

**Company:** Lamont Doherty  
**Well:** Expedition 323 Site U1341B  
**Field:** Bering Sea  
**Rig:** JOIDES Resolution **Country:** USA

## Natural Gamma Spectroscopy

<b>Rig:</b> JOIDES Resolution <b>Field:</b> Bering Sea <b>Location:</b> Latitude: N 54° 40.471' <b>Well:</b> Expedition 323 Site U1341B <b>Company:</b> Lamont Doherty	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2" style="text-align: center;">LOCATION</th> </tr> <tr> <td style="width: 50%;">Latitude: N 54° 40.471'</td> <td style="width: 50%;">Elev.: K.B. 11.00 m</td> </tr> <tr> <td>Longitude: W 169° 58.453'</td> <td>G.L. -2150.90 m</td> </tr> <tr> <td>Permanent Datum: _____</td> <td>D.F. 11.00 m</td> </tr> <tr> <td>Mean Sea Level _____</td> <td>Elev.: 0.00 m _____</td> </tr> <tr> <td>Log Measured From: _____</td> <td>11.00 m above Perm. Datum</td> </tr> <tr> <td>Drilling Measured From: _____</td> <td></td> </tr> </table>	LOCATION		Latitude: N 54° 40.471'	Elev.: K.B. 11.00 m	Longitude: W 169° 58.453'	G.L. -2150.90 m	Permanent Datum: _____	D.F. 11.00 m	Mean Sea Level _____	Elev.: 0.00 m _____	Log Measured From: _____	11.00 m above Perm. Datum	Drilling Measured From: _____	
LOCATION															
Latitude: N 54° 40.471'	Elev.: K.B. 11.00 m														
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Permanent Datum: _____	D.F. 11.00 m														
Mean Sea Level _____	Elev.: 0.00 m _____														
Log Measured From: _____	11.00 m above Perm. Datum														
Drilling Measured From: _____															
<b>Logging Date</b> 31-Jul-2009 <b>Run Number</b> 1 <b>Depth Driller</b> 2750.9 m <b>Schlumberger Depth</b> 2750.9 m <b>Bottom Log Interval</b> 2730 m <b>Top Log Interval</b> 2150 m <b>Casing Driller Size @ Depth</b> 4.500 in @ 2228 m <b>Casing Schlumberger</b> 2228 m <b>Bit Size</b> 11.438 in <b>Type Fluid In Hole</b> Seawater Gel	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"><b>Ocean:</b> Pacific</td> <td style="width: 50%;"><b>Max. Well Deviation</b> 0 deg</td> </tr> <tr> <td style="width: 50%;"><b>Longitude</b></td> <td style="width: 50%;"><b>Latitude</b></td> </tr> </table>	<b>Ocean:</b> Pacific	<b>Max. Well Deviation</b> 0 deg	<b>Longitude</b>	<b>Latitude</b>										
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<b>Longitude</b>	<b>Latitude</b>														

<b>Logging Date</b>	
<b>Run Number</b>	1
<b>Depth Driller</b>	2750.9 m
<b>Schlumberger Depth</b>	2750.9 m
<b>Bottom Log Interval</b>	2730 m
<b>Top Log Interval</b>	2150 m
<b>Casing Driller Size @ Depth</b>	4.500 in @ 2228 m
<b>Casing Schlumberger</b>	2228 m
<b>Bit Size</b>	11.438 in
<b>Type Fluid In Hole</b>	Seawater Gel
<b>Density</b>	1.258 g/cm3
<b>Fluid Loss</b>	
<b>Source Of Sample</b>	N/A
<b>RM @ Measured Temperature</b>	@ @
<b>RMF @ Measured Temperature</b>	@ @
<b>RMC @ Measured Temperature</b>	@ @
<b>Source RMF</b>	RMC
<b>RM @ MRT</b>	RMF @ MRT
<b>Maximum Recorded Temperatures</b>	15 degC @ 15 @ 15 @
<b>Circulation Stopped</b>	20-Jul-2009 11:00
<b>Logger On Bottom</b>	1-Aug-2009 1:00
<b>Unit Number</b>	625003 Houston
<b>Recorded By</b>	C. Furman
<b>Witnessed By</b>	T. Liu, G. Guerin

<b>Logging Date</b>			
<b>Run Number</b>		Run 1	Run 2
<b>Depth Driller</b>			
<b>Schlumberger Depth</b>			
<b>Bottom Log Interval</b>			
<b>Top Log Interval</b>			
<b>Casing Driller Size @ Depth</b>		@	
<b>Casing Schlumberger</b>			
<b>Bit Size</b>			
<b>Type Fluid In Hole</b>			
<b>Density</b>			
<b>Fluid Loss</b>			
<b>Source Of Sample</b>			
<b>RM @ Measured Temperature</b>		@	@
<b>RMF @ Measured Temperature</b>		@	@
<b>RMC @ Measured Temperature</b>		@	@
<b>Source RMF</b>		RMC	
<b>RM @ MRT</b>		RMF @ MRT	
<b>Maximum Recorded Temperatures</b>		15 degC @ 15 @ 15 @	
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**DISCLAIMER**

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**OTHER SERVICES1**

- OS1: FMS
- OS2: DSI
- OS3: DIT
- OS4: APS/HLDS

**REMARKS: RUN NUMBER 1**

Logs run in second hole ("B" hole) of drilling site U1341 to aid in correlation of core data collected in surface labs.

Average heave during the run was less than 0.2m; Active Heave Compensator used.

TD was found to be 2750mBRF with the pipe (bit) at 2228mBRF. Sea Bed found at 2150mBRF.

Hole Size input taken from HLDS Caliper.

Tools run slick in order to fit through drill pipe, as is standard practice on this project.

HLDS Caliper closed at approximately 2253m to facility entry into drill pipe.


APS minitron deactivated at approximately 2250m.

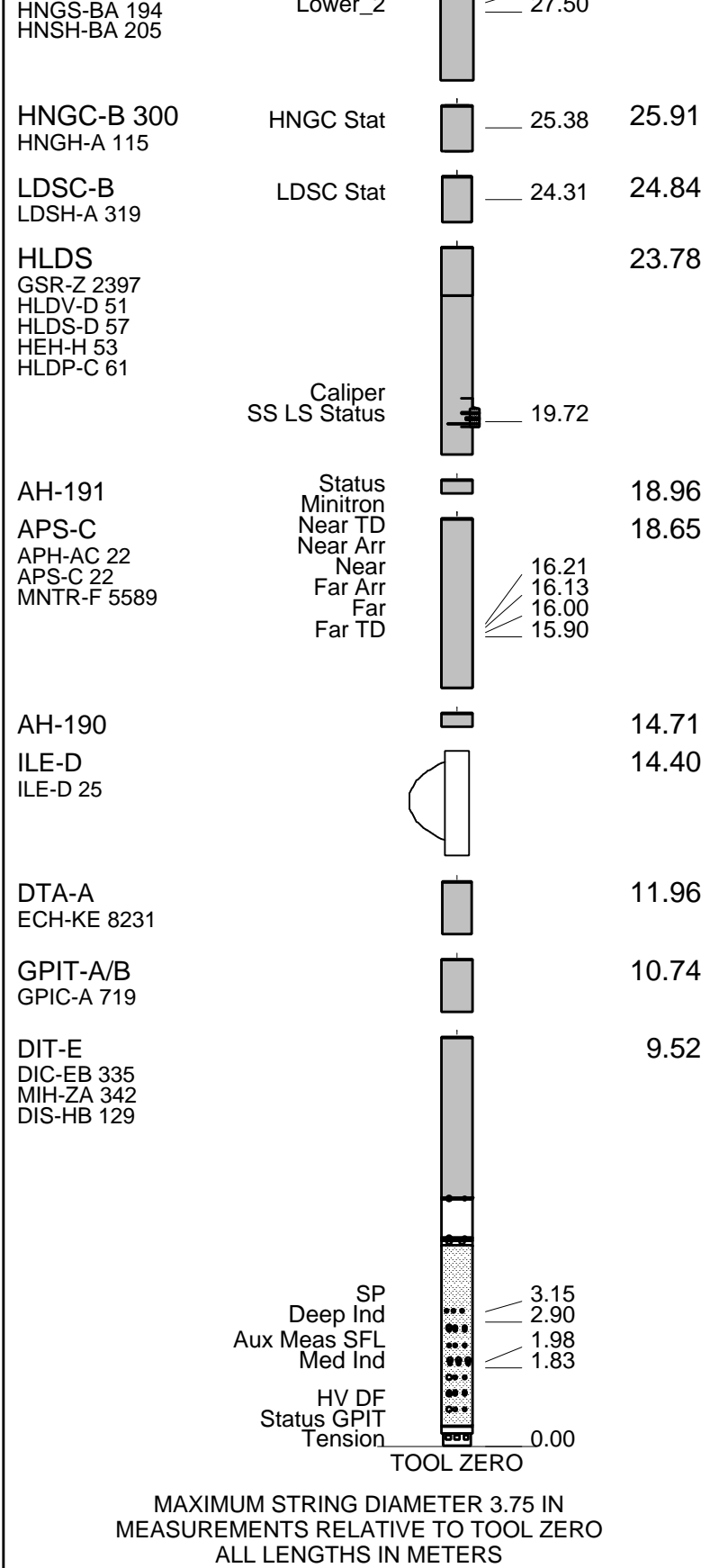
HNGS recorded from TD to sea floor at client request.

Repeat pass recorded from TD to 2675m at client request.

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

**EQUIPMENT DESCRIPTION**

RUN 1		RUN 2	
<b>SURFACE EQUIPMENT</b>			
SFT-281 2 SFT-178 2 GSR-U 616008 WITM (DTS)-A			
<b>DOWNHOLE EQUIPMENT</b>			
LEH-QT		30.21	
LEH-QT 301			
DTC-H	CTEM	29.04	
ECH-KC 2304	TelStatus	29.32	
	ToolStatu	28.41	
HNGS-BA 194	Upper_1	27.71	28.41
		27.70	



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

Kelly Bushing Elevation

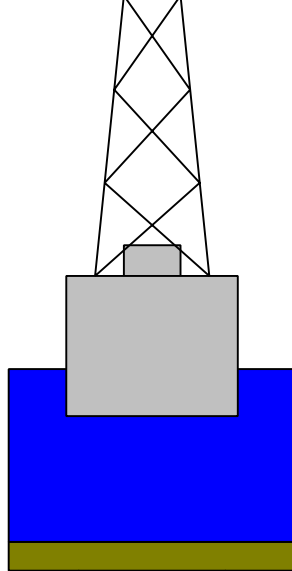
Derrick Floor Elevation

Mean Sea Level

0.0

0.0

0.0



0.0

5.875

3.800

Top of Drill Pipe

2150.9

11.438

Sea Floor

2229.0

5.875

3.800

Drill Bit / BHA w/ LFV

2750.9

11.438

Total Depth - Driller



**Schlumberger**

Main Pass  
TD to Sea Bed

MAXIS Field Log

Input DLIS Files

DEFAULT	PI_APS_LDL_NGS_019LUP	FN:17	PRODUCER	01-Aug-2009 01:02	2752.3 M	2117.1 M
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Output DLIS Files

DEFAULT	PI_APS_LDL_NGS_038PUP	FN:39	PRODUCER	01-Aug-2009 16:26	2755.4 M	2119.9 M
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OP System Version: 17C0-154

DIT-E	17C0-154	GPIT-A/B	SRPC-3762-Q1_2009_OP17
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		

Time Mark Every 60 S

HNGS Spectroscopy Gamma Ray (HSGR)  
(GAPI) 0 50

Area1  
From HCGR to HSGR

HNGS Borehole Potassium (HBHK)  
-0.05 0.05

HNGS Computed Gamma Ray (HCGR)  
(GAPI) 0 50

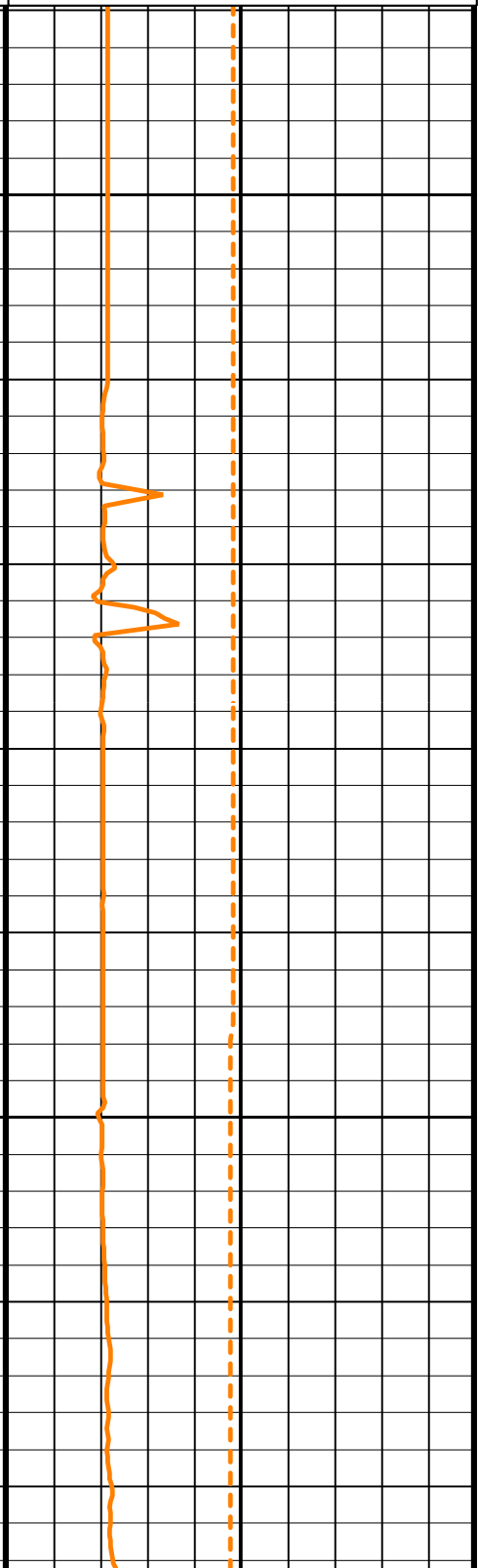
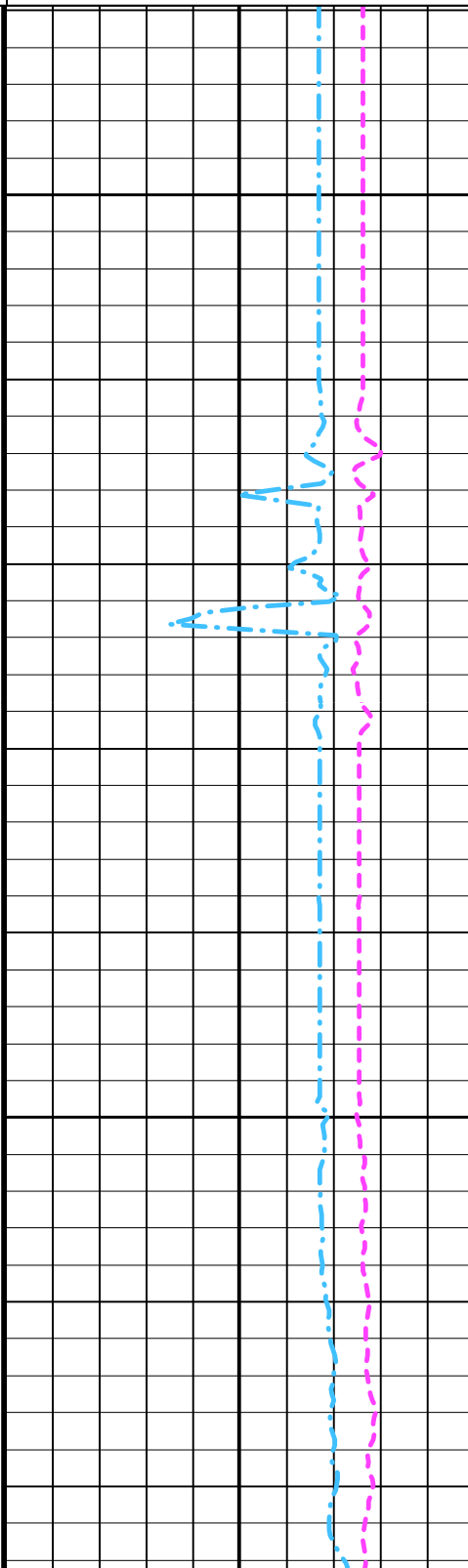
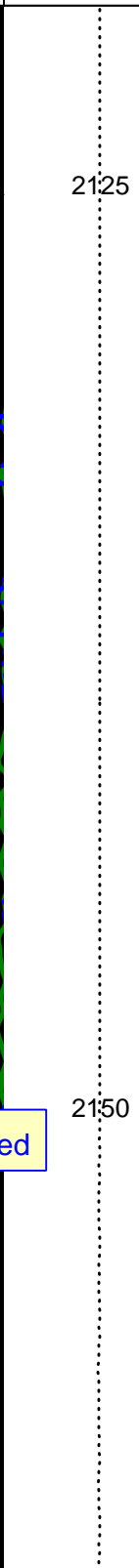
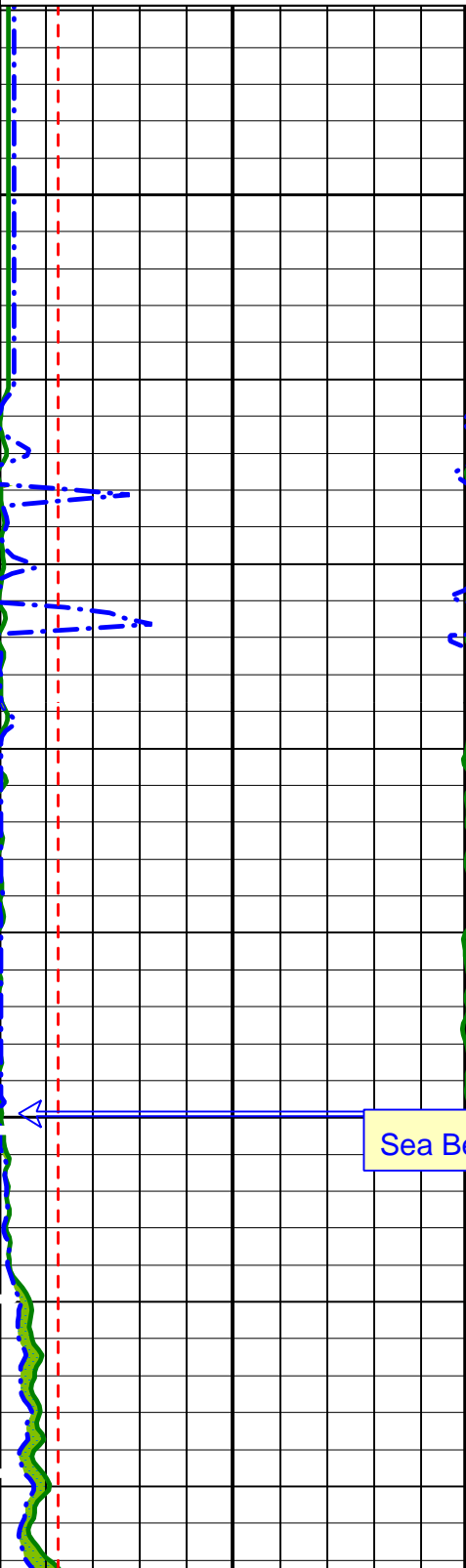
HNGS Uranium (HURA)  
(PPM) -5 10

HLDS Caliper (LCAL)  
(IN) 0 20

Tension (TENS)  
(LBF) 10000 0

HNGS Thorium (HTHO)  
(PPM) 5 25

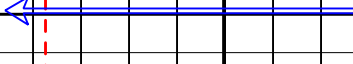
HNGS Potassium (HFK)  
-0.01 0.04

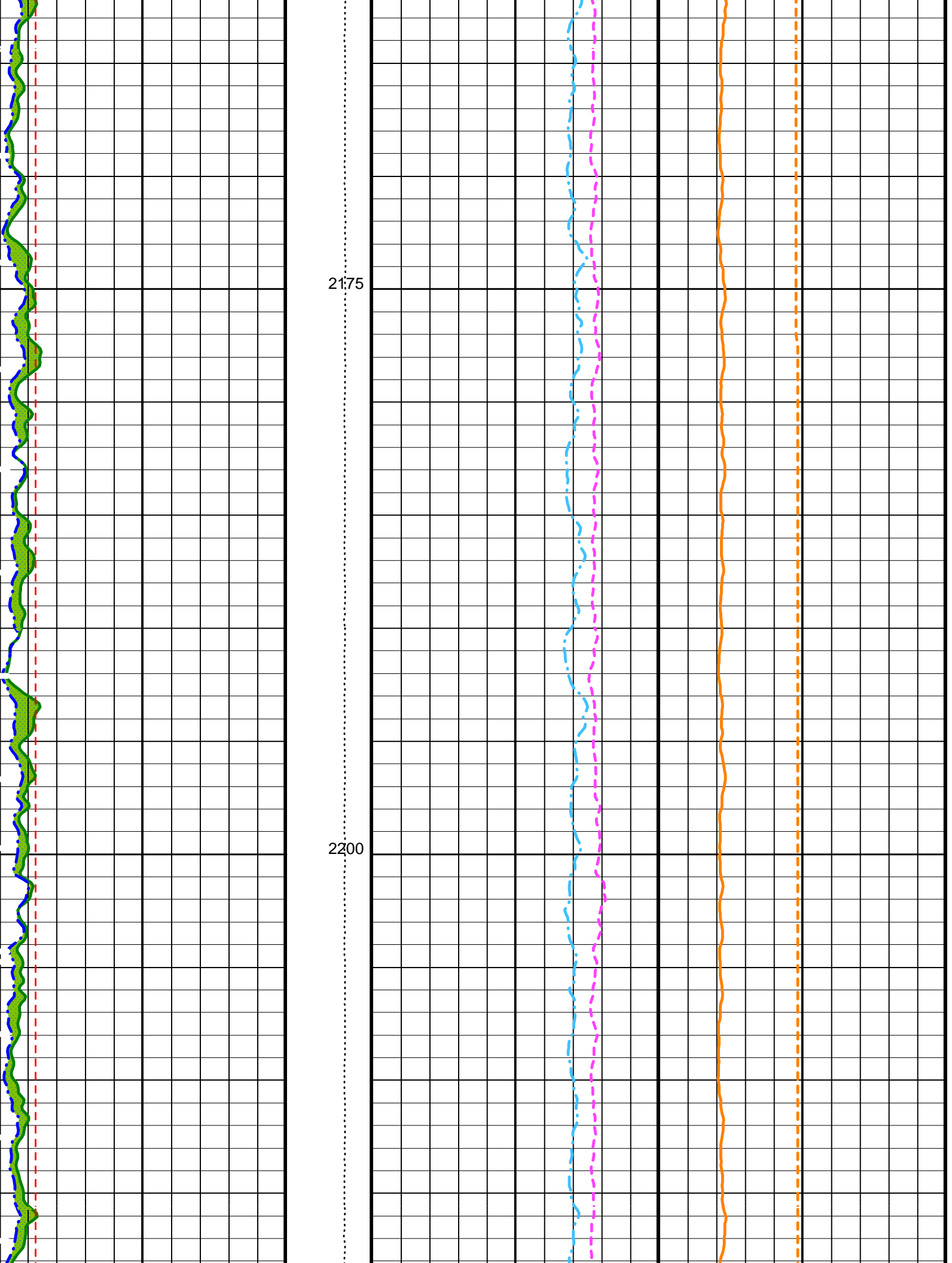


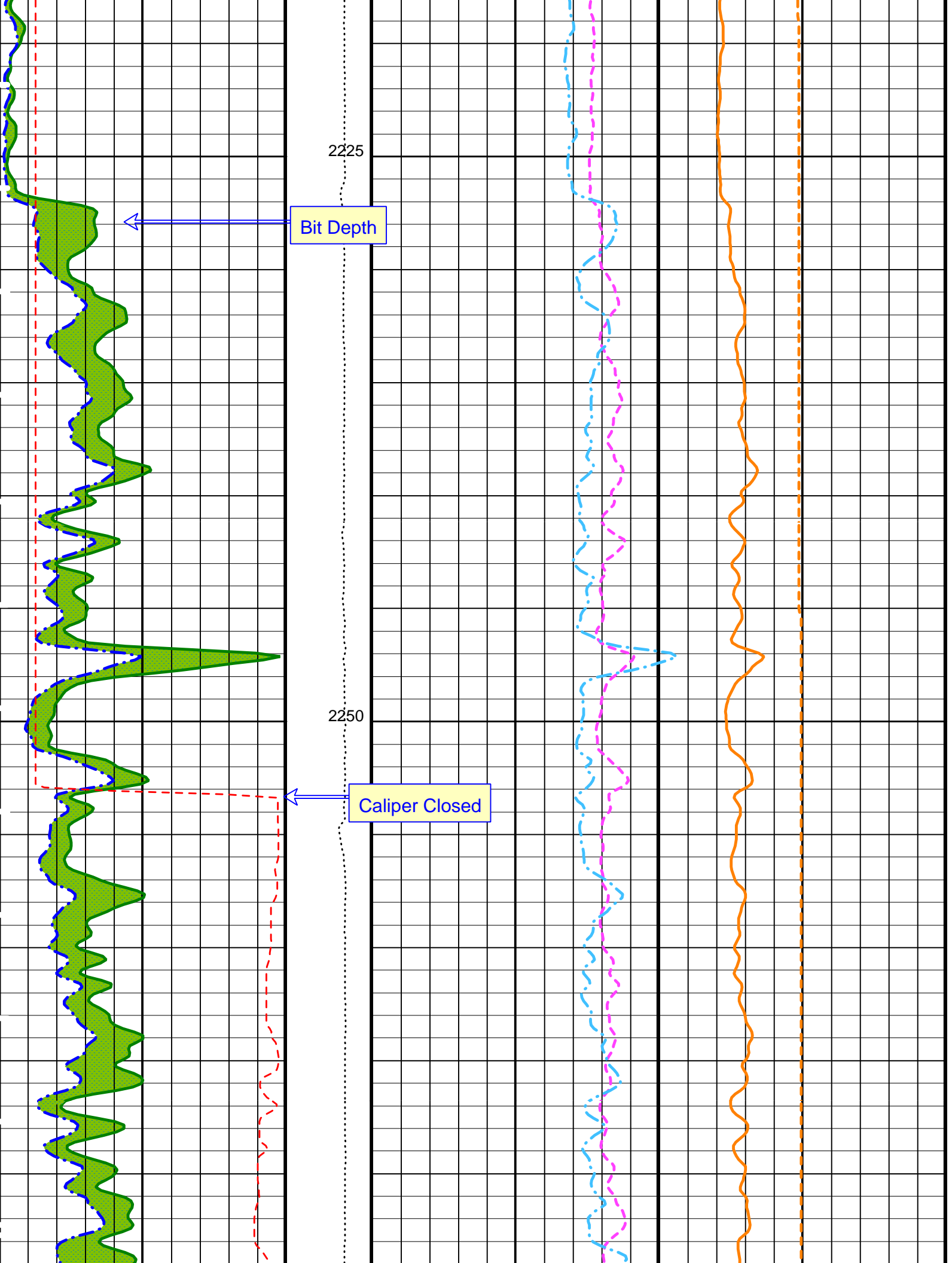
2125

2150

Sea Bed







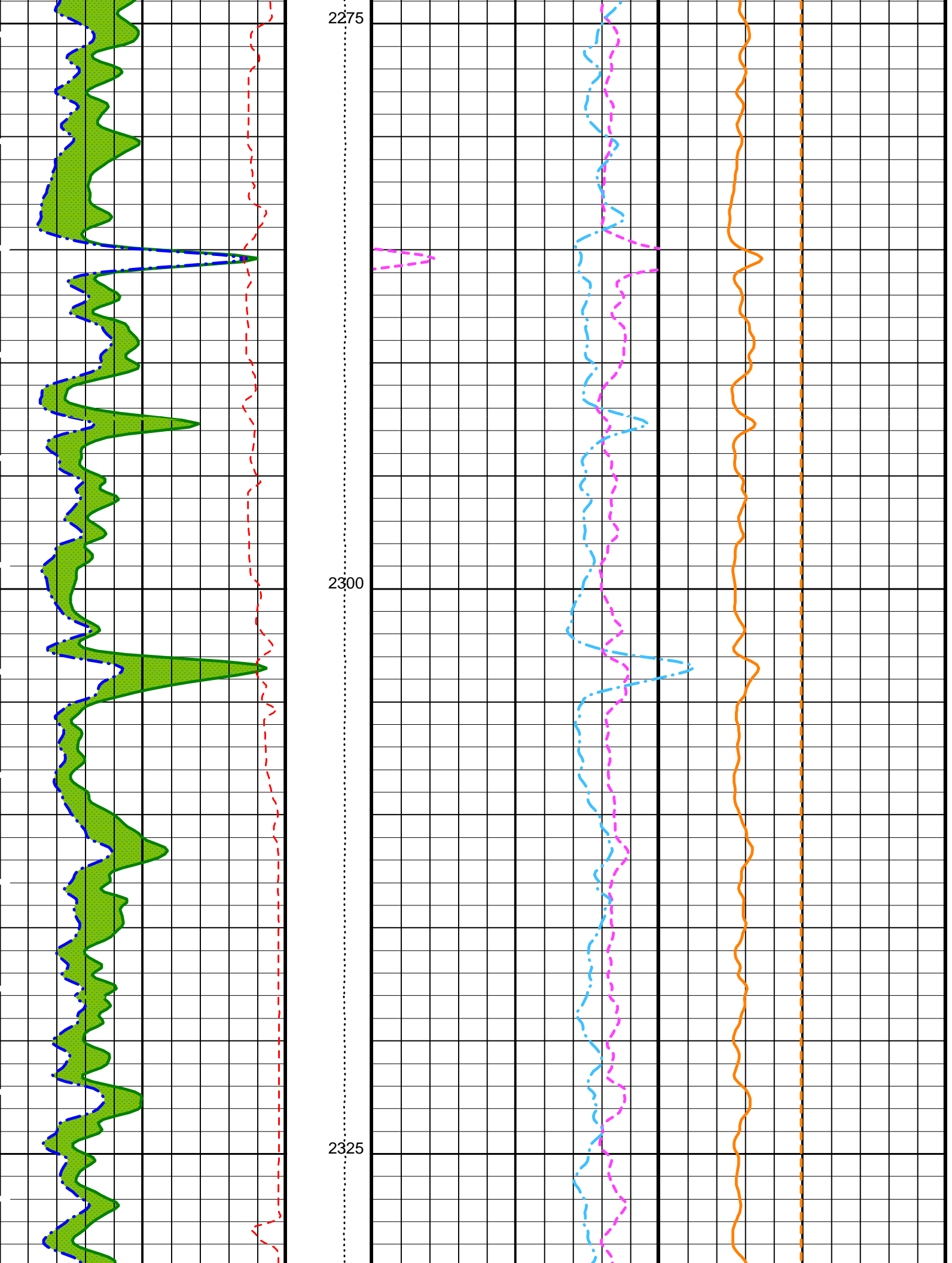
2225

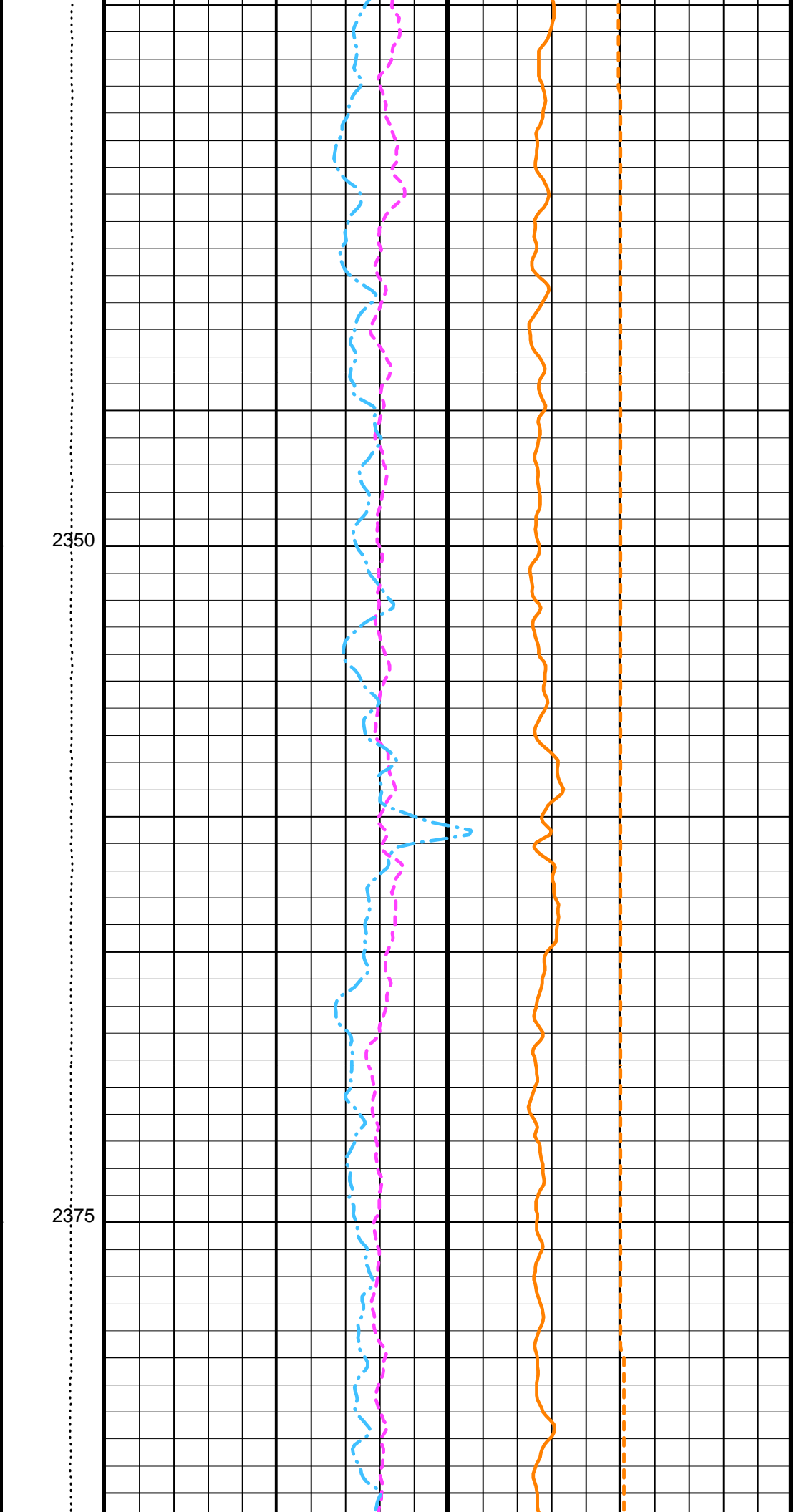
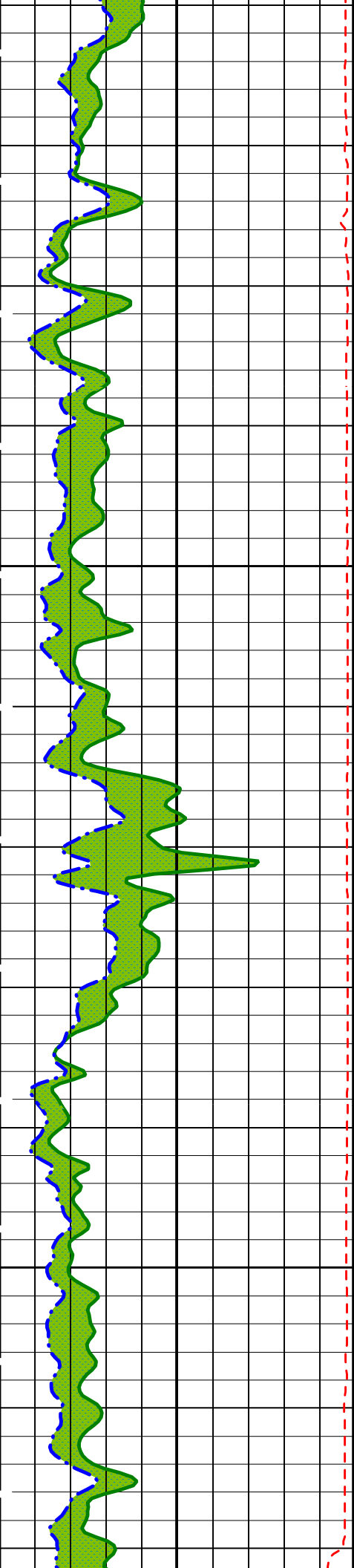
Bit Depth

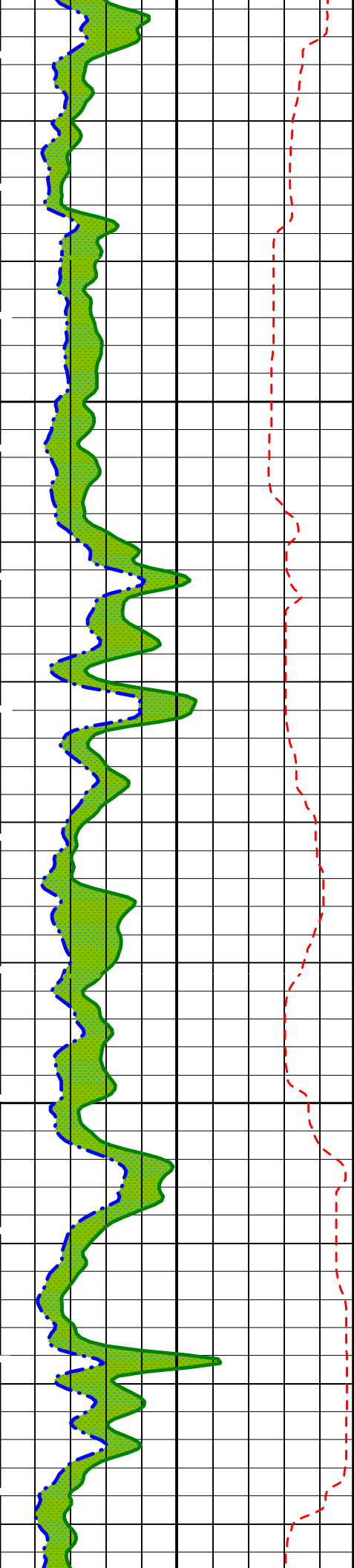
2250

Caliper Closed



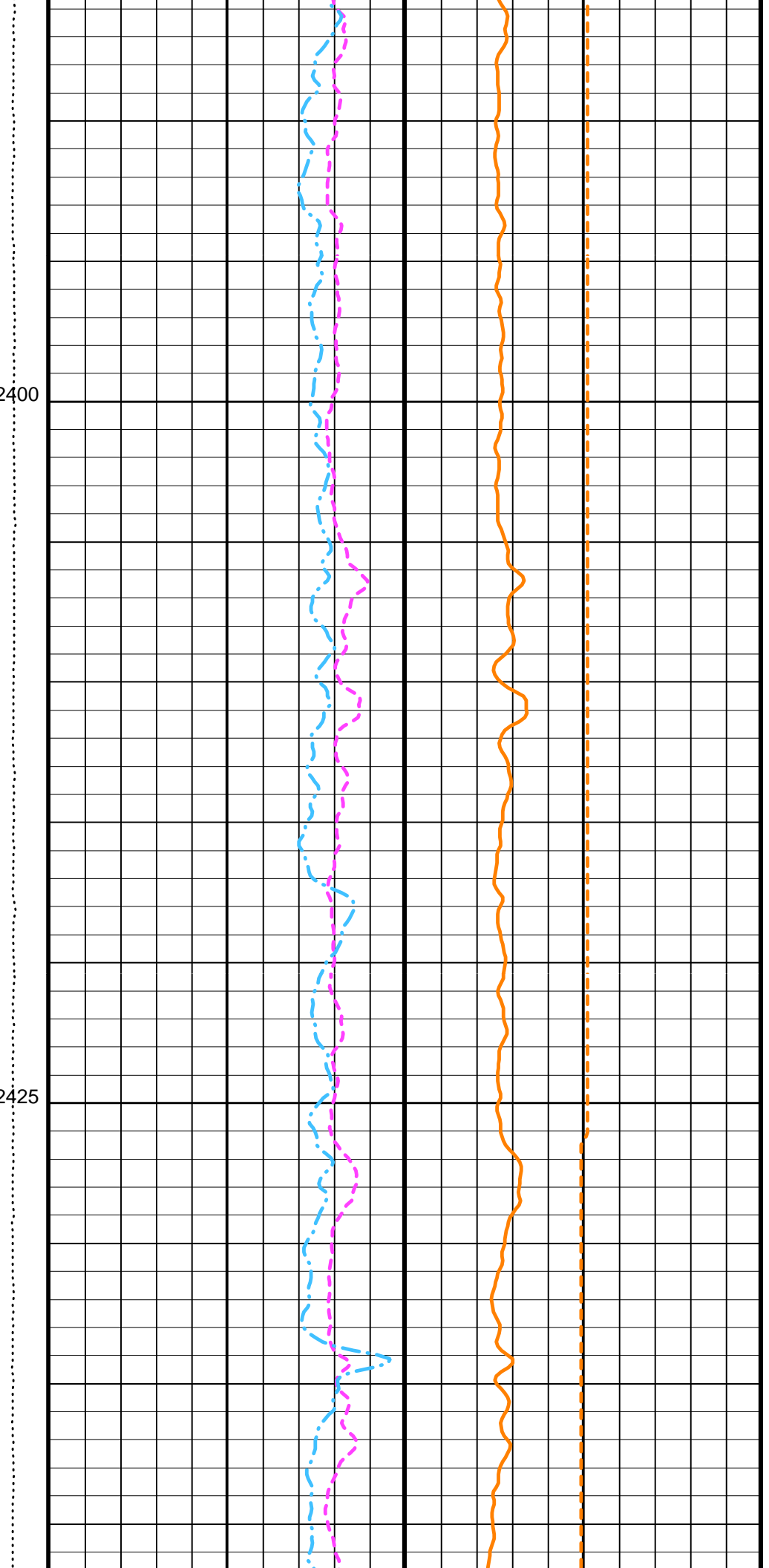


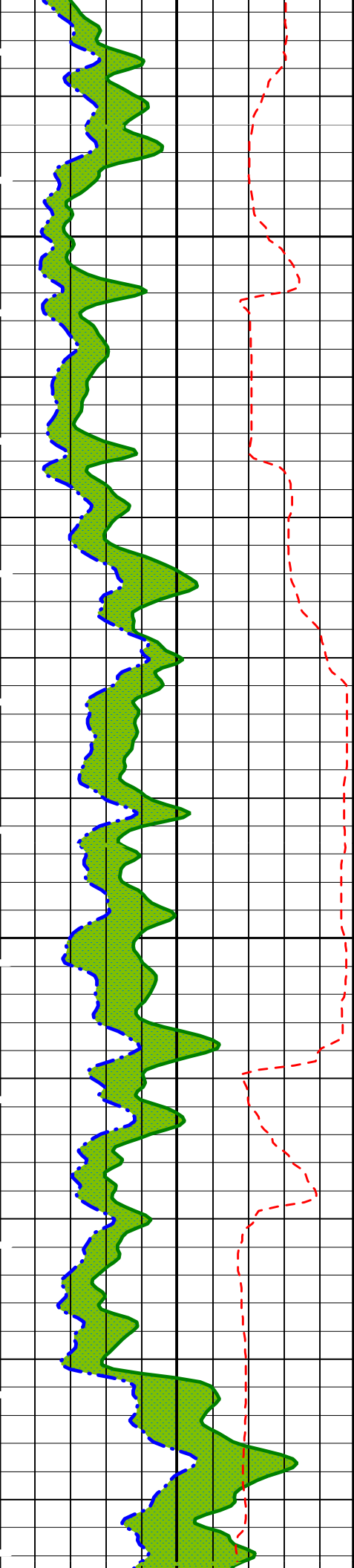




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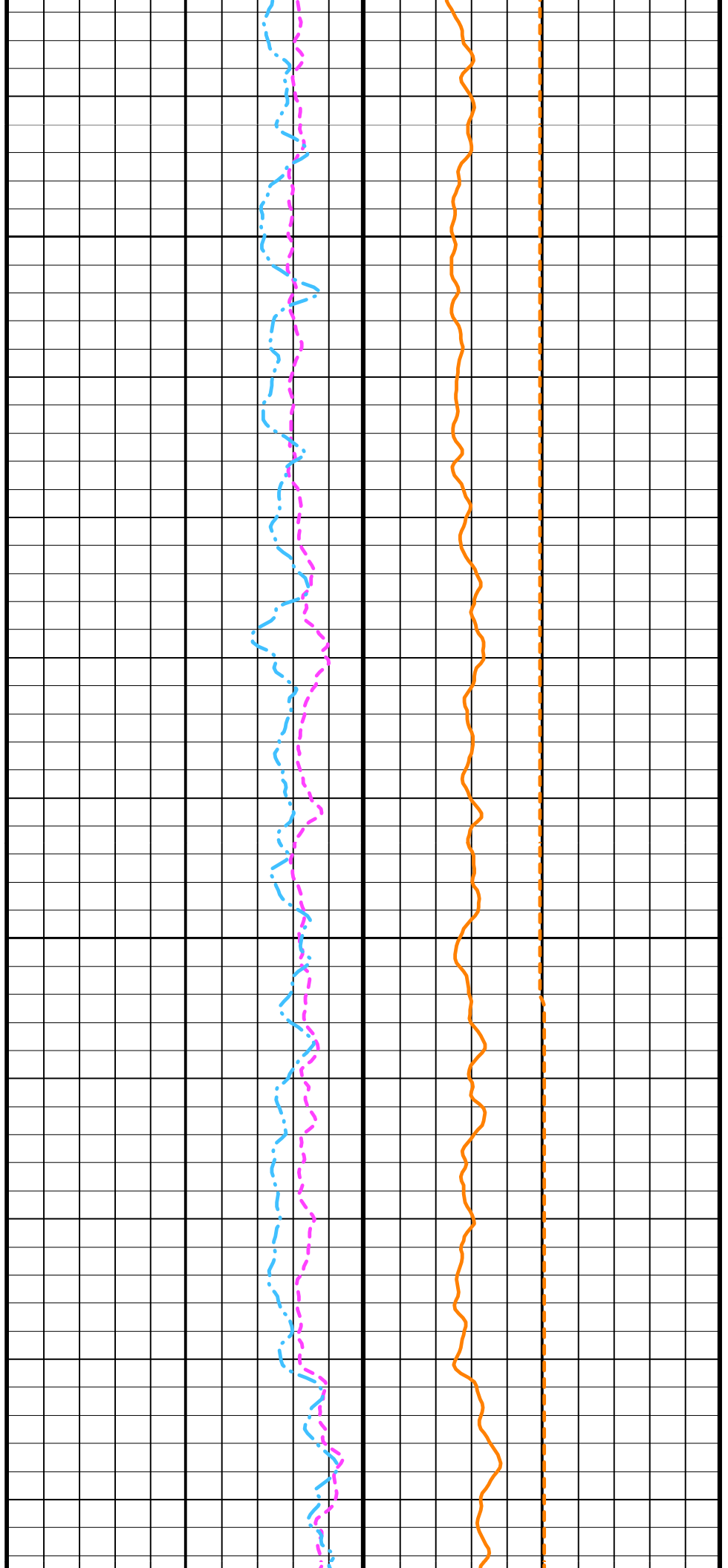
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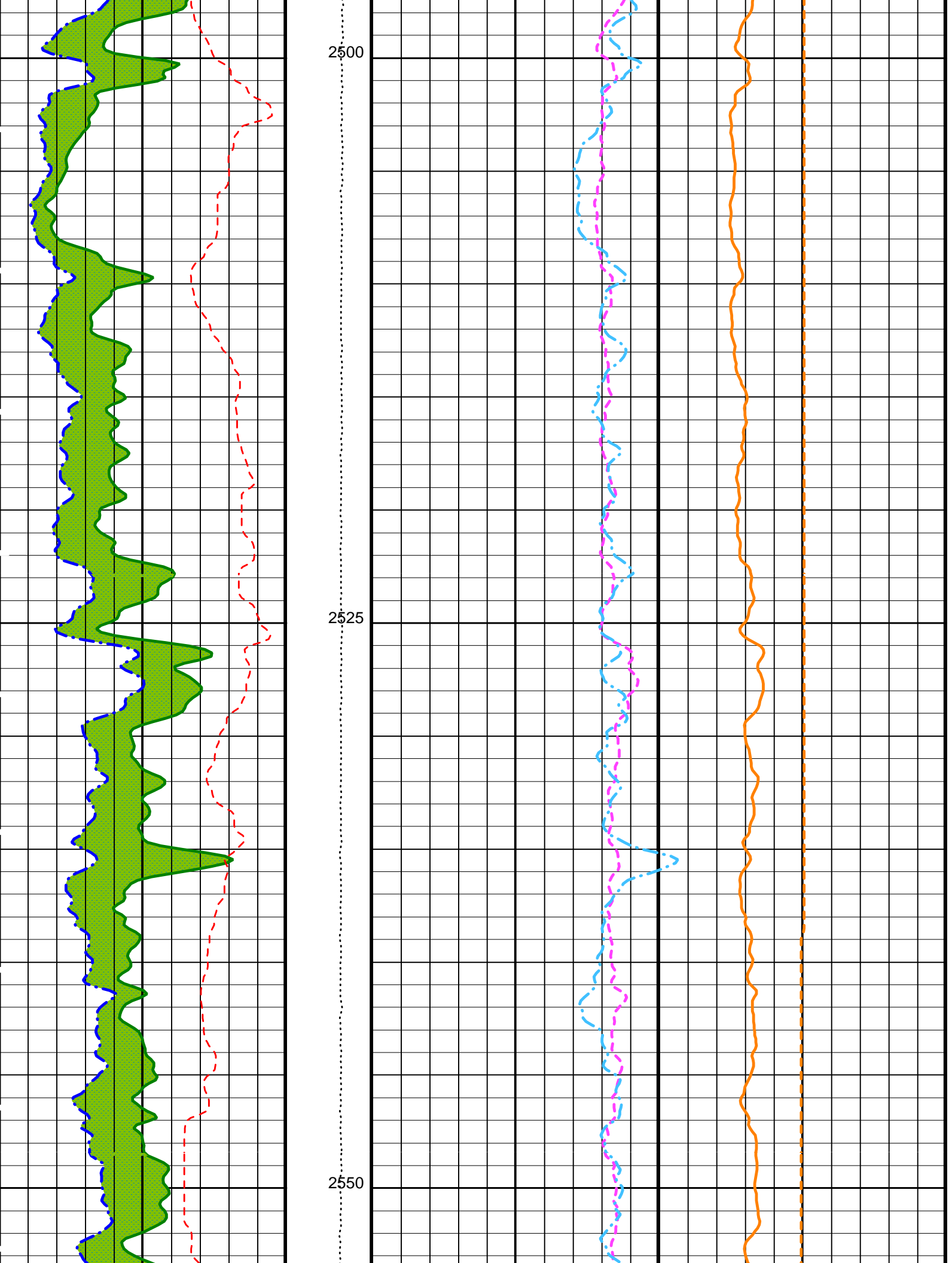


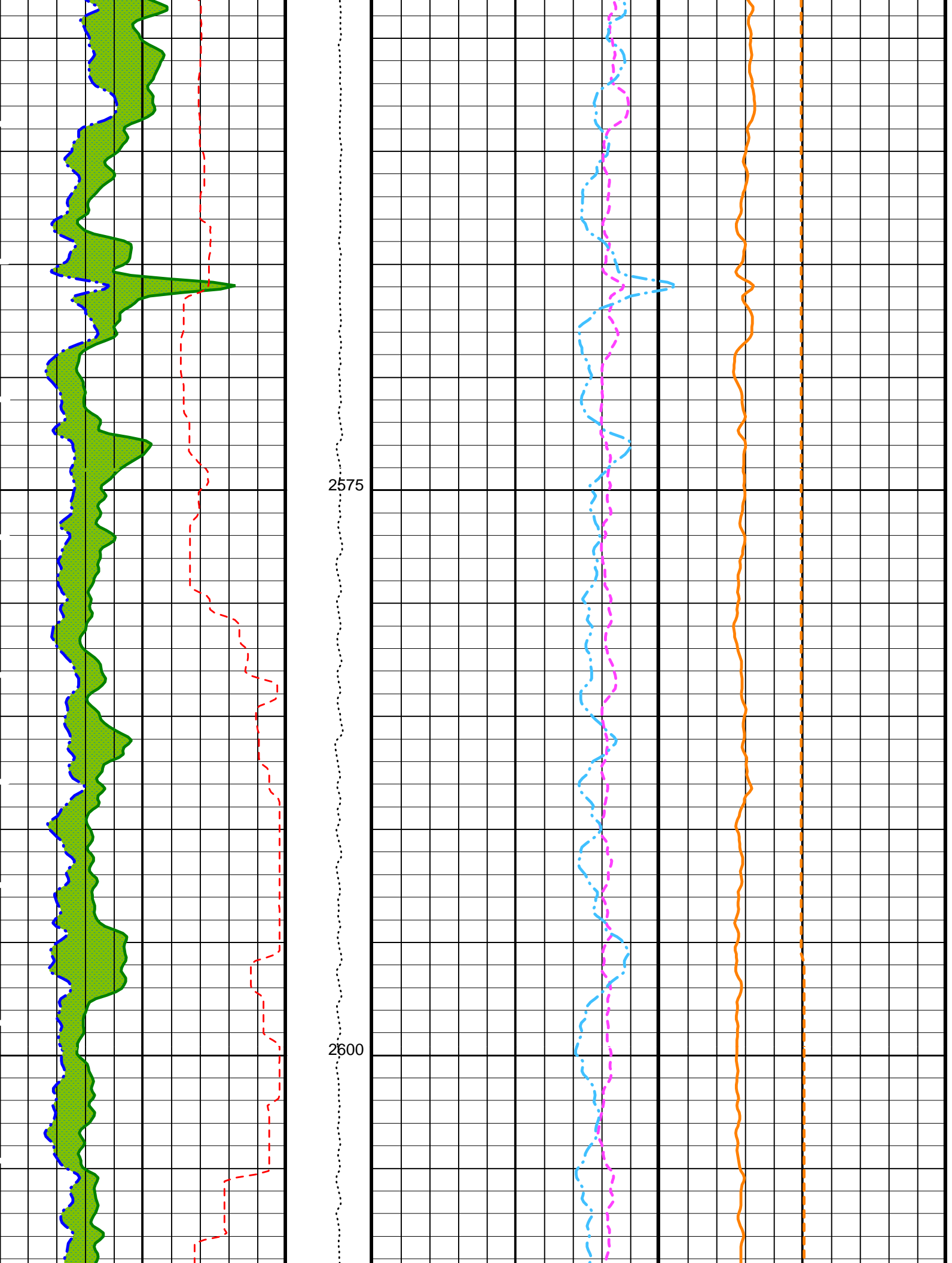


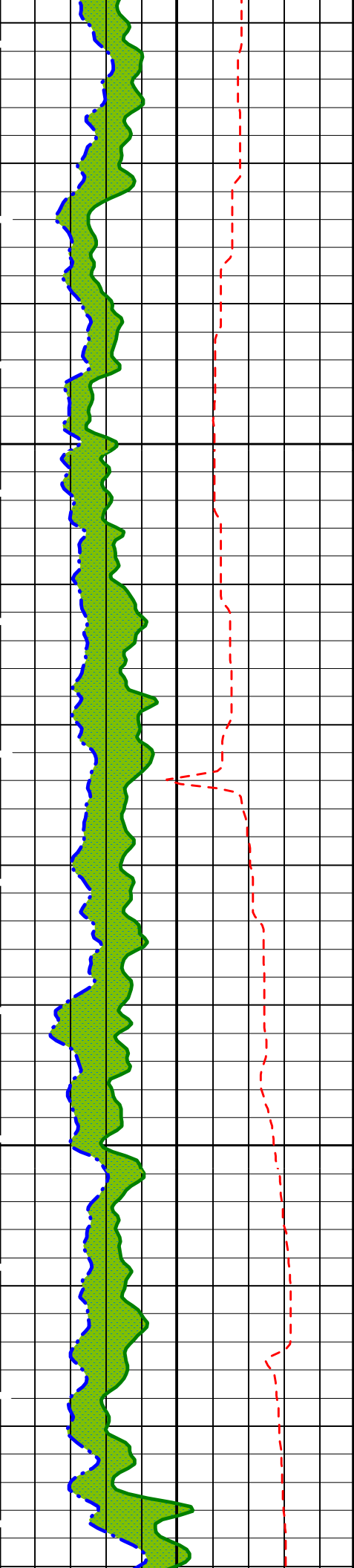
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2475



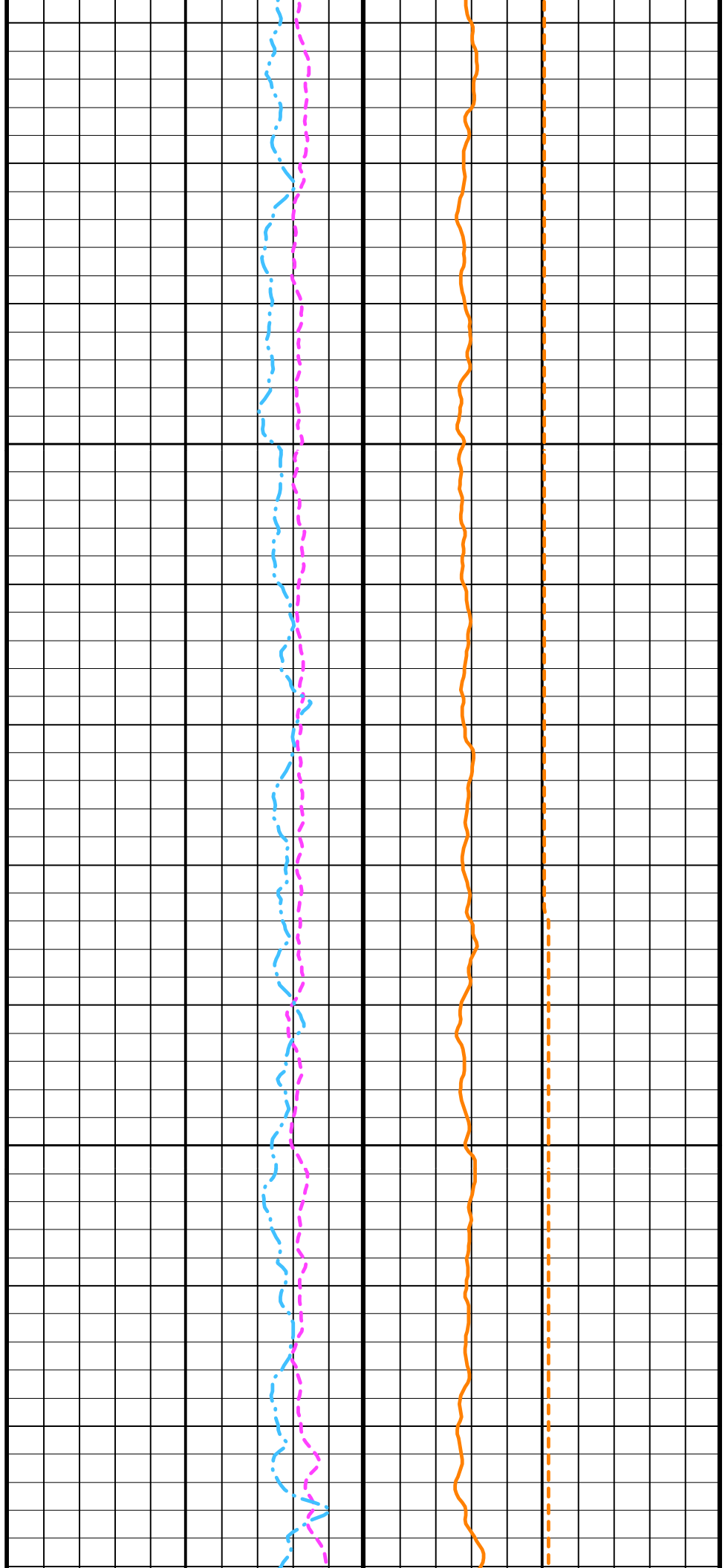


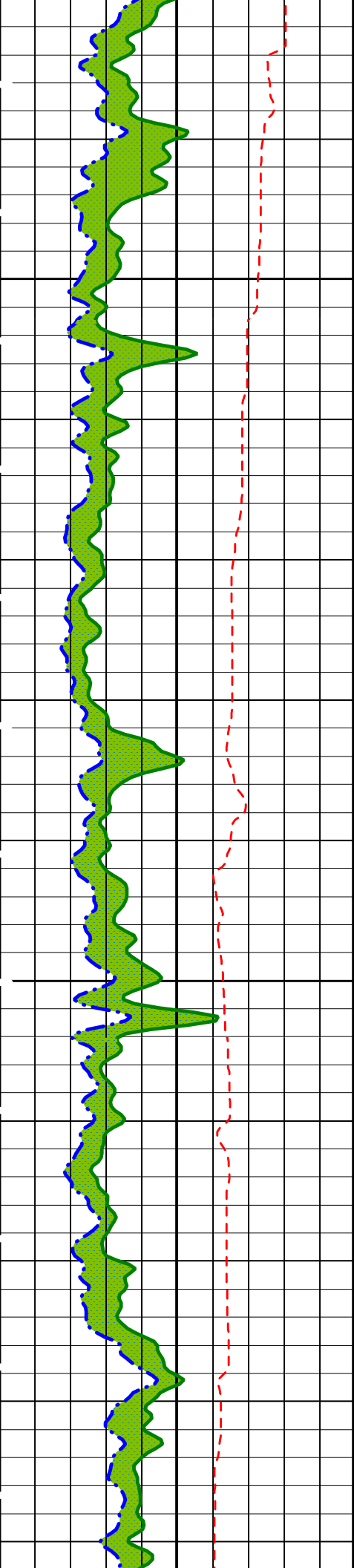




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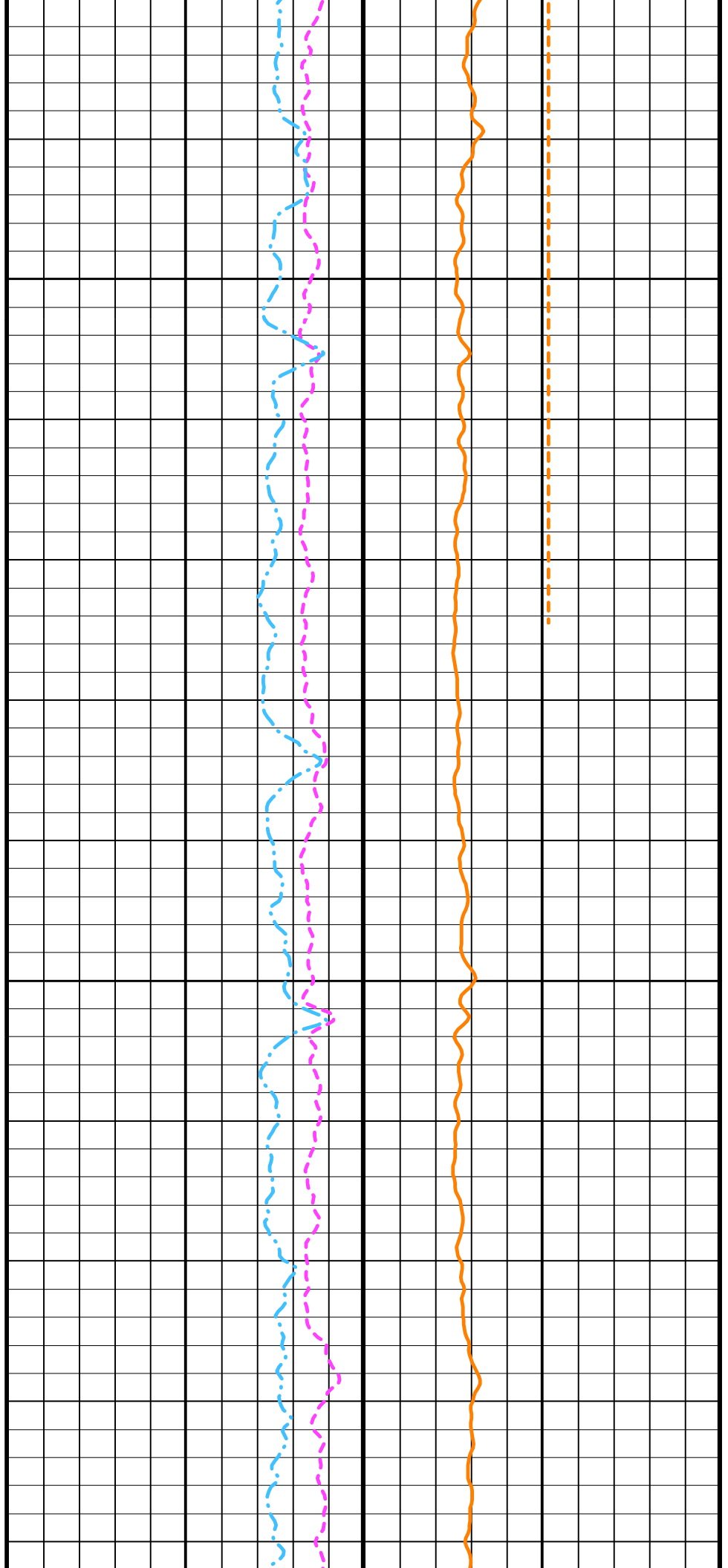
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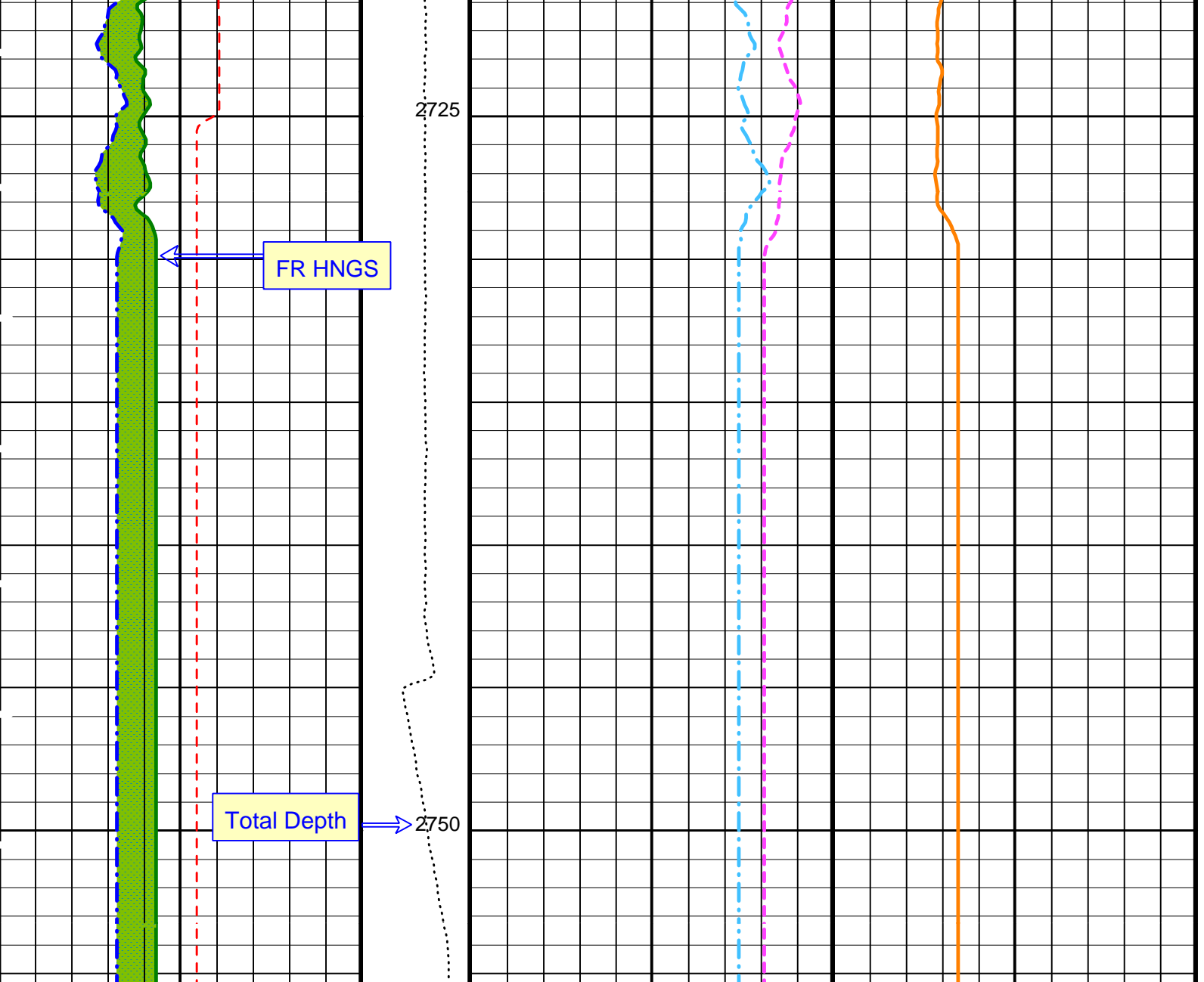


2675

2700







0	20	10000	0	25	-0.01	(----	0.04
HLDS Caliper (LCAL) (IN)		Tension (TENS) (LBF)	HNGS Thorium (HTHO) (PPM)		HNGS Potassium (HFK)		
0	50		-5	10			
HNGS Computed Gamma Ray (HCGR) (GAPI)			HNGS Uranium (HURA) (PPM)				
Area1 From HCGR to HSGR					HNGS Borehole Potassium (HBHK) -0.05 (----) 0.05		
0	50						
HNGS Spectroscopy Gamma Ray (HSGR) (GAPI)							

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	4.67817	DEG
MRTE	Magneto Reference Temperature	23	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

APS Software Version			
AASD	APS Thermal and Array Detectors High Voltage Setting	1965.7	V
ADSO	APS Array Detectors Data Source Switch	Both	
AFSD	APS Far Detector High Voltage Setting	2077.27	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	1732.81	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)	60	DEGF
BSCO_APS	APS TNPH Borehole Salinity Correction Option	YES	
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	0.01	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	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	

MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MCCO_APS	APS TNPH Mud Cake Correction Option	YES	
MCOR_APS	APS TNPH Mud Correction	NATU	
MWCO_APS	APS TNPH Mud Weight Correction Option	YES	
NARC	APS Near/Array Calibration Ratio	1.05904	
NFRC	APS Near/Far Calibration Ratio	0.885245	
PTCO_APS	APS TNPH Pressure/Temperature Correction Option	YES	
SHT	Surface Hole Temperature	68	DEGF
TNCO_APS	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	
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	-0.000908279	
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	1.01864	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.993606	
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			
ALTDPCHAN	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	2.7	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

## OP System Version: 17C0-154

DIT-E	17C0-154	GPIT-A/B	SRPC-3762-Q1_2009_OP17
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_019LUP	FN:17	PRODUCER	01-Aug-2009 01:02	2752.3 M	2117.1 M
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### Output DLIS Files

DEFAULT	PI_APS_LDL_NGS_038PUP	FN:39	PRODUCER	01-Aug-2009 16:26		
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Repeat Pass  
OH Only

### MAXIS Field Log

### Input DLIS Files

DEFAULT	PI_APS_LDL_NGS_017LUP	FN:15	PRODUCER	01-Aug-2009 00:34	2752.3 M	2645.4 M
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### Output DLIS Files

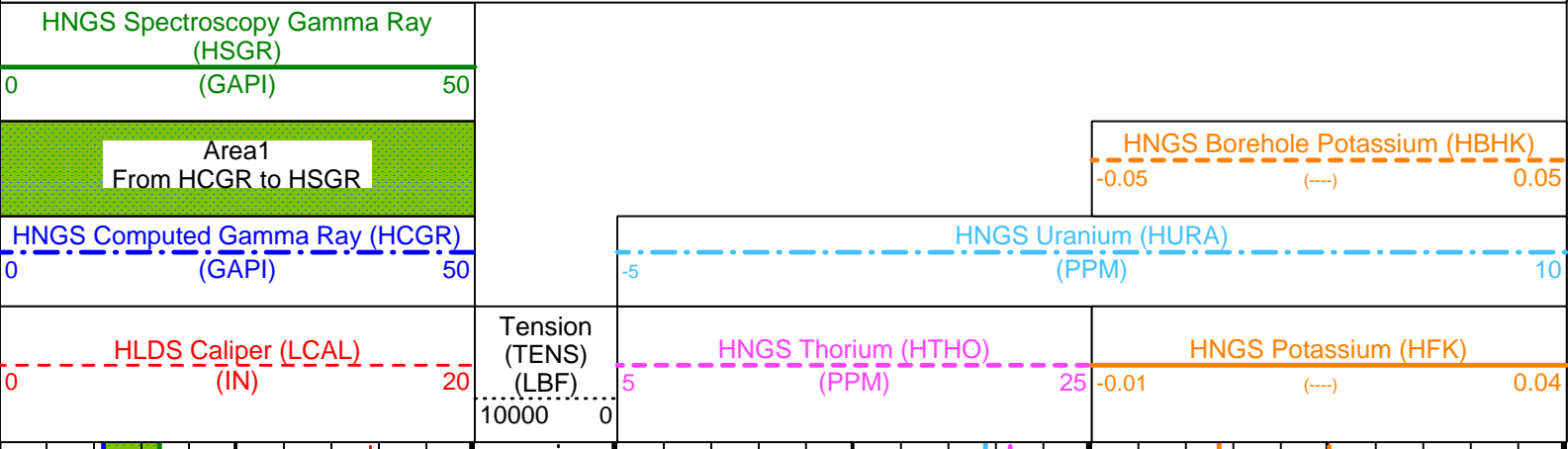
DEFAULT	PI_APS_LDL_NGS_037PUP	FN:38	PRODUCER	01-Aug-2009 16:25	2755.4 M	2648.1 M
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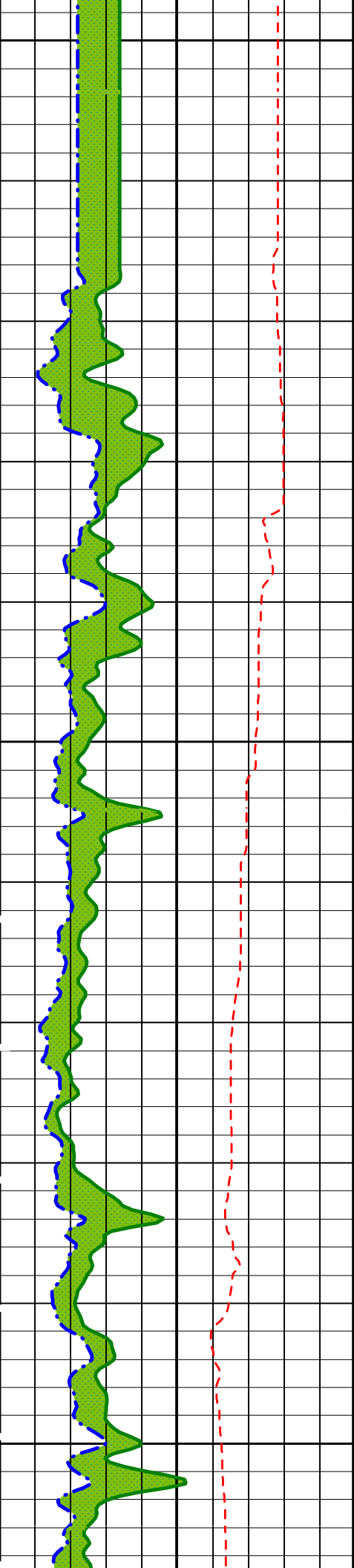
## OP System Version: 17C0-154

DIT-E	17C0-154	GPIT-A/B	SRPC-3762-Q1_2009_OP17
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

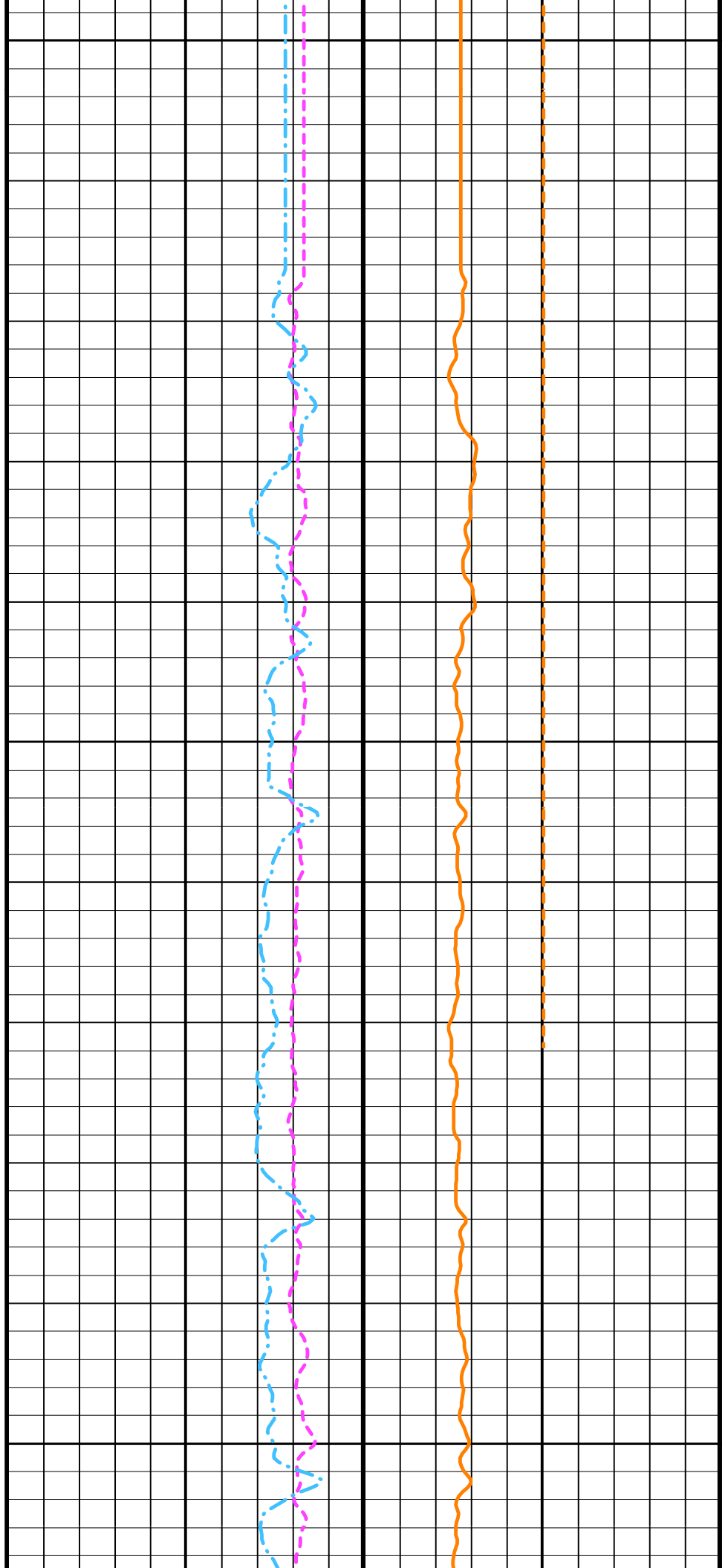


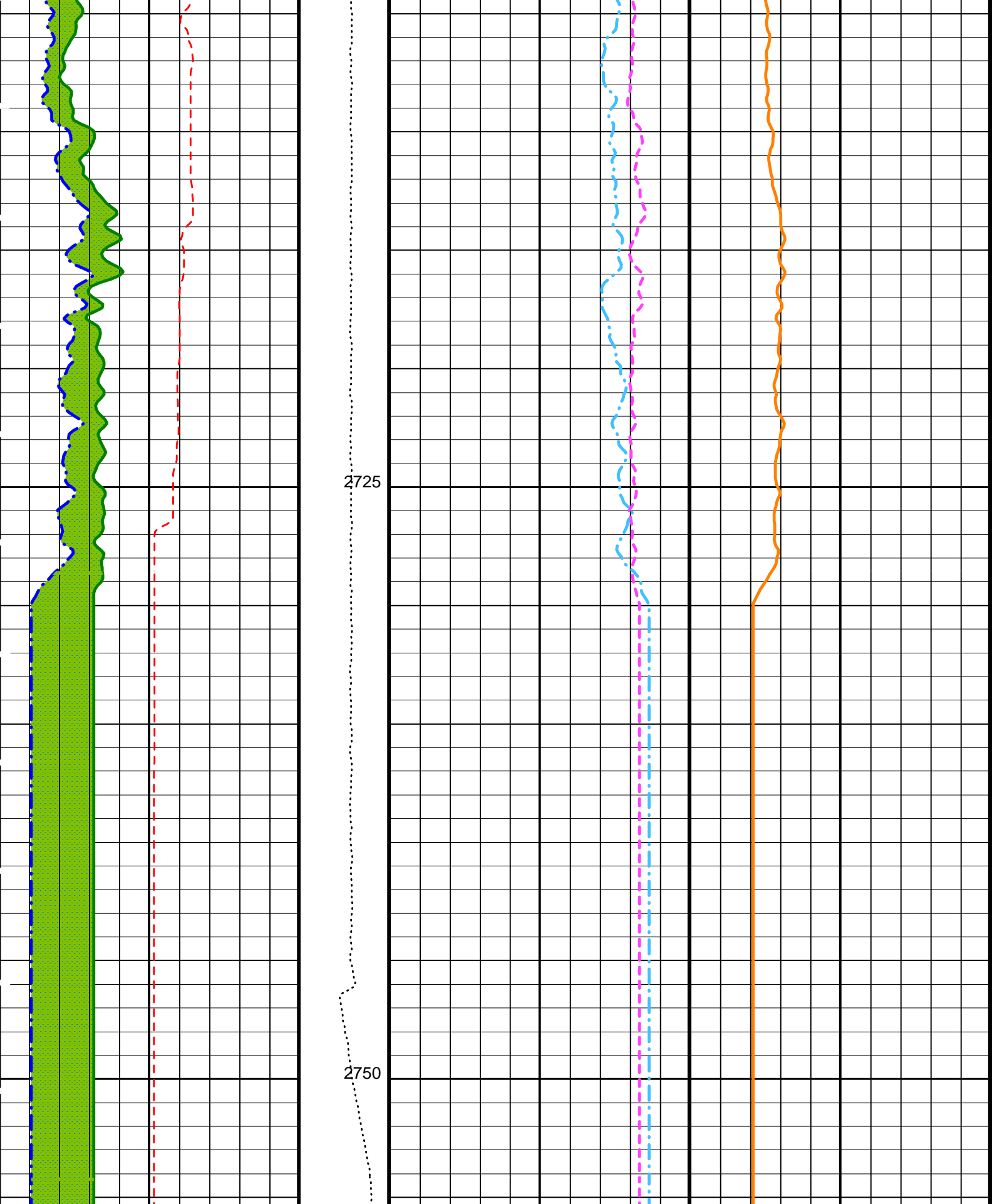


2650

2675

2700





<p>HLDS Caliper (LCAL) (IN)</p> <p>0 20</p>	<p>Tension (TENS) (LBF)</p> <p>10000 0</p>	<p>HNGS Thorium (HTHO) (PPM)</p> <p>5 25</p>	<p>HNGS Potassium (HFK)</p> <p>-0.01 (---) 0.04</p>
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<p>HNGS Computed Gamma Ray (HCGR)</p>	<p>HNGS Uranium (HURA)</p>
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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	4.67817	DEG
MRTE	Magneto Reference Temperature	23	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			
	APS Software Version	0	

AASD	APS Software Version	1965.7	V
ADSO	APS Thermal and Array Detectors High Voltage Setting	Both	
AFSD	APS Array Detectors Data Source Switch	2077.27	V
AHCS	APS Far Detector High Voltage Setting	BS	
AHSS	APS Holesize Correction Source	ON	
AMTY	APS Holesize Correction Switch	WaterBaseBarite	
ANSD	APS Environmental Corrections Mud Type	1732.81	V
ASOS	APS Near Detector High Voltage Setting	ON	
ATSS	APS Standoff Correction Switch	ON	
BHFL_APS	APS Temperature-Pressure-Salinity Correction Switch	WATER	
BHS	APS TNPH Borehole Fluid Type	OPEN	
BHT	Borehole Status	60	DEGF
BSCO_APS	Bottom Hole Temperature (used in calculations)	YES	
DPPM	APS TNPH Borehole Salinity Correction Option	HIRS	
DSCO_APS	Density Porosity Processing Mode	COMPUTED	
FSAL	APS TNPH Density Source	-50000	PPM
FSCO_APS	Formation Salinity	NO	
GCSE	APS TNPH Formation Salinity Correction Option	BS	
GDEV	Generalized Caliper Selection	0	DEG
GGRD	Average Angular Deviation of Borehole from Normal	0.01	DF/F
GRSE	Geothermal Gradient	CHART_GEN_9	
GTSE	Generalized Mud Resistivity Selection	LINEAR_ESTIMATE	
HSCO_APS	Generalized Temperature Selection	YES	
ISSBAR	APS TNPH Hole Size Correction Option	NOBARITE	
MATR	Barite Mud Switch	LIMESTONE	
MCCO_APS	Rock Matrix for Neutron Porosity Corrections	YES	
MCOR_APS	APS TNPH Mud Cake Correction Option	NATU	
MWCO_APS	APS TNPH Mud Correction	YES	
NARC	APS TNPH Mud Weight Correction Option	1.05904	
NFRC	APS Near/Array Calibration Ratio	0.885245	
PTCO_APS	APS Near/Far Calibration Ratio	YES	
SHT	APS TNPH Pressure/Temperature Correction Option	68	DEGF
TNCO_APS	Surface Hole Temperature	NO	
	APS TNPH Computation Option		
	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	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	
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	-0.00098279	
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	1.01864	



VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.993606	
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	2.7	M
FLEV	Fluid Level	-50000.00	M
MST	Mud Sample Temperature	-50000.00	DEGC
PBVSDAP	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	2750.90	M
TDL	Total Depth - Logger	2750.90	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: HNGSYields      Vertical Scale: 1:200      Graphics File Created: 01-Aug-2009 16:25

### OP System Version: 17C0-154

DIT-E	17C0-154	GPIT-A/B	SRPC-3762-Q1_2009_OP17
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_017LUP	FN:15	PRODUCER	01-Aug-2009 00:34	2752.3 M	2645.4 M
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### Output DLIS Files

DEFAULT	PI_APS_LDL_NGS_037PUP	FN:38	PRODUCER	01-Aug-2009 16:25
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## Calibrations

### MAXIS Field Log

#### 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: 31-Jul-2009 23:51							
TEMPERATURE REFERENCE :	N/A	N/A	20	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	3	N/A	N/A	N/A	
SERIAL NUMBER :	N/A	N/A	743	N/A	N/A	N/A	

General Purpose Inclinometer Wellsite Calibration - CROUZET MAGNETOMETER      PROM HAS BEEN READ CORRECTLY

Before: 31-Jul-2009 23:51

TEMPERATURE REFERENCE :	N/A	N/A	23	N/A	N/A	N/A	DEGC
YEAR OF CALIBRATION :	N/A	N/A	3	N/A	N/A	N/A	
MONTH OF CALIBRATION :	N/A	N/A	9	N/A	N/A	N/A	
SERIAL NUMBER :	N/A	N/A	507	N/A	N/A	N/A	

Accelerator-Porosity Tool Wellsite Calibration - Detector Background

Master: 18-Jun-2009 23:03 Before: 31-Jul-2009 21:53 After: 1-Aug-2009 5:09

Near Det Bkg Cntrate	30.00	32.09	31.25	31.72	0.4672	N/A	CPS
Far Det Bkg Cntrate	30.00	31.69	31.61	33.41	1.803	N/A	CPS
Array-1 Det Bkg Cntrate	30.00	28.61	29.96	28.83	-1.134	N/A	CPS
Array-2 Det Bkg Cntrate	30.00	30.40	30.10	29.25	-0.8508	N/A	CPS
Array Therm Det Bkg Cntrate	30.00	32.33	34.60	32.68	-1.923	N/A	CPS

Accelerator-Porosity Tool Wellsite Calibration - Calibration Ratios

Master: 18-Jun-2009 23:03

Near/Far Calibration Ratio	0.9250	0.8852	N/A	N/A	N/A	N/A	
Near/Array Calibration Ratio	1.030	1.059	N/A	N/A	N/A	N/A	
Near/Array Cal Ratio Up/Down	1.000	1.008	N/A	N/A	N/A	N/A	

Accelerator-Porosity Tool Wellsite Calibration - Tank Check

Master: 18-Jun-2009 23:03

Array-1 Standoff Porosity	11.75	11.81	N/A	N/A	N/A	N/A	PU
Array-2 Standoff Porosity	11.75	11.56	N/A	N/A	N/A	N/A	PU
Average Slowing Down Time	6.000	5.860	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	1.006	N/A	N/A	N/A	N/A	
Sigma Formation	27.50	27.25	N/A	N/A	N/A	N/A	CU

Accelerator-Porosity Tool Wellsite Calibration - CCR7 signal boxes

Master: 18-Jun-2009 23:03

Near Detector Plateau Setting	1650	1733	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	1966	N/A	N/A	N/A	N/A	V

Hostile Litho-Density Sonde Wellsite Calibration - Background Measurement

Master: 30-Jun-2009 22:48 Before: 31-Jul-2009 21:49 After: 1-Aug-2009 5:11

SS Cs Resolution Bkg	9.000	7.767	7.755	7.734	-0.02144	1.800	%
LS Cs Resolution Bkg	9.000	7.963	8.137	8.148	0.01029	1.800	%
LSW1 Background	100.0	92.51	92.27	92.30	0.03419	3.000	CPS
LSW2 Background	100.0	83.43	82.98	84.71	1.738	3.000	CPS
LSW3 Background	200.0	192.3	188.6	192.2	3.607	6.000	CPS
LSW4 Background	250.0	236.2	234.5	234.2	-0.3221	7.500	CPS
LSW5 Background	600.0	548.3	543.7	546.1	2.422	18.00	CPS
SSW1 Background	100.0	90.55	90.03	90.12	0.09357	3.000	CPS
SSW2 Background	200.0	155.0	154.0	155.6	1.559	6.000	CPS
SSW3 Background	500.0	433.9	432.8	432.3	-0.4906	15.00	CPS
SSW4 Background	270.0	232.2	232.2	233.0	0.7935	8.100	CPS
SSW5 Background	200.0	167.8	166.6	165.0	-1.635	6.000	CPS

Hostile Litho-Density Sonde Wellsite Calibration - Aluminum Measurement

Master: 30-Jun-2009 22:48

LSW1 Aluminum	600.0	554.7	N/A	N/A	N/A	N/A	CPS
LSW2 Aluminum	900.0	804.9	N/A	N/A	N/A	N/A	CPS
LSW3 Aluminum	1100	966.0	N/A	N/A	N/A	N/A	CPS
LSW4 Aluminum	580.0	485.4	N/A	N/A	N/A	N/A	CPS
LSW5 Aluminum	570.0	446.3	N/A	N/A	N/A	N/A	CPS
SSW1 Aluminum	2800	2501	N/A	N/A	N/A	N/A	CPS
SSW2 Aluminum	8000	6891	N/A	N/A	N/A	N/A	CPS
SSW3 Aluminum	11600	9659	N/A	N/A	N/A	N/A	CPS
SSW4 Aluminum	5000	3955	N/A	N/A	N/A	N/A	CPS
SSW5 Aluminum	660.0	474.6	N/A	N/A	N/A	N/A	CPS

Hostile Litho-Density Sonde Wellsite Calibration - Lithology Measurement

Master: 30-Jun-2009 22:48

LSW1 Iron	400.0	378.8	N/A	N/A	N/A	N/A	CPS
LSW2 Iron	730.0	651.5	N/A	N/A	N/A	N/A	CPS
LSW3 Iron	1000	856.2	N/A	N/A	N/A	N/A	CPS
LSW4 Iron	520.0	445.8	N/A	N/A	N/A	N/A	CPS
LSW5 Iron	470.0	411.6	N/A	N/A	N/A	N/A	CPS
SSW1 Iron	2100	1825	N/A	N/A	N/A	N/A	CPS
SSW2 Iron	6800	5726	N/A	N/A	N/A	N/A	CPS
SSW3 Iron	10800	8806	N/A	N/A	N/A	N/A	CPS
SSW4 Iron	4600	3618	N/A	N/A	N/A	N/A	CPS
SSW5 Iron	580.0	422.6	N/A	N/A	N/A	N/A	CPS

Hostile Litho-Density Sonde Wellsite Calibration - Caliper Calibration

Before: 16-Jul-2009 10:33

HLDS Caliper Small Ring	12.00	N/A	13.30	N/A	N/A	N/A	IN
HLDS Caliper Large Ring	15.19	N/A	16.70	N/A	N/A	N/A	IN

Hostile Natural Gamma Ray Sonde Wellsite Calibration - Detector 1 Check

Master: 19-Jun-2009 22:52 Before: 20-Jul-2009 13:09 After: 1-Aug-2009 5:12								
Na 511 Peak Loc	40.00	39.80	39.59	39.73	0.1366	1.000		
Na 511 Peak Res	15.50	15.76	14.50	14.47	-0.02892	2.000	%	
High Voltage	1150	1181	1139	1145	5.343	N/A	V	
Na 1785 Peak Loc	142.6	142.6	142.5	142.5	-0.002502	7.000		
Na 1785 Peak Res	8.500	8.553	8.452	8.092	-0.3603	2.000	%	
Temperature	15.50	32.22	13.11	13.78	0.6698	N/A	DEGC	
Na Count Rate	45.00	37.08	36.43	36.49	0.05758	8.000	CPS	
Hostile Natural Gamma Ray Sonde Wellsite Calibration - Detector 2 Check								
Master: 19-Jun-2009 22:52 Before: 20-Jul-2009 13:09 After: 1-Aug-2009 5:12								
Na 511 Peak Loc	40.00	39.62	39.67	39.64	-0.02814	1.000		
Na 511 Peak Res	15.50	16.69	15.09	14.68	-0.4053	2.000	%	
High Voltage	1150	1114	1076	1080	3.441	N/A	V	
Na 1785 Peak Loc	142.6	142.4	141.6	142.3	0.6906	7.000		
Na 1785 Peak Res	8.500	8.478	8.319	7.734	-0.5852	2.000	%	
Temperature	15.50	32.71	13.07	15.18	2.109	N/A	DEGC	
Na Count Rate	45.00	38.14	36.44	36.62	0.1789	8.000	CPS	
Hostile Natural Gamma Ray Sonde Wellsite Calibration - Ratio Of Detector 1 To Detector 2								
Master: 19-Jun-2009 22:52 Before: 20-Jul-2009 13:09 After: 1-Aug-2009 5:12								
Coincidence Count Rate Ratio	1.000	0.9751	1.001	0.9965	-0.004754	0.05000		

Accelerator-Porosity Tool - Detector Plateau Settings :

Near Detector Plateau Setting 1733 V  
Far Detector Plateau Setting 2077 V  
Array Detector Plateau Setting 1966 V

Dual Induction - E / Equipment Identification			
Primary Equipment:			
Dual Induction Sonde	DIS - HB	129	
Dual Induction Cartridge	DIC - EB	335	
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			29.13	Before		0.9416	Before			8.691	
	-267.4 (Minimum)	32.65 (Nominal)	332.6 (Maximum)		0.7960 (Minimum)	0.9460 (Nominal)	1.124 (Maximum)		-0.5967 (Minimum)	9.403 (Nominal)	19.40 (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			26.21	Before		0.9561	Before			8.479	
	-278.5 (Minimum)	21.47 (Nominal)	321.5 (Maximum)		0.8109 (Minimum)	0.9609 (Nominal)	1.145 (Maximum)		-0.7277 (Minimum)	9.272 (Nominal)	19.27 (Maximum)
Phase	IM Elect Real Offset 10 kHz	MM/M	Value	Phase	IM Elect Real Gain 10 kHz	Value					
Before			82.76	Before		0.9492					
	-465.7 (Minimum)	84.34 (Nominal)	634.3 (Maximum)		0.8034 (Minimum)	0.9534 (Nominal)					1.134 (Maximum)
Phase	IM Elect Quad Offset 10 kHz	MM/M	Value	Phase	IM Elect Quad Gain 10 kHz	Value					
Before			43.75	Before		0.9306					
	-505.4 (Minimum)	44.57 (Nominal)	594.6 (Maximum)		0.7864 (Minimum)	0.9364 (Nominal)	1.110 (Maximum)				
Before: 31-Jul-2009 23:16											

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			11.51	Before		0.9684	Before			3.640	
	-112.1 (Minimum)	12.92 (Nominal)	137.9 (Maximum)		0.8195 (Minimum)	0.9695 (Nominal)	1.157 (Maximum)		-10.06 (Minimum)	4.941 (Nominal)	19.94 (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			10.61	Before		0.9858	Before			4.026	
	-116.3 (Minimum)	8.664 (Nominal)	133.7 (Maximum)		0.8375 (Minimum)	0.9875 (Nominal)	1.182 (Maximum)		-9.662 (Minimum)	5.338 (Nominal)	20.34 (Maximum)

(Minimum)	(Nominal)	(Maximum)	(Minimum)	(Nominal)	(Maximum)	
Phase	IM Elect Real Offset 20 kHz	MM/M	Value	Phase	IM Elect Real Gain 20 kHz	Value
Before			33.93	Before		0.9920
-190.4	34.62	259.6		0.8410	0.9910	1.187
(Minimum)	(Nominal)	(Maximum)		(Minimum)	(Nominal)	(Maximum)
Phase	IM Elect Quad Offset 20 kHz	MM/M	Value	Phase	IM Elect Quad Gain 20 kHz	Value
Before			18.09	Before		0.9726
-206.6	18.45	243.4		0.8231	0.9731	1.162
(Minimum)	(Nominal)	(Maximum)		(Minimum)	(Nominal)	(Maximum)

Before: 31-Jul-2009 23:17

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			7.462	Before		0.9465	Before		13.59
-76.50	8.503	93.50		0.8112	0.9612	1.145	-3.044	16.96	36.96
(Minimum)	(Nominal)	(Maximum)		(Minimum)	(Nominal)	(Maximum)	(Minimum)	(Nominal)	(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			7.059	Before		0.9724	Before		13.39
-79.21	5.786	90.79		0.8370	0.9870	1.182	-3.281	16.72	36.72
(Minimum)	(Nominal)	(Maximum)		(Minimum)	(Nominal)	(Maximum)	(Minimum)	(Nominal)	(Maximum)
Phase	IM Elect Real Offset 40 kHz	MM/M	Value	Phase	IM Elect Real Gain 40 kHz	Value			
Before			21.74	Before		0.9874			
-107.6	22.42	152.4		0.8470	0.9970	1.196			
(Minimum)	(Nominal)	(Maximum)		(Minimum)	(Nominal)	(Maximum)			
Phase	IM Elect Quad Offset 40 kHz	MM/M	Value	Phase	IM Elect Quad Gain 40 kHz	Value			
Before			11.68	Before		0.9676			
-118.0	12.02	142.0		0.8285	0.9785	1.170			
(Minimum)	(Nominal)	(Maximum)		(Minimum)	(Nominal)	(Maximum)			

Before: 31-Jul-2009 23:18

Dual Induction - E Wellsite Calibration					
SFL Electronics					
Phase	SFL Voltage Offset MV	Value	Phase	SFL Voltage Gain	Value
Before		0.1146	Before		0.9934
-15.00	0	15.00	0.8500	1.000	1.200
(Minimum)	(Nominal)	(Maximum)	(Minimum)	(Nominal)	(Maximum)
Phase	SFL Current Offset MA	Value	Phase	SFL Current Gain	Value
Before		0.03053	Before		1.004
-0.6000	0	0.6000	0.8500	1.000	1.200
(Minimum)	(Nominal)	(Maximum)	(Minimum)	(Nominal)	(Maximum)

Before: 31-Jul-2009 23:19

Dual Induction - E Wellsite Calibration									
Electronics Calibration Changes Files/Depth Intervals: 16: 2272.3 - 2750.5 17: 2752.3 - 2645.4 19: 2752.3 - 2117.1									
Phase	ID (R > 27 OHM-M)	MM/M	Value	Phase	ID (R < 27 OHM-M) %	Value	Phase	SFL (R < 1 OHM-M) OHMM	Value
After			0	After		0.0001444	After		0.0005706
0	0	0.7500		0	0	2.000	0	0	0.02000
(Minimum)	(Nominal)	(Maximum)		(Minimum)	(Nominal)	(Maximum)	(Minimum)	(Nominal)	(Maximum)
Phase	IM (R > 27 OHM-M)	MM/M	Value	Phase	IM (R < 27 OHM-M) %	Value			
After			0	After		0.0001098			
0	0	0.7500		0	0	2.000			
(Minimum)	(Nominal)	(Maximum)		(Minimum)	(Nominal)	(Maximum)			
Phase	SFL (R > 27 OHM-M)	MM/M	Value	Phase	SFL (R < 27 OHM-M) %	Value			
After			0	After		0			
0	0	0.7500		0	0	2.000			
(Minimum)	(Nominal)	(Maximum)		(Minimum)	(Nominal)	(Maximum)			

After: 1-Aug-2009 3:16

General Purpose Inclinometer / Equipment Identification

Primary Equipment:  
GPIT Cartridge - A

GPIC - A

719

Auxiliary Equipment:

## Accelerator-Porosity Tool / Equipment Identification

## Primary Equipment:

Accelerator-Porosity Sonde  
APS Minitron

APS - C 22  
MNTR - F 5589

## Auxiliary Equipment:

Accelerator-Porosity Housing  
APS Calibration Water Tank  
APS Aluminum Calibrator Sleeve

APH - AC 22  
SFT - 178 2  
SFT - 281 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		32.09	Master		31.69	Master		28.61
Before		31.25	Before		31.61	Before		29.96
After		31.72	After		33.41	After		28.83
	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		30.40	Master		32.33			
Before		30.10	Before		34.60			
After		29.25	After		32.68			
	1.000 (Minimum) 30.00 (Nominal) 50.00 (Maximum)			1.000 (Minimum) 30.00 (Nominal) 50.00 (Maximum)				
Master: 18-Jun-2009 23:03			Before: 31-Jul-2009 21:53			After: 1-Aug-2009 5:09		

## 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		0.8852	Master		1.059	Master		1.008
	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: 18-Jun-2009 23:03								

## 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		11.81	Master		11.56	Master		5.860
	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		0.9891	Master		1.006	Master		27.25
	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: 18-Jun-2009 23:03								

## Hostile Litho-Density Sonde / Equipment Identification

## Primary Equipment:

Hostile Litho Density Sonde  
Hostile Litho Density High Voltage  
Gamma Source Radioactive

HLDS - D 57  
HLDV - D 51  
GSR - Z 2397

## Auxiliary Equipment:

Hostile Litho Density Pad  
Hostile Litho Density High Voltage Housi

HLDP - C 61  
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		7.767	Master		7.963	Master		92.51
Before		7.755	Before		8.137	Before		92.27
After		7.734	After		8.148	After		92.30
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		83.43	Master		192.3	Master		236.2
Before		82.98	Before		188.6	Before		234.5
After		84.71	After		192.2	After		234.2
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		548.3	Master		90.55	Master		155.0
Before		543.7	Before		90.03	Before		154.0
After		546.1	After		90.12	After		155.6
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		433.9	Master		232.2	Master		167.8
Before		432.8	Before		232.2	Before		166.6
After		432.3	After		233.0	After		165.0
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: 30-Jun-2009 22:48			Before: 31-Jul-2009 21:49			After: 1-Aug-2009 5:11		

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 Gamma Source Radioactive	HNSH - BA GSR - U	205 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		39.80	Master		15.76	Master		1181
Before		39.59	Before		14.50	Before		1139
After		39.73	After		14.47	After		1145

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		142.6	Master		8.553	Master		32.22
Before		142.5	Before		8.452	Before		13.11
After		142.5	After		8.092	After		13.78
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		37.08						
Before		36.43						
After		36.49						
10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)								
Master: 19-Jun-2009 22:52			Before: 20-Jul-2009 13:09			After: 1-Aug-2009 5:12		

Hostile Natural Gamma Ray Sonde Wellsite Calibration								
Detector 2 Check								
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 511 Peak Loc	Value	Phase	Na 511 Peak Res %	Value	Phase	High Voltage V	Value
Master		39.62	Master		16.69	Master		1114
Before		39.67	Before		15.09	Before		1076
After		39.64	After		14.68	After		1080
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		142.4	Master		8.478	Master		32.71
Before		141.6	Before		8.319	Before		13.07
After		142.3	After		7.734	After		15.18
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		38.14						
Before		36.44						
After		36.62						
10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)								
Master: 19-Jun-2009 22:52			Before: 20-Jul-2009 13:09			After: 1-Aug-2009 5:12		

Hostile Natural Gamma Ray Sonde Wellsite Calibration		
Ratio Of Detector 1 To Detector 2		
Phase	Coincidence Count Rate Ratio	Value
Master		0.9751
Before		1.001
After		0.9965
0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)		
Master: 19-Jun-2009 22:52		
Before: 20-Jul-2009 13:09		
After: 1-Aug-2009 5:12		

DTS Telemetry Tool / Equipment Identification		
Primary Equipment:		
DTC-H Auxiliary Cartridge	DTCH - A	
DTC-H Telemetry Cartridge	DTCH - A	8798
Auxiliary Equipment:		
DTCH Telemetry Cartridge Housing	ECH - KC	2304

Company: Lamont Doherty

**Schlumberger**

Well: Expedition 323 Site U1341B

Field: Bering Sea

Rig: JOIDES Resolution

Country: USA

Natural Gamma Spectroscopy