

HALLIBURTON

DUAL SPACED NEUTRON
SPECTRAL DENSITY
LOG

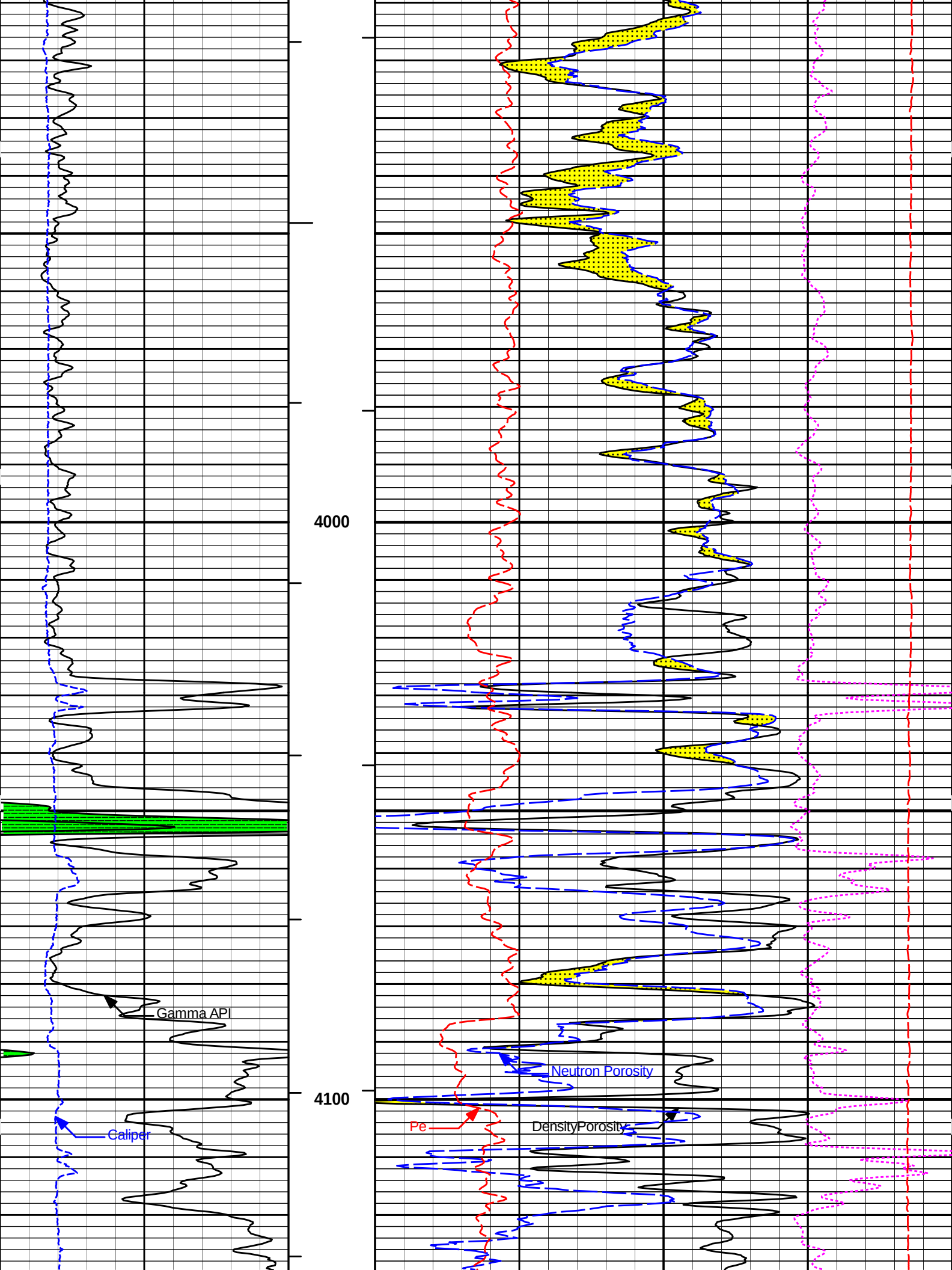
COMPANY		HERMAN L. LOEB, LLC	
WELL		BANTA 'F' 1-21	
FIELD/BLOCK		EINSEL	
COUNTY		KIOWA	
STATE		KANSAS	
Permanent Datum		G.L.	
Log measured from		KB	
Drilling measured from		KB	
Date		12-Jun-15	
Run No.		ONE	
Depth - Driller		4820.00 ft	
Depth - Logger		4820.0 ft	
Bottom - Logged Interval		4817.00 ft	
Top - Logged Interval		3900.00 ft	
Casing - Driller		8.625 in @ 545.0 ft	
Casing - Logger			
Bit Size		7.875 in @	
Type Fluid in Hole		Water Based Mud	
Density		9.2 ppg	
Viscosity		58.00 s/qt	
PH		10.00 pH	
Source of Sample		MUDPIT	
Rm @ Meas. Temperature		@	
Rmf @ Meas. Temperature		@	
Rmc @ Meas. Temperature		@	
Source Rmf		MEASURED	
Rmc		MEASURED	
Rm @ BHT		0.00 ohmm @ 125.0 degF	
Time Since Circulation		3.0000 hr	
Time on Bottom		12-Jun-15 16:45:00.000	
Max. Rec. Temperature		125.0 degF @ 4820.0 ft	
Equipment		11072142 Liberal, KS, US	
Recorded By		JORGE ORLANDO PEREZ	
Witnessed By		JON CHRISTENSEN	

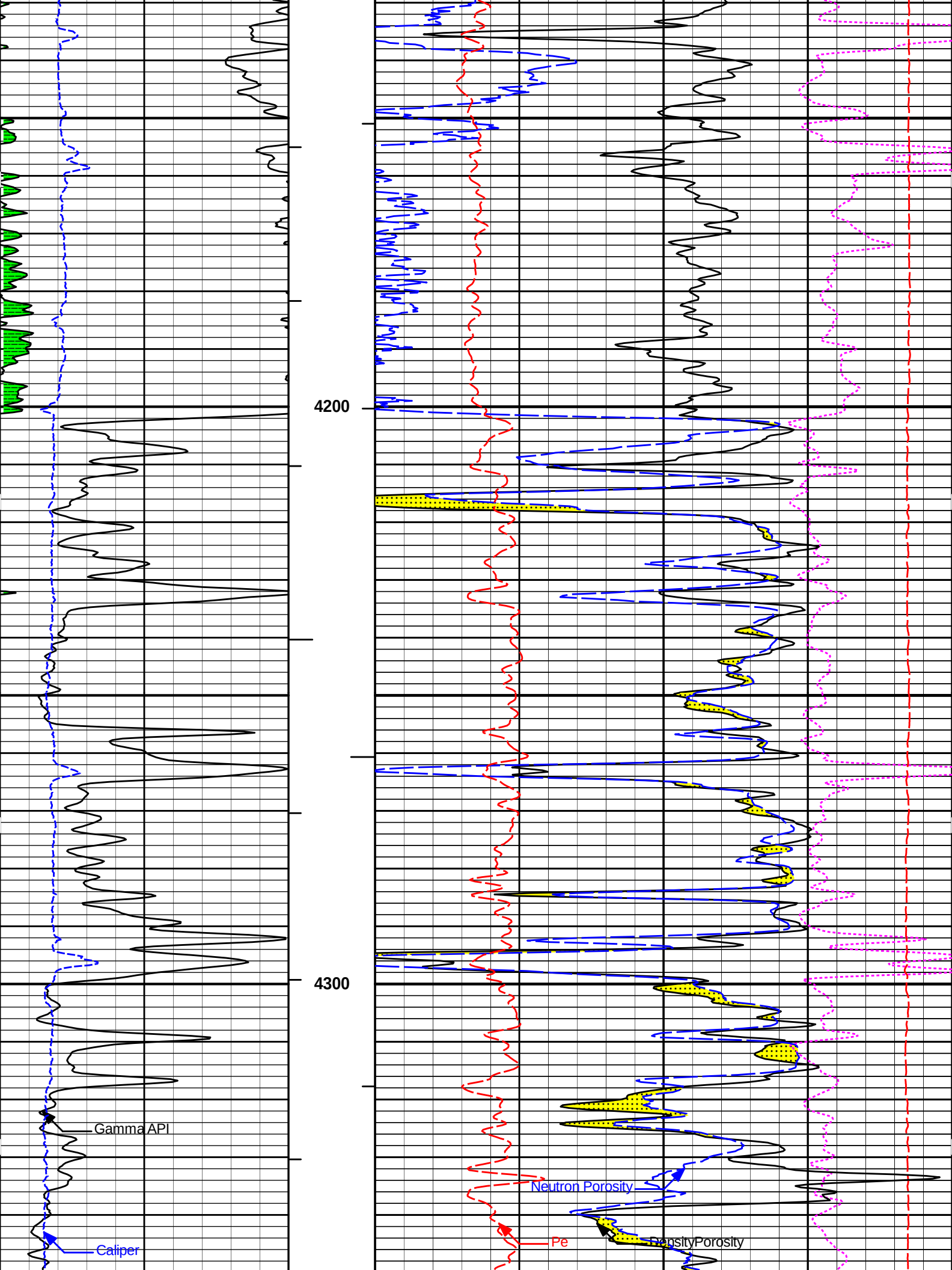
COMPANY	HERMAN L. LOEB, LLC
WELL	BANTA 'F' 1-21
FIELD/BLOCK	EINSEL
COUNTY	KIOWA
STATE	KANSAS
API No.	15-097-21822-00-00
Location	(SHL) 795' FSL & 790' FWL SW NE SW SW
Sect. 21	Twp. 27S
Rge.	18W
Other Services:	DSNT/SDLT MICROLOG ACRT

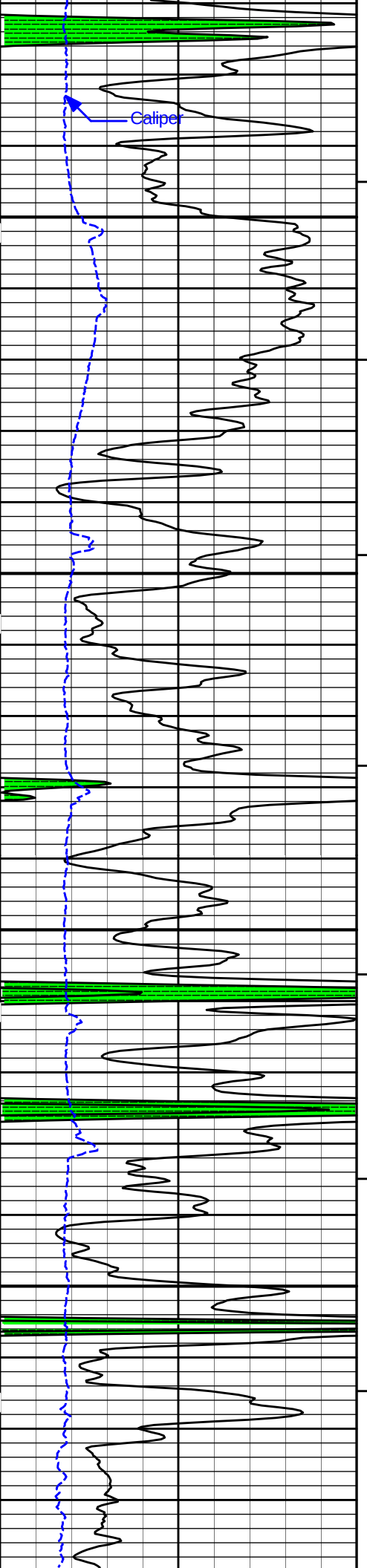
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Service Ticket No.: 902429270				API Serial No.: 15-097-21822-00-00				PGM Version: WL INSITE R4.6.4 (Build 3)							
CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE						RESISTIVITY SCALE CHANGES									
Date		Sample No.				Type Log		Depth		Scale Up Hole		Scale Down Hole			
Depth-Driller															
Type Fluid in Hole															
Density		Viscosity													
Ph		Fluid Loss													
Source of Sample						RESISTIVITY EQUIPMENT DATA									
Rm @ Meas. Temp		@		@		Run No.		Tool Type & No.		Pad Type		Tool Pos.		Other	
Rmf @ Meas. Temp.		@		@		ONE		ACRT		N/A		1.5 S.O.		N/A	
Rmc @ Meas. Temp.		@		@				I-11022962							
Source Rmf		Rmc						S-11005909							
Rm @ BHT		@		@											
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.		11014296		Serial No.		11055304	
Model No.		GTET		Model No.				Model No.		SDLT		Model No.		DSNT	
Diameter		3.625"		No. of Cent.				Diameter		5.3"		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		N/A		FWDA [Y/N]				Strength		1.5 Ci		Strength		15.0 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	CSG	REC	0	150				30	-10	2.71 gr/cc	30	-10	LIME
DIRECTIONAL INFORMATION														
Maximum Deviation @								KOP @						
Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 5.5 INCH CASING														
CHLORIDES REPORTED AT 8000 ppm														
DSNT/SDLT/MICROLOG AND ACRT RAN IN SEPARATE RUNS														
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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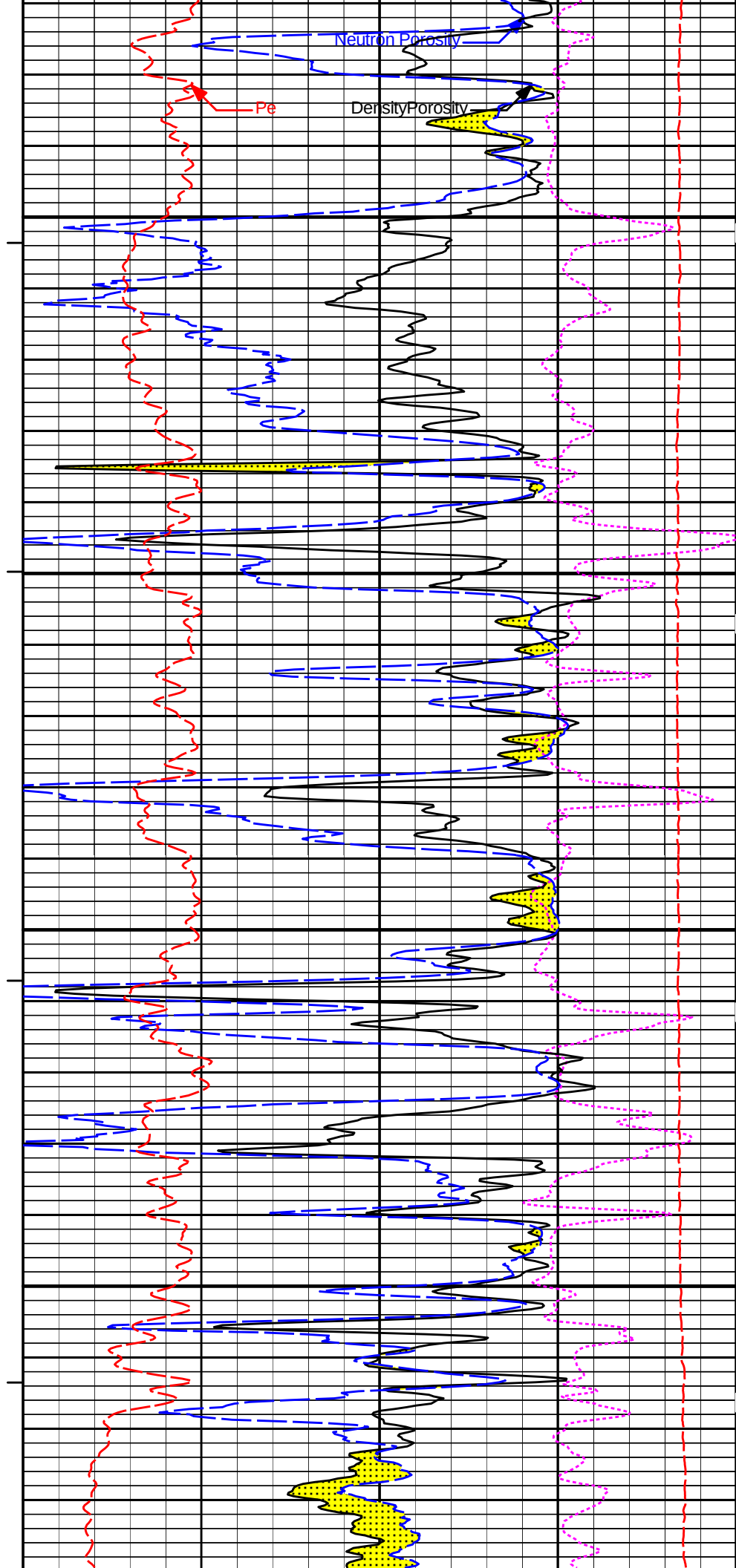






4600

4700



6	Caliper	16	MD 1 : 240 ft	0	Pe	10	-0.25	DensityCorr	0.25	
	inches								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: 12-Jun-15 17:12:25
Plot Range: 3898 ft to 4826.25 ft
Data: BANTA-F_1-21\Well Based\DETAILS1\
Plot File: \\IPOROSITY\Porosity_Q_5_MAIN_LIB

5 INCH MAIN LOG

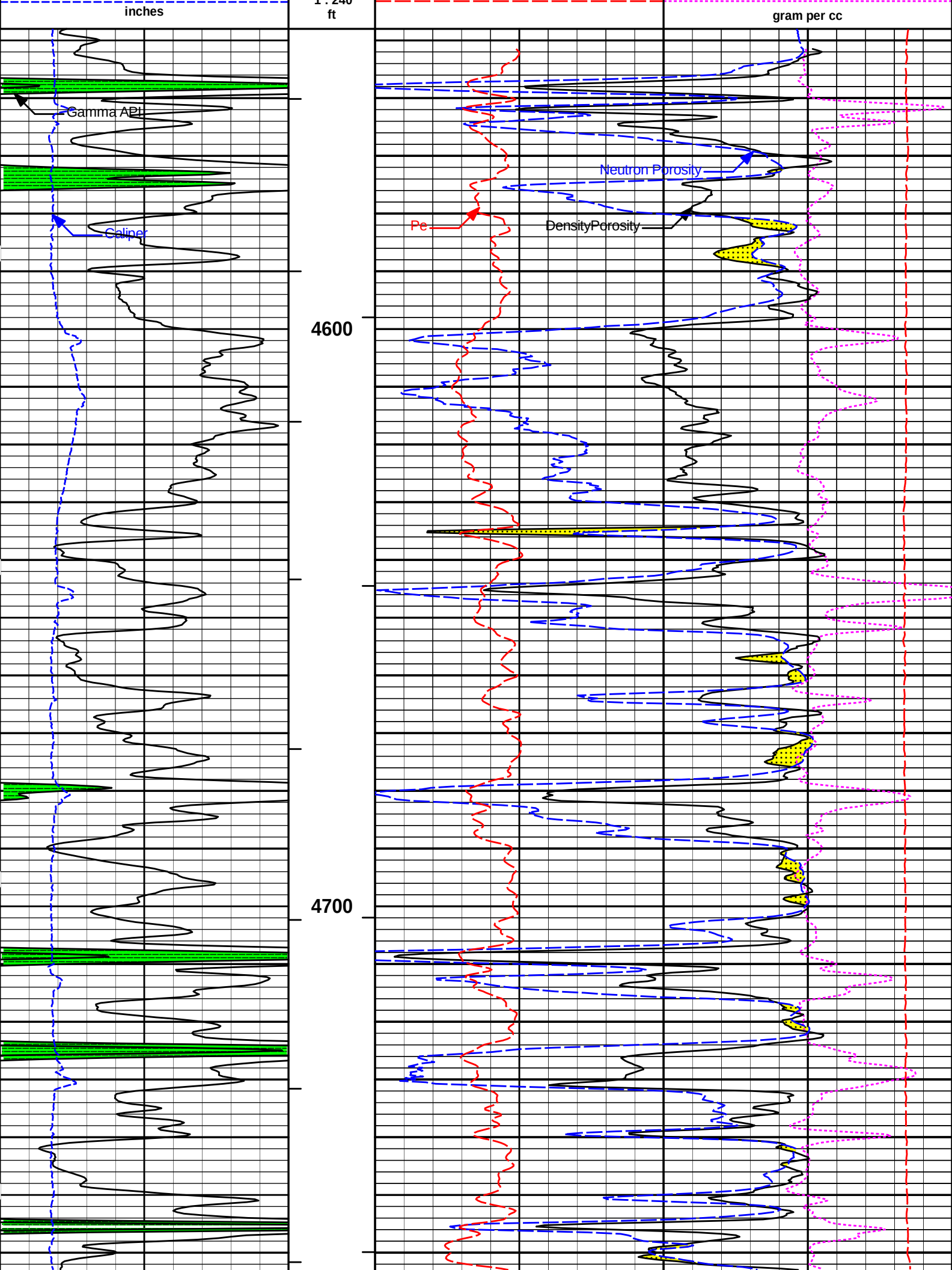
MEASURED DEPTH
MAIN SECTION 5" PER 100'

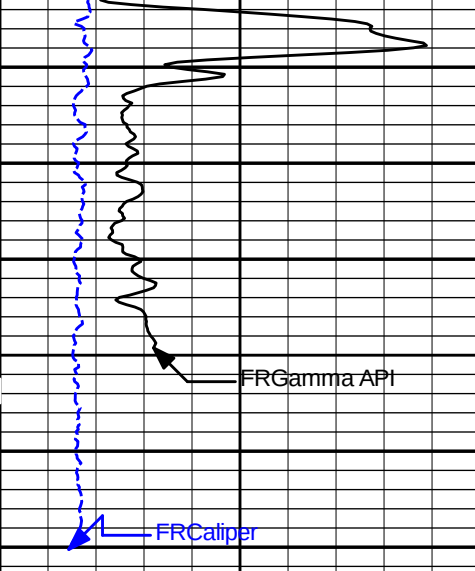
HALLIBURTON

Plot Time: 12-Jun-15 17:12:25
Plot Range: 4548 ft to 4823.67 ft
Data: BANTA-F_1-21\Well Based\REPEAT\
Plot File: \\POROSITY\Porosity_IQ_5_REP_LIB

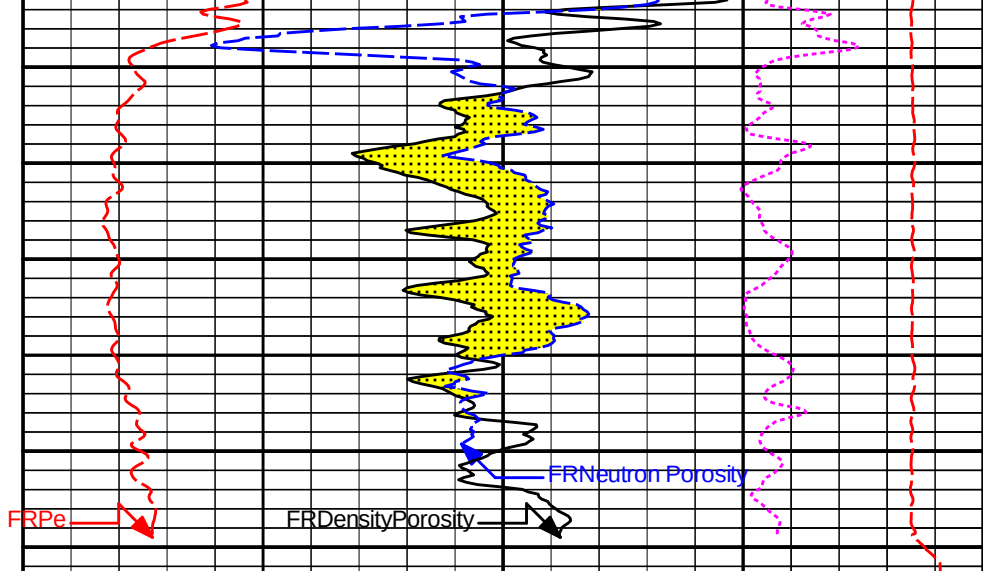
REPEAT SECTION

			CROSSOVER					
			30Neutron Porosity-10					
			%					
SHALE		BHVT	30DensityPorosity-10					
			%					
0	Gamma API	150	AHVT			15K	Tension	0
	api						pounds	
6	Caliper	16	MD 1 : 240	0	Pe	10	-0.25	DensityCorr0.25





4800



6	Caliper	16	MD 1 : 240 ft	0	Pe	10	-0.25	DensityCorr	0.25
	inches								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: 12-Jun-15 17:12:28
Plot Range: 4548 ft to 4823.67 ft
Data: BANTA-F_1-21\Well Based\REPEAT\
Plot File: \\POROSITY\Porosity_IQ_5_REP_LIB

REPEAT SECTION

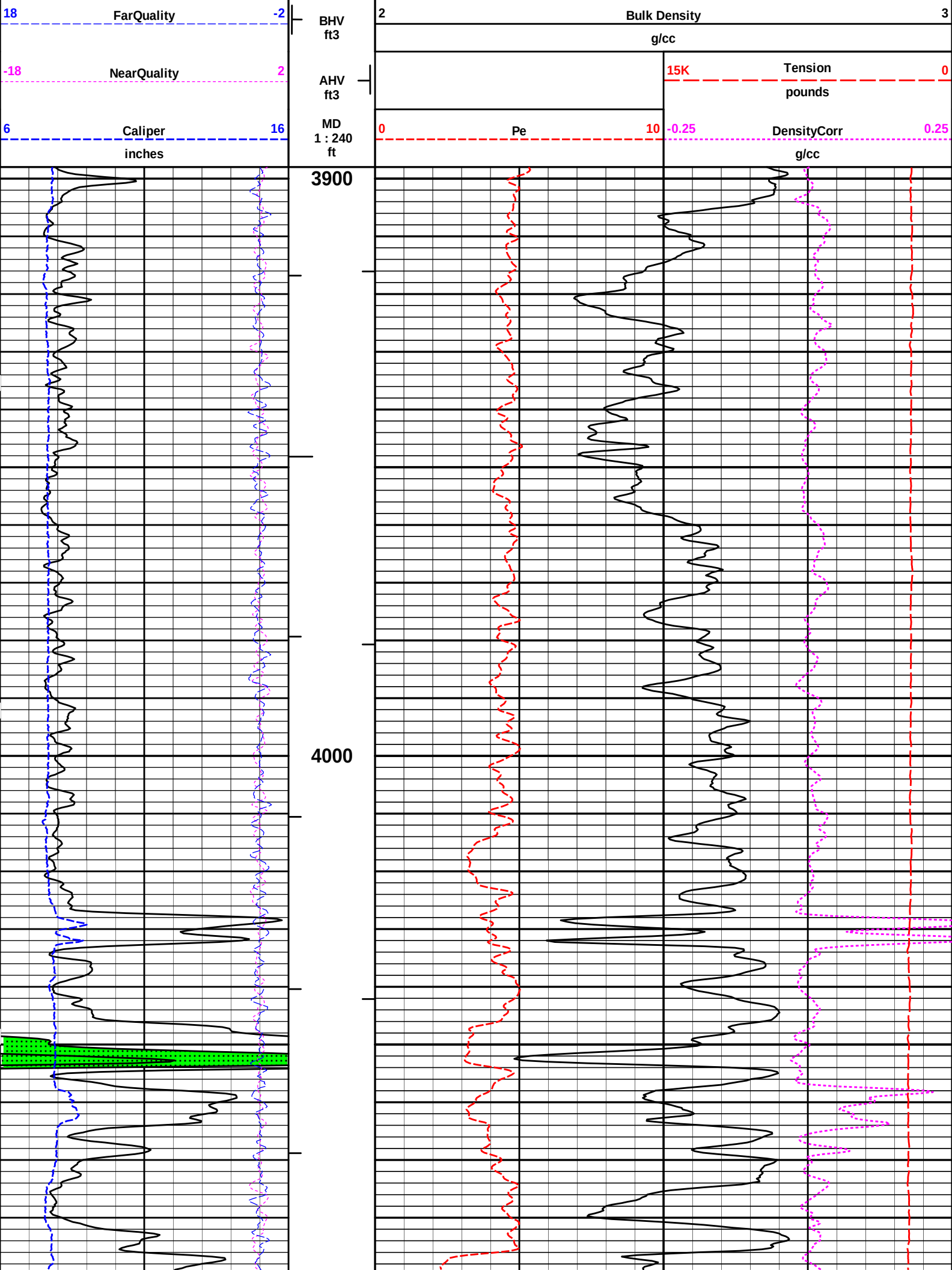
HALLIBURTON

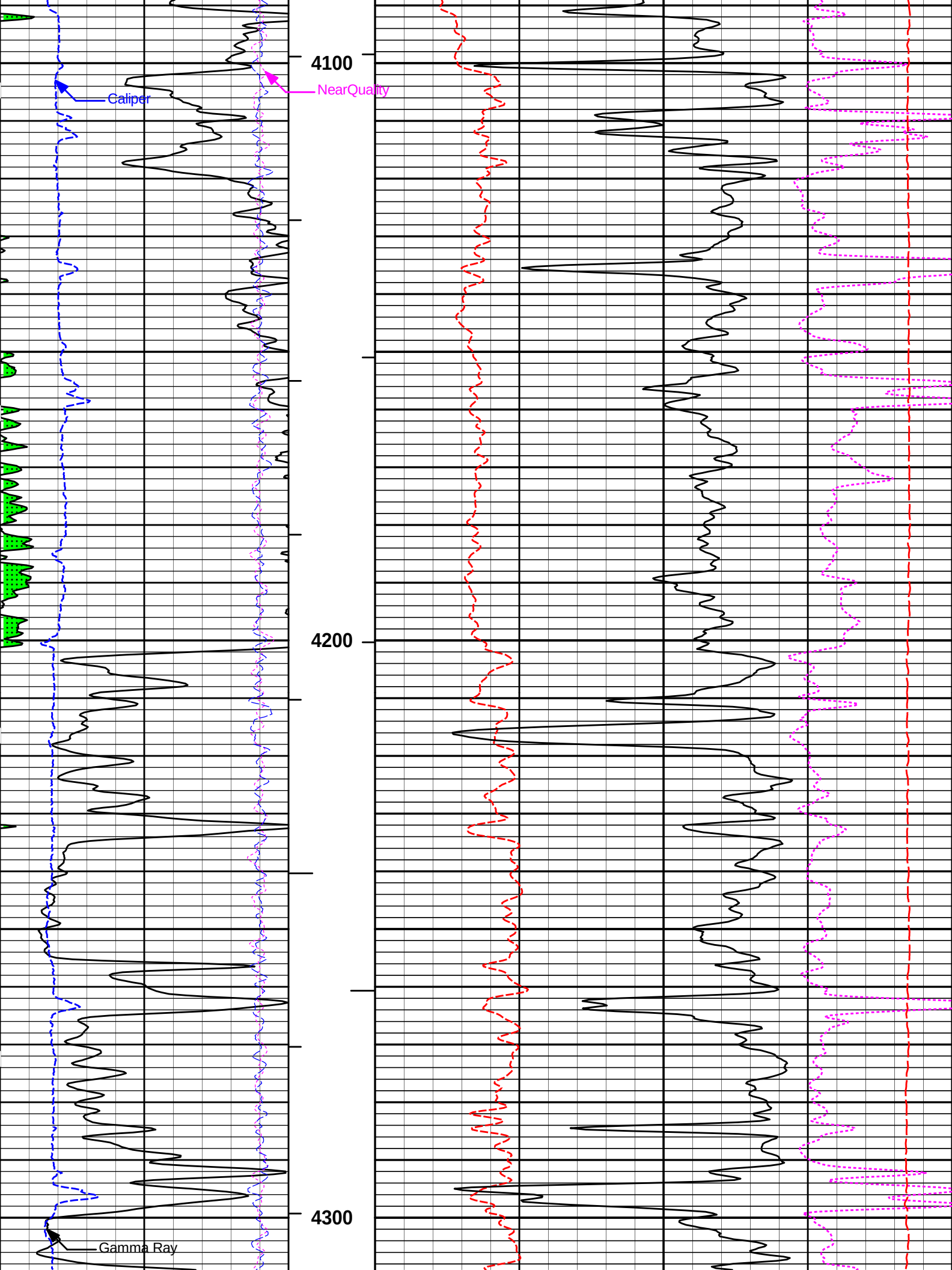
Plot Time: 12-Jun-15 17:12:28
Plot Range: 3898 ft to 4826.25 ft
Data: BANTA-F_1-21\Well Based\DETAILS1\
Plot File: \\-LOCAL-\BANTA-F_1-21\Well Based\POROSITY\BULKD_5 MAIN_LIB

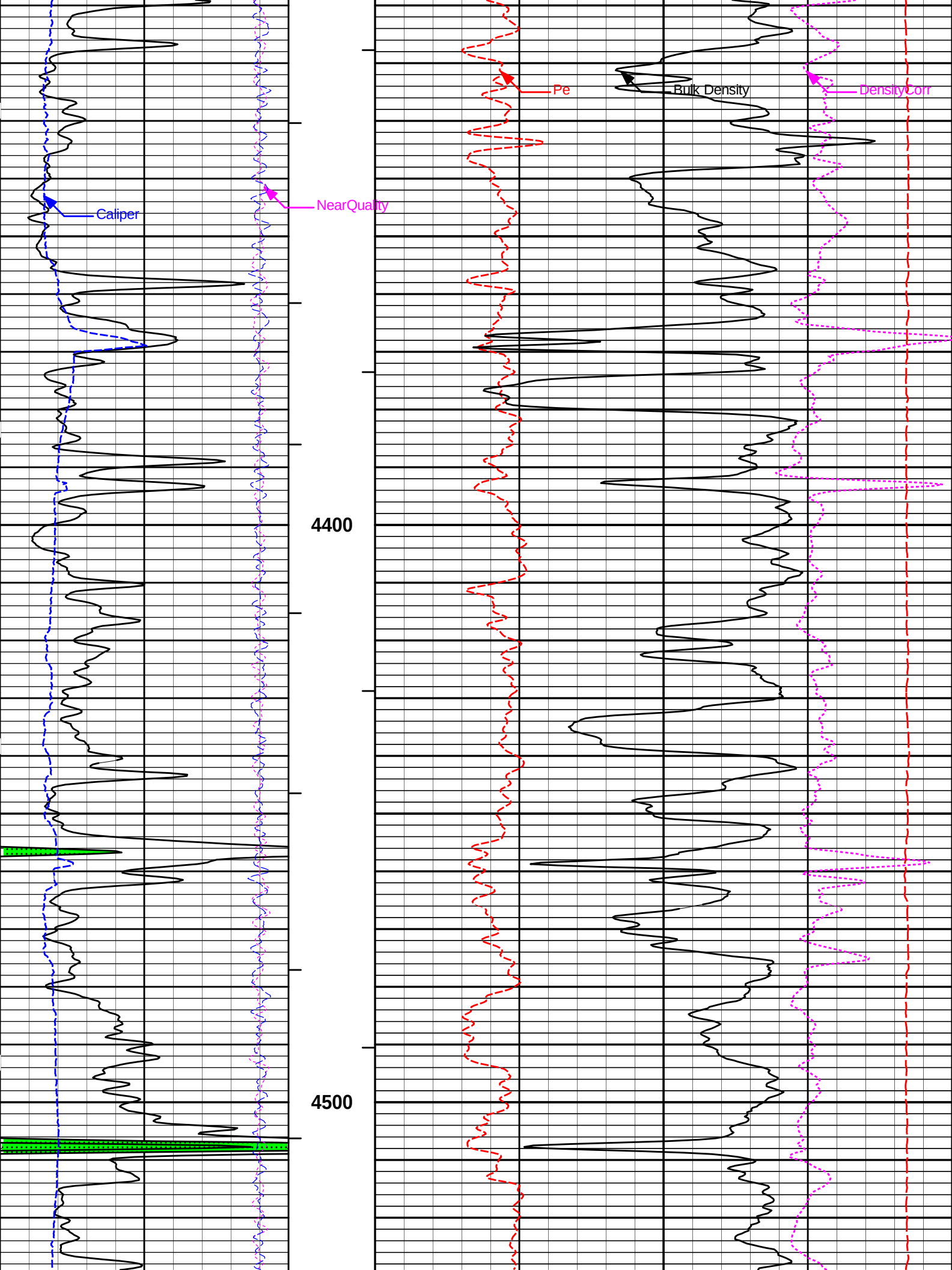
5 INCH MAIN LOG

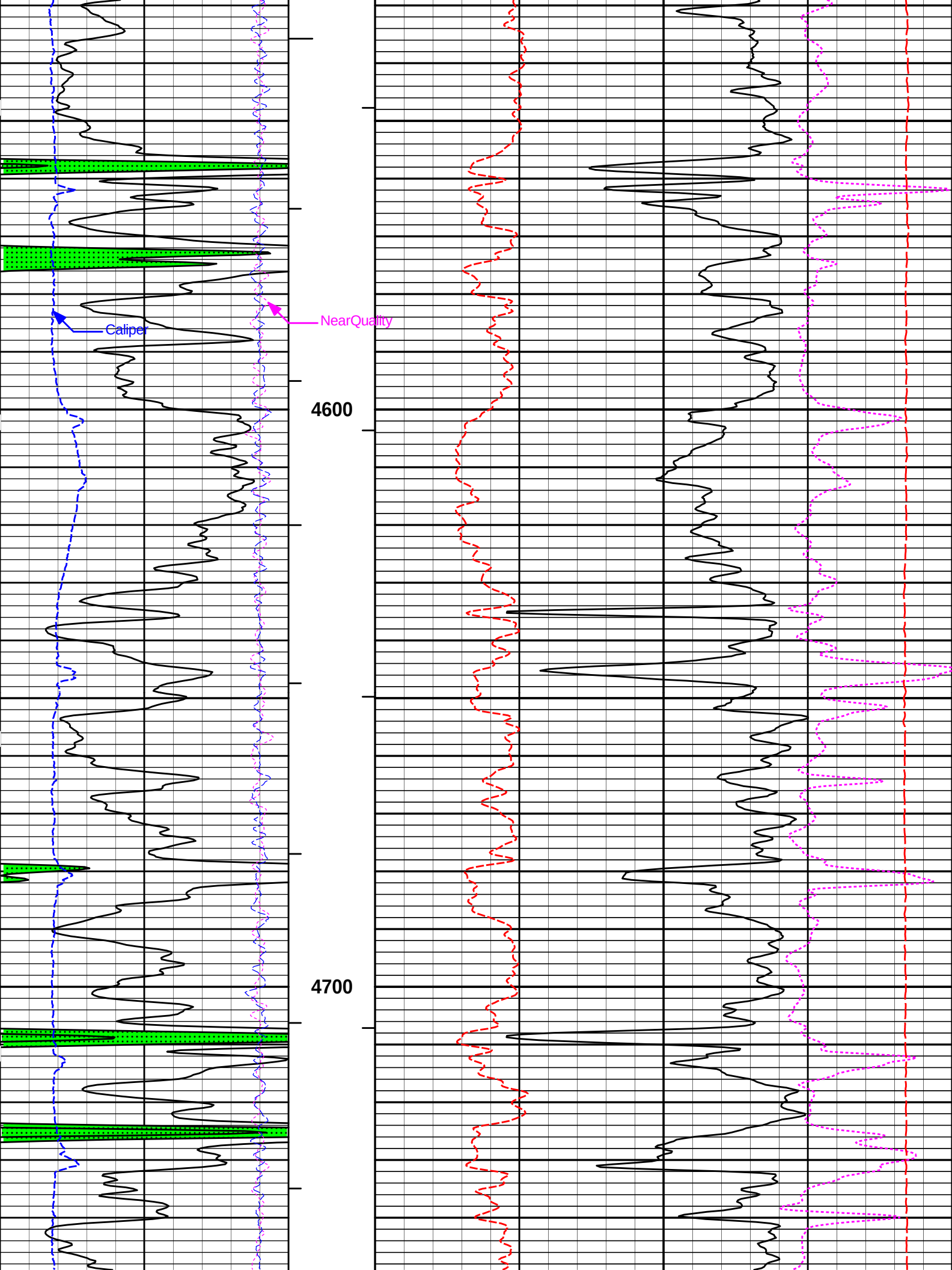
MEASURED DEPTH
MAIN SECTION 5" PER 100'

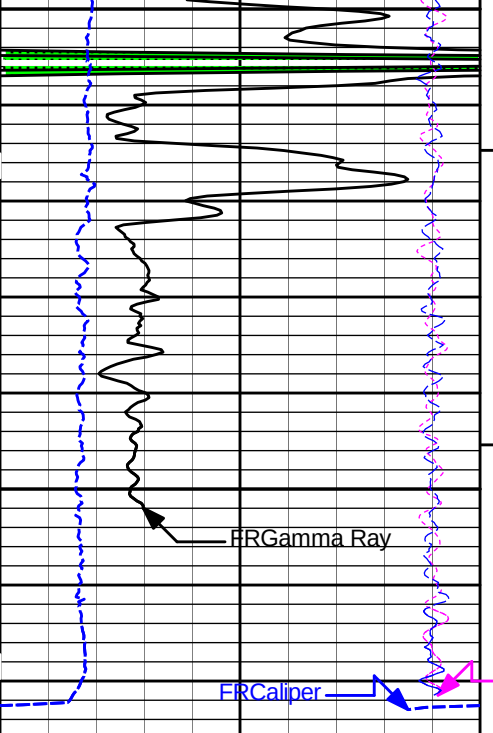
SHALE		
0	Gamma Ray	150
api		



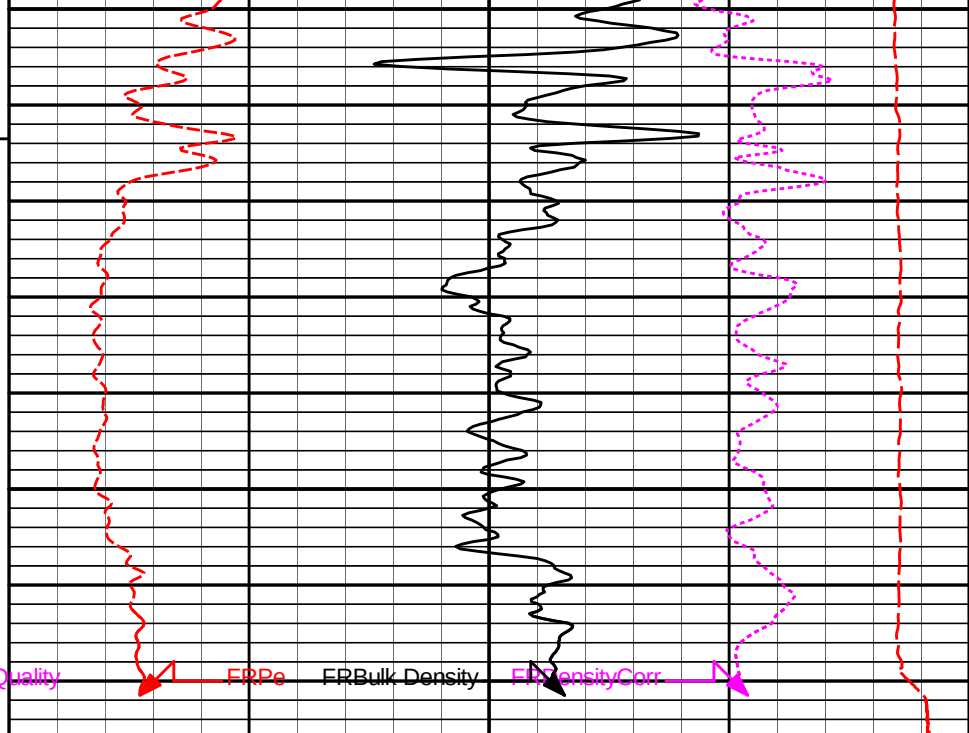








4800



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

HALLIBURTON

Plot Time: 12-Jun-15 17:12:34
Plot Range: 3898 ft to 4826.25 ft
Data: BANTA-F_1-21\Well Based\DETAILS1\
Plot File: \\-LOCAL-\\BANTA-F_1-21\Well Based\POROSITY\BULKD 5 MAIN LIB

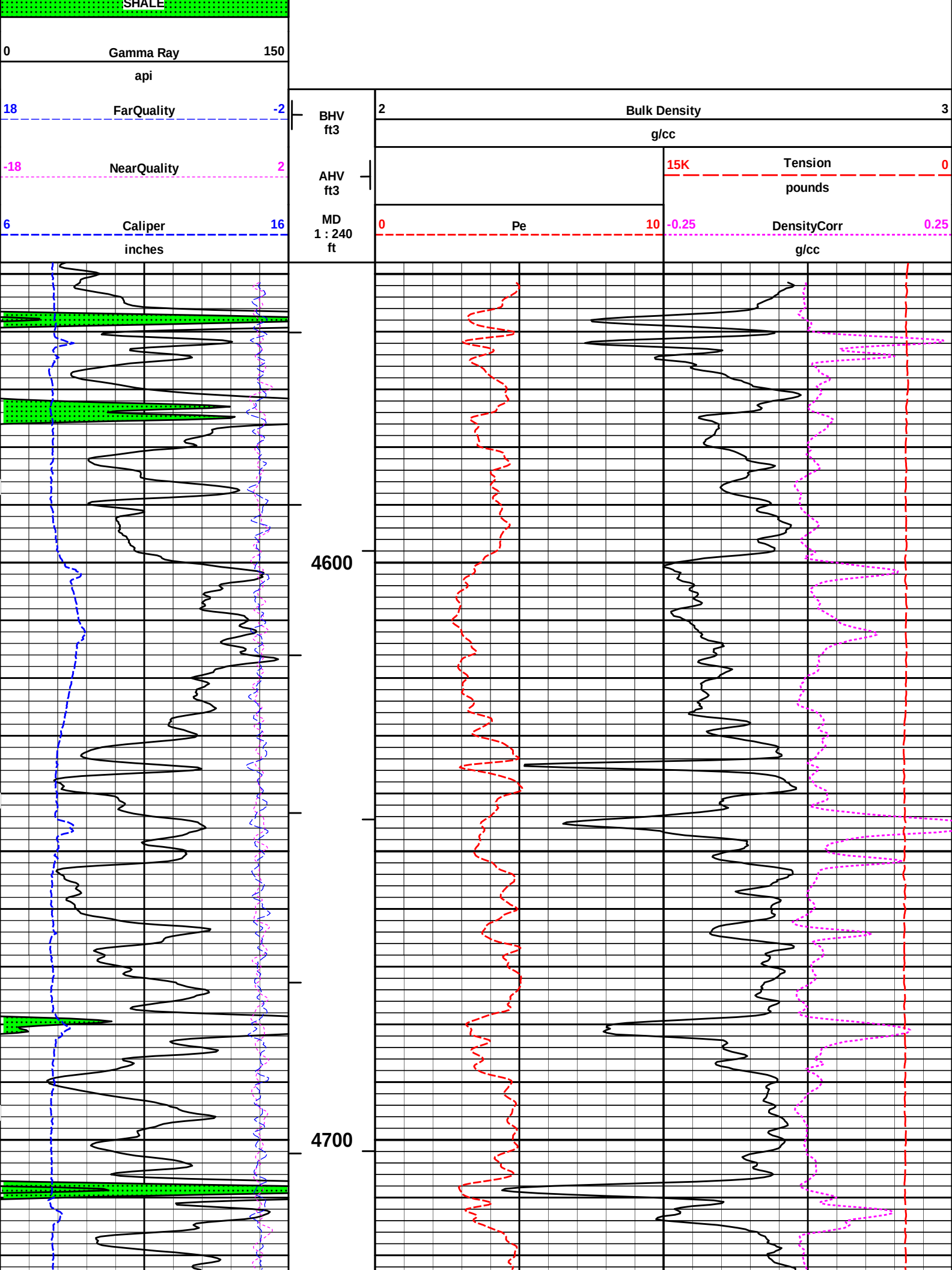
5 INCH MAIN LOG

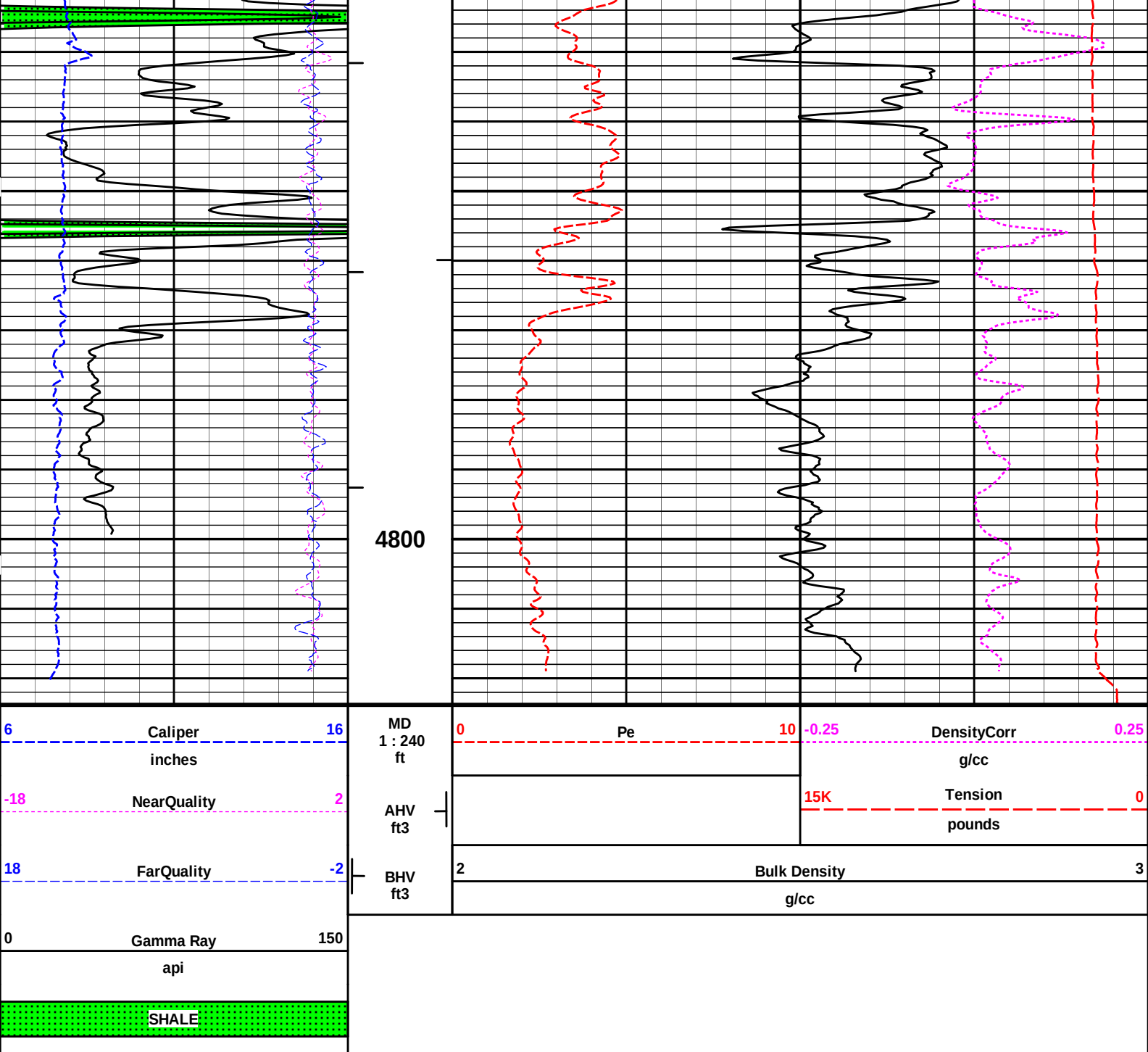
MEASURED DEPTH
MAIN SECTION 5" PER 100'

HALLIBURTON

Plot Time: 12-Jun-15 17:12:35
Plot Range: 4548 ft to 4823.67 ft
Data: BANTA-F_1-21\Well Based\REPEAT\
Plot File: \\-LOCAL-\BANTA-F_1-21\Well Based\POROSITY\BULKD_5_REP_LIB

REPEAT SECTION





HALLIBURTON

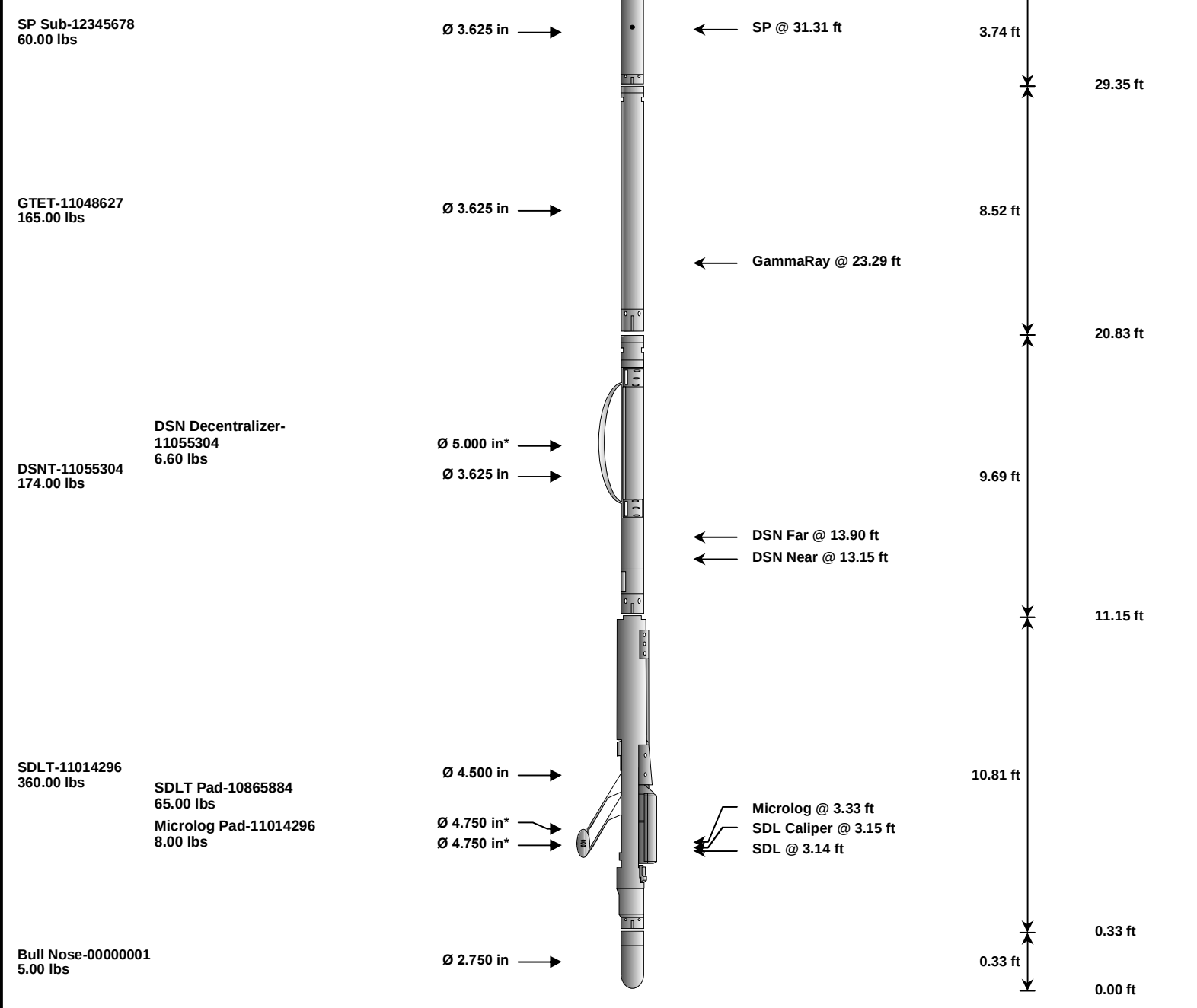
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Plot File: \\-LOCAL-IBANTA-F_1-21\Well Based\POROSITY\BULKD_5_REP_LIB

REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
Cable Head- 12156658 30.00 lbs		Ø 3.625 in →			1.92 ft	35.01 ft
						33.09 ft



Mnemonic		Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
CH	Standard OH Cable Head		12156658	30.00	1.92	33.09	300.00
SP	SP Sub		12345678	60.00	3.74	29.35	300.00
GTET	Gamma Telemetry Tool		11048627	165.00	8.52	20.83	60.00
DSNT	Dual Spaced Neutron		11055304	174.00	9.69	11.15	60.00
DCNT	DSN Decentralizer		11055304	6.60	5.13	* 14.48	300.00
SDLT	Spectral Density Tool		11014296	360.00	10.81	0.33	60.00
SDLP	Density Insite Pad		10865884	65.00	2.55	* 2.54	60.00
MICP	Microlog Pad		11014296	8.00	1.00	* 2.83	60.00
BLNS	Bull Nose		00000001	5.00	0.33	0.00	300.00
Total				873.60	35.01		
Data: BANTA-F_1-21\0001 SP-GTET-DSN-SDL-BN\IDLE							Date: 12-Jun-15 15:25:42

HALLIBURTON

PARAMETERS REPORT

Depth (ft)	Tool Name	Mnemonic	Description	Value	Units
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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	4820.00	ft
	SHARED	BHT	Bottom Hole Temperature	125.0	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	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	
BOTTOM_____				
Data: BANTA-F_1-21\0001 SP-GTET-DSN-SDL-BN\IDLE			Date: 12-Jun-15 15:26:32	

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION				
Tool Name:	GTET - 11048627	Reference Calibration Date:	30-Apr-15 12:33:23	
Engineer:	JORGE ORLANDO PEREZ	Calibration Date:	28-May-15 11:25:00	
Software Version:	WL INSITE R4.6.4 (Build 3)	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	52.3	52.1	api
	Background + Calibrator	323.0	321.8	api
	Calibrator	270.7	269.6	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION				
Tool Name:	GTET - 11048627	Reference Calibration Date:	28-May-15 11:25:00	
Engineer:	JORGE ORLANDO PEREZ	Calibration Date:	11-Jun-15 19:58:11	
Software Version:	WL INSITE R4.6.4 (Build 3)	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		52.1	52.8	api
Background + Calibrator		321.8	326.1	api
Calibrator		269.6	273.3	api
Shop		Field	Difference	Tolerance
269.6		273.3	-3.7	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION			
Tool Name:	DSNT - 11055304	Reference Calibration Date:	30-Apr-15 12:24:44
Engineer:	JORGE ORLANDO PEREZ	Calibration Date:	28-May-15 13:20:13
Software Version:	WL INSITE R4.6.4 (Build 3)	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:	0.974	0.971	0.900 - 1.100
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WATER TANK SUMMARY (Horizontal Water Tank)				
Measurement	Current Reading (Previous Coef.)	Calibrated (New Coef.)	Change	Control Limit On Change
Porosity (decp):	0.2117	0.2110	0.0008	+/- 0.0020
Calibrated Ratio:	9.75	9.73	0.027	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0603	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 - 11055304	Reference Calibration Date:	28-May-15 13:20:13
Engineer:	JORGE ORLANDO PEREZ	Calibration Date:	11-Jun-15 20:02:21
Software Version:	WL INSITE R4.6.4 (Build 3)	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):	0.0603	0.0746	0.0143	+/- 0.0150

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

DENSITY CALIPER SHOP CALIBRATION			
Tool Name:	SDLT - 11014296	Reference Calibration Date:	30-Apr-15 11:05:11
Engineer:	JORGE ORLANDO PEREZ	Calibration Date:	28-May-15 14:17:58
Software Version:	WL INSITE R4.6.4 (Build 3)	Calibration Version:	1
Host Tool Name:	DSNT - 11055304		

CALIBRATION COEFFICIENTS			
Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-4272.56	-4082.46	-7000.00 - -1000.00
Pad Gain	0.0003999	0.0003886	0.000200 - 0.000600
Arm Offset	-3237.10	-3404.84	-5000.00 - 3000.00
Arm Gain	0.0005031	0.0004963	0.000300 - 0.000700
Arm Power	-0.000004135	-0.000003705	-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:				

PAD EXTENSION:				
Small Ring (in)	1.98	2.00	0.02	+/- 0.20
Medium Ring (in)	3.78	3.75	-0.03	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.53	6.50	-0.03	+/- 0.20
Medium Ring (in)	8.29	8.25	-0.04	+/- 0.20
Large Ring (in)	15.02	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 - 11014296	Reference Calibration Date:	28-May-15 14:17:58	
Engineer:	JORGE ORLANDO PEREZ	Calibration Date:	11-Jun-15 19:51:28	
Software Version:	WL INSITE R4.6.4 (Build 3)	Calibration Version:	1	

MEASURED CALIPER VALUES				
Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.85	0.10	+/- 0.10
Ring Diameter	8.25	8.15	-0.10	+/- 0.15

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

SPECTRAL DENSITY SHOP CALIBRATION				
Tool Name:	SDLT Pad - 10865884	Reference Calibration Date:	30-Apr-15 10:16:57	
Engineer:	JORGE ORLANDO PEREZ	Calibration Date:	28-May-15 13:56:20	
Software Version:	WL INSITE R4.6.4 (Build 3)	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	1.0433	1.0302	0.90 - 1.10
Near Dens Gain	1.0224	1.0065	0.90 - 1.10
Near Peak Gain	1.0249	1.0130	0.90 - 1.10
Near Lith Gain	1.0030	0.9828	0.90 - 1.10
Far Bar Gain	1.0141	1.0108	0.90 - 1.10
Far Dens Gain	1.0010	0.9987	0.90 - 1.10
Far Peak Gain	0.9963	0.9912	0.90 - 1.10
Far Lith Gain	0.9685	0.9621	0.90 - 1.10
Near Bar Offset	-0.1612	-0.0463	NONE
Near Dens Offset	0.0110	0.1474	NONE
Near Peak Offset	-0.0267	0.0689	NONE
Near Lith Offset	0.1329	0.2927	NONE
Far Bar Offset	0.0551	0.0755	NONE
Far Dens Offset	0.1399	0.1508	NONE
Far Peak Offset	0.1211	0.1211	NONE
Far Lith Offset	0.1211	0.1211	NONE

Far Peak Offset	0.1314	0.1641	NONE
Far Lith Offset	0.2797	0.3122	NONE
Near Bar Background	780.96	780.36	700 - 1450
Near Dens Background	261.58	260.97	230 - 480
Near Peak Background	115.44	114.62	100 - 210
Near Lith Background	141.68	140.68	125 - 260
Far Bar Background	488.98	488.60	450 - 900
Far Dens Background	190.40	190.43	175 - 345
Far Peak Background	75.85	76.31	70 - 140
Far Lith Background	78.91	78.83	75 - 145

CALIBRATION BLOCK SUMMARY				
Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.681	1.684	0.003	+/- 0.015
Pe	2.518	2.557	0.039	+/- 0.150
ALUMINUM				
Density (g/cc)	2.596	2.598	0.002	+/- 0.01500
Pe	3.110	3.126	0.016	+/- 0.150

TOOL SUMMARY				
Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0000	+/- 0.0110	-0.0030	+/- 0.0140
Magnesium Block	-0.0013	+/- 0.0110	-0.0013	+/- 0.0140
Aluminum Block	-0.0007	+/- 0.0110	-0.0005	+/- 0.0140
Resolution	8.48	6.00 - 11.50	9.07	6.00 - 11.50
Internal Verifier(B+D+P+L)	1297	1200 - 2700	834	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 - 10865884	Reference Calibration Date:	28-May-15 13:56:20
Engineer:	JORGE ORLANDO PEREZ	Calibration Date:	11-Jun-15 19:46:33
Software Version:	WL INSITE R4.6.4 (Build 3)	Calibration Version:	1

Pad Temperature: 89.3 degF

DENSITY FIELD CALIBRATION SUMMARY				
Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1296.630	1301.276	4.646	14.580
Far (B+D+P+L) cps	834.168	831.691	-2.477	15.892

Near Resolution		8.48	8.56	0.080	0.50	
Far Resolution		9.07	8.93	-0.140	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	273.3	-----	-3.7	+/- 9.00	api
DSNT-11055304						
Snow-Block Porosity	0.0603	0.0746	-----	-0.0143	+/- 0.0150	decp
SDLT-11014296						
Pad Extension	3.75	3.85	-----	-0.10	+/-0.10	in
Ring Diameter	8.25	8.15	-----	0.10	+/-0.15	in
SDLT Pad-10865884						
Near(B+D+P+L)	1296.630	1301.276	-----	-4.646	+/-14.580	cps
Far(B+D+P+L)	834.168	831.691	-----	2.477	+/-15.892	cps
Data: BANTA-F 1-21\0001 SP-GTET-DSN-SDI -BN\DI F				Date: 12-Jun-15 15:27:26		
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			35.01	NO	
BS	Bit Size			35.01	NO	
HDIA	Measured Hole Diameter			0.00	NO	
SP Sub						
PLTC	Plot Control Mask			31.31	NO	
SP	Spontaneous Potential			31.31	BLK	1.250
SPR	Raw Spontaneous Potential			31.31	NO	
SPO	Spontaneous Potential Offset			31.31	NO	
GTET						
TPUL	Tension Pull			23.29	NO	
GR	Natural Gamma Ray API			23.29	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API			23.29	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution			23.29	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			13.05	NO	
RNDS	Near Detector Telemetry Counts			13.15	BLK	1.417
RFDS	Far Detector Telemetry Counts			13.90	TRI	0.583
DNST	DSN Tool Temperature			13.15	NO	

DNTH	DSN Tool Temperature	13.15	NO	
DSNS	DSN Tool Status	13.05	NO	
ERND	Near Detector Telemetry Counts EVR	13.15	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	13.90	BLK	0.000
ENTM	DSN Tool Temperature EVR	13.15	NO	
HDIA	Measured Hole Diameter	0.00	NO	

SDLT				
TPUL	Tension Pull	3.15	NO	
PCAL	Pad Caliper	3.15	TRI	0.250
ACAL	Arm Caliper	3.15	TRI	0.250

SDLT Pad				
TPUL	Tension Pull	3.14	NO	
NAB	Near Above	2.96	BLK	0.920
NHI	Near Cesium High	2.96	BLK	0.920
NLO	Near Cesium Low	2.96	BLK	0.920
NVA	Near Valley	2.96	BLK	0.920
NBA	Near Barite	2.96	BLK	0.920
NDE	Near Density	2.96	BLK	0.920
NPK	Near Peak	2.96	BLK	0.920
NLI	Near Lithology	2.96	BLK	0.920
NBAU	Near Barite Unfiltered	2.96	BLK	0.250
NLIU	Near Lithology Unfiltered	2.96	BLK	0.250
FAB	Far Above	3.31	BLK	0.250
FHI	Far Cesium High	3.31	BLK	0.250
FLO	Far Cesium Low	3.31	BLK	0.250
FVA	Far Valley	3.31	BLK	0.250
FBA	Far Barite	3.31	BLK	0.250
FDE	Far Density	3.31	BLK	0.250
FPK	Far Peak	3.31	BLK	0.250
FLI	Far Lithology	3.31	BLK	0.250
PTMP	Pad Temperature	3.15	BLK	0.920
NHV	Near Detector High Voltage	2.54	NO	
FHV	Far Detector High Voltage	2.54	NO	
ITMP	Instrument Temperature	2.54	NO	
DDHV	Detector High Voltage	2.54	NO	
HDIA	Measured Hole Diameter	0.00	NO	

Microlog Pad				
TPUL	Tension Pull	3.33	NO	
MINV	Microlog Lateral	3.33	BLK	0.750
MNOR	Microlog Normal	3.33	BLK	0.750

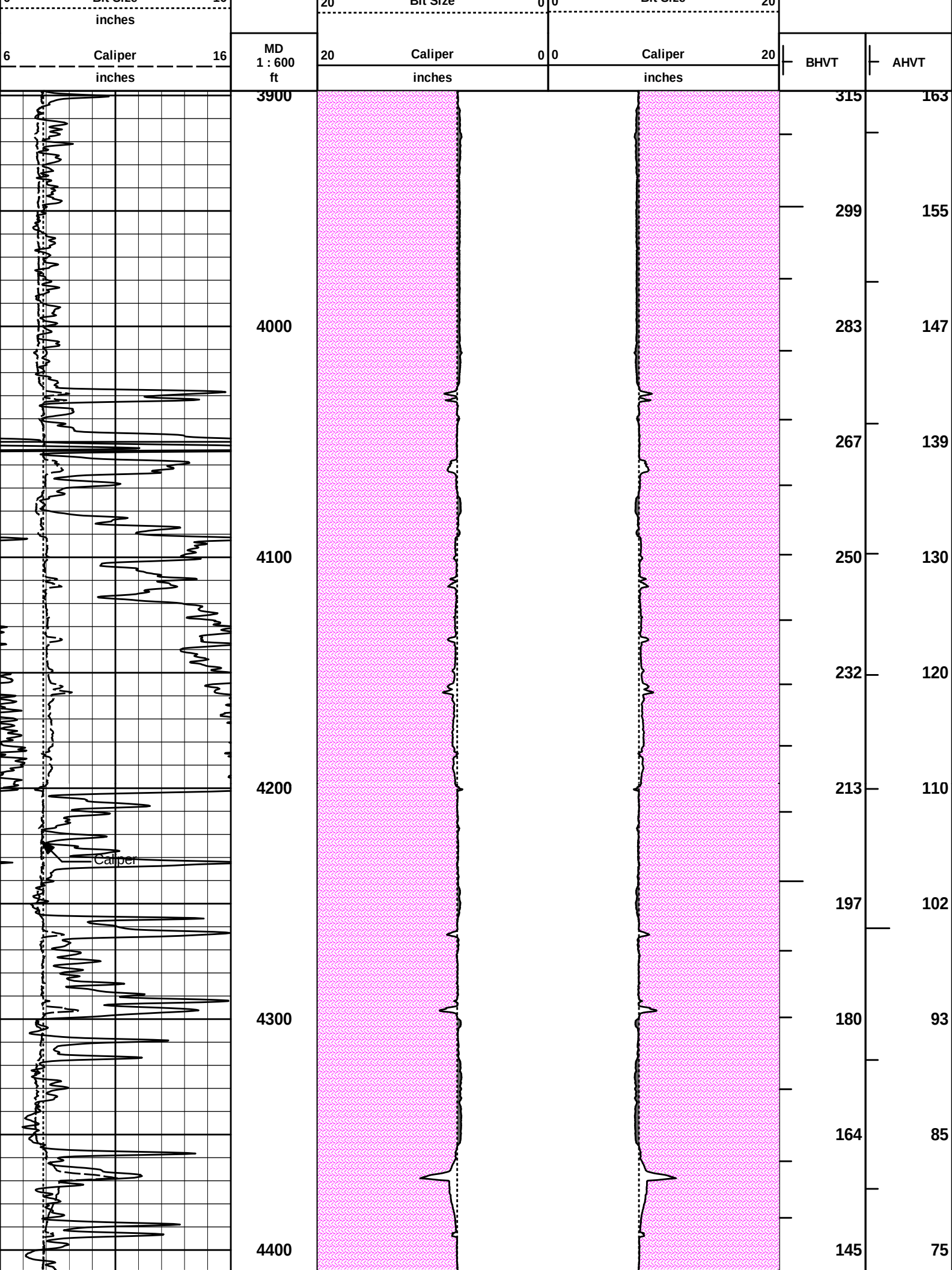
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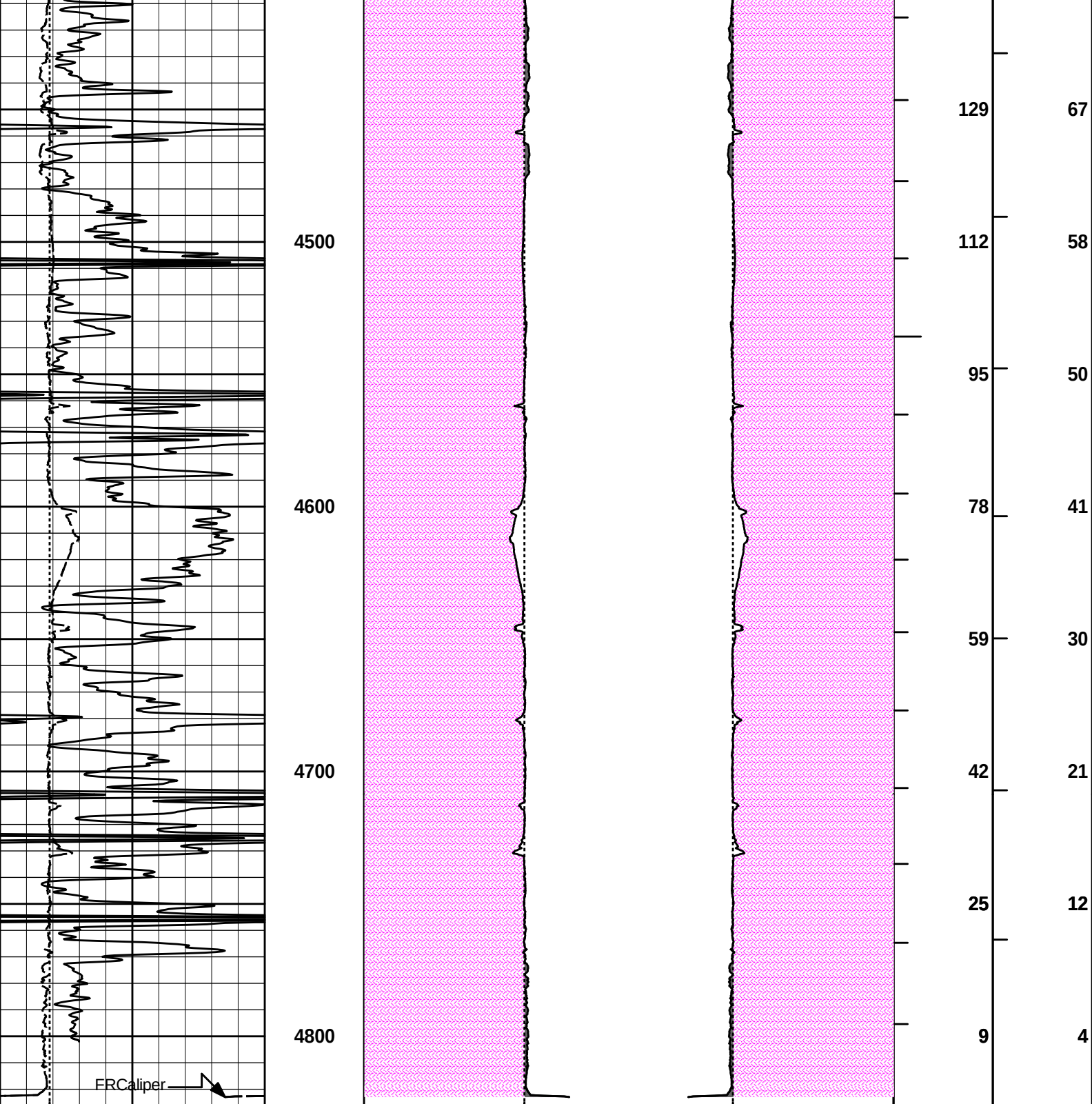


Plot Time: 12-Jun-15 17:12:47
 Plot Range: 3898 ft to 4826.25 ft
 Data: BANTA-F_1-21\Well Based\DETAILS1\
 Plot File: \\-LOCAL-\\BANTA-F_1-21\Well Based\POROSITY\AHV_2_IQ_LIB

ANNULAR HOLE VOLUME PLOT

0	Gamma API	150					
	api			MUDCAKE		MUDCAKE	
6	Bit Size	16		Bit Size	20	Bit Size	20





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

HALLIBURTON

Plot Time: 12-Jun-15 17:12:51
Plot Range: 3898 ft to 4826.25 ft
Data: BANTA-F_1-21\Well Based\DETAILS1\
Plot File: \\-LOCAL-\\BANTA-F_1-21\Well Based\\POROSITY\\AHV_2_IQ_LIB

ANNULAR HOLE VOLUME PLOT

ANNULAR HOLE VOLUME PLOT

COMPANY	HERMAN L. LOEB, LLC		
WELL	BANTA 'F' 1-21		
FIELD	EINSEL		
COUNTY	KIOWA	STATE	KANSAS
HALLIBURTON		DUAL SPACED NEUTRON SPECTRAL DENSITY LOG	