	CPS
LSW3 Aluminum	1100	970.5	N/A	N/A	N/A	N/A	CPS
LSW4 Aluminum	580.0	493.5	N/A	N/A	N/A	N/A	CPS
LSW5 Aluminum	570.0	444.3	N/A	N/A	N/A	N/A	CPS
SSW1 Aluminum	2800	2502	N/A	N/A	N/A	N/A	CPS
SSW2 Aluminum	8000	6870	N/A	N/A	N/A	N/A	CPS
SSW3 Aluminum	11600	9624	N/A	N/A	N/A	N/A	CPS
SSW4 Aluminum	5000	3962	N/A	N/A	N/A	N/A	CPS
SSW5 Aluminum	660.0	476.3	N/A	N/A	N/A	N/A	CPS
Hostile Litho-Density Sonde Wellsite Calibration – Lithology Measurement							
Master: 1-Jan-2010 22:54							
LSW1 Iron	400.0	389.4	N/A	N/A	N/A	N/A	CPS
LSW2 Iron	730.0	659.2	N/A	N/A	N/A	N/A	CPS
LSW3 Iron	1000	867.1	N/A	N/A	N/A	N/A	CPS
LSW4 Iron	520.0	449.5	N/A	N/A	N/A	N/A	CPS
LSW5 Iron	470.0	410.2	N/A	N/A	N/A	N/A	CPS
SSW1 Iron	2100	1833	N/A	N/A	N/A	N/A	CPS
SSW2 Iron	6800	5740	N/A	N/A	N/A	N/A	CPS

SSW3 Iron	10800	8814	N/A	N/A	N/A	N/A	CPS
SSW4 Iron	4600	3635	N/A	N/A	N/A	N/A	CPS
SSW5 Iron	580.0	422.7	N/A	N/A	N/A	N/A	CPS

Hostile Litho-Density Sonde Wellsite Calibration – Caliper Calibration

Before: 16-Jan-2010 19:05

HLDS Caliper Small Ring	12.00	N/A	14.54	N/A	N/A	N/A	IN
HLDS Caliper Large Ring	15.19	N/A	18.04	N/A	N/A	N/A	IN

Accelerator-Porosity Tool Wellsite Calibration – Detector Background

Master: 1-Jan-2010 22:21 Before: 16-Jan-2010 23:48

Near Det Bkg Cntrate	30.00	33.05	31.59	N/A	N/A	N/A	CPS
Far Det Bkg Cntrate	30.00	32.94	33.93	N/A	N/A	N/A	CPS
Array-1 Det Bkg Cntrate	30.00	29.80	29.78	N/A	N/A	N/A	CPS
Array-2 Det Bkg Cntrate	30.00	29.33	29.56	N/A	N/A	N/A	CPS
Array Therm Det Bkg Cntrate	30.00	32.63	34.21	N/A	N/A	N/A	CPS

Accelerator-Porosity Tool Wellsite Calibration – Calibration Ratios

Master: 1-Jan-2010 22:21

Near/Far Calibration Ratio	0.9250	0.8901	N/A	N/A	N/A	N/A
Near/Array Calibration Ratio	1.030	1.060	N/A	N/A	N/A	N/A
Near/Array Cal Ratio Up/Down	1.000	1.006	N/A	N/A	N/A	N/A

Accelerator-Porosity Tool Wellsite Calibration – Tank Check

Master: 1-Jan-2010 22:21

Array-1 Standoff Porosity	11.75	11.67	N/A	N/A	N/A	N/A	PU
Array-2 Standoff Porosity	11.75	11.50	N/A	N/A	N/A	N/A	PU
Average Slowing Down Time	6.000	5.851	N/A	N/A	N/A	N/A	US
Array-1 SDT Ratio Up/Down	1.000	0.9891	N/A	N/A	N/A	N/A	
Array-2 SDT Ratio Up/Down	1.000	0.9855	N/A	N/A	N/A	N/A	
Sigma Formation	27.50	27.54	N/A	N/A	N/A	N/A	CU

Accelerator-Porosity Tool Wellsite Calibration – CCR7 signal boxes

Master: 1-Jan-2010 22:21

Near Detector Plateau Setting	1650	1738	N/A	N/A	N/A	N/A	V
Far Detector Plateau Setting	2000	2098	N/A	N/A	N/A	N/A	V
Array Detector Plateau Setting	2000	1968	N/A	N/A	N/A	N/A	V

Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 1 Check

Master: 1-Jan-2010 19:23 Before: 16-Jan-2010 20:44

Na 511 Peak Loc	40.00	39.63	39.63	N/A	N/A	1.000	
Na 511 Peak Res	15.50	15.18	14.78	N/A	N/A	2.000	%
High Voltage	1150	1161	1177	N/A	N/A	N/A	V
Na 1785 Peak Loc	142.6	142.1	142.4	N/A	N/A	7.000	
Na 1785 Peak Res	8.500	8.816	10.01	N/A	N/A	2.000	%
Temperature	15.50	22.69	14.92	N/A	N/A	N/A	DEGC
Na Count Rate	45.00	33.90	33.64	N/A	N/A	8.000	CPS

Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 2 Check

Master: 1-Jan-2010 19:23 Before: 16-Jan-2010 20:44

Na 511 Peak Loc	40.00	39.69	39.65	N/A	N/A	1.000	
Na 511 Peak Res	15.50	15.48	14.73	N/A	N/A	2.000	%
High Voltage	1150	1095	1081	N/A	N/A	N/A	V
Na 1785 Peak Loc	142.6	142.2	141.8	N/A	N/A	7.000	
Na 1785 Peak Res	8.500	8.546	8.949	N/A	N/A	2.000	%
Temperature	15.50	23.40	15.62	N/A	N/A	N/A	DEGC
Na Count Rate	45.00	33.69	33.51	N/A	N/A	8.000	CPS

Hostile Natural Gamma Ray Sonde Wellsite Calibration – Ratio Of Detector 1 To Detector 2

Master: 1-Jan-2010 19:23 Before: 16-Jan-2010 20:44

Coincidence Count Rate Ratio	1.000	1.006	1.005	N/A	N/A	0.05000
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Hostile Natural Gamma Ray Sonde Master Calibration – Detector 1 Calibration

Master: 1-Jan-2010 19:02

Na 511 Peak Set Point	40.00	41.00	---	---	---	---	
Th Peak Loc	209.6	210.4	---	---	---	---	
Th Peak Res	7.000	6.564	---	---	---	---	%
Background Count Rate	142.5	18.85	---	---	---	---	CPS
Gain Ratio	1.000	1.010	---	---	---	---	

Hostile Natural Gamma Ray Sonde Master Calibration – Detector 2 Calibration

Master: 1-Jan-2010 19:02

Na 511 Peak Set Point	40.00	41.00	---	---	---	---	
Th Peak Loc	209.6	209.1	---	---	---	---	
Th Peak Res	7.000	6.559	---	---	---	---	%
Background Count Rate	142.5	18.64	---	---	---	---	CPS
Gain Ratio	1.000	1.002	---	---	---	---	

Accelerator-Porosity Tool – Detector Plateau Settings :

Near Detector Plateau Setting 1738 V
Far Detector Plateau Setting 2098 V
Array Detector Plateau Setting 1968 V

Dual Induction – E / Equipment Identification

Primary Equipment:		
Dual Induction Sonde	DIS – HB	129
Dual Induction Cartridge	DIC – EB	171
Auxiliary Equipment:		
Mass Isolated Housing	MIH – ZA	342

General Purpose Inclinator / Equipment Identification

Primary Equipment:		
GPIT Cartridge – AC	GPIC – AC	719
Auxiliary Equipment:		
GPIT Housing	GPIH – A	2864

Hostile Litho–Density Sonde / Equipment Identification

Primary Equipment:		
Hostile Litho Density Sonde	HLDS – D	57
Hostile Litho Density High Voltage	HLDV – D	51
Gamma Source Radioactive	GSR – Z	2397
Auxiliary Equipment:		
Hostile Litho Density Pad	HLDP – C	61
Hostile Litho Density High Voltage Housi	HEH – H	53

Litho–Density Spectroscopy Cartridge – B / Equipment Identification

Primary Equipment:		
LDSC Cartridge	LDSC – B	326
Auxiliary Equipment:		
LDSC Housing	LDSH – A	319

Accelerator–Porosity Tool / Equipment Identification

Primary Equipment:		
Accelerator–Porosity Sonde	APS – C	22
APS Minitron	MNTR – F	5589
Auxiliary Equipment:		
Accelerator–Porosity Housing	APH – AC	22
APS Calibration Water Tank	SFT – 178	2
APS Aluminum Calibrator Sleeve	SFT – 281	2

Hostile Natural Gamma Ray Cartridge – B / Equipment Identification

Primary Equipment:		
HNGC Cartridge	HNGC – B	300
Auxiliary Equipment:		
HNGC Housing	HNGH – A	115

Hostile Natural Gamma Ray Sonde / Equipment Identification

Primary Equipment:
HNGS Sonde

HNGS – BA 194

Auxiliary Equipment:
HNGS Sonde Housing
Gamma Source Radioactive

HNSH – BA 205
GSR – U 616008

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		39.63	Master		15.18	Master		1161	
Before		39.63	Before		14.78	Before		1177	
	37.50 (Minimum)	40.00 (Nominal)	43.50 (Maximum)	12.00 (Minimum)	15.50 (Nominal)	19.00 (Maximum)	900.0 (Minimum)	1150 (Nominal)	1600 (Maximum)
Phase	Na 1785 Peak Loc	Value	Phase	Na 1785 Peak Res %	Value	Phase	Temperature DEGC	Value	
Master		142.1	Master		8.816	Master		22.69	
Before		142.4	Before		10.01	Before		14.92	
	135.0 (Minimum)	142.6 (Nominal)	150.3 (Maximum)	7.000 (Minimum)	8.500 (Nominal)	11.00 (Maximum)	-28.89 (Minimum)	15.50 (Nominal)	60.00 (Maximum)
Phase	Na Count Rate CPS	Value							
Master		33.90							
Before		33.64							
	10.00 (Minimum)	45.00 (Nominal)	100.0 (Maximum)						
Master: 1-Jan-2010 19:23			Before: 16-Jan-2010 20:44						

Hostile Natural Gamma Ray Sonde Wellsite Calibration									
Detector 2 Check									
Phase	Na 511 Peak Loc	Value	Phase	Na 511 Peak Res %	Value	Phase	High Voltage V	Value	
Master		39.69	Master		15.48	Master		1095	
Before		39.65	Before		14.73	Before		1081	
	37.50 (Minimum)	40.00 (Nominal)	43.50 (Maximum)	12.00 (Minimum)	15.50 (Nominal)	19.00 (Maximum)	900.0 (Minimum)	1150 (Nominal)	1600 (Maximum)
Phase	Na 1785 Peak Loc	Value	Phase	Na 1785 Peak Res %	Value	Phase	Temperature DEGC	Value	
Master		142.2	Master		8.546	Master		23.40	
Before		141.8	Before		8.949	Before		15.62	
	135.0 (Minimum)	142.6 (Nominal)	150.3 (Maximum)	7.000 (Minimum)	8.500 (Nominal)	11.00 (Maximum)	-28.89 (Minimum)	15.50 (Nominal)	60.00 (Maximum)
Phase	Na Count Rate CPS	Value							
Master		33.69							
Before		33.51							
	10.00 (Minimum)	45.00 (Nominal)	100.0 (Maximum)						
Master: 1-Jan-2010 19:23			Before: 16-Jan-2010 20:44						

Hostile Natural Gamma Ray Sonde Wellsite Calibration			
Ratio Of Detector 1 To Detector 2			
Phase	Coincidence Count Rate Ratio	Value	
Master		1.006	
Before		1.005	
	0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)
Master: 1-Jan-2010 19:23			
Before: 16-Jan-2010 20:44			

Hostile Natural Gamma Ray Sonde Master Calibration									
Detector 1 Calibration									
Phase	Na 511 Peak Set Point	Value	Phase	Th Peak Loc	Value	Phase	Th Peak Res %	Value	
Master		41.00	Master		210.4	Master		6.564	
	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			18.85	Master		1.010	
	10.00 (Minimum)	142.5 (Nominal)	265.0 (Maximum)		0.9400 (Minimum)	1.000 (Nominal)	1.060 (Maximum)

Master: 1-Jan-2010 19:02

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		209.1	Master		6.559	
	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			18.64	Master		1.002	
	10.00 (Minimum)	142.5 (Nominal)	265.0 (Maximum)		0.9400 (Minimum)	1.000 (Nominal)	1.060 (Maximum)

Master: 1-Jan-2010 19:02

DTS Telemetry Tool / Equipment Identification		
Primary Equipment:		
DTC-H Auxiliary Cartridge	DTCH - A	8799
DTC-H Telemetry Cartridge	DTCH - A	8799
Auxiliary Equipment:		
DTCH Telemetry Cartridge Housing	ECH - KC	9842

Company:	Lamont Doherty	Schlumberger
Well:	Expedition 318 Site U1359D	
Field:	Wilkes Land	
Rig:	JOIDES Resolution	
Country:	Antarctica	
	Natural Gamma Spectroscopy (HNGS)	