Schlumberger

Company: Lamont Doherty

Well: ODP Leg 204, Site 1252A
Field: Hydrate Ridge
Ocean: Pacific State: Oregon

Ocean: Pacific
Field: Hydrate Ridge
Location: W 125* 5.5684'
Well: ODP Leg 204, Site 1252A
Company: Lamont Doherty

Phasor Induction
Natural Gamma Ray

LOCATION

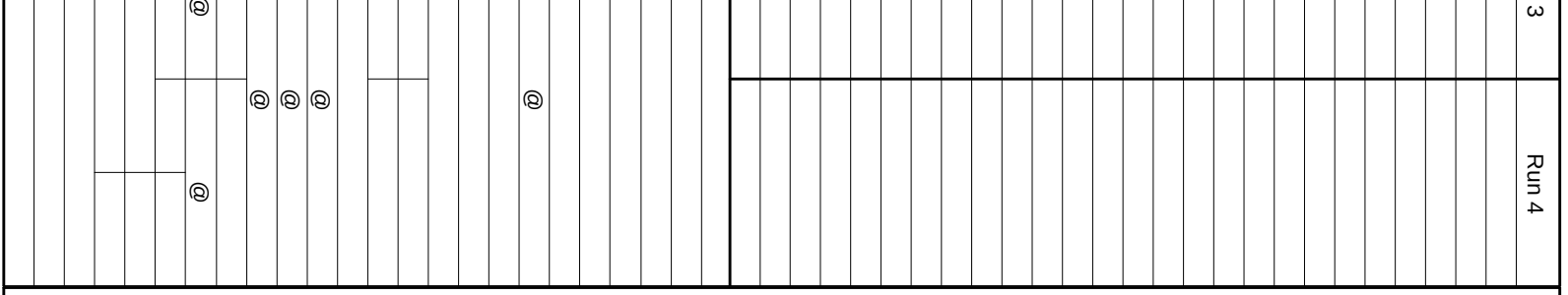
W 125* 5.5684'
N 44* 35.1658'

Elev.: K.B. 11.3 m
G.L. -1051 m
D.F. 11 m

Permanent Datum: MSL — Elev.: 0 m
Log Measured From: RKB — 11.3 m above Perm. Datum
Drilling Measured From: RKB

API Serial No.	Max. Hole Devi.	Longitude	Latitude

	Run 1	Run 2	Run 3
Logging Date	31-Aug-2002		
Run Number	1		
Depth Driller	1311 m		
Schlumberger Depth	1311 m		
Bottom Log Interval	1305 m		
Top Log Interval	1051 m		
Casing Driller Size @ Depth	0.000 in @ 1126 m	@	@
Casing Schlumberger	1125 m		
Bit Size	11.438 in		
Type Fluid In Hole	Sepiolite Salt Water Base		
MUD Density / Viscosity	1.1 g/cm3 /	/	/
MUD Fluid Loss / PH	/	/	/
MUD Source Of Sample	Mud Pit		
RM @ Measured Temperature	0.322 ohm.m @ 27 degC	@	@
RMF @ Measured Temperature	@	@	@
RMC @ Measured Temperature	@	@	@
Source RMF / RMC	/	/	/
RM @ MRT / RMF @ MRT	0.428 @ 15 / @ 15	@ / @	@ / @
Maximum Recorded Temperatures	15 degC		
Circulation Stopped / Time	31-Aug-2002 / 3:00		
Logger On Bottom / Time	31-Aug-2002 / 7:00		
Unit Number / Location	99 / Houston-ODP		
Recorded By	K. Swain		
Witnessed By	G. Guerin, S. Barr, T. Collett		



DISCLAIMER

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OTHER SERVICES1	OTHER SERVICES2
OS1: FMS/DSST	OS1:
OS2:	OS2:
OS3: IPLT/DITE	OS3:
OS4:	OS4:
OS5:	OS5:

REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
All depths measured in meters below rig floor.	
Sea Floor SLB 1051 mbrf.	
Drill pipe SLB 1125 mbrf. 10khz and 40khz induction not used.	

RUN 1

SERVICE ORDER #:
PROGRAM VERSION: 10C0-306
FLUID LEVEL:

LOGGED INTERVAL	START	STOP

RUN 2

SERVICE ORDER #:
PROGRAM VERSION:
FLUID LEVEL:

LOGGED INTERVAL	START	STOP

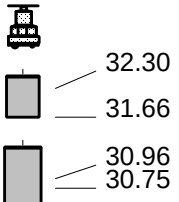
EQUIPMENT DESCRIPTION

RUN 1

SURFACE EQUIPMENT

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

DOWNHOLE EQUIPMENT

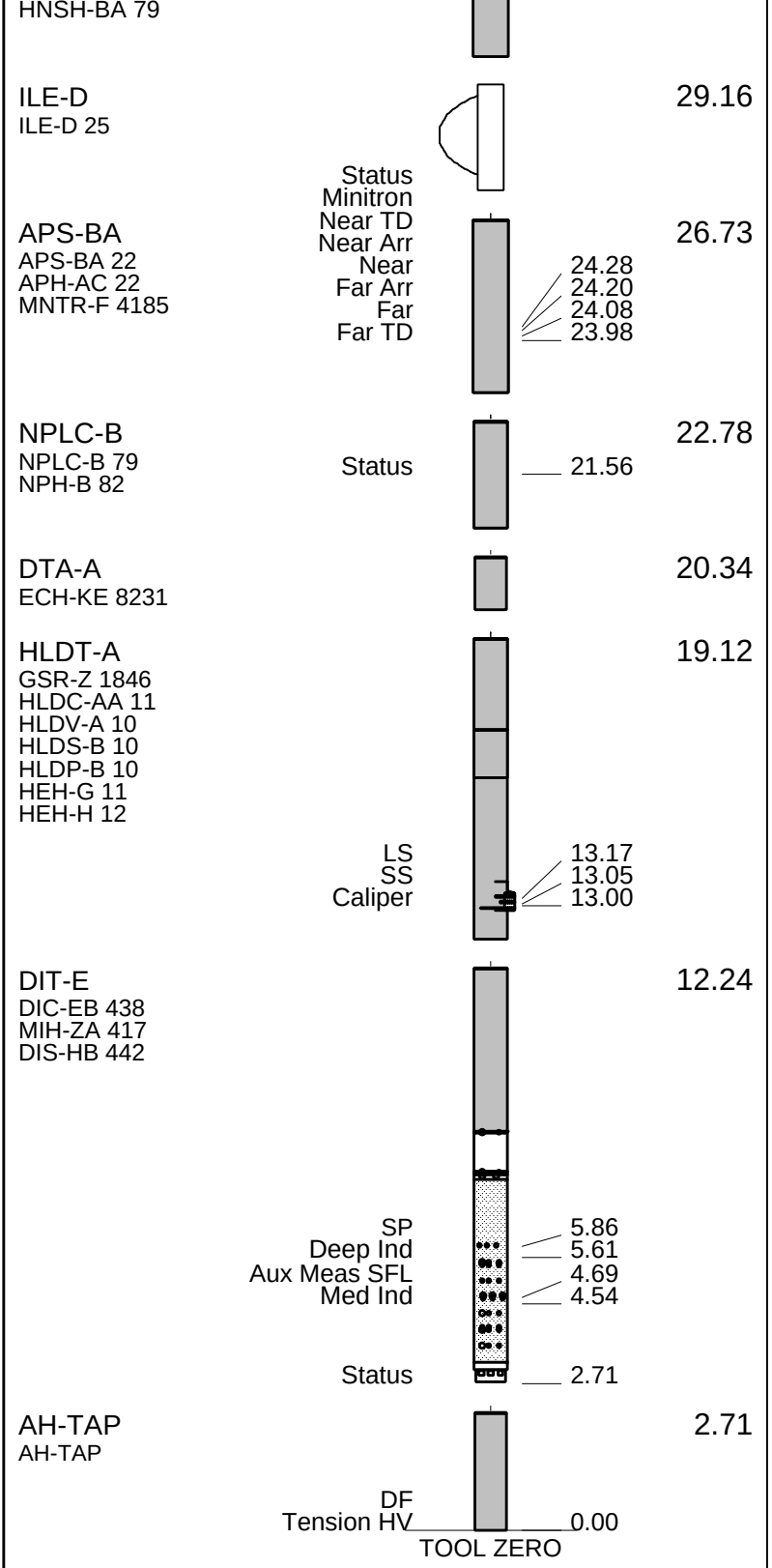


LEH-QT
LEH-QT 1497

DTC-H
ECH-KC 9841

HNGS-BA
HNGS-BA 77

RUN 2



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:6	PRODUCER	31-Aug-2002 06:56	1312.2 M	1031.9 M
REDUCE	PI_LDL_APS_NGS_004LUP	FN:7	PRODUCER	31-Aug-2002 06:56	1312.2 M	1031.8 M

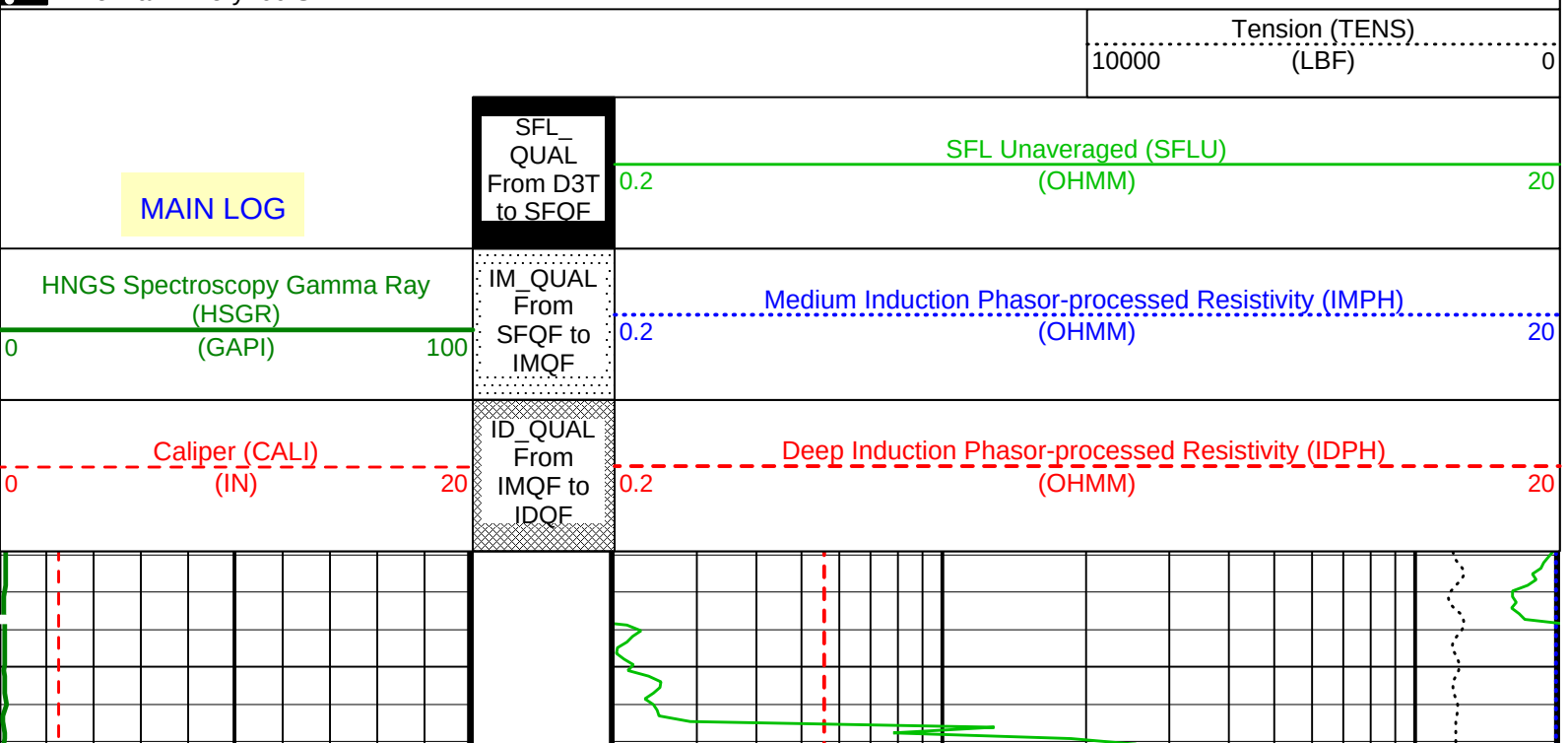
OP System Version: 10C0-306

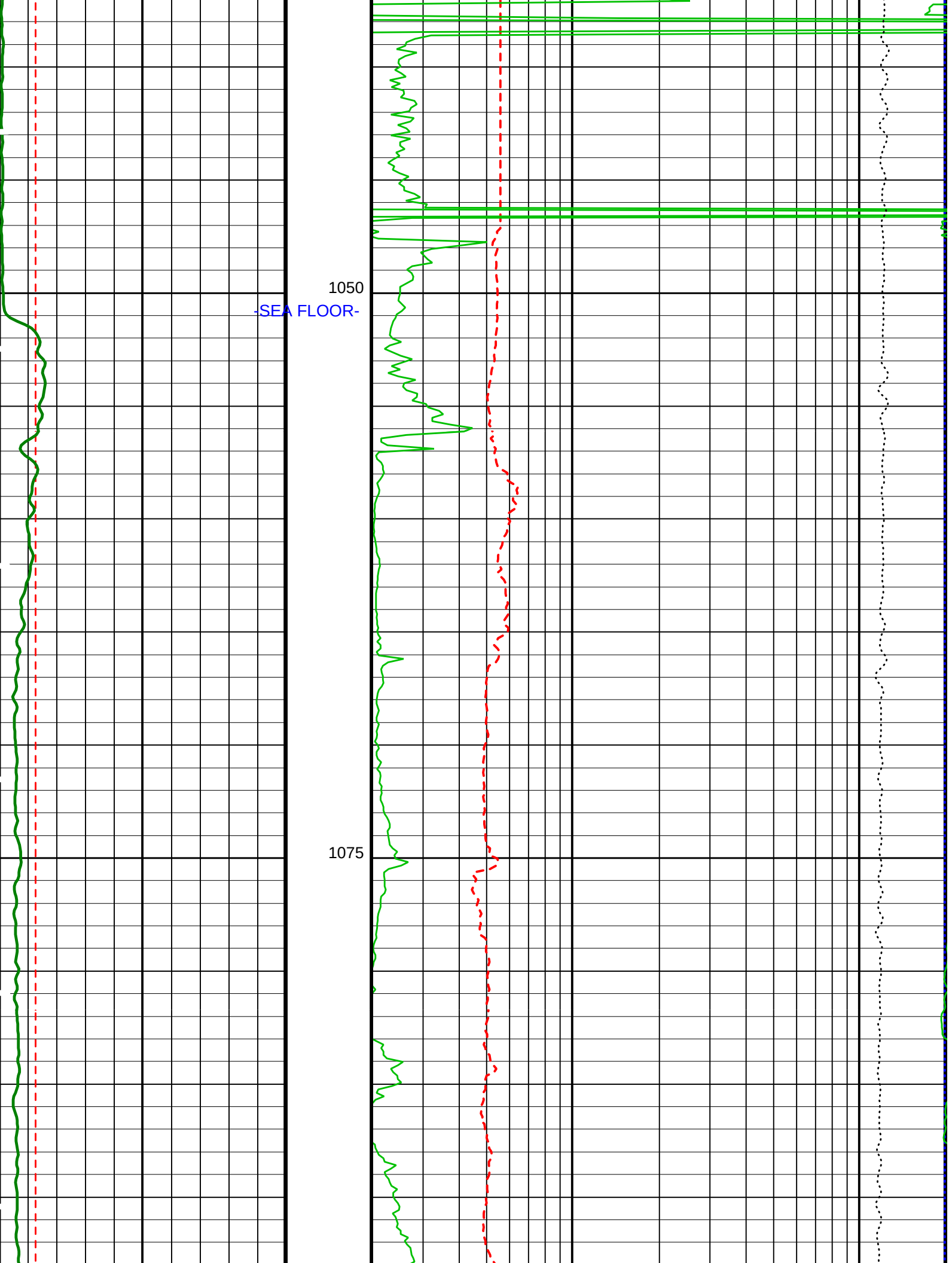
MCM

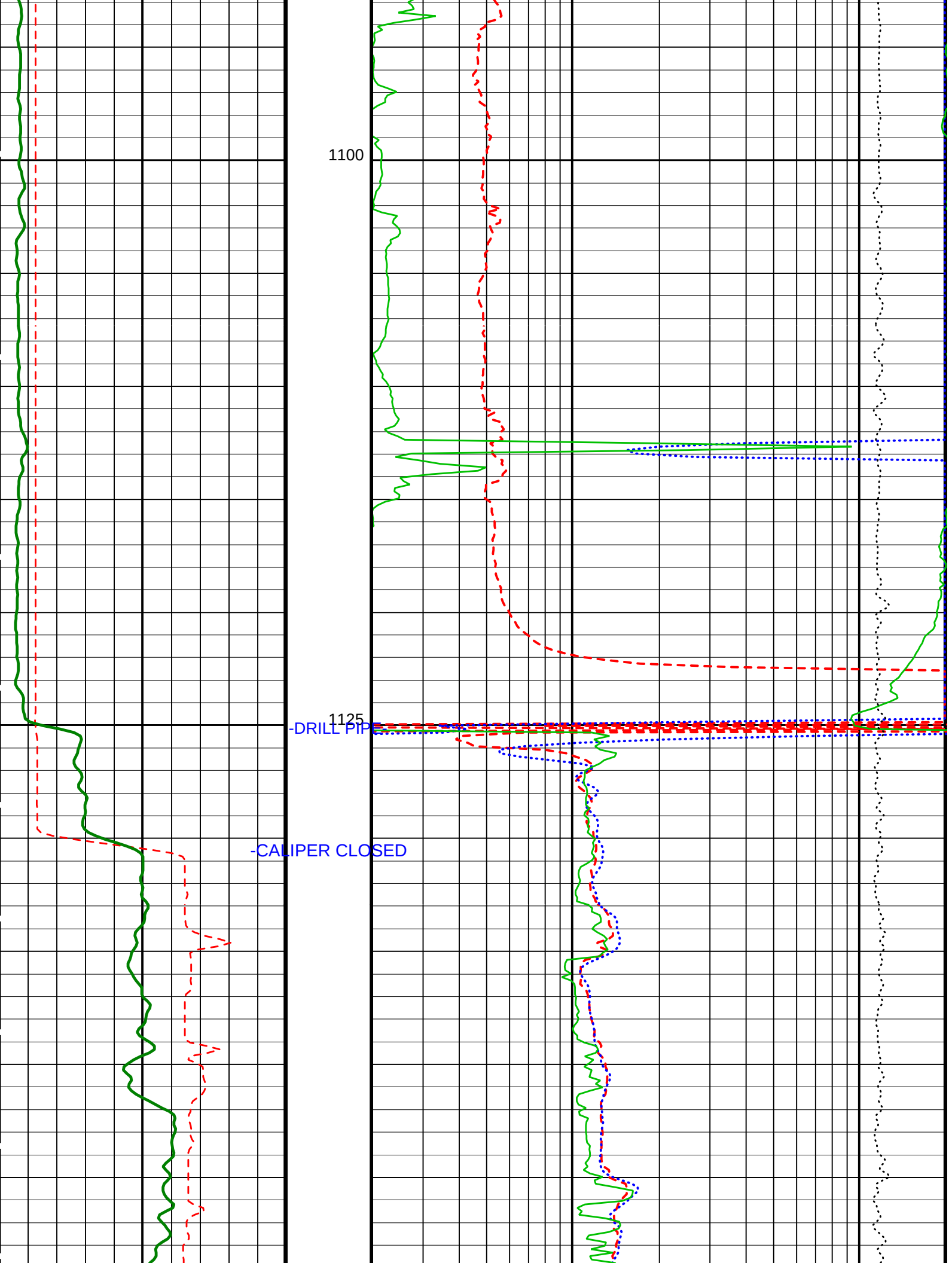
DIT-E	10C0-306	HLDT-A	10C0-306
DTA-A	10C0-306	NPLC-B	OP10-KP1
APS-BA	OP10-KP1	HNGS-BA	OP10-KP1
DTC-H	10C0-306		

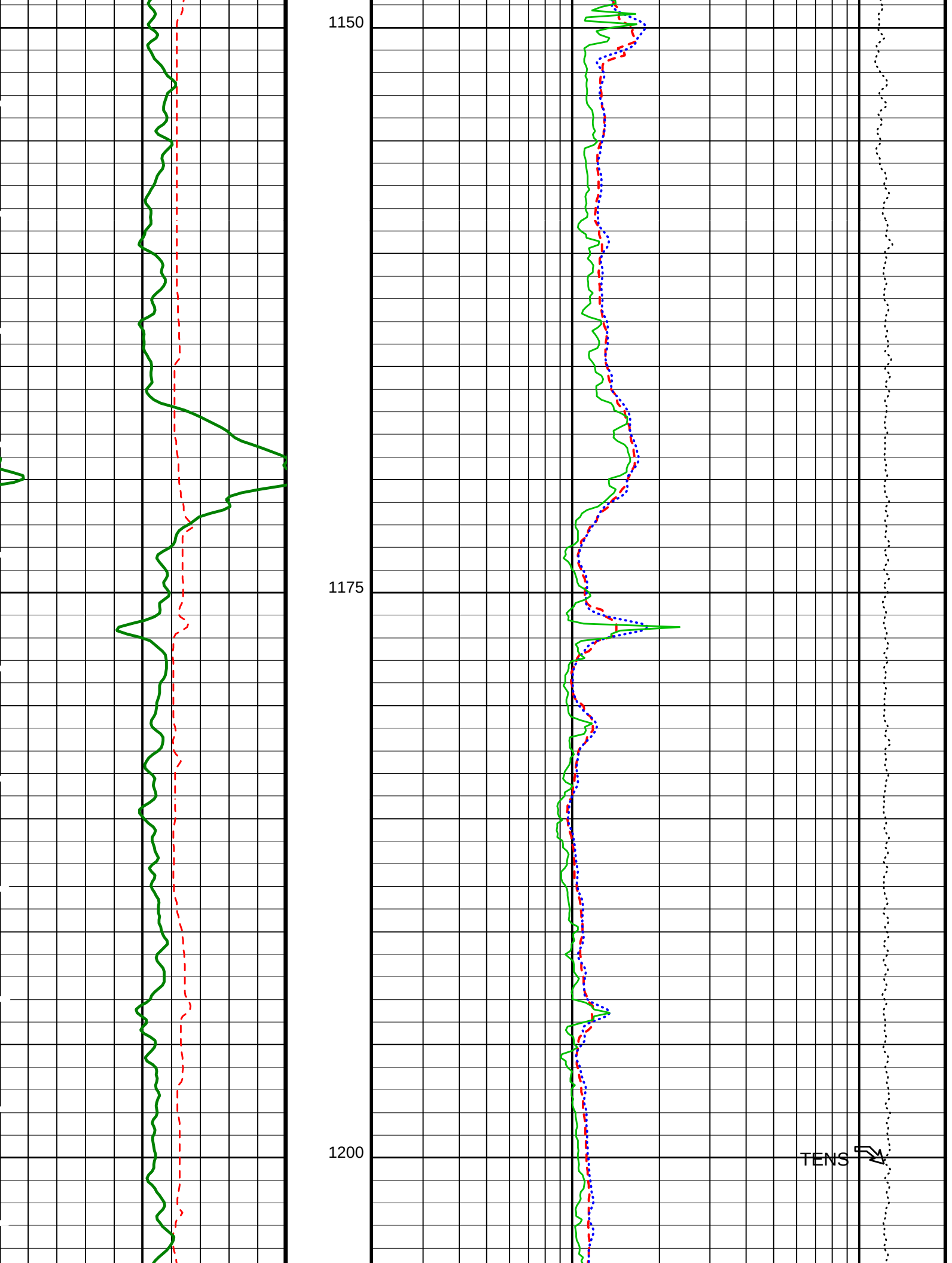
PIP SUMMARY

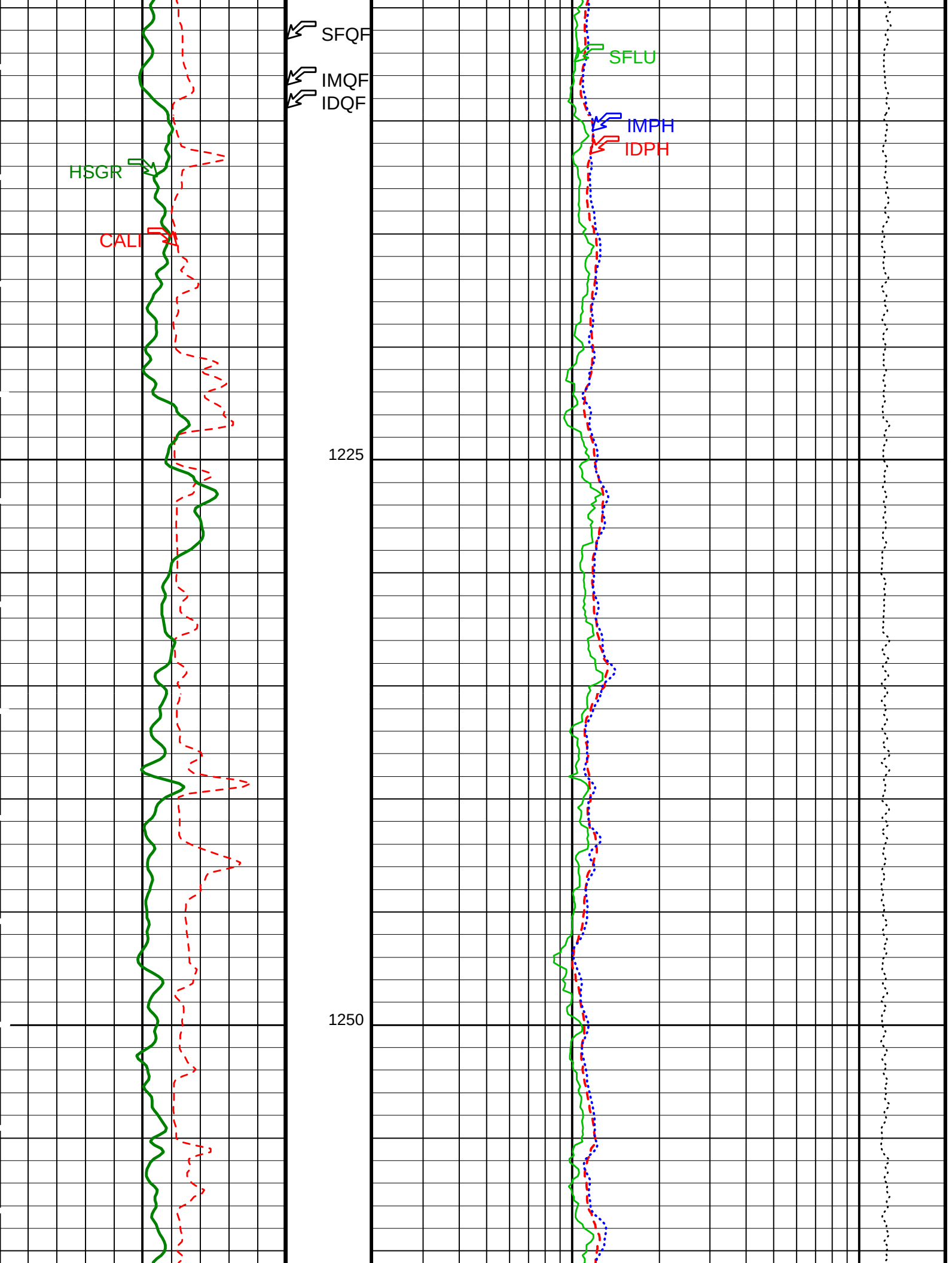
Time Mark Every 60 S

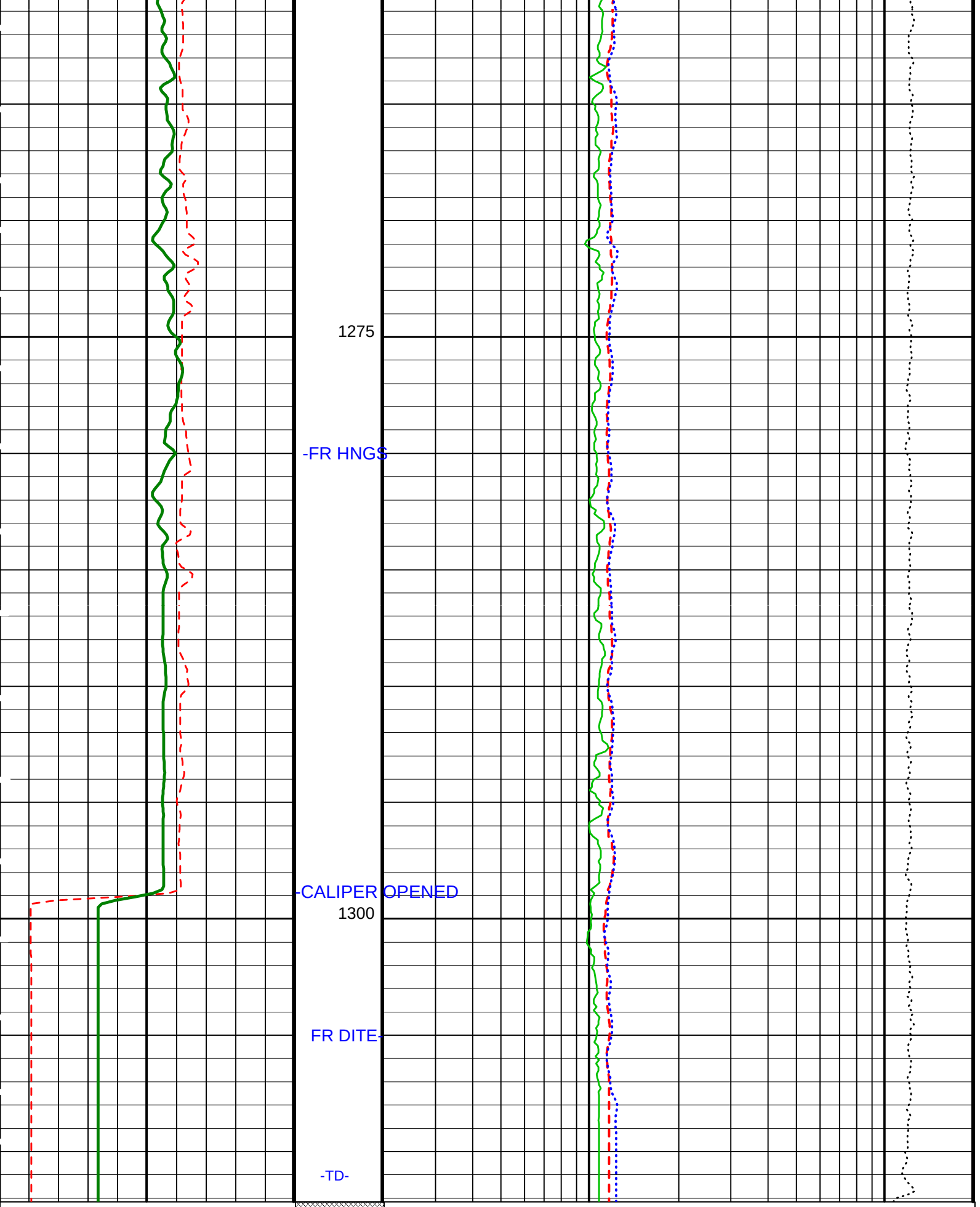



1050
-SEA FLOOR-
1075


1100
1125
-DRILL PIPE
-CALIPER CLOSED


1150
1175
1200
TENS

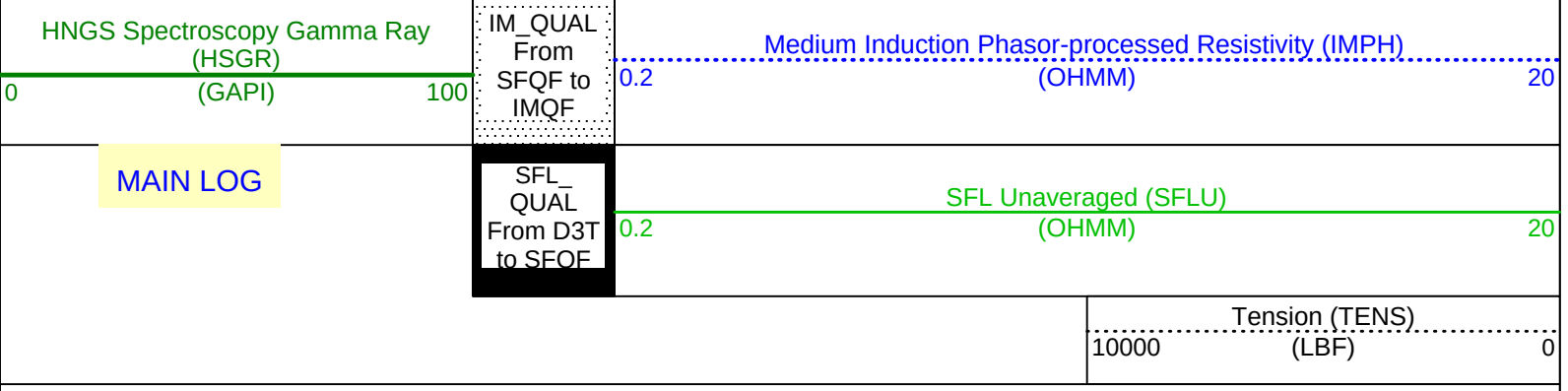

SFQF
IMQF
IDQF
HSGR
CALI
SFLU
IMPH
IDPH
1225
1250



Caliper (CALI)
0 (IN) 20

ID_QUAL From IMQF to IDQF

Deep Induction Phasor-processed Resistivity (IDPH)
0.2 (OHMM) 20



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	-0.00815183	
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	0.945727	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.953644	

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: 31-Aug-2002 06:56

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:6	PRODUCER	31-Aug-2002 06:56		
REDUCE	PI_LDL_APS_NGS_004LUP	FN:7	PRODUCER	31-Aug-2002 06:56		

Output DLIS Files

DEFAULT	PI_LDL_APS_NGS_005LUP	FN:8	PRODUCER	31-Aug-2002 08:04	1232.2 M	1111.3 M
REDUCE	PI_LDL_APS_NGS_005LUP	FN:9	PRODUCER	31-Aug-2002 08:04	1232.2 M	1111.3 M

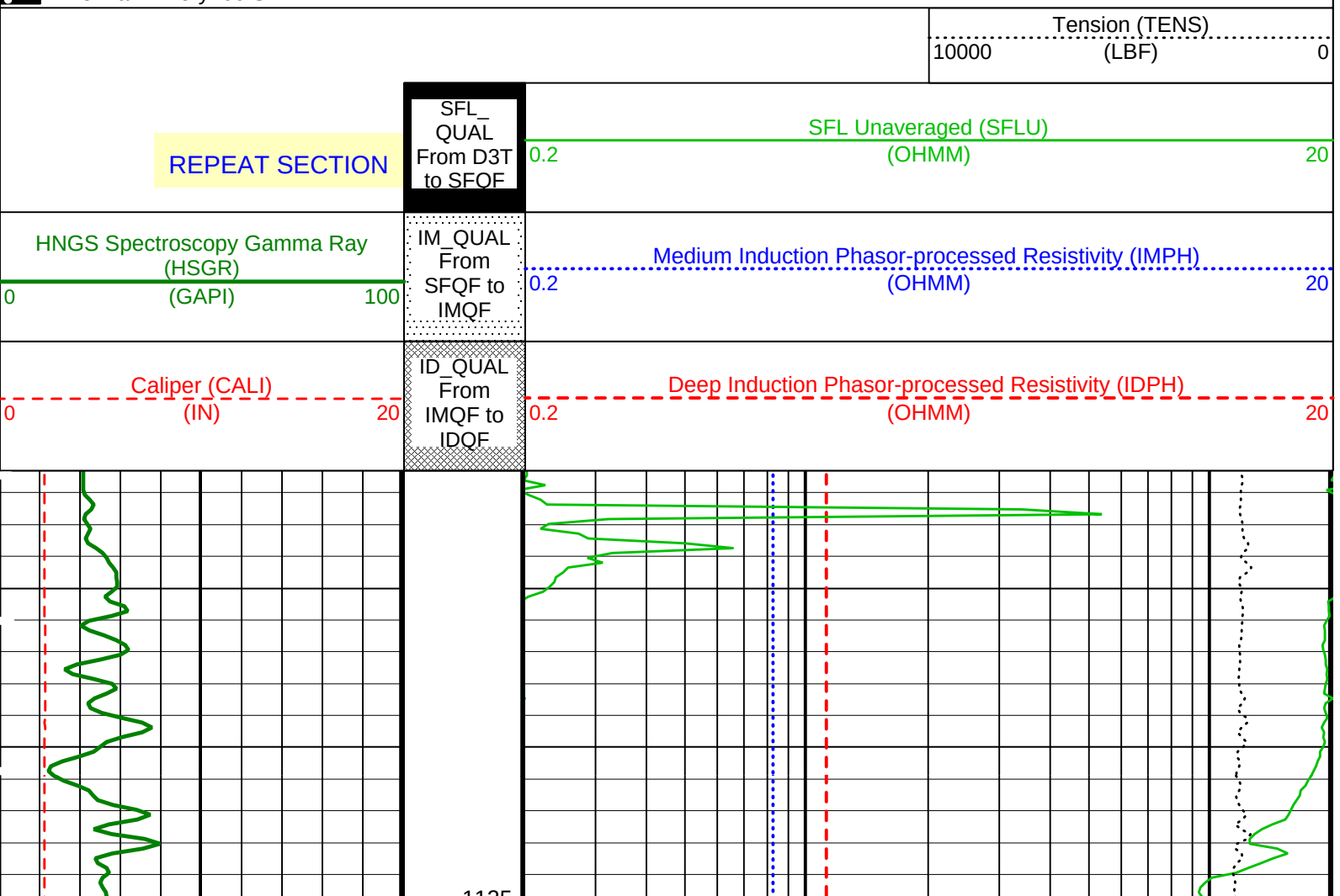
OP System Version: 10C0-306

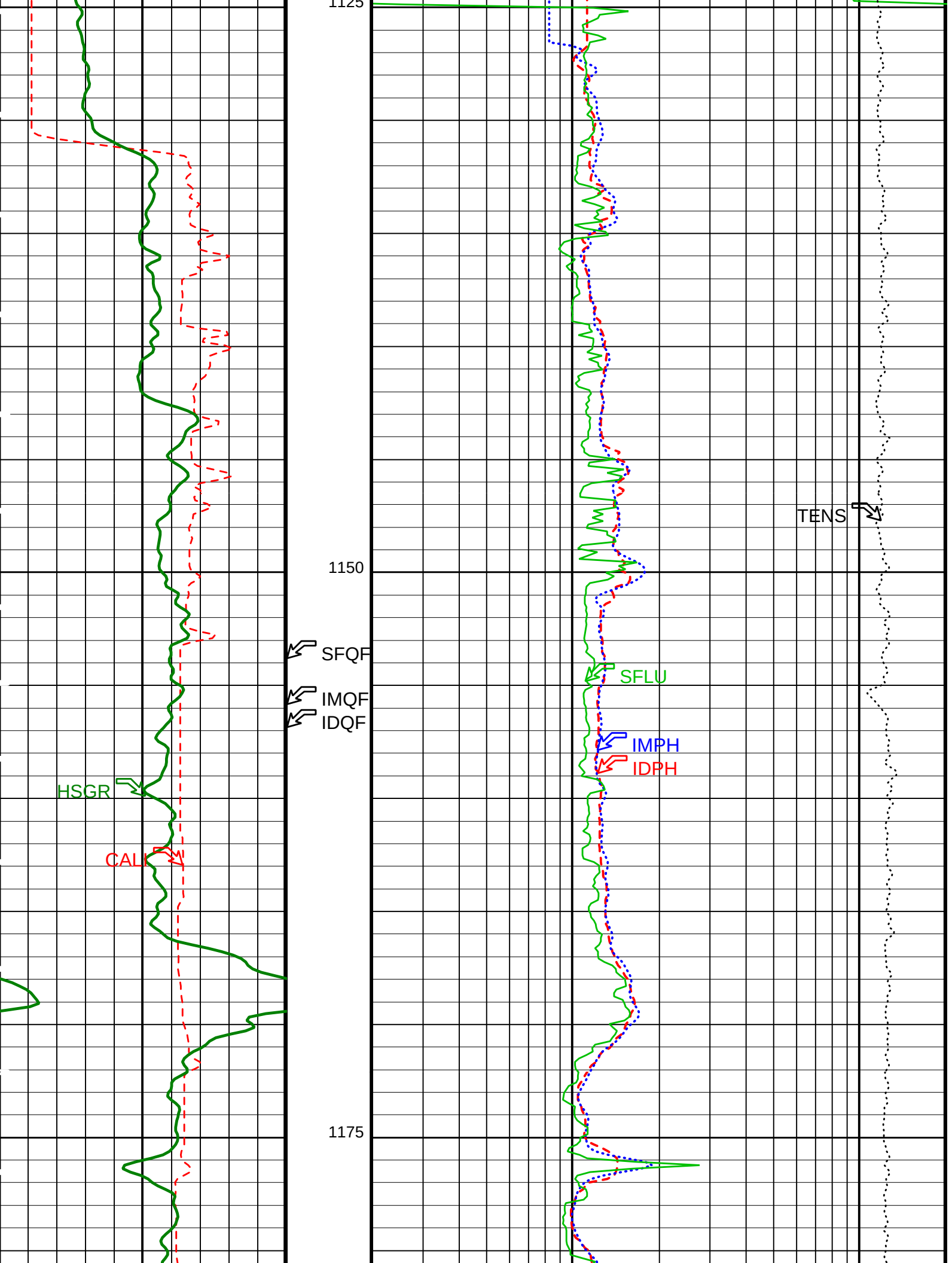
MCM

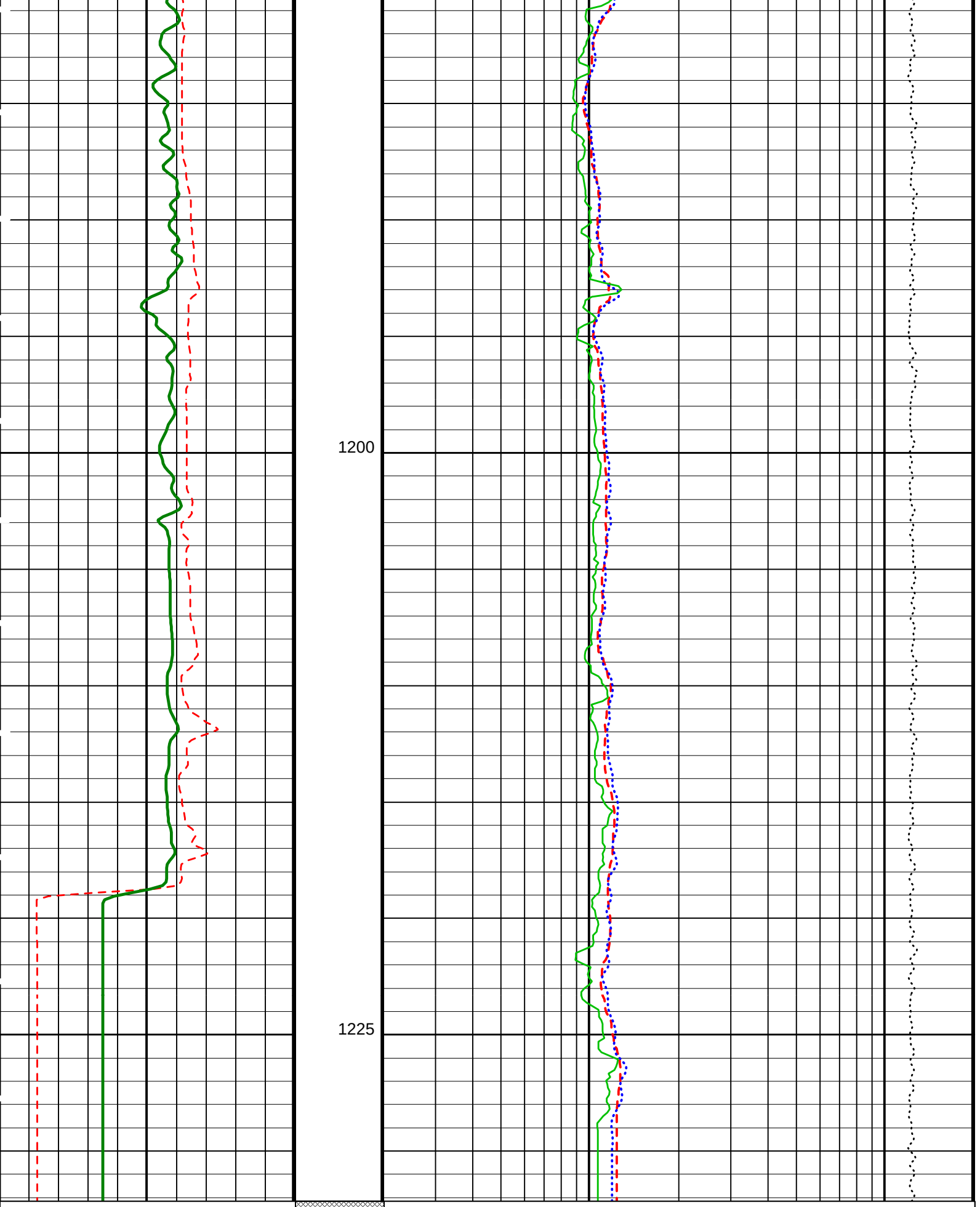
DIT-E	10C0-306	HLDT-A	10C0-306
DTA-A	10C0-306	NPLC-B	OP10-KP1
APS-BA	OP10-KP1	HNGS-BA	OP10-KP1
DTC-H	10C0-306		

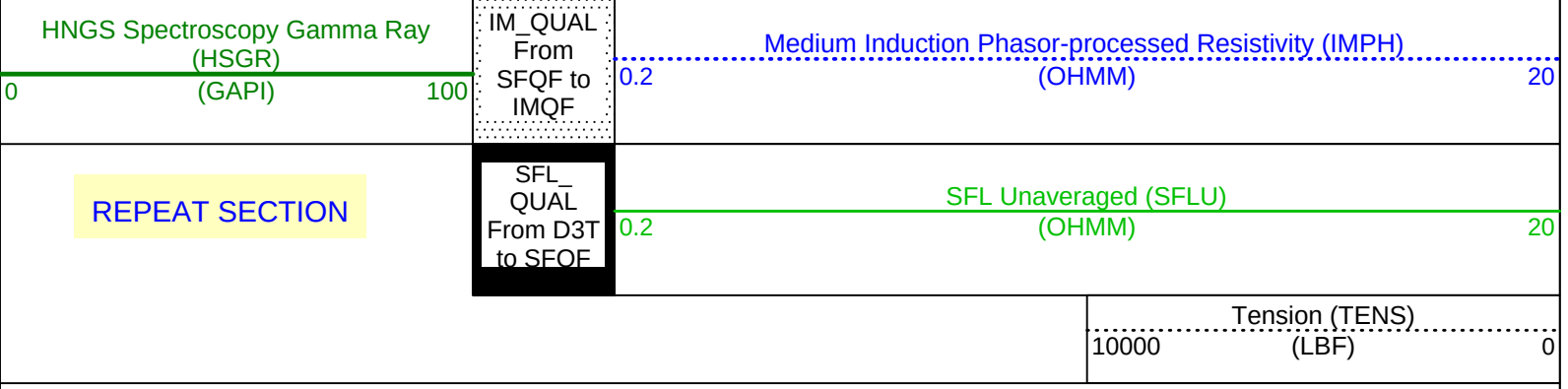
PIP SUMMARY

Time Mark Every 60 S




1125
1150
1175
SFQF
IMQF
IDQF
HSGR
CALI
SFLU
IMPH
IDPH
TENS


1200
1225
Caliper (CALI)
0
(IN)
20
ID_QUAL
From
IMQF to
IDQF
Deep Induction Phasor-processed Resistivity (IDPH)
0.2
(OHMM)
20



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	-0.00966604	
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	0.95148	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.963097	

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: 31-Aug-2002 08:04

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:8	PRODUCER	31-Aug-2002 08:04
REDUCE	PI_LDL_APS_NGS_005LUP	FN:9	PRODUCER	31-Aug-2002 08:04

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 1:31 Before: 24-Jul-2002 18:39 After: 31-Aug-2002 9:46							
LSW1 Background	100.0	88.67	86.74	87.43	0.6993	0.03000	CPS
LSW2 Background	105.0	93.18	91.70	91.97	0.2706	0.03000	CPS
LSW3 Background	210.0	177.4	176.2	179.8	3.662	0.03000	CPS
LSW4 Background	290.0	236.8	236.6	234.3	-2.263	0.03000	CPS
LSW5 Background	610.0	518.0	517.3	511.9	-5.447	0.03000	CPS
SSW1 Background	100.0	83.02	84.95	84.09	-0.8559	0.03000	CPS
SSW2 Background	200.0	165.1	166.3	166.9	0.5784	0.03000	CPS
SSW3 Background	530.0	440.7	439.6	436.9	-2.680	0.03000	CPS
SSW4 Background	280.0	232.4	232.4	231.0	-1.397	0.03000	CPS
SSW5 Background	205.0	174.0	173.3	174.4	1.064	0.03000	CPS
Hostile Environment Litho Density - A Wellsite Calibration - Tool Quality Control Information High Voltage							
Master: 12-Jun-2002 1:31 Before: 24-Jul-2002 18:39 After: 31-Aug-2002 9:46							
LS Bkg. High Voltage	1133	1133	1130	1128	-1.827	N/A	V
SS Bkg. High Voltage	1177	1177	1171	1171	0.2494	N/A	V
Hostile Environment Litho Density - A Wellsite Calibration - Detectors Resolution From BKG Measurments							
Master: 12-Jun-2002 1:31 Before: 24-Jul-2002 18:39 After: 31-Aug-2002 9:46							
LS Background Resolution	1.000	1.032	1.032	0.8895	-0.1429	N/A	
SS Background Resolution	1.000	0.9430	0.9416	0.9420	0.0004600	N/A	
Hostile Environment Litho Density - A Wellsite Calibration - Caliper Calibration							
Before: 24-Jul-2002 18:38							
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 10:08 Before: 31-Aug-2002 6:26 After: 31-Aug-2002 8:37							
Near Det Bkg Cntrate	30.00	32.30	33.03	31.64	-1.397	N/A	CPS
Far Det Bkg Cntrate	30.00	33.62	32.99	34.06	1.072	N/A	CPS
Array-1 Det Bkg Cntrate	30.00	28.88	29.51	29.40	-0.1105	N/A	CPS
Array-2 Det Bkg Cntrate	30.00	29.64	29.74	31.48	1.742	N/A	CPS
Array Therm Det Bkg Cntrate	30.00	32.75	33.69	30.84	-2.851	N/A	CPS
Accelerator-Porosity Tool Wellsite Calibration - Calibration Ratios							
Master: 24-Jul-2002 10:08							
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 10:09							
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 4:08 Before: 24-Jul-2002 13:59 After: 31-Aug-2002 9:47

Na 511 Peak Loc	40.00	40.59	40.60	40.66	0.05748	1.000	
Na 511 Peak Res	15.50	16.79	16.89	16.39	-0.4952	2.000	%
High Voltage	1150	1224	1220	1219	-1.036	30.00	V
Na 1785 Peak Loc	142.6	145.1	146.3	146.6	0.2785	7.000	
Na 1785 Peak Res	8.500	10.40	8.694	9.052	0.3585	2.000	%
Temperature	15.50	24.98	22.43	22.27	-0.1584	N/A	DEGC
Na Count Rate	45.00	50.31	49.89	48.79	-1.100	8.000	CPS

Hostile Natural Gamma Ray Sonde Wellsite Calibration - Detector 2 Check
Master: 13-Jul-2002 4:08 Before: 24-Jul-2002 13:59 After: 31-Aug-2002 9:47

Na 511 Peak Loc	40.00	40.58	40.59	40.62	0.02441	1.000	
Na 511 Peak Res	15.50	16.72	16.53	16.62	0.08802	2.000	%
High Voltage	1150	1253	1250	1245	-4.988	30.00	V
Na 1785 Peak Loc	142.6	144.7	144.3	144.4	0.04208	7.000	
Na 1785 Peak Res	8.500	9.766	9.897	8.884	-1.013	2.000	%
Temperature	15.50	24.15	21.87	22.54	0.6711	N/A	DEGC
Na Count Rate	45.00	50.19	49.39	48.63	-0.7643	8.000	CPS

Hostile Natural Gamma Ray Sonde Wellsite Calibration - Ratio Of Detector 1 To Detector 2
Master: 13-Jul-2002 4:08 Before: 24-Jul-2002 13:59 After: 31-Aug-2002 9:47

Coincidence Count Rate Ratio	1.000	1.004	1.010	1.004	-0.005504	0.05000	

Hostile Natural Gamma Ray Sonde Master Calibration - Detector 1 Calibration
Master: 13-Jul-2002 4:01

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 4:01

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	DIS - HB	442
Dual Induction Cartridge	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
Before		37.53
	-300.0 (Minimum) 0 (Nominal) 300.0 (Maximum)	

Phase	ID Elect Real Gain 10 kHz	Value
Before		0.9770
	0.8500 (Minimum) 1.000 (Nominal) 1.200 (Maximum)	

Phase	ID Elect Phase 10 kHz DEG	Value
Before	EXCEEDS LIMIT	10.63
	-10.00 (Minimum) 0 (Nominal) 10.00 (Maximum)	

Phase	ID Elect Quad Offset 10 kHz MM/M	Value
Before		22.25
	-300.0 (Minimum) 0 (Nominal) 300.0 (Maximum)	

Phase	ID Elect Quad Gain 10 kHz	Value
Before		0.9660
	0.8500 (Minimum) 1.000 (Nominal) 1.200 (Maximum)	

Phase	IM Elect Phase 10 kHz DEG	Value
Before	EXCEEDS LIMIT	13.27
	-10.00 (Minimum) 0 (Nominal) 10.00 (Maximum)	

Phase	IM Elect Real Offset 10 kHz MM/M	Value
Before		96.05
	-550.0 (Minimum) 0 (Nominal) 550.0 (Maximum)	

Phase	IM Elect Real Gain 10 kHz	Value
Before		0.9527
	0.8500 (Minimum) 1.000 (Nominal) 1.200 (Maximum)	

*10khz not used

Phase	IM Elect Quad Offset 10 kHz MM/M	Value
Before		24.74

Phase	IM Elect Quad Gain 10 kHz	Value
Before		0.9538

Before		94.74	Before		0.9503			
-550.0 (Minimum)	0 (Nominal)	550.0 (Maximum)	0.8500 (Minimum)	1.000 (Nominal)	1.200 (Maximum)			

Before: 24-Jul-2002 14:24

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
-125.0 (Minimum)	0 (Nominal)	125.0 (Maximum)	0.8500 (Minimum)	1.000 (Nominal)	1.200 (Maximum)	-15.00 (Minimum)	0 (Nominal)	15.00 (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
-125.0 (Minimum)	0 (Nominal)	125.0 (Maximum)	0.8500 (Minimum)	1.000 (Nominal)	1.200 (Maximum)	-15.00 (Minimum)	0 (Nominal)	15.00 (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
-225.0 (Minimum)	0 (Nominal)	225.0 (Maximum)	0.8500 (Minimum)	1.000 (Nominal)	1.200 (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
-225.0 (Minimum)	0 (Nominal)	225.0 (Maximum)	0.8500 (Minimum)	1.000 (Nominal)	1.200 (Maximum)

Before: 24-Jul-2002 13:54

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	EXCEEDS LIMIT	27.54
-85.00 (Minimum)	0 (Nominal)	85.00 (Maximum)	0.8500 (Minimum)	1.000 (Nominal)	1.200 (Maximum)	-20.00 (Minimum)	0 (Nominal)	20.00 (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	EXCEEDS LIMIT	31.11
-85.00 (Minimum)	0 (Nominal)	85.00 (Maximum)	0.8500 (Minimum)	1.000 (Nominal)	1.200 (Maximum)	-20.00 (Minimum)	0 (Nominal)	20.00 (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
-130.0 (Minimum)	0 (Nominal)	130.0 (Maximum)	0.8500 (Minimum)	1.000 (Nominal)	1.200 (Maximum)

Phase	IM Elect Quad Offset 40 kHz MM/M	Value	Phase	IM Elect Quad Gain 40 kHz	Value
Before		25.86	Before		1.022
-130.0 (Minimum)	0 (Nominal)	130.0 (Maximum)	0.8500 (Minimum)	1.000 (Nominal)	1.200 (Maximum)

*40khz not used

Before: 24-Jul-2002 14:26

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 13:55

Dual Induction - E Wellsite Calibration

Electronics Calibration Changes Files/Depth Intervals: 3: 1058.4 - 1269.0 4: 1312.2 - 1031.9 5: 1232.2 - 1111.3

Phase	ID (R > 27 OHM-M) MM/M	Value	Phase	ID (R < 27 OHM-M) %	Value	Phase	SFL (R < 1 OHM-M) OHMM	Value
After		0	After		0.0001826	After		0.0006018
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	After		0.0001459

	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	After			0.0005905
	0 (Minimum)	0 (Nominal)	0.7500 (Maximum)		0 (Minimum)	0 (Nominal)	2.000 (Maximum)	

After: 31-Aug-2002 8:32

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 3:50

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				20.73	Master				-1.786	Master				-10.46
	-50.00 (Minimum)	0 (Nominal)	140.0 (Maximum)		-50.00 (Minimum)	0 (Nominal)	50.00 (Maximum)			-30.00 (Minimum)	0 (Nominal)	30.00 (Maximum)		
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 4:22

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

NPLC Cartridge	NPLC - B	79
Auxiliary Equipment:		
NPLC Housing	NPH - B	82

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
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
Master		40.59
Before		40.60
After		40.66
37.50 (Minimum)	40.00 (Nominal)	42.50 (Maximum)

Phase	Na 511 Peak Res %	Value
Master		16.79
Before		16.89
After		16.39
12.00 (Minimum)	15.50 (Nominal)	19.00 (Maximum)

Phase	High Voltage V	Value
Master		1224
Before		1220
After		1219
900.0 (Minimum)	1150 (Nominal)	1600 (Maximum)

Phase	Na 1785 Peak Loc	Value
Master		145.1
Before		146.3
After		146.6
135.0 (Minimum)	142.6 (Nominal)	150.3 (Maximum)

Phase	Na 1785 Peak Res %	Value
Master		10.40
Before		8.694
After		9.052
7.000 (Minimum)	8.500 (Nominal)	11.00 (Maximum)

Phase	Temperature DEGC	Value
Master		24.98
Before		22.43
After		22.27
-28.89 (Minimum)	15.50 (Nominal)	60.00 (Maximum)

Phase	Na Count Rate CPS	Value
Master		50.31
Before		49.89
After		48.79
10.00 (Minimum)	45.00 (Nominal)	100.0 (Maximum)

Master: 13-Jul-2002 4:08 Before: 24-Jul-2002 13:59 After: 31-Aug-2002 9:47

Hostile Natural Gamma Ray Sonde Wellsite Calibration

Detector 2 Check

Phase	Na 511 Peak Loc	Value
Master		40.58
Before		40.59
After		40.62
37.50 (Minimum)	40.00 (Nominal)	42.50 (Maximum)

Phase	Na 511 Peak Res %	Value
Master		16.72
Before		16.53
After		16.62
12.00 (Minimum)	15.50 (Nominal)	19.00 (Maximum)

Phase	High Voltage V	Value
Master		1253
Before		1250
After		1245
900.0 (Minimum)	1150 (Nominal)	1600 (Maximum)

Phase	Na 1785 Peak Loc	Value
Master		144.7
Before		144.3
After		144.4

Phase	Na 1785 Peak Res %	Value
Master		9.766
Before		9.897
After		8.884

Phase	Temperature DEGC	Value
Master		24.15
Before		21.87
After		22.54

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		50.19
Before		49.39
After		48.63
10.00 (Minimum)	45.00 (Nominal)	100.0 (Maximum)

Master: 13-Jul-2002 4:08 Before: 24-Jul-2002 13:59 After: 31-Aug-2002 9:47

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		1.004
0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)

Master: 13-Jul-2002 4:08

Before: 24-Jul-2002 13:59

After: 31-Aug-2002 9:47

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 4:01

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 4:01

Company: Lamont Doherty

Schlumberger

Well: ODP Leg 204, Site 1252A
Field: Hydrate Ridge
Ocean: Pacific
State: Oregon

Phasor Induction

Phasor Induction
Natural Gamma Ray