HALLIBURTON

SPECTRAL DENSITY DUAL SPACED NEUTRON LOG

COMPANY	HERMAN L. LOEB LLC
WELL	LIL SPICY 1-16
FIELD/BLOCK	WILDCAT
COUNTY	KIOWA
STATE	KANSAS

COMPANY **HERMAN L. LOEB LLC**
WELL **LIL SPICY 1-16**
FIELD/BLOCK **WILDCAT**
COUNTY **KIOWA** STATE **KANSAS**

API No. 15-097-21840-00-00
Location (SHL) 1896' FNL & 2225' FWL
SW NE SE NW

Other Services:
GTET
DSNT
SDLT
BSAT
ACRT

Permanent Datum	GL	Elev. 2186.0 ft	Elev.: K.B. 2197.0 ft
Log measured from	KB	11.0 ft above perm. Datum	D.F. 2197.0 ft
Drilling measured from	KB		G.L. 2186.0 ft

Date	17-Jun-18		
Run No.	ONE		
Depth - Driller	4820.0 ft		
Depth - Logger	4818.0 ft		
Bottom - Logged Interval	4814.0 ft		
Top - Logged Interval	3900.0 ft		
Casing - Driller	8.625 in @ 651.0 ft	@	@
Casing - Logger	652.0 ft		
Bit Size	7.875 in	@	@
Type Fluid in Hole	Water Based Mud		
Density / Viscosity	9.1 ppg / 58.00 s/qt		
PH / Fluid Loss	9.00 pH / 16.8 cptm		
Source of Sample	MUDPIT		
Rm @ Meas. Temperature	@	@	@
Rmf @ Meas. Temperature	@	@	@
Rmc @ Meas. Temperature	@	@	@
Source Rmf / Rmc			
Rm @ BHT	@	@	@
Time Since Circulation	03:23 hr		
Time on Bottom	17-Jun-18 19:27		
Max. Rec. Temperature	125.00 degF @ 4818.0 ft	@	@
Equipment / Location	12147634 / EL RENO, OK		
Recorded By	SEAN WOLTEMATH		
Witnessed By	JON CHRISTENSEN	GEORGE PAYNE	

Fold here

Service Ticket No.: 904925645	API No.: 15-097-21840-00-00	PGM Version: WL INSITE R5.6.0 (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.		@	@					
Rmc @ Meas. Temp.		@	@					
Source Rmf	Rmc							
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.	11013114	Serial No.		Serial No.	10809130	Serial No.	10993115
Model No.	GTET	Model No.		Model No.	SDLT	Model No.	DSNT
Diameter	3.625"	No. of Cent.		Diameter	5.5"	Diameter	3.625"
Detector Model No.	GTET	Spacing		Log Type	GAM-GAM	Log Type	NEU-NEU
Type	SCINT			Source Type	Cs-137	Source Type	Am241Be
Length	8"	LSA [Y/N]		Serial No.	5471GW	Serial No.	DSN-424
Distance to Source	10'	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	3900	REC	0	150				30	-10	2.71 g/cc	30	-10	LIME

ONE	TD	3900	REC	0	150				30	-10	2.71 g/cc	30	-10	LIME

DIRECTIONAL INFORMATION

Maximum Deviation	@	KOP	@

Remarks:

GTET-DSNT-SDLT RUN IN COMBINATION

GTET-BSAT-ACRT RUN IN COMBINATION

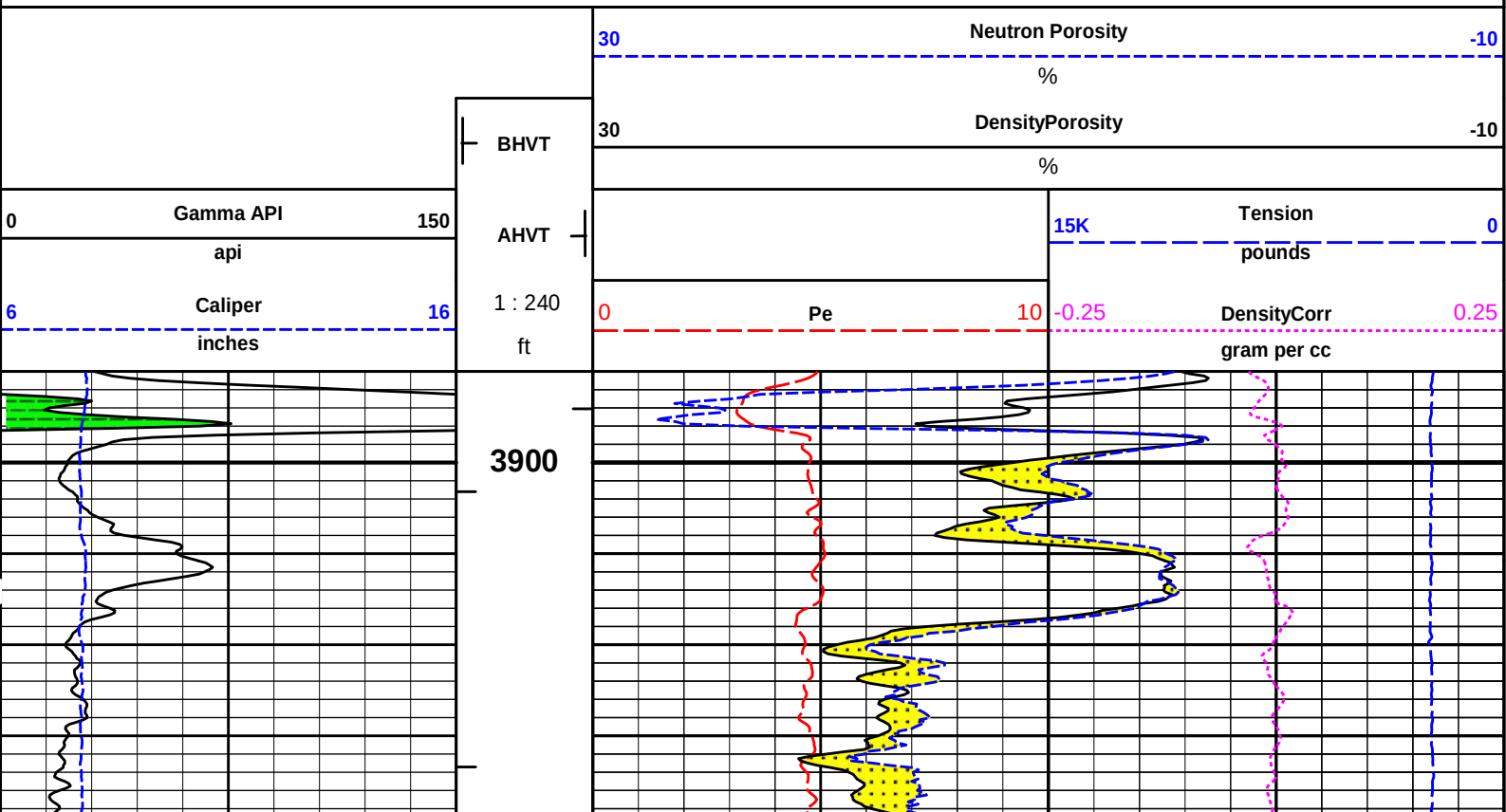
ANNULAR HOLE VOLUME CALCULATED FOR 5.5 INCH CASING

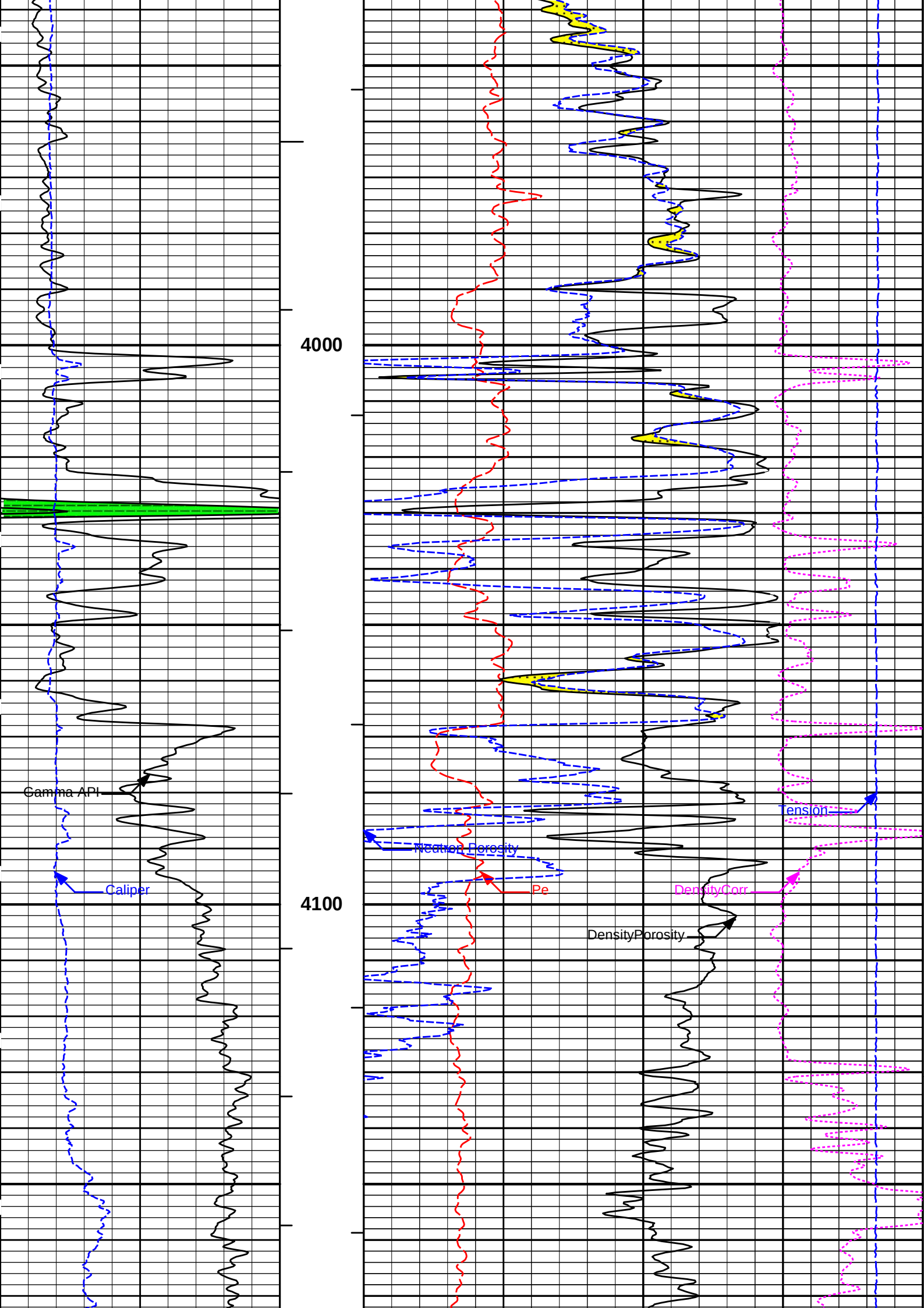
HALLIBURTON

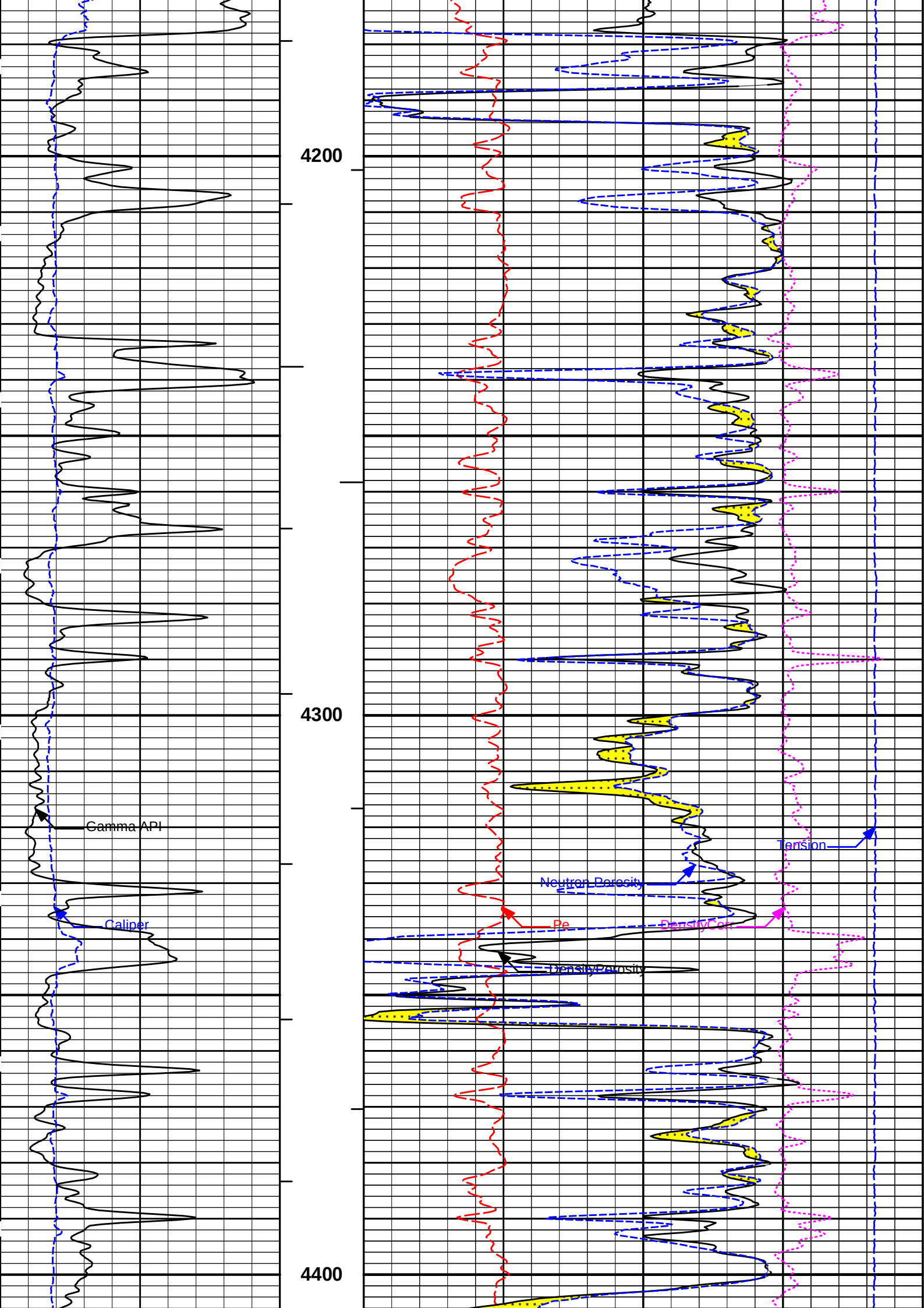
Plot Time: 17-Jun-18 19:43:28
Plot Range: 3890 ft to 4821.58 ft
Data: HERMAN_LILSPICY\Well Based\MAIN
Plot File: \\POROSITY\ELR_PORO_5_MAIN

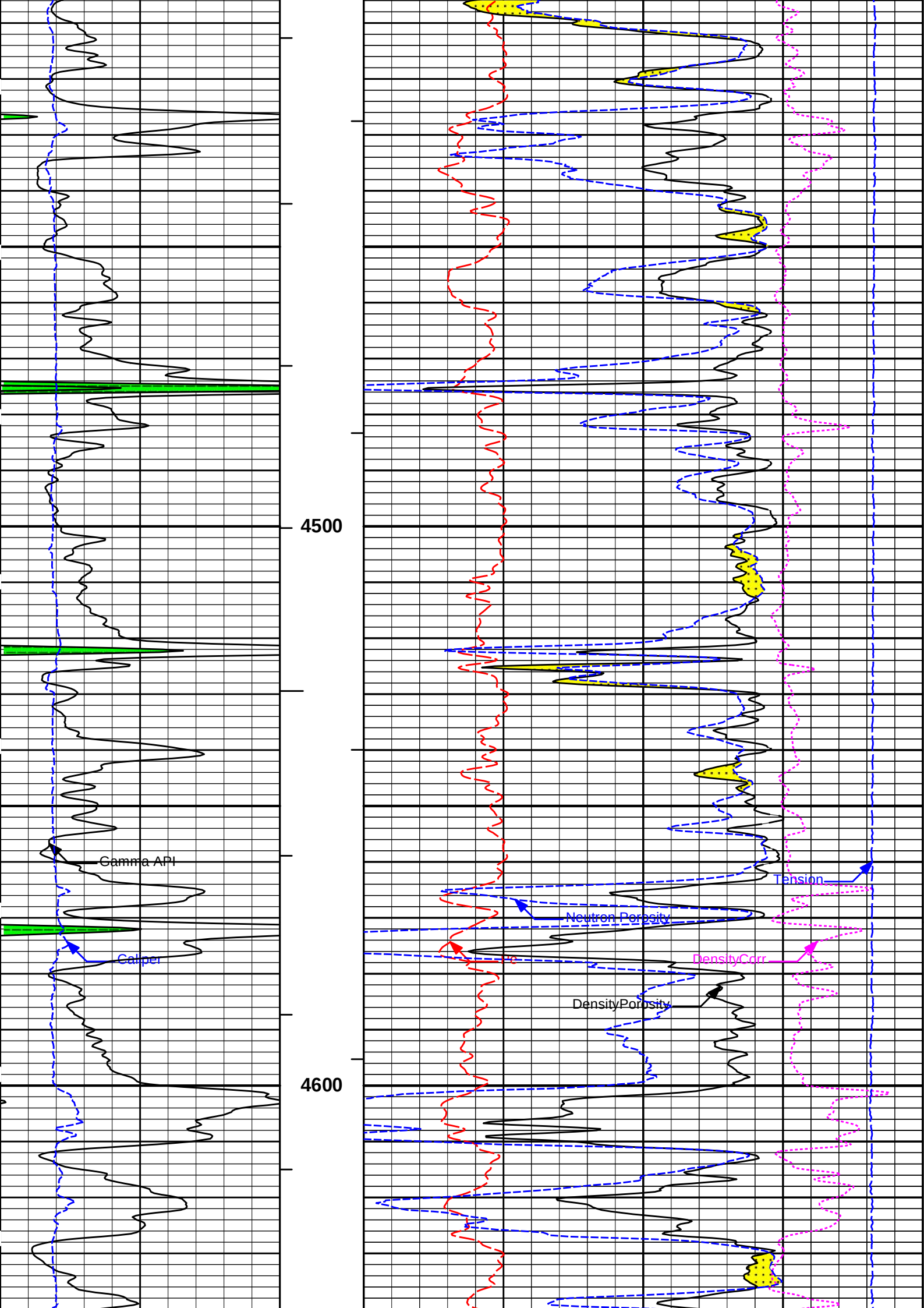
5 INCH MAIN PASS

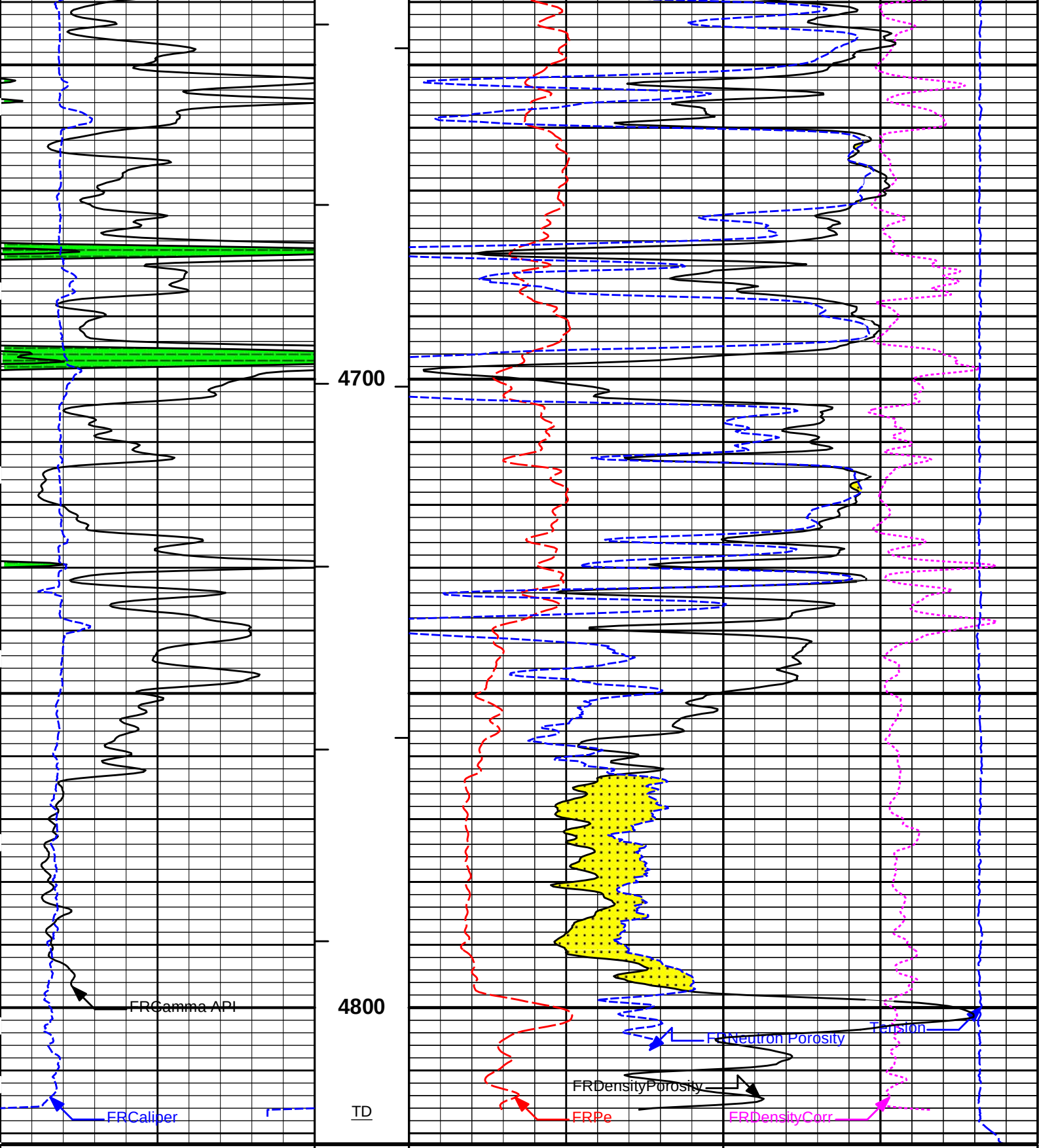
5 IN = 100 FT MD
MAIN PASS




4000
4100
Gamma API
Caliper
Neutron Porosity
Pe
DensityCorr
Tension
DensityPorosity


4200
4300
4400
Gamma API
Caliper
Tension
Neutron Porosity
Pe
DensityCor
DensityPorosity


4500
4600
Gamma API
Caliper
Tension
Neutron Porosity
DensityCorr
DensityPorosity



6 Caliper 16	1 : 240	0 Pe 10
inches	ft	
0 Gamma API 150	AHVT	
api		
	BHVT	

-0.25 DensityCorr 0.25	
gram per cc	
15K Tension 0	
pounds	
30 DensityPorosity -10	
%	
30 Neutron Porosity -10	
%	

HALLIBURTON

Plot Time: 17-Jun-18 19:43:30
Plot Range: 3890 ft to 4821.58 ft
Data: HERMAN_LILSPICY\Well Based\MAIN\

Plot File: \\POROSITY\ELR_PORO_5_MAIN

5 INCH MAIN PASS

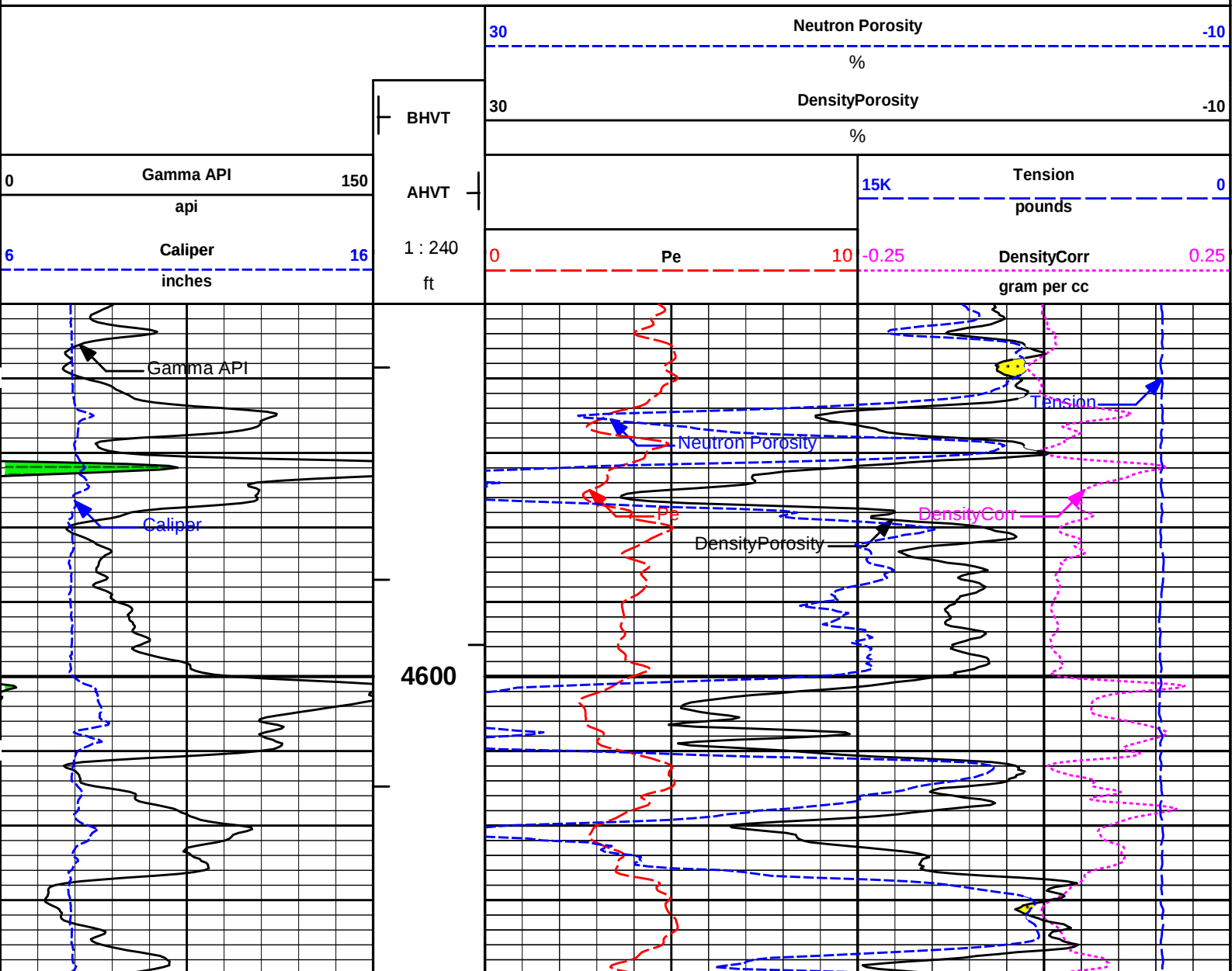
5 IN = 100 FT MD
MAIN PASS

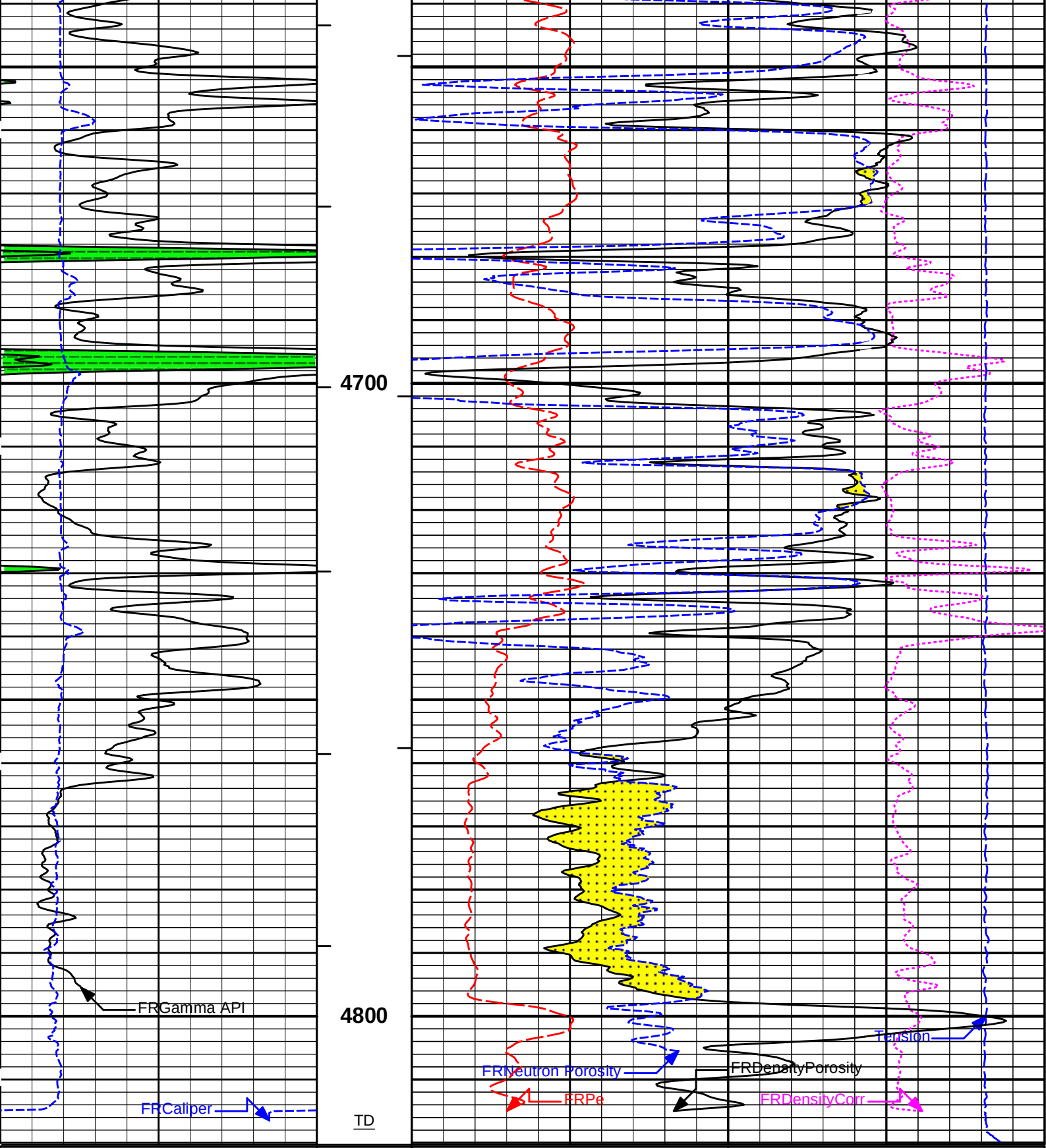
HALLIBURTON

Plot Time: 17-Jun-18 19:43:30
Plot Range: 4550 ft to 4820.33 ft
Data: HERMAN_LILSPICY\Well Based\REPEAT\
Plot File: \\POROSITY\ELR_PORO_5_REPEAT

5 INCH REPEAT PASS

5 IN = 100 FT MD
REPEAT PASS





6 Caliper 16	1 : 240	0 Pe 10
inches	ft	
0 Gamma API 150	AHVT	
api		15K Tension 0
	BHVT	pounds

-0.25 DensityCorr 0.25		
gram per cc		
30 DensityPorosity -10		
%		
30 Neutron Porosity -10		
%		

HALLIBURTON

Plot Time: 17-Jun-18 19:43:32

Plot Range: 4550 ft to 4820.33 ft

Data: HERMAN_LILSPICY\Well Based\REPEAT\

Plot File: \\POROSITY\FLR_PORO_5_REPEAT

5 INCH REPEAT PASS

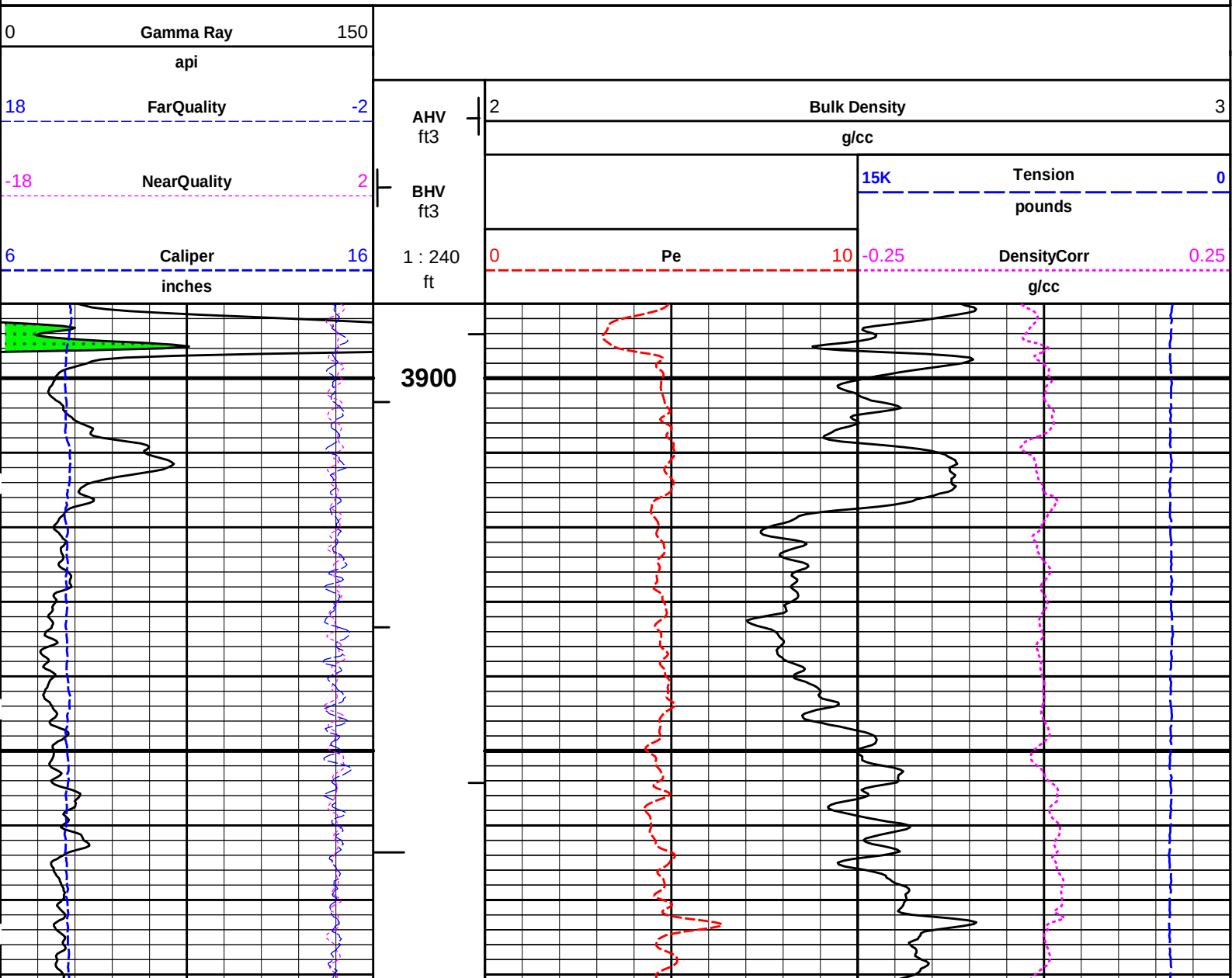
5 IN = 100 FT MD
REPEAT PASS

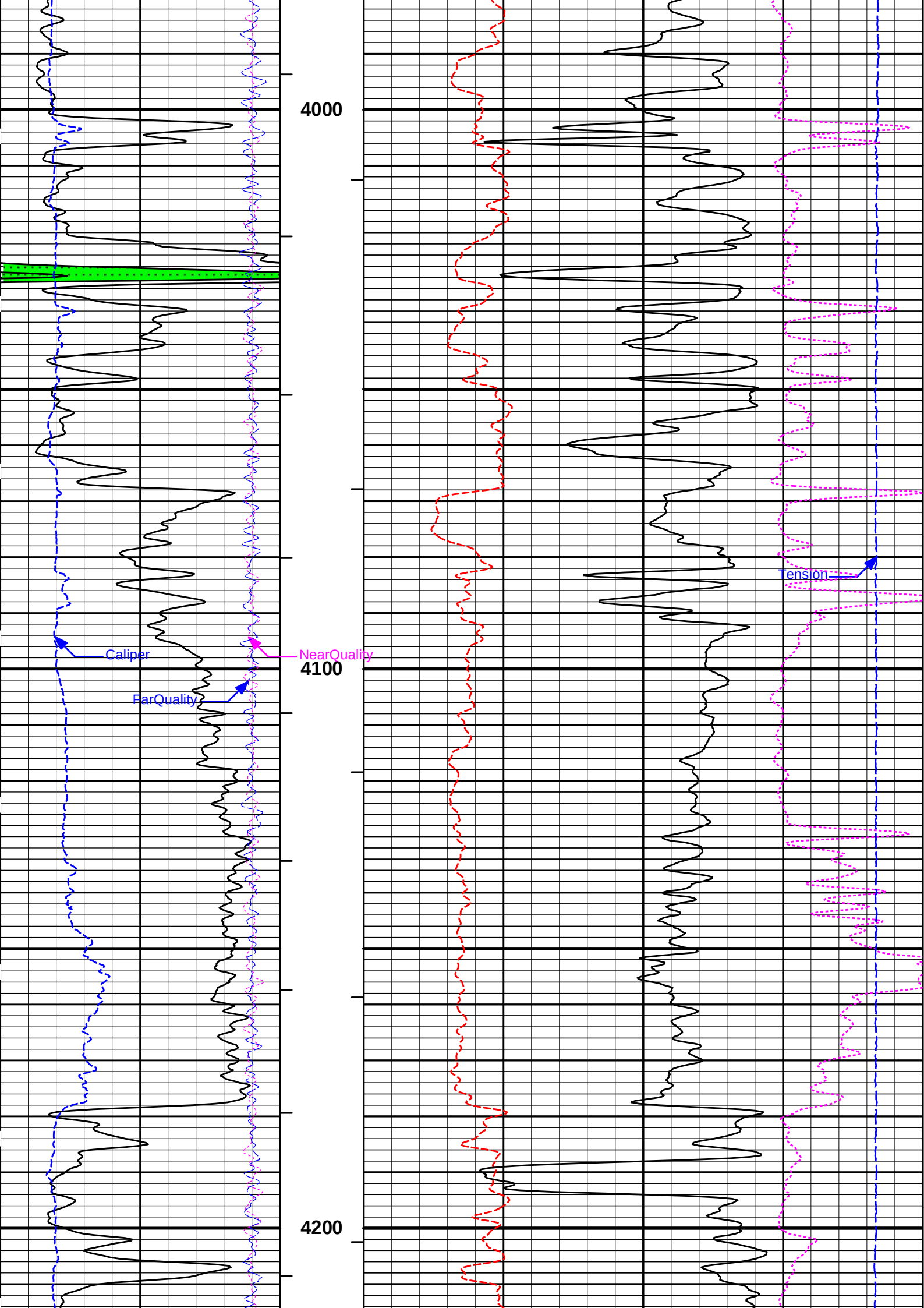
HALLIBURTON

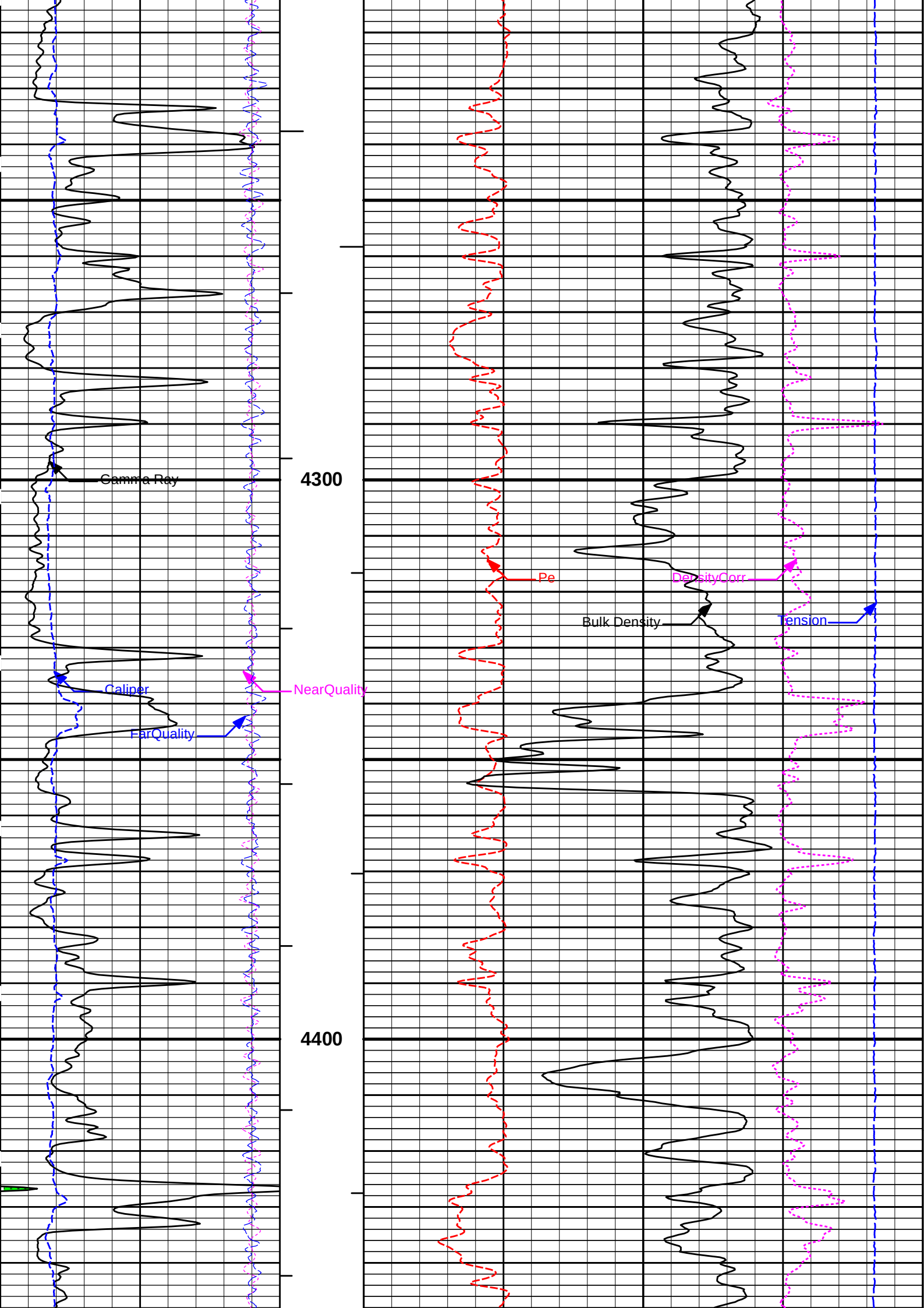
Plot Time: 17-Jun-18 19:43:32
Plot Range: 3890 ft to 4821.58 ft
Data: HERMAN_LILSPICY\Well Based\MAIN\
Plot File: \\-LOCAL-\HERMAN_LILSPICY\Well Based\POROSITY\ELR_BULKD_5_MAIN

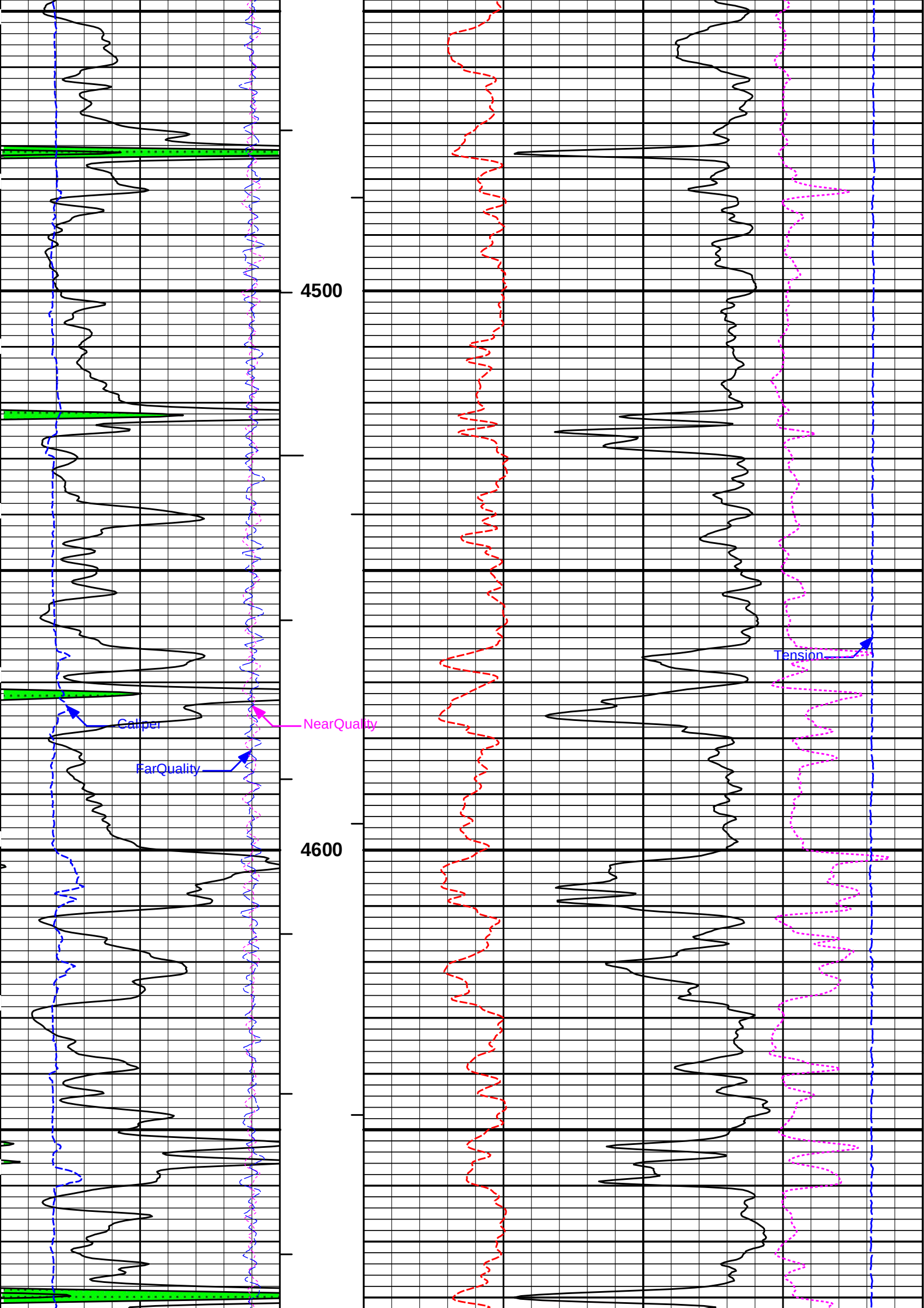
5 INCH MAIN PASS

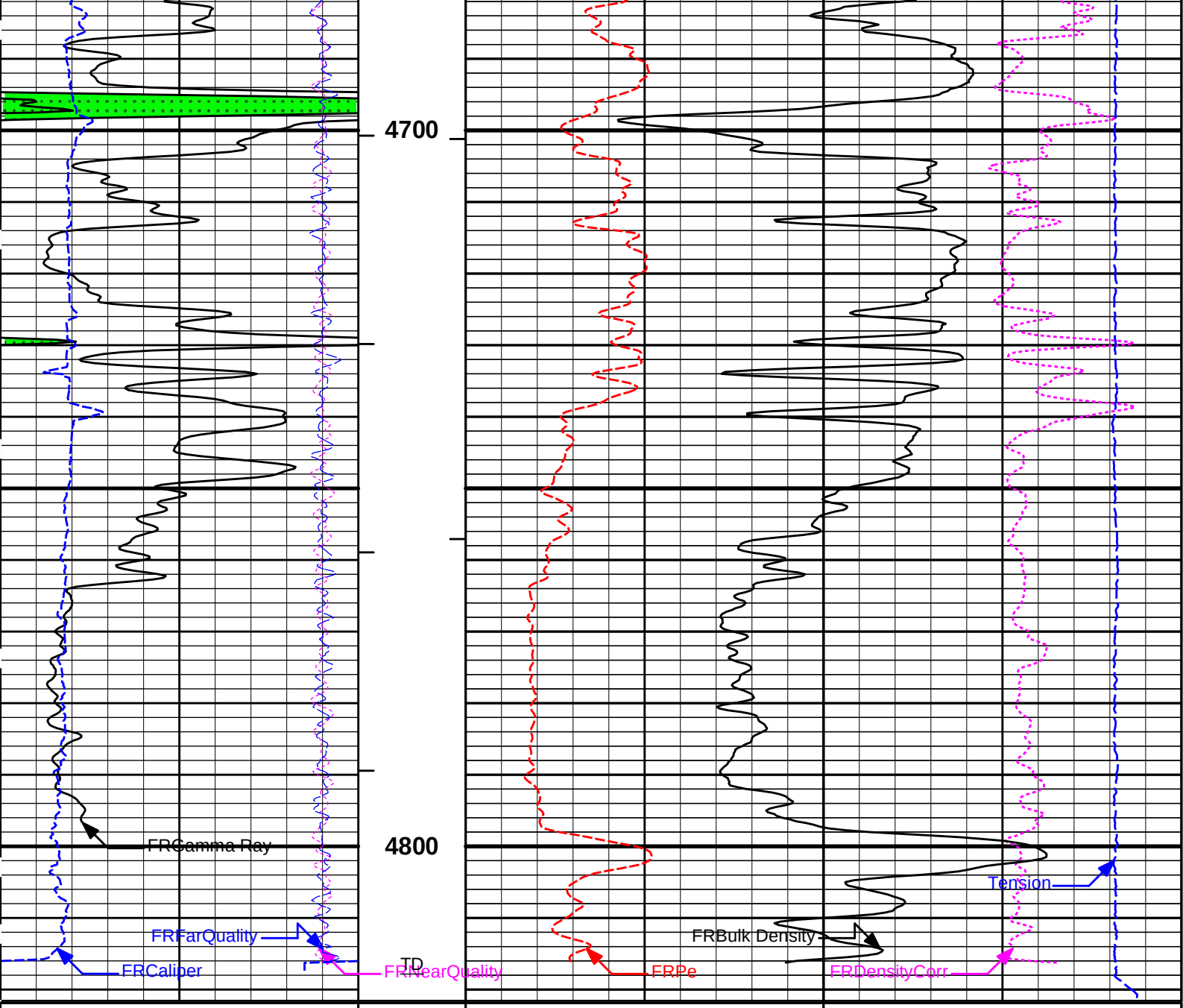
5 IN = 100 FT MD
MAIN PASS




4000
4100
4200
Caliper
NearQuality
FarQuality
Tension


Gamma Ray
4300
Pe
DensityCorr
Bulk Density
Tension
Caliper
NearQuality
FarQuality
4400


4500
4600
Caliper
NearQuality
FarQuality
Tension



6 Caliper 16 (inches)		1 : 240 ft	0 Pe 10	-0.25 DensityCorr 0.25 (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)				

HALLIBURTON

Plot Time: 17-Jun-18 19:43:37
Plot Range: 3890 ft to 4821.58 ft
Data: HERMAN_LILSPICY\Well Based\MAIN\
Plot File: \\-LOCAL-\HERMAN_LILSPICY\Well Based\POROSITY\ELR_BULKD_5_MAIN

5 INCH MAIN PASS

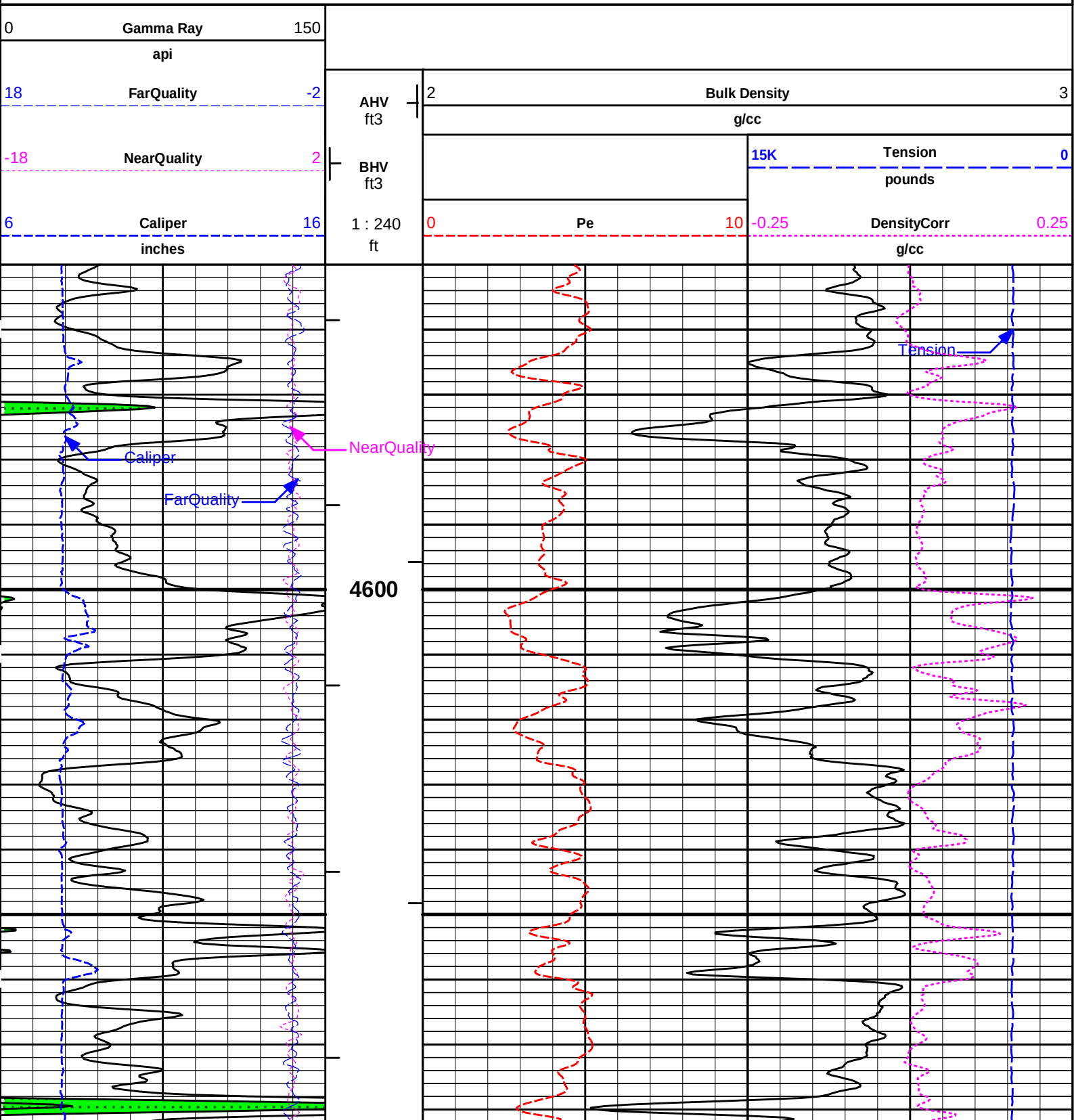
5 IN = 100 FT MD
MAIN PASS

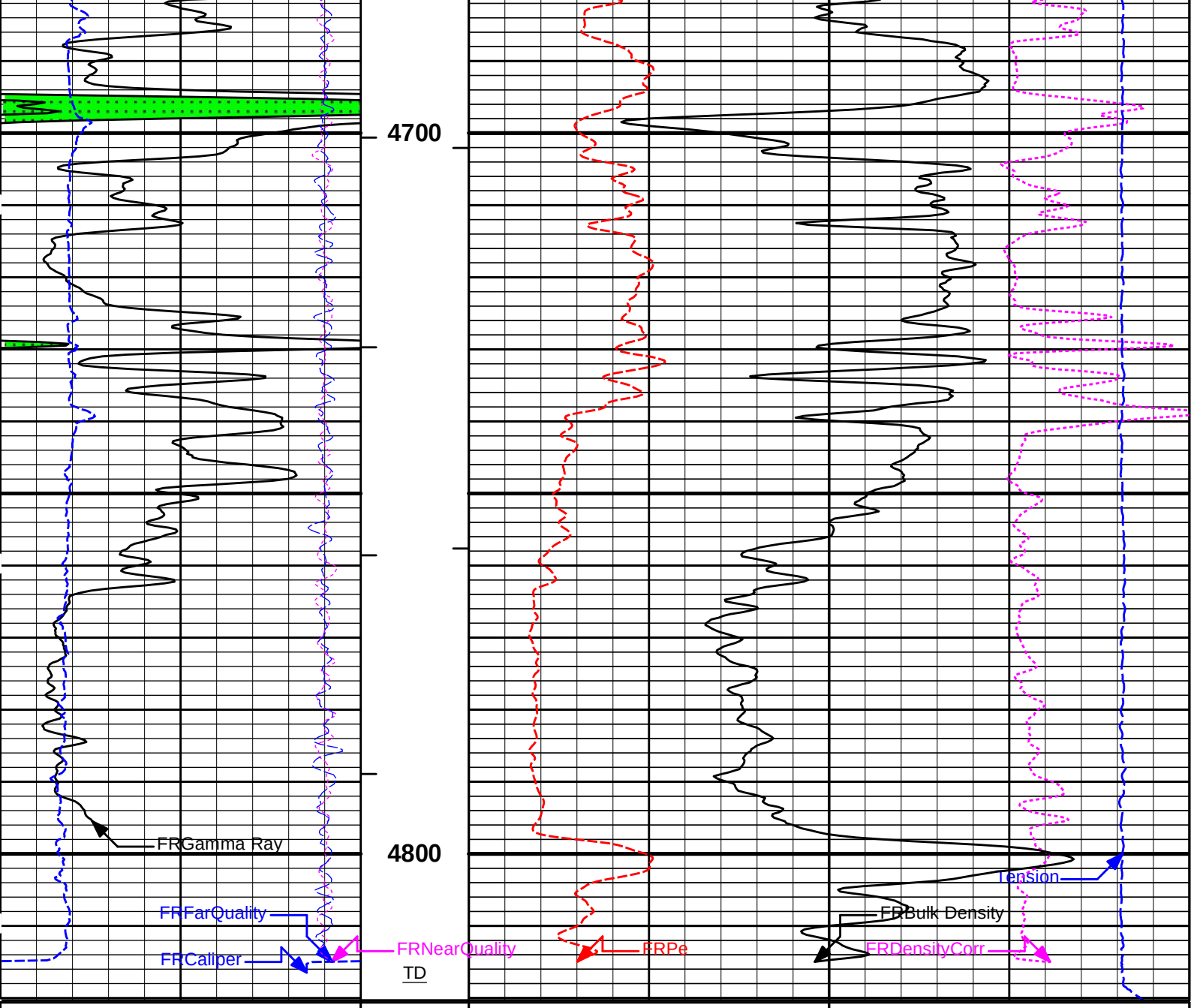
HALLIBURTON

Plot Time: 17-Jun-18 19:43:37
Plot Range: 4550 ft to 4820.33 ft
Data: HERMAN_LILSPICY\Well Based\REPEAT\
Plot File: \\-LOCAL-\HERMAN_LILSPICY\Well Based\POROSITY\ELR_BULKD_5_REPEAT

5 INCH REPEAT PASS

5 IN = 100 FT MD
REPEAT PASS





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

-0.25 DensityCorr 0.25	
g/cc	
15K Tension 0	
pounds	

HALLIBURTON

Plot Time: 17-Jun-18 19:43:39
Plot Range: 4550 ft to 4820.33 ft
Data: HERMAN_LILSPICY\Well Based\REPEAT\
Plot File: \\-LOCAL-\HERMAN_LILSPICY\Well Based\POROSITY\ELR_BULKD_5_REPEAT

5 INCH REPEAT PASS

5 IN = 100 FT MD
REPEAT PASS

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	9.100	ppg
	SHARED	WAGT	Weighting Agent	Natural	
	SHARED	BSAL	Borehole salinity	0.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	RMUD	Mud Resistivity	2.000	ohmm
	SHARED	TRM	Temperature of Mud	75.0	degF
	SHARED	CSD	Logging Interval is Cased?	No	
	SHARED	ICOD	AHV Casing OD	5.500	in
	SHARED	CSTR	Compressive Strength	1000.00	psia
	SHARED	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	4820.00	ft
	SHARED	BHT	Bottom Hole Temperature	140.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	NONE	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	GTET	
	SHARED	TEMM	CBM Temperature Master Tool	GTET	
	SHARED	SOCI	Source of Casing Information	Parameters	
	SHARED	MSAL	Water-base mud filtrate salinity	0.00	ppm
	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	SDLT2	
	Rwa / CrossPlot	ROIN	Input for RO Calculation	Rwa	
	GTET	GROK	Process Gamma Ray?	Yes	
	GTET	GEOK	Process Gamma Ray EVR?	No	
	GTET	TPOS	Tool Position for Gamma Ray Tools.	Eccentered	
	GTET	BHSM	Borehole Size Source Tool	SDLT2	
	DSNT2	DNOK	Process DSN?	Yes	
	DSNT2	DEOK	Process DSN EVR?	No	
	DSNT2	NLIT	Neutron Lithology	Limestone	
	DSNT2	DNSO	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.250	in
	DSNT2	DNTT	Temperature Correction Type	None	
	DSNT2	DPRS	DSN Pressure Correction Type	None	
	DSNT2	SHCO	View More Correction Options	No	
	DSNT2	UTVD	Use TVD for Gradient Corrections?	No	
	DSNT2	LHWT	Logging Horizontal Water Tank?	No	
	DSNT2	UCLA	Classic Neutron Parameter utilized?	No	

DSNT2	BHSM	Borehole Size Source Tool	SDLT2	
SDLT2	CLOK	Process Caliper Outputs?	Yes	
Microlog Pad2	MLOK	Process MicroLog Outputs?	Yes	
SDLT Pad2	DNOK	Process Density?	Yes	
SDLT Pad2	DNOK	Process Density EVR?	No	
SDLT Pad2	CB	Logging Calibration Blocks?	No	
SDLT Pad2	SPVT	SDLT Pad Temperature Valid?	Yes	
SDLT Pad2	DTWN	Disable temperature warning	No	
SDLT Pad2	DMA	Formation Density Matrix	2.710	g/cc
SDLT Pad2	DFL	Formation Density Fluid	1.000	g/cc
SDLT Pad2	BHSM	Borehole Size Source Tool	SDLT2	

BOTTOM

Data: HERMAN_LILSPICY\0001 GTET-DSNT2-SDLT2\004 17-Jun-18 18:39 Up @4821.8f **Date: 17-Jun-18 19:09:05**

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	**GTET - 11013114**	**Reference Calibration Date:**	**20-May-18 14:50:21**
Engineer:	**JORGE ORLANDO PEREZ**	**Calibration Date:**	**05-Jun-18 11:57:37**
Software Version:	**WL INSITE R5.6.0 (Build 2)**	**Calibration Version:**	**1**

Calibrator Source S/N: TB-146
Calibrator API Reference:225.00 api
Equivalent Calibrator API Reference:228.9 api

Measurement	Measured	Calibrated	Units
Background	35.2	35.7	api
Background + Calibrator	260.9	264.7	api
Calibrator	225.7	228.9	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name:	**GTET - 11013114**	**Reference Calibration Date:**	**05-Jun-18 11:57:37**
Engineer:	**JORGE ORLANDO PEREZ**	**Calibration Date:**	**05-Jun-18 12:00:58**
Software Version:	**WL INSITE R5.6.0 (Build 2)**	**Calibration Version:**	**1**

Calibrator Source S/N: TB-146
Calibrator API Reference:225.00 api
Equivalent Calibrator API Reference:228.9 api

Field Verification	Shop	Field	Units
Background	35.7	34.1	api
Background + Calibrator	264.7	265.7	api
Calibrator	228.9	231.6	api

Shop	Field	Difference	Tolerance
228.9	231.6	-2.7	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	**DSNT2 - 10993115**	**Reference Calibration Date:**	**13-Mar-18 16:36:23**
Engineer:	**JORGE ORLANDO PEREZ**	**Calibration Date:**	**05-Jun-18 11:51:00**
Software Version:	**WL INSITE R5.6.0 (Build 2)**	**Calibration Version:**	**1**

Logging Source S/N: DSN-424
Tank Serial Number: 12345678
Reference value assigned to Tank: 56.100
Snow Block S/N: 12345678
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:	0.99503	0.99632	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):	0.2354	0.2358	0.0004	+/- 0.0020
Calibrated Ratio:	10.5458	10.5595	0.014	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0626	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: DSNT2 - 10993115 **Reference Calibration Date:** 05-Jun-18 11:51:00

Engineer: JORGE ORLANDO PEREZ **Calibration Date:** 05-Jun-18 11:52:12

Software Version: WL INSITE R5.6.0 (Build 2) **Calibration Version:** 1

Logging Source S/N: DSN-424

Snow Block S/N: 12345678

NEUTRON FIELD-CHECK SUMMARY				
	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0626	0.0622	-0.0004	+/- 0.0150

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

DENSITY CALIPER SHOP CALIBRATION

Tool Name: SDLT2 - 12153520 **Reference Calibration Date:** 05-Jun-18 10:31:07

Engineer: JORGE ORLANDO PEREZ **Calibration Date:** 05-Jun-18 10:38:49

Software Version: WL INSITE R5.6.0 (Build 2) **Calibration Version:** 1

Host Tool Name: DSNT - 10993115

CALIBRATION COEFFICIENTS			
Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-4928.64	-5107.21	-7000.00 - -1000.00
Pad Gain	0.0003765	0.0003757	0.0002000 - 0.0006000
Arm Offset	-3652.41	-3183.13	-5000.00 - 3000.00
Arm Gain	0.0005508	0.0005255	0.000300 - 0.000700
Arm Power	-0.000006501	-0.000005130	-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)	2.07	2.00	-0.07	+/- 0.20
Medium Ring (in)	3.83	3.75	-0.08	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.41	6.50	0.09	+/- 0.20
Medium Ring (in)	8.22	8.25	0.03	+/- 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: SDLT2 - 12153520 **Reference Calibration Date:** 05-Jun-18 10:38:49

Engineer: JORGE ORLANDO PEREZ **Calibration Date:** 05-Jun-18 10:41:06

Software Version: WL INSITE R5.6.0 (Build 2) **Calibration Version:** 1

MEASURED CALIPER VALUES

Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.83	3.75	-0.08	+/- 0.10
Ring Diameter	8.25	8.30	0.05	+/- 0.15

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

MICRO LOG SHOP CALIBRATION

Tool Name: Microlog Pad2 - 12153520 **Reference Calibration Date:** 15-Mar-18 10:04:39

Engineer: JORGE ORLANDO PEREZ **Calibration Date:** 05-Jun-18 10:45:37

Software Version: WL INSITE R5.6.0 (Build 2) **Calibration Version:** 1

Host Tool Name: DSNT - 10993115

CALIBRATION COEFFICIENT SUMMARY

Measurement	Micro Log Normal		Micro Log Lateral		
	Measured	Calibrated	Measured	Calibrated	Units
Tool Zero	-0.12	-0.13	0.00	0.00	ohmm
Calibration Point #1	0.02	0.00	0.00	0.00	ohmm
Calibration Point #2	20.09	20.00	20.04	20.00	ohmm
Internal Reference	19.95	19.86	20.05	20.01	ohmm

Measurement	Micro Log Normal Tool Value	Micro Log Lateral Tool Value	Units
Tool Zero	-0.47	0.42	V
Calibration Point #1	35.56	0.39	V
Calibration Point #2	5395.57	6946.36	V
Internal Reference	5358.24	6950.67	V

MICRO LOG FIELD CHECK

Tool Name: Microlog Pad2 - 12153520 **Reference Calibration Date:** 05-Jun-18 10:45:37

Engineer: JORGE ORLANDO PEREZ **Calibration Date:** 05-Jun-18 10:46:09

Software Version: WL INSITE R5.6.0 (Build 2) **Calibration Version:** 1

Measurement	Micro Log Normal		Micro Log Lateral		
	Shop	Field	Shop	Field	Units
Tool Zero	-0.13	-0.15	0.00	0.00	ohmm
Internal Reference	19.86	19.87	20.01	20.02	ohmm

Internal Reference	19.86	19.87	20.01	20.02	unmm

Summary				
Signal	**Shop**	**Field**	**Difference**	**Tolerence**
Microlog Normal	19.86	19.87	-0.01	+/- 0.80
Microlog Lateral	20.01	20.02	-0.01	+/- 0.80

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name:	**SDLT Pad2 - 10809130**	**Reference Calibration Date:**	**07-Jun-18 10:44:05**
Engineer:	**JORGE ORLANDO PEREZ**	**Calibration Date:**	**07-Jun-18 11:05:54**
Software Version:	**WL INSITE R5.6.0 (Build 2)**	**Calibration Version:**	**1**

Logging Source S/N: 5471GW

Aluminum Block S/N: EL RENO STD ALUMINUM Density: 2.581g/cc Pe: 3.170

Magnesium Block S/N: EL RENO Density: 1.687g/cc Pe: 2.594

DENSITY CALIBRATION SUMMARY			
Measurement	**Previous Value**	**New Value**	**Control Limit**
Near Bar Gain	1.0433	1.0481	0.90 - 1.10
Near Dens Gain	1.0146	1.0272	0.90 - 1.10
Near Peak Gain	1.0349	1.0557	0.90 - 1.10
Near Lith Gain	1.0501	1.0457	0.90 - 1.10
Far Bar Gain	1.0059	1.0078	0.90 - 1.10
Far Dens Gain	0.9982	0.9997	0.90 - 1.10
Far Peak Gain	0.9938	0.9979	0.90 - 1.10
Far Lith Gain	0.9753	0.9775	0.90 - 1.10
Near Bar Offset	-0.3213	-0.3667	NONE
Near Dens Offset	-0.0548	-0.1665	NONE
Near Peak Offset	-0.2185	-0.3946	NONE
Near Lith Offset	-0.4067	-0.3700	NONE
Far Bar Offset	-0.0635	-0.0805	NONE
Far Dens Offset	-0.0133	-0.0260	NONE
Far Peak Offset	-0.0225	-0.0562	NONE
Far Lith Offset	0.0490	0.0335	NONE
Near Bar Background	880.73	882.81	700 - 1450
Near Dens Background	290.88	290.05	230 - 480
Near Peak Background	126.80	125.98	100 - 210
Near Lith Background	156.87	157.45	125 - 260
Far Bar Background	609.52	609.12	450 - 900
Far Dens Background	234.72	235.06	175 - 345
Far Peak Background	92.66	92.87	70 - 140
Far Lith Background	94.94	97.17	75 - 145

CALIBRATION BLOCK SUMMARY				
Measurement	**Current Reading (Previous Coef)**	**Calibrated (New Coef)**	**Change**	**Control Limit On Change**
MAGNESIUM				
Density (g/cc)	1.687	1.687	0.000	+/- 0.015
Pe	2.552	2.561	0.009	+/- 0.150
ALUMINUM				
Density (g/cc)	2.580	2.580	-0.000	+/- 0.01500
Pe	3.135	3.134	-0.001	+/- 0.150

TOOL SUMMARY				
Measurement	**Near Detector**		**Far Detector**	
	Value	**Control Limits**	**Value**	**Control Limits**
QUALITY				

QUALITY				
Background	-0.0003	+/- 0.0110	0.0020	+/- 0.0140
Magnesium Block	-0.0001	+/- 0.0110	-0.0017	+/- 0.0140
Aluminum Block	-0.0004	+/- 0.0110	0.0010	+/- 0.0140
Resolution	8.91	6.00 - 11.50	9.36	6.00 - 11.50
Internal Verifier(B+D+P+L)	1456	1200 - 2700	1034	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 Pad2 - 10809130 **Reference Calibration Date:** 07-Jun-18 11:05:54

Engineer: JORGE ORLANDO PEREZ **Calibration Date:** 07-Jun-18 11:09:06

Software Version: WL INSITE R5.6.0 (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	1456.282	1452.072	-4.210	15.392
Far (B+D+P+L) cps	1034.223	1035.923	1.700	17.128
Near Resolution	8.91	8.95	0.040	0.50
Far Resolution	9.36	9.27	-0.090	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-11013114						
Gamma Ray Calibrator	228.9	231.6	----------	-2.7	+/- 9.00	api
DSNT2-10993115						
Snow-Block Porosity	0.0626	0.0622	----------	0.0004	+/- 0.0150	decp
SDLT2-12153520						
Pad Extension	3.75	3.75	----------	0.00	+/-0.10	in
Ring Diameter	8.25	8.30	----------	-0.05	+/-0.15	in
Microlog Pad2-12153520						
MicroLog Normal	19.86	19.87	----------	-0.01	+/-0.80	ohmm
MicroLog Lateral	20.01	20.02	----------	-0.01	+/-0.80	ohmm
SDLT Pad2-10809130						
Near(B+D+P+L)	1456.282	1452.072	----------	4.210	+/-15.392	cps
Far(B+D+P+L)	1034.223	1035.923	----------	-1.700	+/-17.128	cps

Data: HERMAN_LILSPICY\0001 GTET-DSNT2-SDLT2\IDLE **Date: 17-Jun-18 19:10:44**

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
						37.63 ft
CH_HOS-11459024 37.50 lbs		Ø 2.750 in		Temperature @ 36.60 ft	3.03 ft	
						34.60 ft
XOHD-11572809 20.00 lbs		Ø 2.750 in Ø 3.625 in			0.95 ft	
						33.65 ft
SP Sub-11153357 60.00 lbs		Ø 3.625 in		SP @ 31.87 ft	3.74 ft	
				Z-Accelerometer @ 29.46 ft		29.91 ft
GTET-11013114 165.00 lbs		Ø 3.625 in			8.52 ft	
				GammaRay @ 23.85 ft		
						21.39 ft
DSNT2-10993115 174.00 lbs	DSN Decentralizer-10993115 6.60 lbs	Ø 5.000 in* Ø 3.625 in		DSN Far @ 14.45 ft DSN Near @ 13.70 ft	9.69 ft	
						11.70 ft
SDLT2-12153520 360.00 lbs	SDLT Pad2-10809130 65.00 lbs Microlog Pad2-12153520 8.00 lbs	Ø 4.500 in Ø 4.500 in* Ø 4.750 in*		Microlog @ 3.89 ft SDL Caliper @ 3.71 ft SDL @ 3.70 ft	10.81 ft	
						0.89 ft
JLatch_3.65OD-12345678 22.50 lbs		Ø 0.363 in			0.31 ft	
						0.58 ft
Cabbage Head-12345678 10.00 lbs		Ø 3.625 in 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_HOS	Hostile Cable Head with Load Cell	11459024	37.50	3.03		34.60	300.00
XOHD	Hostile to Dits Cross Over	11572809	20.00	0.95		33.65	300.00
SP	SP Sub	11153357	60.00	3.74		29.91	300.00
GTET	Gamma Telemetry Tool	11013114	165.00	8.52		21.39	60.00
DSNT	Dual Spaced Neutron	10993115	174.00	9.69		11.70	60.00
DCNT	DSN Decentralizer	10993115	6.60	5.13	*	15.03	300.00
SDLT	Spectral Density Tool	12153520	360.00	10.81		0.89	60.00
SDLP	Density Insite Pad	10809130	65.00	2.55	*	3.10	60.00
MICP	Microlog Pad	12153520	8.00	1.00	*	3.39	60.00
J Latch	J Latch 3.65 O.D.	12345678	22.50	0.31		0.58	300.00
CBHD	Cabbage Head	12345678	10.00	0.58		0.00	300.00
Total			**928.60**	**37.63**			

* Not included in Total Length and Length Accumulation

COMPANY	**HERMAN L. LOEB LLC**
WELL	**LIL SPICY 1-16**
FIELD	**WILDCAT**
COUNTY	**KIOWA** STATE **KANSAS**

HALLIBURTON

SPECTRAL DENSITY
DUAL SPACED NEUTRON
LOG