

HALLIBURTON

SPECTRAL DENSITY DUAL SPACED NEUTRON LOG

COMPANY		OXY USA INC	
WELL		GARDEN CITY V-1	
FIELD		GARDEN CITY	
COUNTY		FINNEY	
STATE		KANSAS	
Permanent Datum		GL	
Log measured from		KB	
Drilling measured from		KB	
Date		25-Feb-12	
Run No.		ONE	
Depth - Driller		4960.00 ft	
Depth - Logger		4945.0 ft	
Bottom - Logged Interval		4907.0 ft	
Top - Logged Interval		1824.0 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		9.5 ppg	
Viscosity		44.00 s/qt	
PH		9.10 pH	
Fluid Loss		9.6 cpm	
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		MEASURED	
Rmc		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		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											
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.					
Rmf @ Meas. Temp.		@		@				ONE		ACRT		N/A		1.5" S.O.					
Rmc @ Meas. Temp.		@		@						I1256_S0784									
Source Rmf		Rmc						ONE		MICRO		RUBBER		ADJ					
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																			
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	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 DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHICH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR RECOMMENDATIONS AGREES THAT HALLIBURTON IS NOT RESPONSIBLE EXCEPT WHERE DUE TO GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR ANY LOSS, DAMAGES, OR EXPENSES RESULTING FROM THE USE THEREOF.														
HALLIBURTON														

HALLIBURTON Plot Time: 25-Feb-12 22:23:03

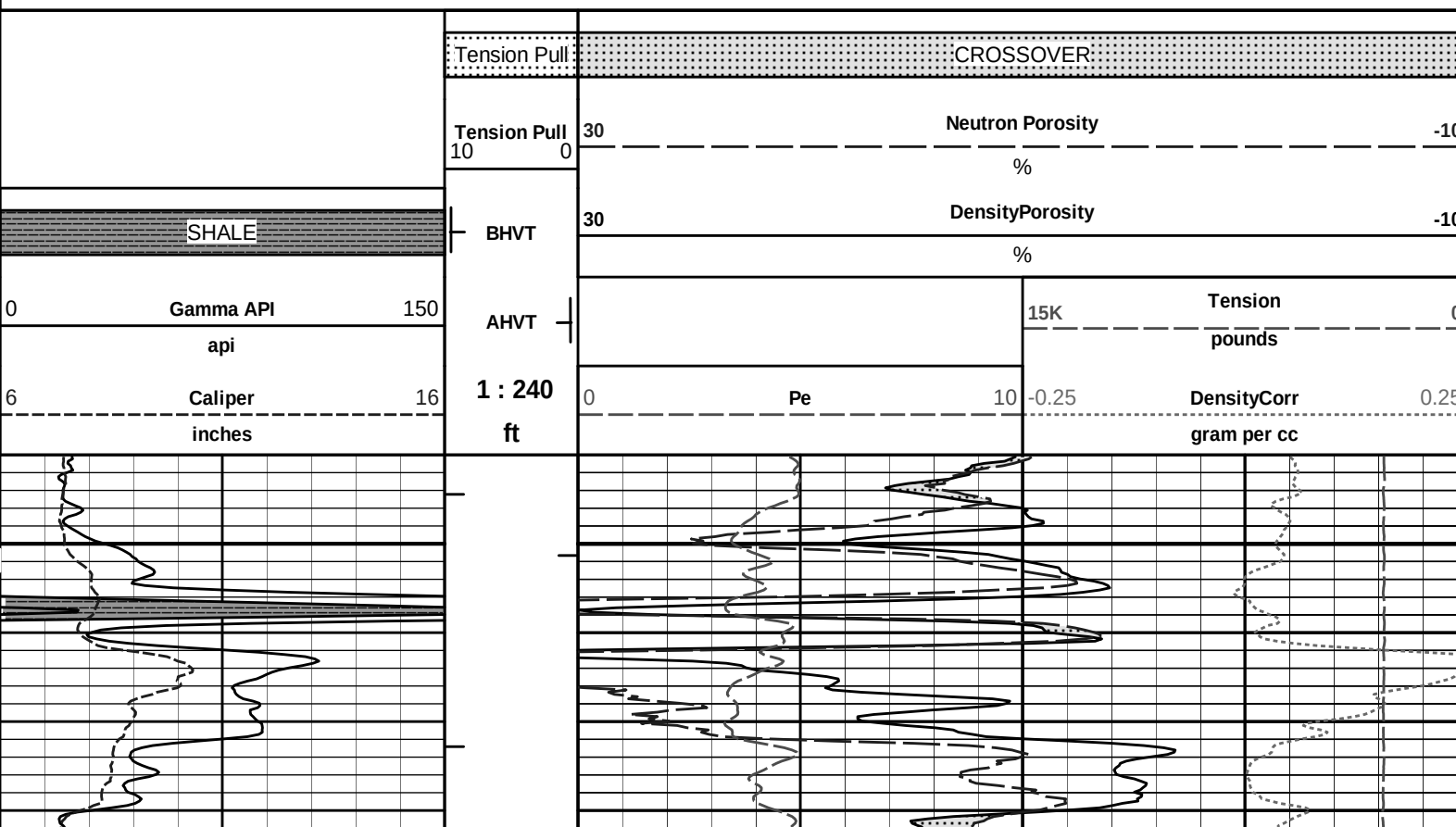
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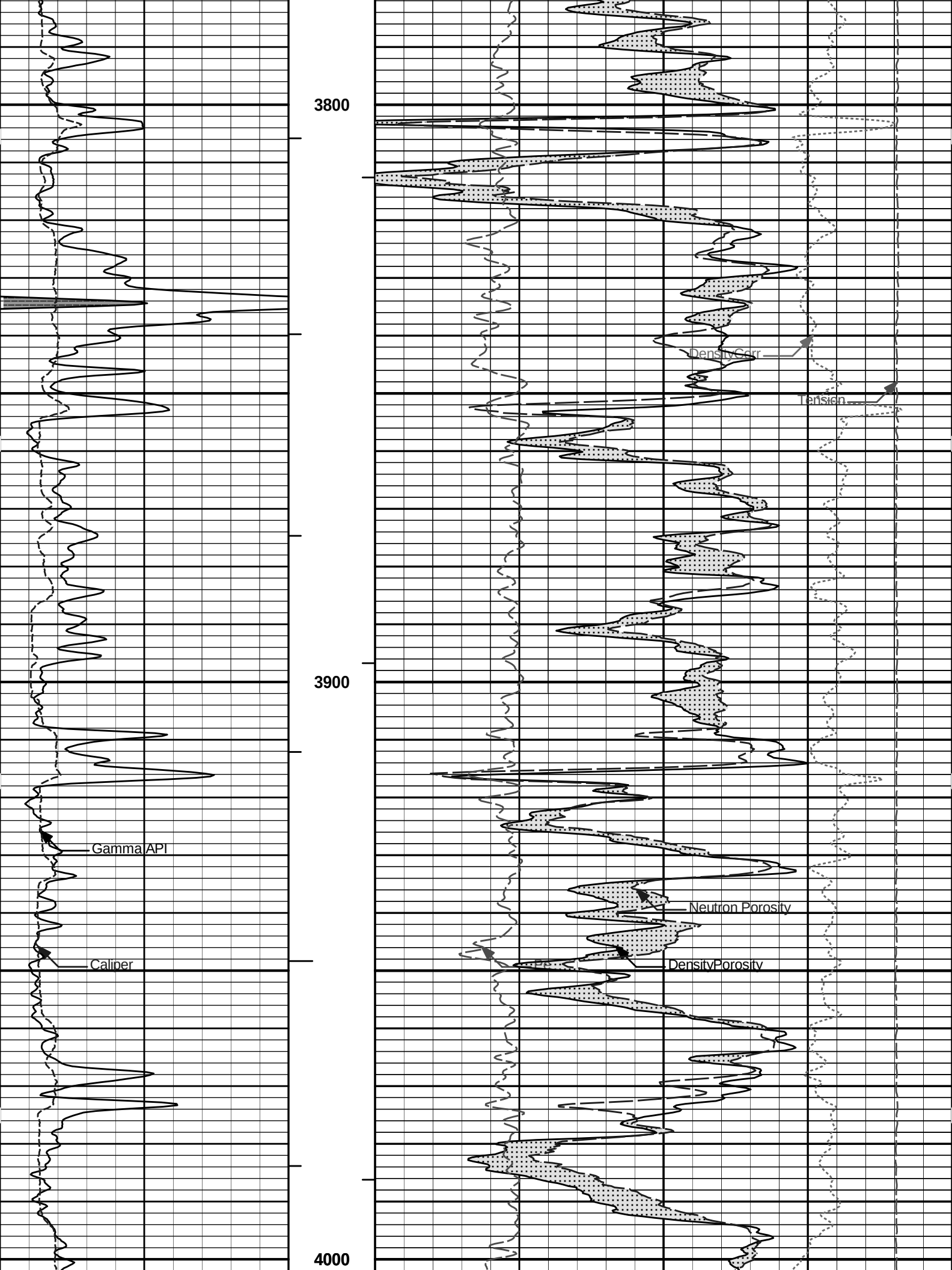
Plot Range: 3740 ft to 4951.33 ft

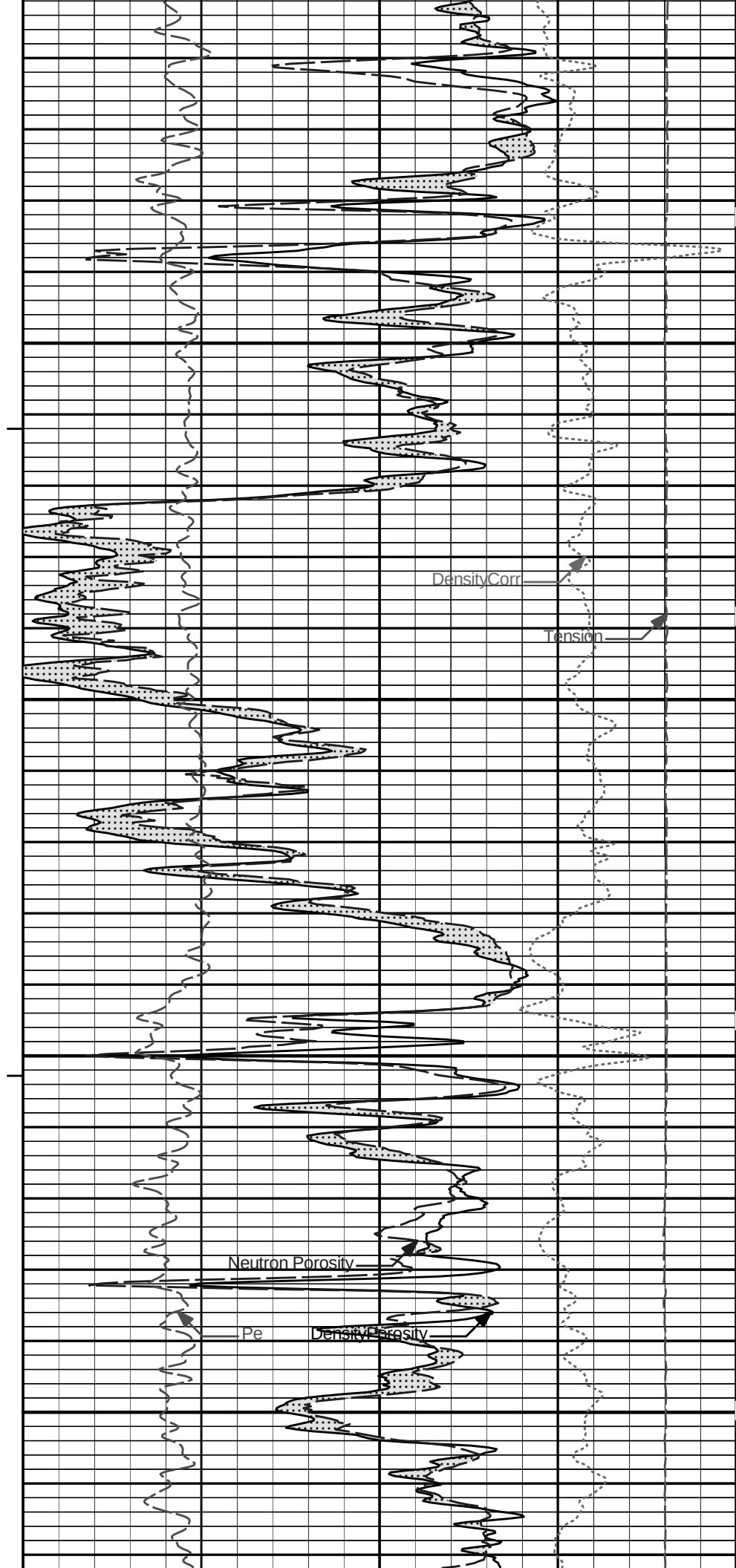
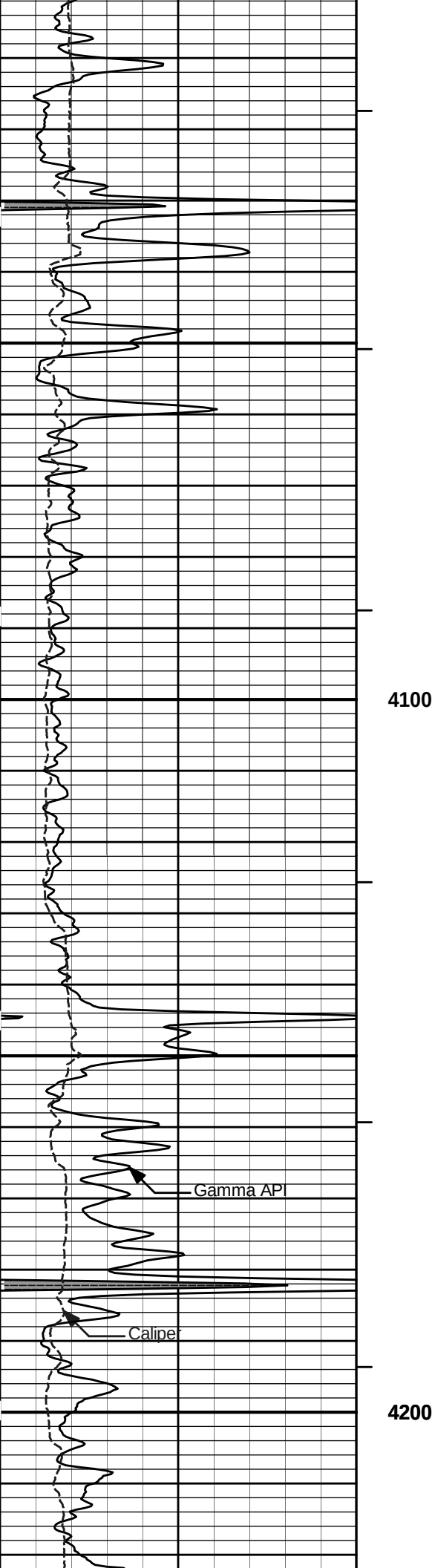
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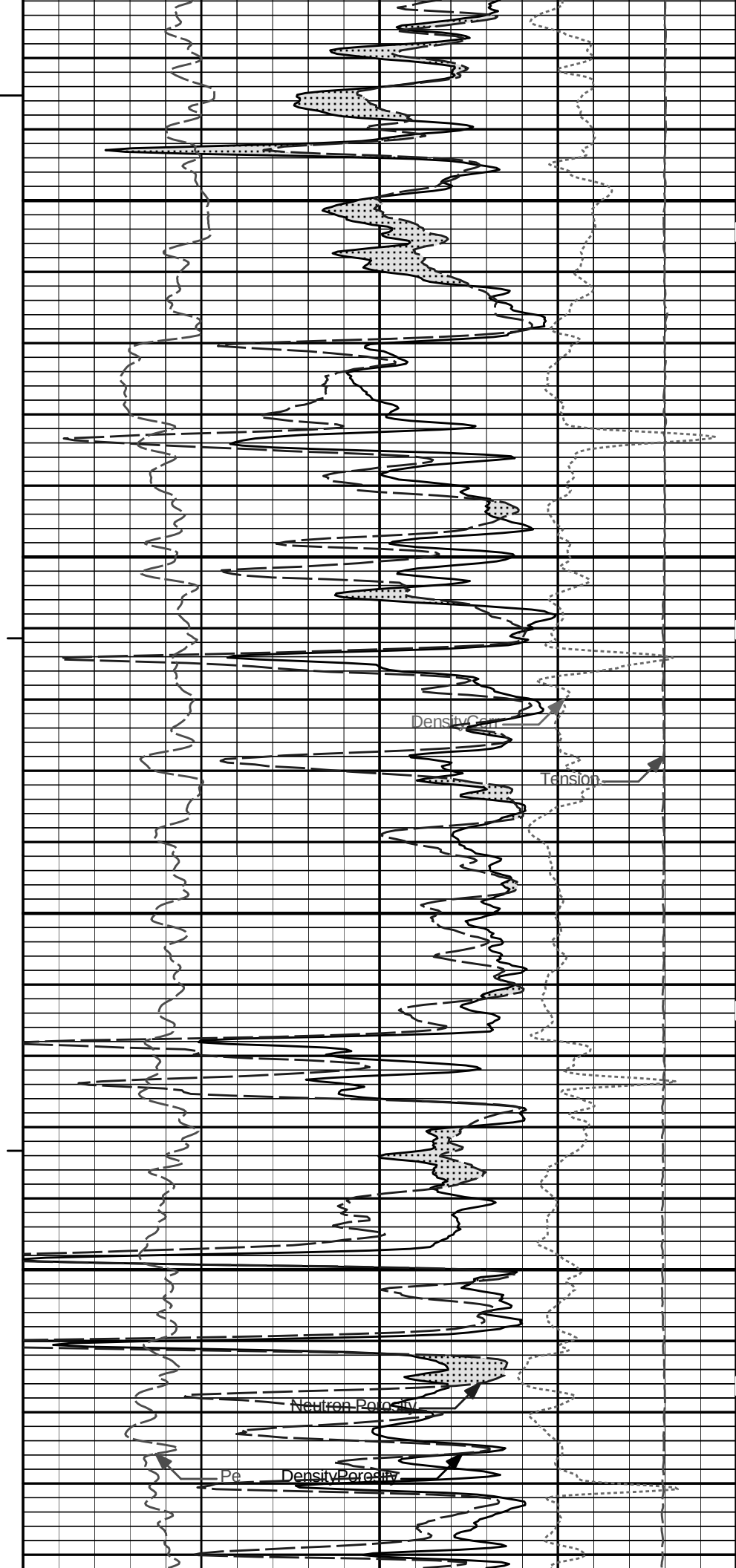
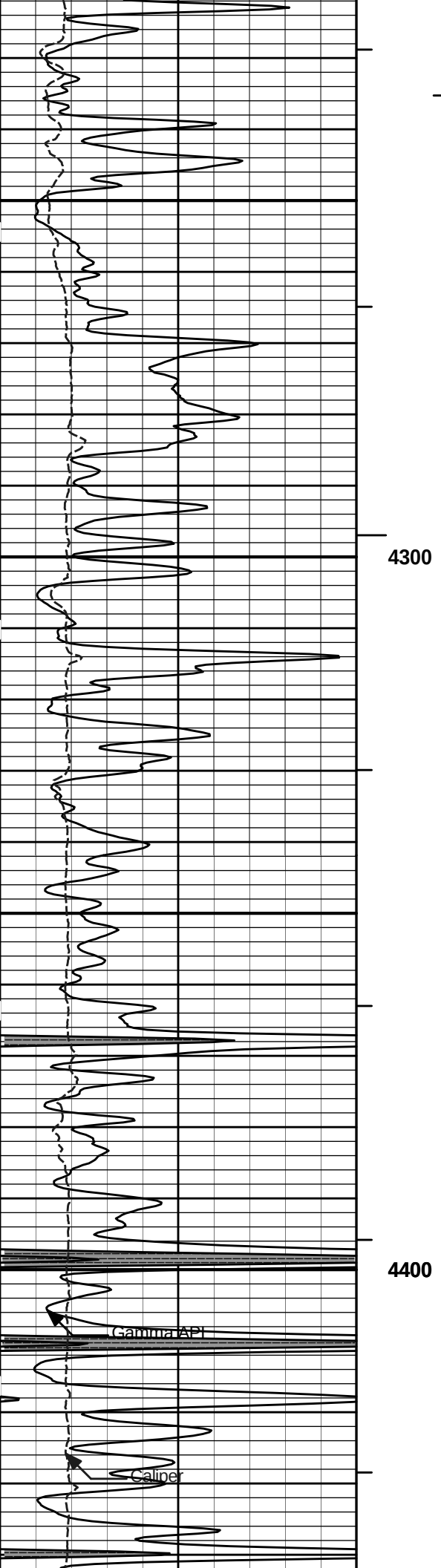
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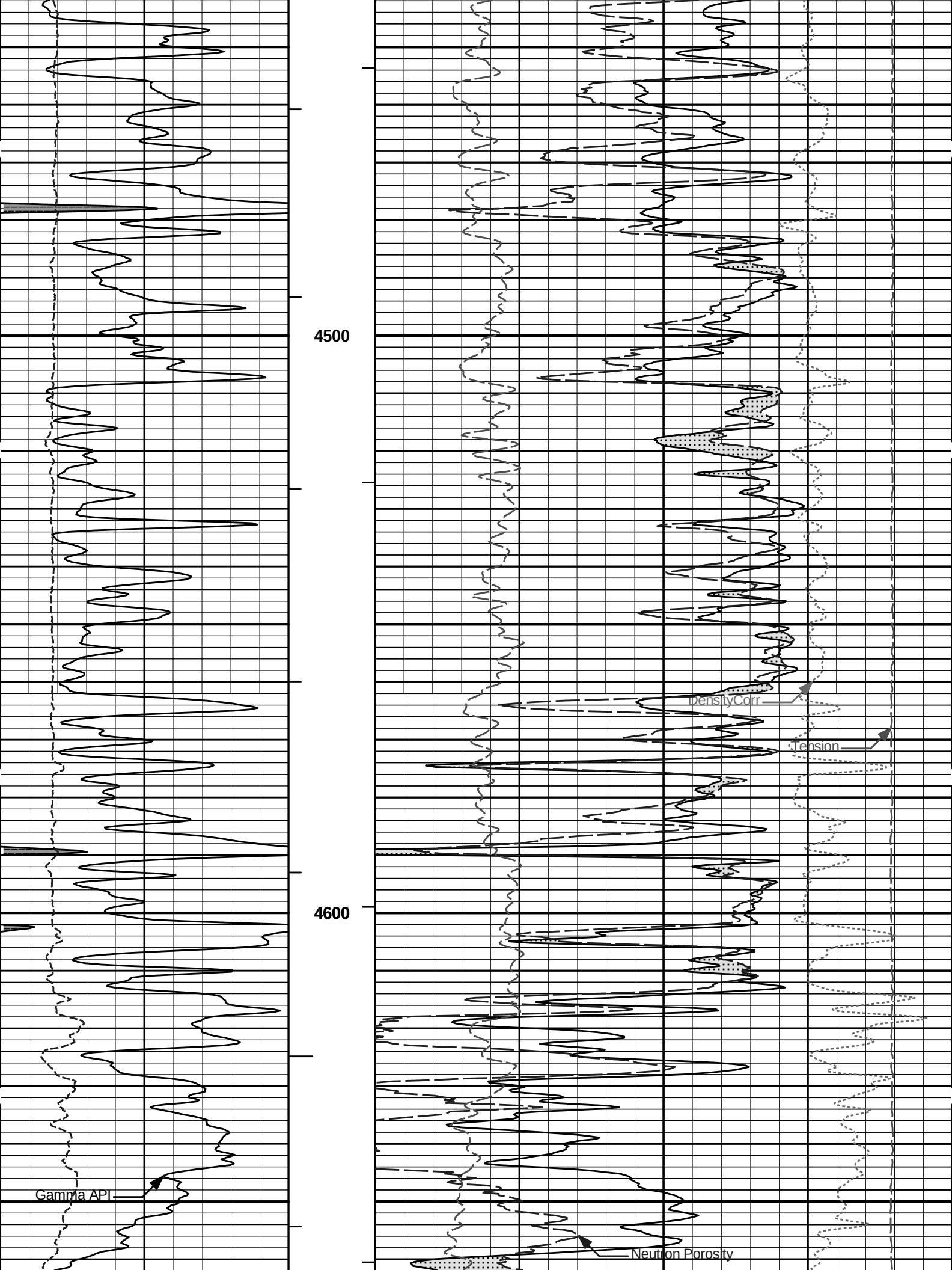
5 INCH MAIN LOG

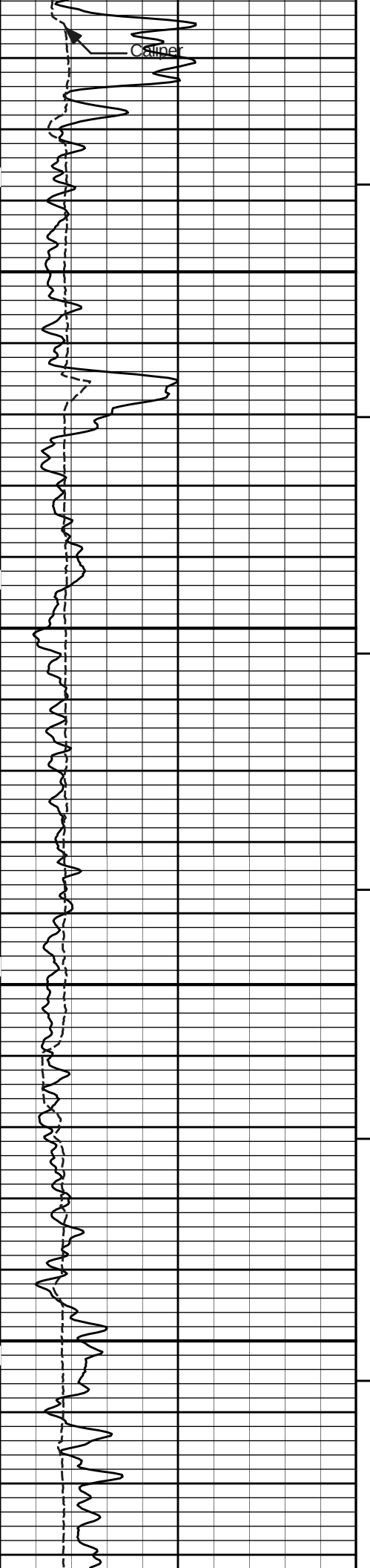






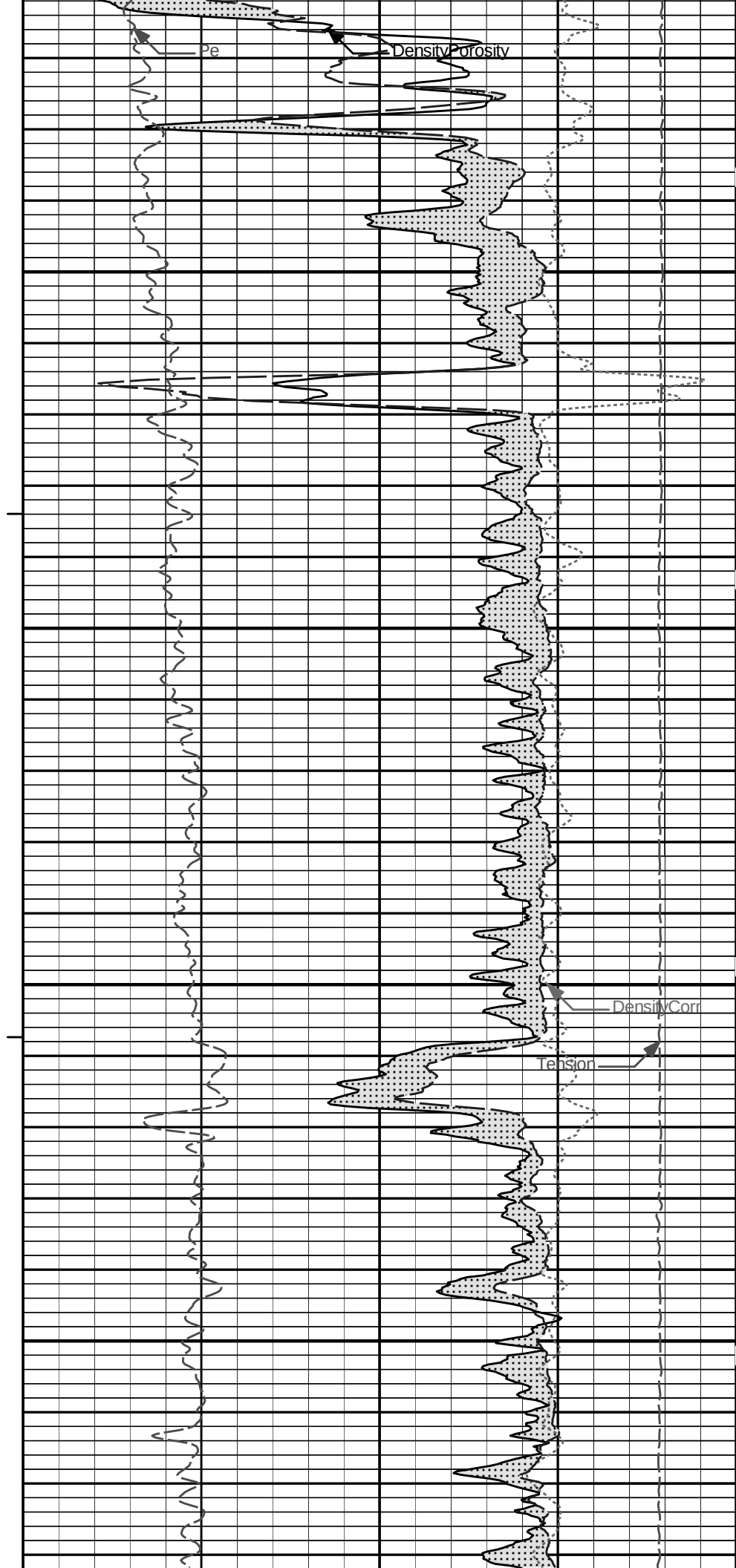


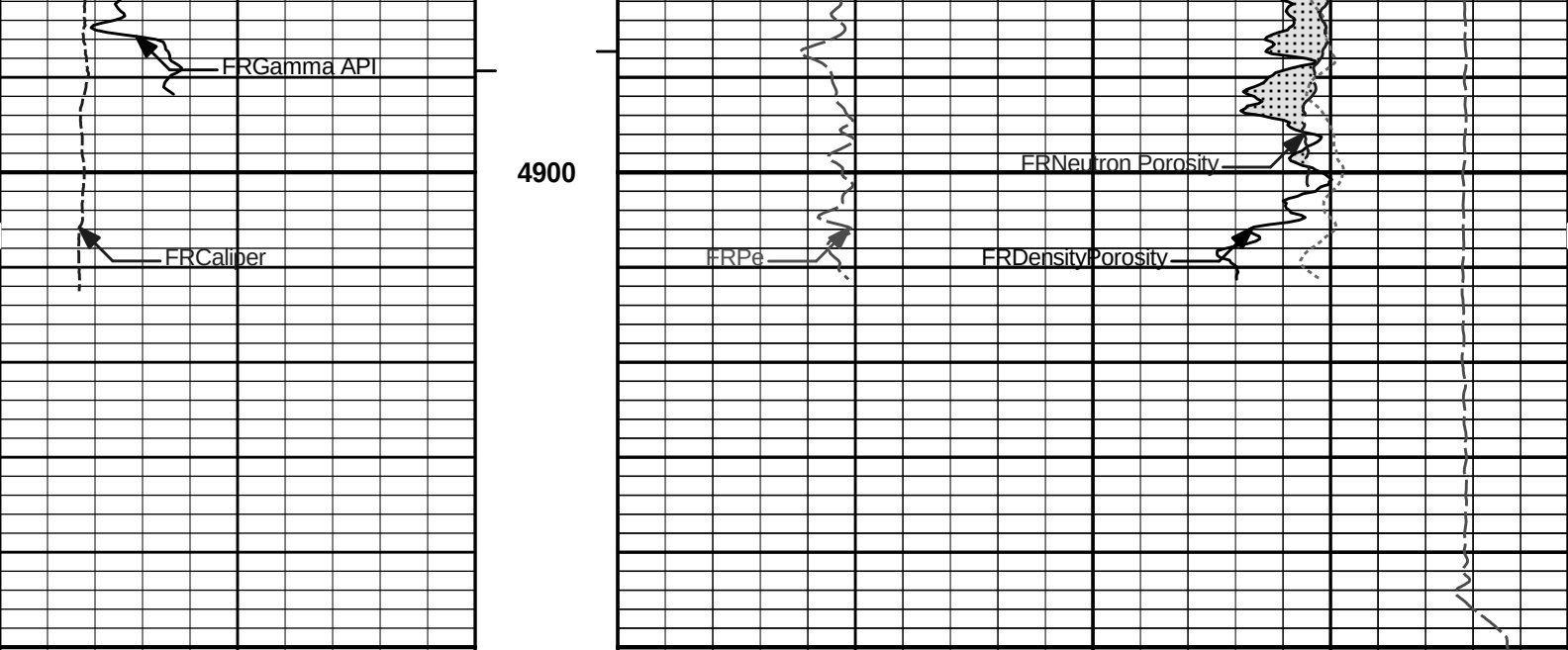




4700

4800





6	Caliper	16	1 : 240	0	Pe	10	-0.25	DensityCorr	0.25
	inches		ft					gram per cc	
0	Gamma API	150	AHVT				15K	Tension	0
	api							pounds	
	SHALE		BHVT	30	DensityPorosity				-10
					%				
			Tension Pull	30	Neutron Porosity				-10
			10		%				
			Tension Pull		CROSSOVER				

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Plot Time: 25-Feb-12 22:23:15
Plot Range: 3740 ft to 4951.33 ft
Data: GARDEN_CITY_V_1\Well Based\DAQ-0001-004\
Plot File: \\PORO\Poros_IQ_5_MAIN_LIB

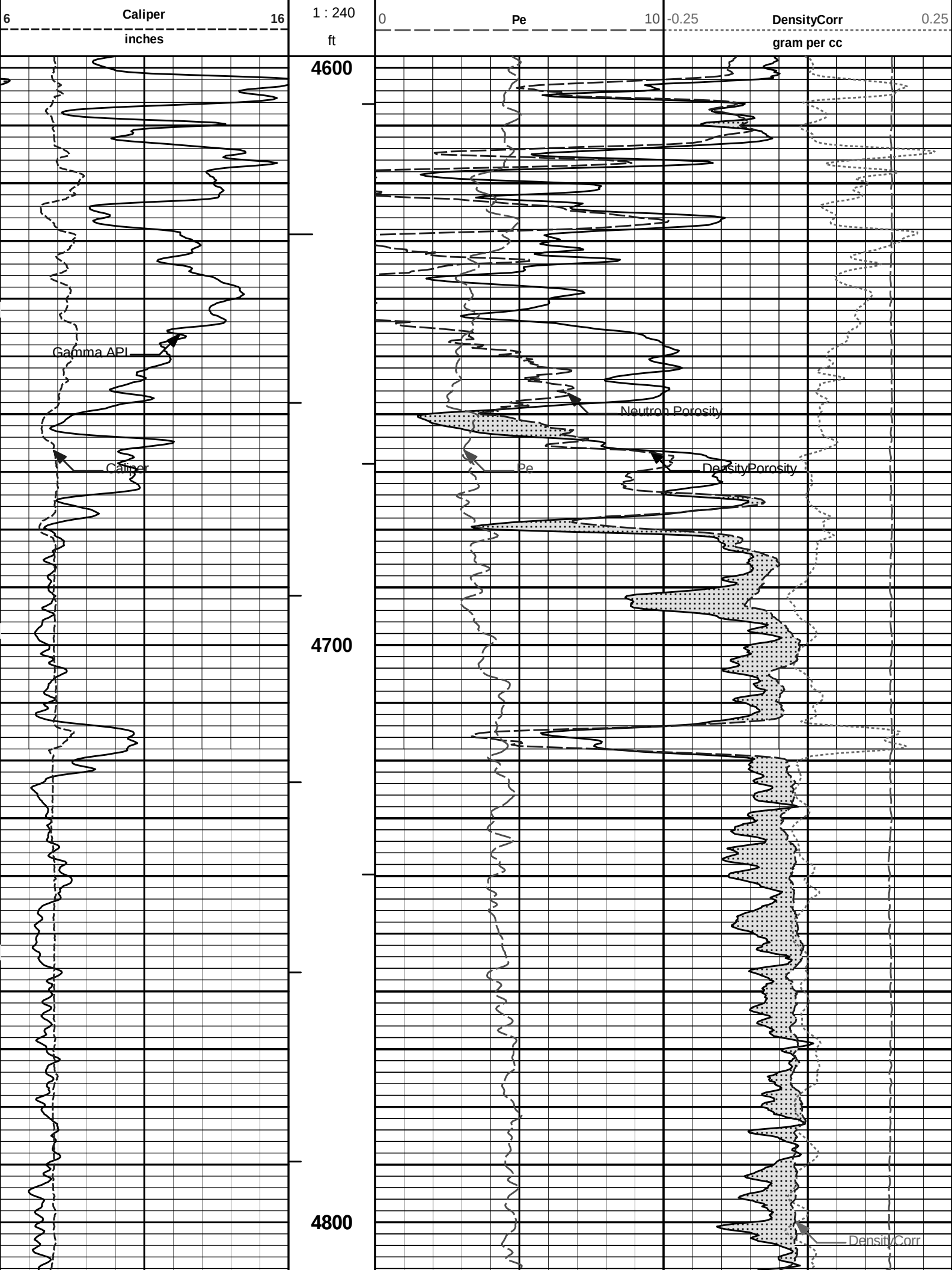
5 INCH MAIN LOG

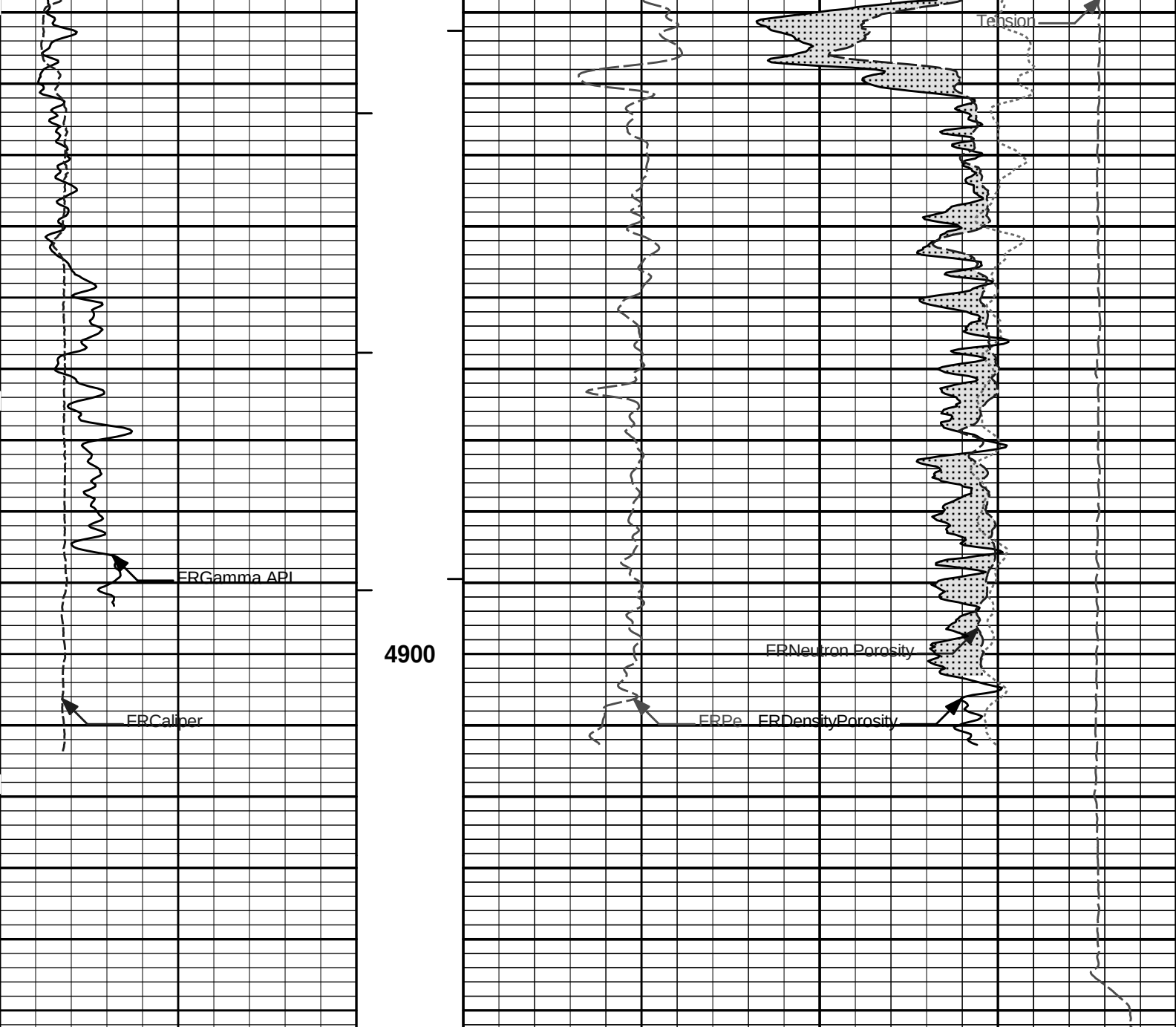
HALLIBURTON

Plot Time: 25-Feb-12 22:23:15
Plot Range: 4598 ft to 4952.75 ft
Data: GARDEN_CITY_V_1\Well Based\DAQ-0001-003\
Plot File: \\PORO\Poros_IQ_5_REP_LIB

REPEAT SECTION

					CROSSOVER				
				30	Neutron Porosity				-10
					%				
	SHALE		BHVT	30	DensityPorosity				-10
					%				
0	Gamma API	150	AHVT			15K		Tension	0
	api							pounds	





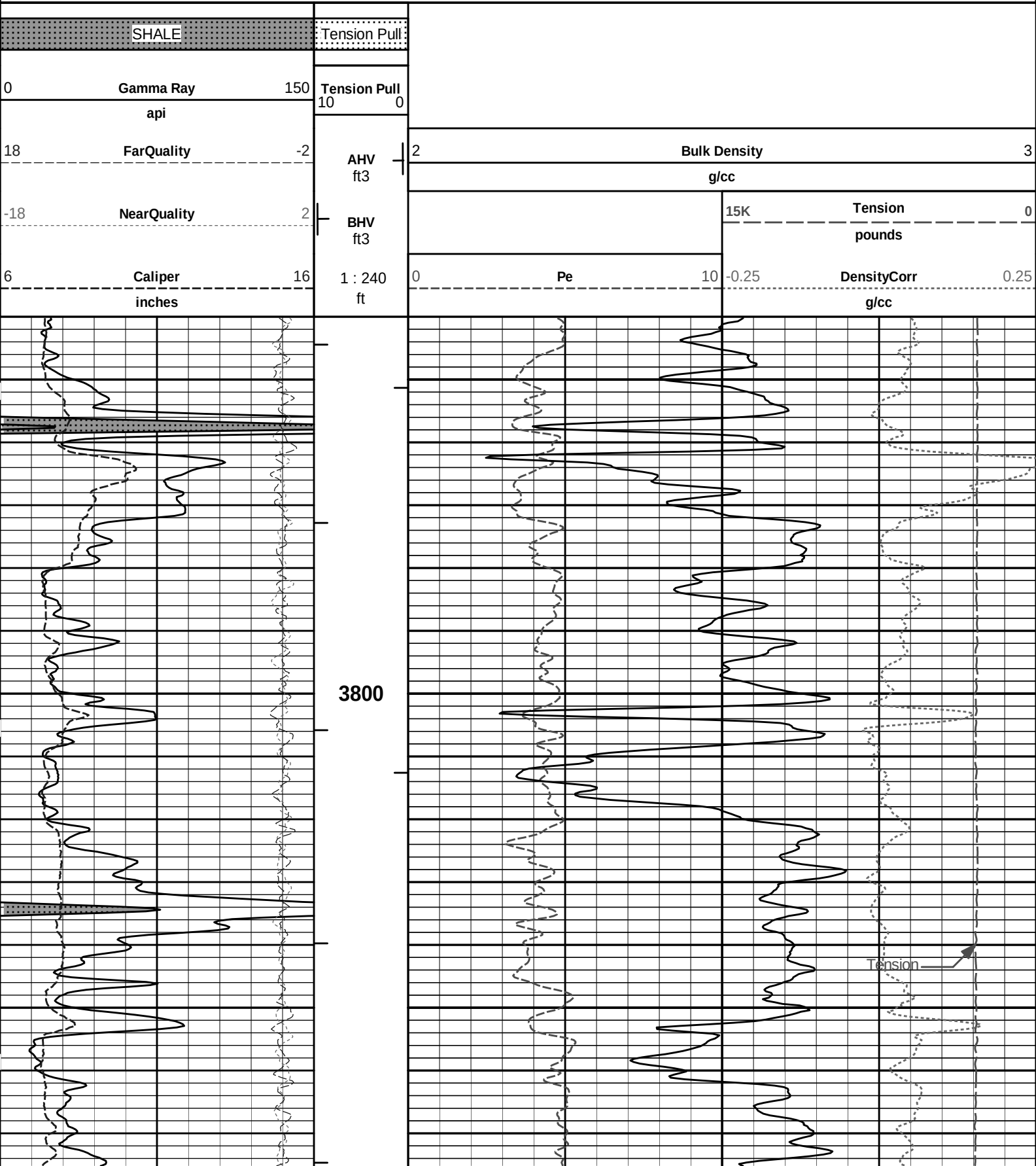
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	inches		ft					gram per cc	
0	Gamma API	150	AHVT				15K	Tension	0
	api							pounds	
	SHALE		BHVT	30	DensityPorosity				-10
					%				
				30	Neutron Porosity				-10
					%				
					CROSSOVER				

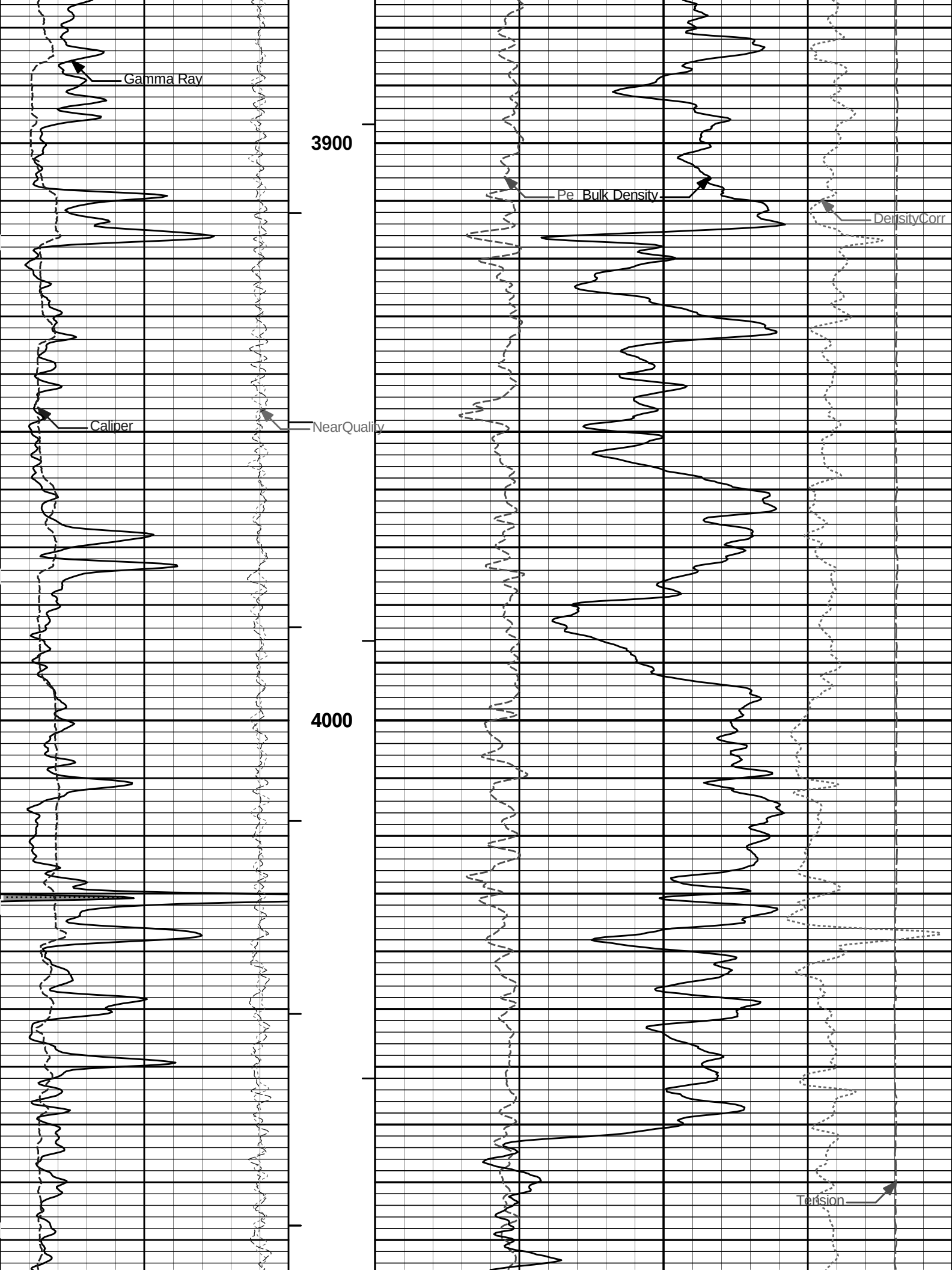
HALLIBURTON

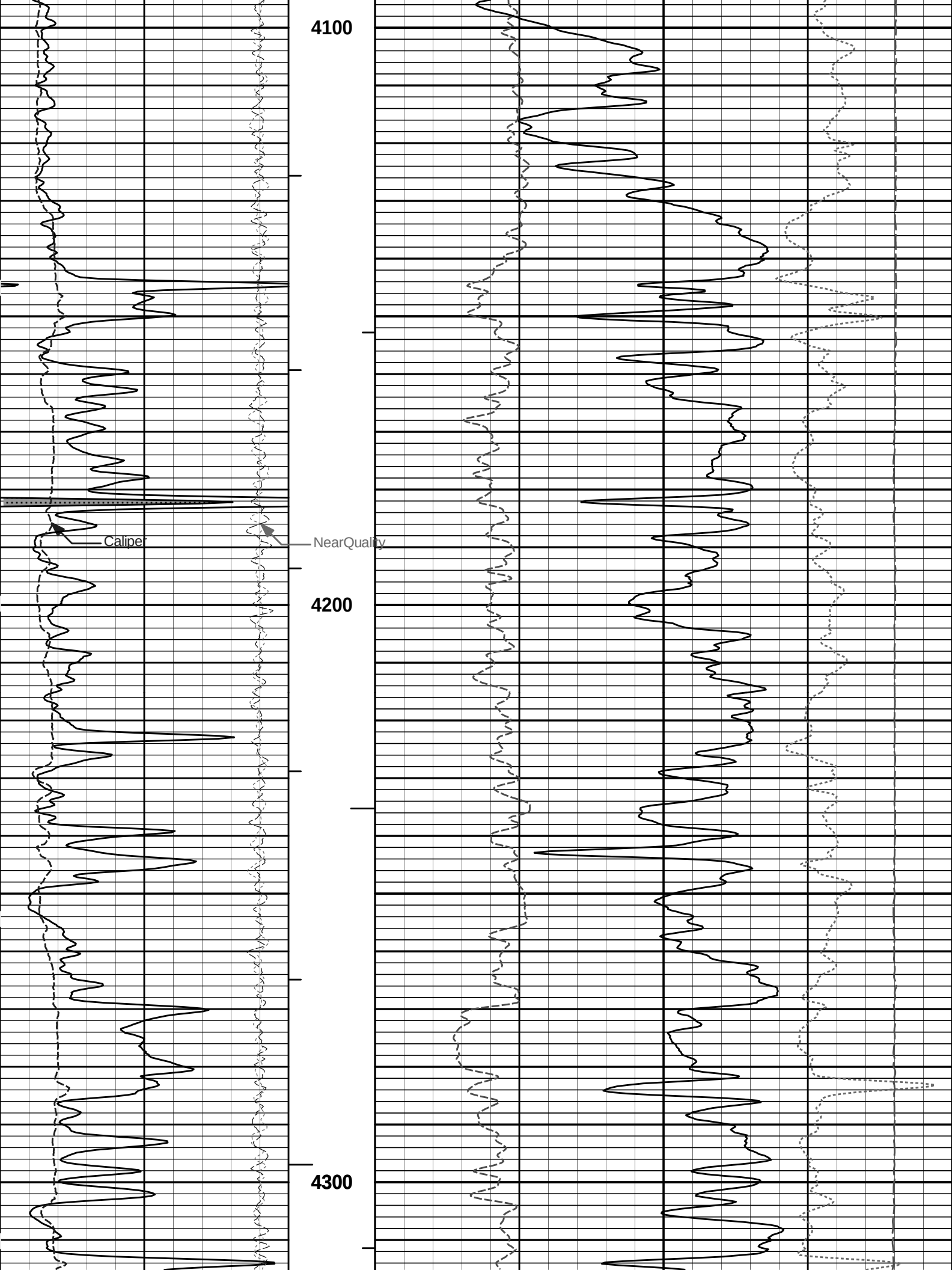
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 Plot Range: 4598 ft to 4952.75 ft
 Data: GARDEN_CITY_V_1\Well Based\DAQ-0001-003\
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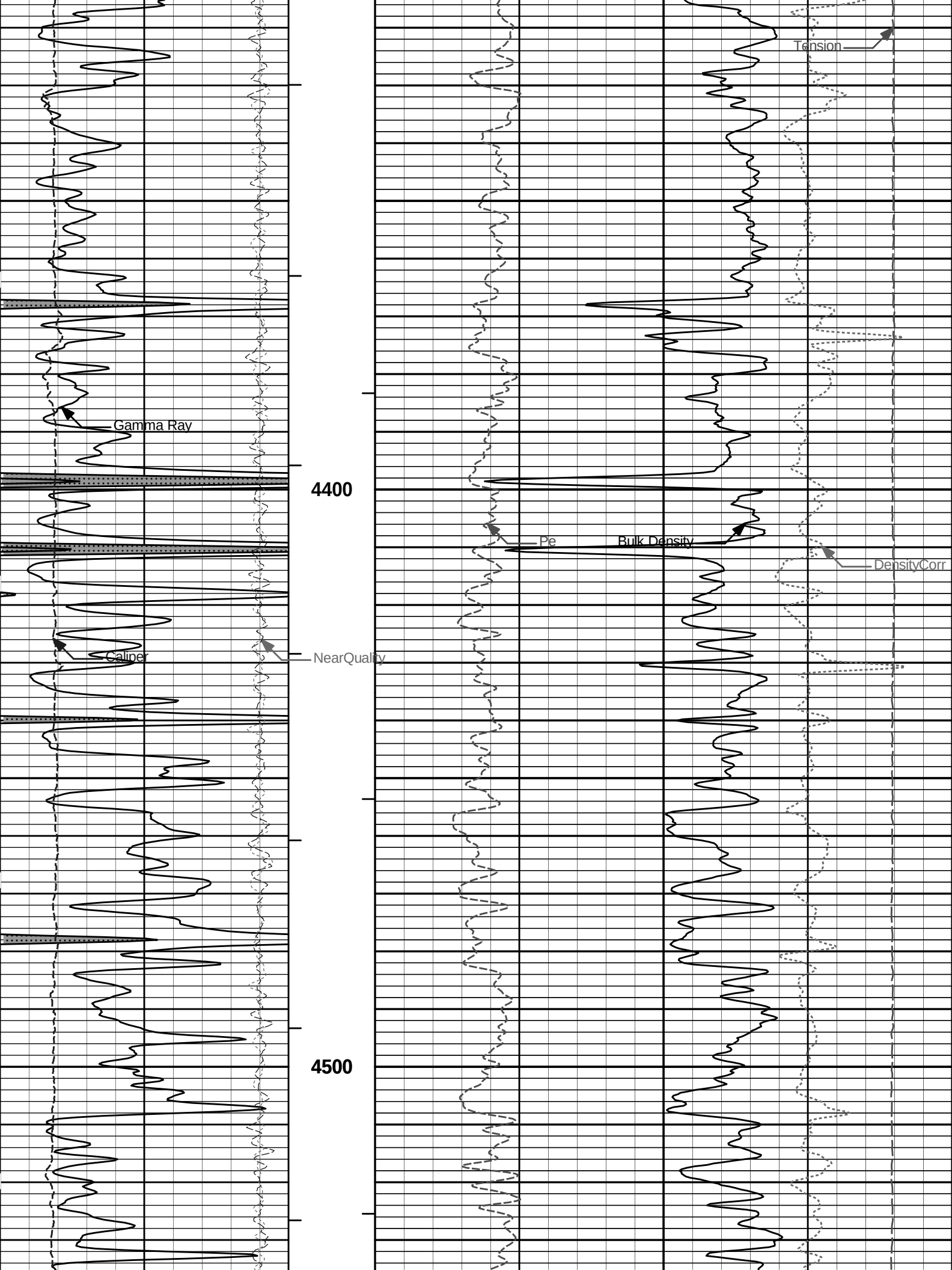
REPEAT SECTION

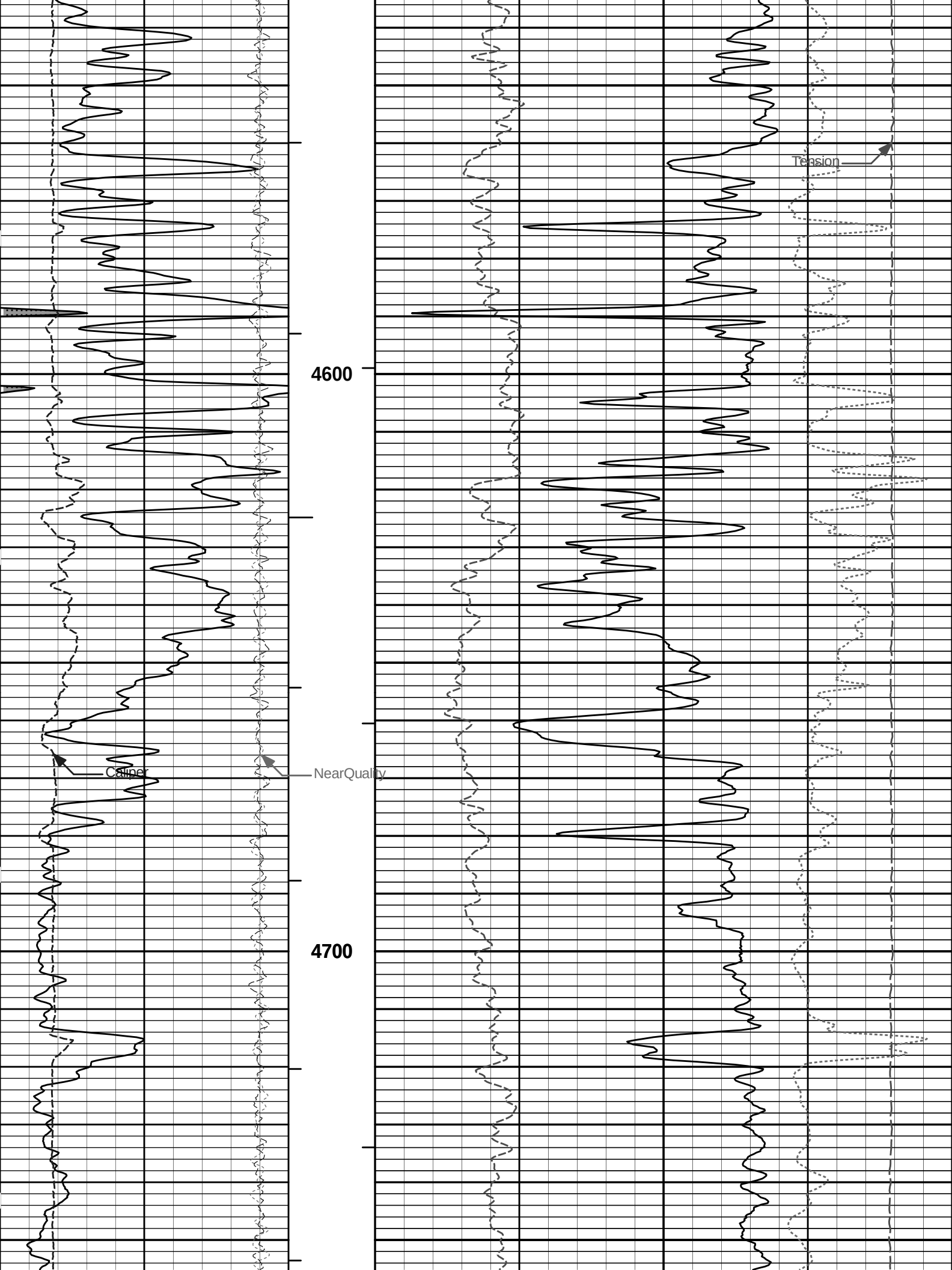
5 INCH MAIN LOG

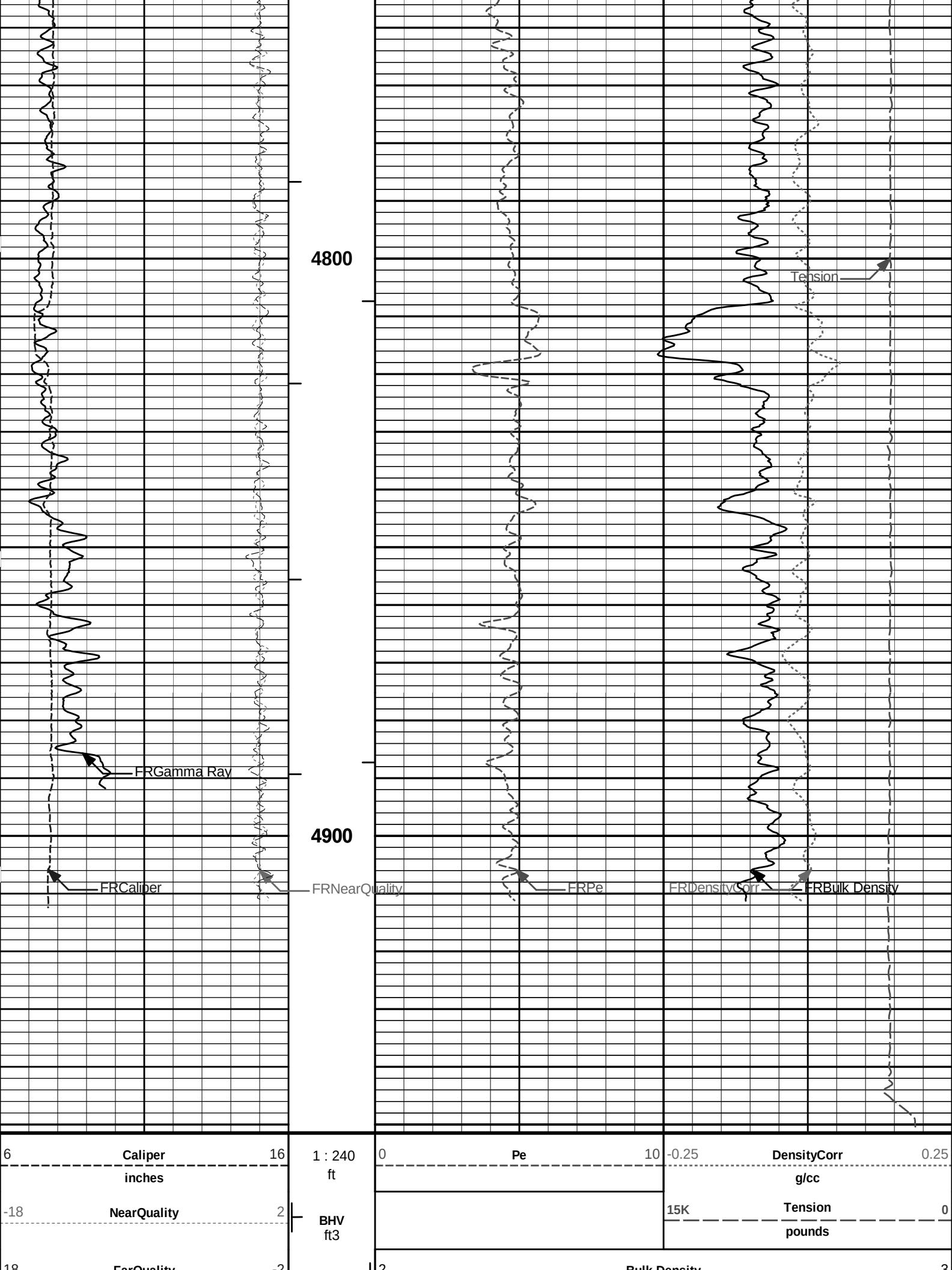












FarQuality		-2	AHV ft3	2	Bulk Density		3
Gamma Ray		150	Tension Pull		g/cc		
api			10 0				
SHALE			Tension Pull				

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Plot Time: 25-Feb-12 22:23:33
Plot Range: 3740 ft to 4951.33 ft
Data: GARDEN_CITY_V_1\Well Based\DAQ-0001-004\
Plot File: \\-LOCAL-IGARDEN_CITY_V_1\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\PORO\BULKD_5_MAIN_LIB

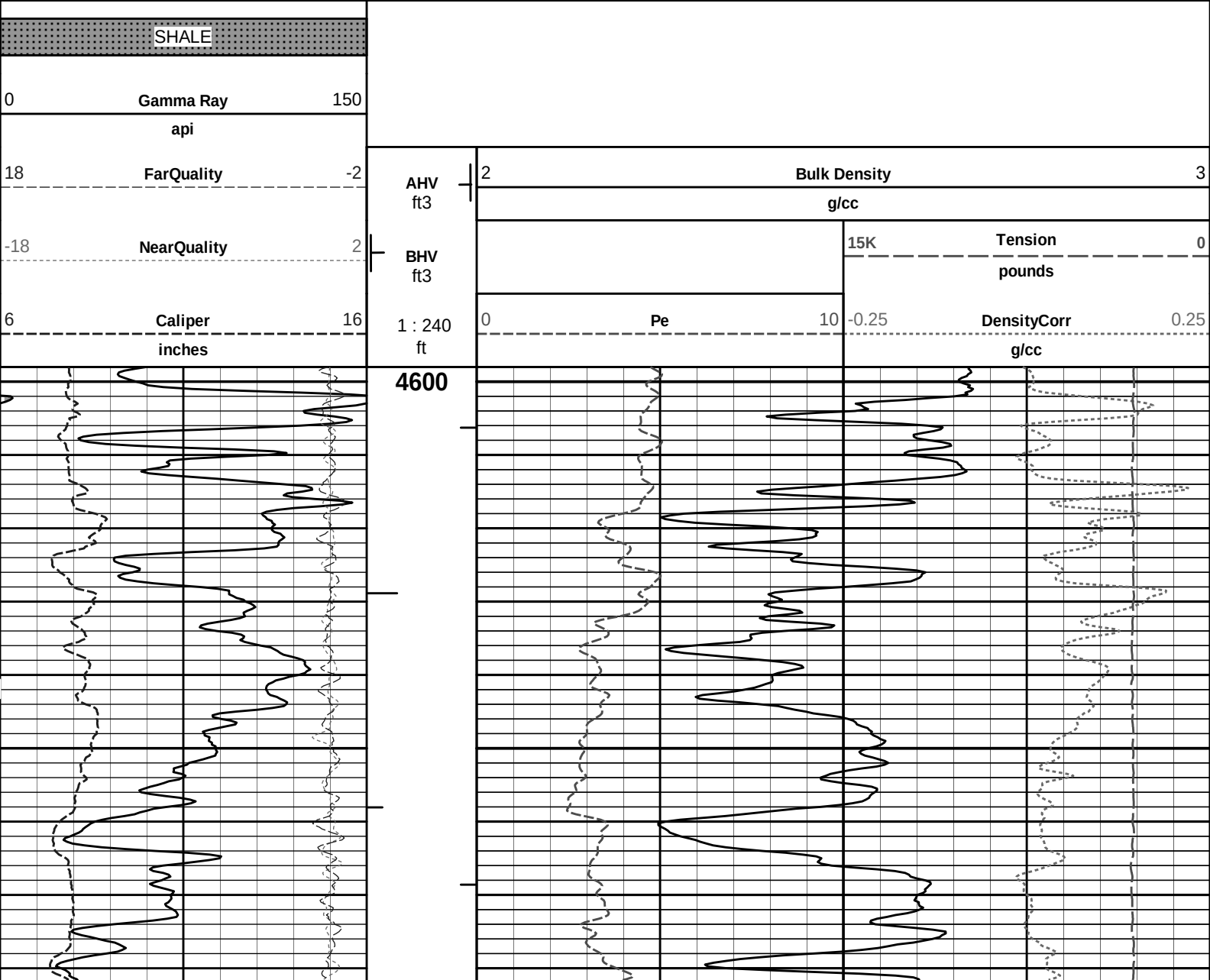
5 INCH MAIN LOG

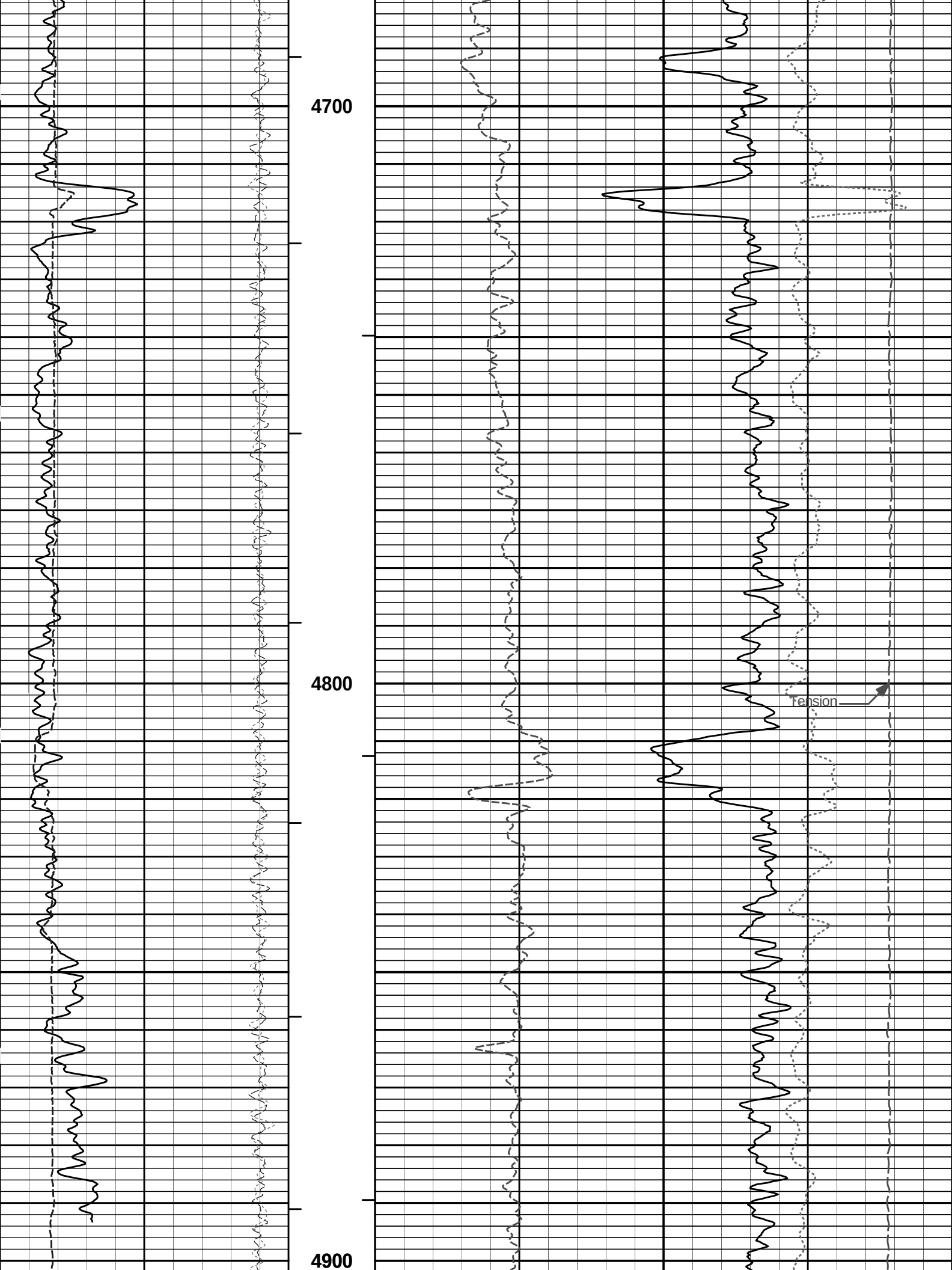
FarQuality		-2	AHV ft3	2	Bulk Density		3
Gamma Ray		150	Tension Pull		g/cc		
api			10 0				
SHALE			Tension Pull				

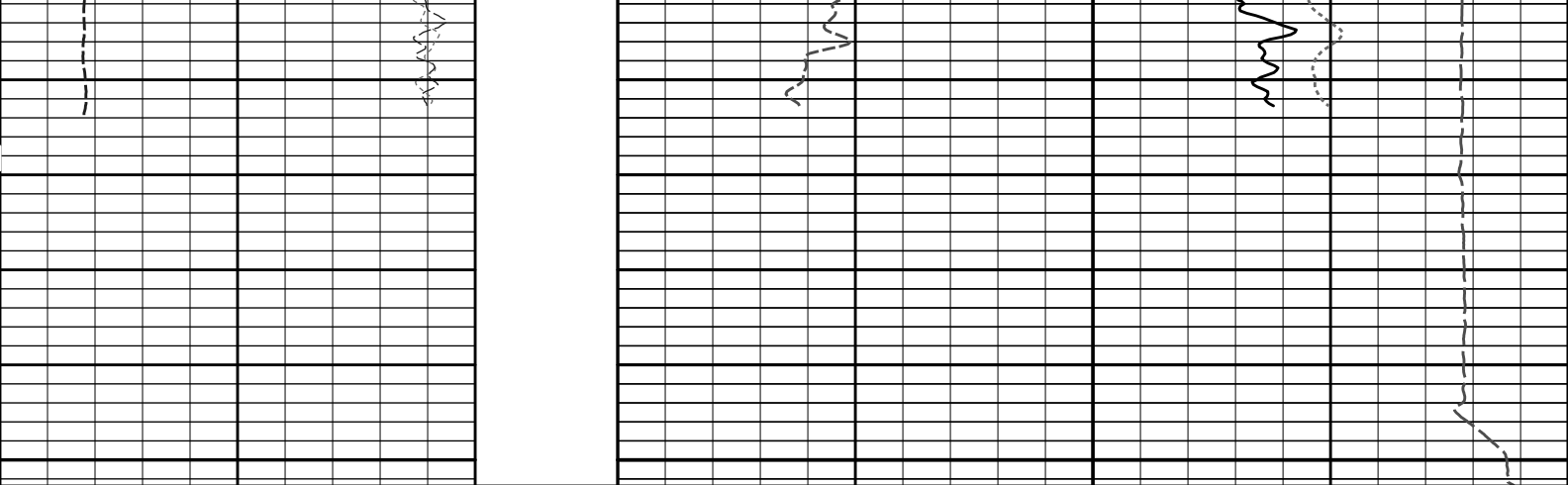
HALLIBURTON

Plot Time: 25-Feb-12 22:23:34
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Plot File: \\-LOCAL-IGARDEN_CITY_V_1\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CH\PORO\BULKD_5_REP_LIB

REPEAT SECTION







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

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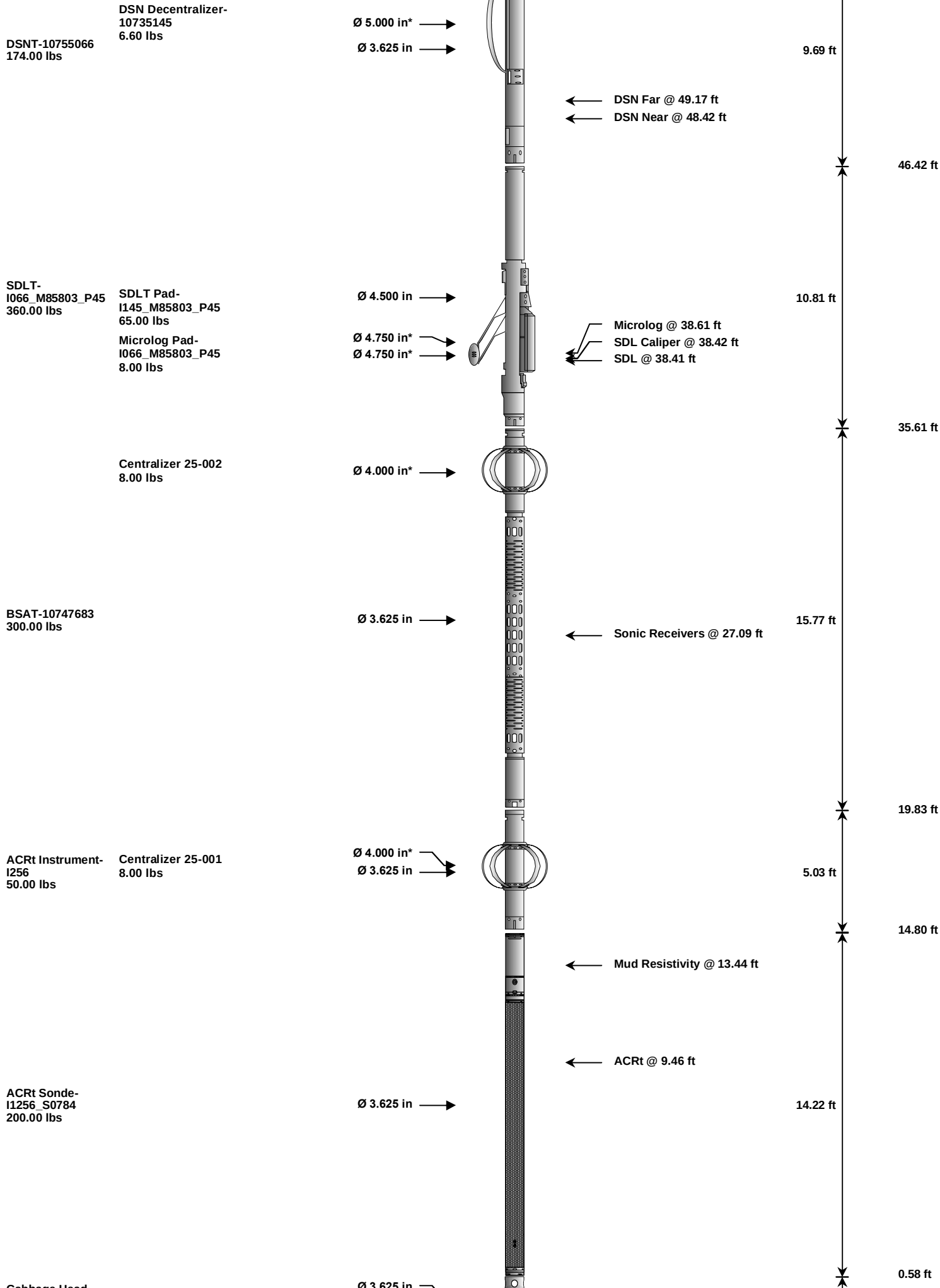
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Plot File: \\-LOCAL-IGARDEN_CITY_V_1\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CHIPOROIBULKD_5_REP_LIB

REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT

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



Cabbage Head- 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_110001 SP-GTET-DSN-SDL-BSAT-ACRT-CHIDLE					Date: 25-Feb-12 17:30:03	

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:GTET - 10811258

Engineer:C. HAVERKAMP

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

Reference Calibration Date:25-Oct-11 17:21:30

Calibration Date:23-Jan-12 13:31:58

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

Engineer:T. HYDE

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

Reference Calibration Date:23-Jan-12 13:31:58

Calibration Date:25-Feb-12 17:40:09

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

NATURAL GAMMA RATE TEST 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

Engineer: C. MARLOWE

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

Reference Calibration Date: 06-Nov-11 14:36:25

Calibration Date: 26-Jan-12 13:31:41

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 Checks:			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")	-7	-1.611	0	-6	-1.585	-2	-7	-2.957	-1
A4 (17")	-7	-1.611	0	-6	-1.585	-2	-7	-2.957	-1
A5 (10")	-7	-1.611	0	-6	-1.585	-2	-7	-2.957	-1
A6 (6")	-7	-1.611	0	-6	-1.585	-2	-7	-2.957	-1

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					R-MUD VERIFICATION				
Signal	Lower	R	Upper		Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)	
12K	0.6	0.8379	1.3		Mud Cell	0.95	1.002	1.05	
36K	1.0	1.1691	2.0						
72K	1.0	1.4954	2.0						
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

Far (2.00 Hz) cps	9.82	9.81	-0.00	10.14
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		Units
	Measured	Calibrated	Measured	Calibrated	
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		Units
	Shop	Field	Shop	Field	
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	Tolerance
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		Units
	Field	Post	Field	Post	
Tool Zero	-0.08	-0.10	0.00	0.02	ohmm
Internal Reference	19.88	19.89	19.94	19.95	ohmm

Summary				
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Signal	Field	Post	Difference	Tolerance
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_110001 SP-GTET-DSN-SDL-BSAT-ACRT-CHNIDLE	Date: 25-Feb-12 21:57:31
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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	9.500	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	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_110001 SP-GTET-DSN-SDL-BSAT-ACRT-CHUIDLE			Date: 25-Feb-12 21:17:15	

HALLIBURTON

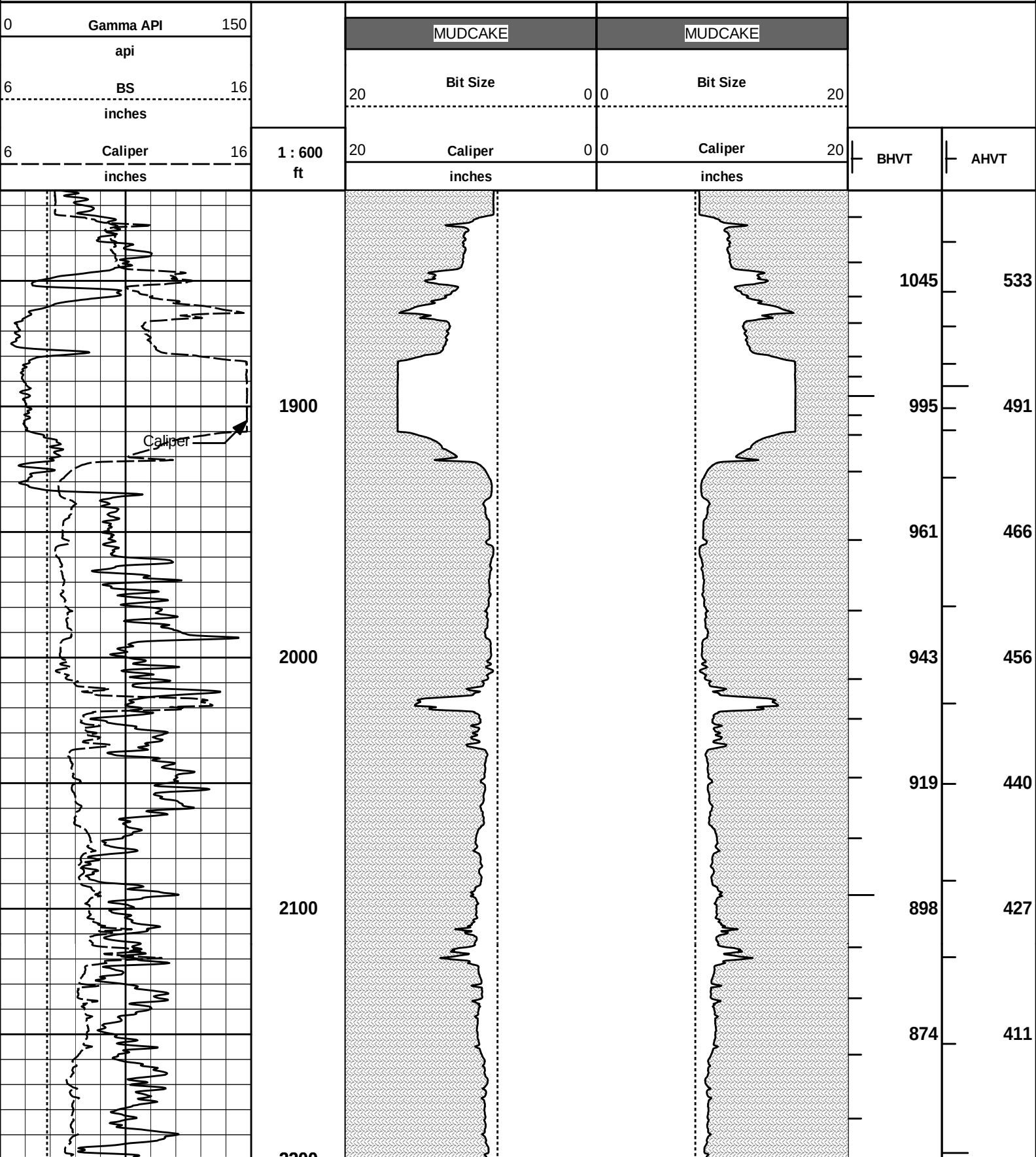
INPUTS, DELAYS AND FILTERS TABLE

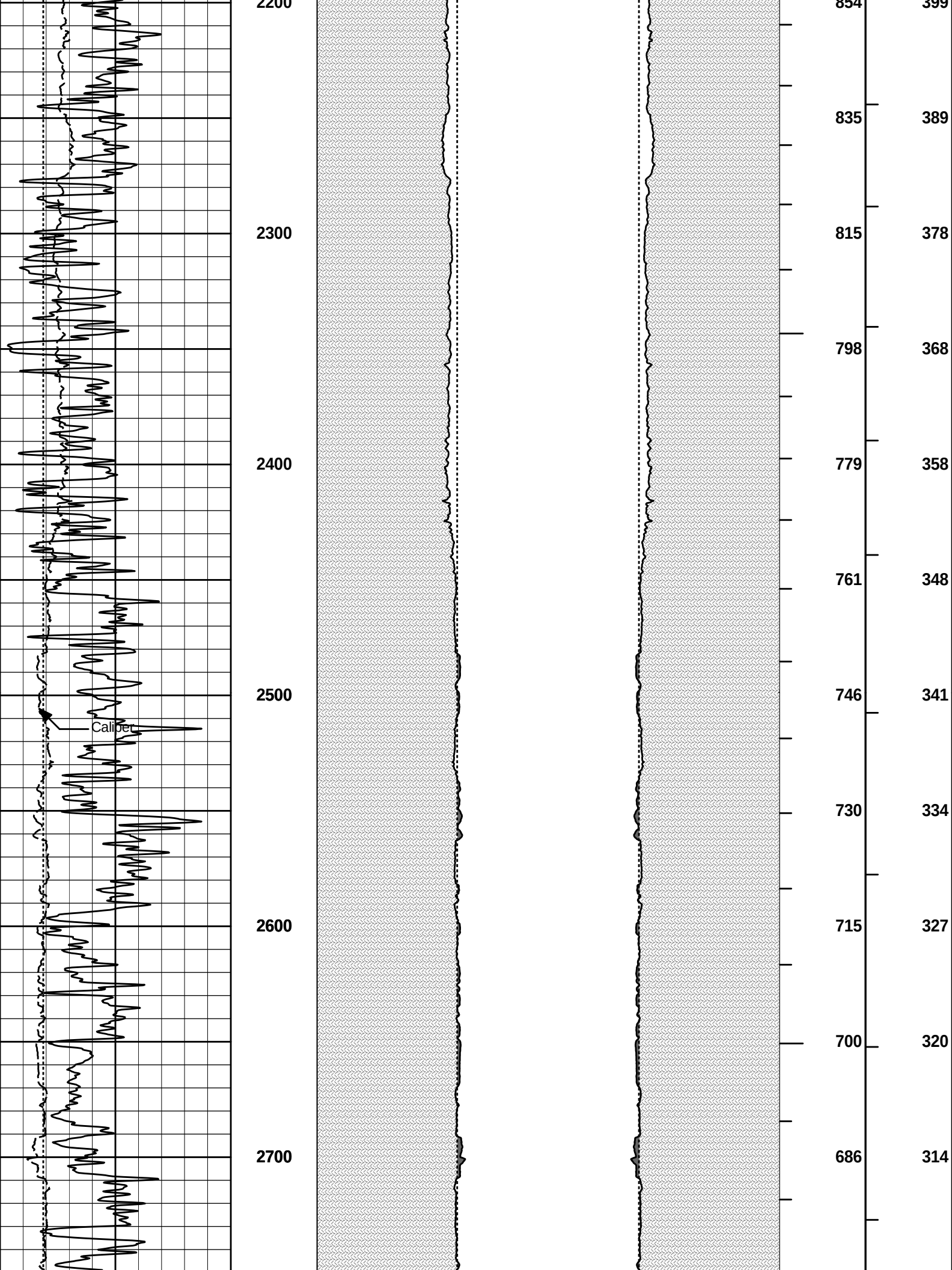
Mnemonic	Input Description	Delay (ft)	Filter Type	Filter Length (ft)
Depth Panel				
TENS	Tension	0.00	NO	
SP Sub				
PLTC	Plot Control Mask	66.58	NO	
SP	Spontaneous Potential	66.58	BLK	1.250
SPR	Raw Spontaneous Potential	66.58	NO	
SPO	Spontaneous Potential Offset	66.58	NO	
GTET				
TPUL	Tension Pull	58.56	NO	
GR	Natural Gamma Ray API	58.56	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	58.56	NO	

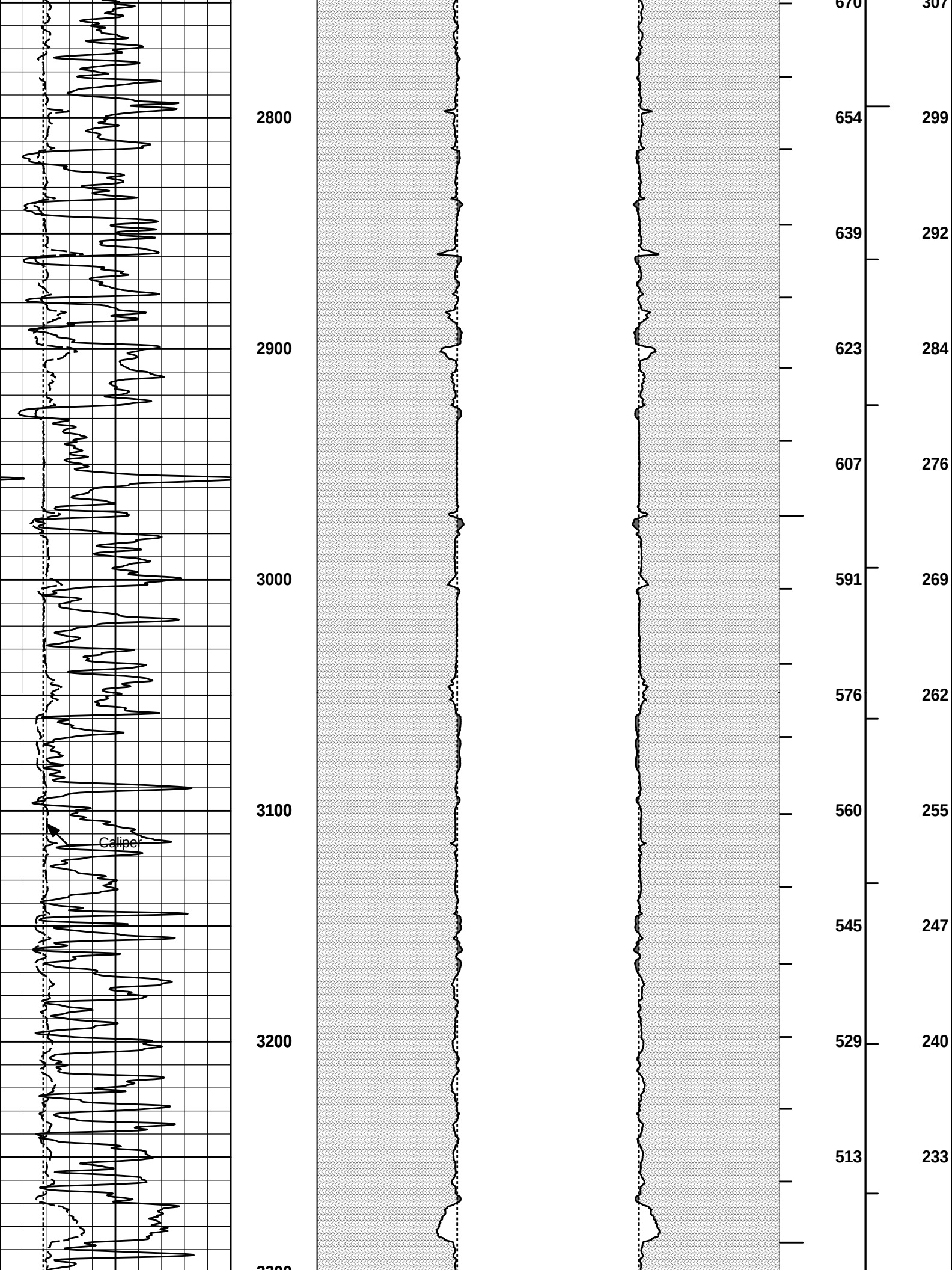
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	58.56	W	1.416 , 0.750
ACCZ	Accelerometer Z	0.00	BLK	0.083
DEVI	Inclination	0.00	NO	
DSNT				
TPUL	Tension Pull	48.32	NO	
RNDS	Near Detector Telemetry Counts	48.42	BLK	1.417
RFDS	Far Detector Telemetry Counts	49.17	TRI	0.583
DNTT	DSN Tool Temperature	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

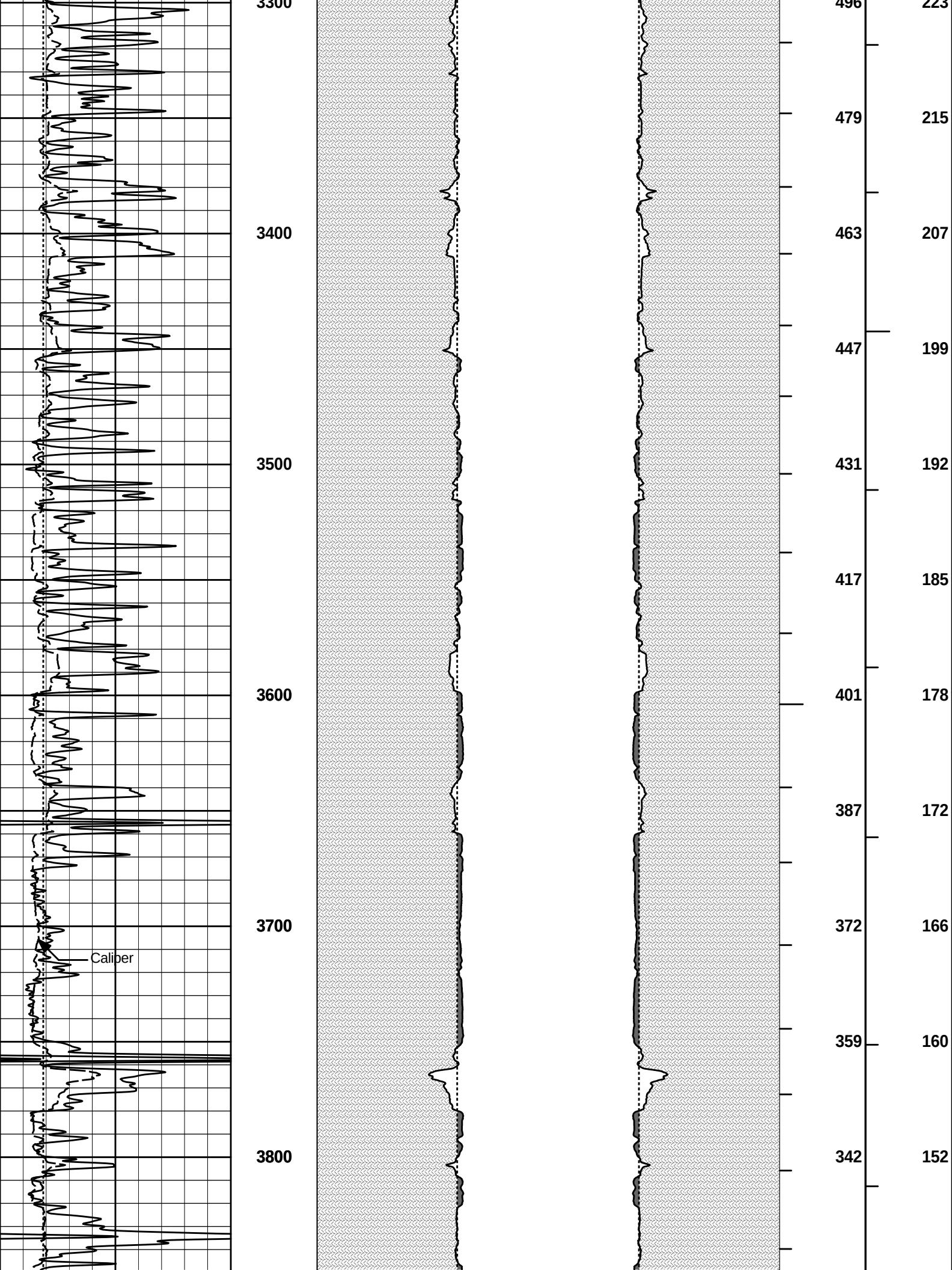
F3X2	ACRT 72KHz - 50in X value	6.72	BLK	0.000
F3R3	ACRT 72KHz - 29in R value	5.22	BLK	0.000
F3X3	ACRT 72KHz - 29in X value	5.22	BLK	0.000
F3R4	ACRT 72KHz - 17in R value	4.22	BLK	0.000
F3X4	ACRT 72KHz - 17in X value	4.22	BLK	0.000
F3R5	ACRT 72KHz - 10in R value	3.72	BLK	0.000
F3X5	ACRT 72KHz - 10in X 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
Data: GARDEN_CITY_V_110001 SP-GTET-DSN-SDL-BSAT-ACRT-CHIDLE			Date: 25-Feb-12 20:05:50	

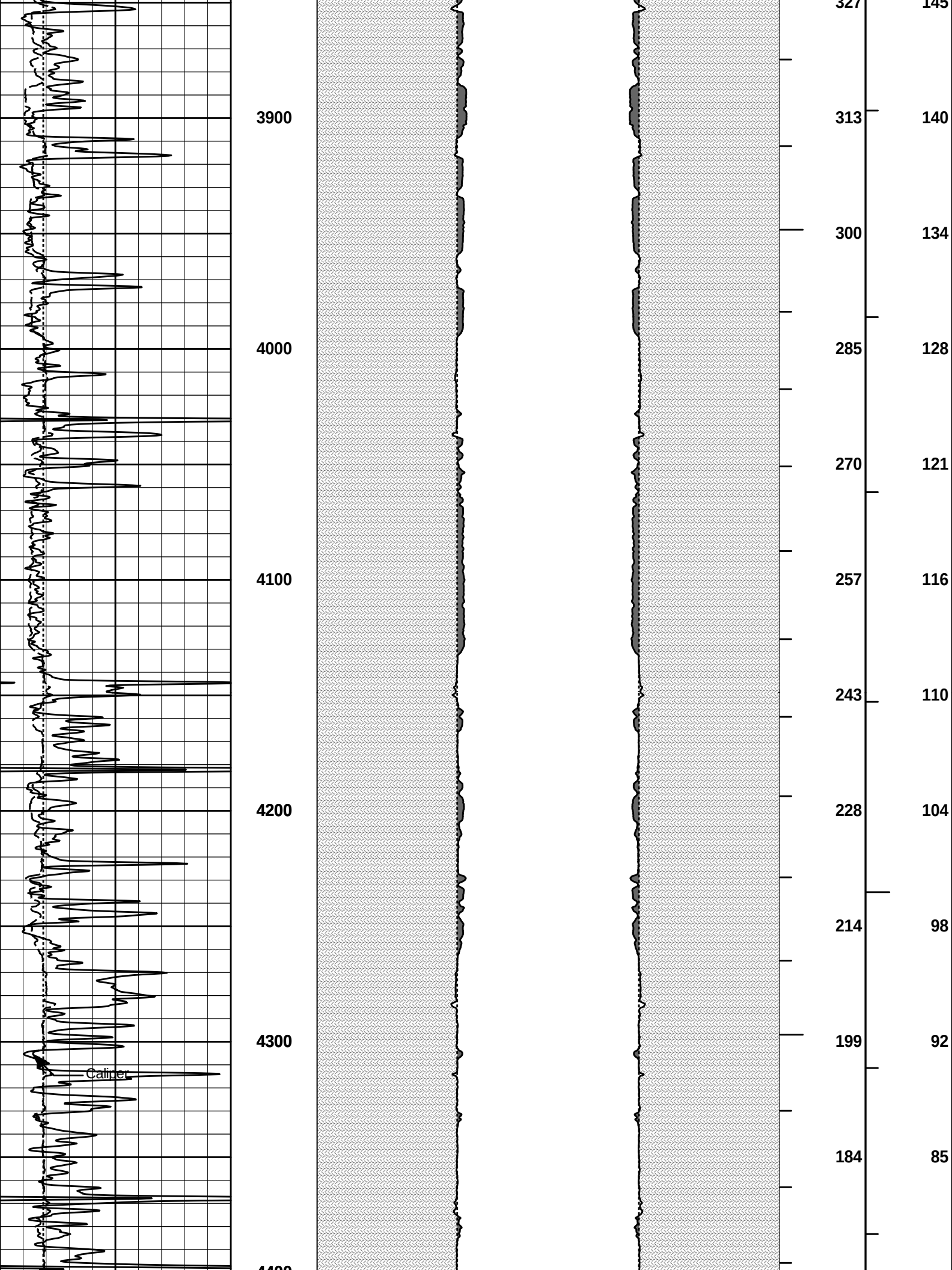
ANNULAR HOLE VOLUME PLOT (5.5 INCH)

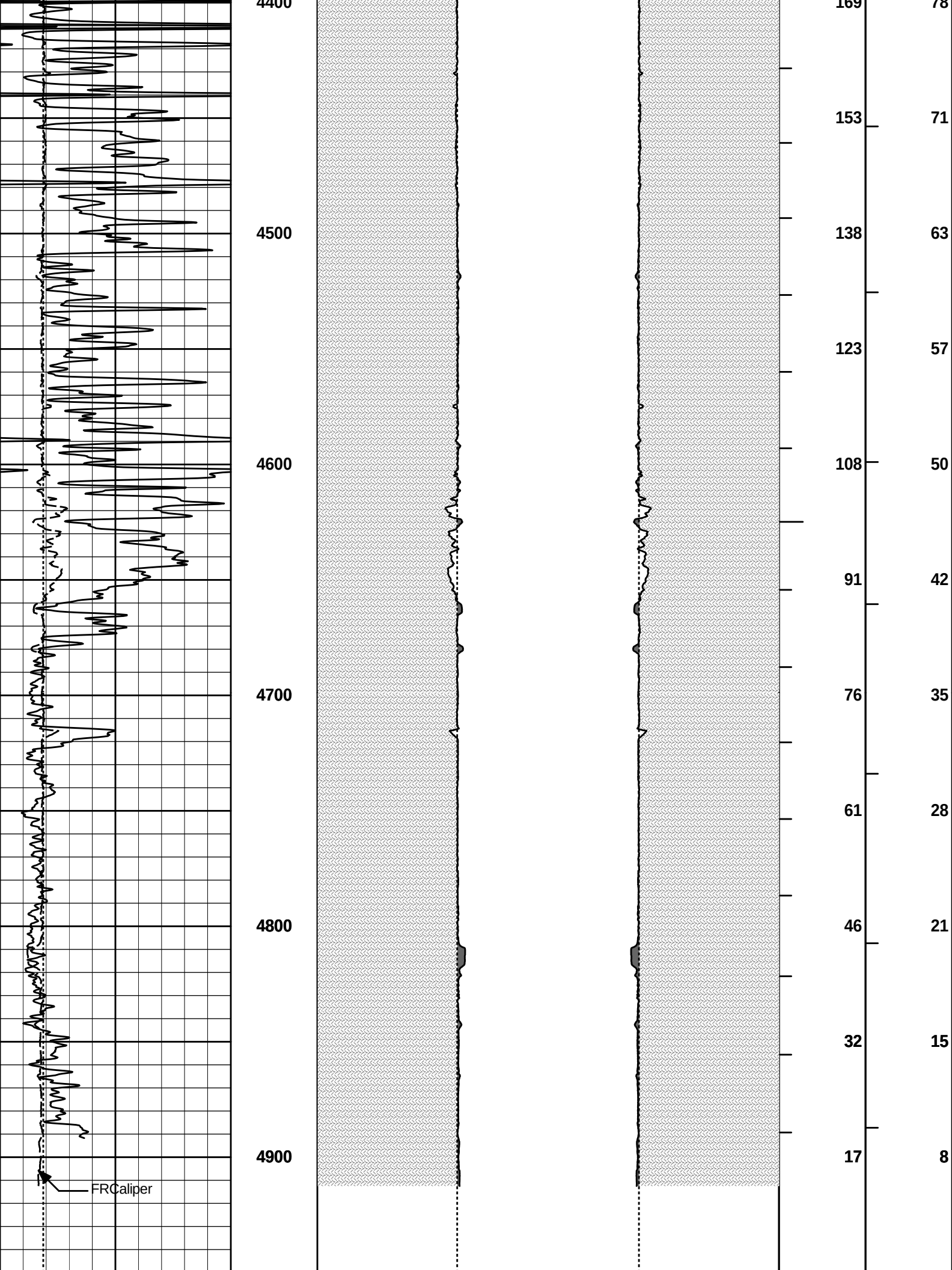












6	Caliper	16	1 : 600 ft	20	Caliper	0 0	20	BHVT	AHVT
	inches				inches				
6	BS	16		20	Bit Size	0 0	20		
	inches								
0	Gamma API	150							
	api								

HALLIBURTON

Plot Time: 25-Feb-12 22:23:50
 Plot Range: 1814 ft to 4951.33 ft
 Data: GARDEN_CITY_V_1\Well Based\DAQ-0001-004\
 Plot File: \\LOCAL-IGARDEN_CITY_V_1\0001 SP-GTET-DSN-SDL-BSAT-ACRT-CHIPORO\AHV_5_5_INCH_2_IQ_LIB

ANNULAR HOLE VOLUME PLOT (5.5 INCH)

COMPANY	OXY USA INC				
WELL	GARDEN CITY V-1				
FIELD	GARDEN CITY				
COUNTY	FINNEY	STATE	KANSAS		
HALLIBURTON		SPECTRAL DENSITY DUAL SPACED NEUTRON LOG			