Schlumberger

Company: **JAMSTEC**

All sections

Well: **NT2−01**

Field: **Nankai−Kumano**

RIG: **Chikyu** Country: **JAPAN**

RIG: Chikyu
Field: Nankai−Kumano
Location: Philippine Sea
Well: NT2−01
Company: JAMSTEC

GeoVISION Resistivity

Laterolog Resistivity,Image − Shallow,Medium,Deep

MD1:200 Recorded Mode Composite Log

Location

		Elevation		
Total depth:	3107.18 m		K.B.	28.30 m
Spud date:	02−Aug−09		G.L.	−2524.70 m
Runs:	1 To 3		D.F.	28.30 m

Permanent datum:	Mean Sea Level	Elev.:	0 m
Log measured from:	Drill Floor	28.3 m	above Perm. datum
Depth reference:	Driller's depth		

Job no.	X=E 657194.75	Longitude	Latitude
09JAP0003	Y=N 3675829.88	E 136° 41.1990'	N 33° 12.5970'

Depth logged:	2954.00 m To 3032.82 m	Mag decl:	−6.49 deg.
Date logged:	07−Aug−09 To 09−Aug−09	Mag dip:	46.59 deg.

Other services:
D&I, Cont. D&I

Bore hole record

Hole size	from	to
20.00 in.	2553.00 m	2594.00 m
12.25 in.	2594.00 m	3107.18 m

Casing record

Size	Density	from	to
20.00 in.	423.288 lbm/m	2553.00 m	2594.00 m

Mud record

Type	from	to
Sea Water	2553.00 m	3107.18 m

Borehole deviation record

Min	Max	from	to
0.52 deg.	2.41 deg.	2553.00 m	3107.18 m

Surface equipment

Unit	OLU−KC−0504
Depth system	PDA

Software record

IDEAL Wis	14_0c_12		
SPM	14_0c_02		
LWD	RAB V9.1B		
MWD	V9.2C02		

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 1
Cont. D&I

REMARKS: RUN NUMBER 1
Data was not provided since all the measure−ment points were inside casing for jetting run.

Depth is driller's depth.

POOH due to successful jetting and deployment of 20in casing into the sea bed at 2594.00m.

OTHER SERVICES FOR RUN 2
Cont. D&I

REMARKS: RUN NUMBER 2
All data presented is from tool's memory.
Depth is driller's depth.

GVR GR is corrected for bit size, collar size, and mud weight.

GVR resistivities are borehole compensated and environmentally corrected for mud resistivity and bit size.
GVR has sleeve stabilizer with 11 7/8in sleeve stabilizer.

Relog interval from 2648.00m to 2655.00m as the client's requirement.

AAI value is displayed for stick slip indicator.

OTHER SERVICES FOR RUN 3
Cont. D&I

REMARKS: RUN NUMBER 3
All data presented is from tool's memory.
Depth is driller's depth.

GVR GR is corrected for bit size, collar size, and mud weight.

GVR resistivities are borehole compensated and environmentally corrected for mud resistivity and bit size.
GVR has sleeve stabilizer with 11 7/8in sleeve stabilizer.

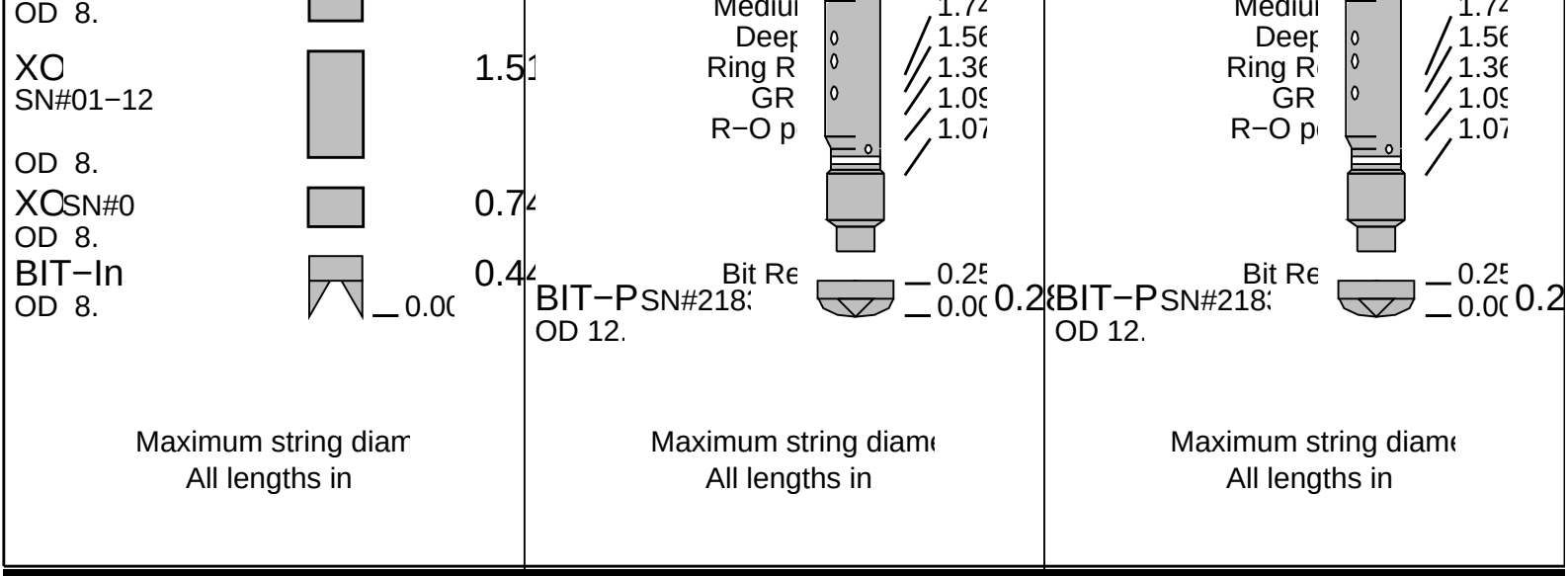
Relog interval from 2900.00m to 2970.00m as the client's requirement.

AAI value is displayed for stick slip indicator.

	POOH due to bad weather at 3033.07m. Drilling time: 22.28hrs. Pumping time: 39.38hrs.	POOH due to total depth achieved at 3107.18m. Drilling time: 4.10hrs. Pumping time: 20.10hrs.

EQUIPMENT DESCRIPTION

RUN 1	RUN 2	RUN 3
DOWNHOLE EC	DOWNHOLE EC	DOWNHOLE EC
PowerP SN#E23 11.3	PowerP SN#E23 12.5	PowerP SN#E23 12.5
OD 8.	OD 8. **PMEC 5**	OD 8. **PMEC 5**
D&I 6.98	D&I 8.19	D&I 8.19
GAMM 6.33		
ROP T 2.34		
FS 2.39		
SN#SBD1		
	RAB8 SN#410 4.0	RAB8 SN#410 4.0
	OD 8. **RB8E #8**	OD 8. **RB8E #8**
	Shallo 1.87	Shallo 1.87



Bit Run Summary

Run number		1	2	3							
Bit size	inch	20.00	12.25	12.25							
Bit start depth	m	2553.00	2594.00	3033.07							
Bit end depth	m	2594.00	3033.07	3107.18							
Top interval logged	m	2553.00	2594.00	3033.07							
Bottom interval logged	m	2587.67	3032.82	3106.93							
Begin log: time		08:15	13:30	11:10							
Begin log: date		05−Aug−09	07−Aug−09	12−Aug−09							
End log: time		09:15	12:10	17:30							
End log: date		05−Aug−09	09−Aug−09	12−Aug−09							
Mud data											
Depth	m	2553.00	2594.00	3033.07							
Type		Sea Water	Sea Water	Sea Water							
Mud weight	g/cm3	1.04	1.04	1.04							
Solids	%	n/a	n/a	n/a							
Chlorides	ppm	n/a	n/a	n/a							
Rm	ohm.m	n/a	0.44	0.44							
Rmf	ohm.m	n/a	0.33	0.33							
Rmc	ohm.m	n/a	0.55	0.55							
Potassium	%	n/a	n/a	n/a							
Environmental data											
GR											
Mud weight	g/cm3	1.04	1.04	1.04							
Bit size	inch	20.00	12.25	12.25							
Resistivity											
Neutron porosity											
Hole Size	inch	20.00	12.25	12.25							
Mud weight	g/cm3	1.04	1.04	1.04							
Temperature		n/a	n/a	n/a							
Mud salinity		n/a	n/a	n/a							
Formation salinity		n/a	n/a	n/a							
Recording rate 1	SEC	5	5	5							
Recording rate 2	SEC	n/a	n/a	n/a							
Filtering GR		3pt	3pt	3pt							
Filtering density		n/a	n/a	n/a							
Filtering Neutron		n/a	n/a	n/a							
Company representative		I. Sawada	T. Abe								
Anadrill personnel		Y. Ito	N. Yang	H. C. Hua	T.C. Sing						

Variable Name	Variable Description	Run Name & Value		
	Run Number		2	3
	General Information			
BHT_RM	Bottom Hole Temperature (RM)	DEGC	10.000	10.000
BSAL_RM	Mud Salinity (RM)	PPK	0.000	0.000
BS_RM	Bit Size (RM)	IN	12.250	12.250
COEF_M	User Defined FEXP in Clean Sand	----	1.650	1.650
C_WS	Overpressure correction to Sw and M	----	1.000	1.000
FEXP	Formation Factor Exponent(RM)	----	2.000	2.000
FNUM	Formation Factor Enumerator(RM)	----	1.000	1.000
FPHI_RM	Formation Factor Porosity Source (RM)	----	XPLOT	XPLOT
MST_RM	Mud Sample temperature (RM)	DEGC	19.200	19.200
MW_RM	Mud Weight (RM)	G/C3	1.040	1.040
OBMF_RM	Oil Based Mud (RM)	----	NO	NO
RHOF_RM	Mud Filtrate Density (RM)	G/C3	1.000	1.000
RHOM_RM	Matrix density (RM)	G/C3	2.710	2.710
RMS_RM	Resistivity of Mud Sample (RM)	OHMM	0.448	0.448
RWA_COMP_M	Rwa computation model			
RWA_DEN_AD	Rwa Density Input ADN			
RWA_DEN_CD	Rwa Density Input CDN			
RWA_DEN_IN	Rwa Density Input			
RWA_FORM_M	Rwa computation formation model			
RWA_RES_IN	Rwa computation resistivity input			
RWS_RM	Resistivity of Connate Water (RM)	OHMM	1.000	1.000
SHT_RM	Ground Level Temperature (Mud−Line When Offshore) (RM)	DEGC	10.000	10.000
TD_RM	Total Measured Depth (RM)	M	3033.070	3107.180
TWS_RM	Temperature of Connate Water (RM)	DEGC	23.889	23.889
VF_ILLI	Fraction of illite in shales	----	0.500	0.500
VF_KAOL	Fraction of kaolinite in shales	----	0.500	0.500
VF_MONT	Fraction of montmorillonite in shales	----	0.000	0.000
XPDM_RM	Cross plot density porosity multiplier	----	0.675	0.675
XPNM_RM	Cross plot neutron porosity multiplier	----	0.325	0.325
	RAB			
RAB/BTN_SLV_SIZE/PARAMETE	IN −− RAB: Button Sleeve Diameter	IN	11 7/8	11 7/8
RAB/STAB_SIZE/PARAMETER	RAB: Stabilizer Diameter	IN	12−12.25	12−12.25
BDBHCA	RAB: Button Deep Borehole A Factor	----	−0.037	−0.037
BDBHCB	RAB: Button Deep Borehole B Factor	----	−0.019	−0.019
BHA_COEF_VER	RAB: BHA Coef Generator Version	----	80012.000	80012.000
BITBHCA	RAB: Bit A Borehole Factor	----	0.052	0.052
BITBHCB	RAB: Bit B Borehole Factor	----	0.014	0.014
BIT_K_FACTOR	RAB: Bit K Factor	----	1.830	1.830
BMBHCA	RAB: Button Medium Borehole A Factor	----	0.004	0.004
BMBHCB	RAB: Button Medium Borehole B Factor	----	−0.020	−0.020
BSBHCA	RAB: Button Shallow Borehole A Factor	----	−0.011	−0.011
BSBHCB	RAB: Button Shallow Borehole B Factor	----	−0.036	−0.036
BUT_KIMP_A	RAB: Button Impedance Coeff A	----	0.002	0.002
BUT_KIMP_B	RAB: Button Impedance Coeff B	----	0.000	0.000
DBUTTON_K_FACTO	RAB: Button Deep K factor	----	0.004	0.004
DHS_VERSION	RAB: DownHole Software Version	----	9.100	9.100
GR_BHC_TOOLSIZE	RAB: Gamma−Ray Borehole Coeff 1	----	8.250	8.250
HI_CSDEPTH_OUT	RAB: Allow Hi−Resolution CS_DEPTH Image Data Output	----	YES	YES
HI_DLIS_OUT	RAB: Allow Hi−Resolution DLIS Image Data Output	----	YES	YES
HI_RIVER_OUT	RAB: Allow Hi−Resolution River for Image Data Output	----	YES	YES
IMAGE_MAX_GR	RAB: GR Image Maximum Scale Value	GAPI	120.000	120.000
IMAGE_MAX_RES	RAB: Image Maximum Resistivity Value	OHMM	100.000	100.000
IMAGE_MIN_GR	RAB: GR Image Minimum Scale Value	GAPI	20.000	20.000
IMAGE_MIN_RES	RAB: Image Minimum Resistivity Value	OHMM	1.000	1.000
JSD_RAB	RAB Acquisition start date	OHMM	1.000	1.000
KPER	Potassium Concentration (RM)	----	0.000	0.000
MAG_DECL_RAB	RAB: Magnetic Declination	DEG	−6.490	−6.490
MAG_INCL_RAB	RAB: Magnetic Dip	DEG	46.590	46.590
MBUTTON_K_FACTO	RAB: Button Medium K Factor	----	0.004	0.004
OBM	RAB: Oil base Mud	----	NO	NO
ORIENTATION_RM	Rab Image Orientation	----	NORTH	NORTH
RABBDA0	RAB: Button Deep A0 Coeff	----	−0.076	−0.076
RABBDA1	RAB: Button Deep A1 Coeff	----	0.064	0.064
RABBDA2	RAB: Button Deep A2 Coeff	----	−0.027	−0.027
RABBDA3	RAB: Button Deep A3 Coeff	----	0.005	0.005
RABBDA4	RAB: Button Deep A4 Coeff	----	−0.001	−0.001
RABBDA5	RAB: Button Deep A5 Coeff	----	0.000	0.000
RABBDMIN	RAB: Button Deep Minimum Value	----	0.040	0.040
RABBITA0	RAB: Bit A0 Coeff	----	0.327	0.327
RABBITA1	RAB: Bit A1 Coeff	----	−0.334	−0.334
RABBITA2	RAB: Bit A2 Coeff	----	0.199	0.199
RABBITA3	RAB: Bit A3 Coeff	----	−0.059	−0.059
RABBITA4	RAB: Bit A4 Coeff	----	0.008	0.008
RABBITA5	RAB: Bit A5 Coeff	----	−0.000	−0.000
RABBITMIN	RAB: Bit Minimum Value	----	12.486	12.486
RABBMA0	RAB: Button Medium A0 Coeff	----	−0.082	−0.082
RABBMA1	RAB: Button Medium A1 Coeff	----	0.067	0.067
RABBMA2	RAB: Button Medium A2 Coeff	----	−0.027	−0.027
RABBMA3	RAB: Button Medium A3 Coeff	----	0.005	0.005
RABBMA4	RAB: Button Medium A4 Coeff	----	−0.001	−0.001
RABBMA5	RAB: Button Medium A5 Coeff	----	0.000	0.000
RABBMMIN	RAB: Button Medium Minimum Value	----	0.042	0.042
RABBSA0	RAB: Button Shallow A0 Coeff	----	−0.097	−0.097
RABBSA1	RAB: Button Shallow A1 Coeff	----	0.077	0.077
RABBSA2	RAB: Button Shallow A2 Coeff	----	−0.031	−0.031
RABBSA3	RAB: Button Shallow A3 Coeff	----	0.006	0.006

RABBSA4	RAB: Button Shallow A4 Coeff	----	-0.001	-0.001
RABBSA5	RAB: Button Shallow A5 Coeff	----	0.000	0.000
RABBSMIN	RAB: Button Shallow Minimum Value	----	0.057	0.057
RABDHS	RAB Down Hole Software	----	4.000	4.000
RABEC	RAB: Resistivity Env-Cor	----	YES	YES
RABRNGA0	RAB: RING A0 Coeff	----	-0.066	-0.066
RABRNGA1	RAB: RING A1 Coeff	----	0.055	0.055
RABRNGA2	RAB: RING A2 Coeff	----	-0.023	-0.023
RABRNGA3	RAB: RING A3 Coeff	----	0.005	0.005
RABRNGA4	RAB: RING A4 Coeff	----	-0.000	-0.000
RABRNGA5	RAB: RING A5 Coeff	----	0.000	0.000
RABRNGMIN	RAB: Ring Minimum Value	----	1.225	1.225
RAB_BIT_ECAL	Bit Resistivity for ECAL_RAB?	----	YES	YES
RAB_BIT_INVERSI	Input Bit Resistivity for Inversion? (Recommended at the bit)	----	NO	NO
RAB_CALIPER_CAL	Compute ECAL_RAB?	----	YES	YES
RAB_DATA_FIX	RAB: Create A Corrected RAB Time Data File	----	NO	NO
RAB_DATA_LTB	RAB: Create An RAB LTB Data File	----	NO	NO
RAB_DEEPBTN_ECA	Deep Button Resistivity for ECAL_RAB?	----	YES	YES
RAB_DEEPBTN_INV	Input Deep Button Resistivity for Inversion?	----	YES	YES
RAB_INVERSION	Perform Rt Inversion?	----	NO	YES
RAB_INVERSION_B	RAB Bit Sensor Weight for Inversion[0,1]	----	0.000	0.000
RAB_INVERSION_B	Ending Depth for GR Cutoff in Zone1 (default through the whole well)	M	30480.000	30480.000
RAB_INVERSION_B	Ending Depth of Zone10	M	-304.571	-304.571
RAB_INVERSION_B	Ending Depth of Zone2	M	-304.571	-304.571
RAB_INVERSION_B	Ending Depth of Zone3	M	-304.571	-304.571
RAB_INVERSION_B	Ending Depth of Zone4	M	-304.571	-304.571
RAB_INVERSION_B	Ending Depth of Zone5	M	-304.571	-304.571
RAB_INVERSION_B	Ending Depth of Zone6	M	-304.571	-304.571
RAB_INVERSION_B	Ending Depth of Zone7	M	-304.571	-304.571
RAB_INVERSION_B	Ending Depth of Zone8	M	-304.571	-304.571
RAB_INVERSION_B	Ending Depth of Zone9	M	-304.571	-304.571
RAB_INVERSION_C	Continuity Multiplier[0,1]	----	0.500	0.500
RAB_INVERSION_D	RAB Deep Button Sensor Weight for Inversion[0,1]	----	1.000	1.000
RAB_INVERSION_D	RAB inversion for Dh?	----	NO	NO
RAB_INVERSION_D	RAB inversion for Di?	----	YES	YES
RAB_INVERSION_G	GR Cutoff for Shale Formation	----	75.000	75.000
RAB_INVERSION_G	GR Cutoff for Shale Formation in Zone1(default through the whole well)	GAPI	75.000	75.000
RAB_INVERSION_G	GR Cutoff in Zone10	GAPI	75.000	75.000
RAB_INVERSION_G	GR Cutoff in Zone2	GAPI	75.000	75.000
RAB_INVERSION_G	GR Cutoff in Zone3	GAPI	75.000	75.000
RAB_INVERSION_G	GR Cutoff in Zone4	GAPI	75.000	75.000
RAB_INVERSION_G	GR Cutoff in Zone5	GAPI	75.000	75.000
RAB_INVERSION_G	GR Cutoff in Zone6	GAPI	75.000	75.000
RAB_INVERSION_G	GR Cutoff in Zone7	GAPI	75.000	75.000
RAB_INVERSION_G	GR Cutoff in Zone8	GAPI	75.000	75.000
RAB_INVERSION_G	GR Cutoff in Zone9	GAPI	75.000	75.000
RAB_INVERSION_M	RAB Medium Button Sensor Weight for Inversion[0,1]	----	1.000	1.000
RAB_INVERSION_R	Resistivity Cutoff for Shale Formation	OHMM	2.000	2.000
RAB_INVERSION_R	Resistive Invasion Allowed	----	NO	NO
RAB_INVERSION_R	RAB Ring Sensor Weight for Inversion[0,1]	----	0.000	0.000
RAB_INVERSION_R	RAB inversion for Rmud?	----	NO	NO
RAB_INVERSION_R	RAB inversion for Rt?	----	YES	YES
RAB_INVERSION_R	Rt to R-deepest separation penalty multiplier[0,1]	----	0.500	0.500
RAB_INVERSION_R	RAB inversion for Rxo?	----	YES	YES
RAB_INVERSION_S	GR of Clean Sand Formation	----	-999.250	-999.250
RAB_INVERSION_S	GR of Shale Formation	----	-999.250	-999.250
RAB_INVERSION_S	RAB Shallow Button Sensor Weight for Inversion[0,1]	----	1.000	1.000
RAB_INVERSION_T	Inversion Threshold[0, 0.3]	----	0.010	0.010
RAB_INVERSION_W	Formation Water Resistivity	OHMM	0.100	0.100
RAB_INVERSION_W	Formation Water Temperature	----	150.000	150.000
RAB_MEDIUMBTN_E	Medium Button Resistivity for ECAL_RAB?	----	YES	YES
RAB_MEDIUMBTN_I	Input Medium Button Resistivity for Inversion?	----	YES	YES
RAB_QUAD	RAB: Process Quadrant data ?	----	YES	YES
RAB_RIGMODE_ECA	Bit on Bottom?	----	YES	YES
RAB_RING_ECAL	Ring Resistivity for ECAL_RAB?	----	YES	YES
RAB_RING_INVERS	Imput RING Resistivity for Inversion?	----	NO	NO
RAB_SHALLOWBTN_	Shallow Button Resistivity for ECAL_RAB?	----	YES	YES
RAB_SHALLOWBTN_	Input Shallow Button Resistivity for Inversion?	----	YES	YES
RAB_TAB	RAB: Compute TAB ?	----	YES	YES
RAB_TECHLOG	RAB: Generate Techlog ?	----	YES	YES
RAB_TEMP_SELECT	RAB Temperature Selection	----	MEASURED	MEASURED
RAB_TICKS	RAB: Generate Ticks ?	----	YES	YES
READOUT_PORT_MP	RAB: ROP to Bit Face Distance	M	1.070	1.070
RINGBHCA	RAB: Ring Borehole A Factor	----	0.295	0.295
RINGBHCB	RAB: Ring Borehole B Factor	----	-0.114	-0.114
RING_KIMP_A	RAB: Ring Impedance Coeff A	----	0.000	0.000
RING_KIMP_B	RAB: Ring Impedance Coeff B	----	0.000	0.000
RING_K_FACTOR	RAB: Ring K Factor	----	0.115	0.115
RSD	LWD run start date dd-mmm-yy		06-Aug-2009	11-Aug-2009
RWA_COMP_MOD	Rwa computation model	----	BASIC	BASIC
RWA_DEN_ADN	Rwa Density Input	----	RHOB	RHOB
RWA_DEN_CDN	Rwa Density Input	----	RHOB	RHOB
RWA_DEN_INPUT	Rwa Density Input	----	RHOB	RHOB
RWA_FORM_MOD	Rwa computation formation model	----	CLASTIC	CLASTIC
RWA_RES_INPUT	Rwa computation resistivity input	----	RT	RT
SBUTTON_K_FACTO	RAB: Button Shallow K Factor	----	0.005	0.005
SCALE_IMAGES	RAB: Process Image Data	----	YES	YES
STAB	RAB: Run with Stabilizer	----	YES	YES
TFF_OFFSET_RAB	RAB Time-Frame File Time Offset	S	-86400.000	-86400.000
TIMEFRAME_FILE_	RAB: Time Frame File Name	S	-86400.000	-86400.000
TOOLTYPE	RAB: Azimuthal Tool	----	YES	YES
TS_VERSION	RAB: ToolScope Software Version		HSPM 14_0c_02	14_0c_02
VRAB6	Rab Tool type (ENP/PILOT)	----	RAB8_ENP	RAB8_ENP
WIN_SIZE_DYN_IM	RAB: Window Size for Scaling Dynamic Image	M	0.914	0.914
WRK	to Report Potassium Concentration (RM)	----	K_by_Wgt_%	K_by_Wgt_%

NT2−01_GeoVISION Resistivity_RM_MD200

File ID:CDF_original FN:66 27−Aug−2009 16:39 8510.0 FT 10194.0 FT

IDEAL Version: ID14_0C_12

IDF

Format: NT1−07_GeoVISION Resistivity_RM_MD200 Vertical Scale: 1:200 Graphics File Created: 06−Sep−2009 15:40

Parameters

DLIS Name	Description	Value
DO	Depth Offset	0.0 m

PIP SUMMARY

Gamma Ray Samples

Ring Samples

Shallow Button Resistivity (RES_BS)
0.2 (OHMM) 200

Ring Resistivity (RES_RING)
0.2 (OHMM) 200

Bit Resistivity (RES_BIT)
0.2 (OHMM) 200

RAB Gamma Ray (GR_RAB)
0 (GAPI) 150

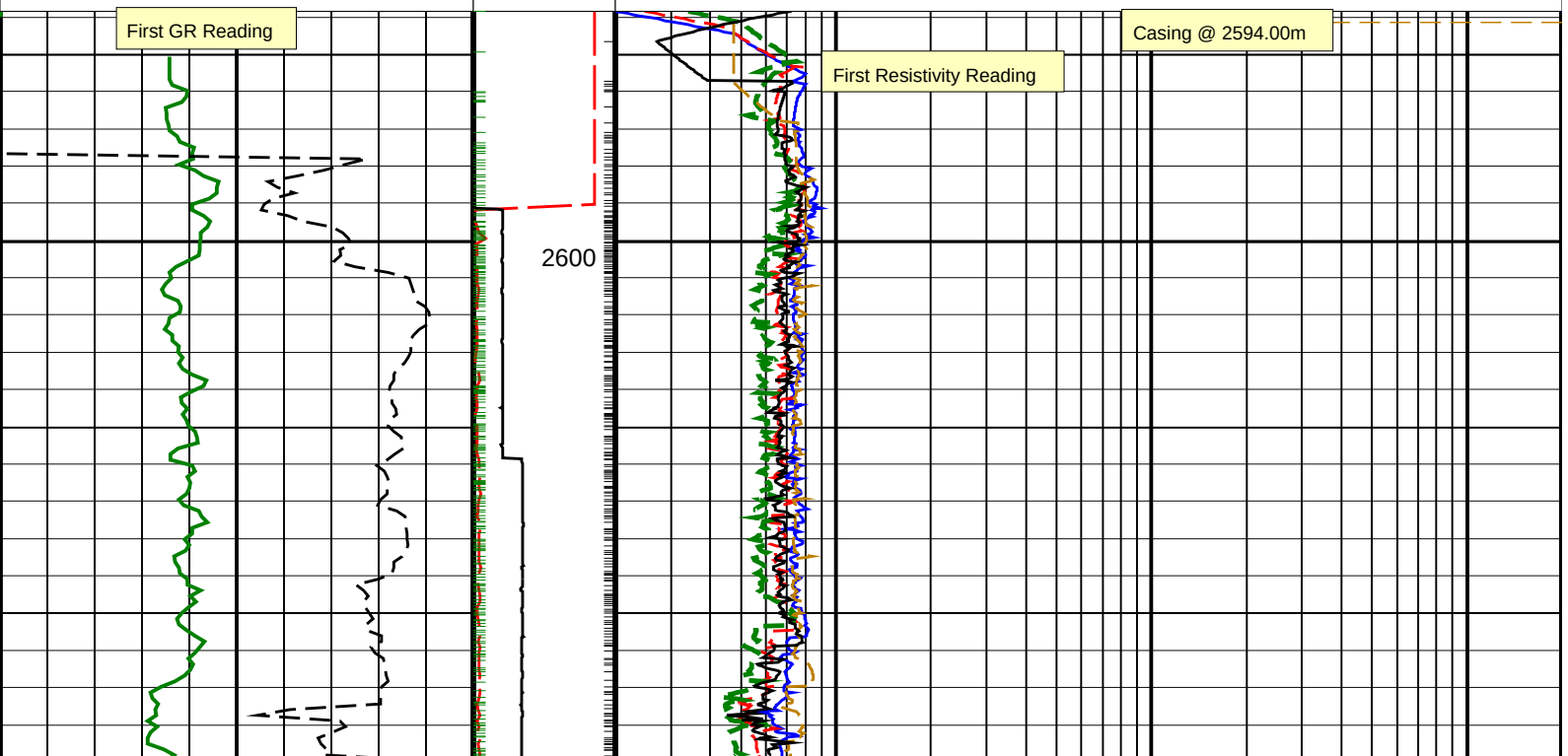
RAB Rotational Speed (RPM_RAB) (RPM)
0 300

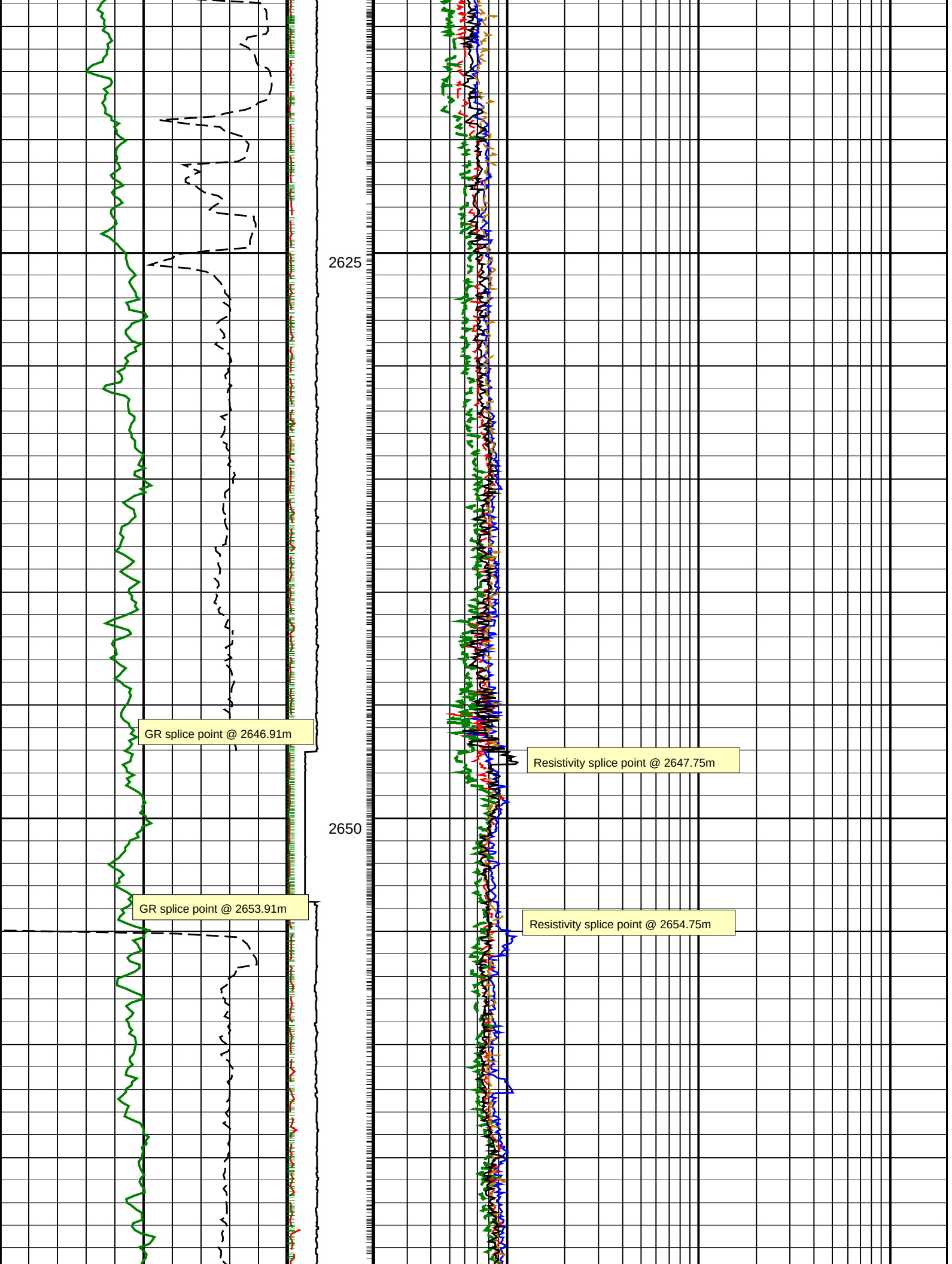
Medium Button Resistivity (RES_BM)
0.2 (OHMM) 200

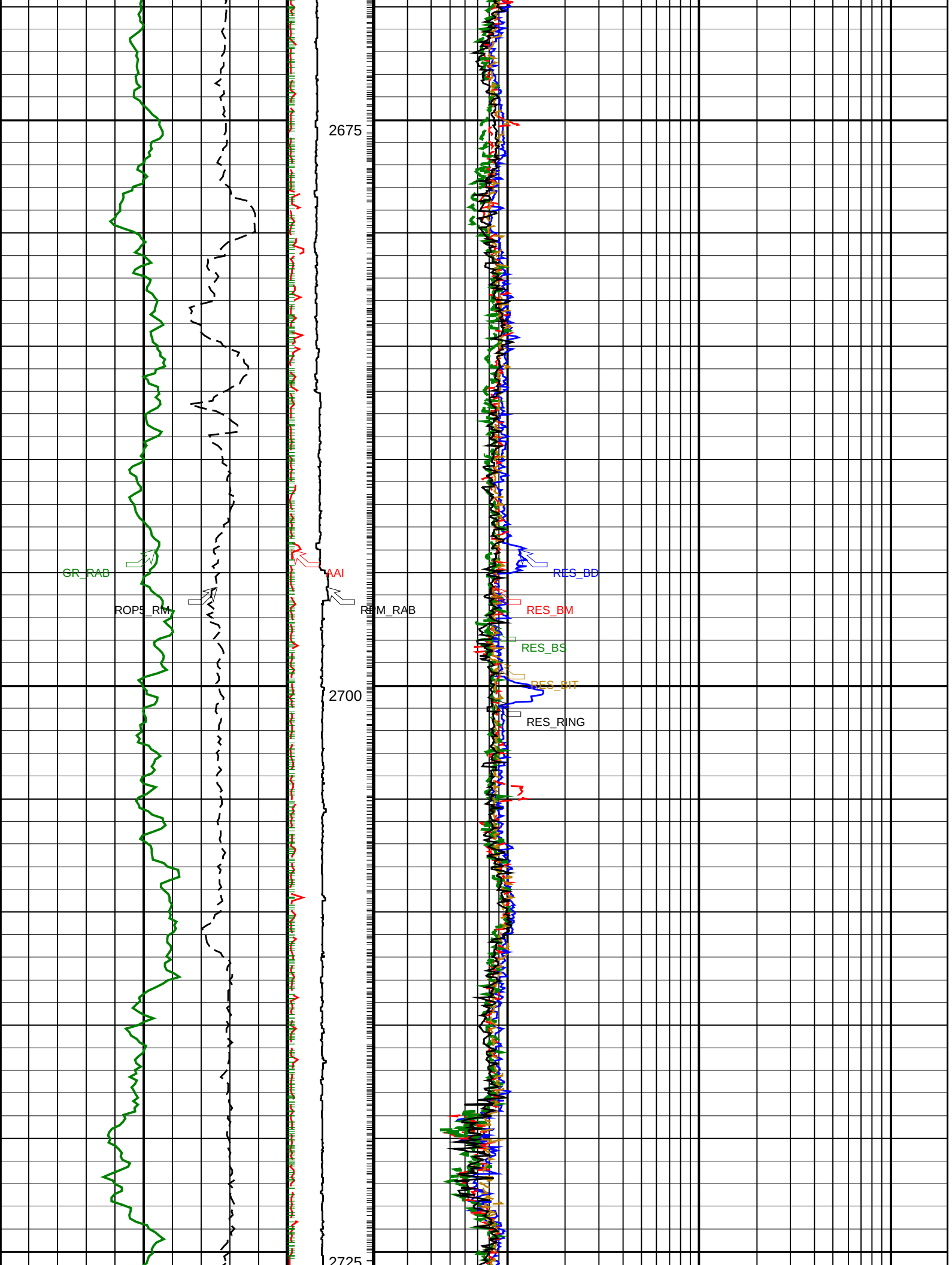
ROP: 5 Feet Average (ROP5_RM)
100 (M/HR) 0

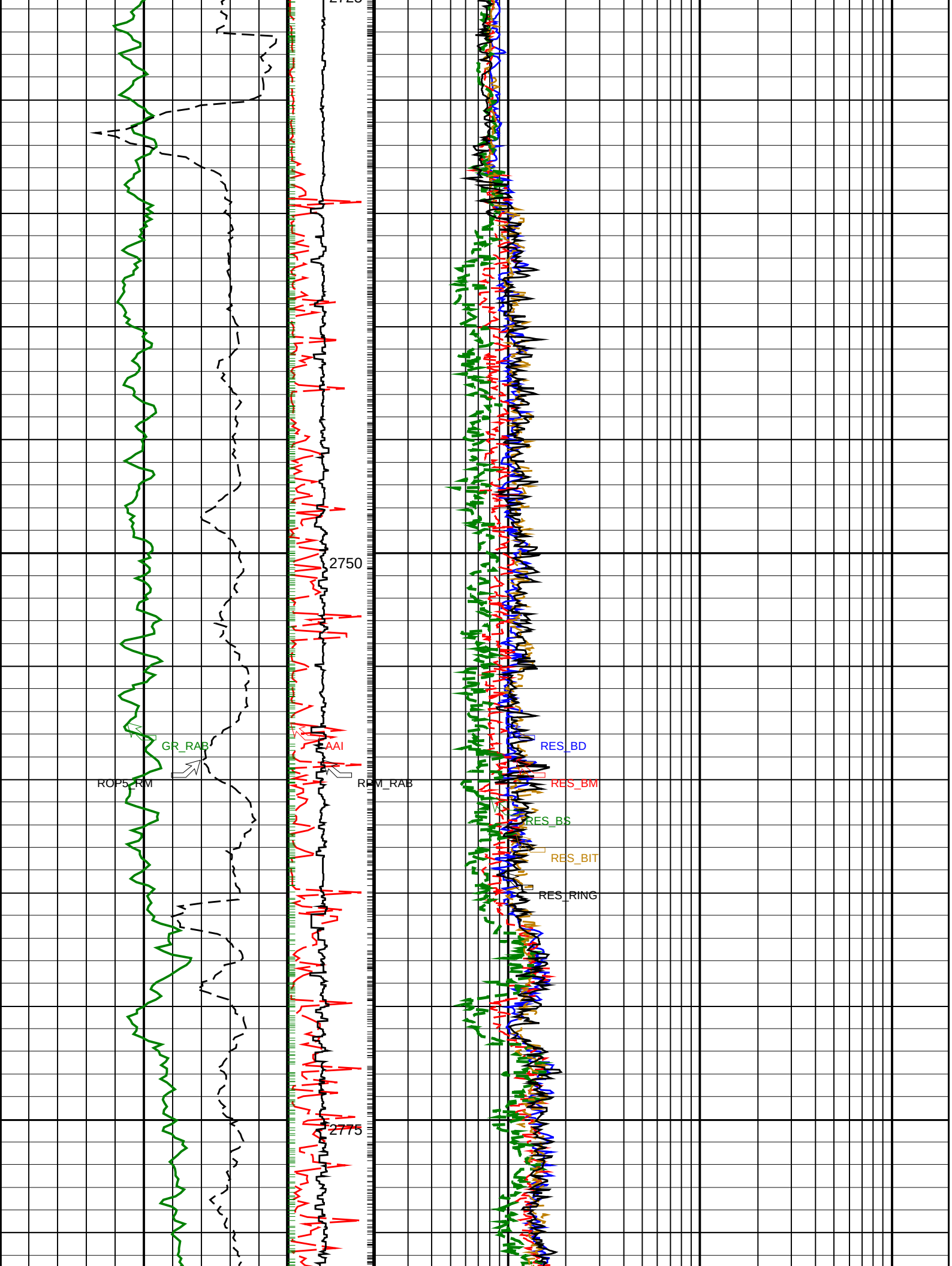
Angular Acceleration Indicator (AAI)
0 300

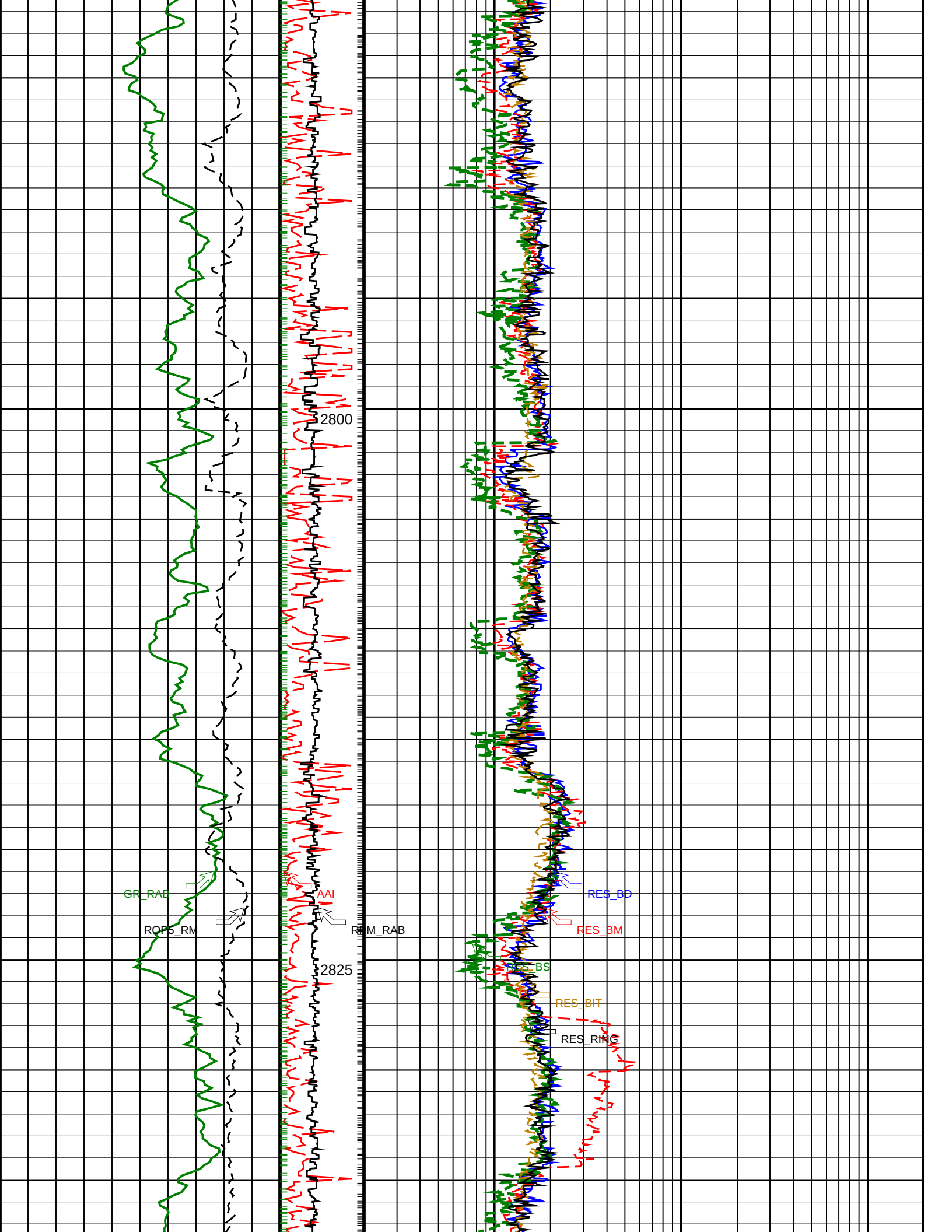
Deep Button Resistivity (RES_BD)
0.2 (OHMM) 200

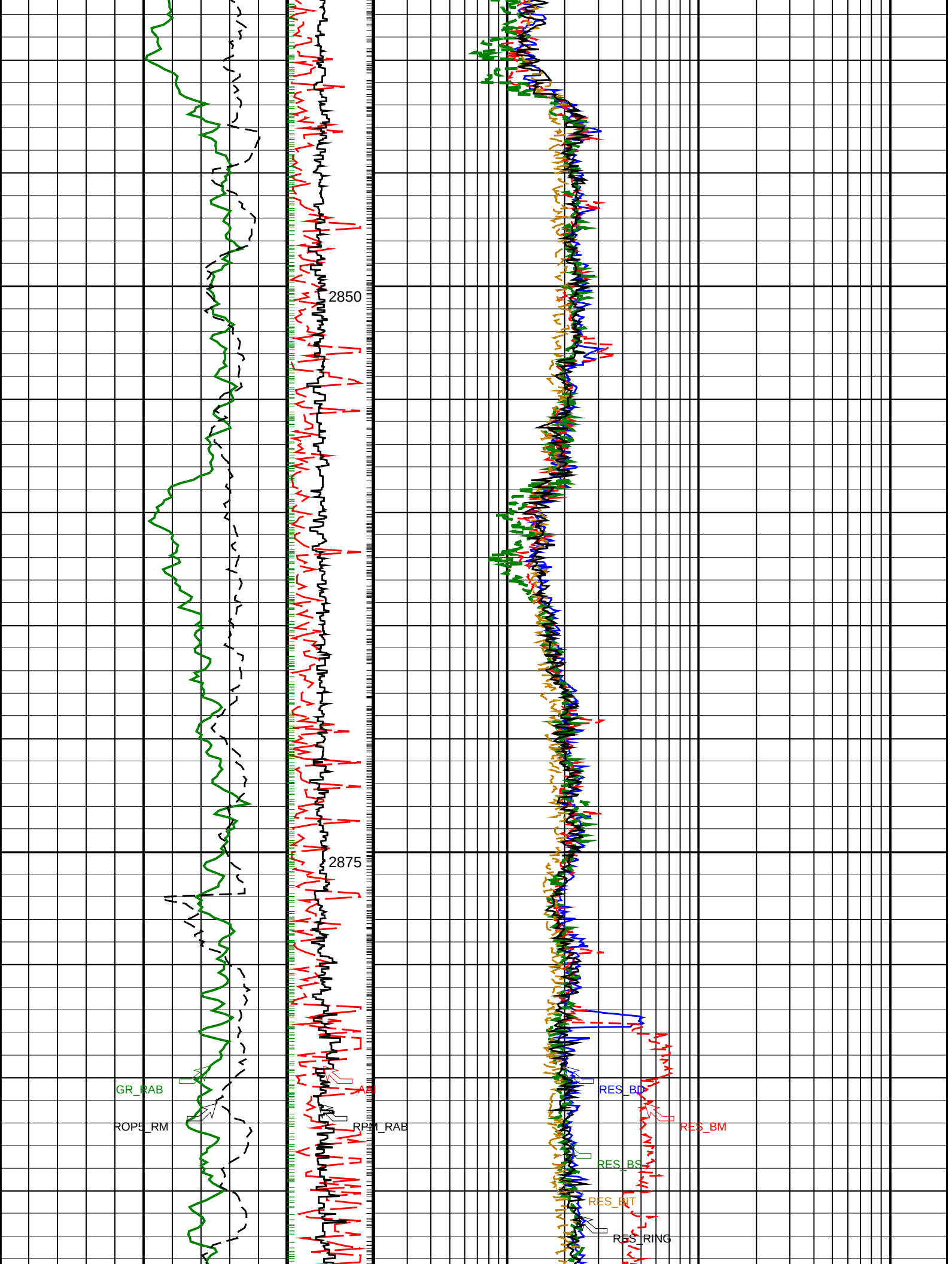


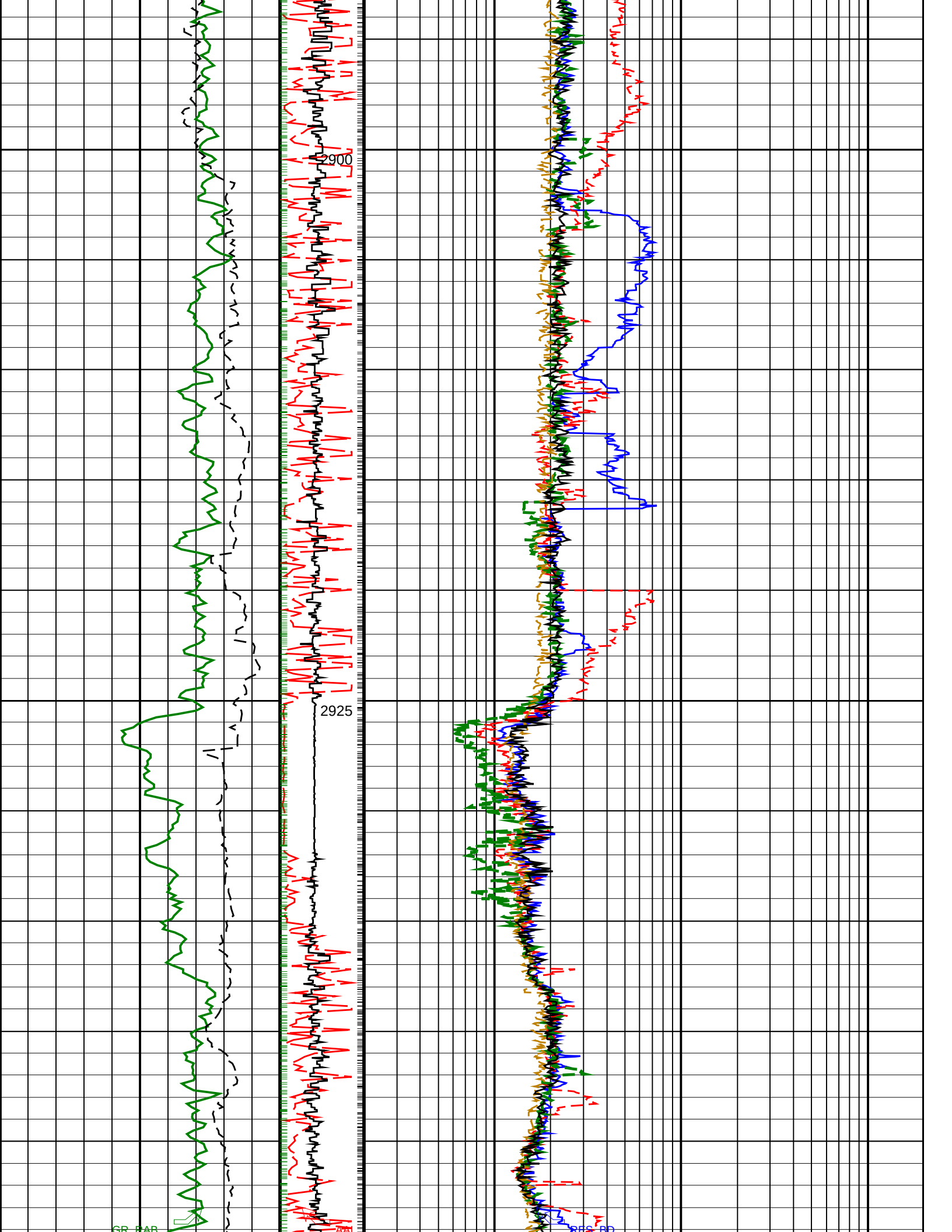

2625
GR splice point @ 2646.91m
Resistivity splice point @ 2647.75m
2650
GR splice point @ 2653.91m
Resistivity splice point @ 2654.75m

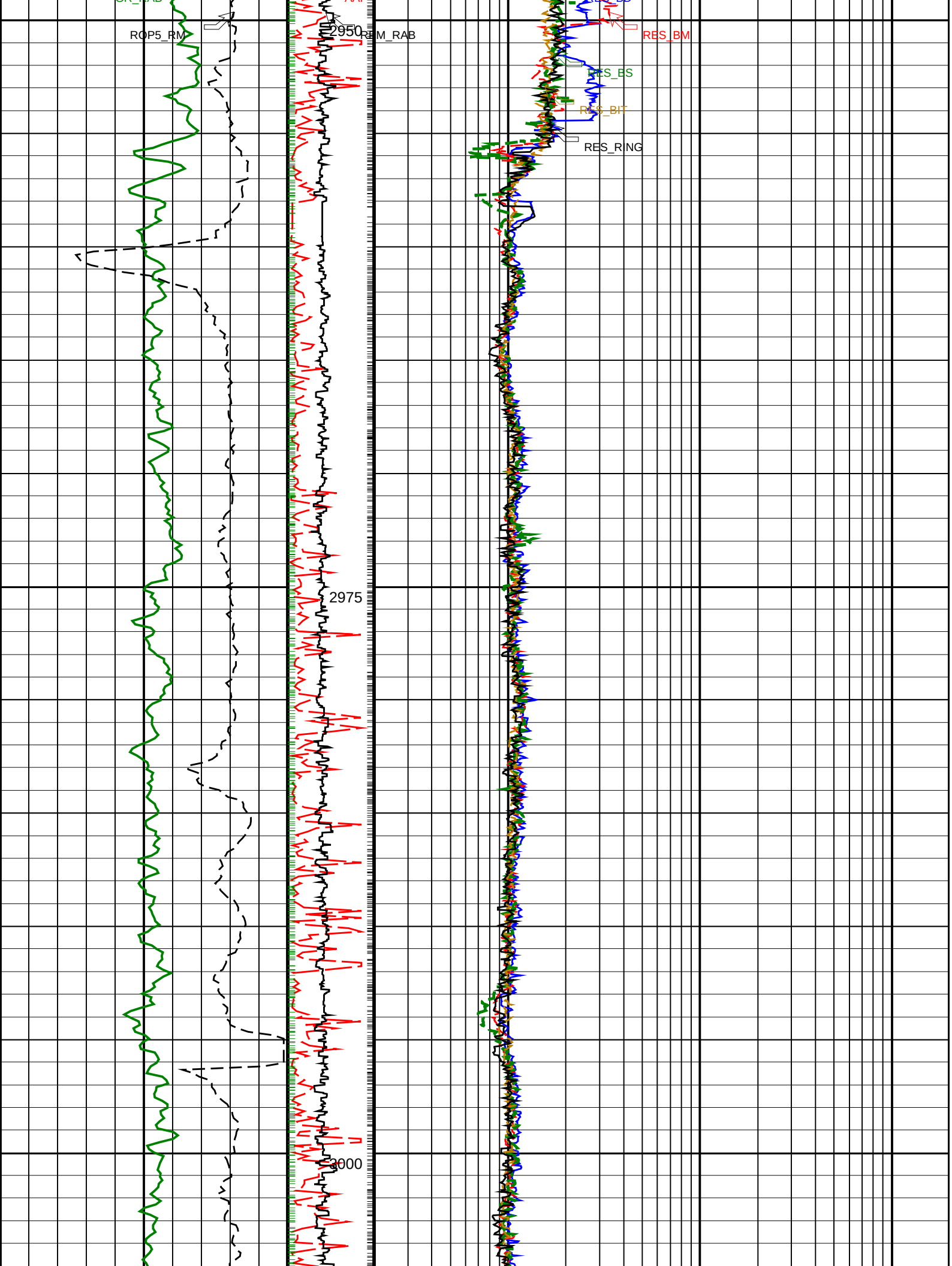

2675
2700
2725
GR_RAB
ROP5_RM
AAI
RHM_RAB
RES_BD
RES_BM
RES_BS
RES_BIT
RES_RING

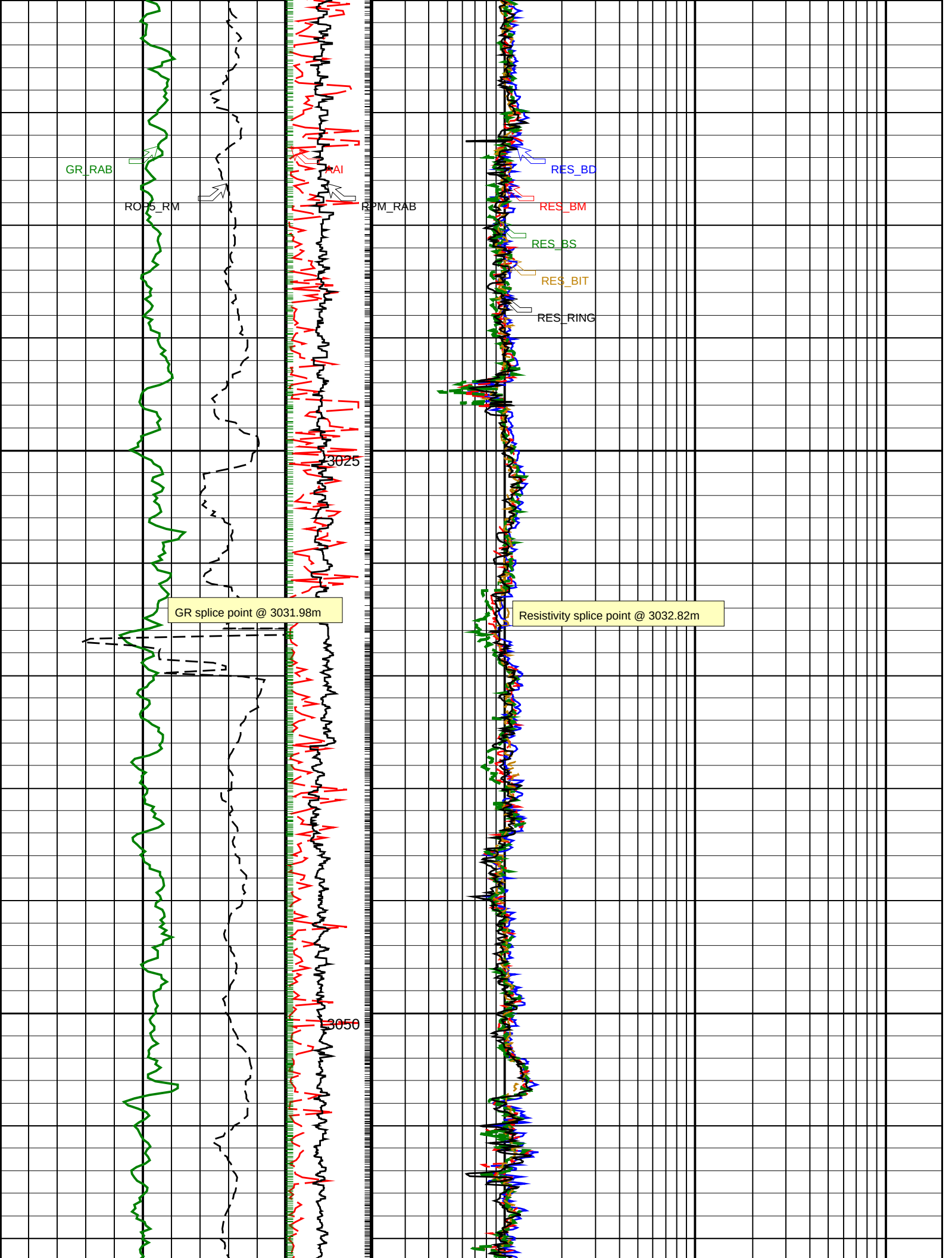

2750
2775
GR_RAB
ROP5_RM
AAI
RPM_RAB
RES_BD
RES_BM
RES_BS
RES_BIT
RES_RING

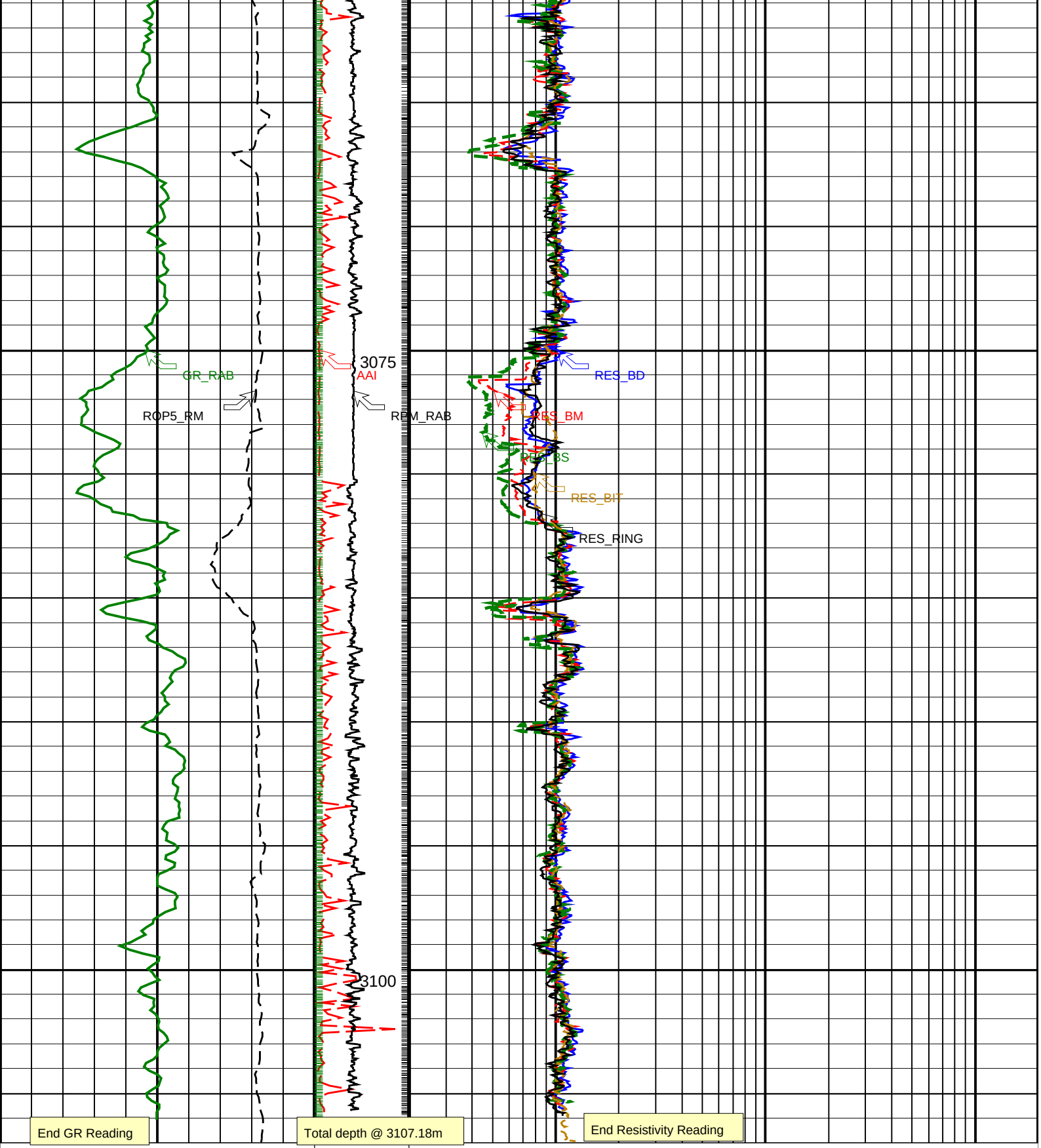

2800
2825
GR_RAB
ROP5_RM
AAI
RPM_RAB
RES_BD
RES_BM
RES_BS
RES_BIT
RES_RING


2850
2875
GR_RAB
ROP5_RM
RPM_RAB
RES_BD
RES_BM
RES_BS
RES_BIT
RES_RING


2900
2925
GR_RAB
RES_RD


ROP5_RM
2950
RES_RAB
RES_BM
RES_BS
RES_BIT
RES_RING
2975
3000


GR_RAB
ROP5_RM
AAI
RPM_RAB
RES_BD
RES_BM
RES_BS
RES_BIT
RES_RING
3025
3050
GR splice point @ 3031.98m
Resistivity splice point @ 3032.82m



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

Angular Acceleration Indicator (AAI)
0 300

Deep Button Resistivity (RES_BD)
0.2 (OHMM) 200

RAB Gamma Ray (GR_RAB)
0 (GAPI) 150

RAB Rotational Speed (RPM_RAB)
(RPM)
0 300

Medium Button Resistivity (RES_BM)
0.2 (OHMM) 200

Bit Resistivity (RES_BIT)
0.2 (OHMM) 200

Ring Resistivity (RES_RING)
0.2 (OHMM) 200

Shallow Button Resistivity (RES_BS)
0.2 (OHMM) 200

PIP SUMMARY

Gamma Ray Samples

Ring Samples

IDEAL Version: ID14_0C_12

IDF

Input DLIS Files

File ID:CDF_original FN:66 27−Aug−2009 16:39 8510.0 FT 10194.0 FT

NT2−01_GeoVISION Resistivity_Image_RM_MD200

File ID:CDF_original FN:66 27−Aug−2009 16:39 8510.0 FT 10194.0 FT

IDEAL Version: ID14_0C_12

IDF

Format: NT1−07_Image_RM_MD200 Vertical Scale: 1:200 Graphics File Created: 06−Sep−2009 17:33

Parameters

DLIS Name	Description	Value
DO	Depth Offset	0.0 m

PIP SUMMARY

Ring Samples

Gamma Ray Samples

Ring Resistivity (RES_RING)
0.2 (OHMM) 20

Bit Resistivity (RES_BIT)
0.2 (OHMM) 20

Deep Button Resistivity (RES_BD)
0.2 (OHMM) 20

RAB Rotational Speed (RPM_RAB) (RPM)
0 300

Medium Button Resistivity (RES_BM)
0.2 (OHMM) 20

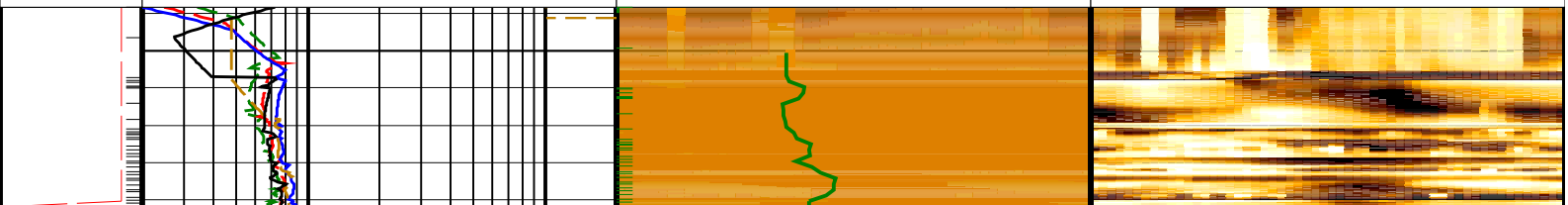
Absent 0.031 0.071 0.171 0.401 1.001 2.201 4.201 7.001 10.400 15.800
Deep Button Image (R3IM_HI) (OHMM)

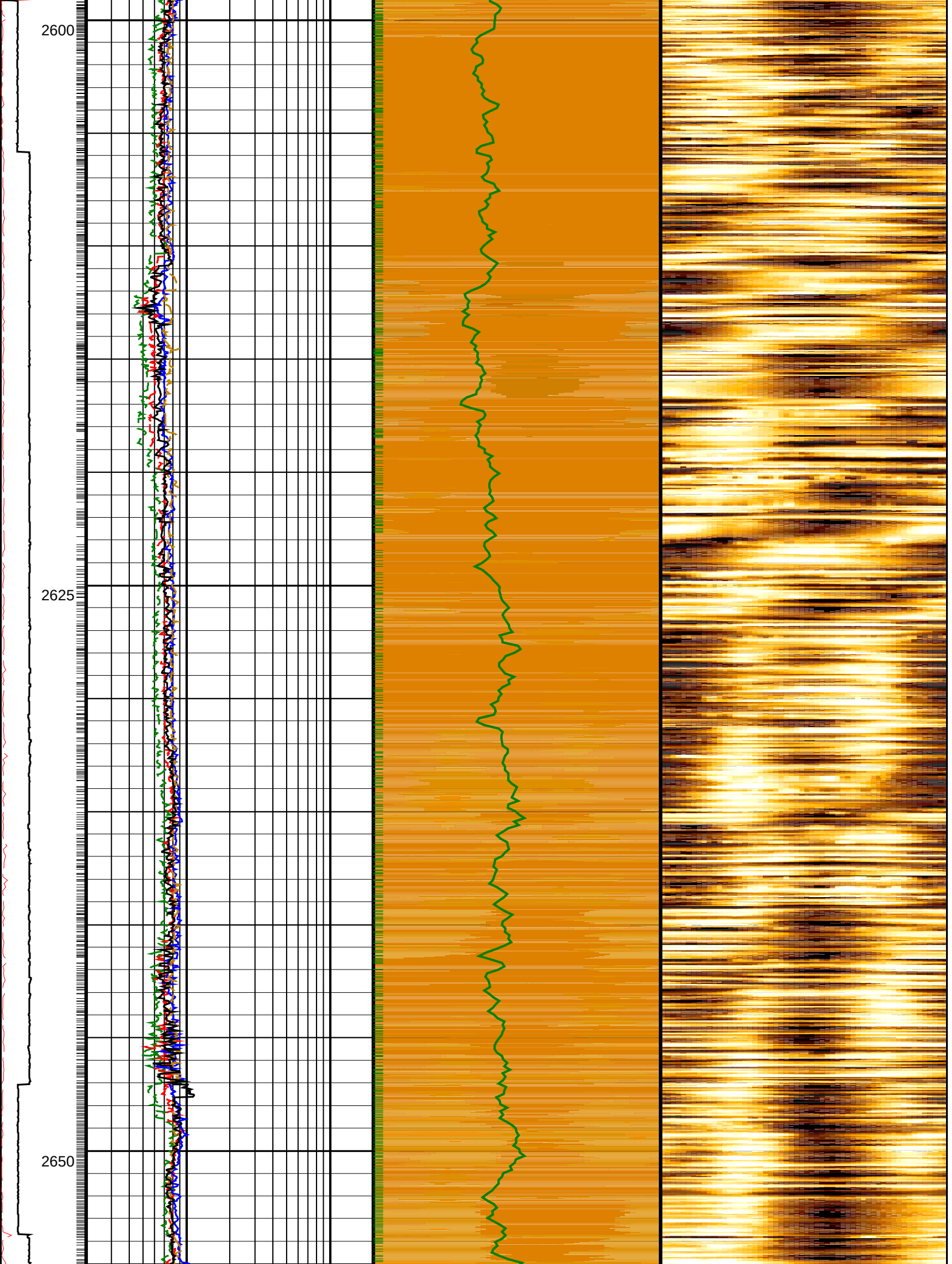
Angular Acceleration Indicator (AAI) (−−−−)
0 300

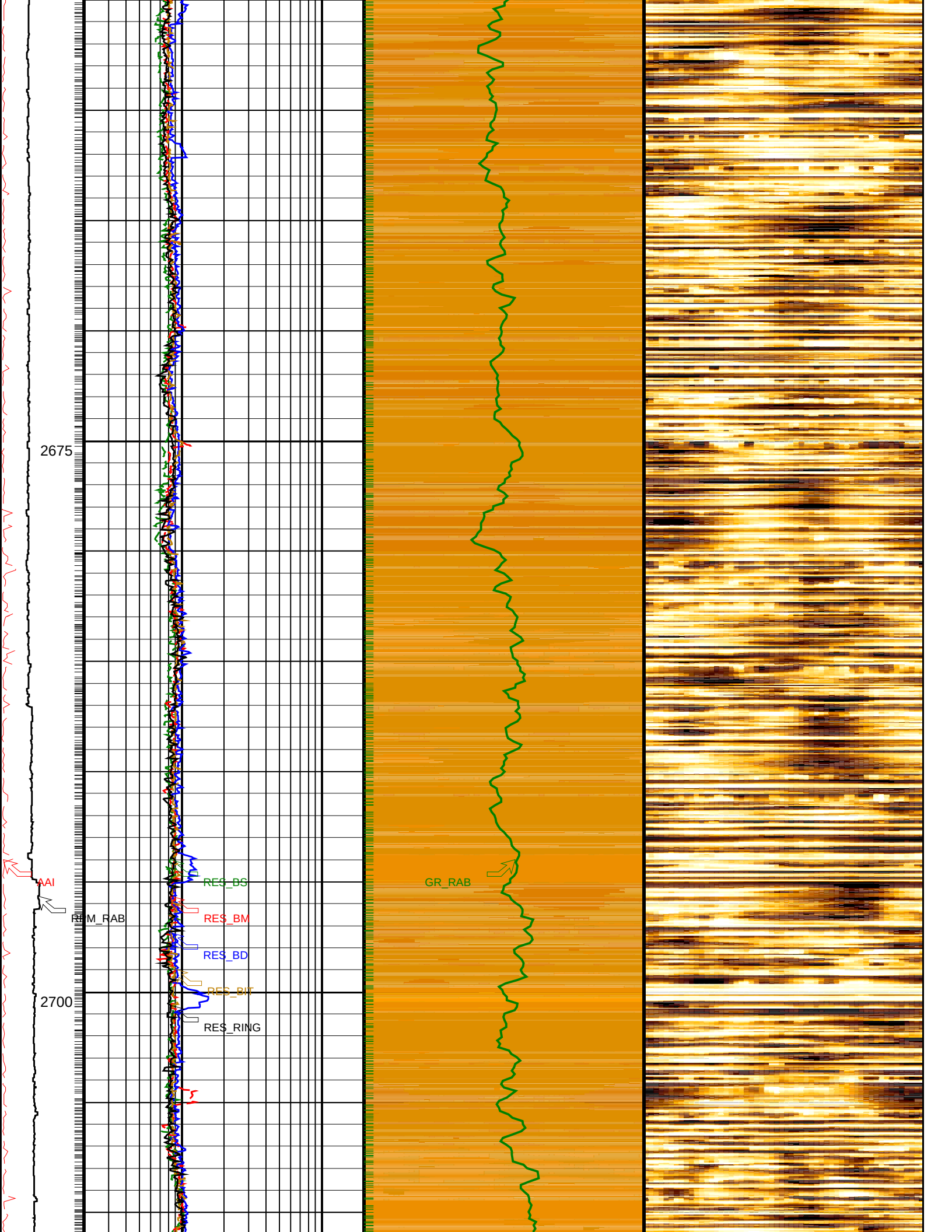
Shallow Button Resistivity (RES_BS)
0.2 (OHMM) 20

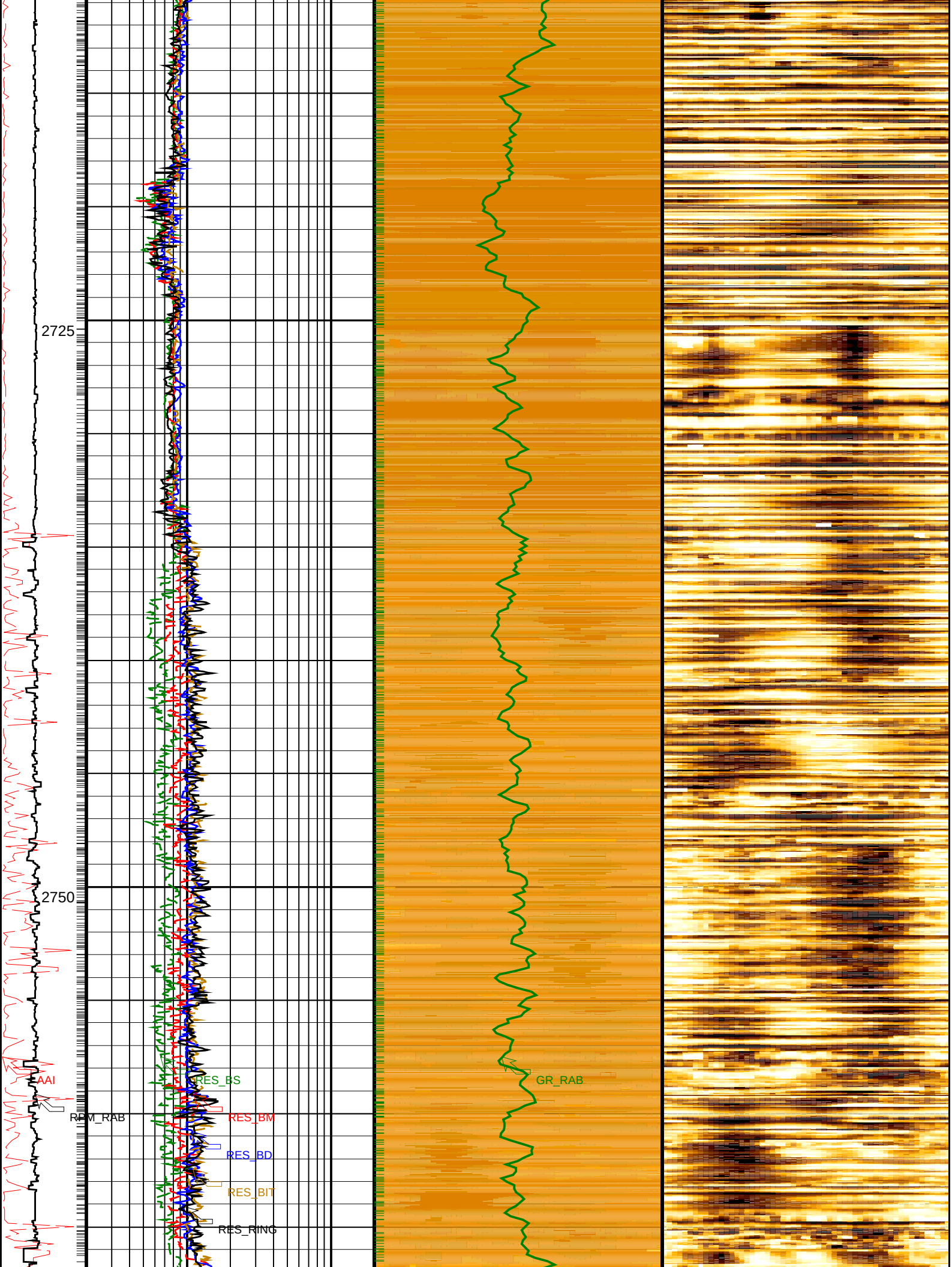
RAB Gamma Ray (GR_RAB)
0 (GAPI) 150

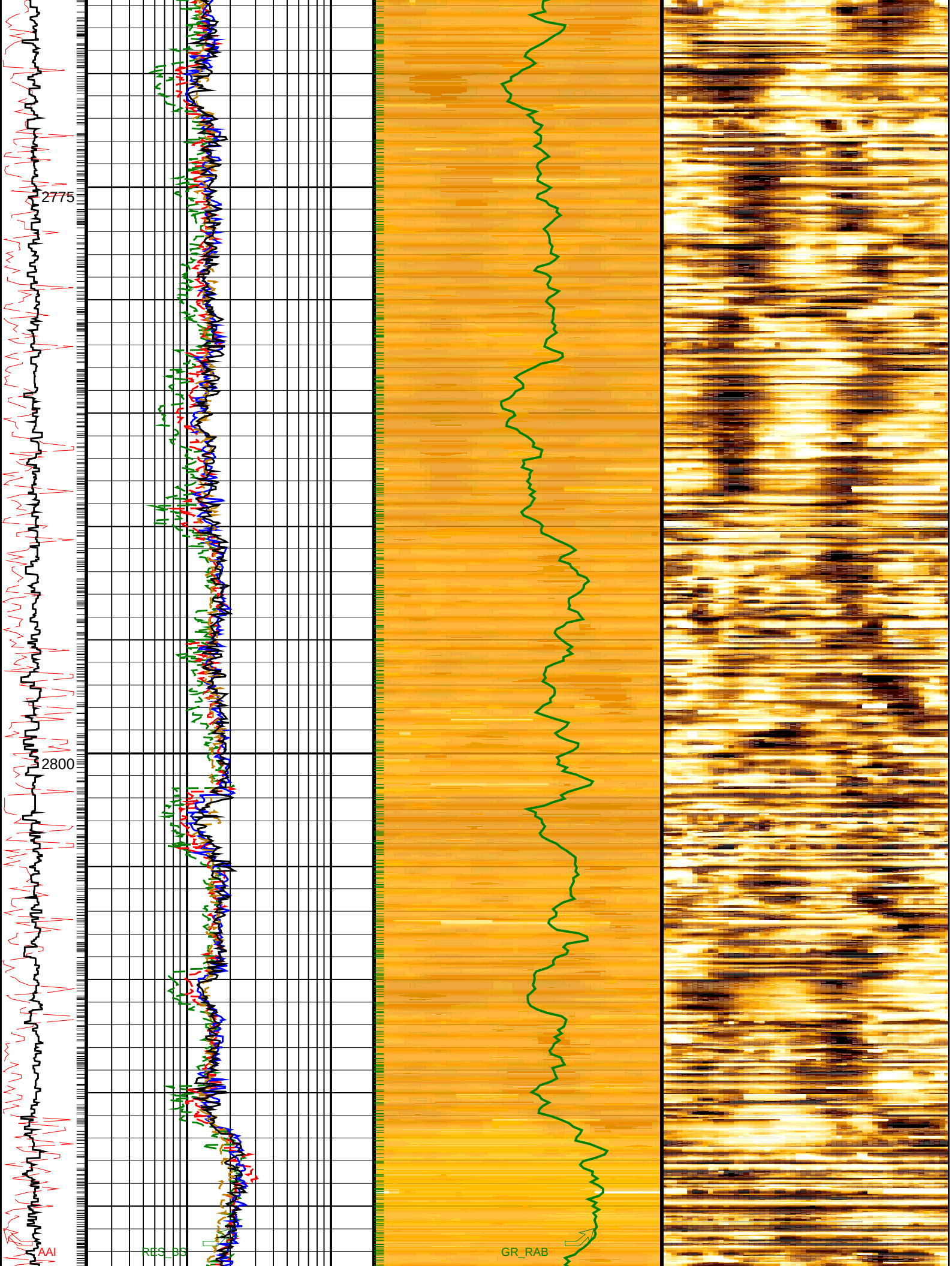
Conductive Resistive (R3IM_DYN_HI) (−−−−)

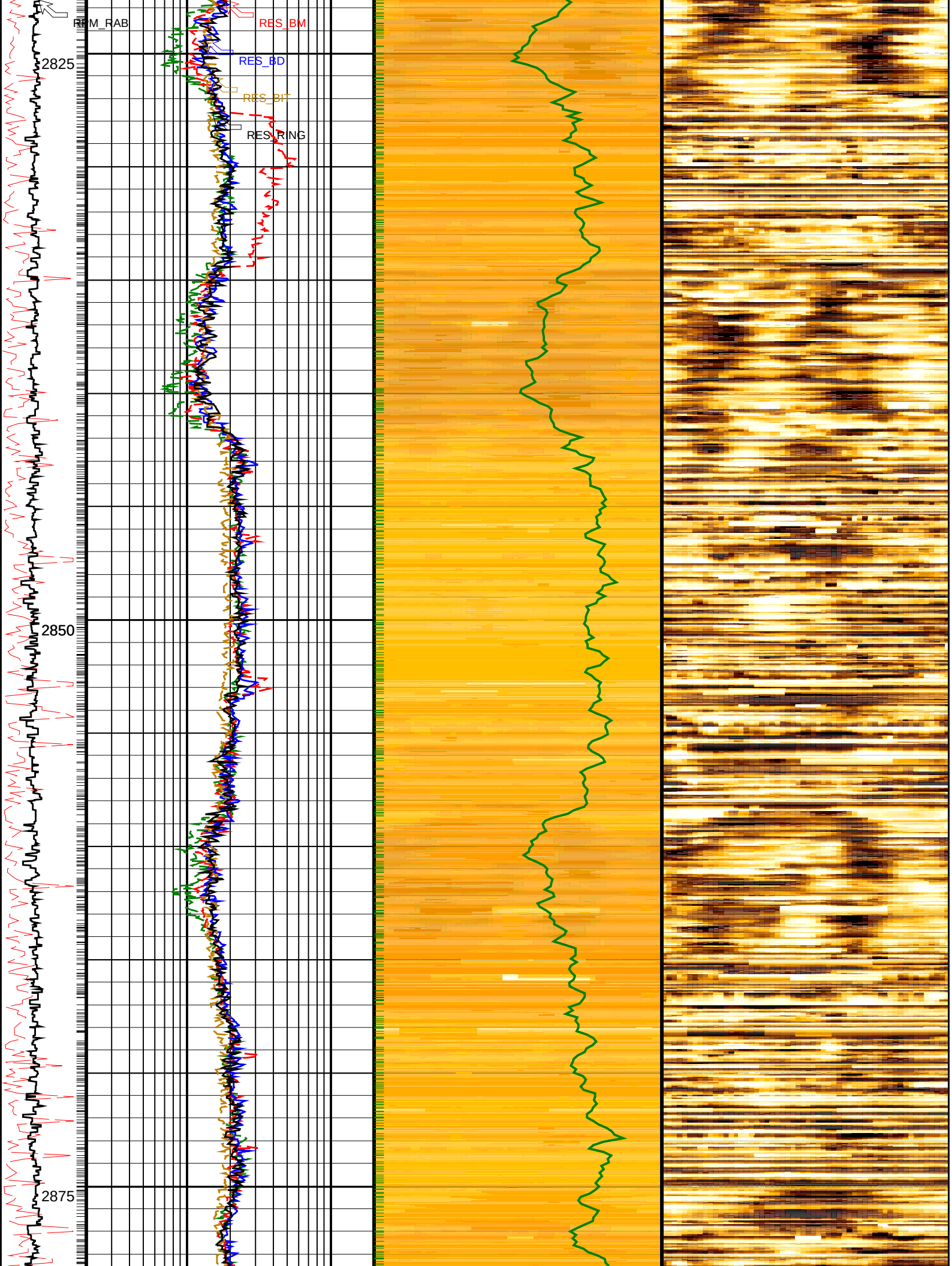


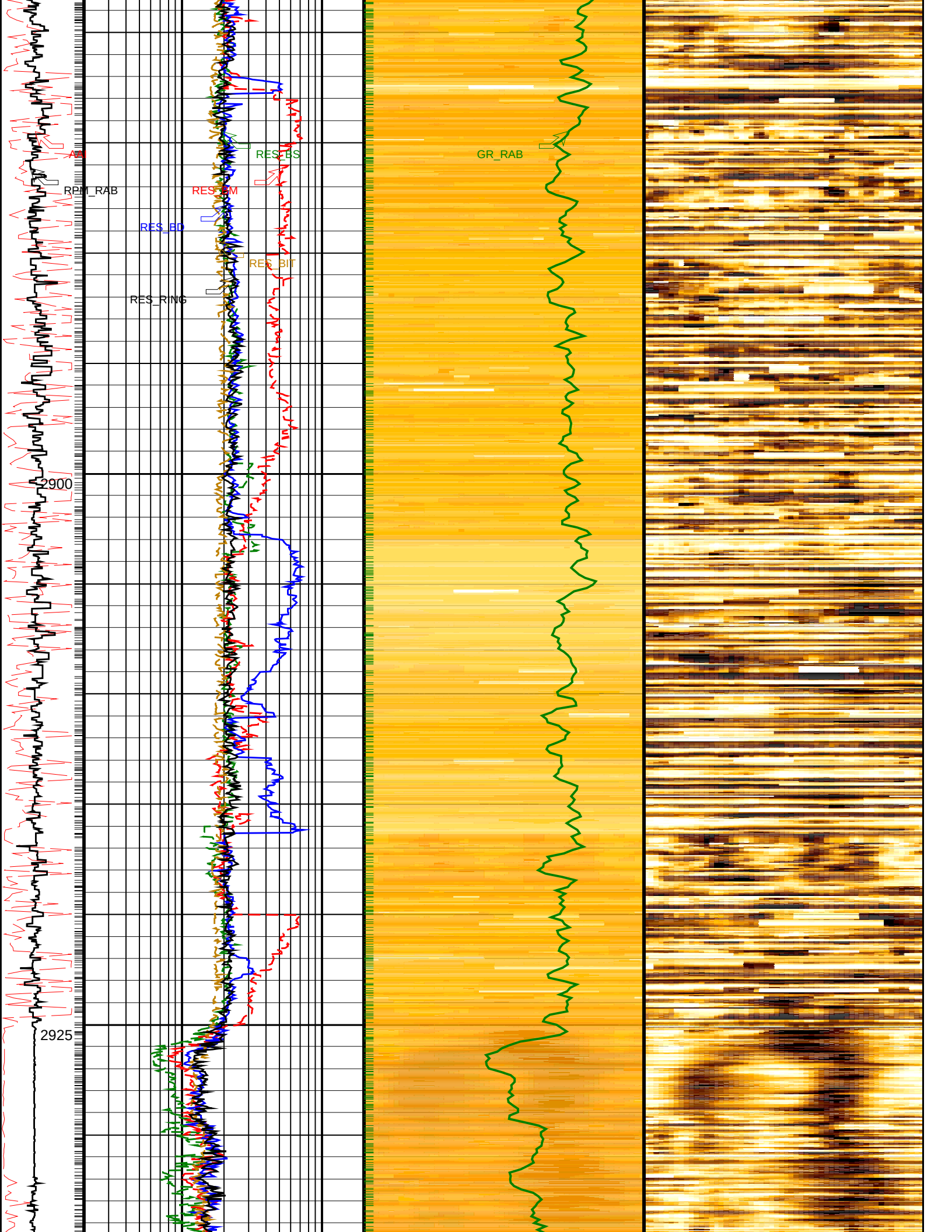

2600
2625
2650

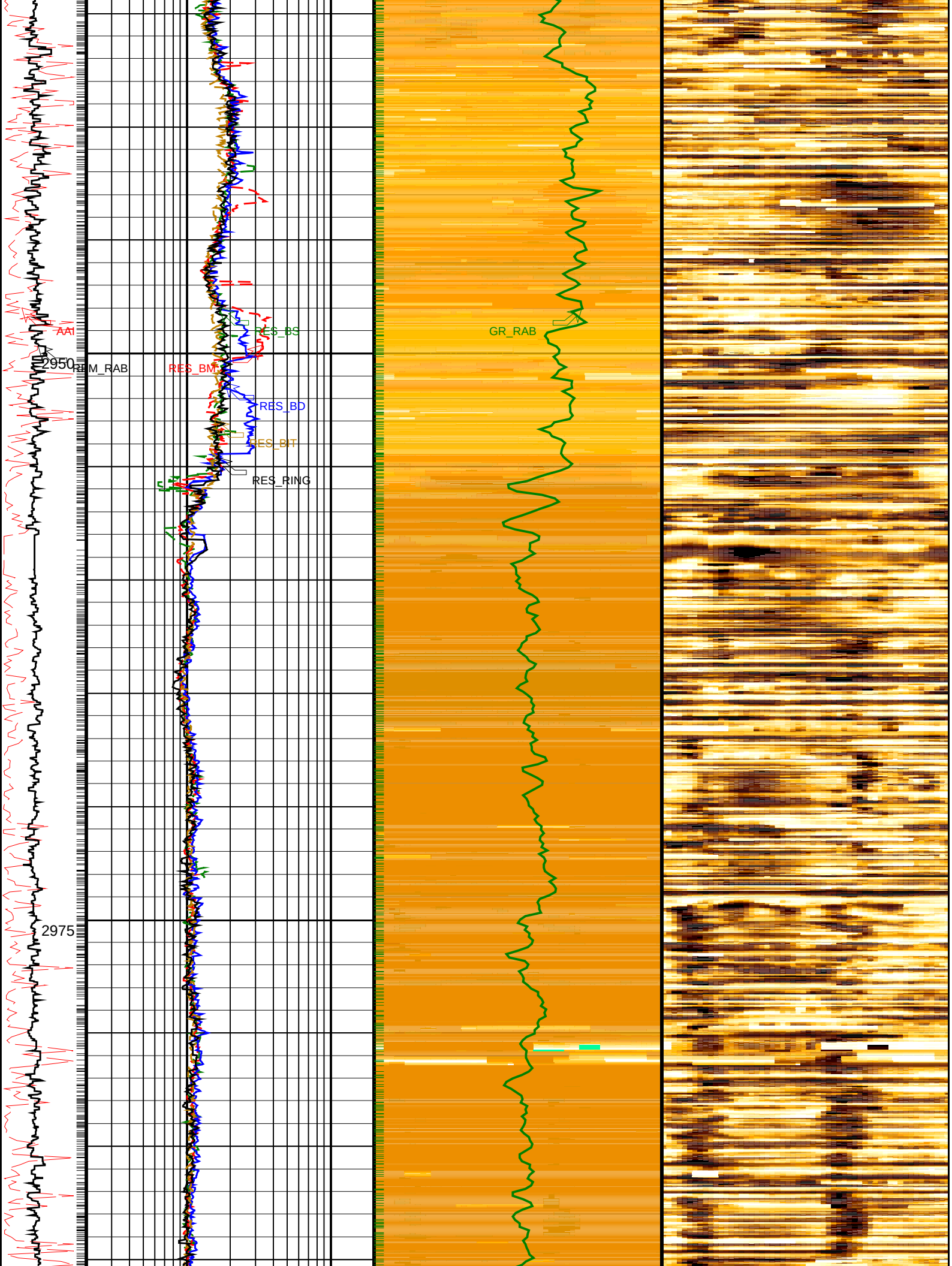

2675
2700
AAI
RBM_RAB
RES_BS
RES_BM
RES_BD
RES_BIT
RES_RING
GR_RAB

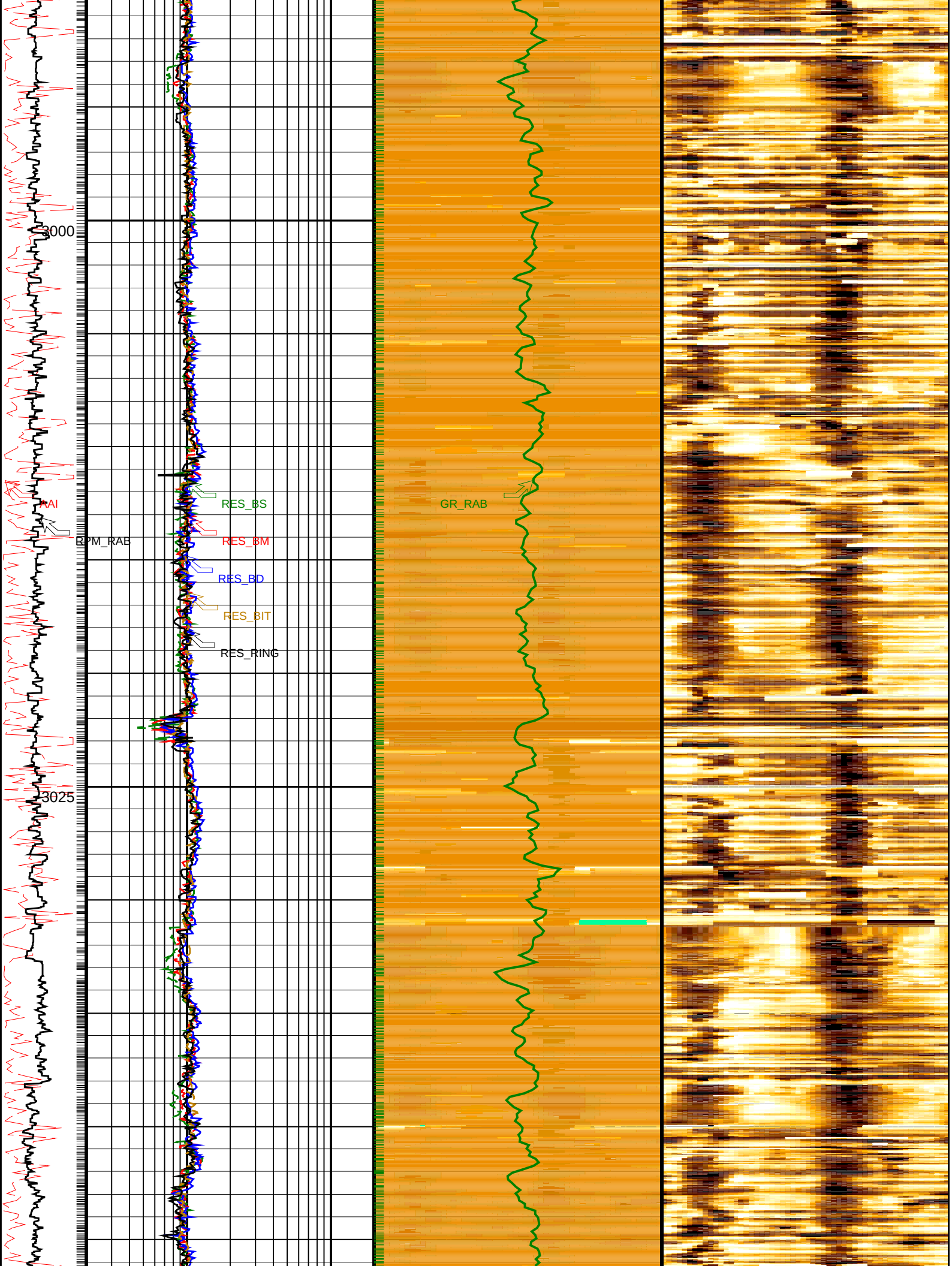

2725
2750
AAI
RHM_RAB
RES_BS
RES_BM
RES_BD
RES_BIT
RES_RING
GR_RAB

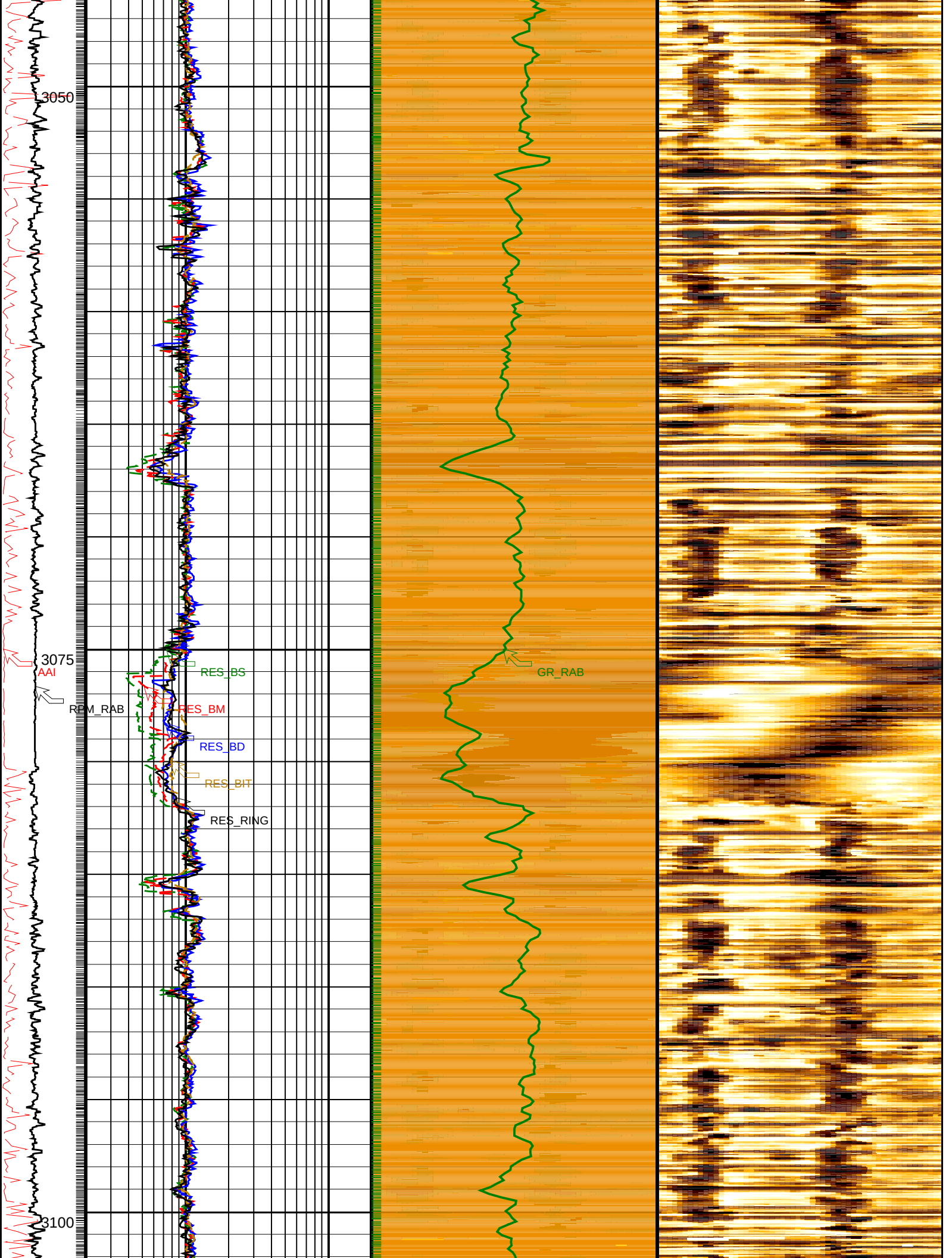

2775
2800
AAI
RES_SS
GR_RAB


RPM_RAB
RES_BM
RES_BD
RES_BIT
RES_RING
2825
2850
2875


RES_BS
GR_RAB
RPM_RAB
RES_BM
RES_BD
RES_BIT
RES_RING
2900
2925


AA1
2950
RES_BS
RES_BM
RES_BD
RES_BIT
RES_RING
GR_RAB
2975


3000
3025
RAI
RPM_RAB
RES_BS
RES_BM
RES_BD
RES_BIT
RES_RING
GR_RAB


3050
3075
AAI
RPM_RAB
RES_BS
RES_BM
RES_BD
RES_BIT
RES_RING
GR_RAB
3100

Angular Acceleration Indicator (AAI) (----)
0 300

Shallow Button Resistivity (RES_BS)
0.2 (OHMM) 20

RAB Gamma Ray (GR_RAB)
0 (GAPI) 150

Conductive Resistive (R3IM_DYN_HI) (----)

RAB Rotational Speed (RPM_RAB) (RPM)
0 300

Medium Button Resistivity (RES_BM)
0.2 (OHMM) 20

Absent 0.031 0.071 0.171 0.401 1.001 2.201 4.201 7.001 10.400 15.800
Deep Button Image (R3IM_HI) (OHMM)

Deep Button Resistivity (RES_BD)
0.2 (OHMM) 20

Bit Resistivity (RES_BIT)
0.2 (OHMM) 20

Ring Resistivity (RES_RING)
0.2 (OHMM) 20

PIP SUMMARY

Ring Samples

Gamma Ray Samples

IDEAL Version: ID14_0C_12
IDF

Input DLIS Files

File ID:CDF_original FN:66 27-Aug-2009 16:39 8510.0 FT 10194.0 FT

NT2-01_GeoVISION Resistivity_RM_MD200_Relog Spliced

File ID:CDF_NT2-01 FN:66 27-Aug-2009 16:39 8510.0 FT 10194.0 FT

IDEAL Version: ID14_0C_12
IDF

Format: NT1-07_GeoVISION Resistivity_RM_MD200 Vertical Scale: 1:200 Graphics File Created: 06-Sep-2009 15:42

Parameters

DLIS Name	Description	Value
DO	Depth Offset	0.0 m

PIP SUMMARY

Gamma Ray Samples

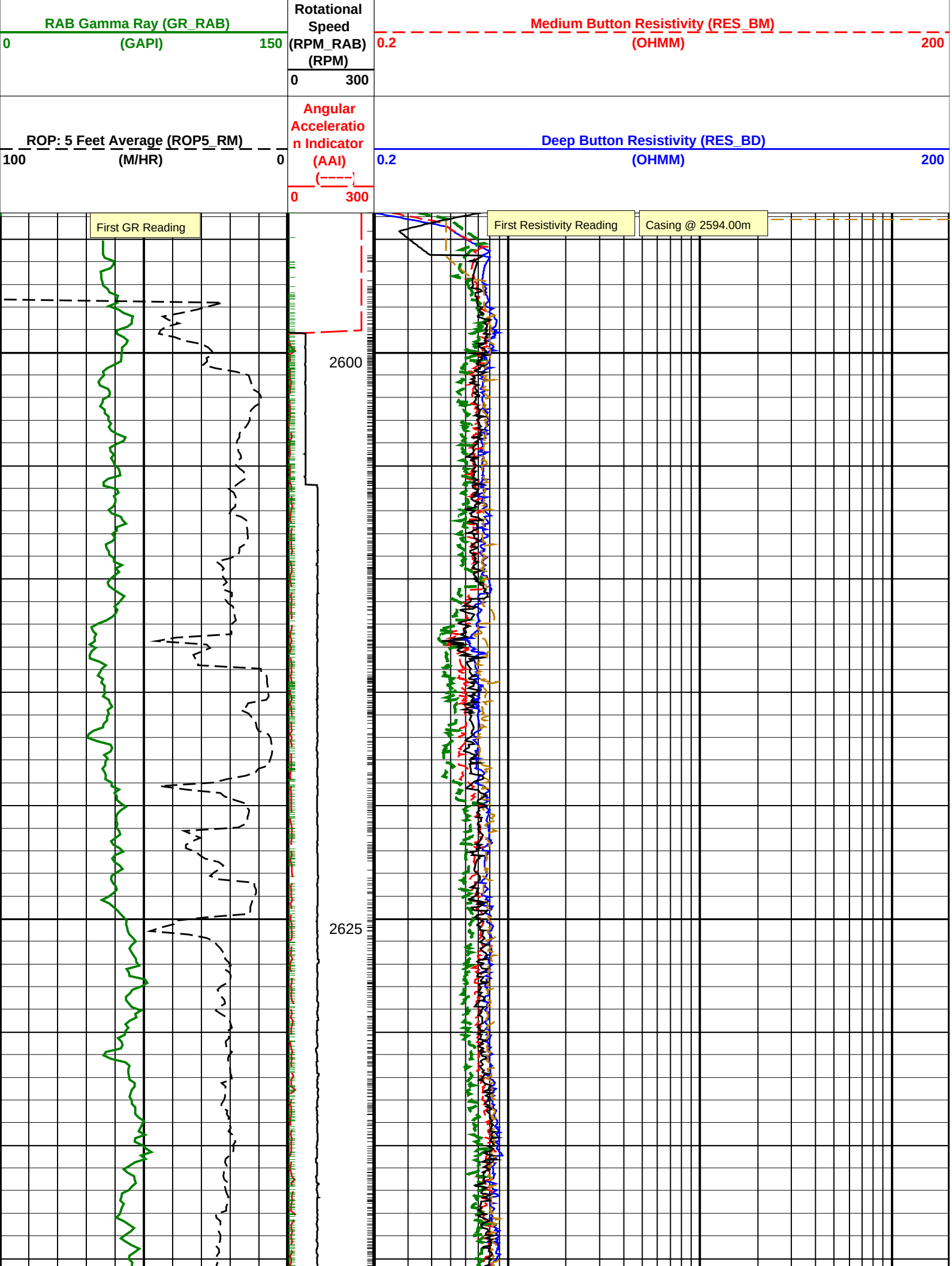
Ring Samples

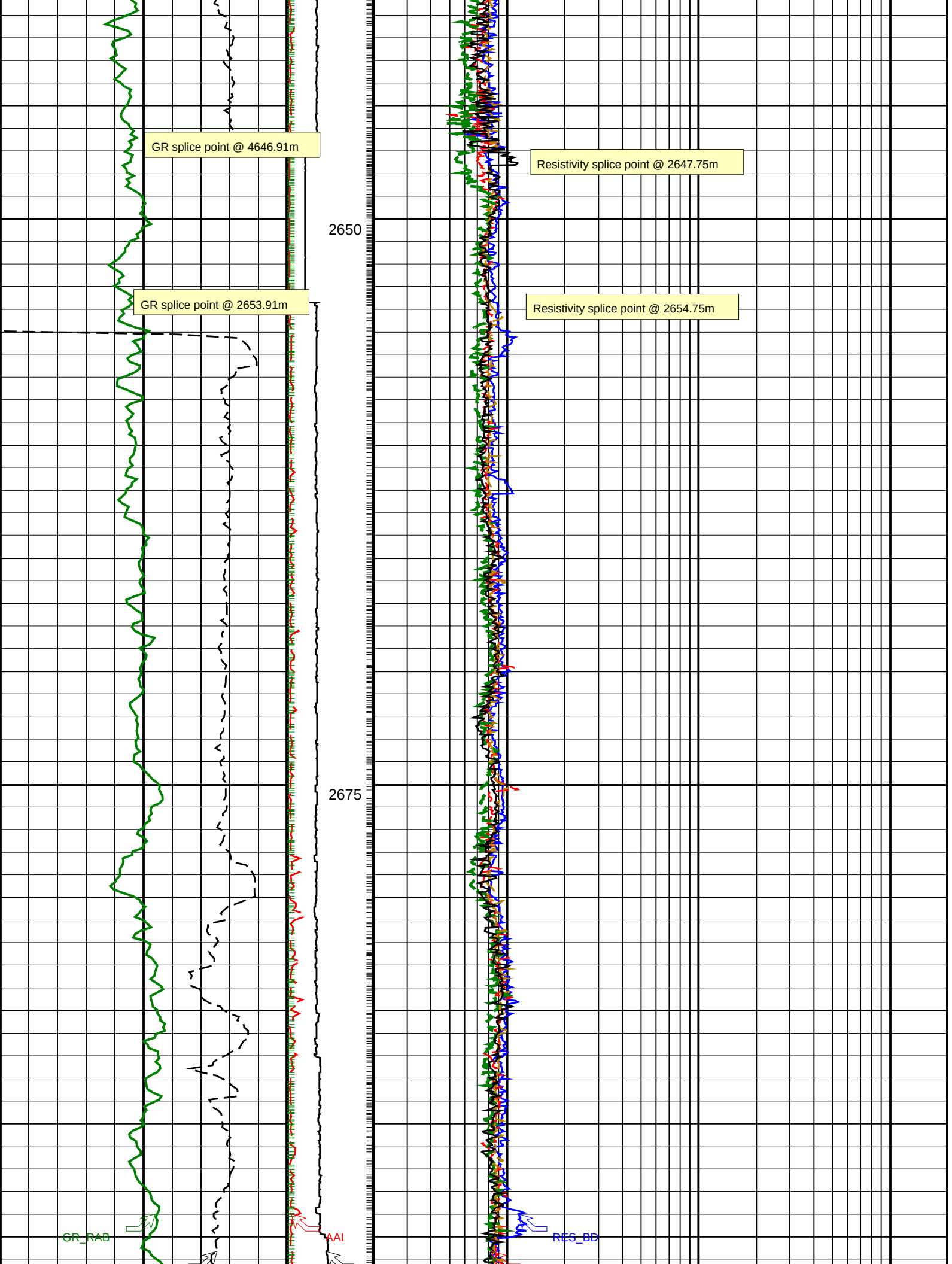
Shallow Button Resistivity (RES_BS)
0.2 (OHMM) 200

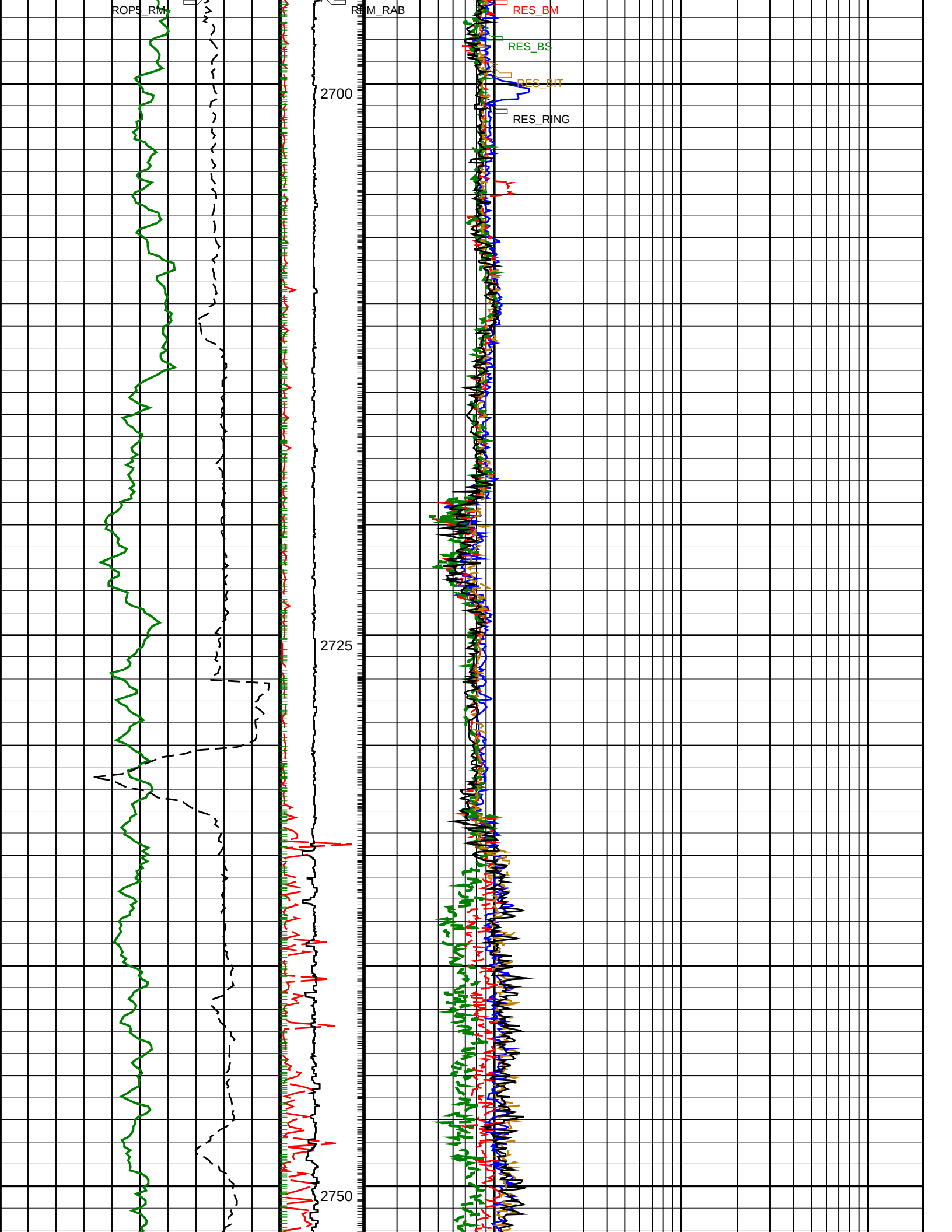
Ring Resistivity (RES_RING)
0.2 (OHMM) 200

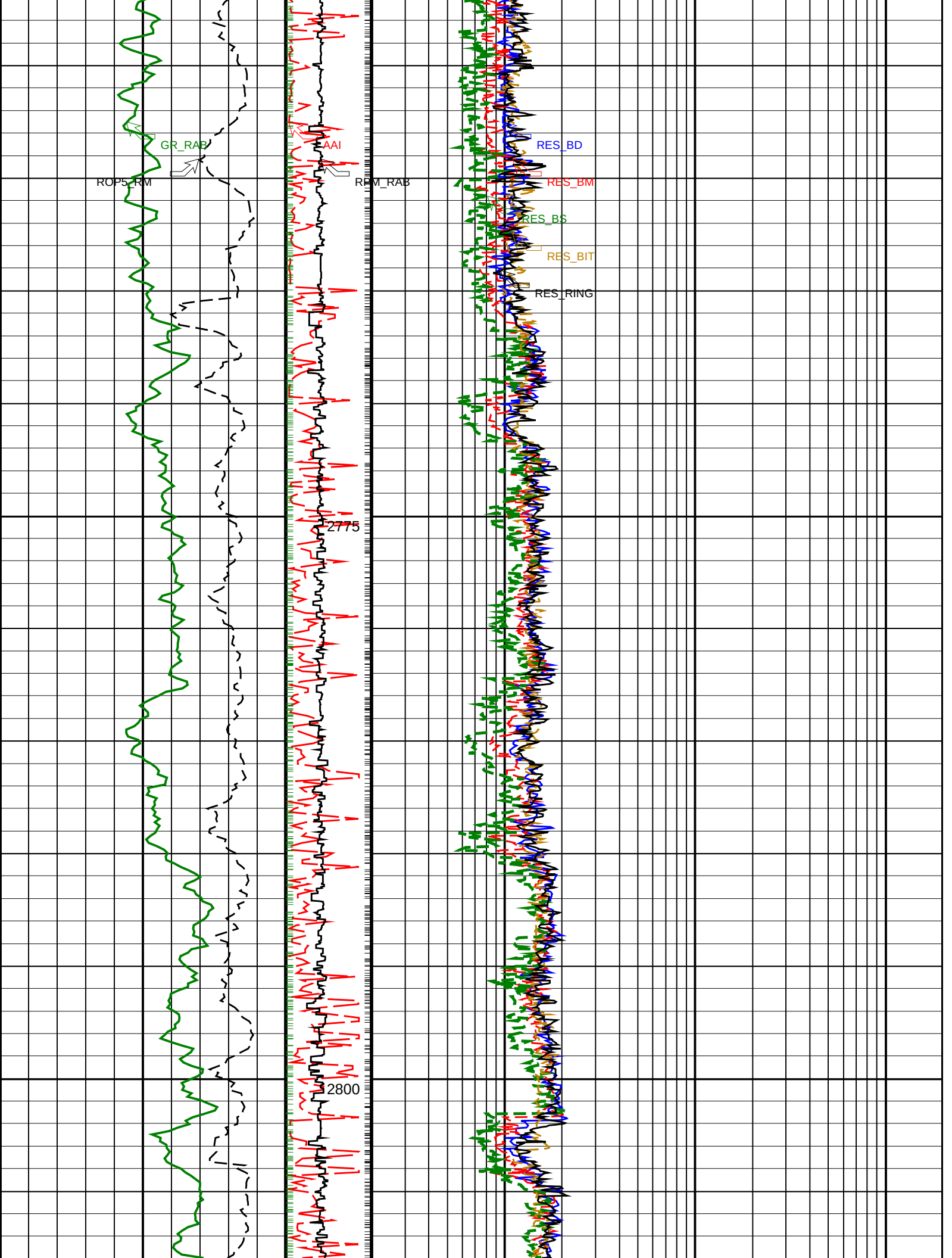
Bit Resistivity (RES_BIT)
0.2 (OHMM) 200

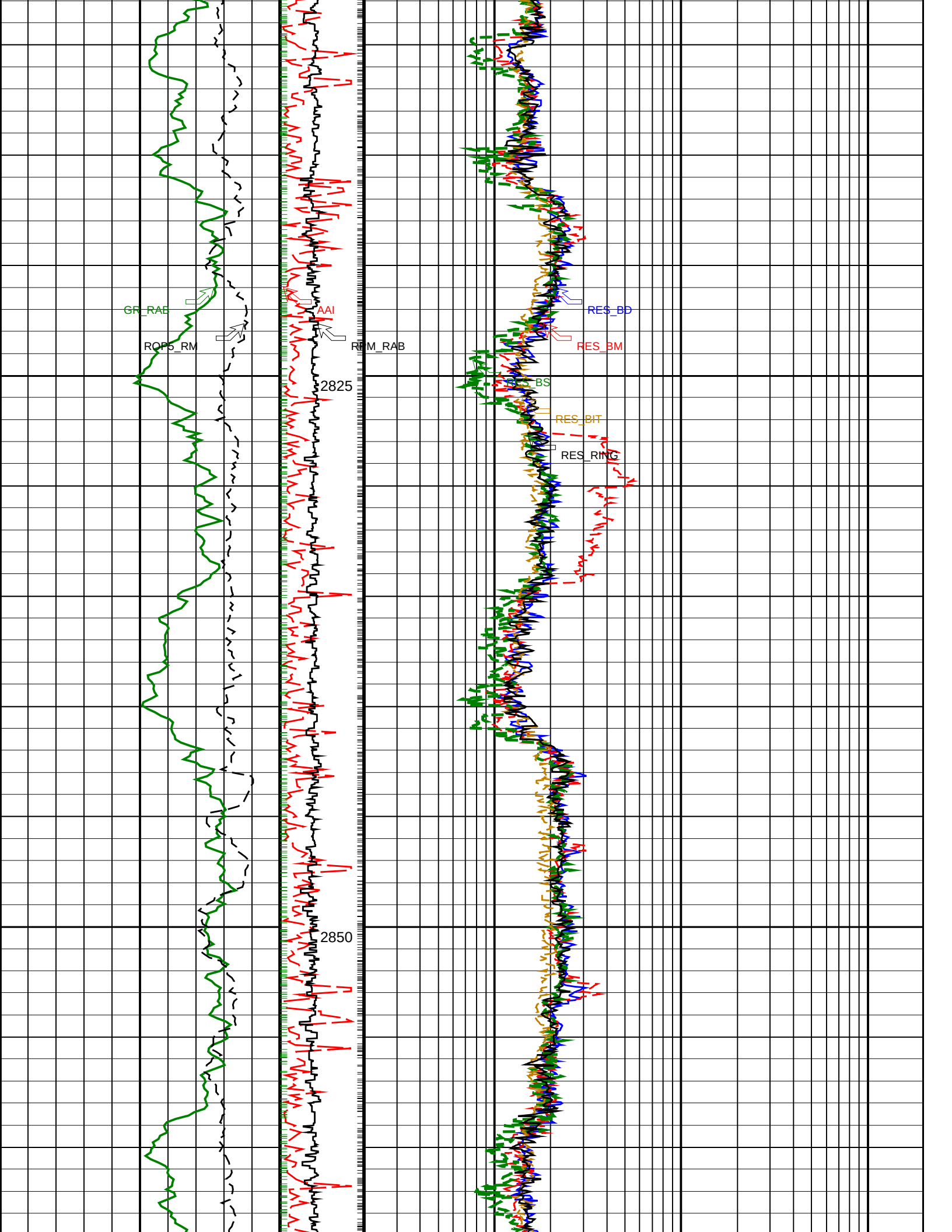
RAB

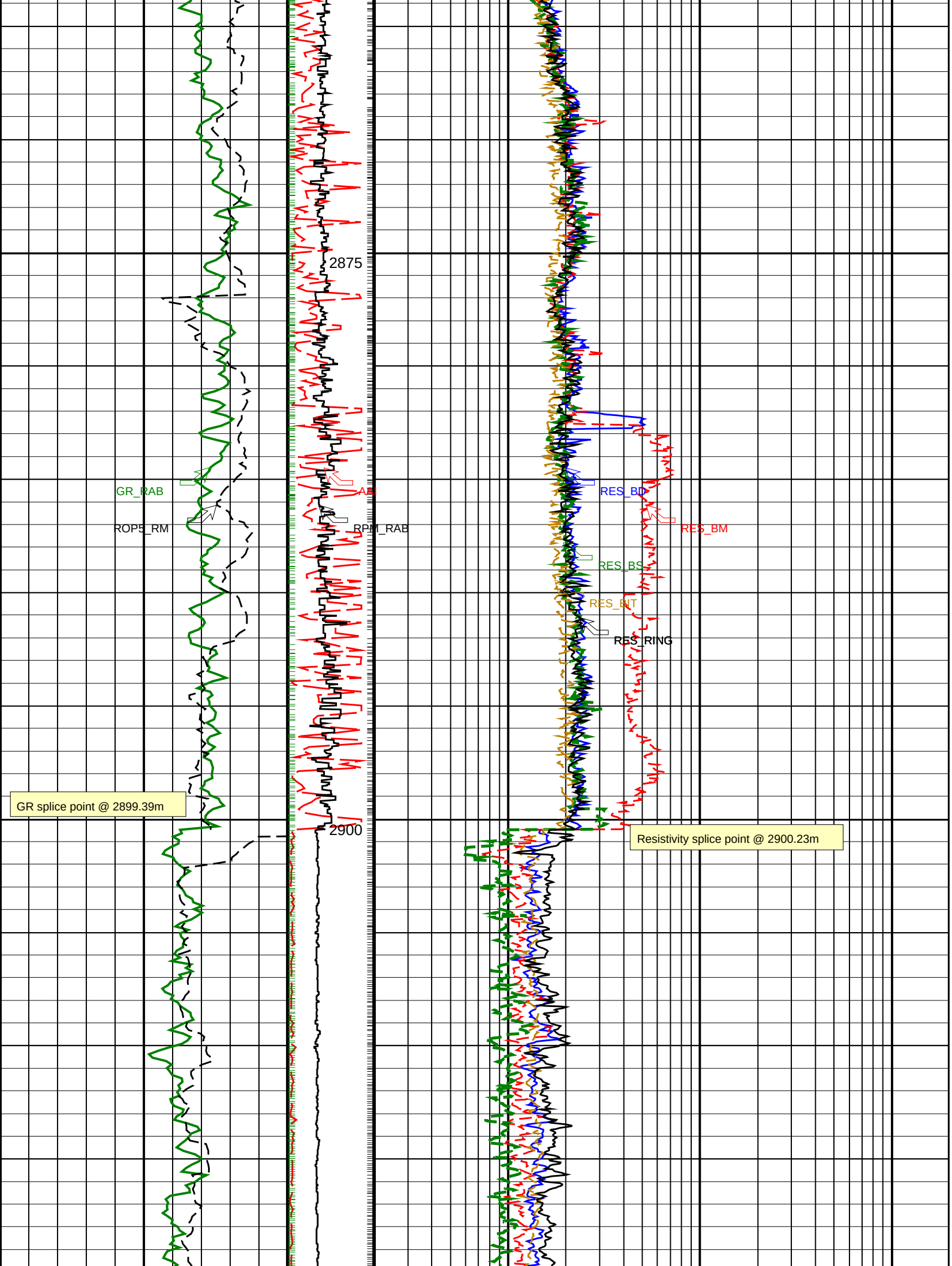

RAB Gamma Ray (GR_RAB)
0
(GAPI)
150
Rotational Speed (RPM_RAB) (RPM)
0
300
Medium Button Resistivity (RES_BM)
0.2
(OHMM)
200
ROP: 5 Feet Average (ROP5_RM)
100
(M/HR)
0
Angular Acceleration Indicator (AAI)
0
300
Deep Button Resistivity (RES_BD)
0.2
(OHMM)
200
First GR Reading
First Resistivity Reading
Casing @ 2594.00m
2600
2625

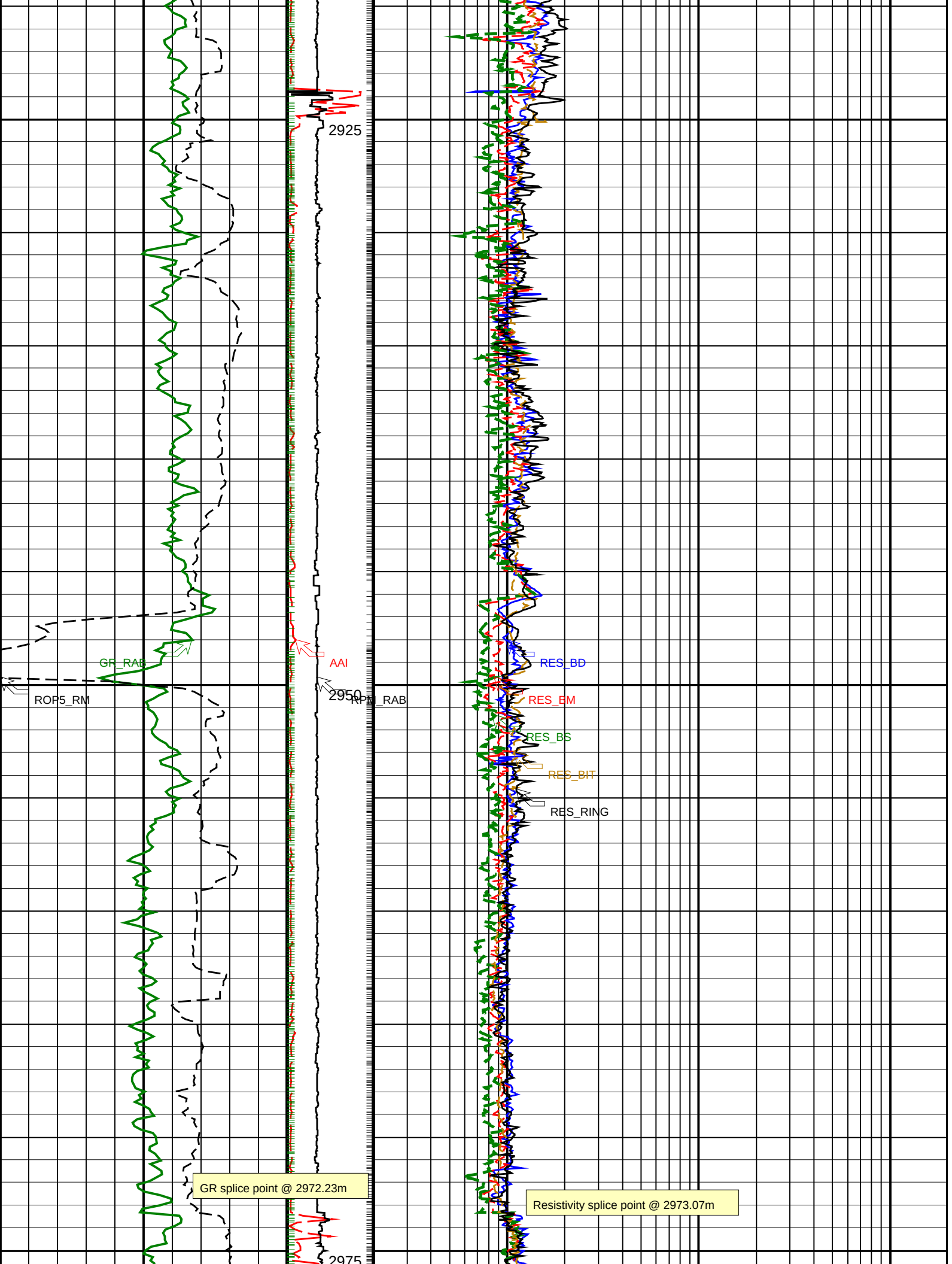

GR splice point @ 4646.91m
Resistivity splice point @ 2647.75m
2650
GR splice point @ 2653.91m
Resistivity splice point @ 2654.75m
2675
GR_RAB
AAI
RES_BD

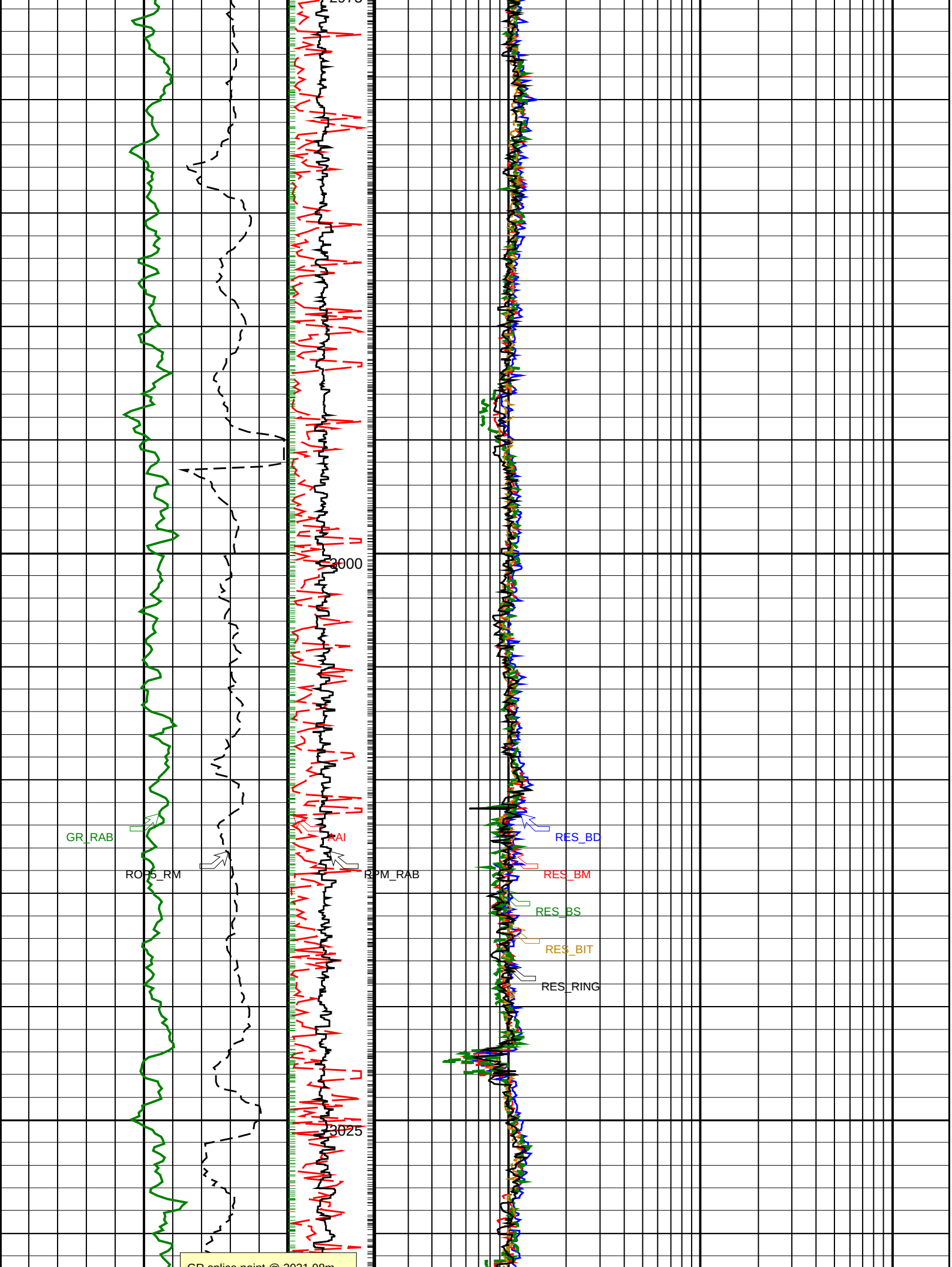

ROP5_RM
RHM_RAB
RES_BM
RES_BS
RES_BIT
RES_RING
2700
2725
2750

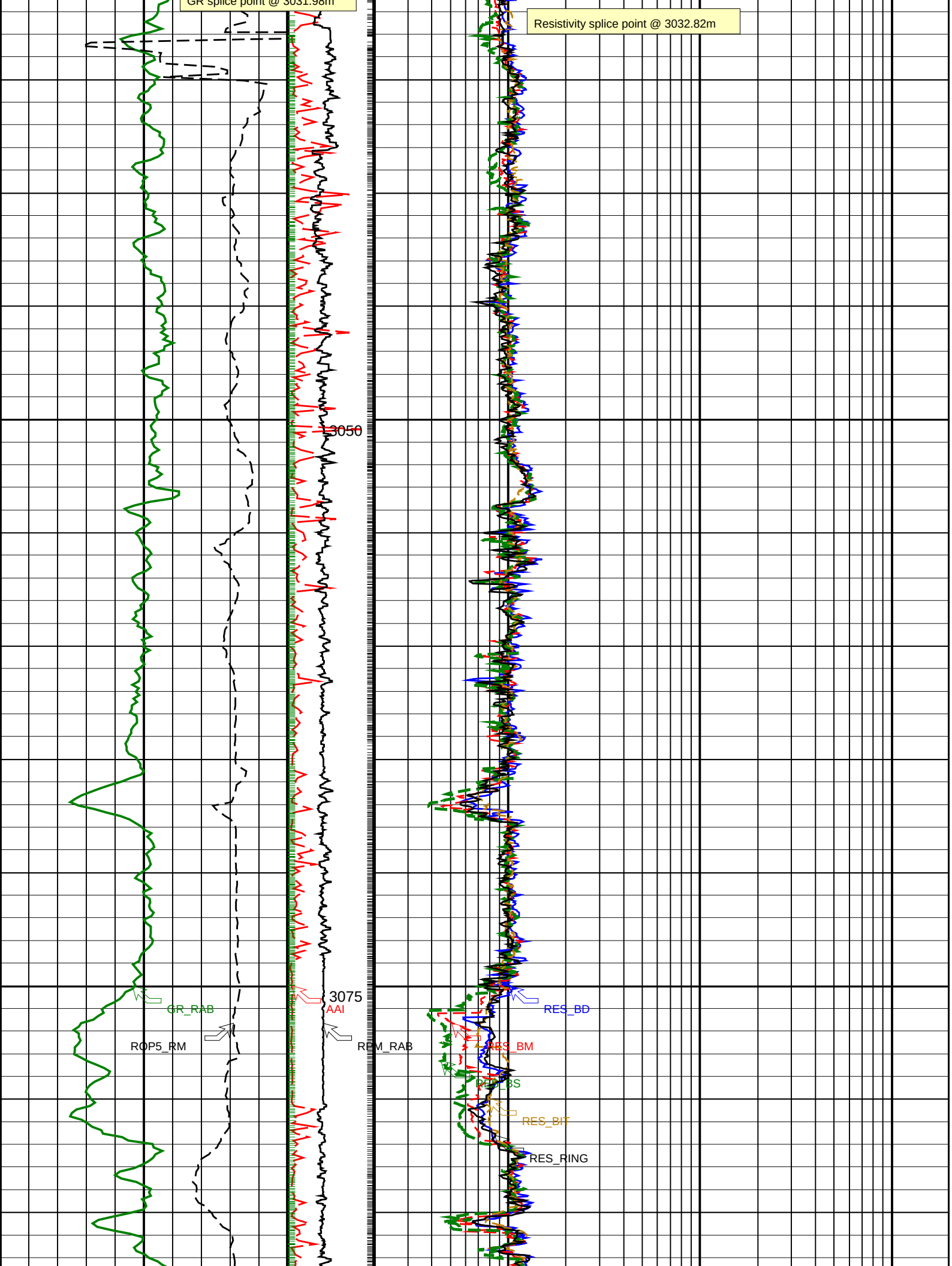

GR_RAB
ROP5_RM
AAI
RPM_RAB
RES_BD
RES_BM
RES_BS
RES_BIT
RES_RING
2775
2800

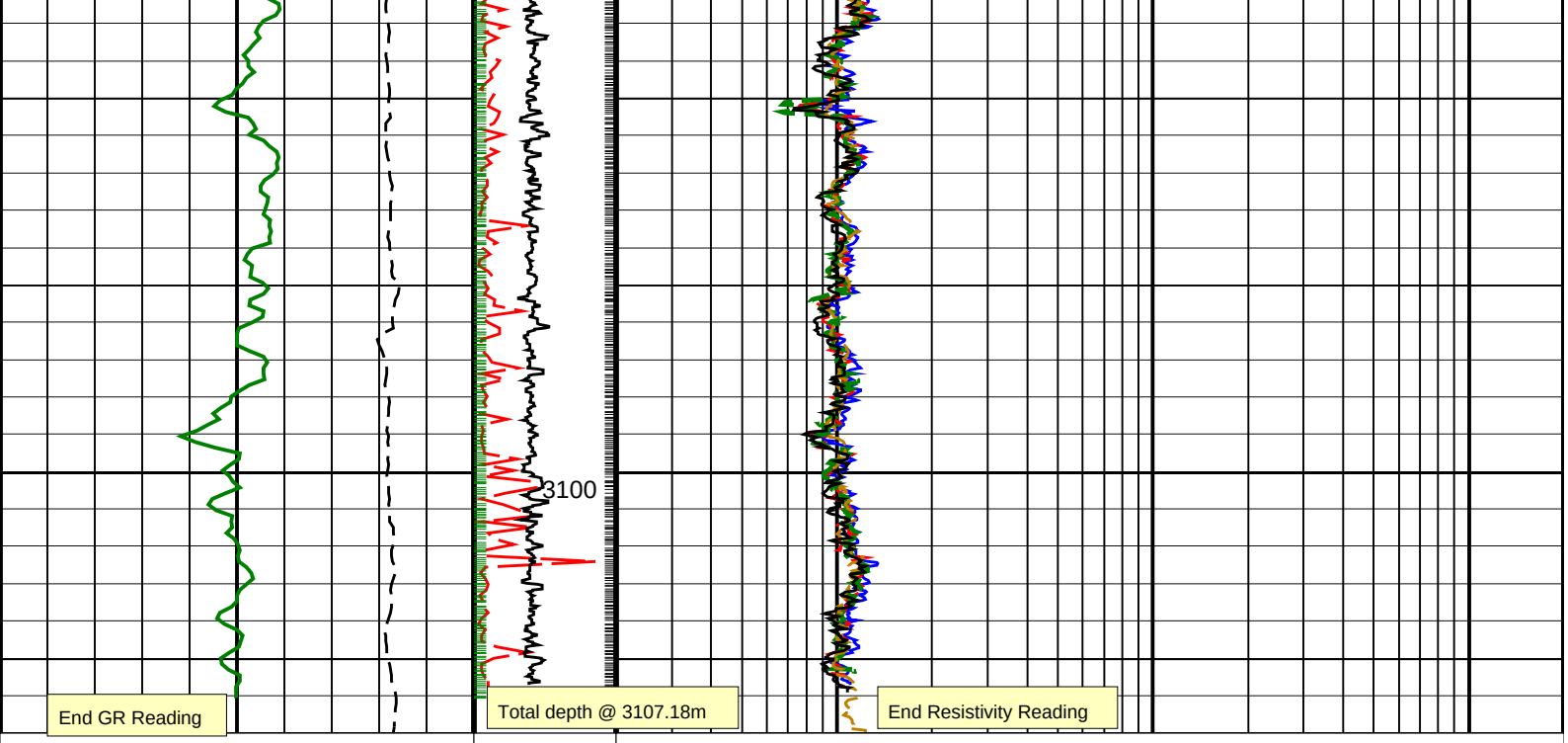

GR_RAB
ROP5_RM
AAI
RHM_RAB
RES_BD
RES_BM
RES_BS
RES_BIT
RES_RING
2825
2850


2875
GR_RAB
ROP5_RM
RPM_RAB
RES_BD
RES_BM
RES_BS
RES_BIT
RES_RING
GR splice point @ 2899.39m
2900
Resistivity splice point @ 2900.23m


2925
GR_RAB
AAI
RES_BD
2950
ROP5_RM
RPM_RAB
RES_BM
RES_BS
RES_BIT
RES_RING
GR splice point @ 2972.23m
Resistivity splice point @ 2973.07m
2975


3000
3025
GR_RAB
ROP5_RM
RAI
RPM_RAB
RES_BD
RES_BM
RES_BS
RES_BIT
RES_RING


GR splice point @ 3031.98m
Resistivity splice point @ 3032.82m
3050
3075
GR_RAB
ROP5_RM
AAI
RPM_RAB
RES_BD
RES_BM
RES_BS
RES_BIT
RES_RING



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

Angular Acceleration Indicator (AAI)
0 300

Deep Button Resistivity (RES_BD)
0.2 (OHMM) 200

RAB Gamma Ray (GR_RAB)
0 (GAPI) 150

RAB Rotational Speed (RPM_RAB) (RPM)
0 300

Medium Button Resistivity (RES_BM)
0.2 (OHMM) 200

Bit Resistivity (RES_BIT)
0.2 (OHMM) 200

Ring Resistivity (RES_RING)
0.2 (OHMM) 200

Shallow Button Resistivity (RES_BS)
0.2 (OHMM) 200

PIP SUMMARY

Gamma Ray Samples

Ring Samples

IDEAL Version: ID14_0C_12

IDF

Input DLIS Files

File ID:CDF_NT2−01 FN:66 27−Aug−2009 16:39 8510.0 FT 10194.0 FT

NT2−01_GeoVISION Resistivity_Image_RM_MD200_Relog Spliced

File ID:CDF_NT2−01 FN:66 27−Aug−2009 16:39 8510.0 FT 10194.0 FT

IDEAL Version: ID14_0C_12

IDF

Format: NT1−07_Image_RM_MD200 Vertical Scale: 1:200 Graphics File Created: 06−Sep−2009 17:35

Parameters

DLIS Name	Description	Value
DO	Depth Offset	0.0 m

PIP SUMMARY

Ring Samples

Gamma Ray Samples

Ring Resistivity (RES_RING)
0.2 (OHMM) 20

Bit Resistivity (RES_BIT)
0.2 (OHMM) 20

Deep Button Resistivity (RES_BD)
0.2 (OHMM) 20

RAB Rotational Speed (RPM_RAB) (RPM)
0 300

Medium Button Resistivity (RES_BM)
0.2 (OHMM) 20

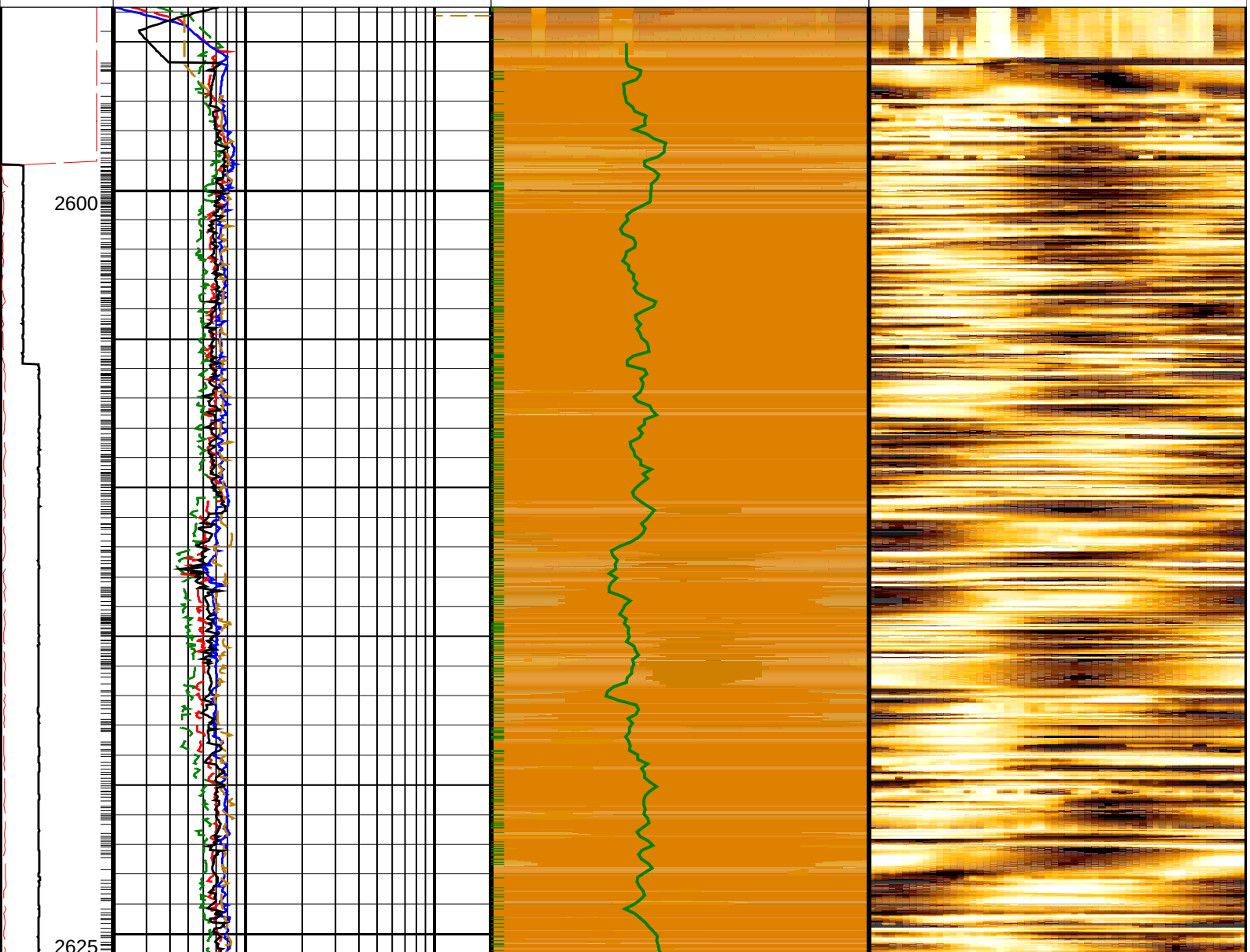
Absent 0.031 0.071 0.171 0.401 1.001 2.201 4.201 7.001 10.400 15.800
Deep Button Image (R3IM_HI) (OHMM)

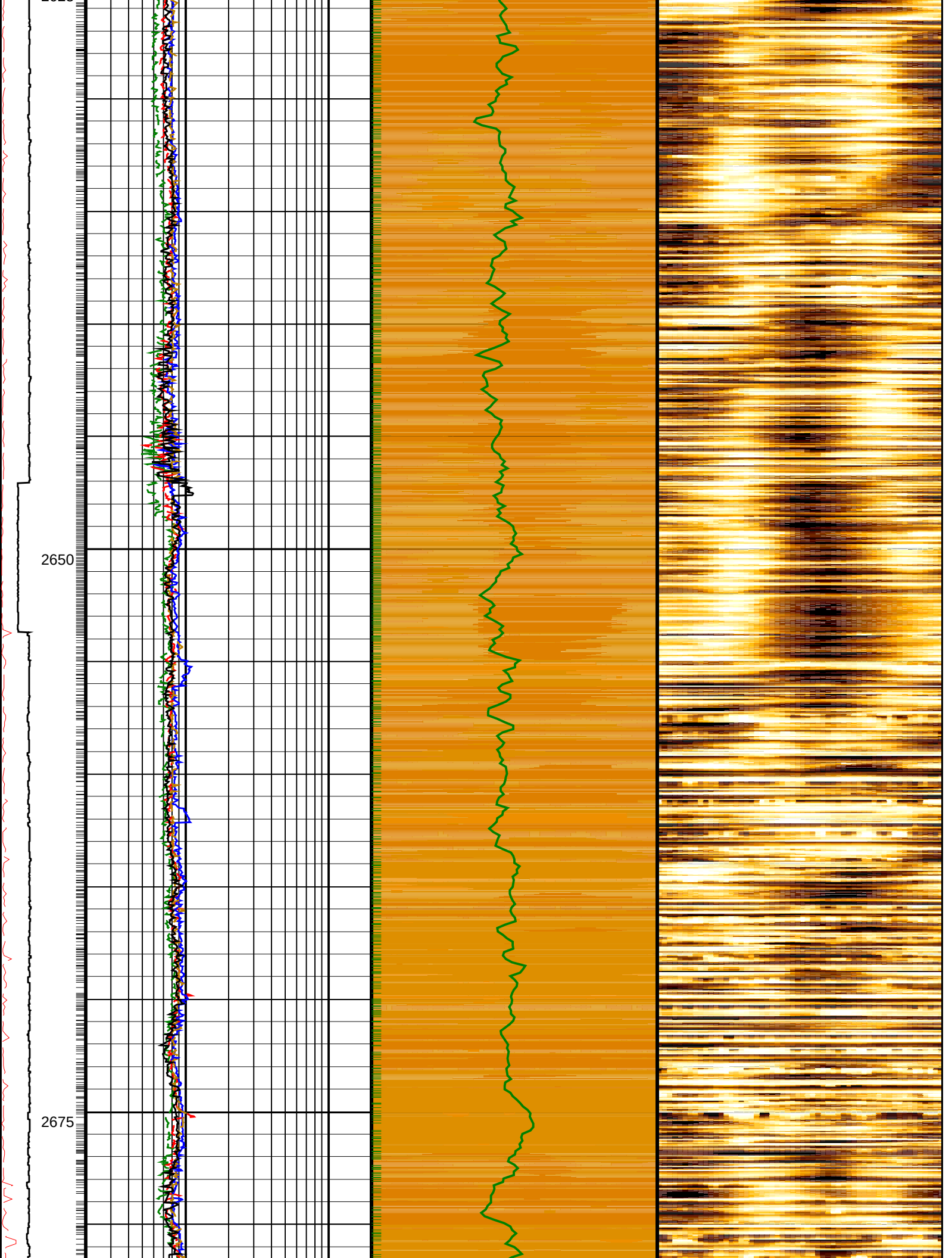
Angular Acceleration Indicator (AAI) (----)
0 300

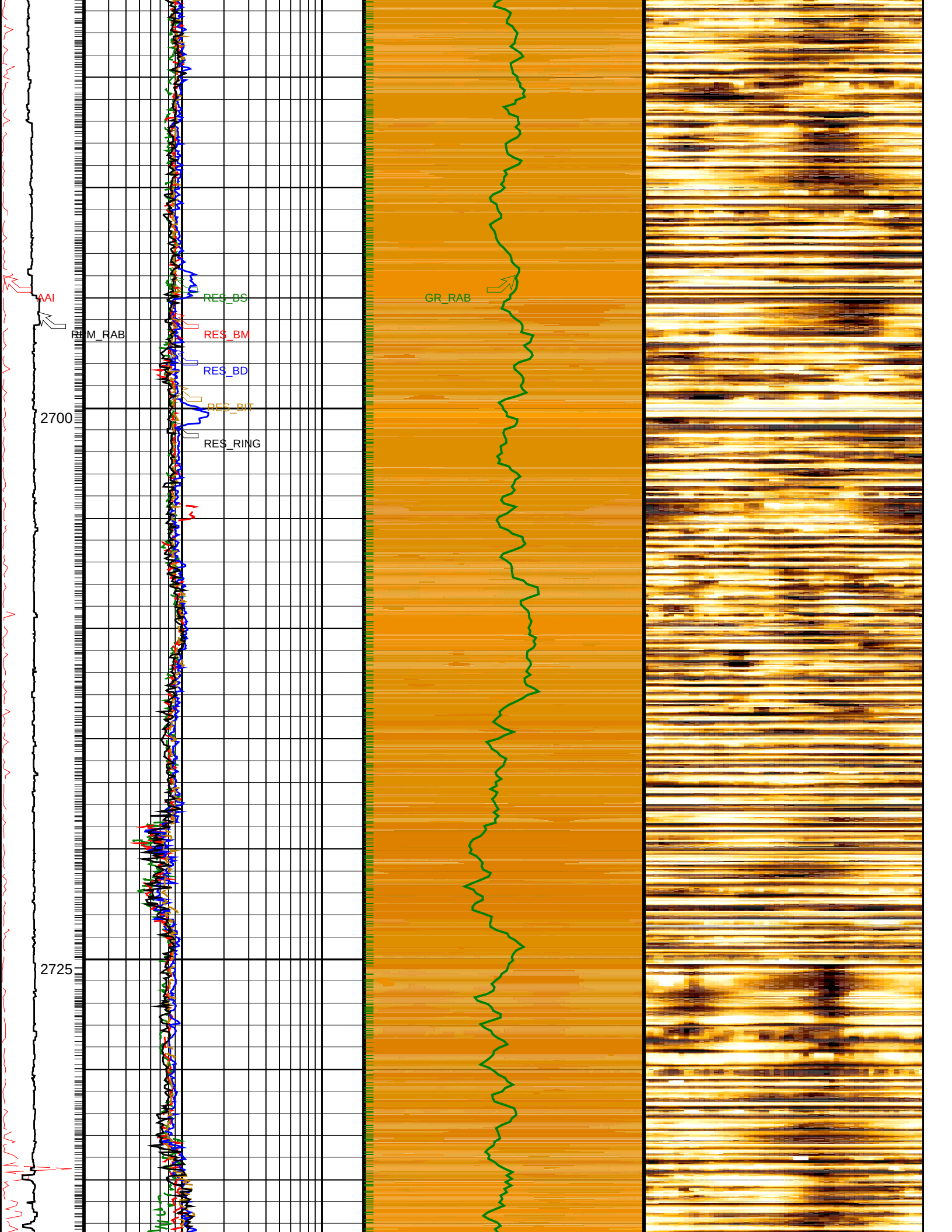
Shallow Button Resistivity (RES_BS)
0.2 (OHMM) 20

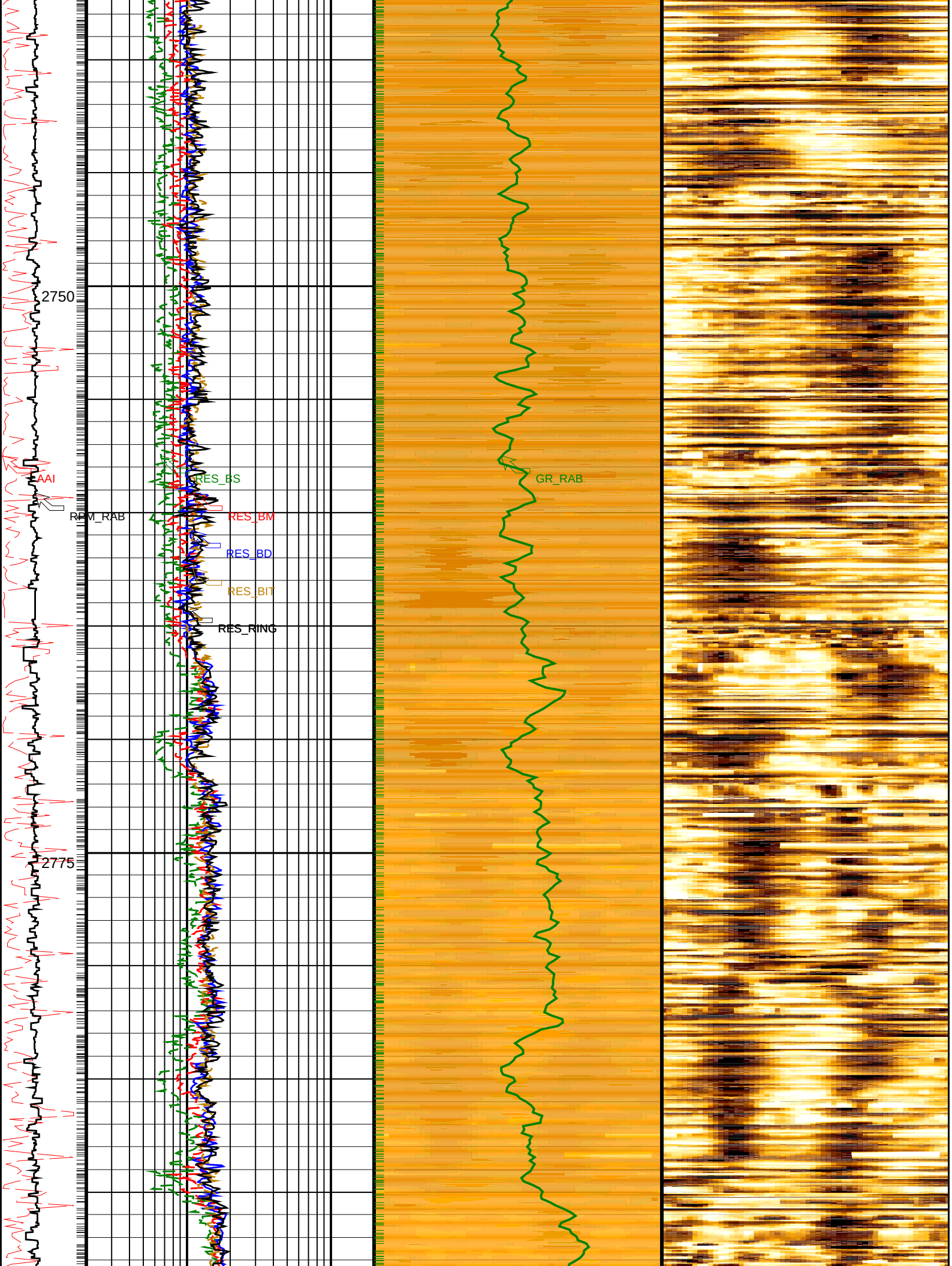
RAB Gamma Ray (GR_RAB)
0 (GAPI) 150

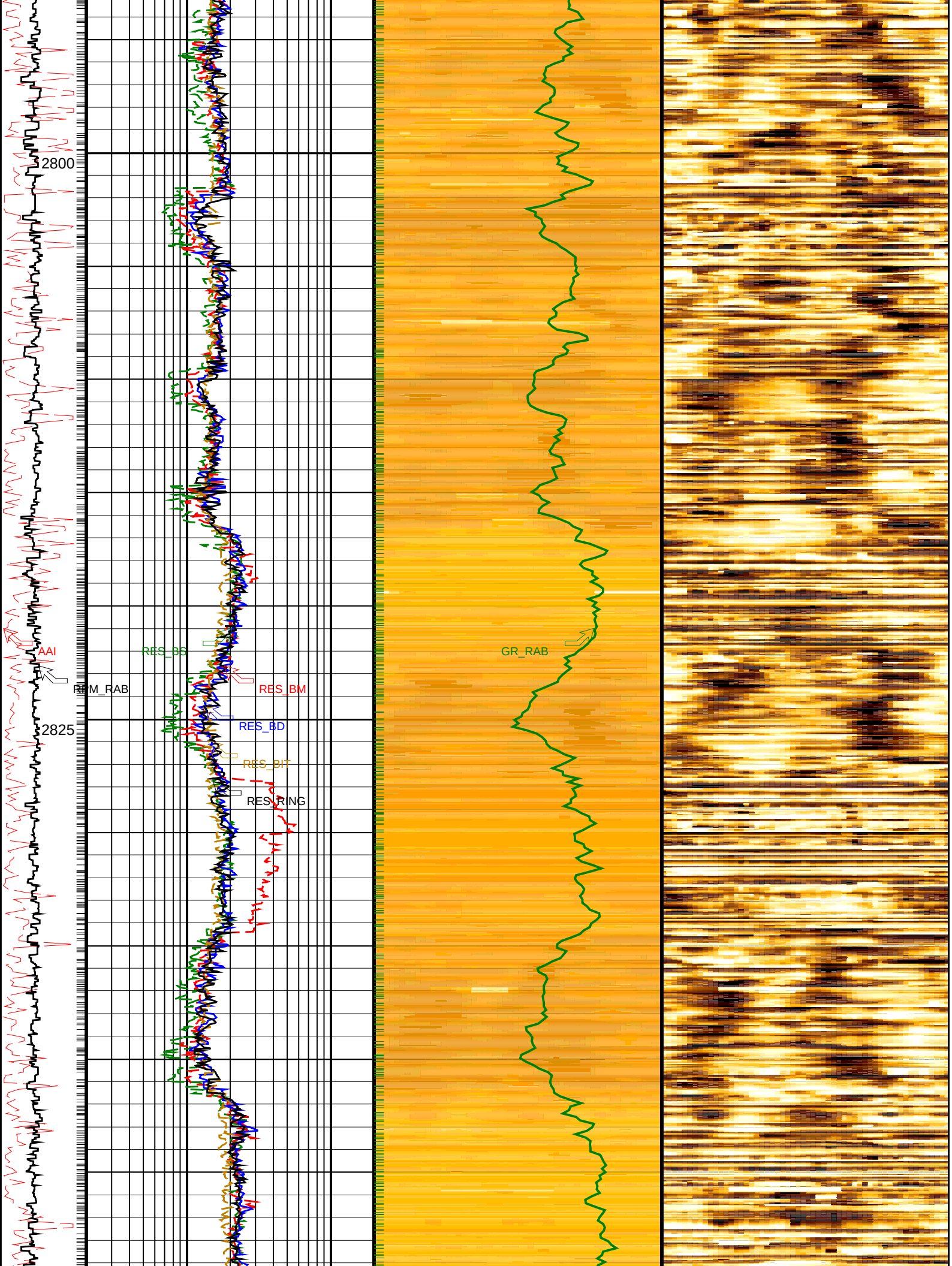
Conductive Resistive (R3IM_DYN_HI) (----)

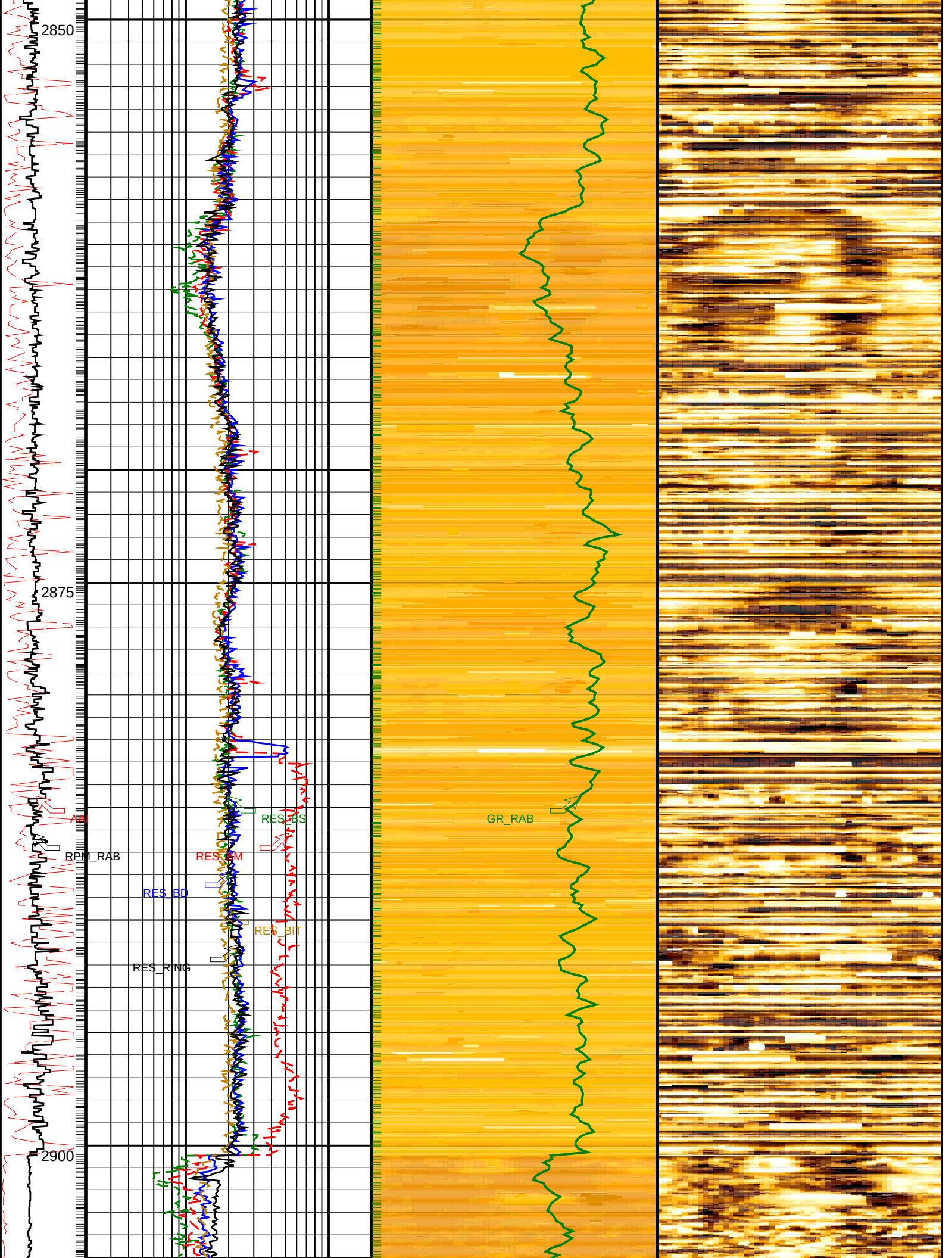


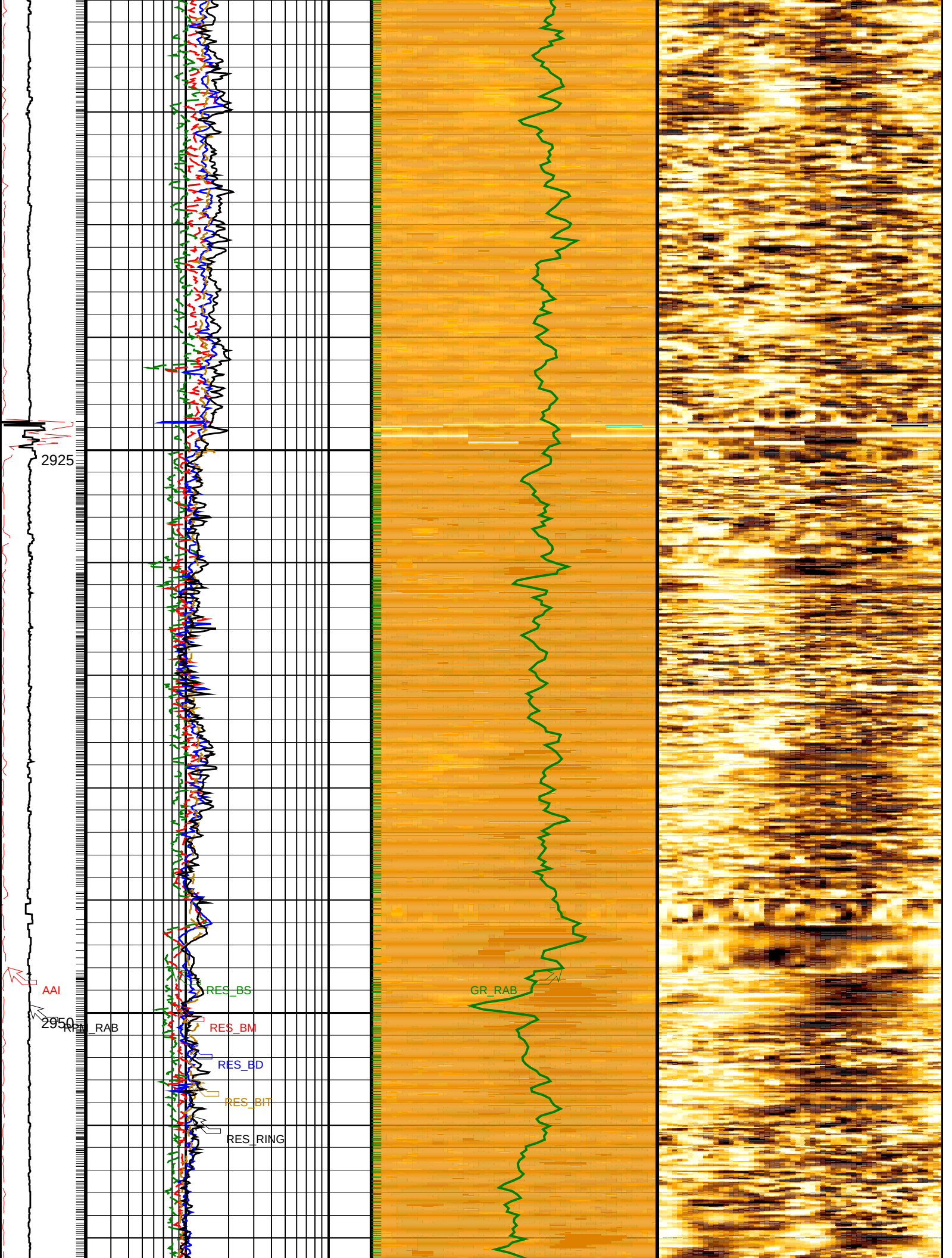

2650
2675

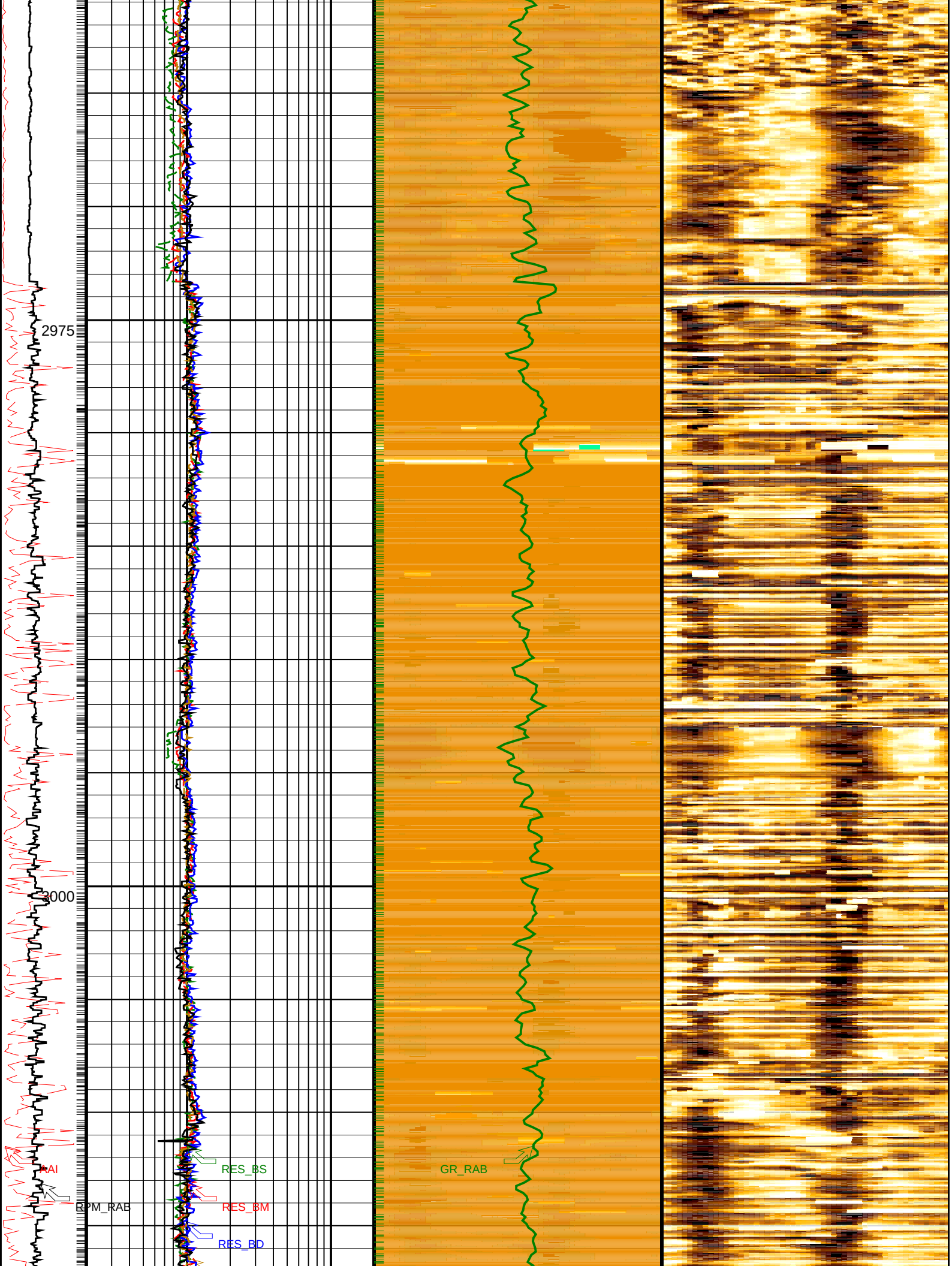

AAI
RPM_RAB
RES_BS
RES_BM
RES_BD
RES_BIT
RES_RING
GR_RAB
2700
2725

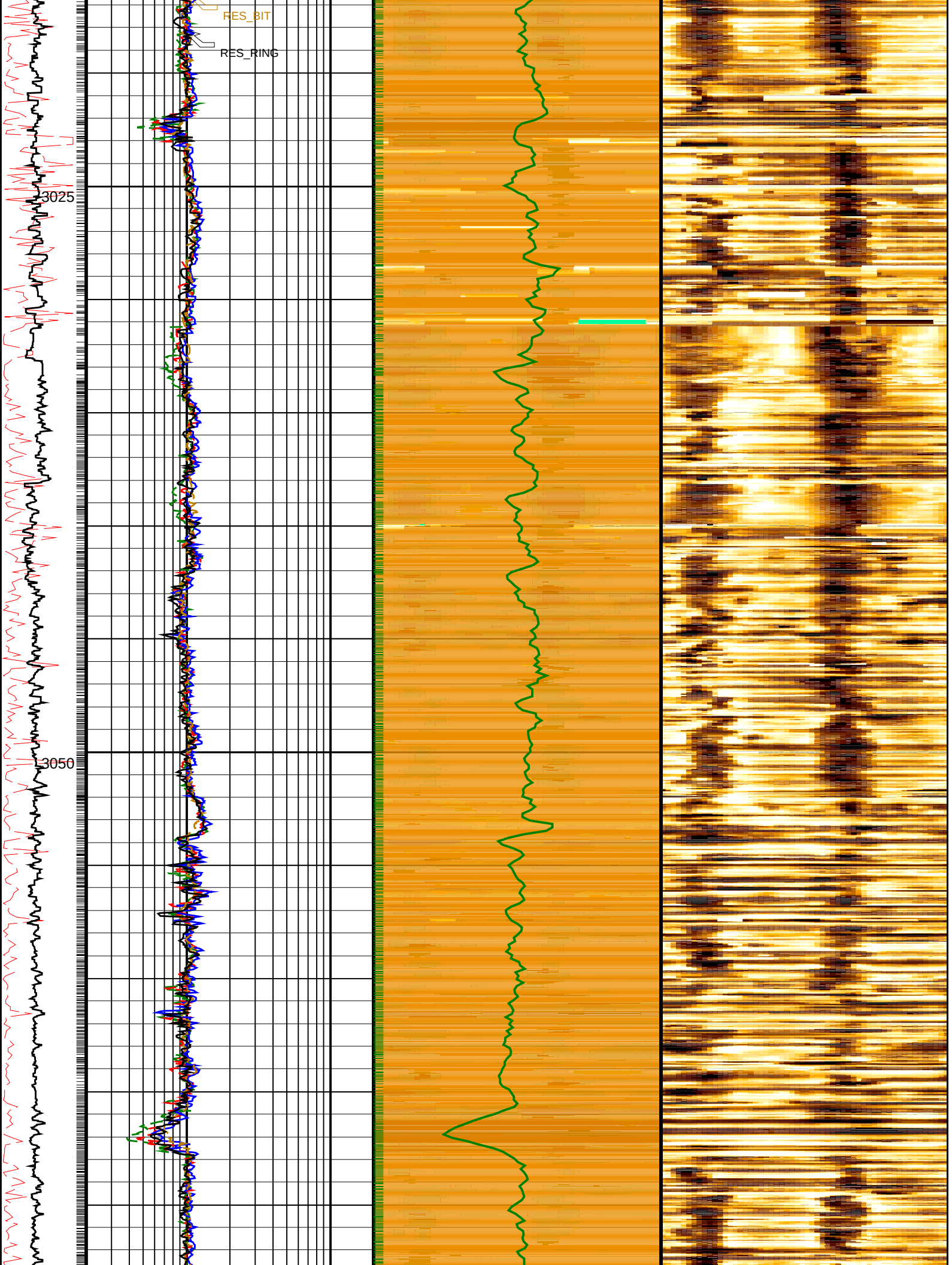

2750
2775
AAI
RIM_RAB
RES_BS
RES_BM
RES_BD
RES_BIT
RES_RING
GR_RAB

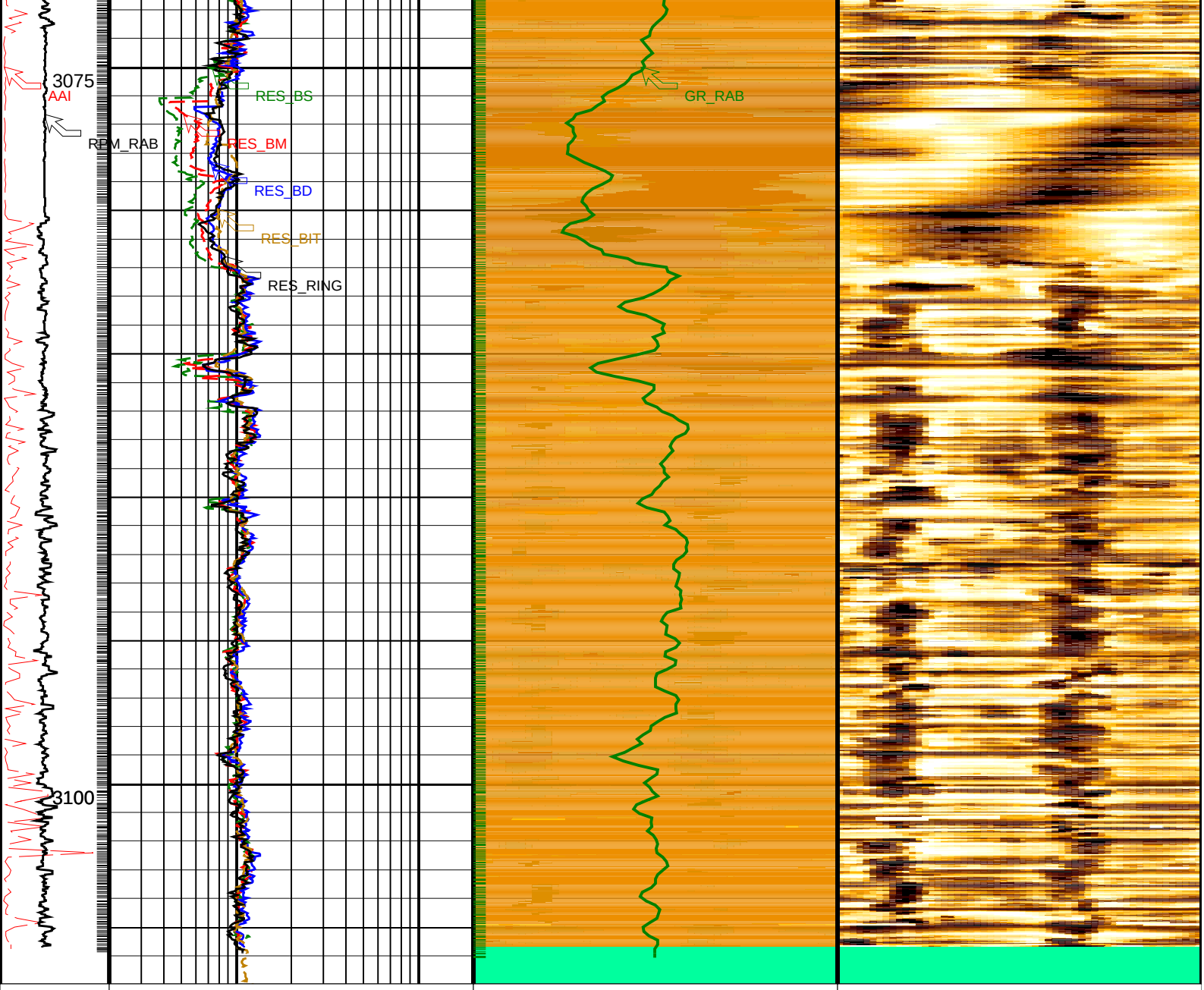

2800
2825
AAI
RPM_RAB
RES_BS
RES_BM
RES_BD
RES_BIT
RES_RING
GR_RAB


2850
2875
2900
RES_BS
GR_RAB
RPM_RAB
RES_BM
RES_BD
RES_BIT
RES_RING


2925
AAI
2950
RPM_RAB
RES_BS
RES_BM
RES_BD
RES_BIT
RES_RING
GR_RAB


2975
3000
RAI
RPM_RAB
RES_BS
RES_BM
RES_BD
GR_RAB


RES_BIT
RES_RING
3025
3050



Angular Acceleration Indicator (AAI) (----)
0 300

Shallow Button Resistivity (RES_BS)
0.2 (OHMM) 20

RAB Gamma Ray (GR_RAB)
0 (GAPI) 150

Conductive **Resistive (R3IM_DYN_HI) (----)**

RAB Rotational Speed (RPM_RAB) (RPM)
0 300

Medium Button Resistivity (RES_BM)
0.2 (OHMM) 20

Absent 0.031 0.071 0.171 0.401 1.001 2.201 4.201 7.001 10.400 15.800

Deep Button Image (R3IM_HI) (OHMM)

Deep Button Resistivity (RES_BD)
0.2 (OHMM) 20

Bit Resistivity (RES_BIT)
0.2 (OHMM) 20

Ring Resistivity (RES_RING)
0.2 (OHMM) 20

PIP SUMMARY

Ring Samples

Gamma Ray Samples

IDEAL Version: ID14_0C_12

IDF

Input DLIS Files

File ID:CDF_NT2−01 **FN:66** **27−Aug−2009 16:39** **8510.0 FT** **10194.0 FT**

8.25−in. Resistivity At−the−Bit / Equipment Identification

Primary Equipment:		
Tool Name and Serial Number	RAB8 − AA	876
Calibration Status	AUTO −	

Master: 19−Jul−2009 17:11

8.25−in. Resistivity At−the−Bit Calibration

Resistivity: Fixture

Phase	Ring/T1 factor	Value	Phase	Ring/T2 factor	Value	Phase	M0/T1 factor	Value
Master		0.01077	Master		0.01102	Master		1.087
	0.009500 (Minimum) 0.01100 (Nominal) 0.01250 (Maximum)			0.009500 (Minimum) 0.01100 (Nominal) 0.01250 (Maximum)			0.9000 (Minimum) 1.050 (Nominal) 1.200 (Maximum)	
Phase	M0/T2 factor	Value	Phase	M2/T1 factor	Value	Phase	M2/T2 factor	Value
Master		1.090	Master		1.022	Master		1.016
	0.9000 (Minimum) 1.050 (Nominal) 1.200 (Maximum)			0.8500 (Minimum) 1.000 (Nominal) 1.150 (Maximum)			0.8500 (Minimum) 1.000 (Nominal) 1.150 (Maximum)	
Phase	BTN shallow/T1 factor	Value	Phase	BTN shallow/T2 factor	Value	Phase	BTN medium/T1 factor	Value
Master		0.0006536	Master		0.0006737	Master		0.0006575
	0.0005700 (Minimum) 0.0006700 (Nominal) 0.0007700 (Maximum)			0.0005700 (Minimum) 0.0006700 (Nominal) 0.0007700 (Maximum)			0.0005700 (Minimum) 0.0006700 (Nominal) 0.0007700 (Maximum)	
Phase	BTN medium/T2 factor	Value	Phase	BTN deep/T1 factor	Value	Phase	BTN deep/T2 factor	Value
Master		0.0006766	Master		0.0006497	Master		0.0006663
	0.0005700 (Minimum) 0.0006700 (Nominal) 0.0007700 (Maximum)			0.0005700 (Minimum) 0.0006700 (Nominal) 0.0007700 (Maximum)			0.0005700 (Minimum) 0.0006700 (Nominal) 0.0007700 (Maximum)	

Master: 15−Jul−2009 0:44

8.25−in. Resistivity At−the−Bit Calibration

Gamma Ray: Blanket

Phase	Gamma ray factor	Value
Master		9.160
	6.500 (Minimum) 8.000 (Nominal) 9.500 (Maximum)	

SCHLUMBERGER

Survey report 20-Sep-2009 16:11:13 Page 1 of 2

```
Client.....................: JAMSTEC
Field......................: Nankai-Kumano

Well.......................: NT2-01                    Spud date.................: 02-Aug-2009
Job number.................: 09JAP0003                 Last survey date..........: 20-Sep-09
Engineer...................: Ito/Yang                  Total accepted surveys...: 17
                                                       MD of first survey.......:     0.00 m
Rig:.......................: Chikyu                    MD of last survey........:  3107.18 m
STATE:.....................: Mie

----- Survey calculation methods-------------        ----- Geomagnetic data ----------------------
Method for positions.....: Minimum curvature         Magnetic model...........: BGGM version 2008
Method for DLS...........: Lubinski                  Magnetic date............: 02-Aug-2009
                                                     Magnetic field strength..:     916.55 HCNT
----- Depth reference -----------------------        Magnetic dec (+E/W-).....:      -6.49 degrees
Permanent datum..........: Mean Sea Level            Magnetic dip.............:      46.59 degrees
Depth reference..........: Driller's Depth
GL above permanent.......:     28.50 m               ----- MWD survey Reference Criteria ---------
KB above permanent.......:     28.50 m               Reference G..............:     999.59 mGal
DF above permanent.......:     28.50 m               Reference H..............:     916.55 HCNT
                                                     Reference Dip............:      46.59 degrees
----- Vertical section origin----------------        Tolerance of G...........: (+/-) 2.50 mGal
Latitude (+N/S-).........:      0.00 m               Tolerance of H...........: (+/-) 6.00 HCNT
Departure (+E/W-).........:      0.00 m              Tolerance of Dip.........: (+/-) 0.45 degrees

----- Platform reference point---------------        ----- Corrections ---------------------------
```

Latitude (+N/S-).....: -304.57 m
Departure (+E/W-).....: -304.57 m

Azimuth from Vsect Origin to target: 0.00 degrees

Magnetic dec (+E/W-).....: -6.49 degrees
Grid convergence (+E/W-).: 0.92 degrees
Total az corr (+E/W-)....: -7.41 degrees
(Total az corr = magnetic dec - grid conv)
Survey Correction Type ...:
I=Sag Corrected Inclination
M=Schlumberger Magnetic Correction
S=Shell Magnetic Correction
F=Failed Axis Correction
R=Magnetic Resonance Tool Correction
D=Dmag Magnetic Correction

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Seq #	Measured depth (m)	Incl angle (deg)	Azimuth angle (deg)	Course length (m)	TVD depth (m)	Vertical section (m)	Displ +N/S- (m)	Displ +E/W- (m)	Total displ (m)	At Azim (deg)	DLS (deg/ 10m)	Srvy tool type	Tool Corr (deg)
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	TIP	None
2	2562.22	0.81	227.96	2562.22	2562.13	-12.13	-12.13	-13.45	18.11	227.96	0.00	PUP	None
3	2599.07	0.52	224.66	36.85	2598.98	-12.42	-12.42	-13.76	18.54	227.93	0.08	PUP	None
4	2637.83	0.88	224.08	38.76	2637.74	-12.76	-12.76	-14.09	19.01	227.84	0.09	PUP	None
5	2678.28	1.28	218.78	40.45	2678.18	-13.34	-13.34	-14.59	19.77	227.57	0.10	PUP	None
6	2714.93	1.28	222.49	36.65	2714.82	-13.96	-13.96	-15.12	20.58	227.30	0.02	PUP	None
7	2750.07	1.01	214.93	35.14	2749.96	-14.50	-14.50	-15.57	21.27	227.03	0.09	PUP	None
8	2792.23	1.80	210.87	42.16	2792.10	-15.37	-15.37	-16.12	22.27	226.36	0.19	PUP	None
9	2833.07	1.83	217.68	40.84	2832.92	-16.44	-16.44	-16.85	23.54	225.70	0.05	PUP	None
10	2868.12	1.80	217.27	35.05	2867.95	-17.32	-17.32	-17.52	24.64	225.33	0.01	PUP	None
11	2906.77	1.76	234.56	38.65	2906.59	-18.15	-18.15	-18.37	25.82	225.35	0.14	PUP	None
12	2941.01	1.86	237.05	34.24	2940.81	-18.75	-18.75	-19.27	26.89	225.77	0.04	PUP	None
13	2979.56	1.96	234.47	38.55	2979.34	-19.48	-19.48	-20.33	28.15	226.23	0.03	PUP	None
14	3023.17	1.98	250.84	43.61	3022.92	-20.16	-20.16	-21.65	29.58	227.04	0.13	PUP	None
15	3067.44	2.17	253.04	44.27	3067.16	-20.65	-20.65	-23.17	31.04	228.29	0.05	PUP	None
16	3096.79	2.41	261.33	29.35	3096.49	-20.91	-20.91	-24.31	32.07	229.31	0.14	PUP	None
17	3107.18	2.41	261.33	10.39	3106.87	-20.98	-20.98	-24.75	32.44	229.71	0.00	TD_Projection	

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Company: **JAMSTEC**

Schlumberger

Well: **NT2−01**

Field: **Nankai−Kumano**

RIG: **Chikyu** **All sections**

Country: **JAPAN**

GeoVISION Resistivity
Laterolog Resistivity, Image − Shallow, Medium, Deep
MD1:200 Recorded Mode Composite Log

Geomarket	JKT	Location	Japan
Job Date	07−Aug−2009	Customer	JAMSTEC
Rig	Chikyu	Field/Well	NT2−01
Engineer	Ito/Yang	Job Number	09JAP0003

Type of Measurement

Operation	Res	GR	Image		
Presentation					
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					
Equiment 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 relavant 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, descrepency 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	100	100	100	100	100
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 GeomarketTemperature, 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	100	100	100	100	100

Data Quality Report

When data does not meet standards, put a number in the colum 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

100

100

Cell Manager: Yu Ito FSM: Wu Yang Song

DQR Header Utility ver 1.1c

Schlumberger Drilling & Measurements

Revised January 2002