

HALLIBURTON

BOREHOLE COMPENSATED SONIC ARRAY LOG

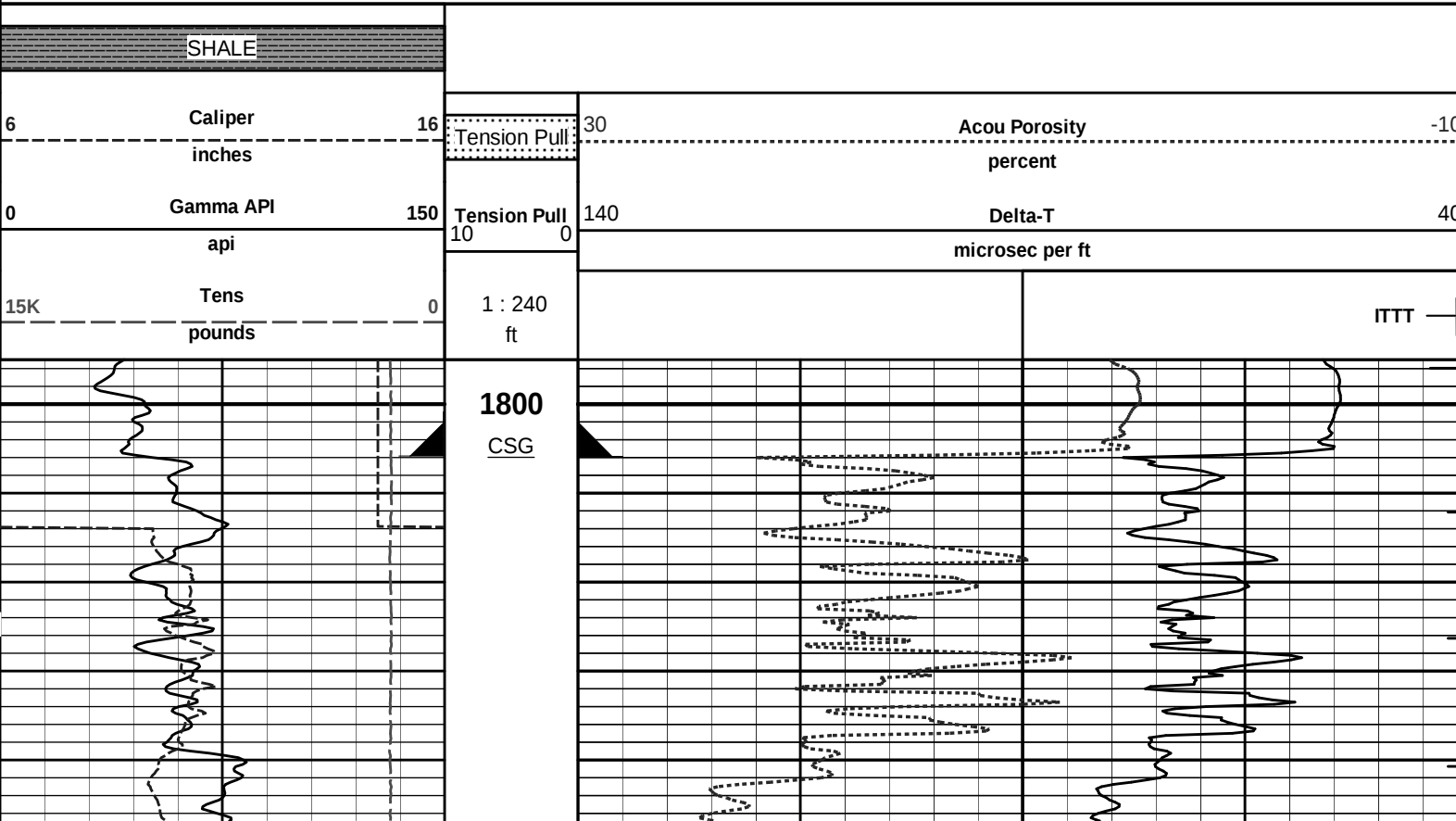
COMPANY		OXY USA INC.	
WELL		GARDEN CITY I-1	
FIELD		GARDEN CITY	
COUNTY		FINNEY	
STATE		KANSAS	
Permanent Datum		GL	
Log measured from		KB	
Drilling measured from		KB	
Date		19-Jan-13	
Run No.		ONE	
Depth - Driller		5095.00 ft	
Depth - Logger		5010.0 ft	
Bottom - Logged Interval		4983	
Top - Logged Interval		1806	
Casing - Driller		8.625 in @ 1806.0 ft	
Casing - Logger		1806.0 ft	
Bit Size		7.875 in @	
Type Fluid in Hole		WATER BASED MUD	
Density		9.2 ppq 37.00 s/qt	
PH		10.00 pH 10.4 cpqm	
Source of Sample		MUDDPT	
Rm @ Meas. Temperature		0.710 ohmm @ 65.00 degF @	
Rmf @ Meas. Temperature		0.60 ohmm @ 65.00 degF @	
Rmc @ Meas. Temperature		0.820 ohmm @ 65.00 degF @	
Source Rmf		MEASURED MEASURED	
Rm @ BHT		0.38 ohmm @ 127.0 degF @	
Time Since Circulation		10.0 hr	
Time on Bottom		19-Jan-13 05:18	
Max. Rec. Temperature		127.0 degF @ 5010.0 ft @	
Equipment		10782954 LIBERAL	
Recorded By		S. INGERSOLL	
Witnessed By		P. DURRETT	

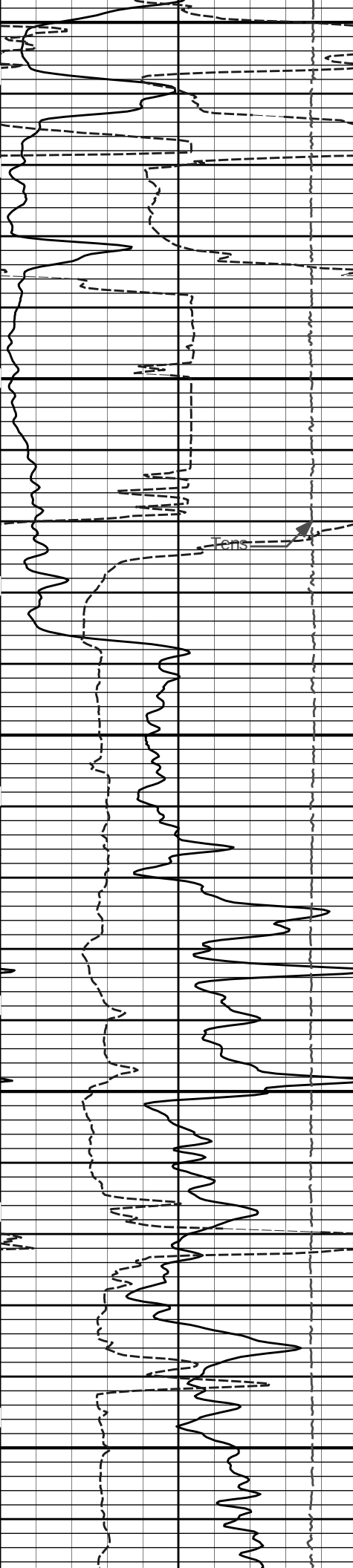
COMPANY	OXY USA INC.
WELL	GARDEN CITY I-1
FIELD	GARDEN CITY
COUNTY	FINNEY
STATE	KANSAS
API No.	15055221930000
Location	(SHL) 330' FNL & 330' FWL
Other Services:	DSN / SDL MICROLOG BSAT ACRT

Fold here

Service Ticket No.: 900141137						API Serial No.: 15055221930000						PGM Version: WL INSITE R3.6.0 (Build 3)																	
CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE												RESISTIVITY SCALE CHANGES																	
Date		Sample No.										Type Log		Depth		Scale Up Hole				Scale Down Hole									
Depth-Driller																													
Type Fluid in Hole																													
Density		Viscosity																											
Ph		Fluid Loss																											
Source of Sample												RESISTIVITY EQUIPMENT DATA																	
Rm @ Meas. Temp				@				@				Run No.		Tool Type & No.				Pad Type				Tool Pos.				Other			
Rmf @ Meas. Temp.				@				@				ONE		ACRT				N/A				1.5" S.O.							
Rmc @ Meas. Temp.				@				@						10800784															
Source Rmf		Rmc																											
Rm @ BHT				@				@																					
Rmf @ BHT				@				@																					
Rmc @ BHT				@				@																					
EQUIPMENT DATA																													
GAMMA						ACOUSTIC						DENSITY						NEUTRON											
Run No.		ONE				Run No.		ONE				Run No.		ONE				Run No.		ONE									
Serial No.		10748374				Serial No.		10747684				Serial No.		10685803				Serial No.		10755066									
Model No.		GTET				Model No.		BSAT				Model No.		SDLT				Model No.		DSNT									
Diameter		3.625"				No. of Cent.		2				Diameter		5.3"				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]						Serial No.		5073GW				Serial No.		DSN-436									
Distance to Source		N/A				FWDA [Y/N]						Strength		1.5 CI				Strength		15 CI									

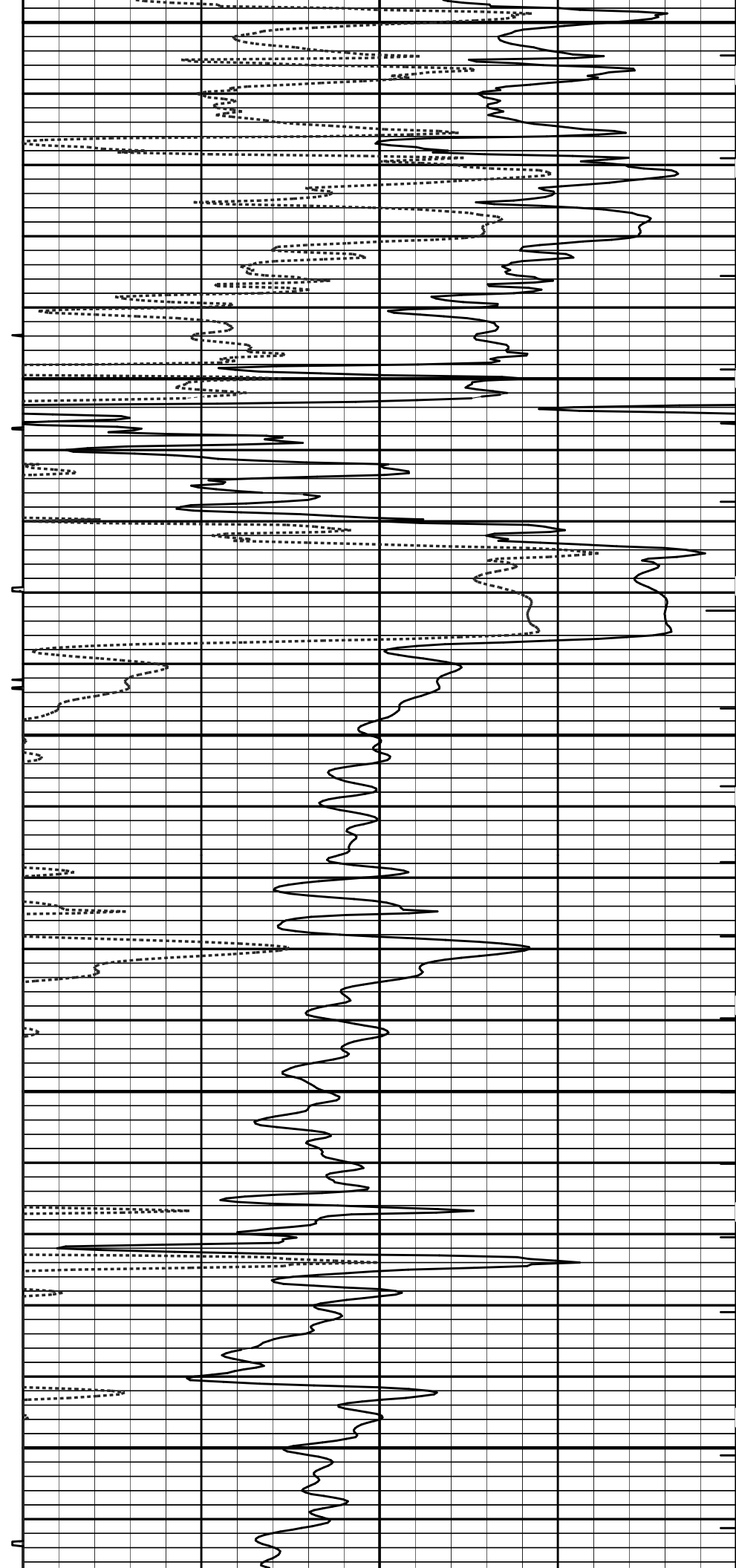
GENERAL			GAMMA		ACOUSTIC		DENSITY		NEUTRON					
Run	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix
No.	From	To	ft/min	L	R	L	R		L	R		L	R	
ONE	5010	1805	REC	0	150	30	-10	47.6 us/ft	30	-10	2.71 gm/cc	30	-10	LIME
DIRECTIONAL INFORMATION														
Maximum Deviation @									KOP @					
Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 5.5 INCH CASING.														
CHLORIDES REPORTED AT 14,000mg/L.														
TD NOT REACHED DUE TO BOREHOLE CONDITIONS.														

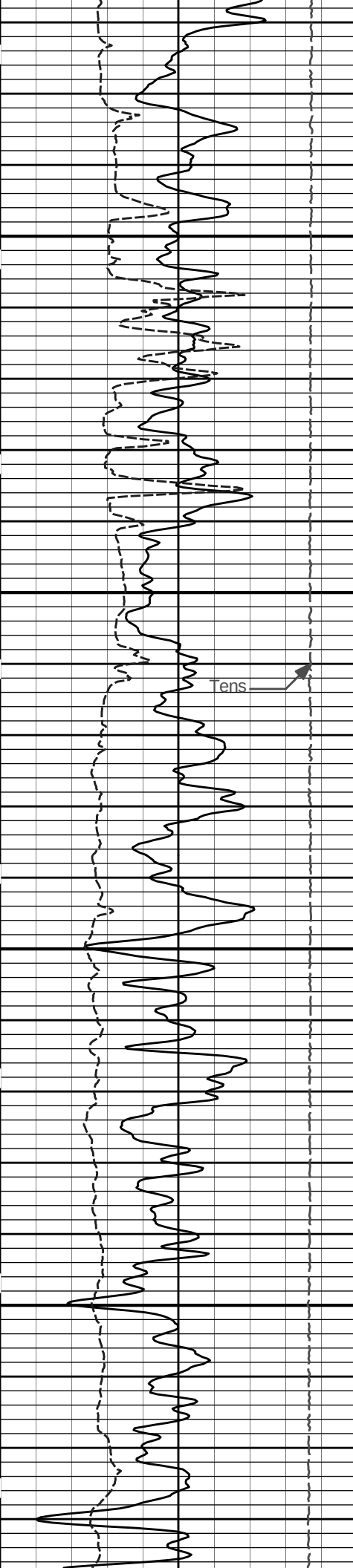




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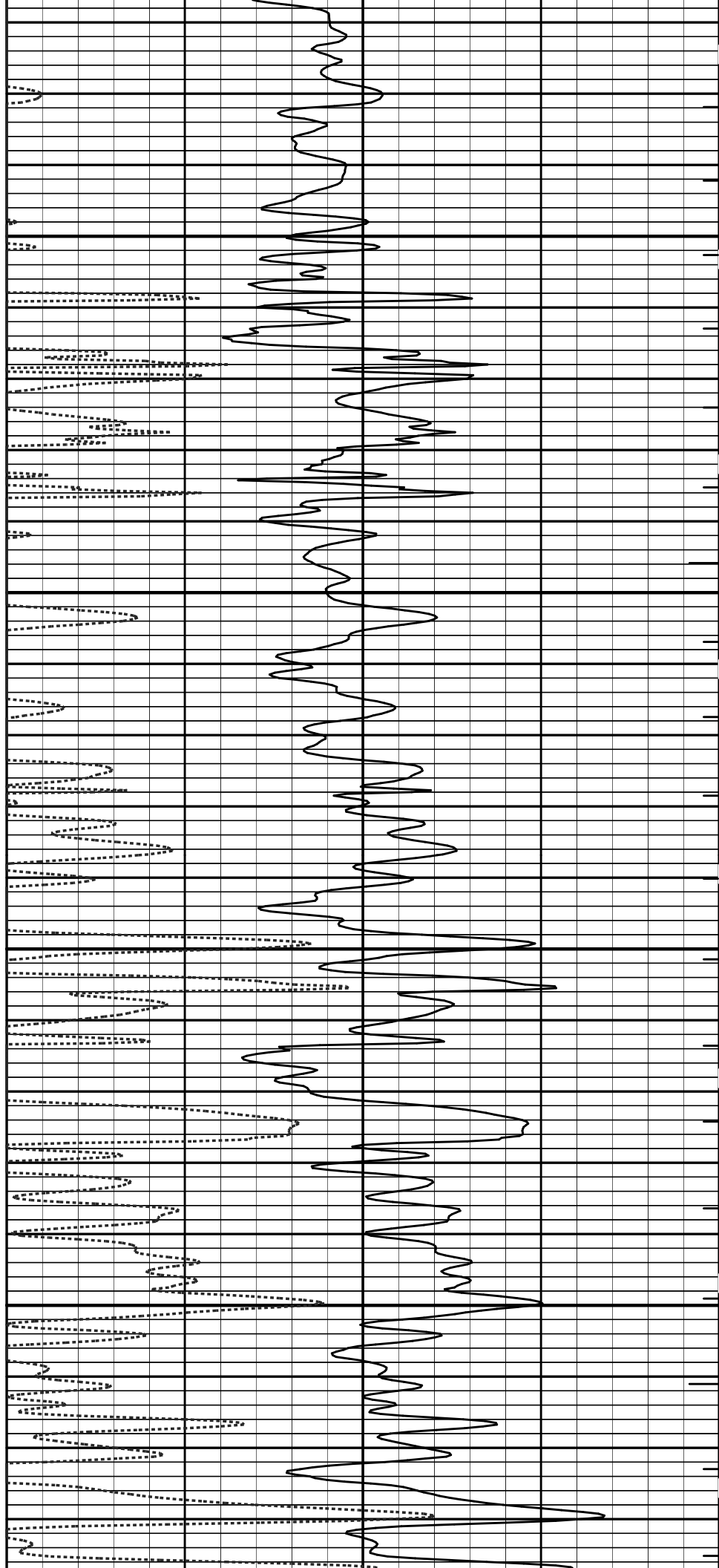
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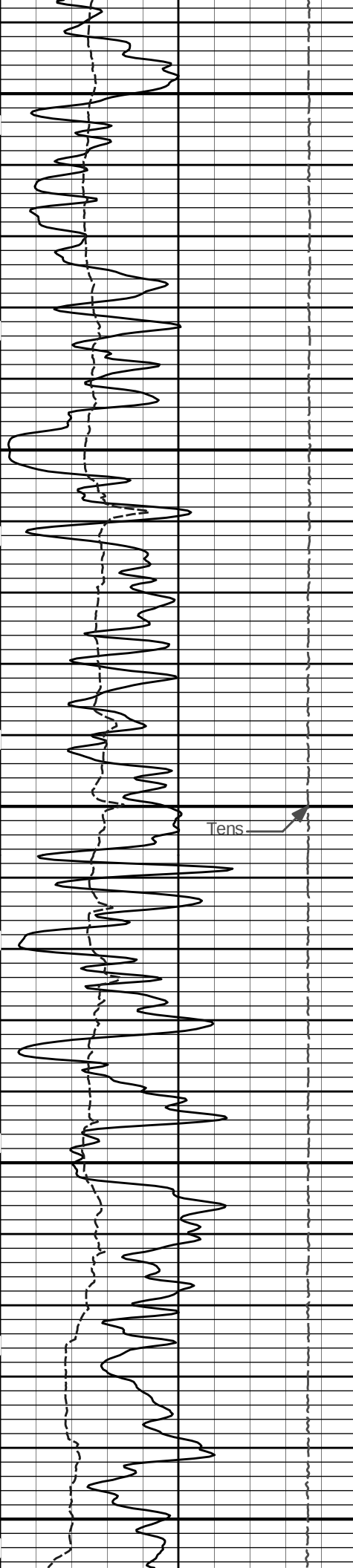




2100

2200

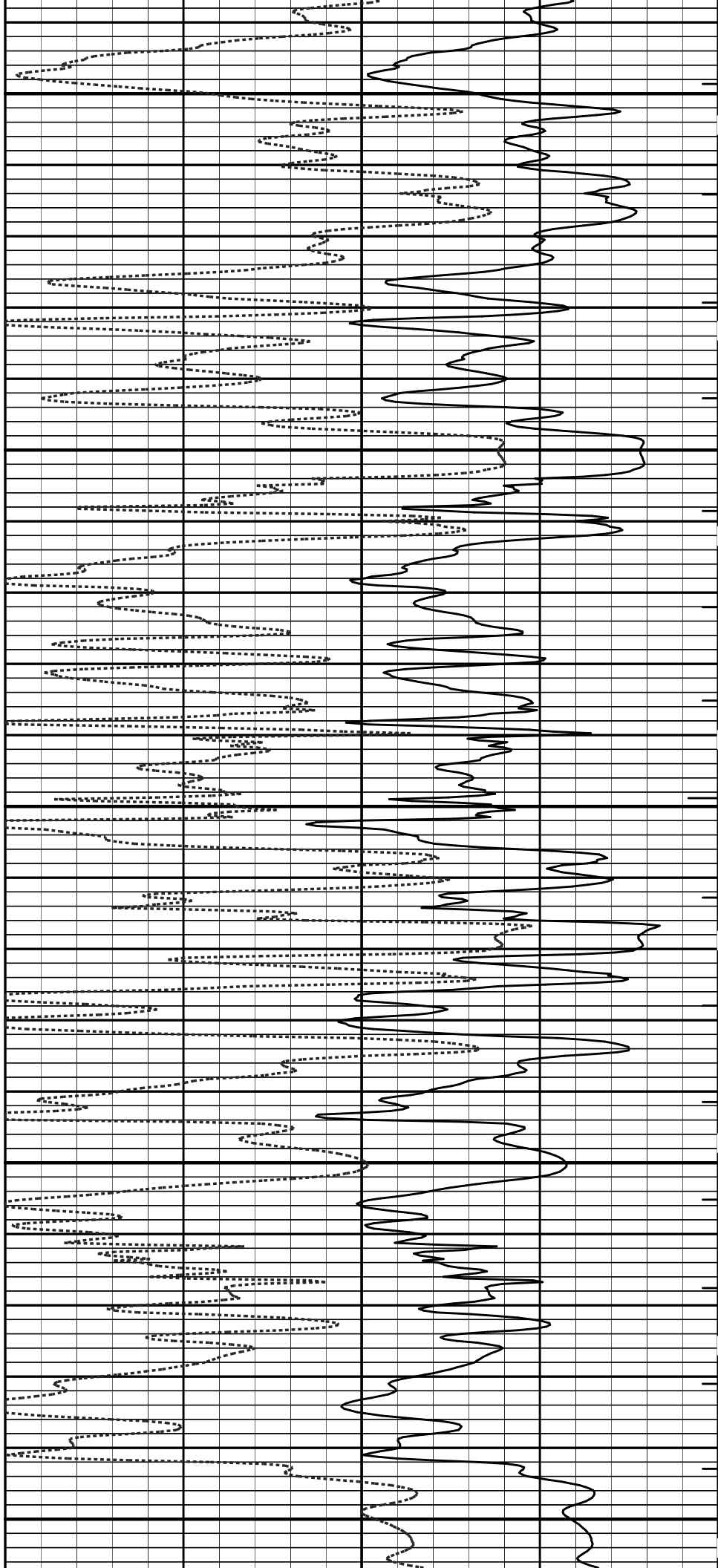


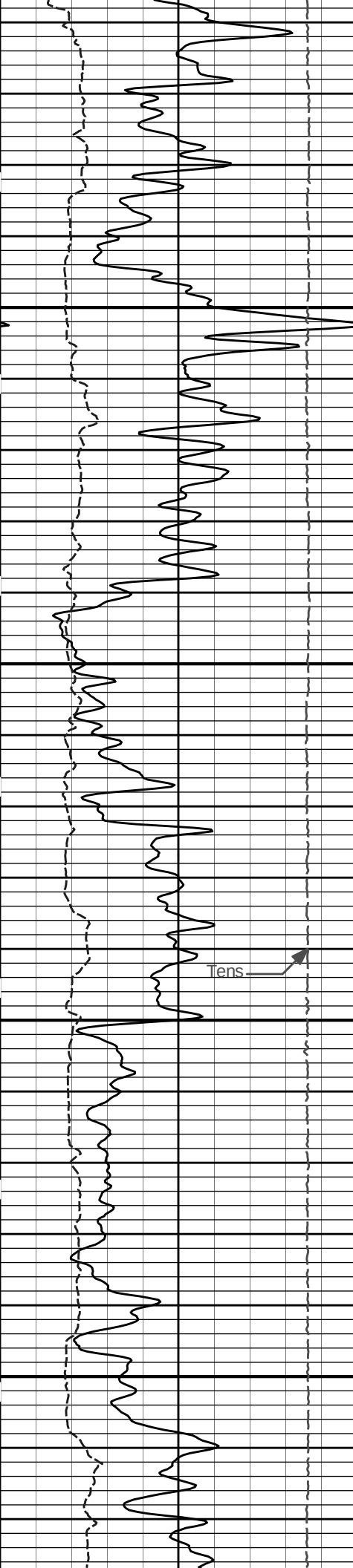


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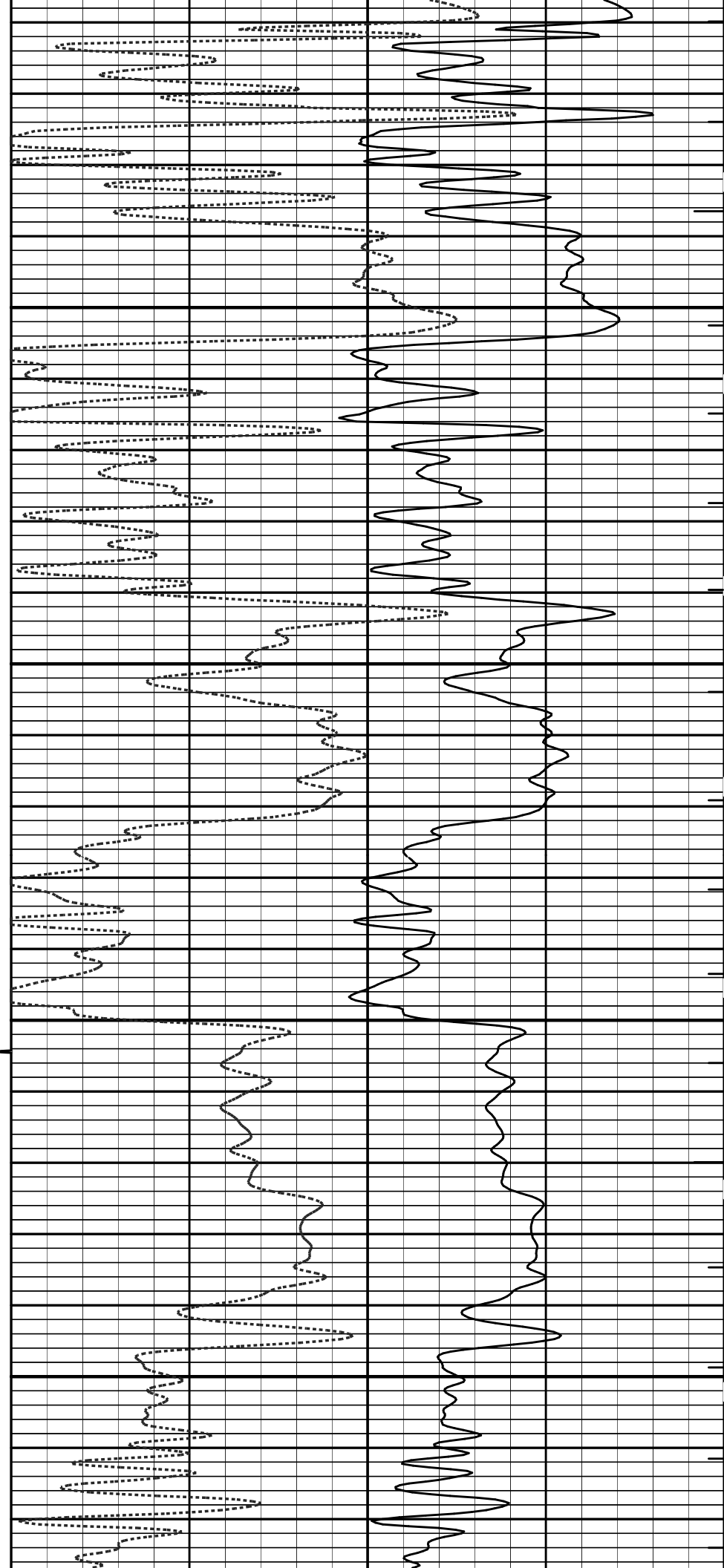
2400

2500



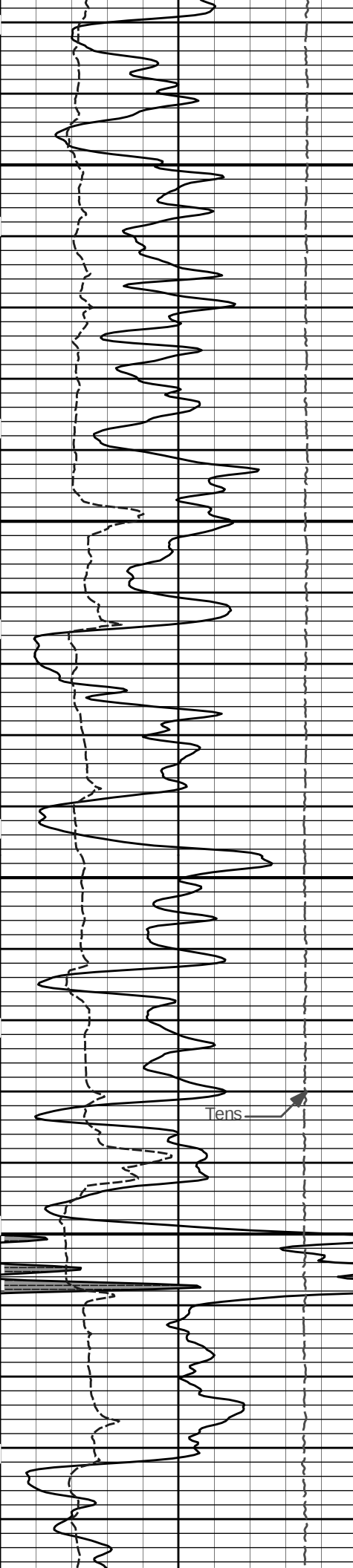


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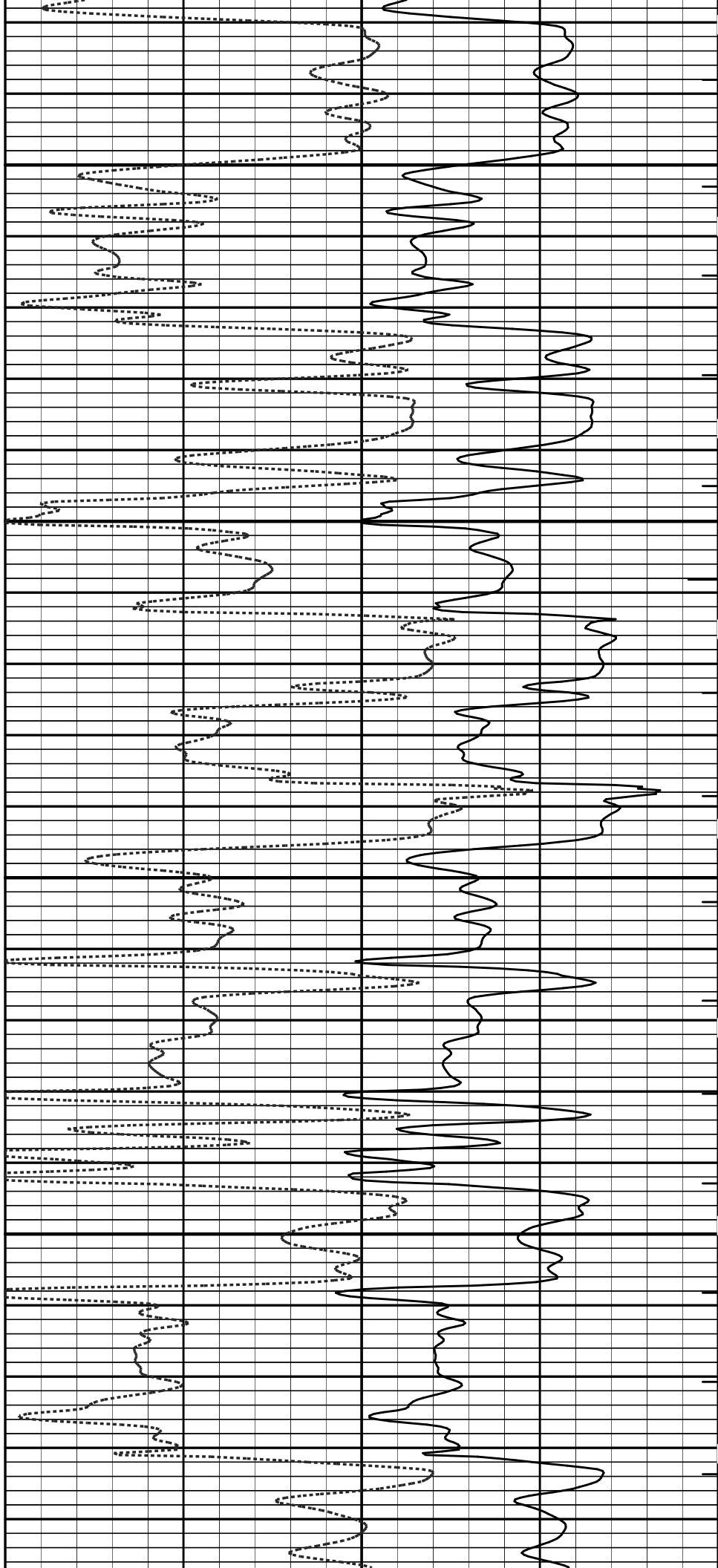
Tens

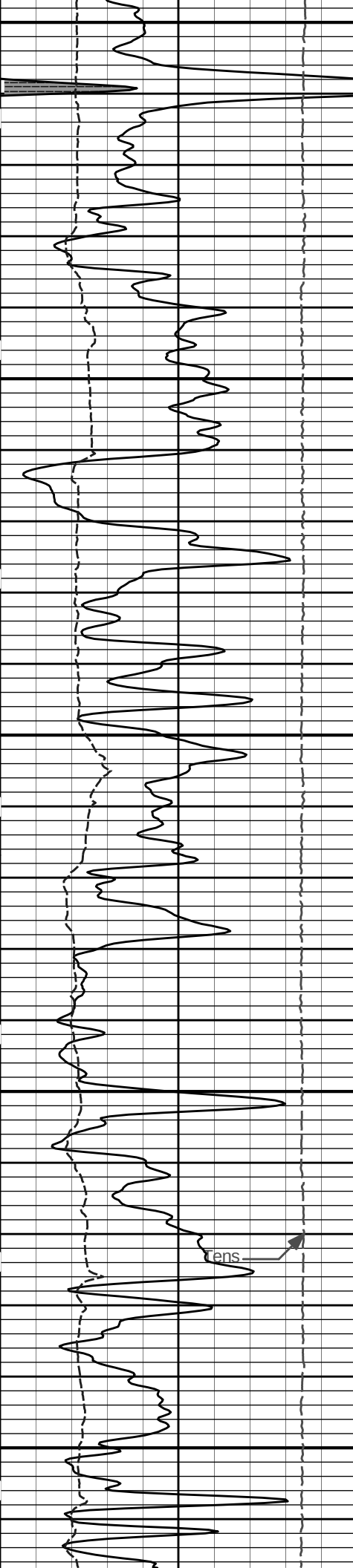
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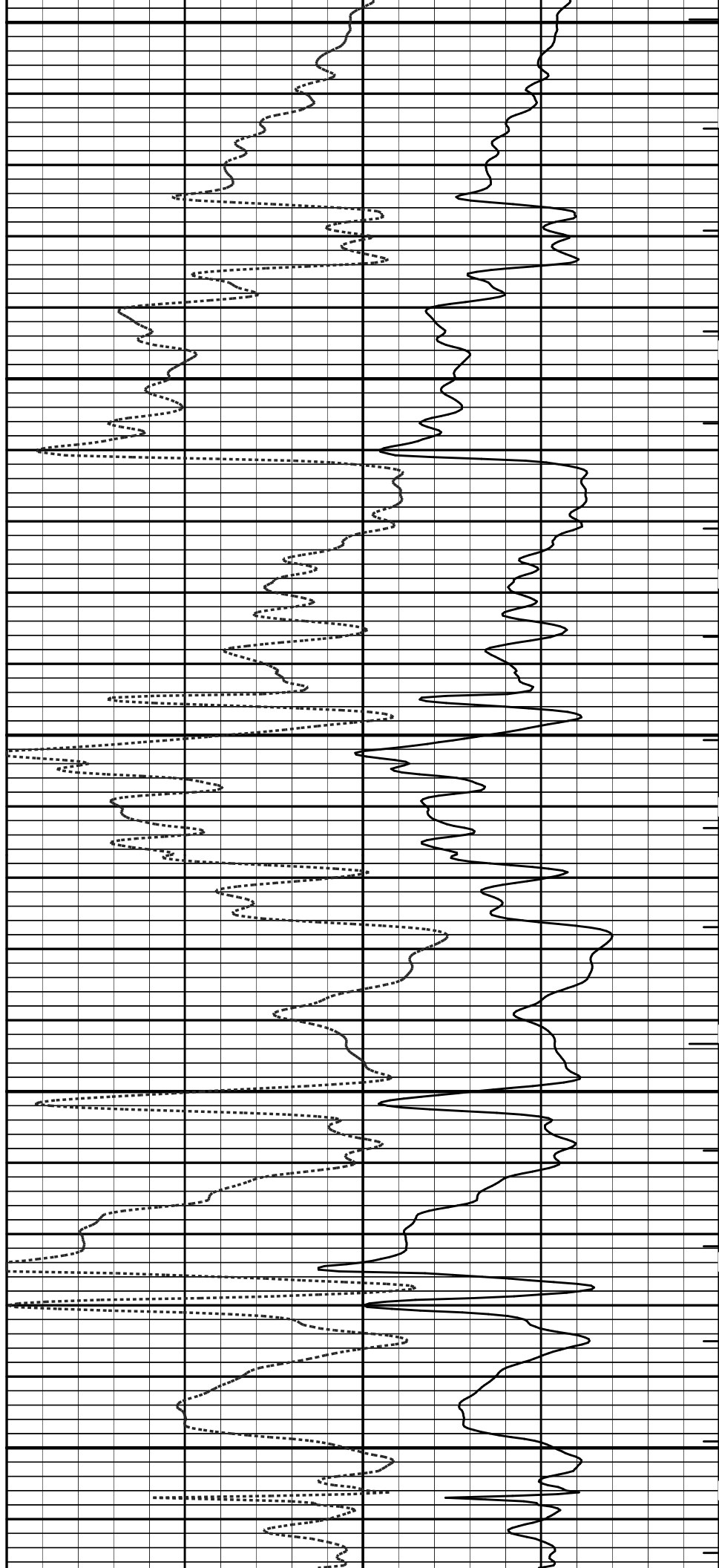
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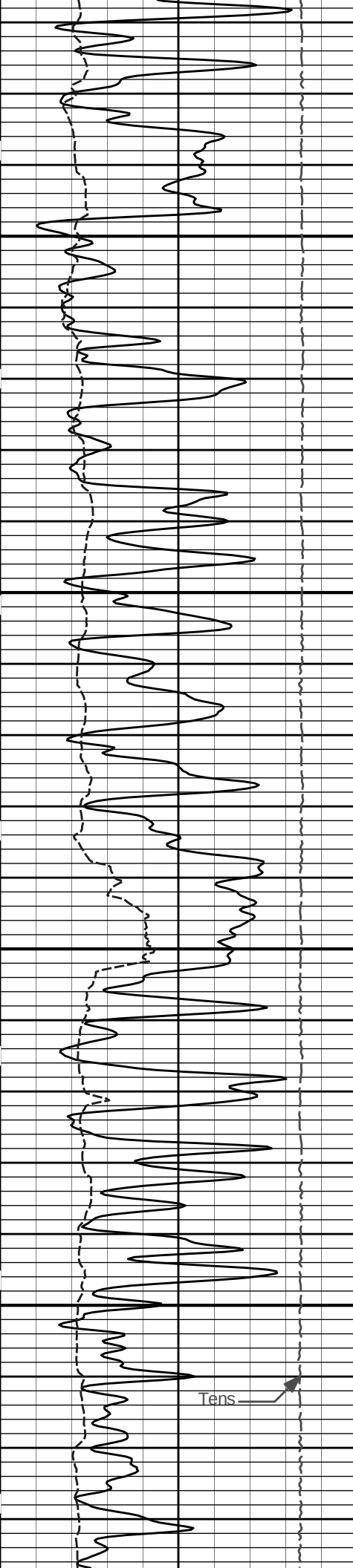




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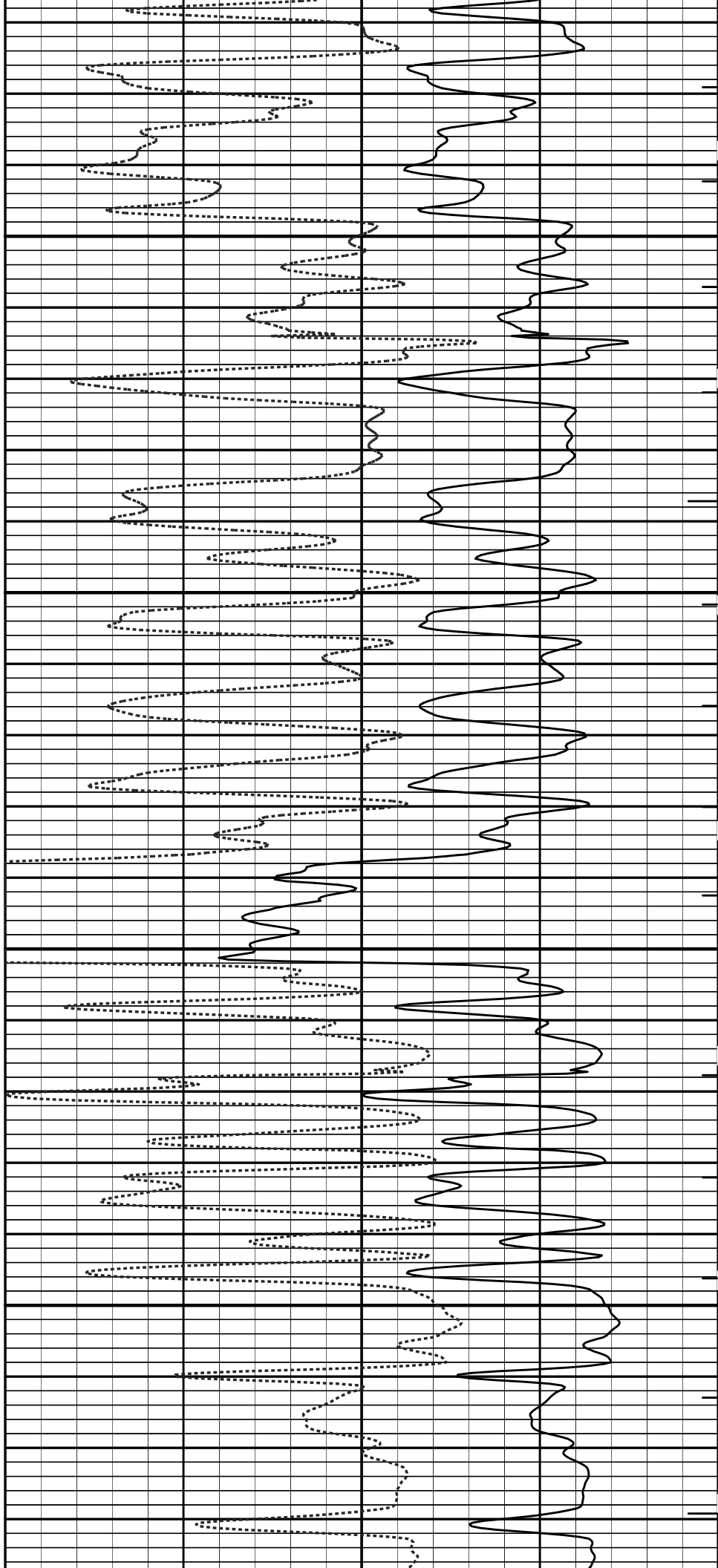
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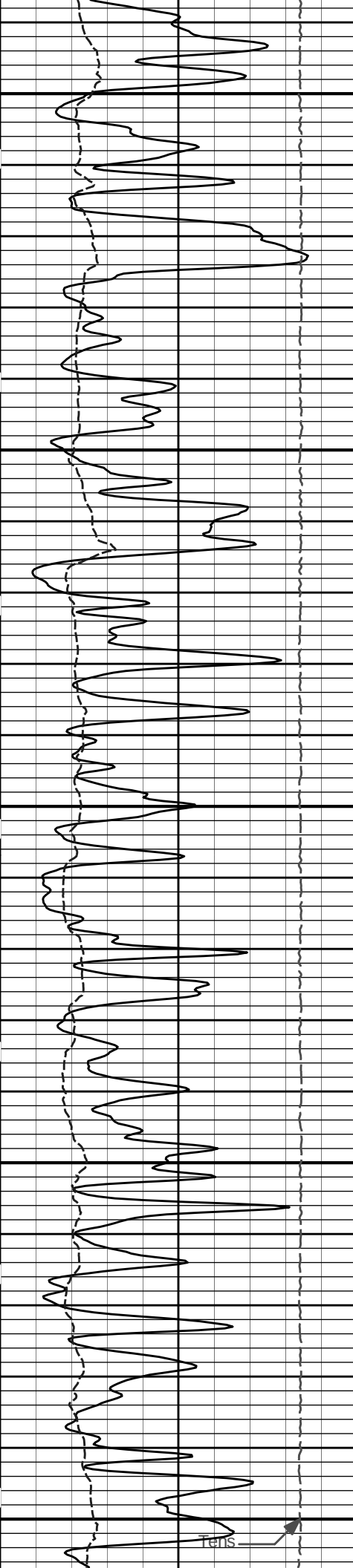




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3300

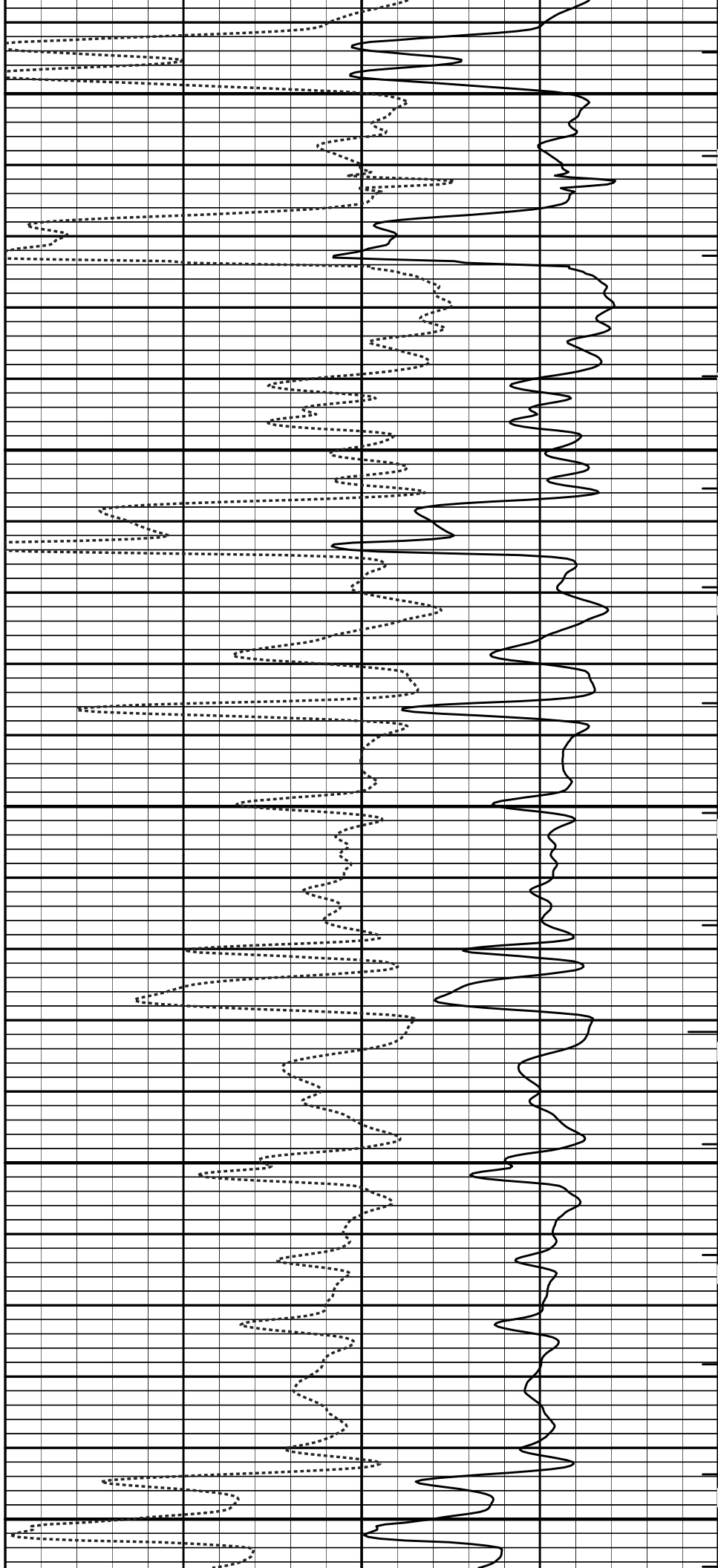


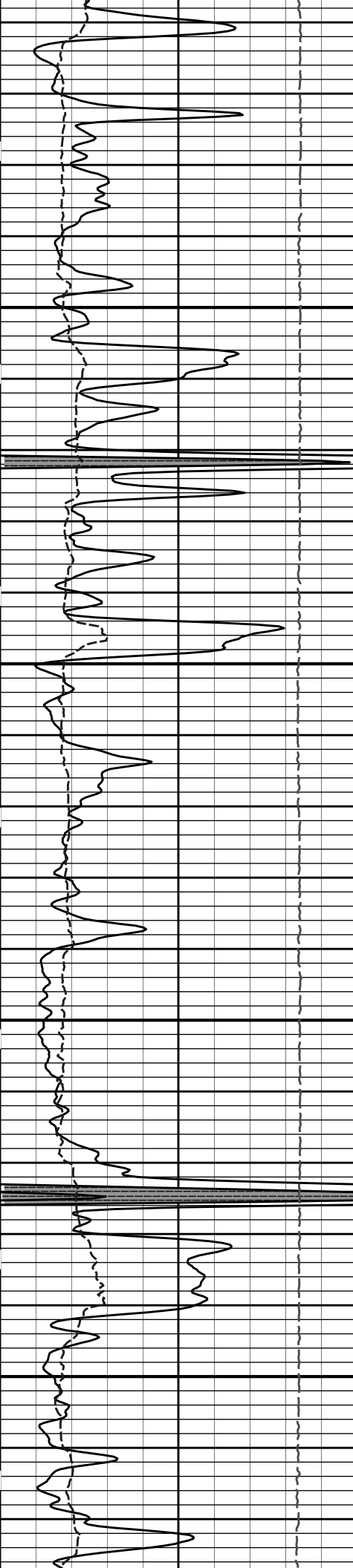


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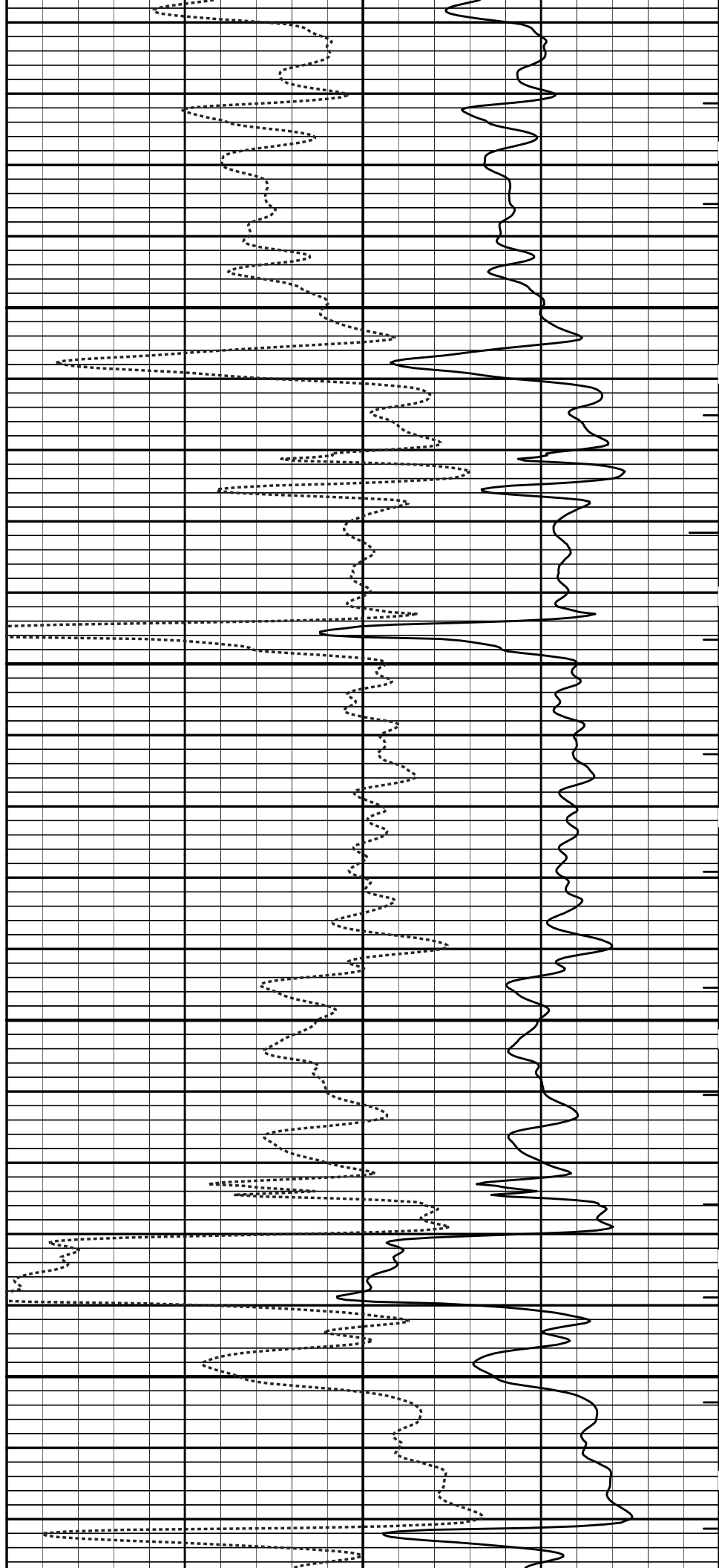
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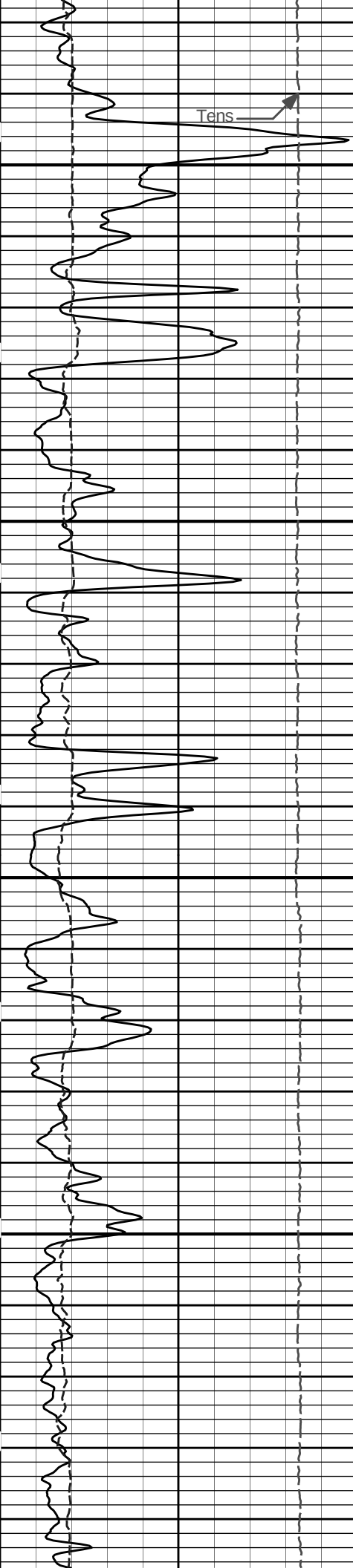




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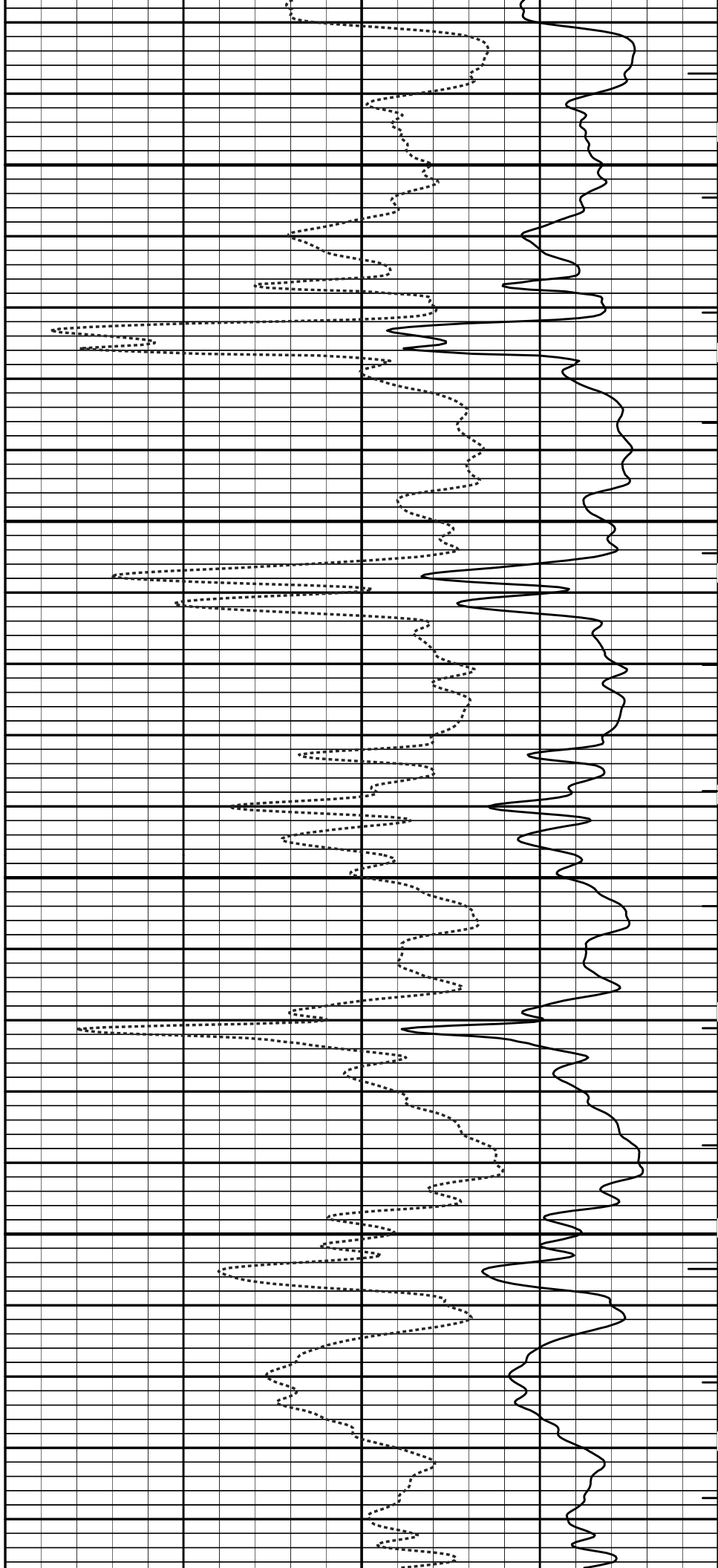
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3900

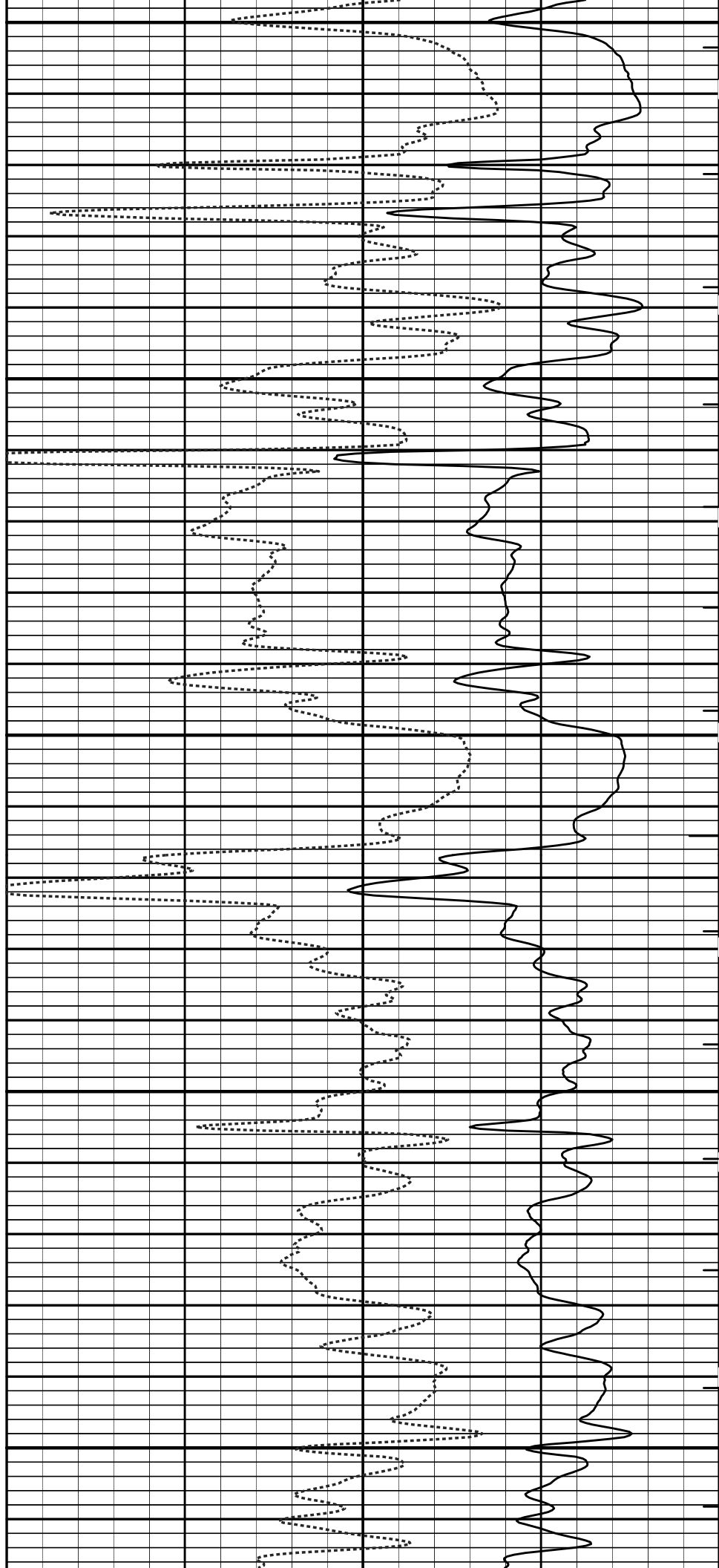
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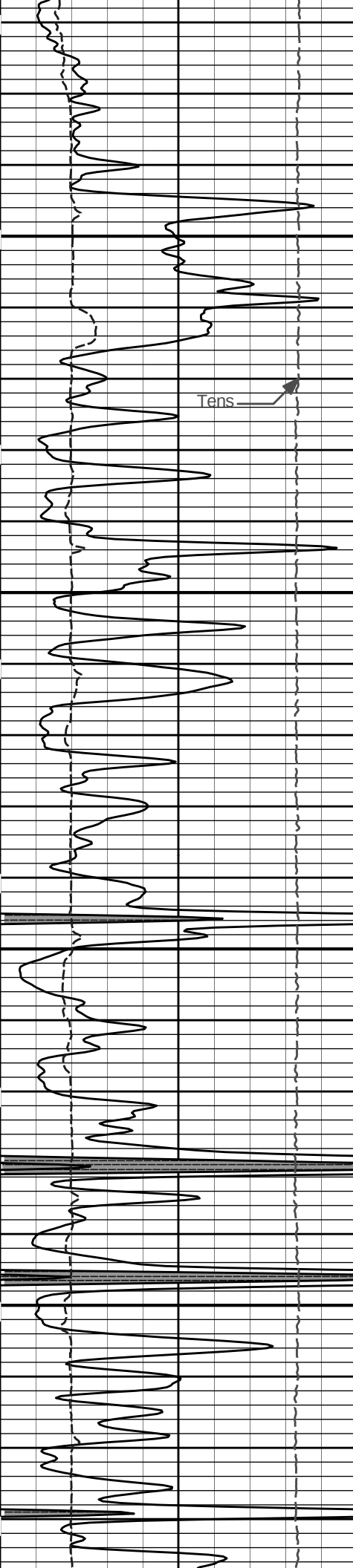




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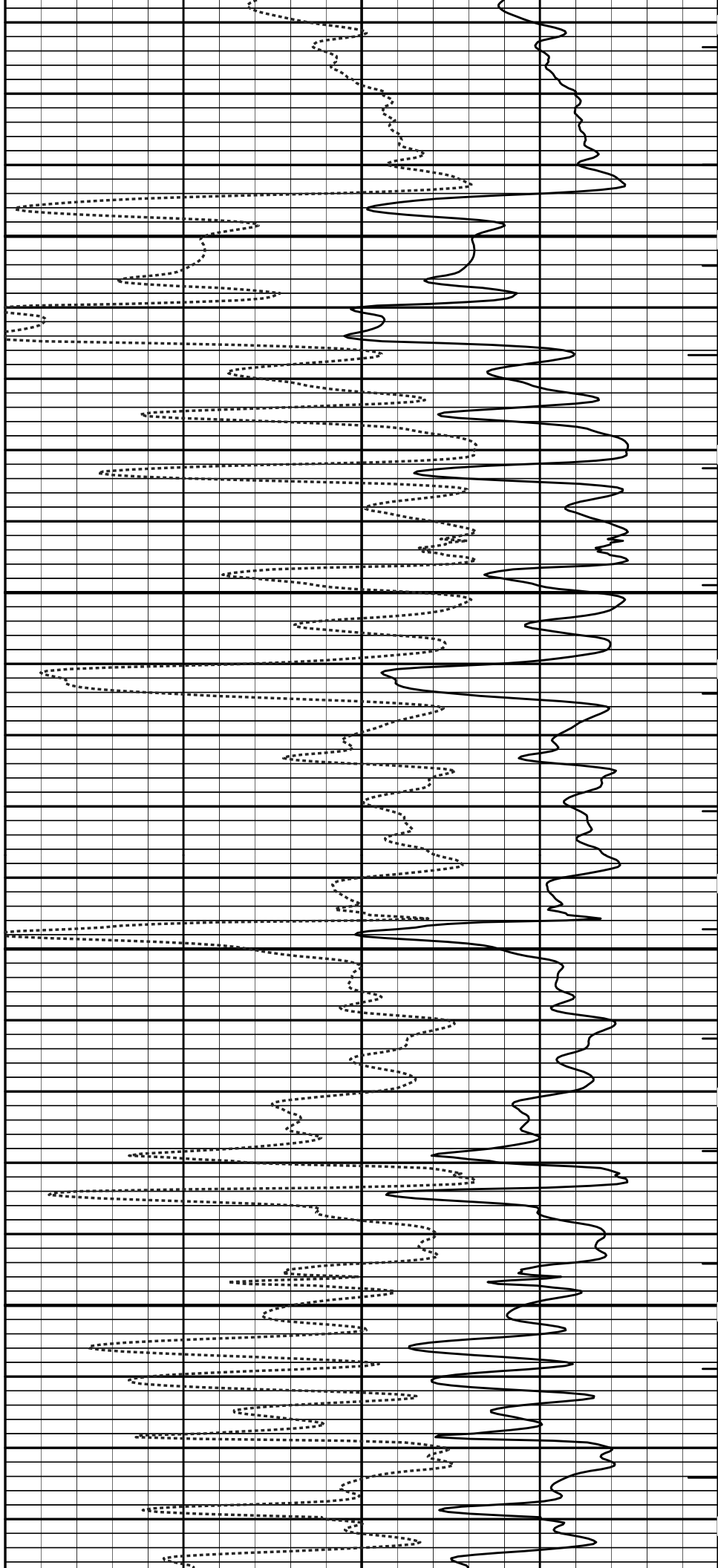
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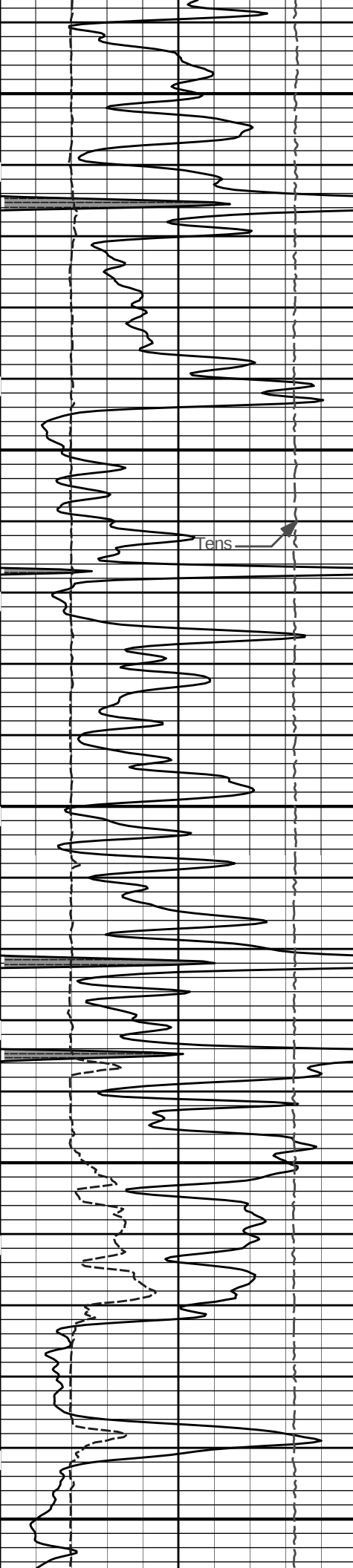




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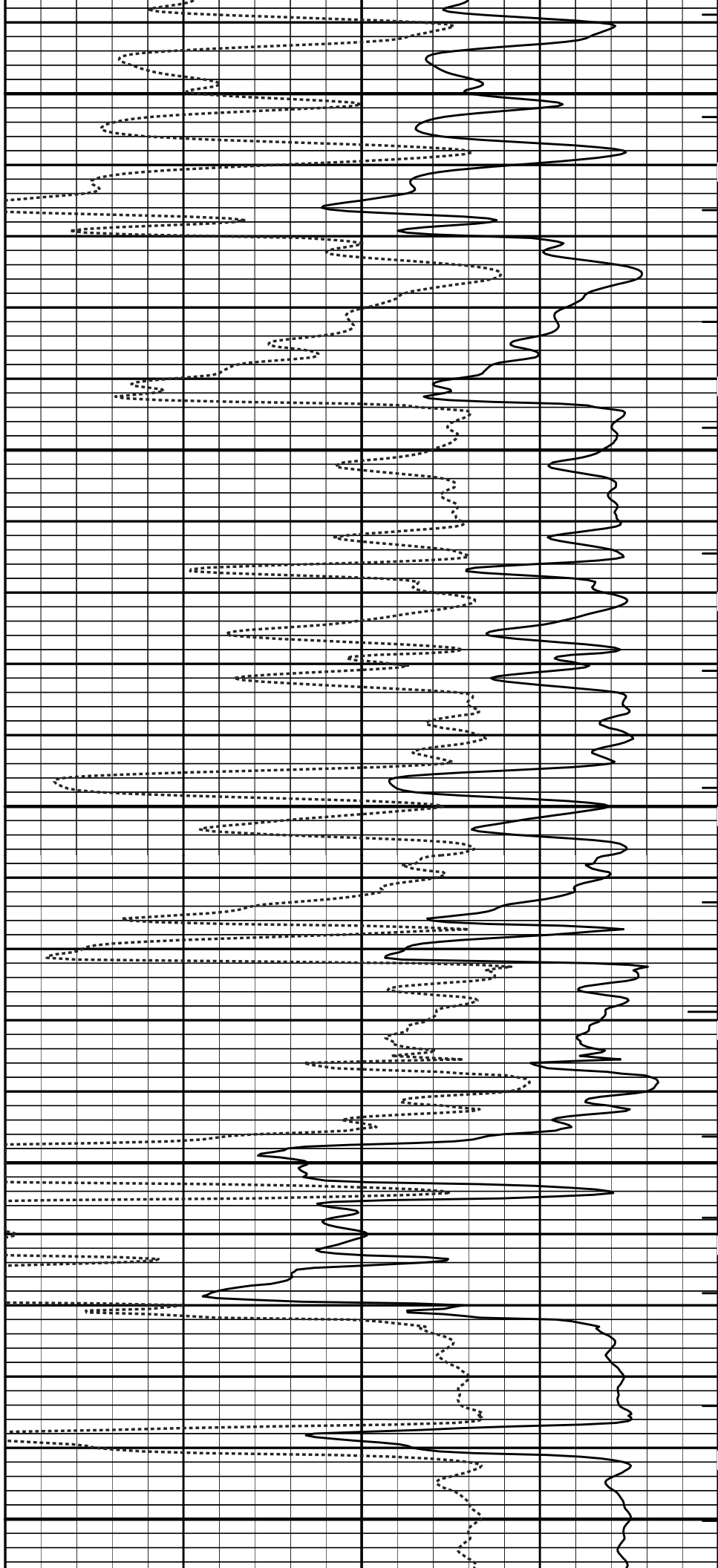


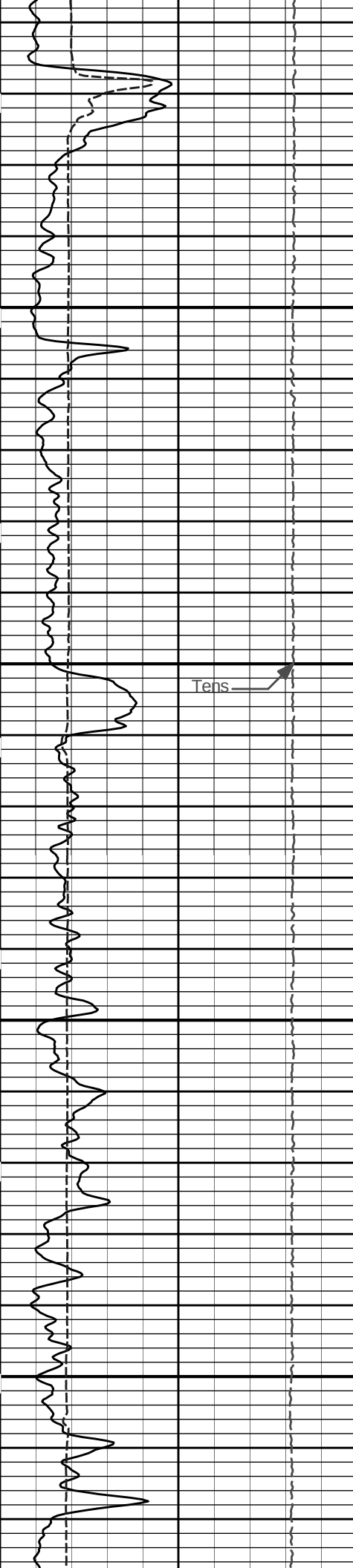


4500

4600

4700

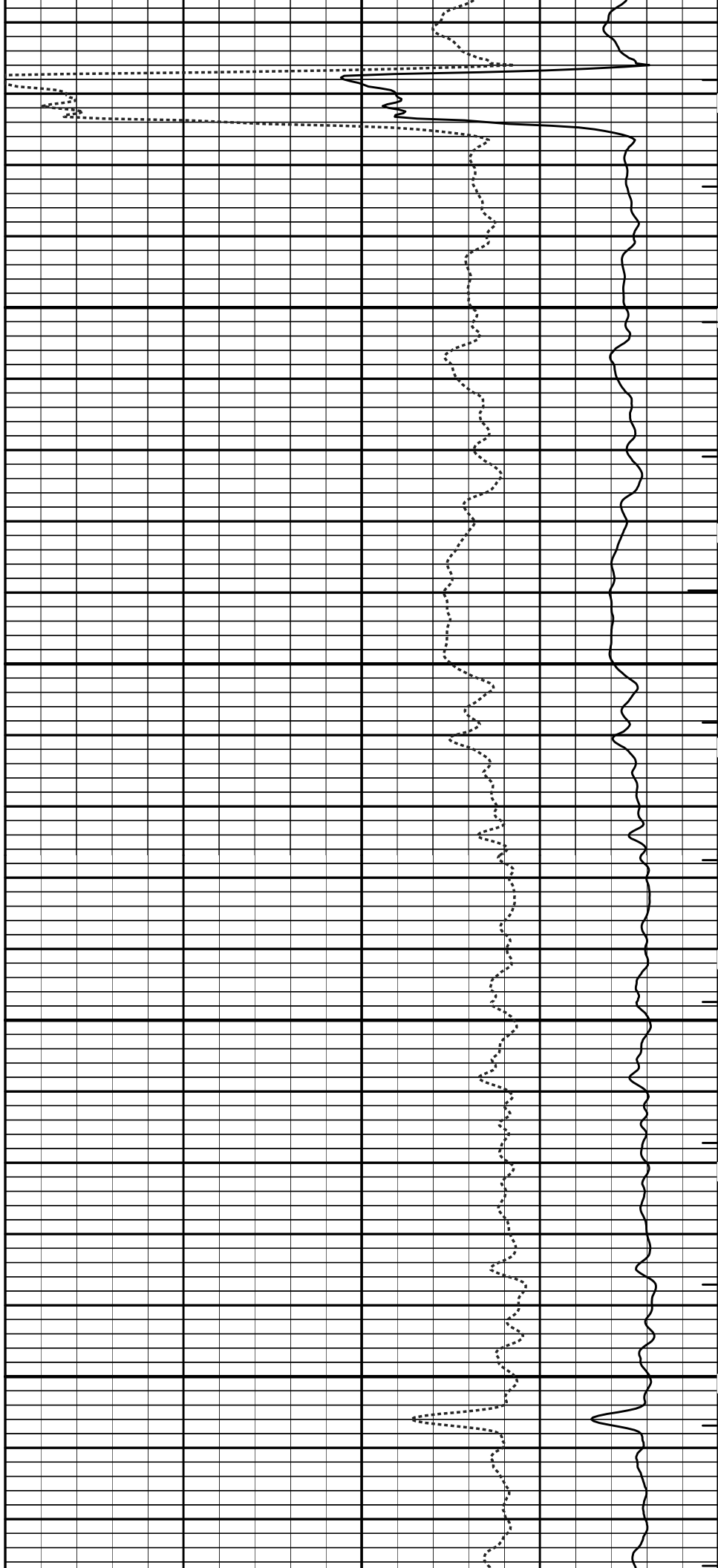


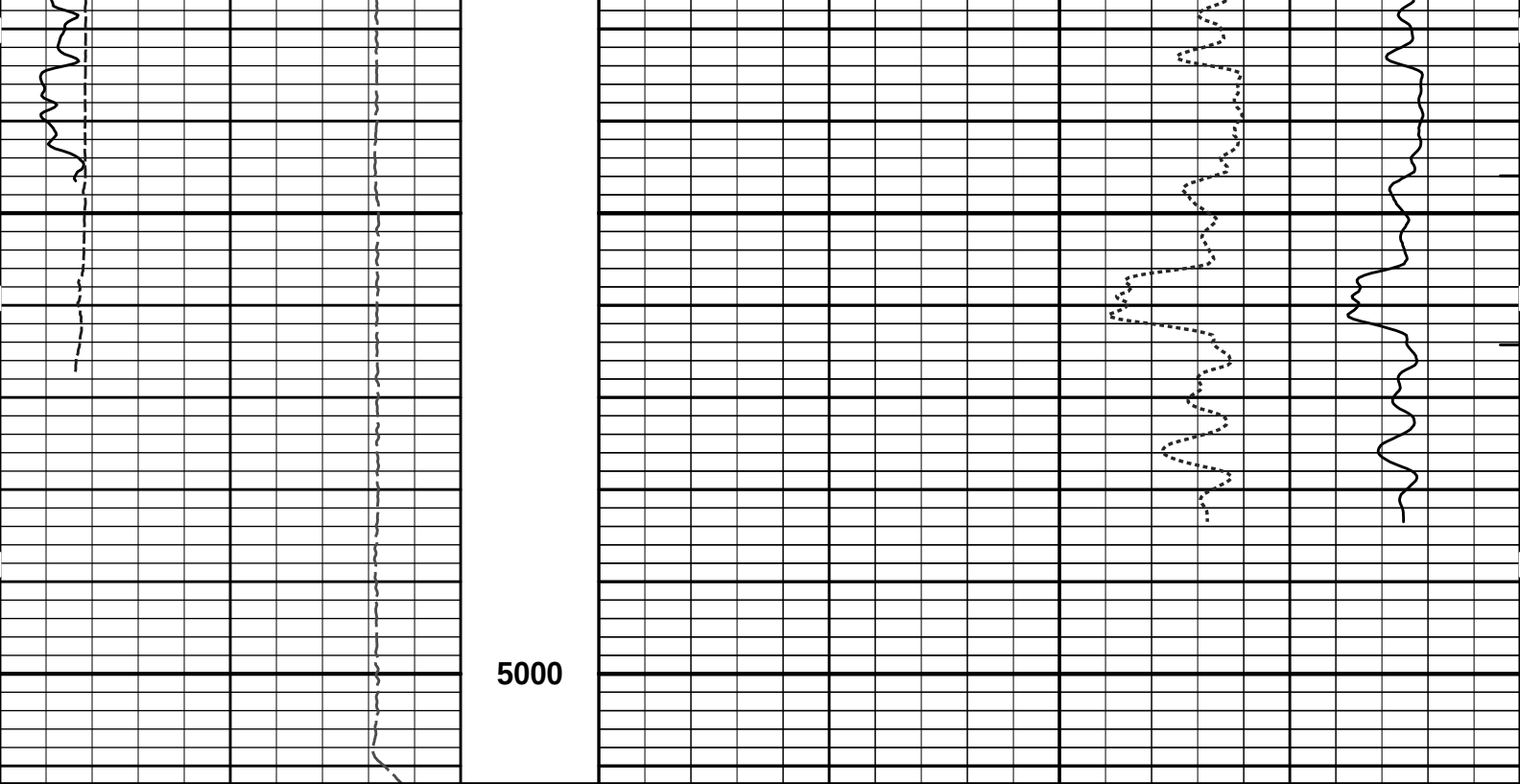


Tens

4800

4900





15K	Tens	0	1 : 240		ITTT
	pounds		ft		
0	Gamma API	150	Tension Pull	140	Delta-T
	api		10 0		microsec per ft
6	Caliper	16	Tension Pull	30	Acou Porosity
	inches				percent
	SHALE				

HALLIBURTON

Plot Time: 19-Jan-13 08:11:59
Plot Range: 1795 ft to 5011.92 ft
Data: GARDEN_CITY_I-1\Well Based\GARDEN_CITY_I-1_CASING\
Plot File: \\BSAT\BSAT_5_MAIN_LIB

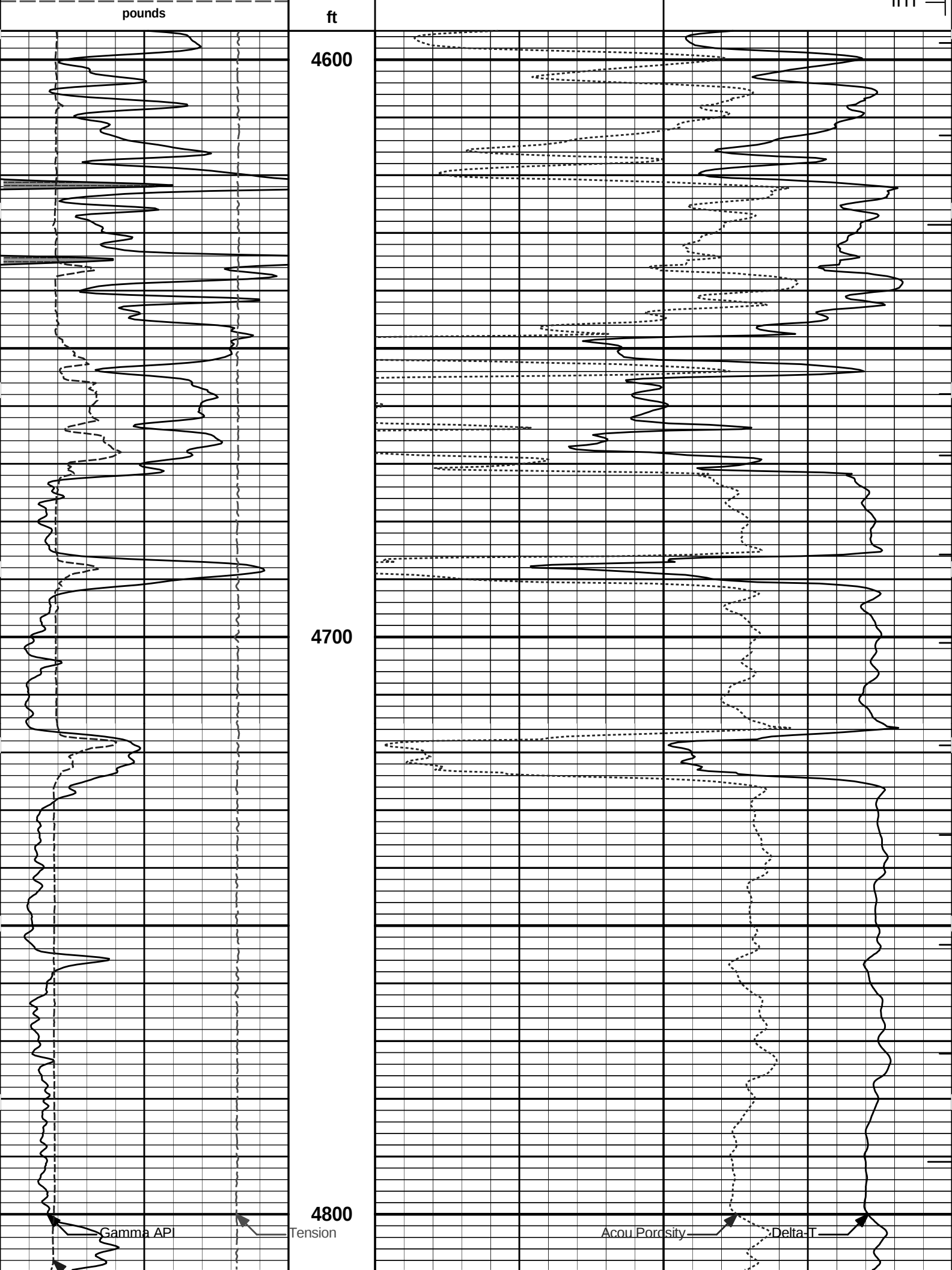
5 INCH MAIN LOG

HALLIBURTON

Plot Time: 19-Jan-13 08:11:59
Plot Range: 4595 ft to 5012.83 ft
Data: GARDEN_CITY_I-1\Well Based\15055221930000GARDENCITY_I-1REP\
Plot File: \\BSAT\BSAT_5_REP_LIB

REPEAT SECTION

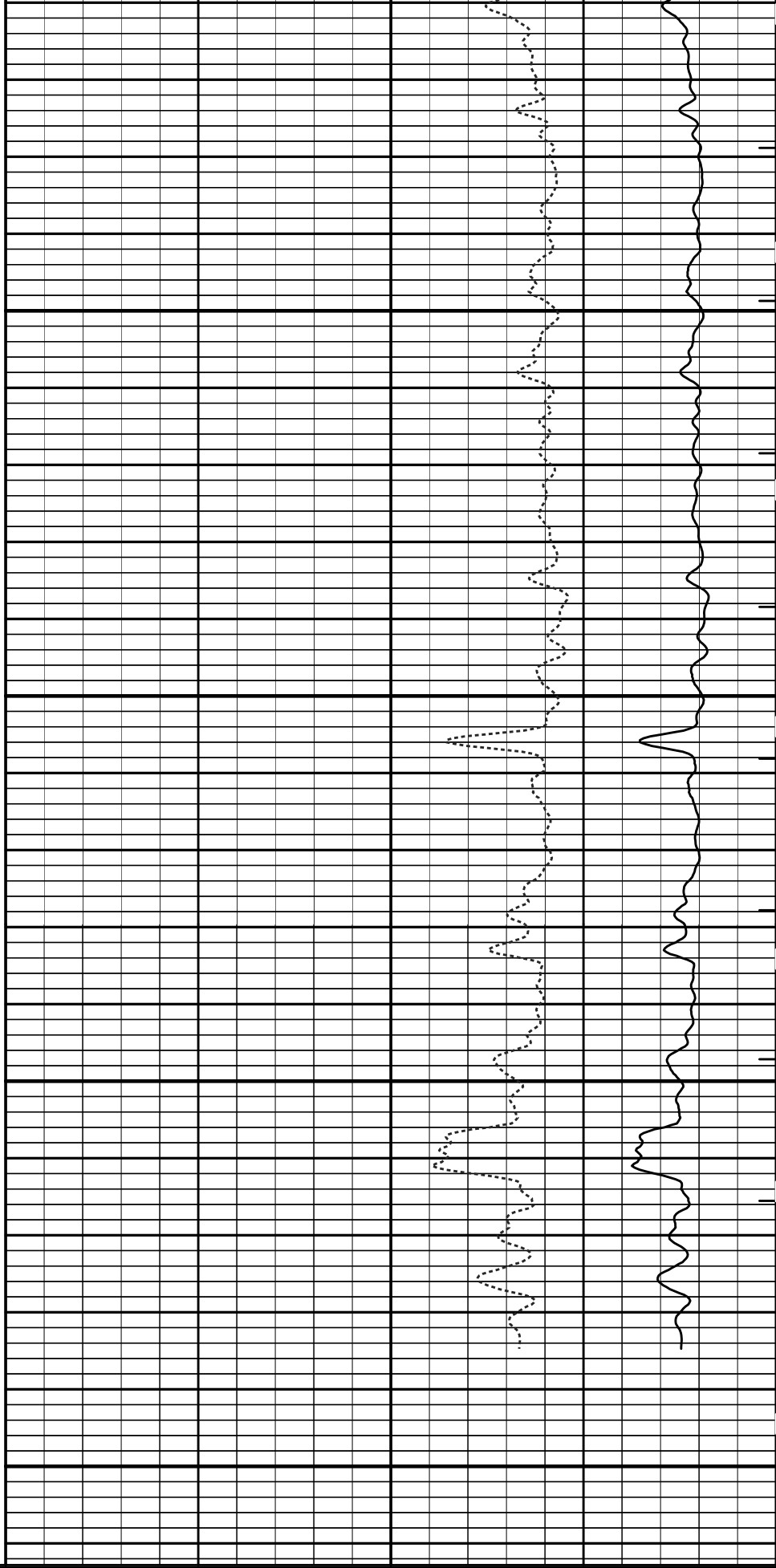
	SHALE				
6	Caliper	16	30	Acou Porosity	-10
	inches			percent	
0	Gamma API	150	140	Delta-T	40
	api			microsec per ft	
15K	Tension	0	1 : 240		ITTT





4900

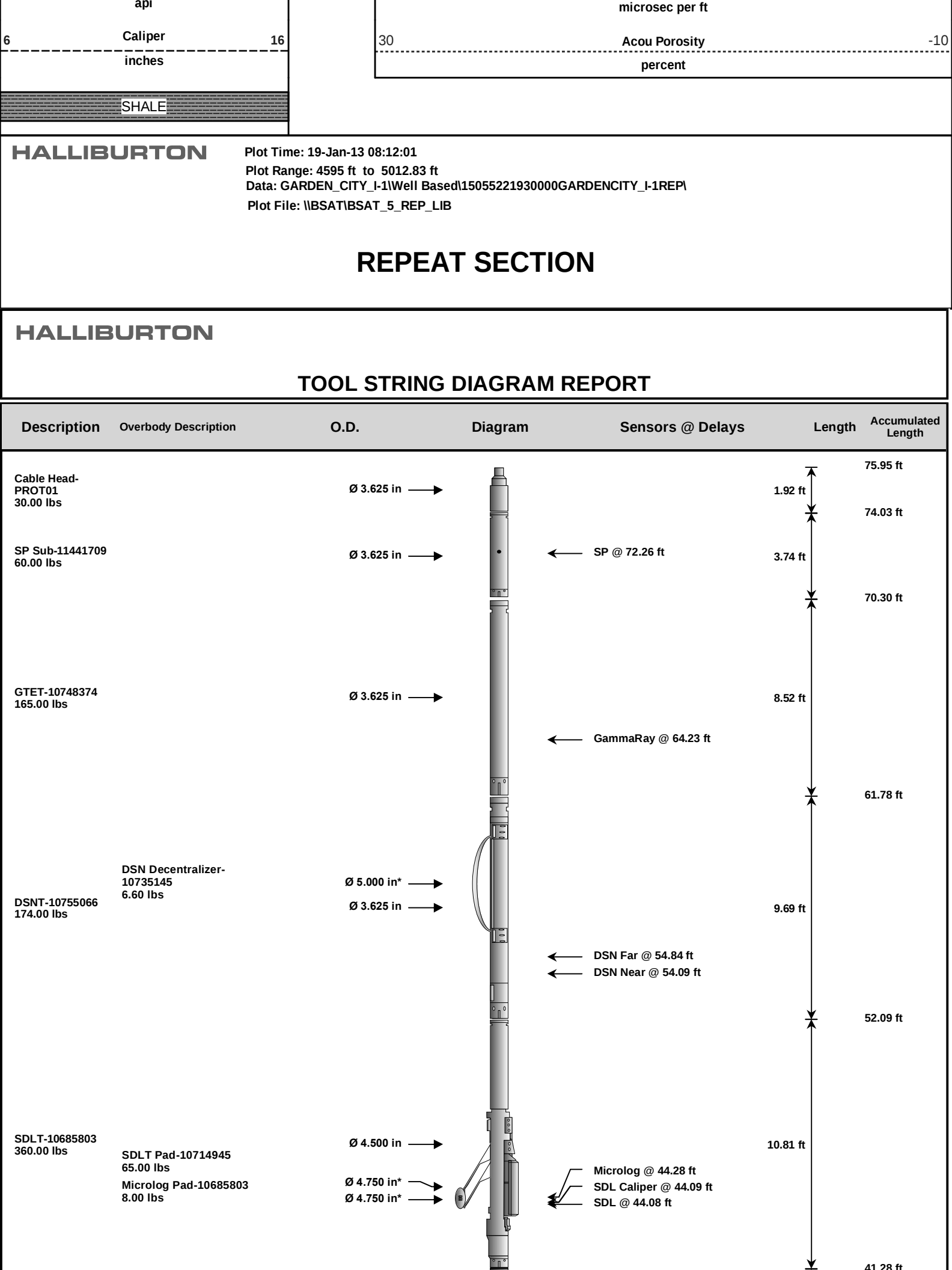
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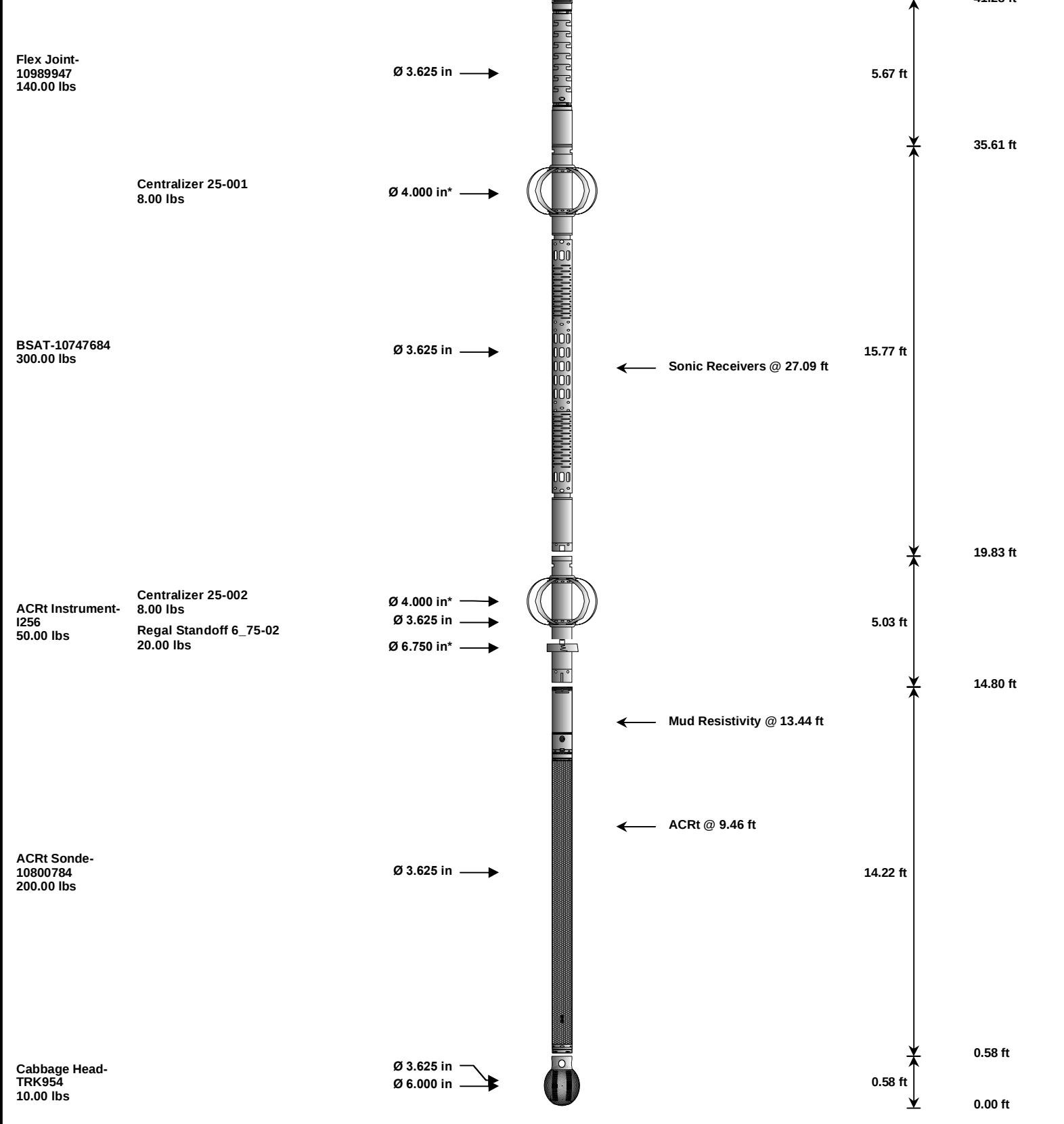


15K	Tension	0
	pounds	
0	Gamma API	150

1 : 240
ft

	ITTT
140	Delta-T
	40





Mnemonic		Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
CH	Standard OH Cable Head		PROT01	30.00	1.92	74.03	300.00
SP	SP Sub		11441709	60.00	3.74	70.30	300.00
GTET	Gamma Telemetry Tool		10748374	165.00	8.52	61.78	60.00
DSNT	Dual Spaced Neutron		10755066	174.00	9.69	52.09	60.00
DCNT	DSN Decentralizer		10735145	6.60	5.13	* 55.42	300.00
SDLT	Spectral Density Tool		10685803	360.00	10.81	41.28	60.00
SDLP	Density Insite Pad		10714945	65.00	2.55	* 43.49	60.00
MICP	Microlog Pad		10685803	8.00	1.00	* 43.78	60.00
FLEX	Flex Joint		10989947	140.00	5.67	35.61	300.00
BSAT	Borehole Sonic Array Tool		10747684	300.00	15.77	19.83	60.00
OBCEN	Centralizer - 25 in. Overbody		001	8.00	2.08	* 32.78	300.00
ACRt	Array Compensated True Resistivity Instrument Section		I256	50.00	5.03	14.80	300.00

RSOF	Regal Standoff 6.75in	02	20.00	0.52	*	16.05	300.00
OBCEN	Centralizer - 25 in. Overbody	002	8.00	2.08	*	16.96	300.00
ACRt	Array Compensated True Resistivity Sonde Section	10800784	200.00	14.22		0.58	300.00
CBHD	Cabbage Head	TRK954	10.00	0.58		0.00	300.00
Total			1,604.60	75.95			
* Not included in Total Length and Length Accumulation.							
Data: GARDEN_CITY_I-1\0001 SP-GTET-DSNT-SDLT-FLEX-BSAT-ACRT-CH\IDLE						Date: 19-Jan-13 03:42:54	

HALLIBURTON					
PARAMETERS REPORT					
Depth (ft))	Tool Name	Mnemonic	Description	Value	Units
TOP					
	SHARED	BS	Bit Size	7.875	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDBS	Mud Base	Water	
	SHARED	MDWT	Borehole Fluid Weight	9.200	ppg
	SHARED	WAGT	Weighting Agent	Natural	
	SHARED	BSAL	Borehole salinity	0.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	RMUD	Mud Resistivity	1.000	ohmm
	SHARED	TRM	Temperature of Mud	75.0	degF
	SHARED	CSD	Logging Interval is Cased?	No	
	SHARED	ICOD	AHV Casing OD	5.500	in
	SHARED	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	5095.00	ft
	SHARED	BHT	Bottom Hole Temperature	120.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	NONE	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	GTET	
	SHARED	TEMM	Temperature Master Tool	NONE	
	SHARED	BHSM	Borehole Size Master Tool	NONE	
	Rwa / CrossPlot	XPOK	Process Crossplot?	Yes	
	Rwa / CrossPlot	FCHO	Select Source of F	Automatic	
	Rwa / CrossPlot	AFAC	Archie A factor	0.6200	
	Rwa / CrossPlot	MFAC	Archie M factor	2.1500	
	Rwa / CrossPlot	RMFR	Rmf Reference	0.10	ohmm
	Rwa / CrossPlot	TMFR	Rmf Ref Temp	75.00	degF
	Rwa / CrossPlot	RWA	Resistivity of Formation Water	0.05	ohmm
	Rwa / CrossPlot	ADP	Use Air Porosity to calculate CrossplotPhi	No	
	GTET	GROK	Process Gamma Ray?	Yes	
	GTET	GRSO	Gamma Tool Standoff	0.000	in
	GTET	GEOK	Process Gamma Ray EVR?	No	
	GTET	TPOS	Tool Position for Gamma Ray Tools.	Eccentered	
	DSNT	DNOK	Process DSN?	Yes	
	DSNT	DEOK	Process DSN EVR?	No	
	DSNT	NLIT	Neutron Lithology	Limestone	
	DSNT	DNSO	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.250	in

DSNT	DNTP	Temperature Correction Type	None	
DSNT	DPRS	DSN Pressure Correction Type	None	
DSNT	SHCO	View More Correction Options	No	
DSNT	UTVD	Use TVD for Gradient Corrections?	No	
DSNT	LHWT	Logging Horizontal Water Tank?	No	
SDLT	CLOK	Process Caliper Outputs?	Yes	
SDLT Pad	DNOK	Process Density?	Yes	
SDLT Pad	DNOK	Process Density EVR?	No	
SDLT Pad	CB	Logging Calibration Blocks?	No	
SDLT Pad	SPVT	SDLT Pad Temperature Valid?	Yes	
SDLT Pad	DTWN	Disable temperature warning	No	
SDLT Pad	DMA	Formation Density Matrix	2.710	g/cc
SDLT Pad	DFL	Formation Density Fluid	1.000	g/cc
Microlog Pad	MLOK	Process MicroLog Outputs?	Yes	
BSAT	MBOK	Compute BCAS Results?	Yes	
BSAT	FLLO	Frequency Filter Low Pass Value?	5000	Hz
BSAT	FLHI	Frequency Filter High Pass Value?	27000	Hz
BSAT	DTFL	Delta -T Fluid	189.00	uspf
BSAT	DTMT	Delta -T Matrix Type	User define	
BSAT	DTMA	Delta -T Matrix	47.60	uspf
BSAT	DTSH	Delta -T Shale	100.00	uspf
BSAT	SPEQ	Acoustic Porosity Equation	Wylie	
ACRt Sonde	RTOK	Process ACRt?	Yes	
ACRt Sonde	MNSO	Minimum Tool Standoff	1.50	in
ACRt Sonde	TCS1	Temperature Correction Source	FP Lwr & FP Up	
ACRt Sonde	TPOS	Tool Position	Free Hanging	
ACRt Sonde	RMOP	Rmud Source	Mud Cell	
ACRt Sonde	RMIN	Minimum Resistivity for MAP	0.20	ohmm
ACRt Sonde	RMIN	Maximum Resistivity for MAP	200.00	ohmm
ACRt Sonde	THQY	Threshold Quality	0.50	
ACRt Sonde	MRFX	Fixed mud resistivity	2000	ohmm

BOTTOM

Data: GARDEN_CITY_I-1\0001 SP-GTET-DSNT-SDLT-FLEX-BSAT-ACRT-CHI005 19-Jan-13 05:18 Up @5011.8f

Date: 19-Jan-13 06:34:36

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	GTET - 10748374	Reference Calibration Date:	19-Dec-12 08:49:49
Engineer:	T. HYDE	Calibration Date:	17-Jan-13 13:03:23
Software Version:	WL INSITE R3.6.0 (Build 3)	Calibration Version:	1

Calibrator Source S/N: TB-185

Calibrator API Reference:228.00 api

Equivalent Calibrator API Reference:232.0 api

Measurement	Measured	Calibrated	Units
Background	47.0	47.4	api
Background + Calibrator	277.4	279.4	api
Calibrator	230.4	232.0	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name:	GTET - 10748374	Reference Calibration Date:	17-Jan-13 13:03:23
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Engineer: T. HYDE		Calibration Date: 17-Jan-13 13:06:37				
Software Version: WL INSITE R3.6.0 (Build 3)		Calibration Version: 1				
Calibrator Source S/N: TB-185						
Calibrator API Reference:228.00 api						
Equivalent Calibrator API Reference:232.0 api						
Field Verification		Shop	Field	Units		
Background		47.4	47.8	api		
Background + Calibrator		279.4	282.5	api		
Calibrator		232.0	234.7	api		
Shop		Field	Difference	Tolerance		
232.0		234.7	-2.7	+/- 9.00		
CALIBRATION SUMMARY						
Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-10748374						
Gamma Ray Calibrator	232.0	234.7	-----	-2.7	+/- 9.00	api
Data: GARDEN_CITY_I-1\0001 SP-GTET-DSNT-SDLT-FLEX-BSAT-ACRT-CH\005 19-Jan-13 05:18 Up @5011.8f					Date: 19-Jan-13 06:37:29	

HALLIBURTON					
INPUTS, DELAYS AND FILTERS TABLE					
Mnemonic		Input Description	Delay (ft)	Filter Type	Filter Length (ft)
Depth Panel					
TENS	Tension		0.00	NO	
SP Sub					
PLTC	Plot Control Mask		72.25	NO	
SP	Spontaneous Potential		72.25	BLK	1.250
SPR	Raw Spontaneous Potential		72.25	NO	
SPO	Spontaneous Potential Offset		72.25	NO	
GTET					
TPUL	Tension Pull		64.23	NO	
GR	Natural Gamma Ray API		64.23	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API		64.23	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution		64.23	W	1.416 , 0.750
ACCZ	Accelerometer Z		0.00	BLK	0.083
DEVI	Inclination		0.00	NO	
DSNT					
TPUL	Tension Pull		53.99	NO	
RNDS	Near Detector Telemetry Counts		54.09	BLK	1.417
RFDS	Far Detector Telemetry Counts		54.84	TRI	0.583
DNTT	DSN Tool Temperature		54.09	NO	
DSNS	DSN Tool Status		53.99	NO	
ERND	Near Detector Telemetry Counts EVR		54.09	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR		54.84	BLK	0.000
ENTM	DSN Tool Temperature EVR		54.09	NO	
SDLT					
TPUL	Tension Pull		44.09	NO	

PCAL	Pad Caliper	44.09	TRI	0.250
ACAL	Arm Caliper	44.09	TRI	0.250
BSAT				
TPUL	Tension Pull	27.09	NO	
STAT	Status	27.09	NO	
DLYT	Delay Time	27.09	NO	
SI	Sample Interval	27.09	NO	
TXRX	Raw Telemetry 10 Receivers	27.09	NO	
FRMC	Tool Frame Count	27.09	NO	
GMOD	Gain processing mode	19.83	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

CRN	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	
SDLT Pad				
TPUL	Tension Pull	44.08	NO	
NAB	Near Above	43.90	BLK	0.920
NHI	Near Cesium High	43.90	BLK	0.920
NLO	Near Cesium Low	43.90	BLK	0.920
NVA	Near Valley	43.90	BLK	0.920
NBA	Near Barite	43.90	BLK	0.920
NDE	Near Density	43.90	BLK	0.920
NPK	Near Peak	43.90	BLK	0.920
NLI	Near Lithology	43.90	BLK	0.920
NBAU	Near Barite Unfiltered	43.90	BLK	0.250
NLIU	Near Lithology Unfiltered	43.90	BLK	0.250
FAB	Far Above	44.26	BLK	0.250
FHI	Far Cesium High	44.26	BLK	0.250
FLO	Far Cesium Low	44.26	BLK	0.250
FVA	Far Valley	44.26	BLK	0.250
FBA	Far Barite	44.26	BLK	0.250
FDE	Far Density	44.26	BLK	0.250
FPK	Far Peak	44.26	BLK	0.250
FLI	Far Lithology	44.26	BLK	0.250
PTMP	Pad Temperature	44.09	BLK	0.920
NHV	Near Detector High Voltage	43.49	NO	
FHV	Far Detector High Voltage	43.49	NO	
ITMP	Instrument Temperature	43.49	NO	
DDHV	Detector High Voltage	43.49	NO	
Microlog Pad				
TPUL	Tension Pull	44.28	NO	
MINV	Microlog Lateral	44.28	BLK	0.750
MNOR	Microlog Normal	44.28	BLK	0.750
Data: GARDEN_CITY_I-1\0001 SP-GTET-DSNT-SDLT-FLEX-BSAT-ACRT-CH\005 19-Jan-13 05:18 Up @5011.8f			Date: 19-Jan-13 06:32:27	

COMPANY	OXY USA INC.		
WELL	GARDEN CITY I-1		
FIELD	GARDEN CITY		
COUNTY	FINNEY	STATE	KANSAS
HALLIBURTON		BOREHOLE COMPENSATED SONIC ARRAY LOG	