Schlumberger

Company: **ESSO Australia Pty Ltd**

9.875 in. Section

Well: **FTA A30A**

Field: **Fortescue**

Rig: **ISDL 175** State: **Victoria**

Rig: ISDL 175
Field: Fortescue
Location: Bass Strait
Well: FTA A30A
Company: ESSO Australia Pty Ltd

EcoScope* Service
1:200 Measured Depth
Recorded Mode Log

Location

Total depth:	5097.0 m
Spud date:	30−Sep−07
Runs:	3 To 5

Elevation

K.B.	Top Drive
G.L.	−69.0 m
D.F.	42.5 m

Permanent datum: Mean Sea Level Elev.: 0.0 m
Log measured from: Drill Floor 42.5 m above Perm. datum
Depth reference: Driller's Depth

Service Order no.	X = E 611,590.37 m	Longitude	Latitude
07ASQ0021	Y = N 5,748,241.33 m	E 148° 16' 41.063''	S 38° 24' 25.567''

Depth logged: 2012.3 m To 5087.0 m
Date logged: 14−Oct−07 To 26−Oct−07
Mag decl: 13.208 deg.
Mag dip: −68.86 deg.
Other services: See Remarks

Bore hole record

Hole size	from	to
9.875 in.	1951.0 m	5097.0 m

Casing record

Size	Density	from	to
10.75 in.	40.5 lb/ft	21.0 m	1951.0 m

Mud record

Type	from	to
Accolade SBM	1951.0 m	5097.0 m

Borehole deviation record

Min	Max	from	to
55.33 deg.	73.83 deg.	1951.0 m	5097.0 m

Surface equipment

Unit	Esso Office Unit
Depth system	PDA

Software record

IDEAL Wis	ID12_0c_13		
SPM	hspm12_0c_04		
LWD	See Remarks		
MWD	See Remarks		

Bit Run Summary

Run number		3	4	5				
Bit size	in.	9.875	9.875	9.875				
Bit start depth	m	2042.0	4602.0	4950.0				
Bit end depth	m	4602.0	4950.0	5097.0				
Top interval logged	m	2012.3	4572.3	4920.2				
Bottom interval logged	m	4592.2	4940.0	5087.0				
Begin log: time		18:48	02:27	08:40				
Begin log: date		14−Oct−07	22−Oct−07	26−Oct−07				
End log: time		20:34	11:31	19:02				
End log: date		18−Oct−07	23−Oct−07	26−Oct−07				
Mud data								
Depth	m	4589.0	4950.0	5096.0				
Type		Accolade SBM	Accolade SBM	Accolade SBM				
Mud weight	ppg	11.45	12.10	12.15				
Solids	%	17.1	20.1	20.2				
Chlorides	mg/L	40,774	41,104	39,804				
Rm	ohm.m@°C	n/a	n/a	n/a				
Rmf	ohm.m@°C	n/a	n/a	n/a				
Rmc	ohm.m@°C	n/a	n/a	n/a				

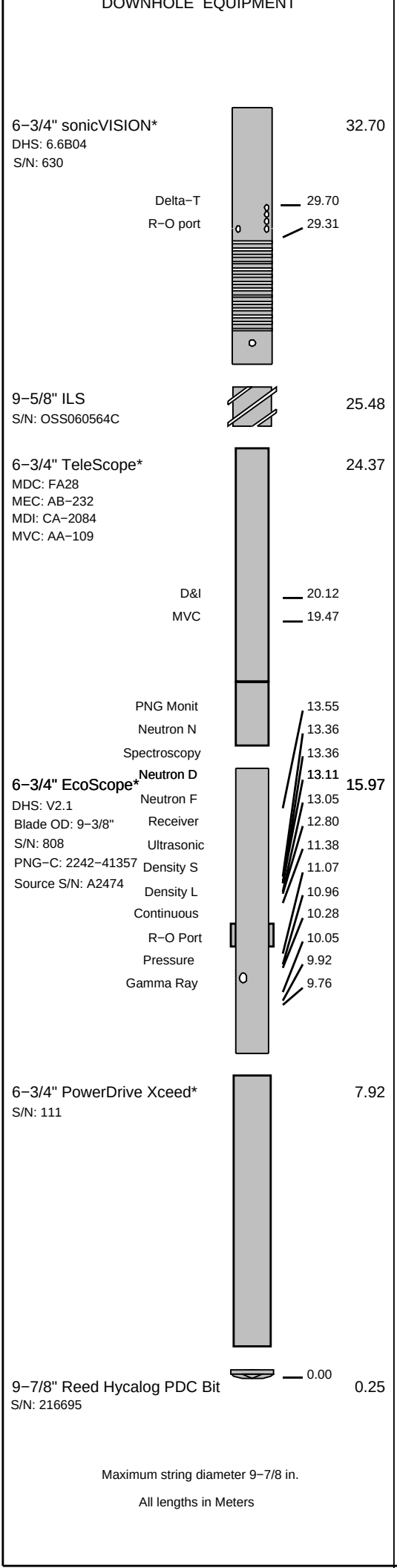
Potassium	%	n/a	n/a	n/a							
Environmental data											
GR											
Mud weight	ppg	11.45	12.10	12.15							
Bit size	in.	9.875	9.875	9.875							
Resistivity											
Neutron porosity											
Hole Size	in.	9.875	9.875	9.875							
Mud weight	ppg	11.45	12.10	12.15							
Temperature	°C	100.0	107.0	106.0							
Mud salinity	ppk	52.464	50.771	49.619							
Formation salinity		n/a	n/a	n/a							
Recording rate 1	SEC	4 (RES,GR)	2 (RES,GR)	2 (RES,GR)							
Recording rate 2	SEC	8 (DEN,NEU)	4 (DEN,NEU)	4 (DEN,NEU)							
Filtering GR		3 pts	3 pts	3 pts							
Filtering density		3 pts	3 pts	3 pts							
Filtering Neutron		3 pts	3 pts	3 pts							
Company representative		R. Moore	G. Doty								
Schlumberger D&M Personnel		M. Y. Tan	C. Skiba	M. Lu	C. Soper	M. How					

OTHER SERVICES FOR RUN3	OTHER SERVICES FOR RUN4	OTHER SERVICES FOR RUN5
Directional Drilling Directional Surveys Annular Pressure & Temperature Shock & Vibrations	Directional Drilling Directional Surveys Annular Pressure & Temperature Shock & Vibrations	Directional Drilling Directional Surveys Annular Pressure & Temperature Shock & Vibrations
REMARKS: RUN NUMBER 3	REMARKS: RUN NUMBER 4	REMARKS: RUN NUMBER 5
Depth is referenced to Driller's Depth.	Depth is referenced to Driller's Depth.	Depth is referenced to Driller's Depth.
Gamma ray is corrected for mud weight, tool size and bit size.	Gamma ray is corrected for mud weight, tool size and bit size.	Gamma ray is corrected for mud weight, tool size and bit size.
Resistivity is borehole compensated and environmentally corrected.	Resistivity is borehole compensated and environmentally corrected.	Resistivity is borehole compensated and environmentally corrected.
Neutron porosity is corrected for the effects of borehole size (bit size), temperature, mud salinity and mud hydrogen index (a factor of mud weight, mud temperature and pressure).	Neutron porosity is corrected for the effects of borehole size (bit size), temperature, mud salinity and mud hydrogen index (a factor of mud weight, mud temperature and pressure).	Neutron porosity is corrected for the effects of borehole size (bit size), temperature, mud salinity and mud hydrogen index (a factor of mud weight, mud temperature and pressure).
Neutron Porosity is calculated using a limestone matrix density of 2.71 g/cm3.	Neutron Porosity is calculated using a limestone matrix density of 2.71 g/cm3.	Neutron Porosity is calculated using a limestone matrix density of 2.71 g/cm3.
Delta−T is borehole compensated.	Delta−T is borehole compensated.	Delta−T is borehole compensated.
High PEB due to addition of barite from 2068−2090m (sensor depth).	POOH due to loss of MWD signal.	POOH due to reaching TD of FTA A30A.
No porosity data from 2157−4602m (sensor depth).		
POOH due to PNG failure in EcoScope*.		

EQUIPMENT DESCRIPTION

RUN3	RUN4	RUN5
DOWNHOLE EQUIPMENT	DOWNHOLE EQUIPMENT	DOWNHOLE EQUIPMENT

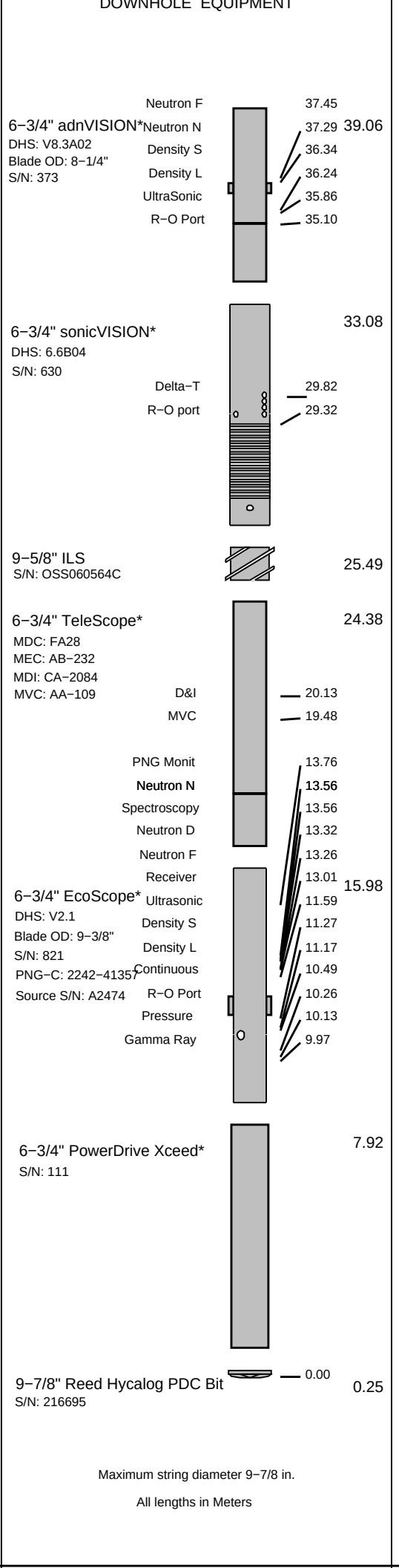
DOWNHOLE EQUIPMENT



Maximum string diameter 9−7/8 in.

All lengths in Meters

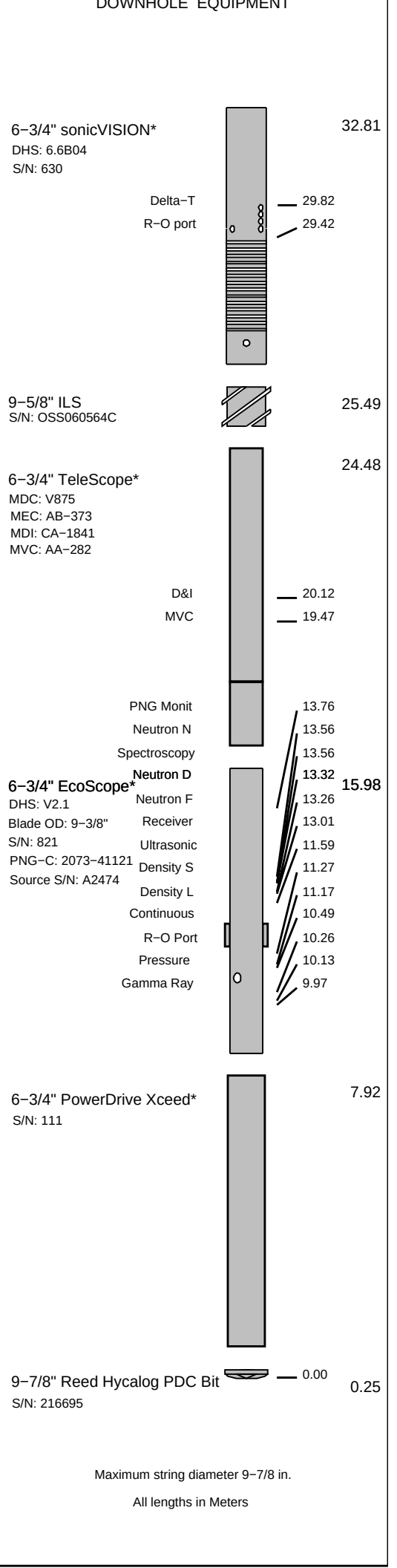
DOWNHOLE EQUIPMENT



Maximum string diameter 9−7/8 in.

All lengths in Meters

DOWNHOLE EQUIPMENT



Maximum string diameter 9−7/8 in.

All lengths in Meters

Variable Name	Variable Description	Run Name & Value		
Run Number		3	4	5
General Information				
BHT_RM	Bottom Hole Temperature (RM)	100.00	107.00	106.00
BSAL_RM	Mud Salinity (RM)	52.464	50.771	49.619
BS_RM	Bit Size (RM)	9.875	9.875	9.875
COEF_M	User Defined FEXP in Clean Sand	1.650000	1.650000	1.650000
C_WS	Overpressure correction to Sw and M	1.000000	1.000000	1.000000
FEXP	Formation Factor Exponent(RM)	2.000000	2.000000	2.000000
FNUM	Formation Factor Enumerator(RM)	1.000000	1.000000	1.000000
FPHI_RM	Formation Factor Porosity Source (RM)	XPLOT	XPLOT	XPLOT
MST_RM	Mud Sample temperature (RM)	75.000000	75.000000	75.000000
MW_RM	Mud Weight (RM)	11.45	12.10	12.15
OBMF_RM	Oil Based Mud (RM)	YES	YES	YES
RHOF_RM	Mud Filtrate Density (RM)	1.000000	1.000000	1.000000
RHOM_RM	Matrix density (RM)	2.710000	2.710000	2.710000
RMS_RM	Resistivity of Mud Sample (RM)	1000	1000	1000
RWA_COMP_M	Rwa computation model	BASIC	BASIC	BASIC
RWA_DEN_AD	Rwa Density Input ADN	RHOB	RHOB	RHOB
RWA_DEN_CD	Rwa Density Input CDN	RHOB	RHOB	RHOB
RWA_DEN_IN	Rwa Density Input	RHOB	RHOB	RHOB
RWA_FORM_M	Rwa computation formation model	CLASTIC	CLASTIC	CLASTIC
RWA_RES_IN	Rwa computation resistivity input	RT	P34H	RT
RWS_RM	Resistivity of Connate Water (RM)	1.000000	1.000000	1.000000
SHT_RM	Surface Hole Temperature (RM)			
TD_RM	Total Measured Depth (RM)	4602.00	4950.00	5097.00
TWS_RM	Temperature of Connate Water (RM)	75.000000	75.000000	75.000000
VF_ILLI	Fraction of illite in shales	0.500000	0.500000	0.500000
VF_KAOL	Fraction of kaolinite in shales	0.500000	0.500000	0.500000
VF_MONT	Fraction of montmorillonite in shales	0.000000	0.000000	0.000000
XPDM_RM	Cross plot density porosity multiplier	0.675000	0.675000	0.675000
XPNM_RM	Cross plot neutron porosity multiplier	0.325000	0.325000	0.325000
ISONIC				
FP_SD	First Sample delay	400.00	400.00	400.00
STC_CF	Center frequency of Filter	13.00	13.00	13.00
STC_BW	Bandwidth (kHz)	Default	Default	Default
STC_RWI	Receiver waveform ignored	None	None	None
PM_TOFF	Tool Time offset from surface system	0.00	0.00	0.00
DT_COH	Delta-T Coherence Cutoff Value	0.70	0.70	0.70
PPC_PF	Porosity Formula	Raymer-Hunt	Raymer-Hunt	Raymer-Hunt
PPC_PS	**Sonic Porosity Source**	**DTRA**	**DTRA**	**DTRA**
PPC_MDT	**Matrix Delta-T**	**47.60**	**47.60**	**47.60**
PPC_FDT	Fluid Delta-T	189.00	189.00	189.00
DVD				
LWD_RM/STATION_FILE/PARAMETERS	Station Time-frame file name			
----------	----------Density Parameters----------			
----------	----------Neutron Parameters----------			
----------	----------Image Parameters----------			
----------	----------Sigma Parameters----------			
A12A	ARC Air Cal Attenuation From T1 at 2 MHz	9.530100	8.531670	8.531670
A14A	ARC Air Cal Attenuation From T1 at 400 KHz	8.462110	8.527910	8.527910
A22A	ARC Air Cal Attenuation From T2 at 2 MHz	4.872150	5.881960	5.881960
A24A	ARC Air Cal Attenuation From T2 at 400 KHz	5.973420	5.907090	5.907090
A32A	ARC Air Cal Attenuation From T3 at 2 MHz	6.131120	5.136020	5.136020
A34A	ARC Air Cal Attenuation From T3 at 400 KHz	5.056190	5.126850	5.126850
A42A	ARC Air Cal Attenuation From T4 at 2 MHz	3.275440	4.281080	4.281080
A44A	ARC Air Cal Attenuation From T4 at 400 KHz	4.371600	4.300000	4.300000
A52A	ARC Air Cal Attenuation From T5 at 2 MHz	4.691160	3.695010	3.695010
A54A	ARC Air Cal Attenuation From T5 at 400 KHz	3.611300	3.681320	3.681320
ABNT	Abnormal Transmitter Indicator	No_Tx_Failed	No_Tx_Failed	No_Tx_Failed
ALPHA_DEN_	Density Enhanced Vertical Resolution Processing Switch	YES	YES	YES
ANISO_COMP	Anisotropy Computation Option	YES	YES	YES
ATMP_ARC	ARC Select Temperature Channel	Annulus_Temp	Annulus_Temp	Annulus_Temp
AZMF	Formation DIP Azimuth	0.000000	0.000000	0.000000
BH_COMPUTE	Borehole Inversion Computation Option	YES	YES	YES
CALG	DVDM Gamma Ray Cal Gain Factor	-1.000000	-1.000000	-1.000000
CDPTH_ARC	Process Start Depth	100.000000	100.000000	100.000000
CHI_RM	Caliper High Limit from BS (RM)	10.000000	10.000000	10.000000
CLO_RM	Caliper Low Limit from BS (RM)	-5.000000	-5.000000	-5.000000
DIELEC_COM	Dielectric Computation Option	YES	YES	YES
DIPF	Formation DIP Angle	0.000000	0.000000	0.000000
DTMUD	Delta-T for Mud (RM)	216.04	215.24	213.99
DTMUD_DH	Delta-T for Mud Downhole (RT)	216.04	215.24	213.99
DVDMDHS	DVDM Down Hole Software Version	V21	V21	V21
DYN_IMAGE_	Generate Dynamic Normalized Image?	YES	YES	YES
EDPTH	Wizard Process Stop Depth	4602.00	4950.00	5097.00
EN_WIZARD	Enable ARC Wizard Processing	YES	YES	YES
ERRCT	Percentage Error Cutoff	4.500000	4.500000	4.500000
EVRL	EVR Process averaging number of samples (RM)	49	49	49
FWVN	Firmware Version Number	2.100000	2.100000	2.100000
GCSE	Generalized Caliper Selection	BS	BS	BS
GRBC	RM: DVDM Gamma Ray Blanket (CPS)	75.000000	75.000000	75.000000
GRSH	GR Shale (Invasion Computation Cutoff)	1000.000000	1000.000000	1000.000000
GR_CF	Gamma Ray Correction Factor	2.250000	2.250000	2.250000
GR_O2COR_O	Enable Gamma Ray Oxygen Activation Correction	YES	YES	YES
HIGH_BLEND	High Resistivity Threshold for Blending	2.000000	2.000000	2.000000
IDQT	Image Derived Quality Threshold	1.000000	1.000000	2.000000
IMAGE_MAX	Image Density Caliper Right Scale	8.000000	8.000000	8.000000

IMAGE_MAX_	Image Density Quality Right Scale	1.000000	1.000000	1.000000
IMAGE_MAX_	Image PEF(Segment) Right Scale	6.000000	6.000000	6.000000
IMAGE_MAX_	Image RHOB(Segment) Right Scale	2.650000	2.650000	2.650000
IMAGE_MIN_	Image Density Caliper Left Scale	2.000000	2.000000	2.000000
IMAGE_MIN_	Image Density Quality Left Scale	0.000000	0.000000	0.000000
IMAGE_MIN_	Image PEF(Segment) Left Scale	2.000000	2.000000	2.000000
IMAGE_MIN_	Image RHOB(Segment) Left Scale	2.050000	2.050000	2.050000
INCLIN_B0	ARC Bias Constant (mg)	0.000000	0.000000	0.000000
INCLIN_B1	ARC Bias First-order Coefficient (mg/degC)	0.000000	0.000000	0.000000
INCLIN_B2	ARC Bias Secod-order Coeeficient (mg/degC)	0.000000	0.000000	0.000000
INCLIN_B3	ARC Bias Third-order Coeeficient (mg/degC)	0.000000	0.000000	0.000000
INCLIN_C0	ARC Current Scale Factor Constant (mA/g)	1.000000	1.000000	1.000000
INCLIN_C1	ARC Scale First-order Coeeficient (mA/g/degC)	0.000000	0.000000	0.000000
INCLIN_C2	ARC Scale Second-order Coeeficient (mA/g/degC)	0.000000	0.000000	0.000000
INCLIN_C3	ARC Scale Third-order Coeeficient (mA/g/degC)	0.000000	0.000000	0.000000
INVAS_COMP	Invasion Computation Option	YES	YES	YES
JSD	Acquisition start date	YES	YES	YES
JSD_ARC	ARC Acquisition start date	YES	YES	YES
LOW_BLEND	Low Resistivity Threshold for Blending	1.000000	1.000000	1.000000
MATR	Rock Matrix for Neutron Porosity Corrections	LIMESTONE	LIMESTONE	LIMESTONE
MSWS	ARC Wizard Model Switch Window	5.000000	5.000000	5.000000
MULTIEFFEC	Multi Effect Option	YES	YES	YES
NEU_DCOR_O	Density Correction Source for Neutron Processing	Bottom	Bottom	Bottom
NEU_FTUBE_	Far Thermal Tube Selection	Both	Both	Both
NEU_PRESCO	Pressure Correction Source for Neutron Processing	Annulus_Press	Annulus_Press	Annulus_Press
NTIK_SEL	Neutron Tick Channel Name	FAZ1	FAZ1	FAZ1
OACF	Oxygen Activation Correction Factor (RM)	8.000000	8.000000	8.000000
P12A	ARC Air Cal Phase-Shift From T1 at 2 MHz	-0.991514	3.732350	3.732350
P14A	ARC Air Cal Phase-Shift From T1 at 400 KHz	1.613050	-1.612500	-1.612500
P22A	ARC Air Cal Phase-Shift From T2 at 2 MHz	0.887621	-3.842230	-3.842230
P24A	ARC Air Cal Phase-Shift From T2 at 400 KHz	-1.590020	1.589550	1.589550
P32A	ARC Air Cal Phase-Shift From T3 at 2 MHz	-1.029130	3.691090	3.691090
P34A	ARC Air Cal Phase-Shift From T3 at 400 KHz	1.617380	-1.595490	-1.595490
P42A	ARC Air Cal Phase-Shift From T4 at 2 MHz	0.870618	-3.819860	-3.819860
P44A	ARC Air Cal Phase-Shift From T4 at 400 KHz	-1.592440	1.600640	1.600640
P52A	ARC Air Cal Phase-Shift From T5 at 2 MHz	-0.992042	3.727520	3.727520
P54A	ARC Air Cal Phase-Shift From T5 at 400 KHz	1.627430	-1.596340	-1.596340
PMUD	Potassium Concentration in Mud	0.000000	0.000000	0.000000
POFFSET	Pressure Offset	0.000000	0.000000	0.000000
PRTD	Preferred Resistivity Log for Rt Display	P34B	P34B	P34B
PSOF_ADJ_T	ARC: User Input Phase offset	0.000000	0.000000	0.000000
RESTIK	ARC resistivity tick source	Phase	Phase	Phase
SDPTH	Wizard Process Start Depth	1951.00	4602.00	4950.00
SHT_RM	Ground Level Temperature (Mud-Line When Offshore) (RM)	10.00	10.00	10.00
SIG_PCOR_O	Porosity Correction Source for Sigma Processing	Best	Best	Best
SPEC_CSG_D	Casing Depth for Spectroscopy Processing	1951.00	1951.00	1951.00
SPEC_K_OPT	Potassium standard used during acquisition?	NO	NO	NO
SPL_CLAY_M	SpectroLith Clay Model	ARENITE	ARENITE	ARENITE
SPL_COAL_O	SpectroLith Coal Processing Option	BITUMINOUS	BITUMINOUS	LIGNITE
SPL_SULFUR	SpectroLith Sulfur Mineral Option	PYRITE	PYRITE	PYRITE
STAB_SIZE	Stabilizer Size	9.375	9.375	9.375
STOH	Top of Hole Sector	SECTOR_0	SECTOR_0	SECTOR_0
TRNO	Tool Run Number	3	4	5
TSIZ_ARC	ARC Tool Size	6.900000	6.900000	6.900000
TSNO	Tool Serial Number	6.900000	6.900000	6.900000
UNIFORM_CO	Uniform Rock Option	YES	YES	YES
VERS_ARC	ARC Down hole software version Number	2.100000	2.100000	2.100000
WPPV	Water Phase as Percent of Total Volume in OBM	22.00	19.00	18.00
WPSL	Salinity of the Water Phase Emulsified within the OBM	238.473	267.216	275.660
WRK	Way to Report Potassium Concentration	K_by_Wgt_%	K_by_Wgt_%	K_by_Wgt_%
WSDI	Window Size of Dynamic Normalization Image	15.000000	15.000000	15.000000

Schlumberger Drilling & Measurements Parameter Insert Header Software version 2.0c

IDEAL Version: ID12_0C_13

IDF

ECO6	**id12_0c_01**	**MWD_10**	**id12_0c_01**
SON675	**id12_0c_01**		

Format: EcoScope RM Log **Vertical Scale: 1:200** **Graphics File Created: 29−Oct−2007 18:09**

PIP SUMMARY

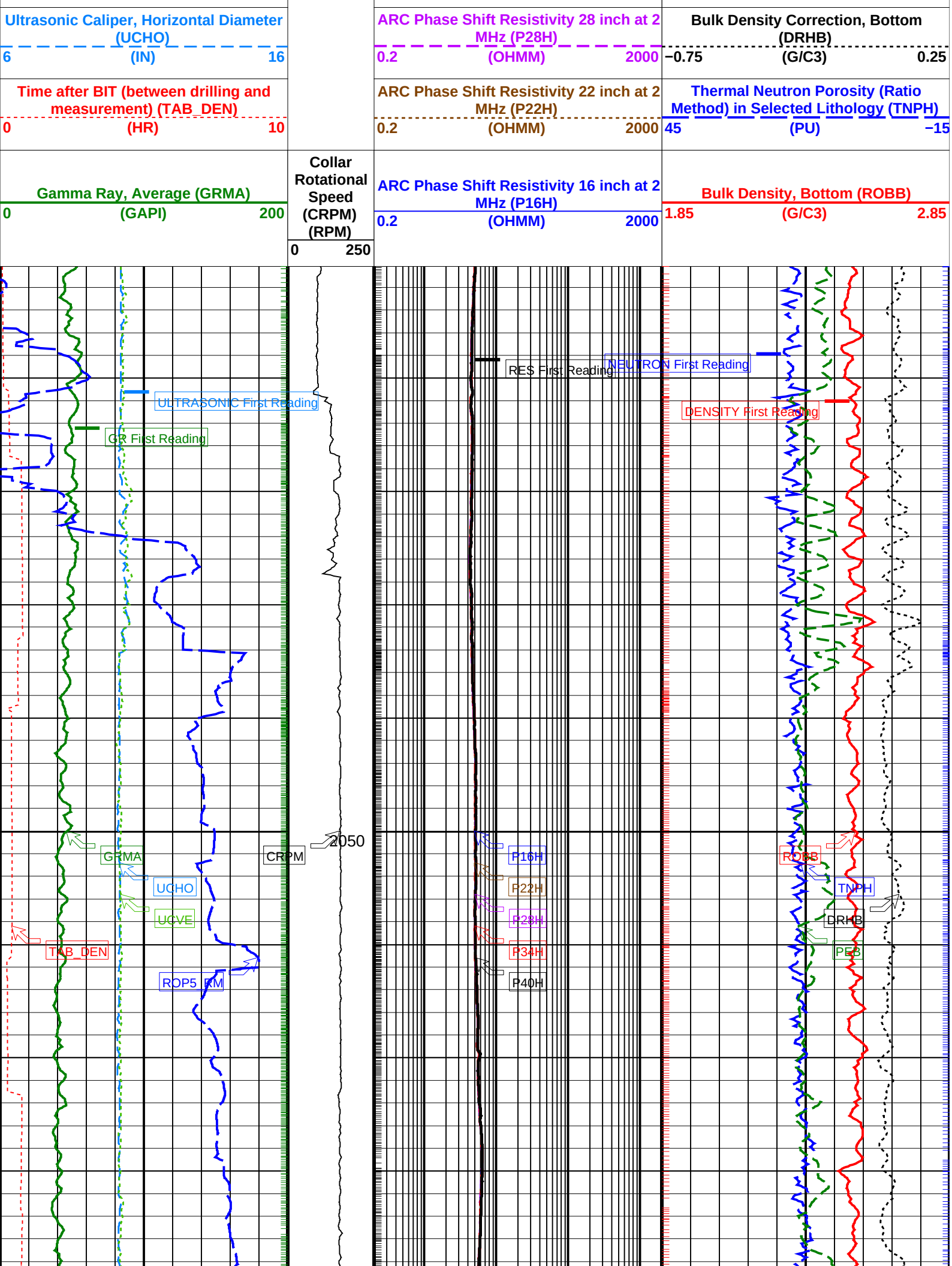
Density Samples ⊢

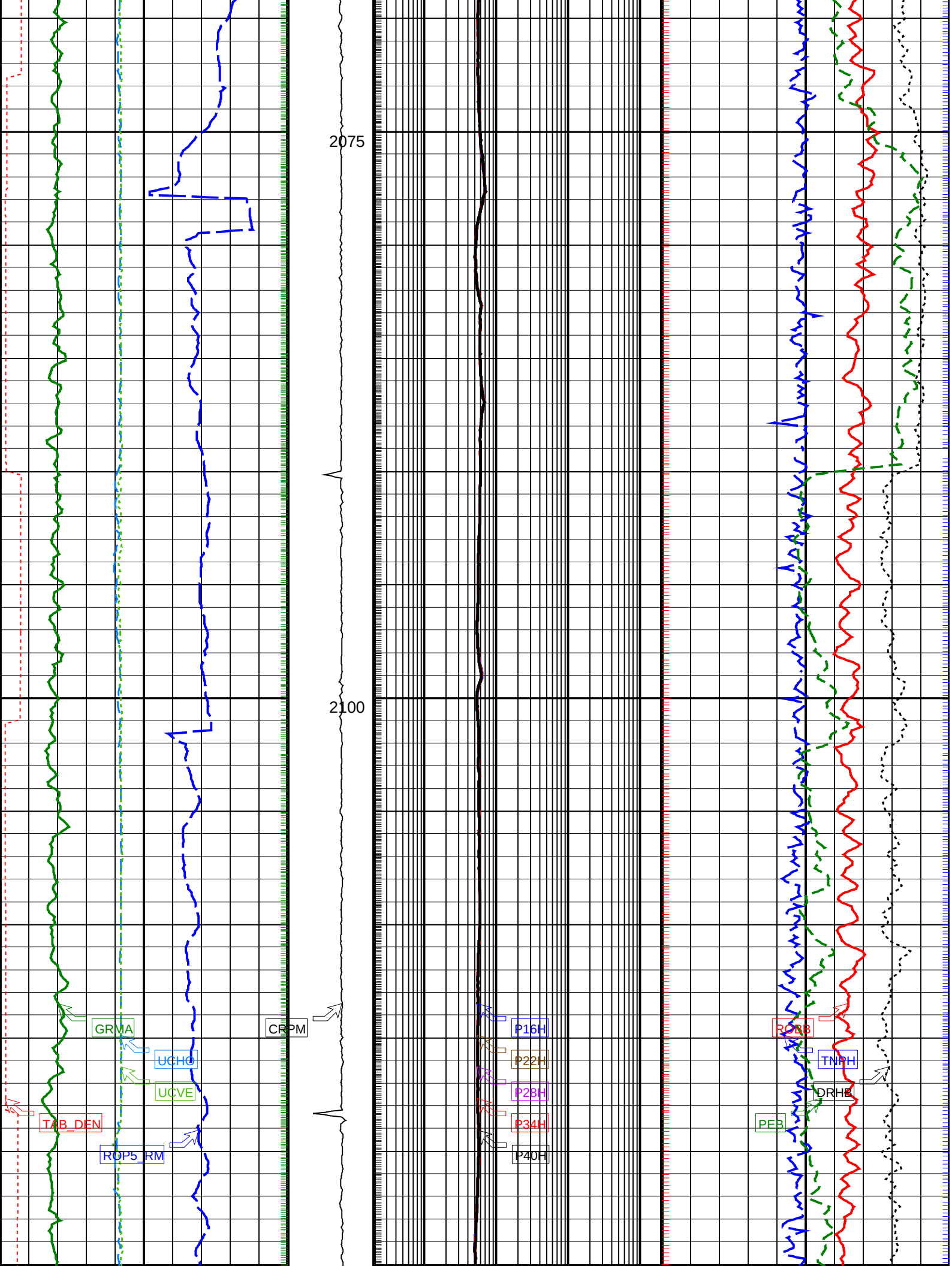
Neutron Samples ⊣

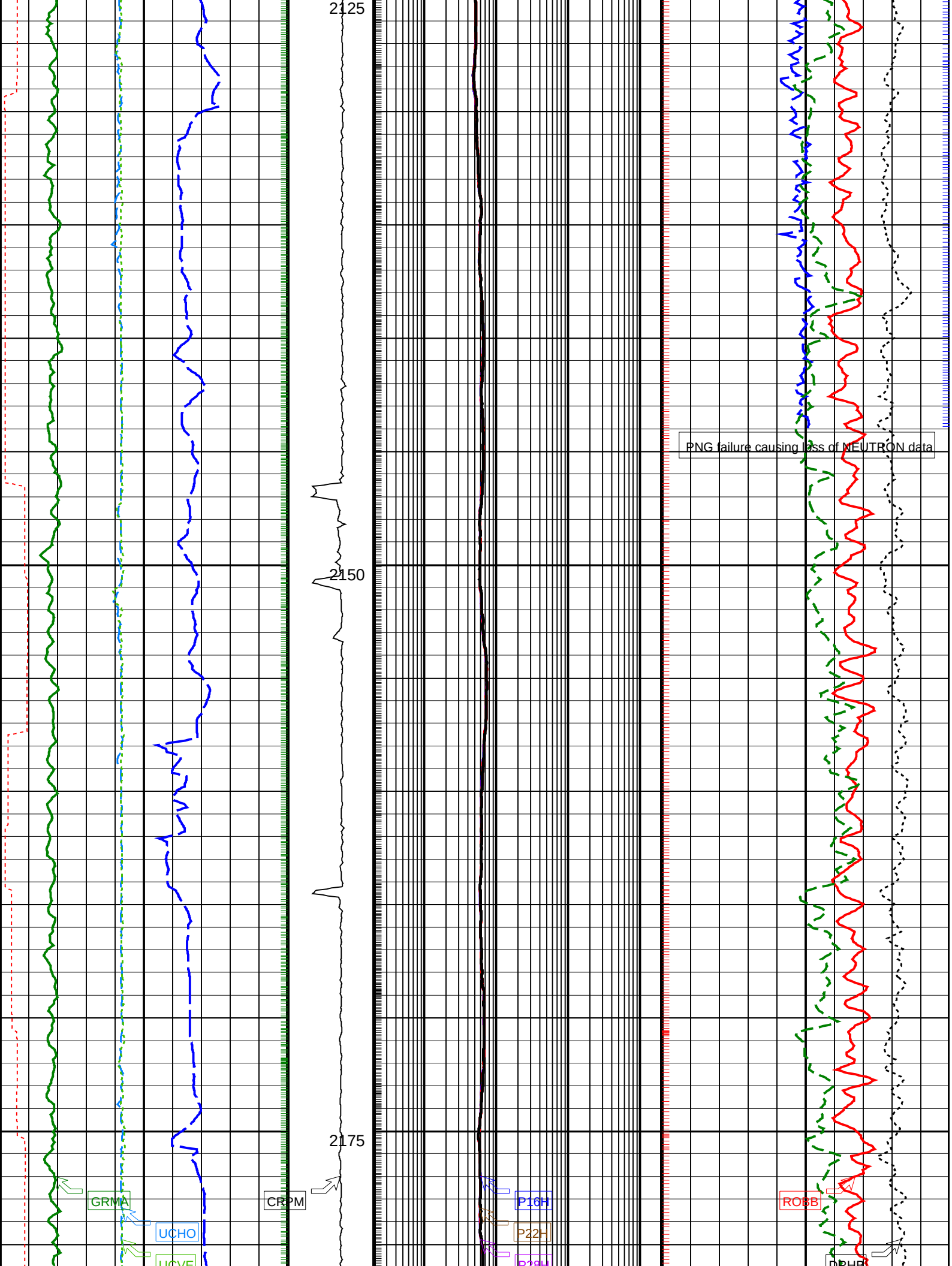
⊣ **Gamma Ray Samples**

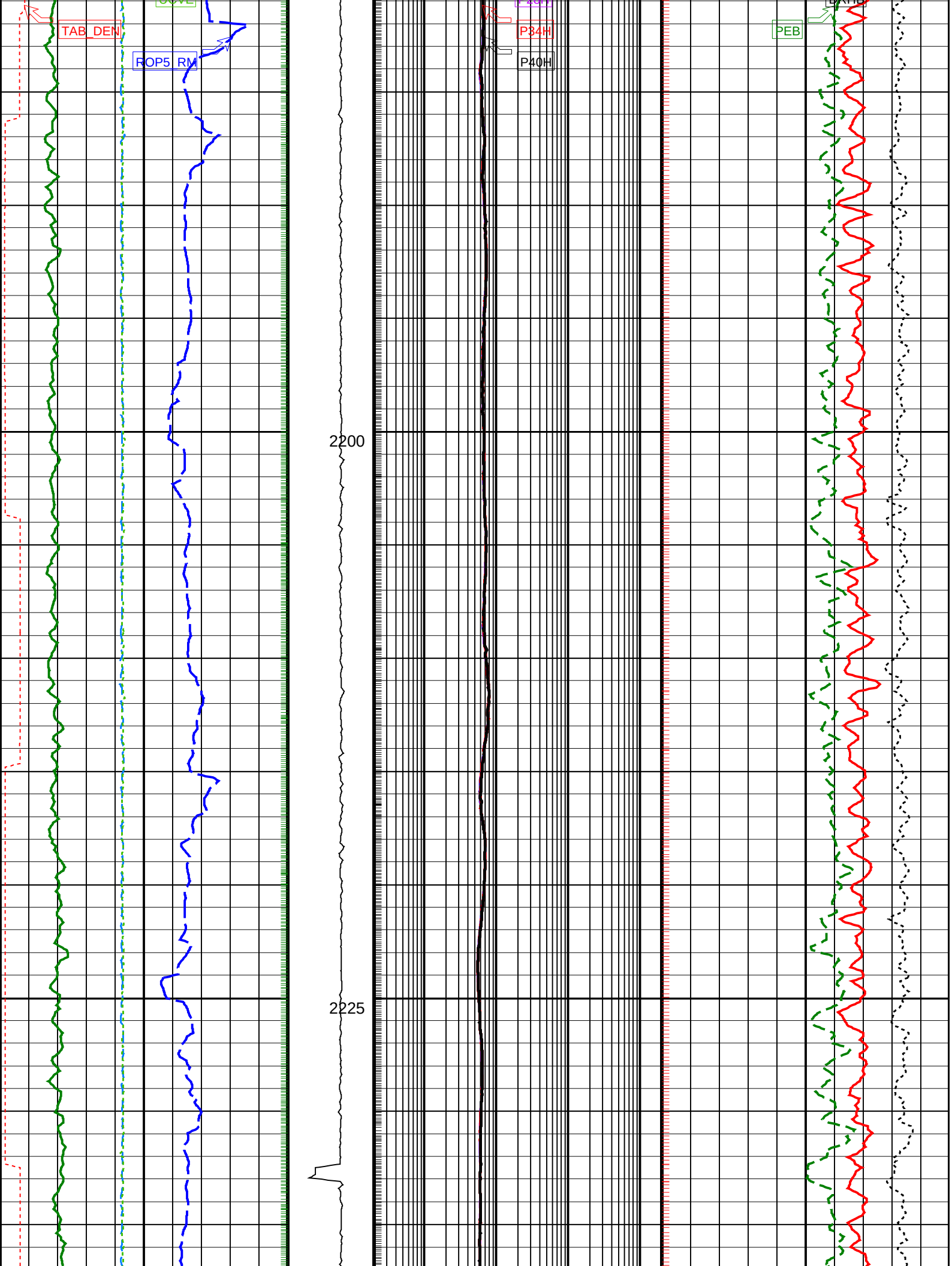
⊢ **Resistivity Samples**

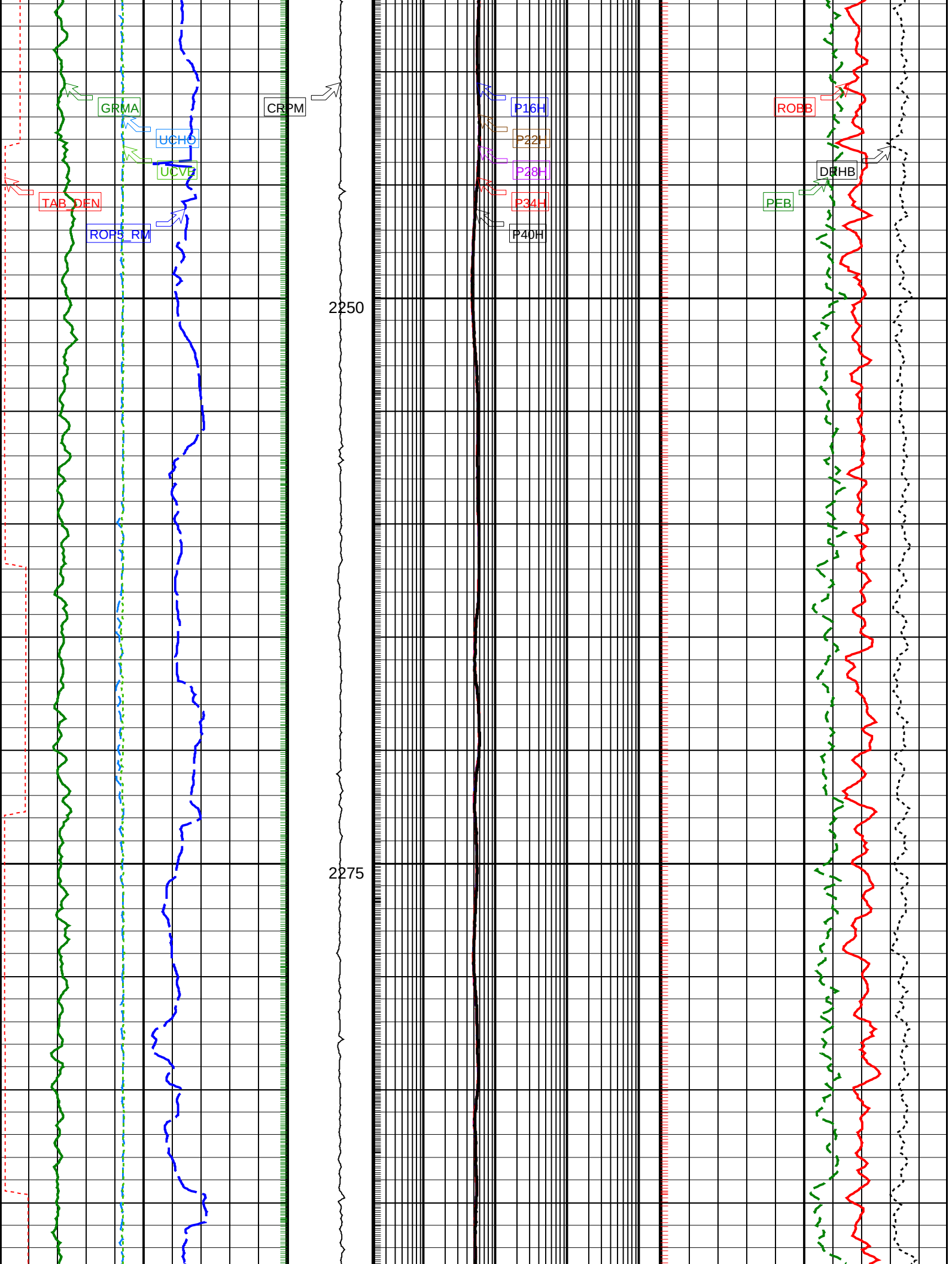
Rate of Penetration, Averaged over Last 5ft (ROP5_RM) 200 (M/HR) 0	**ARC Phase Shift Resistivity 40 inch at 2 MHz (P40H)** 0.2 (OHMM) 2000	
Ultrasonic Caliper, Vertical Diameter (UCVE) 6 (IN) 16	**ARC Phase Shift Resistivity 34 inch at 2 MHz (P34H)** 0.2 (OHMM) 2000	**Photoelectric Factor, Bottom (PEB)** 0 (---- 10

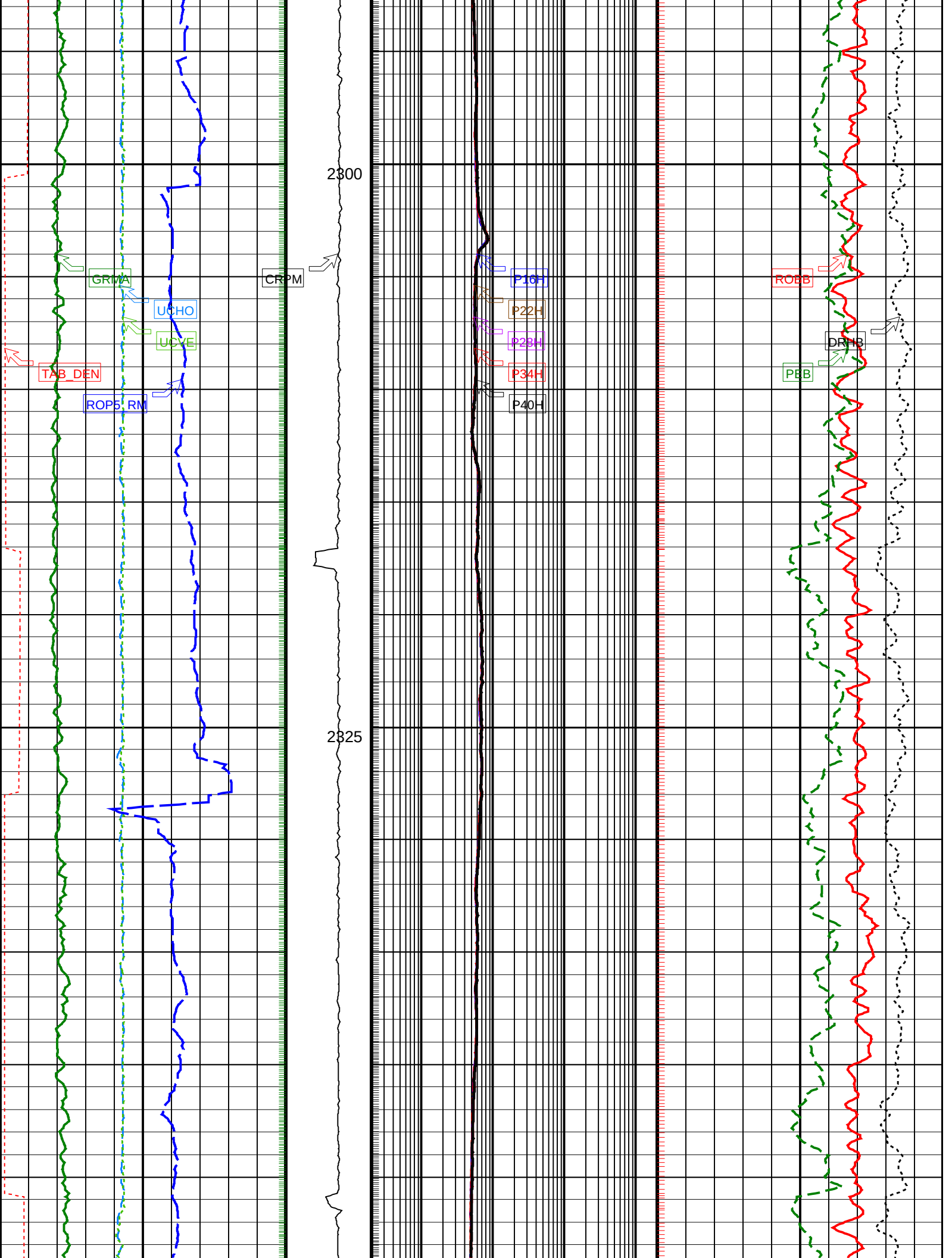

Ultrasonic Caliper, Horizontal Diameter (UCHO)
6 (IN) 16
Time after BIT (between drilling and measurement) (TAB_DEN)
0 (HR) 10
Gamma Ray, Average (GRMA)
0 (GAPI) 200
Collar Rotational Speed (CRPM) (RPM)
0 250
ARC Phase Shift Resistivity 28 inch at 2 MHz (P28H)
0.2 (OHMM) 2000
ARC Phase Shift Resistivity 22 inch at 2 MHz (P22H)
0.2 (OHMM) 2000
ARC Phase Shift Resistivity 16 inch at 2 MHz (P16H)
0.2 (OHMM) 2000
Bulk Density Correction, Bottom (DRHB)
−0.75 (G/C3) 0.25
Thermal Neutron Porosity (Ratio Method) in Selected Lithology (TNPH)
45 (PU) −15
Bulk Density, Bottom (ROBB)
1.85 (G/C3) 2.85
ULTRASONIC First Reading
GR First Reading
RES First Reading
NEUTRON First Reading
DENSITY First Reading
GRMA
UCHO
UCVE
TAB_DEN
ROP5_RM
CRPM
2050
P16H
P22H
P28H
P34H
P40H
ROBB
TNPH
DRHB
PEB

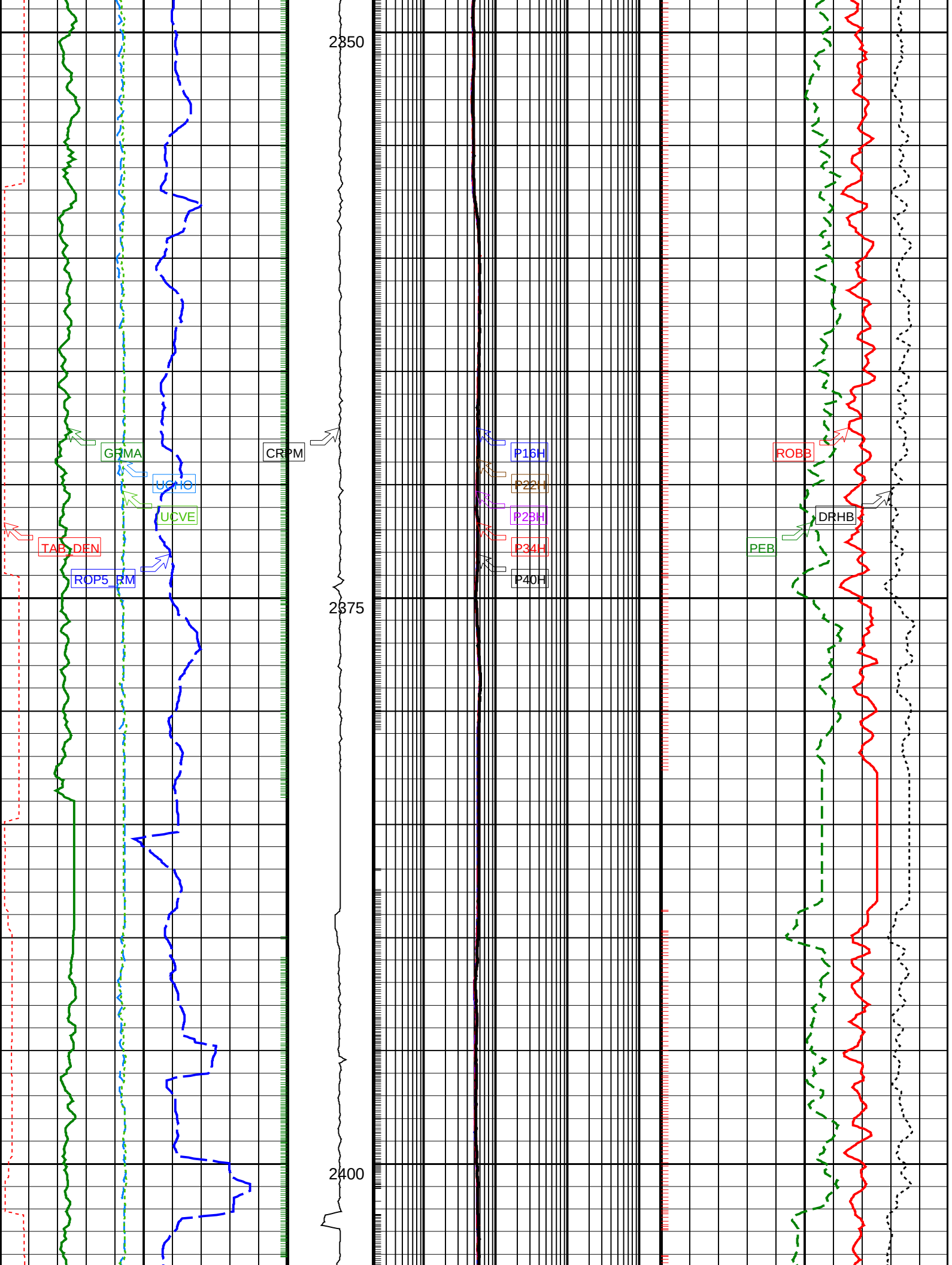

2075
2100
GRMA
UCHO
UCVE
TAB_DEN
ROP5_RM
CRPM
P16H
P22H
P28H
P34H
P40H
ROPB
TNPH
DRHB
PEB


2125
2150
2175
PNG failure causing loss of NEUTRON data
GRMA
UCHO
UCVF
CRPM
P16H
P22H
ROBB


TAB_DEN
ROP5_RM
P34H
P40H
PEB
2200
2225


GRMA
UCHO
UCVE
TAB_DEN
ROP5_RM
CRPM
P16H
P22H
P28H
P34H
P40H
ROBB
DRHB
PEB
2250
2275


2300
2325
GRMA
UCHO
UCVE
TAB_DEN
ROP5_RM
CRPM
P16H
P22H
P28H
P34H
P40H
ROBB
DRHB
PEB


2350
2375
2400
GRMA
CRPM
UCHO
UCVE
TAB_DEN
ROP5_RM
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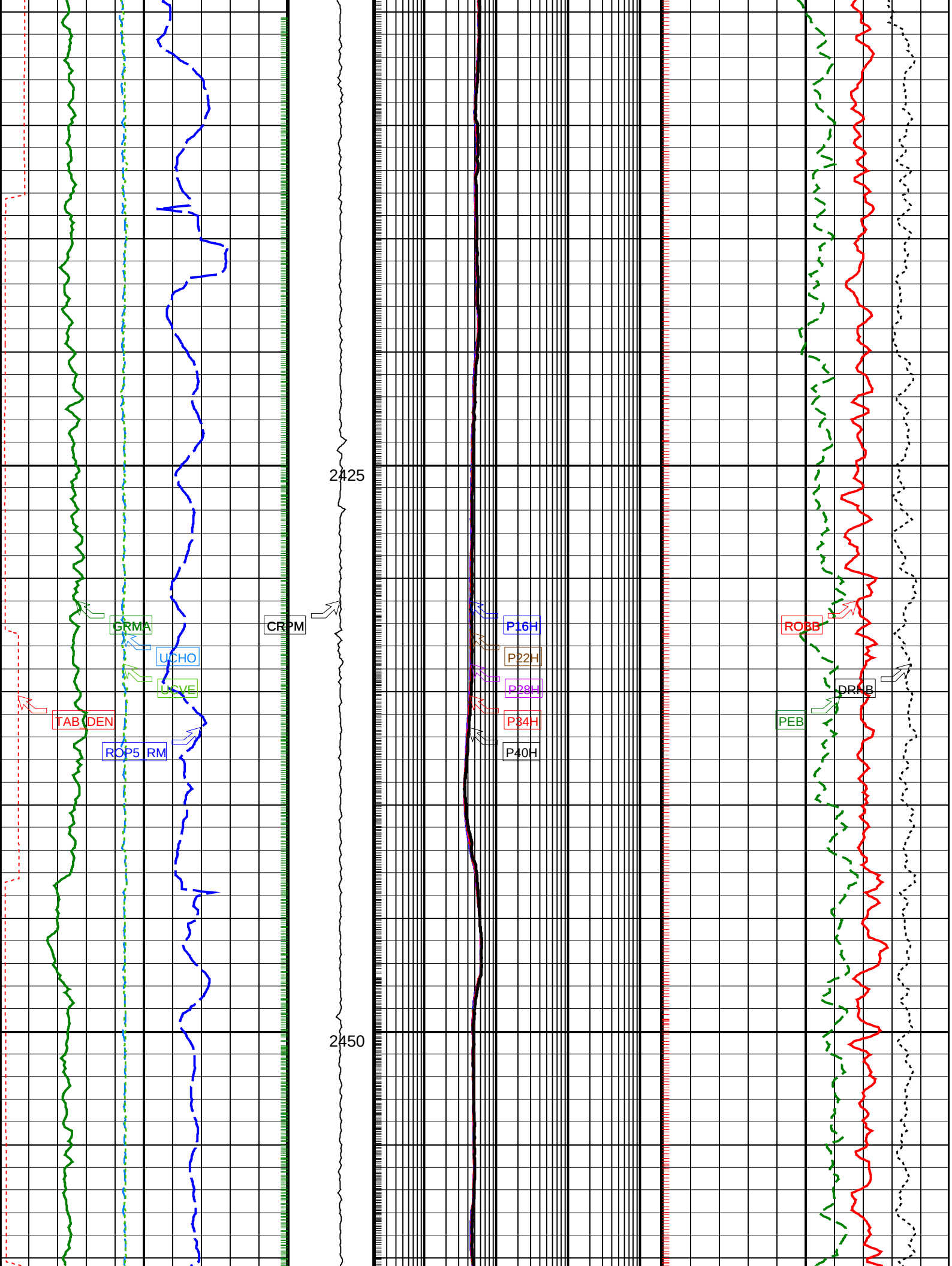
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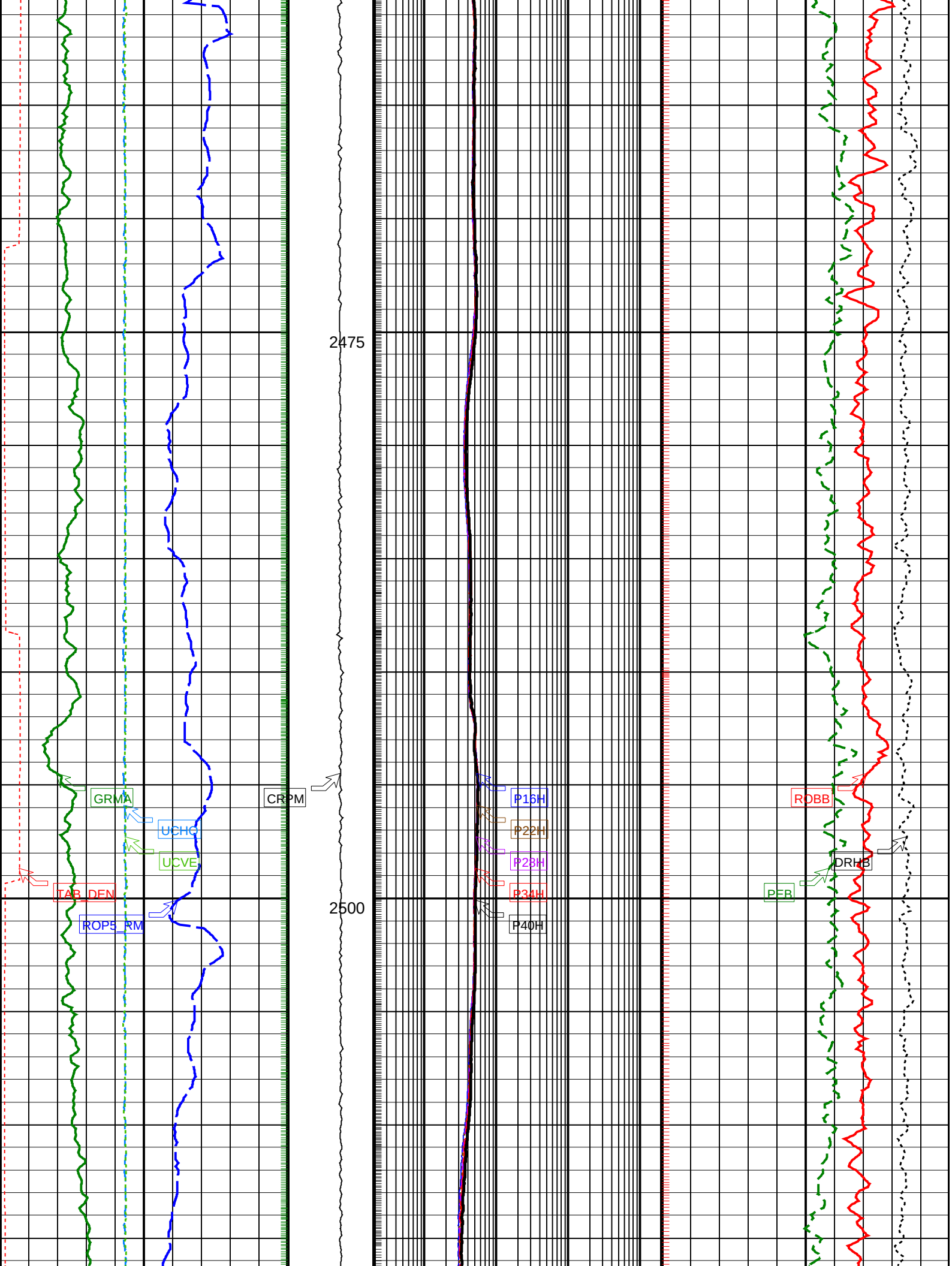
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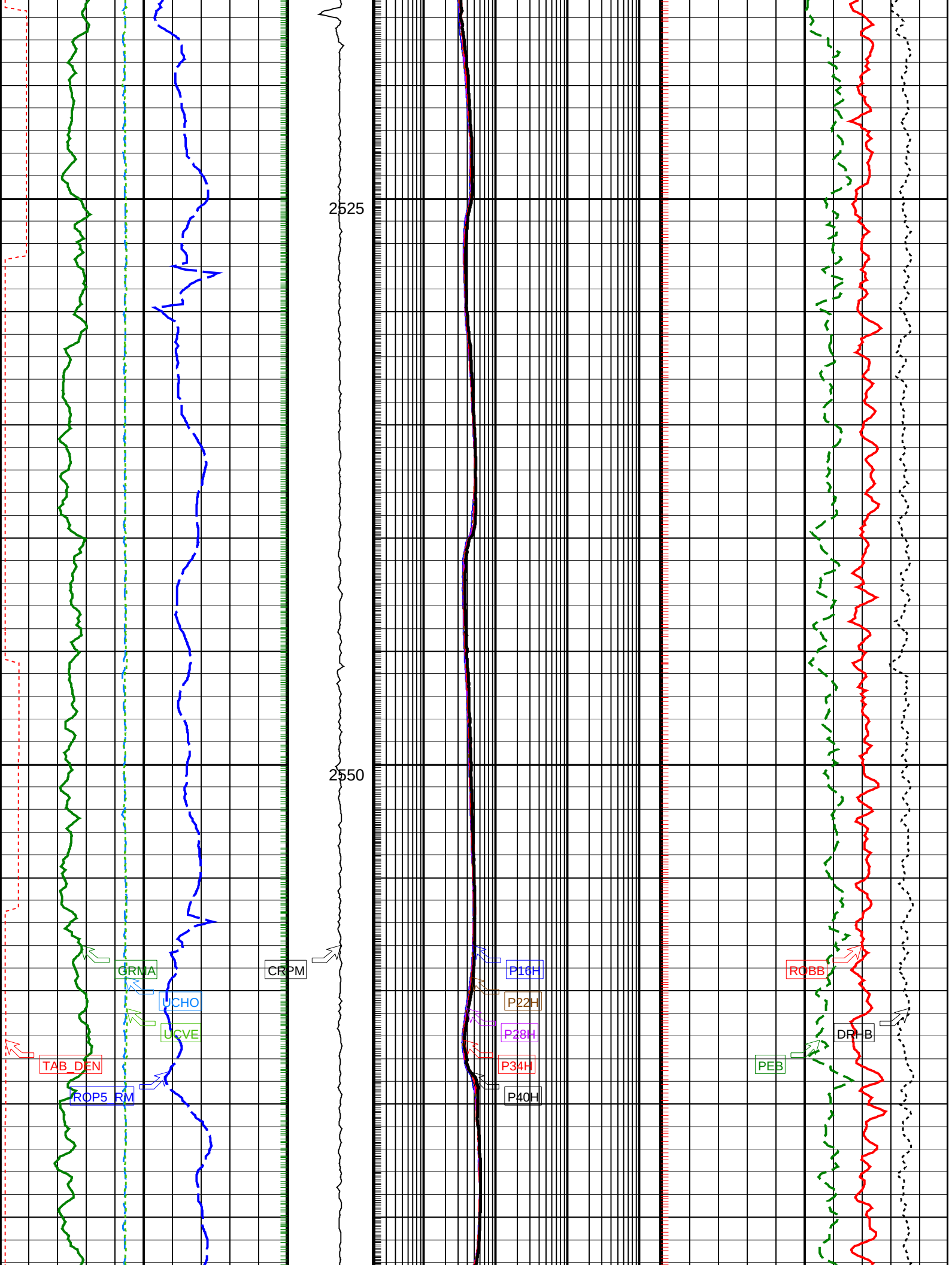
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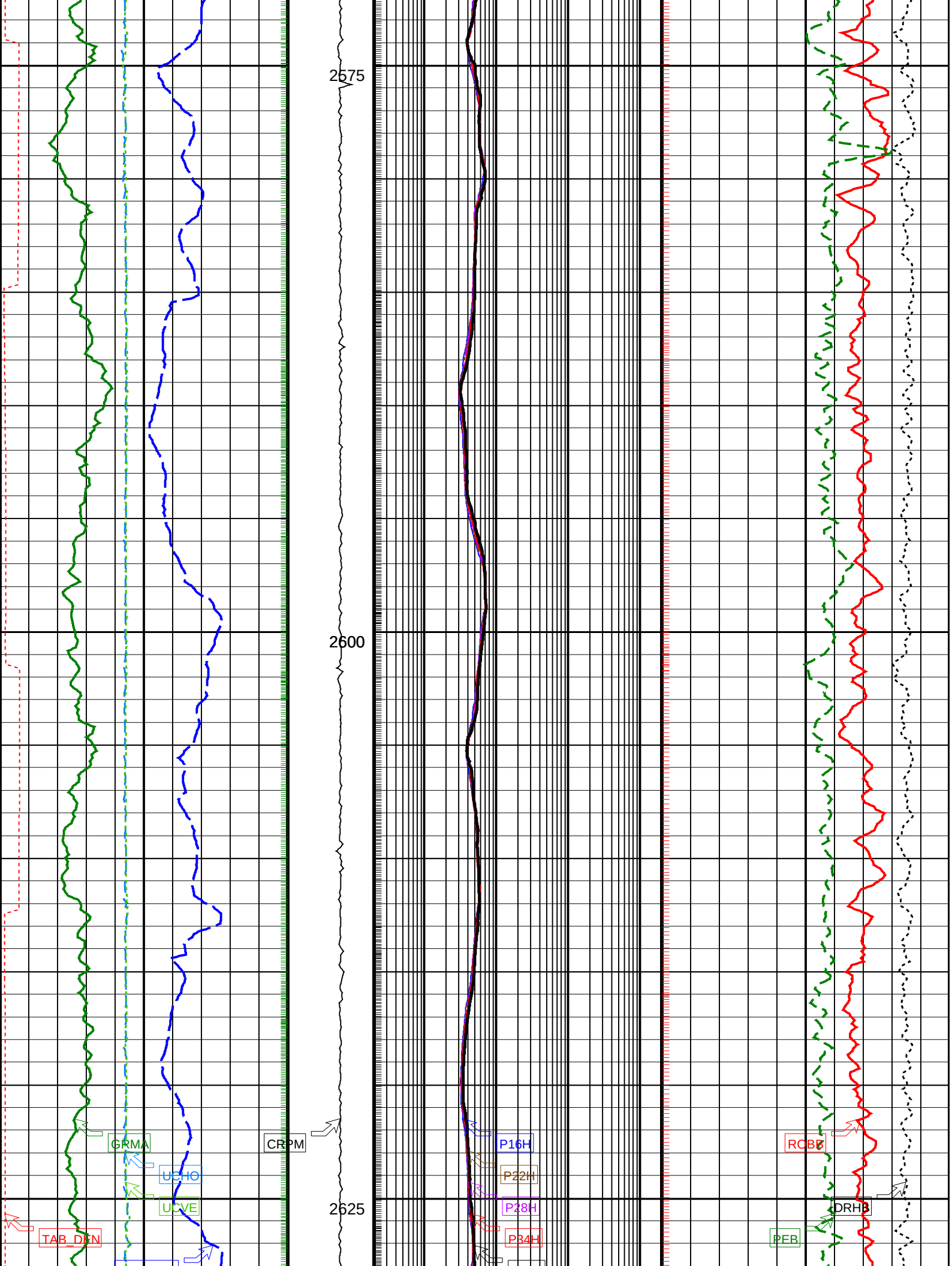
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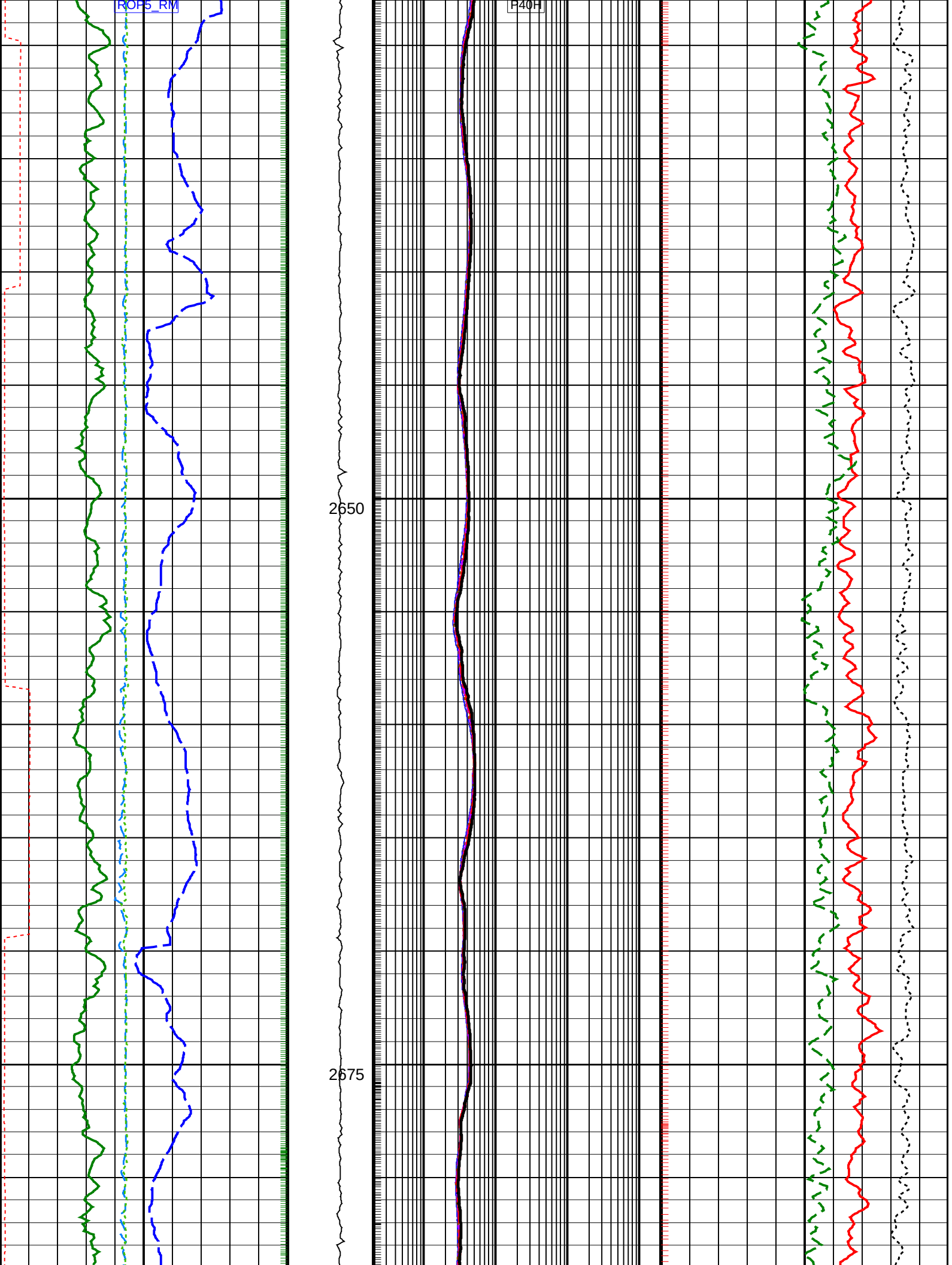
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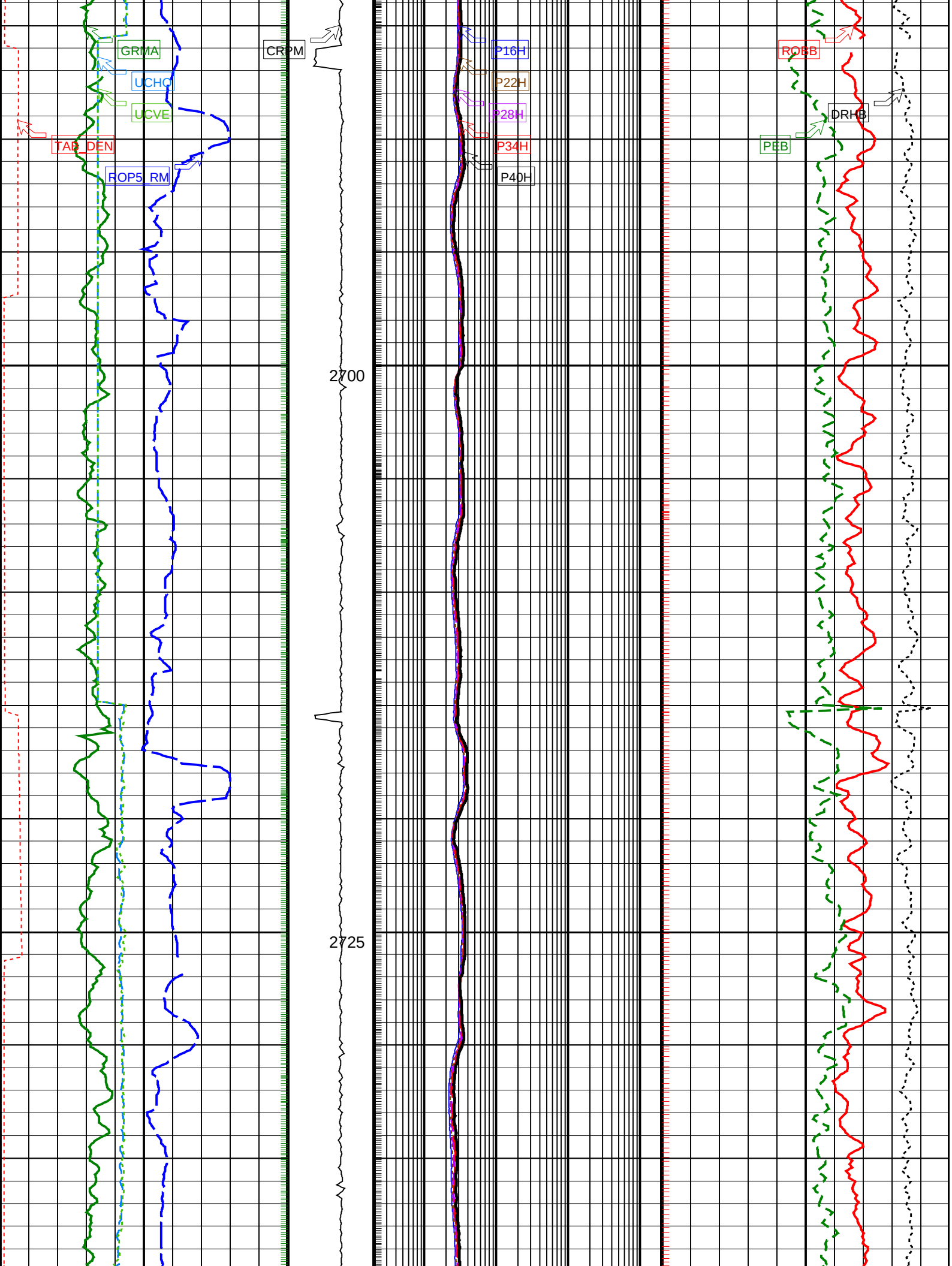
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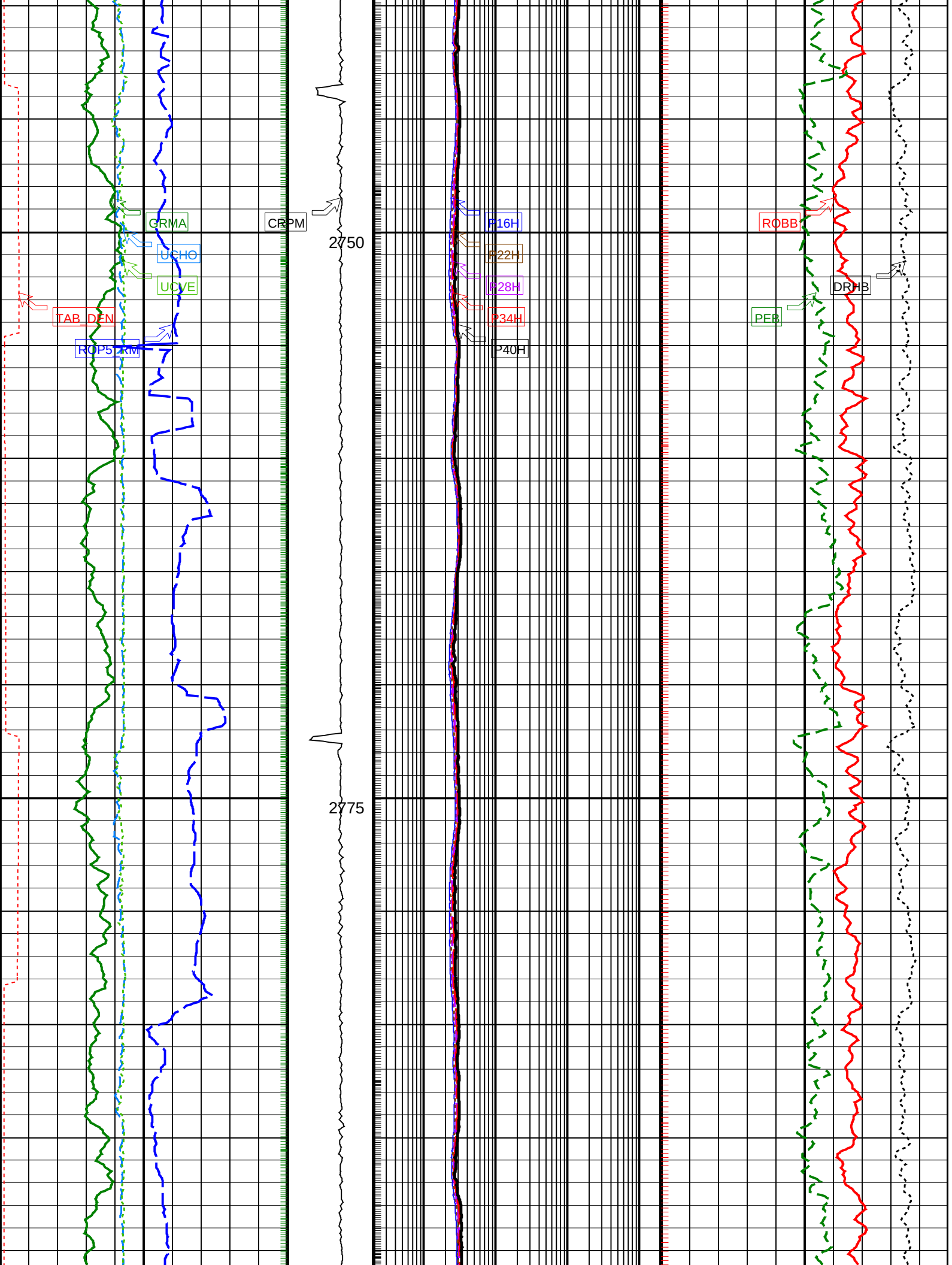
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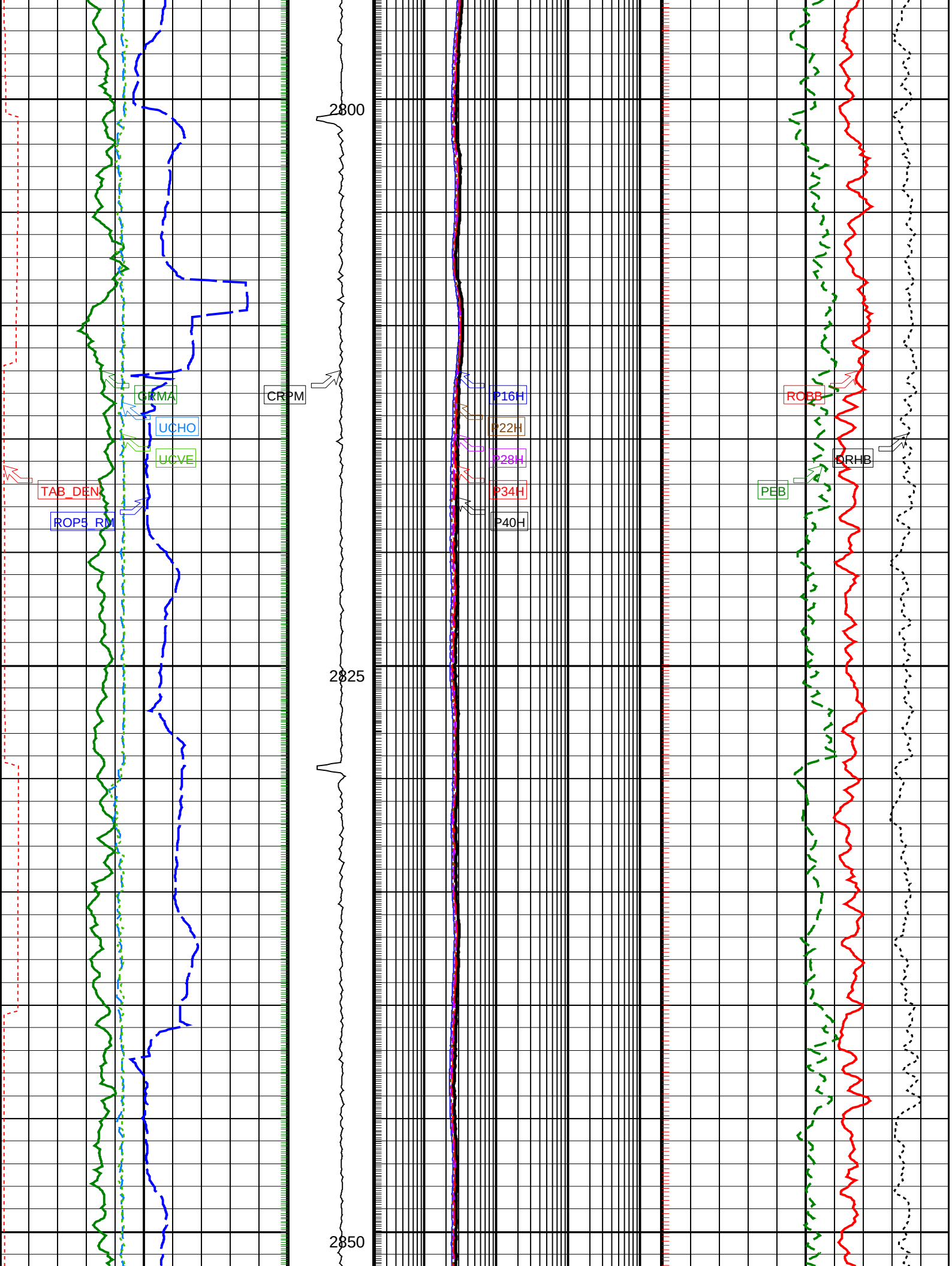
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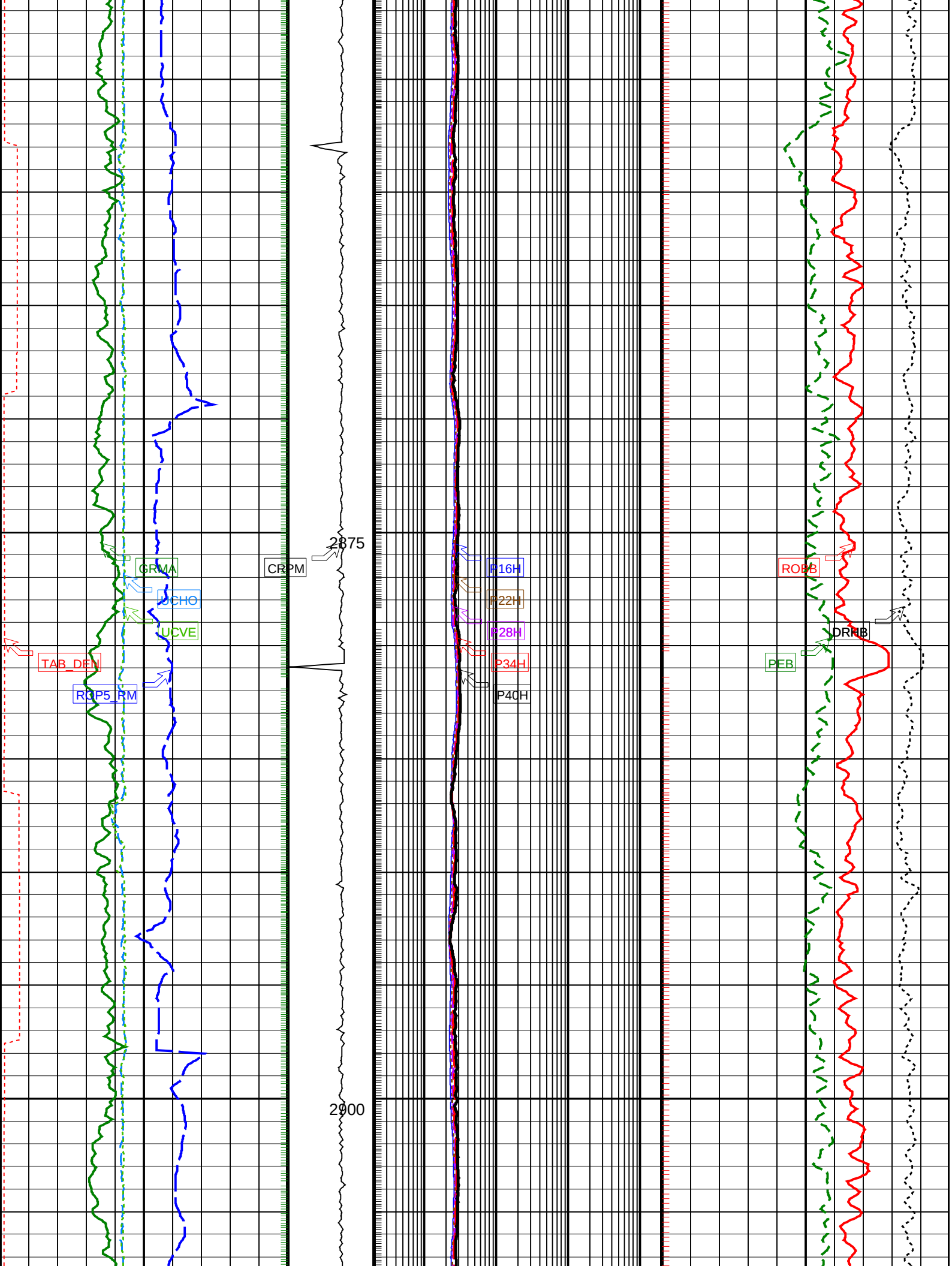
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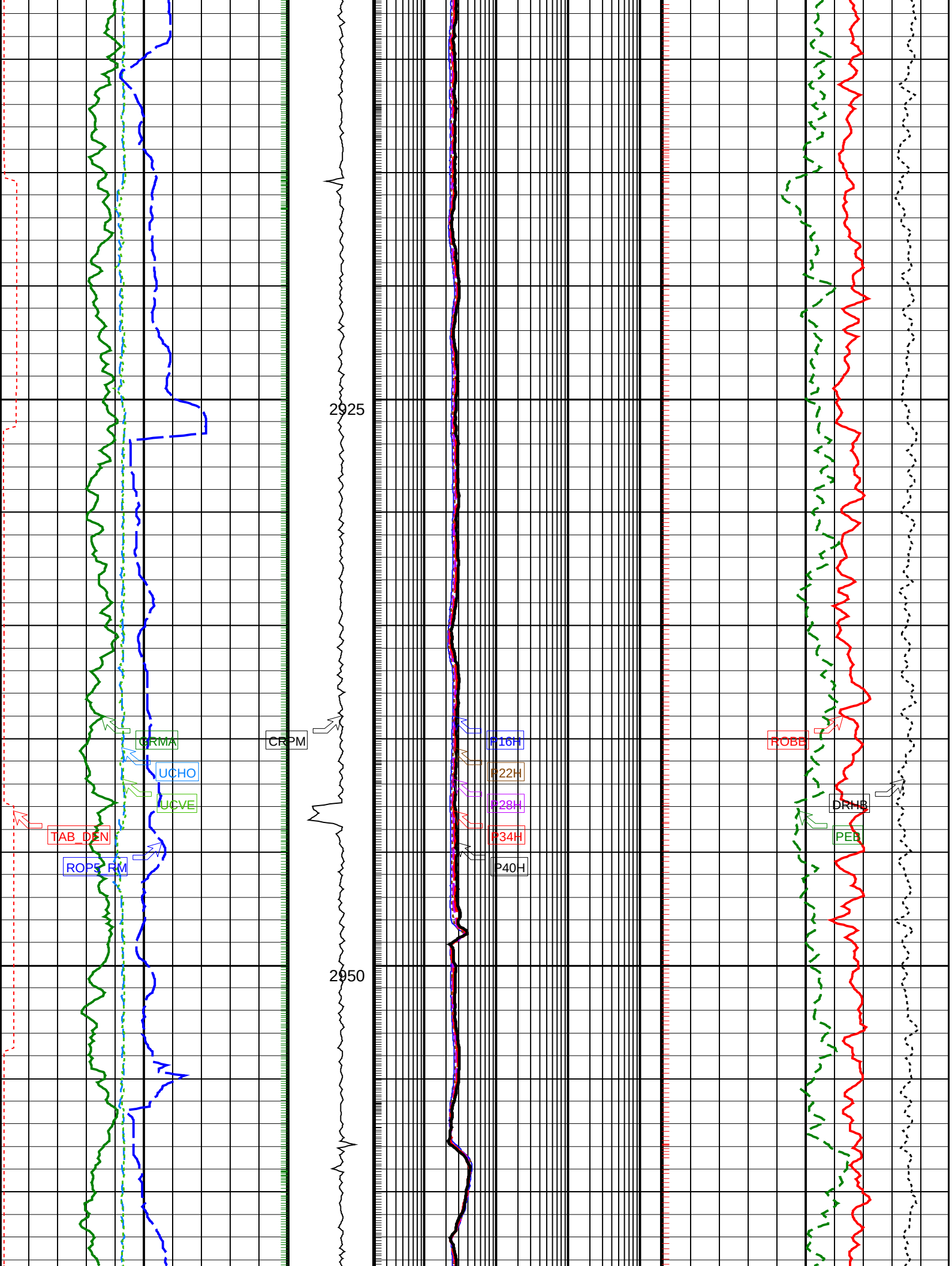
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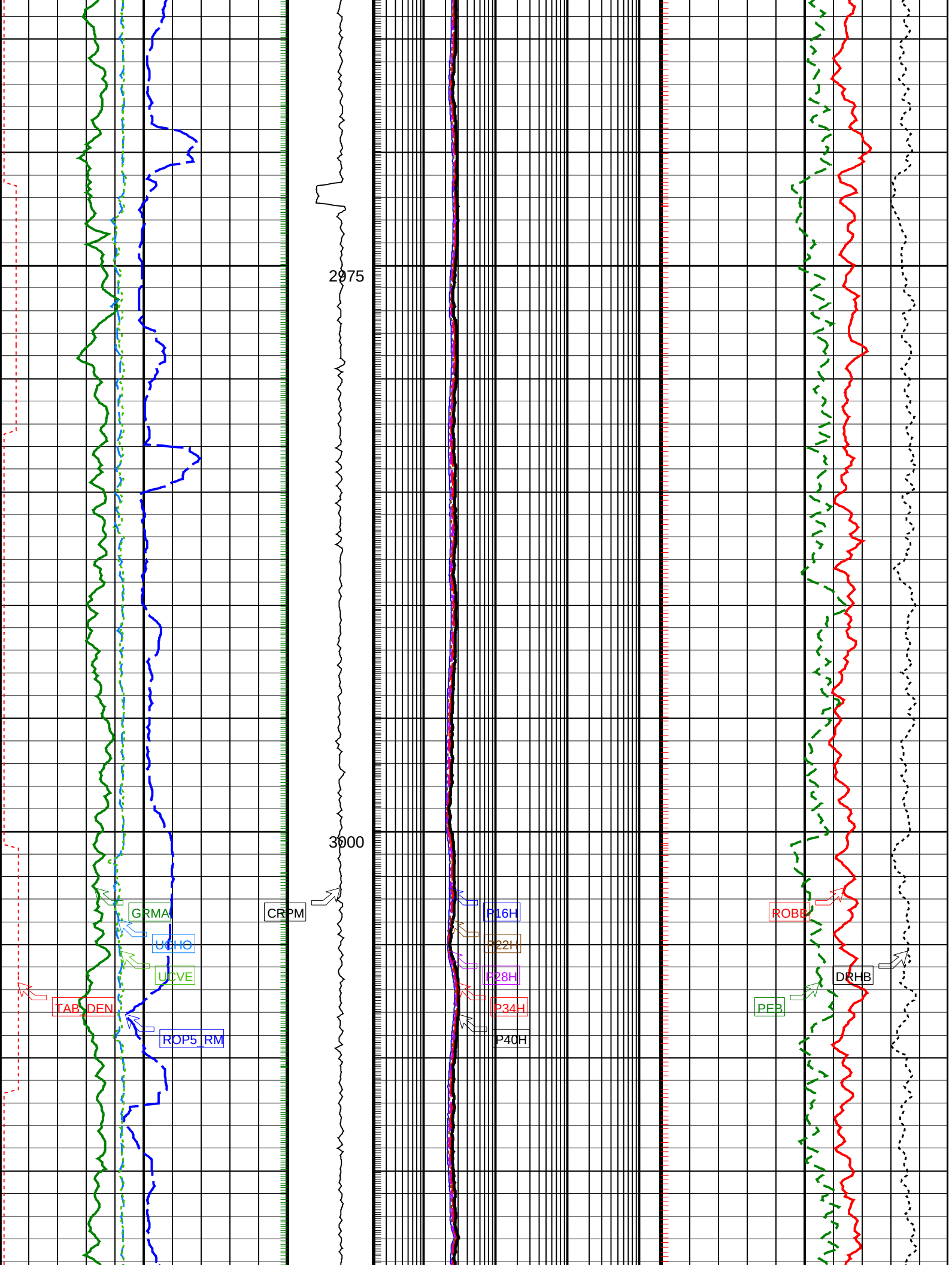
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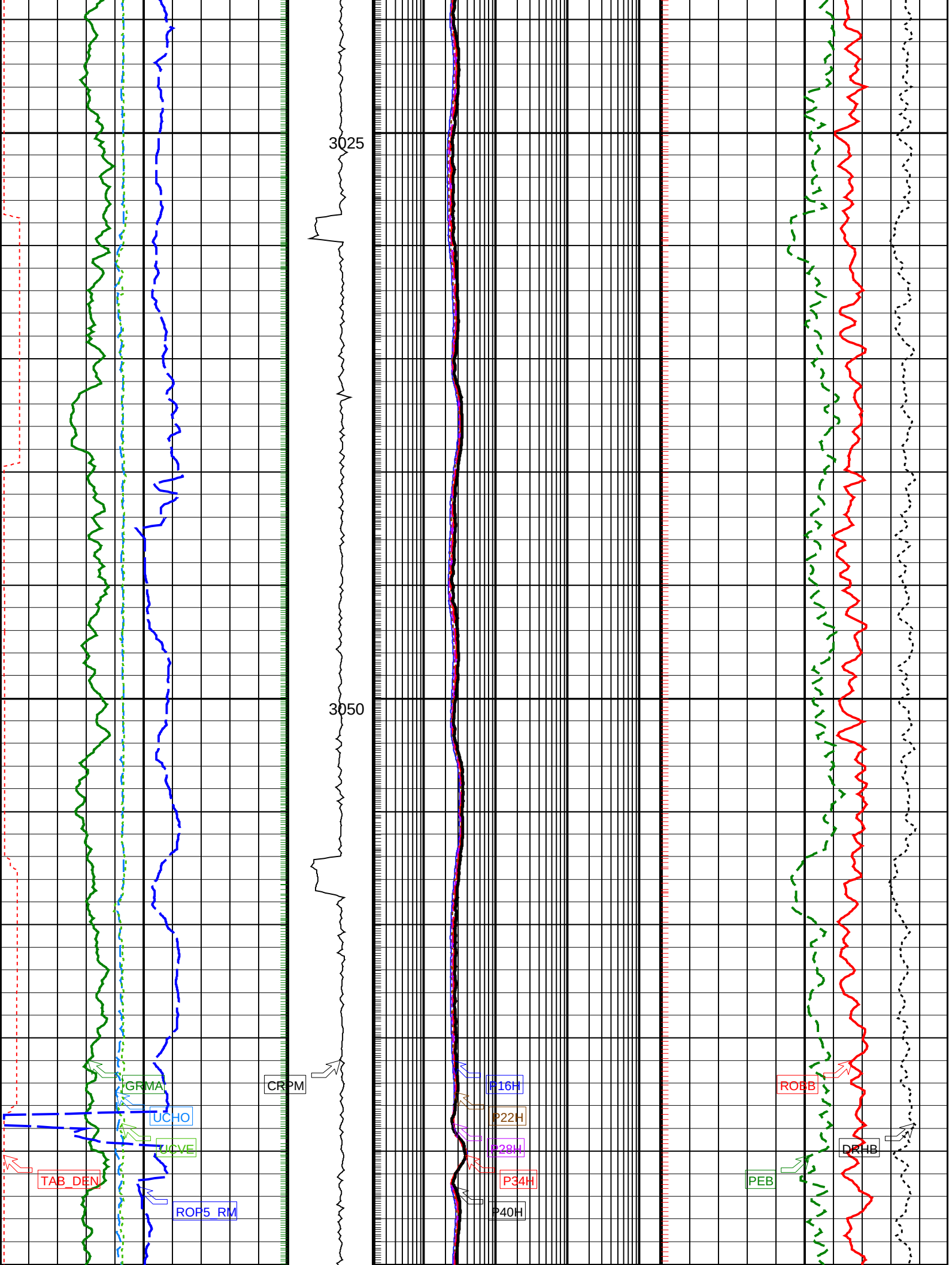
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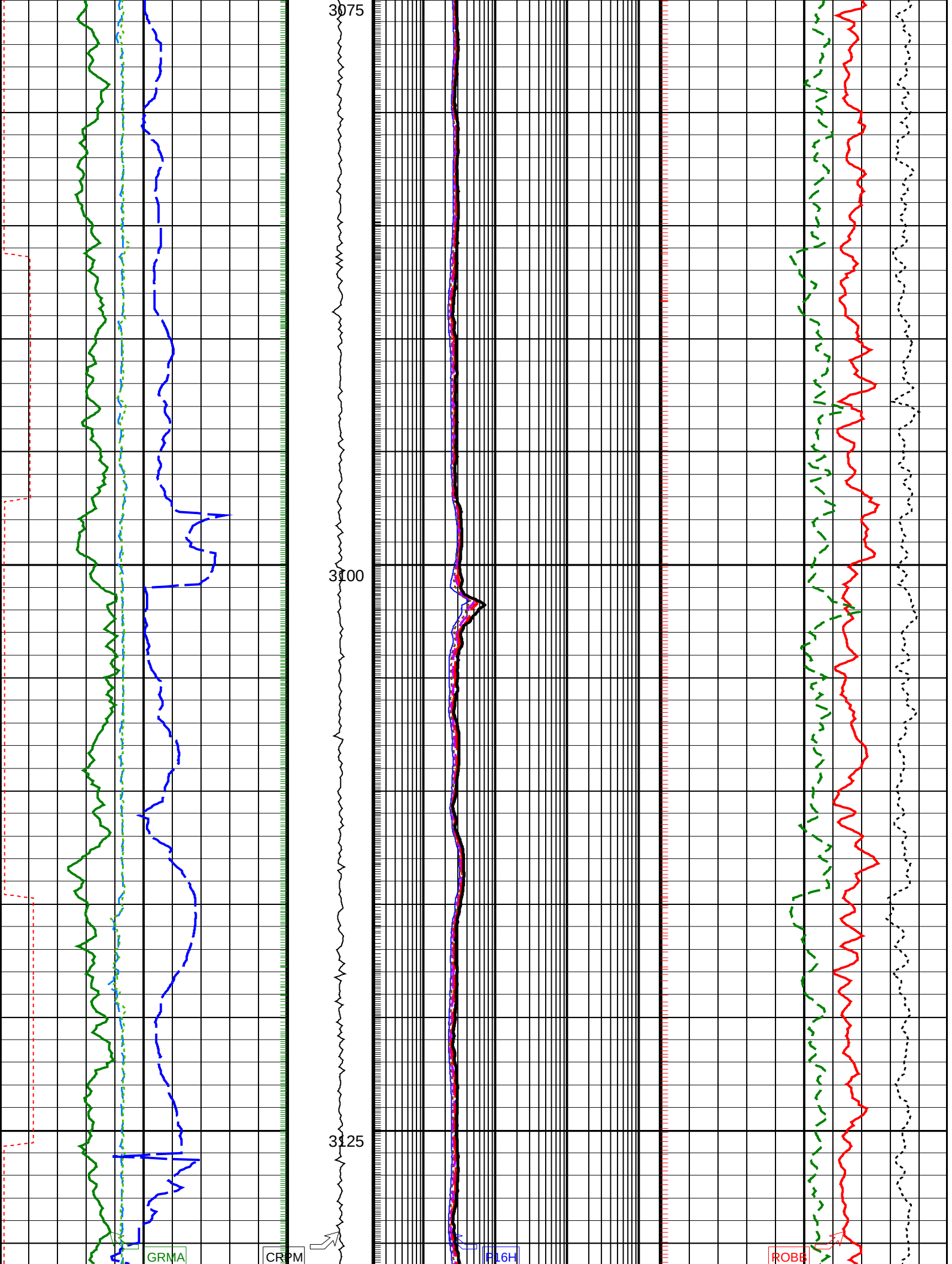
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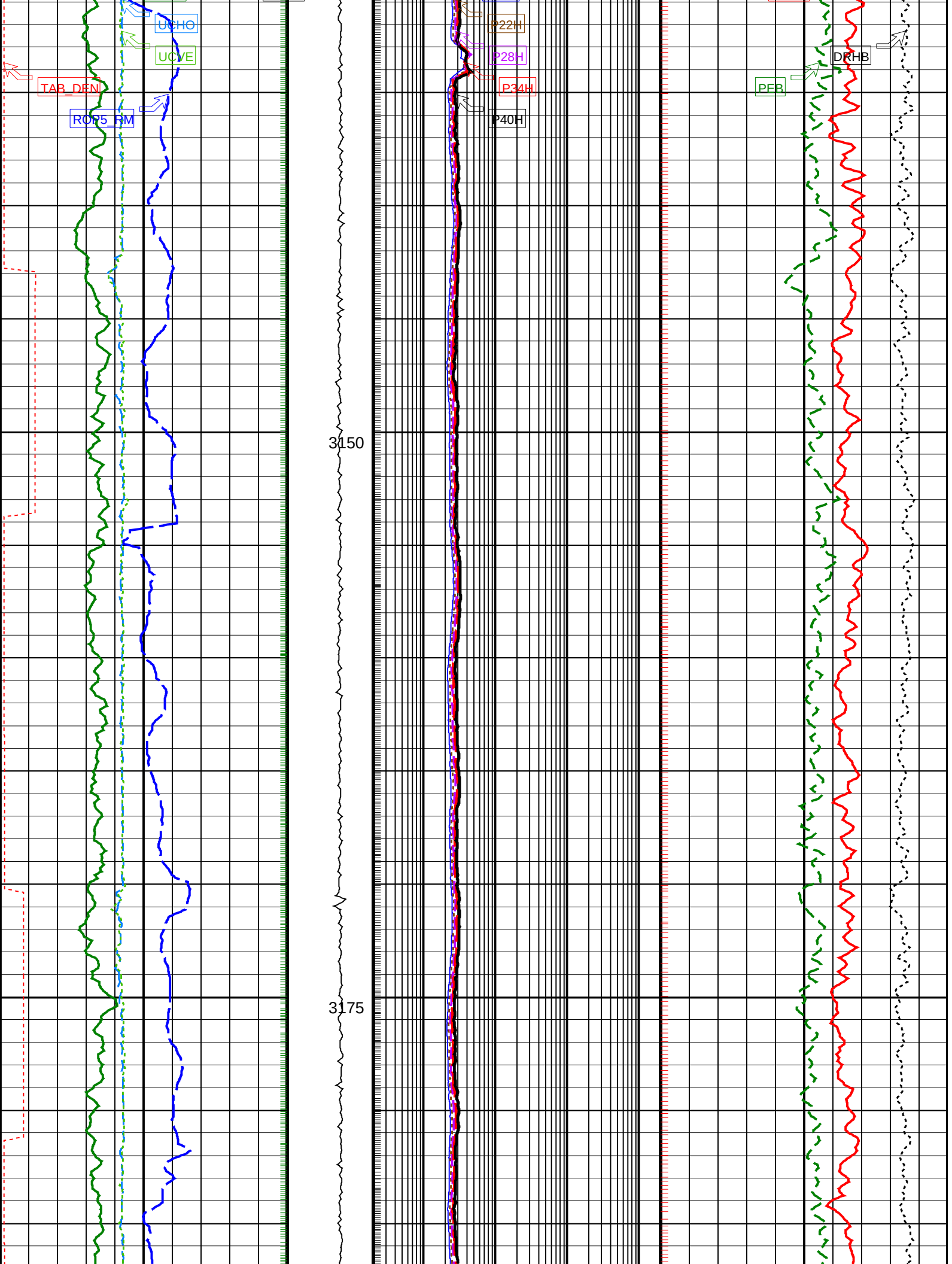
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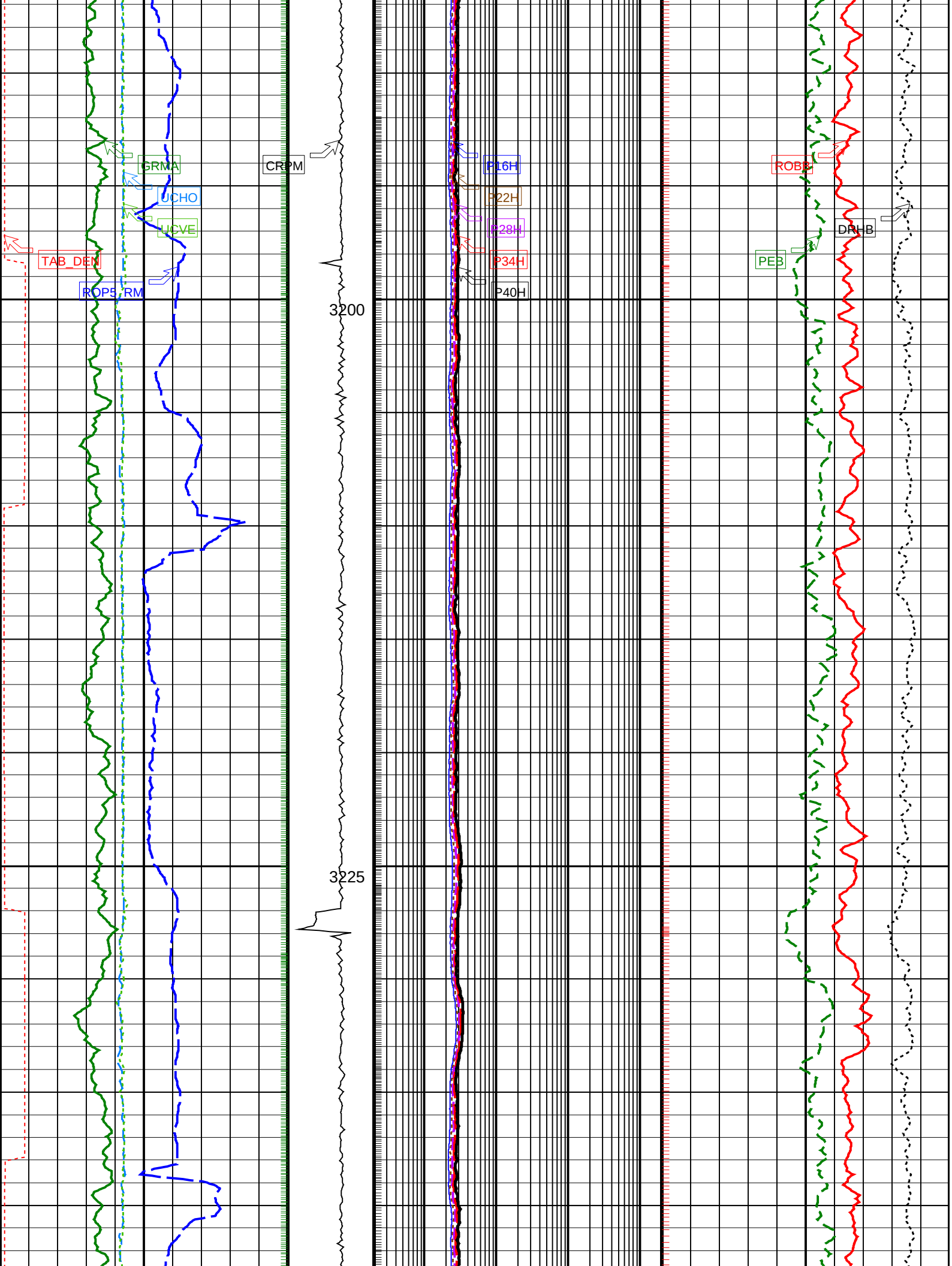
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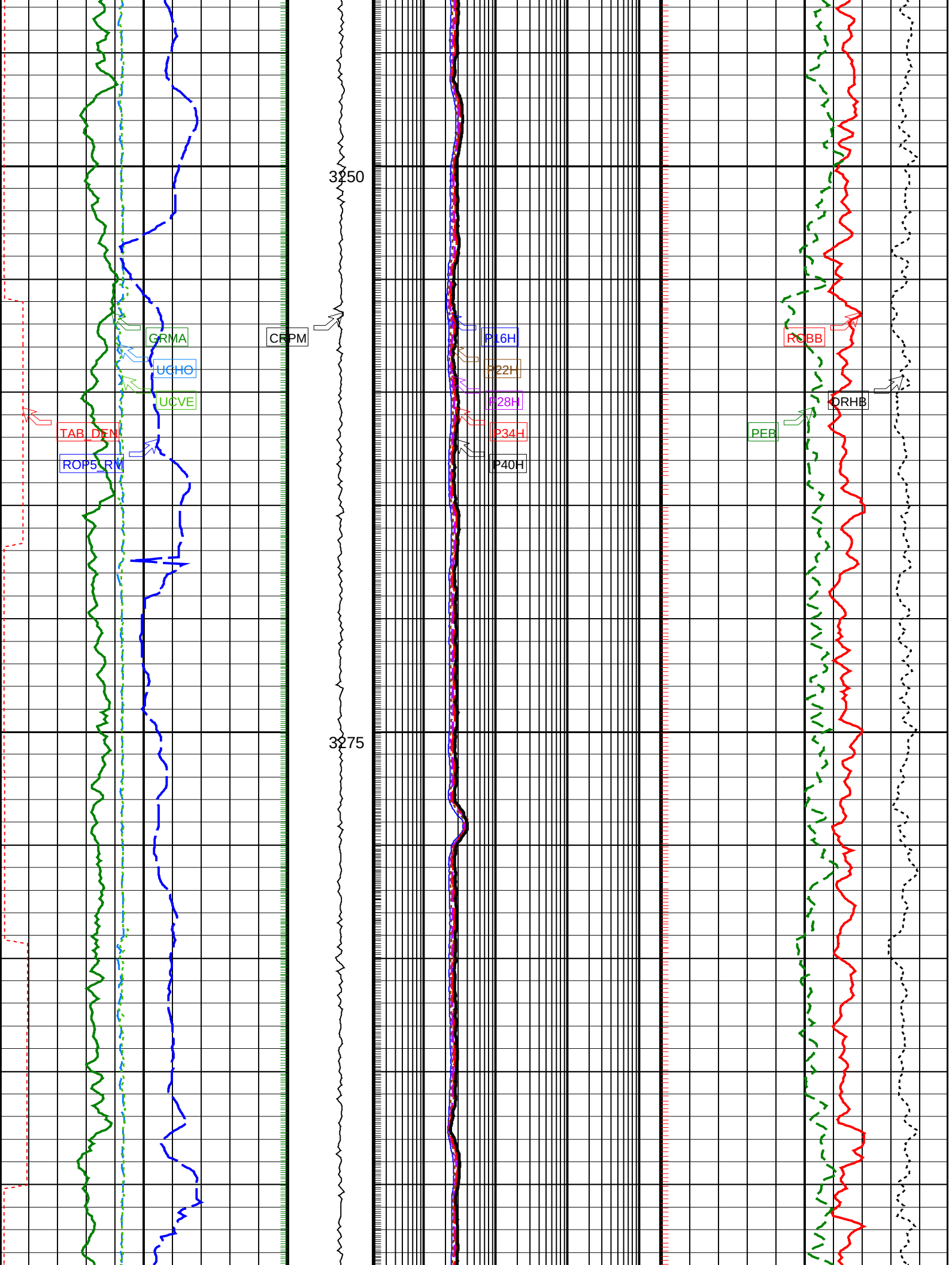
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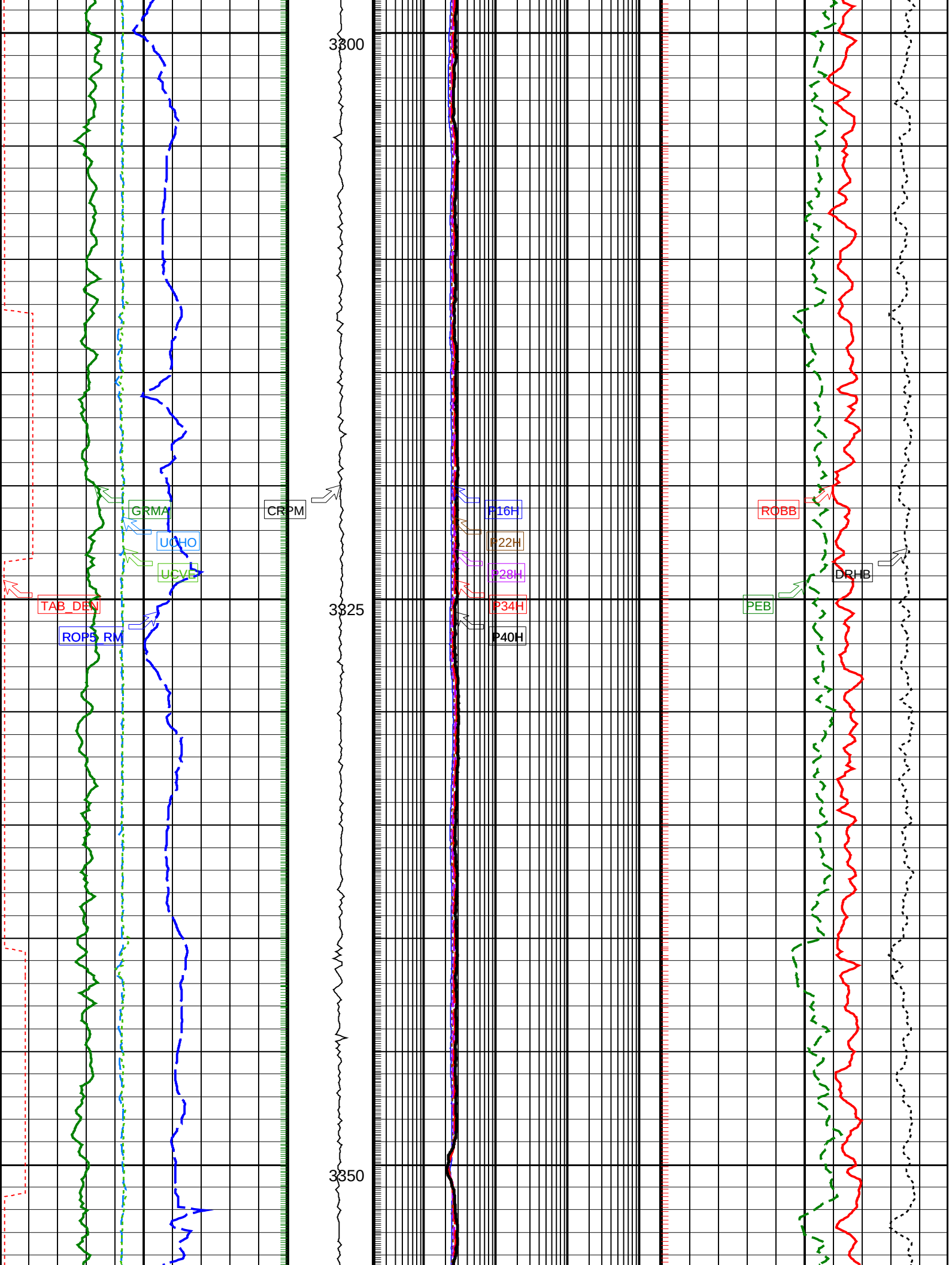
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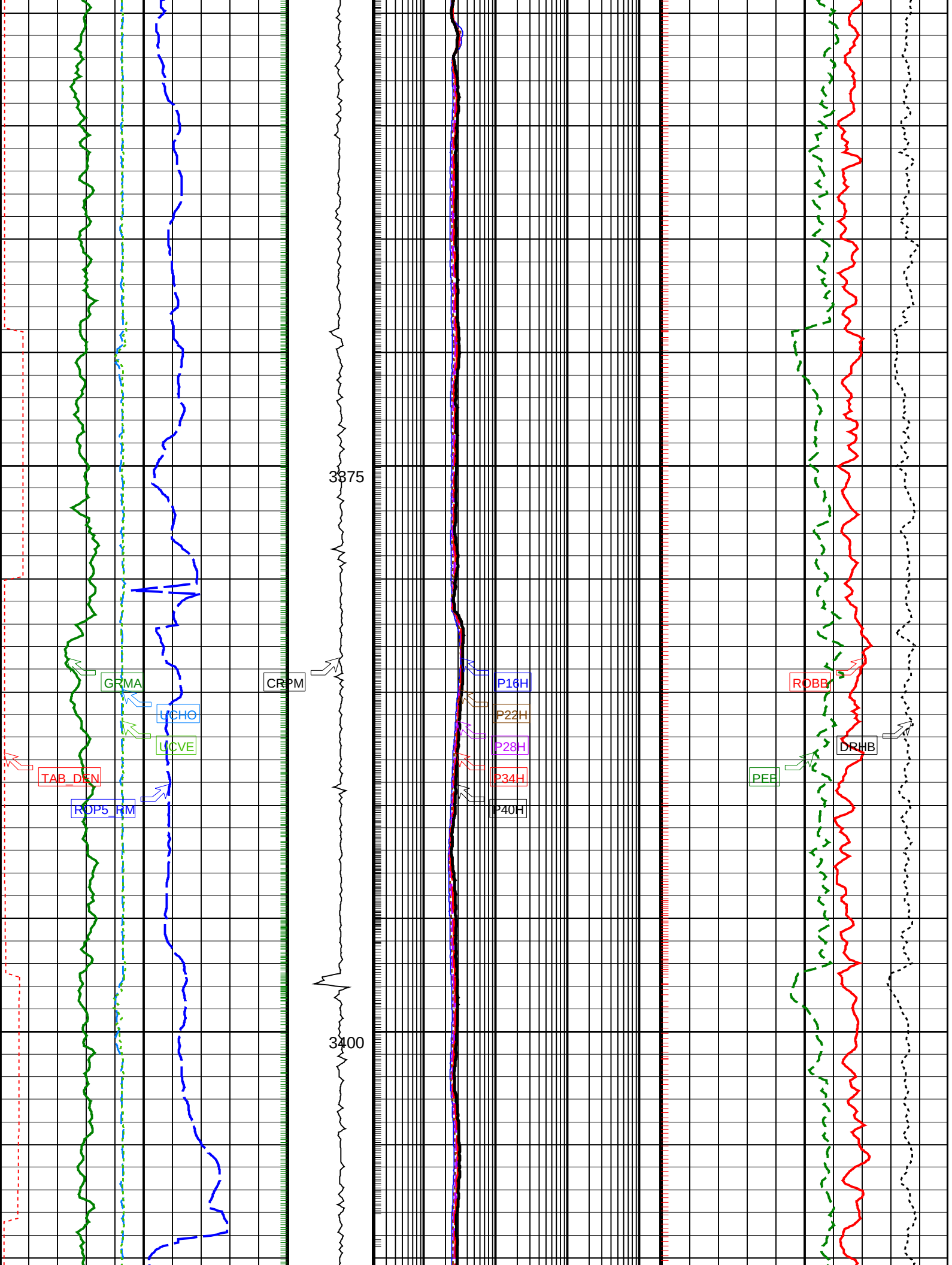
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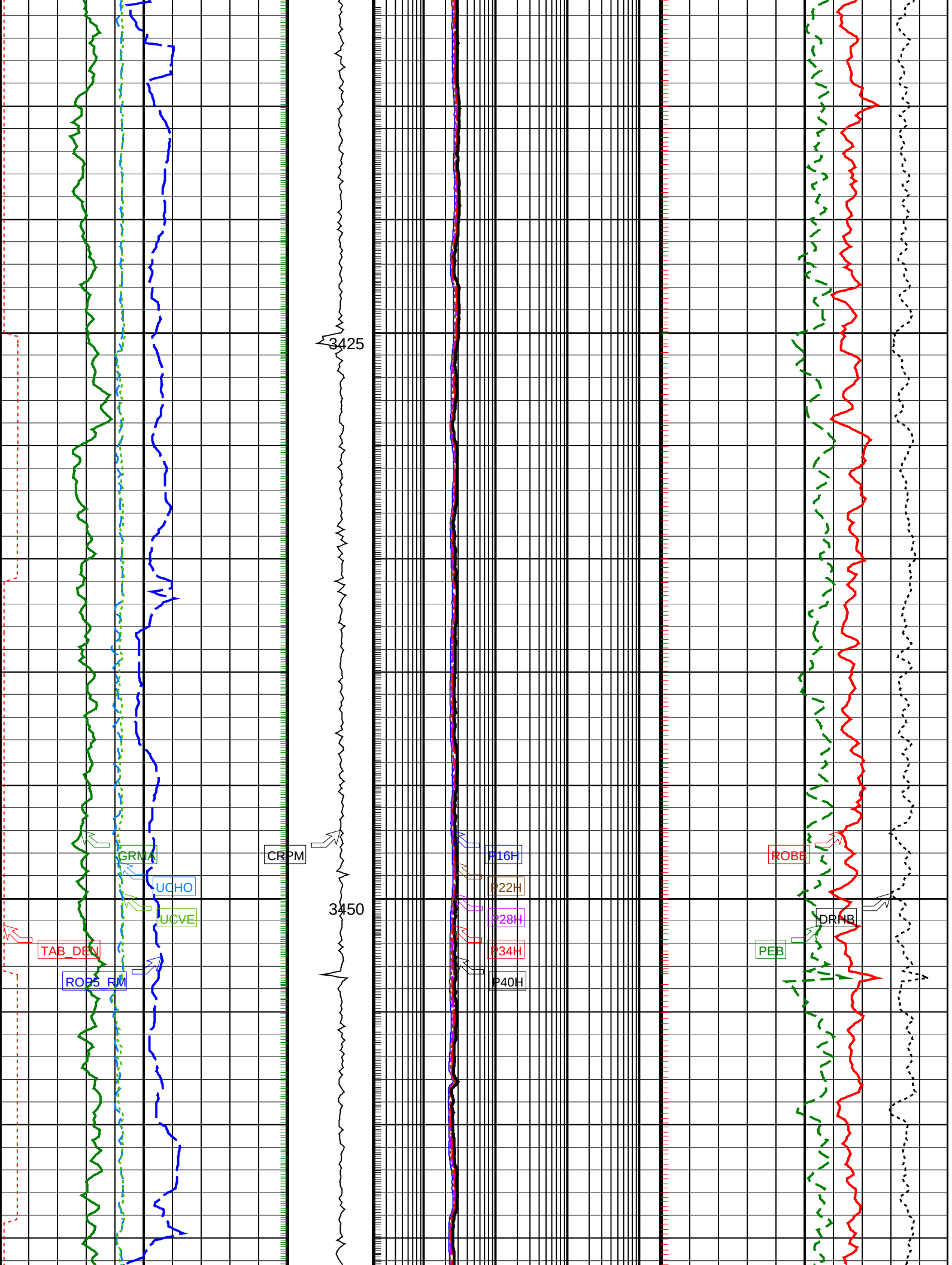
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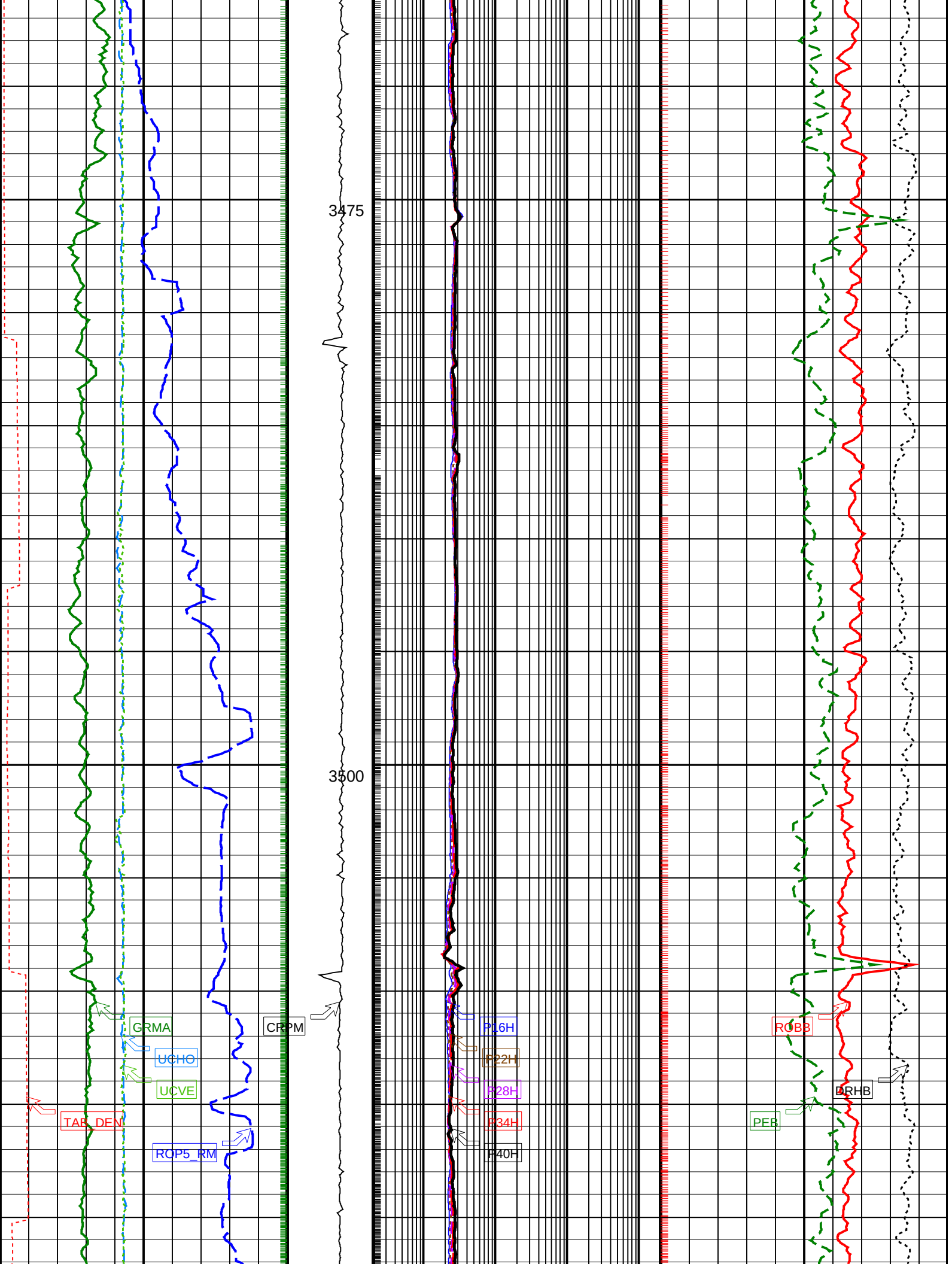
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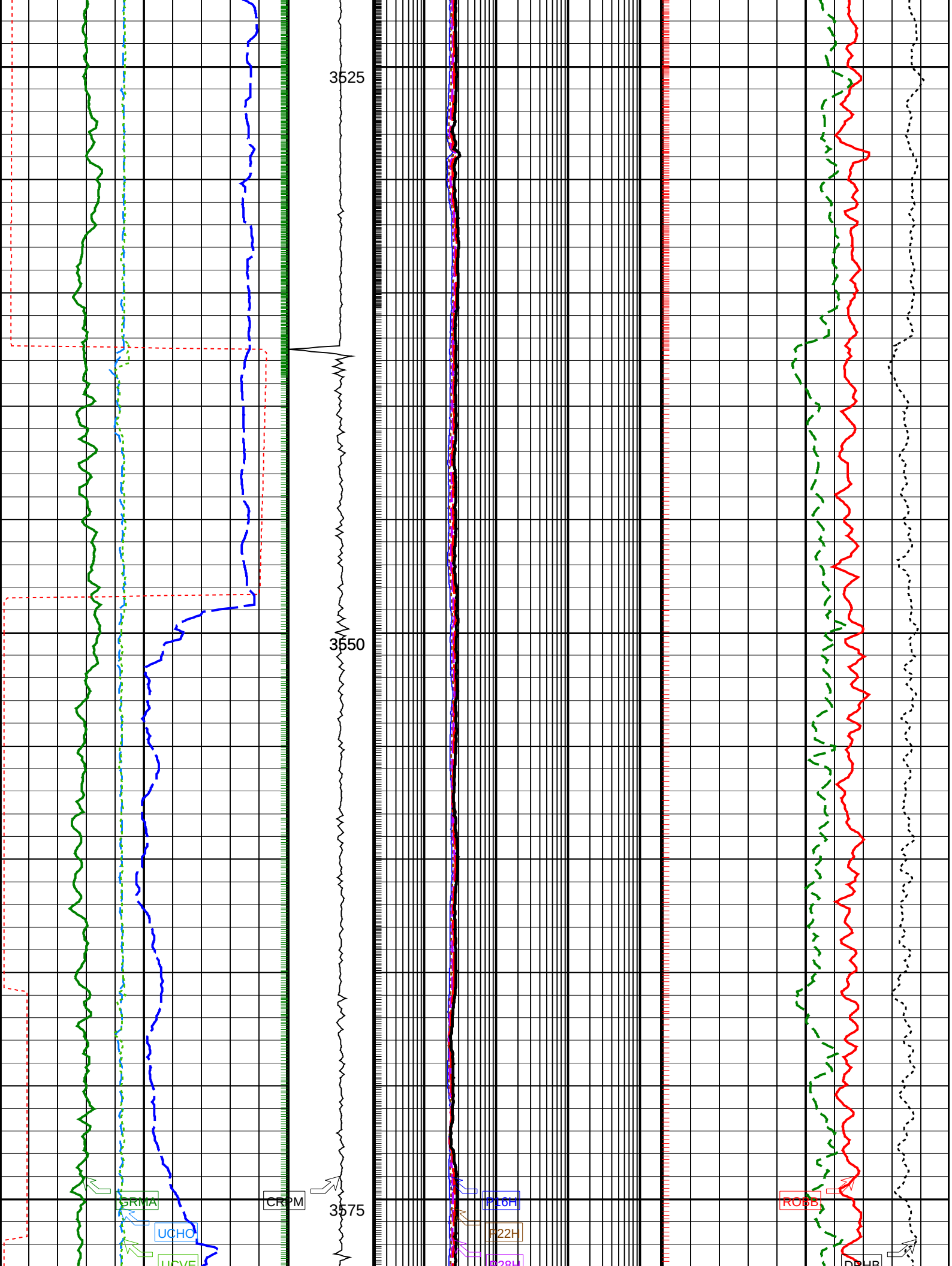
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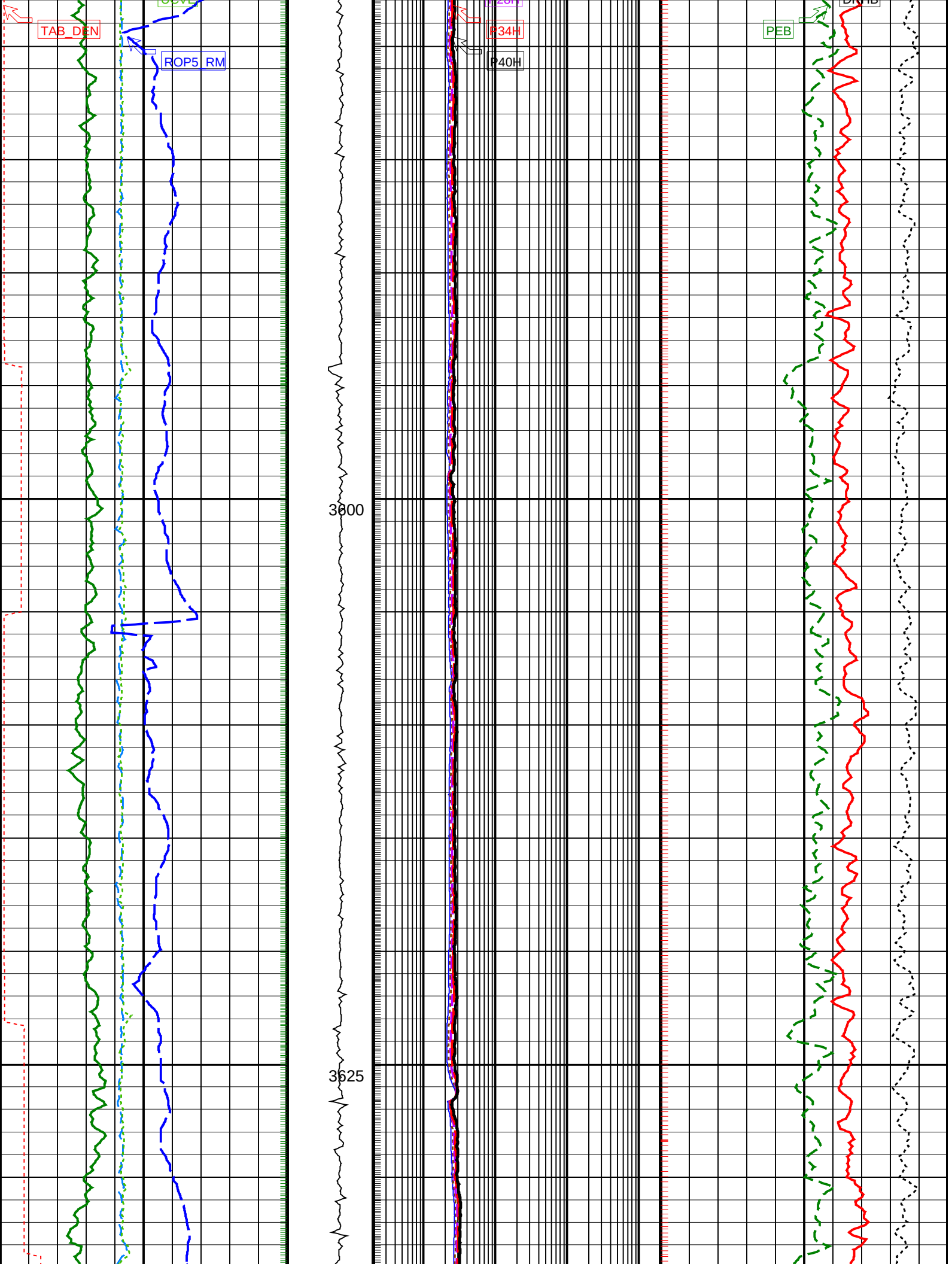
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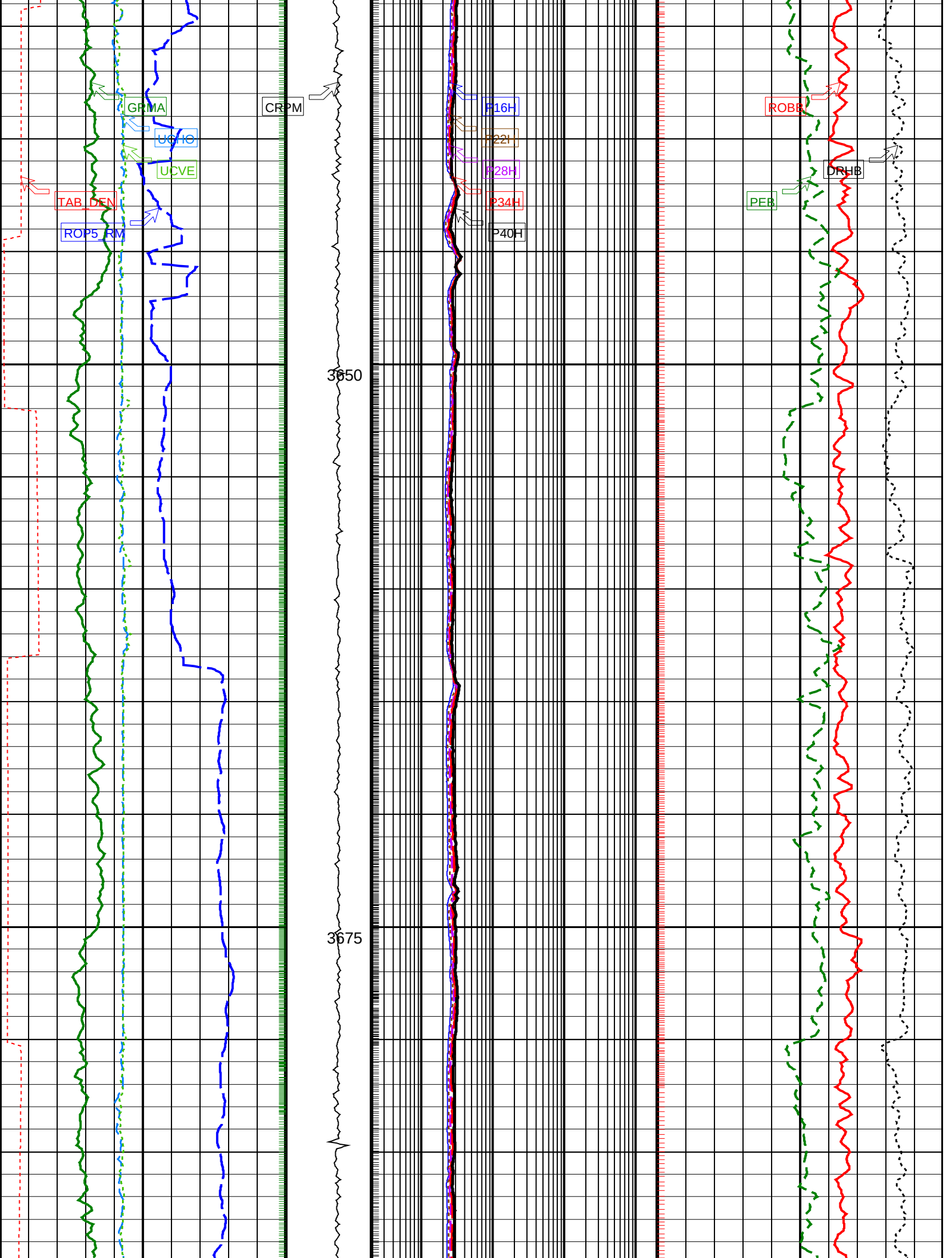
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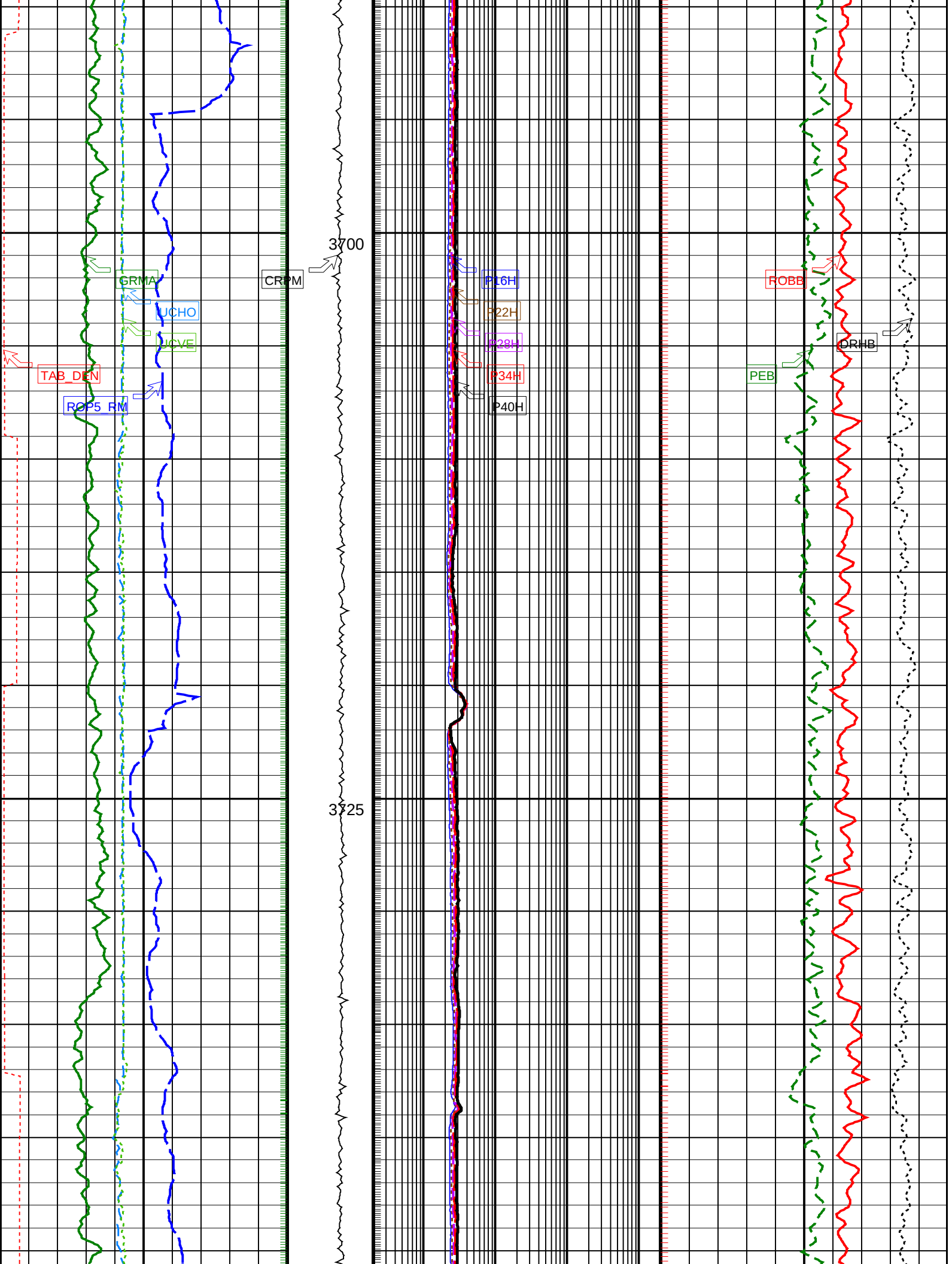
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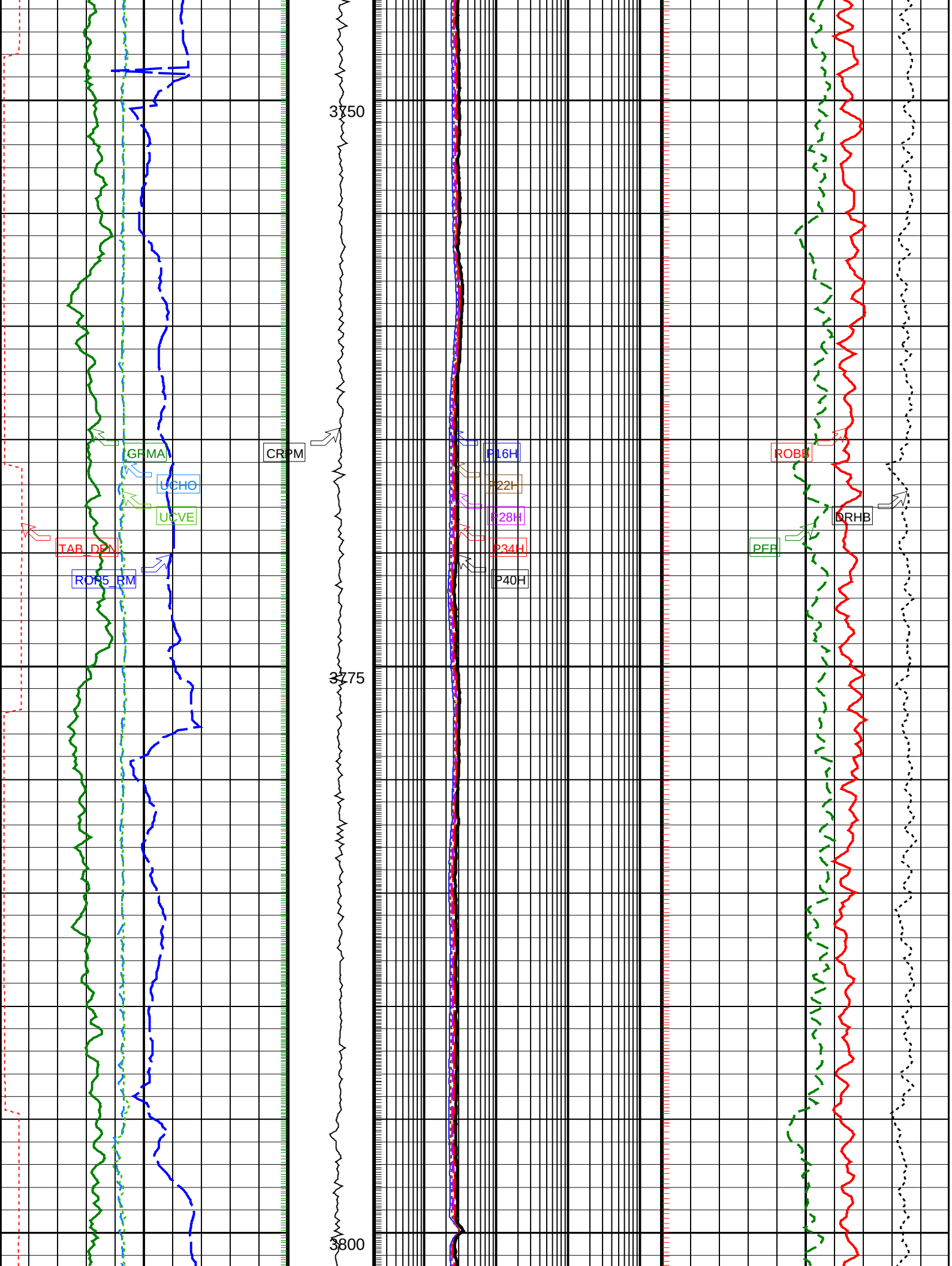
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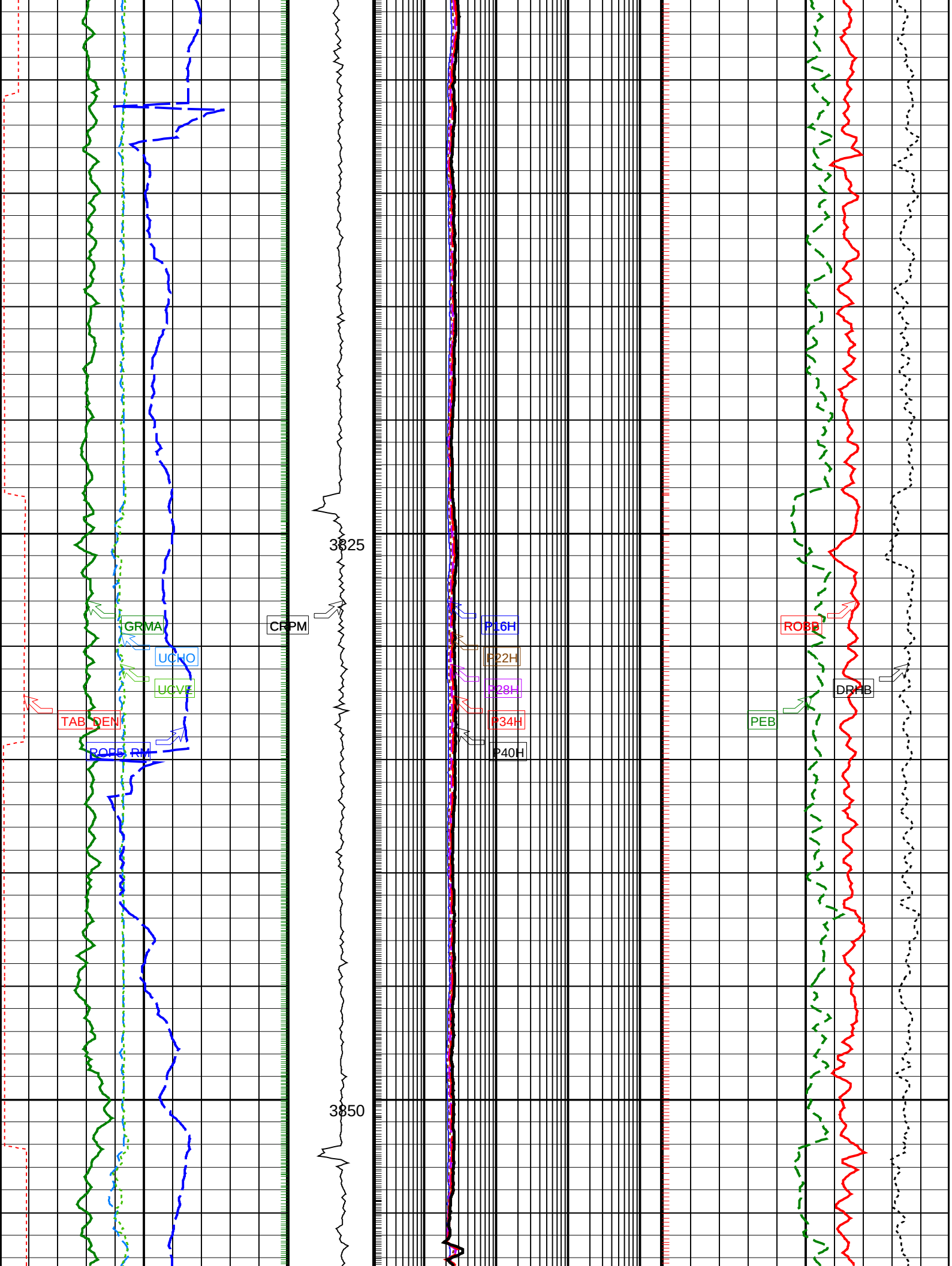
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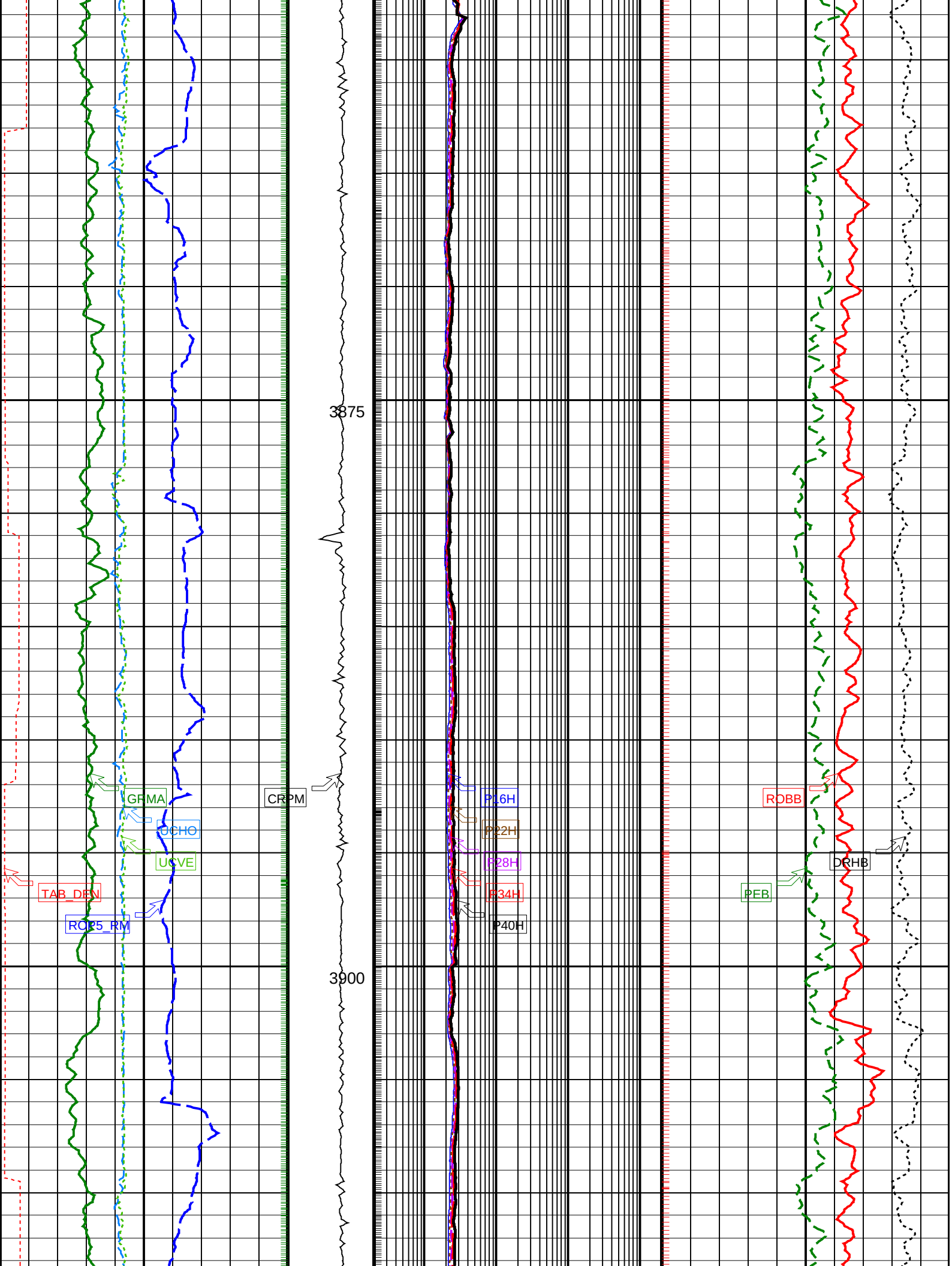
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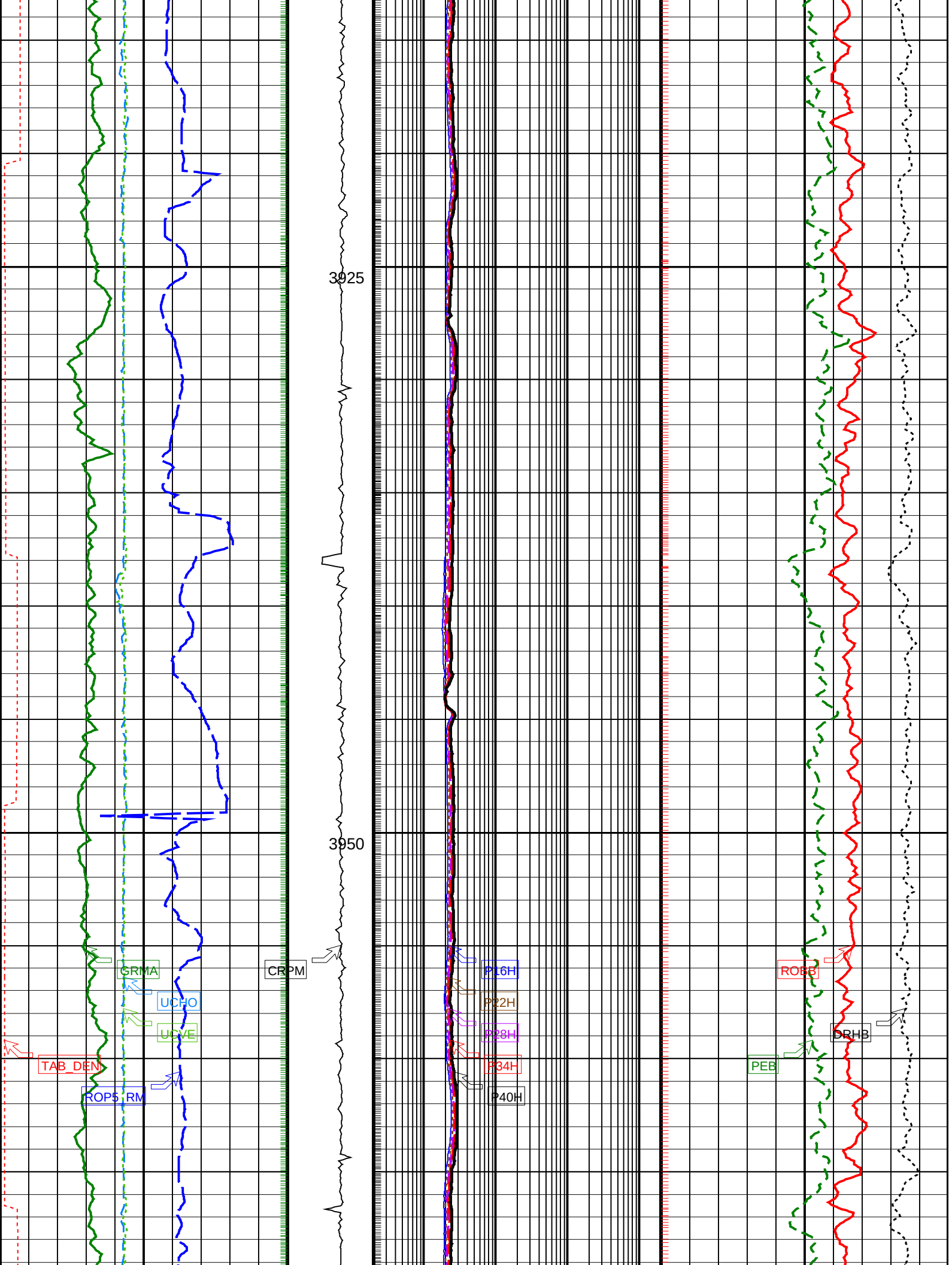
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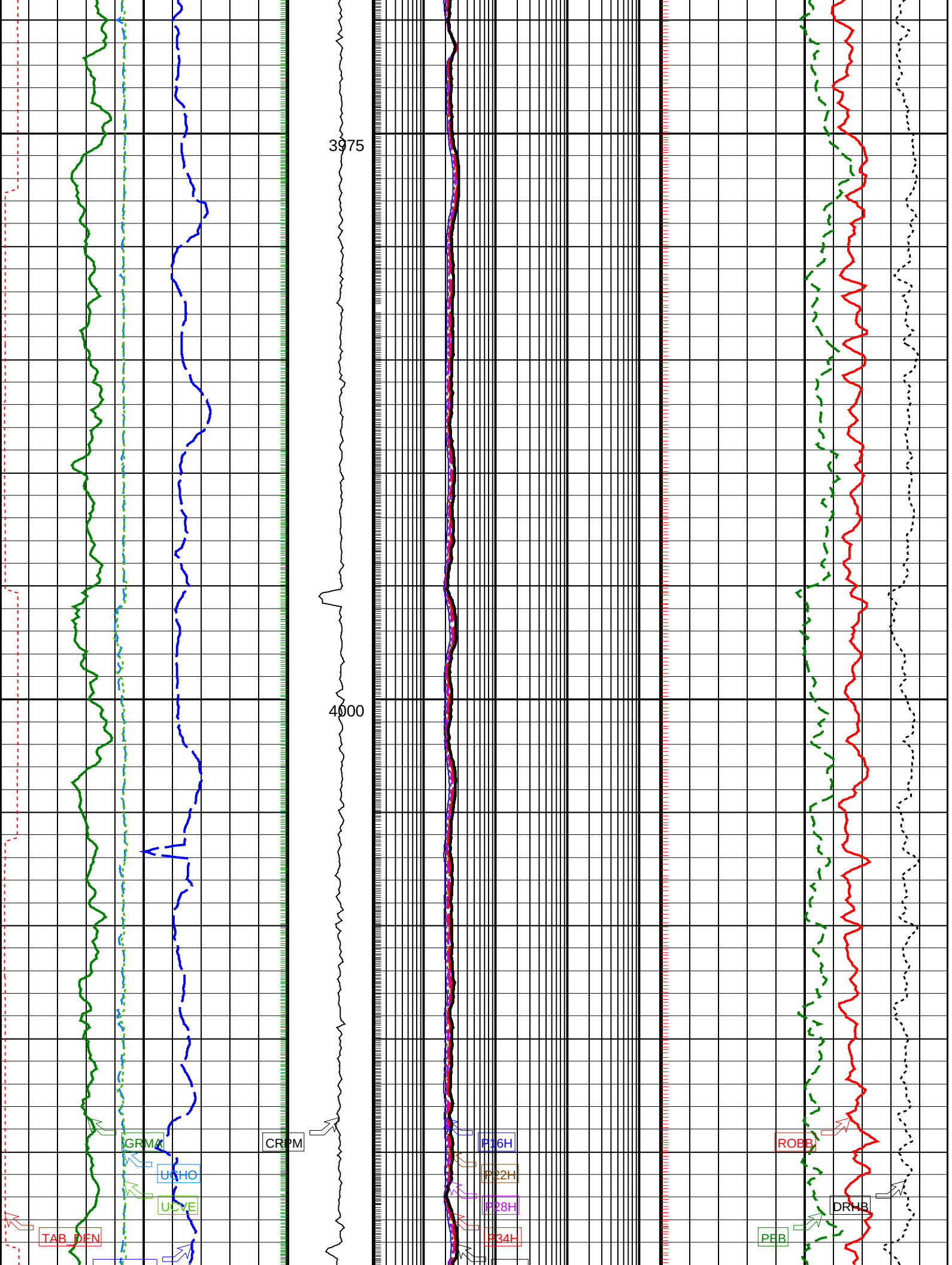
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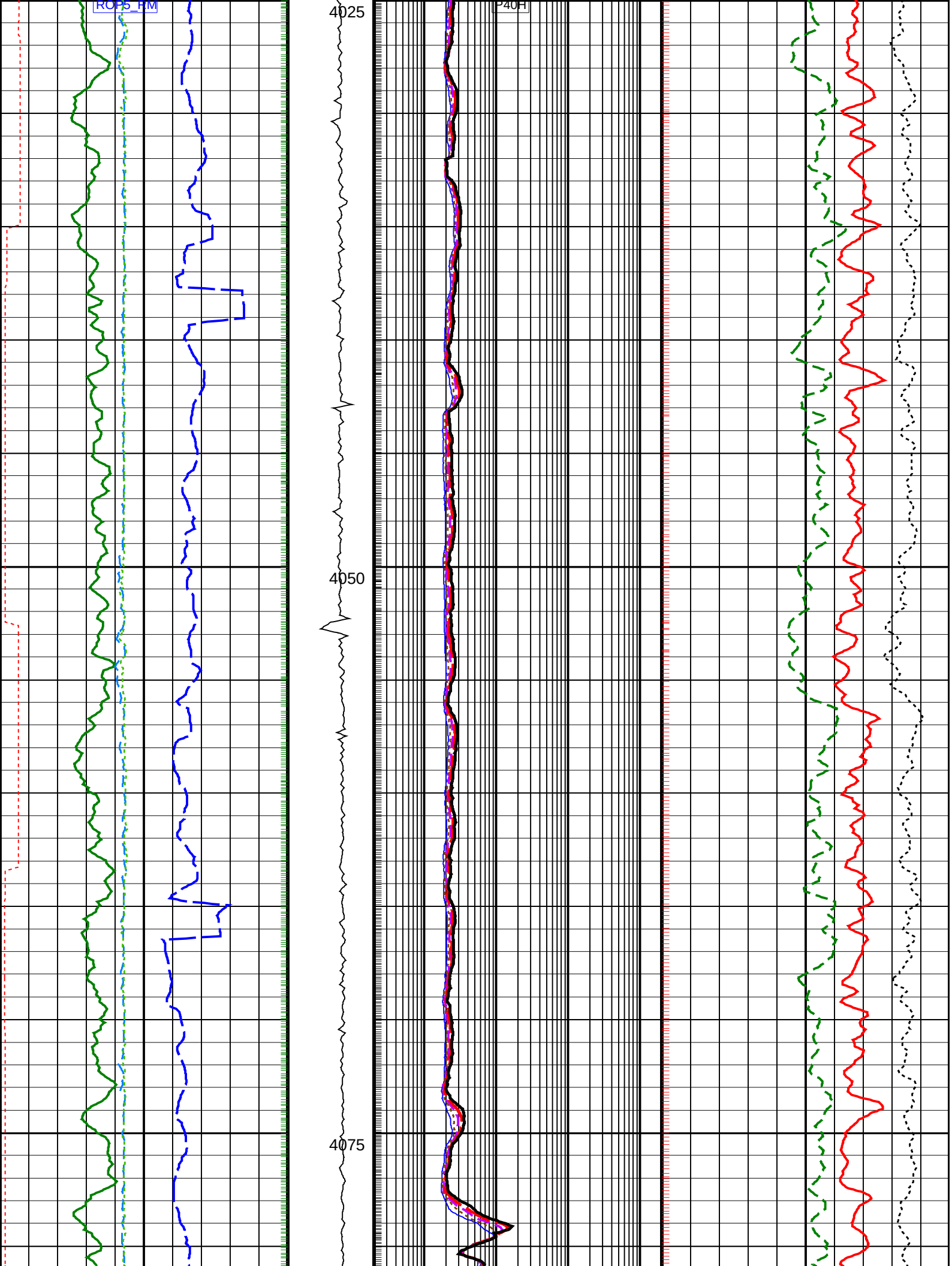
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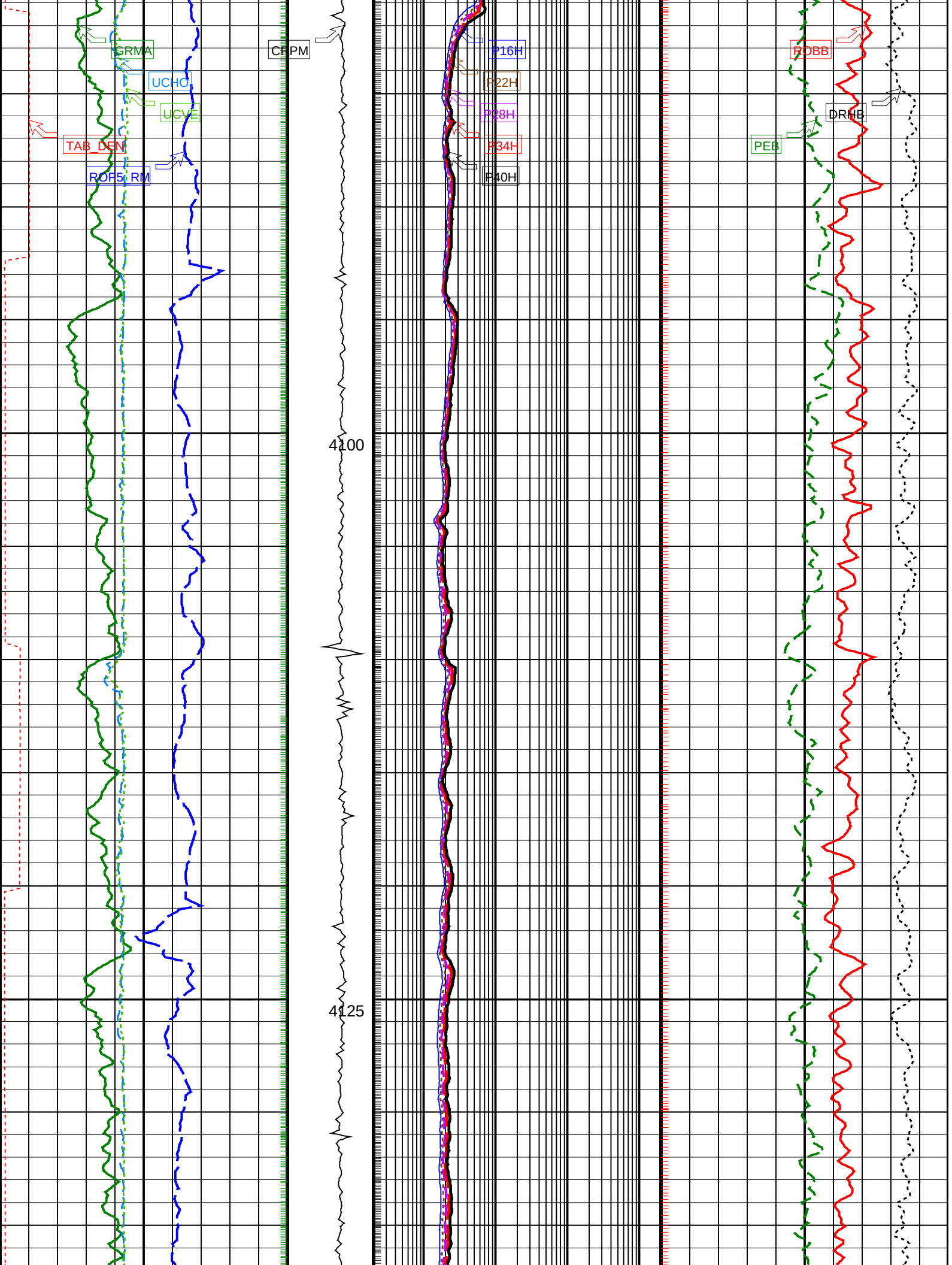
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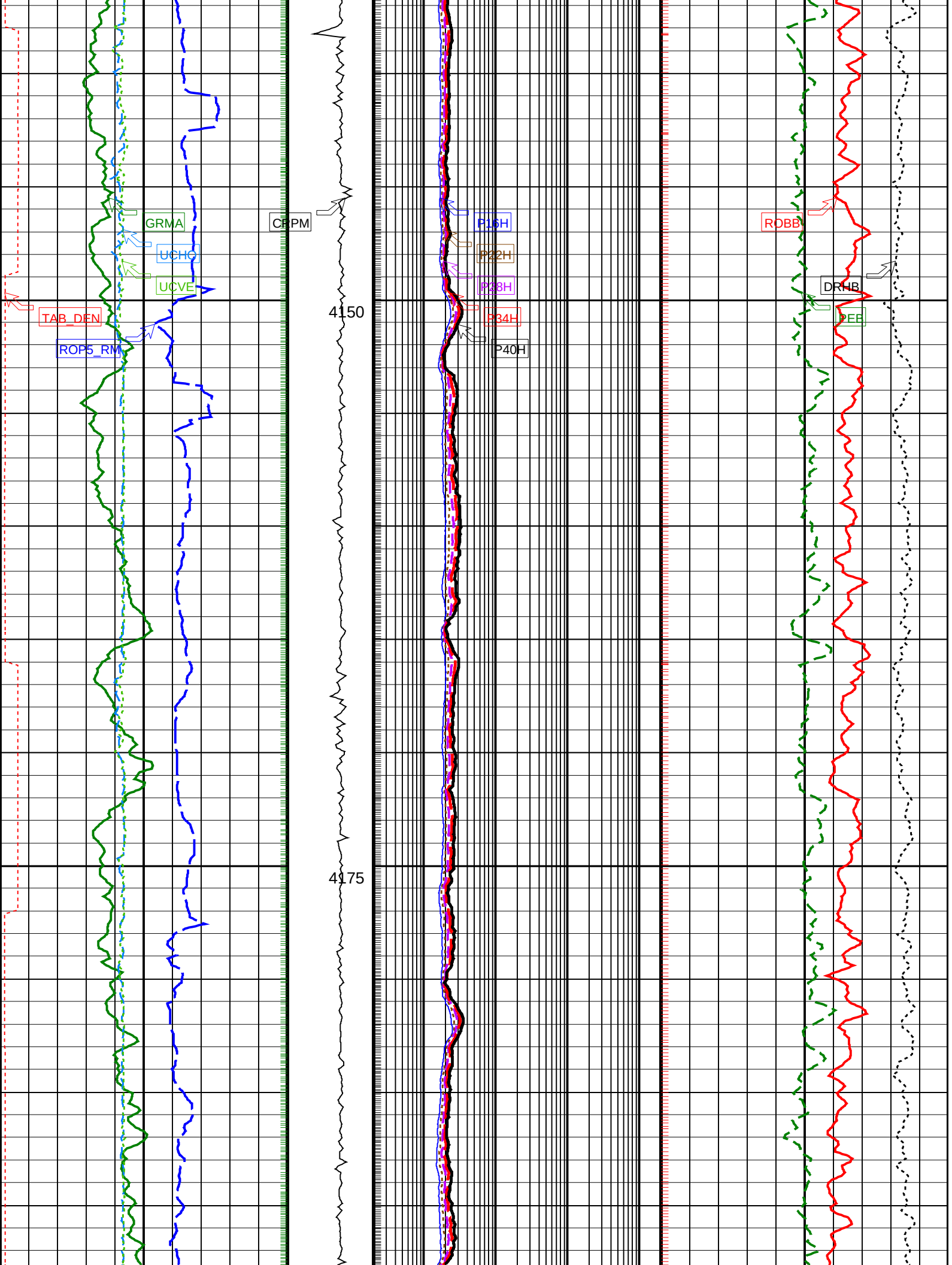
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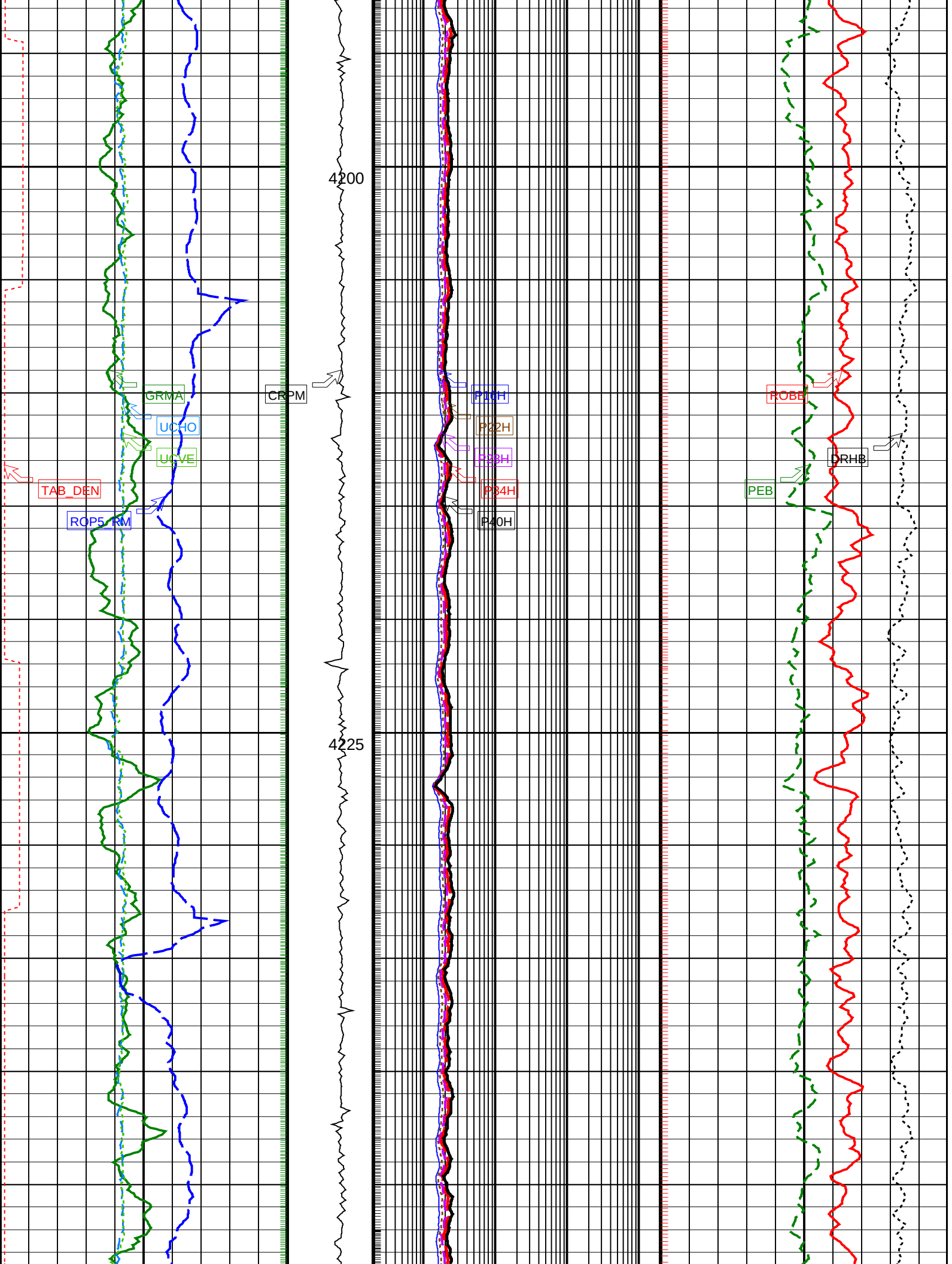
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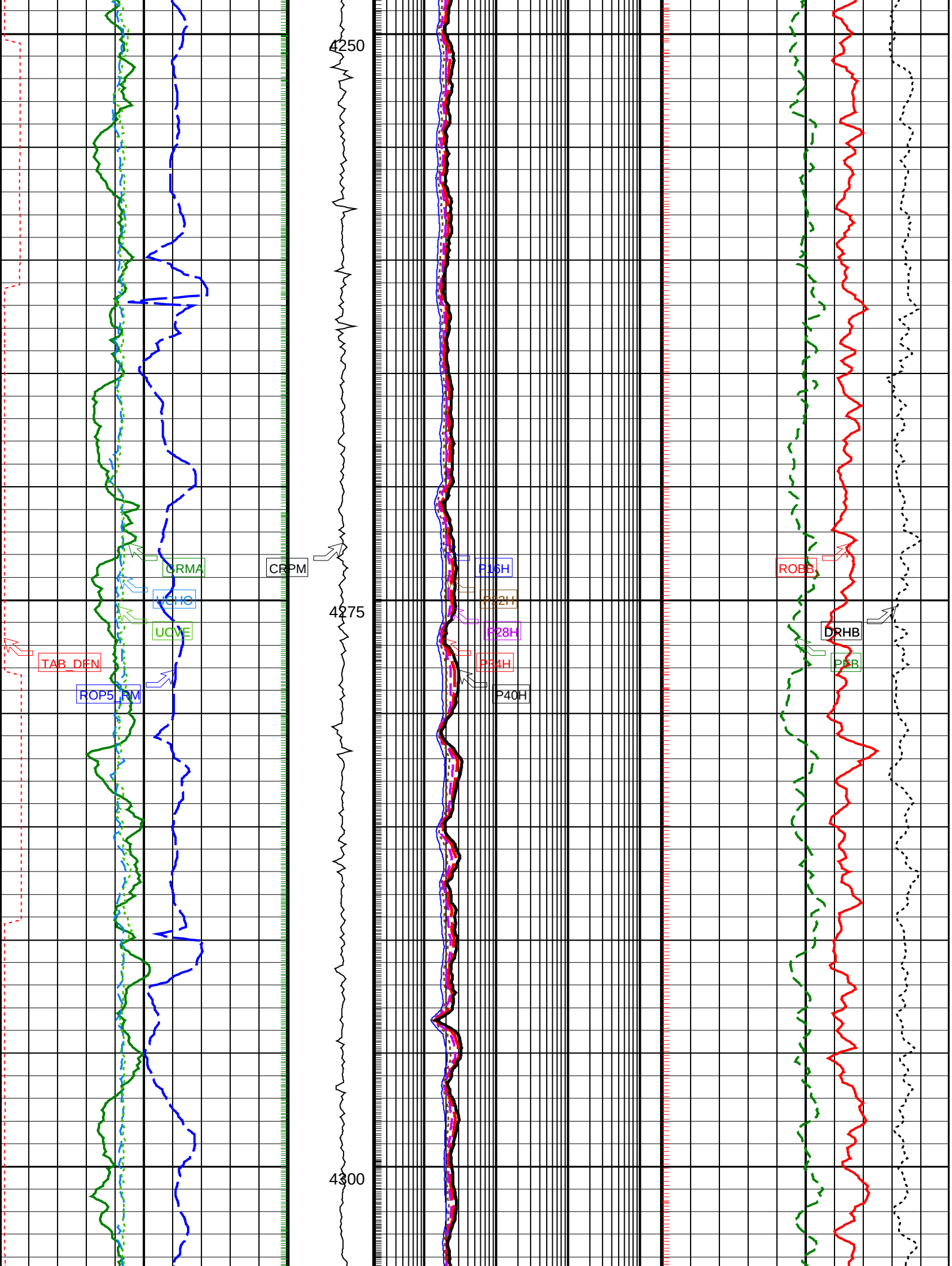
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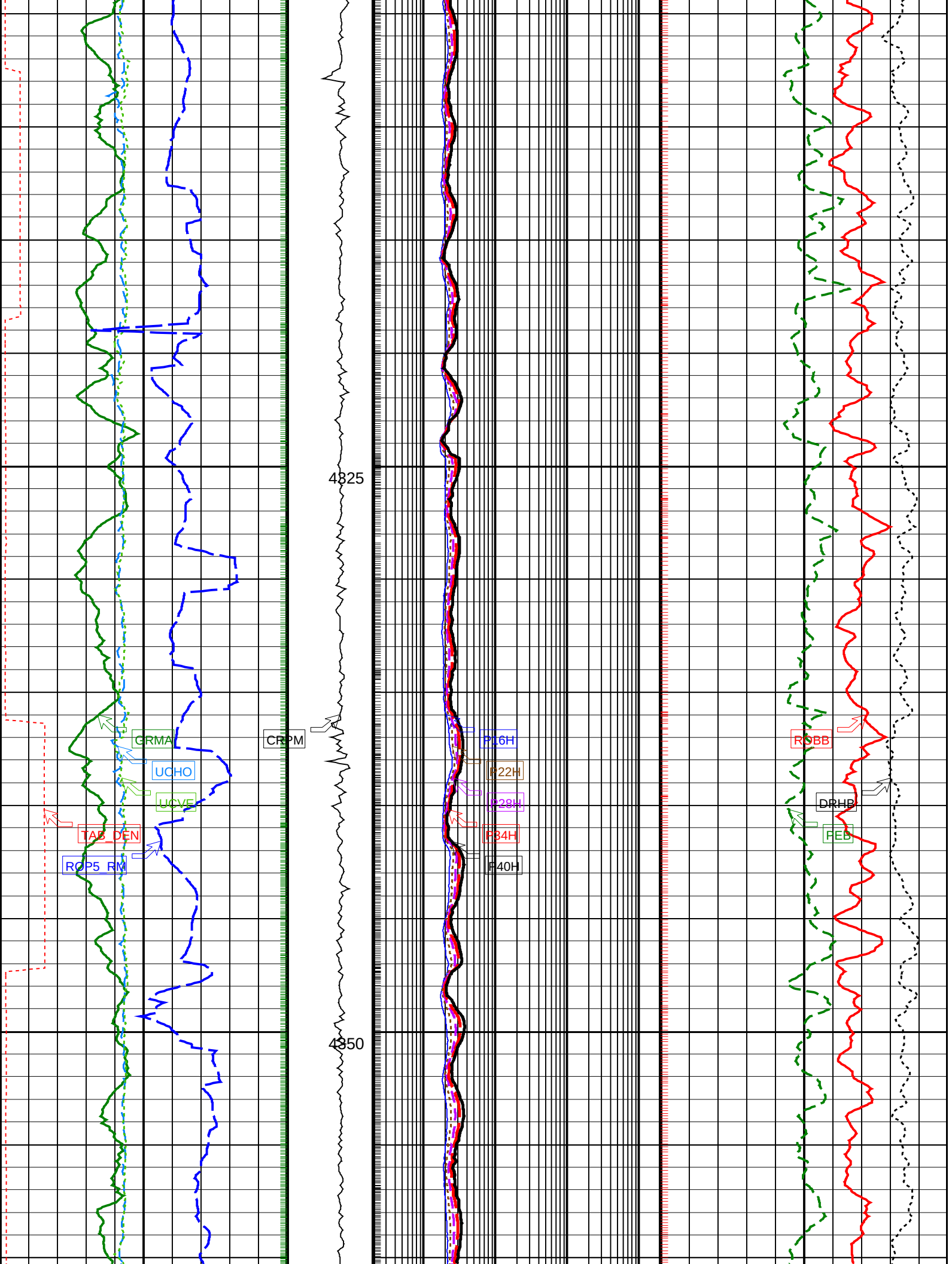
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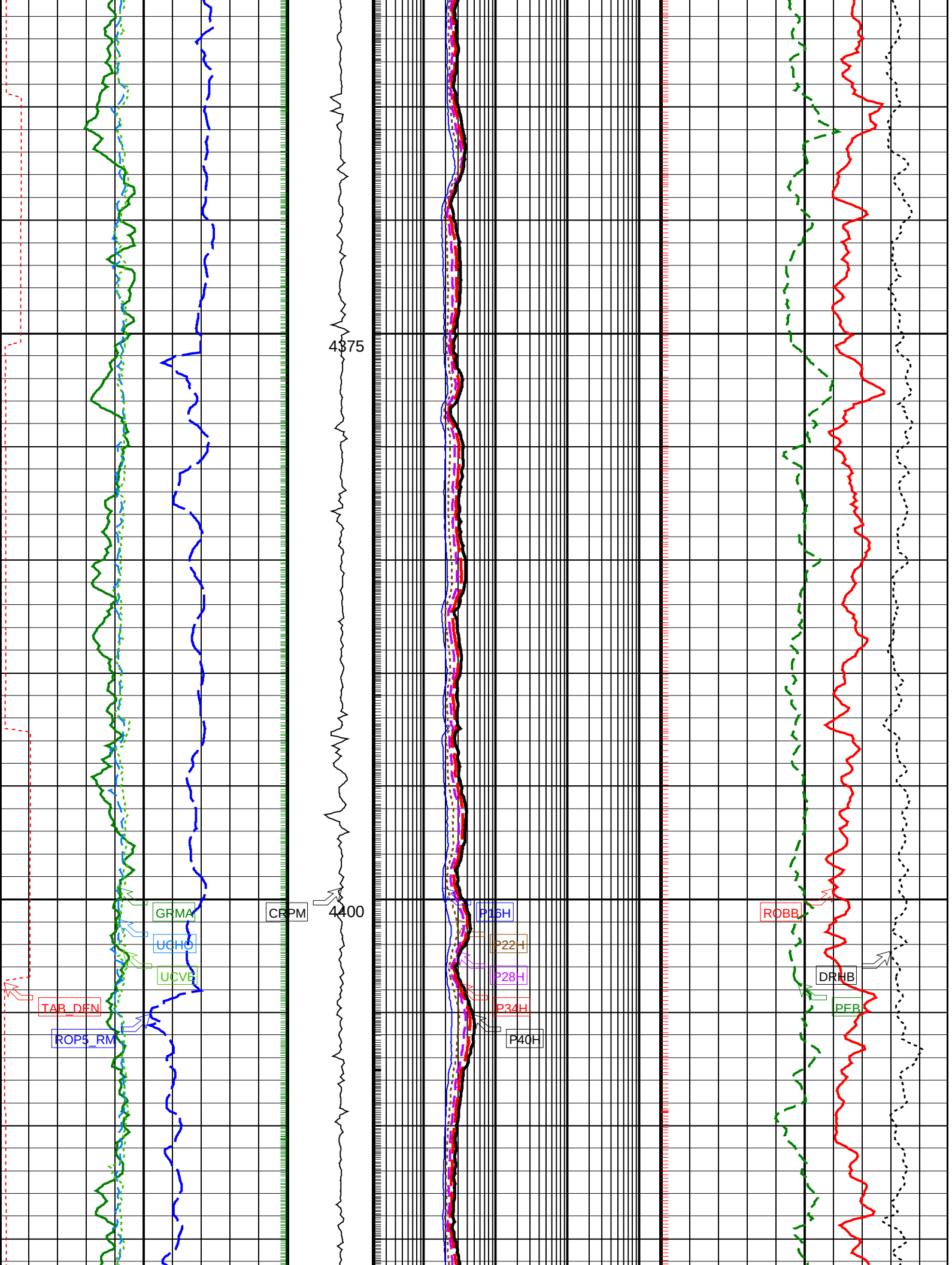
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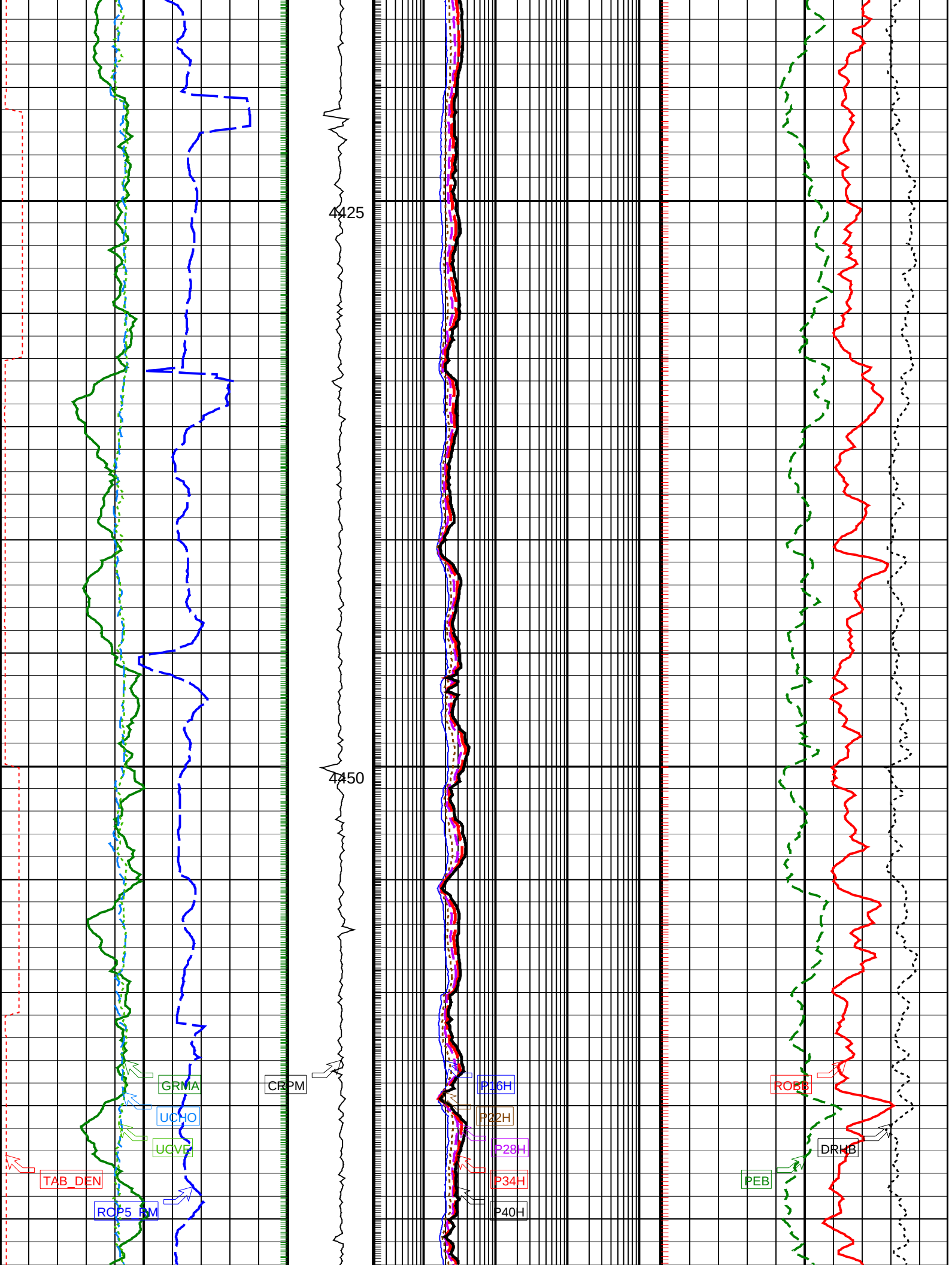
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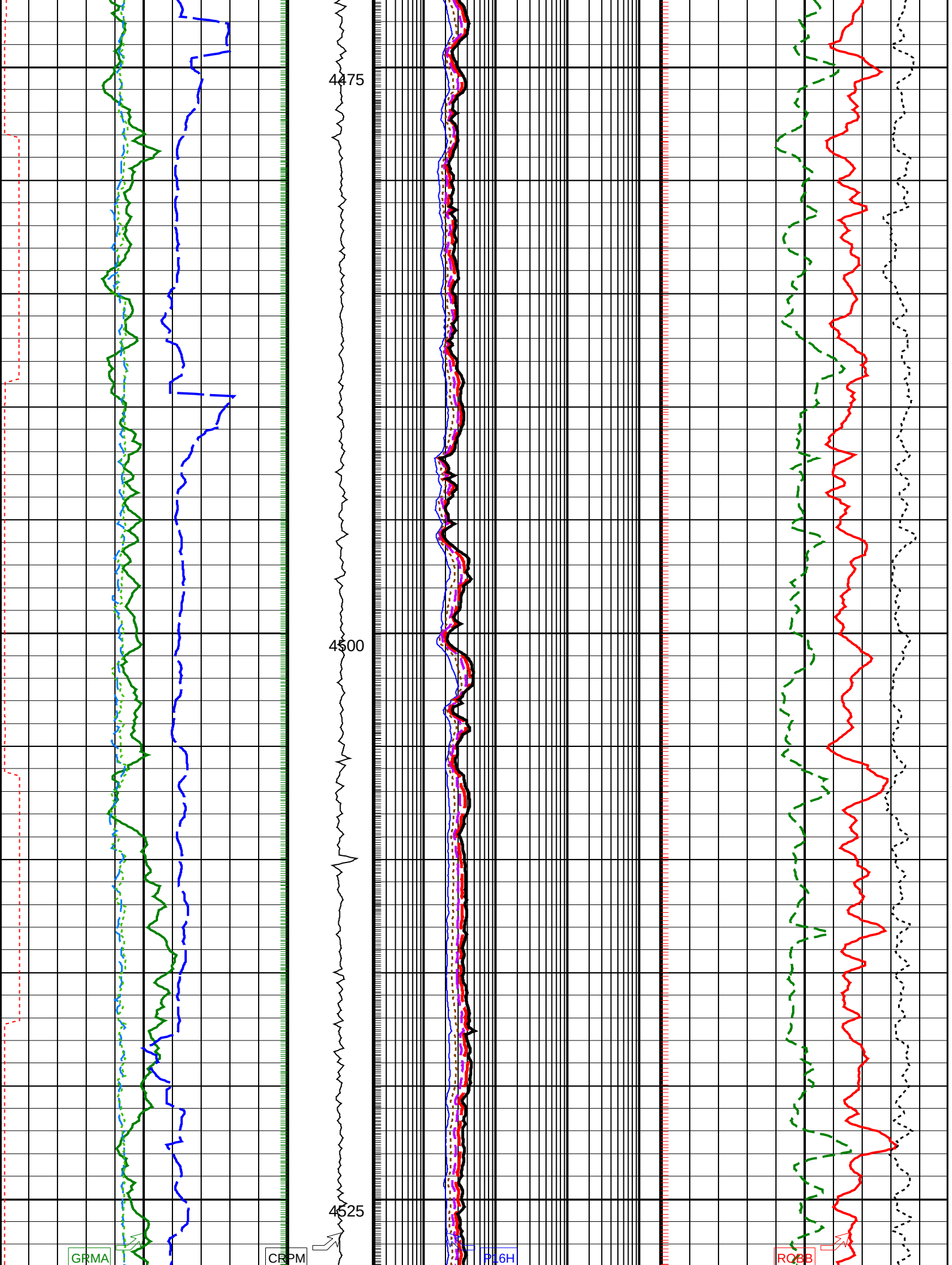
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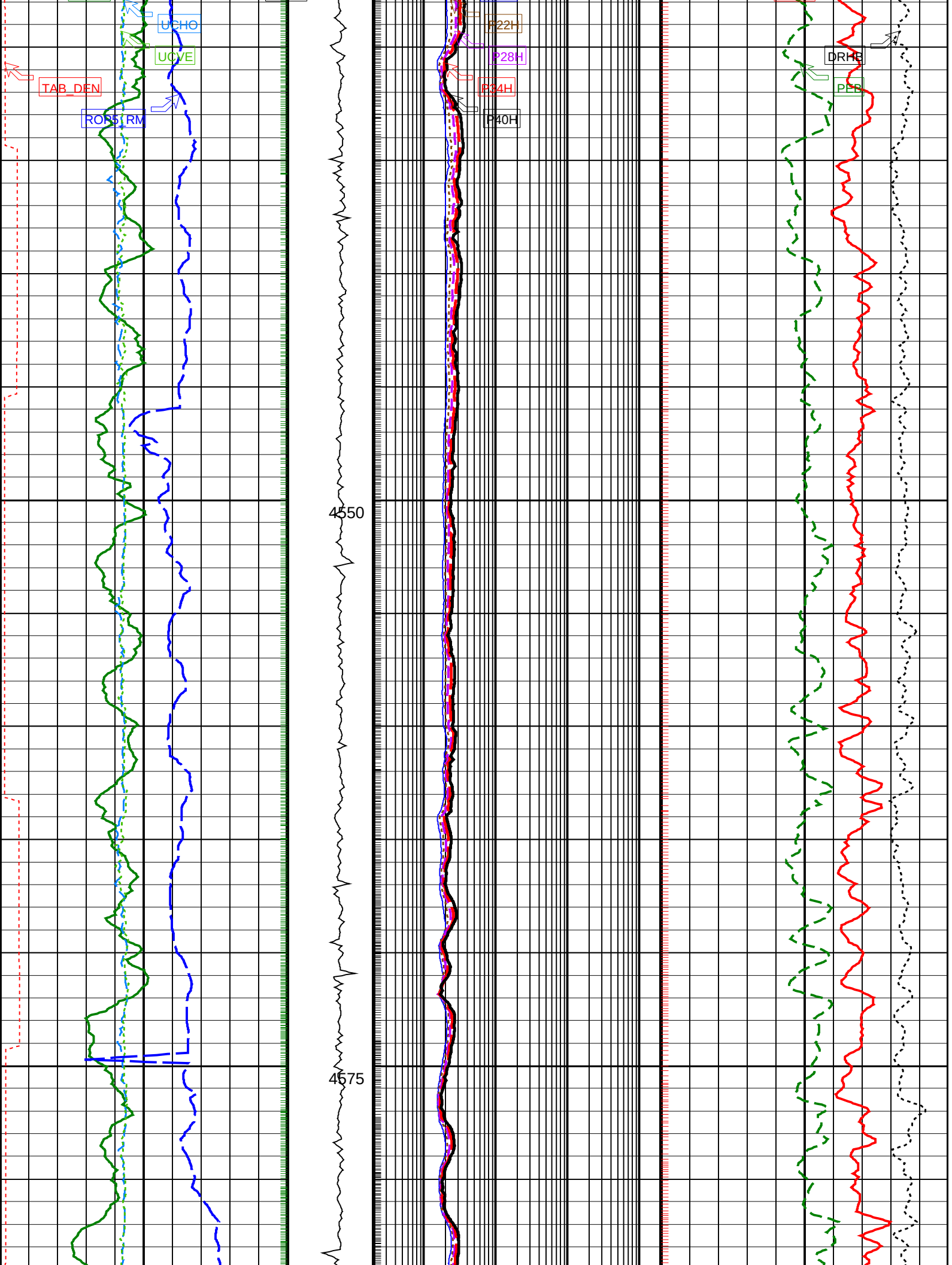
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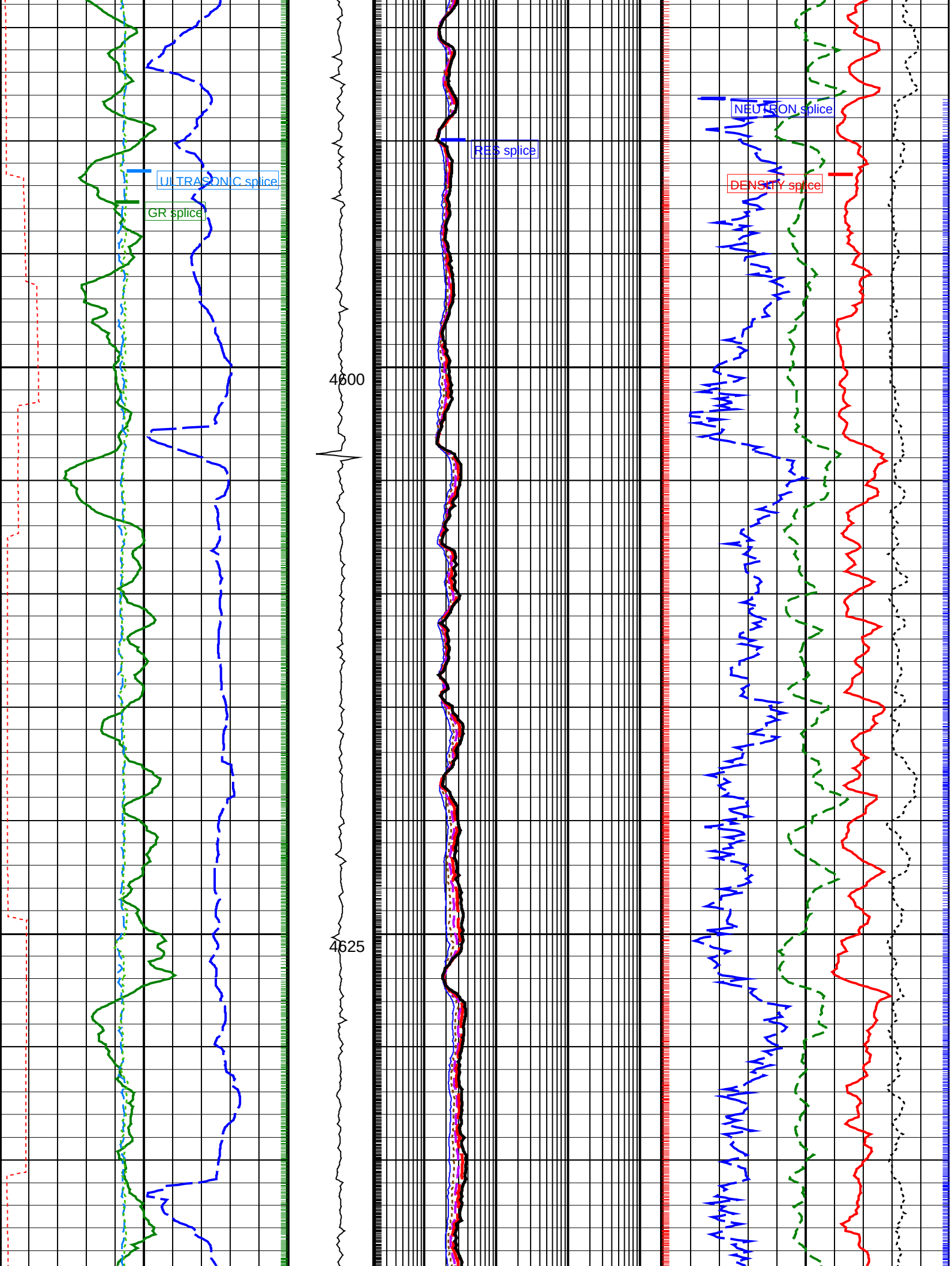
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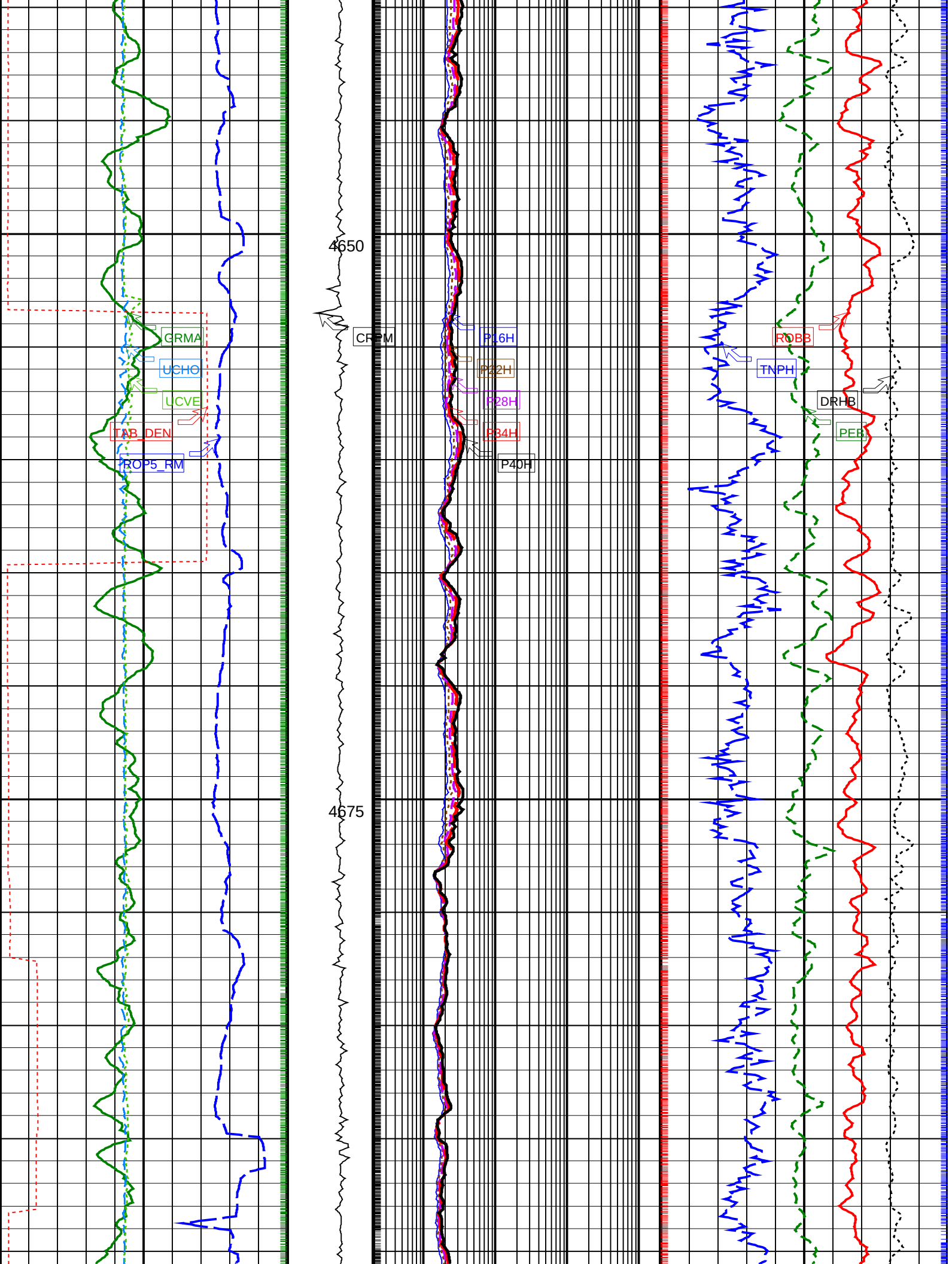
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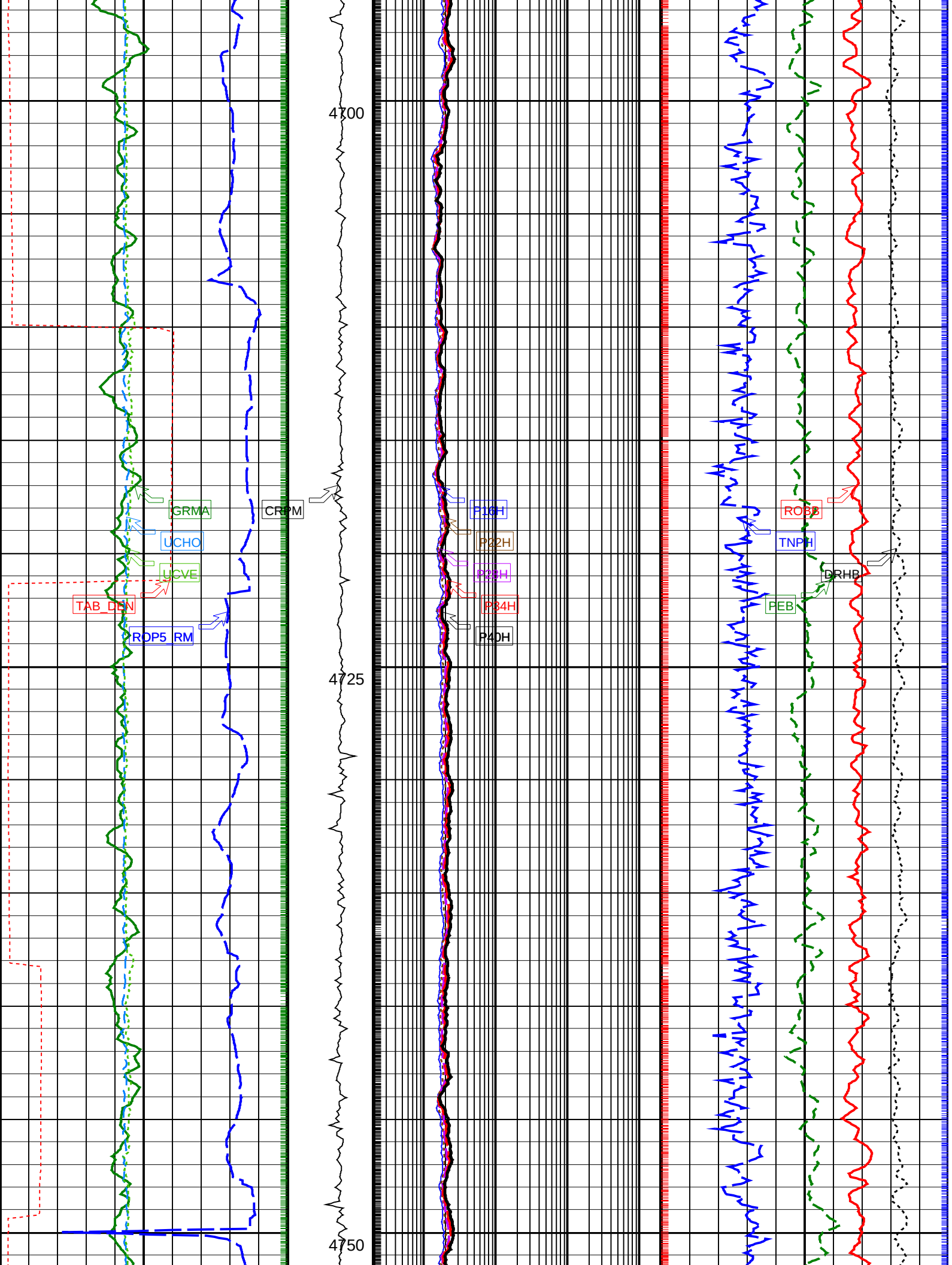
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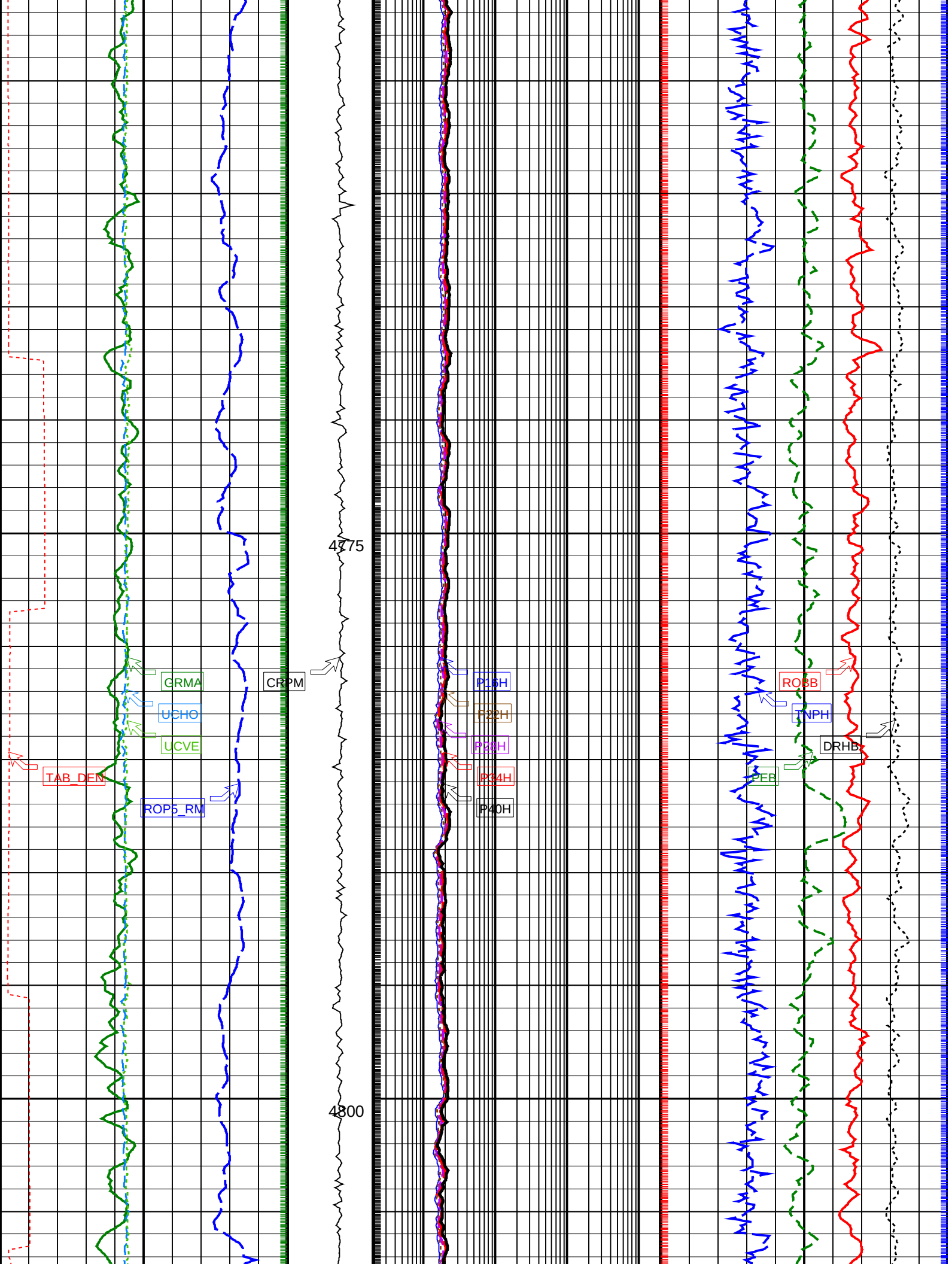
GRMA
UCHO
UCVE
TAB_DEN
ROP5_RM
CRPM
P16H
P22H
P28H
P34H
P40H
ROBB
TNPH
DRHB
PEB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TNPH
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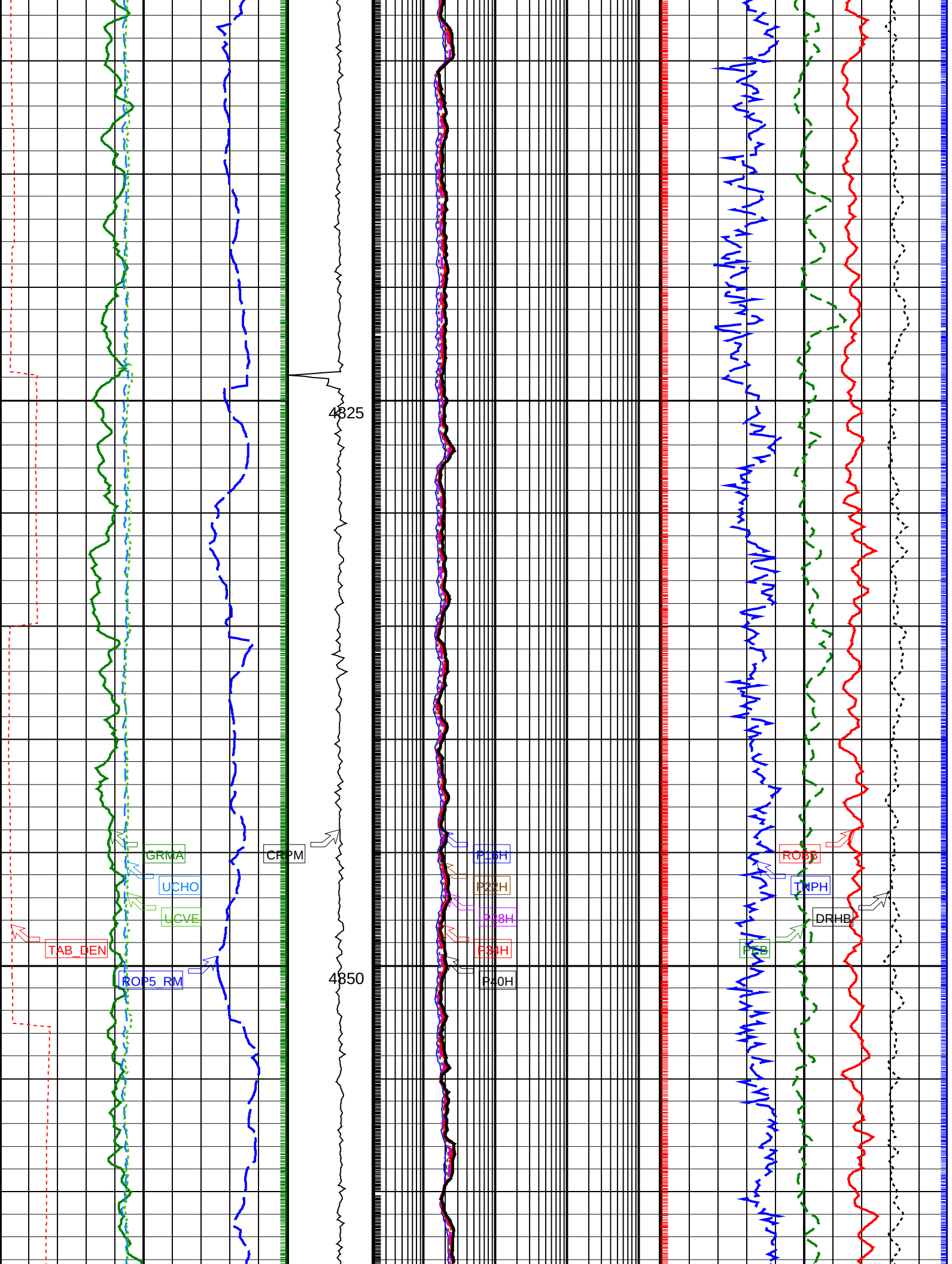
PEB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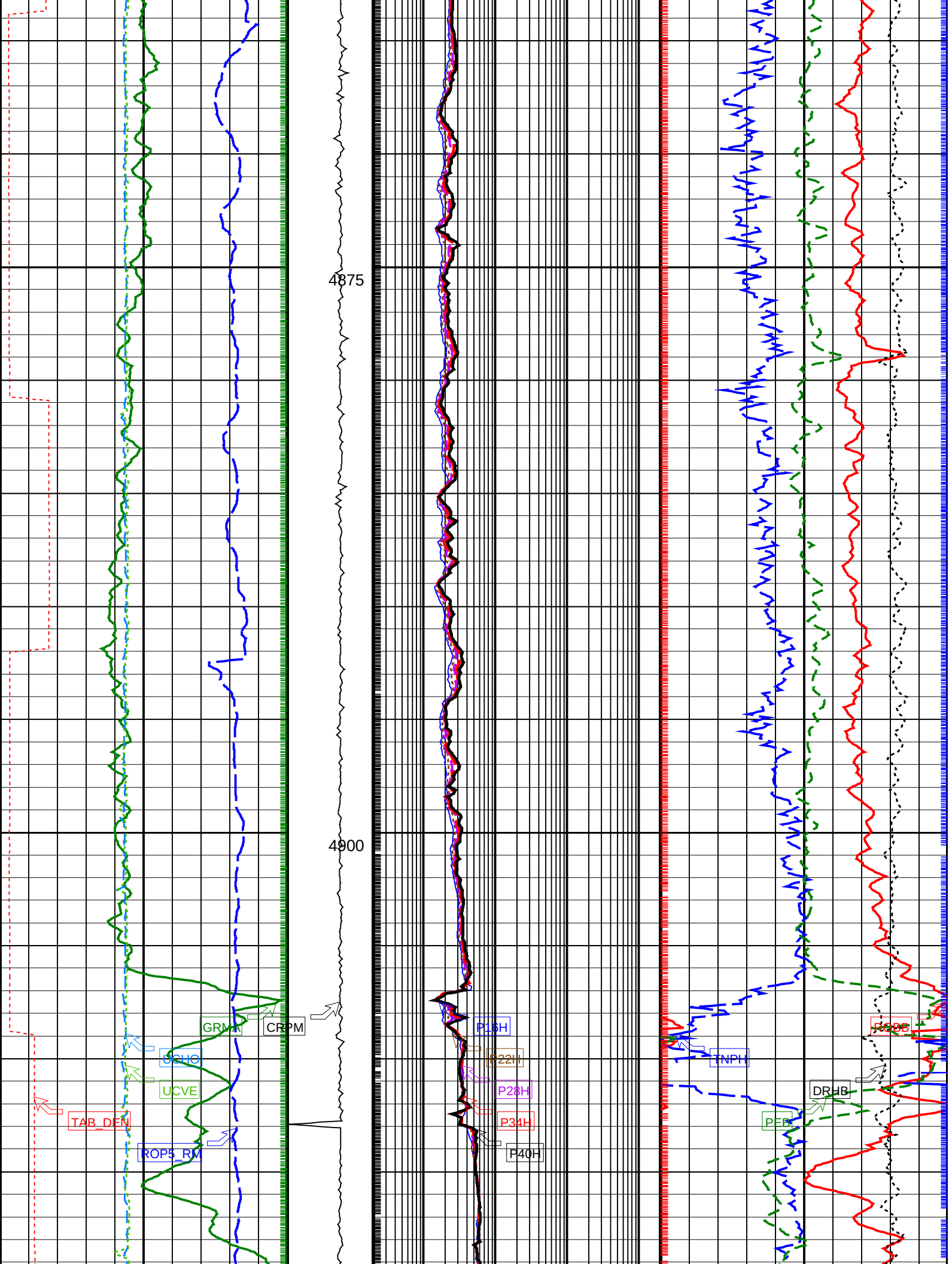
ROBB
TNPH
DRHB
PEB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CRPM
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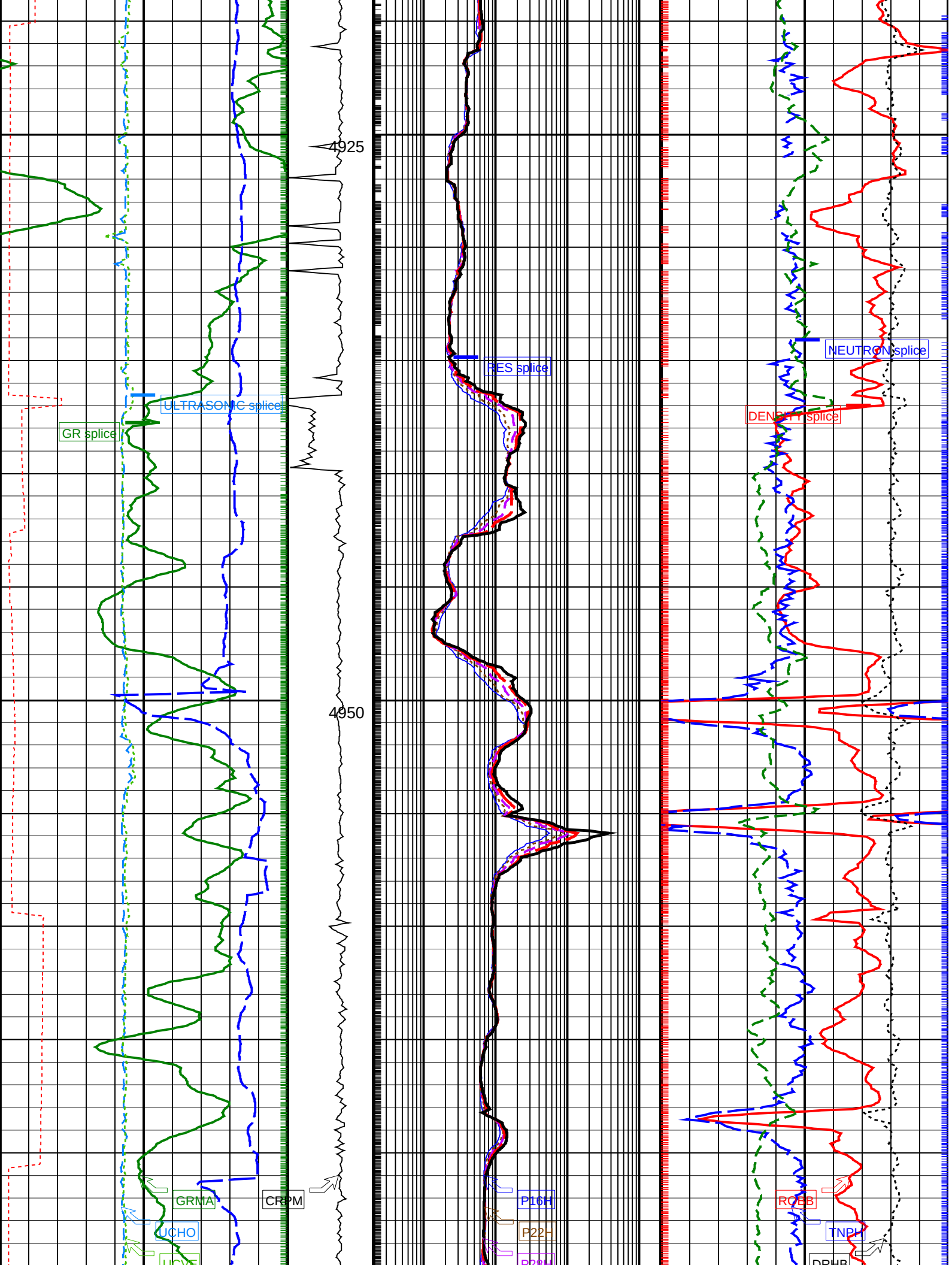
RGBB
DRHB
PEB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DENSITY splice
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P22H
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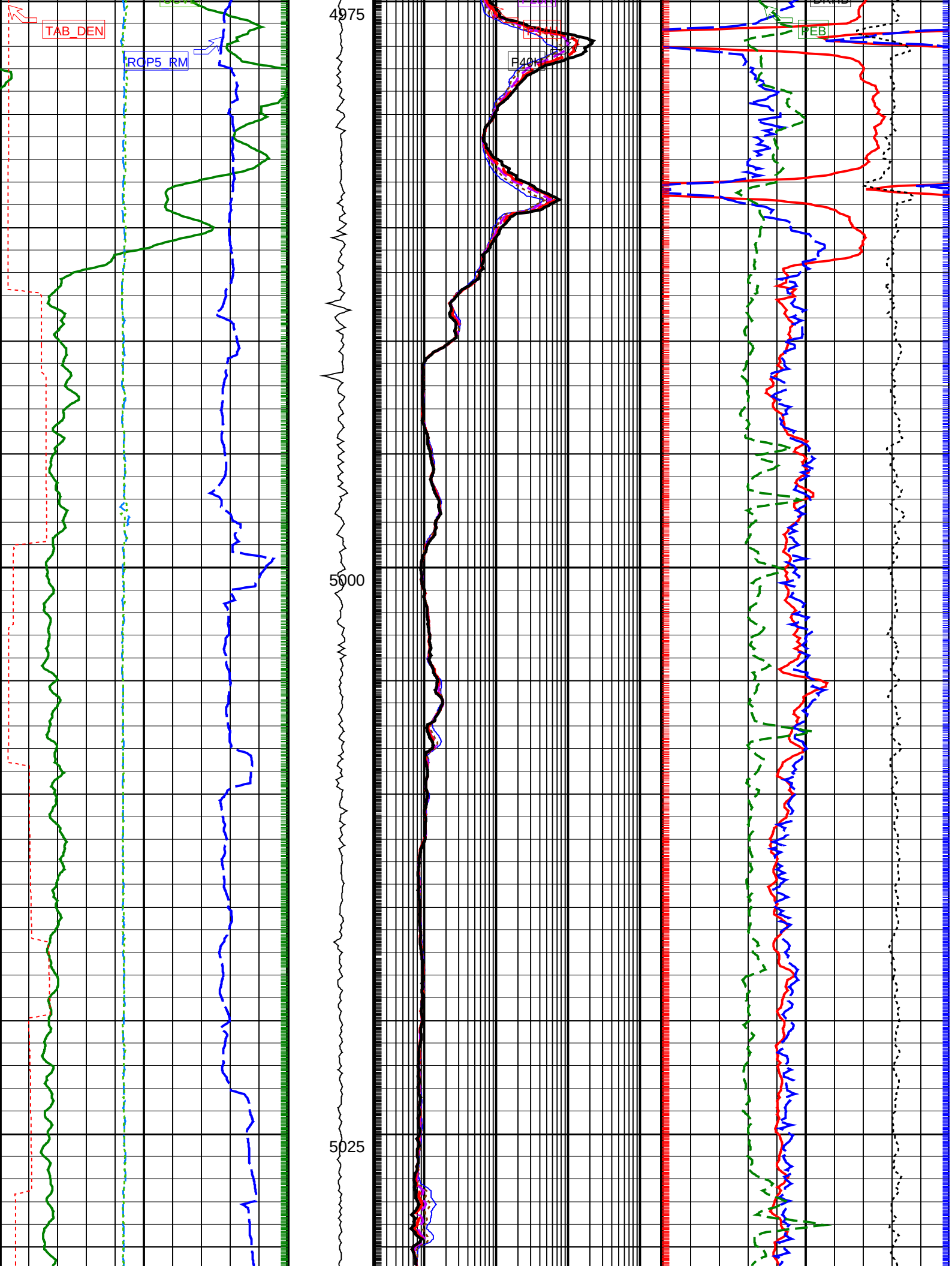
TNPH
DPHB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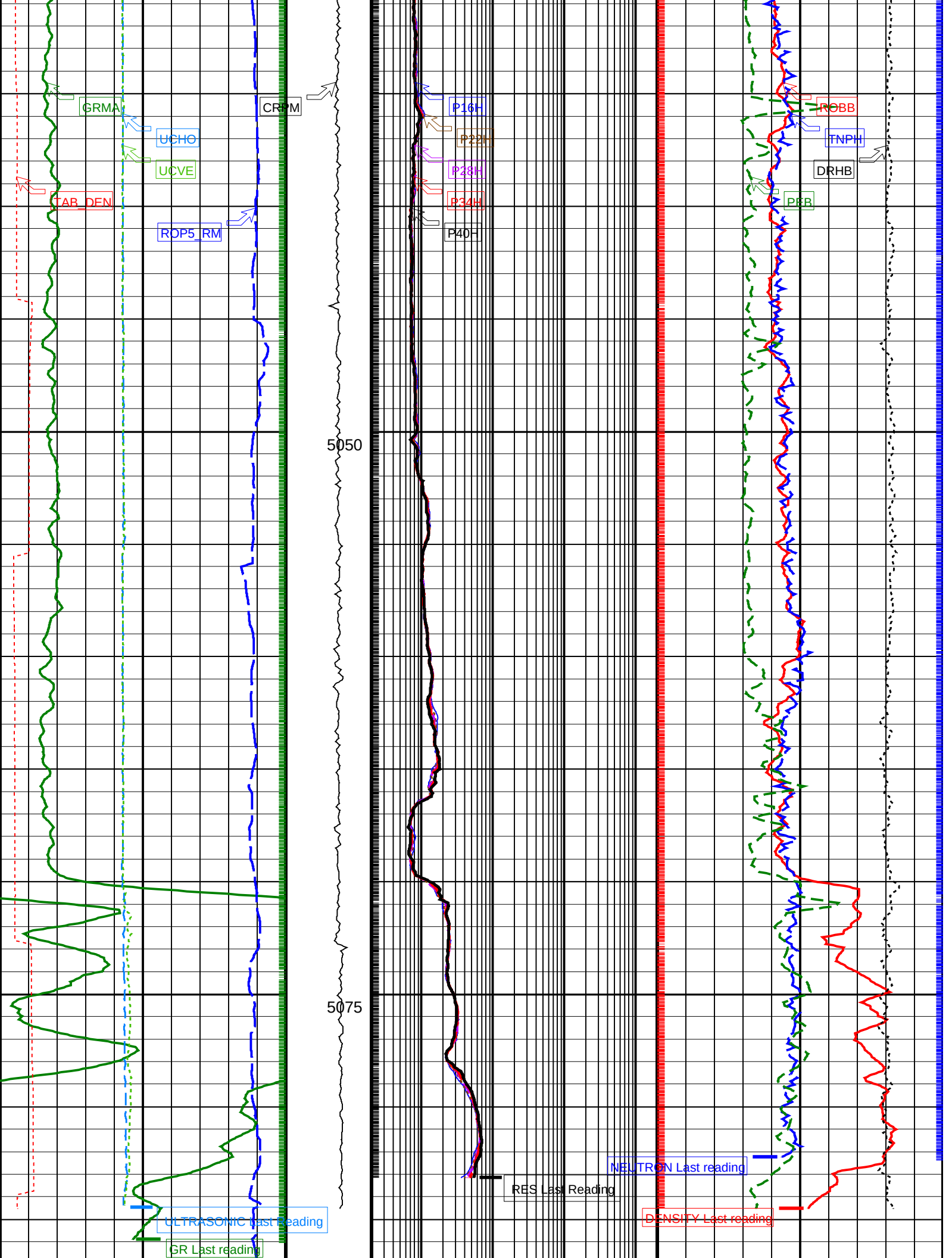
5025
P40H
PEB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CRPM
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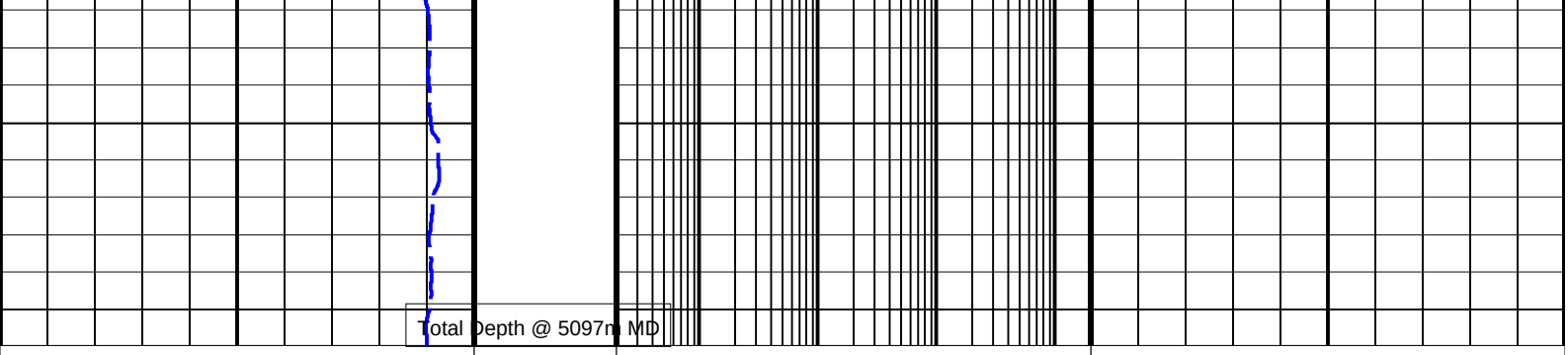
UCVE
TAB_DEN
ROP5_RM
P16H
P22H
P28H
P34H
P40H
ROBB
TNPH
DRHB
PEB
5050
5075
NEUTRON Last reading
RES Last Reading
DENSITY Last reading
ULTRASONIC Last reading
GR Last reading



Gamma Ray, Average (GRMA)	Collar Rotational Speed (CRPM) (RPM)	ARC Phase Shift Resistivity 16 inch at 2 MHz (P16H)	Bulk Density, Bottom (ROBB)
0 (GAPI) 200	0 250	0.2 (OHMM) 2000	1.85 (G/C3) 2.85
Time after BIT (between drilling and measurement) (TAB_DEN)		**ARC Phase Shift Resistivity 22 inch at 2 MHz (P22H)**	**Thermal Neutron Porosity (Ratio Method) in Selected Lithology (TNPH)**
0 (HR) 10		0.2 (OHMM) 2000	45 (PU) −15
Ultrasonic Caliper, Horizontal Diameter (UCHO)		**ARC Phase Shift Resistivity 28 inch at 2 MHz (P28H)**	**Bulk Density Correction, Bottom (DRHB)**
6 (IN) 16		0.2 (OHMM) 2000	−0.75 (G/C3) 0.25
Ultrasonic Caliper, Vertical Diameter (UCVE)		**ARC Phase Shift Resistivity 34 inch at 2 MHz (P34H)**	**Photoelectric Factor, Bottom (PEB)**
6 (IN) 16		0.2 (OHMM) 2000	0 (−−−− 10
Rate of Penetration, Averaged over Last 5ft (ROP5_RM)		**ARC Phase Shift Resistivity 40 inch at 2 MHz (P40H)**	
200 (M/HR) 0		0.2 (OHMM) 2000	

PIP SUMMARY

Density Samples

Neutron Samples

Gamma Ray Samples

Resistivity Samples

IDEAL Version: ID12_0C_13

IDF

ECO6	**id12_0c_01**	**MWD_10**	**id12_0c_01**
SON675	**id12_0c_01**		

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

Primary Equipment:

Tool Name and Serial Number	EcoScope* 804 (Collar 808)
Calibration Status	Valid
Neutron Logging Source	PNG−C 2242−41357
Density Logging Source	GSR−Z A2474
Stabilizer Size	9.38 − in.

Master: 15−Sep−2007 12:07

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

SSn LSn : Water Tank

Phase	SSn Gain	Value	Phase	SSn Offset	Value
Master		1.087	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		1.062	Master		0
0.6000 (Minimum)	1.000 (Nominal)	1.400 (Maximum)	−3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)

Master: 15−Sep−2007 12:07

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

Neutron: Water Tank

Phase	Far 2 Gain	Value
Master		1.000
0.7000 (Minimum)	1.000 (Nominal)	1.300 (Maximum)

Phase	Far 2 Offset	Value
Master		0.8053
−3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)

Phase	Far 1 Gain	Value
Master		1.006
0.7000 (Minimum)	1.000 (Nominal)	1.300 (Maximum)

Phase	Far 1 Offset	Value
Master		0.6186
−3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)

Phase	Thermal Near gain	Value
Master		1.015
0.7000 (Minimum)	1.000 (Nominal)	1.300 (Maximum)

Phase	Thermal Near offset	Value
Master		25.89
−500.0 (Minimum)	0 (Nominal)	500.0 (Maximum)

Phase	Epithermal Near gain	Value
Master		1.037
0.7000 (Minimum)	1.000 (Nominal)	1.300 (Maximum)

Phase	Epithermal Near offset	Value
Master		100.7
−300.0 (Minimum)	0 (Nominal)	300.0 (Maximum)

Master: 15−Sep−2007 12:07

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

Gamma Density: Magnesium Block

Phase	LS window 3 − Mg CPS	Value
Master		1965
1000 (Minimum)	2000 (Nominal)	3000 (Maximum)

Phase	SS window 1 − Mg CPS	Value
Master		4716
2500 (Minimum)	5250 (Nominal)	8000 (Maximum)

Phase	SS window 3 − Mg CPS	Value
Master		11100
6000 (Minimum)	12000 (Nominal)	18000 (Maximum)

Master: 15−Sep−2007 12:07

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

Gamma Density: Aluminum Block

Phase	LS window 3 − Al CPS	Value
Master		368.8
200.0 (Minimum)	400.0 (Nominal)	600.0 (Maximum)

Phase	SS window 1 − Al CPS	Value
Master		2457
1500 (Minimum)	3000 (Nominal)	4500 (Maximum)

Phase	SS window 3 − Al CPS	Value
Master		8183
4000 (Minimum)	8500 (Nominal)	13000 (Maximum)

Master: 15−Sep−2007 12:07

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

Gamma Density: Background

Phase	LS window 3 − Background CPS	Value
Master		59.30
50.00 (Minimum)	70.00 (Nominal)	90.00 (Maximum)

Phase	SS window 1 − Background CPS	Value
Master		72.40
50.00 (Minimum)	75.00 (Nominal)	100.0 (Maximum)

Phase	SS window 3 − Background CPS	Value
Master		353.9
270.0 (Minimum)	370.0 (Nominal)	470.0 (Maximum)

Master: 15−Sep−2007 12:07

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

Gamma Density: Water Block Check

Phase	Long spacing water density G/C3	Value
Master		1.024
0.9000 (Minimum)	1.150 (Nominal)	1.400 (Maximum)

Phase	Short spacing water density G/C3	Value
Master		1.280
0.9000 (Minimum)	1.150 (Nominal)	1.400 (Maximum)

Master: 11−Sep−2007 7:12

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

Resistivity: Air

Phase	Phase−Shift T1	Value
Master		−0.9915
−4.000 (Minimum)	0 (Nominal)	4.000 (Maximum)

Phase	Phase−Shift T2	Value
Master		0.8876
−4.000 (Minimum)	0 (Nominal)	4.000 (Maximum)

Phase	Phase−Shift T3	Value
Master		−1.029
−4.000 (Minimum)	0 (Nominal)	4.000 (Maximum)

Phase	Phase−Shift T4	Value
Master		0.8706
−4.000 (Minimum)	0 (Nominal)	4.000 (Maximum)

Phase	Phase−Shift T5	Value
Master		−0.9920
−4.000 (Minimum)	0 (Nominal)	4.000 (Maximum)

Phase	Phase−Shift T1 at 400KHz	Value
Master		1.613
−4.000 (Minimum)	0 (Nominal)	4.000 (Maximum)

Phase	Phase−Shift T2 at 400KHz	Value
Master		−1.590
−4.000	0	4.000

Phase	Phase−Shift T3 at 400KHz	Value
Master		1.617
−4.000	0	4.000

Phase	Phase−Shift T4 at 400KHz	Value
Master		−1.592
−4.000	0	4.000

(Minimum)	(Nominal)	(Maximum)	(Minimum)	(Nominal)	(Maximum)	(Minimum)	(Nominal)	(Maximum)

Phase	Phase−Shift T5 at 400KHz	Value
Master		1.627
−4.000 (Minimum)	0 (Nominal)	4.000 (Maximum)

Master: 11−Sep−2007 7:12

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

Resistivity: Air

Phase	Attenuation T1	Value
Master		9.530
7.000 (Minimum)	9.000 (Nominal)	11.00 (Maximum)

Phase	Attenuation T2	Value
Master		4.872
4.000 (Minimum)	6.000 (Nominal)	8.000 (Maximum)

Phase	Attenuation T3	Value
Master		6.131
3.500 (Minimum)	5.500 (Nominal)	7.500 (Maximum)

Phase	Attenuation T4	Value
Master		3.275
2.500 (Minimum)	4.500 (Nominal)	6.500 (Maximum)

Phase	Attenuation T5	Value
Master		4.691
2.000 (Minimum)	4.000 (Nominal)	6.000 (Maximum)

Phase	Attenuation T1 at 400KHz	Value
Master		8.462
7.000 (Minimum)	9.000 (Nominal)	11.00 (Maximum)

Phase	Attenuation T2 at 400KHz	Value
Master		5.973
4.000 (Minimum)	6.000 (Nominal)	8.000 (Maximum)

Phase	Attenuation T3 at 400KHz	Value
Master		5.056
3.500 (Minimum)	5.500 (Nominal)	7.500 (Maximum)

Phase	Attenuation T4 at 400KHz	Value
Master		4.372
2.500 (Minimum)	4.500 (Nominal)	6.500 (Maximum)

Phase	Attenuation T5 at 400KHz	Value
Master		3.611
2.000 (Minimum)	4.000 (Nominal)	6.000 (Maximum)

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

Primary Equipment:	
Tool Name and Serial Number	EcoScope* 817 (Collar 821)
Calibration Status	Valid
Neutron Logging Source	PNG−C 2073−41121
Density Logging Source	GSR−Z A2474
Stabilizer Size	9.38 − in.

Master: 15−Sep−2007 17:26

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

SSn LSn : Water Tank

Phase	SSn Gain	Value
Master		1.112
0.6000 (Minimum)	1.000 (Nominal)	1.400 (Maximum)

Phase	SSn Offset	Value
Master		0
−3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)

Phase	LSn Gain	Value
Master		1.108
0.6000 (Minimum)	1.000 (Nominal)	1.400 (Maximum)

Phase	LSn Offset	Value
Master		0
−3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)

Master: 15−Sep−2007 17:26

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

Neutron: Water Tank

Phase	Far 2 Gain	Value
Master		1.001
0.7000 (Minimum)	1.000 (Nominal)	1.300 (Maximum)

Phase	Far 2 Offset	Value
Master		0.9219
−3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)

Phase	Far 1 Gain	Value
Master		1.014
0.7000 (Minimum)	1.000 (Nominal)	1.300 (Maximum)

Phase	Far 1 Offset	Value
Master		1.825
−3.000 (Minimum)	0 (Nominal)	3.000 (Maximum)

Phase	Thermal Near gain	Value
Master		1.139
0.7000 (Minimum)	1.000 (Nominal)	1.300 (Maximum)

Phase	Thermal Near offset	Value
Master		4.922
−500.0 (Minimum)	0 (Nominal)	500.0 (Maximum)

Phase	Epithermal Near gain	Value
Master		1.172

Phase	Epithermal Near offset	Value
Master		77.68

	0.7000 (Minimum)	1.000 (Nominal)	1.300 (Maximum)		−300.0 (Minimum)	0 (Nominal)	300.0 (Maximum)	

Master: 15−Sep−2007 17:26

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				1893	Master				4625	Master				10810
	1000 (Minimum)	2000 (Nominal)	3000 (Maximum)		2500 (Minimum)	5250 (Nominal)	8000 (Maximum)			6000 (Minimum)	12000 (Nominal)	18000 (Maximum)		

Master: 15−Sep−2007 17:26

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				347.9	Master				2407	Master				7966
	200.0 (Minimum)	400.0 (Nominal)	600.0 (Maximum)		1500 (Minimum)	3000 (Nominal)	4500 (Maximum)			4000 (Minimum)	8500 (Nominal)	13000 (Maximum)		

Master: 15−Sep−2007 17:26

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				60.03	Master				84.39	Master				402.2
	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)		

Master: 15−Sep−2007 17:26

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				1.039	Master				1.298
	0.9000 (Minimum)	1.150 (Nominal)	1.400 (Maximum)		0.9000 (Minimum)	1.150 (Nominal)	1.400 (Maximum)		

Master: 11−Sep−2007 16:03

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				3.732	Master				−3.842	Master				3.691
	−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				−3.820	Master				3.728	Master				−1.612
	−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				1.590	Master				−1.595	Master				1.601
	−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				−1.596
	−4.000 (Minimum)	0 (Nominal)	4.000 (Maximum)	

Master: 11−Sep−2007 16:03

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				8.532	Master				5.882	Master				5.136
	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				4.281	Master				3.695	Master				8.528
	2.500	4.500	6.500		2.000	4.000	6.000			7.000	9.000	11.00		

Phase	Attenuation T2 at 400KHz			Value
Master				5.907
	4.000 (Minimum)	6.000 (Nominal)	8.000 (Maximum)	

Phase	Attenuation T3 at 400KHz			Value
Master				5.127
	3.500 (Minimum)	5.500 (Nominal)	7.500 (Maximum)	

Phase	Attenuation T4 at 400KHz			Value
Master				4.300
	2.500 (Minimum)	4.500 (Nominal)	6.500 (Maximum)	

Phase	Attenuation T5 at 400KHz			Value
Master				3.681
	2.000 (Minimum)	4.000 (Nominal)	6.000 (Maximum)	

SCHLUMBERGER

Survey report 27-Oct-2007 08:17:36 Page 1 of 5

Client.....: ESSO Australia
Field.....: Fortescue

Well.....: FTA A30A
API number.....:
Engineer.....: MYT/ML/CS

RIG:.....: ISDL 175
STATE:.....: Victoria

Spud date.....: 30-Sep-07
Last survey date.....: 26-Oct-07
Total accepted surveys...: 114
MD of first survey.....: 1955.00 m
MD of last survey.....: 5097.00 m

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

----- Depth reference -----
Permanent datum.....: Mean Sea Level
Depth reference.....: Driller's Depth
GL above permanent.....: -69.00 m
KB above permanent.....: Top Drive
DF above permanent.....: 42.50 m

----- Vertical section origin-----
Latitude (+N/S-).....: -3.03 m
Departure (+E/W-).....: 2.26 m

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

Azimuth from Vsect Origin to target: 167.02 degrees

----- Geomagnetic data -----
Magnetic model.....: BGGM version 2007
Magnetic date.....: 07-Oct-2007
Magnetic field strength..: 1199.38 HCNT
Magnetic dec (+E/W-).....: 13.21 degrees
Magnetic dip.....: -68.86 degrees

----- MWD survey Reference Criteria ---
Reference G.....: 1000.04 mGal
Reference H.....: 1199.38 HCNT
Reference Dip.....: -68.86 degrees
Tolerance of G.....: (+/-) 2.50 mGal
Tolerance of H.....: (+/-) 6.00 HCNT
Tolerance of Dip.....: (+/-) 0.45 degrees

----- Corrections -----
Magnetic dec (+E/W-).....: 13.21 degrees
Grid convergence (+E/W-).: -0.79 degrees
Total az corr (+E/W-)....: 14.00 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	1955.00	55.75	162.23	0.00	1455.85	1092.63	-1055.69	299.95	1097.47	164.14	0.00	TIP	None
2	1967.03	55.33	162.53	12.03	1462.66	1102.51	-1065.14	302.95	1107.39	164.12	1.23	PUP	None
3	1995.21	57.22	163.80	28.18	1478.30	1125.90	-1087.58	309.74	1130.82	164.10	2.34	PUP	None
4	2023.24	64.72	166.80	28.03	1491.90	1150.37	-1111.27	315.93	1155.30	164.13	8.64	PUP	None
5	2051.45	71.49	169.04	28.21	1502.41	1176.53	-1136.85	321.39	1181.40	164.21	7.65	PUP	None
6	2079.96	71.14	169.37	28.51	1511.55	1203.52	-1163.38	326.45	1208.31	164.33	0.50	PUP	None
7	2108.05	71.14	168.88	28.09	1520.63	1230.08	-1189.48	331.46	1234.80	164.43	0.50	PUP	None
8	2136.64	71.84	167.68	28.59	1529.70	1257.18	-1216.03	336.97	1261.85	164.51	1.42	PUP	None
9	2165.43	72.05	166.40	28.79	1538.63	1284.55	-1242.70	343.11	1289.20	164.57	1.31	PUP	None
10	2193.72	71.76	165.69	28.29	1547.41	1311.44	-1268.80	349.60	1316.08	164.60	0.79	PUP	None
11	2222.75	70.62	165.82	29.03	1556.77	1338.91	-1295.43	356.36	1343.55	164.62	1.20	PUP	None
12	2250.77	69.65	165.71	28.02	1566.29	1365.26	-1320.98	362.84	1369.90	164.64	1.06	PUP	None
13	2279.13	68.83	165.75	28.36	1576.35	1391.77	-1346.68	369.37	1396.41	164.66	0.88	PUP	None
14	2307.45	68.81	166.28	28.32	1586.58	1418.17	-1372.30	375.76	1422.81	164.69	0.53	PUP	None
15	2336.15	69.07	166.58	28.70	1596.89	1444.96	-1398.34	382.04	1449.58	164.72	0.41	PUP	None
16	2363.54	70.29	167.44	27.39	1606.40	1470.64	-1423.36	387.81	1475.25	164.76	1.63	PUP	None
17	2392.16	71.60	168.26	28.62	1615.75	1497.69	-1449.81	393.50	1502.26	164.81	1.62	PUP	None
18	2422.17	72.98	169.08	30.01	1624.88	1526.26	-1477.84	399.12	1530.78	164.89	1.61	PUP	None
19	2450.13	73.24	169.08	27.96	1633.00	1553.00	-1504.11	404.19	1557.47	164.96	0.28	PUP	None
20	2477.76	73.66	168.98	27.63	1640.87	1579.47	-1530.11	409.23	1583.89	165.03	0.48	PUP	None
21	2506.35	73.52	169.22	28.59	1648.95	1606.88	-1557.04	414.41	1611.25	165.10	0.29	PUP	None
22	2535.11	73.48	169.23	28.76	1657.11	1634.43	-1584.13	419.57	1638.75	165.17	0.04	PUP	None
23	2563.32	73.38	169.36	28.21	1665.16	1661.45	-1610.70	424.59	1665.72	165.23	0.17	PUP	None
24	2591.23	73.09	169.77	27.91	1673.21	1688.15	-1636.98	429.43	1692.37	165.30	0.53	PUP	None
25	2619.31	72.74	169.82	28.08	1681.46	1714.96	-1663.39	434.19	1719.13	165.37	0.38	PUP	None
26	2646.86	72.67	170.03	27.55	1689.65	1741.23	-1689.29	438.79	1745.35	165.44	0.23	PUP	None
27	2675.66	72.54	170.06	28.80	1698.26	1768.67	-1716.36	443.54	1772.75	165.51	0.14	PUP	None
28	2705.19	72.91	169.05	29.53	1707.03	1796.84	-1744.09	448.65	1800.87	165.57	1.07	PUP	None
29	2733.18	73.05	168.39	27.99	1715.22	1823.59	-1770.34	453.89	1827.60	165.62	0.70	PUP	None
30	2762.14	73.03	167.70	28.96	1723.67	1851.29	-1797.44	459.63	1855.27	165.66	0.69	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	2790.66	72.58	166.77	28.52	1732.10	1878.53	-1824.01	465.65	1882.51	165.68	1.06	PUP	None
32	2819.04	72.14	166.23	28.38	1740.70	1905.58	-1850.31	471.96	1909.55	165.69	0.73	PUP	None
33	2847.52	71.38	165.87	28.48	1749.62	1932.62	-1876.56	478.48	1936.60	165.70	0.89	PUP	None
34	2876.23	70.52	165.19	28.71	1758.99	1959.75	-1902.84	485.26	1963.74	165.69	1.14	PUP	None
35	2904.84	70.51	165.27	28.61	1768.53	1986.71	-1928.92	492.14	1990.71	165.69	0.08	PUP	None
36	2933.11	70.44	165.55	28.27	1777.98	2013.34	-1954.70	498.85	2017.35	165.68	0.29	PUP	None
37	2961.11	70.40	165.16	28.00	1787.36	2039.71	-1980.22	505.52	2043.73	165.68	0.40	PUP	None
38	2990.07	70.34	165.59	28.96	1797.09	2066.98	-2006.62	512.41	2071.01	165.68	0.43	PUP	None
39	3019.13	70.41	166.88	29.06	1806.85	2094.35	-2033.20	518.92	2098.38	165.68	1.28	PUP	None
40	3047.70	70.22	167.71	28.57	1816.48	2121.25	-2059.44	524.83	2125.27	165.70	0.86	PUP	None
41	3075.91	70.20	168.07	28.21	1826.03	2147.79	-2085.40	530.40	2151.79	165.73	0.37	PUP	None
42	3101.77	70.63	168.59	25.86	1834.69	2172.14	-2109.26	535.33	2176.13	165.76	0.77	PUP	None
43	3129.68	71.74	168.99	27.91	1843.70	2198.55	-2135.17	540.47	2202.51	165.80	1.28	PUP	None
44	3158.09	72.47	169.15	28.41	1852.43	2225.57	-2161.72	545.59	2229.50	165.84	0.80	PUP	None
45	3185.00	72.31	169.08	26.91	1860.57	2251.20	-2186.90	550.44	2255.11	165.87	0.20	PUP	None
46	3214.29	72.21	169.14	29.29	1869.49	2279.08	-2214.30	555.71	2282.97	165.91	0.12	PUP	None
47	3243.73	72.15	169.05	29.44	1878.50	2307.09	-2241.82	561.01	2310.95	165.95	0.11	PUP	None
48	3271.59	71.93	168.94	27.86	1887.09	2333.57	-2267.84	566.07	2337.42	165.98	0.27	PUP	None
49	3299.14	72.18	169.06	27.55	1895.58	2359.77	-2293.56	571.07	2363.59	166.02	0.30	PUP	None
50	3325.55	72.20	169.41	26.41	1903.66	2384.89	-2318.27	575.77	2388.69	166.05	0.39	PUP	None
51	3356.80	72.07	169.33	31.25	1913.24	2414.61	-2347.50	581.25	2418.39	166.09	0.15	PUP	None
52	3387.14	71.86	169.69	30.34	1922.64	2443.43	-2375.86	586.50	2447.19	166.13	0.40	PUP	None
53	3414.68	71.65	170.11	27.54	1931.26	2469.56	-2401.62	591.09	2473.29	166.17	0.50	PUP	None
54	3442.97	71.57	169.99	28.29	1940.18	2496.36	-2428.06	595.73	2500.07	166.21	0.15	PUP	None
55	3470.84	71.56	170.28	27.87	1949.00	2522.76	-2454.11	600.26	2526.45	166.26	0.30	PUP	None
56	3498.51	72.70	170.48	27.67	1957.49	2549.05	-2480.07	604.66	2552.72	166.30	1.27	PUP	None
57	3527.37	73.43	169.99	28.86	1965.90	2576.62	-2507.28	609.34	2580.26	166.34	0.92	PUP	None
58	3555.31	73.83	169.16	27.94	1973.77	2603.40	-2533.64	614.19	2607.02	166.37	0.97	PUP	None
59	3581.96	73.58	168.35	26.65	1981.25	2628.97	-2558.73	619.18	2632.58	166.40	0.93	PUP	None
60	3610.60	73.39	167.91	28.64	1989.39	2656.42	-2585.60	624.83	2660.03	166.41	0.49	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)
61	3641.92	73.26	167.11	31.32	1998.38	2686.42	-2614.89	631.32	2690.03	166.43	0.76	PUP	None
62	3667.99	73.14	166.98	26.07	2005.91	2711.38	-2639.22	636.91	2714.98	166.43	0.20	PUP	None
63	3698.90	73.03	167.34	30.91	2014.90	2740.95	-2668.05	643.49	2744.55	166.44	0.36	PUP	None
64	3725.38	72.89	167.44	26.48	2022.66	2766.27	-2692.76	649.01	2769.87	166.45	0.20	PUP	None
65	3754.21	73.00	167.96	28.83	2031.12	2793.83	-2719.69	654.88	2797.42	166.46	0.54	PUP	None
66	3780.98	72.75	168.14	26.77	2039.00	2819.41	-2744.72	660.18	2822.99	166.48	0.35	PUP	None
67	3812.46	72.59	167.98	31.48	2048.38	2849.45	-2774.12	666.40	2853.03	166.49	0.21	PUP	None
68	3841.49	72.37	167.51	29.03	2057.12	2877.13	-2801.17	672.27	2880.71	166.50	0.52	PUP	None
69	3870.65	72.06	166.75	29.16	2066.03	2904.90	-2828.24	678.46	2908.48	166.51	0.82	PUP	None
70	3898.80	71.64	166.28	28.15	2074.80	2931.65	-2854.25	684.70	2935.23	166.51	0.66	PUP	None
71	3927.38	71.44	166.18	28.58	2083.84	2958.76	-2880.58	691.15	2962.33	166.51	0.24	PUP	None
72	3955.78	71.27	166.09	28.40	2092.92	2985.66	-2906.70	697.60	2989.24	166.50	0.20	PUP	None
73	3985.06	71.32	166.66	29.28	2102.31	3013.39	-2933.66	704.13	3016.98	166.50	0.56	PUP	None
74	4013.30	71.39	166.57	28.24	2111.34	3040.15	-2959.69	710.32	3043.73	166.50	0.12	PUP	None
75	4041.55	70.81	166.80	28.25	2120.49	3066.88	-2985.70	716.48	3070.46	166.51	0.67	PUP	None
76	4070.92	69.83	166.40	29.37	2130.38	3094.53	-3012.60	722.89	3098.11	166.51	1.09	PUP	None
77	4099.00	69.81	166.95	28.08	2140.07	3120.89	-3038.24	728.96	3124.47	166.51	0.56	PUP	None
78	4127.50	69.68	167.19	28.50	2149.94	3147.62	-3064.30	734.95	3151.21	166.51	0.28	PUP	None
79	4155.41	69.44	167.27	27.91	2159.68	3173.78	-3089.81	740.73	3177.36	166.52	0.27	PUP	None
80	4181.20	69.14	167.67	25.79	2168.81	3197.90	-3113.36	745.96	3201.48	166.53	0.57	PUP	None
81	4209.46	69.02	167.88	28.26	2178.90	3224.29	-3139.16	751.55	3227.87	166.54	0.25	PUP	None
82	4236.82	69.10	168.10	27.36	2188.67	3249.84	-3164.15	756.87	3253.41	166.55	0.25	PUP	None
83	4264.92	69.52	168.57	28.10	2198.60	3276.12	-3189.90	762.18	3279.69	166.56	0.66	PUP	None
84	4293.42	70.73	168.86	28.50	2208.29	3302.91	-3216.18	767.43	3306.47	166.58	1.33	PUP	None
85	4325.97	72.40	170.04	32.55	2218.58	3333.76	-3246.54	773.08	3337.31	166.61	1.88	PUP	None
86	4352.00	73.35	170.95	26.03	2226.25	3358.59	-3271.07	777.19	3362.13	166.63	1.51	PUP	None
87	4380.55	72.91	171.60	28.55	2234.53	3385.84	-3298.07	781.33	3389.36	166.67	0.81	PUP	None
88	4410.01	72.80	171.51	29.46	2243.22	3413.90	-3325.92	785.46	3417.41	166.71	0.15	PUP	None
89	4438.08	72.64	170.90	28.07	2251.56	3440.63	-3352.41	789.56	3444.13	166.75	0.65	PUP	None
90	4465.56	72.51	170.54	27.48	2259.79	3466.80	-3378.28	793.79	3470.29	166.78	0.41	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)
91	4495.81	72.13	170.07	30.25	2268.98	3495.57	-3406.69	798.64	3499.05	166.81	0.59	PUP	None
92	4523.80	71.77	169.83	27.99	2277.65	3522.15	-3432.90	803.29	3525.63	166.83	0.46	PUP	None
93	4552.62	71.83	169.27	28.82	2286.65	3549.50	-3459.82	808.25	3552.97	166.85	0.57	PUP	None
94	4581.24	71.87	168.75	28.62	2295.57	3576.68	-3486.52	813.44	3580.15	166.87	0.53	PUP	None

95	4586.10	71.89	168.59	4.86	2297.08	3581.30	-3491.05	814.35	3584.77	166.87	0.96	PUP None
96	4614.12	71.42	168.12	28.02	2305.90	3607.88	-3517.09	819.71	3611.35	166.88	0.70	PUP None
97	4642.99	70.92	168.05	28.87	2315.22	3635.20	-3543.83	825.36	3638.67	166.89	0.53	PUP None
98	4669.70	70.18	167.62	26.71	2324.11	3660.39	-3568.45	830.66	3663.86	166.90	0.96	PUP None
99	4699.74	69.28	167.57	30.04	2334.52	3688.56	-3595.97	836.72	3692.03	166.90	0.91	PUP None
100	4728.16	69.87	167.86	28.42	2344.44	3715.20	-3621.99	842.38	3718.66	166.91	0.70	PUP None
101	4756.28	70.40	168.49	28.12	2353.99	3741.64	-3647.88	847.80	3745.10	166.92	0.86	PUP None
102	4783.28	70.00	169.54	27.00	2363.14	3767.02	-3672.82	852.64	3770.49	166.93	1.20	PUP None
103	4812.44	69.81	168.96	29.16	2373.16	3794.39	-3699.72	857.75	3797.85	166.95	0.60	PUP None
104	4841.30	69.64	168.30	28.86	2383.16	3821.45	-3726.26	863.09	3824.91	166.96	0.68	PUP None
105	4870.22	69.39	167.62	28.92	2393.28	3848.54	-3752.76	868.74	3852.00	166.97	0.72	PUP None
106	4898.55	69.55	167.00	28.33	2403.21	3875.07	-3778.64	874.57	3878.53	166.97	0.65	PUP None
107	4926.41	69.43	166.64	27.86	2412.97	3901.16	-3804.05	880.52	3904.62	166.97	0.39	PUP None
108	4949.28	69.44	166.15	22.87	2421.01	3922.57	-3824.86	885.55	3926.03	166.96	0.61	PUP None
109	4977.56	69.03	163.97	28.28	2431.03	3949.00	-3850.41	892.37	3952.46	166.95	2.24	PUP None
110	5006.00	68.79	160.71	28.44	2441.27	3975.44	-3875.69	900.42	3978.91	166.92	3.27	PUP None
111	5034.09	68.99	160.80	28.09	2451.39	4001.49	-3900.43	909.05	4004.96	166.88	0.24	PUP None
112	5062.20	69.16	160.84	28.11	2461.43	4027.59	-3925.22	917.68	4031.07	166.84	0.19	PUP None
113	5073.92	69.18	161.05	11.72	2465.59	4038.48	-3935.58	921.26	4041.97	166.83	0.51	PUP None
114	5097.00	69.22	161.40	23.08	2473.79	4059.95	-3956.01	928.20	4063.44	166.80	0.44	Projection to TD

Company: **ESSO Australia Pty Ltd**

Schlumberger

Well: **FTA A30A**

Field: **Fortescue**

Rig: **ISDL 175**

State: **Victoria**

9.875 in. Section

EcoScope* Service
1:200 Measured Depth
Recorded Mode Log