HALLIBURTON

SPECTRAL DENSITY DUAL SPACED NEUTRON LOG

COMPANY	QUAIL OIL & GAS
WELL	STOPPEL 1-8
FIELD/BLOCK	WISBY
COUNTY	RENO
STATE	KANSAS

API No. 15-155-21736-00-00

Location (SHL) 535' FNL & 1650' FEL
S2 NE NW NE

Sect. 8 Twp. 22S Rge. 9W

Other Services:
SDLT
DSNT
MICROLOG
ACRT

Permanent Datum	GL	Elev. 1725.0 ft	Elev.: K.B. 1730.0 ft
Log measured from	KB	5.0 ft above perm. Datum	D.F. 1730.0 ft
Drilling measured from	KB		G.L. 1725.0 ft

Date		02-Jun-16	
Run No.		ONE	
Depth - Driller		3720.0 ft	
Depth - Logger		3718.0 ft	
Bottom - Logged Interval		3718.00 ft	
Top - Logged Interval		324.00 ft	
Casing - Driller		8.625 in @ 324.0 ft	@
Casing - Logger		324.0 ft	
Bit Size		7.875 in	@
Type Fluid in Hole		Water Based Mud	
Density	Viscosity	9.4 ppg / 54.00 s/qt	
PH	Fluid Loss	11.00 pH / 8.8 cptm	
Source of Sample		FLOWLINE	
Rm @ Meas. Temperature		0.51 ohmm @ 95.00 degF	@
Rmf @ Meas. Temperature		0.43 ohmm @ 70.00 degF	@
Rmc @ Meas. Temperature		0.63 ohmm @ 70.00 degF	@
Source Rmf	Rmc	MEASURED / MEASURED	
Rm @ BHT		0.48 ohmm @ 102.0 degF	@
Time Since Circulation		3.0 hrs hr	
Time on Bottom		02-Jun-16 20:42	
Max. Rec. Temperature		102.00 degF @ 3718.0 ft	@
Equipment	Location	12156883 / EL RENO	
Recorded By		COTHREN	
Witnessed By		WRAY VALENTINE	

Fold here

Service Ticket No.: 903345423

API No.: 15-155-21736-00-00

PGM Version: WL INSITE R5.0.0 (Build 4)

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE

RESISTIVITY SCALE CHANGES

	Sample No.	Type Log	Depth	Scale Up Hole	Scale Down Hole
Date					
Depth-Driller					
Type Fluid in Hole					
Density / Viscosity					
Ph / Fluid Loss					
Source of Sample					
Rm @ Meas. Temp	@				
Rmf @ Meas. Temp.	@				
Rmc @ Meas. Temp.	@				
Source Rmf / Rmc					
Rm @ BHT	@				
Rmf @ BHT	@				
Rmc @ BHT	@				

RESISTIVITY EQUIPMENT DATA

	Run No.	Tool Type & No.	Pad Type	Tool Pos.	Other
	@				
	@				
	@				
	@				
	@				
	@				

EQUIPMENT DATA

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.		Run No.	ONE	Run No.	ONE
Serial No.	138	Serial No.		Serial No.	315	Serial No.	641
Model No.	GTET	Model No.		Model No.	SDLT	Model No.	DSNT
Diameter	3.625"	No. of Cent.		Diameter	4.	Diameter	3.625"
Detector Model No.	A-102	Spacing		Log Type	GAM-GAM	Log Type	NEU-NEU
Type	SCINT.			Source Type	Cs 137	Source Type	AMBe 241
Length	8"	LSA [Y/N]		Serial No.	5577GW	Serial No.	DSN 373
Distance to Source	10'	FWDA [Y/N]		Strength	1.78 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	CSG	REC	0	150				30	-10	2.71	30	-10	LIME

DIRECTIONAL INFORMATION

Maximum Deviation	@	KOP	@

Remarks: THANKS FOR USING HALLIBURTON ENERGY SERVICES.

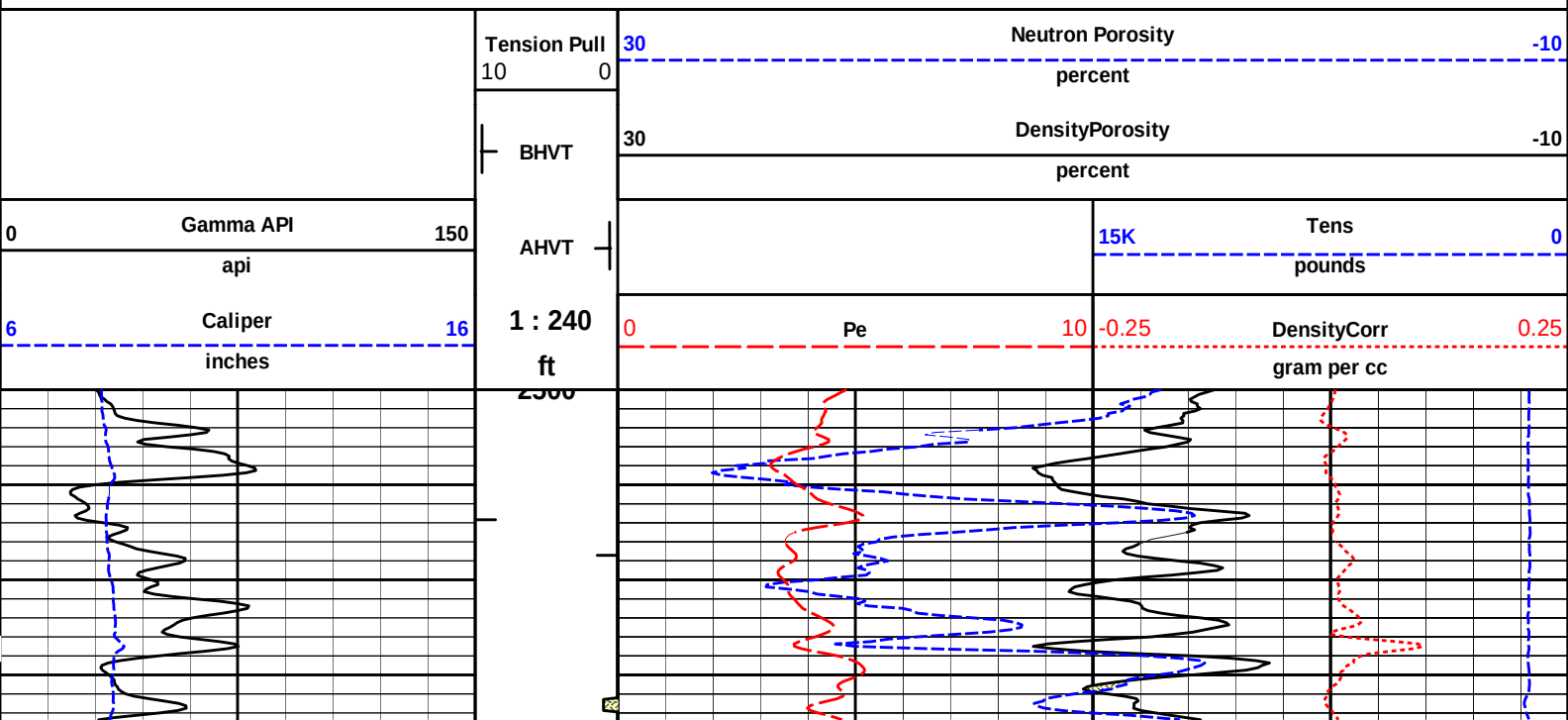
ANNULAR HOLE VOLUME CALCULATED FOR 5.5 INCH CASING.

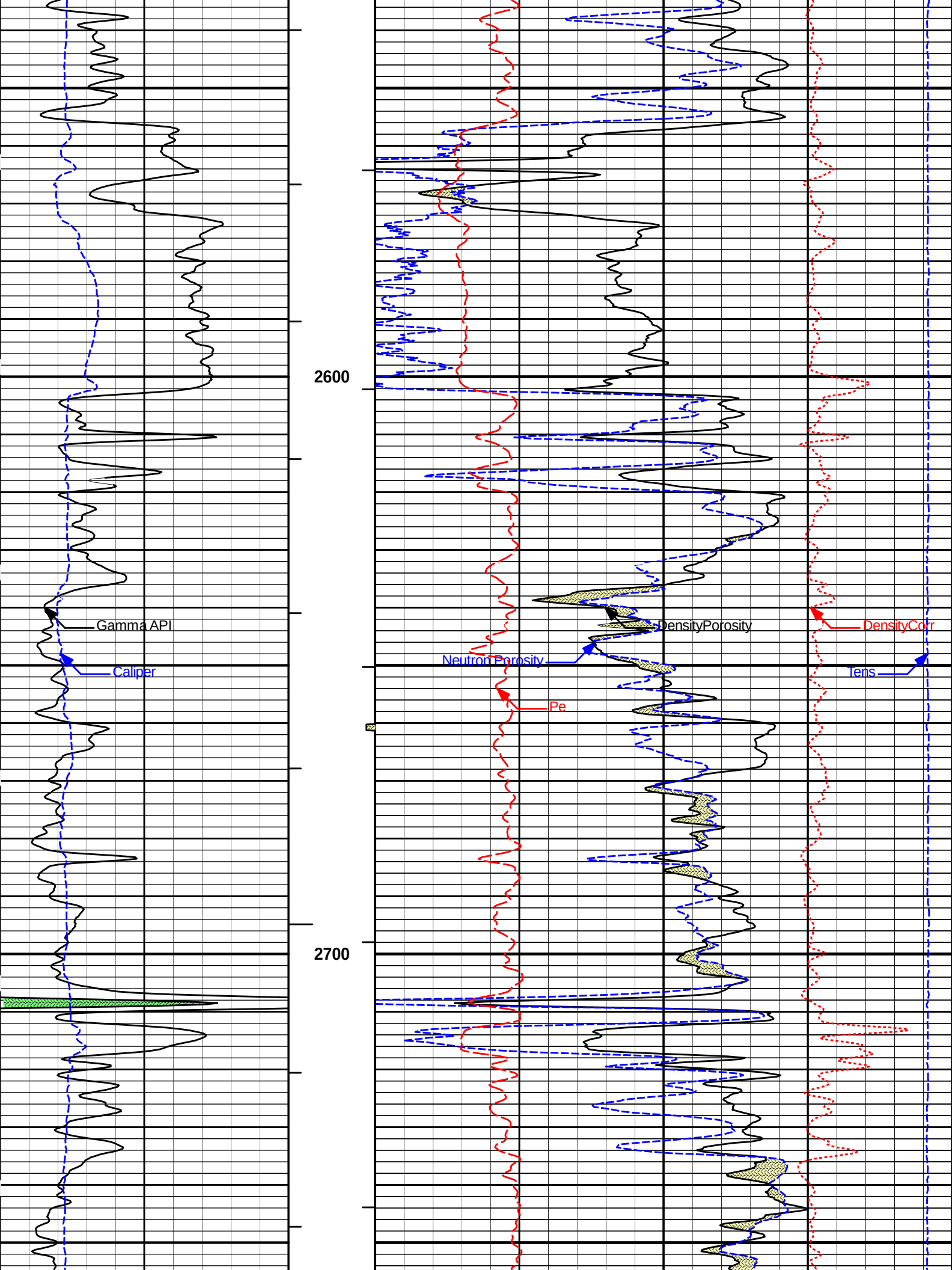
CHLORIDES REPORTED AT 6500 mg/L

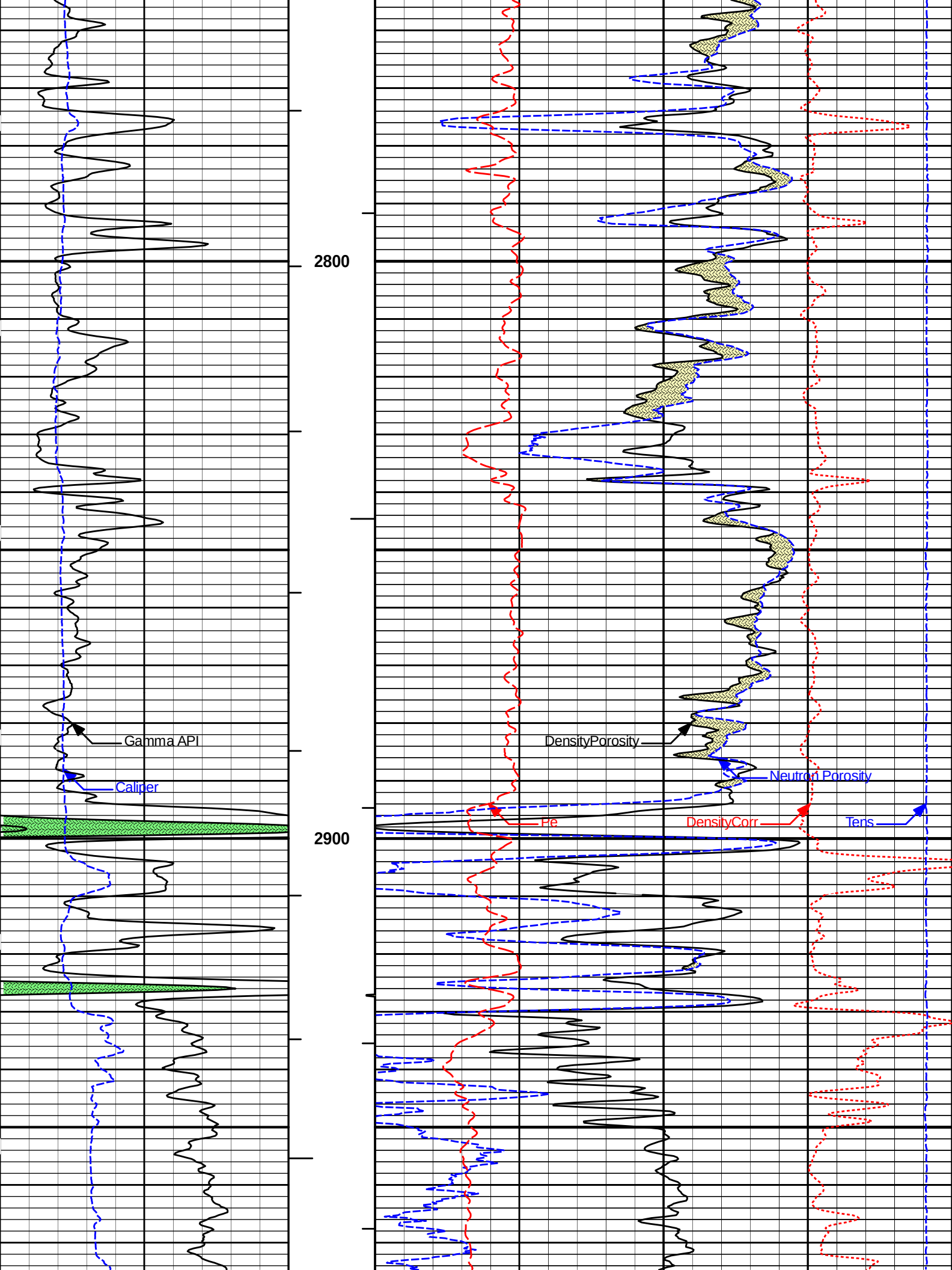
HALLIBURTON

Plot Time: 02-Jun-16 21:41:31
Plot Range: 2500 ft to 3720.83 ft
Data: {ActiveWell}\Well Based\DAQ-0001-003
Plot File: \\PORO\1_Poro_5_mainx

5 INCH MAIN LOG




2600
2700
Gamma API
Caliper
DensityPorosity
NeutronPorosity
Pe
DensityCorr
Tens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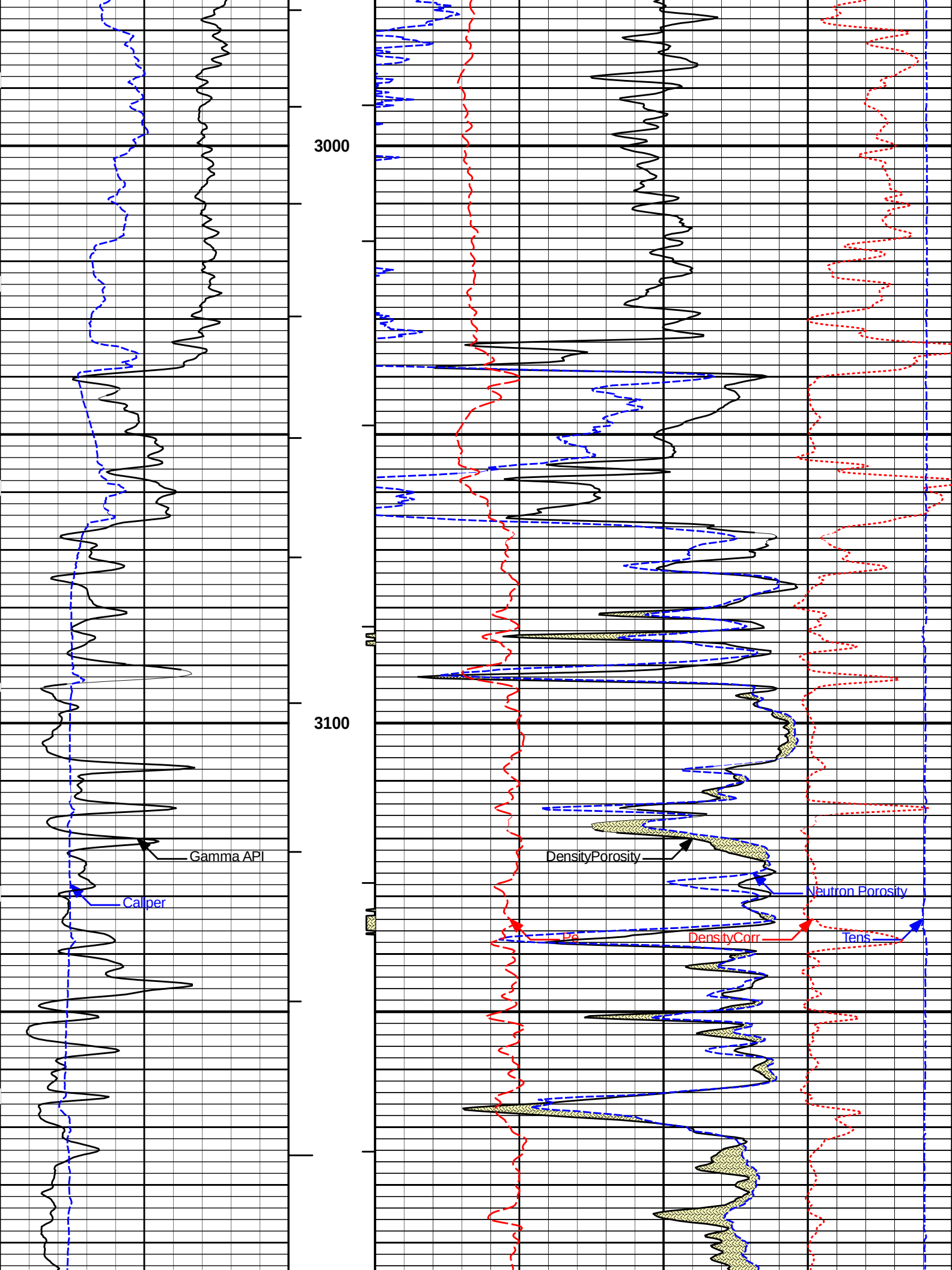
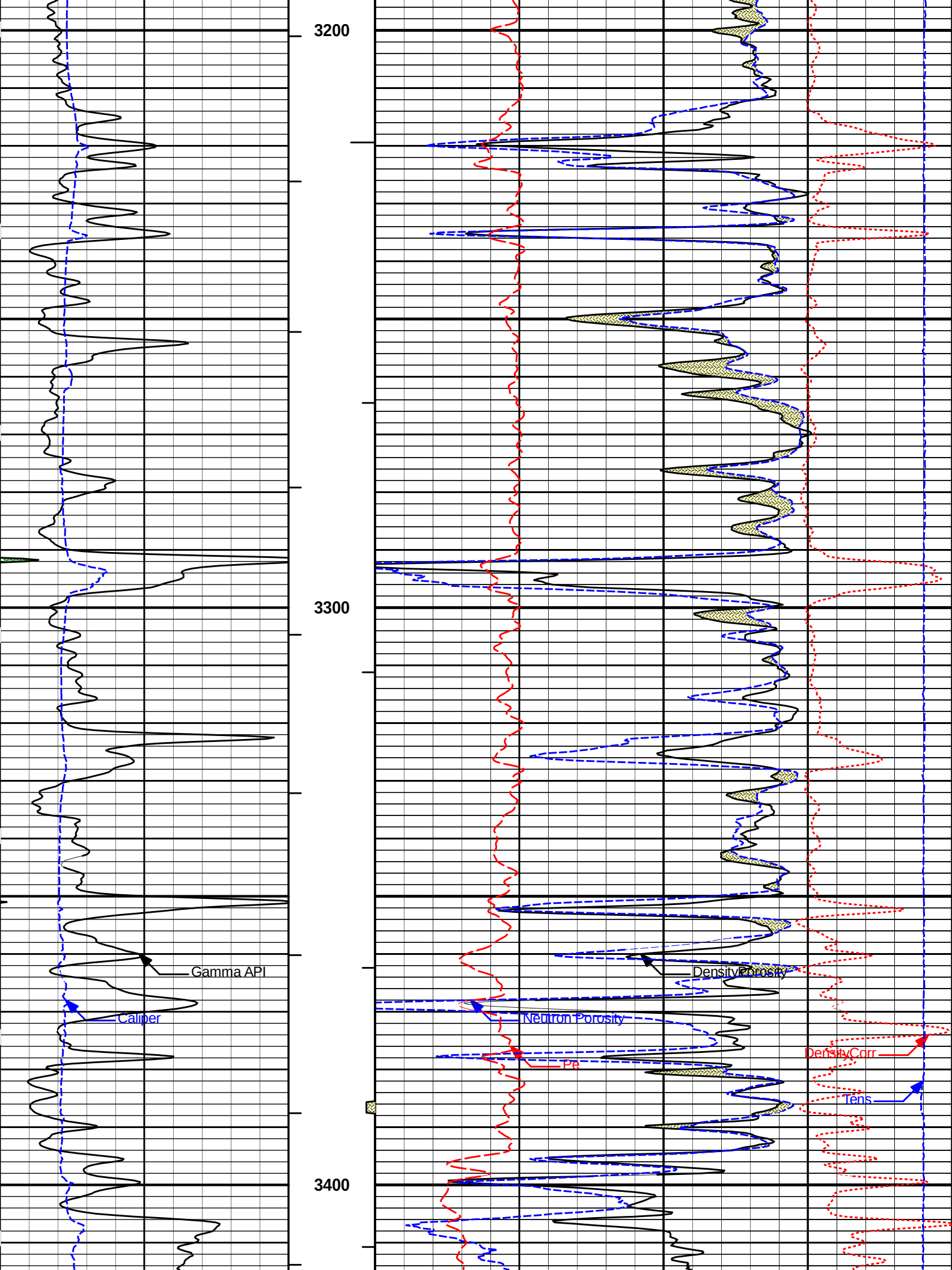
2900
Gamma API
Caliper
DensityPorosity
Neutron Porosity
Pe
DensityCorr
Tens


3000
3100
Gamma API
Caliper
DensityPorosity
Neutron Porosity
Pe
DensityCorr
Tens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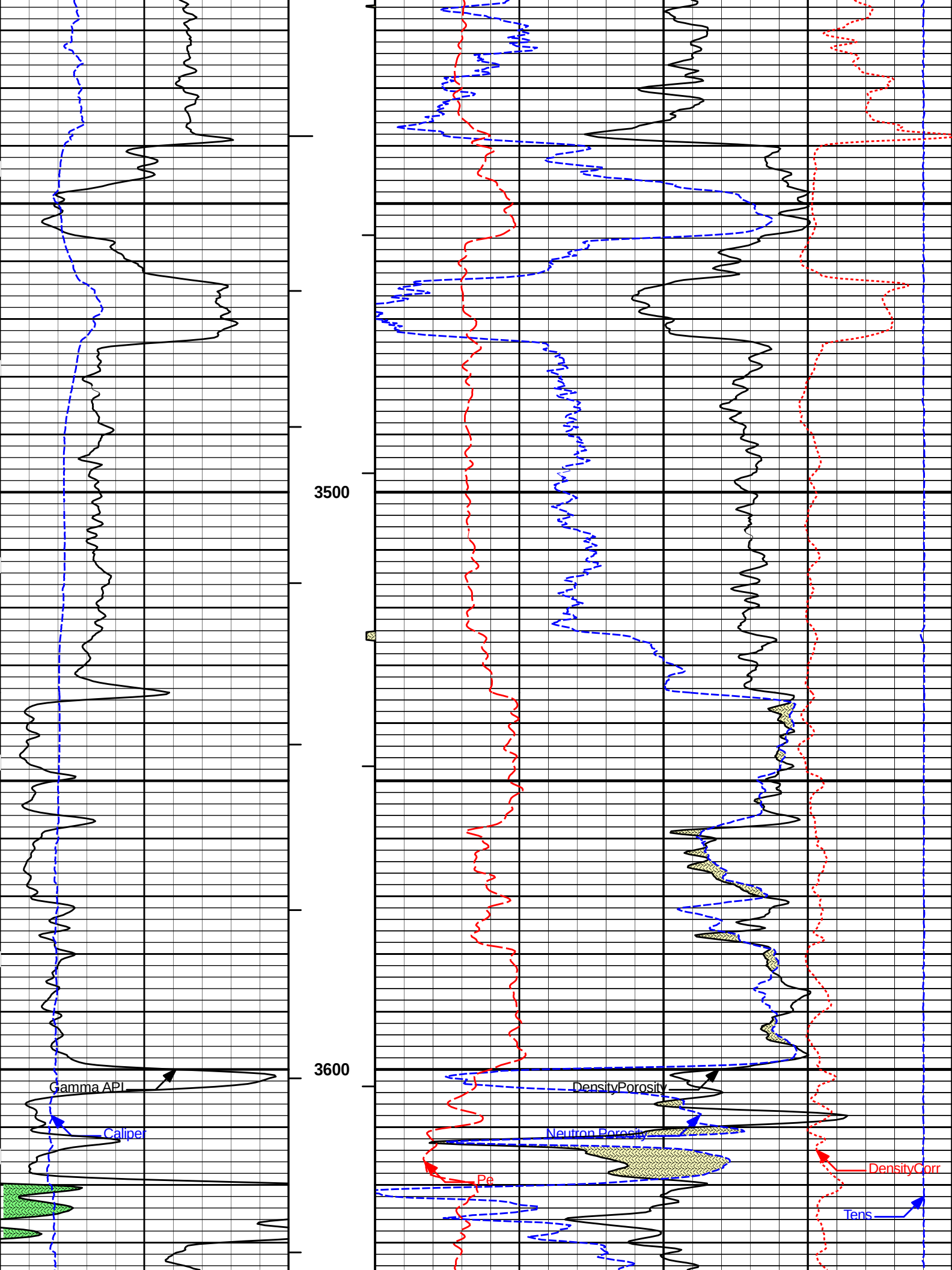
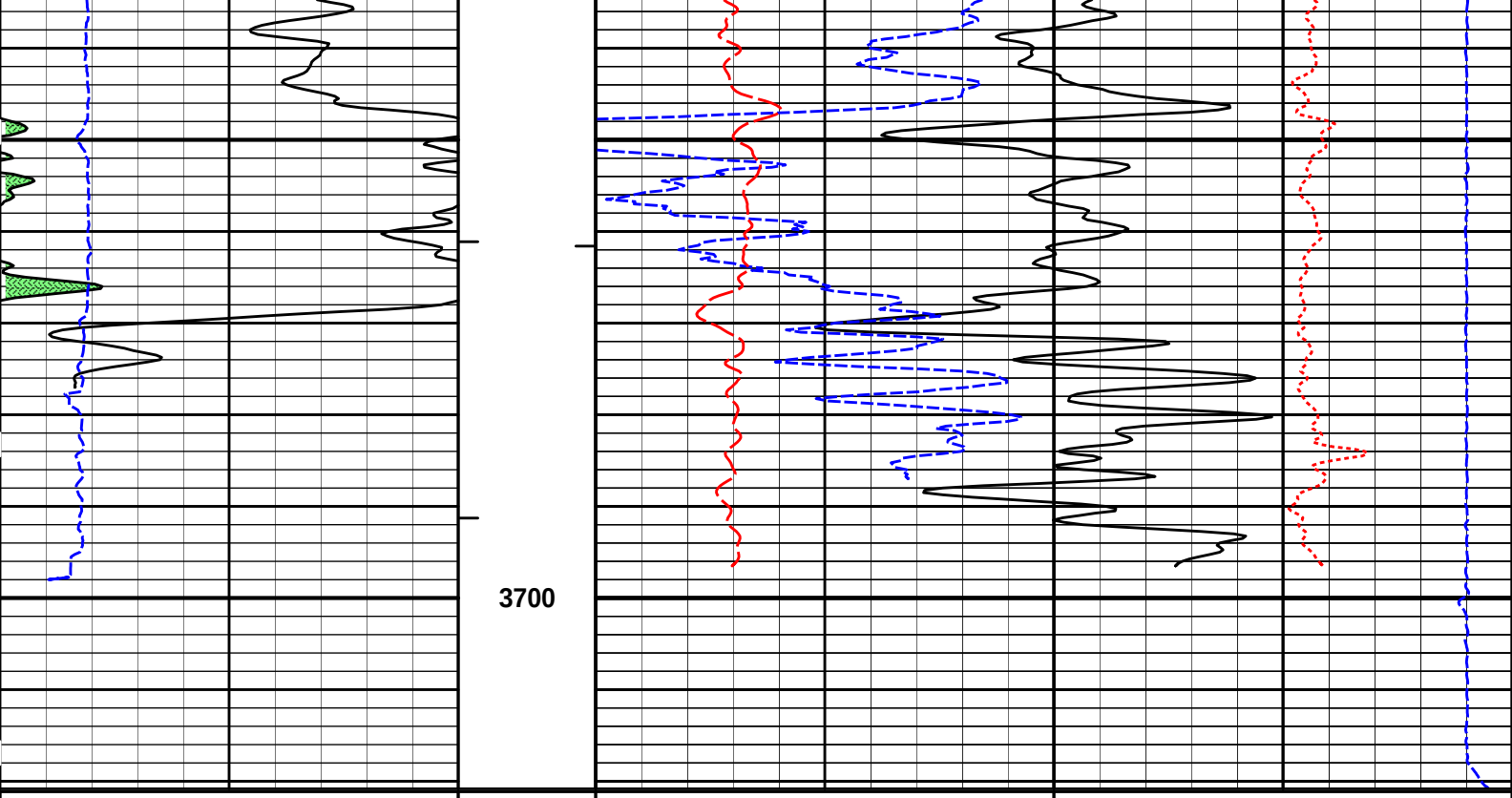
3300
3400
Gamma API
Caliper
DensityPorosity
Neutron Porosity
Pe
DensityCorr
Tens


3500
3600
Gamma API
Caliper
DensityPorosity
Neutron Porosity
Pe
DensityCorr
Tens



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

-0.25 DensityCorr 0.25 gram per cc	
15K Tens 0 pounds	
30 DensityPorosity -10 percent	
30 Neutron Porosity -10 percent	

HALLIBURTON

Plot Time: 02-Jun-16 21:41:32
Plot Range: 2500 ft to 3720.83 ft
Data: {ActiveWell}\Well Based\DAQ-0001-003\
Plot File: \\PORO\1_Poro_5_mainx

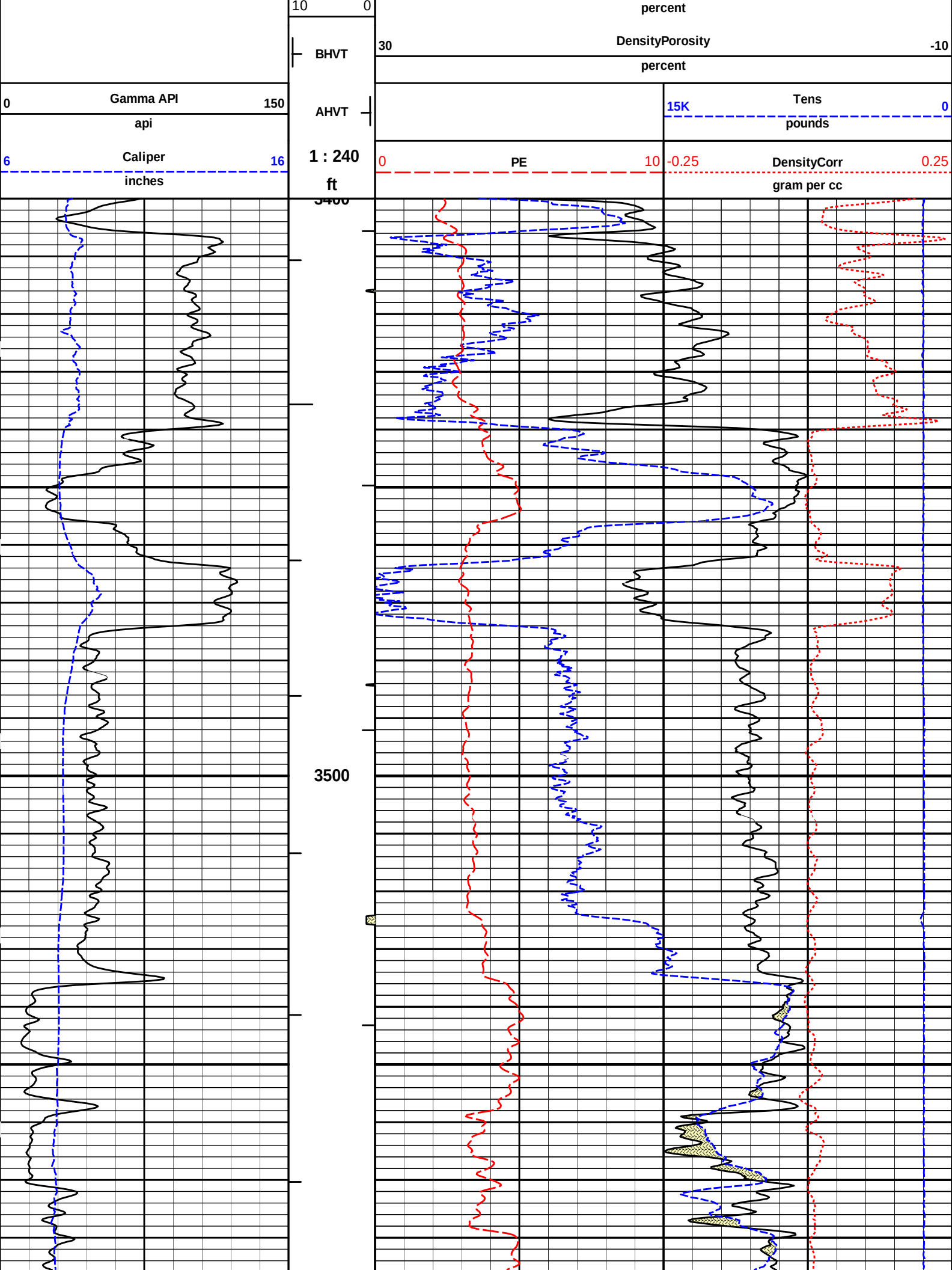
5 INCH MAIN LOG

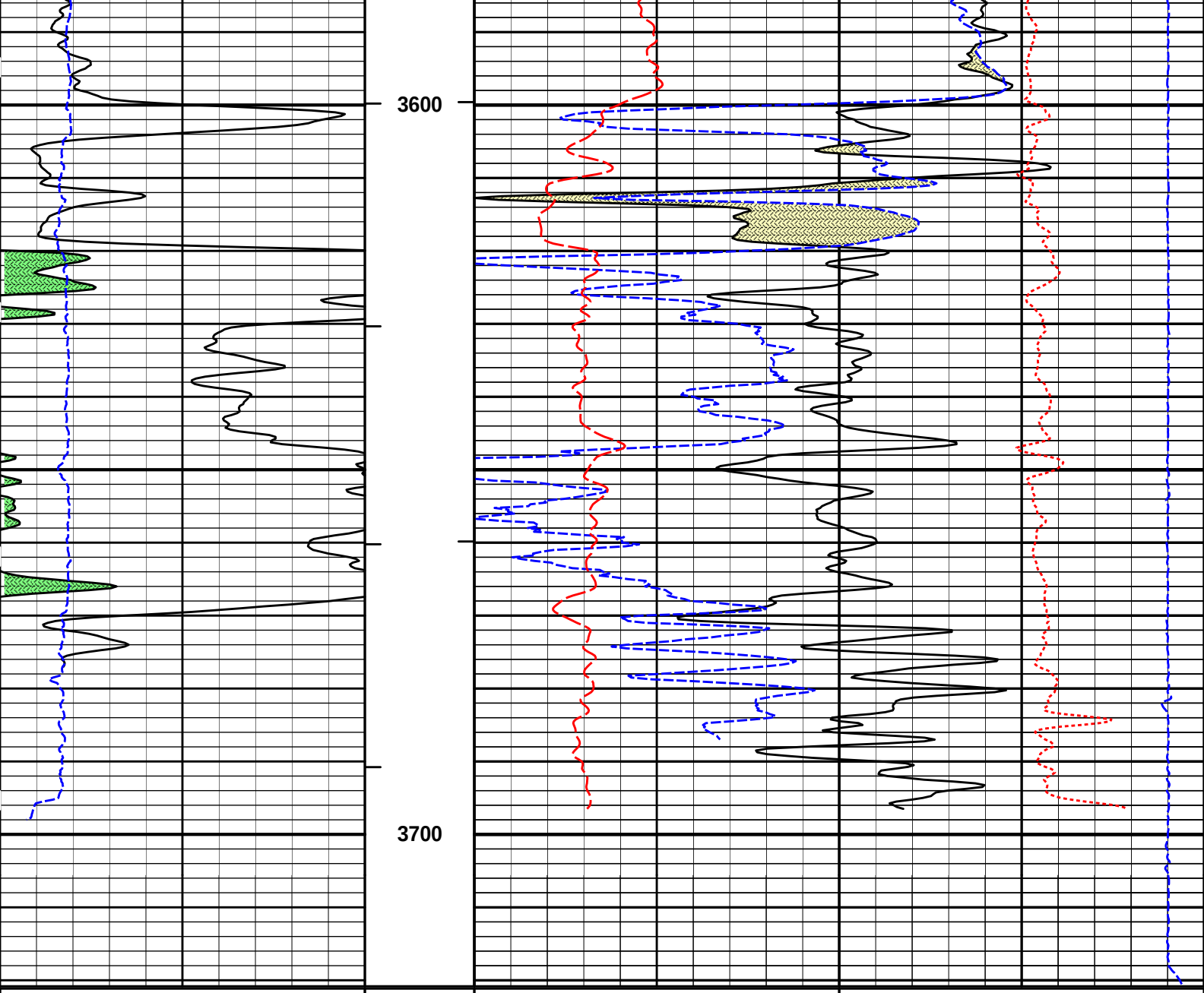
HALLIBURTON

Plot Time: 02-Jun-16 21:41:32
Plot Range: 3400 ft to 3720.83 ft
Data: {ActiveWell}\Well Based\DAQ-0001-002\
Plot File: \\PORO\1_Poro_5_rptx

REPEAT SECTION

Tension Pull
30 Neutron Porosity -10


10
0
percent
BHVT
30
DensityPorosity
-10
percent
Gamma API
0
150
api
AHVT
Tens
15K
0
pounds
Caliper
6
16
inches
1 : 240
ft
0
PE
10
-0.25
DensityCorr
0.25
gram per cc
3500



6 Caliper 16 inches	1 : 240 ft	0 PE 10 | -0.25 DensityCorr 0.25 gram per cc
0 Gamma API 150 api	AHVT	15K Tens 0 pounds
	BHVT	30 DensityPorosity -10 percent
	Tension Pull 10 0	30 Neutron Porosity -10 percent

HALLIBURTON

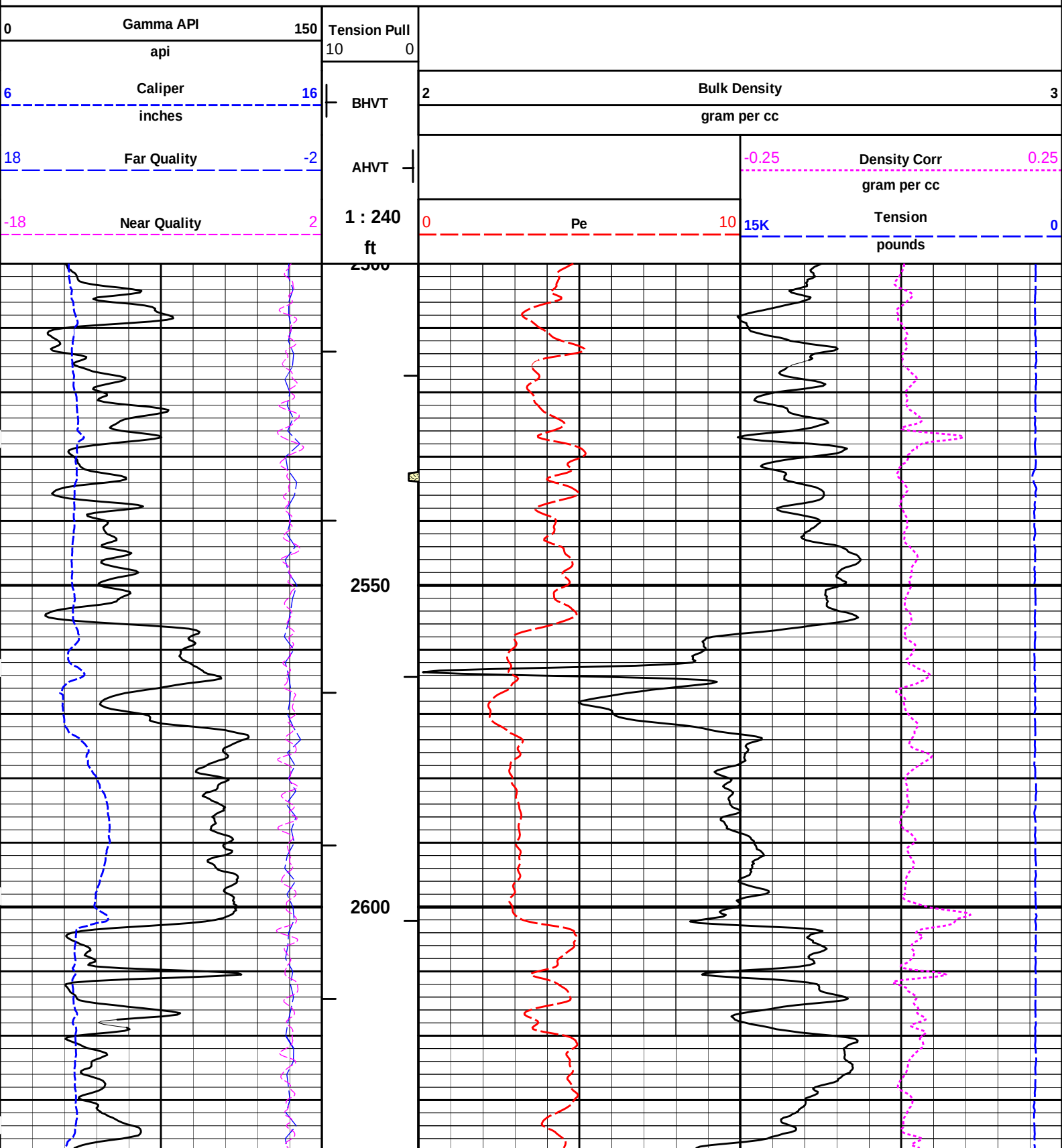
Plot Time: 02-Jun-16 21:41:34
Plot Range: 3400 ft to 3720.83 ft
Data: {ActiveWell}\Well Based\DAQ-0001-002\
Plot File: \\PORO\1_Poro_5_rptx

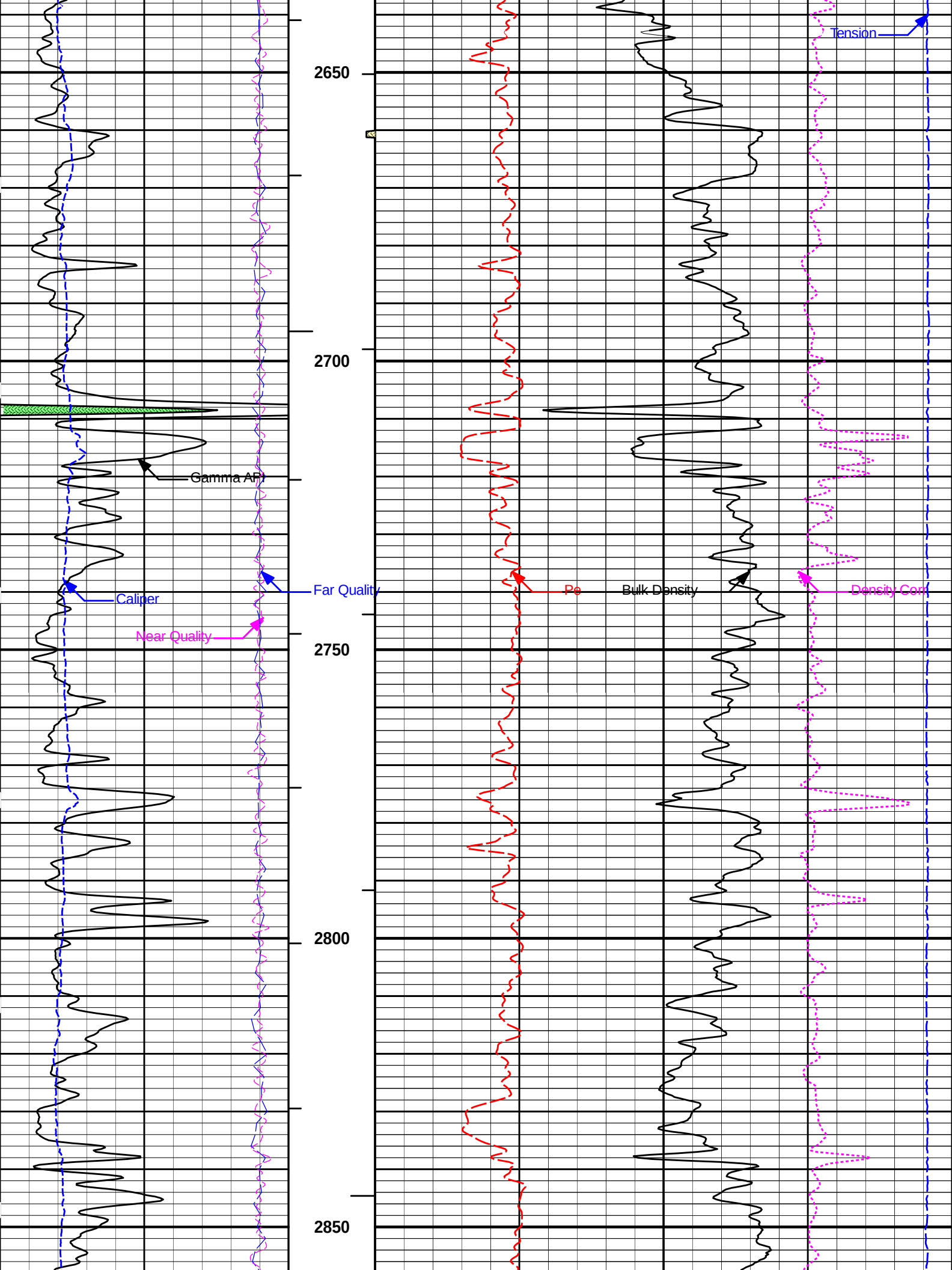
REPEAT SECTION

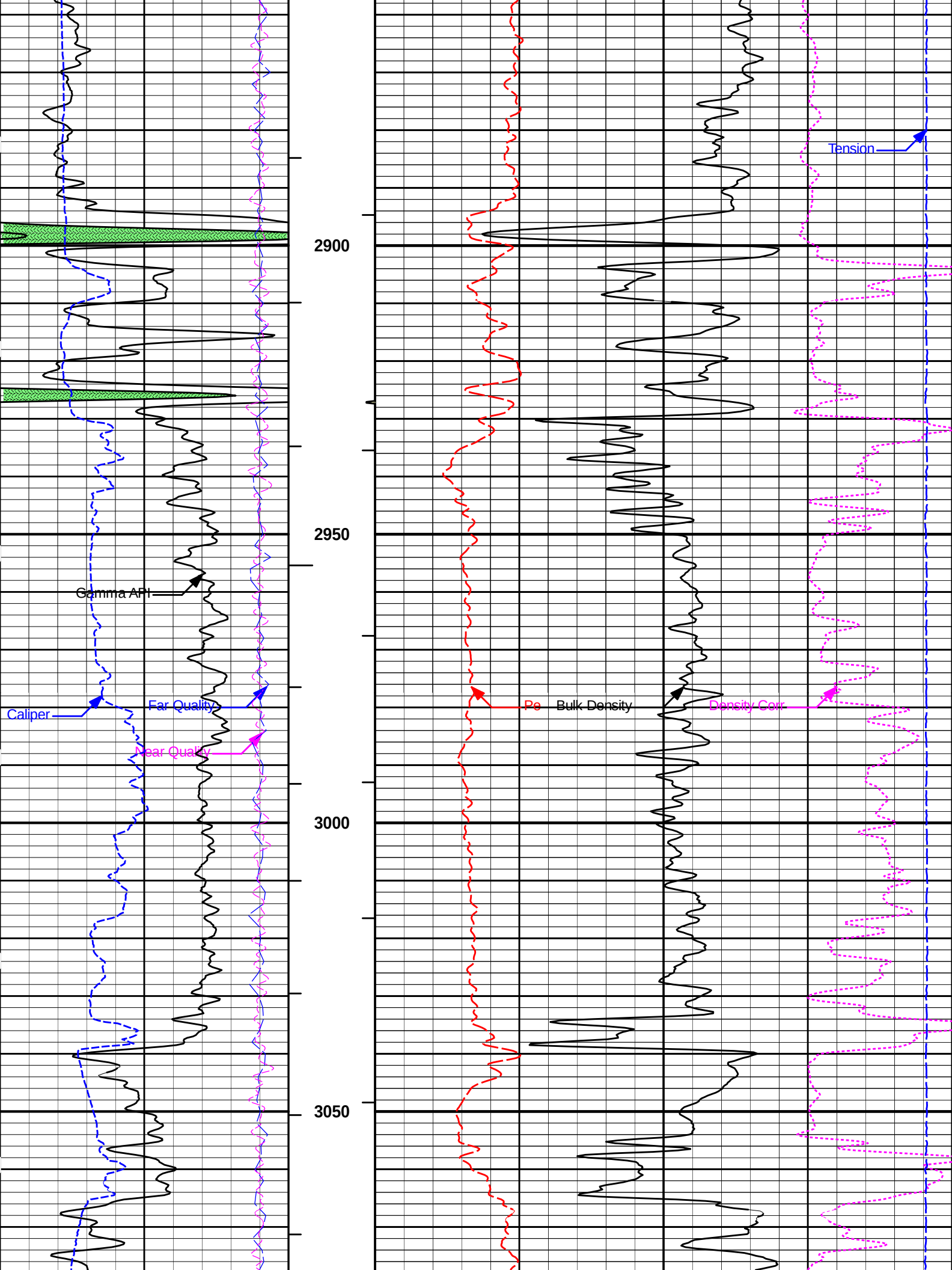
HALLIBURTON

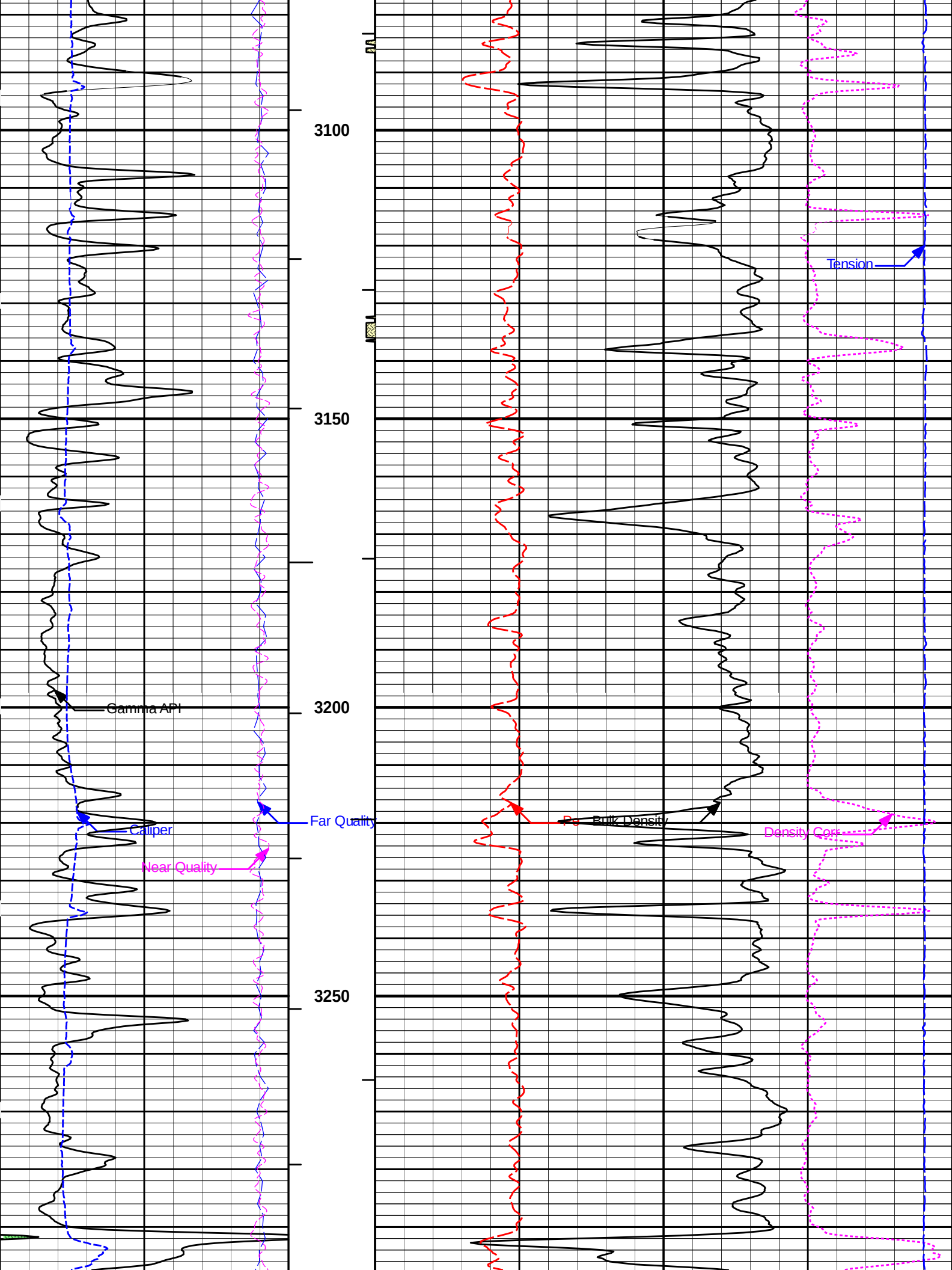
Plot Time: 02-Jun-16 21:41:34
Plot Range: 2500 ft to 3720.83 ft
Data: {ActiveWell}\Well Based\DAQ-0001-003\
Plot File: \\PORO\1_Bulk_5_mainx

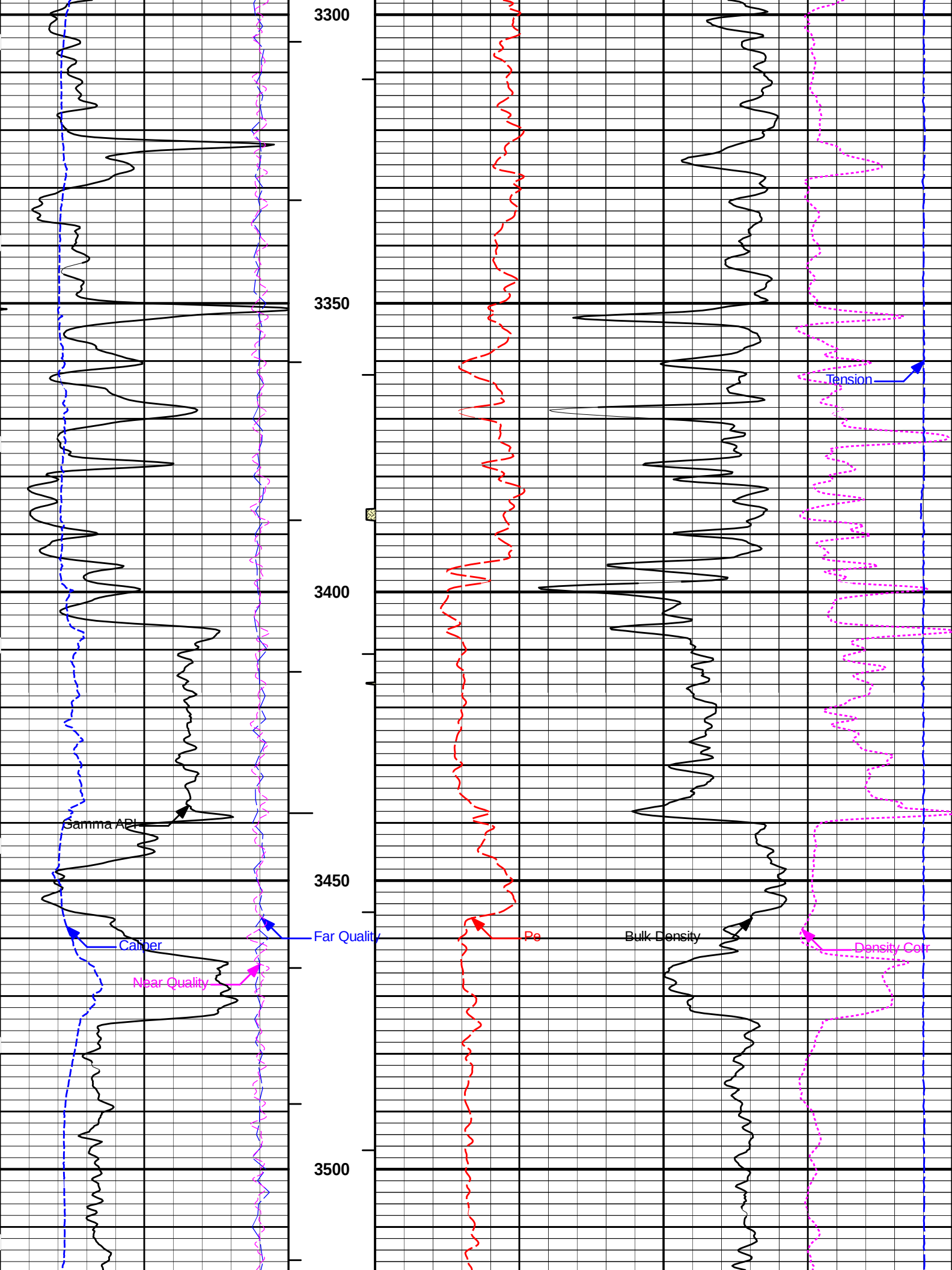
5 INCH MAIN LOG

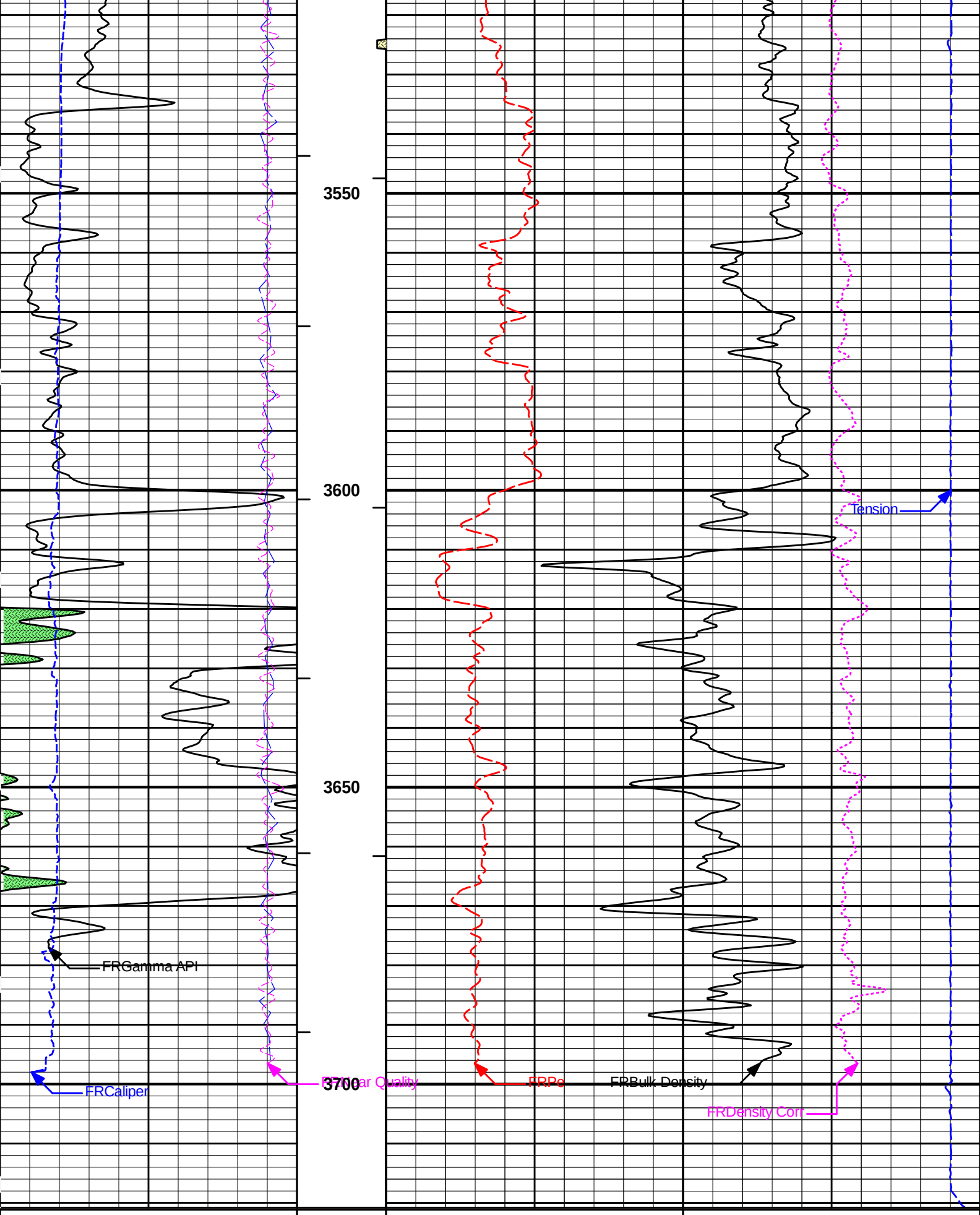



Tension
2650
2700
Gamma API
Caliper
Far Quality
Near Quality
Pe
Bulk Density
Density Corr
2750
2800
2850


2900
2950
3000
3050
Gamma API
Caliper
Far Quality
Near Quality
Pe
Bulk Density
Density Corr
Tension


3100
3150
3200
3250
Gamma API
Caliper
Near Quality
Far Quality
Rs
Bulk Density
Density Corr
Tension


3300
3350
3400
3450
3500
Gamma API
Caliper
Near Quality
Far Quality
Pe
Bulk Density
Tension
Density Corr



-18 Near Quality 2	1 : 240 ft	0 Pe 10	15K Tension 0 pounds	
18 Far Quality -2	AHVT		-0.25 Density Corr 0.25	

gram per cc

6 Caliper 16
inches

BHVT

2 Bulk Density 3
gram per cc

0 Gamma API 150
api

Tension Pull
10 0

HALLIBURTON

Plot Time: 02-Jun-16 21:41:36
Plot Range: 2500 ft to 3720.83 ft
Data: {ActiveWell}\Well Based\DAQ-0001-003\
Plot File: \\PORO\1_Bulk_5_mainx

5 INCH MAIN LOG

HALLIBURTON

Plot Time: 02-Jun-16 21:41:36
Plot Range: 3400 ft to 3720.83 ft
Data: {ActiveWell}\Well Based\DAQ-0001-002\
Plot File: \\PORO\1_Bulk_5_rptx

REPEAT SECTION

0 Gamma API 150
api

6 Caliper 16
inches

18 Far Quality -2

-18 Near Quality 2

2 Bulk Density 3
gram per cc

Tension Pull
10 0

1 : 240
ft

0 Pe 10

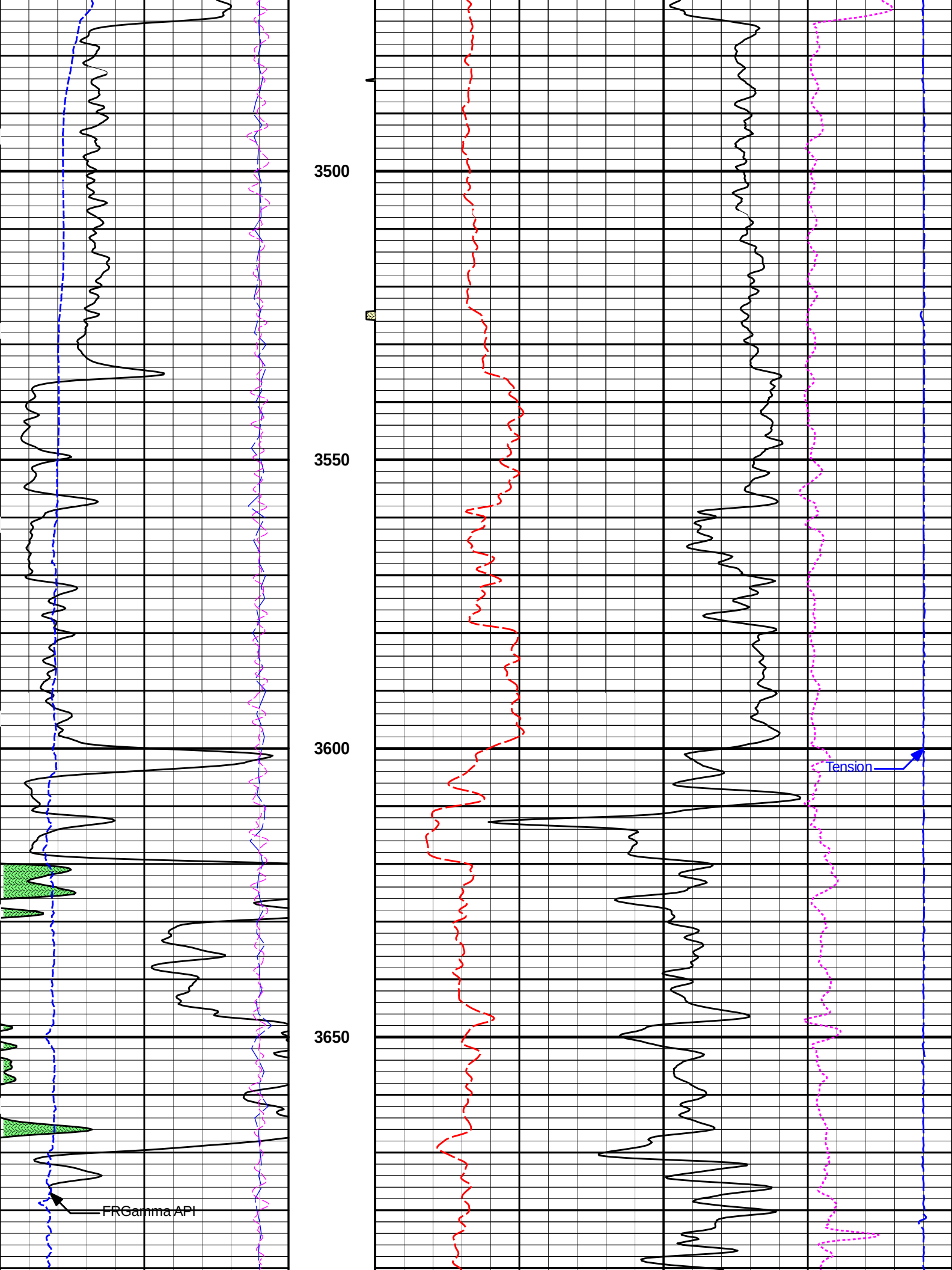
-0.25 Density Corr 0.25
gram per cc

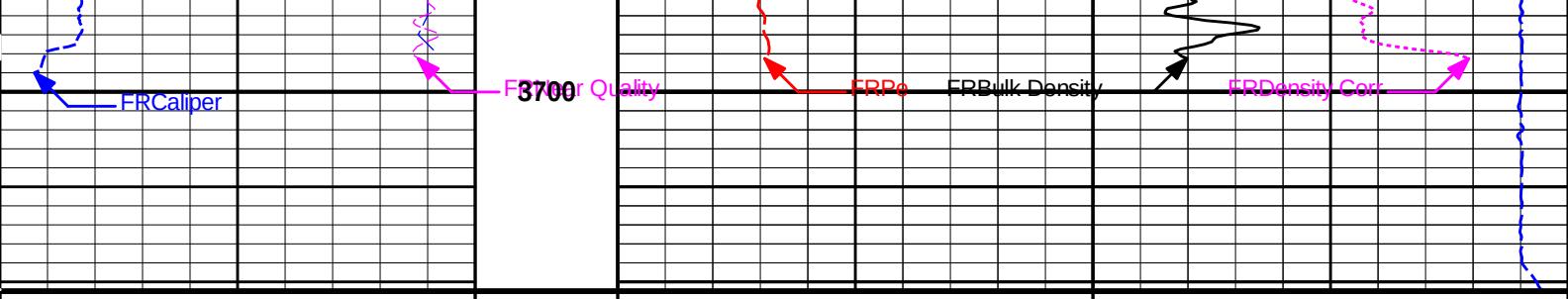
15K Tension 0
pounds

3400

3450

Gamma API
Caliper
Near Quality
Far Quality
Pe
Bulk Density
Density Corr


3500
3550
3600
3650
Tension
FRGamma API



-18 Near Quality 2	1 : 240 ft	0 Pe 10	15K Tension 0	
18 Far Quality -2	Tension Pull 10 0		pounds	
6 Caliper 16			-0.25 Density Corr 0.25	
inches			gram per cc	
0 Gamma API 150		2 Bulk Density 3		
api		gram per cc		

HALLIBURTON

Plot Time: 02-Jun-16 21:41:37
Plot Range: 3400 ft to 3720.83 ft
Data: {ActiveWell}\Well Based\DAQ-0001-002\
Plot File: \\PORO\1_Bulk_5_rptx

REPEAT SECTION

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	9.400	ppg
	SHARED	WAGT	Weighting Agent	Barite	
	SHARED	BSAL	Borehole salinity	6500.00	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	3750.00	ft
	SHARED	BHT	Bottom Hole Temperature	120.0	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	0.10	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	
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

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	**GTET - 11021138**	**Reference Calibration Date:**	**22-Dec-15 10:59:56**
Engineer:	**WHITLOCK**	**Calibration Date:**	**23-Apr-16 13:06:40**
Software Version:	**WL INSITE R5.0.0 (Build 4)**	**Calibration Version:**	**1**

Calibrator Source S/N: TB79
Calibrator API Reference:222.00 api
Equivalent Calibrator API Reference:225.9 api

Measurement	Measured	Calibrated	Units
Background	23.3	23.2	api
Background + Calibrator	250.8	249.0	api
Calibrator	227.4	225.9	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name:	**GTET - 11021138**	**Reference Calibration Date:**	**23-Apr-16 13:06:40**
Engineer:	**COTHREN**	**Calibration Date:**	**02-Jun-16 18:10:39**
Software Version:	**WL INSITE R5.0.0 (Build 4)**	**Calibration Version:**	**1**

Calibrator Source S/N: TB79
Calibrator API Reference:222.00 api
Equivalent Calibrator API Reference:225.9 api

Field Verification	Shop	Field	Units
Background	23.2	23.1	api
Background + Calibrator	249.0	249.7	api
Calibrator	225.9	226.6	api

Shop	Field	Difference	Tolerance
225.9	226.6	-0.7	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	**DSNT - 11019641**	**Reference Calibration Date:**	**23-Apr-16 14:01:45**
Engineer:	**COTHREN**	**Calibration Date:**	**23-May-16 11:54:27**
Software Version:	**WL INSITE R5.0.0 (Build 4)**	**Calibration Version:**	**1**

Logging Source S/N: DSN373
Tank Serial Number: EL RENO
Reference value assigned to Tank: 56.100
Snow Block S/N: 12156883
Calibration Tank Water Temperature: 70 degF
Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS			
Measurement	**Prev. Value**	**New Value**	**Control Limit On New Value**
Gain:	0.988	0.987	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):	0.2359	0.2358	0.0001	+/- 0.0020
Calibrated Ratio:	10.56	10.56	0.005	+/- 0.050

VERIFIER		
Measurement	**Value**	**Control Limit**
Snow-Block Porosity (decp):	0.0767	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 - 11019641 **Reference Calibration Date:** 23-May-16 11:54:27

Engineer: COTHREN **Calibration Date:** 02-Jun-16 18:55:58

Software Version: WL INSITE R5.0.0 (Build 4) **Calibration Version:** 1

Logging Source S/N: DSN373

Snow Block S/N: 12156883

NEUTRON FIELD-CHECK SUMMARY				
	Shop	**Field**	**Difference**	**Control Limit On Change**
Snow-Block Porosity (decp):	0.0767	0.0767	0.0001	+/- 0.0150

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

DENSITY CALIPER SHOP CALIBRATION

Tool Name: SDLT - 10951315 **Reference Calibration Date:** 18-Jan-16 11:11:04

Engineer: COTHREN **Calibration Date:** 23-May-16 12:56:22

Software Version: WL INSITE R4.6.3 (Build 5) **Calibration Version:** 1

Host Tool Name: DSNT - 11019641

CALIBRATION COEFFICIENTS			
Measurement	**Previous Value**	**New Value**	**Control Limit On New Value**
Pad Offset	-2649.25	-2649.25	-7000.00 - -1000.00
Pad Gain	0.0003773	0.0003773	0.0002000 - 0.0006000
Arm Offset	480.90	480.90	-5000.00 - 3000.00
Arm Gain	0.0004044	0.0004044	0.000300 - 0.000700
Arm Power	0.000001870	0.000001870	-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)	2.00	2.00	0.00	+/- 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)	15.00	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 - 10951315**	**Reference Calibration Date:**	**23-May-16 12:56:22**
Engineer:	**COTHREN**	**Calibration Date:**	**02-Jun-16 18:43:40**
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	3.68	-0.07	+/- 0.10
Ring Diameter	8.25	8.18	-0.07	+/- 0.15

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

MICRO LOG SHOP CALIBRATION

Tool Name:	**Microlog Pad - 10951315**	**Reference Calibration Date:**	**18-Jan-16 12:52:41**
Engineer:	**COTHREN**	**Calibration Date:**	**23-May-16 11:53:42**
Software Version:	**WL INSITE R4.6.3 (Build 5)**	**Calibration Version:**	**1**
Host Tool Name:	**DSNT - 11019641**		

CALIBRATION COEFFICIENT SUMMARY

Measurement	Micro Log Normal		Micro Log Lateral		
	Measured	Calibrated	Measured	Calibrated	Units
Tool Zero	-0.17	-0.17	-0.01	-0.01	ohmm
Calibration Point #1	0.00	0.00	0.00	0.00	ohmm
Calibration Point #2	20.00	20.00	20.00	20.00	ohmm
Internal Reference	19.76	19.76	19.96	19.96	ohmm

Measurement	Micro Log Normal Tool Value	Micro Log Lateral Tool Value	Units
Tool Zero	3.11	0.19	V
Calibration Point #1	48.82	2.83	V
Calibration Point #2	5497.07	7124.17	V
Internal Reference	5430.58	7109.98	V

MICRO LOG FIELD CHECK

Tool Name:	**Microlog Pad - 10951315**	**Reference Calibration Date:**	**23-May-16 11:53:42**
Engineer:	**COTHREN**	**Calibration Date:**	**02-Jun-16 19:04:46**
Software Version:	**WL INSITE R5.0.0 (Build 4)**	**Calibration Version:**	**1**

Measurement	Micro Log Normal		Micro Log Lateral		
	Shop	Field	Shop	Field	Units
Tool Zero	-0.17	-0.18	-0.01	-0.01	ohmm
Internal Reference	19.76	19.67	19.96	19.88	ohmm

Summary

Signal	Shop	Field	Difference	Tolerence
Microlog Normal	19.76	19.67	0.09	+/- 0.80
Microlog Lateral	19.96	19.88	0.08	+/- 0.80

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name:	**SDLT Pad - 10865873**	**Reference Calibration Date:**	**24-Apr-16 10:52:26**
Engineer:	**COTHREN**	**Calibration Date:**	**23-May-16 12:35:41**
Software Version:	**WL INSITE R5.0.0 (Build 4)**	**Calibration Version:**	**1**

Logging Source S/N: 5577GW

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

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

DENSITY CALIBRATION SUMMARY

Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	0.9760	0.9706	0.90 - 1.10
Near Dens Gain	0.9849	0.9752	0.90 - 1.10
Near Peak Gain	1.0029	0.9858	0.90 - 1.10
Near Lith Gain	1.0149	0.9938	0.90 - 1.10
Far Bar Gain	0.9984	0.9959	0.90 - 1.10
Far Dens Gain	0.9950	0.9936	0.90 - 1.10
Far Peak Gain	0.9943	0.9915	0.90 - 1.10
Far Lith Gain	0.9735	0.9752	0.90 - 1.10
Near Bar Offset	0.1760	0.2262	NONE
Near Dens Offset	0.0888	0.1765	NONE
Near Peak Offset	-0.0854	0.0587	NONE
Near Lith Offset	-0.2076	-0.0336	NONE
Far Bar Offset	-0.0492	-0.0252	NONE
Far Dens Offset	-0.0498	-0.0369	NONE
Far Peak Offset	-0.0902	-0.0692	NONE
Far Lith Offset	0.0270	0.0062	NONE
Near Bar Background	862.59	859.08	700 - 1450
Near Dens Background	281.20	279.87	230 - 480
Near Peak Background	124.09	123.94	100 - 210
Near Lith Background	150.94	149.83	125 - 260
Far Bar Background	488.42	485.27	450 - 900
Far Dens Background	190.12	189.45	175 - 345
Far Peak Background	75.14	75.33	70 - 140
Far Lith Background	77.35	77.83	75 - 145

CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.688	1.687	-0.001	+/- 0.015
Pe	2.503	2.556	0.053	+/- 0.150
ALUMINUM				
Density (g/cc)	2.582	2.581	-0.001	+/- 0.01500
Pe	3.102	3.129	0.027	+/- 0.150

TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0006	+/- 0.0110	-0.0005	+/- 0.0140
Magnesium Block	-0.0004	+/- 0.0110	-0.0014	+/- 0.0140

Aluminum Block	-0.0012	+/- 0.0110	0.0017	+/- 0.0140
Resolution	9.96	6.00 - 11.50	9.11	6.00 - 11.50
Internal Verifier(B+D+P+L)	1413	1200 - 2700	828	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 - 10865873 **Reference Calibration Date:** 23-May-16 12:35:41

Engineer: COTHREN **Calibration Date:** 02-Jun-16 19:20:14

Software Version: WL INSITE R5.0.0 (Build 4) **Calibration Version:** 1

Pad Temperature: 78.8 degF

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1412.724	1418.928	6.204	15.175
Far (B+D+P+L) cps	827.884	828.967	1.083	15.851
Near Resolution	9.96	9.99	0.030	0.50
Far Resolution	9.11	9.03	-0.080	1.00

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

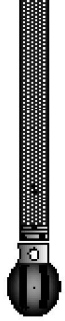
CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11021138						
Gamma Ray Calibrator	225.9	226.6	----------	-0.7	+/- 9.00	api
DSNT-11019641						
Snow-Block Porosity	0.0767	0.0767	----------	0.0000	+/- 0.0150	decp
SDLT-10951315						
Pad Extension	3.75	3.68	----------	0.07	+/-0.10	in
Ring Diameter	8.25	8.18	----------	0.07	+/-0.15	in
Microlog Pad-10951315						
MicroLog Normal	19.76	19.67	----------	0.09	+/-0.80	ohmm
MicroLog Lateral	19.96	19.88	----------	0.08	+/-0.80	ohmm
SDLT Pad-10865873						
Near(B+D+P+L)	1412.724	1418.928	----------	-6.204	+/-15.175	cps
Far(B+D+P+L)	827.884	828.967	----------	-1.083	+/-15.851	cps

Data: SPOPPEL_1_8\0001 GTET-DSN-SDL-ACRT\IDLE **Date: 02-Jun-16 19:17:30**

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
						56.57 ft
CH_HOS_I 37.50 lbs		Ø 2.750 in		Temperature @ 55.54 ft	3.03 ft	
		Ø 2.750 in				53.54 ft
XOHD-12345678 20.00 lbs		Ø 3.625 in			0.95 ft	
						52.59 ft
SP Sub-12345678 60.00 lbs		Ø 3.625 in		SP @ 50.81 ft	3.74 ft	
				Z-Accelerometer @ 48.40 ft		48.85 ft
GTET-11021138 165.00 lbs		Ø 3.625 in			8.52 ft	
				GammaRay @ 42.79 ft		
						40.33 ft
	DSN Decentralizer-11019641 6.60 lbs	Ø 5.000 in*				
DSNT-11019641 174.00 lbs		Ø 3.625 in			9.69 ft	
				DSN Far @ 33.39 ft		
				DSN Near @ 32.64 ft		
						30.64 ft
	SDLT Pad-10865873 65.00 lbs					
SDLT-10951315 360.00 lbs	Microlog Pad-10951315 8.00 lbs	Ø 4.500 in			10.81 ft	
		Ø 4.500 in*		Microlog @ 22.83 ft		
	RAM-Cs137-10948154 1.00 lbs	Ø 4.750 in*		SDL Caliper @ 22.65 ft		
		Ø 0.800 in*		SDL @ 22.64 ft		
						19.83 ft
ACRt Instrument-11055059 50.00 lbs		Ø 3.625 in			5.03 ft	
						14.80 ft
				Mud Resistivity @ 13.44 ft		
				ACRt @ 9.46 ft		
ACRt Sonde-11038385 200.00 lbs		Ø 3.625 in			14.22 ft	



Cabbage Head-
00000001
10.00 lbs

Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)		Accumulated Length (ft)	Max.Log. Speed (fpm)
CH_HOS	Hostile Cable Head with Load Cell	CH_HOS_I	37.50	3.03		53.54	300.00
XOHD	Hostile to Dits Cross Over	12345678	20.00	0.95		52.59	300.00
SP	SP Sub	12345678	60.00	3.74		48.85	300.00
GTET	Gamma Telemetry Tool	11021138	165.00	8.52		40.33	60.00
DSNT	Dual Spaced Neutron	11019641	174.00	9.69		30.64	60.00
DCNT	DSN Decentralizer	11019641	6.60	5.13	*	33.97	300.00
SDLT	Spectral Density Tool	10951315	360.00	10.81		19.83	60.00
SDLP	Density Insite Pad	10865873	65.00	2.55	*	22.04	60.00
Cs137	Logging Source, SDLT-I, 1.78 Ci - Cs137	10948154	1.00	0.80	*	22.27	300.00
MICP	Microlog Pad	10951315	8.00	1.00	*	22.33	60.00
ACRt	Array Compensated True Resistivity Instrument Section	11055059	50.00	5.03		14.80	120.00
ACRt	Array Compensated True Resistivity Sonde Section	11038385	200.00	14.22		0.58	120.00
CBHD	Cabbage Head	00000001	10.00	0.58		0.00	300.00
Total			**1,157.10**	**56.57**			

* Not included in Total Length and Length Accumulation.

Data: SPOPPEL_1_8\0001 GTET-DSN-SDL-ACRT\IDLE **Date: 02-Jun-16 19:16:04**

HALLIBURTON

Plot Time: 02-Jun-16 21:41:43
Plot Range: 2500 ft to 3720.83 ft
Data: {ActiveWell}\Well Based\DAQ-0001-003
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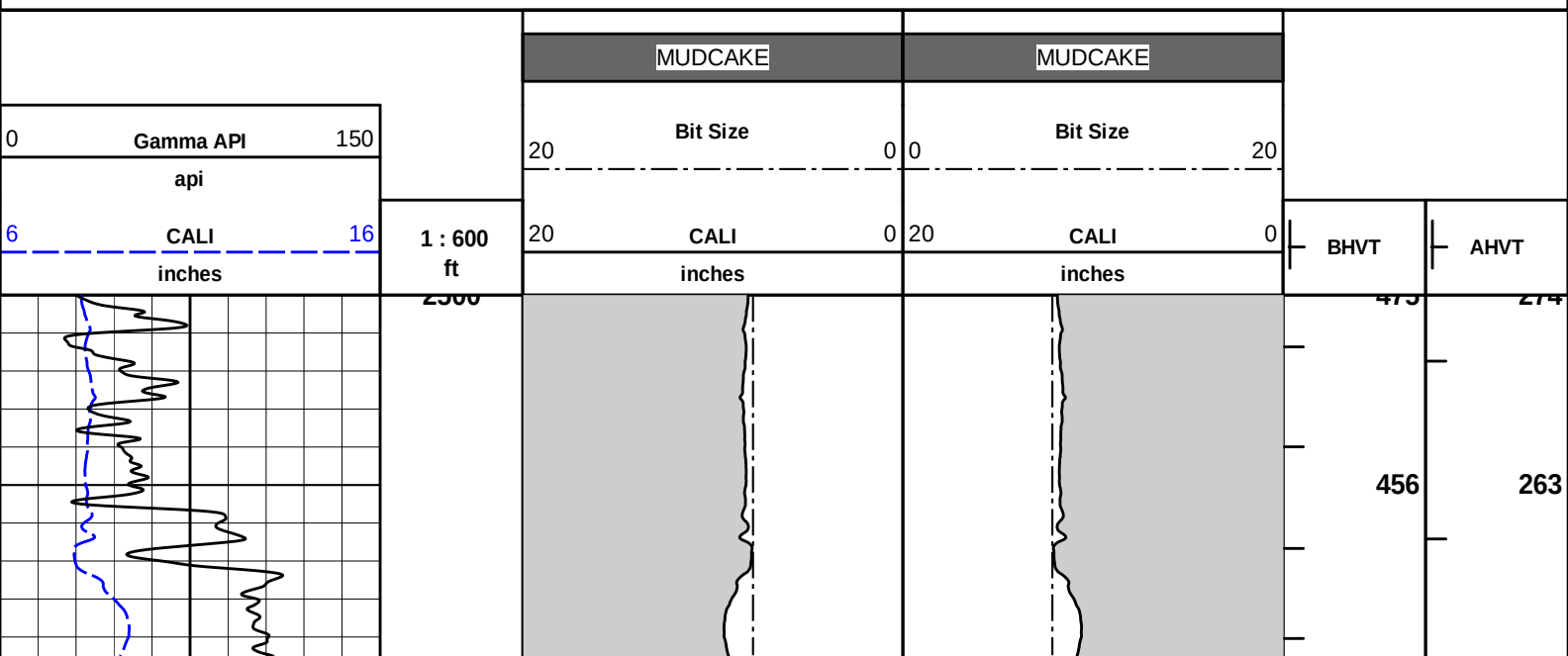
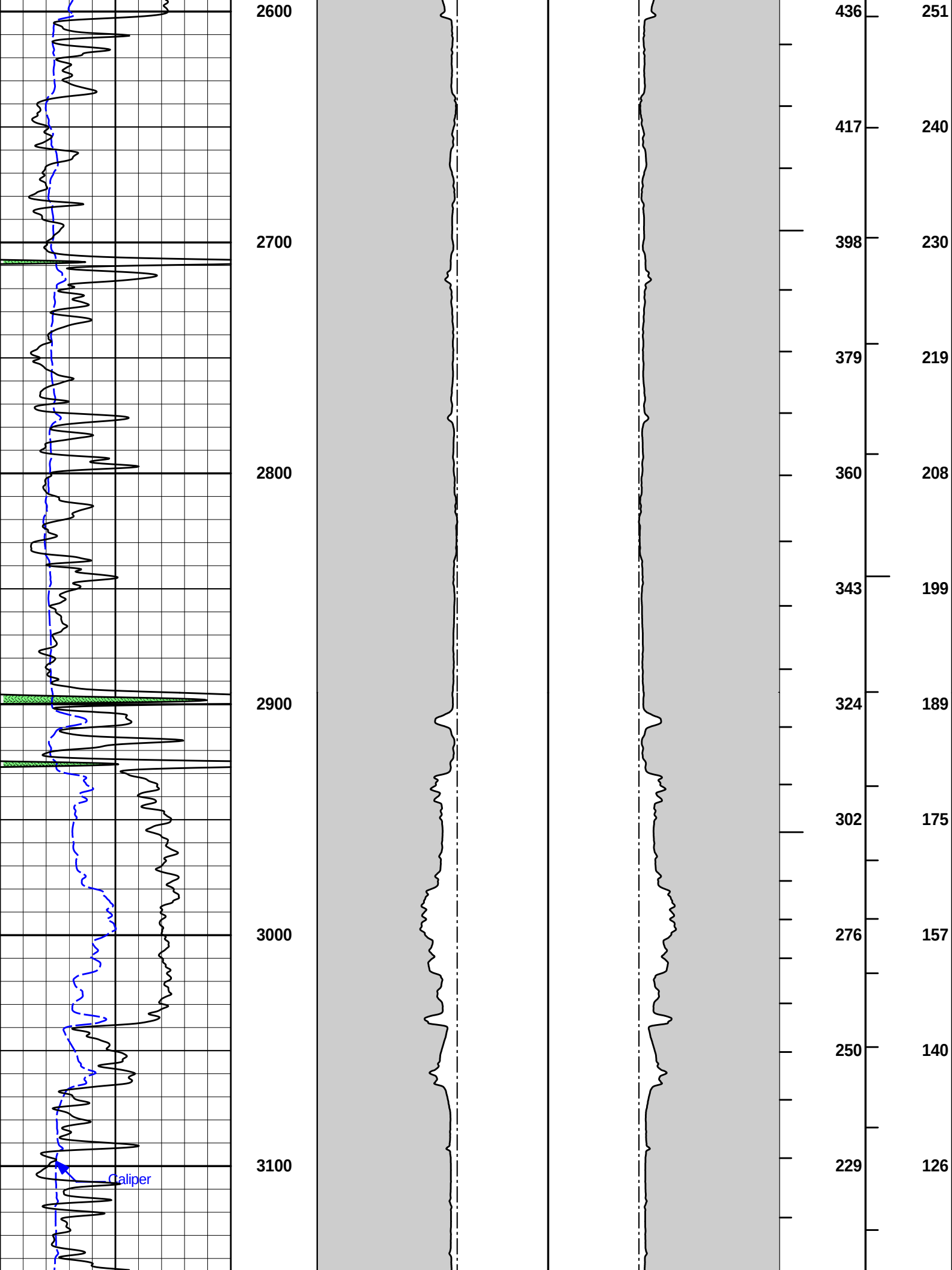
ANNULAR HOLE VOLUME PLOT

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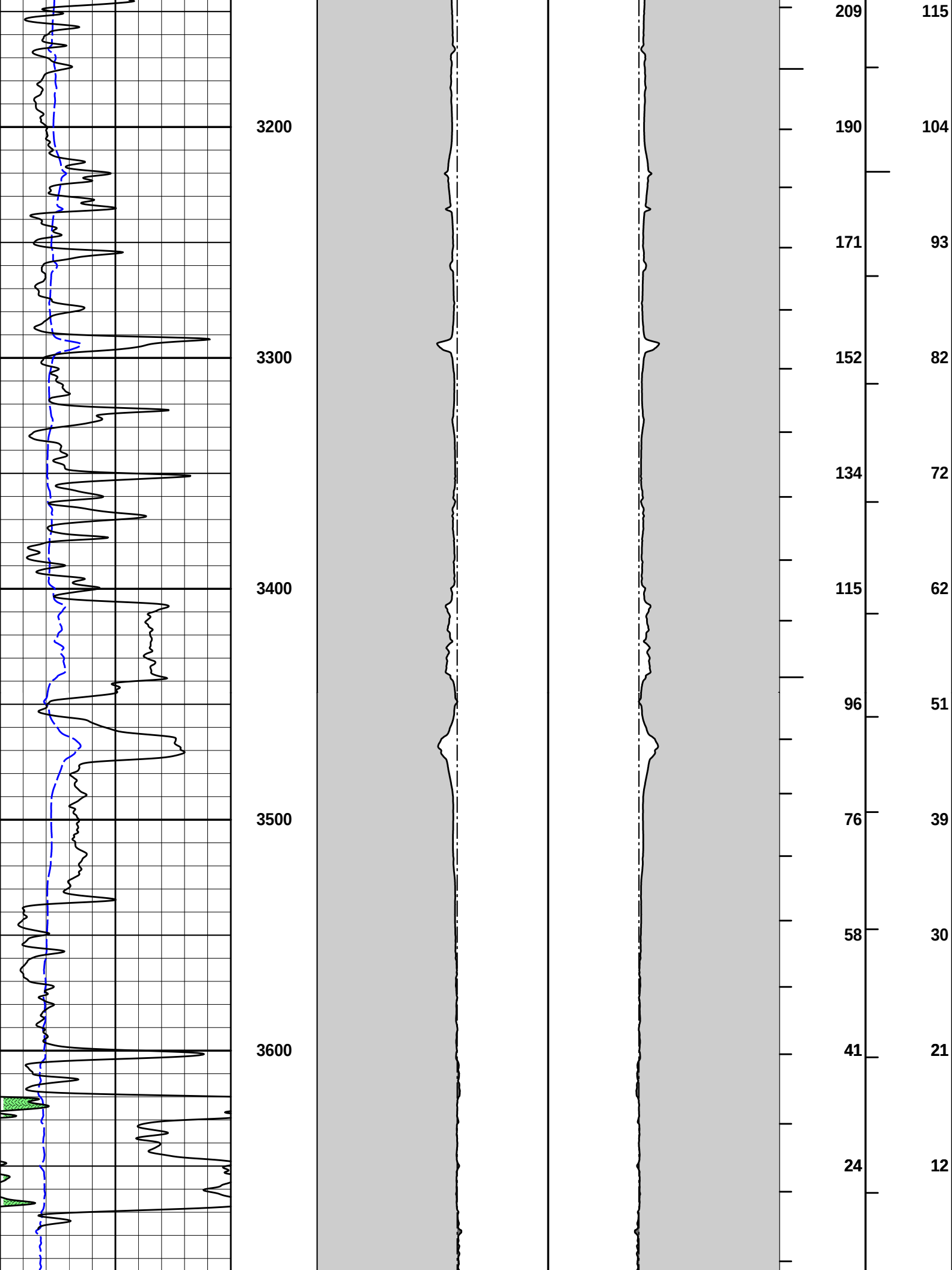
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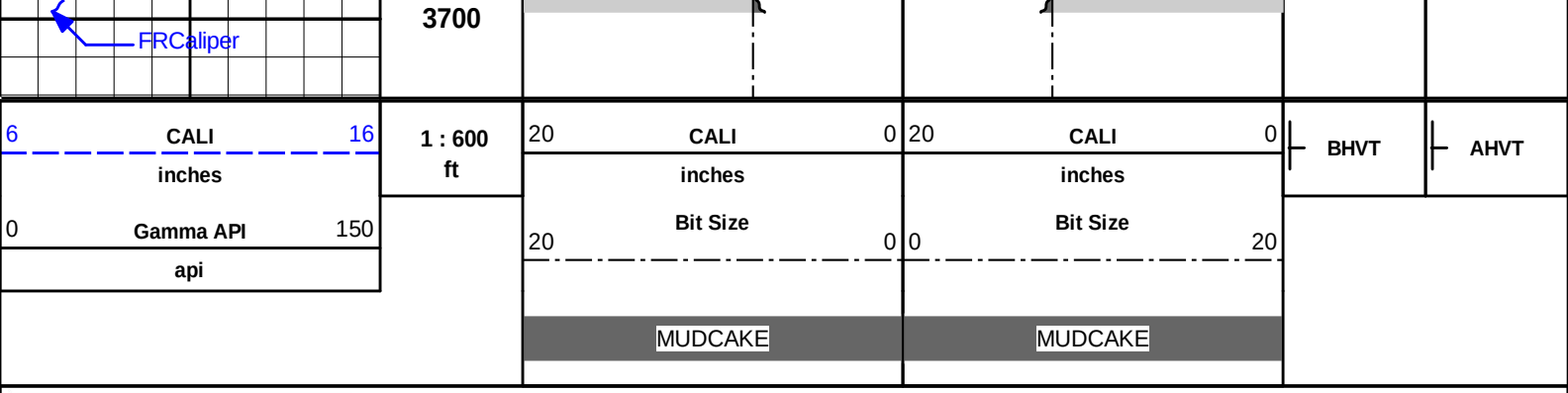

HALLIBURTON

Plot Time: 02-Jun-16 21:41:45
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ANNULAR HOLE VOLUME PLOT

COMPANY	**QUAIL OIL & GAS**		
WELL	**STOPPEL 1-8**		
FIELD	**WISBY**		
COUNTY	**RENO**	STATE	**KANSAS**

HALLIBURTON

SPECTRAL DENSITY DUAL SPACED NEUTRON LOG