

**ARRAY COMPENSATED
TRUE RESISTIVITY
SPECTRAL DENSITY
DUAL SPACED NEUTRON**

Fold here

GENERAL

© 2000

ACQUISITIONDENJOITNEUTRO

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	TD	CSG	REC	0	200				20	0	2.71	20	0	LIME	
DIRECTIONAL INFORMATION															
Maximum Deviation									@		KOP				@
Remarks: TPL-GTET-CSNG-DSNT-SDLT-XRMI-ACRt RUN IN COMBINATION.															
ANNULAR HOLE VOLUME CALCULATED USING 4.5-INCH PRODUCTION CASING.															
CHLORIDES REPORTED AT 1000 ppm.															
TENSION PULLS, WASHOUTS AND BOREHOLE RUGOSITY AFFECT TOOL RESPONSE															
YOUR CREW TODAY: G. DAVIS, A. DUNCAN, R. CHERVENAK															
RIG: XTREME 8															
THANK YOU FOR USING HALLIBURTON LOGGING SERVICES - BRIGHTON, CO - (303) 825-4346															
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PARAMETERS REPORT

Depth (ft)	Tool Name	Description	Value	Units
TOP				
	SHARED	Bit Size	6.125	in
	SHARED	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	Mud Base	Water	
	SHARED	Borehole Fluid Weight	9.100	ppg
	SHARED	Weighting Agent	Natural	
	SHARED	Borehole salinity	0.00	ppm
	SHARED	Formation Salinity NaCl	0.00	ppm
	SHARED	Percent K in Mud by Weight?	0.00	%
	SHARED	Mud Resistivity	2.000	ohmm
	SHARED	Temperature of Mud	75.0	degF
	SHARED	Logging Interval is Cased?	No	
	SHARED	AHV Casing OD	4.500	in
	SHARED	Surface Temperature	85.0	degF
	SHARED	Total Well Depth	11743.00	ft
	SHARED	Bottom Hole Temperature	200.0	degF
	SHARED	Navigation and Survey Master Tool	XRMI-I Instrument	
	SHARED	High Res Z Accelerometer Master Tool	XRMI-I Instrument	
	SHARED	Temperature Master Tool	NONE	
	SHARED	Borehole Size Master Tool	NONE	
	GTET	Process Gamma Ray?	Yes	
	GTET	Gamma Tool Standoff	0.000	in
	GTET	Process Gamma Ray EVR?	No	
	GTET	Tool Position	Centered	
	CSNG	Process Gamma Ray	Yes	

CSNG	Process CSNG Data?	Yes	
CSNG	Is Tool Centralized?	No	
CSNG	Gamma Enviromental Corrections?	Yes	
CSNG	Barite Correction Factor	1.00	
DSNT	Process DSN?	Yes	
DSNT	Process DSN EVR?	No	
DSNT	Neutron Lithology	Limestone	
DSNT	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.000	in
DSNT	Temperature Correction Type	None	
DSNT	DSN Pressure Correction Type	None	
DSNT	View More Correction Options	No	
DSNT	Use TVD for Gradient Corrections?	No	
DSNT	Logging Horizontal Water Tank?	No	
SDLT	Process Density?	Yes	
SDLT	Process Density EVR?	No	
SDLT	Logging Calibration Blocks?	No	
SDLT	SDLT Pad Temperature Valid?	Yes	
SDLT	Disable temperature warning	No	
SDLT	Formation Density Matrix	2.710	g/cc
SDLT	Formation Density Fluid	1.000	g/cc
SDLT	Process Caliper Outputs?	Yes	
SDLT	Process MicroLog Outputs?	Yes	
XRMI-I Instrument	Survey Writing Interval	30	ft
XRMI-I Instrument	Smoothing Option	None	
XRMI-I Mandrel	Process XRMI?	Yes	
XRMI-I Mandrel	Rotate Image (N-E-S-W-N)?	No	
XRMI-I Mandrel	Use Button Auto Gain?	Yes	
XRMI-I Mandrel	Button Auto Gain Color	127	
XRMI-I Mandrel	Button Auto Gain Filter	0.020	
XRMI-I Mandrel	Button Gain Value	0.001	
XRMI-I Mandrel	Button Offset	0	
XRMI-I Mandrel	Process Dipmeter Calculations?	Yes	
XRMI-I Mandrel	Process Borehole Corrections?	Yes	
XRMI-I Mandrel	Process Caliper Outputs?	Yes	
XRMI-I Mandrel	Caliper Maximum Limit	100.0	in
XRMI-I Mandrel	Caliper Mimimum Limit	3.5	in
XRMI-I Mandrel	Navigation Source Tool	XRMI-I Instrument	
ACRt	Process ACRt?	Yes	
ACRt	Minimum Tool Standoff	1.50	in
ACRt	Temperature Correction Source	FP Lwr & FP Up	
ACRt	Tool Position	Free Hanging	
ACRt	Rmud Source	Mud Cell	
ACRt	Minimum Resistivity for MAP	0.20	ohmm
ACRt	Maximum Resistivity for MAP	200.00	ohmm
ACRt	Threshold Quality	0.50	

BOTTOM

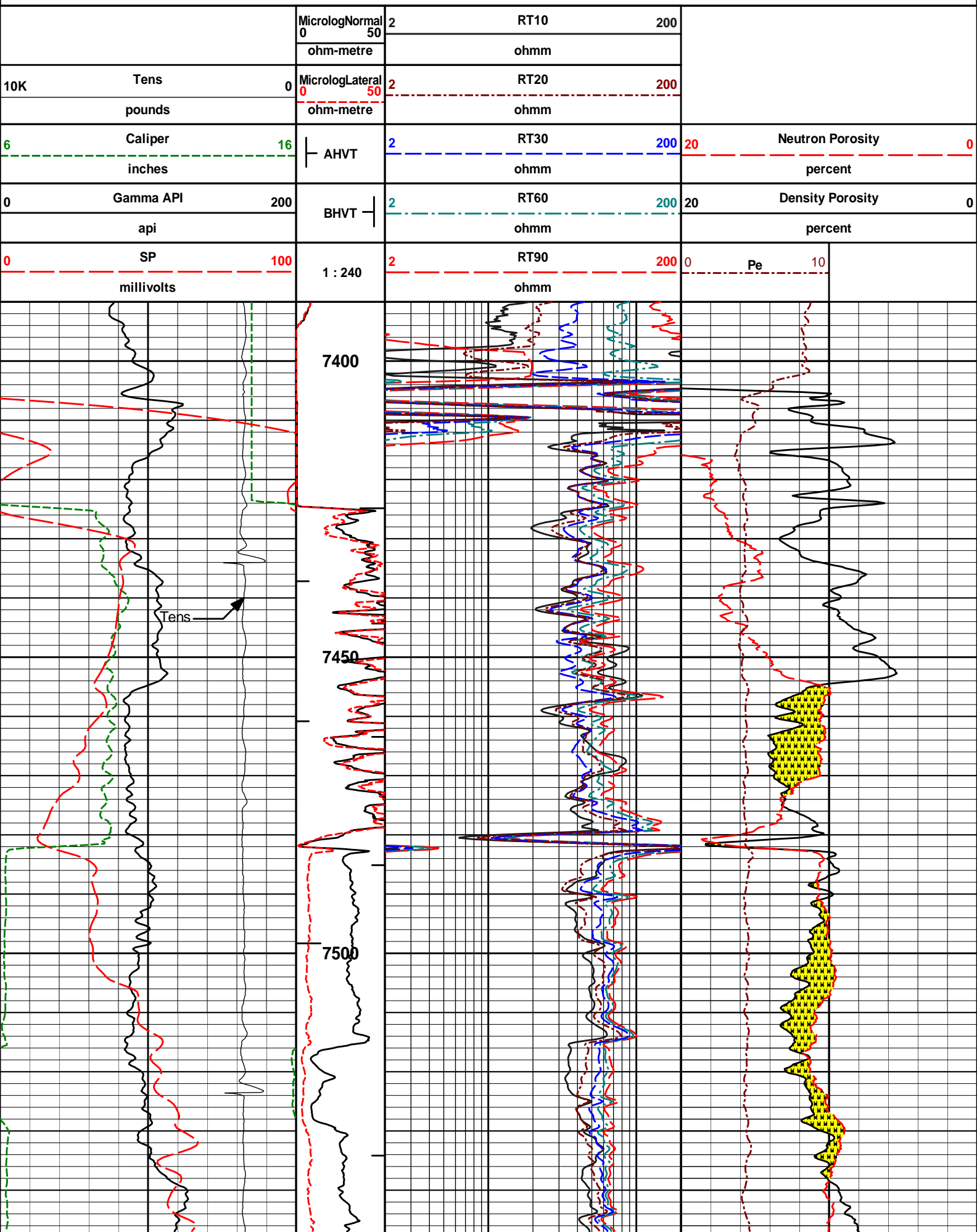
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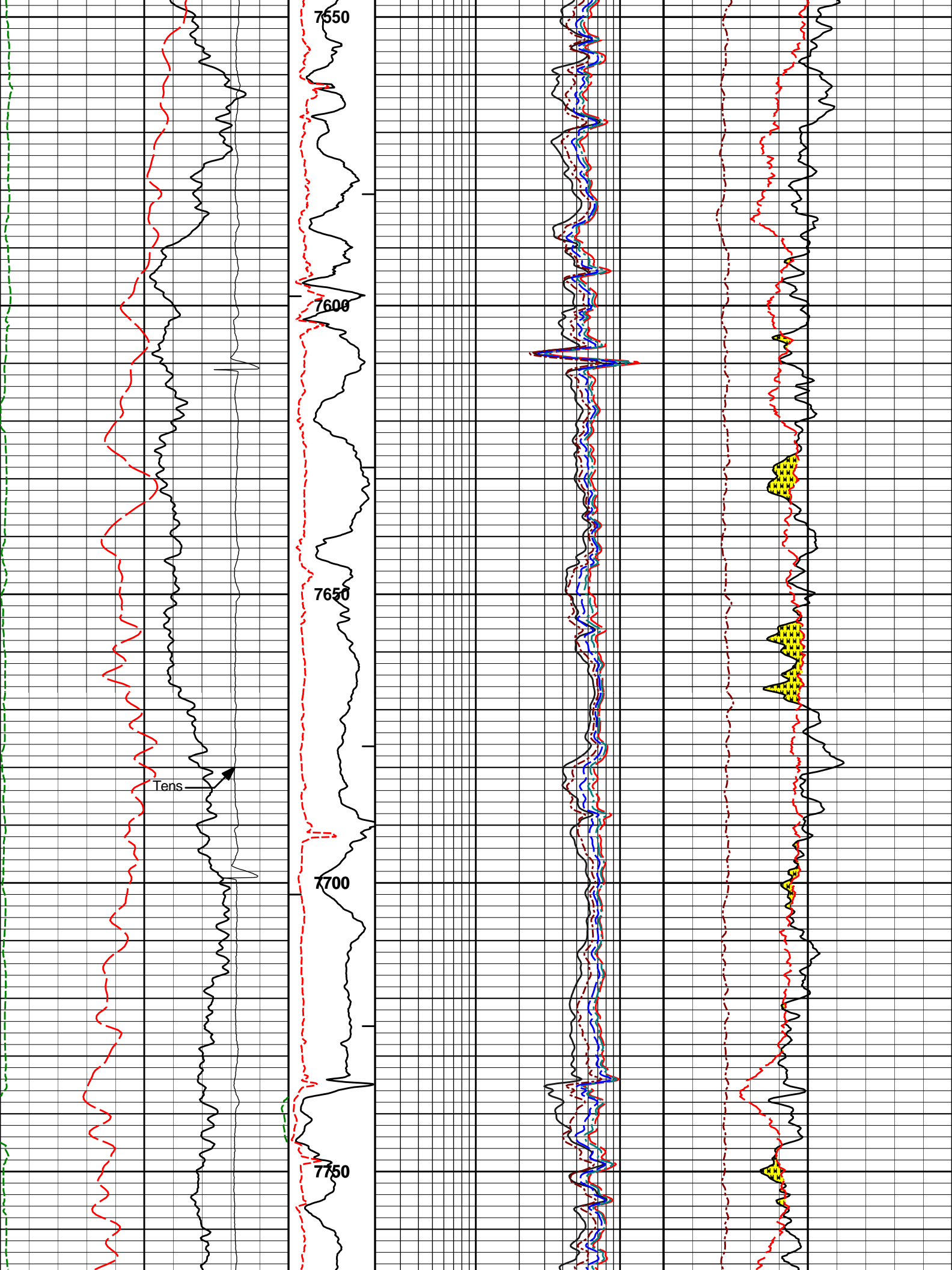
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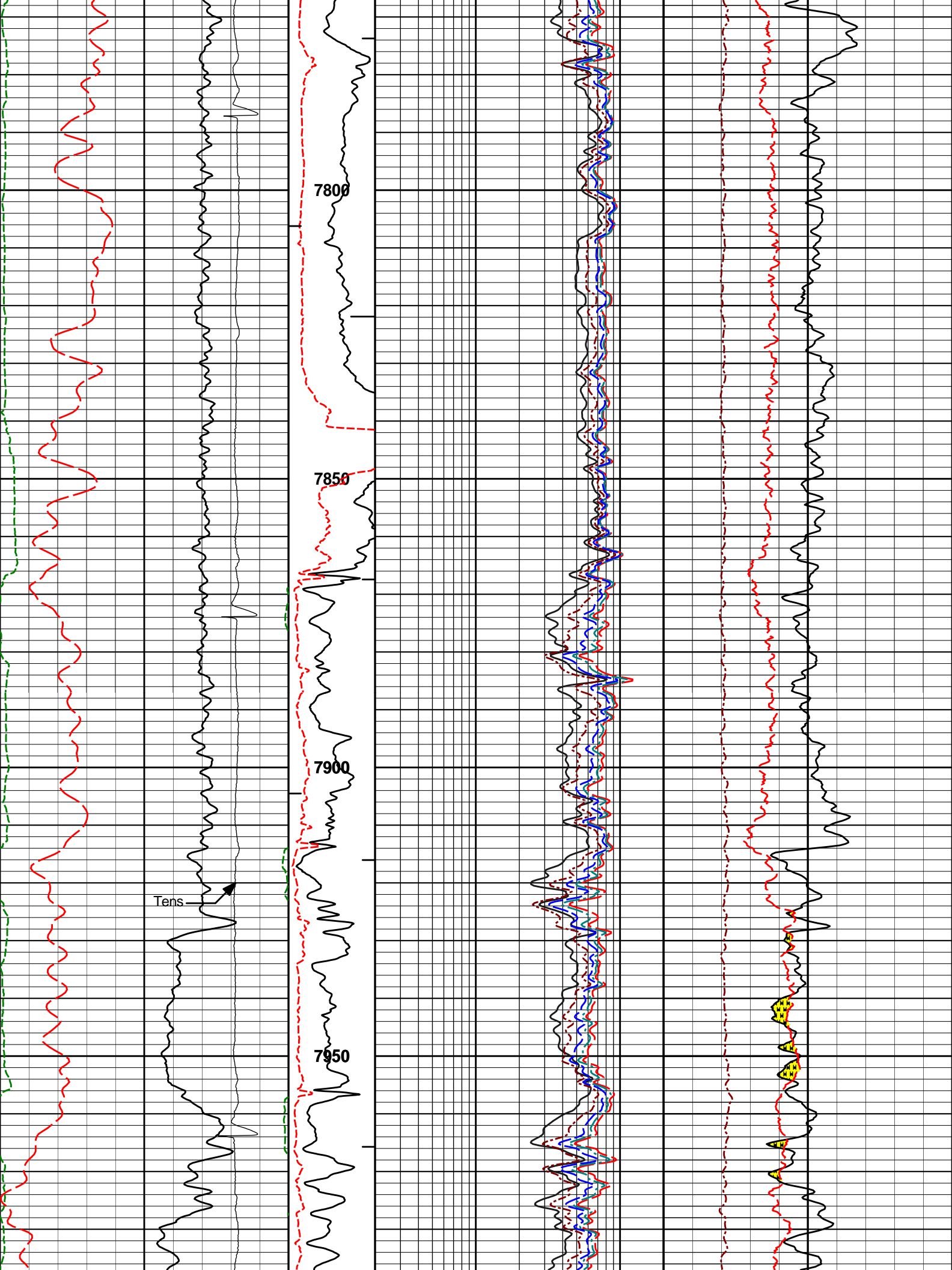
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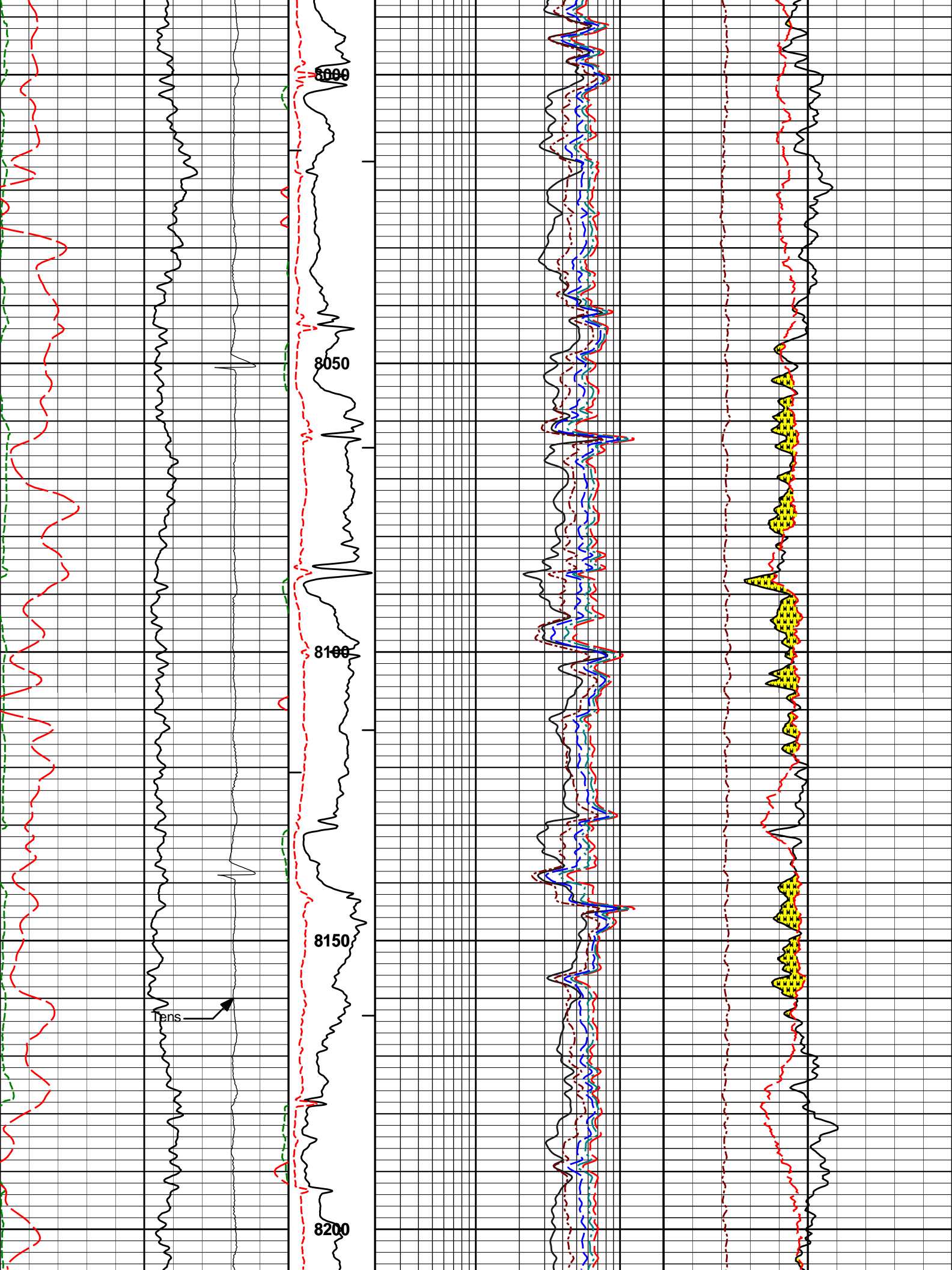
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 Plot Range: 7390 ft to 11728.5 ft
 Data: PSC_12N-13HZ\Well Based\MAIN*
 Plot File: \COMP\MAIN

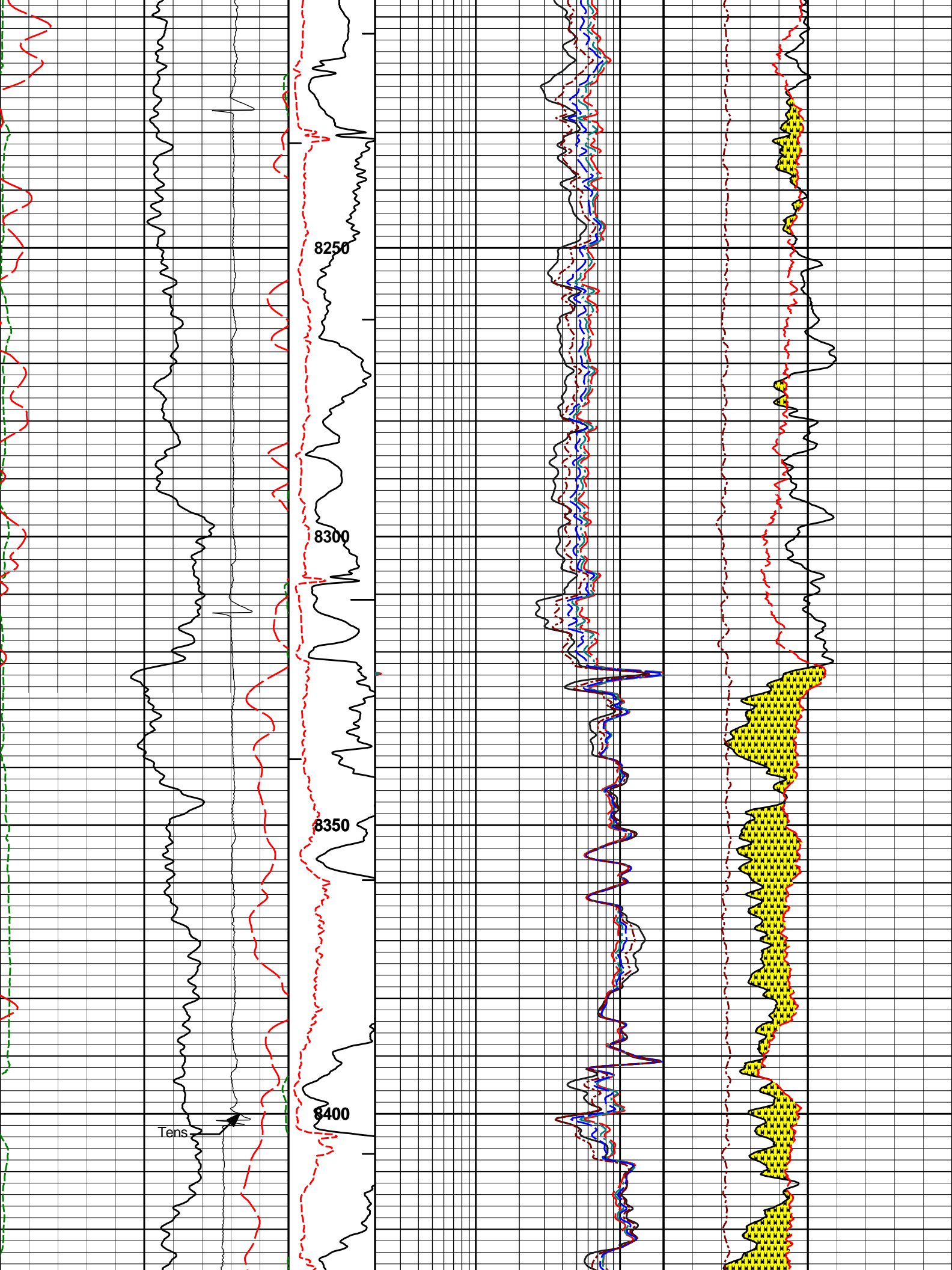
MAIN PASS 5" = 100'

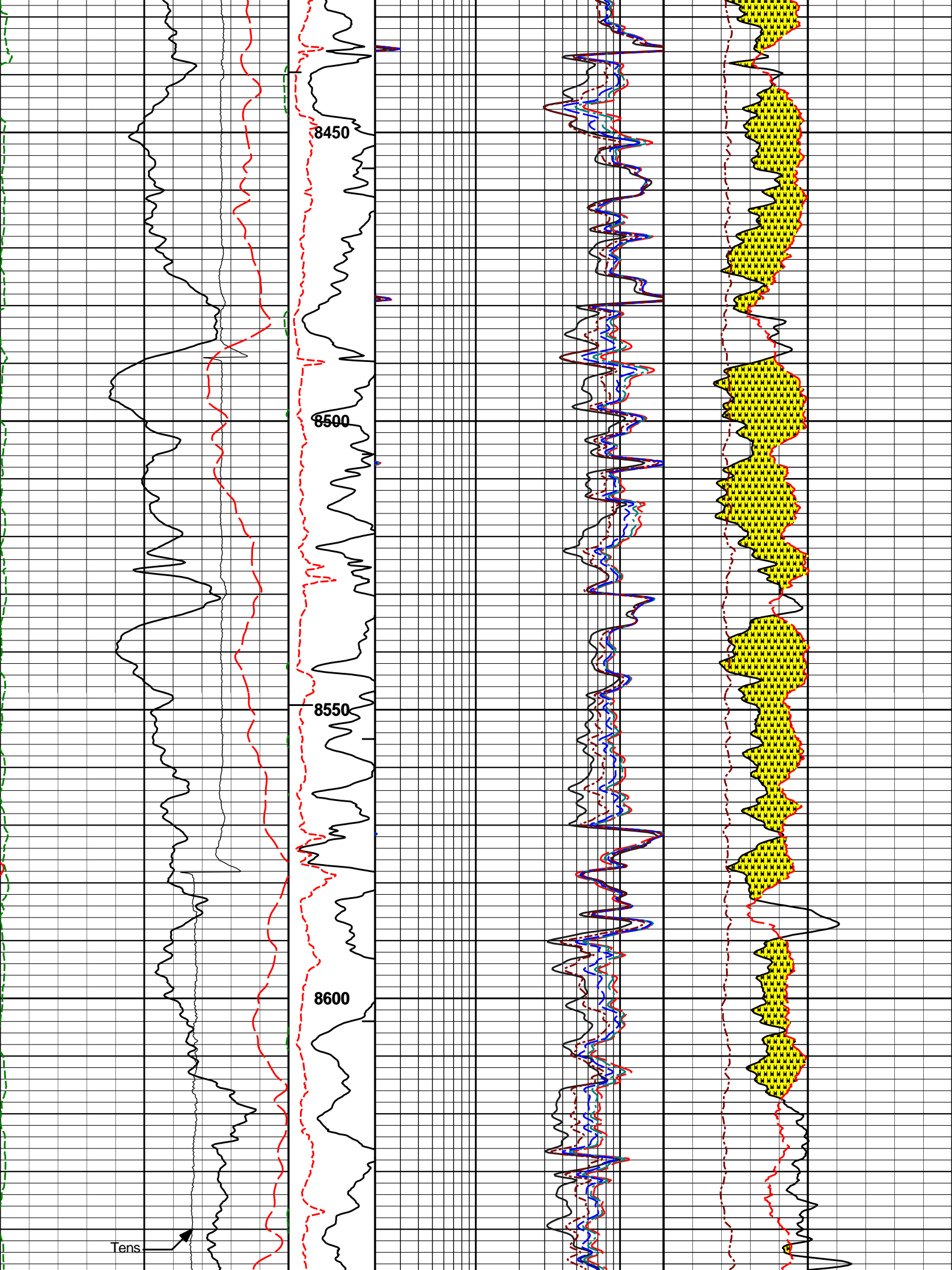


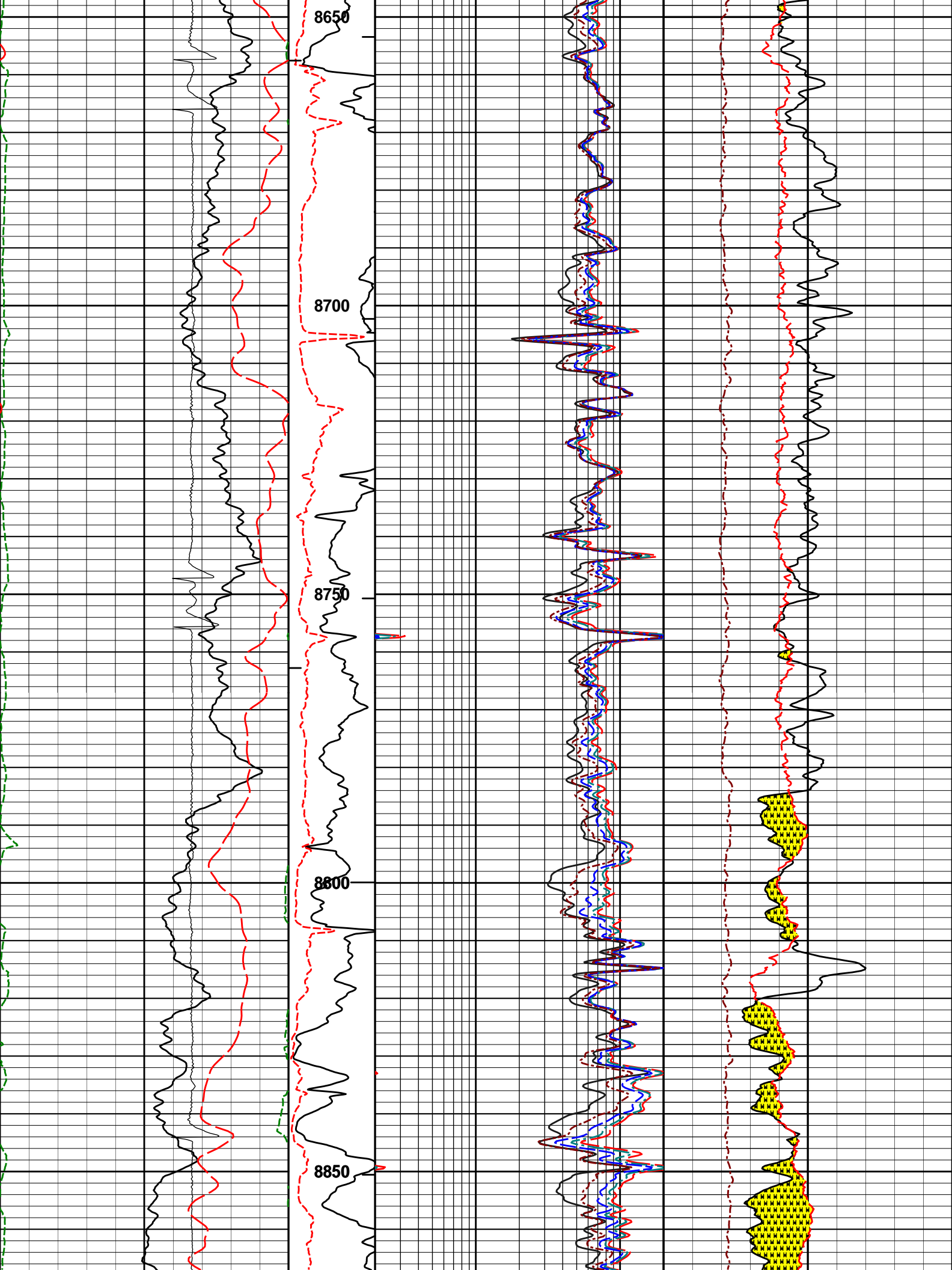


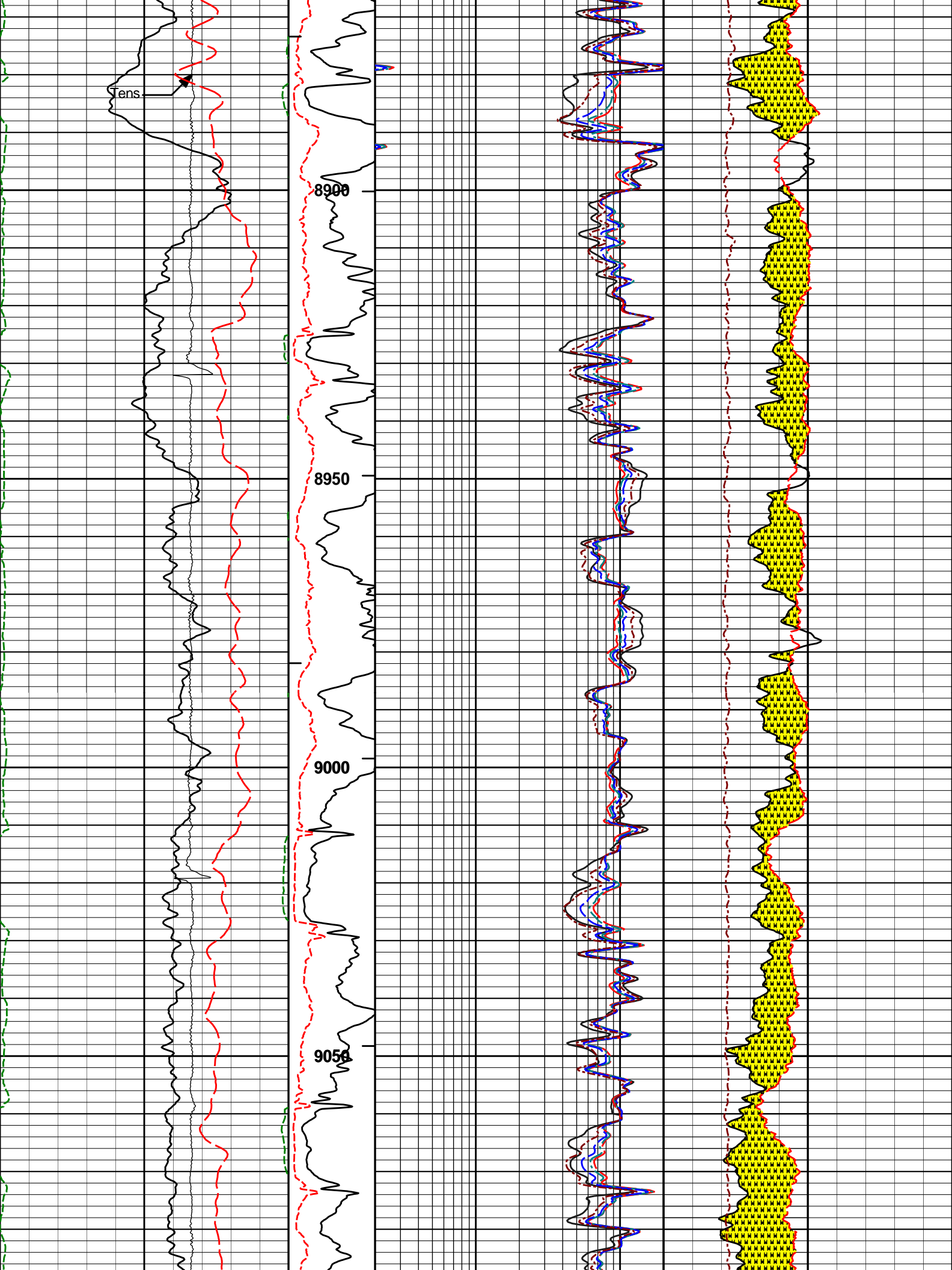


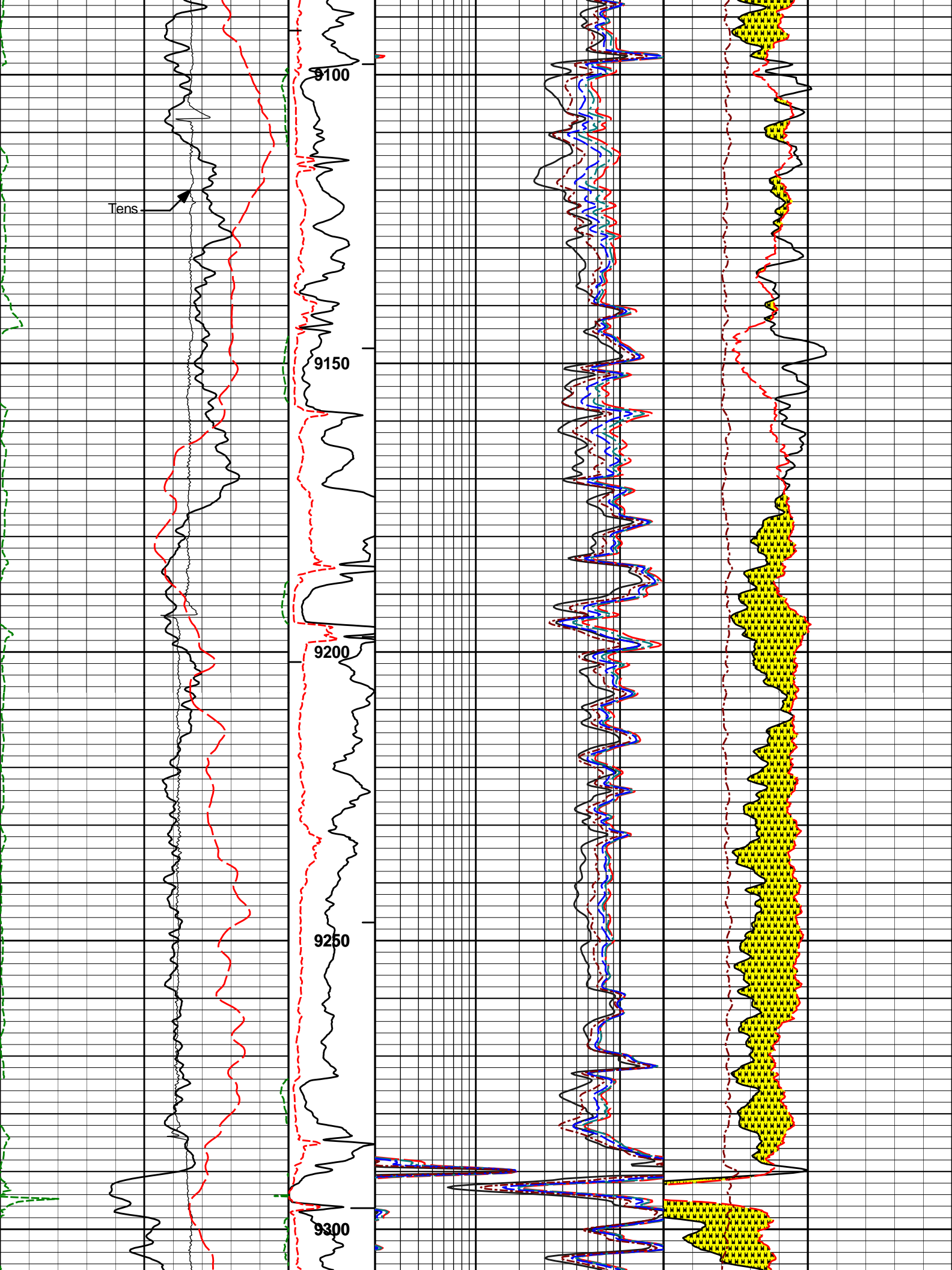


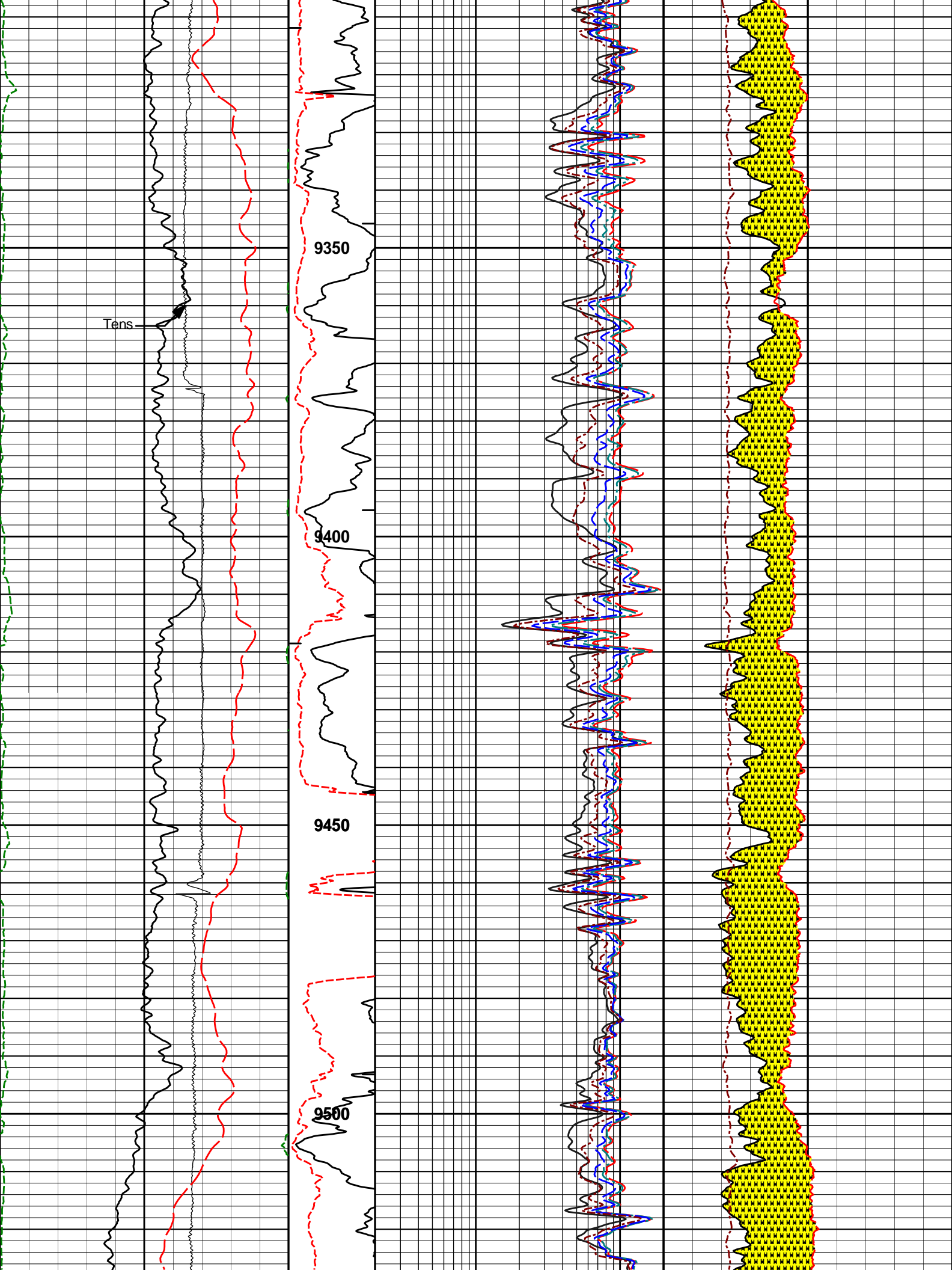


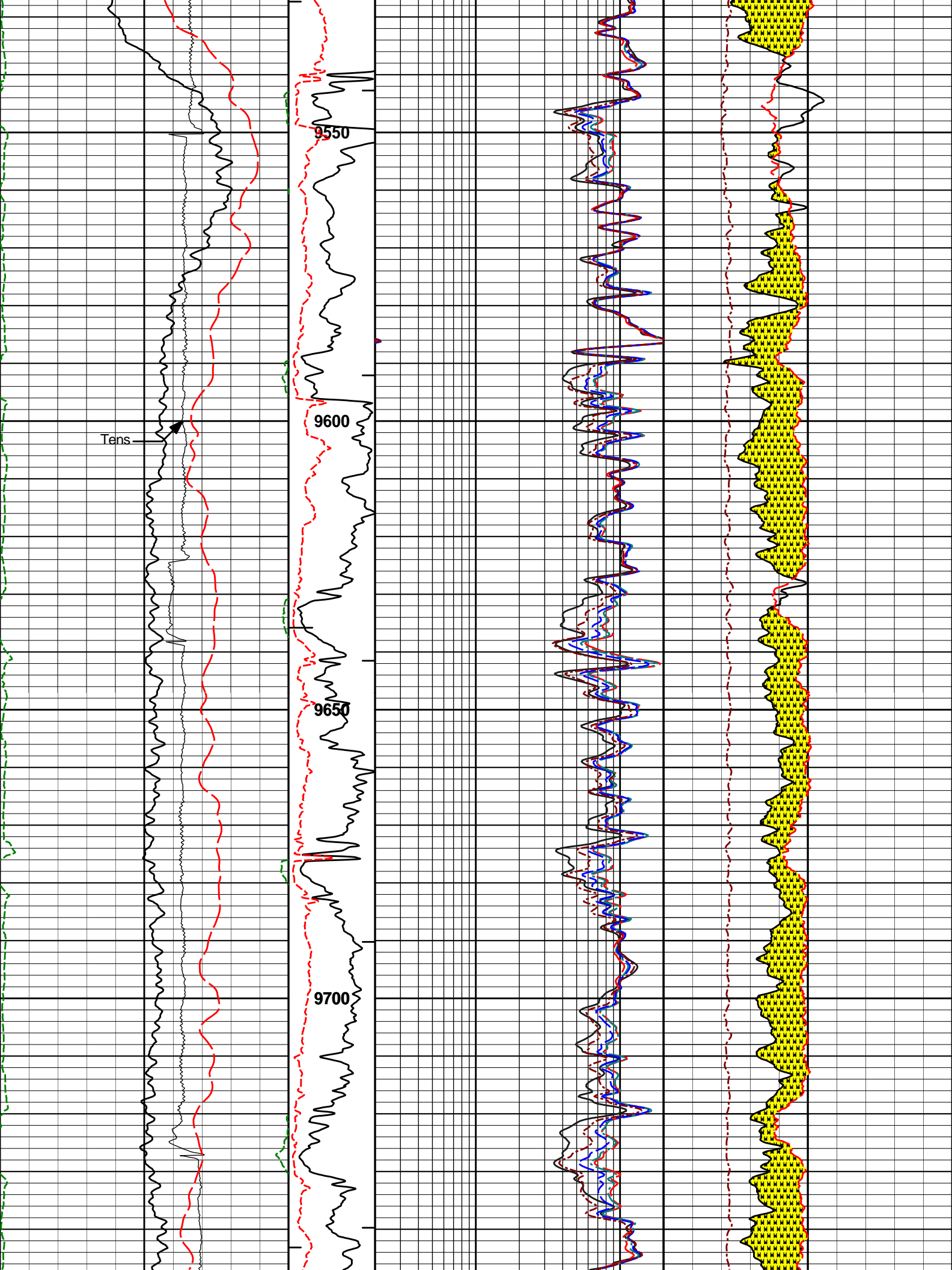


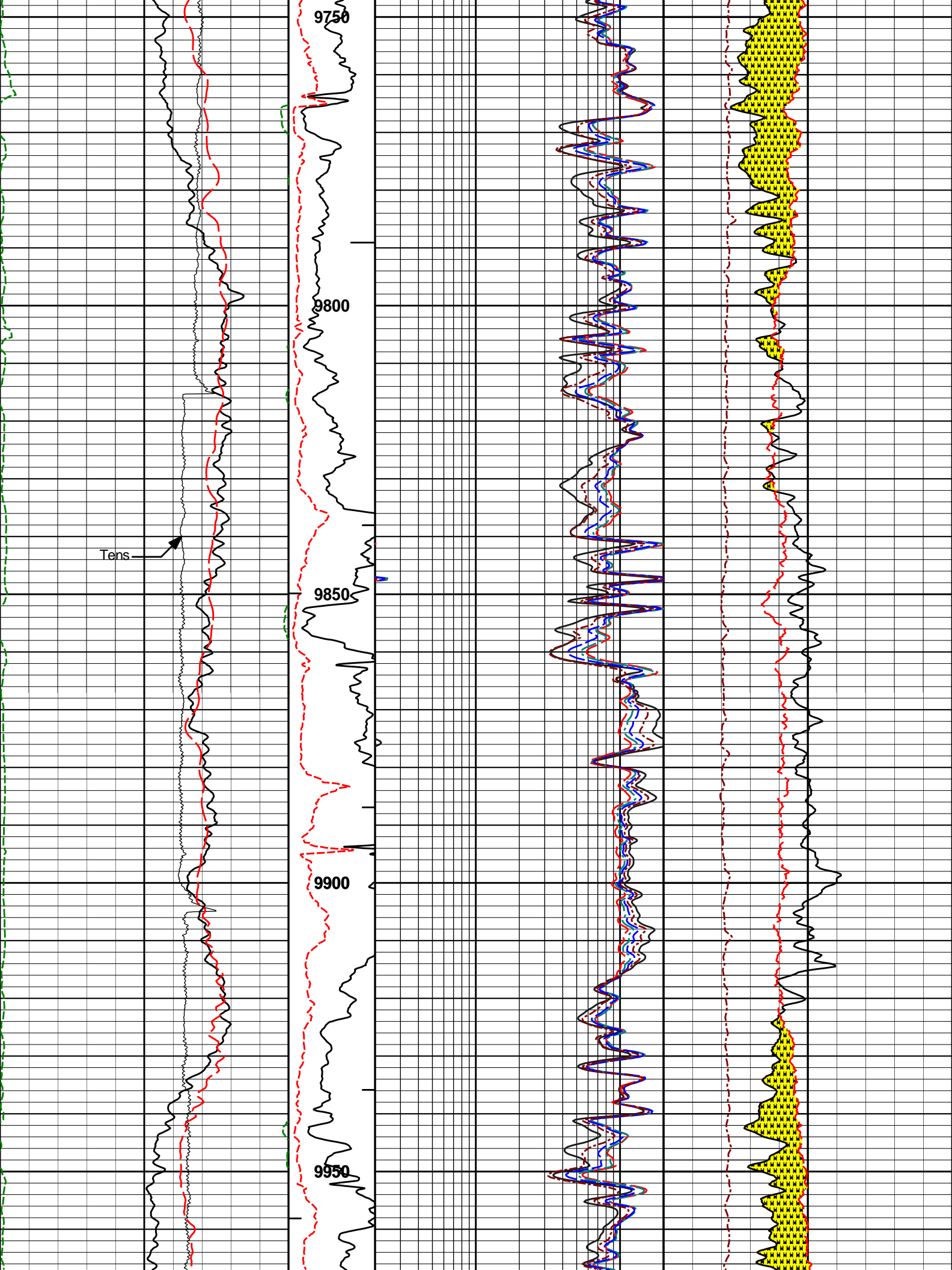


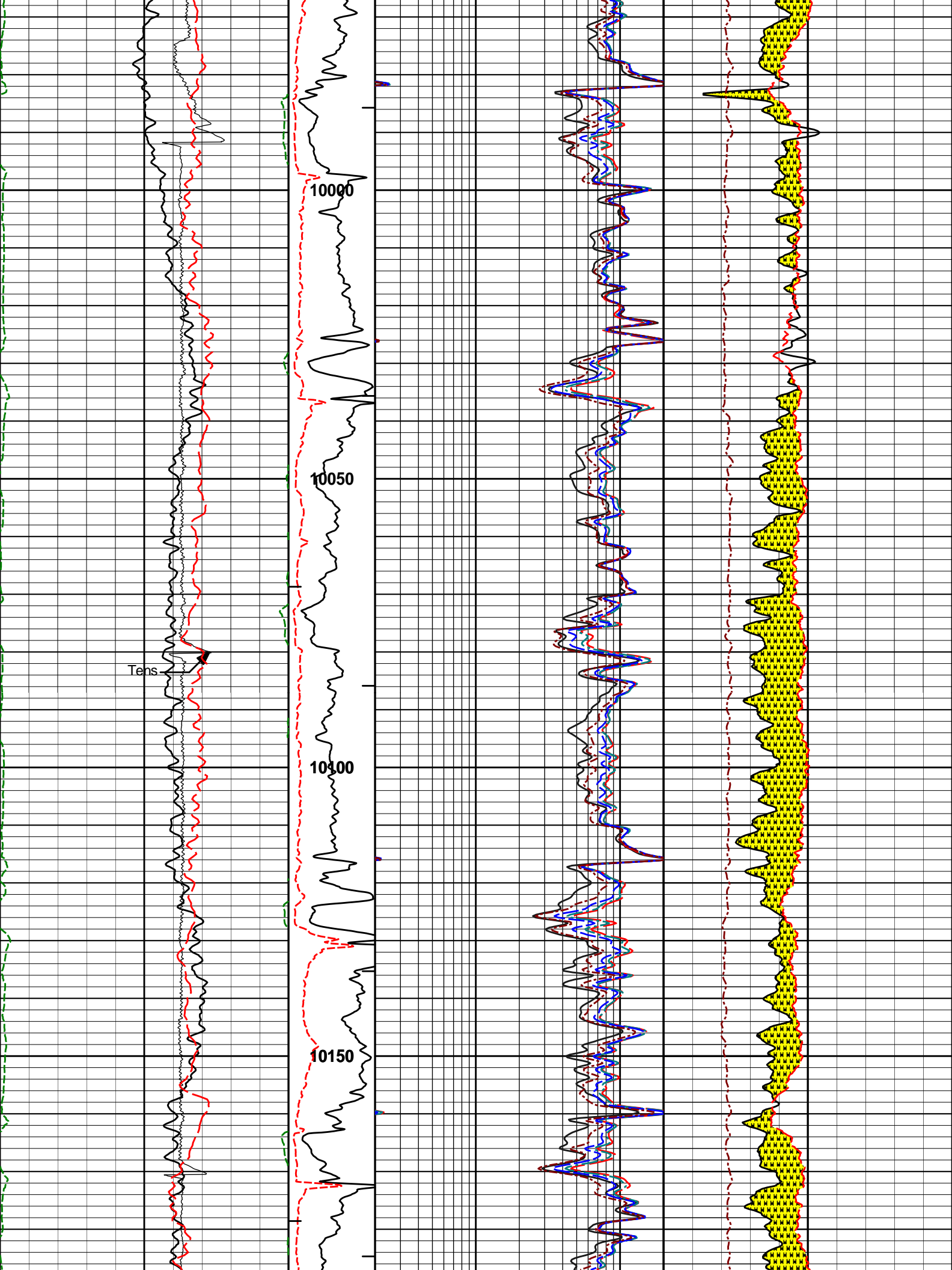


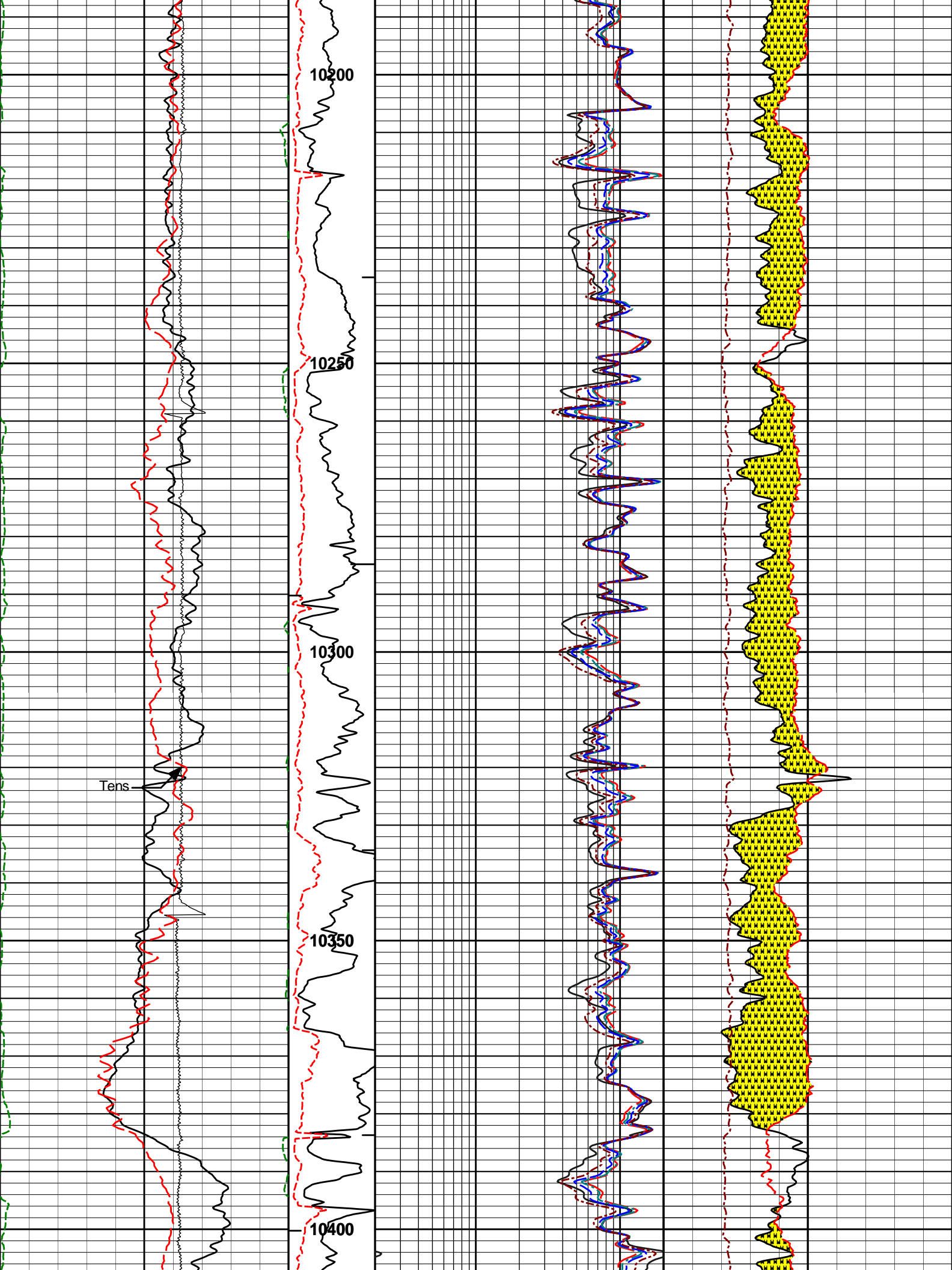


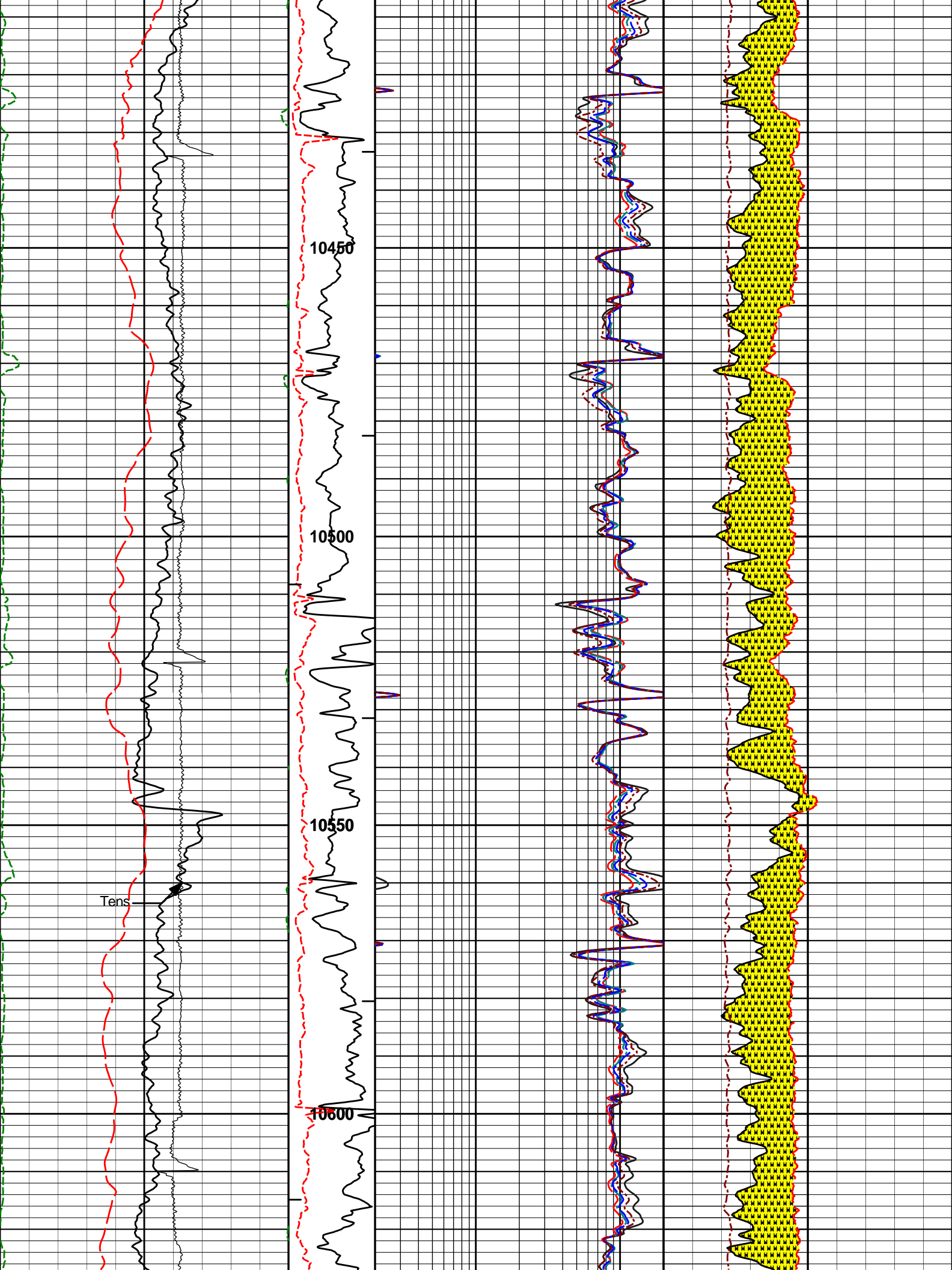


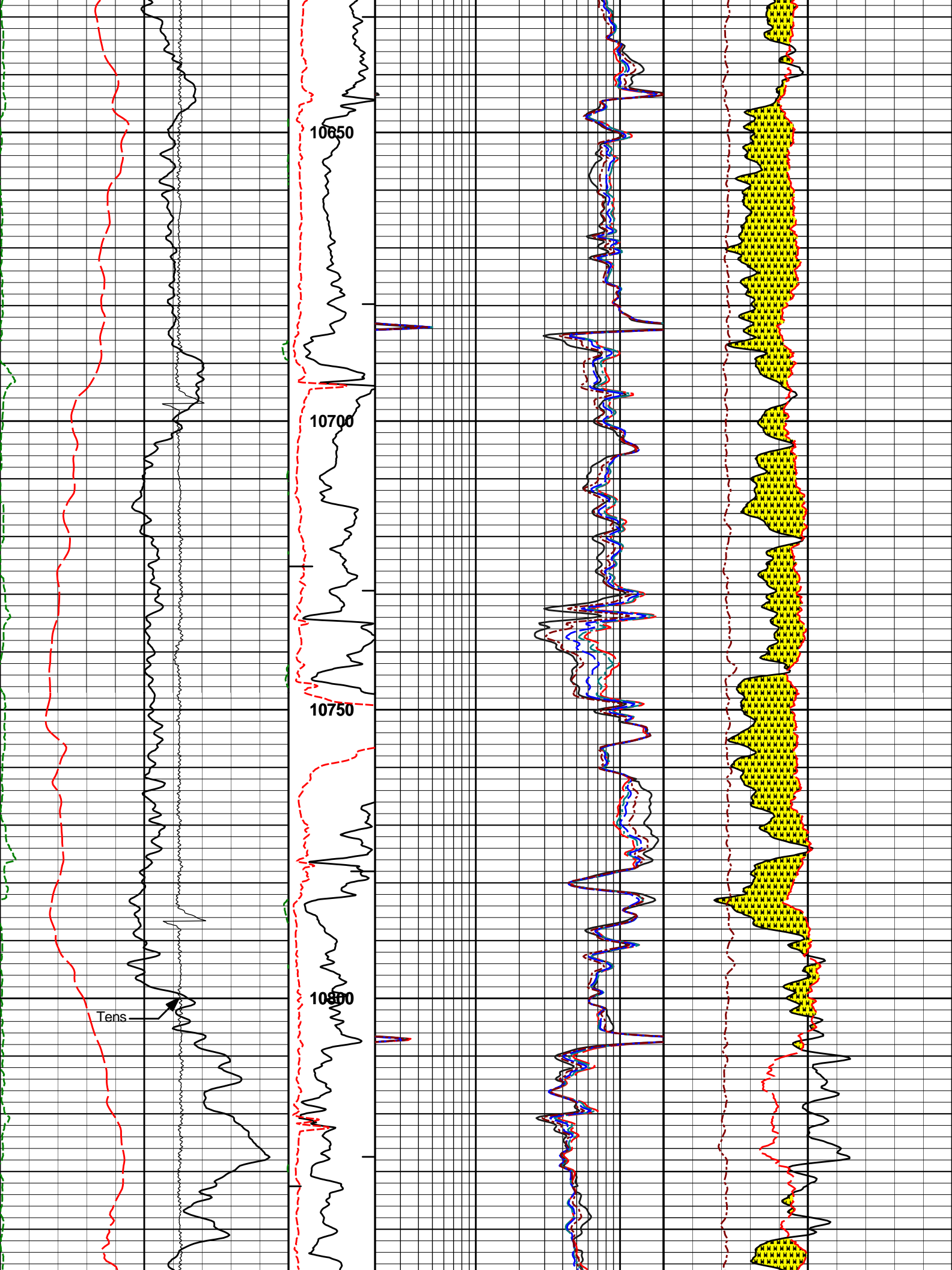


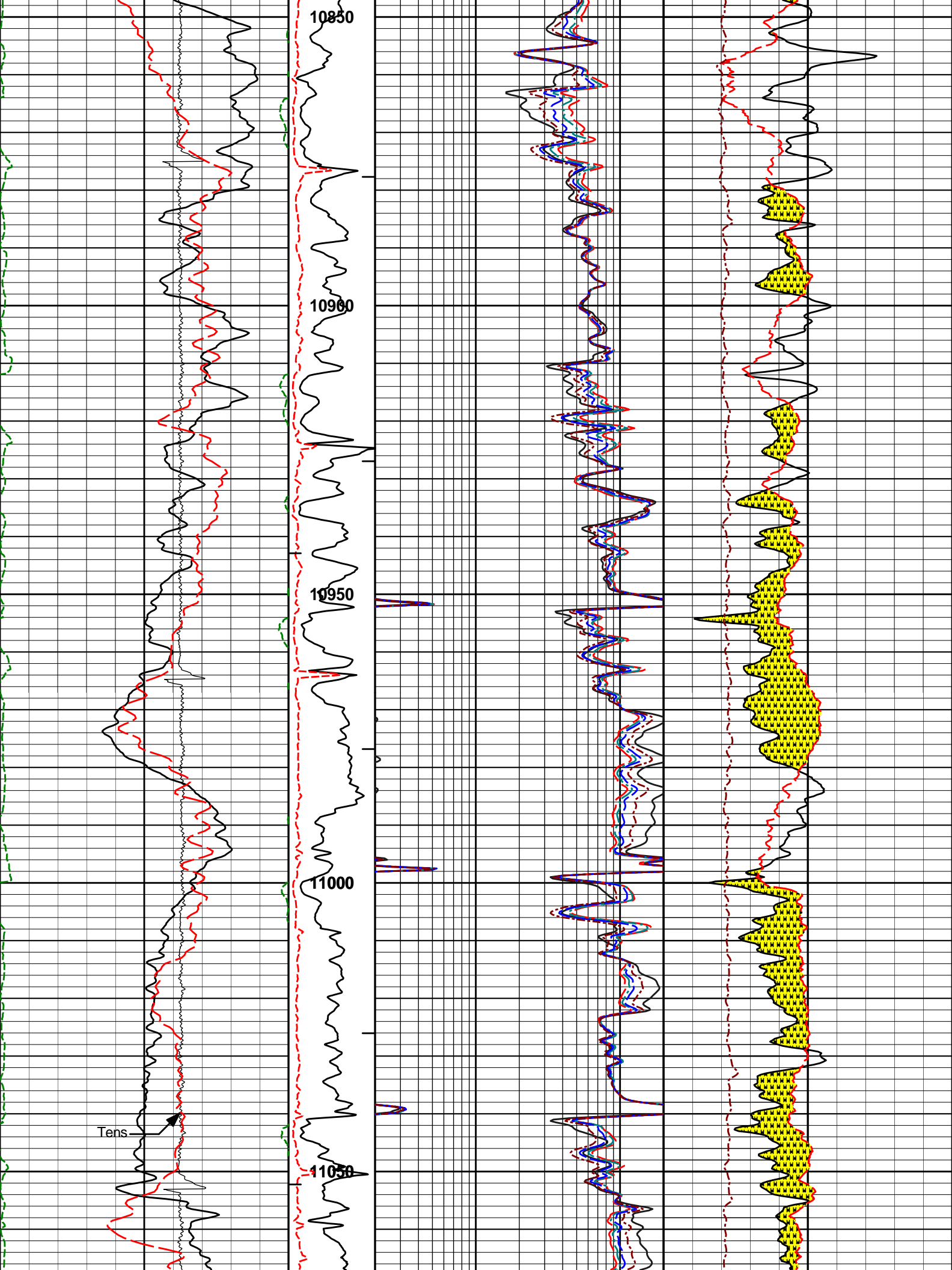


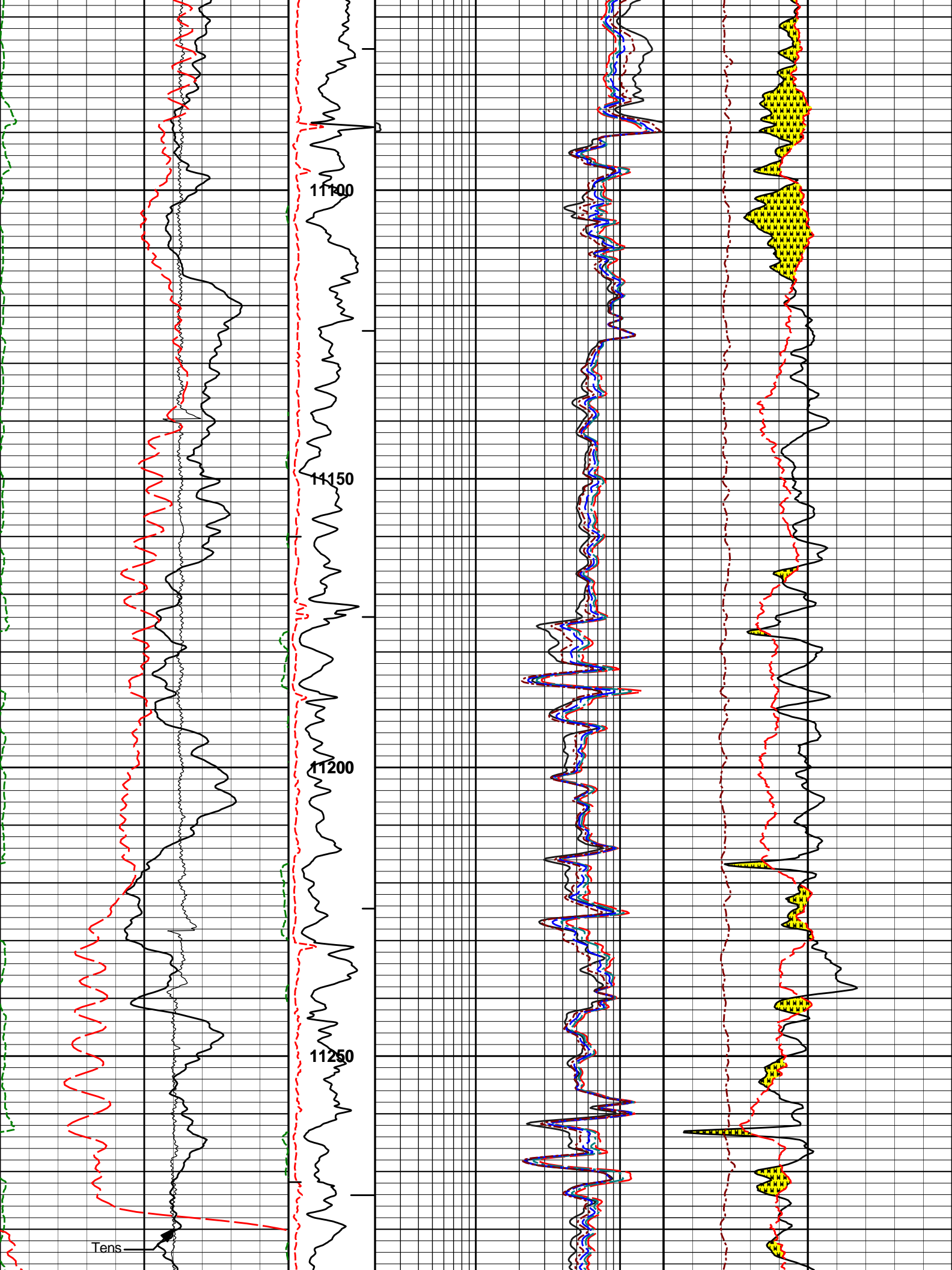


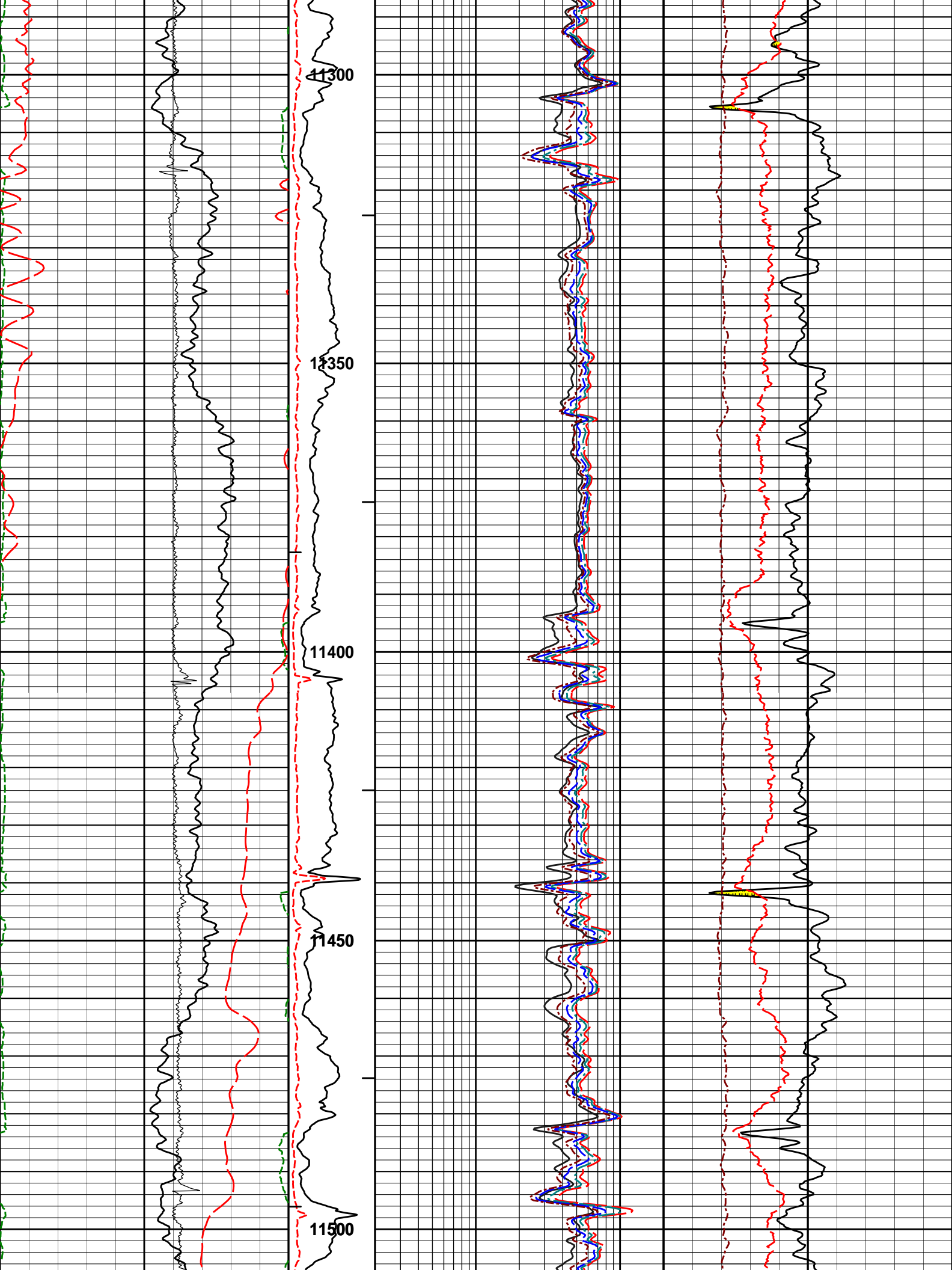


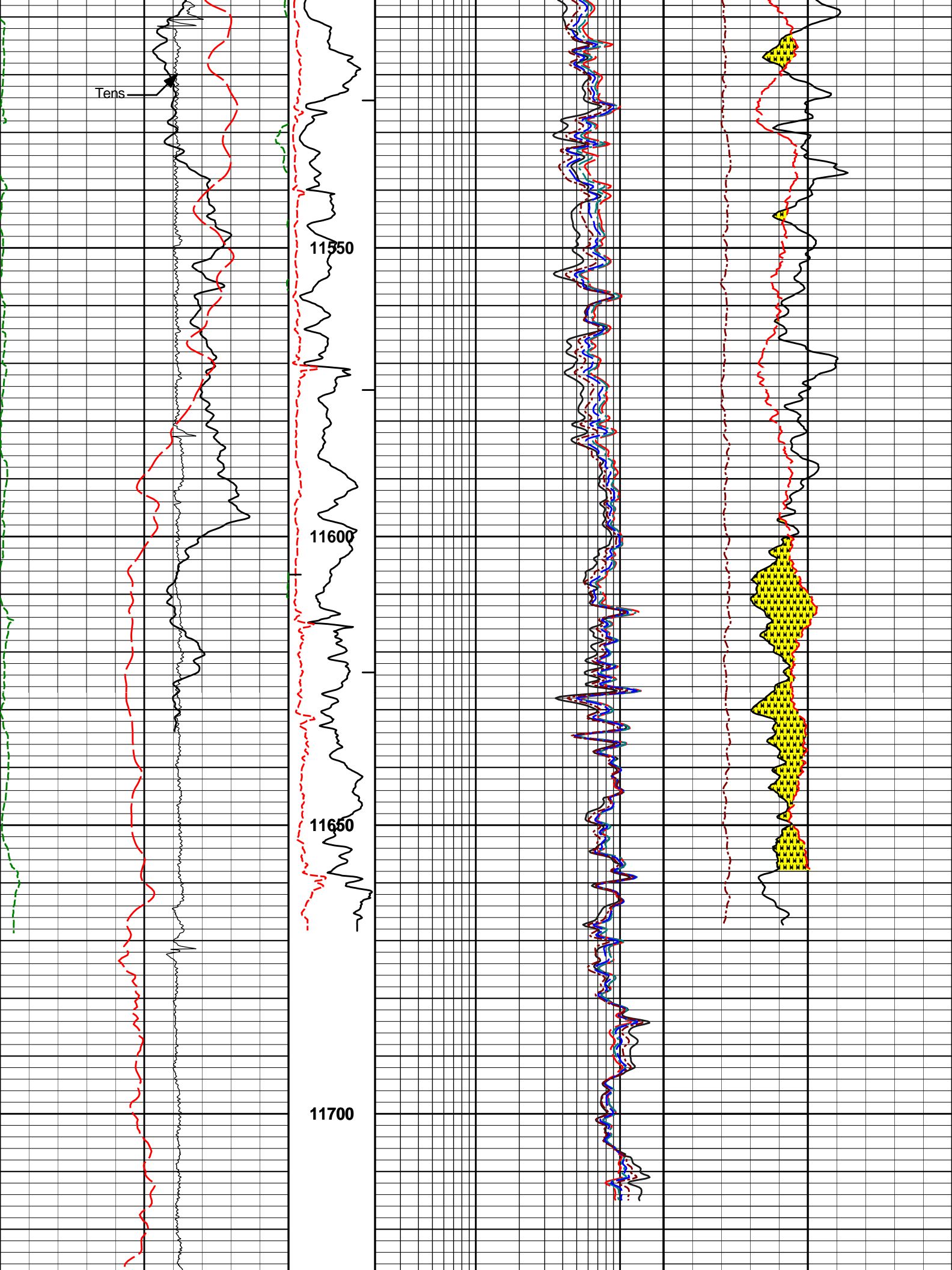












0	SP	100	1 : 240	2	RT90	200	0	Pe	10	
	millivolts					ohmm				
0	Gamma API	200	BHVT	2	RT60	200	20	Density Porosity		0
	api					ohmm			percent	
6	Caliper	16	AHVT	2	RT30	200	20	Neutron Porosity		0
	inches					ohmm			percent	
10K	Tens	0	MicrologLateral	2	RT20	200				
	pounds		ohm-metre		ohmm					
			MicrologNormal	2	RT10	200				
			ohm-metre		ohmm					

HALLIBURTON		Plot Time: 26-Jun-11 09:53:27 Plot Range: 7390 ft to 11728.5 ft Data: PSC_12N-13HZ\Well Based\MAIN* Plot File: \COMP\MAIN								
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MAIN PASS 5" = 100'										
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HALLIBURTON										
CALIBRATION REPORT										

NATURAL GAMMA RAY TOOL SHOP CALIBRATION			
Tool Name:	GTET - 11294346_RED	Reference Calibration Date:	19-May-11 08:35:12
Engineer:	R. TWEETEN	Calibration Date:	24-Jun-11 14:58:13
Software Version:	WL INSITE R3.2.5 (Build 2)	Calibration Version:	1
Calibrator Source S/N: TB 289			
Calibrator API Reference:264.00 api			
Equivalent Calibrator API Reference:268.6 api			
Measurement	Measured	Calibrated	Units
Background	76.1	80.4	api
Background + Calibrator	330.2	349.1	api
Calibrator	273.0	268.6	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION			
Tool Name:	GTET - 11294346_RED	Reference Calibration Date:	24-Jun-11 14:58:13
Engineer:	R. TWEETEN	Calibration Date:	25-Jun-11 01:13:48
Software Version:	WL INSITE R3.2.5 (Build 2)	Calibration Version:	1
Calibrator Source S/N: TB 289			
Calibrator API Reference:264.00 api			
Equivalent Calibrator API Reference:268.6 api			
Field Verification	Shop	Field	Units
Background	80.4	76.7	api
Background + Calibrator	349.1	348.6	api
Calibrator	268.6	271.9	api
Shop	Field	Difference	Tolerance

268.6

271.9

-3.3

+/- 9.00

CSNG-FS SHOP CALIBRATION

Tool Name:	CSNG - 11568970	Reference Calibration Date:	08-May-11 14:32:18
Engineer:	R. TWEETEN	Calibration Date:	24-Jun-11 15:16:35
Software Version:	WL INSITE R3.2.5 (Build 2)	Calibration Version:	1
Source SN:	TB 289		

TITANIUM CASE	Measured	Calibrated	Units
60 KEV Peak Channel #	48.0	48.0	Channel #
239 KEV Peak Channel #	23.6	23.3	Channel #
583 KEV Peak Channel #	53.2	52.0	Channel #
2614 KEV Peak Channel #	219.6	215.0	Channel #
Calibrate Temperature	88.2	115.6	degF

Pass/Fail Summary	Centroid
239 KEV Peak	Passed
583 KEV Peak	Passed
2614 KEV Peak	Passed

Blanket Reference Value: 264.00 API

Calibrator Value: 299.8 API

	Counts	Units	Measured	Calibrated	Units
Thorium Blanket	1727.7	CPS	358.7	376.1	API
Background	350.5	CPS	58.9	76.3	API

Gamma Ray Gain: 1.10

Expected Gain Range: 0.85 - 1.15

Gamma Gain Check: Passed

CSNG-FS FIELD CALIBRATION

Tool Name:	CSNG - 11568970	Reference Calibration Date:	24-Jun-11 15:16:35
Engineer:	R. TWEETEN	Calibration Date:	25-Jun-11 01:23:00
Software Version:	WL INSITE R3.2.5 (Build 2)	Calibration Version:	1
Source SN:			

TITANIUM CASE	Shop	Field	Units
60 KEV Peak Channel #	48.0	48.0	Channel #
239 KEV Peak Channel #	23.3	23.4	Channel #
583 KEV Peak Channel #	52.0	52.3	Channel #
2614 KEV Peak Channel #	215.0	216.6	Channel #
Calibrate Temperature	115.6	108.6	degF

Pass/Fail Summary	Centroid
239 KEV Peak	Passed
583 KEV Peak	Passed
2614 KEV Peak	Passed

Blanket Reference Value: 264.00 API

Calibrator Value: 299.8 API

	Counts	Units	Measured	Calibrated	Units
Thorium Blanket	1709.3	CPS	376.1	365.9	API
Background	308.7	CPS	76.3	66.1	API

Gamma Ray Gain: 1.08
Expected Gain Range: 0.85 - 1.15
Gamma Gain Check: Passed

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	DSNT - 10958655_RED	Reference Calibration Date:	24-Jun-11 14:31:54
Engineer:	R. TWEETEN	Calibration Date:	24-Jun-11 14:56:16
Software Version:	WL INSITE R3.2.5 (Build 2)	Calibration Version:	1

Logging Source S/N: DSN-434
Tank Serial Number: 11068236
Reference value assigned to Tank: 53.720
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:	0.969	0.968	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):	0.2227	0.2224	0.0003	+/- 0.0020
Calibrated Ratio:	10.12	10.11	0.010	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0853	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 - 10958655_RED	Reference Calibration Date:	24-Jun-11 14:56:16
Engineer:	R. TWEETEN	Calibration Date:	25-Jun-11 01:26:32
Software Version:	WL INSITE R3.2.5 (Build 2)	Calibration Version:	1

Logging Source S/N: DSN-434
Snow Block S/N: BRIGHTON

NEUTRON FIELD-CHECK SUMMARY				
	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0853	0.0812	-0.0041	+/- 0.0150

PASS/FAIL SUMMARY	
Block Change Check:	Passed

Snow Block Stat Check:

Passed

Temperature Check:

Passed

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name: SDLT - M271_P123_RED

Reference Calibration Date: 19-May-11 09:40:58

Engineer: C. GULLETT

Calibration Date: 24-Jun-11 13:58:55

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

Calibration Version: 1

Logging Source S/N: 2770GW

Aluminum Block S/N: BRIGHTON_AL

Density: 2.600g/cc

Pe: 3.100

Magnesium Block S/N: BRIGHTON_MG

Density: 1.680g/cc

Pe: 2.594

DENSITY CALIBRATION SUMMARY

Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0195	1.0150	0.90 - 1.10
Near Dens Gain	1.0063	1.0058	0.90 - 1.10
Near Peak Gain	1.0031	0.9775	0.90 - 1.10
Near Lith Gain	0.9763	0.9634	0.90 - 1.10
Far Bar Gain	1.0203	1.0152	0.90 - 1.10
Far Dens Gain	1.0093	1.0042	0.90 - 1.10
Far Peak Gain	1.0007	0.9986	0.90 - 1.10
Far Lith Gain	0.9787	0.9678	0.90 - 1.10
Near Bar Offset	0.1010	0.1439	NONE
Near Dens Offset	0.2009	0.2109	NONE
Near Peak Offset	0.2548	0.4770	NONE
Near Lith Offset	0.4701	0.5793	NONE
Far Bar Offset	0.0151	0.0560	NONE
Far Dens Offset	0.0871	0.1290	NONE
Far Peak Offset	0.1426	0.1522	NONE
Far Lith Offset	0.2874	0.3531	NONE
Near Bar Background	850.14	850.70	700 - 1450
Near Dens Background	278.92	279.67	230 - 480
Near Peak Background	119.62	118.36	100 - 210
Near Lith Background	149.90	149.76	125 - 260
Far Bar Background	540.95	540.01	450 - 900
Far Dens Background	207.29	208.33	175 - 345
Far Peak Background	80.21	81.27	70 - 140
Far Lith Background	85.38	85.79	75 - 145

CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.670	1.680	0.010	+/- 0.015
Pe	2.571	2.560	-0.011	+/- 0.150
ALUMINUM				
Density (g/cc)	2.589	2.600	0.011	+/- 0.01500
Pe	3.082	3.068	-0.014	+/- 0.150

TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits

QUALITY				
Background	-0.0013	+/- 0.0110	-0.0005	+/- 0.0140
Magnesium Block	-0.0000	+/- 0.0110	-0.0011	+/- 0.0140
Aluminum Block	-0.0003	+/- 0.0110	0.0004	+/- 0.0140
Resolution	9.38	6.00 - 11.50	9.67	6.00 - 11.50
Internal Verifier(B+D+P+L)	1398	1200 - 2700	915	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 - M271_P123_RED

Reference Calibration Date: 24-Jun-11 13:58:55

Engineer: R. TWEETEN

Calibration Date: 25-Jun-11 01:12:32

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

Calibration Version: 1

Pad Temperature: 82.3 degF

DENSITY FIELD CALIBRATION SUMMARY				
Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1398.493	1389.879	-8.614	15.103
Far (B+D+P+L) cps	915.401	916.785	1.384	16.410
Near Resolution	9.38	9.45	0.070	0.50
Far Resolution	9.67	9.78	0.110	1.00

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

MICRO LOG SHOP CALIBRATION

Tool Name: SDLT - M271_P123_RED

Reference Calibration Date: 19-May-11 10:14:14

Engineer: R. TWEETEN

Calibration Date: 24-Jun-11 15:56:33

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

Calibration Version: 1

CALIBRATION COEFFICIENT SUMMARY					
Measurement	Micro Log Normal		Micro Log Lateral		Units
	Measured	Calibrated	Measured	Calibrated	
Tool Zero	-0.18	-0.07	0.00	0.03	ohmm
Calibration Point #1	-0.10	0.00	-0.02	0.00	ohmm
Calibration Point #2	19.86	20.00	19.94	20.00	ohmm
Internal Reference	19.95	20.09	20.11	20.17	ohmm

Measurement	Micro Log Normal Tool Value	Micro Log Lateral Tool Value	Units
Tool Zero	2.47	1.31	V
Calibration Point #1	21.52	-7.69	V
Calibration Point #2	5234.32	6811.27	V
Internal Reference	5256.71	6869.93	V

Internal Reference

5256.71

6868.92

V

MICRO LOG FIELD CHECK

Tool Name:SDLT - M271_P123_RED

Reference Calibration Date:24-Jun-11 15:56:33

Engineer:R. TWEETEN

Calibration Date:25-Jun-11 01:18:28

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

Calibration Version:1

Measurement	Micro Log Normal		Micro Log Lateral		Units
	Shop	Field	Shop	Field	
Tool Zero	-0.07	-0.08	0.03	0.02	ohmm
Internal Reference	20.09	20.04	20.17	20.13	ohmm

Summary

Signal	Shop	Field	Difference	Tolerance
Microlog Normal	20.09	20.04	0.05	+/- 0.80
Microlog Lateral	20.17	20.13	0.04	+/- 0.80

DENSITY CALIPER SHOP CALIBRATION

Tool Name:SDLT - M271_P123_RED

Reference Calibration Date:24-Jun-11 15:49:29

Engineer:R. TWEETEN

Calibration Date:24-Jun-11 15:53:36

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	-1232.37	-1172.04	-7000.00 - -1000.00
Pad Gain	0.0003861	0.0003808	0.000200 - 0.000600
Arm Offset	-502.49	-504.65	-5000.00 - 3000.00
Arm Gain	0.0005243	0.0005183	0.000300 - 0.000700
Arm Power	-0.000005818	-0.000005458	-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)	2.00	2.00	0.00	+/- 0.20
Medium Ring (in)	3.78	3.75	-0.03	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.50	6.50	0.00	+/- 0.20
Medium Ring (in)	8.26	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 - M271_P123_RED

Reference Calibration Date:24-Jun-11 15:53:36

Engineer:R. TWEETEN

Calibration Date:25-Jun-11 01:22:43

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

Calibration Version:1

MEASURED CALIPER VALUES	
Measurement	Control Limit On

Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.71	-0.04	+/- 0.10
Ring Diameter	8.25	8.15	-0.10	+/- 0.15

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

ACCELEROMETER AND MAGNETOMETER SHOP CALIBRATION			
Tool Name:	XRMI-I Instrument - 11355245_NEW	Reference Calibration Date:	01-Jan-70 00:00:00
Engineer:	W. MATSON	Calibration Date:	20-Apr-11 14:55:40
Software Version:	WL INSITE R3.2.1 (Build 7)	Calibration Version:	1

Reference Gravity Field: 1.0000 g
Reference Magnetic Field: 52536.0000 nT

* QF : value of 0 is shown for bad quality if | data - reference | > (2 * standard deviation) and > (0.5% of reference value)

ACCELEROMETER CALIBRATION RAW DATA VALUE					
Raw Acc X	Raw Acc Y	Raw Acc Z	Gravity	Quality %	QF
2820.7500	-18837.0000	112.2500	0.9991	99.9072	1
-18961.7500	-1870.2500	125.0000	0.9980	99.8015	1
-1614.5000	19209.0000	235.2500	0.9981	99.8125	1
19157.0000	-1452.2500	251.0000	0.9999	99.9878	1
838.0000	19265.2500	110.5000	0.9980	99.7994	1
-18246.0000	240.2500	2994.7500	1.0007	99.9260	1
1256.2500	19333.5000	406.0000	1.0031	99.6935	1
18649.0000	-4525.7500	322.5000	1.0000	99.9995	1
2054.0000	-18970.5000	220.7500	1.0011	99.8948	1
-19122.5000	267.7500	424.7500	1.0014	99.8588	1
162.7500	109.7500	9717.7500	0.9999	99.9867	1
874.0000	18446.7500	-2717.5000	1.0007	99.9281	1

ACCELEROMETER QUALITY SUMMARY		
Average Calculated Gravity Field	1.0000	g
Standard Deviation Calculated Gravity Field	0.0015	g

ACCELEROMETER GAIN AND OFFSET			
	GAIN	OFFSET	
ACC X	0.0000521772	-0.0031710437	
ACC Y	0.0000521177	-0.0068945219	
ACC Z	0.0001043348	-0.0140471654	

* QF : value of 0 is shown for bad quality if | data - reference | > (3 * standard deviation) and > (1% of reference value)

MAGNETOMETER CALIBRATION RAW DATA VALUE					
Raw Mag X	Raw Mag Y	Raw Mag Z	Magnetic	Quality %	QF
3016.5000	10571.5000	-1591.2500	52592.1445	99.8931	1
10158.2500	-3395.5000	-1322.5000	52575.9375	99.9240	1
-3849.2500	-9916.7500	-1084.5000	52540.7656	99.9909	1
-9418.2500	5699.2500	-1171.7500	52593.0430	99.8914	1
-1741.2500	-9469.7500	4716.5000	52542.8945	99.9869	1
10687.2500	282.7500	-1813.7500	52512.5820	99.9554	1
-404.7500	-9485.0000	-4636.5000	52639.2930	99.8034	1
-9514.0000	2318.7500	-4651.0000	52497.1641	99.9261	1
-1262.2500	9788.5000	-4743.2500	52460.3008	99.8559	1
9711.5000	493.5000	-4543.2500	52501.3711	99.9341	1

-3028.2500	4086.5000	9590.0000	52546.3633	99.9803	1
-1741.2500	-10420.7500	1648.0000	52428.2578	99.7949	1

MAGNETOMETER QUALITY SUMMARY

Average Calculated Magnetic Field	52535.8438	nT
Standard Deviation Calculated Magnetic Field	59.8805	nT

MAGNETOMETER GAIN AND OFFSET

	GAIN	OFFSET
MAG X	4.8050208092	201.7432708740
MAG Y	4.8103280067	-1140.7214355469
MAG Z	5.0001144409	-915.3953247070

Noise Level Value: 20.257835 cnts

Noise Level Cal Value: 0.0021 g

DIPMETER SHOP CALIBRATION

Tool Name: XRMI-I Mandrel - 11355244_NEW

Reference Calibration Date: 13-Apr-11 15:22:56

Engineer: R. TWEETEN

Calibration Date: 25-Jun-11 07:34:13

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

Calibration Version: 1

Tool Temperature: 74.41 degF

PAD RESISTIVITIES

Measurement	Measured	Calibrated	Measured	Calibrated	Measured	Calibrated	Units
Pads #1-3:	0.452	0.450	0.450	0.450	0.450	0.450	ohmm
Pads #4-6:	0.452	0.450	0.451	0.450	0.451	0.450	ohmm
Cal0 #1-3:	0.109	-----	0.110	-----	0.109	-----	ohmm
Cal0 #4-6:	0.111	-----	0.108	-----	0.109	-----	ohmm

RELATIVE PAD VOLTS

Measurement	Measured	Calibrated
Air:	1.000	0.994
Zero:	0.001	0.001
Calibrate:	0.001	0.001

DIPMETER FIELD CALIBRATION

Tool Name: XRMI-I Mandrel - 11355244_NEW

Reference Calibration Date: 25-Jun-11 07:34:13

Engineer: R. TWEETEN

Calibration Date: 25-Jun-11 07:38:30

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

Calibration Version: 1

PAD RESISTIVITIES

Measurement	Shop	Field	Units
Reflvl Pad 1:	20.426	20.399	ohmm
Reflvl Pad 2:	20.640	20.645	ohmm
Reflvl Pad 3:	20.431	20.470	ohmm
Reflvl Pad 4:	20.807	20.701	ohmm
Reflvl Pad 5:	20.122	20.101	ohmm
Reflvl Pad 6:	20.422	20.341	ohmm

SIX ARM CALIPER SHOP CALIBRATION

Tool Name: XRMI-I Mandrel - 11355244_NEW

Reference Calibration Date: 13-Apr-11 15:33:03

Engineer: W. MATSON

Calibration Date: 13-Apr-11 15:38:05

Software Version: WL INSITE R3.2.3 (Build 5)

Calibration Version: 2

CALIPERS AND RINGS					
Caliper	Large 15.000 in		Small 7.000 in		Units
CALIPER 1-4:					
Measured	14.990		6.931		in
Calibrated	15.000		7.000		in
CALIPER 2-5:					
Measured	14.991		7.196		in
Calibrated	15.000		7.000		in
CALIPER 3-6:					
Measured	14.998		7.012		in
Calibrated	15.000		7.000		in
TOLERANCE CHECK					
Measurment	Difference	Tolerance	Pass/Fail	Units	
Caliper 1-4 Large	0.010	0.250	Passed	in	
Caliper 1-4 Small	0.070	0.250	Passed	in	
Caliper 2-5 Large	0.010	0.250	Passed	in	
Caliper 2-5 Small	-0.200	0.250	Passed	in	
Caliper 3-6 Large	0.000	0.250	Passed	in	
Caliper 3-6 Small	-0.010	0.250	Passed	in	
PRESSURE PAD					
	Measured	Calibrated			
Closed	0.000	0.000			
Opened	1.000	1.000			

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION					
Tool Name:	ACRt - E2817-S4353_RED			Reference Calibration Date:	13-Aug-10 20:06:47
Engineer:	F. LODER			Calibration Date:	30-Mar-11 18:36:19
Software Version:	WL INSITE R3.2.3 (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	1.0059	1.05	0.95	1.0075	1.05	0.95	1.0051	1.05
A2 (50")	0.95	1.0076	1.05	0.95	1.0107	1.05	0.95	1.0110	1.05
A3 (29")	0.95	1.0065	1.05	0.95	1.0088	1.05	0.95	1.0066	1.05
A4 (17")	0.95	1.0010	1.05	0.95	1.0019	1.05	0.95	1.0026	1.05
A5 (10")	N/A	N/A	N/A	0.95	0.9944	1.05	0.95	0.9930	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.9793	1.05	0.95	0.9785	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	-1.036	2	-6	-4.390	-2	-8	-4.791	-2
A2 (50")	-7	-1.751	-1	-6	-2.896	-2	-7	-4.731	-2
A3 (29")	-27	-12.778	-9	-9	-3.452	-3	-7	-3.636	-1
A4 (17")	-180	-88.705	-60	-45	-28.593	-15	-39	-24.648	-13
A5 (10")	N/A	N/A	N/A	-150	-91.844	-50	-80	-44.230	-10
A6 (6")	N/A	N/A	N/A	175	331.191	525	90	166.676	270


TRANSMITTER CURRENT GAIN				R-MUD VERIFICATION			
Signal	Lower	R	Upper	Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
12K	0.6	0.8814	1.3	Mud Cell	0.95	0.997	1.05
36K	1.0	1.8411	2.0				
72K	1.0	1.1239	2.0				

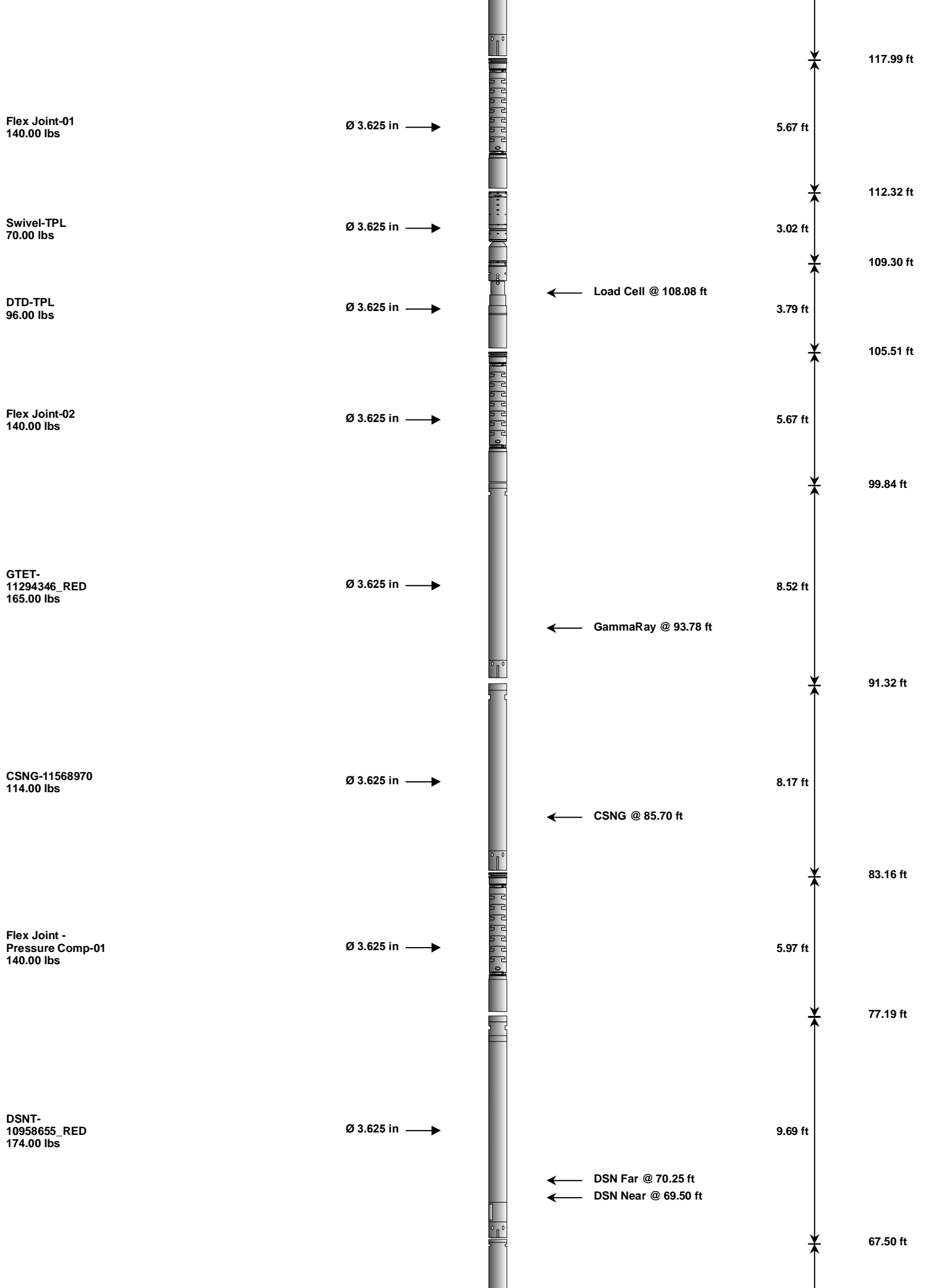
CALIBRATION SUMMARY						
Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11294346_RED						
Gamma Ray Calibrator	268.6	271.9	-----	-3.3	+/- 9.00	api
CSNG-11568970						
60 KEV Peak Channel #	48.0	48.0	-----	0.0	-----	Channel #
239 KEV Peak Channel #	23.3	23.4	-----	-0.1	-----	Channel #
583 KEV Peak Channel #	52.0	52.3	-----	-0.3	-----	Channel #
2614 KEV Peak Channel #	215.0	216.6	-----	-1.6	-----	Channel #
DSNT-10958655_RED						
Snow-Block Porosity	0.0853	0.0812	-----	0.0041	+/- 0.0150	decp
SDLT-M271_P123_RED						
Near(B+D+P+L)	1398.493	1389.879	-----	8.614	+/-15.103	cps
Far(B+D+P+L)	915.401	916.785	-----	-1.384	+/-16.410	cps
MicroLog Normal	20.09	20.04	-----	0.05	+/-0.80	ohmm
MicroLog Lateral	20.17	20.13	-----	0.04	+/-0.80	ohmm
Pad Extension	3.75	3.71	-----	0.04	+/-0.10	in
Ring Diameter	8.25	8.15	-----	0.100	+/-0.15	in
XRMI-I Mandrel-11355244_NEW						
Reflvl Pad 1	20.426	20.399	-----	0.027	N/A	ohmm
Reflvl Pad 2	20.640	20.645	-----	-0.005	N/A	ohmm
Reflvl Pad 3	20.431	20.470	-----	-0.039	N/A	ohmm
Reflvl Pad 4	20.807	20.701	-----	0.106	N/A	ohmm
Reflvl Pad 5	20.122	20.101	-----	0.021	N/A	ohmm
Reflvl Pad 6	20.422	20.341	-----	0.081	N/A	ohmm
CAL 1-4	7.000	-----	-----	0.000	+/- 0.25	in
CAL 2-5	7.000	-----	-----	0.000	+/- 0.25	in
CAL 3-6	7.000	-----	-----	0.00	+/- 0.25	in
ACRt-E2817-S4353_RED						
Mud Cell	0.997	-----	-----	0.000	-----	ohm-m

Data: PSC_12N-13HZ\0001 TPL-TRIPLE-CSNG-XRMINDLE	Date: 25-Jun-11 17:27:28
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HALLIBURTON

TOOL STRING DIAGRAM REPORT

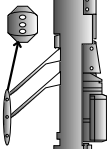
Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
Spacer-SPACER 100.00 lbs		Ø 3.625 in →			9.00 ft	126.99 ft



SDLT-
M271_P123_RED
360.00 lbs

Ø 4.500 in →

Ø 4.750 in →



SDL Microlog @ 59.69 ft
SDL Caliper @ 59.50 ft
SDL @ 59.49 ft

10.81 ft

56.69 ft

Flex Joint -
Pressure Comp-03
140.00 lbs

Ø 3.625 in →

5.97 ft

50.72 ft

XRMI-I Instrument-
11355245_NEW
290.00 lbs

Ø 4.500 in →

13.00 ft

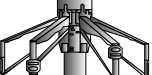
37.72 ft

XRMI-I Mandrel-
11355244_NEW
206.00 lbs

Ø 5.000 in →

Ø 4.500 in →

11.16 ft



Pads 2, 4, 6 @ 29.32 ft
Pads 1, 3, 5 @ 29.09 ft

26.56 ft

XRMI Isolator-01
32.50 lbs

Ø 4.500 in →

1.30 ft

25.25 ft

Flex Joint-03
140.00 lbs

Ø 3.625 in →

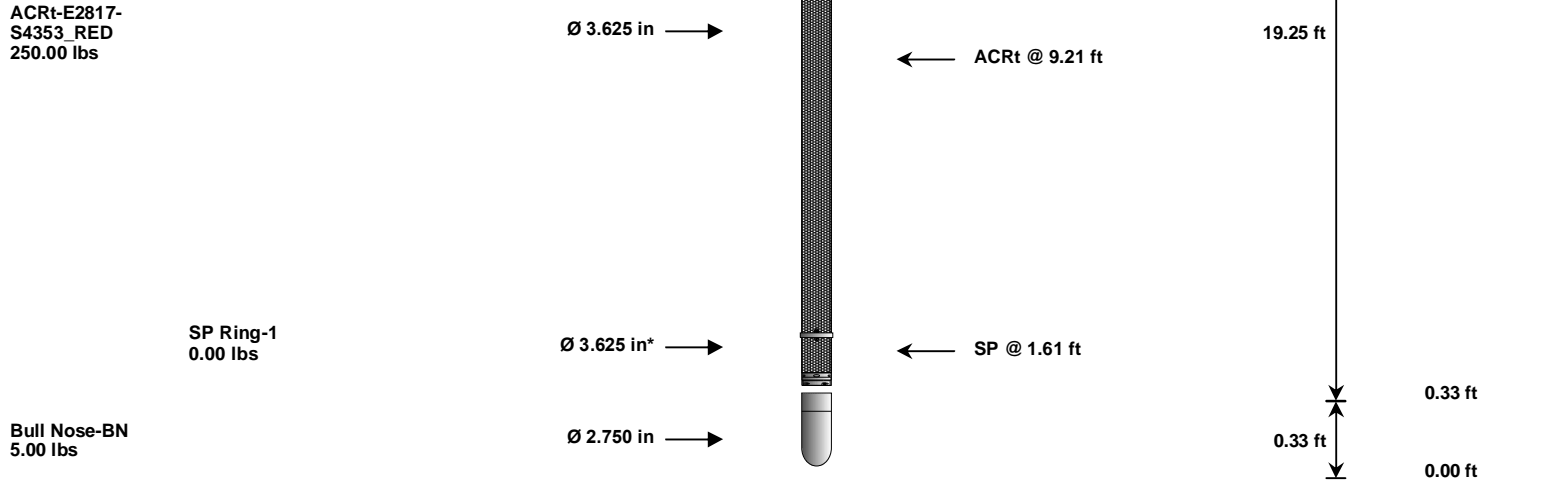
5.67 ft

19.58 ft

Regal Standoff 6_75-01
20.00 lbs

Ø 6.750 in* →

← Mud Resistivity @ 13.19 ft



Mnemonic		Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
SPC	Test		SPACER	100.00	9.00	117.99	100.00
FLEX	Flex Joint		01	140.00	5.67	112.32	300.00
SWVL	MCSA-D Multiconductor Swivel		TPL	70.00	3.02	109.30	300.00
DTD	Downhole Tension Device		TPL	96.00	3.79	105.51	300.00
FLEX	Flex Joint		02	140.00	5.67	99.84	300.00
GTET	Gamma Telemetry Tool		11294346_RED	165.00	8.52	91.32	60.00
CSNG	Compensated Spectral Natural Gamma		11568970	114.00	8.17	83.16	15.00
FLEX	Flex Joint - Pressure Compensated		01	140.00	5.97	77.19	300.00
DSNT	Dual Spaced Neutron		10958655_RED	174.00	9.69	67.50	60.00
SDLT	Spectral Density Tool		M271_P123_RED	360.00	10.81	56.69	60.00
FLEX	Flex Joint - Pressure Compensated		03	140.00	5.97	50.72	300.00
XRMI	XRMI Navigation - Insite		11355245_NEW	290.00	13.00	37.72	30.00
XRMI-I	XRMI Imager - Insite		11355244_NEW	206.00	11.16	26.56	30.00
	Isolator for the XRMI tool		01	32.50	1.30	25.25	300.00
FLEX	Flex Joint		03	140.00	5.67	19.58	300.00
ACRt	Array Compensated True Resistivity		E2817-S4353_RED	250.00	19.25	0.33	300.00
SP	SP Ring		1	0.00	0.25	* 1.61	300.00
RSOF	Regal Standoff 6.75in		01	20.00	0.52	* 13.55	300.00
BLNS	Bull Nose		BN	5.00	0.33	0.00	300.00
Total				2,582.50	126.99		
				* Not included in Total Length and Length Accumulation.			
Data: PSC_12N-13HZ\0001 TPL-TRIPLE-CSNG-XRMINDLE				Date: 25-Jun-11 17:25:54			

COMPANY	KERR-MCGEE OIL & GAS ONSHORE LP		
WELL	PSC 12N-13HZ		
FIELD	WATTENBERG		
COUNTY	WELD	STATE	CO
HALLIBURTON		ARRAY COMPENSATED TRUE RESISTIVITY SPECTRAL DENSITY DUAL SPACED NEUTRON	