

COMPANY: Lamont Doherty

WELL: ODP Leg 189, Site 1168 (WT-1A)

FIELD: Tasmanian Seaway, West Tasmania Site

COUNTY: Offshore STATE: Indian Ocean



Density/APS Porosity

COUNTY: Offshore  
Field: Tasmanian Seaway, West Tasm  
Location:  
Well: ODP Leg 189, Site 1168 (WT-1A)  
Company: Lamont Doherty

LOCATION		Elev.:	K.B.	11.2 M.
Permanent Datum:	MSL		G.L.	2474 M.
Log Measured From:	RKB		D.F.	10.9 M.
Drilling Measured From:	RKB	Elev.:	0 ft	
			11.2 M. above Perm. Datum	
API Serial No.	Max. Hole Devi.	Longitude	Latitude	
	0 deg			

Logging Date	Run 1	Run 2	Run
Run Number			
Depth Driller			
Schlumberger Depth			
Bottom Log Interval			
Top Log Interval			
Casing Driller Size @ Depth			
Casing Schlumberger			
Bit Size			
Type Fluid In Hole			
Density			
Fluid Loss			
PH			
Source Of Sample			
RM @ Measured Temperature			
RMF @ Measured Temperature			
RMC @ Measured Temperature			
Source RMF			
RMC			
RM @ MRT			
RMF @ MRT			
Maximum Recorded Temperatures			
Circulation Stopped			
Time			
Logger On Bottom			
Time			
Unit Number			
Location			
Recorded By			
Kerry M. Swain			
Witnessed By			
Patrick Fothergill, Ulysses S. Ninnemann			

Logging Date	23-MAR-2000
Run Number	One
Depth Driller	3357.7 M.
Schlumberger Depth	3351 M.
Bottom Log Interval	3336 M.
Top Log Interval	2573 M.
Casing Driller Size @ Depth	0.000 in @ 2573 M.
Casing Schlumberger	2573 M.
Bit Size	9.875 in
Type Fluid In Hole	Salt Water Base
Density	8.51234 lbm/gal
Fluid Loss	PH
Source Of Sample	Salt water
RM @ Measured Temperature	0.216 ohm.m @ 62 degF
RMF @ Measured Temperature	@ @
RMC @ Measured Temperature	@ @
Source RMF	RMC
RM @ MRT	0.171 @ 80
RMF @ MRT	@ 80
Maximum Recorded Temperatures	80 degF
Circulation Stopped	23-MAR-2000
Time	6:30
Logger On Bottom	23-MAR-2000
Time	14:18
Unit Number	99
Location	Houston OS
Recorded By	Kerry M. Swain
Witnessed By	Patrick Fothergill, Ulysses S. Ninnemann

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILLFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO CLAUSE 4 OF OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

OTHER SERVICES1  
 OS1: GHMT  
 OS2: DITE/HLDS/APS  
 OS3:  
 OS4:  
 OS5:

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

REMARKS: RUN NUMBER 1  
 Hole cored with APC/XCB.  
 Sea Floor at 2475.5 MBRF.  
 Log presented in Meters below rig floww (MBRF).  
 Lamont Temperature Tool (TAP) run on DITE/HLDS/APS/HNGS only.  
 Toolstring- DITE/HLDS/APS/HNGS  
 Wireline Heave Compensator was used on all descents.  
 Sepiolite mud was used to displace the hole.  
 Drillers TD- 3357.7 MBRF.  
 Loggers TD- 3351 MBRF.  
 Drill Pipe Logger- 2573 MBRF.  
 The Caliper was closed @ 3216-3194MBRF & 2906-2895MBRF due to overpull.  
 These areas show decreased GR curves due to Borehole correction from Caliper.  
 GR spikes at 2464-2461 & 2495 MBRF are from magnetic Pipe collars.  
 Hole rugosity will effect Density/APS.

REMARKS: RUN NUMBER 2




RUN 1		
LOGGED INTERVAL	START	STOP

RUN 2		
LOGGED INTERVAL	START	STOP

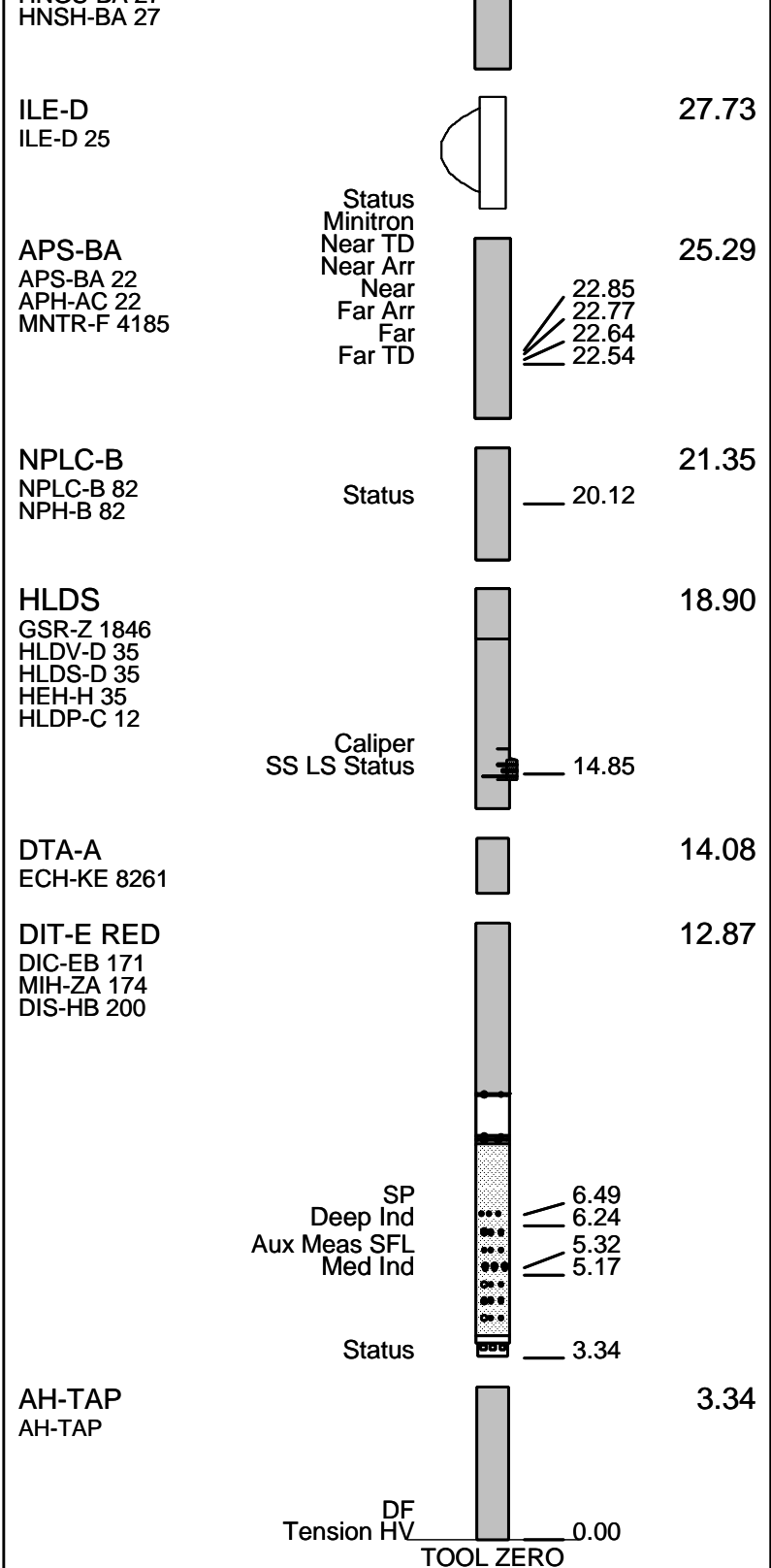
**EQUIPMENT DESCRIPTION**

**SURFACE EQUIPMENT**  
 SFT-281 24  
 SFT-178 4722  
 GSR-U 135  
 WITM (DTS)-A

**DOWNHOLE EQUIPMENT**

LEH-QT			32.03
LEH-QT			
DTC-H	CTEM		30.86
ECH-KC 8253	TelStatus		31.14
	ToolStatu		30.23
HNGS-BA	Upper_1		29.53
HNGS-BA 27	Lower_2		30.23
			29.32

**RUN 2**



TOOL ZERO

MAXIMUM STRING DIAMETER 3.88 IN  
 MEASUREMENTS RELATIVE TO TOOL ZERO  
 ALL LENGTHS IN METERS

## Output DLIS Files

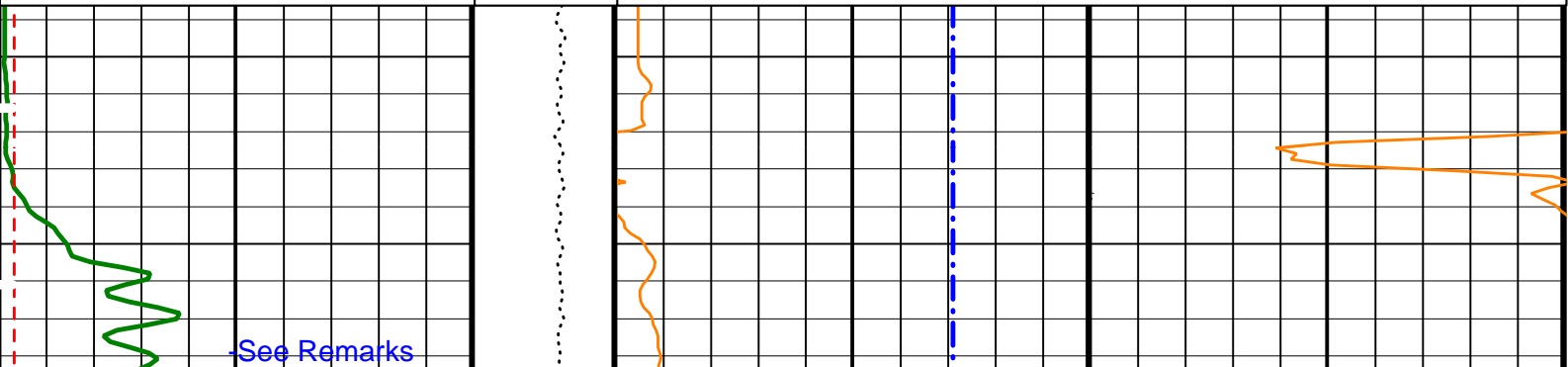
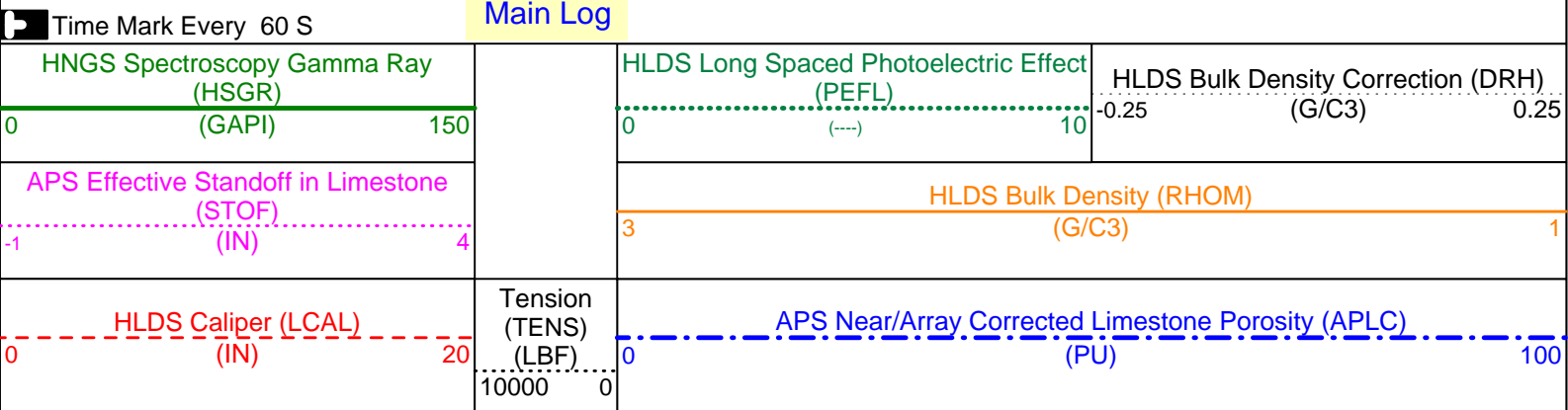
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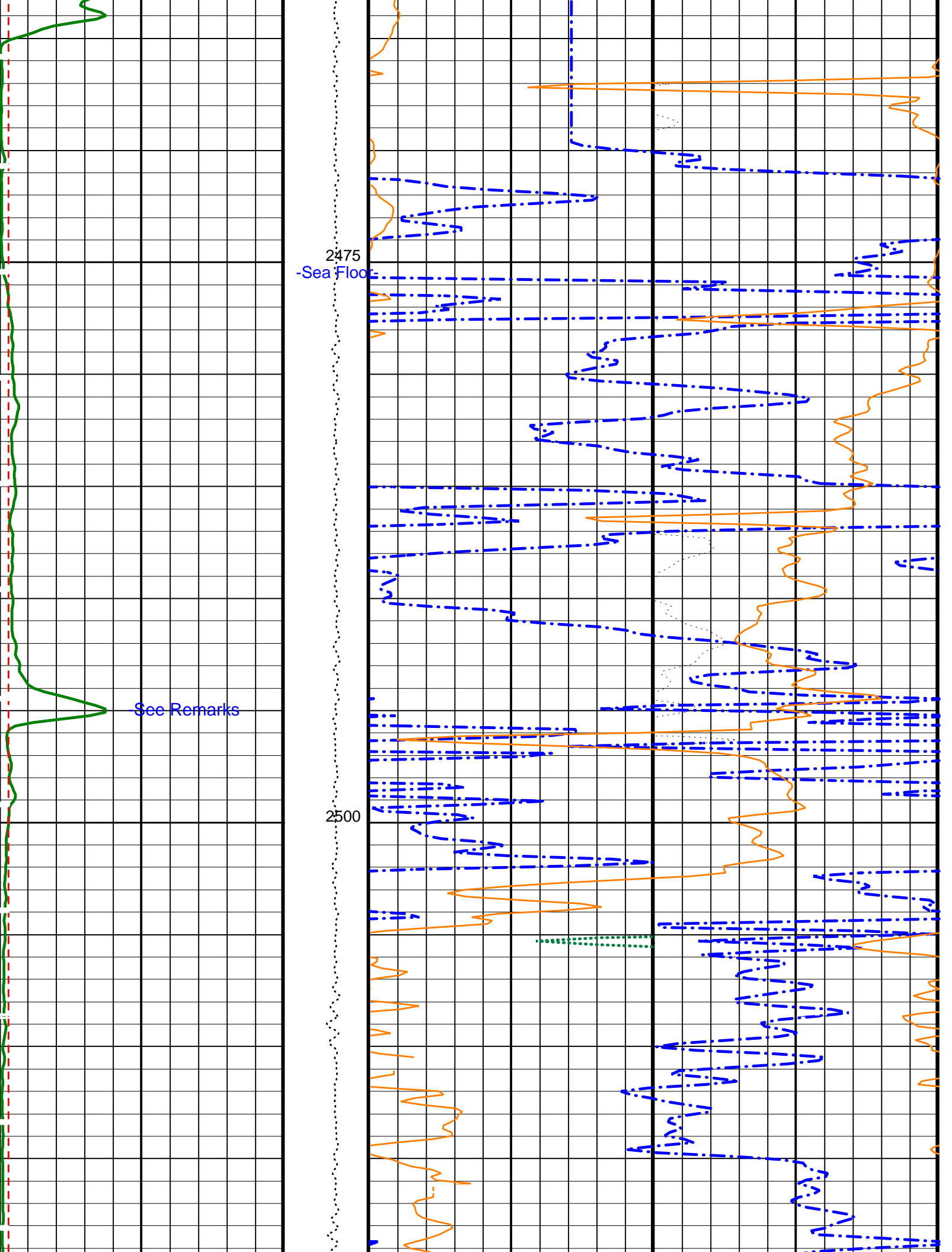
## OP System Version: 9C1-303

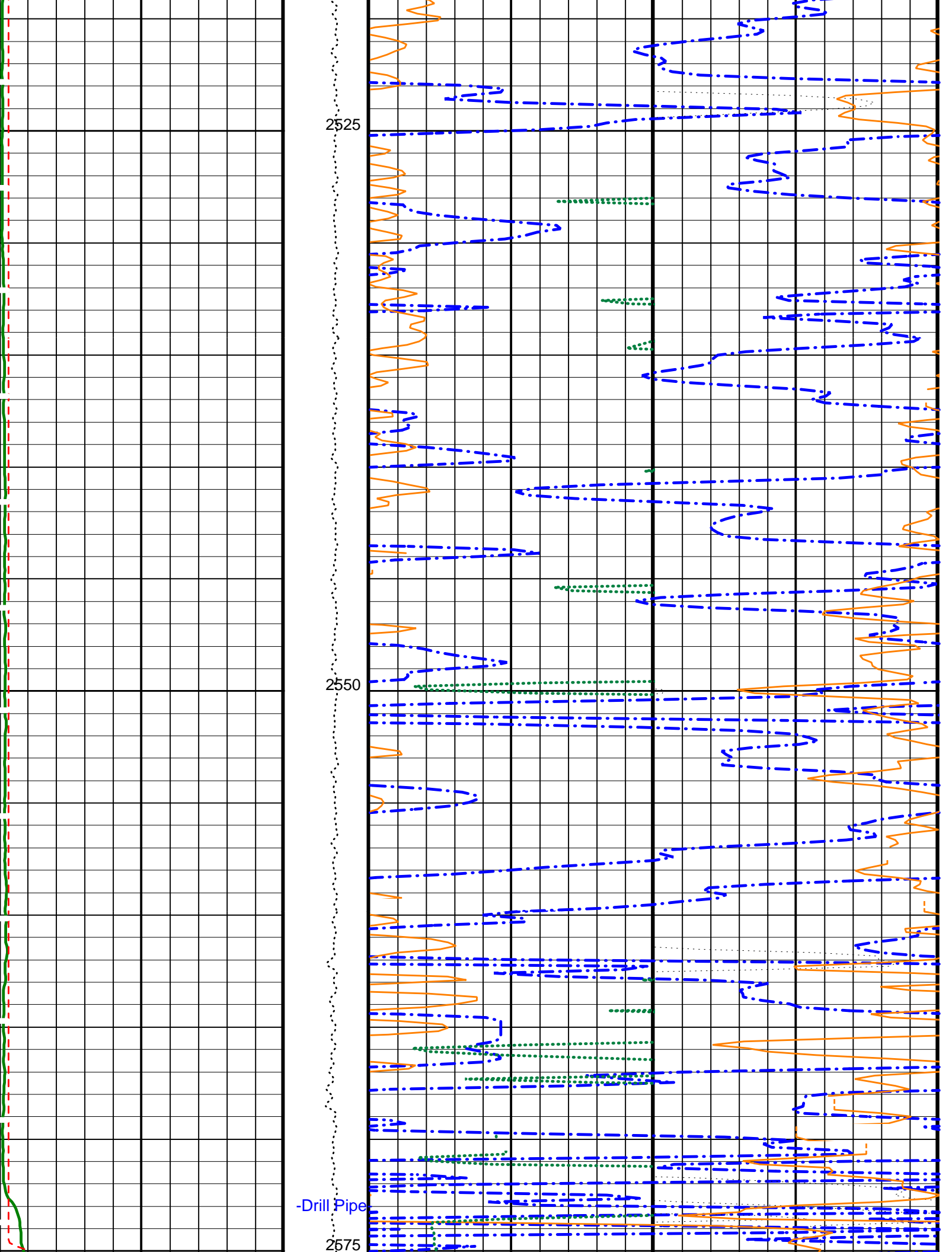
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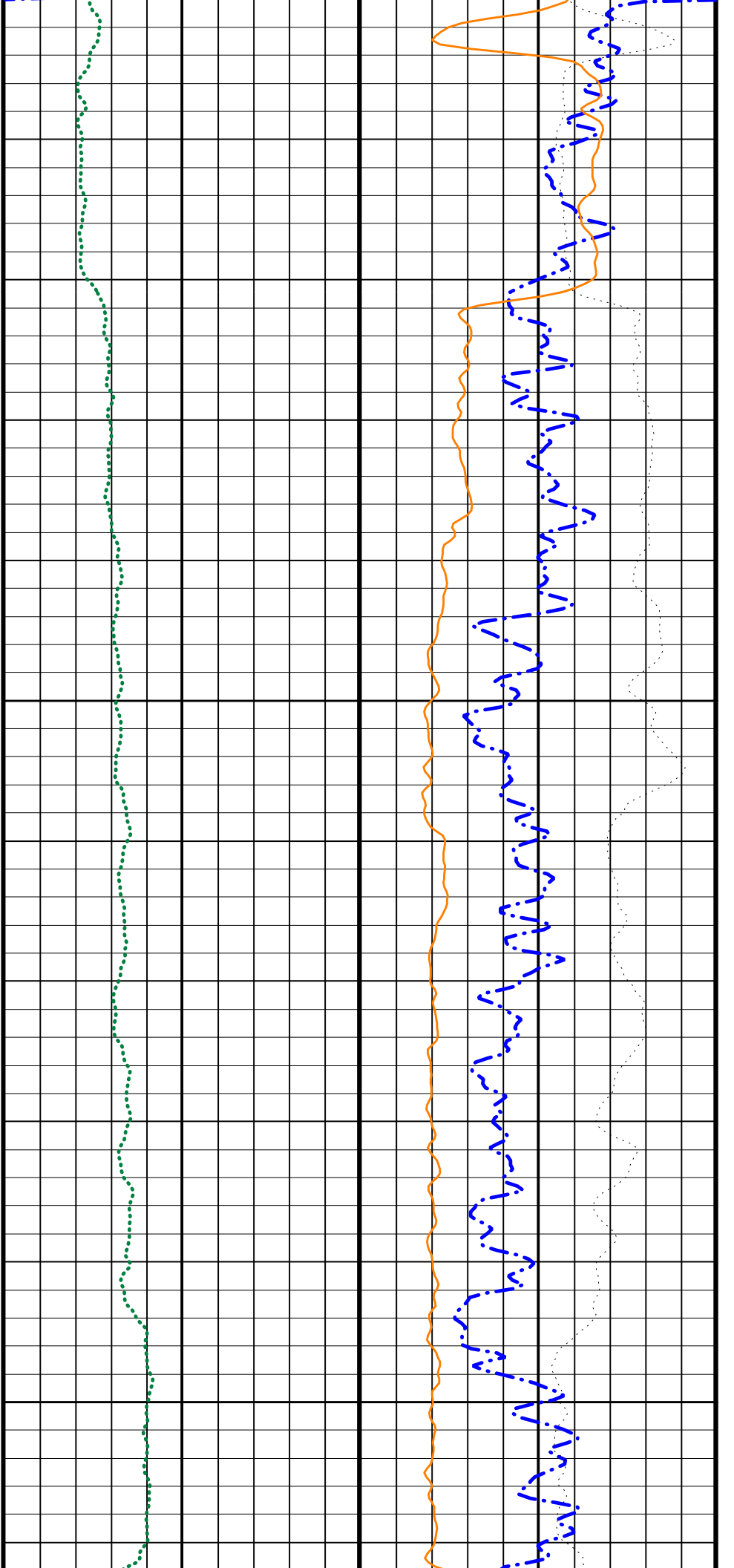
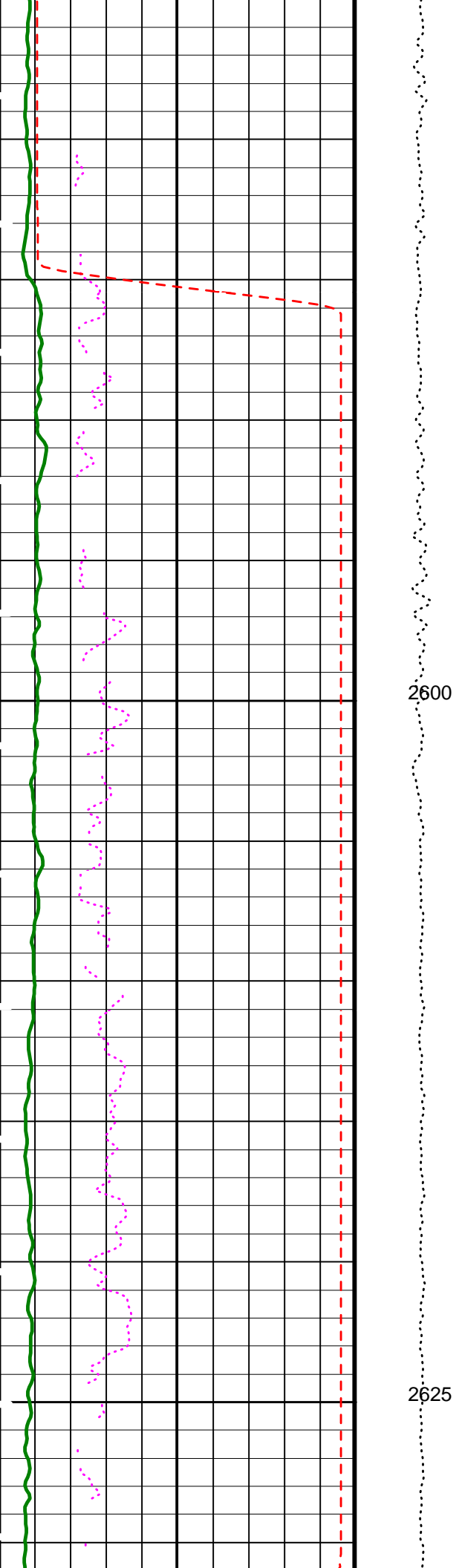
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HLDS	9C1-303	NPLC-B	9C1-303
APS-BA	9C1-303	HNGS-BA	9C1-303
DTC-H	9C1-303		

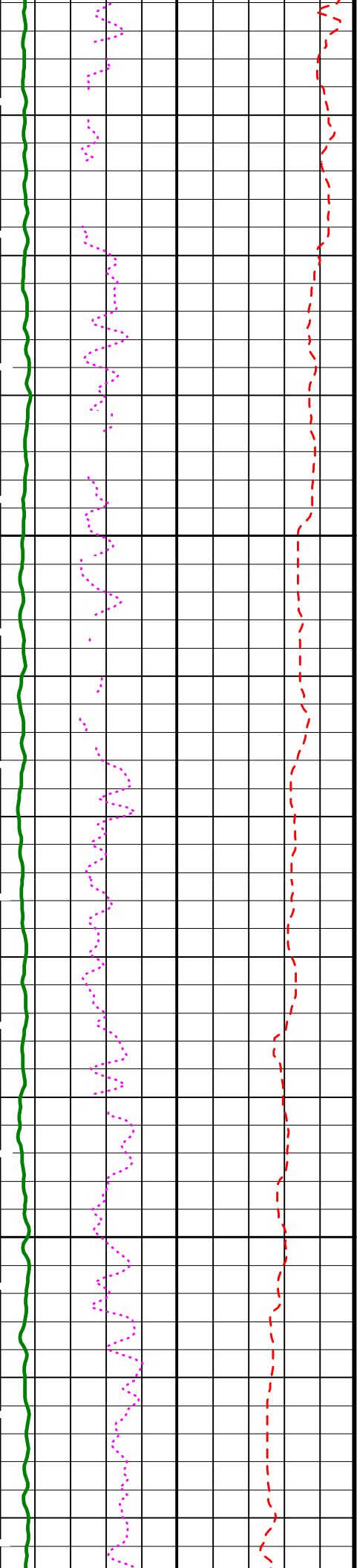
### PIP SUMMARY





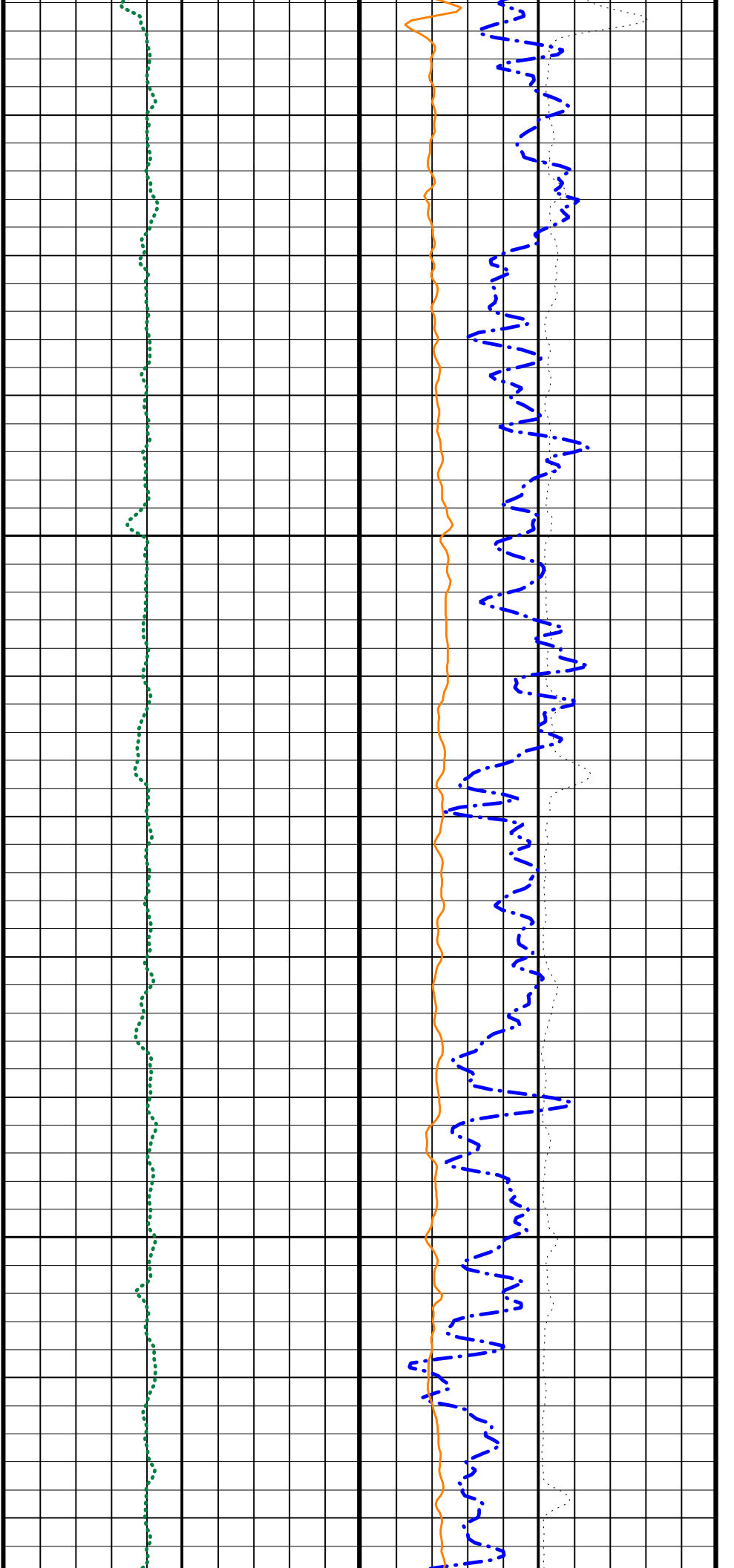




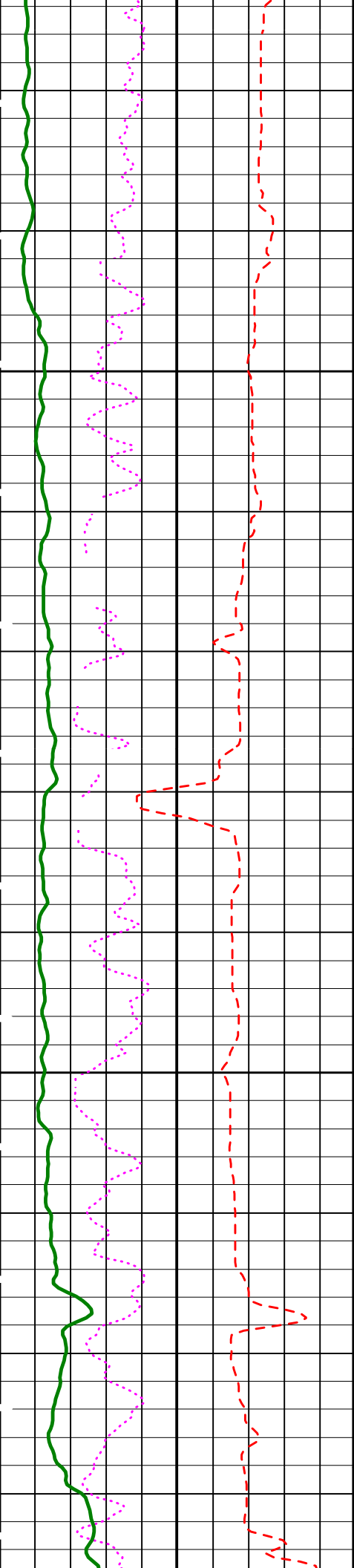


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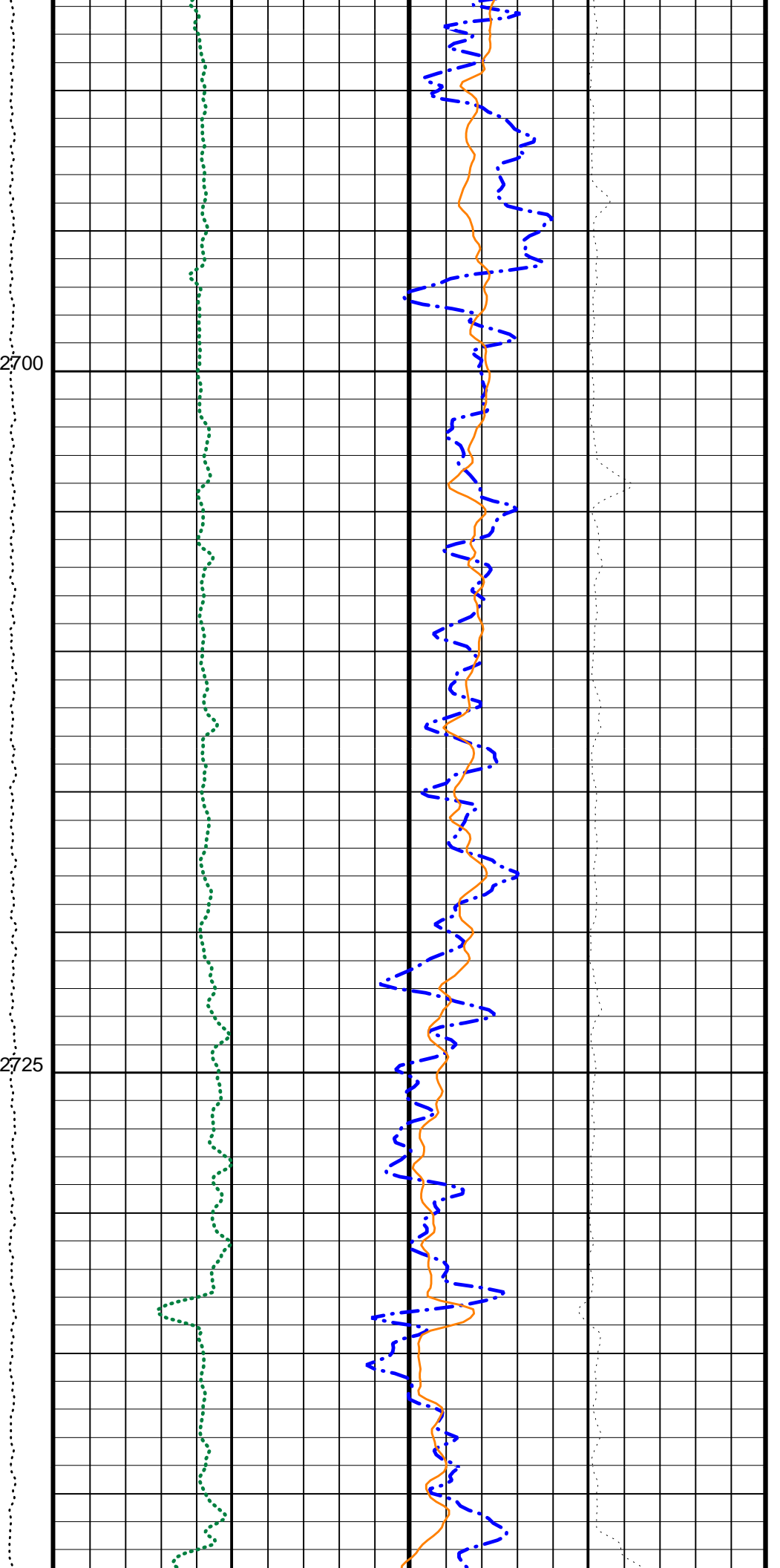


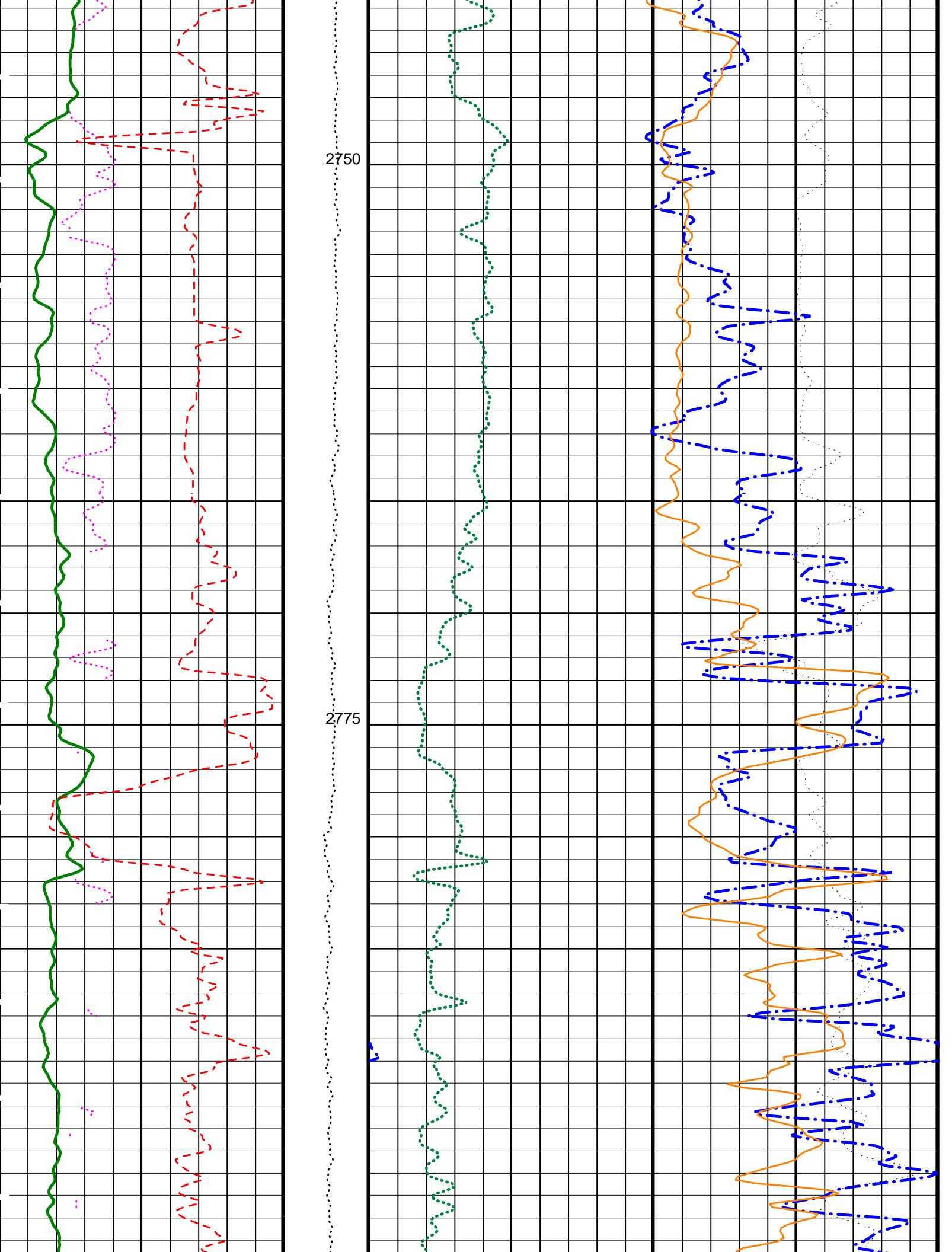


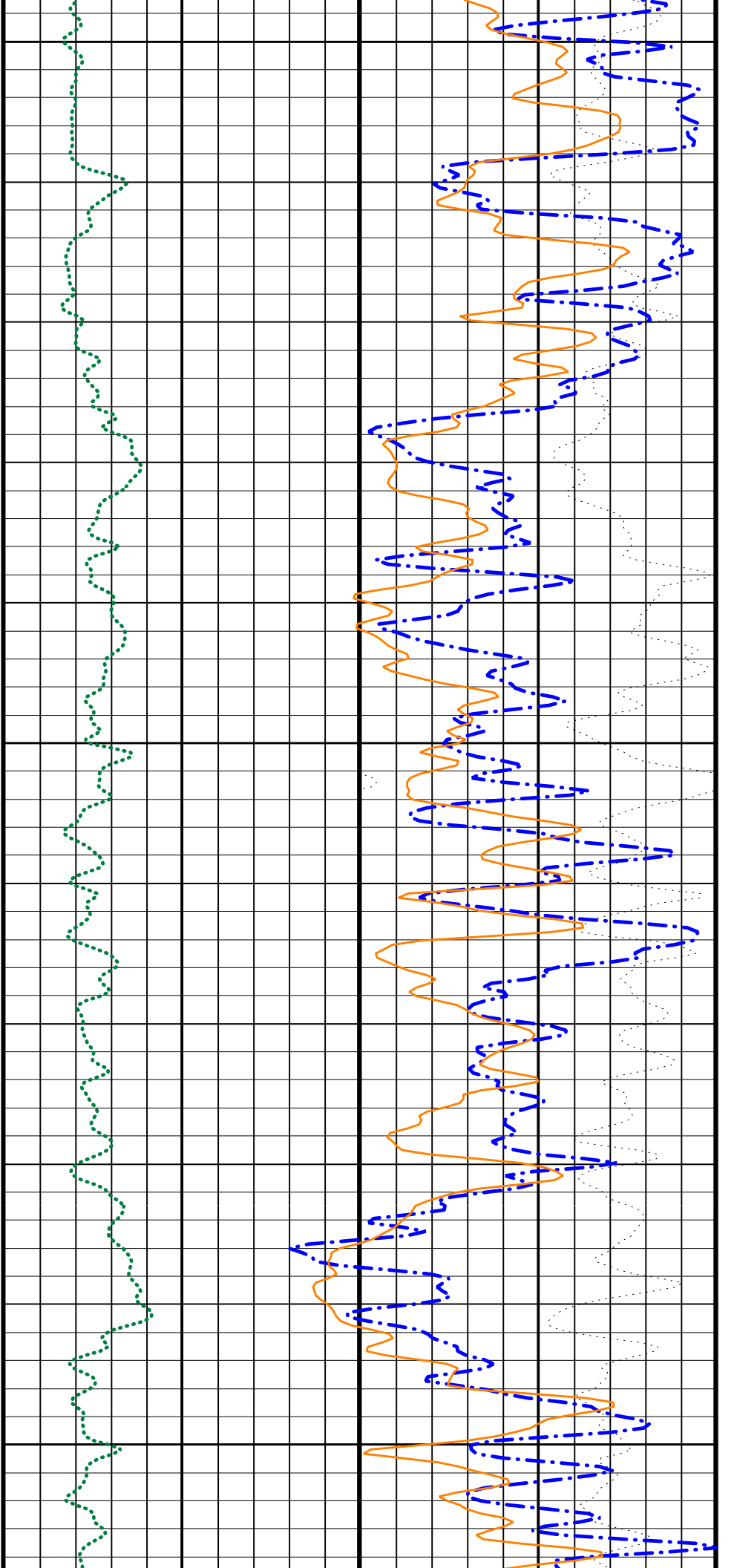
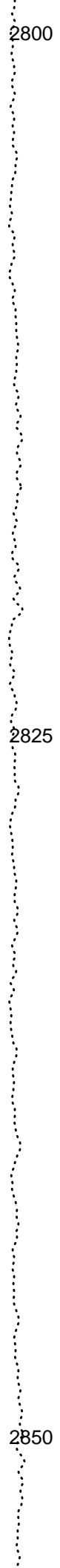
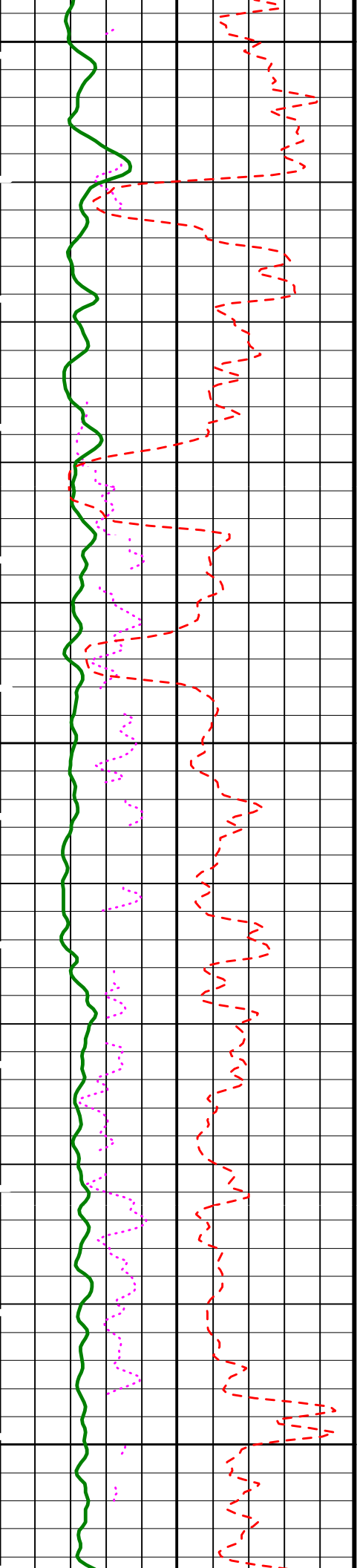


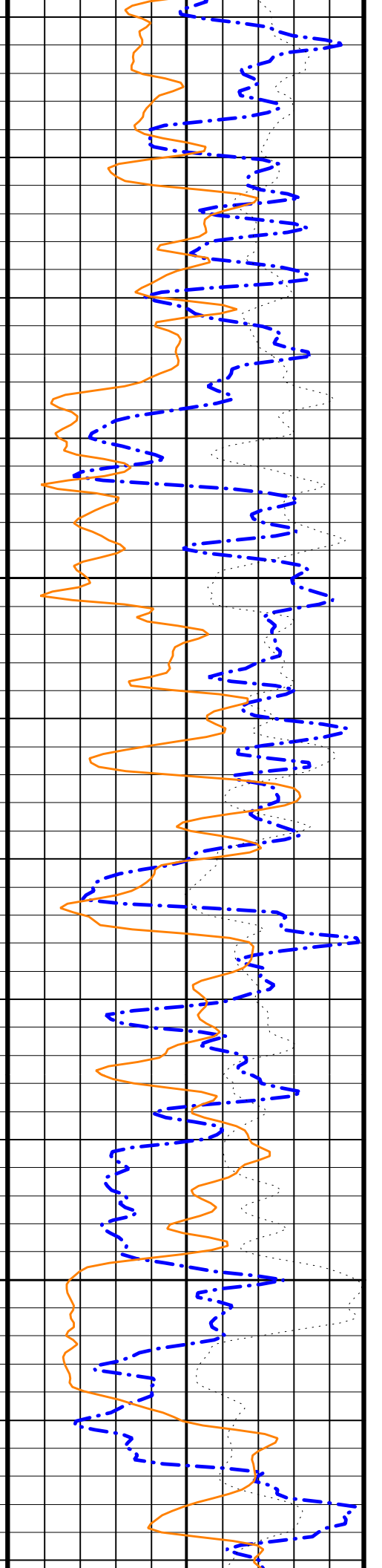
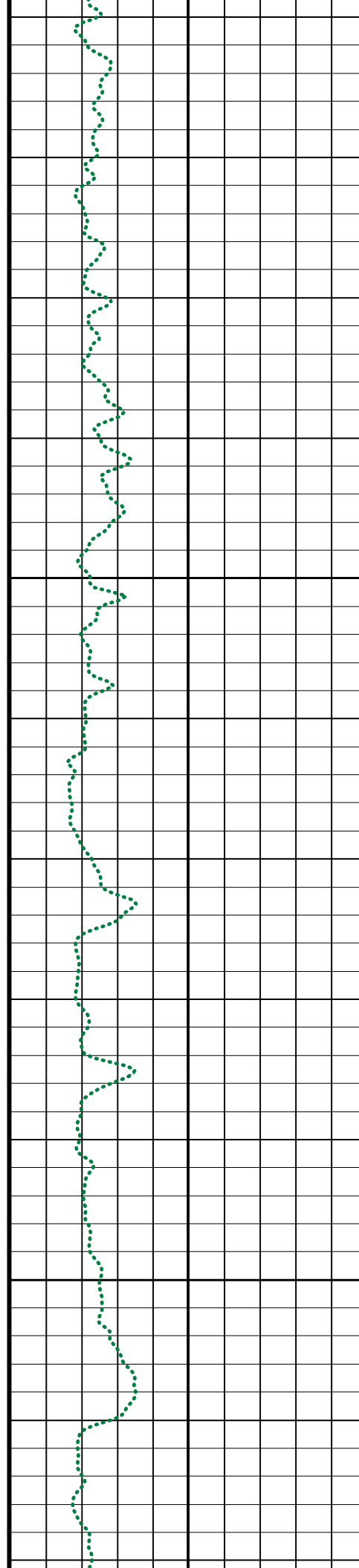
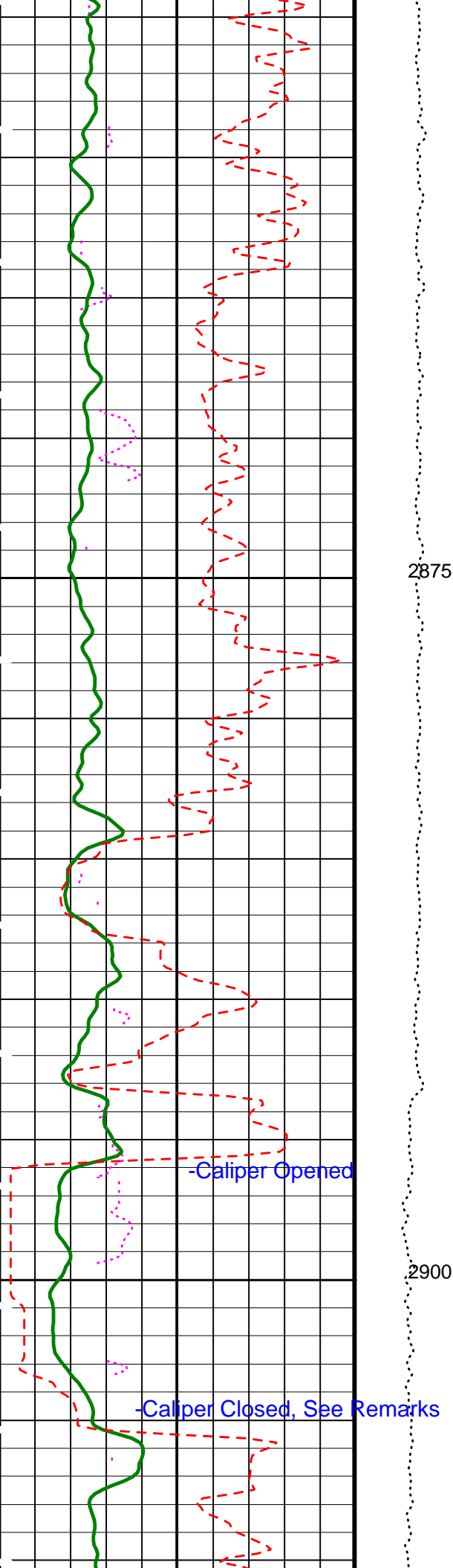
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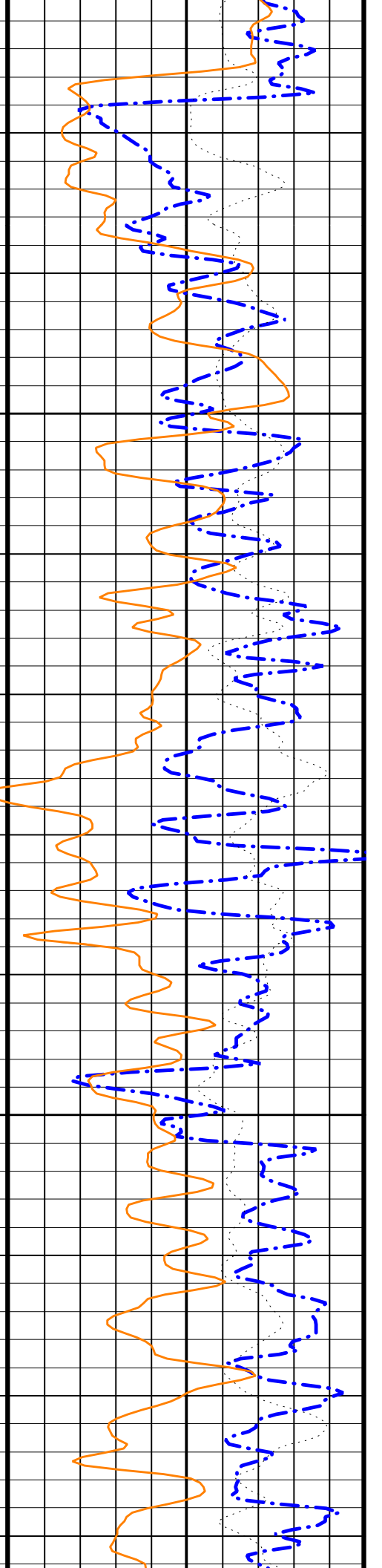
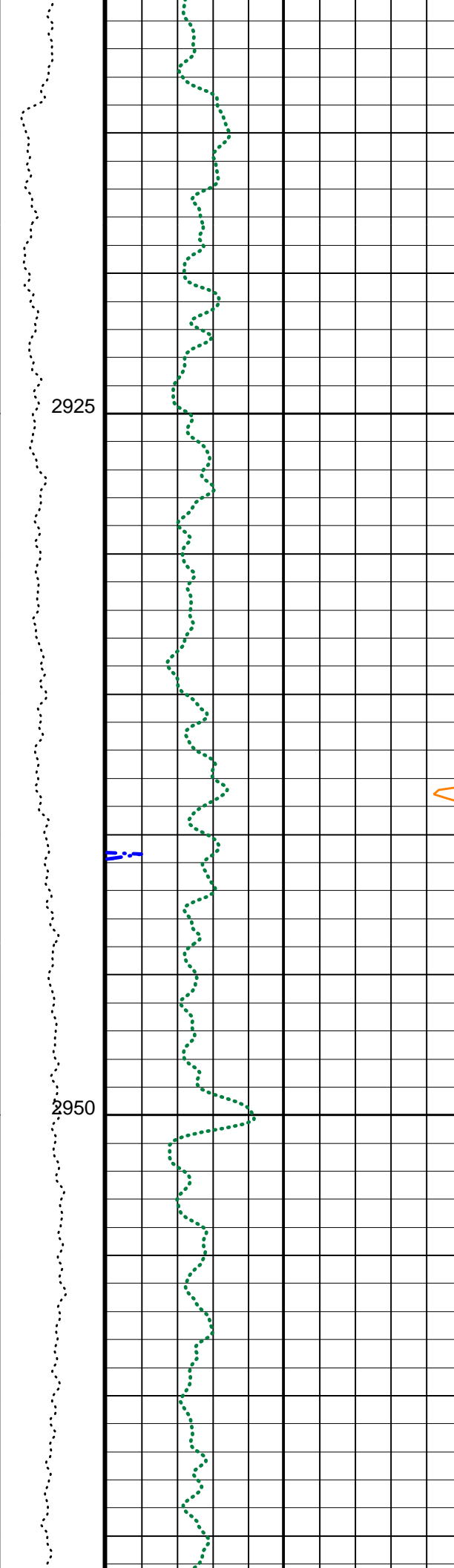
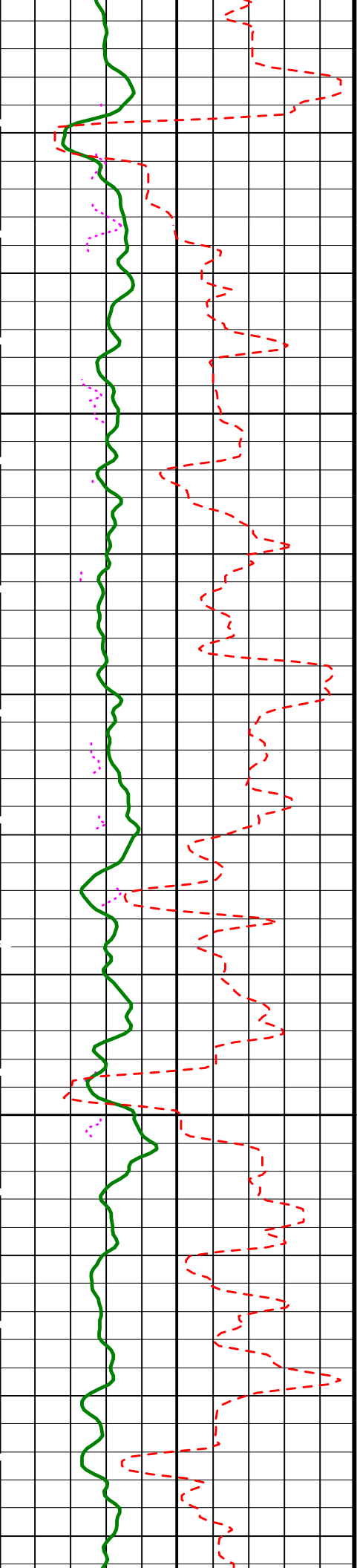
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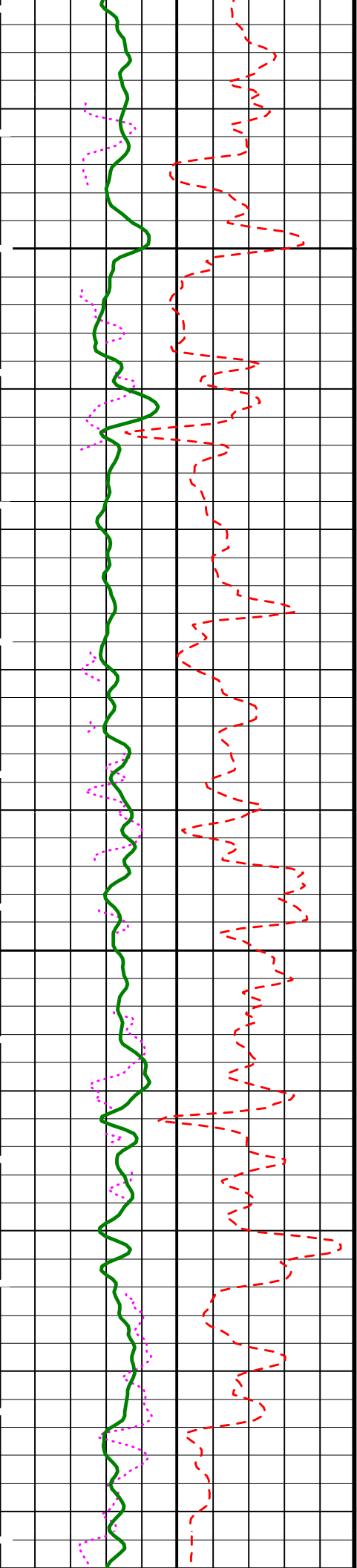




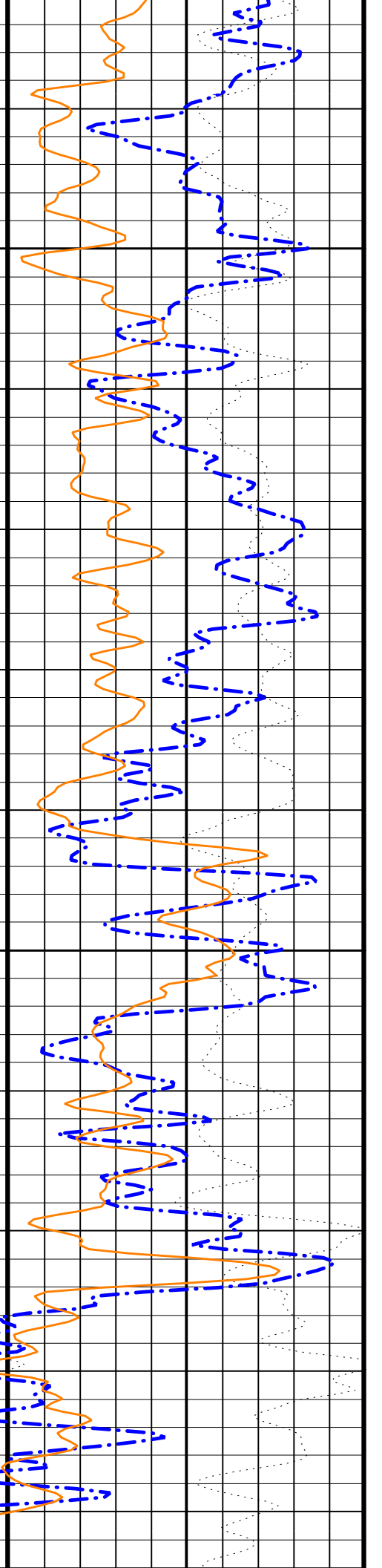
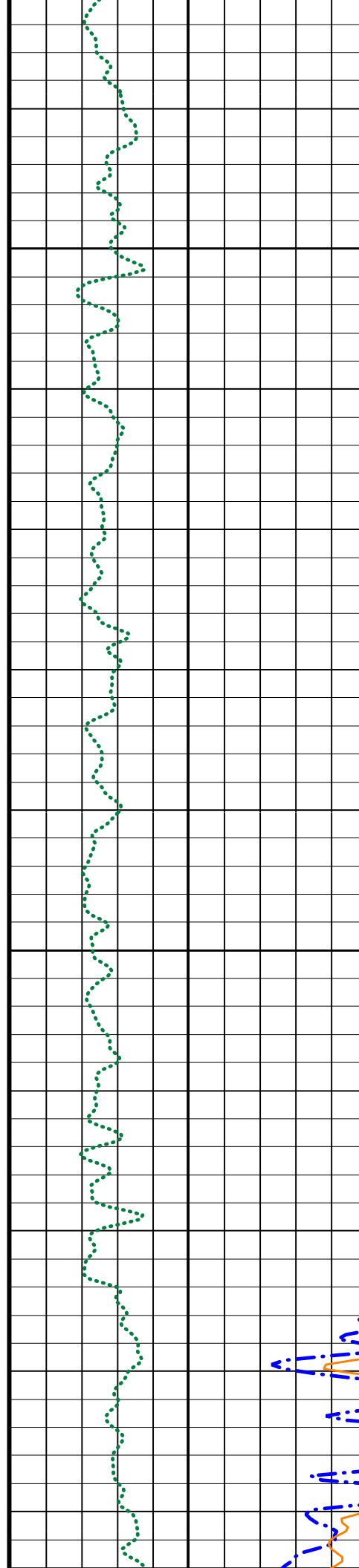


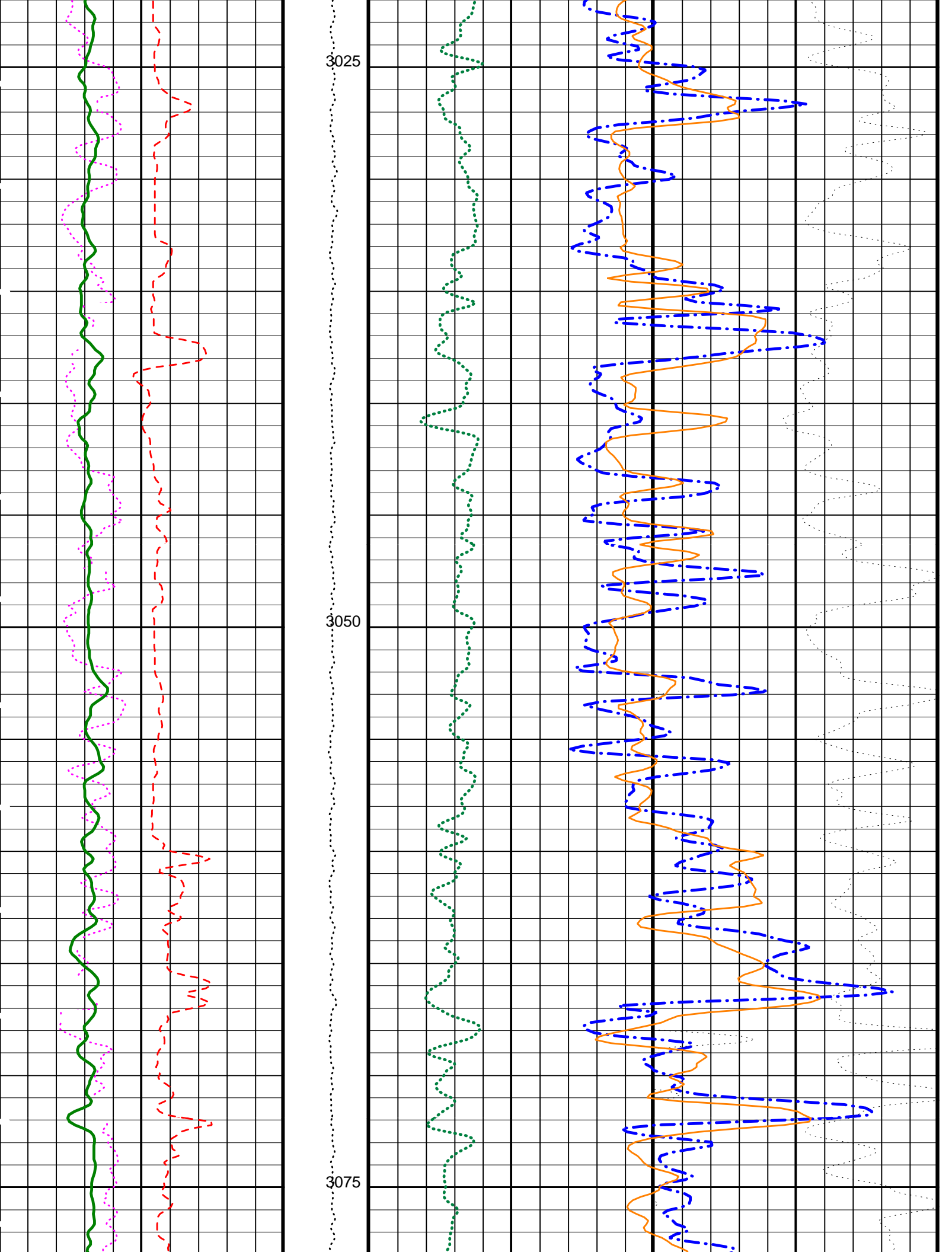


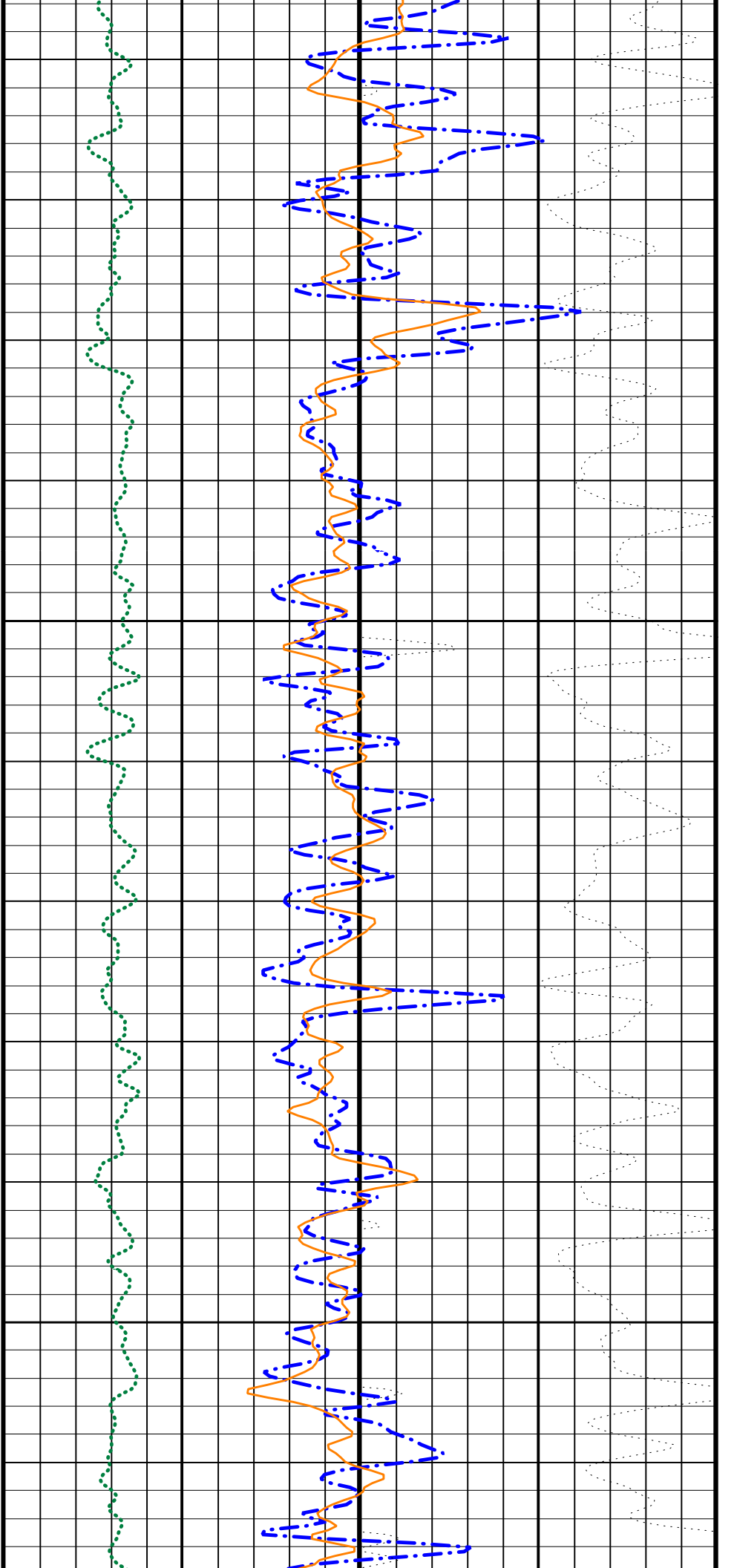
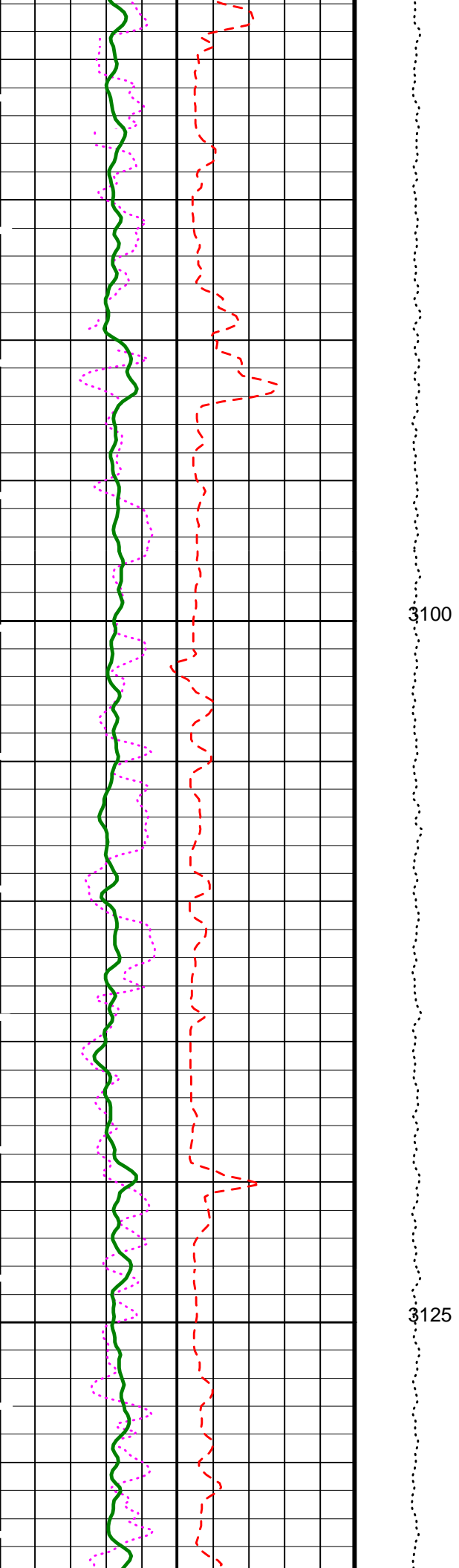




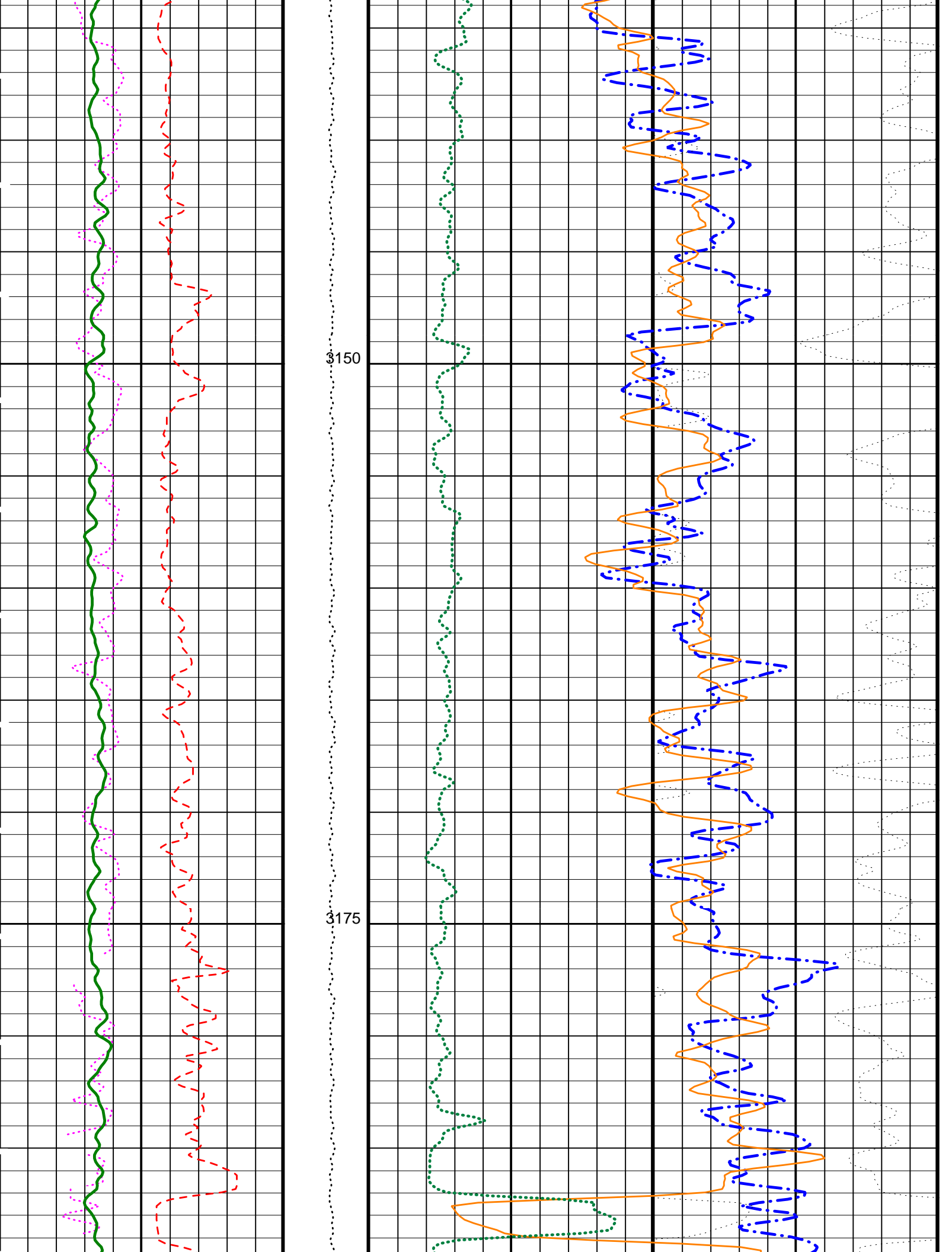
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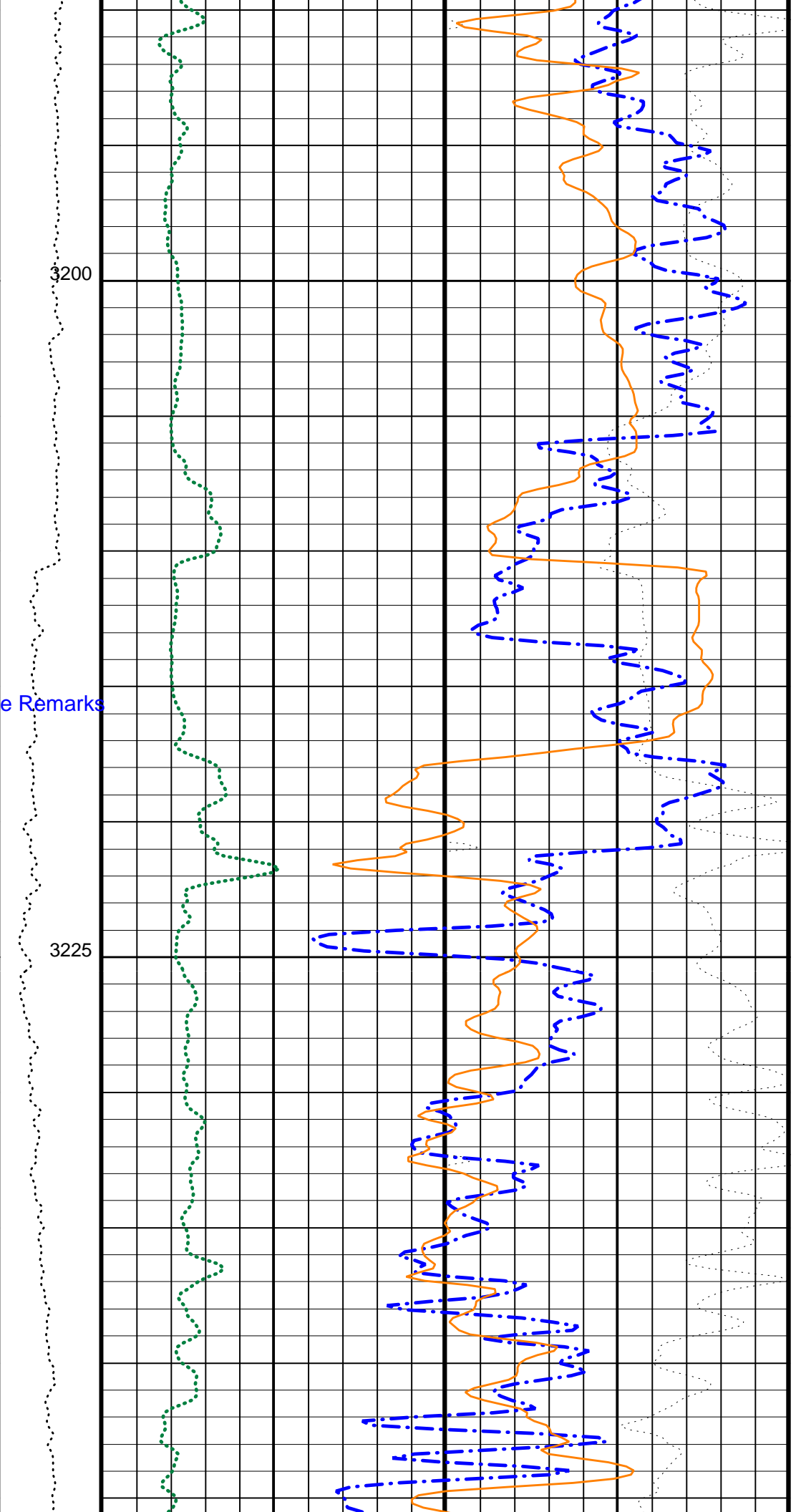
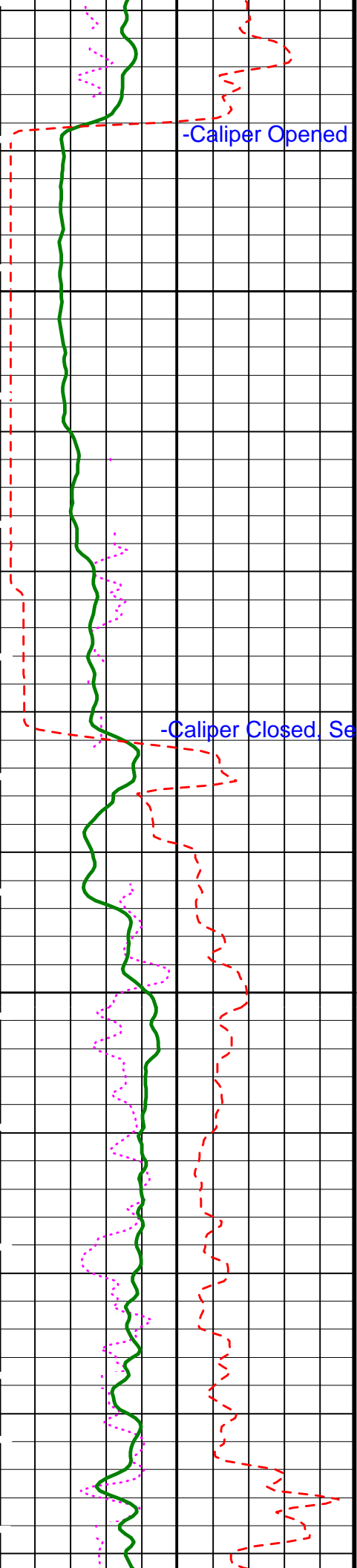


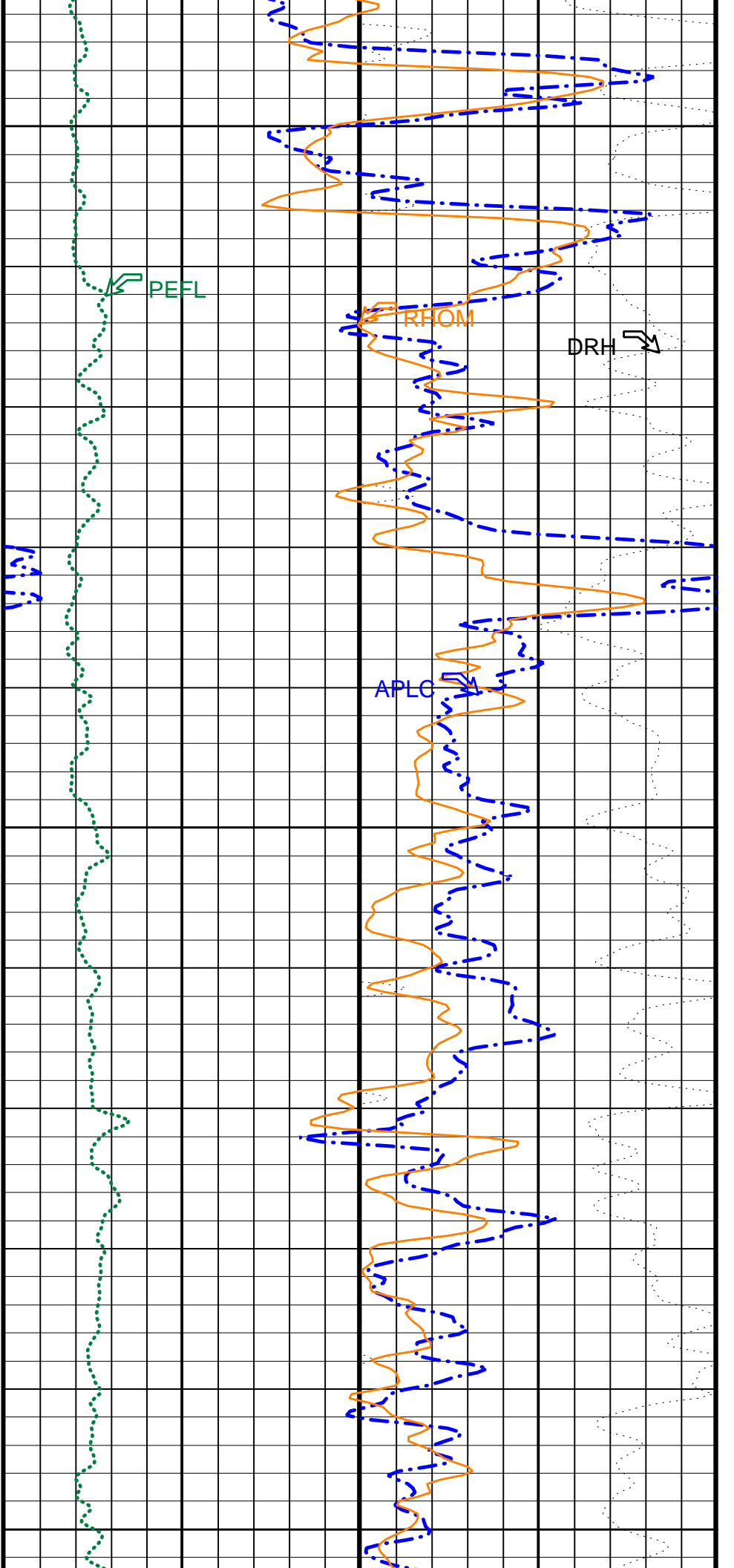
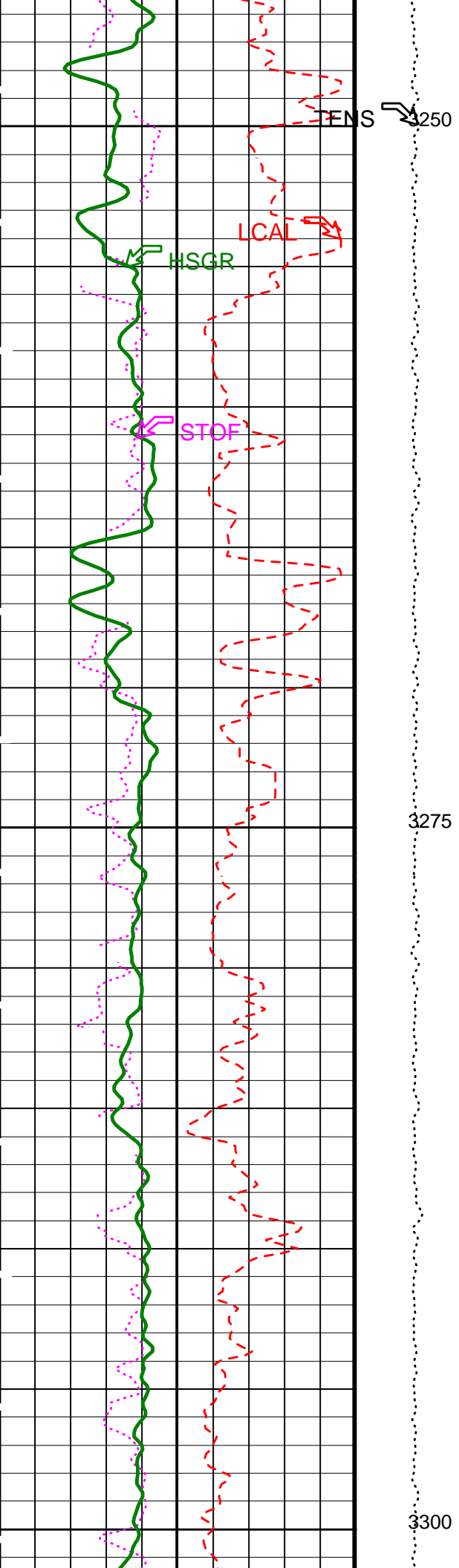


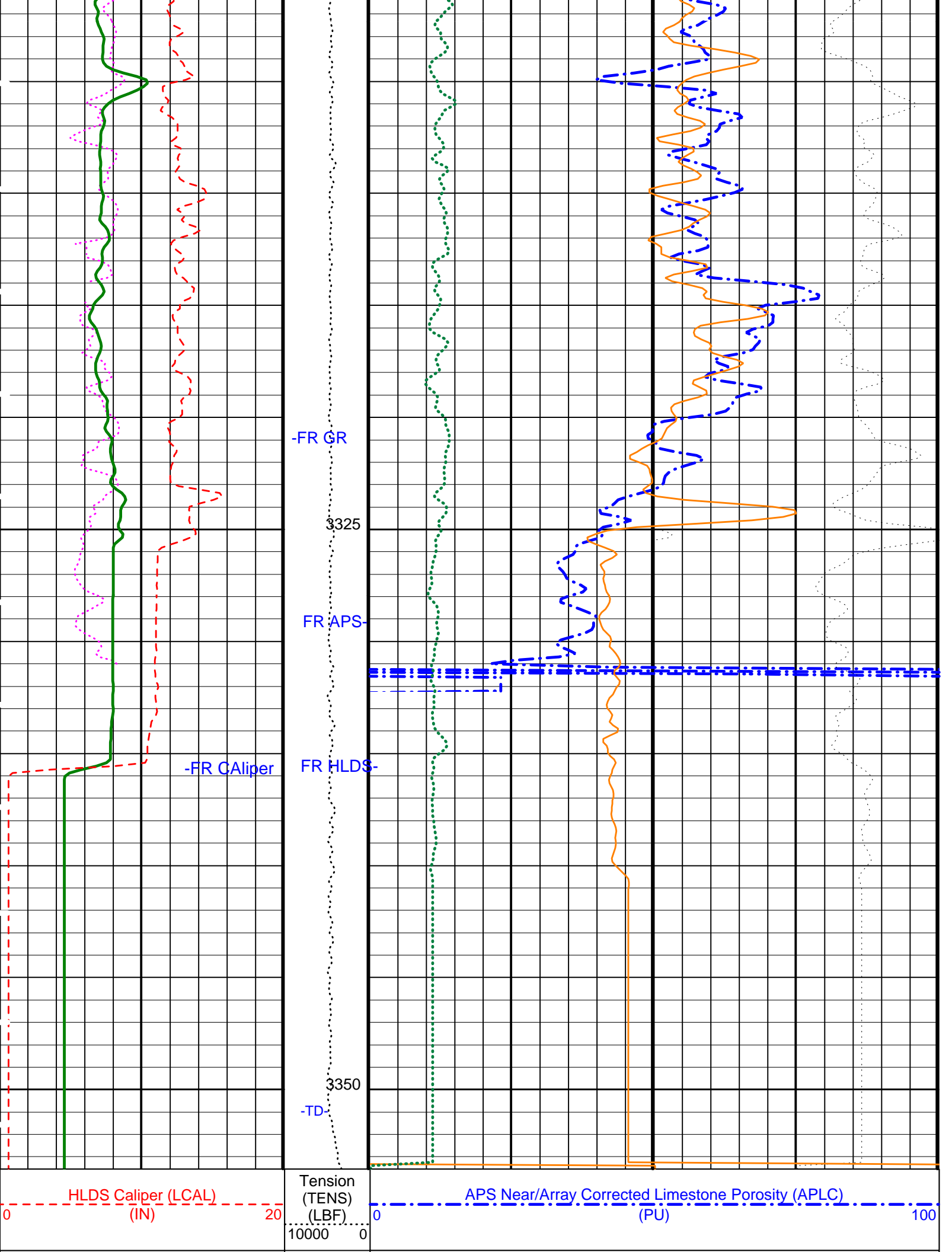












APS Effective Standoff in Limestone (STOF) (IN)		HLDS Bulk Density (RHOM) (G/C3)	
-1	4	3	1
HNGS Spectroscopy Gamma Ray (HSGR) (GAPI)		HLDS Long Spaced Photoelectric Effect (PEFL) (----	
0	150	0	10
		HLDS Bulk Density Correction (DRH) (G/C3)	
		-0.25	0.25

PIP SUMMARY

Time Mark Every 60 S

Main Log

Parameters

DLIS Name	Description	Value
	APS Software Version	5
	HLDS Spec Message Rate	1
	HLDS Diag Message Rate	20
	HLDS Data Control	AcquiredData
	HLDS SS NCB Mode	Density
	HLDS LS NCB Mode	Density
	HLDS SS Tri-Ported Memory State	Enable
	HLDS LS Tri-Ported Memory State	Enable
	APS Cement Thickness Source	COMPUTED
	Apparent Thickness of Cement	0 IN
	HLDS SS Digital Integrator State	Normal
	HLDS LS Digital Integrator State	Normal
	APS Thermal and Array Detectors High Voltage Setting	1987.2 V
	APS Neutron Burst-Off Background Subtraction Switch	ON
	APS Array Detectors Data Source Switch	Both
	APS Far Detector High Voltage Setting	2068.96 V
	APS Holesize Correction Source	BS
	APS Holesize Correction Switch	ON
	APS Environmental Corrections Mud Type	WaterBaseBarite
	APS Near Detector High Voltage Setting	1761.66 V
	APS Standoff Correction Switch	ON
	APS Temperature-Pressure-Salinity Correction Switch	OFF
	HNGS Detector 1 Barite Constant	1
	HNGS Detector 2 Barite Constant	1
	HNGS Borehole Potassium Correction Concentration	0
	Borehole Status	OPEN
	Bottom Hole Temperature (used in calculations)	120 DEGF
	HNGS Borehole Fluid Excluder Sleeve Algorithm Factor	1
	HNGS Borehole Fluid Excluder Sleeve Algorithm High Channel	245
	HNGS Borehole Fluid Excluder Sleeve Algorithm Low Channel	17
	Bit Size	9.875 IN
	Borehole Salinity	-50000.00 PPM
	Inner Casing Outer Diameter	0 IN
	Outer Casing Outer Diameter	0 IN
	Current Casing Size	0.000 IN
	Inner Casing Weight	0 LB/F
	Outer Casing Weight	0 LB/F
	Casing Weight	0.00 LB/F
	HNGS Detector 1 Calibration Thorium Peak Resolution	7.46561 %
	HNGS Detector 1 Calibration Temperature	46.8749 DEGF
	HNGS Detector 1 Calibration Thorium Peak Location	211.312
	HNGS Detector 2 Calibration Thorium Peak Resolution	6.19449 %
	HNGS Detector 2 Calibration Temperature	44.9572 DEGF
	HNGS Detector 2 Calibration Thorium Peak Location	209.601
	HNGS Barite Constant Correction Flag	NONE
	Drilling Fluid Density	8.51 LB/G
	Density Hole Correction	BS
	Density Porosity Processing Mode	HIRS
	Fluid Density	1.02 G/C3
	Formation Salinity	32000 PPM
	HNGS Detector 1 GCF Constant	1
	HNGS Detector 2 GCF Constant	1
	Generalized Caliper Selection	LCAL
	Average Angular Deviation of Borehole from Normal	0 DEG
	Geothermal Gradient	0.01 DF/F
	Generalized Temperature Selection	LINEAR_ESTIMATE
	HNGS Detector 1 Allow/Disallow In Processing	ALLOW
	HNGS Detector 2 Allow/Disallow In Processing	ALLOW
	HNGS Borehole Potassium Running Average	0
	HNGS Alpha Filter Length	60 IN
	HNGS Marquardt Accumulation Time	600 S
	HNGS Apply Borehole Potassium Correction	NONE
	Mud Weighting Material	NATU
	HNGS Processing Enable	YES
	HNGS Borehole Fluid Excluder Sleeve Status	NO
	HNGS Spectral Standards Version Number	1.74098e-031
	HLDS Activation Correction	ON

LATIC	HLDS Activation Correction	ON	
MARQ_START	HNGS Marquardt Start-up Mode	INTERNAL	
MDEN	Matrix Density	2.71	G/C3
NARC	APS Near/Array Calibration Ratio	1.06801	
NFRC	APS Near/Far Calibration Ratio	0.903124	
RDF1_START	HNGS Detector 1 RDF Constant	0	
RDF2_START	HNGS Detector 2 RDF Constant	0	
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S1NA	HNGS Detector 1 Calibration Sodium Count Rate	28.899	CPS
S1NG	HNGS Detector 1 Calibration End-On / Side-On Gain Ratio	0.992258	
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
S2NA	HNGS Detector 2 Calibration Sodium Count Rate	29.4941	CPS
S2NG	HNGS Detector 2 Calibration End-On / Side-On Gain Ratio	0.981545	
SABK	HNGS Statistical Uncertainty in Borehole Potassium Running Average	0	
SGRC	HNGS Standard Gamma-Ray Correction Flag	YES	
SHT	Surface Hole Temperature	68	DEGF
TD	Total Depth	4232.28	FT
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0	

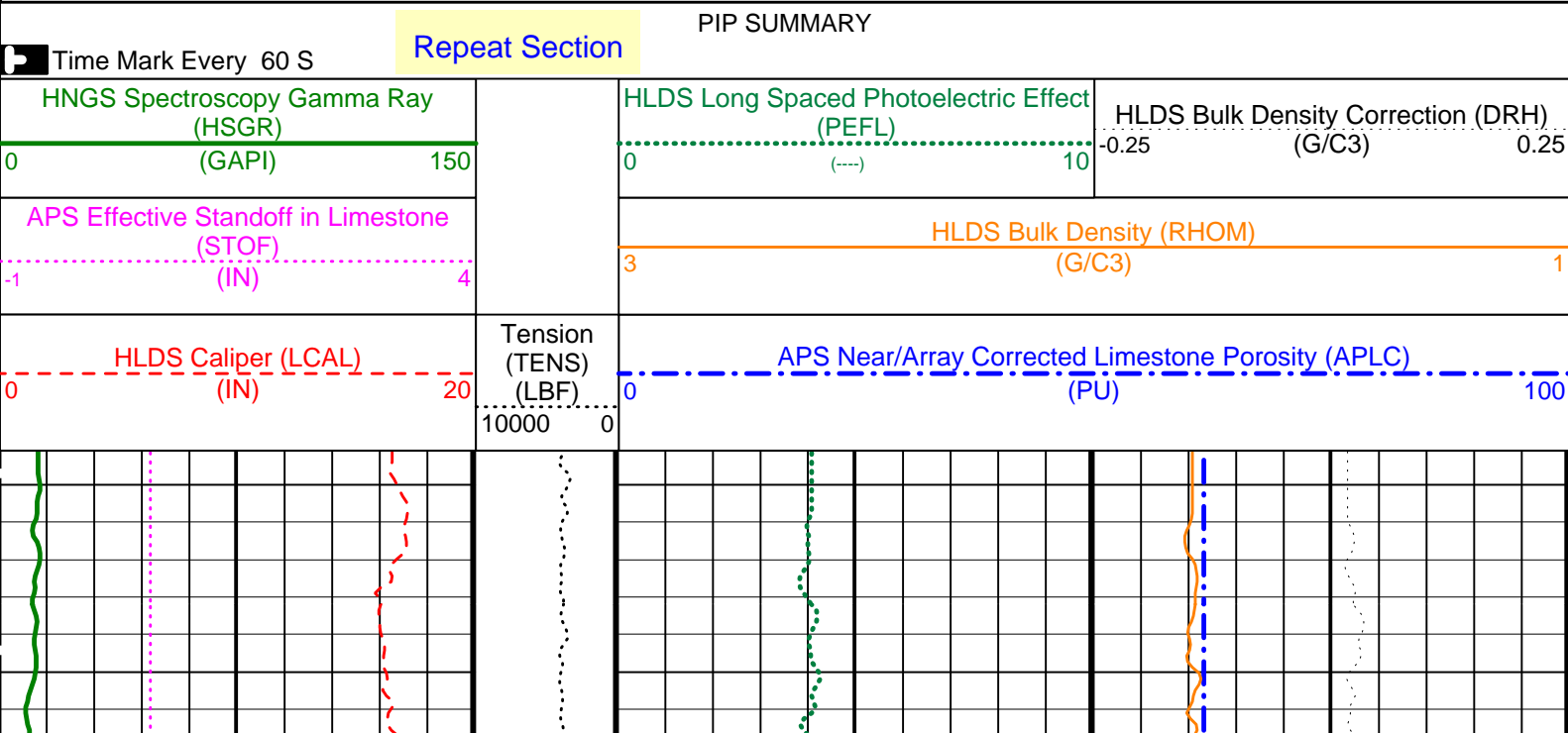
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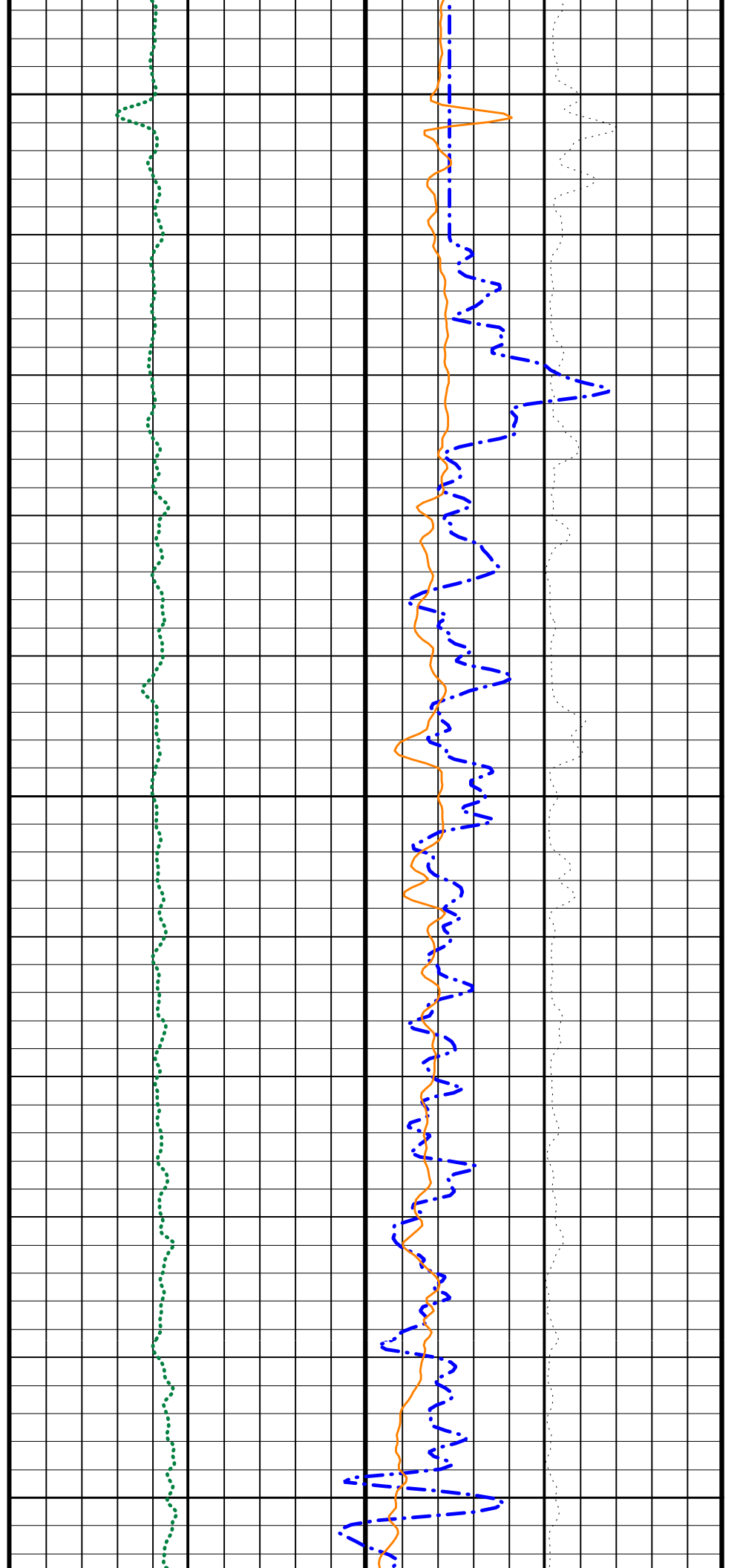
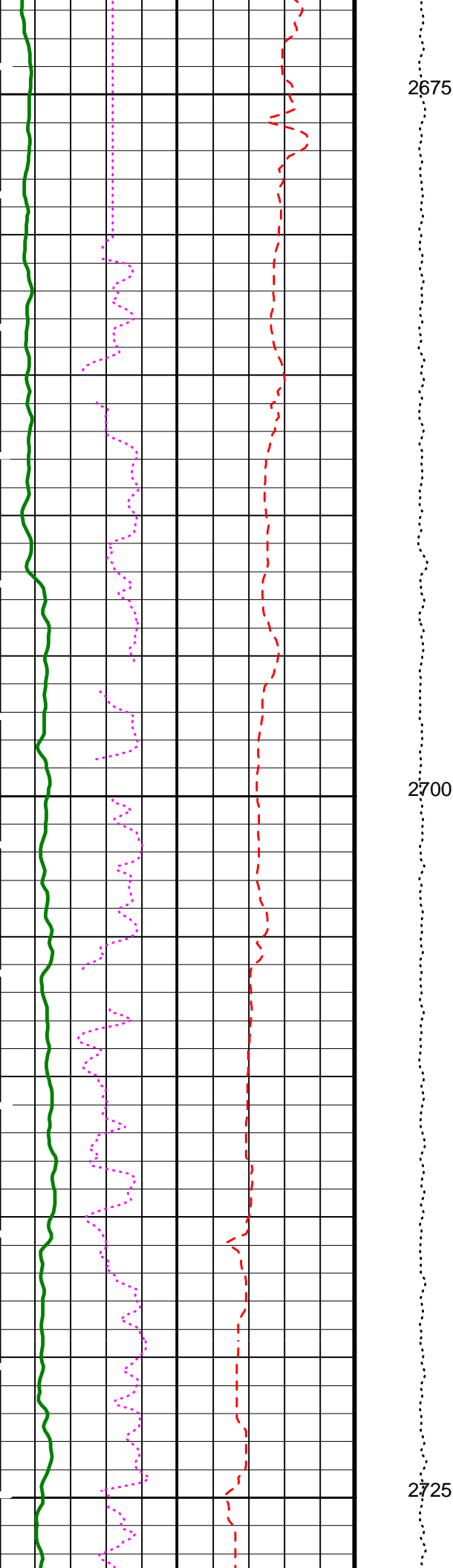
<b>OP System Version: 9C1-303</b>			
MCM			
DIT-E	9C1-303	DTA-A	9C1-303
HLDS	9C1-303	NPLC-B	9C1-303
APS-BA	9C1-303	HNGS-BA	9C1-303
DTC-H	9C1-303		

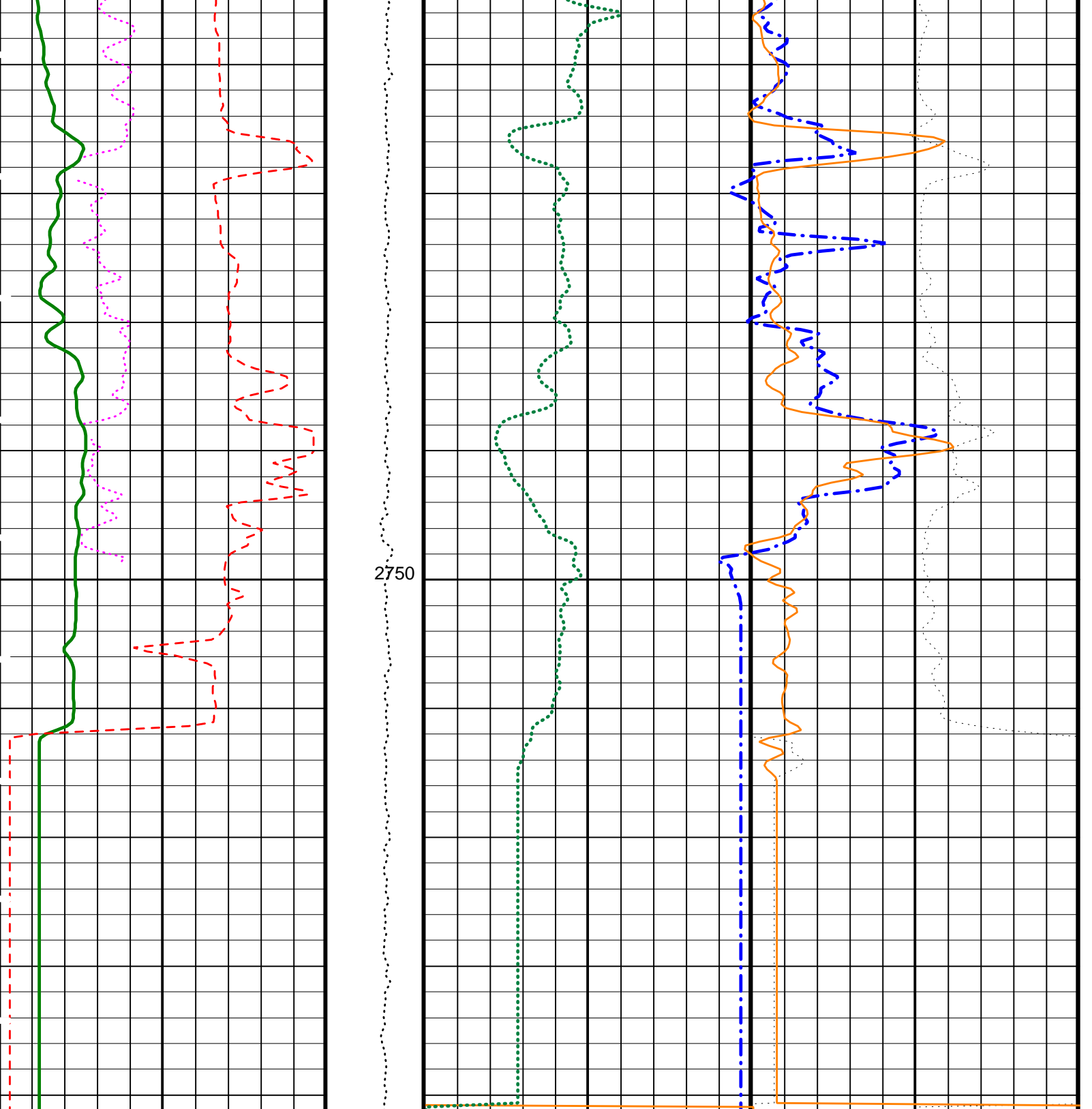
<b>Output DLIS Files</b>				
DEFAULT	DITE .008	FN:7	PRODUCER	23-Mar-2000 14:12
BACKUP	DITE .008	FN:8	PRODUCER	23-Mar-2000 14:13

<b>Output DLIS Files</b>				
DEFAULT	DITE .010	FN:11	PRODUCER	23-Mar-2000 17:46
BACKUP	DITE .010	FN:12	PRODUCER	23-Mar-2000 17:46

<b>OP System Version: 9C1-303</b>			
MCM			
DIT-E	9C1-303	DTA-A	9C1-303
HLDS	9C1-303	NPLC-B	9C1-303
APS-BA	9C1-303	HNGS-BA	9C1-303
DTC-H	9C1-303		







2750

<p>HLDS Caliper (LCAL) (IN)</p> <p>0 20</p>	<p>Tension (TENS) (LBF)</p> <p>10000 0</p>	<p>APS Near/Array Corrected Limestone Porosity (APLC) (PU)</p> <p>0 100</p>	<p>HLDS Bulk Density (RHOM) (G/C3)</p> <p>3 1</p>
<p>APS Effective Standoff in Limestone (STOF) (IN)</p> <p>-1 4</p>	<p>HLDS Long Spaced Photoelectric Effect (PEFL) (---)</p> <p>0 10</p>	<p>HLDS Bulk Density Correction (DRH) (G/C3)</p> <p>-0.25 0.25</p>	
<p>HNGS Spectroscopy Gamma Ray (HSGR) (GAPI)</p> <p>0 150</p>	<p>PIP SUMMARY</p>		

Time Mark Every 60 S

Repeat Section



## Parameters

DLIS Name	Description	Value	
	APS Software Version	5	
	HLDS Spec Message Rate	1	
	HLDS Diag Message Rate	20	
	HLDS Data Control	AcquiredData	
	HLDS SS NCB Mode	Density	
	HLDS LS NCB Mode	Density	
	HLDS SS Tri-Ported Memory State	Enable	
	HLDS LS Tri-Ported Memory State	Enable	
	APS Cement Thickness Source	COMPUTED	
	Apparent Thickness of Cement	0	IN
	HLDS SS Digital Integrator State	Normal	
	HLDS LS Digital Integrator State	Normal	
AASD	APS Thermal and Array Detectors High Voltage Setting	1987.2	V
ABOS	APS Neutron Burst-Off Background Subtraction Switch	ON	
ADSO	APS Array Detectors Data Source Switch	Both	
AFSD	APS Far Detector High Voltage Setting	2068.96	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	1761.66	V
ASOS	APS Standoff Correction Switch	ON	
ATSS	APS Temperature-Pressure-Salinity Correction Switch	OFF	
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)	120	DEGF
BKSF	HNGS Borehole Fluid Excluder Sleeve Algorithm Factor	1	
BKSH	HNGS Borehole Fluid Excluder Sleeve Algorithm High Channel	245	
BKSL	HNGS Borehole Fluid Excluder Sleeve Algorithm Low Channel	17	
BS	Bit Size	9.875	IN
BSAL	Borehole Salinity	-50000.00	PPM
CSD1	Inner Casing Outer Diameter	0	IN
CSD2	Outer Casing Outer Diameter	0	IN
CSIZ	Current Casing Size	0.000	IN
CSW1	Inner Casing Weight	0	LB/F
CSW2	Outer Casing Weight	0	LB/F
CWEI	Casing Weight	0.00	LB/F
D1PR	HNGS Detector 1 Calibration Thorium Peak Resolution	7.46561	%
D1TC	HNGS Detector 1 Calibration Temperature	46.8749	DEGF
D1TL	HNGS Detector 1 Calibration Thorium Peak Location	211.312	
D2PR	HNGS Detector 2 Calibration Thorium Peak Resolution	6.19449	%
D2TC	HNGS Detector 2 Calibration Temperature	44.9572	DEGF
D2TL	HNGS Detector 2 Calibration Thorium Peak Location	209.601	
DBCC	HNGS Barite Constant Correction Flag	NONE	
DFD	Drilling Fluid Density	8.51	LB/G
DHC	Density Hole Correction	BS	
DPPM	Density Porosity Processing Mode	HIRS	
FD	Fluid Density	1.02	G/C3
FSAL	Formation Salinity	32000	PPM
GCF1_START	HNGS Detector 1 GCF Constant	1	
GCF2_START	HNGS Detector 2 GCF Constant	1	
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
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	-1.25452e-005	
HALF	HNGS Alpha Filter Length	60	IN
HATIM	HNGS Marquardt Accumulation Time	600	S
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	NATU	
HNPE	HNGS Processing Enable	YES	
HSLV	HNGS Borehole Fluid Excluder Sleeve Status	NO	
HSVN	HNGS Spectral Standards Version Number	1.16746e-028	
LATC	HLDS Activation Correction	ON	
MARQ_START	HNGS Marquardt Start-up Mode	INTERNAL	
MDEN	Matrix Density	2.71	G/C3
NARC	APS Near/Array Calibration Ratio	1.06801	
NFRC	APS Near/Far Calibration Ratio	0.903124	
RDF1_START	HNGS Detector 1 RDF Constant	0	
RDF2_START	HNGS Detector 2 RDF Constant	0	
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S1NA	HNGS Detector 1 Calibration Sodium Count Rate	28.899	CPS
S1NG	HNGS Detector 1 Calibration End-On / Side-On Gain Ratio	0.992258	
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
S2NA	HNGS Detector 2 Calibration Sodium Count Rate	29.4941	CPS
S2NG	HNGS Detector 2 Calibration End-On / Side-On Gain Ratio	0.981545	
SABK	HNGS Statistical Uncertainty in Borehole Potassium Running Average		

SGRC	HNGS Standard Gamma-Ray Correction Flag	0.000475432	YES
SHT	Surface Hole Temperature	68	DEGF
TD	Total Depth	4232.28	FT
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	1.02775	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.975119	

Format: APSLiquidPorosity\_1 Vertical Scale: 1:200 Graphics File Created: 23-Mar-2000 17:46

<b>OP System Version: 9C1-303</b>			
MCM			
DIT-E	9C1-303	DTA-A	9C1-303
HLDS	9C1-303	NPLC-B	9C1-303
APS-BA	9C1-303	HNGS-BA	9C1-303
DTC-H	9C1-303		

<b>Output DLIS Files</b>			
DEFAULT	DITE .010	FN:11 PRODUCER	23-Mar-2000 17:46
BACKUP	DITE .010	FN:12 PRODUCER	23-Mar-2000 17:46

Calibration and Check Summary							
Measurement	Nominal	Master	Before	After	Change	Limit	Units
<b>Hostile Litho-Density Sonde Wellsite Calibration - Background Measurement</b>							
Master: 10-MAR-2000 10:06 Before: 17-MAR-2000 18:41 After: 23-MAR-2000 20:14							
SS Total Countrate Bkg	1645	1446	1441	1446	4.654	80.00	CPS
SS HV Measured Bkg	1100	1077	1070	1068	-1.901	80.00	V
SS Cs Centroid Bkg	661.0	661.3	661.0	661.3	0.3008	1.500	KEV
SS Cs Resolution Bkg	9.000	8.490	8.564	8.483	-0.08115	1.800	%
LS Total Countrate Bkg	1645	1468	1467	1470	2.342	80.00	CPS
LS HV Measured Bkg	1100	1195	1190	1186	-4.608	80.00	V
LS Cs Centroid Bkg	661.0	661.3	661.2	661.2	0.03925	1.500	KEV
LS Cs Resolution Bkg	9.000	8.744	8.772	8.800	0.02856	1.800	%
<b>Hostile Litho-Density Sonde Wellsite Calibration - Caliper Calibration</b>							
Before: 17-MAR-2000 19:48							
HLDS Caliper Small Ring	8.000	N/A	9.714	N/A	N/A	N/A	IN
HLDS Caliper Large Ring	12.00	N/A	13.89	N/A	N/A	N/A	IN
<b>Accelerator-Porosity Tool Wellsite Calibration - Detector Background</b>							
Master: 2-FEB-2000 21:50 Before: 23-MAR-2000 11:08 After: 23-MAR-2000 18:53							
Near Det Bkg Cntrate	30.00	32.07	31.49	32.45	0.9638	N/A	CPS
Far Det Bkg Cntrate	30.00	32.19	33.27	34.28	1.014	N/A	CPS
Array-1 Det Bkg Cntrate	30.00	28.58	29.13	29.26	0.1329	N/A	CPS
Array-2 Det Bkg Cntrate	30.00	30.06	30.44	29.11	-1.329	N/A	CPS
Array Therm Det Bkg Cntrate	30.00	33.94	32.50	33.14	0.6384	N/A	CPS
<b>Accelerator-Porosity Tool Wellsite Calibration - Detector Plateau Settings</b>							
Master: 2-FEB-2000 20:07							
Near Detector Plateau Setting	1650	1762	N/A	N/A	N/A	N/A	V
Far Detector Plateau Setting	2000	2069	N/A	N/A	N/A	N/A	V
Array Detector Plateau Setting	2000	1987	N/A	N/A	N/A	N/A	V
<b>Accelerator-Porosity Tool Wellsite Calibration - Calibration Ratios</b>							
Master: 2-FEB-2000 21:50							
Near/Far Calibration Ratio	0.9250	0.9031	N/A	N/A	N/A	N/A	
Near/Array Calibration Ratio	1.030	1.068	N/A	N/A	N/A	N/A	
<b>Accelerator-Porosity Tool Master Calibration - Tank Check</b>							
Master: 2-FEB-2000 21:50							
Array-1 Standoff Porosity	10.25	11.71	--	--	--	--	PU
Array-2 Standoff Porosity	10.25	11.59	--	--	--	--	PU
Sigma Formation	27.50	27.75	--	--	--	--	CU
<b>Hostile Natural Gamma Ray Sonde Wellsite Calibration - Detector 1 Check</b>							
Master: 2-FEB-2000 11:55 Before: 17-MAR-2000 18:42 After: 23-MAR-2000 20:15							
Na 511 Peak Loc	40.00	40.51	40.70	40.78	0.07146	1.000	
Na 511 Peak Res	15.50	15.86	15.41	15.58	0.1705	2.000	%
High Voltage	1150	1114	1112	1109	-2.535	30.00	V
Na 1785 Peak Loc	142.6	145.5	145.3	145.7	0.3397	7.000	
Na 1785 Peak Res	8.500	9.054	8.948	8.298	-0.6500	2.000	%

Temperature	15.50	8.268	21.55	21.11	-0.4336	N/A	DEGC
Na Count Rate	45.00	28.90	27.69	26.81	-0.8835	8.000	CPS

Hostile Natural Gamma Ray Sonde Wellsite Calibration - Detector 2 Check  
Master: 2-FEB-2000 11:55 Before: 17-MAR-2000 18:42 After: 23-MAR-2000 20:15

Na 511 Peak Loc	40.00	40.64	40.50	40.61	0.1106	1.000	
Na 511 Peak Res	15.50	14.00	15.27	14.30	-0.9701	2.000	%
High Voltage	1150	1201	1200	1196	-4.111	30.00	V
Na 1785 Peak Loc	142.6	144.2	145.0	145.2	0.2045	7.000	
Na 1785 Peak Res	8.500	8.101	8.587	8.370	-0.2170	2.000	%
Temperature	15.50	7.197	20.53	21.24	0.7135	N/A	DEGC
Na Count Rate	45.00	29.49	28.21	27.04	-1.168	8.000	CPS

Hostile Natural Gamma Ray Sonde Wellsite Calibration - Ratio Of Detector 1 To Detector 2  
Master: 2-FEB-2000 11:55 Before: 17-MAR-2000 18:42 After: 23-MAR-2000 20:15

Coincidence Count Rate Ratio	1.000	0.9809	0.9840	0.9920	0.008062	0.05000	
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Hostile Natural Gamma Ray Sonde Master Calibration - Detector 1 Calibration  
Master: 2-FEB-2000 11:43

Na 511 Peak Set Point	40.00	41.00	--	--	--	--	
Th Peak Loc	209.6	211.3	--	--	--	--	
Th Peak Res	7.000	7.466	--	--	--	--	%
Background Count Rate	142.5	18.16	--	--	--	--	CPS
Gain Ratio	1.000	0.9923	--	--	--	--	

Hostile Natural Gamma Ray Sonde Master Calibration - Detector 2 Calibration  
Master: 2-FEB-2000 11:43

Na 511 Peak Set Point	40.00	41.00	--	--	--	--	
Th Peak Loc	209.6	209.6	--	--	--	--	
Th Peak Res	7.000	6.194	--	--	--	--	%
Background Count Rate	142.5	20.51	--	--	--	--	CPS
Gain Ratio	1.000	0.9815	--	--	--	--	

Dual Induction - E / Equipment Identification

Primary Equipment:		
Dual Induction Sonde	DIS - HB	200
Dual Induction Cartridge	DIC - EB	171
Auxiliary Equipment:		
Mass Isolated Housing	MIH - ZA	174

Hostile Litho-Density Sonde / Equipment Identification

Primary Equipment:		
Hostile Litho Density Sonde	HLDS - D	35
Hostile Litho Density High Voltage	HLDV - D	35
Gamma Source Radioactive	GSR - Z	1846
Auxiliary Equipment:		
Hostile Litho Density Pad	HLDP - C	12
Hostile Litho Density High Voltage Housi	HEH - H	35

Hostile Litho-Density Sonde Wellsite Calibration

Background Measurement

Phase	SS Total Countrate Bkg CPS	Value	Phase	SS HV Measured Bkg V	Value	Phase	SS PSC DAC Value Bkg	Value
Master		1446	Master		1077	Master		15060
Before		1441	Before		1070	Before		15540
After		1446	After		1068	After		16270
	1000 (Minimum) 1645 (Nominal) 2290 (Maximum)			800.0 (Minimum) 1100 (Nominal) 1400 (Maximum)			14100 (Minimum) 16000 (Nominal) 20000 (Maximum)	
Phase	SS Cs Centroid Bkg KEV	Value	Phase	SS Cs Resolution Bkg %	Value	Phase	LS Total Countrate Bkg CPS	Value
Master		661.3	Master		8.490	Master		1468
Before		661.0	Before		8.564	Before		1467
After		661.3	After		8.483	After		1470
	656.0 (Minimum) 661.0 (Nominal) 666.0 (Maximum)			7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum)			1000 (Minimum) 1645 (Nominal) 2290 (Maximum)	
Phase	LS HV Measured Bkg V	Value	Phase	LS PSC DAC Value Bkg	Value	Phase	LS Cs Centroid Bkg KEV	Value

Phase	LS Cs Measured Bkg %	Value	Phase	LS Cs Drg Value Bkg	Value	Phase	LS Cs Control Bkg REV	Value
Master		1195	Master		16550	Master		661.3
Before		1190	Before		16970	Before		661.2
After		1186	After		17810	After		661.2
800.0 (Minimum) 1100 (Nominal) 1400 (Maximum)			14100 (Minimum) 16000 (Nominal) 20000 (Maximum)			656.0 (Minimum) 661.0 (Nominal) 666.0 (Maximum)		
Phase	LS Cs Resolution Bkg %	Value	Phase	LSW1 Background CPS	Value	Phase	LSW2 Background CPS	Value
Master		8.744	Master		87.58	Master		82.28
Before		8.772	Before		87.85	Before		80.44
After		8.800	After		87.54	After		80.99
7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum)			55.00 (Minimum) 100.0 (Nominal) 150.0 (Maximum)			50.00 (Minimum) 100.0 (Nominal) 140.0 (Maximum)		
Phase	LSW3 Background CPS	Value	Phase	LSW4 Background CPS	Value	Phase	LSW5 Background CPS	Value
Master		180.2	Master		219.3	Master		502.6
Before		180.7	Before		219.2	Before		504.5
After		180.4	After		217.2	After		506.5
110.0 (Minimum) 200.0 (Nominal) 290.0 (Maximum)			140.0 (Minimum) 250.0 (Nominal) 360.0 (Maximum)			330.0 (Minimum) 600.0 (Nominal) 830.0 (Maximum)		
Phase	SSW1 Background CPS	Value	Phase	SSW2 Background CPS	Value	Phase	SSW3 Background CPS	Value
Master		88.30	Master		157.6	Master		422.5
Before		88.74	Before		157.4	Before		421.0
After		88.51	After		158.4	After		420.6
55.00 (Minimum) 100.0 (Nominal) 150.0 (Maximum)			100.0 (Minimum) 200.0 (Nominal) 260.0 (Maximum)			280.0 (Minimum) 500.0 (Nominal) 700.0 (Maximum)		
Phase	SSW4 Background CPS	Value	Phase	SSW5 Background CPS	Value			
Master		223.9	Master		163.1			
Before		222.0	Before		162.9			
After		224.3	After		164.0			
150.0 (Minimum) 270.0 (Nominal) 380.0 (Maximum)			110.0 (Minimum) 200.0 (Nominal) 270.0 (Maximum)					
Master: 10-MAR-2000 10:06			Before: 17-MAR-2000 18:41			After: 23-MAR-2000 20:14		

Hostile Litho-Density Sonde Master Calibration								
Detector Background Measurement								
Phase	LSW1 Background CPS	Value	Phase	LSW2 Background CPS	Value	Phase	LSW3 Background CPS	Value
Master		87.58	Master		82.28	Master		180.2
55.00 (Minimum) 100.0 (Nominal) 150.0 (Maximum)			50.00 (Minimum) 100.0 (Nominal) 140.0 (Maximum)			110.0 (Minimum) 200.0 (Nominal) 290.0 (Maximum)		
Phase	LSW4 Background CPS	Value	Phase	LSW5 Background CPS	Value	Phase	LS Cs Resolution Bkg %	Value
Master		219.3	Master		502.6	Master		8.744
140.0 (Minimum) 250.0 (Nominal) 360.0 (Maximum)			330.0 (Minimum) 600.0 (Nominal) 830.0 (Maximum)			7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum)		
Phase	SSW1 Background CPS	Value	Phase	SSW2 Background CPS	Value	Phase	SSW3 Background CPS	Value
Master		88.30	Master		157.6	Master		422.5
55.00 (Minimum) 100.0 (Nominal) 150.0 (Maximum)			100.0 (Minimum) 200.0 (Nominal) 260.0 (Maximum)			280.0 (Minimum) 500.0 (Nominal) 700.0 (Maximum)		
Phase	SSW4 Background CPS	Value	Phase	SSW5 Background CPS	Value	Phase	SS Cs Resolution Bkg %	Value
Master		223.9	Master		163.1	Master		8.490
150.0 (Minimum) 270.0 (Nominal) 380.0 (Maximum)			110.0 (Minimum) 200.0 (Nominal) 270.0 (Maximum)			7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum)		
Master: 10-MAR-2000 10:06								

Hostile Litho-Density Sonde Master Calibration								
Detector Aluminum Measurement (bkgd-subtracted)								
Phase	LSW1 Aluminum CPS	Value	Phase	LSW2 Aluminum CPS	Value	Phase	LSW3 Aluminum CPS	Value
Master		582.8	Master		846.4	Master		1038
420.0 (Minimum) 600.0 (Nominal) 700.0 (Maximum)			650.0 (Minimum) 900.0 (Nominal) 1050 (Maximum)			800.0 (Minimum) 1100 (Nominal) 1300 (Maximum)		
Phase	LSW4 Aluminum CPS	Value	Phase	LSW5 Aluminum CPS	Value	Phase	LS Cs Resolution Al %	Value
Master		521.8	Master		503.1	Master		8.769

Phase	SSW1 Aluminum CPS	Value	Phase	SSW2 Aluminum CPS	Value	Phase	SSW3 Aluminum CPS	Value
Master		2302	Master		6741	Master		9846
	2000 (Minimum) 2800 (Nominal) 3200 (Maximum)			5800 (Minimum) 8000 (Nominal) 9300 (Maximum)			8300 (Minimum) 11600 (Nominal) 13500 (Maximum)	
Phase	SSW4 Aluminum CPS	Value	Phase	SSW5 Aluminum CPS	Value	Phase	SS Cs Resolution Al %	Value
Master		4263	Master		614.4	Master		8.321
	3500 (Minimum) 5000 (Nominal) 5800 (Maximum)			470.0 (Minimum) 660.0 (Nominal) 770.0 (Maximum)			7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum)	

Master: 10-MAR-2000 10:32

Hostile Litho-Density Sonde Master Calibration								
Detector Litholog Measurement (bkgd-subtracted)								
Phase	LSW1 Iron CPS	Value	Phase	LSW2 Iron CPS	Value	Phase	LSW3 Iron CPS	Value
Master		390.1	Master		675.7	Master		916.0
	290.0 (Minimum) 400.0 (Nominal) 470.0 (Maximum)			520.0 (Minimum) 730.0 (Nominal) 850.0 (Maximum)			720.0 (Minimum) 1000 (Nominal) 1160 (Maximum)	
Phase	LSW4 Iron CPS	Value	Phase	LSW5 Iron CPS	Value	Phase	LS Cs Resolution Al + Fe %	Value
Master		480.4	Master		458.6	Master		8.711
	370.0 (Minimum) 520.0 (Nominal) 600.0 (Maximum)			340.0 (Minimum) 470.0 (Nominal) 550.0 (Maximum)			7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum)	
Phase	SSW1 Iron CPS	Value	Phase	SSW2 Iron CPS	Value	Phase	SSW3 Iron CPS	Value
Master		1724	Master		5643	Master		9018
	1500 (Minimum) 2100 (Nominal) 2400 (Maximum)			4900 (Minimum) 6800 (Nominal) 7900 (Maximum)			7800 (Minimum) 10800 (Nominal) 12600 (Maximum)	
Phase	SSW4 Iron CPS	Value	Phase	SSW5 Iron CPS	Value	Phase	SS Cs Resolution Al + Fe %	Value
Master		3917	Master		546.4	Master		8.344
	3300 (Minimum) 4600 (Nominal) 5400 (Maximum)			420.0 (Minimum) 580.0 (Nominal) 680.0 (Maximum)			7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum)	

Master: 10-MAR-2000 10:27

Hostile Litho-Density Sonde Master Calibration								
Quality Ratios								
Phase	AL CALIBRATION RATIO 1	Value	Phase	AL CALIBRATION RATIO 2	Value	Phase	AL CALIBRATION RATIO 3	Value
Master		1.012	Master		2.019	Master		0.5686
	0.9000 (Minimum) 1.000 (Nominal) 1.100 (Maximum)			1.800 (Minimum) 2.000 (Nominal) 2.200 (Maximum)			0.4500 (Minimum) 0.5500 (Nominal) 0.6500 (Maximum)	
Phase	AL CALIBRATION RATIO 4	Value	Phase	Pad-Wear SS Ratio	Value	Phase	Pad-Wear LS Ratio	Value
Master		0.4720	Master		0.9962	Master		0.9729
	0.4000 (Minimum) 0.5000 (Nominal) 0.6000 (Maximum)			0.9800 (Minimum) 0.9880 (Nominal) 0.9960 (Maximum)			0.9800 (Minimum) 0.9880 (Nominal) 0.9960 (Maximum)	
Phase	Pad-Position SS Ratio	Value	Phase	Pad-Position LS Ratio	Value			
Master		1.003	Master		0.9942			
	0.9900 (Minimum) 0.9940 (Nominal) 1.015 (Maximum)			0.9850 (Minimum) 0.9940 (Nominal) 1.010 (Maximum)				

Master: 10-MAR-2000 10:22

### Nuclear Porosity Lithology Cartridge - B / Equipment Identification

Primary Equipment: NPLC Cartridge	NPLC - B	82
Auxiliary Equipment: NPLC Housing	NPH - B	82

### Accelerator-Porosity Tool / Equipment Identification

Primary Equipment: Accelerator-Porosity Sonde APS Minitron	APS - BA MNTR - F	22 4185
Auxiliary Equipment: Accelerator-Porosity Housing APS Calibration Water Tank	APH - AC SFT - 178	22 4722

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		32.07	Master		32.19	Master		28.58	
Before		31.49	Before		33.27	Before		29.13	
After		32.45	After		34.28	After		29.26	
	0 (Minimum) 30.00 (Nominal) 50.00 (Maximum)			0 (Minimum) 30.00 (Nominal) 50.00 (Maximum)			0 (Minimum) 30.00 (Nominal) 50.00 (Maximum)		
Phase	Array-2 Det Bkg Cntrate CPS	Value	Phase	Array Therm Det Bkg Cntrate CPS	Value				
Master		30.06	Master		33.94				
Before		30.44	Before		32.50				
After		29.11	After		33.14				
	0 (Minimum) 30.00 (Nominal) 50.00 (Maximum)			0 (Minimum) 30.00 (Nominal) 50.00 (Maximum)					
Master: 2-FEB-2000 21:50			Before: 23-MAR-2000 11:08			After: 23-MAR-2000 18:53			

Accelerator-Porosity Tool Wellsite Calibration									
Detector Plateau Settings									
Phase	Near Detector Plateau Setting V	Value	Phase	Far Detector Plateau Setting V	Value	Phase	Array Detector Plateau Setting V	Value	
Master		1762	Master		2069	Master		1987	
	1400 (Minimum) 1650 (Nominal) 1900 (Maximum)			1750 (Minimum) 2000 (Nominal) 2250 (Maximum)			1750 (Minimum) 2000 (Nominal) 2250 (Maximum)		
Master: 2-FEB-2000 20:07									

Accelerator-Porosity Tool Wellsite Calibration					
Calibration Ratios					
Phase	Near/Far Calibration Ratio	Value	Phase	Near/Array Calibration Ratio	Value
Master		0.9031	Master		1.068
	0.8000 (Minimum) 0.9250 (Nominal) 1.050 (Maximum)			0.9000 (Minimum) 1.030 (Nominal) 1.150 (Maximum)	
Master: 2-FEB-2000 21:50					

Accelerator-Porosity Tool Master Calibration									
Detector Calibration									
Phase	Near Detector Plateau Setting V	Value	Phase	Far Detector Plateau Setting V	Value	Phase	Array Detector Plateau Setting V	Value	
Master		1762	Master		2069	Master		1987	
	1400 (Minimum) 1650 (Nominal) 1900 (Maximum)			1750 (Minimum) 2000 (Nominal) 2250 (Maximum)			1750 (Minimum) 2000 (Nominal) 2250 (Maximum)		
Phase	Near/Far Calibration Ratio	Value	Phase	Near/Array Calibration Ratio	Value				
Master		0.9031	Master		1.068				
	0.8000 (Minimum) 0.9250 (Nominal) 1.050 (Maximum)			0.9000 (Minimum) 1.030 (Nominal) 1.150 (Maximum)					
Master: 2-FEB-2000 20:07									

Accelerator-Porosity Tool Master Calibration									
Tank Check									
Phase	Array-1 Standoff Porosity PU	Value	Phase	Array-2 Standoff Porosity PU	Value	Phase	Sigma Formation CU	Value	
Master		11.71	Master		11.59	Master		27.75	
	5.500 (Minimum) 10.25 (Nominal) 15.00 (Maximum)			5.500 (Minimum) 10.25 (Nominal) 15.00 (Maximum)			20.00 (Minimum) 27.50 (Nominal) 35.00 (Maximum)		
Master: 2-FEB-2000 21:50									

Hostile Natural Gamma Ray Sonde / Equipment Identification

Primary Equipment:

HNGS Sonde HNGS - BA 27

Auxiliary Equipment:

HNGS Sonde Housing HNSH - BA 27

Gamma Source Radioactive GSR - U 135

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		40.51	Master		15.86	Master		1114
Before		40.70	Before		15.41	Before		1112
After		40.78	After		15.58	After		1109
	37.50 (Minimum) 40.00 (Nominal) 42.50 (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		145.5	Master		9.054	Master		8.268
Before		145.3	Before		8.948	Before		21.55
After		145.7	After		8.298	After		21.11
	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		28.90						
Before		27.69						
After		26.81						
	15.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)							
Master: 2-FEB-2000 11:55			Before: 17-MAR-2000 18:42			After: 23-MAR-2000 20:15		






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		40.64	Master		14.00	Master		1201
Before		40.50	Before		15.27	Before		1200
After		40.61	After		14.30	After		1196
	37.50 (Minimum) 40.00 (Nominal) 42.50 (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		144.2	Master		8.101	Master		7.197
Before		145.0	Before		8.587	Before		20.53
After		145.2	After		8.370	After		21.24
	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		29.49						
Before		28.21						
After		27.04						
	15.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)							
Master: 2-FEB-2000 11:55			Before: 17-MAR-2000 18:42			After: 23-MAR-2000 20:15		

Hostile Natural Gamma Ray Sonde Wellsite Calibration		
Ratio Of Detector 1 To Detector 2		
Phase	Coincidence Count Rate Ratio	Value
Master		0.9809
Before		0.9840
After		0.9920
	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	
Master: 2-FEB-2000 11:55		
Before: 17-MAR-2000 18:42		
After: 23-MAR-2000 20:15		




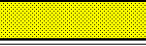

**Detector 1 Calibration**

Phase	Na 511 Peak Set Point		Value	Phase	Th Peak Loc		Value	Phase	Th Peak Res %		Value
Master			41.00	Master			211.3	Master			7.466
	38.00 (Minimum)	40.00 (Nominal)	42.00 (Maximum)		201.0 (Minimum)	209.6 (Nominal)	218.3 (Maximum)		5.000 (Minimum)	7.000 (Nominal)	9.000 (Maximum)
Phase	Background Count Rate CPS		Value	Phase	Gain Ratio		Value				
Master			18.16	Master			0.9923				
	20.00 (Minimum)	142.5 (Nominal)	265.0 (Maximum)		0.9400 (Minimum)	1.000 (Nominal)	1.060 (Maximum)				

Master: 2-FEB-2000 11:43

**Hostile Natural Gamma Ray Sonde Master Calibration**

**Detector 2 Calibration**

Phase	Na 511 Peak Set Point		Value	Phase	Th Peak Loc		Value	Phase	Th Peak Res %		Value
Master			41.00	Master			209.6	Master			6.194
	38.00 (Minimum)	40.00 (Nominal)	42.00 (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			20.51	Master			0.9815				
	20.00 (Minimum)	142.5 (Nominal)	265.0 (Maximum)		0.9400 (Minimum)	1.000 (Nominal)	1.060 (Maximum)				

Master: 2-FEB-2000 11:43

**COMPANY:** Lamont Doherty

**WELL:** ODP Leg 189, Site 1168 (WT-1A)

**FIELD:** Tasmanian Seaway, West Tasmania Site

**COUNTY:** Offshore

**STATE:** Indian Ocean

**BOTTOM LOG INTERVAL** 3336 M.

**SCHLUMBERGER DEPTH** 3351 M.

**DEPTH DRILLER** 3357.7 M.

**KELLY BUSHING** 11.2 M.

**DRILL FLOOR** 10.9 M.

**GROUND LEVEL** -2474 M.

**Density/APS Porosity**

