

Schlumberger

Company: **Lamont Doherty**

Well: **Expedition 339, Site U1389 GC-11A Hole A**

Field: **Mediterranean Outflow (Portugal)**

Rig: **JOIDES Resolution Ocean: Atlantic**

Hostile Natural
Gamma Ray
Spectroscopy

Rig: JOIDES Resolution
Field: Mediterranean Outflow (Portugal)
Location: Latitude: N 36° 25.517'
Well: Expedition 339, Site U1389 GC-
Company: Lamont Doherty

LOCATION		Elev.:	K.B. 11.00 m
Latitude: N 36° 25.517'	Longitude: W 7° 16.688'	G.L. -645.00 m	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. _____	Max. Hole Devi. 0 deg	Longitude W 7.2781*	Latitude N 36.42528*
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Logging Date 23-Dec-2011

Run Number 1

Depth Driller 356 m

Schlumberger Depth 356 m

Bottom Log Interval 356 m

Top Log Interval 0 m

Casing Driller Size @ Depth 10.750 in @ 86 m

Casing Schlumberger 85 m

Bit Size 9.875 in

Type Fluid In Hole Seawater Gel

Density 1.25 g/cm3

Fluid Loss PH

Source Of Sample N/A

RM @ Measured Temperature @ @ @

RMF @ Measured Temperature @ @ @

RMC @ Measured Temperature @ @ @

Source RMF RMC N/A N/A

RM @ MRT RMF @ MRT @ @ @

Maximum Recorded Temperatures 21 degC @ 21 @ 21

Circulation Stopped Time 23-Dec-2011 21:00

Logger On Bottom Time 23-Dec-2011 23:35

Unit Number 625003 Houston

Recorded By K. Swain

Witnessed By T. Williams, J. Lofi

Run 1

Run 2

Run

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

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

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

REMARKS: RUN NUMBER 1
 Hole GC-11A Hole C was drilled with a 9 7/8" APC/XCB bit to TDD of 355 mbsf.
 This log originally acquired in measured depth from rig floor but played back with a depth offset of -656m to make the sea floor at 0m as requested by Lamont Doherty.
 A playback was produced and listed on the log for caliper input for hole size. The original logs were acquired with bit size as the hole size assumption. Barite mud ID was used in the playback and not on the original log. All logs recorded via wireline thru 5-5.5" drillpipe and APC/SCB coring BHA consisting of a bit release sub, Kinley sub, drill collars and lockable flapper valve. The bit is large enough to log through and not need to be released prior to logging.
 HRLA encountered spikes within 60m of drillpipe and does not repeat from passes. This indicates a possible hardware issue not identified in the LQC log at the depth of the spiking only. All other logged interval is normal for all curves.

REMARKS: RUN NUMBER 2

RUN 1		
SERVICE ORDER #:		
PROGRAM VERSION:	19C0-187	
FLUID LEVEL:		
LOGGED INTERVAL	START	STOP

RUN 2		
SERVICE ORDER #:		
PROGRAM VERSION:		
FLUID LEVEL:		
LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION




RUN 1

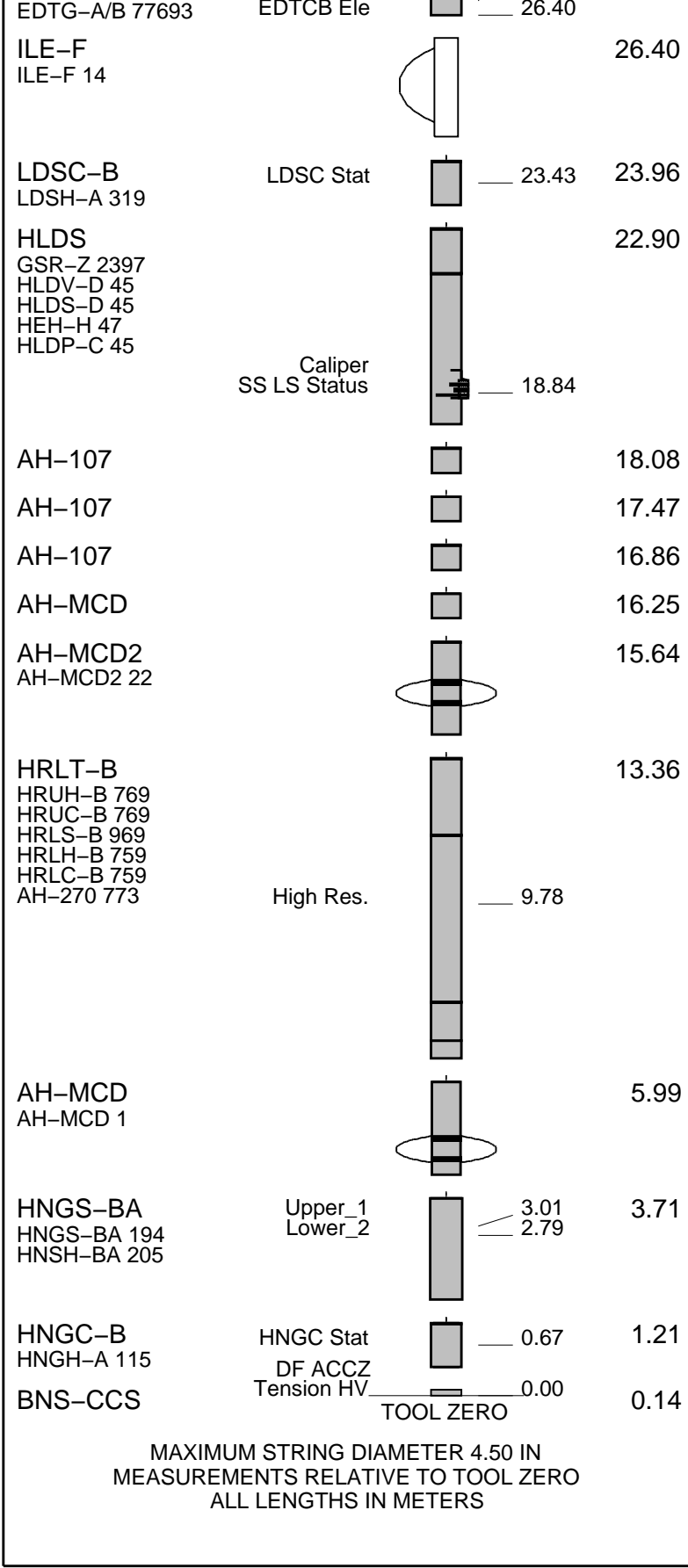
SURFACE EQUIPMENT

GSR-U 616008
 WITM (EDTS)-A 1

RUN 2

DOWNHOLE EQUIPMENT

LEH-QT				29.71
LEH-QT 301				
AH-369	MDSB_EDTC		28.38	28.82
	Mud Tempe		27.32	
	CTEM		26.75	28.38
EDTC-B	Gamma Ray			
EDTH-B 8528	EFTB DIAG			
EDTC-B 8529	TelStatus			



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

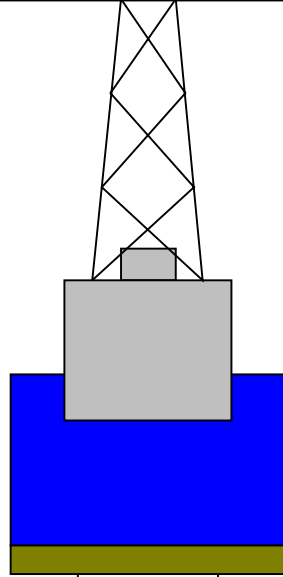
Kelly Bushing Elevation
Derrick Floor Elevation

Mean Sea Level

-656

-656

-645



4.1



0

3.80

Sea Floor

86

9.875

Open Hole

355

Total Depth

Input DLIS Files

DEFAULT NGS_HRLA_LDL_037PUP FN:56 PRODUCER 25-Dec-2011 23:20 1012.7 M 648.2 M

Output DLIS Files

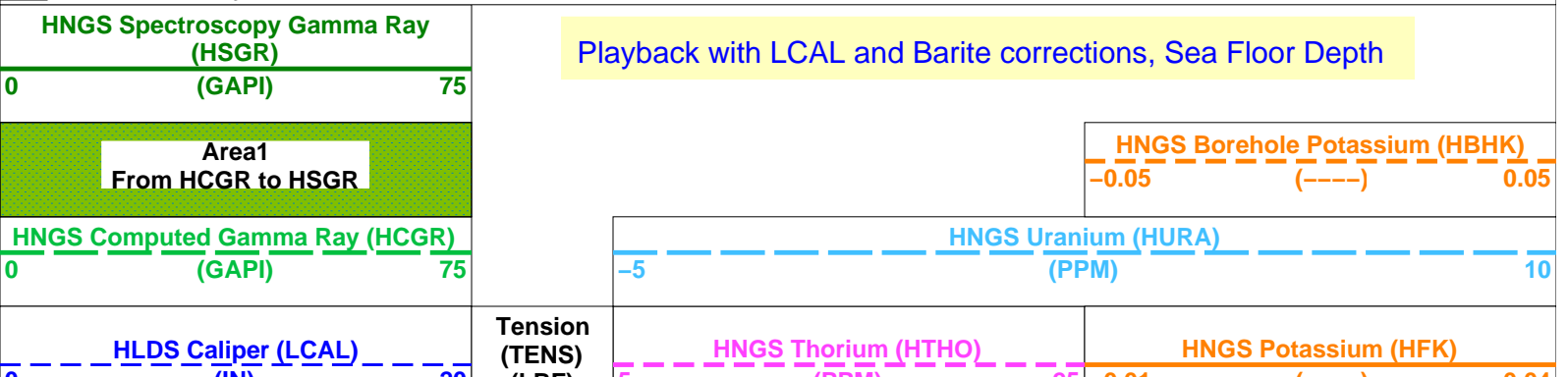
DEFAULT NGS_HRLA_LDL_038PUP FN:57 PRODUCER 27-Dec-2011 01:39 356.6 M -7.8 M

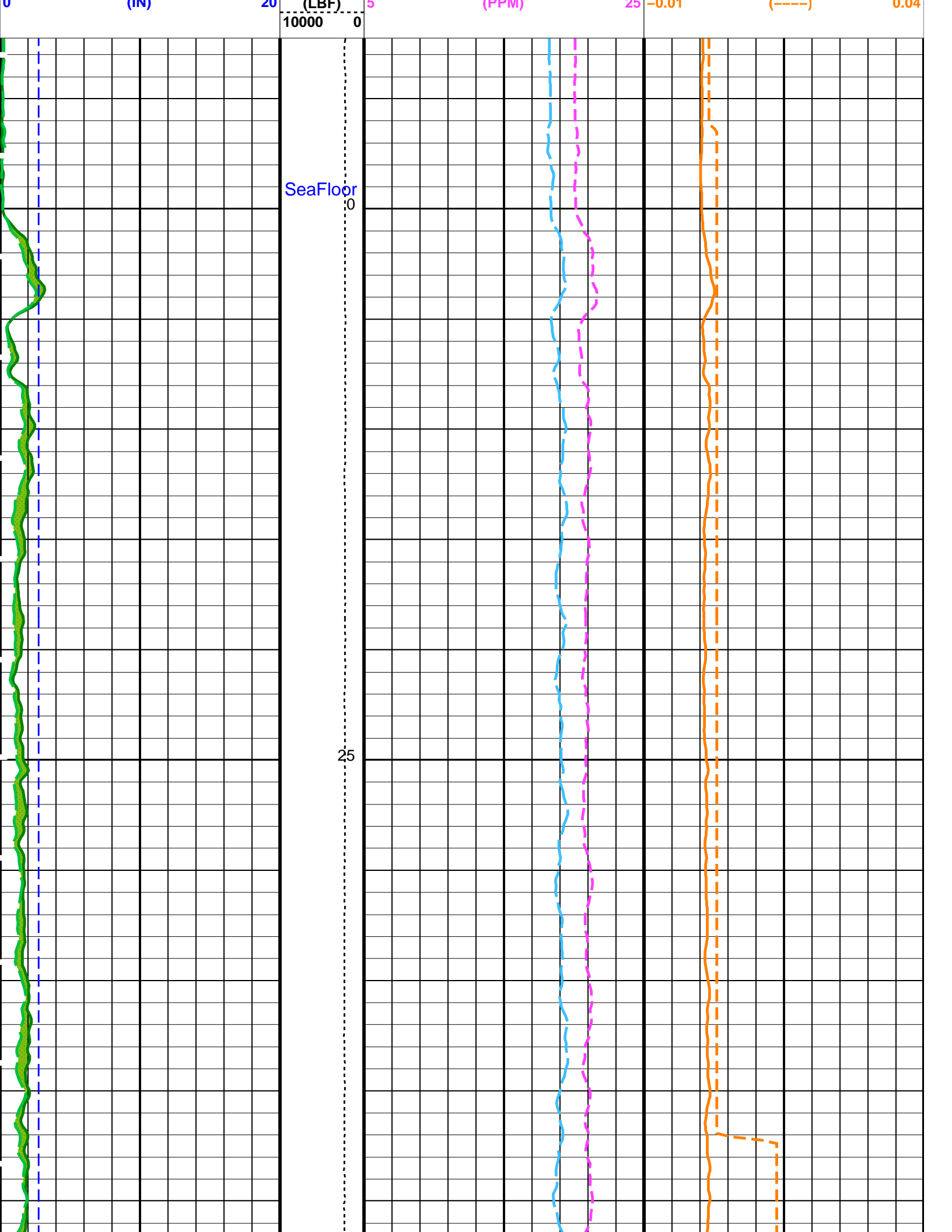
OP System Version: 19C0-187

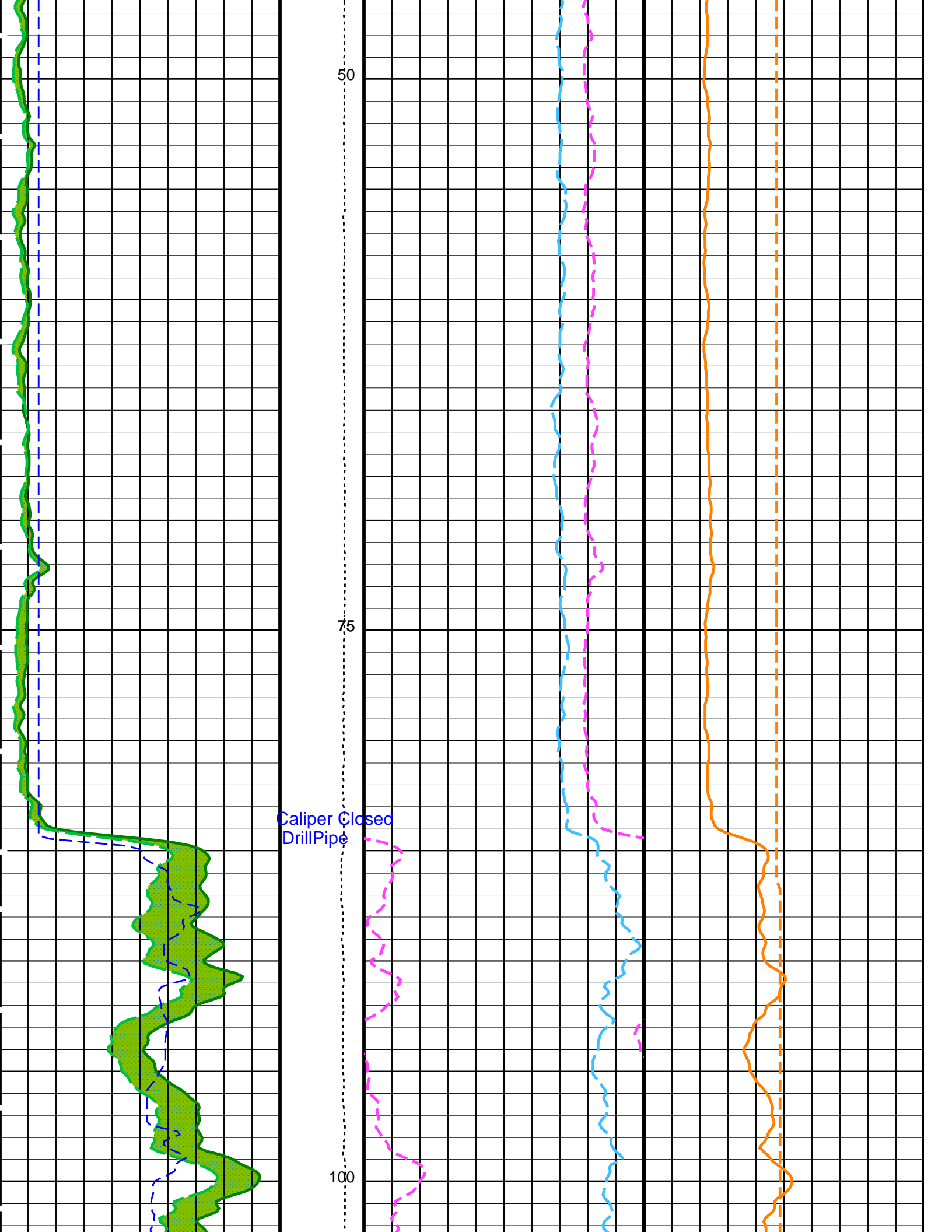
HNGC-B	19C0-187	HNGS-BA	19C0-187
HRLT-B	19C0-187	HLDS	19C0-187
LDSC-B	19C0-187	EDTC-B	19C0-187

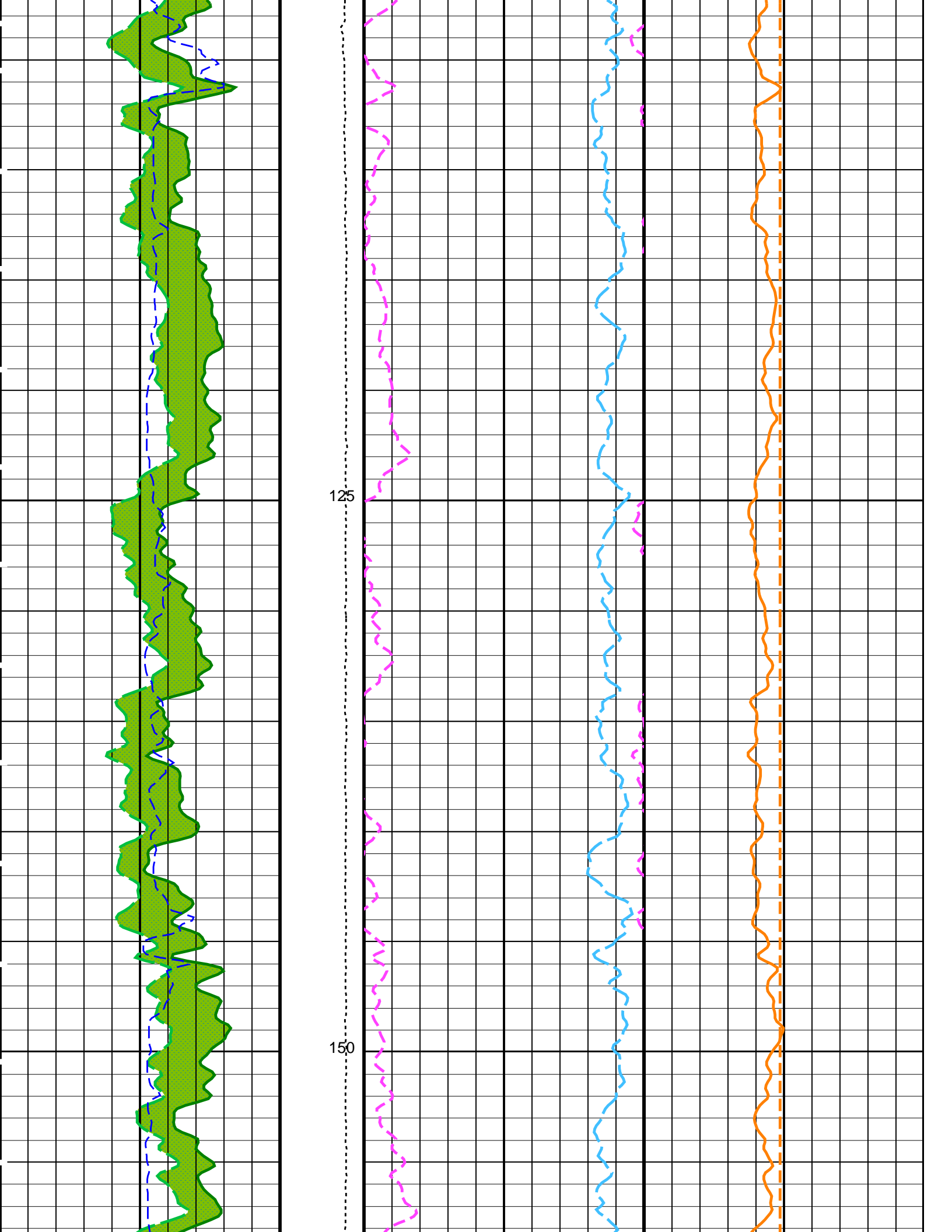
PIP SUMMARY

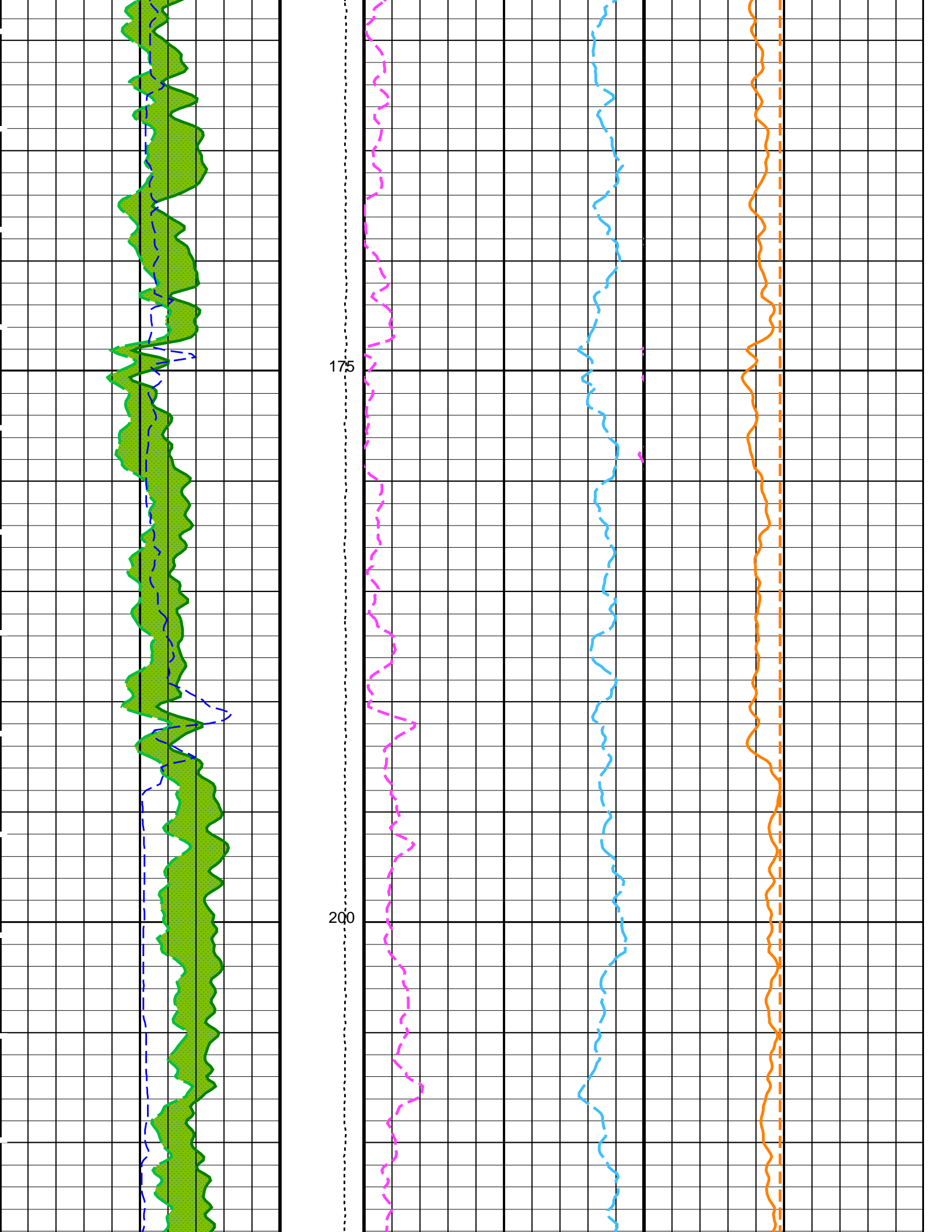
Time Mark Every 60 S

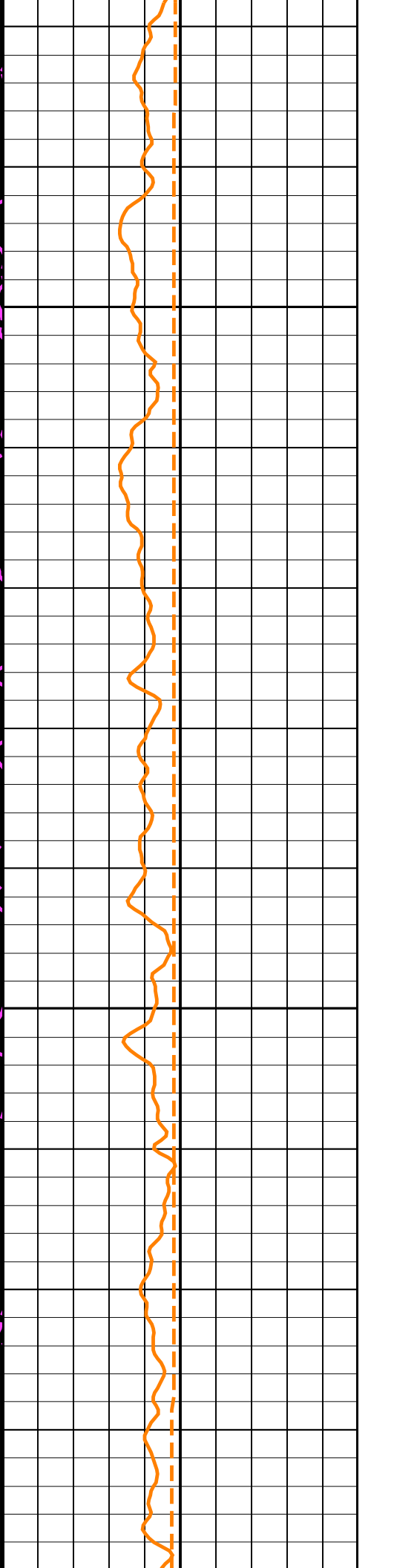
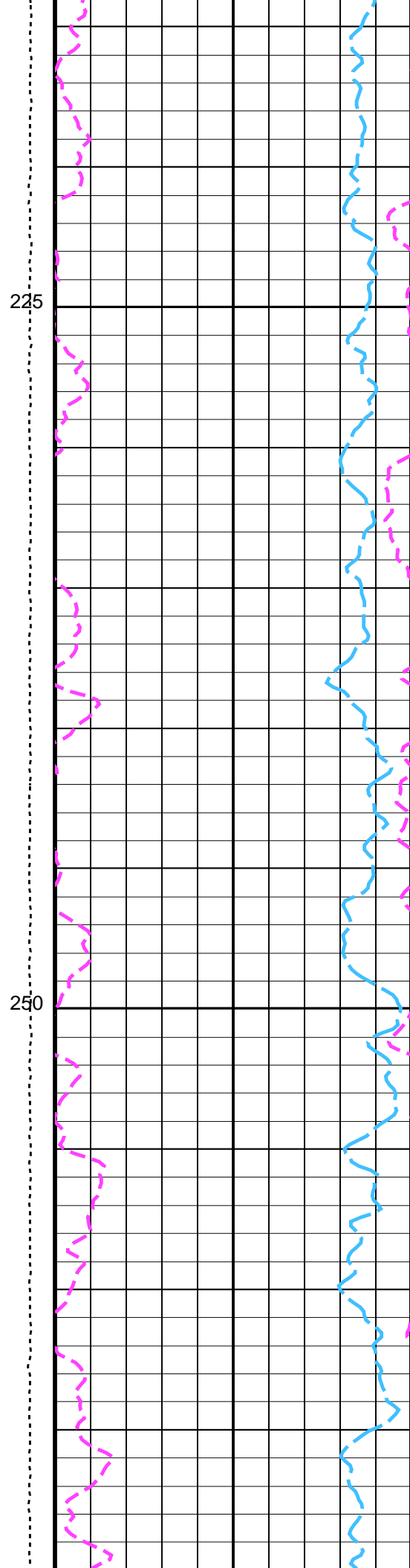
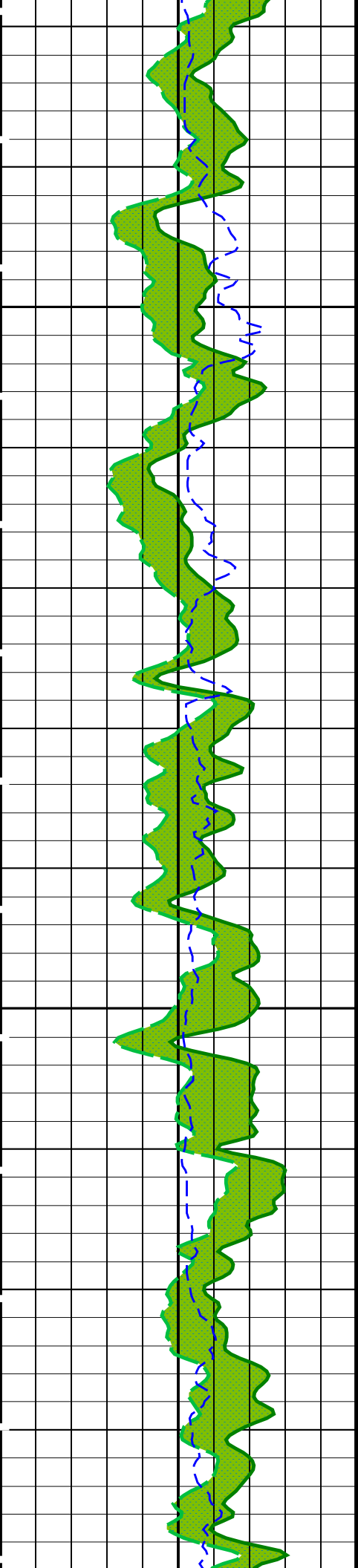


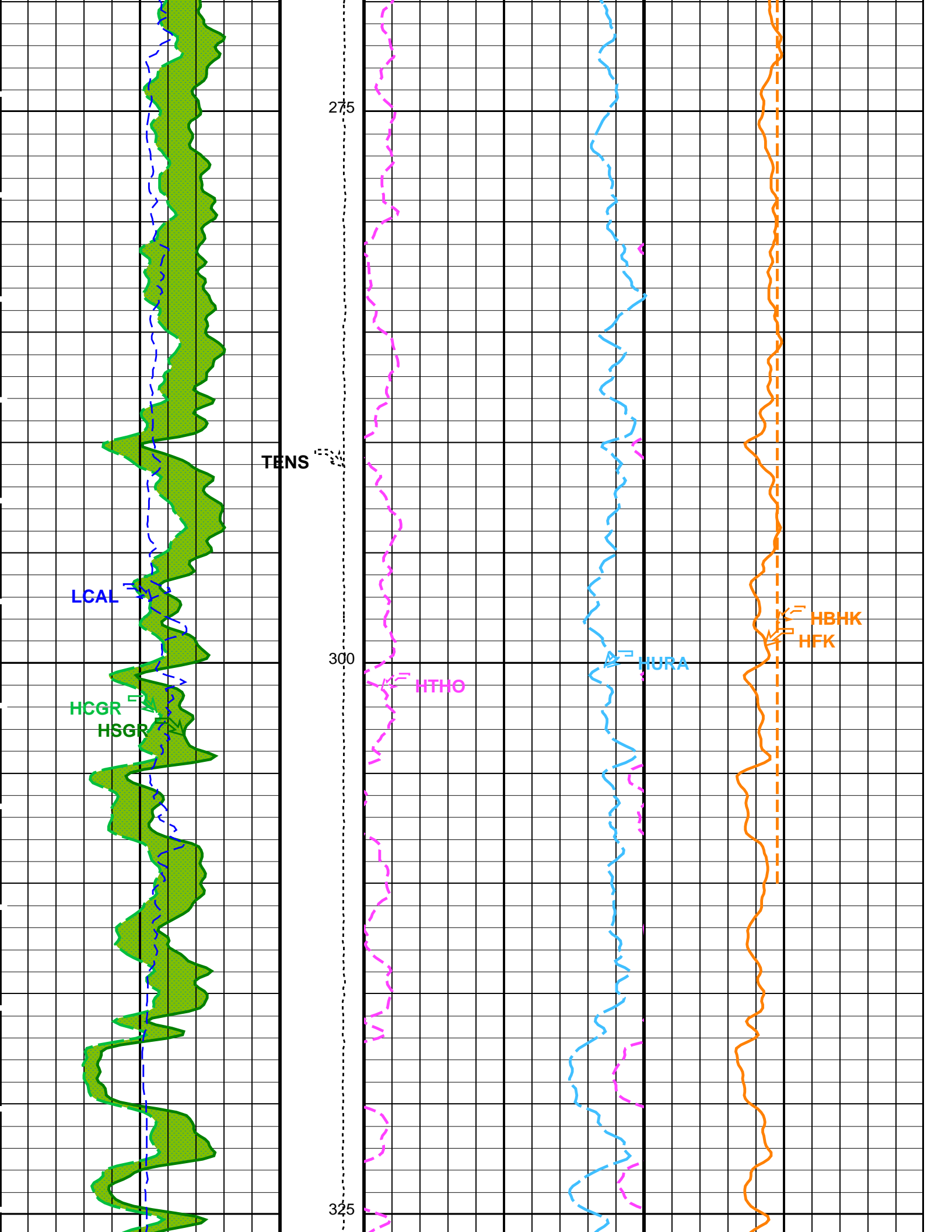


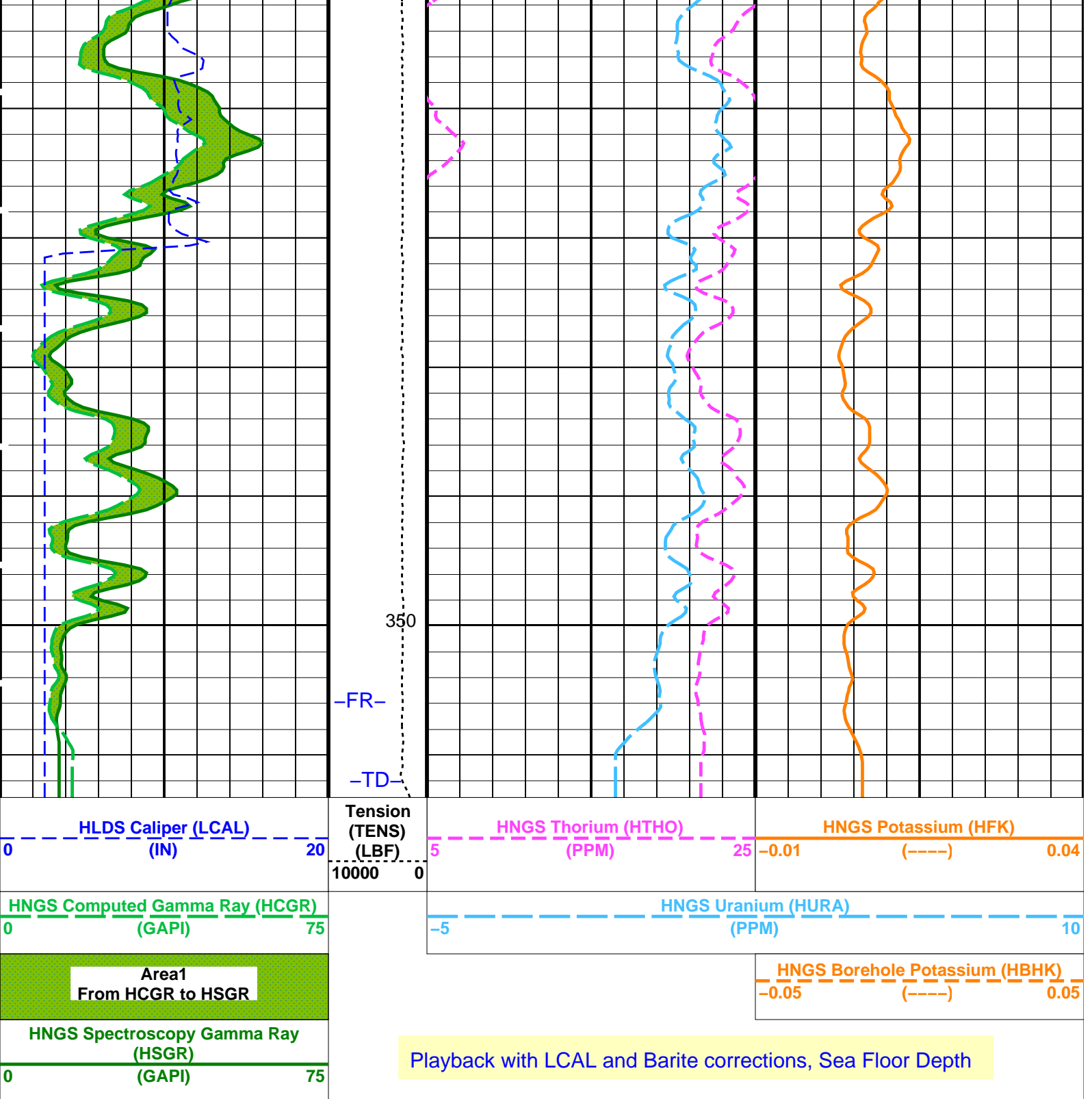












PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
HNGS-BA: Hostile Natural Gamma Ray Sonde		
BAR1	HNGS Detector 1 Barite Constant	1
BAR2	HNGS Detector 2 Barite Constant	1
BHK	HNGS Borehole Potassium Correction Concentration	0
BHS	Borehole Status	OPEN
CSD1	Inner Casing Outer Diameter	0 IN
CSD2	Outer Casing Outer Diameter	0 IN
CSW1	Inner Casing Weight	0 LB/F
CSW2	Outer Casing Weight	0 LB/F
DBCC	HNGS Barite Constant Correction Flag	NONE
GCSE	Generalized Caliper Selection	LCAL
UCR	HNGS Detector 1 Allow/Discallow In Processing	ALLOW

H1P	HNGS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGS Borehole Potassium Running Average	-0.00279021	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	BARI	
HNPE	HNGS Processing Enable	YES	
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGS Standard Gamma-Ray Correction Flag	YES	
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0.960045	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.971544	
HRLT-B: High Resolution Laterolog Array - B			
BHS	Borehole Status	OPEN	
GCSE	Generalized Caliper Selection	LCAL	
EDTC-B: Enhanced DTS Cartridge			
BHS	Borehole Status	OPEN	
GCSE	Generalized Caliper Selection	LCAL	
System and Miscellaneous			
BS	Bit Size	9.875	IN
DO	Depth Offset for Playback	-656.0	M
PP	Playback Processing	NORMAL	

Format: HNGSYields Vertical Scale: 1:200 Graphics File Created: 27-Dec-2011 01:39

OP System Version: 19C0-187

HNGC-B	19C0-187	HNGS-BA	19C0-187
HRLT-B	19C0-187	HLDS	19C0-187
LDSC-B	19C0-187	EDTC-B	19C0-187

Input DLIS Files

DEFAULT	NGS_HRLA_LDL_037PUP	FN:56	PRODUCER	25-Dec-2011 23:20	1012.7 M	648.2 M
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Output DLIS Files

DEFAULT	NGS_HRLA_LDL_038PUP	FN:57	PRODUCER	27-Dec-2011 01:39		
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Input DLIS Files

DEFAULT	NGS_HRLA_LDL_013LUP	FN:18	PRODUCER	23-Dec-2011 23:56	1012.7 M	648.2 M
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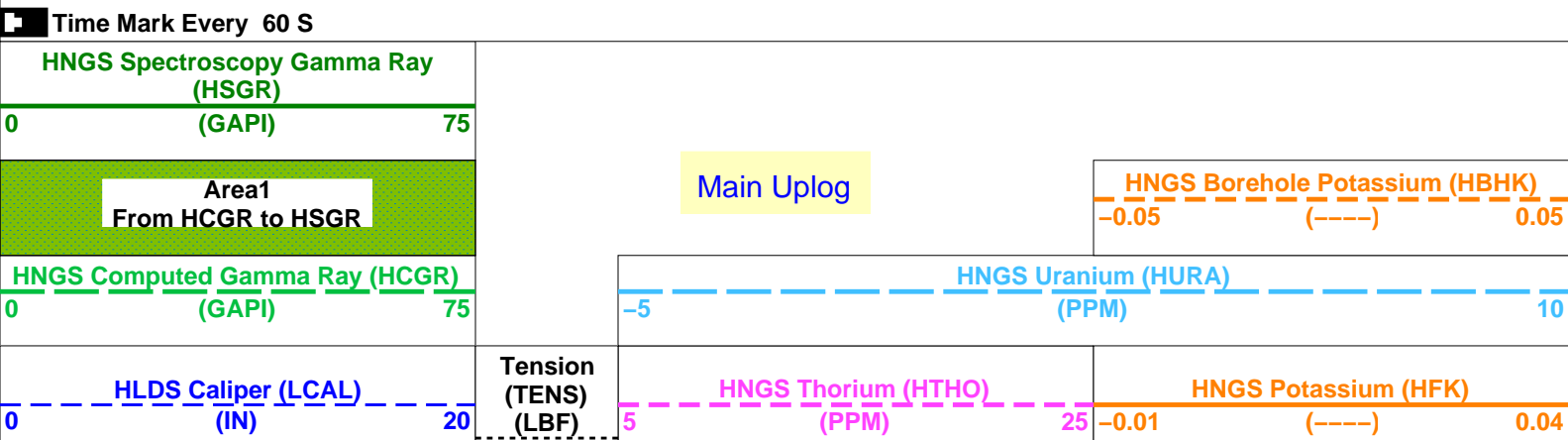
Output DLIS Files

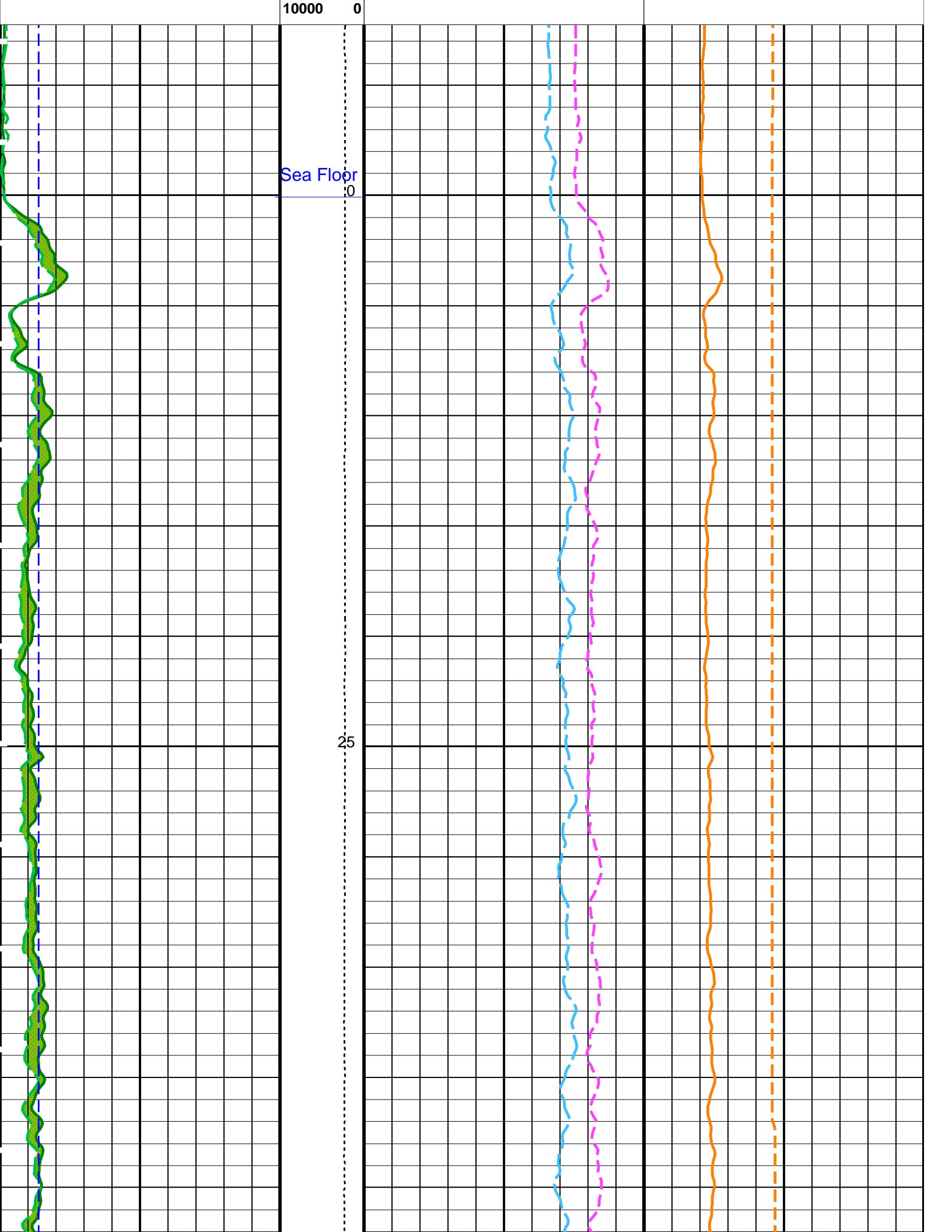
DEFAULT	NGS_HRLA_LDL_014PUP	FN:20	PRODUCER	24-Dec-2011 01:40	356.6 M	-7.8 M
BACKUPDLIS	NGS_HRLA_LDL_014PUP	FN:21	PRODUCER	24-Dec-2011 01:40	356.6 M	-7.8 M

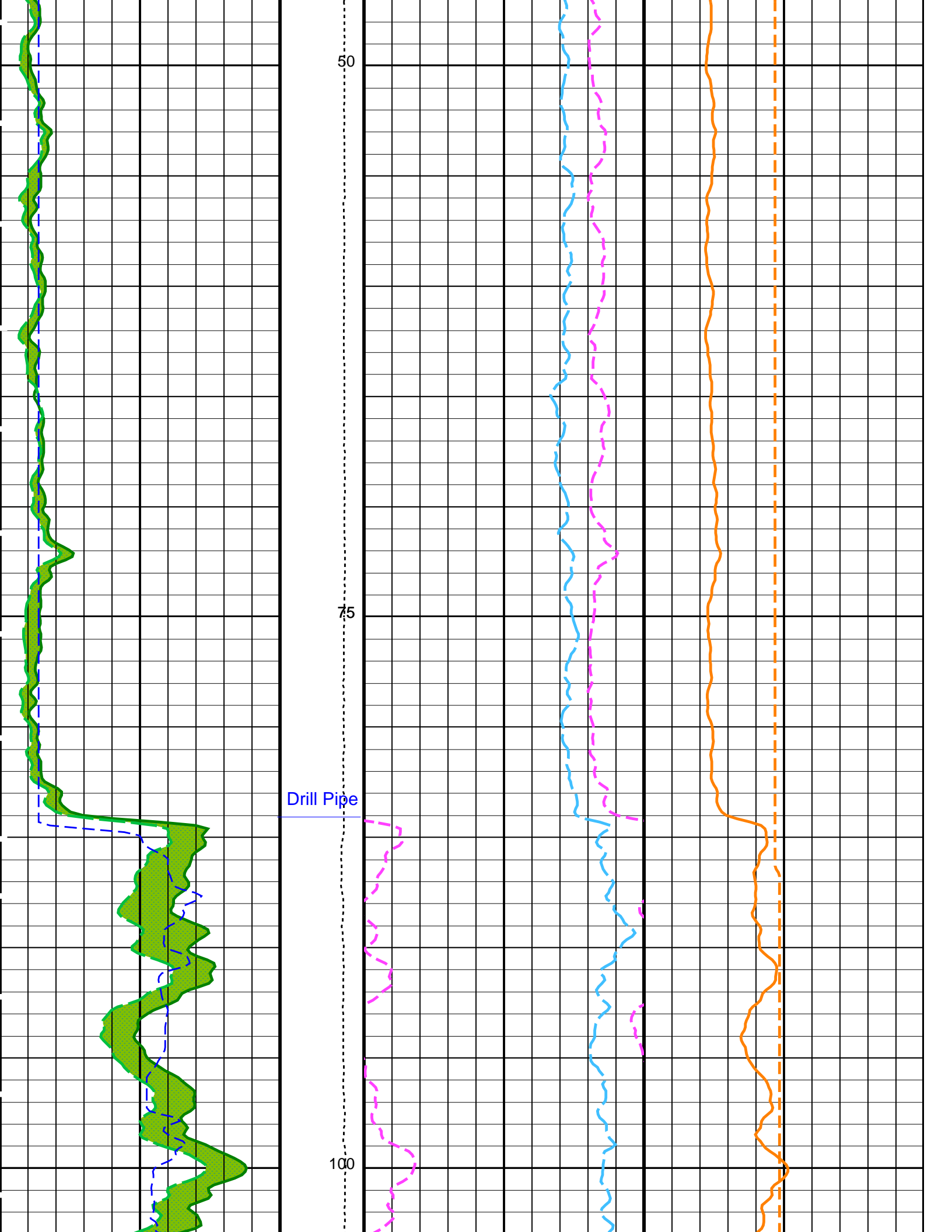
OP System Version: 19C0-187

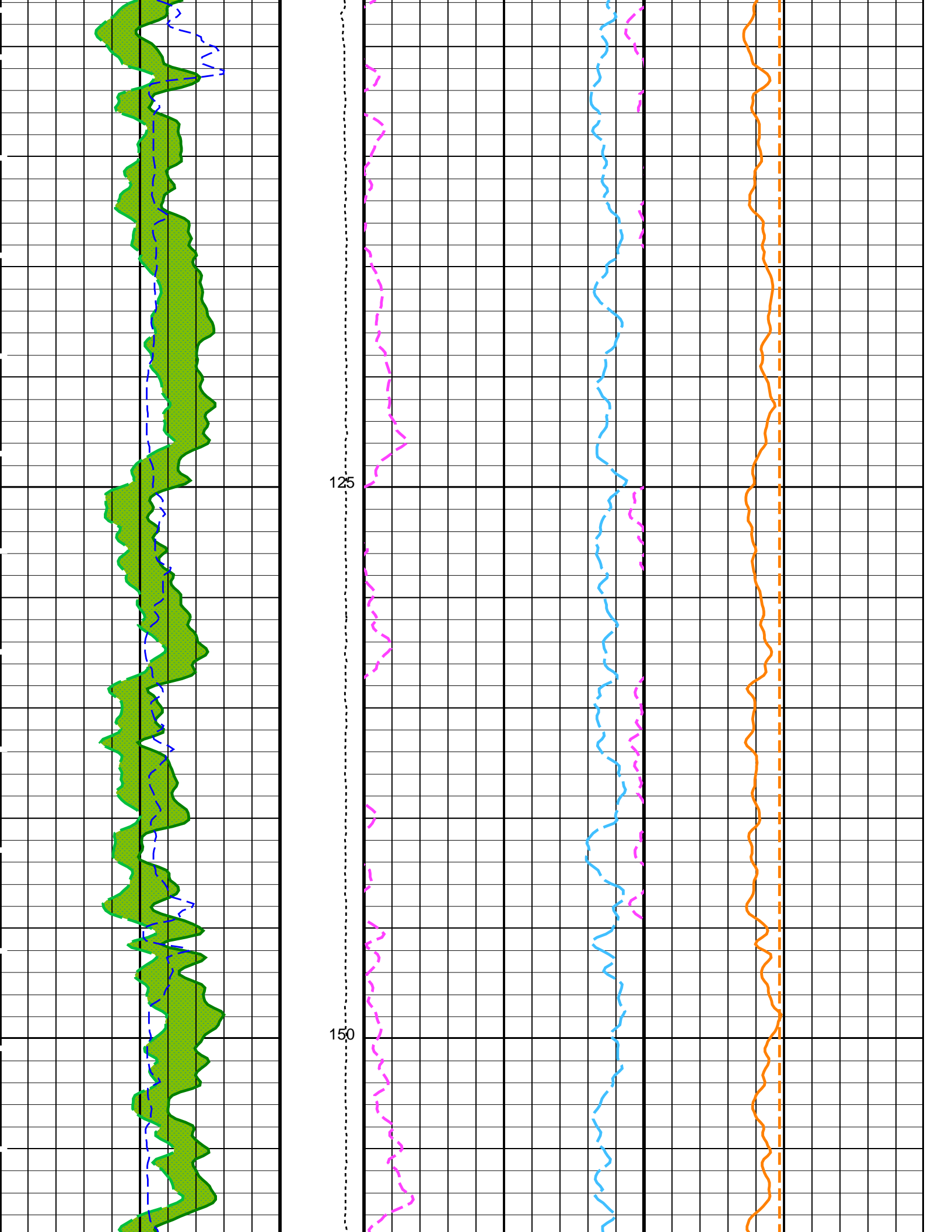
HNGC-B	19C0-187	HNGS-BA	19C0-187
HRLT-B	19C0-187	HLDS	19C0-187
LDSC-B	19C0-187	EDTC-B	19C0-187

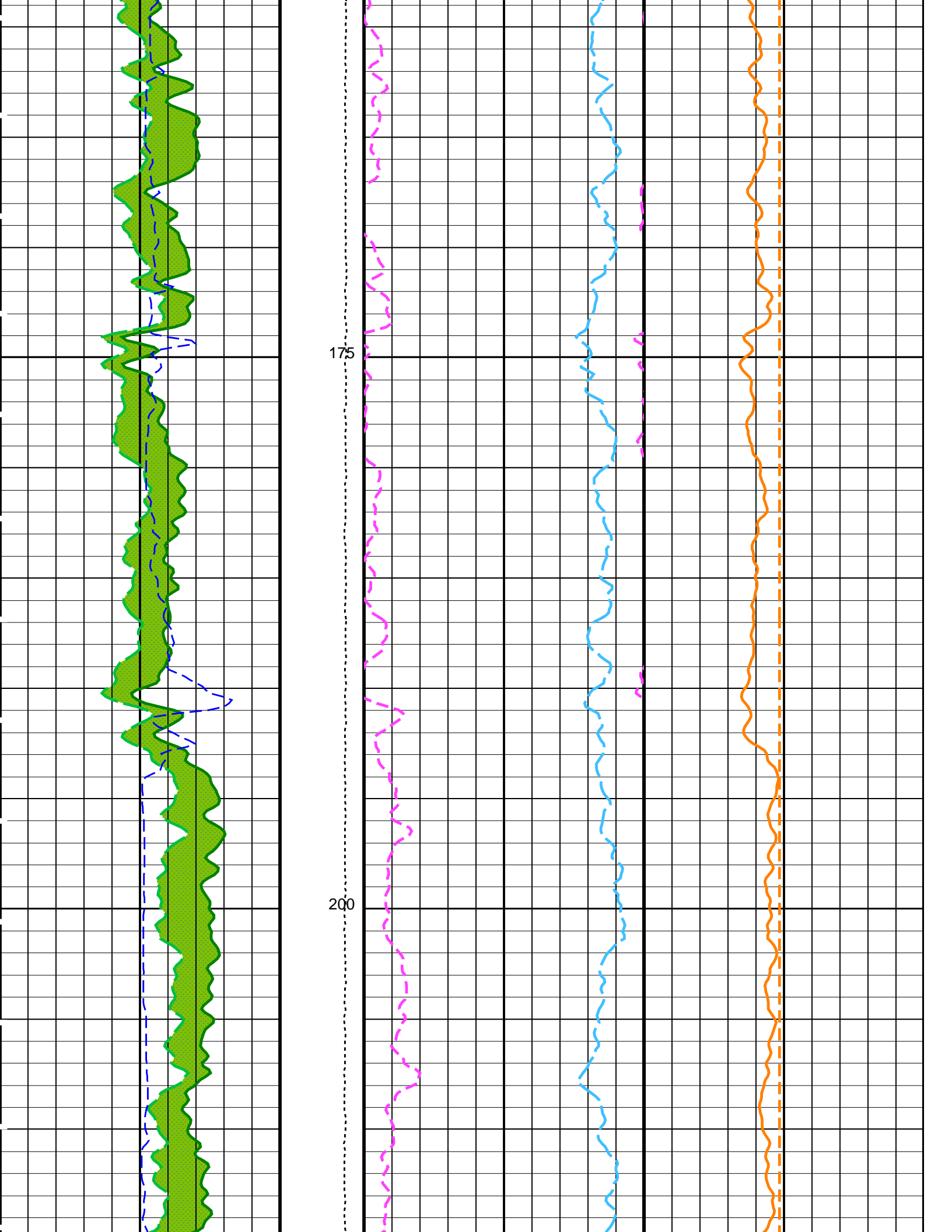
PIP SUMMARY

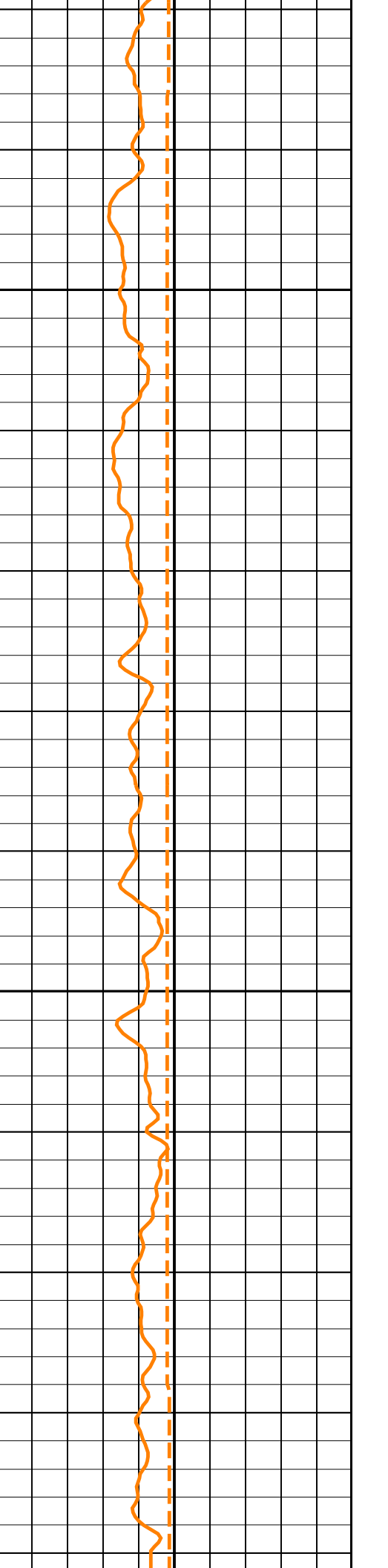
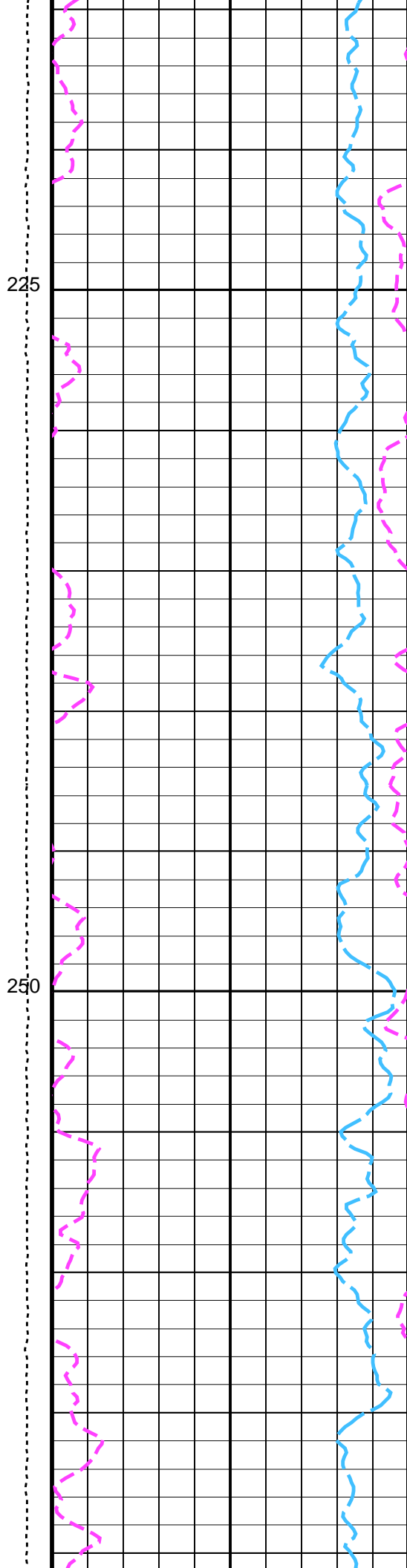
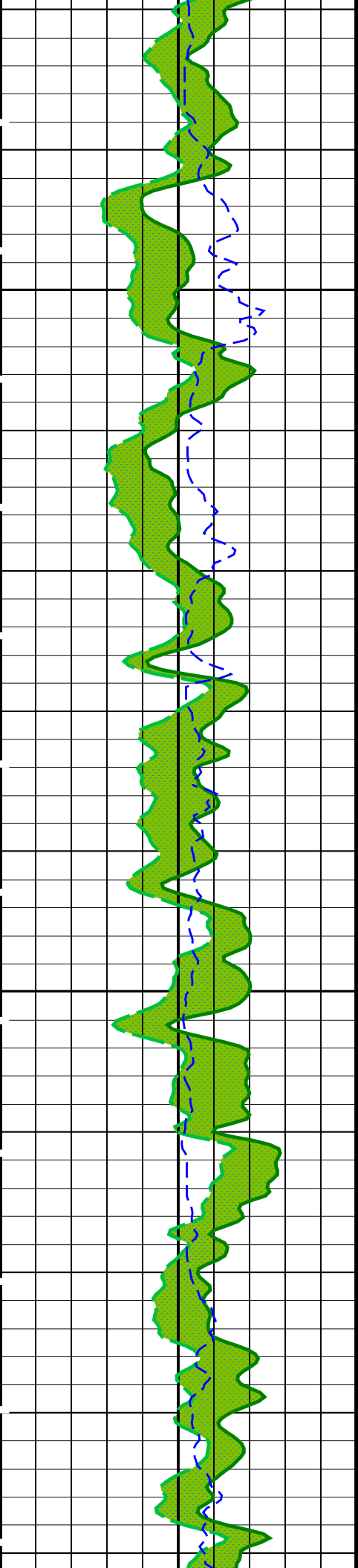


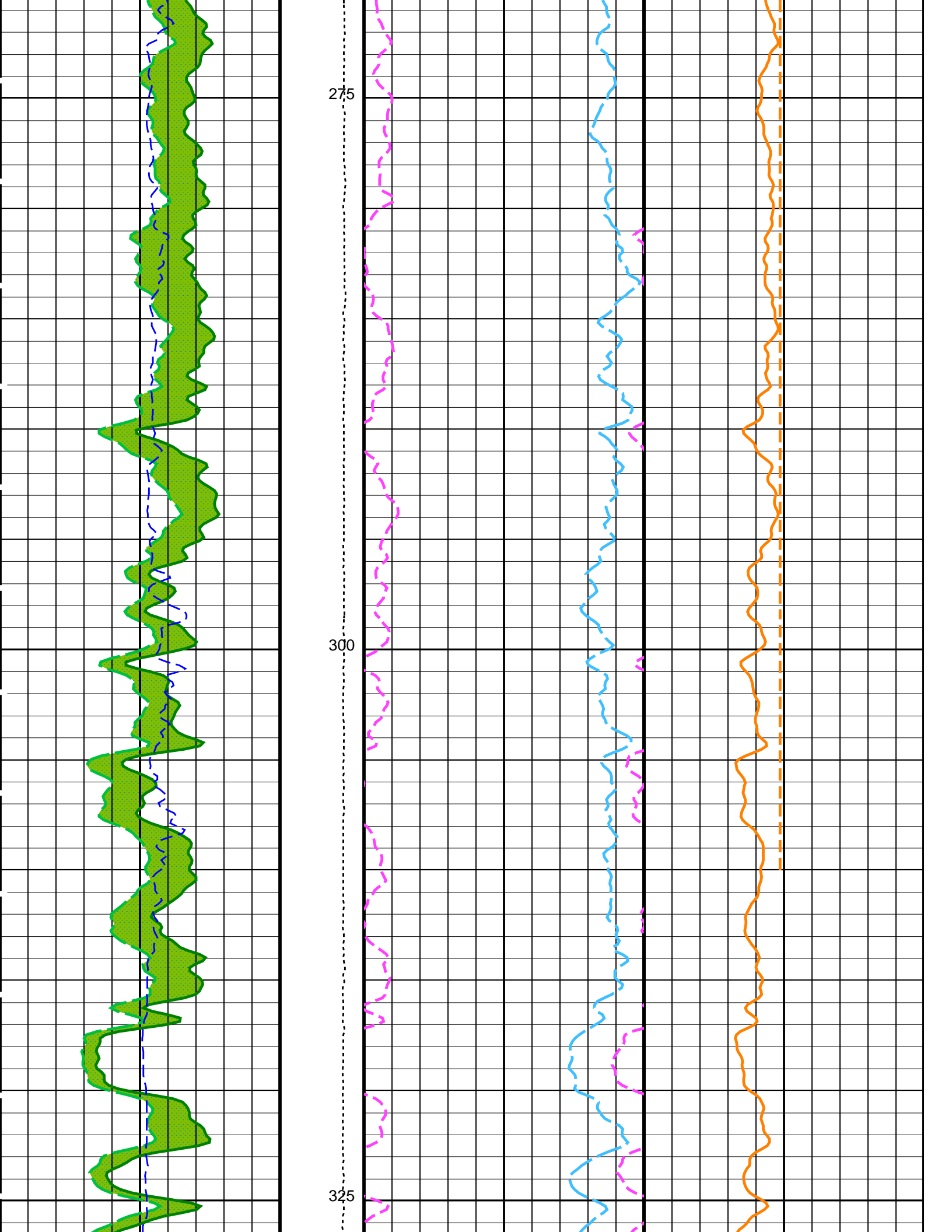


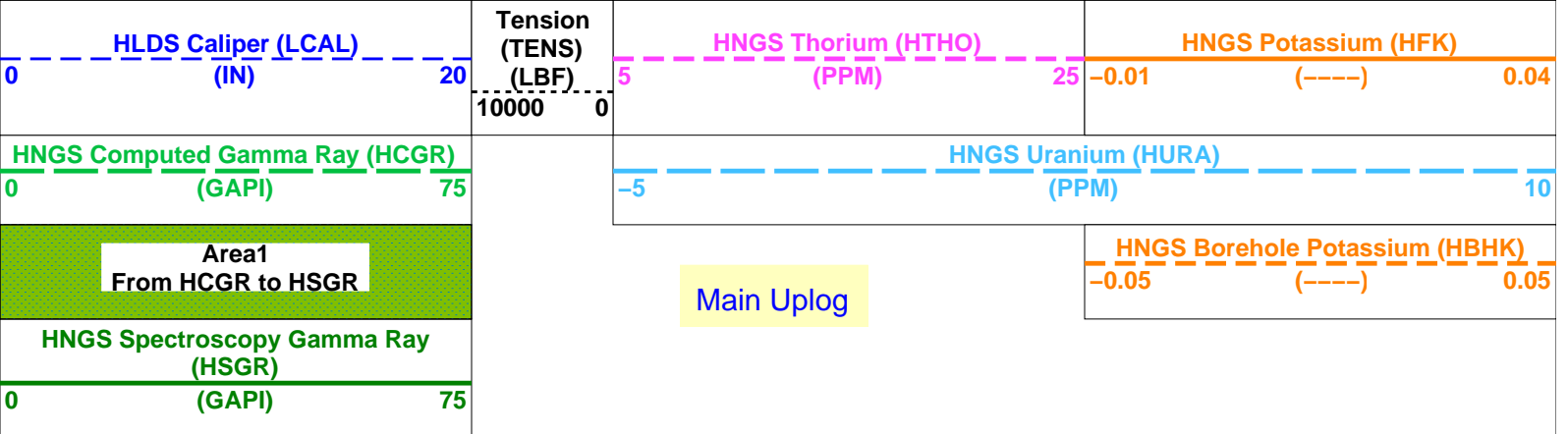
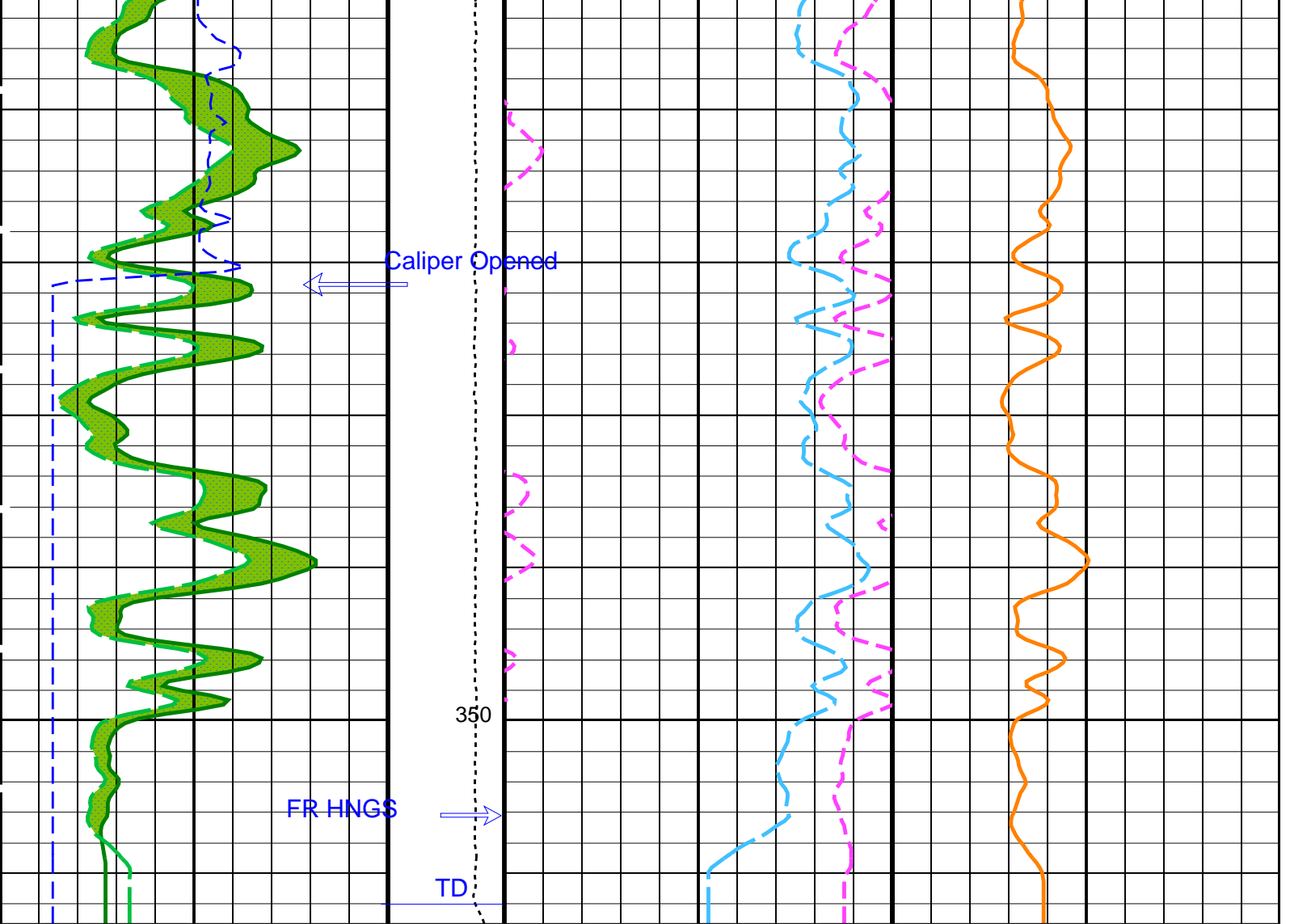












PIP SUMMARY

Time Mark Every 60 S

Parameters		
DLIS Name	Description	Value
HNGS-BA: Hostile Natural Gamma Ray Sonde		
BAR1	HNGS Detector 1 Barite Constant	1
BAR2	HNGS Detector 2 Barite Constant	1
BHK	HNGS Borehole Potassium Correction Concentration	0
BHS	Borehole Status	OPEN
CSD1	Inner Casing Outer Diameter	0 IN
CSD2	Outer Casing Outer Diameter	0 IN
CSW1	Inner Casing Weight	0 LB/F
CSW2	Outer Casing Weight	0 LB/F
DBCC	HNGS Barite Constant Correction Flag	NONE
GCSE	Generalized Caliper Selection	BS
H1P	HNGS Detector 1 Allow/Disallow In Processing	ALLOW

H2P	HNGS Detector 2 Allow/Disallow in Processing	ALLOW	
HABK	HNGS Borehole Potassium Running Average	-0.00268293	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	NATU	
HNPE	HNGS Processing Enable	YES	
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGS Standard Gamma-Ray Correction Flag	YES	
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0.957535	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.956327	
HRLT-B: High Resolution Laterolog Array - B			
BHS	Borehole Status	OPEN	
GCSE	Generalized Caliper Selection	BS	
EDTC-B: Enhanced DTS Cartridge			
BHS	Borehole Status	OPEN	
GCSE	Generalized Caliper Selection	BS	
System and Miscellaneous			
BS	Bit Size	9.875	IN
DFD	Drilling Fluid Density	1.25	G/C3
DO	Depth Offset for Playback	-656.0	M
PP	Playback Processing	NORMAL	

Format: HNGSYields Vertical Scale: 1:200 Graphics File Created: 24-Dec-2011 01:40

OP System Version: 19C0-187

HNGC-B	19C0-187	HNGS-BA	19C0-187
HRLT-B	19C0-187	HLDS	19C0-187
LDSC-B	19C0-187	EDTC-B	19C0-187

Input DLIS Files

DEFAULT	NGS_HRLA_LDL_013LUP	FN:18	PRODUCER	23-Dec-2011 23:56	1012.7 M	648.2 M
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Output DLIS Files

DEFAULT	NGS_HRLA_LDL_014PUP	FN:20	PRODUCER	24-Dec-2011 01:40		
BACKUPDLIS	NGS_HRLA_LDL_014PUP	FN:21	PRODUCER	24-Dec-2011 01:40		

Input DLIS Files

DEFAULT	NGS_HRLA_LDL_012LUP	FN:16	PRODUCER	23-Dec-2011 23:36	1005.8 M	933.8 M
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Output DLIS Files

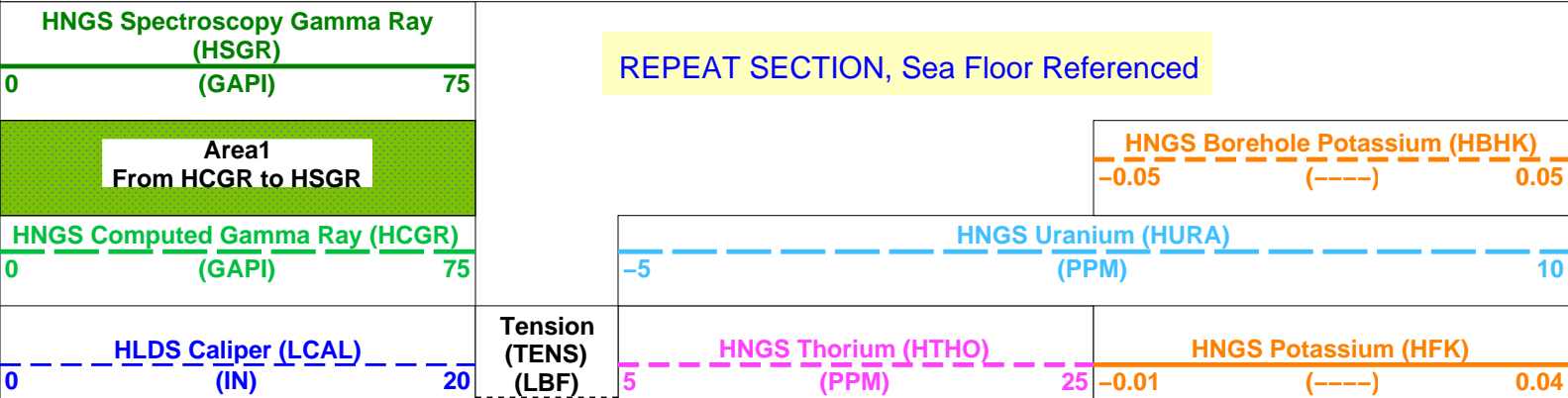
DEFAULT	NGS_HRLA_LDL_034PUP	FN:53	PRODUCER	25-Dec-2011 04:16	349.8 M	277.8 M
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OP System Version: 19C0-187

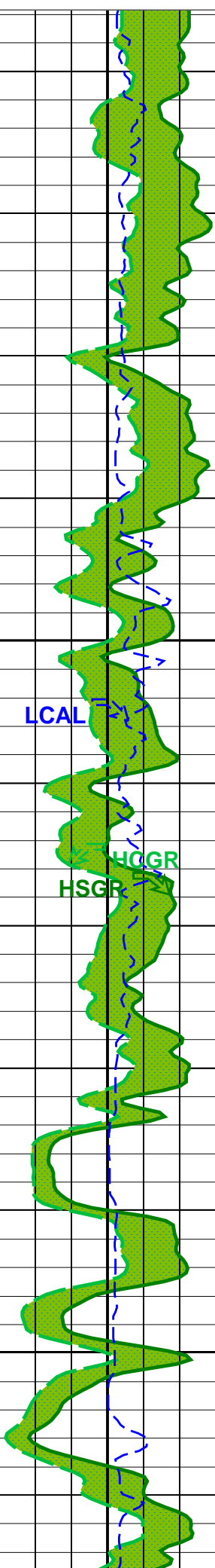
HNGC-B	19C0-187	HNGS-BA	19C0-187
HRLT-B	19C0-187	HLDS	19C0-187
LDSC-B	19C0-187	EDTC-B	19C0-187

PIP SUMMARY

Time Mark Every 60 S



10000 0



TENS

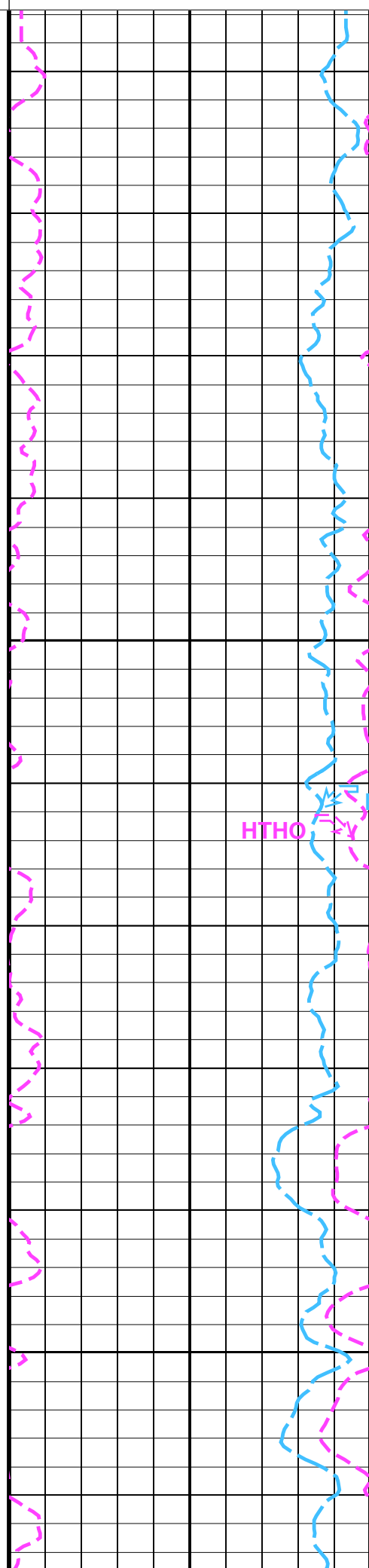
300

325

LCAL

HQGR

HSGR

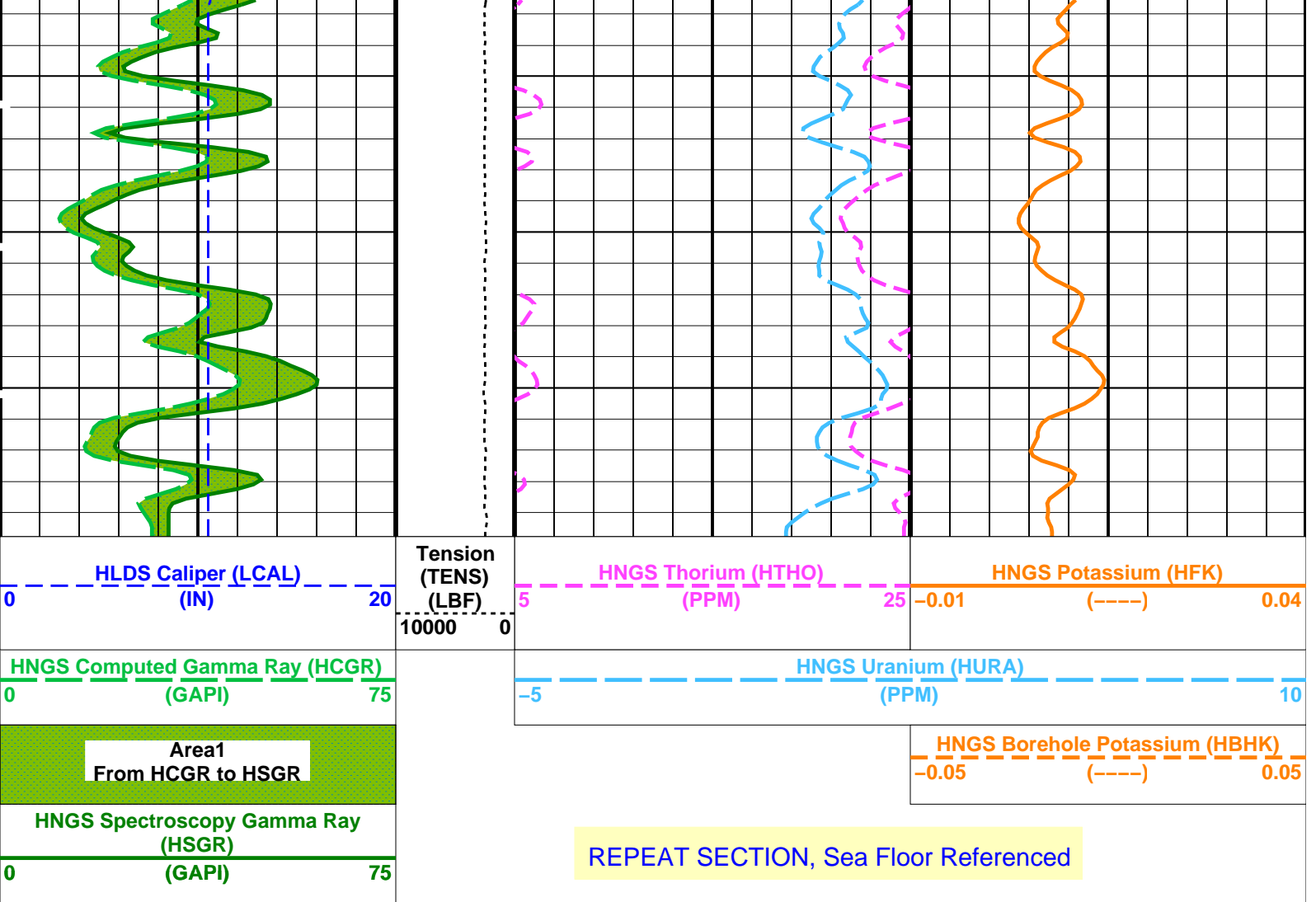


HTHO

HURA



HFK



PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
HNGS-BA: Hostile Natural Gamma Ray Sonde			
BAR1	HNGS Detector 1 Barite Constant	1	
BAR2	HNGS Detector 2 Barite Constant	1	
BHK	HNGS Borehole Potassium Correction Concentration	0	
BHS	Borehole Status	OPEN	
CSD1	Inner Casing Outer Diameter	0	IN
CSD2	Outer Casing Outer Diameter	0	IN
CSW1	Inner Casing Weight	0	LB/F
CSW2	Outer Casing Weight	0	LB/F
DBCC	HNGS Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	BS	
H1P	HNGS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGS Borehole Potassium Running Average	-0.00268293	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	NATU	
HNPE	HNGS Processing Enable	YES	
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGS Standard Gamma-Ray Correction Flag	YES	
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0.957535	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.956327	
HRLT-B: High Resolution Laterolog Array - B			
BHS	Borehole Status	OPEN	
GCSE	Generalized Caliper Selection	BS	
EDTC-B: Enhanced DTS Cartridge			
BHS	Borehole Status	OPEN	
GCSE	Generalized Caliper Selection	BS	
System and Miscellaneous			
BS	Bit Size	9.875	IN

OP System Version: 19C0-187

HNGC-B	19C0-187	HNGS-BA	19C0-187
HRLT-B	19C0-187	HLDS	19C0-187
LDSC-B	19C0-187	EDTC-B	19C0-187

Input DLIS Files

DEFAULT	NGS_HRLA_LDL_012LUP	FN:16	PRODUCER	23-Dec-2011 23:36	1005.8 M	933.8 M
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Output DLIS Files

DEFAULT	NGS_HRLA_LDL_034PUP	FN:53	PRODUCER	25-Dec-2011 04:16
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Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 1 Check							
Master: 17-Nov-2011 7:57 Before: 26-Nov-2011 0:21							
Na 511 Peak Loc	40.00	39.70	39.69	N/A	N/A	1.000	
Na 511 Peak Res	15.50	15.50	15.07	N/A	N/A	2.000	%
High Voltage	1150	1176	1168	N/A	N/A	N/A	V
Na 1785 Peak Loc	142.6	142.1	141.8	N/A	N/A	7.000	
Na 1785 Peak Res	8.500	8.309	8.731	N/A	N/A	2.000	%
Temperature	15.50	29.76	21.55	N/A	N/A	N/A	DEGC
Na Count Rate	45.00	20.77	21.01	N/A	N/A	8.000	CPS
Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 2 Check							
Master: 17-Nov-2011 7:57 Before: 26-Nov-2011 0:21							
Na 511 Peak Loc	40.00	39.60	39.49	N/A	N/A	1.000	
Na 511 Peak Res	15.50	16.99	15.91	N/A	N/A	2.000	%
High Voltage	1150	1109	1091	N/A	N/A	N/A	V
Na 1785 Peak Loc	142.6	142.6	142.3	N/A	N/A	7.000	
Na 1785 Peak Res	8.500	9.914	8.591	N/A	N/A	2.000	%
Temperature	15.50	29.91	21.84	N/A	N/A	N/A	DEGC
Na Count Rate	45.00	21.44	20.97	N/A	N/A	8.000	CPS
Hostile Natural Gamma Ray Sonde Wellsite Calibration – Ratio Of Detector 1 To Detector 2							
Master: 17-Nov-2011 7:57 Before: 26-Nov-2011 0:21							
Coincidence Count Rate Ratio	1.000	0.9705	1.004	N/A	N/A	0.05000	
Hostile Natural Gamma Ray Sonde Master Calibration – Detector 1 Calibration							
Master: 17-Nov-2011 7:52							
Na 511 Peak Set Point	40.00	41.00	---	---	---	---	
Th Peak Loc	209.6	210.8	---	---	---	---	
Th Peak Res	7.000	6.865	---	---	---	---	%
Background Count Rate	142.5	24.91	---	---	---	---	CPS
Gain Ratio	1.000	1.010	---	---	---	---	
Hostile Natural Gamma Ray Sonde Master Calibration – Detector 2 Calibration							
Master: 17-Nov-2011 7:52							
Na 511 Peak Set Point	40.00	41.00	---	---	---	---	
Th Peak Loc	209.6	208.5	---	---	---	---	
Th Peak Res	7.000	6.879	---	---	---	---	%
Background Count Rate	142.5	24.15	---	---	---	---	CPS
Gain Ratio	1.000	1.001	---	---	---	---	
High Resolution Laterolog Array – B Wellsite Calibration – HRLT M01							
Before: 23-Dec-2011 21:55 After: 17-Dec-2011 8:15							
HRLT M0-M1 Voltage Plus – 0	0	N/A	-319.5	-318.5	0.9792	9.681	UV
HRLT M0-M1 Voltage Plus – 1	0	N/A	-336.5	-331.6	4.838	9.681	UV
HRLT M0-M1 Voltage Plus – 2	0	N/A	-336.3	-333.4	2.825	9.681	UV
HRLT M0-M1 Voltage Plus – 3	0	N/A	-339.6	-336.7	2.949	9.681	UV
HRLT M0-M1 Voltage Plus – 4	0	N/A	-326.8	-325.3	1.528	9.681	UV
HRLT M0-M1 Voltage Plus – 5	0	N/A	-322.7	-321.5	1.169	9.681	UV
HRLT M0-M1 Voltage Plus – 6	0	N/A	327.5	322.6	-4.857	9.681	UV
HRLT M0-M1 Voltage Plus – 7	0	N/A	-322.7	-322.7	0	9.681	UV

High Resolution Laterolog Array – B Wellsite Calibration – HRLT M12

Before: 23-Dec-2011 21:55 After: 17-Dec-2011 8:15

HRLT M1-M2 Voltage Plus – 0	0	N/A	1756	1752	-4.348	53.42	UV
HRLT M1-M2 Voltage Plus – 1	0	N/A	1849	1822	-26.39	53.42	UV
HRLT M1-M2 Voltage Plus – 2	0	N/A	1843	1828	-14.50	53.42	UV
HRLT M1-M2 Voltage Plus – 3	0	N/A	1862	1846	-15.30	53.42	UV
HRLT M1-M2 Voltage Plus – 4	0	N/A	1793	1785	-7.379	53.42	UV
HRLT M1-M2 Voltage Plus – 5	0	N/A	1772	1767	-5.504	53.42	UV
HRLT M1-M2 Voltage Plus – 6	0	N/A	-1807	-1781	26.58	53.42	UV
HRLT M1-M2 Voltage Plus – 7	0	N/A	1781	1781	0	53.42	UV

High Resolution Laterolog Array – B Wellsite Calibration – HRLT M23

Before: 23-Dec-2011 21:55 After: 17-Dec-2011 8:15

HRLT M2-M3 Voltage Plus – 0	0	N/A	1742	1739	-3.204	53.42	UV
HRLT M2-M3 Voltage Plus – 1	0	N/A	1846	1822	-24.16	53.42	UV
HRLT M2-M3 Voltage Plus – 2	0	N/A	1841	1829	-12.35	53.42	UV
HRLT M2-M3 Voltage Plus – 3	0	N/A	1864	1850	-14.00	53.42	UV
HRLT M2-M3 Voltage Plus – 4	0	N/A	1788	1782	-5.890	53.42	UV
HRLT M2-M3 Voltage Plus – 5	0	N/A	1768	1765	-3.516	53.42	UV
HRLT M2-M3 Voltage Plus – 6	0	N/A	-1793	-1769	24.23	53.42	UV
HRLT M2-M3 Voltage Plus – 7	0	N/A	1781	1781	0	53.42	UV

High Resolution Laterolog Array – B Wellsite Calibration – HRLT V34

Before: 23-Dec-2011 21:55 After: 17-Dec-2011 8:15

HRLT A3-A4 Voltage Plus – 0	0	N/A	68500	68310	-189.4	2100	UV
HRLT A3-A4 Voltage Plus – 1	0	N/A	72380	71360	-1021	2100	UV
HRLT A3-A4 Voltage Plus – 2	0	N/A	72490	71940	-553.7	2100	UV
HRLT A3-A4 Voltage Plus – 3	0	N/A	73660	73030	-626.9	2100	UV
HRLT A3-A4 Voltage Plus – 4	0	N/A	70650	70340	-300.8	2100	UV
HRLT A3-A4 Voltage Plus – 5	0	N/A	69860	69660	-201.3	2100	UV
HRLT A3-A4 Voltage Plus – 6	0	N/A	-69310	-68290	1026	2100	UV
HRLT A3-A4 Voltage Plus – 7	0	N/A	70000	70000	0	2100	UV

High Resolution Laterolog Array – B Wellsite Calibration – HRLT V45

Before: 23-Dec-2011 21:55 After: 17-Dec-2011 8:15

HRLT A4-A5 Voltage Plus – 0	0	N/A	68780	68590	-183.8	2100	UV
HRLT A4-A5 Voltage Plus – 1	0	N/A	72760	71730	-1032	2100	UV
HRLT A4-A5 Voltage Plus – 2	0	N/A	72850	72290	-557.0	2100	UV
HRLT A4-A5 Voltage Plus – 3	0	N/A	74000	73380	-624.7	2100	UV
HRLT A4-A5 Voltage Plus – 4	0	N/A	70930	70640	-290.8	2100	UV
HRLT A4-A5 Voltage Plus – 5	0	N/A	70140	69930	-213.6	2100	UV
HRLT A4-A5 Voltage Plus – 6	0	N/A	-69700	-68660	1044	2100	UV
HRLT A4-A5 Voltage Plus – 7	0	N/A	70000	70000	0	2100	UV

High Resolution Laterolog Array – B Wellsite Calibration – HRLT V56

Before: 23-Dec-2011 21:55 After: 17-Dec-2011 8:15

HRLT A5-A6 Voltage Plus – 0	0	N/A	68680	68490	-185.7	2100	UV
HRLT A5-A6 Voltage Plus – 1	0	N/A	72490	71460	-1030	2100	UV
HRLT A5-A6 Voltage Plus – 2	0	N/A	72610	72050	-556.2	2100	UV
HRLT A5-A6 Voltage Plus – 3	0	N/A	73780	73190	-595.8	2100	UV
HRLT A5-A6 Voltage Plus – 4	0	N/A	70800	70490	-302.2	2100	UV
HRLT A5-A6 Voltage Plus – 5	0	N/A	70040	69800	-236.2	2100	UV
HRLT A5-A6 Voltage Plus – 6	0	N/A	-69400	-68390	1006	2100	UV
HRLT A5-A6 Voltage Plus – 7	0	N/A	70000	70000	0	2100	UV

High Resolution Laterolog Array – B Wellsite Calibration – HRLT VTP

Before: 23-Dec-2011 21:55 After: 17-Dec-2011 8:15

HRLT Torpedo-M0 Voltage – 0	0	N/A	-68360	-68170	186.3	2100	UV
HRLT Torpedo-M0 Voltage – 1	0	N/A	-72830	-71790	1041	2100	UV
HRLT Torpedo-M0 Voltage – 2	0	N/A	-72920	-72360	556.8	2100	UV
HRLT Torpedo-M0 Voltage – 3	0	N/A	-74090	-73480	612.6	2100	UV
HRLT Torpedo-M0 Voltage – 4	0	N/A	-71000	-70700	298.7	2100	UV
HRLT Torpedo-M0 Voltage – 5	0	N/A	-70190	-69970	226.9	2100	UV
HRLT Torpedo-M0 Voltage – 6	0	N/A	69690	68650	-1032	2100	UV
HRLT Torpedo-M0 Voltage – 7	0	N/A	-70000	-70000	0	2100	UV

High Resolution Laterolog Array – B Wellsite Calibration – HRLT VBD

Before: 23-Dec-2011 21:55 After: 17-Dec-2011 8:15

HRLT Bridle#9-M0 Voltage – 0	0	N/A	-68350	-68160	189.9	2100	UV
HRLT Bridle#9-M0 Voltage – 1	0	N/A	-72800	-71760	1042	2100	UV
HRLT Bridle#9-M0 Voltage – 2	0	N/A	-72890	-72320	572.5	2100	UV
HRLT Bridle#9-M0 Voltage – 3	0	N/A	-74060	-73450	607.6	2100	UV
HRLT Bridle#9-M0 Voltage – 4	0	N/A	-70990	-70690	296.2	2100	UV
HRLT Bridle#9-M0 Voltage – 5	0	N/A	-70180	-69960	222.5	2100	UV
HRLT Bridle#9-M0 Voltage – 6	0	N/A	69660	68640	-1018	2100	UV
HRLT Bridle#9-M0 Voltage – 7	0	N/A	-70000	-70000	0	2100	UV

High Resolution Laterolog Array – B Wellsite Calibration – HRLT ISO

Before: 23-Dec-2011 21:55 After: 17-Dec-2011 8:15

HRLT Source Current Plus – 0	0	N/A	285.0	284.2	-0.7901	8.520	UA
HRLT Source Current Plus – 1	0	N/A	281.1	281.1	0	8.520	UA

HRLT Source Current Plus - 1	0	N/A	281.1	281.1	0	8.520	UA
HRLT Source Current Plus - 2	0	N/A	281.1	281.1	0	8.520	UA
HRLT Source Current Plus - 3	0	N/A	281.1	281.1	0	8.520	UA
HRLT Source Current Plus - 4	0	N/A	281.1	281.1	0	8.520	UA
HRLT Source Current Plus - 5	0	N/A	281.1	281.1	0	8.520	UA
HRLT Source Current Plus - 6	0	N/A	281.1	281.1	0	8.520	UA
HRLT Source Current Plus - 7	0	N/A	281.1	281.1	0	8.520	UA

High Resolution Laterolog Array - B Wellsite Calibration - HRLT MV

Before: 23-Dec-2011 21:55 After: 17-Dec-2011 8:15

HRLT Vertical Voltage PI - 0	0	N/A	-322.0	-321.1	0.8658	9.681	UV
HRLT Vertical Voltage PI - 1	0	N/A	-330.7	-326.0	4.719	9.681	UV
HRLT Vertical Voltage PI - 2	0	N/A	-329.6	-327.2	2.443	9.681	UV
HRLT Vertical Voltage PI - 3	0	N/A	-331.3	-328.7	2.675	9.681	UV
HRLT Vertical Voltage PI - 4	0	N/A	-316.2	-315.0	1.265	9.681	UV
HRLT Vertical Voltage PI - 5	0	N/A	-327.5	-326.5	0.9413	9.681	UV
HRLT Vertical Voltage PI - 6	0	N/A	334.8	329.9	-4.840	9.681	UV
HRLT Vertical Voltage PI - 7	0	N/A	-322.7	-322.7	0	9.681	UV

Hostile Litho-Density Sonde Wellsite Calibration - Background Measurement

Master: 17-Nov-2011 16:03 Before: 17-Nov-2011 15:55 After: 17-Dec-2011 8:50

SS Cs Resolution Bkg	9.000	7.741	7.618	7.594	-0.02418	1.800	%
LS Cs Resolution Bkg	9.000	8.089	8.025	8.065	0.04037	1.800	%
LSW1 Background	100.0	87.45	87.45	87.53	0.08757	0.03000	CPS
LSW2 Background	100.0	80.38	80.38	79.58	-0.7984	0.03000	CPS
LSW3 Background	200.0	180.0	180.0	180.4	0.3738	0.03000	CPS
LSW4 Background	250.0	224.8	224.8	226.5	1.701	0.03000	CPS
LSW5 Background	600.0	526.0	526.0	519.3	-6.693	0.03000	CPS
SSW1 Background	100.0	85.28	85.28	84.82	-0.4580	0.03000	CPS
SSW2 Background	200.0	147.3	147.3	146.1	-1.170	0.03000	CPS
SSW3 Background	500.0	409.2	409.2	411.5	2.230	0.03000	CPS
SSW4 Background	270.0	221.7	221.7	221.2	-0.4445	0.03000	CPS
SSW5 Background	200.0	158.7	158.7	157.7	-1.014	0.03000	CPS

Hostile Litho-Density Sonde Wellsite Calibration - Aluminum Measurement

Master: 17-Nov-2011 16:33

LSW1 Aluminum	600.0	560.2	N/A	N/A	N/A	N/A	CPS
LSW2 Aluminum	900.0	815.4	N/A	N/A	N/A	N/A	CPS
LSW3 Aluminum	1100	984.8	N/A	N/A	N/A	N/A	CPS
LSW4 Aluminum	580.0	493.4	N/A	N/A	N/A	N/A	CPS
LSW5 Aluminum	570.0	450.2	N/A	N/A	N/A	N/A	CPS
SSW1 Aluminum	2800	2639	N/A	N/A	N/A	N/A	CPS
SSW2 Aluminum	8000	7196	N/A	N/A	N/A	N/A	CPS
SSW3 Aluminum	11600	10050	N/A	N/A	N/A	N/A	CPS
SSW4 Aluminum	5000	4135	N/A	N/A	N/A	N/A	CPS
SSW5 Aluminum	660.0	504.7	N/A	N/A	N/A	N/A	CPS

Hostile Litho-Density Sonde Wellsite Calibration - Lithology Measurement

Master: 17-Nov-2011 16:29

LSW1 Iron	400.0	389.4	N/A	N/A	N/A	N/A	CPS
LSW2 Iron	730.0	674.0	N/A	N/A	N/A	N/A	CPS
LSW3 Iron	1000	897.0	N/A	N/A	N/A	N/A	CPS
LSW4 Iron	520.0	464.0	N/A	N/A	N/A	N/A	CPS
LSW5 Iron	470.0	424.7	N/A	N/A	N/A	N/A	CPS
SSW1 Iron	2100	1967	N/A	N/A	N/A	N/A	CPS
SSW2 Iron	6800	6145	N/A	N/A	N/A	N/A	CPS
SSW3 Iron	10800	9395	N/A	N/A	N/A	N/A	CPS
SSW4 Iron	4600	3871	N/A	N/A	N/A	N/A	CPS
SSW5 Iron	580.0	460.2	N/A	N/A	N/A	N/A	CPS

Hostile Litho-Density Sonde Wellsite Calibration - Caliper Calibration

Before: 17-Dec-2011 9:53

HLDS Caliper Small Ring	12.00	N/A	14.33	N/A	N/A	N/A	IN
HLDS Caliper Large Ring	15.19	N/A	18.10	N/A	N/A	N/A	IN

Enhanced DTS Cartridge Wellsite Calibration - EDTC Accelerometer Calibration

Before: 23-Dec-2011 21:51

EDTC Z-Axis Acceleration	9.810	N/A	9.813	N/A	N/A	N/A	M/S2
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Enhanced DTS Cartridge Wellsite Calibration - Detector Calibration

Before: Calibration out of date 26-Nov-2011 0:18

Gamma Ray (Jig - Bkg)	163.8	N/A	163.8	N/A	N/A	14.89	GAPI
Gamma Ray (Calibrated)	164.0	N/A	164.0	N/A	N/A	15.00	GAPI

Hostile Natural Gamma Ray Cartridge - B / Equipment Identification

Primary Equipment:
HNGC Cartridge

HNGC - B

300

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		39.70	Master		15.50	Master		1176
Before		39.69	Before		15.07	Before		1168
	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		8.309	Master		29.76
Before		141.8	Before		8.731	Before		21.55
	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		20.77						
Before		21.01						
	10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)							

Master: 17-Nov-2011 7:57 Before: 26-Nov-2011 0:21

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		39.60	Master		16.99	Master		1109
Before		39.49	Before		15.91	Before		1091
	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		9.914	Master		29.91
Before		142.3	Before		8.591	Before		21.84
	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		21.44						
Before		20.97						
	10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)							




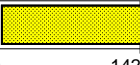

Master: 17-Nov-2011 7:57 Before: 26-Nov-2011 0:21

Hostile Natural Gamma Ray Sonde Wellsite Calibration		
Ratio Of Detector 1 To Detector 2		
Phase	Coincidence Count Rate Ratio	Value
Master		0.9705
Before		1.004
	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	

Master: 17-Nov-2011 7:57
Before: 26-Nov-2011 0:21

Hostile Natural Gamma Ray Sonde Master Calibration




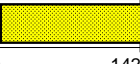

Detector 1 Calibration

Phase	Na 511 Peak Set Point	Value	Phase	Th Peak Loc	Value	Phase	Th Peak Res %	Value
Master		41.00	Master		210.8	Master		6.865
	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		24.91	Master		1.010			
	10.00 (Minimum) 142.5 (Nominal) 265.0 (Maximum)			0.9400 (Minimum) 1.000 (Nominal) 1.060 (Maximum)				

Master: 17-Nov-2011 7:52

Hostile Natural Gamma Ray Sonde Master Calibration

Detector 2 Calibration

Phase	Na 511 Peak Set Point	Value	Phase	Th Peak Loc	Value	Phase	Th Peak Res %	Value
Master		41.00	Master		208.5	Master		6.879
	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		24.15	Master		1.001			
	10.00 (Minimum) 142.5 (Nominal) 265.0 (Maximum)			0.9400 (Minimum) 1.000 (Nominal) 1.060 (Maximum)				

Master: 17-Nov-2011 7:52

High Resolution Laterolog Array – B / Equipment Identification

Primary Equipment:		
HRLT Sonde	HRLS – B	969
Auxiliary Equipment:		
HRLT lower Housing	HRLH – B	759
HRLT Lower Cartridge	HRLC – B	759
HRLT upper Housing	HRUH – B	769
HRLT Upper Cartridge	HRUC – B	769

Hostile Litho-Density Sonde / Equipment Identification

Primary Equipment:		
Hostile Litho Density Sonde	HLDS – D	45
Hostile Litho Density High Voltage	HLDV – D	45
Gamma Source Radioactive	GSR – Z	2397
Auxiliary Equipment:		
Hostile Litho Density Pad	HLDP – C	45
Hostile Litho Density High Voltage Housi	HEH – H	47

Litho-Density Spectroscopy Cartridge – B / Equipment Identification


Primary Equipment:		
LDSC Cartridge	LDSC – B	521
Auxiliary Equipment:		
LDSC Housing	LDSH – A	319

Enhanced DTS Cartridge / Equipment Identification

Primary Equipment:		
EDTC Gamma Ray Detector	EDTG – A/B	77693
Enhanced DTS Cartridge	EDTC – B	8529
Auxiliary Equipment:		
EDTC Housing	EDTH – B	8528

Enhanced DTS Cartridge Wellsite Calibration

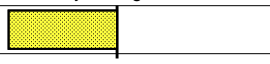
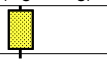
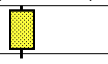
EDTC Accelerometer Calibration

Phase	EDTC Z-Axis Acceleration M/S2	Value
Before		9.813
	9.610 (Minimum) 9.810 (Nominal) 10.01 (Maximum)	

Before: 23-Dec-2011 21:51

Enhanced DTS Cartridge Wellsite Calibration

Detector Calibration

Phase	Gamma Ray Background GAPI	Value	Phase	Gamma Ray (Jig - Bkg) GAPI	Value	Phase	Gamma Ray (Calibrated) GAPI	Value
Before		9.201	Before		163.8	Before		164.0
	0 (Minimum) 30.00 (Nominal) 120.0 (Maximum)			148.9 (Minimum) 163.8 (Nominal) 178.7 (Maximum)			149.0 (Minimum) 164.0 (Nominal) 179.0 (Maximum)	

Before: Calibration out of date 26-Nov-2011 0:18

Company: **Lamont Doherty**

Schlumberger

Well: **Expedition 339, Site U1389 GC-11A Hole A**

Field: **Mediterranean Outflow (Portugal)**

Rig: **JOIDES Resolution**

Ocean: **Atlantic**

Hostile Natural

Gamma Ray

Spectroscopy