

<p style="text-align: center;">DISCLAIMER</p> <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>		
<p>OTHER SERVICES FOR RUN</p> <p>Downhole weight-on-bit (DWOB)</p> <p>Downhole torque (DTOR)</p> <p>Multi-axis vibrational chassis (MVC)</p>	<p>OTHER SERVICES FOR RUN</p>	<p>OTHER SERVICES FOR RUN</p>
<p>REMARKS: RUN NUMBER1</p> <p>The well was drilled without riser.</p> <p>Drilling fluid was seawater.</p> <p>Rm = 0.19 ohm.m @ 75 deg F.</p> <p>Gamma ray, resistivity, and density data are not environmentally corrected.</p> <p>Neutron porosity data are corrected for bit size, temperature, pressure, mud hydrogen index, and salinity.</p> <p>Downhole tools software versions:</p> <p>GVR: 6.1</p> <p>PowerPulse: 6.1</p> <p>VADN: 6.9</p>	<p>REMARKS: RUN NUMBER</p>	<p>REMARKS: RUN NUMBER</p>

Drilling and Measurements crew:
Khaled Moudjeber
Stefan Mrozewski

EQUIPMENT DESCRIPTION

RUN1

RUN

RUN

DOWNHOLE EQUIPMENT

VADN6-306 30.15
9.5 in. stabilizer
Neutron 28.25
Neutron 28.10
Density 27.23
Density 27.14
NSR-M A0070 UltraSon 26.76
GSR-J A1999 R-O Por 26.00

MRT-004 EXPT 23.99
9.625 in. stabilizer

ROP Sen 18.11

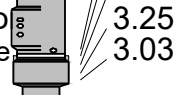
Ant1 14.95

Ant2 14.29

PowerPulse-750 12.84
D&I 9.67
9.07

Shallow 3.86
Medium 3.74
GVR6-164 Deep 3.56
Ring Re 3.39
5.36

9.25 in. stabilizer
9.125 in. button sleeve



Cross Over 2.28
Float Sub Bit Res 1.26 1.92
Bit Sub 1.18
Milled Tooth Bit (9.875 in.) 0.00 0.27

MAXIMUM STRING DIAMETER 9.875 IN
ALL LENGTHS IN METERS

Bit Run Summary

Run number		1								
Bit size	in	9.875								
Bit start depth	m	858.0								
Bit end depth	m	1042.3								
Top interval logged	m	859.5								
Bottom interval logged	m	1041.0								
Begin log: time		03:00								
Begin log: date		19-Jul-02								
End log: time		12:19								
End log: date		19-Jul-02								
Mud data										
Depth	m	858								
Type		Seawater								
Mud weight	ppg	8.33								
Solids										
Chlorides										
Rm	ohm.m@degF	0.19@75								
Rmf										
Rmc										
Potassium										
Environmental data										
GR										
Mud weight	ppg	8.33								
Bit size	in	9.875								
Resistivity										
Neutron porosity										
Hole Size	in	9.875								
Mud weight	ppg	8.33								
Temperature	deg F	75								
Mud salinity										
Formation salinity										
Recording rate 1	SEC	5								
Recording rate 2	SEC	5								
Filtering GR		3 pt								
Filtering density		3 pt								
Filtering Neutron		3 pt								
Company representative		Goldberg								
Anadrill personnel		Mrozewski								

Variable Name	Variable Description	Run Name & Value	
		Run #0	Run #1
	RAB: Button Sleeve Diameter		RAB6:81/8IN
	RAB: Stabilizer Diameter		RAB6:9.62-9.88IN
A_DHS	ADN Down Hole Software Version String		YES
ALPHA_COMP	Perform Density Enhanced Vertical Resolution process ?		NO
ALPHA_COMP	Perform Neutron Enhanced Vertical Resolution process ?		NO
AVE_ADN	ADN/Array Channels: perform averaging(RM) :		YES
BDBHCA	RAB: Button Deep Borehole A Factor		-0.027352
BDBHCB	RAB: Button Deep Borehole B Factor		0.000000
BHA_COEF_V	RAB: BHA Coef Generator Version		62011.000000
BHT_RM	Bottom Hole Temperature (RM)		75.000000
BIT_K_FACT	RAB: Bit K Factor		4.876850
BITBHCA	RAB: Bit A Borehole Factor		0.082292
BITBHCB	RAB: Bit B Borehole Factor		0.000000
BMBHCA	RAB: Button Medium Borehole A Factor		0.038770
BMBHCB	RAB: Button Medium Borehole B Factor		0.000000
BS_RM	Bit Size (RM)		9.875000
BSAL_RM	Mud Salinity (RM)		60.000000
BSBHCA	RAB: Button Shallow Borehole A Factor		0.071293
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
C_WS	Overpressure correction to Sw and M		1.000000
CHI_RM	Caliper High limit from BS (RM)		2.000000
CLO_RM	Caliper Low limit from BS (RM)		0.000000
COEF_M	User Defined FEXP in Clean Sand		1.650000
DBUTTON_K_	RAB: Button Deep K factor		0.004493
DEVI	Well Section Deviation		0.100000
DHS_VERSION	RAB: DownHole Software Version		6.101400
DTIK_SEL	ADN: Density Tick Channel Name		LSAZ
DTMUD	Delta-T for Mud		205.435196
DYN_IMG_CO	Generate Dynamic Normalized Image?		YES
ENVCOR	Neutron Quadrant Processing: Environmental Correction?		YES
EVRL	EVR Process averaging number of samples (RM)		49
FEXP	Formation Factor Exponent(RM)		2.000000
FNUM	Formation Factor Enumerator(RM)		1.000000
FPHI_RM	Formation Factor Porosity Source (RM)		XPLOT
GCSE	Generalized Caliper Selection		BS
GR_BHC_TOO	RAB: Gamma-Ray Borehole Coeff 1		6.750000
HPS	ADSE-EB (High Pressure Inconel Chassis)?		NO
IBS	Intergal Blade Stabilizer Collar?		NO
IDQT	Image Derived Quality Threshold		2.000000
IHVS	Integrated Hole Volume Start Value(RM)		0.000000
IMAGE_MAX_	Image PEF(Segment) Right Scale		6.000000
IMAGE_MAX_	Image RHOB(Segment) Right Scale		2.650000
IMAGE_MAX_	Image SOA (Quadrant) Right Scale		2.500000
IMAGE_MAX_	RAB: GR Image Maximum Scale Value		120.000000
IMAGE_MAX_	RAB: Image Maximum Resistivity Value		3.000000
IMAGE_MIN_	Image PEF(Segment) Left Scale		2.000000
IMAGE_MIN_	Image RHOB(Segment) Left Scale		2.050000
IMAGE_MIN_	Image SOA (Quadrant) Left Scale		0.000000
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
LITHO_TYPE	Lithology (RM)		SAND
MAG_DECL_R	RAB: Magnetic Declination		17.699999
MAG_INCL_R	RAB: Magnetic Dip		66.409988
MBUTTON_K_	RAB: Button Medium K Factor		0.004767
MST_RM	Mud Sample temperature (RM)		75.000000
MW_RM	Mud Weight (RM)		8.330000
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
OBM	RAB: Oil base Mud		NO
OBMF_RM	Oil Based Mud		NO
ORIENTATION	Rab Image Orientation		NORTH
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?		NO
RAB_DEEPBT	Deep Button Resistivity for ECAL_RAB?		YES
RAB_DEEPBT	Input Deep Button Resistivity for Inversion?		YES
RAB_INVERS	Continuity Multiplier[0,1]		0.500000
RAB_INVERS	Ending Depth for GR Cutoff in Zone1 (default through the whole well)	100000.000000	
RAB_INVERS	Ending Depth of Zone10		-999.250000
RAB_INVERS	Ending Depth of Zone2		-999.250000
RAB_INVERS	Ending Depth of Zone3		-999.250000
RAB_INVERS	Ending Depth of Zone4		-999.250000
RAB_INVERS	Ending Depth of Zone5		-999.250000
RAB_INVERS	Ending Depth of Zone6		-999.250000
RAB_INVERS	Ending Depth of Zone7		-999.250000
RAB_INVERS	Ending Depth of Zone8		-999.250000
RAB_INVERS	Ending Depth of Zone9		-999.250000
RAB_INVERS	Formation Water Resistivity		0.100000
RAB_INVERS	Formation Water Temperature		150.000000
RAB_INVERS	GR Cutoff for Shale Formation		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	GR of Clean Sand Formation	-999.250000
RAB_INVERS	GR of Shale Formation	-999.250000
RAB_INVERS	Inversion Threshold[0, 0.3]	0.010000
RAB_INVERS	Perform Rt Inversion?	NO
RAB_INVERS	RAB Bit Sensor Weight for Inversion[0,1]	0.000000
RAB_INVERS	RAB Deep Button Sensor Weight for Inversion[0,1]	1.000000
RAB_INVERS	RAB inversion for Dh?	YES
RAB_INVERS	RAB inversion for Di?	YES
RAB_INVERS	RAB inversion for Rmud?	NO
RAB_INVERS	RAB inversion for Rt?	YES
RAB_INVERS	RAB inversion for Rxo?	YES
RAB_INVERS	RAB Medium Button Sensor Weight for Inversion[0,1]	1.000000
RAB_INVERS	RAB Ring Sensor Weight for Inversion[0,1]	1.000000
RAB_INVERS	RAB Shallow Button Sensor Weight for Inversion[0,1]	1.000000
RAB_INVERS	Resistive Invasion Allowed	NO
RAB_INVERS	Resistivity Cutoff for Shale Formation	2.000000
RAB_INVERS	Rt to R-deepest separation penalty multiplier[0,1]	0.500000
RAB_MEDIUM	Input Medium Button Resistivity for Inversion?	YES
RAB_MEDIUM	Medium Button Resistivity for ECAL_RAB?	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?	YES
RAB_SHALLO	Input Shallow Button Resistivity for Inversion?	YES
RAB_SHALLO	Shallow Button Resistivity for ECAL_RAB?	YES
RAB_TAB	RAB: Compute TAB ?	YES
RAB_TECHLO	RAB: Generate Techlog ?	YES
RAB_TEMP_S	RAB Temperature Selection	INTERPOLATE
RAB_TICKS	RAB: Generate Ticks ?	YES
RABBDA0	RAB: Button Deep A0 Coeff	-0.031054
RABBDA1	RAB: Button Deep A1 Coeff	0.012039
RABBDA2	RAB: Button Deep A2 Coeff	-0.002520
RABBDA3	RAB: Button Deep A3 Coeff	0.000234
RABBDA4	RAB: Button Deep A4 Coeff	-0.000008
RABBDA5	RAB: Button Deep A5 Coeff	0.000000
RABBDMIN	RAB: Button Deep Minimum Value	0.049941
RABBITA0	RAB: Bit A0 Coeff	0.743216
RABBITA1	RAB: Bit A1 Coeff	-0.670579
RABBITA2	RAB: Bit A2 Coeff	0.381407
RABBITA3	RAB: Bit A3 Coeff	-0.095540
RABBITA4	RAB: Bit A4 Coeff	0.008718
RABBITA5	RAB: Bit A5 Coeff	0.000000
RABBITMIN	RAB: Bit Minimum Value	21.288700
RABBMA0	RAB: Button Medium A0 Coeff	-0.042657
RABBMA1	RAB: Button Medium A1 Coeff	0.017752
RABBMA2	RAB: Button Medium A2 Coeff	-0.003932
RABBMA3	RAB: Button Medium A3 Coeff	0.000387
RABBMA4	RAB: Button Medium A4 Coeff	-0.000014
RABBMA5	RAB: Button Medium A5 Coeff	0.000000
RABBMIN	RAB: Button Medium Minimum Value	0.055926
RABBSA0	RAB: Button Shallow A0 Coeff	-0.058381
RABBSA1	RAB: Button Shallow A1 Coeff	0.024466
RABBSA2	RAB: Button Shallow A2 Coeff	-0.005376
RABBSA3	RAB: Button Shallow A3 Coeff	0.000526
RABBSA4	RAB: Button Shallow A4 Coeff	-0.000018
RABBSA5	RAB: Button Shallow A5 Coeff	0.000000
RABBSMIN	RAB: Button Shallow Minimum Value	0.077776
RABDHS	RAB Down Hole Software	4.000000
RABEC	RAB: Resistivity Env-Cor	YES
RABRNGA0	RAB: RING A0 Coeff	-0.025301
RABRNGA1	RAB: RING A1 Coeff	0.009433
RABRNGA2	RAB: RING A2 Coeff	-0.001901
RABRNGA3	RAB: RING A3 Coeff	0.000167
RABRNGA4	RAB: RING A4 Coeff	-0.000005
RABRNGA5	RAB: RING A5 Coeff	0.000000
RABRNGMIN	RAB: Ring Minimum Value	1.578150
READOUT_PO	RAB: ROP to Bit Face Distance	10.662729
RHOF_RM	Mud Filtrate Density (RM)	1.000000
RHOM_RM	Matrix density (RM)	2.650000
RING_K_FAC	RAB: Ring K Factor	0.149539
RING_KIMP	RAB: Ring Impedance Coeff A	0.000000
RINGBHCA	RAB: Ring Borehole A Factor	0.295893
RINGBHCB	RAB: Ring Borehole B Factor	0.000000
RMS_RM	Resistivity of Mud Sample (RM)	0.190000
RWA_COMP_M	Rwa computation model	BASIC
RWA_DEN_AD	Rwa Density Input	ROBB
RWA_DEN_CD	Rwa Density Input	RHOB
RWA_DEN_IN	Rwa Density Input	ROBB
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
SBUTTON_K	RAB: Button Shallow K Factor	0.006487
SCALE_IMAG	RAB: Process Image Data	YES
SHT_RM	Surface Hole Temperature (RM)	-115.000000
SOCNL	Standoff Distance of the CNL Tool	1.000000
SSIZ_ADN	ADN Stabilizer Size	9.500000
STAB	RAB: Run with Stabilizer	YES
STOH	ADN Density Top of Hole Sector (Left Boundary):	SECTOR 0
TD_RM	Total Measured Depth (RM)	4219.000000
TFF_OFFSET	RAB Time-Frame File Time Offset	0.000000

TIMEFRAME_	RAB: Time Frame File Name	0.000000
TOOLTYPE	RAB: Azimuthal Tool	YES
TRPM_RM	Average Tool Rotational Speed	20.000000
TS_VERSION	RAB: ToolScope Software Version	6.101400
TWS_RM	Temperature of Connate Water (RM)	75.000000
USMIN_RM	ADN:Minimum Ultrasonic standoff (RM)	0.300000
USWF_RM	ADN:Process Ultrasonic Waveform?	YES
VERS_ADN	ADN Downhole Software Version	6.900000
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
VRAB6	Rab Tool type (ENP/PILOT)	RAB6_C_SERIES
WIN_SIZE_D	RAB: Window Size for Scaling Dynamic Image	-3.000000
WSDI	Window Size of Dynamic Normalization Image	15.000000
XPDM_RM	Cross plot density prosioty multiplier	0.675000
XPNM_RM	Cross plot neutron prosioty multiplier	0.325000

IDEAL Version: ID7_0C_02
IDF

Format: GEOVIS_RES_5MD Vertical Scale: 1:200 Graphics File Created: 13-Aug-2002 12:55

PIP SUMMARY

- └ Gamma Ray Samples
- └ Ring Samples

	Ring Resistivity (RES_RING)	
	0.2	200
	(OHMM)	

	Bit Resistivity (RES_BIT)	
	0.2	200
	(OHMM)	

	Deep Button Resistivity (RES_BD)	
	0.2	200
	(OHMM)	

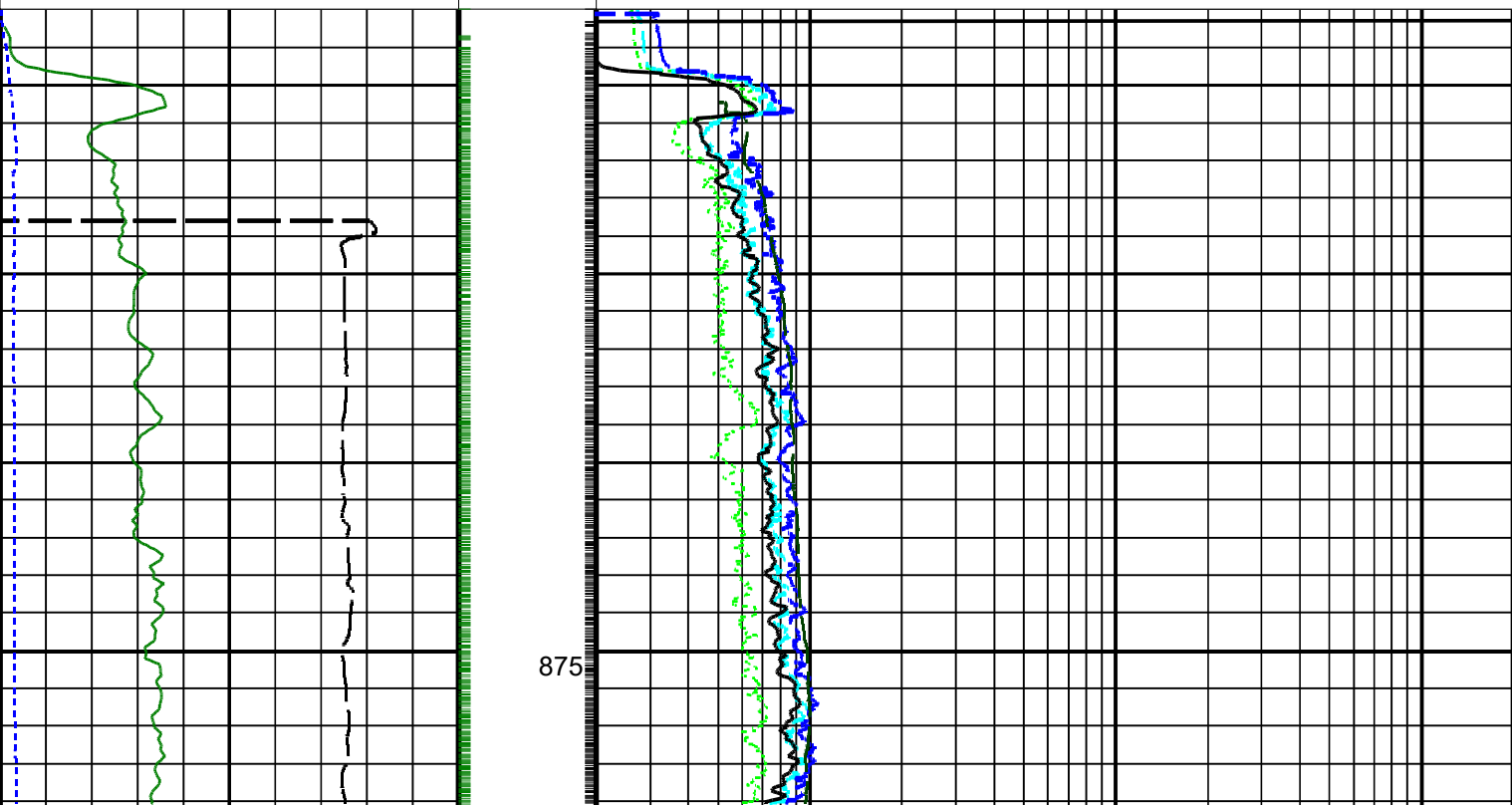
	Medium Button Resistivity (RES_BM)	
	0.2	200
	(OHMM)	

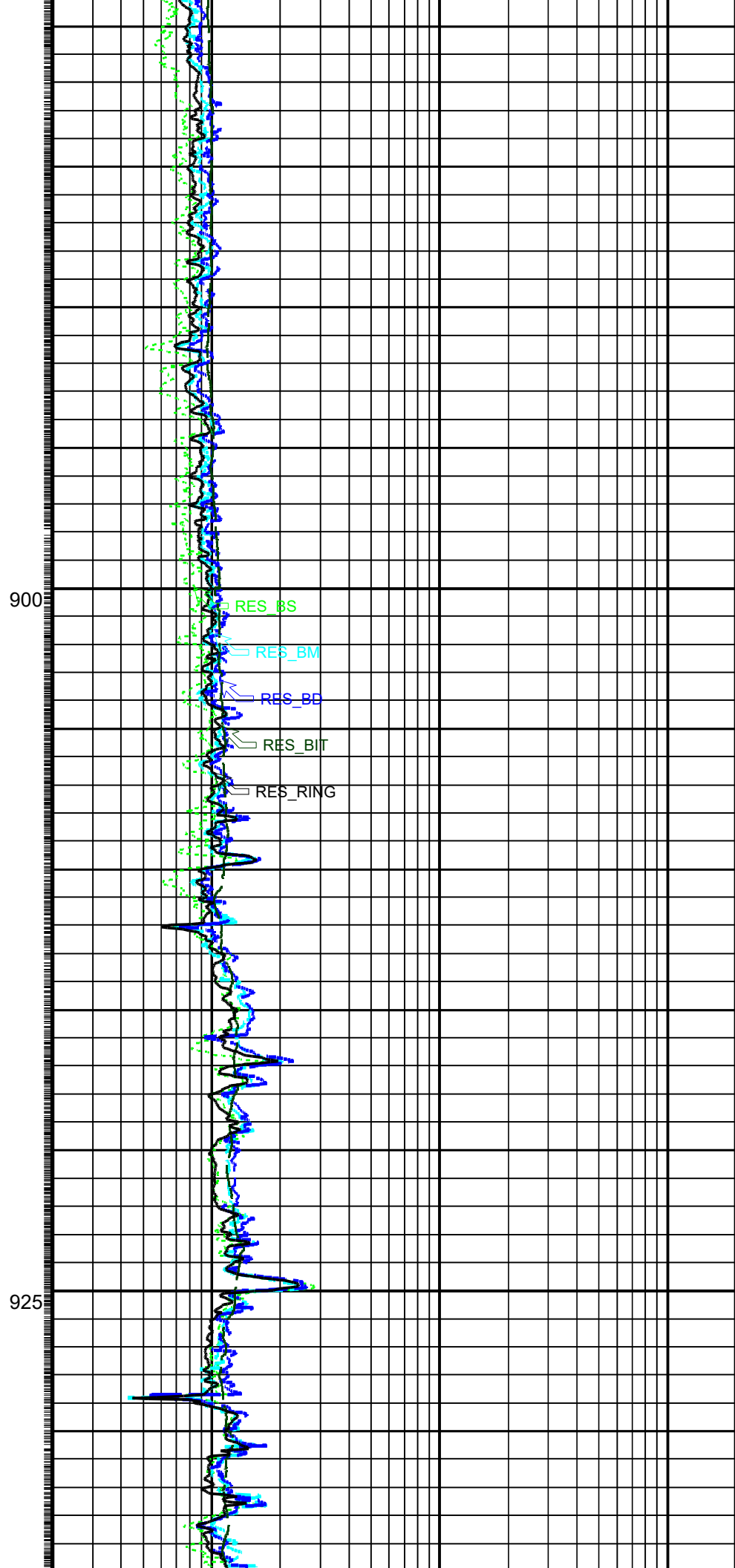
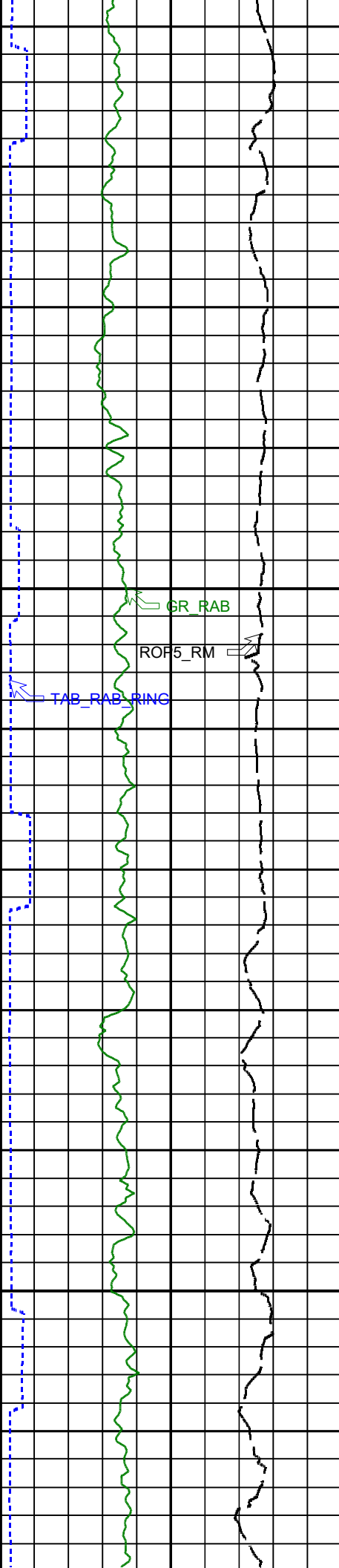
	Shallow Button Resistivity (RES_BS)	
	0.2	200
	(OHMM)	

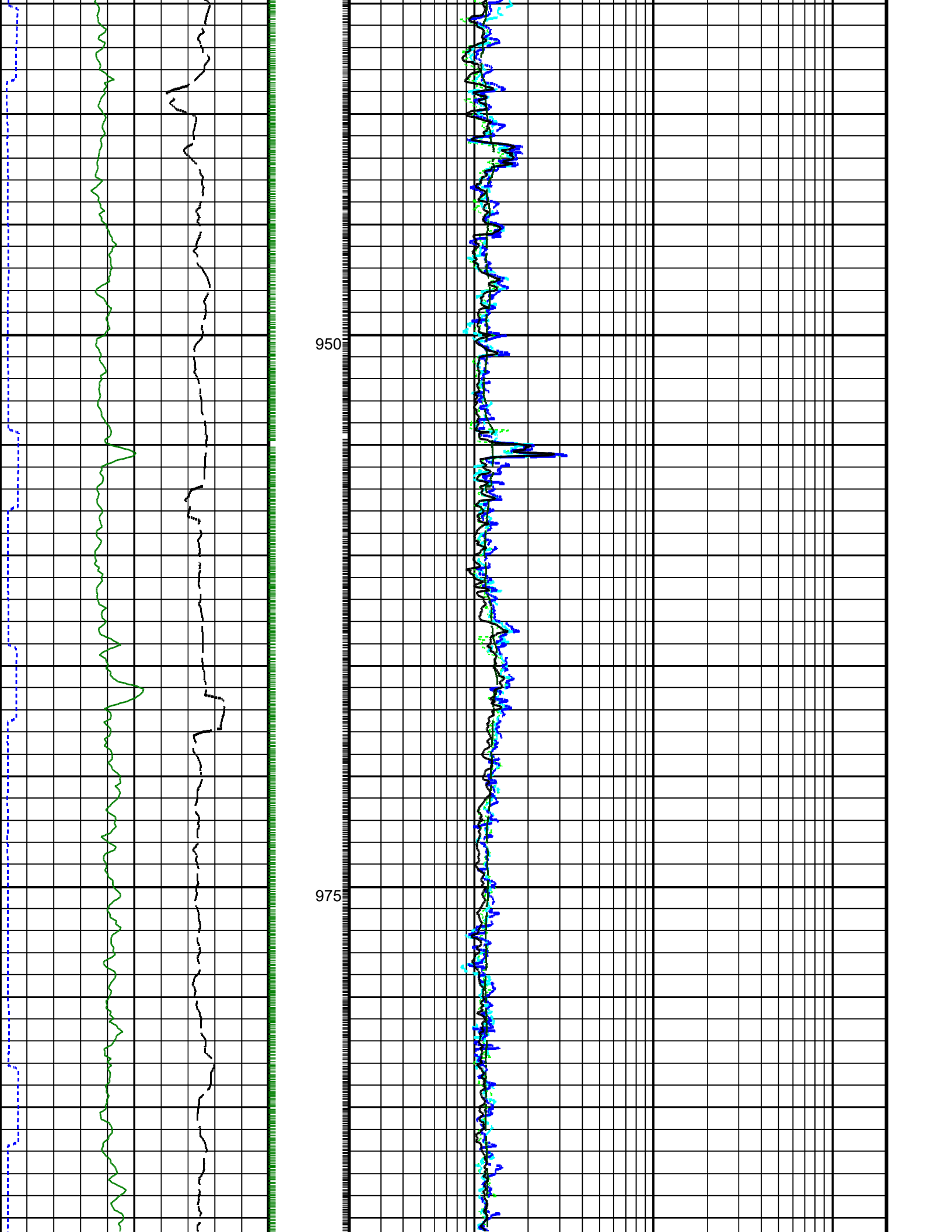
Ring Resistivity Time After Bit (TAB_RAB_RING)		
0	(HR)	5

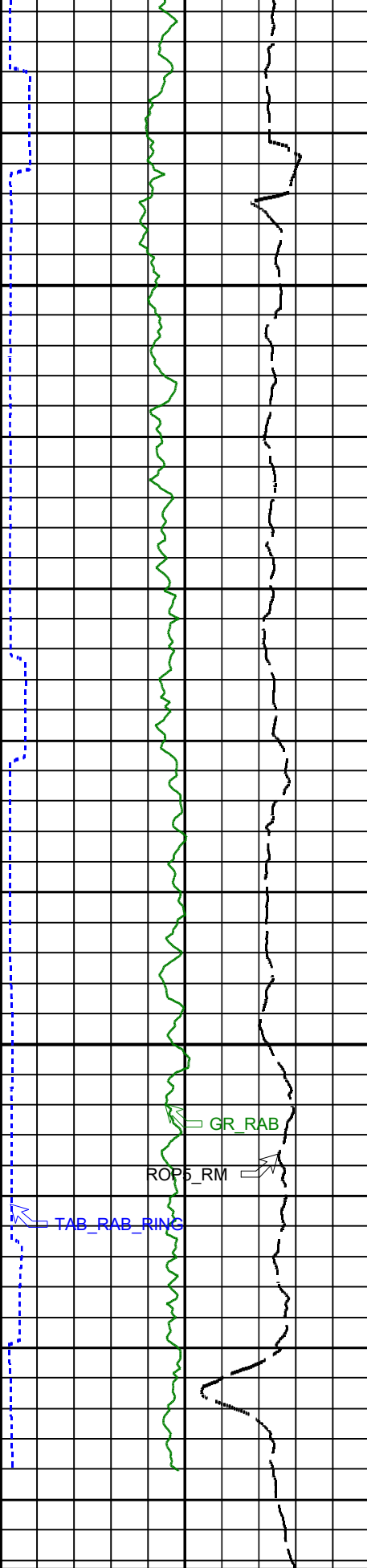
ROP: 5 Feet Average (ROP5_RM)		
100	(M/HR)	0

RAB Gamma Ray (GR_RAB)		
0	(GAPI)	150



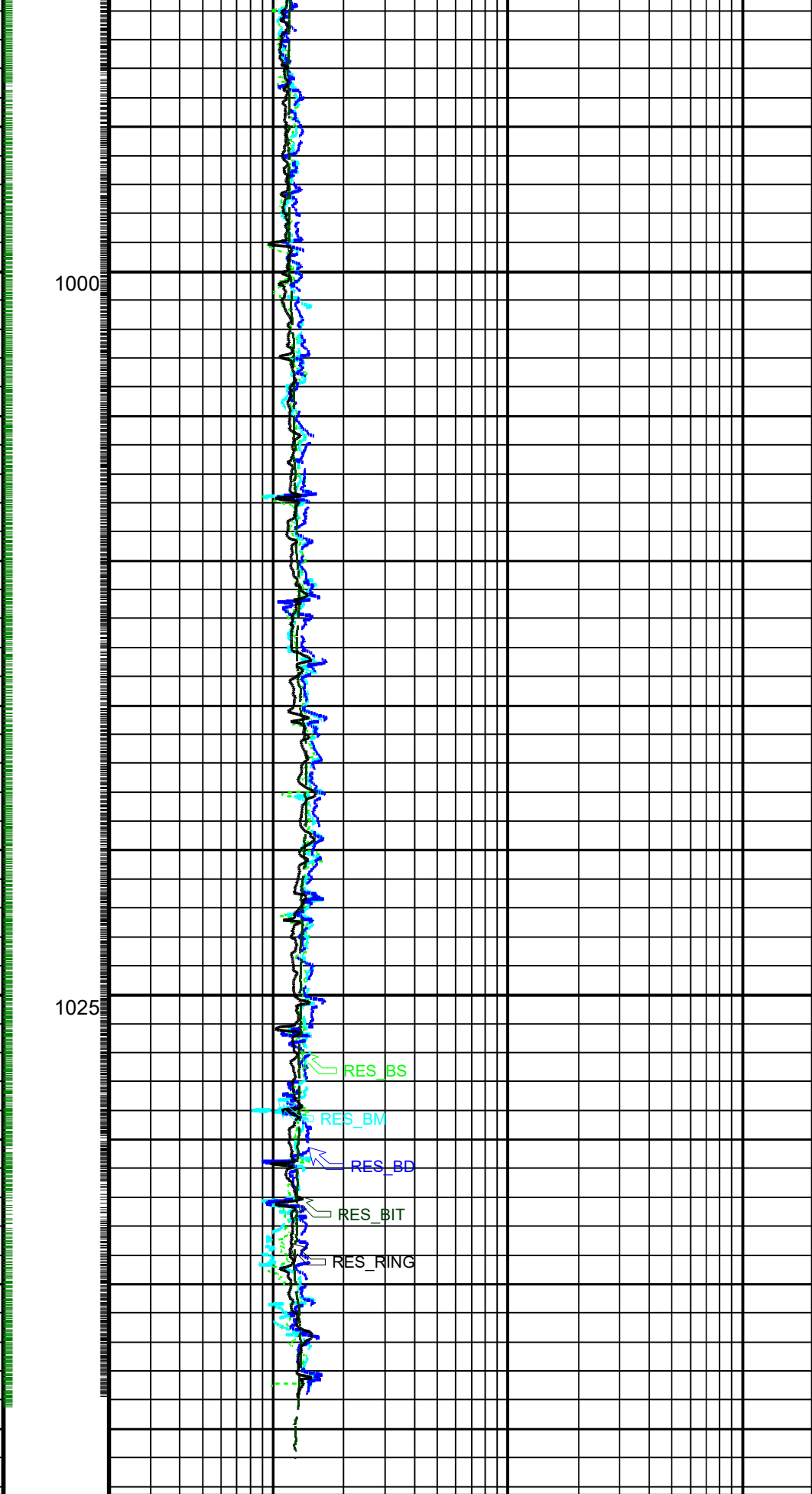






RAB Gamma Ray (GR_RAB)
(GAPI) 0 150

ROP: 5 Feet Average (ROP5_RM)
(M/HR) 100 0



Shallow Button Resistivity (RES_BS)
(OHMM) 0.2 200

Medium Button Resistivity (RES_BM)
(OHMM) 0.2 200

<div> <div>Ring Resistivity Time After Bit (TAB_RAB_RING)</div> <div>05</div> <div>(HR)</div> </div>	<div> <div>Deep Button Resistivity (RES_BD)</div> <div>0.2200</div> <div>(OHMM)</div> </div>	
	<div> <div>Bit Resistivity (RES_BIT)</div> <div>0.2200</div> <div>(OHMM)</div> </div>	
	<div> <div>Ring Resistivity (RES_RING)</div> <div>0.2200</div> <div>(OHMM)</div> </div>	

<div> <div>PIP SUMMARY</div> <div> <div>Gamma Ray Samples</div> <div>Ring Samples</div> </div> </div>		
<div> <div>IDEAL Version: ID7_0C_02</div> <div>IDF</div> </div>		

<div> <div>6.75-in. Resistivity At-the-Bit / Equipment Identification</div> <div> <div>Primary Equipment:</div> <div> <div>Tool Name and Serial Number</div> <div>GVR6 - CA164</div> <div>Calibration Status</div> <div>Current</div> </div> </div> </div>		
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Master: 3-Jul-2002 14:56											
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	<div> <div>0.9750</div> <div>1.000</div> <div>1.025</div> <div>(Minimum)(Nominal)(Maximum)</div> </div>		0.9937	Master	<div> <div>0.9750</div> <div>1.000</div> <div>1.025</div> <div>(Minimum)(Nominal)(Maximum)</div> </div>		0.9984	Master	<div> <div>0.9750</div> <div>1.000</div> <div>1.025</div> <div>(Minimum)(Nominal)(Maximum)</div> </div>		0.9966
Phase	M0/T2 factor		Value	Phase	M2/T1 factor		Value	Phase	M2/T2 factor		Value
Master	<div> <div>0.9750</div> <div>1.000</div> <div>1.025</div> <div>(Minimum)(Nominal)(Maximum)</div> </div>		1.001	Master	<div> <div>0.9750</div> <div>1.000</div> <div>1.025</div> <div>(Minimum)(Nominal)(Maximum)</div> </div>		1.001	Master	<div> <div>0.9750</div> <div>1.000</div> <div>1.025</div> <div>(Minimum)(Nominal)(Maximum)</div> </div>		1.006
Phase	BTN shallow/T1 factor		Value	Phase	BTN shallow/T2 factor		Value	Phase	BTN medium/T1 factor		Value
Master	<div> <div>0.9750</div> <div>1.000</div> <div>1.025</div> <div>(Minimum)(Nominal)(Maximum)</div> </div>		1.003	Master	<div> <div>0.9750</div> <div>1.000</div> <div>1.025</div> <div>(Minimum)(Nominal)(Maximum)</div> </div>		1.007	Master	<div> <div>0.9750</div> <div>1.000</div> <div>1.025</div> <div>(Minimum)(Nominal)(Maximum)</div> </div>		1.005
Phase	BTN medium/T2 factor		Value	Phase	BTN deep/T1 factor		Value	Phase	BTN deep/T2 factor		Value
Master	<div> <div>0.9750</div> <div>1.000</div> <div>1.025</div> <div>(Minimum)(Nominal)(Maximum)</div> </div>		1.009	Master	<div> <div>0.9750</div> <div>1.000</div> <div>1.025</div> <div>(Minimum)(Nominal)(Maximum)</div> </div>		1.000	Master	<div> <div>0.9750</div> <div>1.000</div> <div>1.025</div> <div>(Minimum)(Nominal)(Maximum)</div> </div>		1.004

Master: 3-Jul-2002 14:56											
6.75-in. Resistivity At-the-Bit Calibration											
Gamma Ray: Blanket											
Phase	Gamma ray factor								Value		
Master	<div> <div>0.7500</div> <div>1.000</div> <div>1.250</div> <div>(Minimum)(Nominal)(Maximum)</div> </div>								1.123		

Company:	Lamont Doherty	Schlumberger	
Well:	ODP Leg 204 Site 1246A		
Field:	Hydrate Ridge		
Ocean:	Pacific		
State:	Oregon		

GeoVISION Resistivity

1 cm : 2 m

Measured Depth

