

COMPANY: Lamont Doherty

WELL: ODP Leg 199, Site 1219 A (PAT-17C)

FIELD:

Ocean: Pacific

Phasor Induction  
Natural Gamma Ray



LAT: 7 DEG 48.009' N  
LONG: 142 DEG 00.940' W  
Elev.: K.B. 11.3 m  
G.L. -5075 m  
D.F. 11 m

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

Field: Location: LAT: 7 DEG 48.009' N  
Well: ODP Leg 199, Site 1219 A (PAT-17C)  
Company: Lamont Doherty

LOCATION		Longitude	Latitude
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. 4 deg		

Logging Date	25-Nov-2001			
Run Number	1			
Depth Driller	5325 m			
Schlumberger Depth	5326 m			
Bottom Log Interval	5320 m			
Top Log Interval	5074 m			
Casing Driller Size @ Depth	0.000 in @ 5156 m			
Casing Schlumberger	5159 m			
Bit Size	11.438 in			
Type Fluid In Hole	Sepiolite/Saltwater			
Density	1.066 g/cm3			
Fluid Loss	PH			
Source Of Sample	Mudpit			
RM @ Measured Temperature	0.253 ohm.m @ 32 degC			
RMF @ Measured Temperature	@ @			
RMC @ Measured Temperature	@ @			
Source RMF	RMC			
RM @ MRT	none			
RMF @ MRT	0.480 @ 7			
Maximum Recorded Temperatures	7 degC			
Circulation Stopped	25-Nov-2001			
Time	6:00			
Logger On Bottom	25-Nov-2001			
Time	15:30			
Unit Number	99			
Location	Houston, TX			
Recorded By	Kerry M. Swain			
Witnessed By	Philippe Galliot, Brice Rea			

Logging Date	Run Number	Depth Driller	Schlumberger Depth	Bottom Log Interval	Top Log Interval	Casing Driller Size @ Depth	Casing Schlumberger	Bit Size	Type Fluid In Hole	Density	Fluid Loss	PH	Source Of Sample	RM @ Measured Temperature	RMF @ Measured Temperature	RMC @ Measured Temperature	Source RMF	RM @ MRT	RMF @ MRT	Maximum Recorded Temperatures	Circulation Stopped	Time	Logger On Bottom	Time	Unit Number	Location	Recorded By	Witnessed By	Run 1	Run 2	Run
25-Nov-2001	1	5325 m	5326 m	5320 m	5074 m	0.000 in @ 5156 m	5159 m	11.438 in	Sepiolite/Saltwater	1.066 g/cm3	PH		Mudpit	0.253 ohm.m @ 32 degC	@ @	@ @	RMC	none	0.480 @ 7	7 degC	25-Nov-2001	6:00	25-Nov-2001	15:30	99	Houston, TX	Kerry M. Swain	Philippe Galliot, Brice Rea			

**DISCLAIMER**



THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE OF AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

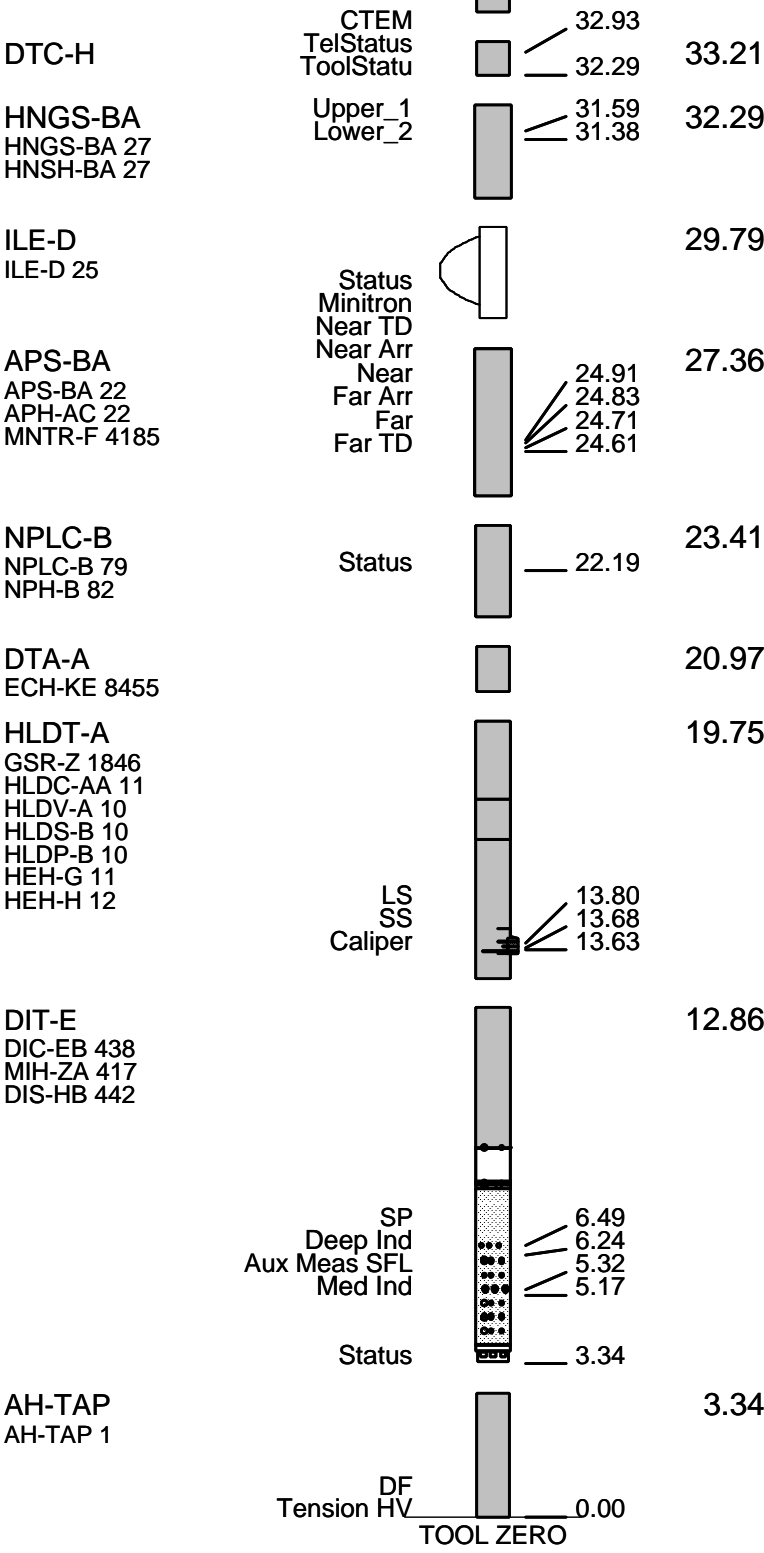
OTHER SERVICES1 OS1: HLDT/APS OS2: FMS/DSST OS3: OS4: OS5:	OTHER SERVICES2 OS1: OS2: OS3: OS4: OS5:
---	---

REMARKS: RUN NUMBER 1 Hole cored with APC/XCB. Log presented in Meters Below Rig Floor (MBRF). Lamont Temperature tool (TAP) was run on Triple Combo, Run 1. Toolstring-TAP/DITE/HLDT/APS/HNGS/MGT Lamont Multi-Sensor Gamma Ray tool (MGT) was run on Triple Combo, Run 1. Wireline Heave Compensator (WHC) was used on all runs. Sepiolite mud was used to displace the hole during the wiper trip after drilling Drillers TD 5325 MBRF, Driller Pipe depth: 5156 MBRF. Schlumberger TD 5326 MBRF. Drill Pipe Schlumberger 5159 MBRF. 10 and 40 KHZ frequencies not used in Induction measurement. Low background countrate on HNGS Master Calibration signifies a weak internal source used only as a check of the detector and is not used in the calibration.	REMARKS: RUN NUMBER 2
--	-----------------------

RUN 1			RUN 2		
SERVICE ORDER #:			SERVICE ORDER #:		
PROGRAM VERSION:		9C2-303	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 SFT-178 4722 GSR-U 135 WITM (DTS)-A			
<b>DOWNHOLE EQUIPMENT</b>			
LEH-QT		39.75	
AH-MGT		38.86	
AH-MGT			



TOOL ZERO

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

### Output DLIS Files

DEFAULT	PI_LDL_APS_HNGS_004LUP	FN:5	PRODUCER	25-Nov-2001 15:29	5328.7 M	5055.3 M
REDUCE	PI_LDL_APS_HNGS_004LUP	FN:6	PRODUCER	25-Nov-2001 15:29	5328.7 M	5055.3 M

### OP System Version: 9C2-303 MCM

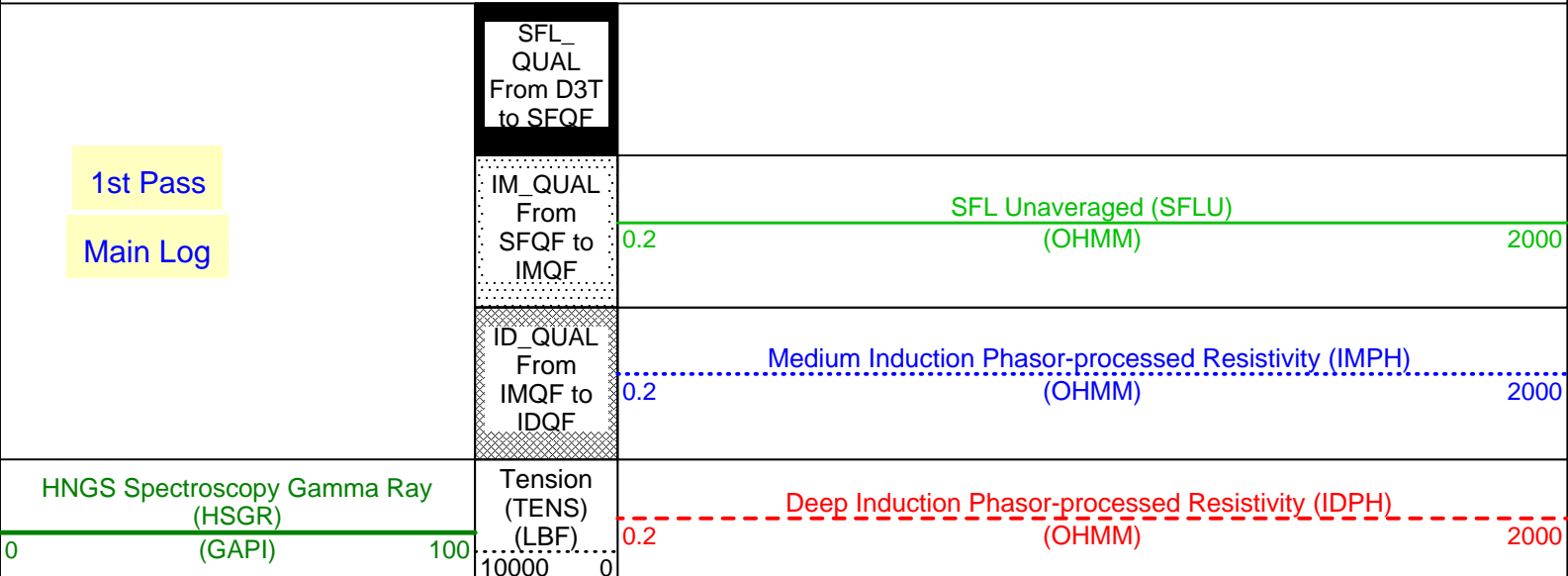
DIT-E	9C2-303	HLDT-A	9C2-303
DTA-A	9C2-303	NPLC-B	9C2-303
APS-BA	9C2-303	HNGS-BA	9C2-303
DTC-H	9C2-303		

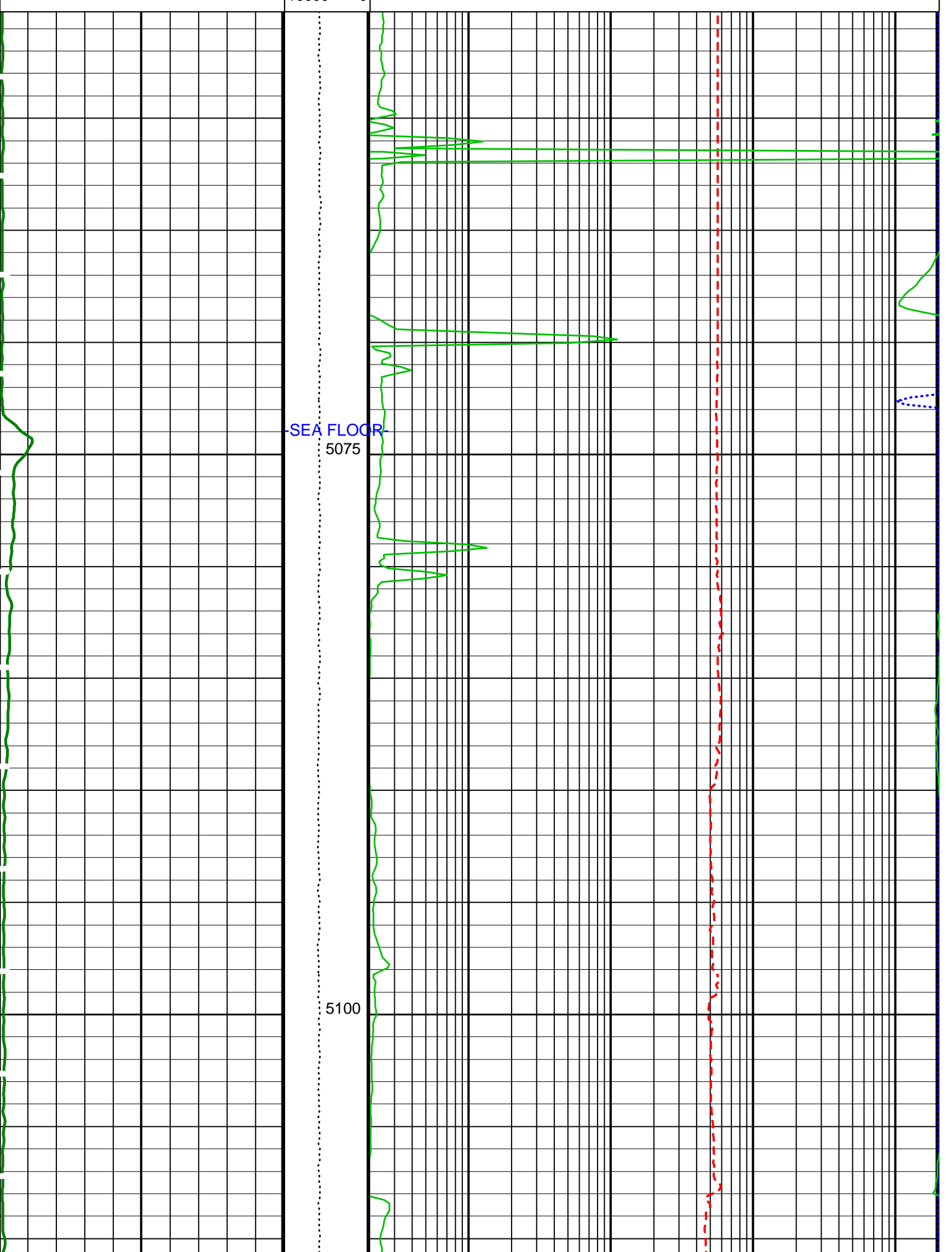
### Changed Parameter Summary

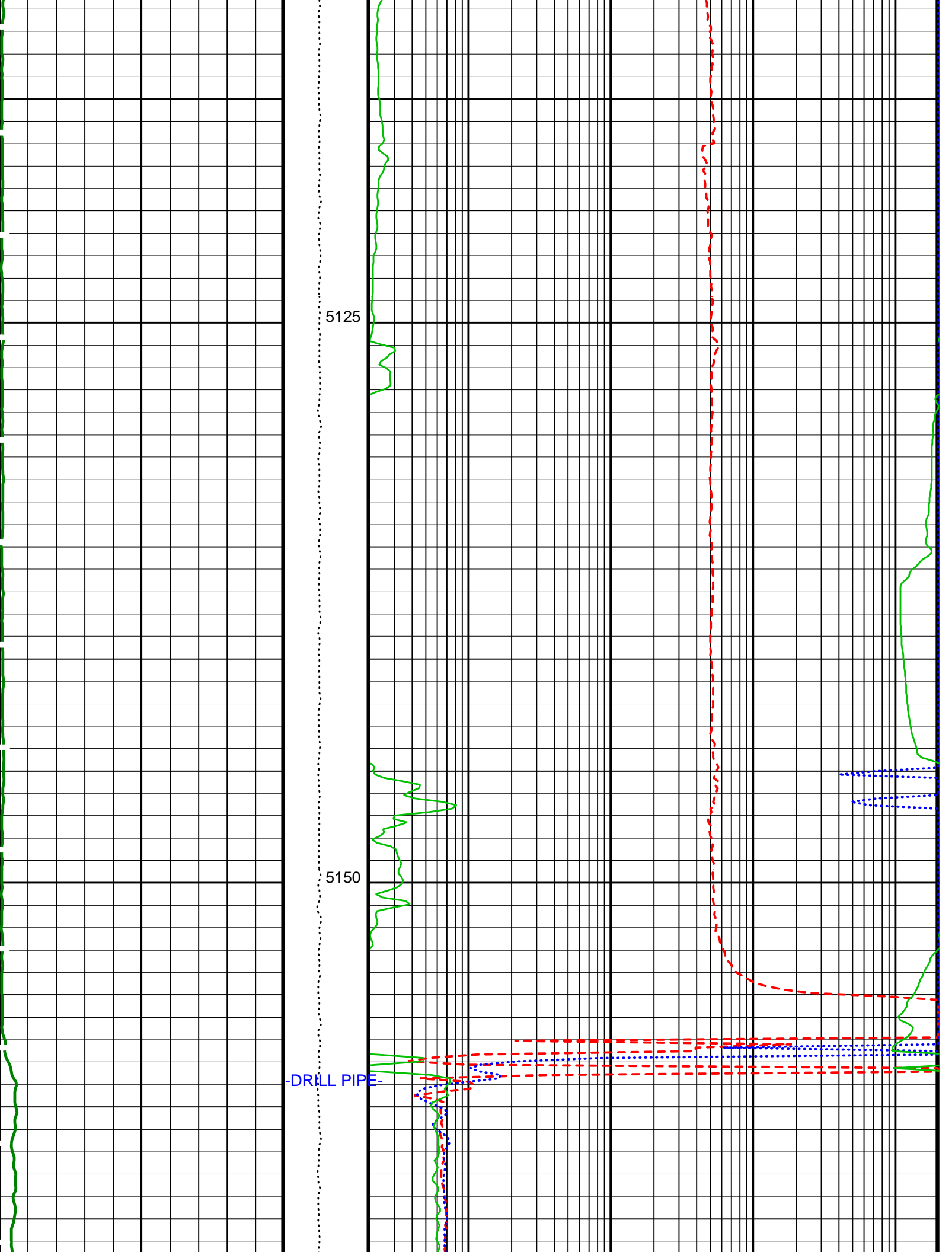
DLIS Name	New Value	Previous Value	Depth & Time
GCSE	CALI	BS	5300.7 15:39:30

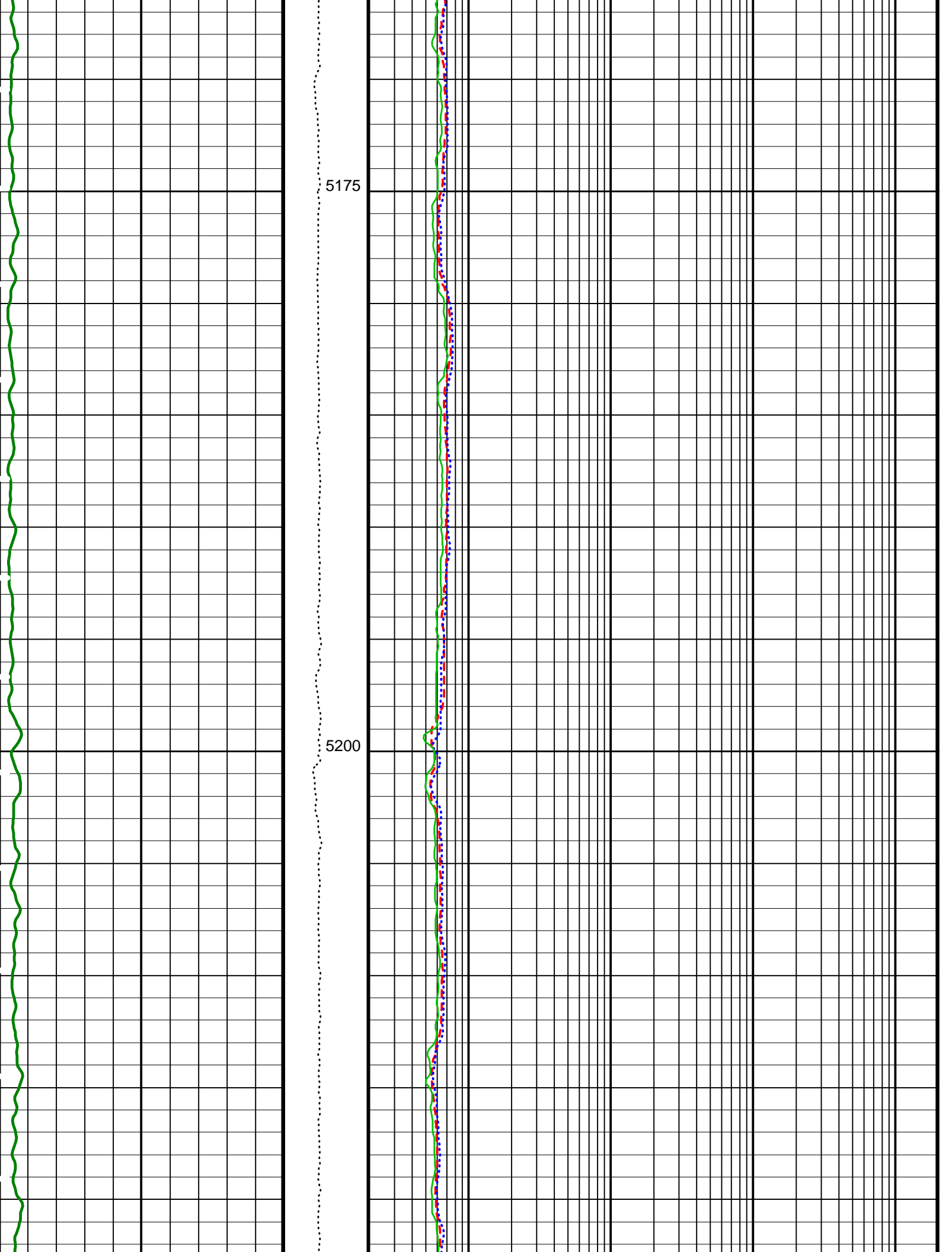
#### PIP SUMMARY

▶ Time Mark Every 60 S



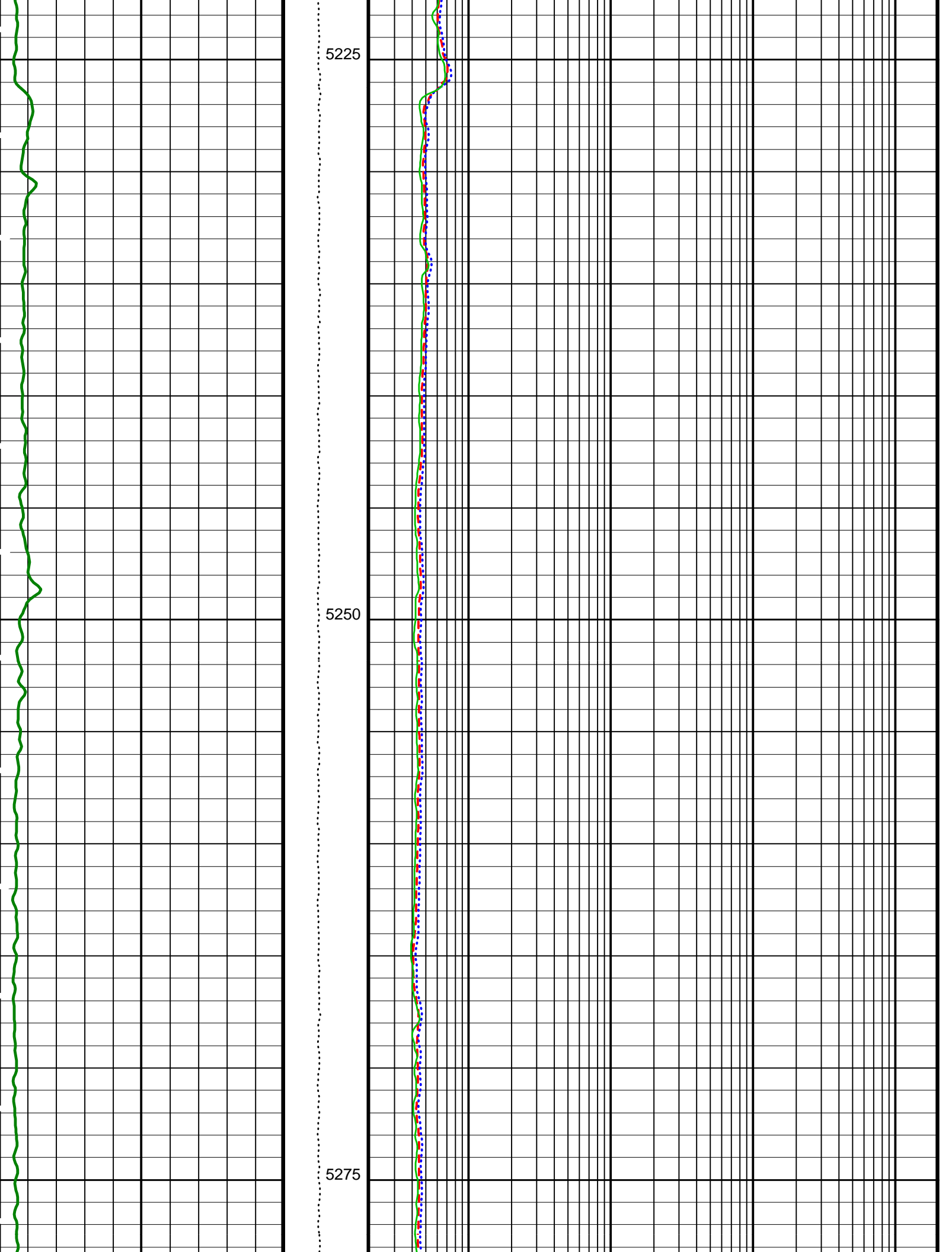




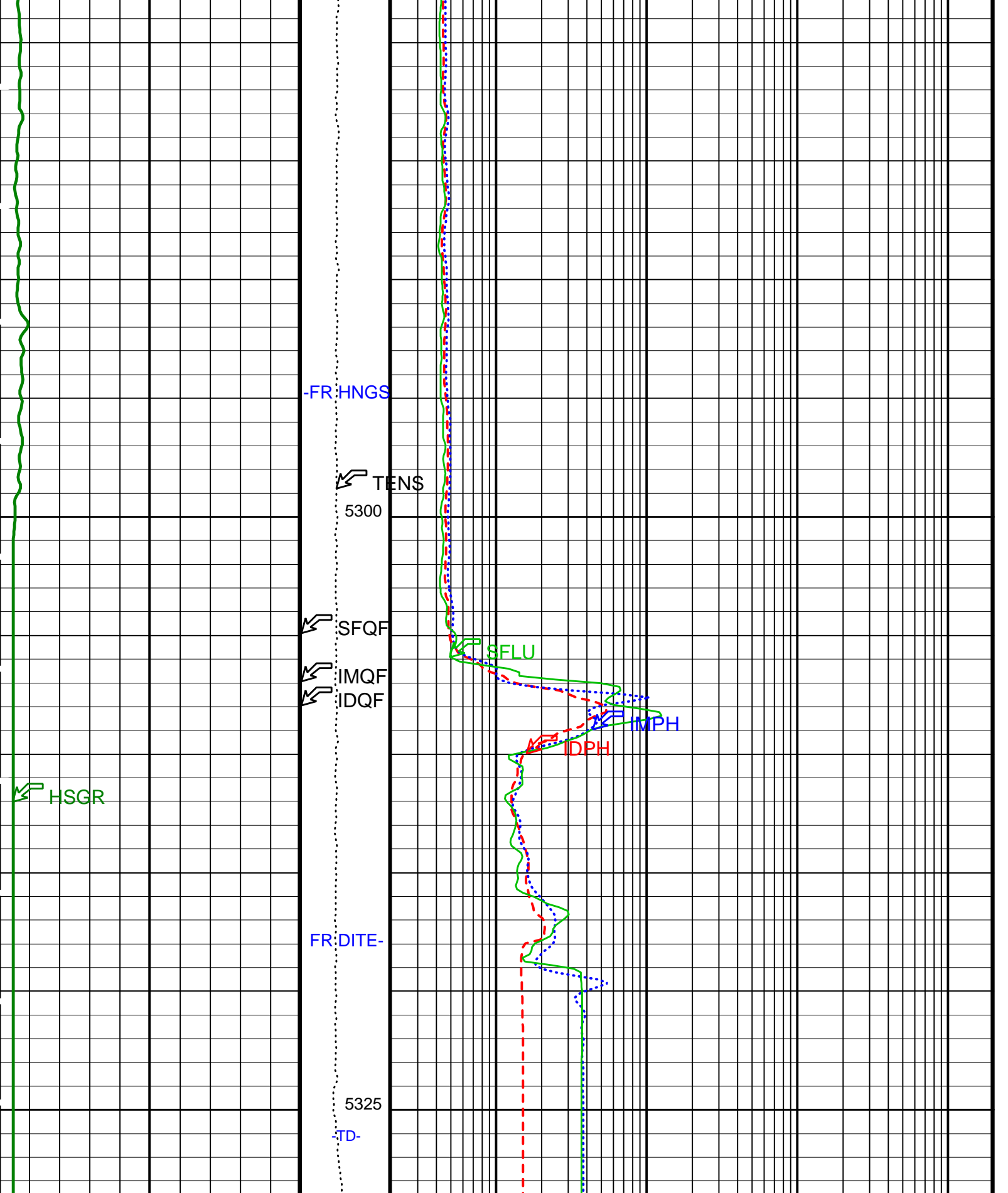


5175

5200







HNGS Spectroscopy Gamma Ray (HSGR) (GAPI)	Tension (TENS) (LBF)	0.2 --- Deep Induction Phasor-processed Resistivity (IDPH) (OHMM) --- 2000
	ID_QUAL From	--- Medium Induction Phasor-processed Resistivity (IMPH) ---

1st Pass

Main Log

IMQF to  
IDQF

0.2

(OHMM)

2000

IM\_QUAL  
From  
SFQF to  
IMQF

0.2

SFL Unaveraged (SFLU)

(OHMM)

2000

SFL\_  
QUAL  
From D3T  
to SFQF

## PIP SUMMARY

Time Mark Every 60 S

## Parameters

DLIS Name	Description	Value	
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)	8	DEGC
BKSF	HNGS Borehole Fluid Excluder Sleeve Algorithm Factor	1	
BKSH	HNGS Borehole Fluid Excluder Sleeve Algorithm High Channel	245	
BKSL	HNGS Borehole Fluid Excluder Sleeve Algorithm Low Channel	17	
BS	Bit Size	11.438	IN
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
D1PR	HNGS Detector 1 Calibration Thorium Peak Resolution	7.94455	%
D1TC	HNGS Detector 1 Calibration Temperature	31.7278	DEGC
D1TL	HNGS Detector 1 Calibration Thorium Peak Location	210.396	
D2PR	HNGS Detector 2 Calibration Thorium Peak Resolution	7.23028	%
D2TC	HNGS Detector 2 Calibration Temperature	30.9207	DEGC
D2TL	HNGS Detector 2 Calibration Thorium Peak Location	209.461	
DBCC	HNGS Barite Constant Correction Flag	NONE	
DFD	Drilling Fluid Density	1.07	G/C3
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
GCF1_START	HNGS Detector 1 GCF Constant	1	
GCF2_START	HNGS Detector 2 GCF Constant	1	
GCSE	Generalized Caliper Selection	BS	
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	-0.00143068	
HALF	HNGS Alpha Filter Length	60	IN
HATIM	HNGS Marquardt Accumulation Time	600	S
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	NATU	
HNPE	HNGS Processing Enable	YES	
HSLV	HNGS Borehole Fluid Excluder Sleeve Status	NO	
HSVN	HNGS Spectral Standards Version Number	1.07972e-029	
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	
MARQ_START	HNGS Marquardt Start-up Mode	INTERNAL	
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
RDF1_START	HNGS Detector 1 RDF Constant	0	
RDF2_START	HNGS Detector 2 RDF Constant	0	
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S1NA	HNGS Detector 1 Calibration Sodium Count Rate	17.94	CPS
S1NG	HNGS Detector 1 Calibration End-On / Side-On Gain Ratio	0.986623	
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
S2NA	HNGS Detector 2 Calibration Sodium Count Rate	18.0888	CPS
S2NG	HNGS Detector 2 Calibration End-On / Side-On Gain Ratio	0.979243	

SABK	HNGS Statistical Uncertainty in Borehole Potassium Running Average	0.000217619	
SFCR	SFL Channel Ratio	1000	
SGRC	HNGS Standard Gamma-Ray Correction Flag	YES	
SHT	Surface Hole Temperature	30	DEGC
TD	Total Depth	5114	M
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	1.46857	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.969393	

Format: DITE\_LogPhasor    Vertical Scale: 1:200    Graphics File Created: 25-Nov-2001 15:29

OP System Version: 9C2-303			
MCM			
DIT-E	9C2-303	HLDT-A	9C2-303
DTA-A	9C2-303	NPLC-B	9C2-303
APS-BA	9C2-303	HNGS-BA	9C2-303
DTC-H	9C2-303		

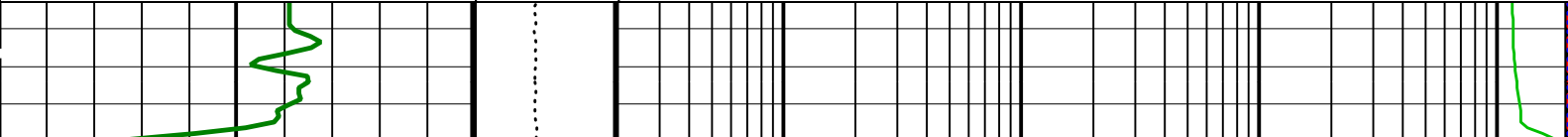
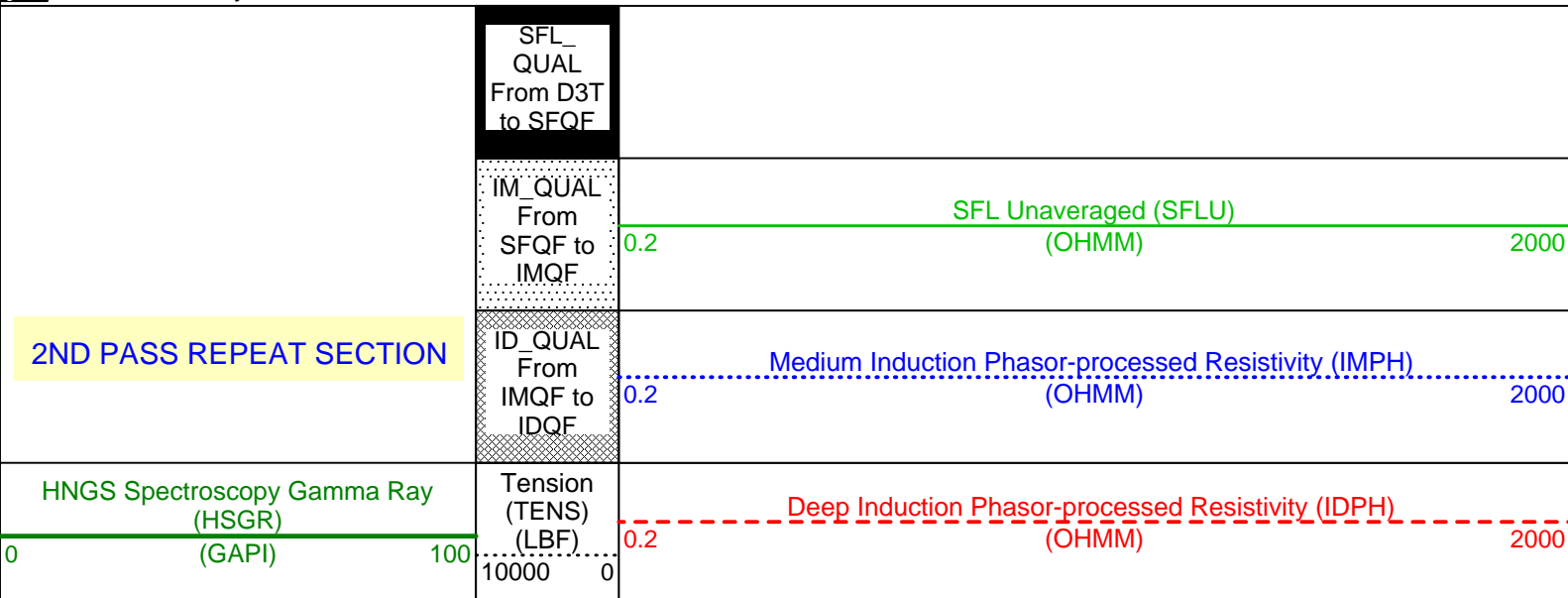
Output DLIS Files				
DEFAULT	PI_LDL_APS_HNGS_004LUP	FN:5	PRODUCER	25-Nov-2001 15:29
REDUCE	PI_LDL_APS_HNGS_004LUP	FN:6	PRODUCER	25-Nov-2001 15:29

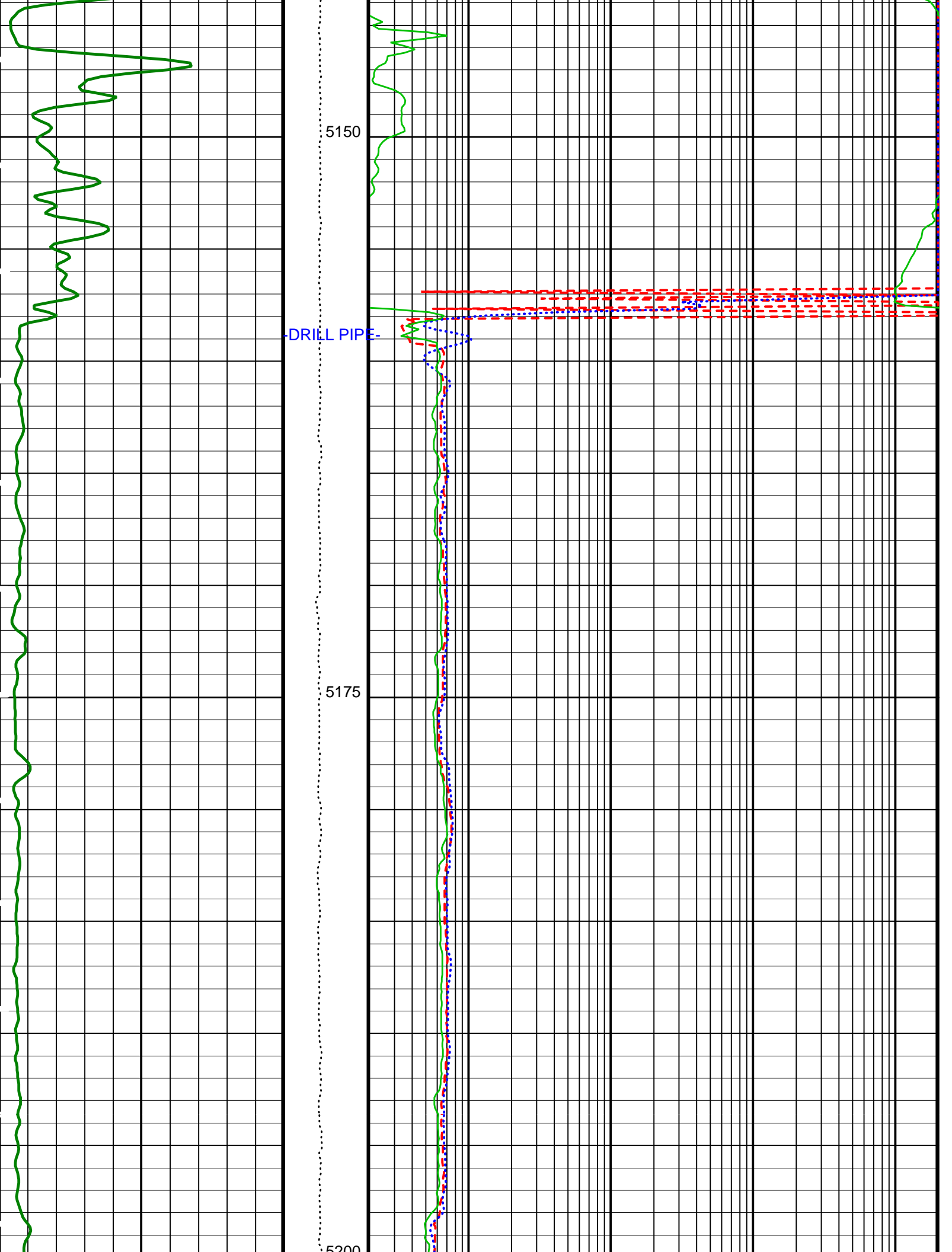
Output DLIS Files						
DEFAULT	PI_LDL_APS_HNGS_005LUP	FN:7	PRODUCER	25-Nov-2001 16:35	5328.7 M	5140.3 M
REDUCE	PI_LDL_APS_HNGS_005LUP	FN:8	PRODUCER	25-Nov-2001 16:35	5328.7 M	5140.3 M

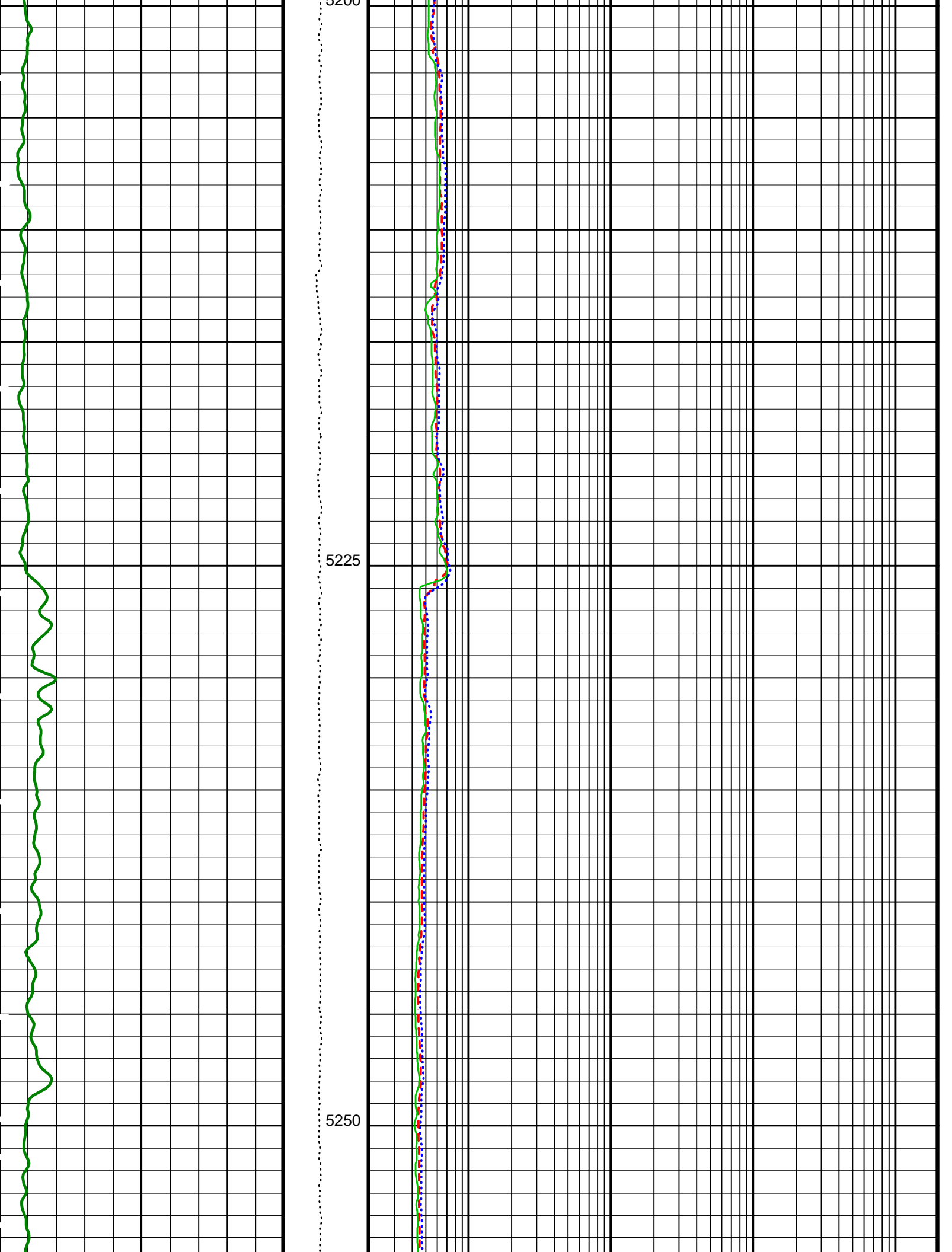
OP System Version: 9C2-303			
MCM			
DIT-E	9C2-303	HLDT-A	9C2-303
DTA-A	9C2-303	NPLC-B	9C2-303
APS-BA	9C2-303	HNGS-BA	9C2-303
DTC-H	9C2-303		

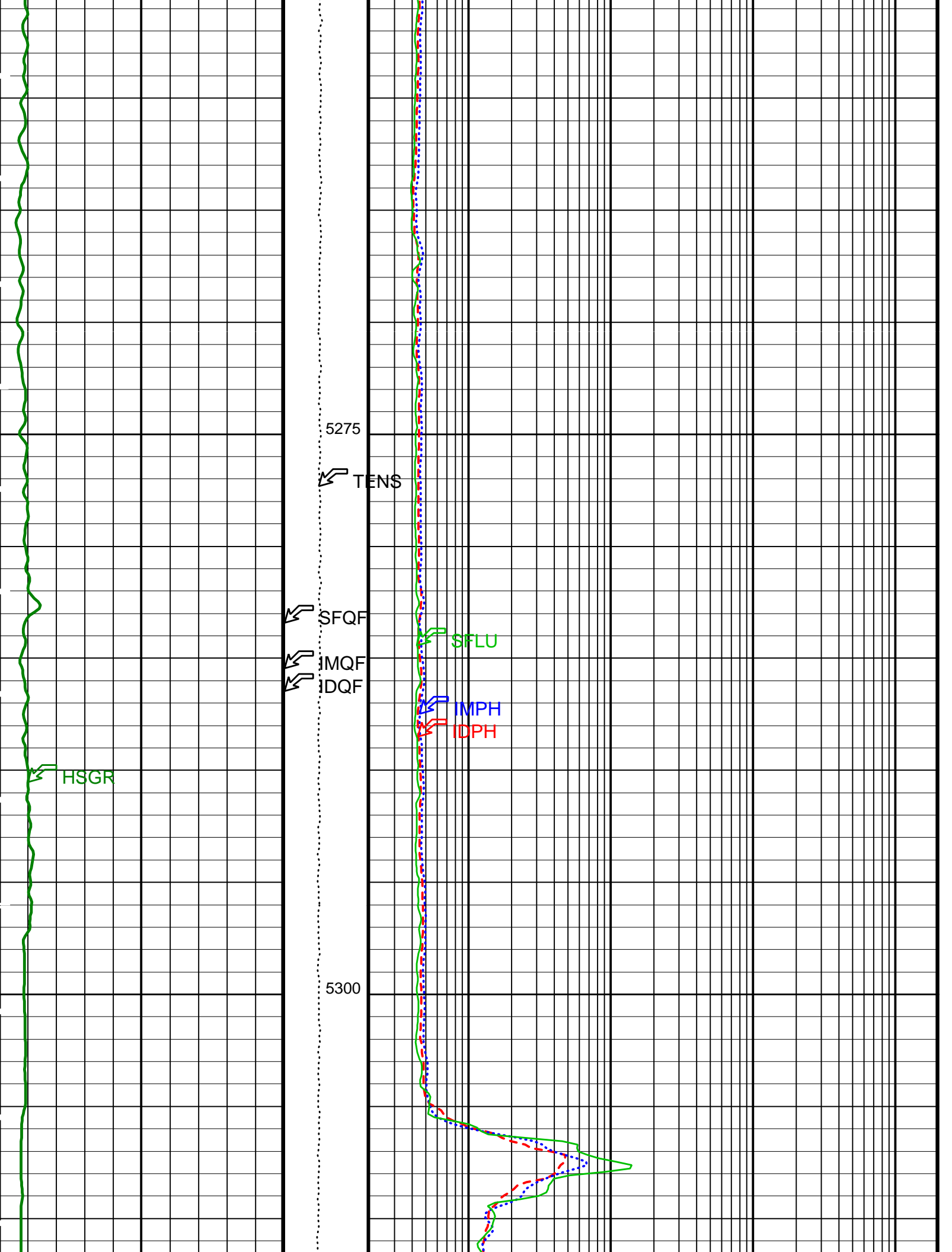
Changed Parameter Summary			
DLIS Name	New Value	Previous Value	Depth & Time
GCSE	BS CALI	CALI BS	5304.1 16:48:00 5322.9 16:51:32

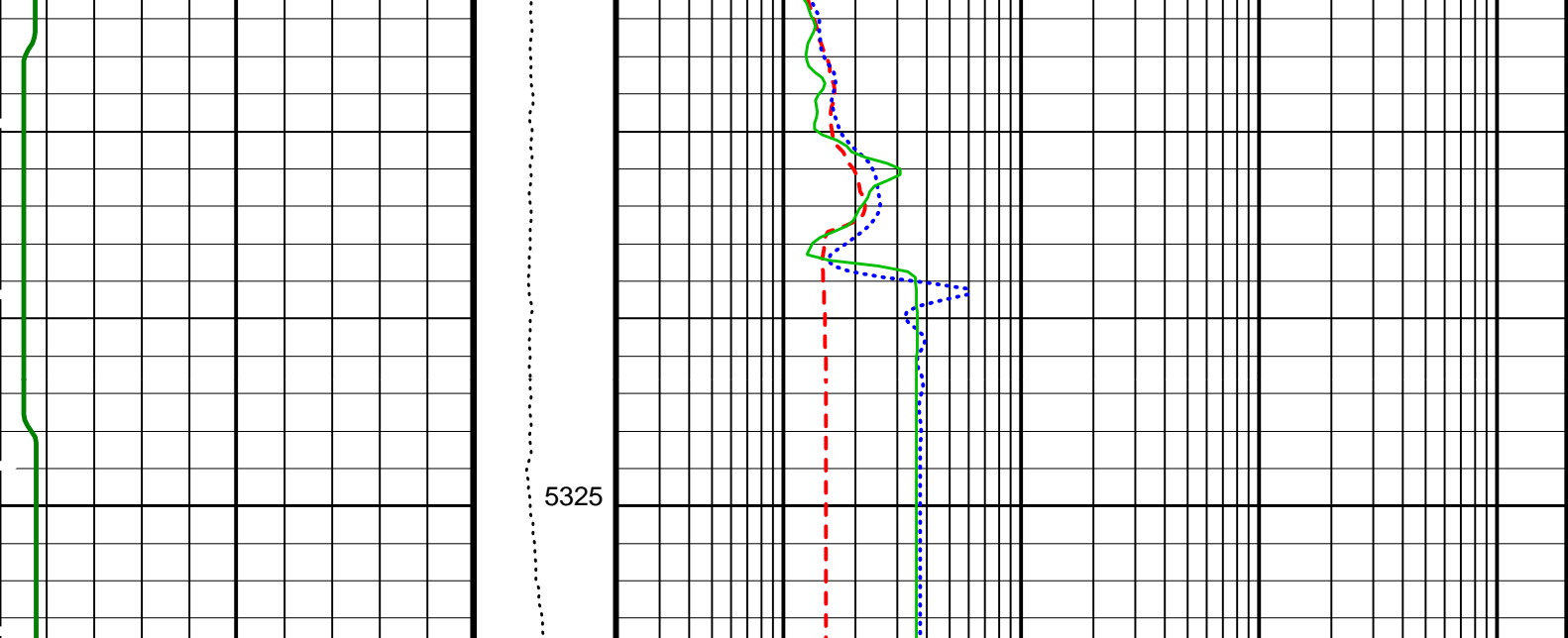
PIP SUMMARY  
Time Mark Every 60 S











HNGS Spectroscopy Gamma Ray (HSGR) 0 (GAPI) 100	Tension (TENS) (LBF) 10000 0	Deep Induction Phasor-processed Resistivity (IDPH) (OHMM) 0.2 2000
2ND PASS REPEAT SECTION	ID_QUAL From IMQF to IDQF	Medium Induction Phasor-processed Resistivity (IMPH) (OHMM) 0.2 2000
	IM_QUAL From SFQF to IMQF	SFL Unaveraged (SFLU) (OHMM) 0.2 2000
	SFL_ QUAL From D3T to SFQF	

PIP SUMMARY

▶ Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
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)	8	DEGC
BKSF	HNGS Borehole Fluid Excluder Sleeve Algorithm Factor	1	
BKSH	HNGS Borehole Fluid Excluder Sleeve Algorithm High Channel	245	
BKSL	HNGS Borehole Fluid Excluder Sleeve Algorithm Low Channel	17	
BS	Bit Size	11.438	IN
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
D1PR	HNGS Detector 1 Calibration Thorium Peak Resolution	7.94455	%
D1TC	HNGS Detector 1 Calibration Temperature	31.7278	DEGC
D1TL	HNGS Detector 1 Calibration Thorium Peak Location	210.396	
D2PR	HNGS Detector 2 Calibration Thorium Peak Resolution	7.23028	%
D2TC	HNGS Detector 2 Calibration Temperature	30.9207	DEGC
D2TL	HNGS Detector 2 Calibration Thorium Peak Location	209.461	
DBCC	HNGS Barite Constant Correction Flag	NONE	
DFD	Drilling Fluid Density	1.07	G/C3
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

GCF1_START	HNGS Detector 1 GCF Constant	1	
GCF2_START	HNGS Detector 2 GCF Constant	1	
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	-0.00477923	
HALF	HNGS Alpha Filter Length	60	IN
HATIM	HNGS Marquardt Accumulation Time	600	S
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	NATU	
HNPE	HNGS Processing Enable	YES	
HSLV	HNGS Borehole Fluid Excluder Sleeve Status	NO	
HSVN	HNGS Spectral Standards Version Number	1.5715e-031	
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	
MARQ_START	HNGS Marquardt Start-up Mode	INTERNAL	
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
RDF1_START	HNGS Detector 1 RDF Constant	0	
RDF2_START	HNGS Detector 2 RDF Constant	0	
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S1NA	HNGS Detector 1 Calibration Sodium Count Rate	17.94	CPS
S1NG	HNGS Detector 1 Calibration End-On / Side-On Gain Ratio	0.986623	
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
S2NA	HNGS Detector 2 Calibration Sodium Count Rate	18.0888	CPS
S2NG	HNGS Detector 2 Calibration End-On / Side-On Gain Ratio	0.979243	
SABK	HNGS Statistical Uncertainty in Borehole Potassium Running Average	0.000449435	
SFCR	SFL Channel Ratio	1000	
SGRC	HNGS Standard Gamma-Ray Correction Flag	YES	
SHT	Surface Hole Temperature	30	DEGC
TD	Total Depth	5326	M
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	1.26775	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	0.976609	

Format: DITE\_LogPhasor    Vertical Scale: 1:200    Graphics File Created: 25-Nov-2001 16:35

### OP System Version: 9C2-303 MCM

DIT-E	9C2-303	HLDT-A	9C2-303
DTA-A	9C2-303	NPLC-B	9C2-303
APS-BA	9C2-303	HNGS-BA	9C2-303
DTC-H	9C2-303		

### Output DLIS Files

DEFAULT	PI_LDL_APS_HNGS_005LUP	FN:7	PRODUCER	25-Nov-2001 16:35
REDUCE	PI_LDL_APS_HNGS_005LUP	FN:8	PRODUCER	25-Nov-2001 16:35

### Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Hostile Environment Litho Density - A Wellsite Calibration - Background Measurement							
Master: Calibration out of date 15-Aug-2001 10:07 Before: 9-Nov-2001 3:27 After: Calibration not done							
LSW1 Background	100.0	89.07	89.07	N/A	N/A	0.03000	CPS
LSW2 Background	105.0	94.00	91.57	N/A	N/A	0.03000	CPS
LSW3 Background	210.0	182.5	178.1	N/A	N/A	0.03000	CPS
LSW4 Background	290.0	241.3	239.4	N/A	N/A	0.03000	CPS
LSW5 Background	610.0	530.0	528.2	N/A	N/A	0.03000	CPS
SSW1 Background	100.0	86.93	86.14	N/A	N/A	0.03000	CPS
SSW2 Background	200.0	169.9	168.4	N/A	N/A	0.03000	CPS
SSW3 Background	530.0	449.6	448.8	N/A	N/A	0.03000	CPS
SSW4 Background	280.0	236.6	238.4	N/A	N/A	0.03000	CPS
SSW5 Background	205.0	177.0	177.1	N/A	N/A	0.03000	CPS



Hostile Environment Litho Density - A Wellsite Calibration - Tool Quality Control Information High Voltage  
 Master: Calibration out of date 15-Aug-2001 10:07 Before: 9-Nov-2001 3:27 After: Calibration not done

LS Bkg. High Voltage	1134	1134	1131	N/A	N/A	N/A	V
SS Bkg. High Voltage	1180	1180	1178	N/A	N/A	N/A	V

Hostile Environment Litho Density - A Wellsite Calibration - Detectors Resolution From BKG Measurements  
 Master: Calibration out of date 15-Aug-2001 10:07 Before: 9-Nov-2001 3:27 After: Calibration not done

LS Background Resolution	1.000	1.029	1.047	N/A	N/A	N/A	
SS Background Resolution	1.000	0.9496	0.9487	N/A	N/A	N/A	

Hostile Environment Litho Density - A Wellsite Calibration - Caliper Calibration  
 Before: 9-Nov-2001 3:19

Caliper Small Ring	12.00	N/A	15.92	N/A	N/A	N/A	IN
Caliper Large Ring	18.25	N/A	23.86	N/A	N/A	N/A	IN

Accelerator-Porosity Tool Wellsite Calibration - Detector Background  
 Master: Calibration out of date 5-Aug-2001 10:26 Before: 25-Nov-2001 14:51 After: 25-Nov-2001 20:36

Near Det Bkg Cntrate	30.00	31.20	32.35	32.50	0.1516	N/A	CPS
Far Det Bkg Cntrate	30.00	34.55	32.27	34.39	2.121	N/A	CPS
Array-1 Det Bkg Cntrate	30.00	30.79	28.53	28.71	0.1856	N/A	CPS
Array-2 Det Bkg Cntrate	30.00	29.57	30.27	31.73	1.461	N/A	CPS
Array Therm Det Bkg Cntrate	30.00	31.99	32.88	33.79	0.9063	N/A	CPS

Accelerator-Porosity Tool Wellsite Calibration - Calibration Ratios  
 Master: Calibration out of date 5-Aug-2001 10:26

Near/Far Calibration Ratio	0.9250	0.9005	N/A	N/A	N/A	N/A	
Near/Array Calibration Ratio	1.030	1.063	N/A	N/A	N/A	N/A	

Hostile Natural Gamma Ray Sonde Wellsite Calibration - Detector 1 Check  
 Master: 9-Nov-2001 19:27 Before: 9-Nov-2001 19:46

Na 511 Peak Loc	40.00	40.57	40.58	N/A	N/A	1.000	
Na 511 Peak Res	15.50	16.90	17.01	N/A	N/A	2.000	%
High Voltage	1150	1100	1100	N/A	N/A	30.00	V
Na 1785 Peak Loc	142.6	145.1	145.5	N/A	N/A	7.000	
Na 1785 Peak Res	8.500	10.15	10.15	N/A	N/A	2.000	%
Temperature	15.50	31.73	31.73	N/A	N/A	N/A	DEGC
Na Count Rate	45.00	17.94	17.88	N/A	N/A	8.000	CPS

Hostile Natural Gamma Ray Sonde Wellsite Calibration - Detector 2 Check  
 Master: 9-Nov-2001 19:27 Before: 9-Nov-2001 19:46

Na 511 Peak Loc	40.00	40.70	40.97	N/A	N/A	1.000	
Na 511 Peak Res	15.50	15.14	15.10	N/A	N/A	2.000	%
High Voltage	1150	1188	1189	N/A	N/A	30.00	V
Na 1785 Peak Loc	142.6	144.5	145.9	N/A	N/A	7.000	
Na 1785 Peak Res	8.500	7.999	7.706	N/A	N/A	2.000	%
Temperature	15.50	30.93	31.02	N/A	N/A	N/A	DEGC
Na Count Rate	45.00	18.09	18.05	N/A	N/A	8.000	CPS

Hostile Natural Gamma Ray Sonde Wellsite Calibration - Ratio Of Detector 1 To Detector 2  
 Master: 9-Nov-2001 19:27 Before: 9-Nov-2001 19:46

Coincidence Count Rate Ratio	1.000	0.9912	0.9922	N/A	N/A	0.05000	
------------------------------	-------	--------	--------	-----	-----	---------	--

Hostile Natural Gamma Ray Sonde Master Calibration - Detector 1 Calibration  
 Master: 9-Nov-2001 19:20

Na 511 Peak Set Point	40.00	41.00	--	--	--	--	
Th Peak Loc	209.6	210.4	--	--	--	--	
Th Peak Res	7.000	7.945	--	--	--	--	%
Background Count Rate	142.5	15.50	--	--	--	--	CPS
Gain Ratio	1.000	0.9866	--	--	--	--	

Hostile Natural Gamma Ray Sonde Master Calibration - Detector 2 Calibration  
 Master: 9-Nov-2001 19:20

Na 511 Peak Set Point	40.00	41.00	--	--	--	--	
Th Peak Loc	209.6	209.5	--	--	--	--	
Th Peak Res	7.000	7.230	--	--	--	--	%
Background Count Rate	142.5	17.01	--	--	--	--	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

Primary Equipment:  
 Dual Induction Sonde  
 Dual Induction Cartridge

DIS - HB 442  
 DIC - EB 438

Auxiliary Equipment:  
 Mass Isolated Housing

MIH - ZA 417

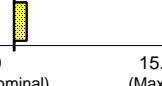
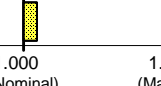
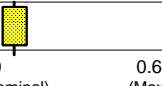

Dual Induction - E Wellsite Calibration										
Induction Electronics (10 kHz)										
Phase	ID Elect Real Offset 10 kHz	MM/M	Value	Phase	ID Elect Real Gain 10 kHz	Value	Phase	ID Elect Phase 10 kHz DEG	Value	
Before			37.21	Before		0.9746	Before	<b>EXCEEDS LIMIT</b>	10.83	
	-300.0 (Minimum)	0 (Nominal)	300.0 (Maximum)		0.8500 (Minimum)	1.000 (Nominal)	1.200 (Maximum)	-10.00 (Minimum)	0 (Nominal)	10.00 (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			22.46	Before		0.9632	Before	<b>EXCEEDS LIMIT</b>	13.51	
	-300.0 (Minimum)	0 (Nominal)	300.0 (Maximum)		0.8500 (Minimum)	1.000 (Nominal)	1.200 (Maximum)	-10.00 (Minimum)	0 (Nominal)	10.00 (Maximum)
Phase	IM Elect Real Offset 10 kHz	MM/M	Value	Phase	IM Elect Real Gain 10 kHz	Value	*			
Before			95.95	Before		0.9495				
	-550.0 (Minimum)	0 (Nominal)	550.0 (Maximum)		0.8500 (Minimum)	1.000 (Nominal)	1.200 (Maximum)			
Phase	IM Elect Quad Offset 10 kHz	MM/M	Value	Phase	IM Elect Quad Gain 10 kHz	Value	*			
Before			95.04	Before		0.9473				
	-550.0 (Minimum)	0 (Nominal)	550.0 (Maximum)		0.8500 (Minimum)	1.000 (Nominal)	1.200 (Maximum)			

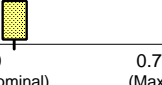
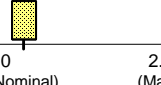



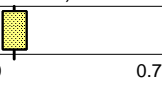
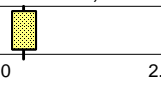
Before: 9-Nov-2001 0:27

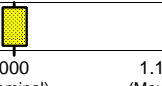
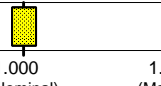
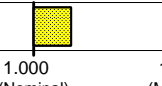
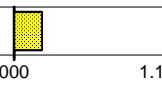
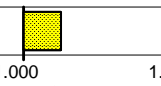
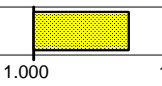
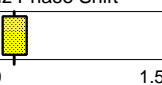
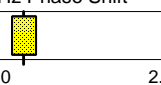
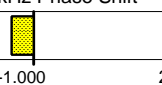
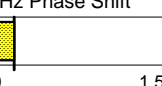
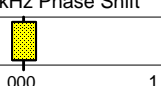
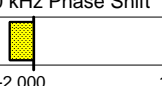
Dual Induction - E Wellsite Calibration										
Induction Electronics (20 kHz)										
Phase	ID Elect Real Offset 20 kHz	MM/M	Value	Phase	ID Elect Real Gain 20 kHz	Value	Phase	ID Elect Phase 20 kHz DEG	Value	
Before			14.70	Before		1.003	Before		9.263	
	-125.0 (Minimum)	0 (Nominal)	125.0 (Maximum)		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			9.072	Before		0.9907	Before		12.33	
	-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	* 10 and 40 khz not used.			
Before			40.05	Before		1.008				
	-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	* 10 and 40 khz not used.			
Before			39.78	Before		1.005				
	-225.0 (Minimum)	0 (Nominal)	225.0 (Maximum)		0.8500 (Minimum)	1.000 (Nominal)	1.200 (Maximum)			


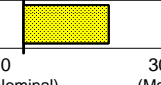


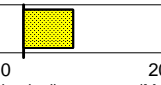
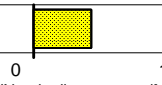
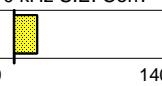
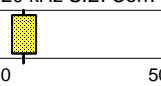
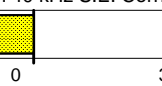
Before: 9-Nov-2001 0:29

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			9.634	Before		0.9881	Before	<b>EXCEEDS LIMIT</b>	28.71	
	-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			5.929	Before		0.9752	Before	<b>EXCEEDS LIMIT</b>	32.34	
	-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			26.16	Before		1.023				
	-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			26.06	Before		1.020				
	-130.0 (Minimum)	0 (Nominal)	130.0 (Maximum)		0.8500 (Minimum)	1.000 (Nominal)	1.200 (Maximum)			

Dual Induction - E Wellsite Calibration					
SFL Electronics					
Phase	SFL Voltage Offset MV	Value	Phase	SFL Voltage Gain	Value
Before		1.273	Before		1.018
	-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		0.004285	Before		0.9957
	-0.6000 (Minimum) 0 (Nominal) 0.6000 (Maximum)			0.8500 (Minimum) 1.000 (Nominal) 1.200 (Maximum)	

Dual Induction - E Wellsite Calibration								
Electronics Calibration Changes Files/Depth Intervals:								
Phase	ID (R > 27 OHM-M) M/M	Value	Phase	ID (R < 27 OHM-M) %	Value	Phase	SFL (R < 1 OHM-M) OHMM	Value
After		0	After		0.0001437	After		0.0006965
	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) M/M	Value	Phase	IM (R < 27 OHM-M) %	Value			
After		0	After		0.0001057			
	0 (Minimum) 0 (Nominal) 0.7500 (Maximum)			0 (Minimum) 0 (Nominal) 2.000 (Maximum)				
Phase	SFL (R > 27 OHM-M) M/M	Value	Phase	SFL (R < 27 OHM-M) %	Value			
After		0	After		0.0002566			
	0 (Minimum) 0 (Nominal) 0.7500 (Maximum)			0 (Minimum) 0 (Nominal) 2.000 (Maximum)				

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)	

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: 5-Oct-2001 23:22

### 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
----------------	----------	----

**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	27
------------	-----------	----

**Auxiliary Equipment:**

HNGS Sonde Housing	HNSH - BA	27
Gamma Source Radioactive	GSR - U	135

### Hostile Natural Gamma Ray Sonde Wellsite Calibration

#### Detector 1 Check

Phase	Na 511 Peak Loc	Value	Phase	Na 511 Peak Res %	Value	Phase	High Voltage V	Value	
Master		40.57	Master		16.90	Master		1100	
Before		40.58	Before		17.01	Before		1100	
	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		10.15	Master		31.73	
Before		145.5	Before		10.15	Before		31.73	
	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		17.94							
Before		17.88							
	15.00 (Minimum)	45.00 (Nominal)	100.0 (Maximum)						

Hostile Natural Gamma Ray Sonde Wellsite Calibration			Detector 2 Check			Hostile Natural Gamma Ray Sonde Wellsite Calibration		
Phase	Na 511 Peak Loc	Value	Phase	Na 511 Peak Res %	Value	Phase	High Voltage V	Value
Master		40.70	Master		15.14	Master		1188
Before		40.97	Before		15.10	Before		1189
	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		144.5	Master		7.999	Master		30.93
Before		145.9	Before		7.706	Before		31.02
	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		18.09						
Before		18.05						
	15.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)							
Master: 9-Nov-2001 19:27			Before: 9-Nov-2001 19:46					

Hostile Natural Gamma Ray Sonde Wellsite Calibration		
Ratio Of Detector 1 To Detector 2		
Phase	Coincidence Count Rate Ratio	Value
Master		0.9912
Before		0.9922
	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	
Master: 9-Nov-2001 19:27		
Before: 9-Nov-2001 19:46		

Hostile Natural Gamma Ray Sonde Master Calibration								
Detector 1 Calibration								
Phase	Na 511 Peak Set Point	Value	Phase	Th Peak Loc	Value	Phase	Th Peak Res %	Value
Master		41.00	Master		210.4	Master		7.945
	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>	15.50	Master		0.9866			
	20.00 (Minimum) 142.5 (Nominal) 265.0 (Maximum)			0.9400 (Minimum) 1.000 (Nominal) 1.060 (Maximum)				
Master: 9-Nov-2001 19:20								

Hostile Natural Gamma Ray Sonde Master Calibration								
Detector 2 Calibration								
Phase	Na 511 Peak Set Point	Value	Phase	Th Peak Loc	Value	Phase	Th Peak Res %	Value
Master		41.00	Master		209.5	Master		7.230
	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>	17.01	Master		0.9792			
	20.00 (Minimum) 142.5 (Nominal) 265.0 (Maximum)			0.9400 (Minimum) 1.000 (Nominal) 1.060 (Maximum)				
Master: 9-Nov-2001 19:20								

\* Low background counts do not affect calibration gain.

COMPANY: Lamont Doherty

WELL: ODP Leg 199, Site 1219 A (PAT-17C)

FIELD:

Ocean: Pacific

BOTTOM LOG INTERVAL	5320 m
SCHLUMBERGER DEPTH	5326 m
DEPTH DRILLER	5325 m
KELLY BUSHING	11.3 m
DRILL FLOOR	11 m
GROUND LEVEL	-5075 m

**Schlumberger**

Phasor Induction  
Natural Gamma Ray