

Company: Lamont-Doherty Borehole Research

Well: IODP Expedition 311 CAS-03C

Field: Cascadia Margin

Rig: JOIDES Resolution State: Pacific Ocean

GeoVISION Service 1:240 Measured Depth Recorded Mode Log

Location		Elevation	
Total depth:	2139 m	K.B.	10.06 m
Spud date:	22-Sep-2005	G.L.	-1829 m
Runs:	1 To 1	D.F.	9.60 m
Permanent datum:	MEAN SEA LEVEL	Elev.:	0 m
Log measured from:	Kelly Bushing	10.06 m above Perm. datum	
Depth reference:	Driller's Depth		
Service Order no.	NAD 27	Longitude	Latitude
40012416	UTM Zone 10 N	W 127.05055	N 48.62722

Rig: JOIDES Resolution
Field: Cascadia Margin
Location: Vancouver Island
Well: IODP Expedition 311 CAS-03C
Company: Lamont-Doherty Borehole Research

Depth logged:		Date logged:		Mag decl:		Other services:	
1839 m	To	2138 m	To	18.83 deg.	EcoScope, sonicVISION, provision		
22-Sep-05	To	23-Sep-05	To	Mag dip: 69.14 deg.			
Bore hole record				Casing record			
Hole size	from	to	Size	Density	from	to	
9.875 in.	1839 m	2139 m					
Type		Mud record		Borehole deviation record			
Seawater	from	to	Min	Max	from	to	
	1839 m	2139 m					
Surface equipment				Software record			
Unit	TWIS	IDEAL Wis	ID10_2C_01				
Depth system	Geolograph	SPM	hspm10_1c_05				
		LWD	See Remarks				
		MWD	9.0_C03				

DISCLAIMER		
<p>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.</p>		
OTHER SERVICES FOR RUN 1 Real Time STC Projection Annular Pressure While Drilling	OTHER SERVICES FOR RUN	OTHER SERVICES FOR RUN
REMARKS: RUN NUMBER 1 Run Objective: Drill and log sites CAS-03C to select the coring point. Source of data: Recorded Mode Reason POOH: Move to next drill site. geoVISION gamma ray is corrected for mud weight and bit size. geoVISION resistivity is environmentally corrected for mud resistivity. Neutron Porosity was computed using a sandstone matrix of 2.65 g/cc and was corrected for bit size, temperature, borehole salinity and mud hydrogen index. Barite was not present in the mud Tool Record Rates:	REMARKS: RUN NUMBER	REMARKS: RUN NUMBER

adnVISION Density & Neutron @ 10 sec
 geoVISION Res @ 5 sec, GR @ 10 sec

Tool Software Version:
 TeleScope: 9.0_C03 adnVISION: 8.3_A02
 geoVISION: 6.2_B01
 Crew: L. Loh and D. Buster

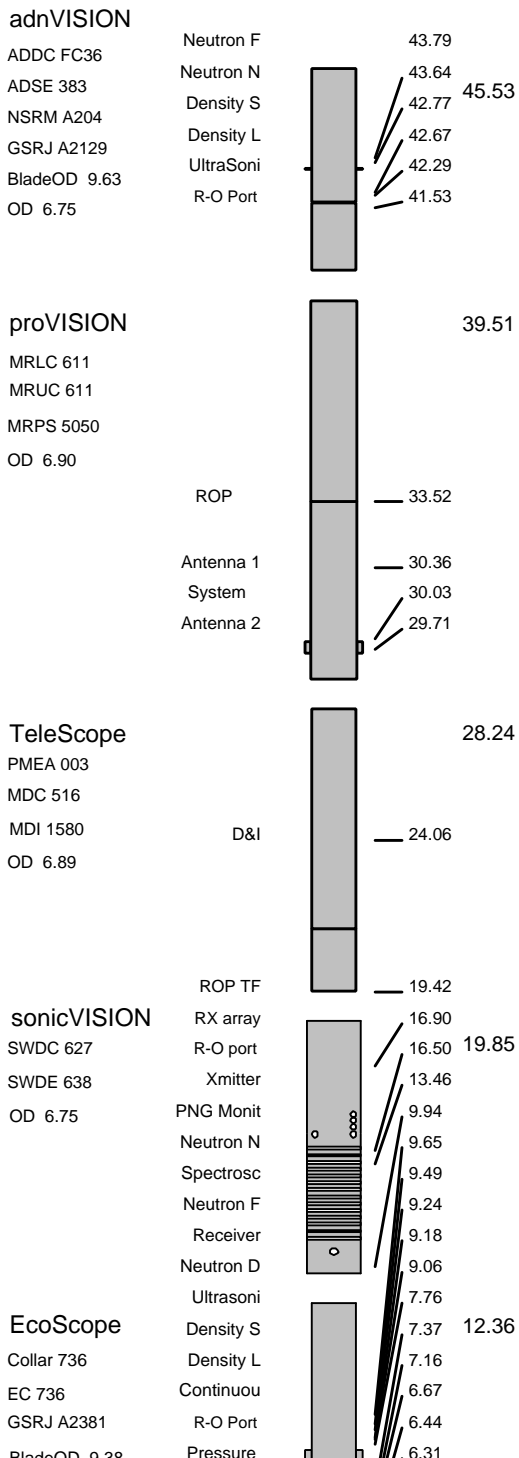
EQUIPMENT DESCRIPTION

RUN1

RUN

RUN

DOWNHOLE EQUIPMENT



Variable Name	Variable Description	Run Name & Value
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Run Number

1

General Information

BHT_RM	Bottom Hole Temperature (RM)	39.200001
BSAL_RM	Mud Salinity (RM)	0.000000
BS_RM	Bit Size (RM)	9.875000
COEF_M	User Defined FEXP in Clean Sand	1.650000
C_WS	Overpressure correction to Sw and M	1.000000
FEXP	Formation Factor Exponent(RM)	2.000000
FNUM	Formation Factor Enumerator(RM)	1.000000
FPHI_RM	Formation Factor Porosity Source (RM)	XPLOT
MST_RM	Mud Sample temperature (RM)	75.000000
MW_RM	Mud Weight (RM)	8.500000
OBMF_RM	Oil Based Mud (RM)	NO
RHOF_RM	Mud Filtrate Density (RM)	1.000000
RHOM_RM	Matrix density (RM)	2.650000
RMS_RM	Resistivity of Mud Sample (RM)	1.000000
RWA_COMP_M	Rwa computation model	BASIC
RWA_DEN_AD	Rwa Density Input ADN	RHOB
RWA_DEN_CD	Rwa Density Input CDN	RHOB
RWA_DEN_IN	Rwa Density Input	RHOB
RWA_FORM_M	Rwa computation formation model	CLASTIC
RWA_RES_IN	Rwa computation resistivity input	RT
RWS_RM	Resistivity of Connate Water (RM)	1.000000
SHT_RM	Surface Hole Temperature (RM)	15.000000
TD_RM	Total Measured Depth (RM)	7017.700195
TWS_RM	Temperature of Connate Water (RM)	75.000000
VF_ILLI	Fraction of illite in shales	0.500000
VF_KAOL	Fraction of kaolinite in shales	0.500000
VF_MONT	Fraction of montmorillonite in shales	0.000000
XPDM_RM	Cross plot density porosity multiplier	0.675000
XPNM_RM	Cross plot neutron porosity multiplier	0.325000

RAB

LWD_RM/STATION_FILE/PARAMETER	Station Time-frame file name	Station
RAB/BTN_SLV_SIZE/PARAMETER	RAB: Button Sleeve Diameter	RAB6:
RAB/STAB_SIZE/PARAMETER	RAB: Stabilizer Diameter	RAB6:
BDBHCA	RAB: Button Deep Borehole A Factor	-0.026087
BDBHCB	RAB: Button Deep Borehole B Factor	0.000000
BHA_COEF_V	RAB: BHA Coef Generator Version	62012.000000
BITBHCA	RAB: Bit A Borehole Factor	0.083974
BITBHCB	RAB: Bit B Borehole Factor	0.000000
BIT_K_FACT	RAB: Bit K Factor	3.496572
BMBHCA	RAB: Button Medium Borehole A Factor	0.039883
BMBHCB	RAB: Button Medium Borehole B Factor	0.000000
BSBHCA	RAB: Button Shallow Borehole A Factor	0.072298
BSBHCB	RAB: Button Shallow Borehole B Factor	0.000000
BUT_KIMP_A	RAB: Button Impedance Coeff A	0.000000
BUT_KIMP_B	RAB: Button Impedance Coeff B	0.000000
DBUTTON_K	RAB: Button Deep K factor	0.004564
DHS_VERSIO	RAB: DownHole Software Version	6.200100
GR_BHC_TOO	RAB: Gamma-Ray Borehole Coeff 1	6.750000
HI_CSDEPTH	RAB: Allow Hi-Resolution CS_DEPTH Image Data Output	YES
HI_DLIS_OU	RAB: Allow Hi-Resolution DLIS Image Data Output	YES
HI_RIVER_O	RAB: Allow Hi-Resolution River for Image Data Output	YES
IMAGE_MAX_	RAB: GR Image Maximum Scale Value	120.000000
IMAGE_MAX_	RAB: Image Maximum Resistivity Value	100.000000
IMAGE_MIN_	RAB: GR Image Minimum Scale Value	20.000000
IMAGE_MIN_	RAB: Image Minimum Resistivity Value	1.000000
JSD_RAB	RAB Acquisition start date	1.000000
MAG_DECL_R	RAB: Magnetic Declination	18.829971
MAG_INCL_R	RAB: Magnetic Dip	69.139961
MBUTTON_K	RAB: Button Medium K Factor	0.004832
OBM	RAB: Oil base Mud	NO
ORIENTATIO	Rab Image Orientation	NORTH
RABBDA0	RAB: Button Deep A0 Coeff	-0.035672
RABBDA1	RAB: Button Deep A1 Coeff	0.019929
RABBDA2	RAB: Button Deep A2 Coeff	-0.005302
RABBDA3	RAB: Button Deep A3 Coeff	0.000604
RABBDA4	RAB: Button Deep A4 Coeff	-0.000024
RABBDA5	RAB: Button Deep A5 Coeff	0.000000
RABBDMIN	RAB: Button Deep Minimum Value	0.050636
RABBITA0	RAB: Bit A0 Coeff	0.491347
RABBITA1	RAB: Bit A1 Coeff	-0.369545
RABBITA2	RAB: Bit A2 Coeff	0.168705
RABBITA3	RAB: Bit A3 Coeff	-0.034143
RABBITA4	RAB: Bit A4 Coeff	0.002497
RABBITA5	RAB: Bit A5 Coeff	0.000000
RABBITMIN	RAB: Bit Minimum Value	18.789185
RABBMA0	RAB: Button Medium A0 Coeff	-0.048923
RABBMA1	RAB: Button Medium A1 Coeff	0.027158
RABBMA2	RAB: Button Medium A2 Coeff	-0.007176
RABBMA3	RAB: Button Medium A3 Coeff	0.000810
RABBMA4	RAB: Button Medium A4 Coeff	-0.000032
RABBMA5	RAB: Button Medium A5 Coeff	0.000000
RABBMMIN	RAB: Button Medium Minimum Value	0.056653
RABBSA0	RAB: Button Shallow A0 Coeff	-0.066050
RABBSA1	RAB: Button Shallow A1 Coeff	0.034800
RABBSA2	RAB: Button Shallow A2 Coeff	-0.008826
RABBSA3	RAB: Button Shallow A3 Coeff	0.000962

RABSA4	RAB: Button Shallow A4 Coeff	-0.000037	
RABSA5	RAB: Button Shallow A5 Coeff	0.000000	
RABSMIN	RAB: Button Shallow Minimum Value	0.078761	
RABDHS	RAB Down Hole Software	4.000000	
RABEC	RAB: Resistivity Env-Cor	YES	
RABRNGA0	RAB: RING A0 Coeff	-0.030383	
RABRNGA1	RAB: RING A1 Coeff	0.017997	
RABRNGA2	RAB: RING A2 Coeff	-0.004933	
RABRNGA3	RAB: RING A3 Coeff	0.000574	
RABRNGA4	RAB: RING A4 Coeff	-0.000023	
RABRNGA5	RAB: RING A5 Coeff	0.000000	
RABRNGMIN	RAB: Ring Minimum Value	1.602023	
RAB_BIT_EC	Bit Resistivity for ECAL_RAB?	YES	
RAB_BIT_IN	Input Bit Resistivity for Inversion? (Recommended at the bit)	NO	
RAB_CALIPE	Compute ECAL_RAB?	YES	
RAB_DEEPBT	Deep Button Resistivity for ECAL_RAB?	YES	
RAB_DEEPBT	Input Deep Button Resistivity for Inversion?	YES	
RAB_INVERS	Perform Rt Inversion?	NO	
RAB_INVERS	RAB Bit Sensor Weight for Inversion[0,1]	0.000000	
RAB_INVERS	Ending Depth for GR Cutoff in Zone1 (default through the whole well)	100000.000000	
RAB_INVERS	Continuity Multiplier[0,1]	0.500000	
RAB_INVERS	RAB Deep Button Sensor Weight for Inversion[0,1]	1.000000	
RAB_INVERS	RAB inversion for Dh?	NO	
RAB_INVERS	RAB inversion for Di?	YES	
RAB_INVERS	GR Cutoff for Shale Formation	75.000000	
RAB_INVERS	GR Cutoff for Shale Formation in Zone1(default through the whole well)	75.000000	
RAB_INVERS	GR Cutoff in Zone10	75.000000	
RAB_INVERS	GR Cutoff in Zone2	75.000000	
RAB_INVERS	GR Cutoff in Zone3	75.000000	
RAB_INVERS	GR Cutoff in Zone4	75.000000	
RAB_INVERS	GR Cutoff in Zone5	75.000000	
RAB_INVERS	GR Cutoff in Zone6	75.000000	
RAB_INVERS	GR Cutoff in Zone7	75.000000	
RAB_INVERS	GR Cutoff in Zone8	75.000000	
RAB_INVERS	GR Cutoff in Zone9	75.000000	
RAB_INVERS	RAB Medium Button Sensor Weight for Inversion[0,1]	1.000000	
RAB_INVERS	Resistivity Cutoff for Shale Formation	2.000000	
RAB_INVERS	Resistive Invasion Allowed	NO	
RAB_INVERS	RAB Ring Sensor Weight for Inversion[0,1]	0.000000	
RAB_INVERS	RAB inversion for Rmud?	NO	
RAB_INVERS	RAB inversion for Rt?	YES	
RAB_INVERS	Rt to R-deepest separation penalty multiplier[0,1]	0.500000	
RAB_INVERS	RAB inversion for Rxo?	YES	
RAB_INVERS	RAB Shallow Button Sensor Weight for Inversion[0,1]	1.000000	
RAB_INVERS	Inversion Threshold[0, 0.3]	0.010000	
RAB_INVERS	Formation Water Resistivity	0.100000	
RAB_INVERS	Formation Water Temperature	150.000000	
RAB_MEDIUM	Medium Button Resistivity for ECAL_RAB?	YES	
RAB_MEDIUM	Input Medium Button Resistivity for Inversion?	YES	
RAB_QUAD	RAB: Process Quadrant data ?	YES	
RAB_RIGMOD	Bit on Bottom?	YES	
RAB_RING_E	Ring Resistivity for ECAL_RAB?	YES	
RAB_RING_I	Input RING Resistivity for Inversion?	NO	
RAB_SHALLO	Shallow Button Resistivity for ECAL_RAB?	YES	
RAB_SHALLO	Input Shallow Button Resistivity for Inversion?	YES	
RAB_TAB	RAB: Compute TAB ?	YES	
RAB_TECHLO	RAB: Generate Techlog ?	YES	
RAB_TEMP_S	RAB Temperature Selection	MEASURED	
RAB_TICKS	RAB: Generate Ticks ?	YES	
READOUT_PO	RAB: ROP to Bit Face Distance	7.621391	
RINGBHCA	RAB: Ring Borehole A Factor	0.297547	
RINGBHCB	RAB: Ring Borehole B Factor	0.000000	
RING_KIMP_	RAB: Ring Impedance Coeff A	0.000000	
RING_KIMP_	RAB: Ring Impedance Coeff B	0.000000	
RING_K_FAC	RAB: Ring K Factor	0.152287	
SBUTTON_K	RAB: Button Shallow K Factor	0.006564	
SCALE_IMAG	RAB: Process Image Data	YES	
STAB	RAB: Run with Stabilizer	YES	
TFF_OFFSET	RAB Time-Frame File Time Offset	0.000000	
TIMEFRAME_	RAB: Time Frame File Name	0.000000	
TOOLTYPE	RAB: Azimuthal Tool	YES	
TS_VERSION	RAB: ToolScope Software Version	0.000000	
VRAB6	Rab Tool type (ENP/PILOT)	RAB6_C_SERIES	
WIN_SIZE_D	RAB: Window Size for Scaling Dynamic Image	3.000000	

ADN

ADN_CHASSI	ADN Chassis Type String	ADN	
ADN_COLLAR	ADN Collar Type String	ADN	
ADN_STAB_S	ADN Stabilizer Type String	ADN	
ALPHA_COMP	Perform Density Enhanced Vertical Resolution process ?	YES	
ALPHA_COMP	Perform Neutron Enhanced Vertical Resolution process ?	YES	
AVE_ADN	ADN/Array Channels: perform averaging(RM) :	YES	
A_DHS	ADN Down Hole Software Version String	YES	
CHI_RM	Caliper High limit from BS (RM)	3.000000	
CLO_RM	Caliper Low limit from BS (RM)	0.000000	
DEVI	Well Section Deviation	0.100000	
DTIK_SEL	ADN: Density Tick Channel Name	LSAZ	
DTMUD	Delta-T for Mud	190.000000	
DYN_IMG_CO	Generate Dynamic Normalized Image?	YES	
ECC_CORR_A	Perform Eccentering Correction for TNPH?	YES	
ENVCOR	Neutron Quadrant Processing: Environmental Correction?	YES	
EVRL	EVR Process averaging number of samples (RM)	49	
FCD	Future Casing (Outer) Diameter	0.000000	
GCSE	Generalized Caliper Selection	BS	
HPS	ADSE-EB (High Pressure Inconel Chassis)?	NO	
IRS	Internal Blade Stabilizer Collar?	NO	

IBS	Integrar Blade Stabilizer Collar:	NO
IDQT	Image Derived Quality Threshold	1.000000
IHVS	Integrated Hole Volume Start Value(RM)	0.000000
IMAGE_MAX_	Image SOA (Quadrant) Right Scale	2.500000
IMAGE_MAX_	Image PEF(Segment) Right Scale	6.000000
IMAGE_MAX_	Image RHOB(Segment) Right Scale	2.650000
IMAGE_MIN_	Image SOA (Quadrant) Left Scale	0.000000
IMAGE_MIN_	Image PEF(Segment) Left Scale	2.000000
IMAGE_MIN_	Image RHOB(Segment) Left Scale	2.050000
LITHO_TYPE	Lithology (RM)	SAND
N1FTU_6_RM	ADN: Neutron Bank 1 Far Tubes used :	1-2-3
N2FTU_6_RM	ADN: Neutron Bank 2 Far Tubes used :	1-2-3
NNTU_RM	ADN Neutron Near Banks Used	1-2
NTIK_SEL	ADN: Neutron Tick Channel Name	FR11
SOCNL	Standoff Distance of the CNL Tool	1.000000
SSIZ_ADN	ADN Stabilizer Size	9.500000
STOH	ADN Density Top of Hole Sector (Left Boundary):	SECTOR_0
TRPM_RM	Average Tool Rotational Speed	20.000000
USMIN_RM	ADN:Minimum Ultrasonic standoff (RM)	0.180000
USWF_RM	ADN:Process Ultrasonic Waveform?	YES
VERS_ADN	ADN Downhole Software Version	8.300000
WSDI	Window Size of Dynamic Normalization Image	50.000000

Schlumberger Drilling & Measurements

Parameter Insert Header Software version 2.0c

IDEAL Version: ID10_2B_08

IDF

Format: GEOVIS_SER_5MD Vertical Scale: 1:240 Graphics File Created: 01-Oct-2005 23:06

PIP SUMMARY

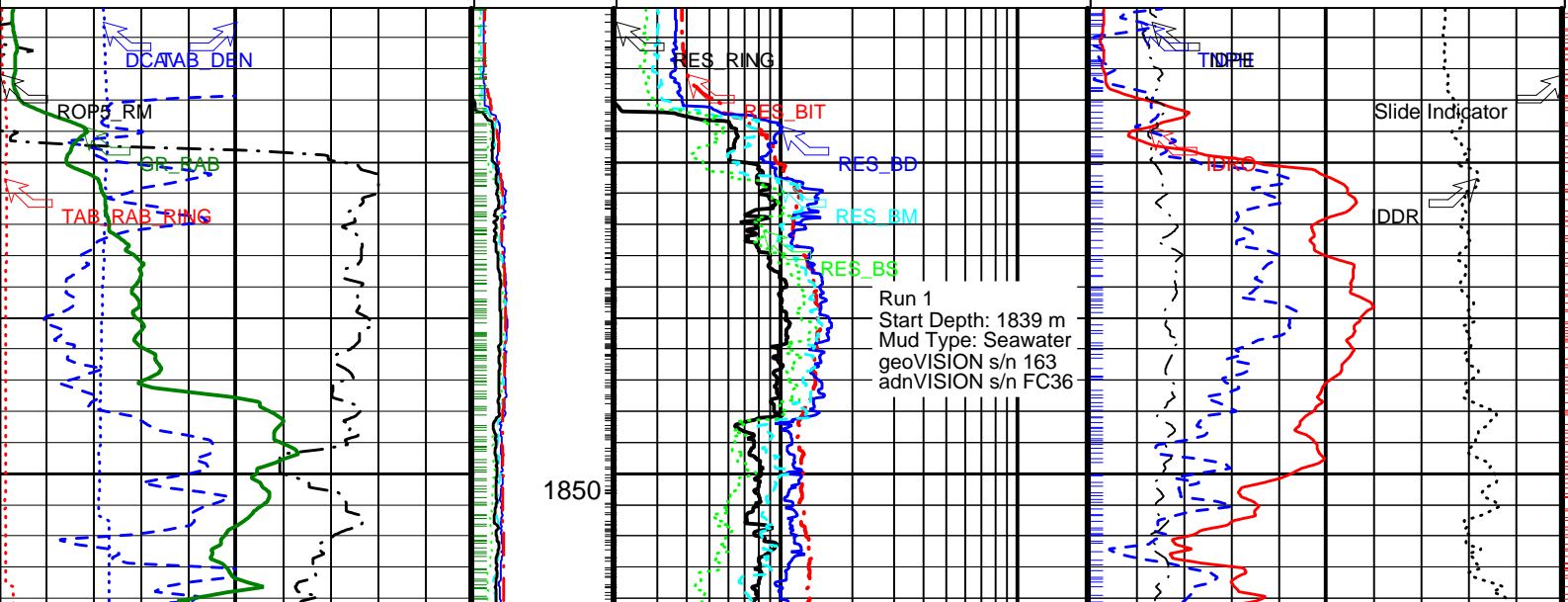
Density Ticks, 0.1-ft

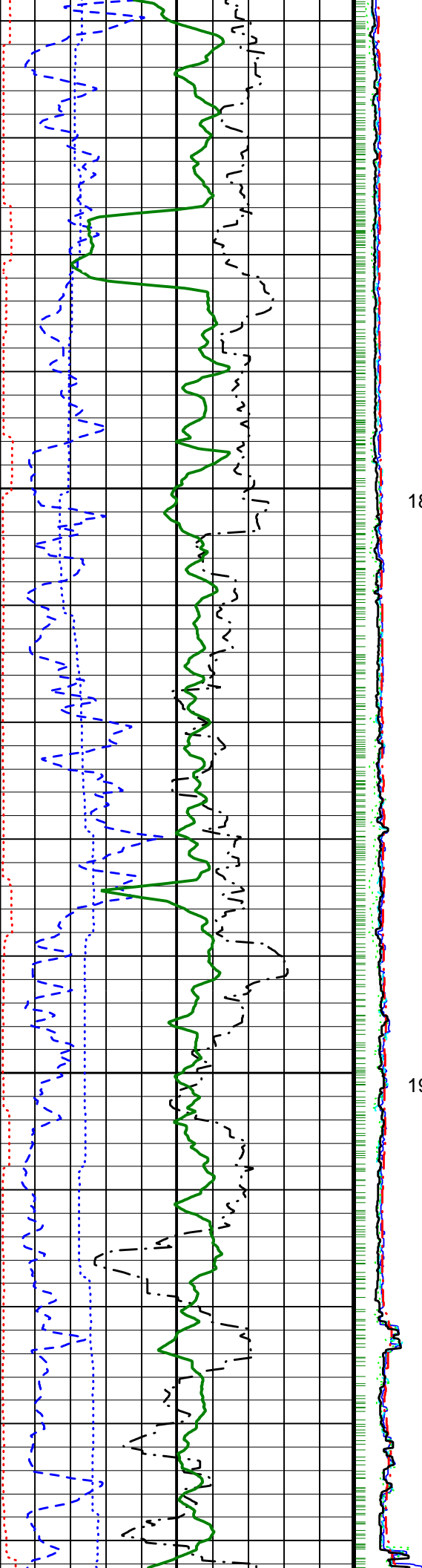
Neutron Ticks, 0.1 ft

+ Ring Samples

+ Gamma Ray Samples

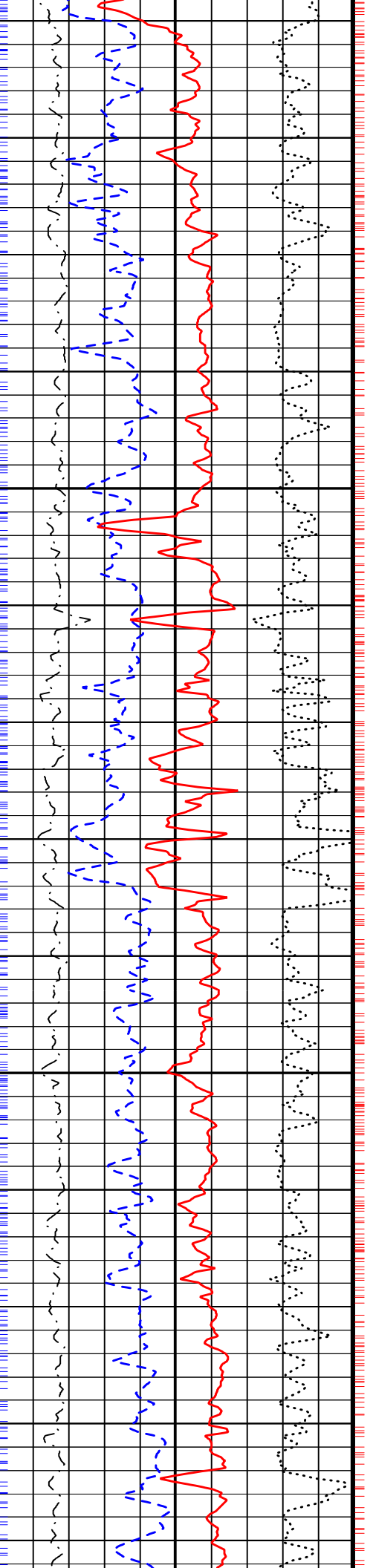
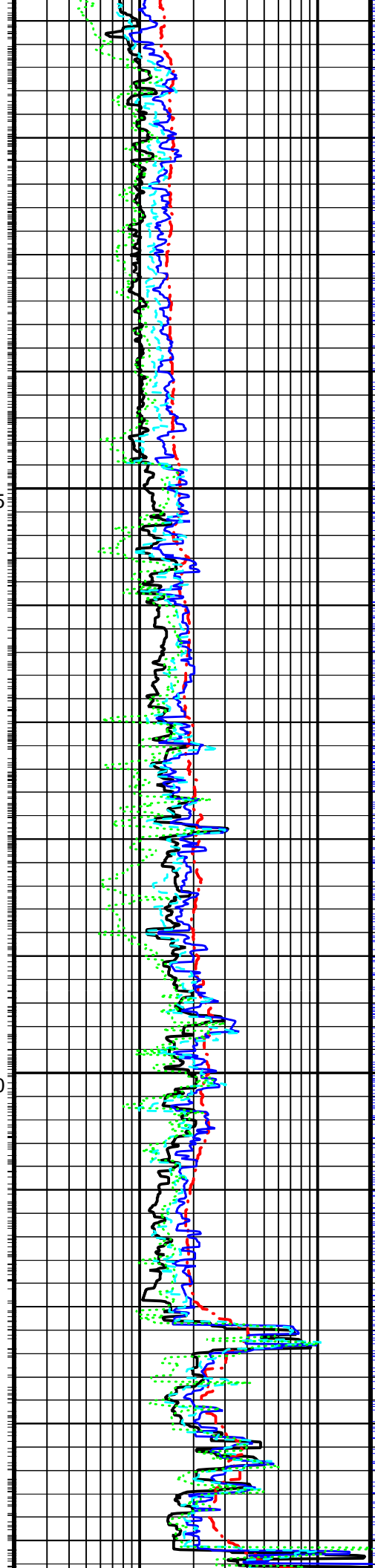
<p>Ring Resistivity Time After Bit (TAB_RAB_RING) (HR) 0 10</p> <hr style="border-top: 1px dashed red;"/> <p>Rate of Penetration, Averaged over Last 5ft (ROP5_RM) (M/HR) 100 0</p> <hr style="border-top: 1px dashed black;"/> <p>Density Caliper, Average (DCAV) (IN) 9 14</p> <hr style="border-top: 1px solid green;"/> <p>RAB Gamma Ray (GR_RAB) (GAPI) 0 150</p> <hr style="border-top: 1px solid blue;"/> <p>Density Time After Bit (TAB_DEN) (HR) 0 10</p>	<p>Shallow Button Resistivity (RES_BS) (OHMM) 0.2 20</p> <hr style="border-top: 1px dashed green;"/> <p>Medium Button Resistivity (RES_BM) (OHMM) 0.2 20</p> <hr style="border-top: 1px dashed cyan;"/> <p>Deep Button Resistivity (RES_BD) (OHMM) 0.2 20</p> <hr style="border-top: 1px solid blue;"/> <p>Bit Resistivity (RES_BIT) (OHMM) 0.2 20</p> <hr style="border-top: 1px dashed red;"/> <p>Ring Resistivity (RES_RING) (OHMM) 0.2 20</p>	<p>Image Derived Photoelectric Factor (IDPE) (---) 0 10</p> <hr style="border-top: 1px solid black;"/> <p>Image Derived Density Correction (IDDR) (G/C3) -0.8 0.2</p> <hr style="border-top: 1px solid black;"/> <p>Image Derived Density (IDRO) (G/C3) 1 2.65</p> <hr style="border-top: 1px solid red;"/> <p>Thermal Neutron Porosity (TNPH) (PU) 100 0</p>
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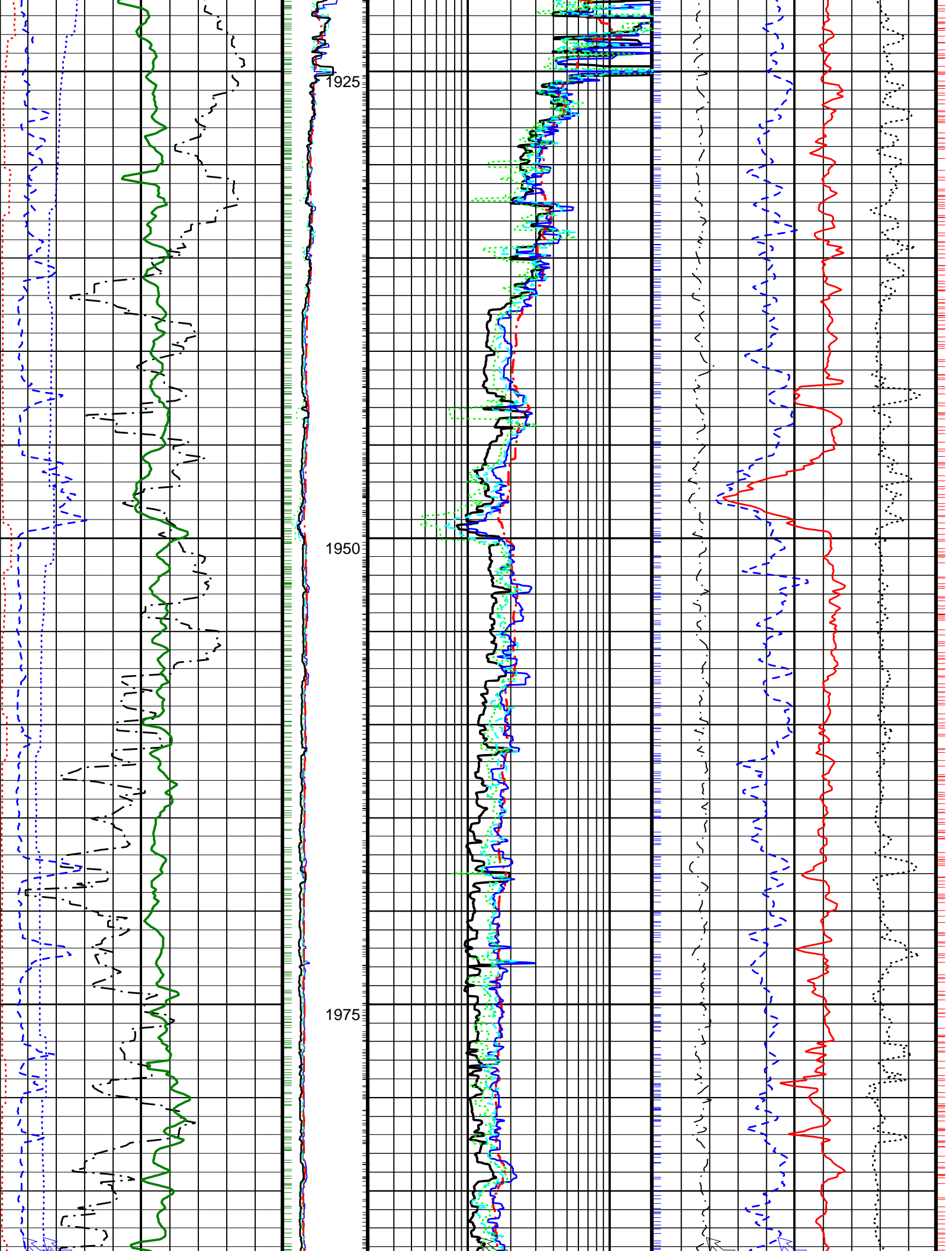


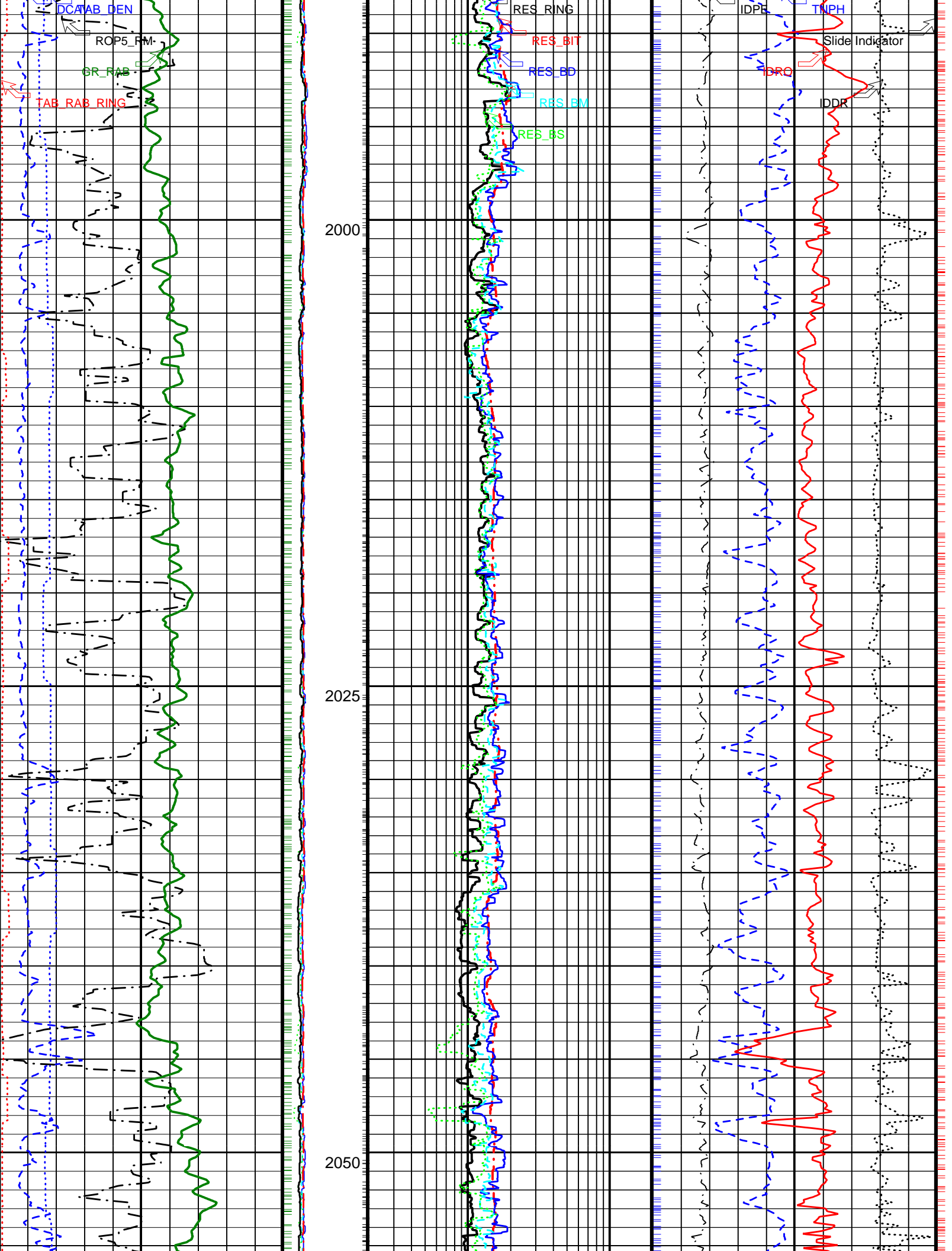


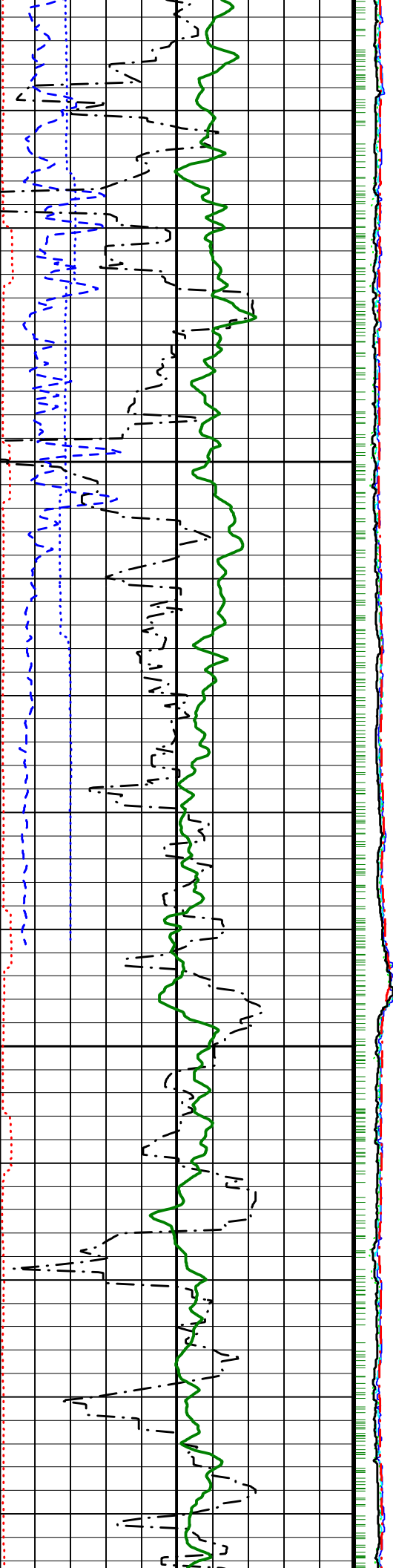
1875

1900



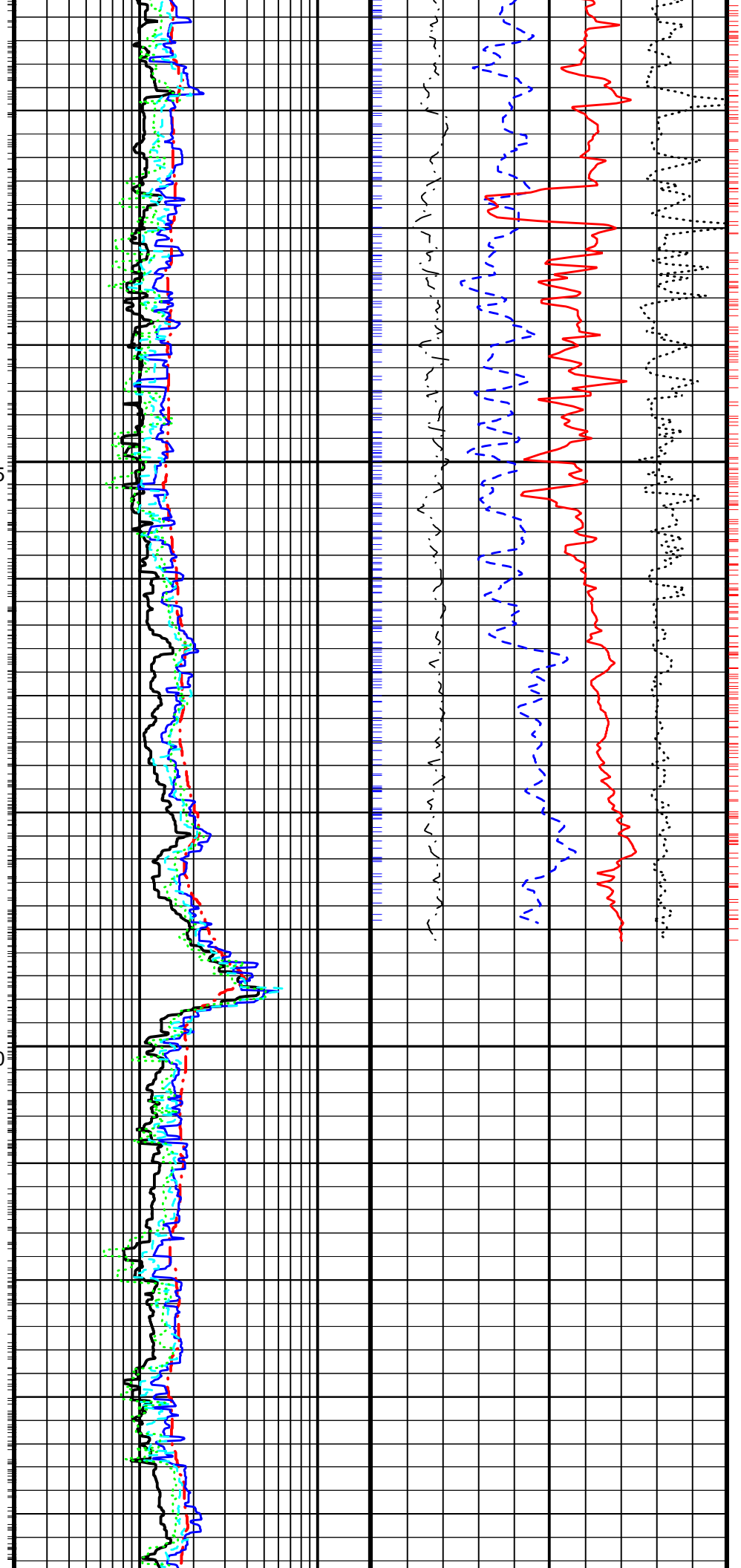


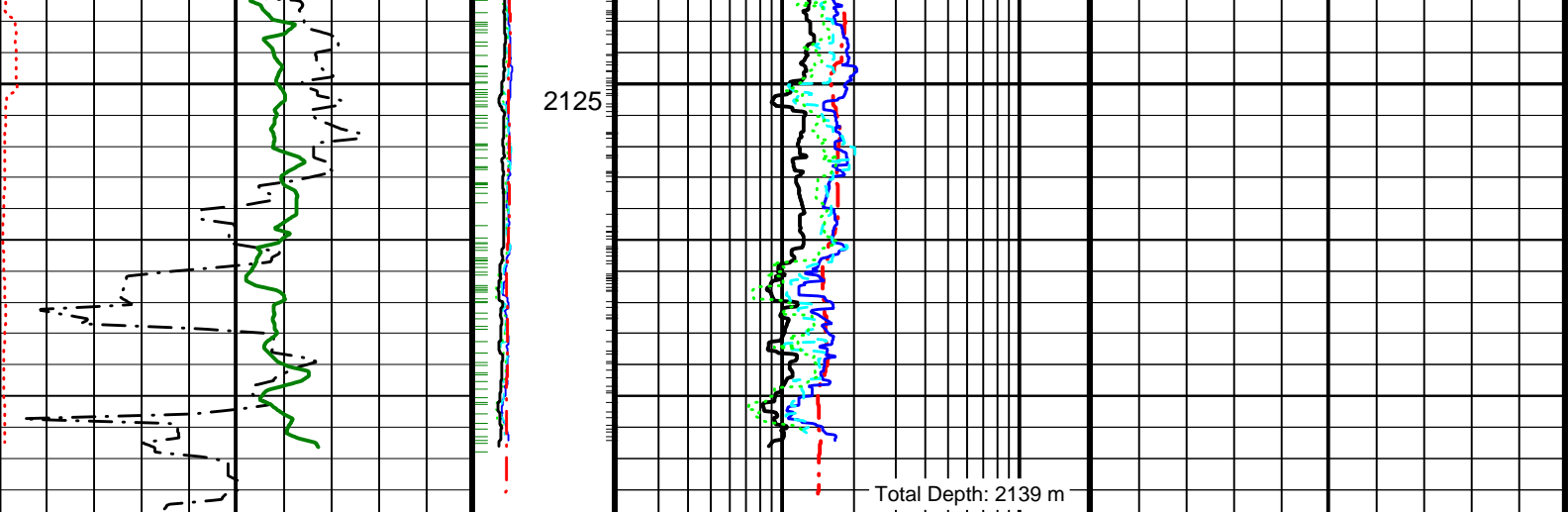




2075

2100





Density Time After Bit (TAB_DEN) (HR)	0	10	Ring Resistivity (RES_RING) (OHMM)	0.2	20	Thermal Neutron Porosity (TNPH) (PU)	100	0
RAB Gamma Ray (GR_RAB) (GAPI)	0	150	Bit Resistivity (RES_BIT) (OHMM)	0.2	20	Image Derived Density (IDRO) (G/C3)	1	2.65
Density Caliper, Average (DCAV) (IN)	9	14	Deep Button Resistivity (RES_BD) (OHMM)	0.2	20	Image Derived Density Correction (IDDR) (G/C3)	-0.8	0.2
Rate of Penetration, Averaged over Last 5ft (ROP5_RM) (M/HR)	100	0	Medium Button Resistivity (RES_BM) (OHMM)	0.2	20	Image Derived Photoelectric Factor (IDPE) (---)	0	10
Ring Resistivity Time After Bit (TAB_RAB_RING) (HR)	0	10	Shallow Button Resistivity (RES_BS) (OHMM)	0.2	20			

PIP SUMMARY

Density Ticks, 0.1-ft ↑

Neutron Ticks, 0.1 ft ↑

↑ Ring Samples
↑ Gamma Ray Samples

IDEAL Version: ID10_2B_08
IDF

6.75-in. Resistivity At-the-Bit / Equipment Identification

Primary Equipment:
Tool Name and Serial Number
Calibration Status

RAB6 - CA 163

Master: 11-Sep-2005 13:40

6.75-in. Resistivity At-the-Bit Calibration

Resistivity: Fixture

Phase	Ring/T1 factor	Value	Phase	Ring/T2 factor	Value	Phase	M0/T1 factor	Value
Master		1.012	Master		1.005	Master		1.010
	0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum)			0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum)			0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum)	
Phase	M0/T2 factor	Value	Phase	M2/T1 factor	Value	Phase	M2/T2 factor	Value
Master		1.002	Master		1.007	Master		1.000
	0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum)			0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum)			0.9750 (Minimum) 1.000 (Nominal) 1.025 (Maximum)	
Phase	BTN shallow/T1 factor	Value	Phase	BTN shallow/T2 factor	Value	Phase	BTN medium/T1 factor	Value
Master		1.007	Master		1.000	Master		1.012

0.9750 (Minimum)	1.000 (Nominal)	1.025 (Maximum)	0.9750 (Minimum)	1.000 (Nominal)	1.025 (Maximum)	0.9750 (Minimum)	1.000 (Nominal)	1.025 (Maximum)		
Phase	BTN medium/T2 factor		Phase	BTN deep/T1 factor		Phase	BTN deep/T2 factor			
Master			1.004	Master			1.018	Master		
0.9750 (Minimum)	1.000 (Nominal)	1.025 (Maximum)	0.9750 (Minimum)	1.000 (Nominal)	1.025 (Maximum)	0.9750 (Minimum)	1.000 (Nominal)	1.025 (Maximum)		

Master: Calibration date not found								
6.75-in. Resistivity At-the-Bit Calibration								
Gamma Ray: Blanket								
Phase	Gamma ray factor						Value	
Master							0.9231	
	0.7500 (Minimum)		1.000 (Nominal)			1.250 (Maximum)		

6.75-in. Azimuthal Density Neutron / Equipment Identification								
Primary Equipment:			ADN6 - CA			383		
Tool Name and Serial Number			ADDC - AA					
Collar Type and Serial Number			ADSE - EA					
Chassis Type and Serial Number								
Stabilizer Type and Serial Number						1		
Neutron Logging Source			NSR - M			204		
Density Logging Source			GSR - J/Z			2129		
Stabilizer Size			9.50 - in.					
Calibration Status								

Master: 8-Sep-2005 9:54											
6.75-in. Azimuthal Density Neutron Calibration											
Density: Magnesium Block											
Phase	LS window 3 - Mg CPS		Value	Phase	SS window 1 - Mg CPS		Value	Phase	SS window 3 - Mg CPS		Value
Master			743.7	Master			2004	Master			5405
	250.0 (Minimum)	4125 (Nominal)	8000 (Maximum)		700.0 (Minimum)	9350 (Nominal)	18000 (Maximum)		2500 (Minimum)	23750 (Nominal)	45000 (Maximum)

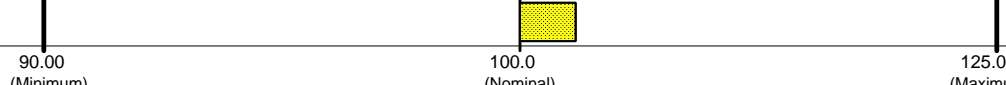
Master: 8-Sep-2005 9:54											
6.75-in. Azimuthal Density Neutron Calibration											
Density: Aluminum Block											
Phase	LS window 3 - Al CPS		Value	Phase	SS window 1 - Al CPS		Value	Phase	SS window 3 - Al CPS		Value
Master			123.6	Master			1194	Master			3842
	50.00 (Minimum)	725.0 (Nominal)	1400 (Maximum)		500.0 (Minimum)	4250 (Nominal)	8000 (Maximum)		1500 (Minimum)	15750 (Nominal)	30000 (Maximum)

Master: 8-Sep-2005 9:54											
6.75-in. Azimuthal Density Neutron Calibration											
Density: Background											
Phase	LS window 3 - Background CPS		Value	Phase	SS window 1 - Background CPS		Value	Phase	SS window 3 - Background CPS		Value
Master			49.10	Master			128.6	Master			549.5
	15.00 (Minimum)	82.50 (Nominal)	150.0 (Maximum)		40.00 (Minimum)	220.0 (Nominal)	400.0 (Maximum)		150.0 (Minimum)	825.0 (Nominal)	1500 (Maximum)

Master: 8-Sep-2005 9:54									
6.75-in. Azimuthal Density Neutron Calibration									
Density: Water Block Check									
Phase	Long spacing water density G/C3			Value	Phase	Short spacing water density G/C3			Value
Master				1.021	Master				1.128
	1.002 (Minimum)	1.017 (Nominal)	1.032 (Maximum)		1.080 (Minimum)	1.110 (Nominal)	1.140 (Maximum)		

Master: 8-Sep-2005 9:54											
6.75-in. Azimuthal Density Neutron Calibration											
Neutron: 3-Point Calibration											
Phase	Far 1 tube 1 Air Point Measure CPS		Value	Phase	Far 1 tube 1 Rod Point Measure CPS		Value	Phase	Far 1 tube 1 H2O Point Measure CPS		Value
Master			18.05	Master			4.513	Master			2.262
	15.00 (Minimum)	19.05 (Nominal)	21.00 (Maximum)		4.000 (Minimum)	4.857 (Nominal)	5.500 (Maximum)		1.900 (Minimum)	2.363 (Nominal)	2.700 (Maximum)
Phase	Far 1 tube 2 Air Point Measure CPS		Value	Phase	Far 1 tube 2 Rod Point Measure CPS		Value	Phase	Far 1 tube 2 H2O Point Measure CPS		Value

Master					18.56	Master					4.823	Master					2.314
	16.00 (Minimum)	19.05 (Nominal)	22.00 (Maximum)				4.000 (Minimum)	4.857 (Nominal)	5.500 (Maximum)				1.900 (Minimum)	2.363 (Nominal)	2.800 (Maximum)		
Phase	Far 1 tube 3	Air Point Measure	CPS	Value		Phase	Far 1 tube 3	Rod Point Measure	CPS	Value		Phase	Far 1 tube 3	H2O Point Measure	CPS	Value	
Master				17.81		Master				4.630		Master				2.260	
	15.00 (Minimum)	19.05 (Nominal)	21.00 (Maximum)				4.000 (Minimum)	4.857 (Nominal)	5.500 (Maximum)				1.900 (Minimum)	2.363 (Nominal)	2.700 (Maximum)		
Phase	Far 2 tube 1	Air Point Measure	CPS	Value		Phase	Far 2 tube 1	Rod Point Measure	CPS	Value		Phase	Far 2 tube 1	H2O Point Measure	CPS	Value	
Master				17.93		Master				4.776		Master				2.277	
	15.00 (Minimum)	19.05 (Nominal)	21.00 (Maximum)				4.000 (Minimum)	4.857 (Nominal)	5.500 (Maximum)				1.900 (Minimum)	2.363 (Nominal)	2.700 (Maximum)		
Phase	Far 2 tube 2	Air Point Measure	CPS	Value		Phase	Far 2 tube 2	Rod Point Measure	CPS	Value		Phase	Far 2 tube 2	H2O Point Measure	CPS	Value	
Master				18.39		Master				4.673		Master				2.284	
	16.00 (Minimum)	19.05 (Nominal)	22.00 (Maximum)				4.000 (Minimum)	4.857 (Nominal)	5.500 (Maximum)				1.900 (Minimum)	2.363 (Nominal)	2.800 (Maximum)		
Phase	Far 2 tube 3	Air Point Measure	CPS	Value		Phase	Far 2 tube 3	Rod Point Measure	CPS	Value		Phase	Far 2 tube 3	H2O Point Measure	CPS	Value	
Master				18.00		Master				4.759		Master				2.322	
	15.00 (Minimum)	19.05 (Nominal)	21.00 (Maximum)				4.000 (Minimum)	4.857 (Nominal)	5.500 (Maximum)				1.900 (Minimum)	2.363 (Nominal)	2.700 (Maximum)		
Phase	Near 1 tube 1	Air Point Measure	CPS	Value		Phase	Near 1 tube 1	Rod Point Measure	CPS	Value		Phase	Near 1 tube 1	H2O Point Measure	CPS	Value	
Master				464.1		Master				750.1		Master				339.9	
	400.0 (Minimum)	487.5 (Nominal)	540.0 (Maximum)				610.0 (Minimum)	768.8 (Nominal)	850.0 (Maximum)				270.0 (Minimum)	343.7 (Nominal)	390.0 (Maximum)		
Phase	Near 2 tube 1	Air Point Measure	CPS	Value		Phase	Near 2 tube 1	Rod Point Measure	CPS	Value		Phase	Near 2 tube 1	H2O Point Measure	CPS	Value	
Master				459.0		Master				743.2		Master				337.7	
	400.0 (Minimum)	487.5 (Nominal)	540.0 (Maximum)				610.0 (Minimum)	768.8 (Nominal)	850.0 (Maximum)				270.0 (Minimum)	343.7 (Nominal)	390.0 (Maximum)		

Master: 8-Sep-2005 9:54																		
6.75-in. Azimuthal Density Neutron Calibration																		
Neutron: Water Block Check																		
Phase	Far Neutron water porosity PU															Value		
Master																103.0		
	90.00 (Minimum)																	125.0 (Maximum)

Company: Lamont-Doherty Borehole Research

Schlumberger

Well: IODP Expedition 311 CAS-03C

Field: Cascadia Margin

Rig: JOIDES Resolution

State: Pacific Ocean

GeoVISION Service
1:240 Measured Depth
Recorded Mode Log

Data Quality Report

Type of Measurement

Geomarket	NGC	Location	Vancouver Island
Job Date	22-SEP-2005	Customer	Lamont-Doherty Borehole Research
Rig	JOIDES Resolution	Field/Well	Cascadia Margin/CAS-03C
Engineer	Lake Loh	Job Number	40012416

Res	GR	Neu	Den
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When data does not meet standards, put a number in the column corresponding to the measurement with a corresponding number and remark below. Use additional pages for remarks. Positive remarks are welcome; do not append them with a number.

Remarks

- Correcting the resistivity data by assuming mud resistivity as 1 ohm @ 75 degF.
- Depth is not compensated for heave. The heave cause the spikes of ROP and this eventually cause the low data density and distortion on the image. The heave also cause the curves (gamma ray, resistivity, density and neutron porosity) do not correlate to each other very well.
- Correcting the Neutron Porosity data by assuming borehole salinity as 0 ppk.

Operation

Description of Well - Names, Geometry, Services, Location and References; General Content Header, user of trademarks, directional data, well plot, order of components, spelling and style, units sensor to toolface angle recorded

Equipment and Software Description

Tool sketch, equipment numbers, software versions, data rates, filtering weights

Processing Traceability and Environment Description

Acquisition environment; parameters and key constants for each run or zone, complete and relevant remarks

Annotations, Presented Formats, QC Curves, Print Quality

Documented splice points; data gap explanations, mud changes, movement indicator, color selection

Calibration and Verifications

Calibration / Before survey verification / After survey verification

Validity, completeness (includes equipment number), timeliness, unedited, discrepancy explained

Operating Procedures

Depth Control

Comparison with driller's depth, other logs, other bit runs, between RT and RM, Depth summary listing

Logging speed and sampling rates

As recommended in reference manual or job planner. No loss of data or spatial resolution

Data Comparison

Between runs and passes, with data from nearby wells, other conveyance, mud log and markers

Operating Anomalies/Failure/Missing Data/Sensor Orientation/Transmission Losses

Absence of noise and spurious variations, anomaly repeated, corrected, reported or explained.

Digital Delivery

Digital Products

Labeled, verification listing with complete digital record, backup for archival, record matches hard copy.

Job Quality Rating (JQR)
Number of boxes without number X 10

Environmental effects

Irregular Operation	1, 4	1	1	1	
Excessive ROP or speed, high deviation, shocks, vibrations, sticking conditions					
Borehole Geometry	2	2	2	2	
Shape (caves, etc), rugosity, spiralled hole, mud induced fractures, Casing, tubing conditions					
Borehole Fluid					
Barite, KCl, salinity, additives, gas cut, unstable					
Interferences					
External noise, nearby casing or drillpipe, debris, unusual formation composition					
Operation Outside Tool Specifications	3				
Geomet/Temperature, pressure, hole size, hole deviation, dog-leg severity, flow rate, rpm, solids value of parameter					
Environmental Quality Rating (EQR) Number of boxes without number X 20	40	60	60	60	

- Excessive ROP is causing low data density.
- Borehole washouts cause the resistivity curves separation, geoVISION Gamma Ray and adnVISION Neutron Porosity is only corrected for bit size. Large borehole washouts cause low density readings.
- Low RPM during the early stage of the well reduce the image's resolution.
- Bit resistivity measurement is highly depends on the contact between formation and the bit

Cell Manager: Lake Loh FSM: Vijay Moras

Geomarket	NGC	Location	Vancouver Island
Job Date	22-SEP-2005	Customer	Lamont-Doherty Borehole Research
Rig	JOIDES Resolution	Field/Well	Cascadia Margin/CAS-03C
Engineer	Lake Loh	Job Number	40012416

Type of Measurement

Res	GR	Neu	Den	
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Data Quality Report

When data does not meet standards, put a number in the column corresponding to the measurement with a corresponding number and remark below. Use additional pages for remarks. Positive remarks are welcome; do not append them with a number.

Remarks

Operation

Description of Well - Names, Geometry, Services, Location and References; General Content Header, user of trademarks, directional data, well plot, order of components, spelling and style, units sensor to toolface angle recorded
 Equipment and Software Description
 Tool sketch, equipment numbers, software versions, data rates, filtering weights
 Processing Traceability and Environment Description
 Acquisition environment; parameters and key constants for each run or zone, complete and relevant remarks
 Annotations, Presented Formats, QC Curves, Print Quality
 Documented splice points; data gap explanations; mud changes; movement indicator; color selection

Calibration and Verifications

Calibration / Before survey verification / After survey verification
 Validity, completeness (includes equipment number), timeliness, unedited, discrepancy explained

Operating Procedures

Depth Control
 Comparison with driller's depth, other logs, other bit runs, between RT and RM, Depth summary listing
 Logging speed and sampling rates
 As recommended in reference manual or job planner. No loss of data or spatial resolution
 Data Comparison
 Between runs and passes, with data from nearby wells, other conveyance, mud log and markers
 Operating Anomalies/Failure/Missing Data/Sensor Orientation/Transmission Losses
 Absence of noise and spurious variations, anomaly repeated, corrected, reported or explained.

Digital Delivery

Digital Products
 Labeled, verification listing with complete digital record, backup for archival; record matches hard copy.

Job Quality Rating (JQR)

Number of boxes without number X 10

Environmental effects

Irregular Operation
 Excessive ROP or speed, high deviation, shocks, vibrations, sticking conditions
 Borehole Geometry
 Shape (caves, etc), rugosity, spiralled hole, mud induced fractures. Casing, tubing conditions
 Borehole Fluid
 Barite, KCl, salinity, additives, gas cut, unstable
 Interferences
 External noise, nearby casing or drillpipe, debris, unusual formation composition
 Operation Outside Tool Specifications
 Geomarket/Temperature, pressure, hole size, hole deviation, dog-leg severity, flow rate, rpm, solids value of parameter

Environmental Quality Rating (EQR)

Number of boxes without number X 20

Cell Manager:

Lake Loh

FSM:

Vijay Moras



Revised January 2002

Schlumberger Drilling & Measurements

DQR Header Utility ver 1.1c

Measurement