HALLIBURTON

SPECTRAL DENSITY
DUAL SPACED NEUTRON
ARRAY COMPENSATED
TRUE RESISTIVITY

CONOCO PHILLIPS COMPANY
LITTLE RUSH 4-65 28 1V
WILDCAT
ARAPAHOE
COLORADO

COMPANY / WELL / FIELD/BLOCK / COUNTY / STATE

COMPANY **CONOCO PHILLIPS COMPANY**

WELL **LITTLE RUSH 4-65 28 1V**

FIELD/BLOCK **WILDCAT**

COUNTY **ARAPAHOE** STATE **COLORADO**

API No. 050050727000

Location SURFACE HOLE LOCATION:
1531' FSL & 422' FWL NW/SW

BOTTOM HOLE LOCATION:
1531' FSL & 500' FWL NW/SW

Sect. 28 Twp. 4S Rge. 65W

Other Services:
RWCH
CSNG
IDT
ICT
WSTT
MRIL

Permanent Datum	GL	Elev. 5698.0 ft	Elev.: K.B. 5724.0 ft
Log measured from	KB	, 26.0 ft above perm. Datum	D.F. 5724.0 ft
Drilling measured from	KB		G.L. 5698.0 ft

Date		28-Jul-17					
Run No.		ONE					
Depth - Driller		8562.0 ft					
Depth - Logger		8564.0 ft					
Bottom - Logged Interval		8554.0 ft					
Top - Logged Interval		7200.0 ft					
Casing - Driller		9.625 in @ 2246.0 ft		@		@	
Casing - Logger		2239.0 ft					
Bit Size		8.500 in		@		@	
Type Fluid in Hole		Oil Based					
Density	F. Viscosity	9.7 ppg	53.00 s/qt				
Alkalinity	P. Viscosity		11.0 cP				
HTHP @ Meas. Temperature		3.8 cptm @ 250.00 degF		@		@	
Solids	Wgt. Material	8.7 %	BARITE				
Oil	Water Ratio	70	30				
Water Phase Salinity		62000.00 ppm Cl-					
Oil Type	Brine Type	DIESEL	CaCl				
Electrical Stability		424 V					
Time Since Circulation		11:54 hr					
Time on Bottom		28-Jul-17 16:54					
Max. Rec. Temperature		230.00 degF @ 8564.0 ft		@		@	
Equipment	Location	11335318	R.S. WY				
Recorded By		J. HEATHERLY					
Witnessed By		D. ALDRIDGE					

Fold here

Service Ticket No.: 904186540 API No.: 050050727000 PGM Version: WL INSITE R5.0.5 (Build 8)

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	F. Viscosity						
Alkalinity	P. Viscosity						
HTHP @ Meas. Temp.		@	@				
Solids	Wgt. Mat.						
Oil	Water Ratio						
Water Phase Salinity							
Oil Type	Water Type						
Electrical Stability							

RESISTIVITY EQUIPMENT DATA

	Run No.	Tool Type & No.	Pad Type	Tool Pos.	Other
	ONE	ACRT	N/A	0.25 in S.O.	N/A
		I: 10988483			
		S: 10988480			

EQUIPMENT DATA

	GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.	ONE	Run No.	ONE	Run No.	ONE
Serial No.	11294346	Serial No.	11000318	Serial No.	10746390	Serial No.	11020488
Model No.	GTET	Model No.	WSTT	Model No.	SDLT	Model No.	DSNT
Diameter	3.625 in	No. of Cent.	2	Diameter	4.5 in	Diameter	3.625 in
Detector Model No.	GTET	Spacing	0.5 in	Log Type	GAMMA	Log Type	THERMAL
Type	SCINT			Source Type	Cs137	Source Type	Am241Be
Length	8 in	LSA [Y/N]	Y	Serial No.	5235GW	Serial No.	DSN-431
Distance to Source	18 ft	FWDA [Y/N]	Y	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	8564 ft	7200 ft	REC	0 api	150 api	30%	-10%	47.6 us/ft	30%	-10%	2.71 g/cc	30%	-10%	SAND

DIRECTIONAL INFORMATION

Maximum Deviation	@	KOP	@

Remarks: RWCH-GTET-CSNG-DSNT-SDLT-IDT-ICT-WSTT-ACRT RUN IN COMBINATION

BOREHOLE RUGOSITY, TENSION PULLS, & WASHOUTS MAY EFFECT LOG QUALITY

ANNULAR HOLE VOLUME CALCULATED FOR 5.5-INCH CASING SDLM S/N: 10935813

CUSTOMER ACCEPTS WSTT RESPONSE BETWEEN 7300 FT AND 7200 FT

GTET-CSNG-DSNT-SDLT-IDT-ICT-WSTT LOGGED BETWEEN 8564 FT AND 7200 FT AT CUSTOMER REQUEST

LATITUDE: 39.671617°N

LONGITUDE: 104.677108°W

TODAY'S CREW: D. PIEGER, J. MAYNE RIG: H&P 448

THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES, ROCK SPRINGS, WY (307)352-8600

HALLIBURTON

PARAMETERS REPORT

Depth (ft)	Tool Name	Mnemonic	Description	Value	Units
TOP					
	SHARED	BS	Bit Size	8.500	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDBS	Mud Base	Oil	
	SHARED	MDWT	Borehole Fluid Weight	9.700	ppg
	SHARED	WAGT	Weighting Agent	Barite	
	SHARED	BSAL	Borehole salinity	0.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	WPHS	OBM Water Phase Salinity NaCl	63000.00	ppm
	SHARED	OFOW	Base Oil Fraction from Oil/Water Ratio	0.70	
	SHARED	OBMT	Oil based Mud Type	Diesel	
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	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	8564.00	ft
	SHARED	BHT	Bottom Hole Temperature	230.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	IDT	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	IDT	
	SHARED	TEMM	CBM Temperature Master Tool	GTET	
	Rwa / CrossPlot	XPOK	Process Crossplot?	Yes	
	Rwa /	ECHO	Select Source of E	Automatic	

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	
CSNG	CGOK	Process CSNG Data?	Yes	
CSNG	CENT	Is Tool Centralized?	No	
CSNG	GBOK	Gamma Enviromental Corrections?	Yes	
CSNG	BARF	Barite Correction Factor	1.00	
CSNG	ORDG	Use Fixed Gain	No	
CSNG	ORDO	Use Fixed Offset	No	
CSNG	ORDR	Use Fixed Resolution Degradation Factor	No	
CSNG	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	
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	
IDT	WRTI	Survey Writing Interval	30	ft
IDT	SOPT	Smoothing Option	None	
ICT Mandrel	CLOK	Process Caliper Outputs?	Yes	
ICT Mandrel	DARM	Disable Caliper Arm	No	
ICT Mandrel	ATDS	Arm To Disable	0	
ICT Mandrel	REPM	Method to replace arm?	Caliper Average	
ICT Mandrel	ARMV	Diameter to use for disabled arm	0.00	in
ICT Mandrel	DARM	Disable Second Caliper Arm	No	
ICT Mandrel	ATDS	Second Arm To Disable	0	
ICT Mandrel	REPM	Method to replace second arm?	Caliper Average	
ICT Mandrel	ARMV	Diameter to use for second disabled arm	0.00	in

ICT Mandrel	NAVS	Navigation Source Tool	IDT	
ICT Mandrel	CL1O	Radius 1 Offset	0.00	in
ICT Mandrel	CL2O	Radius 2 Offset	0.00	in
ICT Mandrel	CL3O	Radius 3 Offset	0.00	in
ICT Mandrel	CL4O	Radius 4 Offset	0.00	in
ICT Mandrel	CL5O	Radius 5 Offset	0.00	in
ICT Mandrel	CL6O	Radius 6 Offset	0.00	in
ICT Mandrel	BHVC	Radius type for borehole volume calcuations	Elliptical	
ICT Mandrel	CCL	Caliper Correction Algorithm	None	
WSTT-I Receivers	WSOK	Process WSTT?	Yes	
WSTT-I Receivers	AFIL	Adaptive Filtering?	No	
WSTT-I Receivers	PINT	Process 1 Sample and Skip	0	
WSTT-I Receivers	PROM	Process Mode: M=1,MX=2,MY=3,MXY=4	4	
WSTT-I Receivers	DTSH	Delta -T Shale	100.00	uspf
WSTT-I Receivers	DTMT	Delta -T Matrix Type	Limestone 47.6	
WSTT-I Receivers	DTMA	Delta -T Matrix	47.60	uspf
WSTT-I Receivers	DTFL	Delta -T Pore Fluid	189.00	uspf
WSTT-I Receivers	RHOM	Matrix Density	2.7100	g/cc
WSTT-I Receivers	RHOF	Fluid Density	1.0000	g/cc
WSTT-I Receivers	SMTH	Semblance Threshold	0.25	
WSTT-I Receivers	VPVS	VPVS Ratio for Porosity	1.40	
WSTT-I Receivers	APEQ	Acoustic Porosity Equation	Wylie	
WSTT-I Receivers	NAVS	Navigation Source Tool	IDT	
ACRt Sonde	RTOK	Process ACRt?	Yes	
ACRt Sonde	MNSO	Minimum Tool Standoff	0.25	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	

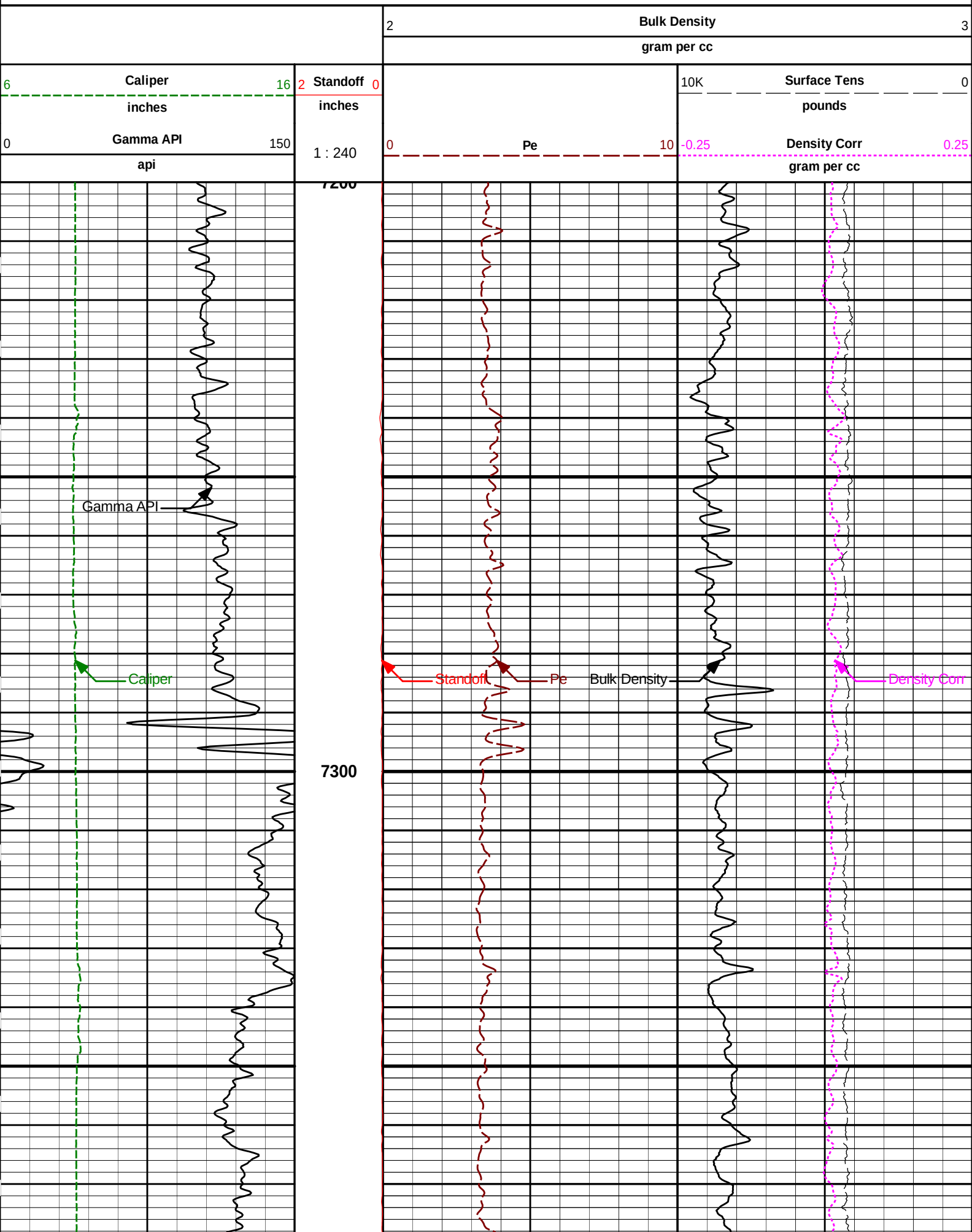
BOTTOM

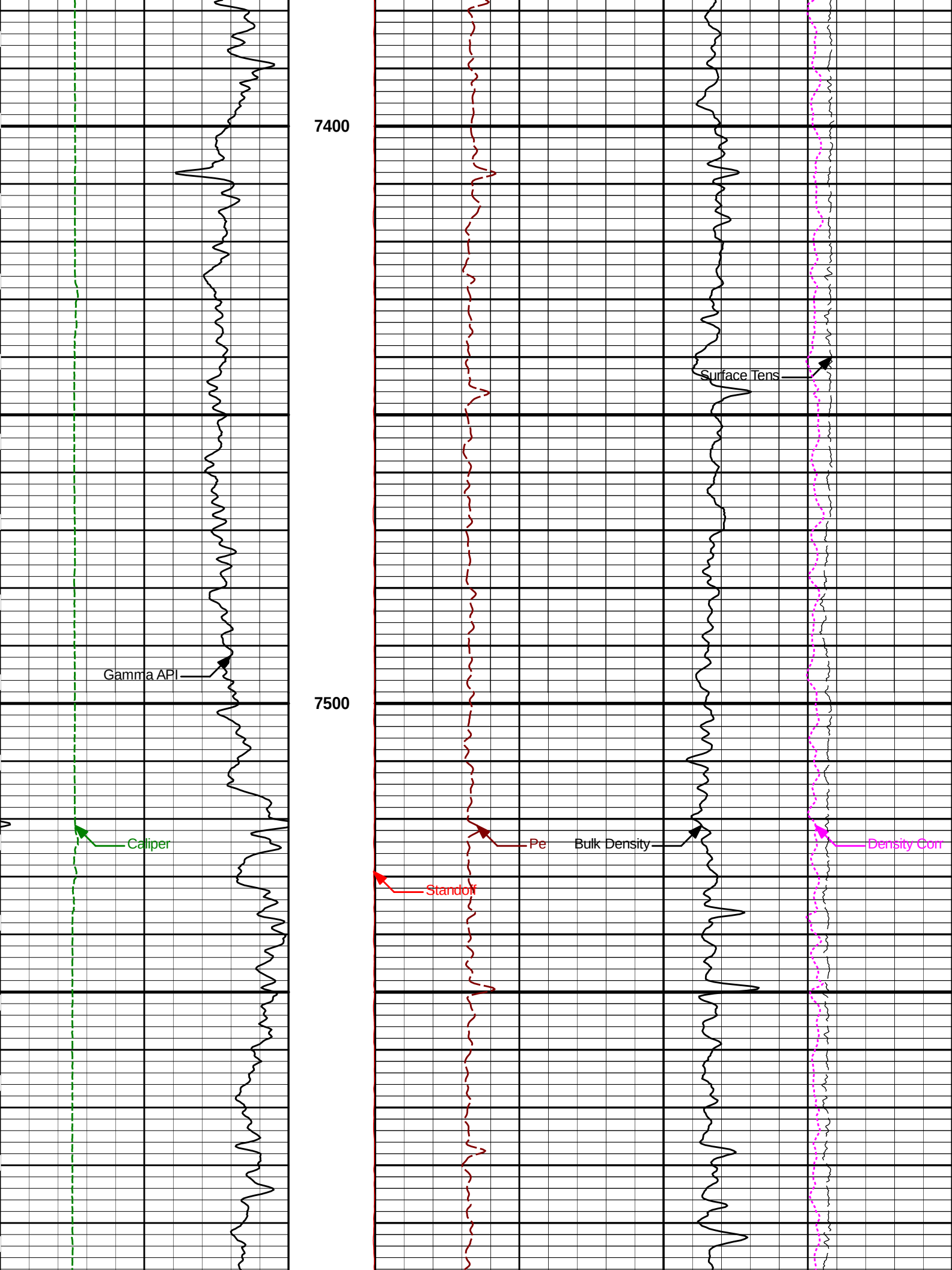
Data: LR_4_65_28_1V\0001 BLACK_QUAD_CSNG_IDT_ICT_WSTT\005.01 28-Jul-17 18:57 Up **Date: 28-Jul-17 19:15:15**

HALLIBURTON

Plot Time: 29-Jul-17 15:53:32
Plot Range: 7200 ft to 8572.42 ft
Data: LR_4_65_28_1V\Well Based\MAIN
Plot File: \\COMP\CONOCO_RHOB_5IN_MAIN

MAIN PASS 5" = 100'


Bulk Density
2
3
gram per cc
Caliper
6
16
inches
Standoff
2
0
inches
Surface Tens
10K
0
pounds
Gamma API
0
150
api
1 : 240
Pe
0
10
Density Corr
-0.25
0.25
gram per cc
Gamma API
Caliper
Standoff
Pe
Bulk Density
Density Corr
7300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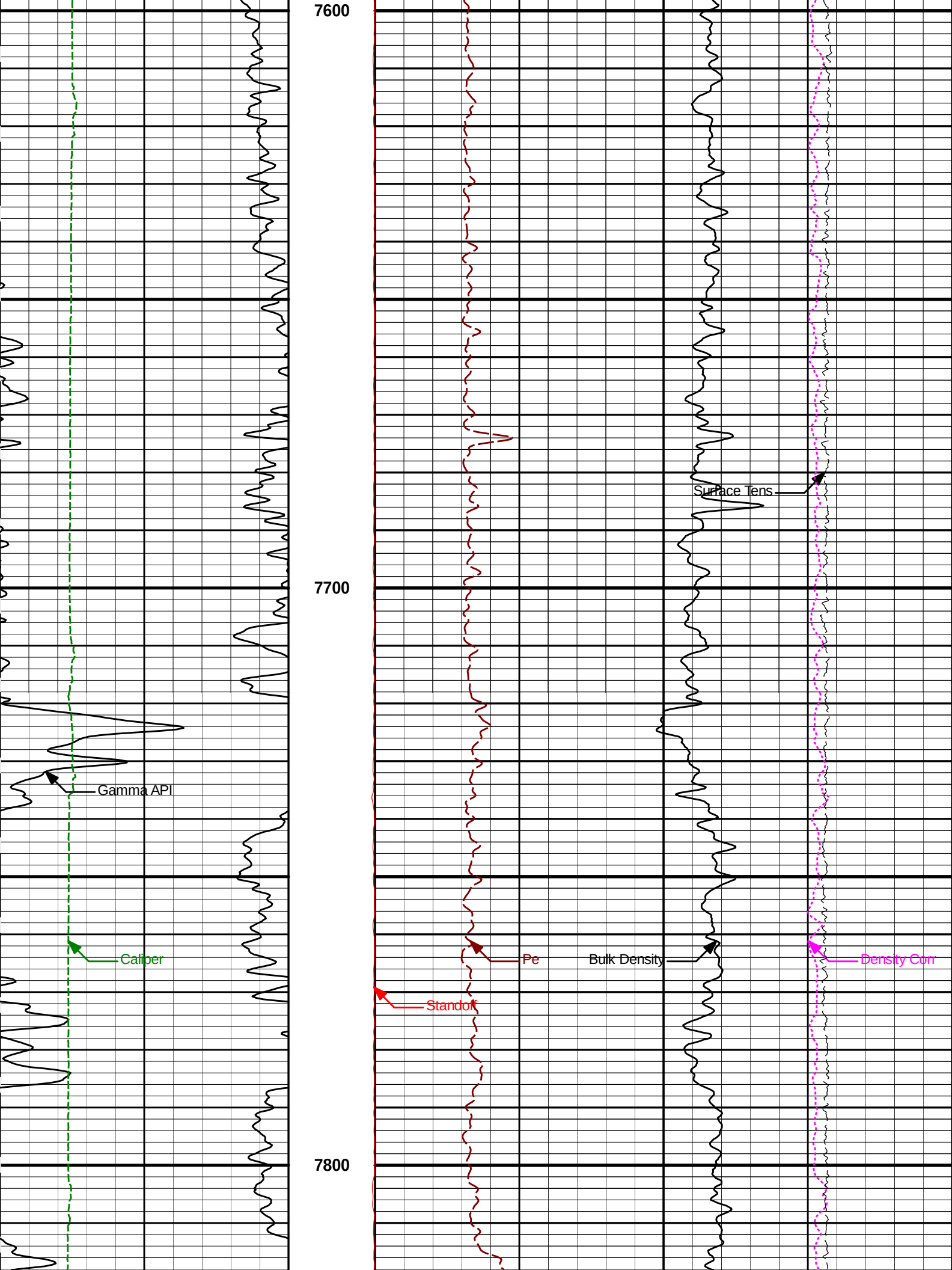
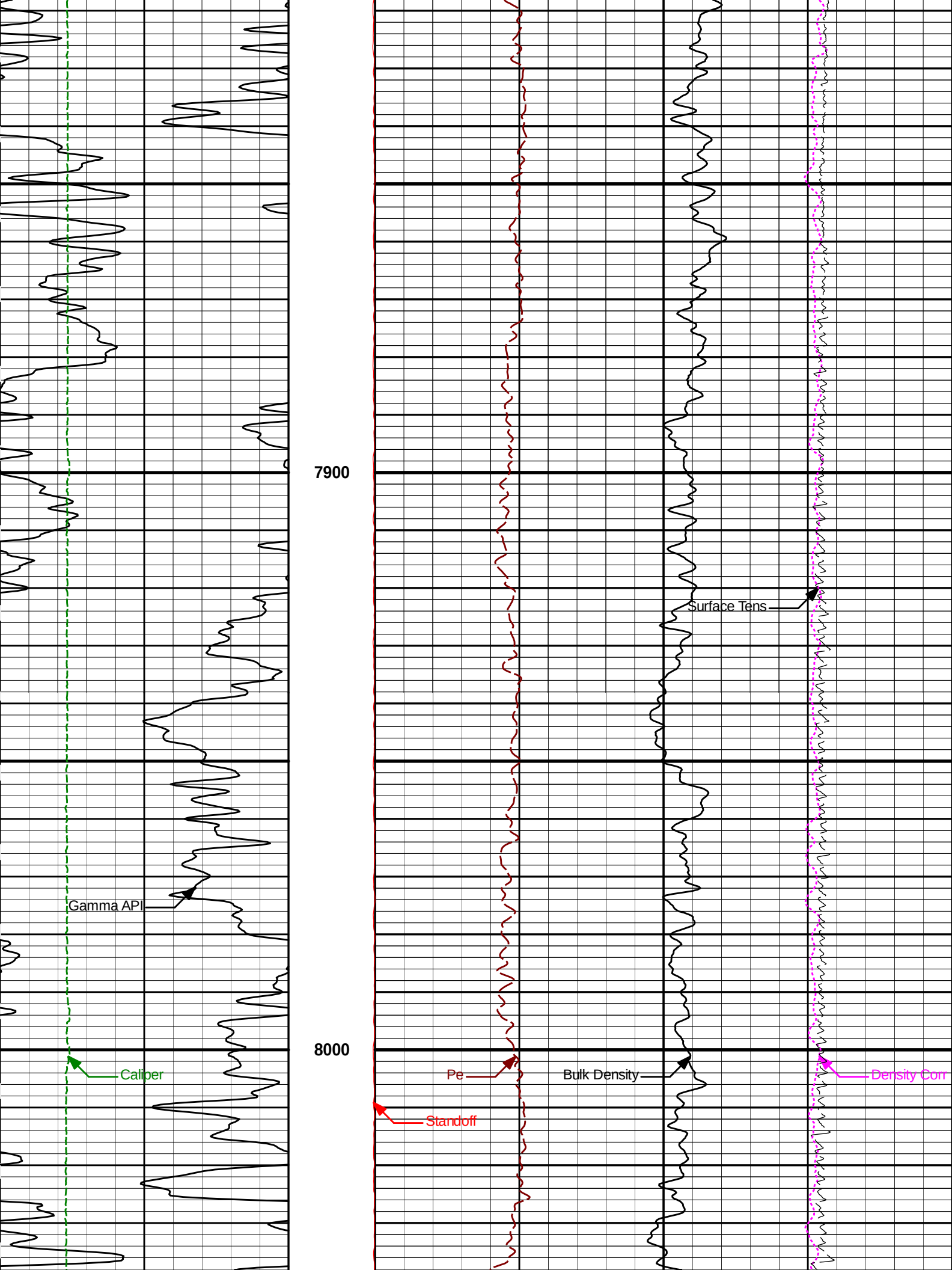
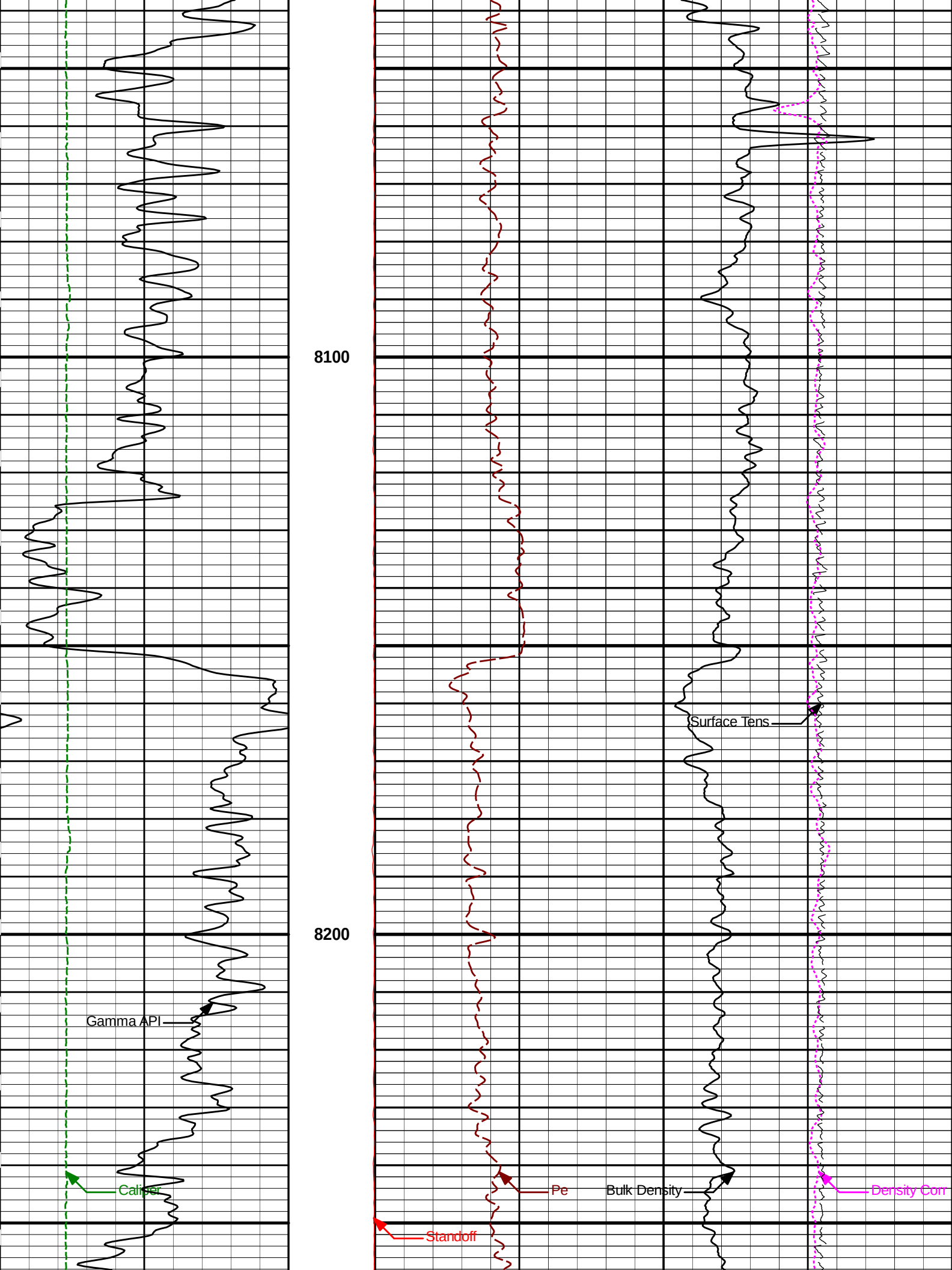
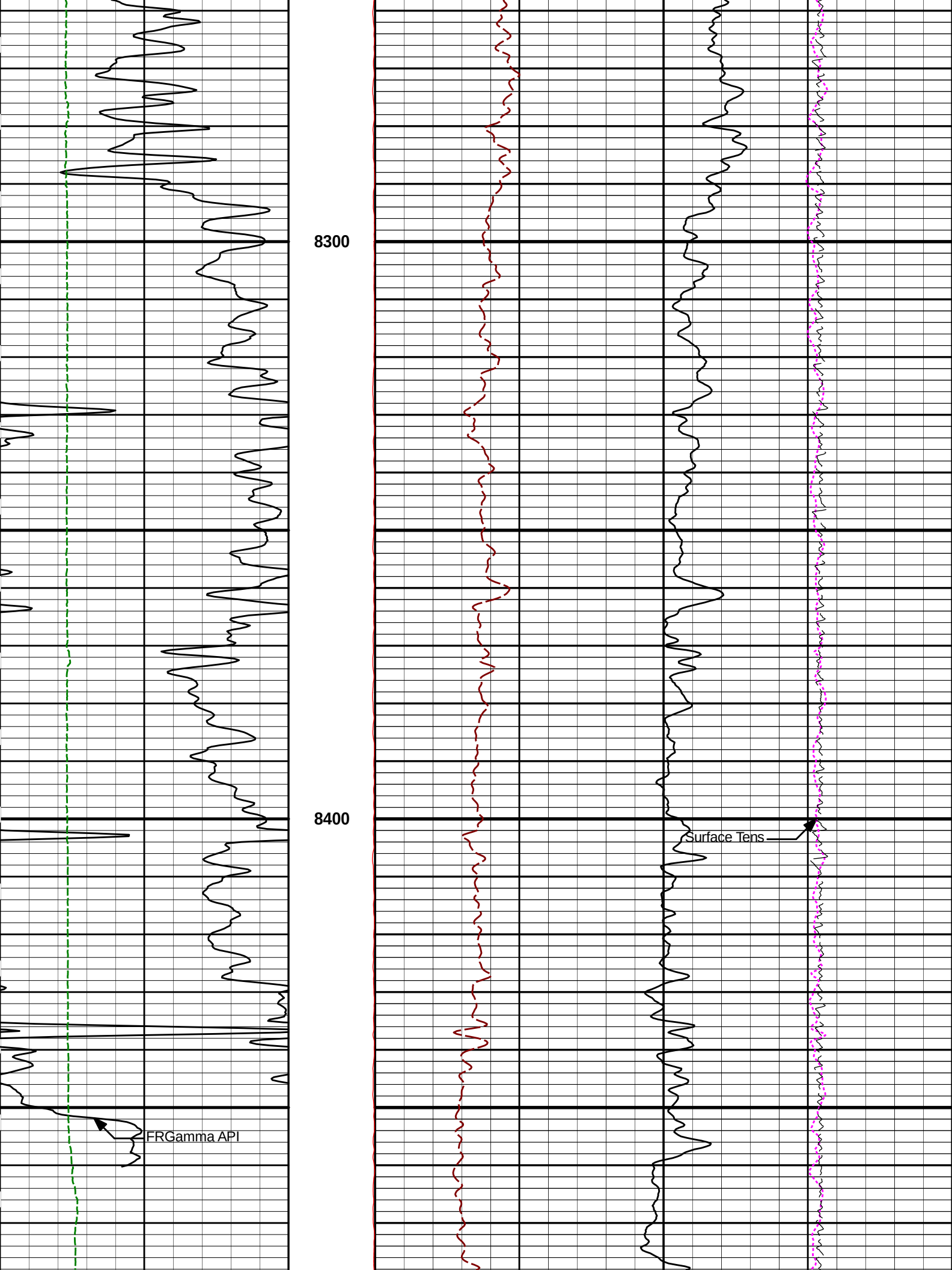
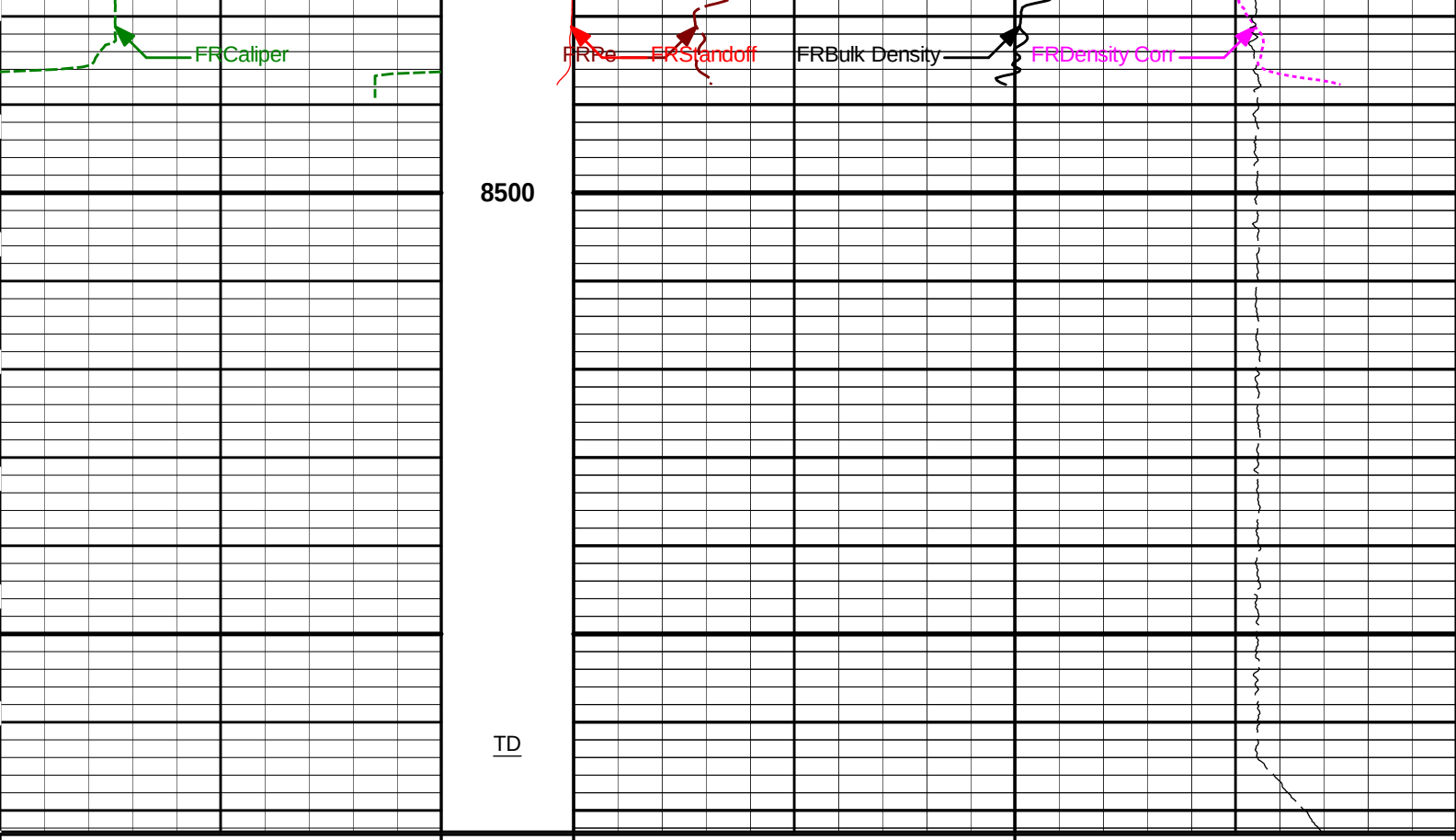
7500
Gamma API
Caliper
Surface Tens
Pe
Standoff
Bulk Density
Density Corr


7600
7700
7800
Gamma API
Caliper
Pe
Standoff
Bulk Density
Surface Tens
Density Corr


7900
8000
Gamma API
Caliper
Surface Tens
Pe
Standoff
Bulk Density
Density Corr


8100
8200
Gamma API
Caliper
Pe
Standoff
Surface Tens
Bulk Density
Density Corr


8300
8400
Surface Tens
FRGamma API



0 Gamma API 150	1 : 240	0 Pe 10	-0.25 Density Corr 0.25	
api			gram per cc	
6 Caliper 16	2 Standoff 0		10K Surface Tens 0	
inches	inches		pounds	
		2 Bulk Density 3		
		gram per cc		

HALLIBURTON

Plot Time: 29-Jul-17 15:53:34
Plot Range: 7200 ft to 8572.42 ft
Data: LR_4_65_28_1V\Well Based\MAIN
Plot File: \\COMP\CONOCO_RHOB_5IN_MAIN

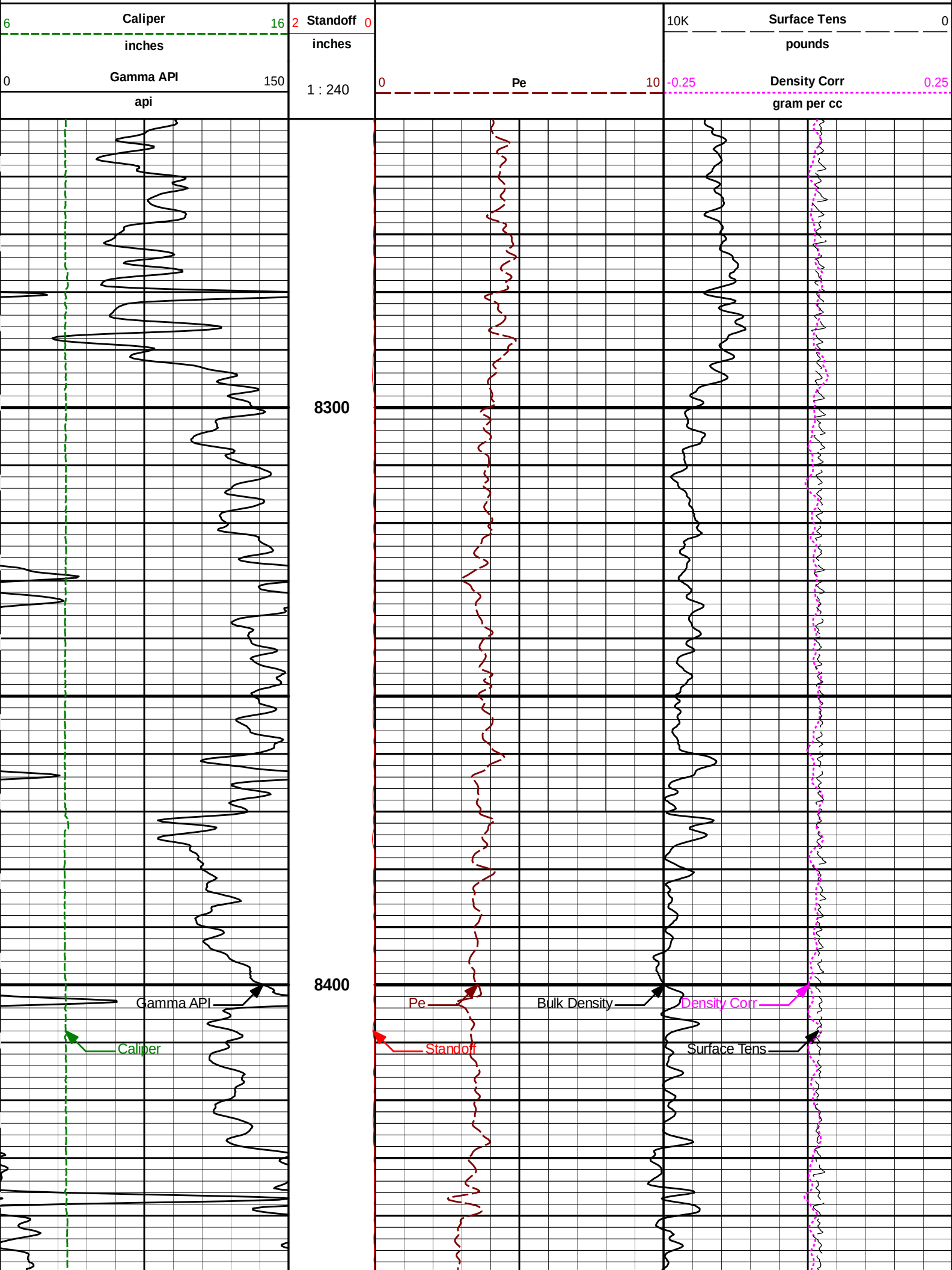
MAIN PASS 5" = 100'

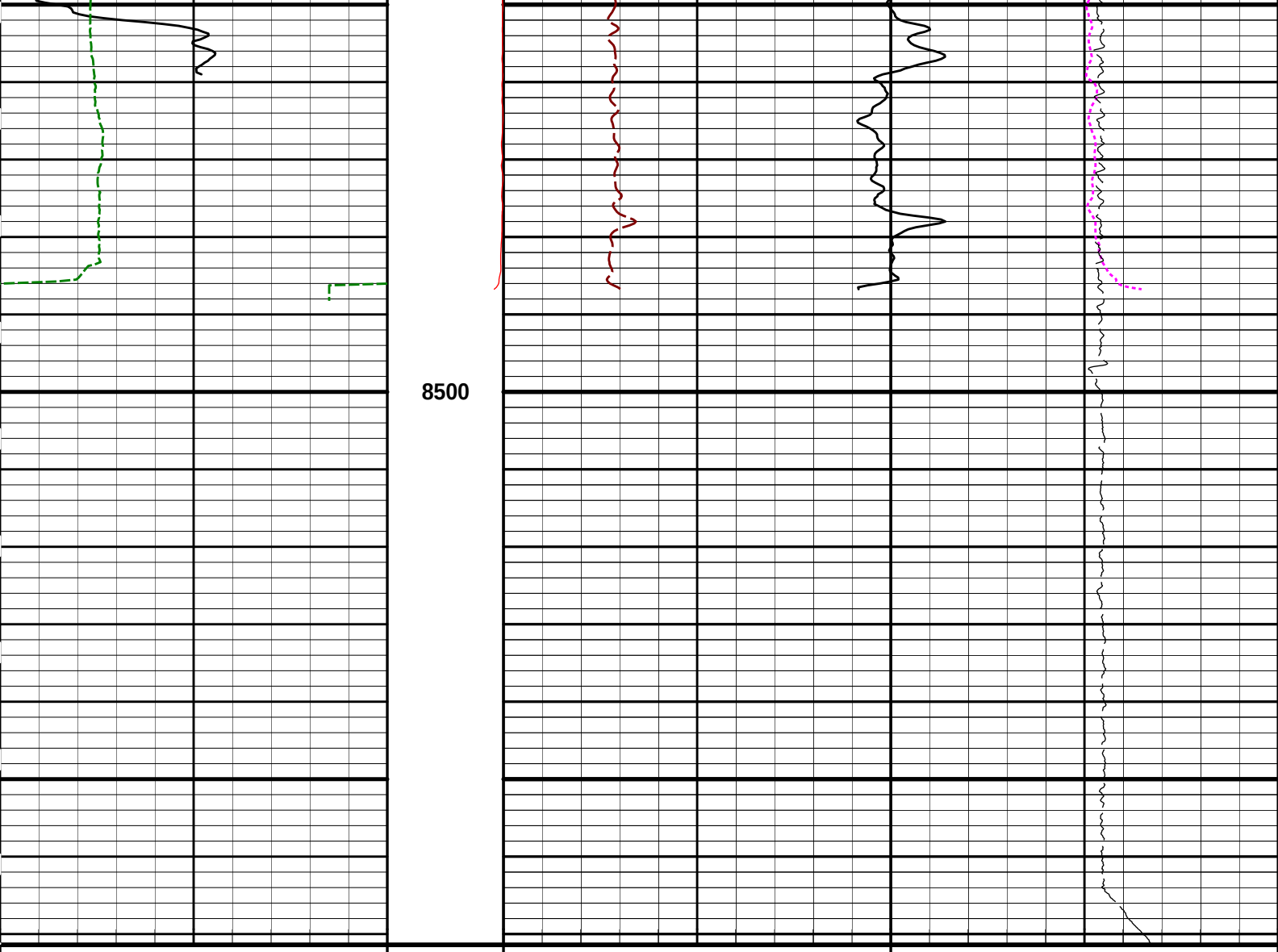
HALLIBURTON

Plot Time: 29-Jul-17 15:53:34
Plot Range: 8250 ft to 8571.25 ft
Data: LR_4_65_28_1V\Well Based\RPT
Plot File: \\COMP\CONOCO_RHOB_5IN_RPT

REPEAT PASS 5" = 100'

2 Bulk Density 3	
gram per cc	


Caliper
6
16
inches
Gamma API
0
150
api
Standoff
2
0
inches
1 : 240
Pe
0
10
Surface Tens
10K
0
pounds
Density Corr
-0.25
0.25
gram per cc
8300
8400
Gamma API
Caliper
Pe
Standoff
Bulk Density
Density Corr
Surface Tens



0 Gamma API 150		0 Pe 10	-0.25 Density Corr 0.25	
api	1 : 240		gram per cc	
6 Caliper 16	2 Standoff 0		10K Surface Tens 0	
inches	inches		pounds	
		2 Bulk Density 3		
		gram per cc		

HALLIBURTON

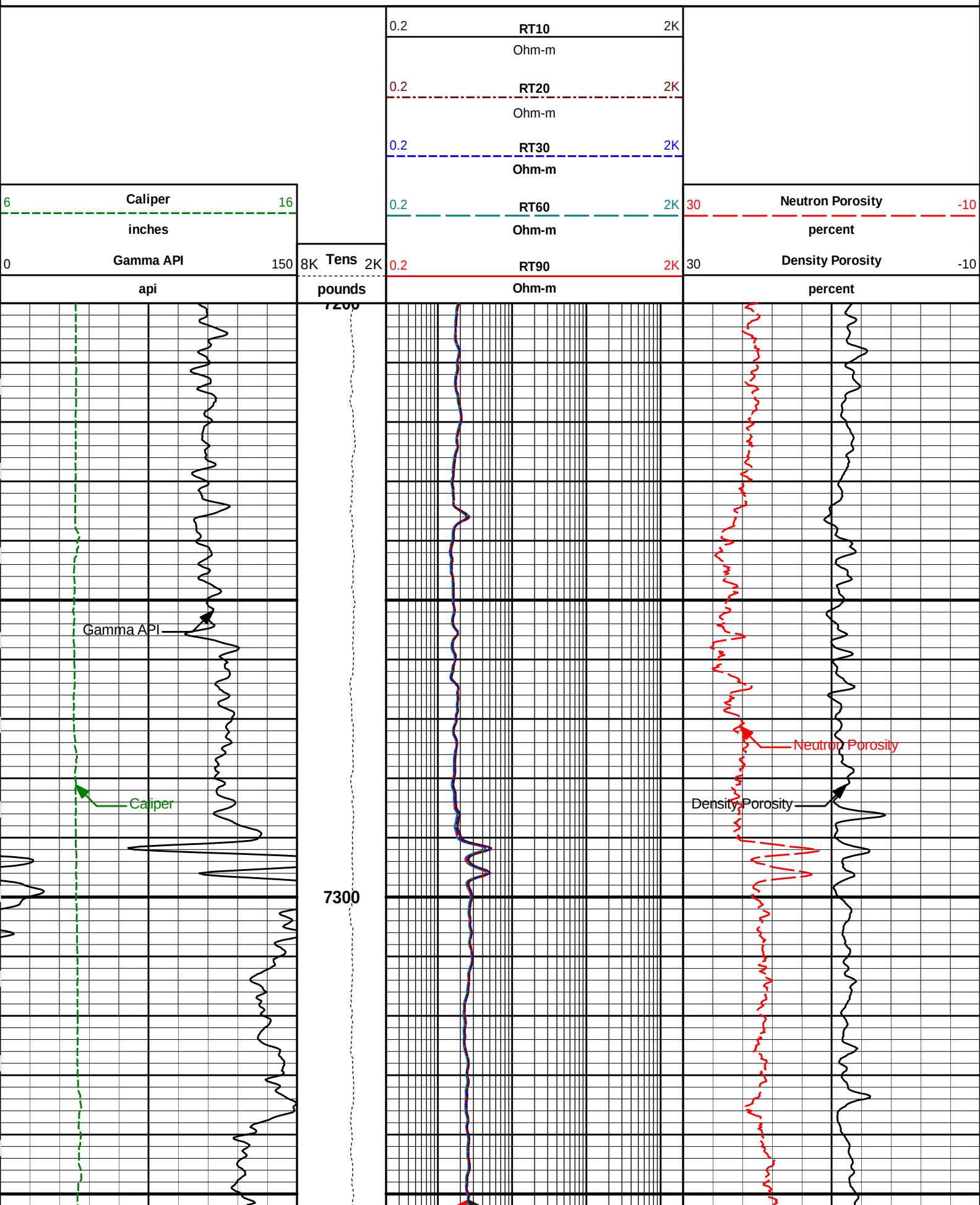
Plot Time: 29-Jul-17 15:53:36
Plot Range: 8250 ft to 8571.25 ft
Data: LR_4_65_28_1V\Well Based\RPT\
Plot File: \\COMP\CONOCO_RHOB_5IN_RPT

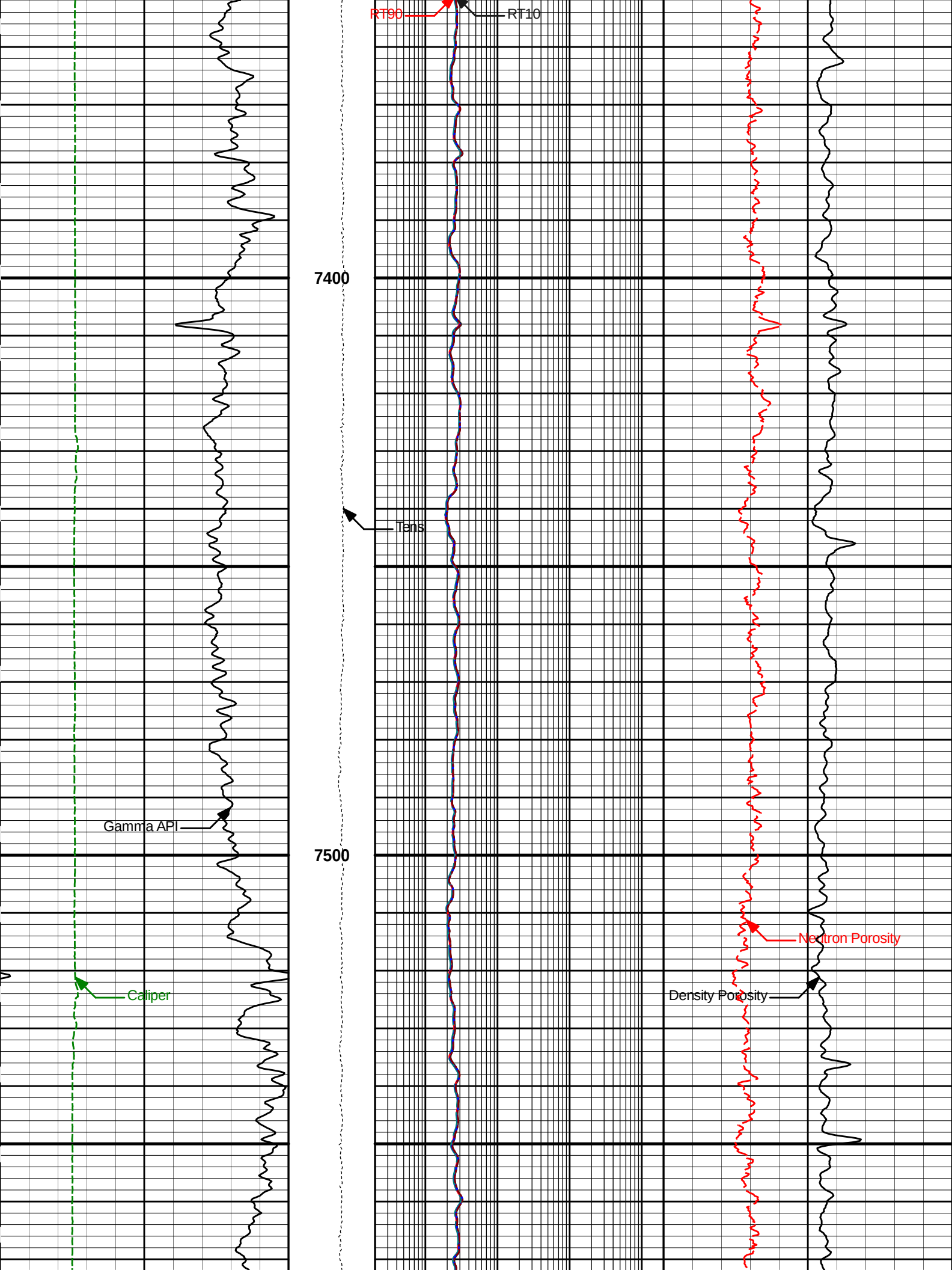
REPEAT PASS 5" = 100'

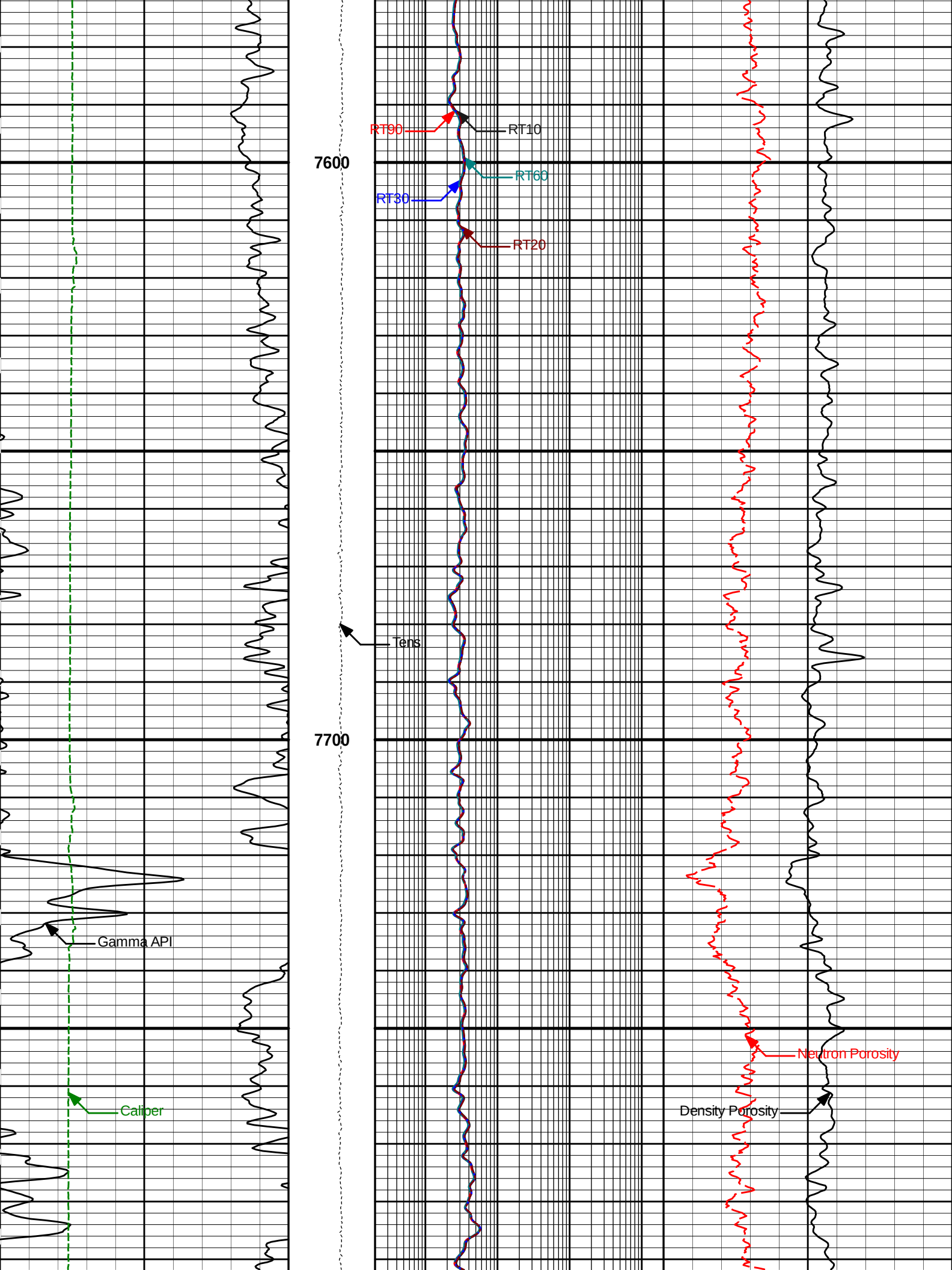
HALLIBURTON

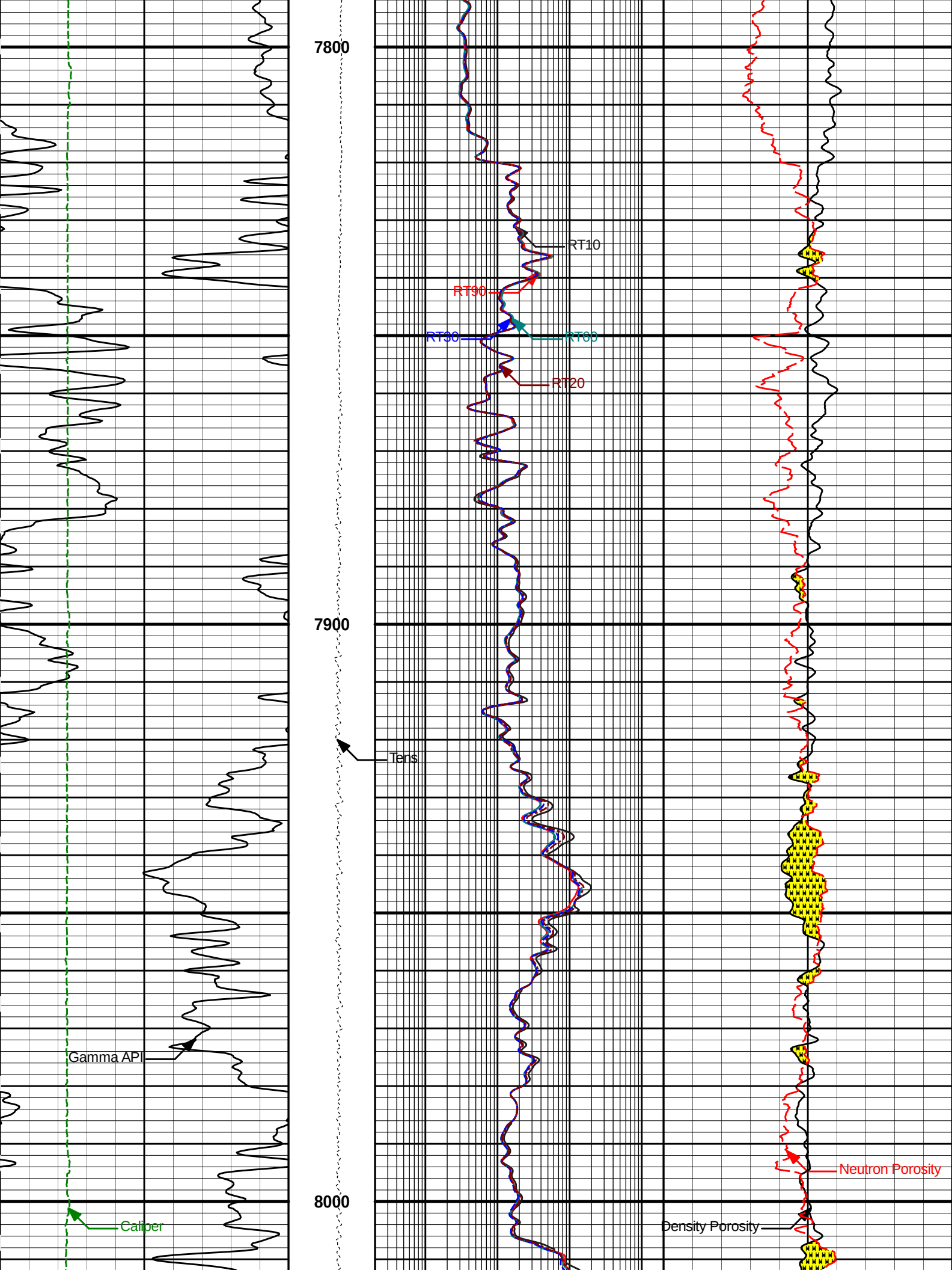
Plot Time: 29-Jul-17 15:53:36
Plot Range: 7200 ft to 8572.42 ft
Data: LR_4_65_28_1V\Well Based\MAIN\
Plot File: \\COMP\CONOCO_COMPOSITE_MAIN

MAIN PASS 5" = 100'


0.2
RT10
2K
Ohm-m
0.2
RT20
2K
Ohm-m
0.2
RT30
2K
Ohm-m
0.2
RT60
2K
Ohm-m
0.2
RT90
2K
Ohm-m
6
Caliper
16
inches
0
Gamma API
150
api
8K
Tens
2K
pounds
30
Neutron Porosity
-10
percent
30
Density Porosity
-10
percent
Gamma API
Caliper
Neutron Porosity
Density Porosity
7300


RT90
RT10
7400
Tens
Gamma API
7500
Caliper
Neutron Porosity
Density Porosity


RT90
RT10
7600
RT60
RT30
RT20
Tens
7700
Gamma API
Caliper
Neutron Porosity
Density Porosity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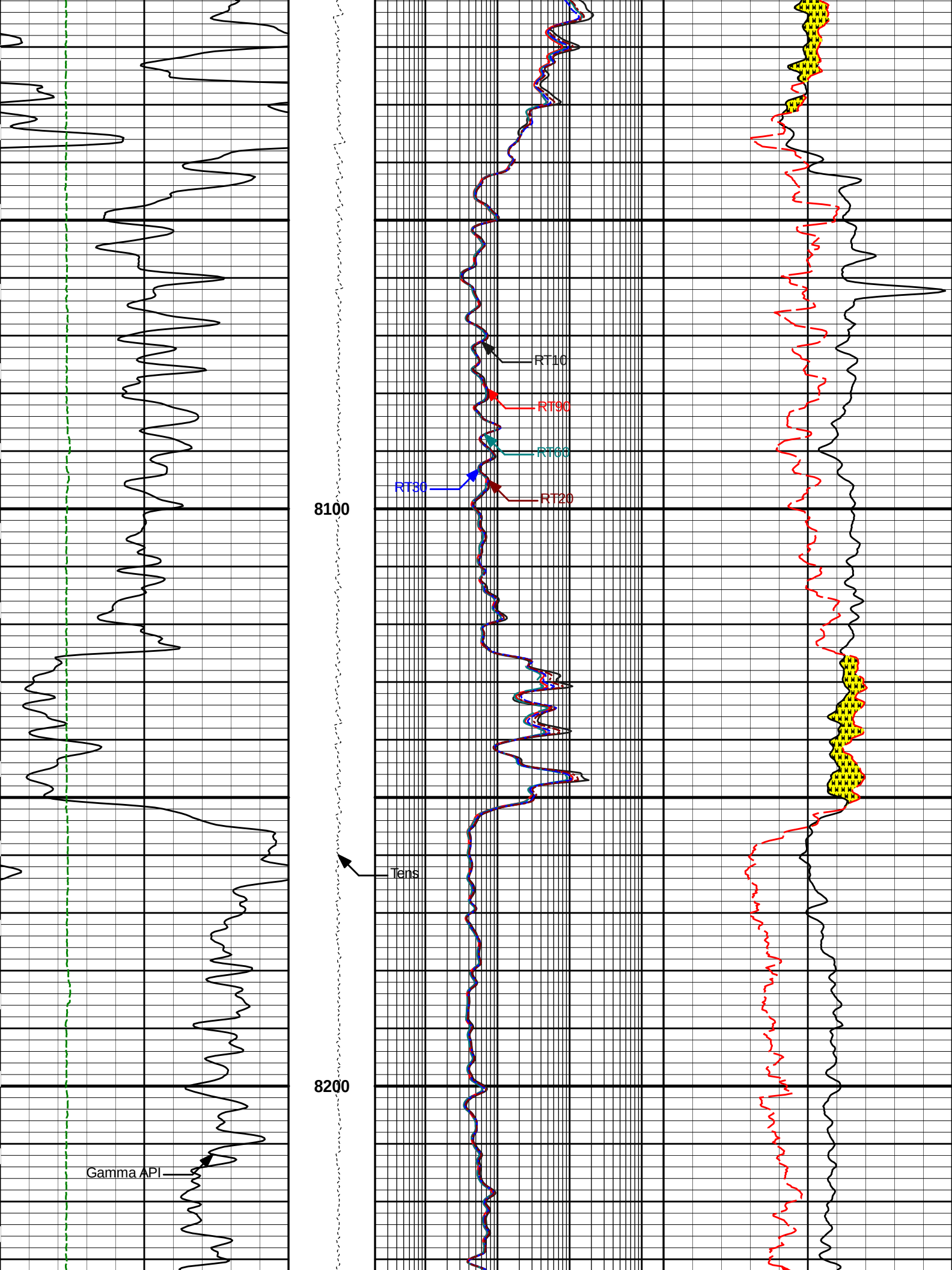
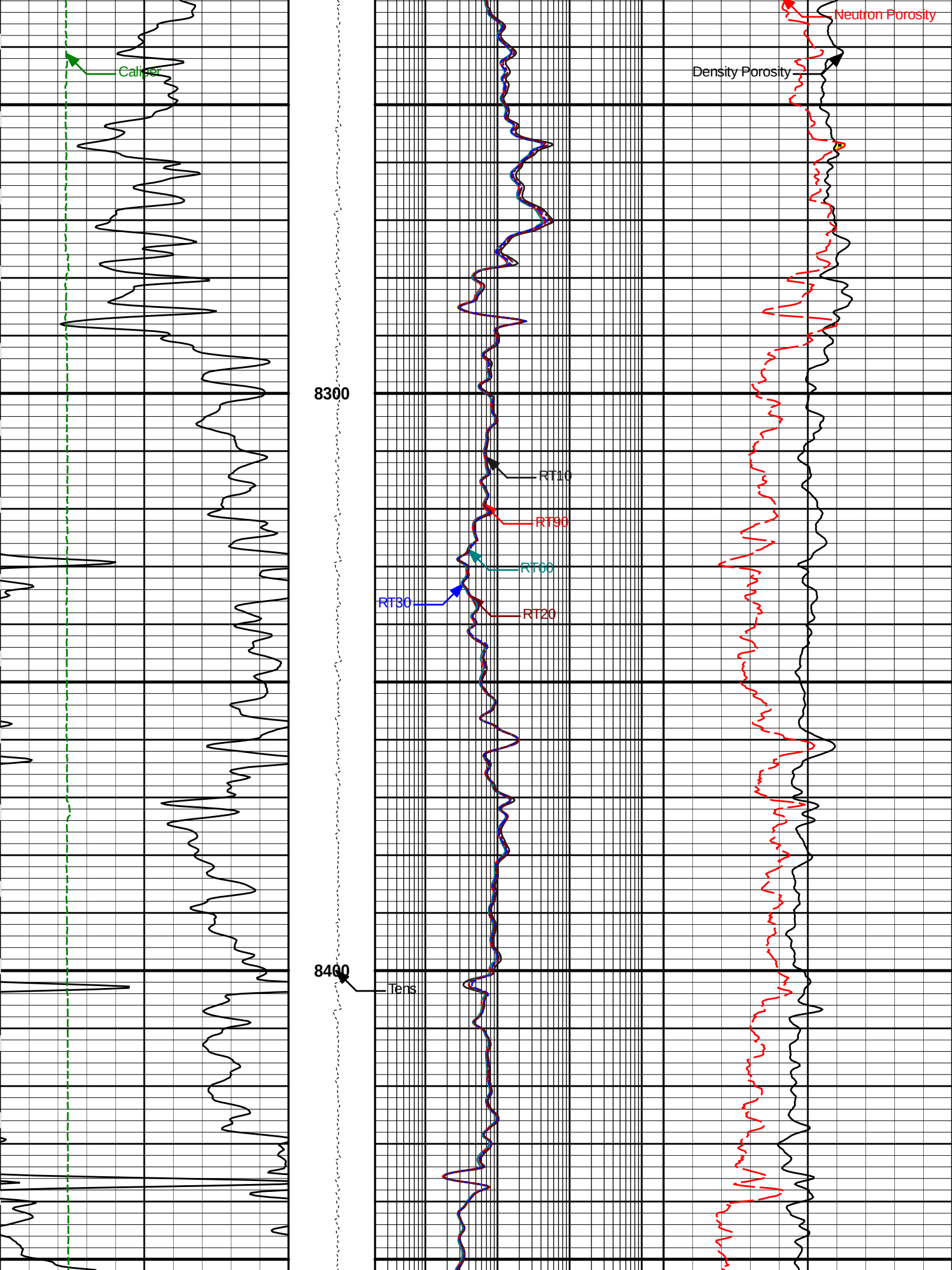
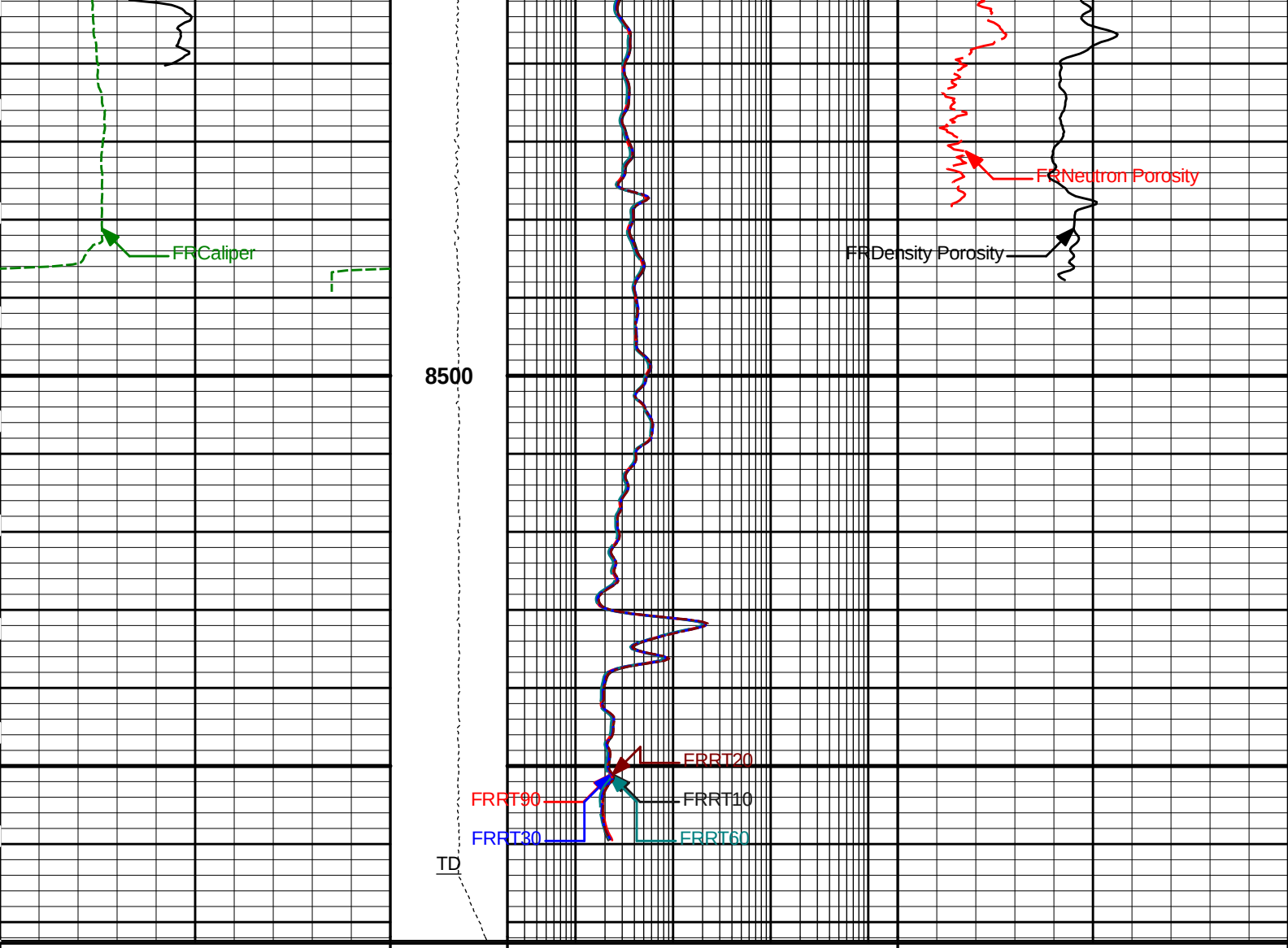
8000
RT10
RT90
RT30
RT60
RT20
Tens
Gamma API
Caliper
Neutron Porosity
Density Porosity


RT10
RT90
RT60
RT30
RT20
8100
Tens
8200
Gamma API


Caliper
8300
RT10
RT90
RT60
RT30
RT20
8400
Tens
Density Porosity
Neutron Porosity



0 Gamma API 150	8K Tens 2K	0.2 RT90 2K
api	pounds	Ohm-m
6 Caliper 16		0.2 RT60 2K
inches		Ohm-m
		0.2 RT30 2K
		Ohm-m
		0.2 RT20 2K
		Ohm-m
		0.2 RT10 2K
		Ohm-m

30 Density Porosity -10
percent
30 Neutron Porosity -10
percent

HALLIBURTON

Plot Time: 29-Jul-17 15:53:39
Plot Range: 7200 ft to 8572.42 ft
Data: LR_4_65_28_1V\Well Based\MAIN\
Plot File: \\COMP\CONOCO_COMPOSITE_MAIN

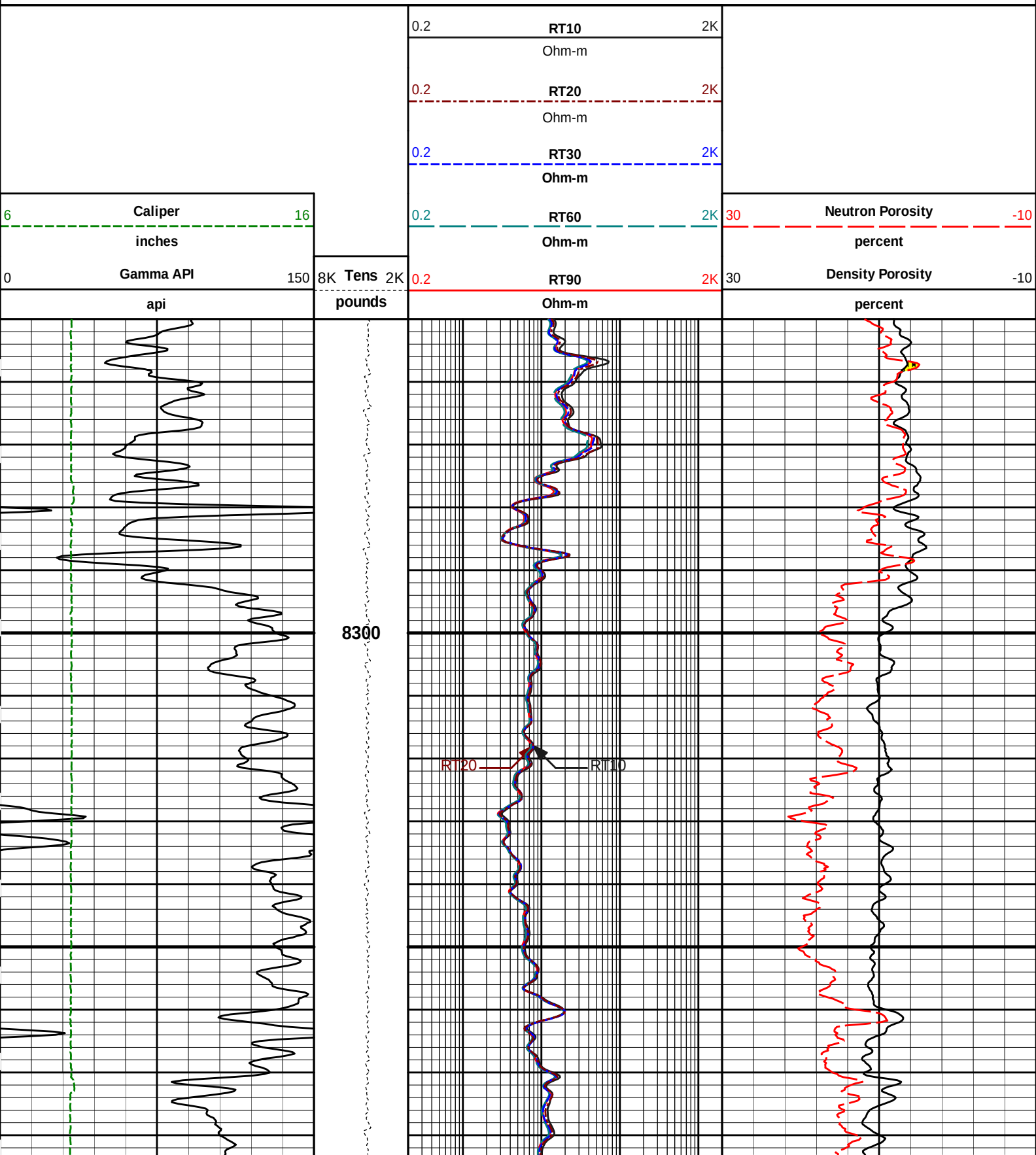
MAIN PASS 5" = 100'

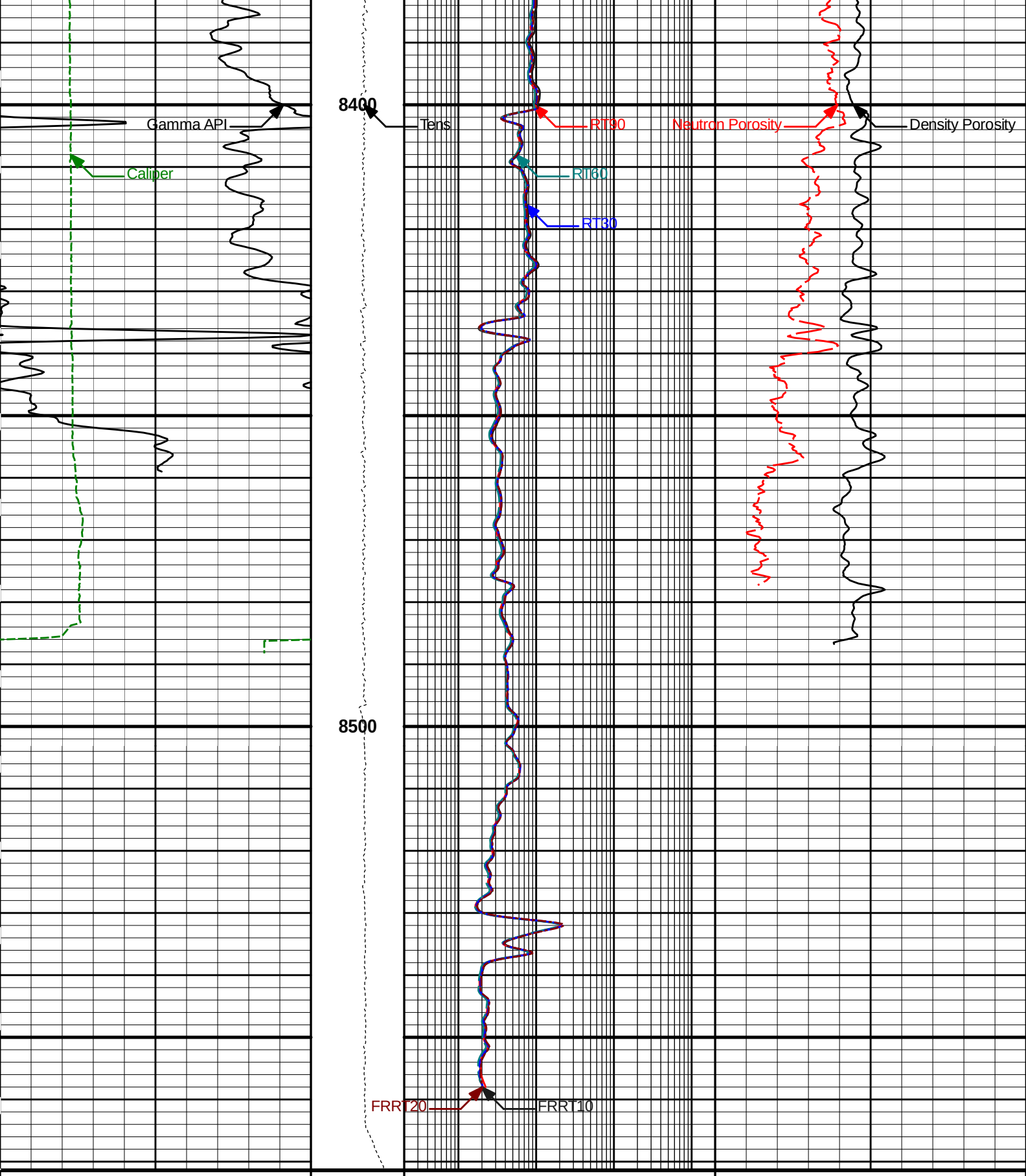
HALLIBURTON

Plot Time: 29-Jul-17 15:53:39
Plot Range: 8250 ft to 8571.25 ft

Plot Range: 8250 ft to 8371.25 ft
Data: LR_4_65_28_1V\Well Based\RPT\
Plot File: \\COMP\CONOCO_COMPOSITE_RPT

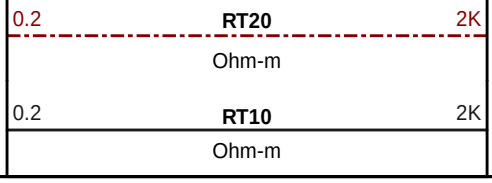
REPEAT PASS 5" = 100'





0 Gamma API 150	8K Tens 2K	0.2 RT90 2K
api	pounds	Ohm-m
6 Caliper 16		0.2 RT60 2K
inches		Ohm-m
		0.2 RT30 2K
		Ohm-m

30 Density Porosity -10
percent
30 Neutron Porosity -10
percent



HALLIBURTON

Plot Time: 29-Jul-17 15:53:41
Plot Range: 8250 ft to 8571.25 ft
Data: LR_4_65_28_1V\Well Based\RPT
Plot File: \\COMP\CONOCO_COMPOSITE_RPT

REPEAT PASS 5" = 100'

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	**GTET - 11294346**	**Reference Calibration Date:**	**15-Jun-17 12:16:08**
Engineer:	**T. WENZEL**	**Calibration Date:**	**14-Jul-17 09:43:33**
Software Version:	**WL INSITE R5.0.5 (Build 8)**	**Calibration Version:**	**1**

Calibrator Source S/N: TB-689
Calibrator API Reference:243.00 api
Equivalent Calibrator API Reference:247.3 api

Measurement	Measured	Calibrated	Units
Background	51.2	50.7	api
Background + Calibrator	301.0	297.9	api
Calibrator	249.8	247.3	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name:	**GTET - 11294346**	**Reference Calibration Date:**	**14-Jul-17 09:43:33**
Engineer:	**J. HEATHERLY**	**Calibration Date:**	**26-Jul-17 15:48:25**
Software Version:	**WL INSITE R5.0.5 (Build 8)**	**Calibration Version:**	**1**

Calibrator Source S/N: TB-689
Calibrator API Reference:243.00 api
Equivalent Calibrator API Reference:247.3 api

Field Verification	Shop	Field	Units
Background	50.7	46.0	api
Background + Calibrator	297.9	294.1	api
Calibrator	247.3	248.1	api

Shop	Field	Difference	Tolerance
247.3	248.1	-0.8	+/- 9.00

CSNG-FS SHOP CALIBRATION

Tool Name:	**CSNG - 11351052**	**Reference Calibration Date:**	**13-Jul-17 10:31:27**
Engineer:	**J. HEATHERLY**	**Calibration Date:**	**26-Jul-17 13:43:37**
Software Version:	**WL INSITE R5.0.5 (Build 8)**	**Calibration Version:**	**1**
Source SN:	**TB-689**		

TITANIUM CASE	Measured	Calibrated	Units
60 KEV Peak Channel #	48.0	48.0	Channel #
239 KEV Peak Channel #	23.4	23.4	Channel #
583 KEV Peak Channel #	52.4	52.3	Channel #
2614 KEV Peak Channel #	215.3	215.1	Channel #
Calibrate Temperature	76.5	79.4	degF

Pass/Fail Summary	Centroid
239 KEV Peak	Passed
583 KEV Peak	Passed
2614 KEV Peak	Passed

Blanket Reference Value: 243.00 API
Calibrator Value: 276.0 API

	Counts	Units	Measured	Calibrated	Units
Thorium Blanket	1541.2	CPS	309.6	315.0	API
Background	190.9	CPS	37.0	39.0	API

Gamma Ray Gain: 1.03
Expected Gain Range: 0.85 - 1.15
Gamma Gain Check: Passed

CSNG-FS FIELD CALIBRATION

Tool Name:	**CSNG - 11351052**	**Reference Calibration Date:**	**26-Jul-17 13:43:37**
Engineer:	**J. HEATHERLY**	**Calibration Date:**	**26-Jul-17 13:57:59**
Software Version:	**WL INSITE R5.0.5 (Build 8)**	**Calibration Version:**	**1**
Source SN:			

TITANIUM CASE	Shop	Field	Units
60 KEV Peak Channel #	48.0	48.0	Channel #
239 KEV Peak Channel #	23.4	23.4	Channel #
583 KEV Peak Channel #	52.3	52.5	Channel #
2614 KEV Peak Channel #	215.1	215.5	Channel #
Calibrate Temperature	79.4	83.5	degF

Pass/Fail Summary	Centroid
239 KEV Peak	Passed
583 KEV Peak	Passed
2614 KEV Peak	Passed

Blanket Reference Value: 243.00 API
Calibrator Value: 276.0 API

	Counts	Units	Measured	Calibrated	Units
Thorium Blanket	1536.5	CPS	315.0	315.4	API
Background	192.1	CPS	39.0	39.4	API

Gamma Ray Gain: 1.03
Expected Gain Range: 0.85 - 1.15
Gamma Gain Check: Passed

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	**DSNT - 11020488**	**Reference Calibration Date:**	**15-Jun-17 12:03:05**
Engineer:	**T. WENZEL**	**Calibration Date:**	**14-Jul-17 09:32:27**
Software Version:	**WL INSITE R5.0.5 (Build 8)**	**Calibration Version:**	**1**

Logging Source S/N: DSN-431
Tank Serial Number: ROCK SPRINGS
Reference value assigned to Tank: 49.230
Snow Block S/N: 11335318
Calibration Tank Water Temperature: 74 degF
Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS

Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	0.90893	0.91112	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):	0.1967	0.1974	0.0007	+/- 0.0020
Calibrated Ratio:	9.2442	9.2665	0.022	+/- 0.050

VERIFIER

Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0607	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 - 11020488**	**Reference Calibration Date:**	**14-Jul-17 09:32:27**
Engineer:	**J. HEATHERLY**	**Calibration Date:**	**26-Jul-17 16:22:39**
Software Version:	**WL INSITE R5.0.5 (Build 8)**	**Calibration Version:**	**1**

Logging Source S/N: DSN-431
Snow Block S/N: 11335318

NEUTRON FIELD-CHECK SUMMARY

	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0607	0.0586	-0.0022	+/- 0.0150

PASS/FAIL SUMMARY

Block Change Check:	Passed
Snow Block Stat Check:	Passed
Temperature Check:	Passed

DENSITY CALIPER SHOP CALIBRATION

Tool Name:	**SDLT - 10935813**	**Reference Calibration Date:**	**15-Jun-17 10:47:15**
Engineer:	**J. HEATHERLY**	**Calibration Date:**	**18-Jul-17 15:15:27**
Software Version:	**WL INSITE R5.0.5 (Build 8)**	**Calibration Version:**	**1**
Host Tool Name:	**DSNT - 11020488**		

CALIBRATION COEFFICIENTS			
Measurement	**Previous Value**	**New Value**	**Control Limit On New Value**
Pad Offset	-2880.65	-2680.05	-7000.00 - -1000.00
Pad Gain	0.0003949	0.0003856	0.0002000 - 0.0006000
Arm Offset	-3810.05	-3773.54	-5000.00 - 3000.00
Arm Gain	0.0005648	0.0005286	0.000300 - 0.000700
Arm Power	-0.000005353	-0.000002625	-0.000010000 - 0.000010000

The ring diameter is computed from: DIAMETER = PAD EXTENSION + ARM EXTENSION + TOOL DIAMETER

Tool Diameter: 4.50 in

CALIBRATION RINGS				
Measurement	**Current Reading (Previous Coeff.)**	**Calibrated (New Coeff.)**	**Change**	**Control Limit On New Value**
PAD EXTENSION:				
Small Ring (in)	1.97	2.00	0.03	+/- 0.20
Medium Ring (in)	3.76	3.75	-0.01	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.51	6.50	-0.01	+/- 0.20
Medium Ring (in)	8.33	8.25	-0.08	+/- 0.20
Large Ring (in)	14.95	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 - 10935813 **Reference Calibration Date:** 18-Jul-17 15:15:27

Engineer: J. HEATHERLY **Calibration Date:** 26-Jul-17 16:34:46

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

MEASURED CALIPER VALUES				
Measurement	**Shop**	**Field**	**Change**	**Control Limit On New Value**
Pad Extension	3.75	3.72	-0.03	+/- 0.10
Ring Diameter	8.25	8.24	-0.01	+/- 0.15

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

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name: SDLT Pad - 10746390 **Reference Calibration Date:** 13-Jul-17 15:55:16

Engineer: T. WENZEL **Calibration Date:** 13-Jul-17 16:15:47

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

Logging Source S/N: 5235GW

Aluminum Block S/N: ROCK SPRINGS Density: 2.602g/cc Pe: 3.110

Magnesium Block S/N: ROCK SPRINGS Density: 1.690g/cc Pe: 2.610

DENSITY CALIBRATION SUMMARY			
Measurement	**Previous Value**	**New Value**	**Control Limit**
Near Bar Gain	1.0495	1.0389	0.90 - 1.10

Near Dens Gain	1.0401	1.0223	0.90 - 1.10
Near Peak Gain	1.0362	1.0206	0.90 - 1.10
Near Lith Gain	1.0078	0.9978	0.90 - 1.10
Far Bar Gain	1.0150	1.0127	0.90 - 1.10
Far Dens Gain	1.0023	0.9992	0.90 - 1.10
Far Peak Gain	0.9936	0.9934	0.90 - 1.10
Far Lith Gain	0.9707	0.9702	0.90 - 1.10
Near Bar Offset	-0.2956	-0.1978	NONE
Near Dens Offset	-0.1979	-0.0388	NONE
Near Peak Offset	-0.1552	-0.0270	NONE
Near Lith Offset	0.0730	0.1567	NONE
Far Bar Offset	-0.1172	-0.0977	NONE
Far Dens Offset	0.0416	0.0678	NONE
Far Peak Offset	0.1140	0.1143	NONE
Far Lith Offset	0.2349	0.2381	NONE
Near Bar Background	852.58	856.33	700 - 1450
Near Dens Background	280.78	280.06	230 - 480
Near Peak Background	122.41	121.84	100 - 210
Near Lith Background	150.91	149.33	125 - 260
Far Bar Background	510.64	512.49	450 - 900
Far Dens Background	202.93	202.88	175 - 345
Far Peak Background	80.35	80.75	70 - 140
Far Lith Background	84.77	84.69	75 - 145

CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.689	1.690	0.001	+/- 0.015
Pe	2.574	2.576	0.002	+/- 0.150
ALUMINUM				
Density (g/cc)	2.599	2.602	0.003	+/- 0.01500
Pe	3.084	3.082	-0.002	+/- 0.150

TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0005	+/- 0.0110	-0.0007	+/- 0.0140
Magnesium Block	0.0011	+/- 0.0110	-0.0002	+/- 0.0140
Aluminum Block	-0.0008	+/- 0.0110	-0.0006	+/- 0.0140
Resolution	8.67	6.00 - 11.50	8.95	6.00 - 11.50
Internal Verifier(B+D+P+L)	1408	1200 - 2700	881	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

Changes in Calibration Blocks:	Passed

SPECTRAL DENSITY FIELD CHECK

Tool Name:	**SDLT Pad - 10746390**	**Reference Calibration Date:**	**13-Jul-17 16:15:47**
Engineer:	**J. HEATHERLY**	**Calibration Date:**	**26-Jul-17 16:35:43**
Software Version:	**WL INSITE R5.0.5 (Build 8)**	**Calibration Version:**	**1**

Pad Temperature: 78.8 degF

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1407.558	1401.906	-5.652	15.149
Far (B+D+P+L) cps	880.814	880.381	-0.433	16.192
Near Resolution	8.67	8.64	-0.030	0.50
Far Resolution	8.95	9.14	0.190	1.00

PASS/FAIL SUMMARY

Bkg Quality Check:	Passed
Bkg Resolution Check:	Passed
Bkg Verification Check:	Passed

ACCELEROMETER AND MAGNETOMETER SHOP CALIBRATION

Tool Name:	**IDT - 10937715**	**Reference Calibration Date:**	**20-Aug-16 11:15:56**
Engineer:	**B. ERICKSON**	**Calibration Date:**	**18-Feb-17 15:12:50**
Software Version:	**WL INSITE R5.0.5 (Build 8)**	**Calibration Version:**	**1**

Reference Gravity Field: 1.0000 g

Reference Magnetic Field: 52550.0000 nT

* QF : value of 0 is shown for bad quality if | data - reference | > (2 * standard deviation) and > (0.5% of reference value)

ACCELEROMETER CALIBRATION RAW DATA VALUE

Raw Acc X	Raw Acc Y	Raw Acc Z	Quality(Gravity)	Quality Error(%)	QF
0.0327	0.7363	-0.0080	0.9993	99.9350	1
0.7026	-0.1125	-0.0079	1.0000	99.9990	1
-0.1268	-0.7169	-0.0130	0.9991	99.9124	1
-0.7243	0.1416	-0.0094	0.9996	99.9635	1
0.0823	0.7312	-0.0015	0.9992	99.9200	1
0.0541	0.6783	0.1320	1.0014	99.8643	1
0.0663	0.7340	-0.0166	1.0003	99.9737	1
0.7067	-0.0827	-0.0172	1.0000	99.9976	1
-0.1490	-0.7142	-0.0169	1.0009	99.9081	1
-0.7341	0.0745	-0.0165	1.0004	99.9630	1
-0.4951	0.0387	0.2613	0.9995	99.9521	1
-0.6540	0.0605	-0.1769	1.0003	99.9718	1

ACCELEROMETER QUALITY SUMMARY

Average Calculated Gravity Field	1.0000	g
Standard Deviation Calculated Gravity Field	0.0007	g

ACCELEROMETER GAIN AND OFFSET

	GAIN	OFFSET
ACC X	1.3799703121	0.0172735676
ACC Y	1.3651816845	-0.0078448439
ACC Z	2.7466769218	0.0262247659

* QF : value of 0 is shown for bad quality if | data - reference | > (3 * standard deviation) and > (1% of reference value)

MAGNETOMETER CALIBRATION RAW DATA VALUE					
Raw Mag X	Raw Mag Y	Raw Mag Z	Quality(Magnetic)	Quality Error(%)	QF
-0.5521	-1.1395	-0.1426	52515.0078	99.9334	1
-1.0765	0.6573	-0.1493	52583.9570	99.9354	1
0.6720	1.0714	-0.1664	52535.4492	99.9723	1
1.0773	-0.6914	-0.1567	52549.4492	99.9989	1
-0.2822	-1.1346	0.4905	52556.4688	99.9877	1
0.0009	-1.2781	-0.0008	52590.7227	99.9225	1
-0.0039	-1.1698	-0.5083	52534.9492	99.9714	1
-1.1651	0.0050	-0.5062	52530.0938	99.9621	1
0.0945	1.1601	-0.5017	52545.1133	99.9907	1
1.1866	0.0220	-0.5005	52564.1016	99.9732	1
1.1692	-0.0146	0.5206	52533.8047	99.9692	1
0.8310	0.0037	-0.9648	52560.6250	99.9798	1

MAGNETOMETER QUALITY SUMMARY		
Average Calculated Magnetic Field	52549.9766	nT
Standard Deviation Calculated Magnetic Field	22.3819	nT

MAGNETOMETER GAIN AND OFFSET		
	GAIN	OFFSET
MAG X	41002.8867187500	-374.0755004883
MAG Y	41305.8007812500	204.6250305176
MAG Z	42164.8632812500	345.0041809082

Noise Level Value: 0.000327 cnts

Noise Level Cal Value: 0.0009 g

ICT SHOP CALIBRATION

Tool Name: ICT Mandrel - 12027047 **Reference Calibration Date:** 31-May-17 14:43:10

Engineer: J. HEATHERLY **Calibration Date:** 26-Jul-17 11:40:58

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

CALIPERS AND RINGS			
Ring	Measured	Calibrated	Units
CALIPER 1:			
Small Ring	3.70	3.65	in
Medium Ring	8.08	8.00	in
Large Ring	15.15	15.00	in
X-Large Ring	21.02	21.00	in
CALIPER 2:			
Small Ring	3.68	3.65	in
Medium Ring	7.96	8.00	in
Large Ring	15.00	15.00	in
X-Large Ring	20.95	21.00	in
CALIPER 3:			
Small Ring	3.54	3.65	in
Medium Ring	7.90	8.00	in
Large Ring	14.90	15.00	in
X-Large Ring	20.92	21.00	in
CALIPER 4:			
Small Ring	3.51	3.65	in
Medium Ring	7.85	8.00	in
Large Ring	14.72	15.00	in

X-Large Ring	20.80	21.00	in
CALIPER 5:			
Small Ring	3.59	3.65	in
Medium Ring	8.01	8.00	in
Large Ring	14.95	15.00	in
X-Large Ring	20.97	21.00	in
CALIPER 6:			
Small Ring	3.65	3.65	in
Medium Ring	8.06	8.00	in
Large Ring	15.06	15.00	in
X-Large Ring	20.95	21.00	in

ICT FIELD CALIBRATION

Tool Name: ICT Mandrel - 12027047
Reference Calibration Date: 26-Jul-17 11:40:58
Engineer: J. HEATHERLY
Calibration Date: 26-Jul-17 11:43:49
Software Version: WL INSITE R5.0.5 (Build 8)
Calibration Version: 1

CALIPERS

Caliper	Shop	Field	Units
Caliper 1	8.00	7.99	in
Caliper 2	8.00	8.00	in
Caliper 3	8.00	8.02	in
Caliper 4	8.00	7.99	in
Caliper 5	8.00	7.99	in
Caliper 6	8.00	7.99	in

WAVE CALIBRATION

Tool Name: WSTT-I Receivers - 11000327
Reference Calibration Date: 22-Jul-16 10:58:43
Engineer: J. HEATHERLY
Calibration Date: 28-Jul-17 15:43:19
Software Version: WL INSITE R5.0.5 (Build 8)
Calibration Version: 1
Calibration Depth: 2853.47 ft
Calibration Pressure: 1329.00 psia

WAVE RECEIVER CALIBRATION

Receiver	Verification Gain			
	Limit 0.9 - 1.1			
	A	B	C	D
1	1.02288	1.02071	1.02626	1.02367
2	0.98710	1.70768	1.00865	1.01579
3	0.99620	0.99886	1.00054	0.99277
4	0.97833	0.97581	0.97969	0.97572
5	0.97145	0.96223	0.96747	0.96803
6	0.99673	1.01153	0.99993	0.99411
7	0.98928	1.02678	1.03029	1.01680
8	1.01266	1.01886	1.01471	1.01589

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

Tool Name: ACRt Sonde - 10988480
Reference Calibration Date: 10-Jun-17 16:37:26
Engineer: B. ERICKSON
Calibration Date: 14-Jul-17 09:48:32
Software Version: WL INSITE R5.0.5 (Build 8)
Calibration Version: 1
Host Tool Name: ACRt Instrument - 10988483

TYPICAL GAIN RANGE

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.0059	1.05	0.95	1.0073	1.05	0.95	1.0069	1.05
A2 (50")	0.95	1.0189	1.05	0.95	1.0203	1.05	0.95	1.0176	1.05
A3 (29")	0.95	1.0010	1.05	0.95	1.0016	1.05	0.95	1.0017	1.05
A4 (17")	0.95	1.0025	1.05	0.95	1.0012	1.05	0.95	1.0028	1.05
A5 (10")	N/A	N/A	N/A	0.95	1.0005	1.05	0.95	1.0001	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.9960	1.05	0.95	0.9965	1.05

SONDE OFFSET

Subarray	R12KHz	R36KHz	R72KHz
	(mmho/m)	(mmho/m)	(mmho/m)
A1 (80")	-1.052	-3.880	-4.560
A2 (50")	-1.317	-3.230	-4.107
A3 (29")	-11.230	-2.770	-2.432
A4 (17")	-106.635	-34.185	-26.610
A5 (10")	N/A	-105.407	-49.057
A6 (6")	N/A	321.074	158.819

TRANSMITTER CURRENT GAIN

Signal	Lower	R	Upper
12K	0.6	0.89	1.3
36K	1.0	1.27	2.0
72K	1.0	1.42	2.0

R-MUD VERIFICATION

Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
Mud Cell	0.95	1.00	1.05

PASS/FAIL SUMMARY

GAIN RANGE CHK	PASS
SONDE OFFSET CHK	PASS

TOOL OK TO LOG

Data: LR_4_65_28_1V\0001 BLACK_QUAD_CSNG_IDT_ICT_WSTT\IDLE **Date: 28-Jul-17 19:21:26**

HALLIBURTON

CUSTOMER EVENT LOG

Event Type	Time & Date	Depth (ft)	Event Description
	28-Jul-17 15:47:11.433	2421.50	Logging 001 28-Jul-17 15:47 Up @2421.5f
	28-Jul-17 15:53:33.322	2266.66	Halting 001 28-Jul-17 15:47 Up @2421.5f
	28-Jul-17 15:56:11.725	2607.75	Logging 002 28-Jul-17 15:56 Dn @2607.8f
	28-Jul-17 16:07:23.224	5120.75	Halting 002 28-Jul-17 15:56 Dn @2607.8f
	28-Jul-17 16:25:58.438	8573.50	Logging 003 28-Jul-17 16:25 Up @8573.5f
	28-Jul-17 16:50:29.234	8238.11	Halting 003 28-Jul-17 16:25 Up @8573.5f
	28-Jul-17 16:54:30.731	8574.00	Logging 004 28-Jul-17 16:54 Up @8574.0f
	28-Jul-17 18:02:07.260	8571.50	Relogging 003.01 28-Jul-17 17:58 Up
	28-Jul-17 18:05:50.739	8236.89	Halting 003.01 28-Jul-17 17:58 Up
	28-Jul-17 18:35:46.257	7183.44	Halting 004 28-Jul-17 16:54 Up @8574.0f
	28-Jul-17 18:38:07.202	7459.00	Logging 005 28-Jul-17 18:38 Up @7459.0f
	28-Jul-17 18:49:47.369	7137.47	Halting 005 28-Jul-17 18:38 Up @7459.0f

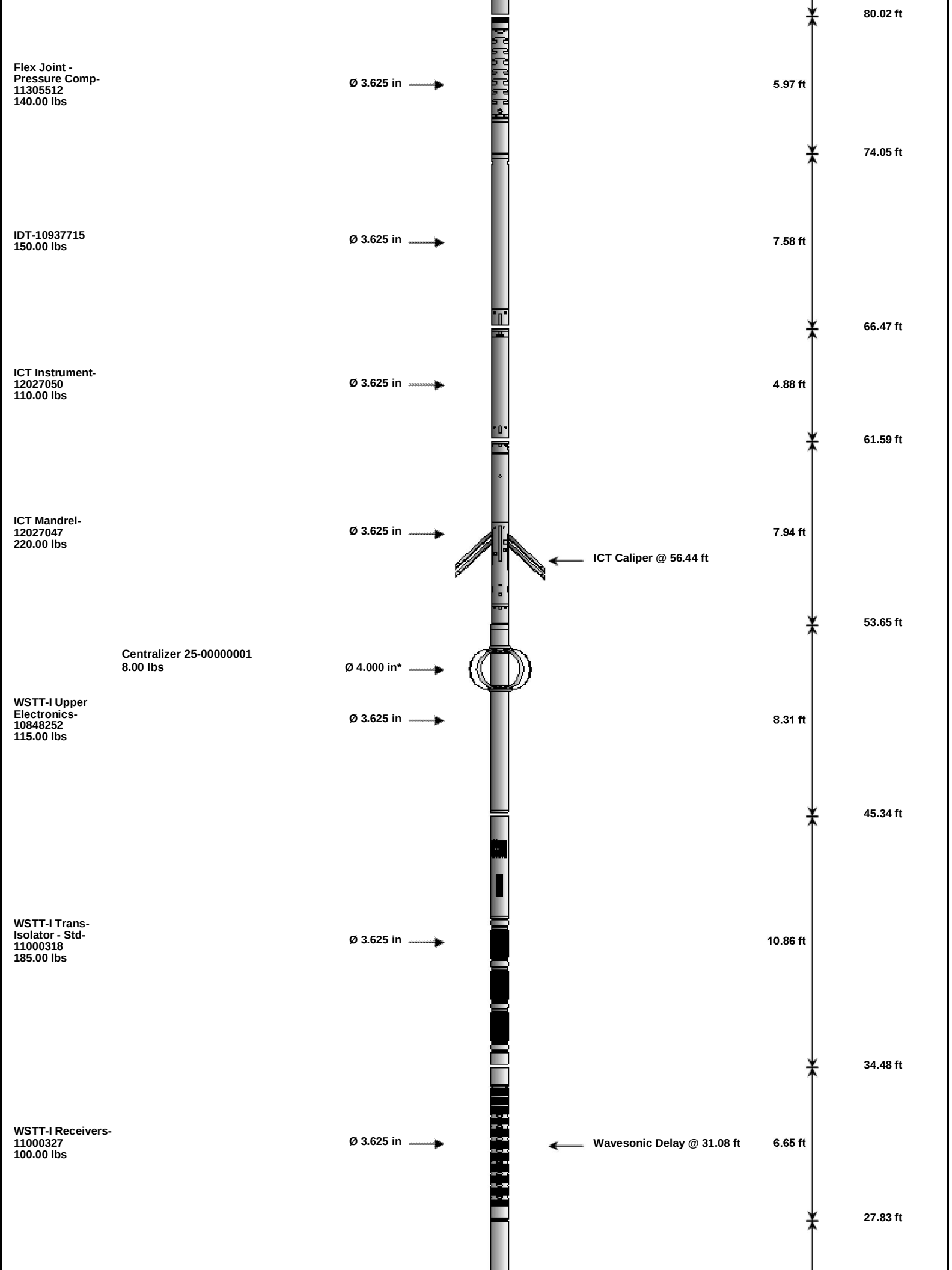
28-Jul-17 18:59:59.849	8572.50	Relogging 004.01 28-Jul-17 18:58 Up
28-Jul-17 19:08:37.686	2451.50	Logging 006 28-Jul-17 19:08 Up @2451.5f
28-Jul-17 19:13:41.009	7187.93	Halting 004.01 28-Jul-17 18:58 Up
28-Jul-17 19:13:43.484	2060.04	Halting 006 28-Jul-17 19:08 Up @2451.5f

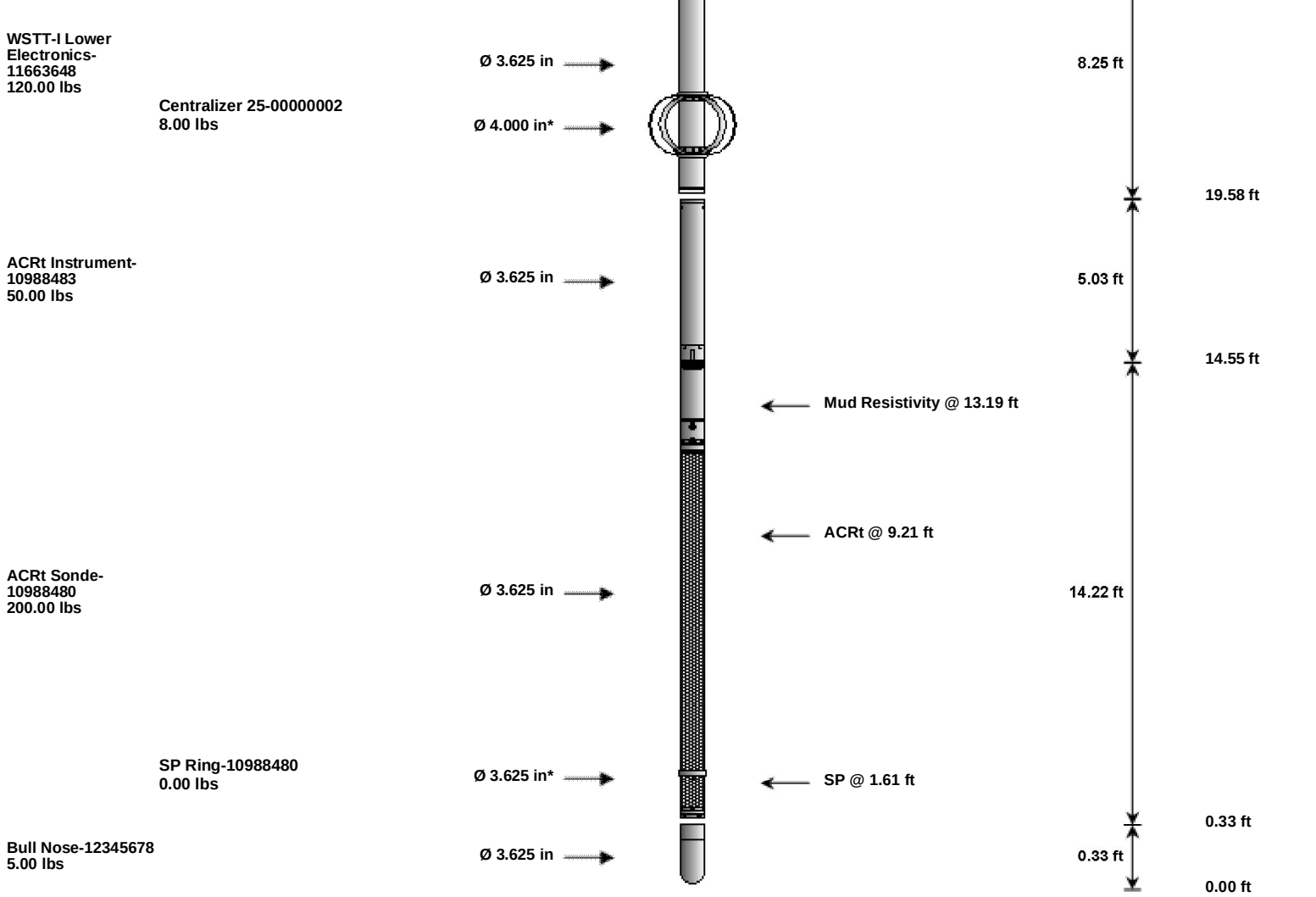
Data: LR_4_65_28_1V\0001 BLACK_QUAD_CSNG_IDT_ICT_WSTT\HW11534 **Date: 28-Jul-17 19:22:30**

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
		Ø 2.310 in		Fishing Neck @ 122.58 ft		123.46 ft
RWCH-11978014 135.00 lbs		Ø 3.625 in		Load Cell @ 119.77 ft BH Temperature @ 119.21 ft	6.25 ft	
				Z-Accelerometer @ 116.75 ft		117.21 ft
GTET-11294346 165.00 lbs		Ø 3.625 in		GammaRay @ 111.14 ft	8.52 ft	
						108.69 ft
CSNG-11351052 114.00 lbs		Ø 3.625 in		CSNG @ 103.06 ft	8.17 ft	
						100.52 ft
DSNT-11020488 174.00 lbs	DSN Decentralizer-11335318 6.60 lbs	Ø 5.000 in* Ø 3.625 in		DSN Far @ 93.58 ft DSN Near @ 92.83 ft	9.69 ft	
						90.83 ft
SDLT-10935813 360.00 lbs		Ø 4.500 in			10.81 ft	
	SDLT Pad-10746390 65.00 lbs	Ø 4.500 in*		SDL Caliper @ 82.83 ft SDL @ 82.82 ft		


80.02 ft
Flex Joint -
Pressure Comp-
11305512
140.00 lbs
Ø 3.625 in
5.97 ft
74.05 ft
IDT-10937715
150.00 lbs
Ø 3.625 in
7.58 ft
66.47 ft
ICT Instrument-
12027050
110.00 lbs
Ø 3.625 in
4.88 ft
61.59 ft
ICT Mandrel-
12027047
220.00 lbs
Ø 3.625 in
7.94 ft
ICT Caliper @ 56.44 ft
53.65 ft
Centralizer 25-00000001
8.00 lbs
Ø 4.000 in*
WSTT-I Upper
Electronics-
10848252
115.00 lbs
Ø 3.625 in
8.31 ft
45.34 ft
WSTT-I Trans-
Isolator - Std-
11000318
185.00 lbs
Ø 3.625 in
10.86 ft
34.48 ft
WSTT-I Receivers-
11000327
100.00 lbs
Ø 3.625 in
Wavesonic Delay @ 31.08 ft
6.65 ft
27.83 ft



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)		Accumulated Length (ft)	Max.Log. Speed (fpm)
RWCH	Releasable Wireline Cable Head	11978014	135.00	6.25		117.21	300.00
GTET	Gamma Telemetry Tool	11294346	165.00	8.52		108.69	60.00
CSNG	Compensated Spectral Natural Gamma	11351052	114.00	8.17		100.52	15.00
DSNT	Dual Spaced Neutron	11020488	174.00	9.69		90.83	60.00
DCNT	DSN Decentralizer	11335318	6.60	5.13	*	94.16	300.00
SDLT	Spectral Density Tool	10935813	360.00	10.81		80.02	60.00
SDLP	Density Insite Pad	10746390	65.00	2.55	*	82.23	60.00
FLEX	Flex Joint - Pressure Compensated	11305512	140.00	5.97		74.05	300.00
IDT	Insite Directional Tool	10937715	150.00	7.58		66.47	60.00
ICT	Six Independent Arm Caliper Instrument	12027050	110.00	4.88		61.59	60.00
ICT	Six Independent Arm Caliper Mandrel	12027047	220.00	7.94		53.65	60.00
WSTT	WaveSonic Insite - Upper Electronics	10848252	115.00	8.31		45.34	100.00
OBCEN	Centralizer - 25 in. Overbody	00000001	8.00	2.08	*	50.66	300.00
WSTT	WaveSonic Insite - Trans-Isolator - Std	11000318	185.00	10.86		34.48	100.00
WSTT	WaveSonic Insite - Receivers	11000327	100.00	6.65		27.83	30.00
WSTT	WaveSonic Insite - Lower Electronics	11663648	120.00	8.25		19.58	100.00
OBCEN	Centralizer - 25 in. Overbody	00000002	8.00	2.08	*	20.69	300.00
ACRt	Array Compensated True Resistivity Instrument Section	10988483	50.00	5.03		14.55	120.00
ACRt	Array Compensated True Resistivity Sonde Section	10988480	200.00	14.22		0.33	120.00
SP	SP Ring	10988480	0.00	0.25	*	1.61	300.00
BLNS	Bull Nose	12345678	5.00	0.33		0.00	300.00
Total			**2,430.60**	**123.46**			

* Not included in Total Length and Length Accumulation.

Data: LR_4_65_28_1V\0001 BLACK_QUAD_CSNG_IDT_ICT_WSTT\004.01 28-Jul-17 18:58 Up **Date: 29-Jul-17 12:57:41**

COMPANY **CONOCO PHILLIPS COMPANY**

WELL	**LITTLE RUSH 4-65 28 1V**		
FIELD	**WILDCAT**		
COUNTY	**ARAPAHOE**	STATE	**COLORADO**

HALLIBURTON

SPECTRAL DENSITY
DUAL SPACED NEUTRON
ARRAY COMPENSATED
TRUE RESISTIVITY