

# Schlumberger

Company: Lamont Doherty

Well: Expedition 324 Site U1346A

Field: Shatsky Rise

Rig: JOIDES Resolution Ocean: Pacific

Rig: JOIDES Resolution Field: Shatsky Rise Location: Latitude: N 38* 00.42' Well: Expedition 324 Site U1346A Company: Lamont Doherty	Hostile			
	Natural Gamma Ray Spectroscopy			
	Latitude: N 38* 00.42'		Elev.: K.B. 11.00 m	
	Longitude: E 162* 38.75'		G.L. -3630.00 m D.F. 11.00 m	
LOCATION	Permanent Datum: <u>Mean Sea Level</u>		Elev.: <u>0.00 m</u>	
	Log Measured From: <u>Drill Floor</u>		11.00 m above Perm. Datum	
	Drilling Measured From: <u>Drill Floor</u>			
API Serial No.		Max. Hole Devi. 0 deg	Longitude	Latitude

Logging Date	18-Sep-2009			
Run Number	1			
Depth Driller	3822 m			
Schlumberger Depth	3811 m			
Bottom Log Interval	3789 m			
Top Log Interval	3632 m			
Casing Driller Size @ Depth	4.500 in @ 3754 m		@	
Casing Schlumberger	3750 m			
Bit Size	9.875 in			
Type Fluid In Hole	Seawater Gel			
MUD	Density	Viscosity	1.02 g/cm3	
	Fluid Loss	PH		
	Source Of Sample N/A			
RM @ Measured Temperature	@		@	
RMF @ Measured Temperature	@		@	
RMC @ Measured Temperature	@		@	
Source RMF	RMC	N/A	N/A	
RM @ MRT	RMF @ MRT	@ 4	@ 4	@ @
Maximum Recorded Temperatures 4 degC				
Circulation Stopped	Time	18-Sep-2009	18:00	
Logger On Bottom	Time	19-Sep-2009	2:13	
Unit Number	Location	625003	Houston	
Recorded By	K. Swain			
Witnessed By	Gerardo Iturrino, Helen Evans			

	Run 1	Run 2	Run 3
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			
MUD	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: GPIT  
OS3: HLDS  
OS4:  
OS5:

OTHER SERVICES2

OS1:  
OS2:  
OS3:  
OS4:  
OS5:

REMARKS: RUN NUMBER 1

Logging tools deployed inside drillpipe with wireline.  
BHA consisted of RCB Drilling Bit and collars with mechanical bit release.  
HLDS caliper calibration used 12 inch and 15.19" diameter rings as reference to improve large hole size accuracy.  
Depths referenced from drill floor which is 11m above sea level.  
Pipe depth set at 3750 mbsf approximately for duration of logging.  
Ship heave averaged +2m to -2 m on average (estimate) with occasional peaks to +/-3m (6mpeak to peak).  
  
APS not run per client request.

REMARKS: RUN NUMBER 2

RUN 1

SERVICE ORDER #: 17C0-154  
PROGRAM VERSION:  
FLUID LEVEL:

RUN 2

SERVICE ORDER #:  
PROGRAM VERSION:  
FLUID LEVEL:

LOGGED INTERVAL	START	STOP

LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION

RUN 1

RUN 2

SURFACE EQUIPMENT

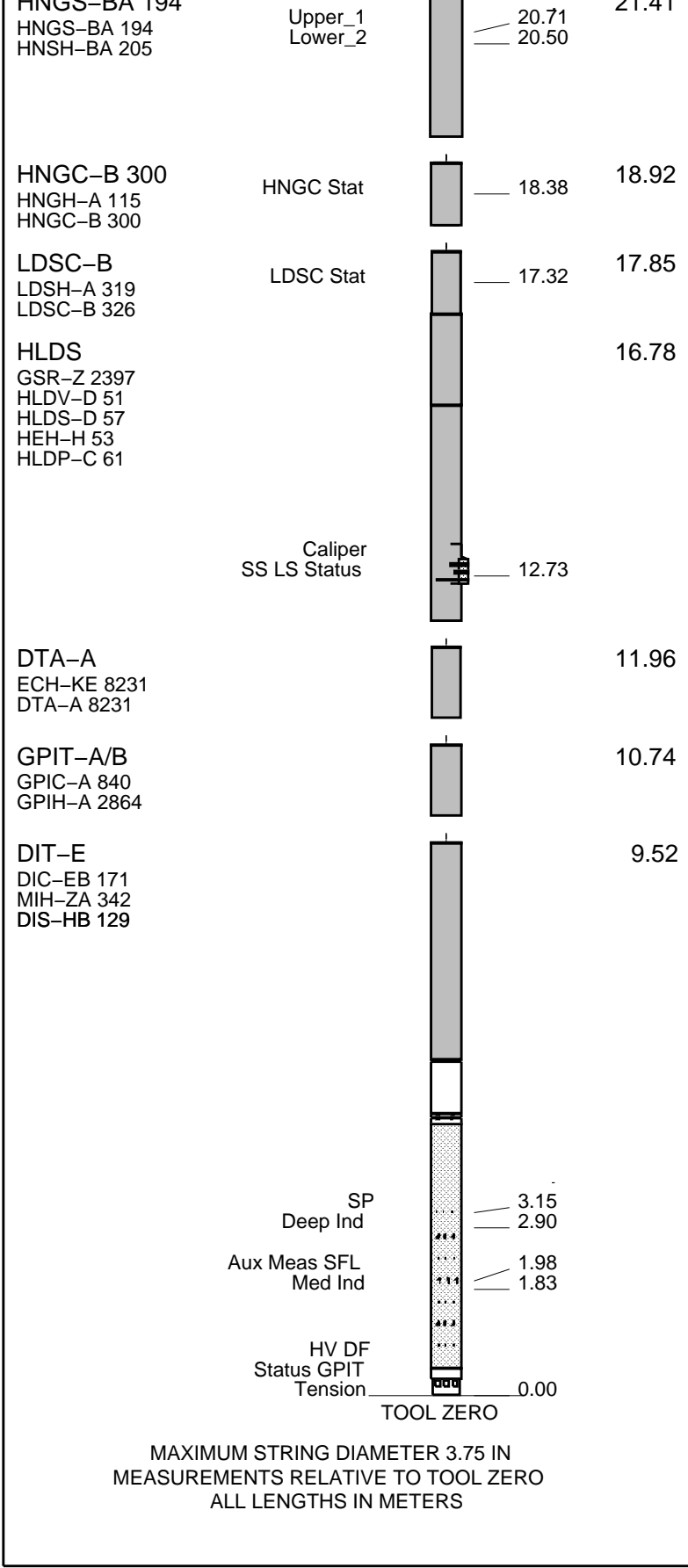
GSR-U 616008  
WITM (DTS)-A

DOWNHOLE EQUIPMENT

LEH-QT  23.22  
LEH-QT 301

DTC-H  22.05 22.33  
ECH-mca 1777 CTEM  
DTCH0-A 8798 TelStatus  
ToolStatu 21.41

UNGS DA 104  21.41



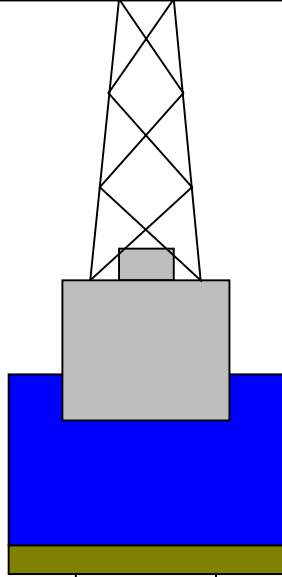
Production String	(in)	(M)	Well Schematic	(M)	(in)	Casing String
	OD	ID		MD	MD	

Kelly Bushing Elevation  
Derrick Floor Elevation

11.0  
11.0

Mean Sea Level

0.0



3630 4.20

Sea Floor



3630 9.875

3753 3.80

Borehole Segment

Open Hole

4922

### Input DLIS Files

DEFAULT	PI_LDL_NGS_010LUP	FN:13	PRODUCER	19-Sep-2009 02:29	3808.5 M	3619.8 M
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### Output DLIS Files

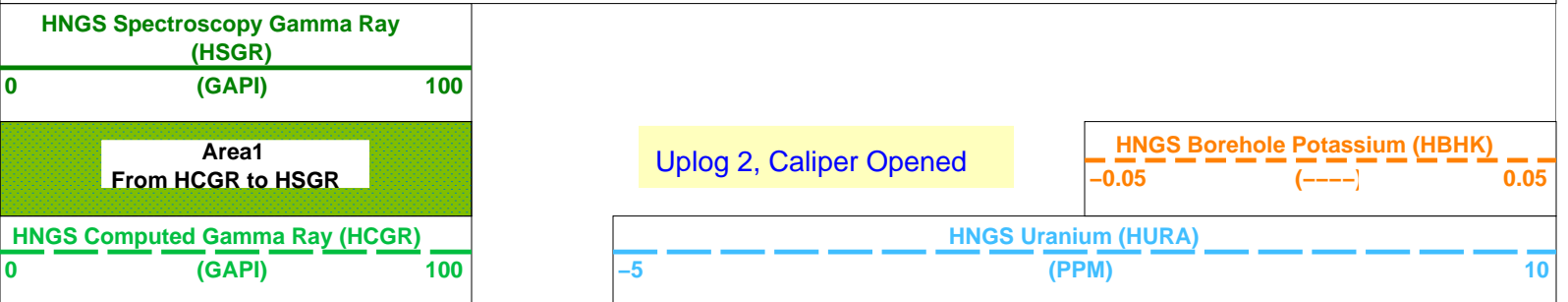
DEFAULT	PI_LDL_NGS_022PUP	FN:31	PRODUCER	20-Sep-2009 05:33	3808.5 M	3619.8 M
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### OP System Version: 17C0-154

DIT-E	17C0-154	GPIT-A/B	SRPC-3762-Q1_2009_OP17
DTA-A	17C0-154	HLDS	17C0-154
LDSC-B	17C0-154	HNGC-B	17C0-154
HNGS-BA	17C0-154	DTC-H	17C0-154

### PIP SUMMARY

Time Mark Every 60 S

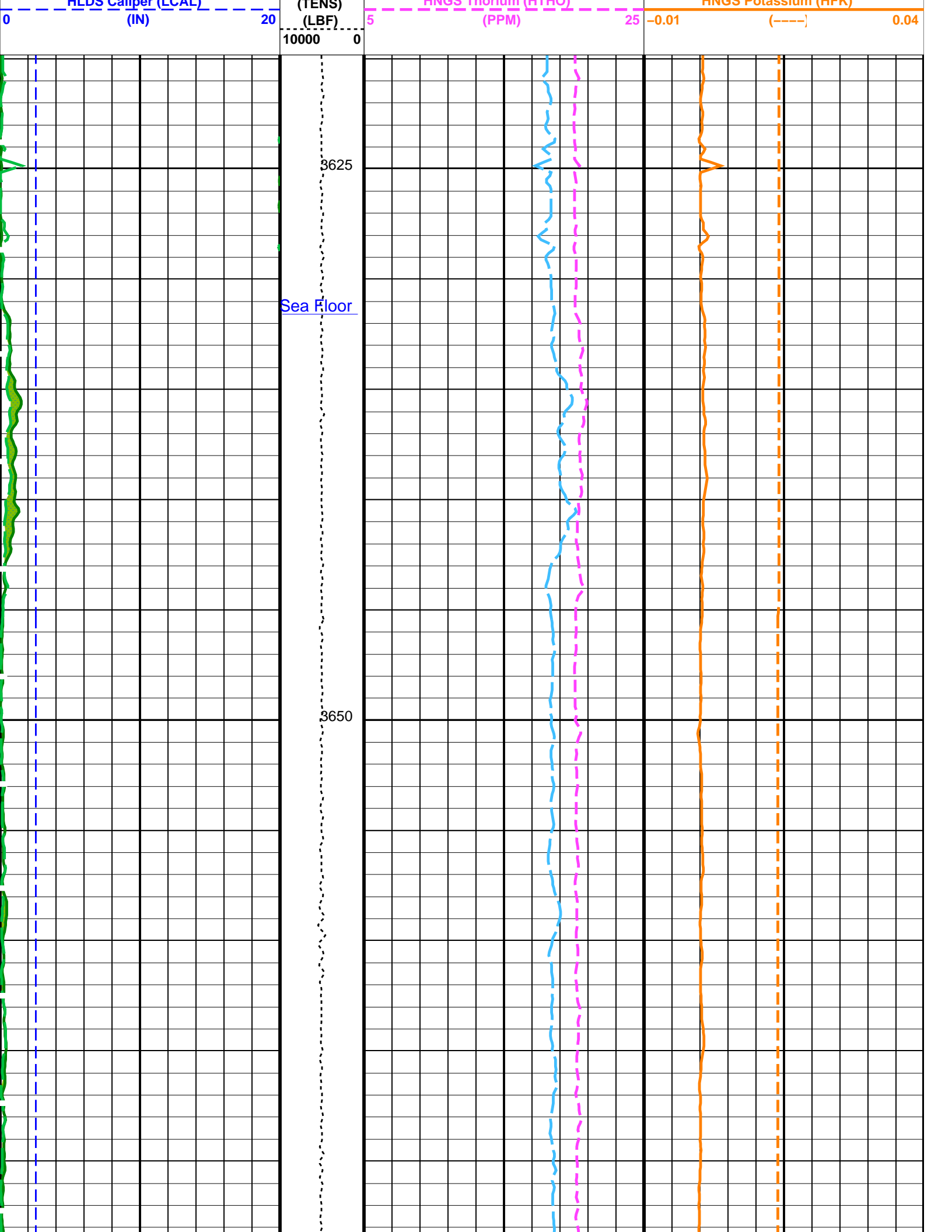


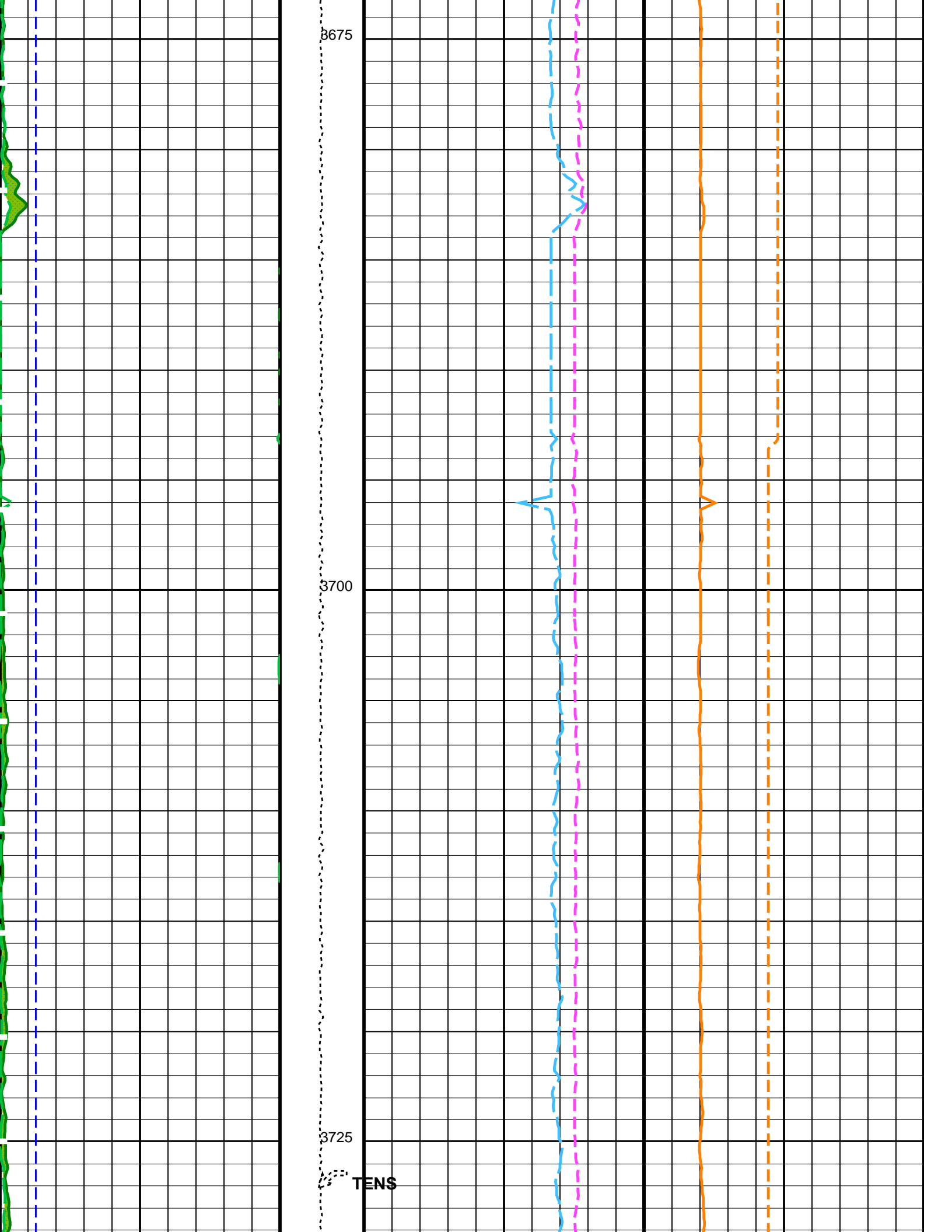
HLDS Caliper (L CAL)

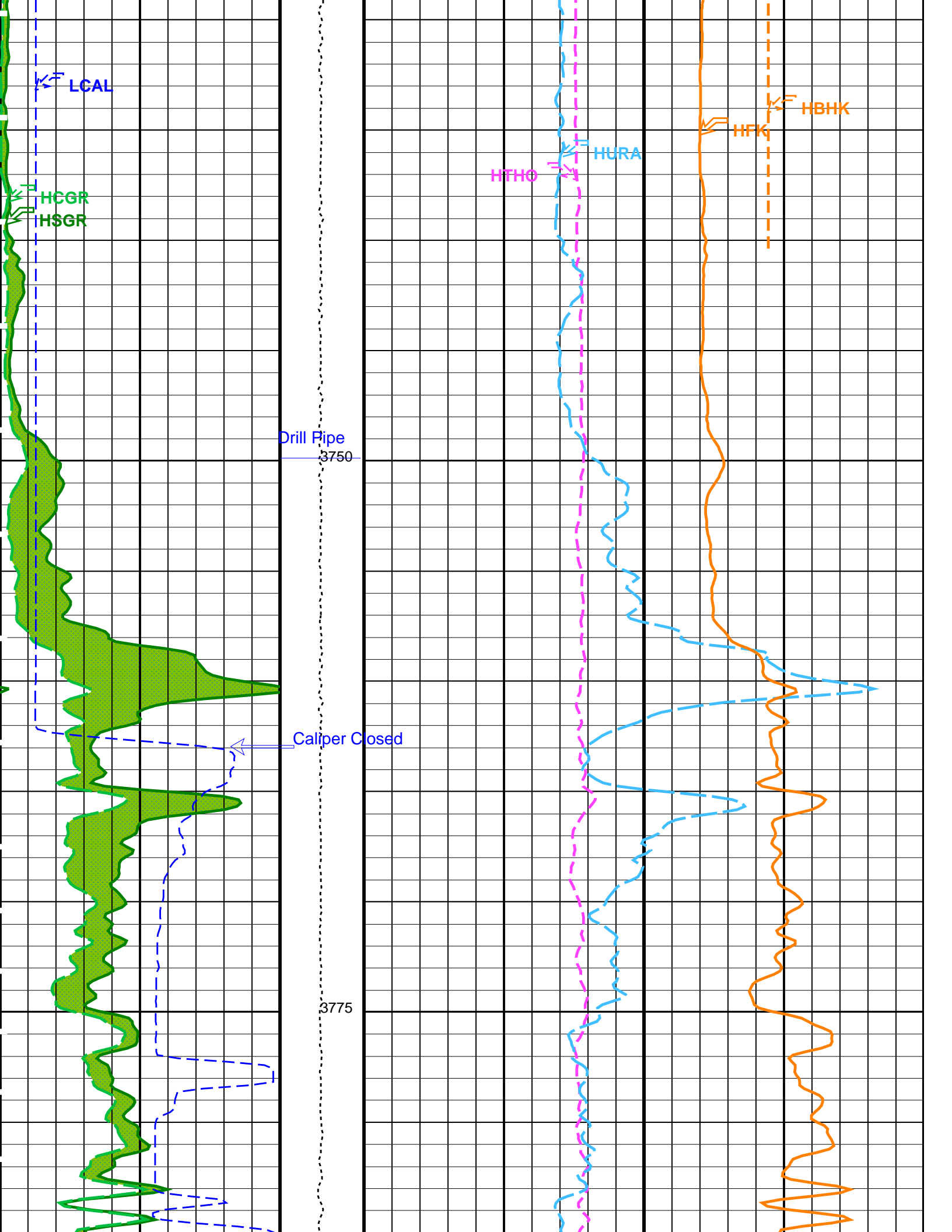
Tension (TENS)

HNGS Thorium (HTHO)

HNGS Potassium (HK)







LCAL

HCGR  
HSGR

Drill Pipe  
3750

Caliper Closed

3775

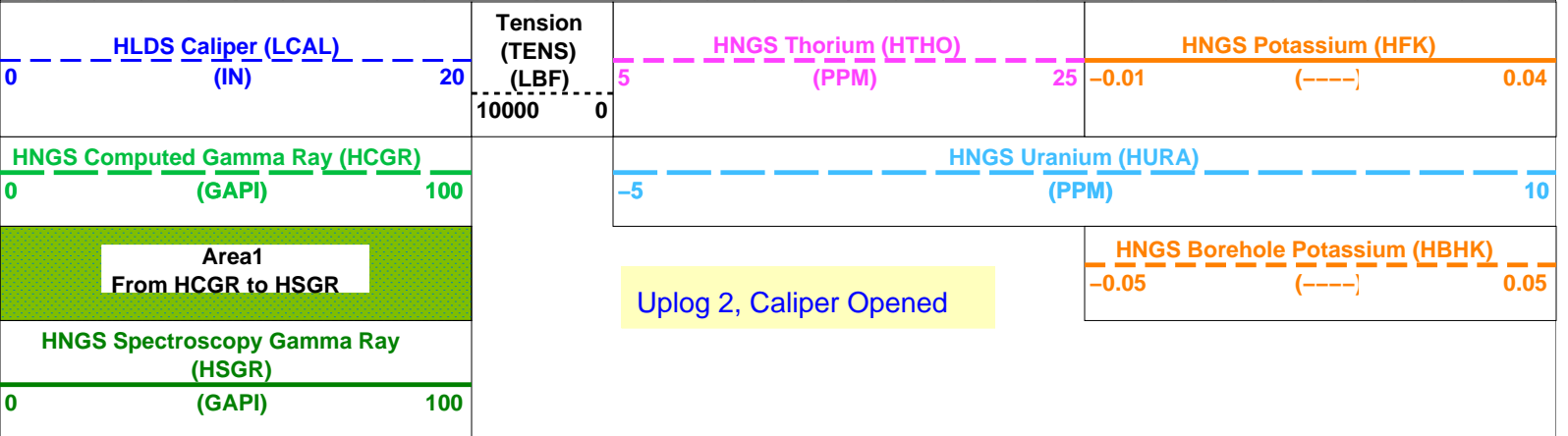
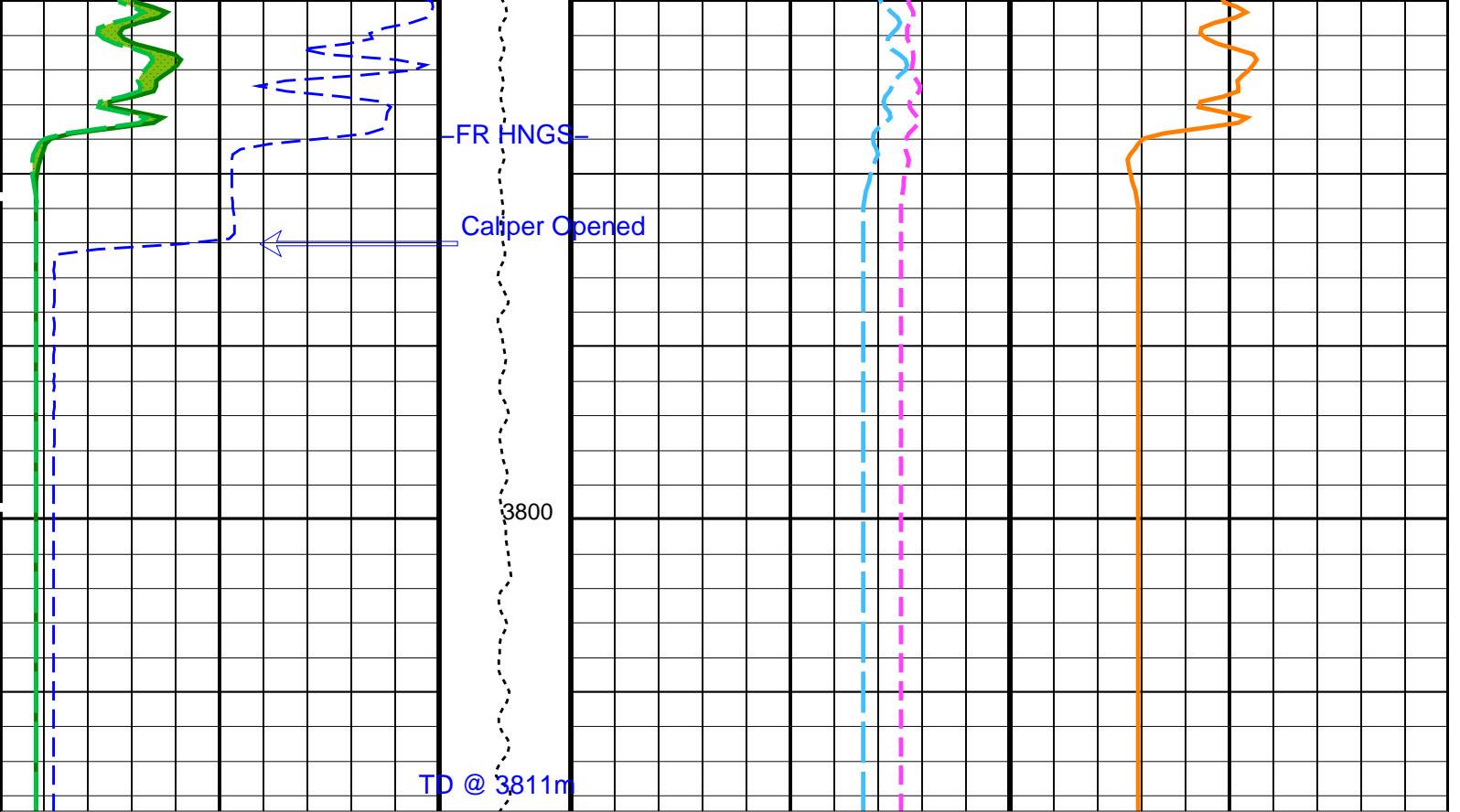
HTHO

HURA

HFK

HBHK





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)	45	DEGF
DGF1	Deep 10 kHz Gain Factor	0.968645	
DGF2	Deep 20 kHz Gain Factor	0.979119	
DGF4	Deep 40 kHz Gain Factor	0.990252	
DPH1	Deep 10 kHz Phase Shift	0.26358	DEG
DPH2	Deep 20 kHz Phase Shift	0.0159963	DEG
DPH4	Deep 40 kHz Phase Shift	-1.11256	DEG
DRE1	Deep Real 10 kHz Sonde Error Correction	39.5751	MM/M
DRE2	Deep Real 20 kHz Sonde Error Correction	17.0457	MM/M
DRE4	Deep Real 40 kHz Sonde Error Correction	5.15121	MM/M
DRIM	DIT-E Radial Invasion Mode	Rxo>Rt	
DSR1	Deep Sigma Reference (10 kHz)	7637	MM/M
DSR2	Deep Sigma Reference (20 kHz)	1843	MM/M
DSR4	Deep Sigma Reference (40 kHz)	405	MM/M
DSTA	DIT-E Transversal Standoff	0	IN
DXE1	Deep Quad 10 kHz Sonde Error Correction	245.841	MM/M
DXE2	Deep Quad 20 kHz Sonde Error Correction	136.154	MM/M
DXE4	Deep Quad 40 kHz Sonde Error Correction	78.4516	MM/M
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GCSD	Geothermal Gradient	0.01	DEG

GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
IFRS	DIT-E Induction Frequency Selector	20	
IPHA	DIT-E Phasor Processing Mode	ALL	
IPRO	DIT-E Induction Processing Selector	PHASOR	
ISSBAR	Barite Mud Switch	NOBARITE	
ITEN	DIT-E Temperature Enable	ENABLE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MGF1	Medium 10 kHz Gain Factor	0.969585	
MGF2	Medium 20 kHz Gain Factor	0.974788	
MGF4	Medium 40 kHz Gain Factor	0.999842	
MPH1	Medium 10 kHz Phase Shift	0.0787021	DEG
MPH2	Medium 20 kHz Phase Shift	-0.199528	DEG
MPH4	Medium 40 kHz Phase Shift	-0.885081	DEG
MRE1	Medium Real 10 kHz Sonde Error Correction	31.1041	MM/M
MRE2	Medium Real 20 kHz Sonde Error Correction	11.3259	MM/M
MRE4	Medium Real 40 kHz Sonde Error Correction	3.5782	MM/M
MSR1	Medium Sigma Reference (10 kHz)	13520	MM/M
MSR2	Medium Sigma Reference (20 kHz)	3250	MM/M
MSR4	Medium Sigma Reference (40 kHz)	685	MM/M
MXE1	Medium Quad 10 kHz Sonde Error Correction	328.09	MM/M
MXE2	Medium Quad 20 kHz Sonde Error Correction	172.606	MM/M
MXE4	Medium Quad 40 kHz Sonde Error Correction	112.808	MM/M
SBR	Shoulder Bed Resistivity Factor	1	OHMM
SFCR	SFL Channel Ratio	1000	
SFLE	SFL Enable	ENABLE	
SHT	Surface Hole Temperature	68	DEGF
SPAE	DIT-E SPARC Processing Enable	ENABLE	
SPNV	SP Next Value	0	MV

GPIT-A/B: General Purpose Inclinerometer

ACPP	Accelerometer PROM Presence	PRESENT	
AFMO	Accelerometer Filtering Mode	MOVING_AVERAGE	
ART	Accelerometer Reference Temperature	20	DEGC
GLM	GPIT Logging Mode	DIPM	
ICMO	Inclinometry Computation Mode	AUTOMATIC_SELECTION	
MAPP	Magnetometer PROM Presence	PRESENT	
MDEC	Magnetic Field Declination	-0.985422	DEG
MRTE	Magneto Reference Temperature	23	DEGC
TEMS	GPIT Temperature Sensor Used	BOTH	
U-GPOF	Playback OLD VERSION GPIT FILE (BEFORE OP14 + SRPC-3098-FEB_2006_C) ?	NO	

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	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	30000	
PSDS	HLDS SS Pulse Shape Compensation DAC	30000	
PSML	HLDS LS Pulse Shape Compensation Mode	AUTO	
PSMS	HLDS SS Pulse Shape Compensation Mode	AUTO	

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)	45	DEGF
CSD1	Inner Casing Outer Diameter	0	IN
CSD2	Outer Casing Outer Diameter	0	IN
CSW1	Inner Casing Weight	0	LB/F
CSW2	Outer Casing Weight	0	LB/F
DBCC	HNGS Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
H1P	HNGS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGS Borehole Potassium Running Average	-0.00339825	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	NATU	
HNPE	HNGS Processing Enable	YES	

ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGS Standard Gamma-Ray Correction Flag	YES	
SHT	Surface Hole Temperature	68	DEGF
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	1.17069	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	1.17319	

**System and Miscellaneous**

ALTDPCAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	9.875	IN
BSAL	Borehole Salinity	-50000.00	PPM
CSIZ	Current Casing Size	4.500	IN
CWEI	Casing Weight	0.00	LB/F
DFD	Drilling Fluid Density	1.02	G/C3
DO	Depth Offset for Playback	0.0	M
FLEV	Fluid Level	-50000.00	M
MST	Mud Sample Temperature	-50000.00	DEGC
PBVSADP	Use alternate depth channel for playback	NO	
PP	Playback Processing	NORMAL	
RMFS	Resistivity of Mud Filtrate Sample	-50000.0000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	-50000	FT
TDD	Total Depth - Driller	4626.00	M
TDL	Total Depth - Logger	4622.00	M
TWS	Temperature of Connate Water Sample	7.00	DEGC

Format: HNGSYields    Vertical Scale: 1:200    Graphics File Created: 20-Sep-2009 05:33

**OP System Version: 17C0-154**

DIT-E	17C0-154	GPIT-A/B	SRPC-3762-Q1_2009_OP17
DTA-A	17C0-154	HLDS	17C0-154
LDSC-B	17C0-154	HNGC-B	17C0-154
HNGS-BA	17C0-154	DTC-H	17C0-154

**Input DLIS Files**

DEFAULT	PI_LDL_NGS_010LUP	FN:13	PRODUCER	19-Sep-2009 02:29	3808.5 M	3619.8 M
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**Output DLIS Files**

DEFAULT	PI_LDL_NGS_022PUP	FN:31	PRODUCER	20-Sep-2009 05:33		
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**Input DLIS Files**

DEFAULT	PI_LDL_NGS_009LUP	FN:11	PRODUCER	19-Sep-2009 02:13	3810.8 M	3783.3 M
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**Output DLIS Files**

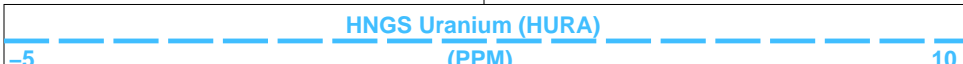
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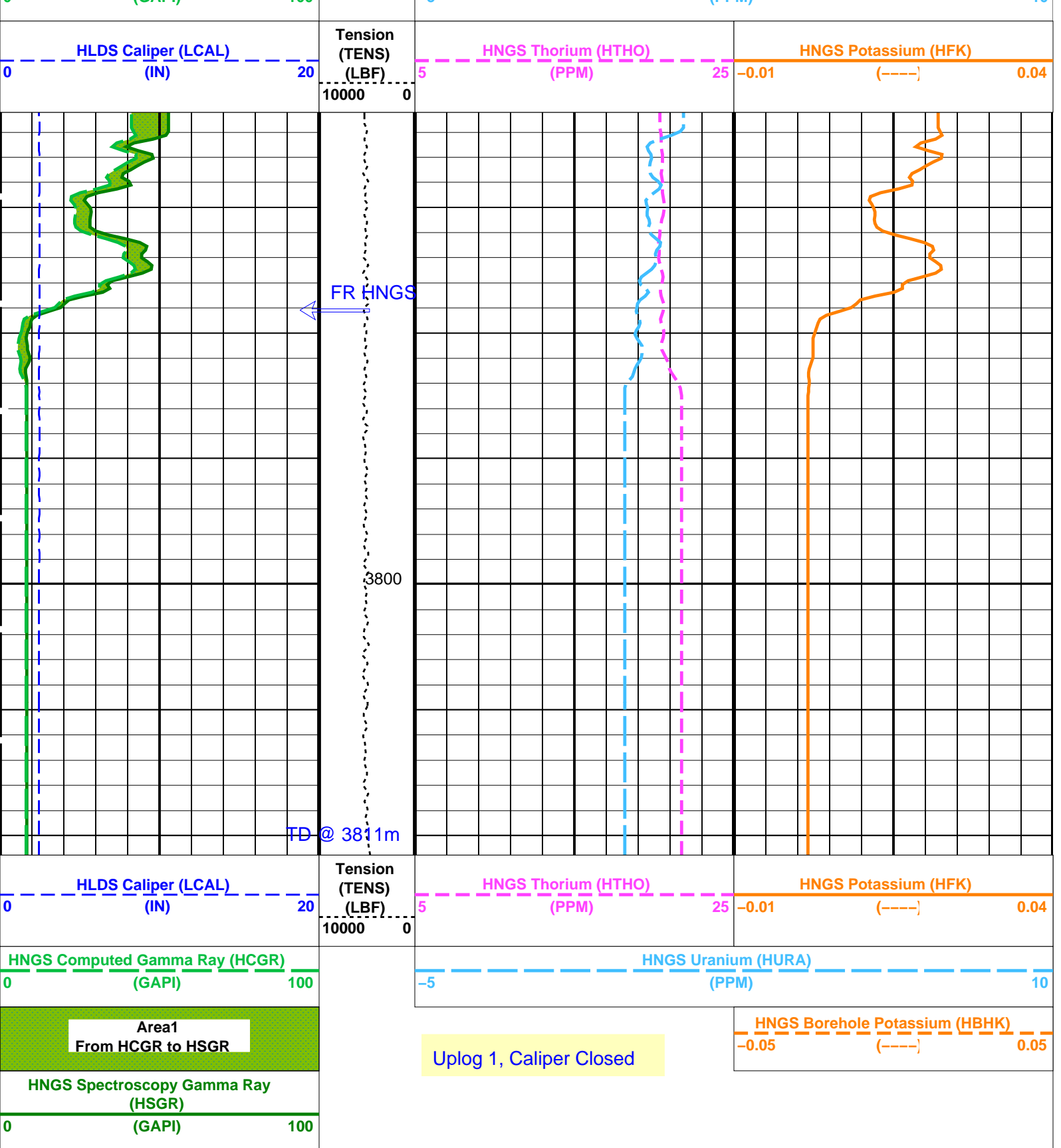
**OP System Version: 17C0-154**

DIT-E	17C0-154	GPIT-A/B	SRPC-3762-Q1_2009_OP17
DTA-A	17C0-154	HLDS	17C0-154
LDSC-B	17C0-154	HNGC-B	17C0-154
HNGS-BA	17C0-154	DTC-H	17C0-154

**PIP SUMMARY**

Time Mark Every 60 S





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)	45 DEGF
DGF1	Deep 10 kHz Gain Factor	0.968645
DGF2	Deep 20 kHz Gain Factor	0.979119
DGF4	Deep 40 kHz Gain Factor	0.990252
DPH1	Deep 10 kHz Phase Shift	0.26258 DEG

DPH1	Deep 10 kHz Phase Shift	0.26358	DEG
DPH2	Deep 20 kHz Phase Shift	0.0159963	DEG
DPH4	Deep 40 kHz Phase Shift	-1.11256	DEG
DRE1	Deep Real 10 kHz Sonde Error Correction	39.5751	MM/M
DRE2	Deep Real 20 kHz Sonde Error Correction	17.0457	MM/M
DRE4	Deep Real 40 kHz Sonde Error Correction	5.15121	MM/M
DRIM	DIT-E Radial Invasion Mode	Rxo>Rt	
DSR1	Deep Sigma Reference (10 kHz)	7637	MM/M
DSR2	Deep Sigma Reference (20 kHz)	1843	MM/M
DSR4	Deep Sigma Reference (40 kHz)	405	MM/M
DSTA	DIT-E Transversal Standoff	0	IN
DXE1	Deep Quad 10 kHz Sonde Error Correction	245.841	MM/M
DXE2	Deep Quad 20 kHz Sonde Error Correction	136.154	MM/M
DXE4	Deep Quad 40 kHz Sonde Error Correction	78.4516	MM/M
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
IFRS	DIT-E Induction Frequency Selector	20	
IPHA	DIT-E Phasor Processing Mode	ALL	
IPRO	DIT-E Induction Processing Selector	PHASOR	
ISSBAR	Barite Mud Switch	NOBARITE	
ITEN	DIT-E Temperature Enable	ENABLE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
MGF1	Medium 10 kHz Gain Factor	0.969585	
MGF2	Medium 20 kHz Gain Factor	0.974788	
MGF4	Medium 40 kHz Gain Factor	0.999842	
MPH1	Medium 10 kHz Phase Shift	0.0787021	DEG
MPH2	Medium 20 kHz Phase Shift	-0.199528	DEG
MPH4	Medium 40 kHz Phase Shift	-0.885081	DEG
MRE1	Medium Real 10 kHz Sonde Error Correction	31.1041	MM/M
MRE2	Medium Real 20 kHz Sonde Error Correction	11.3259	MM/M
MRE4	Medium Real 40 kHz Sonde Error Correction	3.5782	MM/M
MSR1	Medium Sigma Reference (10 kHz)	13520	MM/M
MSR2	Medium Sigma Reference (20 kHz)	3250	MM/M
MSR4	Medium Sigma Reference (40 kHz)	685	MM/M
MXE1	Medium Quad 10 kHz Sonde Error Correction	328.09	MM/M
MXE2	Medium Quad 20 kHz Sonde Error Correction	172.606	MM/M
MXE4	Medium Quad 40 kHz Sonde Error Correction	112.808	MM/M
SBR	Shoulder Bed Resistivity Factor	1	OHMM
SFCR	SFL Channel Ratio	1000	
SFLE	SFL Enable	ENABLE	
SHT	Surface Hole Temperature	68	DEGF
SPAE	DIT-E SPARC Processing Enable	ENABLE	
SPNV	SP Next Value	0	MV
GPIT-A/B: General Purpose Inclinometer			
ACPP	Accelerometer PROM Presence	PRESENT	
AFMO	Accelerometer Filtering Mode	MOVING_AVERAGE	
ART	Accelerometer Reference Temperature	20	DEGC
GLM	GPIT Logging Mode	DIPM	
ICMO	Inclinometry Computation Mode	AUTOMATIC_SELECTION	
MAPP	Magnetometer PROM Presence	PRESENT	
MDEC	Magnetic Field Declination	-0.985422	DEG
MRTE	Magneto Reference Temperature	23	DEGC
TEMS	GPIT Temperature Sensor Used	BOTH	
U-GPOF	Playback OLD VERSION GPIT FILE (BEFORE OP14 + SRPC-3098-FEB_2006_C) ?	NO	
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	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	30000	
PSDS	HLDS SS Pulse Shape Compensation DAC	30000	
PSML	HLDS LS Pulse Shape Compensation Mode	AUTO	
PSMS	HLDS SS Pulse Shape Compensation Mode	AUTO	
HNGB-BA: Hostile Natural Gamma Ray Sonde			
BAR1	HNGB Detector 1 Barite Constant	1	
BAR2	HNGB Detector 2 Barite Constant	1	
BHK	HNGB Borehole Potassium Correction Concentration	0	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	45	DEGF
CSD1	Inner Casing Outer Diameter	0	IN

CSD2	Outer Casing Outer Diameter	0	IN
CSW1	Inner Casing Weight	0	LB/F
CSW2	Outer Casing Weight	0	LB/F
DBCC	HNGS Barite Constant Correction Flag	NONE	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	CHART_GEN_9	
GTSE	Generalized Temperature Selection	LINEAR_ESTIMATE	
H1P	HNGS Detector 1 Allow/Disallow In Processing	ALLOW	
H2P	HNGS Detector 2 Allow/Disallow In Processing	ALLOW	
HABK	HNGS Borehole Potassium Running Average	-0.00193941	
HALF	HNGS Alpha Filter Length	60	IN
HCRB	HNGS Apply Borehole Potassium Correction	NONE	
HMWM	Mud Weighting Material	NATU	
HNPE	HNGS Processing Enable	YES	
ISSBAR	Barite Mud Switch	NOBARITE	
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	
S1BI	HNGS Detector 1 Calibration Bismuth Count Rate	1.3	CPS
S2BI	HNGS Detector 2 Calibration Bismuth Count Rate	1.3	CPS
SGRC	HNGS Standard Gamma-Ray Correction Flag	YES	
SHT	Surface Hole Temperature	68	DEGF
TPOS	Tool Position	ECCE	
VBA1	HNGS Detector 1 Variable Barite Factor Running Average	-1.91726	
VBA2	HNGS Detector 2 Variable Barite Factor Running Average	4.30391	
<b>System and Miscellaneous</b>			
ALTDPCCHAN	Name of alternate depth channel	SpeedCorrectedDepth	
BS	Bit Size	9.875	IN
BSAL	Borehole Salinity	-50000.00	PPM
CSIZ	Current Casing Size	4.500	IN
CWEI	Casing Weight	0.00	LB/F
DFD	Drilling Fluid Density	1.02	G/C3
DO	Depth Offset for Playback	0.0	M
FLEV	Fluid Level	-50000.00	M
MST	Mud Sample Temperature	-50000.00	DEGC
PBVSADP	Use alternate depth channel for playback	NO	
PP	Playback Processing	NORMAL	
RMFS	Resistivity of Mud Filtrate Sample	-50000.0000	OHMM
RW	Resistivity of Connate Water	1.0000	OHMM
TD	Total Depth	-50000	FT
TDD	Total Depth - Driller	4626.00	M
TDL	Total Depth - Logger	4622.00	M
TWS	Temperature of Connate Water Sample	7.00	DEGC

Format: HNGSYields Vertical Scale: 1:200 Graphics File Created: 28-Sep-2009 02:50

### OP System Version: 17C0-154

DIT-E	17C0-154	GPIT-A/B	SRPC-3762-Q1_2009_OP17
DTA-A	17C0-154	HLDS	17C0-154
LDSC-B	17C0-154	HNGC-B	17C0-154
HNGS-BA	17C0-154	DTC-H	17C0-154

### Input DLIS Files

DEFAULT	PI_LDL_NGS_009LUP	FN:11	PRODUCER	19-Sep-2009 02:13	3810.8 M	3783.3 M
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### Output DLIS Files

DEFAULT	PI_LDL_NGS_053PUP	FN:58	PRODUCER	28-Sep-2009 02:50		
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### Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
General Purpose Inclonometer Wellsite Calibration - CROUZET ACCELEROMETER PROM HAS BEEN READ CORRECTLY							
Before: 18-Sep-2009 21:20							
TEMPERATURE REFERENCE :	N/A	N/A	20	N/A	N/A	N/A	DEGC
YEAR OF CALIBRATION :	N/A	N/A	99	N/A	N/A	N/A	
MONTH OF CALIBRATION :	N/A	N/A	3	N/A	N/A	N/A	
SERIAL NUMBER :	N/A	N/A	743	N/A	N/A	N/A	

General Purpose Inclonometer Wellsite Calibration - CROUZET MAGNETOMETER PROM HAS BEEN READ CORRECTLY							
Before: 18-Sep-2009 21:20							
TEMPERATURE REFERENCE :	N/A	N/A	23	N/A	N/A	N/A	DEGC

TEMPERATURE REFERENCE :	N/A	N/A	23	N/A	N/A	N/A	DEGC
YEAR OF CALIBRATION :	N/A	N/A	3	N/A	N/A	N/A	
MONTH OF CALIBRATION :	N/A	N/A	9	N/A	N/A	N/A	
SERIAL NUMBER :	N/A	N/A	507	N/A	N/A	N/A	

Hostile Litho-Density Sonde Wellsite Calibration – Background Measurement

Master: 4-Sep-2009 13:44 Before: 15-Sep-2009 4:01 After: 19-Sep-2009 7:13

SS Cs Resolution Bkg	9.000	7.746	7.720	7.808	0.08810	1.800	%
LS Cs Resolution Bkg	9.000	8.108	8.047	8.047	0.0004940	1.800	%
LSW1 Background	100.0	93.25	91.52	92.09	0.5726	0.03000	CPS
LSW2 Background	100.0	84.64	83.44	83.57	0.1255	0.03000	CPS
LSW3 Background	200.0	190.6	189.6	188.0	-1.665	0.03000	CPS
LSW4 Background	250.0	236.5	232.3	233.8	1.489	0.03000	CPS
LSW5 Background	600.0	546.1	545.7	545.1	-0.5746	0.03000	CPS
SSW1 Background	100.0	89.81	88.53	89.55	1.016	0.03000	CPS
SSW2 Background	200.0	154.2	154.5	153.8	-0.6774	0.03000	CPS
SSW3 Background	500.0	432.1	432.8	430.1	-2.693	0.03000	CPS
SSW4 Background	270.0	230.2	231.1	230.0	-1.071	0.03000	CPS
SSW5 Background	200.0	165.4	163.7	164.8	1.107	0.03000	CPS

Hostile Litho-Density Sonde Wellsite Calibration – Aluminum Measurement

Master: 4-Sep-2009 13:44

LSW1 Aluminum	600.0	568.4	N/A	N/A	N/A	N/A	CPS
LSW2 Aluminum	900.0	819.4	N/A	N/A	N/A	N/A	CPS
LSW3 Aluminum	1100	984.2	N/A	N/A	N/A	N/A	CPS
LSW4 Aluminum	580.0	494.1	N/A	N/A	N/A	N/A	CPS
LSW5 Aluminum	570.0	443.7	N/A	N/A	N/A	N/A	CPS
SSW1 Aluminum	2800	2508	N/A	N/A	N/A	N/A	CPS
SSW2 Aluminum	8000	6914	N/A	N/A	N/A	N/A	CPS
SSW3 Aluminum	11600	9741	N/A	N/A	N/A	N/A	CPS
SSW4 Aluminum	5000	4018	N/A	N/A	N/A	N/A	CPS
SSW5 Aluminum	660.0	488.9	N/A	N/A	N/A	N/A	CPS

Hostile Litho-Density Sonde Wellsite Calibration – Lithology Measurement

Master: 4-Sep-2009 13:44

LSW1 Iron	400.0	385.8	N/A	N/A	N/A	N/A	CPS
LSW2 Iron	730.0	661.4	N/A	N/A	N/A	N/A	CPS
LSW3 Iron	1000	866.7	N/A	N/A	N/A	N/A	CPS
LSW4 Iron	520.0	449.0	N/A	N/A	N/A	N/A	CPS
LSW5 Iron	470.0	412.3	N/A	N/A	N/A	N/A	CPS
SSW1 Iron	2100	1845	N/A	N/A	N/A	N/A	CPS
SSW2 Iron	6800	5800	N/A	N/A	N/A	N/A	CPS
SSW3 Iron	10800	8931	N/A	N/A	N/A	N/A	CPS
SSW4 Iron	4600	3699	N/A	N/A	N/A	N/A	CPS
SSW5 Iron	580.0	435.7	N/A	N/A	N/A	N/A	CPS

Hostile Litho-Density Sonde Wellsite Calibration – Caliper Calibration

Before: 15-Sep-2009 4:22

HLDS Caliper Small Ring	12.00	N/A	13.31	N/A	N/A	N/A	IN
HLDS Caliper Large Ring	15.19	N/A	16.73	N/A	N/A	N/A	IN

Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 1 Check

Master: 5-Sep-2009 7:01 Before: 13-Sep-2009 22:15 After: 19-Sep-2009 7:15

Na 511 Peak Loc	40.00	39.55	39.60	39.55	-0.04275	1.000	
Na 511 Peak Res	15.50	15.65	16.19	16.06	-0.1322	2.000	%
High Voltage	1150	1146	1180	1173	-6.414	N/A	V
Na 1785 Peak Loc	142.6	142.8	142.7	142.5	-0.1574	7.000	
Na 1785 Peak Res	8.500	7.849	8.372	8.440	0.06862	2.000	%
Temperature	15.50	14.91	32.53	27.36	-5.170	N/A	DEGC
Na Count Rate	45.00	36.92	35.51	35.68	0.1647	8.000	CPS

Hostile Natural Gamma Ray Sonde Wellsite Calibration – Detector 2 Check

Master: 5-Sep-2009 7:01 Before: 13-Sep-2009 22:15 After: 19-Sep-2009 7:15

Na 511 Peak Loc	40.00	39.62	39.55	39.53	-0.02555	1.000	
Na 511 Peak Res	15.50	15.06	16.55	16.25	-0.3064	2.000	%
High Voltage	1150	1080	1113	1107	-6.389	N/A	V
Na 1785 Peak Loc	142.6	141.3	142.3	142.0	-0.3132	7.000	
Na 1785 Peak Res	8.500	8.437	9.484	8.444	-1.040	2.000	%
Temperature	15.50	15.08	32.86	29.06	-3.793	N/A	DEGC
Na Count Rate	45.00	36.97	36.00	35.55	-0.4538	8.000	CPS

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

Master: 5-Sep-2009 7:01 Before: 13-Sep-2009 22:15 After: 19-Sep-2009 7:15

Coincidence Count Rate Ratio	1.000	0.9992	0.9853	1.003	0.01759	0.05000	
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Hostile Natural Gamma Ray Sonde Master Calibration – Detector 1 Calibration

Master: 5-Sep-2009 7:01

Na 511 Peak Set Point	40.00	41.00	--	--	--	--	
Th Peak Loc	209.6	210.4	--	--	--	--	
Th Peak Res	7.000	6.417	--	--	--	--	%
Background Count Rate	142.5	18.75	--	--	--	--	CPS
Gain Ratio	1.000	1.012	--	--	--	--	

Hostile Natural Gamma Ray Sonde Master Calibration – Detector 2 Calibration

Master: 5-Sep-2009 7:01

Na 511 Peak Set Point	40.00	41.00	--	--	--	--
Th Peak Loc	209.6	209.5	--	--	--	--
Th Peak Res	7.000	7.001	--	--	--	--
Background Count Rate	142.5	18.87	--	--	--	--
Gain Ratio	1.000	1.006	--	--	--	--

%  
CPS

Dual Induction – E / Equipment Identification

Primary Equipment:		
Dual Induction Sonde	DIS – HB	129
Dual Induction Cartridge	DIC – EB	171
Auxiliary Equipment:		
Mass Isolated Housing	MIH – ZA	342

General Purpose Inclinometer / Equipment Identification

Primary Equipment:		
GPIT Cartridge – A	GPIC – A	840
Auxiliary Equipment:		
GPIT Housing	GPIH – A	2864

Hostile Litho–Density Sonde / Equipment Identification

Primary Equipment:		
Hostile Litho Density Sonde	HLDS – D	57
Hostile Litho Density High Voltage	HLDV – D	51
Gamma Source Radioactive	GSR – Z	2397
Auxiliary Equipment:		
Hostile Litho Density Pad	HLDP – C	61
Hostile Litho Density High Voltage Housi	HEH – H	53

Litho–Density Spectroscopy Cartridge – B / Equipment Identification

Primary Equipment:		
LDSC Cartridge	LDSC – B	326
Auxiliary Equipment:		
LDSC Housing	LDSH – A	319

Hostile Natural Gamma Ray Cartridge – B / Equipment Identification

Primary Equipment:		
HNGC Cartridge	HNGC – B	300
Auxiliary Equipment:		
HNGC Housing	HNGH – A	115

Hostile Natural Gamma Ray Sonde / Equipment Identification

Primary Equipment:		
HNGS Sonde	HNGS – BA	194
Auxiliary Equipment:		
HNGS Sonde Housing	HNSH – BA	205
Gamma Source Radioactive	GSR – U	616008



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		39.55	Master		15.65	Master		1146
Before		39.60	Before		16.19	Before		1180
After		39.55	After		16.06	After		1173
	37.50 (Minimum) 40.00 (Nominal) 43.50 (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		142.8	Master		7.849	Master		14.91
Before		142.7	Before		8.372	Before		32.53
After		142.5	After		8.440	After		27.36
	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		36.92						
Before		35.51						
After		35.68						
	10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)							
Master: 5-Sep-2009 7:01			Before: 13-Sep-2009 22:15			After: 19-Sep-2009 7:15		

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		39.62	Master		15.06	Master		1080
Before		39.55	Before		16.55	Before		1113
After		39.53	After		16.25	After		1107
	37.50 (Minimum) 40.00 (Nominal) 43.50 (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		141.3	Master		8.437	Master		15.08
Before		142.3	Before		9.484	Before		32.86
After		142.0	After		8.444	After		29.06
	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		36.97						
Before		36.00						
After		35.55						
	10.00 (Minimum) 45.00 (Nominal) 100.0 (Maximum)							
Master: 5-Sep-2009 7:01			Before: 13-Sep-2009 22:15			After: 19-Sep-2009 7:15		

Hostile Natural Gamma Ray Sonde Wellsite Calibration		
Ratio Of Detector 1 To Detector 2		
Phase	Coincidence Count Rate Ratio	Value
Master		0.9992
Before		0.9853
After		1.003
	0.9500 (Minimum) 1.000 (Nominal) 1.050 (Maximum)	
Master: 5-Sep-2009 7:01		
Before: 13-Sep-2009 22:15		
After: 19-Sep-2009 7:15		

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		6.417	
	38.00 (Minimum)	40.00 (Nominal)	43.00 (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		18.75	Master		1.012				
	10.00 (Minimum)	142.5 (Nominal)	265.0 (Maximum)	0.9400 (Minimum)	1.000 (Nominal)	1.060 (Maximum)			

Master: 5-Sep-2009 7:01

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		209.5	Master		7.001	
	38.00 (Minimum)	40.00 (Nominal)	43.00 (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		18.87	Master		1.006				
	10.00 (Minimum)	142.5 (Nominal)	265.0 (Maximum)	0.9400 (Minimum)	1.000 (Nominal)	1.060 (Maximum)			

Master: 5-Sep-2009 7:01

DTS Telemetry Tool / Equipment Identification

Primary Equipment:

DTC-H Auxiliary Cartridge DTCH - A 8798  
DTC-H Telemetry Cartridge DTCH - A 8798

Auxiliary Equipment:

DTCH Telemetry Cartridge Housing ECH - mca 1777

Company: **Lamont Doherty**  
Well: **Expedition 324 Site U1346A**  
Field: **Shatsky Rise**  
Rig: **JOIDES Resolution**  
Ocean: **Pacific**



Hostile  
Natural Gamma Ray  
Spectroscopy