Schlumberger

Company: **Santos Ltd**

12.25 in. Section

Well: **Pecten East−1**

Field: **Otway**

Rig: **Ocean Patriot** State: **Victoria**

Rig: Ocean Patriot
Field: Otway
Location: Otway Basin
Well: Pecten East−1
Company: Santos Ltd

VISION Resistivity
1:200 Measured Depth
Recorded Mode Log

Location

Total depth:	1993.0 m
Spud date:	23−Jun−08
Runs:	2 To 4

Elevation

K.B.	Top Drive
G.L.	−59.7 m
D.F.	20.8 m

Permanent datum: Australian Height Datum Elev.: 0.0 m
Log measured from: Rotary Table 20.8 m above Perm. datum
Depth reference: Driller's Depth

Service Order No.	X = E 649,022.6 m	Longitude	Latitude
08ASQ0004	Y = N 5,721,208.5 m	E 142° 42' 44.65"	S 38° 38' 42.57"

Depth logged: 620.0 m To 1981.4 m
Date logged: 01−Jul−08 To 06−Jul−08
Mag decl: 10.80 deg.
Mag dip: −69.83 deg.
Other services: See Remarks

Bore hole record

Hole size	from	to
36.0 in.	78.2 m	114.0 m
17.5 in.	114.0 m	630.0 m
12.25 in.	630.0 m	1993.0 m

Casing record

Size	Density	from	to
30.0 in.	310.0 lb/ft	78.2 m	113.0 m
13.375 in.	68.0 lb/ft	78.2 m	620.0 m

Mud record

Type	from	to
GEL−PAC	630.0 m	1001.0 m
KCl/PHPA/Glycol	1001.0 m	1993.0 m

Borehole deviation record

Min	Max	from	to
0.08 deg.	0.93 deg.	113.0 m	630.0 m
0.27 deg.	6.25 deg.	630.0 m	1993.0 m

Surface equipment

Unit	A3518−1/06
Depth system	Geolograph + GTE + CLT

Software record

IDEAL Wis	ID13_0C_08		
SPM	HSPM13_0C_03		
LWD	See Remarks		
MWD	See Remarks		

Bit Run Summary

Run number		2	3	4
Bit size	in	12.25	12.25	12.25
Bit start depth	m	630.0	1305.0	1940.0
Bit end depth	m	1305.0	1940.0	1993.0
Top interval logged	m	620.0	1293.5	1928.4
Bottom interval logged	m	1293.5	1928.4	1981.4
Begin log: time		13:00	16:05	10:25
Begin log: date		01−Jul−08	04−Jul−08	06−Jul−08
End log: time		18:45	14:10	19:00
End log: date		03−Jul−08	05−Jul−08	06−Jul−08
Mud data				
Depth	m	1305.0	1940.0	1993.0
Type		KCl/PHPA/Glycol	KCl/PHPA/Glycol	KCl/PHPA/Glycol
Mud weight	ppg	9.3	10.8	10.9
Solids	%	3.35	9.90	10.33
Chlorides	ppm	44000	46000	46000
Rm	ohm.m@°C	0.089@24.1	0.109@23.4	0.101@23.3
Rmf	ohm.m@°C	0.086@24.0	0.088@23.3	0.084@23.3
Rmc	ohm.m@°C	0.361@24.7	0.419@23.7	0.310@23.3

Potassium	%	4.267	3.750	3.720							
Environmental data											
GR											
Mud weight	ppg	9.3	10.8	10.9							
Bit size	in	12.25	12.25	12.25							
Resistivity											
Neutron porosity											
Hole Size	in	12.25	12.25	12.25							
Mud weight	ppg	9.3	10.8	10.9							
Temperature	°C	64	66	69							
Mud salinity	ppk	n/a	n/a	n/a							
Formation salinity	ppk	n/a	n/a	n/a							
Recording rate 1	SEC	6	6	6							
Recording rate 2	SEC	n/a	n/a	n/a							
Filtering GR		3 Points	3 Points	3 Points							
Filtering density		n/a	n/a	n/a							
Filtering Neutron		n/a	n/a	n/a							
Company representative		P.Devine	R.Richardson								
Anadrill personnel		J.Oldridge	A.Bayly								

OTHER SERVICES FOR RUN2	OTHER SERVICES FOR RUN3	OTHER SERVICES FOR RUN4
Directional Surveys Shock & Vibrations	Directional Surveys Shock & Vibrations	Directional Surveys Shock & Vibrations

REMARKS: RUN NUMBER 2	REMARKS: RUN NUMBER 3	REMARKS: RUN NUMBER 4
Depth is referenced to Driller's Depth Gamma Ray is corrected for mud weight, bit size, tool collar size and potassium content in mud. Resistivity is borehole compensated environmentally corrected for bit size, mud resistivity and temperature. POOH to change bit	Depth is referenced to Driller's Depth Gamma Ray is corrected for mud weight, bit size, tool collar size and potassium content in mud. Resistivity is borehole compensated environmentally corrected for bit size, mud resistivity and temperature. POOH to change bit	Depth is referenced to Driller's Depth Gamma Ray is corrected for mud weight, bit size, tool collar size and potassium content in mud. Resistivity is borehole compensated environmentally corrected for bit size, mud resistivity and temperature. POOH at Well TD

EQUIPMENT DESCRIPTION

RUN2	RUN3	RUN4
DOWNHOLE EQUIPMENT	DOWNHOLE EQUIPMENT	DOWNHOLE EQUIPMENT

DOWNHOLE EQUIPMENT

8−1/4" TeleScope*
with 12−1/8" Stabiliser

MDC: E0005
MEC: 754
MDI: 586
DHS: 9.2C02

23.96

D&I 19.60

8−1/4" arcVISION*

S/N: 2724
DHS: 9.3B13

14.94

R−O Port 12.66
T5 12.56
T3 12.25
T1 11.95
Gamma Ray 11.59
Receiver 11.54
T2 11.29
T4 10.98

12−1/8" String Stabiliser
S/N: OSS061170A

9.05

8" Pony Collar
S/N: 580757−1

6.61

12−1/4" Near Bit Stabiliser
S/N: 50203

1.56

0.00

12−1/4" Hughes−Chris Milltooth Bit
S/N: 6062911

0.30

Maximum string diameter 12−1/4"
All lengths in Meters

DOWNHOLE EQUIPMENT

8−1/4" TeleScope*

MDC: VR53
MEC: 850
MDI: 2505
DHS: 9.2C02

23.32

D&I 19.01

8−1/4" arcVISION*

S/N: 1106
DHS: 9.3B13

14.89

R−O Port 12.69
T5 12.59
T3 12.28
T1 11.98
Gamma Ray 11.62
Receiver 11.57
T2 11.32
T4 11.01

12−1/8" String Stabiliser
S/N: OSS061170A

9.04

8" Pony Collar
S/N: 580757−1

6.60

12−1/4" Near Bit Stabiliser
S/N: 50203

1.55

0.00

12−1/4" Smith PDC Bit
S/N: JY1702

0.29

Maximum string diameter 12−1/4"
All lengths in Meters

DOWNHOLE EQUIPMENT

8−1/4" TeleScope*

MDC: VR53
MEC: 850
MDI: 2505
DHS: 9.2C02

23.33

D&I 19.02

8−1/4" arcVISION*

S/N: 1106
DHS: 9.3B13

14.90

R−O Port 12.70
T5 12.60
T3 12.29
T1 11.99
Gamma Ray 11.63
Receiver 11.58
T2 11.33
T4 11.02

12−1/8" String Stabiliser
S/N: OSS061170A

9.05

8" Pony Collar
S/N: 580757−1

6.61

12−1/4" Near Bit Stabiliser
S/N: 50203

1.56

0.00

12−1/4" Reed Hycalog Milltooth Bit
S/N: NA2821

0.30

Maximum string diameter 12−1/4"
All lengths in Meters

Variable Name	Variable Description	Run Name & Value			
	Run Number		2	3	4
	General Information				
BHT_RM	Bottom Hole Temperature (RM)	DEGC	64.000	66.000	69.000
BSAL_RM	Mud Salinity (RM)	PPK	0.000	0.000	0.000
BS_RM	Bit Size (RM)	IN	12.250	12.250	12.250
COEF_M	User Defined FEXP in Clean Sand	----	1.650	1.650	1.650
C_WS	Overpressure correction to Sw and M	----	1.000	1.000	1.000
FEXP	Formation Factor Exponent(RM)	----	2.000	2.000	2.000
FNUM	Formation Factor Enumerator(RM)	----	1.000	1.000	1.000
FPHI_RM	Formation Factor Porosity Source (RM)	----	XPLOT	XPLOT	XPLOT
MST_RM	Mud Sample temperature (RM)	DEGC	24.100	23.400	23.300
MW_RM	Mud Weight (RM)	LB/G	9.300	10.800	10.900
OBMF_RM	Oil Based Mud (RM)	----	NO	NO	NO
RHOF_RM	Mud Filtrate Density (RM)	G/C3	1.000	1.000	1.000
RHOM_RM	Matrix density (RM)	G/C3	2.710	2.710	2.710
RMS_RM	Resistivity of Mud Sample (RM)	OHMM	0.089	0.109	0.101
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	1.000
SHT_RM	Ground Level Temperature (Mud-Line When Offshore) (RM)	DEGC	10.000	10.000	10.000
TD_RM	Total Measured Depth (RM)	M	1305.000	1940.000	1993.000
TWS_RM	Temperature of Connate Water (RM)	DEGC	23.889	23.889	23.889
VF_ILLI	Fraction of illite in shales	----	0.500	0.500	0.500
VF_KAOL	Fraction of kaolinite in shales	----	0.500	0.500	0.500
VF_MONT	Fraction of montmorillonite in shales	----	0.000	0.000	0.000
XPDM_RM	Cross plot density porosity multiplier	----	0.675	0.675	0.675
XPNM_RM	Cross plot neutron porosity multiplier	----	0.325	0.325	0.325
	ARC				
A12A	ARC Air Cal Attenuation From T1 at 2 MHz	DB	8.251	8.031	8.031
A14A	ARC Air Cal Attenuation From T1 at 400 KHz	DB	8.204	8.019	8.019
A22A	ARC Air Cal Attenuation From T2 at 2 MHz	DB	6.386	6.666	6.666
A24A	ARC Air Cal Attenuation From T2 at 400 KHz	DB	6.445	6.683	6.683
A32A	ARC Air Cal Attenuation From T3 at 2 MHz	DB	4.975	4.733	4.733
A34A	ARC Air Cal Attenuation From T3 at 400 KHz	DB	4.920	4.718	4.718
A42A	ARC Air Cal Attenuation From T4 at 2 MHz	DB	4.351	4.613	4.613
A44A	**ARC Air Cal Attenuation From T4 at 400 KHz**	**DB**	**4.399**	**4.630**	**4.630**
A52A	**ARC Air Cal Attenuation From T5 at 2 MHz**	**DB**	**3.563**	**3.316**	**3.316**
A54A	ARC Air Cal Attenuation From T5 at 400 KHz	DB	3.517	3.312	3.312
ABNT	Abnormal Transmitter Indicator	----	No_Tx_Failed	No_Tx_Failed	No_Tx_Failed
ADHS	ARC Down Hole Software Version	----	9.3B13	9.3B13	9.3B13
AM2A	ARC Air Cal Amplitude Offset at 2 MHz	----	-50000.000	-50000.000	-50000.000
ANISO_COMPUTE	Anisotropy Computation Option	----	YES	YES	YES
APICG	ARC5 Gamma Ray Gain Factor	----	1.086	1.054	1.054
APIG	ARC Gamma Ray API Gain Factor	----	-1.000	-1.000	-1.000
ARC_DATA_FIX	ARC: Create A Corrected ARC Time Data File	----	NO	NO	NO
ARC_DATA_LTB	ARC: Create An ARC LTB Data File	----	NO	NO	NO
ATMP_ARC	ARC Select Temperature Channel	----	Tool_Temp	Tool_Temp	Tool_Temp
ATRN	ARC Tool Run Number	----	1	1	2
ATSN	ARC Tool Serial Number	----	2724	1106	1106
AZMF	Formation DIP Azimuth	DEG	0.000	0.000	0.000
BH_COMPUTE	Borehole Inversion Computation Option	----	YES	YES	YES
CALG	ARC Gamma Ray Cal Gain Factor	----	1.086	1.054	1.054
CALI_SLCT_ARC	ARC Caliper Selection	----	BITSIZE	BITSIZE	BITSIZE
CDPTH_ARC	Process Start Depth	M	30.480	30.480	30.480
DIELEC_COMPUTE	Dielectric Computation Option	----	YES	YES	YES
DIPF	Formation DIP Angle	DEG	0.000	0.000	0.000
ERRCT	Percentage Error Cutoff	----	4.500	4.500	4.500
GRSH	GR Shale (Invasion Computation Cutoff)	GAPI	1000.000	1000.000	1000.000
HIGH_BLEND	High Resistivity Threshold for Blending	OHMM	2.000	2.000	2.000
INCLIN_B0	ARC Bias Constant (mg)	----	0.000	0.000	0.000
INCLIN_B1	ARC Bias First-order Coefficient (mg/degC)	----	0.000	0.000	0.000
INCLIN_B2	ARC Bias Secod-order Coeeficient (mg/degC)	----	0.000	0.000	0.000
INCLIN_B3	ARC Bias Third-order Coeeficient (mg/degC)	----	0.000	0.000	0.000
INCLIN_C0	ARC Current Scale Factor Constant (mA/g)	----	1.000	1.000	1.000
INCLIN_C1	ARC Scale First-order Coeeficient (mA/g/degC)	----	0.000	0.000	0.000
INCLIN_C2	ARC Scale Second-order Coeeficient (mA/g/degC)	----	0.000	0.000	0.000
INCLIN_C3	ARC Scale Third-order Coeeficient (mA/g/degC)	----	0.000	0.000	0.000
INVAS_COMPUTE	Invasion Computation Option	----	YES	YES	YES
JSD_ARC	ARC Acquisition start date	----	01-Jul-08	04-Jul-08	06-Jul-08
KPER	Potassium Concentration (RM)	----	4.267	3.750	3.720
LOW_BLEND	Low Resistivity Threshold for Blending	OHMM	1.000	1.000	1.000
MSWS	ARC Wizard Model Switch Window	M	1.524	1.524	1.524
MULTIEFFECT_COM	Multi Effect Option	----	YES	YES	YES
P11AC_RM	ARC: Air Calibration For Phase T1 to R1	DEG	-999.250	-999.250	-999.250
P12A	ARC Air Cal Phase-Shift From T1 at 2 MHz	DEG	-1.208	1.923	1.923
P14A	ARC Air Cal Phase-Shift From T1 at 400 KHz	DEG	1.677	0.443	0.443
P22A	ARC Air Cal Phase-Shift From T2 at 2 MHz	DEG	1.258	-1.853	-1.853
P24A	ARC Air Cal Phase-Shift From T2 at 400 KHz	DEG	-1.716	-0.483	-0.483
P32A	ARC Air Cal Phase-Shift From T3 at 2 MHz	DEG	-1.291	1.822	1.822
P34A	ARC Air Cal Phase-Shift From T3 at 400 KHz	DEG	1.691	0.452	0.452
P42A	ARC Air Cal Phase-Shift From T4 at 2 MHz	DEG	1.240	-1.912	-1.912
P44A	ARC Air Cal Phase-Shift From T4 at 400 KHz	DEG	-1.702	-0.507	-0.507
P52A	ARC Air Cal Phase-Shift From T5 at 2 MHz	DEG	-1.297	1.816	1.816
P54A	ARC Air Cal Phase-Shift From T5 at 400 KHz	DEG	1.629	0.447	0.447

POFFSET_ARC	ARC: Pressure Offset	PSI	0.000	0.000	0.000
PRTD	Preferred Resistivity Log for Rt Display while Multi-Effects	----	P34B	P34B	P34B
PSOF_ADJ_T1	ARC: User Input Phase offset	DEG	0.000	0.000	0.000
RESTIK	ARC resistivity tick source	----	Phase	Phase	Phase
RSD	LWD run start date dd-mmm-yy	----	01-Jul-08	04-Jul-08	06-Jul-08
RWA_COMP_MOD	Rwa computation model	----	BASIC	BASIC	BASIC
RWA_DEN_ADN	Rwa Density Input	----	RHOB	RHOB	RHOB
RWA_DEN_CDN	Rwa Density Input	----	RHOB	RHOB	RHOB
RWA_DEN_INPUT	Rwa Density Input	----	RHOB	RHOB	RHOB
RWA_FORM_MOD	Rwa computation formation model	----	CLASTIC	CLASTIC	CLASTIC
RWA_RES_INPUT	Rwa computation resistivity input	----	RT	RT	RT
SHIG	ARC High Shock Risk Level	CPS	0.500	0.500	0.500
SMED	ARC Medium Shock Risk Level	CPS	0.330	0.330	0.330
SMIN	ARC Minimum Shock Risk Level	CPS	0.160	0.160	0.160
SUPD	ARC Real Time Shock Update Rate	S	30.000	30.000	30.000
TCODE_ARC	ARC Tool File Code	S	30.000	30.000	30.000
TSIZ_ARC	ARC Tool Size	IN	8.250	8.250	8.250
UNIFORM_COMPUTE	Uniform Rock Option	----	YES	YES	YES
VERS_ARC	ARC Down hole software version Number	----	9.300	9.300	9.300
WRK	to Report Potassium Concentration (RM)	----	K_by_Wgt_%	K_by_Wgt_%	K_by_Wgt_%

Schlumberger Drilling & Measurements ID13 Parameter Insert Header Software version 3.0c

IDEAL Version: ID13_0C_08

IDF

Format: VISION Resistivity 2MHz 1:200 **Vertical Scale: 1:200** **Graphics File Created: 08−Aug−2008 16:27**

PIP SUMMARY

ARC Gamma Ray Samples

ARC Resistivity Samples

Rate of Penetration, Averaged over Last 5ft (ROP5_RM)
200 (M/HR) 0

ARC Resistivity Time After Bit (TAB_ARC_RES)
0 (HR) 10

ARC Gamma Ray (GR_ARC)
0 (GAPI) 200

ARC Phase−Shift Resistivity 40−in. at 2 MHz (P40H)
0.2 (OHMM) 200

ARC Attenuation Resistivity 40−in. at 2 MHz (A40H)
0.2 (OHMM) 200

ARC Phase−Shift Resistivity 34−in. at 2 MHz (P34H)
0.2 (OHMM) 200

ARC Attenuation Resistivity 34−in. at 2 MHz (A34H)
0.2 (OHMM) 200

ARC Phase−Shift Resistivity 28−in. at 2 MHz (P28H)
0.2 (OHMM) 200

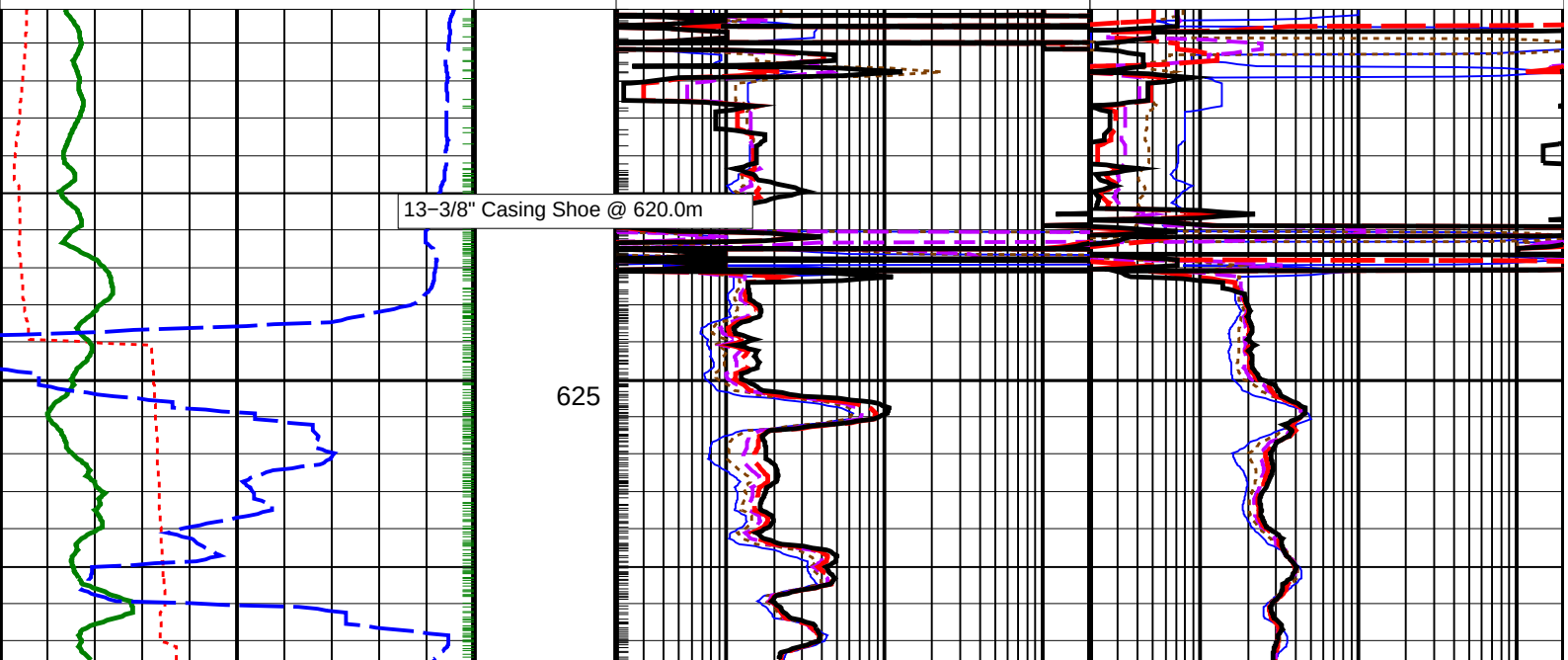
ARC Attenuation Resistivity 28−in. at 2 MHz (A28H)
0.2 (OHMM) 200

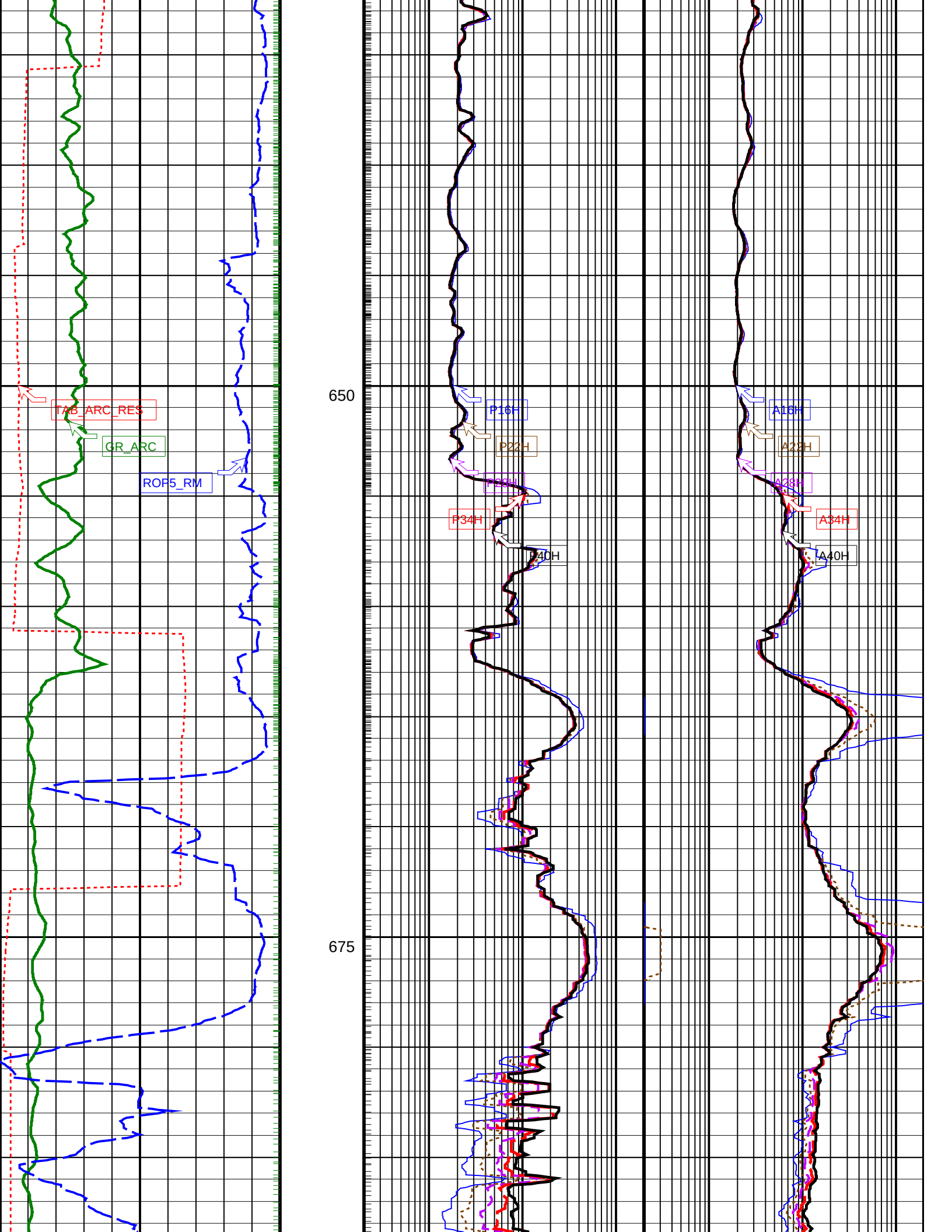
ARC Phase−Shift Resistivity 22−in. at 2 MHz (P22H)
0.2 (OHMM) 200

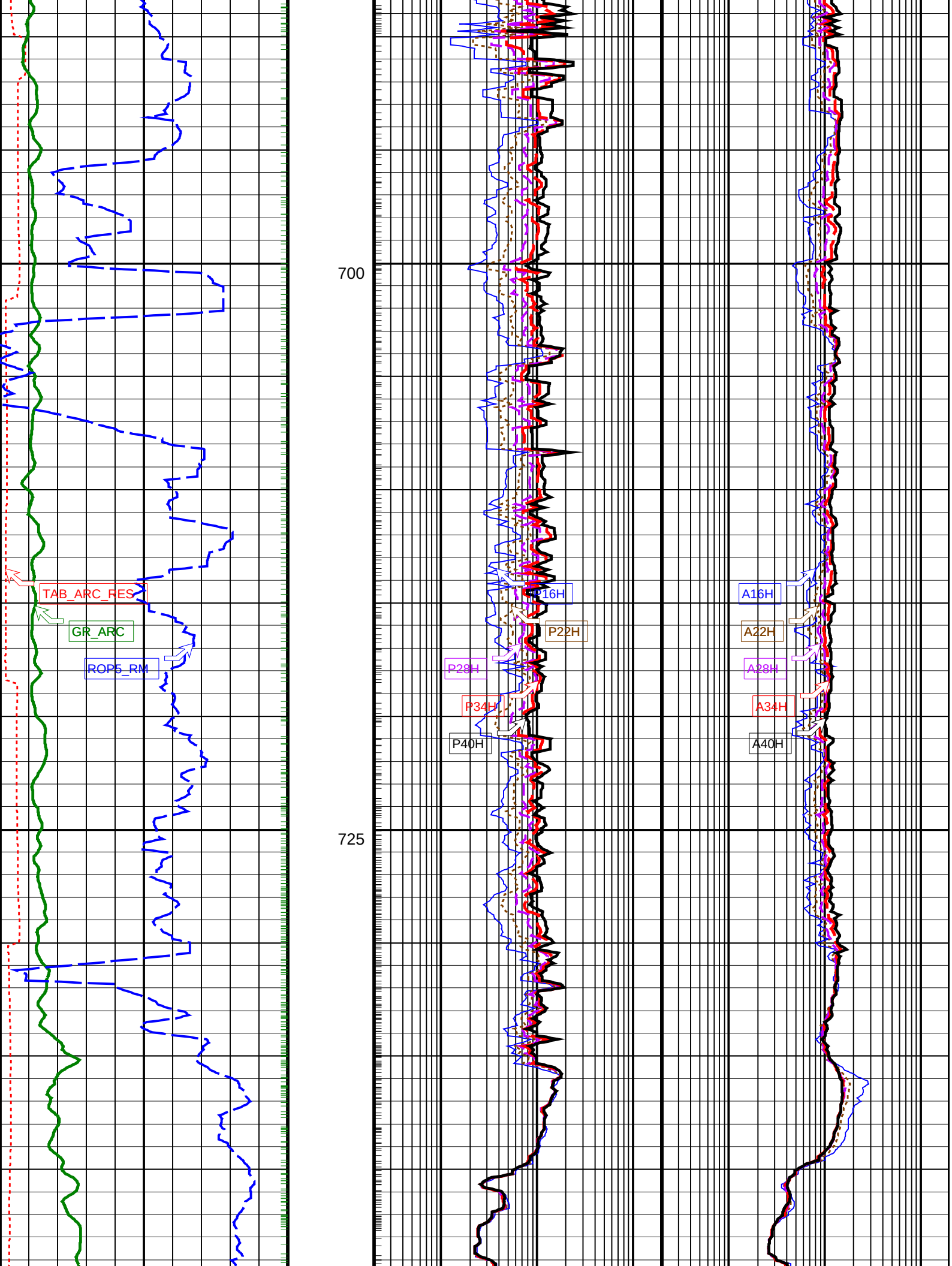
ARC Attenuation Resistivity 22−in. at 2 MHz (A22H)
0.2 (OHMM) 200

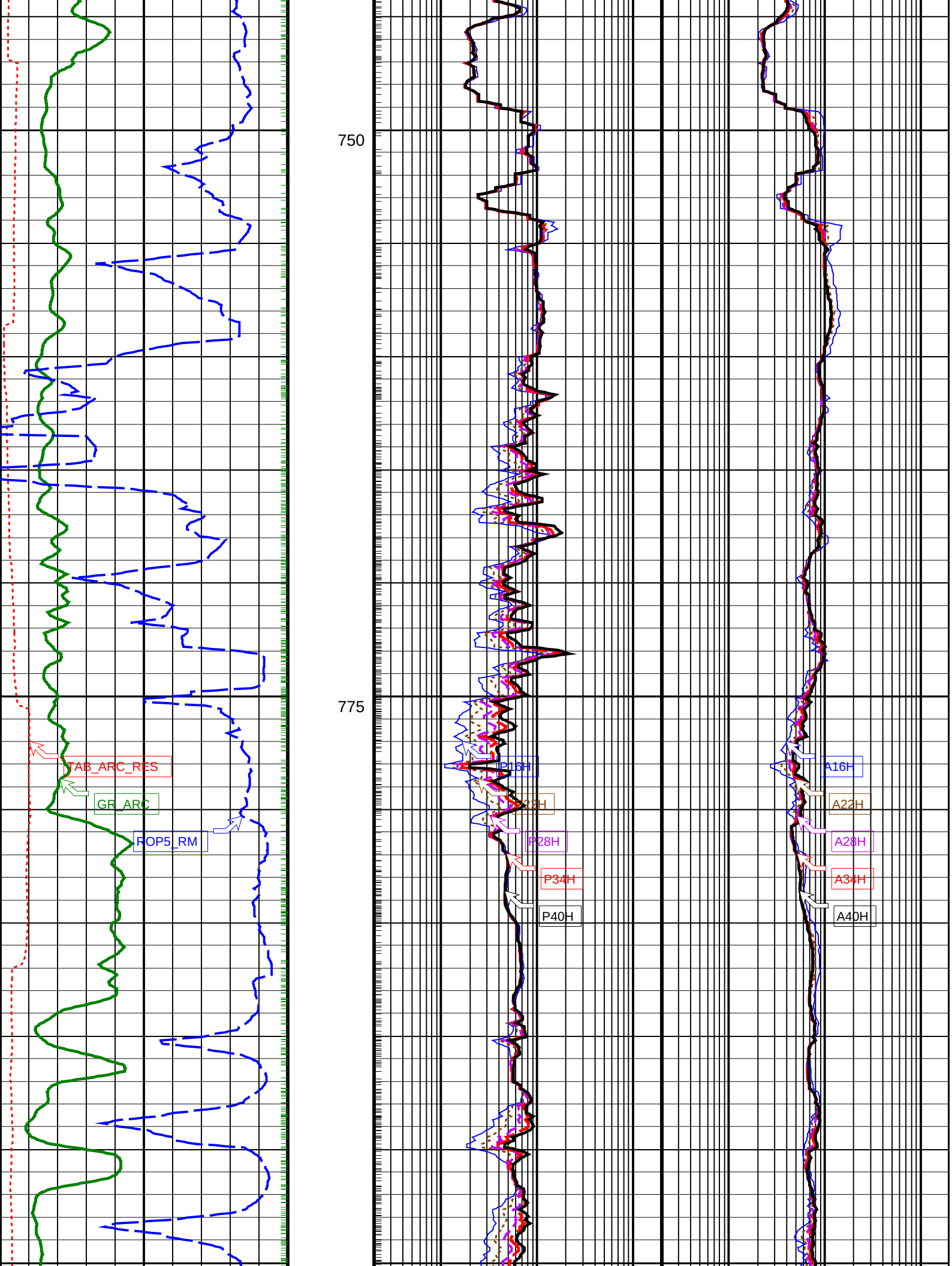
ARC Phase−Shift Resistivity 16−in. at 2 MHz (P16H)
0.2 (OHMM) 200

ARC Attenuation Resistivity 16−in. at 2 MHz (A16H)
0.2 (OHMM) 200




TAB_ARC_RES
GR_ARC
ROP5_RM
650
675
P16H
P22H
P28H
P34H
P40H
A16H
A22H
A28H
A34H
A40H


700
725
TAB_ARC_RES
GR_ARC
ROP5_RM
P16H
P22H
P28H
P34H
P40H
A16H
A22H
A28H
A34H
A40H


750
775
TAB_ARC_RES
GR_ARC
ROP5_RM
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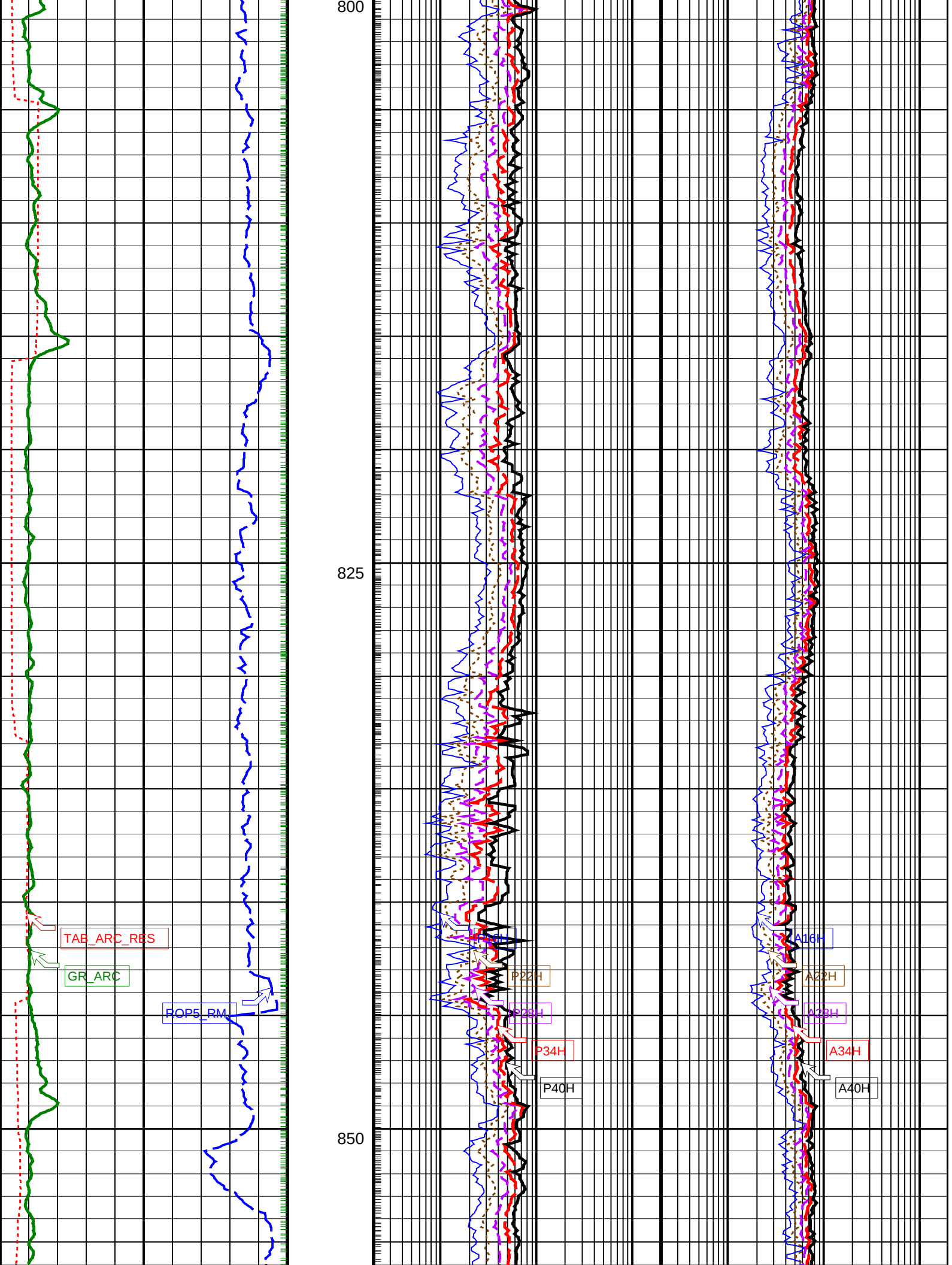
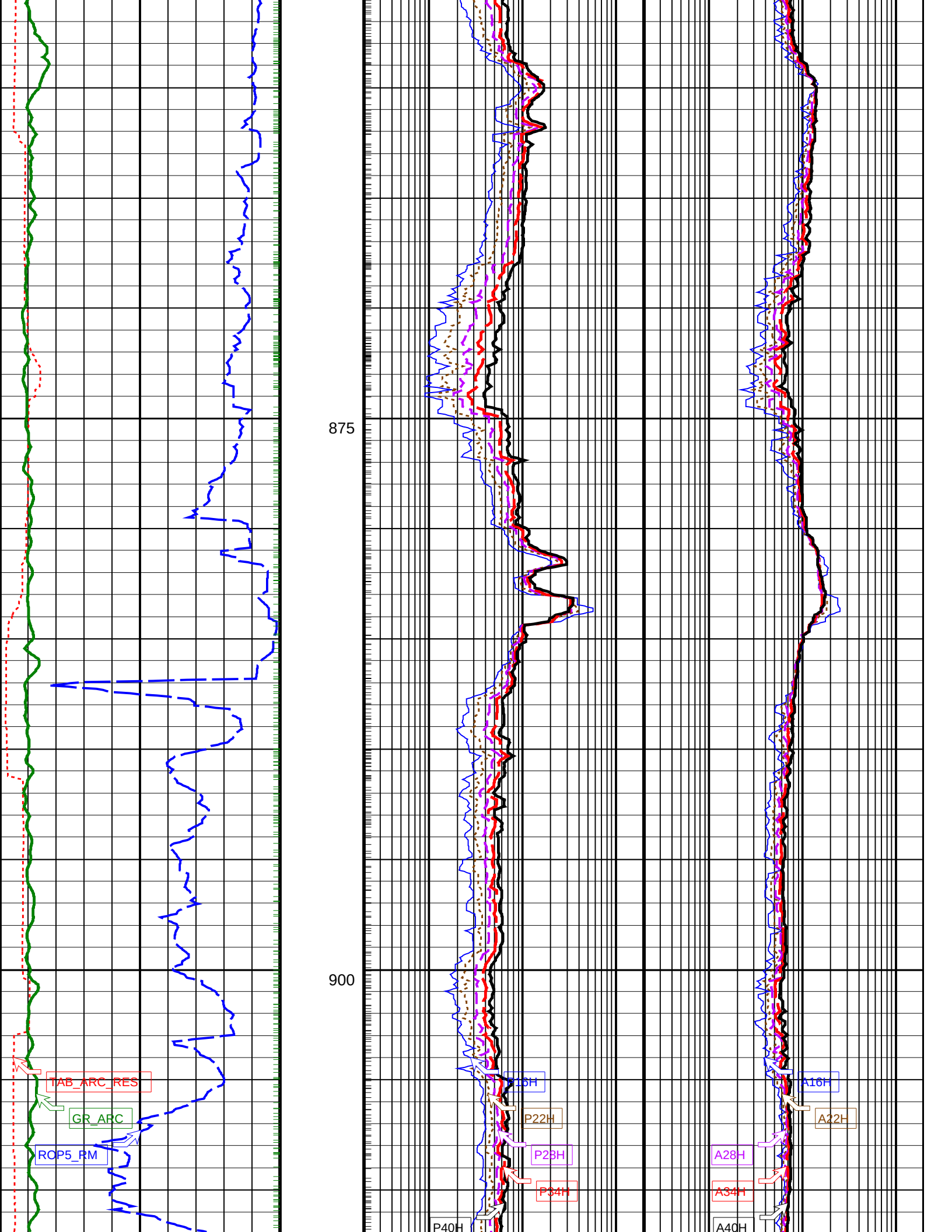
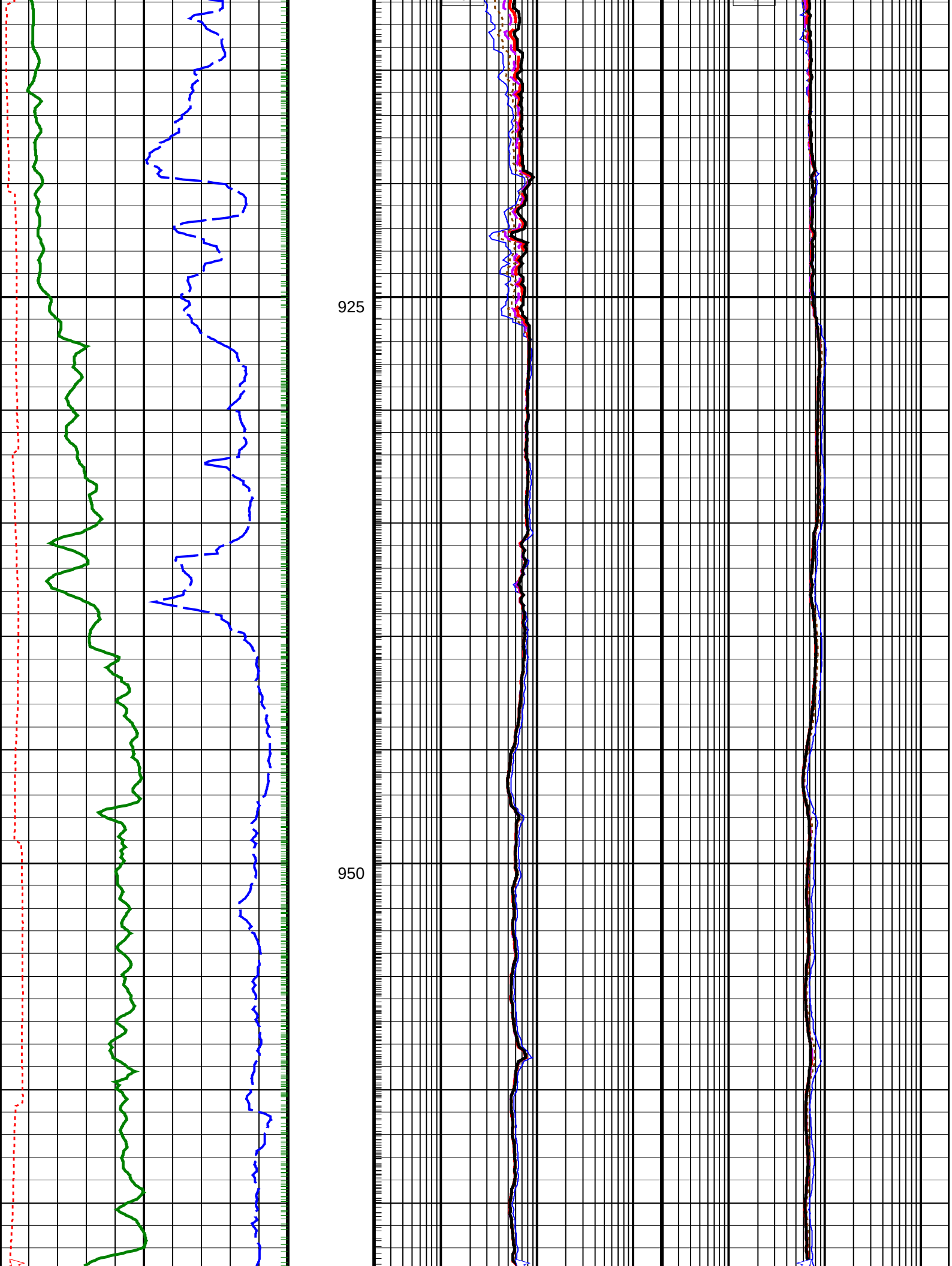
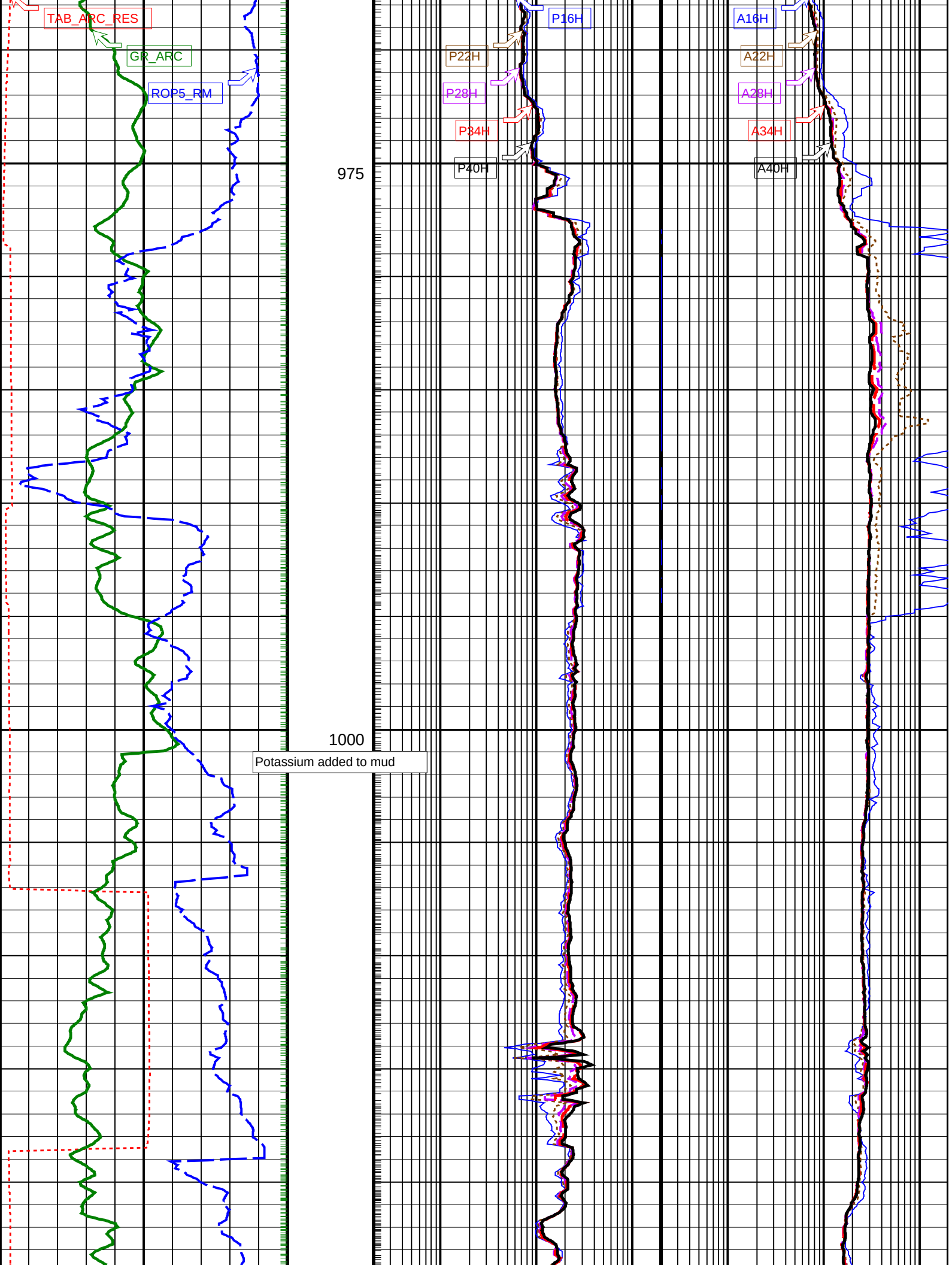
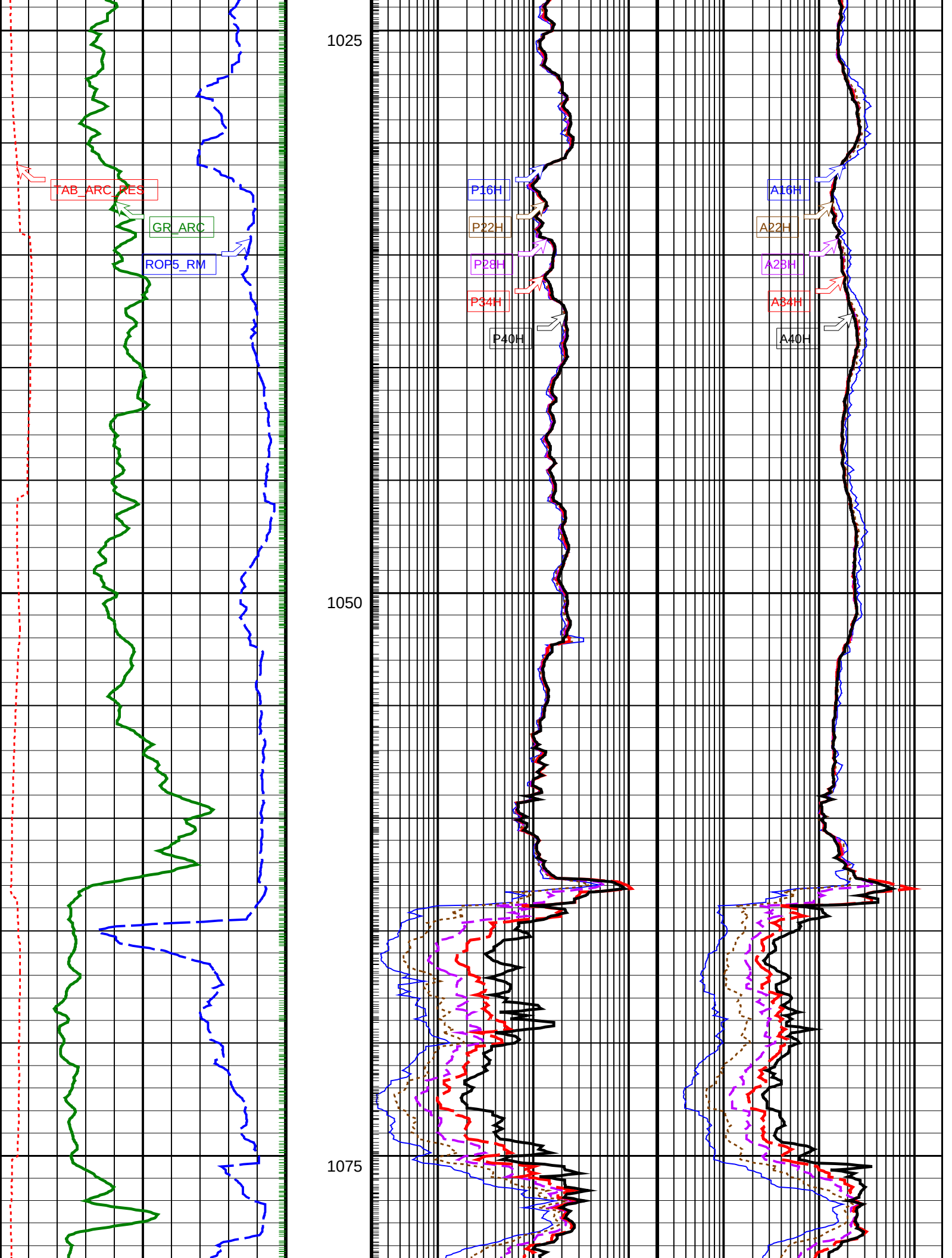
P22H
P28H
P34H
P40H
A16H
A22H
A28H
A34H
A40H

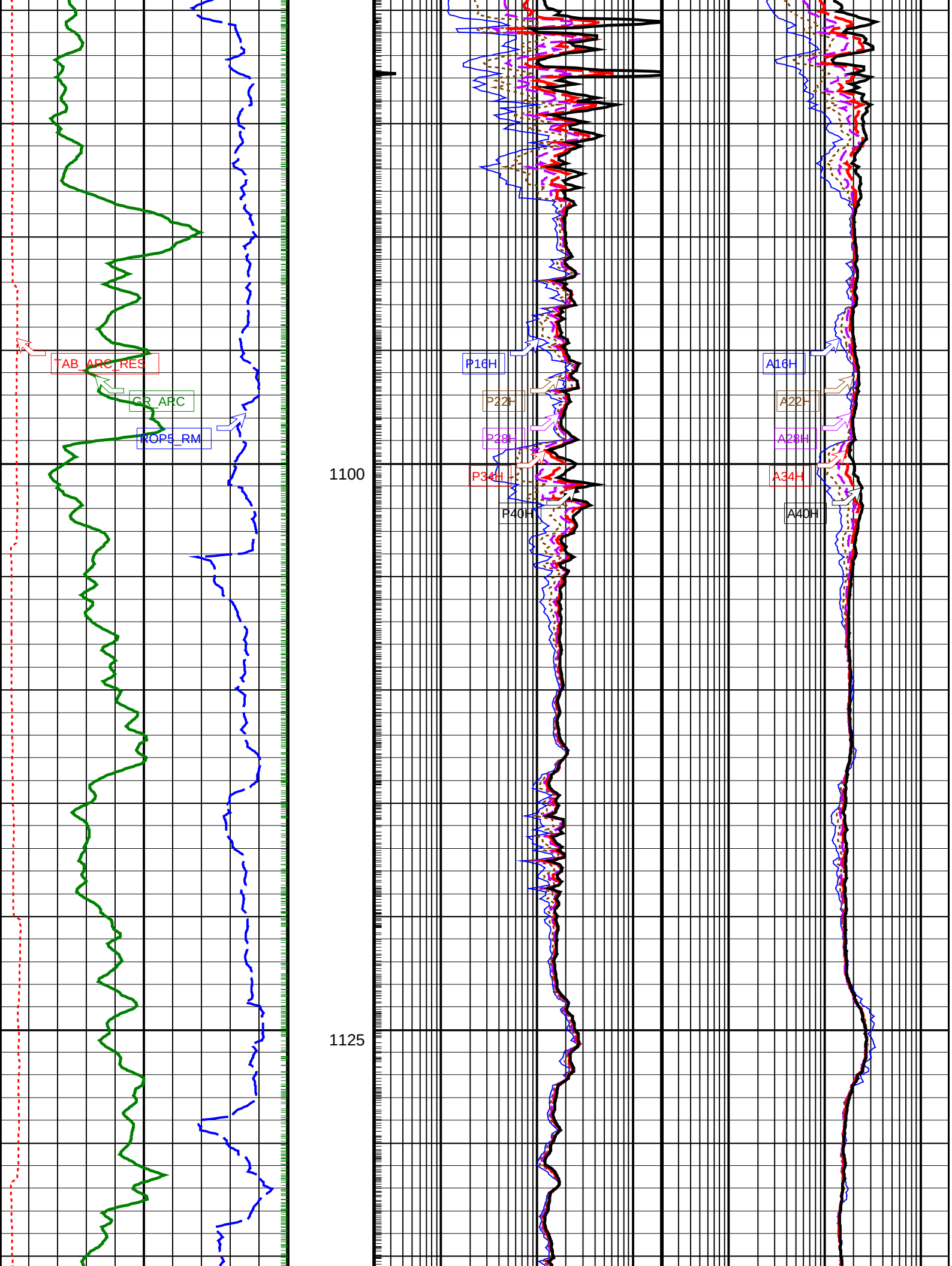

800
825
850
TAB_ARC_RES
GR_ARC
ROP5_RM
P16H
P22H
P28H
P34H
P40H
A16H
A22H
A28H
A34H
A40H

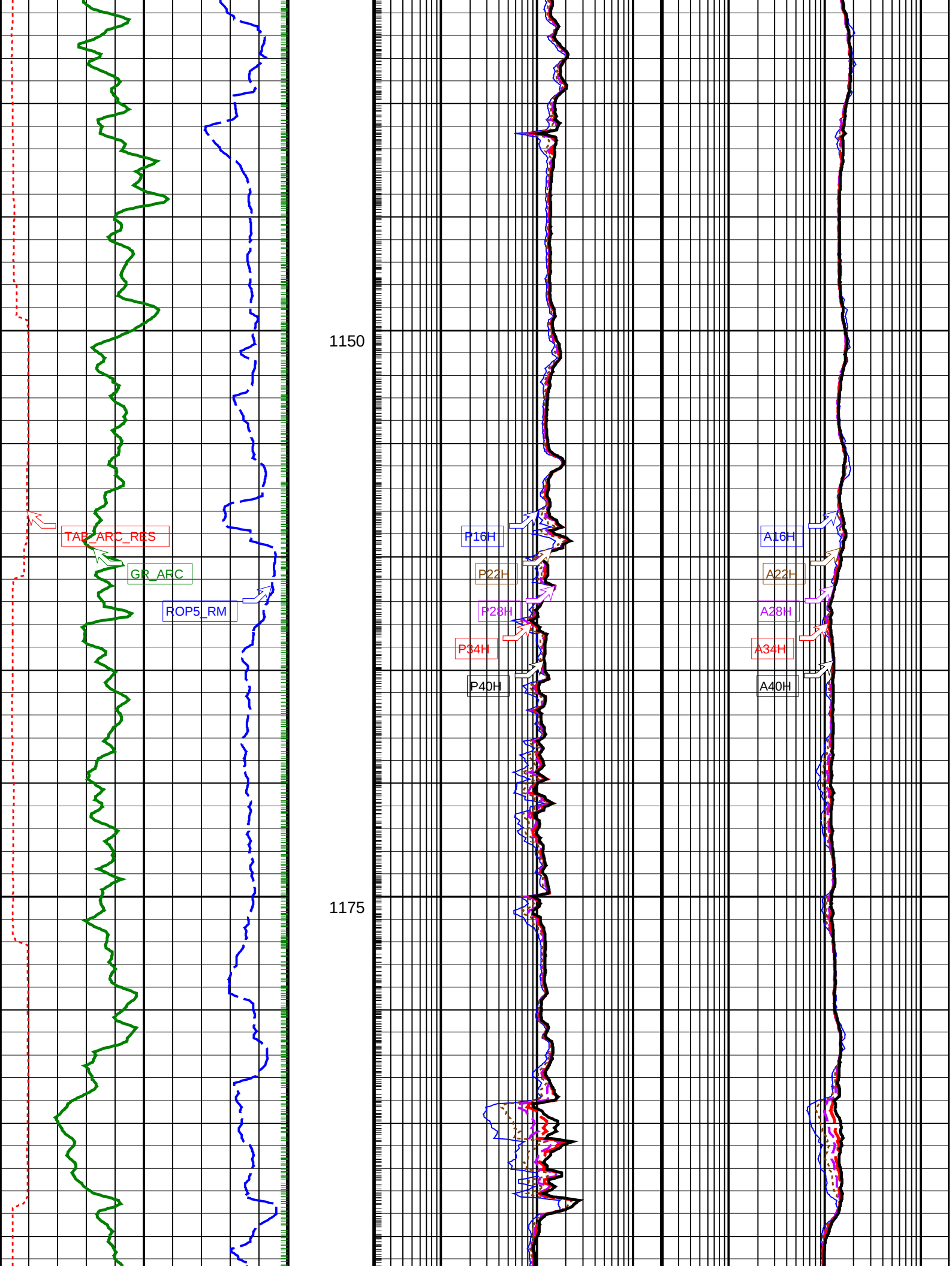

875
900
TAB_ARC_RES
GR_ARC
ROP5_RM
P16H
P22H
P28H
P34H
P40H
A16H
A22H
A28H
A34H
A40H

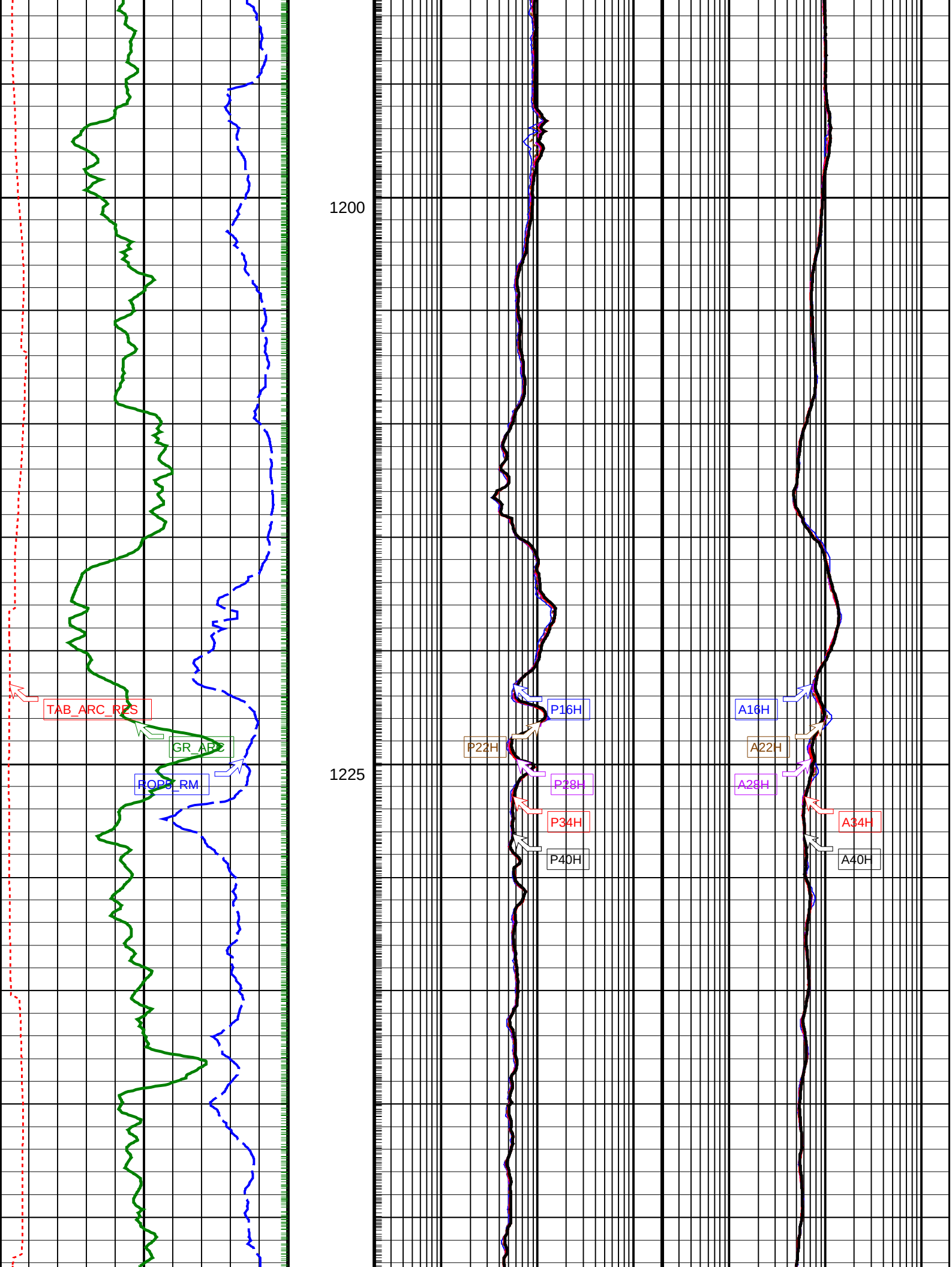

925
950

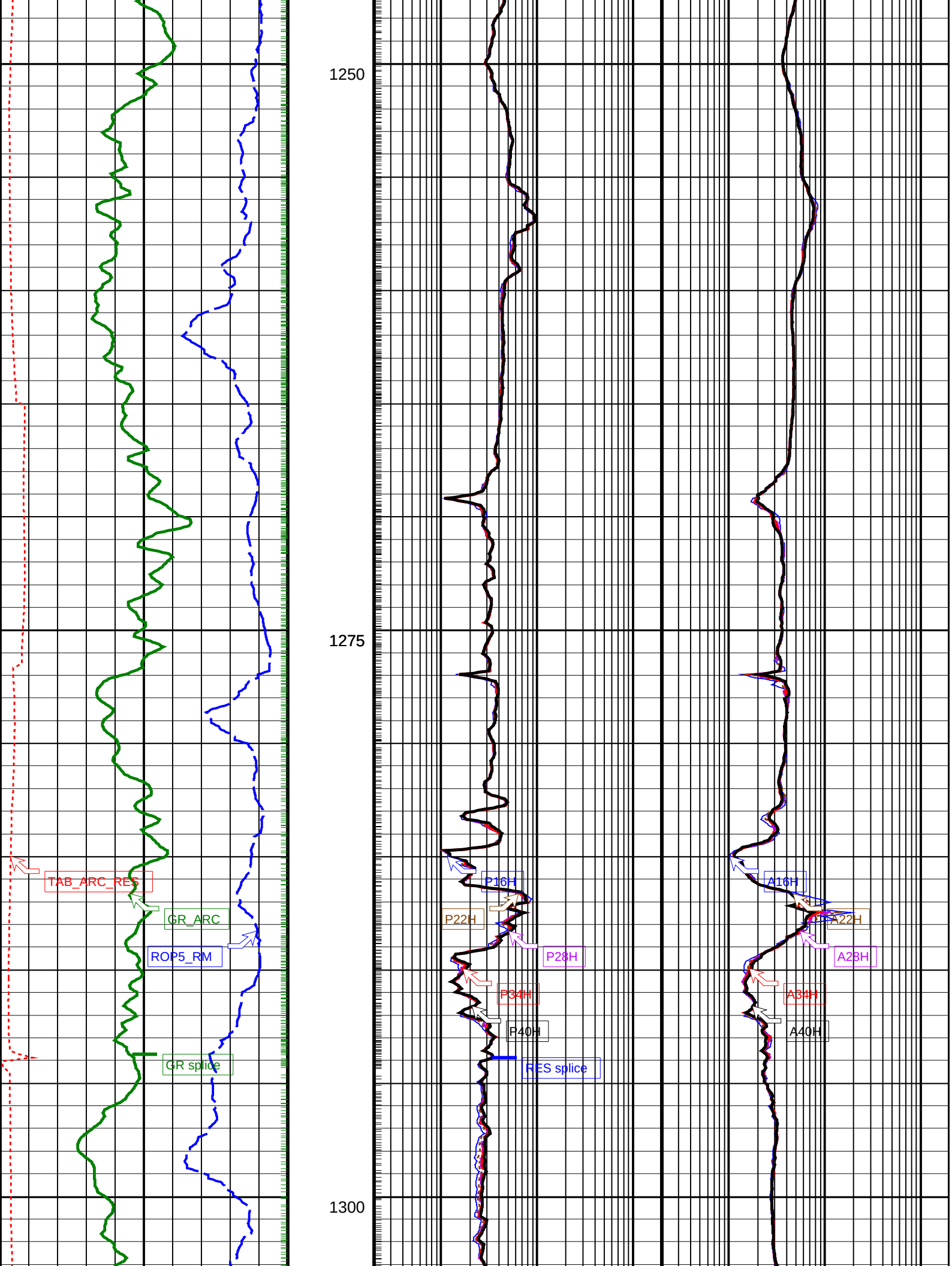

TAB_ARC_RES
GR_ARC
ROP5_RM
P16H
P22H
P28H
P34H
P40H
A16H
A22H
A28H
A34H
A40H
975
1000
Potassium added to mud

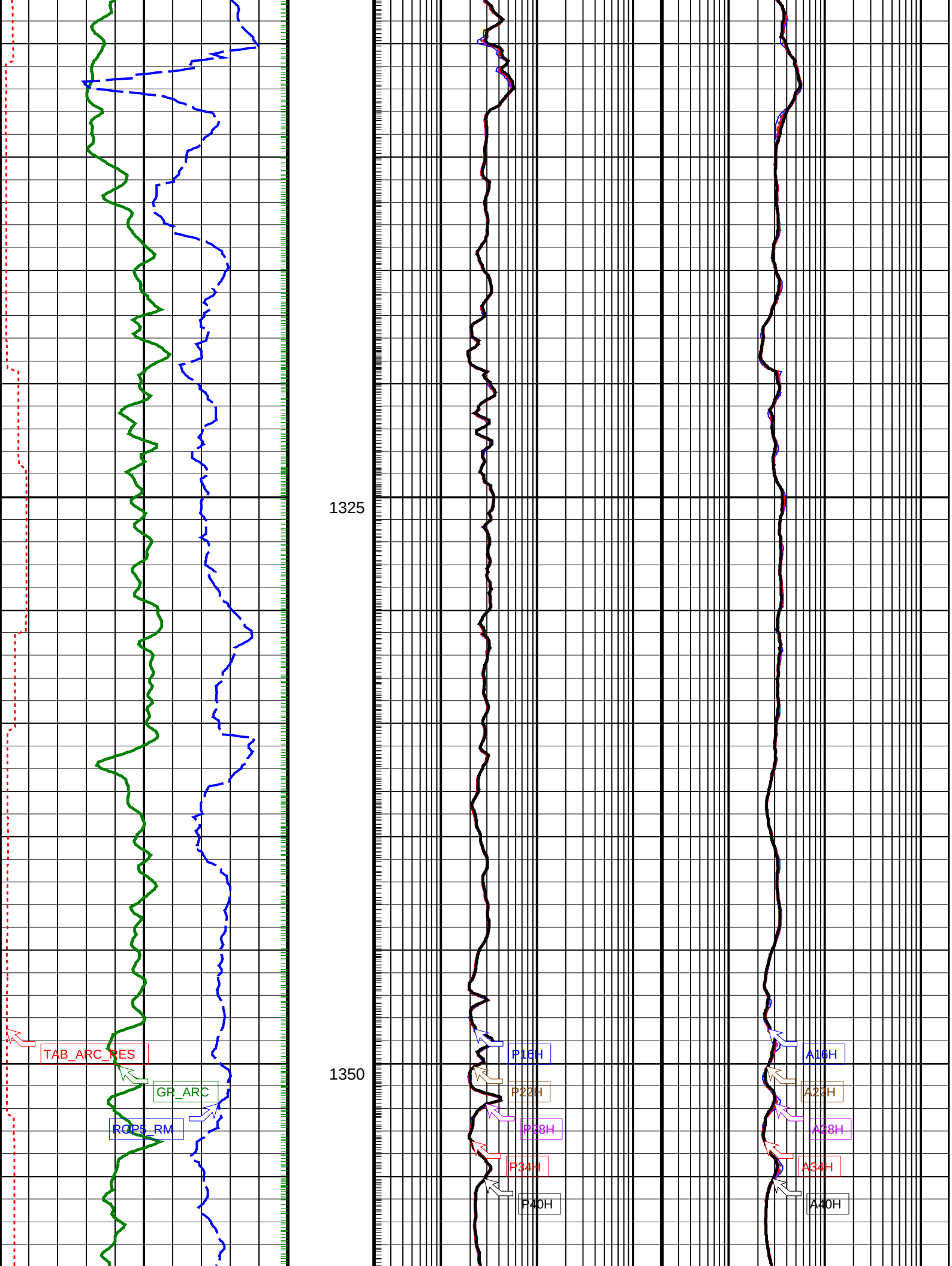

TAB_ARC_RES
GR_ARC
ROP5_RM
1025
1050
1075
P16H
P22H
P28H
P34H
P40H
A16H
A22H
A28H
A34H
A40H

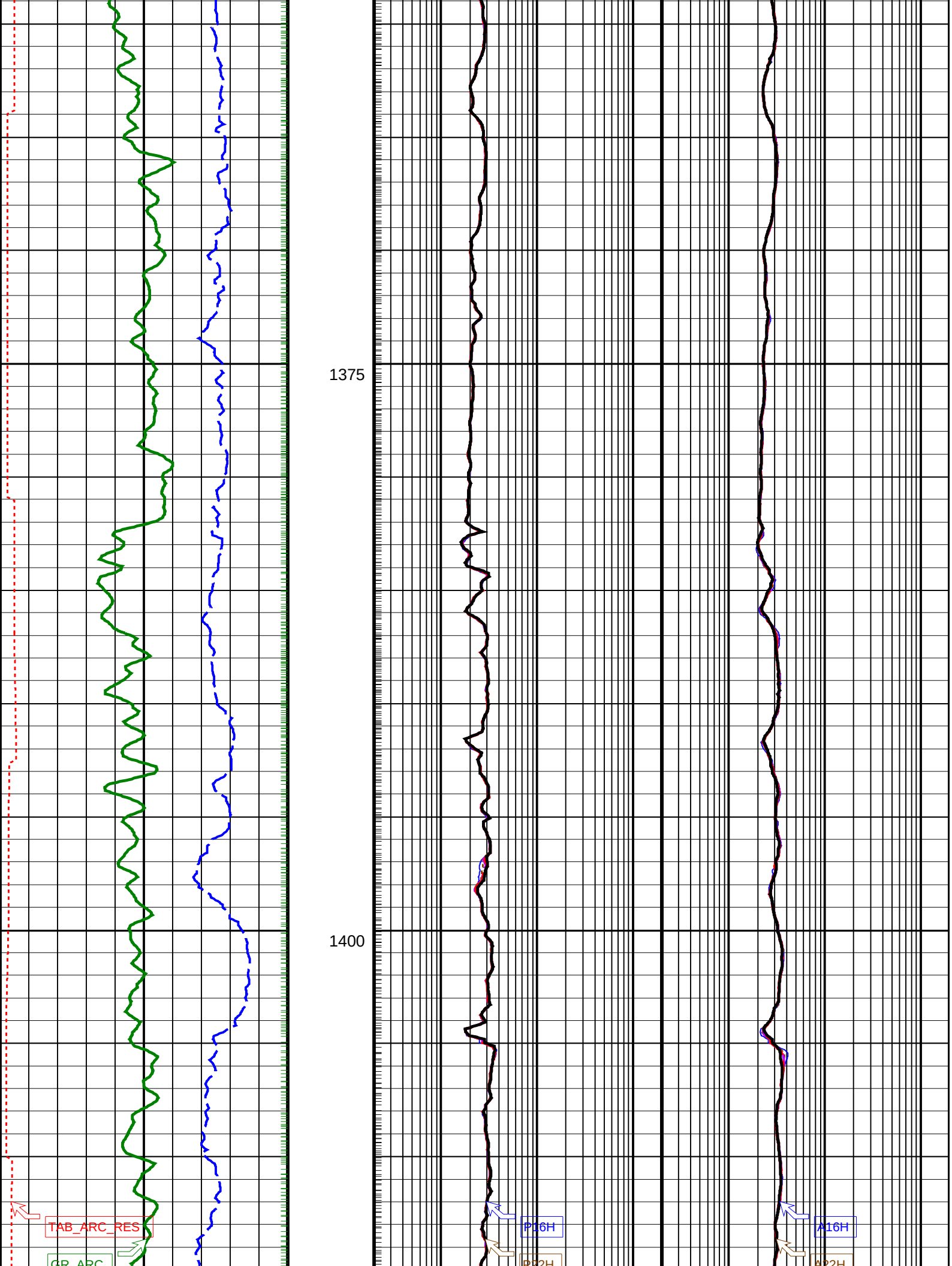

TAB_ARC_RES
GR_ARC
ROP5_RM
P16H
P22H
P28H
P34H
P40H
A16H
A22H
A28H
A34H
A40H
1100
1125

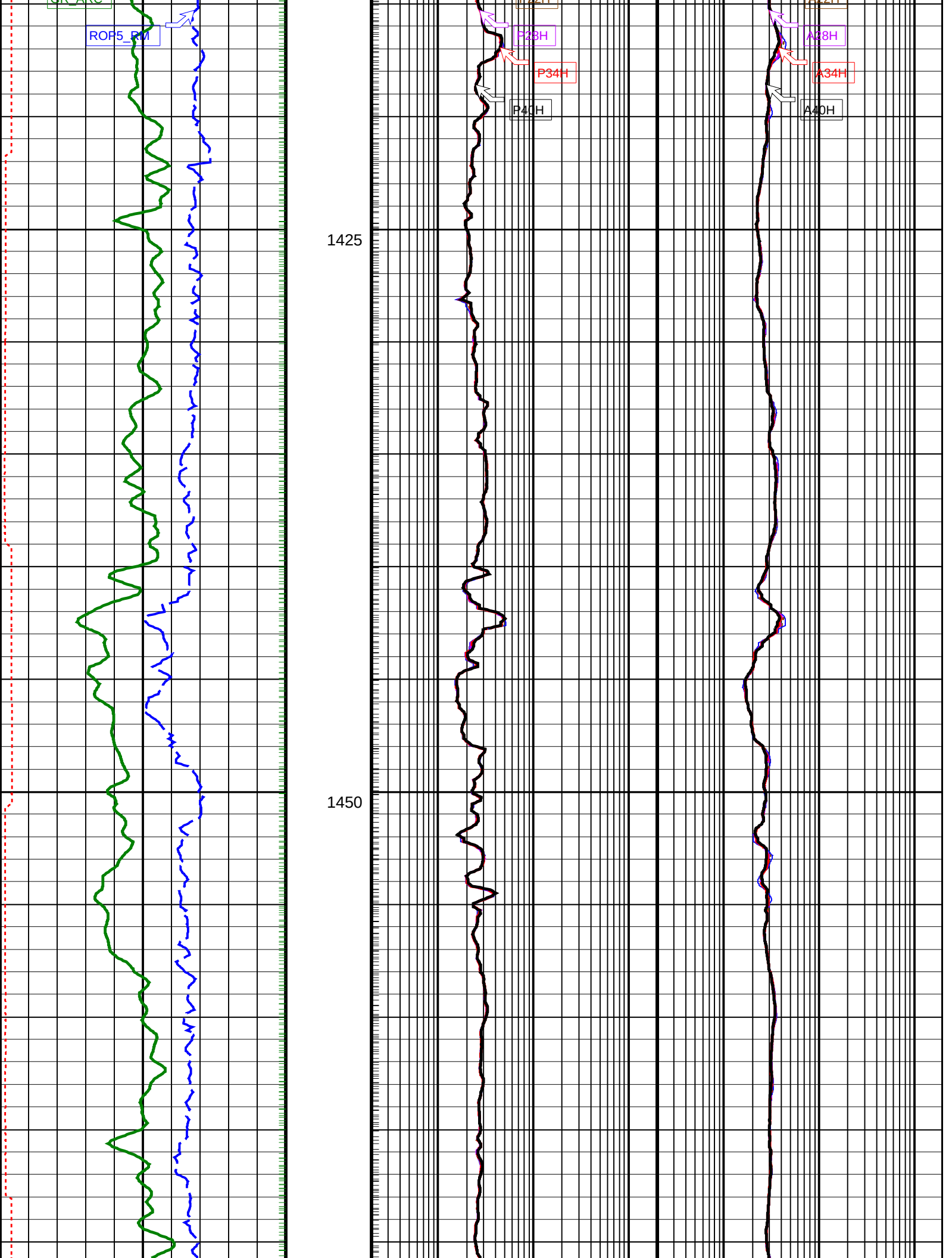

1150
1175
TAB_ARC_RES
GR_ARC
ROP5_RM
P16H
P22H
P28H
P34H
P40H
A16H
A22H
A28H
A34H
A40H

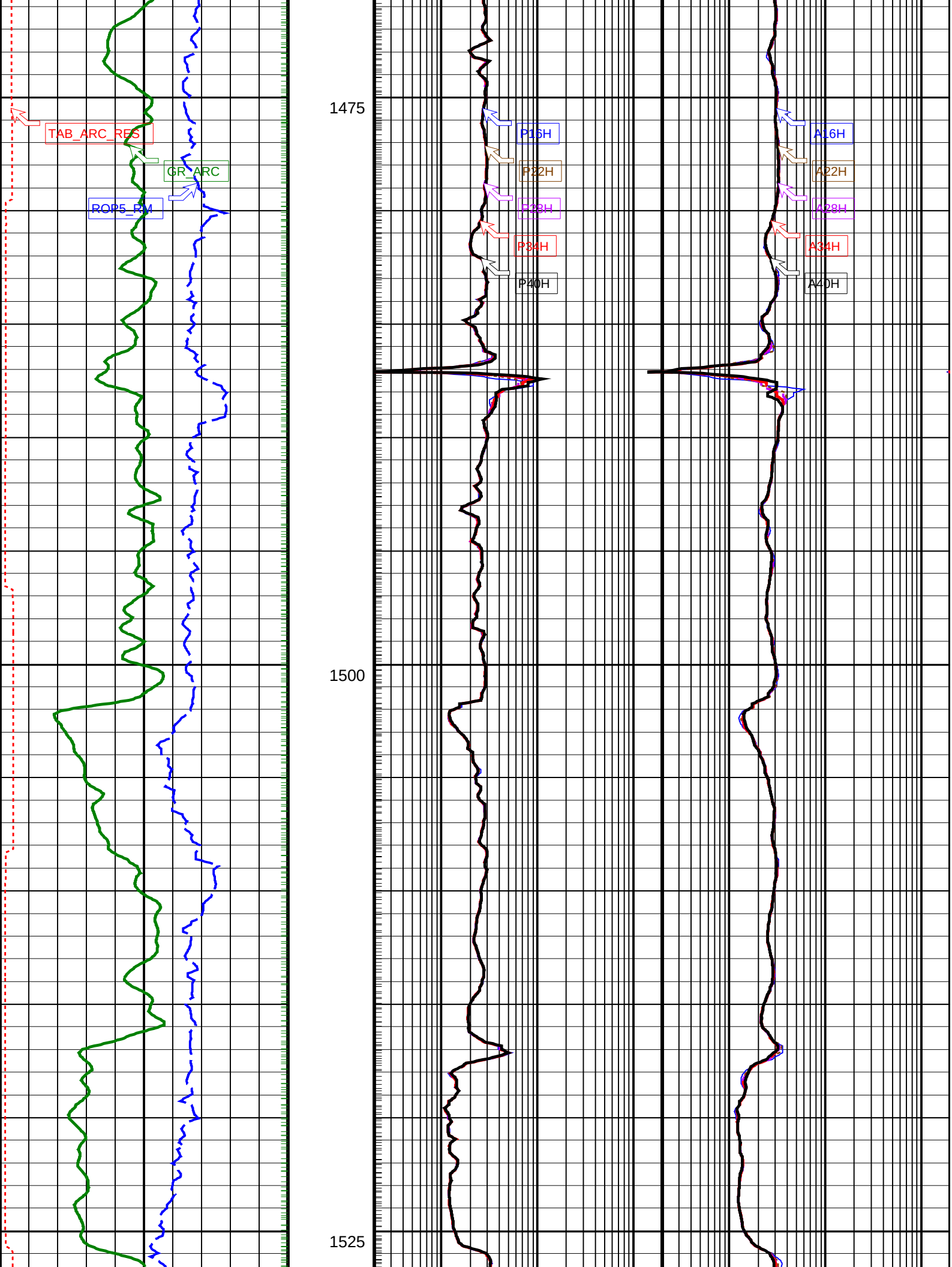

1200
1225
TAB_ARC_RES
GR_ARC
ROP5_RM
P16H
P22H
P28H
P34H
P40H
A16H
A22H
A28H
A34H
A40H

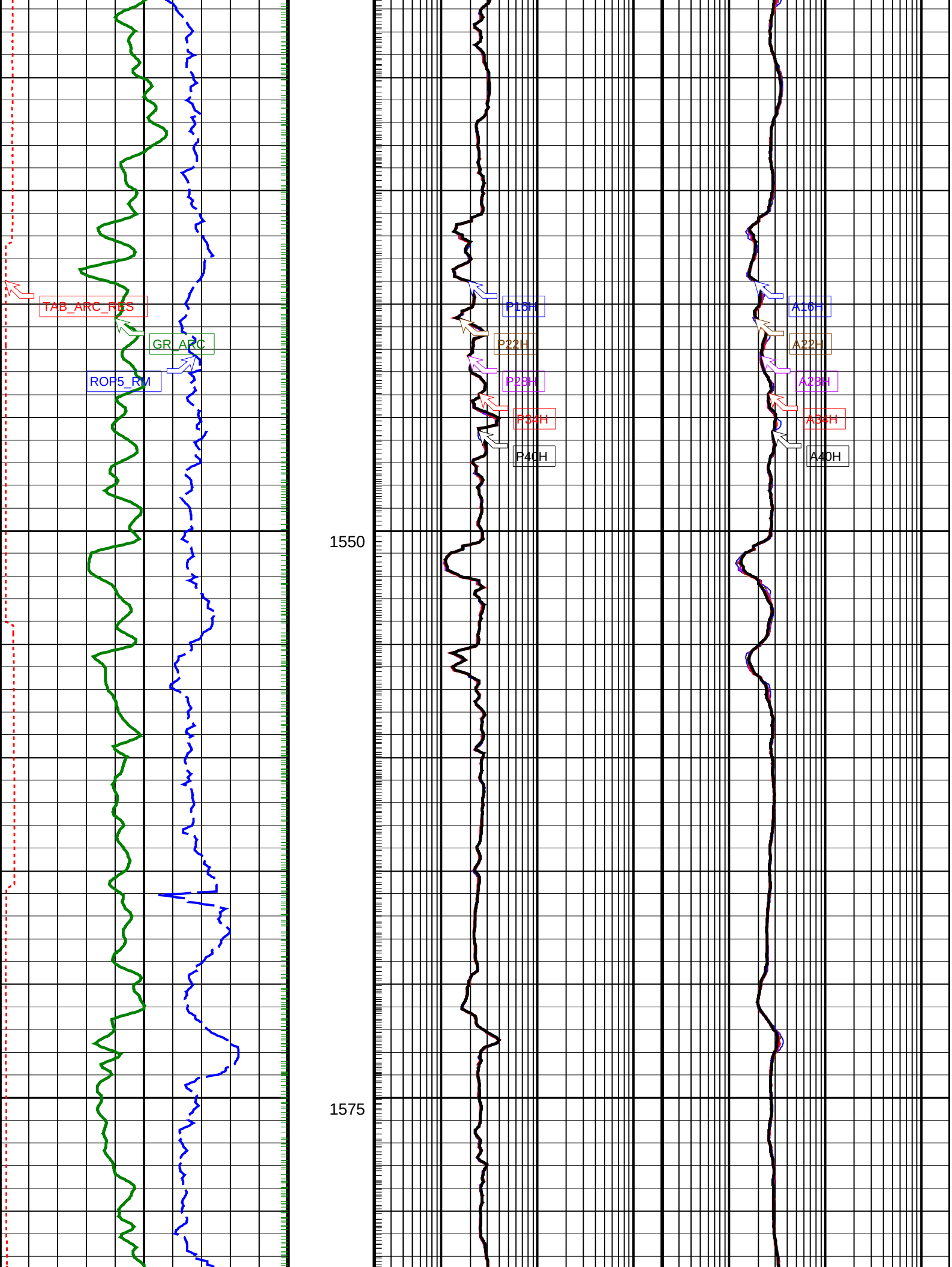

1250
1275
1300
TAB_ARC_RES
GR_ARC
ROP5_RM
GR splice
P16H
P22H
P28H
P34H
P40H
RES splice
A16H
A22H
A28H
A34H
A40H

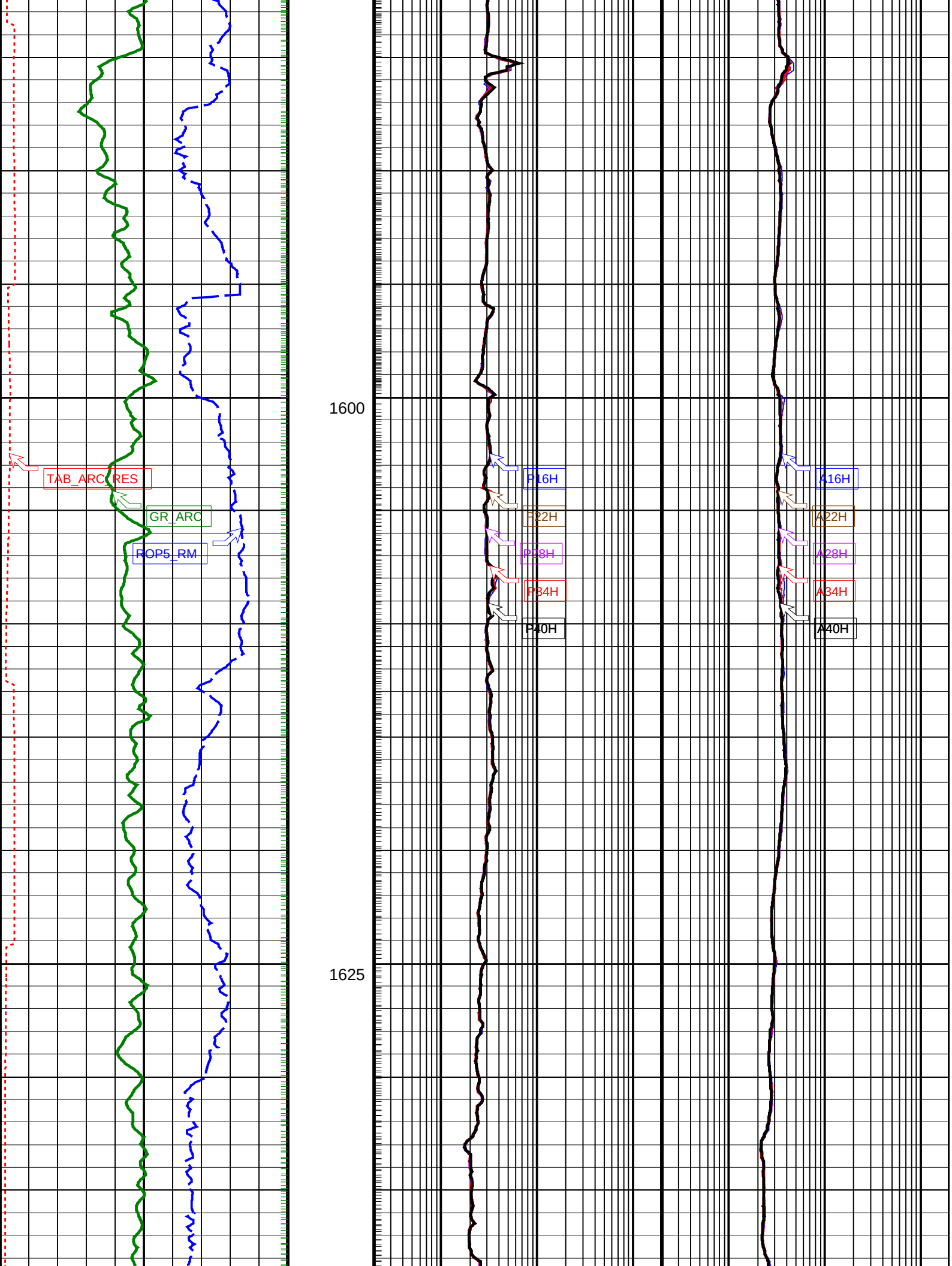

1325
1350
TAB_ARC_RES
GR_ARC
ROP5_RM
P16H
P22H
P28H
P34H
P40H
A16H
A22H
A28H
A34H
A40H

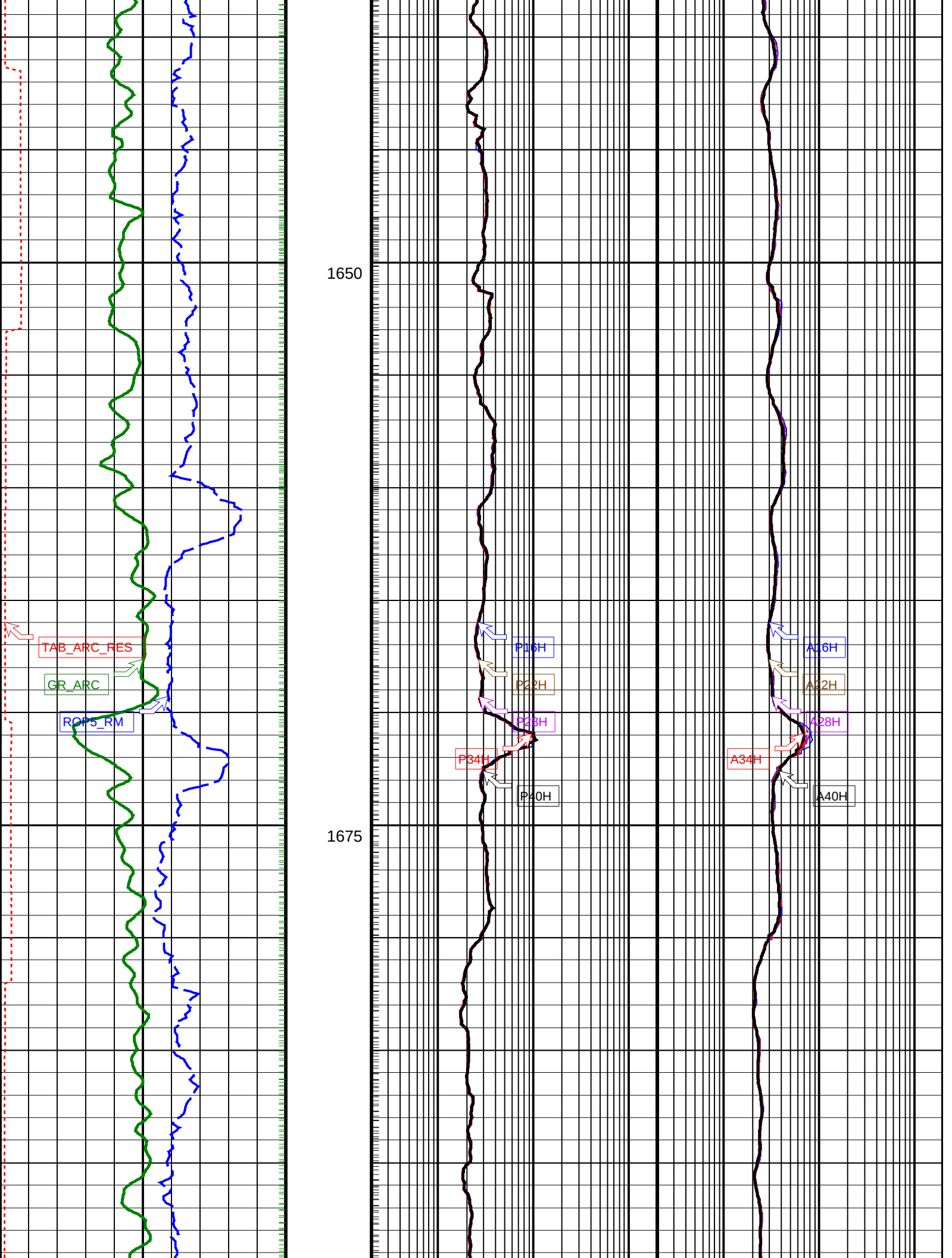

1375
1400
TAB_ARC_RES
P16H
A16H

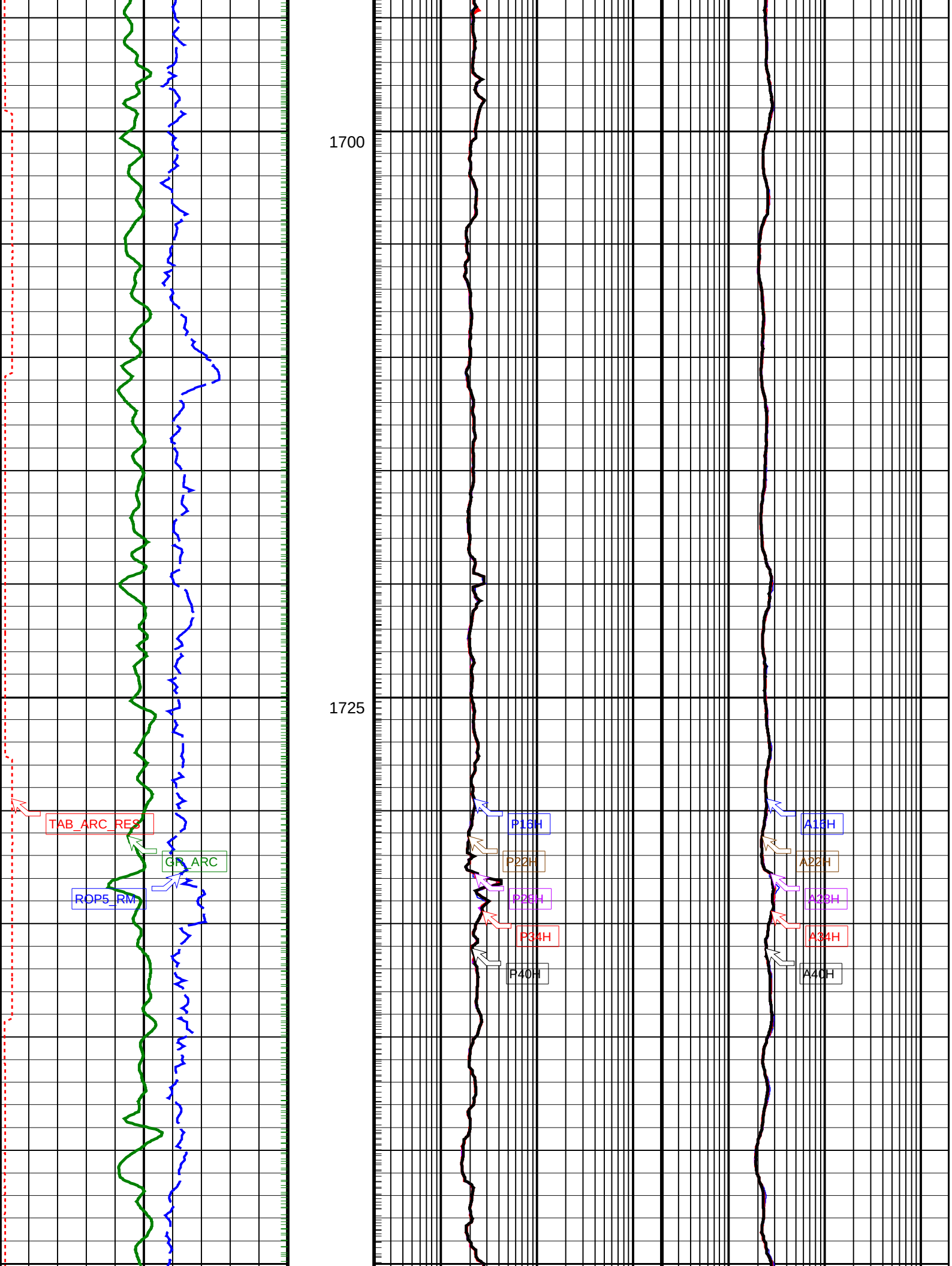

ROP5_RM
P23H
P34H
P40H
A28H
A34H
A40H
1425
1450

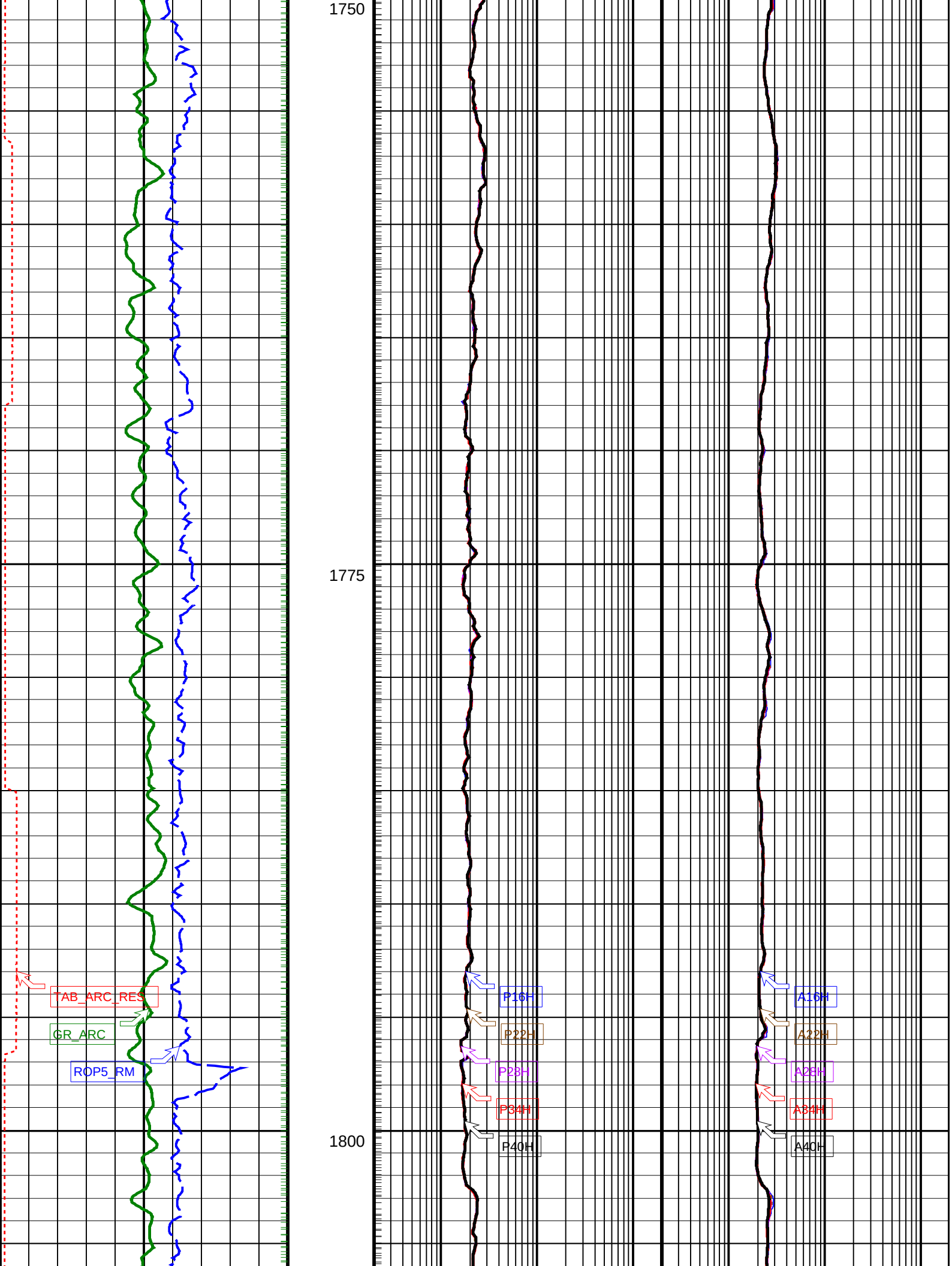

TAB_ARC_RES
GR_ARC
ROP5_RM
1475
1500
1525
P16H
P22H
P28H
P34H
P40H
A16H
A22H
A28H
A34H
A40H

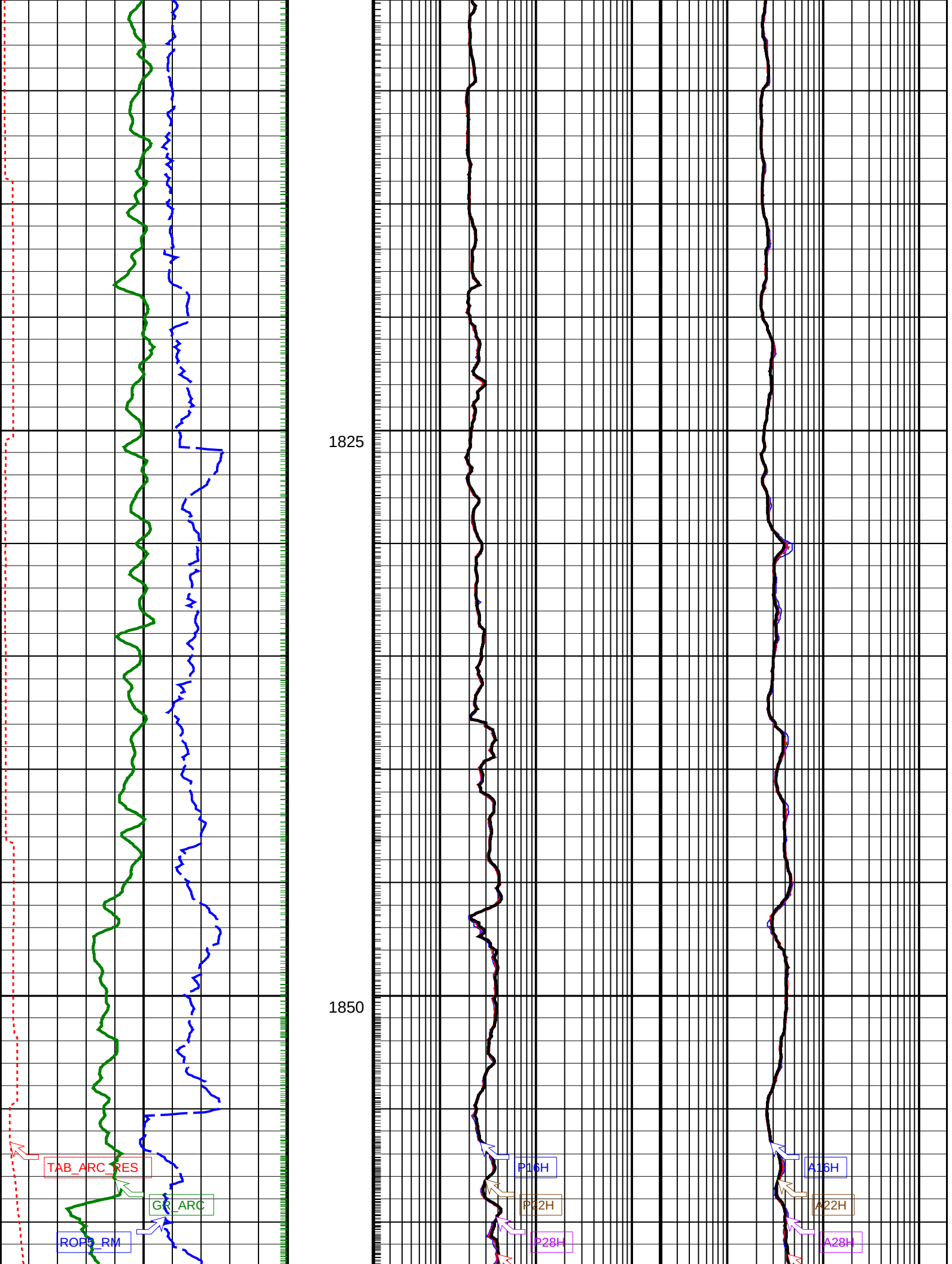

TAB_ARC_RES
GR_ARC
ROP5_RM
P16H
P22H
P23H
P34H
P40H
A16H
A22H
A23H
A34H
A40H
1550
1575

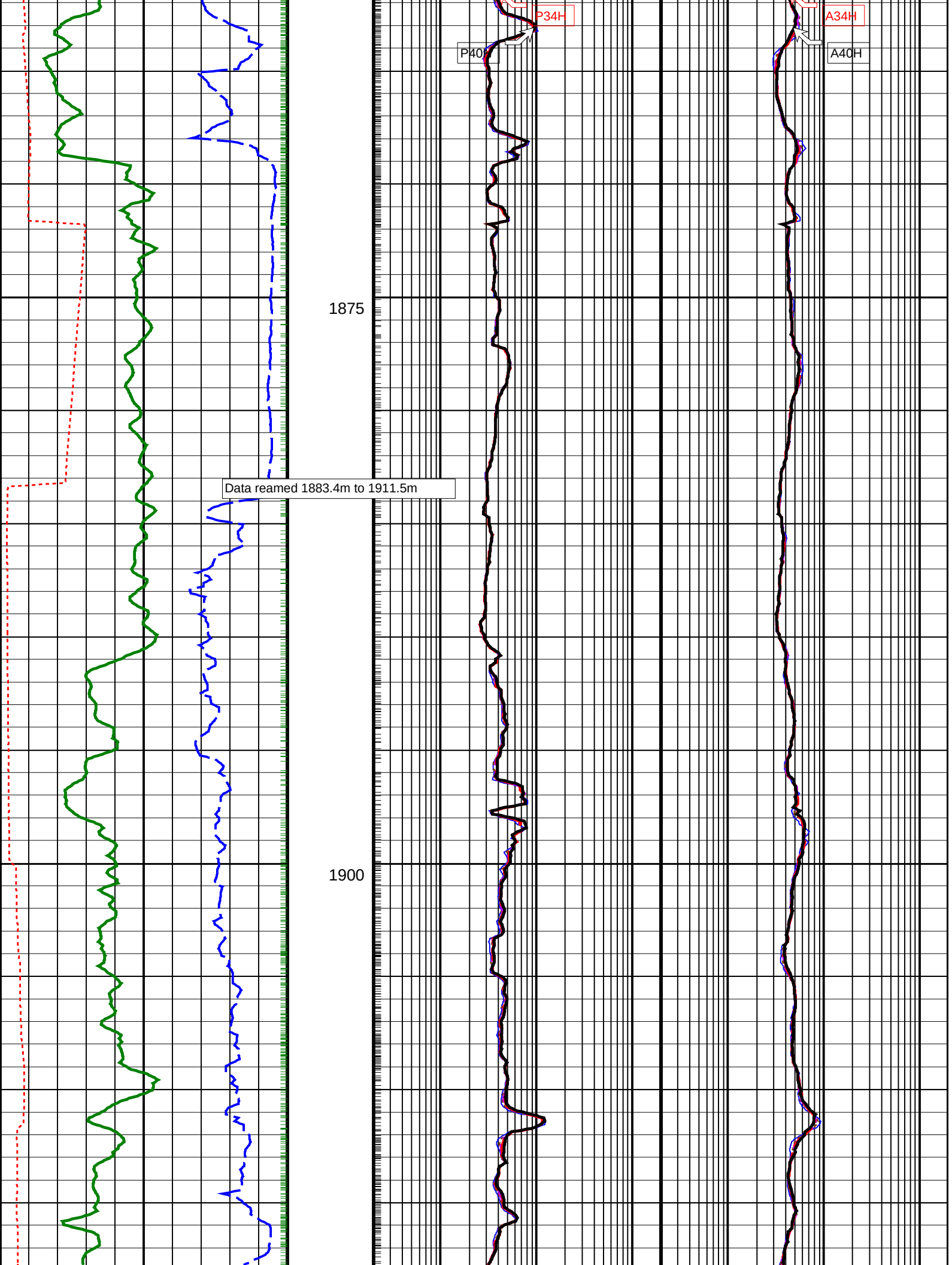

1600
1625
TAB_ARC_RES
GR_ARC
ROP5_RM
P16H
P22H
P28H
P34H
P40H
A16H
A22H
A28H
A34H
A40H

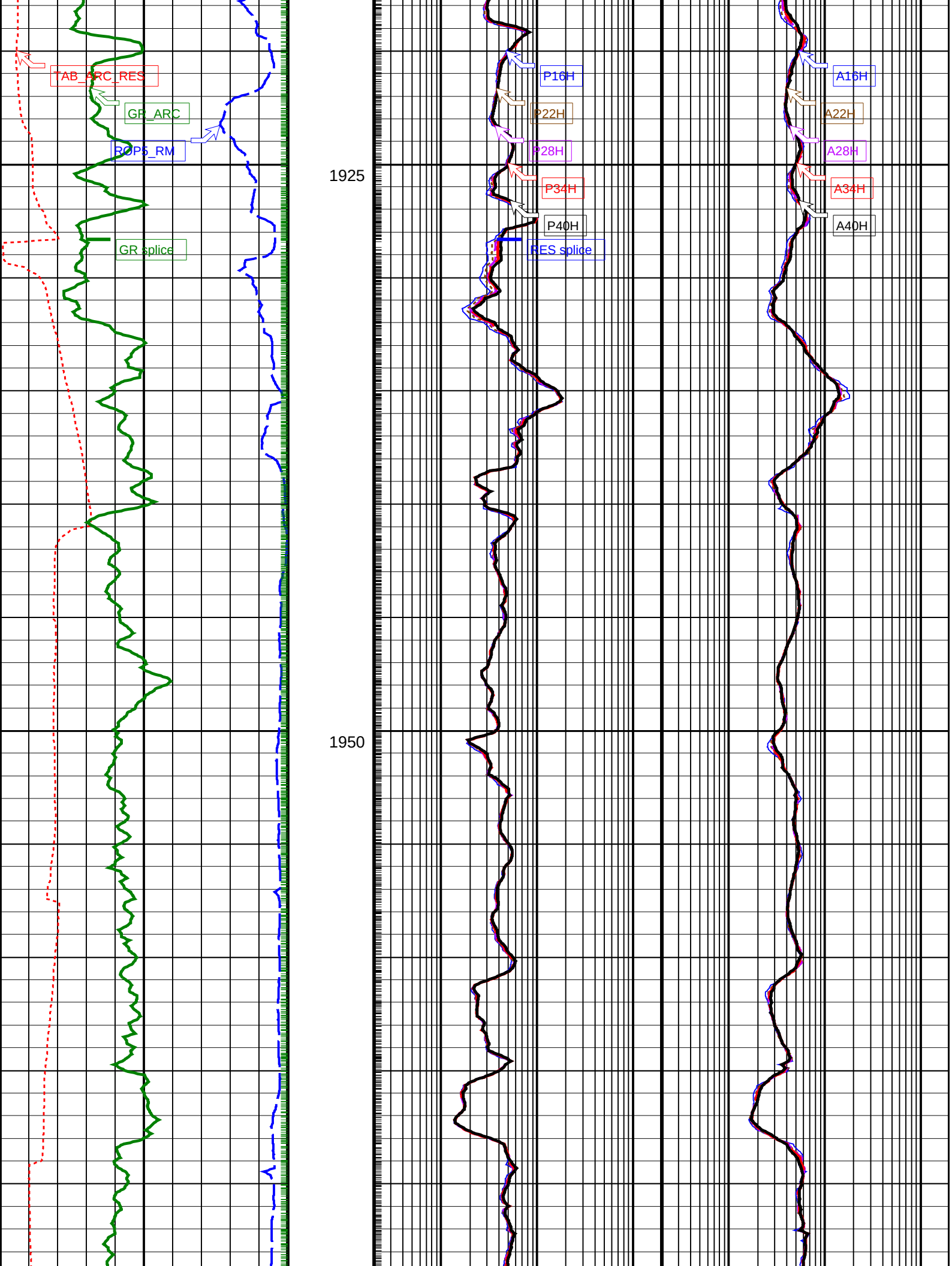

1650
1675
TAB_ARC_RES
GR_ARC
ROP5_RM
P16H
P22H
P28H
P34H
P40H
A16H
A22H
A28H
A34H
A40H

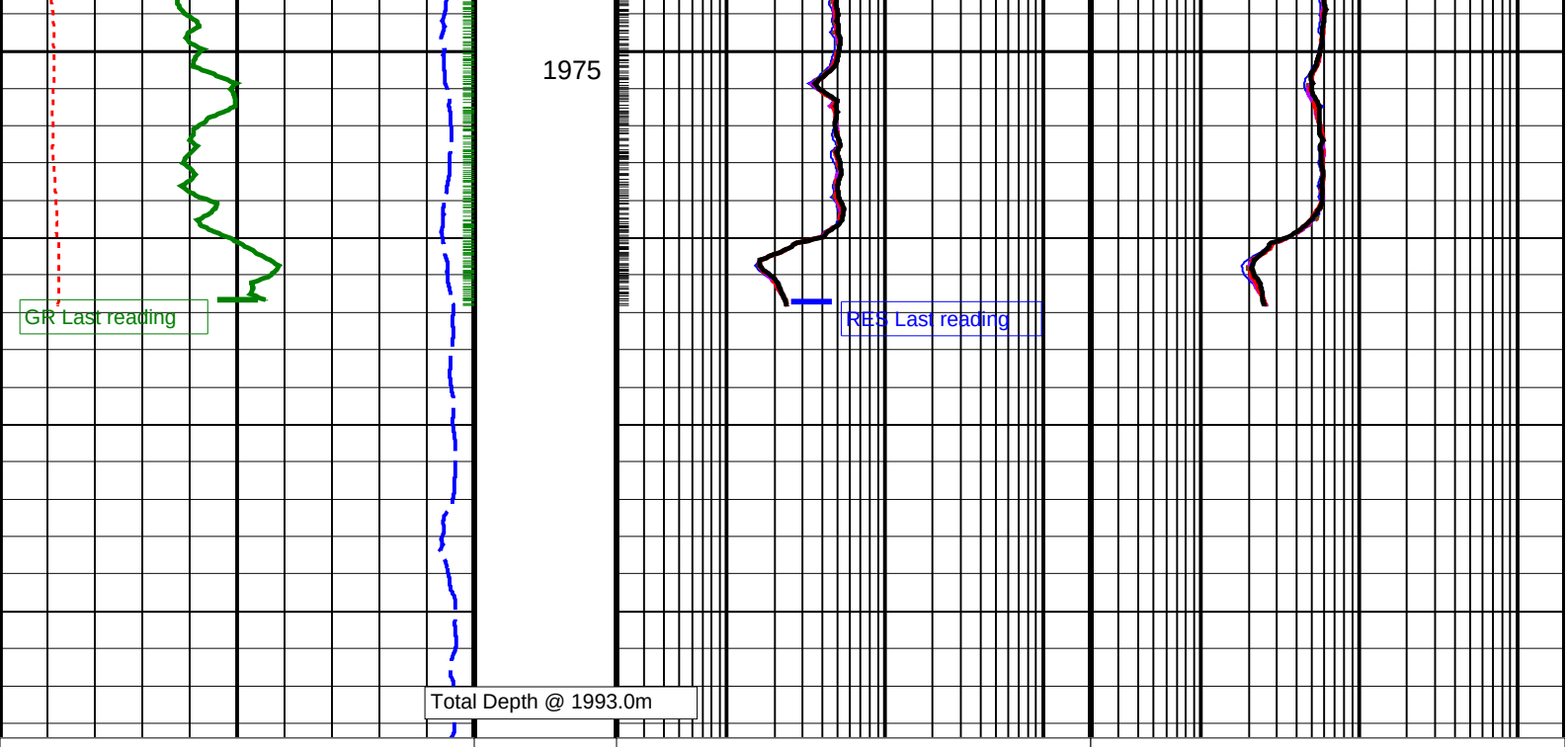

1700
1725
TAB_ARC_RES
GR_ARC
ROP5_RM
P15H
P22H
P28H
P34H
P40H
A15H
A22H
A28H
A34H
A40H


1750
1775
1800
TAB_ARC_RES
GR_ARC
ROP5_RM
P16H
P22H
P23H
P34H
P40H
A16H
A22H
A23H
A34H
A40H


1825
1850
TAB_ARC_RES
GR_ARC
ROPS_RM
P16H
P22H
P28H
A16H
A22H
A28H


P34H
A34H
P40H
A40H
1875
Data reamed 1883.4m to 1911.5m
1900


TAB_ARC_RES
GR_ARC
ROPS_RM
GR splice
1925
1950
P16H
P22H
P28H
P34H
P40H
RES splice
A16H
A22H
A28H
A34H
A40H



ARC Gamma Ray (GR_ARC)		
0	(GAPI)	200
ARC Resistivity Time After Bit (TAB_ARC_RES)		
0	(HR)	10
Rate of Penetration, Averaged over Last 5ft (ROP5_RM)		
200	(M/HR)	0

ARC Phase−Shift Resistivity 16−in. at 2 MHz (P16H)			ARC Attenuation Resistivity 16−in. at 2 MHz (A16H)		
0.2	(OHMM)	200	0.2	(OHMM)	200
ARC Phase−Shift Resistivity 22−in. at 2 MHz (P22H)			**ARC Attenuation Resistivity 22−in. at 2 MHz (A22H)**		
0.2	(OHMM)	200	0.2	(OHMM)	200
ARC Phase−Shift Resistivity 28−in. at 2 MHz (P28H)			**ARC Attenuation Resistivity 28−in. at 2 MHz (A28H)**		
0.2	(OHMM)	200	0.2	(OHMM)	200
ARC Phase−Shift Resistivity 34−in. at 2 MHz (P34H)			**ARC Attenuation Resistivity 34−in. at 2 MHz (A34H)**		
0.2	(OHMM)	200	0.2	(OHMM)	200
ARC Phase−Shift Resistivity 40−in. at 2 MHz (P40H)			**ARC Attenuation Resistivity 40−in. at 2 MHz (A40H)**		
0.2	(OHMM)	200	0.2	(OHMM)	200

PIP SUMMARY

ARC Gamma Ray Samples

ARC Resistivity Samples

IDEAL Version: ID13_0C_08

IDF

8.25−in. Array Resistivity Compensated / Equipment Identification

Primary Equipment:

Tool Name and Serial Number	ARC8 − AA	8316
ARC825 Calibration Status	Valid	

Master: 3−May−2008 1:32

8.25−in. Array Resistivity Compensated Calibration

Resistivity: Air

Phase	Phase−Shift T1	Value
Master		−1.208
−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Phase	Phase−Shift T2	Value
Master		1.258
−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Phase	Phase−Shift T3	Value
Master		−1.291
−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Phase	Phase−Shift T4	Value
Master		1.240
−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Phase	Phase−Shift T5	Value
Master		−1.297
−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Phase	Phase−Shift T1 at 400KHz	Value
Master		1.677
−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Phase	Phase−Shift T2 at 400KHz	Value
Master		−1.716
−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Phase	Phase−Shift T3 at 400KHz	Value
Master		1.691
−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Phase	Phase−Shift T4 at 400KHz	Value
Master		−1.702
−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Phase	Phase−Shift T5 at 400KHz	Value
Master		1.629
−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Master: 3−May−2008 1:32

8.25−in. Array Resistivity Compensated Calibration

Resistivity: Air

Phase	Attenuation T1	Value
Master		8.251
6.500 (Minimum)	8.500 (Nominal)	10.50 (Maximum)

Phase	Attenuation T2	Value
Master		6.386
4.500 (Minimum)	6.500 (Nominal)	8.500 (Maximum)

Phase	Attenuation T3	Value
Master		4.975
2.500 (Minimum)	4.500 (Nominal)	6.500 (Maximum)

Phase	Attenuation T4	Value
Master		4.351
2.600 (Minimum)	4.600 (Nominal)	6.600 (Maximum)

Phase	Attenuation T5	Value
Master		3.563
1.600 (Minimum)	3.600 (Nominal)	5.600 (Maximum)

Phase	Attenuation T1 at 400KHz	Value
Master		8.204
6.500 (Minimum)	8.500 (Nominal)	10.50 (Maximum)

Phase	Attenuation T2 at 400KHz	Value
Master		6.445
4.500 (Minimum)	6.500 (Nominal)	8.500 (Maximum)

Phase	Attenuation T3 at 400KHz	Value
Master		4.920
2.500 (Minimum)	4.500 (Nominal)	6.500 (Maximum)

Phase	Attenuation T4 at 400KHz	Value
Master		4.399
2.600 (Minimum)	4.600 (Nominal)	6.600 (Maximum)

Phase	Attenuation T5 at 400KHz	Value
Master		3.517
1.600 (Minimum)	3.600 (Nominal)	5.600 (Maximum)

Master: 5−May−2008 5:56

8.25−in. Array Resistivity Compensated Calibration

Gamma Ray: Blanket

Phase	Gamma ray factor (equals Calibration Gain multiplied by API Gain Factor) CPS	Value
Master		7.822
4.960 (Minimum)	7.200 (Nominal)	9.650 (Maximum)

8.25−in. Array Resistivity Compensated / Equipment Identification

Primary Equipment:		
Tool Name and Serial Number	ARC8 − AA	8084
ARC825 Calibration Status	Valid	

Master: 9−Apr−2008 3:49

8.25−in. Array Resistivity Compensated Calibration

Resistivity: Air

Phase	Phase−Shift T1	Value
Master		1.923
−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Phase	Phase−Shift T2	Value
Master		−1.853
−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Phase	Phase−Shift T3	Value
Master		1.822
−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Phase	Phase−Shift T4	Value
Master		−1.912
−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Phase	Phase−Shift T5	Value
Master		1.816
−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Phase	Phase−Shift T1 at 400KHz	Value
Master		0.4430
−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Phase	Phase−Shift T2 at 400KHz	Value
Master		−0.4830
−3.900	0.1000	4.100

Phase	Phase−Shift T3 at 400KHz	Value
Master		0.4520
−3.900	0.1000	4.100

Phase	Phase−Shift T4 at 400KHz	Value
Master		−0.5070
−3.900	0.1000	4.100

Phase	Phase−Shift T5 at 400KHz	Value
Master		0.4470
−3.900 (Minimum)	0.1000 (Nominal)	4.100 (Maximum)

Master: 9−Apr−2008 3:49

8.25−in. Array Resistivity Compensated Calibration

Resistivity: Air

Phase	Attenuation T1	Value
Master		8.031
6.500 (Minimum)	8.500 (Nominal)	10.50 (Maximum)

Phase	Attenuation T2	Value
Master		6.666
4.500 (Minimum)	6.500 (Nominal)	8.500 (Maximum)

Phase	Attenuation T3	Value
Master		4.733
2.500 (Minimum)	4.500 (Nominal)	6.500 (Maximum)

Phase	Attenuation T4	Value
Master		4.613
2.600 (Minimum)	4.600 (Nominal)	6.600 (Maximum)

Phase	Attenuation T5	Value
Master		3.316
1.600 (Minimum)	3.600 (Nominal)	5.600 (Maximum)

Phase	Attenuation T1 at 400KHz	Value
Master		8.019
6.500 (Minimum)	8.500 (Nominal)	10.50 (Maximum)

Phase	Attenuation T2 at 400KHz	Value
Master		6.683
4.500 (Minimum)	6.500 (Nominal)	8.500 (Maximum)

Phase	Attenuation T3 at 400KHz	Value
Master		4.718
2.500 (Minimum)	4.500 (Nominal)	6.500 (Maximum)

Phase	Attenuation T4 at 400KHz	Value
Master		4.630
2.600 (Minimum)	4.600 (Nominal)	6.600 (Maximum)

Phase	Attenuation T5 at 400KHz	Value
Master		3.312
1.600 (Minimum)	3.600 (Nominal)	5.600 (Maximum)

Master: 15−Jun−2008 17:32

8.25−in. Array Resistivity Compensated Calibration

Gamma Ray: Blanket

Phase	Gamma ray factor (equals Calibration Gain multiplied by API Gain Factor) CPS	Value
Master		7.590
4.960 (Minimum)	7.200 (Nominal)	9.650 (Maximum)

SCHLUMBERGER

Survey report 11−Jul−2008 15:23:46 Page 1 of 3

```
Client....................: Santos Ltd
Field.....................: Otway

Well......................: Pecten East-1
API number................:
Engineer..................: J. Oldridge / A. Bayly

RIG:......................: Ocean Patriot
STATE:....................: Victoria

----- Survey calculation methods-------------
Method for positions.....: Minimum curvature
Method for DLS...........: Mason & Taylor

----- Depth reference -----------------------
Permanent datum..........: Australian Height Datum
Depth reference..........: Driller's Depth
GL above permanent.......:     59.70 m
KB above permanent.......:     Top Drive
DF above permanent.......:     20.80 m

----- Vertical section origin----------------
Latitude (+N/S-).........:      0.00 m
Departure (+E/W-).........:      0.00 m

----- Platform reference point---------------
Latitude (+N/S-).........:      ----
Departure (+E/W-).........:      ----

Azimuth from Vsect Origin to target:    0.00 degrees

Spud date.................: 23-Jun-08
Last survey date..........: 06-Jul-08
Total accepted surveys...: 55
MD of first survey.......:     0.00 m
MD of last survey........:  1993.00 m

----- Geomagnetic data ----------------------
Magnetic model............: BGGM version 2007
Magnetic date.............: 29-Jun-2008
Magnetic field strength..:    1214.73 HCNT
Magnetic dec (+E/W-).....:      10.80 degrees
Magnetic dip.............:     -69.83 degrees

----- MWD survey Reference Criteria ---------
Reference G..............:    1000.06 mGal
Reference H..............:    1214.74 HCNT
Reference Dip............:     -69.83 degrees
Tolerance of G...........: (+/-) 2.50 mGal
Tolerance of H...........: (+/-) 6.00 HCNT
Tolerance of Dip.........: (+/-) 0.45 degrees

----- Corrections ---------------------------
Magnetic dec (+E/W-).....:      10.80 degrees
Grid convergence (+E/W-).:      -1.07 degrees
Total az corr (+E/W-)....:      11.87 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
```

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/ 100f)	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	80.50	0.00	0.00	80.50	80.50	0.00	0.00	0.00	0.00	0.00	0.00	SB	None
3	100.22	0.31	192.19	19.72	100.22	-0.05	-0.05	-0.01	0.05	192.19	0.48	MS	None
4	129.23	0.72	126.87	29.01	129.23	-0.24	-0.24	0.12	0.27	153.65	0.69	MS	None
5	158.47	0.93	153.25	29.24	158.47	-0.56	-0.56	0.37	0.67	146.44	0.45	MS	None
6	186.57	0.37	216.94	28.10	186.56	-0.84	-0.84	0.42	0.94	153.35	0.91	MS	None
7	214.65	0.39	95.93	28.08	214.64	-0.92	-0.92	0.46	1.03	153.38	0.72	MS	None
8	242.72	0.08	107.95	28.07	242.71	-0.93	-0.93	0.57	1.10	148.44	0.34	MS	None
9	270.58	0.13	47.49	27.86	270.57	-0.92	-0.92	0.62	1.11	146.18	0.12	MS	None
10	279.92	0.21	93.74	9.34	279.91	-0.91	-0.91	0.64	1.12	144.95	0.50	MS	None
11	308.81	0.70	190.12	28.89	308.80	-1.09	-1.09	0.66	1.28	148.72	0.79	MS	None
12	337.67	0.63	187.60	28.86	337.66	-1.42	-1.42	0.61	1.55	156.75	0.08	MS	None
13	366.59	0.68	185.93	28.92	366.58	-1.75	-1.75	0.57	1.84	161.90	0.06	MS	None
14	395.33	0.68	19.42	28.74	395.32	-1.76	-1.76	0.61	1.86	160.84	1.43	MS	None
15	424.18	0.62	192.55	28.85	424.17	-1.75	-1.75	0.63	1.86	160.08	1.37	MS	None
16	453.01	0.59	200.09	28.83	453.00	-2.04	-2.04	0.55	2.11	164.94	0.09	MS	None
17	481.91	0.66	180.35	28.90	481.89	-2.35	-2.35	0.50	2.40	168.04	0.24	MS	None
18	510.72	0.65	195.28	28.81	510.70	-2.67	-2.67	0.45	2.71	170.38	0.18	MS	None
19	539.63	0.70	195.89	28.91	539.61	-3.00	-3.00	0.36	3.02	173.13	0.05	MS	None
20	568.40	0.54	206.41	28.77	568.38	-3.29	-3.29	0.25	3.30	175.60	0.21	MS	None
21	597.28	0.59	205.80	28.88	597.26	-3.54	-3.54	0.13	3.55	177.94	0.05	MS	None
22	616.42	0.40	109.32	19.14	616.40	-3.66	-3.66	0.15	3.66	177.68	1.19	MS	None
23	678.32	0.27	62.01	61.90	678.30	-3.66	-3.66	0.48	3.69	172.52	0.14	PUP	None
24	764.17	0.40	151.54	85.85	764.14	-3.83	-3.83	0.80	3.91	168.17	0.17	PUP	None
25	880.73	0.59	217.65	116.56	880.70	-4.66	-4.66	0.63	4.70	172.31	0.15	PUP	None
26	909.85	1.97	252.45	29.12	909.81	-4.93	-4.93	0.06	4.93	179.30	1.59	PUP	None
27	991.51	2.15	267.80	81.66	991.42	-5.41	-5.41	-2.81	6.10	207.43	0.22	PUP	None
28	1109.66	1.30	255.86	118.15	1109.52	-5.82	-5.82	-6.32	8.60	227.35	0.24	PUP	None
29	1197.14	1.38	257.72	87.48	1196.97	-6.29	-6.29	-8.31	10.43	232.89	0.03	PUP	None
30	1254.68	1.42	257.96	57.54	1254.50	-6.59	-6.59	-9.69	11.72	235.79	0.02	PUP	None

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/ 100f)	Srvy tool type	Tool Corr (deg)
31	1285.95	1.48	259.75	31.27	1285.76	-6.74	-6.74	-10.46	12.45	237.22	0.07	PUP	None
32	1314.65	1.50	257.02	28.70	1314.45	-6.89	-6.89	-11.20	13.15	238.39	0.08	PUP	None
33	**1343.08**	**1.43**	**249.34**	**28.43**	**1342.87**	**-7.10**	**-7.10**	**-11.89**	**13.85**	**239.16**	**0.22**	**PUP**	**None**
34	**1400.23**	**1.28**	**247.24**	**57.15**	**1400.00**	**-7.60**	**-7.60**	**-13.15**	**15.18**	**239.98**	**0.08**	**PUP**	**None**
35	1428.81	1.37	244.58	28.58	1428.57	-7.87	-7.87	-13.75	15.84	240.22	0.12	PUP	None
36	1458.68	1.51	240.58	29.87	1458.43	-8.21	-8.21	-14.41	16.59	240.32	0.18	PUP	None
37	1487.10	1.65	235.19	28.42	1486.84	-8.63	-8.63	-15.08	17.37	240.21	0.22	PUP	None
38	1515.81	1.83	234.00	28.71	1515.54	-9.14	-9.14	-15.79	18.24	239.94	0.19	PUP	None
39	1545.03	1.95	232.90	29.22	1544.74	-9.71	-9.71	-16.56	19.20	239.61	0.13	PUP	None
40	1573.43	2.06	237.88	28.40	1573.13	-10.27	-10.27	-17.38	20.19	239.41	0.22	PUP	None
41	1601.32	2.20	234.44	27.89	1601.00	-10.85	-10.85	-18.24	21.22	239.25	0.21	PUP	None
42	1630.42	2.54	236.15	29.10	1630.07	-11.54	-11.54	-19.23	22.42	239.04	0.36	PUP	None
43	1659.81	3.11	236.63	29.39	1659.43	-12.34	-12.34	-20.43	23.87	238.88	0.59	PUP	None
44	1687.83	3.45	240.78	28.02	1687.40	-13.17	-13.17	-21.81	25.47	238.88	0.45	PUP	None
45	1716.74	3.96	241.10	28.91	1716.25	-14.07	-14.07	-23.44	27.34	239.02	0.54	PUP	None
46	1746.86	4.10	241.06	30.12	1746.30	-15.10	-15.10	-25.29	29.45	239.17	0.14	PUP	None
47	1775.20	4.48	242.79	28.34	1774.56	-16.09	-16.09	-27.16	31.57	239.35	0.43	PUP	None
48	1803.10	4.37	240.10	27.90	1802.37	-17.12	-17.12	-29.05	33.72	239.49	0.26	PUP	None
49	1832.76	4.84	243.68	29.66	1831.94	-18.24	-18.24	-31.15	36.10	239.65	0.57	PUP	None
50	1862.61	4.80	242.85	29.85	1861.68	-19.37	-19.37	-33.39	38.60	239.89	0.08	PUP	None
51	1889.75	5.24	243.63	27.14	1888.72	-20.44	-20.44	-35.51	40.98	240.08	0.50	PUP	None
52	1919.69	5.61	241.98	29.94	1918.52	-21.73	-21.73	-38.03	43.80	240.26	0.41	PUP	None
53	1947.74	5.93	242.04	28.05	1946.43	-23.06	-23.06	-40.52	46.62	240.36	0.35	PUP	None
54	1972.25	6.25	238.30	24.51	1970.80	-24.35	-24.35	-42.78	49.22	240.35	0.63	PUP	None
55	1993.00	6.25	238.30	20.75	1991.43	-25.54	-25.54	-44.70	51.48	240.26	0.00	Projection to TD	

Company: **Santos Ltd**

Schlumberger

Well: **Pecten East−1**

Field: **Otway**

Rig: **Ocean Patriot** **12.25in. Section**

State: **Victoria**

VISION Resistivity

1,200 Measured Depth

1:200 Measured Depth
Recorded Mode Log