

# HALLIBURTON

## SPECTRAL DENSITY DUAL SPACED NEUTRON

\*\*\* MEASURED DEPTH \*\*\*

COMPANY	BREITBURN FLORIDA, LLC		
WELL	RED CATTLE 29-7HL		
FIELD	WEST FELDA		
COUNTY	HENDRY		
STATE	FL		
Permanent Datum	GL	Elev. 29.4 ft	Elev. K.B.
Log measured from	DF	25.5 ft above perm. Datum	D.F.
Drilling measured from	DF		G.L.
Date	08-May-12		0.0 ft
Run No.	TWO		54.9 ft
Depth - Driller	13987.00 ft		29.4 ft
Depth - Logger	13993.0 ft		
Bottom - Logged Interval	13991		
Top - Logged Interval	11884		
Casing - Driller	7.625 in	@ 12184.0 ft	@
Casing - Logger	12184.0 ft		@
Bit Size	6.500 in		@
Type Fluid in Hole	WBM		
Density	8.7 ppq	42.00 spqt	
PH	11.00 pH	6.0 cpbm	
Source of Sample	MUD TANK		
Rm @ Meas. Temperature	0.600 ohmm	@ 72.00 degF	@
Rmf @ Meas. Temperature	0.48 ohmm	@ 72.00 degF	@
Rmc @ Meas. Temperature	0.720 ohmm	@ 72.00 degF	@
Source Rmf	MEAS	MEAS	
Rm @ BHT	0.21 ohmm	@ 203.0 degF	@
Time Since Circulation	14.0 hr		
Time on Bottom	09-May-12 11:39		
Max. Rec. Temperature	203.0 degF	@ 13993.0 ft	@
Equipment Location	5674	LAUREL, MS	
Recorded By	ROLAND VALDEZ		
Witnessed By	W. LONG		M. JONES

Fold here

Service Ticket No.: 9487277		API Serial No.: 09-051-20118-00		PGM Version: WL INSITE R3.4.2 (Build 2)			
CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE				RESISTIVITY SCALE CHANGES			
Date	Sample No.			Type Log	Depth	Scale Up Hole	Scale Down Hole
Depth-Driller							
Type Fluid in Hole							
Density	Viscosity						
Ph	Fluid Loss						
Source of Sample				RESISTIVITY EQUIPMENT DATA			
Rm @ Meas. Temp	0.58 ohmm @ 75 degF	@		Run No.	Tool Type & No.	Pad Type	Tool Pos.
Rmf @ Meas. Temp.	0.46 ohmm @ 75 degF	@		TWO	ACRT-9011962?	NONE	1.5 S.O.
Rmc @ Meas. Temp.	0.69 ohmm @ 75 degF	@					
Source Rmf	Rmc	CALC	CALC				
Rm @ BHT	0.21 ohmm @ 203 degF	@					
Rmf @ BHT	0.17 ohmm @ 203 degF	@					
Rmc @ BHT	0.26 ohmm @ 203 degF	@					
EQUIPMENT DATA							
GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	TWO	Run No.		Run No.	TWO	Run No.	TWO
Serial No.	10881239	Serial No.		Serial No.	10895158	Serial No.	10889020
Model No.	GTET	Model No.		Model No.	SDLT	Model No.	DSNT
Diameter	3.625"	No. of Cent.		Diameter	4.75"	Diameter	3.625"
Detector Model No.	GTET	Spacing		Log Type	GAM-GAM	Log Type	NEU-NEU
Type	SCINT			Source Type	CS137	Source Type	AM241BE
Length	8"	LSA [Y/N]		Serial No.	5108GW	Serial No.	DSN-356
Distance to Source	9.4'	FWDA [Y/N]		Strength	1.5 CI	Strength	15 CI
LOGGING DATA							

Run	GENERAL		Speed	GAMMA		ACOUSTIC		Matrix	DENSITY		NEUTRON			
	Depth			Scale		Scale			Scale		Matrix			
	No.	From		To	ft/min	L	R		L	R	L	R	L	R
TWO	13993	12184	REC	0	150				0.45	-0.15	2.71	0.45	-0.15	LIME
TWO	12184	11684	REC	0	150									

**DIRECTIONAL INFORMATION**

Maximum Deviation @ \_\_\_\_\_ KOP @ \_\_\_\_\_

Remarks: NO ANNULAR HOLE VOLUME CALCULATED  
 CHLORIDES: 2200 -- HEADER, PRESENTATION, AND SCALES AS PER CUSTOMER.  
 LOGGING RUN AS TOOL PUSH OPERATION -- DID NOT TAG BOTTOM SINCE SERVICE RUN AS TOOL PUSH.  
 CREW: SHANKS, FOSTER, LALANDE, THOMAS  
 THANK YOU FOR USING HALLIBURTON ENERGY SERVICES, LAUREL, MS (801-649-9290)

LOG DEPTH TIED TO CASING SHOE AS REQUESTED BY CUSTOMER.

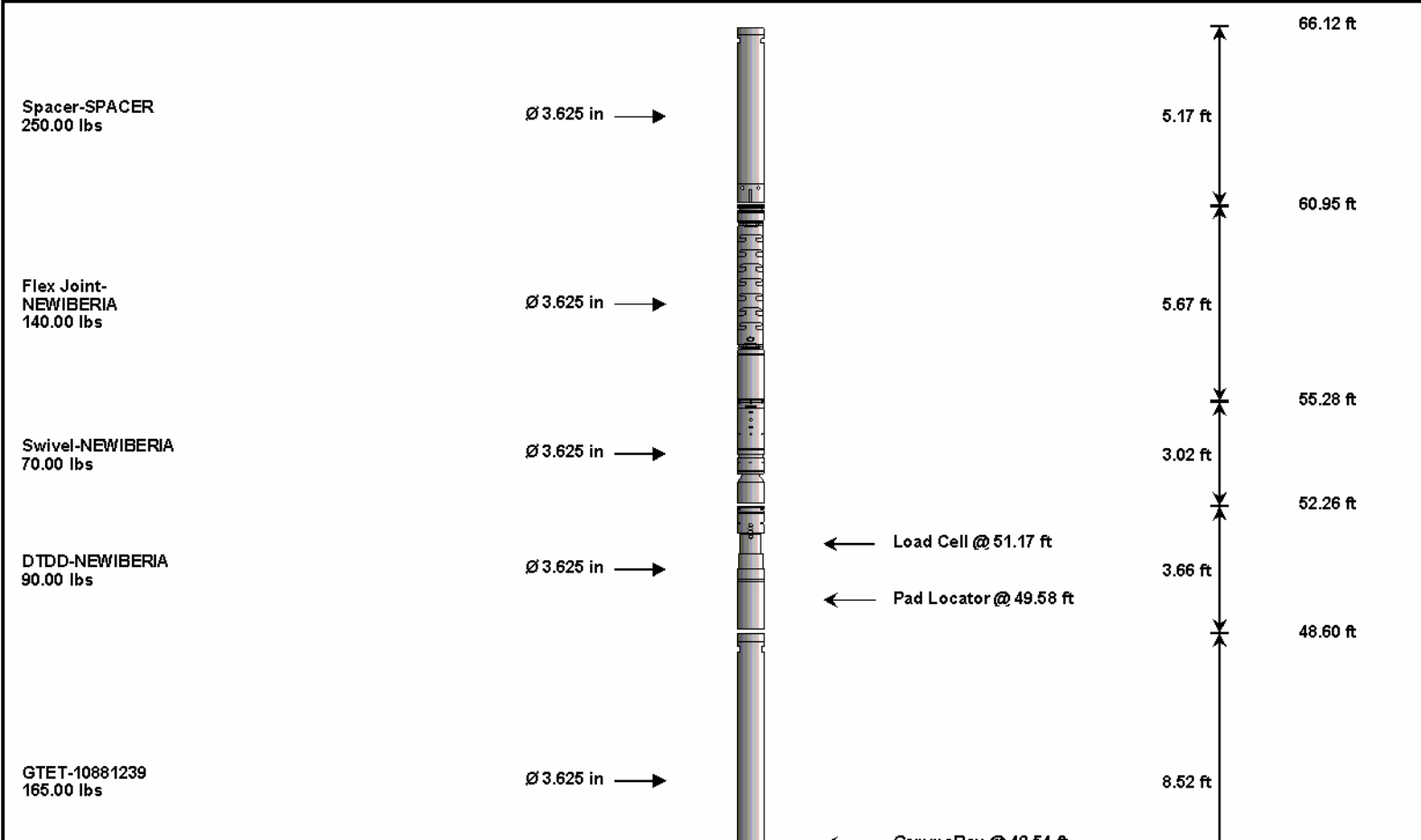
HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHICH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR RECOMMENDATIONS AGREES THAT HALLIBURTON IS NOT RESPONSIBLE EXCEPT WHERE DUE TO GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR ANY LOSS, DAMAGES, OR EXPENSES RESULTING FROM THE USE THEREOF.

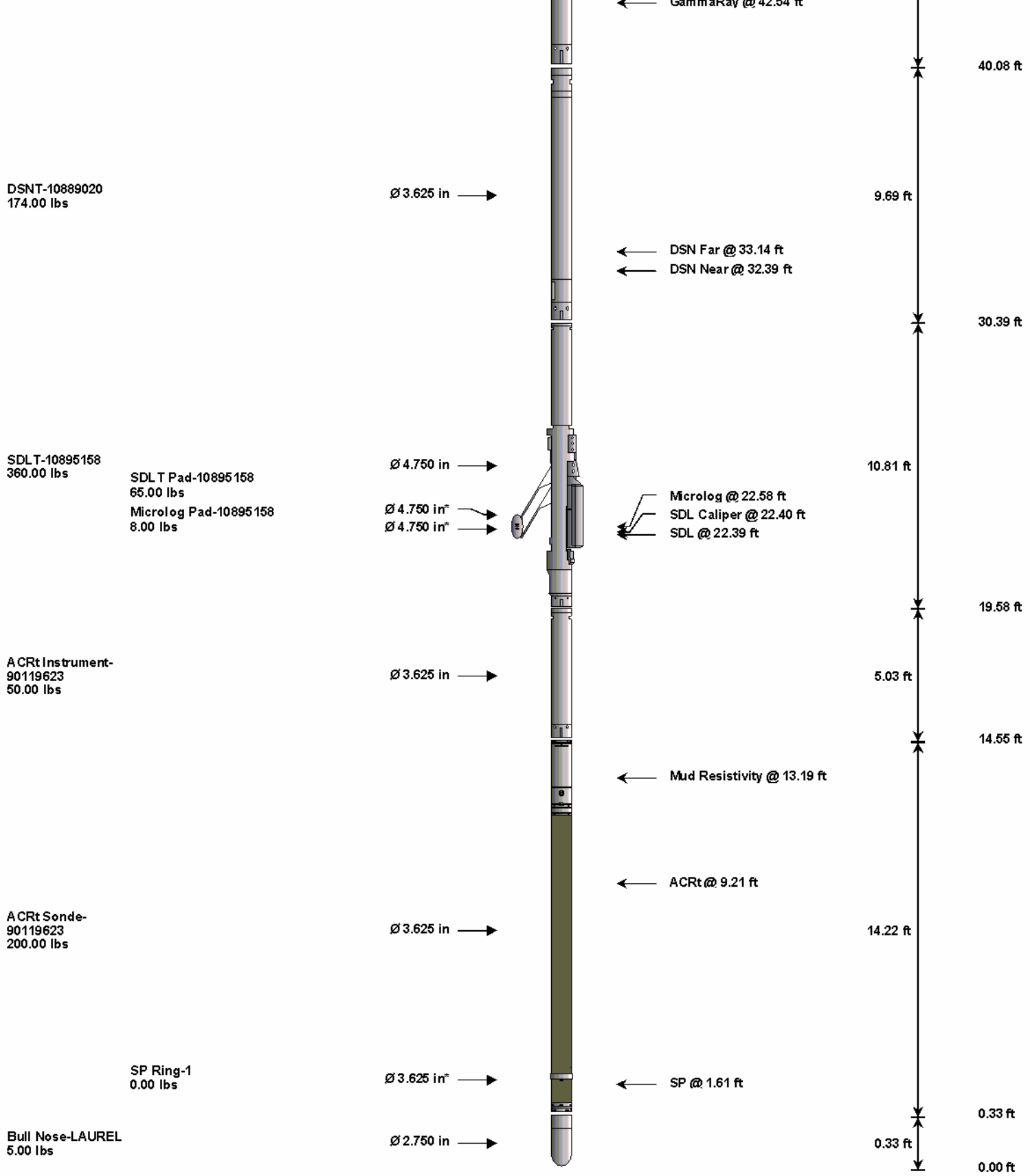
HALLIBURTON



## TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
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Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max. Log. Speed (fpm)
SPC	Test	SPACER	250.00	5.17	60.95	100.00
FLEX	Flex Joint	NEWIBERIA	140.00	5.67	55.28	300.00
SWWL	MCSA-D Multiconductor Swivel	NEWIBERIA	70.00	3.02	52.26	300.00
DTDD	Downhole Tension Device	NEWIBERIA	90.00	3.66	48.60	300.00
GTET	Gamma Telemetry Tool	10881239	165.00	8.52	40.08	60.00
DSNT	Dual Spaced Neutron	10889020	174.00	9.69	30.39	60.00
SDLT	Spectral Density Tool	10895158	360.00	10.81	19.58	60.00
MICP	Microlog Pad	10895158	8.00	1.00	*	22.08
SDLP	Density Insite Pad	10895158	65.00	2.55	*	21.79
ACRT	Array Compensated True Resistivity Instrument Section	90119623	50.00	5.03	14.55	300.00

ACRT	Array Compensated True Resistivity	90119623	200.00	14.22	0.33	300.00
SP	SP Ring	1	0.00	0.25 *	1.61	300.00
BLNS	Bull Nose	LAUREL	5.00	0.33	0.00	300.00

**Total** **1,577.00**   **66.12**

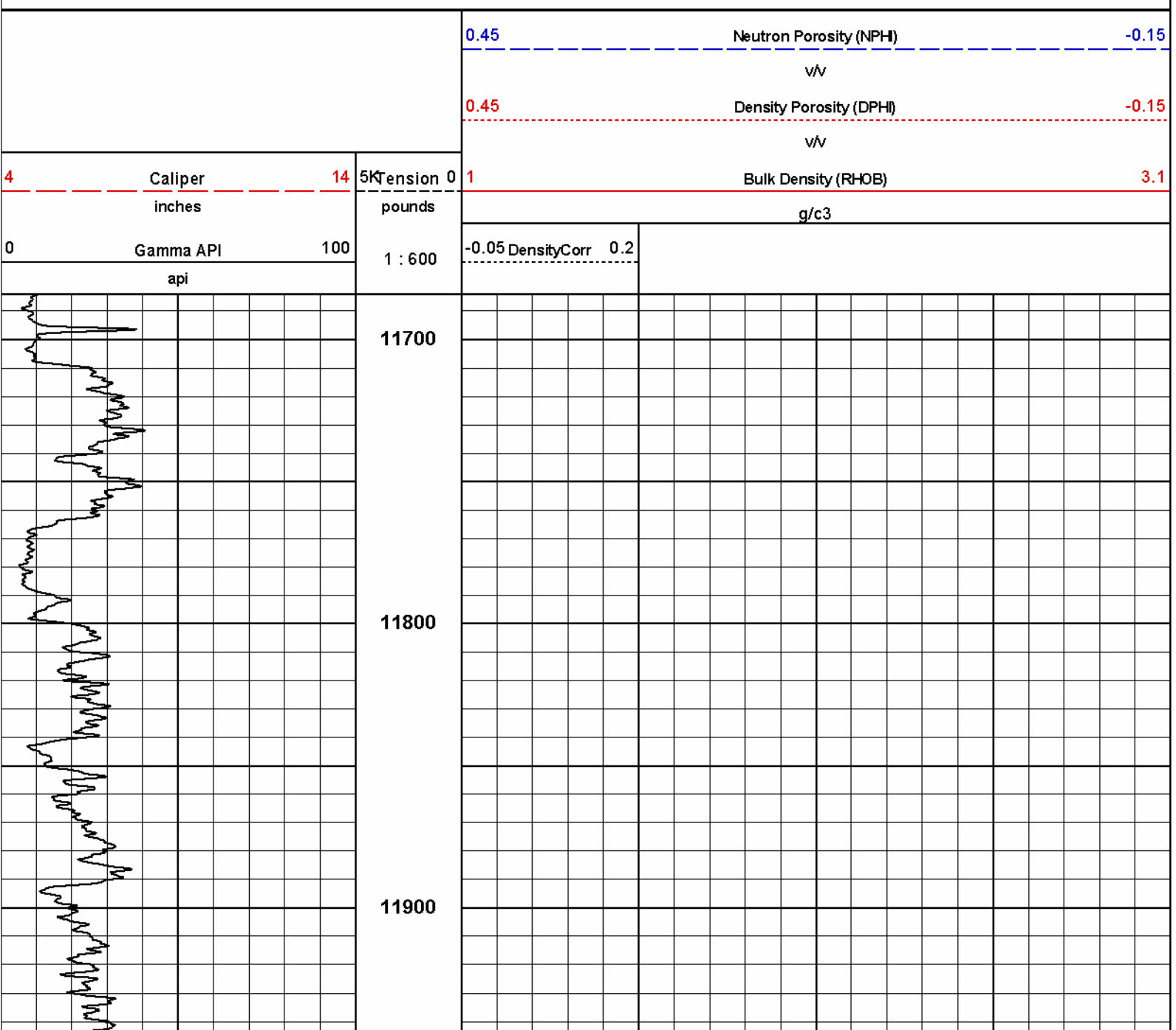
\* Not included in Total Length and Length Accumulation.

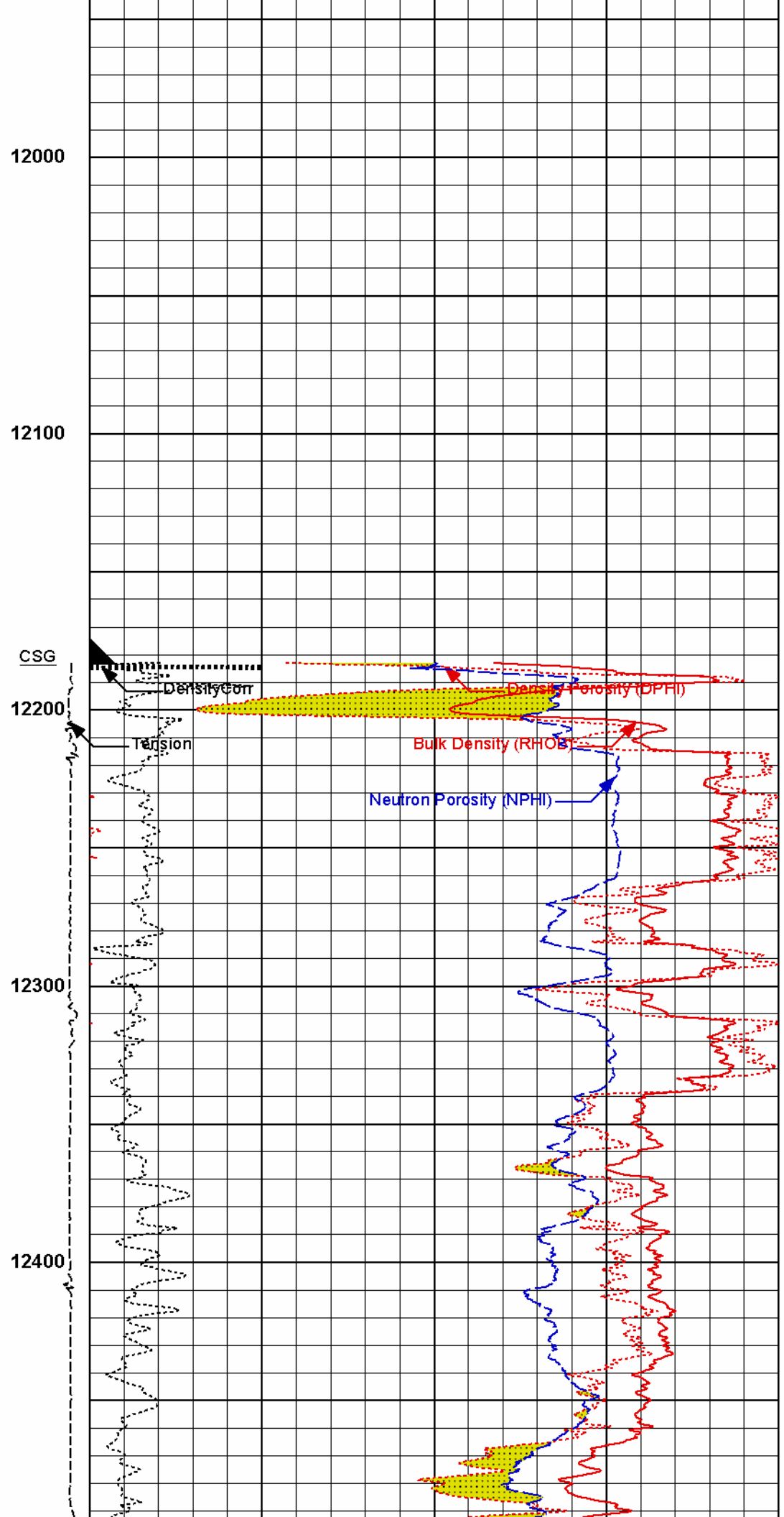
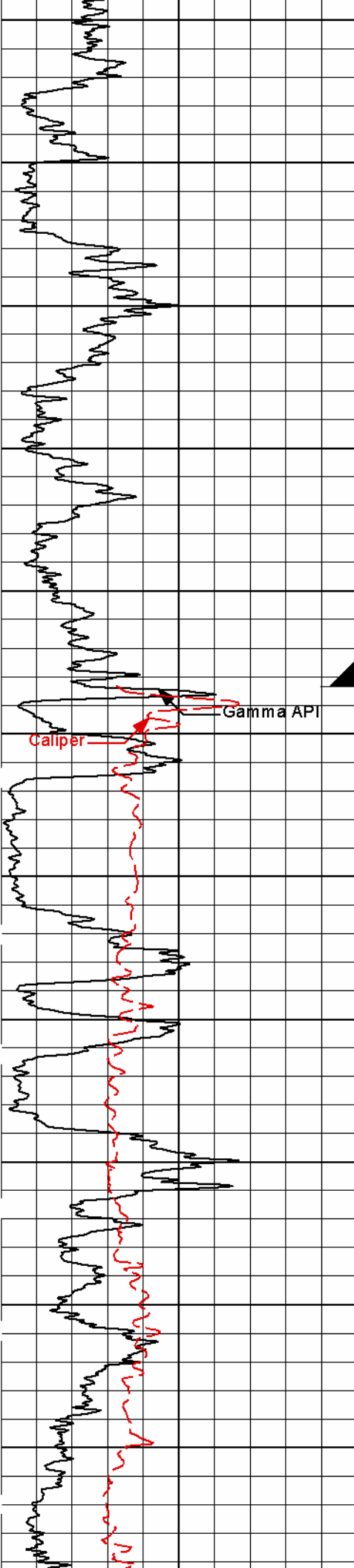
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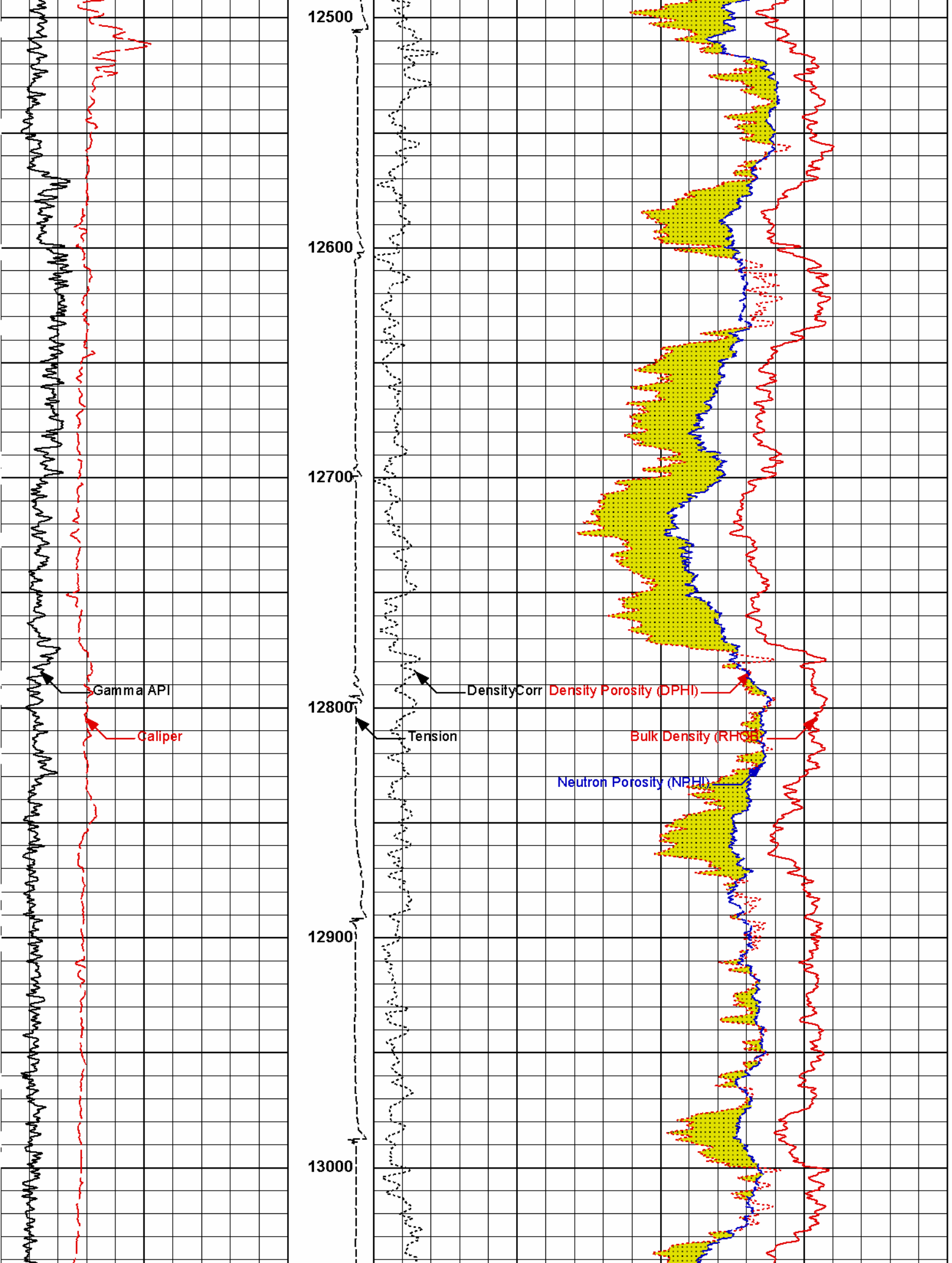


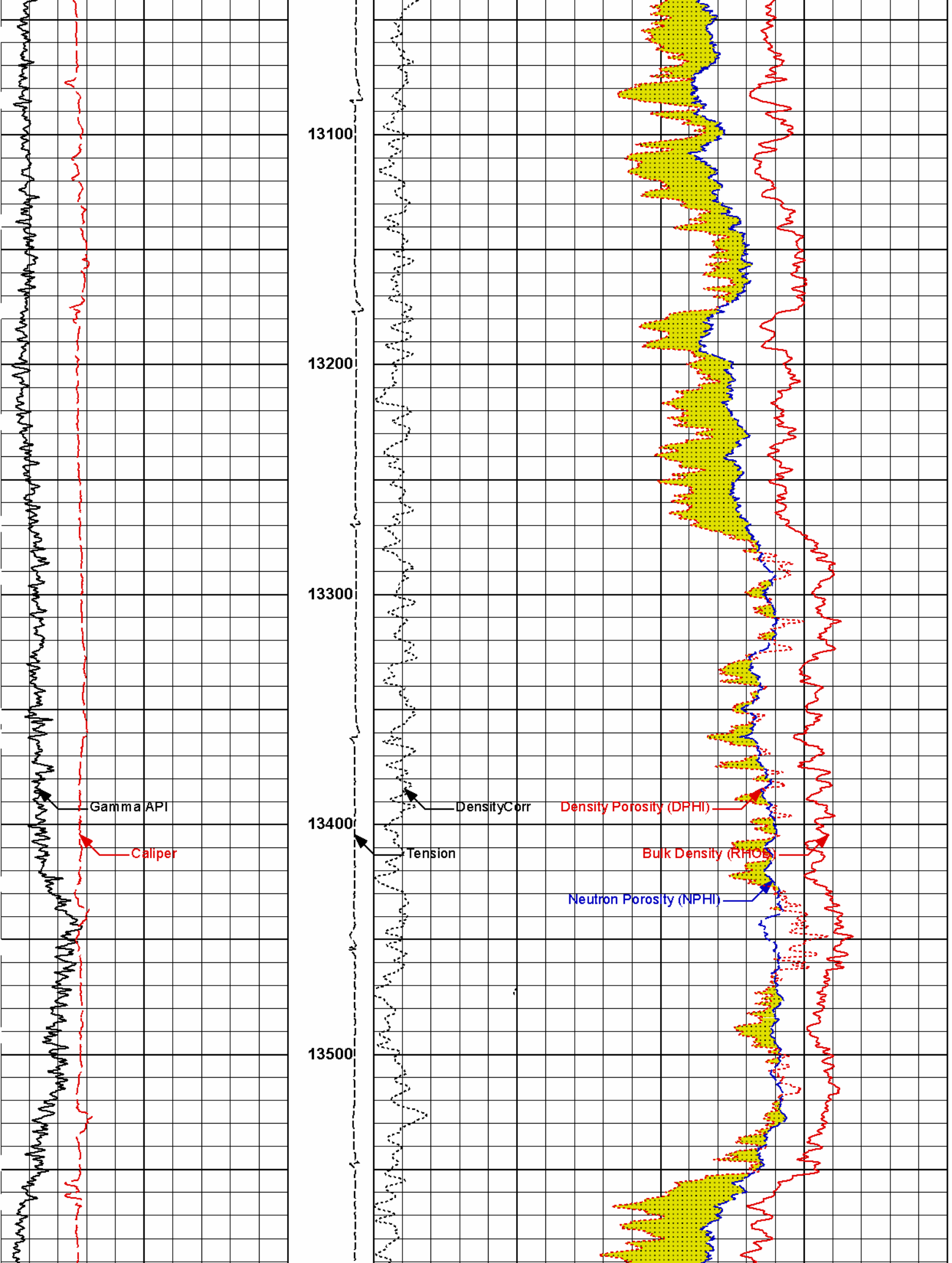
Plot Time: 09-May-12 20:54:14  
 Plot Range: 11684 ft to 13996.7 ft  
 Data: BRE\_RC\_29-7HLR2\Well Based\*\t  
 Plot File: \\POROSITY\BREITBURN POROSITY

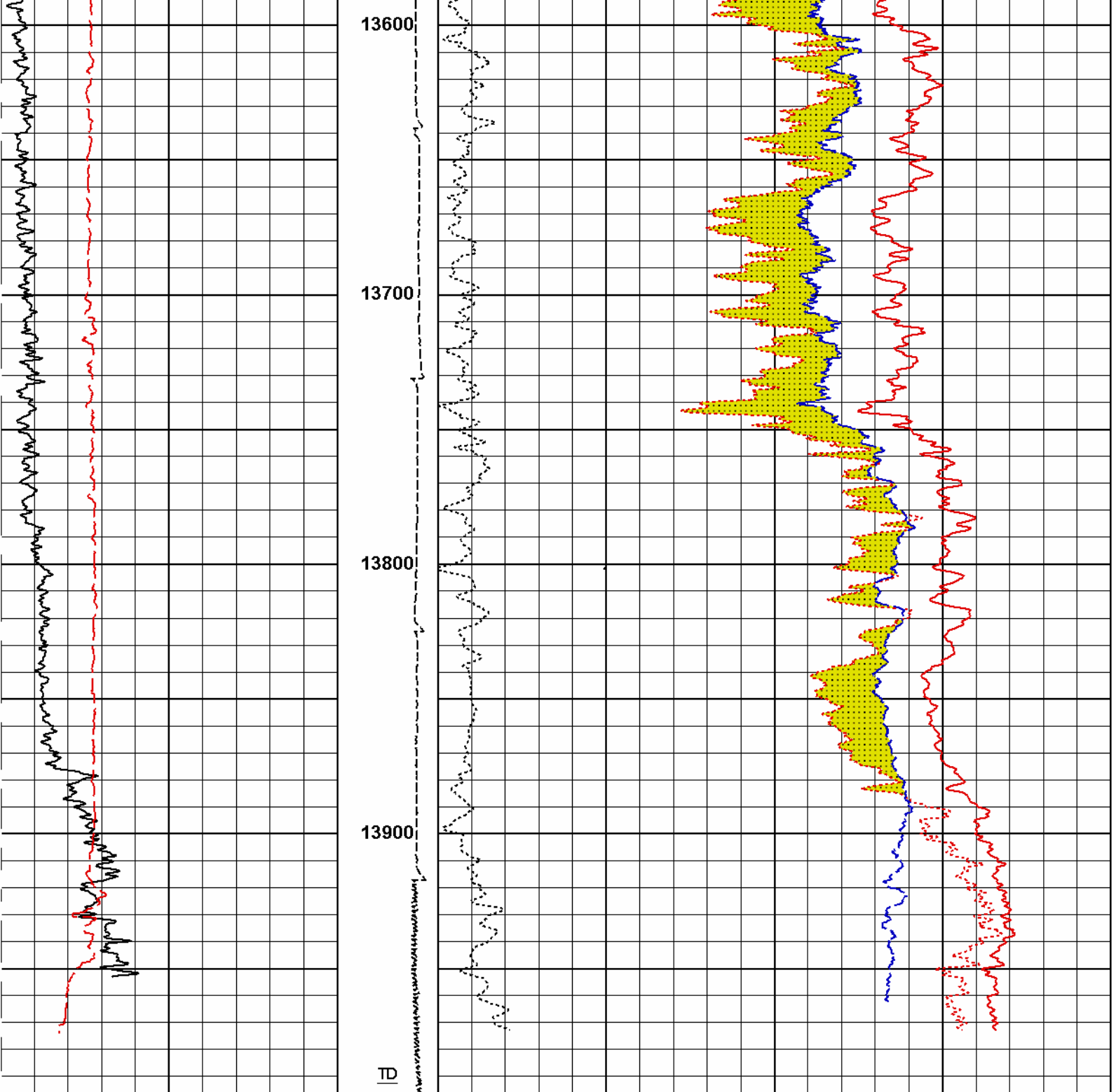
# MAIN PASS 2" = 100'











0	Gamma API	100	1 : 600	-0.05 DensityCorr	0.2
	api				
4	Caliper	14	5Ktension 0	1	Bulk Density (RHOB)
	inches		pounds		g/c3
				0.45	Density Porosity (DPH)
					v/v
				0.45	Neutron Porosity (NPH)
					v/v

**HALLIBURTON**

Plot Time: 09-May-12 20:54:35  
 Plot Range: 11684 ft to 13996.7 ft  
 Data: BRE\_RC\_29-7HLR2\Well Based\1  
 Plot File: \\POROSITY\BREITBURN POROSITY



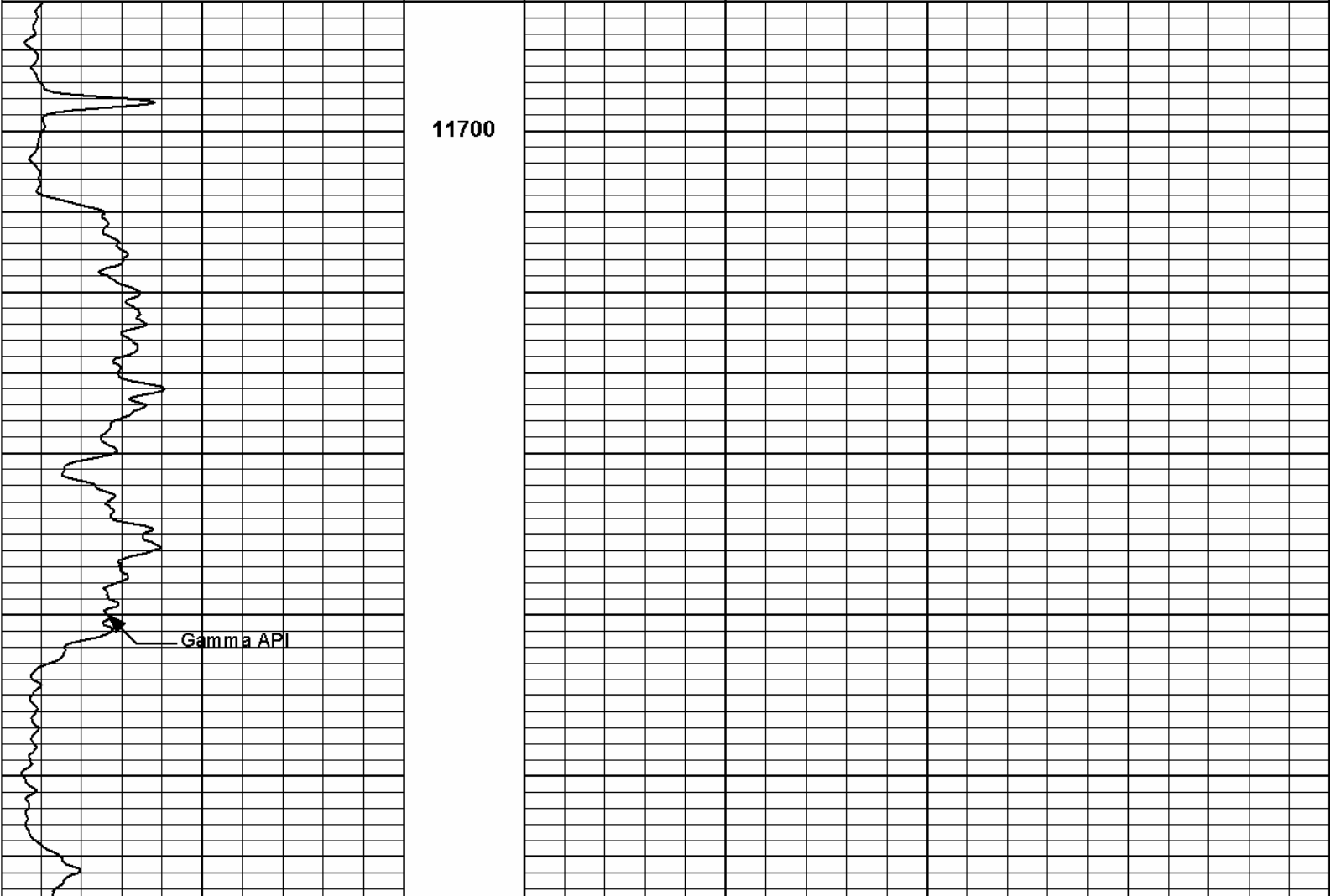
# MAIN PASS 2" = 100'

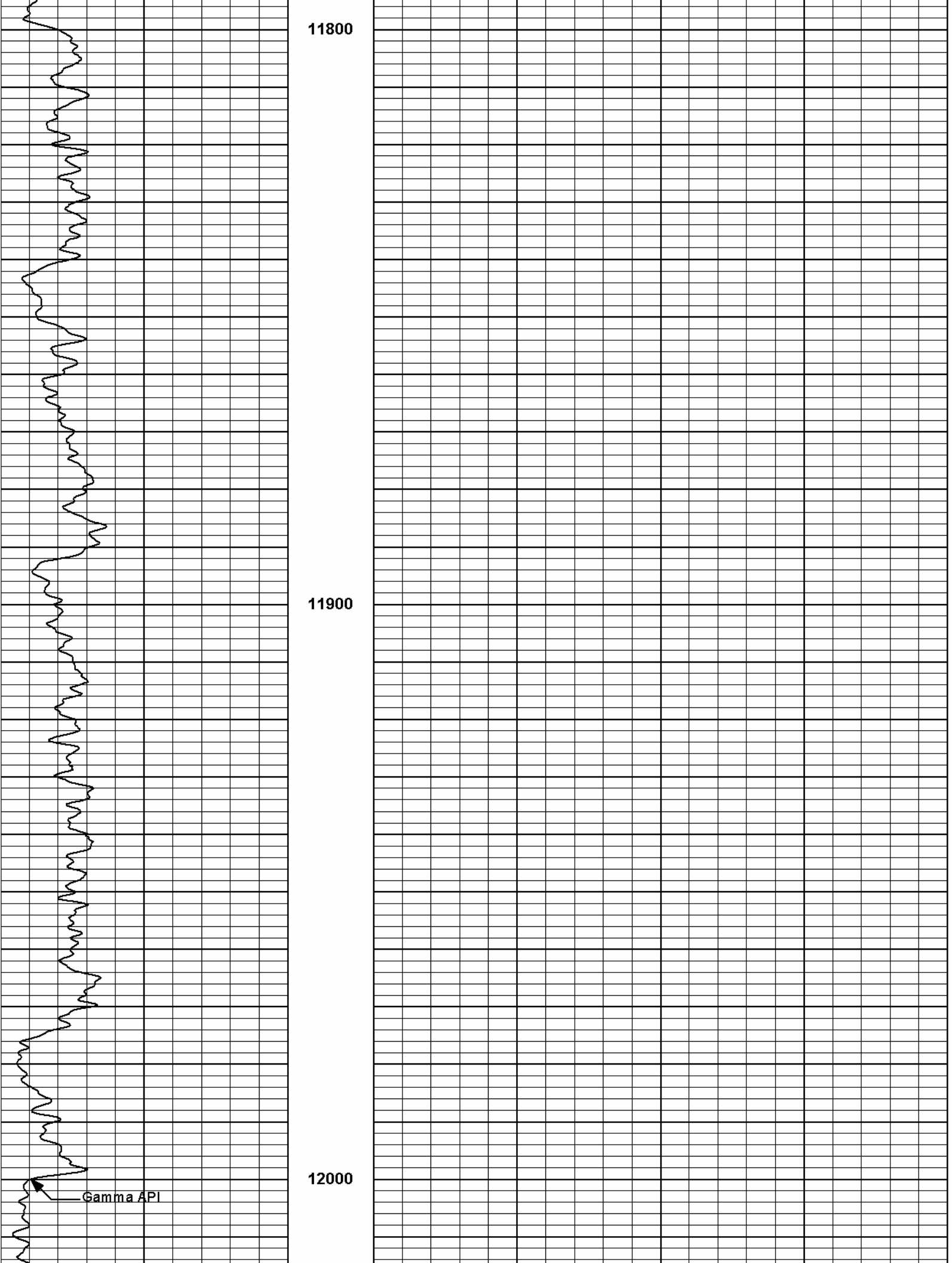
**HALLIBURTON**

Plot Time: 09-May-12 20:54:36  
 Plot Range: 11684 ft to 13996.7 ft  
 Data: BRE\_RC\_29-7HLR2Well Based<sup>1</sup>  
 Plot File: \\POROSITY\BREITBURN POROSITY

# MAIN PASS 5" = 100'

		0.45	Neutron Porosity (NPH)	-0.15
			v/v	
		0.45	Density Porosity (DPH)	-0.15
			v/v	
4	Caliper	14	Bulk Density (RHOB)	3.1
	inches			
	Gamma API	100	g/c3	
	api			
0		5K	Tension	0
			pounds	1
		1 : 240	-0.05 DensityCorr	0.2



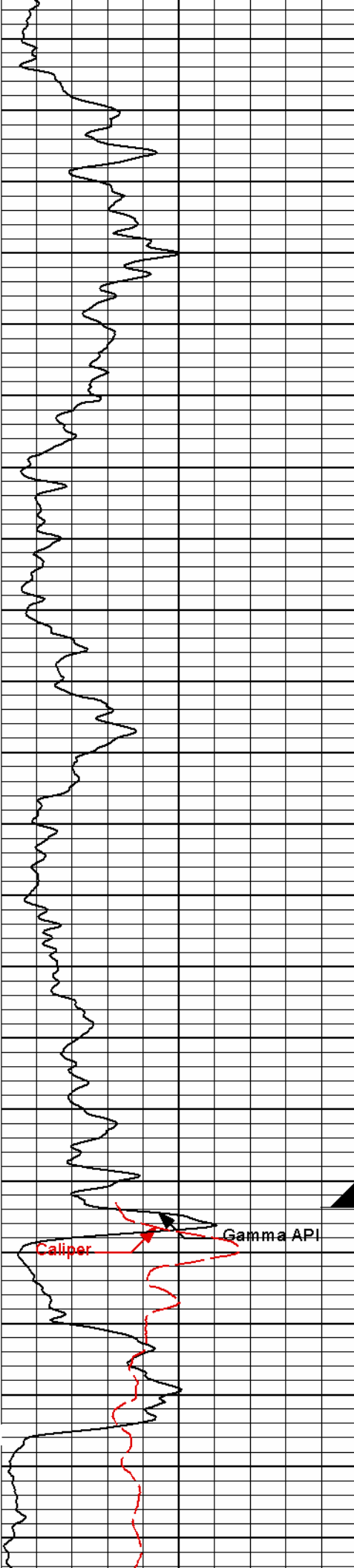


11800

11900

12000

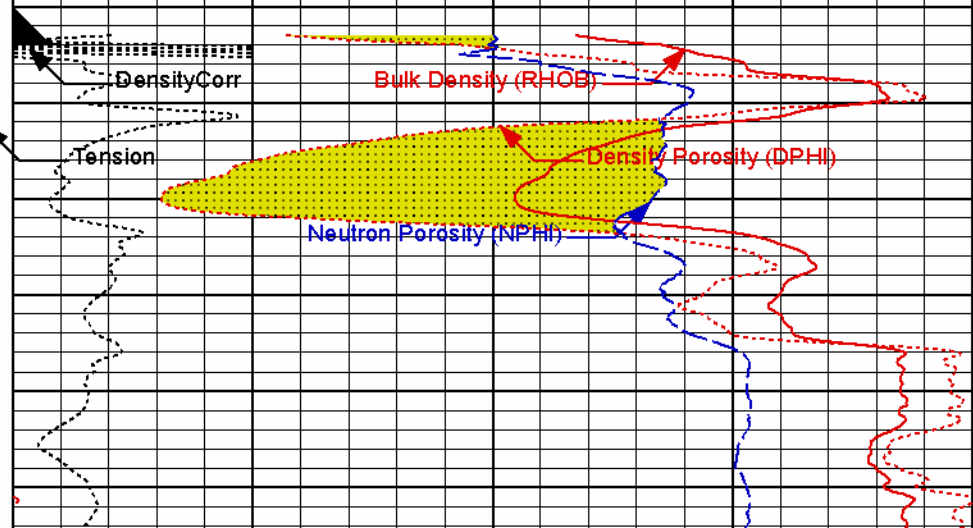
Gamma API



12100

CSG

12200



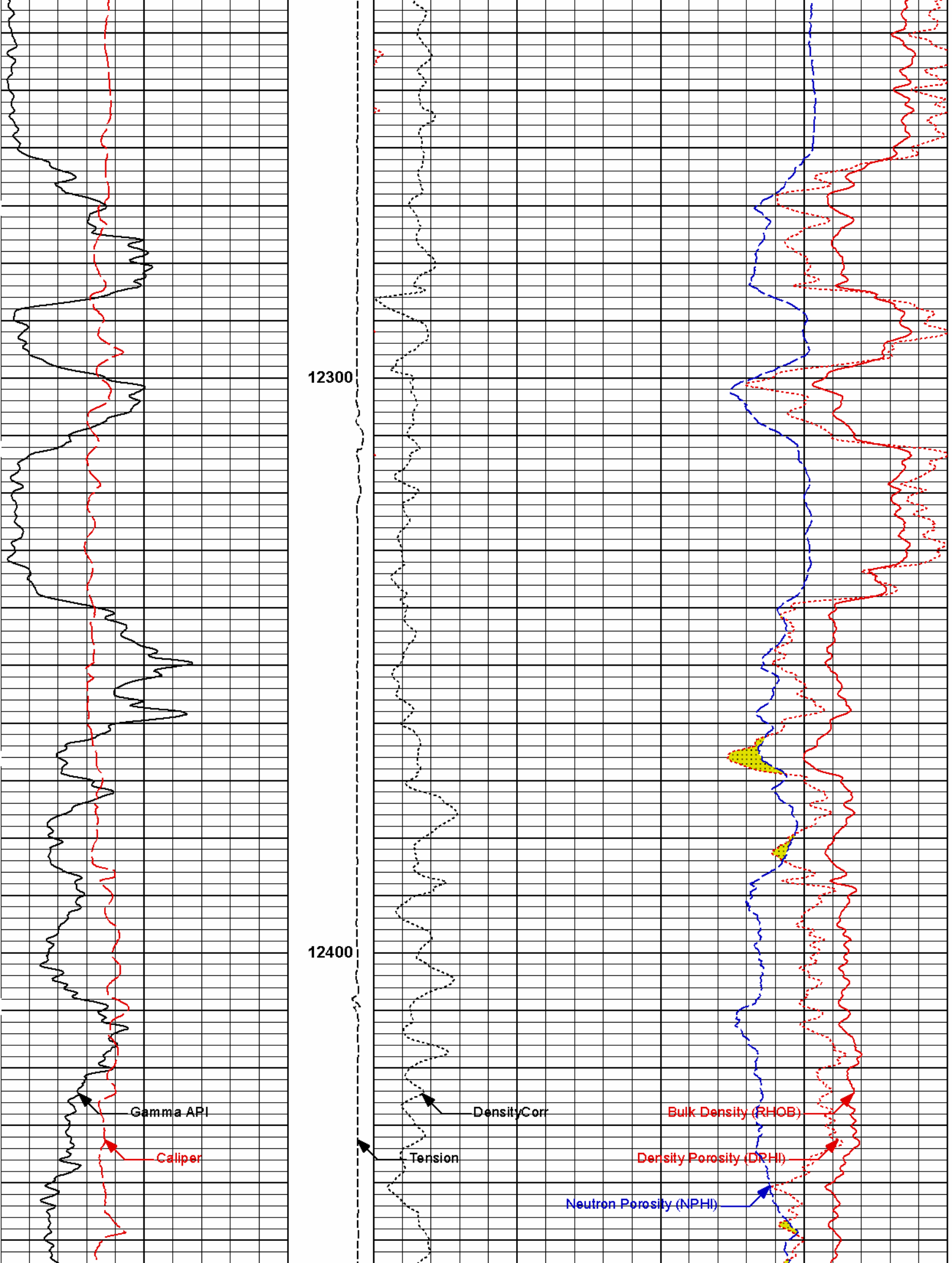
DensityCorr

Bulk Density (RHOB)

Tension

Density Porosity (DPHI)

Neutron Porosity (NPHI)



12300

12400

Gamma API

Caliper

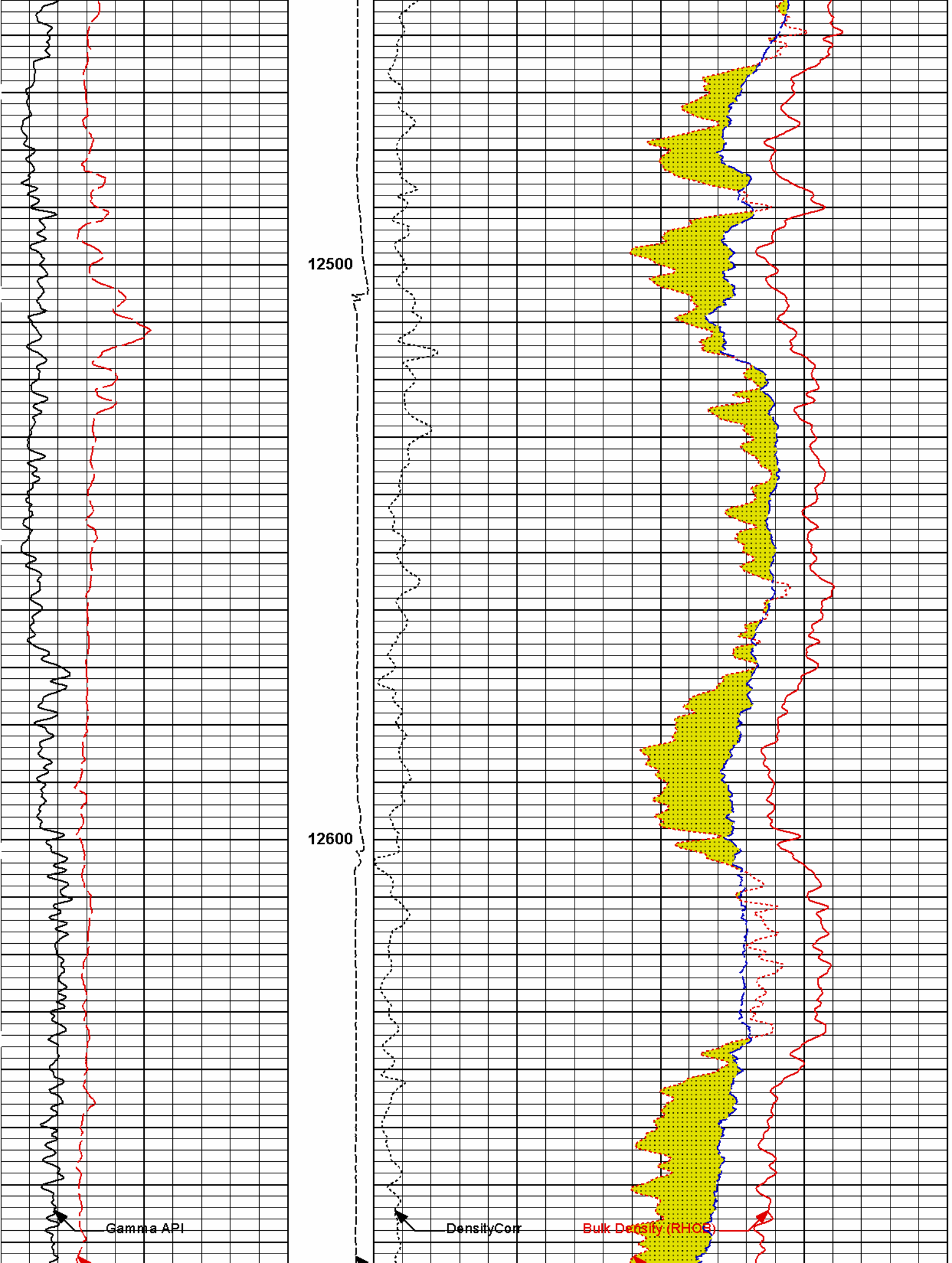
Density Corr

Tension

Bulk Density (RHOB)

Density Porosity (DRHI)

Neutron Porosity (NPHI)



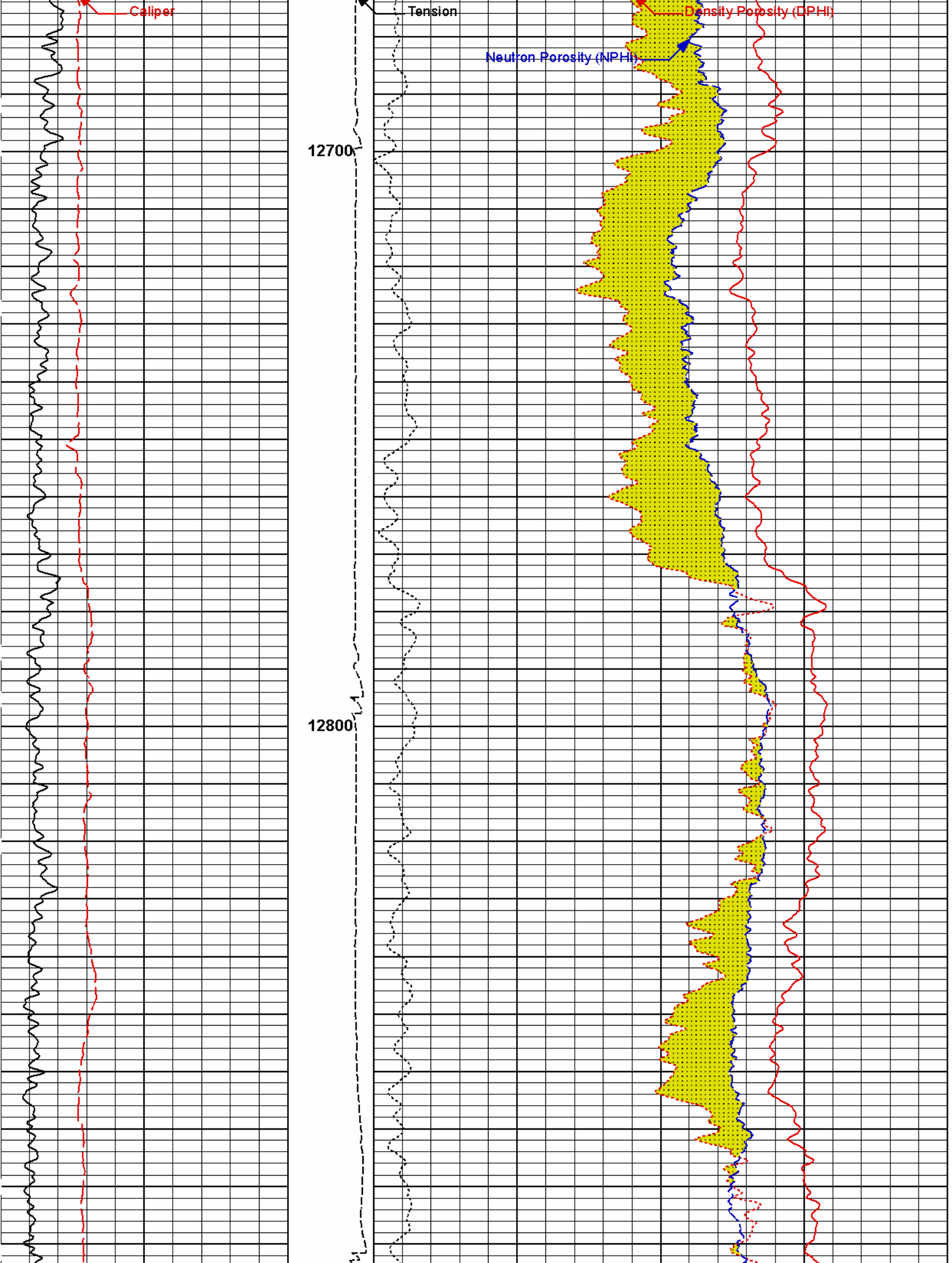
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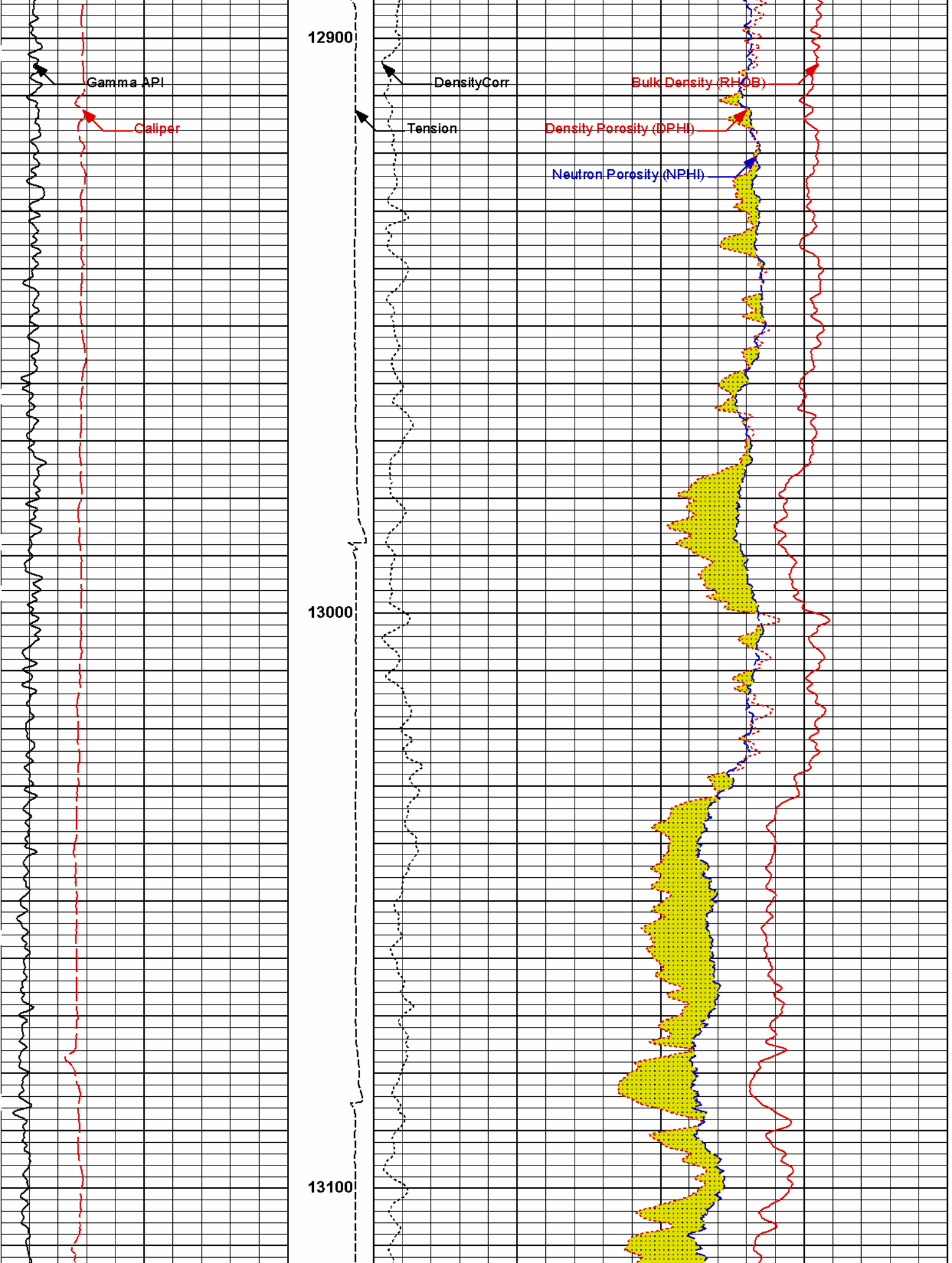
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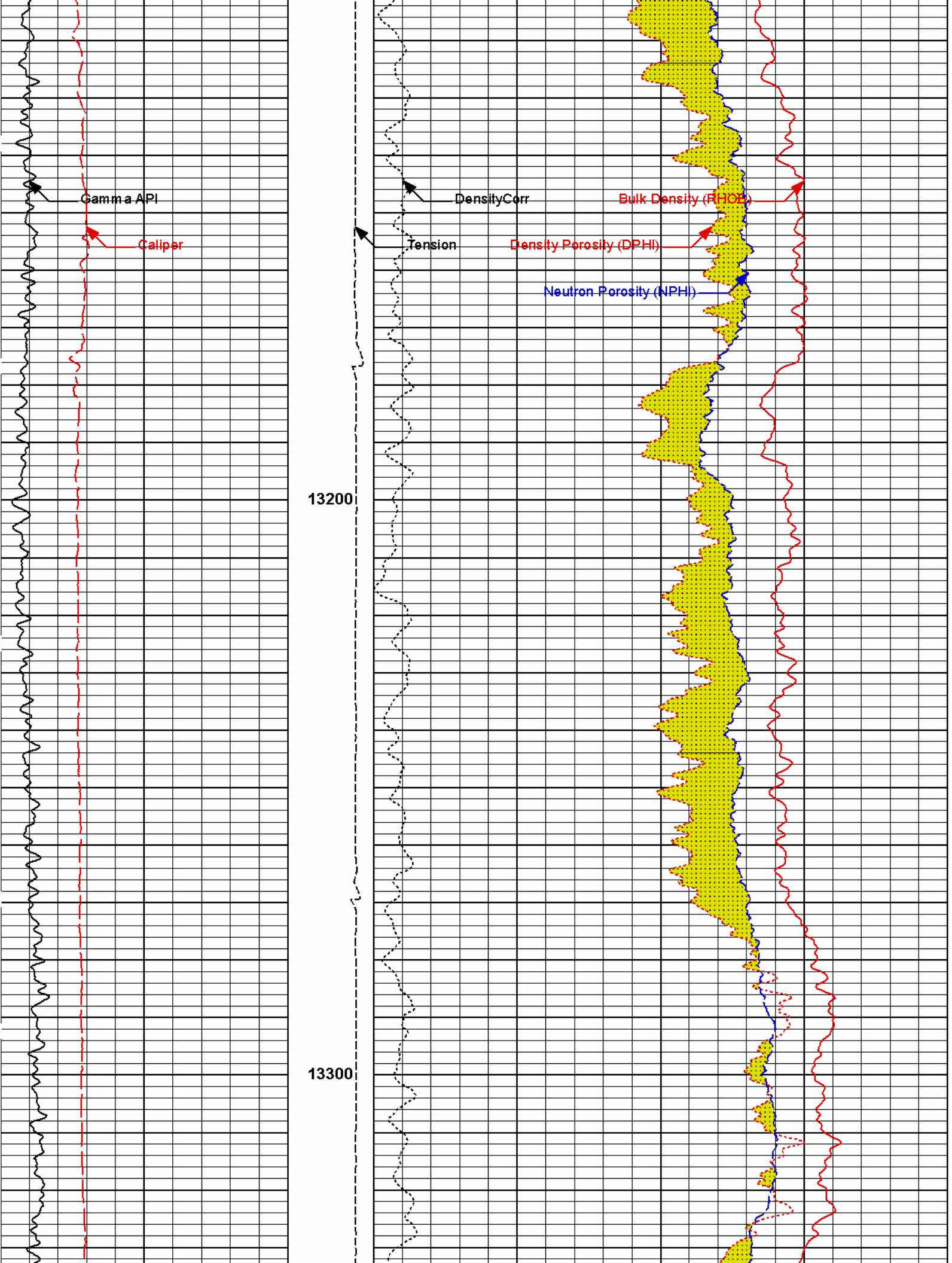
Gamma API

DensityCorr

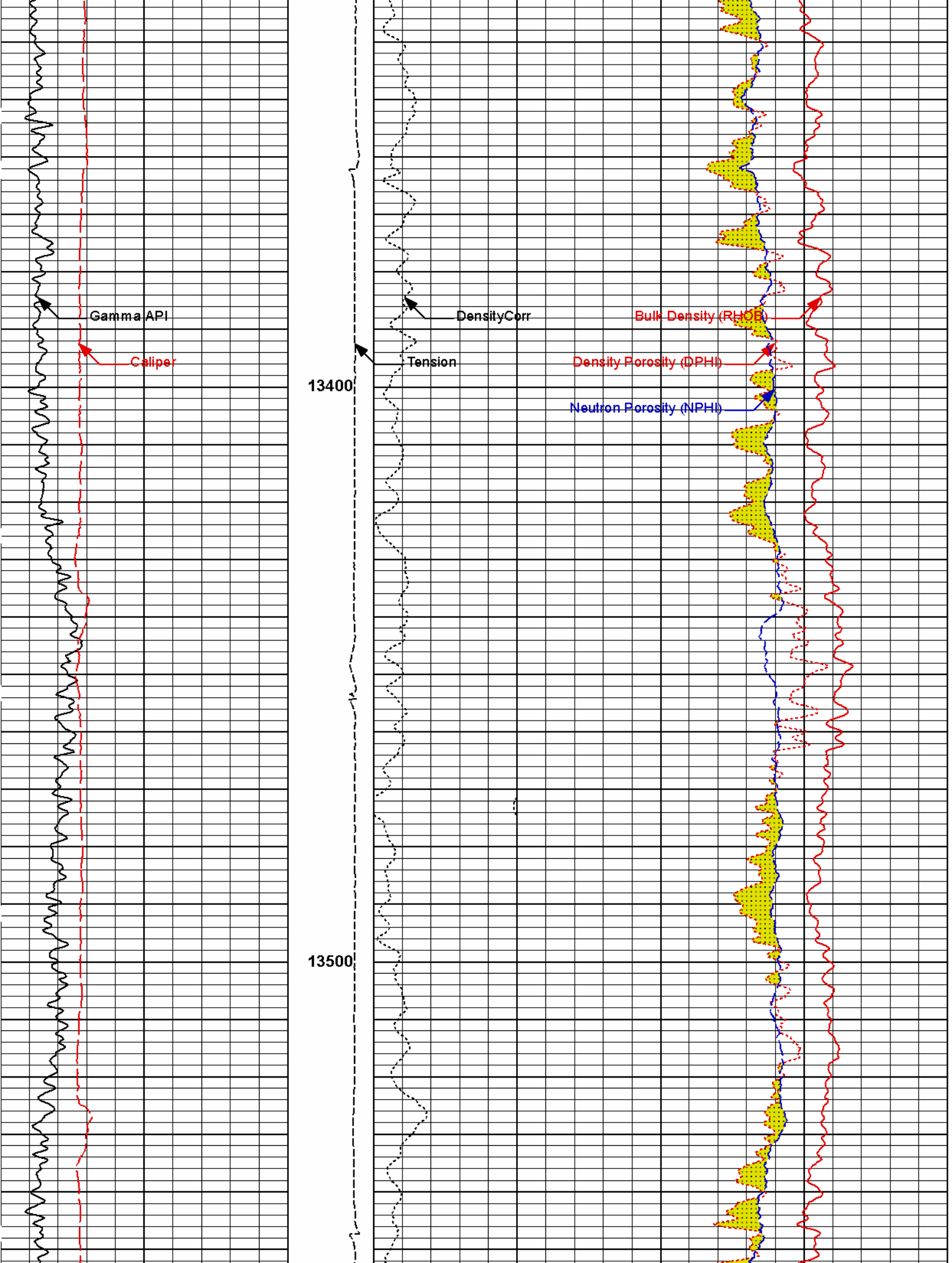
Bulk Density (RHOB)

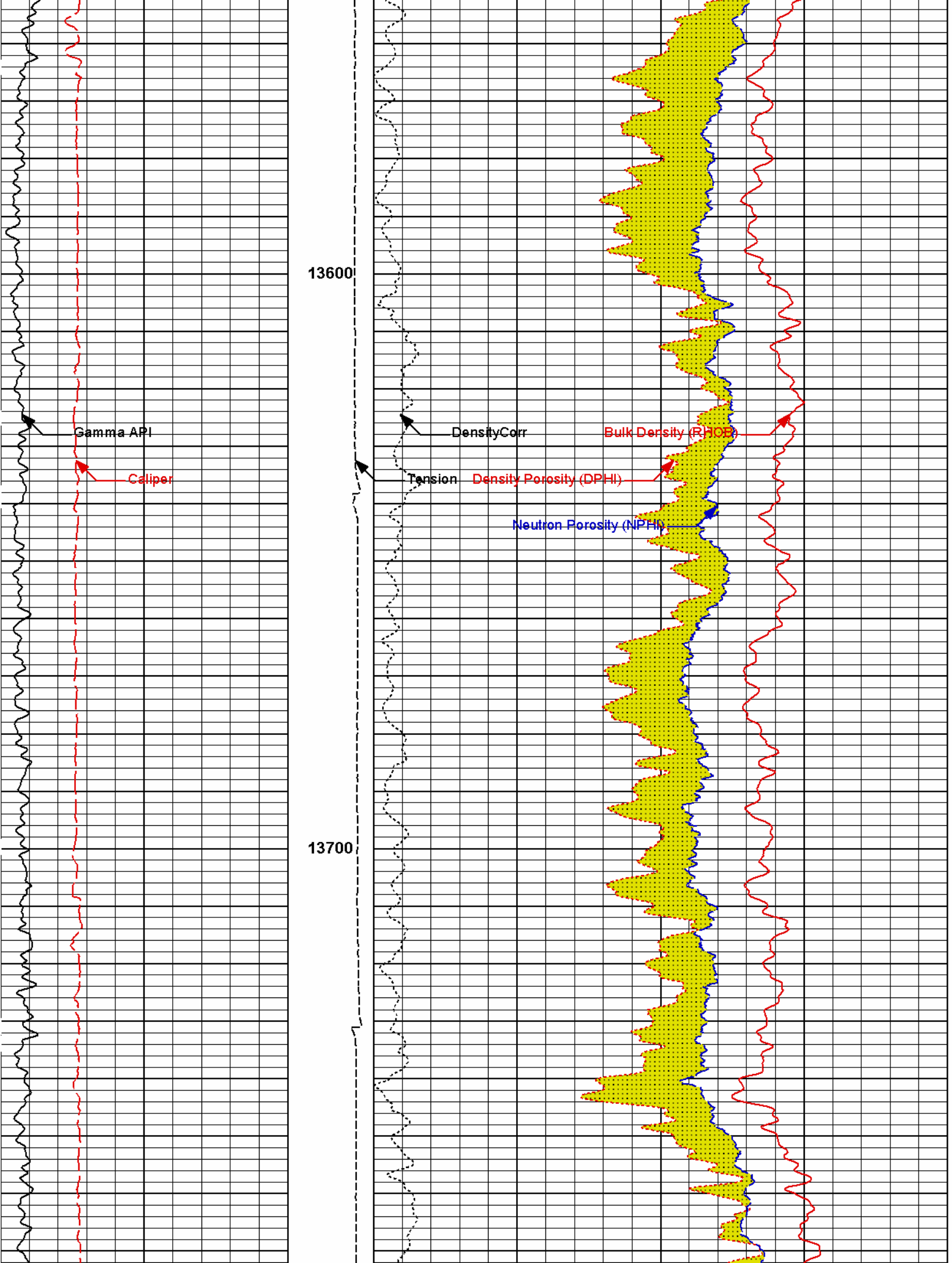


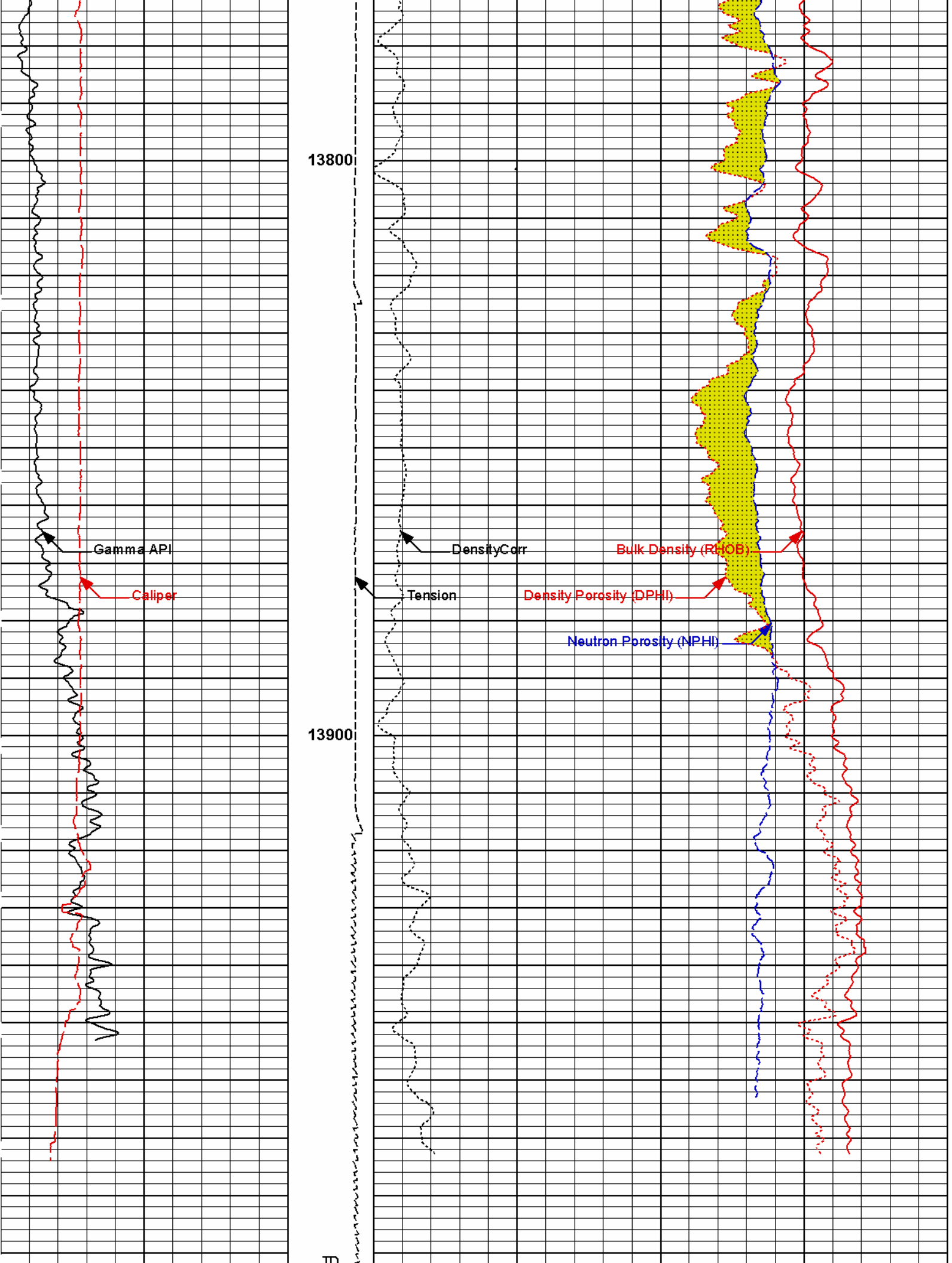












0	Gamma API	100	1 : 240	-0.05 DensityCorr	0.2
	api				
4	Caliper	14	5Ktension	0	1
	inches		pounds		
				Bulk Density (RHOB)	3.1
				g/c3	
				Density Porosity (DPHI)	-0.15
				v/v	
				Neutron Porosity (NPHI)	-0.15
				v/v	

**HALLIBURTON**  
 Plot Time: 09-May-12 20:54:53  
 Plot Range: 11684 ft to 13996.7 ft  
 Data: BRE\_RC\_29-7HLR21Well Based\*\n  
 Plot File: \\POROSITY\BREITBURN POROSITY

MAIN PASS 5" = 100'

**HALLIBURTON**

**PARAMETERS REPORT**

Depth ((ft))	Tool Name	Mnemonic	Description	Value	Units
TOP					
	SHARED	BS	Bit Size	6.500	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDBS	Mud Base	Water	
	SHARED	MDWT	Borehole Fluid Weight	8.700	ppg
	SHARED	WAGT	Weighting Agent	Barite	
	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	0.600	ohmm
	SHARED	TRM	Temperature of Mud	72.0	degF
	SHARED	CSD	Logging Interval is Cased?	No	
	SHARED	ICOD	AHV Casing OD	5.500	in
	SHARED	ST	Surface Temperature	85.0	degF
	SHARED	TD	Total Well Depth	13997.00	ft
	SHARED	BHT	Bottom Hole Temperature	200.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	NONE	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	GTET	
	SHARED	TEMM	Temperature Master Tool	NONE	
	SHARED	BHSM	Borehole Size Master Tool	NONE	
	Rwa / CrossPlot	XPOK	Process Crossplot?	Yes	
	Rwa / CrossPlot	FCHO	Select Source of F	Density	
	Rwa / CrossPlot	AFAC	Archie A factor	0.8100	
	Rwa / CrossPlot	MFAC	Archie M factor	2.0000	
	Rwa /	RMFR	Rmf Reference	0.10	ohmm

CrossPlot	Rmf R	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	
GTET	GROK	Process Gamma Ray?	Yes	
GTET	GRSO	Gamma Tool Standoff	0.000	in
GTET	GEOK	Process Gamma Ray EVR?	No	
GTET	TPOS	Tool Position for Gamma Ray Tools.	Eccentered	
DSNT	DNOK	Process DSN?	Yes	
DSNT	DEOK	Process DSN EVR?	No	
DSNT	NLIT	Neutron Lithology	Limestone	
DSNT	DNSO	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.250	in
DSNT	DNTP	Temperature Correction Type	None	
DSNT	DPRS	DSN Pressure Correction Type	None	
DSNT	SHCO	View More Correction Options	No	
DSNT	UTVD	Use TVD for Gradient Corrections?	No	
DSNT	LHWT	Logging Horizontal Water Tank?	No	
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
Microlog Pad	MLOK	Process MicroLog Outputs?	Yes	
ACRt Sonde	RTOK	Process ACRt?	Yes	
ACRt Sonde	MNSO	Minimum Tool Standoff	1.50	in
ACRt Sonde	TCS1	Temperature Correction Source	FP Lwr & FP Up	
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	RMIN	Maximum Resistivity for MAP	200.00	ohmm
ACRt Sonde	THQY	Threshold Quality	0.50	

BOTTOM

Data: BRE\_RC\_29-7HLR2\0001 TRIPLE\_RED\_TPL\002 09-May-12 11:39 Up 13992.3f

Date: 09-May-12 14:05:48

## HALLIBURTON

### CUSTOMER EVENT LOG

Event Type	Time & Date	Depth (ft)	Event Description
	09-May-12 09:38:35	11565.25	Logging 001 09-May-12 09:38 Dn 11565.3f
	09-May-12 11:37:29	13964.49	Halting 001 09-May-12 09:38 Dn 11565.3f
	09-May-12 11:39:09	13992.25	Logging 002 09-May-12 11:39 Up 13992.3f
	09-May-12 13:09:38	11664.47	Halting 002 09-May-12 11:39 Up 13992.3f

Data: BRE\_RC\_29-7HLR2\0001 TRIPLE\_RED\_TPL\HW11277

Date: 09-May-12 14:05:29

## HALLIBURTON

### CALIBRATION REPORT

### NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name: GTET - 10881239

Reference Calibration Date: 02-May-12 17:28:50

Engineer: ROLAND VALDEZ

Calibration Date: 02-May-12 17:35:11

Software Version: WL INSITE R3.4.2 (Build 2)

Calibration Version: 1

Calibrator Source S/N: 115

Calibrator API Reference:225.00 api

Equivalent Calibrator API Reference:228.9 api

Measurement	Measured	Calibrated	Units
Background	14.2	14.3	api
Background + Calibrator	240.9	243.2	api
Calibrator	226.7	228.9	api

### NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name: GTET - 10881239

Reference Calibration Date: 02-May-12 17:35:11

Engineer: ROLAND VALDEZ

Calibration Date: 08-May-12 17:09:40

Software Version: WL INSITE R3.4.2 (Build 2)

Calibration Version: 1

Calibrator Source S/N: 115

Calibrator API Reference:225.00 api

Equivalent Calibrator API Reference:228.9 api

Field Verification	Shop	Field	Units
Background	14.3	42.3	api
Background + Calibrator	243.2	267.7	api
Calibrator	228.9	225.3	api

Shop	Field	Difference	Tolerance
228.9	225.3	3.6	+/- 9.00

### NATURAL GAMMA RAY TOOL POST CALIBRATION

Tool Name: GTET - 10881239

Reference Calibration Date: 08-May-12 17:09:40

Engineer: ROLAND VALDEZ

Calibration Date: 09-May-12 20:24:36

Software Version: WL INSITE R3.4.2 (Build 2)

Calibration Version: 1

Calibrator Source S/N: 115

Calibrator API Reference:225.00 api

Calibrator API Reference:228.9 api

Post Verification	Field	Post	Units
Background	42.3	36.3	api
Background + Calibrator	267.7	255.2	api
Calibrator	225.3	218.9	api

Shop	Field	Post	Difference	Tolerance
228.9	225.3	218.9	6.4	+/- 9.00

### DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name: DSNT - 10889020

Reference Calibration Date: 02-Mar-12 10:05:31

Engineer: ROLAND VALDEZ

Calibration Date: 02-May-12 13:07:17

Software Version: WL INSITE R3.4.2 (Build 2)

Calibration Version: 1

Logging Source S/N: DSN 356

Tank Serial Number: 105025

Reference value assigned to Tank: 52.800

Snow Block S/N: 100132479D

Calibration Tank Water Temperature: 78 degF

**CALIBRATION CONSTANTS**

Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	0.984	0.984	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):	0.2174	0.2172	0.0002	+/- 0.0020
Calibrated Ratio:	9.95	9.94	0.007	+/- 0.050

**VERIFIER**

Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0779	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 - 10889020 **Reference Calibration Date:** 02-May-12 13:07:17

**Engineer:** ROLAND VALDEZ **Calibration Date:** 08-May-12 17:07:48

**Software Version:** WL INSITE R3.4.2 (Build 2) **Calibration Version:** 1

Logging Source S/N: DSN 356

Snow Block S/N: 100132479D

**NEUTRON FIELD-CHECK SUMMARY**

	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0779	0.0740	-0.0039	+/- 0.0150

**PASS/FAIL SUMMARY**

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

**DUAL SPACED NEUTRON POST CALIBRATION**

**Tool Name:** DSNT - 10889020 **Reference Calibration Date:** 08-May-12 17:07:48

**Engineer:** ROLAND VALDEZ **Calibration Date:** 09-May-12 20:29:33

**Software Version:** WL INSITE R3.4.2 (Build 2) **Calibration Version:** 1

Logging Source S/N: DSN 356

Snow Block S/N: 100132479D

**NEUTRON POST-CHECK SUMMARY**

	Field Value	Post Value	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0740	0.0698	-0.0042	+/- 0.0150

**PASS/FAIL SUMMARY**

Block Change Check:	Passed
Snow Block Stat Check:	Passed

**DENSITY CALIPER SHOP CALIBRATION**

Tool Name: SDLT - 10895158

Reference Calibration Date: 02-Mar-12 10:54:47

Engineer: ROLAND VALDEZ

Calibration Date: 02-May-12 14:53:11

Software Version: WL INSITE R3.4.2 (Build 2)

Calibration Version: 1

**CALIBRATION COEFFICIENTS**

Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-3070.73	-3218.93	-7000.00 - -1000.00
Pad Gain	0.0003867	0.0003865	0.000200 - 0.000600
Arm Offset	145.46	-87.99	-5000.00 - 3000.00
Arm Gain	0.0004670	0.0004935	0.000300 - 0.000700
Arm Power	-0.000001914	-0.000003965	-0.000010 - 0.000010

The ring diameter is computed from:  $\text{DIAMETER} = \text{PAD EXTENSION} + \text{ARM EXTENSION} + \text{TOOL DIAMETER}$ 

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)	2.06	2.00	-0.06	+/- 0.20
Medium Ring (in)	3.81	3.75	-0.06	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.57	6.50	-0.07	+/- 0.20
Medium Ring (in)	8.27	8.25	-0.02	+/- 0.20
Large Ring (in)	15.12	15.00	-0.12	+/- 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 - 10895158

Reference Calibration Date: 02-May-12 14:53:11

Engineer: ROLAND VALDEZ

Calibration Date: 08-May-12 17:02:45

Software Version: WL INSITE R3.4.2 (Build 2)

Calibration Version: 1

**MEASURED CALIPER VALUES**

Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.81	0.06	+/- 0.10
Ring Diameter	8.25	8.34	0.09	+/- 0.15

**PASS/FAIL SUMMARY**

Pad Extension Check: Passed  
 Diameter Check: Passed

**SDLT CALIPER POST CALIBRATION**

Tool Name: SDLT - 10895158

Reference Calibration Date: 08-May-12 17:02:45

Engineer: ROLAND VALDEZ

Calibration Date: 09-May-12 20:32:41

Software Version: WL INSITE R3.4.2 (Build 2)

Calibration Version: 1

**MEASURED CALIPER VALUES**

Control Limit On



Measurement	Field	Post	Change	Control Limit On New Value
Pad Extension	3.81	3.87	0.06	+/- 0.10
Ring Diameter	8.34	8.31	-0.03	+/- 0.15

**PASS/FAIL SUMMARY**

Pad Extension Check: Passed  
Diameter Check: Passed

**ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION**

Tool Name: ACRT Sonde - 90119623      Reference Calibration Date: 01-Mar-12 16:32:48  
Engineer: ROLAND VALDEZ      Calibration Date: 02-May-12 10:20:55  
Software Version: WL INSITE R3.4.2 (Build 2)      Calibration Version: 1

**TYPICAL GAIN RANGE**

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.0053	1.05	0.95	1.0062	1.05	0.95	1.0104	1.05
A2 (50")	0.95	1.0171	1.05	0.95	1.0223	1.05	0.95	1.0279	1.05
A3 (29")	0.95	1.0219	1.05	0.95	1.0244	1.05	0.95	1.0278	1.05
A4 (17")	0.95	1.0173	1.05	0.95	1.0177	1.05	0.95	1.0230	1.05
A5 (10")	N/A	N/A	N/A	0.95	1.0161	1.05	0.95	1.0211	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.9936	1.05	0.95	0.9977	1.05

**TYPICAL SONDE OFFSET RANGE**

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	-5	0.250	2	-6	-3.152	-2	-8	-5.342	-2
A2 (50")	-7	-1.334	-1	-6	-2.797	-2	-7	-4.651	-2
A3 (29")	-27	-9.431	-9	-9	-2.969	-3	-7	-2.751	-1
A4 (17")	-180	-102.818	-60	-45	-32.124	-15	-39	-25.493	-13
A5 (10")	N/A	N/A	N/A	-150	-99.118	-50	-80	-45.507	-10
A6 (6")	N/A	N/A	N/A	175	328.663	525	90	167.235	270

TRANSMITTER CURRENT GAIN				R-MUD VERIFICATION			
Signal	Lower	R	Upper	Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
12K	0.6	1.0067	1.3	Mud Cell	0.95	1.005	1.05
36K	1.0	1.9583	2.0				
72K	1.0	1.2557	2.0				

**SPECTRAL DENSITY SHOP CALIBRATION**

Tool Name: SDLT Pad - 10895158      Reference Calibration Date: 02-Mar-12 13:09:48  
Engineer: ROLAND VALDEZ      Calibration Date: 02-May-12 14:37:07  
Software Version: WL INSITE R3.4.2 (Build 2)      Calibration Version: 1

Logging Source S/N: 5108 GW  
Aluminum Block S/N: 63075      Density: 2.599g/cc      Pe: 3.170  
Magnesium Block S/N: 63366      Density: 1.680g/cc      Pe: 2.650

**DENSITY CALIBRATION SUMMARY**

Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0694	1.0651	0.90 - 1.10
Near Dens Gain	1.0295	1.0287	0.90 - 1.10

Near Peak Gain	1.0194	1.0122	0.90 - 1.10
Near Lith Gain	0.9925	0.9904	0.90 - 1.10
Far Bar Gain	1.0159	1.0190	0.90 - 1.10
Far Dens Gain	1.0060	1.0063	0.90 - 1.10
Far Peak Gain	1.0011	0.9990	0.90 - 1.10
Far Lith Gain	0.9741	0.9736	0.90 - 1.10
<hr/>			
Near Bar Offset	-0.5746	-0.5300	NONE
Near Dens Offset	-0.2256	-0.2146	NONE
Near Peak Offset	-0.1480	-0.0811	NONE
Near Lith Offset	0.0481	0.0710	NONE
Far Bar Offset	-0.1763	-0.2013	NONE
Far Dens Offset	-0.1041	-0.1017	NONE
Far Peak Offset	-0.1131	-0.0914	NONE
Far Lith Offset	0.0239	0.0326	NONE
<hr/>			
Near Bar Background	856.26	854.78	700 - 1450
Near Dens Background	285.39	281.87	230 - 480
Near Peak Background	121.99	121.23	100 - 210
Near Lith Background	151.17	150.16	125 - 260
Far Bar Background	528.01	525.37	450 - 900
Far Dens Background	206.77	205.87	175 - 345
Far Peak Background	81.01	81.38	70 - 140
Far Lith Background	86.01	85.74	75 - 145

#### CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
<b>MAGNESIUM</b>				
Density (g/cc)	1.679	1.680	0.001	+/- 0.015
Pe	2.622	2.610	-0.012	+/- 0.150
<b>ALUMINUM</b>				
Density (g/cc)	2.595	2.599	0.004	+/- 0.01500
Pe	3.126	3.129	0.003	+/- 0.150

#### TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
<b>QUALITY</b>				
Background	-0.0023	+/- 0.0110	-0.0022	+/- 0.0140
Magnesium Block	-0.0010	+/- 0.0110	-0.0006	+/- 0.0140
Aluminum Block	0.0006	+/- 0.0110	0.0002	+/- 0.0140
Resolution	10.18	6.00 - 11.50	9.43	6.00 - 11.50
Internal Verifier(B+D+P+L)	1408	1200 - 2700	898	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 - 10895158

Reference Calibration Date: 02-May-12 14:37:07

Engineer: ROLAND VALDEZ

Calibration Date: 08-May-12 17:11:51

Software Version: WL INSITE R3.4.2 (Build 2)

Calibration Version: 1

Pad Temperature: 103.5 degF

#### DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1408.038	1414.515	6.477	15.151
Far (B+D+P+L) cps	898.362	905.625	7.263	16.303
Near Resolution	10.18	10.30	0.120	0.50
Far Resolution	9.43	9.81	0.380	1.00

#### PASS/FAIL SUMMARY

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

### SPECTRAL DENSITY POST CHECK

Tool Name: SDLT Pad - 10895158

Reference Calibration Date: 08-May-12 17:11:51

Engineer: ROLAND VALDEZ

Calibration Date: 09-May-12 20:25:59

Software Version: WL INSITE R3.4.2 (Build 2)

Calibration Version: 1

Pad Temperature: 89.3 degF

#### DENSITY POST CALIBRATION SUMMARY

Measurement	Field	Post	Change	Control Limit +/-
Near (B+D+P+L) cps	1414.515	1407.906	-6.609	15.151
Far (B+D+P+L) cps	905.625	905.072	-0.553	16.303
Near Resolution	10.30	10.36	0.060	0.50
Far Resolution	9.81	9.77	-0.040	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
<b>GTET-10881239</b>						
Gamma Ray Calibrator	228.9	225.3	218.9	6.4	+/- 9.00	api
<b>DSNT-10889020</b>						
Snow-Block Porosity	0.0779	0.0740	0.0698	0.0042	+/- 0.0150	decp
<b>SDLT-10895158</b>						
Pad Extension	3.75	3.81	3.87	-0.06	+/-0.10	in
Ring Diameter	8.25	8.34	8.31	0.030	+/-0.15	in
<b>ACRt Sonde-90119623</b>						
Mud Cell	1.005	-----	-----	0.000	-----	ohm-m
<b>SDLT Pad-10895158</b>						
Near(B+D+P+L)	1408.038	1414.515	1407.906	6.609	+/-15.151	cps
Far(B+D+P+L)	898.362	905.625	905.072	0.553	+/-16.303	cps

**HALLIBURTON****DEPTH SUMMARY REPORT****Depth Measuring System**

Depth Panel Type:	WSDP 2.04	Software Version:	JUN 24 2009 01:01:01
Encoder 1 Enabled?:	Yes	Serial Number:	
Encoder 1 Correction Enabled?:	Yes	Encoder 2 Enabled?:	Yes
Encoder 1 Correction Factor:	0.000 ft / 1000 ft	Encoder 2 Correction Enabled?:	Yes
		Encoder 2 Correction Factor:	0.000 ft / 1000 ft

**Logging Cable Information**

Cable Type:	7H47RTZHS	Stretch Coefficient:	0.065 ft/100ft/1000lb
Cable Weight:	392.00 lbsp1000ft	Cable Maximum Safe Pull:	11,550 lbs
Breaking Strength:	23,100 lbs	Mechanical Weakpoint:	8,000 lbs
Tool String Weight in Fluid:	1577.00 lbs		

**Depth Control - Logging Up**

Conveyance:	Tool Pusher	Magnetic Mark Correction Applied?	Yes
Cable Stretch Correction Applied?	Standard	Magnetic Mark Interval:	100 ft
Corrected to:	Pipe Depth	Top Depth:	11,661.70 ft
Bottom Depth:	13,992.18 ft	Stretch Applied:	12.08 ft
Stretch Applied:	16.34 ft		

**Mark Information**

No FIRST MARK Found			
Deepest Mark found at:	11729.79 ft	Shallowest Mark found at:	13631.73 ft
Tension at Mark Depth:	585.1 lbs	Tension at Mark Depth:	753.4 lbs
Stretch Applied at Mark Depth:	12.2 ft	Stretch Applied at Mark Depth:	15.6 ft

Data: BRE\_RC\_29-7HLR2\0001 TRIPLE\_RED\_TPL\002 09-May-12 11:39 Up 13992.3f

Date: 09-May-12 14:06:45

COMPANY **BREITBURN FLORIDA, LLC**WELL **RED CATTLE 29-7HL**FIELD **WEST FELDA**COUNTY **HENDRY**

STATE

**FL****HALLIBURTON****SPECTRAL DENSITY  
DUAL SPACED NEUTRON****\*\*\* MEASURED DEPTH \*\*\***