

DISCLAIMER

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OTHER SERVICES1

OS1: DIT
OS2: HLDS

REMARKS: RUN NUMBER 1




Logs run in third hole ("C" hole) of drilling site U1351 to aid in depth correlation of core data collected in surface labs.
Average heave during the run was up to 0.9m; Active Heave Compensator used.
Cable became stuck (collapsed formation above tool) as tool reached approx. 915m during the down log.
Downgoing Log data provided as per client request -- APS Minitron was OFF; Caliper was CLOSED.
TD was not reached; no upgoing logging passes could be performed due to hole conditions.

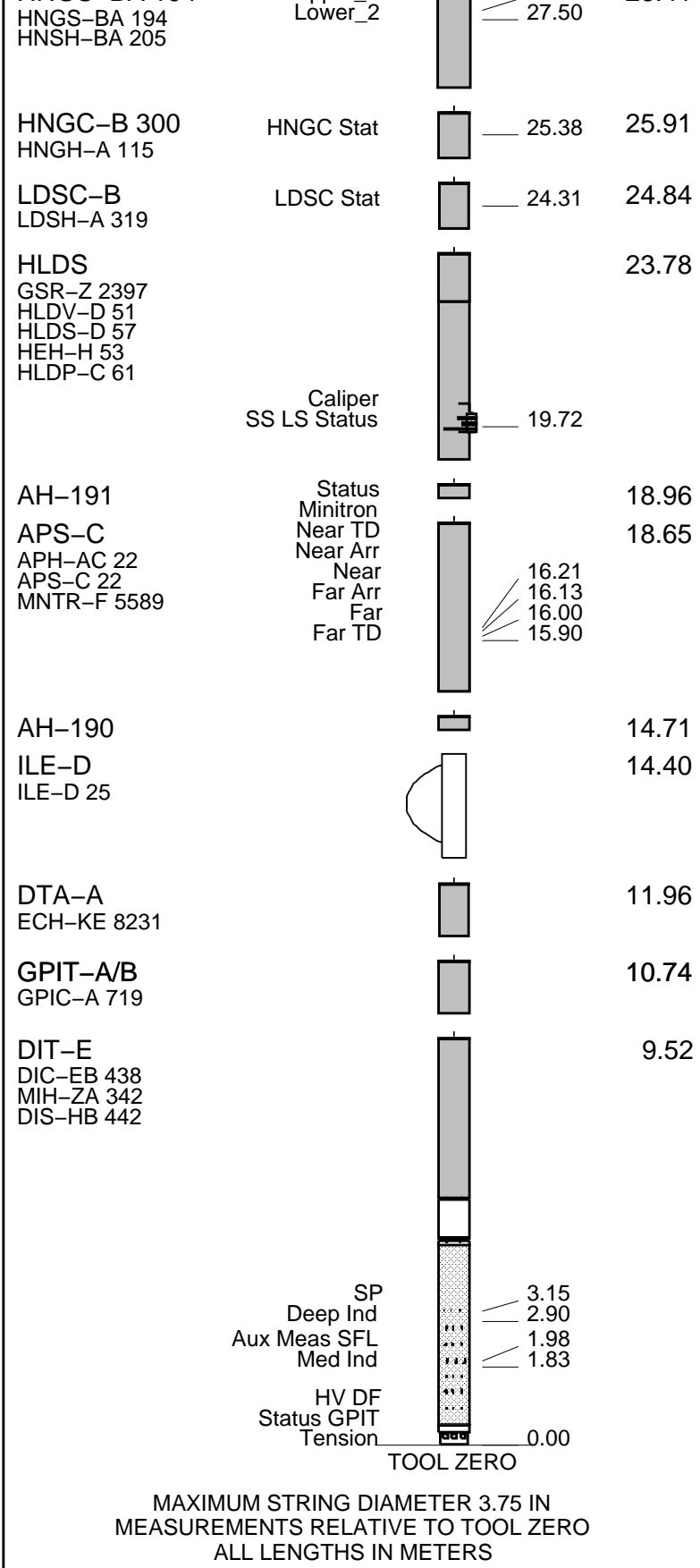
Depth "Zero" reference adjusted to Sea Bed picked by client.
Depths shown are measured depth below sea floor, as per client request.

DOWNLOG DATA

RUN 1			RUN 2		
SERVICE ORDER #:			SERVICE ORDER #:		
PROGRAM VERSION: 17C0-154			PROGRAM VERSION:		
FLUID LEVEL:			FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION

RUN 1	RUN 2																				
SURFACE EQUIPMENT																					
SFT-281 2 SFT-178 2 GSR-U 616008 WITM (DTS)-A																					
DOWNHOLE EQUIPMENT																					
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">LEH-QT</td> <td style="width: 10%; text-align: center;"></td> <td style="width: 10%; text-align: right;">30.21</td> <td style="width: 10%;"></td> </tr> <tr> <td>LEH-QT 301</td> <td></td> <td></td> <td></td> </tr> <tr> <td>DTC-H</td> <td style="text-align: center;">CTEM TelStatus</td> <td style="text-align: right;">29.04</td> <td style="text-align: right;">29.32</td> </tr> <tr> <td>ECH-KC 2304</td> <td style="text-align: center;">ToolStatu</td> <td style="text-align: right;">28.41</td> <td></td> </tr> <tr> <td>HNGS-BA 194</td> <td style="text-align: center;">Upper 1</td> <td style="text-align: right;">27.71</td> <td style="text-align: right;">28.41</td> </tr> </table>	LEH-QT		30.21		LEH-QT 301				DTC-H	CTEM TelStatus	29.04	29.32	ECH-KC 2304	ToolStatu	28.41		HNGS-BA 194	Upper 1	27.71	28.41	
LEH-QT		30.21																			
LEH-QT 301																					
DTC-H	CTEM TelStatus	29.04	29.32																		
ECH-KC 2304	ToolStatu	28.41																			
HNGS-BA 194	Upper 1	27.71	28.41																		



Production String	(in) (m)	Well Schematic	(m) (in)	Casing String
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Kelly Bushing Elevation

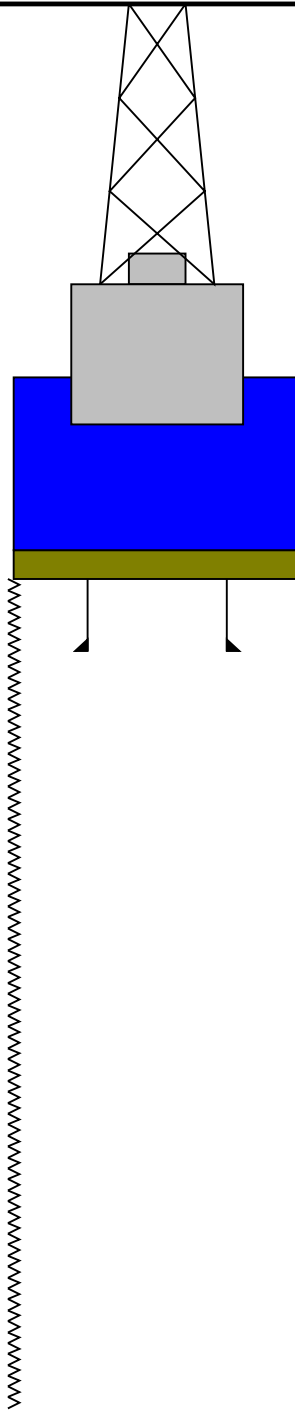
Derrick Floor Elevation

Mean Sea Level

0.0

0.0

11.0



132.7

11.340

218.1

5.500

Sea Bed

"Bit" Depth (open pipe)

1100.7

11.340

Total Depth - Driller

Schlumberger

Down Log

MAXIS Field Log

Input DLIS Files

DEFAULT	PI_APS_LDL_NGS_014PUP	FN:14	PRODUCER	06-Dec-2009 12:31	934.8 M	91.4 M
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Output DLIS Files

DEFAULT	PI_APS_LDL_NGS_022PUP	FN:22	PRODUCER	31-Dec-2009 21:37	802.4 M	-42.1 M
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OP System Version: 17C0-154

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

PIP SUMMARY

Time Mark Every 60 S

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

Area1
From HCGR to HSGR

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

HLDS Caliper (LCAL)
(IN) 0 20

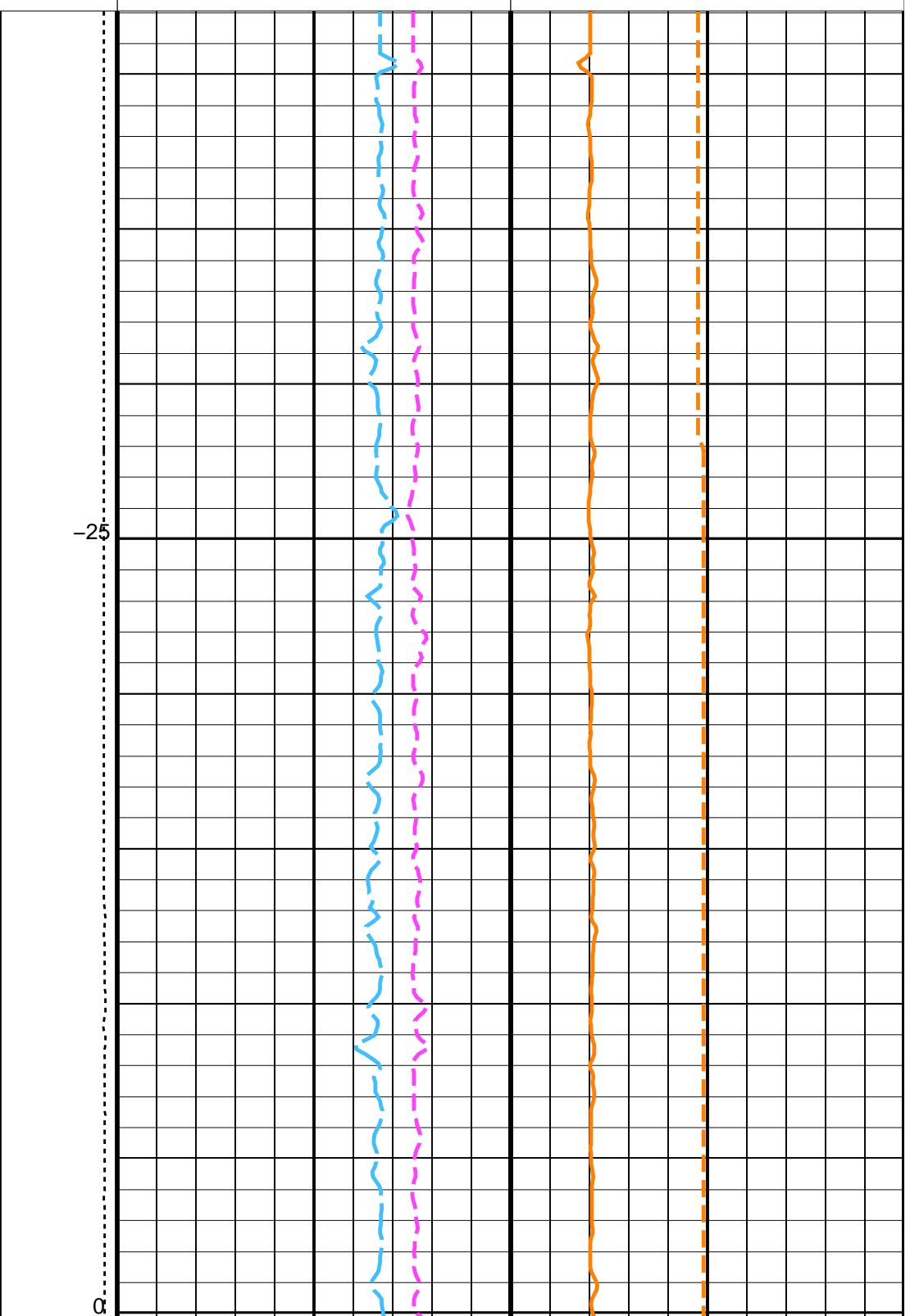
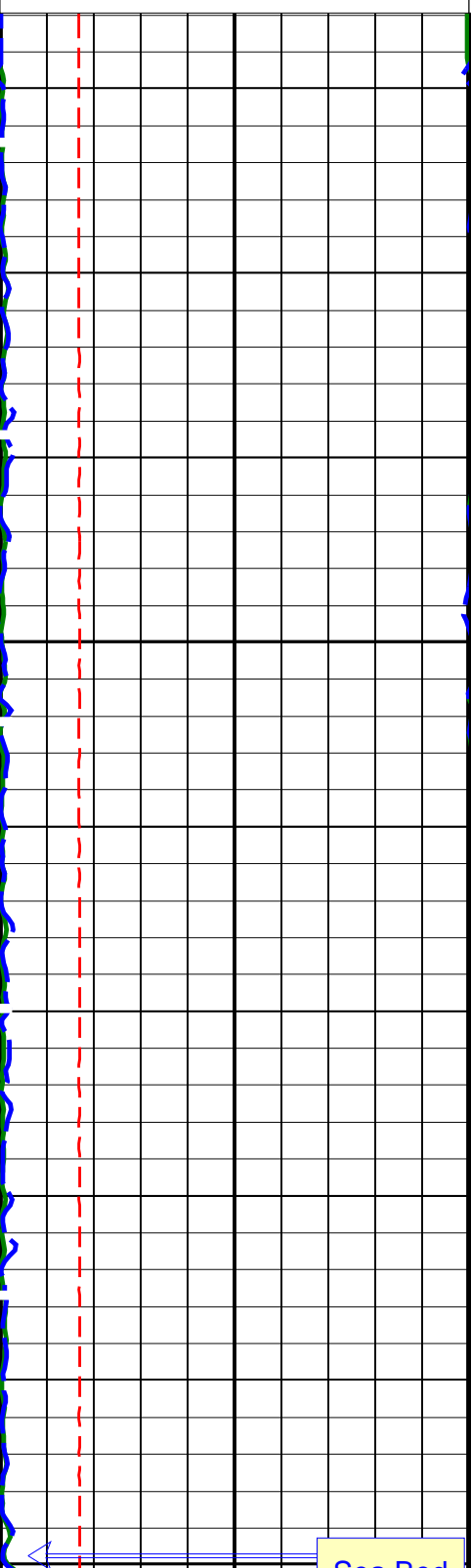
Tension
(TENS)
(LBF) 10000 0

HNGS Uranium (HURA)
(PPM) -5 10

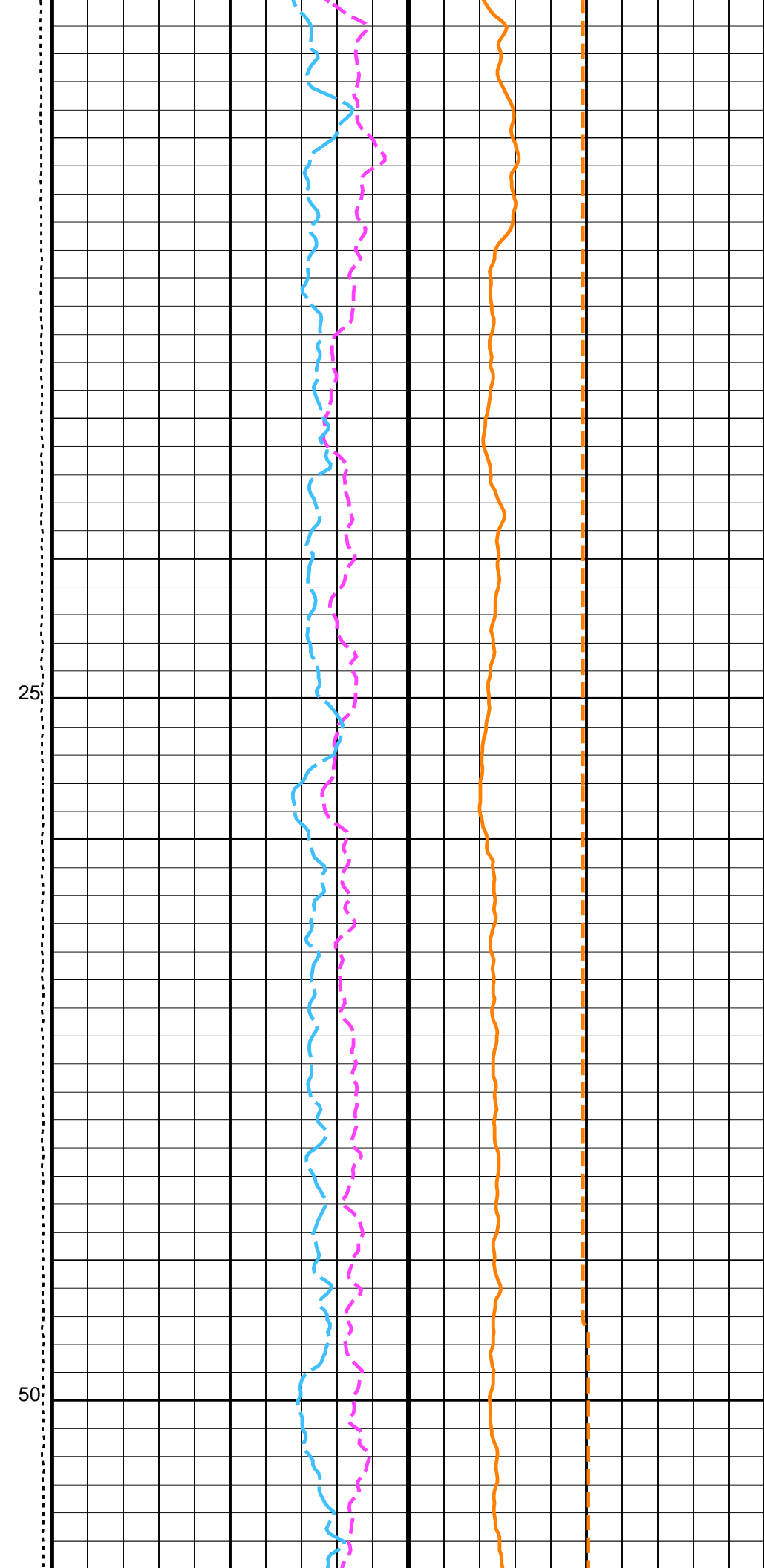
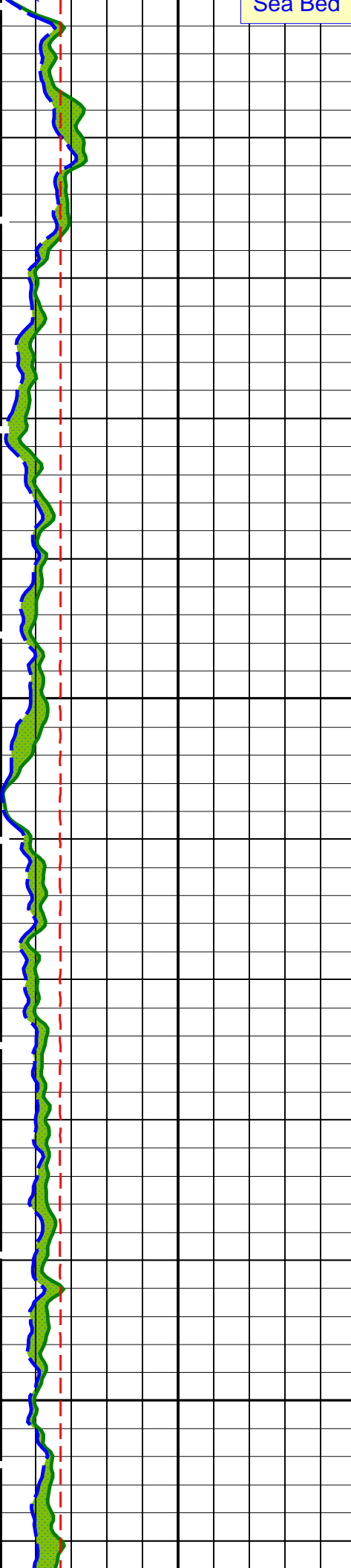
HNGS Thorium (HTHO)
(PPM) 5 25

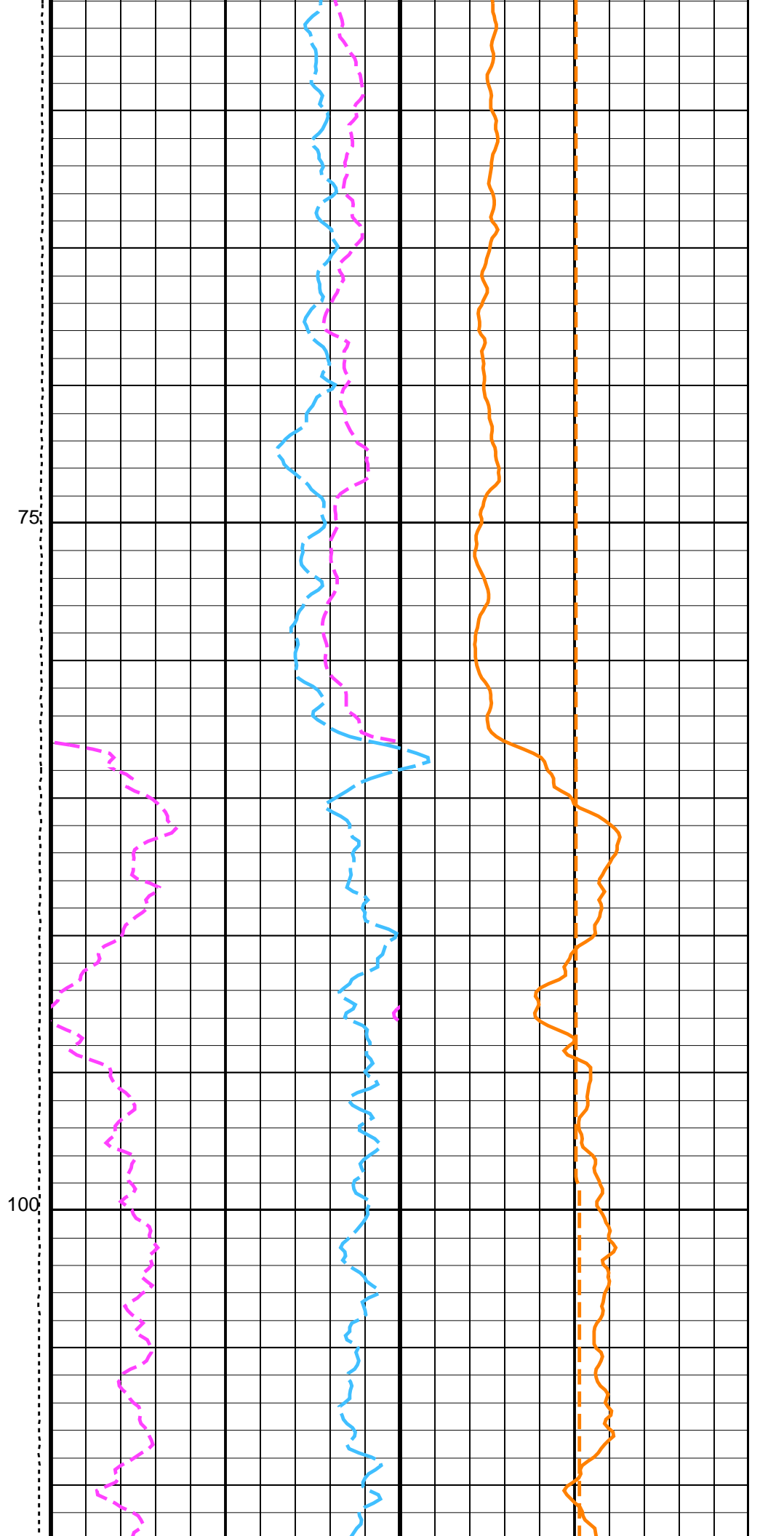
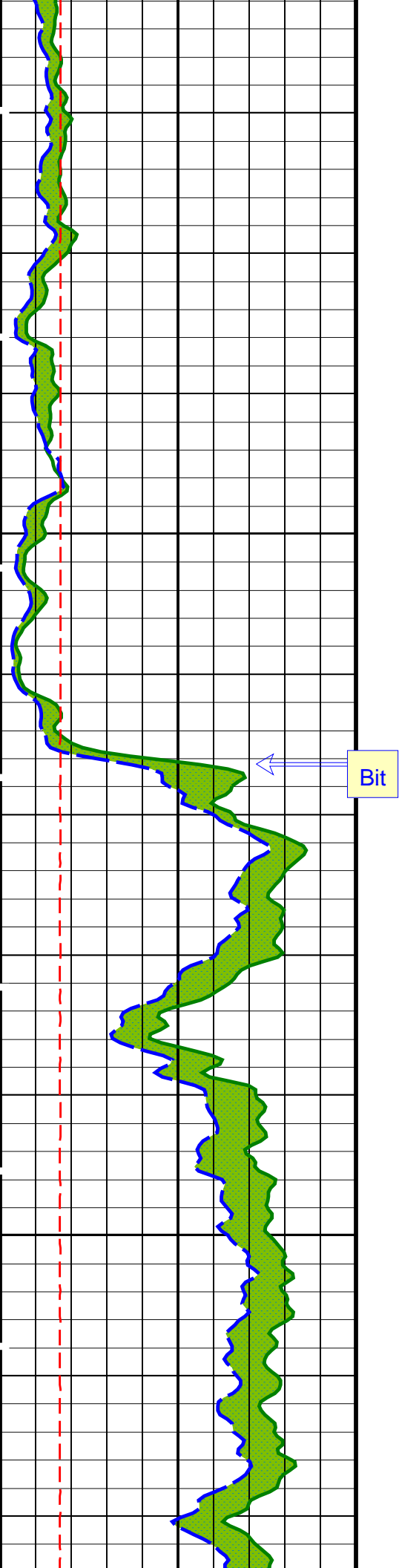
HNGS Borehole Potassium (HBHK)
-0.05 0.05

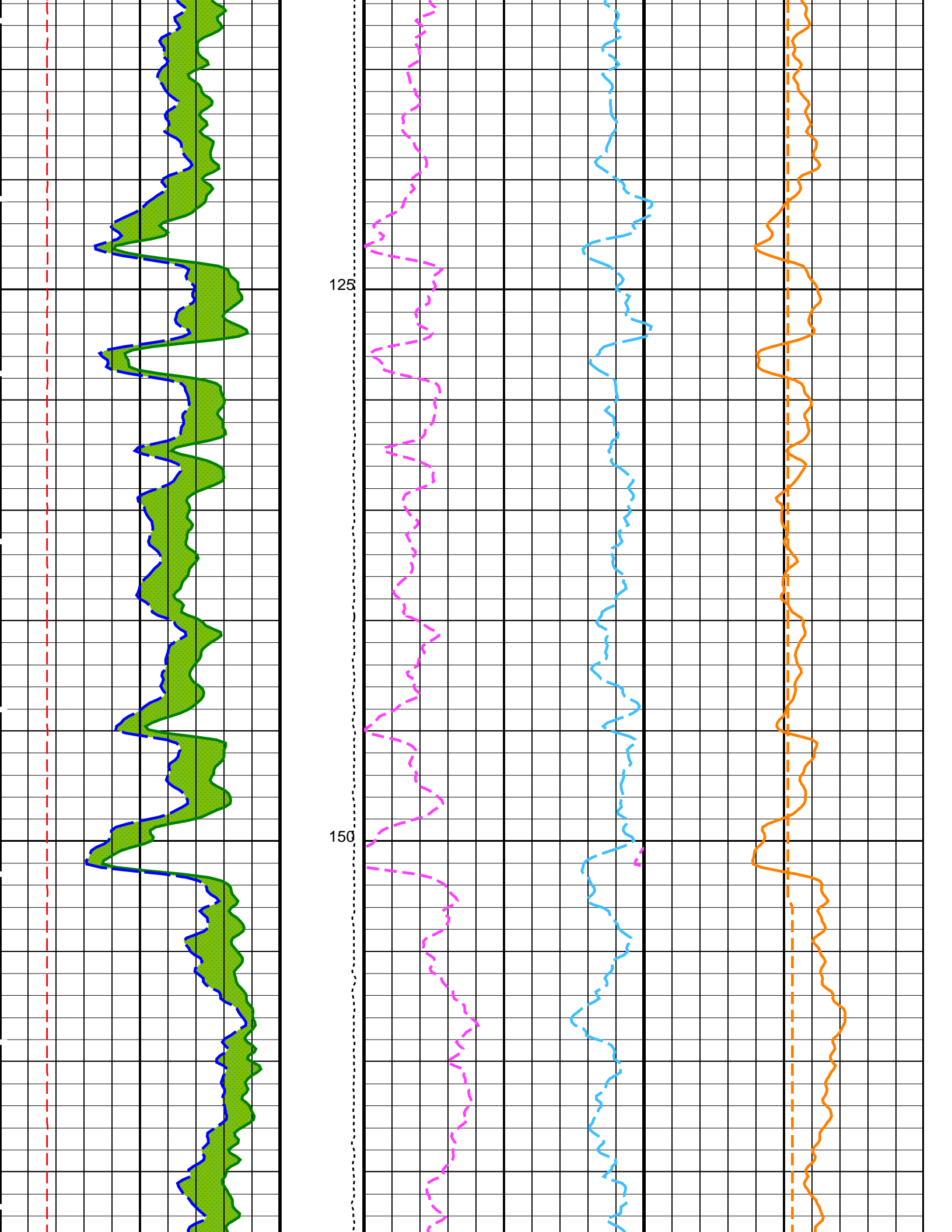
HNGS Potassium (HFK)
-0.01 0.04

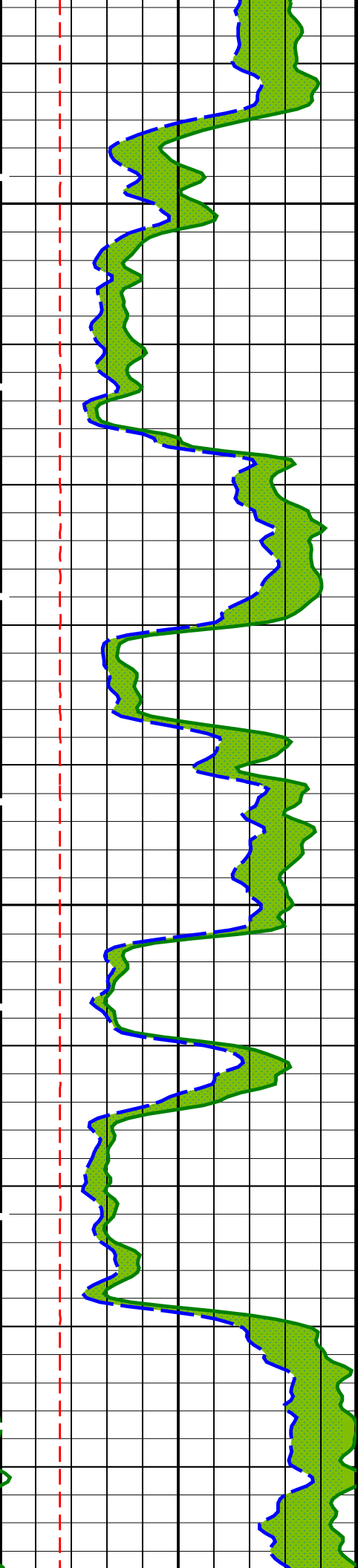


See Plot



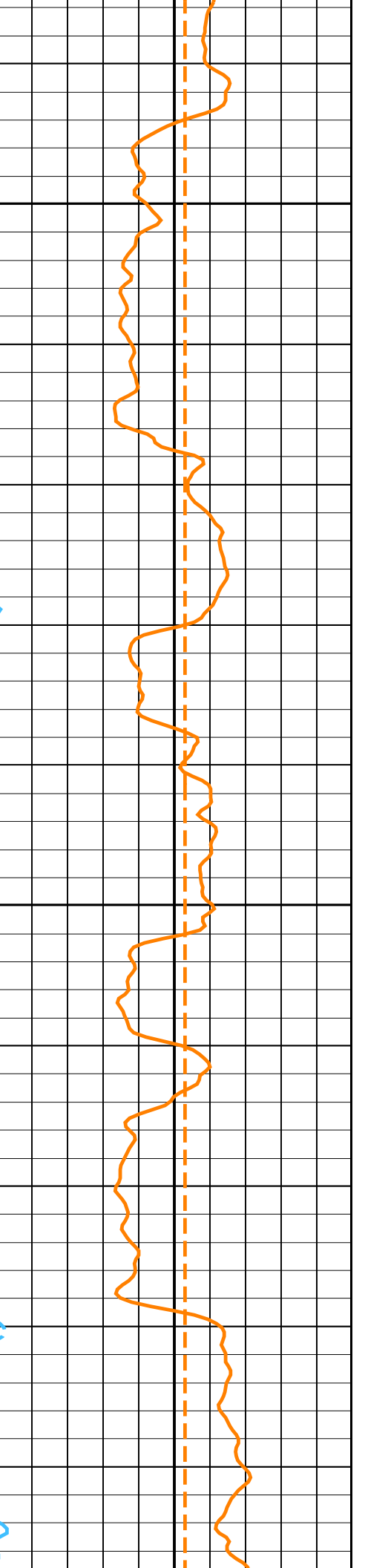
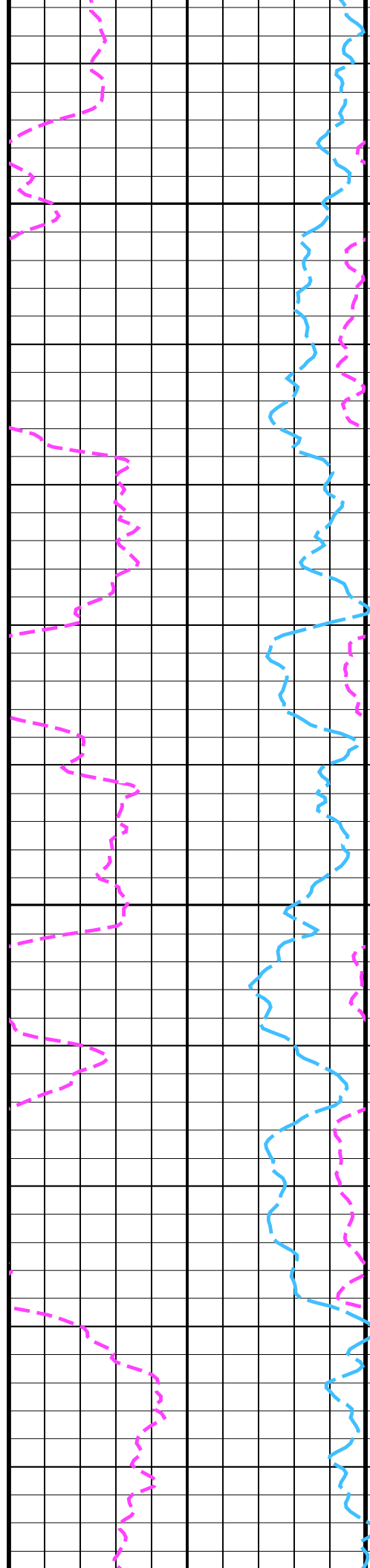


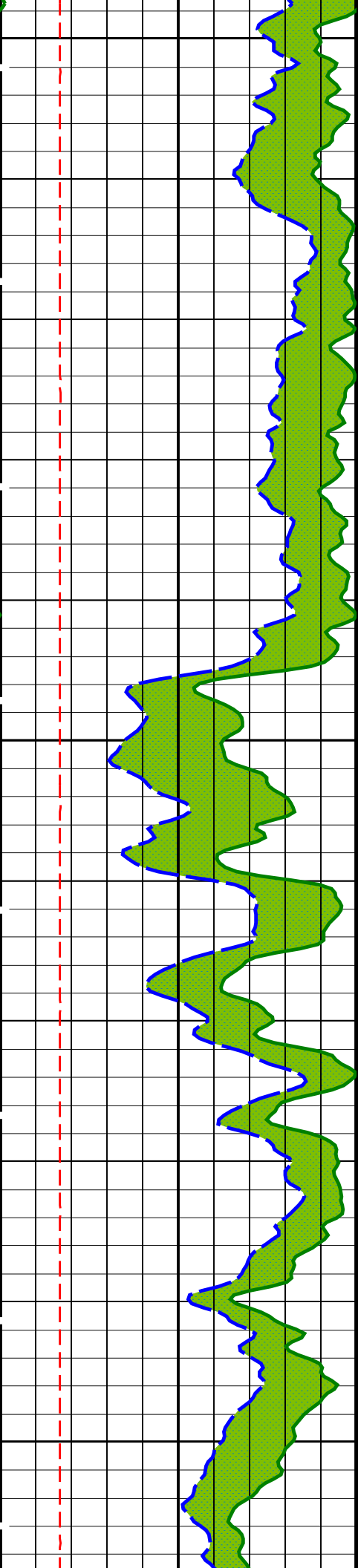




175

200

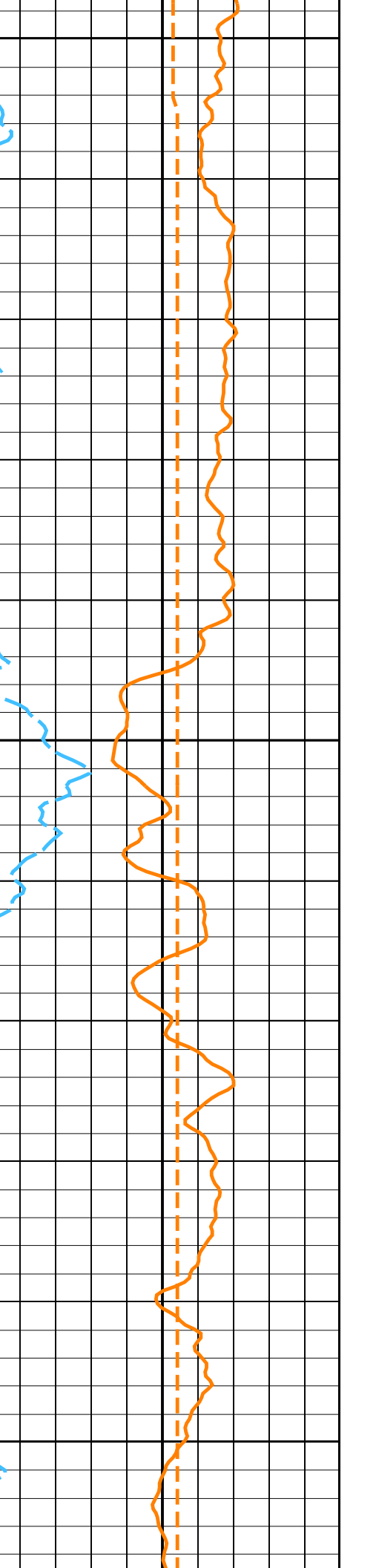
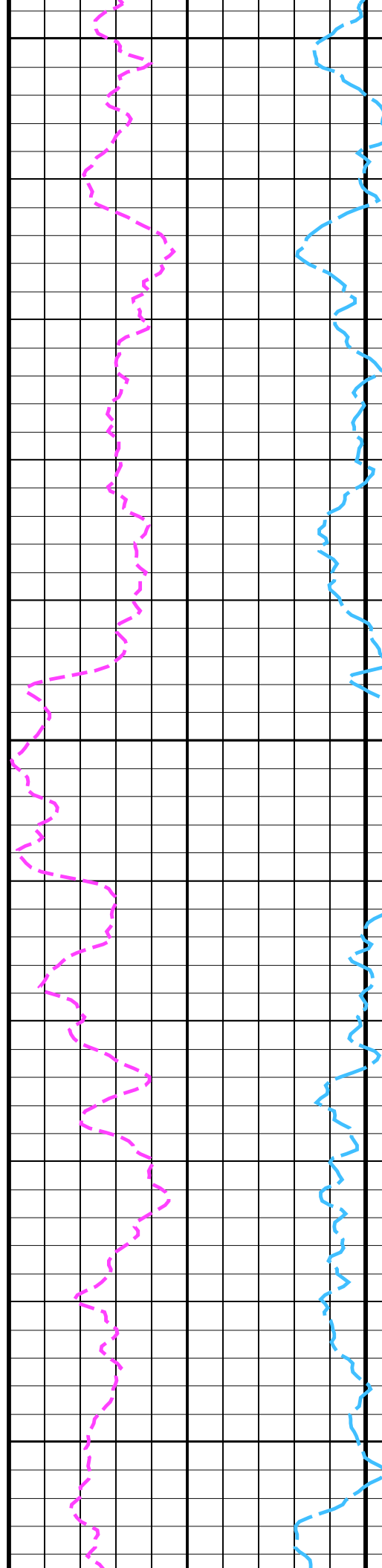


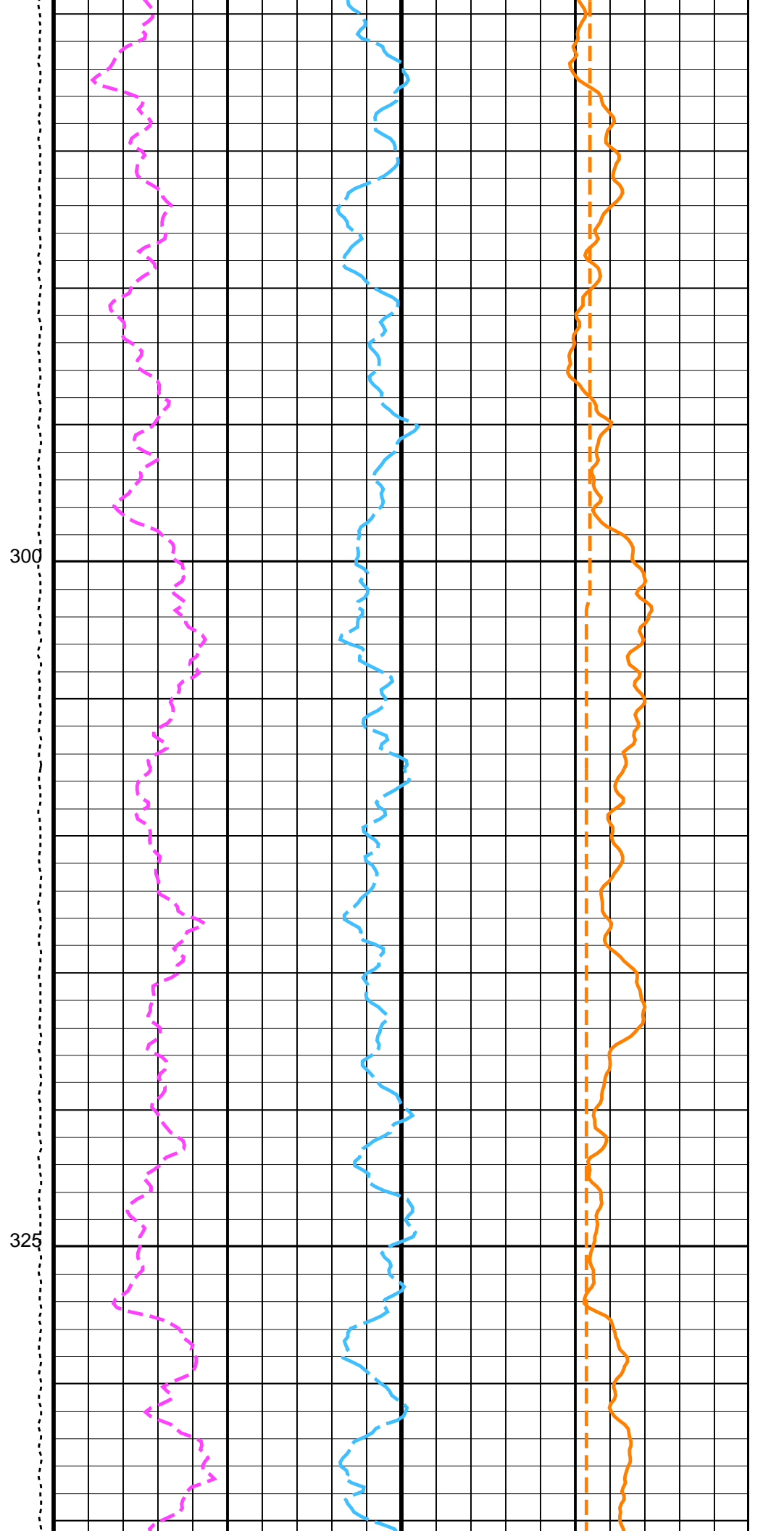
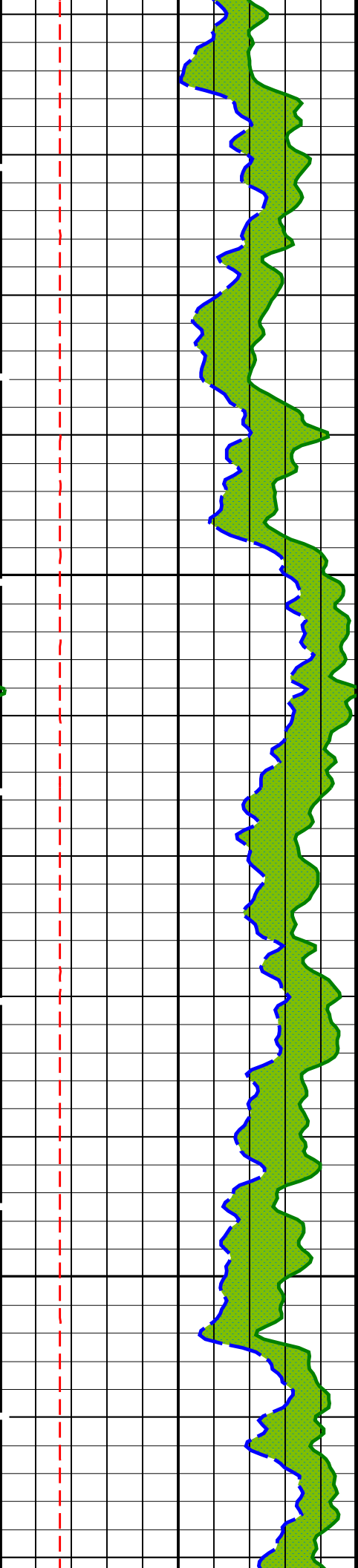


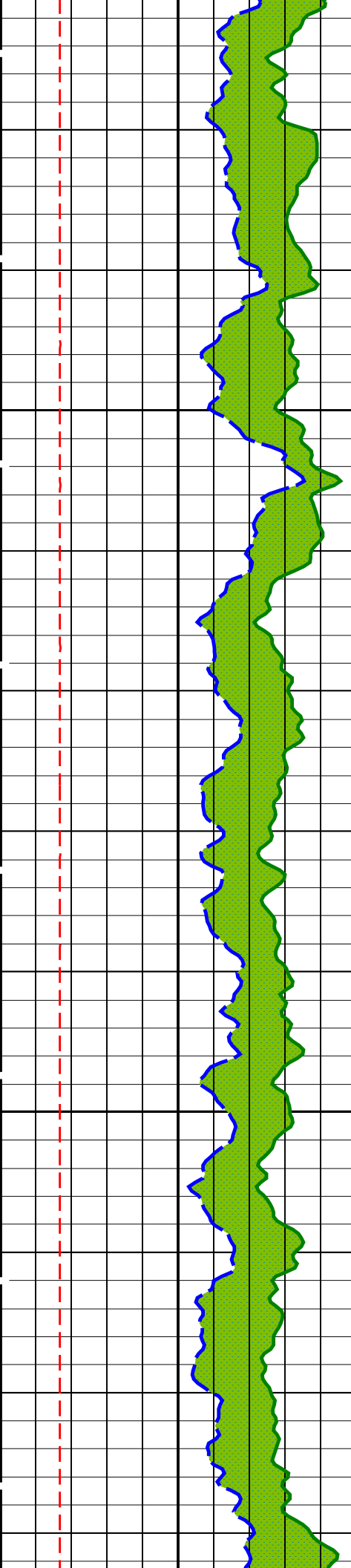
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250

275

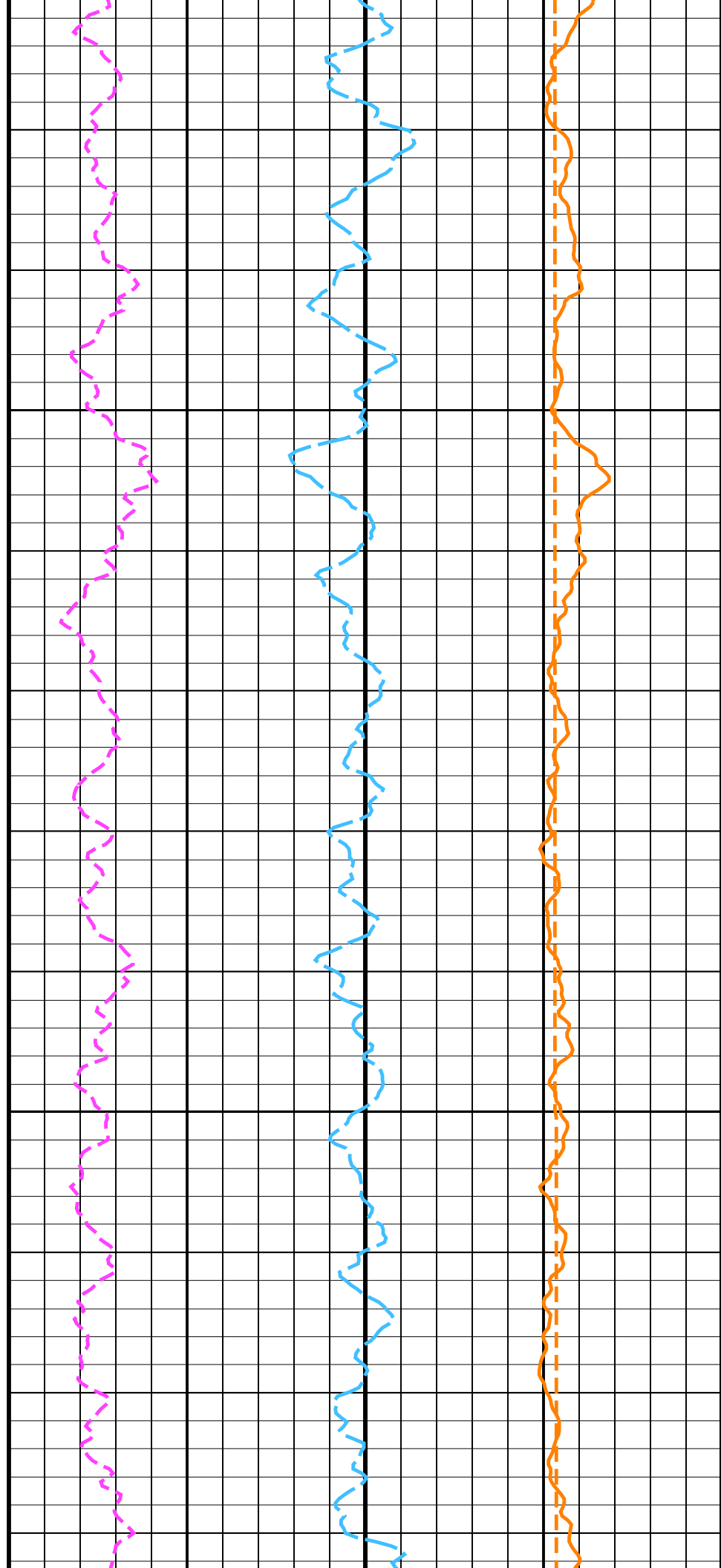


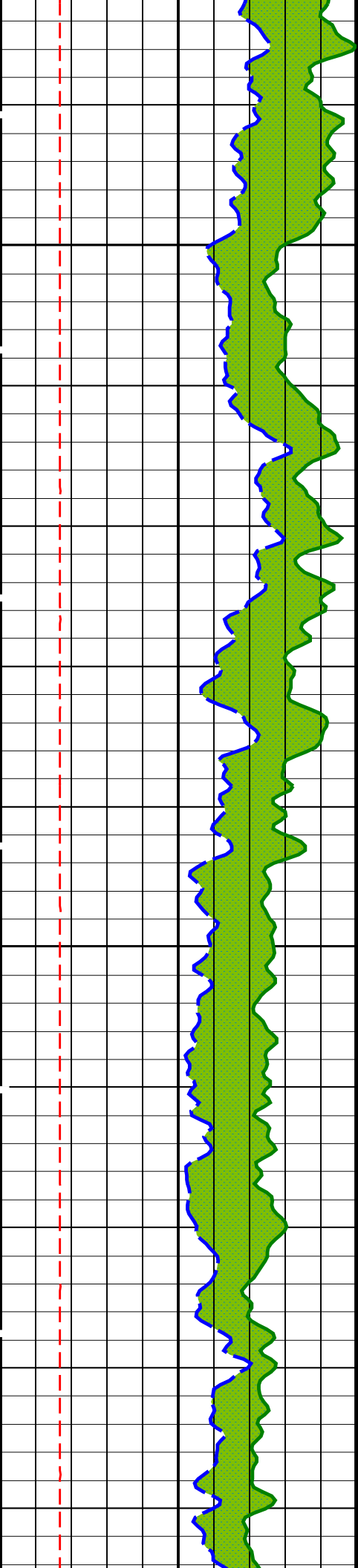




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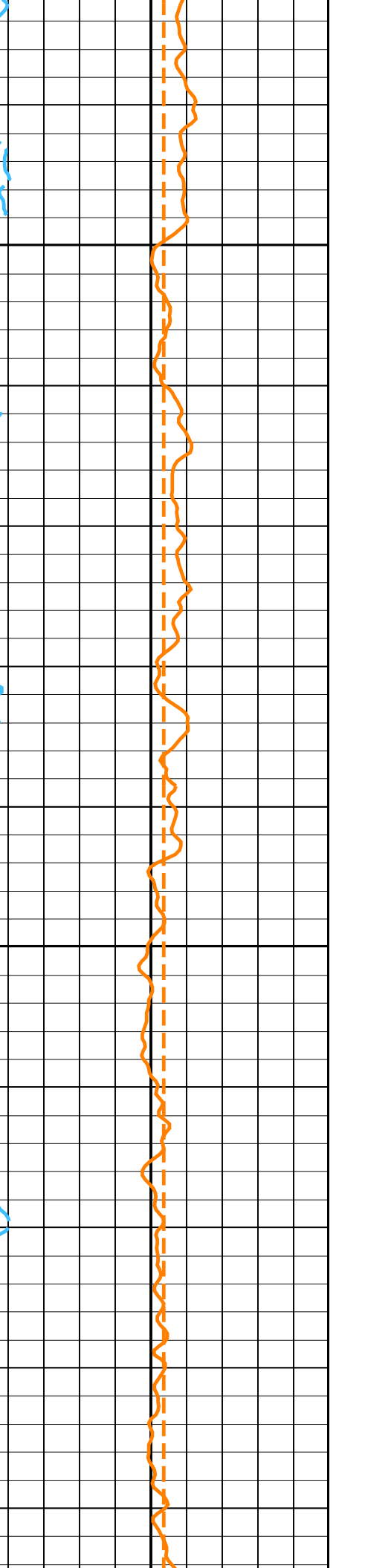
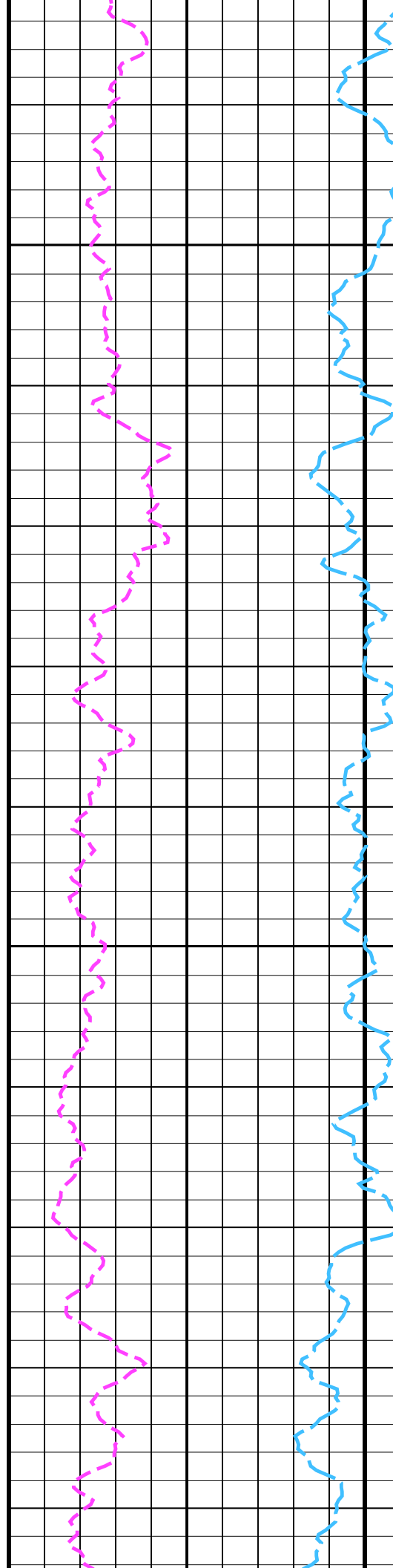
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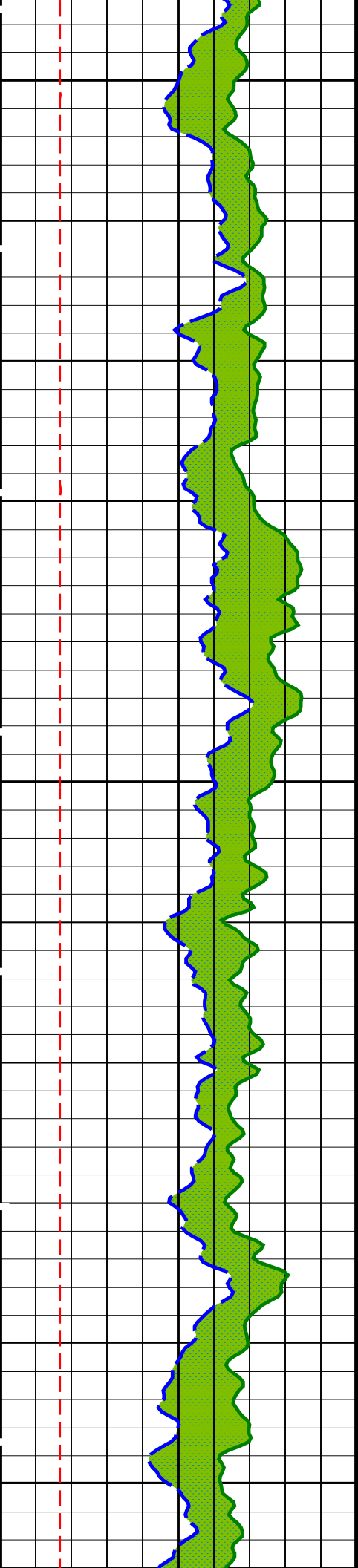




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425

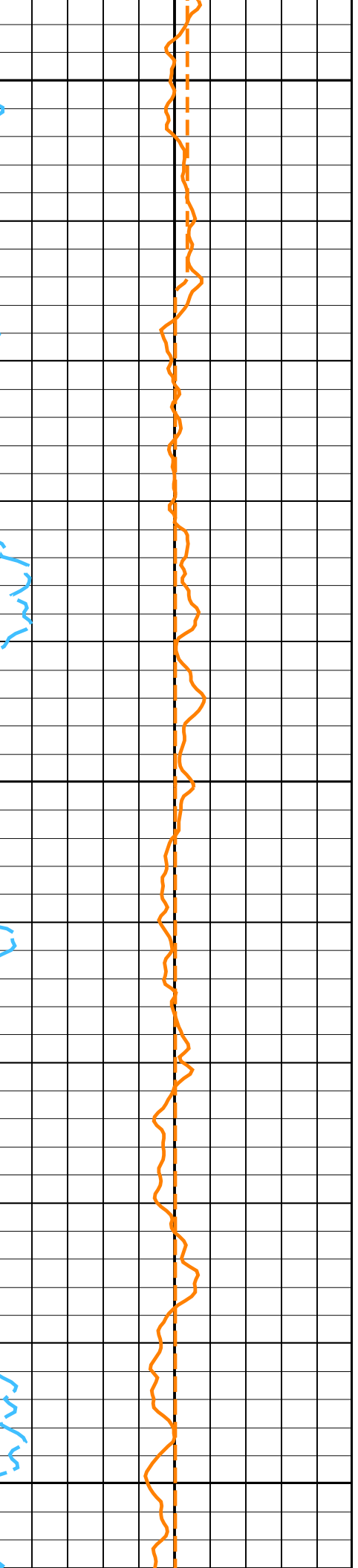
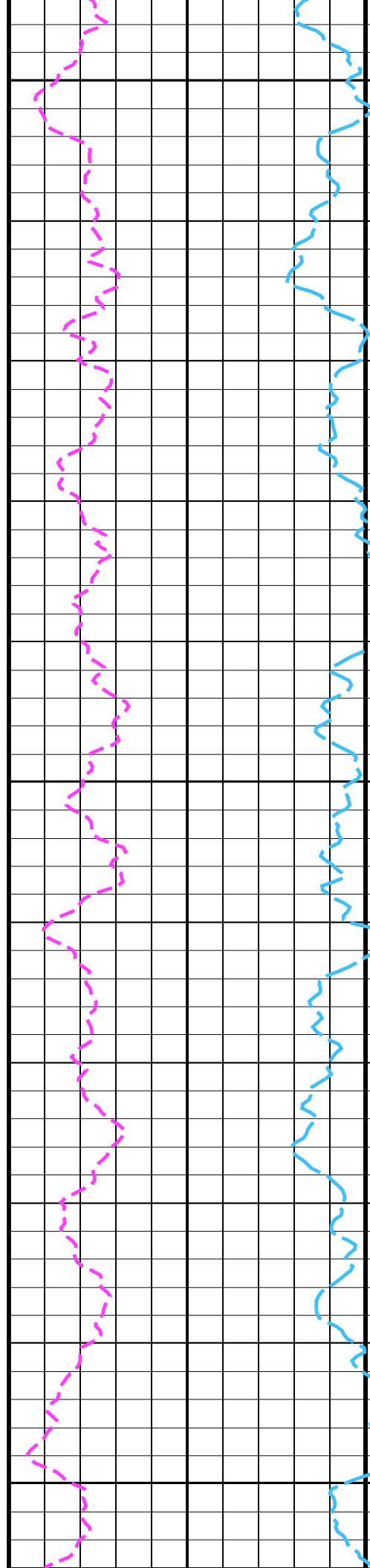


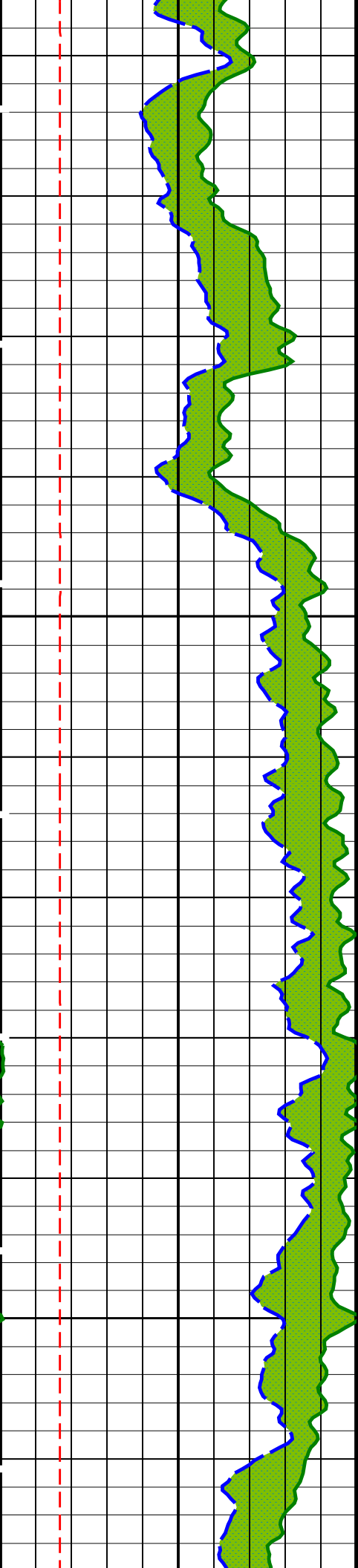


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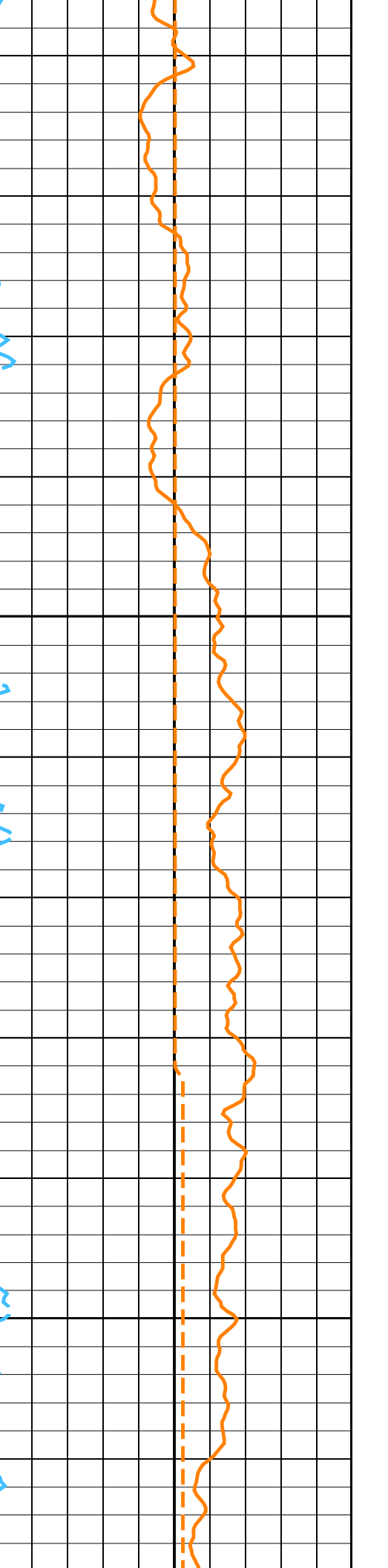
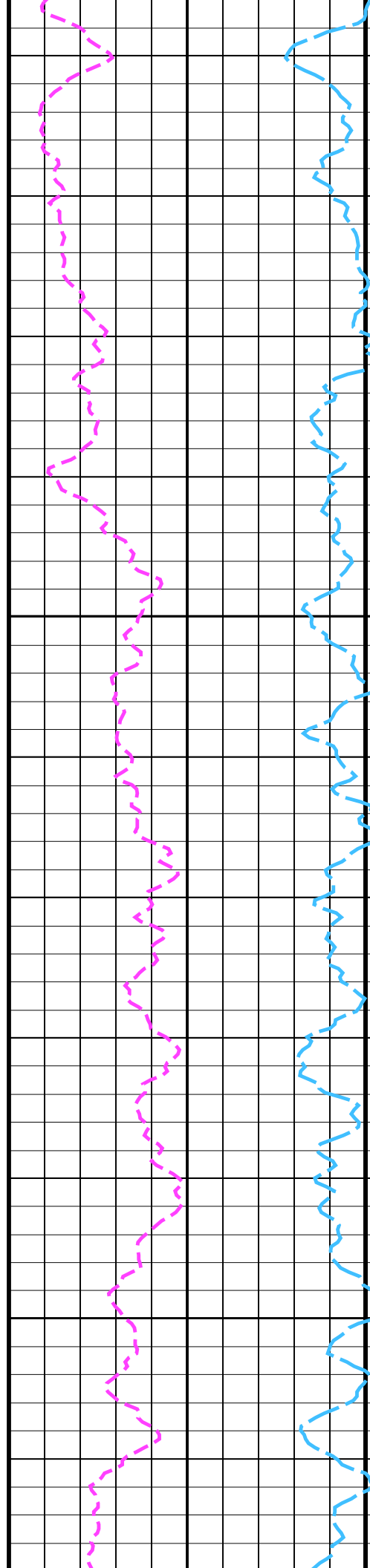
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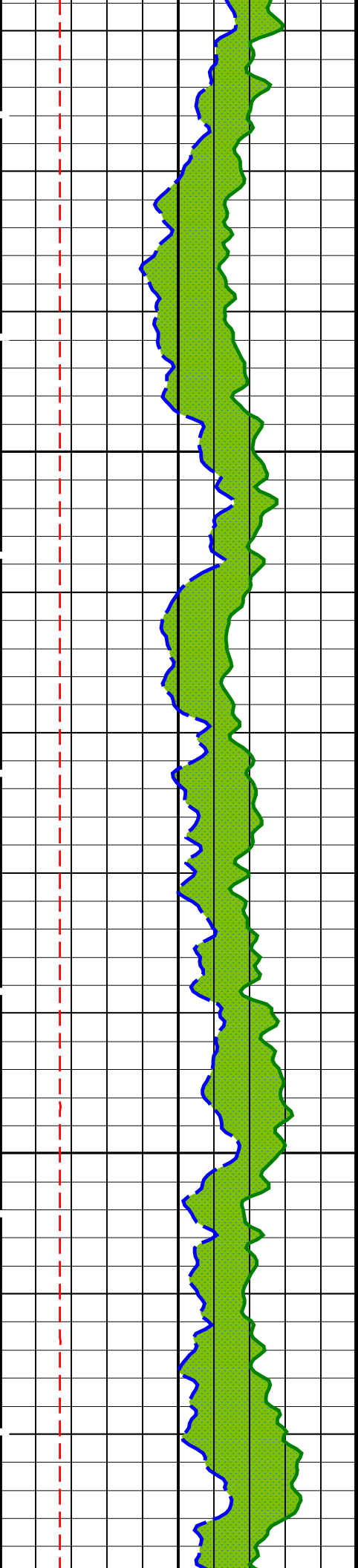




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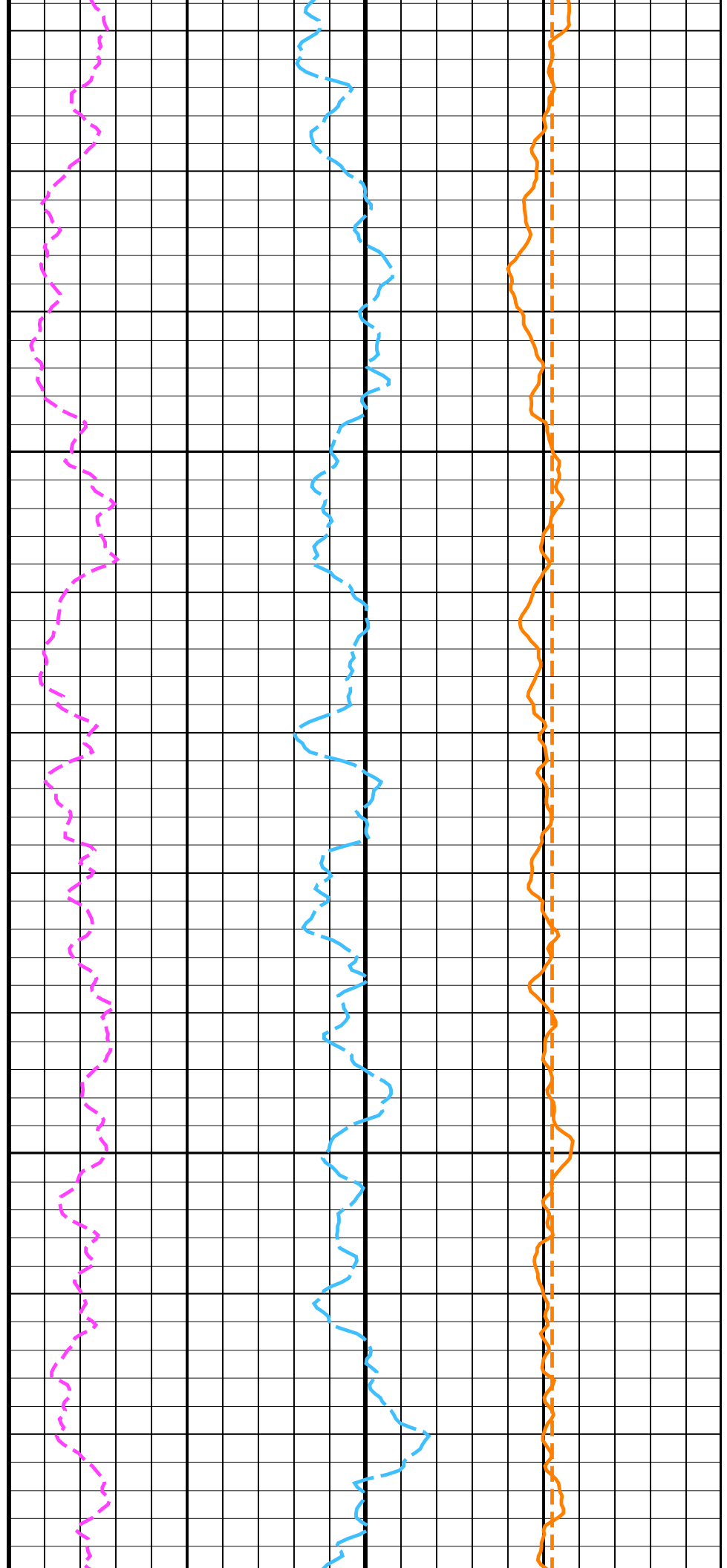
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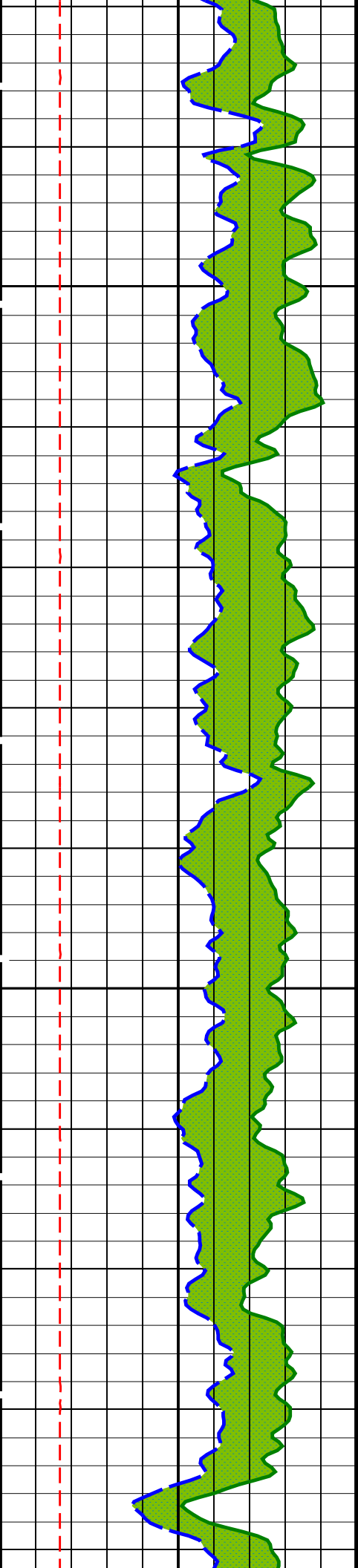




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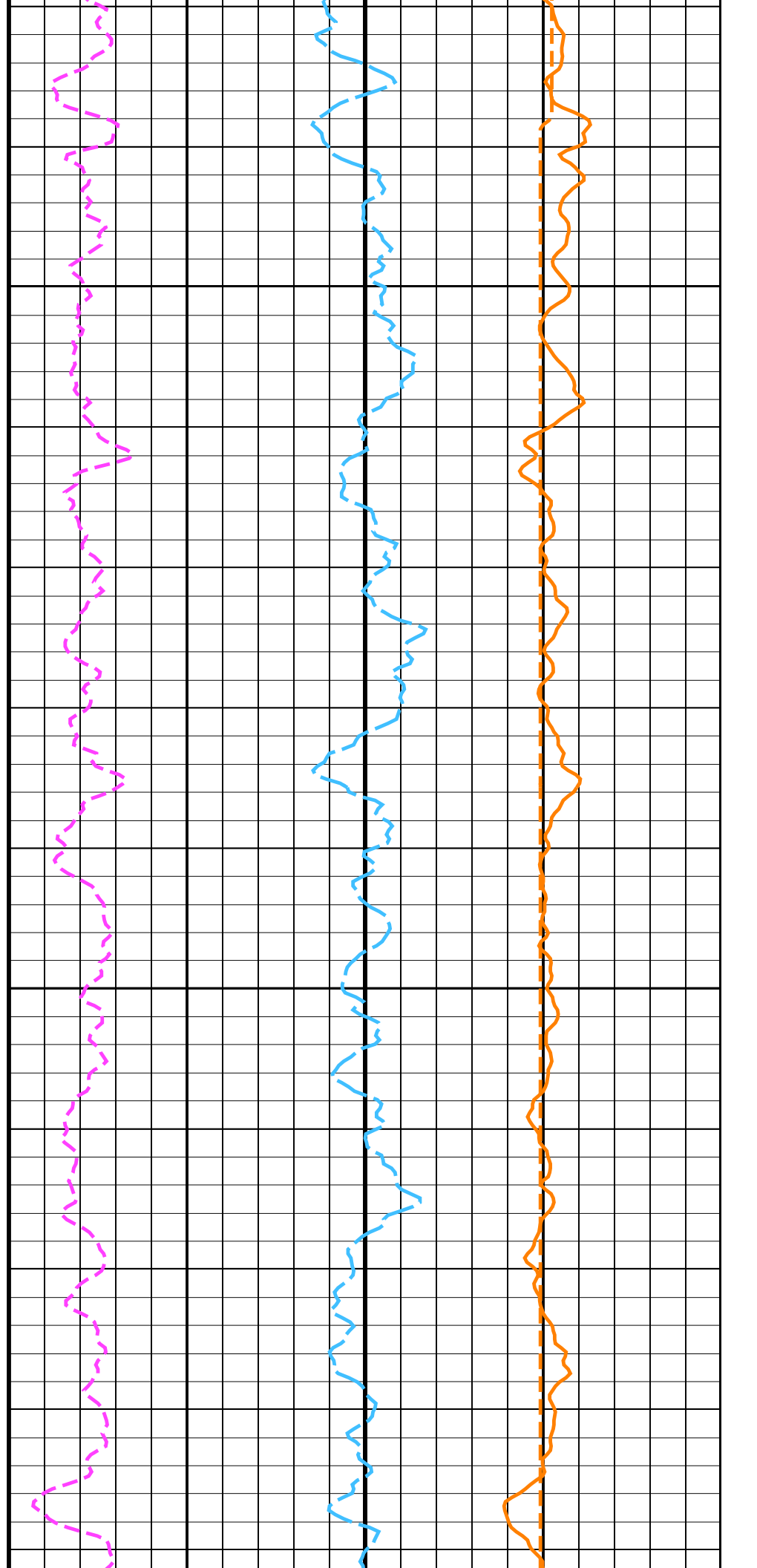
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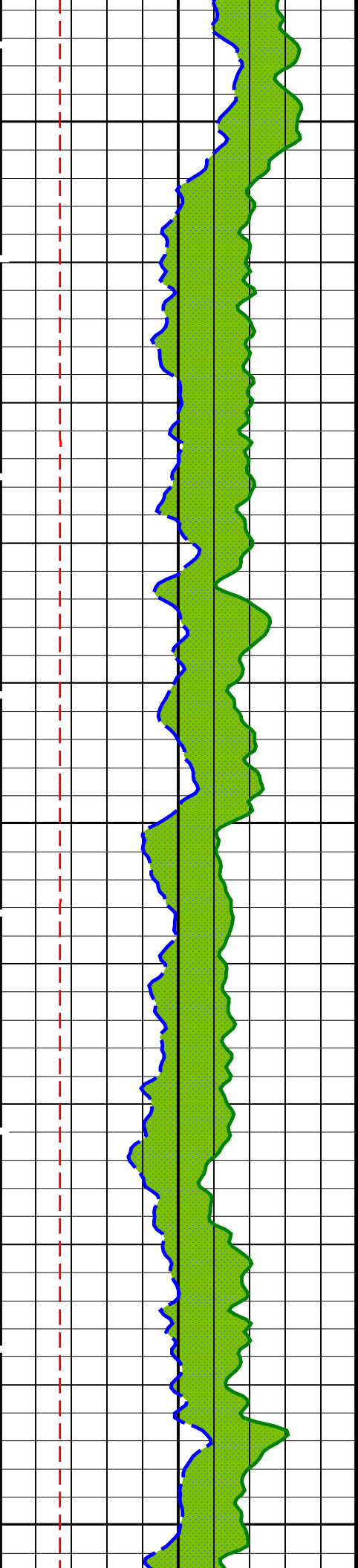




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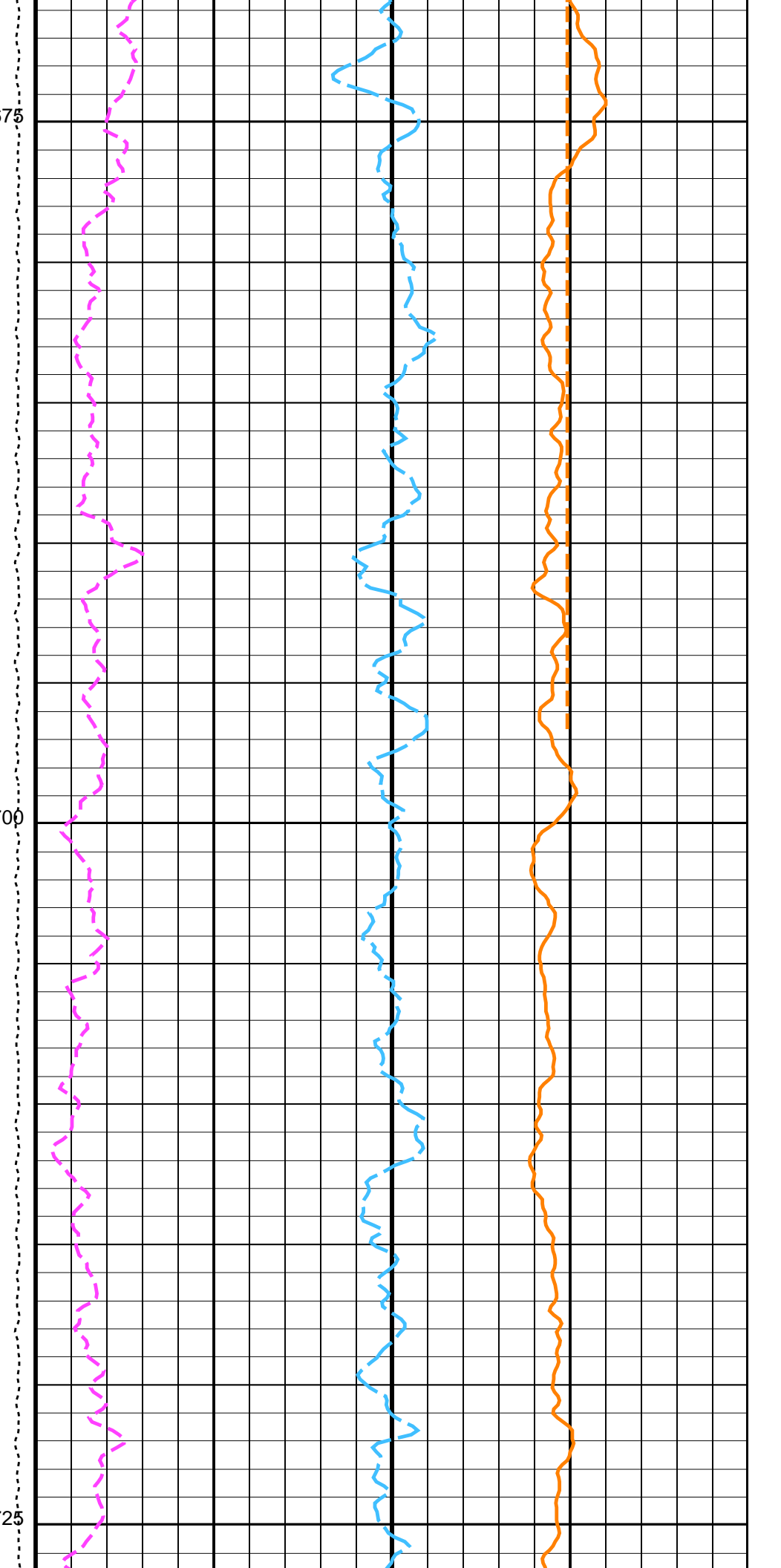


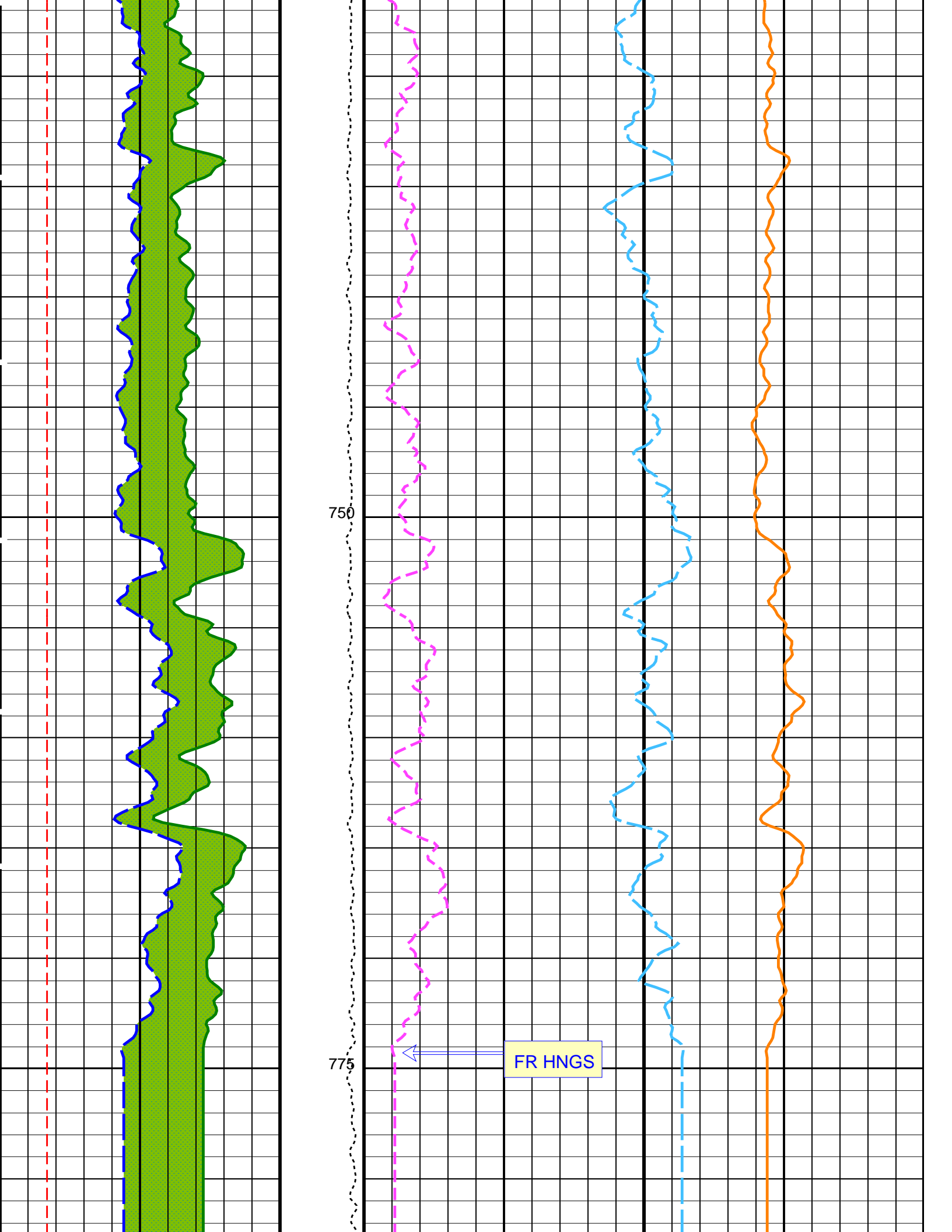


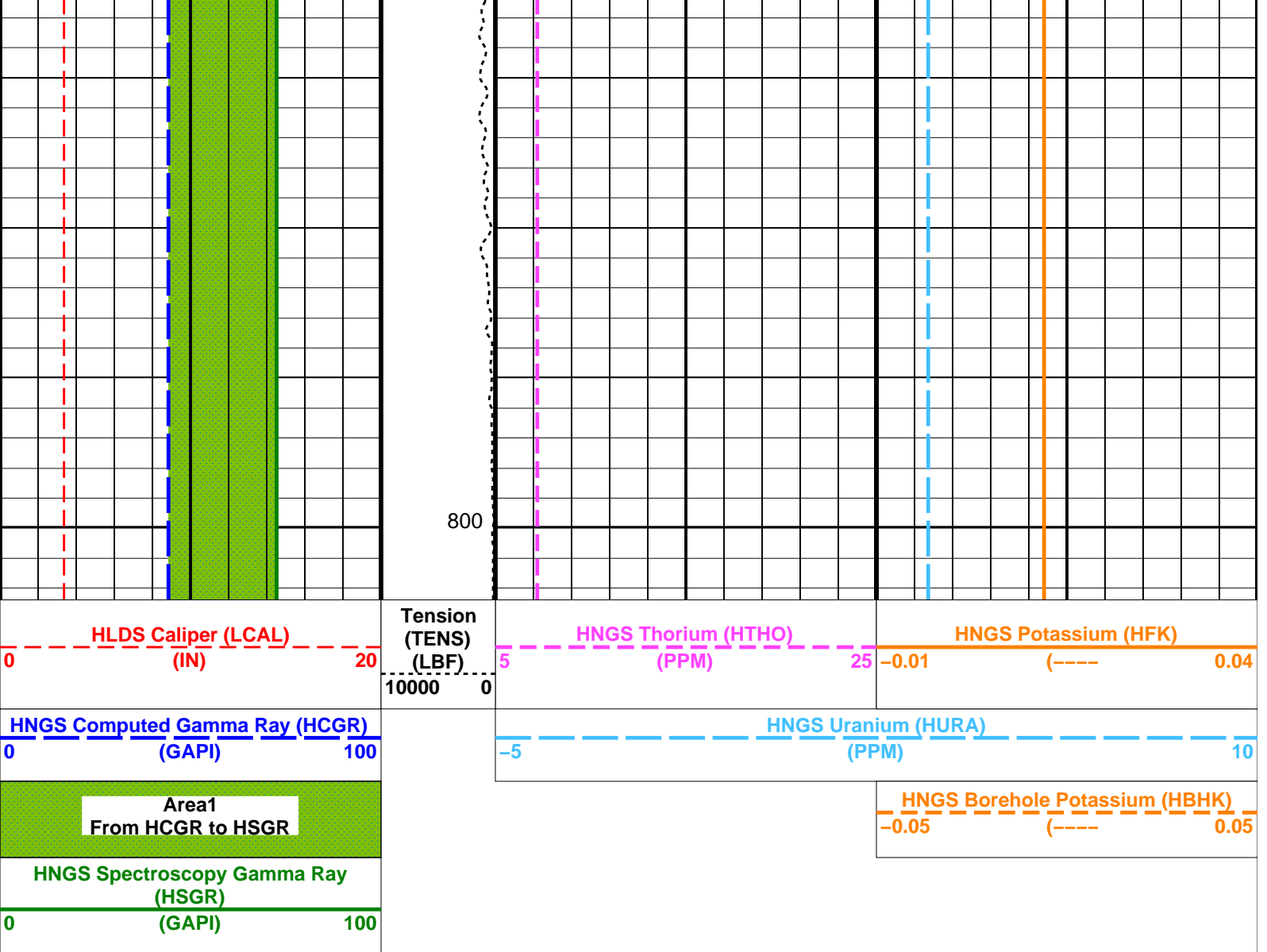
675

700

725







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)	60	DEGF
DGF1	Deep 10 kHz Gain Factor	0.968036	
DGF2	Deep 20 kHz Gain Factor	0.981641	
DGF4	Deep 40 kHz Gain Factor	1.00354	
DPH1	Deep 10 kHz Phase Shift	0.519505	DEG
DPH2	Deep 20 kHz Phase Shift	0.58231	DEG
DPH4	Deep 40 kHz Phase Shift	-0.0231022	DEG
DRE1	Deep Real 10 kHz Sonde Error Correction	47.0269	MM/M
DRE2	Deep Real 20 kHz Sonde Error Correction	16.7871	MM/M
DRE4	Deep Real 40 kHz Sonde Error Correction	5.70109	MM/M
DRIM	DIT-E Radial Invasion Mode	Rxo>Rt	
DSR1	Deep Sigma Reference (10 kHz)	7637	MM/M
DSR2	Deep Sigma Reference (20 kHz)	1843	MM/M
DSR4	Deep Sigma Reference (40 kHz)	405	MM/M
DSTA	DIT-E Transversal Standoff	0	IN
DXE1	Deep Quad 10 kHz Sonde Error Correction	100.491	MM/M
DXE2	Deep Quad 20 kHz Sonde Error Correction	62.191	MM/M
DXE4	Deep Quad 40 kHz Sonde Error Correction	44.6702	MM/M
GCSE	Generalized Caliper Selection	BS	
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	
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	
MGF1	Medium 10 kHz Gain Factor	1.00192	
MGF2	Medium 20 kHz Gain Factor	1.01122	
MGF4	Medium 40 kHz Gain Factor	1.04786	
MPH1	Medium 10 kHz Phase Shift	0.190245	DEG
MPH2	Medium 20 kHz Phase Shift	-0.139176	DEG
MPH4	Medium 40 kHz Phase Shift	-1.01614	DEG
MRE1	Medium Real 10 kHz Sonde Error Correction	17.1122	MM/M
MRE2	Medium Real 20 kHz Sonde Error Correction	-2.07993	MM/M
MRE4	Medium Real 40 kHz Sonde Error Correction	-9.895	MM/M
MSR1	Medium Sigma Reference (10 kHz)	13520	MM/M
MSR2	Medium Sigma Reference (20 kHz)	3250	MM/M
MSR4	Medium Sigma Reference (40 kHz)	685	MM/M
MXE1	Medium Quad 10 kHz Sonde Error Correction	-94.7355	MM/M
MXE2	Medium Quad 20 kHz Sonde Error Correction	-32.0861	MM/M
MXE4	Medium Quad 40 kHz Sonde Error Correction	12.9006	MM/M
SBR	Shoulder Bed Resistivity Factor	1	OHMM
SFCR	SFL Channel Ratio	1000	
SFLE	SFL Enable	ENABLE	
SHT	Surface Hole Temperature	68	DEGF
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 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	24.4	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	

APS-C: Accelerator-Porosity Tool

AASD	APS Software Version	0	
ADSO	APS Thermal and Array Detectors High Voltage Setting	1965.28	V
AFSD	APS Array Detectors Data Source Switch	Both	
AHCS	APS Far Detector High Voltage Setting	2077.04	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	1734.68	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)	60	DEGF
DPPM	APS TNPH Borehole Salinity Correction Option	YES	
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	0.01	DF/F
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	YES	
MWCO_APS	APS TNPH Mud Correction	NATU	
NARC	APS TNPH Mud Weight Correction Option	YES	
NFRC	APS Near/Array Calibration Ratio	1.05996	
PTCO_APS	APS Near/Far Calibration Ratio	0.890086	
SHT	APS TNPH Pressure/Temperature Correction Option	YES	
TNCO_APS	Surface Hole Temperature	68	DEGF
	APS TNPH Computation Option	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	OFF	
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	
MDFM	Matrix Density	2.74	G/C3

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	
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)	60	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	BS	
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	0.00142136	
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	68	DEGF
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0.984209	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.977226	
DIR: Directional Survey Computation			
SPED	East Departure of Starting Point	0	M
SPND	North Departure of Starting Point	0	M
SPVD	TVD of Starting Point	0	M
TAZI	Vertical Section Azimuth	0	DEG
TIED	East Departure of Tie-in Point	0	M
TIMD	Along-hole depth of Tie-in Point	0	M
TIND	North Departure of Tie-in Point	0	M
TIVD	TVD of Tie-in Point	0	M
System and Miscellaneous			
ALTDPCCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	11.438	IN
BSAL	Borehole Salinity	-50000.00	PPM
CSIZ	Current Casing Size	4.500	IN
CWEI	Casing Weight	0.00	LB/F
DFD	Drilling Fluid Density	1.26	G/C3
DO	Depth Offset for Playback	-133.5	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	2750.9	M
TDD	Total Depth - Driller	967.20	M
TDL	Total Depth - Logger	785.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: HNGSYields Vertical Scale: 1:200 Graphics File Created: 31-Dec-2009 21:37

OP System Version: 17C0-154

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

Input DLIS Files

DEFAULT PI_APS_LDL_NGS_014PUP FN:14 PRODUCER 06-Dec-2009 12:31 934.8 M 91.4 M

Output DLIS Files



Calibrations

MAXIS Field Log

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
General Purpose Inclinerometer Wellsite Calibration – CROUZET ACCELEROMETER PROM HAS BEEN READ CORRECTLY							
Before: 28-Nov-2009 4:38							
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 Inclinerometer Wellsite Calibration – CROUZET MAGNETOMETER PROM HAS BEEN READ CORRECTLY							
Before: 28-Nov-2009 4:38							
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: 5-Nov-2009 1:02 Before: 28-Nov-2009 4:42							
Near Det Bkg Cntrate	30.00	31.30	31.42	N/A	N/A	N/A	CPS
Far Det Bkg Cntrate	30.00	33.28	33.68	N/A	N/A	N/A	CPS
Array-1 Det Bkg Cntrate	30.00	29.03	29.63	N/A	N/A	N/A	CPS
Array-2 Det Bkg Cntrate	30.00	29.71	29.96	N/A	N/A	N/A	CPS
Array Therm Det Bkg Cntrate	30.00	33.23	34.30	N/A	N/A	N/A	CPS
Accelerator-Porosity Tool Wellsite Calibration – Calibration Ratios							
Master: 5-Nov-2009 1:02							
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	1.007	N/A	N/A	N/A	N/A	
Accelerator-Porosity Tool Wellsite Calibration – Tank Check							
Master: 5-Nov-2009 1:02							
Array-1 Standoff Porosity	11.75	11.51	N/A	N/A	N/A	N/A	PU
Array-2 Standoff Porosity	11.75	11.21	N/A	N/A	N/A	N/A	PU
Average Slowing Down Time	6.000	5.881	N/A	N/A	N/A	N/A	US
Array-1 SDT Ratio Up/Down	1.000	0.9799	N/A	N/A	N/A	N/A	
Array-2 SDT Ratio Up/Down	1.000	0.9831	N/A	N/A	N/A	N/A	
Sigma Formation	27.50	27.90	N/A	N/A	N/A	N/A	CU
Accelerator-Porosity Tool Wellsite Calibration – CCR7 signal boxes							
Master: 5-Nov-2009 1:02							
Near Detector Plateau Setting	1650	1735	N/A	N/A	N/A	N/A	V
Far Detector Plateau Setting	2000	2077	N/A	N/A	N/A	N/A	V
Array Detector Plateau Setting	2000	1965	N/A	N/A	N/A	N/A	V
Hostile Litho-Density Sonde Wellsite Calibration – Background Measurement							
Master: 4-Nov-2009 17:36 Before: 28-Nov-2009 4:42							
SS Cs Resolution Bkg	9.000	7.756	7.779	N/A	N/A	1.800	%
LS Cs Resolution Bkg	9.000	8.165	8.005	N/A	N/A	1.800	%
LSW1 Background	100.0	92.48	92.05	N/A	N/A	3.000	CPS
LSW2 Background	100.0	84.63	83.64	N/A	N/A	3.000	CPS
LSW3 Background	200.0	191.1	189.4	N/A	N/A	6.000	CPS
LSW4 Background	250.0	233.7	234.1	N/A	N/A	7.500	CPS
LSW5 Background	600.0	544.1	542.2	N/A	N/A	18.00	CPS
SSW1 Background	100.0	90.17	88.00	N/A	N/A	3.000	CPS
SSW2 Background	200.0	152.5	153.8	N/A	N/A	6.000	CPS

SSW3 Background	500.0	429.0	430.6	N/A	N/A	15.00	CPS
SSW4 Background	270.0	231.1	230.6	N/A	N/A	8.100	CPS
SSW5 Background	200.0	164.3	164.6	N/A	N/A	6.000	CPS

Hostile Litho-Density Sonde Wellsite Calibration – Aluminum Measurement

Master: 4-Nov-2009 17:36

LSW1 Aluminum	600.0	567.1	N/A	N/A	N/A	N/A	CPS
LSW2 Aluminum	900.0	807.6	N/A	N/A	N/A	N/A	CPS
LSW3 Aluminum	1100	967.1	N/A	N/A	N/A	N/A	CPS
LSW4 Aluminum	580.0	490.9	N/A	N/A	N/A	N/A	CPS
LSW5 Aluminum	570.0	441.4	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	6869	N/A	N/A	N/A	N/A	CPS
SSW3 Aluminum	11600	9623	N/A	N/A	N/A	N/A	CPS
SSW4 Aluminum	5000	3958	N/A	N/A	N/A	N/A	CPS
SSW5 Aluminum	660.0	476.5	N/A	N/A	N/A	N/A	CPS

Hostile Litho-Density Sonde Wellsite Calibration – Lithology Measurement

Master: 4-Nov-2009 17:36

LSW1 Iron	400.0	388.6	N/A	N/A	N/A	N/A	CPS
LSW2 Iron	730.0	657.3	N/A	N/A	N/A	N/A	CPS
LSW3 Iron	1000	863.8	N/A	N/A	N/A	N/A	CPS
LSW4 Iron	520.0	446.9	N/A	N/A	N/A	N/A	CPS
LSW5 Iron	470.0	407.2	N/A	N/A	N/A	N/A	CPS
SSW1 Iron	2100	1834	N/A	N/A	N/A	N/A	CPS
SSW2 Iron	6800	5739	N/A	N/A	N/A	N/A	CPS
SSW3 Iron	10800	8813	N/A	N/A	N/A	N/A	CPS
SSW4 Iron	4600	3631	N/A	N/A	N/A	N/A	CPS
SSW5 Iron	580.0	422.9	N/A	N/A	N/A	N/A	CPS

Hostile Litho-Density Sonde Wellsite Calibration – Caliper Calibration

Before: Calibration out of date 16-Jul-2009 8:33

HLDS Caliper Small Ring	12.00	N/A	13.30	N/A	N/A	N/A	IN
HLDS Caliper Large Ring	15.14	N/A	16.70	N/A	N/A	N/A	IN

Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 1 Check

Master: 31-Oct-2009 23:09 Before: 28-Nov-2009 4:42

Na 511 Peak Loc	40.00	39.48	39.66	N/A	N/A	1.000	
Na 511 Peak Res	15.50	16.07	14.94	N/A	N/A	2.000	%
High Voltage	1150	1200	1153	N/A	N/A	N/A	V
Na 1785 Peak Loc	142.6	142.5	142.2	N/A	N/A	7.000	
Na 1785 Peak Res	8.500	8.076	7.965	N/A	N/A	2.000	%
Temperature	15.50	36.12	18.31	N/A	N/A	N/A	DEGC
Na Count Rate	45.00	34.81	33.95	N/A	N/A	8.000	CPS

Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 2 Check

Master: 31-Oct-2009 23:09 Before: 28-Nov-2009 4:42

Na 511 Peak Loc	40.00	39.63	39.53	N/A	N/A	1.000	
Na 511 Peak Res	15.50	15.54	16.02	N/A	N/A	2.000	%
High Voltage	1150	1123	1087	N/A	N/A	N/A	V
Na 1785 Peak Loc	142.6	142.2	142.8	N/A	N/A	7.000	
Na 1785 Peak Res	8.500	8.652	7.541	N/A	N/A	2.000	%
Temperature	15.50	36.37	18.97	N/A	N/A	N/A	DEGC
Na Count Rate	45.00	35.36	34.12	N/A	N/A	8.000	CPS

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

Master: 31-Oct-2009 23:09 Before: 28-Nov-2009 4:42

Coincidence Count Rate Ratio	1.000	0.9839	0.9971	N/A	N/A	0.05000	
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Accelerator-Porosity Tool – Detector Plateau Settings :

Near Detector Plateau Setting	1735 V
Far Detector Plateau Setting	2077 V
Array Detector Plateau Setting	1965 V

Dual Induction – E / Equipment Identification

Primary Equipment:		
Dual Induction Sonde	DIS – HB	442
Dual Induction Cartridge	DIC – EB	438
Auxiliary Equipment:		
Mass Isolated Housing	MIH – ZA	342

Dual Induction – E Wellsite Calibration

Induction Electronics (10 kHz)

Phase	ID Elect Real Offset 10 kHz MM/M	Value	Phase	ID Elect Real Gain 10 kHz	Value	Phase	ID Elect Phase 10 kHz DEG	Value
Before		31.05	Before		0.9385	Before		9.060
	-300.0 (Minimum) 0 (Nominal) 300.0 (Maximum)			0.8500 (Minimum) 1.000 (Nominal) 1.200 (Maximum)			-10.00 (Minimum) 0 (Nominal) 10.00 (Maximum)	
Phase	ID Elect Quad Offset 10 kHz MM/M	Value	Phase	ID Elect Quad Gain 10 kHz	Value	Phase	IM Elect Phase 10 kHz DEG	Value
Before		23.92	Before		0.9546	Before		8.901
	-300.0 (Minimum) 0 (Nominal) 300.0 (Maximum)			0.8500 (Minimum) 1.000 (Nominal) 1.200 (Maximum)			-10.00 (Minimum) 0 (Nominal) 10.00 (Maximum)	
Phase	IM Elect Real Offset 10 kHz MM/M	Value	Phase	IM Elect Real Gain 10 kHz	Value			
Before		83.66	Before		0.9473			
	-550.0 (Minimum) 0 (Nominal) 550.0 (Maximum)			0.8500 (Minimum) 1.000 (Nominal) 1.200 (Maximum)				
Phase	IM Elect Quad Offset 10 kHz MM/M	Value	Phase	IM Elect Quad Gain 10 kHz	Value			
Before		43.93	Before		0.9278			
	-550.0 (Minimum) 0 (Nominal) 550.0 (Maximum)			0.8500 (Minimum) 1.000 (Nominal) 1.200 (Maximum)				

Before: 24-Nov-2009 13:24

Dual Induction – E Wellsite Calibration

Induction Electronics (20 kHz)

Phase	ID Elect Real Offset 20 kHz MM/M	Value	Phase	ID Elect Real Gain 20 kHz	Value	Phase	ID Elect Phase 20 kHz DEG	Value
Before		12.28	Before		0.9665	Before		4.391
	-125.0 (Minimum) 0 (Nominal) 125.0 (Maximum)			0.8500 (Minimum) 1.000 (Nominal) 1.200 (Maximum)			-15.00 (Minimum) 0 (Nominal) 15.00 (Maximum)	
Phase	ID Elect Quad Offset 20 kHz MM/M	Value	Phase	ID Elect Quad Gain 20 kHz	Value	Phase	IM Elect Phase 20 kHz DEG	Value
Before		9.659	Before		0.9858	Before		4.791
	-125.0 (Minimum) 0 (Nominal) 125.0 (Maximum)			0.8500 (Minimum) 1.000 (Nominal) 1.200 (Maximum)			-15.00 (Minimum) 0 (Nominal) 15.00 (Maximum)	
Phase	IM Elect Real Offset 20 kHz MM/M	Value	Phase	IM Elect Real Gain 20 kHz	Value			
Before		34.35	Before		0.9917			
	-225.0 (Minimum) 0 (Nominal) 225.0 (Maximum)			0.8500 (Minimum) 1.000 (Nominal) 1.200 (Maximum)				
Phase	IM Elect Quad Offset 20 kHz MM/M	Value	Phase	IM Elect Quad Gain 20 kHz	Value			
Before		18.19	Before		0.9711			
	-225.0 (Minimum) 0 (Nominal) 225.0 (Maximum)			0.8500 (Minimum) 1.000 (Nominal) 1.200 (Maximum)				

Before: 24-Nov-2009 13:25

Dual Induction – E Wellsite Calibration

Induction Electronics (40 kHz)

Phase	ID Elect Real Offset 40 kHz MM/M	Value	Phase	ID Elect Real Gain 40 kHz	Value	Phase	ID Elect Phase 40 kHz DEG	Value
Before		8.040	Before		0.9520	Before		15.63
	-85.00 (Minimum) 0 (Nominal) 85.00 (Maximum)			0.8500 (Minimum) 1.000 (Nominal) 1.200 (Maximum)			-20.00 (Minimum) 0 (Nominal) 20.00 (Maximum)	
Phase	ID Elect Quad Offset 40 kHz MM/M	Value	Phase	ID Elect Quad Gain 40 kHz	Value	Phase	IM Elect Phase 40 kHz DEG	Value
Before		6.450	Before		0.9803	Before		15.42
	-85.00 (Minimum) 0 (Nominal) 85.00 (Maximum)			0.8500 (Minimum) 1.000 (Nominal) 1.200 (Maximum)			-20.00 (Minimum) 0 (Nominal) 20.00 (Maximum)	
Phase	IM Elect Real Offset 40 kHz MM/M	Value	Phase	IM Elect Real Gain 40 kHz	Value			
Before		22.15	Before		0.9943			
	-130.0 (Minimum) 0 (Nominal) 130.0 (Maximum)			0.8500 (Minimum) 1.000 (Nominal) 1.200 (Maximum)				
Phase	IM Elect Quad Offset 40 kHz MM/M	Value	Phase	IM Elect Quad Gain 40 kHz	Value			
Before		11.81	Before		0.9732			
	-130.0 (Minimum) 0 (Nominal) 130.0 (Maximum)			0.8500 (Minimum) 1.000 (Nominal) 1.200 (Maximum)				

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Dual Induction – E Wellsite Calibration

SFL Electronics

Phase	SFL Voltage Offset MV	Value	Phase	SFL Voltage Gain	Value
Before		0.1613	Before		0.9984
	-15.00 (Minimum) 0 (Nominal) 15.00 (Maximum)			0.8500 (Minimum) 1.000 (Nominal) 1.200 (Maximum)	

Phase	SFL Current Offset MA	Value	Phase	SFL Current Gain	Value	
Before		0.03676	Before		1.010	
	-0.6000 (Minimum)	0 (Nominal)	0.6000 (Maximum)	0.8500 (Minimum)	1.000 (Nominal)	1.200 (Maximum)

Before: 24-Nov-2009 13:26

General Purpose Incliner / Equipment Identification

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

Accelerator-Porosity Tool / Equipment Identification

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

Accelerator-Porosity Tool Wellsite Calibration

Detector Background

Phase	Near Det Bkg Cntrate CPS	Value	Phase	Far Det Bkg Cntrate CPS	Value	Phase	Array-1 Det Bkg Cntrate CPS	Value	
Master		31.30	Master		33.28	Master		29.03	
Before		31.42	Before		33.68	Before		29.63	
	1.000 (Minimum)	30.00 (Nominal)	50.00 (Maximum)	1.000 (Minimum)	30.00 (Nominal)	50.00 (Maximum)	1.000 (Minimum)	30.00 (Nominal)	50.00 (Maximum)
Phase	Array-2 Det Bkg Cntrate CPS	Value	Phase	Array Therm Det Bkg Cntrate CPS	Value				
Master		29.71	Master		33.23				
Before		29.96	Before		34.30				
	1.000 (Minimum)	30.00 (Nominal)	50.00 (Maximum)	1.000 (Minimum)	30.00 (Nominal)	50.00 (Maximum)			

Master: 5-Nov-2009 1:02

Before: 28-Nov-2009 4:42

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		0.8901	Master		1.060	Master		1.007	
	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: 5-Nov-2009 1:02

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		11.51	Master		11.21	Master		5.881	
	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		0.9799	Master		0.9831	Master		27.90	
	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: 5-Nov-2009 1:02

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	

Hostile Litho-Density Sonde Wellsite Calibration										
Background Measurement										
Phase	SS Cs Resolution Bkg %	Value	Phase	LS Cs Resolution Bkg %	Value	Phase	LSW1 Background CPS	Value		
Master		7.756	Master		8.165	Master		92.48		
Before		7.779	Before		8.005	Before		92.05		
	7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum)			7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum)			55.00 (Minimum) 100.0 (Nominal) 150.0 (Maximum)			
Phase	LSW2 Background CPS	Value	Phase	LSW3 Background CPS	Value	Phase	LSW4 Background CPS	Value		
Master		84.63	Master		191.1	Master		233.7		
Before		83.64	Before		189.4	Before		234.1		
	50.00 (Minimum) 100.0 (Nominal) 140.0 (Maximum)			110.0 (Minimum) 200.0 (Nominal) 290.0 (Maximum)			140.0 (Minimum) 250.0 (Nominal) 360.0 (Maximum)			
Phase	LSW5 Background CPS	Value	Phase	SSW1 Background CPS	Value	Phase	SSW2 Background CPS	Value		
Master		544.1	Master		90.17	Master		152.5		
Before		542.2	Before		88.00	Before		153.8		
	330.0 (Minimum) 600.0 (Nominal) 830.0 (Maximum)			55.00 (Minimum) 100.0 (Nominal) 150.0 (Maximum)			100.0 (Minimum) 200.0 (Nominal) 260.0 (Maximum)			
Phase	SSW3 Background CPS	Value	Phase	SSW4 Background CPS	Value	Phase	SSW5 Background CPS	Value		
Master		429.0	Master		231.1	Master		164.3		
Before		430.6	Before		230.6	Before		164.6		
	280.0 (Minimum) 500.0 (Nominal) 700.0 (Maximum)			150.0 (Minimum) 270.0 (Nominal) 380.0 (Maximum)			110.0 (Minimum) 200.0 (Nominal) 270.0 (Maximum)			
Master: 4–Nov–2009 17:36					Before: 28–Nov–2009 4:42					

Litho-Density Spectroscopy Cartridge – B / Equipment Identification

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

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		HNSH – BA	205
Gamma Source Radioactive		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		39.48	Master		16.07	Master		1200			
Before		39.66	Before		14.94	Before		1153			
	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		142.5	Master		8.076	Master		36.12			
Before		142.2	Before		7.965	Before		18.31			
	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		34.81									
Before		33.95									
	10.00 (Minimum)	45.00 (Nominal)	100.0 (Maximum)								
Master: 31-Oct-2009 23:09				Before: 28-Nov-2009 4:42							

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		39.63	Master		15.54	Master		1123			
Before		39.53	Before		16.02	Before		1087			
	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		8.652	Master		36.37			
Before		142.8	Before		7.541	Before		18.97			
	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		35.36									
Before		34.12									
	10.00 (Minimum)	45.00 (Nominal)	100.0 (Maximum)								
Master: 31-Oct-2009 23:09				Before: 28-Nov-2009 4:42							

Hostile Natural Gamma Ray Sonde Wellsite Calibration			
Ratio Of Detector 1 To Detector 2			
Phase	Coincidence Count Rate Ratio	Value	
Master		0.9839	
Before		0.9971	
	0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)
Master: 31-Oct-2009 23:09			
Before: 28-Nov-2009 4:42			

DTS Telemetry Tool / Equipment Identification

Primary Equipment:

DTC-H Auxiliary Cartridge
DTC-H Telemetry Cartridge

DTCH - A
DTCH - A 8798

Auxiliary Equipment:

DTCH Telemetry Cartridge Housing

ECH - KC 2304

Company: **Lamont Doherty**

Schlumberger

Well: **Expedition 317 Site U1351C**

Field: **Canterbury Basin**

Rig: **JOIDES Resolution**

Ocean: **Pacific**

Natural Gamma Spectroscopy