

Company: Lamont Doherty

Well: ODP Leg 209, Site 1275D

Field: Mid Atlantic Ridge

Country: Ocean: Atlantic

HLDS/APS Density/Porosity HNGS Natural Gamma Ray

Country: Mid Atlantic Ridge
Field: Rig- Joides Resolution
Location: ODP Leg 209, Site 1275D
Well: Lamont Doherty

LOCATION					
Rig- Joides Resolution		Elev.:	K.B. 11.3 m		
46Deg 54.2178'		G.L.:	-1565 m		
15Deg 44.4424'		D.F.:	11 m		
Permanent Datum:	MSL	Elev.:	0 m		
Log Measured From:	DES		11.3 m above Perm. Datum		
Drilling Measured From:	DES				
API Serial No.	Max. Hole Devi.	Longitude	Latitude		
30-Jun-2003		46.90363W	15.7407 N		

Logging Date	30-Jun-2003			
Run Number	1			
Depth Driller	1774 m			
Schlumberger Depth	1668 m			
Bottom Log Interval	1654 m			
Top Log Interval	1550 m			
Casing Driller Size @ Depth	0.000 in @ 1596 m			
Casing Schlumberger	1591 m			
Bit Size	9.875 in			
Type Fluid In Hole	Sepiolite			
Density	Viscosity			
Fluid Loss	PH	1.066 g/cm3		
Source Of Sample				
RM @ Measured Temperature	0.322 ohm.m @ 23 degC			
RMF @ Measured Temperature	@ @			
RMC @ Measured Temperature	@ @			
Source RMF	RMC			
RM @ MRT	RMF @ MRT	0.528 @ 6	@ 6	@
Maximum Recorded Temperatures	6 degC			
Circulation Stopped	Time	30-Jun-2003		
Logger On Bottom	Time	30-Jun-2003	See Log	
Unit Number	Location	99	Houston	
Recorded By		K. Swain		
Witnessed By		G. Iturrino		

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	Viscosity				
Fluid Loss	PH				
Source Of Sample					
RM @ Measured Temperature					
RMF @ Measured Temperature					
RMC @ Measured Temperature					
Source RMF	RMC				
RM @ MRT	RMF @ MRT	@	@	@	@
Maximum Recorded Temperatures					
Circulation Stopped	Time				
Logger On Bottom	Time				
Unit Number	Location				
Recorded By					
Witnessed By					

DISCLAIMER

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OTHER SERVICES1
 OS1: DITE
 OS2:
 OS3: FMS
 OS4: DSI
 OS5:

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

REMARKS: RUN NUMBER 1
 Hole cored with RCB, BS=9 7/8"
 All depths in Meters Below Rig Floor (MBRF).
 Sepiolite mud was used.
 WHC was run.
 Tool bridged at 1668 mbrf...TD at 1774 mbrf.
 Logged up from Bridge.
 HLDS caliper had diffiulty opening...could not close once opened.
 Only 1 pass made due to caliper staying open and could not close.

REMARKS: RUN NUMBER 2

RUN 1
 SERVICE ORDER #:
 PROGRAM VERSION: 10C0-306
 FLUID LEVEL:

RUN 2
 SERVICE ORDER #:
 PROGRAM VERSION:
 FLUID LEVEL:

LOGGED INTERVAL	START	STOP

LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION

RUN 1
SURFACE EQUIPMENT
 SFT-281 1
 SFT-178 13
 GSR-U 135
 WITM (DTS)-A

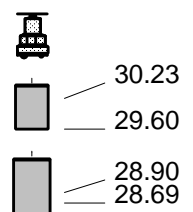
RUN 2

DOWNHOLE EQUIPMENT

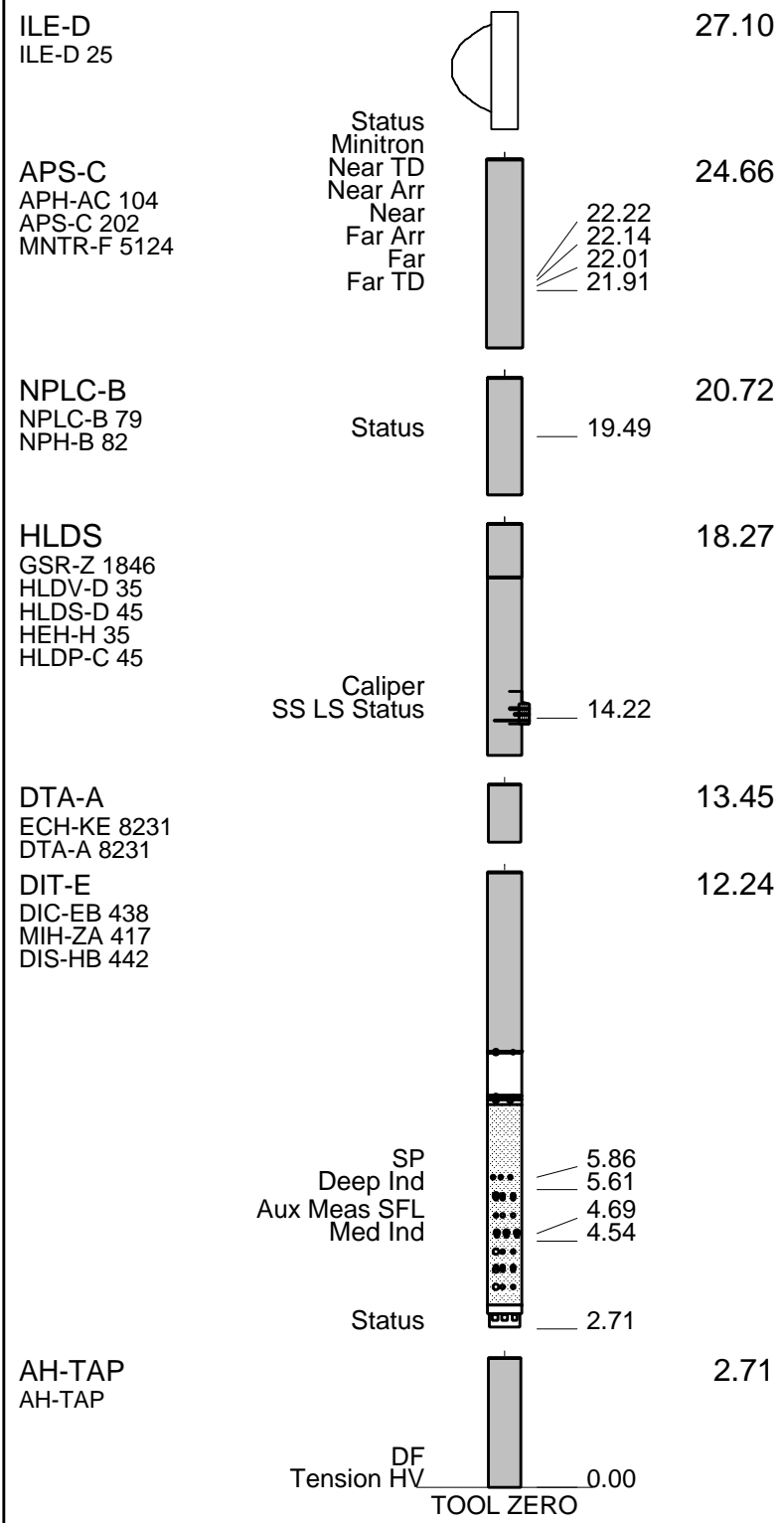
LEH-QT 31.40
 LEH-QT 1494

CTEM 30.23
 TelStatus 30.51
 ToolStatu 29.60

HNGS-BA 29.60
 HNGS-BA 77
 Upper_1 28.90
 Lower_2 28.69



HNSH-BA 79



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

Output DLIS Files

DEFAULT	PI_LDL_APS_NGS_007LUP	FN:9	PRODUCER	30-Jun-2003 15:42	1668.8 M	1547.9 M
REDUCED	PI_LDL_APS_NGS_007LUP	FN:10	PRODUCER	30-Jun-2003 15:42	1668.8 M	1547.9 M

OP System Version: 10C0-306

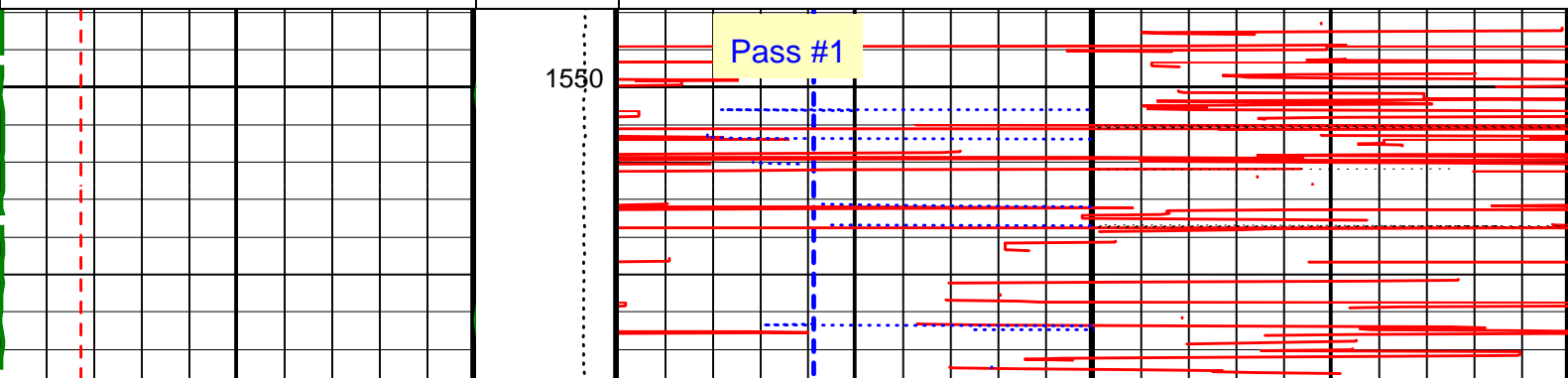
MCM

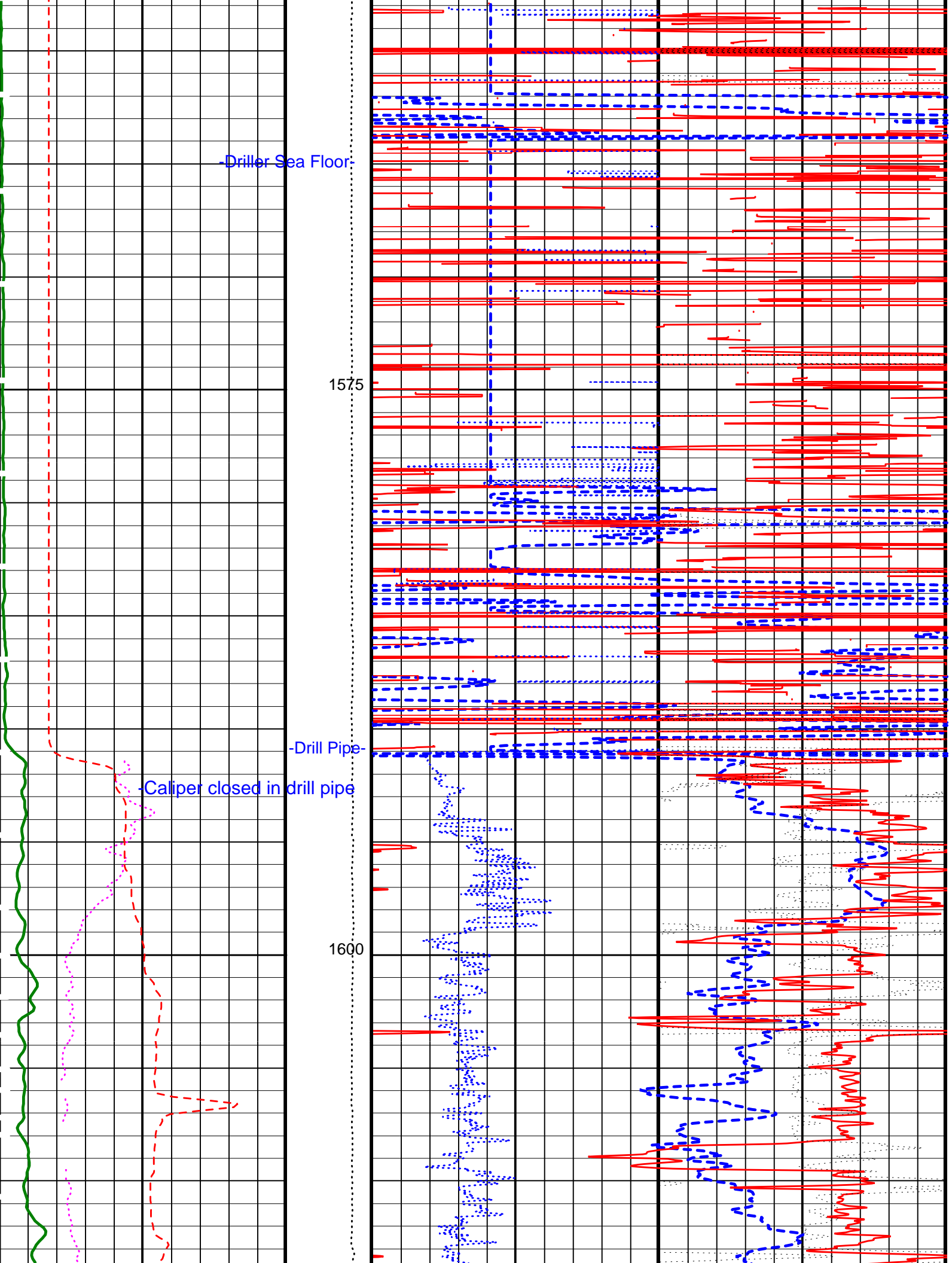
DIT-E	10C0-306	DTA-A	10C0-306
HLDS	SPC-2277-NUCL_b	NPLC-B	OP10-KP1
APS-C	SPC-2277-NUCL_b	HNGS-BA	SPC-2277-NUCL_b
DTC-H	10C0-306		

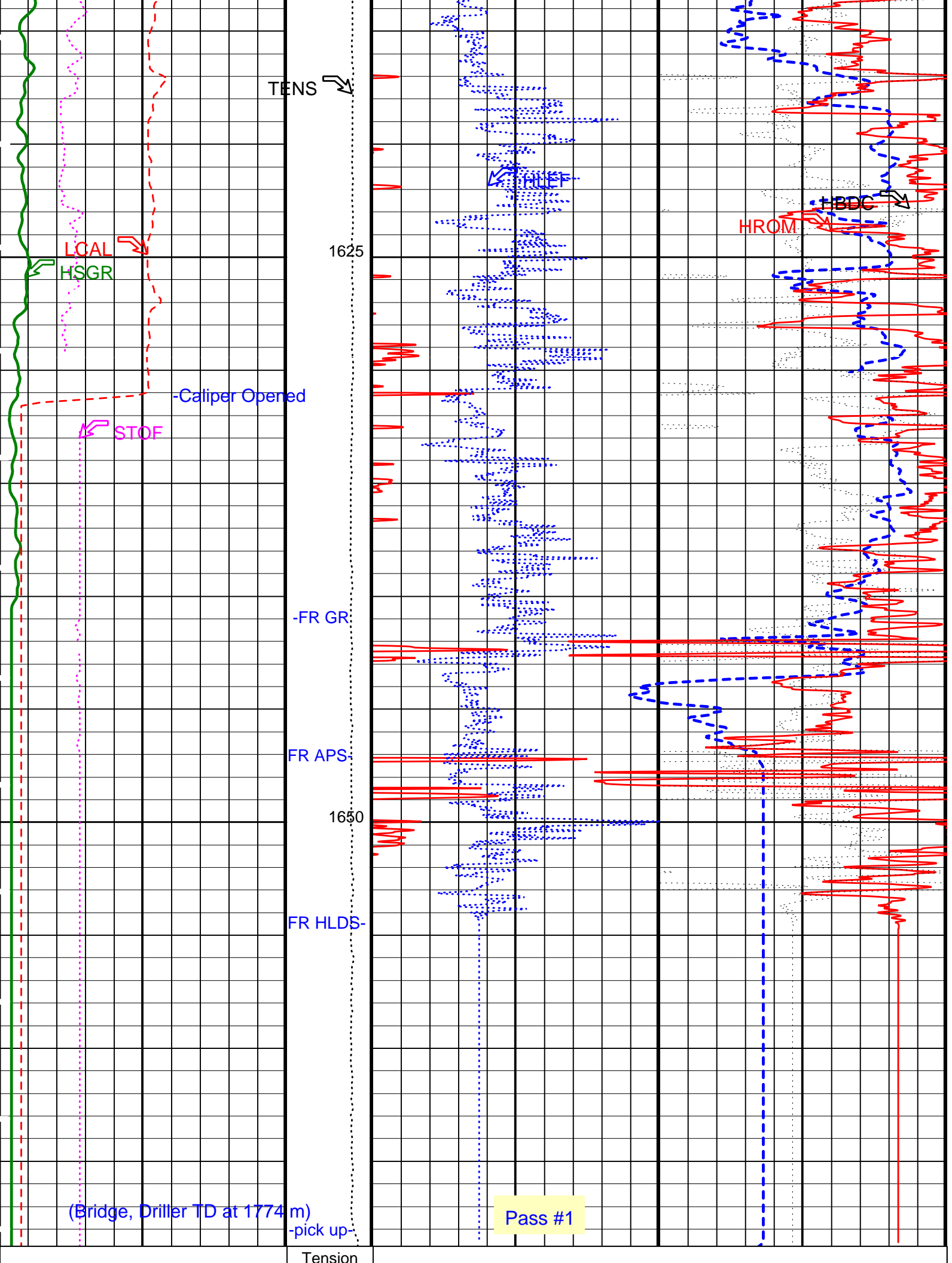
PIP SUMMARY

Time Mark Every 60 S

HNGS Spectroscopy Gamma Ray (HSGR) (GAPI) 0 100	HLDS HR Long Spaced Photoelectric Effect (HLEF) (---) 0 10	HLDS HR Bulk Density Correction (HBDC) (G/C3) -0.25 0.25
APS Effective Standoff in Limestone (STOF) (IN) -1 4	HLDS HR Bulk Density (HROM) (G/C3) 1 3	
HLDS Caliper (LCAL) (IN) 0 20	APS HR Near/Far Corrected Limestone Porosity (HFLC) (PU) 100 0	Tension (TENS) (LBF) 10000 0







HLDS Caliper (LCAL) (IN)		(TENS) (LBF)	APS HR Near/Far Corrected Limestone Porosity (HFLC) (PU)	
0 20		10000 0	100 0	
APS Effective Standoff in Limestone (STOF) (IN)		HLDS HR Bulk Density (HROM) (G/C3)		
-1 4		1 3		
HNGS Spectroscopy Gamma Ray (HSGR) (GAPI)		HLDS HR Long Spaced Photoelectric Effect (HLEF)	HLDS HR Bulk Density Correction (HBDC) (G/C3)	
0 100		0 10	-0.25 0.25	

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)	15	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	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
IFRS	DIT-E Induction Frequency Selector	20	
IPHA	DIT-E Phasor Processing Mode	ALL	
IPRO	DIT-E Induction Processing Selector	PHASOR	
ITEN	DIT-E Temperature Enable	ENABLE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
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
SBR	Shoulder Bed Resistivity Factor	1	OHMM
SFCR	SFL Channel Ratio	1000	
SFLE	SFL Enable	ENABLE	
SHT	Surface Hole Temperature	20	DEGC
SPAE	DIT-E SPARC Processing Enable	ENABLE	
SPNV	SP Next Value	0	MV
HLDS: Hostile Litho-Density Sonde			
CLCL	HLDS LS Control Loop Controller Mode	AUTO_DEFAULT	
CLCS	HLDS SS Control Loop Controller Mode	AUTO_DEFAULT	
CLLS	HLDS Mode Loop Long Spacing	AUTO	
CLSS	HLDS Mode Loop Short Spacing	AUTO	
DHC	Density Hole Correction	BS	
DPPM	Density Porosity Processing Mode	HIRS	
FD	Fluid Density	1.1	G/C3
LATC	HLDS Activation Correction	ON	
LLDL	HLDS LS Low Level Discriminator DAC	14000	
LLDS	HLDS SS Low Level Discriminator DAC	14000	
LLML	HLDS LS Low Level Discriminator Mode	AUTO	
LLMS	HLDS SS Low Level Discriminator Mode	AUTO	
MDEN	Matrix Density	2.71	G/C3
PHVL	HLDS Long Spacing High Voltage Setting	1000	V
PHVS	HLDS Short Spacing High Voltage Setting	1000	V
PSDL	HLDS LS Pulse Shape Compensation DAC	16000	
PSDS	HLDS SS Pulse Shape Compensation DAC	16000	
PSML	HLDS LS Pulse Shape Compensation Mode	AUTO	
PSMS	HLDS SS Pulse Shape Compensation Mode	AUTO	
NPLC-B: Nuclear Porosity Lithology Cartridge - B			
NOTS	NPLC Old Temperature Sensor	NO	
APS-C: Accelerator-Porosity Tool			
	APS Software Version	5	
AASD	APS Thermal and Array Detectors High Voltage Setting	1966.11	V
ADSO	APS Array Detectors Data Source Switch	Both	
AFSD	APS Far Detector High Voltage Setting	2077.63	V
AHCS	APS Holesize Correction Source	GCSE	
AHSS	APS Holesize Correction Switch	ON	
AMTY	APS Environmental Corrections Mud Type	WaterBaseBarite	
ANSD	APS Near Detector High Voltage Setting	1735.84	V
ASOS	APS Standoff Correction Switch	ON	
ATSS	APS Temperature-Pressure-Salinity Correction Switch	OFF	

BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	15	DEGC
DPPM	Density Porosity Processing Mode	HIRS	
FSAL	Formation Salinity	-50000	PPM
GCSE	Generalized Caliper Selection	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
NARC	APS Near/Array Calibration Ratio	0.987724	
NFRC	APS Near/Far Calibration Ratio	0.961255	
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)	15	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	LCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
H1P	HNGS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGS Borehole Potassium Running Average	-0.023782	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	NATU	
HNPE	HNGS Processing Enable	YES	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGS Standard Gamma-Ray Correction Flag	YES	
SHT	Surface Hole Temperature	20	DEGC
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	0.874359	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	-6.54212	
System and Miscellaneous			
ALTDCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	9.875	IN
BSAL	Borehole Salinity	35000.00	PPM
CSIZ	Current Casing Size	0.000	IN
CWEI	Casing Weight	0.00	LB/F
DFD	Drilling Fluid Density	1.07	G/C3
MST	Mud Sample Temperature	23.00	DEGC
PBVSADP	Use alternate depth channel for playback	NO	
RMFS	Resistivity of Mud Filtrate Sample	-50000.0000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	1774	M
TDD	Total Depth - Driller	1774.00	M
TDL	Total Depth - Logger	1774.00	M
TWS	Temperature of Connate Water Sample	37.78	DEGC

Format: APSLiquidPorosity_1 Vertical Scale: 1:200 Graphics File Created: 30-Jun-2003 15:42

OP System Version: 10C0-306

MCM

DIT-E	10C0-306	DTA-A	10C0-306
HLDS	SPC-2277-NUCL_b	NPLC-B	OP10-KP1
APS-C	SPC-2277-NUCL_b	HNGS-BA	SPC-2277-NUCL_b
DTC-H	10C0-306		

Output DLIS Files

DEFAULT	PI_LDL_APS_NGS_007LUP	FN:9	PRODUCER	30-Jun-2003 15:42
REDUCED	PI_LDL_APS_NGS_007LUP	FN:10	PRODUCER	30-Jun-2003 15:42

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Hostile Litho-Density Sonde Wellsite Calibration - Background Measurement							
Master: 23-Apr-2003 18:32 Before: 18-May-2003 21:52							
SS Cs Resolution Bkg	9.000	8.094	8.097	N/A	N/A	1.800	%
LS Cs Resolution Bkg	9.000	8.143	8.212	N/A	N/A	1.800	%
LSW1 Background	100.0	86.47	86.14	N/A	N/A	3.000	CPS
LSW2 Background	100.0	80.63	80.44	N/A	N/A	3.000	CPS
LSW3 Background	200.0	177.7	178.3	N/A	N/A	6.000	CPS
LSW4 Background	250.0	218.9	217.1	N/A	N/A	7.500	CPS
LSW5 Background	600.0	499.0	499.9	N/A	N/A	18.00	CPS
SSW1 Background	100.0	97.29	95.44	N/A	N/A	3.000	CPS
SSW2 Background	200.0	175.4	174.0	N/A	N/A	6.000	CPS
SSW3 Background	500.0	475.0	475.2	N/A	N/A	15.00	CPS
SSW4 Background	270.0	242.4	242.8	N/A	N/A	8.100	CPS
SSW5 Background	200.0	176.0	175.7	N/A	N/A	6.000	CPS
Hostile Litho-Density Sonde Wellsite Calibration - Aluminum Measurement							
Master: 23-Apr-2003 19:33							
LSW1 Aluminum	600.0	604.1	N/A	N/A	N/A	N/A	CPS
LSW2 Aluminum	900.0	860.3	N/A	N/A	N/A	N/A	CPS
LSW3 Aluminum	1100	1017	N/A	N/A	N/A	N/A	CPS
LSW4 Aluminum	580.0	498.2	N/A	N/A	N/A	N/A	CPS
LSW5 Aluminum	570.0	473.1	N/A	N/A	N/A	N/A	CPS
SSW1 Aluminum	2800	2618	N/A	N/A	N/A	N/A	CPS
SSW2 Aluminum	8000	7129	N/A	N/A	N/A	N/A	CPS
SSW3 Aluminum	11600	9926	N/A	N/A	N/A	N/A	CPS
SSW4 Aluminum	5000	4181	N/A	N/A	N/A	N/A	CPS
SSW5 Aluminum	660.0	547.6	N/A	N/A	N/A	N/A	CPS
Hostile Litho-Density Sonde Wellsite Calibration - Lithology Measurement							
Master: 23-Apr-2003 19:29							
LSW1 Iron	400.0	418.2	N/A	N/A	N/A	N/A	CPS
LSW2 Iron	730.0	721.5	N/A	N/A	N/A	N/A	CPS
LSW3 Iron	1000	941.8	N/A	N/A	N/A	N/A	CPS
LSW4 Iron	520.0	481.5	N/A	N/A	N/A	N/A	CPS
LSW5 Iron	470.0	449.9	N/A	N/A	N/A	N/A	CPS
SSW1 Iron	2100	1956	N/A	N/A	N/A	N/A	CPS
SSW2 Iron	6800	6092	N/A	N/A	N/A	N/A	CPS
SSW3 Iron	10800	9264	N/A	N/A	N/A	N/A	CPS
SSW4 Iron	4600	3922	N/A	N/A	N/A	N/A	CPS
SSW5 Iron	580.0	501.5	N/A	N/A	N/A	N/A	CPS
Hostile Litho-Density Sonde Wellsite Calibration - Caliper Calibration							
Before: 18-May-2003 21:24							
HLDS Caliper Small Ring	12.00	N/A	14.48	N/A	N/A	N/A	IN
HLDS Caliper Large Ring	15.00	N/A	17.56	N/A	N/A	N/A	IN
Accelerator-Porosity Tool Wellsite Calibration - Detector Background							
Master: 16-Jun-2003 5:03 Before: 30-Jun-2003 14:50							
Near Det Bkg Cntrate	30.00	25.98	25.04	N/A	N/A	N/A	CPS
Far Det Bkg Cntrate	30.00	25.85	26.68	N/A	N/A	N/A	CPS
Array-1 Det Bkg Cntrate	30.00	26.41	27.48	N/A	N/A	N/A	CPS
Array-2 Det Bkg Cntrate	30.00	26.14	25.66	N/A	N/A	N/A	CPS
Array Therm Det Bkg Cntrate	30.00	24.69	24.22	N/A	N/A	N/A	CPS
Accelerator-Porosity Tool Wellsite Calibration - Calibration Ratios							
Master: 16-Jun-2003 5:03							
Near/Far Calibration Ratio	0.9250	0.9613	N/A	N/A	N/A	N/A	
Near/Array Calibration Ratio	1.030	0.9877	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: 16-Jun-2003 5:03							
Array-1 Standoff Porosity	11.75	12.26	N/A	N/A	N/A	N/A	PU
Array-2 Standoff Porosity	11.75	11.73	N/A	N/A	N/A	N/A	PU
Average Slowing Down Time	6.000	5.784	N/A	N/A	N/A	N/A	US
Array-1 SDT Ratio Up/Down	1.000	0.9947	N/A	N/A	N/A	N/A	
Array-2 SDT Ratio Up/Down	1.000	0.9903	N/A	N/A	N/A	N/A	
Sigma Formation	27.50	27.67	N/A	N/A	N/A	N/A	CU
Accelerator-Porosity Tool Wellsite Calibration - CCR7 signal boxes							
Master: 16-Jun-2003 5:03							
Near Detector Plateau Setting	1650	1736	N/A	N/A	N/A	N/A	V
Far Detector Plateau Setting	2000	2078	N/A	N/A	N/A	N/A	V
Array Detector Plateau Setting	2000	1966	N/A	N/A	N/A	N/A	V
Hostile Natural Gamma Ray Sonde Wellsite Calibration - Detector 1 Check							
Master: 10-Jun-2003 10:13 Before: 8-Apr-2003 3:33							
Na 511 Peak Loc	40.00	40.65	40.63	N/A	N/A	1.000	
Na 511 Peak Res	15.50	16.98	16.69	N/A	N/A	2.000	%
High Voltage	1150	1200	1207	N/A	N/A	20.00	V

High Voltage	1150	1208	1207	N/A	N/A	30.00	V
Na 1785 Peak Loc	142.6	145.2	145.2	N/A	N/A	7.000	
Na 1785 Peak Res	8.500	8.982	9.496	N/A	N/A	2.000	%
Temperature	15.50	33.02	27.12	N/A	N/A	N/A	DEGC
Na Count Rate	45.00	40.11	41.75	N/A	N/A	8.000	CPS

Hostile Natural Gamma Ray Sonde Wellsite Calibration - Detector 2 Check

Master: 10-Jun-2003 10:13 Before: 8-Apr-2003 3:33

Na 511 Peak Loc	40.00	40.56	40.51	N/A	N/A	1.000	
Na 511 Peak Res	15.50	17.13	16.55	N/A	N/A	2.000	%
High Voltage	1150	1234	1235	N/A	N/A	30.00	V
Na 1785 Peak Loc	142.6	144.4	144.2	N/A	N/A	7.000	
Na 1785 Peak Res	8.500	9.188	9.586	N/A	N/A	2.000	%
Temperature	15.50	32.54	26.30	N/A	N/A	N/A	DEGC
Na Count Rate	45.00	40.04	41.81	N/A	N/A	8.000	CPS

Hostile Natural Gamma Ray Sonde Wellsite Calibration - Ratio Of Detector 1 To Detector 2

Master: 10-Jun-2003 10:13 Before: 8-Apr-2003 3:33

Coincidence Count Rate Ratio	1.000	1.001	0.9991	N/A	N/A	0.05000	
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Hostile Natural Gamma Ray Sonde Master Calibration - Detector 1 Calibration

Master: 10-Jun-2003 9:55

Na 511 Peak Set Point	40.00	41.00	--	--	--	--	
Th Peak Loc	209.6	209.0	--	--	--	--	
Th Peak Res	7.000	8.425	--	--	--	--	%
Background Count Rate	142.5	19.30	--	--	--	--	CPS
Gain Ratio	1.000	0.9783	--	--	--	--	

Hostile Natural Gamma Ray Sonde Master Calibration - Detector 2 Calibration

Master: 10-Jun-2003 9:55

Na 511 Peak Set Point	40.00	41.00	--	--	--	--	
Th Peak Loc	209.6	209.4	--	--	--	--	
Th Peak Res	7.000	8.230	--	--	--	--	%
Background Count Rate	142.5	18.75	--	--	--	--	CPS
Gain Ratio	1.000	0.9823	--	--	--	--	

Accelerator-Porosity Tool - Detector Plateau Settings :

Near Detector Plateau Setting	1736 V
Far Detector Plateau Setting	2078 V
Array Detector Plateau Setting	1966 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	

Hostile Litho-Density Sonde / Equipment Identification

Primary Equipment:			
Hostile Litho Density Sonde	HLDS - D	45	
Hostile Litho Density High Voltage	HLDV - D	35	
Gamma Source Radioactive	GSR - Z	1846	
Auxiliary Equipment:			
Hostile Litho Density Pad	HLDP - C	45	
Hostile Litho Density High Voltage Housi	HEH - H	35	

Hostile Litho-Density Sonde Wellsite Calibration

Background Measurement

Phase	SS Cs Resolution Bkg %	Value	Phase	LS Cs Resolution Bkg %	Value	Phase	LSW1 Background CPS	Value
Master		8.094	Master		8.143	Master		86.47
Before		8.097	Before		8.212	Before		86.14
7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum)			7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum)			55.00 (Minimum) 100.0 (Nominal) 150.0 (Maximum)		

Phase	LSW2 Background CPS	Value	Phase	LSW3 Background CPS	Value	Phase	LSW4 Background CPS	Value
Master		80.63	Master		177.7	Master		218.9
Before		80.44	Before		178.3	Before		217.1
50.00 (Minimum) 100.0 (Nominal) 140.0 (Maximum)			110.0 (Minimum) 200.0 (Nominal) 290.0 (Maximum)			140.0 (Minimum) 250.0 (Nominal) 360.0 (Maximum)		
Phase	LSW5 Background CPS	Value	Phase	SSW1 Background CPS	Value	Phase	SSW2 Background CPS	Value
Master		499.0	Master		97.29	Master		175.4
Before		499.9	Before		95.44	Before		174.0
330.0 (Minimum) 600.0 (Nominal) 830.0 (Maximum)			55.00 (Minimum) 100.0 (Nominal) 150.0 (Maximum)			100.0 (Minimum) 200.0 (Nominal) 260.0 (Maximum)		
Phase	SSW3 Background CPS	Value	Phase	SSW4 Background CPS	Value	Phase	SSW5 Background CPS	Value
Master		475.0	Master		242.4	Master		176.0
Before		475.2	Before		242.8	Before		175.7
280.0 (Minimum) 500.0 (Nominal) 700.0 (Maximum)			150.0 (Minimum) 270.0 (Nominal) 380.0 (Maximum)			110.0 (Minimum) 200.0 (Nominal) 270.0 (Maximum)		
Master: 23-Apr-2003 18:32				Before: 18-May-2003 21:52				

Hostile Litho-Density Sonde Master Calibration								
Detector Background Measurement								
Phase	LSW1 Background CPS	Value	Phase	LSW2 Background CPS	Value	Phase	LSW3 Background CPS	Value
Master		86.47	Master		80.63	Master		177.7
55.00 (Minimum) 100.0 (Nominal) 150.0 (Maximum)			50.00 (Minimum) 100.0 (Nominal) 140.0 (Maximum)			110.0 (Minimum) 200.0 (Nominal) 290.0 (Maximum)		
Phase	LSW4 Background CPS	Value	Phase	LSW5 Background CPS	Value	Phase	LS Cs Resolution Bkg %	Value
Master		218.9	Master		499.0	Master		8.143
140.0 (Minimum) 250.0 (Nominal) 360.0 (Maximum)			330.0 (Minimum) 600.0 (Nominal) 830.0 (Maximum)			7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum)		
Phase	SSW1 Background CPS	Value	Phase	SSW2 Background CPS	Value	Phase	SSW3 Background CPS	Value
Master		97.29	Master		175.4	Master		475.0
55.00 (Minimum) 100.0 (Nominal) 150.0 (Maximum)			100.0 (Minimum) 200.0 (Nominal) 260.0 (Maximum)			280.0 (Minimum) 500.0 (Nominal) 700.0 (Maximum)		
Phase	SSW4 Background CPS	Value	Phase	SSW5 Background CPS	Value	Phase	SS Cs Resolution Bkg %	Value
Master		242.4	Master		176.0	Master		8.094
150.0 (Minimum) 270.0 (Nominal) 380.0 (Maximum)			110.0 (Minimum) 200.0 (Nominal) 270.0 (Maximum)			7.000 (Minimum) 9.000 (Nominal) 11.00 (Maximum)		
Master: 23-Apr-2003 18:32								

Hostile Litho-Density Sonde Master Calibration								
Detector Aluminum Measurement (bkgd-subtracted)								
Phase	LSW1 Aluminum CPS	Value	Phase	LSW2 Aluminum CPS	Value	Phase	LSW3 Aluminum CPS	Value
Master		604.1	Master		860.3	Master		1017
420.0 (Minimum) 600.0 (Nominal) 700.0 (Maximum)			650.0 (Minimum) 900.0 (Nominal) 1050 (Maximum)			800.0 (Minimum) 1100 (Nominal) 1300 (Maximum)		
Phase	LSW4 Aluminum CPS	Value	Phase	LSW5 Aluminum CPS	Value	Phase	SSW1 Aluminum CPS	Value
Master		498.2	Master		473.1	Master		2618
410.0 (Minimum) 580.0 (Nominal) 670.0 (Maximum)			410.0 (Minimum) 570.0 (Nominal) 660.0 (Maximum)			2000 (Minimum) 2800 (Nominal) 3200 (Maximum)		
Phase	SSW2 Aluminum CPS	Value	Phase	SSW3 Aluminum CPS	Value	Phase	SSW4 Aluminum CPS	Value
Master		7129	Master		9926	Master		4181
5800 (Minimum) 8000 (Nominal) 9300 (Maximum)			8300 (Minimum) 11600 (Nominal) 13500 (Maximum)			3500 (Minimum) 5000 (Nominal) 5800 (Maximum)		
Phase	SSW5 Aluminum CPS	Value						
Master		547.6						
470.0 (Minimum) 660.0 (Nominal) 770.0 (Maximum)								
Master: 23-Apr-2003 19:33								

Hostile Litho-Density Sonde Master Calibration								
Detector Litholog Measurement (bkgd-subtracted)								
Phase	LSW1 Iron CPS	Value	Phase	LSW2 Iron CPS	Value	Phase	LSW3 Iron CPS	Value
Master		418.2	Master		721.5	Master		941.8
290.0 (Minimum) 400.0 (Nominal) 470.0 (Maximum)			520.0 (Minimum) 730.0 (Nominal) 850.0 (Maximum)			720.0 (Minimum) 1000 (Nominal) 1160 (Maximum)		
Phase	LSW4 Iron CPS	Value	Phase	LSW5 Iron CPS	Value	Phase	SSW1 Iron CPS	Value

Master		481.5	Master		449.9	Master		1956			
	370.0 (Minimum)	520.0 (Nominal)	600.0 (Maximum)	340.0 (Minimum)	470.0 (Nominal)	550.0 (Maximum)	1500 (Minimum)	2100 (Nominal)	2400 (Maximum)		
Phase	SSW2 Iron CPS		Value	Phase	SSW3 Iron CPS		Value	Phase	SSW4 Iron CPS		Value
Master		6092	Master		9264	Master		3922			
	4900 (Minimum)	6800 (Nominal)	7900 (Maximum)	7800 (Minimum)	10800 (Nominal)	12600 (Maximum)	3300 (Minimum)	4600 (Nominal)	5400 (Maximum)		
Phase	SSW5 Iron CPS		Value								
Master		501.5									
	420.0 (Minimum)	580.0 (Nominal)	680.0 (Maximum)								

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Hostile Litho-Density Sonde Master Calibration											
Quality Ratios											
Phase	AL CALIBRATION RATIO 1		Value	Phase	AL CALIBRATION RATIO 2		Value	Phase	AL CALIBRATION RATIO 3		Value
Master		1.047	Master		2.099	Master		0.6220			
	0.9000 (Minimum)	1.000 (Nominal)	1.100 (Maximum)	1.800 (Minimum)	2.000 (Nominal)	2.200 (Maximum)	0.4500 (Minimum)	0.5500 (Nominal)	0.6500 (Maximum)		
Phase	AL CALIBRATION RATIO 4		Value	Phase	Pad-Wear SS Ratio		Value	Phase	Pad-Wear LS Ratio		Value
Master		0.5537	Master		0.9818	Master	EXCEEDS LIMIT	0.9718			
	0.4000 (Minimum)	0.5000 (Nominal)	0.6000 (Maximum)	0.9800 (Minimum)	0.9880 (Nominal)	0.9960 (Maximum)	0.9800 (Minimum)	0.9880 (Nominal)	0.9960 (Maximum)		
Phase	Pad-Position SS Ratio		Value	Phase	Pad-Position LS Ratio		Value				
Master		1.012	Master	EXCEEDS LIMIT	0.9513						
	0.9900 (Minimum)	0.9940 (Nominal)	1.015 (Maximum)	0.9850 (Minimum)	0.9940 (Nominal)	1.010 (Maximum)					

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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 - C	202
	APS Minitron	MNTR - F	5124
Auxiliary Equipment:	Accelerator-Porosity Housing	APH - AC	104
	APS Calibration Water Tank	SFT - 178	13
	APS Aluminum Calibrator Sleeve	SFT - 281	1

Accelerator-Porosity Tool Wellsite Calibration											
Detector Background											
Phase	Near Det Bkg Cntrate CPS		Value	Phase	Far Det Bkg Cntrate CPS		Value	Phase	Array-1 Det Bkg Cntrate CPS		Value
Master		25.98	Master		25.85	Master		26.41			
Before		25.04	Before		26.68	Before		27.48			
	1.000 (Minimum)	30.00 (Nominal)	50.00 (Maximum)	1.000 (Minimum)	30.00 (Nominal)	50.00 (Maximum)	1.000 (Minimum)	30.00 (Nominal)	50.00 (Maximum)		
Phase	Array-2 Det Bkg Cntrate CPS		Value	Phase	Array Therm Det Bkg Cntrate CPS		Value				
Master		26.14	Master		24.69						
Before		25.66	Before		24.22						
	1.000 (Minimum)	30.00 (Nominal)	50.00 (Maximum)	1.000 (Minimum)	30.00 (Nominal)	50.00 (Maximum)					

Master: 16-Jun-2003 5:03

Before: 30-Jun-2003 14:50

Accelerator-Porosity Tool Wellsite Calibration

Accelerator-Porosity Tool Wellsite Calibration

Calibration Ratios

Phase	Near/Far Calibration Ratio	Value	Phase	Near/Array Calibration Ratio	Value	Phase	Near/Array Cal Ratio Up/Down	Value
Master		0.9613	Master		0.9877	Master		1.006
	0.8000 (Minimum) 0.9250 (Nominal) 1.050 (Maximum)			0.9000 (Minimum) 1.030 (Nominal) 1.170 (Maximum)			0.9700 (Minimum) 1.000 (Nominal) 1.030 (Maximum)	

Master: 16-Jun-2003 5:03

Accelerator-Porosity Tool Wellsite Calibration

Tank Check

Phase	Array-1 Standoff Porosity PU	Value	Phase	Array-2 Standoff Porosity PU	Value	Phase	Average Slowing Down Time US	Value
Master		12.26	Master		11.73	Master		5.784
	9.900 (Minimum) 11.75 (Nominal) 13.60 (Maximum)			9.900 (Minimum) 11.75 (Nominal) 13.60 (Maximum)			5.500 (Minimum) 6.000 (Nominal) 6.250 (Maximum)	
Phase	Array-1 SDT Ratio Up/Down	Value	Phase	Array-2 SDT Ratio Up/Down	Value	Phase	Sigma Formation CU	Value
Master		0.9947	Master		0.9903	Master		27.67
	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)			0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)			20.00 (Minimum) 27.50 (Nominal) 35.00 (Maximum)	

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Accelerator-Porosity Tool Master Calibration

Detector Calibration

Phase	Near/Far Calibration Ratio	Value	Phase	Near/Array Calibration Ratio	Value	Phase	Near/Array Cal Ratio Up/Down	Value
Master		0.9613	Master		0.9877	Master		1.006
	0.8000 (Minimum) 0.9250 (Nominal) 1.050 (Maximum)			0.9000 (Minimum) 1.030 (Nominal) 1.170 (Maximum)			0.9700 (Minimum) 1.000 (Nominal) 1.030 (Maximum)	

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Accelerator-Porosity Tool Master Calibration

Tank Check

Phase	Array-1 Standoff Porosity PU	Value	Phase	Array-2 Standoff Porosity PU	Value	Phase	Average Slowing Down Time US	Value
Master		12.26	Master		11.73	Master		5.784
	9.900 (Minimum) 11.75 (Nominal) 13.60 (Maximum)			9.900 (Minimum) 11.75 (Nominal) 13.60 (Maximum)			5.500 (Minimum) 6.000 (Nominal) 6.250 (Maximum)	
Phase	Array-1 SDT Ratio Up/Down	Value	Phase	Array-2 SDT Ratio Up/Down	Value	Phase	Sigma Formation CU	Value
Master		0.9947	Master		0.9903	Master		27.67
	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)			0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)			20.00 (Minimum) 27.50 (Nominal) 35.00 (Maximum)	

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Hostile Natural Gamma Ray Sonde / Equipment Identification

Primary Equipment:

HNGS Sonde

HNGS - BA

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Auxiliary Equipment:

HNGS Sonde Housing

HNSH - BA

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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		40.65	Master		16.98	Master		1208
Before		40.63	Before		16.69	Before		1207
	37.50 (Minimum) 40.00 (Nominal) 42.50 (Maximum)			12.00 (Minimum) 15.50 (Nominal) 19.00 (Maximum)			900.0 (Minimum) 1150 (Nominal) 1600 (Maximum)	
Phase	Na 1785 Peak Loc	Value	Phase	Na 1785 Peak Res %	Value	Phase	Temperature DEGC	Value
Master		145.2	Master		8.982	Master		33.02
Before		145.2	Before		9.496	Before		27.12
	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		40.11						

Before		41.75
	10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)	

Master: 10-Jun-2003 10:13 Before: 8-Apr-2003 3:33

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			40.56	Master			17.13	Master			1234
Before			40.51	Before			16.55	Before			1235
	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			144.4	Master			9.188	Master			32.54
Before			144.2	Before			9.586	Before			26.30
	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			40.04								
Before			41.81								
	10.00 (Minimum)	45.00 (Nominal)	100.0 (Maximum)								

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Hostile Natural Gamma Ray Sonde Wellsite Calibration			
Ratio Of Detector 1 To Detector 2			
Phase	Coincidence Count Rate Ratio	Value	
Master		1.001	
Before		0.9991	
	0.9500 (Minimum)	1.000 (Nominal)	1.050 (Maximum)

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Hostile Natural Gamma Ray Sonde Master Calibration											
Detector 1 Calibration											
Phase	Na 511 Peak Set Point		Value	Phase	Th Peak Loc		Value	Phase	Th Peak Res %		Value
Master			41.00	Master			209.0	Master			8.425
	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	EXCEEDS LIMIT		19.30	Master			0.9783				
	20.00 (Minimum)	142.5 (Nominal)	265.0 (Maximum)		0.9400 (Minimum)	1.000 (Nominal)	1.060 (Maximum)				

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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			209.4	Master			8.230
	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	EXCEEDS LIMIT		18.75	Master			0.9823				
	20.00 (Minimum)	142.5 (Nominal)	265.0 (Maximum)		0.9400 (Minimum)	1.000 (Nominal)	1.060 (Maximum)				

Master: 10-Jun-2003 9:55

Company: Lamont Doherty

Schlumberger

Well: ODP Leg 209, Site 1275D

Field: Mid Atlantic Ridge

Country:

Ocean: Atlantic

HLDS/APS Density/Porosity

HNGS Natural Gamma Ray