Confidentiality Requested:
☐ Yes ☐ No

KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

1102104

Form ACO-1
August 2013
Form must be Typed
Form must be Signed
All blanks must be Filled

WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # 34715
Name: Dorado E&P Partners, LLC
Address 1: 1401 17th ST., STE 1500
Address 2:
City: DENVER State: CO Zip: 80202 + __ __ __ __
Contact Person: TINA MILLER
Phone: (720) 402-3693
CONTRACTOR: License # 5929
Name: Duke Drilling Co., Inc.
Wellsite Geologist: CHRIS SPENCER, HEMBROS HYDROCARBONS
Purchaser: N/A

Designate Type of Completion:

☑ New Well ☐ Re-Entry ☐ Workover

☐ Oil ☐ WSW ☐ SWD ☐ SIOW
☐ Gas ☐ D&A ☐ ENHR ☐ SIGW
☐ OG ☐ GSW ☐ Temp. Abd.
☐ CM *(Coal Bed Methane)*
☐ Cathodic ☑ Other *(Core, Expl., etc.)*: Pilot Hole drilled, logged, cored, plugged back & kicked

If Workover/Re-entry: Old Well Info as follows:

Operator:
Well Name:
Original Comp. Date: Original Total Depth:

☐ Deepening ☐ Re-perf. ☐ Conv. to ENHR ☐ Conv. to SWD
☐ Plug Back ☐ Conv. to GSW ☐ Conv. to Producer

☐ Commingled Permit #:
☐ Dual Completion Permit #:
☐ SWD Permit #:
☐ ENHR Permit #:
☐ GSW Permit #:

09/19/2012	09/27/2012	09/30/2012
Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date

API No. 15 - 15-155-21592-00-00
Spot Description:
NE - NW - NW - NW Sec. 4 Twp. 25 S. R. 9 ☐ East ☑ West
150 Feet from ☑ North / ☐ South Line of Section
450 Feet from ☐ East / ☑ West Line of Section
Footages Calculated from Nearest Outside Section Corner:
☐ NE ☑ NW ☐ SE ☐ SW
GPS Location: Lat: *(e.g. xx.xxxxx)* , Long: *(e.g. -xxx.xxxxx)*
Datum: ☐ NAD27 ☐ NAD83 ☐ WGS84
County: Reno
Lease Name: Toews Well #: 25-9-4
Field Name:
Producing Formation: None
Elevation: Ground: 1698 Kelly Bushing: 1710
Total Vertical Depth: 4137 Plug Back Total Depth: 3085
Amount of Surface Pipe Set and Cemented at: 250 Feet
Multiple Stage Cementing Collar Used? ☐ Yes ☑ No
If yes, show depth set: Feet
If Alternate II completion, cement circulated from:
feet depth to: w/ sx cmt.

Drilling Fluid Management Plan
(Data must be collected from the Reserve Pit)

Chloride content: 0 ppm Fluid volume: 0 bbls
Dewatering method used: Evaporated
Location of fluid disposal if hauled offsite:
Operator Name:
Lease Name: License #:
Quarter Sec. Twp. S. R. ☐ East ☐ West
County: Permit #:

AFFIDAVIT

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

KCC Office Use ONLY

☑ **Confidentiality Requested**
Date: 12/11/2012
☑ **Confidential Release Date:** 12/11/2014
☑ **Wireline Log Received**
☑ **Geologist Report Received**
☐ **UIC Distribution**
ALT ☑ **I** ☐ **II** ☐ **III** **Approved by:** NAOMI JAMES **Date:** 12/13/2012

1102104

Operator Name: Dorado E&P Partners, LLC Lease Name: Toews Well #: 25-9-4

Sec. 4 Twp. 25 S. R. 9 ☐ East ☑ West County: Reno

INSTRUCTIONS: Show important tops of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to kcc-well-logs@kcc.ks.gov. Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

Drill Stem Tests Taken ☐ Yes ☑ No
(Attach Additional Sheets)

Samples Sent to Geological Survey ☑ Yes ☐ No

Cores Taken ☑ Yes ☐ No

Electric Log Run ☑ Yes ☐ No

List All E. Logs Run:

RESISTIVITY
DENSITY-NEUTRON
SONIC

☑ Log Formation (Top), Depth and Datum ☐ Sample

Name	Top	Datum
TOPEKA	2586	-1146
HEEBNER	3181	-1471
LANSING	3383	-1673
STARK	3661	-1951
MISSISSIPPIAN	3876	-2166

CASING RECORD ☑ New ☐ Used
Report all strings set-conductor, surface, intermediate, production, etc.

Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives
Surface	17.5	13.375	48	250	Common	300	2% CC
Intermediate	12.25	9.625	36	1433	A-Con / Common	650	3%CC / 2%CC

ADDITIONAL CEMENTING / SQUEEZE RECORD

Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
___ Perforate ___ Protect Casing ___ Plug Back TD ___ Plug Off Zone	- -			

Did you perform a hydraulic fracturing treatment on this well? ☐ Yes ☐ No *(If No, skip questions 2 and 3)*

Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons? ☐ Yes ☐ No *(If No, skip question 3)*

Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry? ☐ Yes ☐ No *(If No, fill out Page Three of the ACO-1)*

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record *(Amount and Kind of Material Used)*	Depth

TUBING RECORD: Size: Set At: Packer At: Liner Run: ☐ Yes ☐ No

Date of First, Resumed Production, SWD or ENHR. Producing Method: ☐ Flowing ☐ Pumping ☐ Gas Lift ☐ Other *(Explain)* _____

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

DISPOSITION OF GAS: ☐ Vented ☐ Sold ☐ Used on Lease
(If vented, Submit ACO-18.)

METHOD OF COMPLETION: ☐ Open Hole ☐ Perf. ☐ Dually Comp. *(Submit ACO-5)* ☐ Commingled *(Submit ACO-4)* ☐ Other *(Specify)* _____

PRODUCTION INTERVAL:

Mail to: KCC - Conservation Division, 130 S. Market - Room 2078, Wichita, Kansas 67202

HALLIBURTON

ARRAY COMPENSATED TRUE RESISTIVITY LOG

COMPANY	DORADO E&P PARTNERS LLC.
WELL	TOEWS 25-9-4 #1H
FIELD	UNKNOWN
COUNTY	RENO
STATE	KANSAS

COMPANY **DORADO E&P PARTNERS LLC.**
WELL **TOEWS 25-9-4 #1H**
FIELD **UNKNOWN**
COUNTY **RENO** STATE **KANSAS**

API No. 15-155-21592
Location (SHL) 150' FNL & 450' FWL

Other Services:
DSN/SDL
ACRT
WSTT
MRIL

Sect. 4 Twp. 25S Rge. 9W

Permanent Datum	GL	Elev. 1698.0 ft	Elev.: K.B.	1710.0 ft
Log measured from	KB	, 12.0 ft above perm. Datum	D.F.	1710.0 ft
Drilling measured from	KB		G.L.	1698.0 ft

Date		28-Sep-12				
Run No.		ONE				
Depth - Driller		4137.00 ft				
Depth - Logger		4143.0 ft				
Bottom - Logged Interval		4133				
Top - Logged Interval		100				
Casing - Driller		9.625 in @ 1450.0 ft		@		@
Casing - Logger		1449.0 ft				
Bit Size		8.750 in		@		@
Type Fluid in Hole		WATER BASED MUD				
Density	Viscosity	8.9 ppg	44.00 s/qt			
PH	Fluid Loss	11.00 pH	4.2 cptm			
Source of Sample		FLOW LINE				
Rm @ Meas. Temperature		0.991 ohmm @ 75.00 degF		@		@
Rmf @ Meas. Temperature		0.84 ohmm @ 75.00 degF		@		@
Rmc @ Meas. Temperature		1.139 ohmm @ 75.00 degF		@		@
Source Rmf	Rmc	MEAS	MEAS			
Rm @ BHT		0.65 ohmm @ 118.0 degF		@		@
Time Since Circulation		6.0 hr				
Time on Bottom		28-Sep-12 09:15				
Max. Rec. Temperature		118.0 degF @ 4143.0 ft		@		@
Equipment	Location	10546696	LIBERAL			
Recorded By		S. INGERSOLL				
Witnessed By		DAVID WHEELER				

Fold here

Service Ticket No.: 9841024 API Serial No.: 15-155-21592 PGM Version: WL INSITE R3.6.0 (Build 3)

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	N/A	1.5" S.O.	
	I962S909			

EQUIPMENT DATA

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.	ONE	Run No.	ONE	Run No.	ONE
Serial No.	11039640	Serial No.	10894370	Serial No.	10950489	Serial No.	11019643
Model No.	GTET	Model No.	WSST	Model No.	SDLT	Model No.	DSNT
Diameter	3.625"	No. of Cent.	2	Diameter	4.5"	Diameter	3.625
Detector Model No.	GTET	Spacing	.5'	Log Type	GAM-GAM	Log Type	NEU-NEU
Type	SCINT			Source Type	CS-137	Source Type	AM-241BE
Length	8"	LSA [Y/N]	YES	Serial No.	5168GW	Serial No.	DSN-424
Distance to Source	N/A	FWDA [Y/N]	YES	Strength	1.5 CI	Strength	15CIW

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	4137	100	REC	0	150	30	-10	47.6 us/ft	30	-10	2.71 gm/cc	30	-10	LIME

DIRECTIONAL INFORMATION

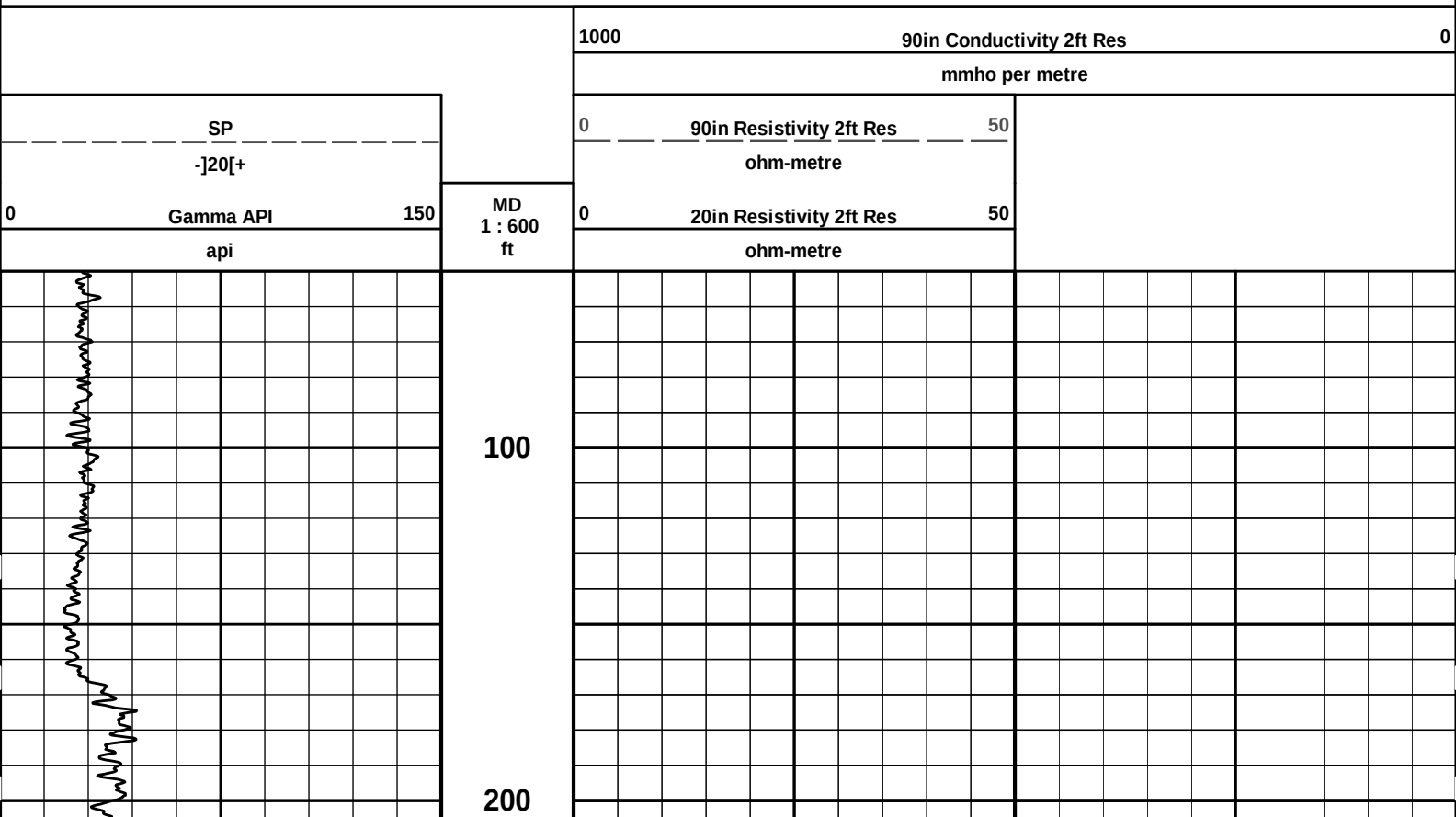
Maximum Deviation	@	KOP	@

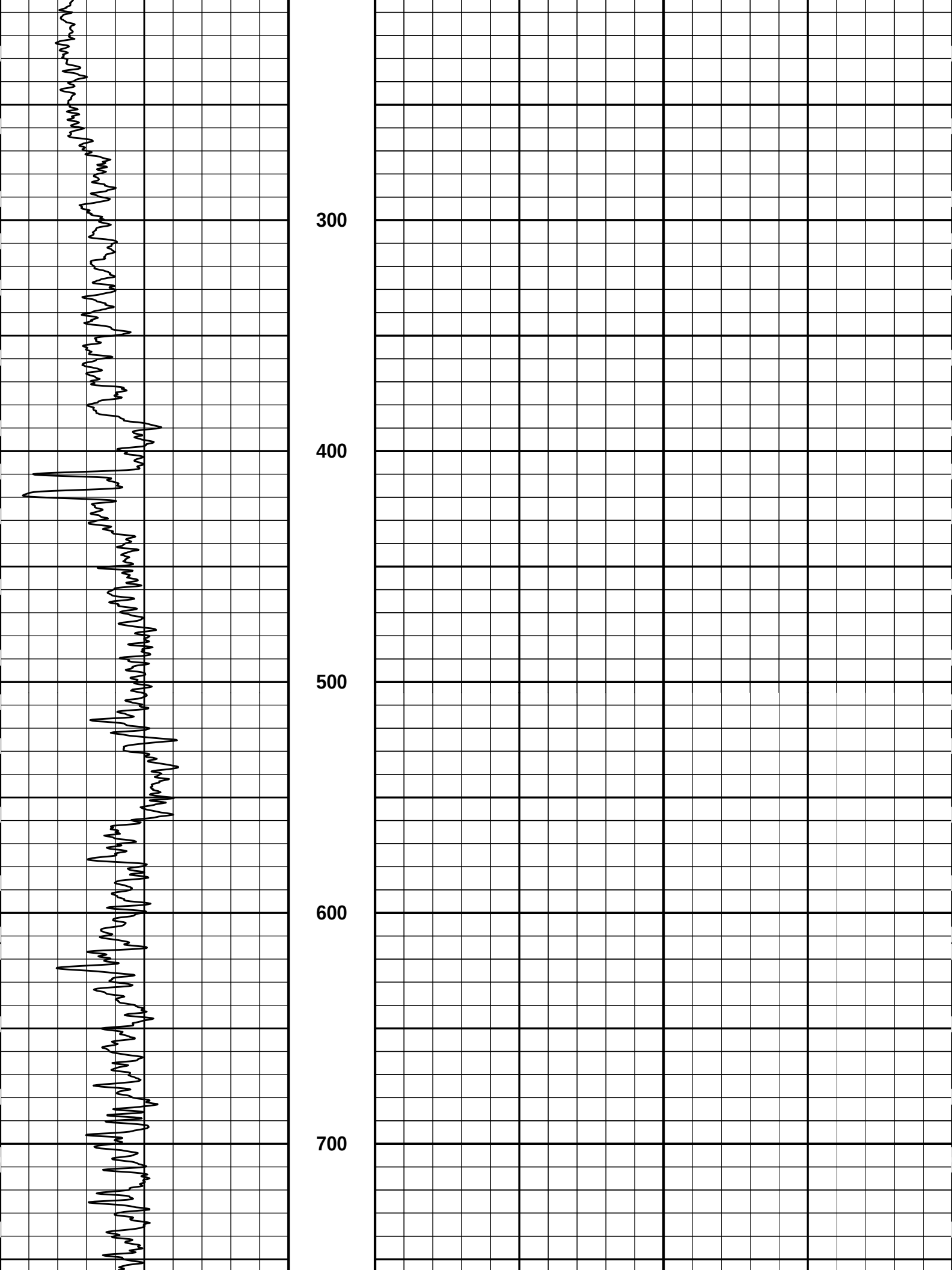
Remarks:

HALLIBURTON

Plot Time: 28-Sep-12 14:06:33
Plot Range: 50 ft to 4147.67 ft
Data: DOR_TOEWS25-9-4\Well Based\DAQ-0004-004
Plot File: \\-LOCAL-\FAIR_DOWNING#1\Well Based\ACRT\ACRT_2_lib

2 INCH MAIN LOG

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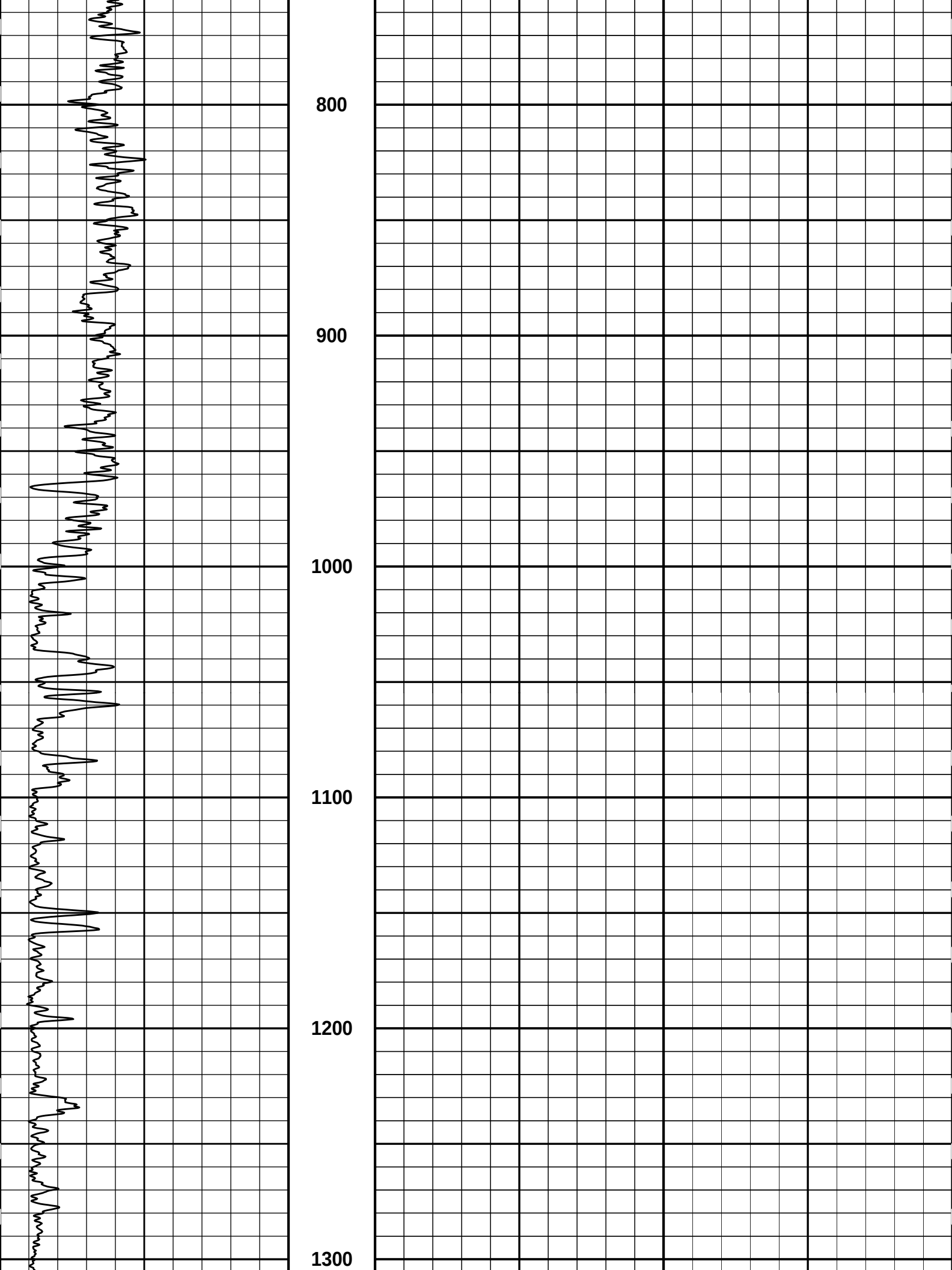
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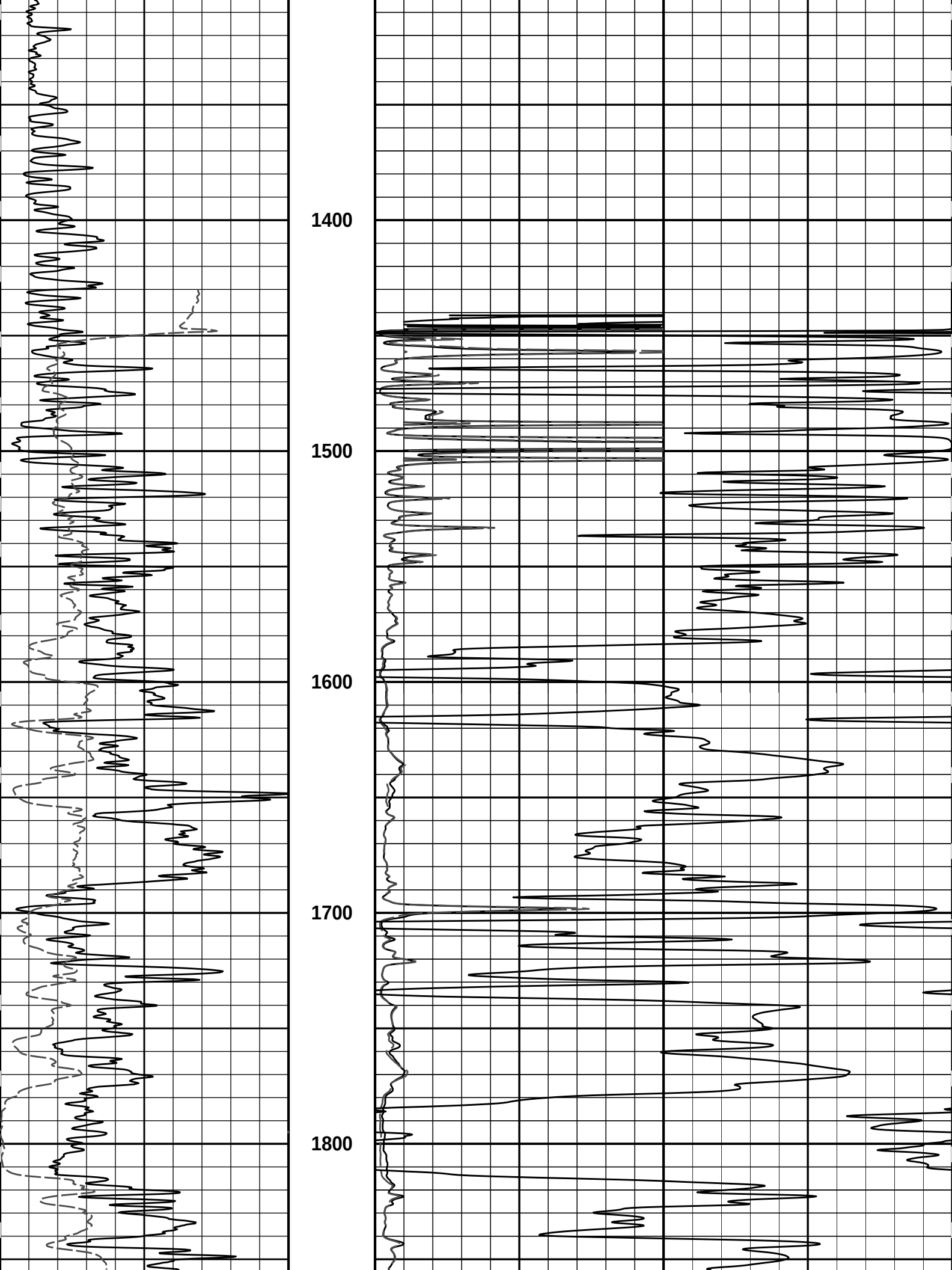
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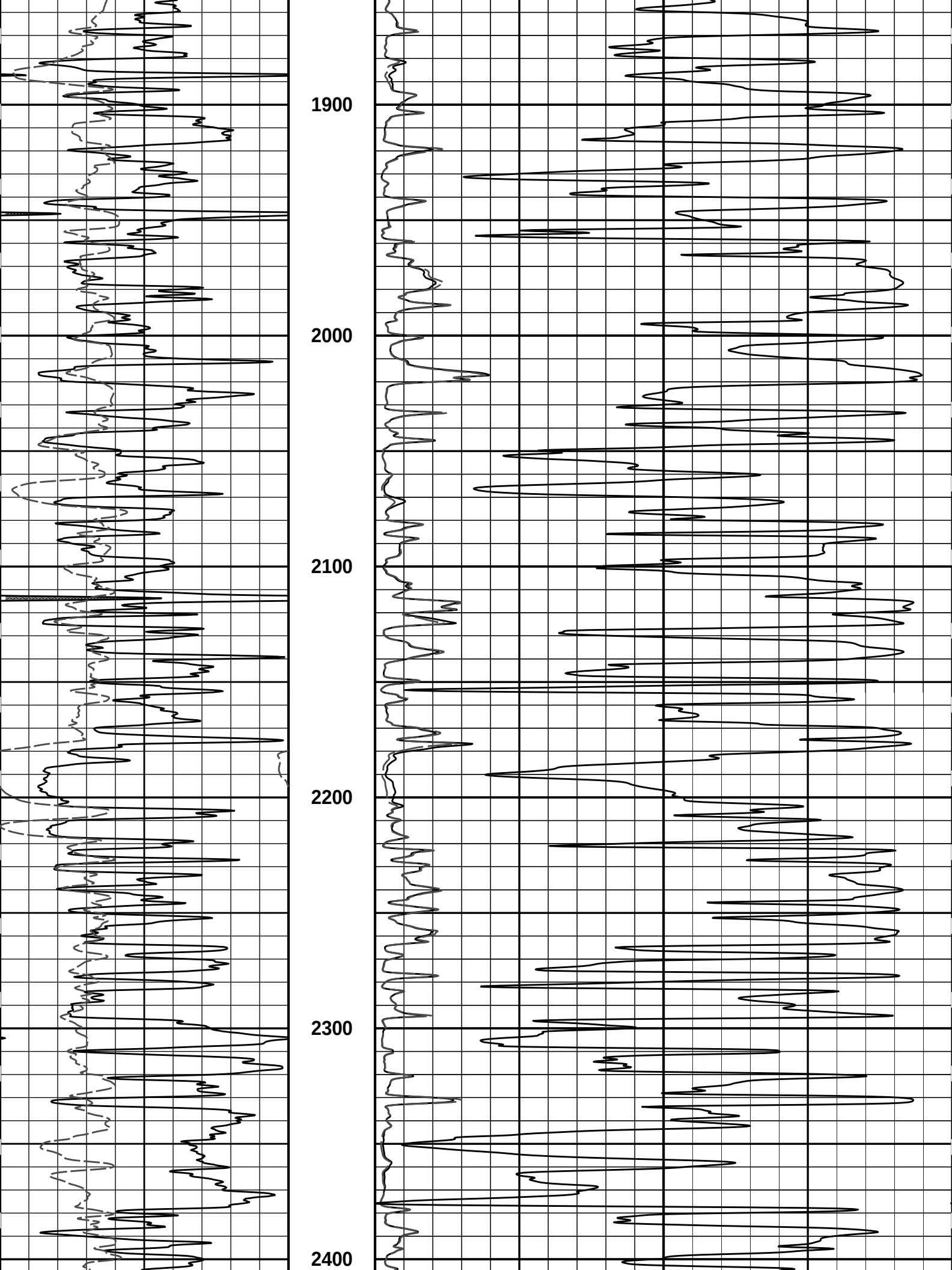
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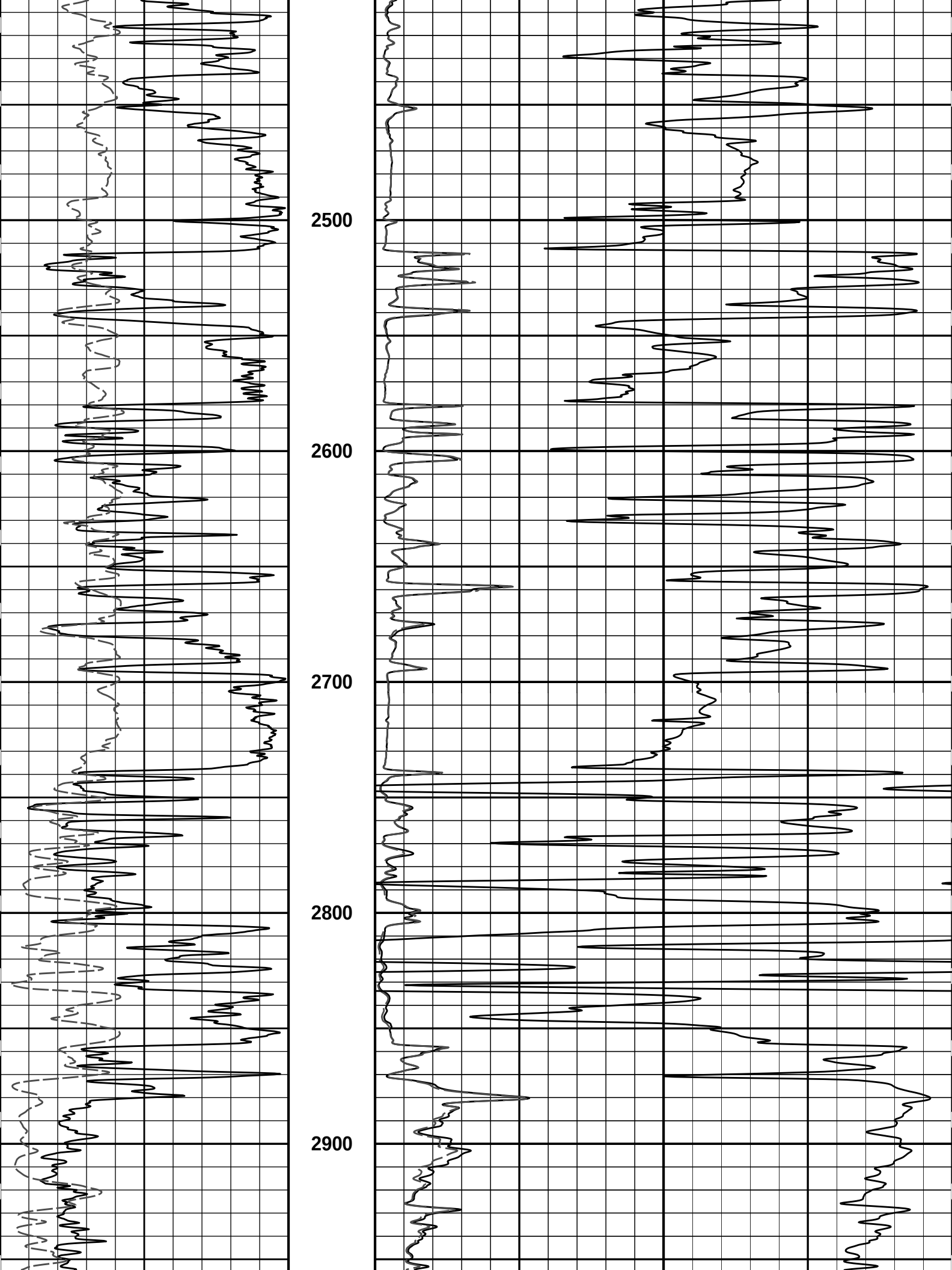
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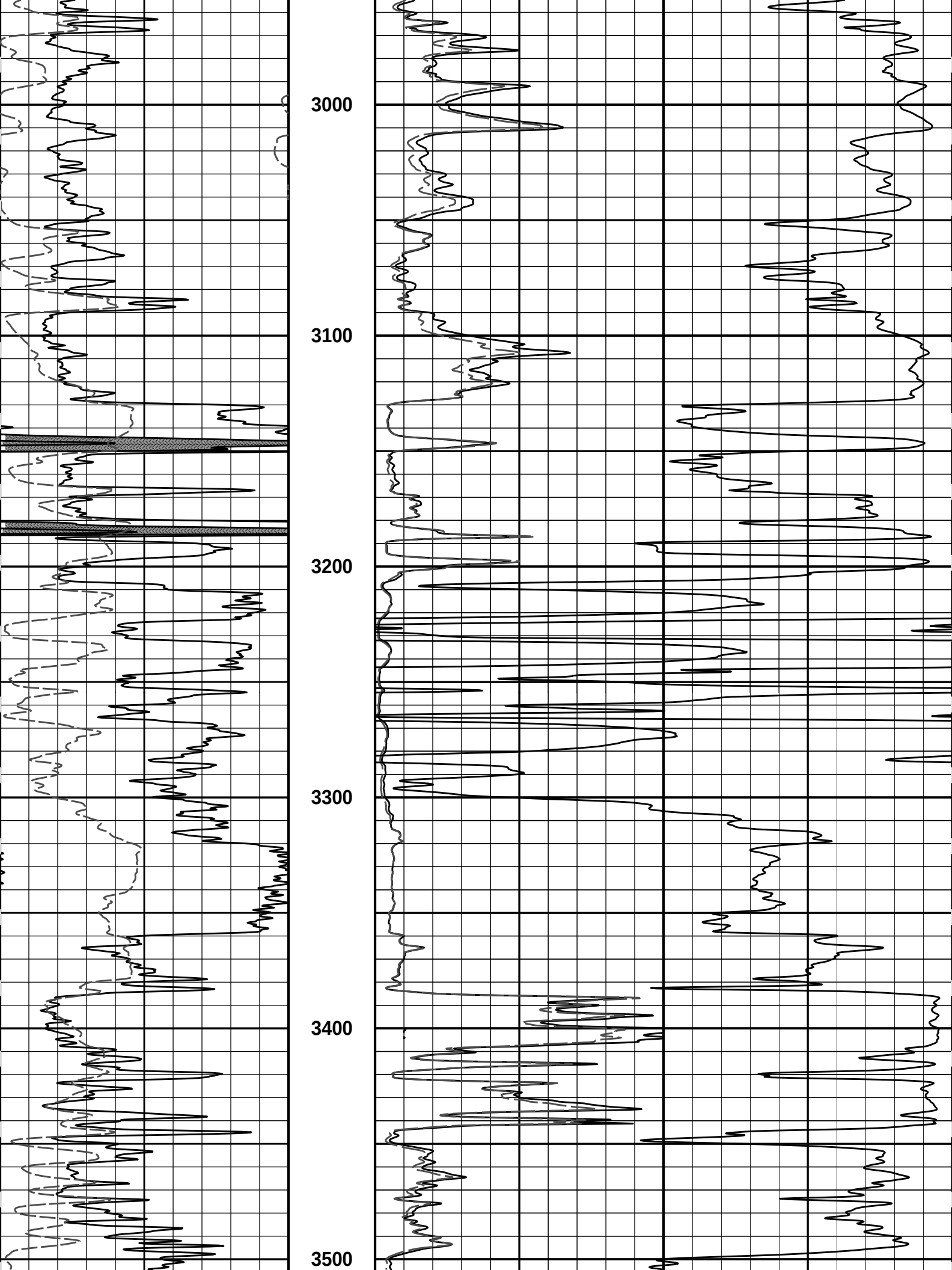
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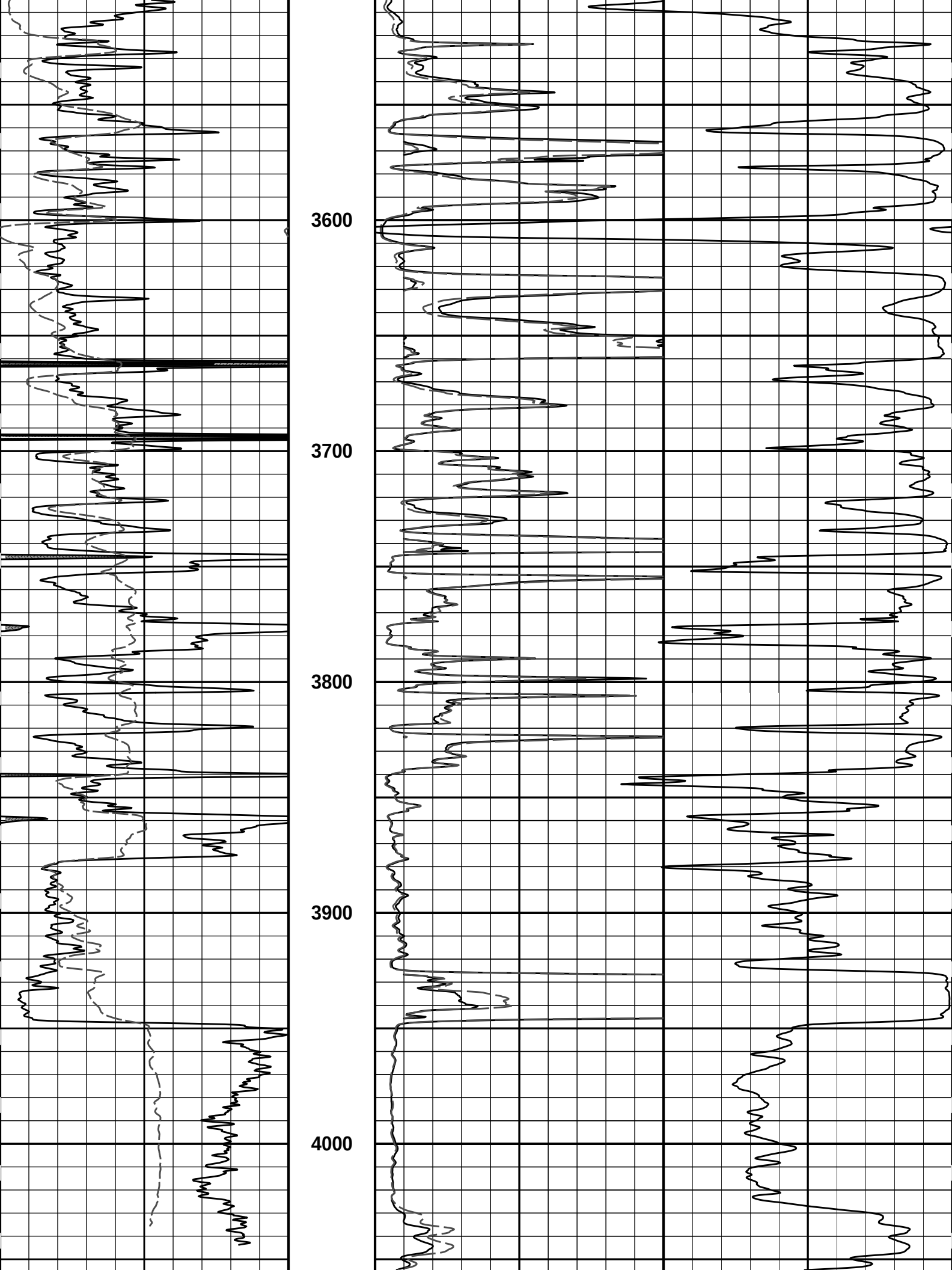
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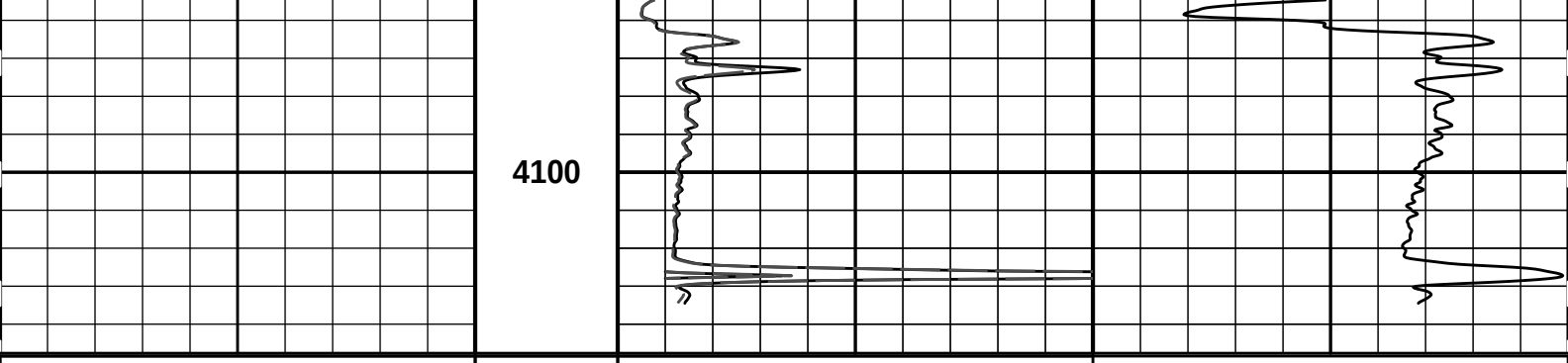

0 Gamma API 150	MD 1 : 600 ft	0 20in Resistivity 2ft Res 50
api		ohm-metre
SP		0 90in Resistivity 2ft Res 50
-]20[+		ohm-metre
		1000 90in Conductivity 2ft Res 0
		mmho per metre

HALLIBURTON

Plot Time: 28-Sep-12 14:06:37
Plot Range: 50 ft to 4147.67 ft
Data: DOR_TOEWS25-9-4\Well Based\DAQ-0004-004\
Plot File: \\-LOCAL-\FAIR_DOWNING#1\Well Based\ACRT\ACRT_2_lib

2 INCH MAIN LOG

HALLIBURTON

Plot Time: 28-Sep-12 14:06:37
Plot Range: 1430 ft to 4147.67 ft
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5 INCH MAIN LOG

		0.2 90in Resistivity 2ft Res 2000
		ohmm
		0.2 60in Resistivity 2ft Res 2000
		ohmm
		0.2 30in Resistivity 2ft Res 2000
		ohm-metre
0 FEEDPIPETEMP 150		0.2 20in Resistivity 2ft Res 2000
fahrenheit		ohmm
0 Gamma API 150	Tension Pull 10 0	0.2 10in Resistivity 2ft Res 2000
api		ohmm
SP	MD 1 : 240 ft	10K Tension 0
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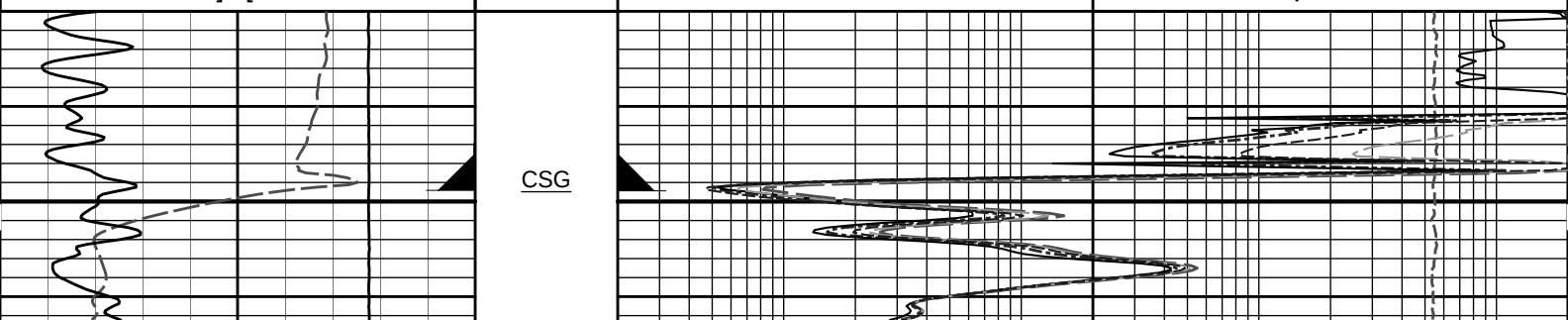

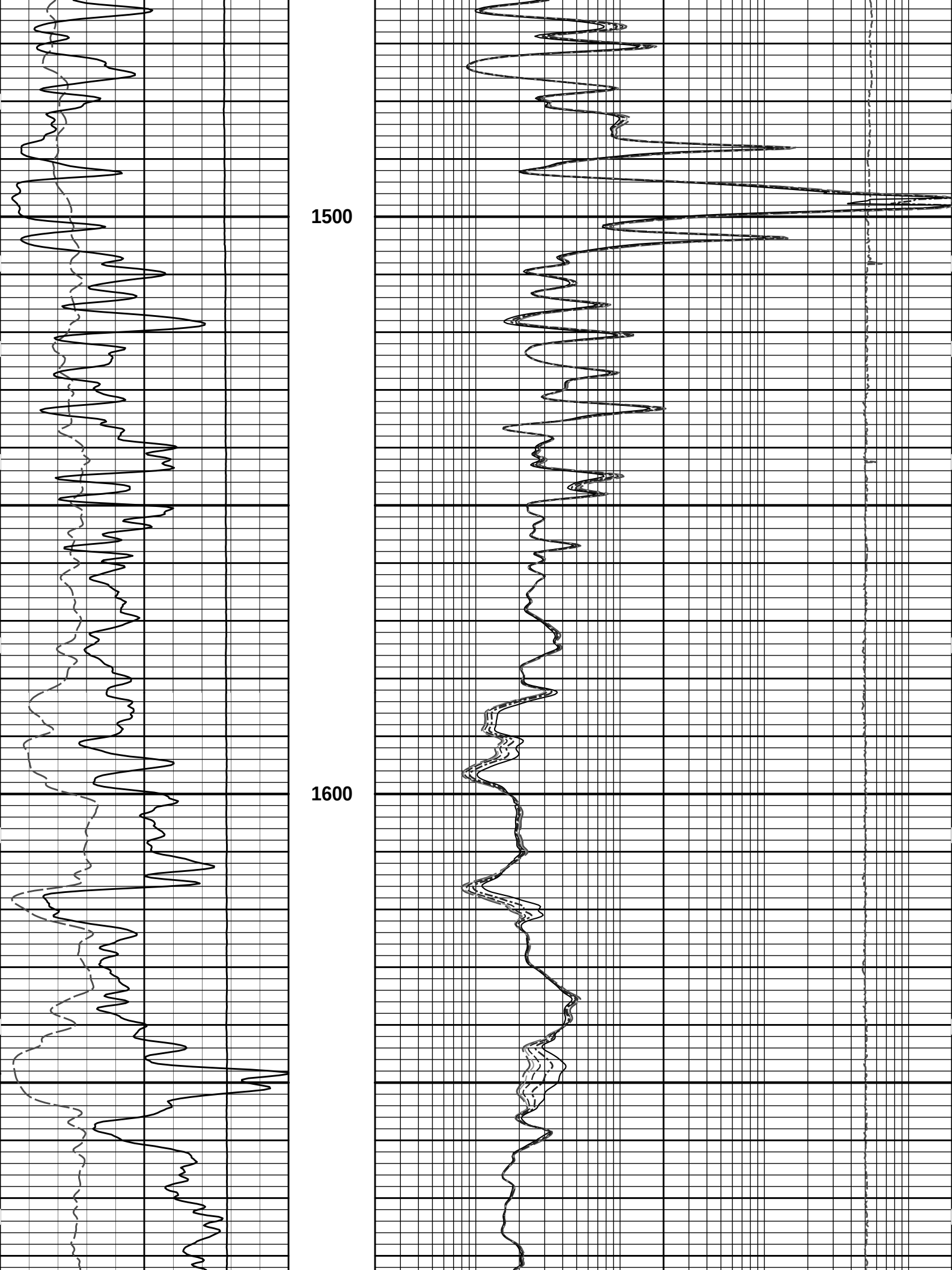
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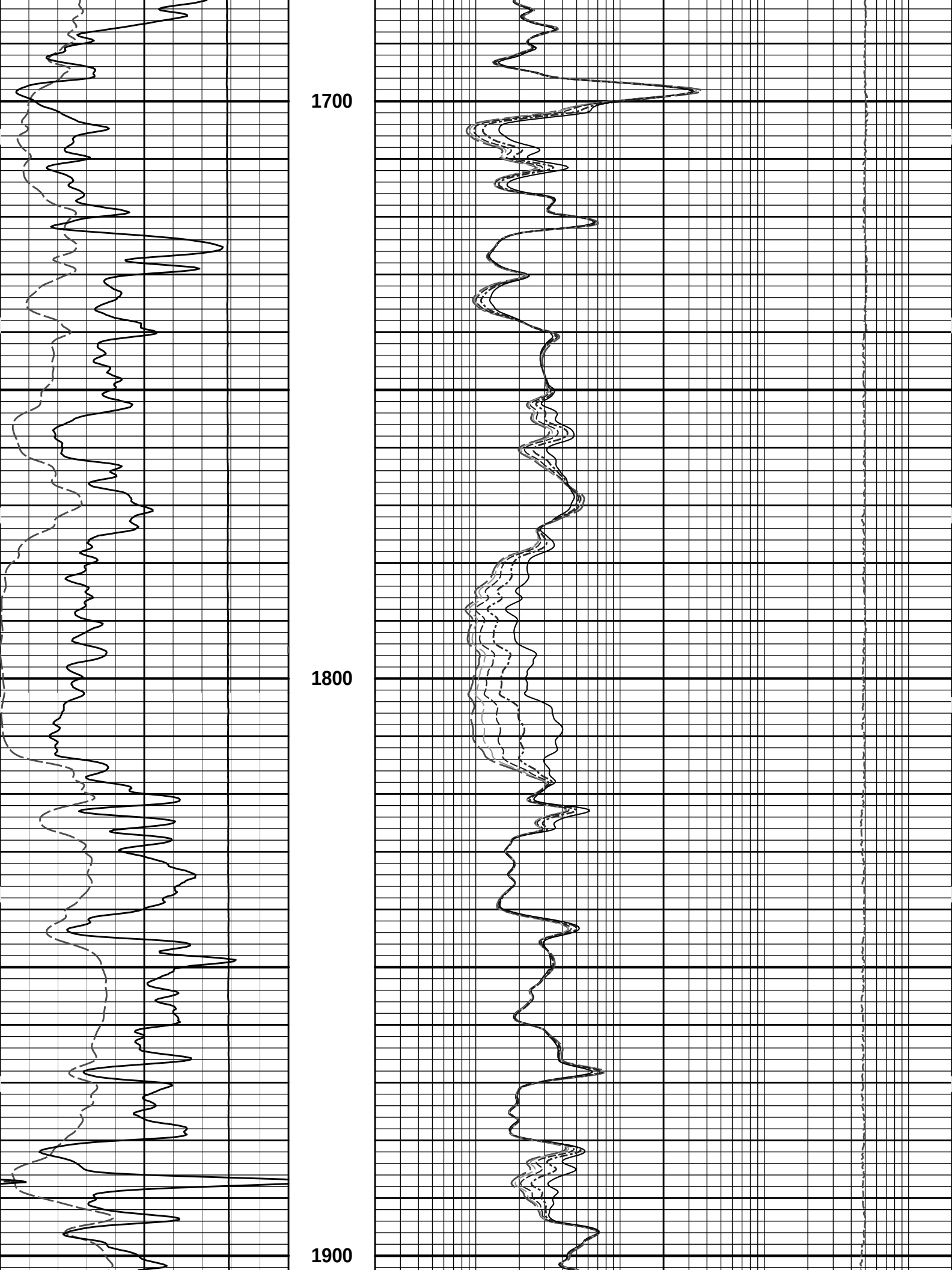
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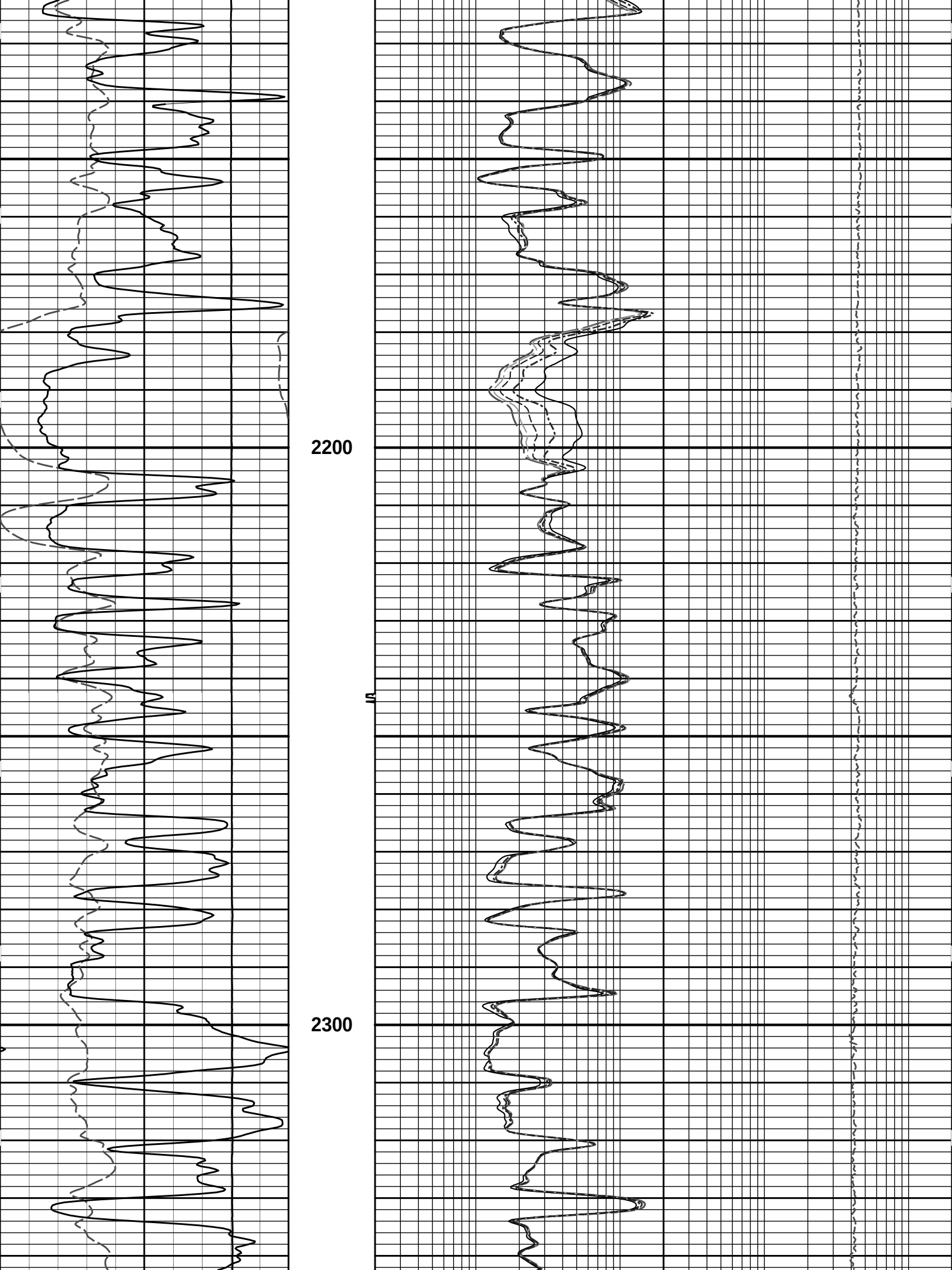
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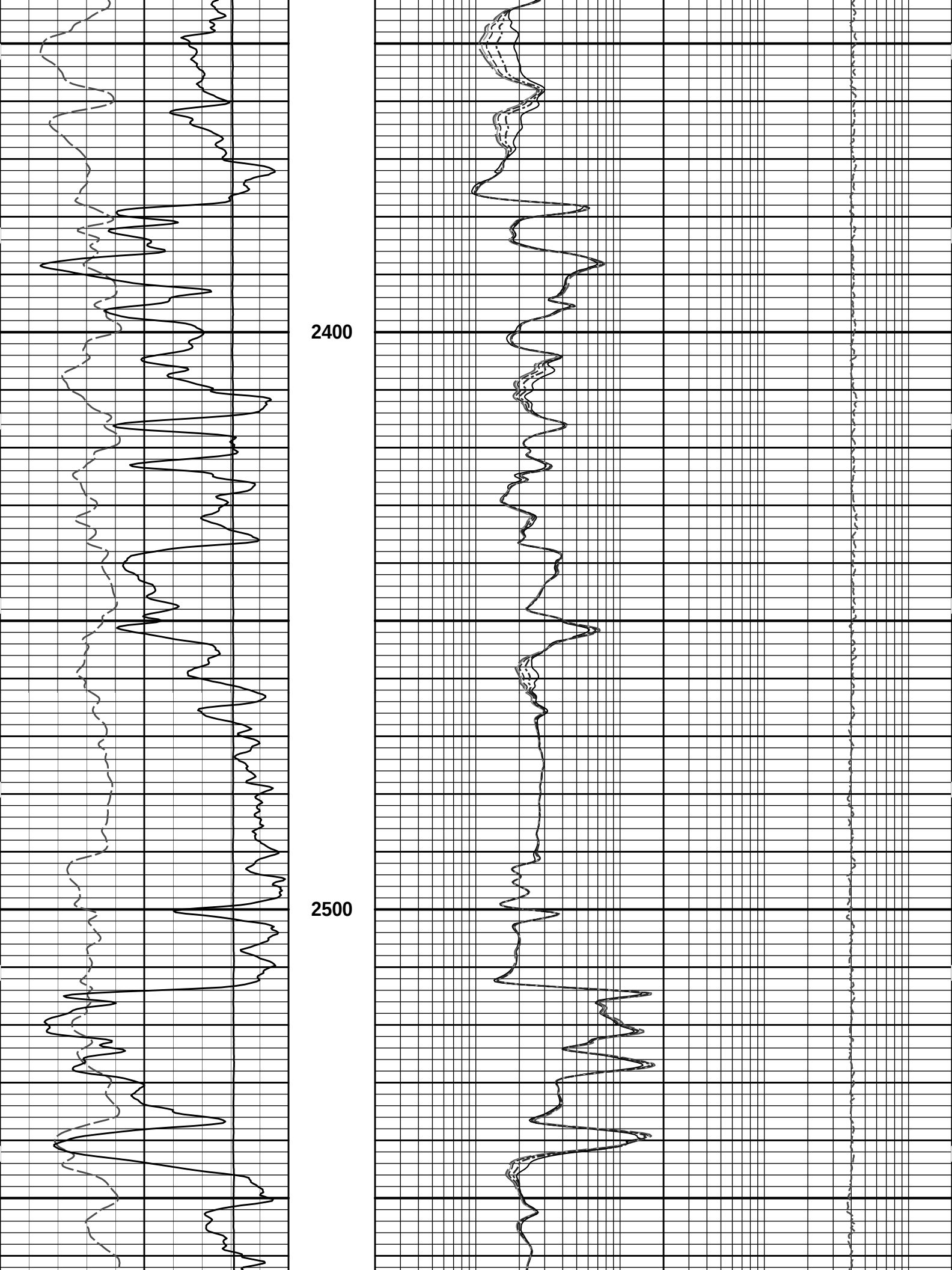
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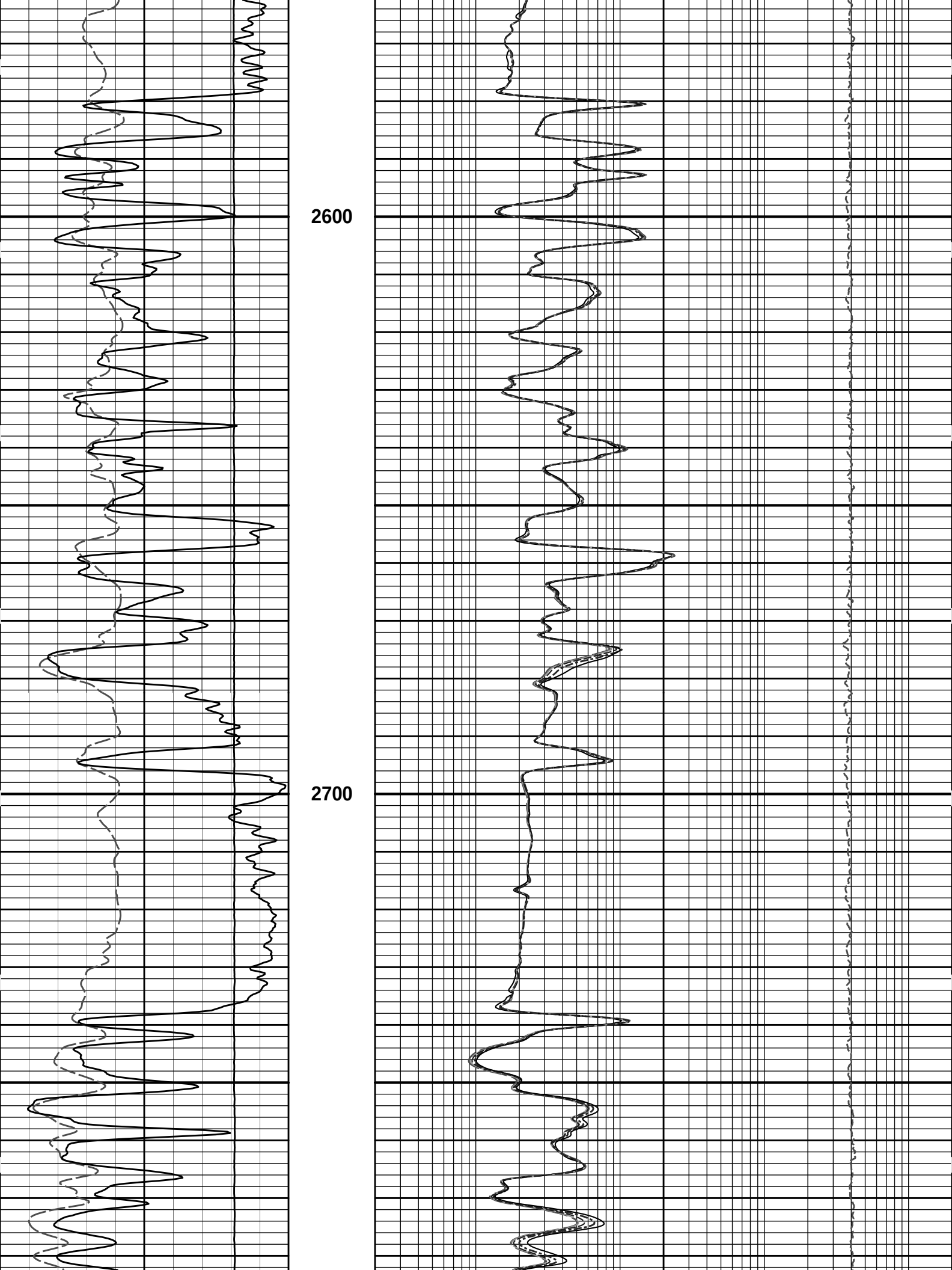
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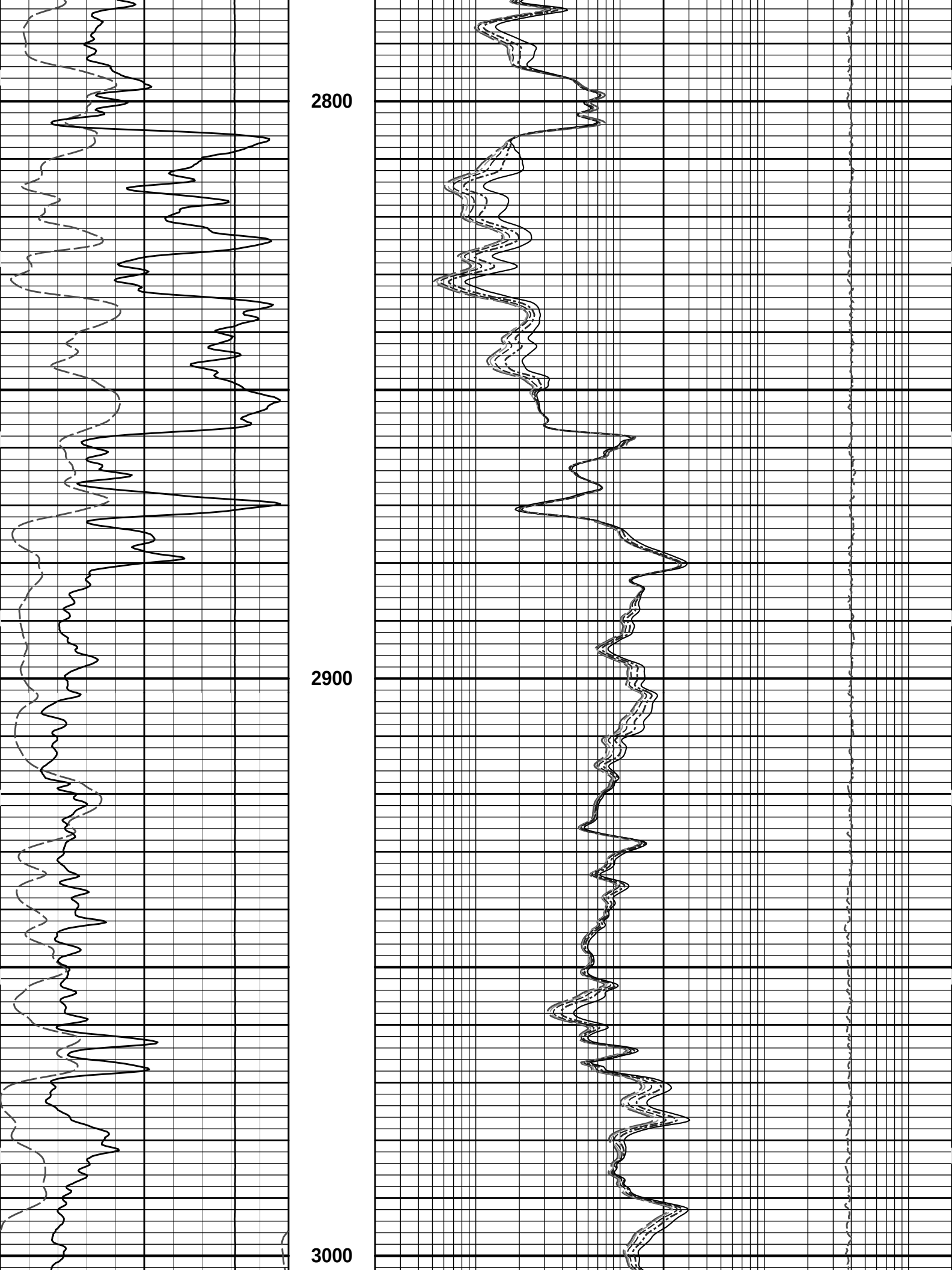
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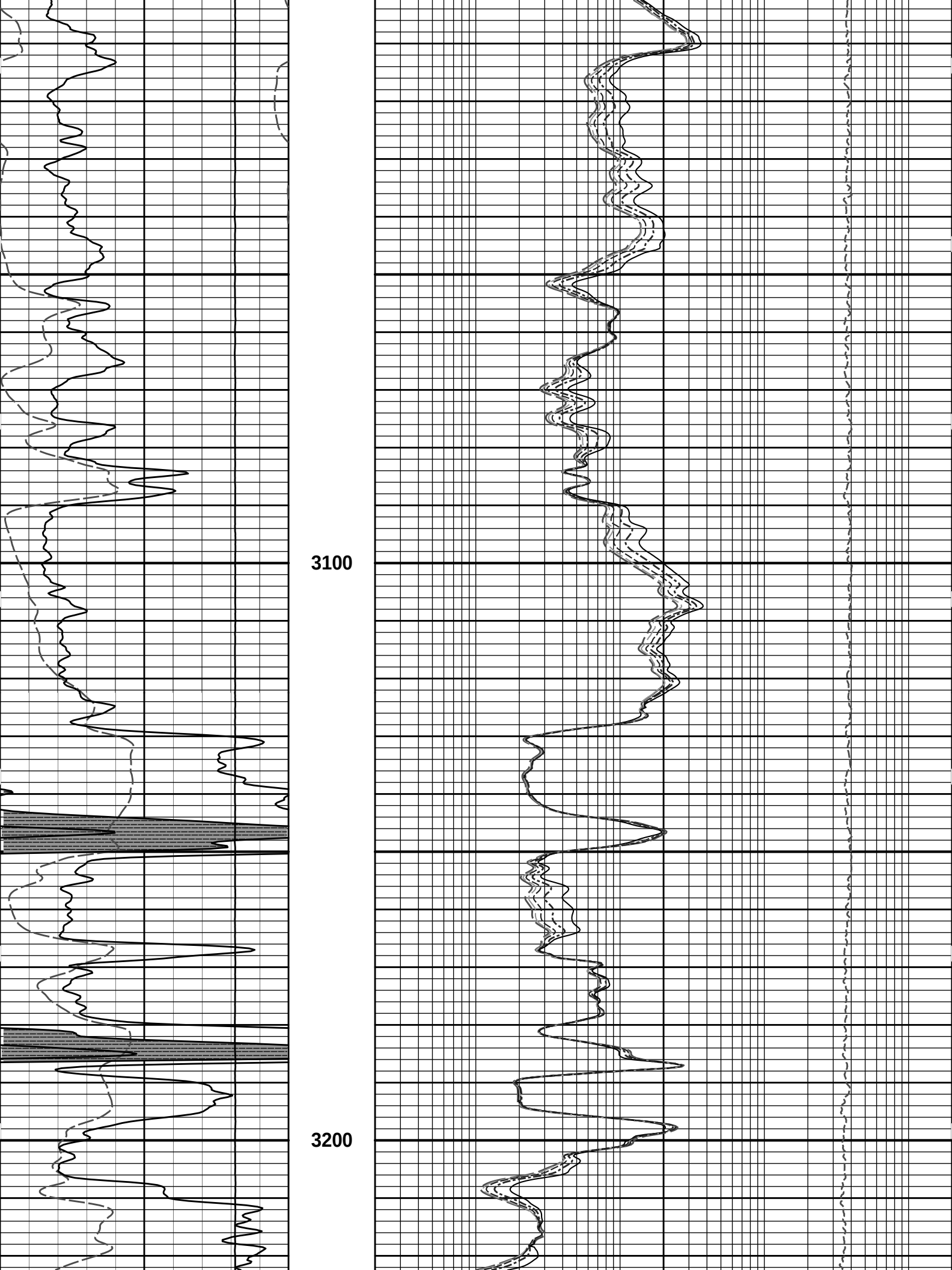
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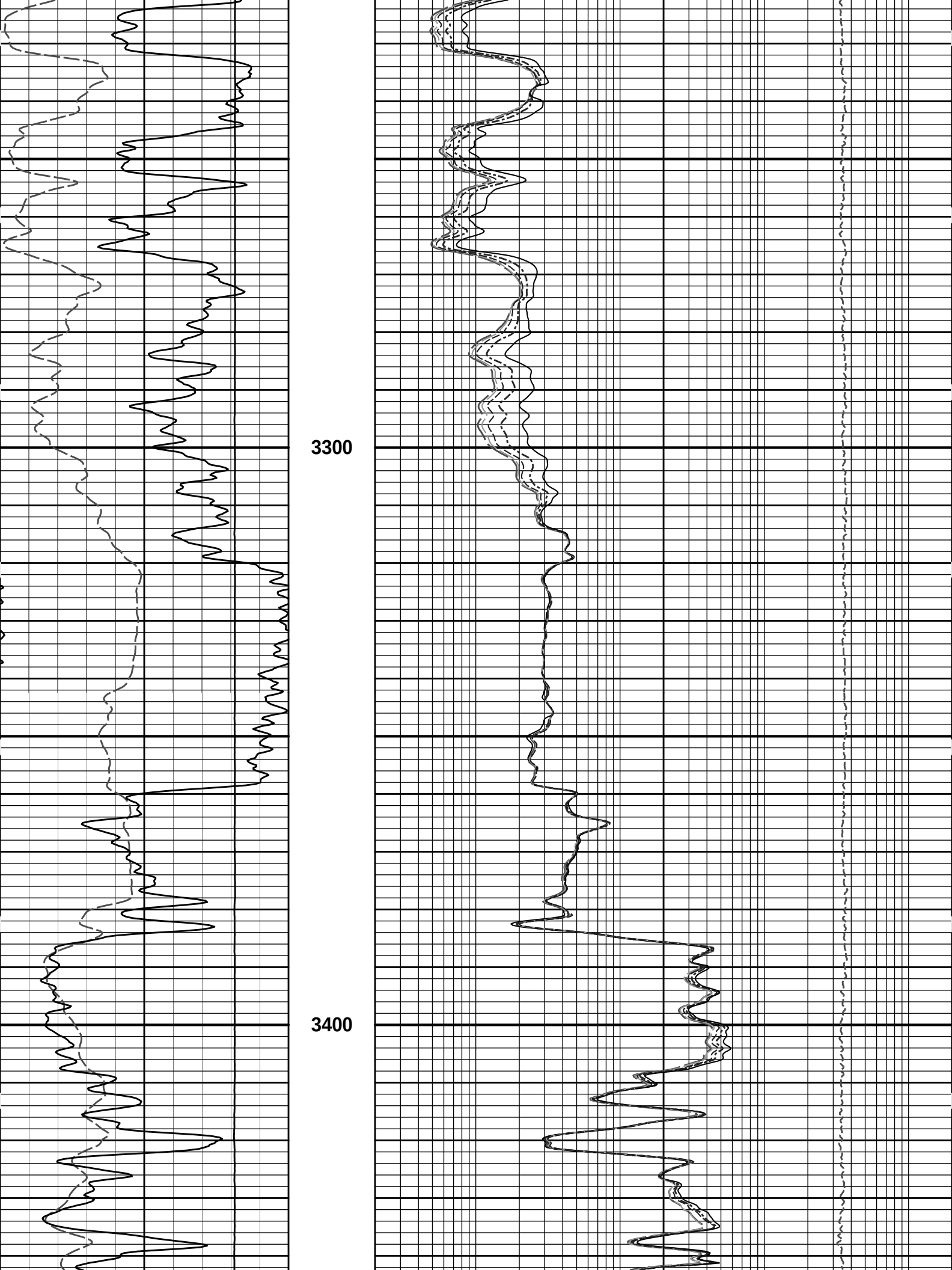
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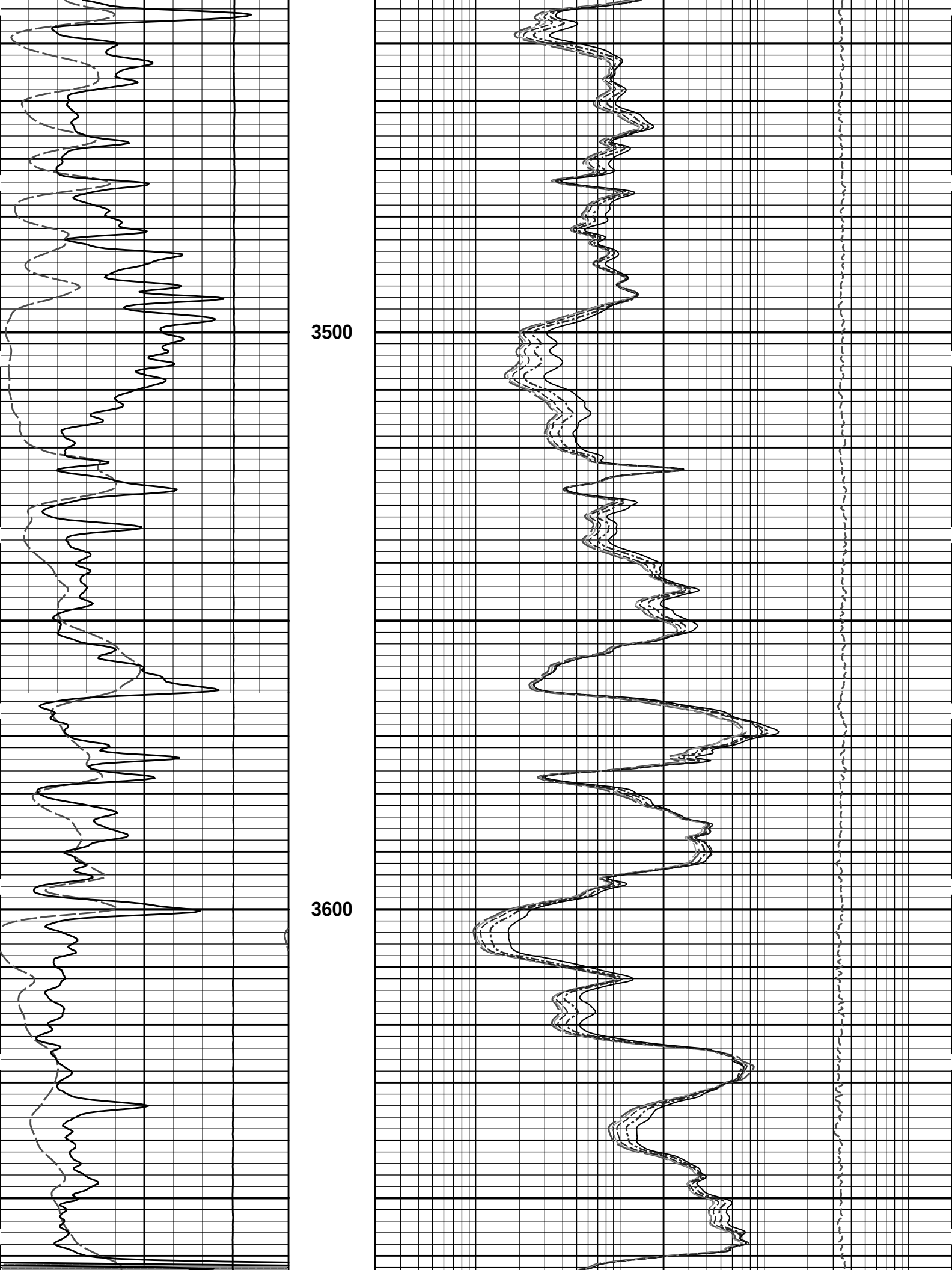
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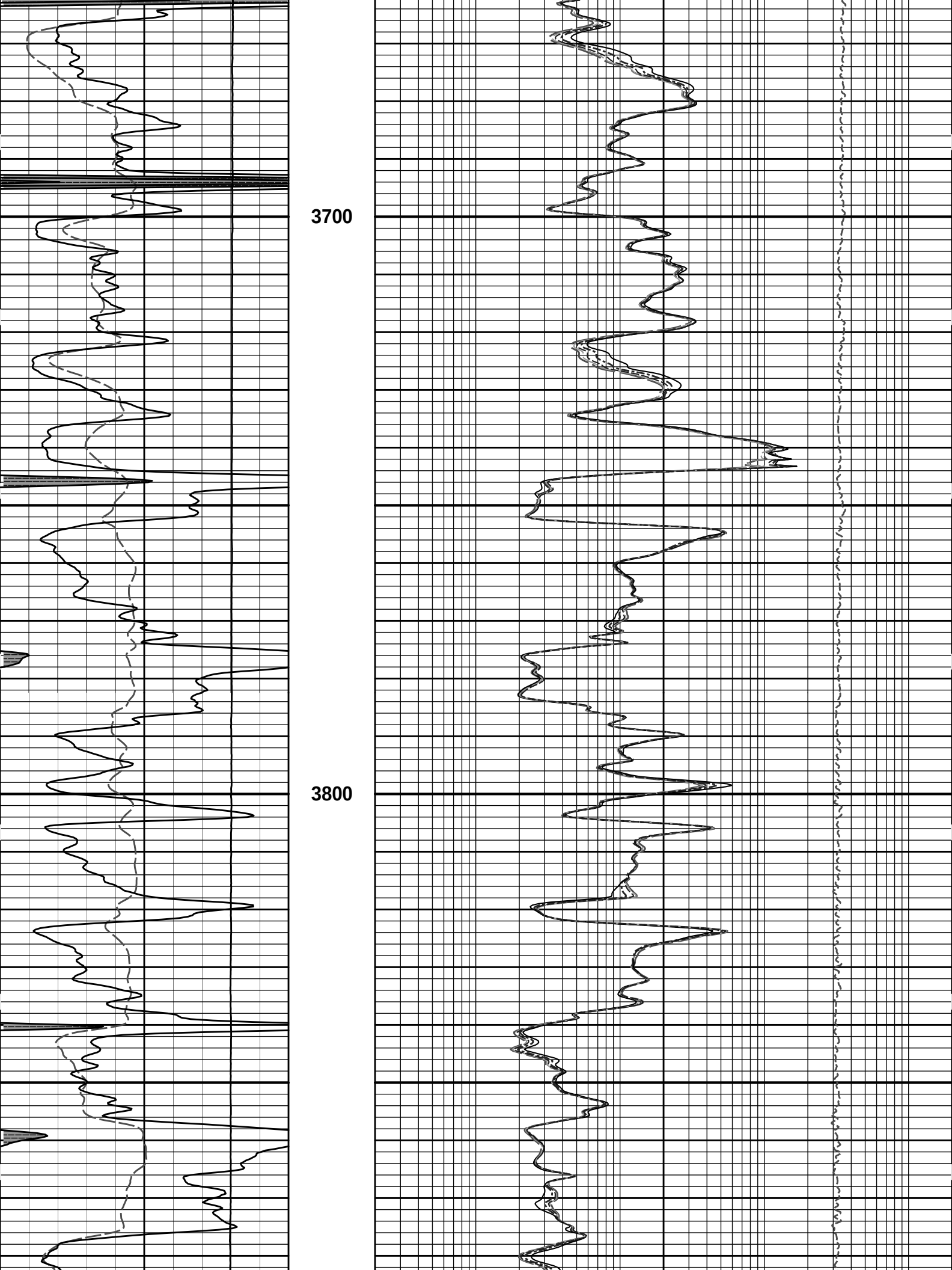
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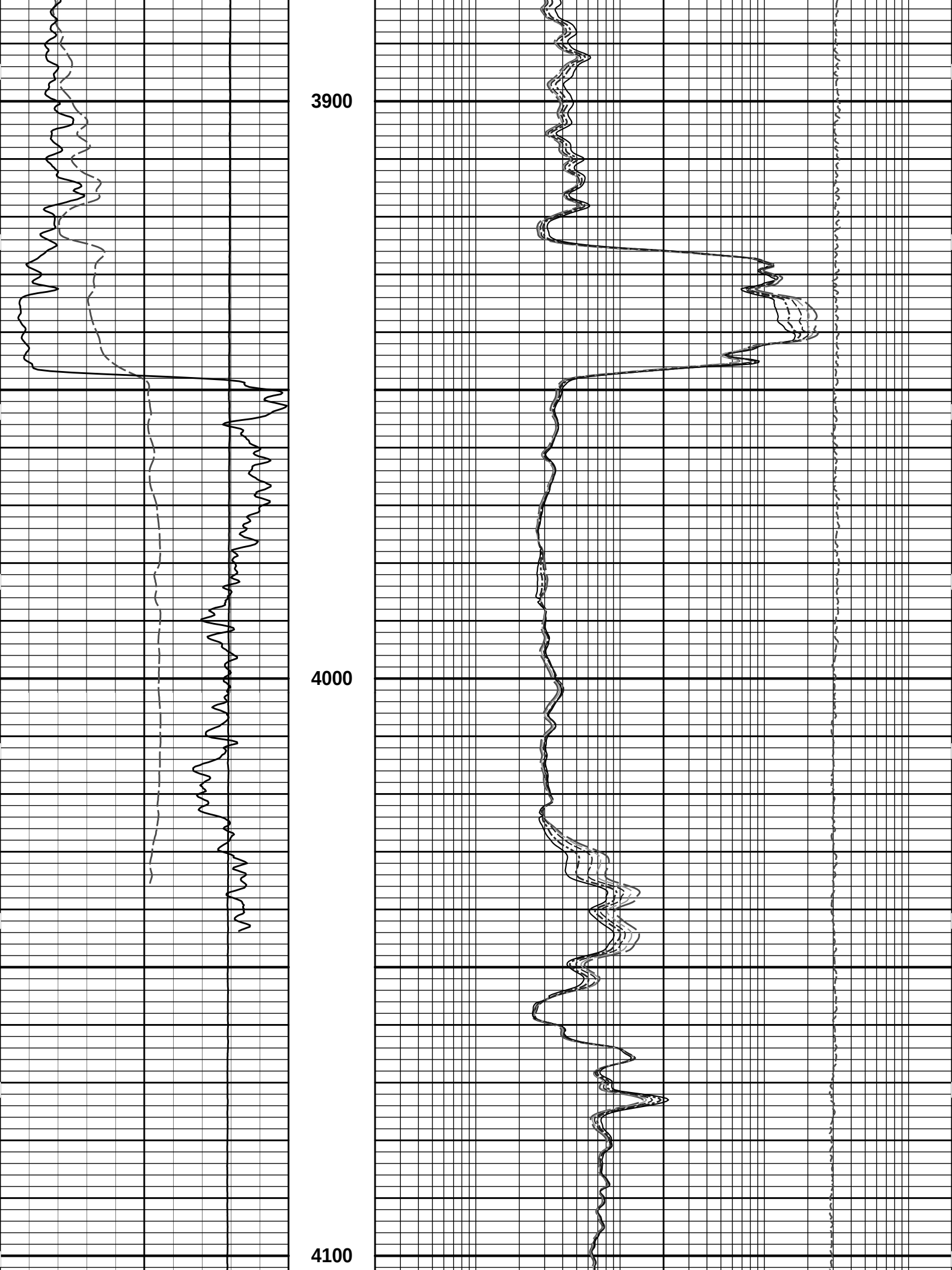
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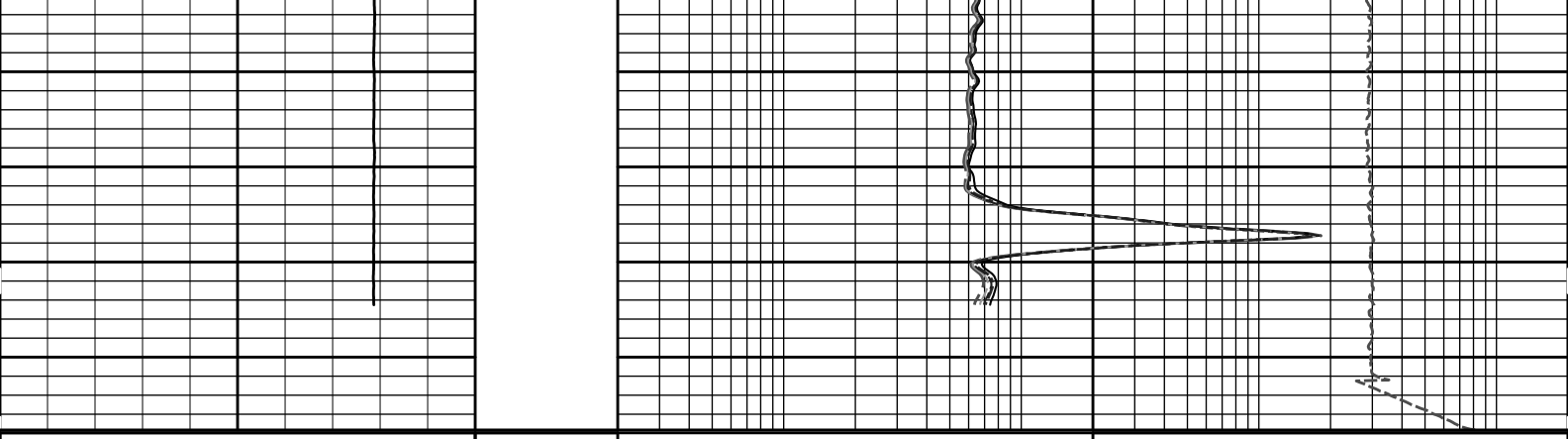

SP	MD 1 : 240 ft		10K Tension 0
-]20[+			pounds
0 Gamma API 150	Tension Pull 10 0	0.2 10in Resistivity 2ft Res 2000	
api		ohmm	
0 FEEDPIPETEMP 150		0.2 20in Resistivity 2ft Res 2000	
fahrenheit		ohmm	
		0.2 30in Resistivity 2ft Res 2000	
		ohm-metre	
		0.2 60in Resistivity 2ft Res 2000	
		ohmm	
		0.2 90in Resistivity 2ft Res 2000	
		ohmm	

HALLIBURTON

Plot Time: 28-Sep-12 14:06:47
Plot Range: 1430 ft to 4147.67 ft
Data: DOR_TOEWS25-9-4\Well Based\DAQ-0004-004\
Plot File: \\-LOCAL-\FAIR_DOWNING#1\Well Based\ACRT\ACRT_5_main_lib

5 INCH MAIN LOG

HALLIBURTON

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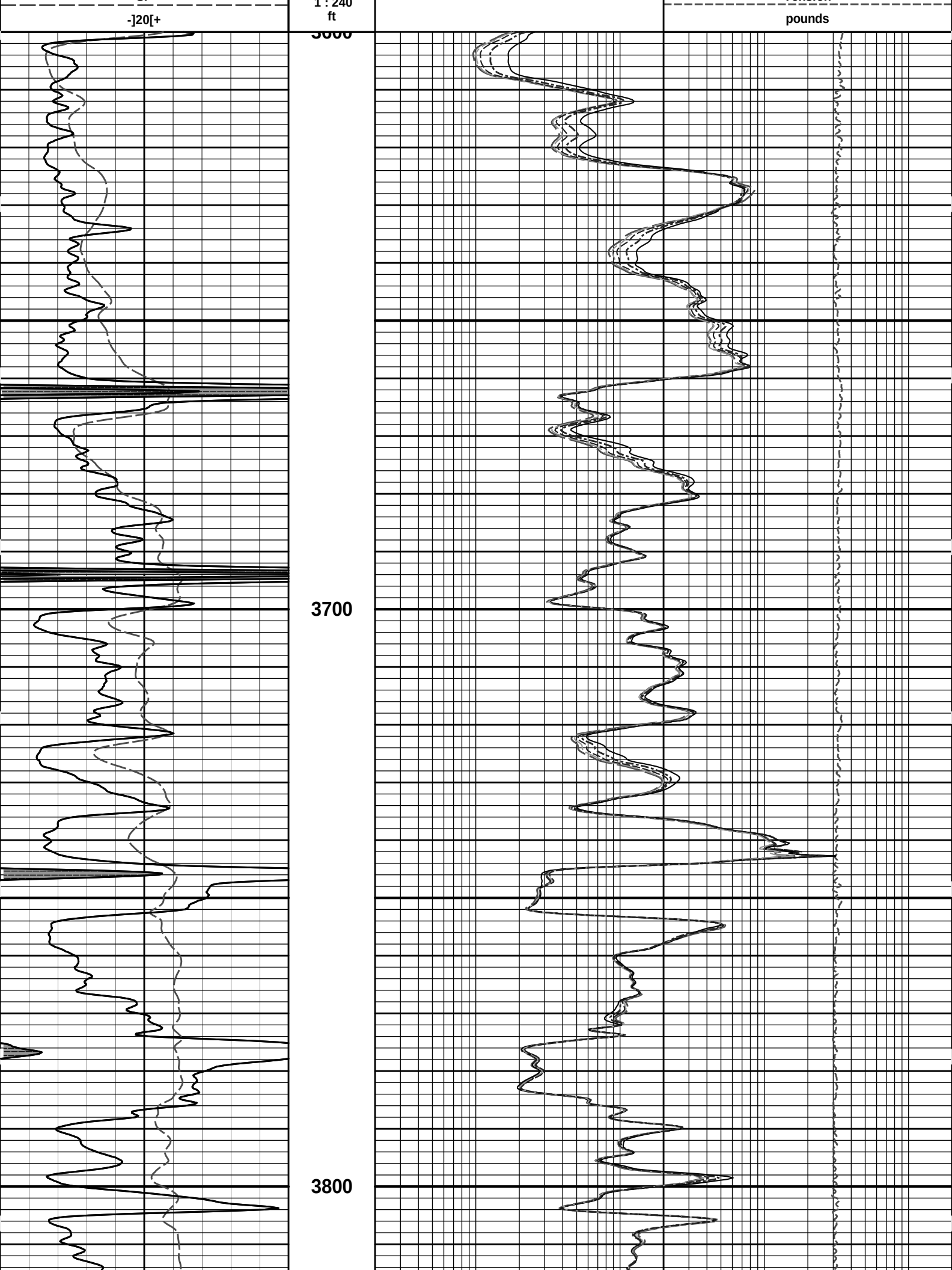
Plot File: \\-LOCAL-\FAIR_DOWNING#1\Well Based\ACRT\ACRT_5_REP_lib

REPEAT SECTION

		0.2 90in Resistivity 2ft Res 2000	
		ohmm	
		0.2 60in Resistivity 2ft Res 2000	
		ohmm	
		0.2 30in Resistivity 2ft Res 2000	
		ohm-metre	
		0.2 20in Resistivity 2ft Res 2000	
		ohmm	
0 Gamma API 150	Tension Pull 10 0	0.2 10in Resistivity 2ft Res 2000	
api		ohmm	
SP	MD 1 : 240 ft		10K Tension 0
			pounds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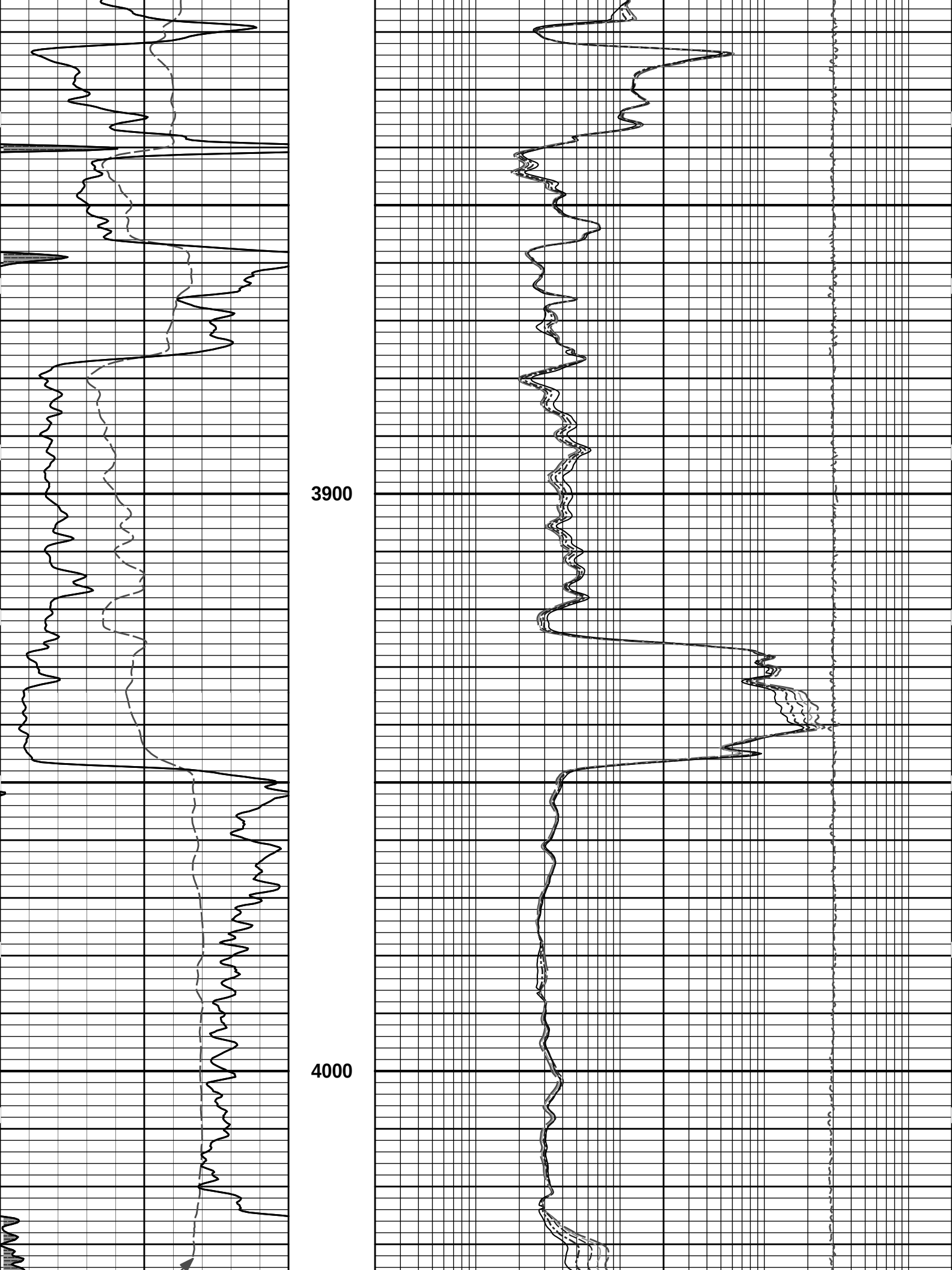
1 : 240
ft
pounds
3700
3800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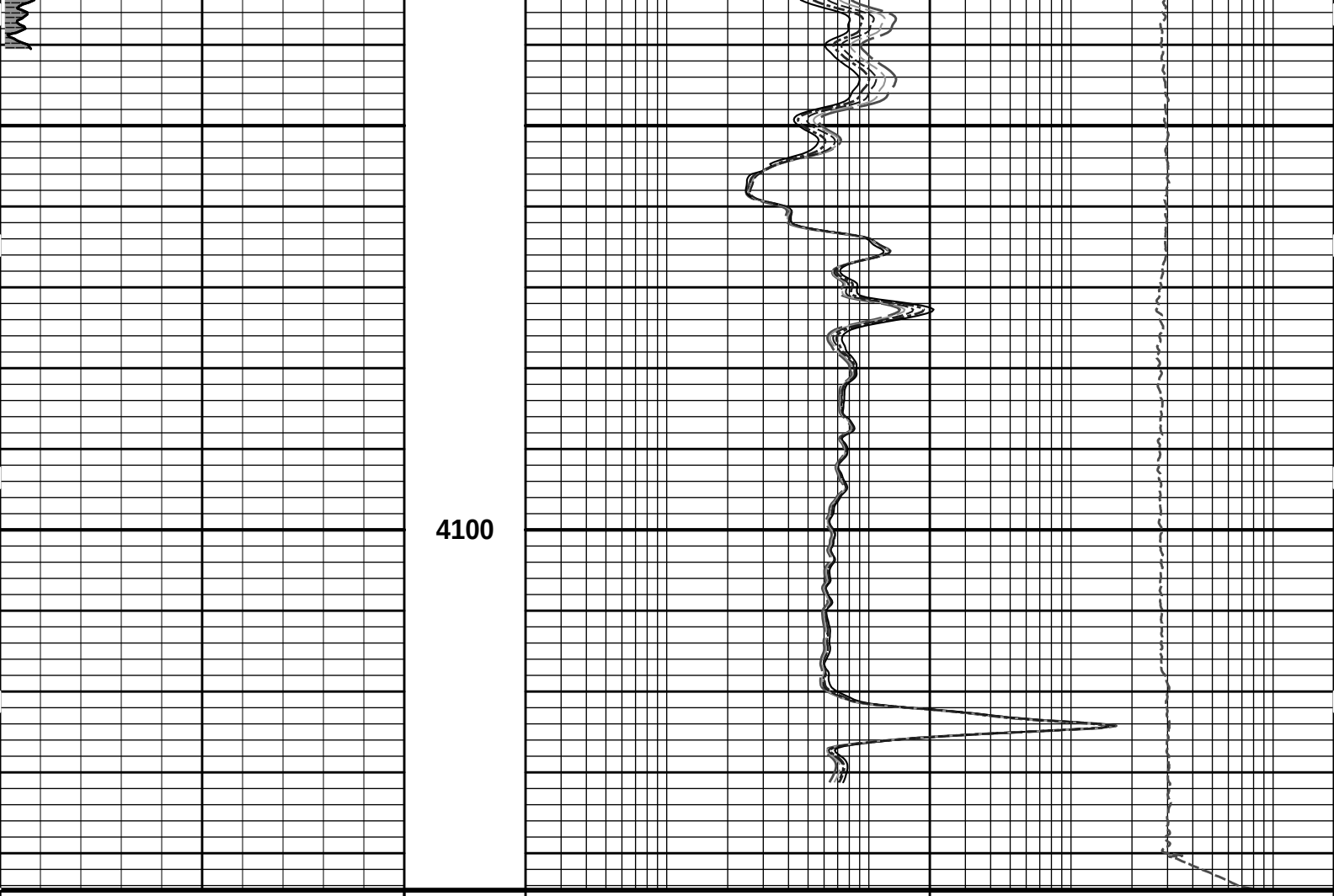

SP	MD 1 : 240 ft		10K Tension 0
-]20[+			pounds
0 Gamma API 150	Tension Pull 10 0	0.2 10in Resistivity 2ft Res 2000	
api		ohmm	
		0.2 20in Resistivity 2ft Res 2000	
		ohmm	
		0.2 30in Resistivity 2ft Res 2000	
		ohm-metre	
		0.2 60in Resistivity 2ft Res 2000	
		ohmm	
		0.2 90in Resistivity 2ft Res 2000	
		ohmm	

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Plot Time: 28-Sep-12 14:06:52
Plot Range: 3600 ft to 4144.42 ft
Data: DOR_TOEWS25-9-4\Well Based\DAQ-0004-003\
Plot File: \\-LOCAL-\FAIR_DOWNING#1\Well Based\ACRT\ACRT_5_REP_lib

REPEAT SECTION

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	**GTET - 11039640**	**Reference Calibration Date:**	**24-Aug-12 11:06:42**
Engineer:	**S. INGERSOLL**	**Calibration Date:**	**25-Sep-12 15:48:12**
Software Version:	**WL INSITE R3.6.0 (Build 3)**	**Calibration Version:**	**1**

Calibrator Source S/N: TB146

Calibrator API Reference:265.00 api

Equivalent Calibrator API Reference:269.6 api

Measurement	Measured	Calibrated	Units
Background	55.4	55.5	api
Background + Calibrator	324.5	325.2	api
Calibrator	269.1	269.6	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name:	**GTET - 11039640**	**Reference Calibration Date:**	**25-Sep-12 15:48:12**
Engineer:	**T. HYDE**	**Calibration Date:**	**27-Sep-12 10:16:46**
Software Version:	**WL INSITE R3.6.0 (Build 3)**	**Calibration Version:**	**1**

Calibrator Source S/N: TB146

Calibrator API Reference:265.00 api

Equivalent Calibrator API Reference:269.6 api

Field Verification	Shop	Field	Units
Background	55.5	39.9	api
Background + Calibrator	325.2	313.2	api
Calibrator	269.6	273.3	api

Shop	Field	Difference	Tolerance
269.6	273.3	-3.7	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	**DSNT - 11055304**	**Reference Calibration Date:**	**05-Sep-12 14:27:57**
Engineer:	**T. HYDE**	**Calibration Date:**	**05-Sep-12 14:46:31**
Software Version:	**WL INSITE R3.6.0 (Build 3)**	**Calibration Version:**	**1**

Logging Source S/N: 696

Tank Serial Number: LIBERAL_NEUTRON

Reference value assigned to Tank: 51.680

Snow Block S/N: 696

Calibration Tank Water Temperature: 68 degF

Min. Tool Housing Outside Diameter: 3.620 in

CALIBRATION CONSTANTS

Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	0.987	0.989	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):	0.2101	0.2107	0.0006	+/- 0.0020
Calibrated Ratio:	9.70	9.72	0.019	+/- 0.050

VERIFIER

Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0691	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 - 11055304**	**Reference Calibration Date:**	**05-Sep-12 14:46:31**
Engineer:	**S. INGERSOLL**	**Calibration Date:**	**28-Sep-12 02:21:52**
Software Version:	**WL INSITE R3.6.0 (Build 3)**	**Calibration Version:**	**1**

Logging Source S/N: 696

Snow Block S/N: 696

NEUTRON FIELD-CHECK SUMMARY

	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0691	0.0734	0.0042	+/- 0.0150

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

DENSITY CALIPER SHOP CALIBRATION

Tool Name:	**SDLT - I43_M489**	**Reference Calibration Date:**	**01-Jan-70 00:00:00**
Engineer:	**S. INGERSOLL**	**Calibration Date:**	**06-Sep-12 07:33:37**
Software Version:	**WL INSITE R3.6.0 (Build 3)**	**Calibration Version:**	**1**
Host Tool Name:	**DSNT - 11055304**		

CALIBRATION COEFFICIENTS

Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-2153.99	-2153.99	-7000.00 - -1000.00
Pad Gain	0.0003997	0.0003997	0.000200 - 0.000600
Arm Offset	1430.46	1430.46	-5000.00 - 3000.00
Arm Gain	0.0003851	0.0003851	0.000300 - 0.000700
Arm Power	0.000004432	0.000004432	-0.000010000 - 0.000010000

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)	3.75	3.75	0.00	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.50	6.50	0.00	+/- 0.20
Medium Ring (in)	8.25	8.25	0.00	+/- 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

MICRO LOG SHOP CALIBRATION

Tool Name:	**Microlog Pad - M489**	**Reference Calibration Date:**	**01-Nov-11 03:10:56**
Engineer:	**S. INGERSOLL**	**Calibration Date:**	**16-Sep-12 20:05:23**
Software Version:	**WL INSITE R3.6.0 (Build 3)**	**Calibration Version:**	**1**
Host Tool Name:	**DSNT - 11055304**		

CALIBRATION COEFFICIENT SUMMARY

Measurement	Micro Log Normal		Micro Log Lateral		
	Measured	Calibrated	Measured	Calibrated	Units
Tool Zero	-0.08	-0.07	-0.01	-0.01	ohmm
Calibration Point #1	-0.01	0.00	0.00	0.00	ohmm
Calibration Point #2	19.77	20.00	19.65	20.00	ohmm
Internal Reference	19.71	19.94	19.64	19.99	ohmm

Measurement	Micro Log Normal Tool Value	Micro Log Lateral Tool Value	Units
Tool Zero	-0.51	0.41	V
Calibration Point #1	16.72	2.97	V
Calibration Point #2	5307.12	6901.02	V
Internal Reference	5291.44	6896.15	V

MICRO LOG FIELD CHECK

Tool Name:	**Microlog Pad - M489**	**Reference Calibration Date:**	**16-Sep-12 20:05:23**
Engineer:	**S. INGERSOLL**	**Calibration Date:**	**28-Sep-12 02:20:19**
Software Version:	**WL INSITE R3.6.0 (Build 3)**	**Calibration Version:**	**1**

Measurement	Micro Log Normal		Micro Log Lateral		
	Shop	Field	Shop	Field	Units
Tool Zero	-0.07	-0.06	-0.01	-0.01	ohmm
Internal Reference	19.94	19.83	19.99	19.87	ohmm

Summary

Signal	Shop	Field	Difference	Tolerence
Microlog Normal	19.94	19.83	0.11	+/- 0.80
Microlog Lateral	19.99	19.87	0.12	+/- 0.80

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name:	**SDLT Pad - P81**	**Reference Calibration Date:**	**16-Sep-12 19:18:00**
Engineer:	**S. INGERSOLL**	**Calibration Date:**	**16-Sep-12 19:40:44**
Software Version:	**WL INSITE R3.6.0 (Build 3)**	**Calibration Version:**	**1**

Logging Source S/N: 5168GW

Aluminum Block S/N: LIBERAL	Density: 2.598g/cc	Pe: 3.170
Magnesium Block S/N: LIBERAL	Density: 1.684g/cc	Pe: 2.598

DENSITY CALIBRATION SUMMARY

Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0232	1.0287	0.90 - 1.10
Near Dens Gain	1.0077	1.0081	0.90 - 1.10
Near Peak Gain	1.0124	0.9977	0.90 - 1.10
Near Lith Gain	0.9847	0.9623	0.90 - 1.10
Far Bar Gain	1.0121	1.0124	0.90 - 1.10
Far Dens Gain	0.9996	1.0022	0.90 - 1.10
Far Peak Gain	0.9904	0.9944	0.90 - 1.10

Far Lith Gain	0.9656	0.9696	0.90 - 1.10
Near Bar Offset	-0.0203	-0.0702	NONE
Near Dens Offset	0.1057	0.0994	NONE
Near Peak Offset	0.0598	0.1815	NONE
Near Lith Offset	0.2756	0.4608	NONE
Far Bar Offset	0.0261	0.0257	NONE
Far Dens Offset	0.1218	0.1007	NONE
Far Peak Offset	0.1706	0.1383	NONE
Far Lith Offset	0.3356	0.3064	NONE
Near Bar Background	815.95	817.83	700 - 1450
Near Dens Background	266.98	267.72	230 - 480
Near Peak Background	117.18	116.26	100 - 210
Near Lith Background	143.03	143.18	125 - 260
Far Bar Background	529.88	530.18	450 - 900
Far Dens Background	208.07	208.61	175 - 345
Far Peak Background	83.50	83.59	70 - 140
Far Lith Background	85.86	85.82	75 - 145

CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.687	1.684	-0.003	+/- 0.015
Pe	2.529	2.564	0.035	+/- 0.150
ALUMINUM				
Density (g/cc)	2.598	2.598	0.000	+/- 0.01500
Pe	3.145	3.133	-0.012	+/- 0.150

TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	0.0004	+/- 0.0110	0.0015	+/- 0.0140
Magnesium Block	0.0002	+/- 0.0110	-0.0012	+/- 0.0140
Aluminum Block	-0.0009	+/- 0.0110	0.0007	+/- 0.0140
Resolution	9.41	6.00 - 11.50	8.88	6.00 - 11.50
Internal Verifier(B+D+P+L)	1345	1200 - 2700	908	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 Pad - P81** **Reference Calibration Date:** **16-Sep-12 19:40:44**

Engineer:	**S. INGERSOLL**	**Calibration Date:**	**28-Sep-12 02:26:26**
Software Version:	**WL INSITE R3.6.0 (Build 3)**	**Calibration Version:**	**1**

Pad Temperature: 64.7 degF

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1344.983	1346.076	1.093	14.831
Far (B+D+P+L) cps	908.205	911.186	2.981	16.365
Near Resolution	9.41	9.53	0.120	0.50
Far Resolution	8.88	9.25	0.370	1.00

PASS/FAIL SUMMARY

Bkg Quality Check:	Passed
Bkg Resolution Check:	Passed
Bkg Verification Check:	Passed

SDLT CALIPER FIELD CALIBRATION

Tool Name:	**SDLT - I43_M489**	**Reference Calibration Date:**	**06-Sep-12 07:33:37**
Engineer:	**S. INGERSOLL**	**Calibration Date:**	**22-Sep-12 14:30:40**
Software Version:	**WL INSITE R3.6.0 (Build 3)**	**Calibration Version:**	**1**

MEASURED CALIPER VALUES

Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.71	-0.04	+/- 0.10
Ring Diameter	8.25	8.19	-0.06	+/- 0.15

PASS/FAIL SUMMARY

Pad Extension Check:	Passed
Diameter Check:	Passed

ACCELEROMETER AND MAGNETOMETER SHOP CALIBRATION

Tool Name:	**IDT - 10967514**	**Reference Calibration Date:**	**25-Feb-10 10:04:50**
Engineer:	**T. HYDE**	**Calibration Date:**	**14-Aug-12 15:10:43**
Software Version:	**WL INSITE R3.6.0 (Build 3)**	**Calibration Version:**	**1**

Reference Gravity Field: 1.0000 g

Reference Magnetic Field: 54093.0000 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	Quality(Gravity)	Quality Error(%)	QF
0.2907	-0.6561	-0.0089	0.9988	99.8754	1
-0.6929	-0.2546	-0.0090	1.0008	99.9160	1
-0.3266	0.6707	-0.0080	0.9987	99.8750	1
0.6228	0.3750	-0.0076	1.0011	99.8939	1
0.0040	0.7434	-0.0098	1.0001	99.9850	1
0.6616	0.0814	0.1250	1.0001	99.9922	1
-0.0212	0.7438	-0.0095	1.0005	99.9451	1
0.7177	-0.0152	-0.0101	0.9993	99.9308	1
-0.0129	-0.7235	-0.0111	1.0010	99.9031	1
-0.7410	-0.0046	-0.0110	0.9995	99.9519	1
-0.1670	0.0128	0.3432	1.0000	99.9983	1
-0.6589	-0.0231	-0.1779	1.0000	99.9976	1

ACCELEROMETER QUALITY SUMMARY		
Average Calculated Gravity Field	1.0000	g
Standard Deviation Calculated Gravity Field	0.0008	g

ACCELEROMETER GAIN AND OFFSET		
	GAIN	OFFSET
ACC X	1.3697259426	0.0157147683
ACC Y	1.3639539480	-0.0140932603
ACC Z	2.7579212189	0.0306457058

* 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	Quality(Magnetic)	Quality Error(%)	QF
0.0603	1.2769	-0.0006	53534.9414	98.9683	1
1.2664	-0.1417	-0.0017	53876.5078	99.5998	1
-0.0225	-1.2928	-0.0027	53510.5938	98.9233	1
-1.2599	-0.0657	-0.0037	53699.5625	99.2727	1
-0.0098	-1.1543	0.5793	54093.5000	99.9991	1
-1.2506	-0.0575	-0.1316	53638.0430	99.1589	1
0.0122	-1.1515	-0.6020	54746.4570	98.7920	1
-1.1213	0.0455	-0.6031	54940.3867	98.4335	1
0.0177	1.1372	-0.6014	54782.2070	98.7259	1
1.1356	0.0029	-0.6011	55092.7109	98.1519	1
0.2695	-0.5941	1.0711	54403.4609	99.4261	1
0.6782	0.0066	-0.9847	52508.6484	97.0711	1

MAGNETOMETER QUALITY SUMMARY		
Average Calculated Magnetic Field	54068.9180	nT
Standard Deviation Calculated Magnetic Field	755.4872	nT

MAGNETOMETER GAIN AND OFFSET		
	GAIN	OFFSET
MAG X	42444.9140625000	-166.3116760254
MAG Y	41629.1054687500	322.7136230469
MAG Z	44418.2734375000	-280.8706970215

Noise Level Value: 0.000210 cnts

Noise Level Cal Value: 0.0006 g

ICT SHOP CALIBRATION

Tool Name: ICT - 11204020 **Reference Calibration Date:** 14-Aug-12 12:12:34

Engineer: T. HYDE **Calibration Date:** 27-Sep-12 04:45:54

Software Version: WL INSITE R3.6.0 (Build 3) **Calibration Version:** 1

CALIPERS AND RINGS			
Ring	Measured	Calibrated	Units
CALIPER 1:			
Small Ring	3.80	3.65	in
Medium Ring	8.13	8.00	in
Large Ring	15.18	15.00	in
X-Large Ring	21.09	21.00	in
CALIPER 2:			
Small Ring	3.22	3.65	in
Medium Ring	7.51	8.00	in
Large Ring	14.44	15.00	in

Large Ring	14.44	15.00	in
X-Large Ring	20.54	21.00	in
CALIPER 3:			
Small Ring	3.47	3.65	in
Medium Ring	7.75	8.00	in
Large Ring	14.79	15.00	in
X-Large Ring	20.86	21.00	in
CALIPER 4:			
Small Ring	3.45	3.65	in
Medium Ring	7.70	8.00	in
Large Ring	14.67	15.00	in
X-Large Ring	20.75	21.00	in
CALIPER 5:			
Small Ring	3.80	3.65	in
Medium Ring	8.13	8.00	in
Large Ring	15.11	15.00	in
X-Large Ring	21.08	21.00	in
CALIPER 6:			
Small Ring	3.80	3.65	in
Medium Ring	8.15	8.00	in
Large Ring	15.22	15.00	in
X-Large Ring	21.10	21.00	in

ICT FIELD CALIBRATION

Tool Name: ICT - 11204020
Reference Calibration Date: 27-Sep-12 04:45:54
Engineer: T. HYDE
Calibration Date: 27-Sep-12 04:47:55
Software Version: WL INSITE R3.6.0 (Build 3)
Calibration Version: 1

CALIPERS

Caliper	Shop	Field	Units
Caliper 1	8.00	7.97	in
Caliper 2	8.00	7.97	in
Caliper 3	8.00	8.00	in
Caliper 4	8.00	7.98	in
Caliper 5	8.00	7.98	in
Caliper 6	8.00	7.98	in

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

Tool Name: ACRt Sonde - I962_S909
Reference Calibration Date: 23-Aug-12 19:00:08
Engineer: S. INGERSOLL
Calibration Date: 26-Sep-12 12:26:10
Software Version: WL INSITE R3.6.0 (Build 3)
Calibration Version: 1
Host Tool Name: ACRt Instrument - I962

TYPICAL GAIN RANGE

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.01	1.05	0.95	1.02	1.05	0.95	1.02	1.05
A2 (50")	0.95	1.02	1.05	0.95	1.02	1.05	0.95	1.02	1.05
A3 (29")	0.95	1.01	1.05	0.95	1.01	1.05	0.95	1.01	1.05
A4 (17")	0.95	1.01	1.05	0.95	1.01	1.05	0.95	1.01	1.05
A5 (10")	N/A	N/A	N/A	0.95	1.01	1.05	0.95	1.00	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.99	1.05	0.95	0.98	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	-0.02	2	-6	-3.17	-2	-8	-5.09	-2
A2 (50")	-7	-1.64	0	-7	-3.53	0	-7	-4.47	0
A3 (29")	-27	-14.39	-9	-9	-4.43	-3	-7	-2.87	-1
A4 (17")	-180	-101.04	-60	-45	-30.80	-15	-39	-26.17	-13
A5 (10")	N/A	N/A	N/A	-150	-100.41	-50	-80	-45.18	-10
A6 (6")	N/A	N/A	N/A	175	286.41	525	90	152.88	270

TRANSMITTER CURRENT GAIN

Signal	Lower	R	Upper
12K	0.6	0.92	1.3
36K	1.0	1.36	2.0
72K	1.0	1.59	2.0

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
SONDE OFFSET RANGE CHK	PASS
Tx CURRENT GAIN	PASS
Rmud VERIFICATION	PASS

TOOL OK TO LOG

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11039640						
Gamma Ray Calibrator	269.6	273.3	----------	-3.7	+/- 9.00	api
DSNT-11055304						
Snow-Block Porosity	0.0691	0.0734	----------	-0.0043	+/- 0.0150	decp
SDLT-I43_M489						
Pad Extension	3.75	3.71	----------	0.04	+/-0.10	in
Ring Diameter	8.25	8.19	----------	0.06	+/-0.15	in
Microlog Pad-M489						
MicroLog Normal	19.94	19.83	----------	0.11	+/-0.80	ohmm
MicroLog Lateral	19.99	19.87	----------	0.12	+/-0.80	ohmm
SDLT Pad-P81						
Near(B+D+P+L)	1344.983	1346.076	----------	-1.093	+/-14.831	cps
Far(B+D+P+L)	908.205	911.186	----------	-2.981	+/-16.365	cps
ICT-11204020						
Caliper 1	8.00	7.97	----------	0.03	+/-0.25	in
Caliper 2	8.00	7.97	----------	0.03	+/-0.25	in
Caliper 3	8.00	8.00	----------	0.00	+/-0.25	in
Caliper 4	8.00	7.98	----------	0.02	+/-0.25	in
Caliper 5	8.00	7.98	----------	0.02	+/-0.25	in
Caliper 6	8.00	7.98	----------	0.02	+/-0.25	in
ACRt Sonde-I962_S909						
Mud Cell	1.00	----------	----------	0.00	----------	ohm-m

Data: DOR_TOEWS25-9-4\0004 SP-GTET-DSN-SDL-IDT-ICT-WSTT-ACRT-CH\004 28-Sep-12 04:42 Up @4147.8f **Date: 28-Sep-12 05:16:23**

HALLIBURTON

INPUTS, DELAYS AND FILTERS TABLE

INPUTS, DELAYS AND FILTERS TABLE

Mnemonic	Input Description	Delay (ft)	Filter Type	Filter Length (ft)
	Depth Panel			
TENS	Tension	0.00	NO	
	CH_HOS			
DHTN	DownholeTension	0.00	BLK	0.000
	SP Sub			
PLTC	Plot Control Mask	110.96	NO	
SP	Spontaneous Potential	110.96	BLK	1.250
SPR	Raw Spontaneous Potential	110.96	NO	
SPO	Spontaneous Potential Offset	110.96	NO	
	GTET			
TPUL	Tension Pull	102.94	NO	
GR	Natural Gamma Ray API	102.94	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	102.94	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	102.94	W	1.416 , 0.750
ACCZ	Accelerometer Z	0.00	BLK	0.083
DEVI	Inclination	0.00	NO	
	DSNT			
TPUL	Tension Pull	92.70	NO	
RNDS	Near Detector Telemetry Counts	92.80	BLK	1.417
RFDS	Far Detector Telemetry Counts	93.55	TRI	0.583
DNTT	DSN Tool Temperature	92.80	NO	
DSNS	DSN Tool Status	92.70	NO	
ERND	Near Detector Telemetry Counts EVR	92.80	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	93.55	BLK	0.000
ENTM	DSN Tool Temperature EVR	92.80	NO	
	SDLT			
TPUL	Tension Pull	82.80	NO	
PCAL	Pad Caliper	82.80	TRI	0.250
ACAL	Arm Caliper	82.80	TRI	0.250
	IDT			
TPUL	Tension Pull	67.73	NO	
ACCX	Accelerometer X	67.73	NO	
ACCY	Accelerometer Y	67.73	NO	
ACCZ	Accelerometer Z	67.73	NO	
MAGX	magnetometer x with unit	67.73	NO	
MAGY	Magnetometer Y with unit	67.73	NO	
MAGZ	magnetometer z with unit	67.73	NO	
IAMP	Accelerometer Temperature	67.73	NO	
MTMP	Magnetometer Temperature	67.73	NO	
	ICT			
TPUL	Tension Pull	56.69	NO	
	Arm Potentiometer excitation V	53.90	NO	
	Caliper 1 measurement	56.69	BLK	1.250
	Caliper 2 measurement	56.69	BLK	1.250
	Caliper 3 measurement	56.69	BLK	1.250
	Caliper 4 measurement	56.69	BLK	1.250
	Caliper 5 measurement	56.69	BLK	1.250

	Caliper 6 measurement	56.69	BLK	1.250
	Caliper Global measurement	56.69	BLK	1.250
MOTI	Motor Current	53.90	NO	
MOT1	Motor Voltage Monitor 1	53.90	NO	
STA1	Status word #1	53.90	NO	
STA2	Status word #2	53.90	NO	
PRES	Caliper percentage of total compression of the spring	53.90	NO	
HAZI	Hole Azimuth	56.69	NO	
RB	Relative Bearing	56.69	NO	
AZI1	PAD1 Azimuth	56.69	NO	
DEVI	Inclination	56.69	NO	

Wavesonic-I				
TPUL	Tension Pull	31.33	NO	
DPSX	Dipole Source X Structurel	19.83	NO	
DPSY	Dipole Source Y Structurel	19.83	NO	
DPSM	Monopole Source Structure	19.83	NO	
WVST	Wavesonic Compressed Data	31.33	NO	
TPUL	Tension Pull	31.33	NO	
XMS1	Wave Sonic Status Word 1	19.83	NO	
XMS2	Wave Sonic Status Word 2	19.83	NO	
XMS1	Wave Sonic XMITStatus Word 1	19.83	NO	
XMS1	Wave Sonic XMITStatus Word 2	19.83	NO	
F1HA	Dipole 1 HV After	19.83	NO	
F1HB	Dipole 1 HV Before	19.83	NO	
F2HA	Dipole 2 HV After	19.83	NO	
F2HB	Dipole 2 HV Before	19.83	NO	
F3HA	Monopole HV After	19.83	NO	
F3HB	Monopole HV Before	19.83	NO	
INVT	Input Voltage	19.83	NO	
5VOL	5 Volts	19.83	NO	
MI5A	Minus 5 Volts Analog	19.83	NO	
ITMP	Instrument Temperature	19.83	NO	
PL5A	Plus 5 Volts Analog	19.83	NO	
5VD	Plus 5 Volts Digital	19.83	NO	
TCUR	Tool Current	19.83	NO	
SUPV	Supply Voltage	19.83	NO	
PRVT	Preregulated voltage	19.83	NO	
PRVT	Pre-regulated voltage Xmter	19.83	NO	
TEMP	Temperature	19.83	NO	
ACQN	Acquisition Number	19.83	NO	
XDP	Delay Reference	31.33	NO	
MITM	MIT Mode	31.33	NO	
VERS	Version	19.83	NO	
D1CT	Dipole 1 Compressed Word Count	31.33	NO	
D2CT	Dipole 2 Compressed Word Count	31.33	NO	
MCNT	Monopole Compressed Word Count	31.33	NO	
SEQN	Sequence Number	19.83	NO	
FREV	Firmware Revision	19.83	NO	
MSMP	Monopole Sample Rate	19.83	NO	
MSMP	Dipole Sample Rate	19.83	NO	
MFWF	Monopole Firing Waveform	19.83	NO	
MFRQ	Monopole Frequency	19.83	NO	
MDLY	Monopole Delay	19.83	NO	
DXWF	Dipole X Firing Waveform	19.83	NO	
XFRQ	Dipole X Frequency	19.83	NO	

XDLY	Dipole X Delay	19.83	NO	
DYWF	Dipole Y Firing Waveform	19.83	NO	
YFRQ	Dipole Y Frequency	19.83	NO	
YDLY	Dipole Y Delay	19.83	NO	
DPSX	Dipole Source X Structurel	19.83	NO	
DPSY	Dipole Source Y Structurel	19.83	NO	
DPSM	Monopole Source Structure	19.83	NO	
WVST	Wavesonic Compressed Data	31.33	NO	
AUTM	Auto Mode	19.83	NO	
SONM	tool mode for sonic - 0 for normal or 3 for calibration	19.83	NO	
MSL	Monopole Lower Travel Time	31.33	NO	
MSH	Monopole Upper Travel Time	31.33	NO	
MLFC	Monopole-1 Lower Filter Bandpass Frequency Cut-off	19.83	NO	
MUFC	Monopole-1 Upper Filter Bandpass Frequency Cut-off	19.83	NO	
DLTT	Dipole Lower Travel Time	19.83	NO	
DUTT	Dipole Upper Travel Time	19.83	NO	
DLFC	Dipole Lower Filter Bandpass Frequency Cut-off	19.83	NO	
DUFC	Dipole Upper Filter Bandpass Frequency Cut-off	19.83	NO	
MUTE	WaveSonic Mute/Enable Channels and Sides map	19.83	NO	
MUTS	Mute/Enable Sides	19.83	NO	
WSRB	Relative Bearing	31.33	NO	
WSAZ	WSX Azimuth Pad 1	31.33	NO	
TPUL	Tension Pull	31.33	NO	
WMP	Summed array of Monopole for SIDES - A,B,C,D	31.33	NO	
WXX	Dipole X for SIDES - A-C	31.33	NO	
WYY	Dipole Y for SIDES - B-D	31.33	NO	
WXY	Dipole X for SIDES - B-D	31.33	NO	
WYX	Dipole Y for SIDES - A-C	31.33	NO	
TPUL	Tension Pull	31.33	NO	
WMA	Monopole Waveform Side A - Channel 1 to Channel 8 Receivers	31.33	NO	
WMB	Monopole Waveform Side B - Channel 1 to Channel 8 Receivers	31.33	NO	
WMC	Monopole Waveform Side C - Channel 1 to Channel 8 Receivers	31.33	NO	
WMD	Monopole Waveform Side D - Channel 1 to Channel 8 Receivers	31.33	NO	
WXA	Dipole X Waveform Side A - Channel 1 to Channel 8 Receivers	31.33	NO	
WXB	Dipole X Waveform Side B - Channel 1 to Channel 8 Receivers	31.33	NO	
WXC	Dipole X Waveform Side C - Channel 1 to Channel 8 Receivers	31.33	NO	
WXD	Dipole X Waveform Side D - Channel 1 to Channel 8 Receivers	31.33	NO	
WYA	Dipole Y Waveform Side A - Channel 1 to Channel 8 Receivers	31.33	NO	
WYB	Dipole Y Waveform Side B - Channel 1 to Channel 8 Receivers	31.33	NO	
WYC	Dipole Y Waveform Side C - Channel 1 to Channel 8 Receivers	31.33	NO	
WYD	Dipole Y Waveform Side D - Channel 1 to Channel 8 Receivers	31.33	NO	
ACRt Sonde				
TPUL	Tension Pull	2.97	NO	
F1R1	ACRT 12KHz - 80in R value	9.22	BLK	0.000
F1X1	ACRT 12KHz - 80in X value	9.22	BLK	0.000
F1R2	ACRT 12KHz - 50in R value	6.72	BLK	0.000
F1X2	ACRT 12KHz - 50in X value	6.72	BLK	0.000
F1R3	ACRT 12KHz - 29in R value	5.22	BLK	0.000

F1X3	ACRT 12KHz - 29in X value	5.22	BLK	0.000
F1R4	ACRT 12KHz - 17in R value	4.22	BLK	0.000
F1X4	ACRT 12KHz - 17in X value	4.22	BLK	0.000
F1R5	ACRT 12KHz - 10in R value	3.72	BLK	0.000
F1X5	ACRT 12KHz - 10in X value	3.72	BLK	0.000
F1R6	ACRT 12KHz - 6in R value	3.47	BLK	0.000
F1X6	ACRT 12KHz - 6in X value	3.47	BLK	0.000
F2R1	ACRT 36KHz - 80in R value	9.22	BLK	0.000
F2X1	ACRT 36KHz - 80in X value	9.22	BLK	0.000
F2R2	ACRT 36KHz - 50in R value	6.72	BLK	0.000
F2X2	ACRT 36KHz - 50in X value	6.72	BLK	0.000
F2R3	ACRT 36KHz - 29in R value	5.22	BLK	0.000
F2X3	ACRT 36KHz - 29in X value	5.22	BLK	0.000
F2R4	ACRT 36KHz - 17in R value	4.22	BLK	0.000
F2X4	ACRT 36KHz - 17in X value	4.22	BLK	0.000
F2R5	ACRT 36KHz - 10in R value	3.72	BLK	0.000
F2X5	ACRT 36KHz - 10in X value	3.72	BLK	0.000
F2R6	ACRT 36KHz - 6in R value	3.47	BLK	0.000
F2X6	ACRT 36KHz - 6in X value	3.47	BLK	0.000
F3R1	ACRT 72KHz - 80in R value	9.22	BLK	0.000
F3X1	ACRT 72KHz - 80in X value	9.22	BLK	0.000
F3R2	ACRT 72KHz - 50in R value	6.72	BLK	0.000
F3X2	ACRT 72KHz - 50in X value	6.72	BLK	0.000
F3R3	ACRT 72KHz - 29in R value	5.22	BLK	0.000
F3X3	ACRT 72KHz - 29in X value	5.22	BLK	0.000
F3R4	ACRT 72KHz - 17in R value	4.22	BLK	0.000
F3X4	ACRT 72KHz - 17in X value	4.22	BLK	0.000
F3R5	ACRT 72KHz - 10in R value	3.72	BLK	0.000
F3X5	ACRT 72KHz - 10in X value	3.72	BLK	0.000
F3R6	ACRT 72KHz - 6in R value	3.47	BLK	0.000
F3X6	ACRT 72KHz - 6in X value	3.47	BLK	0.000
RMUD	Mud Resistivity	12.76	BLK	0.000
F1RT	Transmitter Reference 12 KHz Real Signal	2.97	BLK	0.000
F1XT	Transmitter Reference 12 KHz Imaginary Signal	2.97	BLK	0.000
F2RT	Transmitter Reference 36 KHz Real Signal	2.97	BLK	0.000
F2XT	Transmitter Reference 36 KHz Imaginary Signal	2.97	BLK	0.000
F3RT	Transmitter Reference 72 KHz Real Signal	2.97	BLK	0.000
F3XT	Transmitter Reference 72 KHz Imaginary Signal	2.97	BLK	0.000
TFPU	Upper Feedpipe Temperature Calculated	2.97	BLK	0.000
TFPL	Lower Feedpipe Temperature Calculated	2.97	BLK	0.000
ITMP	Instrument Temperature	2.97	BLK	0.000
TCVA	Temperature Correction Values Loop Off	2.97	NO	
TIDV	Instrument Temperature Derivative	2.97	NO	
TUDV	Upper Temperature Derivative	2.97	NO	
TLDV	Lower Temperature Derivative	2.97	NO	
TRBD	Receiver Board Temperature	2.97	NO	
	Microlog Pad			
TPUL	Tension Pull	82.98	NO	
MINV	Microlog Lateral	82.98	BLK	0.750
MNOR	Microlog Normal	82.98	BLK	0.750
	SDLT Pad			
TPUL	Tension Pull	82.79	NO	
NAB	Near Above	82.61	BLK	0.920
NHI	Near Cesium High	82.61	BLK	0.920

NLO	Near Cesium Low	82.61	BLK	0.920
NVA	Near Valley	82.61	BLK	0.920
NBA	Near Barite	82.61	BLK	0.920
NDE	Near Density	82.61	BLK	0.920
NPK	Near Peak	82.61	BLK	0.920
NLI	Near Lithology	82.61	BLK	0.920
NBAU	Near Barite Unfiltered	82.61	BLK	0.250
NLIU	Near Lithology Unfiltered	82.61	BLK	0.250
FAB	Far Above	82.96	BLK	0.250
FHI	Far Cesium High	82.96	BLK	0.250
FLO	Far Cesium Low	82.96	BLK	0.250
FVA	Far Valley	82.96	BLK	0.250
FBA	Far Barite	82.96	BLK	0.250
FDE	Far Density	82.96	BLK	0.250
FPK	Far Peak	82.96	BLK	0.250
FLI	Far Lithology	82.96	BLK	0.250
PTMP	Pad Temperature	82.80	BLK	0.920
NHV	Near Detector High Voltage	82.19	NO	
FHV	Far Detector High Voltage	82.19	NO	
ITMP	Instrument Temperature	82.19	NO	
DDHV	Detector High Voltage	82.19	NO	

Data: DOR_TOEWS25-9-4\0004 SP-GTET-DSN-SDL-IDT-ICT-WSTT-ACRT-CH\004 28-Sep-12 04:42 Up @4147.8f **Date: 28-Sep-12 05:15:25**

HALLIBURTON

PARAMETERS REPORT

Depth ((ft))	Tool Name	Description	Value	Units
TOP				
	SHARED	Bit Size	8.750	in
	SHARED	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	Mud Base	Water	
	SHARED	Borehole Fluid Weight	8.900	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	1.140	ohmm
	SHARED	Temperature of Mud	75.0	degF
	SHARED	Logging Interval is Cased?	No	
	SHARED	AHV Casing OD	7.000	in
	SHARED	Surface Temperature	75.0	degF
	SHARED	Total Well Depth	4137.00	ft
	SHARED	Bottom Hole Temperature	125.0	degF
	SHARED	Navigation and Survey Master Tool	IDT	
	SHARED	High Res Z Accelerometer Master Tool	IDT	
	SHARED	Temperature Master Tool	NONE	
	SHARED	Borehole Size Master Tool	NONE	
	Rwa / CrossPlot	Process Crossplot?	Yes	
	Rwa / CrossPlot	Select Source of F	Automatic	
	Rwa / CrossPlot	Archie A factor	0.6200	
	Rwa / CrossPlot	Archie M factor	2.1500	

Rwa / CrossPlot	Rmf Reference	0.10	ohmm
Rwa / CrossPlot	Rmf Ref Temp	75.00	degF
Rwa / CrossPlot	Resistivity of Formation Water	0.05	ohmm
Rwa / CrossPlot	Use Air Porosity to calculate CrossplotPhi	No	
GTET	Process Gamma Ray?	Yes	
GTET	Gamma Tool Standoff	0.000	in
GTET	Process Gamma Ray EVR?	No	
GTET	Tool Position for Gamma Ray Tools.	Eccentered	
DSNT	Process DSN?	Yes	
DSNT	Process DSN EVR?	No	
DSNT	Neutron Lithology	Limestone	
DSNT	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.250	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 Caliper Outputs?	Yes	
Microlog Pad	Process MicroLog Outputs?	Yes	
SDLT Pad	Process Density?	Yes	
SDLT Pad	Process Density EVR?	No	
SDLT Pad	Logging Calibration Blocks?	No	
SDLT Pad	SDLT Pad Temperature Valid?	Yes	
SDLT Pad	Disable temperature warning	No	
SDLT Pad	Formation Density Matrix	2.710	g/cc
SDLT Pad	Formation Density Fluid	1.000	g/cc
IDT	Survey Writing Interval	30	ft
IDT	Smoothing Option	None	
ICT	Process Caliper Outputs?	Yes	
ICT	Navigation Source Tool	IDT	
Wavesonic-I	Process WSTT?	Yes	
Wavesonic-I	Monopole Sliding Window Length	-1.00	us
Wavesonic-I	Dipole Sliding Window Length	-1.00	us
Wavesonic-I	Process 1 Sample and Skip	0	
Wavesonic-I	Process Mode: M=1,MX=2,MY=3,MXY=4	4	
Wavesonic-I	Semblance Smoothing	-2.00	
Wavesonic-I	Delta -T Shale	100.00	uspf
Wavesonic-I	Delta -T Matrix Type	User define	
Wavesonic-I	Delta -T Matrix	47.60	uspf
Wavesonic-I	Delta -T Fluid	189.00	uspf
Wavesonic-I	Matrix Density	2.7100	g/cc
Wavesonic-I	Fluid Density	1.0000	g/cc
Wavesonic-I	Slow Tolerance	40.00	
Wavesonic-I	Semblance Tolerance	0.25	
Wavesonic-I	Semblance Threshold	0.25	
Wavesonic-I	VPVS Ratio for Porosity	1.40	
Wavesonic-I	Acoustic Porosity Equation	Wylie	
Wavesonic-I	Show Advanced Options?	Yes	
Wavesonic-I	Wavesonic Receiver Normalization Method	None	
Wavesonic-I	Transmitter to First Receiver Distance - Monopole	10.24	ft
Wavesonic-I	Transmitter to First Receiver Distance Dipole X	9.24	ft
Wavesonic-I	Transmitter to First Receiver Distance Dipole Y	9.24	ft
Wavesonic-I	Receiver Spacing	0.50	ft
Wavesonic-I	Number of Receivers in Array	8	
Wavesonic-I	Digitizer Word Count Monopole	400	

Wavesonic-I	Digital Sample Interval - Monopole	20.3174	us
Wavesonic-I	Waveform Recording Delay Monopole	-304.761	us
Wavesonic-I	Digitizer Word Count Dipole X	400	
Wavesonic-I	Digital Sample Interval Dipole X	40.6348	us
Wavesonic-I	Waveform Digitization Delay Dipole X	-304.761	us
Wavesonic-I	Digitizer Word Count Dipole Y	400	
Wavesonic-I	Digital Sample Interval Dipole Y	40.6348	us
Wavesonic-I	Waveform Digitization Delay Dipole Y	-304.761	us
Wavesonic-I	Navigation Source Tool	IDT	
ACRt Sonde	Process ACRt?	Yes	
ACRt Sonde	Minimum Tool Standoff	1.50	in
ACRt Sonde	Temperature Correction Source	FP Lwr & FP Upr	
ACRt Sonde	Tool Position	Free Hanging	
ACRt Sonde	Rmud Source	Mud Cell	
ACRt Sonde	Minimum Resistivity for MAP	0.20	ohmm
ACRt Sonde	Maximum Resistivity for MAP	200.00	ohmm
ACRt Sonde	Threshold Quality	0.50	
ACRt Sonde	Fixed mud resistivity	2000	ohmm

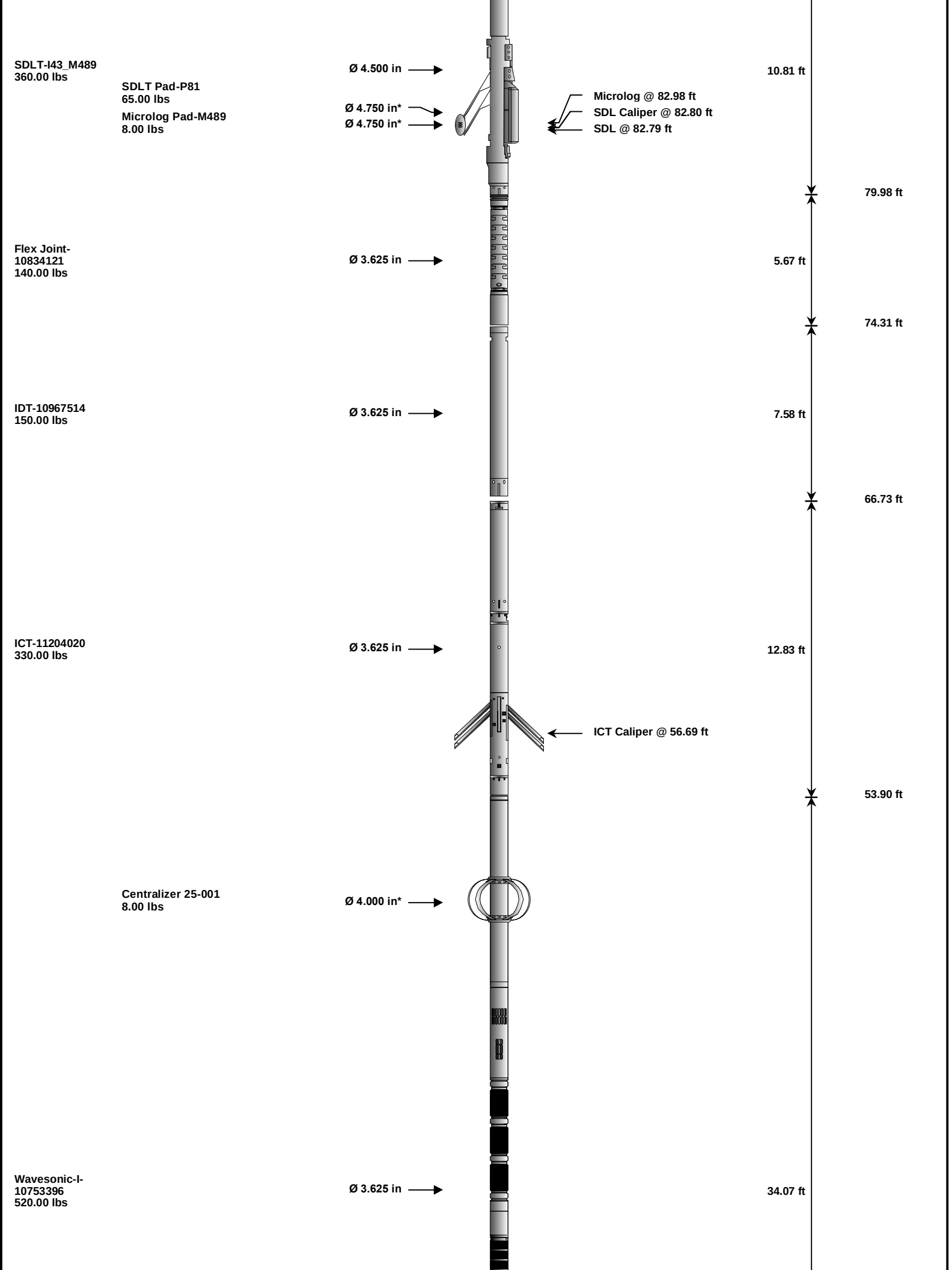
BOTTOM

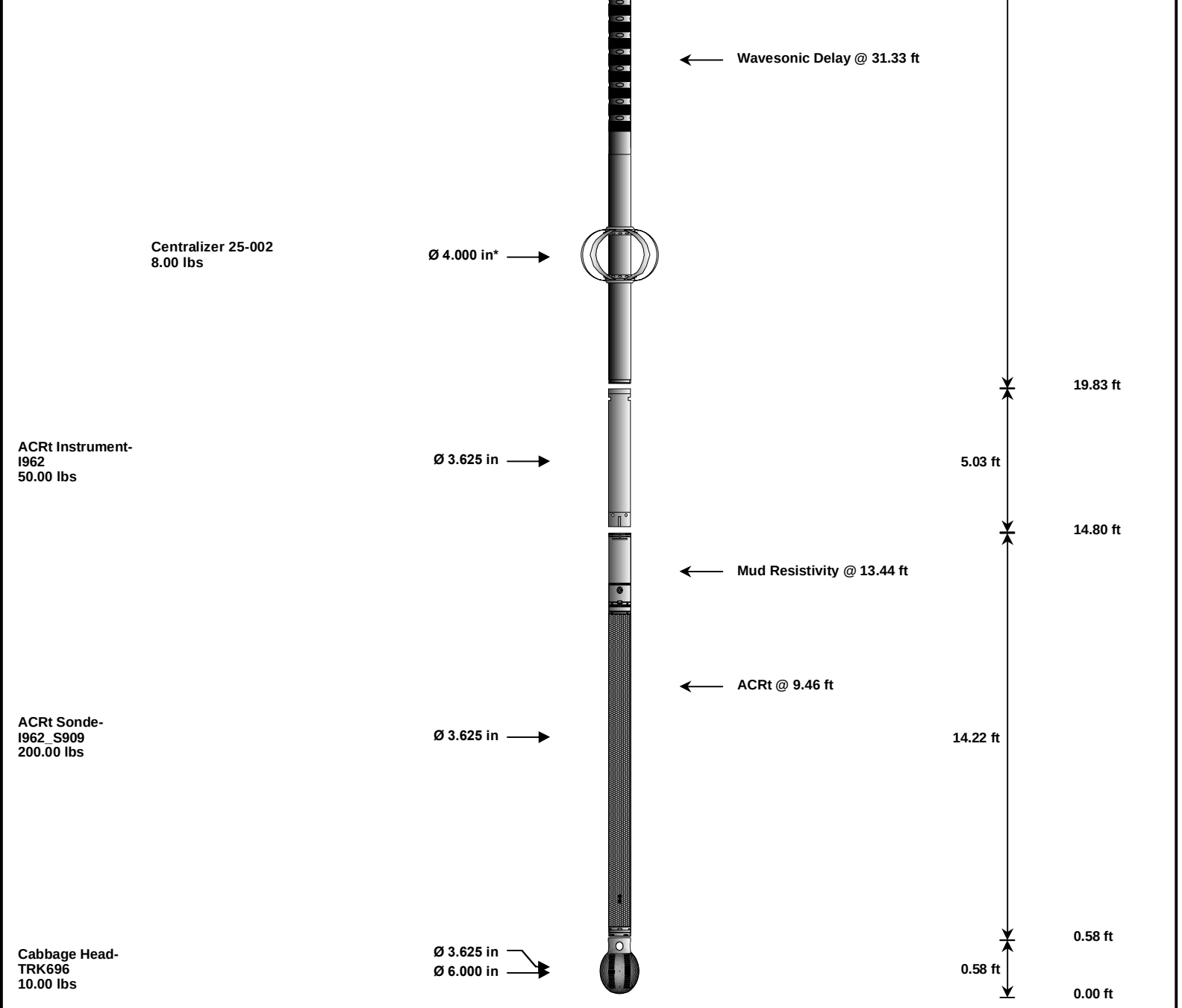
Data: DOR_TOEWS25-9-4\0004 SP-GTET-DSN-SDL-IDT-ICT-WSTT-ACRT-CH\IDLE **Date: 28-Sep-12 03:22:39**

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
						115.77 ft
CH_HOS-CH_696 37.50 lbs		Ø 2.750 in →		← Temperature @ 114.74 ft	3.03 ft	
						112.74 ft
SP Sub-11441455 60.00 lbs		Ø 3.625 in →		← SP @ 110.96 ft	3.74 ft	
						109.00 ft
GTET-11039640 165.00 lbs		Ø 3.625 in →		← GammaRay @ 102.94 ft	8.52 ft	
						100.48 ft
DSNT-11055304 174.00 lbs	DSN Decentralizer-11005605 6.60 lbs	Ø 5.000 in* → Ø 3.625 in →		← DSN Far @ 93.55 ft ← DSN Near @ 92.80 ft	9.69 ft	
						90.80 ft


SDLT-I43_M489
360.00 lbs
SDLT Pad-P81
65.00 lbs
Microlog Pad-M489
8.00 lbs
Ø 4.500 in
Ø 4.750 in*
Ø 4.750 in*
Microlog @ 82.98 ft
SDL Caliper @ 82.80 ft
SDL @ 82.79 ft
10.81 ft
79.98 ft
Flex Joint-
10834121
140.00 lbs
Ø 3.625 in
5.67 ft
74.31 ft
IDT-10967514
150.00 lbs
Ø 3.625 in
7.58 ft
66.73 ft
ICT-11204020
330.00 lbs
Ø 3.625 in
12.83 ft
ICT Caliper @ 56.69 ft
53.90 ft
Centralizer 25-001
8.00 lbs
Ø 4.000 in*
Wavesonic-I-
10753396
520.00 lbs
Ø 3.625 in
34.07 ft



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)		Accumulated Length (ft)	Max.Log. Speed (fpm)
CH_HOS	Hostile Cable Head with Load Cell	CH_696	37.50	3.03		112.74	300.00
SP	SP Sub	11441455	60.00	3.74		109.00	300.00
GTET	Gamma Telemetry Tool	11039640	165.00	8.52		100.48	60.00
DSNT	Dual Spaced Neutron	11055304	174.00	9.69		90.80	60.00
DCNT	DSN Decentralizer	11005605	6.60	5.13	*	94.13	300.00
SDLT	Spectral Density Tool	I43_M489	360.00	10.81		79.98	60.00
MICP	Microlog Pad	M489	8.00	1.00	*	82.48	60.00
SDLP	Density Insite Pad	P81	65.00	2.55	*	82.19	60.00
FLEX	Flex Joint	10834121	140.00	5.67		74.31	300.00
IDT	Insite Directional Tool	10967514	150.00	7.58		66.73	30.00
ICT	Six Independent Arm Caliper	11204020	330.00	12.83		53.90	30.00
WSTT	WaveSonic Insite	10753396	520.00	34.07		19.83	30.00
OBCEN	Centralizer - 25 in. Overbody	001	8.00	2.08	*	48.31	300.00
OBCEN	Centralizer - 25 in. Overbody	002	8.00	2.08	*	23.40	300.00
ACRt	Array Compensated True Resistivity Instrument Section	I962	50.00	5.03		14.80	300.00
ACRt	Array Compensated True Resistivity Sonde Section	I962_S909	200.00	14.22		0.58	300.00
CBHD	Cabbage Head	TRK696	10.00	0.58		0.00	300.00
Total			**2,292.10**	**115.77**			

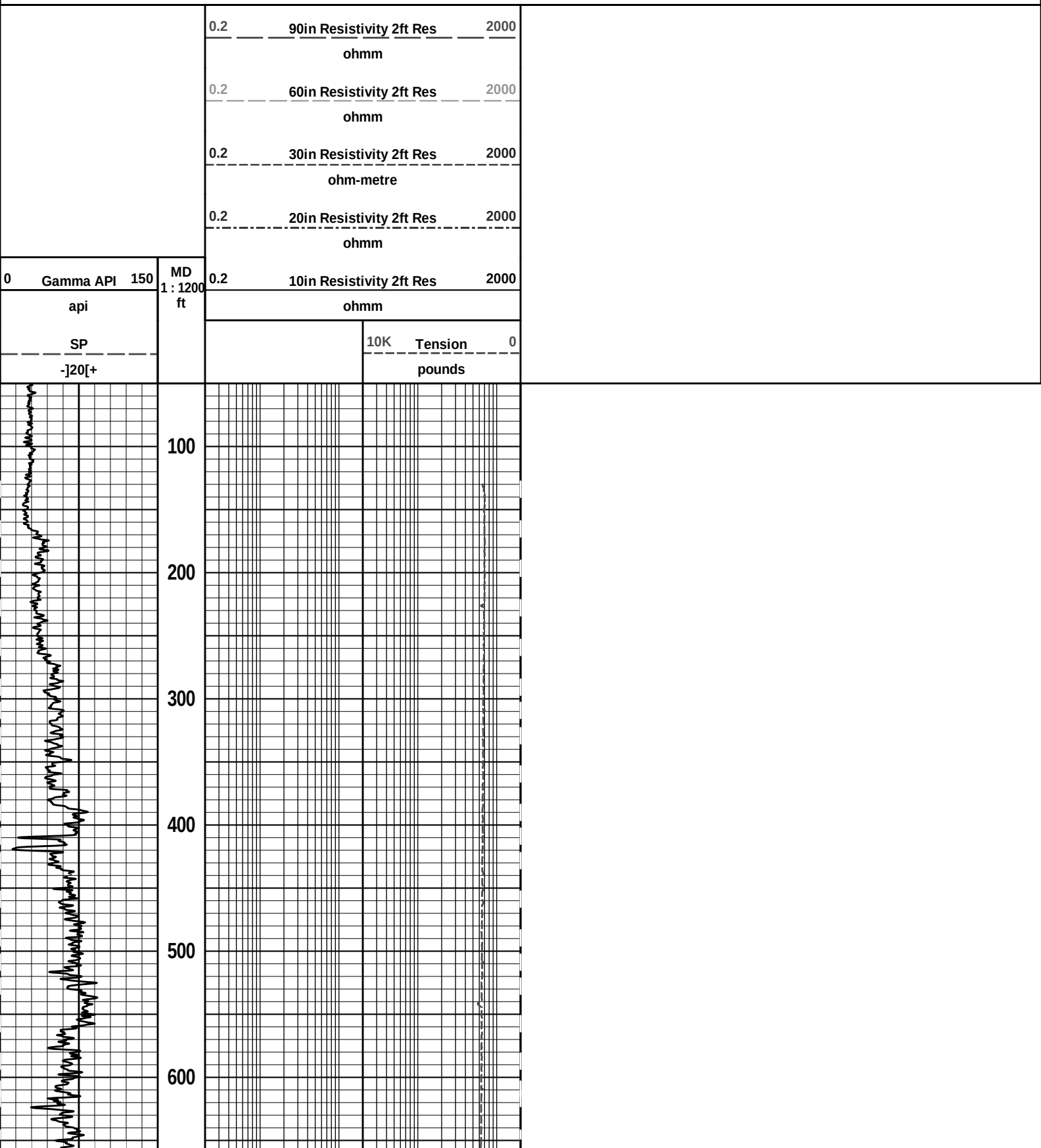
* Not included in Total Length and Length Accumulation.

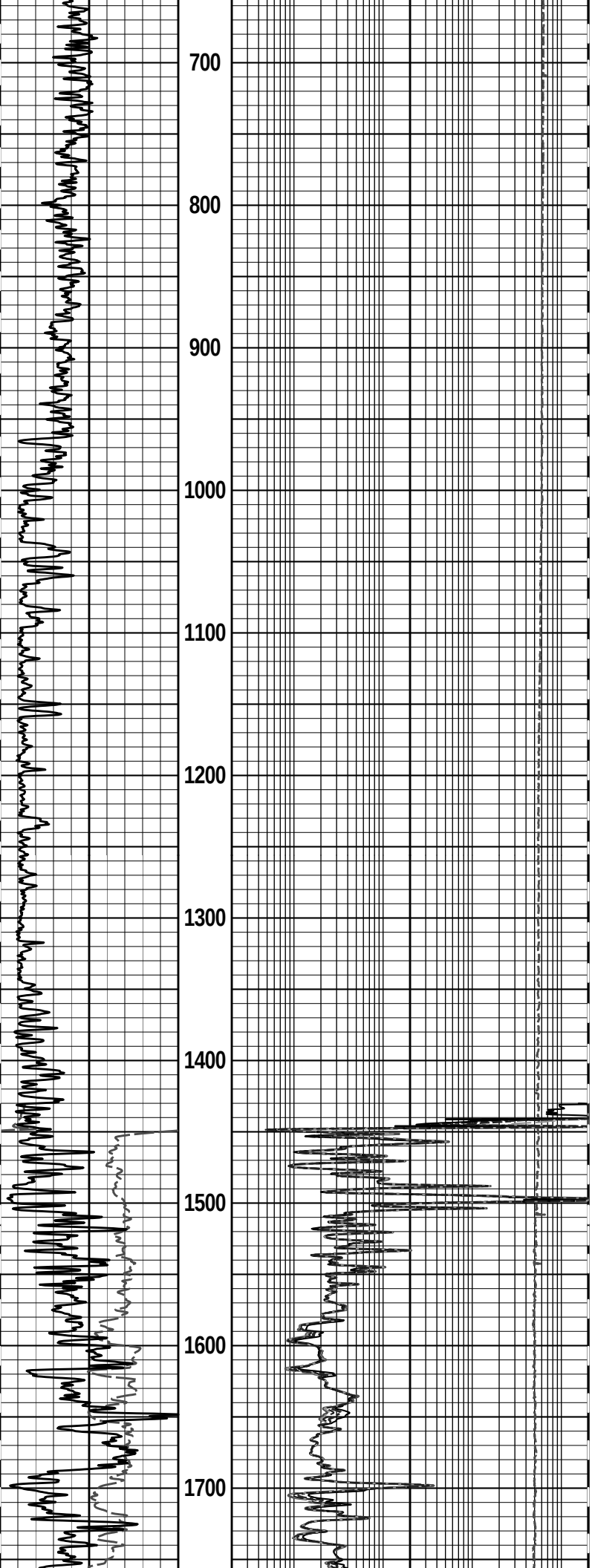
Data: DOR_TOEWS25-9-4\0004 SP-GTET-DSN-SDL-IDT-ICT-WSTT-ACRT-CH\IDLE **Date: 28-Sep-12 02:50:39**

HALLIBURTON

Plot Time: 28-Sep-12 14:06:53
Plot Range: 50 ft to 4147.67 ft
Data: DOR_TOEWS25-9-4\Well Based\DAQ-0004-004\
Plot File: \\-LOCAL-\FAIR_DOWNING#1\Well Based\ACRT\ACRT_1_main_lib

1 INCH MAIN LOG

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1200
1300
1400
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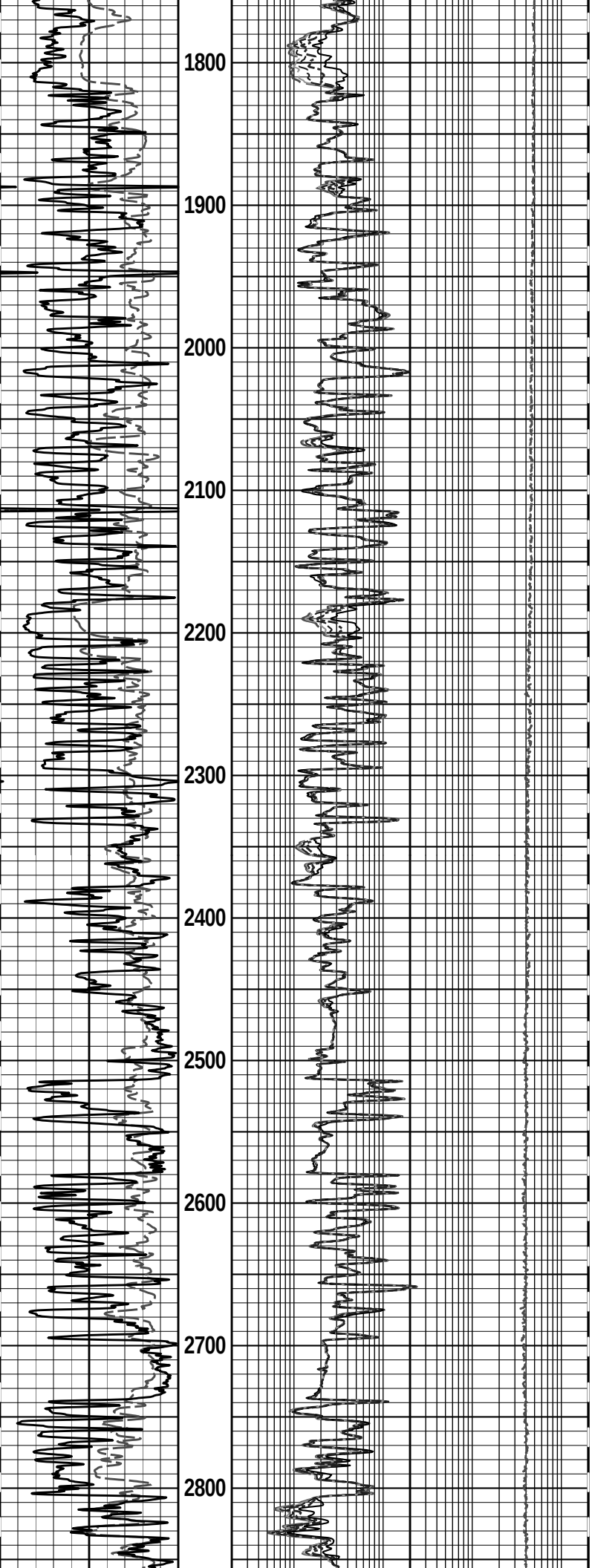
1600
1700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2200
2300
2400
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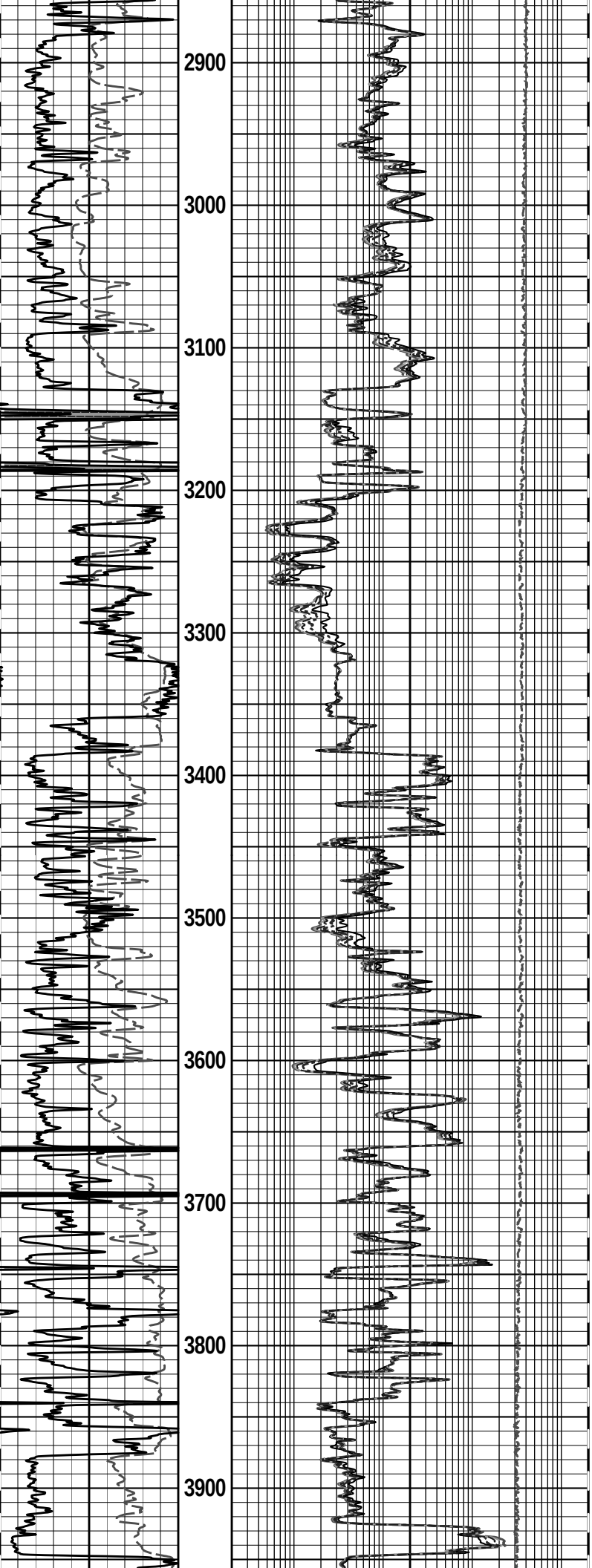
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3100
3200
3300
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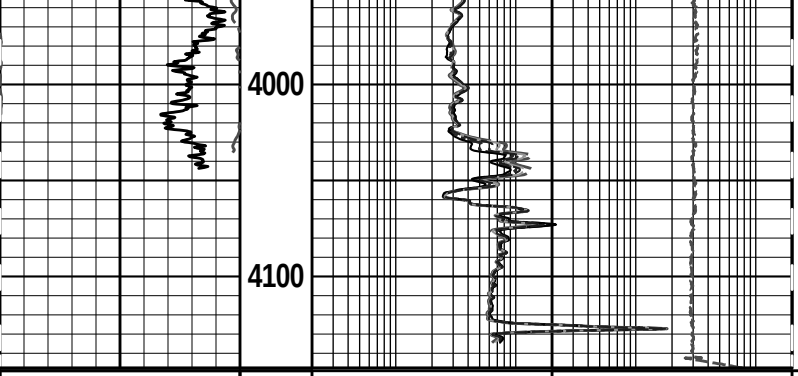
3500
3600
3700
3800
3900



SP			10K Tension 0
-]20[+			pounds
0 Gamma API 150	MD 1 : 1200 ft	0.2 10in Resistivity 2ft Res 2000	
api		ohmm	
		0.2 20in Resistivity 2ft Res 2000	
		ohmm	
		0.2 30in Resistivity 2ft Res 2000	
		ohm-metre	
		0.2 60in Resistivity 2ft Res 2000	
		ohmm	
		0.2 90in Resistivity 2ft Res 2000	
		ohmm	

HALLIBURTON

Plot Time: 28-Sep-12 14:07:04
Plot Range: 50 ft to 4147.67 ft
Data: DOR_TOEWS25-9-4\Well Based\DAQ-0004-004\
Plot File: \\-LOCAL-\FAIR_DOWNING#1\Well Based\ACRT\ACRT_1_main_lib

1 INCH MAIN LOG

COMPANY	**DORADO E&P PARTNERS LLC.**		
WELL	**TOEWS 25-9-4 #1H**		
FIELD	**UNKNOWN**		
COUNTY	**RENO**	STATE	**KANSAS**

HALLIBURTON

ARRAY COMPENSATED TRUE RESISTIVITY LOG

HALLIBURTON

MONOPOLE DELTA T LOG

COMPANY	DORADO E&P PARTNERS LLC.
WELL	TOEWS 25-9-4 #1H
FIELD	UNKNOWN
COUNTY	RENO
STATE	KANSAS

COMPANY **DORADO E&P PARTNERS LLC.**

WELL **TOEWS 25-9-4 #1H**

FIELD **UNKNOWN**

COUNTY **RENO** STATE **KANSAS**

API No. 15-155-21592

Location (SHL) 150' FNL & 450' FWL

Other Services: DSN/SDL, ACRT, WSTT, MRIL

Sect. 4 Twp. 25S Rge. 9W

Permanent Datum	GL	Elev. 1698.0 ft	Elev.: K.B. 1710.0 ft
Log measured from	KB	12.0 ft above perm. Datum	D.F. 1710.0 ft
Drilling measured from	KB		G.L. 1698.0 ft

Date	28-Sep-12				
Run No.	ONE				
Depth - Driller	4137.00 ft				
Depth - Logger	4143.0 ft				
Bottom - Logged Interval	4112				
Top - Logged Interval	1430				
Casing - Driller	9.625 in	@ 1450.0 ft	@		@
Casing - Logger	1449.0 ft				
Bit Size	8.750 in		@		@
Type Fluid in Hole	WATER BASED MUD				
Density / Viscosity	8.9 ppg	44.00 s/qt			
PH / Fluid Loss	11.00 pH	4.2 cptm			
Source of Sample	FLOW LINE				
Rm @ Meas. Temperature	0.991 ohmm	@ 75.00 degF	@		@
Rmf @ Meas. Temperature	0.84 ohmm	@ 75.00 degF	@		@
Rmc @ Meas. Temperature	1.139 ohmm	@ 75.00 degF	@		@
Source Rmf / Rmc	MEAS	MEAS			
Rm @ BHT	0.65 ohmm	@ 118.0 degF	@		@
Time Since Circulation	6.0 hr				
Time on Bottom	28-Sep-12 09:15				
Max. Rec. Temperature	118.0 degF	@ 4143.0 ft	@		@
Equipment / Location	10546696	LIBERAL			
Recorded By	S. INGERSOLL				
Witnessed By	DAVID WHEELER				

Fold here

Service Ticket No.: 9841024 API Serial No.: 15-155-21592 PGM Version: WL INSITE R3.6.0 (Build 3)

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	N/A	1.5" S.O.	
	I962S909			

EQUIPMENT DATA

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.	ONE	Run No.	ONE	Run No.	ONE
Serial No.	11039640	Serial No.	10894370	Serial No.	10950489	Serial No.	11019643
Model No.	GTET	Model No.	WSST	Model No.	SDLT	Model No.	DSNT
Diameter	3.625"	No. of Cent.	2	Diameter	4.5"	Diameter	3.625
Detector Model No.	GTET	Spacing	.5'	Log Type	GAM-GAM	Log Type	NEU-NEU
Type	SCINT			Source Type	CS-137	Source Type	AM-241BE
Length	8"	LSA [Y/N]	YES	Serial No.	5168GW	Serial No.	DSN-424
Distance to Source	N/A	FWDA [Y/N]	YES	Strength	1.5 CI	Strength	15CIW

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	4137	100	REC	0	150	30	-10	47.6 us/ft	30	-10	2.71 gm/cc	30	-10	LIME

DIRECTIONAL INFORMATION

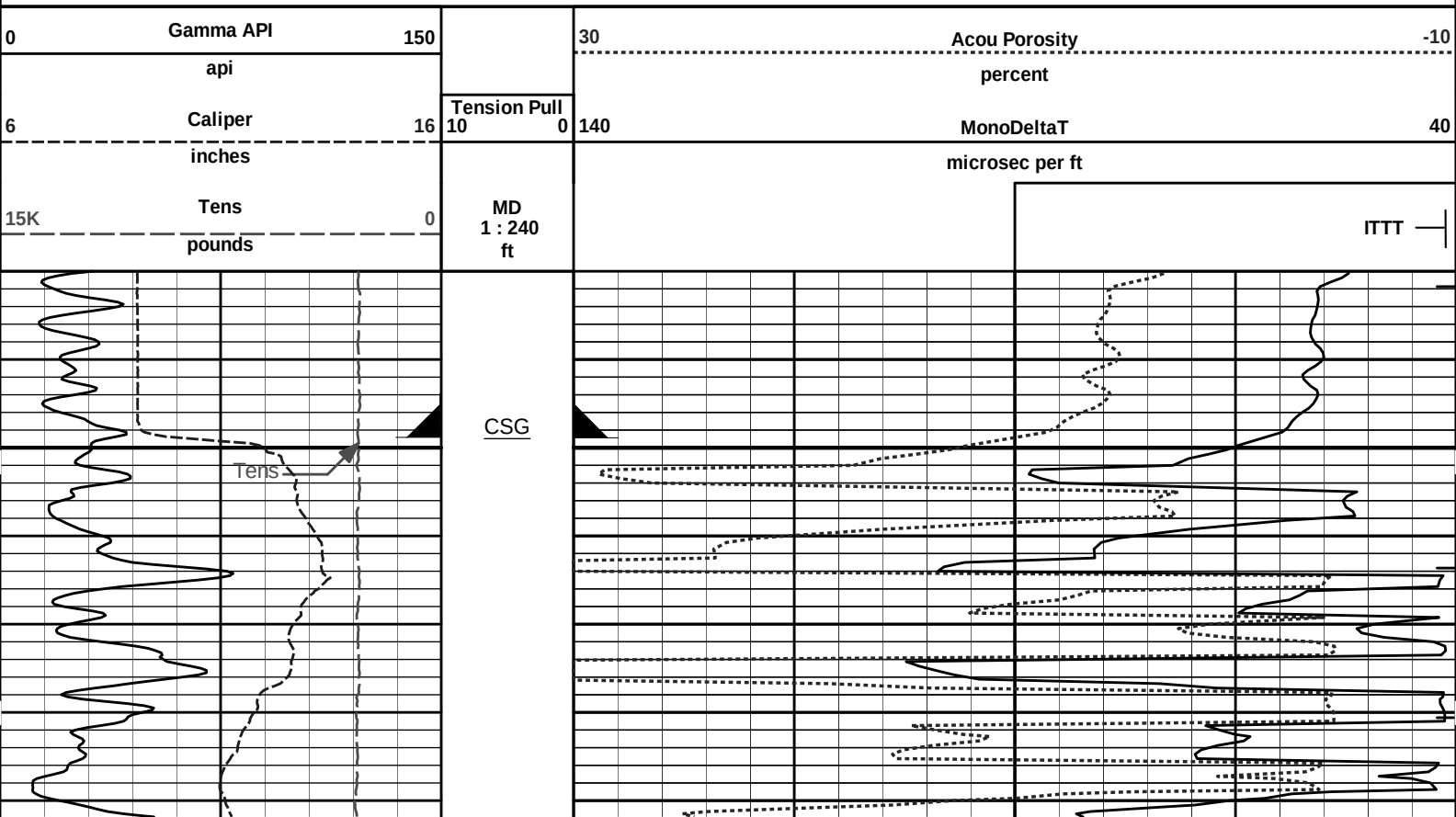
Maximum Deviation	@	KOP	@

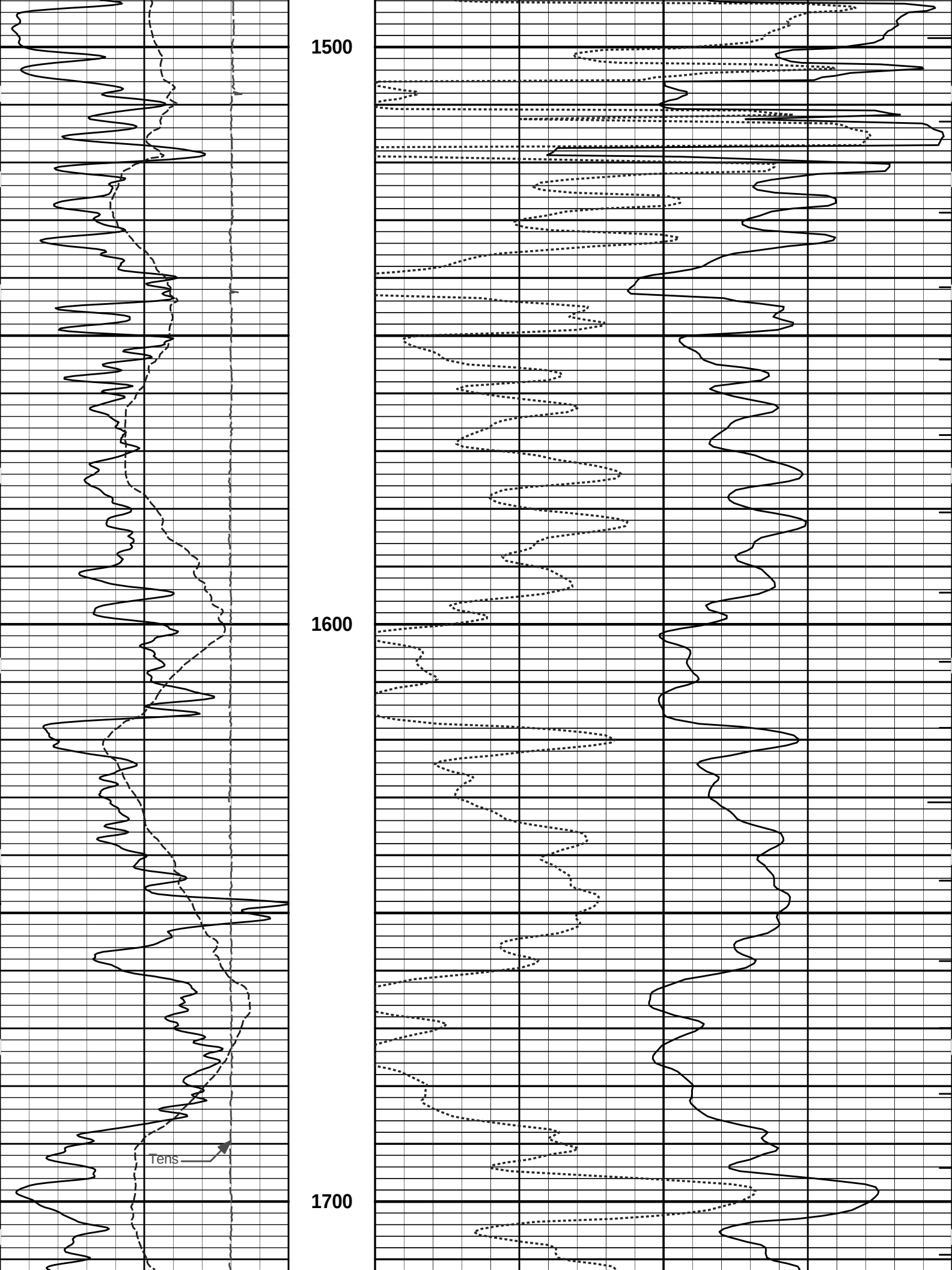
Remarks:

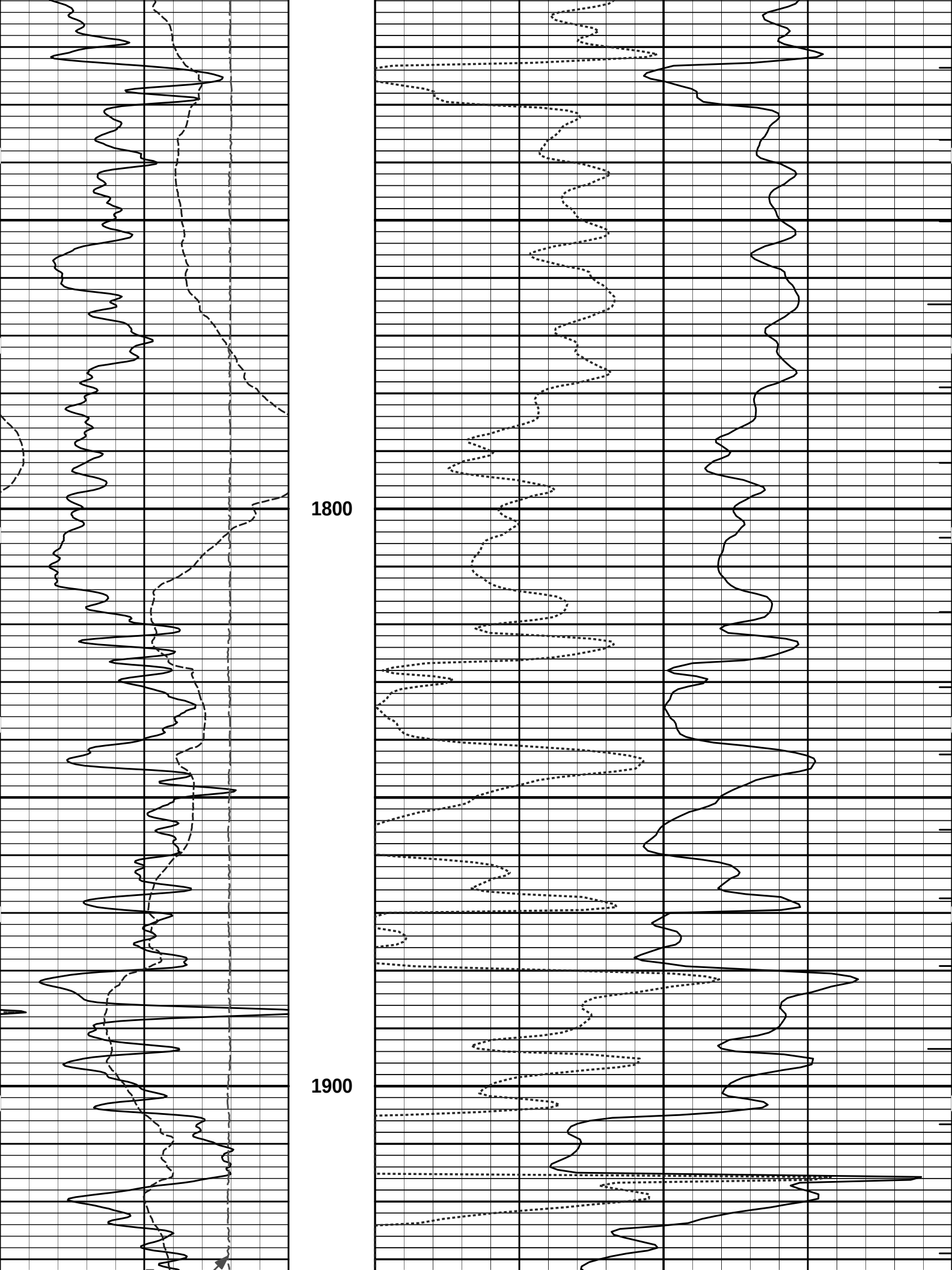
HALLIBURTON

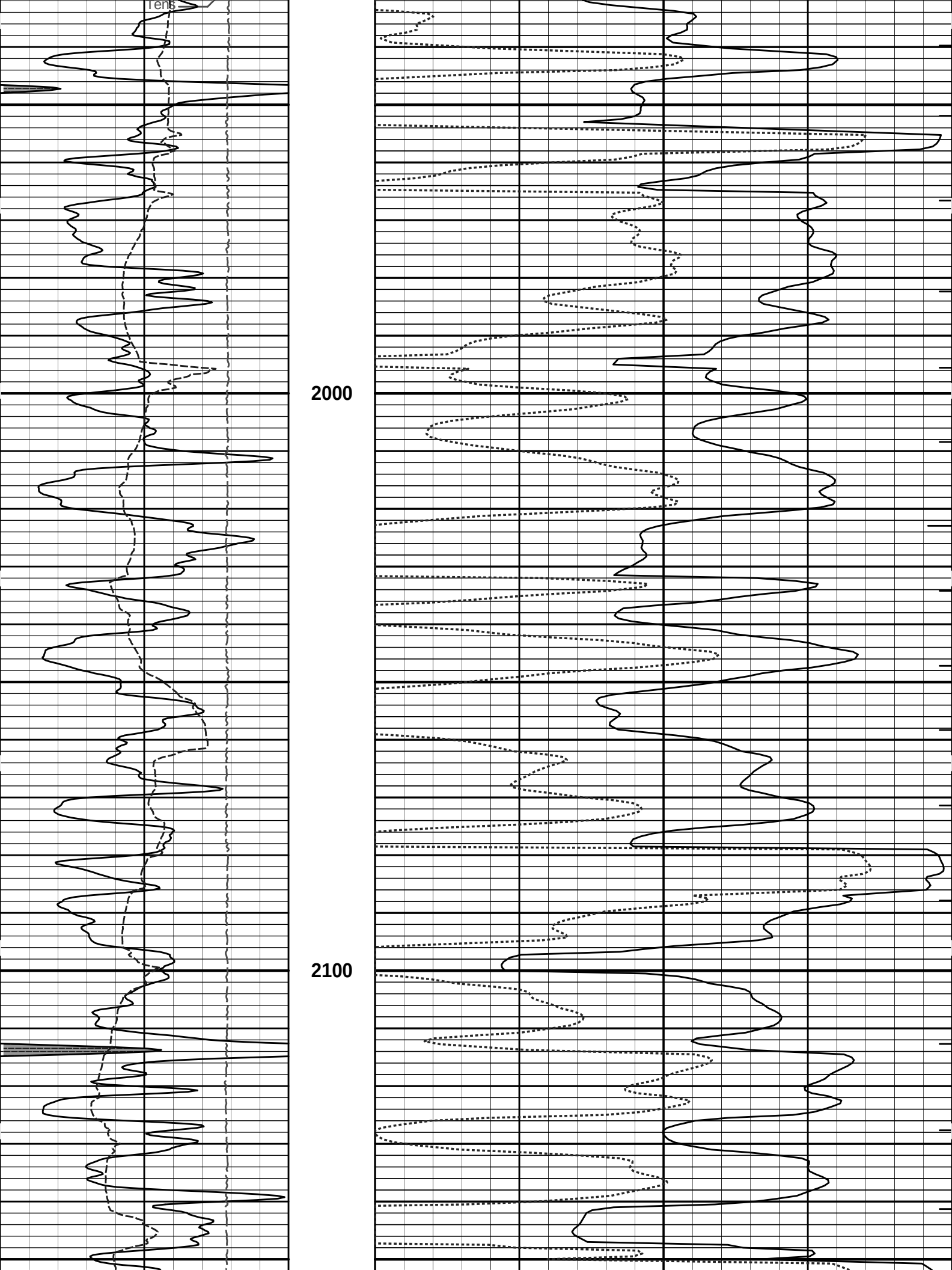
Plot Time: 28-Sep-12 14:35:13
Plot Range: 1430 ft to 4147.67 ft
Data: DOR_TOEWS25-9-4\Well Based\DAQ-0004-004
Plot File: \\DELTA_T\WSTT_MONO_5_MAIN_LIB

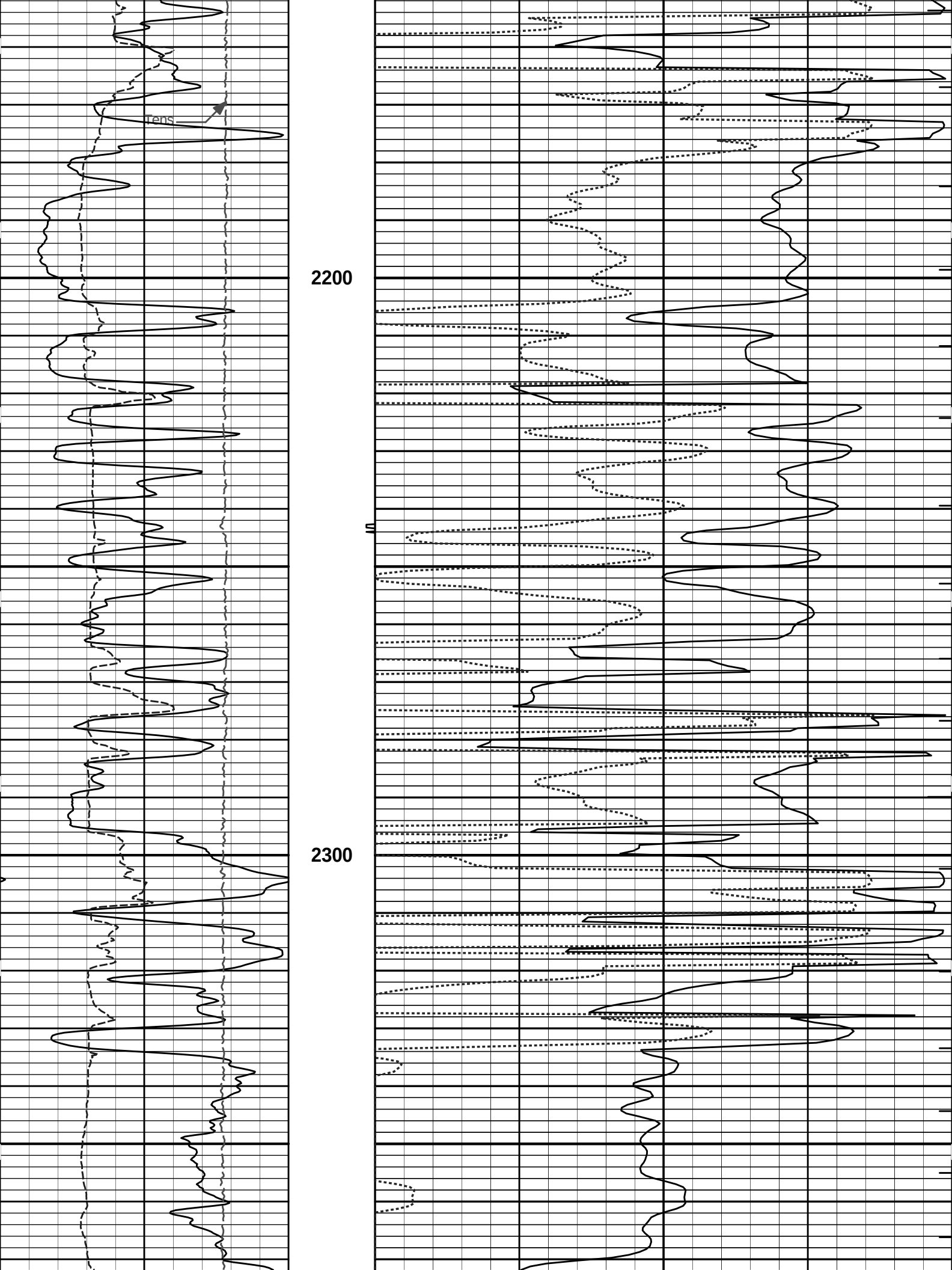
5 INCH MAIN LOG

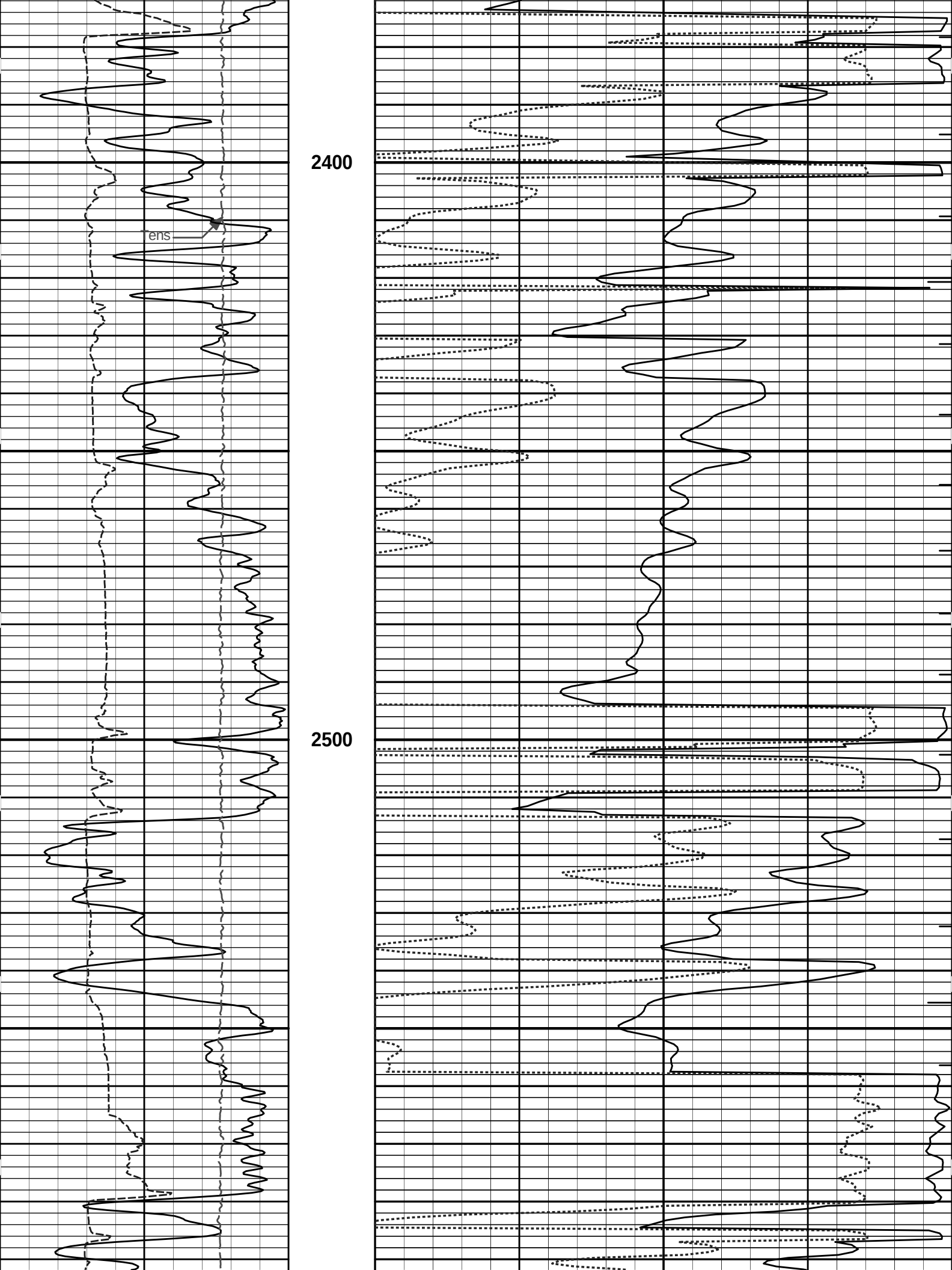


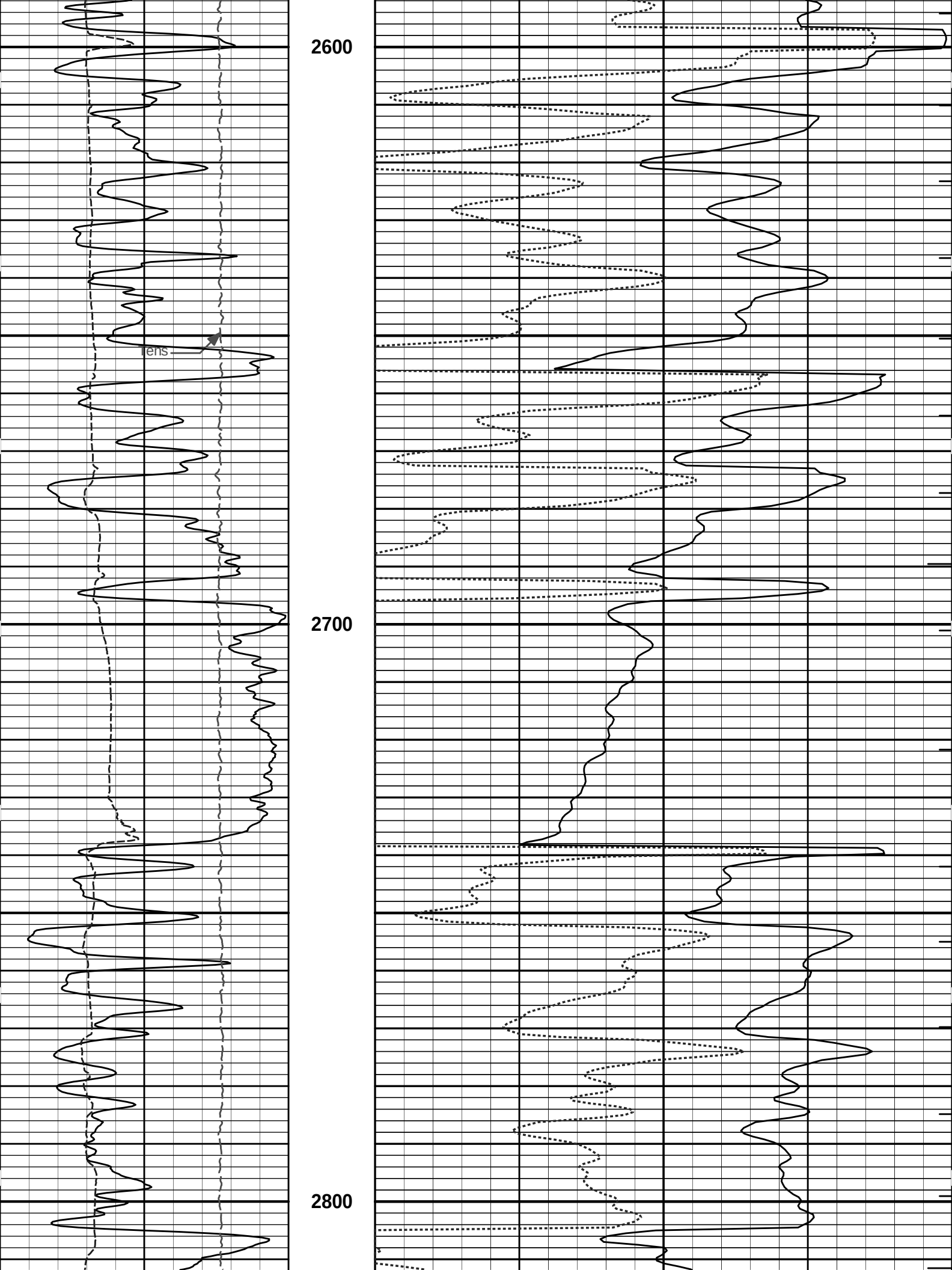

1500
1600
1700
Tens

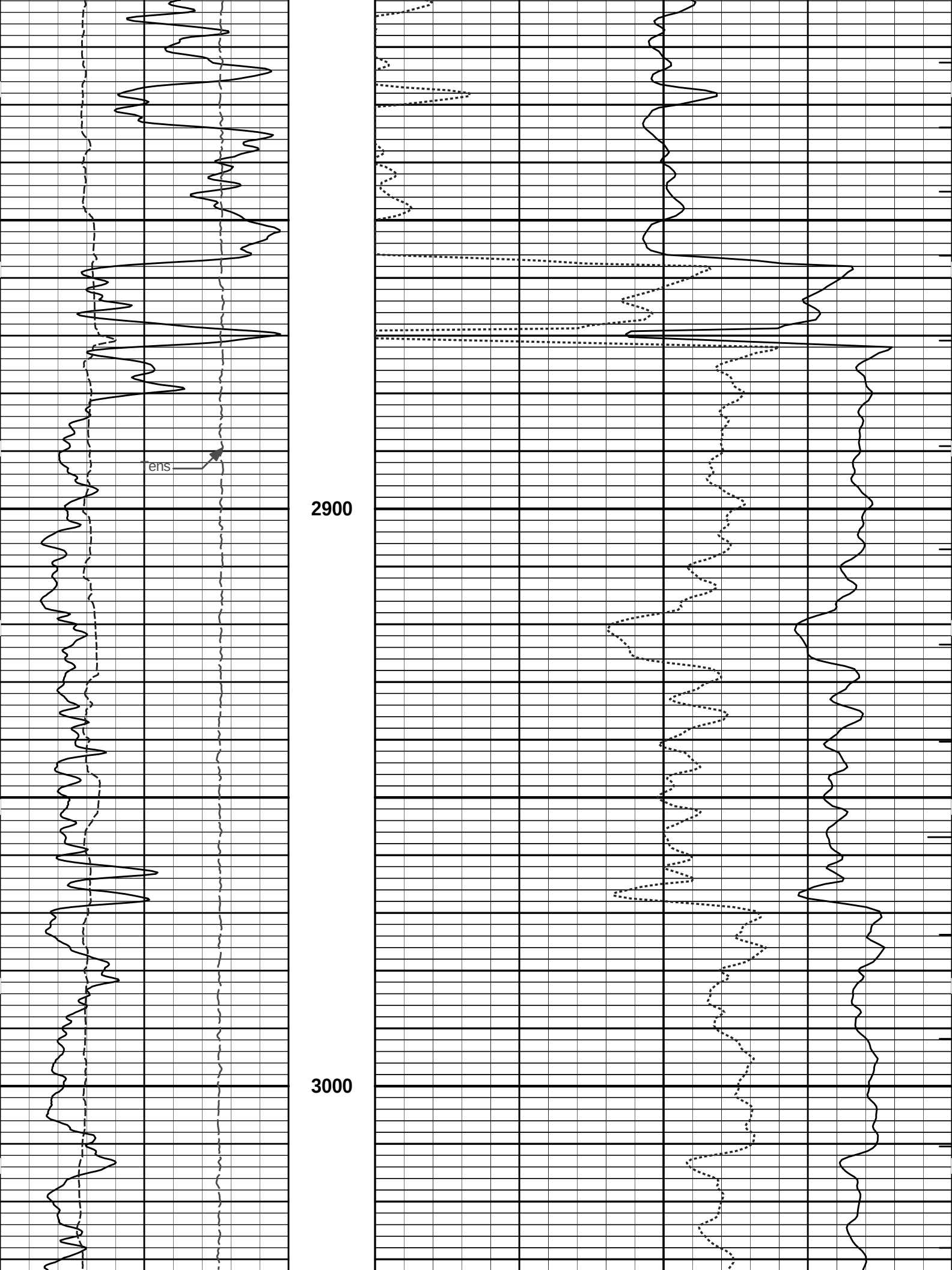

1800
1900

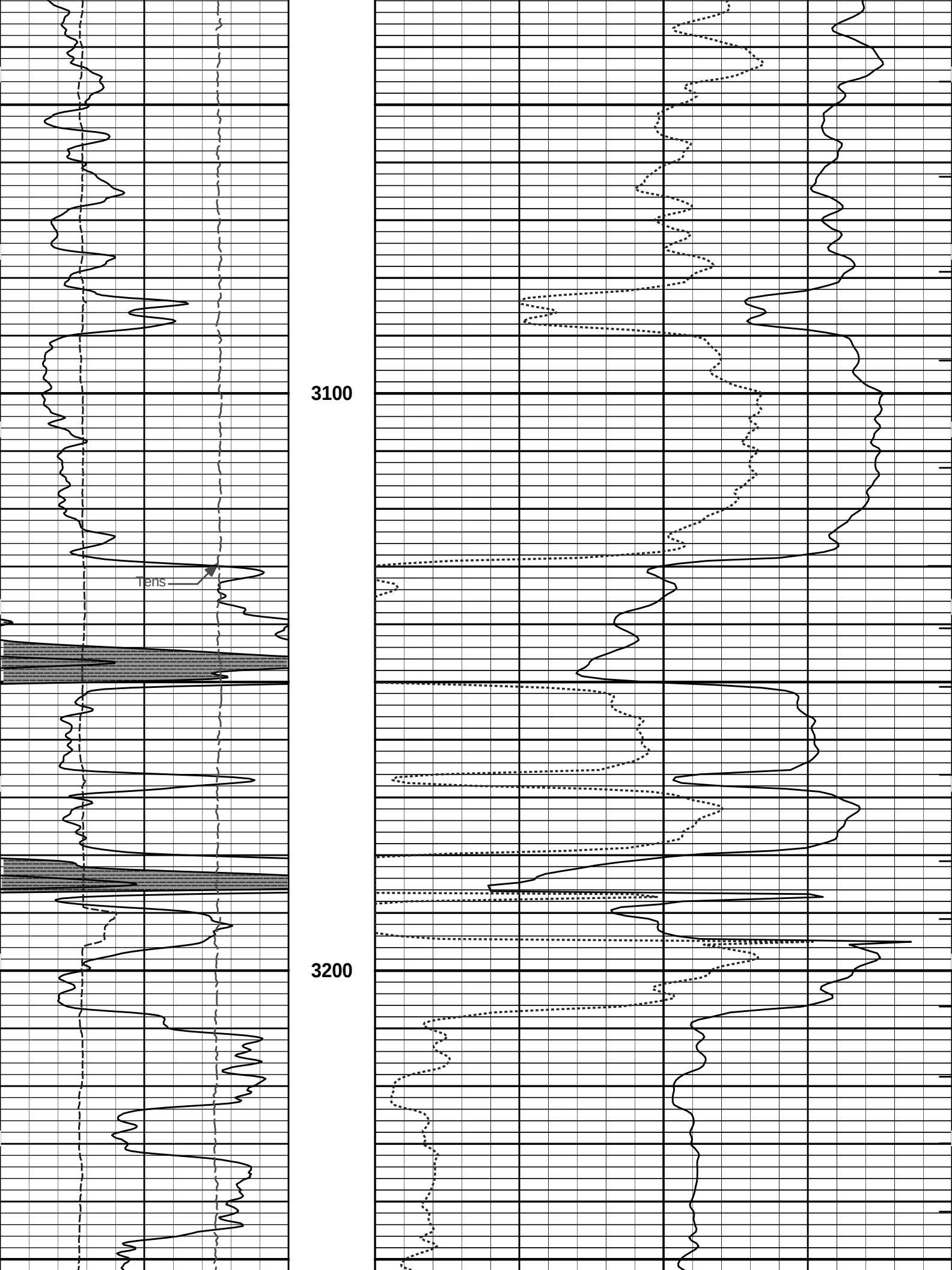

Tens
2000
2100

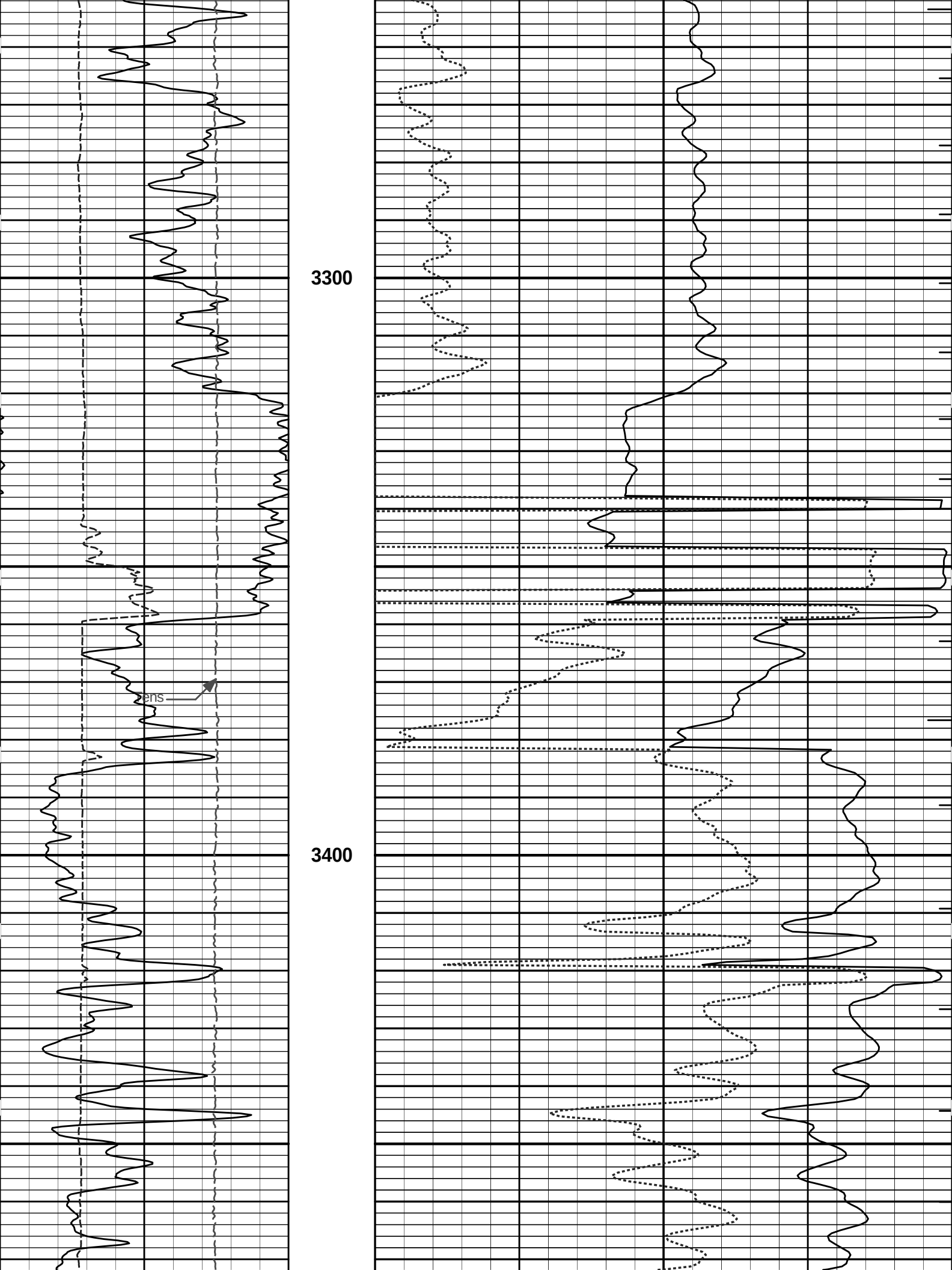

Tens
2200
2300

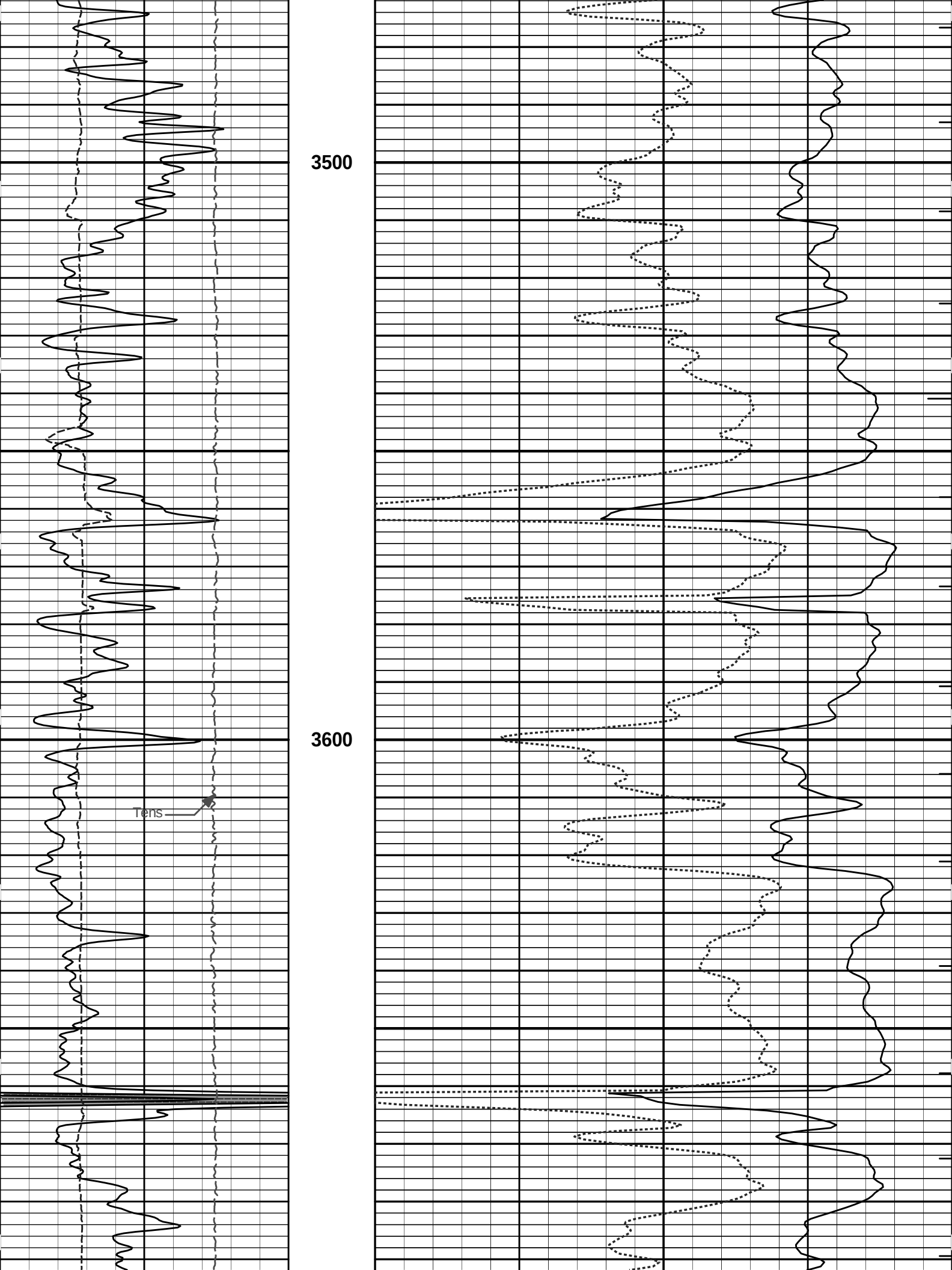

2400
Tens
2500

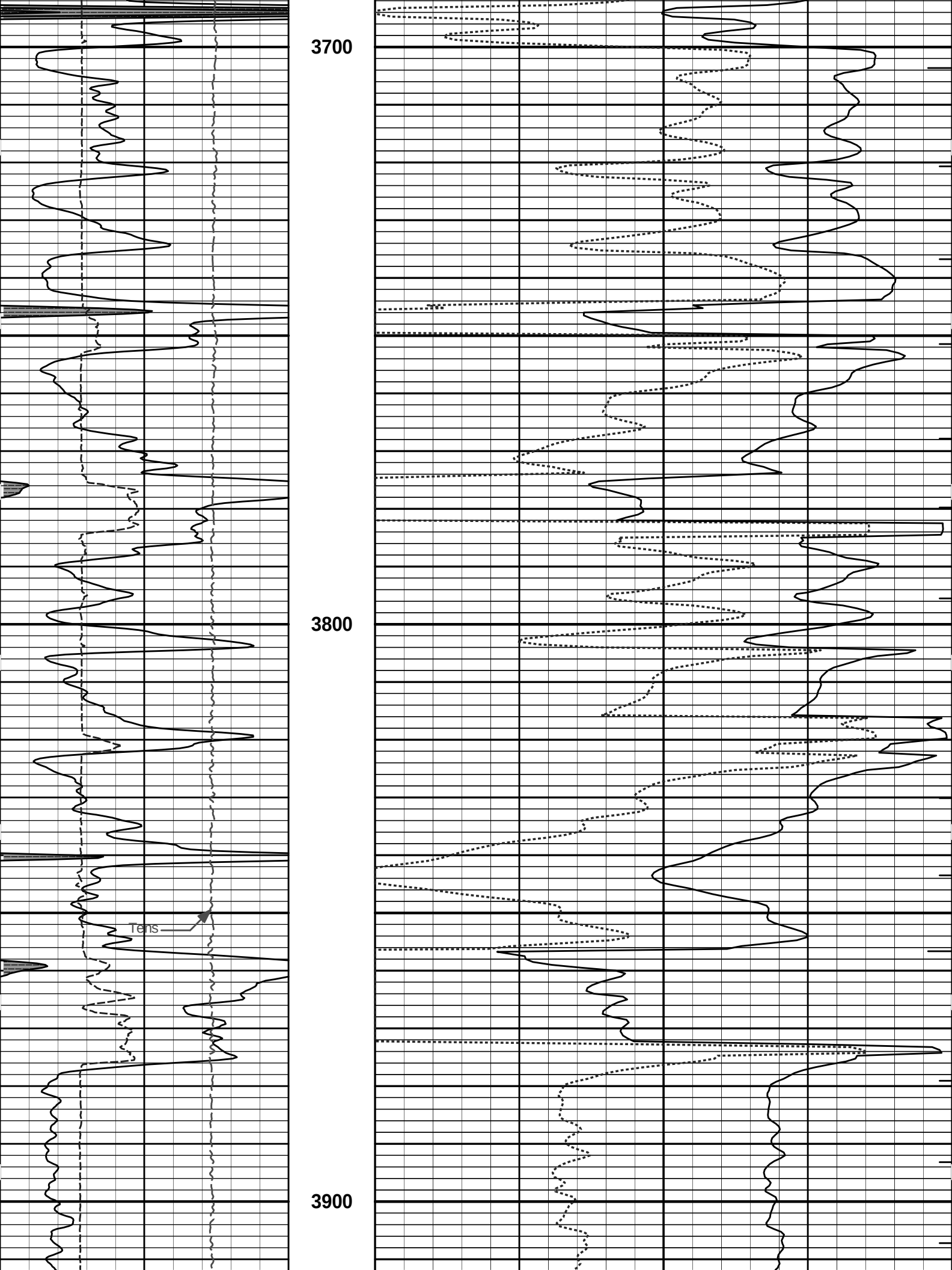

2600
Tens
2700
2800

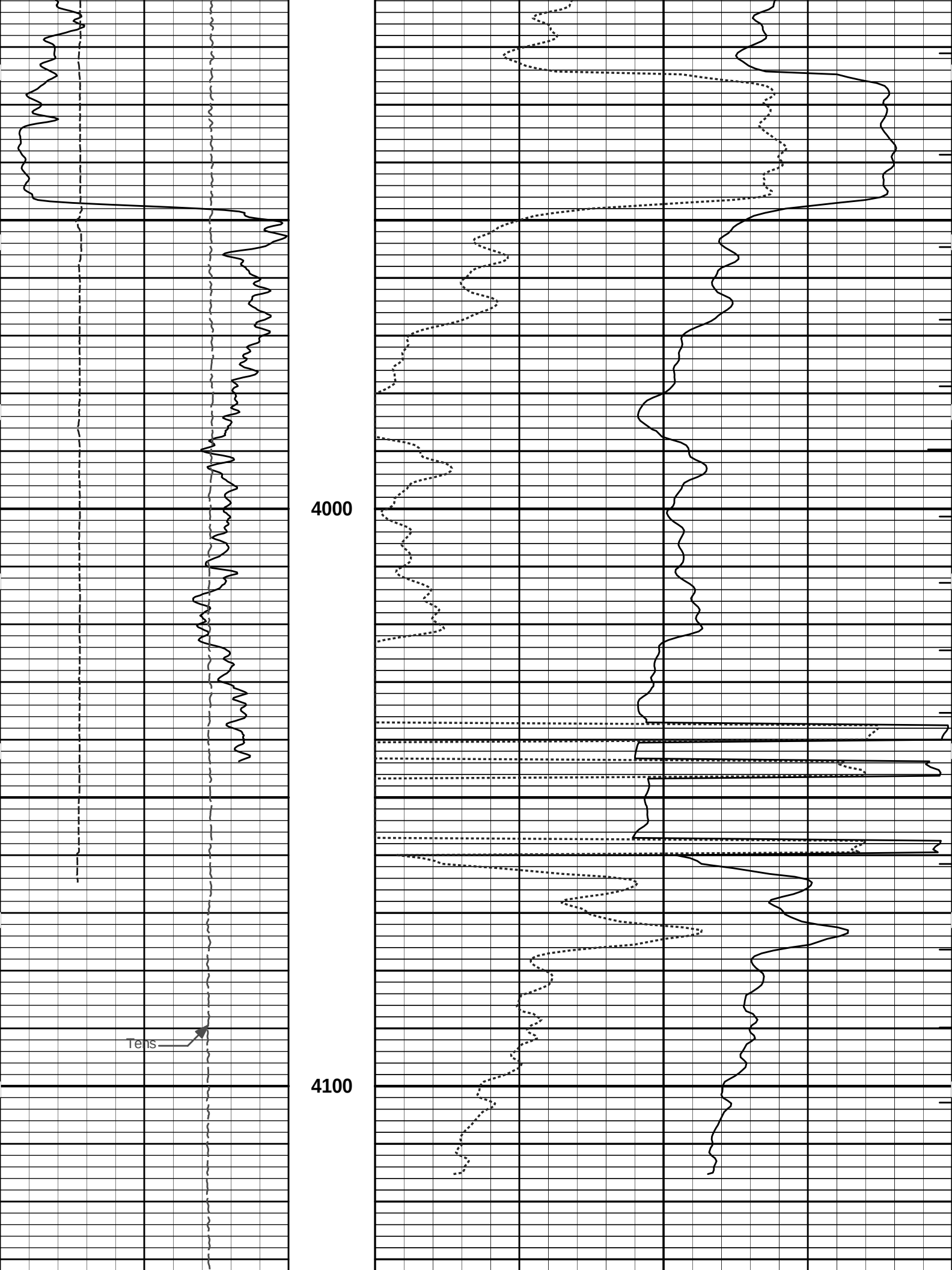

Tens
2900
3000


3100
Tens
3200


3300
3400
ens


3500
3600
Tens


3700
3800
3900
Tens


4000
Tens
4100

TD

15K Tens 0
pounds
6 Caliper 16
inches
0 Gamma API 150
api

MD
1 : 240
ft

Tension Pull
10 0

ITTT

140 MonoDeltaT 40
microsec per ft
30 Acou Porosity -10
percent

HALLIBURTON

Plot Time: 28-Sep-12 14:35:22
Plot Range: 1430 ft to 4147.67 ft
Data: DOR_TOEWS25-9-4\Well Based\DAQ-0004-004\
Plot File: \\DELTA_T\WSTT_MONO_5_MAIN_LIB

5 INCH MAIN LOG

HALLIBURTON

Plot Time: 28-Sep-12 14:35:22
Plot Range: 3600 ft to 4144.42 ft
Data: DOR_TOEWS25-9-4\Well Based\DAQ-0004-003\
Plot File: \\DELTA_T\WSTT_MONO_5_REP[_LIB

5 INCH MAIN LOG

0 Gamma API 150
api
6 Caliper 16
inches
15K Tens 0
pounds

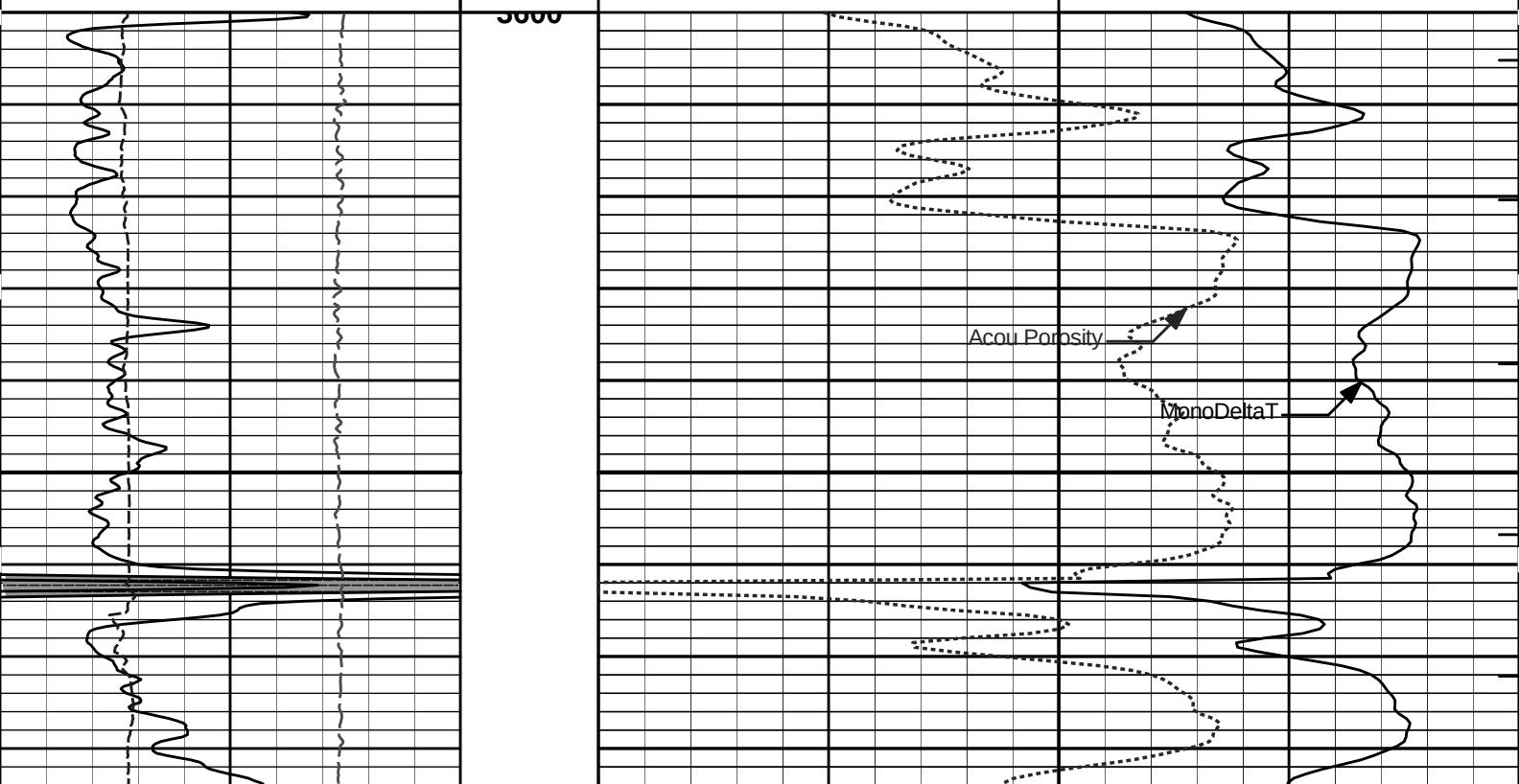
Tension Pull
10 0

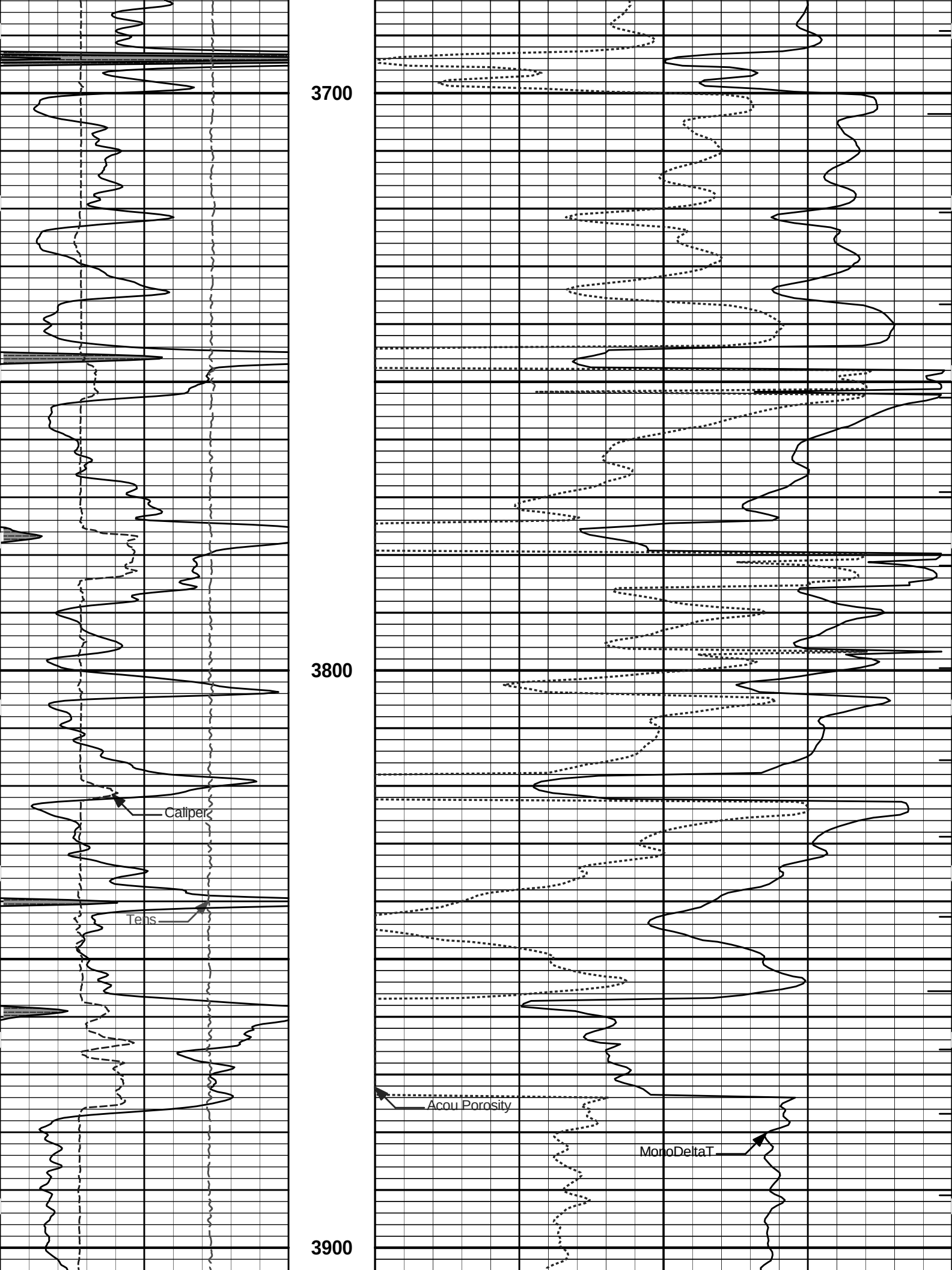
MD
1 : 240
ft

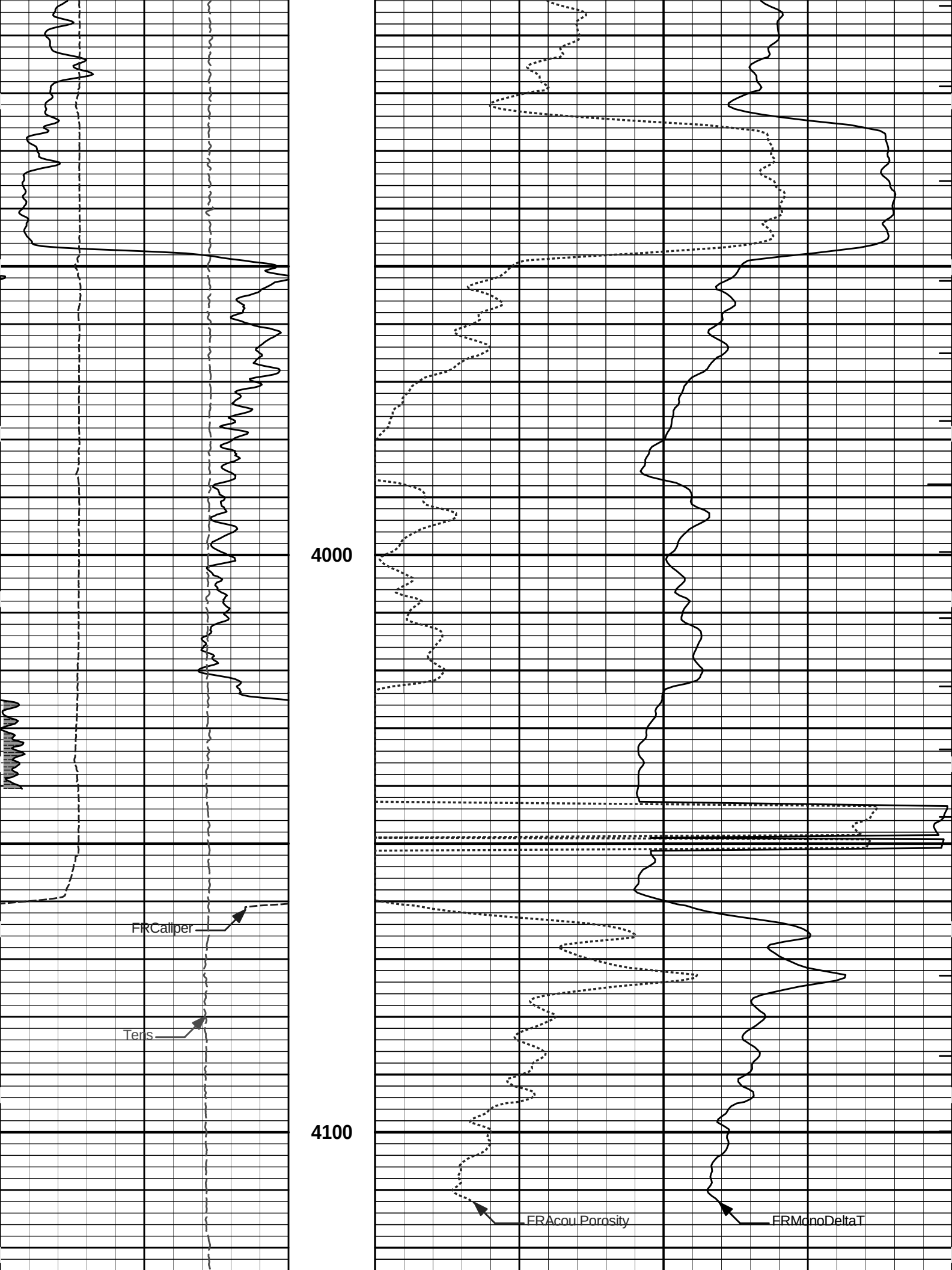
3600

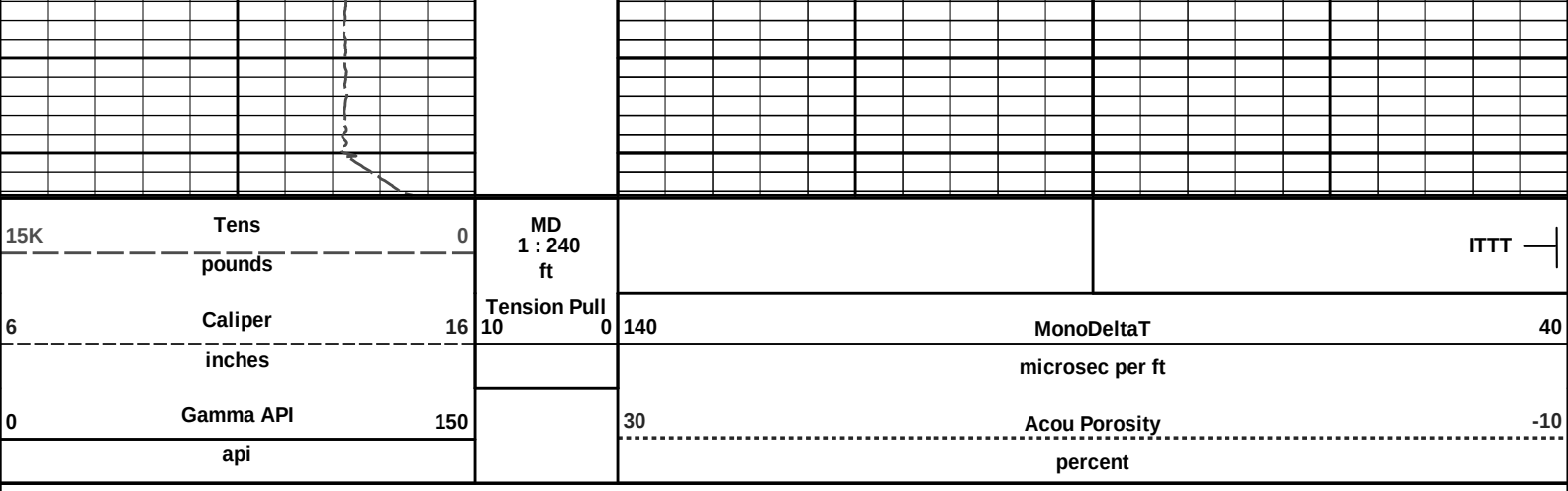
30 Acou Porosity -10
percent
140 MonoDeltaT 40
microsec per ft

ITTT




3700
3800
3900
Caliper
Tens
Acou Porosity
MonoDeltaT


4000
4100
FRCaliper
Tens
FRAcou Porosity
FRMonoDeltaT



HALLIBURTON

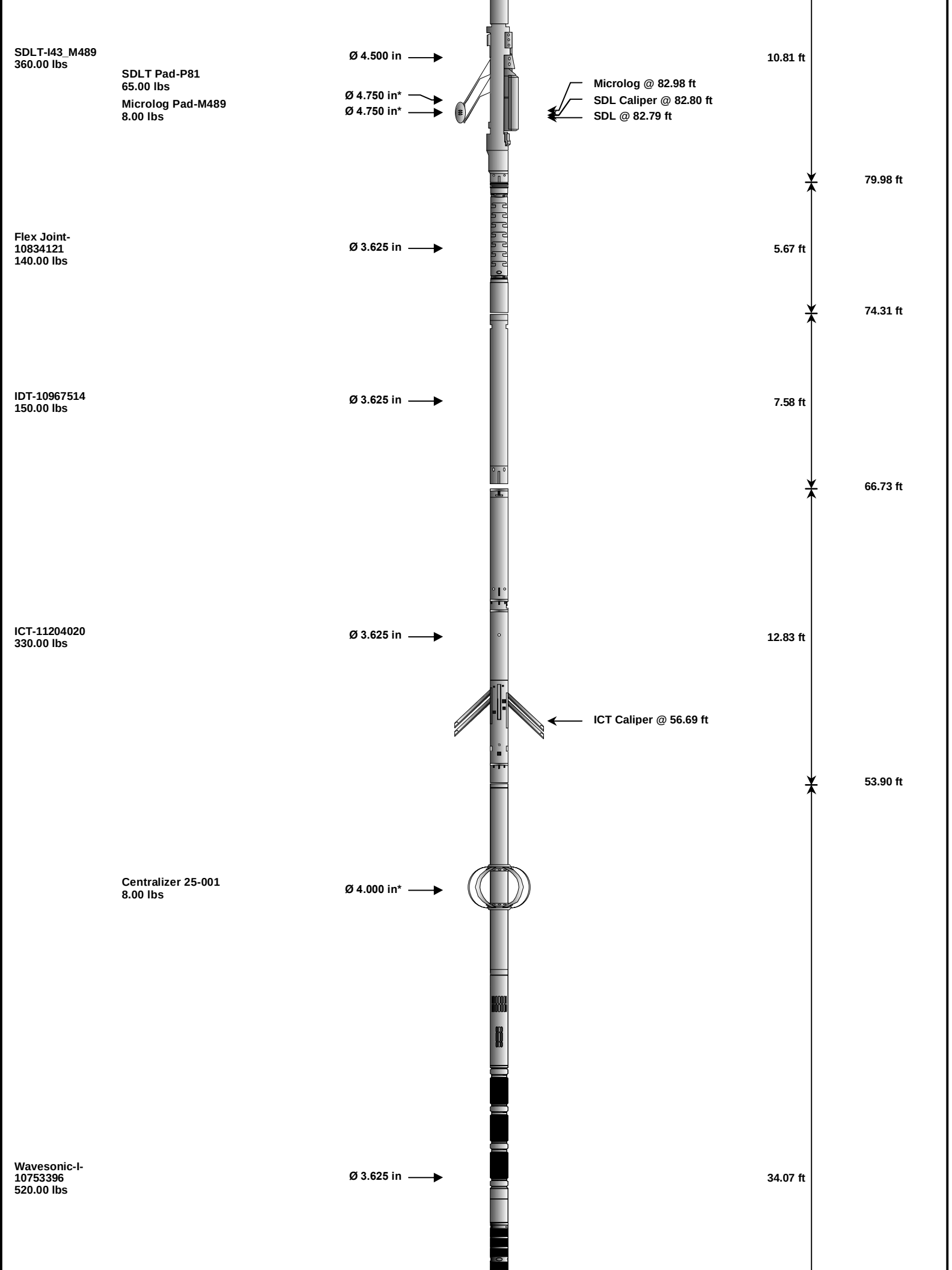
Plot Time: 28-Sep-12 14:35:26
Plot Range: 3600 ft to 4144.42 ft
Data: DOR_TOEWS25-9-4\Well Based\DAQ-0004-003\
Plot File: \\DELTA_T\WSTT_MONO_5_REP[_LIB

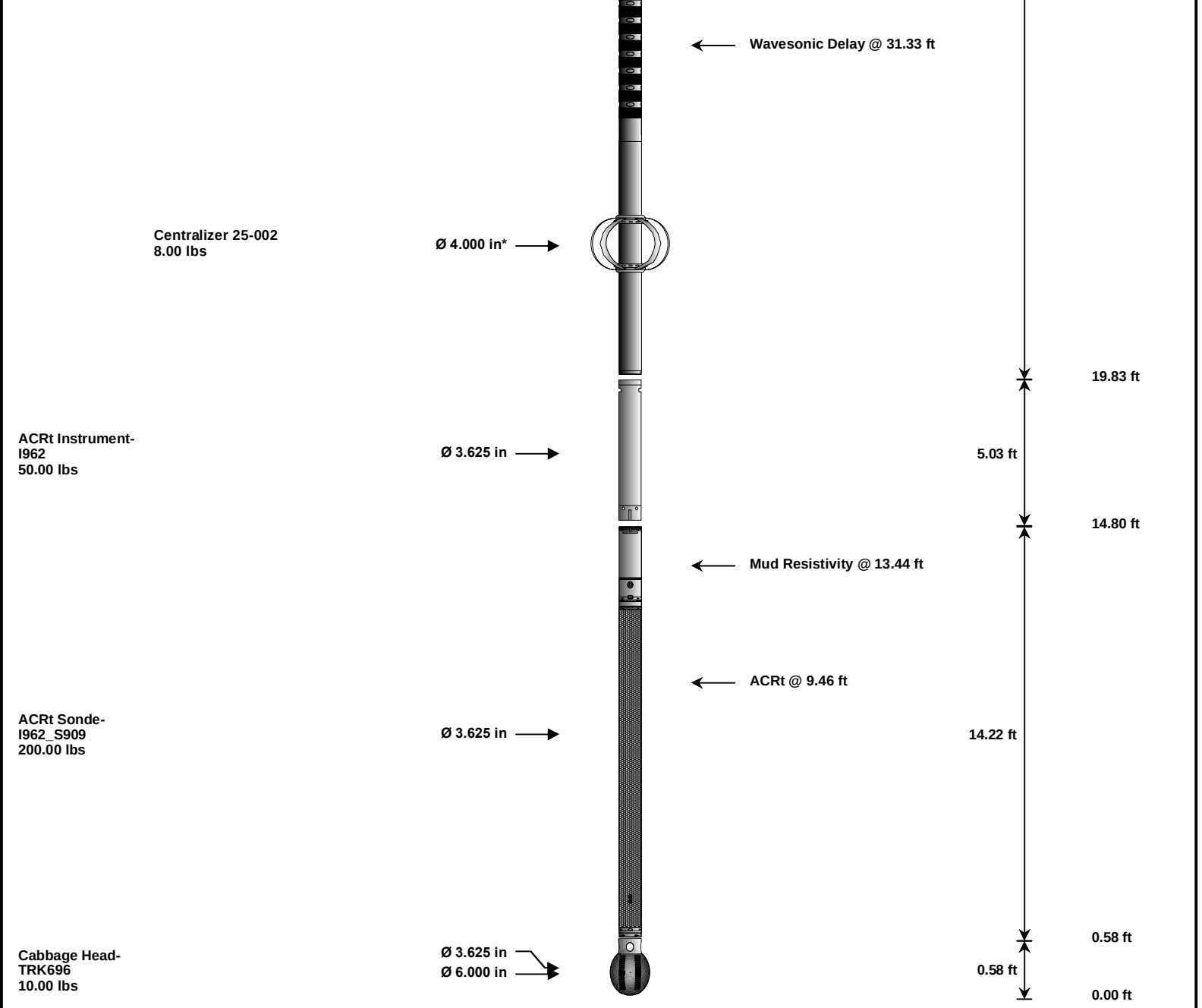
5 INCH MAIN LOG

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
						115.77 ft
CH_HOS-CH_696 37.50 lbs		Ø 2.750 in →		← Temperature @ 114.74 ft	3.03 ft	
						112.74 ft
SP Sub-11441455 60.00 lbs		Ø 3.625 in →		← SP @ 110.96 ft	3.74 ft	
						109.00 ft
GTET-11039640 165.00 lbs		Ø 3.625 in →			8.52 ft	
				← GammaRay @ 102.94 ft		
						100.48 ft
DSNT-11055304 174.00 lbs	DSN Decentralizer-11005605 6.60 lbs	Ø 5.000 in* → Ø 3.625 in →		← DSN Far @ 93.55 ft ← DSN Near @ 92.80 ft	9.69 ft	
						90.80 ft


SDLT-I43_M489
360.00 lbs
SDLT Pad-P81
65.00 lbs
Microlog Pad-M489
8.00 lbs
Ø 4.500 in
Ø 4.750 in*
Ø 4.750 in*
Microlog @ 82.98 ft
SDL Caliper @ 82.80 ft
SDL @ 82.79 ft
10.81 ft
79.98 ft
Flex Joint-
10834121
140.00 lbs
Ø 3.625 in
5.67 ft
74.31 ft
IDT-10967514
150.00 lbs
Ø 3.625 in
7.58 ft
66.73 ft
ICT-11204020
330.00 lbs
Ø 3.625 in
12.83 ft
ICT Caliper @ 56.69 ft
53.90 ft
Centralizer 25-001
8.00 lbs
Ø 4.000 in*
Wavesonic-I-
10753396
520.00 lbs
Ø 3.625 in
34.07 ft



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)		Accumulated Length (ft)	Max.Log. Speed (fpm)
CH HOS	Hostile Cable Head with Load Cell	CH 696	37.50	3.03		112.74	300.00
SP	SP Sub	11441455	60.00	3.74		109.00	300.00
GTET	Gamma Telemetry Tool	11039640	165.00	8.52		100.48	60.00
DSNT	Dual Spaced Neutron	11055304	174.00	9.69		90.80	60.00
DCNT	DSN Decentralizer	11005605	6.60	5.13	*	94.13	300.00
SDLT	Spectral Density Tool	I43_M489	360.00	10.81		79.98	60.00
MICP	Microlog Pad	M489	8.00	1.00	*	82.48	60.00
SDLP	Density Insite Pad	P81	65.00	2.55	*	82.19	60.00
FLEX	Flex Joint	10834121	140.00	5.67		74.31	300.00
IDT	Insite Directional Tool	10967514	150.00	7.58		66.73	30.00
ICT	Six Independent Arm Caliper	11204020	330.00	12.83		53.90	30.00
WSTT	WaveSonic Insite	10753396	520.00	34.07		19.83	30.00
OBCEN	Centralizer - 25 in. Overbody	001	8.00	2.08	*	48.31	300.00
OBCEN	Centralizer - 25 in. Overbody	002	8.00	2.08	*	23.40	300.00
ACRt	Array Compensated True Resistivity Instrument Section	I962	50.00	5.03		14.80	300.00
ACRt	Array Compensated True Resistivity Sonde Section	I962_S909	200.00	14.22		0.58	300.00
CBHD	Cabbage Head	TRK696	10.00	0.58		0.00	300.00
Total			**2,292.10**	**115.77**			

* Not included in Total Length and Length Accumulation.

Data: DOR_TOEWS25-9-4\0004 SP-GTET-DSN-SDL-IDT-ICT-WSTT-ACRT-CH\IDLE **Date: 28-Sep-12 02:50:39**

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	**GTET - 11039640**	**Reference Calibration Date:**	**24-Aug-12 11:06:42**
Engineer:	**S. INGERSOLL**	**Calibration Date:**	**25-Sep-12 15:48:12**
Software Version:	**WL INSITE R3.6.0 (Build 3)**	**Calibration Version:**	**1**

Calibrator Source S/N: TB146

Calibrator API Reference:265.00 api

Equivalent Calibrator API Reference:269.6 api

Measurement	Measured	Calibrated	Units
Background	55.4	55.5	api
Background + Calibrator	324.5	325.2	api
Calibrator	269.1	269.6	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name:	**GTET - 11039640**	**Reference Calibration Date:**	**25-Sep-12 15:48:12**
Engineer:	**T. HYDE**	**Calibration Date:**	**27-Sep-12 10:16:46**
Software Version:	**WL INSITE R3.6.0 (Build 3)**	**Calibration Version:**	**1**

Calibrator Source S/N: TB146

Calibrator API Reference:265.00 api

Equivalent Calibrator API Reference:269.6 api

Field Verification	Shop	Field	Units
Background	55.5	39.9	api
Background + Calibrator	325.2	313.2	api
Calibrator	269.6	273.3	api

Shop	Field	Difference	Tolerance
269.6	273.3	-3.7	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	**DSNT - 11055304**	**Reference Calibration Date:**	**05-Sep-12 14:27:57**
Engineer:	**T. HYDE**	**Calibration Date:**	**05-Sep-12 14:46:31**
Software Version:	**WL INSITE R3.6.0 (Build 3)**	**Calibration Version:**	**1**

Logging Source S/N: 696

Tank Serial Number: LIBERAL_NEUTRON

Reference value assigned to Tank: 51.680

Snow Block S/N: 696

Calibration Tank Water Temperature: 68 degF

Min. Tool Housing Outside Diameter: 3.620 in

CALIBRATION CONSTANTS

Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	0.987	0.989	0.900 - 1.100

WATER TANK SUMMARY (Horizontal Water Tank)

Measurement	Current Reading (Previous Coef.)	Calibrated (New Coef.)	Change	Control Limit On Change
Porosity (dec):	0.3101	0.3107	0.0006	+/- 0.0020

Porosity (decp):	0.2101	0.2107	0.0006	+/- 0.0020
Calibrated Ratio:	9.70	9.72	0.019	+/- 0.050

VERIFIER		
Measurement	**Value**	**Control Limit**
Snow-Block Porosity (decp):	0.0691	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 - 11055304 **Reference Calibration Date:** 05-Sep-12 14:46:31

Engineer: S. INGERSOLL **Calibration Date:** 28-Sep-12 02:21:52

Software Version: WL INSITE R3.6.0 (Build 3) **Calibration Version:** 1

Logging Source S/N: 696

Snow Block S/N: 696

NEUTRON FIELD-CHECK SUMMARY				
	Shop	**Field**	**Difference**	**Control Limit On Change**
Snow-Block Porosity (decp):	0.0691	0.0734	0.0042	+/- 0.0150

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

DENSITY CALIPER SHOP CALIBRATION

Tool Name: SDLT - I43_M489 **Reference Calibration Date:** 01-Jan-70 00:00:00

Engineer: S. INGERSOLL **Calibration Date:** 06-Sep-12 07:33:37

Software Version: WL INSITE R3.6.0 (Build 3) **Calibration Version:** 1

Host Tool Name: DSNT - 11055304

CALIBRATION COEFFICIENTS			
Measurement	**Previous Value**	**New Value**	**Control Limit On New Value**
Pad Offset	-2153.99	-2153.99	-7000.00 - -1000.00
Pad Gain	0.0003997	0.0003997	0.000200 - 0.000600
Arm Offset	1430.46	1430.46	-5000.00 - 3000.00
Arm Gain	0.0003851	0.0003851	0.000300 - 0.000700
Arm Power	0.000004432	0.000004432	-0.000010000 - 0.000010000

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)	3.75	3.75	0.00	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.50	6.50	0.00	+/- 0.20
Medium Ring (in)	8.25	8.25	0.00	+/- 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

MICRO LOG SHOP CALIBRATION

Tool Name: Microlog Pad - M489 **Reference Calibration Date:** 01-Nov-11 03:10:56

Engineer: S. INGERSOLL **Calibration Date:** 16-Sep-12 20:05:23

Software Version: WL INSITE R3.6.0 (Build 3) **Calibration Version:** 1

Host Tool Name: DSNT - 11055304

CALIBRATION COEFFICIENT SUMMARY

Measurement	Micro Log Normal		Micro Log Lateral		
	Measured	Calibrated	Measured	Calibrated	Units
Tool Zero	-0.08	-0.07	-0.01	-0.01	ohmm
Calibration Point #1	-0.01	0.00	0.00	0.00	ohmm
Calibration Point #2	19.77	20.00	19.65	20.00	ohmm
Internal Reference	19.71	19.94	19.64	19.99	ohmm

Measurement	Micro Log Normal Tool Value	Micro Log Lateral Tool Value	Units
Tool Zero	-0.51	0.41	V
Calibration Point #1	16.72	2.97	V
Calibration Point #2	5307.12	6901.02	V
Internal Reference	5291.44	6896.15	V

MICRO LOG FIELD CHECK

Tool Name: Microlog Pad - M489 **Reference Calibration Date:** 16-Sep-12 20:05:23

Engineer: S. INGERSOLL **Calibration Date:** 28-Sep-12 02:20:19

Software Version: WL INSITE R3.6.0 (Build 3) **Calibration Version:** 1

Measurement	Micro Log Normal		Micro Log Lateral		
	Shop	Field	Shop	Field	Units
Tool Zero	-0.07	-0.06	-0.01	-0.01	ohmm
Internal Reference	19.94	19.83	19.99	19.87	ohmm

Summary

Signal	Shop	Field	Difference	Tolerence
Microlog Normal	19.94	19.83	0.11	+/- 0.80
Microlog Lateral	19.99	19.87	0.12	+/- 0.80

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name: SDLT Pad - P81 **Reference Calibration Date:** 16-Sep-12 19:18:00

Engineer: S. INGERSOLL **Calibration Date:** 16-Sep-12 19:40:44

Software Version: WL INSITE R3.6.0 (Build 3) **Calibration Version:** 1

Logging Source S/N: 5168GW

Aluminum Block S/N: LIBERAL Density: 2.598g/cc Pe: 3.170

Magnesium Block S/N: LIBERAL Density: 1.684g/cc Pe: 2.598

DENSITY CALIBRATION SUMMARY

Measurement	Previous Value	New Value	Control Limit

Near Bar Gain	1.0232	1.0287	0.90 - 1.10
Near Dens Gain	1.0077	1.0081	0.90 - 1.10
Near Peak Gain	1.0124	0.9977	0.90 - 1.10
Near Lith Gain	0.9847	0.9623	0.90 - 1.10
Far Bar Gain	1.0121	1.0124	0.90 - 1.10
Far Dens Gain	0.9996	1.0022	0.90 - 1.10
Far Peak Gain	0.9904	0.9944	0.90 - 1.10
Far Lith Gain	0.9656	0.9696	0.90 - 1.10
Near Bar Offset	-0.0203	-0.0702	NONE
Near Dens Offset	0.1057	0.0994	NONE
Near Peak Offset	0.0598	0.1815	NONE
Near Lith Offset	0.2756	0.4608	NONE
Far Bar Offset	0.0261	0.0257	NONE
Far Dens Offset	0.1218	0.1007	NONE
Far Peak Offset	0.1706	0.1383	NONE
Far Lith Offset	0.3356	0.3064	NONE
Near Bar Background	815.95	817.83	700 - 1450
Near Dens Background	266.98	267.72	230 - 480
Near Peak Background	117.18	116.26	100 - 210
Near Lith Background	143.03	143.18	125 - 260
Far Bar Background	529.88	530.18	450 - 900
Far Dens Background	208.07	208.61	175 - 345
Far Peak Background	83.50	83.59	70 - 140
Far Lith Background	85.86	85.82	75 - 145

CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.687	1.684	-0.003	+/- 0.015
Pe	2.529	2.564	0.035	+/- 0.150
ALUMINUM				
Density (g/cc)	2.598	2.598	0.000	+/- 0.01500
Pe	3.145	3.133	-0.012	+/- 0.150

TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	0.0004	+/- 0.0110	0.0015	+/- 0.0140
Magnesium Block	0.0002	+/- 0.0110	-0.0012	+/- 0.0140
Aluminum Block	-0.0009	+/- 0.0110	0.0007	+/- 0.0140
Resolution	9.41	6.00 - 11.50	8.88	6.00 - 11.50
Internal Verifier(B+D+P+L)	1345	1200 - 2700	908	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 Pad - P81 **Reference Calibration Date:** 16-Sep-12 19:40:44

Engineer: S. INGERSOLL **Calibration Date:** 28-Sep-12 02:26:26

Software Version: WL INSITE R3.6.0 (Build 3) **Calibration Version:** 1

Pad Temperature: 64.7 degF

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1344.983	1346.076	1.093	14.831
Far (B+D+P+L) cps	908.205	911.186	2.981	16.365
Near Resolution	9.41	9.53	0.120	0.50
Far Resolution	8.88	9.25	0.370	1.00

PASS/FAIL SUMMARY

Bkg Quality Check:	Passed
Bkg Resolution Check:	Passed
Bkg Verification Check:	Passed

SDLT CALIPER FIELD CALIBRATION

Tool Name: SDLT - I43_M489 **Reference Calibration Date:** 06-Sep-12 07:33:37

Engineer: S. INGERSOLL **Calibration Date:** 22-Sep-12 14:30:40

Software Version: WL INSITE R3.6.0 (Build 3) **Calibration Version:** 1

MEASURED CALIPER VALUES

Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.71	-0.04	+/- 0.10
Ring Diameter	8.25	8.19	-0.06	+/- 0.15

PASS/FAIL SUMMARY

Pad Extension Check:	Passed
Diameter Check:	Passed

ACCELEROMETER AND MAGNETOMETER SHOP CALIBRATION

Tool Name: IDT - 10967514 **Reference Calibration Date:** 25-Feb-10 10:04:50

Engineer: T. HYDE **Calibration Date:** 14-Aug-12 15:10:43

Software Version: WL INSITE R3.6.0 (Build 3) **Calibration Version:** 1

Reference Gravity Field: 1.0000 g

Reference Magnetic Field: 54093.0000 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	Quality(Gravity)	Quality Error(%)	QF
0.2907	-0.6561	-0.0089	0.9988	99.8754	1
-0.6929	-0.2546	-0.0090	1.0008	99.9160	1
-0.3266	0.6707	-0.0080	0.9987	99.8750	1
0.6228	0.3750	-0.0076	1.0011	99.8939	1
0.0040	0.7434	-0.0098	1.0001	99.9850	1
0.6616	0.0814	0.1250	1.0001	99.9922	1
-0.0212	0.7438	-0.0095	1.0005	99.9451	1

-0.0212	0.7438	-0.0095	1.0005	99.9451	1
0.7177	-0.0152	-0.0101	0.9993	99.9308	1
-0.0129	-0.7235	-0.0111	1.0010	99.9031	1
-0.7410	-0.0046	-0.0110	0.9995	99.9519	1
-0.1670	0.0128	0.3432	1.0000	99.9983	1
-0.6589	-0.0231	-0.1779	1.0000	99.9976	1

ACCELEROMETER QUALITY SUMMARY		
Average Calculated Gravity Field	1.0000	g
Standard Deviation Calculated Gravity Field	0.0008	g

ACCELEROMETER GAIN AND OFFSET		
	GAIN	OFFSET
ACC X	1.3697259426	0.0157147683
ACC Y	1.3639539480	-0.0140932603
ACC Z	2.7579212189	0.0306457058

* 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	Quality(Magnetic)	Quality Error(%)	QF
0.0603	1.2769	-0.0006	53534.9414	98.9683	1
1.2664	-0.1417	-0.0017	53876.5078	99.5998	1
-0.0225	-1.2928	-0.0027	53510.5938	98.9233	1
-1.2599	-0.0657	-0.0037	53699.5625	99.2727	1
-0.0098	-1.1543	0.5793	54093.5000	99.9991	1
-1.2506	-0.0575	-0.1316	53638.0430	99.1589	1
0.0122	-1.1515	-0.6020	54746.4570	98.7920	1
-1.1213	0.0455	-0.6031	54940.3867	98.4335	1
0.0177	1.1372	-0.6014	54782.2070	98.7259	1
1.1356	0.0029	-0.6011	55092.7109	98.1519	1
0.2695	-0.5941	1.0711	54403.4609	99.4261	1
0.6782	0.0066	-0.9847	52508.6484	97.0711	1

MAGNETOMETER QUALITY SUMMARY		
Average Calculated Magnetic Field	54068.9180	nT
Standard Deviation Calculated Magnetic Field	755.4872	nT

MAGNETOMETER GAIN AND OFFSET		
	GAIN	OFFSET
MAG X	42444.9140625000	-166.3116760254
MAG Y	41629.1054687500	322.7136230469
MAG Z	44418.2734375000	-280.8706970215

Noise Level Value: 0.000210 cnts

Noise Level Cal Value: 0.0006 g

ICT SHOP CALIBRATION

Tool Name: ICT - 11204020 **Reference Calibration Date:** 14-Aug-12 12:12:34

Engineer: T. HYDE **Calibration Date:** 27-Sep-12 04:45:54

Software Version: WL INSITE R3.6.0 (Build 3) **Calibration Version:** 1

CALIPERS AND RINGS			
Ring	Measured	Calibrated	Units
CALIPER 1:			
Small Ring	3.80	3.65	in

Medium Ring	8.13	8.00	in
Large Ring	15.18	15.00	in
X-Large Ring	21.09	21.00	in
CALIPER 2:			
Small Ring	3.22	3.65	in
Medium Ring	7.51	8.00	in
Large Ring	14.44	15.00	in
X-Large Ring	20.54	21.00	in
CALIPER 3:			
Small Ring	3.47	3.65	in
Medium Ring	7.75	8.00	in
Large Ring	14.79	15.00	in
X-Large Ring	20.86	21.00	in
CALIPER 4:			
Small Ring	3.45	3.65	in
Medium Ring	7.70	8.00	in
Large Ring	14.67	15.00	in
X-Large Ring	20.75	21.00	in
CALIPER 5:			
Small Ring	3.80	3.65	in
Medium Ring	8.13	8.00	in
Large Ring	15.11	15.00	in
X-Large Ring	21.08	21.00	in
CALIPER 6:			
Small Ring	3.80	3.65	in
Medium Ring	8.15	8.00	in
Large Ring	15.22	15.00	in
X-Large Ring	21.10	21.00	in

ICT FIELD CALIBRATION

Tool Name: ICT - 11204020
Reference Calibration Date: 27-Sep-12 04:45:54
Engineer: T. HYDE
Calibration Date: 27-Sep-12 04:47:55
Software Version: WL INSITE R3.6.0 (Build 3)
Calibration Version: 1

CALIPERS

Caliper	Shop	Field	Units
Caliper 1	8.00	7.97	in
Caliper 2	8.00	7.97	in
Caliper 3	8.00	8.00	in
Caliper 4	8.00	7.98	in
Caliper 5	8.00	7.98	in
Caliper 6	8.00	7.98	in

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

Tool Name: ACRt Sonde - I962_S909
Reference Calibration Date: 23-Aug-12 19:00:08
Engineer: S. INGERSOLL
Calibration Date: 26-Sep-12 12:26:10
Software Version: WL INSITE R3.6.0 (Build 3)
Calibration Version: 1
Host Tool Name: ACRt Instrument - I962

TYPICAL GAIN RANGE

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.01	1.05	0.95	1.02	1.05	0.95	1.02	1.05
A2 (50")	0.95	1.02	1.05	0.95	1.02	1.05	0.95	1.02	1.05
A3 (29")	0.95	1.01	1.05	0.95	1.01	1.05	0.95	1.01	1.05

A4 (17")	0.95	1.01	1.05	0.95	1.01	1.05	0.95	1.01	1.05
A5 (10")	N/A	N/A	N/A	0.95	1.01	1.05	0.95	1.00	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.99	1.05	0.95	0.98	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	-0.02	2	-6	-3.17	-2	-8	-5.09	-2
A2 (50")	-7	-1.64	0	-7	-3.53	0	-7	-4.47	0
A3 (29")	-27	-14.39	-9	-9	-4.43	-3	-7	-2.87	-1
A4 (17")	-180	-101.04	-60	-45	-30.80	-15	-39	-26.17	-13
A5 (10")	N/A	N/A	N/A	-150	-100.41	-50	-80	-45.18	-10
A6 (6")	N/A	N/A	N/A	175	286.41	525	90	152.88	270

TRANSMITTER CURRENT GAIN

Signal	Lower	R	Upper
12K	0.6	0.92	1.3
36K	1.0	1.36	2.0
72K	1.0	1.59	2.0

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
SONDE OFFSET RANGE CHK	PASS
Tx CURRENT GAIN	PASS
Rmud VERIFICATION	PASS

TOOL OK TO LOG

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11039640						
Gamma Ray Calibrator	269.6	273.3	----------	-3.7	+/- 9.00	api
DSNT-11055304						
Snow-Block Porosity	0.0691	0.0734	----------	-0.0043	+/- 0.0150	decp
SDLT-I43_M489						
Pad Extension	3.75	3.71	----------	0.04	+/-0.10	in
Ring Diameter	8.25	8.19	----------	0.06	+/-0.15	in
Microlog Pad-M489						
MicroLog Normal	19.94	19.83	----------	0.11	+/-0.80	ohmm
MicroLog Lateral	19.99	19.87	----------	0.12	+/-0.80	ohmm
SDLT Pad-P81						
Near(B+D+P+L)	1344.983	1346.076	----------	-1.093	+/-14.831	cps
Far(B+D+P+L)	908.205	911.186	----------	-2.981	+/-16.365	cps
ICT-11204020						
Caliper 1	8.00	7.97	----------	0.03	+/-0.25	in
Caliper 2	8.00	7.97	----------	0.03	+/-0.25	in
Caliper 3	8.00	8.00	----------	0.00	+/-0.25	in
Caliper 4	8.00	7.98	----------	0.02	+/-0.25	in
Caliper 5	8.00	7.98	----------	0.02	+/-0.25	in
Caliper 6	8.00	7.98	----------	0.02	+/-0.25	in
ACRt Sonde-I962_S909						
Mud Cell	1.00	----------	----------	0.00	----------	ohm-m

HALLIBURTON

PARAMETERS REPORT

Depth ((ft))	Tool Name	Description	Value	Units
TOP				
	SHARED	Bit Size	8.750	in
	SHARED	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	Mud Base	Water	
	SHARED	Borehole Fluid Weight	8.900	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	1.140	ohmm
	SHARED	Temperature of Mud	75.0	degF
	SHARED	Logging Interval is Cased?	No	
	SHARED	AHV Casing OD	7.000	in
	SHARED	Surface Temperature	75.0	degF
	SHARED	Total Well Depth	4137.00	ft
	SHARED	Bottom Hole Temperature	125.0	degF
	SHARED	Navigation and Survey Master Tool	IDT	
	SHARED	High Res Z Accelerometer Master Tool	IDT	
	SHARED	Temperature Master Tool	NONE	
	SHARED	Borehole Size Master Tool	NONE	
	Rwa / CrossPlot	Process Crossplot?	Yes	
	Rwa / CrossPlot	Select Source of F	Automatic	
	Rwa / CrossPlot	Archie A factor	0.6200	
	Rwa / CrossPlot	Archie M factor	2.1500	
	Rwa / CrossPlot	Rmf Reference	0.10	ohmm
	Rwa / CrossPlot	Rmf Ref Temp	75.00	degF
	Rwa / CrossPlot	Resistivity of Formation Water	0.05	ohmm
	Rwa / CrossPlot	Use Air Porosity to calculate CrossplotPhi	No	
	GTET	Process Gamma Ray?	Yes	
	GTET	Gamma Tool Standoff	0.000	in
	GTET	Process Gamma Ray EVR?	No	
	GTET	Tool Position for Gamma Ray Tools.	Eccentered	
	DSNT	Process DSN?	Yes	
	DSNT	Process DSN EVR?	No	
	DSNT	Neutron Lithology	Limestone	
	DSNT	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.250	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 Caliper Outputs?	Yes	
	Microlog Pad	Process MicroLog Outputs?	Yes	
	SDLT Pad	Process Density?	Yes	
	SDLT Pad	Process Density EVR?	No	
	SDLT Pad	Logging Calibration Blocks?	No	

SDLT Pad	SDLT Pad Temperature Valid?	Yes	
SDLT Pad	Disable temperature warning	No	
SDLT Pad	Formation Density Matrix	2.710	g/cc
SDLT Pad	Formation Density Fluid	1.000	g/cc
IDT	Survey Writing Interval	30	ft
IDT	Smoothing Option	None	
ICT	Process Caliper Outputs?	Yes	
ICT	Navigation Source Tool	IDT	
Wavesonic-I	Process WSTT?	Yes	
Wavesonic-I	Monopole Sliding Window Length	-1.00	us
Wavesonic-I	Dipole Sliding Window Length	-1.00	us
Wavesonic-I	Process 1 Sample and Skip	0	
Wavesonic-I	Process Mode: M=1,MX=2,MY=3,MXY=4	4	
Wavesonic-I	Semblance Smoothing	-2.00	
Wavesonic-I	Delta -T Shale	100.00	uspf
Wavesonic-I	Delta -T Matrix Type	User define	
Wavesonic-I	Delta -T Matrix	47.60	uspf
Wavesonic-I	Delta -T Fluid	189.00	uspf
Wavesonic-I	Matrix Density	2.7100	g/cc
Wavesonic-I	Fluid Density	1.0000	g/cc
Wavesonic-I	Slow Tolerance	40.00	
Wavesonic-I	Semblance Tolerance	0.25	
Wavesonic-I	Semblance Threshold	0.25	
Wavesonic-I	VPVS Ratio for Porosity	1.40	
Wavesonic-I	Acoustic Porosity Equation	Wylie	
Wavesonic-I	Show Advanced Options?	Yes	
Wavesonic-I	Wavesonic Receiver Normalization Method	None	
Wavesonic-I	Transmitter to First Receiver Distance - Monopole	10.24	ft
Wavesonic-I	Transmitter to First Receiver Distance Dipole X	9.24	ft
Wavesonic-I	Transmitter to First Receiver Distance Dipole Y	9.24	ft
Wavesonic-I	Receiver Spacing	0.50	ft
Wavesonic-I	Number of Receivers in Array	8	
Wavesonic-I	Digitizer Word Count Monopole	400	
Wavesonic-I	Digital Sample Interval - Monopole	20.3174	us
Wavesonic-I	Waveform Recording Delay Monopole	-304.761	us
Wavesonic-I	Digitizer Word Count Dipole X	400	
Wavesonic-I	Digital Sample Interval Dipole X	40.6348	us
Wavesonic-I	Waveform Digitization Delay Dipole X	-304.761	us
Wavesonic-I	Digitizer Word Count Dipole Y	400	
Wavesonic-I	Digital Sample Interval Dipole Y	40.6348	us
Wavesonic-I	Waveform Digitization Delay Dipole Y	-304.761	us
Wavesonic-I	Navigation Source Tool	IDT	
ACRt Sonde	Process ACRt?	Yes	
ACRt Sonde	Minimum Tool Standoff	1.50	in
ACRt Sonde	Temperature Correction Source	FP Lwr & FP Upr	
ACRt Sonde	Tool Position	Free Hanging	
ACRt Sonde	Rmud Source	Mud Cell	
ACRt Sonde	Minimum Resistivity for MAP	0.20	ohmm
ACRt Sonde	Maximum Resistivity for MAP	200.00	ohmm
ACRt Sonde	Threshold Quality	0.50	
ACRt Sonde	Fixed mud resistivity	2000	ohmm

BOTTOM

INPUTS, DELAYS AND FILTERS TABLE

Mnemonic	Input Description	Delay (ft)	Filter Type	Filter Length (ft)
	Depth Panel			
TENS	Tension	0.00	NO	
	CH_HOS			
DHTN	DownholeTension	0.00	BLK	0.000
	SP Sub			
PLTC	Plot Control Mask	110.96	NO	
SP	Spontaneous Potential	110.96	BLK	1.250
SPR	Raw Spontaneous Potential	110.96	NO	
SPO	Spontaneous Potential Offset	110.96	NO	
	GTET			
TPUL	Tension Pull	102.94	NO	
GR	Natural Gamma Ray API	102.94	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	102.94	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	102.94	W	1.416 , 0.750
ACCZ	Accelerometer Z	0.00	BLK	0.083
DEVI	Inclination	0.00	NO	
	DSNT			
TPUL	Tension Pull	92.70	NO	
RNDS	Near Detector Telemetry Counts	92.80	BLK	1.417
RFDS	Far Detector Telemetry Counts	93.55	TRI	0.583
DNTT	DSN Tool Temperature	92.80	NO	
DSNS	DSN Tool Status	92.70	NO	
ERND	Near Detector Telemetry Counts EVR	92.80	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	93.55	BLK	0.000
ENTM	DSN Tool Temperature EVR	92.80	NO	
	SDLT			
TPUL	Tension Pull	82.80	NO	
PCAL	Pad Caliper	82.80	TRI	0.250
ACAL	Arm Caliper	82.80	TRI	0.250
	IDT			
TPUL	Tension Pull	67.73	NO	
ACCX	Accelerometer X	67.73	NO	
ACCY	Accelerometer Y	67.73	NO	
ACCZ	Accelerometer Z	67.73	NO	
MAGX	magnetometer x with unit	67.73	NO	
MAGY	Magnetometer Y with unit	67.73	NO	
MAGZ	magnetometer z with unit	67.73	NO	
IAMP	Accelerometer Temperature	67.73	NO	
MTMP	Magnetometer Temperature	67.73	NO	
	ICT			
TPUL	Tension Pull	56.69	NO	
	Arm Potentiometer excitation V	53.90	NO	
	Caliper 1 measurement	56.69	BLK	1.250
	Caliper 2 measurement	56.69	BLK	1.250
	Caliper 3 measurement	56.69	BLK	1.250

	Caliper 4 measurement	56.69	BLK	1.250
	Caliper 5 measurement	56.69	BLK	1.250
	Caliper 6 measurement	56.69	BLK	1.250
	Caliper Global measurement	56.69	BLK	1.250
MOTI	Motor Current	53.90	NO	
MOT1	Motor Voltage Monitor 1	53.90	NO	
STA1	Status word #1	53.90	NO	
STA2	Status word #2	53.90	NO	
PRES	Caliper percentage of total compression of the spring	53.90	NO	
HAZI	Hole Azimuth	56.69	NO	
RB	Relative Bearing	56.69	NO	
AZI1	PAD1 Azimuth	56.69	NO	
DEVI	Inclination	56.69	NO	

Wavesonic-I				
TPUL	Tension Pull	31.33	NO	
DPSX	Dipole Source X Structurel	19.83	NO	
DPSY	Dipole Source Y Structurel	19.83	NO	
DPSM	Monopole Source Structure	19.83	NO	
WVST	Wavesonic Compressed Data	31.33	NO	
TPUL	Tension Pull	31.33	NO	
XMS1	Wave Sonic Status Word 1	19.83	NO	
XMS2	Wave Sonic Status Word 2	19.83	NO	
XMS1	Wave Sonic XMITStatus Word 1	19.83	NO	
XMS1	Wave Sonic XMITStatus Word 2	19.83	NO	
F1HA	Dipole 1 HV After	19.83	NO	
F1HB	Dipole 1 HV Before	19.83	NO	
F2HA	Dipole 2 HV After	19.83	NO	
F2HB	Dipole 2 HV Before	19.83	NO	
F3HA	Monopole HV After	19.83	NO	
F3HB	Monopole HV Before	19.83	NO	
INVT	Input Voltage	19.83	NO	
5VOL	5 Volts	19.83	NO	
MI5A	Minus 5 Volts Analog	19.83	NO	
ITMP	Instrument Temperature	19.83	NO	
PL5A	Plus 5 Volts Analog	19.83	NO	
5VD	Plus 5 Volts Digital	19.83	NO	
TCUR	Tool Current	19.83	NO	
SUPV	Supply Voltage	19.83	NO	
PRVT	Preregulated voltage	19.83	NO	
PRVT	Pre-regulated voltage Xmter	19.83	NO	
TEMP	Temperature	19.83	NO	
ACQN	Acquisition Number	19.83	NO	
XDP	Delay Reference	31.33	NO	
MITM	MIT Mode	31.33	NO	
VERS	Version	19.83	NO	
D1CT	Dipole 1 Compressed Word Count	31.33	NO	
D2CT	Dipole 2 Compressed Word Count	31.33	NO	
MCNT	Monopole Compressed Word Count	31.33	NO	
SEQN	Sequence Number	19.83	NO	
FREV	Firmware Revision	19.83	NO	
MSMP	Monopole Sample Rate	19.83	NO	
MSMP	Dipole Sample Rate	19.83	NO	
MFWF	Monopole Firing Waveform	19.83	NO	
MFRQ	Monopole Frequency	19.83	NO	
MDLY	Monopole Delay	19.83	NO	

DXWF	Dipole X Firing Waveform	19.83	NO	
XFRQ	Dipole X Frequency	19.83	NO	
XDLY	Dipole X Delay	19.83	NO	
DYWF	Dipole Y Firing Waveform	19.83	NO	
YFRQ	Dipole Y Frequency	19.83	NO	
YDLY	Dipole Y Delay	19.83	NO	
DPSX	Dipole Source X Structurel	19.83	NO	
DPSY	Dipole Source Y Structurel	19.83	NO	
DPSM	Monopole Source Structure	19.83	NO	
WVST	Wavesonic Compressed Data	31.33	NO	
AUTM	Auto Mode	19.83	NO	
SONM	tool mode for sonic - 0 for normal or 3 for calibration	19.83	NO	
MSL	Monopole Lower Travel Time	31.33	NO	
MSH	Monopole Upper Travel Time	31.33	NO	
MLFC	Monopole-1 Lower Filter Bandpass Frequency Cut-off	19.83	NO	
MUFC	Monopole-1 Upper Filter Bandpass Frequency Cut-off	19.83	NO	
DLTT	Dipole Lower Travel Time	19.83	NO	
DUTT	Dipole Upper Travel Time	19.83	NO	
DLFC	Dipole Lower Filter Bandpass Frequency Cut-off	19.83	NO	
DUFC	Dipole Upper Filter Bandpass Frequency Cut-off	19.83	NO	
MUTE	WaveSonic Mute/Enable Channels and Sides map	19.83	NO	
MUTS	Mute/Enable Sides	19.83	NO	
WSRB	Relative Bearing	31.33	NO	
WSAZ	WSX Azimuth Pad 1	31.33	NO	
TPUL	Tension Pull	31.33	NO	
WMP	Summed array of Monopole for SIDES - A,B,C,D	31.33	NO	
WXX	Dipole X for SIDES - A-C	31.33	NO	
WYY	Dipole Y for SIDES - B-D	31.33	NO	
WXY	Dipole X for SIDES - B-D	31.33	NO	
WYX	Dipole Y for SIDES - A-C	31.33	NO	
TPUL	Tension Pull	31.33	NO	
WMA	Monopole Waveform Side A - Channel 1 to Channel 8 Receivers	31.33	NO	
WMB	Monopole Waveform Side B - Channel 1 to Channel 8 Receivers	31.33	NO	
WMC	Monopole Waveform Side C - Channel 1 to Channel 8 Receivers	31.33	NO	
WMD	Monopole Waveform Side D - Channel 1 to Channel 8 Receivers	31.33	NO	
WXA	Dipole X Waveform Side A - Channel 1 to Channel 8 Receivers	31.33	NO	
WXB	Dipole X Waveform Side B - Channel 1 to Channel 8 Receivers	31.33	NO	
WXC	Dipole X Waveform Side C - Channel 1 to Channel 8 Receivers	31.33	NO	
WXD	Dipole X Waveform Side D - Channel 1 to Channel 8 Receivers	31.33	NO	
WYA	Dipole Y Waveform Side A - Channel 1 to Channel 8 Receivers	31.33	NO	
WYB	Dipole Y Waveform Side B - Channel 1 to Channel 8 Receivers	31.33	NO	
WYC	Dipole Y Waveform Side C - Channel 1 to Channel 8 Receivers	31.33	NO	
WYD	Dipole Y Waveform Side D - Channel 1 to Channel 8 Receivers	31.33	NO	
	ACRt Sonde			
TPUL	Tension Pull	2.97	NO	
F1R1	ACRT 12KHz - 80in R value	9.22	BLK	0.000
F1X1	ACRT 12KHz - 80in X value	9.22	BLK	0.000
F1R2	ACRT 12KHz - 50in R value	6.72	BLK	0.000

F1X2	ACRT 12KHz - 50in X value	6.72	BLK	0.000
F1R3	ACRT 12KHz - 29in R value	5.22	BLK	0.000
F1X3	ACRT 12KHz - 29in X value	5.22	BLK	0.000
F1R4	ACRT 12KHz - 17in R value	4.22	BLK	0.000
F1X4	ACRT 12KHz - 17in X value	4.22	BLK	0.000
F1R5	ACRT 12KHz - 10in R value	3.72	BLK	0.000
F1X5	ACRT 12KHz - 10in X value	3.72	BLK	0.000
F1R6	ACRT 12KHz - 6in R value	3.47	BLK	0.000
F1X6	ACRT 12KHz - 6in X value	3.47	BLK	0.000
F2R1	ACRT 36KHz - 80in R value	9.22	BLK	0.000
F2X1	ACRT 36KHz - 80in X value	9.22	BLK	0.000
F2R2	ACRT 36KHz - 50in R value	6.72	BLK	0.000
F2X2	ACRT 36KHz - 50in X value	6.72	BLK	0.000
F2R3	ACRT 36KHz - 29in R value	5.22	BLK	0.000
F2X3	ACRT 36KHz - 29in X value	5.22	BLK	0.000
F2R4	ACRT 36KHz - 17in R value	4.22	BLK	0.000
F2X4	ACRT 36KHz - 17in X value	4.22	BLK	0.000
F2R5	ACRT 36KHz - 10in R value	3.72	BLK	0.000
F2X5	ACRT 36KHz - 10in X value	3.72	BLK	0.000
F2R6	ACRT 36KHz - 6in R value	3.47	BLK	0.000
F2X6	ACRT 36KHz - 6in X value	3.47	BLK	0.000
F3R1	ACRT 72KHz - 80in R value	9.22	BLK	0.000
F3X1	ACRT 72KHz - 80in X value	9.22	BLK	0.000
F3R2	ACRT 72KHz - 50in R value	6.72	BLK	0.000
F3X2	ACRT 72KHz - 50in X value	6.72	BLK	0.000
F3R3	ACRT 72KHz - 29in R value	5.22	BLK	0.000
F3X3	ACRT 72KHz - 29in X value	5.22	BLK	0.000
F3R4	ACRT 72KHz - 17in R value	4.22	BLK	0.000
F3X4	ACRT 72KHz - 17in X value	4.22	BLK	0.000
F3R5	ACRT 72KHz - 10in R value	3.72	BLK	0.000
F3X5	ACRT 72KHz - 10in X value	3.72	BLK	0.000
F3R6	ACRT 72KHz - 6in R value	3.47	BLK	0.000
F3X6	ACRT 72KHz - 6in X value	3.47	BLK	0.000
RMUD	Mud Resistivity	12.76	BLK	0.000
F1RT	Transmitter Reference 12 KHz Real Signal	2.97	BLK	0.000
F1XT	Transmitter Reference 12 KHz Imaginary Signal	2.97	BLK	0.000
F2RT	Transmitter Reference 36 KHz Real Signal	2.97	BLK	0.000
F2XT	Transmitter Reference 36 KHz Imaginary Signal	2.97	BLK	0.000
F3RT	Transmitter Reference 72 KHz Real Signal	2.97	BLK	0.000
F3XT	Transmitter Reference 72 KHz Imaginary Signal	2.97	BLK	0.000
TFPU	Upper Feedpipe Temperature Calculated	2.97	BLK	0.000
TFPL	Lower Feedpipe Temperature Calculated	2.97	BLK	0.000
ITMP	Instrument Temperature	2.97	BLK	0.000
TCVA	Temperature Correction Values Loop Off	2.97	NO	
TIDV	Instrument Temperature Derivative	2.97	NO	
TUDV	Upper Temperature Derivative	2.97	NO	
TLDV	Lower Temperature Derivative	2.97	NO	
TRBD	Receiver Board Temperature	2.97	NO	
	Microlog Pad			
TPUL	Tension Pull	82.98	NO	
MINV	Microlog Lateral	82.98	BLK	0.750
MNOR	Microlog Normal	82.98	BLK	0.750
	SDLT Pad			
TPUL	Tension Pull	82.79	NO	

NAB	Near Above	82.61	BLK	0.920
NHI	Near Cesium High	82.61	BLK	0.920
NLO	Near Cesium Low	82.61	BLK	0.920
NVA	Near Valley	82.61	BLK	0.920
NBA	Near Barite	82.61	BLK	0.920
NDE	Near Density	82.61	BLK	0.920
NPK	Near Peak	82.61	BLK	0.920
NLI	Near Lithology	82.61	BLK	0.920
NBAU	Near Barite Unfiltered	82.61	BLK	0.250
NLIU	Near Lithology Unfiltered	82.61	BLK	0.250
FAB	Far Above	82.96	BLK	0.250
FHI	Far Cesium High	82.96	BLK	0.250
FLO	Far Cesium Low	82.96	BLK	0.250
FVA	Far Valley	82.96	BLK	0.250
FBA	Far Barite	82.96	BLK	0.250
FDE	Far Density	82.96	BLK	0.250
FPK	Far Peak	82.96	BLK	0.250
FLI	Far Lithology	82.96	BLK	0.250
PTMP	Pad Temperature	82.80	BLK	0.920
NHV	Near Detector High Voltage	82.19	NO	
FHV	Far Detector High Voltage	82.19	NO	
ITMP	Instrument Temperature	82.19	NO	
DDHV	Detector High Voltage	82.19	NO	

Data: DOR_TOEWS25-9-4\0004 SP-GTET-DSN-SDL-IDT-ICT-WSTT-ACRT-CH\004 28-Sep-12 04:42 Up @4147.8f **Date: 28-Sep-12 05:15:25**

COMPANY	**DORADO E&P PARTNERS LLC.**		
WELL	**TOEWS 25-9-4 #1H**		
FIELD	**UNKNOWN**		
COUNTY	**RENO**	STATE	**KANSAS**

HALLIBURTON

MONOPOLE
DELTA T
LOG

HALLIBURTON

SPECTRAL DENSITY DUAL SPACED NEUTRON LOG

COMPANY DORADO E&P PARTNERS LLC.
WELL TOEWS 25-9-4 #1H
FIELD UNKNOWN
COUNTY RENO
STATE KANSAS

COMPANY **DORADO E&P PARTNERS LLC.**

WELL **TOEWS 25-9-4 #1H**

FIELD **UNKNOWN**

COUNTY **RENO** STATE **KANSAS**

API No. 15-155-21592
Location (SHL) 150' FNL & 450' FWL

Sect. 4 Twp. 25S Rge. 9W

Other Services:
ACRT
DSN/SDL
WAVE
ICT
MRIL

Permanent Datum	GL	Elev. 1698.0 ft	Elev.: K.B. 1710.0 ft
Log measured from	KB	, 12.0 ft above perm. Datum	D.F. 1710.0 ft
Drilling measured from	KB		G.L. 1698.0 ft

Date		27-Sep-12					
Run No.		ONE					
Depth - Driller		4137.00 ft					
Depth - Logger		3530.0 ft					
Bottom - Logged Interval		4143					
Top - Logged Interval		1449					
Casing - Driller		9.625 in @ 1450.0 ft		@		@	
Casing - Logger		1431.0 ft					
Bit Size		8.750 in		@		@	
Type Fluid in Hole		WATER BASED MUD					
Density	Viscosity	8.9 ppg	44.00 s/qt				
PH	Fluid Loss	11.00 pH	4.2 cptm				
Source of Sample		FLOW LINE					
Rm @ Meas. Temperature		0.991 ohmm @ 75.00 degF		@		@	
Rmf @ Meas. Temperature		0.84 ohmm @ 75.00 degF		@		@	
Rmc @ Meas. Temperature		1.139 ohmm @ 75.00 degF		@		@	
Source Rmf	Rmc	MEAS	MEAS				
Rm @ BHT		0.67 ohmm @ 115.0 degF		@		@	
Time Since Circulation		11.0 hr					
Time on Bottom		27-Sep-12 15:56					
Max. Rec. Temperature		115.0 degF @ 3530.0 ft		@		@	
Equipment	Location	10546696	LIBERAL				
Recorded By		S. INGERSOLL					
Witnessed By		DAVID WHEELER					

Fold here

Service Ticket No.: 9841024 API Serial No.: 15-155-21592 PGM Version: WL INSITE R3.6.0 (Build 3)

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE

RESISTIVITY SCALE CHANGES

	Sample No.	Type Log	Depth	Scale Up Hole	Scale Down Hole
Date					
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 EQUIPMENT DATA

	Run No.	Tool Type & No.	Pad Type	Tool Pos.	Other
	ONE	ACRT I962 S909	N/A	1.5" S.O.	

EQUIPMENT DATA

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.	ONE	Run No.	ONE	Run No.	ONE
Serial No.	11039640	Serial No.	10894370	Serial No.	10950489	Serial No.	11055304
Model No.	GTET	Model No.	WSST	Model No.	SDLT	Model No.	DSNT
Diameter	3.625"	No. of Cent.	2	Diameter	4.5"	Diameter	3.625'
Detector Model No.	GTET	Spacing	.5	Log Type	GAM-GAM	Log Type	NEU-NEU
Type	SCINT			Source Type	CS-137	Source Type	AM-241BE
Length	8"	LSA [Y/N]	YES	Serial No.	5168GW	Serial No.	DSN-424
Distance to Source	NA	FWDA [Y/N]	YES	Strength	1.5 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	4143	100	REC	0	150	30	-10	47.6 us/ft	30	-10	2.71 gm/cc	30	-10	LIME

DIRECTIONAL INFORMATION

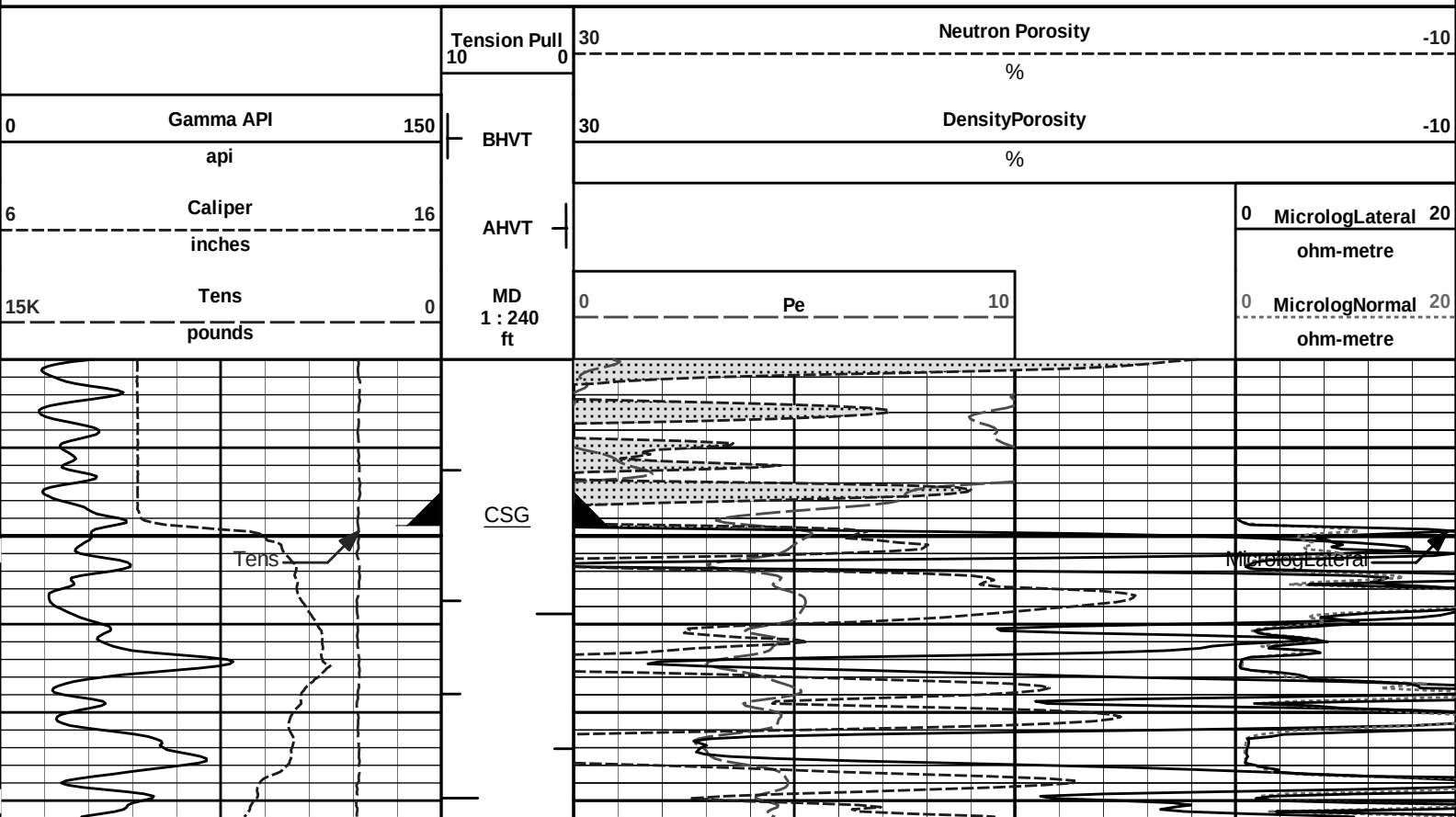
Maximum Deviation	@	KOP	@

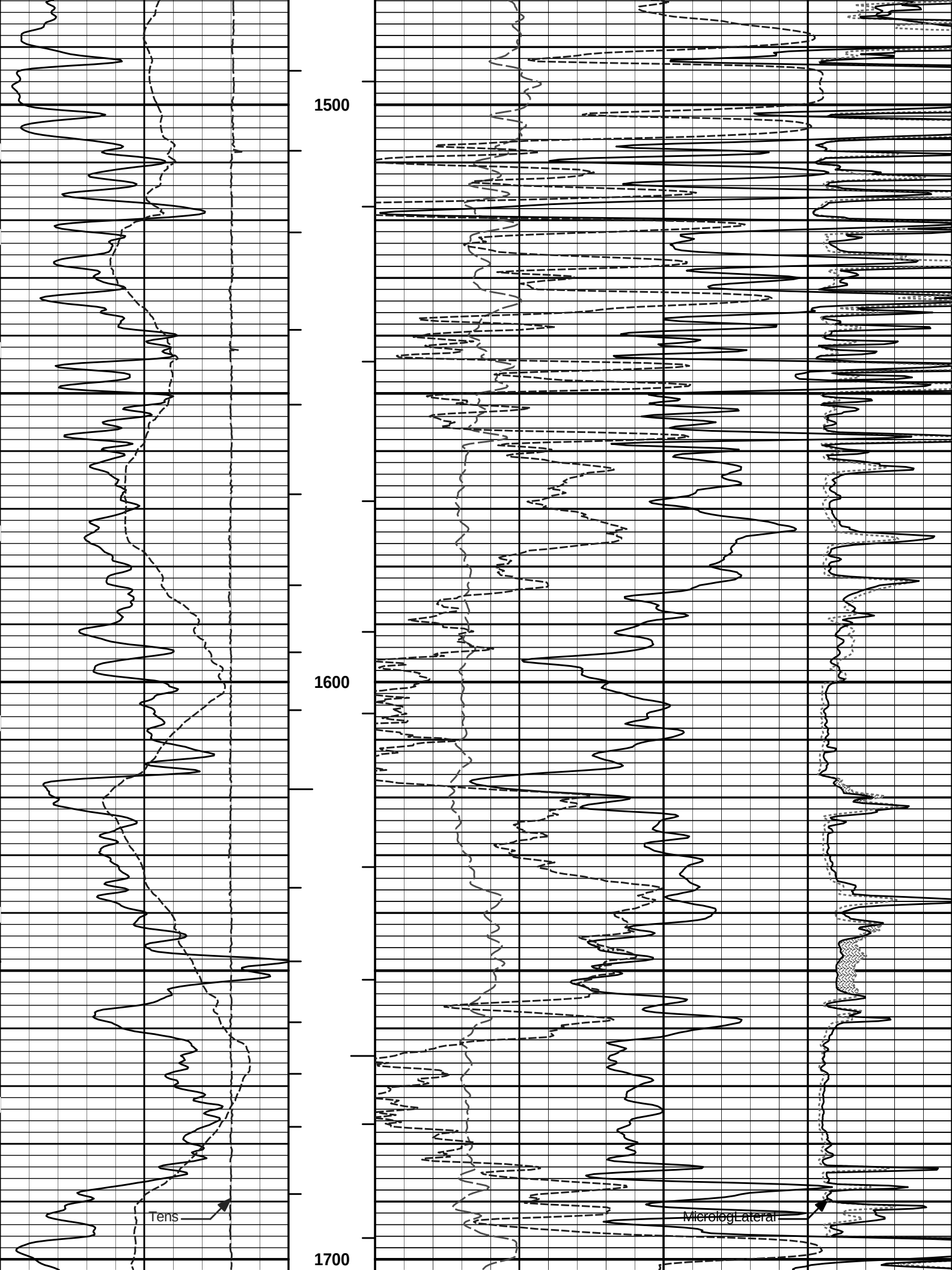
Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 7 INCH CASING.

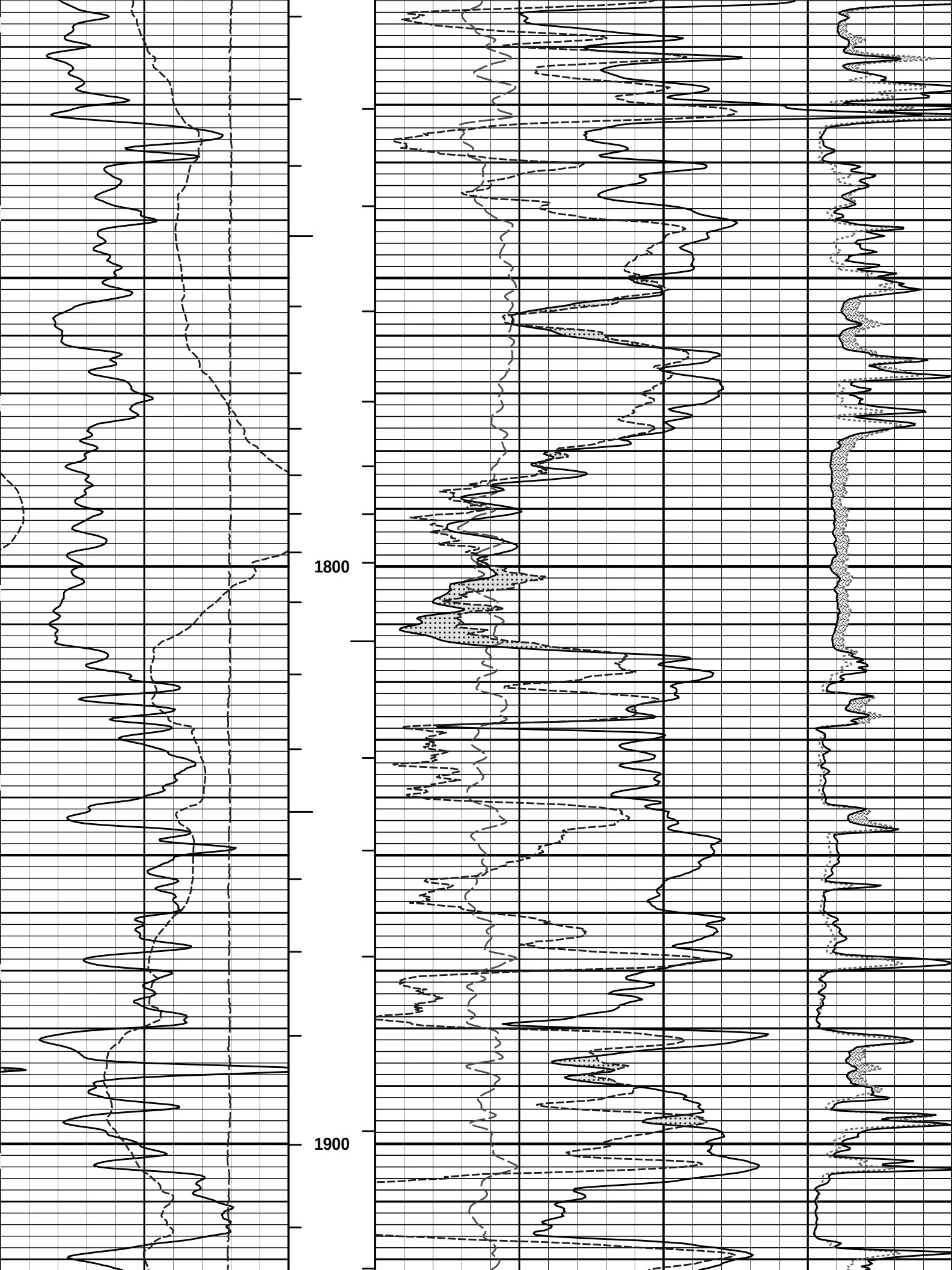
HALLIBURTON

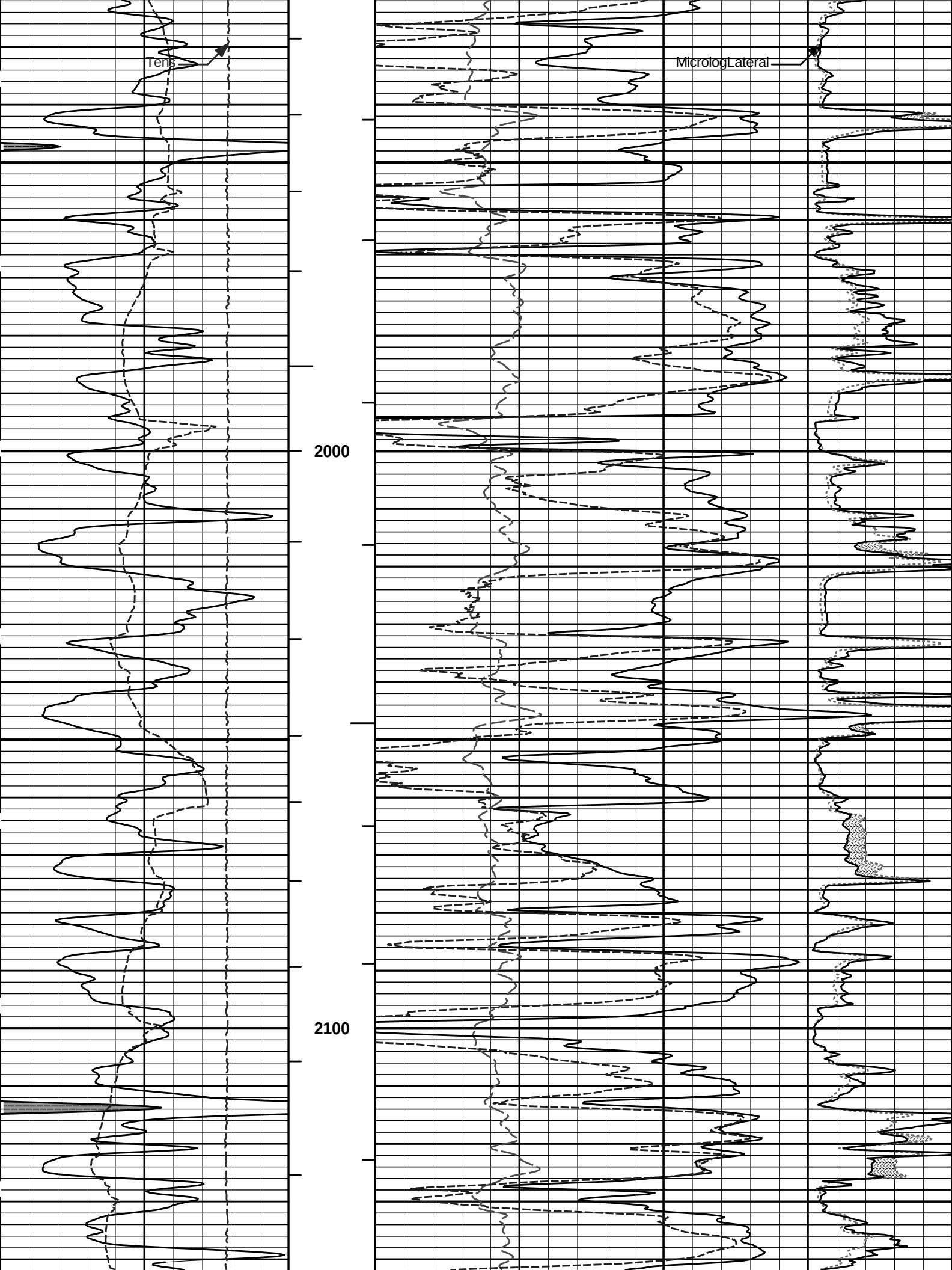
Plot Time: 28-Sep-12 14:33:09
Plot Range: 1430 ft to 4147.67 ft
Data: DOR_TOEWS25-9-4\Well Based\DAQ-0004-004
Plot File: \\POROSITY\PoroML_5_main_IQ_LIB

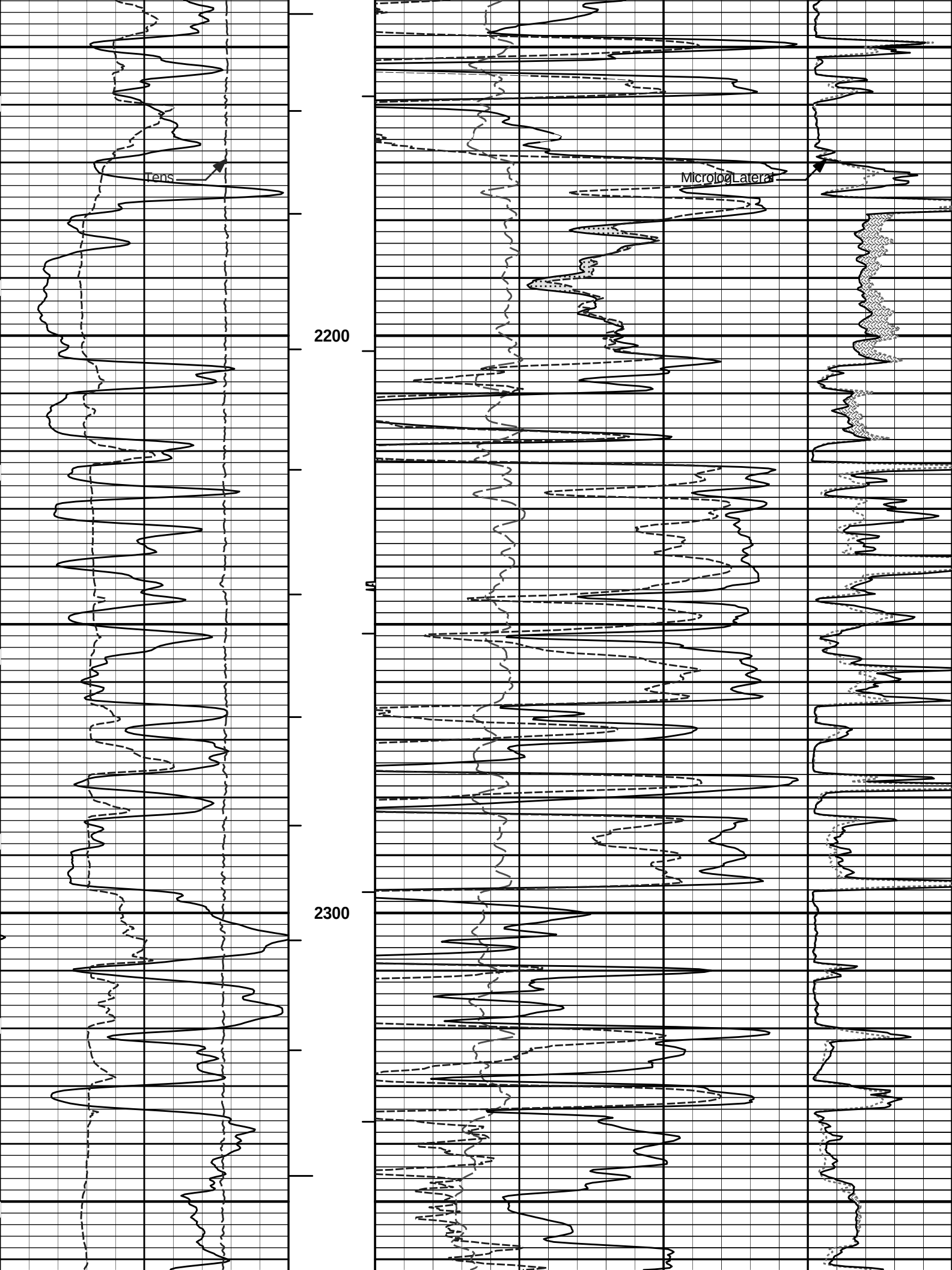
5 INCH MAIN LOG

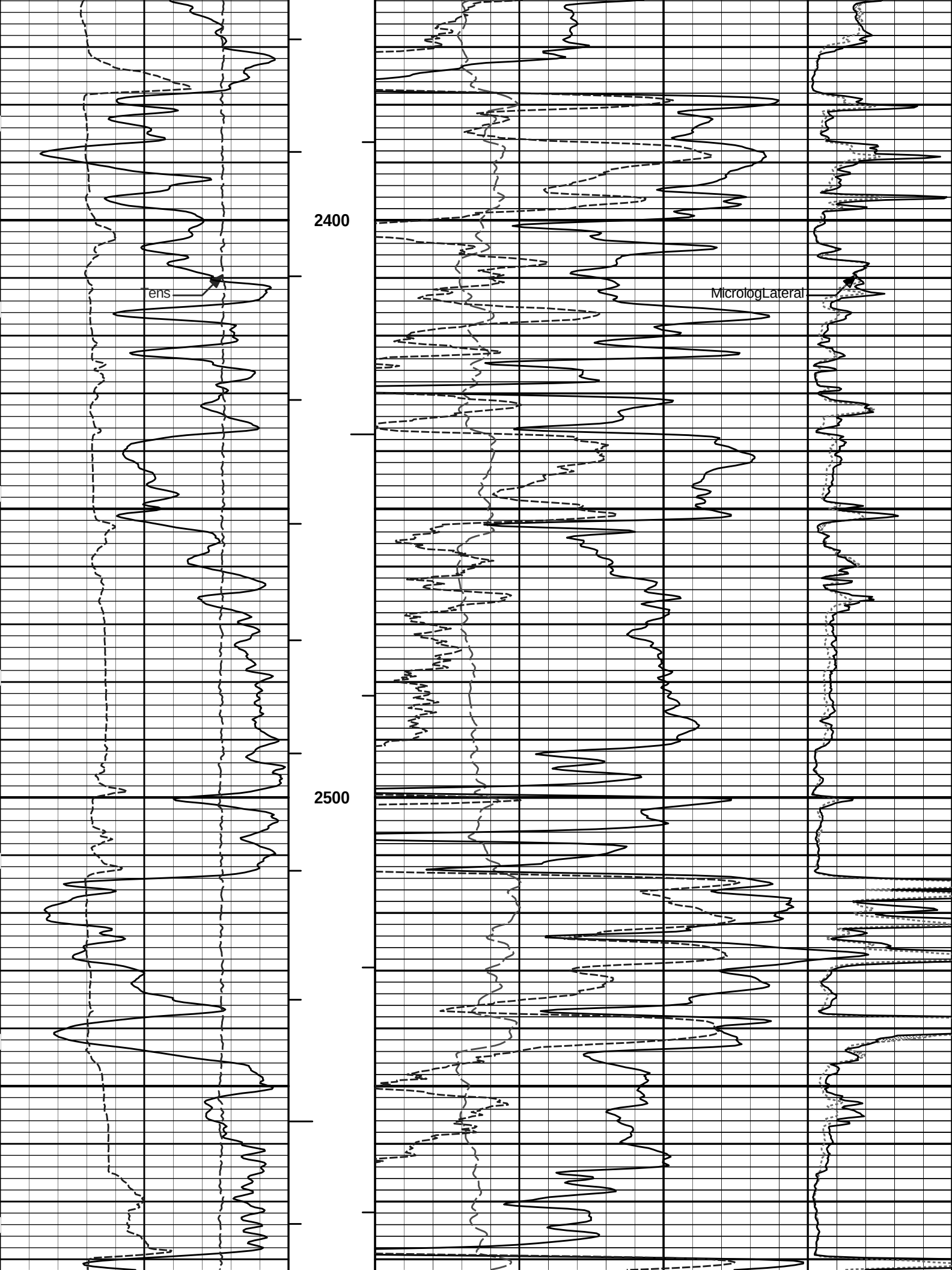


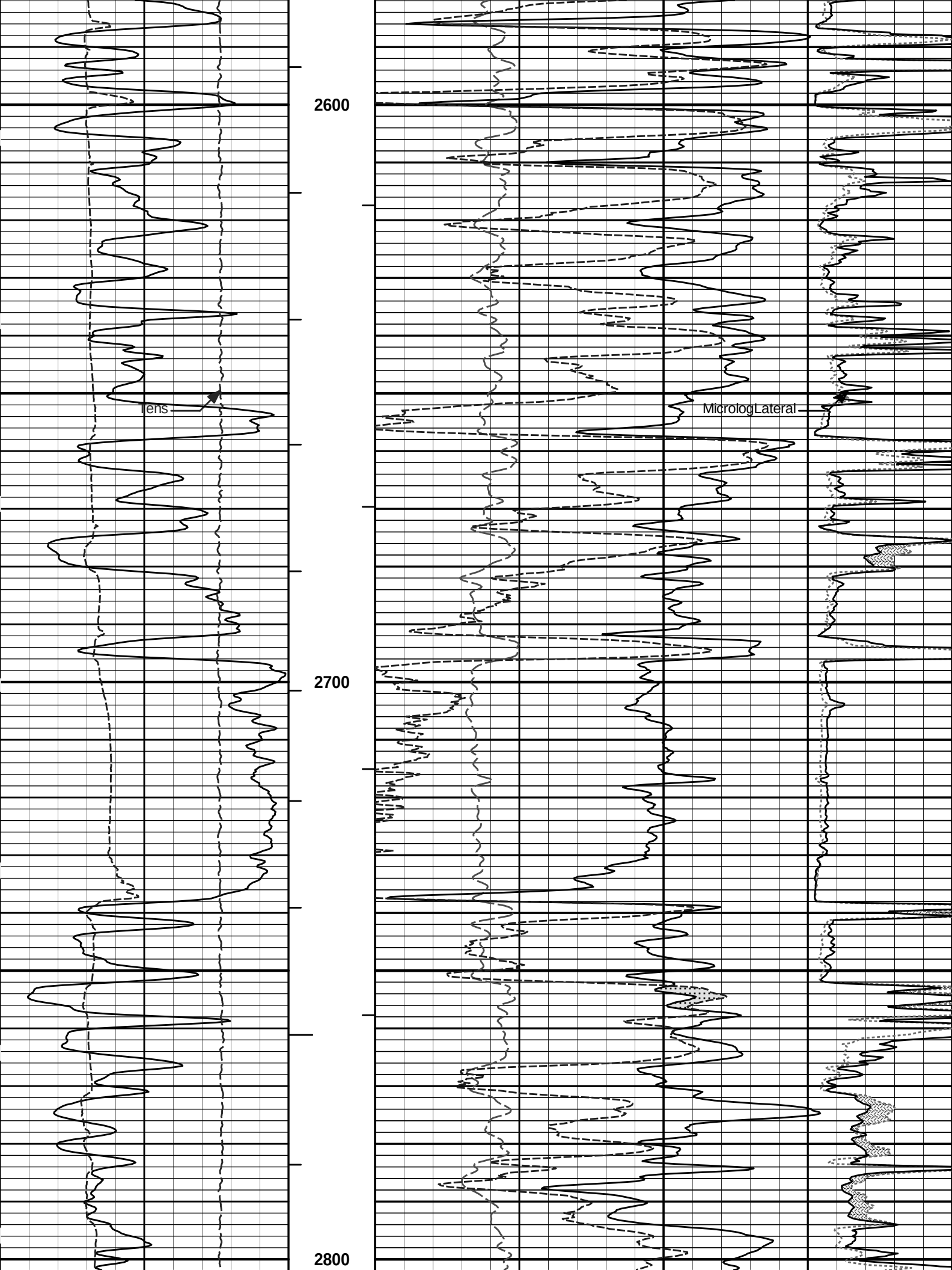

1500
1600
1700
Tens
MicrologLateral

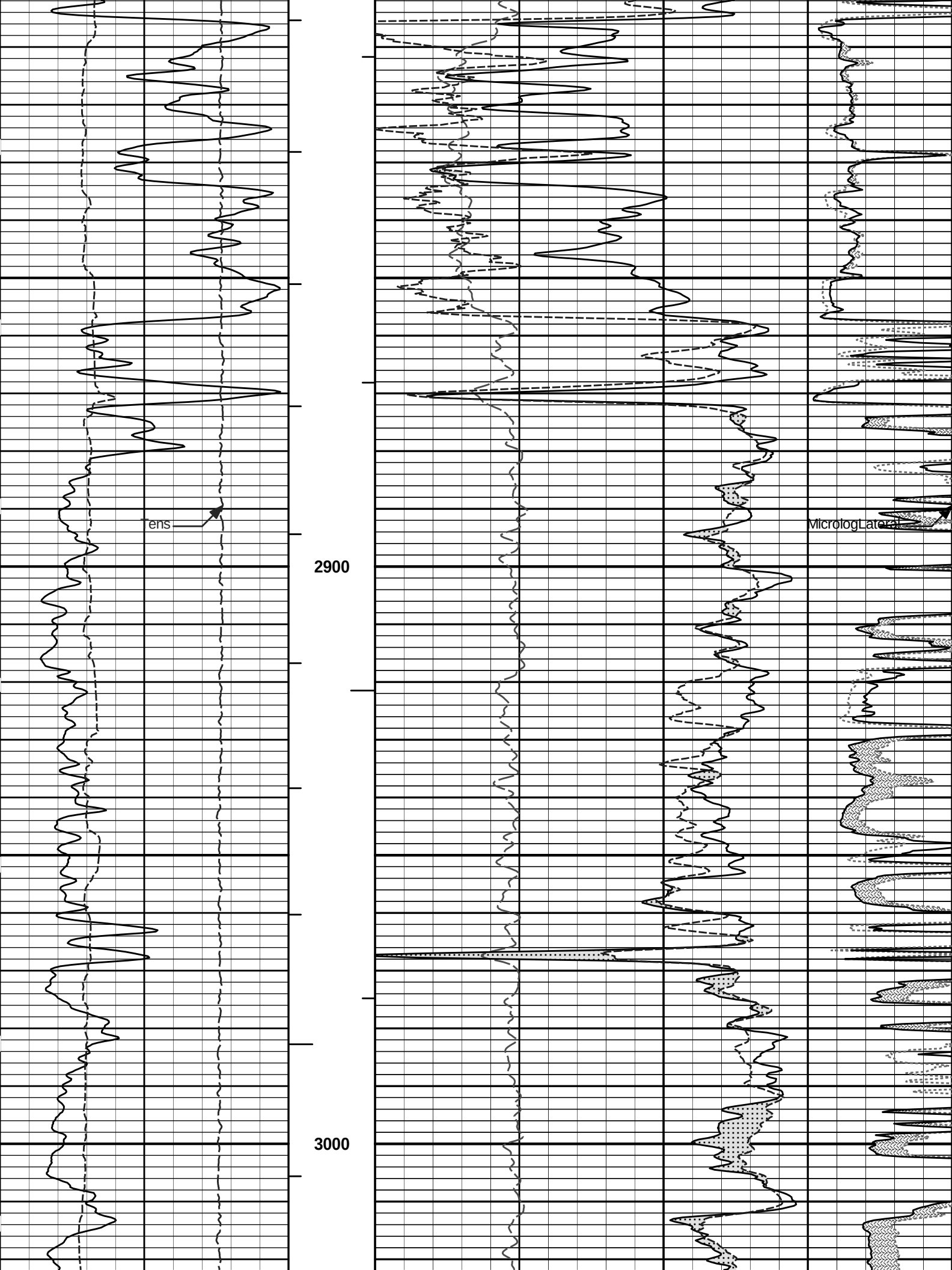

1800
1900

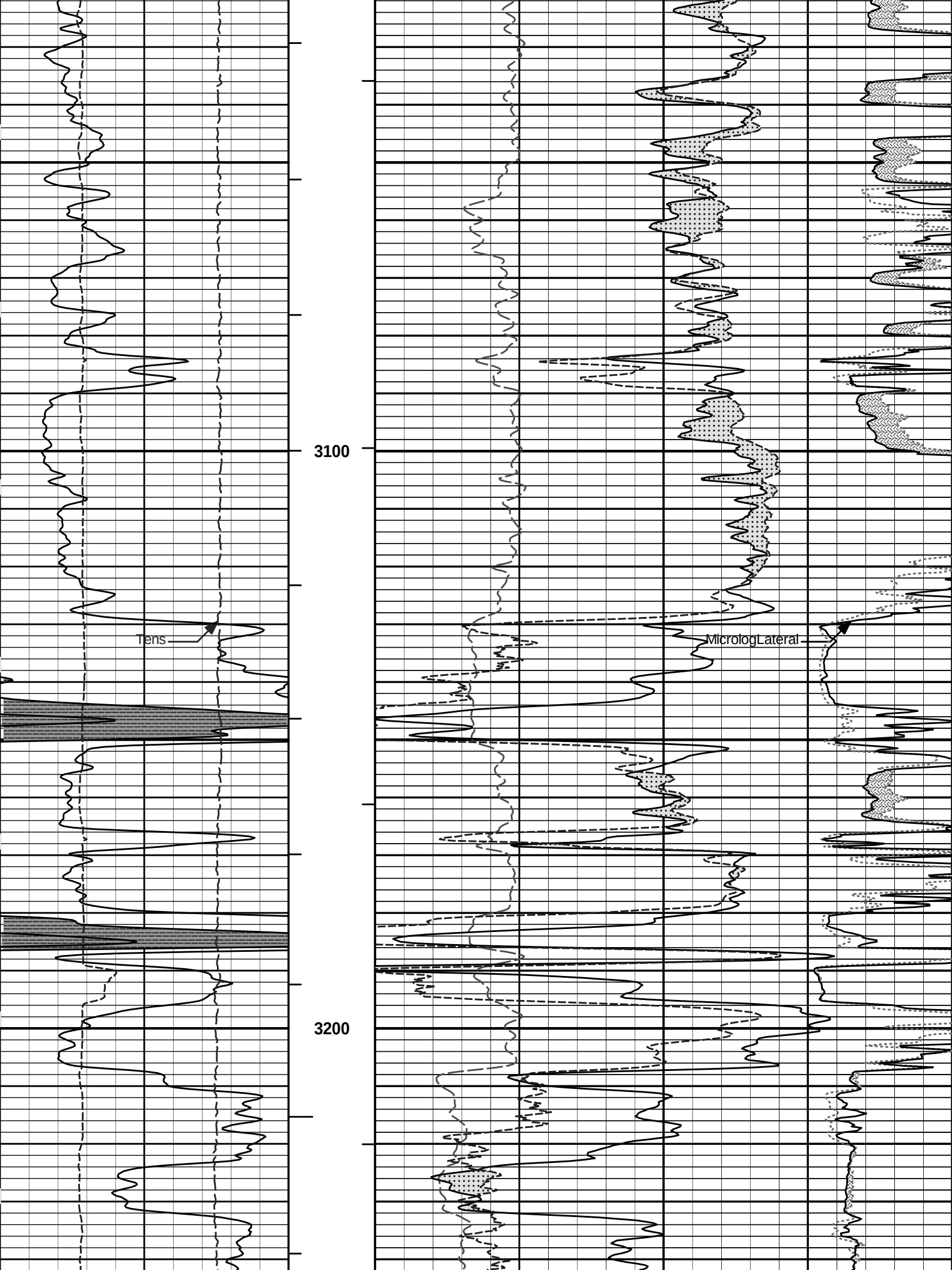

Tens
MicrologLateral
2000
2100


Tens
MicrologLateral
2200
2300


2400
2500
Tens
MicrologLateral


2600
2700
2800
Tens
MicrologLateral


Tens
MicrologLateral
2900
3000


3100
3200
Tens
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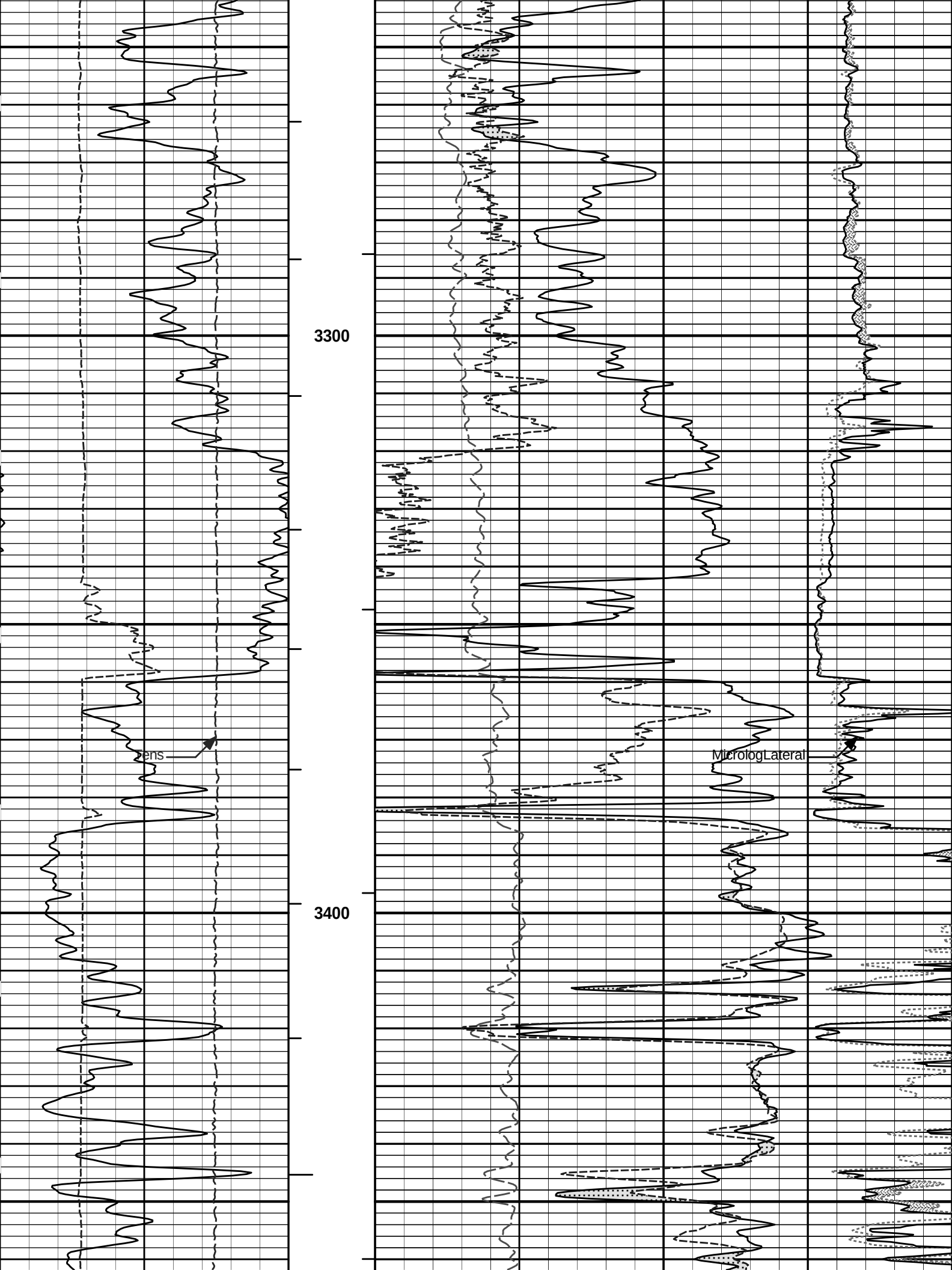
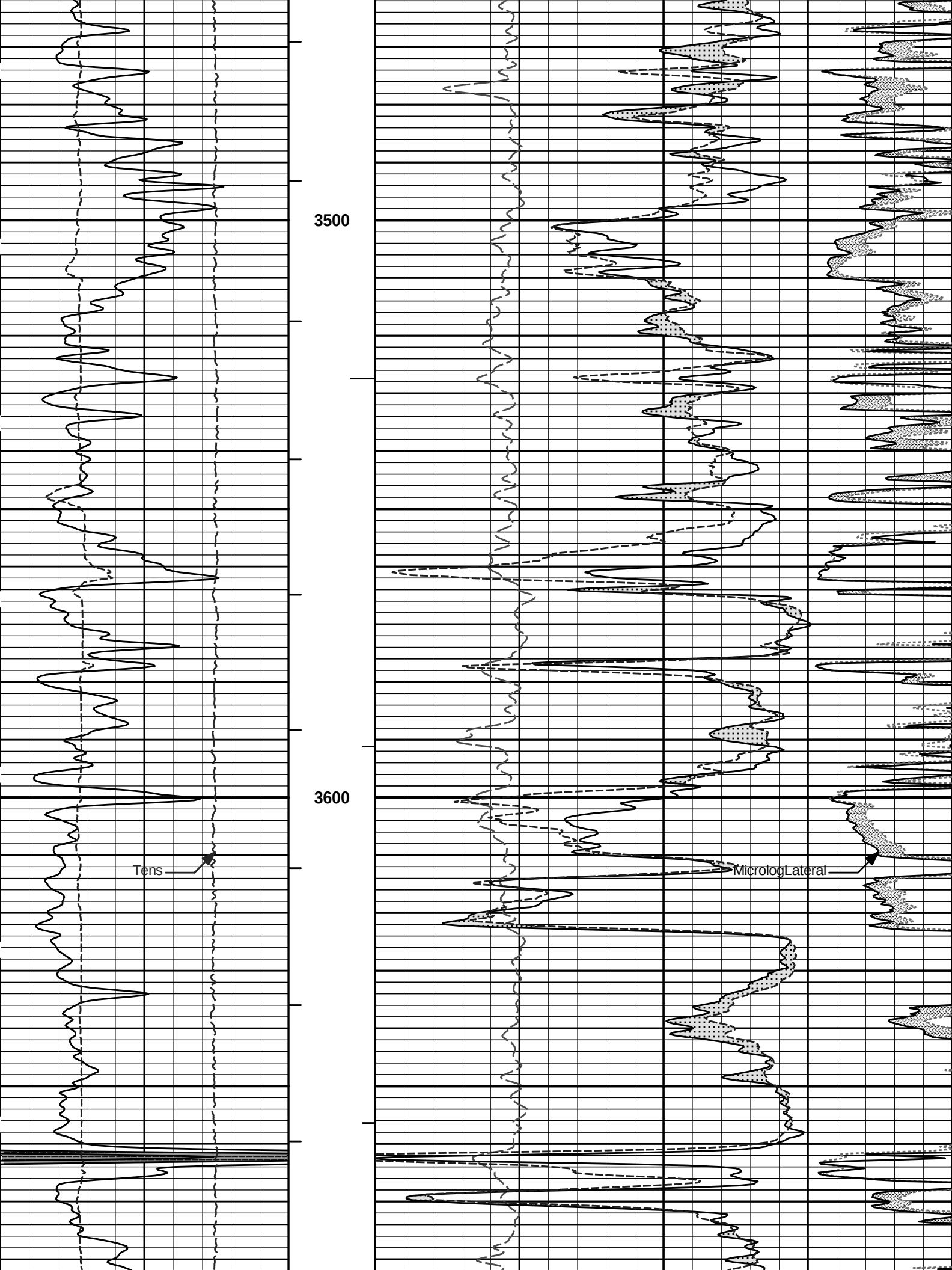
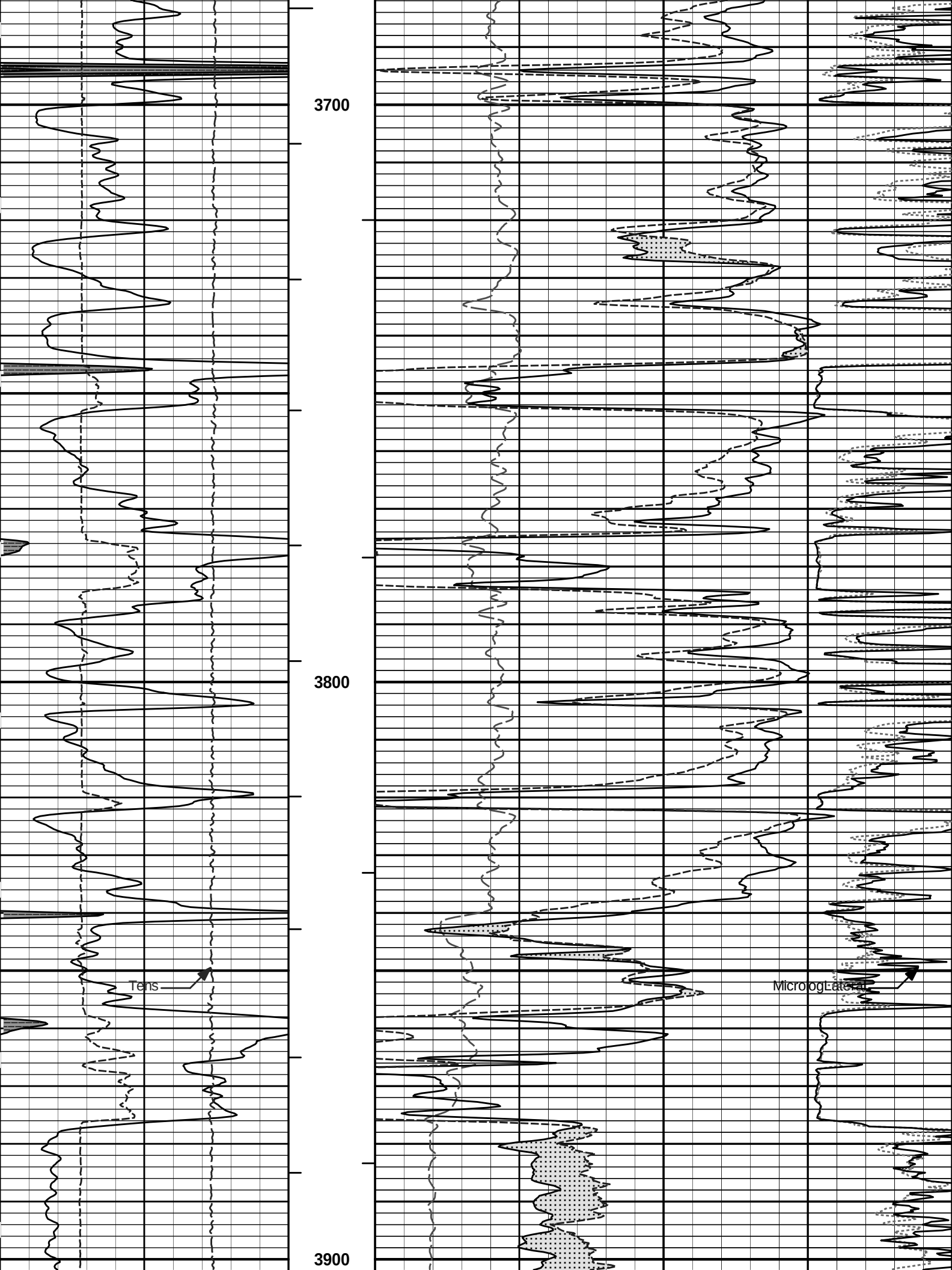
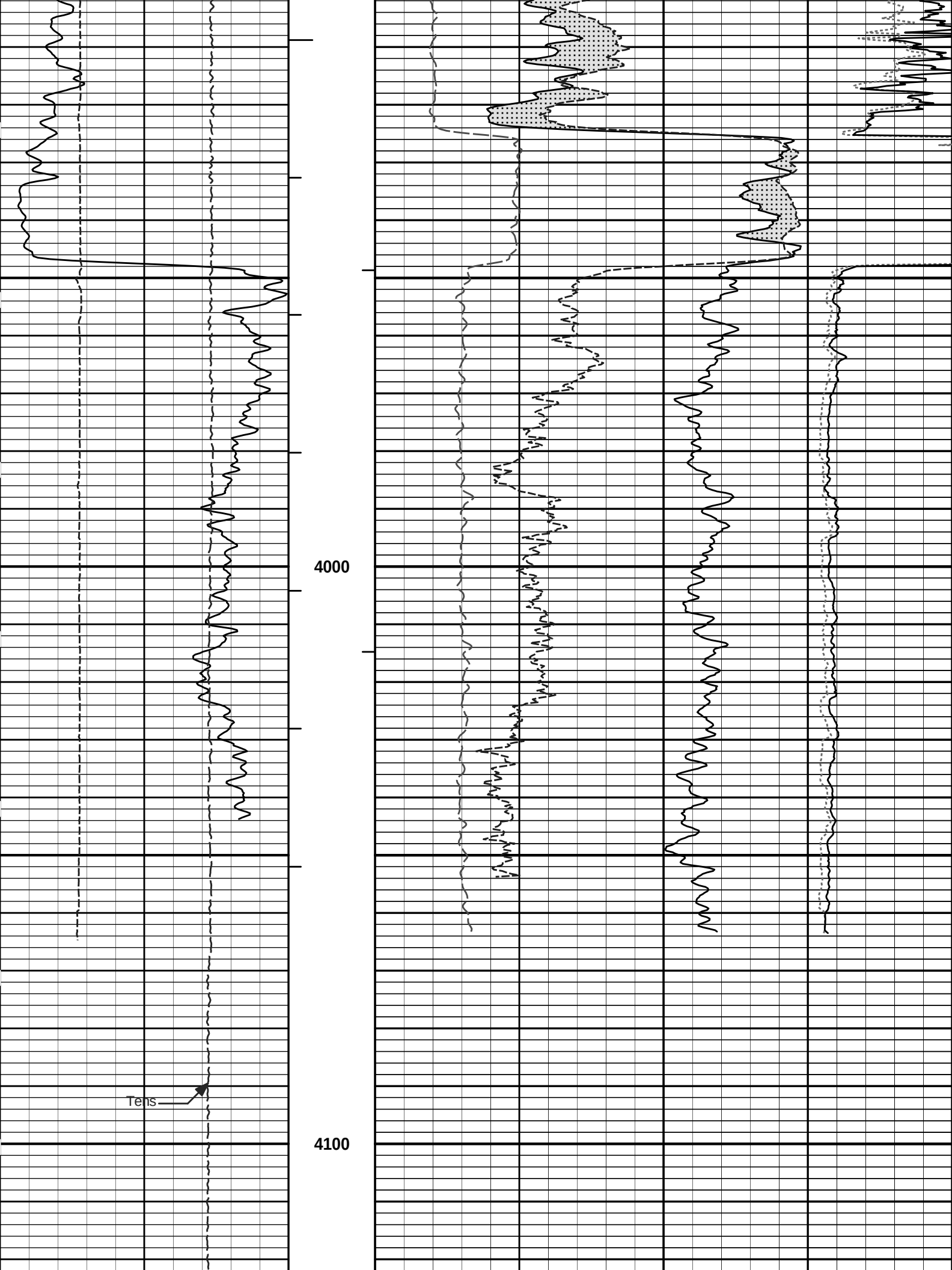
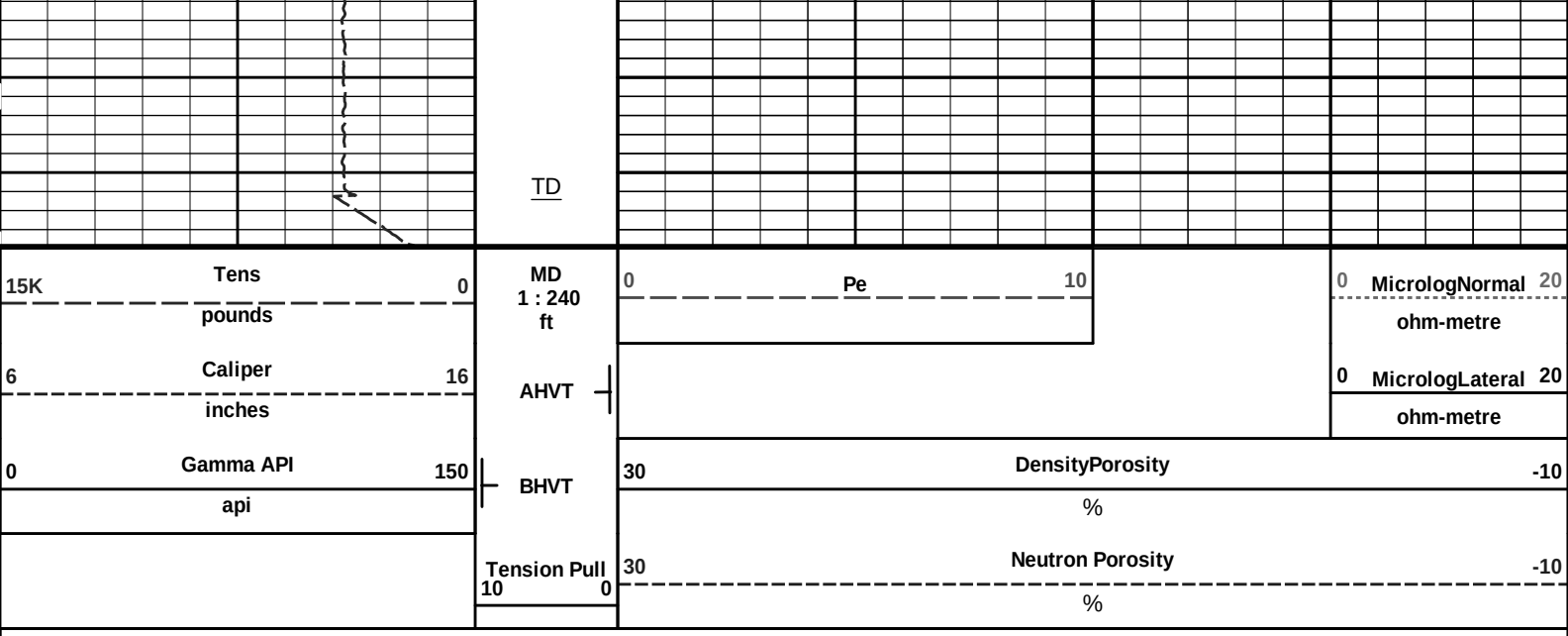

3300
3400
Sens
MicrologLateral


3500
3600
Tens
MicrologLateral


3700
3800
3900
Tens
MicrologLateral


4000
Tens
4100



HALLIBURTON

Plot Time: 28-Sep-12 14:33:28
Plot Range: 1430 ft to 4147.67 ft
Data: DOR_TOEWS25-9-4\Well Based\DAQ-0004-004\
Plot File: \\POROSITY\PoroML_5_main_IQ_LIB

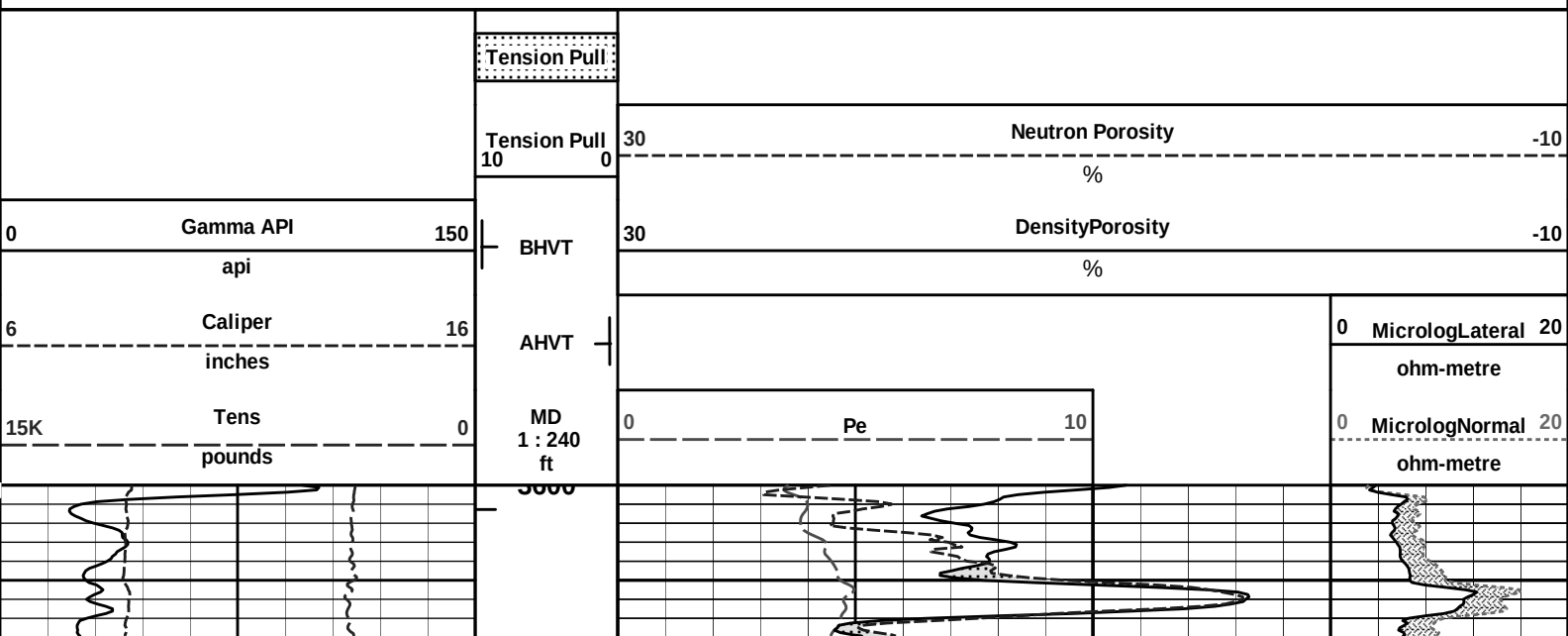
5 INCH MAIN LOG

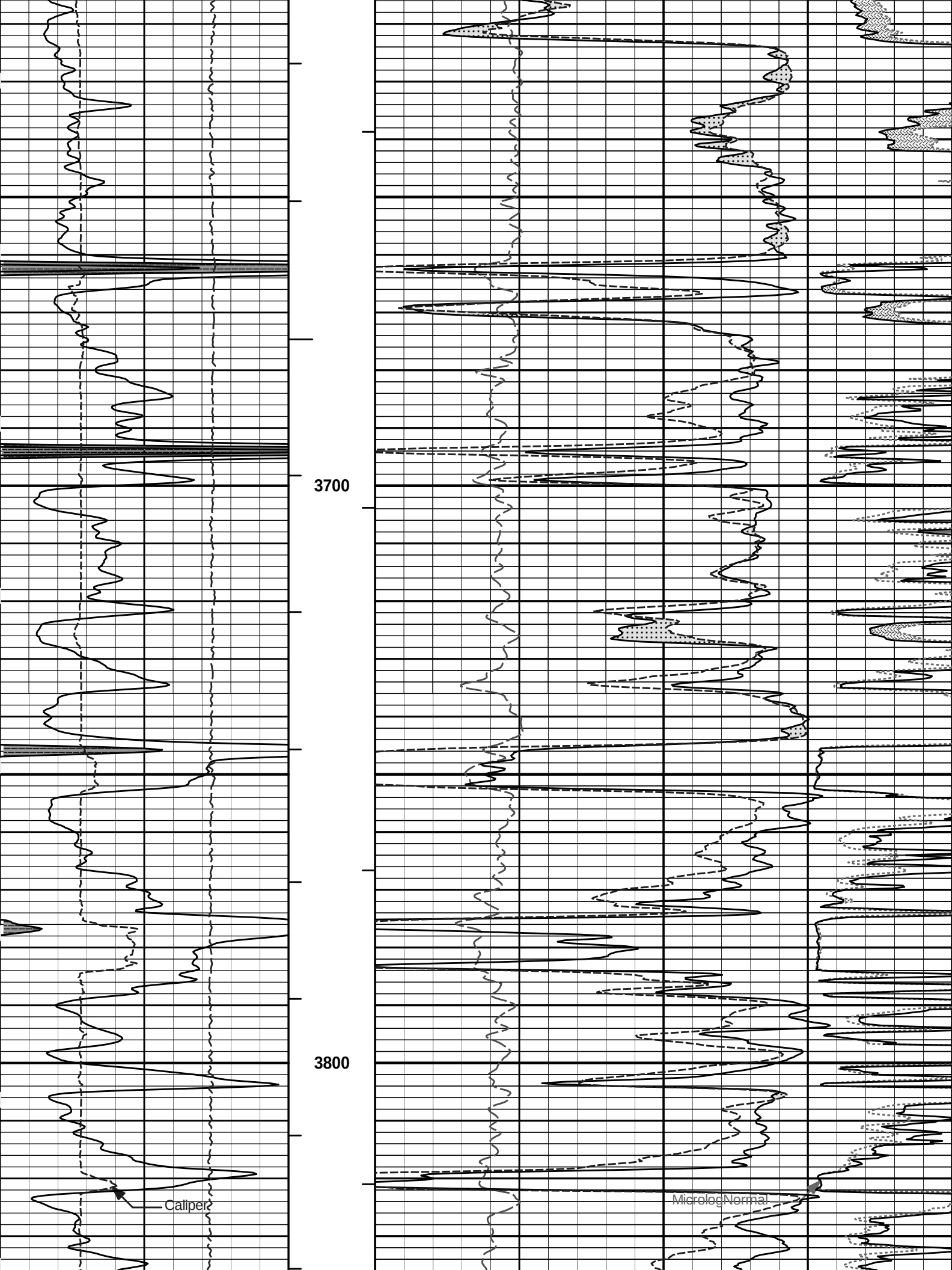
HALLIBURTON

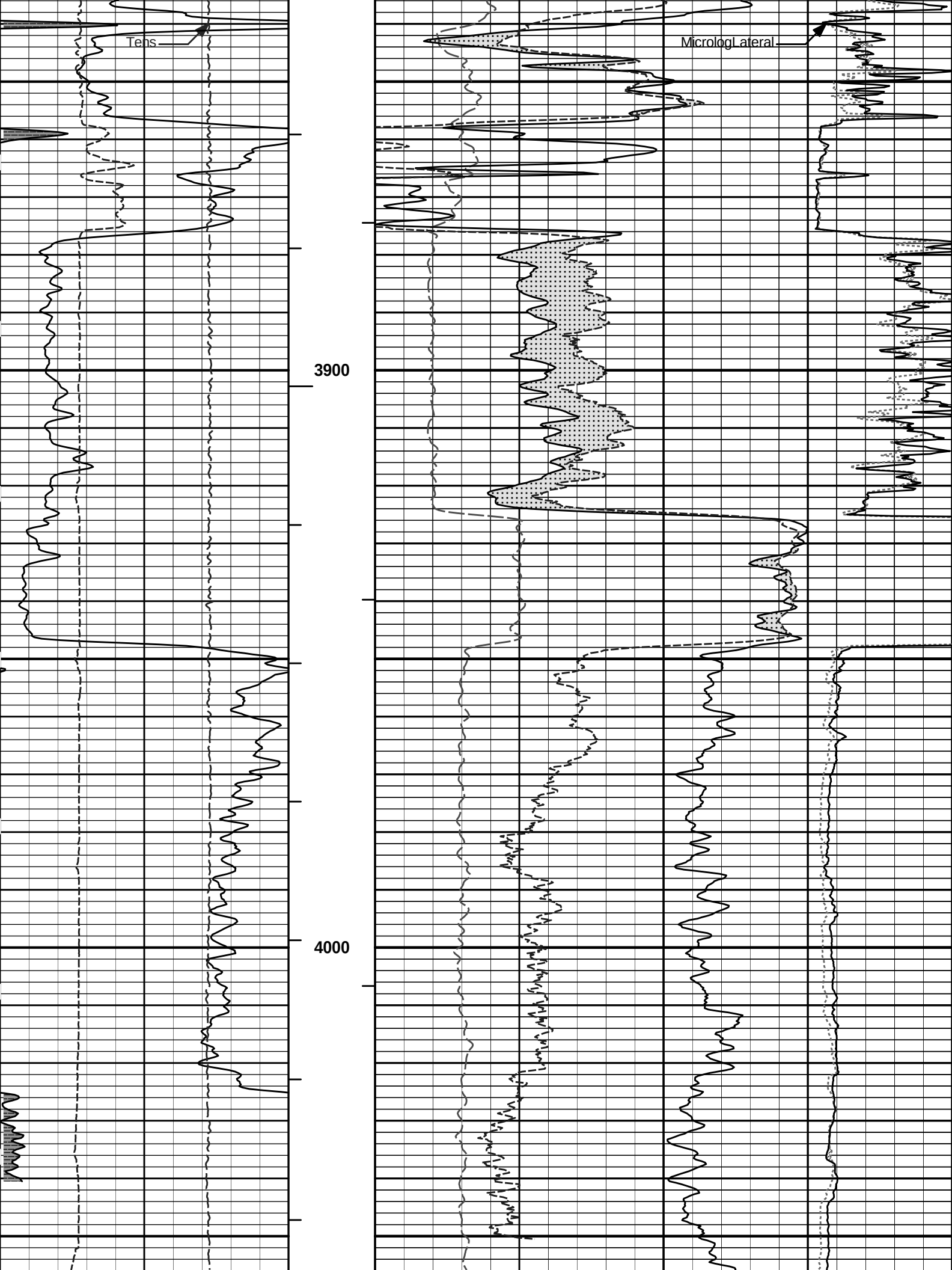
Plot Time: 28-Sep-12 14:33:28
Plot Range: 3600 ft to 4144.42 ft
Data: DOR_TOEWS25-9-4\Well Based\DAQ-0004-003\
Plot File: \\POROSITY\PoroML_5_main_IQ_LIB

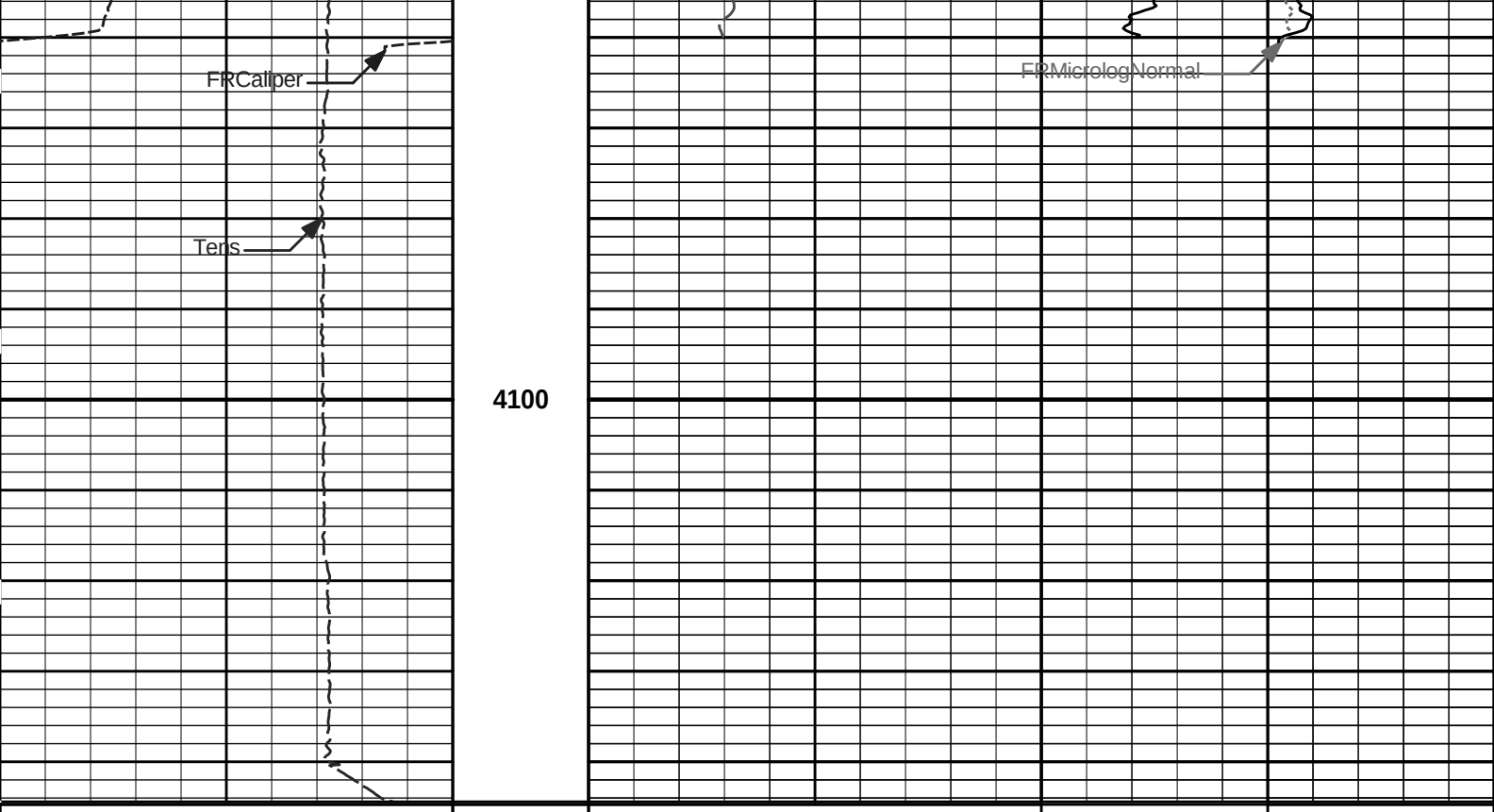
REPEAT SECTION

REPEAT SECTION




3700
3800
Caliper
MicrologNormal


Tens
MicrologLateral
3900
4000



15K Tens 0 pounds	MD 1 : 240 ft	0 Pe 10
6 Caliper 16 inches	AHVT	0 MicrologNormal 20 ohm-metre
0 Gamma API 150 api	BHVT	0 MicrologLateral 20 ohm-metre
	Tension Pull 10 0	30 DensityPorosity -10 %
	Tension Pull	30 Neutron Porosity -10 %

HALLIBURTON

Plot Time: 28-Sep-12 14:33:34
Plot Range: 3600 ft to 4144.42 ft
Data: DOR_TOEWS25-9-4\Well Based\DAQ-0004-003\
Plot File: \\POROSITY\PoroML_5_main_IQ_LIB

REPEAT SECTION

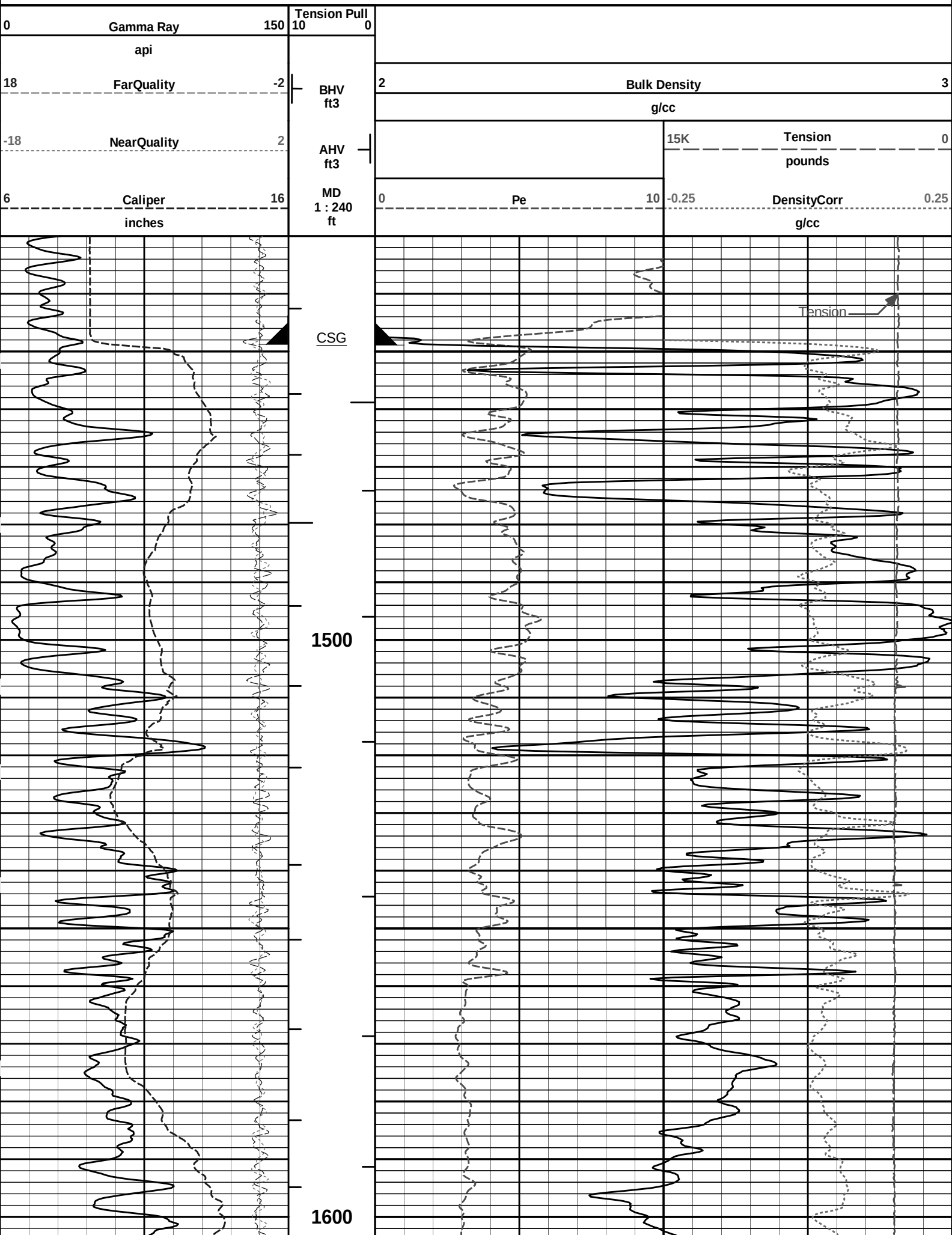
REPEAT SECTION

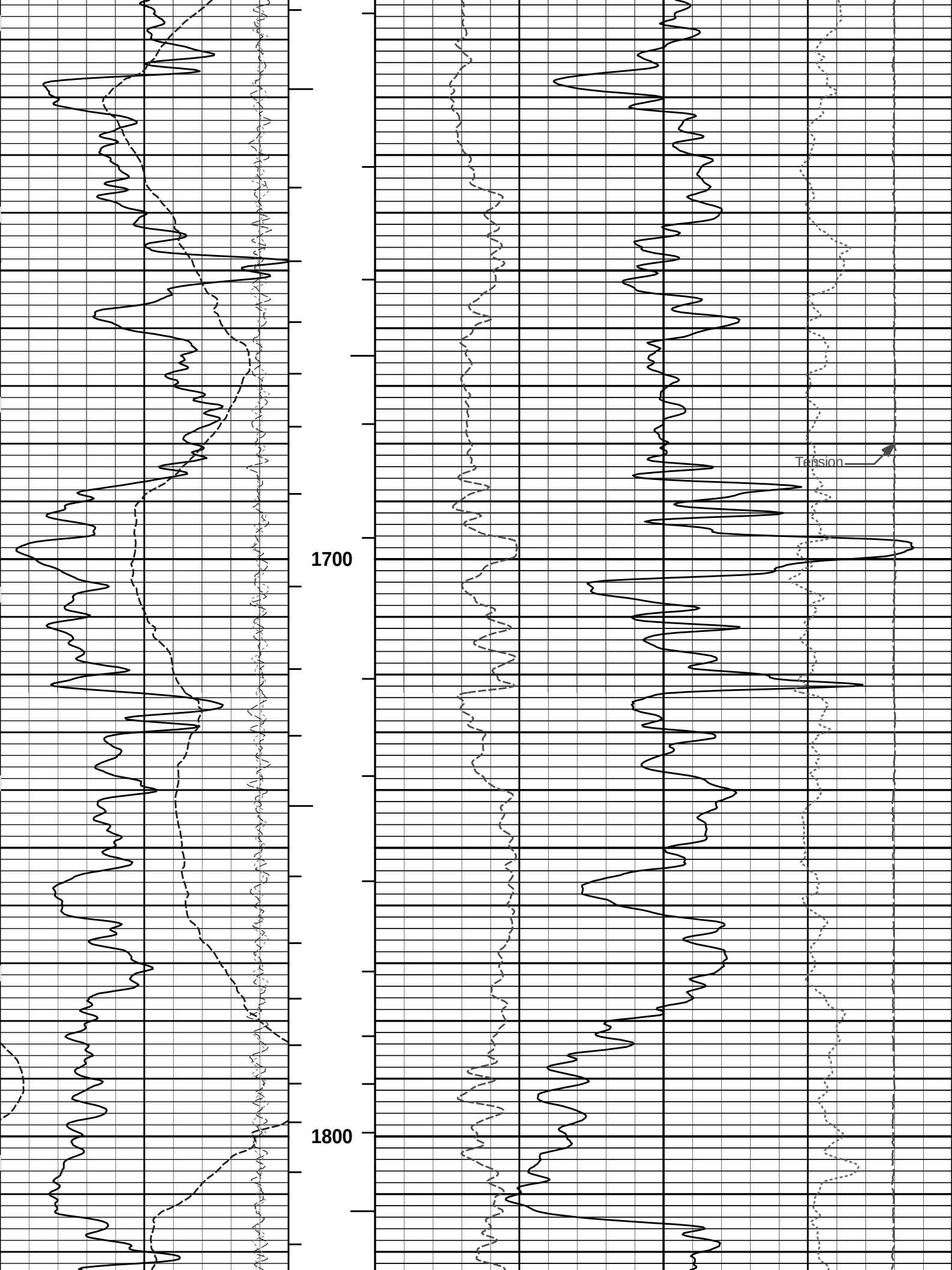
HALLIBURTON

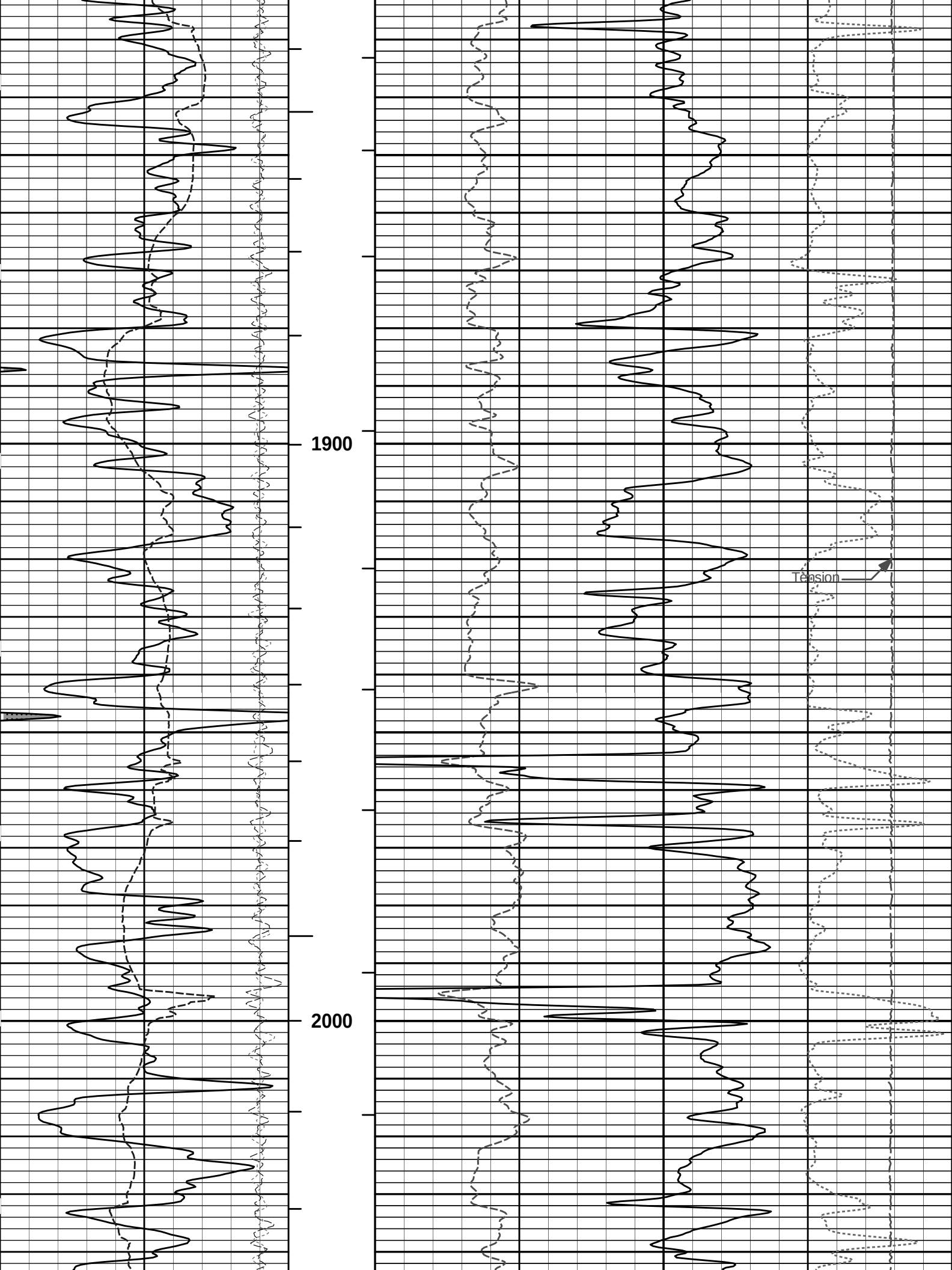
Plot Time: 28-Sep-12 14:33:34
Plot Range: 1430 ft to 4147.67 ft
Data: DOR_TOEWS25-9-4\Well Based\DAQ-0004-004\
Plot File: \\-LOCAL-\FAIR_DOWNING#1\Well Based\POROSITY\BULKD_5_MAIN_LIB

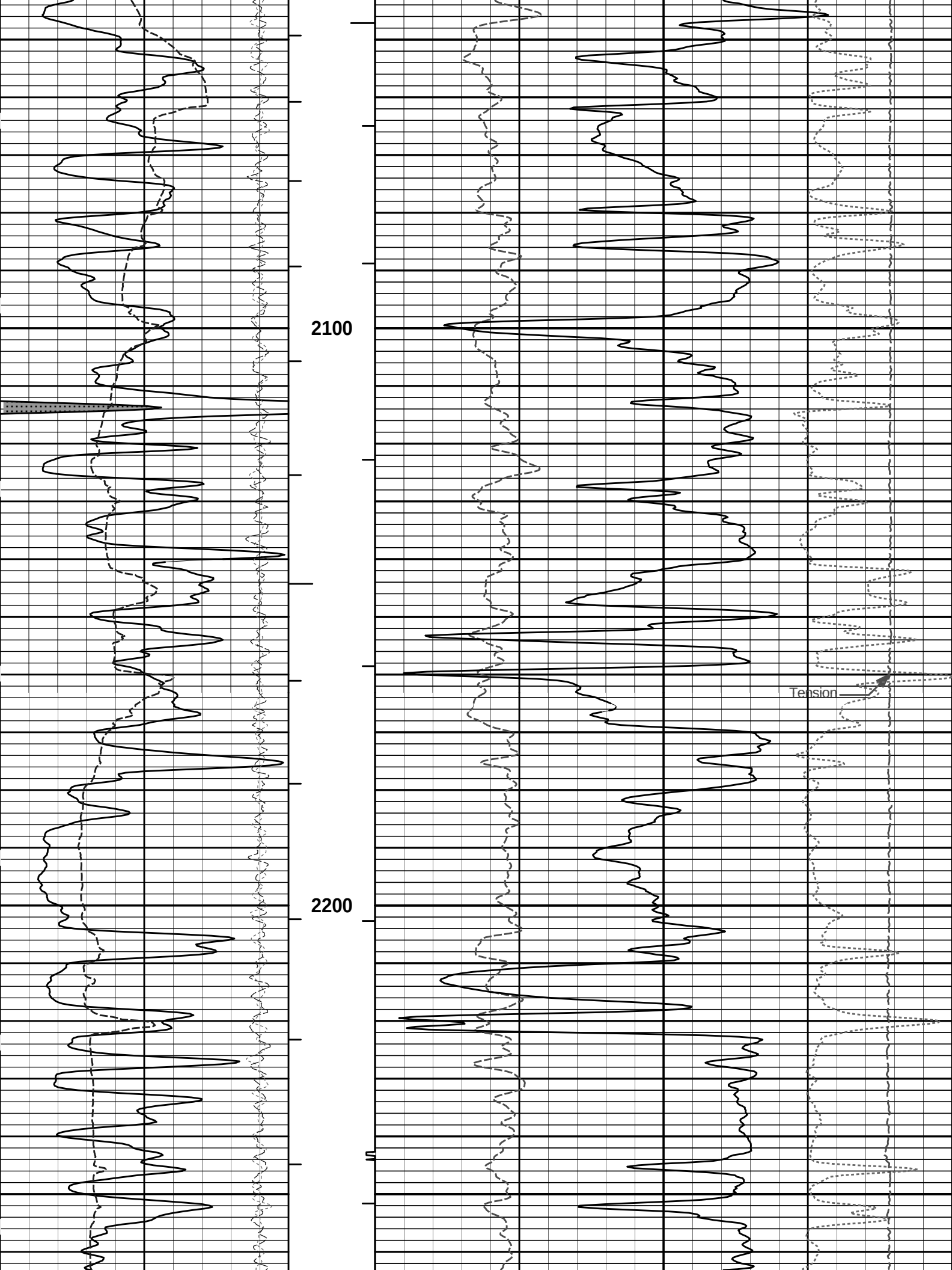
5 INCH MAIN LOG

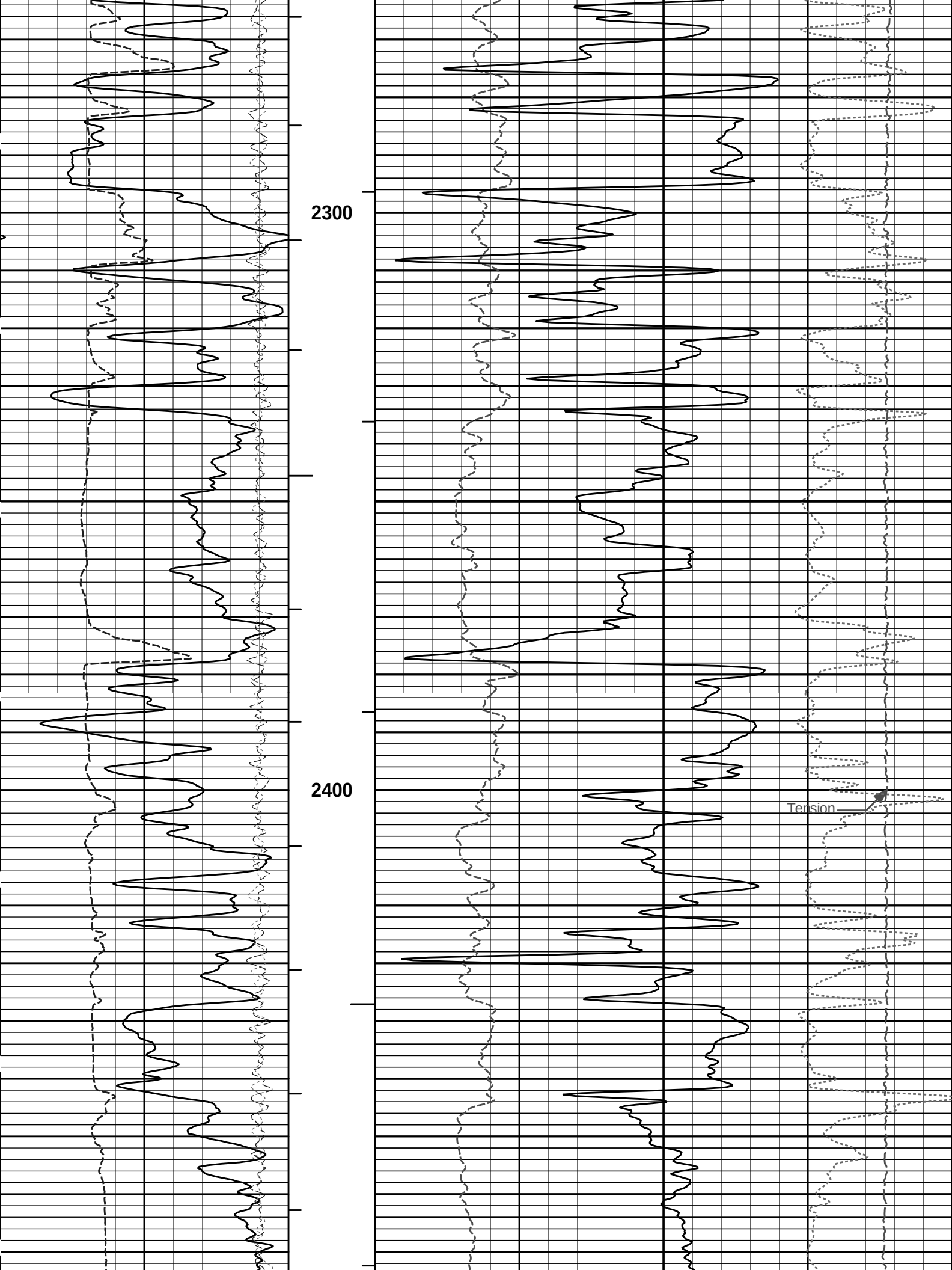
5 INCH MAIN LOG

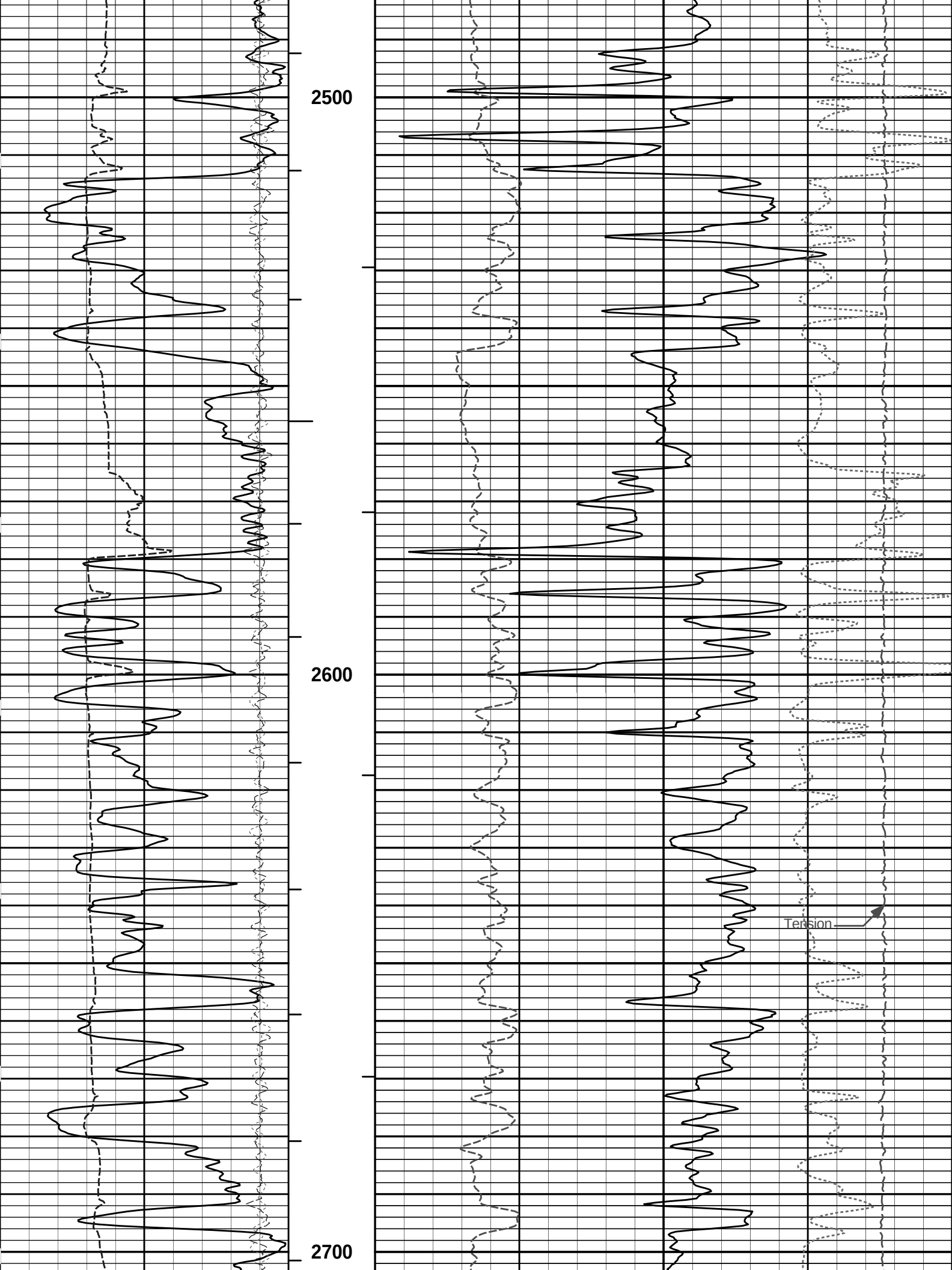


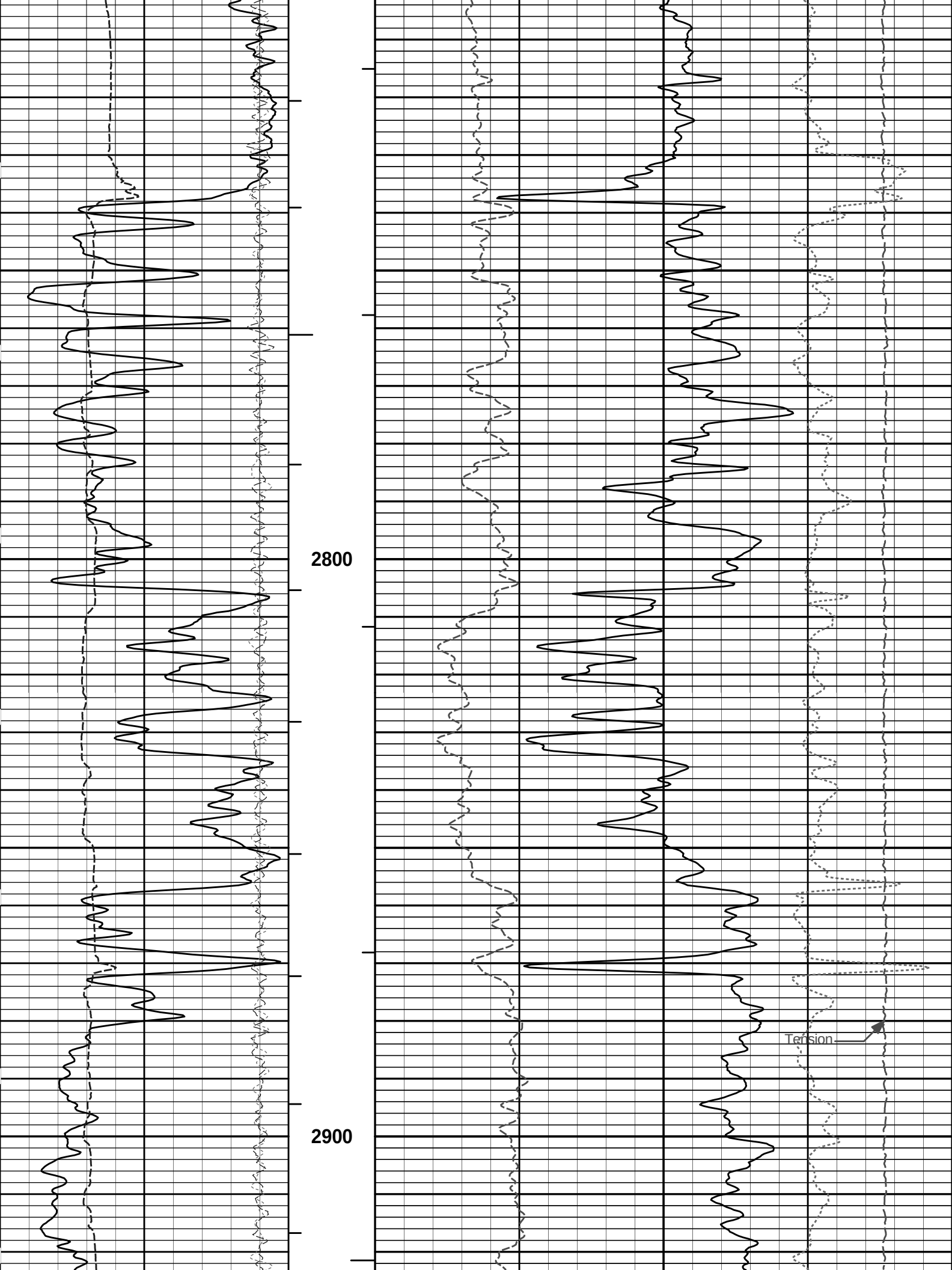

Tension
1700
1800

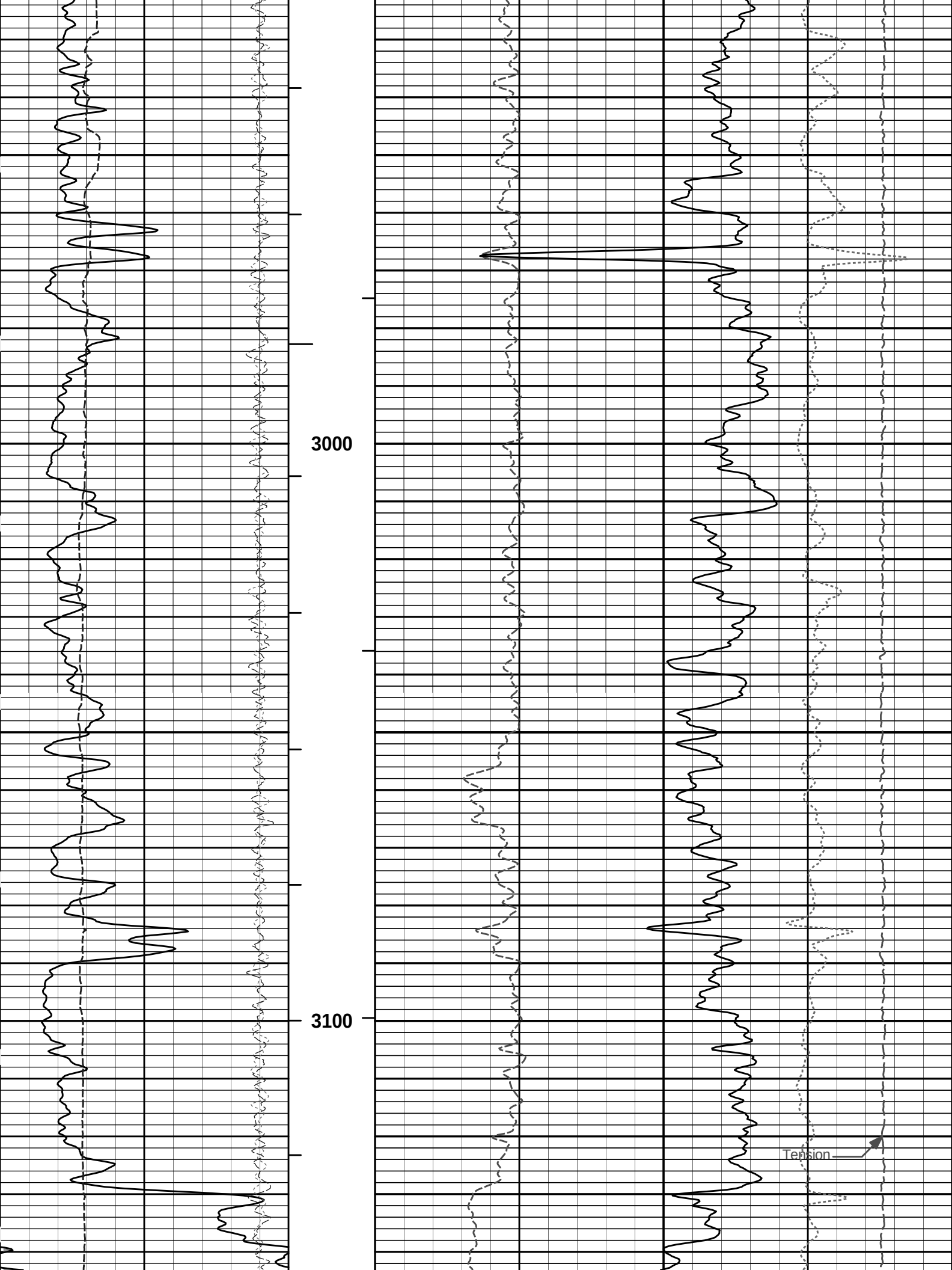

1900
2000
Tension

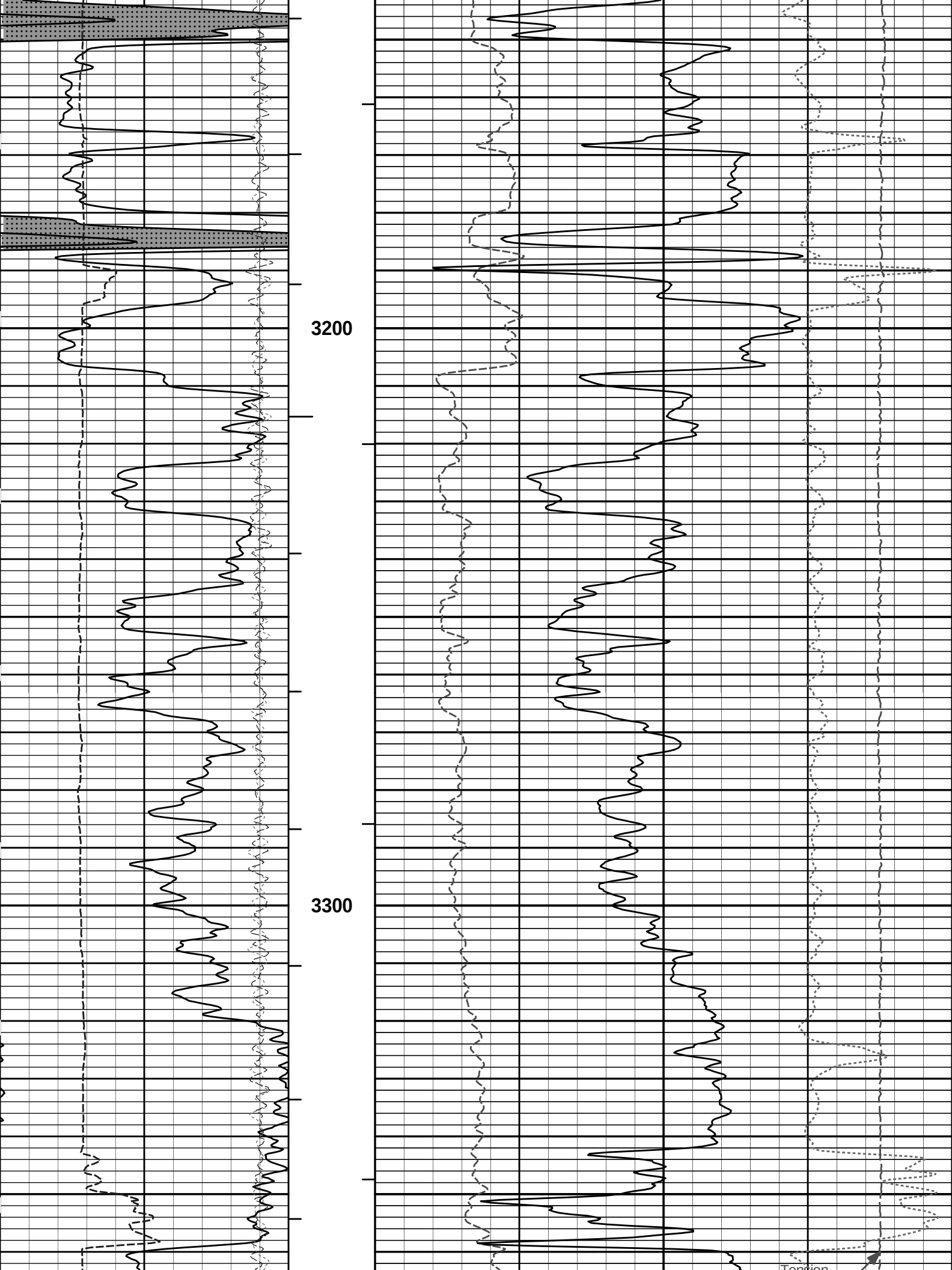

2100
2200
Tension

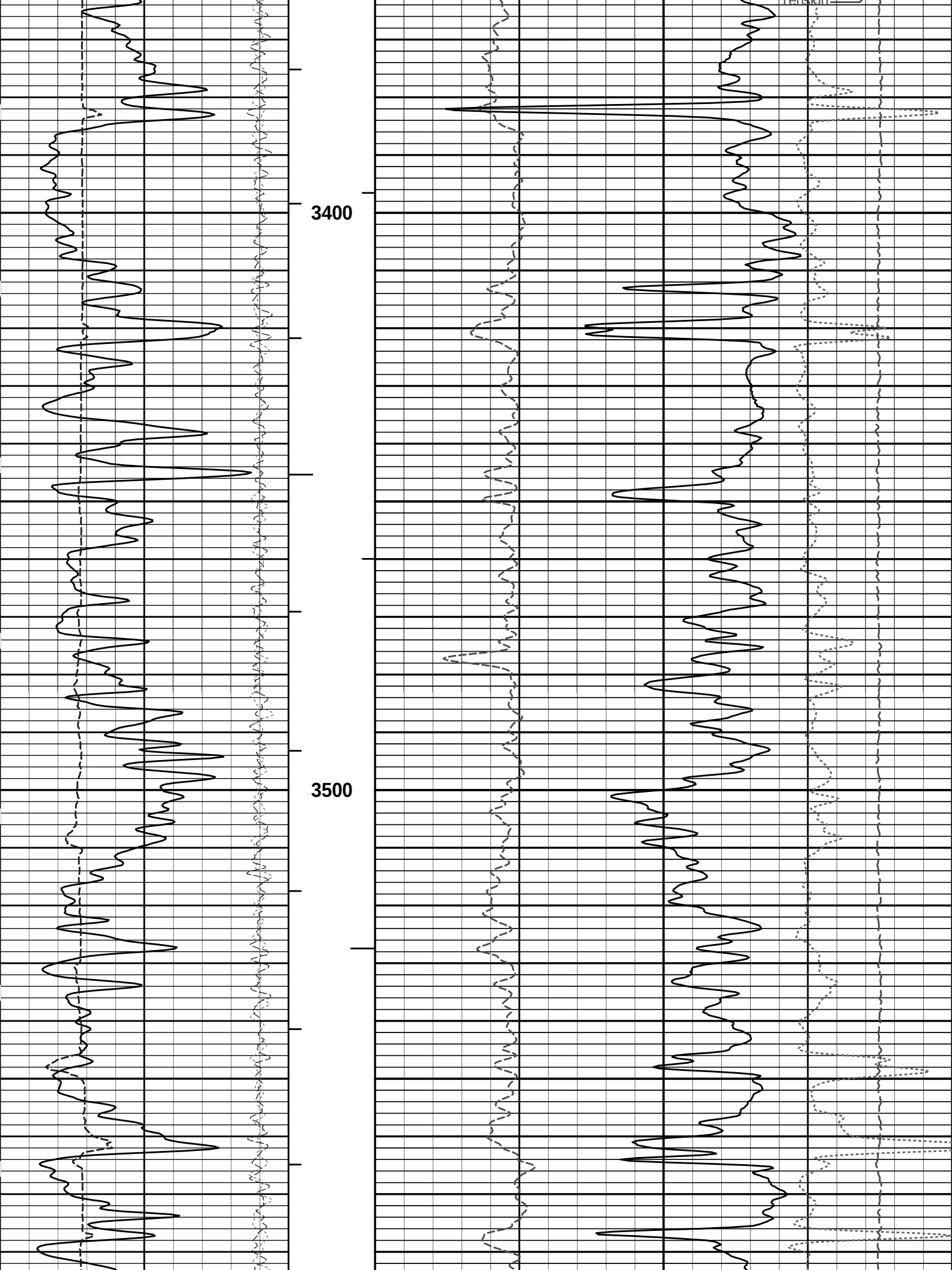

2300
2400
Tension

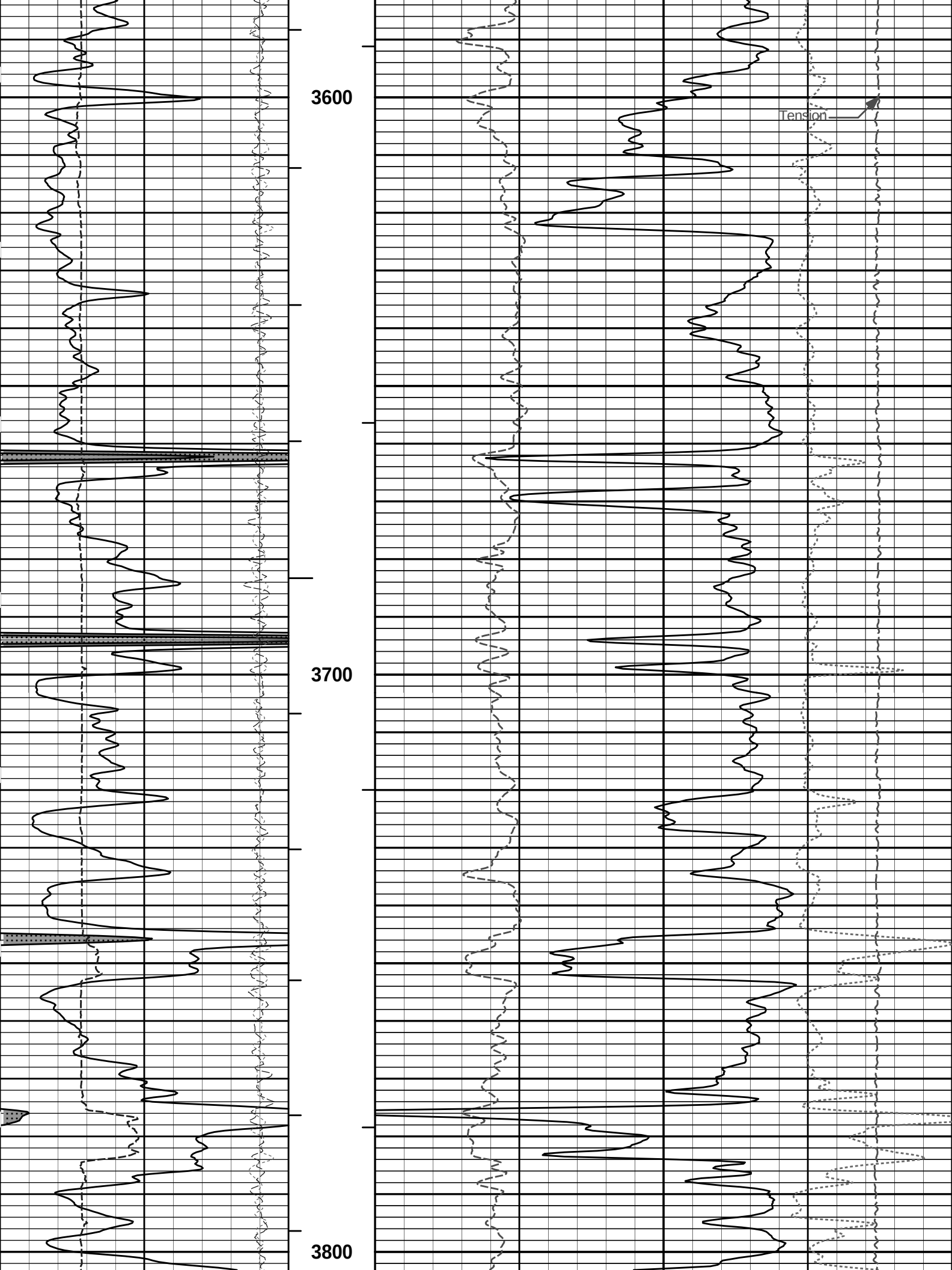

2500
2600
2700
Tension

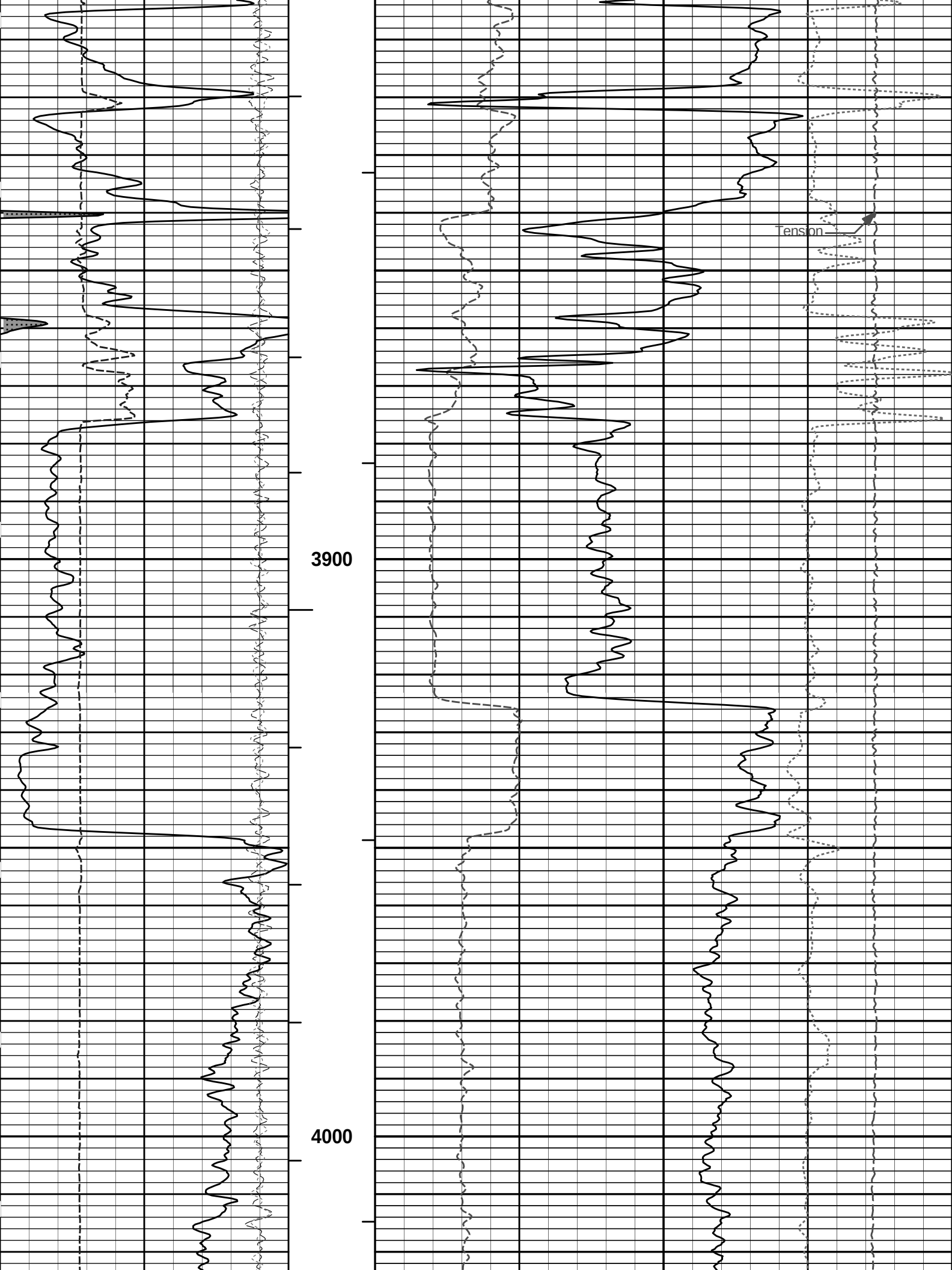

2800
2900
Tension

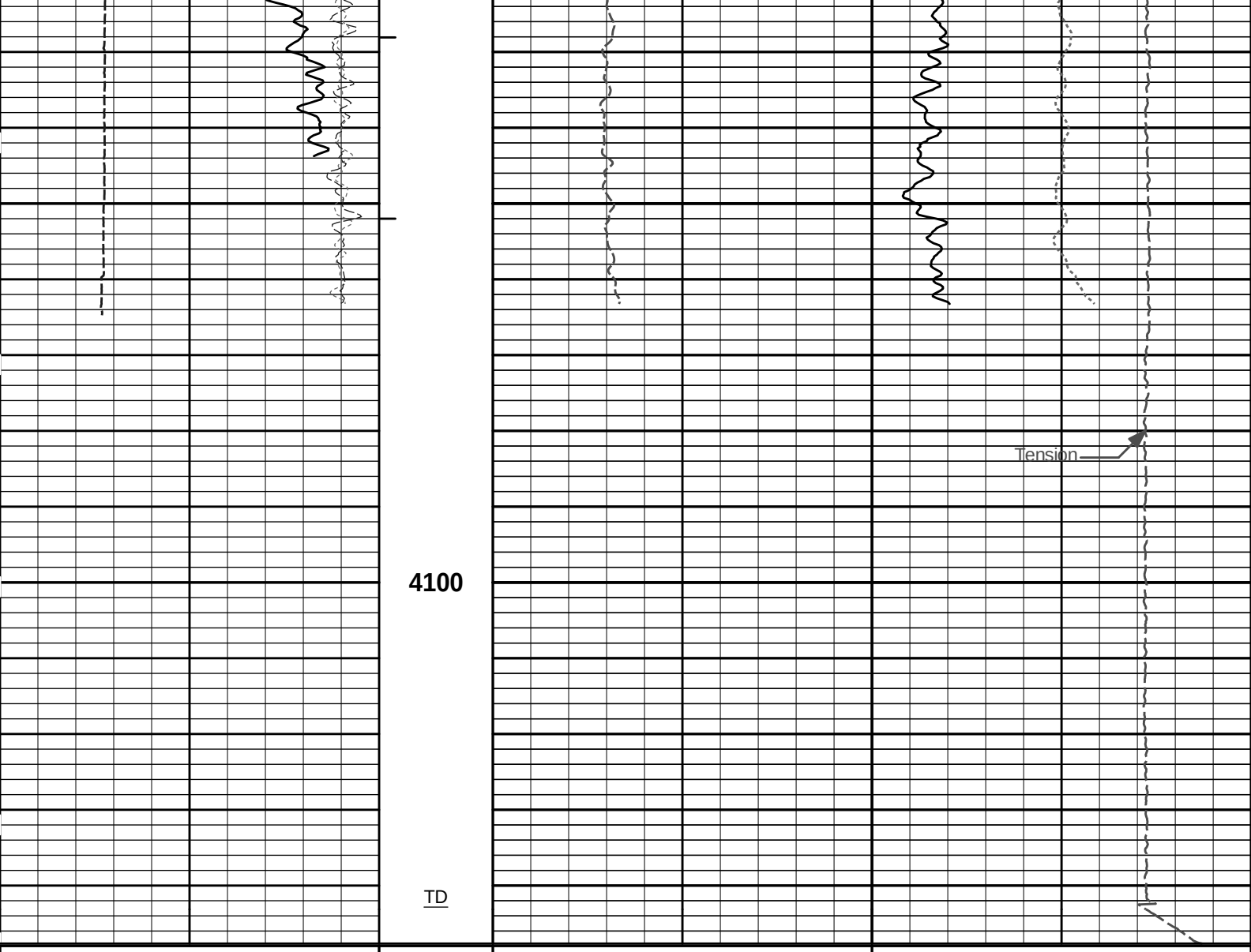

3000
3100
Tension


3200
3300
Tension


Tension
3400
3500


3600
3700
3800
Tension


Tension
3900
4000



6 Caliper 16	MD 1 : 240 ft	0 Pe 10	-0.25 DensityCorr 0.25	
inches			g/cc	
-18 NearQuality 2	AHV ft3		15K Tension 0	
			pounds	
18 FarQuality -2	BHV ft3	2 Bulk Density 3		
		g/cc		
0 Gamma Ray 150	Tension Pull 10 0			
api				

HALLIBURTON

Plot Time: 28-Sep-12 14:33:43
Plot Range: 1430 ft to 4147.67 ft
Data: DOR_TOEWS25-9-4\Well Based\DAQ-0004-004\
Plot File: \\-LOCAL-\FAIR_DOWNING#1\Well Based\POROSITY\BULKD_5_MAIN_LIB

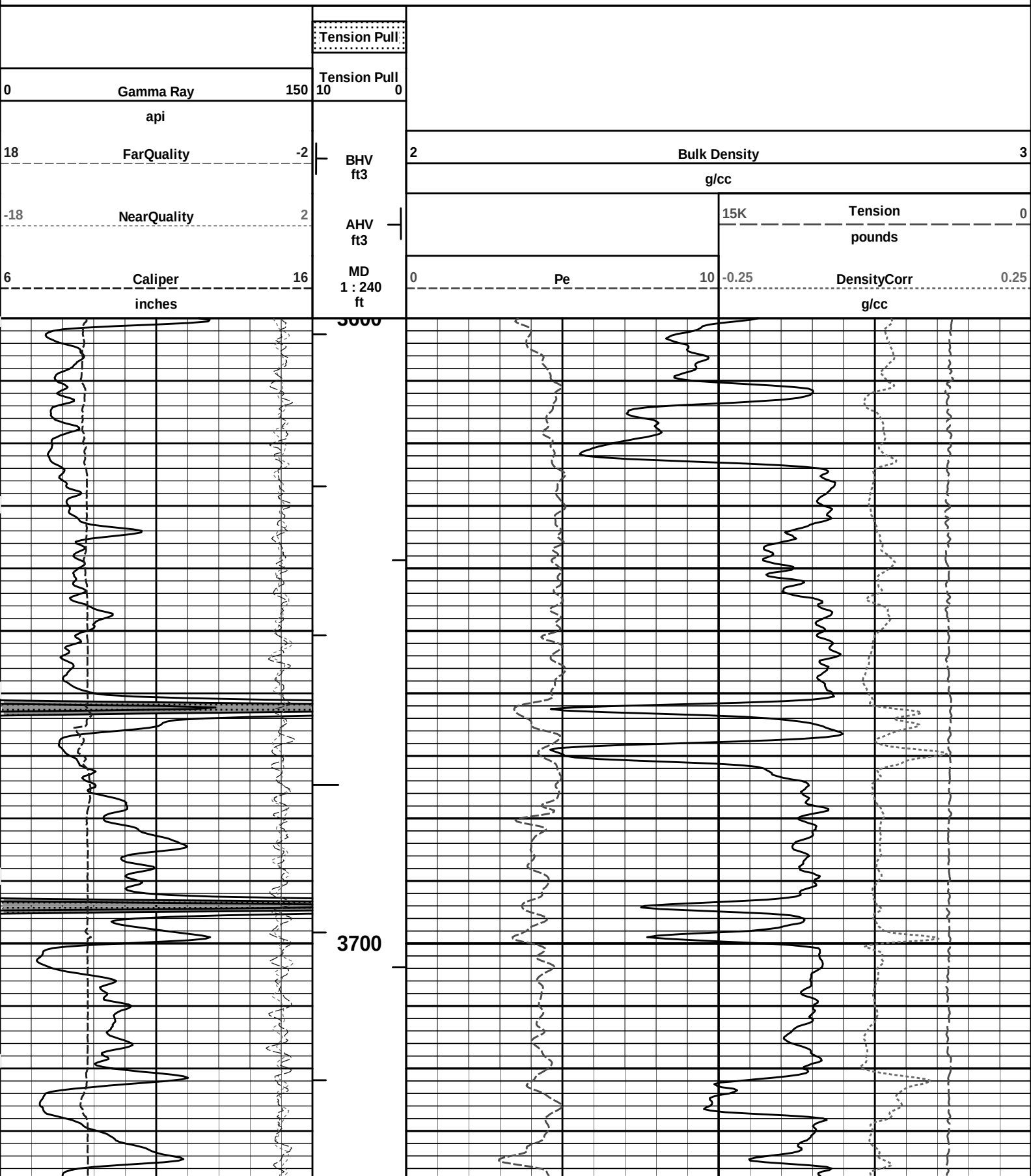
5 INCH MAIN LOG

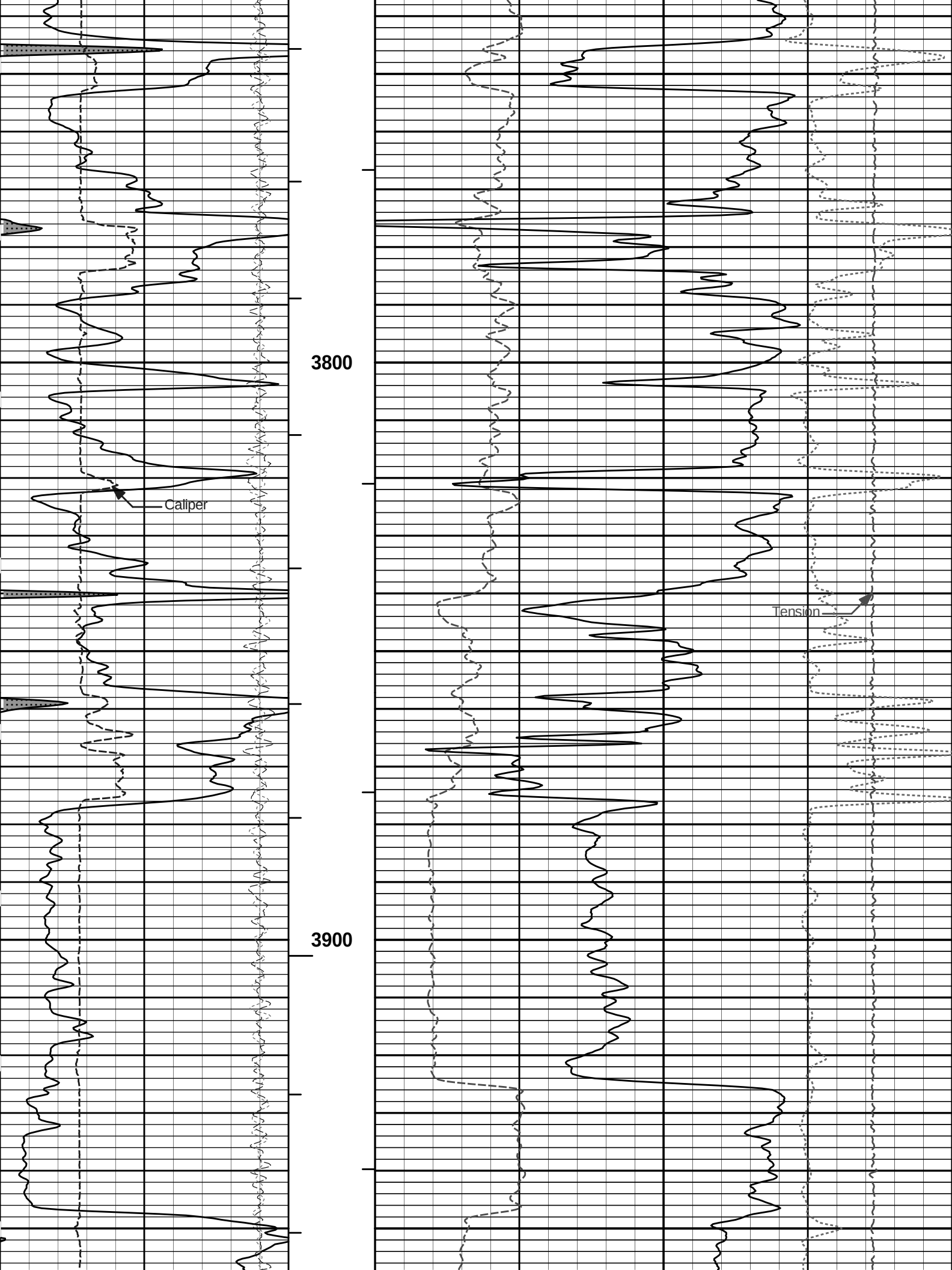
HALLIBURTON

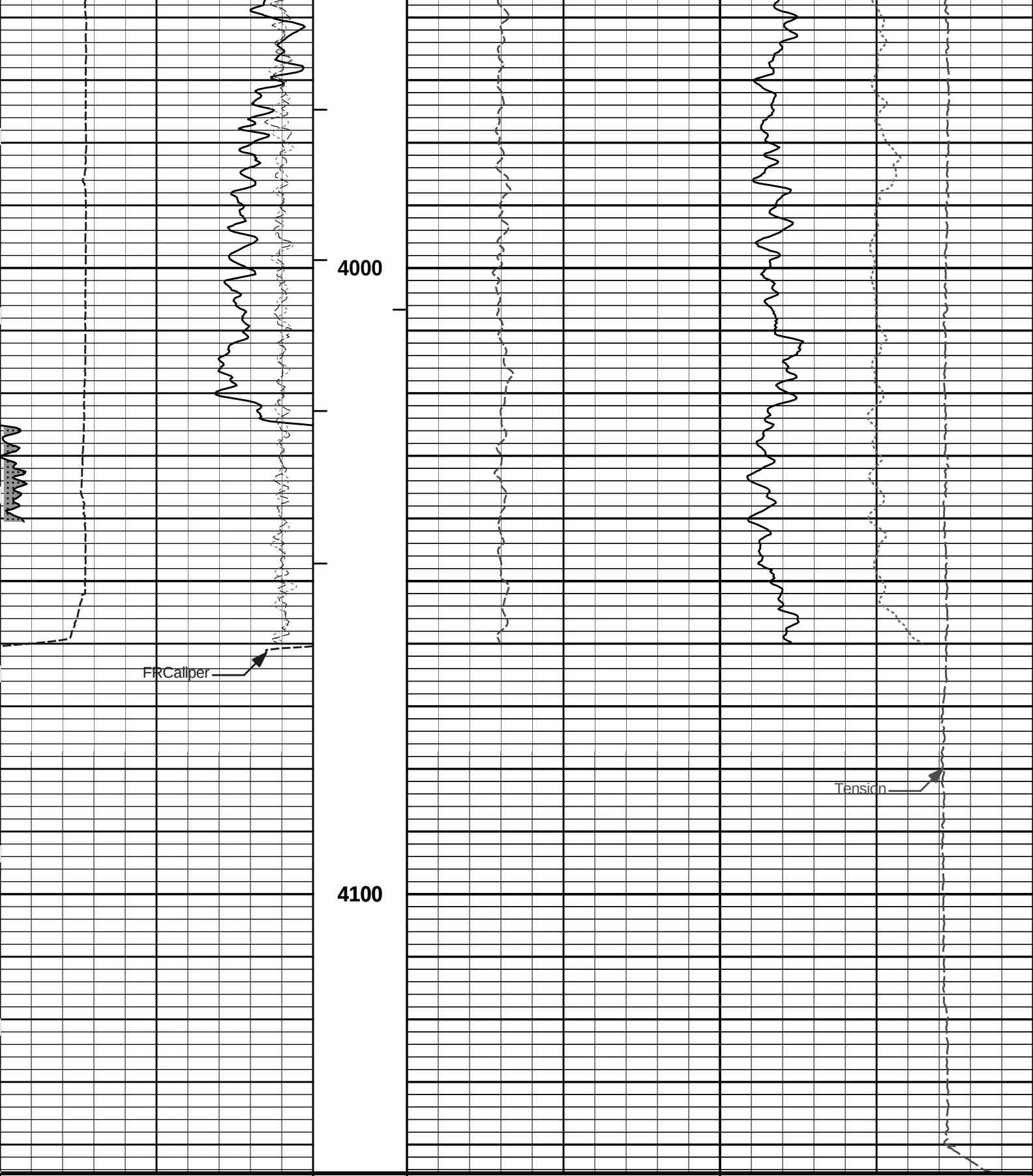
Plot Time: 28-Sep-12 14:33:43
Plot Range: 3600 ft to 4144.42 ft
Data: DOR_TOEWS25-9-4\Well Based\DAQ-0004-003\
Plot File: \\-LOCAL-\FAIR_DOWNING#1\Well Based\POROSITY\BULKD_5_MAIN_LIB

REPEAT SECTION

REPEAT SECTION




3800
3900
Caliper
Tension



6 Caliper 16	MD 1 : 240 ft	0 Pe 10
inches		
-18 NearQuality 2	AHV ft3	
18 FarQuality -2	BHV ft3	2 Bulk Density 3
	Tension Pull	g/cc

-0.25 DensityCorr 0.25	
g/cc	
15K Tension 0	
pounds	

0	Gamma Ray	150	10	0
	api			
			Tension Pull	

HALLIBURTON

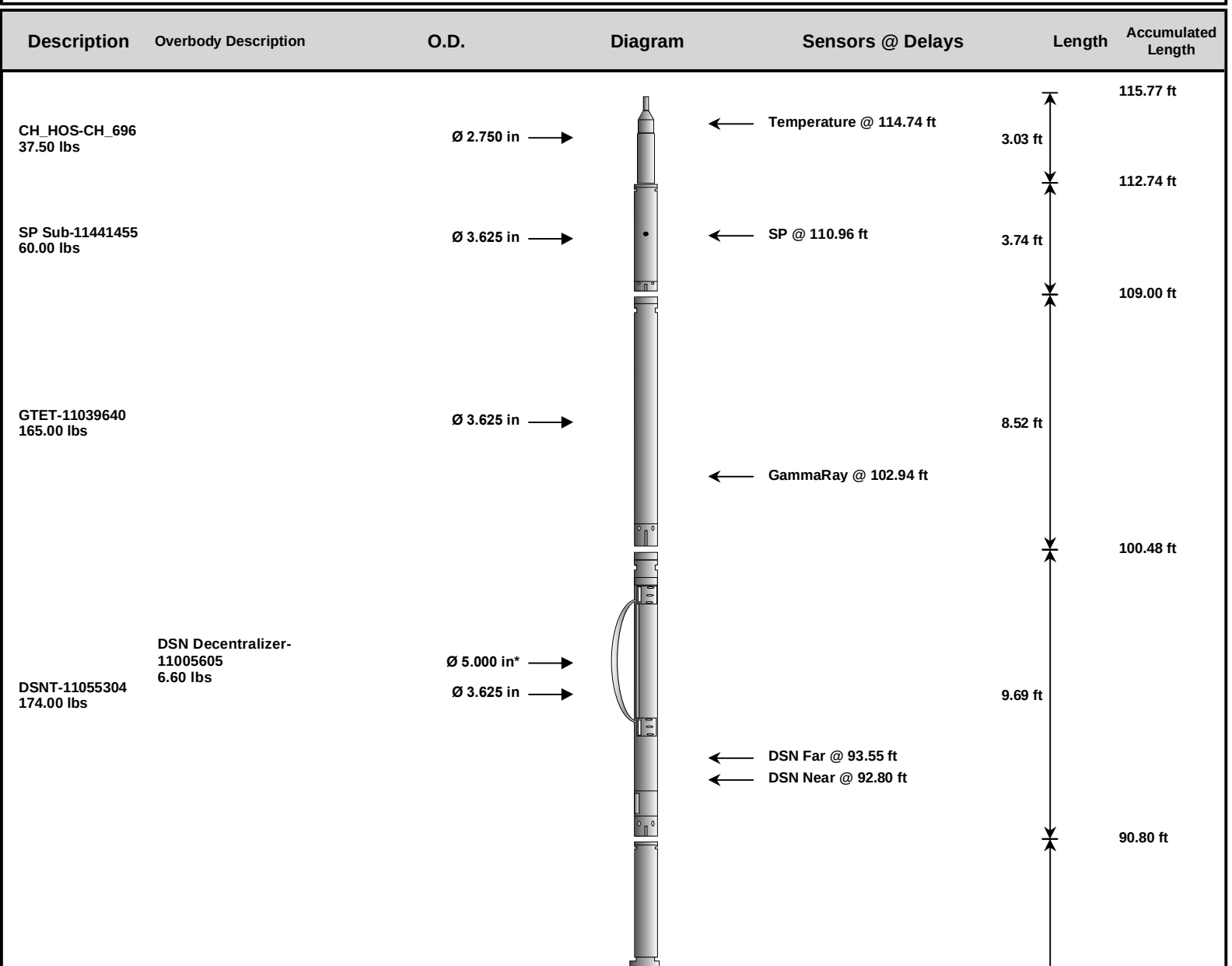
Plot Time: 28-Sep-12 14:33:46
Plot Range: 3600 ft to 4144.42 ft
Data: DOR_TOEWS25-9-4\Well Based\DAQ-0004-003\
Plot File: \\-LOCAL-\FAIR_DOWNING#1\Well Based\POROSITY\BULKD_5_MAIN_LIB

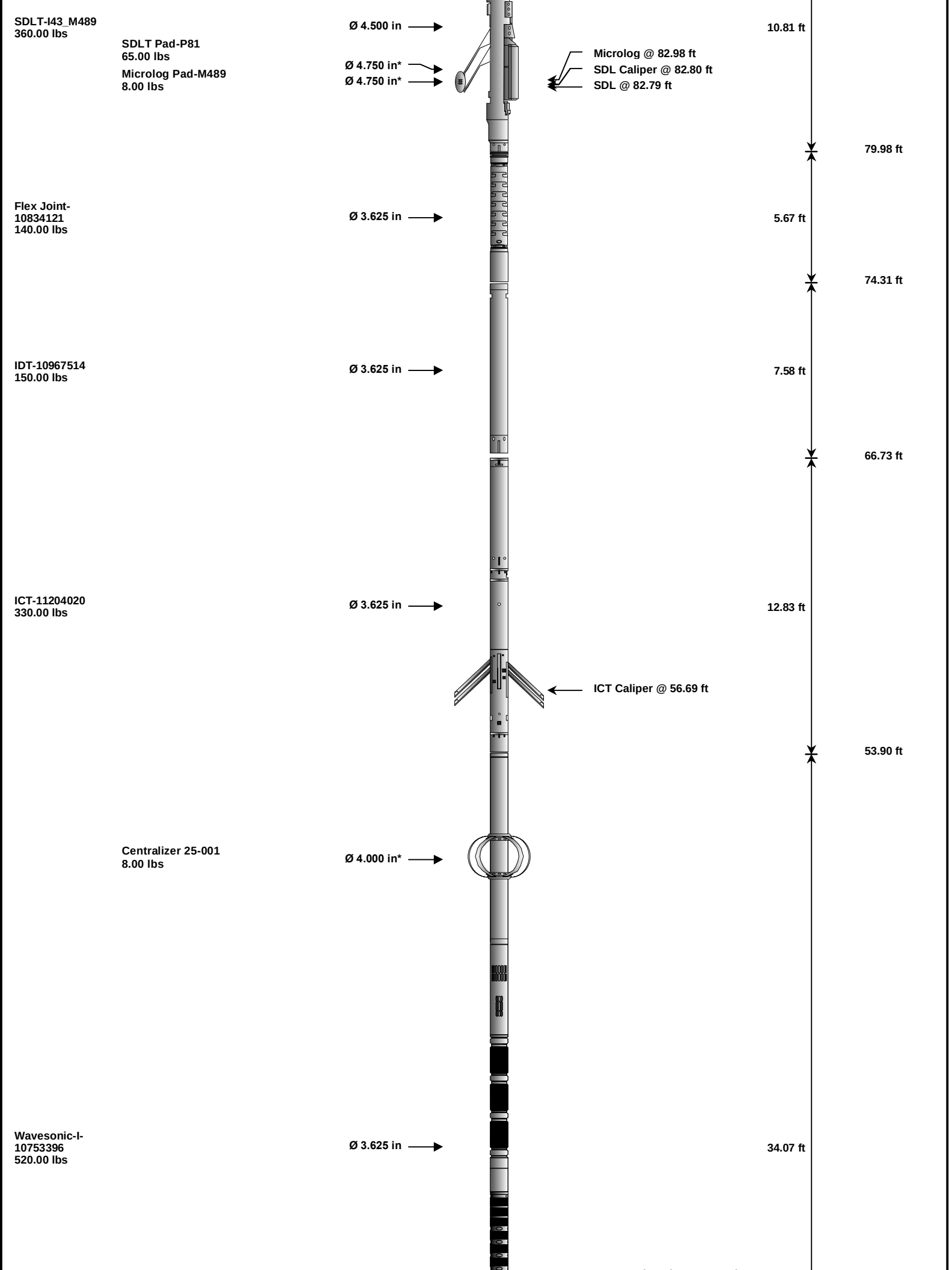
REPEAT SECTION

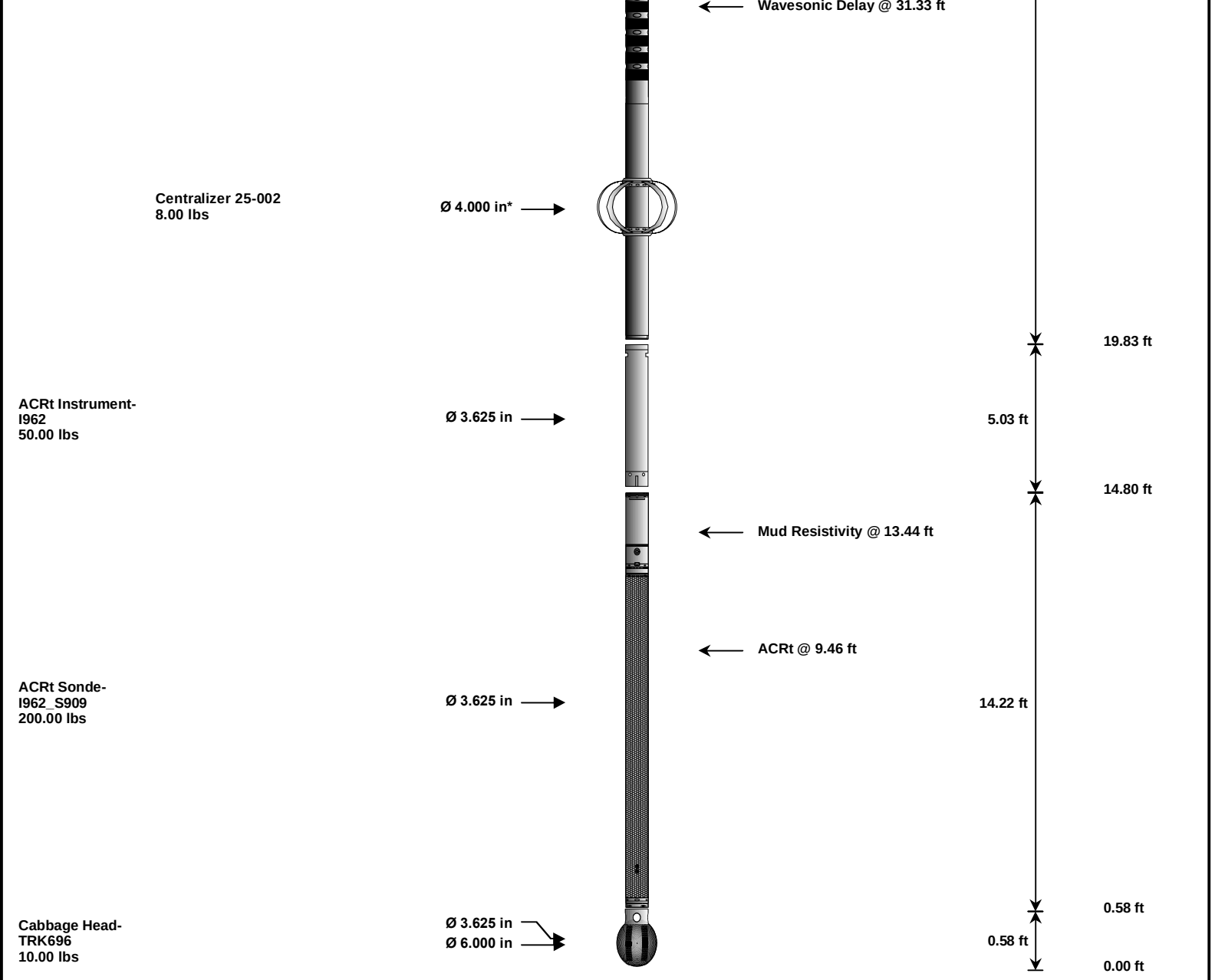
REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT




SDLT-I43_M489
360.00 lbs
Ø 4.500 in
10.81 ft
SDLT Pad-P81
65.00 lbs
Microlog Pad-M489
8.00 lbs
Ø 4.750 in*
Ø 4.750 in*
Microlog @ 82.98 ft
SDL Caliper @ 82.80 ft
SDL @ 82.79 ft
79.98 ft
Flex Joint-
10834121
140.00 lbs
Ø 3.625 in
5.67 ft
74.31 ft
IDT-10967514
150.00 lbs
Ø 3.625 in
7.58 ft
66.73 ft
ICT-11204020
330.00 lbs
Ø 3.625 in
12.83 ft
ICT Caliper @ 56.69 ft
53.90 ft
Centralizer 25-001
8.00 lbs
Ø 4.000 in*
Wavesonic-I-
10753396
520.00 lbs
Ø 3.625 in
34.07 ft



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)		Accumulated Length (ft)	Max.Log. Speed (fpm)
CH HOS	Hostile Cable Head with Load Cell	CH 696	37.50	3.03		112.74	300.00
SP	SP Sub	11441455	60.00	3.74		109.00	300.00
GTET	Gamma Telemetry Tool	11039640	165.00	8.52		100.48	60.00
DSNT	Dual Spaced Neutron	11055304	174.00	9.69		90.80	60.00
DCNT	DSN Decentralizer	11005605	6.60	5.13	*	94.13	300.00
SDLT	Spectral Density Tool	I43_M489	360.00	10.81		79.98	60.00
MICP	Microlog Pad	M489	8.00	1.00	*	82.48	60.00
SDLP	Density Insite Pad	P81	65.00	2.55	*	82.19	60.00
FLEX	Flex Joint	10834121	140.00	5.67		74.31	300.00
IDT	Insite Directional Tool	10967514	150.00	7.58		66.73	30.00
ICT	Six Independent Arm Caliper	11204020	330.00	12.83		53.90	30.00
WSTT	WaveSonic Insite	10753396	520.00	34.07		19.83	30.00
OBCEN	Centralizer - 25 in. Overbody	001	8.00	2.08	*	48.31	300.00
OBCEN	Centralizer - 25 in. Overbody	002	8.00	2.08	*	23.40	300.00
ACRt	Array Compensated True Resistivity Instrument Section	I962	50.00	5.03		14.80	300.00
ACRt	Array Compensated True Resistivity Sonde Section	I962_S909	200.00	14.22		0.58	300.00
CBHD	Cabbage Head	TRK696	10.00	0.58		0.00	300.00
Total			**2,292.10**	**115.77**			

* Not included in Total Length and Length Accumulation.

Data: DOR_TOEWS25-9-4\0004 SP-GTET-DSN-SDL-IDT-ICT-WSTT-ACRT-CH\IDLE **Date: 28-Sep-12 02:50:39**

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	**GTET - 11039640**	**Reference Calibration Date:**	**24-Aug-12 11:06:42**
Engineer:	**S. INGERSOLL**	**Calibration Date:**	**25-Sep-12 15:48:12**
Software Version:	**WL INSITE R3.6.0 (Build 3)**	**Calibration Version:**	**1**

Calibrator Source S/N: TB146

Calibrator API Reference:265.00 api

Equivalent Calibrator API Reference:269.6 api

Measurement	Measured	Calibrated	Units
Background	55.4	55.5	api
Background + Calibrator	324.5	325.2	api
Calibrator	269.1	269.6	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name:	**GTET - 11039640**	**Reference Calibration Date:**	**25-Sep-12 15:48:12**
Engineer:	**T. HYDE**	**Calibration Date:**	**27-Sep-12 10:16:46**
Software Version:	**WL INSITE R3.6.0 (Build 3)**	**Calibration Version:**	**1**

Calibrator Source S/N: TB146

Calibrator API Reference:265.00 api

Equivalent Calibrator API Reference:269.6 api

Field Verification	Shop	Field	Units
Background	55.5	39.9	api
Background + Calibrator	325.2	313.2	api
Calibrator	269.6	273.3	api

Shop	Field	Difference	Tolerance
269.6	273.3	-3.7	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	**DSNT - 11055304**	**Reference Calibration Date:**	**05-Sep-12 14:27:57**
Engineer:	**T. HYDE**	**Calibration Date:**	**05-Sep-12 14:46:31**
Software Version:	**WL INSITE R3.6.0 (Build 3)**	**Calibration Version:**	**1**

Logging Source S/N: 696

Tank Serial Number: LIBERAL_NEUTRON

Reference value assigned to Tank: 51.680

Snow Block S/N: 696

Calibration Tank Water Temperature: 68 degF

Min. Tool Housing Outside Diameter: 3.620 in

CALIBRATION CONSTANTS

Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	0.987	0.989	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):	0.2101	0.2107	0.0006	+/- 0.0020
Calibrated Ratio:	9.70	9.72	0.019	+/- 0.050

VERIFIER		
Measurement	**Value**	**Control Limit**
Snow-Block Porosity (decp):	0.0691	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 - 11055304 **Reference Calibration Date:** 05-Sep-12 14:46:31

Engineer: S. INGERSOLL **Calibration Date:** 28-Sep-12 02:21:52

Software Version: WL INSITE R3.6.0 (Build 3) **Calibration Version:** 1

Logging Source S/N: 696

Snow Block S/N: 696

NEUTRON FIELD-CHECK SUMMARY				
	Shop	**Field**	**Difference**	**Control Limit On Change**
Snow-Block Porosity (decp):	0.0691	0.0734	0.0042	+/- 0.0150

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

DENSITY CALIPER SHOP CALIBRATION

Tool Name: SDLT - I43_M489 **Reference Calibration Date:** 01-Jan-70 00:00:00

Engineer: S. INGERSOLL **Calibration Date:** 06-Sep-12 07:33:37

Software Version: WL INSITE R3.6.0 (Build 3) **Calibration Version:** 1

Host Tool Name: DSNT - 11055304

CALIBRATION COEFFICIENTS			
Measurement	**Previous Value**	**New Value**	**Control Limit On New Value**
Pad Offset	-2153.99	-2153.99	-7000.00 - -1000.00
Pad Gain	0.0003997	0.0003997	0.000200 - 0.000600
Arm Offset	1430.46	1430.46	-5000.00 - 3000.00
Arm Gain	0.0003851	0.0003851	0.000300 - 0.000700
Arm Power	0.000004432	0.000004432	-0.000010000 - 0.000010000

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)	3.75	3.75	0.00	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.50	6.50	0.00	+/- 0.20
Medium Ring (in)	8.25	8.25	0.00	+/- 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

MICRO LOG SHOP CALIBRATION

Tool Name: Microlog Pad - M489 **Reference Calibration Date:** 01-Nov-11 03:10:56

Engineer: S. INGERSOLL **Calibration Date:** 16-Sep-12 20:05:23

Software Version: WL INSITE R3.6.0 (Build 3) **Calibration Version:** 1

Host Tool Name: DSNT - 11055304

CALIBRATION COEFFICIENT SUMMARY

Measurement	Micro Log Normal		Micro Log Lateral		
	Measured	Calibrated	Measured	Calibrated	Units
Tool Zero	-0.08	-0.07	-0.01	-0.01	ohmm
Calibration Point #1	-0.01	0.00	0.00	0.00	ohmm
Calibration Point #2	19.77	20.00	19.65	20.00	ohmm
Internal Reference	19.71	19.94	19.64	19.99	ohmm

Measurement	Micro Log Normal Tool Value	Micro Log Lateral Tool Value	Units
Tool Zero	-0.51	0.41	V
Calibration Point #1	16.72	2.97	V
Calibration Point #2	5307.12	6901.02	V
Internal Reference	5291.44	6896.15	V

MICRO LOG FIELD CHECK

Tool Name: Microlog Pad - M489 **Reference Calibration Date:** 16-Sep-12 20:05:23

Engineer: S. INGERSOLL **Calibration Date:** 28-Sep-12 02:20:19

Software Version: WL INSITE R3.6.0 (Build 3) **Calibration Version:** 1

Measurement	Micro Log Normal		Micro Log Lateral		
	Shop	Field	Shop	Field	Units
Tool Zero	-0.07	-0.06	-0.01	-0.01	ohmm
Internal Reference	19.94	19.83	19.99	19.87	ohmm

Summary

Signal	Shop	Field	Difference	Tolerence
Microlog Normal	19.94	19.83	0.11	+/- 0.80
Microlog Lateral	19.99	19.87	0.12	+/- 0.80

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name: SDLT Pad - P81 **Reference Calibration Date:** 16-Sep-12 19:18:00

Engineer: S. INGERSOLL **Calibration Date:** 16-Sep-12 19:40:44

Software Version: WL INSITE R3.6.0 (Build 3) **Calibration Version:** 1

Logging Source S/N: 5168GW

Aluminum Block S/N: LIBERAL Density: 2.598g/cc Pe: 3.170

Magnesium Block S/N: LIBERAL Density: 1.684g/cc Pe: 2.598

DENSITY CALIBRATION SUMMARY

Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0232	1.0287	0.90 - 1.10

Near Dens Gain	1.0077	1.0081	0.90 - 1.10
Near Peak Gain	1.0124	0.9977	0.90 - 1.10
Near Lith Gain	0.9847	0.9623	0.90 - 1.10
Far Bar Gain	1.0121	1.0124	0.90 - 1.10
Far Dens Gain	0.9996	1.0022	0.90 - 1.10
Far Peak Gain	0.9904	0.9944	0.90 - 1.10
Far Lith Gain	0.9656	0.9696	0.90 - 1.10
Near Bar Offset	-0.0203	-0.0702	NONE
Near Dens Offset	0.1057	0.0994	NONE
Near Peak Offset	0.0598	0.1815	NONE
Near Lith Offset	0.2756	0.4608	NONE
Far Bar Offset	0.0261	0.0257	NONE
Far Dens Offset	0.1218	0.1007	NONE
Far Peak Offset	0.1706	0.1383	NONE
Far Lith Offset	0.3356	0.3064	NONE
Near Bar Background	815.95	817.83	700 - 1450
Near Dens Background	266.98	267.72	230 - 480
Near Peak Background	117.18	116.26	100 - 210
Near Lith Background	143.03	143.18	125 - 260
Far Bar Background	529.88	530.18	450 - 900
Far Dens Background	208.07	208.61	175 - 345
Far Peak Background	83.50	83.59	70 - 140
Far Lith Background	85.86	85.82	75 - 145

CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.687	1.684	-0.003	+/- 0.015
Pe	2.529	2.564	0.035	+/- 0.150
ALUMINUM				
Density (g/cc)	2.598	2.598	0.000	+/- 0.01500
Pe	3.145	3.133	-0.012	+/- 0.150

TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	0.0004	+/- 0.0110	0.0015	+/- 0.0140
Magnesium Block	0.0002	+/- 0.0110	-0.0012	+/- 0.0140
Aluminum Block	-0.0009	+/- 0.0110	0.0007	+/- 0.0140
Resolution	9.41	6.00 - 11.50	8.88	6.00 - 11.50
Internal Verifier(B+D+P+L)	1345	1200 - 2700	908	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 Pad - P81**	**Reference Calibration Date:**	**16-Sep-12 19:40:44**
Engineer:	**S. INGERSOLL**	**Calibration Date:**	**28-Sep-12 02:26:26**
Software Version:	**WL INSITE R3.6.0 (Build 3)**	**Calibration Version:**	**1**

Pad Temperature: 64.7 degF

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1344.983	1346.076	1.093	14.831
Far (B+D+P+L) cps	908.205	911.186	2.981	16.365
Near Resolution	9.41	9.53	0.120	0.50
Far Resolution	8.88	9.25	0.370	1.00

PASS/FAIL SUMMARY

Bkg Quality Check:	Passed
Bkg Resolution Check:	Passed
Bkg Verification Check:	Passed

SDLT CALIPER FIELD CALIBRATION

Tool Name:	**SDLT - I43_M489**	**Reference Calibration Date:**	**06-Sep-12 07:33:37**
Engineer:	**S. INGERSOLL**	**Calibration Date:**	**22-Sep-12 14:30:40**
Software Version:	**WL INSITE R3.6.0 (Build 3)**	**Calibration Version:**	**1**

MEASURED CALIPER VALUES

Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.71	-0.04	+/- 0.10
Ring Diameter	8.25	8.19	-0.06	+/- 0.15

PASS/FAIL SUMMARY

Pad Extension Check:	Passed
Diameter Check:	Passed

ACCELEROMETER AND MAGNETOMETER SHOP CALIBRATION

Tool Name:	**IDT - 10967514**	**Reference Calibration Date:**	**25-Feb-10 10:04:50**
Engineer:	**T. HYDE**	**Calibration Date:**	**14-Aug-12 15:10:43**
Software Version:	**WL INSITE R3.6.0 (Build 3)**	**Calibration Version:**	**1**

Reference Gravity Field: 1.0000 g

Reference Magnetic Field: 54093.0000 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	Quality(Gravity)	Quality Error(%)	QF
0.2907	-0.6561	-0.0089	0.9988	99.8754	1
-0.6929	-0.2546	-0.0090	1.0008	99.9160	1
-0.3266	0.6707	-0.0080	0.9987	99.8750	1
0.6228	0.3750	-0.0076	1.0011	99.8939	1
0.0040	0.7434	-0.0098	1.0001	99.9850	1
0.6616	0.0814	0.1250	1.0001	99.9922	1
-0.0212	0.7438	-0.0095	1.0005	99.9451	1
0.7177	-0.0152	-0.0101	0.9993	99.9308	1

-0.0129	-0.7235	-0.0111	1.0010	99.9031	1
-0.7410	-0.0046	-0.0110	0.9995	99.9519	1
-0.1670	0.0128	0.3432	1.0000	99.9983	1
-0.6589	-0.0231	-0.1779	1.0000	99.9976	1

ACCELEROMETER QUALITY SUMMARY		
Average Calculated Gravity Field	1.0000	g
Standard Deviation Calculated Gravity Field	0.0008	g

ACCELEROMETER GAIN AND OFFSET		
	GAIN	OFFSET
ACC X	1.3697259426	0.0157147683
ACC Y	1.3639539480	-0.0140932603
ACC Z	2.7579212189	0.0306457058

* 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	Quality(Magnetic)	Quality Error(%)	QF
0.0603	1.2769	-0.0006	53534.9414	98.9683	1
1.2664	-0.1417	-0.0017	53876.5078	99.5998	1
-0.0225	-1.2928	-0.0027	53510.5938	98.9233	1
-1.2599	-0.0657	-0.0037	53699.5625	99.2727	1
-0.0098	-1.1543	0.5793	54093.5000	99.9991	1
-1.2506	-0.0575	-0.1316	53638.0430	99.1589	1
0.0122	-1.1515	-0.6020	54746.4570	98.7920	1
-1.1213	0.0455	-0.6031	54940.3867	98.4335	1
0.0177	1.1372	-0.6014	54782.2070	98.7259	1
1.1356	0.0029	-0.6011	55092.7109	98.1519	1
0.2695	-0.5941	1.0711	54403.4609	99.4261	1
0.6782	0.0066	-0.9847	52508.6484	97.0711	1

MAGNETOMETER QUALITY SUMMARY		
Average Calculated Magnetic Field	54068.9180	nT
Standard Deviation Calculated Magnetic Field	755.4872	nT

MAGNETOMETER GAIN AND OFFSET		
	GAIN	OFFSET
MAG X	42444.9140625000	-166.3116760254
MAG Y	41629.1054687500	322.7136230469
MAG Z	44418.2734375000	-280.8706970215

Noise Level Value: 0.000210 cnts

Noise Level Cal Value: 0.0006 g

ICT SHOP CALIBRATION

Tool Name: ICT - 11204020 **Reference Calibration Date:** 14-Aug-12 12:12:34

Engineer: T. HYDE **Calibration Date:** 27-Sep-12 04:45:54

Software Version: WL INSITE R3.6.0 (Build 3) **Calibration Version:** 1

CALIPERS AND RINGS			
Ring	Measured	Calibrated	Units
CALIPER 1:			
Small Ring	3.80	3.65	in
Medium Ring	8.13	8.00	in

Large Ring	15.18	15.00	in
X-Large Ring	21.09	21.00	in
CALIPER 2:			
Small Ring	3.22	3.65	in
Medium Ring	7.51	8.00	in
Large Ring	14.44	15.00	in
X-Large Ring	20.54	21.00	in
CALIPER 3:			
Small Ring	3.47	3.65	in
Medium Ring	7.75	8.00	in
Large Ring	14.79	15.00	in
X-Large Ring	20.86	21.00	in
CALIPER 4:			
Small Ring	3.45	3.65	in
Medium Ring	7.70	8.00	in
Large Ring	14.67	15.00	in
X-Large Ring	20.75	21.00	in
CALIPER 5:			
Small Ring	3.80	3.65	in
Medium Ring	8.13	8.00	in
Large Ring	15.11	15.00	in
X-Large Ring	21.08	21.00	in
CALIPER 6:			
Small Ring	3.80	3.65	in
Medium Ring	8.15	8.00	in
Large Ring	15.22	15.00	in
X-Large Ring	21.10	21.00	in

ICT FIELD CALIBRATION

Tool Name: ICT - 11204020
Reference Calibration Date: 27-Sep-12 04:45:54
Engineer: T. HYDE
Calibration Date: 27-Sep-12 04:47:55
Software Version: WL INSITE R3.6.0 (Build 3)
Calibration Version: 1

CALIPERS

Caliper	Shop	Field	Units
Caliper 1	8.00	7.97	in
Caliper 2	8.00	7.97	in
Caliper 3	8.00	8.00	in
Caliper 4	8.00	7.98	in
Caliper 5	8.00	7.98	in
Caliper 6	8.00	7.98	in

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

Tool Name: ACRt Sonde - I962_S909
Reference Calibration Date: 23-Aug-12 19:00:08
Engineer: S. INGERSOLL
Calibration Date: 26-Sep-12 12:26:10
Software Version: WL INSITE R3.6.0 (Build 3)
Calibration Version: 1
Host Tool Name: ACRt Instrument - I962

TYPICAL GAIN RANGE

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.01	1.05	0.95	1.02	1.05	0.95	1.02	1.05
A2 (50")	0.95	1.02	1.05	0.95	1.02	1.05	0.95	1.02	1.05
A3 (29")	0.95	1.01	1.05	0.95	1.01	1.05	0.95	1.01	1.05
A4 (17")	0.95	1.01	1.05	0.95	1.01	1.05	0.95	1.01	1.05

A5 (10")	N/A	N/A	N/A	0.95	1.01	1.05	0.95	1.00	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.99	1.05	0.95	0.98	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	-0.02	2	-6	-3.17	-2	-8	-5.09	-2
A2 (50")	-7	-1.64	0	-7	-3.53	0	-7	-4.47	0
A3 (29")	-27	-14.39	-9	-9	-4.43	-3	-7	-2.87	-1
A4 (17")	-180	-101.04	-60	-45	-30.80	-15	-39	-26.17	-13
A5 (10")	N/A	N/A	N/A	-150	-100.41	-50	-80	-45.18	-10
A6 (6")	N/A	N/A	N/A	175	286.41	525	90	152.88	270

TRANSMITTER CURRENT GAIN

Signal	Lower	R	Upper
12K	0.6	0.92	1.3
36K	1.0	1.36	2.0
72K	1.0	1.59	2.0

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
SONDE OFFSET RANGE CHK	PASS
Tx CURRENT GAIN	PASS
Rmud VERIFICATION	PASS

TOOL OK TO LOG

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11039640						
Gamma Ray Calibrator	269.6	273.3	----------	-3.7	+/- 9.00	api
DSNT-11055304						
Snow-Block Porosity	0.0691	0.0734	----------	-0.0043	+/- 0.0150	decp
SDLT-I43_M489						
Pad Extension	3.75	3.71	----------	0.04	+/-0.10	in
Ring Diameter	8.25	8.19	----------	0.06	+/-0.15	in
Microlog Pad-M489						
MicroLog Normal	19.94	19.83	----------	0.11	+/-0.80	ohmm
MicroLog Lateral	19.99	19.87	----------	0.12	+/-0.80	ohmm
SDLT Pad-P81						
Near(B+D+P+L)	1344.983	1346.076	----------	-1.093	+/-14.831	cps
Far(B+D+P+L)	908.205	911.186	----------	-2.981	+/-16.365	cps
ICT-11204020						
Caliper 1	8.00	7.97	----------	0.03	+/-0.25	in
Caliper 2	8.00	7.97	----------	0.03	+/-0.25	in
Caliper 3	8.00	8.00	----------	0.00	+/-0.25	in
Caliper 4	8.00	7.98	----------	0.02	+/-0.25	in
Caliper 5	8.00	7.98	----------	0.02	+/-0.25	in
Caliper 6	8.00	7.98	----------	0.02	+/-0.25	in
ACRt Sonde-I962_S909						
Mud Cell	1.00	----------	----------	0.00	----------	ohm-m

HALLIBURTON

PARAMETERS REPORT

Depth ((ft))	Tool Name	Description	Value	Units
TOP				
	SHARED	Bit Size	8.750	in
	SHARED	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	Mud Base	Water	
	SHARED	Borehole Fluid Weight	8.900	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	1.140	ohmm
	SHARED	Temperature of Mud	75.0	degF
	SHARED	Logging Interval is Cased?	No	
	SHARED	AHV Casing OD	7.000	in
	SHARED	Surface Temperature	75.0	degF
	SHARED	Total Well Depth	4137.00	ft
	SHARED	Bottom Hole Temperature	125.0	degF
	SHARED	Navigation and Survey Master Tool	IDT	
	SHARED	High Res Z Accelerometer Master Tool	IDT	
	SHARED	Temperature Master Tool	NONE	
	SHARED	Borehole Size Master Tool	NONE	
	Rwa / CrossPlot	Process Crossplot?	Yes	
	Rwa / CrossPlot	Select Source of F	Automatic	
	Rwa / CrossPlot	Archie A factor	0.6200	
	Rwa / CrossPlot	Archie M factor	2.1500	
	Rwa / CrossPlot	Rmf Reference	0.10	ohmm
	Rwa / CrossPlot	Rmf Ref Temp	75.00	degF
	Rwa / CrossPlot	Resistivity of Formation Water	0.05	ohmm
	Rwa / CrossPlot	Use Air Porosity to calculate CrossplotPhi	No	
	GTET	Process Gamma Ray?	Yes	
	GTET	Gamma Tool Standoff	0.000	in
	GTET	Process Gamma Ray EVR?	No	
	GTET	Tool Position for Gamma Ray Tools.	Eccentered	
	DSNT	Process DSN?	Yes	
	DSNT	Process DSN EVR?	No	
	DSNT	Neutron Lithology	Limestone	
	DSNT	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.250	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 Caliper Outputs?	Yes	
	Microlog Pad	Process MicroLog Outputs?	Yes	
	SDLT Pad	Process Density?	Yes	
	SDLT Pad	Process Density EVR?	No	
	SDLT Pad	Logging Calibration Blocks?	No	
	SDLT Pad	SDLT Pad Temperature Valid?	Yes	

SDLT Pad	Disable temperature warning	No	
SDLT Pad	Formation Density Matrix	2.710	g/cc
SDLT Pad	Formation Density Fluid	1.000	g/cc
IDT	Survey Writing Interval	30	ft
IDT	Smoothing Option	None	
ICT	Process Caliper Outputs?	Yes	
ICT	Navigation Source Tool	IDT	
Wavesonic-I	Process WSTT?	Yes	
Wavesonic-I	Monopole Sliding Window Length	-1.00	us
Wavesonic-I	Dipole Sliding Window Length	-1.00	us
Wavesonic-I	Process 1 Sample and Skip	0	
Wavesonic-I	Process Mode: M=1,MX=2,MY=3,MXY=4	4	
Wavesonic-I	Semblance Smoothing	-2.00	
Wavesonic-I	Delta -T Shale	100.00	uspf
Wavesonic-I	Delta -T Matrix Type	User define	
Wavesonic-I	Delta -T Matrix	47.60	uspf
Wavesonic-I	Delta -T Fluid	189.00	uspf
Wavesonic-I	Matrix Density	2.7100	g/cc
Wavesonic-I	Fluid Density	1.0000	g/cc
Wavesonic-I	Slow Tolerance	40.00	
Wavesonic-I	Semblance Tolerance	0.25	
Wavesonic-I	Semblance Threshold	0.25	
Wavesonic-I	VPVS Ratio for Porosity	1.40	
Wavesonic-I	Acoustic Porosity Equation	Wylie	
Wavesonic-I	Show Advanced Options?	Yes	
Wavesonic-I	Wavesonic Receiver Normalization Method	None	
Wavesonic-I	Transmitter to First Receiver Distance - Monopole	10.24	ft
Wavesonic-I	Transmitter to First Receiver Distance Dipole X	9.24	ft
Wavesonic-I	Transmitter to First Receiver Distance Dipole Y	9.24	ft
Wavesonic-I	Receiver Spacing	0.50	ft
Wavesonic-I	Number of Receivers in Array	8	
Wavesonic-I	Digitizer Word Count Monopole	400	
Wavesonic-I	Digital Sample Interval - Monopole	20.3174	us
Wavesonic-I	Waveform Recording Delay Monopole	-304.761	us
Wavesonic-I	Digitizer Word Count Dipole X	400	
Wavesonic-I	Digital Sample Interval Dipole X	40.6348	us
Wavesonic-I	Waveform Digitization Delay Dipole X	-304.761	us
Wavesonic-I	Digitizer Word Count Dipole Y	400	
Wavesonic-I	Digital Sample Interval Dipole Y	40.6348	us
Wavesonic-I	Waveform Digitization Delay Dipole Y	-304.761	us
Wavesonic-I	Navigation Source Tool	IDT	
ACRt Sonde	Process ACRt?	Yes	
ACRt Sonde	Minimum Tool Standoff	1.50	in
ACRt Sonde	Temperature Correction Source	FP Lwr & FP Upr	
ACRt Sonde	Tool Position	Free Hanging	
ACRt Sonde	Rmud Source	Mud Cell	
ACRt Sonde	Minimum Resistivity for MAP	0.20	ohmm
ACRt Sonde	Maximum Resistivity for MAP	200.00	ohmm
ACRt Sonde	Threshold Quality	0.50	
ACRt Sonde	Fixed mud resistivity	2000	ohmm

BOTTOM

INPUTS, DELAYS AND FILTERS TABLE

Mnemonic	Input Description	Delay (ft)	Filter Type	Filter Length (ft)
	Depth Panel			
TENS	Tension	0.00	NO	
	CH_HOS			
DHTN	DownholeTension	0.00	BLK	0.000
	SP Sub			
PLTC	Plot Control Mask	110.96	NO	
SP	Spontaneous Potential	110.96	BLK	1.250
SPR	Raw Spontaneous Potential	110.96	NO	
SPO	Spontaneous Potential Offset	110.96	NO	
	GTET			
TPUL	Tension Pull	102.94	NO	
GR	Natural Gamma Ray API	102.94	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	102.94	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	102.94	W	1.416 , 0.750
ACCZ	Accelerometer Z	0.00	BLK	0.083
DEVI	Inclination	0.00	NO	
	DSNT			
TPUL	Tension Pull	92.70	NO	
RNDS	Near Detector Telemetry Counts	92.80	BLK	1.417
RFDS	Far Detector Telemetry Counts	93.55	TRI	0.583
DNTT	DSN Tool Temperature	92.80	NO	
DSNS	DSN Tool Status	92.70	NO	
ERND	Near Detector Telemetry Counts EVR	92.80	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	93.55	BLK	0.000
ENTM	DSN Tool Temperature EVR	92.80	NO	
	SDLT			
TPUL	Tension Pull	82.80	NO	
PCAL	Pad Caliper	82.80	TRI	0.250
ACAL	Arm Caliper	82.80	TRI	0.250
	IDT			
TPUL	Tension Pull	67.73	NO	
ACCX	Accelerometer X	67.73	NO	
ACCY	Accelerometer Y	67.73	NO	
ACCZ	Accelerometer Z	67.73	NO	
MAGX	magnetometer x with unit	67.73	NO	
MAGY	Magnetometer Y with unit	67.73	NO	
MAGZ	magnetometer z with unit	67.73	NO	
IAMP	Accelerometer Temperature	67.73	NO	
MTMP	Magnetometer Temperature	67.73	NO	
	ICT			
TPUL	Tension Pull	56.69	NO	
	Arm Potentiometer excitation V	53.90	NO	
	Caliper 1 measurement	56.69	BLK	1.250
	Caliper 2 measurement	56.69	BLK	1.250
	Caliper 3 measurement	56.69	BLK	1.250
	Caliper 4 measurement	56.69	BLK	1.250

	Caliper 5 measurement	56.69	BLK	1.250
	Caliper 6 measurement	56.69	BLK	1.250
	Caliper Global measurement	56.69	BLK	1.250
MOTI	Motor Current	53.90	NO	
MOT1	Motor Voltage Monitor 1	53.90	NO	
STA1	Status word #1	53.90	NO	
STA2	Status word #2	53.90	NO	
PRES	Caliper percentage of total compression of the spring	53.90	NO	
HAZI	Hole Azimuth	56.69	NO	
RB	Relative Bearing	56.69	NO	
AZI1	PAD1 Azimuth	56.69	NO	
DEVI	Inclination	56.69	NO	

Wavesonic-I				
TPUL	Tension Pull	31.33	NO	
DPSX	Dipole Source X Structurel	19.83	NO	
DPSY	Dipole Source Y Structurel	19.83	NO	
DPSM	Monopole Source Structure	19.83	NO	
WVST	Wavesonic Compressed Data	31.33	NO	
TPUL	Tension Pull	31.33	NO	
XMS1	Wave Sonic Status Word 1	19.83	NO	
XMS2	Wave Sonic Status Word 2	19.83	NO	
XMS1	Wave Sonic XMITStatus Word 1	19.83	NO	
XMS1	Wave Sonic XMITStatus Word 2	19.83	NO	
F1HA	Dipole 1 HV After	19.83	NO	
F1HB	Dipole 1 HV Before	19.83	NO	
F2HA	Dipole 2 HV After	19.83	NO	
F2HB	Dipole 2 HV Before	19.83	NO	
F3HA	Monopole HV After	19.83	NO	
F3HB	Monopole HV Before	19.83	NO	
INVT	Input Voltage	19.83	NO	
5VOL	5 Volts	19.83	NO	
MI5A	Minus 5 Volts Analog	19.83	NO	
ITMP	Instrument Temperature	19.83	NO	
PL5A	Plus 5 Volts Analog	19.83	NO	
5VD	Plus 5 Volts Digital	19.83	NO	
TCUR	Tool Current	19.83	NO	
SUPV	Supply Voltage	19.83	NO	
PRVT	Preregulated voltage	19.83	NO	
PRVT	Pre-regulated voltage Xmter	19.83	NO	
TEMP	Temperature	19.83	NO	
ACQN	Acquisition Number	19.83	NO	
XDP	Delay Reference	31.33	NO	
MITM	MIT Mode	31.33	NO	
VERS	Version	19.83	NO	
D1CT	Dipole 1 Compressed Word Count	31.33	NO	
D2CT	Dipole 2 Compressed Word Count	31.33	NO	
MCNT	Monopole Compressed Word Count	31.33	NO	
SEQN	Sequence Number	19.83	NO	
FREV	Firmware Revision	19.83	NO	
MSMP	Monopole Sample Rate	19.83	NO	
MSMP	Dipole Sample Rate	19.83	NO	
MFWF	Monopole Firing Waveform	19.83	NO	
MFRQ	Monopole Frequency	19.83	NO	
MDLY	Monopole Delay	19.83	NO	
DXWF	Dipole X Firing Waveform	19.83	NO	

XFRQ	Dipole X Frequency	19.83	NO	
XDLY	Dipole X Delay	19.83	NO	
DYWF	Dipole Y Firing Waveform	19.83	NO	
YFRQ	Dipole Y Frequency	19.83	NO	
YDLY	Dipole Y Delay	19.83	NO	
DPSX	Dipole Source X Structurel	19.83	NO	
DPSY	Dipole Source Y Structurel	19.83	NO	
DPSM	Monopole Source Structure	19.83	NO	
WVST	Wavesonic Compressed Data	31.33	NO	
AUTM	Auto Mode	19.83	NO	
SONM	tool mode for sonic - 0 for normal or 3 for calibration	19.83	NO	
MSL	Monopole Lower Travel Time	31.33	NO	
MSH	Monopole Upper Travel Time	31.33	NO	
MLFC	Monopole-1 Lower Filter Bandpass Frequency Cut-off	19.83	NO	
MUFC	Monopole-1 Upper Filter Bandpass Frequency Cut-off	19.83	NO	
DLTT	Dipole Lower Travel Time	19.83	NO	
DUTT	Dipole Upper Travel Time	19.83	NO	
DLFC	Dipole Lower Filter Bandpass Frequency Cut-off	19.83	NO	
DUFC	Dipole Upper Filter Bandpass Frequency Cut-off	19.83	NO	
MUTE	WaveSonic Mute/Enable Channels and Sides map	19.83	NO	
MUTS	Mute/Enable Sides	19.83	NO	
WSRB	Relative Bearing	31.33	NO	
WSAZ	WSX Azimuth Pad 1	31.33	NO	
TPUL	Tension Pull	31.33	NO	
WMP	Summed array of Monopole for SIDES - A,B,C,D	31.33	NO	
WXX	Dipole X for SIDES - A-C	31.33	NO	
WYY	Dipole Y for SIDES - B-D	31.33	NO	
WXY	Dipole X for SIDES - B-D	31.33	NO	
WYX	Dipole Y for SIDES - A-C	31.33	NO	
TPUL	Tension Pull	31.33	NO	
WMA	Monopole Waveform Side A - Channel 1 to Channel 8 Receivers	31.33	NO	
WMB	Monopole Waveform Side B - Channel 1 to Channel 8 Receivers	31.33	NO	
WMC	Monopole Waveform Side C - Channel 1 to Channel 8 Receivers	31.33	NO	
WMD	Monopole Waveform Side D - Channel 1 to Channel 8 Receivers	31.33	NO	
WXA	Dipole X Waveform Side A - Channel 1 to Channel 8 Receivers	31.33	NO	
WXB	Dipole X Waveform Side B - Channel 1 to Channel 8 Receivers	31.33	NO	
WXC	Dipole X Waveform Side C - Channel 1 to Channel 8 Receivers	31.33	NO	
WXD	Dipole X Waveform Side D - Channel 1 to Channel 8 Receivers	31.33	NO	
WYA	Dipole Y Waveform Side A - Channel 1 to Channel 8 Receivers	31.33	NO	
WYB	Dipole Y Waveform Side B - Channel 1 to Channel 8 Receivers	31.33	NO	
WYC	Dipole Y Waveform Side C - Channel 1 to Channel 8 Receivers	31.33	NO	
WYD	Dipole Y Waveform Side D - Channel 1 to Channel 8 Receivers	31.33	NO	

ACRt Sonde

TPUL	Tension Pull	2.97	NO	
F1R1	ACRT 12KHz - 80in R value	9.22	BLK	0.000
F1X1	ACRT 12KHz - 80in X value	9.22	BLK	0.000
F1R2	ACRT 12KHz - 50in R value	6.72	BLK	0.000
F1X2	ACRT 12KHz - 50in X value	6.72	BLK	0.000
F1R3	ACRT 12KHz - 29in R value	5.22	BLK	0.000

F1R3	ACRT 12KHz - 29in R value	5.22	BLK	0.000
F1X3	ACRT 12KHz - 29in X value	5.22	BLK	0.000
F1R4	ACRT 12KHz - 17in R value	4.22	BLK	0.000
F1X4	ACRT 12KHz - 17in X value	4.22	BLK	0.000
F1R5	ACRT 12KHz - 10in R value	3.72	BLK	0.000
F1X5	ACRT 12KHz - 10in X value	3.72	BLK	0.000
F1R6	ACRT 12KHz - 6in R value	3.47	BLK	0.000
F1X6	ACRT 12KHz - 6in X value	3.47	BLK	0.000
F2R1	ACRT 36KHz - 80in R value	9.22	BLK	0.000
F2X1	ACRT 36KHz - 80in X value	9.22	BLK	0.000
F2R2	ACRT 36KHz - 50in R value	6.72	BLK	0.000
F2X2	ACRT 36KHz - 50in X value	6.72	BLK	0.000
F2R3	ACRT 36KHz - 29in R value	5.22	BLK	0.000
F2X3	ACRT 36KHz - 29in X value	5.22	BLK	0.000
F2R4	ACRT 36KHz - 17in R value	4.22	BLK	0.000
F2X4	ACRT 36KHz - 17in X value	4.22	BLK	0.000
F2R5	ACRT 36KHz - 10in R value	3.72	BLK	0.000
F2X5	ACRT 36KHz - 10in X value	3.72	BLK	0.000
F2R6	ACRT 36KHz - 6in R value	3.47	BLK	0.000
F2X6	ACRT 36KHz - 6in X value	3.47	BLK	0.000
F3R1	ACRT 72KHz - 80in R value	9.22	BLK	0.000
F3X1	ACRT 72KHz - 80in X value	9.22	BLK	0.000
F3R2	ACRT 72KHz - 50in R value	6.72	BLK	0.000
F3X2	ACRT 72KHz - 50in X value	6.72	BLK	0.000
F3R3	ACRT 72KHz - 29in R value	5.22	BLK	0.000
F3X3	ACRT 72KHz - 29in X value	5.22	BLK	0.000
F3R4	ACRT 72KHz - 17in R value	4.22	BLK	0.000
F3X4	ACRT 72KHz - 17in X value	4.22	BLK	0.000
F3R5	ACRT 72KHz - 10in R value	3.72	BLK	0.000
F3X5	ACRT 72KHz - 10in X value	3.72	BLK	0.000
F3R6	ACRT 72KHz - 6in R value	3.47	BLK	0.000
F3X6	ACRT 72KHz - 6in X value	3.47	BLK	0.000
RMUD	Mud Resistivity	12.76	BLK	0.000
F1RT	Transmitter Reference 12 KHz Real Signal	2.97	BLK	0.000
F1XT	Transmitter Reference 12 KHz Imaginary Signal	2.97	BLK	0.000
F2RT	Transmitter Reference 36 KHz Real Signal	2.97	BLK	0.000
F2XT	Transmitter Reference 36 KHz Imaginary Signal	2.97	BLK	0.000
F3RT	Transmitter Reference 72 KHz Real Signal	2.97	BLK	0.000
F3XT	Transmitter Reference 72 KHz Imaginary Signal	2.97	BLK	0.000
TFPU	Upper Feedpipe Temperature Calculated	2.97	BLK	0.000
TFPL	Lower Feedpipe Temperature Calculated	2.97	BLK	0.000
ITMP	Instrument Temperature	2.97	BLK	0.000
TCVA	Temperature Correction Values Loop Off	2.97	NO	
TIDV	Instrument Temperature Derivative	2.97	NO	
TUDV	Upper Temperature Derivative	2.97	NO	
TLDV	Lower Temperature Derivative	2.97	NO	
TRBD	Receiver Board Temperature	2.97	NO	
	Microlog Pad			
TPUL	Tension Pull	82.98	NO	
MINV	Microlog Lateral	82.98	BLK	0.750
MNOR	Microlog Normal	82.98	BLK	0.750
	SDLT Pad			
TPUL	Tension Pull	82.79	NO	
NAB	Near Above	82.61	BLK	0.920
NUL	Near Cesium High	82.61	BLK	0.920

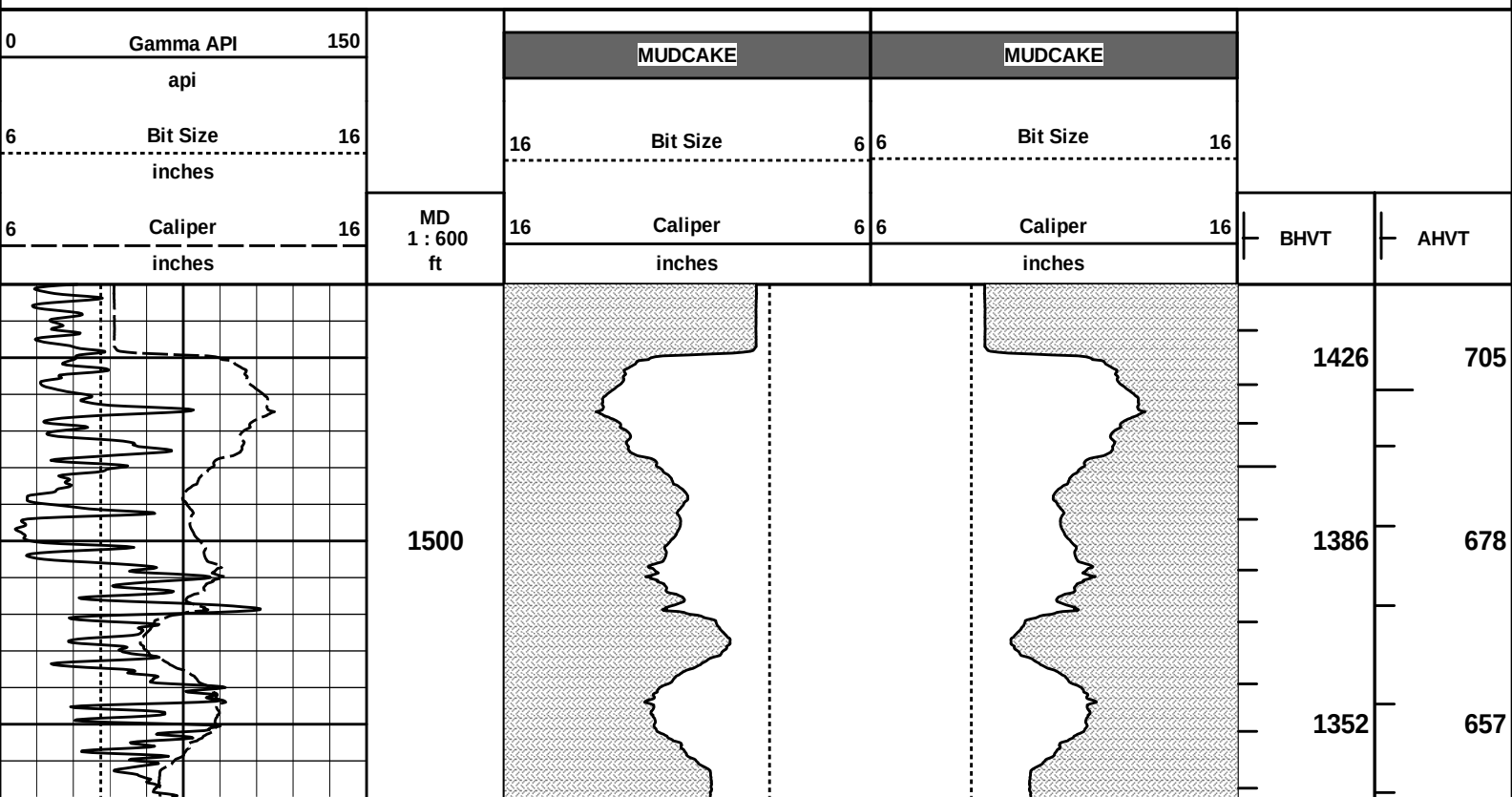
NHI	Near Cesium High	82.61	BLK	0.920
NLO	Near Cesium Low	82.61	BLK	0.920
NVA	Near Valley	82.61	BLK	0.920
NBA	Near Barite	82.61	BLK	0.920
NDE	Near Density	82.61	BLK	0.920
NPK	Near Peak	82.61	BLK	0.920
NLI	Near Lithology	82.61	BLK	0.920
NBAU	Near Barite Unfiltered	82.61	BLK	0.250
NLIU	Near Lithology Unfiltered	82.61	BLK	0.250
FAB	Far Above	82.96	BLK	0.250
FHI	Far Cesium High	82.96	BLK	0.250
FLO	Far Cesium Low	82.96	BLK	0.250
FVA	Far Valley	82.96	BLK	0.250
FBA	Far Barite	82.96	BLK	0.250
FDE	Far Density	82.96	BLK	0.250
FPK	Far Peak	82.96	BLK	0.250
FLI	Far Lithology	82.96	BLK	0.250
PTMP	Pad Temperature	82.80	BLK	0.920
NHV	Near Detector High Voltage	82.19	NO	
FHV	Far Detector High Voltage	82.19	NO	
ITMP	Instrument Temperature	82.19	NO	
DDHV	Detector High Voltage	82.19	NO	

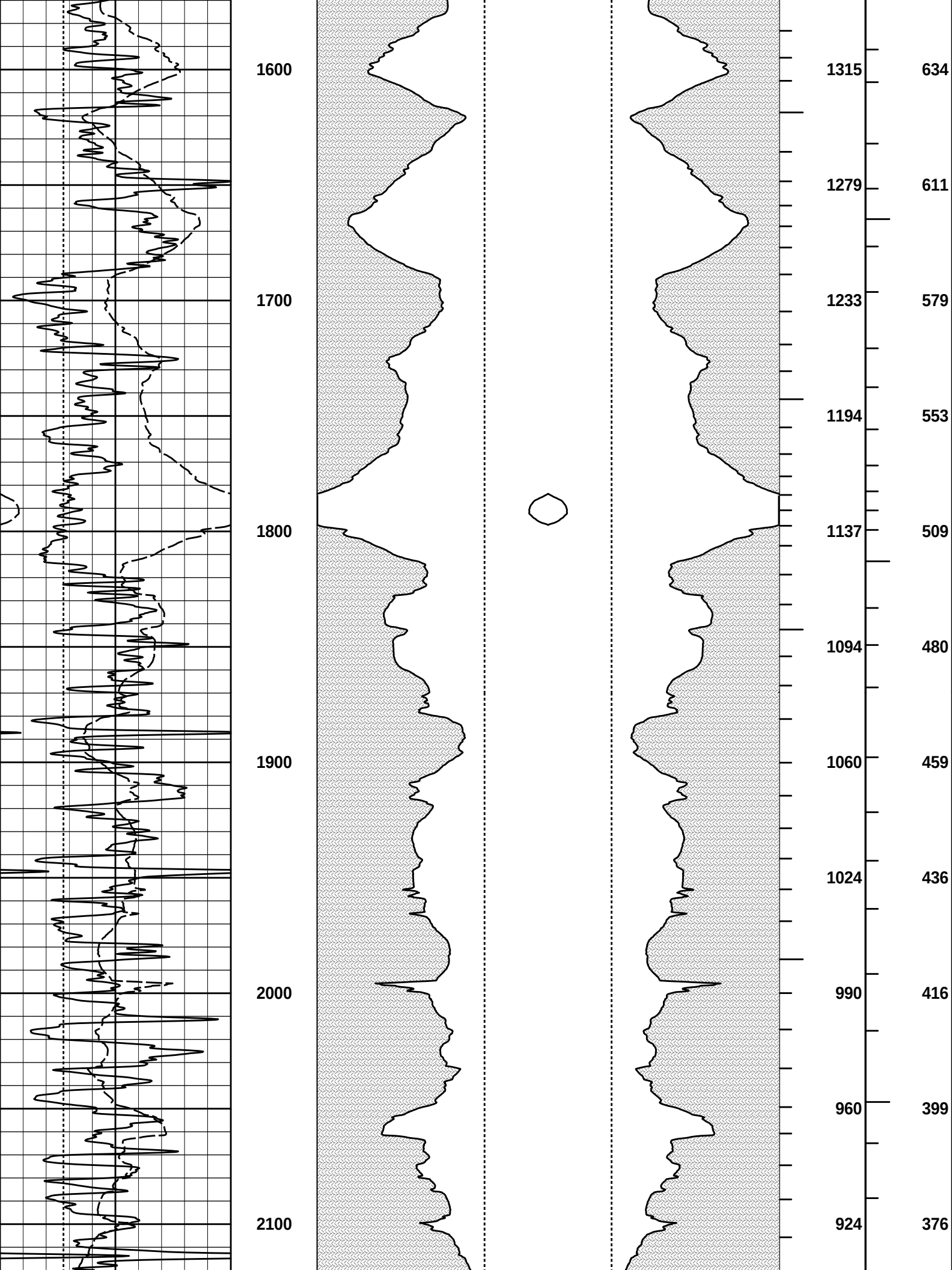
Data: DOR_TOEWS25-9-4\0004 SP-GTET-DSN-SDL-IDT-ICT-WSTT-ACRT-CH\004 28-Sep-12 04:42 Up @4147.8f **Date: 28-Sep-12 05:15:25**

HALLIBURTON

Plot Time: 28-Sep-12 14:33:47
Plot Range: 1430 ft to 4147.67 ft
Data: DOR_TOEWS25-9-4\Well Based\DAQ-0004-004
Plot File: \\-LOCAL-\FAIR_DOWNING#1\Well Based\POROSITY\AHV_2_IQ_LIB

ANNULAR HOLE VOLUME PLOT

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436
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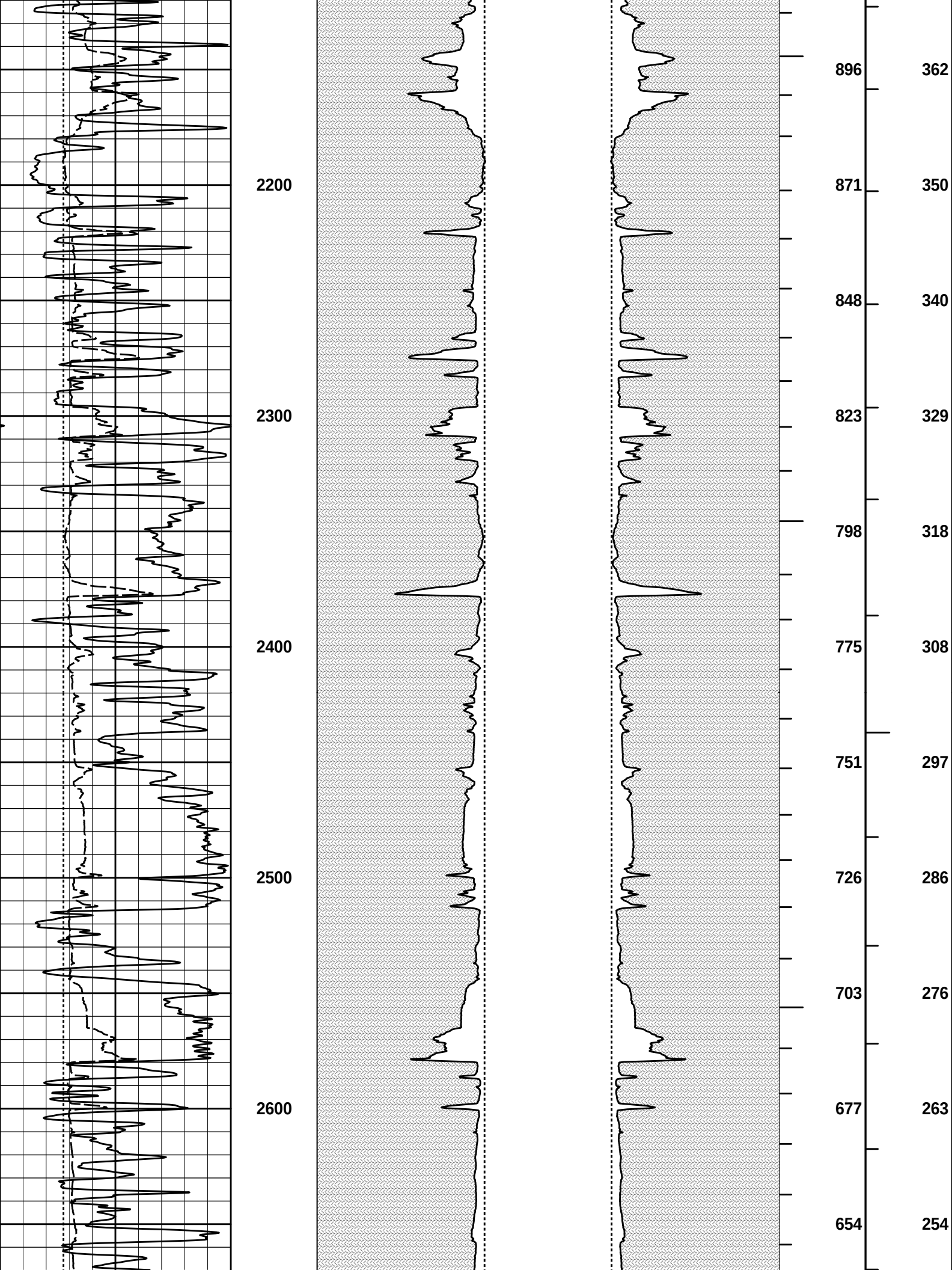
399
376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2300
2400
2500
2600
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848
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726
703
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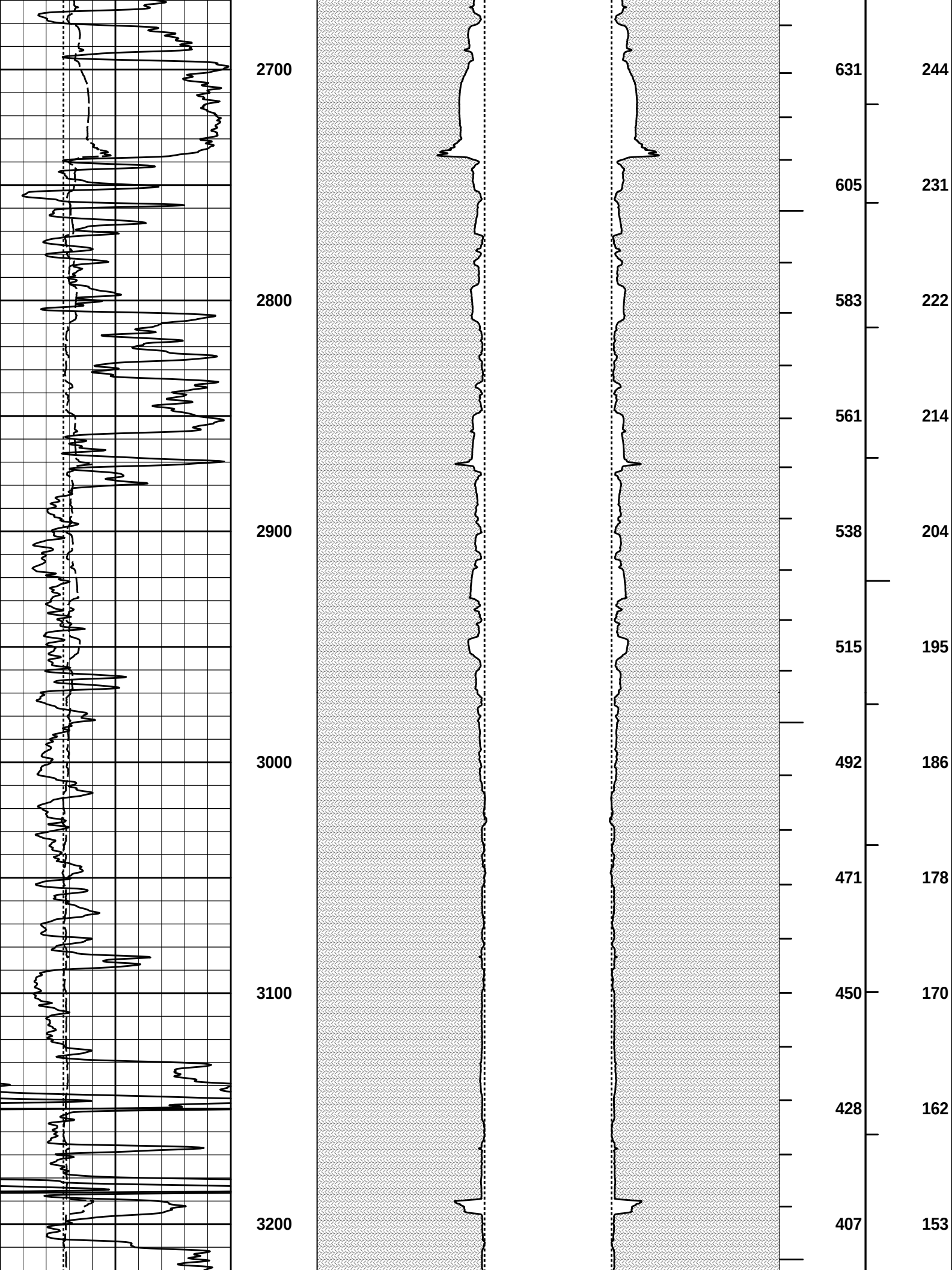
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3200
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605
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471
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222
214
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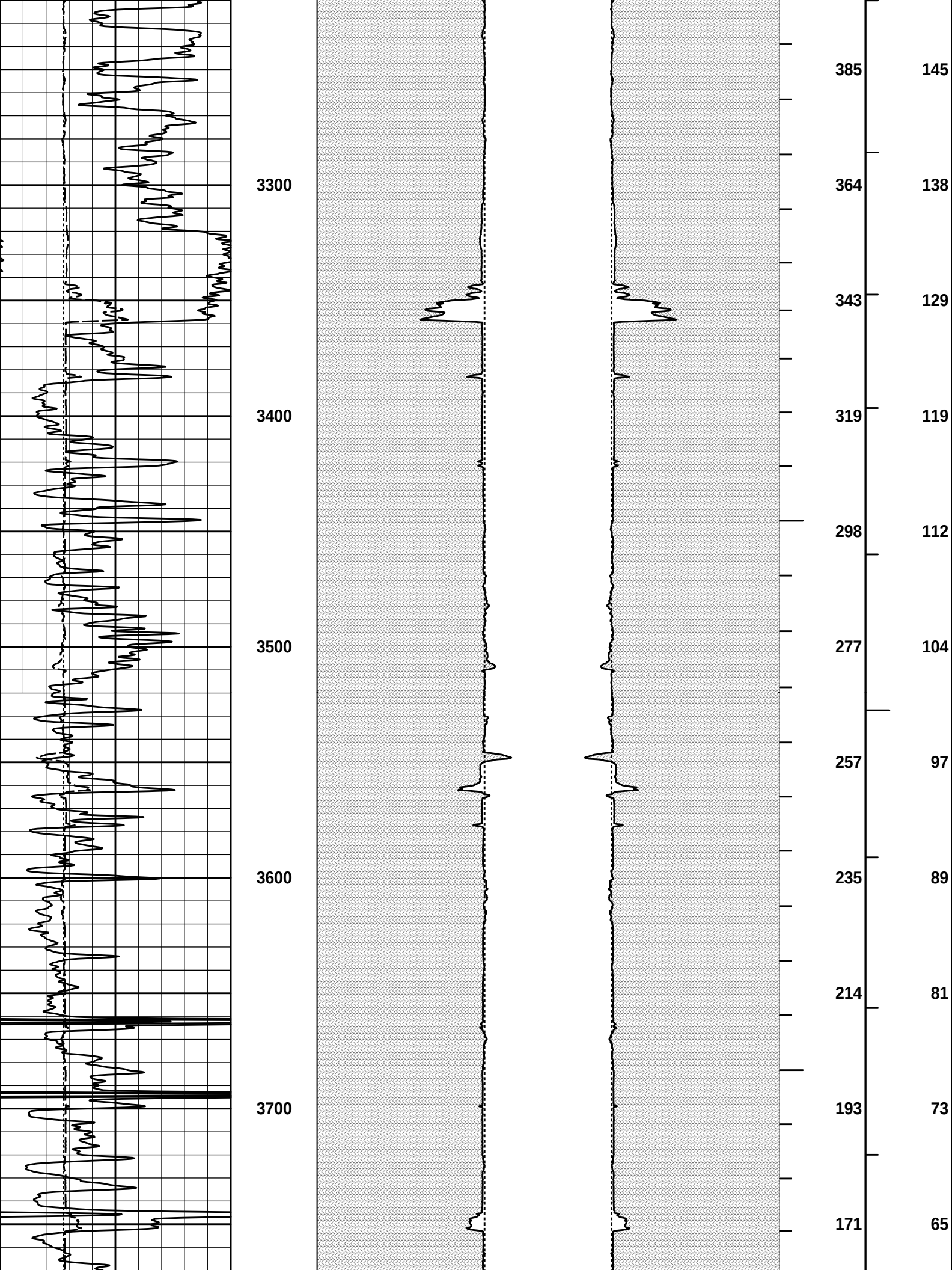
162
153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73
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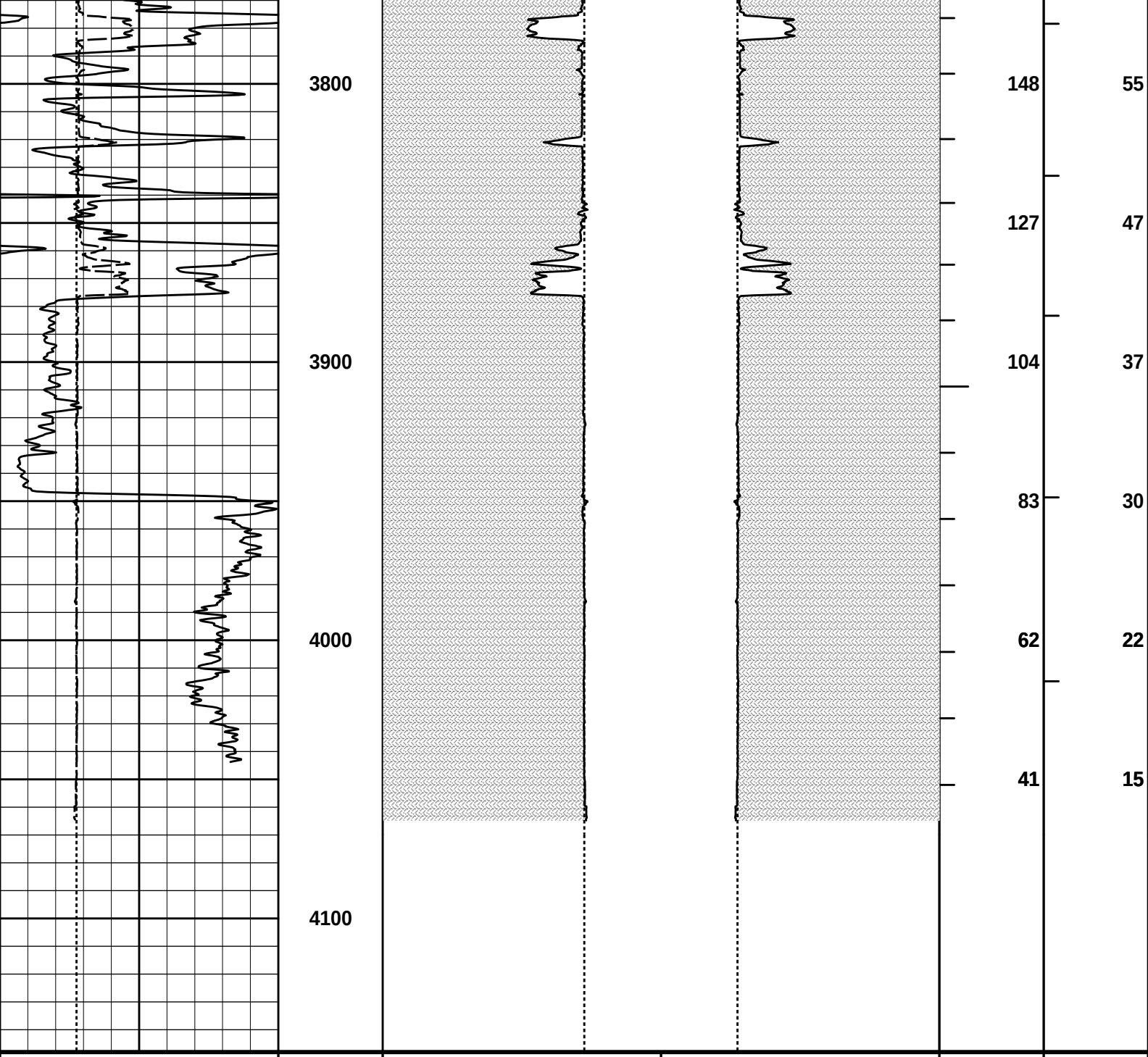


6 Caliper 16	MD	16 Caliper 6
inches	1 : 600	inches
6 Bit Size 16	ft	16 Bit Size 6
inches		
0 Gamma API 150		MUDCAKE
api		

6 Caliper 16	BHVT	AHVT
inches		
6 Bit Size 16		
MUDCAKE		

HALLIBURTON

Plot Time: 28-Sep-12 14:33:56
Plot Range: 1430 ft to 4147.67 ft
Data: DOR_TOEWS25-9-4\Well Based\DAQ-0004-004\
Plot File: \\-LOCAL-\FAIR_DOWNING#1\Well Based\POROSITY\AHV_2_IQ_LIB

ANNULAR HOLE VOLUME PLOT

COMPANY **DORADO E&P PARTNERS LLC.**

WELL	**TOEWS 25-9-4 #1H**		
FIELD	**UNKNOWN**		
COUNTY	**RENO**	STATE	**KANSAS**

HALLIBURTON	**SPECTRAL DENSITY DUAL SPACED NEUTRON LOG**

BASIC energy services, L.P.

TREATMENT REPORT

Customer: Dorado E+P Partners, LLC	Lease No.		Date: 9-19-12		
Lease: Toews 25-9-4	Well #				
Field Order #: 36577A	Station: Pratt KS	Casing: 13 3/8	Depth: 253'	County: Reno	State: KS
Type Job: 13 3/8 conductor CNW	Formation: TD 260'		Legal Description: 4-25-9		

PIPE DATA		PERFORATING DATA		FLUID USED	TREATMENT RESUME		
Casing Size: 13 3/8	Tubing Size	Shots/Ft		Acid: 300 sks common 2% CC, 1/4 #CF @ 15.6 #	RATE	PRESS	ISIP
Depth: 253'	Depth	From	To	Pre Pad	Max		5 Min.
Volume: 37	Volume	From	To	Pad	Min		10 Min.
Max Press: 400 #	Max Press	From	To	Frac	Avg		15 Min.
Well Connection: Swedge	Annulus Vol.	From	To		HHP Used		Annulus Pressure
Plug Depth: 238'	Packer Depth	From	To	Flush: Disp H2O	Gas Volume		Total Load

Customer Representative: James | Station Manager: Scotty | Treater: Allen

Service Units	28443	Eric	Wright	Bret	Reed							
Driver Names	Allen	33708	20920	19960	21010							

Time	Casing Pressure	Tubing Pressure	Bbls. Pumped	Rate	Service Log: Duke #20
600 pm					on Loc. Discuss Safety Setup Plan Job
					Rig cir. @
605					start out of Hole w/ Bit
630					out of Hole w/ Bit
					Rig up To Run 13 3/8 csg. 48 #
650					start 13 3/8" casing in Hole.
750					casing @ 252' cir w/ Rig.
806	700 #			5	start mix 300 sks common
					w/ 2% CC, 1/4 #CF @ 15.6 #/gal
			25		Finish mixing cmt
825				5	start Disp.
830	300 #		37	3	Plug down
					Shut IN @ well
					Release PSI Back To Trk.
					Wash up Equip. & Rack up.
930					Job complete.
					Cement cir To Pit.
					thanks Allen, Eric
					Bret

Taylor Printing, Inc. 620-672-3656

BASIC energy services, L.P.

TREATMENT REPORT

Customer: DORADO E&P PARTNERS	Lease No.			Date: 9-21-2012	
Lease: TOEWS	Well #: 25-9-4				
Field Order #: 18833	Station: PRATT, KS.	Casing: 9 5/8"	Depth	County: RENO	State: KS.
Type Job: CNW-9 5/8" S.P.		Formation: TD - 1441'		Legal Description: 4-25-9	

PIPE DATA		PERFORATING DATA		FLUID USED	TREATMENT RESUME		
Casing Size: 9 7/8 X 36	Tubing Size	Shots/Ft	CMT -	Acid: 350 - A-CON	RATE	PRESS	ISIP
Depth: 1436'	Depth	From	To	Pre Pad: @2.12 CUFT³	Max		5 Min.
Volume: 111 BBL	Volume	From	To CMT -	Pad: 300 - COMMON	Min		10 Min.
Max Press: 1000	Max Press	From	To	Frac: @1.20 CUFT³	Avg		15 Min.
Well Connection: 8 RD	Annulus Vol.	From	To		HHP Used		Annulus Pressure
Plug Depth: 1375.69	Packer Depth	From	To	Flush: 107.8 BBL	Gas Volume		Total Load

Customer Representative: JAMES FLUD | Station Manager: D. SCOTT | Treater: K. LESLEY

Service Units	37586	19889	19843	19826	19860	70459	19918				
Driver Names	LESLEY	MARQUEZ	—	LAWRENCE	—	PIERSON	—				

Time	Casing Pressure	Tubing Pressure	Bbls. Pumped	Rate	Service Log
8:30AM					ON LOCATION - SAFETY MEETING
					RUN 36 JTS. 9 5/8" X 36# CSG.
					CENT. - 2, 4, 6, 8, 10, 12, 14, 16
					BASK. - 30
1:30PM					CSG. ON BOTTOM
1:40PM					HOOK UP TO CSG. / BREAK CIRC. W/RIG
2:15PM	300		5	6	H²O AHEAD
2:17PM	300		132	6	MIX 350 SKS. A-CON @ 12.6 PPG
2:39PM	200		64	6	MIX 300 SKS. COMMON @ 15.6 PPG
2:50PM	0		0	6	RELEASE PLUG / START DISPLACEMENT
3:04PM	200		79	5	LIFT PRESSURE
3:08PM	400		100	3	SLOW RATE
3:10PM	600		107.8	3	PLUG DOWN - HELD
					CIRC. THRU JOB
					CIRC. 80 BBL TO PIT
					JOB COMPLETE,
					THANKS -
					KEVEN LESLEY

10244 NE Hiway 61 • P.O. Box 8613 • Pratt, KS 67124-8613 • (620) 672-1201 • Fax (620) 672-5383

Taylor Printing, Inc. 620-672-3656

BASIC energy services, L.P.

TREATMENT REPORT

Customer: EL DORADO E & P	Lease No.: FARMERS LLC	Date: 9-29-12	
Lease: TOEWS	Well #: 25-9-4		
Field Order #: 10696	Station: PRATT, KS	Casing	Depth
County: RENO	State: KS		
Type Job: CNW - CEMENT WHIPSTOCK	Formation	Legal Description: 4-25-9	

PIPE DATA		PERFORATING DATA		FLUID USED	TREATMENT RESUME		
Casing Size	Tubing Size	Shots/Ft		~~Acid~~ 225 SK.	RATE	PRESS	ISIP
Depth	Depth	From	To	~~Pre Pad~~ COMMON	Max		5 Min.
Volume	Volume	From	To	~~Pad~~ 1% CC.	Min		10 Min.
Max Press	Max Press	From	To	~~Frac~~ 1/2% CFR	Avg		15 Min.
Well Connection	Annulus Vol.	From	To	1/4% DEFOAM	HHP Used		Annulus Pressure
Plug Depth	Packer Depth	From	To	~~Flush~~ 16#, 1.15 cuft/SK	Gas Volume		Total Load

Customer Representative: JAMES	Station Manager: SCOTT	Treater: GORDLEY		
Service Units: 22283	19907	33708-20920	19831	19862
Driver Names: STEVE	KG	ERIC	JESSE	

Time	Casing Pressure	Tubing Pressure	Bbls. Pumped	Rate	Service Log
2200					ON LOCATION 9/28/12
					WAIT FOR LOG TOOL
					PLACE WHIPSTOCK TOOL
					AT 3240' - DROP BALL
					LOAD DRILL PIPE - 76 bbl.
					PSI UP TO 2500# - UNIT
					PSI UP TO 3700# - TOOL
					SET - WORK D.P. A LITTLE
0650		500	15	3	PUMP 15 bbl. H_2O SPACER
		200	46	4	PUMP 225 SK. COMMON CEMENT
					1% CC 1/2% CFR 1/4% DEFOAMER
					AT 16.0 PPG 1.15 CuFT/SK 4.9 Gal H_2O/SK
		200	1 1/2	3	PUMP 1 1/2 bbl H_2O SPACER
0715		500	27	3	PUMP 27 bbl. MUD
					STING OUT OF TOOL
					PULL D.P. 100' ABOVE TOOL
					CIRCULATE HOLE CLEAN
					WITH MUD PUMP
0800					JOB COMPLETE - KEVIN

Taylor Printing, Inc. 620-672-3656

Scale: 5" / 100'
Measured Depth Log

Well Name	Toews 25-9-4-1 Vertical		
Location	Langdon		
State	Kansas	**County**	Reno
Country	United States	**Rig**	Duke #20
API Number	15-155-21592		
Surface Coordinates	N2 N2 NW NW Section 4 T25S-R9W 150' FNL, 450' FWL		
Ground Elevation	1698	**K.B. Elevation**	1710
Logged Interval	3100		
Formation	Osage		

Operator

Company Dorado E&P Partners, LLC

Address 1401 17th St. Ste. 1500
Denver, CO 80202

Geologist

Name Dave Wheeler

Company Dorado E&P Partners, LLC

1401 17th St. Ste. 1500
Denver, CO 80202

Rock Types

- UNKNOWN
- ANHYDRITE
- GYPSUM
- SALT
- SIDERITE or LIMONITE
- LIMESTONE
- DOLOMITE
- CHERT
- COAL
- MARLSTONE
- CLAYSTONE
- SHALE
- SHALE GRAY
- SHALE COLORED
- SILTSTONE
- SANDSTONE
- CONGLOMERATE
- BRECCIA
- TILL
- BENTONITE
- TUFF
- IGNEOUS
- METAMORPHIC

Accessories

Fossils

- ALGAE
- AMPHIPORA
- BELEMNITE
- BIOCLASTIC
- BRACHOIPOD
- BRYOZOA
- CEPHALOPOD
- CORAL
- CRINOID
- ECHINOID
- FISH
- FORAMINIFERA
- FOSSIL
- GASTROPOD
- OOLITE
- OSTRACOD
- PELECYPOD
- PELLET
- PISOLITE
- PLANT REMAINS
- PLANT SPORES
- SCAPHOPOD
- STROMATOPOROID

Minerals

- ANHYDRITIC
- ARGILLACEOUS
- ARGILLITE GRAIN
- BENTONITE
- BITUMENOUS SUBSTANCE
- BRECCIA FRAGMENTS
- CALCAREOUS
- CARBONACEOUS FLAKES
- CHTDK
- CHTLT
- COAL - THIN BEDS
- DOLOMITIC
- FELDSPAR
- FERRUGINOUS PELLET
- FERRUGINOUS
- GLAUCONITE
- GYPSIFEROUS
- HEAVY MINERAL
- KAOLIN
- MARLSTONE
- MINERAL CRYSTALS
- NODULES
- PHOSPHATE PELLETS
- PYRITE
- SALT CAST
- SANDY
- SILICEOUS
- SILTY
- TUFFACEOUS

Stringer

- ANHYDRITE STRINGER
- BENTONITE STRINGER
- COAL STRINGER
- DOLOMITE STRINGER
- GYPSUM STRINGER
- LIMESTONE STRINGER
- MARLSTONE (CALC) STRG
- MARLSTONE (DOL) STRG
- SANDSTONE STRINGER
- SHALE STRINGER
- SILTSTONE STRINGER

Other Symbols

Oil Show

- DEAD
- EVEN
- QUESTIONABLE
- SPOTTED STAINING

Porosity

- EARTHY
- FENESTRAL
- FRACTURE
- INTERCRYSTALLINE
- INTEROOLITIC
- MOLDIC
- ORGANIC
- PINPOINT
- VUGGY

Engineering

- BIT
- CONNECTION (LEFT)
- CONNECTION (RIGHT)
- CONNECTION GAS
- CORE - LOST
- CORE - RECOVERED
- DST INTERVAL
- FAULT
- FORMATION TOP
- GAS SHOW
- MN DEPTH
- NORMAL FAULT
- OIL SHOW
- OVERTURNED STRATA
- REVERSE FAULT
- SIDEWALL CORE (LEFT)
- SIDEWALL CORE (RIGHT)
- SLIDE
- SURVEY
- TRIP GAS
- WIRELINE TESTED - LEFT
- WIRELINE TESTED - RT

Rounding

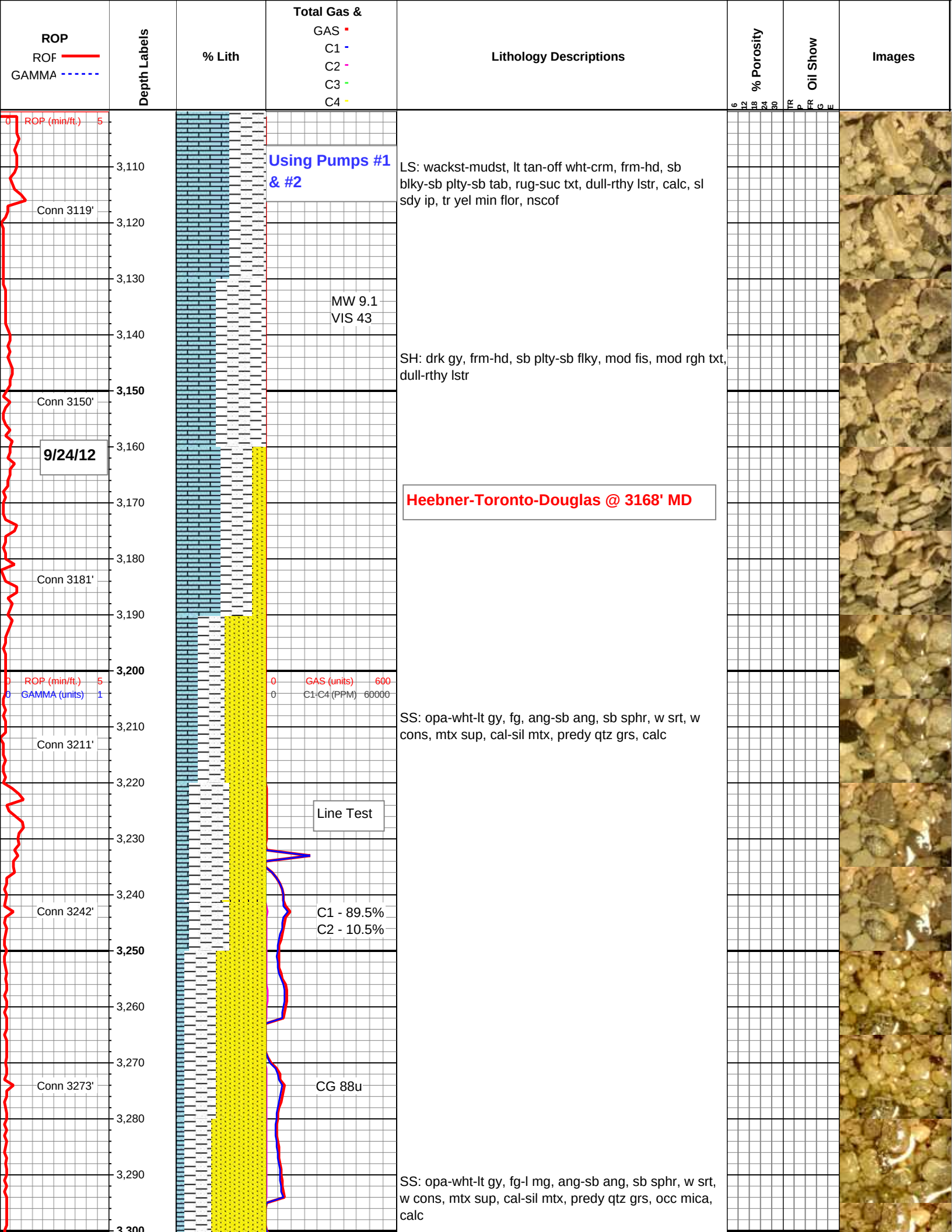
- ANGULAR
- ROUNDED
- SUBANG
- SUBRND

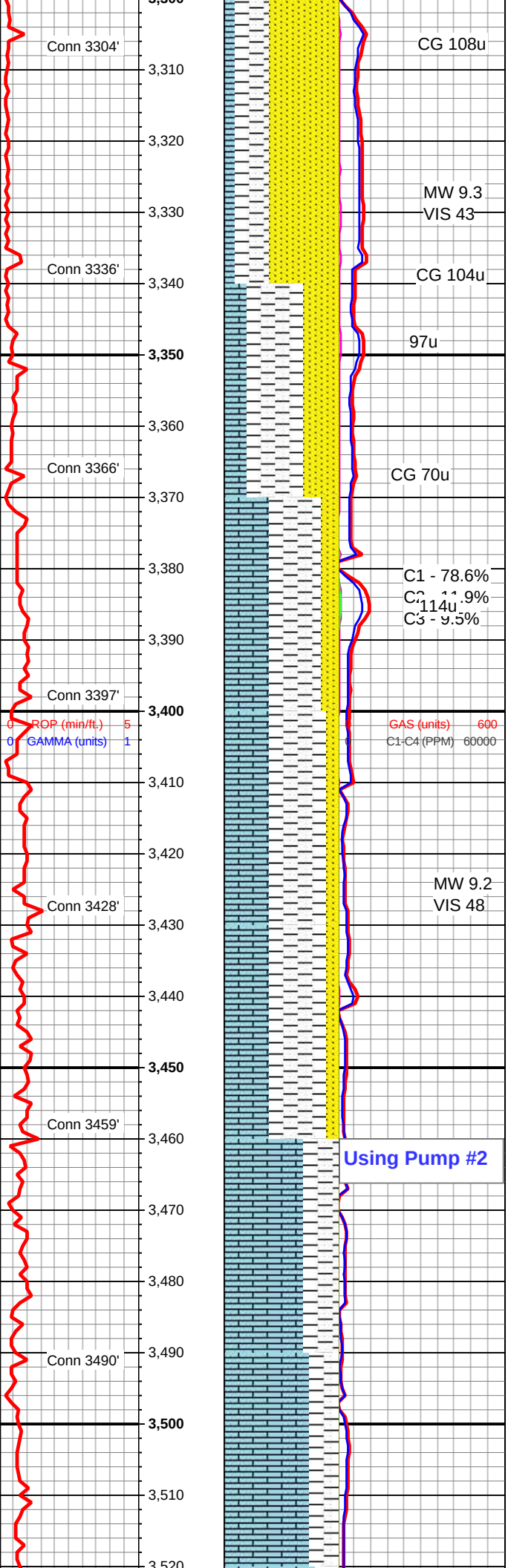
Textures

- BOUNDSTONE
- CHALKY
- CRYPTOXLN
- EARTHY
- FINELYXLN
- GRAINSTONE
- LITHOGRAPHIC
- MICROXLN
- MUDSTONE
- PACKSTONE
- WACKESTONE

Sorting

- MODERATE
- POOR
- WELL


ROP
ROP
GAMMA
Depth Labels
% Lith
Total Gas &
GAS
C1
C2
C3
C4
Lithology Descriptions
% Porosity
6
12
18
24
30
Oil Show
TR
P
FR
G
E
Images
0 ROP (min/ft.) 5
Conn 3119'
Conn 3150'
9/24/12
Conn 3181'
0 ROP (min/ft.) 5
0 GAMMA (units) 1
Conn 3211'
Conn 3242'
Conn 3273'
3,110
3,120
3,130
3,140
3,150
3,160
3,170
3,180
3,190
3,200
3,210
3,220
3,230
3,240
3,250
3,260
3,270
3,280
3,290
3,300
Using Pumps #1 & #2
MW 9.1
VIS 43
0 GAS (units) 600
0 C1-C4 (PPM) 60000
Line Test
C1 - 89.5%
C2 - 10.5%
CG 88u
LS: wackst-mudst, lt tan-off wht-crm, frm-hd, sb blky-sb plty-sb tab, rug-suc txt, dull-rthy lstr, calc, sl sdy ip, tr yel min flor, nscof
SH: drk gy, frm-hd, sb plty-sb flky, mod fis, mod rgh txt, dull-rthy lstr
Heebner-Toronto-Douglas @ 3168' MD
SS: opa-wht-lt gy, fg, ang-sb ang, sb sphr, w srt, w cons, mtx sup, cal-sil mtx, predy qtz grs, calc
SS: opa-wht-lt gy, fg-l mg, ang-sb ang, sb sphr, w srt, w cons, mtx sup, cal-sil mtx, predy qtz grs, occ mica, calc

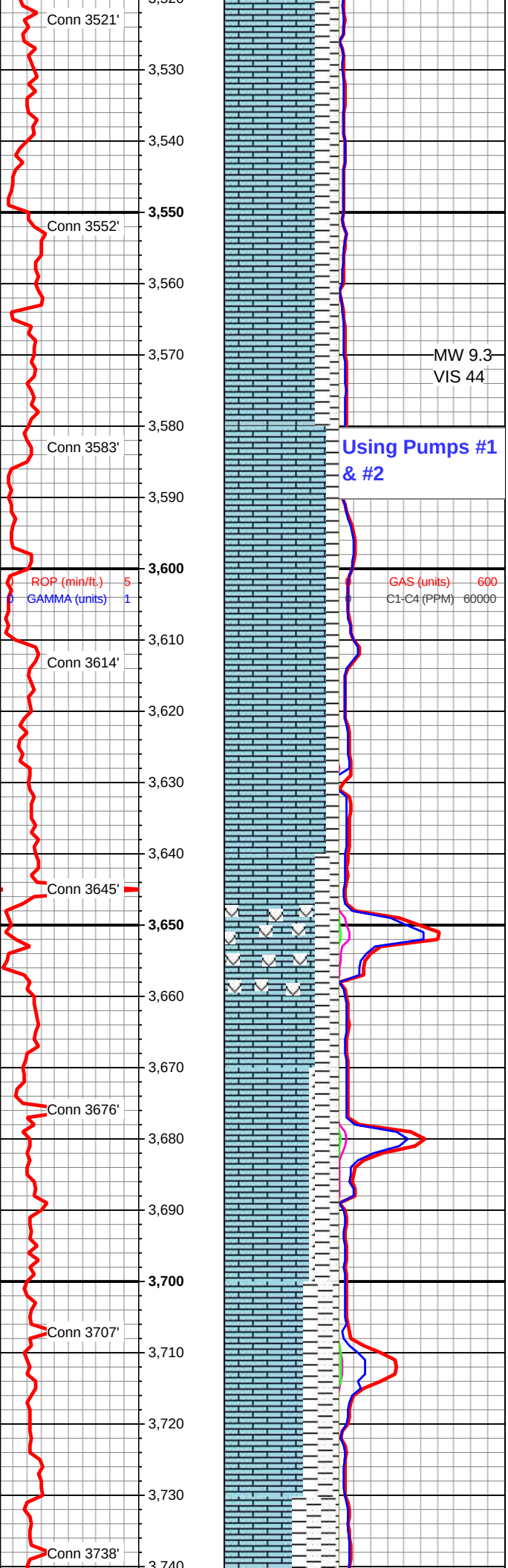


SH: drk gy-drk tan, frm-mod hd, sb blky-sb plty-sb tab, sli-mod fis, rgh-mod suc txt, rthy-dull lstr, sdy ip, sme dul yel min flor, nscof

Lansing-Kansas City Top @ 3373' MD

Survey @ 3382' - 0.24°

LS: mudst-wackst, lt gy-tan-crm, hd, sb blky-sb tab, rgh txt, dull-rthy lstr, sdy, abnt dul yel min flor, nscof



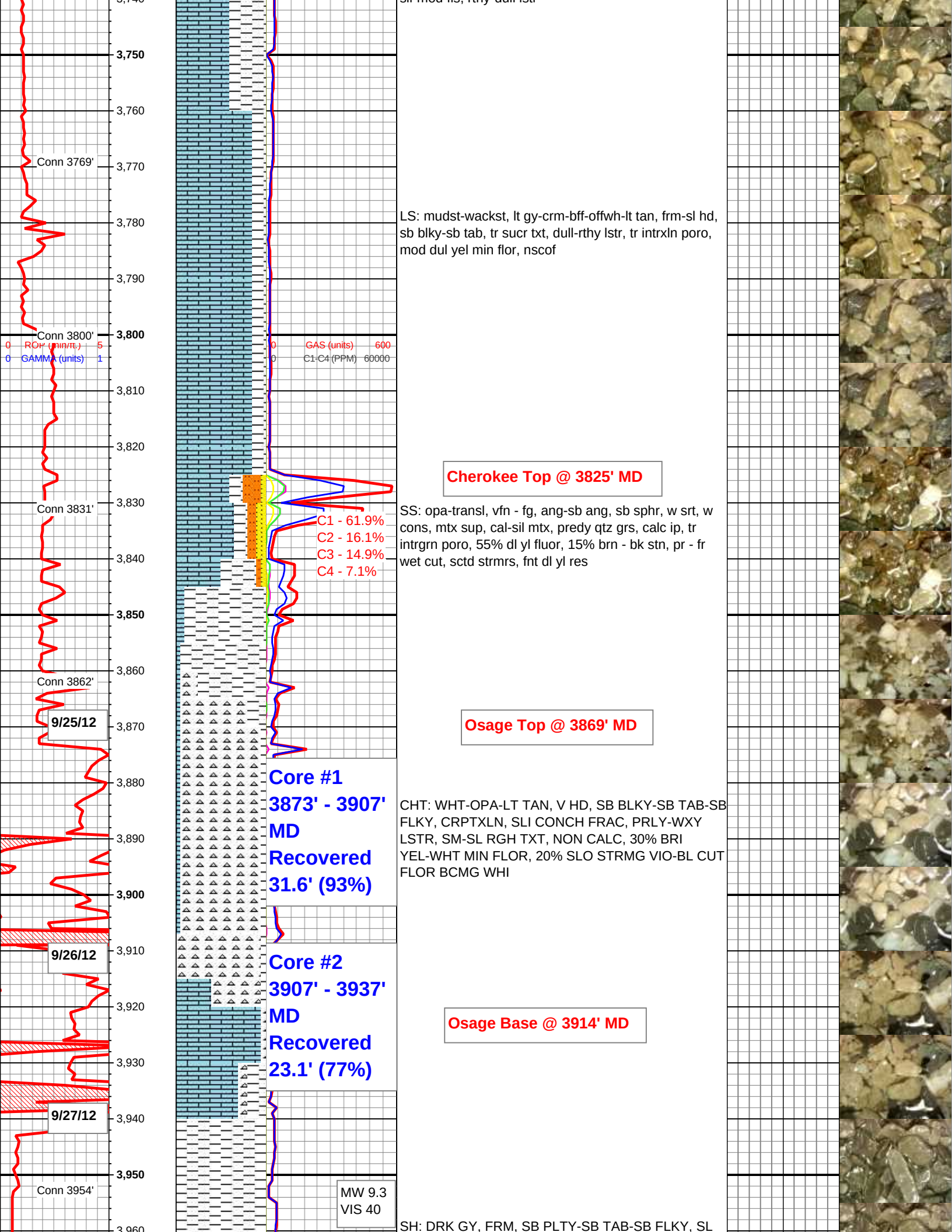
LS: mudst-wackst, lt gy-tan-crm, hd, sb blky-sb tab, rgh txt, dull-rthy lstr, sdy, abnt dul yel min flor, nscof

SH: lt-dk gy, blk, frm - sl hd, sb blky-sb tab, sli-mod fis, rthy-dull lstr

LS: mudst-wackst, lt gy-crm-bff-offwh-lt tan, sl frm-sl hd, sb blky-sb tab, sl sucr txt, fri ip, dull-rthy lstr, 20% vug poro, abnt dul yel min flor, nscof

LS: mudst-wackst, lt gy-crm-bff-offwh-lt tan, frm-sl hd, sb blky-sb tab, tr sucr txt, dull-rthy lstr, tr intrxln poro, mod dul yel min flor, nscof

SH: ltgy-dk gy, tr blk, frm - sl hd, sb blky-sb tab, sli-mod fis, rthy-dull lstr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3,810
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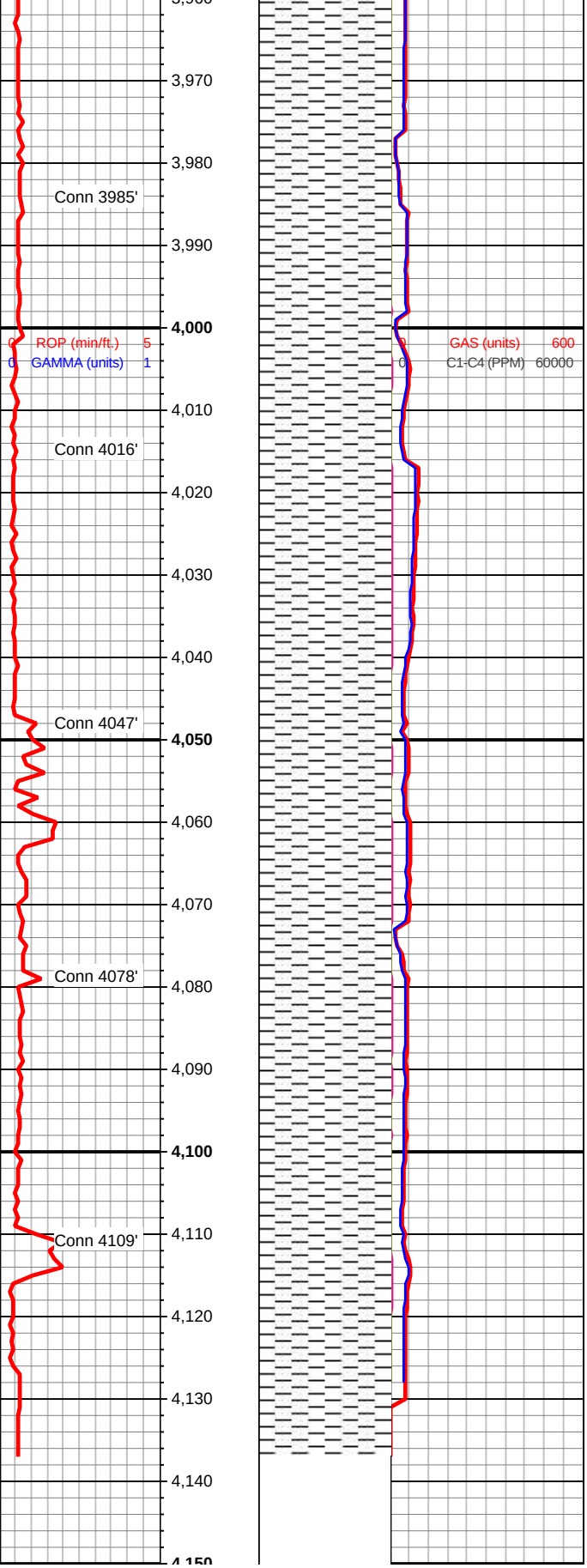
3,830
3,840
3,850
3,860
3,870
3,880
3,890
3,900
3,910
3,920
3,930
3,940
3,950
3,960
Conn 3769'
Conn 3800'
Conn 3831'
Conn 3862'
Conn 3954'
0 ROP (min/ft.) 5
0 GAMMA (units) 150
0 GAS (units) 600
0 C1-C4 (PPM) 60000
C1 - 61.9%
C2 - 16.1%
C3 - 14.9%
C4 - 7.1%
9/25/12
9/26/12
9/27/12
Core #1
3873' - 3907'
MD
Recovered
31.6' (93%)
Core #2
3907' - 3937'
MD
Recovered
23.1' (77%)
MW 9.3
VIS 40
LS: mudst-wackst, lt gy-crm-bff-offwh-lt tan, frm-sl hd, sb blky-sb tab, tr sucr txt, dull-rthy lstr, tr intrxln poro, mod dul yel min flor, nscof
Cherokee Top @ 3825' MD
SS: opa-transl, vfn - fg, ang-sb ang, sb sphr, w srt, w cons, mtx sup, cal-sil mtx, predy qtz grs, calc ip, tr intrgrn poro, 55% dl yl fluor, 15% brn - bk stn, pr - fr wet cut, sctd strmrs, fnt dl yl res
Osage Top @ 3869' MD
CHT: WHT-OPA-LT TAN, V HD, SB BLKY-SB TAB-SB FLKY, CRPTXLN, SLI CONCH FRAC, PRLY-WXY LSTR, SM-SL RGH TXT, NON CALC, 30% BRI YEL-WHT MIN FLOR, 20% SLO STRMG VIO-BL CUT FLOR BCMG WHI
Osage Base @ 3914' MD
SH: DRK GY, FRM, SB PLTY-SB TAB-SB FLKY, SL



FIS, SLI SUC-MOD RGHTXT, DUL RTYHY LSTR, SLI CALC

SH: DRK GY, FRM, SB PLTY-SB TAB-SB FLKY, SL FIS, SLI SUC-MOD RGHTXT, DUL RTYHY LSTR, SLI CALC

TD @ 4137' MD
06:00 - 9/27/12

Conservation Division
Finney State Office Building
130 S. Market, Rm. 2078
Wichita, KS 67202-3802

Kansas
Corporation Commission

Phone: 316-337-6200
Fax: 316-337-6211
http://kcc.ks.gov/

December 11, 2012

TINA MILLER
Dorado E&P Partners, LLC
1401 17th ST., STE 1500
DENVER, CO 80202

Re: ACO1
API 15-155-21592-00-00
Toews 25-9-4
NW/4 Sec.04-25S-09W
Reno County, Kansas

Dear Production Department:

We are herewith requesting that the Well Completion Form ACO-1 and attached information for the subject well be held confidential for a period of two years.

Should you have any questions or need additional information regarding subject well, please contact our office.

Respectfully,
TINA MILLER