

Company: Lamont Doherty

Well: ODP Leg 201, Site 1228A PRU-2A

Field: Peru Margin

Rig: JOIDES Resolution Ocean: Pacific

## APS/HLDT Porosity Natural Gamma Ray

Rig: JOIDES Resolution		Elev.: K.B. 11.3 m	
Field: Peru Margin		G.L. -273 m	
Location: 11 Deg 53.900' S Latitude		D.F. 11 m	
Well: ODP Leg 201, Site 1228A PRU-2		Elev.: 0 m	
Company: Lamont Doherty		11.3 m above Perm. Datum	
LOCATION			
11 Deg 53.900' S Latitude			
78 Deg 4.670' W Longitude			
Permanent Datum:	MSL		
Log Measured From:	RKB		
Drilling Measured From:	RKB		
API Serial No.	Max. Hole Devi.	Longitude	Latitude
5-Mar-2002	0 deg		

Logging Date	5-Mar-2002		
Run Number	1		
Depth Driller	474 m		
Schlumberger Depth	475 m		
Bottom Log Interval	462 m		
Top Log Interval	277 m		
Casing Driller Size @ Depth	0.000 in @ 342 m		
Casing Schlumberger	345 m		
Bit Size	11.438 in		
Type Fluid In Hole	Septolite/Saltwater		
Density	1.07 g/cm3		
Fluid Loss	PH		
Source Of Sample	mudpit		
RM @ Measured Temperature	0.235 ohm.m @		33 degC
RMF @ Measured Temperature	@		@
RMC @ Measured Temperature	@		@
Source RMF	RMC	none	none
RM @ MRT	RMF @ MRT	0.278 @ 24	@ 24
Maximum Recorded Temperatures	24 degC		@ 24
Circulation Stopped	Time	5-Mar-2002	16:00
Logger On Bottom	Time	5-Mar-2002	20:24
Unit Number	Location	99	Houston ODP
Recorded By	K. Swain		
Witnessed By	Gilles Guerin		

Logging Date	Run 1	Run 2	Run
Run Number			
Depth Driller			
Schlumberger Depth			
Bottom Log Interval			
Top Log Interval			
Casing Driller Size @ Depth			
Casing Schlumberger			
Bit Size			
Type Fluid In Hole			
Density			
Fluid Loss			
Source Of Sample			
RM @ Measured Temperature	@	@	@
RMF @ Measured Temperature	@	@	@
RMC @ Measured Temperature	@	@	@
Source RMF	RMC	none	none
RM @ MRT	RMF @ MRT	0.278 @ 24	@ 24
Maximum Recorded Temperatures	24 degC		@ 24
Circulation Stopped	Time	5-Mar-2002	16:00
Logger On Bottom	Time	5-Mar-2002	20:24
Unit Number	Location	99	Houston ODP
Recorded By	K. Swain		
Witnessed By	Gilles Guerin		

**DISCLAIMER**

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OTHER SERVICES1 OS1: DITE OS2: SGT OS3: OS4: OS5:	OTHER SERVICES2 OS1: OS2: OS3: OS4: OS5:
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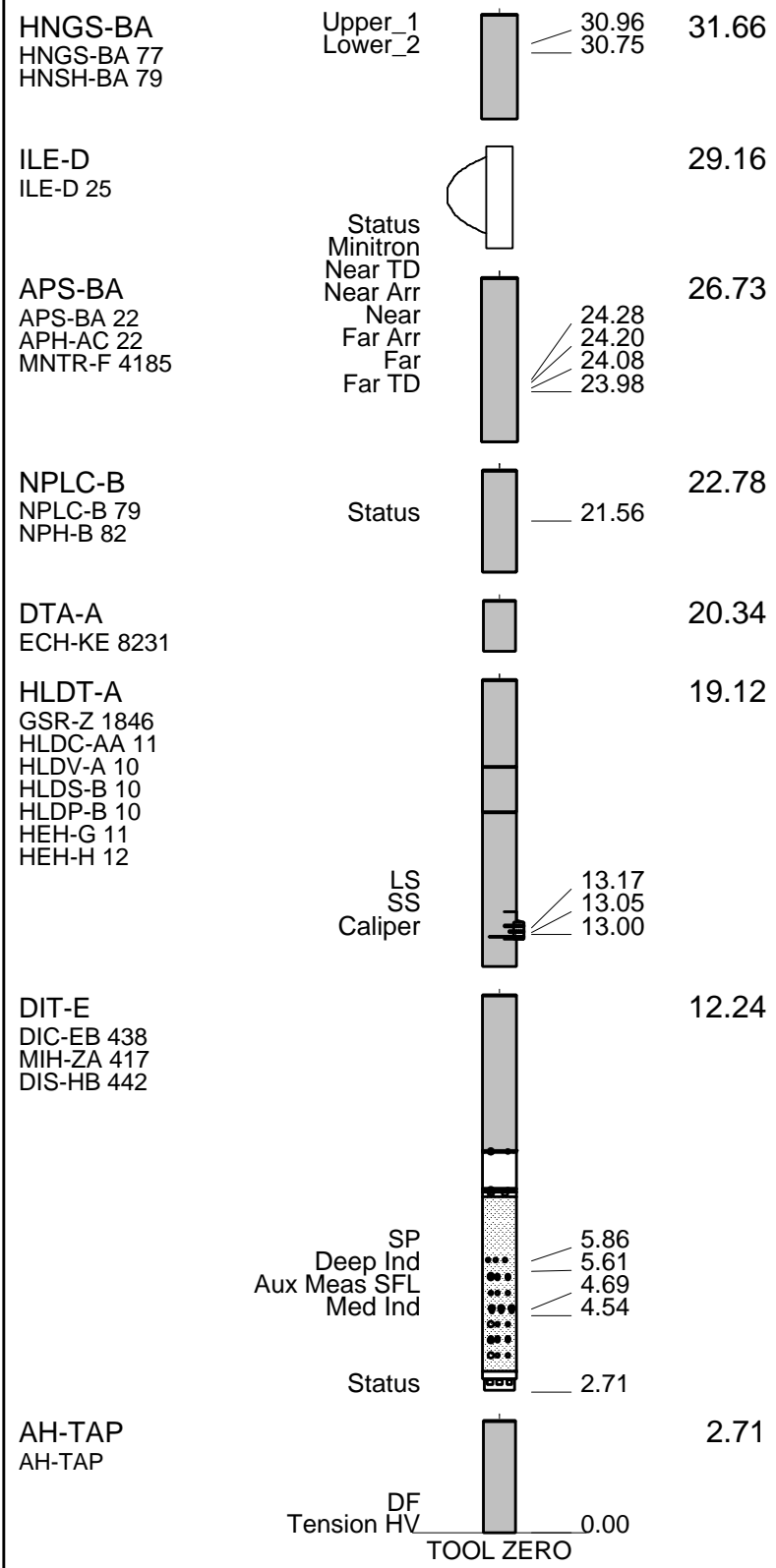
REMARKS: RUN NUMBER 1 Hole cored with APC, PCS. Log presented in meters below rig floor. Lamont Temperature tool (TAP) was run on Triple Combo. Wireline Heave Compensator (WHC) was used on all descents. Sepiolite mud was used to displace the hole during the wiper trip. Drillers TD 474 mbrf, Driller pipe depth: 352 mbrf, Sea Floor: 273 mbrf.	REMARKS: RUN NUMBER 2
Software bug shows APS calibration not done for part of calibration. Low background countrate on HNGS master calibration signifies a weak internal source used for check of detector and does not affect calibration or LQC.	

RUN 1			RUN 2		
SERVICE ORDER #:			SERVICE ORDER #:		
PROGRAM VERSION:	10C0-306		PROGRAM VERSION:		
FLUID LEVEL:			FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

**EQUIPMENT DESCRIPTION**

RUN 1		RUN 2	
<b>SURFACE EQUIPMENT</b>			
SFT-281 24	WITM (DTS)-A		
SFT-178 4722			
GSR-U 135			
GSR-U/Y			

<b>DOWNHOLE EQUIPMENT</b>			
LEH-QT			35.14
LEH-QT 1726			
DTC-H	CTEM		33.98
ECH-KC 9343	TelStatus		34.25
	ToolStatu		33.34
SGT-N	Gamma Ray		33.06
SGH-K 2448			
SCC TR 0582			



TOOL ZERO

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

### Output DLIS Files

DEFAULT	PI_LDL_APS_NGS_005LUP	FN:6	PRODUCER	05-Mar-2002 20:24	475.5 M	255.9 M
REDUCE	PI_LDL_APS_NGS_005LUP	FN:7	PRODUCER	05-Mar-2002 20:24	475.5 M	255.9 M

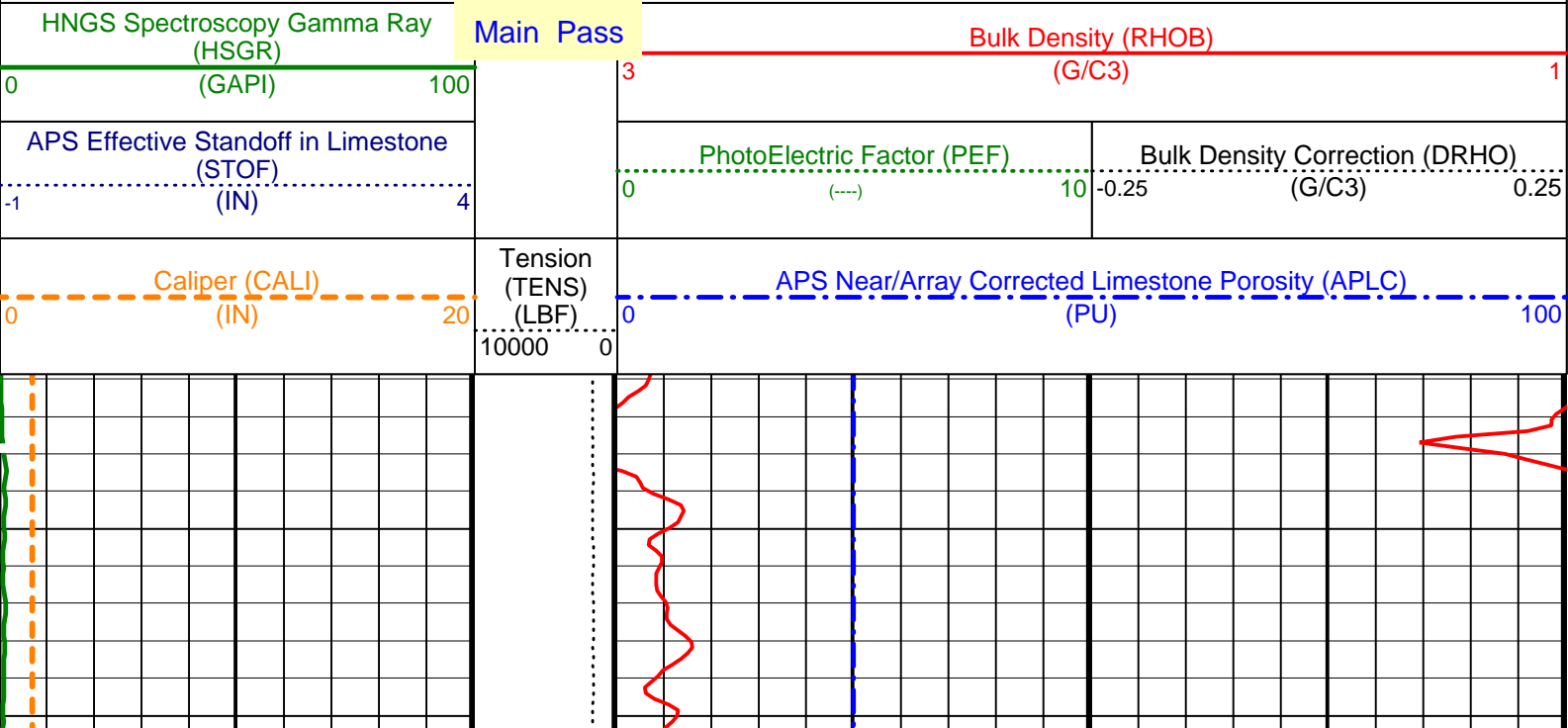
### OP System Version: 10C0-306

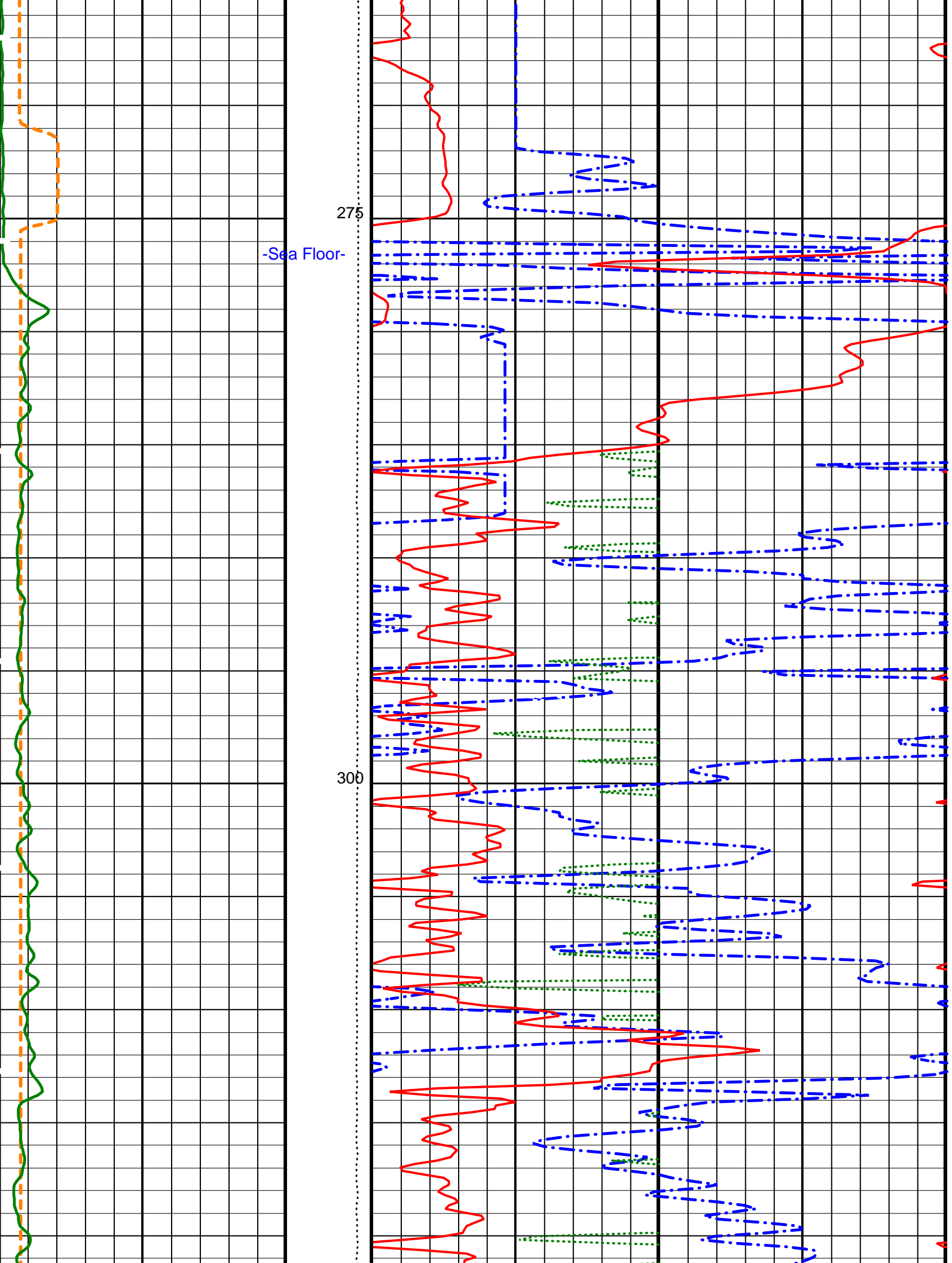
MCM

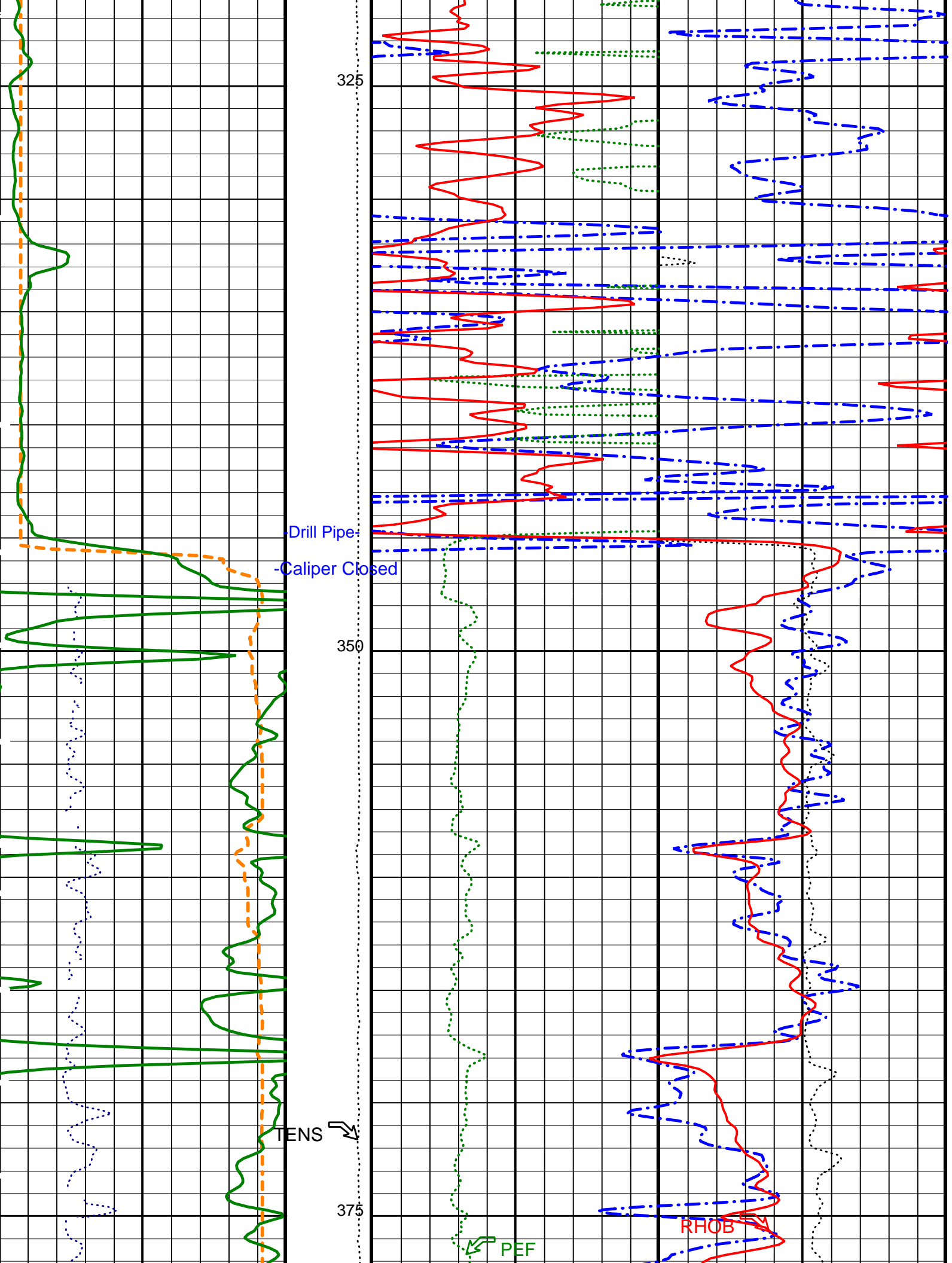
DIT-E	10C0-306	HLDT-A	10C0-306
DTA-A	10C0-306	NPLC-B	10C0-306
APS-BA	10C0-306	HNGS-BA	10C0-306
SGT-N	10C0-306	DTC-H	10C0-306

### PIP SUMMARY

▶ Time Mark Every 60 S







325

Drill Pipe

-Caliper Closed

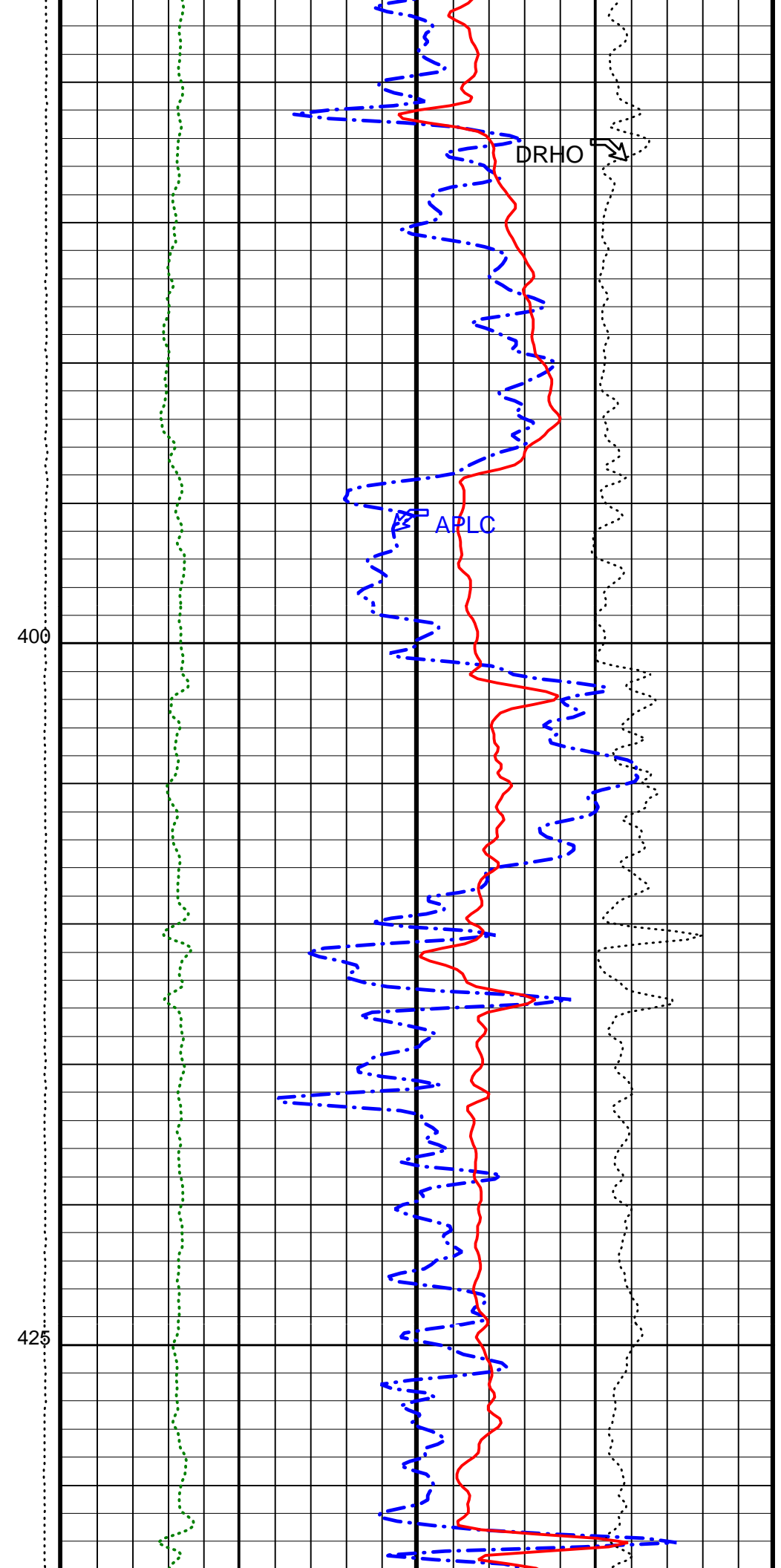
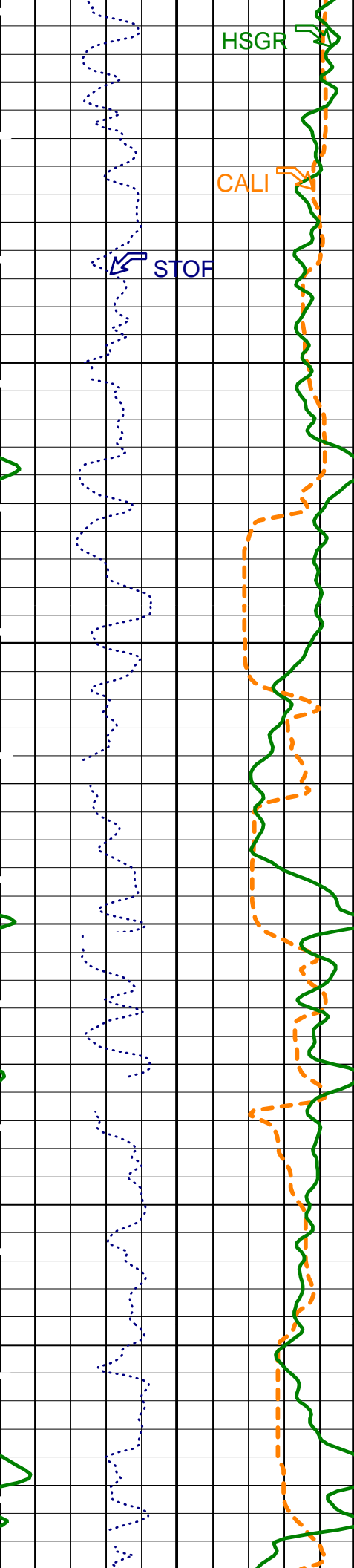
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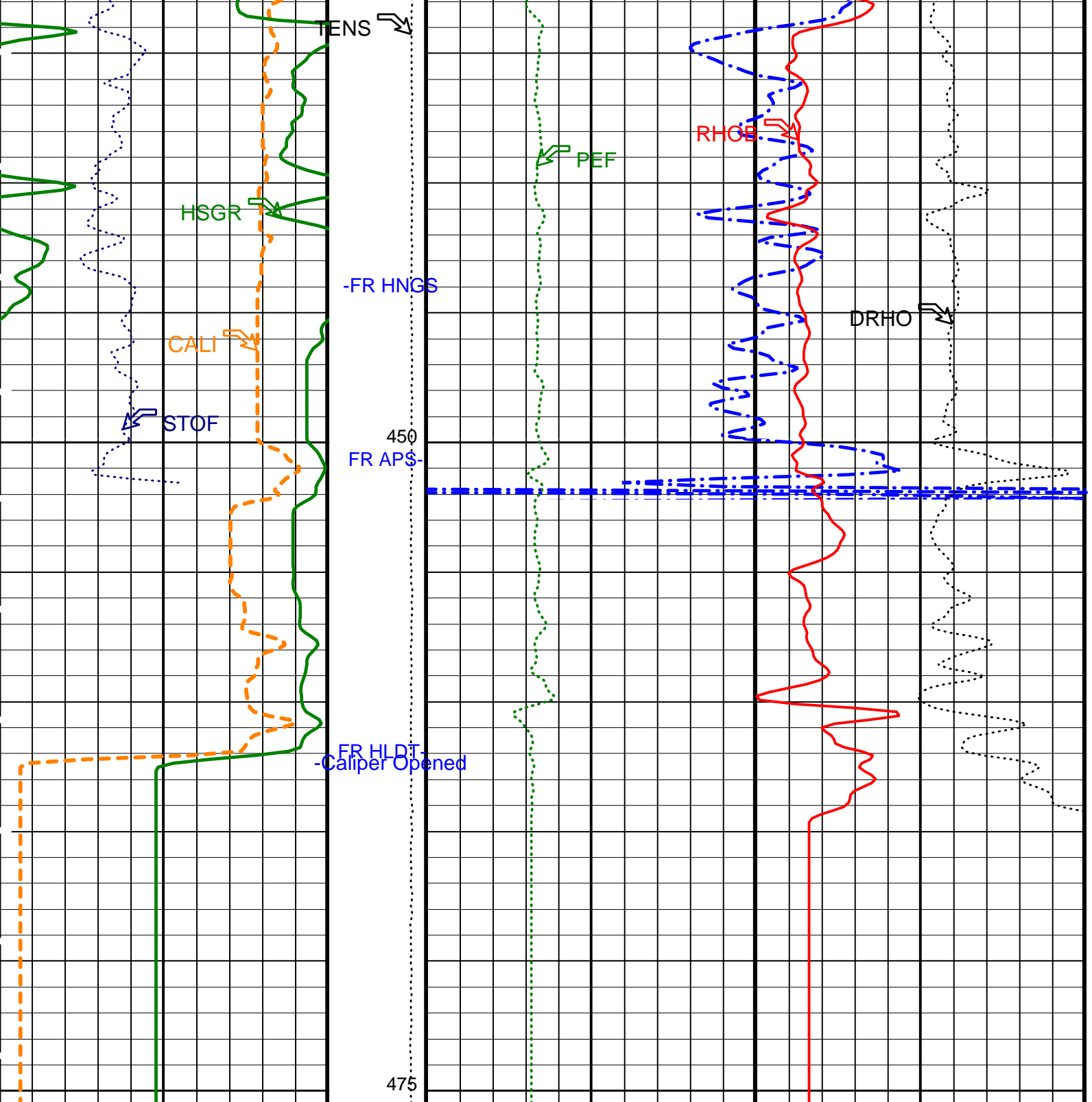
TENS →

375

PEF →

RHOB →





Caliper (CALI) (IN)	Tension (TENS) (LBF)	APS Near/Array Corrected Limestone Porosity (APLC) (PU)
0 20	10000 0	0 100
APS Effective Standoff in Limestone (STOF) (IN)	PhotoElectric Factor (PEF) (---	Bulk Density Correction (DRHO) (G/C3)
-1 4	0 10	-0.25 0.25
HNGS Spectroscopy Gamma Ray (HSGR) (GAPI)	Bulk Density (RHOB) (G/C3)	
0 100	3 1	

Main Pass

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)	40	DEGF
DGF1	Deep 10 kHz Gain Factor	0.995593	
DGF2	Deep 20 kHz Gain Factor	1.00789	
DGF4	Deep 40 kHz Gain Factor	1.02614	
DPH1	Deep 10 kHz Phase Shift	0.114289	DEG
DPH2	Deep 20 kHz Phase Shift	-0.152394	DEG
DPH4	Deep 40 kHz Phase Shift	-1.42629	DEG
DRE1	Deep Real 10 kHz Sonde Error Correction	44.9501	MM/M
DRE2	Deep Real 20 kHz Sonde Error Correction	16.357	MM/M
DRE4	Deep Real 40 kHz Sonde Error Correction	4.69026	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	108.903	MM/M
DXE2	Deep Quad 20 kHz Sonde Error Correction	64.6326	MM/M
DXE4	Deep Quad 40 kHz Sonde Error Correction	46.096	MM/M
GCSE	Generalized Caliper Selection	CALI	
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	
ITEN	DIT-E Temperature Enable	ENABLE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MGF1	Medium 10 kHz Gain Factor	1.02182	
MGF2	Medium 20 kHz Gain Factor	1.02964	
MGF4	Medium 40 kHz Gain Factor	1.06122	
MPH1	Medium 10 kHz Phase Shift	-0.255819	DEG
MPH2	Medium 20 kHz Phase Shift	-0.933067	DEG
MPH4	Medium 40 kHz Phase Shift	-2.46117	DEG
MRE1	Medium Real 10 kHz Sonde Error Correction	20.7292	MM/M
MRE2	Medium Real 20 kHz Sonde Error Correction	-1.78642	MM/M
MRE4	Medium Real 40 kHz Sonde Error Correction	-10.4594	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	-105.752	MM/M
MXE2	Medium Quad 20 kHz Sonde Error Correction	-34.2041	MM/M
MXE4	Medium Quad 40 kHz Sonde Error Correction	11.4521	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
	HLDT-A: Hostile Environment Litho Density - A		
BFM	Borehole Fluid Medium	LIQUID	
DHC	Density Hole Correction	BS	
DPPM	Density Porosity Processing Mode	HIRS	
FD	Fluid Density	1	G/C3
LSHC	LS Hardware Loop Control	DISALLOW	
MDEN	Matrix Density	2.71	G/C3
QPPS	Quicklook Processing Pe Select	PEFL	
SSHC	SS Hardware Loop Control	DISALLOW	
WMUD	Mud Weight	1.07	G/C3
	NPLC-B: Nuclear Porosity Lithology Cartridge - B		
NOTS	NPLC Old Temperature Sensor	NO	
	APS-BA: Accelerator-Porosity Tool		
	APS Software Version	5	
AASD	APS Thermal and Array Detectors High Voltage Setting	1968.98	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	2052.03	V
AHCS	APS Holesize Correction Source	GCSE	
AHSS	APS Holesize Correction Switch	ON	
AMTY	APS Environmental Corrections Mud Type	WaterBaseBarite	
ANSD	APS Near Detector High Voltage Setting	1748.3	V
AOTS	APS Old Temperature Sensor Switch	NO	
ASOS	APS Standoff Correction Switch	ON	
ATSS	APS Temperature-Pressure-Salinity Correction Switch	OFF	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	40	DEGF
DPPM	Density Porosity Processing Mode	HIRS	
FSAL	Formation Salinity	-50000	PPM
GCSE	Generalized Caliper Selection	CALI	

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	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
NARC	APS Near/Array Calibration Ratio	1.0631	
NFRC	APS Near/Far Calibration Ratio	0.902243	
SHT	Surface Hole Temperature	68	DEGF
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)	40	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	CALI	
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	-0.00491096	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	NATU	
HNPE	HNGS Processing Enable	YES	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGS Standard Gamma-Ray Correction Flag	YES	
SHT	Surface Hole Temperature	68	DEGF
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0.77628	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.814463	
SGT-N: Scintillation Gamma-Ray - N			
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	40	DEGF
DPPM	Density Porosity Processing Mode	HIRS	
GCSE	Generalized Caliper Selection	CALI	
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	
ISSBAR	SGT Nuclear Mud Type	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
SHT	Surface Hole Temperature	68	DEGF
SOGR	SGT Standoff Distance	0	IN
HOLEV: Integrated Hole/Cement Volume			
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	40	DEGF
FCD	Future Casing (Outer) Diameter	0	IN
GCSE	Generalized Caliper Selection	CALI	
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	
HVCS	Integrated Hole Volume Caliper Selection	AUTOMATIC	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
SHT	Surface Hole Temperature	68	DEGF
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	0.000	IN
CWEI	Casing Weight	0.00	LB/F
DFD	Drilling Fluid Density	1.07	G/C3
MST	Mud Sample Temperature	33.00	DEGC
PBVSADP	Use alternate depth channel for playback	NO	
RMFS	Resistivity of Mud Filtrate Sample	-50000.0000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	-50000	FT
TDD	Total Depth - Driller	474.00	M
TDL	Total Depth - Logger	-50000.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

DIT-E	10C0-306	HLDT-A	10C0-306
DTA-A	10C0-306	NPLC-B	10C0-306
APS-BA	10C0-306	HNGS-BA	10C0-306
SGT-N	10C0-306	DTC-H	10C0-306

### Output DLIS Files

DEFAULT	PI_LDL_APS_NGS_005LUP	FN:6	PRODUCER	05-Mar-2002 20:24
REDUCE	PI_LDL_APS_NGS_005LUP	FN:7	PRODUCER	05-Mar-2002 20:24

### Output DLIS Files

DEFAULT	PI_LDL_APS_NGS_006LUP	FN:8	PRODUCER	05-Mar-2002 21:13	475.5 M	321.1 M
REDUCE	PI_LDL_APS_NGS_006LUP	FN:9	PRODUCER	05-Mar-2002 21:13	475.5 M	321.1 M

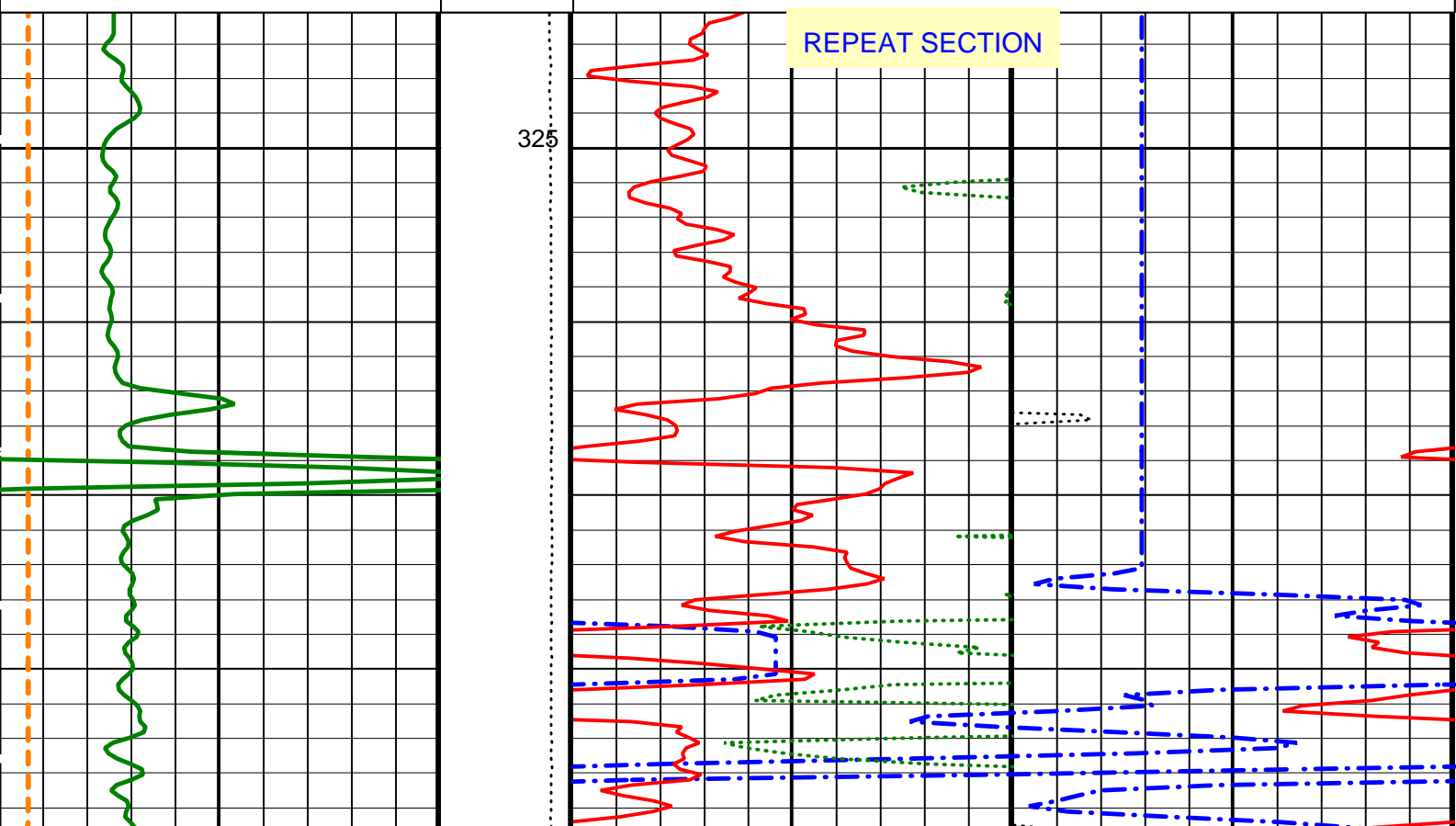
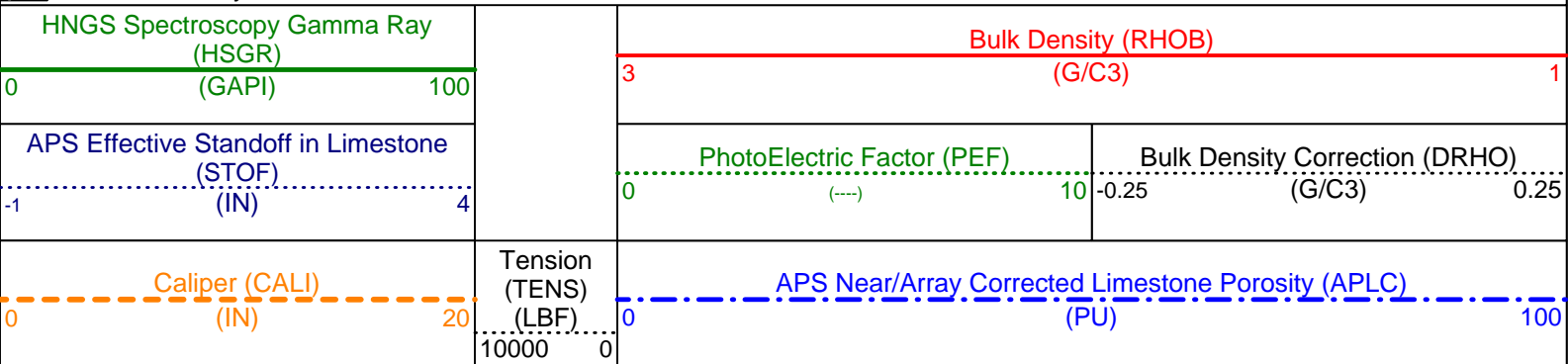
### OP System Version: 10C0-306

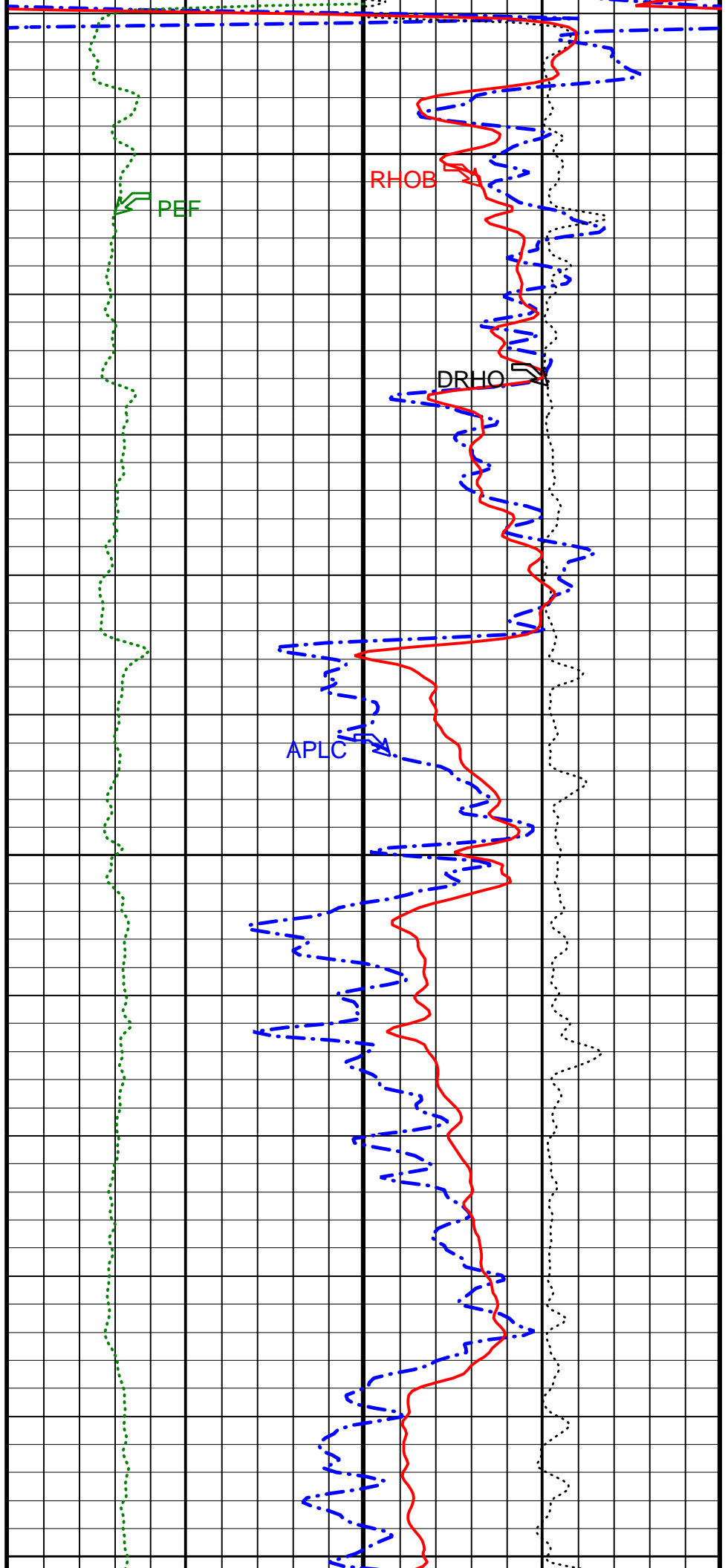
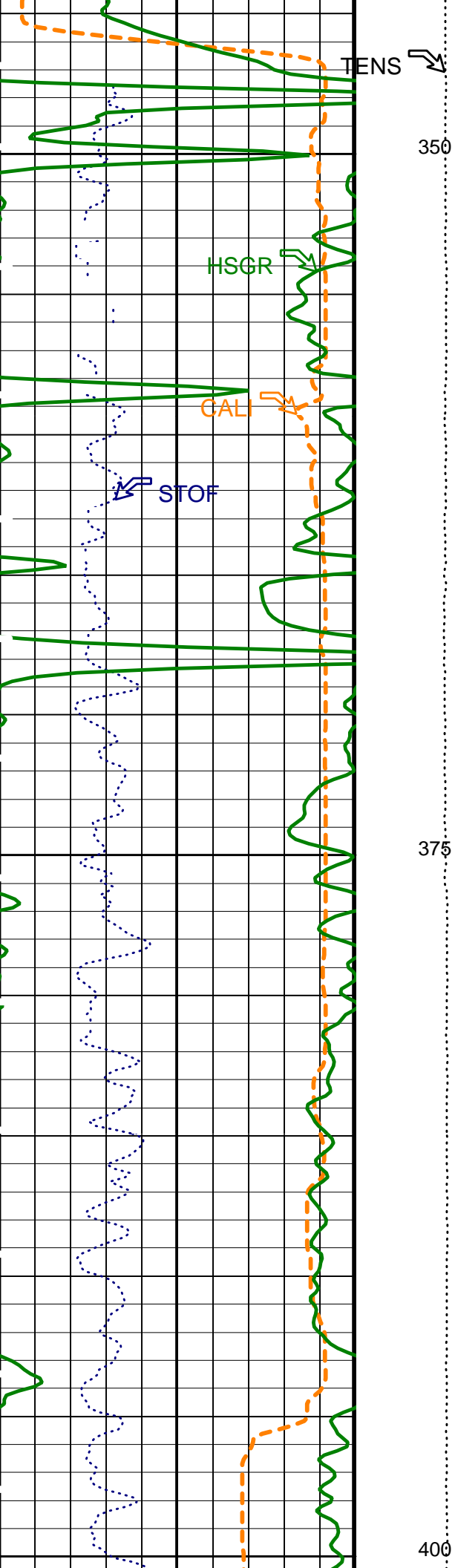
MCM

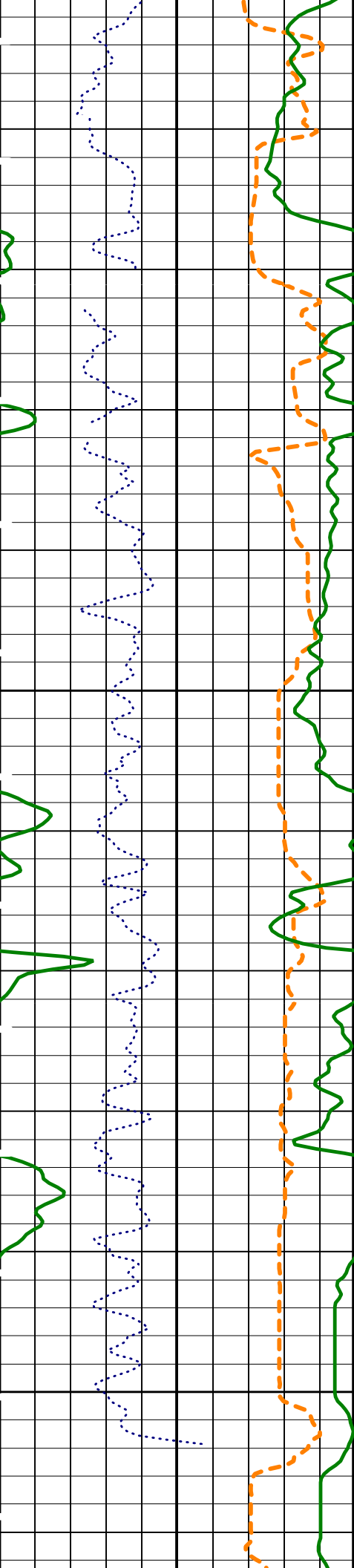
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DTA-A	10C0-306	NPLC-B	10C0-306
APS-BA	10C0-306	HNGS-BA	10C0-306
SGT-N	10C0-306	DTC-H	10C0-306

### PIP SUMMARY

Time Mark Every 60 S

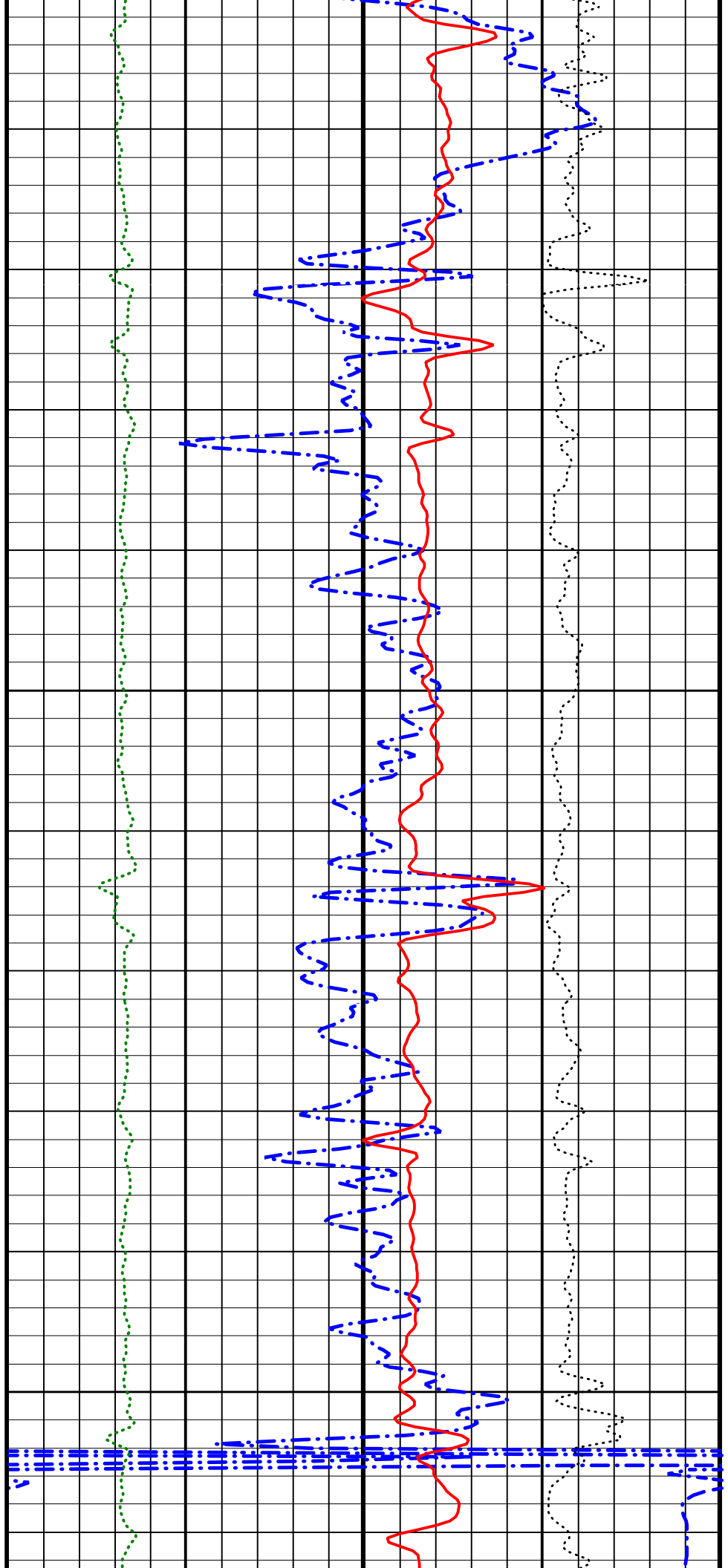


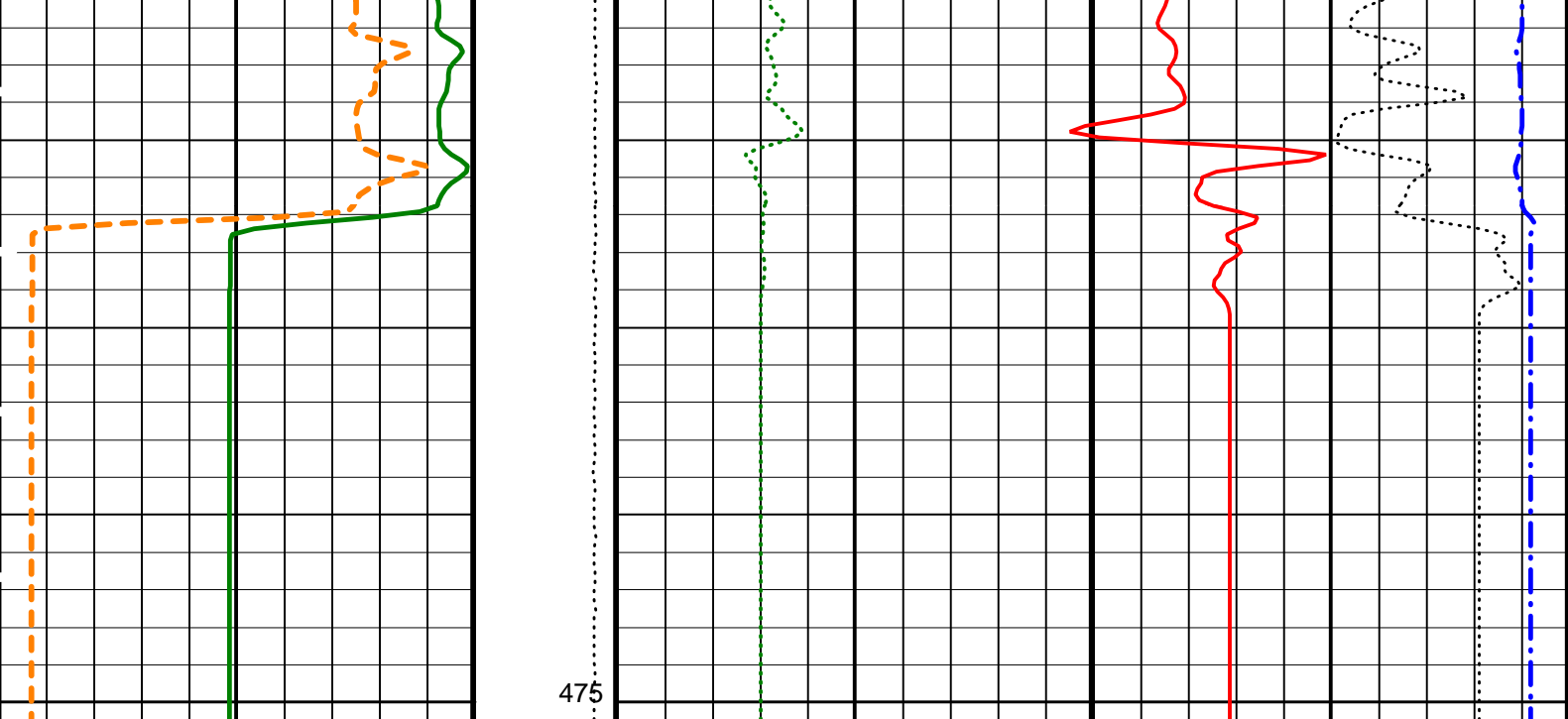




425

450





Caliper (CALI) (IN)	Tension (TENS) (LBF)	APS Near/Array Corrected Limestone Porosity (APLC) (PU)	
0 20	10000 0	0 100	
APS Effective Standoff in Limestone (STOF) (IN)	PhotoElectric Factor (PEF) (---)	Bulk Density Correction (DRHO) (G/C3)	
-1 4	0 10	-0.25 0.25	
HNGS Spectroscopy Gamma Ray (HSGR) (GAPI)	Bulk Density (RHOB) (G/C3)		
0 100	3 1		

PIP SUMMARY

REPEAT SECTION

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)	40	DEGF
DGF1	Deep 10 kHz Gain Factor	0.995593	
DGF2	Deep 20 kHz Gain Factor	1.00789	
DGF4	Deep 40 kHz Gain Factor	1.02614	
DPH1	Deep 10 kHz Phase Shift	0.114289	DEG
DPH2	Deep 20 kHz Phase Shift	-0.152394	DEG
DPH4	Deep 40 kHz Phase Shift	-1.42629	DEG
DRE1	Deep Real 10 kHz Sonde Error Correction	44.9501	MM/M
DRE2	Deep Real 20 kHz Sonde Error Correction	16.357	MM/M
DRE4	Deep Real 40 kHz Sonde Error Correction	4.69026	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	108.903	MM/M
DXE2	Deep Quad 20 kHz Sonde Error Correction	64.6326	MM/M
DXE4	Deep Quad 40 kHz Sonde Error Correction	46.096	MM/M
GCSE	Generalized Caliper Selection	CALI	
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	
ITEN	DIT-E Temperature Enable	ENABLE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MGF1	Medium 10 kHz Gain Factor	1.02182	
MGF2	Medium 20 kHz Gain Factor	1.02964	

MGF4	Medium 20 kHz Gain Factor	1.06122	
MPH1	Medium 10 kHz Phase Shift	-0.255819	DEG
MPH2	Medium 20 kHz Phase Shift	-0.933067	DEG
MPH4	Medium 40 kHz Phase Shift	-2.46117	DEG
MRE1	Medium Real 10 kHz Sonde Error Correction	20.7292	MM/M
MRE2	Medium Real 20 kHz Sonde Error Correction	-1.78642	MM/M
MRE4	Medium Real 40 kHz Sonde Error Correction	-10.4594	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	-105.752	MM/M
MXE2	Medium Quad 20 kHz Sonde Error Correction	-34.2041	MM/M
MXE4	Medium Quad 40 kHz Sonde Error Correction	11.4521	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
HLDT-A: Hostile Environment Litho Density - A			
BFM	Borehole Fluid Medium	LIQUID	
DHC	Density Hole Correction	BS	
DPPM	Density Porosity Processing Mode	HIRS	
FD	Fluid Density	1	G/C3
LSHC	LS Hardware Loop Control	DISALLOW	
MDEN	Matrix Density	2.71	G/C3
QPPS	Quicklook Processing Pe Select	PEFL	
SSHC	SS Hardware Loop Control	DISALLOW	
WMUD	Mud Weight	1.07	G/C3
NPLC-B: Nuclear Porosity Lithology Cartridge - B			
NOTS	NPLC Old Temperature Sensor	NO	
APS-BA: Accelerator-Porosity Tool			
AASD	APS Software Version	5	
ABOS	APS Thermal and Array Detectors High Voltage Setting	1968.98	V
ADSO	APS Neutron Burst-Off Background Subtraction Switch	ON	
AFSD	APS Array Detectors Data Source Switch	Both	
AHCS	APS Far Detector High Voltage Setting	2052.03	V
AHSS	APS Holesize Correction Source	GCSE	
AMTY	APS Holesize Correction Switch	ON	
ANSD	APS Environmental Corrections Mud Type	WaterBaseBarite	
AOTS	APS Near Detector High Voltage Setting	1748.3	V
ASOS	APS Old Temperature Sensor Switch	NO	
ATSS	APS Standoff Correction Switch	ON	
BHS	APS Temperature-Pressure-Salinity Correction Switch	OFF	
BHT	Borehole Status	OPEN	
DPPM	Bottom Hole Temperature (used in calculations)	40	DEGF
FSAL	Density Porosity Processing Mode	HIRS	
GCSE	Formation Salinity	-50000	PPM
GDEV	Generalized Caliper Selection	CALI	
GGRD	Average Angular Deviation of Borehole from Normal	0	DEG
GRSE	Geothermal Gradient	0.01	DF/F
GTSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
MATR	Generalized Temperature Selection	LINEAR_ESTIMATE	
NARC	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
NFRC	APS Near/Array Calibration Ratio	1.0631	
SHT	APS Near/Far Calibration Ratio	0.902243	
	Surface Hole Temperature	68	DEGF
HNCS-BA: Hostile Natural Gamma Ray Sonde			
BAR1	HNCS Detector 1 Barite Constant	1	
BAR2	HNCS Detector 2 Barite Constant	1	
BHK	HNCS Borehole Potassium Correction Concentration	0	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	40	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	HNCS Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	CALI	
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	HNCS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNCS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNCS Borehole Potassium Running Average	-0.00262782	
HALF	HNCS Alpha Filter Length	60	IN
HCRB	HNCS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	NATU	
HNPE	HNCS Processing Enable	YES	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
S1BI	HNCS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNCS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNCS Standard Gamma-Ray Correction Flag	YES	
SHT	Surface Hole Temperature	68	DEGF

SHT	Surface Hole Temperature	68	DEGF
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0.963907	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.979587	
SGT-N: Scintillation Gamma-Ray - N			
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	40	DEGF
DPPM	Density Porosity Processing Mode	HIRS	
GCSE	Generalized Caliper Selection	CALI	
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	
ISSBAR	SGT Nuclear Mud Type	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
SHT	Surface Hole Temperature	68	DEGF
SOGR	SGT Standoff Distance	0	IN
HOLEV: Integrated Hole/Cement Volume			
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	40	DEGF
FCD	Future Casing (Outer) Diameter	0	IN
GCSE	Generalized Caliper Selection	CALI	
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	
HVCS	Integrated Hole Volume Caliper Selection	AUTOMATIC	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
SHT	Surface Hole Temperature	68	DEGF
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	0.000	IN
CWEI	Casing Weight	0.00	LB/F
DFD	Drilling Fluid Density	1.07	G/C3
MST	Mud Sample Temperature	33.00	DEGC
PBVSADP	Use alternate depth channel for playback	NO	
RMFS	Resistivity of Mud Filtrate Sample	-50000.0000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	-50000	FT
TDD	Total Depth - Driller	474.00	M
TDL	Total Depth - Logger	-50000.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: APSLiquidPorosity\_1 Vertical Scale: 1:200 Graphics File Created: 05-Mar-2002 21:13

## OP System Version: 10C0-306

MCM

DIT-E	10C0-306	HLDT-A	10C0-306
DTA-A	10C0-306	NPLC-B	10C0-306
APS-BA	10C0-306	HNGS-BA	10C0-306
SGT-N	10C0-306	DTC-H	10C0-306

## Output DLIS Files

DEFAULT	PI_LDL_APS_NGS_006LUP	FN:8	PRODUCER	05-Mar-2002 21:13
REDUCE	PI_LDL_APS_NGS_006LUP	FN:9	PRODUCER	05-Mar-2002 21:13

### Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Hostile Environment Litho Density - A Wellsite Calibration - Background Measurement							
Master: 25-Jan-2002 14:22 Before: 21-Feb-2002 4:36 After: 5-Mar-2002 22:52							
LSW1 Background	100.0	89.06	86.19	87.32	1.128	3.000	CPS
LSW2 Background	105.0	93.23	91.94	90.71	-1.232	3.150	CPS
LSW3 Background	210.0	180.0	177.0	178.4	1.437	6.300	CPS
LSW4 Background	290.0	237.9	235.4	238.9	3.481	8.700	CPS
LSW5 Background	610.0	529.6	525.7	522.6	-3.155	18.30	CPS
SSW1 Background	100.0	85.18	85.99	84.17	-1.819	3.000	CPS
SSW2 Background	200.0	166.8	165.6	166.6	1.022	6.000	CPS
SSW3 Background	530.0	446.5	445.9	443.9	-1.961	15.90	CPS
SSW4 Background	280.0	235.8	234.2	234.2	-0.04904	8.400	CPS
SSW5 Background	205.0	176.3	175.5	177.2	1.732	6.150	CPS



Hostile Environment Litho Density - A Wellsite Calibration - Tool Quality Control Information High Voltage								
Master: 25-Jan-2002 14:22 Before: 21-Feb-2002 4:36 After: 5-Mar-2002 22:52								
LS Bkg. High Voltage	1129	1129	1134	1134	0.3507	N/A	V	
SS Bkg. High Voltage	1173	1173	1180	1176	-4.078	N/A	V	
Hostile Environment Litho Density - A Wellsite Calibration - Detectors Resolution From BKG Measurements								
Master: 25-Jan-2002 14:22 Before: 21-Feb-2002 4:36 After: 5-Mar-2002 22:52								
LS Background Resolution	1.000	1.042	1.032	1.021	-0.01052	N/A		
SS Background Resolution	1.000	0.9530	0.9479	0.9514	0.003475	N/A		
Hostile Environment Litho Density - A Wellsite Calibration - Caliper Calibration								
Before: 7-Feb-2002 1:47								
Caliper Small Ring	12.00	N/A	16.99	N/A	N/A	N/A	IN	
Caliper Large Ring	18.25	N/A	23.87	N/A	N/A	N/A	IN	
Hostile Environment Litho Density - A Master Calibration - Aluminum Measurement								
Master: 25-Jan-2002 15:58								
LSW1 Aluminum	648.4	632.3	--	--	--	--	CPS	
LSW2 Aluminum	1018	998.4	--	--	--	--	CPS	
LSW3 Aluminum	1105	1037	--	--	--	--	CPS	
LSW4 Aluminum	609.5	564.9	--	--	--	--	CPS	
LSW5 Aluminum	533.8	497.5	--	--	--	--	CPS	
SSW1 Aluminum	2664	2526	--	--	--	--	CPS	
SSW2 Aluminum	7731	7417	--	--	--	--	CPS	
SSW3 Aluminum	10380	9945	--	--	--	--	CPS	
SSW4 Aluminum	4574	4376	--	--	--	--	CPS	
SSW5 Aluminum	745.2	731.3	--	--	--	--	CPS	
Hostile Environment Litho Density - A Master Calibration - Tool Quality Control Information: High Voltage								
Master: 25-Jan-2002 15:58								
LS Alum. High Voltage	1129	1130	--	--	--	--	V	
SS Alum. High Voltage	1173	1161	--	--	--	--	V	
Hostile Environment Litho Density - A Master Calibration - Detectors Resolution From Aluminum Measurement								
Master: 25-Jan-2002 15:58								
LS Aluminum Resolution	1.000	1.032	--	--	--	--		
SS Aluminum Resolution	1.000	1.050	--	--	--	--		
Hostile Environment Litho Density - A Master Calibration - Aluminum Measurement (Window Ratios)								
Master: 25-Jan-2002 15:58								
LSW1/(LSW4 + LSW5) Calc.	0.5400	0.5952	--	--	--	--		
LSW3/(LSW4 + LSW5) Calc.	0.9600	0.9762	--	--	--	--		
SSW1/(SSW4 + SSW5) Calc.	0.4600	0.4946	--	--	--	--		
SSW3/(SSW4 + SSW5) Calc.	1.900	1.947	--	--	--	--		
Hostile Environment Litho Density - A Master Calibration - Litholog Measurement								
Master: 25-Jan-2002 15:52								
LSW1 Iron	410.0	450.3	--	--	--	--	CPS	
LSW2 Iron	870.0	861.2	--	--	--	--	CPS	
LSW3 Iron	1030	996.5	--	--	--	--	CPS	
LSW4 Iron	590.0	556.0	--	--	--	--	CPS	
LSW5 Iron	530.0	490.9	--	--	--	--	CPS	
SSW1 Iron	1850	1931	--	--	--	--	CPS	
SSW2 Iron	6500	6497	--	--	--	--	CPS	
SSW3 Iron	10000	9541	--	--	--	--	CPS	
SSW4 Iron	4500	4223	--	--	--	--	CPS	
SSW5 Iron	750.0	684.9	--	--	--	--	CPS	
Hostile Environment Litho Density - A Master Calibration - Tool Quality Control Information: High Voltage								
Master: 25-Jan-2002 15:52								
LS Lith High Voltage	1129	1130	--	--	--	--	V	
SS Lith High Voltage	1173	1163	--	--	--	--	V	
Hostile Environment Litho Density - A Master Calibration - Detectors Resolution From Litholog Measurement								
Master: 25-Jan-2002 15:52								
LS Lith Resolution	1.000	1.033	--	--	--	--		
SS Lith Resolution	1.000	1.016	--	--	--	--		
Accelerator-Porosity Tool Wellsite Calibration - Detector Background								
Master: 25-Jan-2002 18:34 Before: 5-Mar-2002 19:53 After: 5-Mar-2002 22:19								
Near Det Bkg Cntrate	30.00	32.90	32.48	32.32	-0.1662	N/A	CPS	
Far Det Bkg Cntrate	30.00	34.46	31.71	32.11	0.3989	N/A	CPS	
Array-1 Det Bkg Cntrate	30.00	28.56	29.28	28.74	-0.5316	N/A	CPS	
Array-2 Det Bkg Cntrate	30.00	30.78	31.29	30.35	-0.9304	N/A	CPS	
Array Therm Det Bkg Cntrate	30.00	32.89	32.92	31.26	-1.660	N/A	CPS	
Accelerator-Porosity Tool Wellsite Calibration - Calibration Ratios								
Master: 25-Jan-2002 18:35								
Near/Far Calibration Ratio	0.9250	0.9022	N/A	N/A	N/A	N/A		
Near/Array Calibration Ratio	1.030	1.063	N/A	N/A	N/A	N/A		
Near/Array Cal Ratio Up/Down	1.000	1.007	N/A	N/A	N/A	N/A		

Na/Array Cal Rate Up/Down	1.000	1.007	N/A	N/A	N/A	N/A	N/A	
<b>Accelerator-Porosity Tool Wellsite Calibration - Tank Check</b>								
Master: Calibration not done								
Array-1 Standoff Porosity	11.10	11.94	N/A	N/A	N/A	N/A	N/A	PU
Array-2 Standoff Porosity	11.10	11.71	N/A	N/A	N/A	N/A	N/A	PU
Average Slowing Down Time	6.000	N/A	N/A	N/A	N/A	N/A	N/A	US
Array-1 SDT Ratio Up/Down	1.000	N/A	N/A	N/A	N/A	N/A	N/A	
Array-1 SDT Ratio Up/Down	1.000	N/A	N/A	N/A	N/A	N/A	N/A	
Sigma Formation	27.50	27.64	N/A	N/A	N/A	N/A	N/A	CU
<b>Hostile Natural Gamma Ray Sonde Wellsite Calibration - Detector 1 Check</b>								
Master: 23-Jan-2002 11:37 Before: 7-Feb-2002 1:13								
Na 511 Peak Loc	40.00	40.51	40.71	N/A	N/A	1.000		
Na 511 Peak Res	15.50	15.75	17.24	N/A	N/A	2.000		%
High Voltage	1150	1203	1207	N/A	N/A	30.00		V
Na 1785 Peak Loc	142.6	144.6	146.2	N/A	N/A	7.000		
Na 1785 Peak Res	8.500	9.254	9.073	N/A	N/A	2.000		%
Temperature	15.50	21.86	29.34	N/A	N/A	N/A		DEGC
Na Count Rate	45.00	39.29	40.56	N/A	N/A	8.000		CPS
<b>Hostile Natural Gamma Ray Sonde Wellsite Calibration - Detector 2 Check</b>								
Master: 23-Jan-2002 11:37 Before: 7-Feb-2002 1:13								
Na 511 Peak Loc	40.00	40.54	40.54	N/A	N/A	1.000		
Na 511 Peak Res	15.50	16.19	16.67	N/A	N/A	2.000		%
High Voltage	1150	1233	1236	N/A	N/A	30.00		V
Na 1785 Peak Loc	142.6	143.9	144.1	N/A	N/A	7.000		
Na 1785 Peak Res	8.500	9.453	8.968	N/A	N/A	2.000		%
Temperature	15.50	21.24	29.04	N/A	N/A	N/A		DEGC
Na Count Rate	45.00	39.11	40.36	N/A	N/A	8.000		CPS
<b>Hostile Natural Gamma Ray Sonde Wellsite Calibration - Ratio Of Detector 1 To Detector 2</b>								
Master: 23-Jan-2002 11:37 Before: 7-Feb-2002 1:13								
Coincidence Count Rate Ratio	1.000	1.004	1.005	N/A	N/A	0.05000		
<b>Hostile Natural Gamma Ray Sonde Master Calibration - Detector 1 Calibration</b>								
Master: 23-Jan-2002 11:31								
Na 511 Peak Set Point	40.00	41.00	--	--	--	--		
Th Peak Loc	209.6	209.7	--	--	--	--		
Th Peak Res	7.000	7.364	--	--	--	--		%
Background Count Rate	142.5	19.66	--	--	--	--		CPS
Gain Ratio	1.000	0.9848	--	--	--	--		
<b>Hostile Natural Gamma Ray Sonde Master Calibration - Detector 2 Calibration</b>								
Master: 23-Jan-2002 11:31								
Na 511 Peak Set Point	40.00	41.00	--	--	--	--		
Th Peak Loc	209.6	208.7	--	--	--	--		
Th Peak Res	7.000	7.834	--	--	--	--		%
Background Count Rate	142.5	17.61	--	--	--	--		CPS
Gain Ratio	1.000	0.9795	--	--	--	--		
<b>Scintillation Gamma-Ray - N Wellsite Calibration - Detector Calibration</b>								
Before: 7-Feb-2002 1:09 After: Calibration not done								
Gamma Ray (Jig - Bkg)	167.5	N/A	167.5	N/A	N/A	0.09091		GAPI
Gamma Ray (Calibrated)	165.0	N/A	165.0	N/A	N/A	15.00		GAPI

<b>Accelerator-Porosity Tool - Detector Plateau Settings :</b>	
Near Detector Plateau Setting	1748 V
Far Detector Plateau Setting	2052 V
Array Detector Plateau Setting	1969 V

<b>Dual Induction - E / Equipment Identification</b>		
<b>Primary Equipment:</b>		
Dual Induction Sonde	DIS - HB	442
Dual Induction Cartridge	DIC - EB	438
<b>Auxiliary Equipment:</b>		
Mass Isolated Housing	MIH - ZA	417

<b>Hostile Environment Litho Density - A / Equipment Identification</b>		
<b>Primary Equipment:</b>		

Primary Equipment:

HOSTILE ENVIRONMENT LITHO DENSITY HIGH V  
 HOSTILE ENVIRONMENT LITHO DENSITY CARTRIDGE  
 Gamma Source Radioactive

HLDV - A 10  
 HLDC - AA 11  
 GSR - Z 1846

Auxiliary Equipment:

HOSTILE ENVIRONMENT LITHO DENSITY SONDE  
 HOSTILE ENVIRONMENT ELECTRONICS CARTRIDGE  
 HOSTILE ENVIRONMENT ELECTRONICS CARTRIDGE  
 HOSTILE ENVIRONMENT LITHO DENSITY PAD

HLDS - B 10  
 HEH - H 12  
 HEH - G 11  
 HLDP - B 10

Hostile Environment Litho Density - A Wellsite Calibration								
Background Measurement								
Phase	LSW1 Background CPS	Value	Phase	LSW2 Background CPS	Value	Phase	LSW3 Background CPS	Value
Master		89.06	Master		93.23	Master		180.0
Before		86.19	Before		91.94	Before		177.0
After		87.32	After		90.71	After		178.4
65.00 (Minimum) 100.0 (Nominal) 125.0 (Maximum)			70.00 (Minimum) 105.0 (Nominal) 130.0 (Maximum)			150.0 (Minimum) 210.0 (Nominal) 250.0 (Maximum)		
Phase	LSW4 Background CPS	Value	Phase	LSW5 Background CPS	Value	Phase	SSW1 Background CPS	Value
Master		237.9	Master		529.6	Master		85.18
Before		235.4	Before		525.7	Before		85.99
After		238.9	After		522.6	After		84.17
220.0 (Minimum) 290.0 (Nominal) 330.0 (Maximum)			430.0 (Minimum) 610.0 (Nominal) 730.0 (Maximum)			70.00 (Minimum) 100.0 (Nominal) 120.0 (Maximum)		
Phase	SSW2 Background CPS	Value	Phase	SSW3 Background CPS	Value	Phase	SSW4 Background CPS	Value
Master		166.8	Master		446.5	Master		235.8
Before		165.6	Before		445.9	Before		234.2
After		166.6	After		443.9	After		234.2
140.0 (Minimum) 200.0 (Nominal) 240.0 (Maximum)			380.0 (Minimum) 530.0 (Nominal) 630.0 (Maximum)			190.0 (Minimum) 280.0 (Nominal) 340.0 (Maximum)		
Phase	SSW5 Background CPS	Value						
Master		176.3						
Before		175.5						
After		177.2						
140.0 (Minimum) 205.0 (Nominal) 250.0 (Maximum)								
Master: 25-Jan-2002 14:22			Before: 21-Feb-2002 4:36			After: 5-Mar-2002 22:52		

Hostile Environment Litho Density - A Wellsite Calibration					
Detectors Resolution From BKG Measurements					
Phase	LS Background Resolution	Value	Phase	SS Background Resolution	Value
Master		1.042	Master		0.9530
Before		1.032	Before		0.9479
After		1.021	After		0.9514
0.7000 (Minimum) 1.000 (Nominal) 1.111 (Maximum)			0.7000 (Minimum) 1.000 (Nominal) 1.111 (Maximum)		
Master: 25-Jan-2002 14:22			Before: 21-Feb-2002 4:36		
After: 5-Mar-2002 22:52					

Hostile Environment Litho Density - A Master Calibration								
Aluminum Measurement								
Phase	LSW1 Aluminum CPS	Value	Phase	LSW2 Aluminum CPS	Value	Phase	LSW3 Aluminum CPS	Value
Master		632.3	Master		998.4	Master		1037
440.0 (Minimum) 648.4 (Nominal) 840.0 (Maximum)			840.0 (Minimum) 1018 (Nominal) 1200 (Maximum)			920.0 (Minimum) 1105 (Nominal) 1280 (Maximum)		
Phase	LSW4 Aluminum CPS	Value	Phase	LSW5 Aluminum CPS	Value	Phase	SSW1 Aluminum CPS	Value
Master		564.9	Master		497.5	Master		2526
520.0 (Minimum) 609.5 (Nominal) 720.0 (Maximum)			450.0 (Minimum) 533.8 (Nominal) 670.0 (Maximum)			1850 (Minimum) 2664 (Nominal) 2900 (Maximum)		
Phase	SSW2 Aluminum CPS	Value	Phase	SSW3 Aluminum CPS	Value	Phase	SSW4 Aluminum CPS	Value
Master		7417	Master		9045	Master		4276

Master	6200 (Minimum)	7731 (Nominal)	8500 (Maximum)	7417	Master	8750 (Minimum)	10380 (Nominal)	11750 (Maximum)	9945	Master	4000 (Minimum)	4574 (Nominal)	5400 (Maximum)	4376
Phase	SSW5 Aluminum CPS			Value										
Master				731.3										
	570.0 (Minimum)	745.2 (Nominal)	1110 (Maximum)											

Master: 25-Jan-2002 15:58

Hostile Environment Litho Density - A Master Calibration									
Detectors Resolution From Aluminum Measurement									
Phase	LS Aluminum Resolution			Value	Phase	SS Aluminum Resolution			Value
Master				1.032	Master				1.050
	0.7000 (Minimum)	1.000 (Nominal)	1.111 (Maximum)		0.7000 (Minimum)	1.000 (Nominal)	1.111 (Maximum)		

Master: 25-Jan-2002 15:58

Hostile Environment Litho Density - A Master Calibration									
Aluminum Measurement (Window Ratios)									
Phase	LSW1/(LSW4 + LSW5) Calc.			Value	Phase	LSW3/(LSW4 + LSW5) Calc.			Value
Master				0.5952	Master				0.9762
	0.3400 (Minimum)	0.5400 (Nominal)	0.7400 (Maximum)		0.7600 (Minimum)	0.9600 (Nominal)	1.160 (Maximum)		
Phase	SSW1/(SSW4 + SSW5) Calc.			Value	Phase	SSW3/(SSW4 + SSW5) Calc.			Value
Master				0.4946	Master				1.947
	0.3600 (Minimum)	0.4600 (Nominal)	0.5600 (Maximum)		1.700 (Minimum)	1.900 (Nominal)	2.100 (Maximum)		

Master: 25-Jan-2002 15:58

Hostile Environment Litho Density - A Master Calibration														
Litholog Measurement														
Phase	LSW1 Iron CPS			Value	Phase	LSW2 Iron CPS			Value	Phase	LSW3 Iron CPS			Value
Master				450.3	Master				861.2	Master				996.5
	310.0 (Minimum)	410.0 (Nominal)	510.0 (Maximum)		660.0 (Minimum)	870.0 (Nominal)	980.0 (Maximum)		810.0 (Minimum)	1030 (Nominal)	1170 (Maximum)			
Phase	LSW4 Iron CPS			Value	Phase	LSW5 Iron CPS			Value	Phase	SSW1 Iron CPS			Value
Master				556.0	Master				490.9	Master				1931
	470.0 (Minimum)	590.0 (Nominal)	670.0 (Maximum)		400.0 (Minimum)	530.0 (Nominal)	620.0 (Maximum)		1400 (Minimum)	1850 (Nominal)	2120 (Maximum)			
Phase	SSW2 Iron CPS			Value	Phase	SSW3 Iron CPS			Value	Phase	SSW4 Iron CPS			Value
Master				6497	Master				9541	Master				4223
	5170 (Minimum)	6500 (Nominal)	7270 (Maximum)		8100 (Minimum)	10000 (Nominal)	11000 (Maximum)		3620 (Minimum)	4500 (Nominal)	5020 (Maximum)			
Phase	SSW5 Iron CPS			Value										
Master				684.9										
	470.0 (Minimum)	750.0 (Nominal)	10100 (Maximum)											

Master: 25-Jan-2002 15:52

Hostile Environment Litho Density - A Master Calibration									
Detectors Resolution From Litholog Measurement									
Phase	LS Lith Resolution			Value	Phase	SS Lith Resolution			Value
Master				1.033	Master				1.016
	0.7000 (Minimum)	1.000 (Nominal)	1.111 (Maximum)		0.7000 (Minimum)	1.000 (Nominal)	1.111 (Maximum)		

Master: 25-Jan-2002 15:52

Nuclear Porosity Lithology Cartridge - B / Equipment Identification		
Primary Equipment:	NPLC Cartridge	NPLC - B 79
Auxiliary Equipment:	NPLC Housing	NPH - B 82

Accelerator-Porosity Tool / Equipment Identification

Primary Equipment:

Accelerator-Porosity Sonde  
APS Minitron

APS - BA 22  
MNTR - F 4185

Auxiliary Equipment:

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

APH - AC 22  
SFT - 178 4722  
SFT - 281 24

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		32.90	Master		34.46	Master		28.56
Before		32.48	Before		31.71	Before		29.28
After		32.32	After		32.11	After		28.74
	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		30.78	Master		32.89			
Before		31.29	Before		32.92			
After		30.35	After		31.26			
	0 (Minimum) 30.00 (Nominal) 50.00 (Maximum)			0 (Minimum) 30.00 (Nominal) 50.00 (Maximum)				

Master: 25-Jan-2002 18:34

Before: 5-Mar-2002 19:53

After: 5-Mar-2002 22:19

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		0.9022	Master		1.063	Master		1.007
	0.8000 (Minimum) 0.9250 (Nominal) 1.050 (Maximum)			0.9000 (Minimum) 1.030 (Nominal) 1.170 (Maximum)			0.9700 (Minimum) 1.000 (Nominal) 1.030 (Maximum)	

Master: 25-Jan-2002 18:35

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		11.94	Master		11.71	Master	NOT DONE	N/A
	9.900 (Minimum) 11.10 (Nominal) 12.30 (Maximum)			9.900 (Minimum) 11.10 (Nominal) 12.30 (Maximum)			5.750 (Minimum) 6.000 (Nominal) 6.250 (Maximum)	
Phase	Array-1 SDT Ratio Up/Down	Value	Phase	Array-1 SDT Ratio Up/Down	Value	Phase	Sigma Formation CU	Value
Master	NOT DONE	N/A	Master	NOT DONE	N/A	Master		27.64
	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: Calibration not done

[See Remarks](#)

Accelerator-Porosity Tool Master Calibration

Detector Calibration

Phase	Near/Far Calibration Ratio	Value	Phase	Near/Array Calibration Ratio	Value	Phase	Near/Array Cal Ratio Up/Down	Value
Master		0.9022	Master		1.063	Master		1.007
	0.8000 (Minimum) 0.9250 (Nominal) 1.050 (Maximum)			0.9000 (Minimum) 1.030 (Nominal) 1.170 (Maximum)			0.9700 (Minimum) 1.000 (Nominal) 1.030 (Maximum)	

Master: 25-Jan-2002 18:35

Accelerator-Porosity Tool Master 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		11.94	Master		11.71	Master	NOT DONE	N/A
	9.900 (Minimum) 11.10 (Nominal) 12.30 (Maximum)			9.900 (Minimum) 11.10 (Nominal) 12.30 (Maximum)			5.750 (Minimum) 6.000 (Nominal) 6.250 (Maximum)	
Phase	Array-1 SDT Ratio Up/Down	Value	Phase	Array-1 SDT Ratio Up/Down	Value	Phase	Sigma Formation CU	Value
Master	NOT DONE	N/A	Master	NOT DONE	N/A	Master		27.64
	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	NOT DONE	N/A	Master	N/A	Master	27.64
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: Calibration not done						

See Remarks

### Hostile Natural Gamma Ray Sonde / Equipment Identification

Primary Equipment:	HNGS Sonde	HNGS - BA	77
Auxiliary Equipment:	HNGS Sonde Housing	HNSH - BA	79
	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			15.75	Master			1203
Before			40.71	Before			17.24	Before			1207
	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			144.6	Master			9.254	Master			21.86
Before			146.2	Before			9.073	Before			29.34
	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			39.29								
Before			40.56								
	15.00 (Minimum)	45.00 (Nominal)	100.0 (Maximum)								
Master: 23-Jan-2002 11:37				Before: 7-Feb-2002 1:13							

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			40.54	Master			16.19	Master			1233
Before			40.54	Before			16.67	Before			1236
	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			143.9	Master			9.453	Master			21.24
Before			144.1	Before			8.968	Before			29.04
	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			39.11								
Before			40.36								
	15.00 (Minimum)	45.00 (Nominal)	100.0 (Maximum)								
Master: 23-Jan-2002 11:37				Before: 7-Feb-2002 1:13							

Hostile Natural Gamma Ray Sonde Wellsite Calibration		
Ratio Of Detector 1 To Detector 2		
Phase	Coincidence Count Rate Ratio	Value
Master		1.004
Before		1.005
	0.9500 (Minimum)	1.000 (Nominal)
	1.050 (Maximum)	
Master: 23-Jan-2002 11:37		
Before: 7-Feb-2002 1:13		

**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		209.7	Master		7.364
	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	<b>EXCEEDS LIMIT</b>	19.66	Master		0.9848			
	20.00 (Minimum)    142.5 (Nominal)    265.0 (Maximum)			0.9400 (Minimum)    1.000 (Nominal)    1.060 (Maximum)				

Master: 23-Jan-2002 11:31

[See Remarks](#)

**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		208.7	Master		7.834
	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	<b>EXCEEDS LIMIT</b>	17.61	Master		0.9795			
	20.00 (Minimum)    142.5 (Nominal)    265.0 (Maximum)			0.9400 (Minimum)    1.000 (Nominal)    1.060 (Maximum)				

Master: 23-Jan-2002 11:31

[See Remarks](#)

**Scintillation Gamma-Ray - N / Equipment Identification**

**Primary Equipment:**

Scintillation Gamma Cartridge  
Scintillation Gamma Detector

SGC - TB                    9582  
SGD - TAA

**Auxiliary Equipment:**

Scintillation Gamma Housing  
Gamma Source Radioactive

SGH - K                    2448  
GSR - U/Y

**Company:** Lamont Doherty

**Schlumberger**

**Well:** ODP Leg 201, Site 1228A PRU-2A

**Field:** Peru Margin

**Rig:** JOIDES Resolution

**Ocean:** Pacific

APS/HLDT Porosity  
Natural Gamma Ray