HALLIBURTON

SPECTRAL DENSITY DUAL SPACED NEUTRON ARRAY COMPENSATED TRUE RESISTIVITY LOG

COMPANY	KERR-MCGEE OIL & GAS ONSHORE LP
WELL	CARTER 9-32SX
FIELD	WATTENBERG
COUNTY	WELD
STATE	CO

COMPANY KERR-MCGEE OIL & GAS ONSHORE LP
WELL CARTER 9-32SX
FIELD WATTENBERG
COUNTY WELD **STATE** CO

API No. 05123331400000
Location SURFACE LOCATION: 2321' FSL & 1524' FEL NWSE
BOTTOM LOCATION: 2115' FSL & 488' FEL NESE

LATITUDE: 40.0937270°
LONGITUDE: -104.797056°

Sect. 32 Twp. 2N Rge. 66W

Other Services:
RWCH

Permanent Datum	GL	Elev. 4912.0 ft	Elev.: K.B.	4928.0 ft
Log measured from	KB	16.0 ft above perm. Datum	D.F.	4928.0 ft
Drilling measured from	KB		G.L.	4912.0 ft

Date		12-May-11				
Run No.		ONE				
Depth - Driller		5065.00 ft				
Depth - Logger		5045.0 ft				
Bottom - Logged Interval		5042 ft				
Top - Logged Interval		898 ft				
Casing - Driller		8.625 in	@ 899.0 ft	@		@
Casing - Logger		899.0 ft				
Bit Size		7.875 in		@		@
Type Fluid in Hole		WATER BASED MUD				
Density	Viscosity	8.4 ppg	27.00 s/qt			
PH	Fluid Loss	7.00 pH	50.0 cptm			
Source of Sample		MUD CELL				
Rm @ Meas. Temperature		2.560 ohmm	@ 70.00 degF	@		@
Rmf @ Meas. Temperature		2.16 ohmm	@ 75.00 degF	@		@
Rmc @ Meas. Temperature		1.971 ohmm	@ 75.00 degF	@		@
Source Rmf	Rmc	CHART	CHART			
Rm @ BHT		1.13 ohmm	@ 145.0 degF	@		@
Time Since Circulation		6.0 hr				
Time on Bottom		12-May-11 10:00				
Max. Rec. Temperature		145.0 degF	@ 5045.0 ft	@		@
Equipment	Location	10800785	BRIGHTON			
Recorded By		F. LODER				
Witnessed By		N. JONES		R. BRACKMAN		

Fold here

Service Ticket No.: 8168266 API Serial No.: 05123331400000 PGM Version: WL INSITE R3.2.5 (Build 2)

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE					
Date	Sample No.				
Depth-Driller					
Type Fluid in Hole					
Density	Viscosity				
Ph	Fluid Loss				
Source of Sample					
Rm @ Meas. Temp		@		@	
Rmf @ Meas. Temp.		@		@	
Rmc @ Meas. Temp.		@		@	
Source Rmf	Rmc				
Rm @ BHT		@		@	
Rmf @ BHT		@		@	
Rmc @ BHT		@		@	

RESISTIVITY SCALE CHANGES			
Type Log	Depth	Scale Up Hole	Scale Down Hole

RESISTIVITY EQUIPMENT DATA				
Run No.	Tool Type & No.	Pad Type	Tool Pos.	Other
ONE	ACRt 584-585	N/A	1.5" S.O.	N/A

EQUIPMENT DATA

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.		Run No.	ONE	Run No.	ONE
Serial No.	11259758	Serial No.		Serial No.	I690M488	Serial No.	10935690
Model No.	GTET	Model No.		Model No.	SDLT	Model No.	DSNT
Diameter	3.625"	No. of Cent.		Diameter	4.75"	Diameter	3.625"
Detector Model No.	2G8BICORN	Spacing		Log Type	GAM-GAM	Log Type	NEU-NEU
Type	SCINT			Source Type	Cs137	Source Type	Am241Be
Length	8"	LSA [Y/N]		Serial No.	5256GW	Serial No.	DSN430
Distance to Source	15'	FWDA [Y/N]		Strength	1.79 Ci	Strength	15 Ci

LOGGING DATA

GENERAL	GAMMA	ACOUSTIC	DENSITY	NEUTRON

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	
ONE	5045'	897'	REC	0 API	200 API				20 %	0 %	2.71 g/cc	20 %	0 %	LIME

DIRECTIONAL INFORMATION

Maximum Deviation	@	KOP	@

Remarks: RWCH-GTET-DSNT-SDLT-ACRT RAN IN COMBINATION

ANNULAR HOLE VOLUME CALCULATED USING 4.5 INCH PODUCTION CASING

TENSION PULLS AND BOREHOLE RUGOSITY AFFECT LOG RESPONSE

CREW: J. WALKER, N. GOULD

THANK YOU FOR USING HALLIBURTON ENERGY SERVICES -- BRIGHTON, CO -- 303.825.4346

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PARAMETERS REPORT

Depth (ft)	Tool Name	Mnemonic	Description	Value	Units
TOP					
	SHARED	BS	Bit Size	7.875	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDBS	Mud Base	Water	
	SHARED	MDWT	Borehole Fluid Weight	8.400	ppg
	SHARED	WAGT	Weighting Agent	Natural	
	SHARED	BSAL	Borehole salinity	0.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	RMUD	Mud Resistivity	2.560	ohmm
	SHARED	TRM	Temperature of Mud	68.0	degF
	SHARED	CSD	Logging Interval is Cased?	No	
	SHARED	ICOD	AHV Casing OD	4.500	in
	SHARED	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	5065.00	ft
	SHARED	BHT	Bottom Hole Temperature	178.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	NONE	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	GTET	
	SHARED	TEMM	Temperature Master Tool	NONE	
	SHARED	BHSM	Borehole Size Master Tool	NONE	
	Rwa / CrossPlot	XPOK	Process Crossplot?	Yes	
	Rwa / CrossPlot	FCHO	Select Source of F	Crossplot	
	Rwa / CrossPlot	AFAC	Archie A factor	0.6200	

Rwa / CrossPlot	MFAC	Archie M factor	2.1500	
Rwa / CrossPlot	RMFR	Rmf Reference	0.10	ohmm
Rwa / CrossPlot	TMFR	Rmf Ref Temp	75.00	degF
Rwa / CrossPlot	RWA	Resistivity of Formation Water	0.03	ohmm
Rwa / CrossPlot	ADP	Use Air Porosity to calculate CrossplotPhi	No	
GTET	GROK	Process Gamma Ray?	Yes	
GTET	GRSO	Gamma Tool Standoff	0.000	in
GTET	GEOK	Process Gamma Ray EVR?	No	
GTET	TPOS	Tool Position	Eccentered	
DSNT	DNOK	Process DSN?	Yes	
DSNT	DEOK	Process DSN EVR?	No	
DSNT	NLIT	Neutron Lithology	Limestone	
DSNT	DNSO	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.000	in
DSNT	DNTP	Temperature Correction Type	None	
DSNT	DPRS	DSN Pressure Correction Type	None	
DSNT	SHCO	View More Correction Options	No	
DSNT	UTVD	Use TVD for Gradient Corrections?	No	
DSNT	LHWT	Logging Horizontal Water Tank?	No	
SDLT	DNOK	Process Density?	Yes	
SDLT	DNOK	Process Density EVR?	No	
SDLT	CB	Logging Calibration Blocks?	No	
SDLT	SPVT	SDLT Pad Temperature Valid?	Yes	
SDLT	DTWN	Disable temperature warning	No	
SDLT	DMA	Formation Density Matrix	2.710	g/cc
SDLT	DFL	Formation Density Fluid	1.000	g/cc
SDLT	CLOK	Process Caliper Outputs?	Yes	
SDLT	MLOK	Process MicroLog Outputs?	Yes	
ACRt	RTOK	Process ACRt?	Yes	
ACRt	MNSO	Minimum Tool Standoff	1.50	in
ACRt	TCS1	Temperature Correction Source	FP Lwr & FP Upr	
ACRt	TPOS	Tool Position	Free Hanging	
ACRt	RMOP	Rmud Source	Mud Cell	
ACRt	RMIN	Minimum Resistivity for MAP	0.20	ohmm
ACRt	RMIN	Maximum Resistivity for MAP	200.00	ohmm
ACRt	THQY	Threshold Quality	0.50	

BOTTOM

Data: CARTER_9_32SX\0001 TRIPLE\002 12-May-11 10:00 Up @5053.0f

Date: 12-May-11 10:09:40

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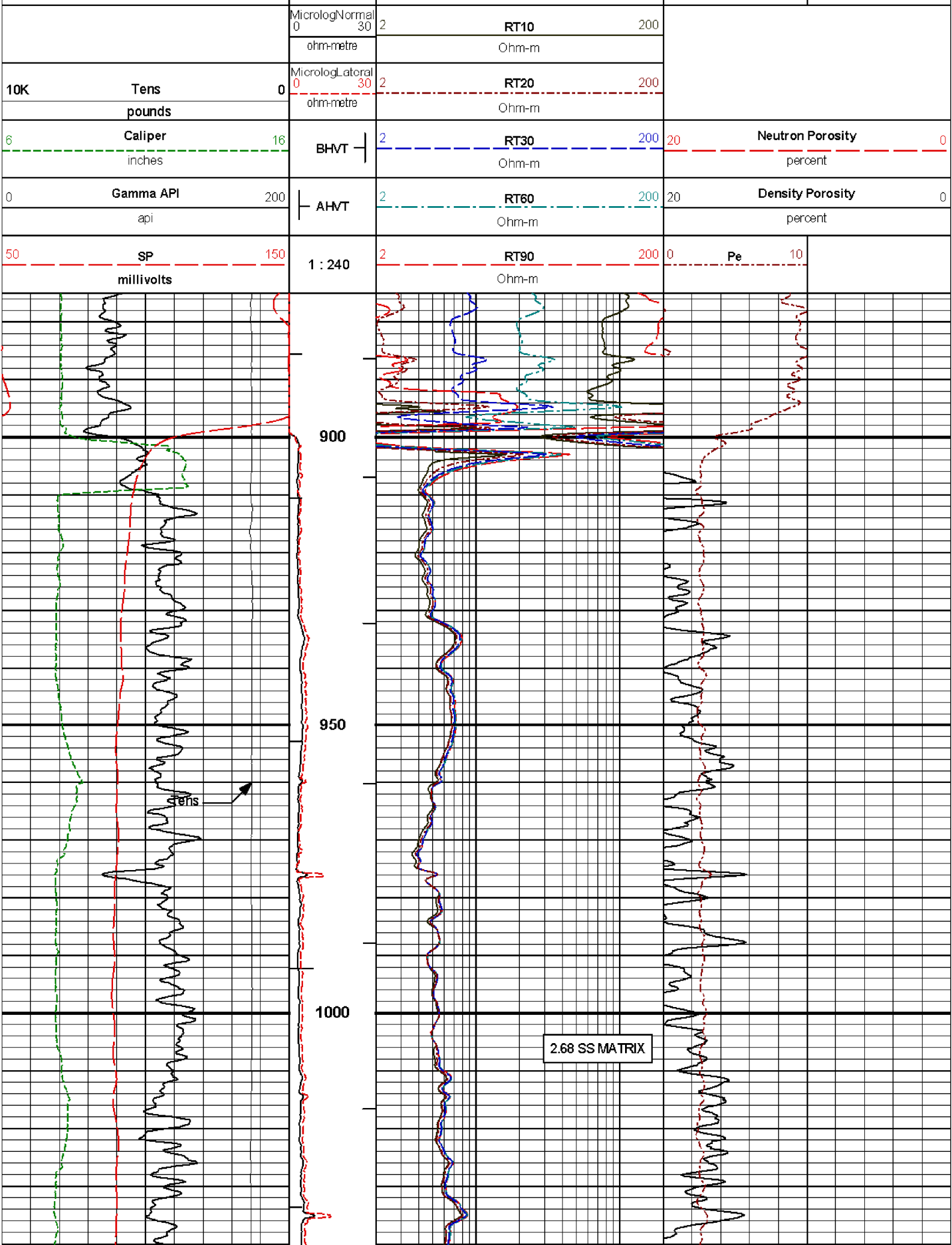
Plot Time: 12-May-11 10:49:16
Plot Range: 875 ft to 5052.75 ft
Data: {ActiveWell}\Well Based\DAQ-0001-002*
Plot File: \\COMP\MAIN

MAIN PASS 5" = 100'

Track 1	Depth Track	Track 2	Track 5	Track 3


MicrologNormal
0 30
ohm-metre
2 RT10 200
Ohm-m
10K Tens 0
pounds
MicrologLateral
0 30
ohm-metre
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Ohm-m
6 Caliper 16
inches
BHVT
2 RT30 200
Ohm-m
20 Neutron Porosity 0
percent
0 Gamma API 200
api
AHVT
2 RT60 200
Ohm-m
20 Density Porosity 0
percent
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Ohm-m
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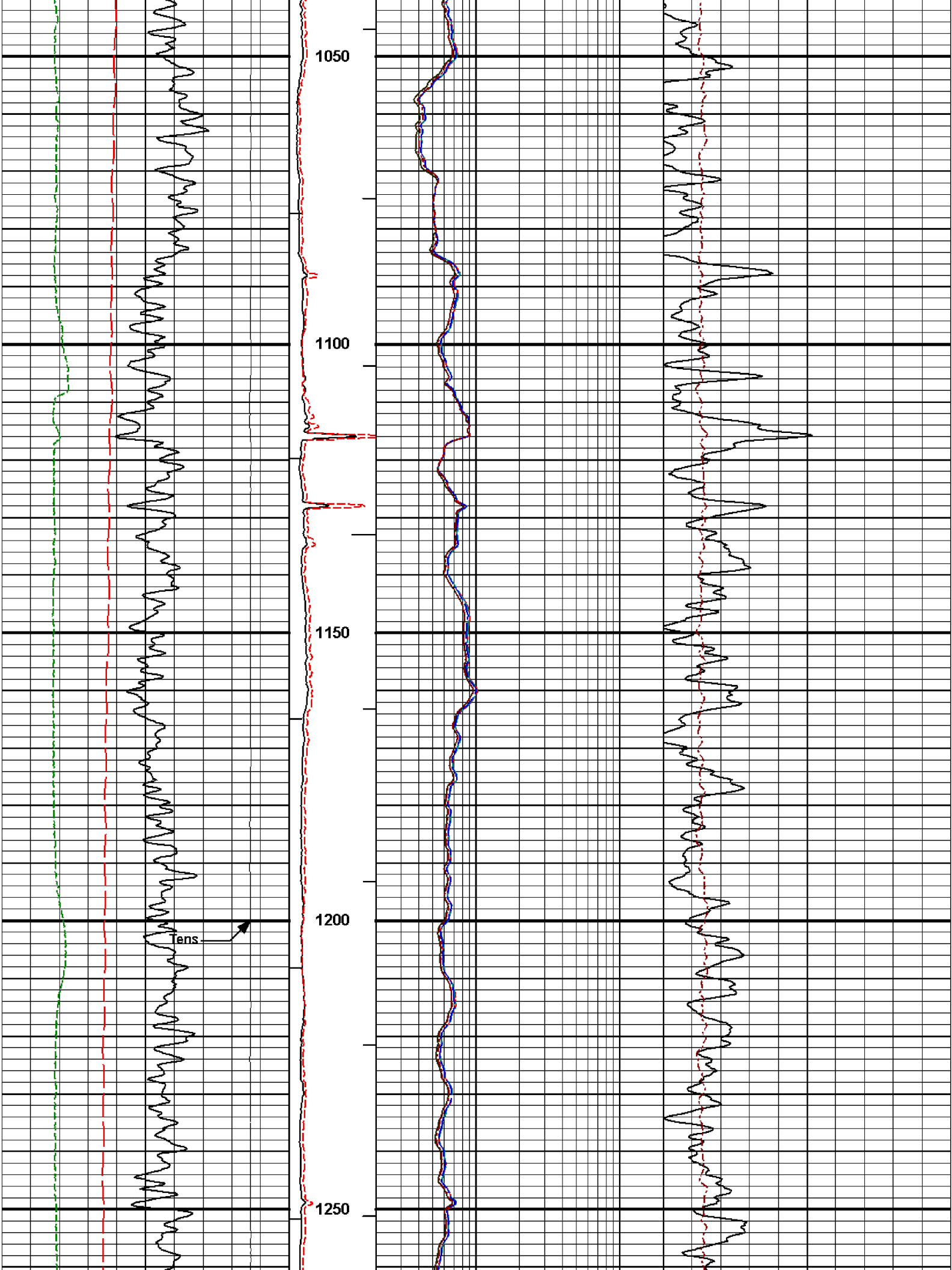
950
1000
Tens
2.68 SS MATRIX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1250
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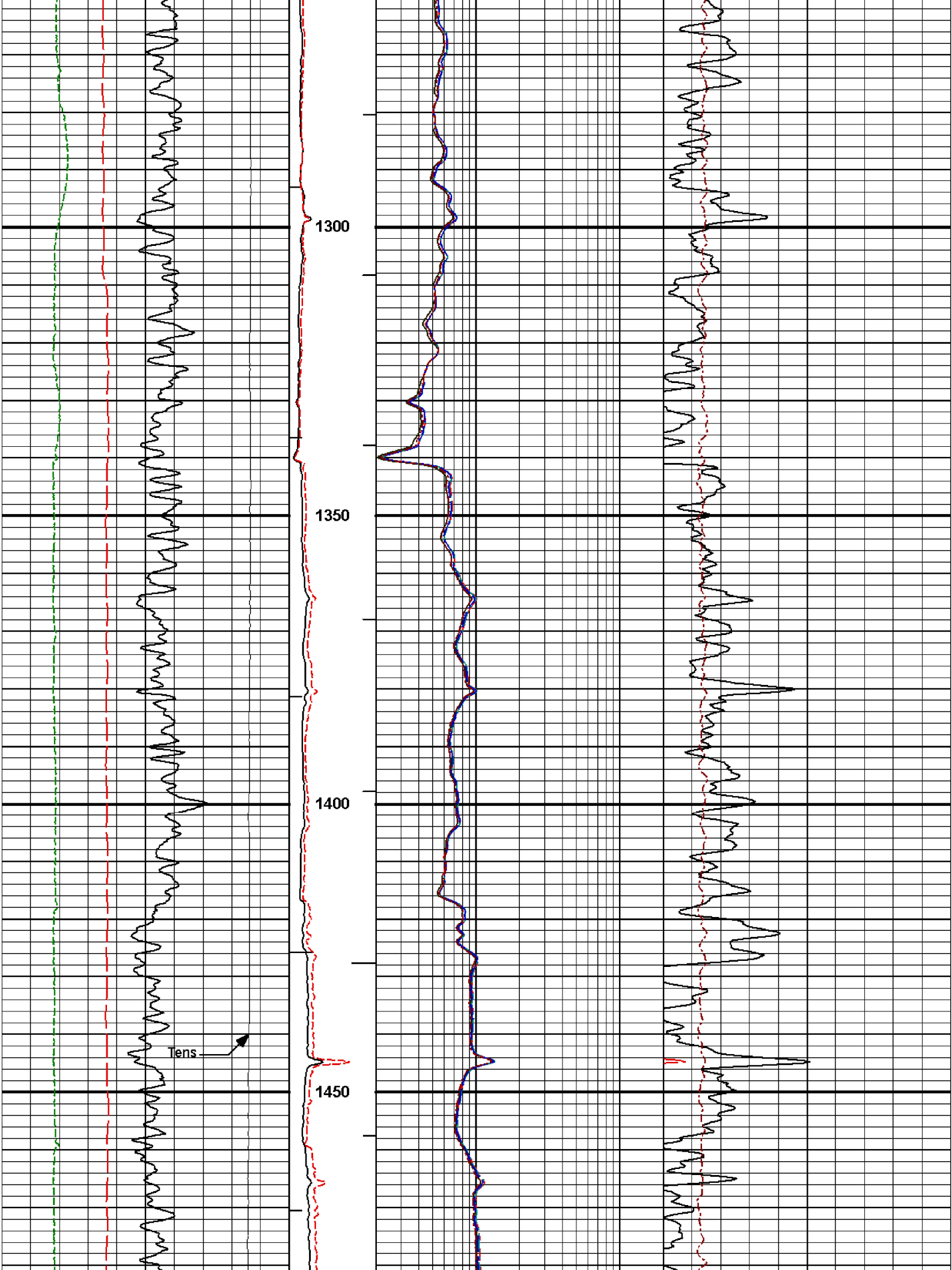
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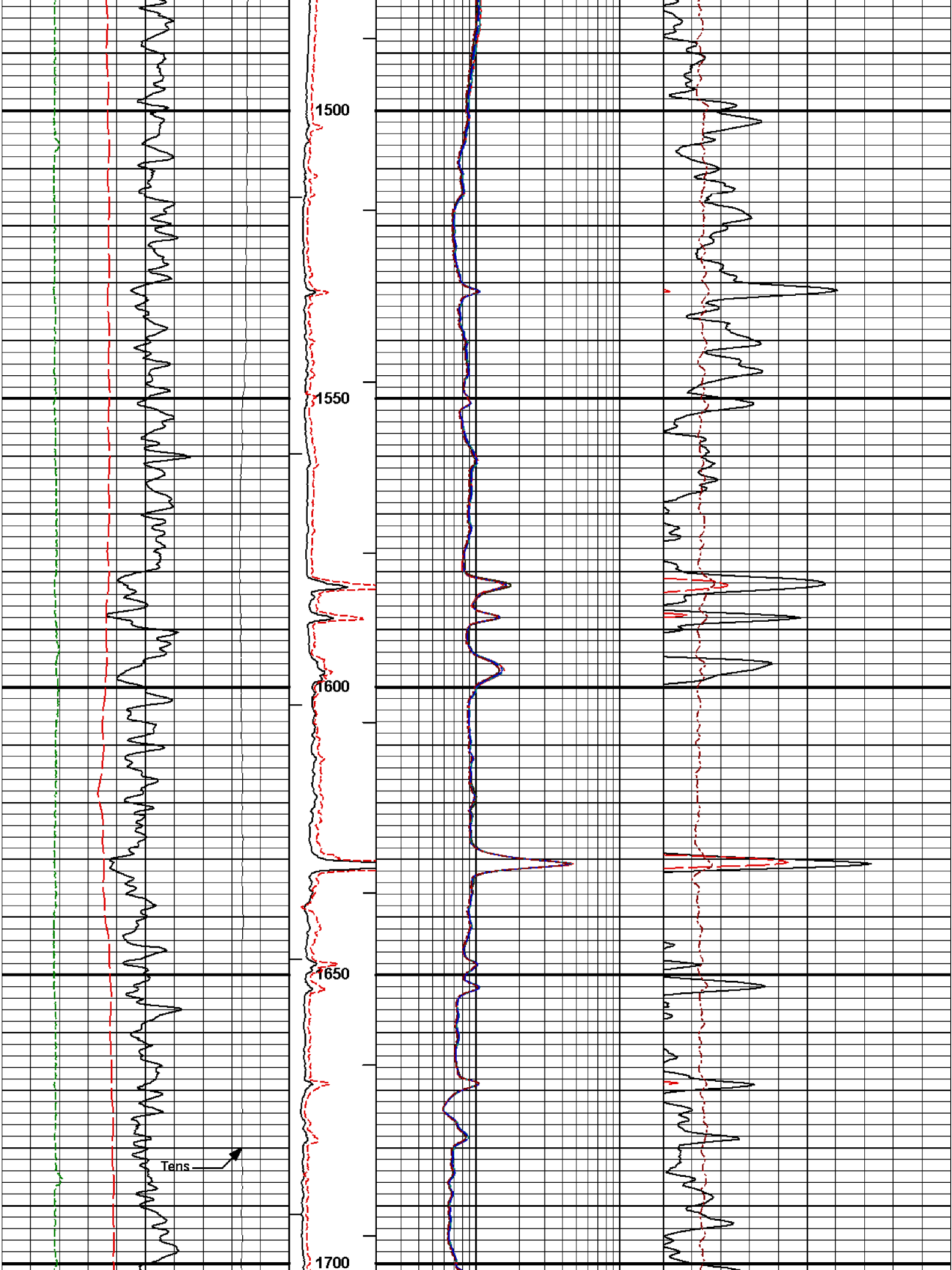
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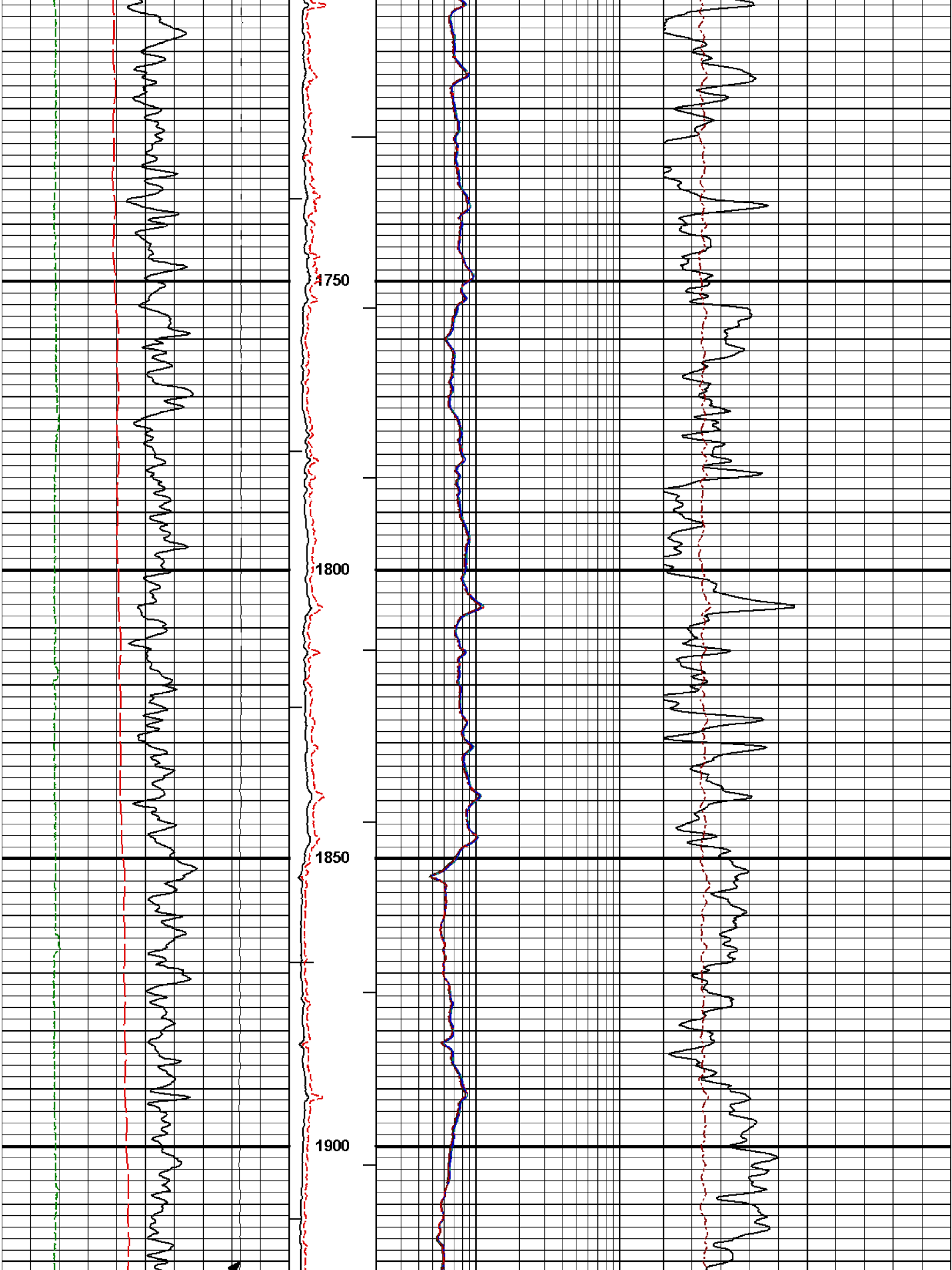
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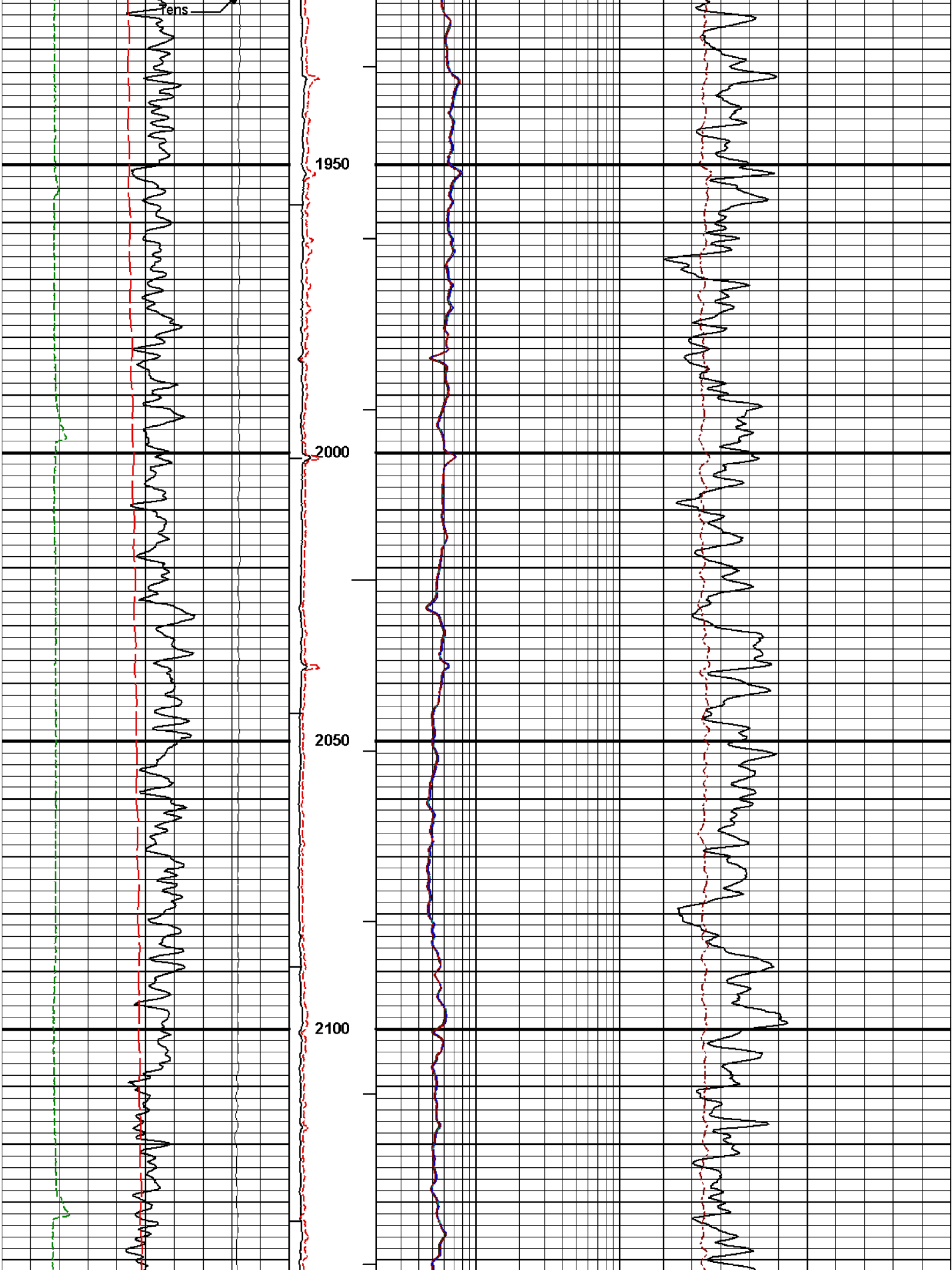
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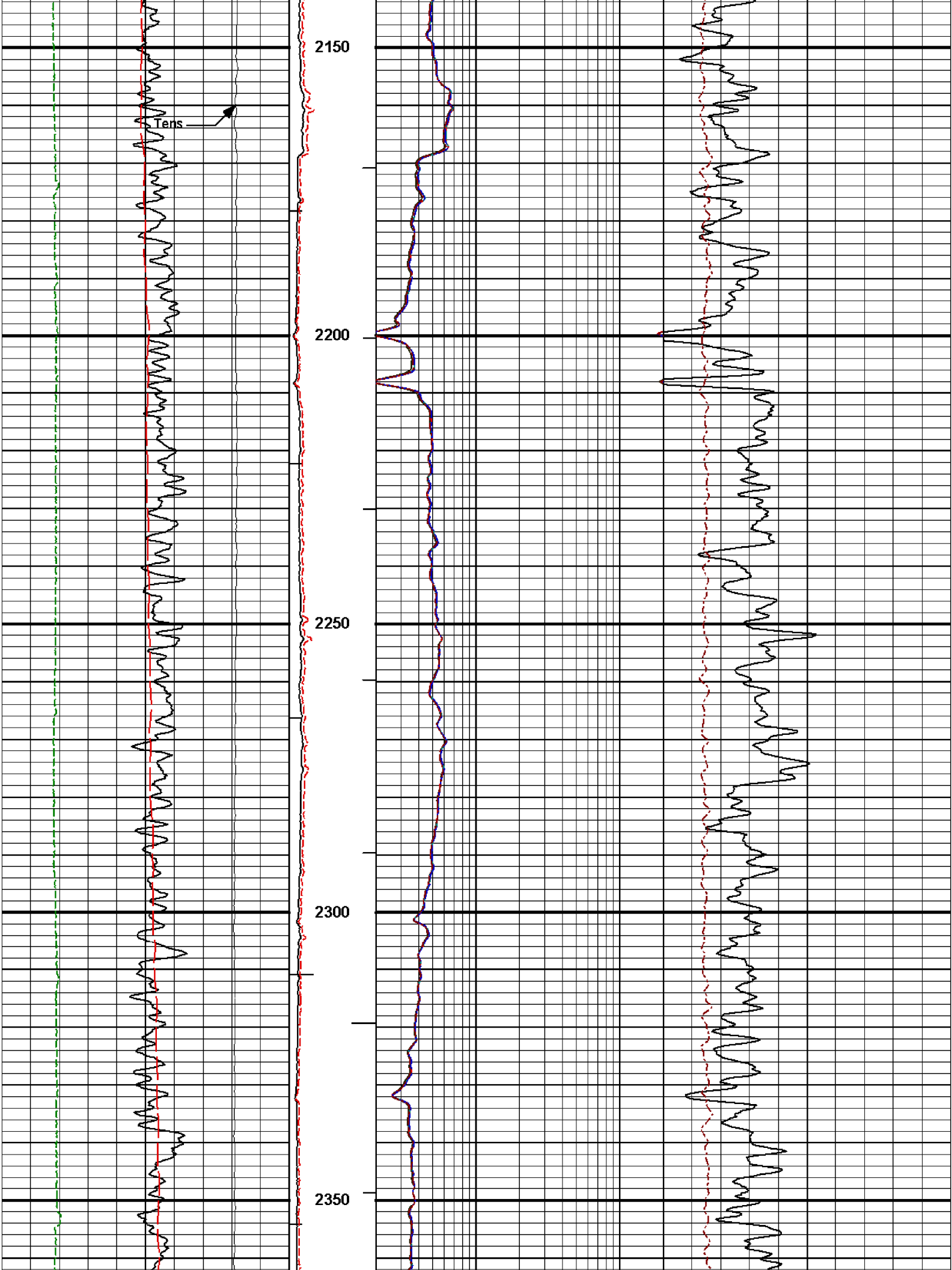
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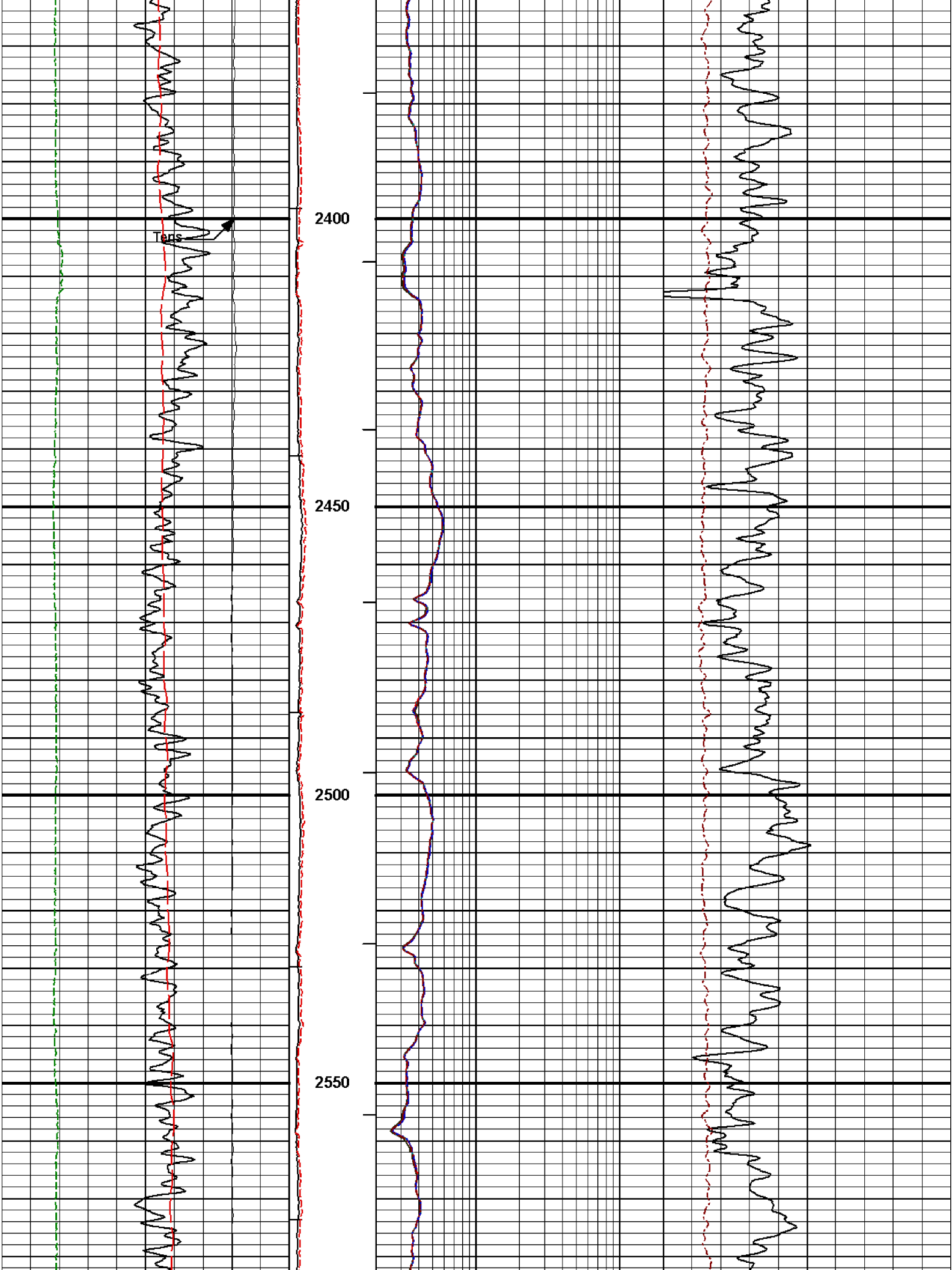
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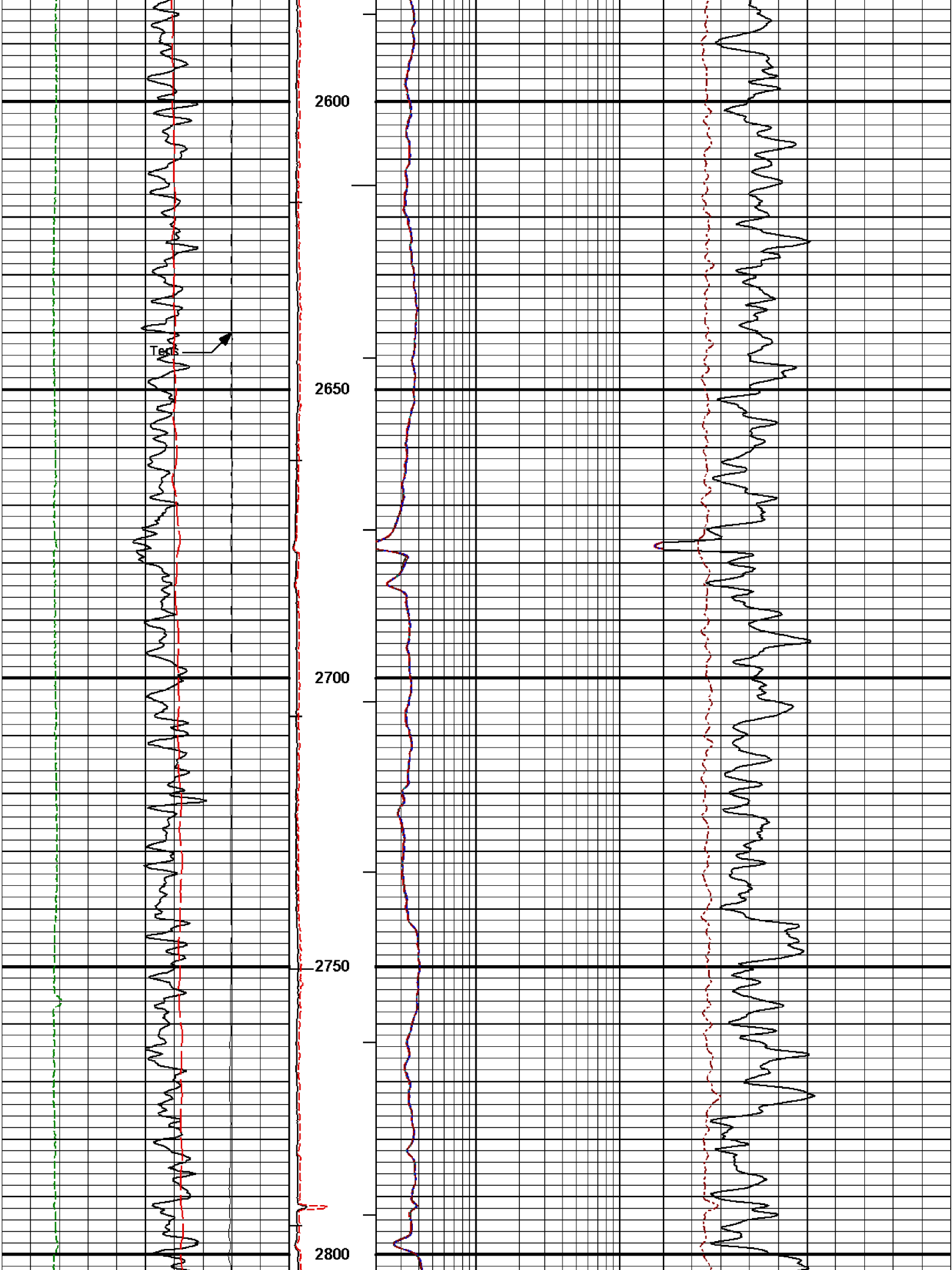
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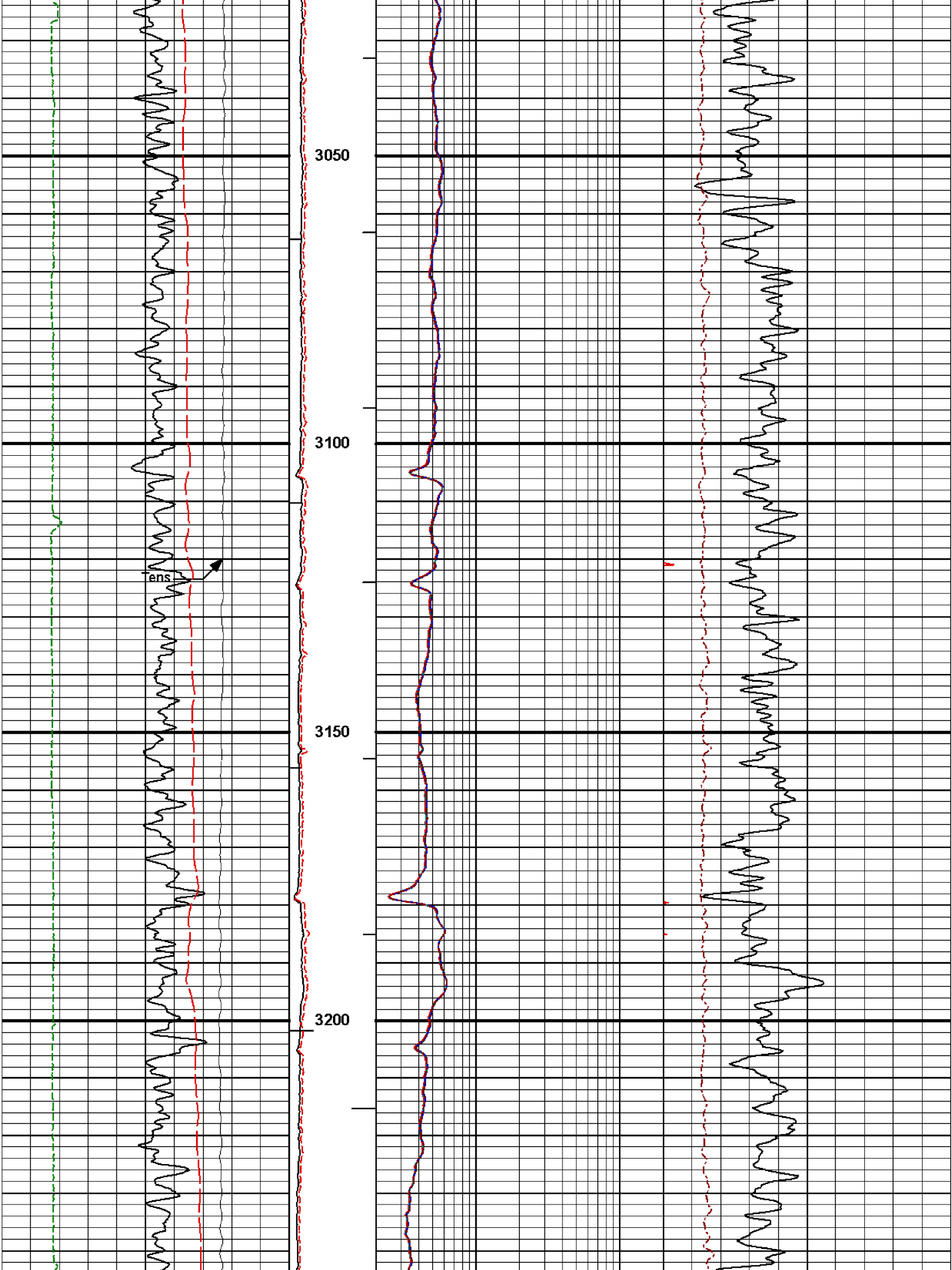
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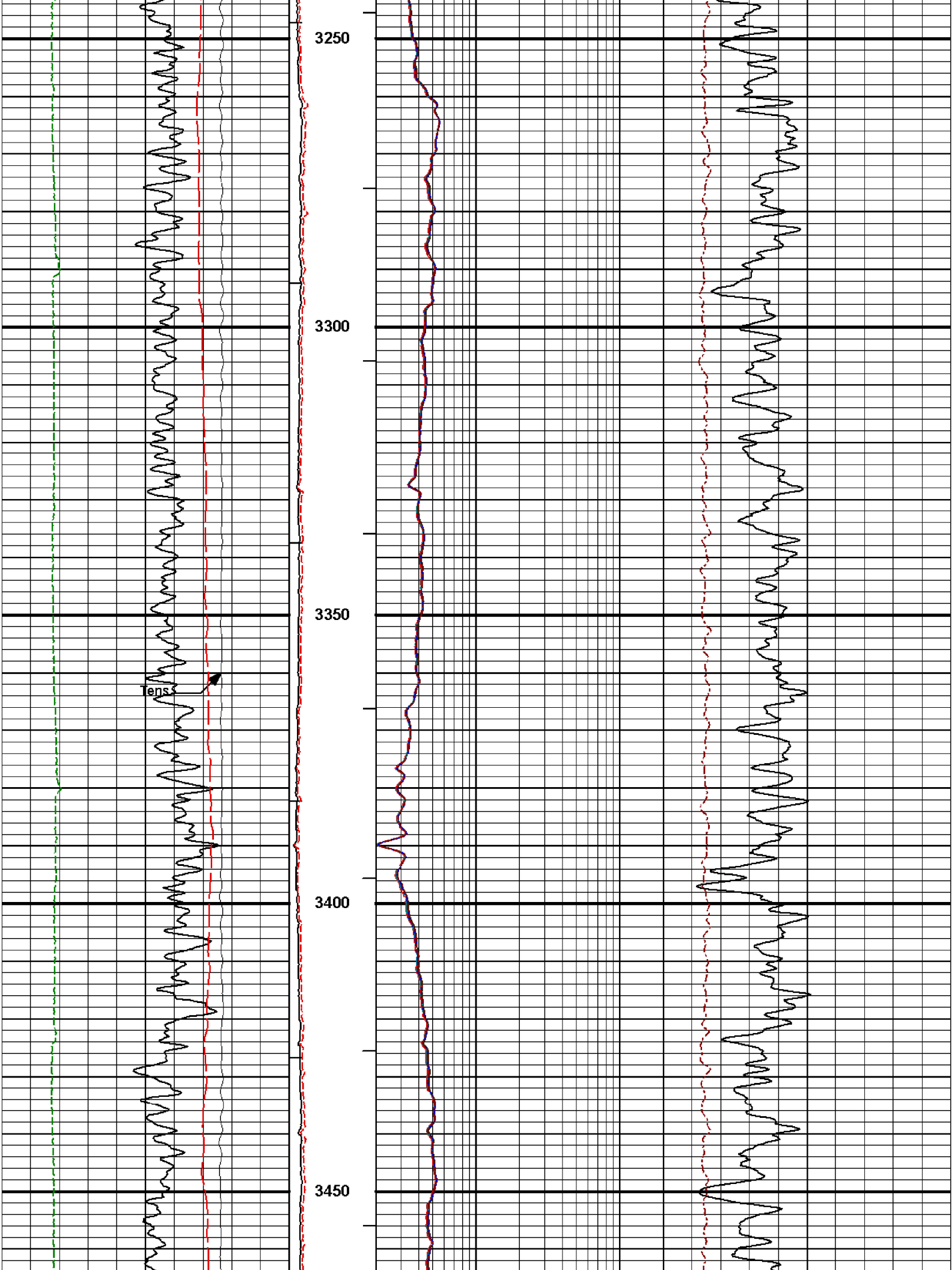
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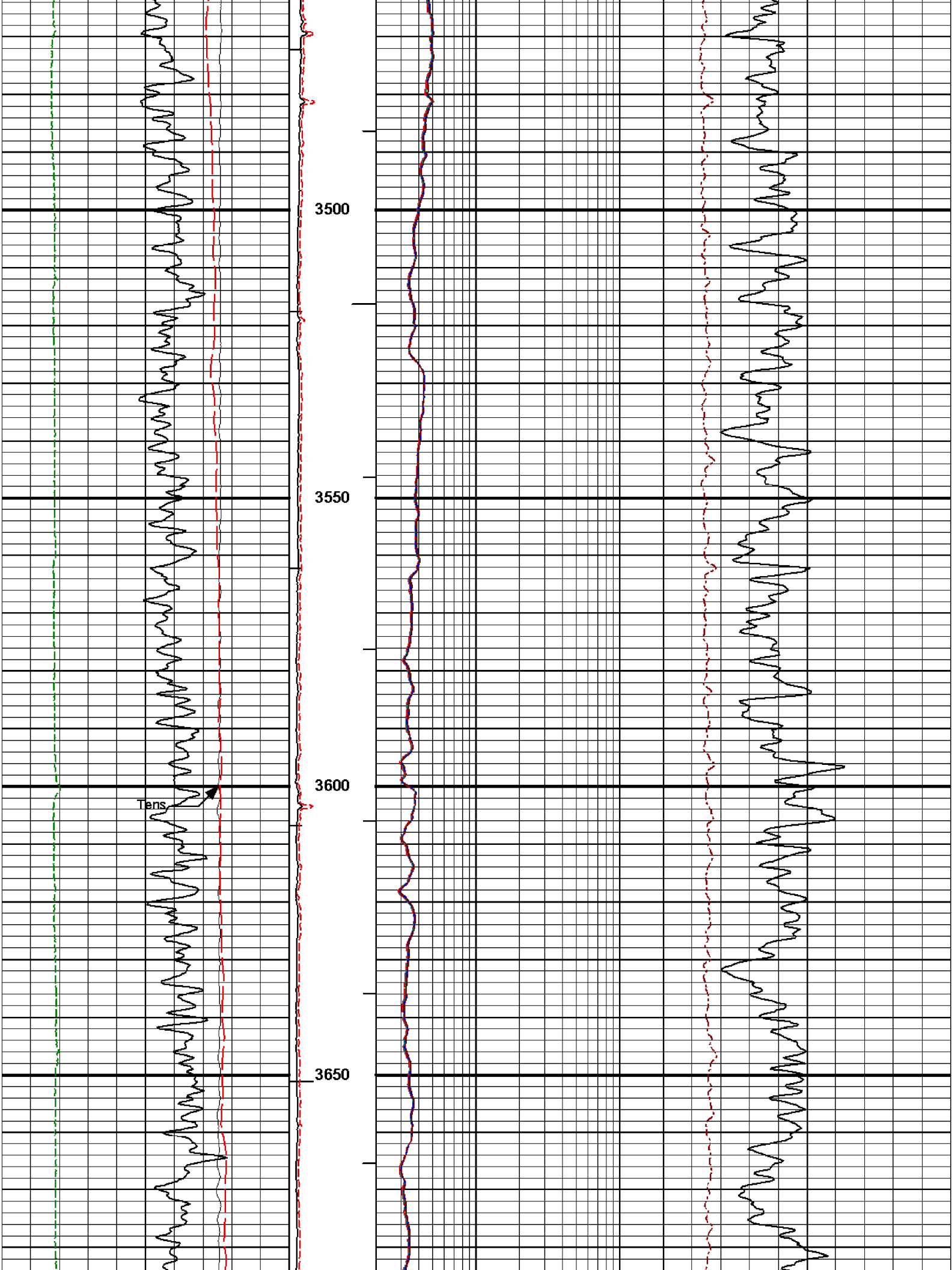
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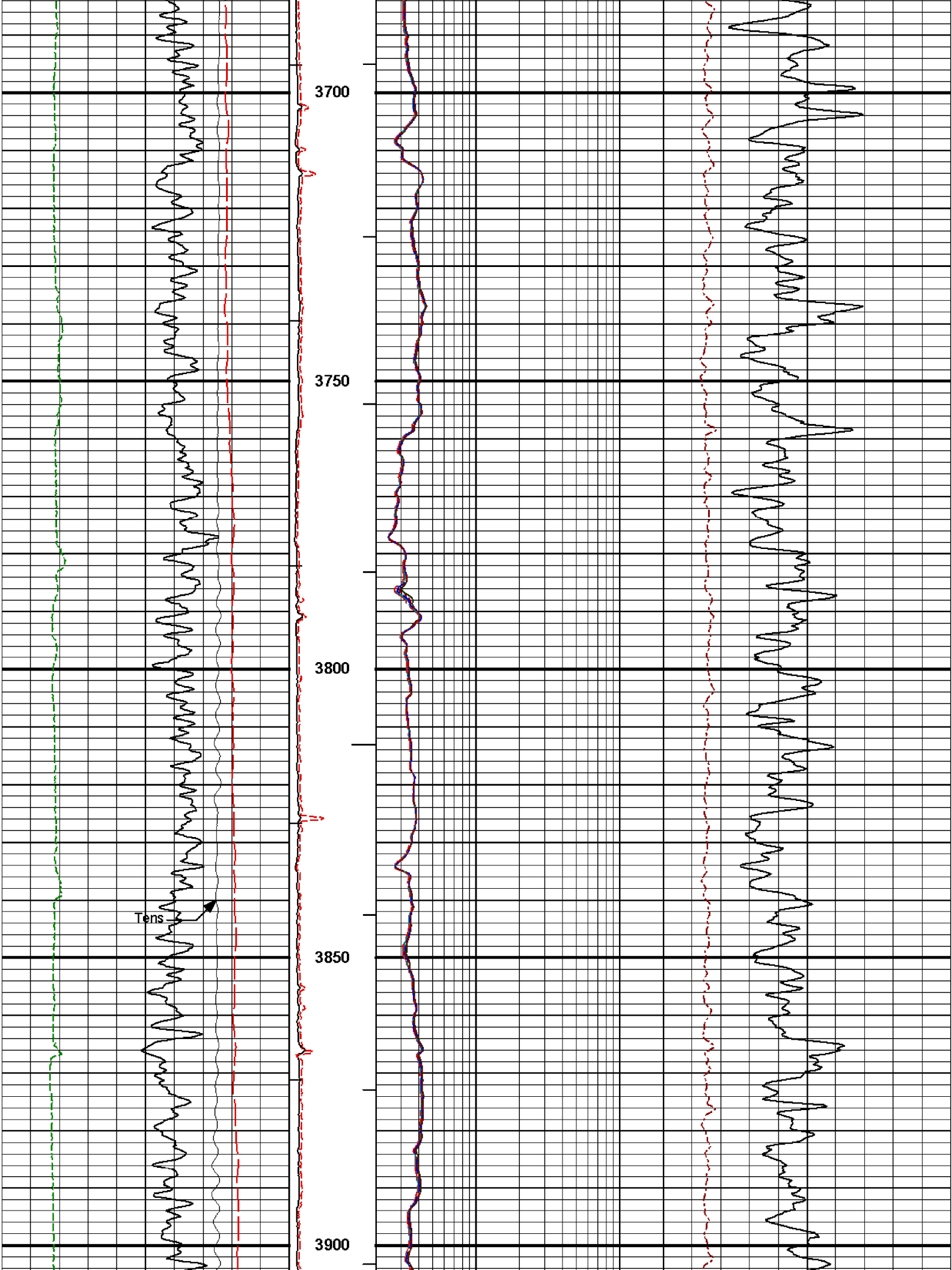
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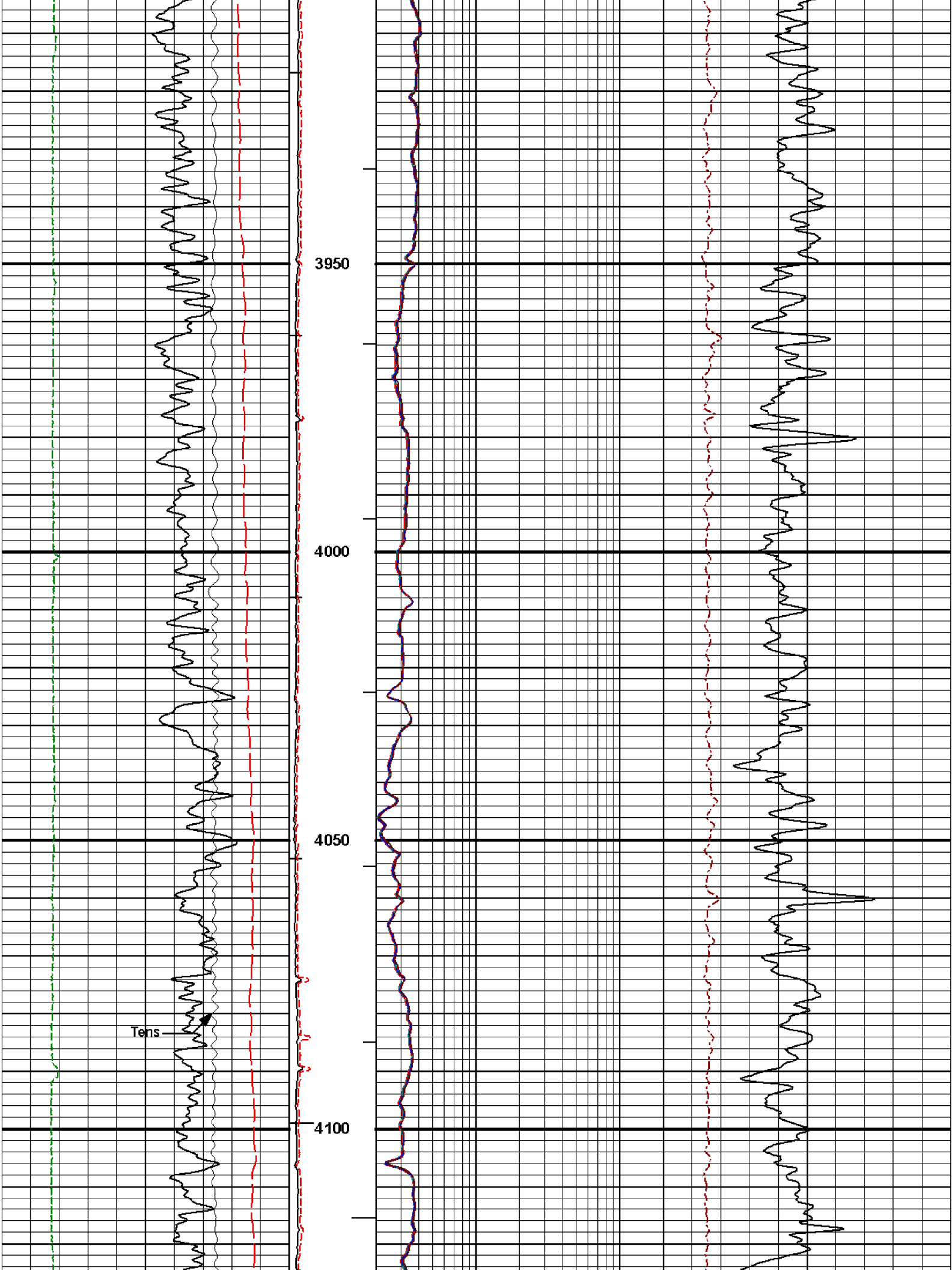
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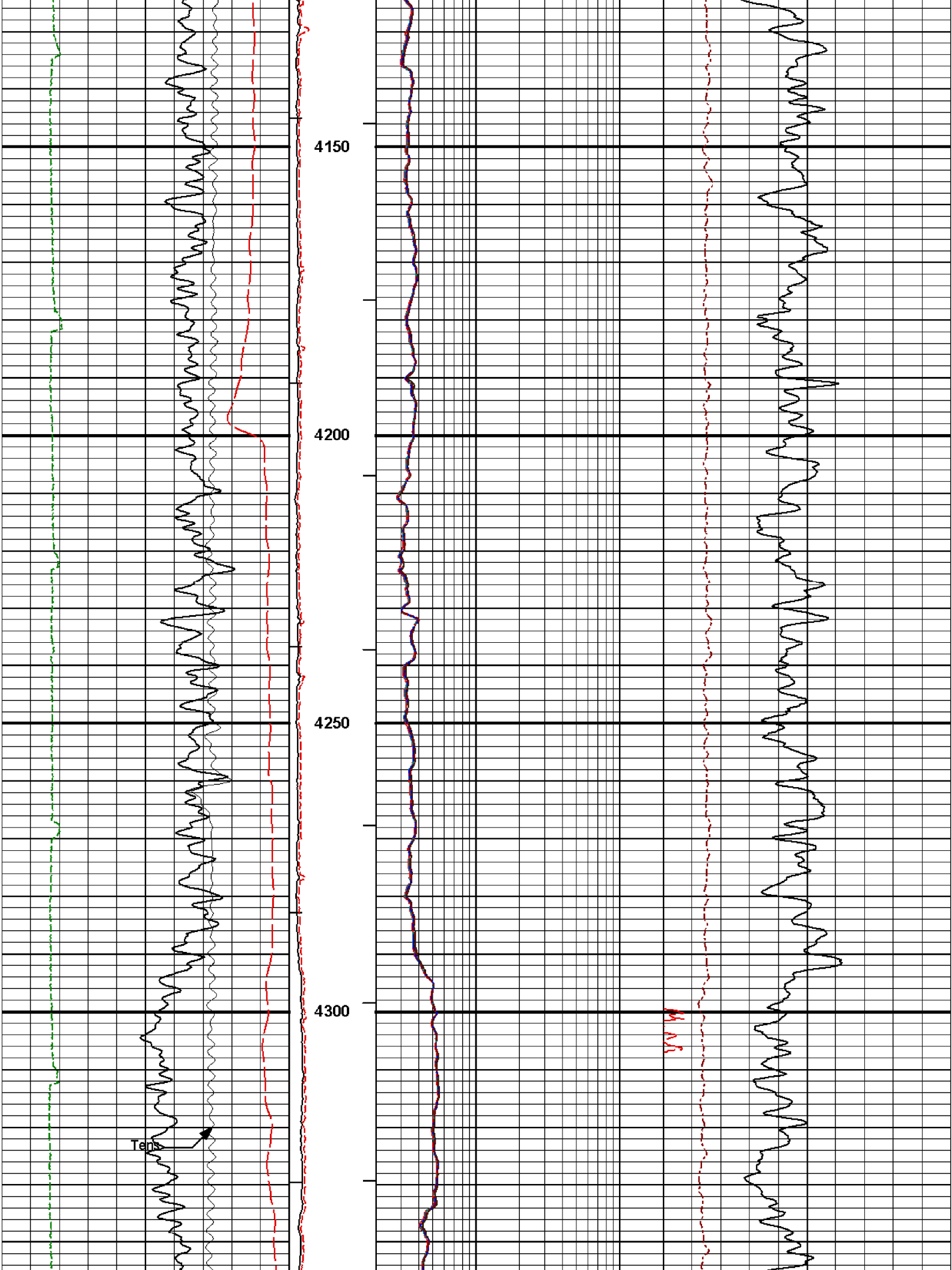
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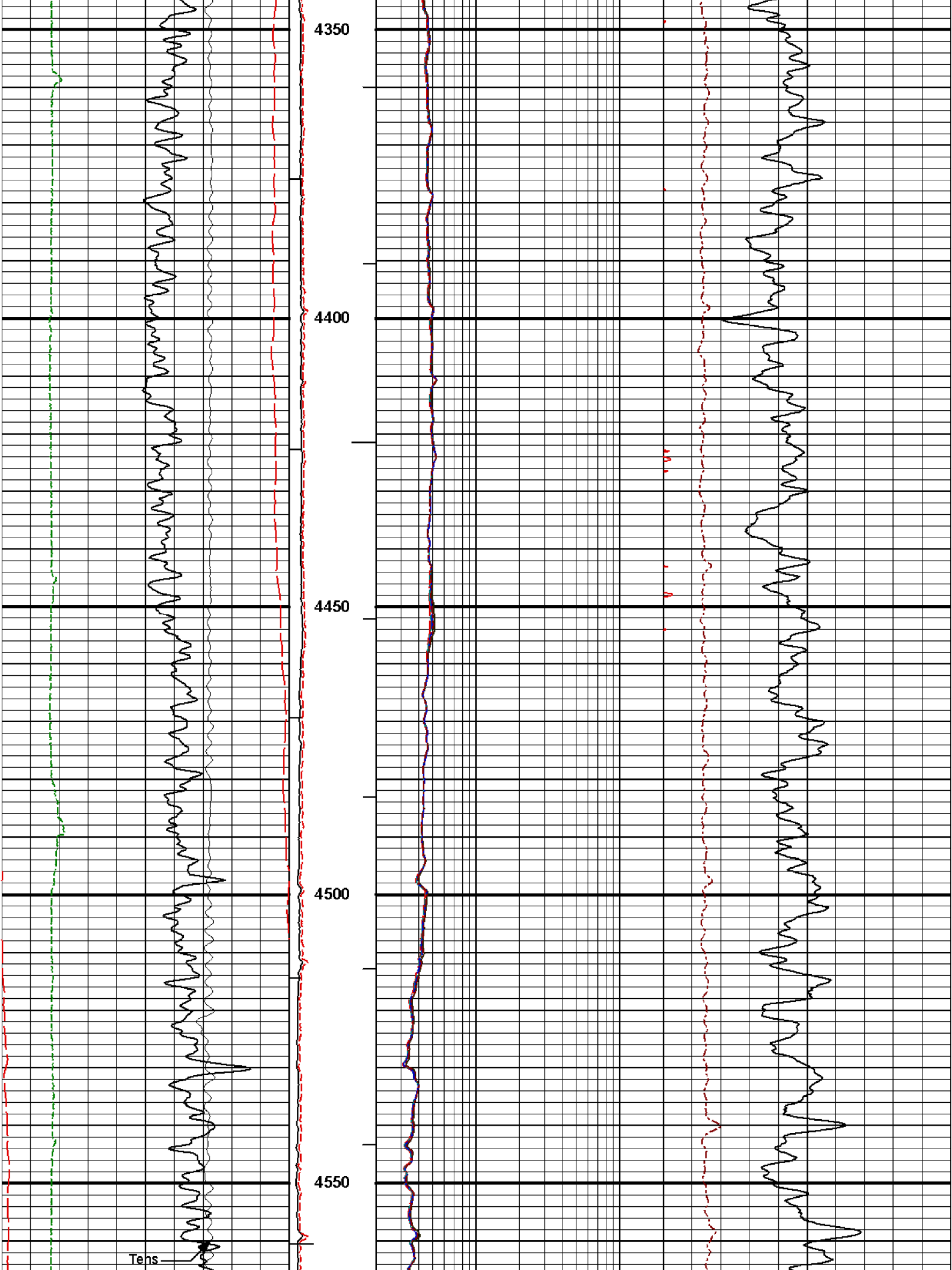
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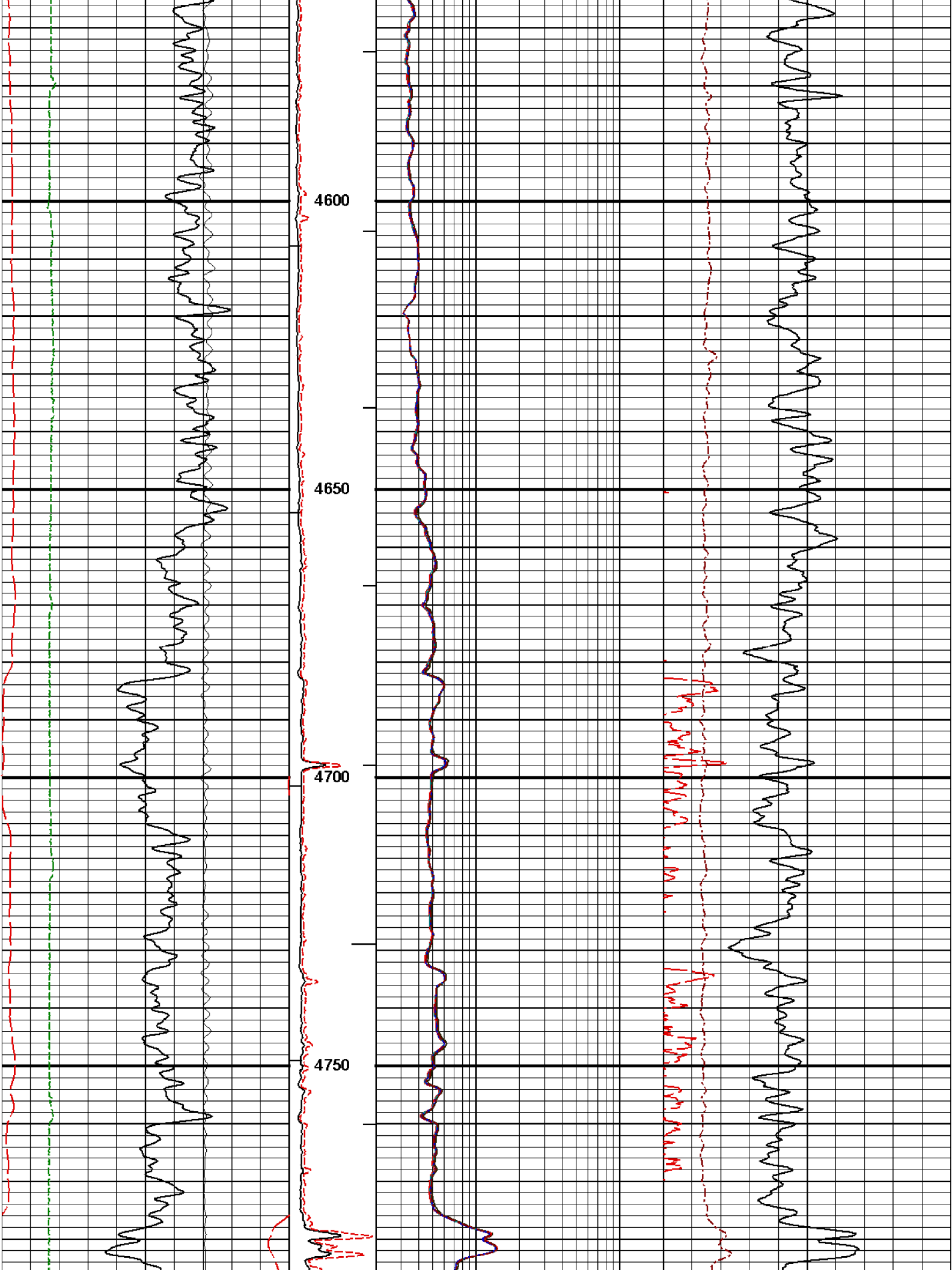
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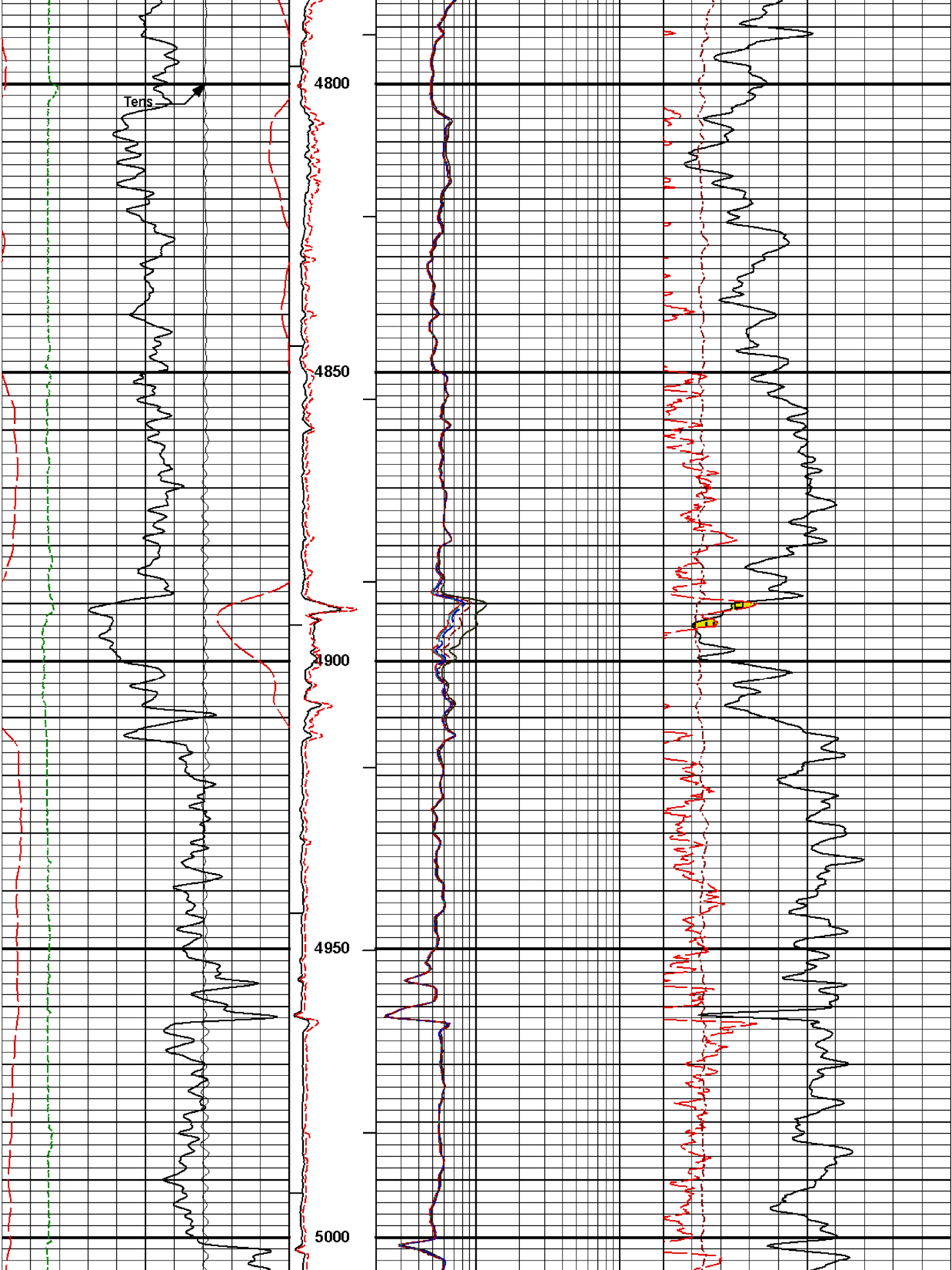
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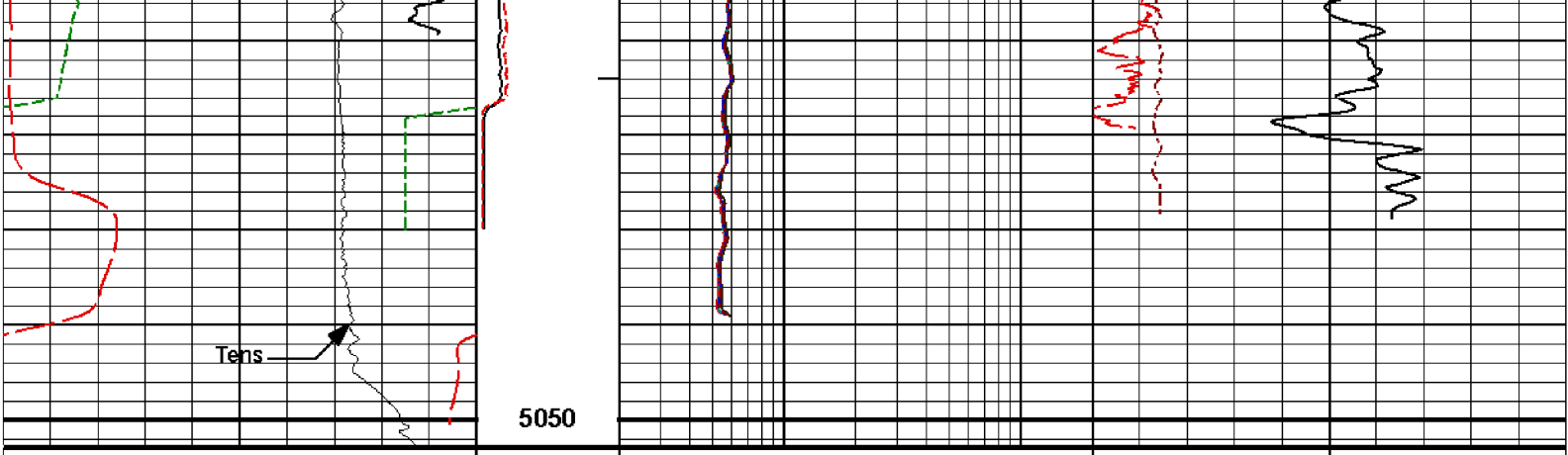

50 SP 150 millivolts	1 : 240	2 RT90 200 Ohm-m	0 Pe 10	
0 Gamma API 200 api	AHVT	2 RT60 200 Ohm-m	20 Density Porosity 0 percent	
6 Caliper 16 inches	BHVT	2 RT30 200 Ohm-m	20 Neutron Porosity 0 percent	
10K Tens 0 pounds	MicrologLateral 0 30 ohm-metre	2 RT20 200 Ohm-m		
	MicrologNormal 0 30 ohm-metre	2 RT10 200 Ohm-m		

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Plot Time: 12-May-11 10:49:23
Plot Range: 875 ft to 5052.75 ft
Data: {ActiveWell}\Well Based\DAQ-0001-002*
Plot File: \\COMP\MAIN

MAIN PASS 5" = 100'

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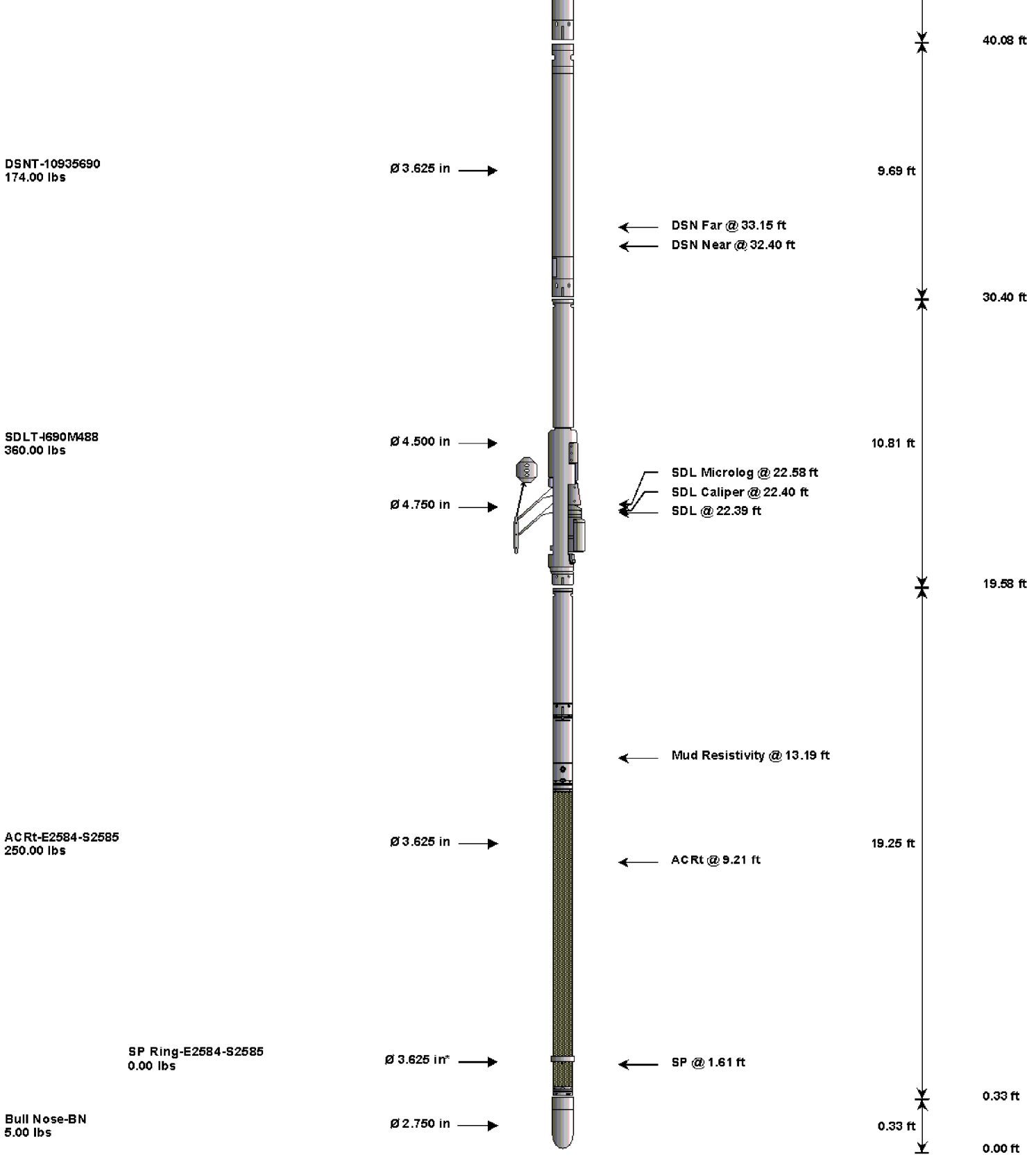
TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
						54.85 ft
RWCH-11078326 135.00 lbs		Ø 3.625 in		Load Cell @ 51.17 ft BH Temperature @ 50.60 ft	6.25 ft	
						48.60 ft
GTET-11259758 165.00 lbs		Ø 3.625 in		GammaRay @ 42.54 ft	8.52 ft	



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
RWCH	Releasable Wireline Cable Head	11078326	135.00	6.25	48.60	300.00
GTET	Gamma Telemetry Tool	11259758	165.00	8.52	40.08	60.00
DSNT	Dual Spaced Neutron	10935690	174.00	9.69	30.40	60.00
SDLT	Spectral Density Tool	I690M488	360.00	10.81	19.58	60.00
ACRt	Array Compensated True Resistivity	E2584-S2585	250.00	19.25	0.33	300.00
SP	SP Ring	E2584-S2585	0.00	0.25 *	1.61	300.00
BLNS	Bull Nose	BN	5.00	0.33	0.00	300.00
Total			**1,089.00**	**54.85**		

* Not included in Total Length and Length Accumulation.

Data: CARTER_9_32SX\0001 TRIPLE\IDLE

Date: 12-May-11 09:36:01

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	**GTET - 11259758**	**Reference Calibration Date:**	**22-Apr-11 16:03:33**
Engineer:	**C. BLUE**	**Calibration Date:**	**08-May-11 23:18:49**
Software Version:	**WL INSITE R3.2.5 (Build 2)**	**Calibration Version:**	**1**

Calibrator Source S/N: TB290

Calibrator API Reference:235.00 api

Equivalent Calibrator API Reference:239.1 api

Measurement	Measured	Calibrated	Units
Background	88.3	88.6	api
Background + Calibrator	326.5	327.7	api
Calibrator	239.4	239.1	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name:	**GTET - 11259758**	**Reference Calibration Date:**	**08-May-11 23:18:49**
Engineer:	**F. LODER**	**Calibration Date:**	**12-May-11 07:45:41**
Software Version:	**WL INSITE R3.2.5 (Build 2)**	**Calibration Version:**	**1**

Calibrator Source S/N: TB290

Calibrator API Reference:235.00 api

Equivalent Calibrator API Reference:239.1 api

Field Verification	Shop	Field	Units
Background	88.6	68.7	api
Background + Calibrator	327.7	309.1	api
Calibrator	239.1	240.4	api

Shop	Field	Difference	Tolerance
239.1	240.4	-1.3	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	**DSNT - 10935690**	**Reference Calibration Date:**	**05-Apr-11 15:34:13**
Engineer:	**R. TWEETEN**	**Calibration Date:**	**02-May-11 11:23:36**
Software Version:	**WL INSITE R3.2.5 (Build 2)**	**Calibration Version:**	**1**

Logging Source S/N: DSN430

Tank Serial Number: BRIGHTON

Reference value assigned to Tank: 55.000

Snow Block S/N: BRIGHTON

Calibration Tank Water Temperature: 68 degF

Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS

Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	1.054	1.053	0.900 - 1.100

WATER TANK SUMMARY (Horizontal Water Tank)

Measurement	Current Reading (Previous Coef.)	Calibrated (New Coef.)	Change	Control Limit On Change

Porosity (decp):	0.2297	0.2295	0.0002	+/- 0.0020
Calibrated Ratio:	10.36	10.35	0.006	+/- 0.050

VERIFIER

Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0851	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:	**DSNT - 10935690**	**Reference Calibration Date:**	**02-May-11 11:23:36**
Engineer:	**F. LODER**	**Calibration Date:**	**12-May-11 07:52:57**
Software Version:	**WL INSITE R3.2.5 (Build 2)**	**Calibration Version:**	**1**

Logging Source S/N: DSN430
Snow Block S/N: BRIGHTON

NEUTRON FIELD-CHECK SUMMARY

	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0851	0.0792	-0.0060	+/- 0.0150

PASS/FAIL SUMMARY

Block Change Check:	Passed
Snow Block Stat Check:	Passed
Temperature Check:	Passed

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name:	**SDLT - I690M488**	**Reference Calibration Date:**	**05-Apr-11 12:04:27**
Engineer:	**R. TWEETEN**	**Calibration Date:**	**02-May-11 10:55:51**
Software Version:	**WL INSITE R3.2.5 (Build 2)**	**Calibration Version:**	**1**

Logging Source S/N: 5256GW

Aluminum Block S/N: BRIGHTON	Density: 2.600g/cc	Pe: 3.100
Magnesium Block S/N: BRIGHTON	Density: 1.680g/cc	Pe: 2.594

DENSITY CALIBRATION SUMMARY

Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0887	1.0351	0.90 - 1.10
Near Dens Gain	1.0591	1.0143	0.90 - 1.10
Near Peak Gain	1.0690	0.9999	0.90 - 1.10
Near Lith Gain	1.0589	0.9892	0.90 - 1.10
Far Bar Gain	1.0180	1.0151	0.90 - 1.10
Far Dens Gain	1.0053	1.0076	0.90 - 1.10
Far Peak Gain	1.0012	1.0021	0.90 - 1.10
Far Lith Gain	0.9828	0.9869	0.90 - 1.10
Near Bar Offset	-0.7773	-0.2841	NONE
Near Dens Offset	-0.4533	-0.0566	NONE
Near Peak Offset	-0.5037	0.0785	NONE
Near Lith Offset	-0.4516	0.1402	NONE
Far Bar Offset	-0.2309	-0.2144	NONE
Far Dens Offset	-0.0928	-0.1160	NONE

Far Peak Offset	-0.0464	-0.0532	NONE
Far Lith Offset	0.0761	0.0421	NONE
Near Bar Background	992.94	988.51	700 - 1450
Near Dens Background	324.42	323.51	230 - 480
Near Peak Background	142.22	140.81	100 - 210
Near Lith Background	171.57	172.93	125 - 260
Far Bar Background	608.30	607.99	450 - 900
Far Dens Background	243.75	241.97	175 - 345
Far Peak Background	93.92	93.70	70 - 140
Far Lith Background	99.61	99.65	75 - 145

CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.686	1.680	-0.006	+/- 0.015
Pe	2.553	2.545	-0.008	+/- 0.150
ALUMINUM				
Density (g/cc)	2.593	2.600	0.007	+/- 0.01500
Pe	3.122	3.052	-0.070	+/- 0.150

TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0002	+/- 0.0110	0.0007	+/- 0.0140
Magnesium Block	-0.0006	+/- 0.0110	-0.0012	+/- 0.0140
Aluminum Block	-0.0003	+/- 0.0110	-0.0001	+/- 0.0140
Resolution	9.41	6.00 - 11.50	10.13	6.00 - 11.50
Internal Verifier(B+D+P+L)	1626	1200 - 2700	1043	800 - 1700

PASS/FAIL SUMMARY

Background Quality Check:	Passed
Background Range Check:	Passed
Background Resolution Check:	Passed
Background Verification Check:	Passed
Magnesium Quality Check:	Passed
Aluminum Quality Check:	Passed
Gains Check:	Passed
Changes in Calibration Blocks:	Passed

SPECTRAL DENSITY FIELD CHECK

Tool Name:	**SDLT - I690M488**	**Reference Calibration Date:**	**02-May-11 10:55:51**
Engineer:	**F. LODER**	**Calibration Date:**	**12-May-11 07:47:52**
Software Version:	**WL INSITE R3.2.5 (Build 2)**	**Calibration Version:**	**1**

Pad Temperature: 54.0 degF

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1625.764	1626.707	0.943	16.206
Far (B+D+P+L) cps	1043.326	1041.448	-1.878	17.181

Near Resolution	9.41	9.48	0.070	0.50
Far Resolution	10.13	10.31	0.180	1.00

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

MICRO LOG SHOP CALIBRATION

Tool Name: SDLT - I690M488 **Reference Calibration Date:** 01-Jan-70 00:00:00

Engineer: F. LODER **Calibration Date:** 12-May-11 07:38:39

Software Version: WL INSITE R3.2.5 (Build 2) **Calibration Version:** 1

CALIBRATION COEFFICIENT SUMMARY

Measurement	Micro Log Normal		Micro Log Lateral		
	Measured	Calibrated	Measured	Calibrated	Units
Tool Zero	-0.06	-0.06	-0.00	-0.00	ohmm
Calibration Point #1	0.00	0.00	0.00	0.00	ohmm
Calibration Point #2	20.00	20.00	20.00	20.00	ohmm
Internal Reference	-0.06	-0.06	-0.00	-0.00	ohmm

Measurement	Micro Log Normal Tool Value	Micro Log Lateral Tool Value	Units
Tool Zero	0.02	0.12	V
Calibration Point #1	16.98	1.84	V
Calibration Point #2	5324.42	6923.49	V
Internal Reference	0.03	0.16	V

MICRO LOG FIELD CHECK

Tool Name: SDLT - I690M488 **Reference Calibration Date:** 12-May-11 07:38:39

Engineer: F. LODER **Calibration Date:** 12-May-11 07:39:17

Software Version: WL INSITE R3.2.5 (Build 2) **Calibration Version:** 1

Measurement	Micro Log Normal		Micro Log Lateral		
	Shop	Field	Shop	Field	Units
Tool Zero	-0.06	-0.06	-0.00	-0.00	ohmm
Internal Reference	-0.06	19.94	-0.00	20.00	ohmm

Summary

Signal	Shop	Field	Difference	Tolerence
Microlog Normal	-0.06	19.94	-20.00	+/- 0.80
Microlog Lateral	-0.00	20.00	-20.00	+/- 0.80

DENSITY CALIPER SHOP CALIBRATION

Tool Name: SDLT - I690M488 **Reference Calibration Date:** 12-May-11 07:30:02

Engineer: F. LODER **Calibration Date:** 12-May-11 07:34:37

Software Version: WL INSITE R3.2.5 (Build 2) **Calibration Version:** 1

CALIBRATION COEFFICIENTS

Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-2505.85	-2558.62	-7000.00 - -1000.00
Pad Gain	0.0003780	0.0003804	0.000200 - 0.000600
Arm Offset	-3046.39	-3009.05	-5000.00 - 3000.00
Arm Gain	0.0005157	0.0005175	0.000300 - 0.000700

Arm Power	-0.000005219	-0.000005337	-0.000010 - 0.000010

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

Tool Diameter: 4.50 in

CALIBRATION RINGS

Measurement	Current Reading (Previous Coeff.)	Calibrated (New Coeff.)	Change	Control Limit On New Value
PAD EXTENSION:				
Small Ring (in)	2.01	2.00	-0.01	+/- 0.20
Medium Ring (in)	3.75	3.75	0.00	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.49	6.50	0.01	+/- 0.20
Medium Ring (in)	8.24	8.25	0.01	+/- 0.20
Large Ring (in)	15.00	15.00	0.00	+/- 0.20

PASS/FAIL SUMMARY

Calibration-Coefficients Range Check:	Passed
Ring-Measurement Check:	Passed

PASS/FAIL SUMMARY

Calibration-Coefficients Range Check:	Passed

SDLT CALIPER FIELD CALIBRATION

Tool Name:	**SDLT - I690M488**	**Reference Calibration Date:**	**12-May-11 07:34:37**
Engineer:	**F. LODER**	**Calibration Date:**	**12-May-11 07:40:51**
Software Version:	**WL INSITE R3.2.5 (Build 2)**	**Calibration Version:**	**1**

MEASURED CALIPER VALUES

Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.74	-0.01	+/- 0.10
Ring Diameter	8.25	8.22	-0.03	+/- 0.15

PASS/FAIL SUMMARY

Pad Extension Check:	Passed
Diameter Check:	Passed

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

Tool Name:	**ACRt - E2584-S2585**	**Reference Calibration Date:**	**03-Nov-10 10:44:15**
Engineer:	**jay**	**Calibration Date:**	**03-Nov-10 10:51:44**
Software Version:	**WL INSITE R3.0.3 (Build 5)**	**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	0.9953	1.05	0.95	0.9974	1.05	0.95	0.9996	1.05
A2 (50")	0.95	0.9982	1.05	0.95	1.0023	1.05	0.95	1.0079	1.05
A3 (29")	0.95	0.9941	1.05	0.95	0.9981	1.05	0.95	1.0007	1.05
A4 (17")	0.95	1.0012	1.05	0.95	1.0026	1.05	0.95	1.0079	1.05
A5 (10")	N/A	N/A	N/A	0.95	1.0041	1.05	0.95	1.0078	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.9767	1.05	0.95	0.9805	1.05

TYPICAL SONDE OFFSET RANGE

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	-5	-0.905	2	-6	-3.851	-2	-8	-4.963	-2

A2 (50")	-7	-2.085	-1	-6	-3.663	-2	-7	-4.346	-2
A3 (29")	-27	-13.099	-9	-9	-3.782	-3	-7	-3.099	-1
A4 (17")	-180	-93.981	-60	-45	-30.503	-15	-39	-25.130	-13
A5 (10")	N/A	N/A	N/A	-150	-80.427	-50	-80	-41.649	-10
A6 (6")	N/A	N/A	N/A	175	295.215	525	90	149.633	270

TRANSMITTER CURRENT GAIN

Signal	Lower	R	Upper
12K	0.6	0.9826	1.3
36K	1.0	1.9222	2.0
72K	1.0	1.2230	2.0

R-MUD VERIFICATION

Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
Mud Cell	0.95	0.997	1.05

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11259758						
Gamma Ray Calibrator	239.1	240.4	----------	-1.3	+/- 9.00	api
DSNT-10935690						
Snow-Block Porosity	0.0851	0.0792	----------	0.0059	+/- 0.0150	decp
SDLT-I690M488						
Near(B+D+P+L)	1625.764	1626.707	----------	-0.943	+/-16.206	cps
Far(B+D+P+L)	1043.326	1041.448	----------	1.878	+/-17.181	cps
MicroLog Normal	-0.06	19.94	----------	-20.00	+/-0.80	ohmm
MicroLog Lateral	-0.00	20.00	----------	-20.00	+/-0.80	ohmm
Pad Extension	3.75	3.74	----------	0.01	+/-0.10	in
Ring Diameter	8.25	8.22	----------	0.030	+/-0.15	in
ACRt-E2584-S2585						
Mud Cell	0.997	----------	----------	0.000	----------	ohm-m

Data: CARTER_9_32SX\0001 TRIPLE\IDLE

Date: 12-May-11 09:39:20

COMPANY	**KERR-MCGEE OIL & GAS ONSHORE LP**
WELL	**CARTER 9-32SX**
FIELD	**WATTENBERG**
COUNTY	**WELD** STATE **CO**

HALLIBURTON

SPECTRAL DENSITY
DUAL SPACED NEUTRON
ARRAY COMPENSATED
TRUE RESISTIVITY
LOG