

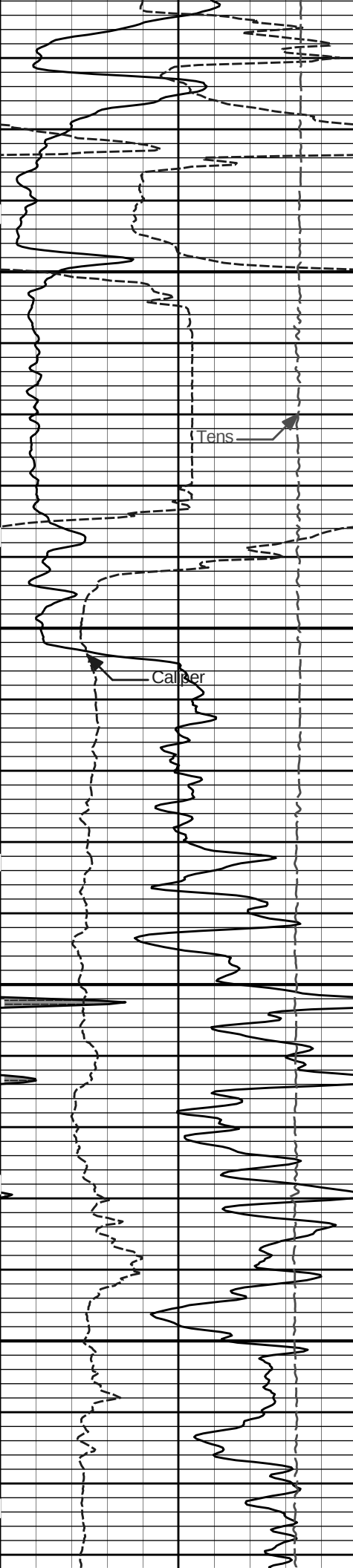
HALLIBURTON

BOREHOLE COMPENSATED SONIC ARRAY LOG

COMPANY				OXY USA INC.			
WELL				GARDEN CITY V-4			
FIELD				GARDEN CITY			
COUNTY				FINNEY			
STATE				KANSAS			
Permanent Datum Log measured from Drilling measured from	GL KB KB	Sect. 27	Twp. 23S	Rge. 34W	COMPANY OXY USA INC.		
					WELL GARDEN CITY V-4		
					FIELD GARDEN CITY		
					COUNTY FINNEY		
					STATE KANSAS		
					API No. 15055221760000		
					Location 2140' FNL & 1810' FWL NE SW SE NW		
					Other Services: MICROLOG DSNT, SDLT ACRT		
Date	02-Jan-13						
Run No.	ONE						
Depth - Driller	5128.00 ft						
Depth - Logger	5112.0 ft						
Bottom - Logged Interval	5085.0 ft						
Top - Logged Interval	1831.0 ft						
Casing - Driller	8.625 in @ 1833.0 ft						
Casing - Logger	1831.0 ft						
Bit Size	7.875 in						
Type Fluid in Hole	WATER BASED MUD						
Density	9.1 ppg	53.00	s/qt				
PH	11.10 pH	8.4	cp/m				
Source of Sample	MUD PIT						
Rm @ Meas. Temperature	0.600 ohmm @ 75.00 degF						
Rmf @ Meas. Temperature	0.52 ohmm @ 75.00 degF						
Rmc @ Meas. Temperature	0.780 ohmm @ 75.00 degF						
Source Rmf	MEASURED	MEASURED					
Rm @ BHT	0.60 ohmm @ 75.0 degF						
Time Since Circulation	5.0 hr						
Time on Bottom	02-Jan-13 11:30						
Max. Rec. Temperature	110.0 degF @ 5112.0 ft						
Equipment	10546696	LIBERAL					
Recorded By	J. BOLLOW						
Witnessed By	A. GARNER	B. KEMP					

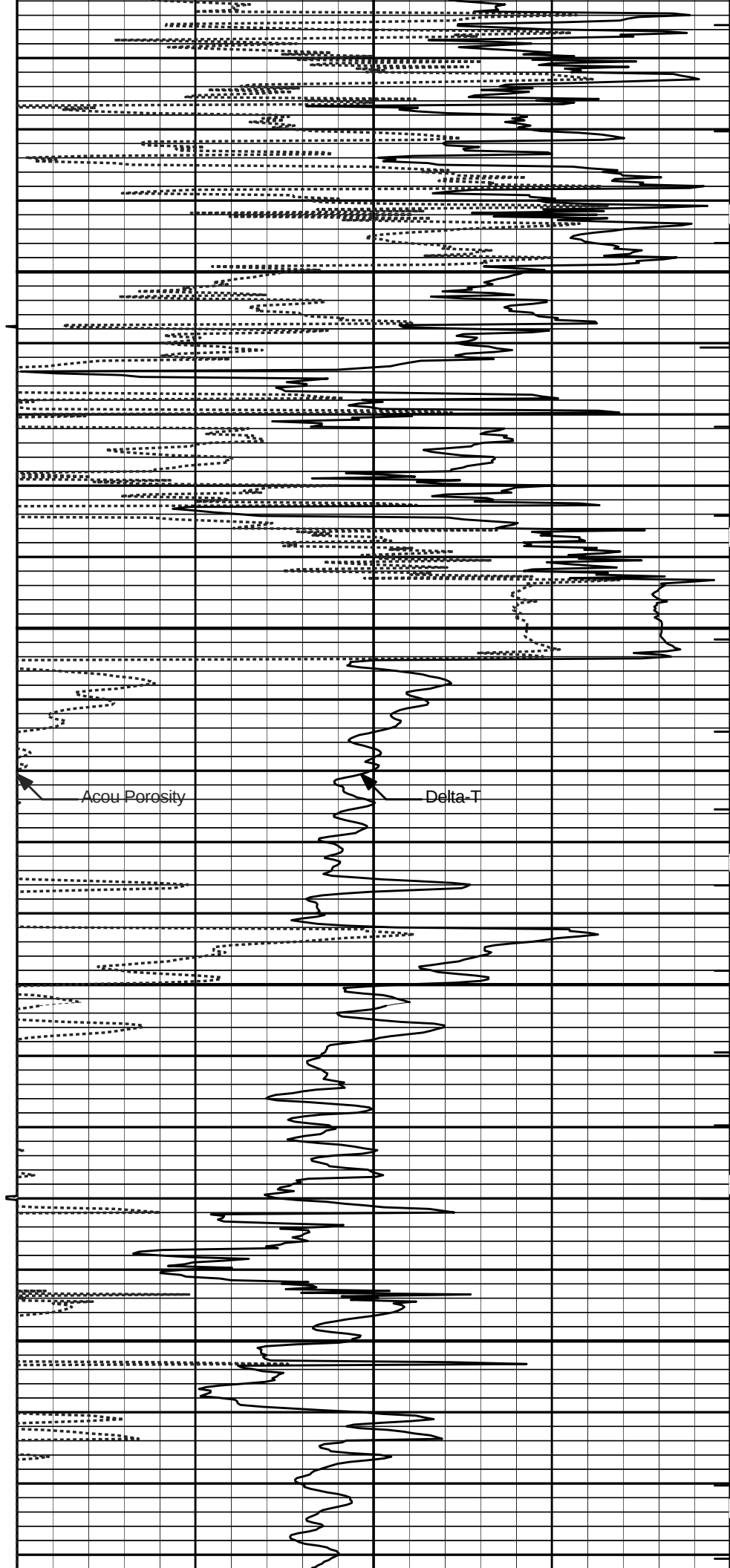
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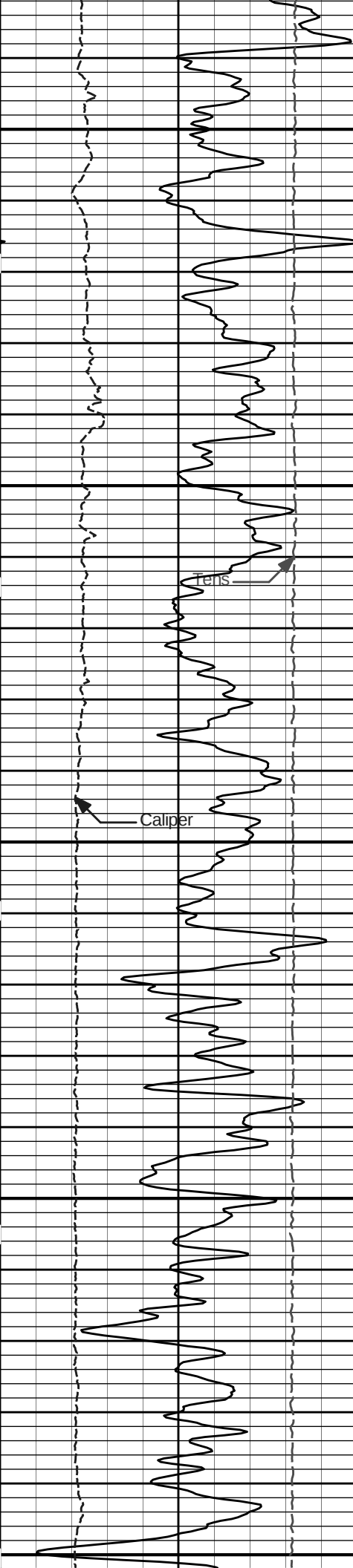
Service Ticket No.: 900096201					API Serial No.: 15055221760000					PGM Version: WL INSITE R3.6.0 (Build 3)				
CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE							RESISTIVITY SCALE CHANGES							
Date	Sample No.						Type Log	Depth	Scale Up Hole		Scale Down Hole			
Depth-Driller														
Type Fluid 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.		@		@										
Rmc @ Meas. Temp.		@		@										
Source Rmf	Rmc													
Rm @ BHT		@		@										
Rmf @ BHT		@		@										
Rmc @ BHT		@		@										
EQUIPMENT DATA														
GAMMA			ACOUSTIC				DENSITY			NEUTRON				
Run No.	ONE		Run No.	ONE		Run No.			Run No.					
Serial No.	11048627		Serial No.	10747684		Serial No.			Serial No.					
Model No.	GTET		Model No.	BSAT		Model No.			Model No.					
Diameter	3.625"		No. of Cent.	2		Diameter			Diameter					
Detector Model No.	GTET		Spacing	6"		Log Type			Log Type					
Type	SCINT					Source Type			Source Type					
Length	8'		LSA [Y/N]	NO		Serial No.			Serial No.					
Distance to Source	10'		FWDA [Y/N]	NO		Strength			Strength					



1900

2000





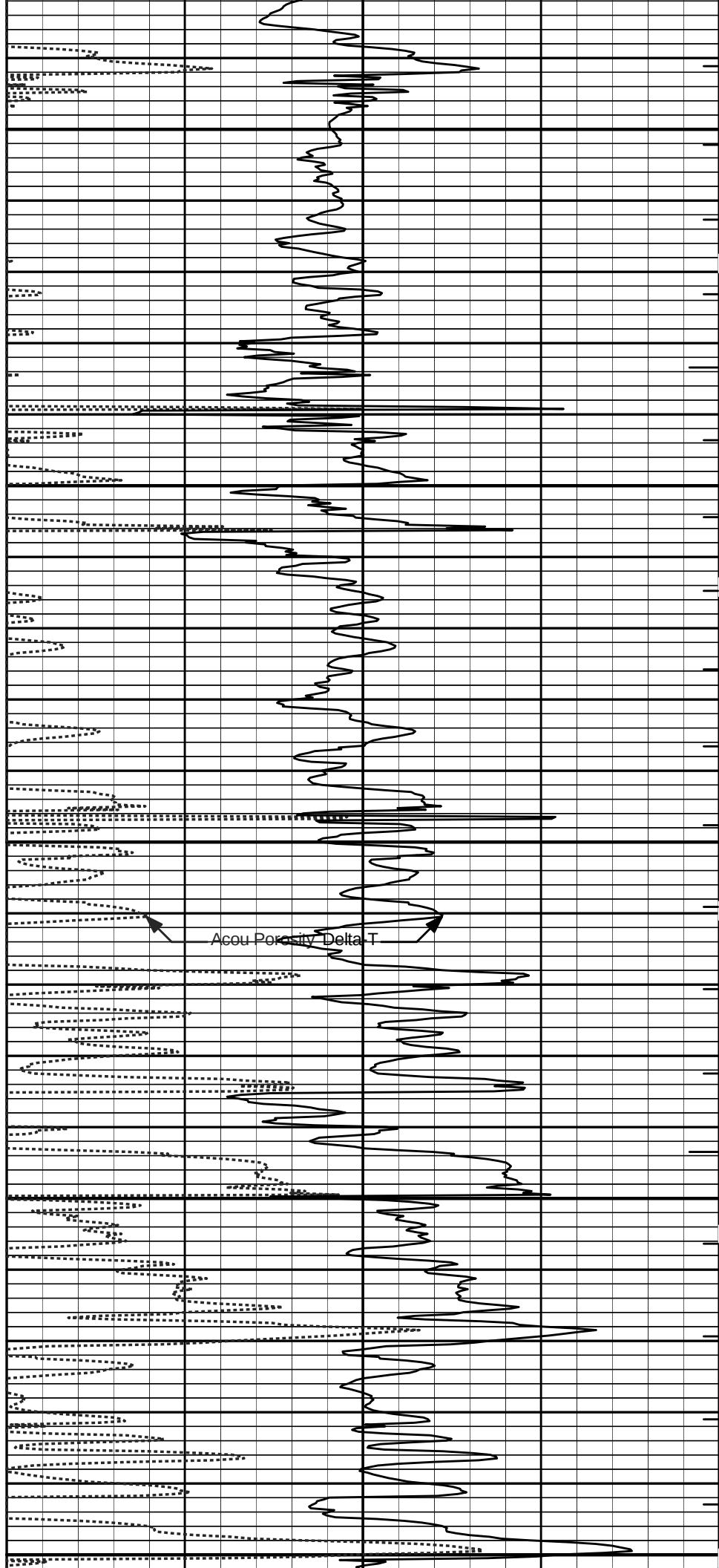
2100

Tens

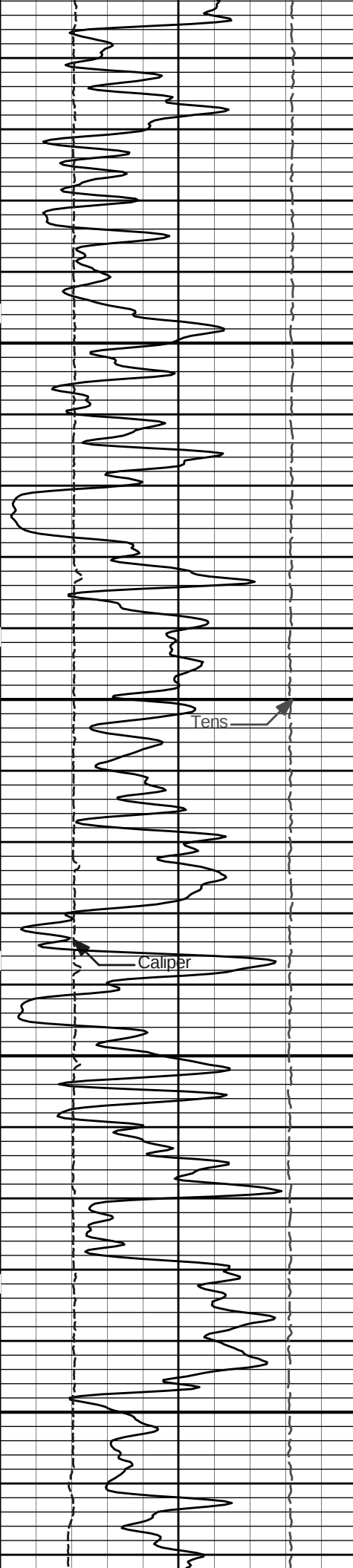
Caliper

2200

2300

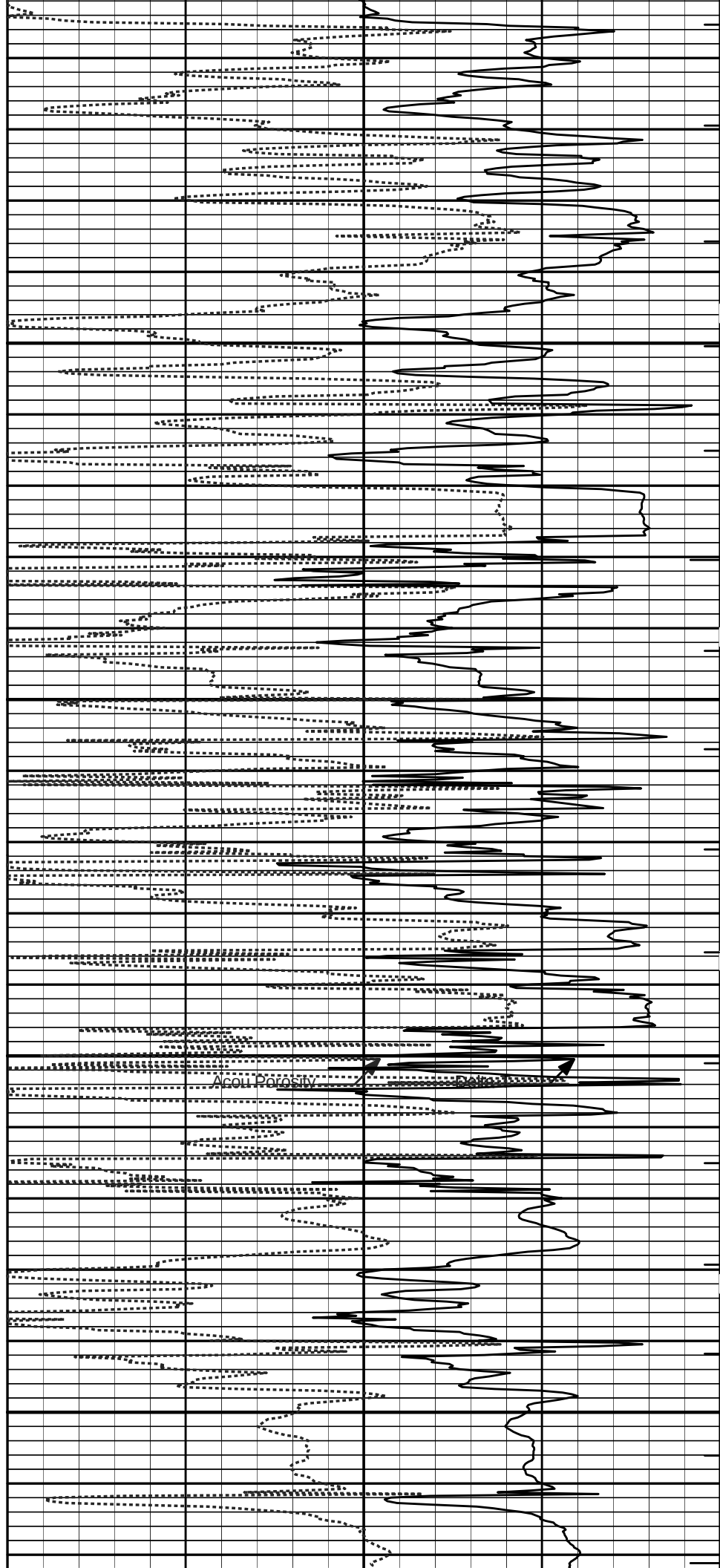


Acou Porosity Delta T



2400

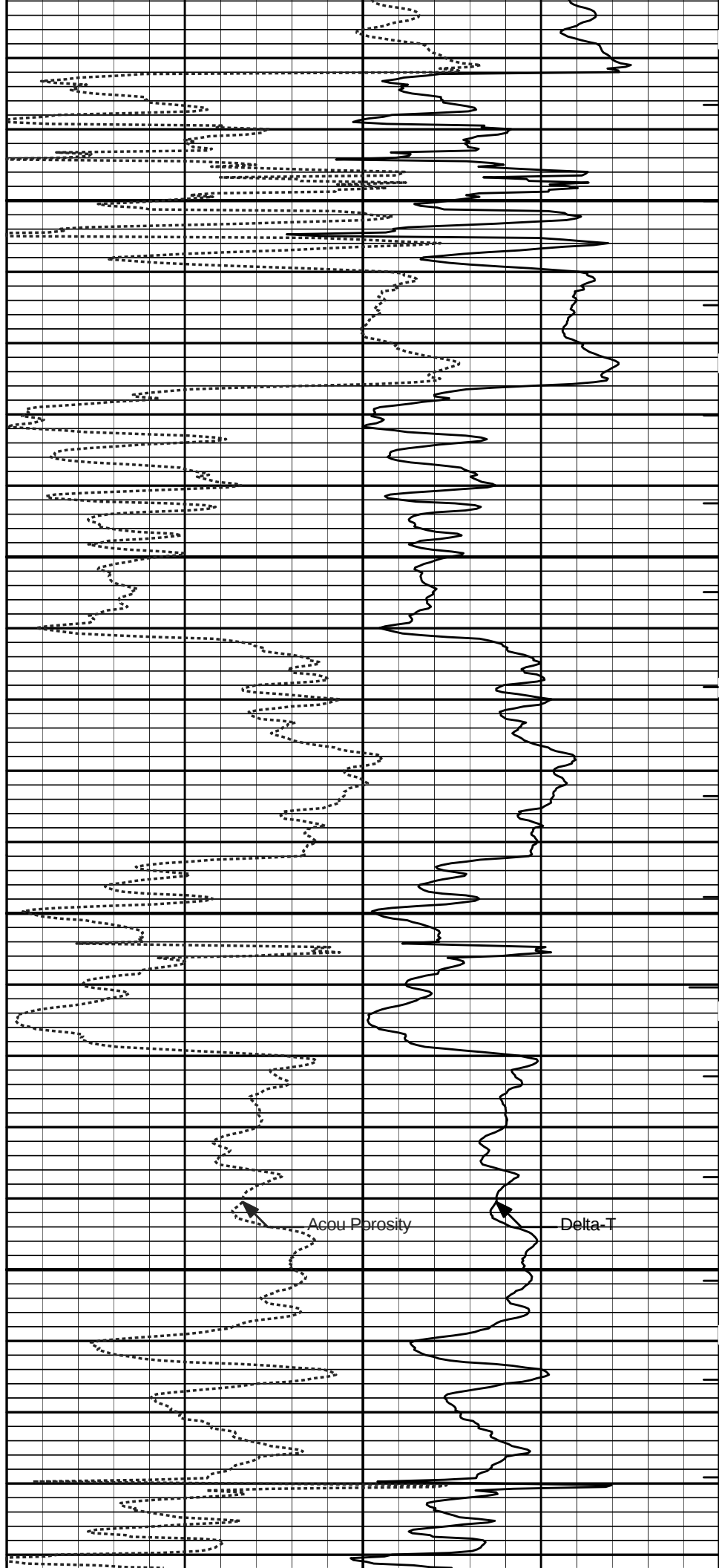
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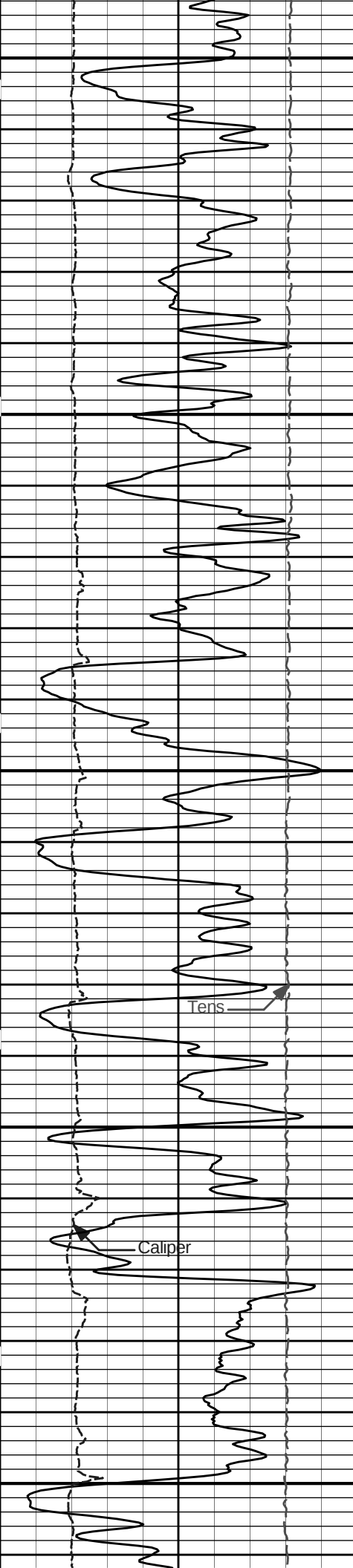




2600

2700



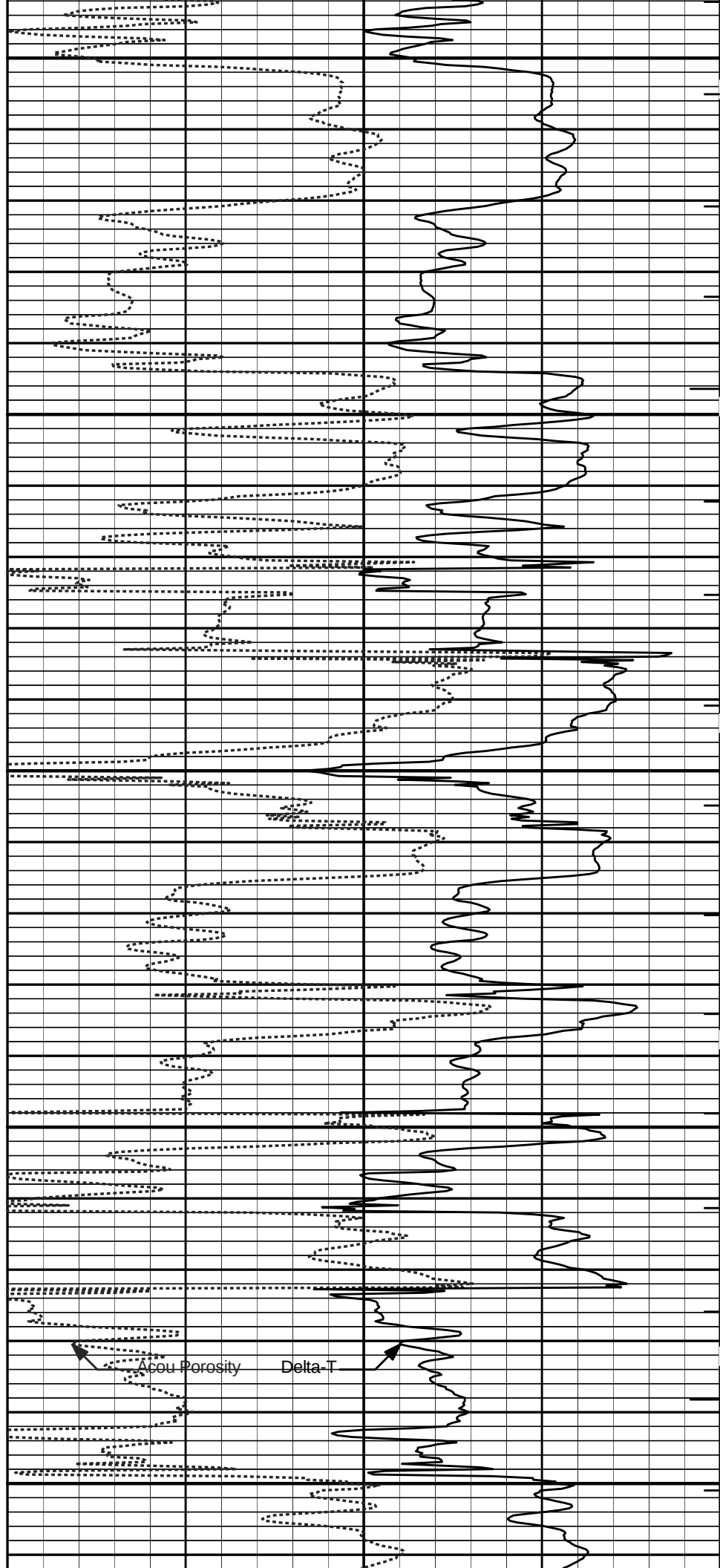


2800

2900

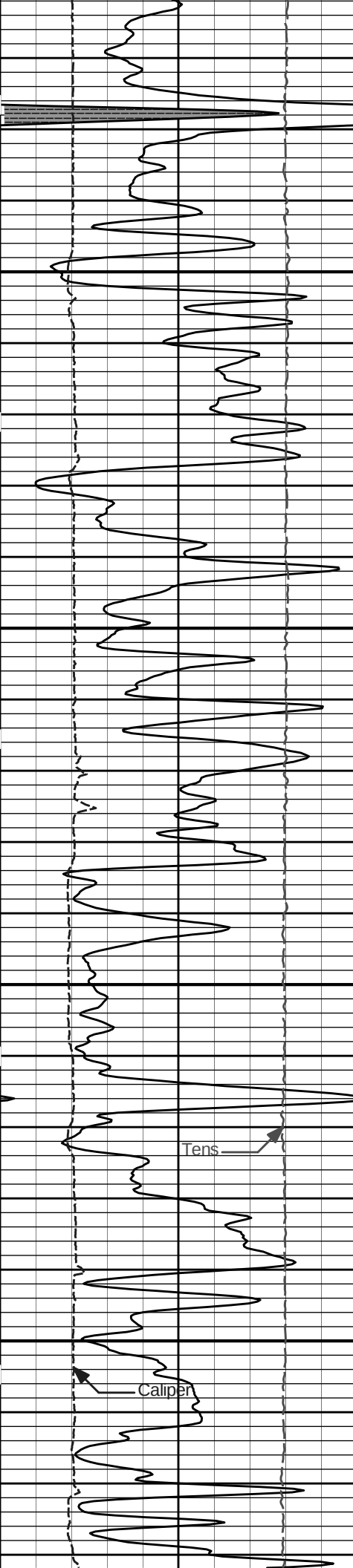
Ters

Caliper



Acou Porosity

Delta-T

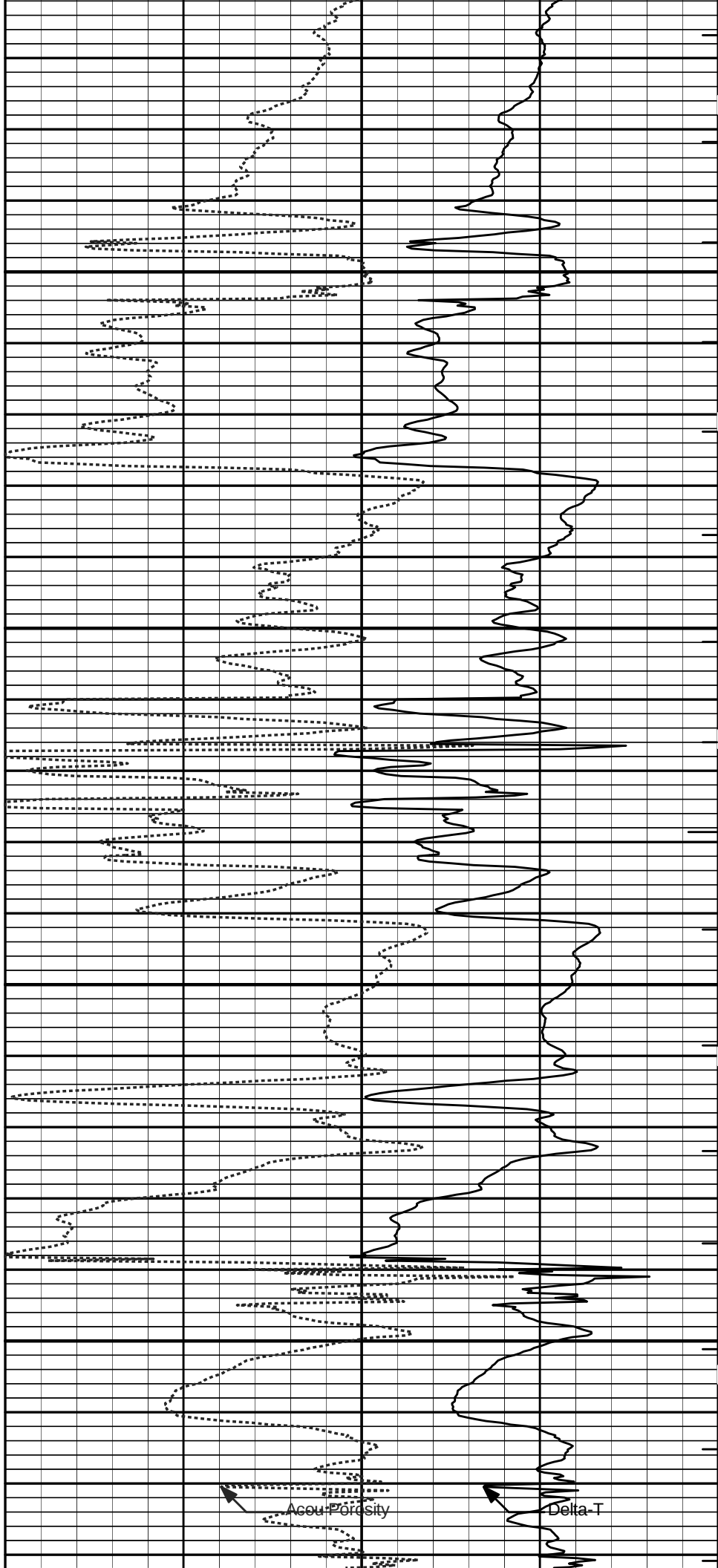


3000

3100

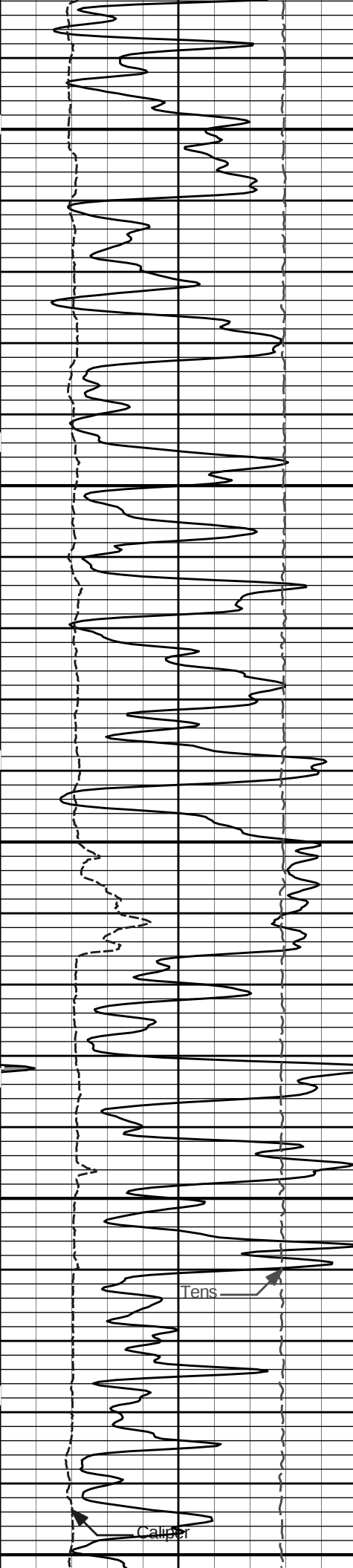
Tens

Caliper



Acoustic Porosity

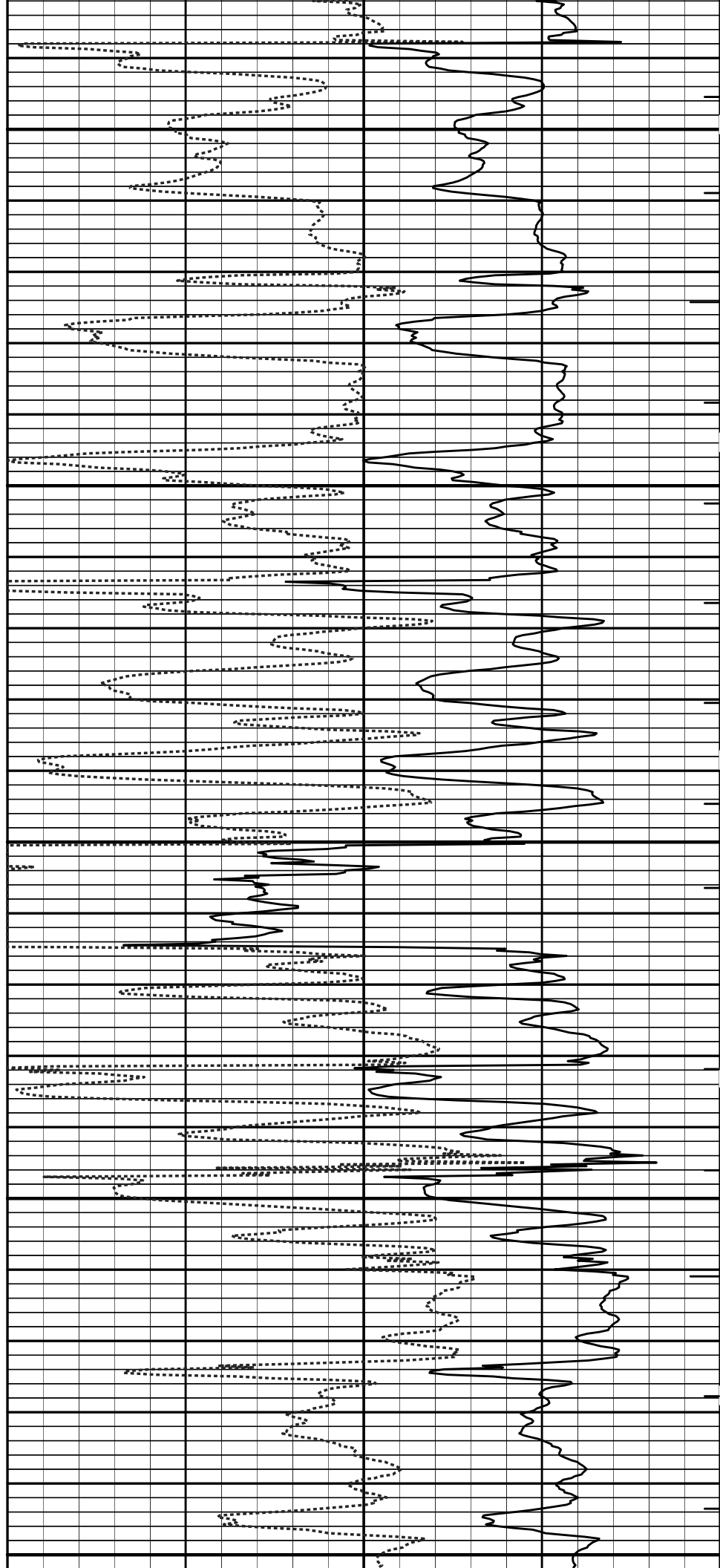
Delta-T



3200

3300

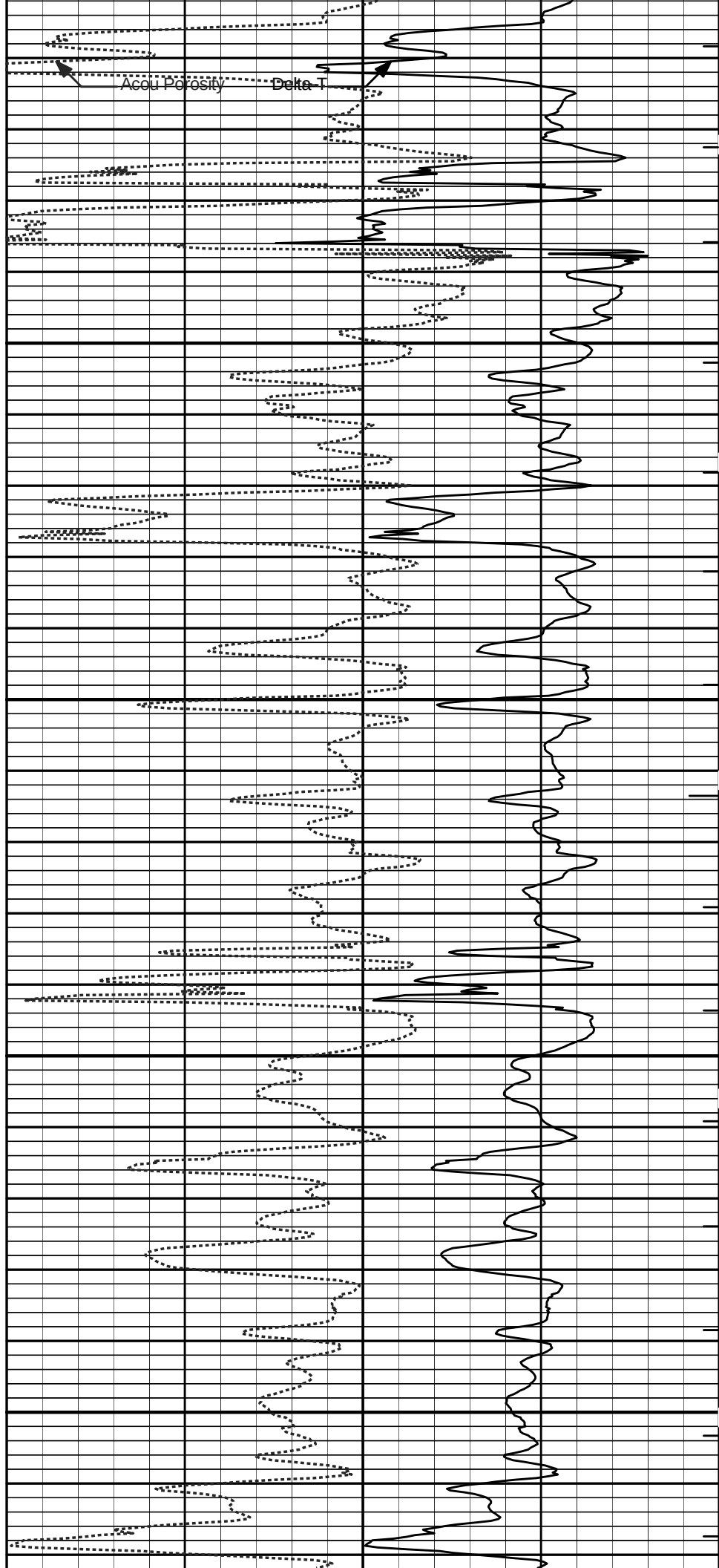
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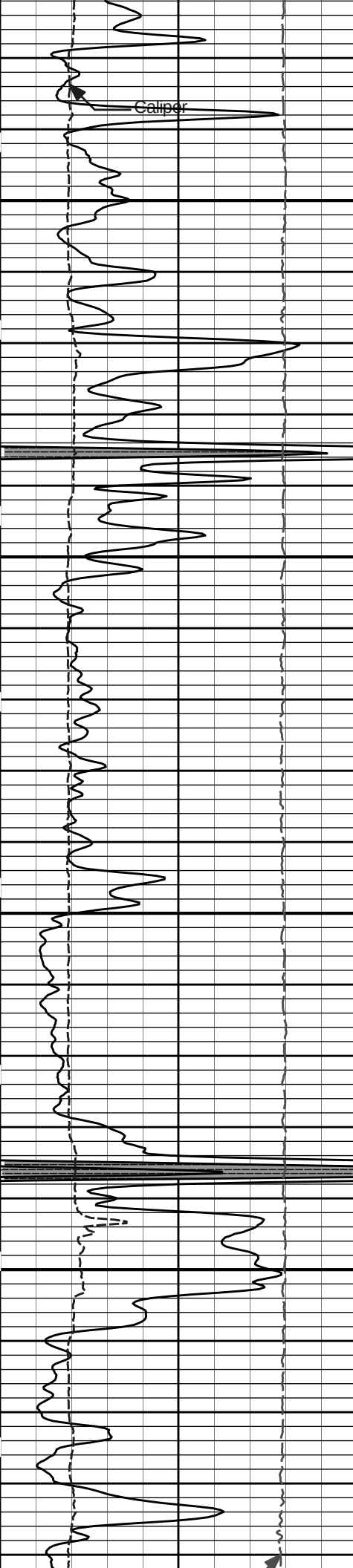




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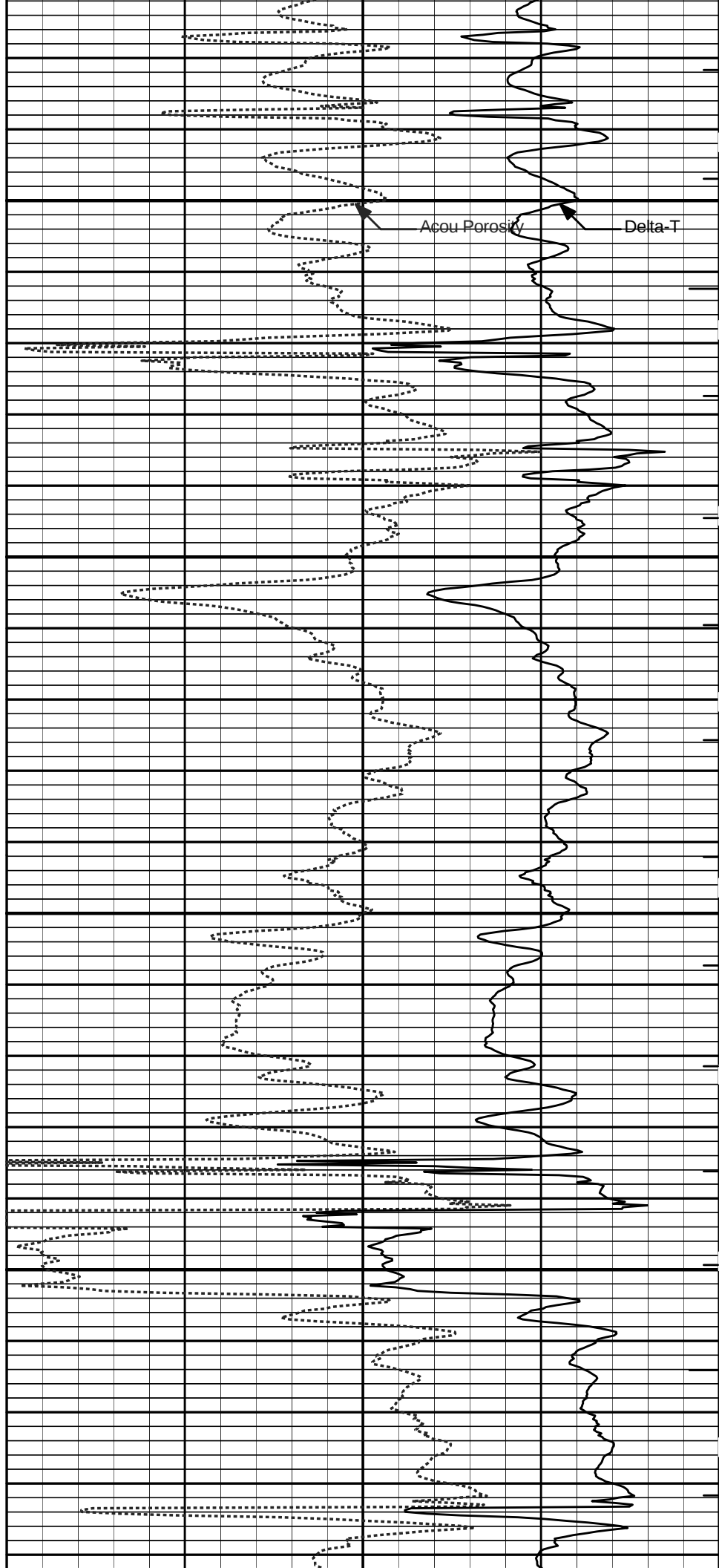
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3700

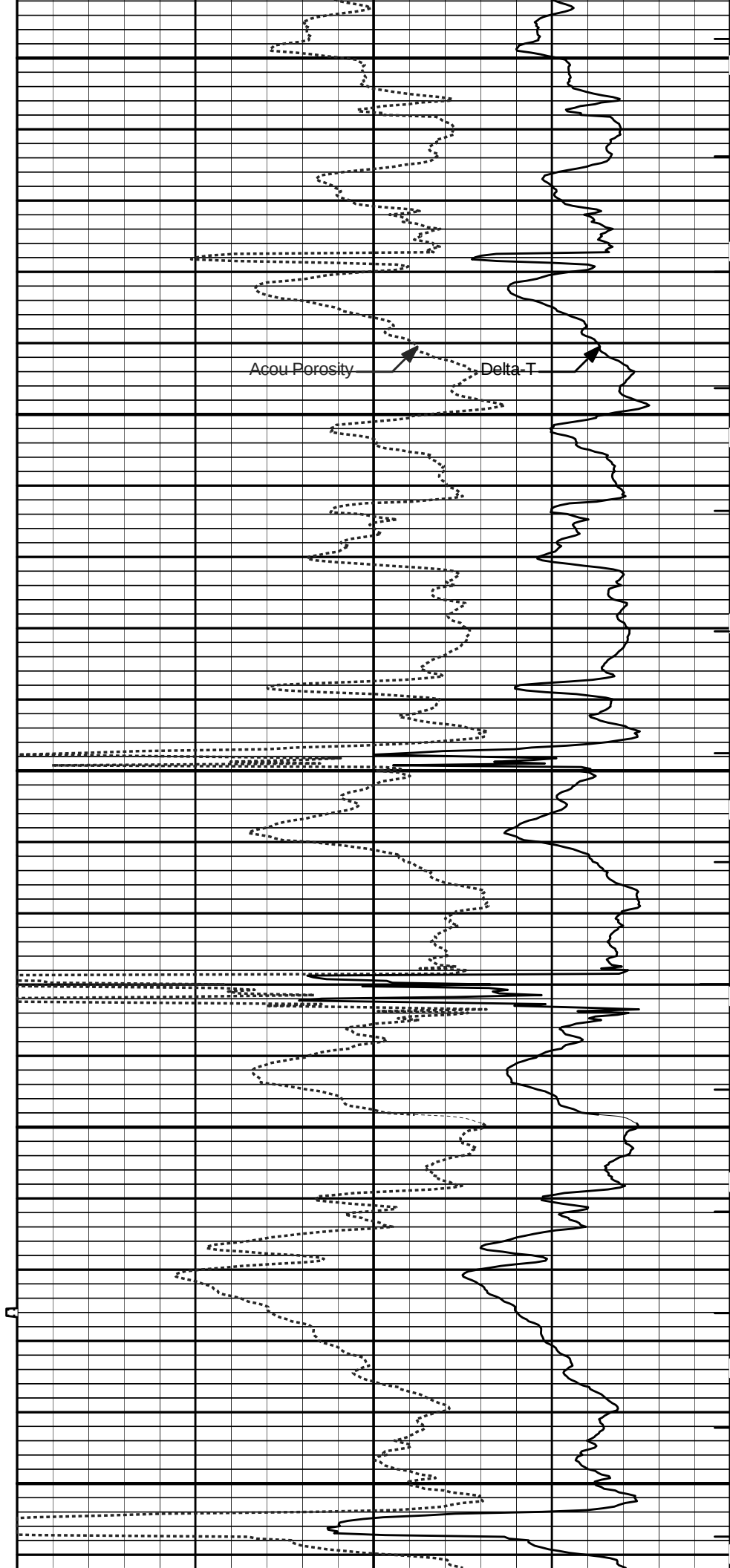
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3900

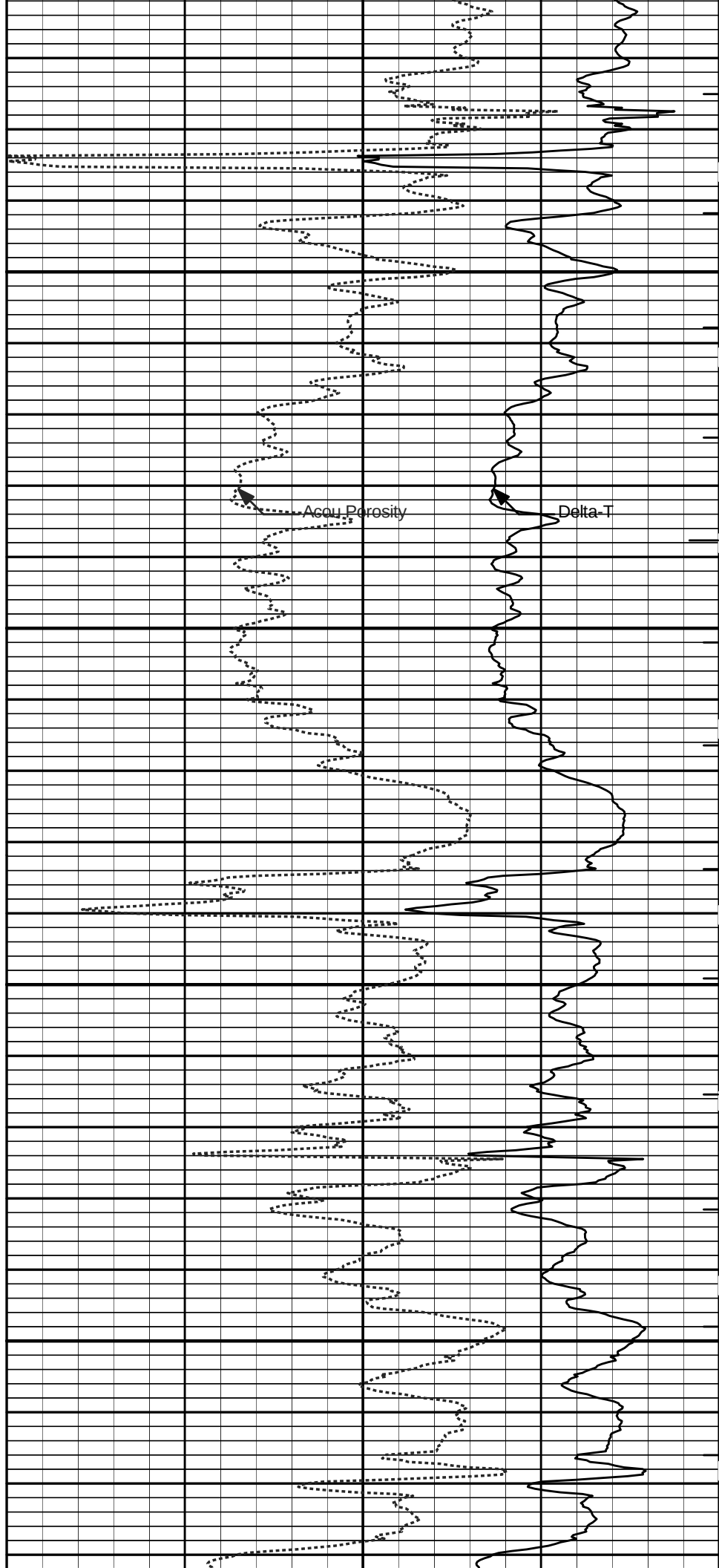
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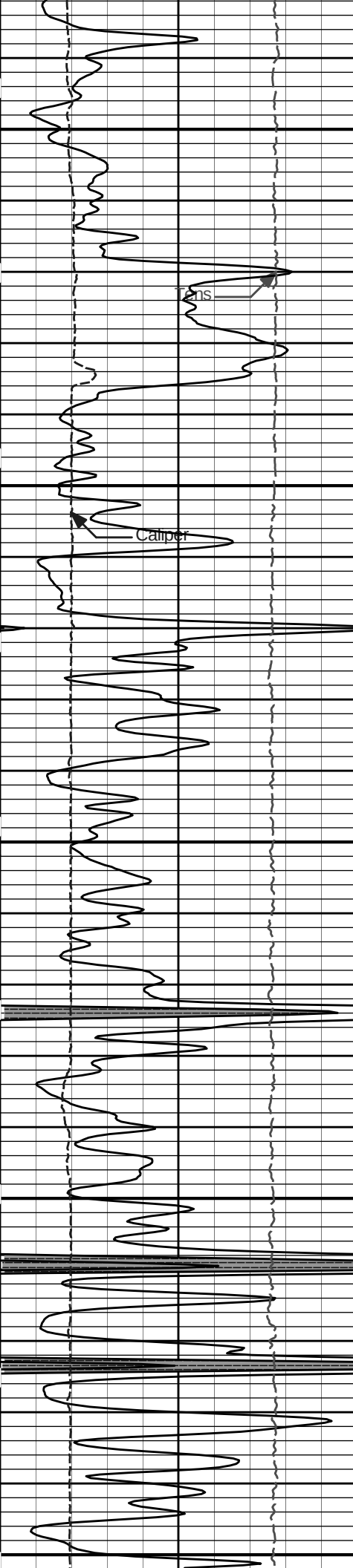




4100

4200

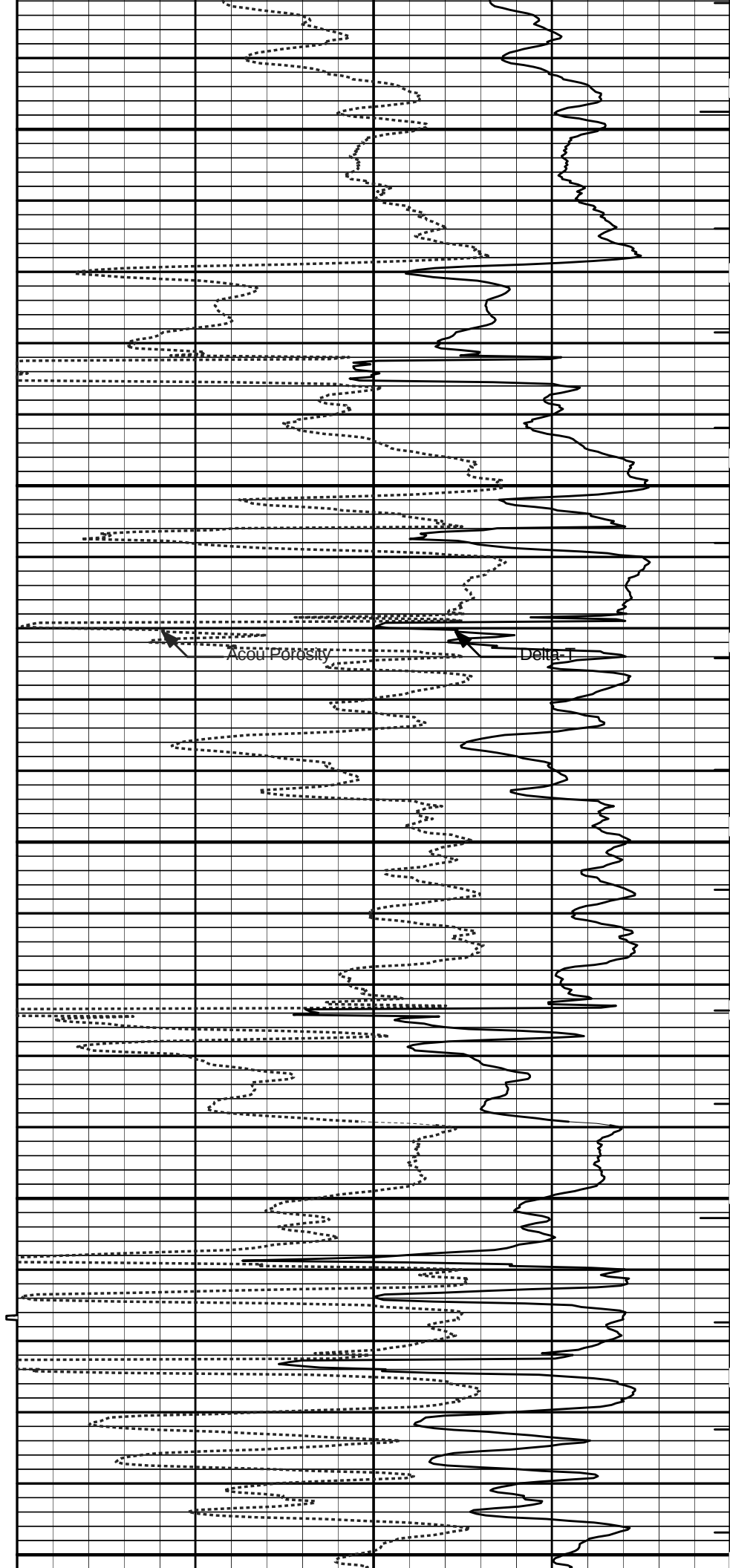


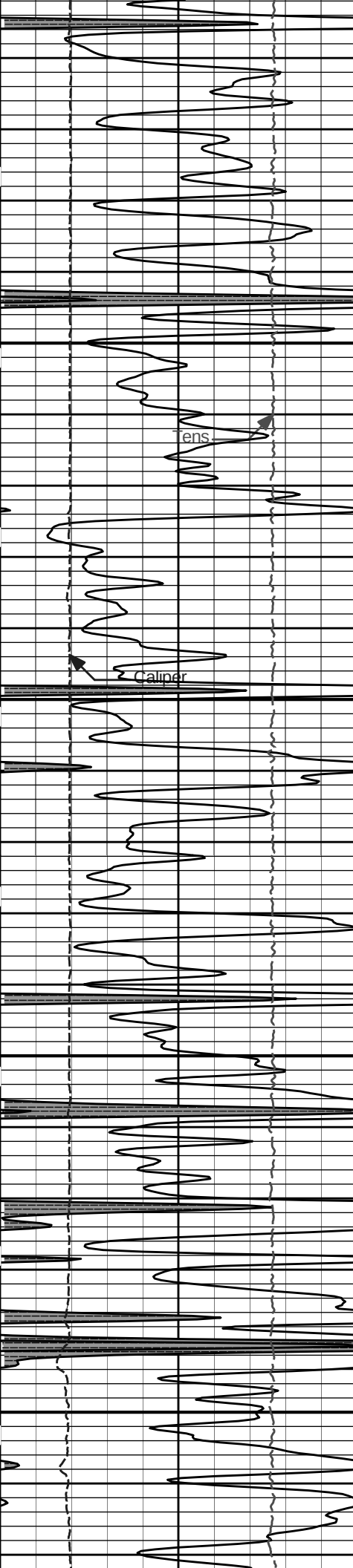


4300

4400

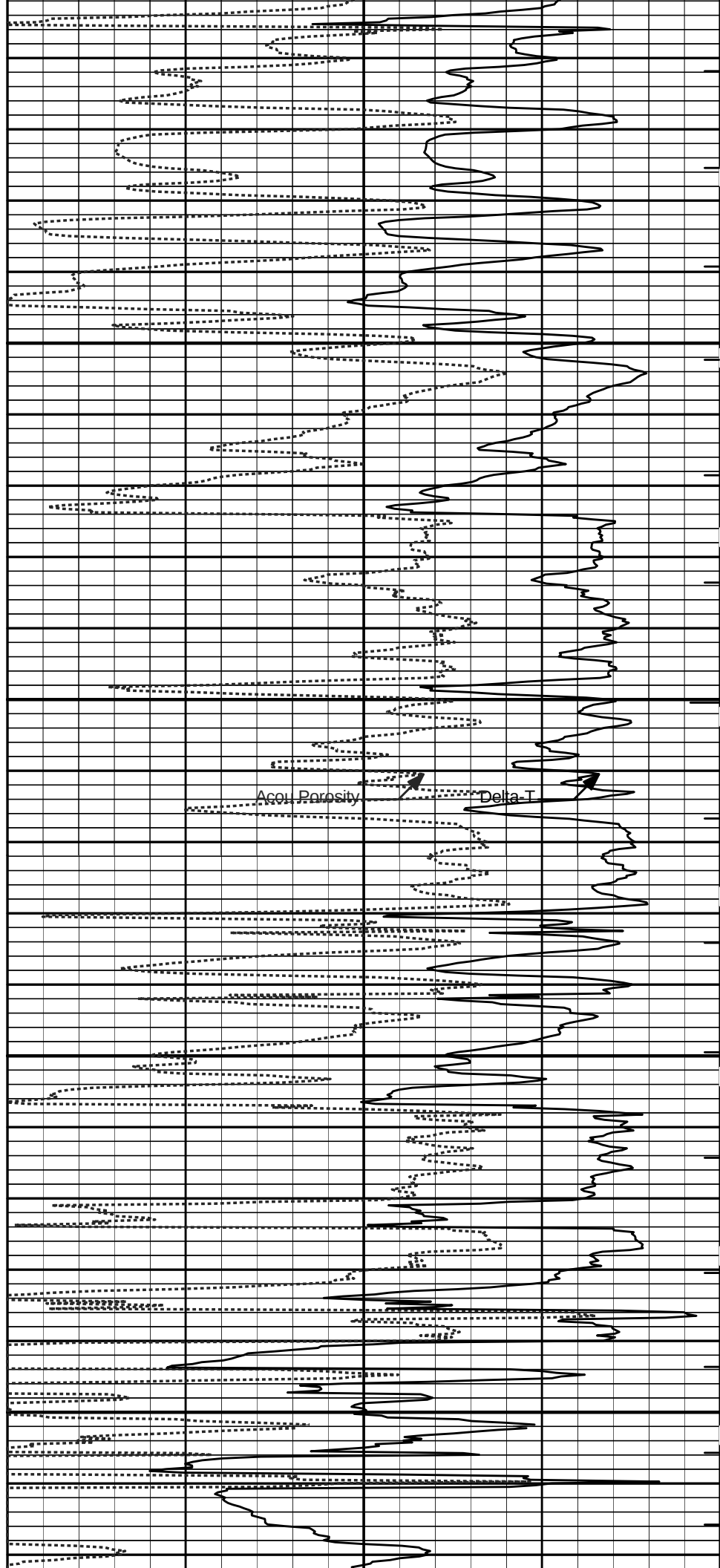
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4600

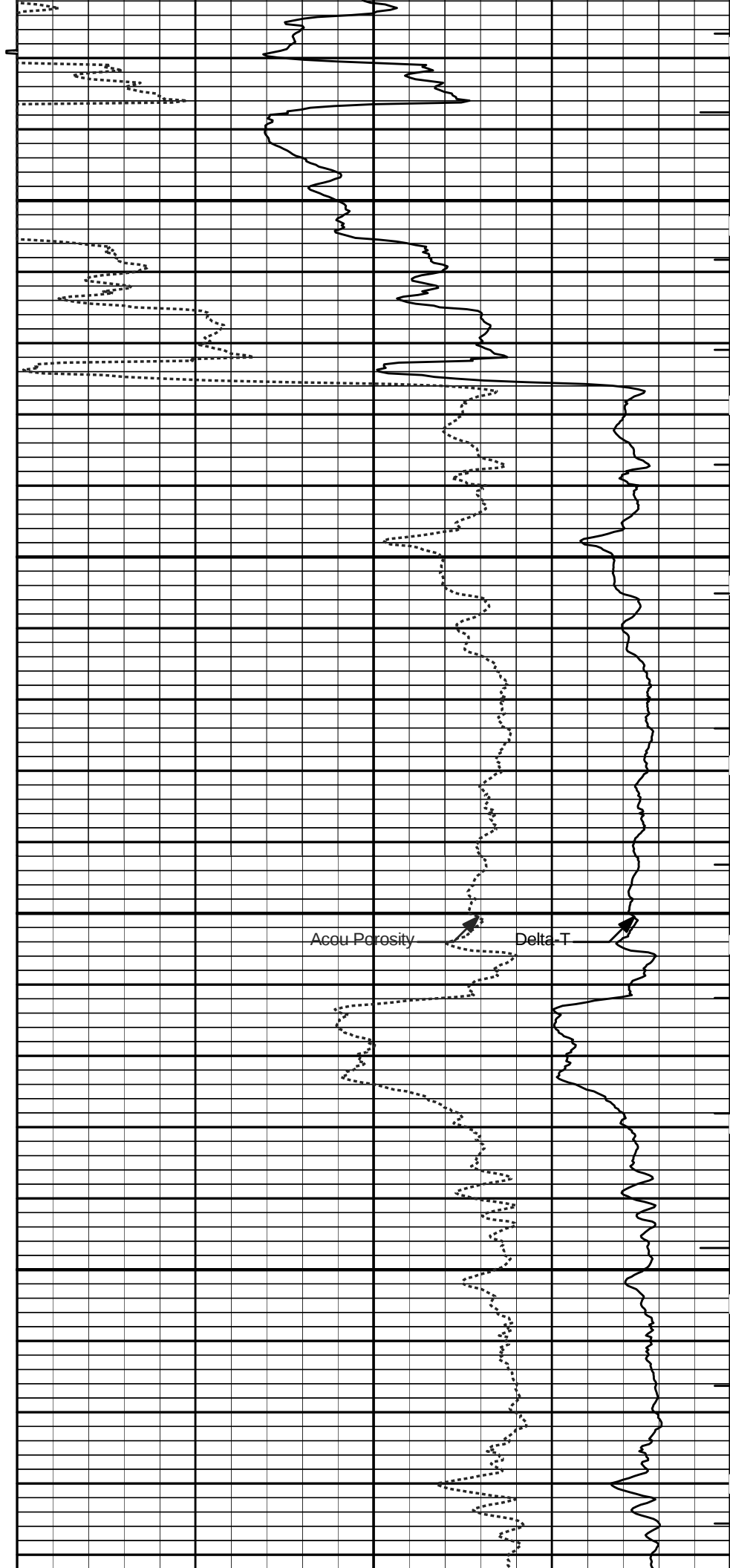
4700

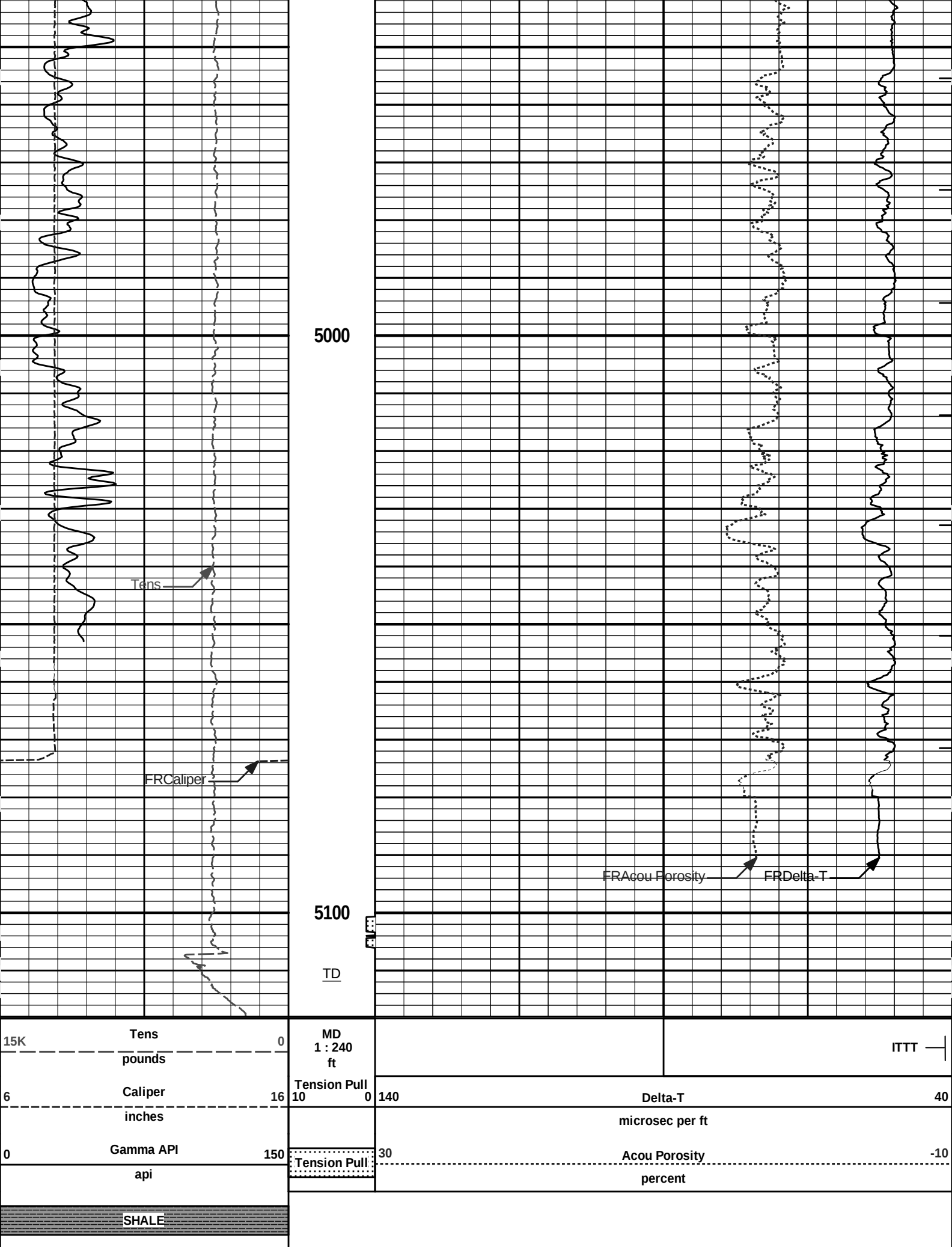




4800

4900



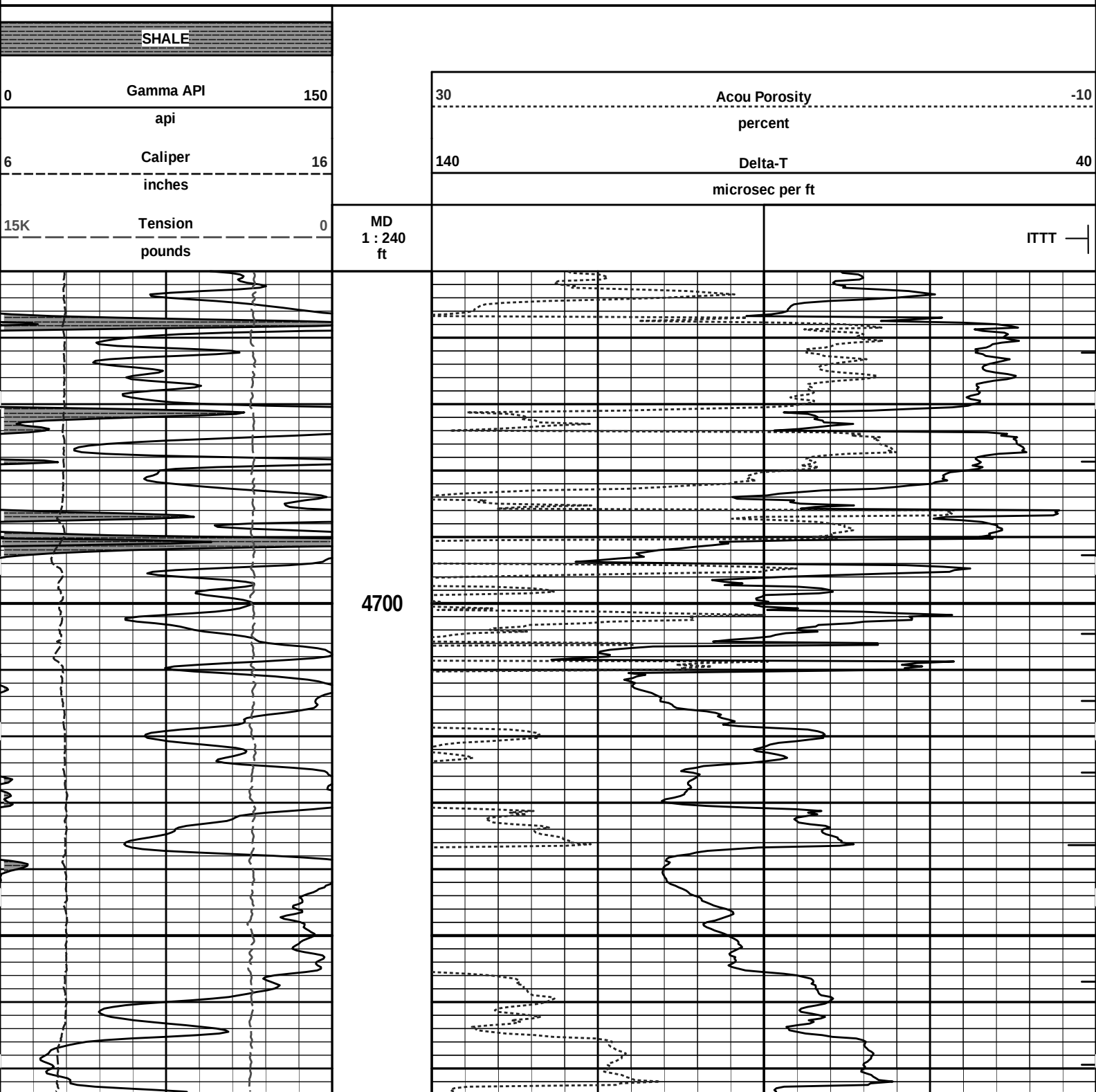


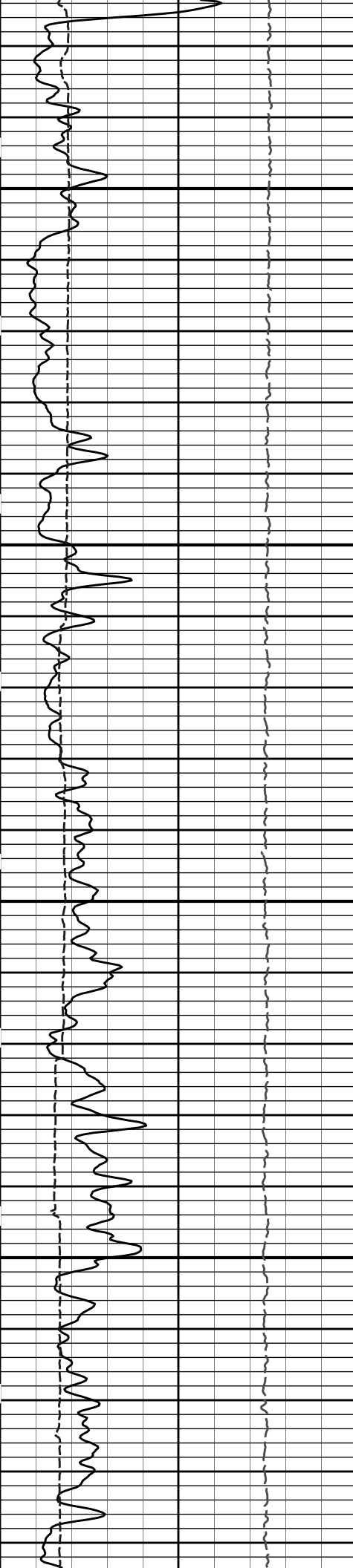
5 INCH MAIN LOG

HALLIBURTON

Plot Time: 02-Jan-13 13:49:56
Plot Range: 4650 ft to 5116.42 ft
Data: GARDEN_CITY_V_4\Well Based\REPEAT_GARDEN_CITY_V_4\
Plot File: \\BSAT\BSAT_5_REP_LIB

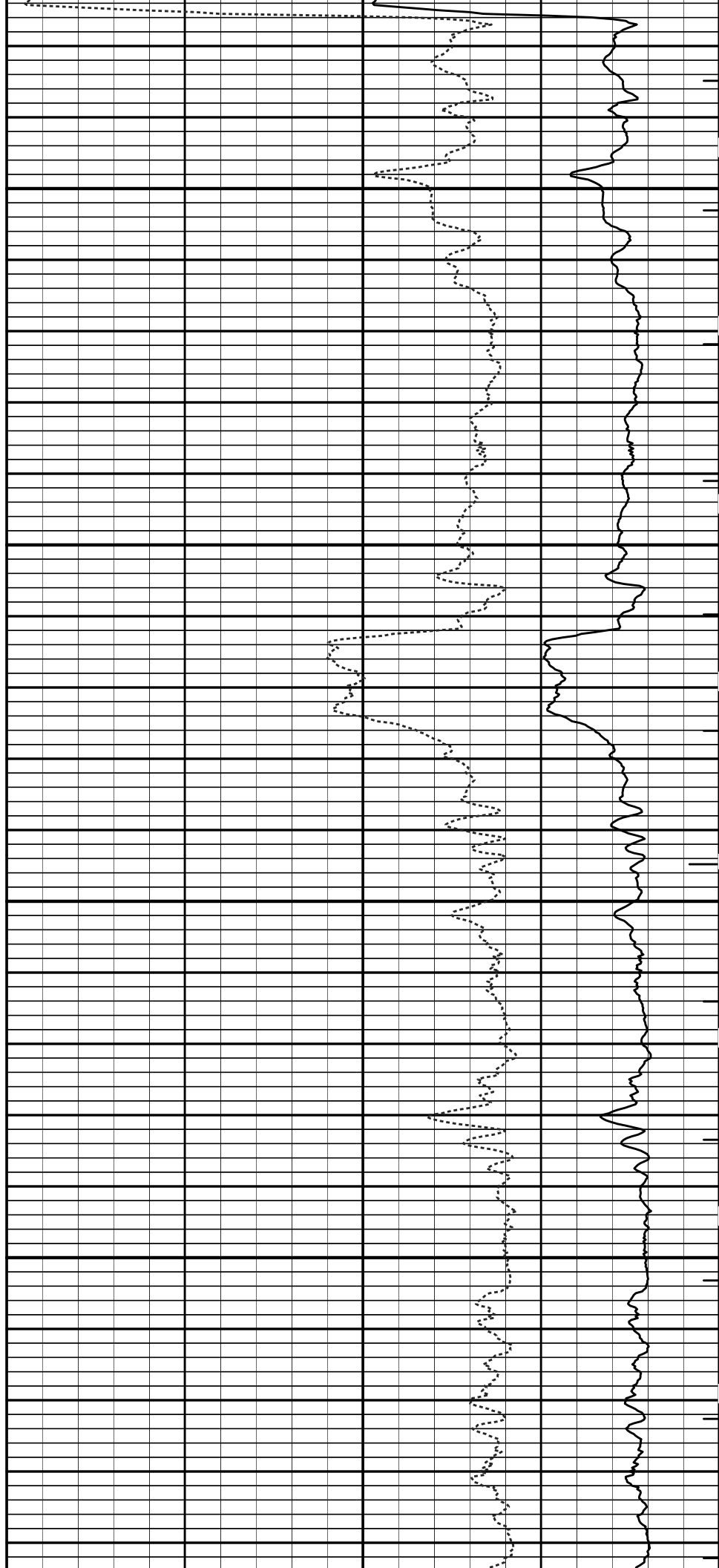
REPEAT SECTION

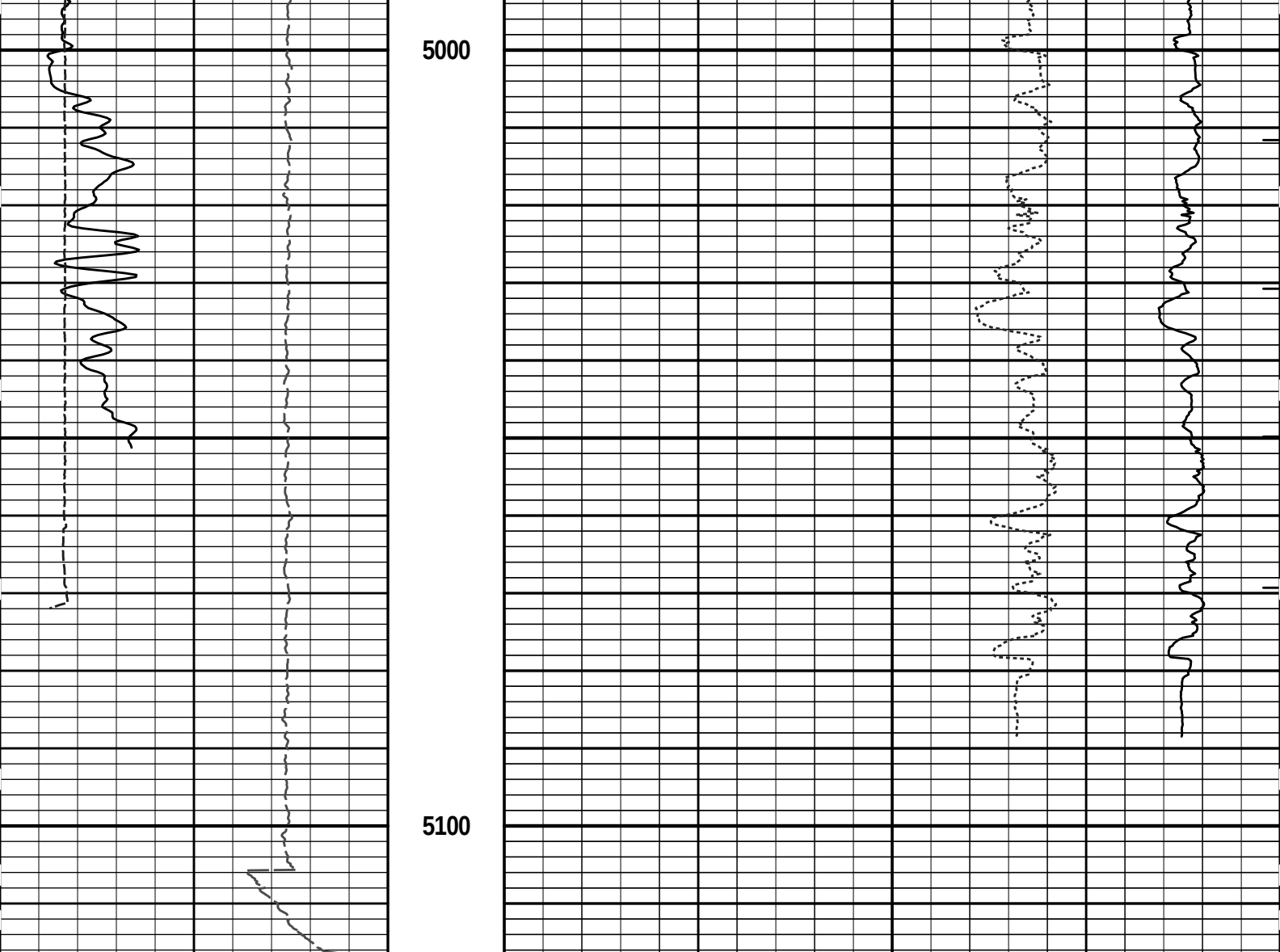




4800

4900





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

HALLIBURTON

Plot Time: 02-Jan-13 13:49:57
Plot Range: 4650 ft to 5116.42 ft
Data: GARDEN_CITY_V_4\Well Based\REPEAT_GARDEN_CITY_V_4\
Plot File: \\BSAT\BSAT_5_REP_LIB

REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
-------------	----------------------	------	---------	------------------	--------	--------------------

CH_HOS-CH_696
37.50 lbs

Ø 2.750 in →

← Temperature @ 76.03 ft

3.03 ft

77.06 ft

SP Sub-11441455
60.00 lbs

Ø 3.625 in →

← SP @ 72.26 ft

3.74 ft

74.03 ft

GTET-11048627
165.00 lbs

Ø 3.625 in →

← GammaRay @ 64.23 ft

8.52 ft

70.30 ft

DSNT-11019643
174.00 lbs

DSN Decentralizer-
11019643
6.60 lbs

Ø 5.000 in* →

Ø 3.625 in →

← DSN Far @ 54.84 ft

← DSN Near @ 54.09 ft

9.69 ft

61.78 ft

52.09 ft

SDLT-10950489
360.00 lbs

SDLT Pad-10844781
65.00 lbs
Microlog Pad-10950489
8.00 lbs

Ø 4.500 in →

Ø 4.750 in* →

Ø 4.750 in* →

Microlog @ 44.28 ft
SDL Caliper @ 44.09 ft
SDL @ 44.08 ft

10.81 ft

41.28 ft

Flex Joint-001
140.00 lbs

Ø 3.625 in →

5.67 ft

35.61 ft

Centralizer 29-1
12.00 lbs

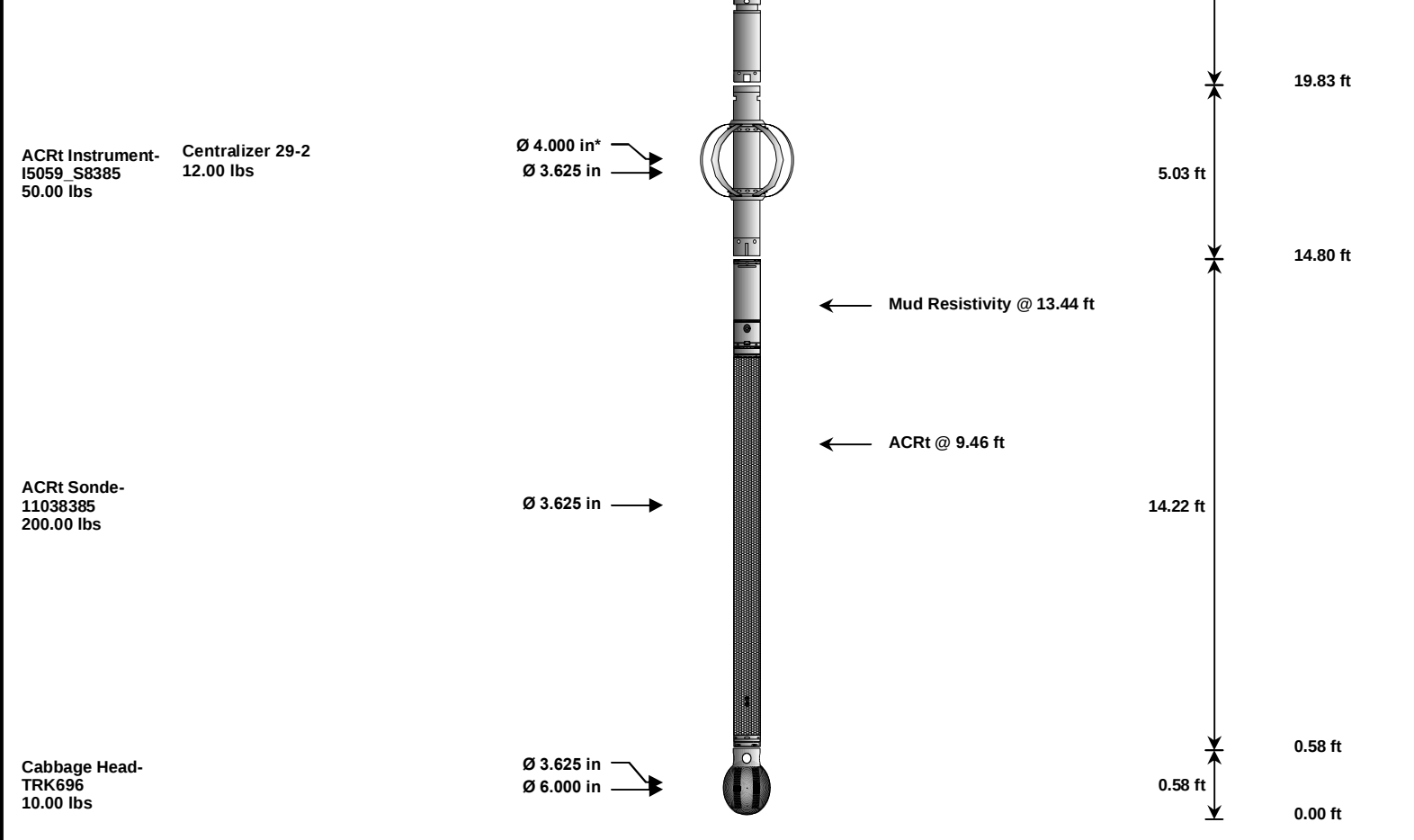
Ø 4.000 in* →

BSAT-10747684
300.00 lbs

Ø 3.625 in →

← Sonic Receivers @ 27.09 ft

15.77 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	74.03	300.00
SP	SP Sub		11441455	60.00	3.74	70.30	300.00
GTET	Gamma Telemetry Tool		11048627	165.00	8.52	61.78	60.00
DSNT	Dual Spaced Neutron		11019643	174.00	9.69	52.09	60.00
DCNT	DSN Decentralizer		11019643	6.60	5.13	* 55.42	300.00
SDLT	Spectral Density Tool		10950489	360.00	10.81	41.28	60.00
MICP	Microlog Pad		10950489	8.00	1.00	* 43.78	60.00
SDLP	Density Insite Pad		10844781	65.00	2.55	* 43.49	60.00
FLEX	Flex Joint		001	140.00	5.67	35.61	300.00
BSAT	Borehole Sonic Array Tool		10747684	300.00	15.77	19.83	60.00
OBCEN	Centralizer - 29 in.Overbody		1	12.00	2.42	* 32.77	300.00
ACRt	Array Compensated True Resistivity Instrument Section		I5059_S8385	50.00	5.03	14.80	300.00
OBCEN	Centralizer - 29 in.Overbody		2	12.00	2.42	* 16.39	300.00
ACRt	Array Compensated True Resistivity Sonde Section		11038385	200.00	14.22	0.58	300.00
CBHD	Cabbage Head		TRK696	10.00	0.58	0.00	300.00
Total				1,600.10	77.06		
* Not included in Total Length and Length Accumulation.							
Data: GARDEN_CITY_V_4\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\IDLE							
Date: 02-Jan-13 10:56:00							

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	Mud Weight	8.33	lb/gal

SHARED	MDWT	Borehole Fluid Weight	9.100	ppg
SHARED	WAGT	Weighting Agent	Natural	
SHARED	BSAL	Borehole salinity	0.00	ppm
SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
SHARED	RMUD	Mud Resistivity	2.000	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	5128.00	ft
SHARED	BHT	Bottom Hole Temperature	200.0	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 Upr	
	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_V_4I0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CHIDLE				Date: 02-Jan-13 11:01:37	

HALLIBURTON					
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		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
F3XT	Transmitter Reference 72 KHz Imaginary Signal	2.97	BLK	0.000
TFPU	Upper Feedpipe Temperature Calculated	2.97	BLK	0.000
TEPL	Lower Feedpipe Temperature Calculated	2.97	BLK	0.000

ITL	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_V_40001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CHIDLE			Date: 02-Jan-13 11:01:15	

COMPANY	OXY USA INC.		
WELL	GARDEN CITY V-4		
FIELD	GARDEN CITY		
COUNTY	FINNEY	STATE	KANSAS
HALLIBURTON		BOREHOLE COMPENSATED SONIC ARRAY LOG	