HALLIBURTON

ULTRA-SLIM SPECTRAL DENSITY DUAL SPACED NEUTRON ARRAY COMPENSATED TRUE RESISTIVITY

COMPANY	CYNOSURE ENERGY LLC - EBUS
WELL	FEDERAL 14/15-7-21
FIELD/BLOCK	KOKOPELI
COUNTY	GARFIELD
STATE	UTAH

API No. 05045224600000

Location SURFACE HOLE LOCATION:
2345' FNL & 713' FEL (SW/NE)

LATITUDE: 39.514404° N
LONGITUDE: -107.552396° W

Sect. 21 Twp. 6S Rge. 91W

Other Services:
N/A

Permanent Datum	GL	Elev. 6932.0 ft	Elev.: K.B. 6955.0 ft
Log measured from	KB	23.0 ft above perm. Datum	D.F. 6954.0 ft
Drilling measured from	KB		G.L. 6932.0 ft

Date		25-Jan-15					
Run No.		TWO					
Depth - Driller		13680.00 ft					
Depth - Logger		13000.0 ft					
Bottom - Logged Interval		12980.0 ft					
Top - Logged Interval		9010.0					
Casing - Driller		7.000 in	@ 9030.0 ft	@		@	
Casing - Logger		9010.0 ft					
Bit Size		6.000 in		@		@	
Type Fluid in Hole		LSND					
Density	Viscosity	12.3 ppg	47.00 s/qt				
PH	Fluid Loss	8.60 pH	5.2 cptm				
Source of Sample		MUD TANK					
Rm @ Meas. Temperature		2.49 ohmm	@ 48.30 degF	@		@	
Rmf @ Meas. Temperature		1.38 ohmm	@ 66.30 degF	@		@	
Rmc @ Meas. Temperature		3.010 ohmm	@ 66.50 degF	@		@	
Source Rmf	Rmc	MEASURED	MEASURED				
Rm @ BHT		0.45 ohmm	@ 300.0 degF	@		@	
Time Since Circulation		15.6800 hr					
Time on Bottom		25-Jan-15 10:11					
Max. Rec. Temperature		300.0 degF	@ 13000.0 ft	@		@	
Equipment	Location	11335318	VERNAL, UT				
Recorded By		O. JEFFERIES					
Witnessed By		P. BLACKMER		WHITEY			

Fold here

PGM Version: WL INSITE R4.2.0 (Build 2)

Service Ticket No.: 902073724 API Serial No.: 05045224600000

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE

RESISTIVITY SCALE CHANGES

	Type Log	Depth	Scale Up Hole	Scale Down Hole
Date				
Sample No.				
Depth-Driller				
Type Fluid in Hole				
Density				
Viscosity				
Ph				
Fluid Loss				

RESISTIVITY EQUIPMENT DATA

	Run No.	Tool Type & No.	Pad Type	Tool Pos.	Other
Source of Sample				0.25" S.O.	ECC.
Rm @ Meas. Temp	@	@	@	@	@
Rmf @ Meas. Temp.	@	TWO	SACRt	N/A	
Rmc @ Meas. Temp.	@		I: 11577714		
Source Rmf	Rmc		S: 11577718		
Rm @ BHT	@	@	@	@	@
Rmf @ BHT	@	@	@	@	@
Rmc @ BHT	@	@	@	@	@

EQUIPMENT DATA

	GAMMA		ACOUSTIC		DENSITY			NEUTRON		
Run No.	TWO	Run No.		Run No.	TWO	Run No.	TWO			
Serial No.	11790910	Serial No.		Serial No.	11581740	Serial No.	11581737			
Model No.	S4TG	Model No.		Model No.	SSDL	Model No.	SDSN			
Diameter	2.35"	No. of Cent.		Diameter	2.35"	Diameter	2.35"			
Detector Model No.	S4TG	Spacing		Log Type	GAMMA	Log Type	THERMAL			
Type	SCINT.			Source Type	Cs137	Source Type	Am241Be			
Length	8"	LSA [Y/N]		Serial No.	5499GW	Serial No.	21480B			
Distance to Source	7'	FWDA [Y/N]		Strength	1.78 Ci	Strength	15 Ci			

LOGGING DATA

GENERAL				GAMMA		ACOUSTIC			DENSITY			NEUTRON		
Run	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix
No.	From	To	ft/min	L	R	L	R		L	R		L	R	
TWO	13000	9010	REC.	0	150				30%	-10%	2.65 g/cc	30%	-10%	SAND

DIRECTIONAL INFORMATION

Maximum Deviation	0.00 deg	@	0.00 ft	KOP	@ 0.00 ft

Remarks: TOOL STRING CONFIGURATION: SCH/S4TG/SDSN/SSDL/SACRt/BN
ANNULAR HOLE VOLUME CALCULATED USING 4.5 INCH CASING
DSNT DECENTRALIZER AND ACRt STANDOFF NOT RUN PER CUSTOMER REQUEST
REPEAT SECTION LOGGED BELOW THE CASING SHOE DUE TO HIGH TEMPERATURES AT BOTTOM
TENSION PULLS AND BOREHOLE RUGOSITY MAY AFFECT LOG QUALITY
DENSITY PAD SHUT OFF FROM 12925-11626 DUE TO BOREHOLE CONDITIONS
CALIPER ANOMALIES APPARENT WHEN DENSITY PAD RETURNS TO SERVICE
LOG SET ON DEPTH WITH THIRD PARTY INTERMEDIATE PAPER LOG
LATITUDE: 39.514404° N LONGITUDE: 107.552396° W
HES CEW: J. PIEP; J. MARTIN; S. WEIMER
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES - VERNAL, UT (435

HALLIBURTON

PARAMETERS REPORT

Depth (ft)	Tool Name	Mnemonic	Description	Value	Units
TOP					
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	Yes	
	SHARED	MDWT	Borehole Fluid Weight	15.000	ppg
	SHARED	CSD	Logging Interval is Cased?	Yes	
	SHARED	CSOD	Inner Casing OD size	8.500	in
	SHARED	CSWT	Casing Weight	17.00	lbpf
	SHARED	ISOC	Is Outer Casing Present?	No	
	SHARED	CSCM	Casing Cemented	Yes	
	SHARED	CMWT	Cement Weight	16.500	ppg
8990.00					
	SHARED	BS	Bit Size	6.000	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDBS	Mud Base	Water	
	SHARED	MDWT	Borehole Fluid Weight	12.250	ppg
	SHARED	WAGT	Weighting Agent	Barite	
	SHARED	BSAL	Borehole salinity	900.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	RMUD	Mud Resistivity	2.490	ohmm
	SHARED	TRM	Temperature of Mud	48.3	degF
	SHARED	CSD	Logging Interval is Cased?	No	
	SHARED	ICOD	AHV Casing OD	4.500	in
	SHARED	ST	Surface Temperature	25.0	degF
	SHARED	TD	Total Well Depth	13000.00	ft

SHARED	TD	Total Well Depth	13000.00	ft
SHARED	BHT	Bottom Hole Temperature	300.0	degF
SHARED	SVTM	Navigation and Survey Master Tool	NONE	
SHARED	AZTM	High Res Z Accelerometer Master Tool	S4TG	
SHARED	TEMM	Temperature Master Tool	NONE	
S4TG	GROK	Process Gamma Ray?	Yes	
S4TG	GRSO	Gamma Tool Standoff	0.000	in
S4TG	GEOK	Process Gamma Ray EVR?	No	
S4TG	TPOS	Tool Position for Gamma Ray Tools.	Eccentered	
S4TG	BHSM	Borehole Size Source Tool	SSDL	
SDSN	DNOK	Process DSN?	Yes	
SDSN	DEOK	Process DSN EVR?	No	
SDSN	NLIT	Neutron Lithology	Sandstone	
SDSN	DNSO	DSNTool Standoff	0.000	in
SDSN	DNTP	Temperature Correction Type	None	
SDSN	DPRS	DSN Pressure Correction Type	None	
SDSN	SHCO	View More Correction Options	No	
SDSN	UTVD	Use TVD for Gradient Corrections?	No	
SDSN	LHWT	Logging Horizontal Water Tank?	No	
SDSN	USND	Use Var StandOff?	No	
SDSN	BHSM	Borehole Size Source Tool	SSDL	
SSDL	CLOK	Process Caliper Outputs?	Yes	
SSDL Pad	DNOK	Process Density?	Yes	
SSDL Pad	DNOK	Process Density EVR?	No	
SSDL Pad	CB	Logging Calibration Blocks?	No	
SSDL Pad	SPVT	SDLT Pad Temperature Valid?	Yes	
SSDL Pad	DTWN	Disable temperature warning	No	
SSDL Pad	MLPE	Mute Large Pe's? (Recommended Yes-Liquid, No-Air)	Yes	
SSDL Pad	DMA	Formation Density Matrix	2.650	g/cc
SSDL Pad	DFL	Formation Density Fluid	1.000	g/cc
SSDL Pad	BHSM	Borehole Size Source Tool	SSDL	
SACRT Sonde	RTOK	Process ACRt?	Yes	
SACRT Sonde	MNSO	Minimum Tool Standoff	0.25	in
SACRT Sonde	TCS1	Temperature Correction Source	FP Lwr & FP Upr	
SACRT Sonde	TPOS	Tool Position	Eccentered	
SACRT Sonde	RMOP	Rmud Source	Mud Cell	
SACRT Sonde	RMIN	Minimum Resistivity for MAP	0.20	ohmm
SACRT Sonde	RMIN	Maximum Resistivity for MAP	200.00	ohmm
SACRT Sonde	THQY	Threshold Quality	0.50	
SACRT Sonde	MRFX	Fixed mud resistivity	2000	ohmm
SACRT Sonde	BHSM	Borehole Size Source Tool	SSDL	

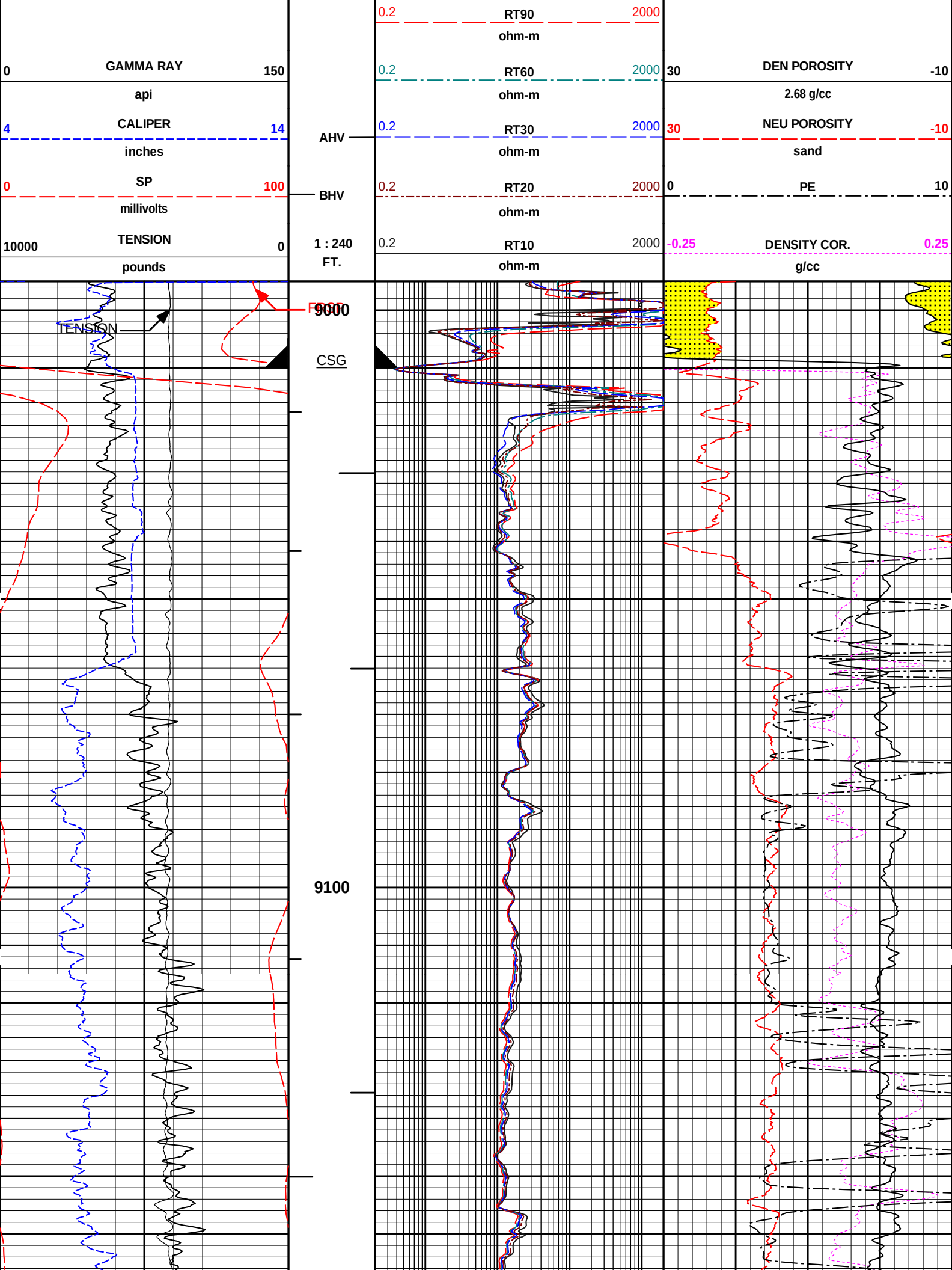
BOTTOM

Data: KOKO_14_15_7_21\0002 US_TRIPLE\005.02 25-Jan-15 14:18 Up **Date: 25-Jan-15 14:34:00**

HALLIBURTON

Plot Time: 25-Jan-15 16:13:06
Plot Range: 8995 ft to 12994 ft
Data: KOKO_14_15_7_21\Well Based\MAIN
Plot File: \\COMPOSITE\TRIPLE_M

MAIN PASS 5" = 100'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TENSION
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pounds
AHV
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FT.
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RT90
2000
ohm-m
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ohm-m
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RT30
2000
ohm-m
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RT20
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ohm-m
0.2
RT10
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ohm-m
30
DEN POROSITY
-10
2.68 g/cc
30
NEU POROSITY
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sand
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DENSITY COR.
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TENSION
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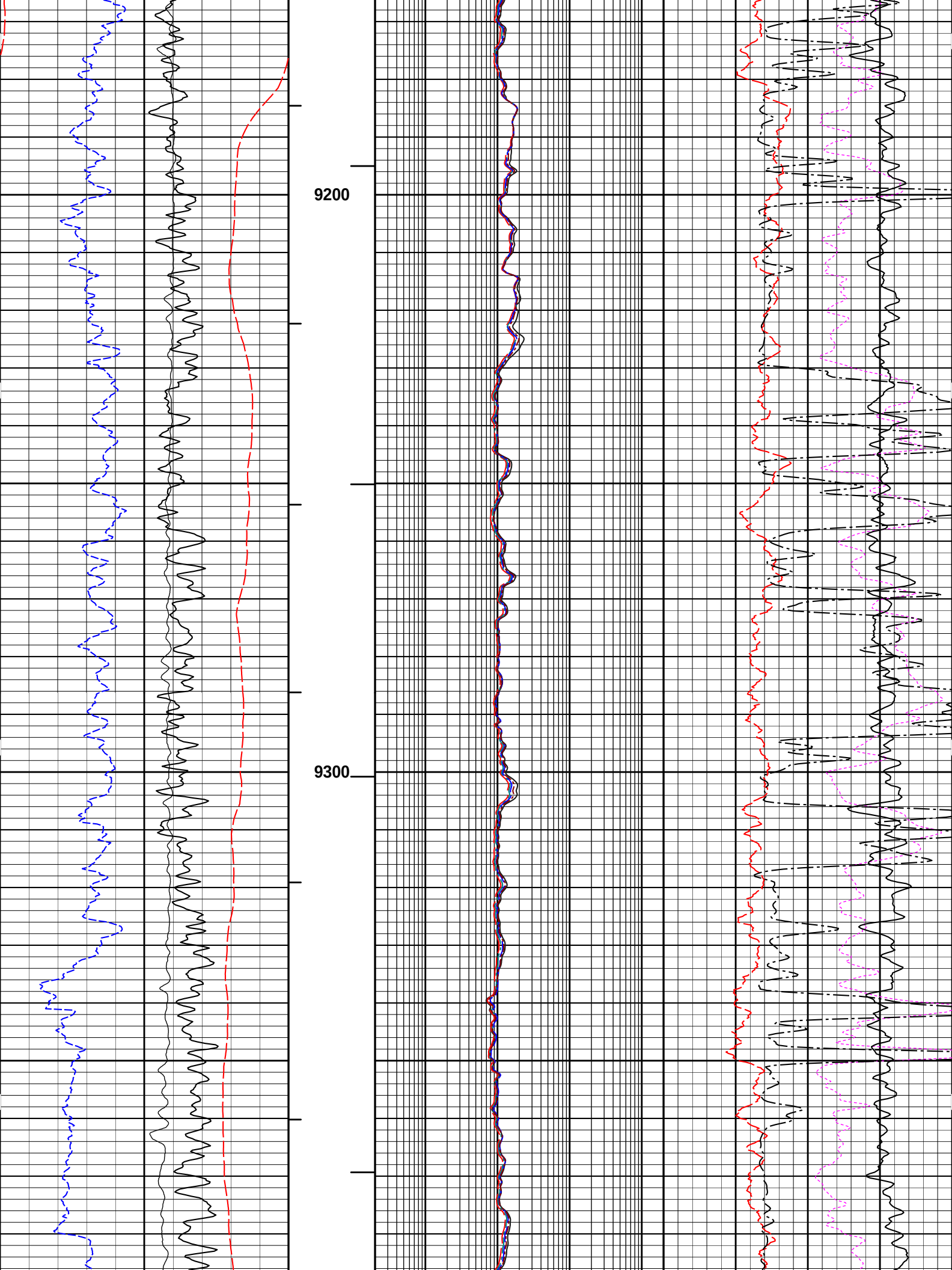
CSG
9100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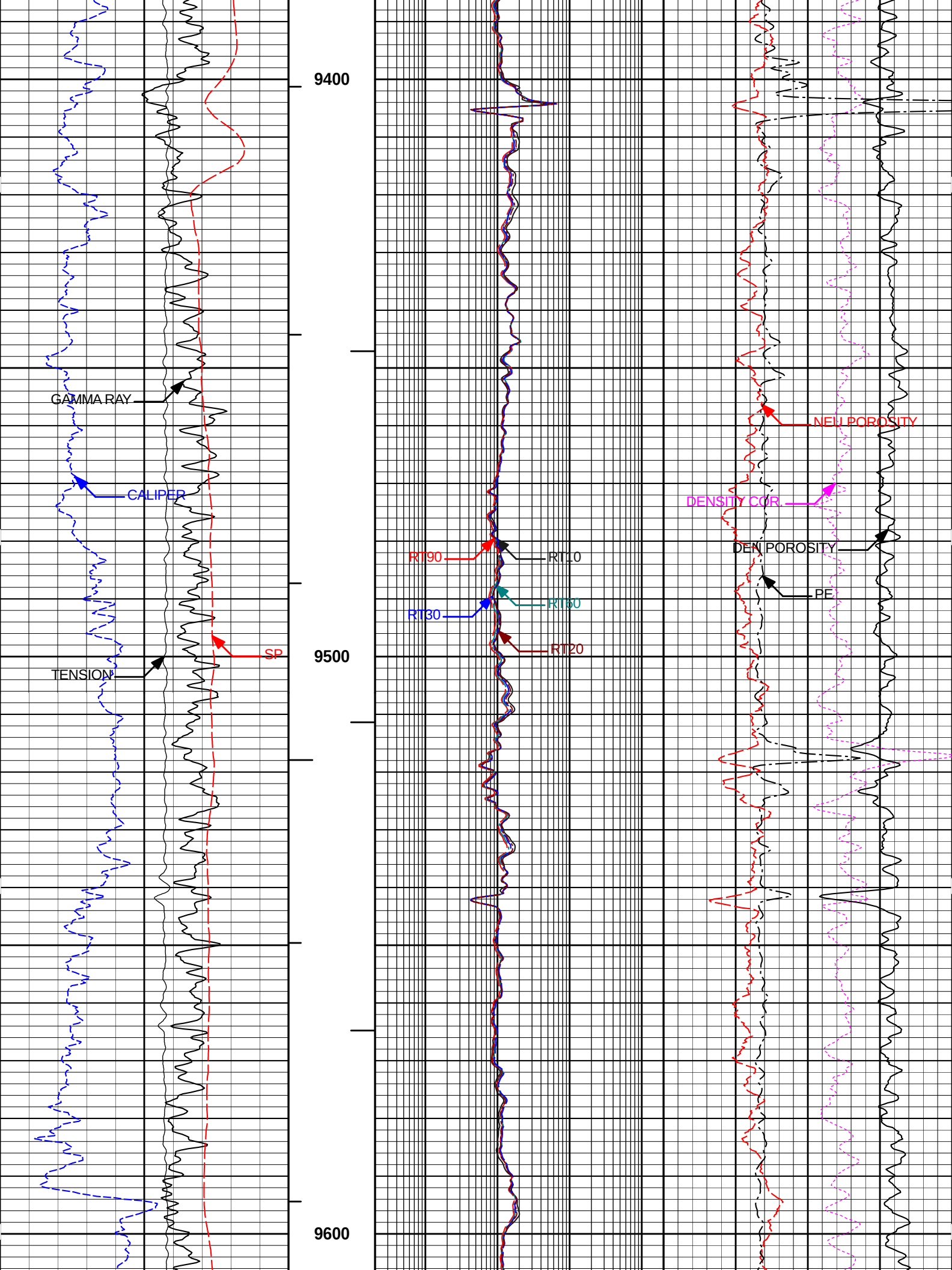
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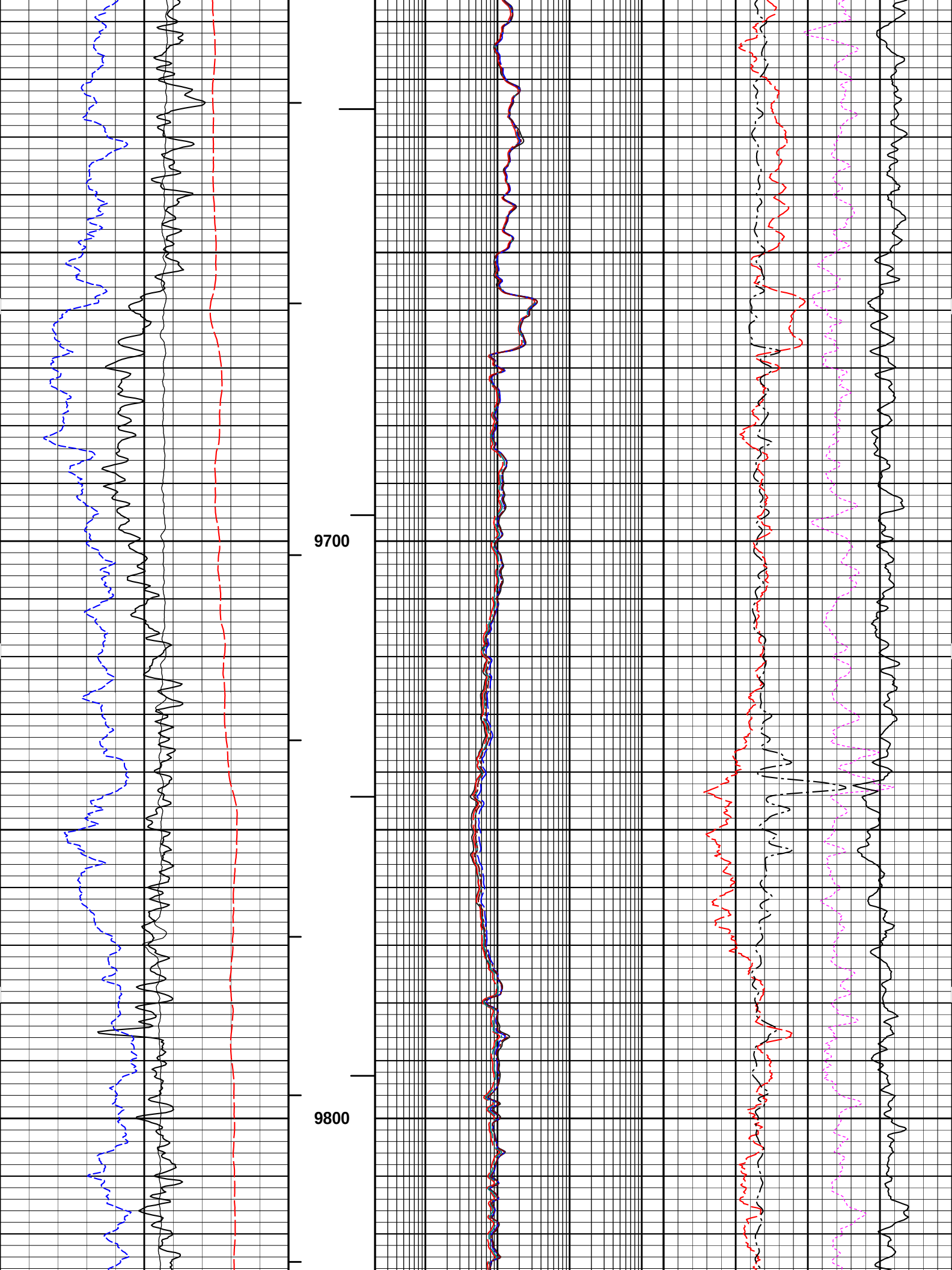
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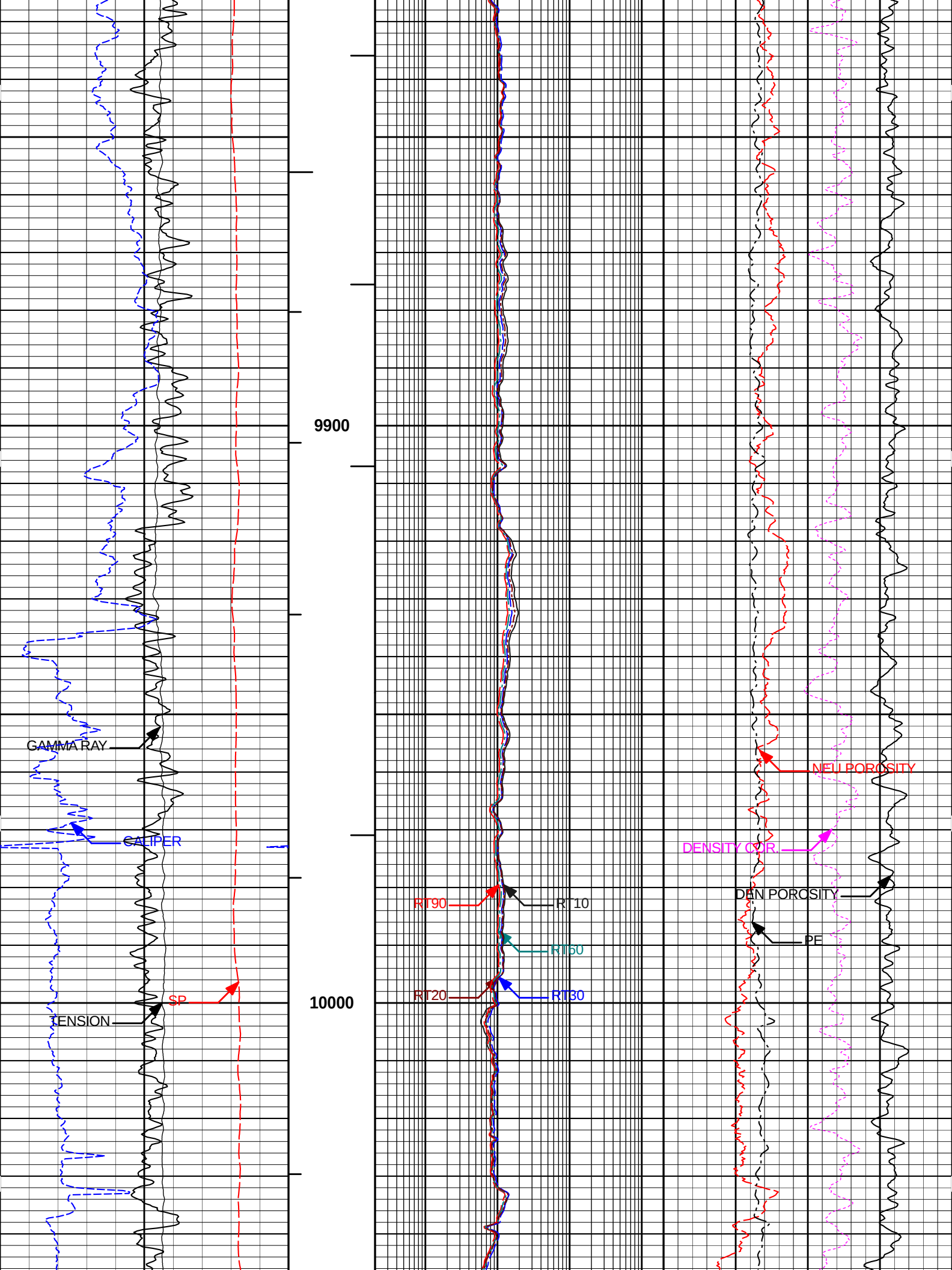
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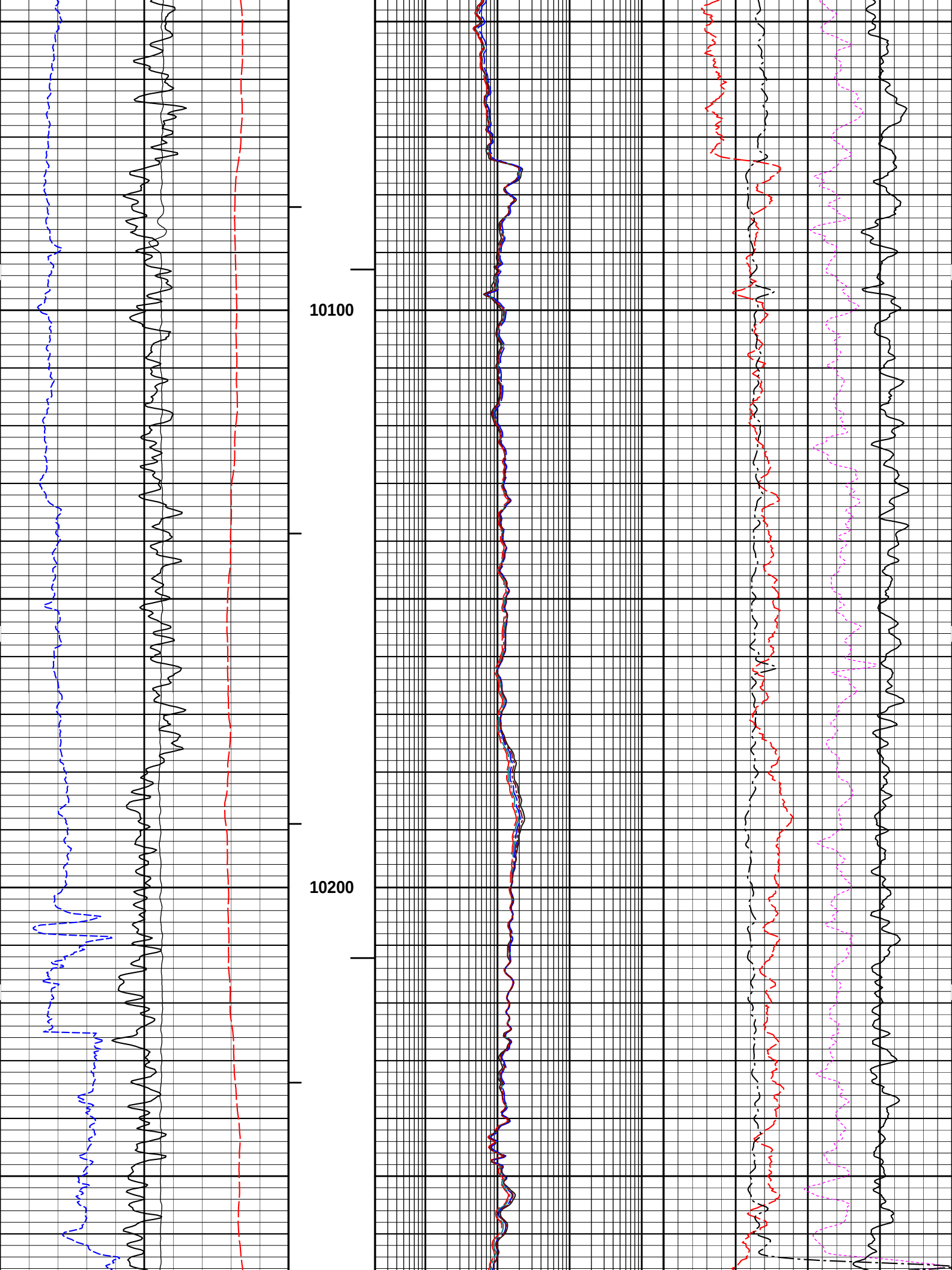
PE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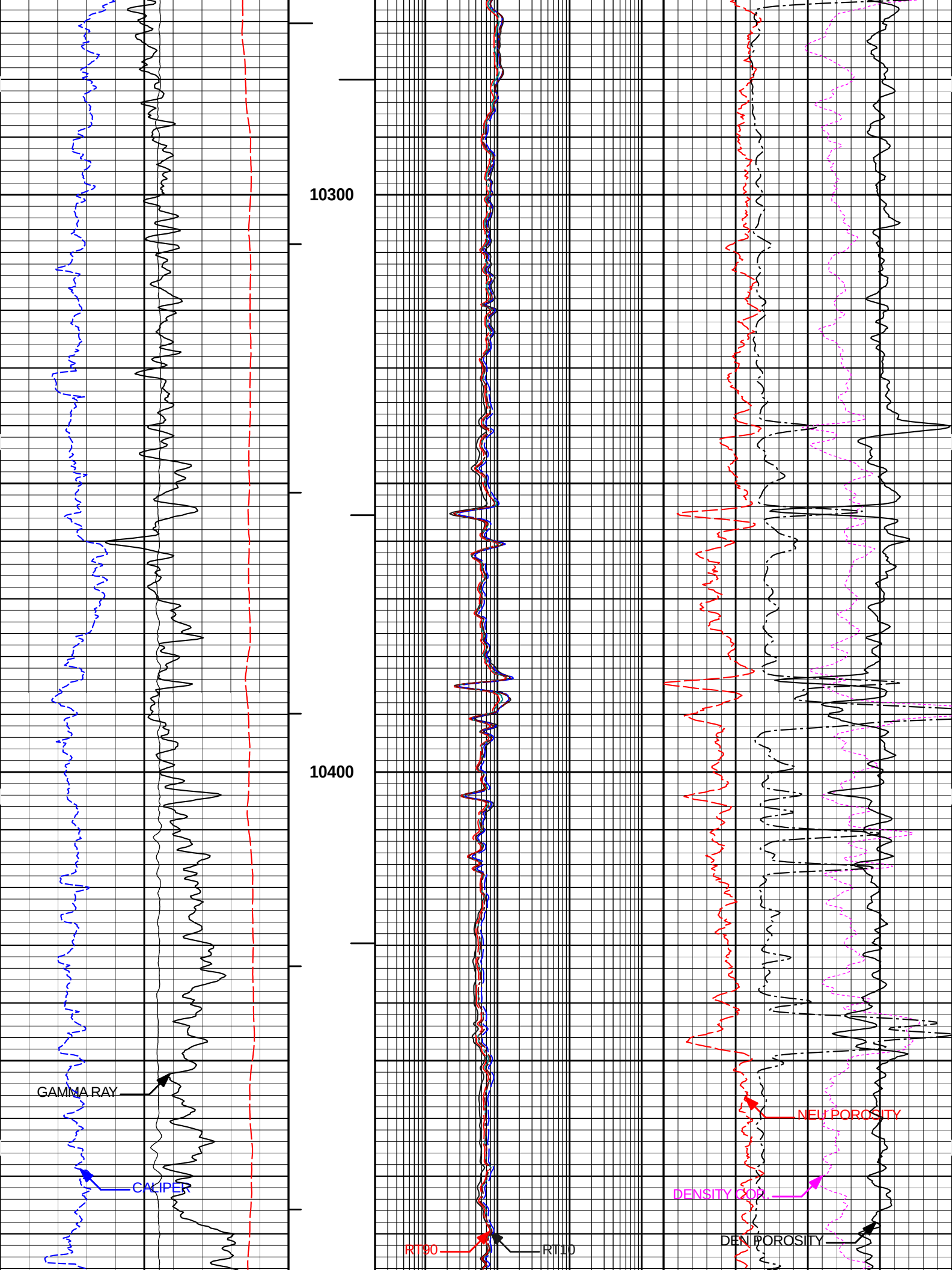
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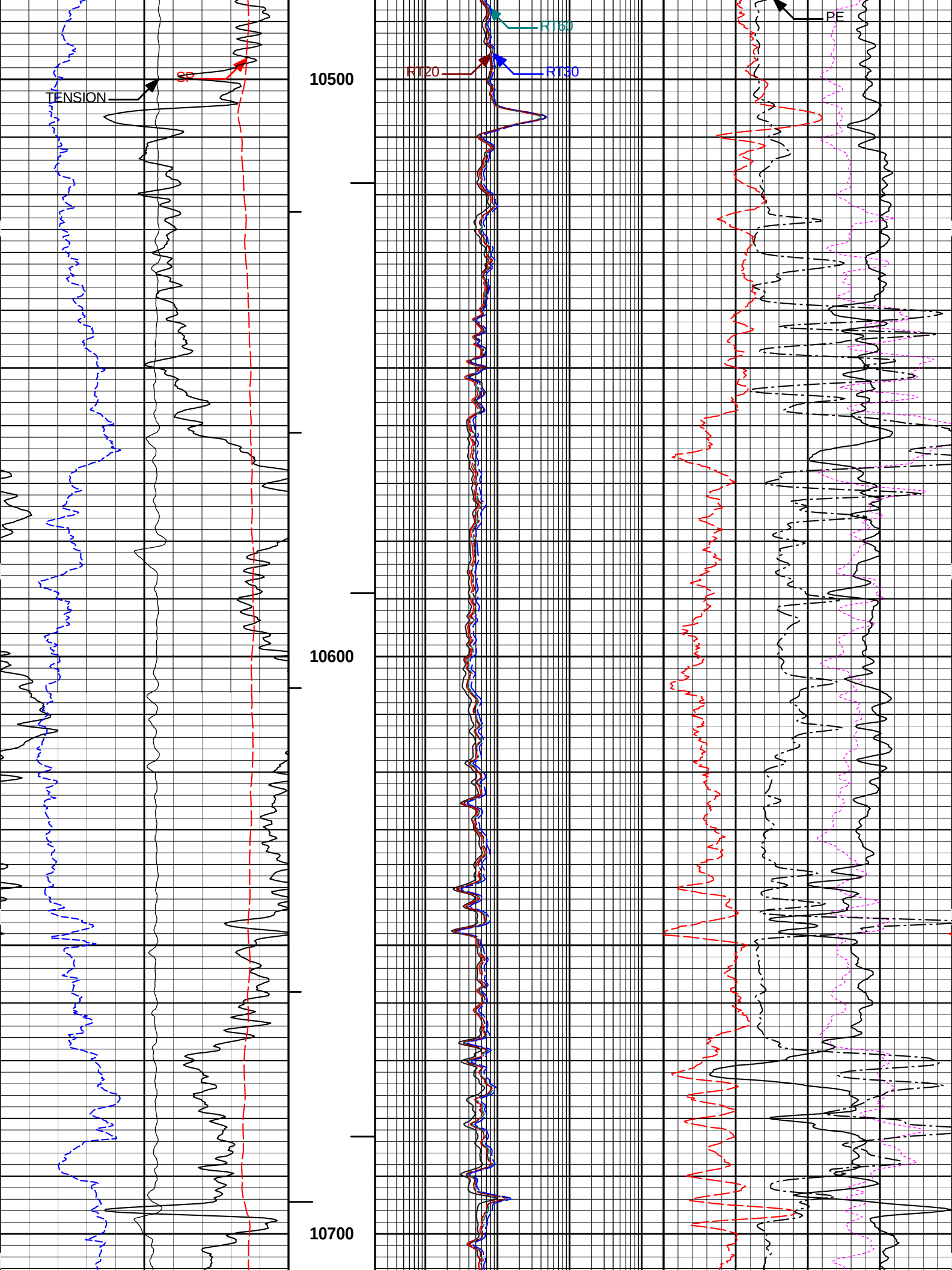
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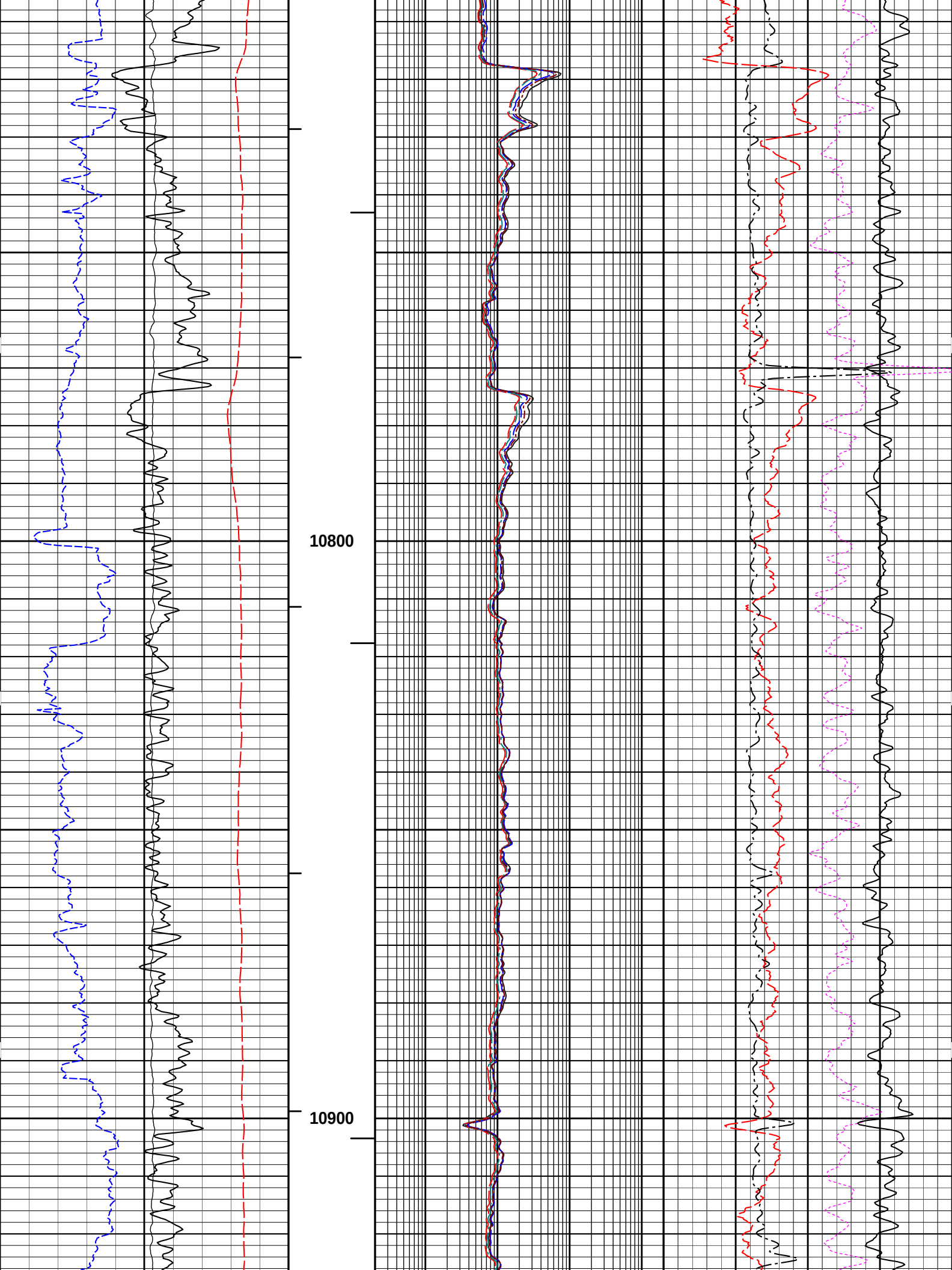
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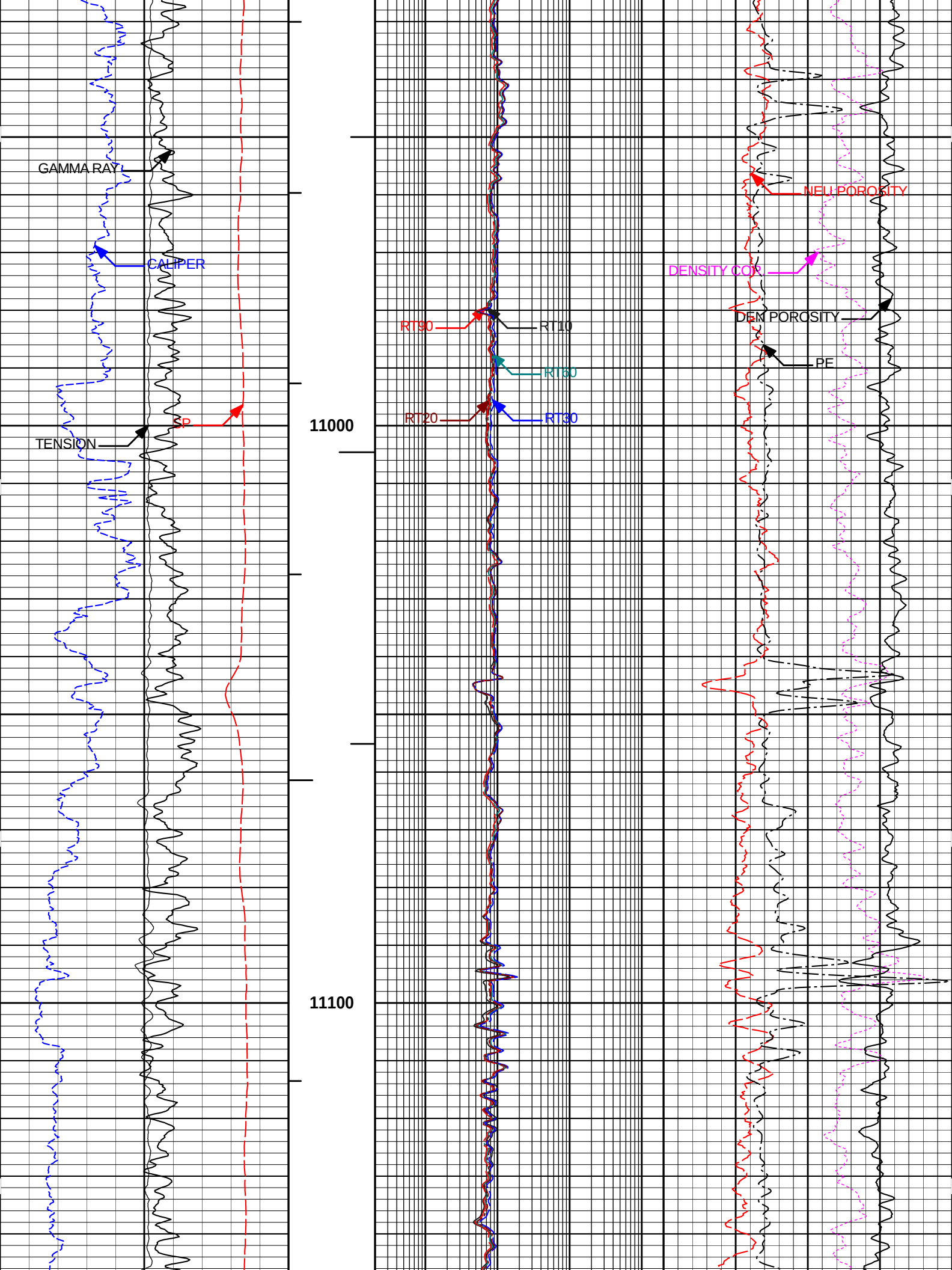
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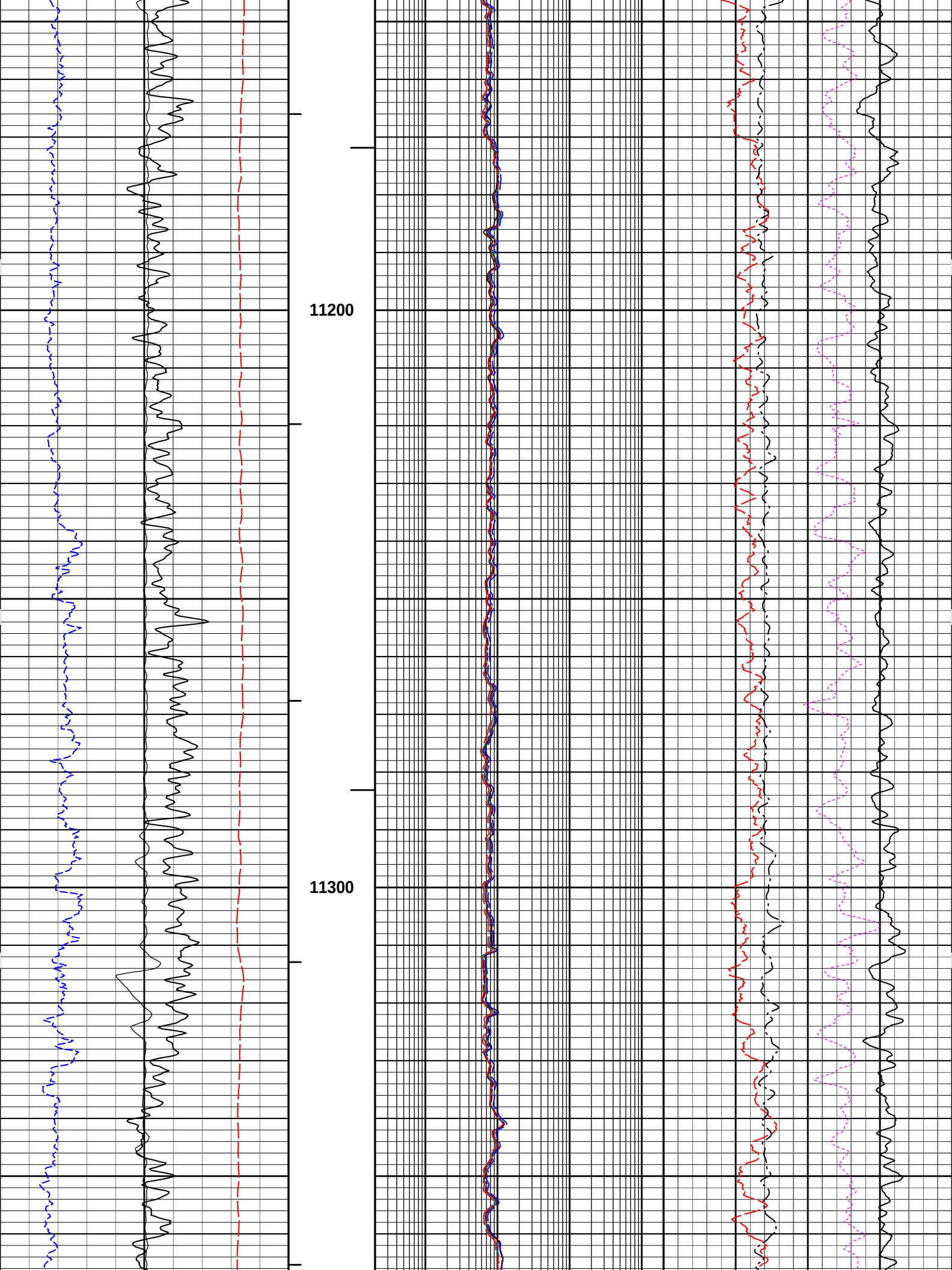
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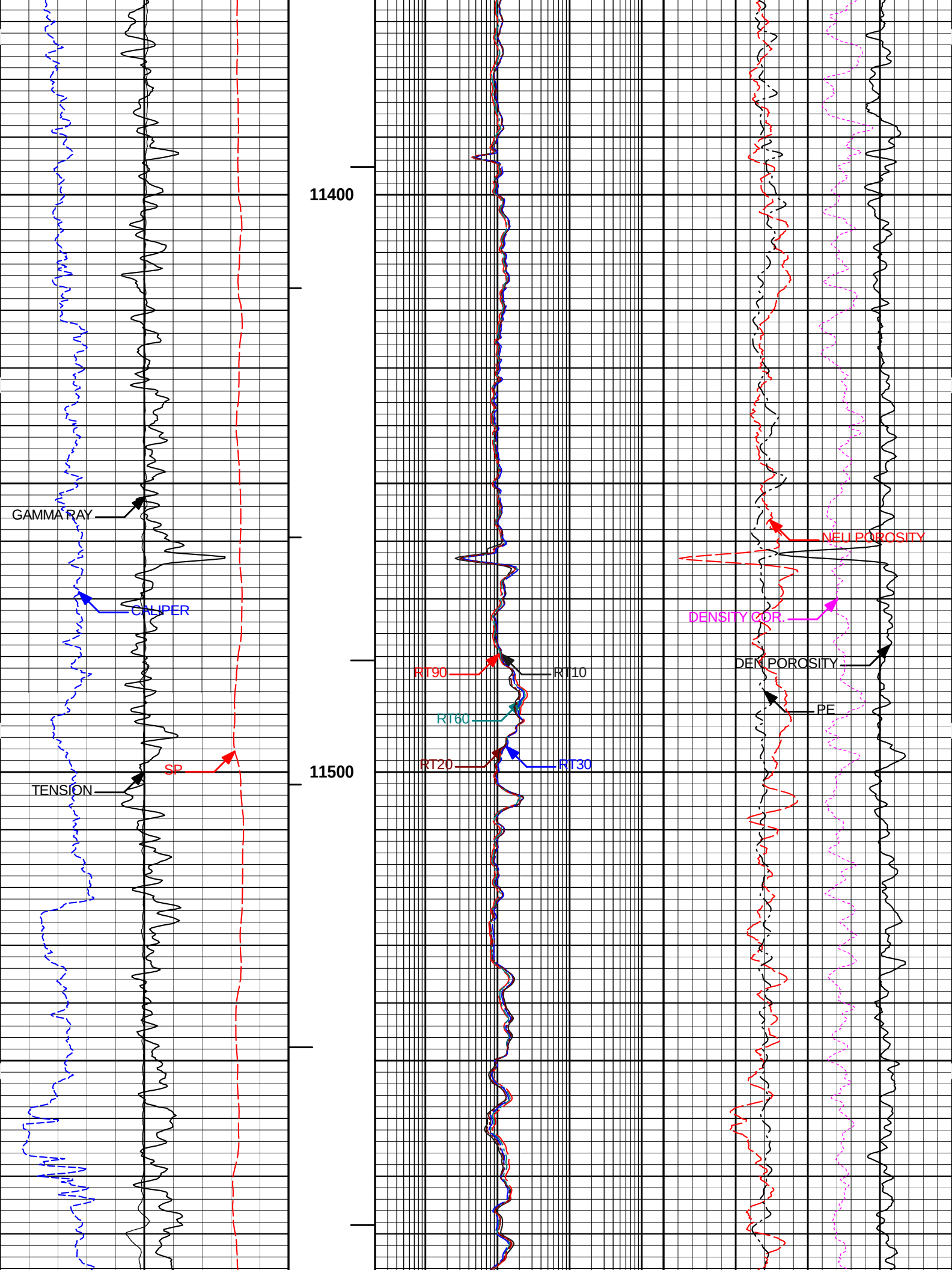
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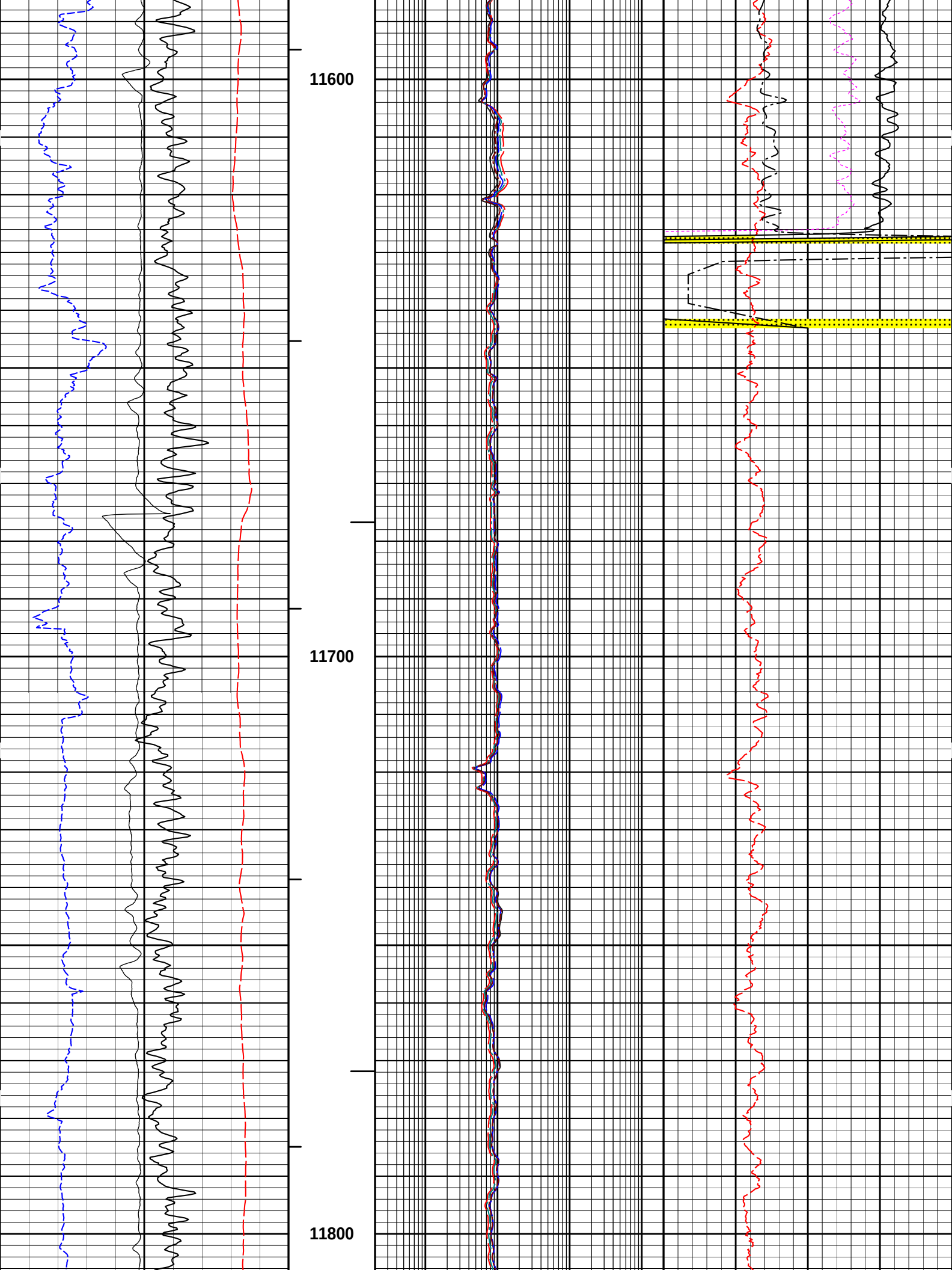
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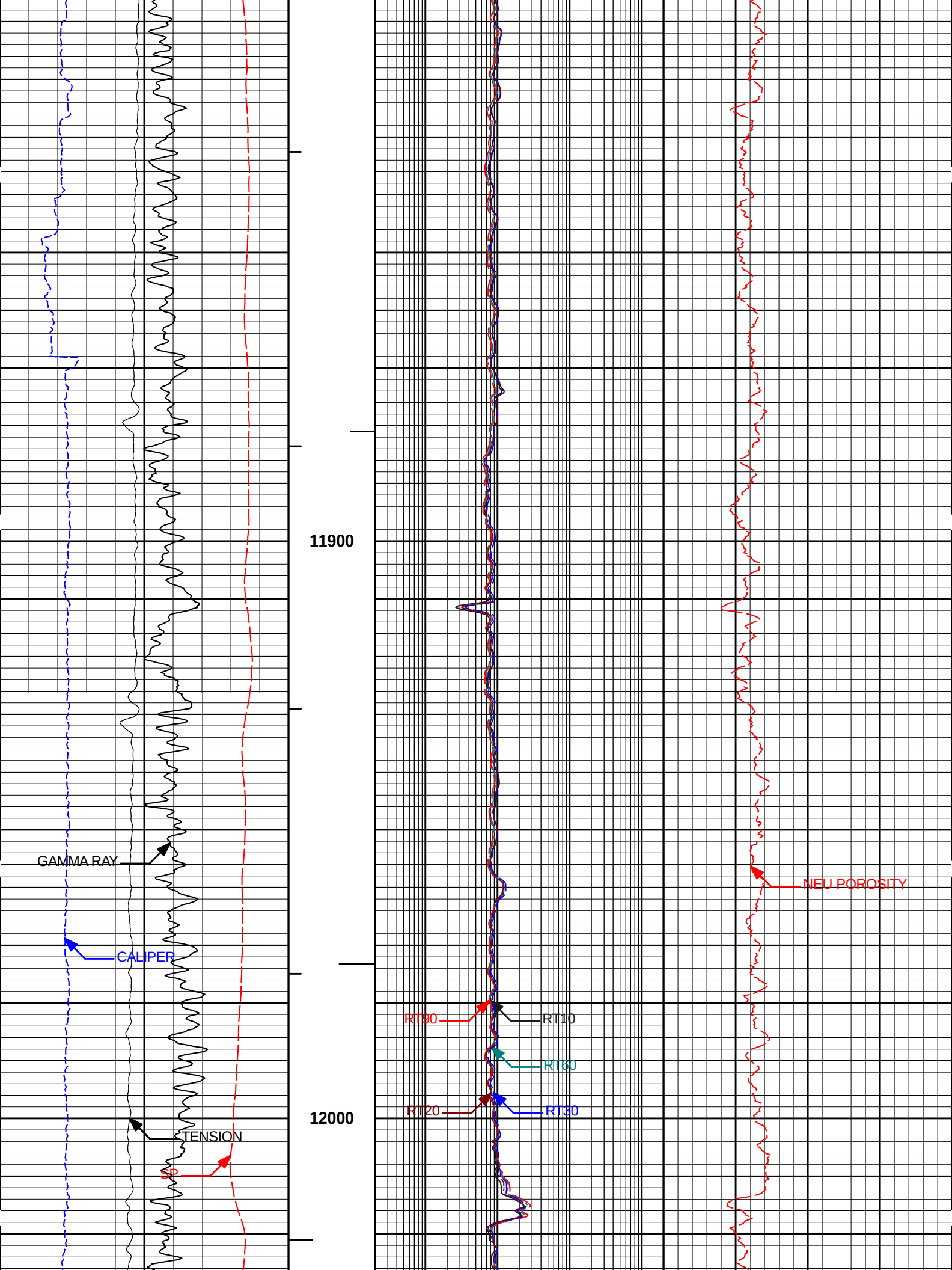
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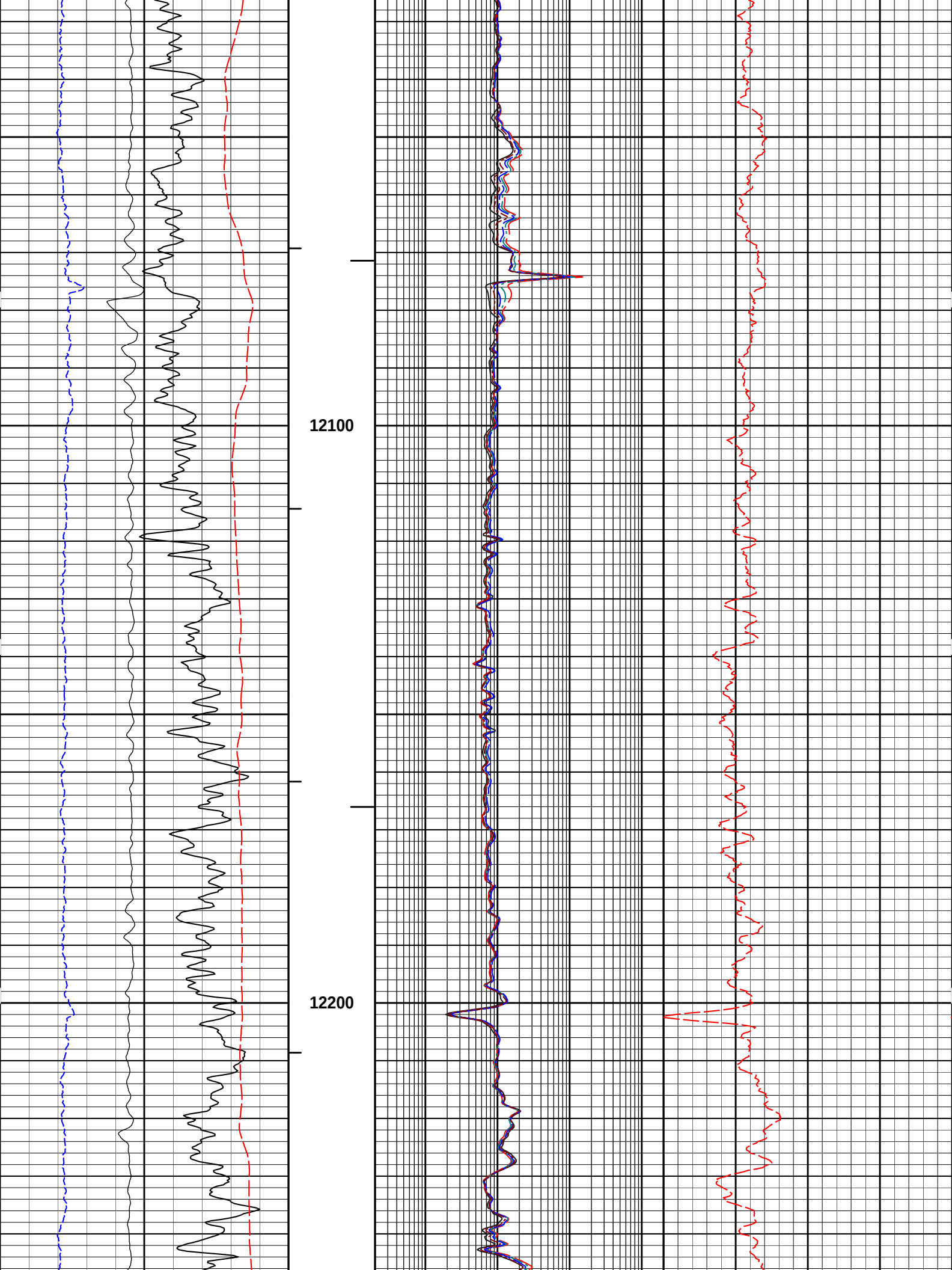
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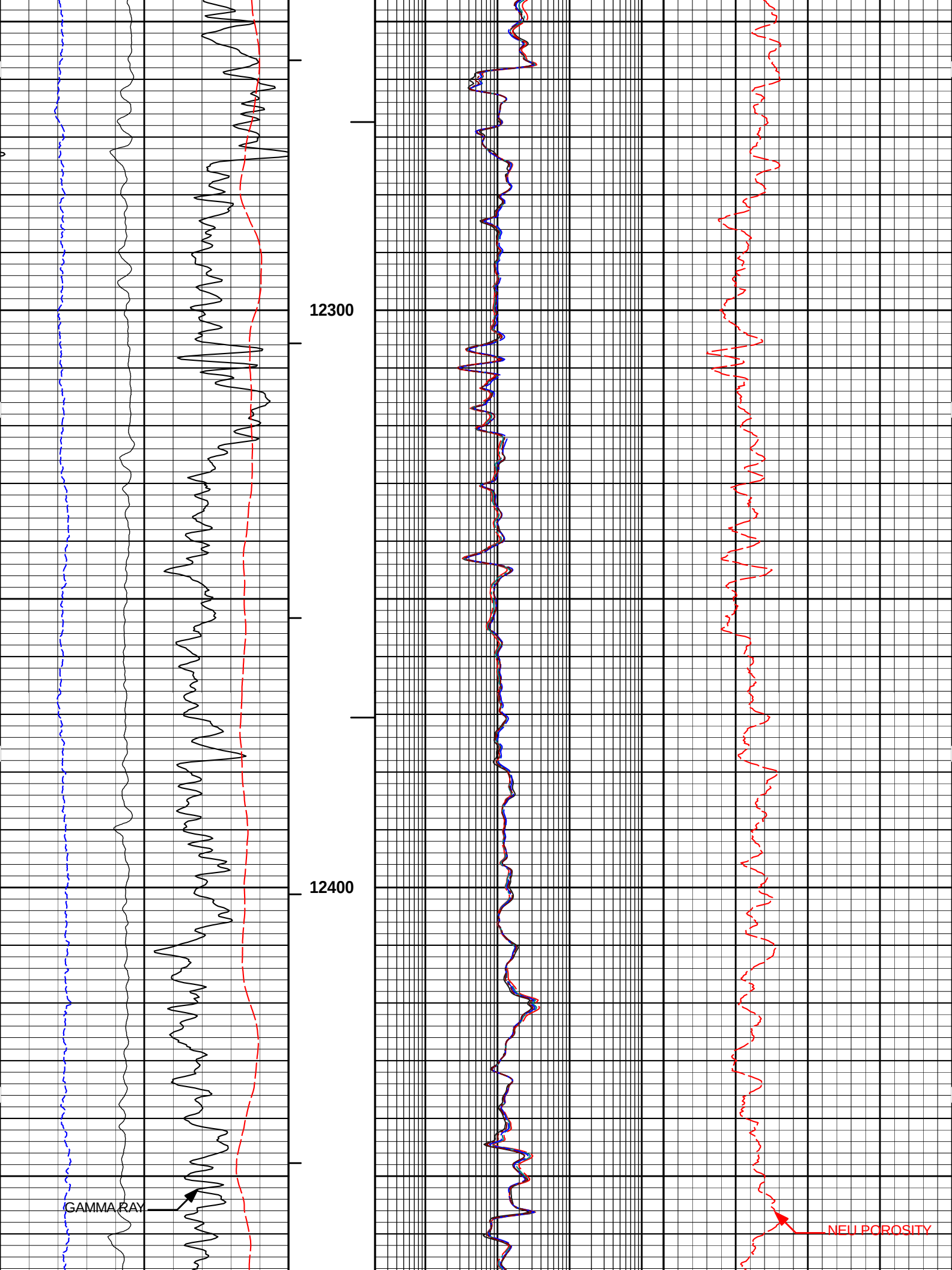
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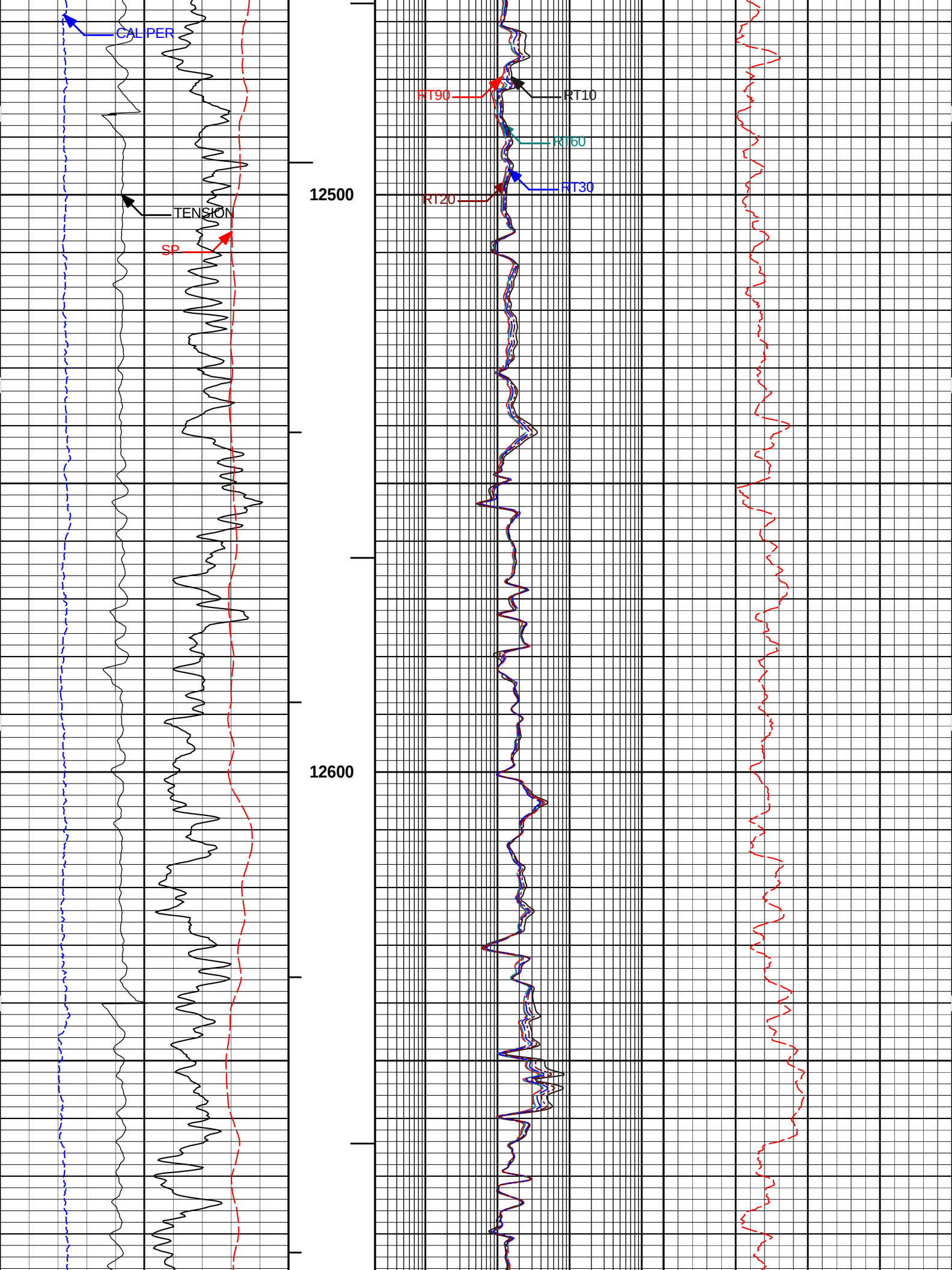
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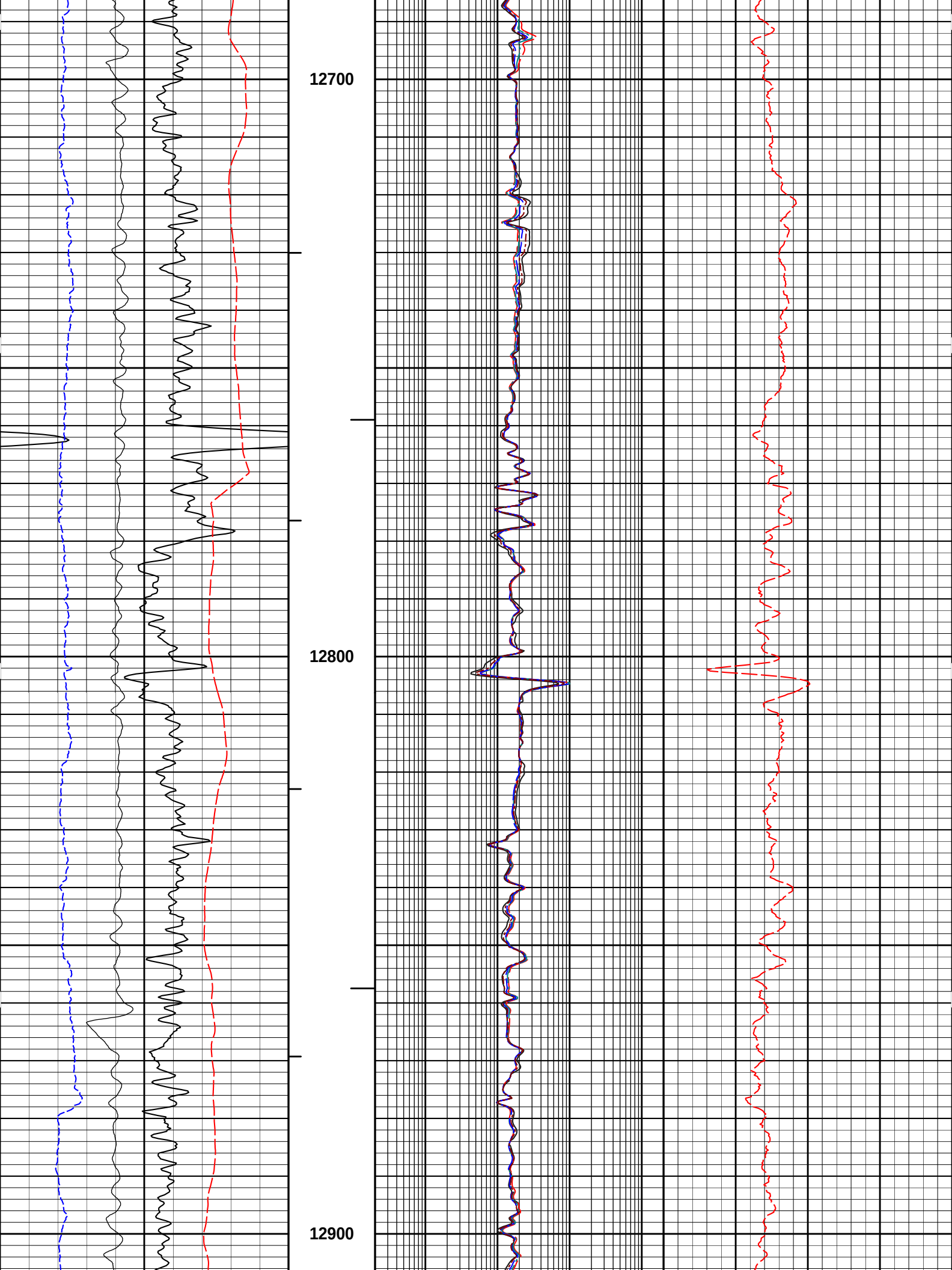
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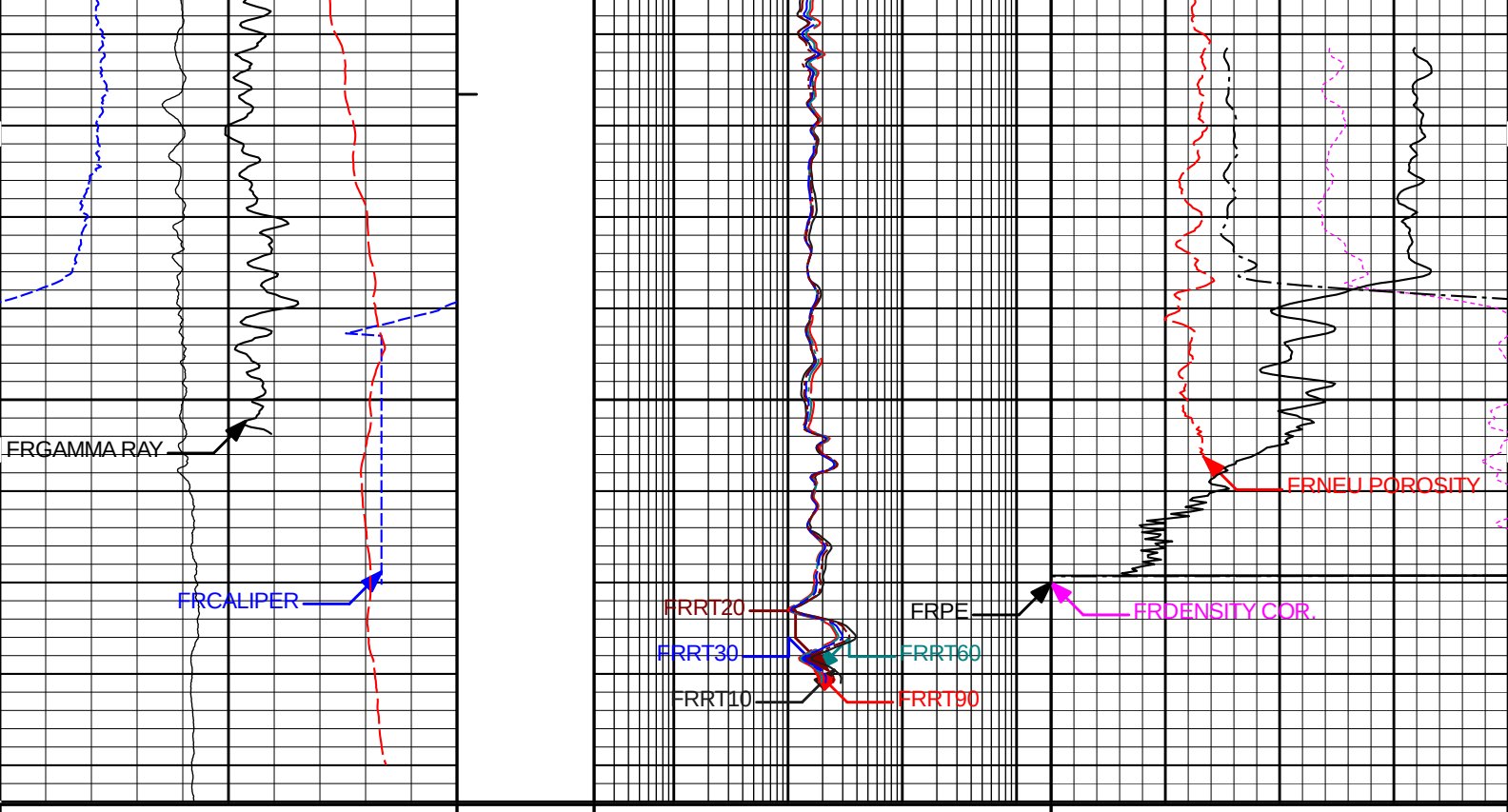


10000	TENSION	0	1 : 240 FT.	0.2	RT10	2000	-0.25	DENSITY COR. 0.25
	pounds				ohm-m			g/cc
0	SP	100	BHV	0.2	RT20	2000	0	PE 10
	millivolts				ohm-m			
4	CALIPER	14	AHV	0.2	RT30	2000	30	NEU POROSITY -10
	inches				ohm-m			sand
0	GAMMA RAY	150		0.2	RT60	2000	30	DEN POROSITY -10
	api				ohm-m			2.68 g/cc
				0.2	RT90	2000		
					ohm-m			

HALLIBURTON

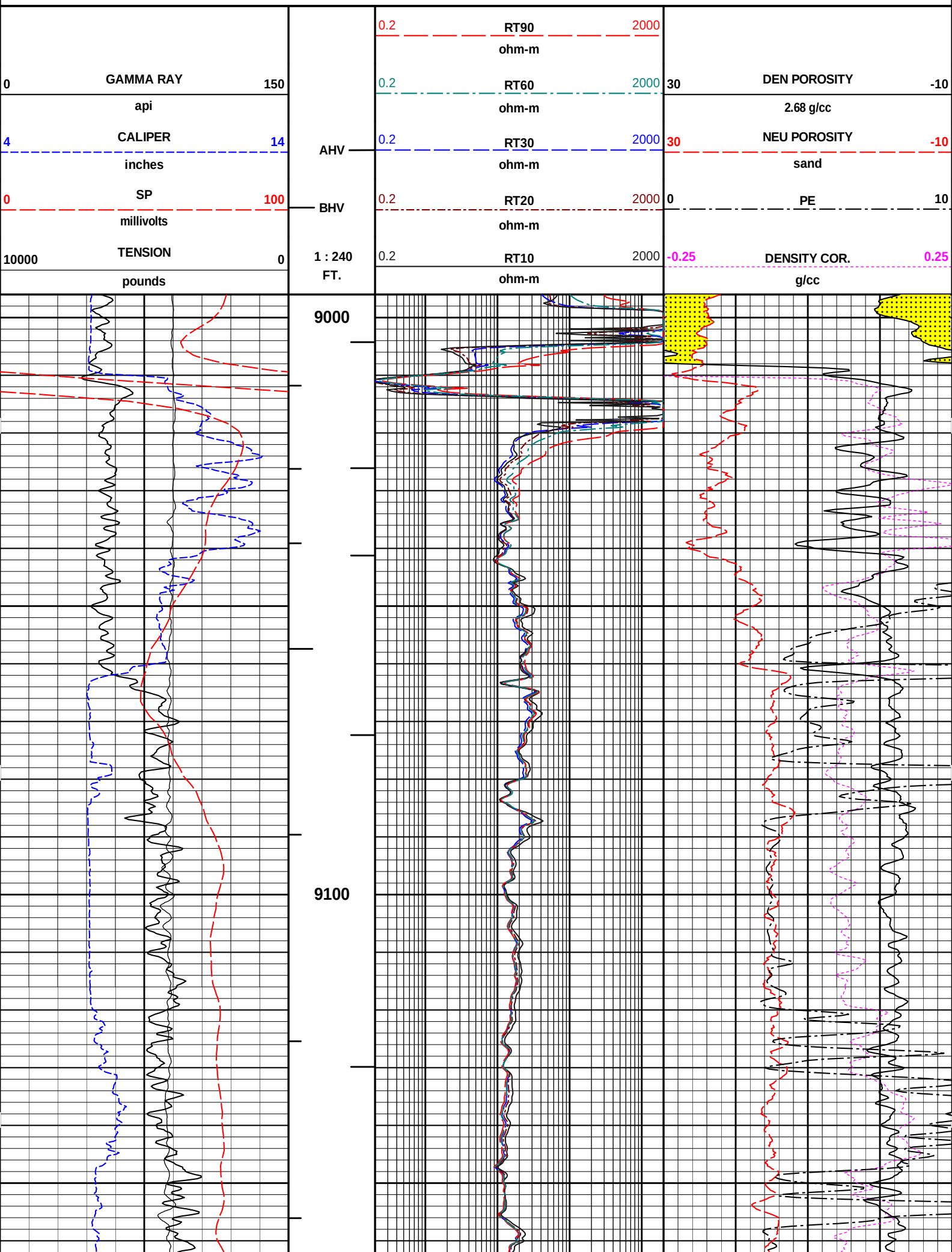
Plot Time: 25-Jan-15 16:13:09
Plot Range: 8995 ft to 12994 ft
Data: KOKO_14_15_7_21\Well Based\MAIN\
Plot File: \\COMPOSITE\TRIPLE_M

MAIN PASS 5" = 100'

HALLIBURTON

Plot Time: 25-Jan-15 16:13:09
Plot Range: 8996 ft to 9388 ft
Data: KOKO_14_15_7_21\Well Based\RPT\
Plot File: \\COMPOSITE\TRIPLE_R

REPEAT PASS 5" = 100'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GAMMA RAY
150
api
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CALIPER
14
inches
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millivolts
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TENSION
0
pounds
AHV
BHV
1 : 240
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RT90
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ohm-m
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RT30
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RT20
2000
ohm-m
0.2
RT10
2000
ohm-m
30
DEN POROSITY
-10
2.68 g/cc
30
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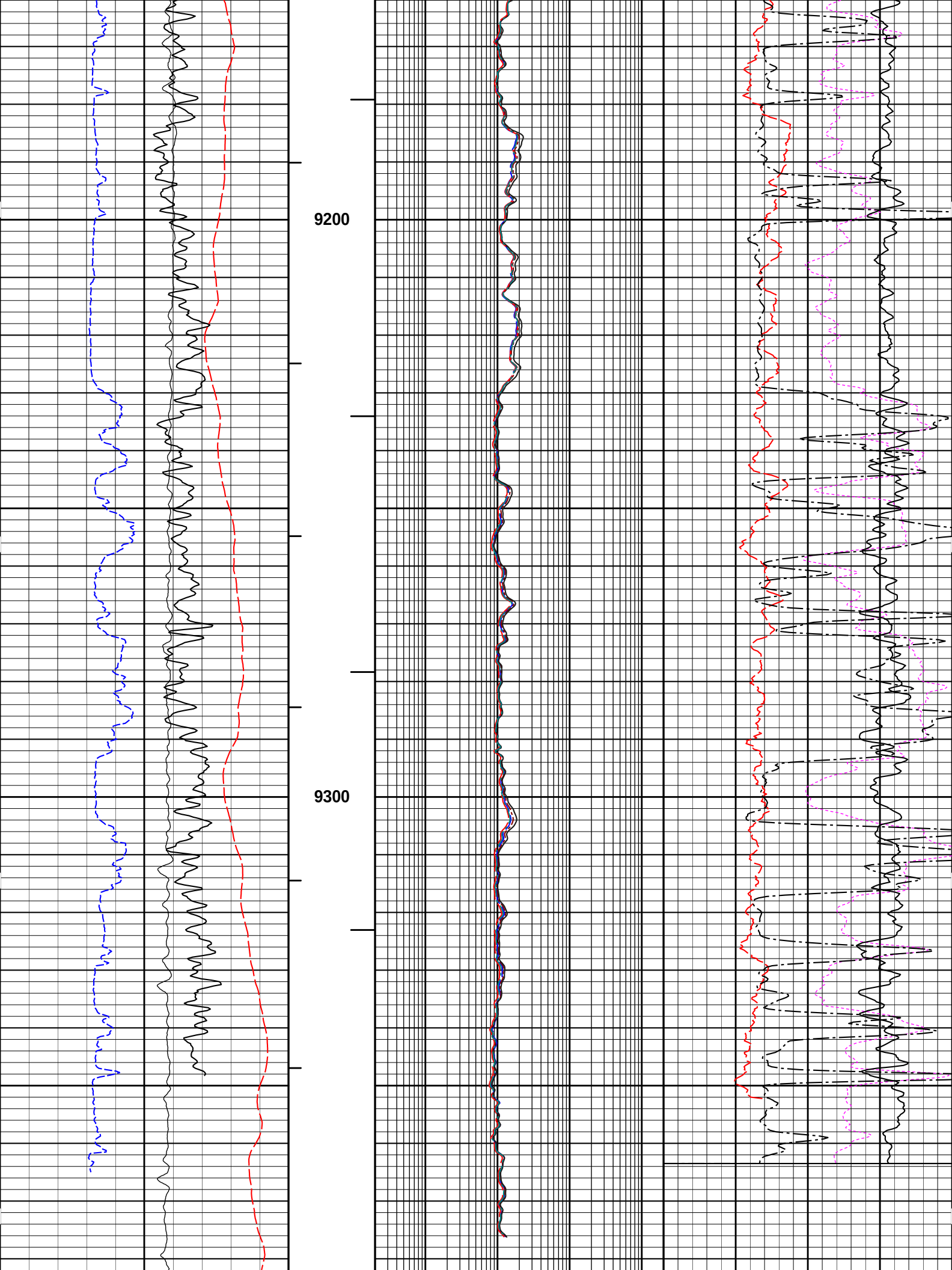
-10
sand
0
PE
10
-0.25
DENSITY COR.
0.25
g/cc
9000
9100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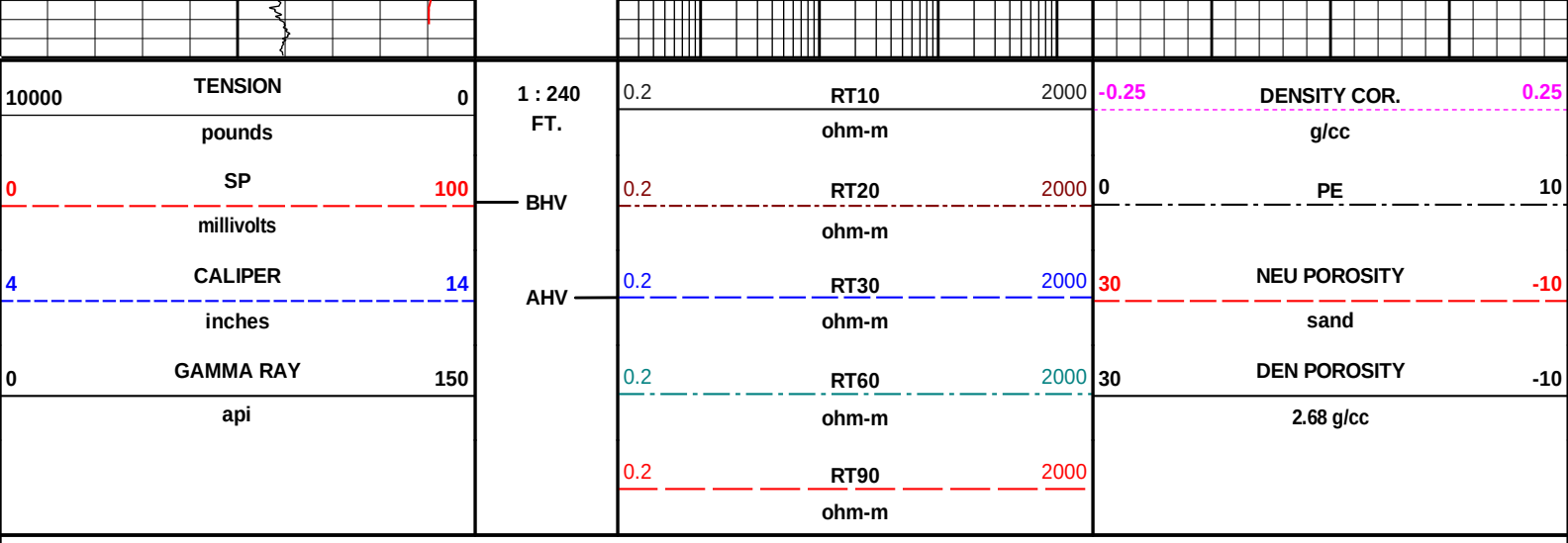

HALLIBURTON

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Plot File: \\COMPOSITE\TRIPLE_R

REPEAT PASS 5" = 100'

HALLIBURTON

CALIBRATION REPORT

SURFACE TENSION SHOP CALIBRATION

Tool Name:	**Depth Panel - 11335318**	**Reference Calibration Date:**	**20-Jan-15 11:47:27**
Engineer:	**O. JEFFERIES**	**Calibration Date:**	**25-Jan-15 08:24:28**
Software Version:	**WL INSITE R4.2.0 (Build 2)**	**Calibration Version:**	**1**

SURFACE TENSION LOAD CELL

Measurement	Load Cell Value	Measurement	Calibrated	Units
Low	10651.99	74.24	0.00	lbs
High	17227.04	7905.59	7830.00	lbs

DOWNHOLE TENSION SHOP CALIBRATION

Tool Name:	**SCHD - 11736180**	**Reference Calibration Date:**	**07-Nov-14 07:59:40**
Engineer:	**O. JEFFERIES**	**Calibration Date:**	**25-Jan-15 08:29:42**
Software Version:	**WL INSITE R4.2.0 (Build 2)**	**Calibration Version:**	**1**

DOWNHOLE LOAD CELL

Measurement	Tool Value	Measurement	Calibrated	Units
Low	-772.21	151.58	0.00	lbs
High	194.82	518.58	368.00	lbs

ACCELEROMETER SHOP CALIBRATION

Tool Name:	**S4TG - 11790910**	**Reference Calibration Date:**	**23-Nov-14 13:24:38**
Engineer:	**Z. TAYLOR**	**Calibration Date:**	**10-Jan-15 13:49:38**
Software Version:	**WL INSITE R4.2.0 (Build 2)**	**Calibration Version:**	**1**

Horizontal-1	Horizontal-2	Vertical	Units

Telemetry	Telemetry	Telemetry	Units
0.04	0.04	1.06	cnts

Coefficient	Coefficient Value	Tolerance
Gain	0.981706	-----
Offset	-0.038	-----
Noise	0.0004	0.0000 - 0.0030

Orientation	Measured	Tolerance	Calibrated	Tolerance
Horizontal	-0.01	-0.10 - 0.10	0.00	-0.10 - 0.10
Vertical	1.00	0.90 - 1.10	1.00	0.90 - 1.10

ULTRA-SLIM QUAD TELEMETRY GAMMA CARTRIDGE SHOP CALIBRATION

Tool Name: S4TG - 11790910 **Reference Calibration Date:** 23-Nov-14 18:18:43

Engineer: Z. TAYLOR **Calibration Date:** 10-Jan-15 13:41:31

Software Version: WL INSITE R4.2.0 (Build 2) **Calibration Version:** 1

Calibrator Source S/N: USC-003-CB

Calibrator API Reference: 155.00

Calibrator API Value: 155.0

Measurement	Measured	Calibrated	Units
Background	32.6	33.2	api
Background + Calibrator	184.8	188.2	api
Calibrator	152.2	155.0	api

ULTRA-SLIM QUAD TELEMETRY GAMMA CARTRIDGE FIELD CALIBRATION

Tool Name: S4TG - 11790910 **Reference Calibration Date:** 10-Jan-15 13:41:31

Engineer: Z. TAYLOR **Calibration Date:** 10-Jan-15 13:45:23

Software Version: WL INSITE R4.2.0 (Build 2) **Calibration Version:** 1

Calibrator Source S/N: USC-003-CB

Field Verification	Shop	Field	Units
Background	33.2	33.0	api
Background + Calibrator	188.2	191.2	api
Calibrator	155.0	158.2	api

Shop	Field	Difference	Tolerance
155.0	158.2	-3.2	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name: SDSN - 11581737 **Reference Calibration Date:** 23-Nov-14 16:50:41

Engineer: Z. TAYLOR **Calibration Date:** 29-Dec-14 15:21:06

Software Version: WL INSITE R4.2.0 (Build 2) **Calibration Version:** 1

Logging Source S/N: 21480B

Reference value assigned to Bath: 22.284

Snow Block S/N: 100133139

Calibration Bath Water Temperature: 68 degF

Min. Tool Housing Outside Diameter: 2.350 in

CALIBRATION CONSTANTS			
Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	1.025	1.020	0.900 - 1.100

WATER BATH SUMMARY (Vertical Water Bath)				
Measurement	Current Reading (Previous Coef.)	Calibrated (New Coef.)	Change	Control Limit On Change
Porosity (decp):	1.0160	1.0000	0.0160	+/- 0.0280
Calibrated Ratio:	22.40	22.28	0.114	+/- 0.180

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0495	0.02000 - 0.09000

PASS/FAIL SUMMARY	
Background Check:	Passed
Gain-Range Check:	Passed
Snow-Block Check:	Passed

DUAL SPACED NEUTRON FIELD CALIBRATION

Tool Name:	**SDSN - 11581737**	**Reference Calibration Date:**	**29-Dec-14 15:21:06**
Engineer:	**Z. TAYLOR**	**Calibration Date:**	**29-Dec-14 15:22:22**
Software Version:	**WL INSITE R4.2.0 (Build 2)**	**Calibration Version:**	**1**

Logging Source S/N: 21480B

Snow Block S/N: 100133139

NEUTRON FIELD-CHECK SUMMARY				
	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0495	0.0494	-0.0000	+/- 0.0150

PASS/FAIL SUMMARY	
Block Change Check:	Passed
Snow Block Stat Check:	Passed
Temperature Check:	Passed

DENSITY CALIPER SHOP CALIBRATION

Tool Name:	**SSDL - 11581740**	**Reference Calibration Date:**	**29-Dec-14 15:58:55**
Engineer:	**Z. TAYLOR**	**Calibration Date:**	**29-Dec-14 16:08:01**
Software Version:	**WL INSITE R4.2.0 (Build 2)**	**Calibration Version:**	**1**

The ring diameter is computed from: DIAMETER = PAD EXTENSION + ARM EXTENSION + TOOL DIAMETER

Calibrator Small Ring Diameter: 4.350 in

Calibrator Medium Ring Diameter: 8.35 in

Calibrator Large Ring Diameter: 12.350 in

Tool Diameter: 2.35 in

CALIBRATION COEFFICIENTS			
Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-19249.47	-19244.88	-32000.00 - -15000.00
Pad Gain	0.0000709	0.0000709	0.000052 - 0.000098
Arm Offset	-14813.20	-14849.24	-18000.00 - -13000.00
Arm Gain	0.0003048	0.0003031	0.000270 - 0.000330
Arm Power	-0.000002721	-0.000002643	-0.000004200 - -0.000001400

CALIBRATION RINGS				
Measurement	Current Reading (Previous Coeff.)	Calibrated (New Coeff.)	Change	Control Limit On New Value
PAD EXTENSION:				

Closed (in)	-0.00	0.00	0.00	+/- 0.20
Medium Ring (in)	2.03	2.03	-0.00	+/- 0.20
Maximum (in)	2.3	2.3	-0.00	+/- 0.20
RING DIAMETER:				
Small Ring (in)	4.37	4.35	-0.02	+/- 0.20
Medium Ring (in)	8.38	8.35	-0.03	+/- 0.20
Large Ring (in)	12.38	12.35	-0.03	+/- 0.20
Maximum (in)	17.58	17.56	-0.02	+/- 0.20

PASS/FAIL SUMMARY	
Calibration-Coefficients Range Check:	Passed
Ring-Measurement Check:	Passed

DENSITY CALIPER FIELD CALIBRATION

Tool Name: SSDL - 11581740 **Reference Calibration Date:** 29-Dec-14 16:08:01

Engineer: Z. TAYLOR **Calibration Date:** 29-Dec-14 16:10:44

Software Version: WL INSITE R4.2.0 (Build 2) **Calibration Version:** 1

The Caliper is computed from: CALIPER = PAD EXTENSION + ARM EXTENSION + TOOL DIAMETER

Tool Diameter: 2.35 in

MEASURED CALIPER VALUES

Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	12.89	12.90	0.01	+/- 0.20
Caliper	17.56	17.63	0.08	+/- 0.20

PASS/FAIL SUMMARY	
Pad Extension Check:	Passed
Diameter Check:	Passed

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name: SSDL Pad - 11581731 **Reference Calibration Date:** 23-Nov-14 17:38:56

Engineer: Z. TAYLOR **Calibration Date:** 29-Dec-14 14:37:31

Software Version: WL INSITE R4.2.0 (Build 2) **Calibration Version:** 1

Logging Source S/N: 5265GW

Aluminum Block S/N: 63069 Density: 2.588g/cc Pe: 3.160

Magnesium Block S/N: 63376 Density: 1.685g/cc Pe: 2.594

DENSITY CALIBRATION SUMMARY

Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0414	0.9675	0.90 - 1.10
Near Dens Gain	1.0376	1.0168	0.90 - 1.10
Near Peak Gain	1.0393	1.0191	0.90 - 1.10
Near Lith Gain	1.0526	1.0357	0.90 - 1.10
Far Bar Gain	1.0104	0.9956	0.90 - 1.10
Far Dens Gain	1.0189	1.0081	0.90 - 1.10
Far Peak Gain	1.0200	1.0107	0.90 - 1.10
Far Lith Gain	1.0120	1.0042	0.90 - 1.10
Near Bar Offset	-0.3658	0.3462	NONE
Near Dens Offset	-0.3458	-0.1341	NONE
Near Peak Offset	-0.3776	-0.1721	NONE
Near Lith Offset	-0.4602	-0.3026	NONE
Far Bar Offset	-0.0569	0.0727	NONE
Far Dens Offset	-0.1417	-0.0475	NONE

Far Peak Offset	-0.1723	-0.0873	NONE
Far Lith Offset	-0.0506	0.0049	NONE

Near Bar Background	226.96	225.20	155 - 360
Near Dens Background	133.60	132.34	90 - 210
Near Peak Background	76.75	77.15	55 - 125
Near Lith Background	64.16	64.51	45 - 100
Far Bar Background	133.20	133.73	90 - 210
Far Dens Background	66.72	65.60	45 - 105
Far Peak Background	53.06	54.00	35 - 85
Far Lith Background	34.61	33.56	25 - 55

CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.682	1.686	0.004	+/- 0.015
Pe	2.359	2.382	0.023	+/- 0.150
ALUMINUM				
Density (g/cc)	2.575	2.581	0.006	+/- 0.01500
Pe	2.906	2.972	0.066	+/- 0.150

TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0014	+/- 0.0110	0.0011	+/- 0.0140
Magnesium Block	-0.0016	+/- 0.0110	-0.0081	+/- 0.0140
Aluminum Block	-0.0002	+/- 0.0110	-0.0049	+/- 0.0140
Resolution	9.82	6.00 - 11.50	9.57	6.00 - 11.50
Noise Edge	0	< 11	0	< 20
Internal Verifier(B+D+P+L)	499	345 - 795	287	195 - 455

PASS/FAIL SUMMARY

Background Quality Check:	Passed
Background Range Check:	Passed
Background Resolution Check:	Passed
Background Verification Check:	Passed
Near Noise Edge:	Passed
Far Noise Edge:	Passed
Magnesium Quality Check:	Passed
Aluminum Quality Check:	Passed
Gains Check:	Passed
Changes in Calibration Blocks:	Passed

SPECTRAL DENSITY FIELD CHECK

Tool Name: SSDL Pad - 11581731 **Reference Calibration Date:** 29-Dec-14 14:37:31

Engineer: Z. TAYLOR **Calibration Date:** 29-Dec-14 15:39:42

Software Version: WL INSITE R4.2.0 (Build 2) **Calibration Version:** 1

Pad Temperature: 73.4 degF

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	499.200	500.116	0.916	9.426
Far (B+D+P+L) cps	286.890	289.265	2.375	11.388
Near Resolution	9.82	10.13	0.310	0.50
Far Resolution	9.57	9.74	0.170	1.00

PASS/FAIL SUMMARY	
Bkg Quality Check:	Passed
Bkg Resolution Check:	Passed
Bkg Verification Check:	Passed

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

Tool Name: SACRT Sonde - 11577718
Engineer: O. JEFFERIES
Software Version: WL INSITE R4.2.0 (Build 2)
Host Tool Name: SACRT Instrument - 11577714
Reference Calibration Date: 11-Nov-14 11:05:21
Calibration Date: 27-Nov-14 13:00:00
Calibration Version: 1

TYPICAL GAIN RANGE

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	0.9932	1.05	0.95	0.9978	1.05	0.95	0.9942	1.05
A2 (50")	0.95	0.9988	1.05	0.95	1.0037	1.05	0.95	1.0017	1.05
A3 (29")	0.95	0.9946	1.05	0.95	0.9986	1.05	0.95	0.9973	1.05
A4 (17")	0.95	0.9950	1.05	0.95	0.9998	1.05	0.95	0.9972	1.05
A5 (10")	N/A	N/A	N/A	0.95	0.9999	1.05	0.95	0.9908	1.05
A6 (6")	N/A	N/A	N/A	0.95	1.0026	1.05	0.95	1.0001	1.05

TYPICAL SONDE OFFSET RANGE

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	-40	7.439	40	-25	3.877	25	-15	0.589	15
A2 (50")	-40	15.451	40	-25	1.582	25	-15	1.423	15
A3 (29")	-40	12.380	40	-25	17.597	25	-15	2.587	15
A4 (17")	-80	-19.538	80	-40	9.253	40	-25	19.429	25
A5 (10")	N/A	N/A	N/A	-150	-61.875	100	-75	17.597	75
A6 (6")	N/A	N/A	N/A	-100	314.335	250	-250	320.188	250

TRANSMITTER CURRENT GAIN

Signal	Lower	R	Upper
12K	0.59	0.65	0.69
36K	0.79	0.88	0.91
72K	0.6	0.68	0.74

R-MUD VERIFICATION

Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
Mud Cell	0.95	1.00	1.05

PASS/FAIL SUMMARY	
GAIN RANGE CHK	PASS
TOOL OK TO LOG	

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
Depth Panel 11335318						

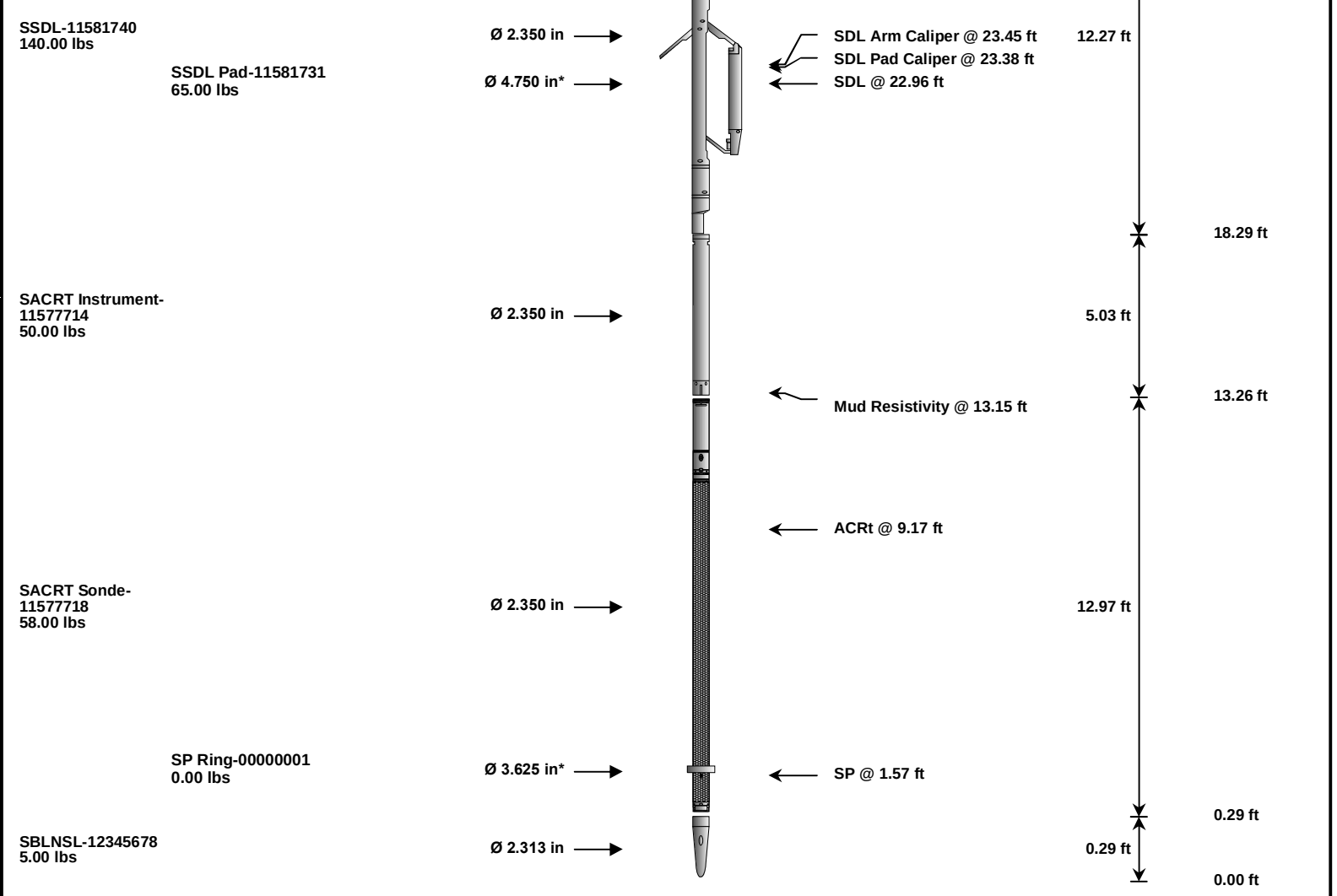
Depth Panel-11335318						
Tension Zero	0.00	----------	----------	0.00	----------	lbs
Tension Cal	7830.00	----------	----------	0.00	----------	lbs
SCHD-11736180						
DH Tension Zero	0.00	----------	----------	0.00	----------	lbs
DH Tension Cal	368.00	----------	----------	0.00	----------	lbs
S4TG-11790910						
AccZ Horizontal	-0.00	----------	----------	0.00	----------	g
AccZ Vertical	1.00	----------	----------	0	----------	g
Gamma Ray Calibrator	155.0	158.2	----------	-3.2	+/- 9.00	api
SDSN-11581737						
Snow-Block Porosity	0.0495	0.0494	----------	0.0001	+/- 0.0150	decp
SSDL-11581740						
Arm Extension	12.89	12.90	----------	-0.01	0.20	in
Max Caliper	17.56	17.63	----------	-0.07	0.20	in
SSDL Pad-11581731						
Near(B+D+P+L)	499.200	500.116	----------	-0.916	+/-9.426	cps
Far(B+D+P+L)	286.890	289.265	----------	-2.375	+/-11.388	cps
SACRT Sonde-11577718						
Mud Cell	1.00	----------	----------	0.00	----------	ohm-m

Data: KOKO_14_15_7_21\0002 US_TRIPLE\IDLE **Date: 25-Jan-15 14:35:20**

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
						52.29 ft
SCHD-11736180 40.00 lbs		Ø 2.350 in		Temperature @ 50.29 ft	4.00 ft	
						48.29 ft
S4TG-11790910 70.00 lbs		Ø 2.350 in			9.77 ft	
				GammaRay @ 39.57 ft		
						38.52 ft
SDSN-11581737 74.00 lbs		Ø 2.350 in			7.96 ft	
				DSN Far @ 32.66 ft DSN Near @ 31.81 ft		
						30.56 ft



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)		Accumulated Length (ft)	Max.Log. Speed (fpm)
SCHD	Ultra-Slim Cable Head	11736180	40.00	4.00		48.29	300.00
S4TG	Ultra-Slim Quad Telemetry Gamma Cartridge	11790910	70.00	9.77		38.52	60.00
SDSN	Ultra-Slim Hole Dual Spaced Neutron	11581737	74.00	7.96		30.56	60.00
SSDL	Ultra-Slim Hole Spectral Density	11581740	140.00	12.27		18.29	60.00
SDLP	Slim Density Pad	11581731	65.00	2.55	*	21.68	60.00
SACRT	Array Compensated True Resistivity Instrument Section	11577714	50.00	5.03		13.26	120.00
SACRT	Array Compensated True Resistivity Sonde Section	11577718	58.00	12.97		0.29	120.00
SP	SP Ring	00000001	0.00	0.25	*	1.57	300.00
SBLNSL	Ultra-Slim Bull Nose L-Slot	12345678	5.00	0.29		0.00	300.00
Total			**502.00**	**52.29**			

* Not included in Total Length and Length Accumulation.

Data: KOKO_14_15_7_21\0002 US_TRIPLE\IDLE **Date: 25-Jan-15 14:32:40**

COMPANY	**CYNOSURE ENERGY LLC - EBUS**		
WELL	**FEDERAL 14/15-7-21**		
FIELD	**KOKOPELI**		
COUNTY	**GARFIELD**	STATE	**UTAH**

HALLIBURTON

ULTRA-SLIM
SPECTRAL DENSITY
DUAL SPACED NEUTRON
ARRAY COMPENSATED
TRUE RESISTIVITY