

**SPECTRAL DENSITY
DUAL SPACED NEUTRON
LOG**

COMPANY	TENGGASCO INC		
WELL	HOWARD A #1		
FIELD/BLOCK	UNNAMED		
COUNTY	TREGO		
STATE	KANSAS		
Sect. 17	Twp. 15S	Rge. 25W	
API No. 15-195-22955-00-00			STATE KANSAS
Location (SHL) 1485' FNL & 800' FEL NE-NW-SE-NE			
Other Services: MICROLOG ACRT			

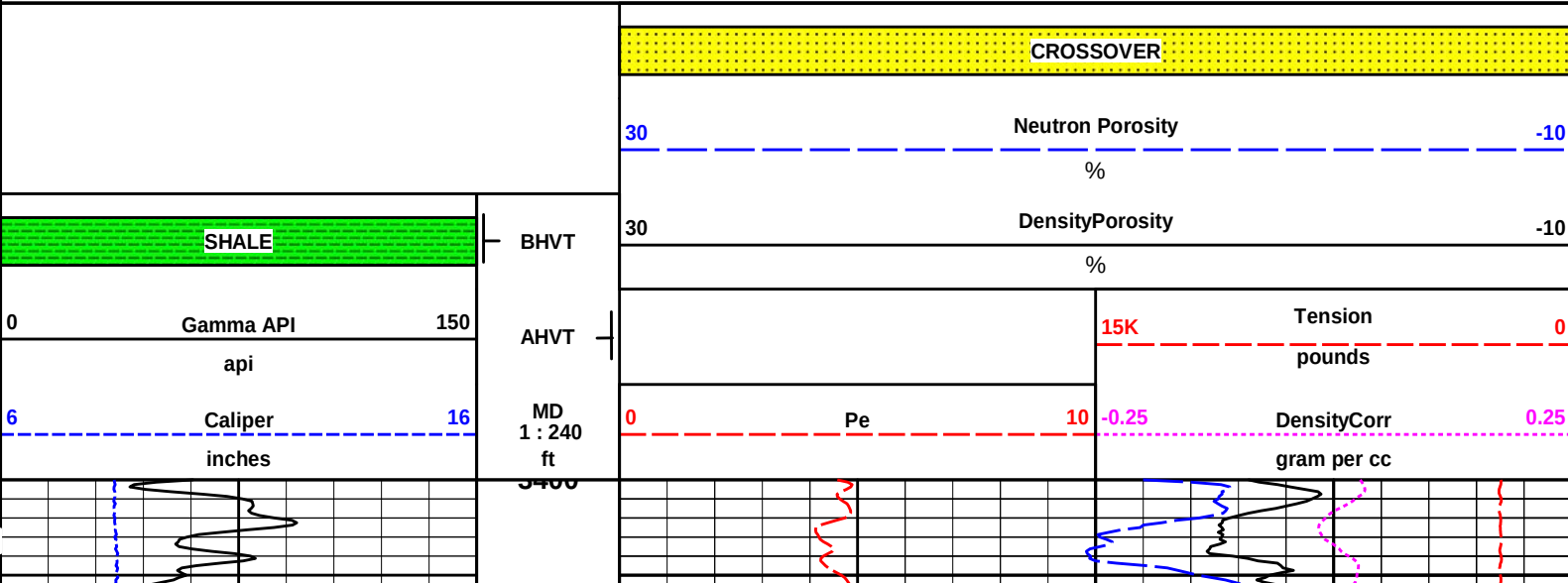
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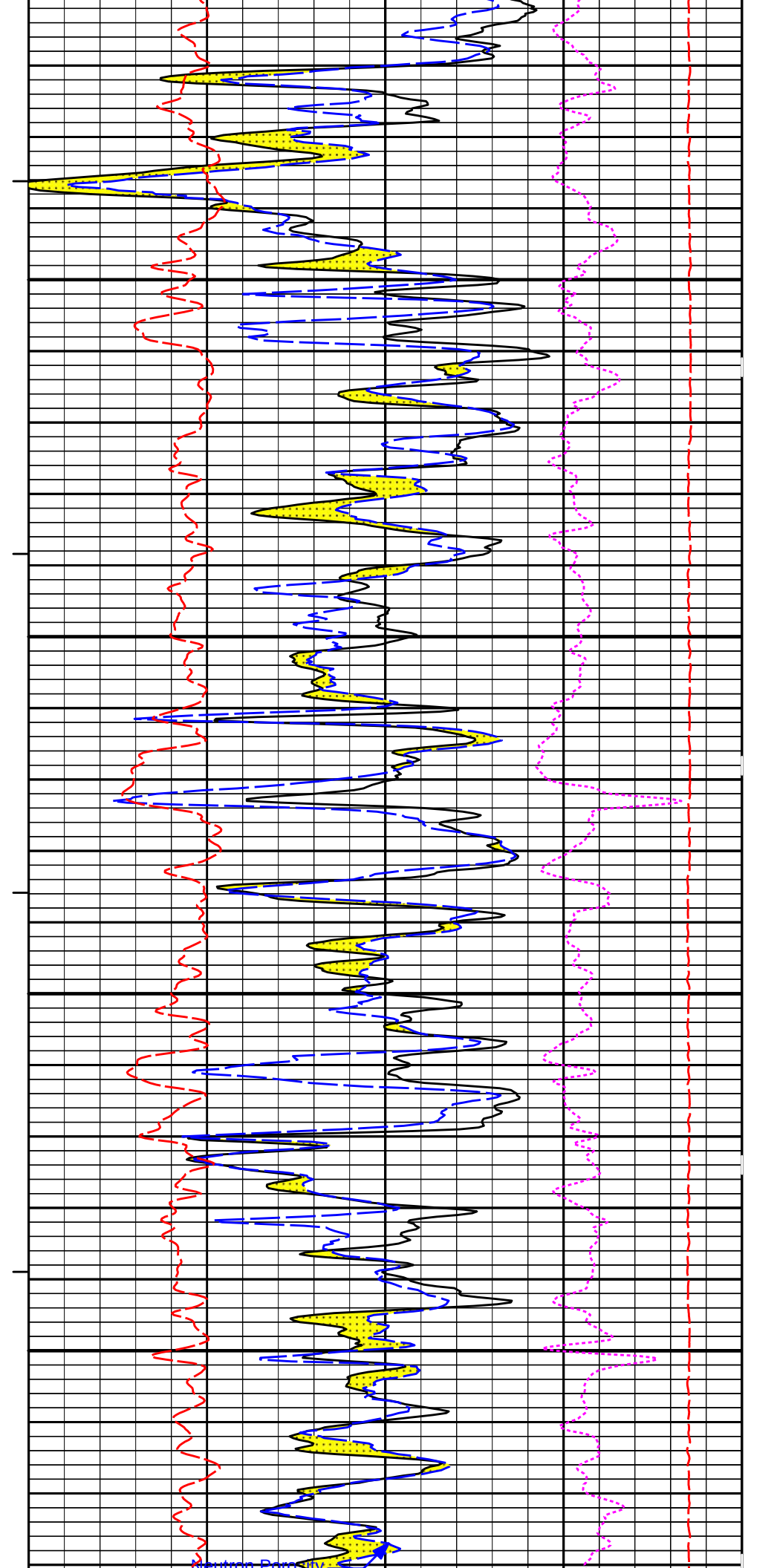
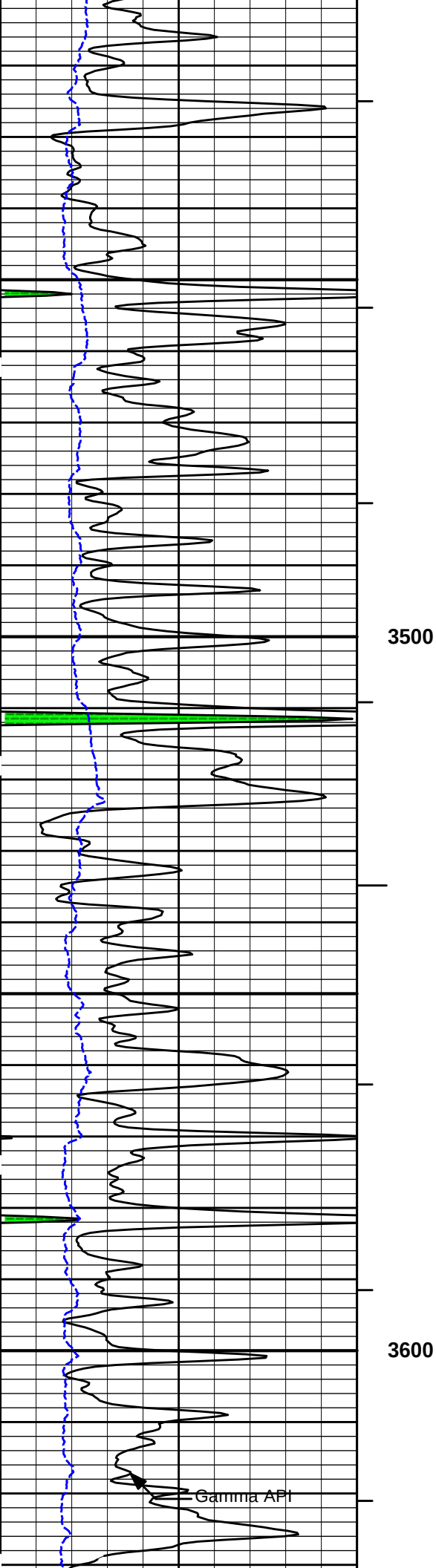
Service Ticket No.: 901520512						API Serial No.: 15-195-22955-00-00						PGM Version: WL INSITE R4.2.0 (Build 2)											
CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE												RESISTIVITY SCALE CHANGES											
Date		Sample No.										Type Log		Depth		Scale Up Hole			Scale Down Hole				
Depth-Driller																							
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.		Other			
Rmf @ Meas. Temp.				@				@				ONE		ACRT		N/A		1.5" S.O		N/A			
Rmc @ Meas. Temp.				@				@						I059_S385									
Source Rmf		Rmc										ONE		MICRO		RUBBER		ADJ		N/A			
Rm @ BHT				@				@						10950489									
Rmf @ BHT				@				@															
Rmc @ BHT				@				@															
EQUIPMENT DATA																							
GAMMA						ACOUSTIC						DENSITY						NEUTRON					
Run No.		ONE				Run No.						Run No.		ONE				Run No.		ONE			
Serial No.		11048627				Serial No.						Serial No.		10844781				Serial No.		11019643			
Model No.		GTET				Model No.						Model No.		SDLT-I				Model No.		DSNT-I			
Diameter		3.625"				No. of Cent.						Diameter		4.5"				Diameter		3.625"			
Detector Model No.		T-102				Spacing						Log Type		GAM-GAM				Log Type		NEU-NEU			
Type		SCINT										Source Type		CS137				Source Type		AM241BE			
Length		8'				LSA [Y/N]						Serial No.		5168GW				Serial No.		DSN-424			
Distance to Source		10'				FWDA [Y/N]						Strength		1.5 Ci				Strength		15 Ci			

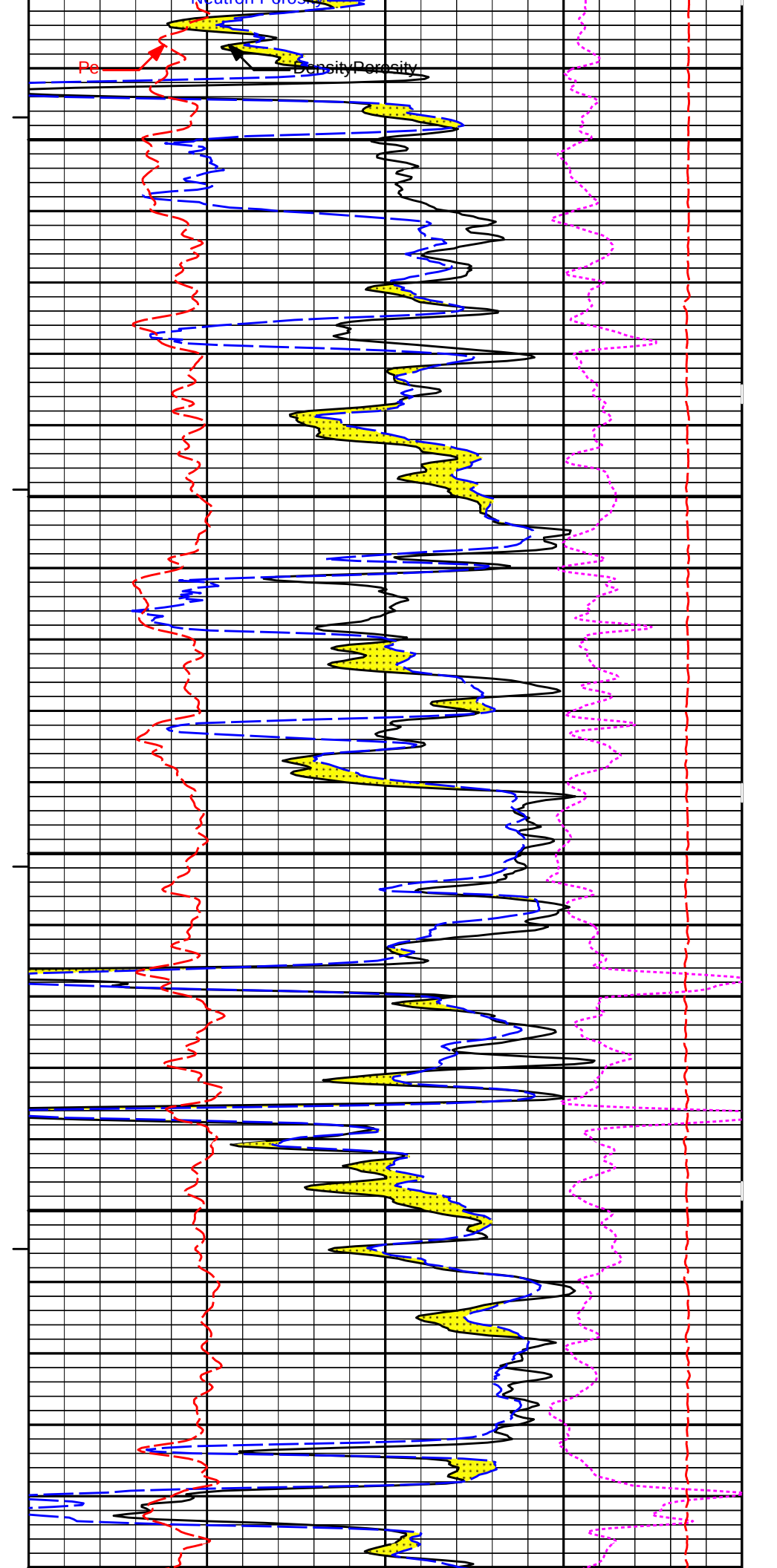
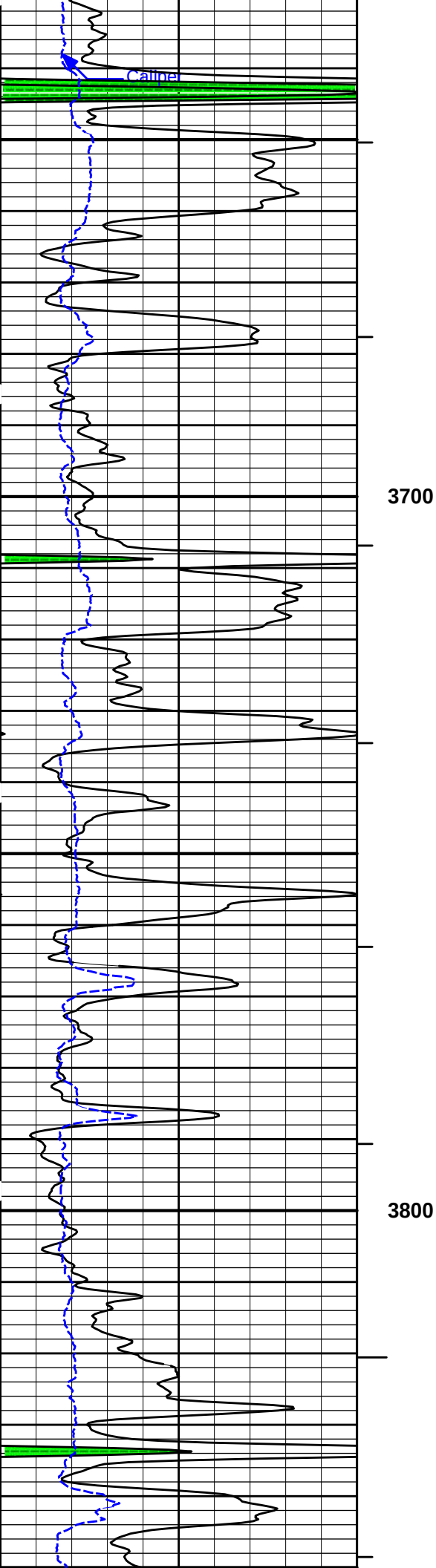
LOGGING DATA

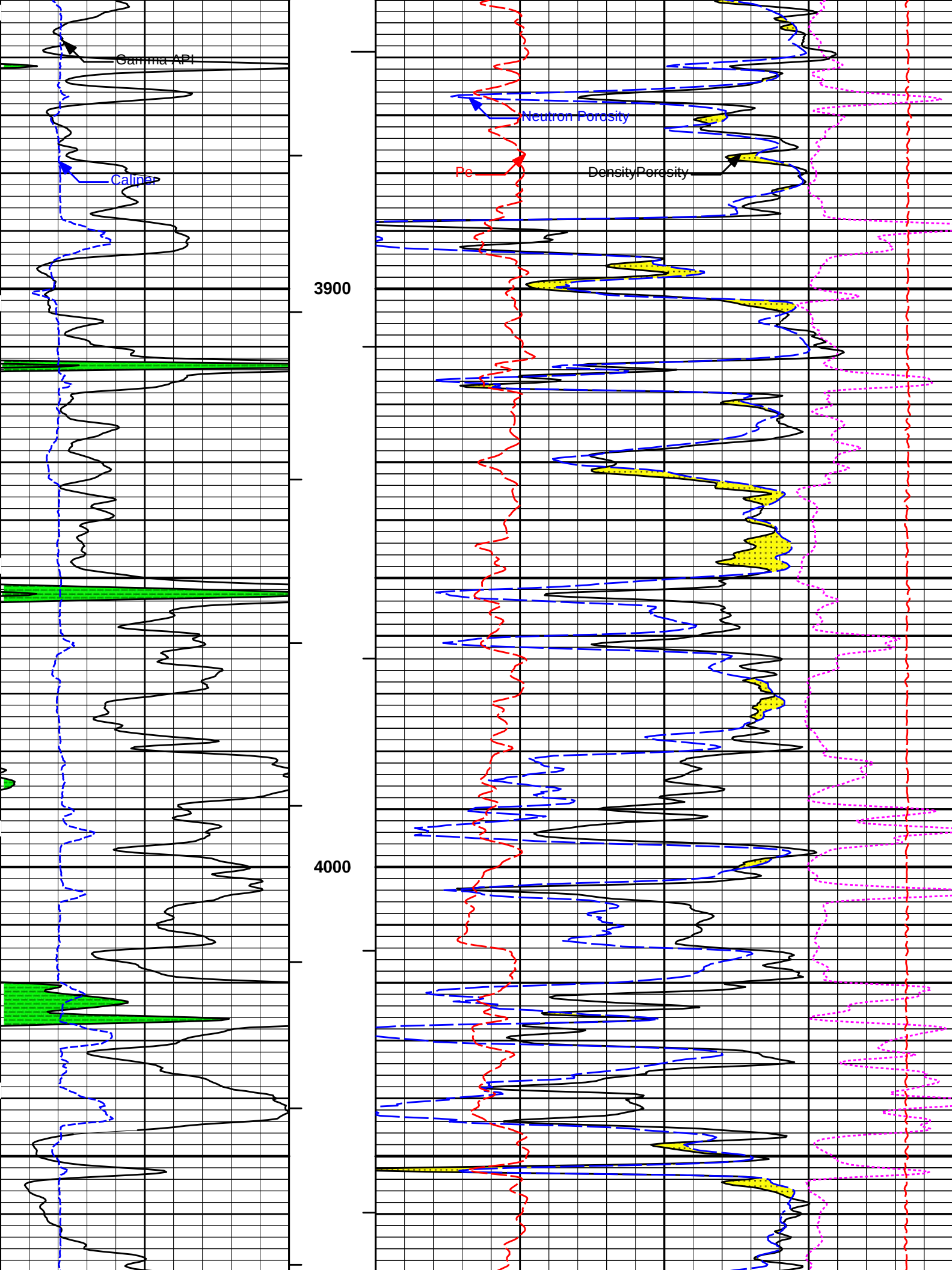
GENERAL				GAMMA		ACOUSTIC			DENSITY			NEUTRON		
Run	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix
No.	From	To	ft/min	L	R	L	R		L	R		L	R	
ONE	TD	3400	REC	0	150				30	-10	2.71	30	-10	LIME
DIRECTIONAL INFORMATION														
Maximum Deviation					@					KOP @				
Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 5.5-INCH CASING														
CHLORIDES REPORTED AT 2400 MG/L														
LCM REPORTED AT 2 LB/BBL														
GTET-DSNT-SDLT-ACRT RUN IN COMBINATION														
TODAY'S CREW:E.ZAPIEN & K.PIDDINGTON														
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.														
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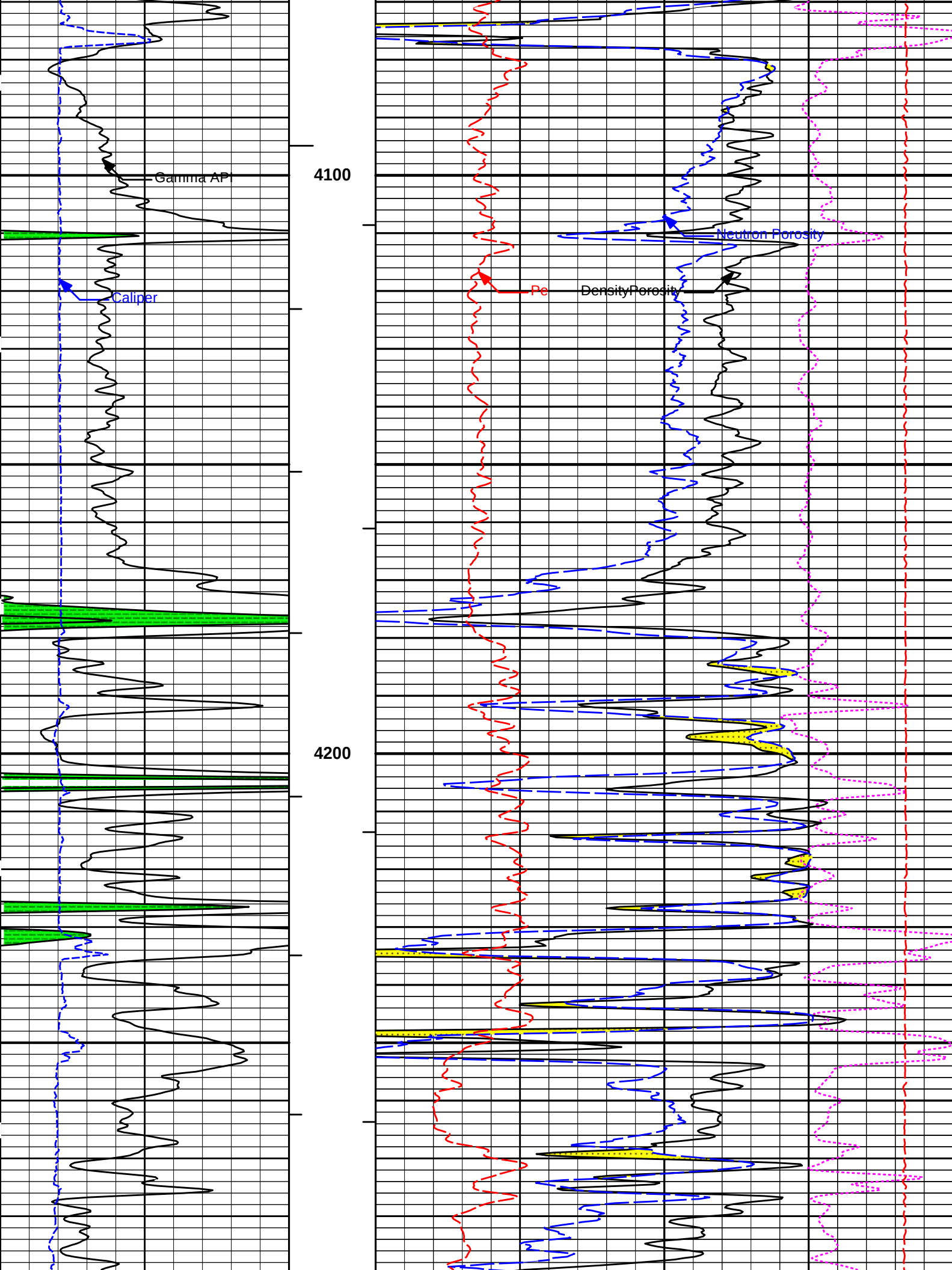
MEASURED DEPTH
MAIN SECTION 5" PER 100'

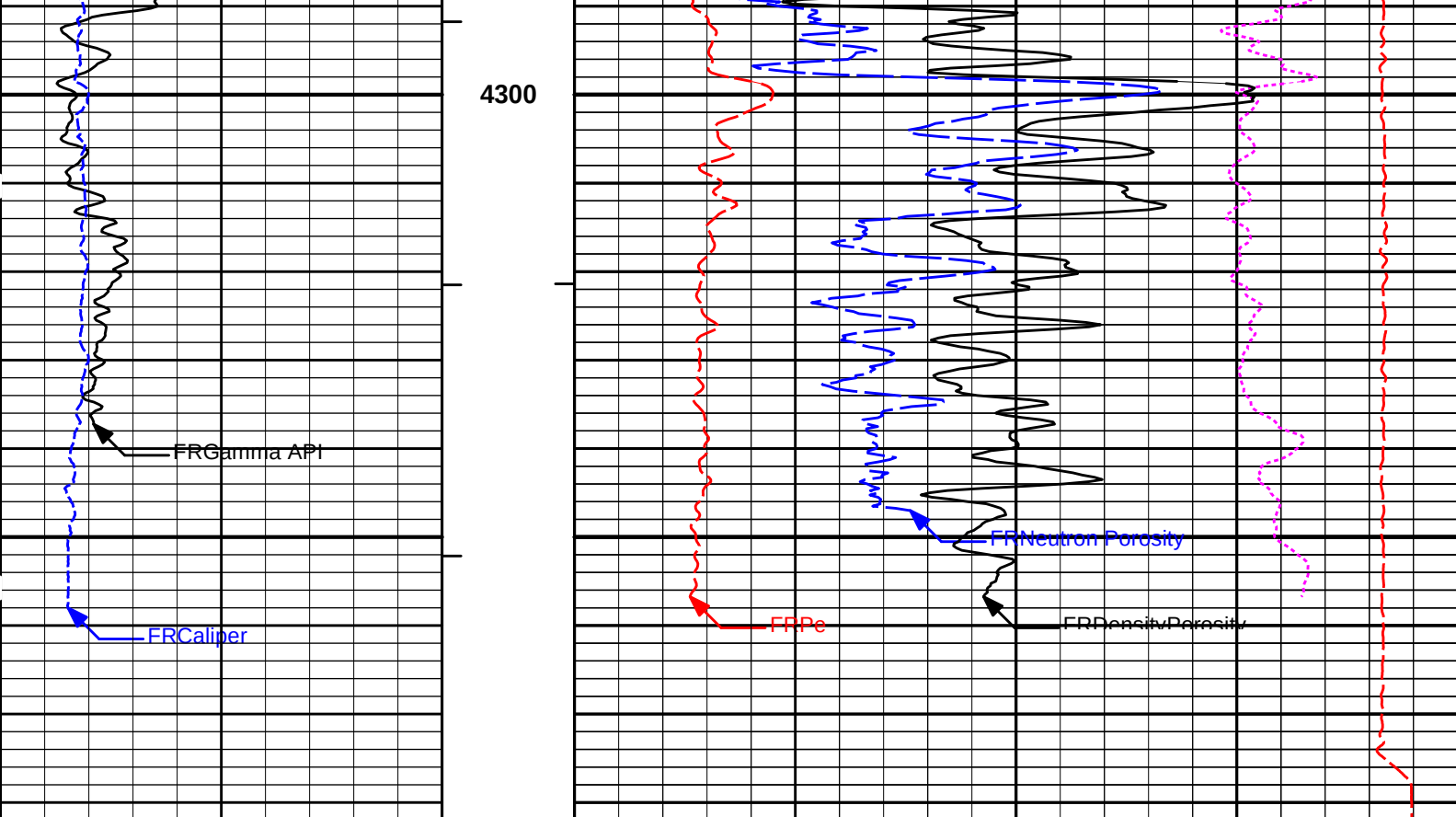












6	Caliper	16	MD	0	Pe	10	-0.25	DensityCorr	0.25
	inches		1 : 240					gram per cc	
0	Gamma API	150	AHVT				15K	Tension	0
	api							pounds	
	SHALE		BHVT	30	DensityPorosity				-10
					%				
				30	Neutron Porosity				-10
					%				
					CROSSOVER				

HALLIBURTON

Plot Time: 25-Jul-14 14:48:04
Plot Range: 3400 ft to 4382 ft
Data: HOWARD A #1\Well Based\DETAILS\
Plot File: \\PORO\Porosity_Q_5_MAIN_LIB

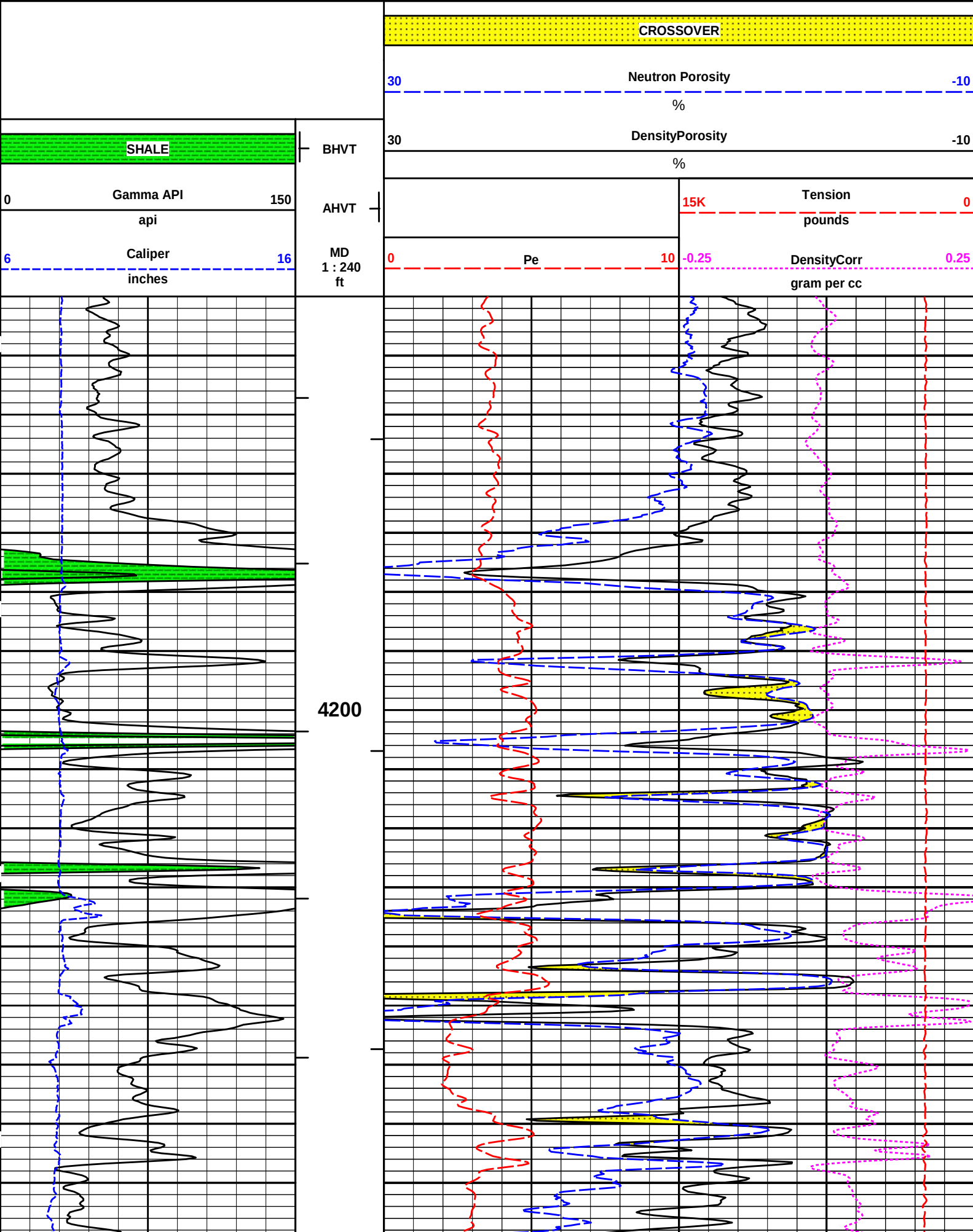
5 INCH MAIN LOG

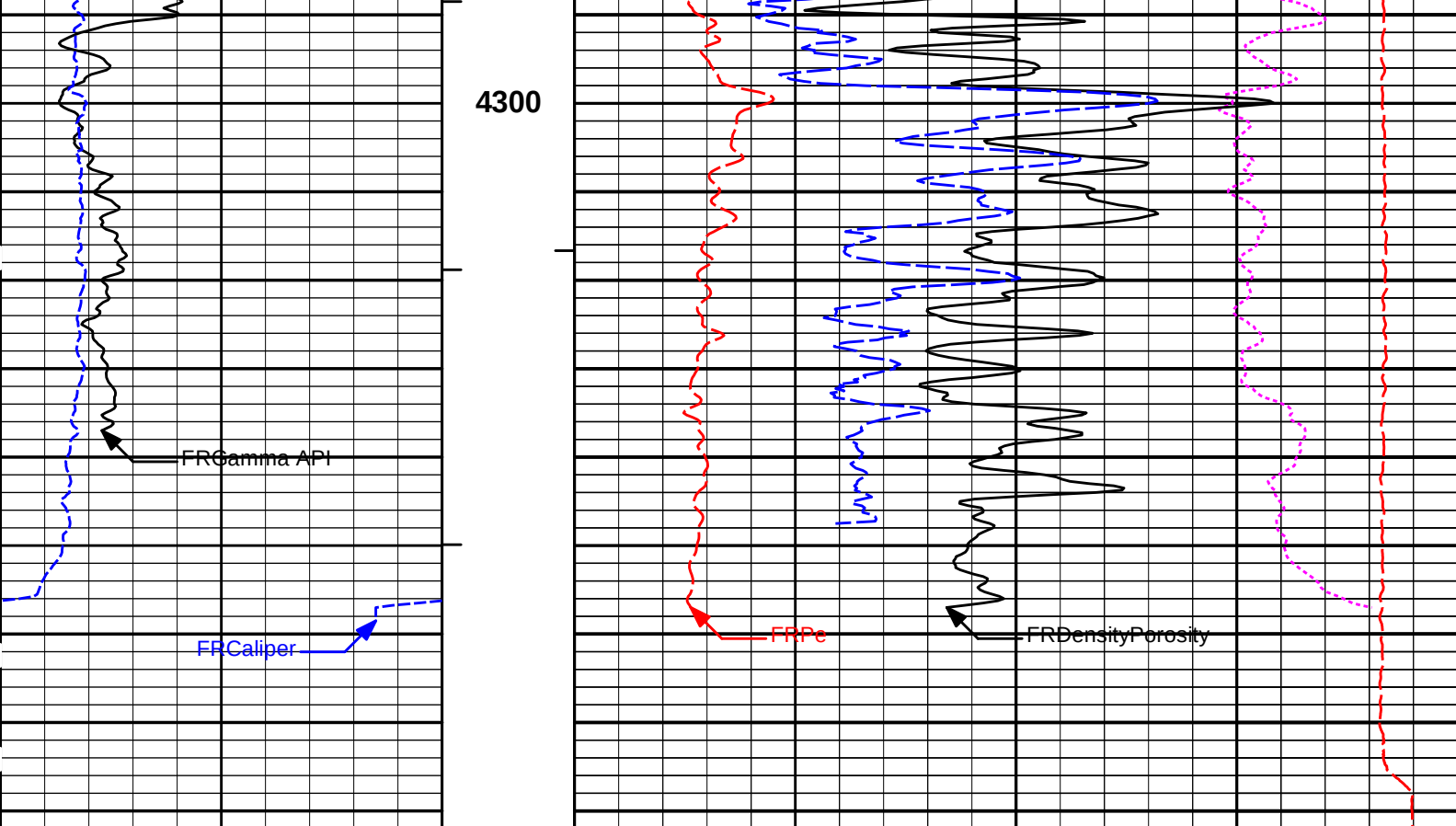
MEASURED DEPTH
MAIN SECTION 5" PER 100'

HALLIBURTON

Plot Time: 25-Jul-14 14:48:04
Plot Range: 4130 ft to 4382 ft
Data: HOWARD A #1\Well Based\REPEAT\
Plot File: \\PORO\Porosity_Q_5_REP_LIB

REPEAT SECTION





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

HALLIBURTON

Plot Time: 25-Jul-14 14:48:05
Plot Range: 4130 ft to 4382 ft
Data: HOWARD A #1\Well Based\REPEAT\
Plot File: \\PORO\Poros_IQ_5_REP_LIB

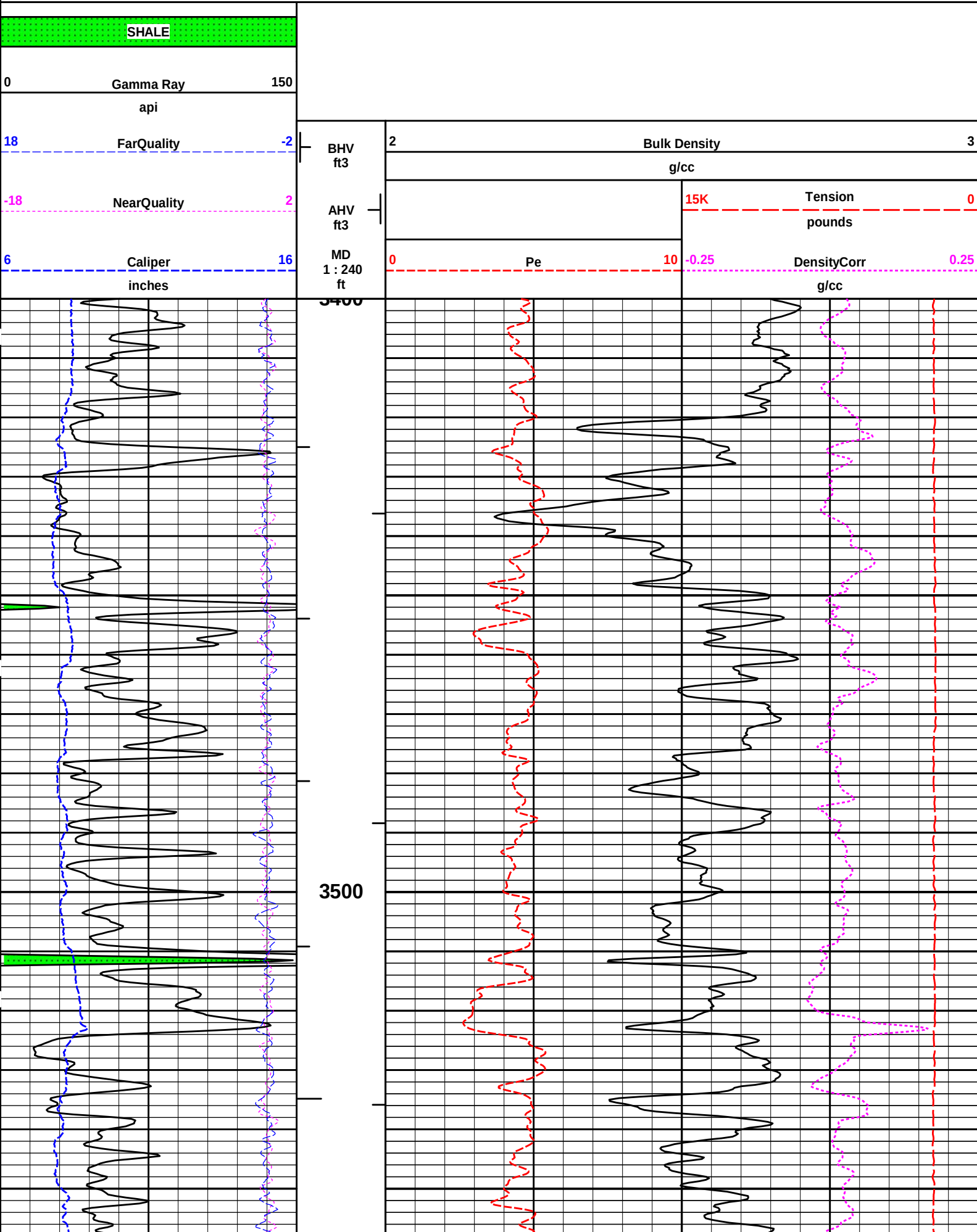
REPEAT SECTION

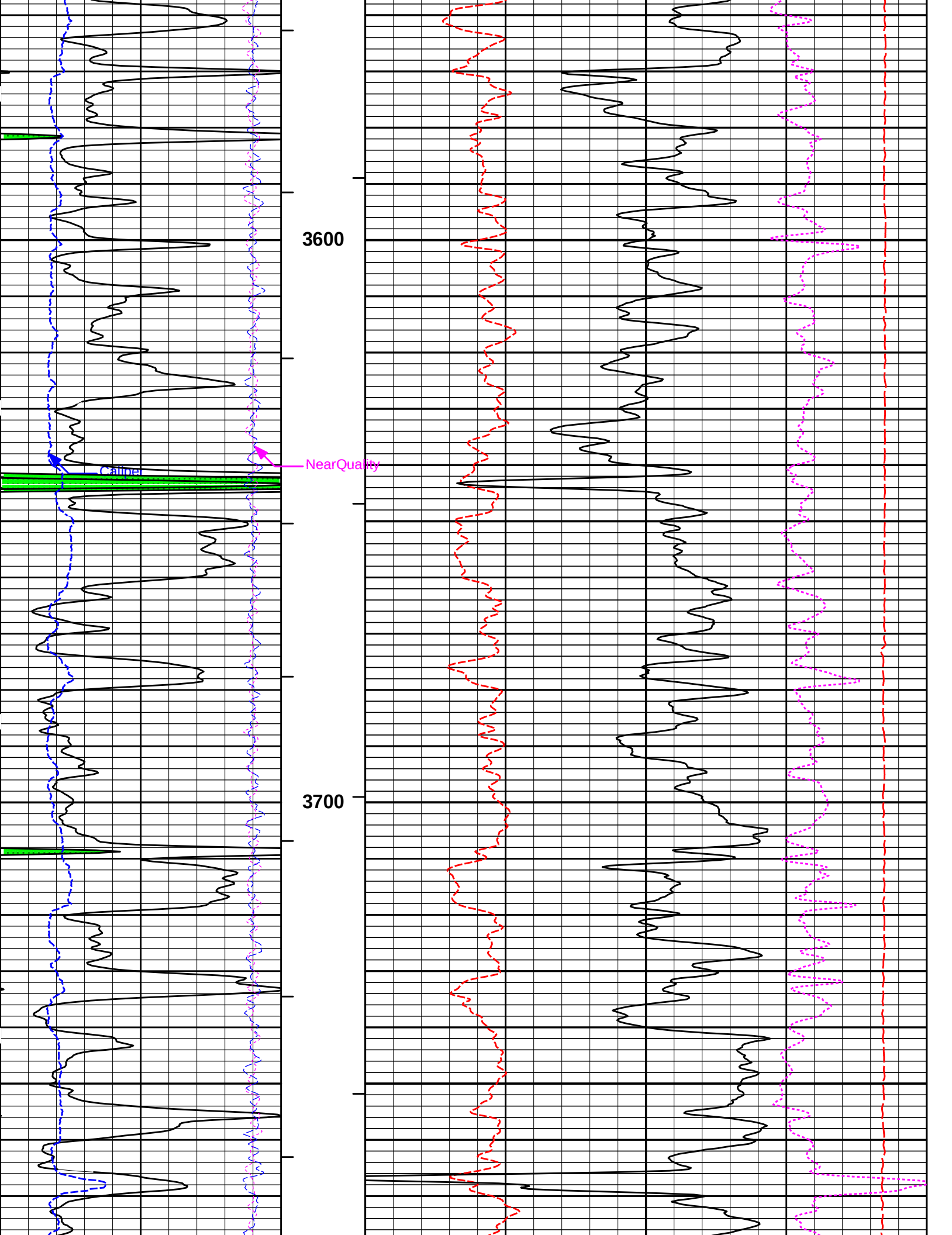
HALLIBURTON

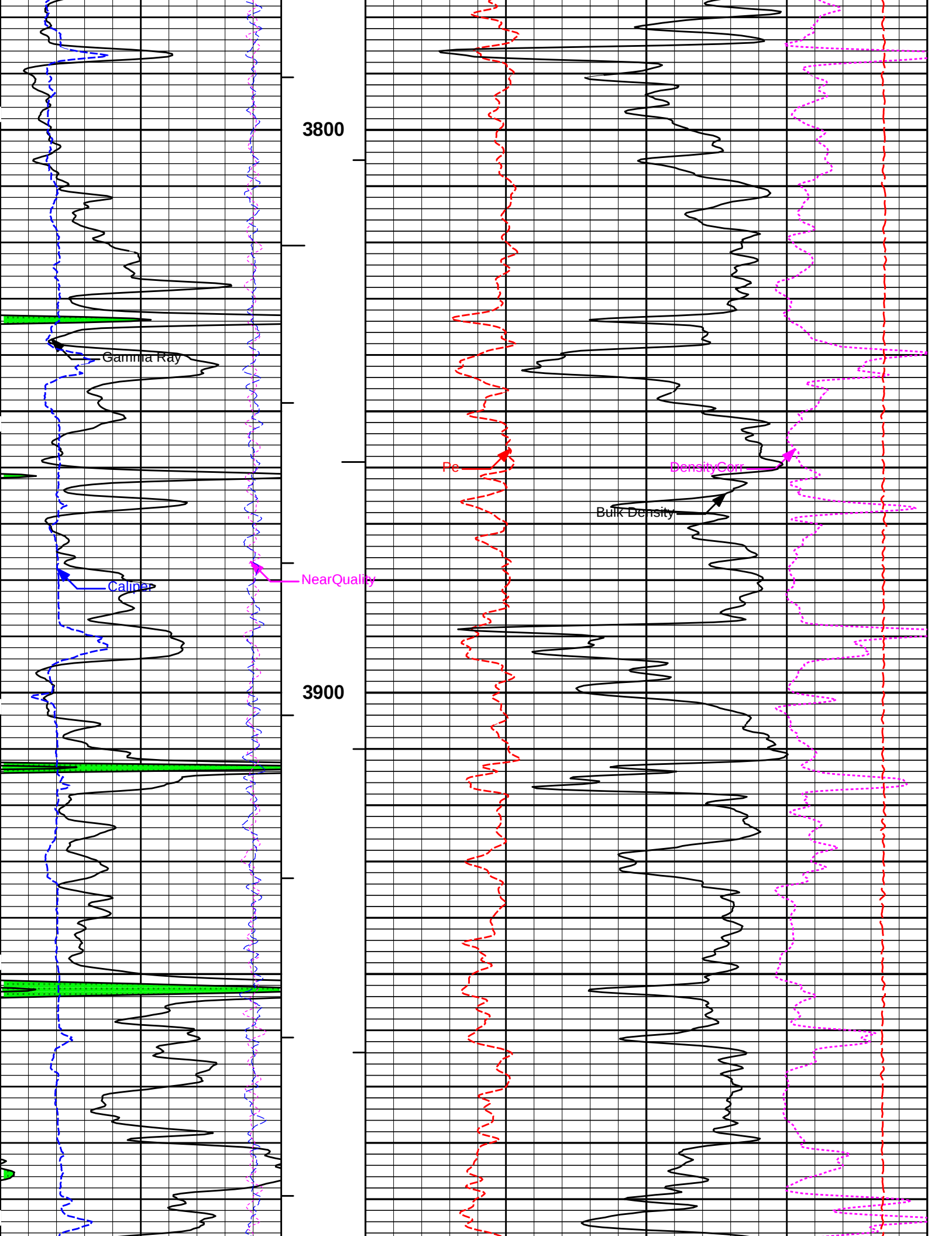
Plot Time: 25-Jul-14 14:48:05
Plot Range: 3400 ft to 4382 ft
Data: HOWARD A #1\Well Based\DETAILS\
Plot File: \\LOCAL-IHOWARD A #1\Well Based\PORO\BULKD_5_MAIN_LIB

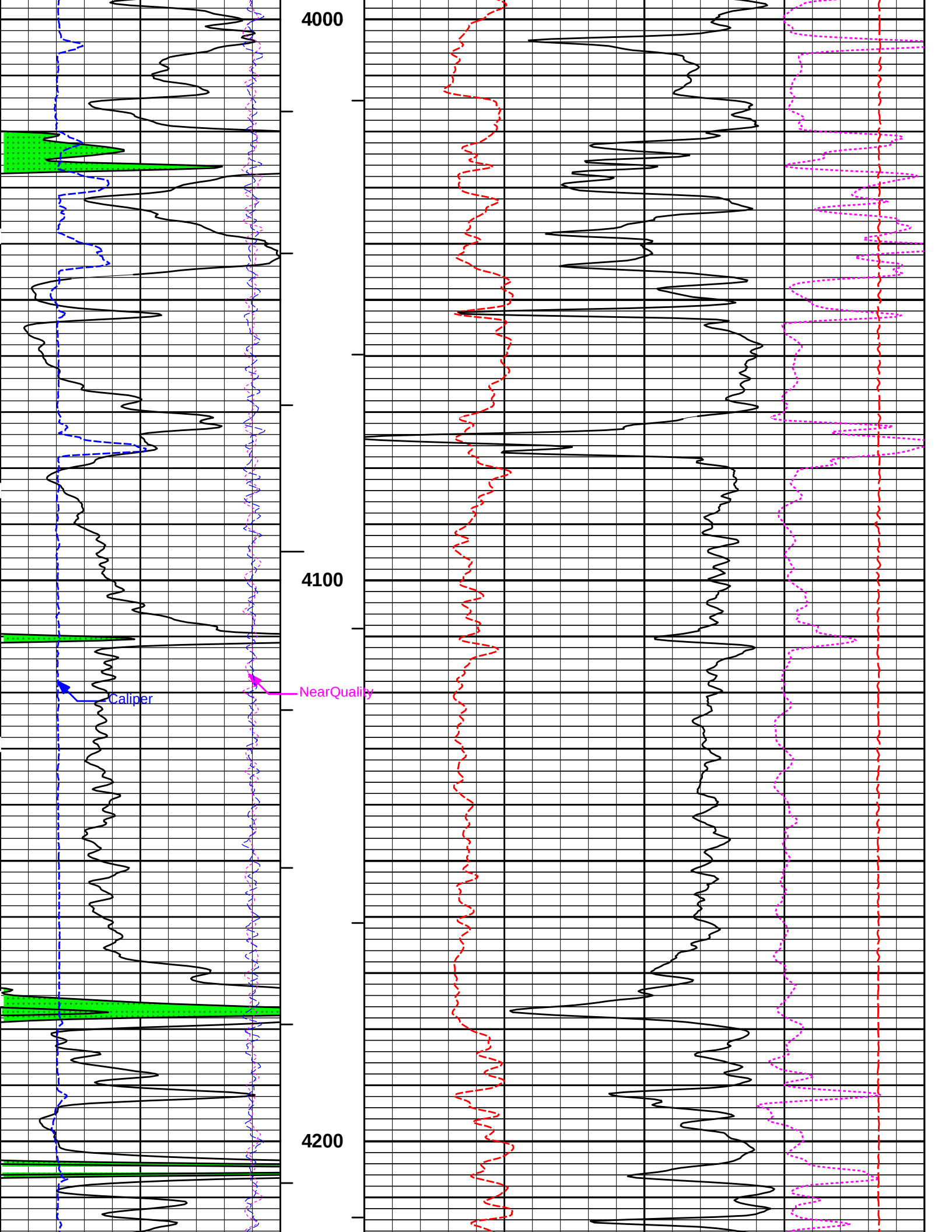
5 INCH MAIN LOG

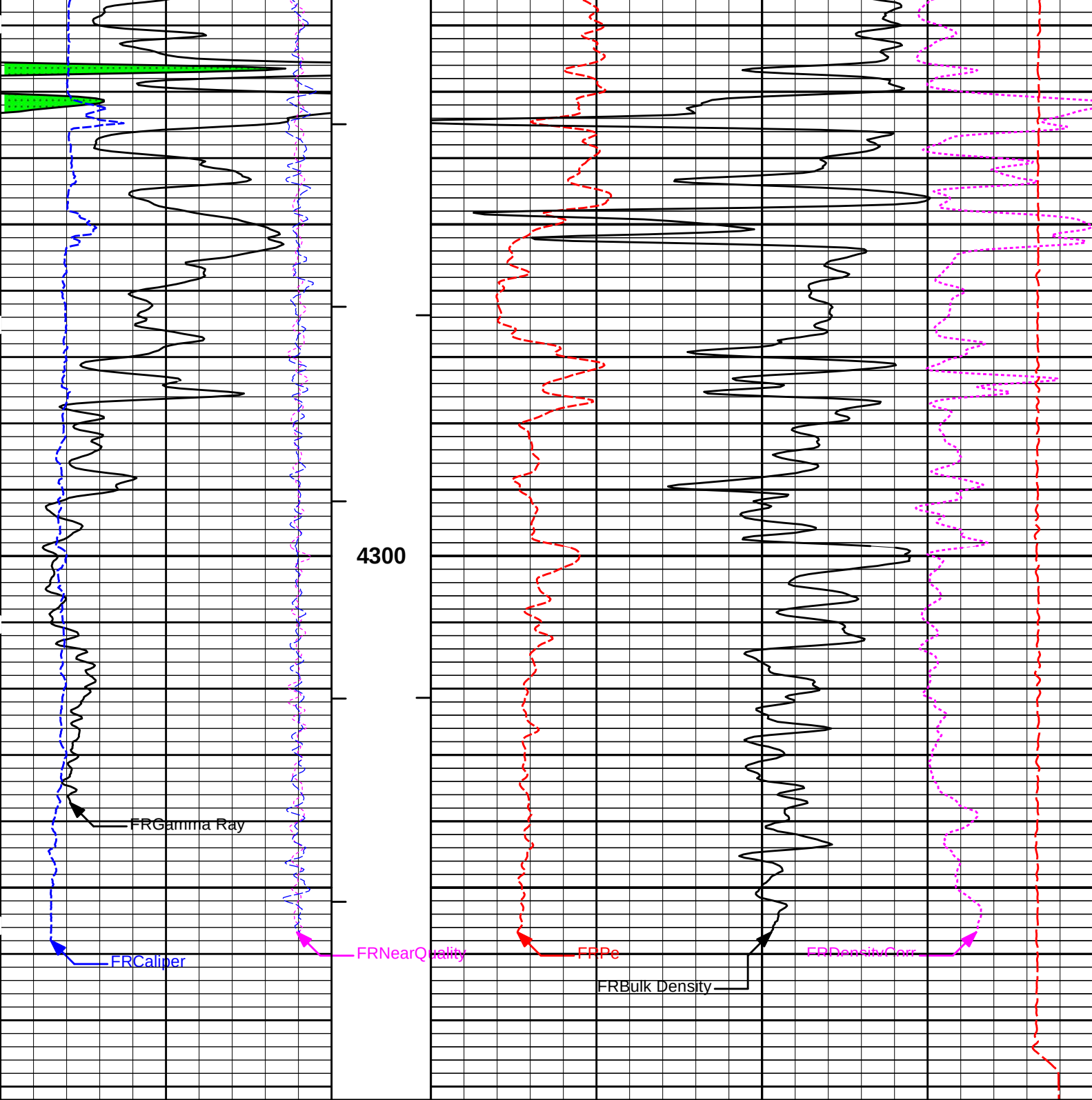
MEASURED DEPTH
MAIN SECTION 5" PER 100'











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

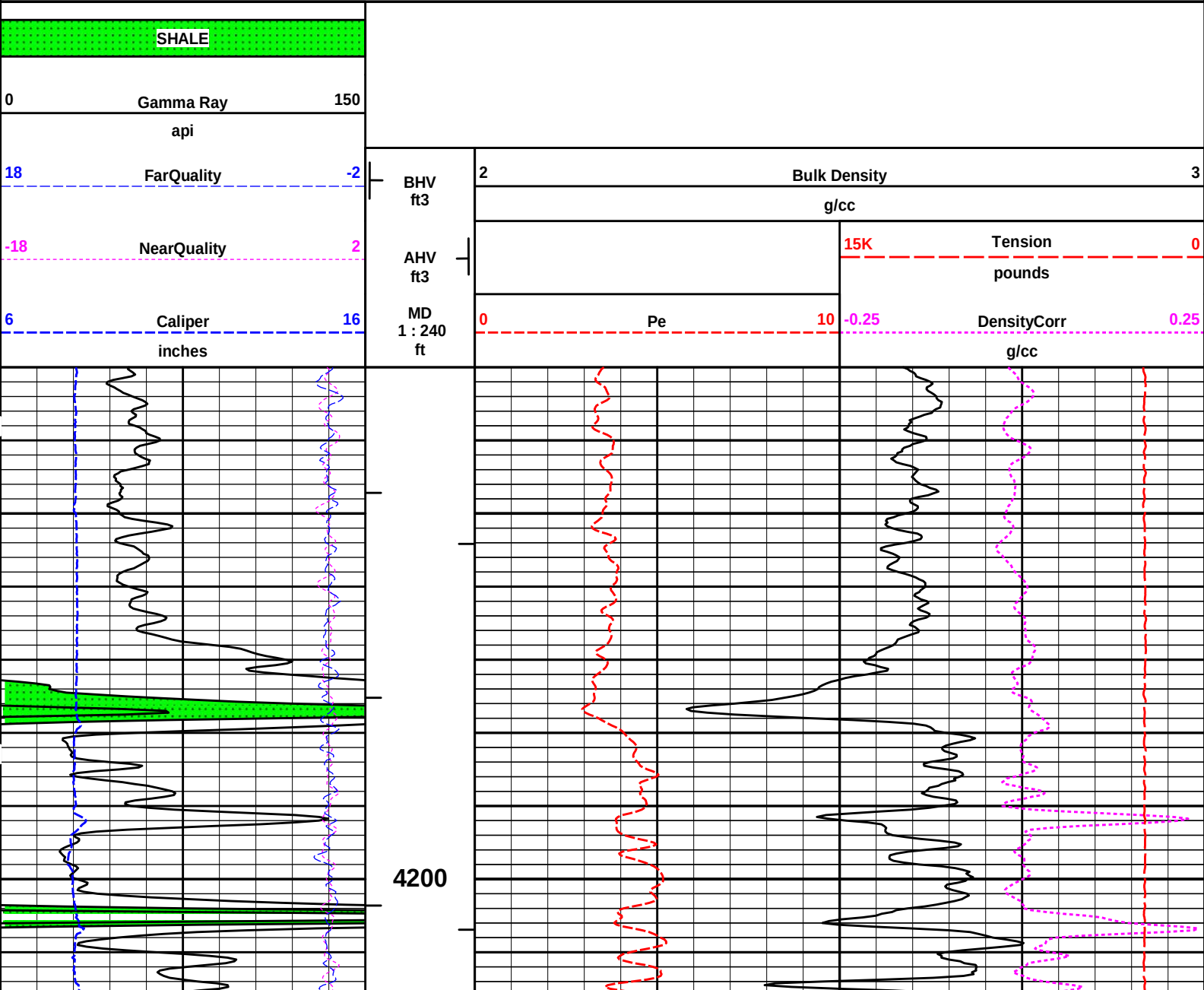
5 INCH MAIN LOG

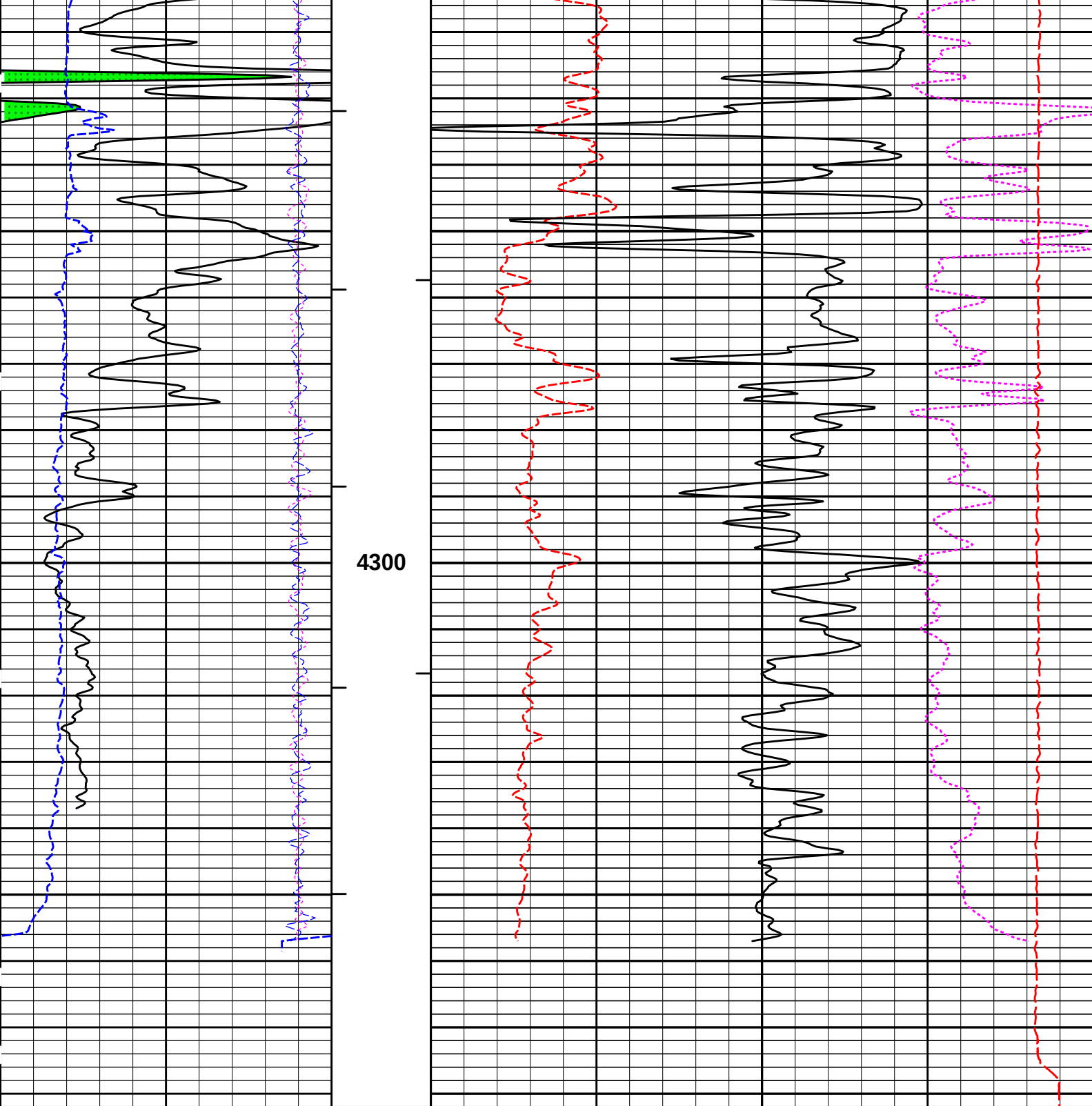
MEASURED DEPTH
MAIN SECTION 5" PER 100'

HALLIBURTON

Plot Time: 25-Jul-14 14:48:07
Plot Range: 4130 ft to 4382 ft
Data: HOWARD A #1\Well Based\REPEAT\
Plot File: \\LOCAL-IHOWARD A #1\Well Based\PORO\BULKD_5_REP_LIB

REPEAT SECTION





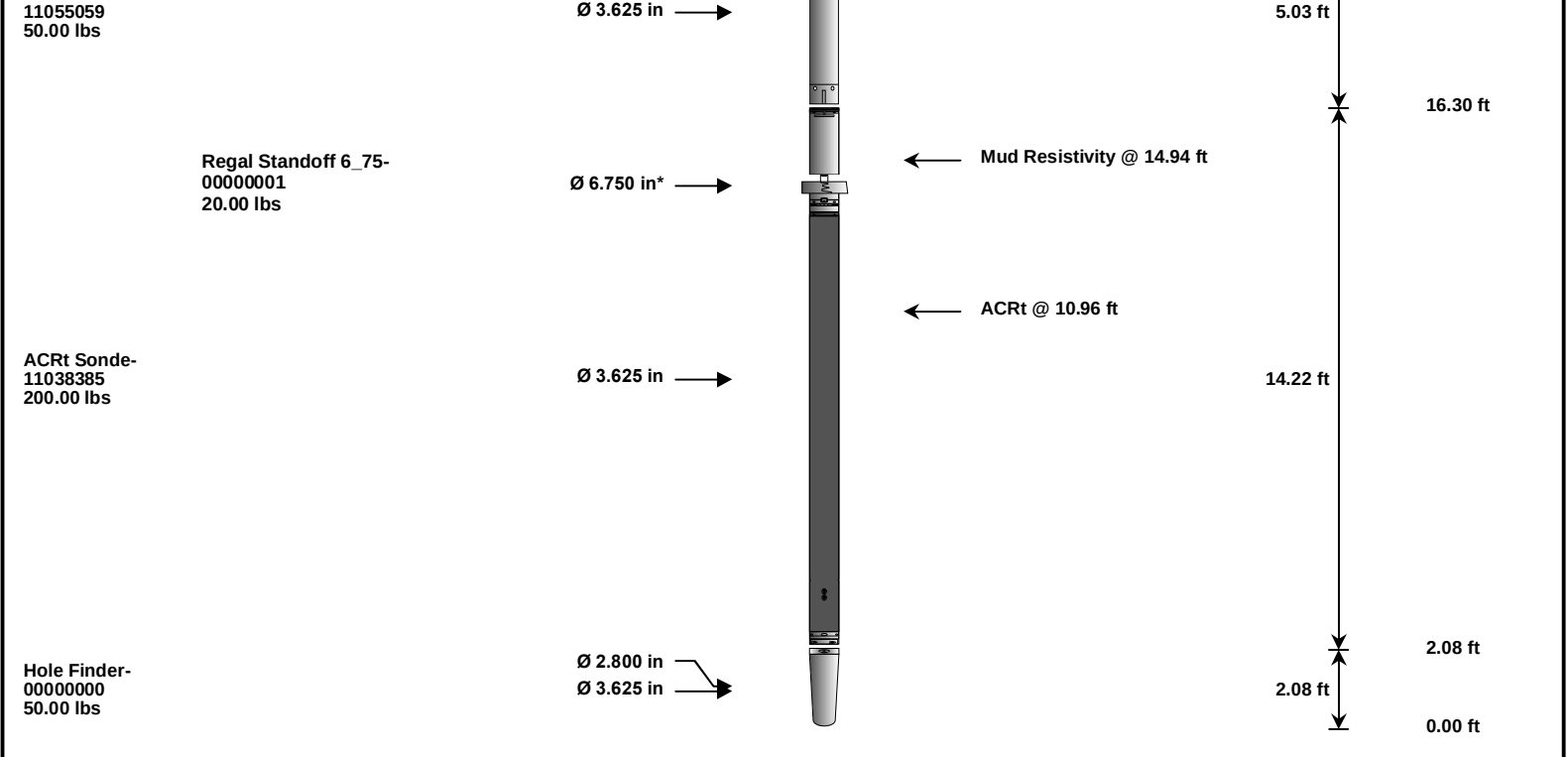
6	Caliper	16	MD 1 : 240 ft	AHV ft3		0	Pe	10	-0.25	DensityCorr	0.25		
	inches											g/cc	
-18	NearQuality	2							15K	Tension	0		
										pounds			
18	FarQuality	-2		BHV ft3		2	Bulk Density				3		
						g/cc							
0	Gamma Ray	150											
	api												
SHALE													

REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
						60.34 ft
RWCH-12156658 135.00 lbs		Ø 3.625 in →		← Load Cell @ 56.66 ft ← BH Temperature @ 56.09 ft	6.25 ft	
SP Sub-12345678 60.00 lbs		Ø 3.625 in →		← SP @ 52.31 ft	3.74 ft	54.09 ft
GTET-11048627 165.00 lbs		Ø 3.625 in →		← GammaRay @ 44.29 ft	8.52 ft	50.35 ft
DSNT-11019643 174.00 lbs	DSN Decentralizer- 11019643 6.60 lbs	Ø 5.000 in* → Ø 3.625 in →		← DSN Far @ 34.90 ft ← DSN Near @ 34.15 ft	9.69 ft	41.83 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 @ 24.33 ft ← SDL Caliper @ 24.15 ft ← SDL @ 24.14 ft	10.81 ft	32.15 ft
ACRt Instrument-						21.33 ft



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
RWCH	Releasable Wireline Cable Head	12156658	135.00	6.25	54.09	300.00
SP	SP Sub	12345678	60.00	3.74	50.35	300.00
GTET	Gamma Telemetry Tool	11048627	165.00	8.52	41.83	60.00
DSNT	Dual Spaced Neutron	11019643	174.00	9.69	32.15	60.00
DCNT	DSN Decentralizer	11019643	6.60	5.13 *	35.48	300.00
SDLT	Spectral Density Tool	10950489	360.00	10.81	21.33	60.00
SDLP	Density Insite Pad	10844781	65.00	2.55 *	23.54	60.00
MICP	Microlog Pad	10950489	8.00	1.00 *	23.83	60.00
ACRt	Array Compensated True Resistivity Instrument Section	11055059	50.00	5.03	16.30	120.00
ACRt	Array Compensated True Resistivity Sonde Section	11038385	200.00	14.22	2.08	120.00
RSOF	Regal Standoff 6.75in	00000001	20.00	0.52 *	14.00	300.00
HFND	Hole Finder	00000000	50.00	2.08	0.00	300.00
Total			1,293.60	60.34		
* Not included in Total Length and Length Accumulation.						
Data: HOWARD A #1\0002 GTET-DSN-SDL-ACRT-BN-TRIPPLE\IDLE					Date: 25-Jul-14 12:39:38	

HALLIBURTON			
CALIBRATION REPORT			
NATURAL GAMMA RAY TOOL SHOP CALIBRATION			
Tool Name:	GTET - 11048627	Reference Calibration Date:	03-Jul-14 08:43:55
Engineer:	J. BOLLLOM	Calibration Date:	09-Jul-14 10:31:38
Software Version:	WL INSITE R4.2.0 (Build 2)	Calibration Version:	1
Calibrator Source S/N: Error			
Calibrator API Reference:265.00 api			
Equivalent Calibrator API Reference:269.6 api			
Measurement	Measured	Calibrated	Units
Background	51.6	52.0	api
Background + Calibrator	319.4	321.6	api
Calibrator	267.8	269.6	api
NATURAL GAMMA RAY TOOL FIELD CALIBRATION			

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name: GTET - 11048627

Reference Calibration Date: 09-Jul-14 10:31:38

Engineer: SUHAIL BISHTI

Calibration Date: 25-Jul-14 01:40:15

Software Version: WL INSITE R4.2.0 (Build 2)

Calibration Version: 1

Calibrator Source S/N: Error

Calibrator API Reference:265.00 api

Equivalent Calibrator API Reference:269.6 api

Field Verification	Shop	Field	Units
Background	52.0	50.3	api
Background + Calibrator	321.6	322.3	api
Calibrator	269.6	271.9	api

Shop	Field	Difference	Tolerance
269.6	271.9	-2.3	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name: DSNT - 11019643

Reference Calibration Date: 09-Jul-14 13:15:21

Engineer: J. BOLLUM

Calibration Date: 09-Jul-14 13:28:09

Software Version: WL INSITE R4.2.0 (Build 2)

Calibration Version: 1

Logging Source S/N: DSN-424

Tank Serial Number: LIBERAL WATER TANK

Reference value assigned to Tank: 51.680

Snow Block S/N: 10013313

Calibration Tank Water Temperature: 68 degF

Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS			
Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	0.951	0.953	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):	0.2105	0.2110	0.0005	+/- 0.0020
Calibrated Ratio:	9.71	9.73	0.017	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0575	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 - 11019643

Reference Calibration Date: 09-Jul-14 13:28:09

Engineer: SUHAIL BISHTI

Calibration Date: 25-Jul-14 01:25:28

Software Version: WL INSITE R4.2.0 (Build 2)

Calibration Version: 1

Logging Source S/N: DSN-424

Snow Block S/N: 10013313

NEUTRON FIELD-CHECK SUMMARY				
	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0575	0.0702	0.0127	+/- 0.0150
PASS/FAIL SUMMARY				
Block Change Check:			Passed	
Snow Block Stat Check:			Passed	
Temperature Check:			Passed	

DENSITY CALIPER SHOP CALIBRATION				
Tool Name:	SDLT - 10950489		Reference Calibration Date:	14-Jul-14 15:32:03
Engineer:	J. BOLLUM		Calibration Date:	14-Jul-14 15:38:06
Software Version:	WL INSITE R4.2.0 (Build 2)		Calibration Version:	1
Host Tool Name:	DSNT - 11019643			

CALIBRATION COEFFICIENTS				
Measurement	Previous Value	New Value	Control Limit On New Value	
Pad Offset	-2524.97	-2588.19	-7000.00 - -1000.00	
Pad Gain	0.0004133	0.0004204	0.000200 - 0.000600	
Arm Offset	-466.67	-281.60	-5000.00 - 3000.00	
Arm Gain	0.0005330	0.0005221	0.000300 - 0.000700	
Arm Power	-0.000006116	-0.000005512	-0.000010000 - 0.000010000	
The ring diameter is computed from: DIAMETER = PAD EXTENSION + ARM EXTENSION + TOOL DIAMETER				
Tool Diameter: 4.50 in				
CALIBRATION RINGS				
Measurement	Current Reading (Previous Coeff.)	Calibrated (New Coeff.)	Change	Control Limit On New Value
PAD EXTENSION:				
Small Ring (in)	1.99	2.00	0.01	+/- 0.20
Medium Ring (in)	3.71	3.75	0.04	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.49	6.50	0.01	+/- 0.20
Medium Ring (in)	8.26	8.25	-0.01	+/- 0.20
Large Ring (in)	15.00	15.00	0.00	+/- 0.20
PASS/FAIL SUMMARY				
Calibration-Coefficients Range Check:			Passed	
Ring-Measurement Check:			Passed	
PASS/FAIL SUMMARY				
Calibration-Coefficients Range Check:			Passed	

SDLT CALIPER FIELD CALIBRATION				
Tool Name:	SDLT - 10950489		Reference Calibration Date:	14-Jul-14 15:38:06
Engineer:	SUHAIL BISHTI		Calibration Date:	25-Jul-14 01:30:06
Software Version:	WL INSITE R4.2.0 (Build 2)		Calibration Version:	1

MEASURED CALIPER VALUES				
Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.75	-0.00	+/- 0.10
Ring Diameter	8.25	8.36	0.11	+/- 0.15

PASS/FAIL SUMMARY

Pad Extension Check:

Passed

Diameter Check:

Passed

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name: SDLT Pad - 10844781

Reference Calibration Date: 11-Jun-14 10:04:39

Engineer: J. BOLLUM

Calibration Date: 09-Jul-14 10:55:18

Software Version: WL INSITE R4.2.0 (Build 2)

Calibration Version: 1

Logging Source S/N: 5168 GW

Aluminum Block S/N: LIBERAL ALUMINUM

Density: 2.598g/cc

Pe: 3.170

Magnesium Block S/N: LIBERAL MAGNESIUM

Density: 1.684g/cc

Pe: 2.598

DENSITY CALIBRATION SUMMARY

Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0482	1.0693	0.90 - 1.10
Near Dens Gain	1.0393	1.0462	0.90 - 1.10
Near Peak Gain	1.0324	1.0750	0.90 - 1.10
Near Lith Gain	1.0200	1.0566	0.90 - 1.10
Far Bar Gain	1.0140	1.0150	0.90 - 1.10
Far Dens Gain	1.0024	1.0021	0.90 - 1.10
Far Peak Gain	0.9968	0.9976	0.90 - 1.10
Far Lith Gain	0.9668	0.9644	0.90 - 1.10
Near Bar Offset	-0.2254	-0.4099	NONE
Near Dens Offset	-0.1439	-0.1993	NONE
Near Peak Offset	-0.0674	-0.4208	NONE
Near Lith Offset	0.0254	-0.2826	NONE
Far Bar Offset	0.0134	0.0077	NONE
Far Dens Offset	0.1004	0.1043	NONE
Far Peak Offset	0.0970	0.0927	NONE
Far Lith Offset	0.2744	0.2898	NONE
Near Bar Background	782.99	783.30	700 - 1450
Near Dens Background	257.43	258.23	230 - 480
Near Peak Background	111.64	111.97	100 - 210
Near Lith Background	138.52	137.78	125 - 260
Far Bar Background	509.97	507.54	450 - 900
Far Dens Background	200.32	199.87	175 - 345
Far Peak Background	80.66	79.51	70 - 140
Far Lith Background	82.33	82.79	75 - 145

CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.678	1.684	0.006	+/- 0.015
Pe	2.508	2.564	0.056	+/- 0.150
ALUMINUM				
Density (g/cc)	2.596	2.598	0.002	+/- 0.01500
Pe	3.044	3.133	0.089	+/- 0.150

TOOL SUMMARY

Measurement	Near Detector	Far Detector
-------------	---------------	--------------

	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0013	+/- 0.0110	-0.0022	+/- 0.0140
Magnesium Block	-0.0011	+/- 0.0110	-0.0020	+/- 0.0140
Aluminum Block	-0.0004	+/- 0.0110	0.0002	+/- 0.0140
Resolution	9.37	6.00 - 11.50	8.85	6.00 - 11.50
Internal Verifier(B+D+P+L)	1291	1200 - 2700	870	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 - 10844781	Reference Calibration Date:	09-Jul-14 10:55:18
Engineer:	SUHAIL BISHTI	Calibration Date:	25-Jul-14 01:32:20
Software Version:	WL INSITE R4.2.0 (Build 2)	Calibration Version:	1

Pad Temperature: 89.3 degF

DENSITY FIELD CALIBRATION SUMMARY				
Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1291.272	1290.175	-1.097	14.552
Far (B+D+P+L) cps	869.704	872.877	3.173	16.122
Near Resolution	9.37	9.51	0.140	0.50
Far Resolution	8.85	9.01	0.160	1.00

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

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11048627						
Gamma Ray Calibrator	269.6	271.9	-----	-2.3	+/- 9.00	api
DSNT-11019643						
Snow-Block Porosity	0.0575	0.0702	-----	-0.0127	+/- 0.0150	decP
SDLT-10950489						
Pad Extension	3.75	3.75	-----	0.00	+/-0.10	in
Ring Diameter	8.25	8.36	-----	-0.11	+/-0.15	in
SDLT Pad-10844781						
Near(B+D+P+L)	1291.272	1290.175	-----	1.097	+/-14.552	cps
Far(B+D+P+L)	869.704	872.877	-----	-3.173	+/-16.122	cps

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	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	4378.00	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	
	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	
	Rwa / CrossPlot	BHSM	Borehole Size Source Tool	SDLT	
	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	
	GTET	BHSM	Borehole Size Source Tool	SDLT	
	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	
	DSNT	BHSM	Borehole Size Source Tool	SDLT	
	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	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
SDLT Pad	BHSM	Borehole Size Source Tool	SDLT	
Microlog Pad	MLOK	Process MicroLog Outputs?	Yes	
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
ACRt Sonde	BHSM	Borehole Size Source Tool	SDLT	
BOTTOM_____				
Data: HOWARD A #10001 GTET-DSN-SDL-ACRT-BN-TRIPPLE\001 25-Jul-14 07:30 Dn @0.3f			Date: 25-Jul-14 07:31:22	

HALLIBURTON INPUTS, DELAYS AND FILTERS TABLE				
Mnemonic	Input Description	Delay (ft)	Filter Type	Filter Length (ft)
Depth Panel				
TENS	Tension	0.00	NO	
Rwa / CrossPlot				
TPUL	Tension Pull	58.59	NO	
BS	Bit Size	58.59	NO	
HDIA	Measured Hole Diameter	0.00	NO	
RWCH				
DHTN	DownholeTension	0.00	BLK	0.000
SP Sub				
PLTC	Plot Control Mask	50.56	NO	
SP	Spontaneous Potential	50.56	BLK	1.250
SPR	Raw Spontaneous Potential	50.56	NO	
SPO	Spontaneous Potential Offset	50.56	NO	
GTET				
TPUL	Tension Pull	42.54	NO	
GR	Natural Gamma Ray API	42.54	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	42.54	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	42.54	W	1.416 , 0.750
HDIA	Measured Hole Diameter	0.00	NO	
ACCZ	Accelerometer Z	0.00	BLK	0.083
DEVI	Inclination	0.00	NO	
DSNT				
TPUL	Tension Pull	32.30	NO	
RNDS	Near Detector Telemetry Counts	32.40	BLK	1.417

RFDS	Far Detector Telemetry Counts	33.15	TRI	0.583
DNTT	DSN Tool Temperature	32.40	NO	
DSNS	DSN Tool Status	32.30	NO	
ERND	Near Detector Telemetry Counts EVR	32.40	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	33.15	BLK	0.000
ENTM	DSN Tool Temperature EVR	32.40	NO	
HDIA	Measured Hole Diameter	0.00	NO	
SDLT				
TPUL	Tension Pull	22.40	NO	
PCAL	Pad Caliper	22.40	TRI	0.250
ACAL	Arm Caliper	22.40	TRI	0.250
ACRt Sonde				
TPUL	Tension Pull	2.73	NO	
F1R1	ACRT 12KHz - 80in R value	8.98	BLK	0.000
F1X1	ACRT 12KHz - 80in X value	8.98	BLK	0.000
F1R2	ACRT 12KHz - 50in R value	6.48	BLK	0.000
F1X2	ACRT 12KHz - 50in X value	6.48	BLK	0.000
F1R3	ACRT 12KHz - 29in R value	4.98	BLK	0.000
F1X3	ACRT 12KHz - 29in X value	4.98	BLK	0.000
F1R4	ACRT 12KHz - 17in R value	3.98	BLK	0.000
F1X4	ACRT 12KHz - 17in X value	3.98	BLK	0.000
F1R5	ACRT 12KHz - 10in R value	3.48	BLK	0.000
F1X5	ACRT 12KHz - 10in X value	3.48	BLK	0.000
F1R6	ACRT 12KHz - 6in R value	3.23	BLK	0.000
F1X6	ACRT 12KHz - 6in X value	3.23	BLK	0.000
F2R1	ACRT 36KHz - 80in R value	8.98	BLK	0.000
F2X1	ACRT 36KHz - 80in X value	8.98	BLK	0.000
F2R2	ACRT 36KHz - 50in R value	6.48	BLK	0.000
F2X2	ACRT 36KHz - 50in X value	6.48	BLK	0.000
F2R3	ACRT 36KHz - 29in R value	4.98	BLK	0.000
F2X3	ACRT 36KHz - 29in X value	4.98	BLK	0.000
F2R4	ACRT 36KHz - 17in R value	3.98	BLK	0.000
F2X4	ACRT 36KHz - 17in X value	3.98	BLK	0.000
F2R5	ACRT 36KHz - 10in R value	3.48	BLK	0.000
F2X5	ACRT 36KHz - 10in X value	3.48	BLK	0.000
F2R6	ACRT 36KHz - 6in R value	3.23	BLK	0.000
F2X6	ACRT 36KHz - 6in X value	3.23	BLK	0.000
F3R1	ACRT 72KHz - 80in R value	8.98	BLK	0.000
F3X1	ACRT 72KHz - 80in X value	8.98	BLK	0.000
F3R2	ACRT 72KHz - 50in R value	6.48	BLK	0.000
F3X2	ACRT 72KHz - 50in X value	6.48	BLK	0.000
F3R3	ACRT 72KHz - 29in R value	4.98	BLK	0.000
F3X3	ACRT 72KHz - 29in X value	4.98	BLK	0.000
F3R4	ACRT 72KHz - 17in R value	3.98	BLK	0.000
F3X4	ACRT 72KHz - 17in X value	3.98	BLK	0.000
F3R5	ACRT 72KHz - 10in R value	3.48	BLK	0.000
F3X5	ACRT 72KHz - 10in X value	3.48	BLK	0.000
F3R6	ACRT 72KHz - 6in R value	3.23	BLK	0.000
F3X6	ACRT 72KHz - 6in X value	3.23	BLK	0.000
RMUD	Mud Resistivity	12.52	BLK	0.000
F1RT	Transmitter Reference 12 KHz Real Signal	2.73	BLK	0.000
F1XT	Transmitter Reference 12 KHz Imaginary Signal	2.73	BLK	0.000
F2RT	Transmitter Reference 36 KHz Real Signal	2.73	BLK	0.000
F2XT	Transmitter Reference 36 KHz Imaginary Signal	2.73	BLK	0.000

F3RT	Transmitter Reference 72 KHz Real Signal	2.73	BLK	0.000
F3XT	Transmitter Reference 72 KHz Imaginary Signal	2.73	BLK	0.000
TFPU	Upper Feedpipe Temperature Calculated	2.73	BLK	0.000
TFPL	Lower Feedpipe Temperature Calculated	2.73	BLK	0.000
ITMP	Instrument Temperature	2.73	BLK	0.000
TCVA	Temperature Correction Values Loop Off	2.73	NO	
TIDV	Instrument Temperature Derivative	2.73	NO	
TUDV	Upper Temperature Derivative	2.73	NO	
TLDV	Lower Temperature Derivative	2.73	NO	
TRBD	Receiver Board Temperature	2.73	NO	
HDIA	Measured Hole Diameter	0.00	NO	

SDLT Pad				
TPUL	Tension Pull	22.39	NO	
NAB	Near Above	22.21	BLK	0.920
NHI	Near Cesium High	22.21	BLK	0.920
NLO	Near Cesium Low	22.21	BLK	0.920
NVA	Near Valley	22.21	BLK	0.920
NBA	Near Barite	22.21	BLK	0.920
NDE	Near Density	22.21	BLK	0.920
NPK	Near Peak	22.21	BLK	0.920
NLI	Near Lithology	22.21	BLK	0.920
NBAU	Near Barite Unfiltered	22.21	BLK	0.250
NLIU	Near Lithology Unfiltered	22.21	BLK	0.250
FAB	Far Above	22.56	BLK	0.250
FHI	Far Cesium High	22.56	BLK	0.250
FLO	Far Cesium Low	22.56	BLK	0.250
FVA	Far Valley	22.56	BLK	0.250
FBA	Far Barite	22.56	BLK	0.250
FDE	Far Density	22.56	BLK	0.250
FPK	Far Peak	22.56	BLK	0.250
FLI	Far Lithology	22.56	BLK	0.250
PTMP	Pad Temperature	22.40	BLK	0.920
NHV	Near Detector High Voltage	21.79	NO	
FHV	Far Detector High Voltage	21.79	NO	
ITMP	Instrument Temperature	21.79	NO	
DDHV	Detector High Voltage	21.79	NO	
HDIA	Measured Hole Diameter	0.00	NO	

Microlog Pad				
TPUL	Tension Pull	22.58	NO	
MINV	Microlog Lateral	22.58	BLK	0.750
MNOR	Microlog Normal	22.58	BLK	0.750

Data: HOWARD A #1\0001 GTET-DSN-SDL-ACRT-BN-TRIPPLE\001 25-Jul-14 07:30 Dn @0.3f Date: 25-Jul-14 07:31:40

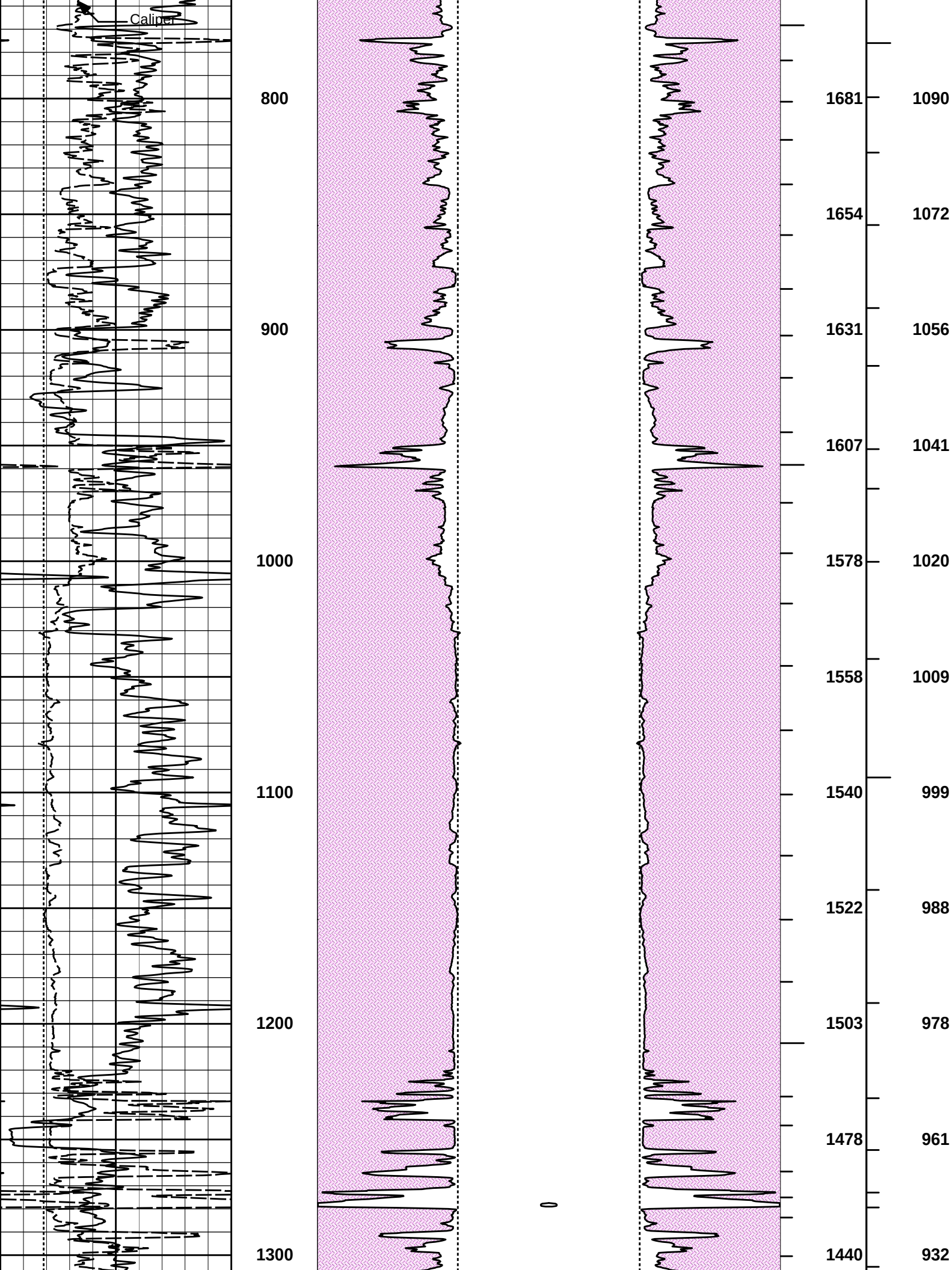


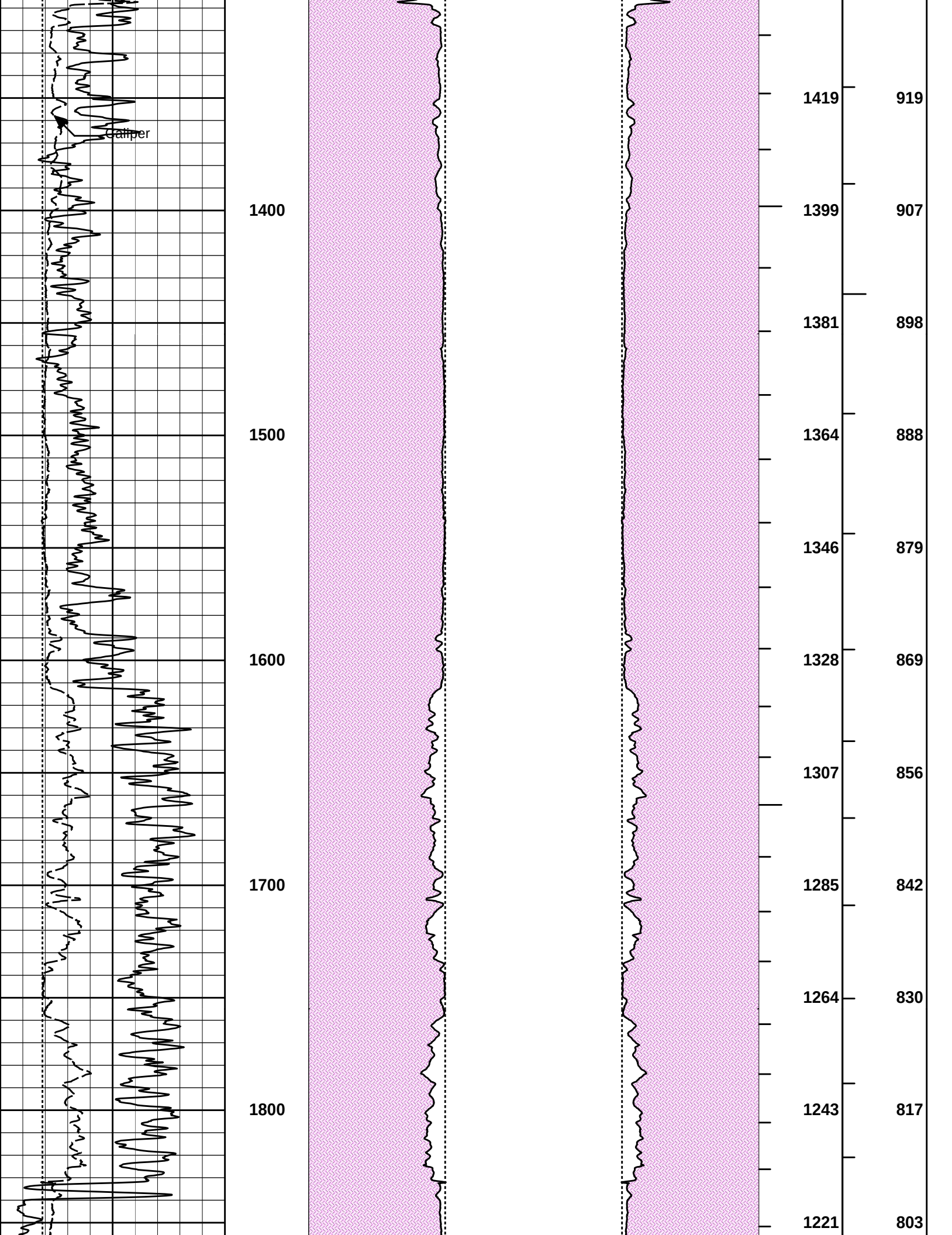
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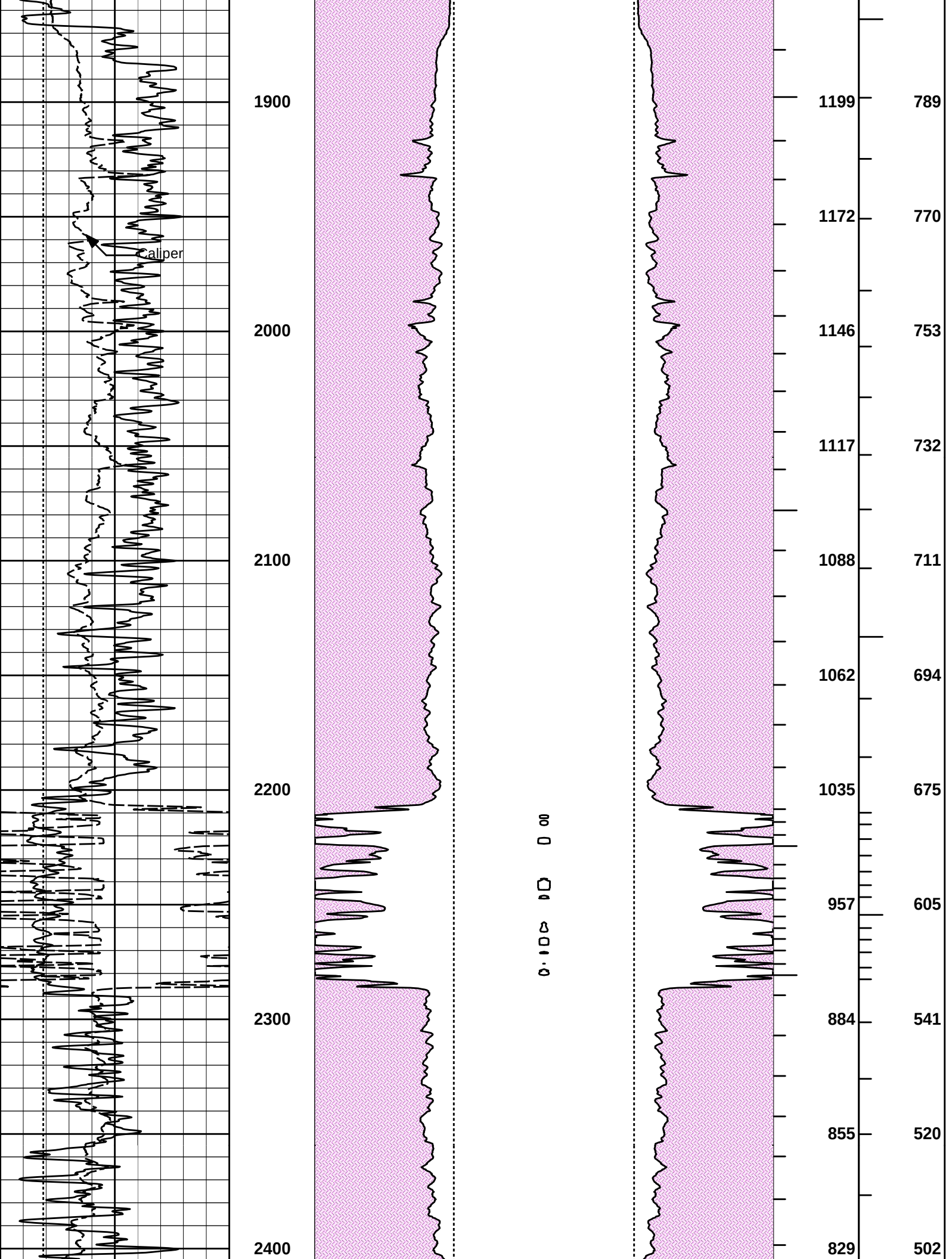
ANNULAR HOLE VOLUME PLOT

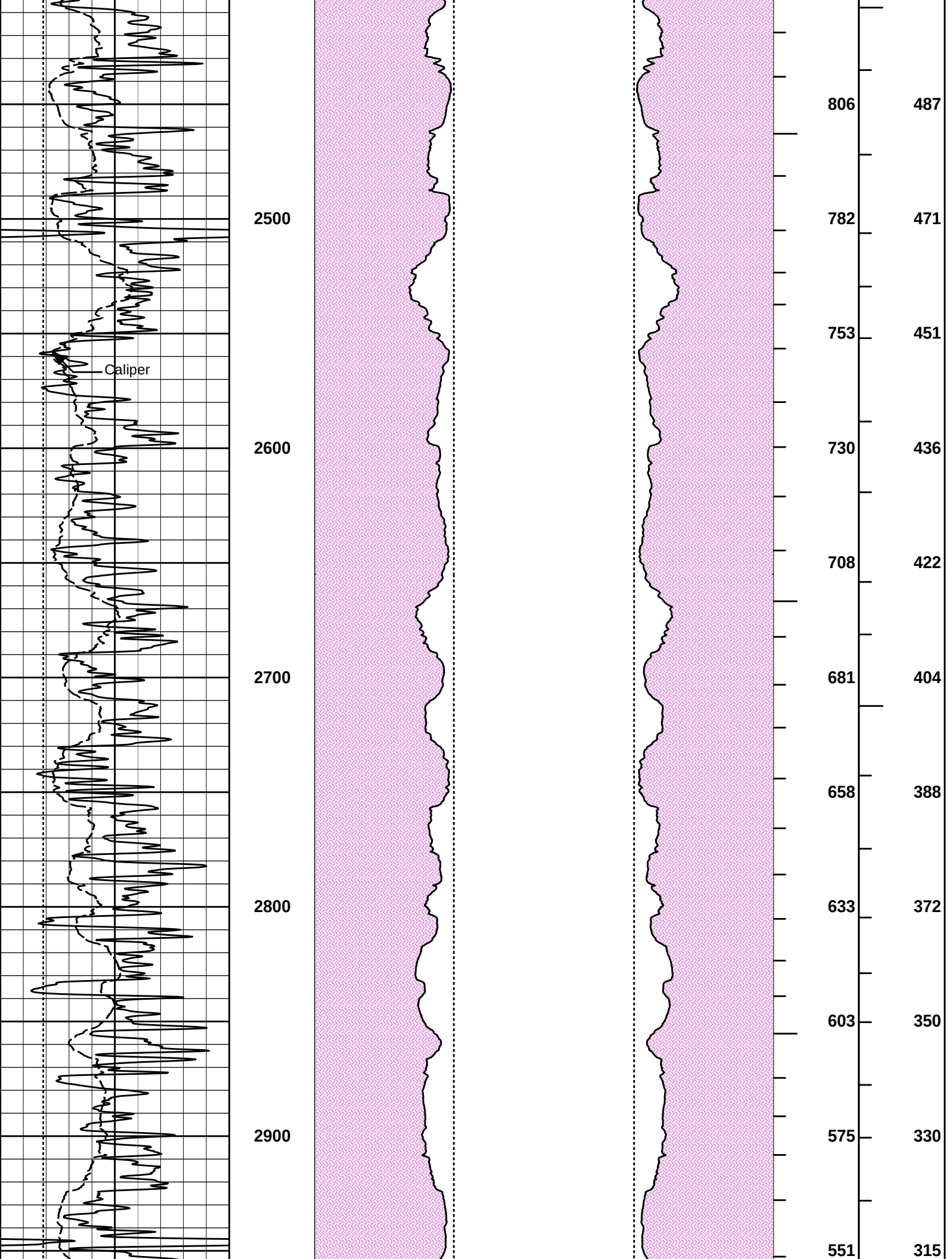
0	Gamma API	150			
	api			MUDCAKE	MUDCAKE

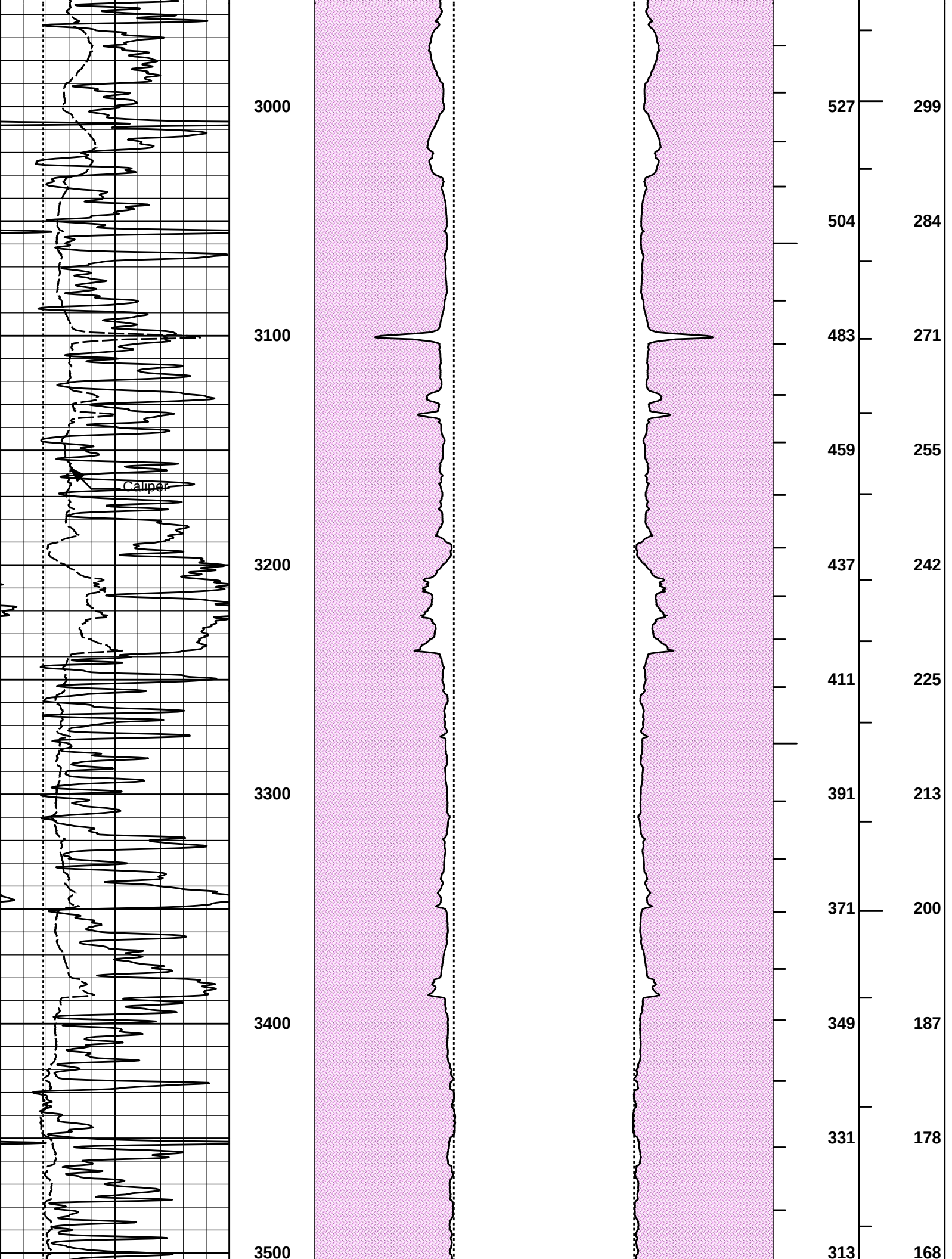
6		16		20		0		0		20			
inches				20		0		0		20			
Caliper		MD		20		0		0		20		BHVT	
inches		1 : 600 ft		inches		inches		inches		inches		AHVT	
												1956	
												1283	
												1932	
												1267	
												1911	
												1254	
												1890	
												1241	
												1869	
												1228	
												1841	
												1209	
												1819	
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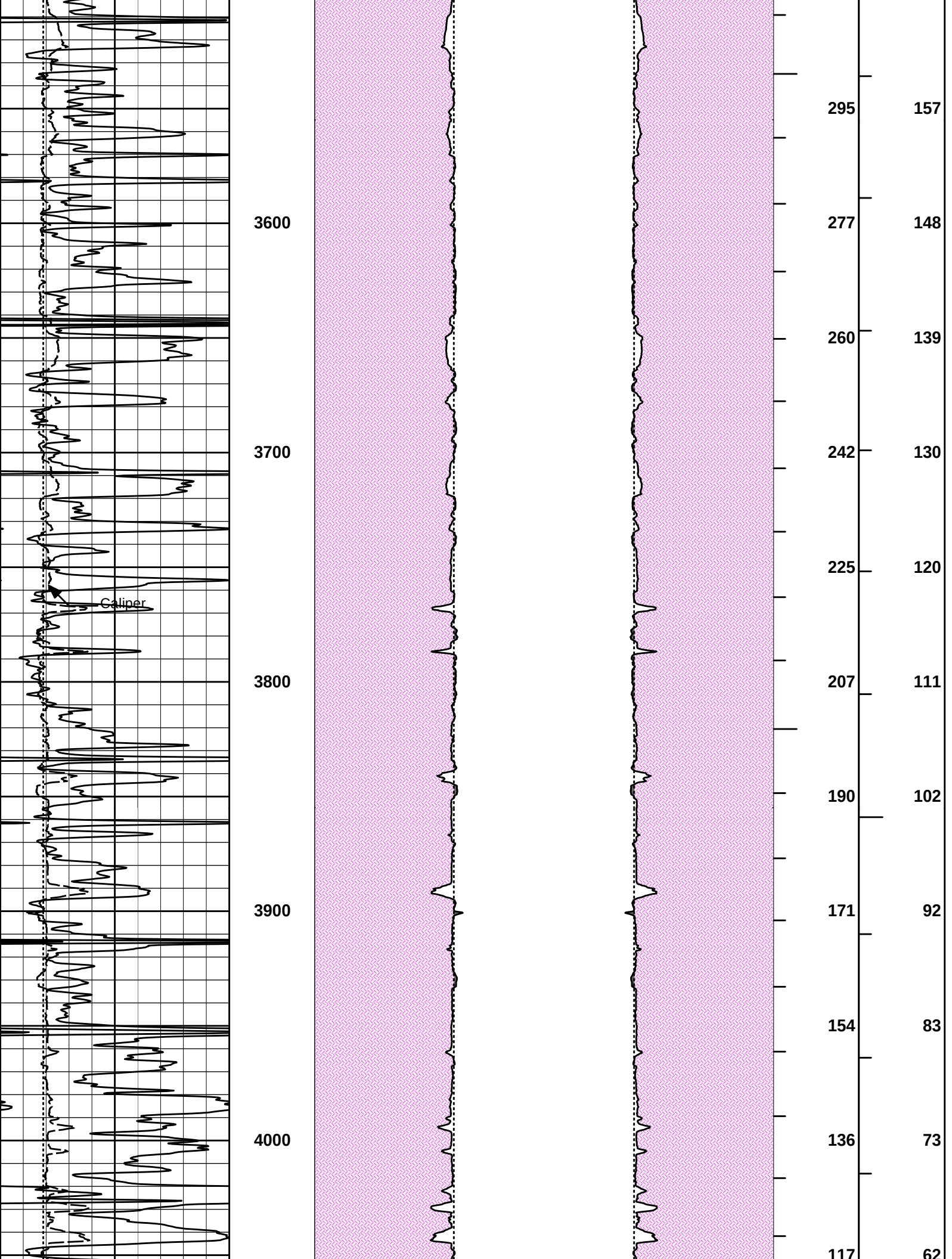


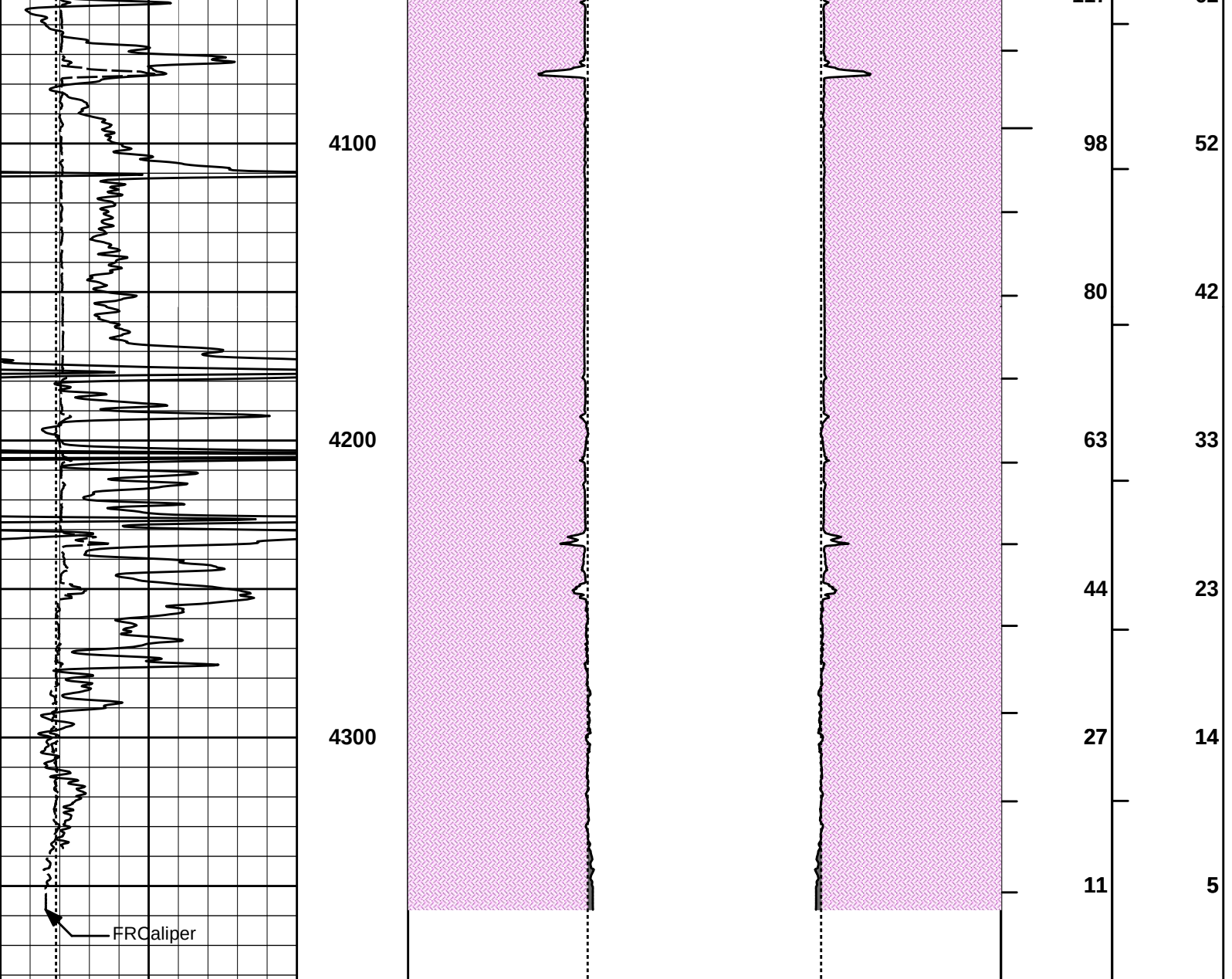












6	Caliper	16	MD 1 : 600 ft	20	Caliper	0	0	Caliper	20	BHVT	AHVT
	inches				inches				inches		
6	Bit Size	16		20	Bit Size	0	0	Bit Size	20		
	inches										
0	Gamma API	150									
	api										
					MUDCAKE			MUDCAKE			

HALLIBURTON

Plot Time: 25-Jul-14 14:48:12
Plot Range: 255 ft to 4382 ft
Data: HOWARD A #1\Well Based\MAIN\
Plot File: \\LOCAL-I\HOWARD A #1\Well Based\PORO\AHV_2_IQ_LIB

ANNULAR HOLE VOLUME PLOT

COMPANY	TENGASCO INC
WELL	HOWARD A #1
FIELD	UNNAMED
COUNTY	TREGO
STATE	KANSAS

COUNTY	TRESC	STATE	KANSAS
HALLIBURTON	SPECTRAL DENSITY DUAL SPACED NEUTRON LOG		