HALLIBURTON

DUAL SPACED NEUTRON SPECTRAL DENSITY LOG

COMPANY	HARTMAN OIL CO., INC
WELL	ROSE #5-1
FIELD/BLOCK	AMERICAN BEAUTY
COUNTY	WICHITA STATE KANSAS

HARTMAN OIL CO., INC
ROSE #5-1
AMERICAN BEAUTY
WICHITA
KANSAS
COMPANY
WELL
FIELD/BLOCK
COUNTY
STATE

API No. 15-203-20310-00-00

Location (SHL) 330' FNL & 660' FWL
N2 NW NW

Sect. 1 Twp. 16S Rge. 35W

Other Services:
DSNT/SDLT
MICROLOG
ACRT

Permanent Datum	GL	Elev. 3078.0 ft	Elev.: K.B. 3091.0 ft
Log measured from	KB	13.0 ft above perm. Datum	D.F. 3091.0 ft
Drilling measured from	KB		G.L. 3078.0 ft

Date		02-Oct-16					
Run No.		ONE					
Depth - Driller		4730.0 ft					
Depth - Logger		4725.0 ft					
Bottom - Logged Interval		4703.00 ft					
Top - Logged Interval		3700.00 ft					
Casing - Driller		8.625 in	@ 368.0 ft	@		@	
Casing - Logger		362.0 ft					
Bit Size		7.875 in		@		@	
Type Fluid in Hole		Water Based Mud					
Density	Viscosity	9.8 ppg	46.00 s/qt				
PH	Fluid Loss	10.00 pH	3.0 cptm				
Source of Sample		MUD PIT					
Rm @ Meas. Temperature		0.75 ohmm	@ 75.00 degF	@		@	
Rmf @ Meas. Temperature		0.58 ohmm	@ 75.00 degF	@		@	
Rmc @ Meas. Temperature		0.91 ohmm	@ 75.00 degF	@		@	
Source Rmf	Rmc	MEAS	MEAS				
Rm @ BHT		0.52 ohmm	@ 112.0 degF	@		@	
Time Since Circulation		5.0 hr					
Time on Bottom		02-Oct-16 02:00					
Max. Rec. Temperature		112.00 degF	@ 4725.0 ft	@		@	
Equipment	Location	11072142	EL RENO, OK				
Recorded By		JORGE ORLANDO PEREZ					
Witnessed By		CHRIS PETERS					

Fold here

Service Ticket No.: 903565062

API No.: 15-203-20310-00-00

PGM Version: WL INSITE R5.0.5 (Build 8)

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE

RESISTIVITY SCALE CHANGES

	Type Log	Depth	Scale Up Hole	Scale Down Hole

RESISTIVITY EQUIPMENT DATA

	Run No.	Tool Type & No.	Pad Type	Tool Pos.	Other
Rm @ Meas. Temp	@				
Rmf @ Meas. Temp.	@ ONE	ACRT I-11022962	N/A	1.5 S.O.	N/A
Rmc @ Meas. Temp.	@	S-11005909			
Rm @ BHT	@				
Rmf @ BHT	@				
Rmc @ BHT	@				

EQUIPMENT DATA

	GAMMA			ACOUSTIC				DENSITY				NEUTRON			
			Scale			Scale			Scale				Scale		
	Run No.	Speed	L	R	Run No.	L	R	Matrix	Run No.	L	R	Matrix	Run No.	L	R	Matrix
Run No.	ONE								ONE				ONE			
Serial No.	11048627								11019643				10950489			
Model No.	GTET								SDLT				DSNT			
Diameter	3.625"								5.5"				3.625"			
Detector Model No.	T-102								GAM-GAM				NEU-NEU			
Type	SCINT								CS137				AM241BE			
Length	8"								5168GW				DSN-424			
Distance to Source	N/A								1.5 Ci				15.0 Ci			
									Strength				Strength			

LOGGING DATA

	GENERAL				GAMMA			ACOUSTIC			DENSITY			NEUTRON		
		Depth		Speed	Scale			Scale			Scale			Scale		
	Run No.	From	To	ft/min	L	R		L	R	Matrix	L	R	Matrix	L	R	Matrix
	ONE	TD	CSG	PEC	0	150					30	0		30	0	LIME

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

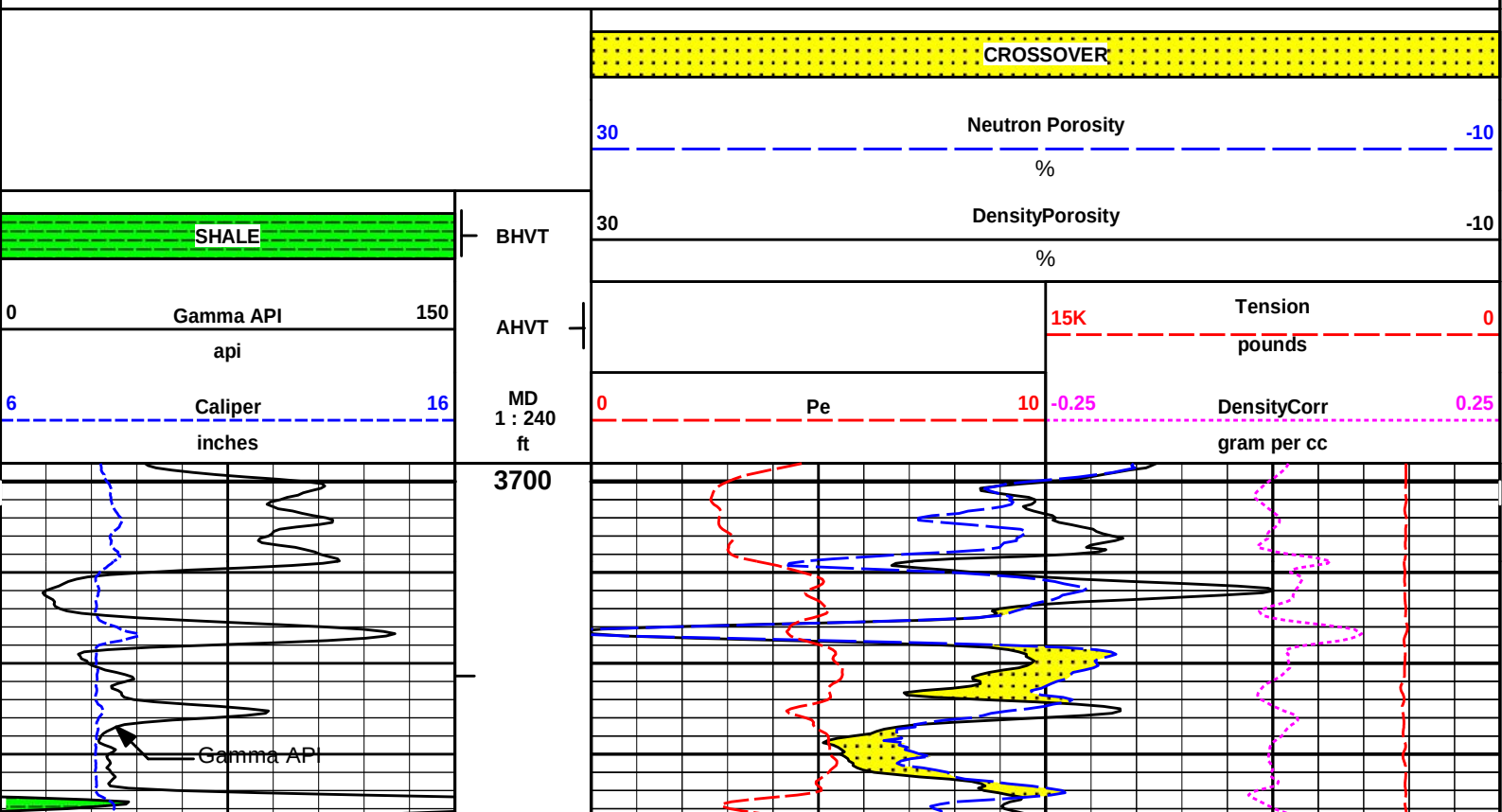
CHLORIDES REPORTED AT 6500 ppm

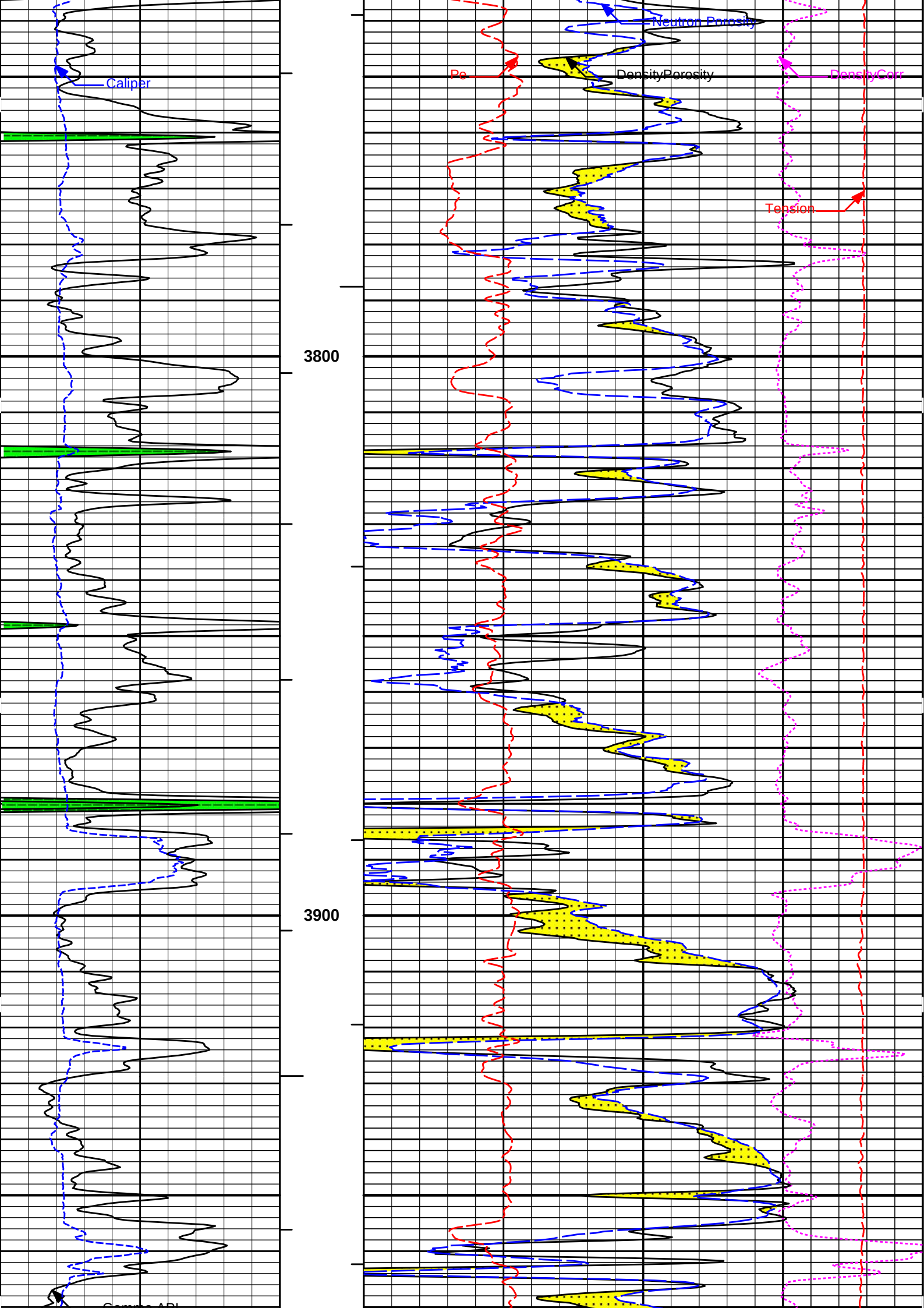
HALLIBURTON

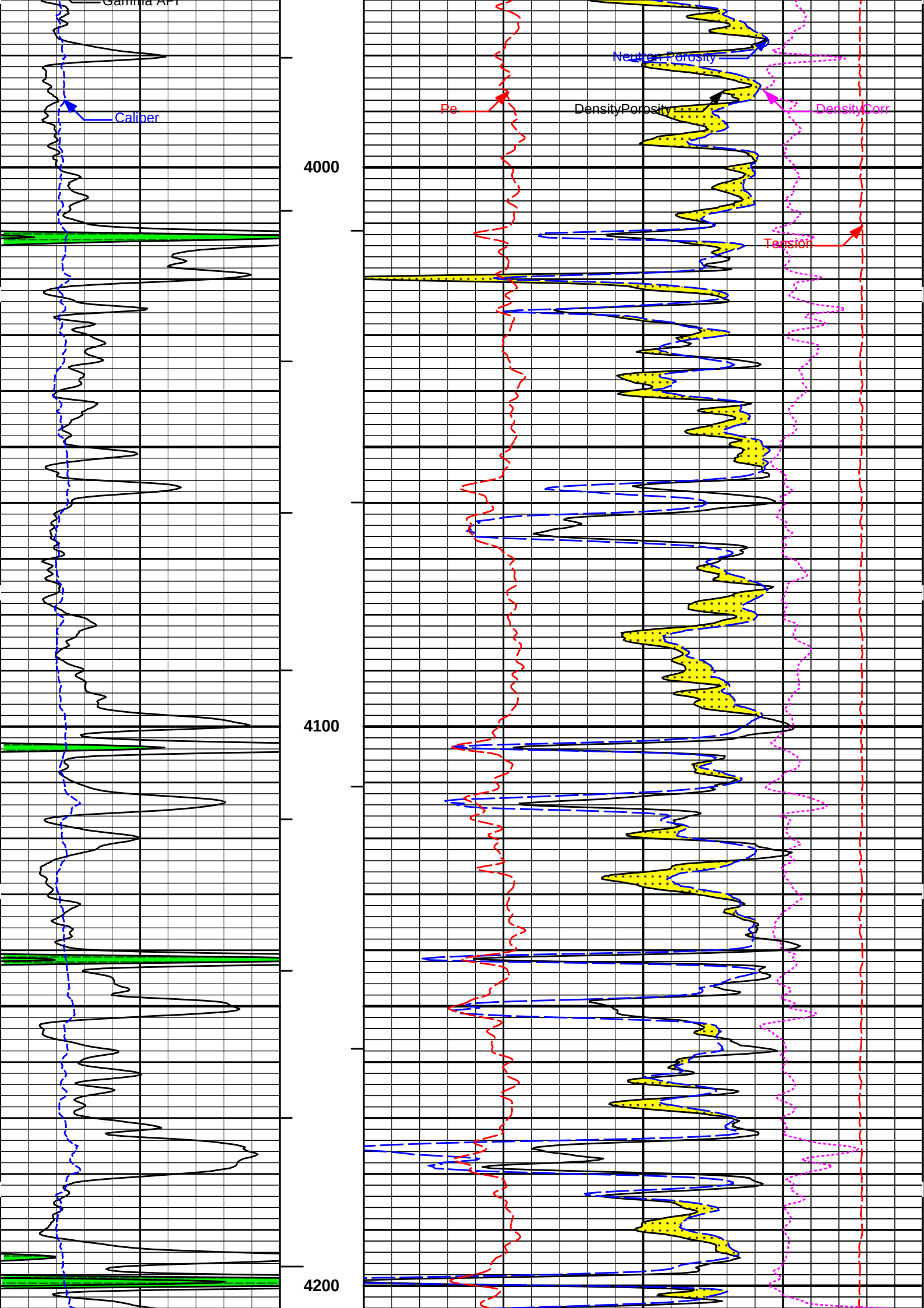
Plot Time: 02-Oct-16 02:42:09
Plot Range: 3698 ft to 4730.5 ft
Data: ROSE_5-1\Well Based\DETAILS
Plot File: \\POROSITY\Poro_IQ_5_MAIN_LIB

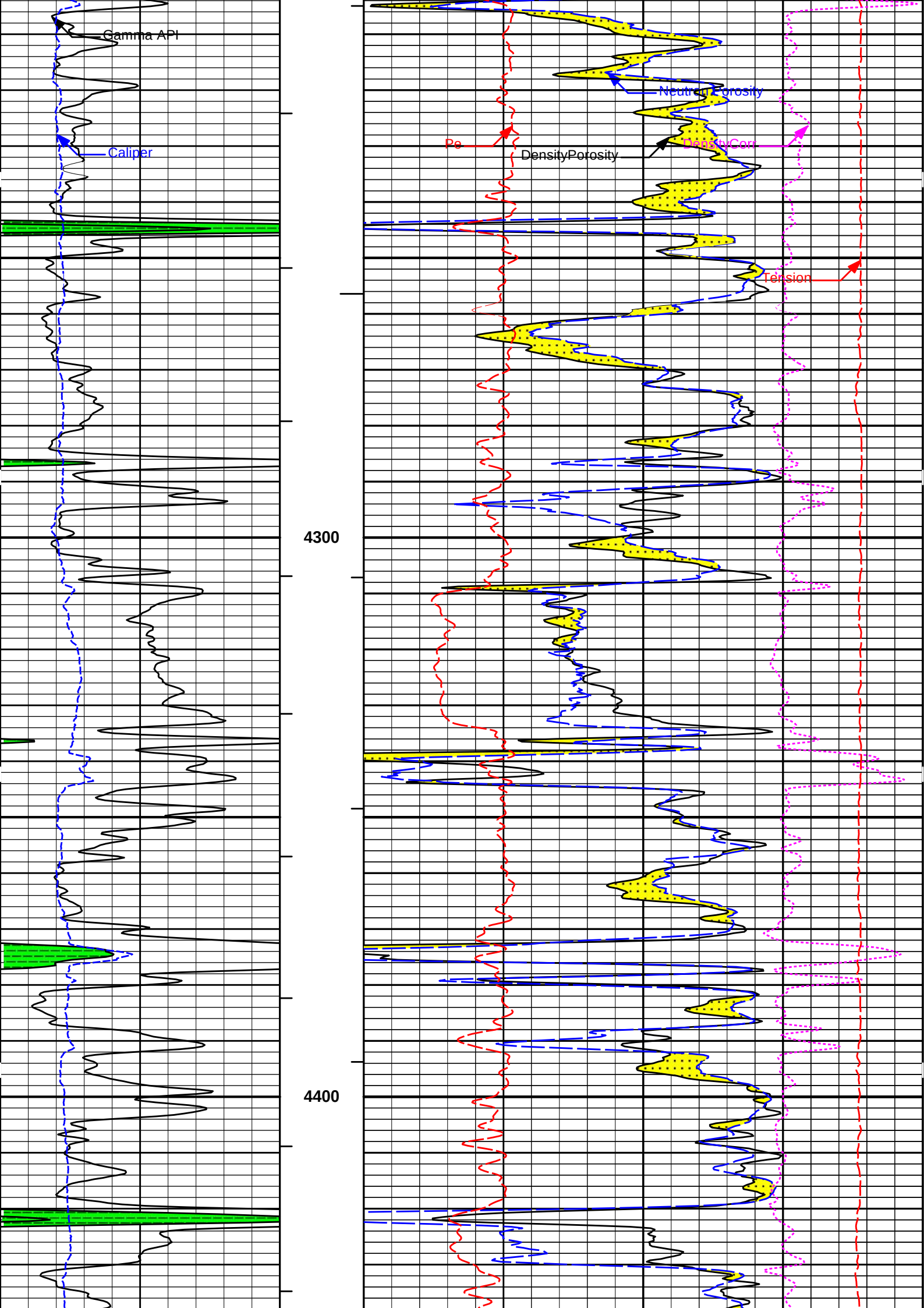
5 INCH MAIN LOG

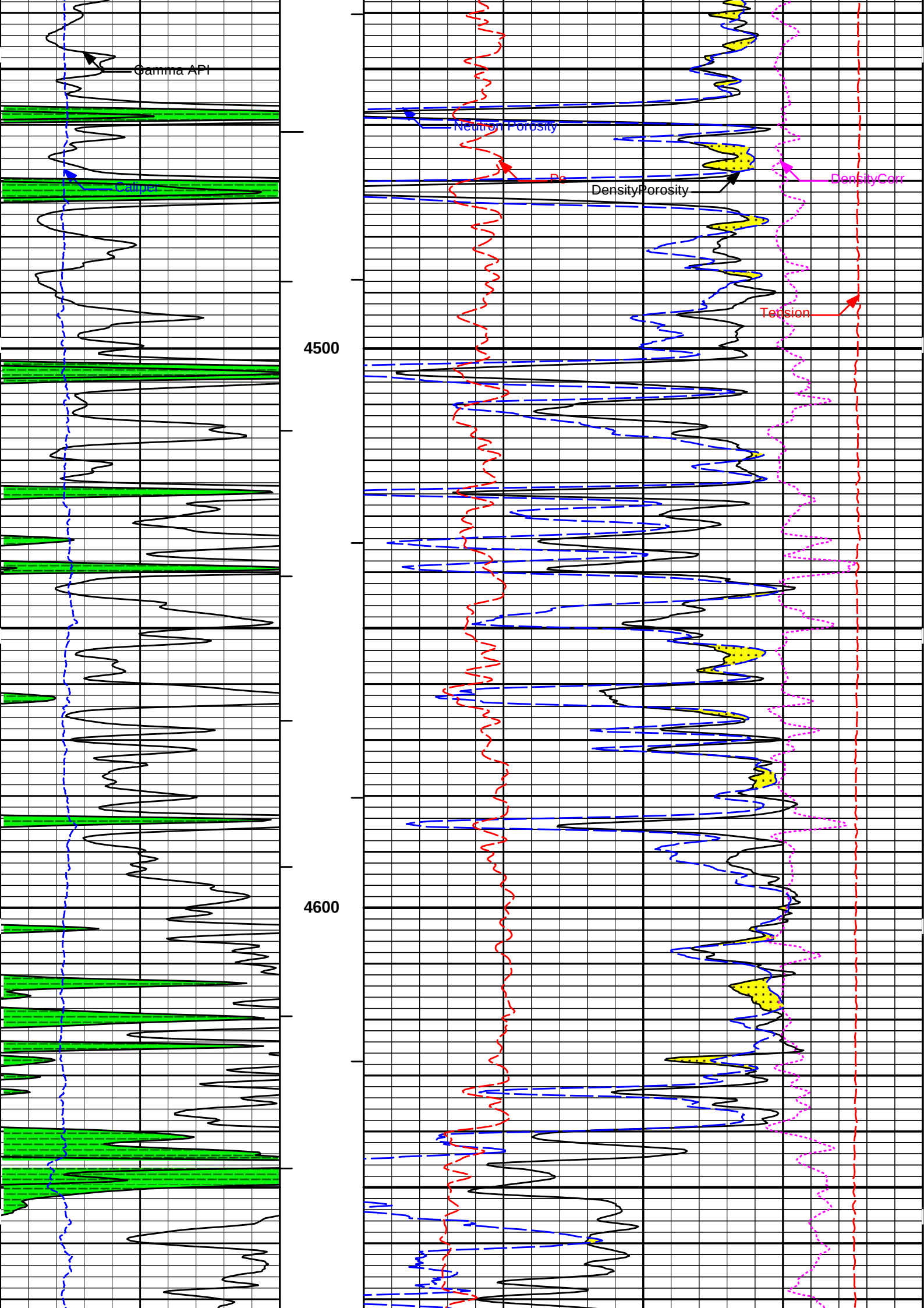
MEASURED DEPTH
MAIN SECTION 5" PER 100'

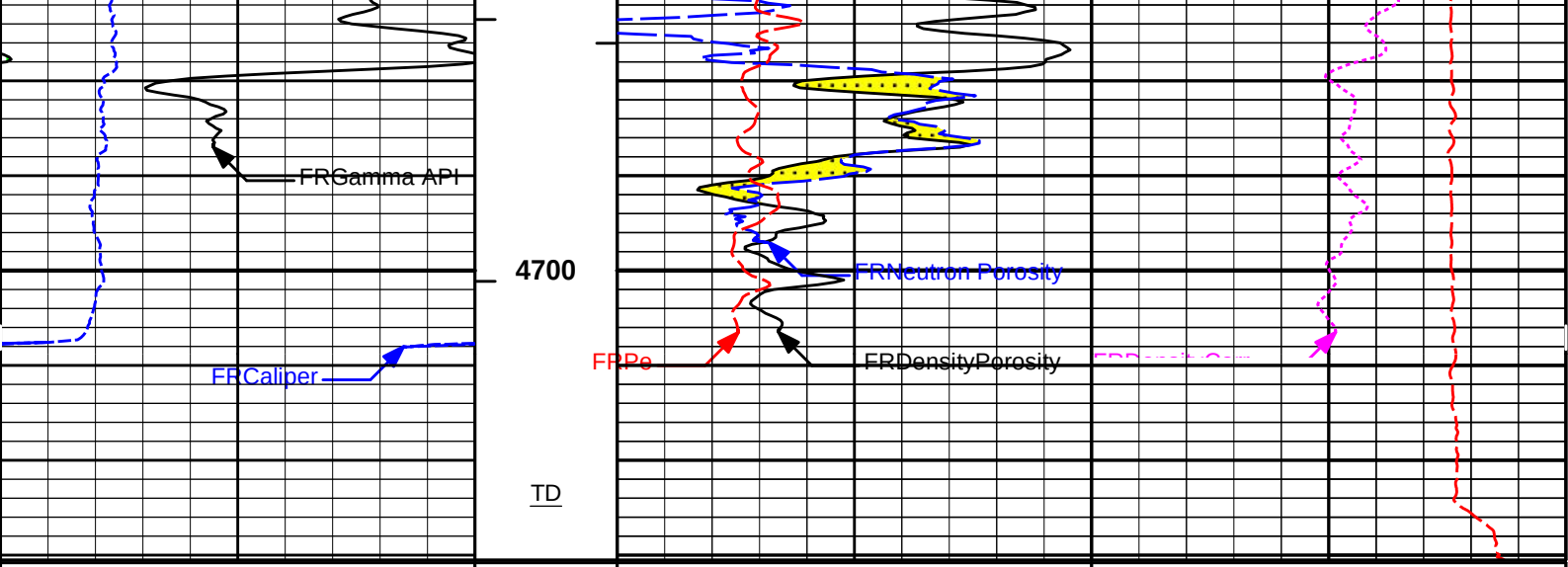



Caliper
Neutron Porosity
Pe
DensityPorosity
DensityCorr
Tension
3800
3900


Gamma API
Caliber
Pe
NeutronPorosity
DensityPorosity
DensityCorr
Tension
4000
4100
4200


Gamma API
Caliper
Neutron Porosity
Pe
DensityPorosity
DensityCorr
Tension
4300
4400


Gamma API
Caliper
Neutron Porosity
Pe
DensityPorosity
DensityCorr
Tension
4500
4600



6 Caliper 16
inches
0 Gamma API 150
api
SHALE

MD
1 : 240
ft

AHVT
BHVT

0 Pe 10

-0.25 DensityCorr 0.25
gram per cc

15K Tension 0
pounds

30 DensityPorosity -10
%

30 Neutron Porosity -10
%

CROSSOVER

HALLIBURTON

Plot Time: 02-Oct-16 02:42:11
Plot Range: 3698 ft to 4730.5 ft
Data: ROSE_5-1\Well Based\DETAILS\
Plot File: \\POROSITY\Poro_IQ_5_MAIN_LIB

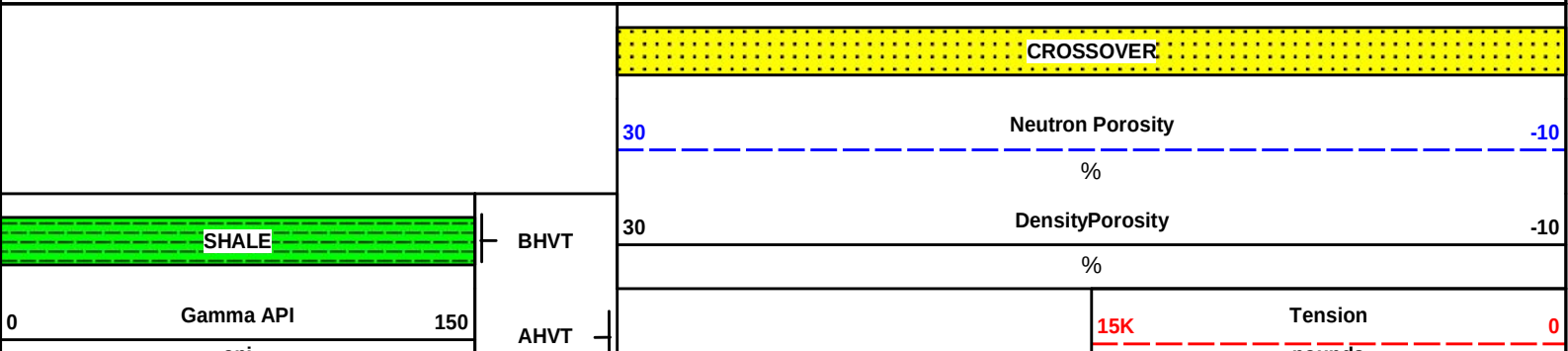
5 INCH MAIN LOG

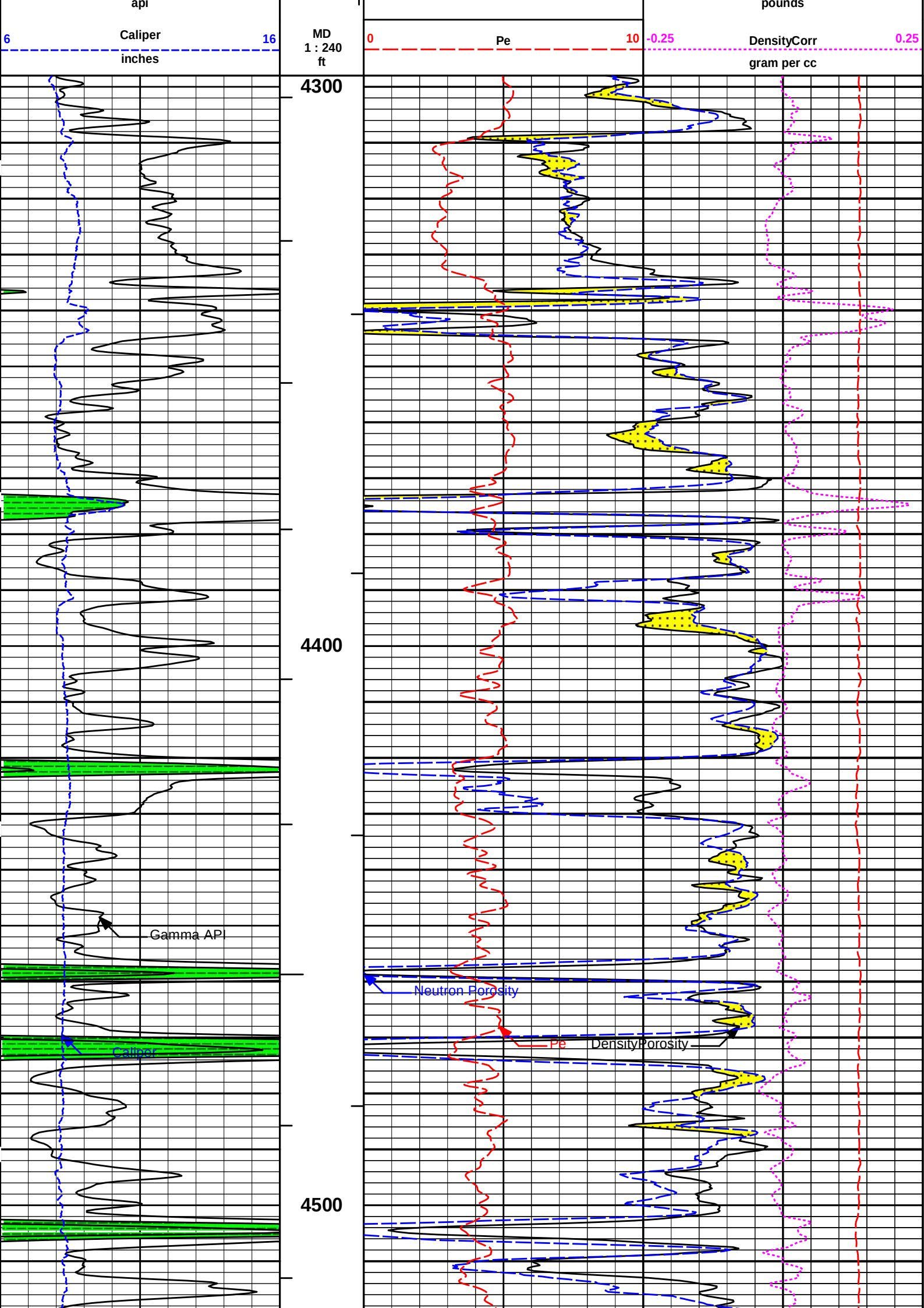
MEASURED DEPTH
MAIN SECTION 5" PER 100'

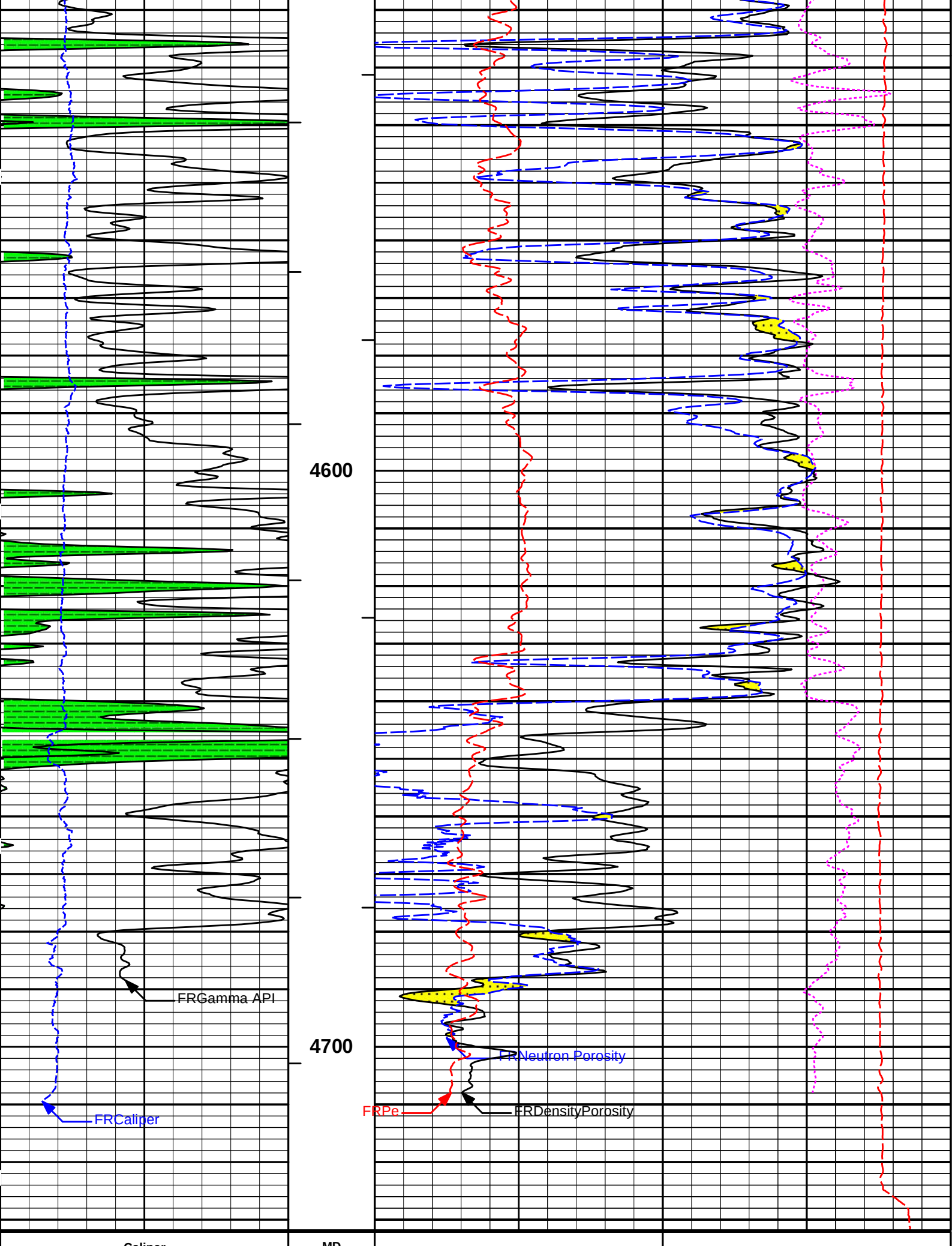
HALLIBURTON

Plot Time: 02-Oct-16 02:42:11
Plot Range: 4298 ft to 4731.83 ft
Data: ROSE_5-1\Well Based\REPEAT\
Plot File: \\POROSITY\Poro_IQ_5_REP_LIB

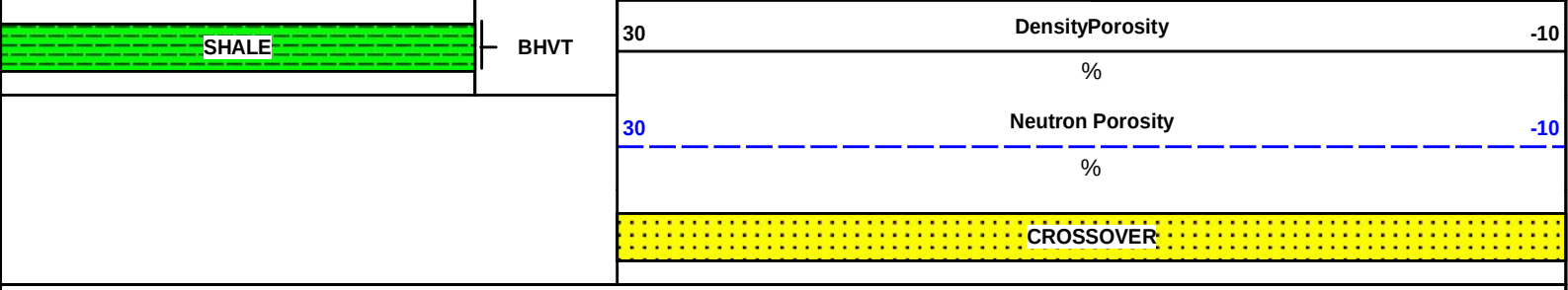
REPEAT SECTION




api
6
Caliper
16
inches
MD
1 : 240
ft
0
Pe
10
pounds
-0.25
DensityCorr
0.25
gram per cc
4300
4400
4500
Gamma API
Caliper
Neutron Porosity
Pe
DensityPorosity



6 Caliper 16	MD	0 Pe 10	-0.25 DensityCorr 0.25	
inches	1 : 240		gram per cc	
0 Gamma API 150	ft		15K Tension 0	
api	AHVT		pounds	



HALLIBURTON

Plot Time: 02-Oct-16 02:42:13
Plot Range: 4298 ft to 4731.83 ft
Data: ROSE_5-1\Well Based\REPEAT\
Plot File: \\POROSITY\Poro_IQ_5_REP_LIB

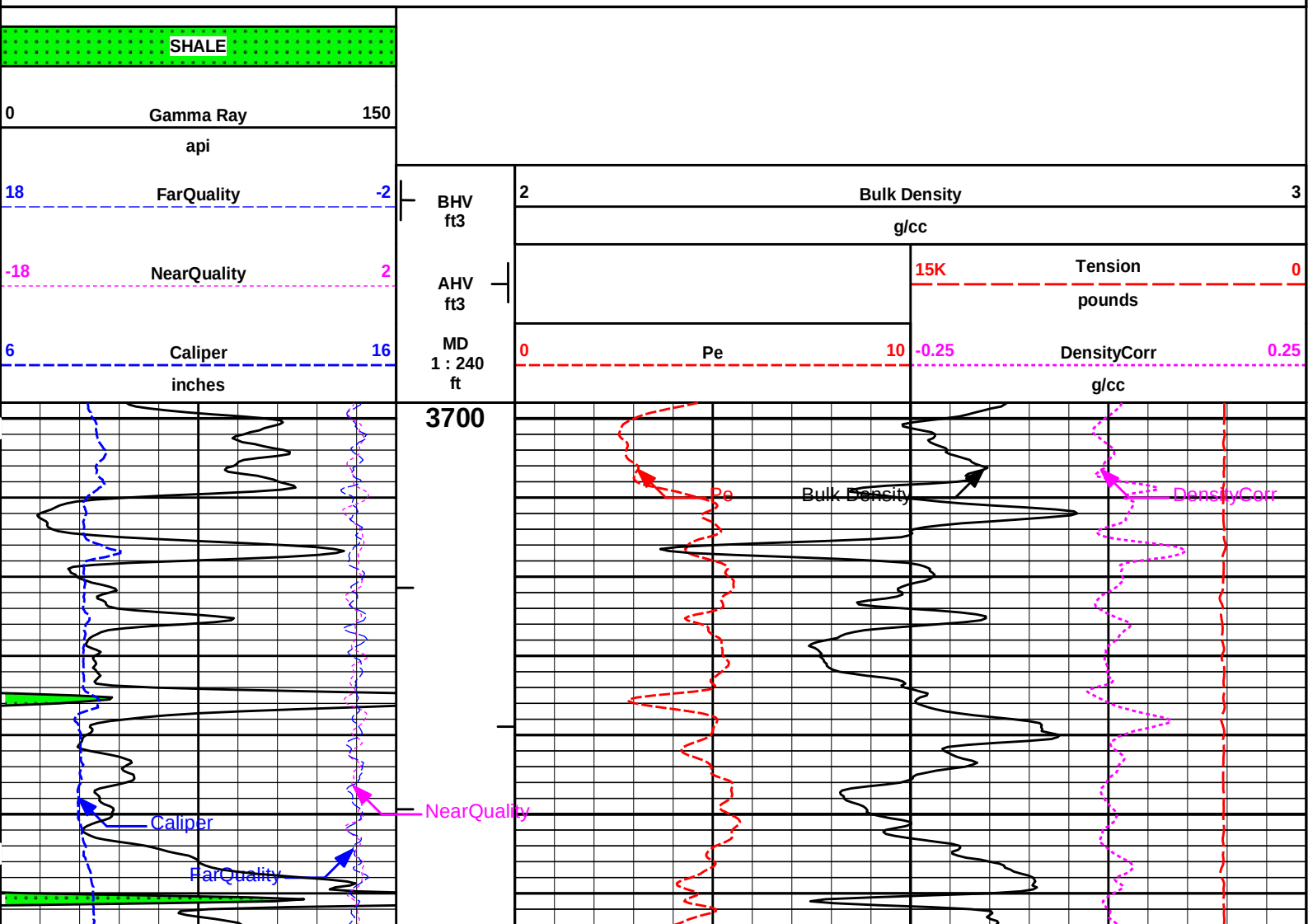
REPEAT SECTION

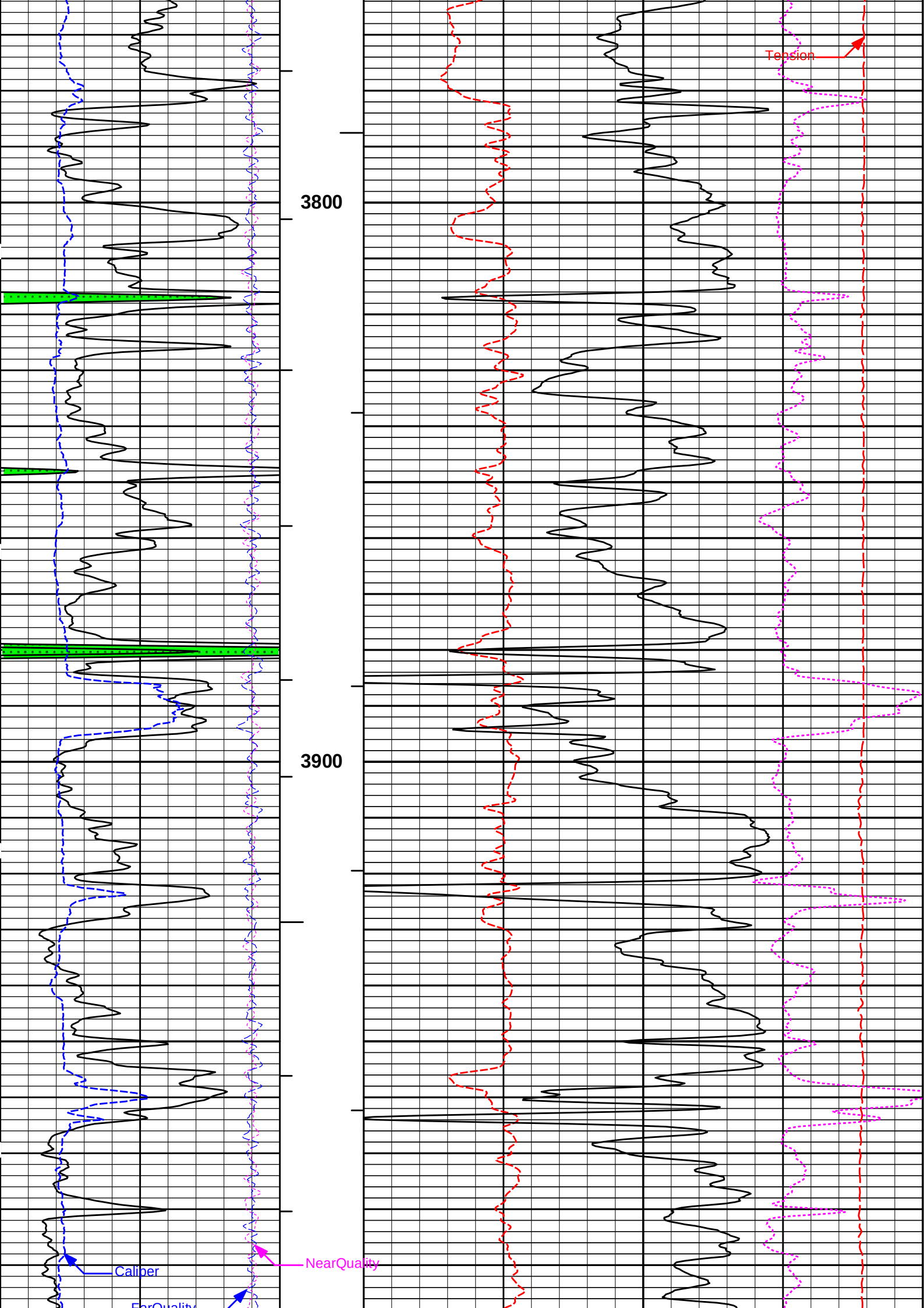
HALLIBURTON

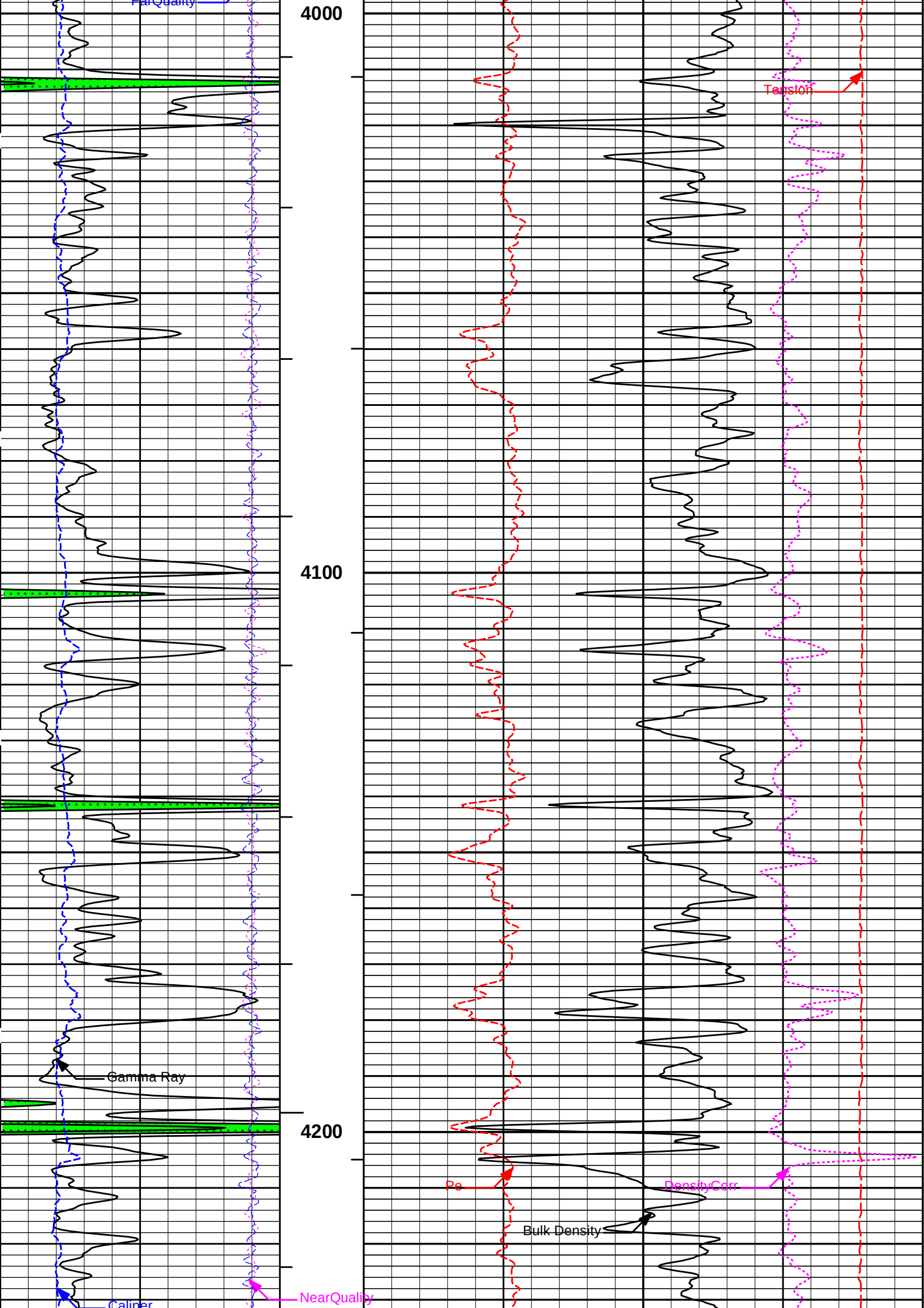
Plot Time: 02-Oct-16 02:42:13
Plot Range: 3698 ft to 4730.5 ft
Data: ROSE_5-1\Well Based\DETAILS\
Plot File: \\-LOCAL-\ROSE_5-1\Well Based\POROSITY\BULKD_5_MAIN_LIB

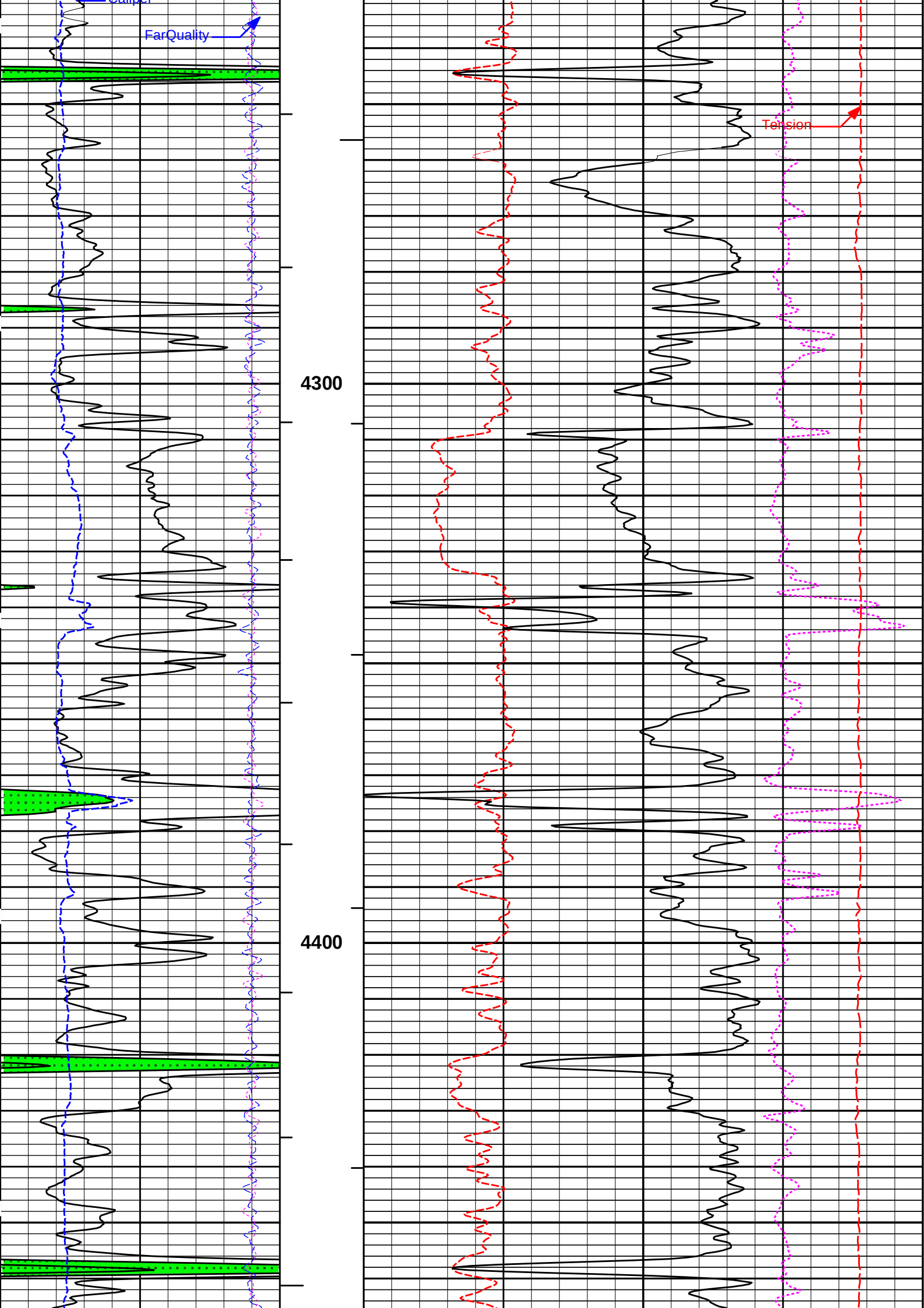
5 INCH MAIN LOG

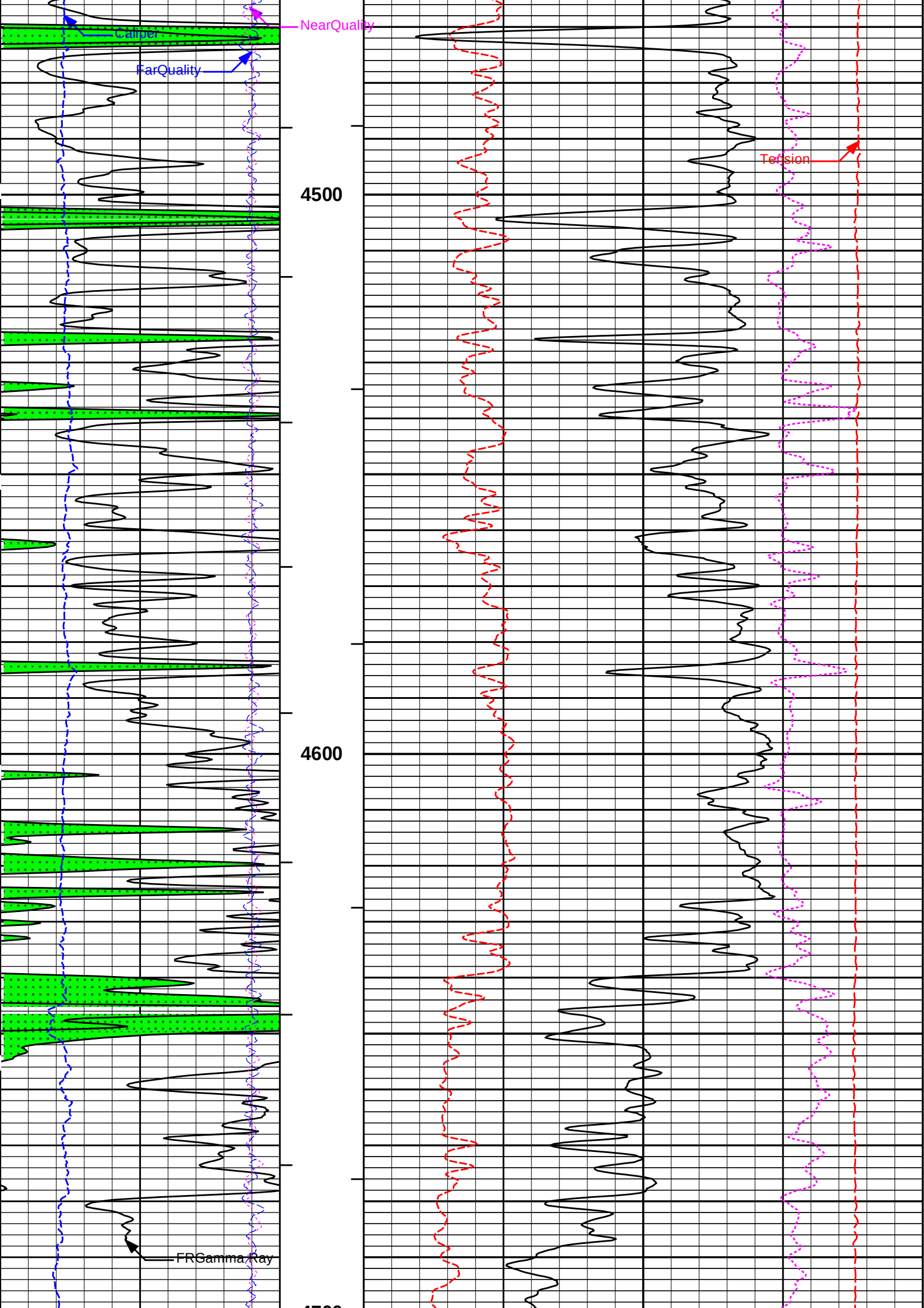
MEASURED DEPTH
MAIN SECTION 5" PER 100'

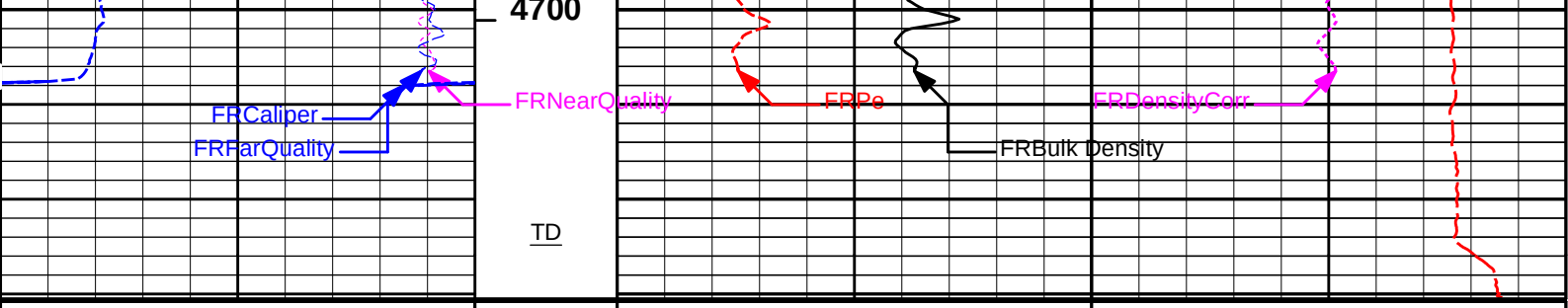



3800
3900
Tension
Caliper
NearQuality
FarQuality


FarQuality
4000
Tension
4100
Gamma Ray
4200
Pe
DensityCorr
Bulk Density
Caliper
NearQuality


Caliper
FarQuality
Tension
4300
4400


Caliper
NearQuality
FarQuality
Tension
4500
4600
FRGamma Ray



6 Caliper 16
inches
-18 NearQuality 2
18 FarQuality -2
0 Gamma Ray 150
api
SHALE

MD
1 : 240
ft
AHV
ft3
BHV
ft3

0 Pe 10
-0.25 DensityCorr 0.25
g/cc
15K Tension 0
pounds
2 Bulk Density 3
g/cc

HALLIBURTON

Plot Time: 02-Oct-16 02:42:15
Plot Range: 3698 ft to 4730.5 ft
Data: ROSE_5-1\Well Based\DETAILS\
Plot File: \\-LOCAL-\ROSE_5-1\Well Based\POROSITY\BULKD_5_MAIN_LIB

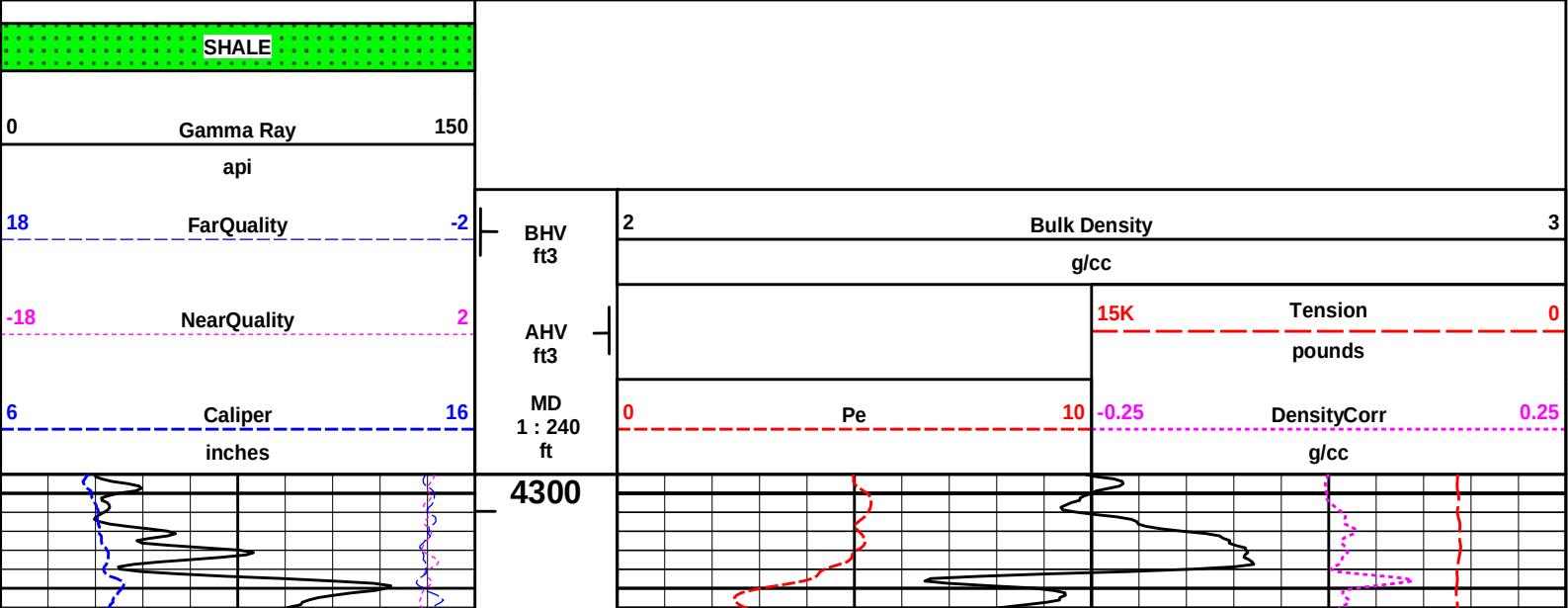
5 INCH MAIN LOG

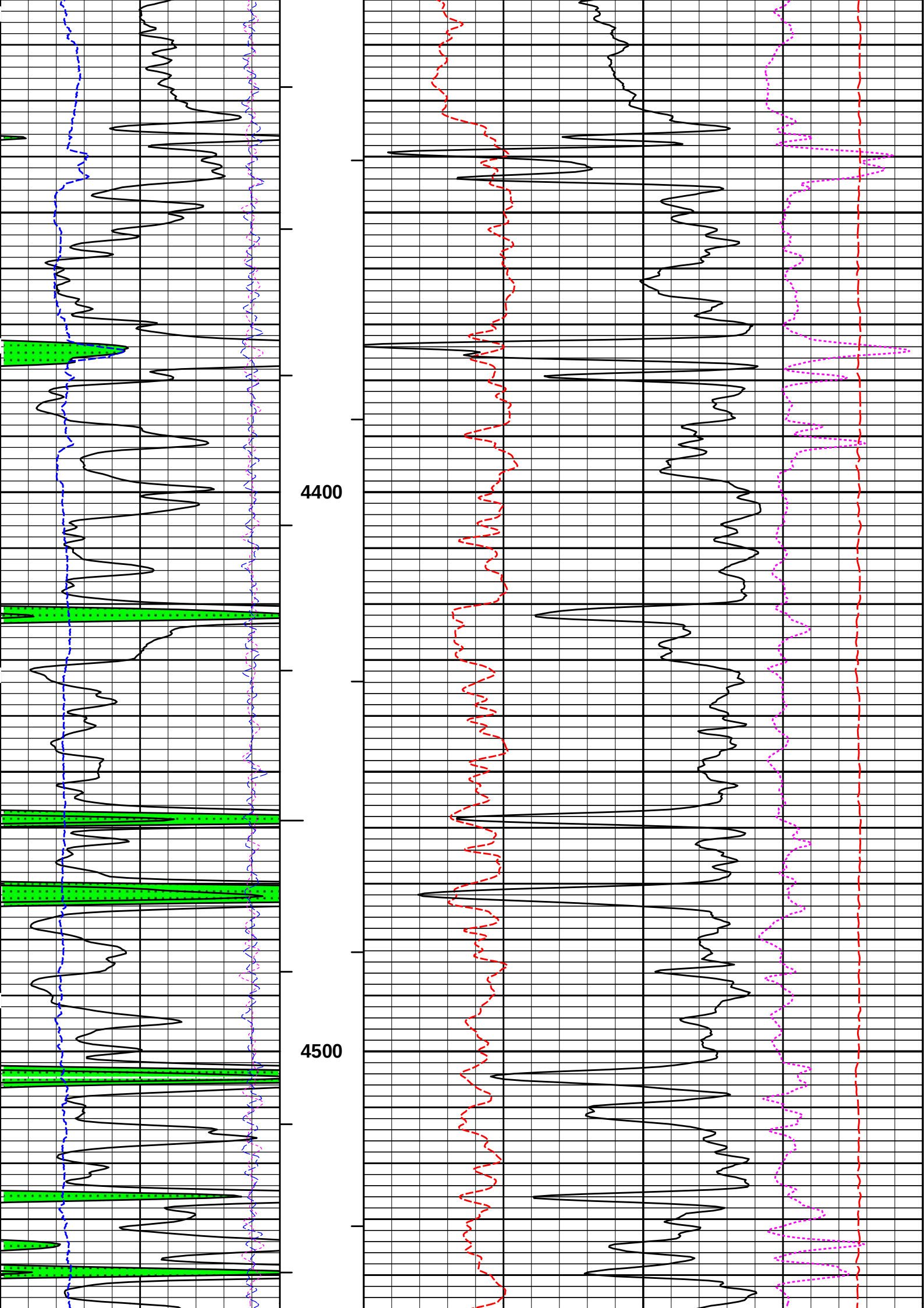
MEASURED DEPTH
MAIN SECTION 5" PER 100'

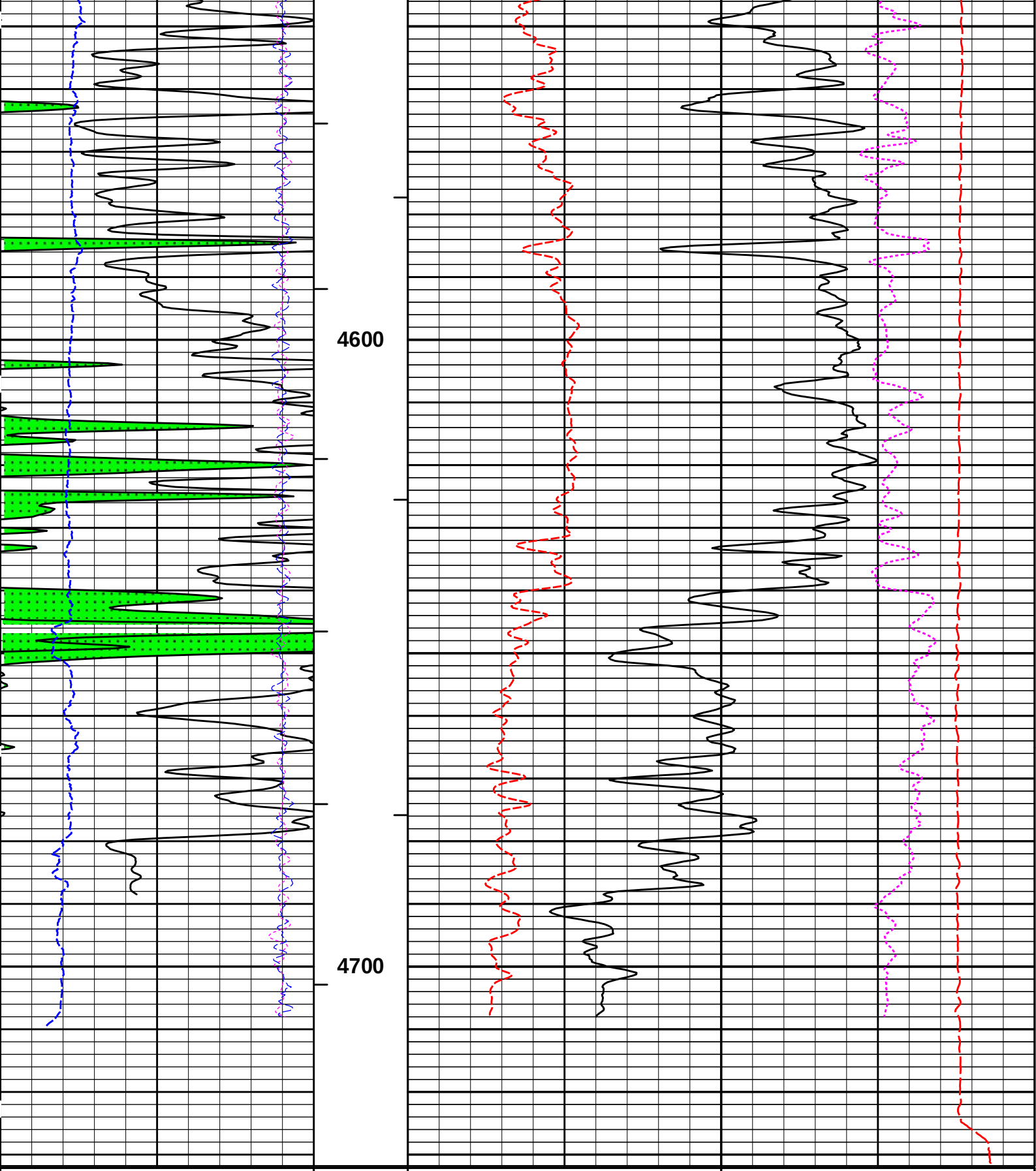
HALLIBURTON

Plot Time: 02-Oct-16 02:42:15
Plot Range: 4298 ft to 4731.83 ft
Data: ROSE_5-1\Well Based\REPEAT\
Plot File: \\-LOCAL-\ROSE_5-1\Well Based\POROSITY\BULKD_5_REP_LIB

REPEAT SECTION




4400
4500



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

HALLIBURTON

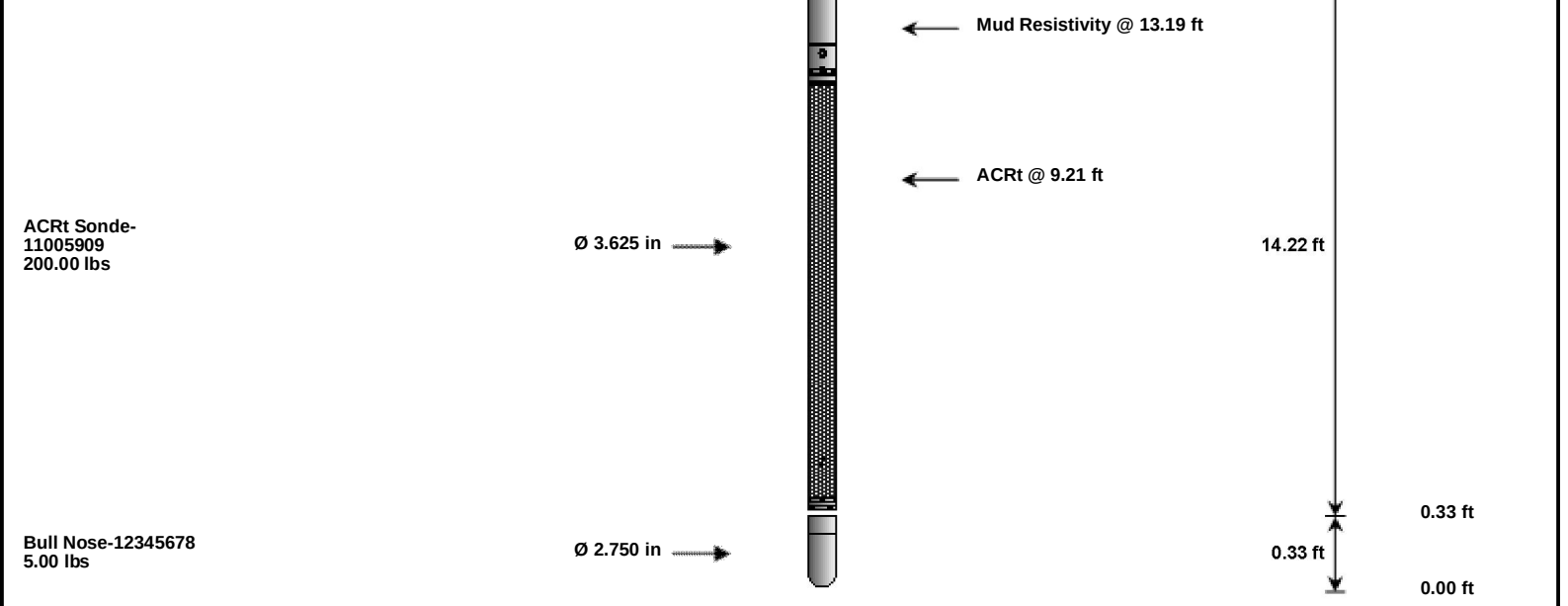
Plot Time: 02-Oct-16 02:42:17
Plot Range: 4298 ft to 4731.83 ft
Data: ROSE_5-1\Well Based\REPEAT\
Plot File: \\-LOCAL-\ROSE_5-1\Well Based\POROSITY\BULKD_5_REP_LIB

REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
						56.32 ft
CH_HOS-00000025 37.50 lbs		Ø 2.750 in		Temperature @ 55.29 ft	3.03 ft	
						53.29 ft
XOHD-12345678 20.00 lbs		Ø 2.750 in Ø 3.625 in			0.95 ft	
						52.34 ft
SP Sub-11441455 60.00 lbs		Ø 3.625 in		SP @ 50.56 ft	3.74 ft	
				Z-Accelerometer @ 48.15 ft		48.60 ft
GTET-11048627 165.00 lbs		Ø 3.625 in			8.52 ft	
				GammaRay @ 42.54 ft		
						40.08 ft
DSNT-11019643 174.00 lbs	DSN Decentralizer-11019643 6.60 lbs	Ø 5.000 in* Ø 3.625 in		DSN Far @ 33.15 ft DSN Near @ 32.40 ft	9.69 ft	
						30.40 ft
SDLT-10950489 360.00 lbs	SDLT Pad-10809130 65.00 lbs Microlog Pad-10950489 8.00 lbs	Ø 4.500 in Ø 4.500 in* Ø 4.750 in*		Microlog @ 22.58 ft SDL Caliper @ 22.40 ft SDL @ 22.39 ft	10.81 ft	
						19.58 ft
ACRt Instrument-11022962 50.00 lbs	Centralizer 25-12345679 8.00 lbs	Ø 4.000 in* Ø 3.625 in			5.03 ft	
						14.55 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	00000025	37.50	3.03		53.29	300.00
XOHD	Hostile to Dits Cross Over	12345678	20.00	0.95		52.34	300.00
SP	SP Sub	11441455	60.00	3.74		48.60	300.00
GTET	Gamma Telemetry Tool	11048627	165.00	8.52		40.08	60.00
DSNT	Dual Spaced Neutron	11019643	174.00	9.69		30.40	60.00
DCNT	DSN Decentralizer	11019643	6.60	5.13	*	33.73	300.00
SDLT	Spectral Density Tool	10950489	360.00	10.81		19.58	60.00
SDLP	Density Insite Pad	10809130	65.00	2.55	*	21.79	60.00
MICP	Microlog Pad	10950489	8.00	1.00	*	22.08	60.00
ACRt	Array Compensated True Resistivity Instrument Section	11022962	50.00	5.03		14.55	120.00
OBCEN	Centralizer - 25 in. Overbody	12345679	8.00	2.08	*	16.09	300.00
ACRt	Array Compensated True Resistivity Sonde Section	11005909	200.00	14.22		0.33	120.00
BLNS	Bull Nose	12345678	5.00	0.33		0.00	300.00
Total			**1,159.10**	**56.32**			

* Not included in Total Length and Length Accumulation.

Data: ROSE_5-1\0001 GTET-DSN-SDL-ACRT\IDLE **Date: 02-Oct-16 00:30:38**

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	9.800	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	0.748	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	4730.00	ft
	SHARED	BHT	Bottom Hole Temperature	123.0	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	
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	0.58	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	
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	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	DNTT	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	
Microlog Pad	MLOK	Process MicroLog 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	
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	RMAX	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	
ACRt Sonde	MBFL	Apply Corkscrew Effect?	No	

BOTTOM

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	**GTET - 11048627**	**Reference Calibration Date:**	**25-Jul-16 10:06:29**
Engineer:	**MICHAEL RICHTER**	**Calibration Date:**	**19-Sep-16 03:51:24**
Software Version:	**WL INSITE R5.0.5 (Build 8)**	**Calibration Version:**	**1**

Calibrator Source S/N: TB-146

Calibrator API Reference:265.00 api

Equivalent Calibrator API Reference:269.6 api

Measurement	Measured	Calibrated	Units
Background	48.3	49.7	api
Background + Calibrator	310.1	319.4	api
Calibrator	261.8	269.6	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name:	**GTET - 11048627**	**Reference Calibration Date:**	**19-Sep-16 03:51:24**
Engineer:	**MICHAEL RICHTER**	**Calibration Date:**	**19-Sep-16 03:55:07**
Software Version:	**WL INSITE R5.0.5 (Build 8)**	**Calibration Version:**	**1**

Calibrator Source S/N: TB-146

Calibrator API Reference:265.00 api

Equivalent Calibrator API Reference:269.6 api

Field Verification	Shop	Field	Units
Background	49.7	49.4	api
Background + Calibrator	319.4	321.6	api
Calibrator	269.6	272.2	api

Shop	Field	Difference	Tolerance
269.6	272.2	-2.6	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	**DSNT - 11019643**	**Reference Calibration Date:**	**25-Jul-16 13:05:22**
Engineer:	**COTHREN**	**Calibration Date:**	**29-Aug-16 10:19:59**
Software Version:	**WL INSITE R5.0.5 (Build 8)**	**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: 79 degF

Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS			
Measurement	**Prev. Value**	**New Value**	**Control Limit On New Value**
Gain:	0.99590	0.99664	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):	0.2355	0.2358	0.0002	+/- 0.0020
Calibrated Ratio:	10.5518	10.5597	0.008	+/- 0.050

VERIFIER		
Measurement	**Value**	**Control Limit**
Snow-Block Porosity (decp):	0.0788	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:**	**29-Aug-16 10:19:59**
Engineer:	**MICHAEL RICHTER**	**Calibration Date:**	**19-Sep-16 04:20:18**
Software Version:	**WL INSITE R5.0.5 (Build 8)**	**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):	0.0788	0.0747	-0.0040	+/- 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:**	**16-Jun-16 11:07:12**
Engineer:	**COTHREN**	**Calibration Date:**	**25-Jul-16 09:22:10**
Software Version:	**WL INSITE R5.0.0 (Build 4)**	**Calibration Version:**	**1**
Host Tool Name:	**DSNT - 11019643**		

CALIBRATION COEFFICIENTS			
Measurement	**Previous Value**	**New Value**	**Control Limit On New Value**
Pad Offset	-3798.26	-3922.84	-7000.00 - -1000.00
Pad Gain	0.0003847	0.0003897	0.0002000 - 0.0006000
Arm Offset	-3606.28	-3528.51	-5000.00 - 3000.00
Arm Gain	0.0004697	0.0004727	0.000300 - 0.000700
Arm Power	-0.000002187	-0.000002590	-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)	2.02	2.00	-0.02	+/- 0.20
Medium Ring (in)	3.75	3.75	0.00	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.50	6.50	0.00	+/- 0.20
Medium Ring (in)	8.25	8.25	0.00	+/- 0.20
Large Ring (in)	15.05	15.00	-0.05	+/- 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:**	**25-Jul-16 09:22:10**
Engineer:	**COTHREN**	**Calibration Date:**	**31-Aug-16 13:24:18**

Software Version: WL INSITE R5.0.0 (Build 4) **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	8.25	0.00	+/- 0.15

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

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name: SDLT Pad - 10809130 **Reference Calibration Date:** 20-Sep-16 18:52:33

Engineer: MICHAEL RICHTER **Calibration Date:** 20-Sep-16 19:12:21

Software Version: WL INSITE R5.0.5 (Build 8) **Calibration Version:** 1

Logging Source S/N: 5168GW

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	1.0161	1.0173	0.90 - 1.10
Near Dens Gain	1.0063	1.0121	0.90 - 1.10
Near Peak Gain	1.0263	1.0331	0.90 - 1.10
Near Lith Gain	1.0105	1.0195	0.90 - 1.10
Far Bar Gain	1.0085	1.0081	0.90 - 1.10
Far Dens Gain	0.9965	0.9977	0.90 - 1.10
Far Peak Gain	0.9924	0.9943	0.90 - 1.10
Far Lith Gain	0.9660	0.9686	0.90 - 1.10
Near Bar Offset	0.1282	0.1180	NONE
Near Dens Offset	0.2103	0.1594	NONE
Near Peak Offset	0.0408	-0.0167	NONE
Near Lith Offset	0.1030	0.0282	NONE
Far Bar Offset	0.1030	0.1076	NONE
Far Dens Offset	0.1909	0.1806	NONE
Far Peak Offset	0.1805	0.1648	NONE
Far Lith Offset	0.3081	0.2908	NONE
Near Bar Background	766.30	767.24	700 - 1450
Near Dens Background	249.77	248.74	230 - 480
Near Peak Background	108.31	108.16	100 - 210
Near Lith Background	137.31	136.46	125 - 260
Far Bar Background	489.41	488.55	450 - 900
Far Dens Background	189.75	189.17	175 - 345
Far Peak Background	74.26	73.67	70 - 140
Far Lith Background	76.56	77.78	75 - 145

CALIBRATION BLOCK SUMMARY				
Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.686	1.686	-0.000	+/- 0.015
Pe	2.568	2.566	-0.002	+/- 0.150
ALUMINUM				
Density (g/cc)	2.580	2.580	-0.000	+/- 0.01500
Pe	3.129	3.140	0.011	+/- 0.150

TOOL SUMMARY				
Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0002	+/- 0.0110	0.0011	+/- 0.0140
Magnesium Block	-0.0002	+/- 0.0110	-0.0011	+/- 0.0140
Aluminum Block	-0.0005	+/- 0.0110	-0.0013	+/- 0.0140
Resolution	8.93	6.00 - 11.50	9.26	6.00 - 11.50
Internal Verifier(B+D+P+L)	1261	1200 - 2700	829	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 - 10809130
Reference Calibration Date: 20-Sep-16 19:12:21
Engineer: MICHAEL RICHTER
Calibration Date: 20-Sep-16 19:25:09
Software Version: WL INSITE R5.0.5 (Build 8)
Calibration Version: 1

Pad Temperature: 98.6 degF

DENSITY FIELD CALIBRATION SUMMARY				
Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1260.593	1263.897	3.304	14.390
Far (B+D+P+L) cps	829.172	828.619	-0.553	15.859
Near Resolution	8.93	8.95	0.020	0.50
Far Resolution	9.26	9.34	0.080	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	272.2	----------	-2.6	+/- 9.00	api
DSNT-11019643						
Snow-Block Porosity	0.0788	0.0747	----------	0.0041	+/- 0.0150	decp
SDLT-10950489						
Pad Extension	3.75	3.75	----------	0.00	+/-0.10	in
Ring Diameter	8.25	8.25	----------	0.00	+/-0.15	in
SDLT Pad-10809130						
Near(B+D+P+L)	1260.593	1263.897	----------	-3.304	+/-14.390	cps
Far(B+D+P+L)	829.172	828.619	----------	0.553	+/-15.859	cps

Data: ROSE_5-1\0001 GTET-DSN-SDL-ACRT\IDLE **Date: 02-Oct-16 00:32:10**

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	56.32	NO	
BS	Bit Size	56.32	NO	
HDIA	Measured Hole Diameter	0.00	NO	
	CH_HOS			
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	
	Microlog Pad			
TPUL	Tension Pull	22.58	NO	
MINV	Microlog Lateral	22.58	BLK	0.750
MNOR	Microlog Normal	22.58	BLK	0.750
	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	

Data: ROSE_5-1\0001 GTET-DSN-SDL-ACRT\IDLE **Date: 02-Oct-16 00:31:17**

COMPANY	**HARTMAN OIL CO., INC**		
WELL	**ROSE #5-1**		
FIELD	**AMERICAN BEAUTY**		
COUNTY	**WICHITA**	STATE	**KANSAS**

HALLIBURTON

DUAL SPACED NEUTRON SPECTRAL DENSITY LOG