HALLIBURTON

BORE HOLE
COMPENSATED SONIC ARRAY
LOG

COMPANY **OXY USA INC**

WELL **GARDEN CITY V-1**

FIELD **GARDEN CITY**

COUNTY **FINNEY** STATE **KANSAS**

COMPANY OXY USA INC
WELL GARDEN CITY V-1
FIELD GARDEN CITY
COUNTY FINNEY
STATE KANSAS

API No. 15-055-22128
Location 2107 FSL 138 FWL

Other Services:
DSN/SDL
ACRT
MICRO

Sect. 27 Twp. 23S Rge. 34W

Permanent Datum	GL	Elev. 2959.0 ft	Elev.: K.B. 2970.0 ft
Log measured from	KB	, 11.0 ft above perm. Datum	D.F. 2969.0 ft
Drilling measured from	KB		G.L. 2959.0 ft

Date		25-Feb-12					
Run No.		ONE					
Depth - Driller		4960.00 ft					
Depth - Logger		4945.0 ft					
Bottom - Logged Interval		4918.0 ft					
Top - Logged Interval		3740.0 ft					
Casing - Driller		8.625 in	@ 1830.0 ft	@		@	
Casing - Logger		1824.0 ft					
Bit Size		7.875 in		@		@	
Type Fluid in Hole		WATER BASED MUD					
Density	Viscosity	9.5 ppg	44.00 s/qt				
PH	Fluid Loss	9.10 pH	9.6 cptm				
Source of Sample		FLOWLINE					
Rm @ Meas. Temperature		0.710 ohmm	@ 75.00 degF	@		@	
Rmf @ Meas. Temperature		0.61 ohmm	@ 75.00 degF	@		@	
Rmc @ Meas. Temperature		0.820 ohmm	@ 75.00 degF	@		@	
Source Rmf	Rmc	MEASURED	MEASURED				
Rm @ BHT		0.49 ohmm	@ 112.0 degF	@		@	
Time Since Circulation		7.0 hr					
Time on Bottom		25-Feb-12 19:26					
Max. Rec. Temperature		112.0 degF	@ 4945.0 ft	@		@	
Equipment	Location	10782954	LIBERAL				
Recorded By		T. HYDE					
Witnessed By		A. GARNER		D. COOK			

Fold here

Service Ticket No.: 9309817 API Serial No.: 15-055-22128 PGM Version: WL INSITE R3.4.2 (Build 2)

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE

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
Date					
Sample No.					
Depth-Driller					
Type Fluid in Hole					
Density / Viscosity					
Ph / Fluid Loss					
Source of Sample					
Rm @ Meas. Temp	@	@			
Rmf @ Meas. Temp.	@	ACRT	N/A	1.5" S.O.	N/A
Rmc @ Meas. Temp.	@	I1256_S0784			
Source Rmf / Rmc		MICRO	RUBBER	ADJ	N/A
Rm @ BHT	@	I066_M85803_			
Rmf @ BHT	@	P45			
Rmc @ BHT	@				

EQUIPMENT DATA

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.	ONE	Run No.	ONE	Run No.	ONE
Serial No.	10811258	Serial No.	10747683	Serial No.	I145_M85803_P45	Serial No.	10755066
Model No.	GTET	Model No.	BSAT	Model No.	SDLT	Model No.	DSNT
Diameter	3.625"	No. of Cent.	2	Diameter	4.5"	Diameter	3.625"
Detector Model No.	T-102	Spacing	.5	Log Type	GAM-GAM	Log Type	NEU-NEU
Type	SCINT			Source Type	Cs137	Source Type	Am241Be
Length	8"	LSA [Y/N]	YES	Serial No.	5073GW	Serial No.	DSN-436
Distance to Source	10'	FWDA [Y/N]	YES	Strength	1.5Ci	Strength	15Ci

LOGGING DATA

GAMMA RAY | 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	4945	1824	REC	0	150	30	-10	47.6	30	-10	2.71	30	-10	LIME

DIRECTIONAL INFORMATION

Maximum Deviation @	KOP @

Remarks:

ACRT, BSAT, SDL, MICRO, DSN, GR RUN IN COMBINATION

ANNULAR HOLE VOLUME CALCULATED FOR 5.5 INCH CASING

CHLORIDES 7000 PPM

LCM 1 LB/BBL

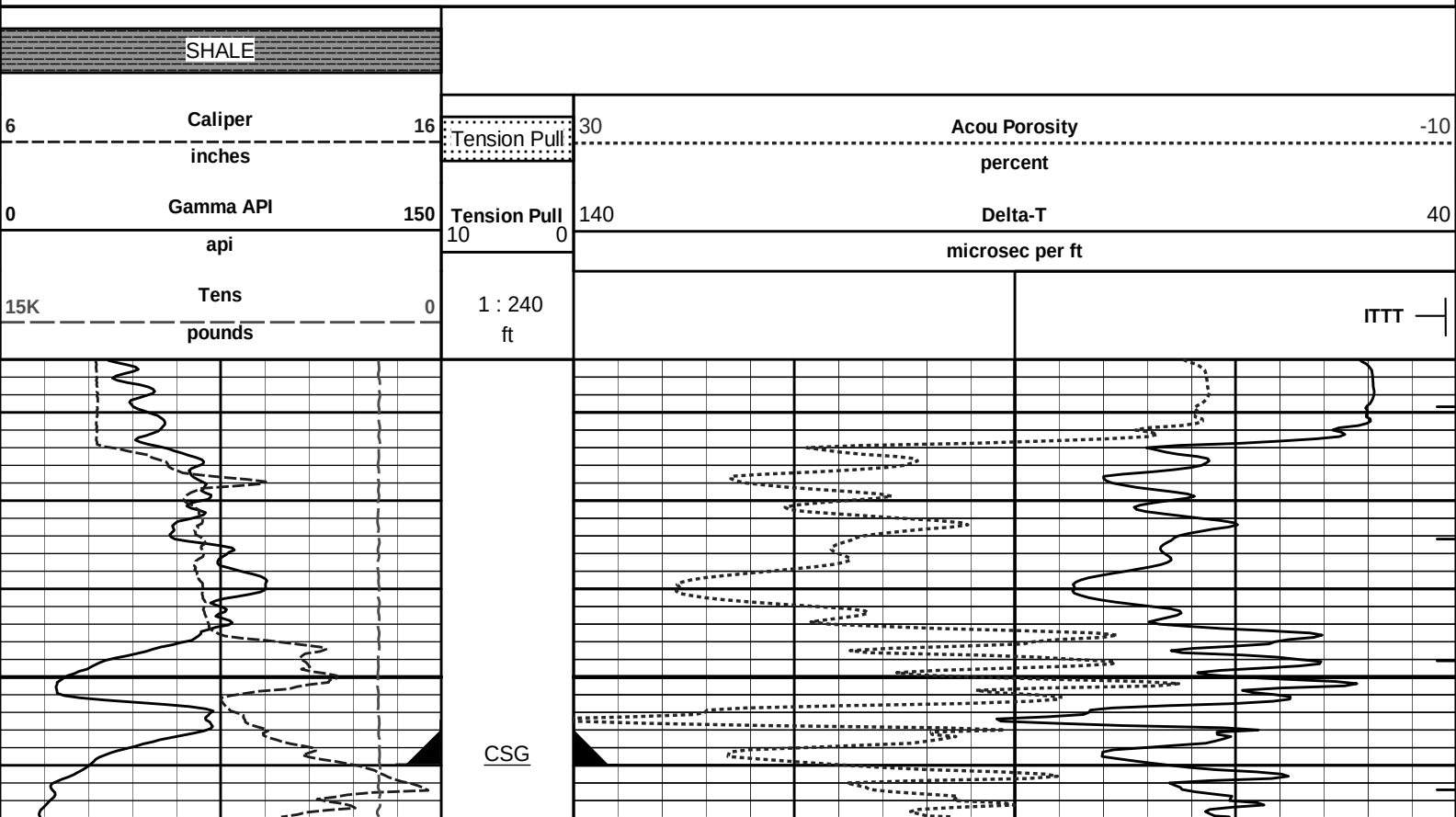
TODAY'S CREW A. VAQUERO B. TERRELL

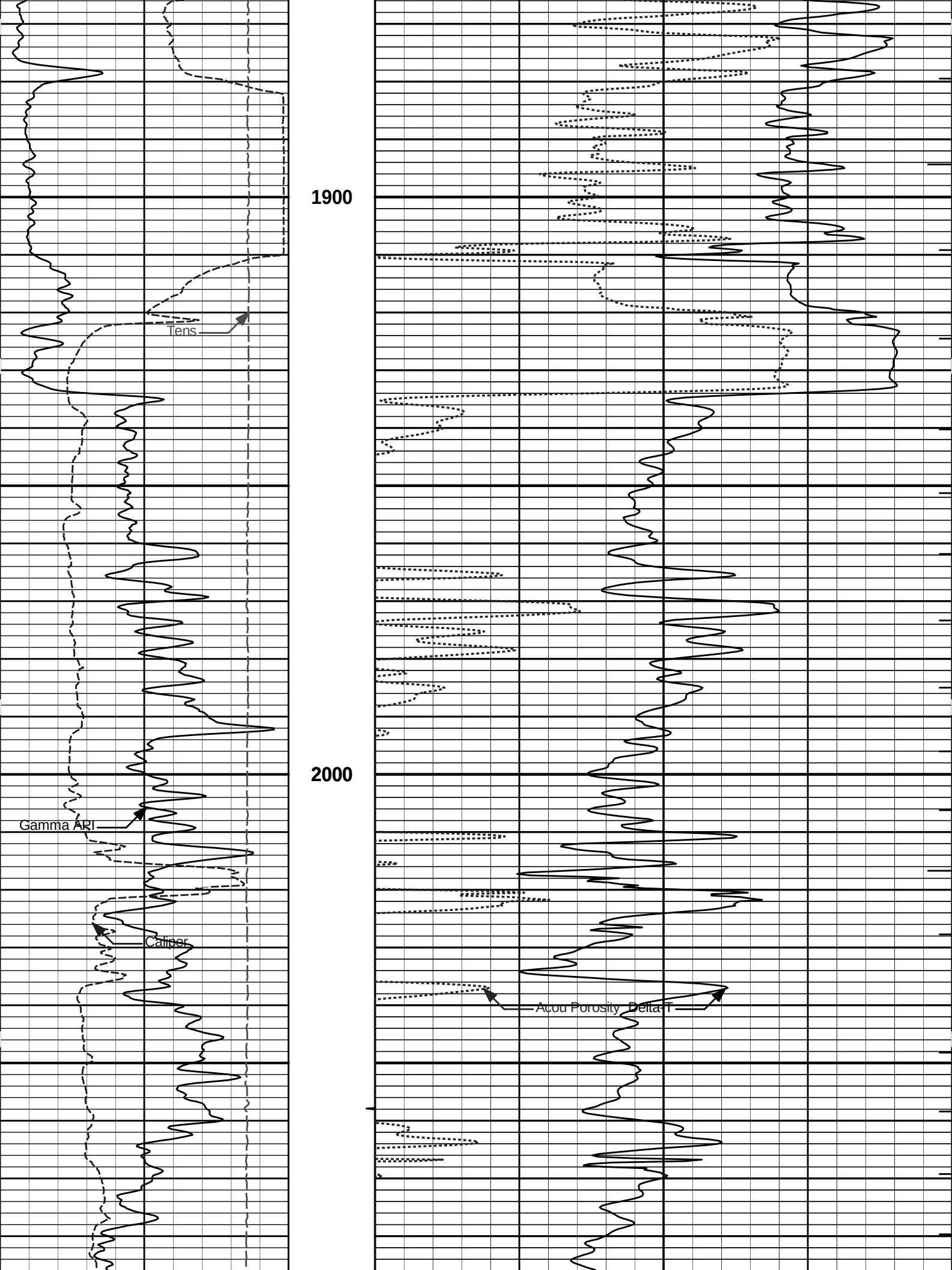
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES LIBERAL, KS 620-624-8123

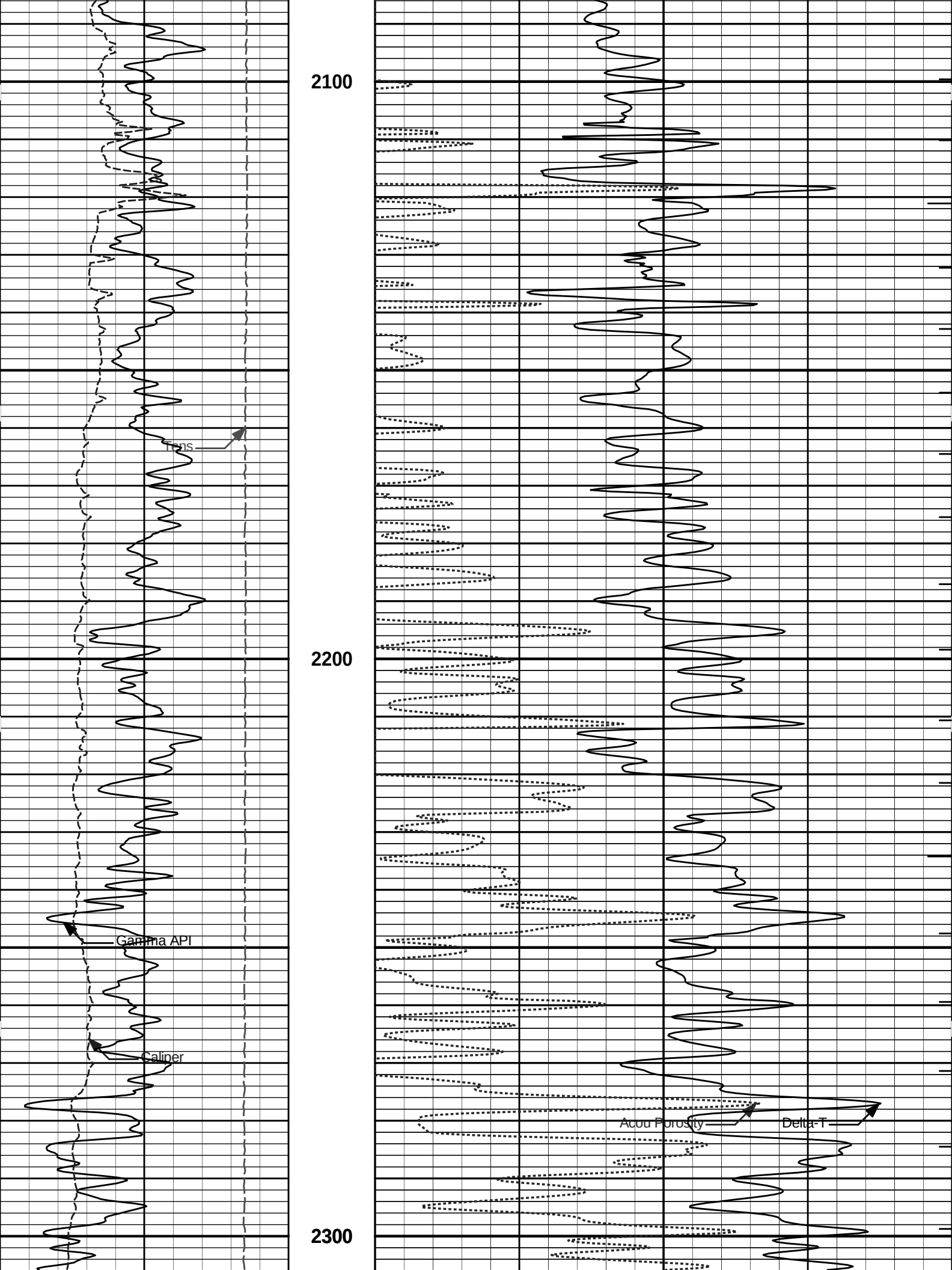
HALLIBURTON

Plot Time: 25-Feb-12 22:21:12
Plot Range: 1814 ft to 4951.33 ft
Data: GARDEN_CITY_V_1\Well Based\DAQ-0001-004
Plot File: \\BSAT\BSAT_5_MAIN_LIB

5 INCH MAIN LOG




1900
Tens
2000
Gamma API
Caliper
Acou Porosity Delta-T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2200
2300
Trans
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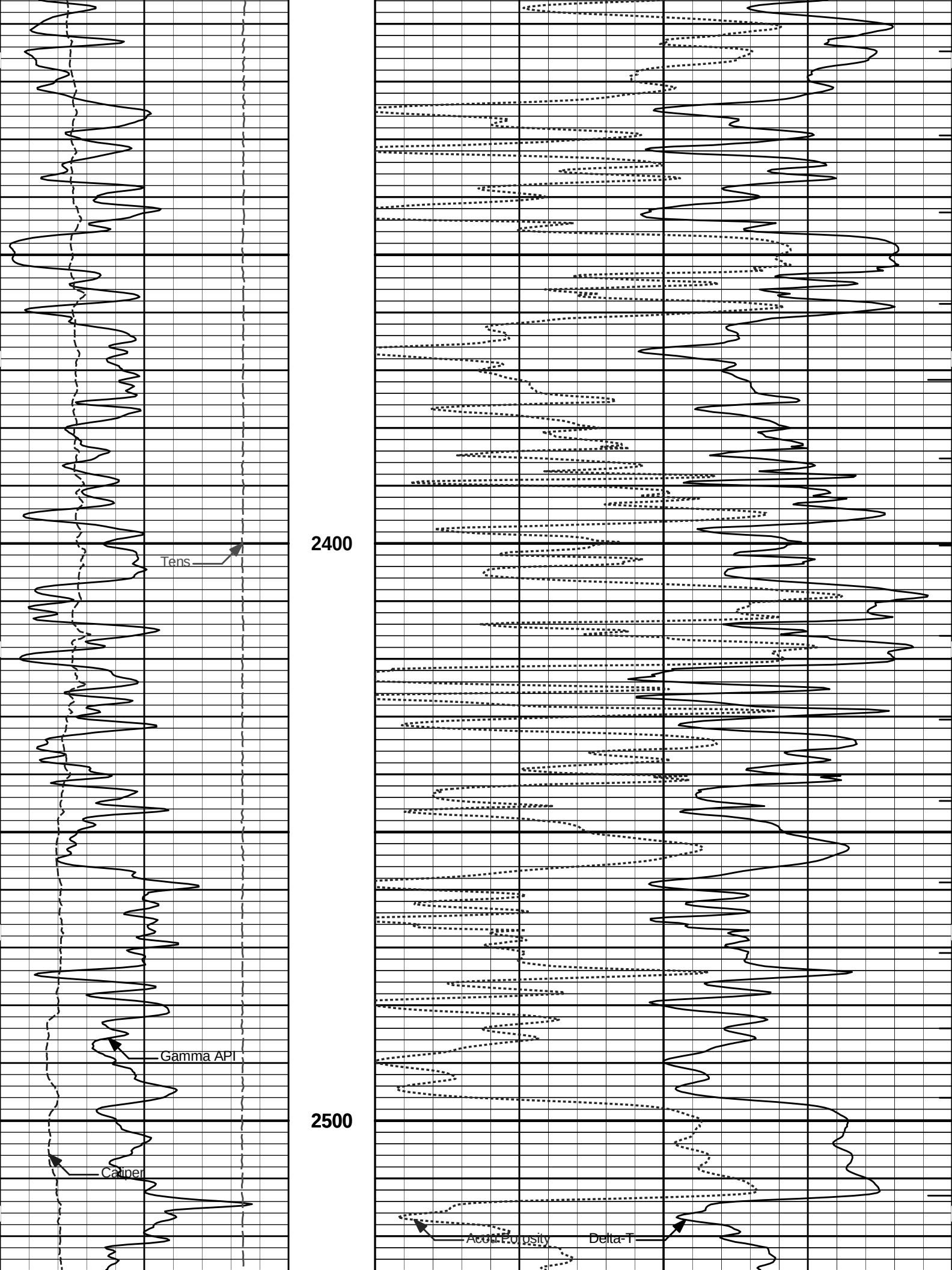
Caliper
Acou Porosity
Delta-T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Gamma API
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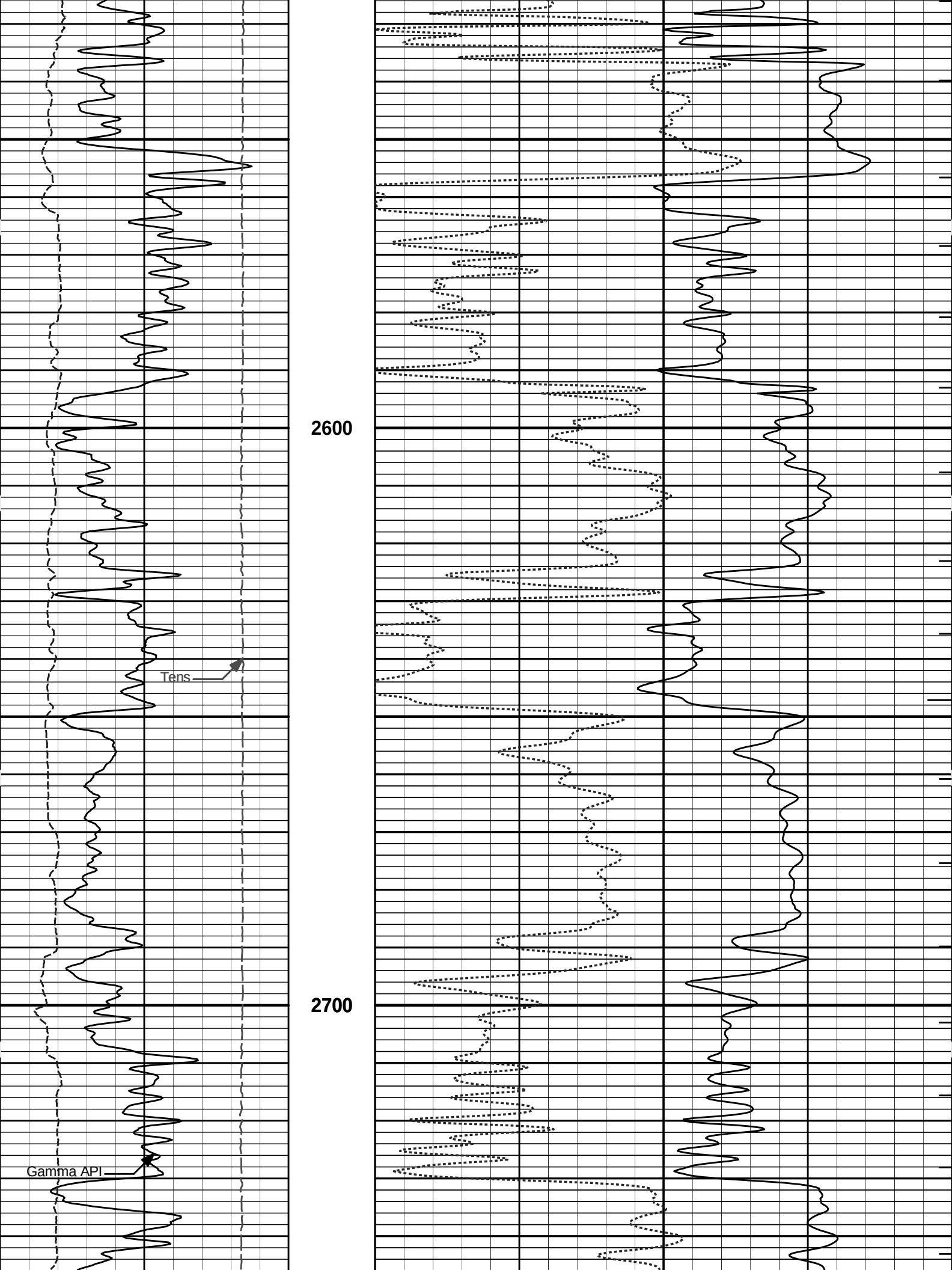
Caliper
Acou.Porosity
Delta-T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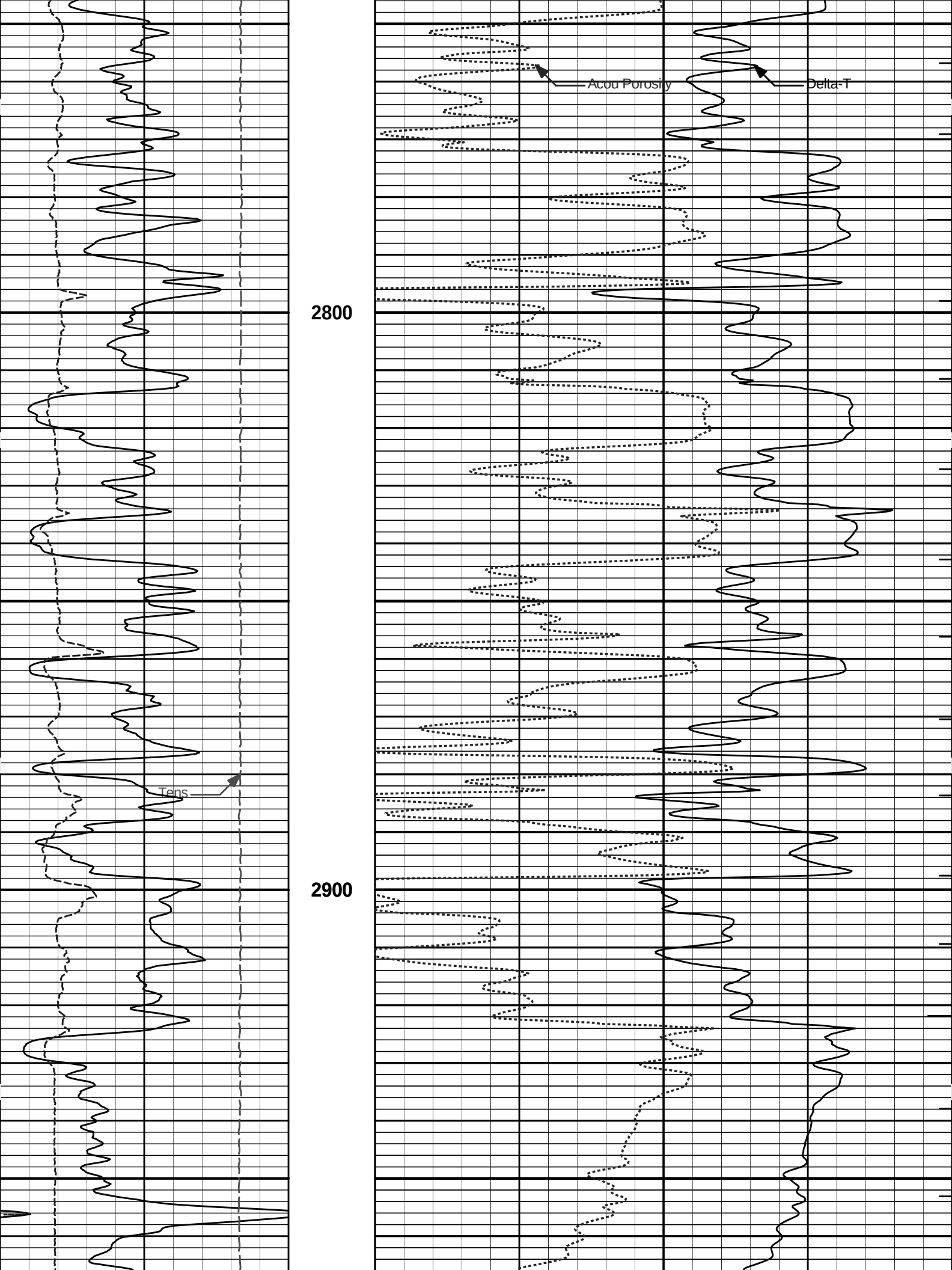
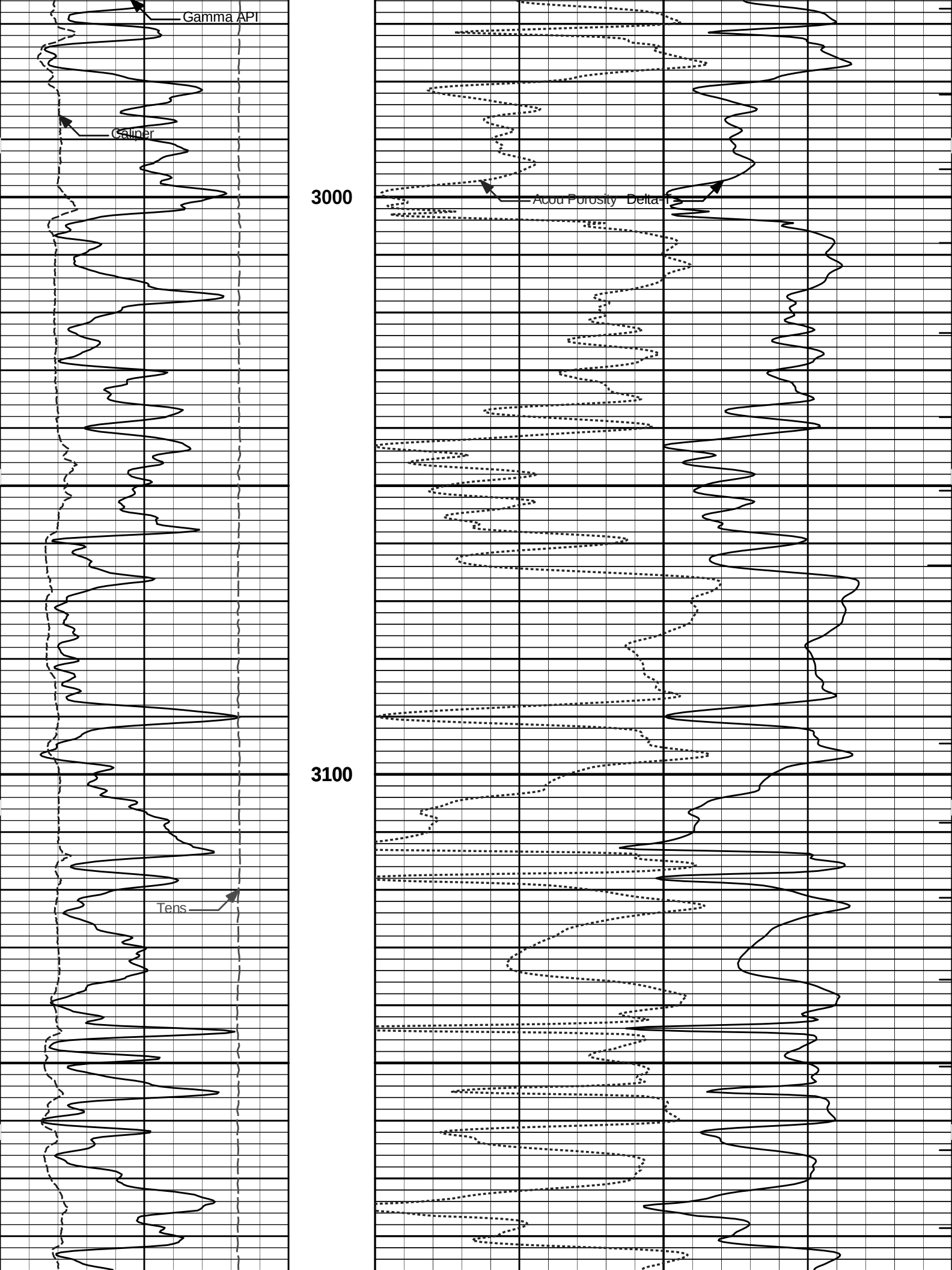
Tens
2700
Gamma API


Acou Porosity
Delta-T
2800
Tens
2900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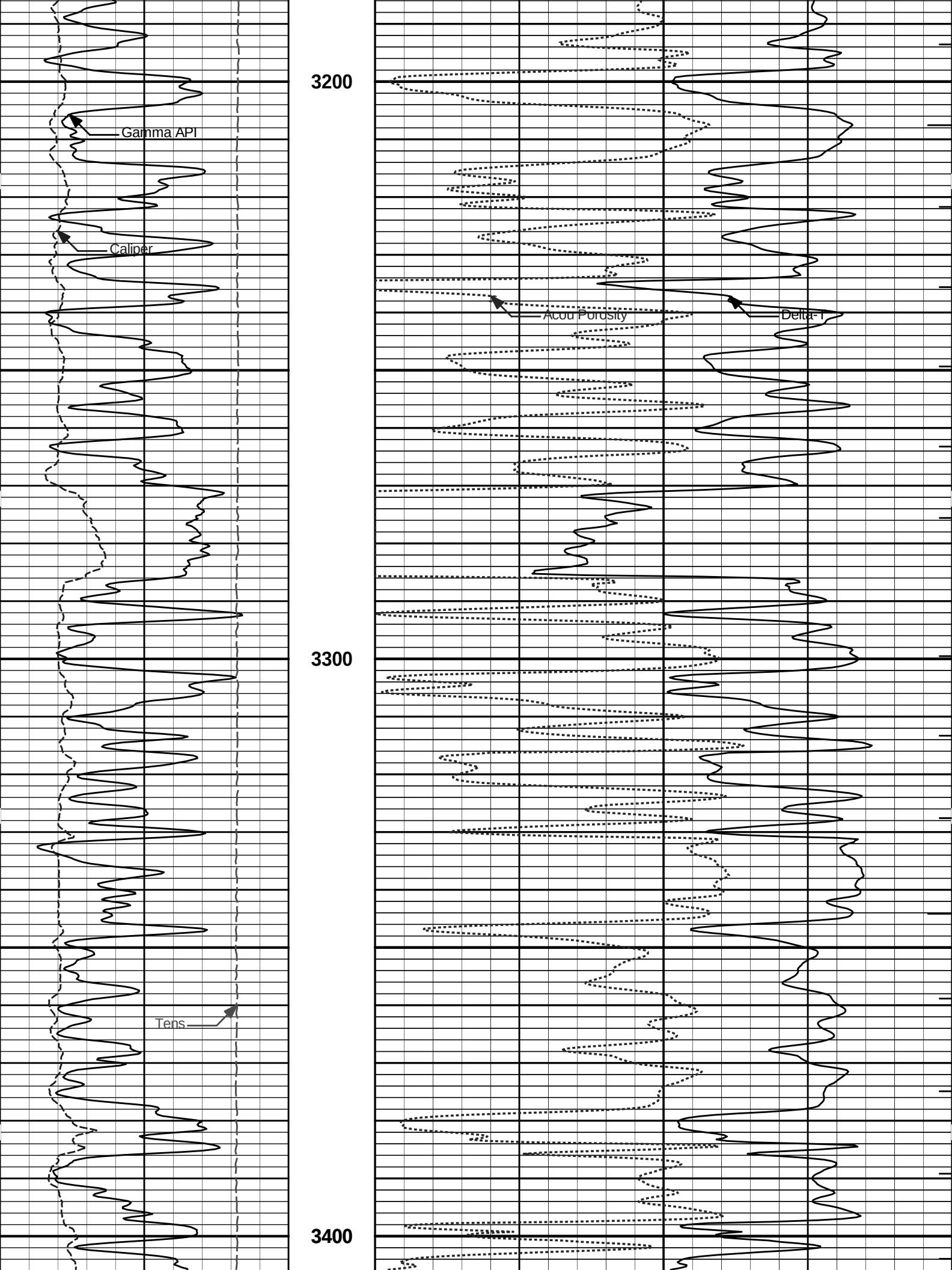
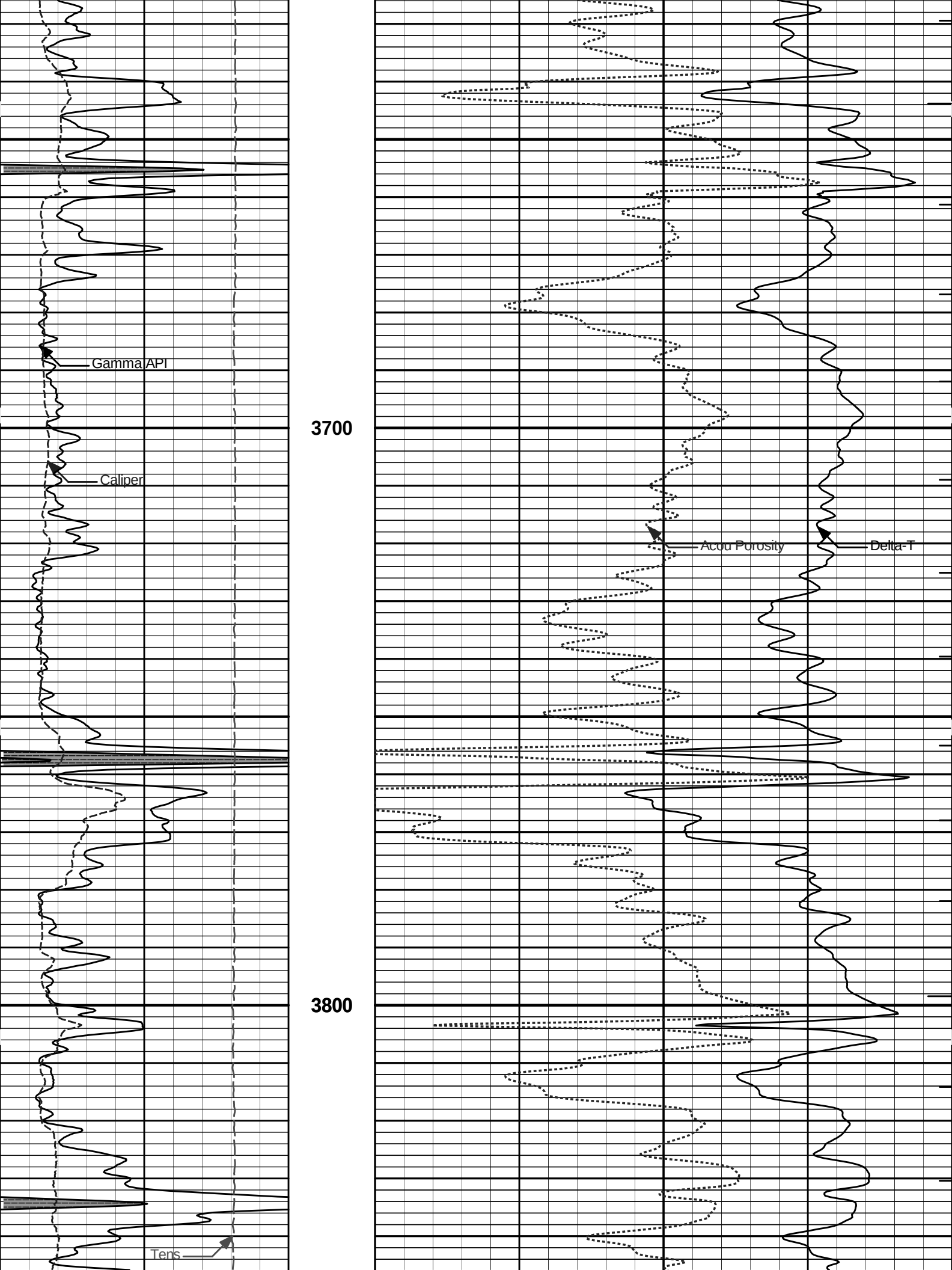
Caliper
3000
Acou Porosity
Delta-T
3100
Tens


3200
Gamma API
Caliper
Acou Porosity
Delta-T
3300
Tens
3400


Gamma API
Caliper
Accu Porosity
Delta-T
3500
3600
Tens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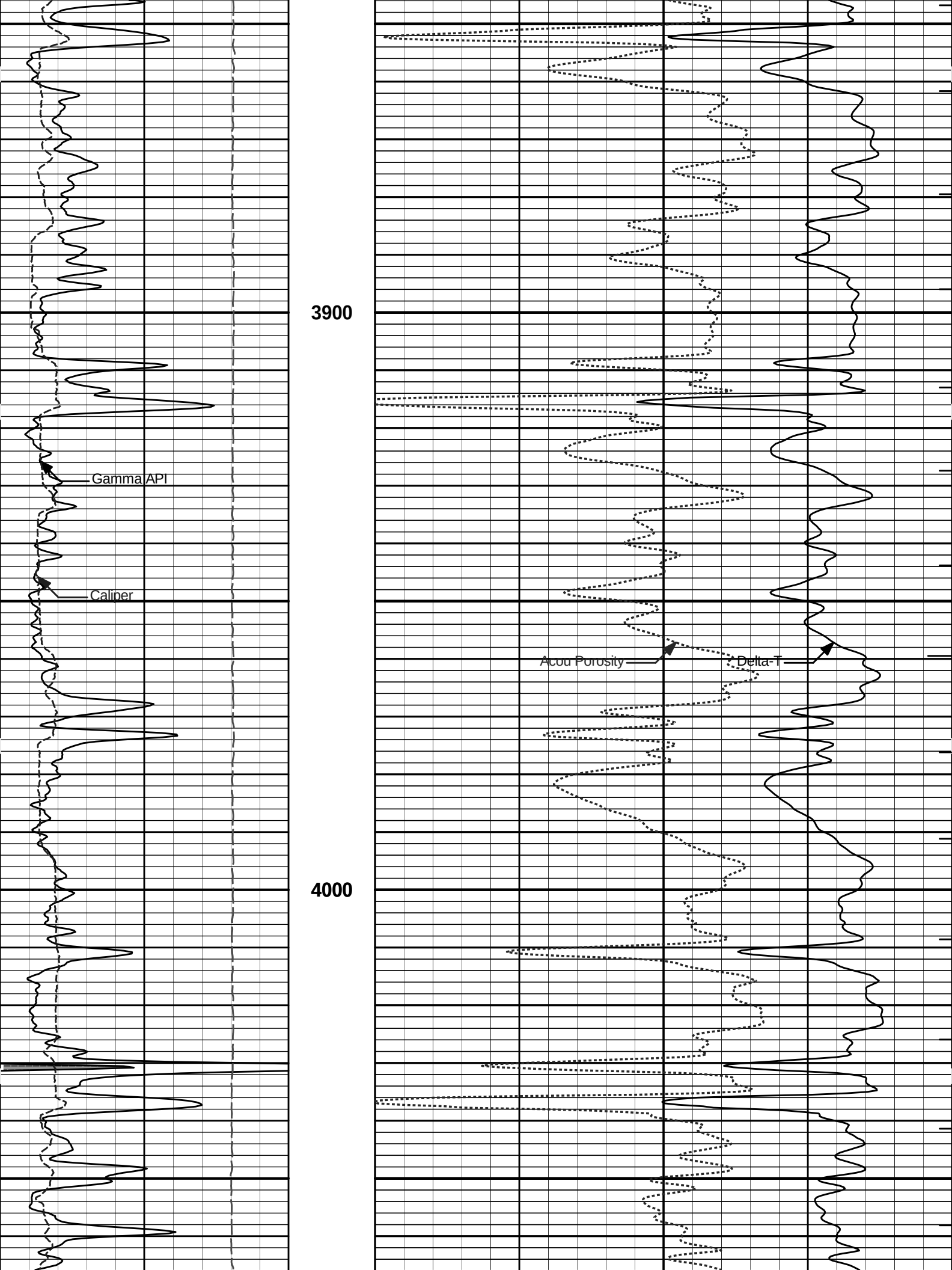
Caliper
3700
Acou Porosity
Delta-T
3800
Tens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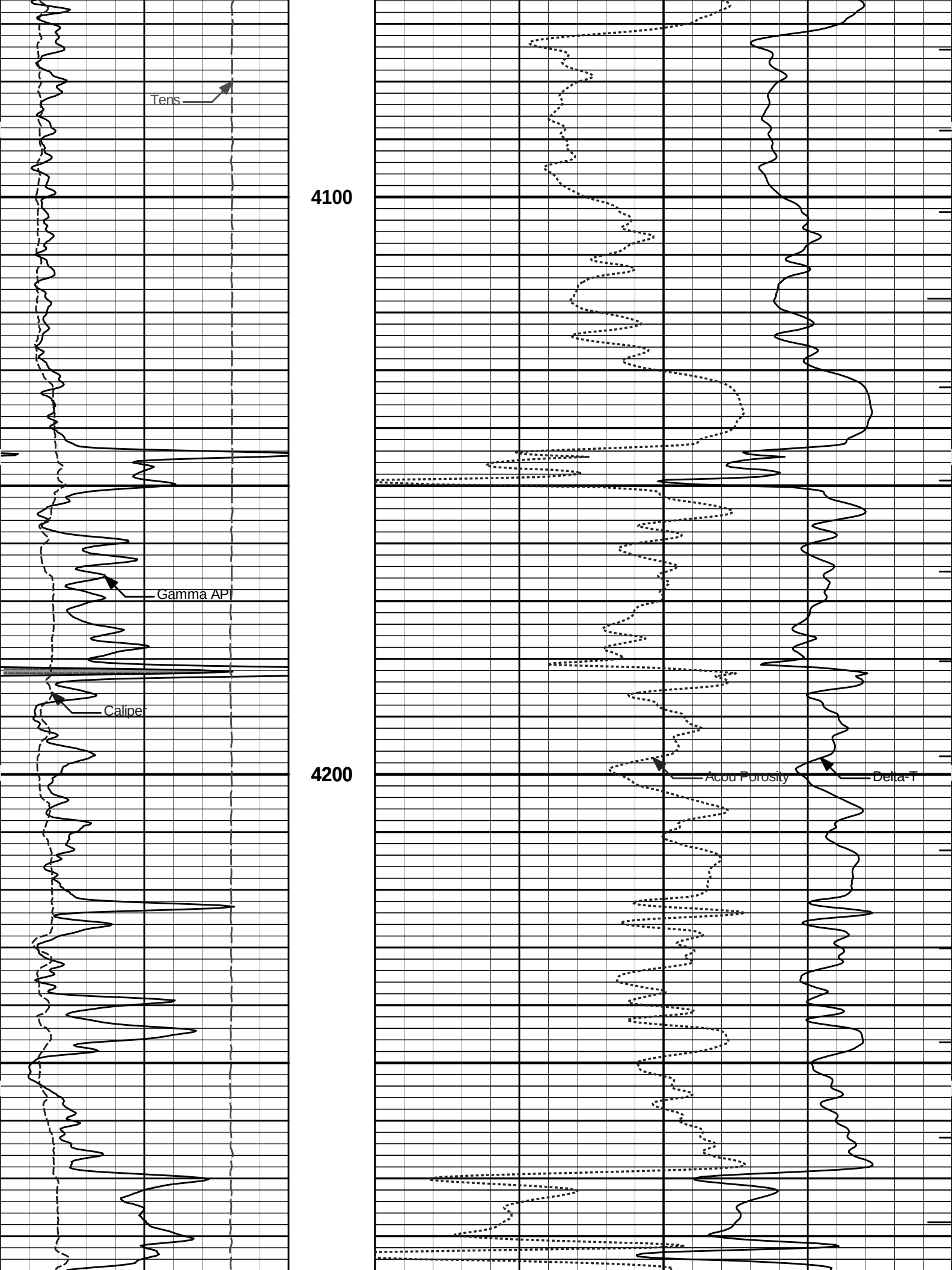
Gamma API
Caliper
Acou Porosity
Delta-T
4000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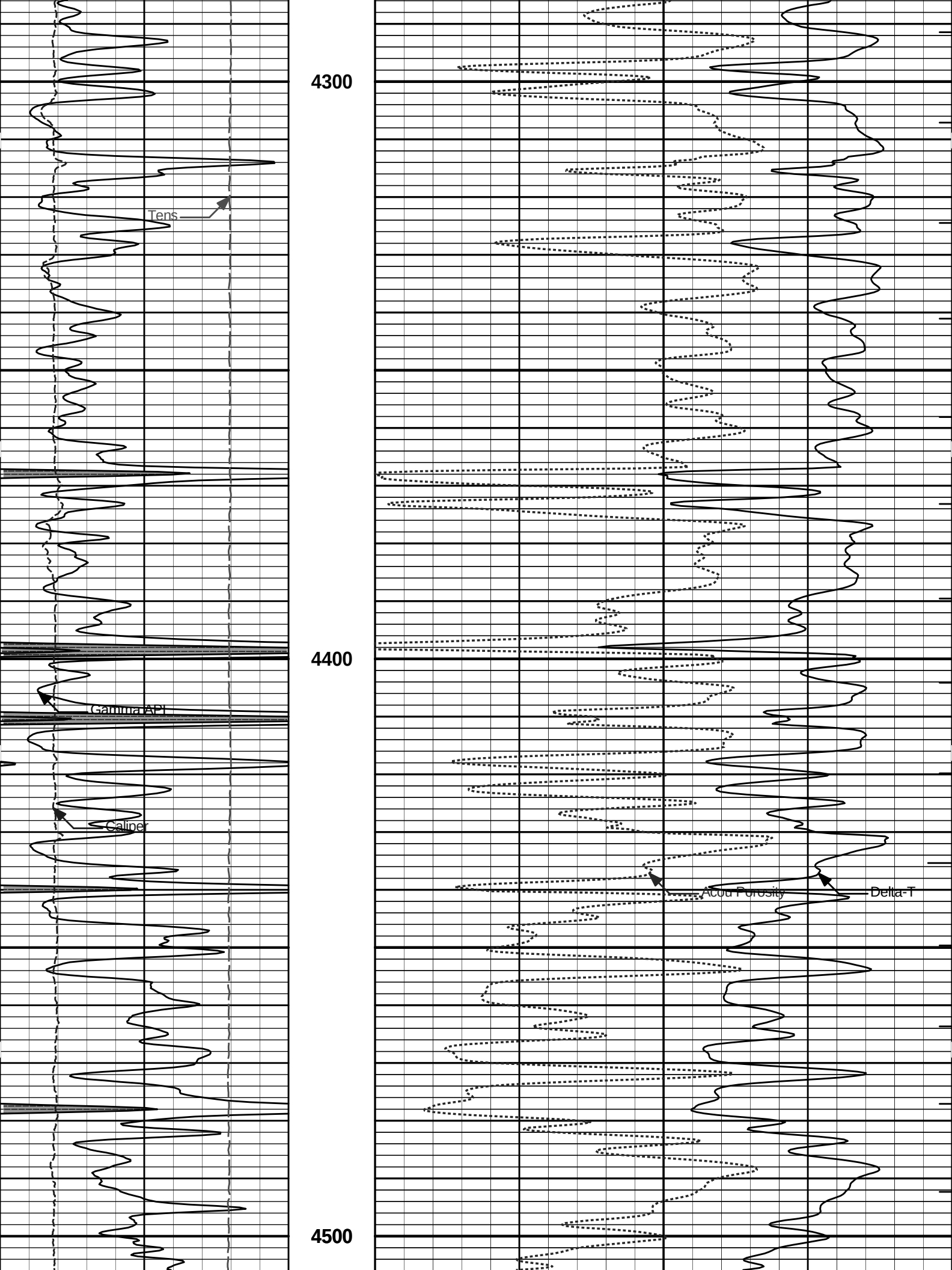
4100
Gamma API
Caliper
4200
Acou Porosity
Delta-T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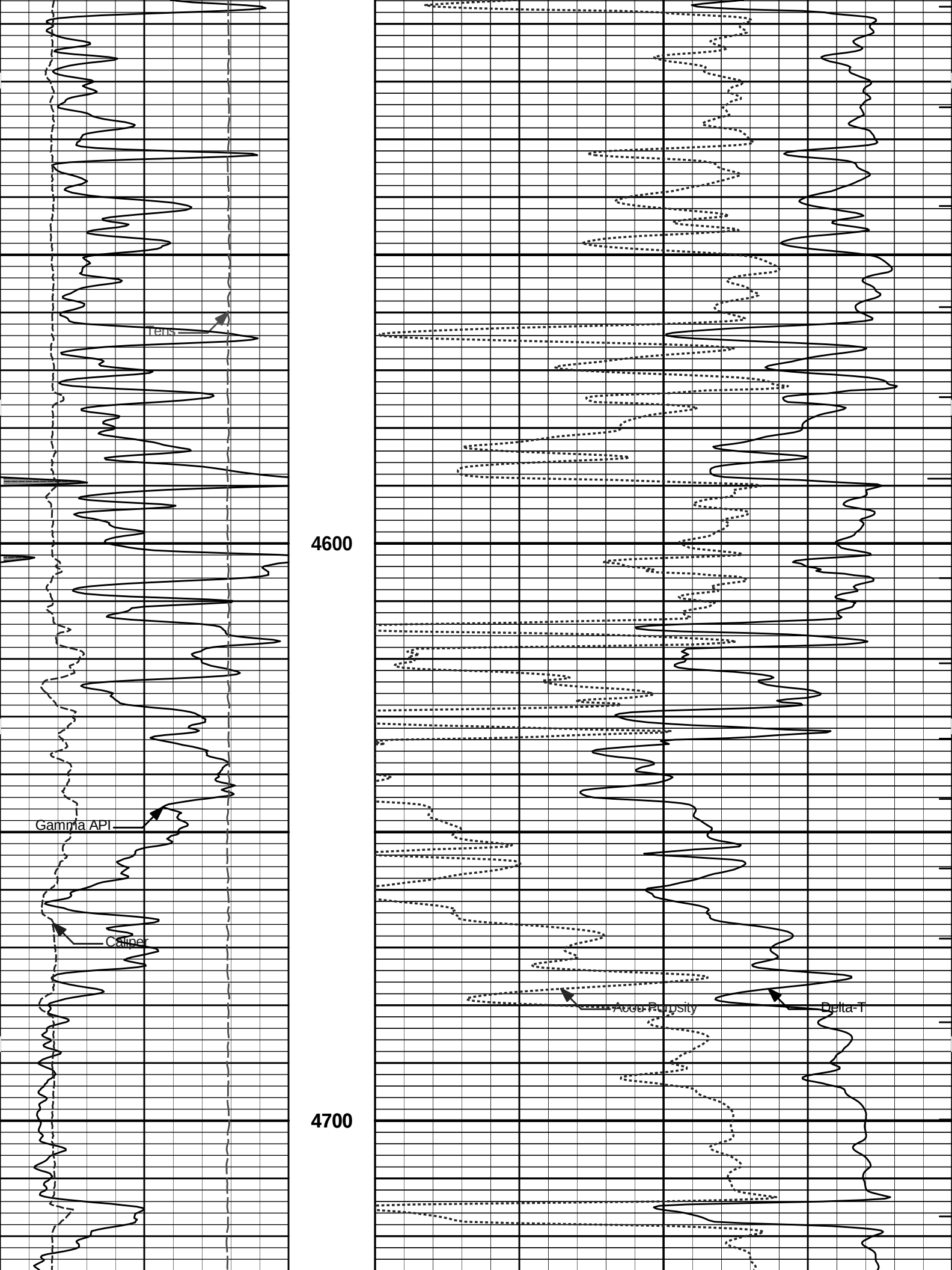
Tens
4400
Gamma API
Caliper
ACou Porosity
Delta-T
4500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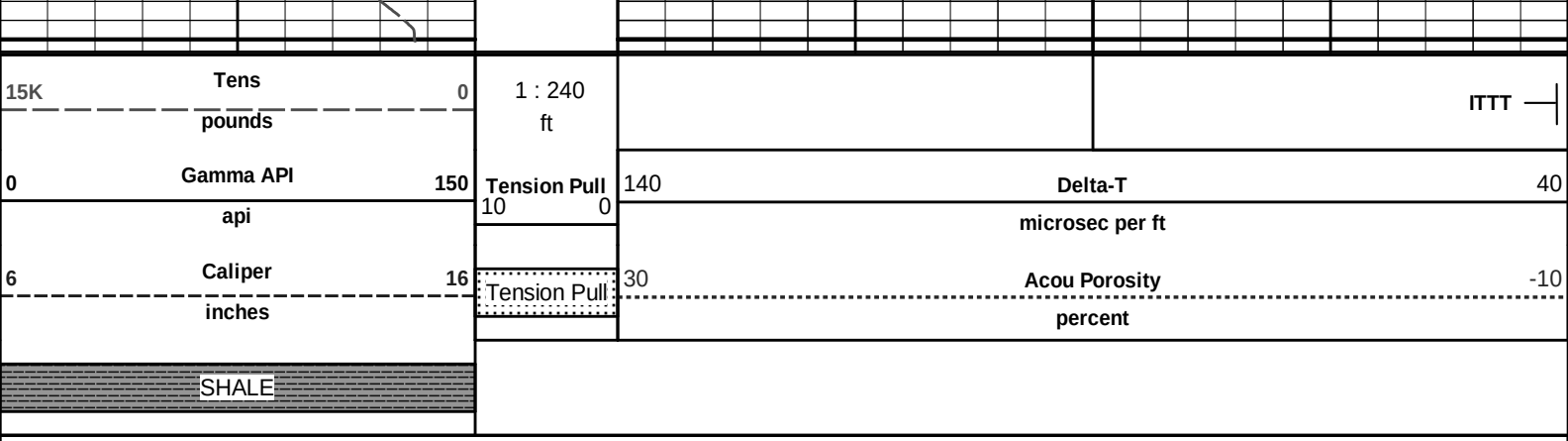
4600
Gamma API
Caliper
Accu-Porosity
Delta-T
4700


Tens
4800
FRGamma API
TD
4900
FRCaliper
FRAcou Porosity
FRDelta-T



HALLIBURTON

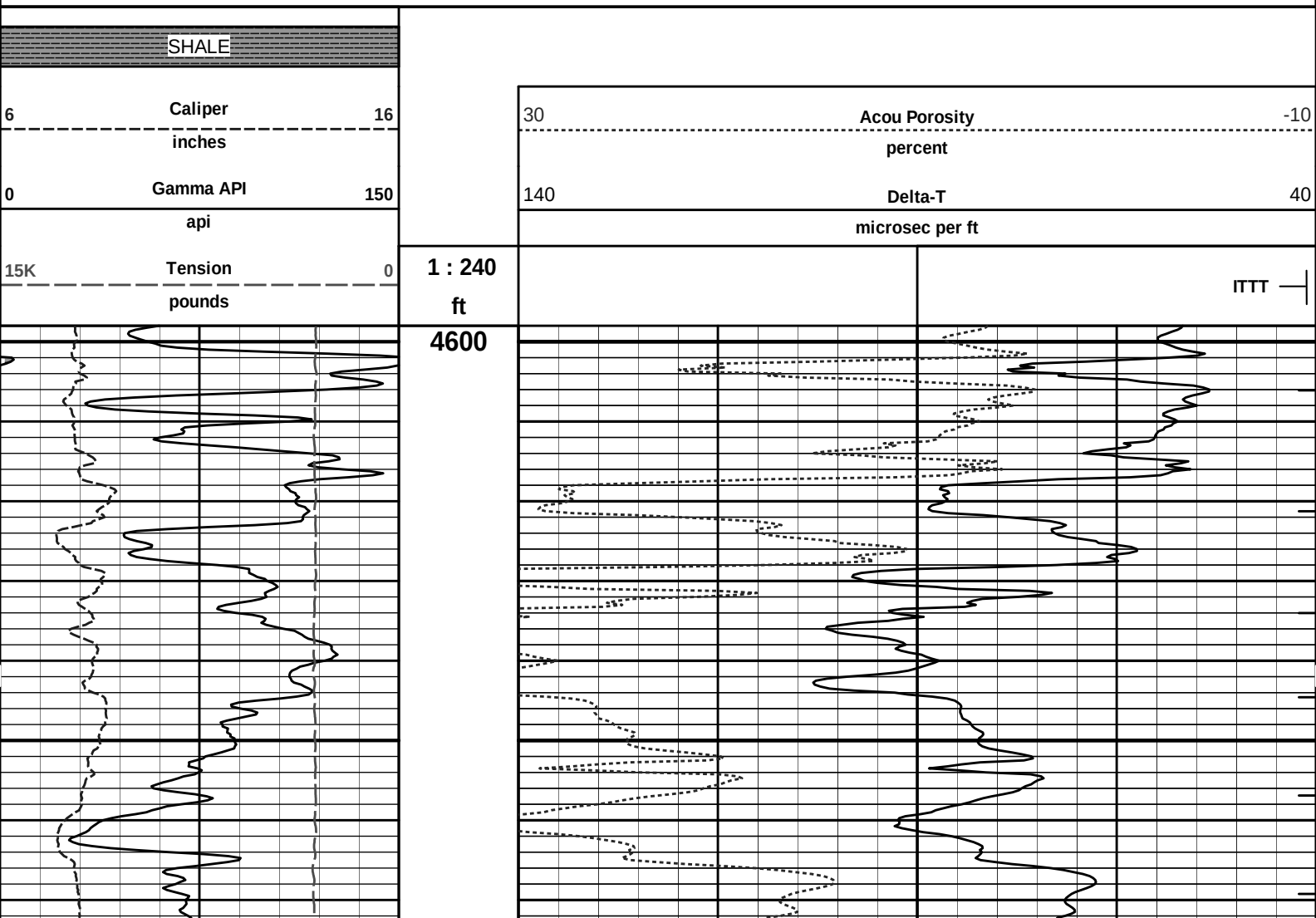
Plot Time: 25-Feb-12 22:21:38
Plot Range: 1814 ft to 4951.33 ft
Data: GARDEN_CITY_V_1\Well Based\DAQ-0001-004\
Plot File: \\BSAT\BSAT_5_MAIN_LIB

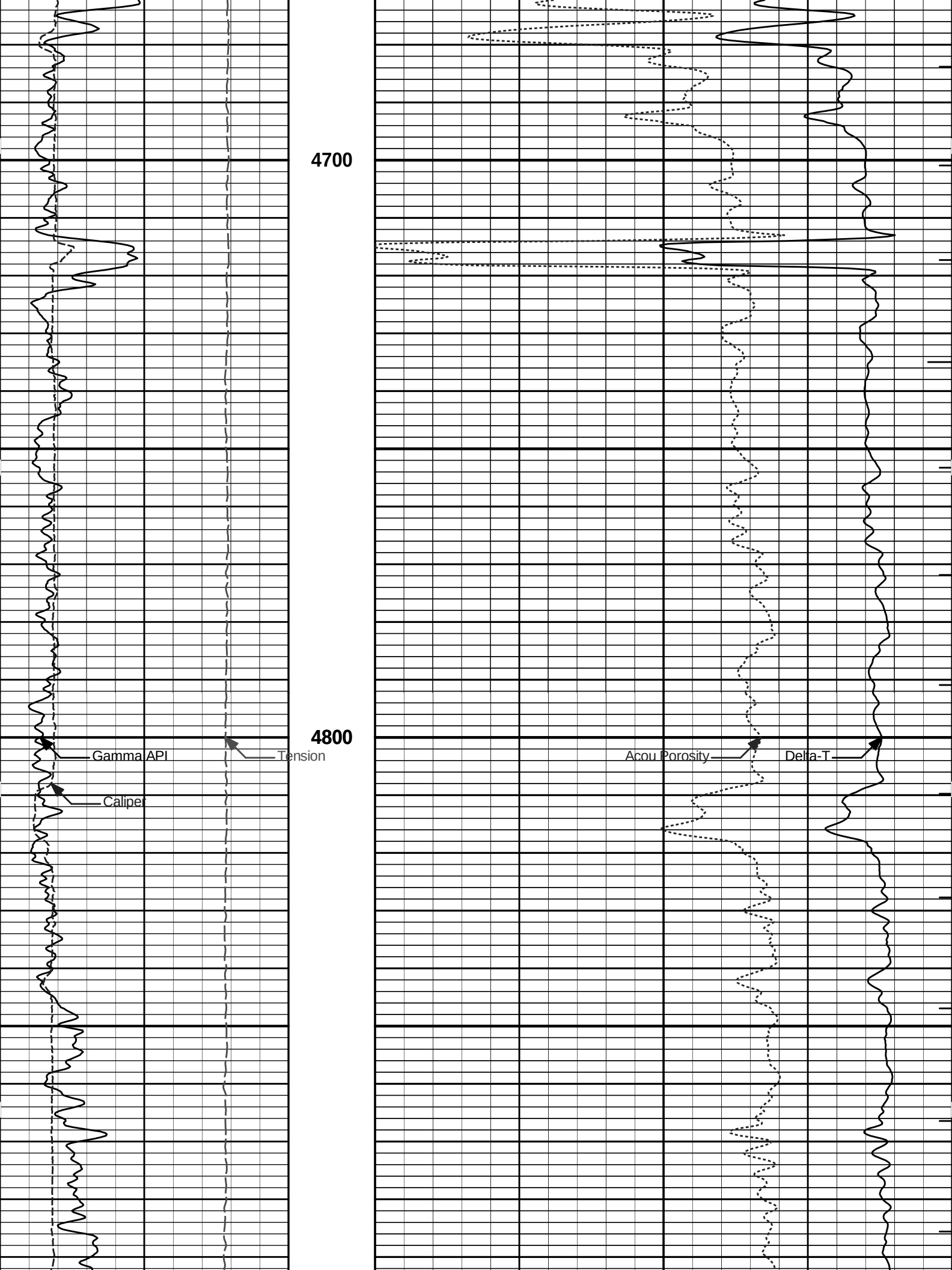
5 INCH MAIN LOG

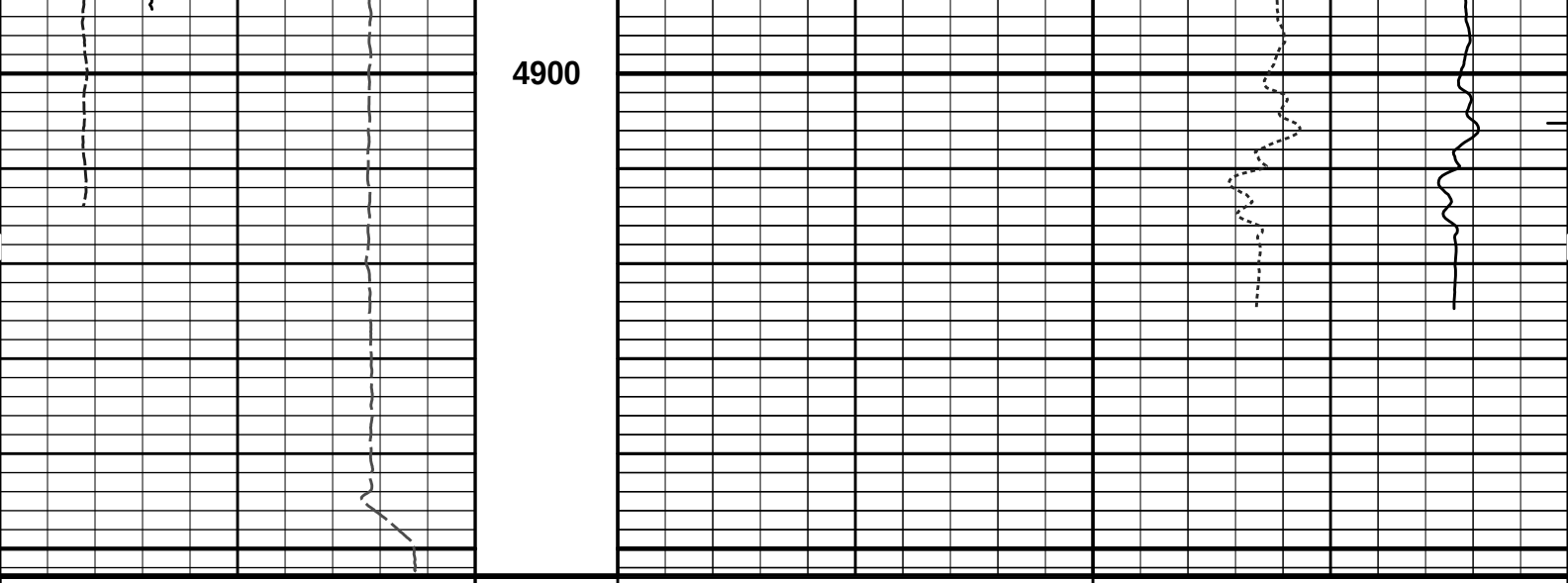
HALLIBURTON

Plot Time: 25-Feb-12 22:21:38
Plot Range: 4598 ft to 4952.75 ft
Data: GARDEN_CITY_V_1\Well Based\DAQ-0001-003\
Plot File: \\BSAT\BSAT_5_REP_LIB

REPEAT SECTION




4700
4800
Gamma API
Tension
Caliper
Acou Porosity
Delta-T



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

HALLIBURTON

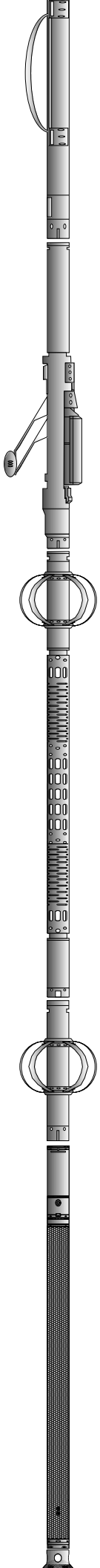
Plot Time: 25-Feb-12 22:21:42
Plot Range: 4598 ft to 4952.75 ft
Data: GARDEN_CITY_V_1\Well Based\DAQ-0001-003\
Plot File: \\BSAT\BSAT_5_REP_LIB

REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
						70.28 ft
Cable Head-PROT01 30.00 lbs		Ø 3.625 in			1.92 ft	
						68.36 ft
SP Sub-PROT01 60.00 lbs		Ø 3.625 in		SP @ 66.59 ft	3.74 ft	
						64.63 ft
GTET-10811258 165.00 lbs		Ø 3.625 in		GammaRay @ 58.56 ft	8.52 ft	
						56.11 ft



DSN Decentralizer-
10735145
6.60 lbs

DSNT-10755066
174.00 lbs

Ø 5.000 in*

Ø 3.625 in

9.69 ft

DSN Far @ 49.17 ft

DSN Near @ 48.42 ft

46.42 ft

SDLT-
I066_M85803_P45
360.00 lbs

SDLT Pad-
I145_M85803_P45
65.00 lbs

Ø 4.500 in

10.81 ft

Microlog Pad-
I066_M85803_P45
8.00 lbs

Ø 4.750 in*

Ø 4.750 in*

Microlog @ 38.61 ft

SDL Caliper @ 38.42 ft

SDL @ 38.41 ft

35.61 ft

Centralizer 25-002
8.00 lbs

Ø 4.000 in*

BSAT-10747683
300.00 lbs

Ø 3.625 in

15.77 ft

Sonic Receivers @ 27.09 ft

19.83 ft

ACRt Instrument-
I256
50.00 lbs

Centralizer 25-001
8.00 lbs

Ø 4.000 in*

Ø 3.625 in

5.03 ft

14.80 ft

Mud Resistivity @ 13.44 ft

ACRt @ 9.46 ft

ACRt Sonde-
I1256_S0784
200.00 lbs

Ø 3.625 in

14.22 ft

0.58 ft

Cabbage Head-

Ø 3.625 in

TRK954
10.00 lbs

Ø 6.000 in

0.58 ft

0.00 ft

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		68.36	300.00
SP	SP Sub	PROT01	60.00	3.74		64.63	300.00
GTET	Gamma Telemetry Tool	10811258	165.00	8.52		56.11	60.00
DSNT	Dual Spaced Neutron	10755066	174.00	9.69		46.42	60.00
DCNT	DSN Decentralizer	10735145	6.60	5.13	*	49.75	300.00
SDLT	Spectral Density Tool	I066_M85803_P45	360.00	10.81		35.61	60.00
MICP	Microlog Pad	I066_M85803_P45	8.00	1.00	*	38.11	60.00
SDLP	Density Insite Pad	I145_M85803_P45	65.00	2.55	*	37.82	60.00
BSAT	Borehole Sonic Array Tool	10747683	300.00	15.77		19.83	60.00
OBCEN	Centralizer - 25 in. Overbody	002	8.00	2.08	*	32.76	300.00
ACRt	Array Compensated True Resistivity Instrument Section	I256	50.00	5.03		14.80	300.00
OBCEN	Centralizer - 25 in. Overbody	001	8.00	2.08	*	16.44	300.00
ACRt	Array Compensated True Resistivity	I1256_S0784	200.00	14.22		0.58	300.00
CBHD	Cabbage Head	TRK954	10.00	0.58		0.00	300.00
Total			**1,444.60**	**70.28**			

* Not included in Total Length and Length Accumulation.

Data: GARDEN_CITY_V_1\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\IDLE **Date: 25-Feb-12 17:30:03**

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name: GTET - 10811258 **Reference Calibration Date:** 25-Oct-11 17:21:30

Engineer: C. HAVERKAMP **Calibration Date:** 23-Jan-12 13:31:58

Software Version: WL INSITE R3.4.2 (Build 2) **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	43.3	42.9	api
Background + Calibrator	277.3	274.9	api
Calibrator	234.0	232.0	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name: GTET - 10811258 **Reference Calibration Date:** 23-Jan-12 13:31:58

Engineer: T. HYDE **Calibration Date:** 25-Feb-12 17:40:09

Software Version: WL INSITE R3.4.2 (Build 2) **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	42.9	33.8	api
Background + Calibrator	274.9	263.8	api
Calibrator	232.0	230.0	api

Shop	Field	Difference	Tolerance
232.0	230.0	2.0	+/- 9.00

NATURAL GAMMA RAY TOOL POST CALIBRATION

Tool Name:	**GTET - 10811258**	**Reference Calibration Date:**	**25-Feb-12 17:40:09**
Engineer:	**T. HYDE**	**Calibration Date:**	**25-Feb-12 21:42:03**
Software Version:	**WL INSITE R3.4.2 (Build 2)**	**Calibration Version:**	**1**

Calibrator Source S/N: TB-185
Calibrator API Reference:228.00 api
Calibrator API Reference:232.0 api

Post Verification	Field	Post	Units
Background	33.8	28.3	api
Background + Calibrator	263.8	256.6	api
Calibrator	230.0	228.2	api

Shop	Field	Post	Difference	Tolerance
232.0	230.0	228.2	1.8	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	**DSNT - 10755066**	**Reference Calibration Date:**	**06-Nov-11 14:36:25**
Engineer:	**C. MARLOWE**	**Calibration Date:**	**26-Jan-12 13:31:41**
Software Version:	**WL INSITE R3.4.2 (Build 2)**	**Calibration Version:**	**1**

Logging Source S/N: DSN-436
Tank Serial Number: 105060
Reference value assigned to Tank: 51.680
Snow Block S/N: TRK_10782954
Calibration Tank Water Temperature: 62 degF
Min. Tool Housing Outside Diameter: 3.615 in

CALIBRATION CONSTANTS			
Measurement	**Prev. Value**	**New Value**	**Control Limit On New Value**
Gain:	0.949	0.945	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):	0.2115	0.2103	0.0012	+/- 0.0020
Calibrated Ratio:	9.75	9.70	0.041	+/- 0.050

VERIFIER		
Measurement	**Value**	**Control Limit**
Snow-Block Porosity (decp):	0.0560	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 - 10755066**	**Reference Calibration Date:**	**26-Jan-12 13:31:41**
Engineer:	**T. HYDE**	**Calibration Date:**	**25-Feb-12 17:45:57**
Software Version:	**WL INSITE R3.4.2 (Build 2)**	**Calibration Version:**	**1**

Logging Source S/N: DSN-436
Snow Block S/N: TRK_10782954

NEUTRON FIELD-CHECK SUMMARY				
	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0560	0.0582	0.0022	+/- 0.0150

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

DUAL SPACED NEUTRON POST CALIBRATION

Tool Name: DSNT - 10755066 **Reference Calibration Date:** 25-Feb-12 17:45:57

Engineer: T. HYDE **Calibration Date:** 25-Feb-12 21:48:15

Software Version: WL INSITE R3.4.2 (Build 2) **Calibration Version:** 1

Logging Source S/N: DSN-436

Snow Block S/N: TRK_10782954

NEUTRON POST-CHECK SUMMARY				
	Field Value	Post Value	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0582	0.0576	-0.0005	+/- 0.0150

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

DENSITY CALIPER SHOP CALIBRATION

Tool Name: SDLT - I066_M85803_P45 **Reference Calibration Date:** 09-Nov-11 16:14:16

Engineer: C. MARLOWE **Calibration Date:** 31-Jan-12 19:54:02

Software Version: WL INSITE R3.4.2 (Build 2) **Calibration Version:** 1

CALIBRATION COEFFICIENTS			
Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-5583.09	-5136.31	-7000.00 - -1000.00
Pad Gain	0.0003781	0.0003673	0.000200 - 0.000600
Arm Offset	-1197.87	-1566.02	-5000.00 - 3000.00
Arm Gain	0.0004938	0.0004838	0.000300 - 0.000700
Arm Power	-0.000003039	-0.000002176	-0.000010 - 0.000010

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

Tool Diameter: 4.50 in

CALIBRATION RINGS				
Measurement	Current Reading (Previous Coeff.)	Calibrated (New Coeff.)	Change	Control Limit On New Value
PAD EXTENSION:				
Small Ring (in)	1.89	2.00	0.11	+/- 0.20
Medium Ring (in)	3.69	3.75	0.06	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.54	6.50	-0.04	+/- 0.20
Medium Ring (in)	8.31	8.25	-0.06	+/- 0.20
Large Ring (in)	14.98	15.00	0.02	+/- 0.20

PASS/FAIL SUMMARY	
Calibration-Coefficients Range Check:	Passed
Ring-Measurement Check:	Passed

PASS/FAIL SUMMARY	
Calibration-Coefficients Range Check:	Passed

SDLT CALIPER FIELD CALIBRATION

Tool Name: SDLT - I066_M85803_P45 | **Reference Calibration Date:** 31-Jan-12 19:54:02

Engineer: T. HYDE | **Calibration Date:** 25-Feb-12 17:53:07

Software Version: WL INSITE R3.4.2 (Build 2) | **Calibration Version:** 1

MEASURED CALIPER VALUES

Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.70	-0.05	+/- 0.10
Ring Diameter	8.25	8.11	-0.14	+/- 0.15

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

SDLT CALIPER POST CALIBRATION

Tool Name: SDLT - I066_M85803_P45 | **Reference Calibration Date:** 25-Feb-12 17:53:07

Engineer: T. HYDE | **Calibration Date:** 25-Feb-12 21:55:38

Software Version: WL INSITE R3.4.2 (Build 2) | **Calibration Version:** 1

MEASURED CALIPER VALUES

Measurement	Field	Post	Change	Control Limit On New Value
Pad Extension	3.70	3.70	-0.00	+/- 0.10
Ring Diameter	8.11	7.97	-0.13	+/- 0.15

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

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

Tool Name: ACRt Sonde - I1256_S0784 | **Reference Calibration Date:** 03-Oct-11 10:37:13

Engineer: C. HAVERKAMP | **Calibration Date:** 19-Jan-12 15:58:26

Software Version: WL INSITE R3.4.2 (Build 2) | **Calibration Version:** 1

TYPICAL GAIN RANGE

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.0114	1.05	0.95	1.0118	1.05	0.95	1.0018	1.05
A2 (50")	0.95	1.0171	1.05	0.95	1.0184	1.05	0.95	1.0116	1.05
A3 (29")	0.95	1.0027	1.05	0.95	1.0033	1.05	0.95	0.9957	1.05
A4 (17")	0.95	1.0186	1.05	0.95	1.0175	1.05	0.95	1.0133	1.05
A5 (10")	N/A	N/A	N/A	0.95	0.9958	1.05	0.95	0.9913	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.9830	1.05	0.95	0.9787	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	-0.430	2	-6	-3.728	-2	-8	-4.849	-2
A2 (50")	-7	-2.031	-1	-6	-3.570	-2	-7	-4.342	-2
A3 (29")	-27	-16.211	-9	-9	-4.525	-3	-7	-3.257	-1

A4 (17")	-180	-98.266	-60	-45	-32.488	-15	-39	-26.620	-13
A5 (10")	N/A	N/A	N/A	-150	-96.757	-50	-80	-48.362	-10
A6 (6")	N/A	N/A	N/A	175	301.957	525	90	159.522	270

TRANSMITTER CURRENT GAIN

Signal	Lower	R	Upper
12K	0.6	0.8379	1.3
36K	1.0	1.1691	2.0
72K	1.0	1.4954	2.0

R-MUD VERIFICATION

Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
Mud Cell	0.95	1.002	1.05

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name: SDLT Pad - I145_M85803_P45
Reference Calibration Date: 17-Dec-11 07:41:10
Engineer: C. HAVERKAMP
Calibration Date: 23-Jan-12 14:46:25
Software Version: WL INSITE R3.4.2 (Build 2)
Calibration Version: 1

Logging Source S/N: 5073GW
Aluminum Block S/N: 63061 Density: 2.591g/cc Pe: 3.170
Magnesium Block S/N: 63393 Density: 1.690g/cc Pe: 2.594

DENSITY CALIBRATION SUMMARY

Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	0.9729	0.9638	0.90 - 1.10
Near Dens Gain	0.9692	0.9694	0.90 - 1.10
Near Peak Gain	0.9717	0.9714	0.90 - 1.10
Near Lith Gain	0.9336	0.9507	0.90 - 1.10
Far Bar Gain	0.9864	0.9884	0.90 - 1.10
Far Dens Gain	0.9773	0.9795	0.90 - 1.10
Far Peak Gain	0.9717	0.9754	0.90 - 1.10
Far Lith Gain	0.9498	0.9495	0.90 - 1.10
Near Bar Offset	0.4649	0.5546	NONE
Near Dens Offset	0.4626	0.4701	NONE
Near Peak Offset	0.4060	0.4173	NONE
Near Lith Offset	0.6865	0.5566	NONE
Far Bar Offset	0.2464	0.2316	NONE
Far Dens Offset	0.3033	0.2881	NONE
Far Peak Offset	0.3146	0.2860	NONE
Far Lith Offset	0.4166	0.4258	NONE
Near Bar Background	1007.93	1005.32	700 - 1450
Near Dens Background	332.14	333.52	230 - 480
Near Peak Background	145.51	145.48	100 - 210
Near Lith Background	178.15	177.09	125 - 260
Far Bar Background	518.29	514.45	450 - 900
Far Dens Background	199.77	198.02	175 - 345
Far Peak Background	78.22	77.75	70 - 140
Far Lith Background	82.71	82.34	75 - 145

CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.686	1.690	0.004	+/- 0.015

Pe	2.613	2.547	-0.066	+/- 0.150
ALUMINUM				
Density (g/cc)	2.581	2.591	0.010	+/- 0.01500
Pe	3.131	3.120	-0.011	+/- 0.150

TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0007	+/- 0.0110	-0.0011	+/- 0.0140
Magnesium Block	-0.0009	+/- 0.0110	-0.0019	+/- 0.0140
Aluminum Block	-0.0010	+/- 0.0110	-0.0006	+/- 0.0140
Resolution	9.81	6.00 - 11.50	9.22	6.00 - 11.50
Internal Verifier(B+D+P+L)	1661	1200 - 2700	873	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 - I145_M85803_P45 **Reference Calibration Date:** 23-Jan-12 14:46:25

Engineer: T. HYDE **Calibration Date:** 25-Feb-12 17:38:21

Software Version: WL INSITE R3.4.2 (Build 2) **Calibration Version:** 1

Pad Temperature: 69.0 degF

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1661.419	1654.123	-7.296	16.372
Far (B+D+P+L) cps	872.552	877.822	5.270	16.140
Near Resolution	9.81	9.88	0.070	0.50
Far Resolution	9.22	9.73	0.510	1.00

PASS/FAIL SUMMARY

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

SPECTRAL DENSITY POST CHECK

Tool Name: SDLT Pad - I145_M85803_P45 **Reference Calibration Date:** 25-Feb-12 17:38:21

Engineer: T. HYDE **Calibration Date:** 25-Feb-12 21:39:39

Software Version: WL INSITE R3.4.2 (Build 2) **Calibration Version:** 1

Pad Temperature: 57.6 degF

DENSITY POST CALIBRATION SUMMARY

Measurement	Field	Post	Change	Control Limit +/-
Near (B+D+P+L) cps	1654.123	1658.350	4.227	16.372
Far (B+D+P+L) cps	877.822	873.813	-4.009	16.140

Near Resolution	9.88	9.84	-0.040	0.50
Far Resolution	9.73	9.54	-0.190	1.00

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

MICRO LOG SHOP CALIBRATION

Tool Name: Microlog Pad - I066_M85803_P45 **Reference Calibration Date:** 02-Sep-11 06:03:18

Engineer: C. MARLOWE **Calibration Date:** 31-Jan-12 20:02:12

Software Version: WL INSITE R3.4.2 (Build 2) **Calibration Version:** 1

CALIBRATION COEFFICIENT SUMMARY

Measurement	Micro Log Normal		Micro Log Lateral		
	Measured	Calibrated	Measured	Calibrated	Units
Tool Zero	-0.07	-0.09	0.00	0.00	ohmm
Calibration Point #1	0.02	0.00	-0.00	0.00	ohmm
Calibration Point #2	19.97	20.00	19.98	20.00	ohmm
Internal Reference	19.90	19.93	19.97	19.99	ohmm

Measurement	Micro Log Normal Tool Value	Micro Log Lateral Tool Value	Units
Tool Zero	-0.53	3.16	V
Calibration Point #1	23.08	1.59	V
Calibration Point #2	5304.32	6881.96	V
Internal Reference	5284.73	6879.28	V

MICRO LOG FIELD CHECK

Tool Name: Microlog Pad - I066_M85803_P45 **Reference Calibration Date:** 31-Jan-12 20:02:12

Engineer: T. HYDE **Calibration Date:** 25-Feb-12 17:39:36

Software Version: WL INSITE R3.4.2 (Build 2) **Calibration Version:** 1

Measurement	Micro Log Normal		Micro Log Lateral		
	Shop	Field	Shop	Field	Units
Tool Zero	-0.09	-0.08	0.00	0.00	ohmm
Internal Reference	19.93	19.88	19.99	19.94	ohmm

Summary

Signal	Shop	Field	Difference	Tolerence
Microlog Normal	19.93	19.88	0.05	+/- 0.80
Microlog Lateral	19.99	19.94	0.05	+/- 0.80

MICRO LOG POST CHECK

Tool Name: Microlog Pad - I066_M85803_P45 **Reference Calibration Date:** 25-Feb-12 17:39:36

Engineer: T. HYDE **Calibration Date:** 25-Feb-12 21:38:55

Software Version: WL INSITE R3.4.2 (Build 2) **Calibration Version:** 1

Measurement	Micro Log Normal		Micro Log Lateral		
	Field	Post	Field	Post	Units
Tool Zero	-0.08	-0.10	0.00	0.02	ohmm
Internal Reference	19.88	19.89	19.94	19.95	ohmm

Summary

Signal	Field	Post	Difference	Tolerence
Microlog Normal	19.88	19.89	0.01	+/- 0.80
Microlog Lateral	19.94	19.95	0.01	+/- 0.80

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-10811258						
Gamma Ray Calibrator	232.0	230.0	228.2	1.8	+/- 9.00	api
DSNT-10755066						
Snow-Block Porosity	0.0560	0.0582	0.0576	0.0006	+/- 0.0150	decp
SDLT-I066_M85803_P45						
Pad Extension	3.75	3.70	3.70	0.00	+/-0.10	in
Ring Diameter	8.25	8.11	7.97	0.140	+/-0.15	in
ACRt Sonde-I1256_S0784						
Mud Cell	1.002	----------	----------	0.000	----------	ohm-m
SDLT Pad-I145_M85803_P45						
Near(B+D+P+L)	1661.419	1654.123	1658.350	-4.227	+/-16.372	cps
Far(B+D+P+L)	872.552	877.822	873.813	4.009	+/-16.140	cps
Microlog Pad-I066_M85803_P45						
MicroLog Normal	19.93	19.88	19.89	-0.01	+/-0.80	ohmm
MicroLog Lateral	19.99	19.94	19.95	-0.01	+/-0.80	ohmm

Data: GARDEN_CITY_V_1\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\IDLE **Date: 25-Feb-12 21:57:31**

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PARAMETERS REPORT

Depth ((ft))	Tool Name	Mnemonic	Description	Value	Units
TOP					
	SHARED	BS	Bit Size	7.875	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDBS	Mud Base	Water	
	SHARED	MDWT	Borehole Fluid Weight	9.500	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	0.710	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	4945.00	ft
	SHARED	BHT	Bottom Hole Temperature	96.0	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	
	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	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	
BOTTOM					

Data: GARDEN_CITY_V_1\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\IDLE **Date: 25-Feb-12 21:17:15**

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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	66.58	NO	
SP	Spontaneous Potential	66.58	BLK	1.250
SPR	Raw Spontaneous Potential	66.58	NO	
SPO	Spontaneous Potential Offset	66.58	NO	
	GTET			
TPUL	Tension Pull	58.56	NO	
GR	Natural Gamma Ray API	58.56	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	58.56	NO	

EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	58.56	W	1.416 , 0.750
ACCZ	Accelerometer Z	0.00	BLK	0.083
DEVI	Inclination	0.00	NO	
	DSNT			
TPUL	Tension Pull	48.32	NO	
RNDS	Near Detector Telemetry Counts	48.42	BLK	1.417
RFDS	Far Detector Telemetry Counts	49.17	TRI	0.583
DNTT	DSN Tool Temperature	48.42	NO	
DSNS	DSN Tool Status	48.32	NO	
ERND	Near Detector Telemetry Counts EVR	48.42	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	49.17	BLK	0.000
ENTM	DSN Tool Temperature EVR	48.42	NO	
	SDLT			
TPUL	Tension Pull	38.42	NO	
PCAL	Pad Caliper	38.42	TRI	0.250
ACAL	Arm Caliper	38.42	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	
	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	

SDLT Pad

TPUL	Tension Pull	38.41	NO	
NAB	Near Above	38.24	BLK	0.920
NHI	Near Cesium High	38.24	BLK	0.920
NLO	Near Cesium Low	38.24	BLK	0.920
NVA	Near Valley	38.24	BLK	0.920
NBA	Near Barite	38.24	BLK	0.920
NDE	Near Density	38.24	BLK	0.920
NPK	Near Peak	38.24	BLK	0.920
NLI	Near Lithology	38.24	BLK	0.920
NBAU	Near Barite Unfiltered	38.24	BLK	0.250
NLIU	Near Lithology Unfiltered	38.24	BLK	0.250
FAB	Far Above	38.58	BLK	0.250
FHI	Far Cesium High	38.58	BLK	0.250
FLO	Far Cesium Low	38.58	BLK	0.250
FVA	Far Valley	38.58	BLK	0.250
FBA	Far Barite	38.58	BLK	0.250
FDE	Far Density	38.58	BLK	0.250
FPK	Far Peak	38.58	BLK	0.250
FLI	Far Lithology	38.58	BLK	0.250
PTMP	Pad Temperature	38.42	BLK	0.920
NHV	Near Detector High Voltage	37.81	NO	
FHV	Far Detector High Voltage	37.81	NO	
ITMP	Instrument Temperature	37.81	NO	
DDHV	Detector High Voltage	37.81	NO	

Microlog Pad

TPUL	Tension Pull	38.60	NO	
MINV	Microlog Lateral	38.60	BLK	0.750
MNOR	Microlog Normal	38.60	BLK	0.750

COMPANY	**OXY USA INC**		
WELL	**GARDEN CITY V-1**		
FIELD	**GARDEN CITY**		
COUNTY	**FINNEY**	STATE	**KANSAS**

HALLIBURTON

BORE HOLE
COMPENSATED SONIC ARRAY
LOG