Schlumberger

Company: **LAMONT – DOHERTY**

9.875in Section

Well: **MNGH01–1– Site8 Hole A**

Field: **Maha Nadi Basin**

Rig: **JOIDES Resolution** Country: **India**

EcoSCOPE
1:200 Measured Depth
Recorded Mode Log

Rig: JOIDES Resolution
Field: Maha Nadi Basin
Location: Offshore Tamil Nadu
Well: MNGH01–1– Site8 Hole A
Company: LAMONT – DOHERTY

Location			Elevation		
Total depth:	2050.0 m		K.B.	Top Drive	
Spud date:	29–May–06		G.L.	–1690.5 m	
Runs:	1	To 1	D.F.	10.5 m	
Permanent datum:	Mean Sea Level		Elev.:	0.0 m	
Log measured from:	Rotary Table		10.5 m	above Perm. datum	
Depth reference:	Driller's Depth				

Service Order no.	X = 365551.4m	Longitude	Latitude
06INM0043	Y = 2096569.5m	E 85° 43.379'	N 18° 57.427'

Depth logged:	1701.0 m To 2047.0 m	Mag decl:	–0.88 deg.	Other services:	
Date logged:	29–May–06To 30–May–06	Mag dip:	25.44 deg.	SonicVISION	

Bore hole record			Casing record			
Hole size	from	to	Size	Density	from	to
9.875 in.	1700 m	2050 m				

Mud record			Borehole deviation record			
Type	from	to	Min	Max	from	to
Sea Water	1700 m	2050 m				

Surface equipment		Software record			
Unit	OLU–J–N844–1/02	IDEAL Wis	ID10_2C_01		
Depth system	PDA	SPM	hspm10_1c_05		
		LWD	GVR V6.2B Sonic V6.4_B10 DVD V11.0		
		MWD	PUP V90C00		

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

OTHER SERVICES FOR RUN	OTHER SERVICES FOR RUN	OTHER SERVICES FOR RUN
OTHER SERVICES FOR RUN1 Real time APWD Monitoring. SonicVISION	REMARKS: RUN NUMBER	REMARKS: RUN NUMBER
REMARKS: RUN NUMBER 1 Depth reference is Driller's depth All Data acquired from tool memory while drilling GR is corrected for bit size, tool size and mud weight. GVR resistivity is environmentally corrected for mud resistivity and bit size. EcoSCOPE resistivity is borehole compensated and environmentally corrected. Density is corrected for standoff by Spin and Ribs plot Neutron Porosity is corrected for bit size, tool size, mud hydrogen index, temperature, pressure and mud salinity Maximum Circulating Temperature = 7 degC Objective: Drill and log 9.875in section from sea floor to TD@2050m		

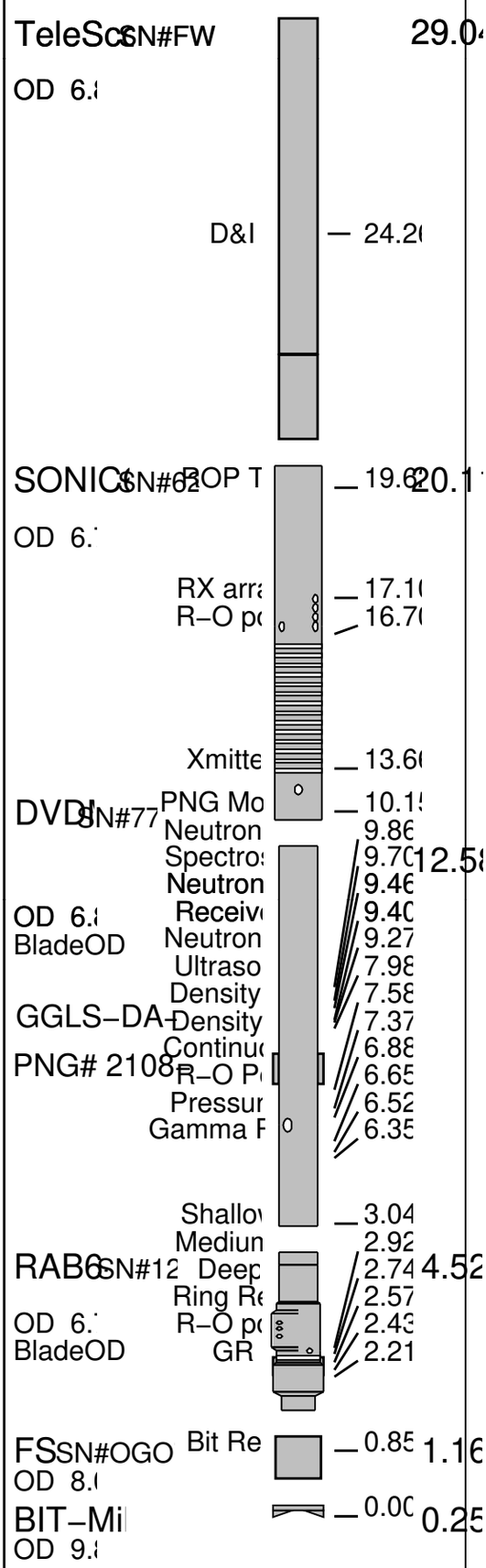
Results: Drilled and logged to section TD.

All calibration parameters within tolerance.

EQUIPMENT DESCRIPTION

RUN1	RUN	RUN

DOWNHOLE EQ



Maximum string diame All lengths in I		

Bit Run Summary

Run number		1									
Bit size	in	9.875									
Bit start depth	m	1700									
Bit end depth	m	2050									
Top interval logged	m	1701									
Bottom interval logged	m	2047									
Begin log: time		21:20									
Begin log: date		29–May–06									
End log: time		15:39									
End log: date		30–May–06									
Mud data											
Depth	m	1710									
Type		Sea Water									
Mud weight	ppg	8.665									
Solids	%	0									
Chlorides	ppm	26000									
Rm	ohmm@degC	0.214@27.9									
Rmf	ohmm@degC	0.214@27.9									
Rmc	ohmm@degC	N/A									
Potassium	%	0									
Environmental data											
GR											
Mud weight	ppg	8.665									
Bit size	in	9.875									
Resistivity											
Neutron porosity											
Hole Size	in	9.875									
Mud weight	ppg	8.665									
Temperature	degC	7									
Mud salinity	ppk	26									
Formation salinity	ppk	N/A									
Recording rate 1	SEC	2									
Recording rate 2	SEC	5									
Filtering GR		3 pts									
Filtering density		3 pts									
Filtering Neutron		3 pts									
Company representative		Stefan M.	Alberto	Ann							
Schlumberger D&M Personnel		Inetimi I.	Abhijeet N.	Ritesh S.	Shivek R.						

Variable Name	Variable Description	Run Name & Value	English Units
Run Number		**1**	
General Information			

BHT_RM Bottom Hole Temperature (RM) 44.600002
BSAL_RM Mud Salinity (RM) 26.000000
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) 82.219971
MW_RM Mud Weight (RM) 8.665000
OBMF_RM Oil Based Mud (RM) NO
RHOF_RM Mud Filtrate Density (RM) 1.000000
RHOM_RM Matrix density (RM) 2.710000
RMS_RM Resistivity of Mud Sample (RM) 0.214000
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 CARBONATE
RWA_RES_IN Rwa computation resistivity input P34H
RWS_RM Resistivity of Connate Water (RM) 1.000000
SHT_RM Surface Hole Temperature (RM) 3.200037
TD_RM Total Measured Depth (RM) 6725.721680
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/PARAMETERStation Time−frame file name Station
RAB/BTN_SLV_SIZE/PARAMETERRAB: Button Sleeve Diameter RAB6:
RAB/STAB_SIZE/PARAMETERRAB: Stabilizer Diameter RAB6:
BDBHCA RAB: Button Deep Borehole A Factor −0.025010
BDBHCB RAB: Button Deep Borehole B Factor 0.000000
BHA_COEF_V RAB: BHA Coef Generator Version 62011.000000
BITBHCA RAB: Bit A Borehole Factor 0.085619
BITBHCB RAB: Bit B Borehole Factor 0.000000
BIT_K_FACT RAB: Bit K Factor 3.651910
BMBHCA RAB: Button Medium Borehole A Factor 0.041085
BMBHCB RAB: Button Medium Borehole B Factor 0.000000
BSBHCA RAB: Button Shallow Borehole A Factor 0.073936
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 0.004549
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 NO
HI_DLIS_OU RAB: Allow Hi−Resolution DLIS Image Data Output NO
HI_RIVER_O RAB: Allow Hi−Resolution River for Image Data Output NO
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 −0.880000
MAG_INCL_R RAB: Magnetic Dip 25.439997
MBUTTON_K_ RAB: Button Medium K Factor 0.004817
OBM RAB: Oil base Mud NO
ORIENTATIO Rab Image Orientation NORTH
RABBDA0 RAB: Button Deep A0 Coeff −0.040578
RABBDA1 RAB: Button Deep A1 Coeff 0.023611
RABBDA2 RAB: Button Deep A2 Coeff −0.006379
RABBDA3 RAB: Button Deep A3 Coeff 0.000733
RABBDA4 RAB: Button Deep A4 Coeff −0.000029
RABBDA5 RAB: Button Deep A5 Coeff 0.000000
RABBDMIN RAB: Button Deep Minimum Value 0.050526
RABBITA0 RAB: Bit A0 Coeff 0.500230
RABBITA1 RAB: Bit A1 Coeff −0.368524
RABBITA2 RAB: Bit A2 Coeff 0.168660
RABBITA3 RAB: Bit A3 Coeff −0.034414
RABBITA4 RAB: Bit A4 Coeff 0.002550
RABBITA5 RAB: Bit A5 Coeff 0.000000
RABBITMIN RAB: Bit Minimum Value 19.196400
RABBMA0 RAB: Button Medium A0 Coeff −0.054082
RABBMA1 RAB: Button Medium A1 Coeff 0.031168
RABBMA2 RAB: Button Medium A2 Coeff −0.008354
RABBMA3 RAB: Button Medium A3 Coeff 0.000950
RABBMA4 RAB: Button Medium A4 Coeff −0.000038
RABBMA5 RAB: Button Medium A5 Coeff 0.000000
RABBMMIN RAB: Button Medium Minimum Value 0.056537
RABBSA0 RAB: Button Shallow A0 Coeff −0.069850
RABBSA1 RAB: Button Shallow A1 Coeff 0.037221
RABBSA2 RAB: Button Shallow A2 Coeff −0.009448
RABBSA3 RAB: Button Shallow A3 Coeff 0.001028
RABBSA4 RAB: Button Shallow A4 Coeff −0.000039
RABBSA5 RAB: Button Shallow A5 Coeff 0.000000
RABBSMIN RAB: Button Shallow Minimum Value 0.078603
RABDHS RAB Down Hole Software 4.000000
RABEC RAB: Resistivity Env−Cor YES
RABRNGA0 RAB: RING A0 Coeff −0.035222
RABRNGA1 RAB: RING A1 Coeff 0.021599

RABRNGA2 RAB: RING A2 Coeff −0.005992
RABRNGA3 RAB: RING A3 Coeff 0.000701
RABRNGA4 RAB: RING A4 Coeff −0.000029
RABRNGA5 RAB: RING A5 Coeff 0.000000
RABRNGMIN RAB: Ring Minimum Value 1.598150
RAB_BIT_EC Bit Resistivity for ECAL_RAB? YES
RAB_BIT_IN Input Bit Resistivity for Inversion? (Recommended at the bit) YES
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 Perform Rt Inversion? NO
RAB_INVERS RAB Bit Sensor Weight for Inversion[0,1] 1.000000
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? YES
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] 1.000000
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 Imput RING Resistivity for Inversion? YES
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 7.972441
RINGBHCA RAB: Ring Borehole A Factor 0.298889
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 0.151723
SBUTTON_K_ RAB: Button Shallow K Factor 0.006545
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

DVD

−−−−−−−−−− −−−−−−−−−−−−Density Parameter−−−−−−−−−−−−−−− −−−−−−−−−−−−Density
−−−−−−−−−− −−−−−−−−−−−−Neutron Parameter−−−−−−−−−−−−−−− −−−−−−−−−−−−Neutron
−−−−−−−−−− −−−−−−−−−Interpretation Parameter−−−−−−−−−−− −−−−−−−−−Interpretation
−−−−−−−−−− −−−−−−−−−Sigma Parameter−−−−−−−−−−− −−−−−−−−−Sigma
A12A ARC Air Cal Attenuation From T1 at 2 MHz 8.231560
A14A ARC Air Cal Attenuation From T1 at 400 KHz 8.289690
A22A ARC Air Cal Attenuation From T2 at 2 MHz 6.180950
A24A ARC Air Cal Attenuation From T2 at 400 KHz 6.148650
A32A ARC Air Cal Attenuation From T3 at 2 MHz 4.832750
A34A ARC Air Cal Attenuation From T3 at 400 KHz 4.884170
A42A ARC Air Cal Attenuation From T4 at 2 MHz 4.587220
A44A ARC Air Cal Attenuation From T4 at 400 KHz 4.539020
A52A ARC Air Cal Attenuation From T5 at 2 MHz 3.392490
A54A ARC Air Cal Attenuation From T5 at 400 KHz 3.445380
ABNT Abnormal Transmitter Indicator No_Tx_Failed
ALPHA_DEN_ Density Enhanced Vertical Resolution Processing Switch NO
ANISO_COMP Anisotropy Computation Option YES
ATMP_ARC ARC Select Temperature Channel Annulus_Temp
AZMF Formation DIP Azimuth 0.000000
BH_COMPUTE Borehole Inversion Computation Option YES
CALG DVDM Gamma Ray Cal Gain Factor −1.000000
CDPTH_ARC Process Start Depth 100.000000
DEVI Well Section Deviation 0.100000
DIELEC_COM Dielectric Computation Option YES
DIPF Formation DIP Angle 0.000000
DVDMDHS DVDM Down Hole Software Version 0.000000
DYN_IMAGE_ Generate Dynamic Normalized Image? YES
EDPTH Wizard Process Stop Depth 50000
EN_WIZARD Enable ARC Wizard Processing NO
ERRCT Percentage Error Cutoff 4.500000

EVRL	EVR Process averaging number of samples (RM)	49
FWVN	Firmware Version Number	1.100000
GCSE	Generalized Caliper Selection	BS
GRBC	RM: DVDM Gamma Ray Blanket (CPS)	75.000000
GRSH	GR Shale (Invasion Computation Cutoff)	1000.000000
GR_CF	Gamma Ray Correction Factor	2.250000
HIGH_BLEND	High Resistivity Threshold for Blending	2.000000
IDQT	Image Derived Quality Threshold	1.000000
IMAGE_MAX_	Image Density Caliper Right Scale	8.000000
IMAGE_MAX_	Image Density Quality Right Scale	1.000000
IMAGE_MAX_	Image PEF(Segment) Right Scale	6.000000
IMAGE_MAX_	Image RHOB(Segment) Right Scale	2.650000
IMAGE_MIN_	Image Density Caliper Left Scale	2.000000
IMAGE_MIN_	Image Density Quality Left Scale	0.000000
IMAGE_MIN_	Image PEF(Segment) Left Scale	2.000000
IMAGE_MIN_	Image RHOB(Segment) Left Scale	2.050000
IMAGE_ORIE	Image Orientation Options, e.g. Top of Hole or True North	TOH
INCLIN_B0	ARC Bias Constant (mg)	0.000000
INCLIN_B1	ARC Bias First−order Coefficient (mg/degC)	0.000000
INCLIN_B2	ARC Bias Secod−order Coeeficient (mg/degC)	0.000000
INCLIN_B3	ARC Bias Third−order Coeeficient (mg/degC)	0.000000
INCLIN_C0	ARC Current Scale Factor Constant (mA/g)	1.000000
INCLIN_C1	ARC Scale First−order Coeeficient (mA/g/degC)	0.000000
INCLIN_C2	ARC Scale Second−order Coeeficient (mA/g/degC)	0.000000
INCLIN_C3	ARC Scale Third−order Coeeficient (mA/g/degC)	0.000000
INVAS_COMP	Invasion Computation Option	YES
JSD	Acquisition start date	YES
JSD_ARC	ARC Acquisition start date	YES
LOW_BLEND	Low Resistivity Threshold for Blending	1.000000
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE
MSWS	ARC Wizard Model Switch Window	5.000000
MULTIEFFEC	Multi Effect Option	YES
NEU_DCOR_O	Density Correction Source for Neutron Processing	Bottom
NEU_FTUBE_	Far Thermal Tube Selection	Both
NTIK_SEL	Neutron Tick Channel Name	FAZ1
OACF	O2 Activation Correction Factor (RM)	0.000000
P12A	ARC Air Cal Phase−Shift From T1 at 2 MHz	2.472670
P14A	ARC Air Cal Phase−Shift From T1 at 400 KHz	−0.535700
P22A	ARC Air Cal Phase−Shift From T2 at 2 MHz	−2.538020
P24A	ARC Air Cal Phase−Shift From T2 at 400 KHz	0.538316
P32A	ARC Air Cal Phase−Shift From T3 at 2 MHz	2.412610
P34A	ARC Air Cal Phase−Shift From T3 at 400 KHz	−0.538400
P42A	ARC Air Cal Phase−Shift From T4 at 2 MHz	−2.561370
P44A	ARC Air Cal Phase−Shift From T4 at 400 KHz	0.492402
P52A	ARC Air Cal Phase−Shift From T5 at 2 MHz	2.441200
P54A	ARC Air Cal Phase−Shift From T5 at 400 KHz	−0.509005
PMUD	Potassium Concentration in Mud	0.000000
POFFSET	Pressure Offset	0.000000
PRTD	Preferred Resistivity Log for Rt Display while Multi−Effects	P34B
PSOF_ADJ_T	ARC: User Input Phase offset	0.000000
RESTIK	ARC resistivity tick source	Phase
SDPTH	Wizard Process Start Depth	100
SIG_PCOR_O	Porosity Correction Source for Sigma Processing	Best
SPEC_CSG_D	Casing Depth for Spectroscopy Processing	100.000000
SPL_CLAY_M	SpectroLith Clay Model	ARENITE
SPL_COAL_O	SpectroLith Coal Processing Option	NONE
SPL_SULFUR	SpectroLith Sulfur Mineral Option	ANHYDRITE
STAB_SIZE	Stabilizer Size	9.125000
STOH	Density Top of Hole Sector (Left Boundary)	SECTOR_0
TRNO	Tool Run Number	6725.721680
TSIZ_ARC	ARC Tool Size	6.900000
TSNO	Tool Serial Number	778.000000
UNIFORM_CO	Uniform Rock Option	YES
VERS_ARC	ARC Down hole software version Number	1.100000
WRK	Way to Report Potassium Concentration	K_by_Wgt_%
WSDI	Window Size of Dynamic Normalization Image	15.000000

Schlumberger Drilling & Measurements Parameter Insert Header Software version 2.0c

IDEAL Version: ID10_2C_01.1SV

IDF

Format: Eco_Combined_200MD Vertical Scale: 1:200 Graphics File Created: 30−May−2006 21:03

PIP SUMMARY

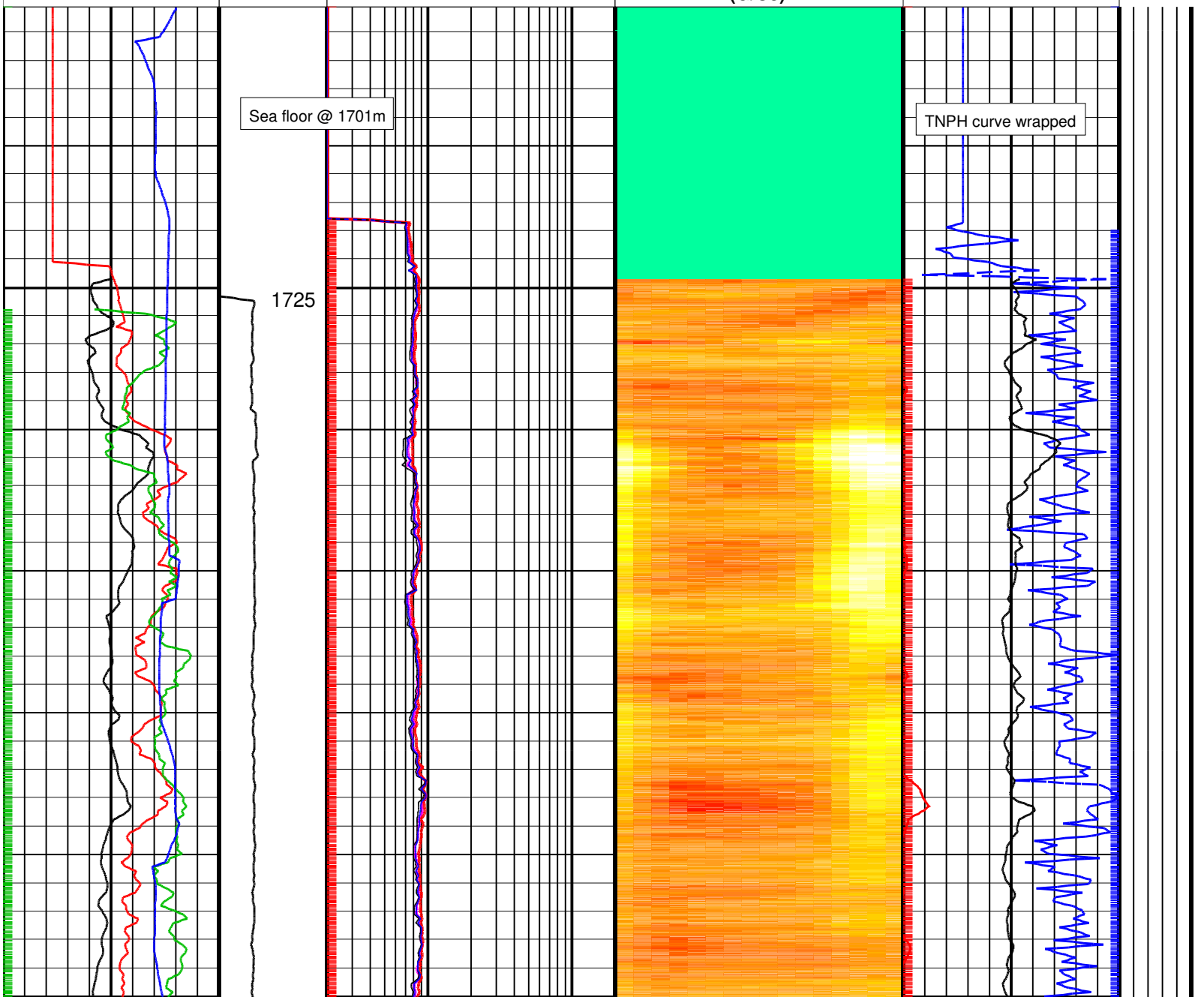
Resistivity Samples

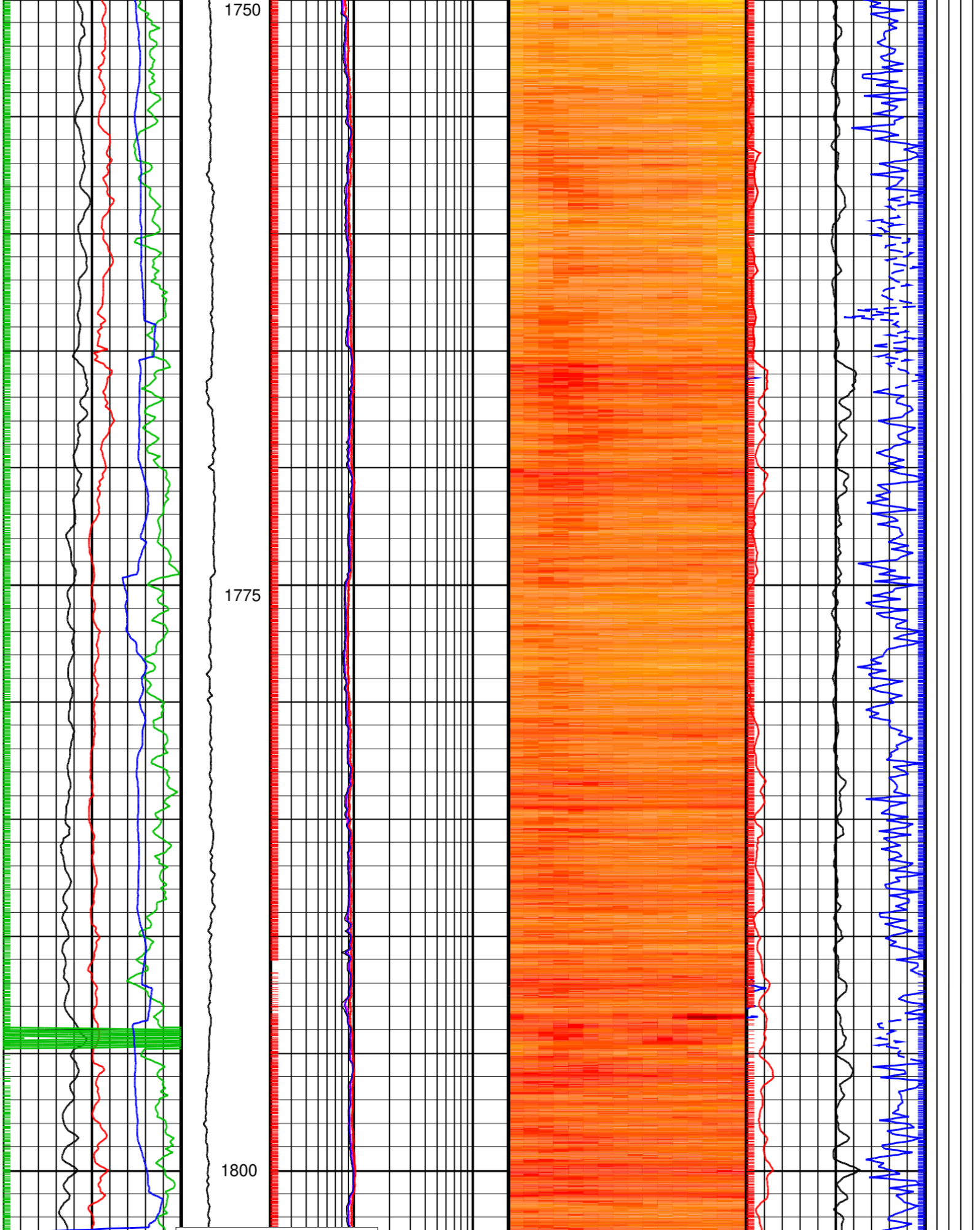
Gamma Ray Samples

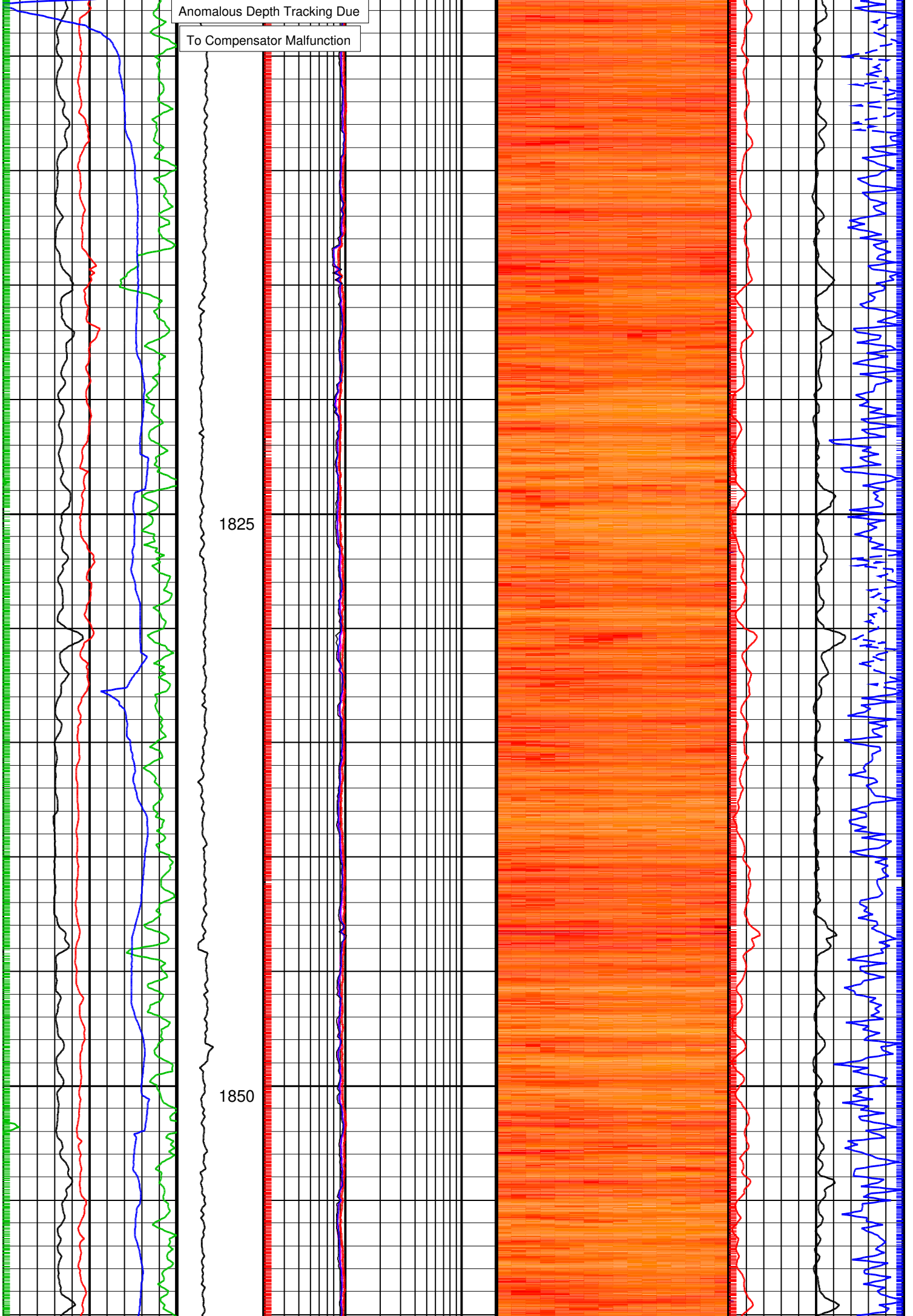
Neutron Ticks, 0.1 ft

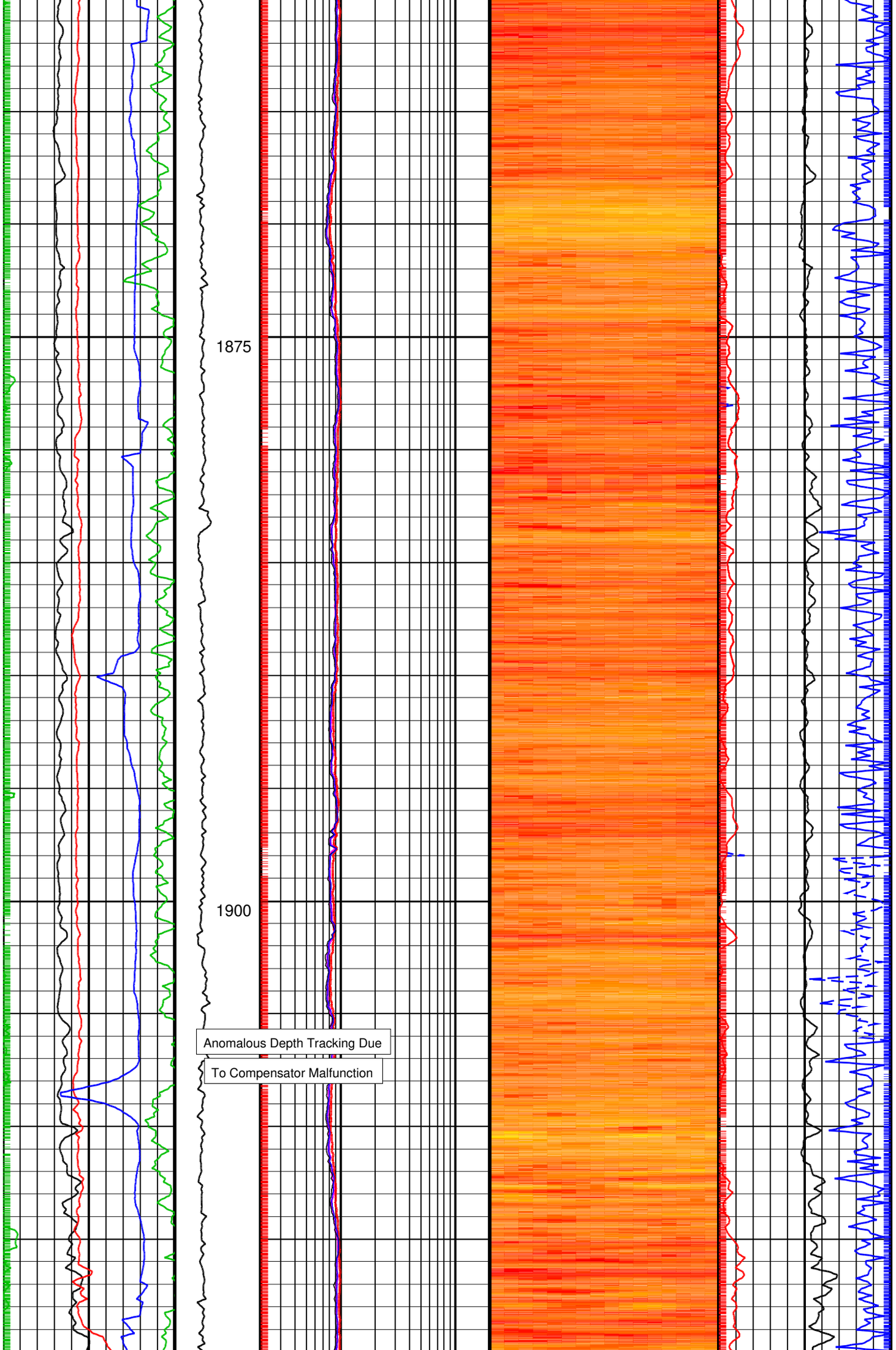
Density Ticks, 0.1 ft

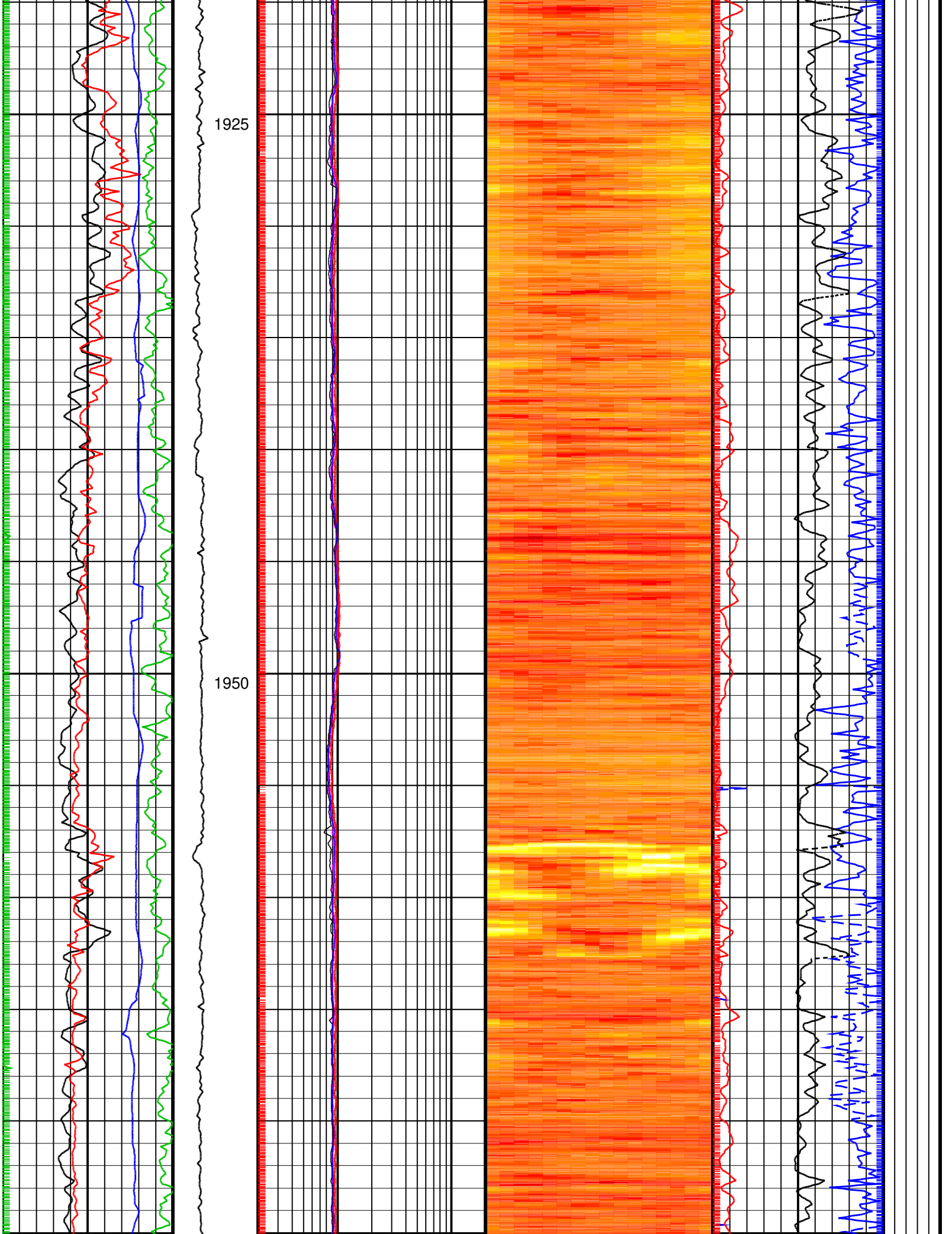
Rate of Penetration, Averaged over Last 5ft (ROP5_RM)		ARC Attenuation Resistivity 16 inch Spacing at 2 MHz, Environmentally Corrected (A16H)		
100 (M/HR) 0		0.2 (OHMM) 20		
Gamma Ray, Average (GRMA)		ARC Phase Shift Resistivity 16 inch Spacing at 2 MHz, Environmentally Corrected. (P16H)		Image Derived Density Correction (IDDR)
0 (GAPI) 150		0.2 (OHMM) 20		−0.25 (G/C3) 0.25
Ultrasonic Caliper Average (UCAV)		ARC Attenuation Resistivity 40 inch Spacing at 400 KHz (A40L)		Image Derived Density (IDRO)
8 (IN) 13		0.2 (OHMM) 20		1.65 (G/C3) 2.65
Density Caliper, Average (DCAV)	Collar Rotational Speed (CRPM) (RPM)	ARC Phase Shift Resistivity 40 inch Spacing at 400 KHz (P40L)	Absent 1.273 1.371 1.468 1.566 1.663 1.761 1.859 1.956 2.054 2.151 Bulk Density (16−Sector) Image Oriented Top of Hole (U,R,B,L,U) (ROSI) (G/C3)	Thermal Neutron Porosity (Ratio Method) in Selected Lithology (TNPH)
8 (IN) 13	0 200	0.2 (OHMM) 20		60 (PU) 0

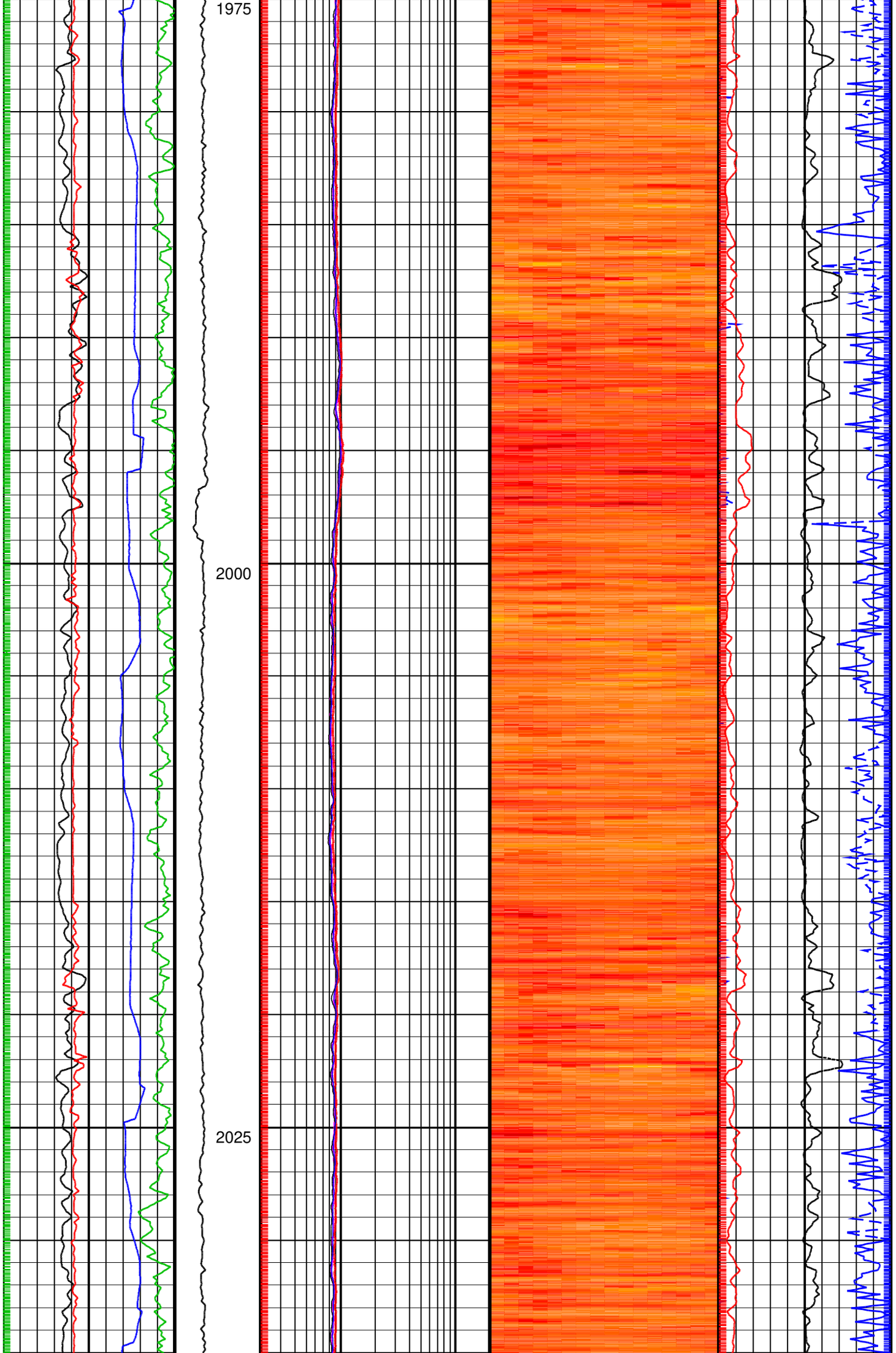


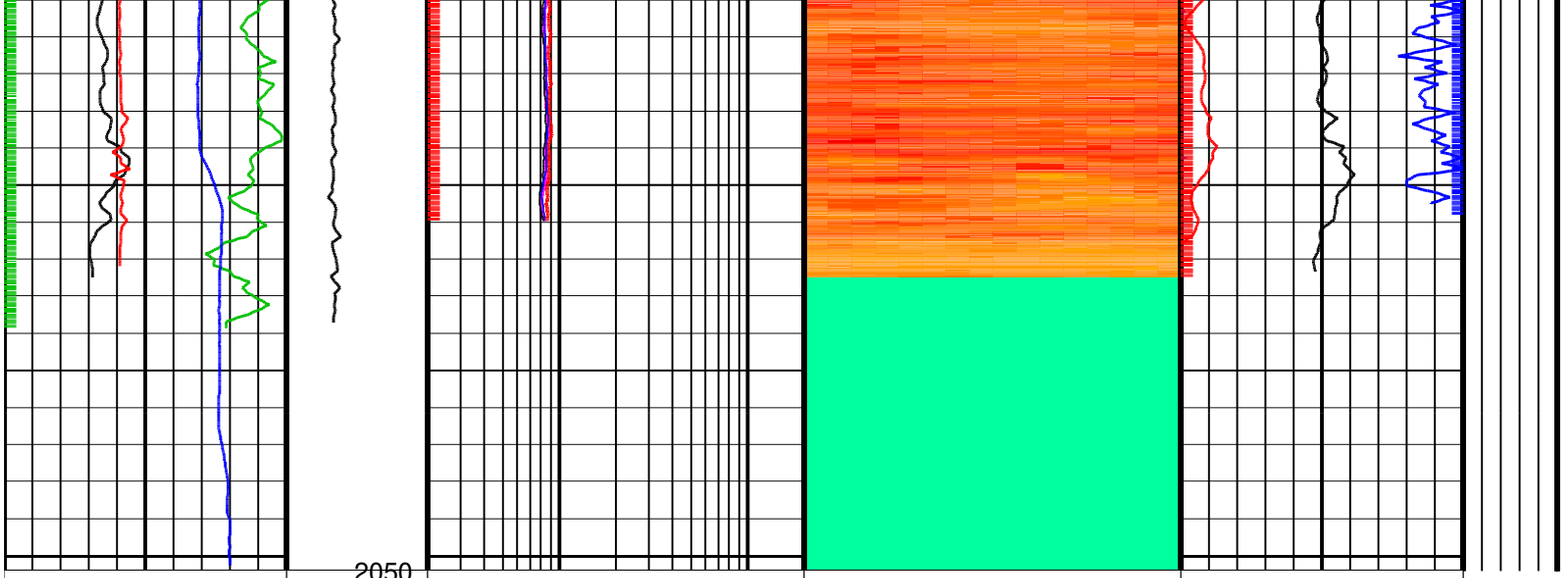

1750
1775
1800


Anomalous Depth Tracking Due
To Compensator Malfunction
1825
1850


1875
1900
Anomalous Depth Tracking Due
To Compensator Malfunction


1925
1950


1975
2000
2025



2050

Density Caliper, Average (DCAV) 8 (IN) 13	Collar Rotational Speed (CRPM) (RPM) 0 200	ARC Phase Shift Resistivity 40 inch Spacing at 400 KHz (P40L) 0.2 (OHMM) 20	Absent 1.273 1.371 1.468 1.566 1.663 1.761 1.859 1.956 2.054 2.151 Bulk Density (16–Sector) Image Oriented Top of Hole (U,R,B,L,U) (ROSI) (G/C3)	Thermal Neutron Porosity (Ratio Method) in Selected Lithology (TNPH) 60 (PU) 0
Ultrasonic Caliper Average (UCAV) 8 (IN) 13		ARC Attenuation Resistivity 40 inch Spacing at 400 KHz (A40L) 0.2 (OHMM) 20		Image Derived Density (IDRO) 1.65 (G/C3) 2.65
Gamma Ray, Average (GRMA) 0 (GAPI) 150		ARC Phase Shift Resistivity 16 inch Spacing at 2 MHz, Environmentally Corrected. (P16H) 0.2 (OHMM) 20		Image Derived Density Correction (IDDR) –0.25 (G/C3) 0.25
Rate of Penetration, Averaged over Last 5ft (ROP5_RM) 100 (M/HR) 0		ARC Attenuation Resistivity 16 inch Spacing at 2 MHz, Environmentally Corrected (A16H) 0.2 (OHMM) 20		

PIP SUMMARY

Resistivity Samples

Gamma Ray Samples

Neutron Ticks, 0.1 ft

Density Ticks, 0.1 ft

IDEAL Version: ID10_2C_01.1SV

IDF

EcoScope Integrated Logging–While–Drilling Tool – 6.75 inch / Equipment Identification

Primary Equipment:

Tool Name and Serial Number	ECO – 675	778
Calibration Status	–	
Collar Type and Serial Number	ADDC – AA	
Chassis Type and Serial Number	ADSE – EA	
Stabilizer Type and Serial Number	ADCS – CA	
Neutron Logging Source	NSR – M	
Density Logging Source	GSR – J/Z	
Stabilizer Size	9.13 – in.	

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EcoScope Integrated Logging–While–Drilling Tool – 6.75 inch Calibration

SSn LSn : Water Tank

Phase	SSn Gain ----	Value	Phase	SSn Offset ----	Value
Master		1.151	Master		0
	0.6000 (Minimum) 1.000 (Nominal) 1.400 (Maximum)			–3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)	
Phase	**LSn Gain ----**	**Value**	**Phase**	**LSn Offset ----**	**Value**
Master		1.166	Master		0
	0.6000 (Minimum) 1.000 (Nominal) 1.400 (Maximum)			–3.000 (Minimum) 0 (Nominal) 3.000 (Maximum)	

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EcoScope Integrated Logging–While–Drilling Tool – 6.75 inch Calibration

Neutron: Water Tank

Phase	Far 2 Gain ----	Value	Phase	Far 2 Offset ----	Value
Master		1.044	Master		1.004
0.7000 (Minimum)	1.000 (Nominal)	1.300 (Maximum)	–3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)

Phase	Far 1 Gain ----	Value	Phase	Far 1 Offset ----	Value
Master		1.076	Master		0.6590
0.7000 (Minimum)	1.000 (Nominal)	1.300 (Maximum)	–3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)

Phase	Thermal Near gain ----	Value	Phase	Thermal Near offset ----	Value
Master		1.140	Master		–15.25
0.7000 (Minimum)	1.000 (Nominal)	1.300 (Maximum)	–500.0 (Minimum)	0 (Nominal)	500.0 (Maximum)

Phase	Epithermal Near gain ----	Value	Phase	Eptithermal Near offset ----	Value
Master		1.124	Master		17.94
0.7000 (Minimum)	1.000 (Nominal)	1.300 (Maximum)	–300.0 (Minimum)	0 (Nominal)	300.0 (Maximum)

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EcoScope Integrated Logging–While–Drilling Tool – 6.75 inch Calibration

Gamma 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		2013	Master		4858	Master		11410
1000 (Minimum)	2000 (Nominal)	3000 (Maximum)	2500 (Minimum)	5250 (Nominal)	8000 (Maximum)	6000 (Minimum)	12000 (Nominal)	18000 (Maximum)

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EcoScope Integrated Logging–While–Drilling Tool – 6.75 inch Calibration

Gamma 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		372.1	Master		2545	Master		8395
200.0 (Minimum)	400.0 (Nominal)	600.0 (Maximum)	1500 (Minimum)	3000 (Nominal)	4500 (Maximum)	4000 (Minimum)	8500 (Nominal)	13000 (Maximum)

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EcoScope Integrated Logging–While–Drilling Tool – 6.75 inch Calibration

Gamma Density: Background

Phase	LS window 3 – Background CPS	Value	Phase	SS window 1 – Background CPS	Value	Phase	SS window 3 – Background CPS	Value
Master		66.31	Master		74.12	Master		355.2
50.00 (Minimum)	70.00 (Nominal)	90.00 (Maximum)	50.00 (Minimum)	75.00 (Nominal)	100.0 (Maximum)	270.0 (Minimum)	370.0 (Nominal)	470.0 (Maximum)

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EcoScope Integrated Logging–While–Drilling Tool – 6.75 inch Calibration

Gamma Density: Water Block Check

Phase	Long spacing water density G/C3	Value	Phase	Short spacing water density G/C3	Value
Master		1.030	Master		1.263
0.9000 (Minimum)	1.150 (Nominal)	1.400 (Maximum)	0.9000 (Minimum)	1.150 (Nominal)	1.400 (Maximum)

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EcoScope Integrated Logging–While–Drilling Tool – 6.75 inch Calibration

Resistivity: Air

Phase	Phase–Shift T1	Value	Phase	Phase–Shift T2	Value	Phase	Phase–Shift T3	Value
Master		2.473	Master		–2.538	Master		2.413
–4.000 (Minimum)	0 (Nominal)	4.000 (Maximum)	–4.000 (Minimum)	0 (Nominal)	4.000 (Maximum)	–4.000 (Minimum)	0 (Nominal)	4.000 (Maximum)

Phase	Phase–Shift T4	Value	Phase	Phase–Shift T5	Value	Phase	Phase–Shift T1 at 400KHz	Value
Master		–2.561	Master		2.441	Master		–0.5357
–4.000 (Minimum)	0 (Nominal)	4.000 (Maximum)	–4.000 (Minimum)	0 (Nominal)	4.000 (Maximum)	–4.000 (Minimum)	0 (Nominal)	4.000 (Maximum)

Phase	Phase–Shift T2 at 400KHz	Value	Phase	Phase–Shift T3 at 400KHz	Value	Phase	Phase–Shift T4 at 400KHz	Value
Master		0.5383	Master		–0.5384	Master		0.4924
–4.000 (Minimum)	0 (Nominal)	4.000 (Maximum)	–4.000 (Minimum)	0 (Nominal)	4.000 (Maximum)	–4.000 (Minimum)	0 (Nominal)	4.000 (Maximum)

Phase	Phase–Shift T5 at 400KHz	Value
Master		–0.5090
–4.000 (Minimum)	0 (Nominal)	4.000 (Maximum)

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EcoScope Integrated Logging–While–Drilling Tool – 6.75 inch Calibration

Resistivity: Air

Phase	Attenuation T1	Value	Phase	Attenuation T2	Value	Phase	Attenuation T3	Value
Master		8.232	Master		6.181	Master		4.833
7.000 (Minimum)	9.000 (Nominal)	11.00 (Maximum)	4.000 (Minimum)	6.000 (Nominal)	8.000 (Maximum)	3.500 (Minimum)	5.500 (Nominal)	7.500 (Maximum)

Phase	Attenuation T4	Value	Phase	Attenuation T5	Value	Phase	Attenuation T1 at 400KHz	Value
Master		4.587	Master		3.392	Master		8.290
2.500 (Minimum)	4.500 (Nominal)	6.500 (Maximum)	2.000 (Minimum)	4.000 (Nominal)	6.000 (Maximum)	7.000 (Minimum)	9.000 (Nominal)	11.00 (Maximum)

Phase	Attenuation T2 at 400KHz	Value	Phase	Attenuation T3 at 400KHz	Value	Phase	Attenuation T4 at 400KHz	Value
Master		6.149	Master		4.884	Master		4.539
4.000 (Minimum)	6.000 (Nominal)	8.000 (Maximum)	3.500 (Minimum)	5.500 (Nominal)	7.500 (Maximum)	2.500 (Minimum)	4.500 (Nominal)	6.500 (Maximum)

Phase	Attenuation T5 at 400KHz	Value
Master		3.445
2.000 (Minimum)	4.000 (Nominal)	6.000 (Maximum)

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EcoScope Integrated Logging–While–Drilling Tool – 6.75 inch Calibration

Gamma Ray: Blanket

Phase	Gamma ray factor	Value
Master		2.250
2.000 (Minimum)	2.500 (Nominal)	3.000 (Maximum)

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

Primary Equipment:

Tool Name and Serial Number	RAB6 – CA	127
Calibration Status	–	

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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		1.006	Master		1.010	Master		0.9952
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		0.9989	Master		1.006	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	BTN shallow/T1 factor ----	Value	Phase	BTN shallow/T2 factor ----	Value	Phase	BTN medium/T1 factor ----	Value
Master		1.005	Master		1.008	Master		1.001
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 ----	Value	Phase	BTN deep/T1 factor ----	Value	Phase	BTN deep/T2 factor ----	Value
Master		1.004	Master		1.004	Master		1.008
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)

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6.75–in. Resistivity At–the–Bit Calibration

Gamma Ray: Blanket

Phase	Gamma ray factor ----	Value
Master		0.9227
0.7500 (Minimum)	1.000 (Nominal)	1.250 (Maximum)

Company:	**LAMONT – DOHERTY**	Schlumberger
Well:	**MNGH01–1– Site8 Hole A**	
Field:	**Maha Nadi Basin**	
Rig:	**JOIDES Resolution**	**9.875in Section**
Country:	**India**	

EcoSCOPE
1:200 Measured Depth
Recorded Mode Log