

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_004LUP	FN:4	PRODUCER	23-Aug-2002 18:58	1067.6 M	834.4 M
REDUCE	PI_LDL_APS_NGS_004LUP	FN:5	PRODUCER	23-Aug-2002 18:58	1067.6 M	833.2 M

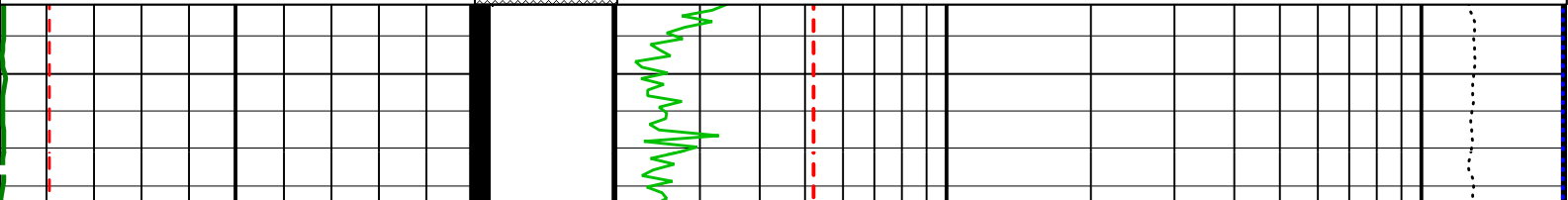
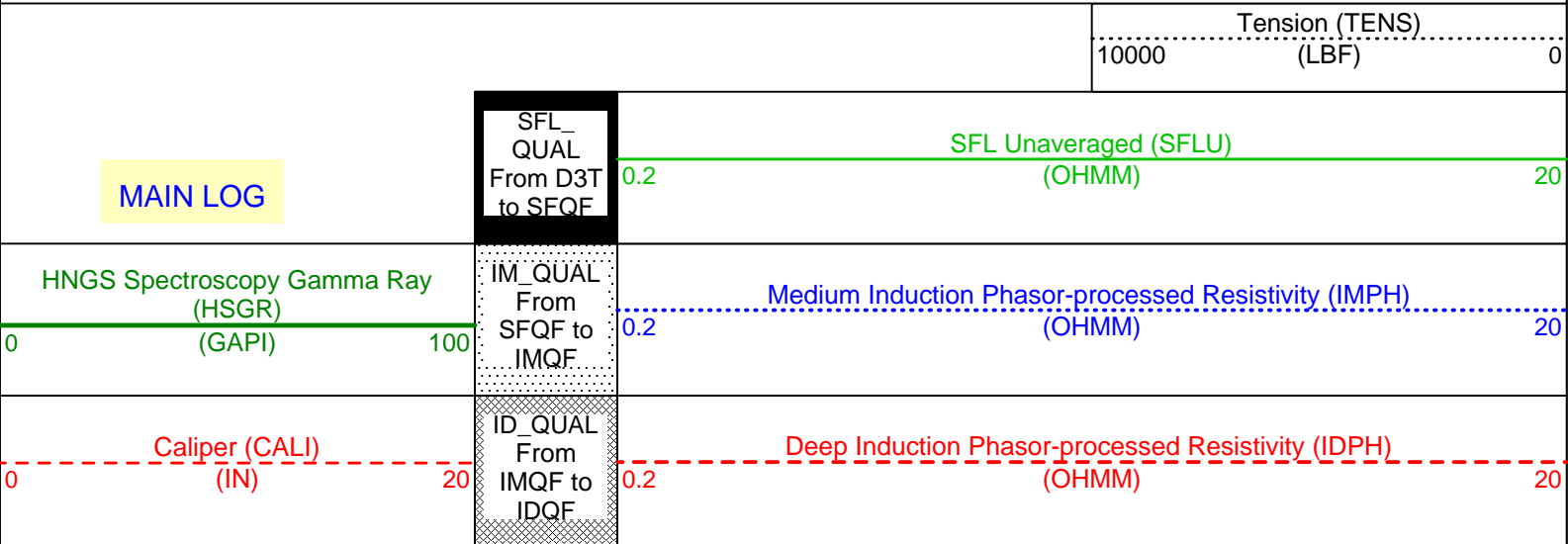
OP System Version: 10C0-306

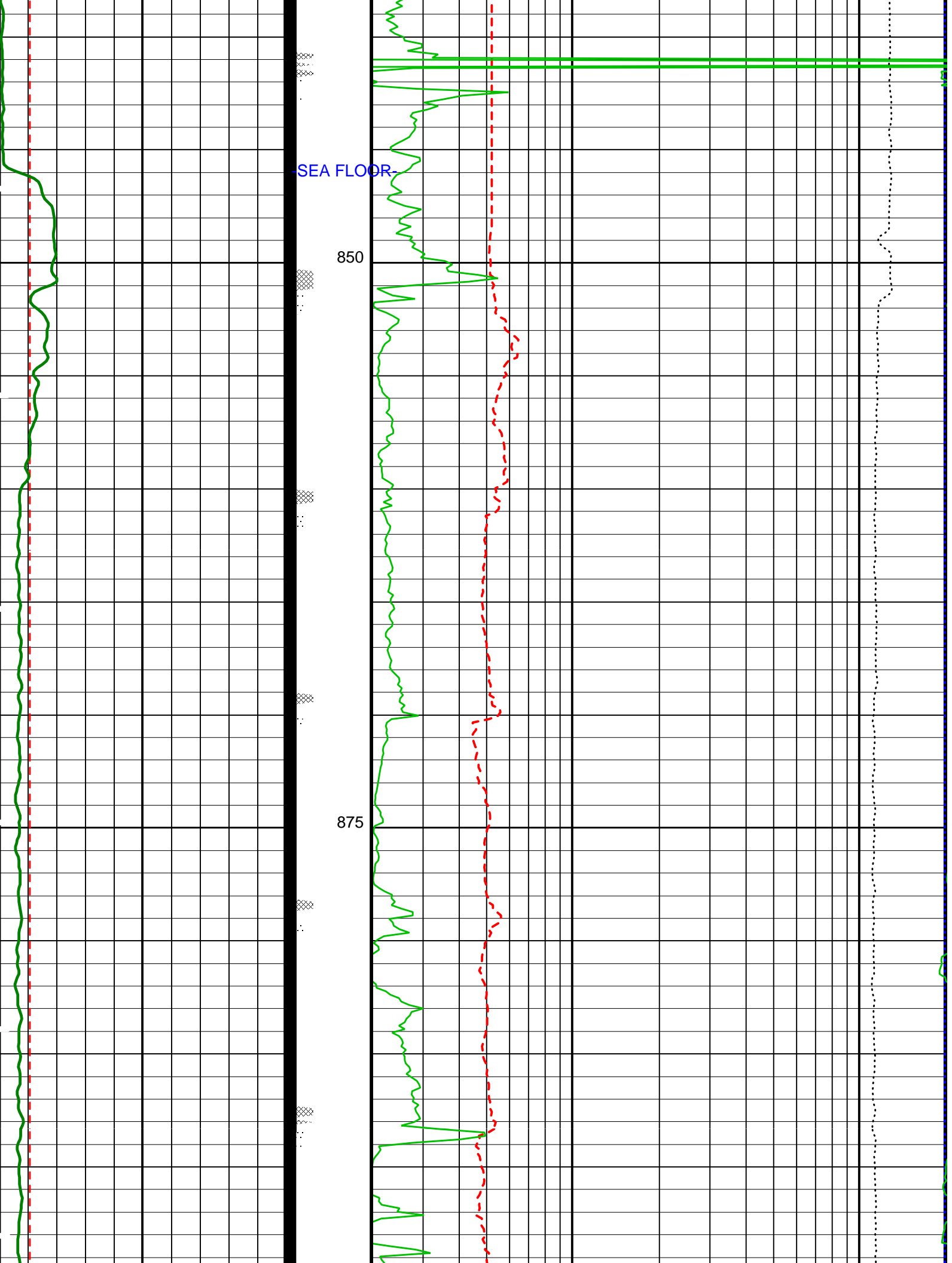
MCM

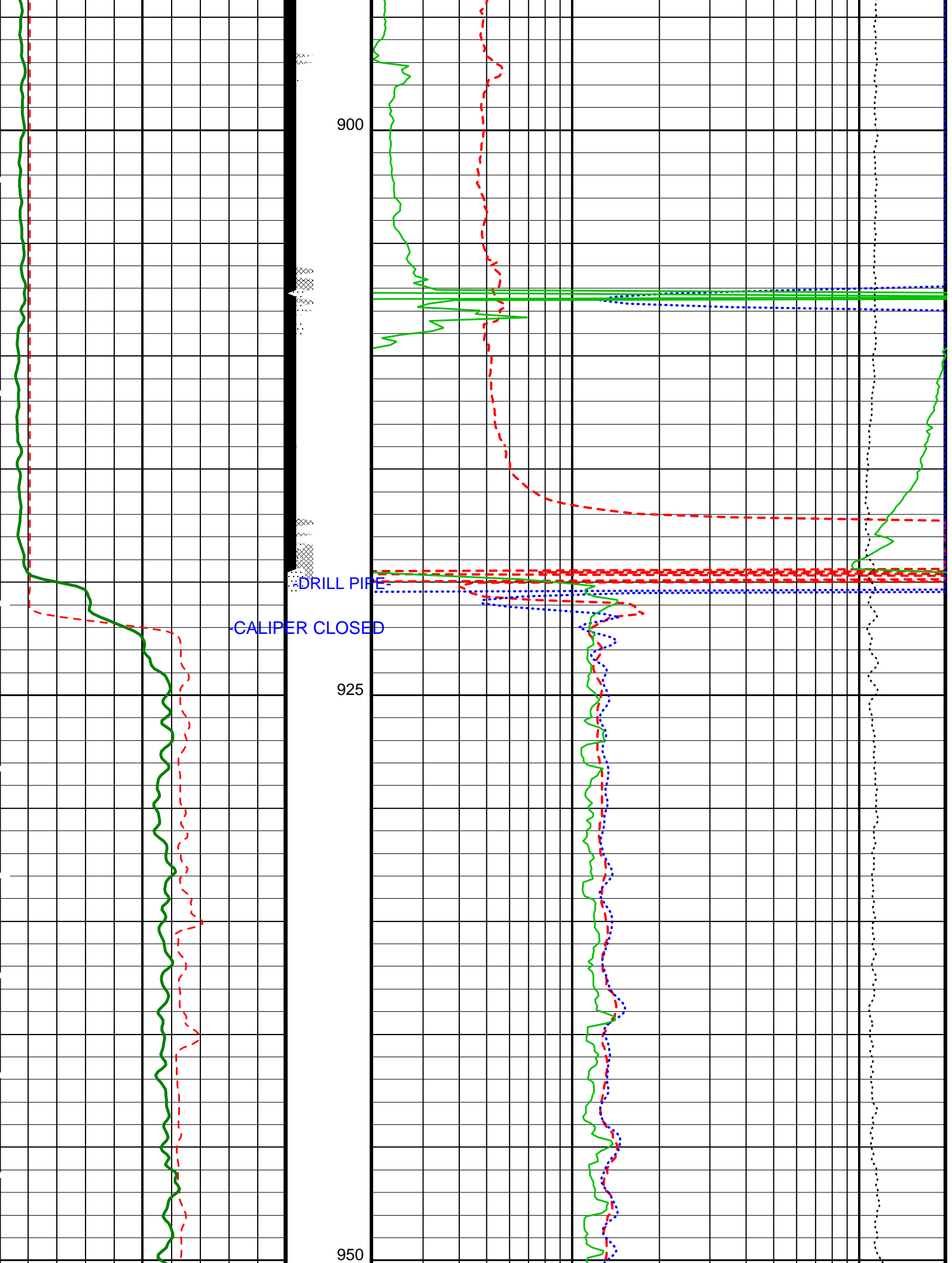
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DTA-A	10C0-306	NPLC-B	OP10-KP1
APS-BA	OP10-KP1	HNGS-BA	OP10-KP1
DTC-H	10C0-306		

PIP SUMMARY

Time Mark Every 60 S







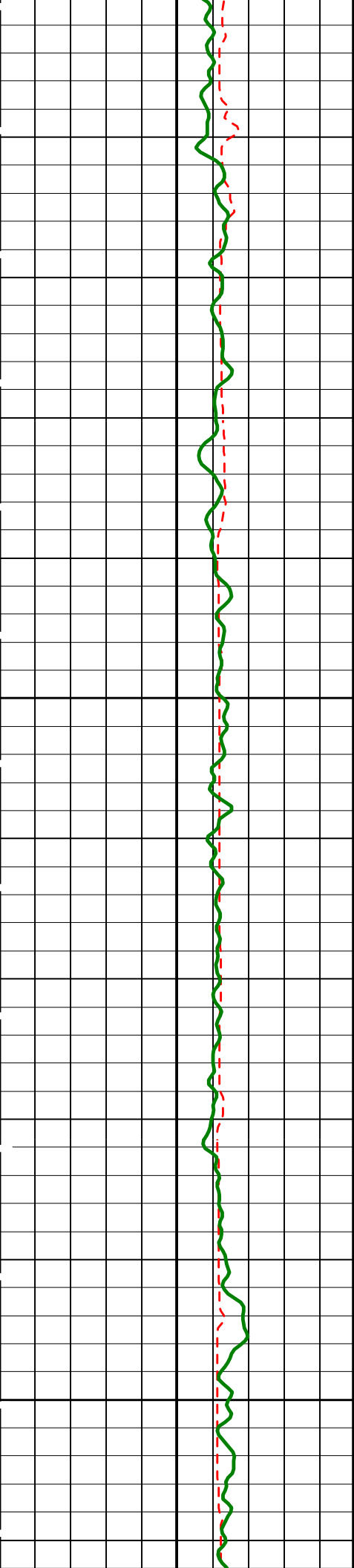
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DRILL PIPE

CALIPER CLOSED

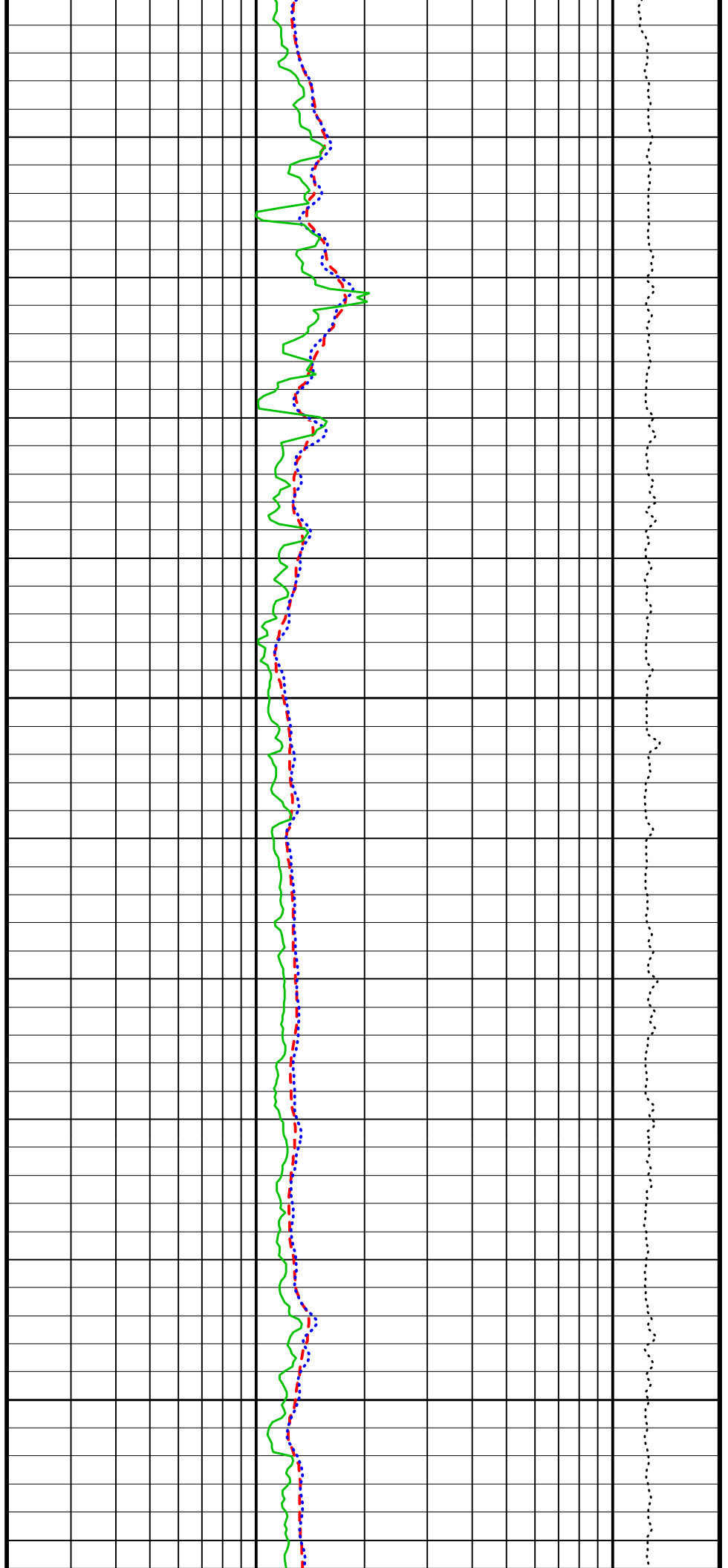
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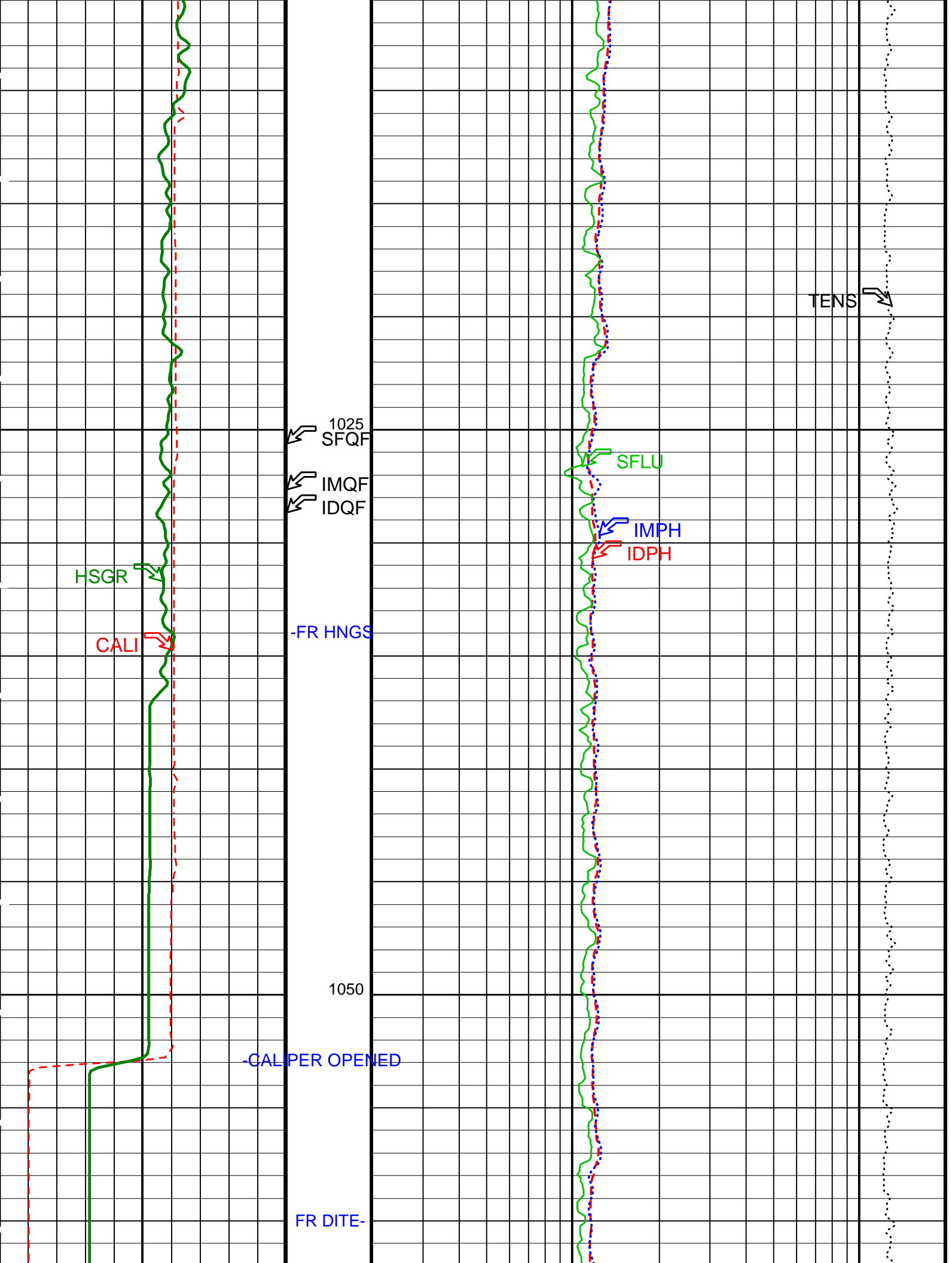
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975

1000





TENS

1025
SFQF

IMQF
IDQF

HSGR

CALI

-FR HNGS

1050

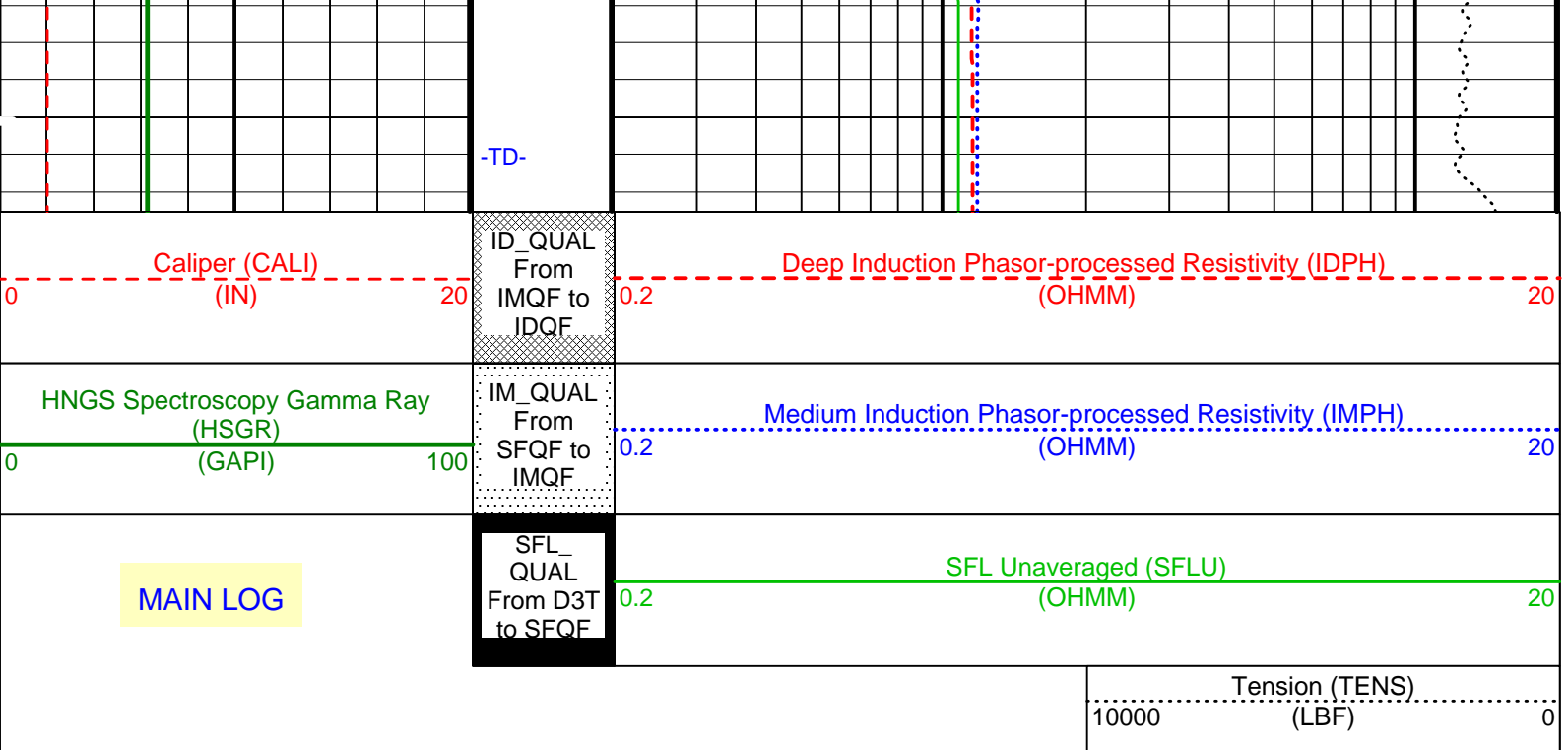
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FR DITE-

SFLU

IMPH

IDPH



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)	100	DEGC
DGF2	Deep 20 kHz Gain Factor	1.00789	
DPH2	Deep 20 kHz Phase Shift	-0.152394	DEG
DRE2	Deep Real 20 kHz Sonde Error Correction	16.357	MM/M
DSR2	Deep Sigma Reference (20 kHz)	1843	MM/M
DXE2	Deep Quad 20 kHz Sonde Error Correction	64.6326	MM/M
GCSE	Generalized Caliper Selection	CALI	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
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	
MGF2	Medium 20 kHz Gain Factor	1.02964	
MPH2	Medium 20 kHz Phase Shift	-0.933067	DEG
MRE2	Medium Real 20 kHz Sonde Error Correction	-1.78642	MM/M
MSR2	Medium Sigma Reference (20 kHz)	3250	MM/M
MXE2	Medium Quad 20 kHz Sonde Error Correction	-34.2041	MM/M
SFCR	SFL Channel Ratio	1000	
SHT	Surface Hole Temperature	20	DEGC
APS-BA: Accelerator-Porosity Tool			
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	100	DEGC
GCSE	Generalized Caliper Selection	CALI	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
SHT	Surface Hole Temperature	20	DEGC
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)	100	DEGC
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	0.018227	DC/M

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	-0.00756454	
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	
SHT	Surface Hole Temperature	20	DEGC
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0.961934	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.981195	
System and Miscellaneous			
BS	Bit Size	11.438	IN
DFD	Drilling Fluid Density	1.10	G/C3
TD	Total Depth	-50000	M

Format: DITE_LogPhasor Vertical Scale: 1:200 Graphics File Created: 23-Aug-2002 18:58

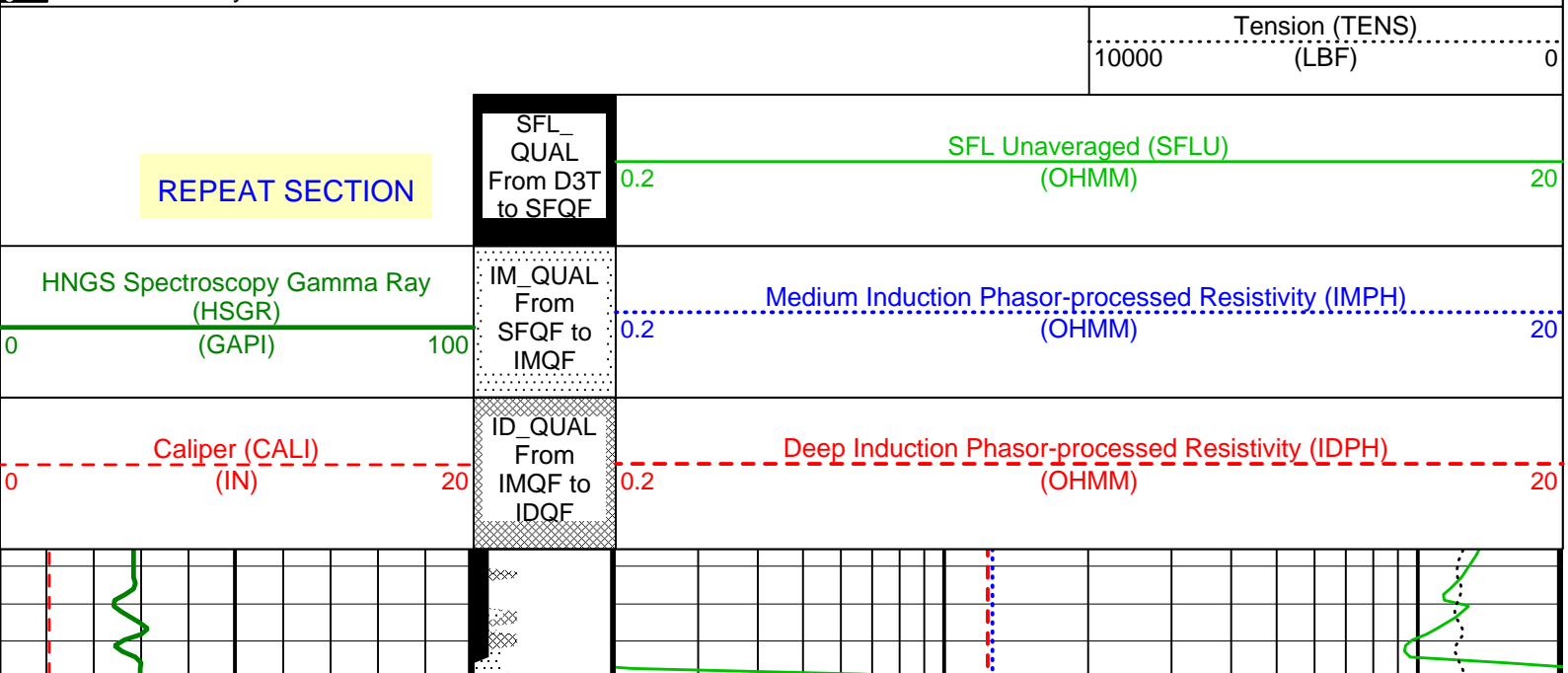
OP System Version: 10C0-306			
MCM			
DIT-E	10C0-306	HLDT-A	10C0-306
DTA-A	10C0-306	NPLC-B	OP10-KP1
APS-BA	OP10-KP1	HNGS-BA	OP10-KP1
DTC-H	10C0-306		

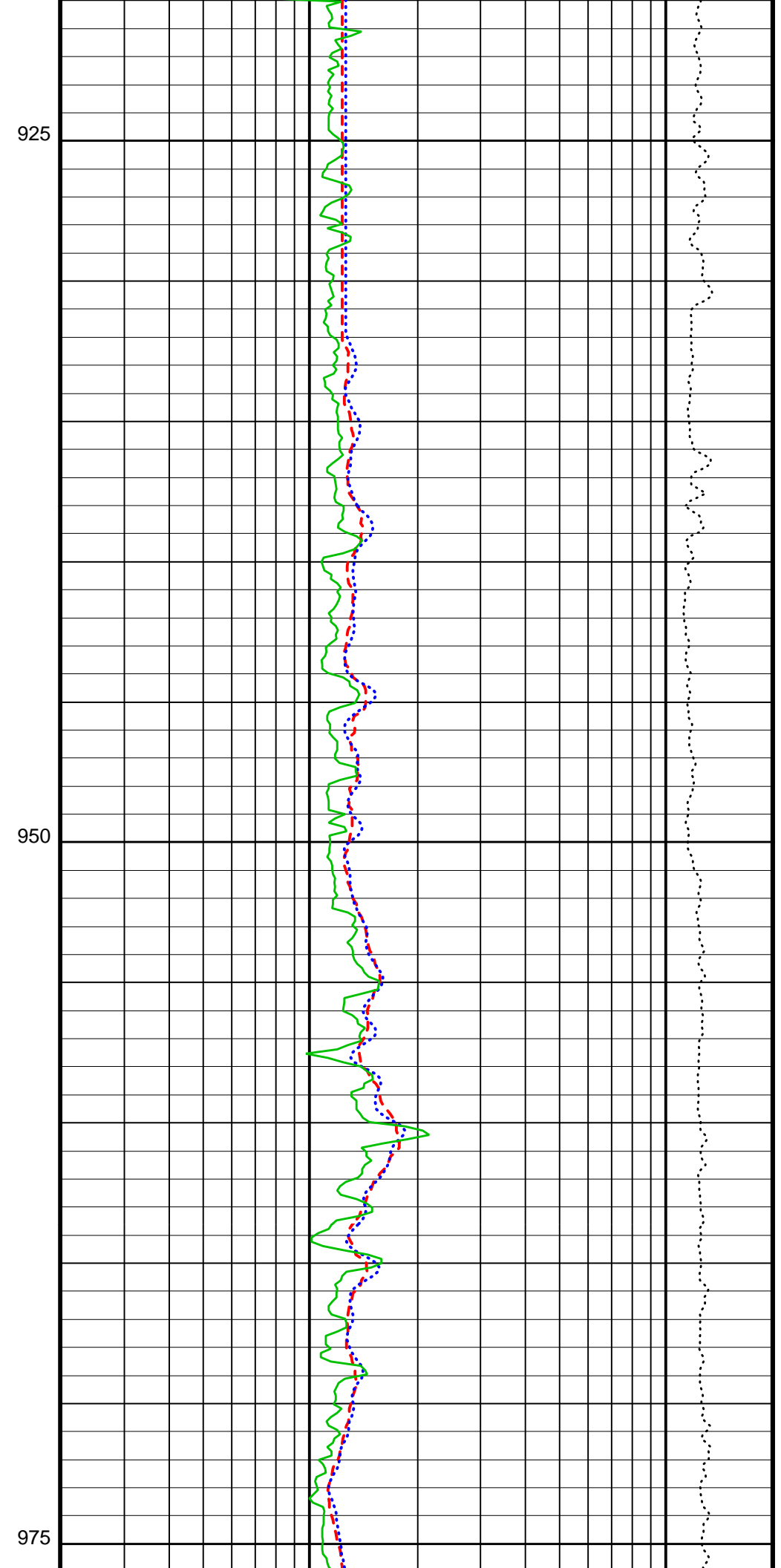
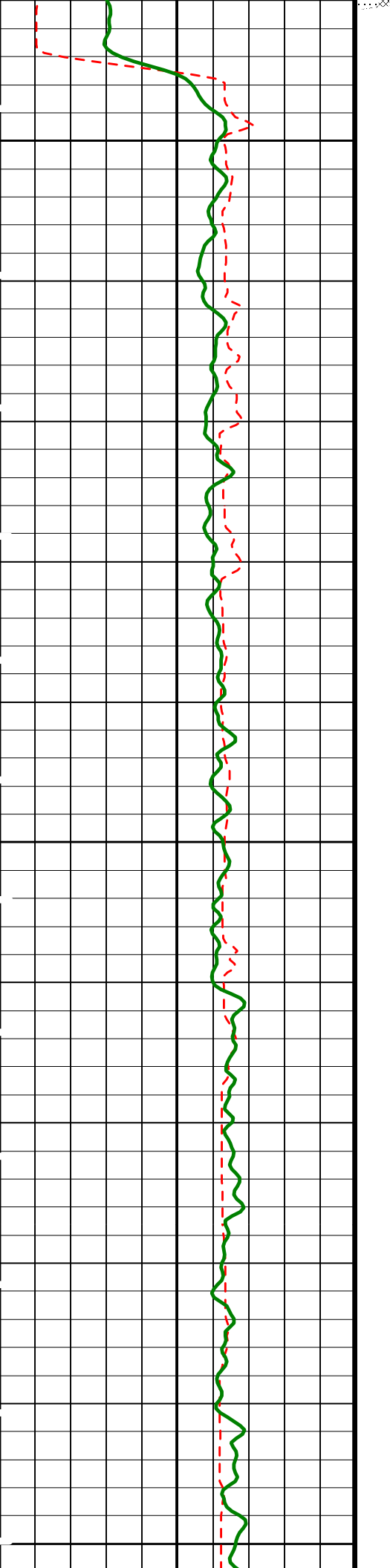
Output DLIS Files					
DEFAULT	PI_LDL_APS_NGS_004LUP	FN:4	PRODUCER	23-Aug-2002 18:58	
REDUCE	PI_LDL_APS_NGS_004LUP	FN:5	PRODUCER	23-Aug-2002 18:58	

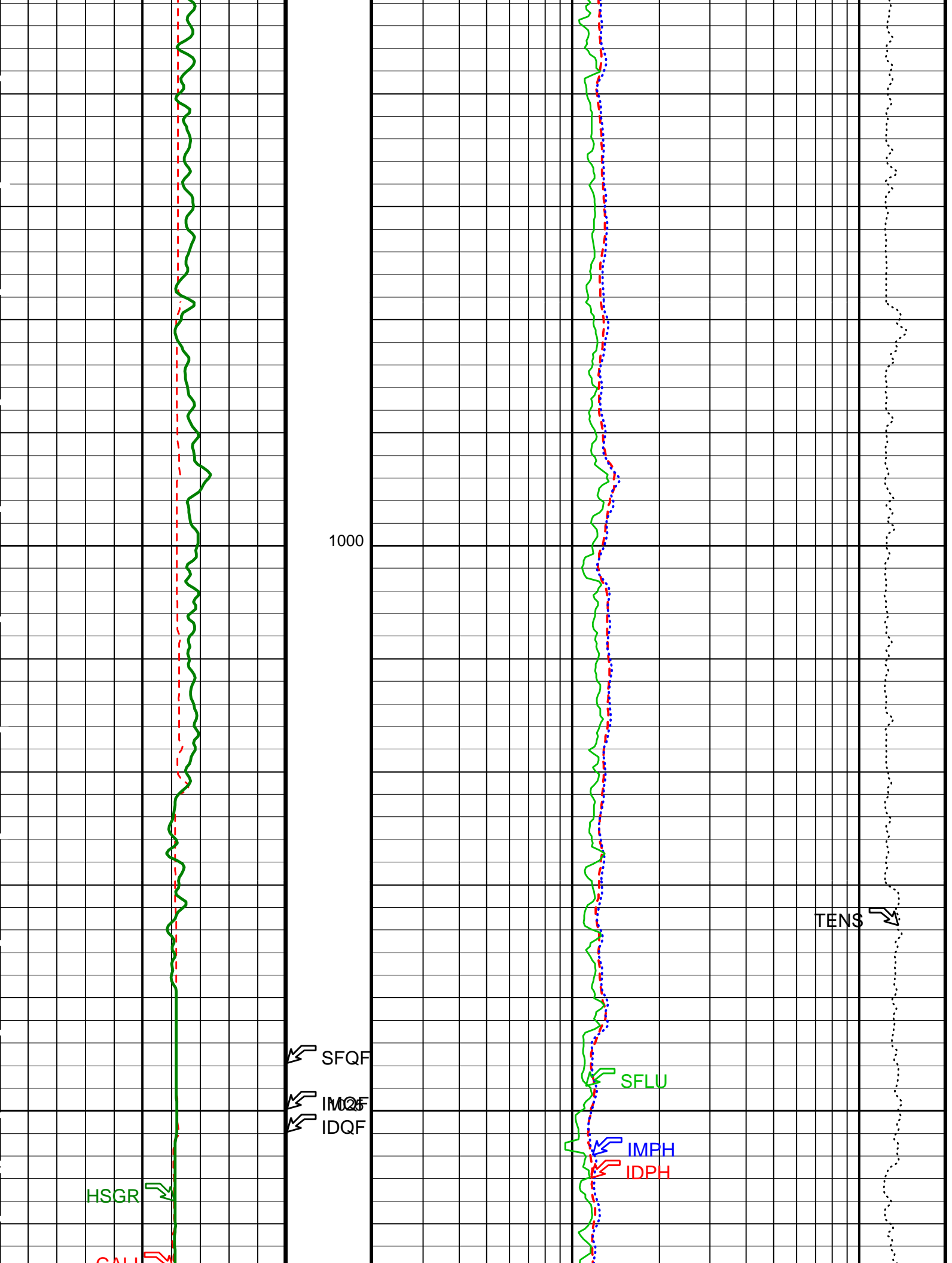
Output DLIS Files					
DEFAULT	PI_LDL_APS_NGS_005LUP	FN:6	PRODUCER	23-Aug-2002 19:51	1049.3 M 916.5 M
REDUCE	PI_LDL_APS_NGS_005LUP	FN:7	PRODUCER	23-Aug-2002 19:51	1049.3 M 916.4 M

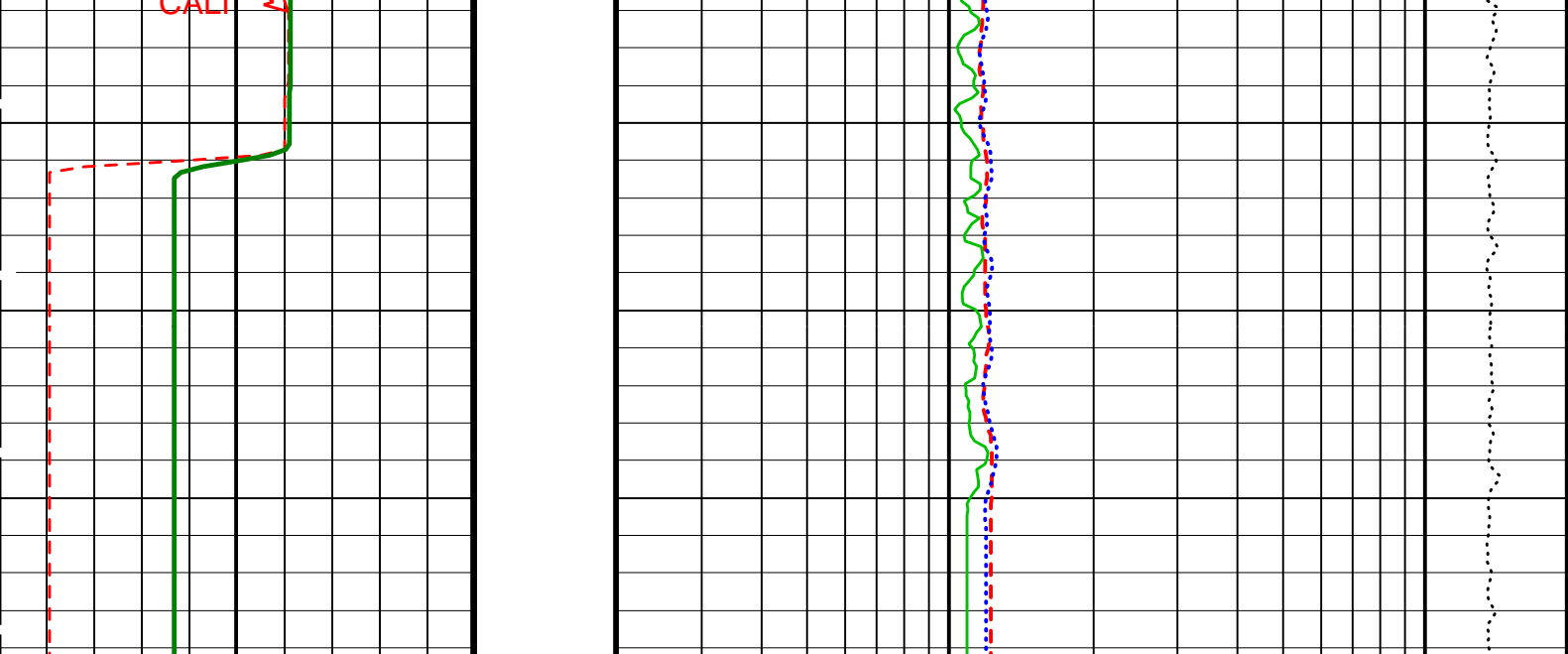
OP System Version: 10C0-306			
MCM			
DIT-E	10C0-306	HLDT-A	10C0-306
DTA-A	10C0-306	NPLC-B	OP10-KP1
APS-BA	OP10-KP1	HNGS-BA	OP10-KP1
DTC-H	10C0-306		

PIP SUMMARY









Caliper (CALI) (IN)	ID_QUAL From IMQF to IDQF	Deep Induction Phasor-processed Resistivity (IDPH) (OHMM)
0 20		0.2 20
HNGS Spectroscopy Gamma Ray (HSGR) (GAPI)	IM_QUAL From SFQF to IMQF	Medium Induction Phasor-processed Resistivity (IMPH) (OHMM)
0 100		0.2 20
REPEAT SECTION	SFL_QUAL From D3T to SFQF	SFL Unaveraged (SFLU) (OHMM)
		0.2 20
		Tension (TENS) (LBF)
		10000 0

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)	100 DEGC
DGF2	Deep 20 kHz Gain Factor	1.00789
DPH2	Deep 20 kHz Phase Shift	-0.152394 DEG
DRE2	Deep Real 20 kHz Sonde Error Correction	16.357 MM/M
DSR2	Deep Sigma Reference (20 kHz)	1843 MM/M
DXE2	Deep Quad 20 kHz Sonde Error Correction	64.6326 MM/M
GCSE	Generalized Caliper Selection	CALI
GDEV	Average Angular Deviation of Borehole from Normal	0 DEG
GGRD	Geothermal Gradient	0.018227 DC/M
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
MGF2	Medium 20 kHz Gain Factor	1.02964
MPH2	Medium 20 kHz Phase Shift	-0.933067 DEG
MRE2	Medium Real 20 kHz Sonde Error Correction	-1.78642 MM/M
MSR2	Medium Sigma Reference (20 kHz)	3245 MM/M
MXE2	Medium Quad 20 kHz Sonde Error Correction	-34.2041 MM/M
SFCR	SFL Channel Ratio	1000
SHT	Surface Hole Temperature	20 DEGC
APS-BA: Accelerator-Porosity Tool		
BHS	Borehole Status	OPEN
BHT	Bottom Hole Temperature (used in calculations)	100 DEGC
GCSE	Generalized Caliper Selection	CALI

GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
SHT	Surface Hole Temperature	20	DEGC
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)	100	DEGC
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	0.018227	DC/M
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	-0.00221159	
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	
SHT	Surface Hole Temperature	20	DEGC
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0.96978	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.972291	
System and Miscellaneous			
BS	Bit Size	11.438	IN
DFD	Drilling Fluid Density	1.10	G/C3
TD	Total Depth	-50000	M

Format: DITE_LogPhasor Vertical Scale: 1:200 Graphics File Created: 23-Aug-2002 19:51

OP System Version: 10C0-306

MCM

DIT-E	10C0-306	HLDT-A	10C0-306
DTA-A	10C0-306	NPLC-B	OP10-KP1
APS-BA	OP10-KP1	HNGS-BA	OP10-KP1
DTC-H	10C0-306		

Output DLIS Files

DEFAULT	PI_LDL_APS_NGS_005LUP	FN:6	PRODUCER	23-Aug-2002 19:51
REDUCE	PI_LDL_APS_NGS_005LUP	FN:7	PRODUCER	23-Aug-2002 19:51

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Hostile Environment Litho Density - A Wellsite Calibration - Background Measurement							
Master: 12-Jun-2002 0:31 Before: 24-Jul-2002 17:39 After: 23-Aug-2002 23:03							
LSW1 Background	100.0	88.67	86.74	85.83	-0.9071	0.03000	CPS
LSW2 Background	105.0	93.18	91.70	90.78	-0.9218	0.03000	CPS
LSW3 Background	210.0	177.4	176.2	176.7	0.5443	0.03000	CPS
LSW4 Background	290.0	236.8	236.6	234.4	-2.197	0.03000	CPS
LSW5 Background	610.0	518.0	517.3	519.9	2.595	0.03000	CPS
SSW1 Background	100.0	83.02	84.95	84.35	-0.5992	0.03000	CPS
SSW2 Background	200.0	165.1	166.3	165.2	-1.114	0.03000	CPS
SSW3 Background	530.0	440.7	439.6	438.1	-1.522	0.03000	CPS
SSW4 Background	280.0	232.4	232.4	233.4	0.9281	0.03000	CPS
SSW5 Background	205.0	174.0	173.3	174.7	1.441	0.03000	CPS
Hostile Environment Litho Density - A Wellsite Calibration - Tool Quality Control Information High Voltage							
Master: 12-Jun-2002 0:31 Before: 24-Jul-2002 17:39 After: 23-Aug-2002 23:03							
LS Bkg. High Voltage	1133	1133	1130	1130	0.2719	N/A	V
SS Bkg. High Voltage	1177	1177	1171	1170	-1.102	N/A	V
Hostile Environment Litho Density - A Wellsite Calibration - Detectors Resolution From BKG Measurements							
Master: 12-Jun-2002 0:31 Before: 24-Jul-2002 17:39 After: 23-Aug-2002 23:03							

Master: 12-Jun-2002 0:31 Before: 24-Jul-2002 17:39 After: 23-Aug-2002 23:03							
LS Background Resolution	1.000	1.032	1.032	1.025	-0.007081	N/A	
SS Background Resolution	1.000	0.9430	0.9416	0.9411	-0.0004674	N/A	
Hostile Environment Litho Density - A Wellsite Calibration - Caliper Calibration							
Before: 24-Jul-2002 17:38							
Caliper Small Ring	12.00	N/A	17.14	N/A	N/A	N/A	IN
Caliper Large Ring	15.25	N/A	21.07	N/A	N/A	N/A	IN
Accelerator-Porosity Tool Wellsite Calibration - Detector Background							
Master: 24-Jul-2002 9:08 Before: 23-Aug-2002 19:57 After: 23-Aug-2002 22:14							
Near Det Bkg Cntrate	30.00	32.30	32.20	31.59	-0.6166	N/A	CPS
Far Det Bkg Cntrate	30.00	33.62	32.72	35.16	2.440	N/A	CPS
Array-1 Det Bkg Cntrate	30.00	28.88	29.71	28.05	-1.661	N/A	CPS
Array-2 Det Bkg Cntrate	30.00	29.64	29.69	30.36	0.6743	N/A	CPS
Array Therm Det Bkg Cntrate	30.00	32.75	32.67	32.93	0.2644	N/A	CPS
Accelerator-Porosity Tool Wellsite Calibration - Calibration Ratios							
Master: 24-Jul-2002 9:08							
Near/Far Calibration Ratio	0.9250	0.9076	N/A	N/A	N/A	N/A	
Near/Array Calibration Ratio	1.030	1.066	N/A	N/A	N/A	N/A	
Near/Array Cal Ratio Up/Down	1.000	1.006	N/A	N/A	N/A	N/A	
Accelerator-Porosity Tool Wellsite Calibration - Tank Check							
Master: 24-Jul-2002 9:09							
Array-1 Standoff Porosity	11.75	11.51	N/A	N/A	N/A	N/A	PU
Array-2 Standoff Porosity	11.75	11.19	N/A	N/A	N/A	N/A	PU
Average Slowing Down Time	6.000	5.884	N/A	N/A	N/A	N/A	US
Array-1 SDT Ratio Up/Down	1.000	0.9901	N/A	N/A	N/A	N/A	
Array-2 SDT Ratio Up/Down	1.000	0.9732	N/A	N/A	N/A	N/A	
Sigma Formation	27.50	27.88	N/A	N/A	N/A	N/A	CU
Hostile Natural Gamma Ray Sonde Wellsite Calibration - Detector 1 Check							
Master: 13-Jul-2002 3:08 Before: 24-Jul-2002 12:59 After: 23-Aug-2002 23:04							
Na 511 Peak Loc	40.00	40.59	40.60	40.55	-0.05260	1.000	
Na 511 Peak Res	15.50	16.79	16.89	15.90	-0.9905	2.000	%
High Voltage	1150	1224	1220	1219	-1.110	30.00	V
Na 1785 Peak Loc	142.6	145.1	146.3	145.5	-0.7973	7.000	
Na 1785 Peak Res	8.500	10.40	8.694	9.747	1.053	2.000	%
Temperature	15.50	24.98	22.43	20.41	-2.013	N/A	DEGC
Na Count Rate	45.00	50.31	49.89	48.96	-0.9234	8.000	CPS
Hostile Natural Gamma Ray Sonde Wellsite Calibration - Detector 2 Check							
Master: 13-Jul-2002 3:08 Before: 24-Jul-2002 12:59 After: 23-Aug-2002 23:04							
Na 511 Peak Loc	40.00	40.58	40.59	40.59	0.001343	1.000	
Na 511 Peak Res	15.50	16.72	16.53	16.53	-0.003351	2.000	%
High Voltage	1150	1253	1250	1246	-3.410	30.00	V
Na 1785 Peak Loc	142.6	144.7	144.3	144.8	0.4459	7.000	
Na 1785 Peak Res	8.500	9.766	9.897	9.612	-0.2849	2.000	%
Temperature	15.50	24.15	21.87	20.67	-1.203	N/A	DEGC
Na Count Rate	45.00	50.19	49.39	48.77	-0.6201	8.000	CPS
Hostile Natural Gamma Ray Sonde Wellsite Calibration - Ratio Of Detector 1 To Detector 2							
Master: 13-Jul-2002 3:08 Before: 24-Jul-2002 12:59 After: 23-Aug-2002 23:04							
Coincidence Count Rate Ratio	1.000	1.004	1.010	1.003	-0.006575	0.05000	
Hostile Natural Gamma Ray Sonde Master Calibration - Detector 1 Calibration							
Master: 13-Jul-2002 3:01							
Na 511 Peak Set Point	40.00	41.00	--	--	--	--	
Th Peak Loc	209.6	208.9	--	--	--	--	
Th Peak Res	7.000	8.227	--	--	--	--	%
Background Count Rate	142.5	24.67	--	--	--	--	CPS
Gain Ratio	1.000	0.9793	--	--	--	--	
Hostile Natural Gamma Ray Sonde Master Calibration - Detector 2 Calibration							
Master: 13-Jul-2002 3:01							
Na 511 Peak Set Point	40.00	41.00	--	--	--	--	
Th Peak Loc	209.6	208.8	--	--	--	--	
Th Peak Res	7.000	8.191	--	--	--	--	%
Background Count Rate	142.5	22.68	--	--	--	--	CPS
Gain Ratio	1.000	0.9792	--	--	--	--	

Accelerator-Porosity Tool - Detector Plateau Settings :

Near Detector Plateau Setting 1748 V
Far Detector Plateau Setting 2052 V
Array Detector Plateau Setting 1969 V

Dual Induction - E / Equipment Identification

Primary Equipment:

Dual Induction Sonde
Dual Induction Cartridge

DIS - HB 442
DIC - EB 438

Auxiliary Equipment:

Mass Isolated Housing

MIH - ZA 417

Dual Induction - E Wellsite Calibration												
Induction Electronics (10 kHz)												
Phase	ID Elect Real Offset 10 kHz	MM/M	Value	Phase	ID Elect Real Gain 10 kHz	Value	Phase	ID Elect Phase 10 kHz	DEG	Value		
Before			37.53	Before		0.9770	Before			10.63		
	-262.8 (Minimum)	37.15 (Nominal)	337.2 (Maximum)		0.8294 (Minimum)	0.9794 (Nominal)	1.171 (Maximum)		0.6325 (Minimum)	10.63 (Nominal)	20.63 (Maximum)	
Phase	ID Elect Quad Offset 10 kHz	MM/M	Value	Phase	ID Elect Quad Gain 10 kHz	Value	Phase	IM Elect Phase 10 kHz	DEG	Value		
Before			22.25	Before		0.9660	Before			13.27		
	-277.5 (Minimum)	22.53 (Nominal)	322.5 (Maximum)		0.8193 (Minimum)	0.9693 (Nominal)	1.157 (Maximum)		3.310 (Minimum)	13.31 (Nominal)	23.31 (Maximum)	
Phase	IM Elect Real Offset 10 kHz	MM/M	Value	Phase	IM Elect Real Gain 10 kHz	Value						
Before			96.05	Before		0.9527						
	-453.5 (Minimum)	96.54 (Nominal)	646.5 (Maximum)		0.8074 (Minimum)	0.9574 (Nominal)	1.140 (Maximum)					
Phase	IM Elect Quad Offset 10 kHz	MM/M	Value	Phase	IM Elect Quad Gain 10 kHz	Value						
Before			94.74	Before		0.9503						
	-454.8 (Minimum)	95.18 (Nominal)	645.2 (Maximum)		0.8055 (Minimum)	0.9555 (Nominal)	1.137 (Maximum)					

Before: 24-Jul-2002 13:24

Dual Induction - E Wellsite Calibration												
Induction Electronics (20 kHz)												
Phase	ID Elect Real Offset 20 kHz	MM/M	Value	Phase	ID Elect Real Gain 20 kHz	Value	Phase	ID Elect Phase 20 kHz	DEG	Value		
Before			14.85	Before		1.004	Before			9.036		
	-110.3 (Minimum)	14.68 (Nominal)	139.7 (Maximum)		0.8551 (Minimum)	1.005 (Nominal)	1.207 (Maximum)		-5.718 (Minimum)	9.282 (Nominal)	24.28 (Maximum)	
Phase	ID Elect Quad Offset 20 kHz	MM/M	Value	Phase	ID Elect Quad Gain 20 kHz	Value	Phase	IM Elect Phase 20 kHz	DEG	Value		
Before			8.842	Before		0.9923	Before			12.07		
	-115.9 (Minimum)	9.089 (Nominal)	134.1 (Maximum)		0.8445 (Minimum)	0.9945 (Nominal)	1.192 (Maximum)		-2.653 (Minimum)	12.35 (Nominal)	27.35 (Maximum)	
Phase	IM Elect Real Offset 20 kHz	MM/M	Value	Phase	IM Elect Real Gain 20 kHz	Value						
Before			39.82	Before		1.010						
	-184.7 (Minimum)	40.31 (Nominal)	265.3 (Maximum)		0.8587 (Minimum)	1.009 (Nominal)	1.212 (Maximum)					
Phase	IM Elect Quad Offset 20 kHz	MM/M	Value	Phase	IM Elect Quad Gain 20 kHz	Value						
Before			39.36	Before		1.007						
	-185.2 (Minimum)	39.80 (Nominal)	264.8 (Maximum)		0.8566 (Minimum)	1.007 (Nominal)	1.209 (Maximum)					

Before: 24-Jul-2002 12:54

Dual Induction - E Wellsite Calibration												
Induction Electronics (40 kHz)												
Phase	ID Elect Real Offset 40 kHz	MM/M	Value	Phase	ID Elect Real Gain 40 kHz	Value	Phase	ID Elect Phase 40 kHz	DEG	Value		
Before			9.741	Before		0.9887	Before			27.54		
	-75.43 (Minimum)	9.570 (Nominal)	94.57 (Maximum)		0.8395 (Minimum)	0.9895 (Nominal)	1.185 (Maximum)		9.068 (Minimum)	29.07 (Nominal)	49.07 (Maximum)	
Phase	ID Elect Quad Offset 40 kHz	MM/M	Value	Phase	ID Elect Quad Gain 40 kHz	Value	Phase	IM Elect Phase 40 kHz	DEG	Value		
Before			5.856	Before		0.9765	Before			31.11		
	-79.10 (Minimum)	5.897 (Nominal)	90.90 (Maximum)		0.8281 (Minimum)	0.9781 (Nominal)	1.169 (Maximum)		12.68 (Minimum)	32.68 (Nominal)	52.68 (Maximum)	
Phase	IM Elect Real Offset 40 kHz	MM/M	Value	Phase	IM Elect Real Gain 40 kHz	Value						
Before			26.08	Before		1.025						
	-103.8 (Minimum)	26.19 (Nominal)	156.2 (Maximum)		0.8673 (Minimum)	1.017 (Nominal)	1.224 (Maximum)					
Phase	IM Elect Quad Offset 40 kHz	MM/M	Value	Phase	IM Elect Quad Gain 40 kHz	Value						
Before				Before								

Before		25.86	Before		1.022
-104.1 (Minimum)	25.92 (Nominal)	155.9 (Maximum)	0.8649 (Minimum)	1.015 (Nominal)	1.221 (Maximum)

Before: 24-Jul-2002 13:26

Dual Induction - E Wellsite Calibration					
SFL Electronics					
Phase	SFL Voltage Offset MV	Value	Phase	SFL Voltage Gain	Value
Before		1.196	Before		1.016
-15.00 (Minimum)	0 (Nominal)	15.00 (Maximum)	0.8500 (Minimum)	1.000 (Nominal)	1.200 (Maximum)
Phase	SFL Current Offset MA	Value	Phase	SFL Current Gain	Value
Before		0.005420	Before		0.9940
-0.6000 (Minimum)	0 (Nominal)	0.6000 (Maximum)	0.8500 (Minimum)	1.000 (Nominal)	1.200 (Maximum)

Before: 24-Jul-2002 12:55

Dual Induction - E Wellsite Calibration								
Electronics Calibration Changes Files/Depth Intervals:								
Phase	ID (R > 27 OHM-M) MM/M	Value	Phase	ID (R < 27 OHM-M) %	Value	Phase	SFL (R < 1 OHM-M) OHMM	Value
After		0.4349	After		0.001113	After		0.0008876
0 (Minimum)	0 (Nominal)	0.7500 (Maximum)	0 (Minimum)	0 (Nominal)	2.000 (Maximum)	0 (Minimum)	0 (Nominal)	0.02000 (Maximum)
Phase	IM (R > 27 OHM-M) MM/M	Value	Phase	IM (R < 27 OHM-M) %	Value			
After		0.9793	After		0.0006334			
0 (Minimum)	0 (Nominal)	0.7500 (Maximum)	0 (Minimum)	0 (Nominal)	2.000 (Maximum)			
Phase	SFL (R > 27 OHM-M) MM/M	Value	Phase	SFL (R < 27 OHM-M) %	Value			
After		0.02490	After		0.0005956			
0 (Minimum)	0 (Nominal)	0.7500 (Maximum)	0 (Minimum)	0 (Nominal)	2.000 (Maximum)			

After: 23-Aug-2002 22:22

Dual Induction - E Master Calibration									
Test Loop Calibration: Calibration of Internal Reference to Test Loop Standard									
Phase	Deep 10 kHz Gain Factor	Value	Phase	Deep 20 kHz Gain Factor	Value	Phase	Deep 40 kHz Gain Factor	Value	
Master		0.9956	Master		1.008	Master		1.026	
0.9000 (Minimum)	1.000 (Nominal)	1.100 (Maximum)	0.9000 (Minimum)	1.000 (Nominal)	1.100 (Maximum)	0.9000 (Minimum)	1.000 (Nominal)	1.100 (Maximum)	
Phase	Medium 10 kHz Gain Factor	Value	Phase	Medium 20 kHz Gain Factor	Value	Phase	Medium 40 kHz Gain Factor	Value	
Master		1.022	Master		1.030	Master		1.061	
0.9000 (Minimum)	1.000 (Nominal)	1.100 (Maximum)	0.9000 (Minimum)	1.000 (Nominal)	1.100 (Maximum)	0.9000 (Minimum)	1.000 (Nominal)	1.100 (Maximum)	
Phase	Deep 10 kHz Phase Shift	Value	Phase	Deep 20 kHz Phase Shift	Value	Phase	Deep 40 kHz Phase Shift	Value	
Master		0.1143	Master		-0.1524	Master		-1.426	
-1.500 (Minimum)	0 (Nominal)	1.500 (Maximum)	-2.000 (Minimum)	0 (Nominal)	2.000 (Maximum)	-4.000 (Minimum)	-1.000 (Nominal)	2.000 (Maximum)	
Phase	Medium 10 kHz Phase Shift	Value	Phase	Medium 20 kHz Phase Shift	Value	Phase	Medium 40 kHz Phase Shift	Value	
Master		-0.2558	Master		-0.9331	Master		-2.461	
-1.500 (Minimum)	0 (Nominal)	1.500 (Maximum)	-3.000 (Minimum)	-1.000 (Nominal)	1.000 (Maximum)	-5.000 (Minimum)	-2.000 (Nominal)	1.000 (Maximum)	

Master: Calibration out of date 6-Oct-2001 2:50

Dual Induction - E Master Calibration									
Sonde Error Corrections: Correction for sonde response in zero conductivity environment. (Normalized to 25C).									
Phase	Real Deep 10 kHz S.E. Corr.	Value	Phase	Real Deep 20 kHz S.E. Corr.	Value	Phase	Real Deep 40 kHz S.E. Corr.	Value	
Master		44.95	Master		16.36	Master		4.690	
-50.00 (Minimum)	0 (Nominal)	125.0 (Maximum)	-30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)	-15.00 (Minimum)	0 (Nominal)	15.00 (Maximum)	
Phase	Quad Deep 10 kHz S.E. Corr.	Value	Phase	Quad Deep 20 kHz S.E. Corr.	Value	Phase	Quad Deep 40 kHz S.E. Corr.	Value	
Master		108.9	Master		64.63	Master		46.10	
-250.0 (Minimum)	0 (Nominal)	350.0 (Maximum)	-125.0 (Minimum)	0 (Nominal)	200.0 (Maximum)	-75.00 (Minimum)	0 (Nominal)	125.0 (Maximum)	
Phase	Real Medium 10 kHz S.E. Corr.	Value	Phase	Real Medium 20 kHz S.E. Corr.	Value	Phase	Real Medium 40 kHz S.E. Corr.	Value	
Master		20.72	Master		1.786	Master		10.46	
-25.00 (Minimum)	0 (Nominal)	75.00 (Maximum)	-10.00 (Minimum)	0 (Nominal)	10.00 (Maximum)	-5.000 (Minimum)	0 (Nominal)	5.000 (Maximum)	

Master	-50.00 (Minimum)	0 (Nominal)	140.0 (Maximum)	20.73	Master	-50.00 (Minimum)	0 (Nominal)	50.00 (Maximum)	-17.66	Master	-30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)	-10.46
Phase	Quad Medium 10 kHz S.E. Corr.			Value	Phase	Quad Medium 20 kHz S.E. Corr.			Value	Phase	Quad Medium 40 kHz S.E. Corr.			Value
Master				-105.8	Master				-34.20	Master				11.45
	-1300 (Minimum)	0 (Nominal)	1300 (Maximum)			-650.0 (Minimum)	0 (Nominal)	650.0 (Maximum)			-350.0 (Minimum)	0 (Nominal)	350.0 (Maximum)	

Master: Calibration out of date 6-Oct-2001 3:22

Hostile Environment Litho Density - A / Equipment Identification

Primary Equipment:

HOSTILE ENVIRONMENT LITHO DENSITY HIGH V	HLDV - A	10
HOSTILE ENVIRONMENT LITHO DENSITY CARTRI	HLDC - AA	11
Gamma Source Radioactive	GSR - Z	1846

Auxiliary Equipment:

HOSTILE ENVIRONMENT LITHO DENSITY SONDE	HLDS - B	10
HOSTILE ENVIRONMENT ELECTRONICS CARTRIDG	HEH - H	12
HOSTILE ENVIRONMENT ELECTRONICS CARTRIDG	HEH - G	11
HOSTILE ENVIRONMENT LITHO DENSITY PAD	HLDP - B	10

Nuclear Porosity Lithology Cartridge - B / Equipment Identification

Primary Equipment:

NPLC Cartridge	NPLC - B	79
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Auxiliary Equipment:

NPLC Housing	NPH - B	82
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Accelerator-Porosity Tool / Equipment Identification

Primary Equipment:

Accelerator-Porosity Sonde	APS - BA	22
APS Minitron	MNTR - F	4185

Auxiliary Equipment:

Accelerator-Porosity Housing	APH - AC	22
APS Calibration Water Tank	SFT - 178	4722
APS Aluminium Calibrator Sleeve	SFT - 281	24

Hostile Natural Gamma Ray Sonde / Equipment Identification

Primary Equipment:

HNGS Sonde	HNGS - BA	77
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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		40.59	Master		16.79	Master		1224				
Before		40.60	Before		16.89	Before		1220				
After		40.55	After		15.90	After		1219				
	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		145.1	Master		10.40	Master		24.98
Before		146.3	Before		8.694	Before		22.43
After		145.5	After		9.747	After		20.41

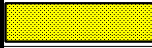

135.0 (Minimum) 142.6 (Nominal) 150.3 (Maximum)			7.000 (Minimum) 8.500 (Nominal) 11.000 (Maximum)			-28.89 (Minimum) 15.50 (Nominal) 60.00 (Maximum)		
Phase	Na Count Rate CPS	Value						
Master		50.31						
Before		49.89						
After		48.96						
10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)								
Master: 13-Jul-2002 3:08			Before: 24-Jul-2002 12:59			After: 23-Aug-2002 23:04		

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		40.58	Master		16.72	Master		1253
Before		40.59	Before		16.53	Before		1250
After		40.59	After		16.53	After		1246
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		144.7	Master		9.766	Master		24.15
Before		144.3	Before		9.897	Before		21.87
After		144.8	After		9.612	After		20.67
135.0 (Minimum) 142.6 (Nominal) 150.3 (Maximum)			7.000 (Minimum) 8.500 (Nominal) 11.000 (Maximum)			-28.89 (Minimum) 15.50 (Nominal) 60.00 (Maximum)		
Phase	Na Count Rate CPS	Value						
Master		50.19						
Before		49.39						
After		48.77						
10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)								
Master: 13-Jul-2002 3:08			Before: 24-Jul-2002 12:59			After: 23-Aug-2002 23:04		

Hostile Natural Gamma Ray Sonde Wellsite Calibration		
Ratio Of Detector 1 To Detector 2		
Phase	Coincidence Count Rate Ratio	Value
Master		1.004
Before		1.010
After		1.003
0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)		
Master: 13-Jul-2002 3:08		
Before: 24-Jul-2002 12:59		
After: 23-Aug-2002 23:04		

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		208.9	Master		8.227
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		24.67	Master		0.9793			
20.00 (Minimum) 142.5 (Nominal) 265.0 (Maximum)			0.9400 (Minimum) 1.000 (Nominal) 1.060 (Maximum)					
Master: 13-Jul-2002 3:01								

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		208.8	Master		8.191

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			22.68	Master			0.9792	
	20.00 (Minimum)	142.5 (Nominal)	265.0 (Maximum)		0.9400 (Minimum)	1.000 (Nominal)	1.060 (Maximum)	

Master: 13-Jul-2002 3:01

Company: Lamont Doherty



Well: ODP Leg 204, Site 1247B

Field: Hydrate Ridge

Ocean: Pacific

State: Oregon

Phasor Induction
Natural Gamma Ray