



Composite Log

Company Pronghorn Operating, LLC
Well Evan #2
Field Spur
County Cheyenne State Colorado

Company Pronghorn Operating, LLC
Well Evan #2
Field Spur
County Cheyenne
State Colorado

Location: 731' FNL & 1856' FEL
SEC 7 TWP 14 S RGE 44 W
Permanent Datum GL Elevation 4295 ft.
Log Measured From KB, 16 ft. above perm. datum
Drilling Measured From KB
Other Services
K.B. 4311 ft.
D.F. 4310 ft.
G.L. 4295 ft.

Date	13-Aug-2013		
Run Number	One		
Depth Driller	5608'		
Depth Logger	5609'		
Bottom Logged Interval	5609'		
Top Log Interval	4000'		
Casing Driller	8.625" @ 1619'	@	@
Casing Logger	1612'		
Bit Size	7.875"	@	@
Type Fluid in Hole	WBM		
Density / Viscosity	9.2 / 56		
pH / Fluid Loss	8 / 7		
Source of Sample	Mud Pit		
Rm @ Meas. Temp	0.8 @ 75°F	@	@
Rmf @ Meas. Temp	0.64 @ 75°F	@	@
Rmc @ Meas. Temp	1.04 @ 75°F	@	@
Source of Rmf / Rmc	Calculated		
Rm @ BHT	0.43 @ 140 °F	@	@
Time Circulation Stopped	4:00		
Time Logger on Bottom	9:30		
Maximum Recorded Temperature	140 °F		
Equipment Number	10002		
Location	Brighton		
Recorded By	B. Oetting		
Witnessed By	J. Flora		

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Equipment and Log Data

Service Order: 23269

Gamma		Density		Neutron		Sonic		IAT	
Run No.	One	Run No.	One	Run No.	One	Run No.	One	Run No.	One
Serial No.	9990	Serial No.	0872	Serial No.	7939	Serial No.	0072	Serial No.	10110
O.D.	3.375 in.	Source No.	50130B	Source No.	66010B	Centralizers	0	Standoffs	@
		O.D.	4.5 in.	O.D.	3.375 in.	O.D.	3.375 in.	O.D.	3.875 in.

Logging Pass Data

General		Gamma		Density		Neutron		Sonic		IAT	
		Scales		Scales		Scales		Scales		Scales	
Run	Depths	Left	Right	Left	Right	Matrix	Left	Right	Matrix	Left	Right
One	TD CSG	0	150	0.3	-0.1	2.71 g/cc	0.3	-0.1	Lime	0.3	-0.1

All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

Comments

First run in hole
Tools ran slick due to hole conditions
5.5" production casing used to calculate annular hole volumes
Chlorides reported at: 2600 ppm
LCM: 15 lb/bbl

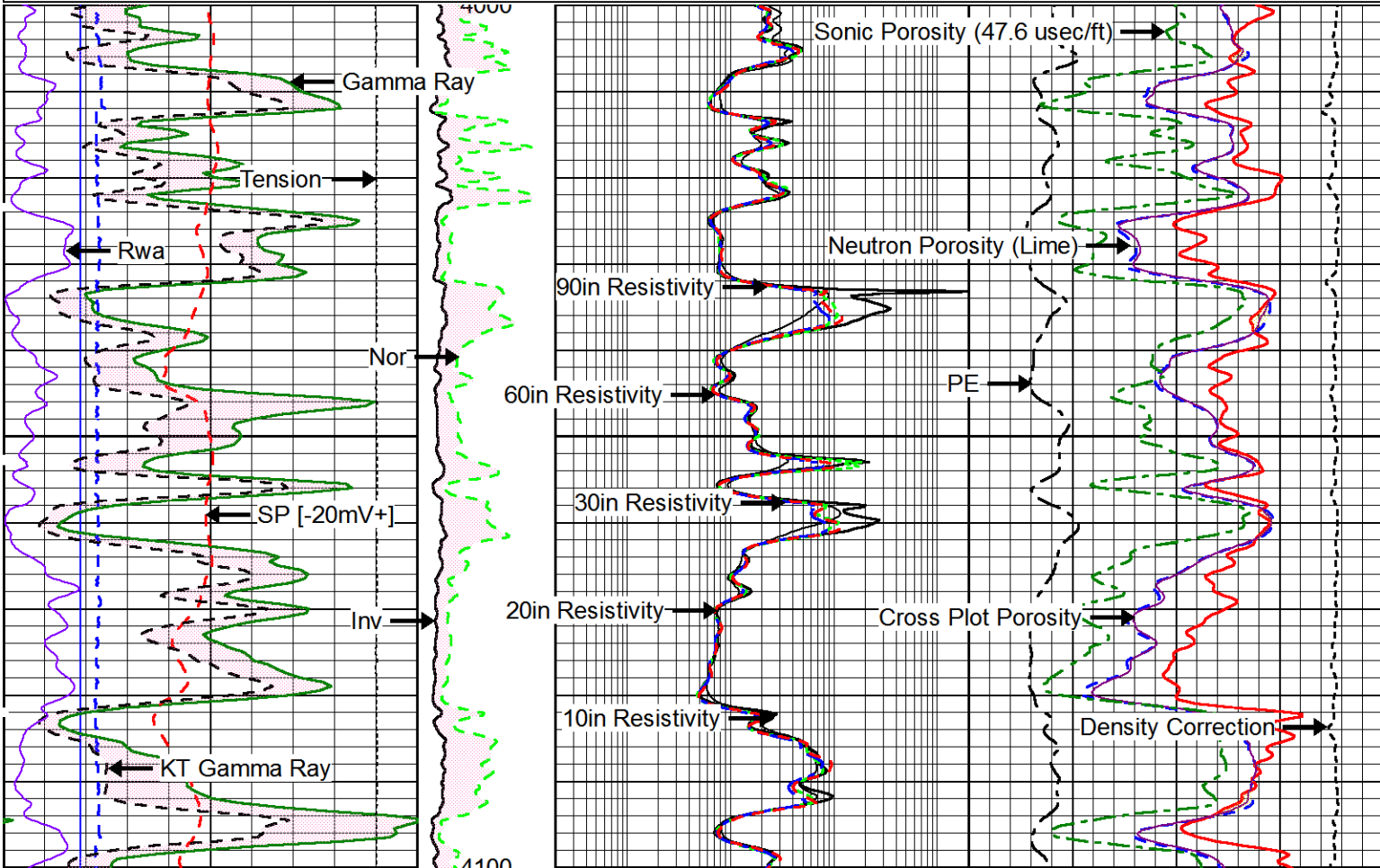
YOUR CREW TODAY: A. Hughes, M. Zowal

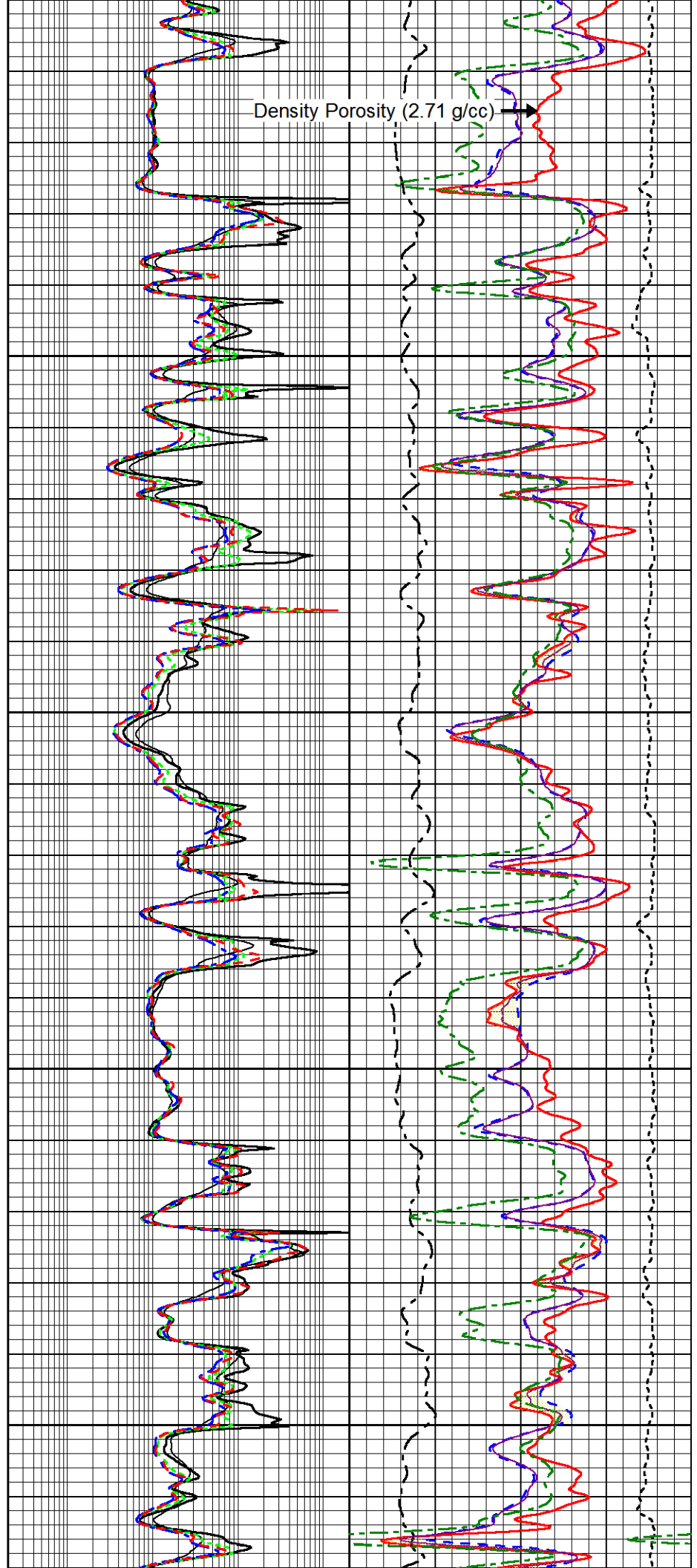
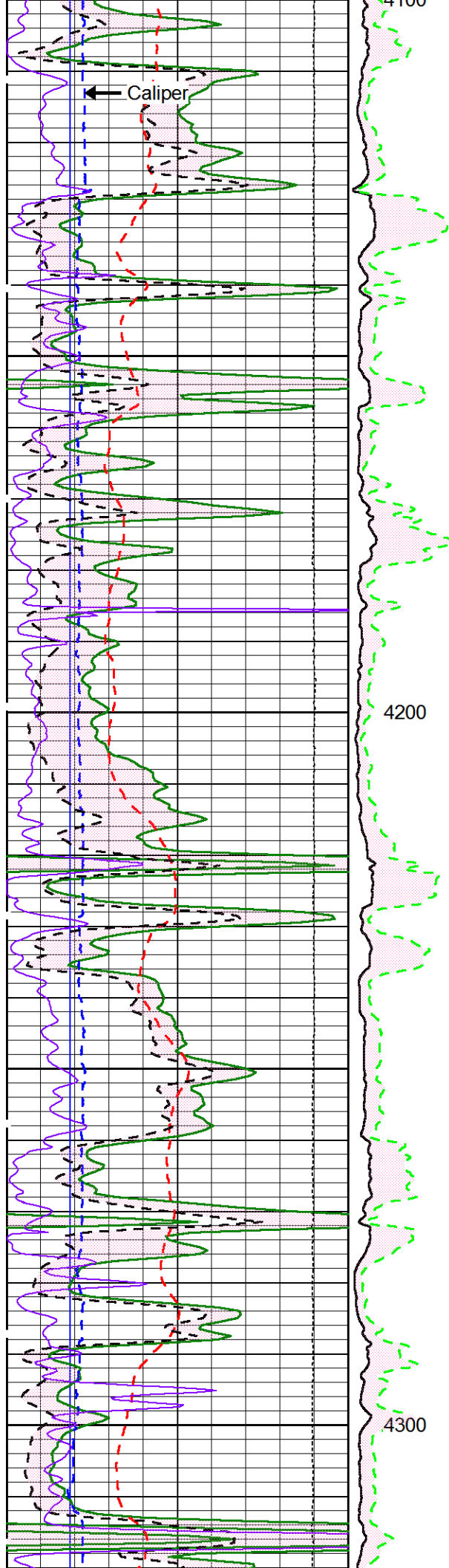


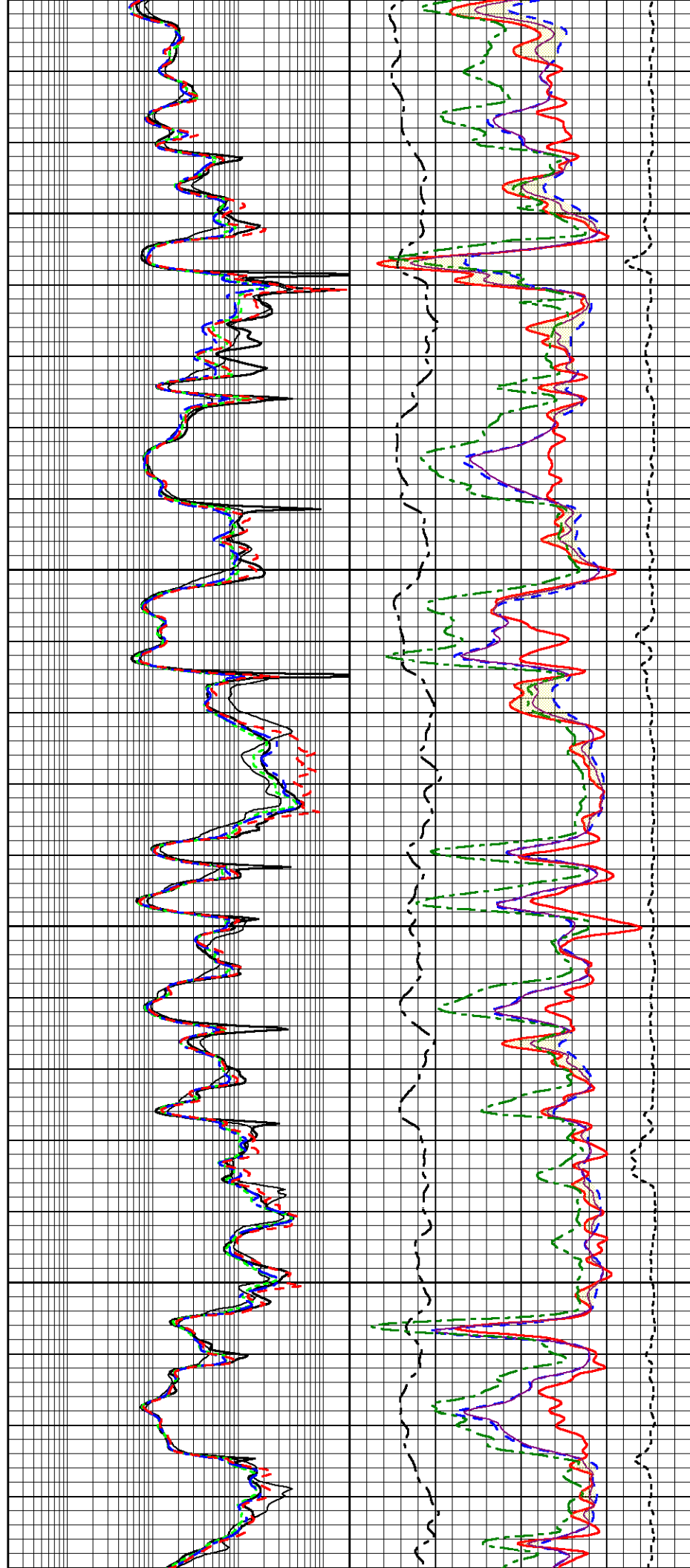
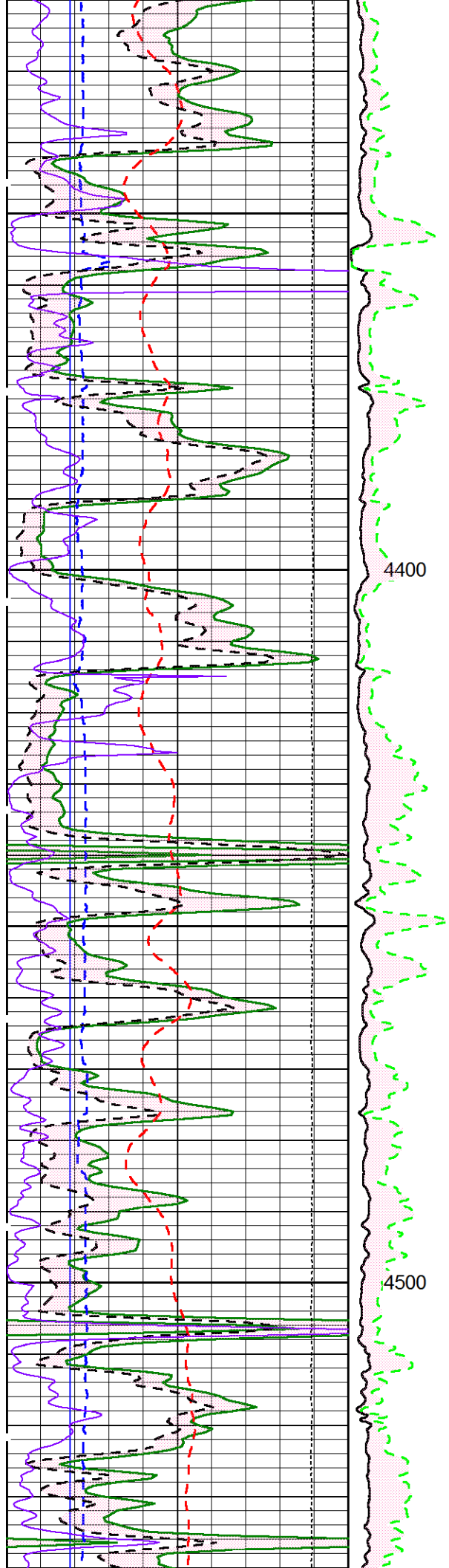
Main Pass

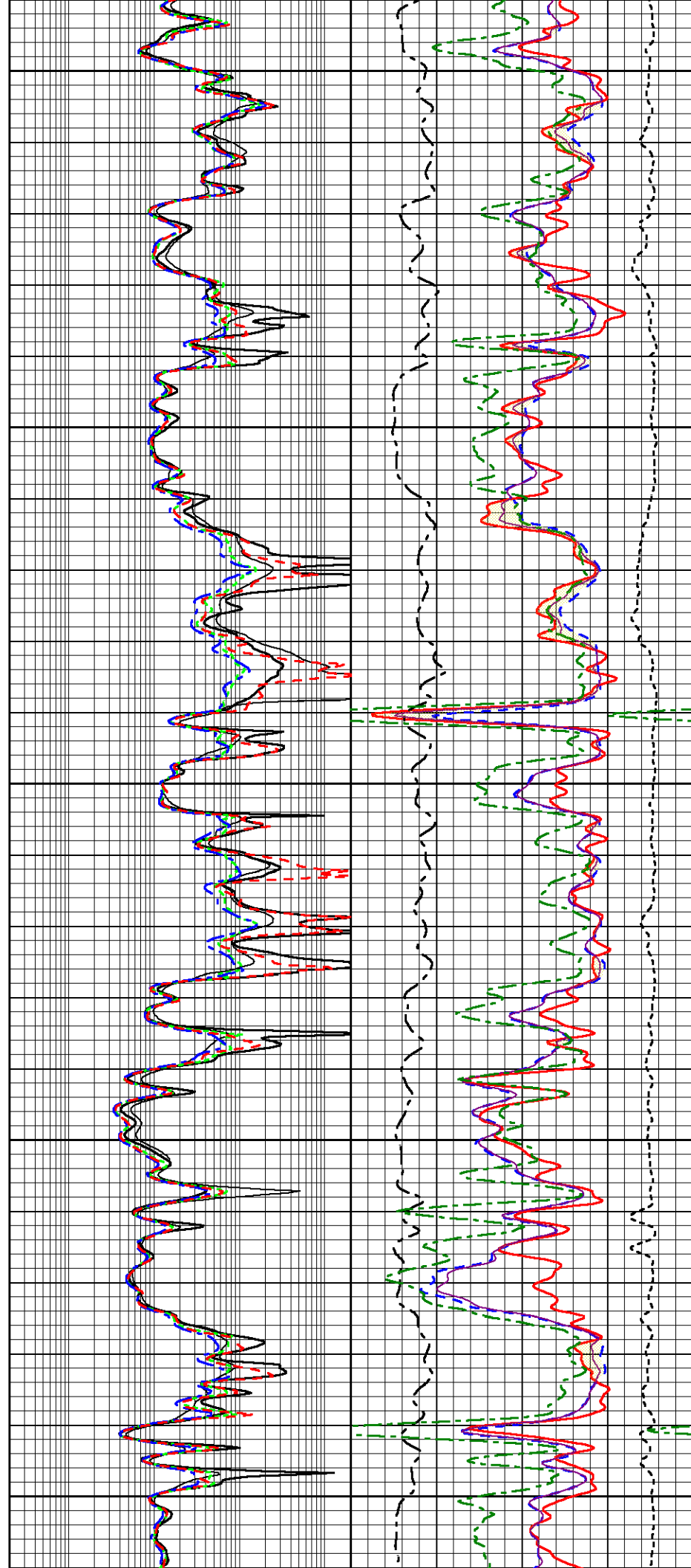
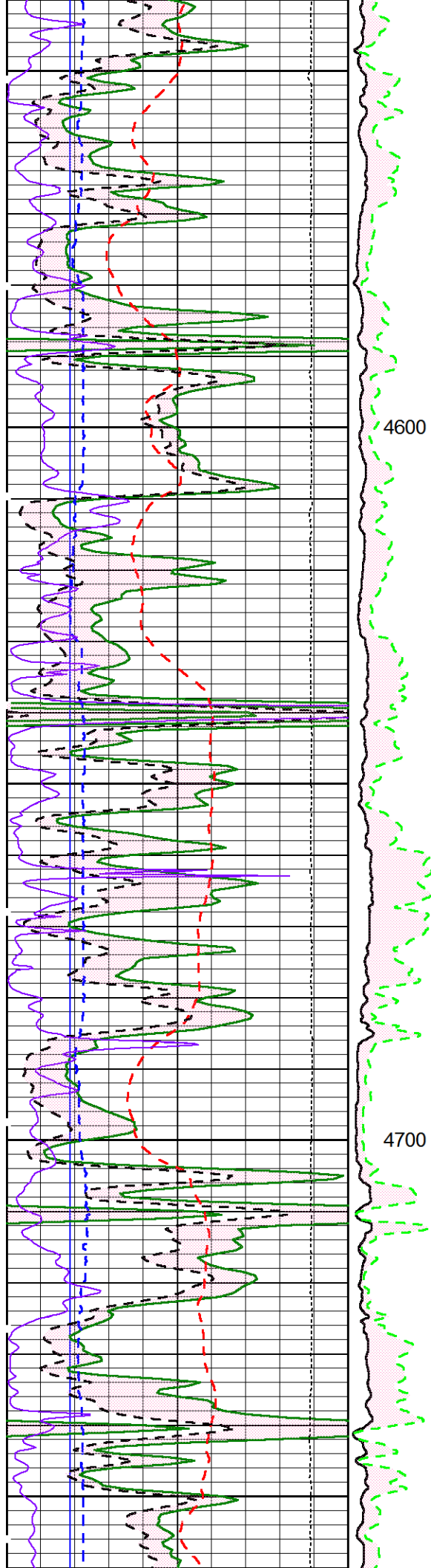
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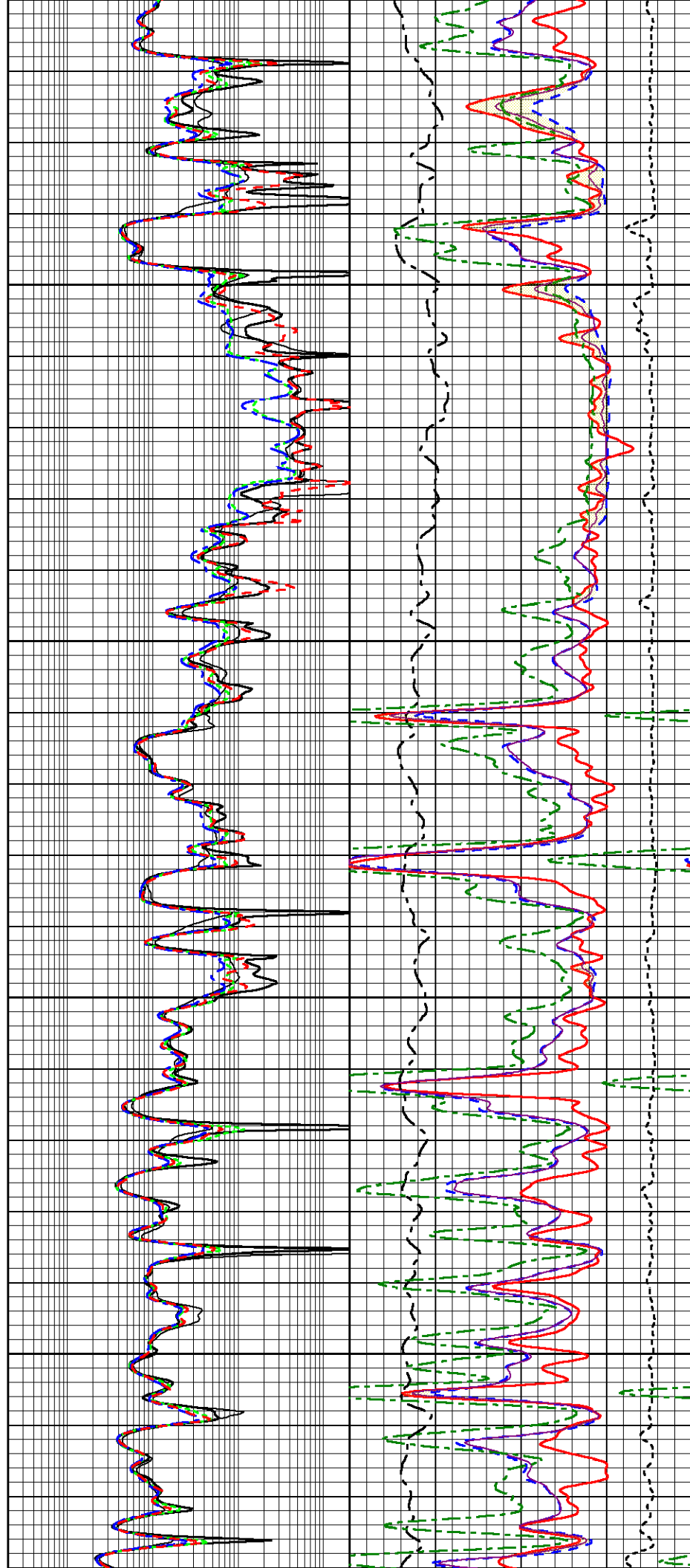
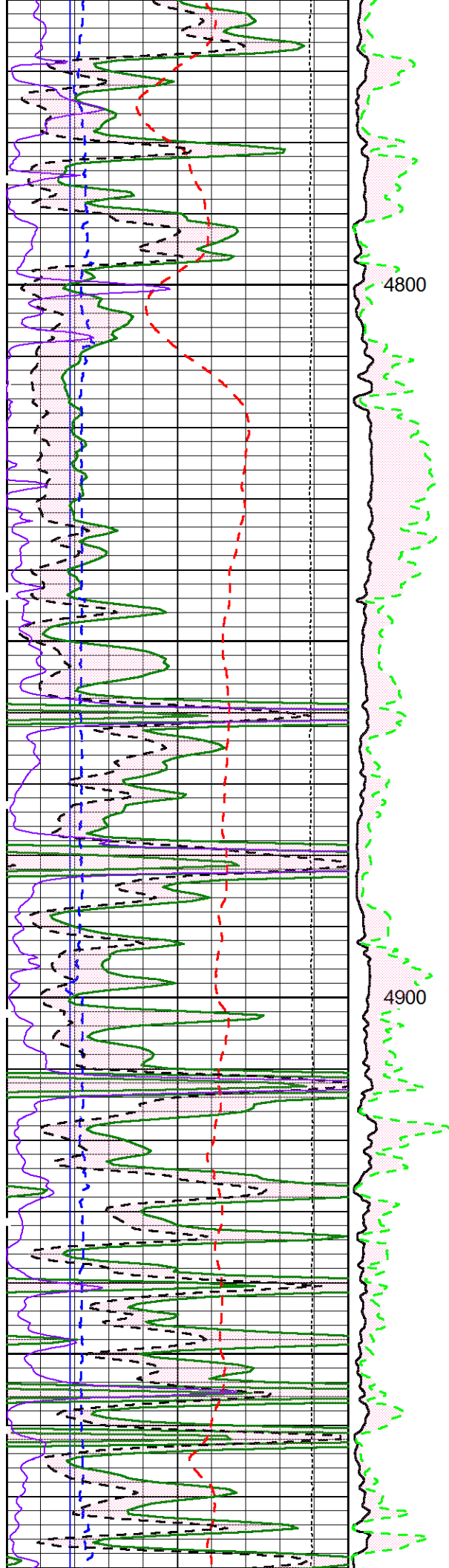
6 Bitsize (in) 16			Inv (Ohm-m)	0.2	10in Resistivity (Ohm-m)	2000	0.3 Neutron Porosity (Lime) -0.1		
0 Gamma Ray (GAPI) 150				0.2	20in Resistivity (Ohm-m)	2000	0.3 Density Porosity (2.71 g/cc) -0.1		
6 Caliper (in) 16			0 20	0.2	30in Resistivity (Ohm-m)	2000	0	PE 10	Density Correction
SP [-20mV+]			Nor (Ohm-m)	0.2	60in Resistivity (Ohm-m)	2000			
0 KT Gamma Ray (GAPI) 150				0.2	90in Resistivity (Ohm-m)	2000	0.8 (g/cc) -0.2		
0 Rwa (Ohm-m) 1			0 20				0.3 Cross Plot Porosity -0.1		
							0.3 Sonic Porosity (47.6 usec/ft) -0.1		
Tension									
10000 (lb) 0									

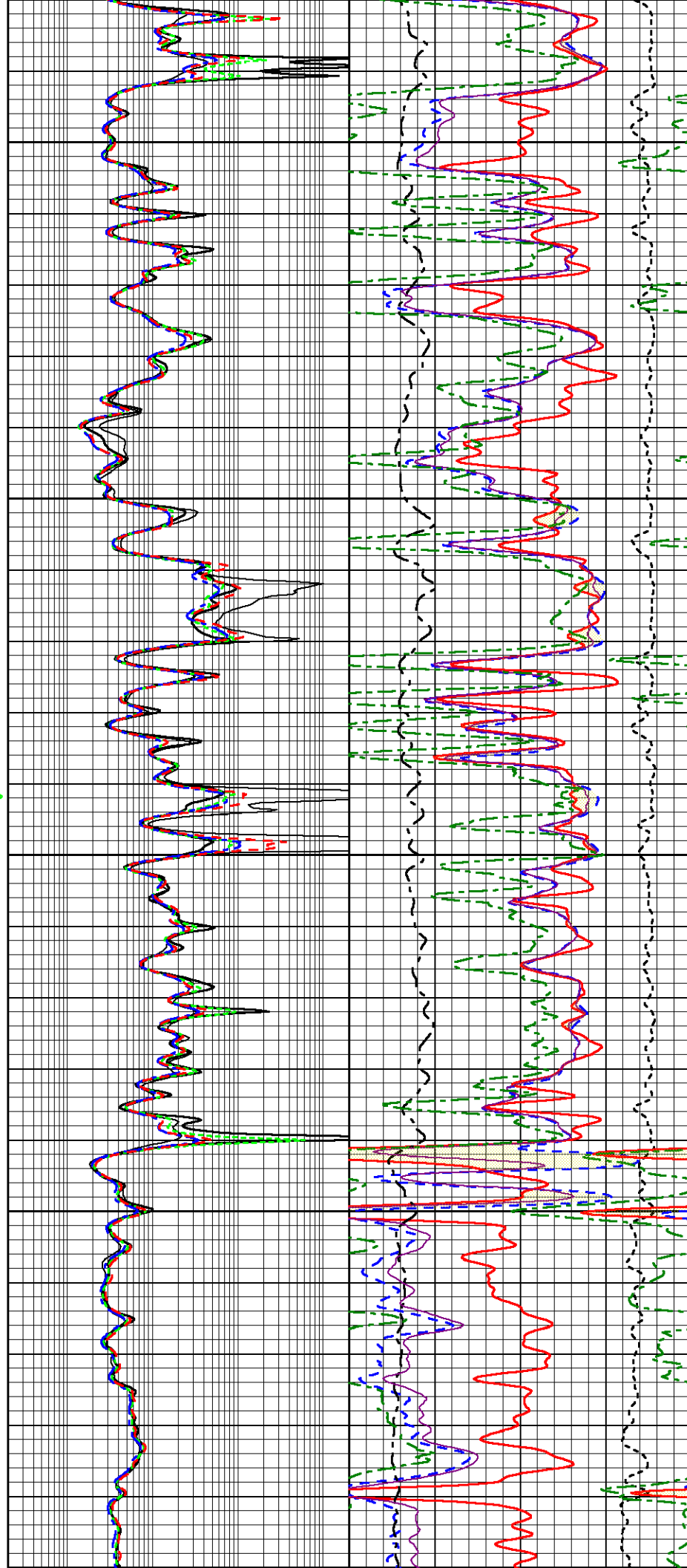
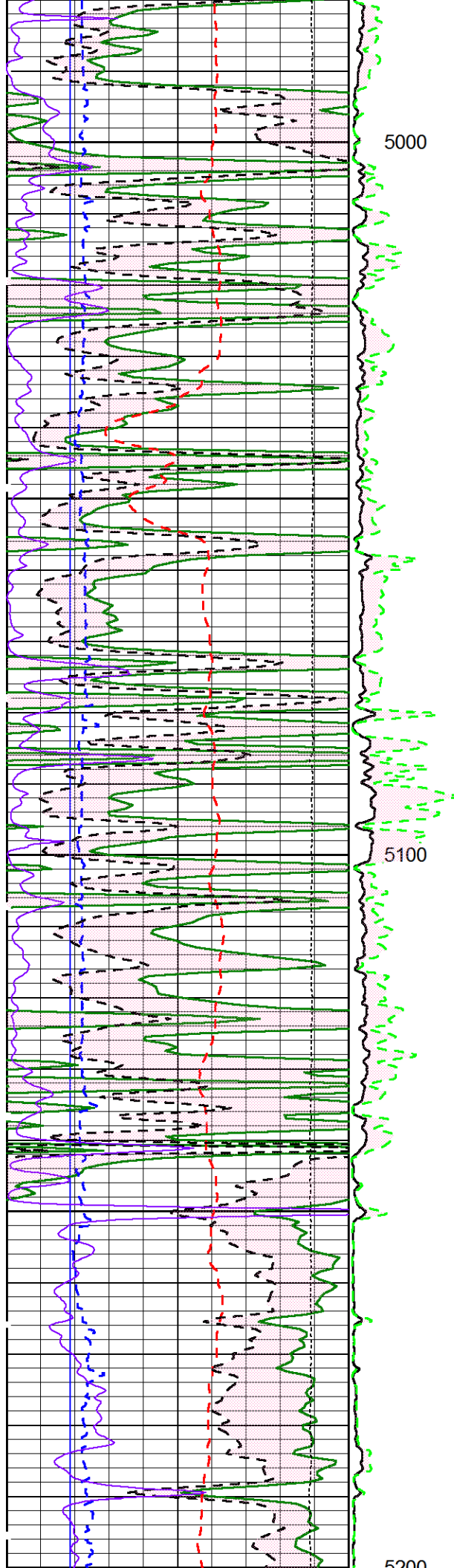


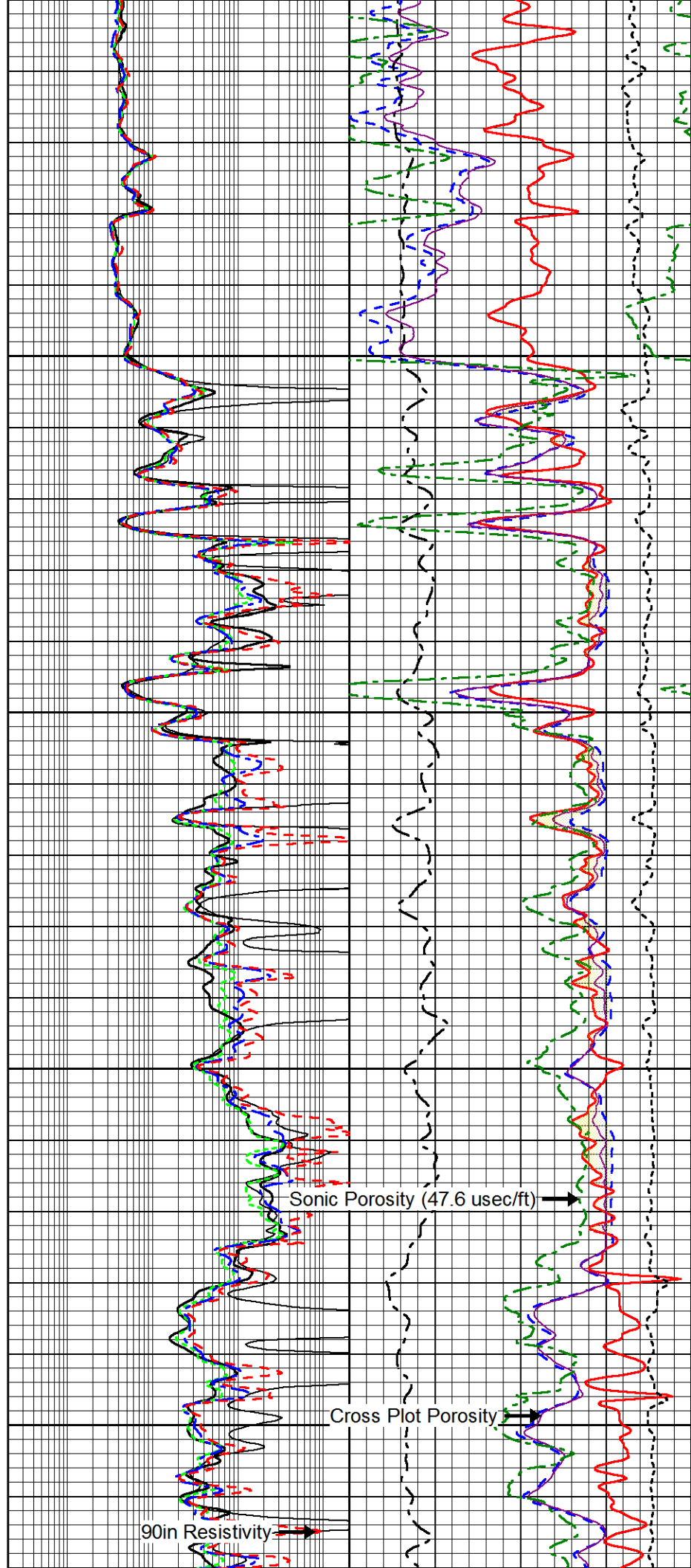
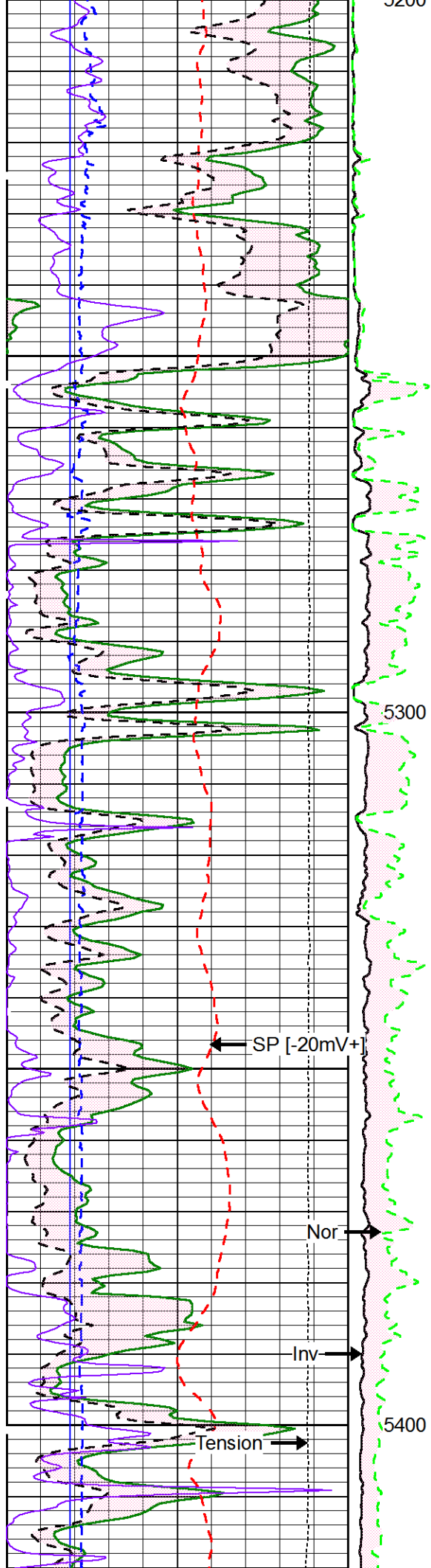


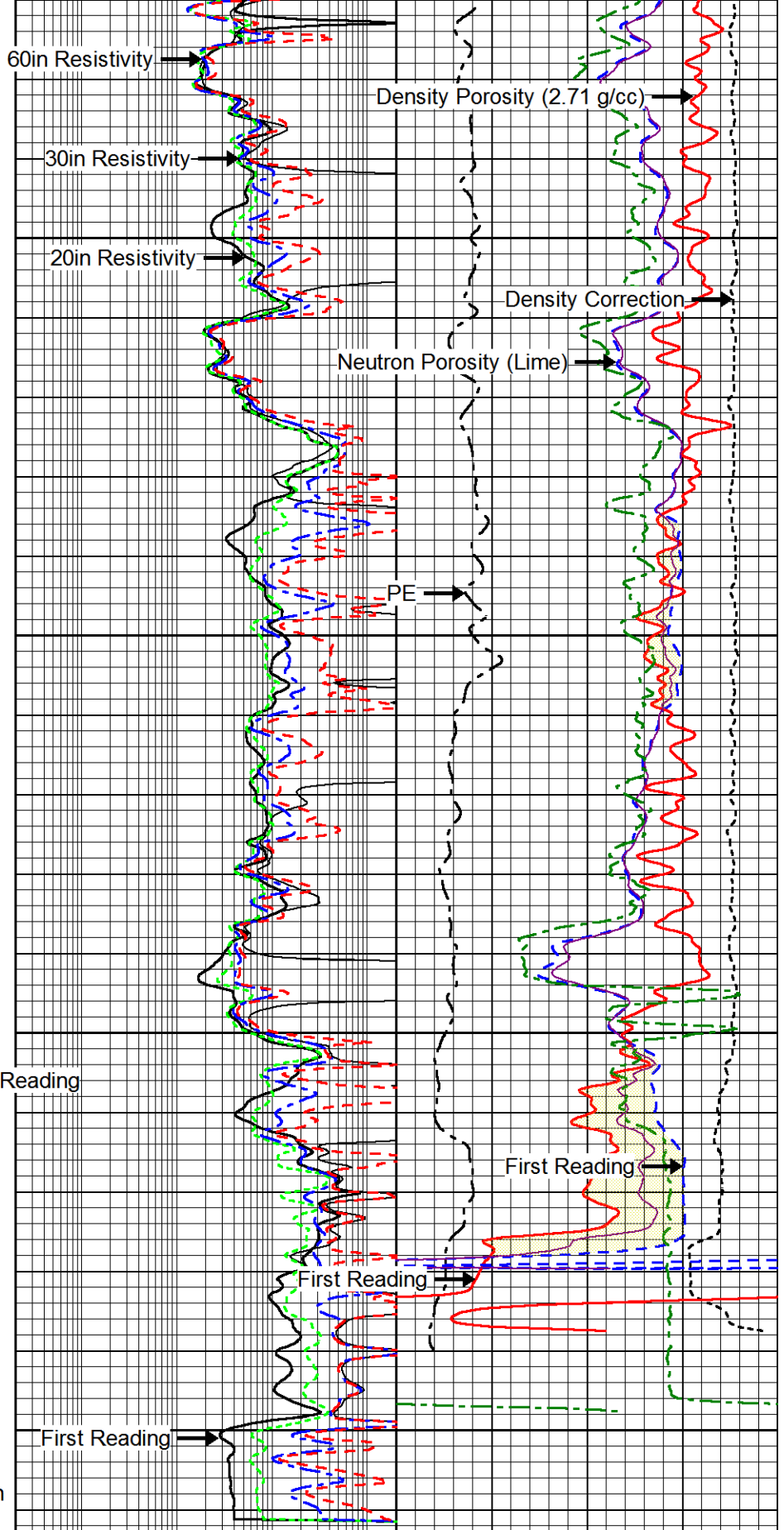
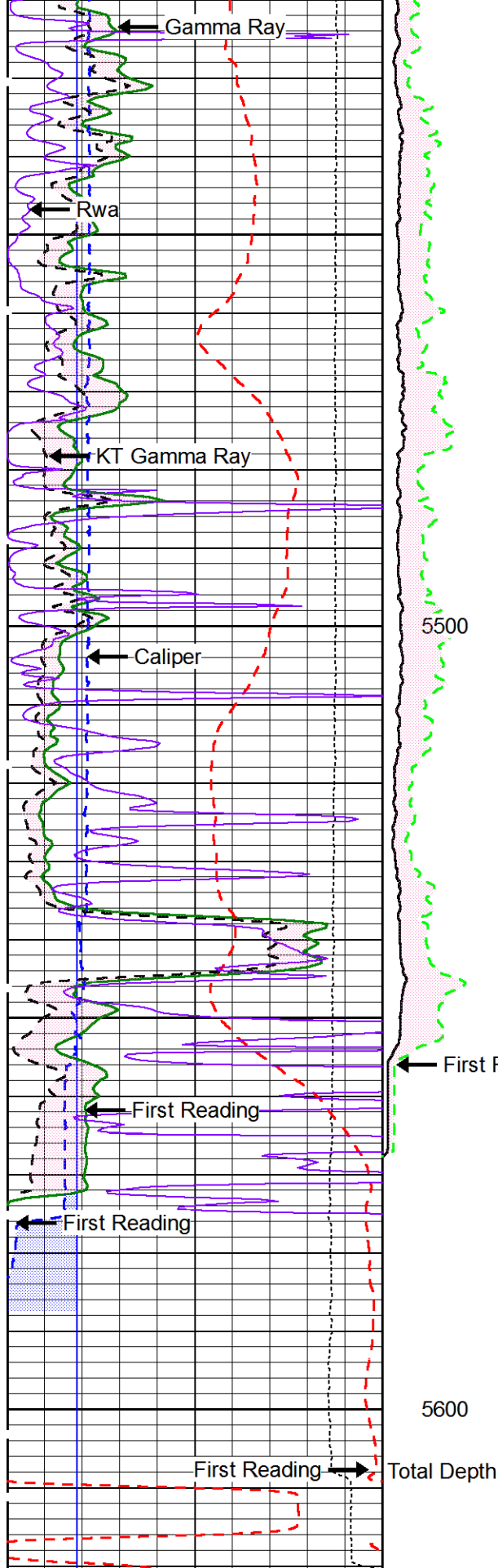












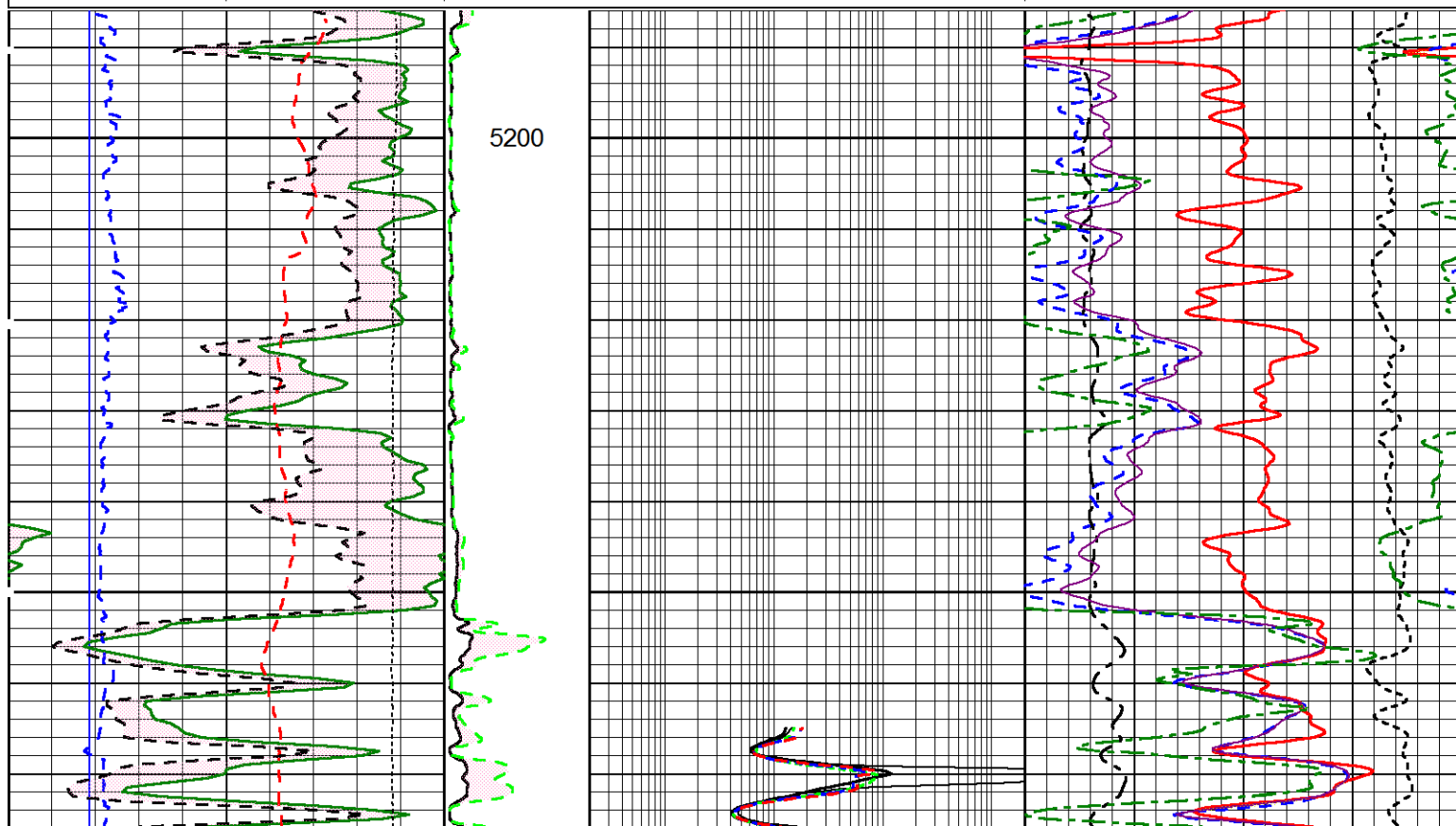
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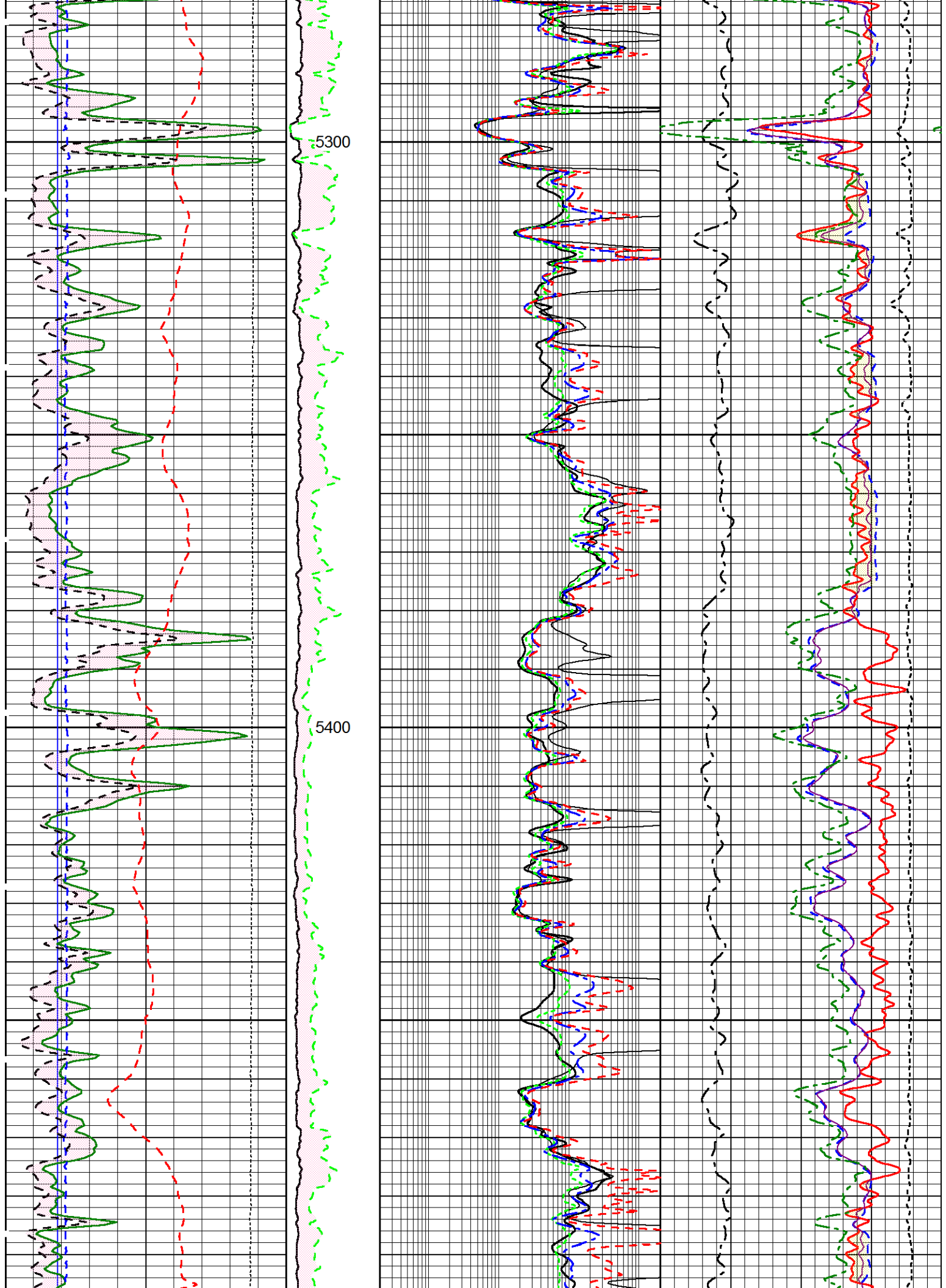


Repeat Pass

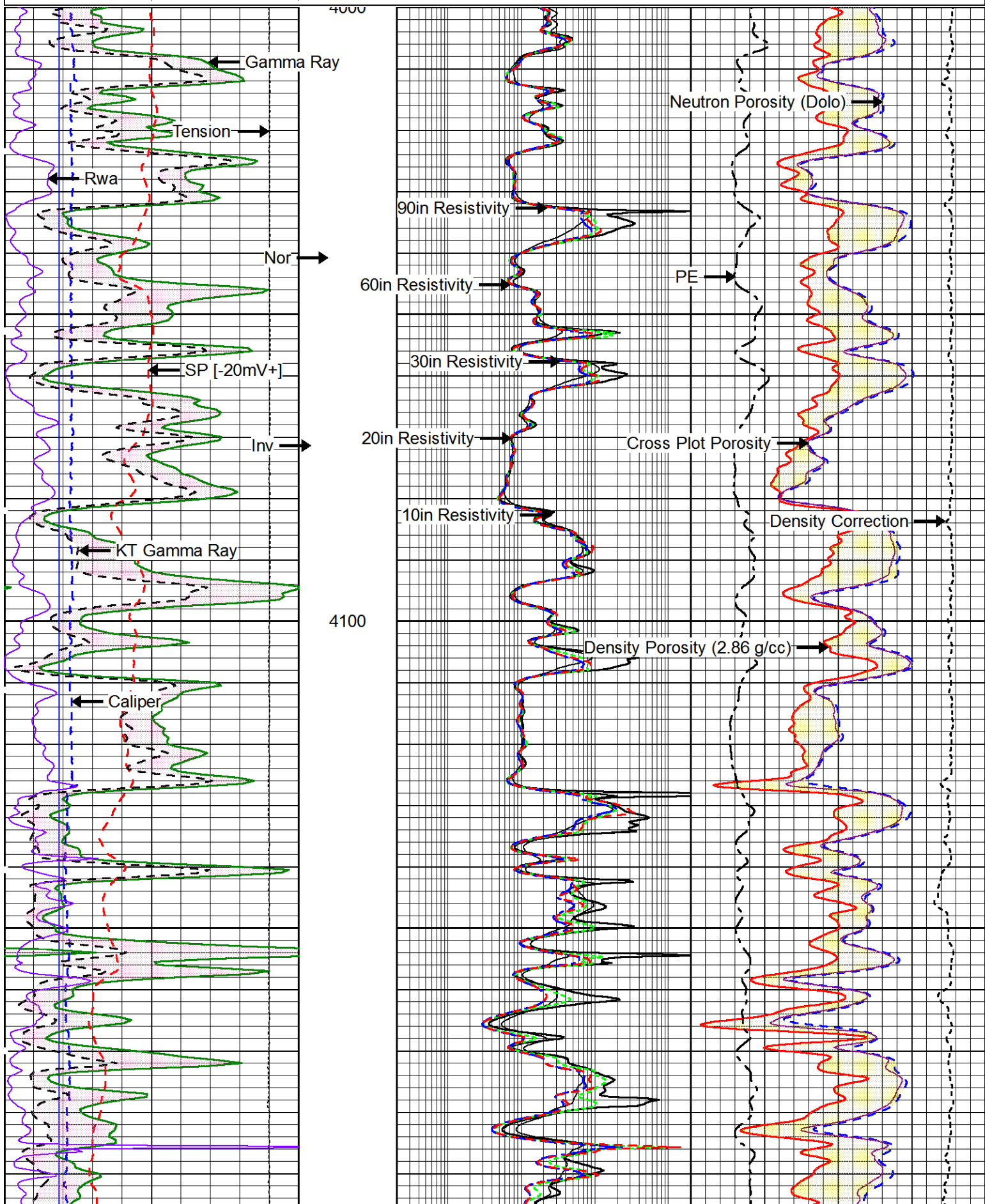
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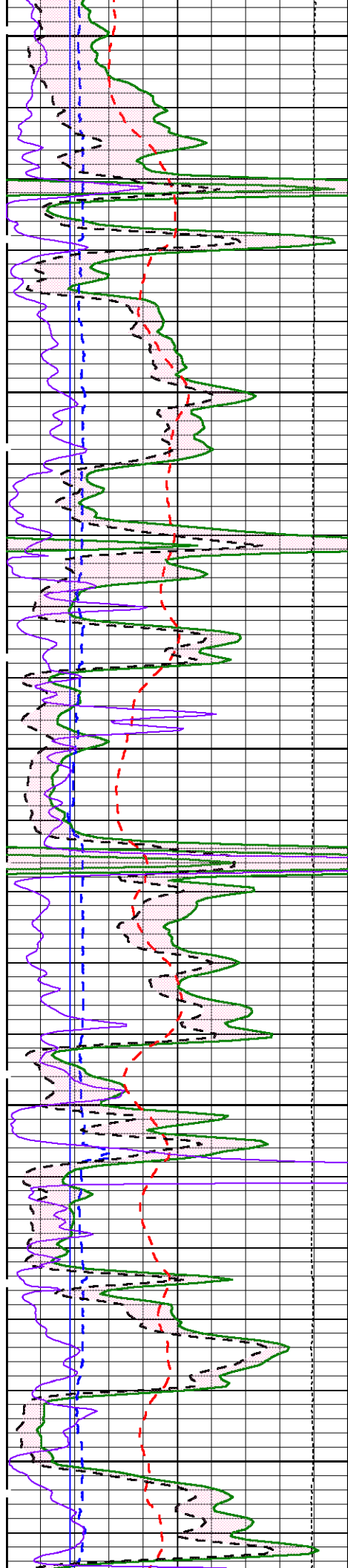
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0	Gamma Ray (GAPI)	150		0.2	20in Resistivity (Ohm-m)	2000	0.3		Density Porosity (2.71 g/cc)		-0.1
6	Caliper (in)	16		0	20	0.2	30in Resistivity (Ohm-m)	2000	0		PE
SP [-20mV+]			Nor (Ohm-m)	0.2	60in Resistivity (Ohm-m)	2000	0		Density Correction		
0	KT Gamma Ray (GAPI)	150		0.2	90in Resistivity (Ohm-m)	2000	0.8				(g/cc)
Tension		0	20				0.3		Cross Plot Porosity		-0.1
10000 (lb)		0				0.3		Sonic Porosity (47.6 usec/ft)		-0.1	





SP [-20mV+]			0.2	60in Resistivity (Ohm-m)	2000	Correction		
0	KT Gamma Ray (GAPI)		150	0.2	90in Resistivity (Ohm-m)	2000	0.8	(g/cc) -0.2
0	Rwa (Ohm-m)		1	0.3 Cross Plot Porosity -0.1				
		Tension						
		10000 (lb)		0				

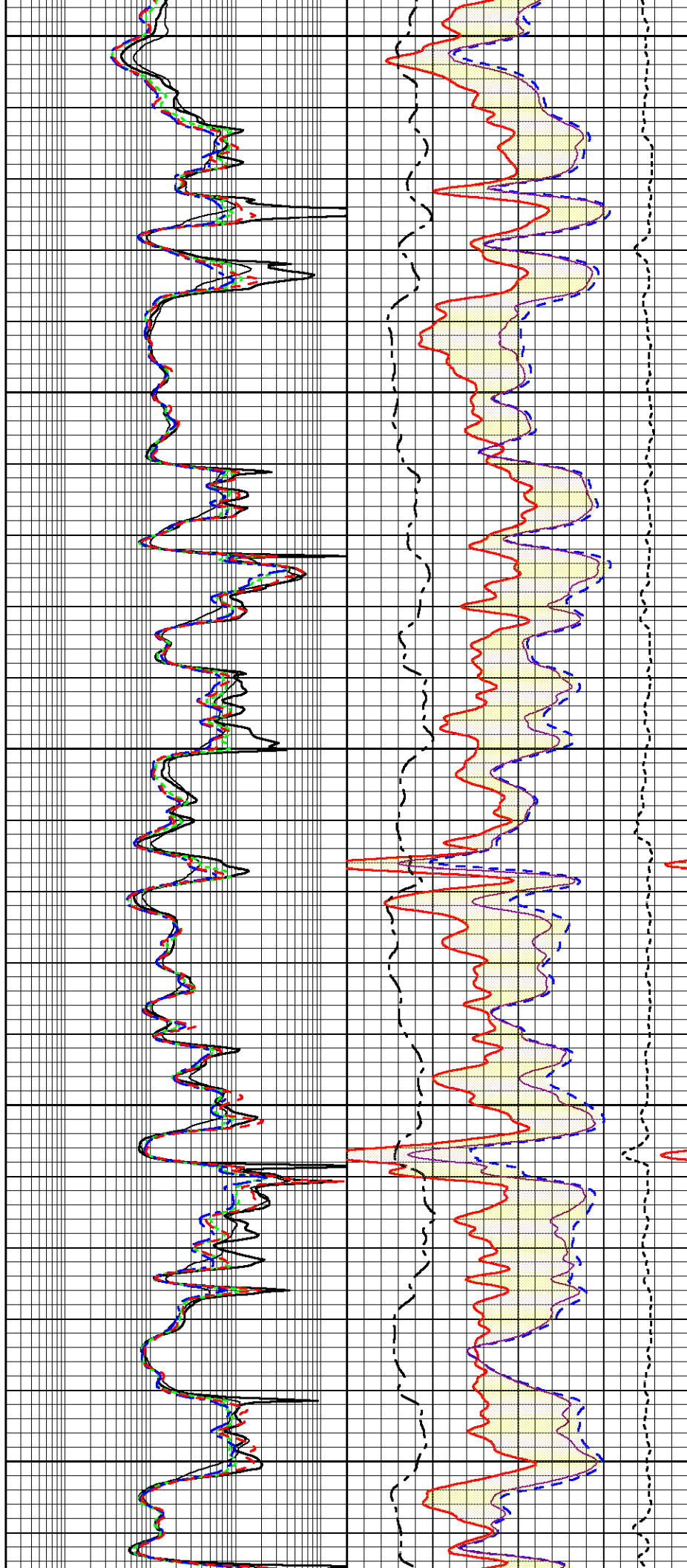


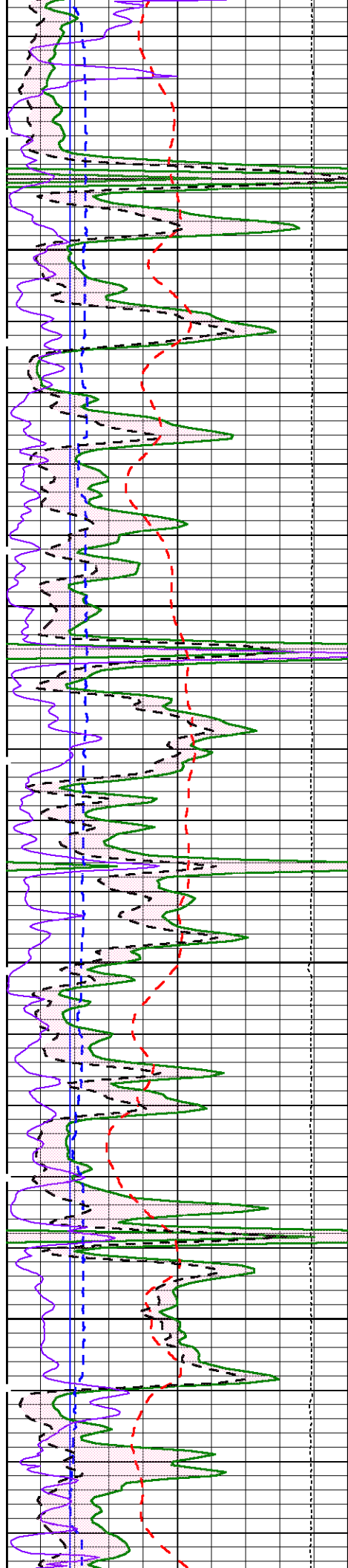


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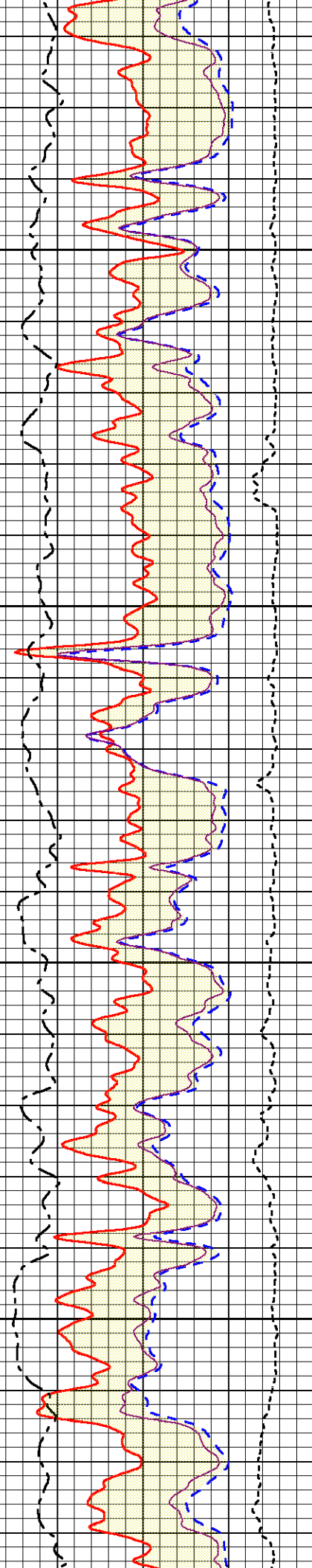
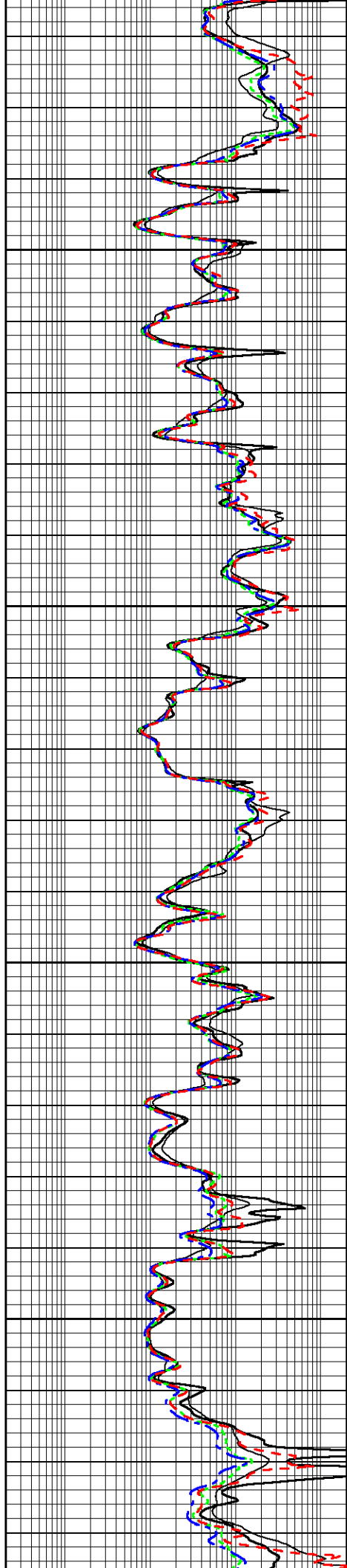
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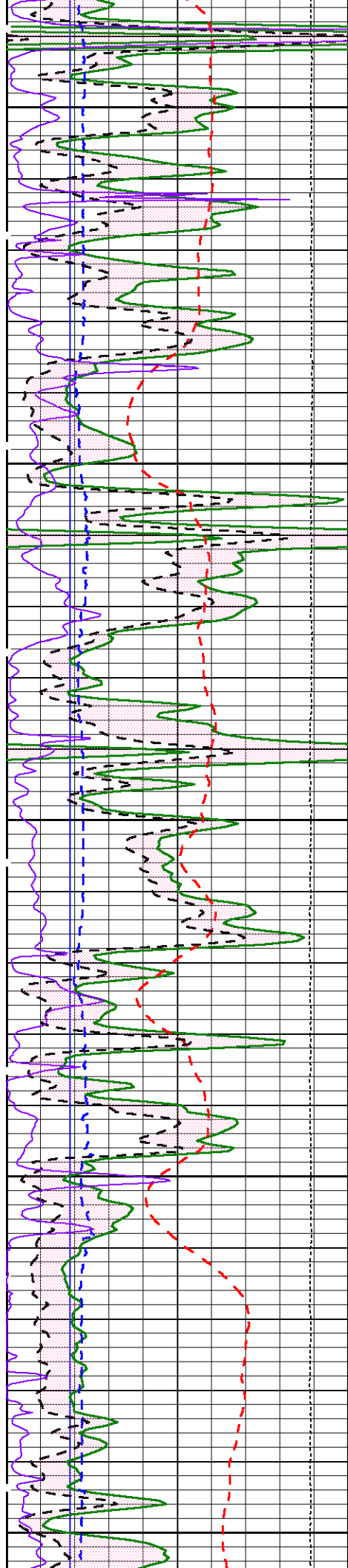




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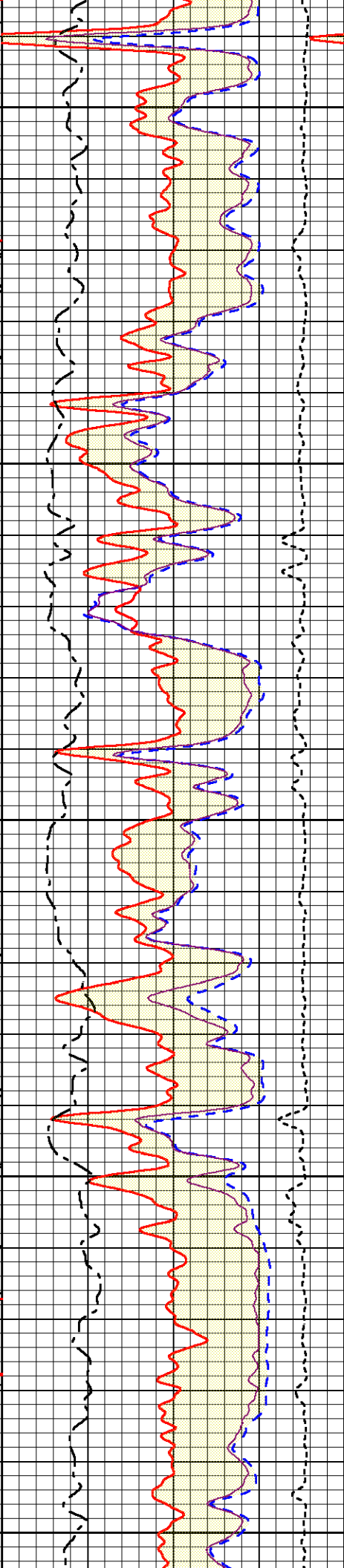
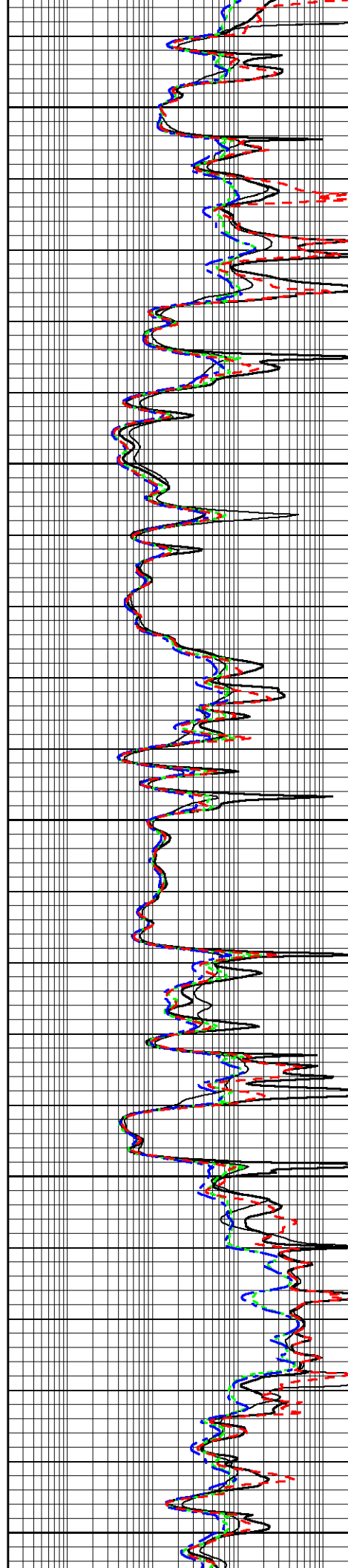
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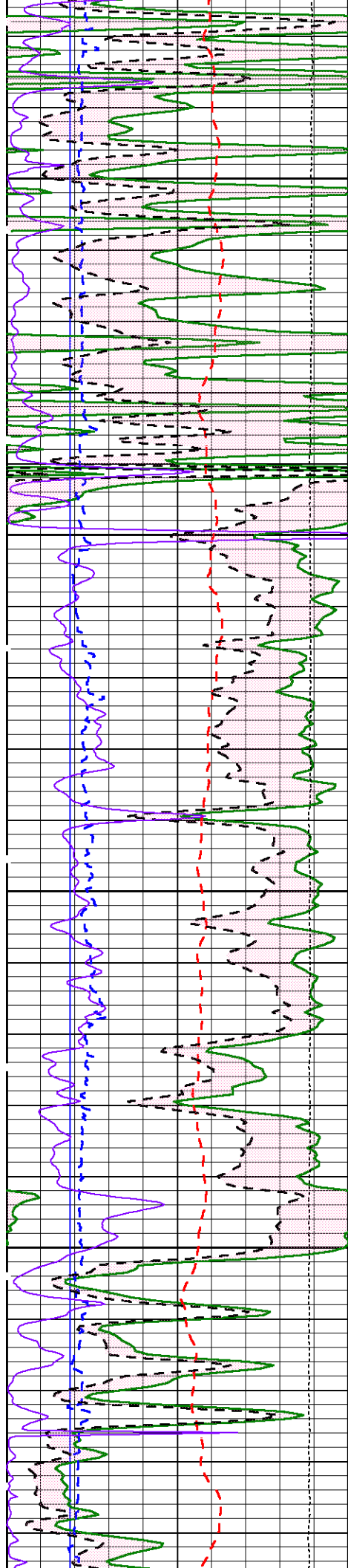




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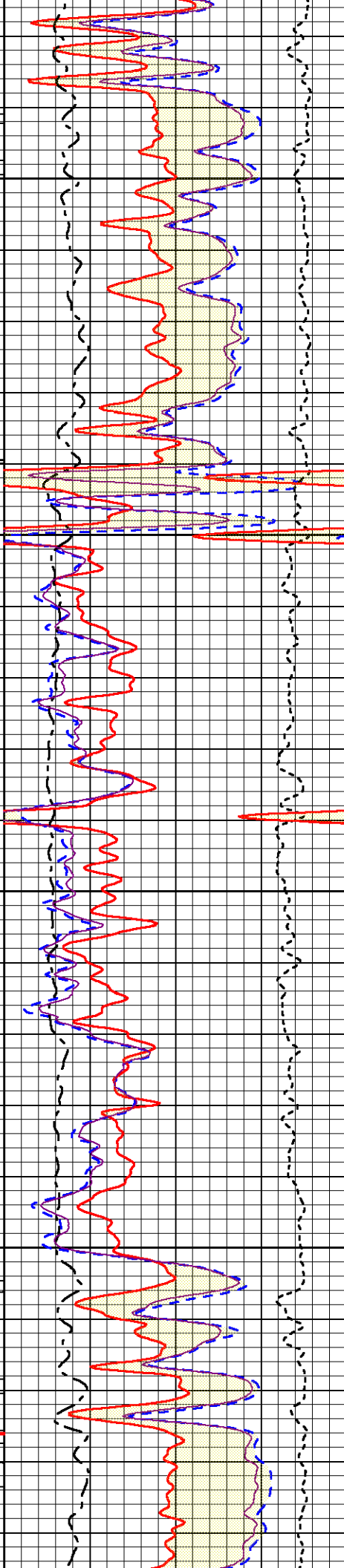
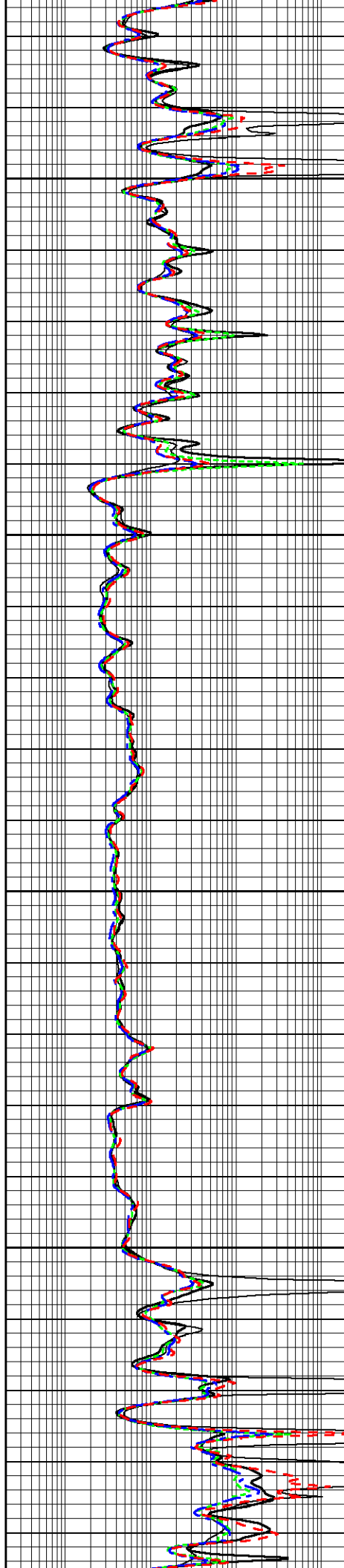
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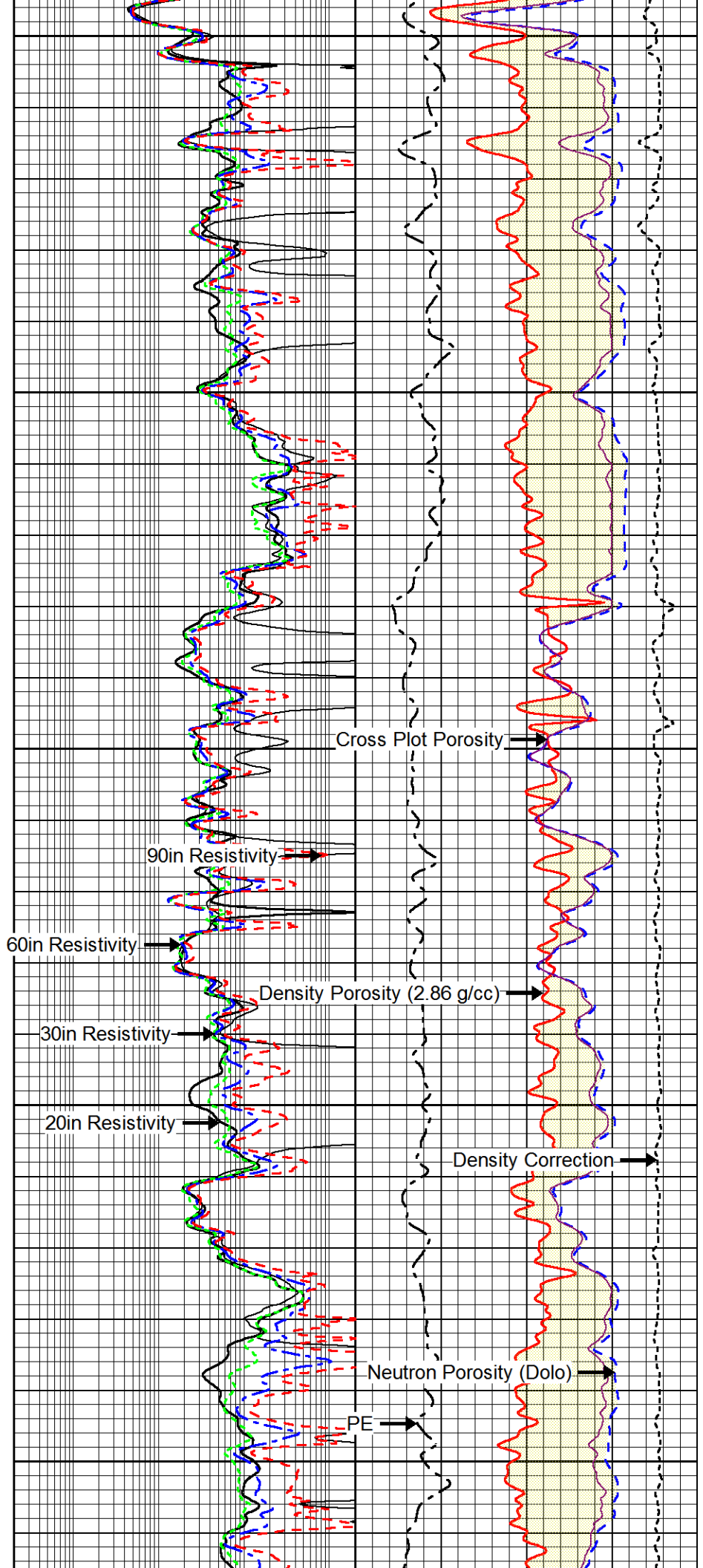
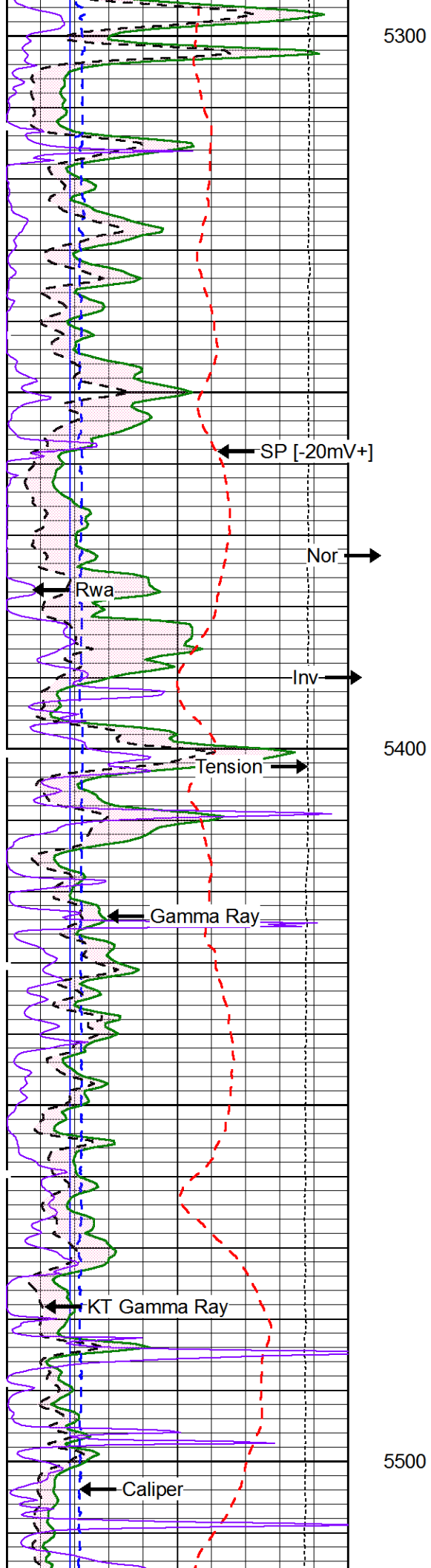


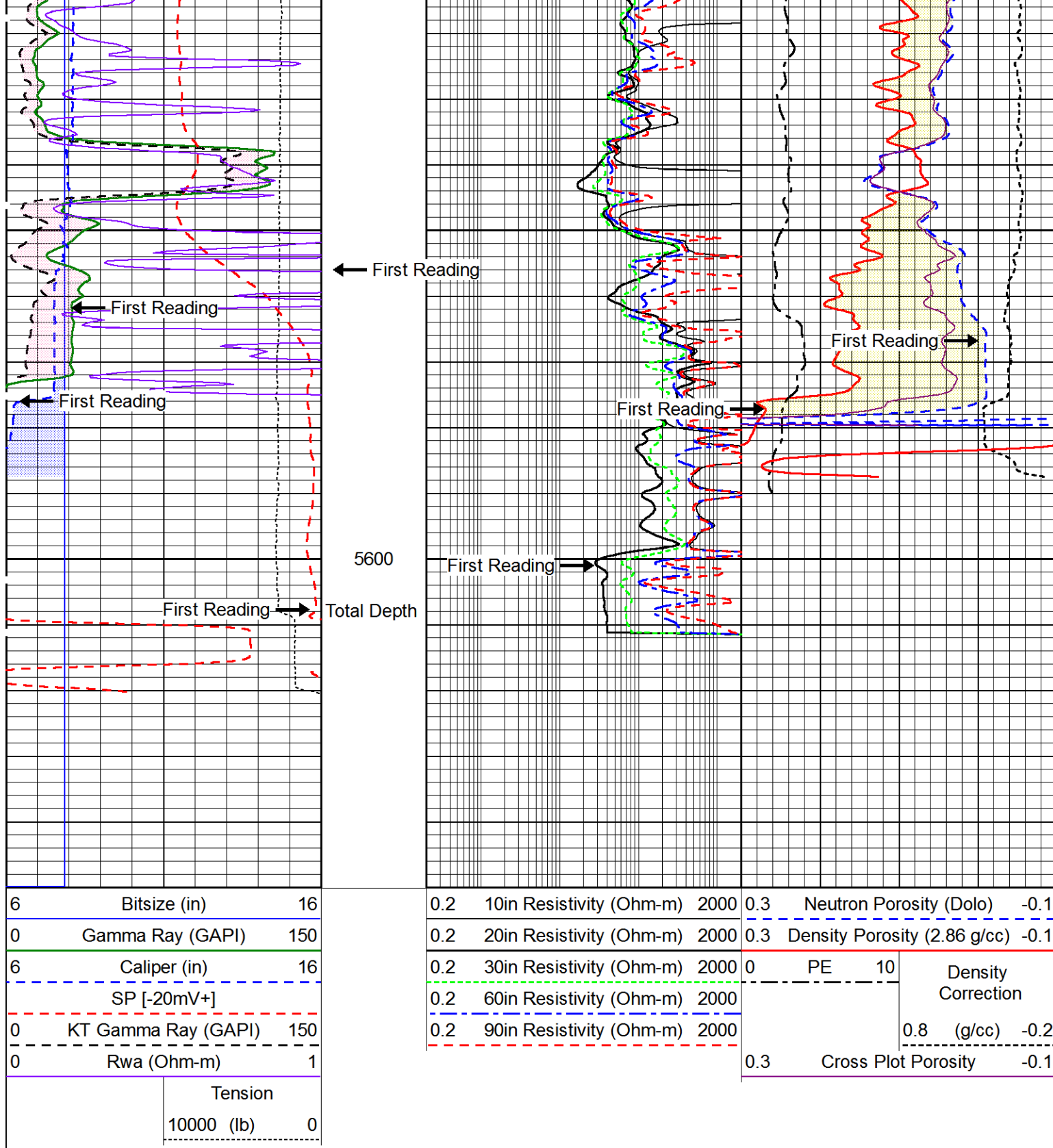


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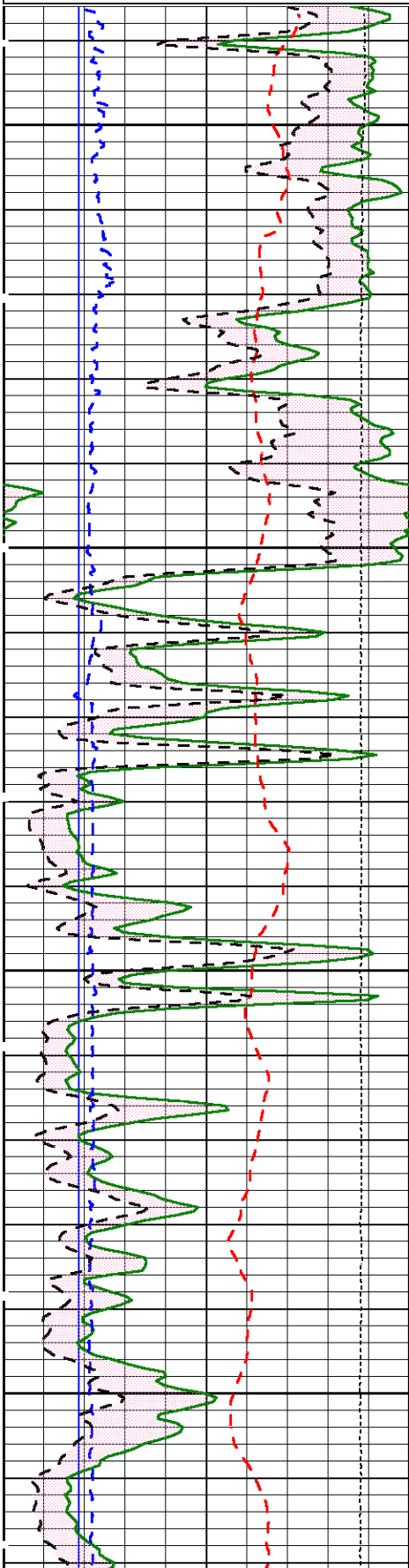
Repeat Pass

Database File: pronghorn_evan_2.db
 Dataset Pathname: pass3.3
 Presentation Format: a3prond
 Dataset Creation: Fri Sep 13 12:11:25 2013 by Calc Sondex V7.03
 Charted by: Depth in Feet scaled 1:240

6	Bitsize (in)	16
0	Gamma Ray (GAPI)	150
6	Caliper (in)	16
SP [-20mV+]		
0	KT Gamma Ray (GAPI)	150
Tension		
	10000 (lb)	0

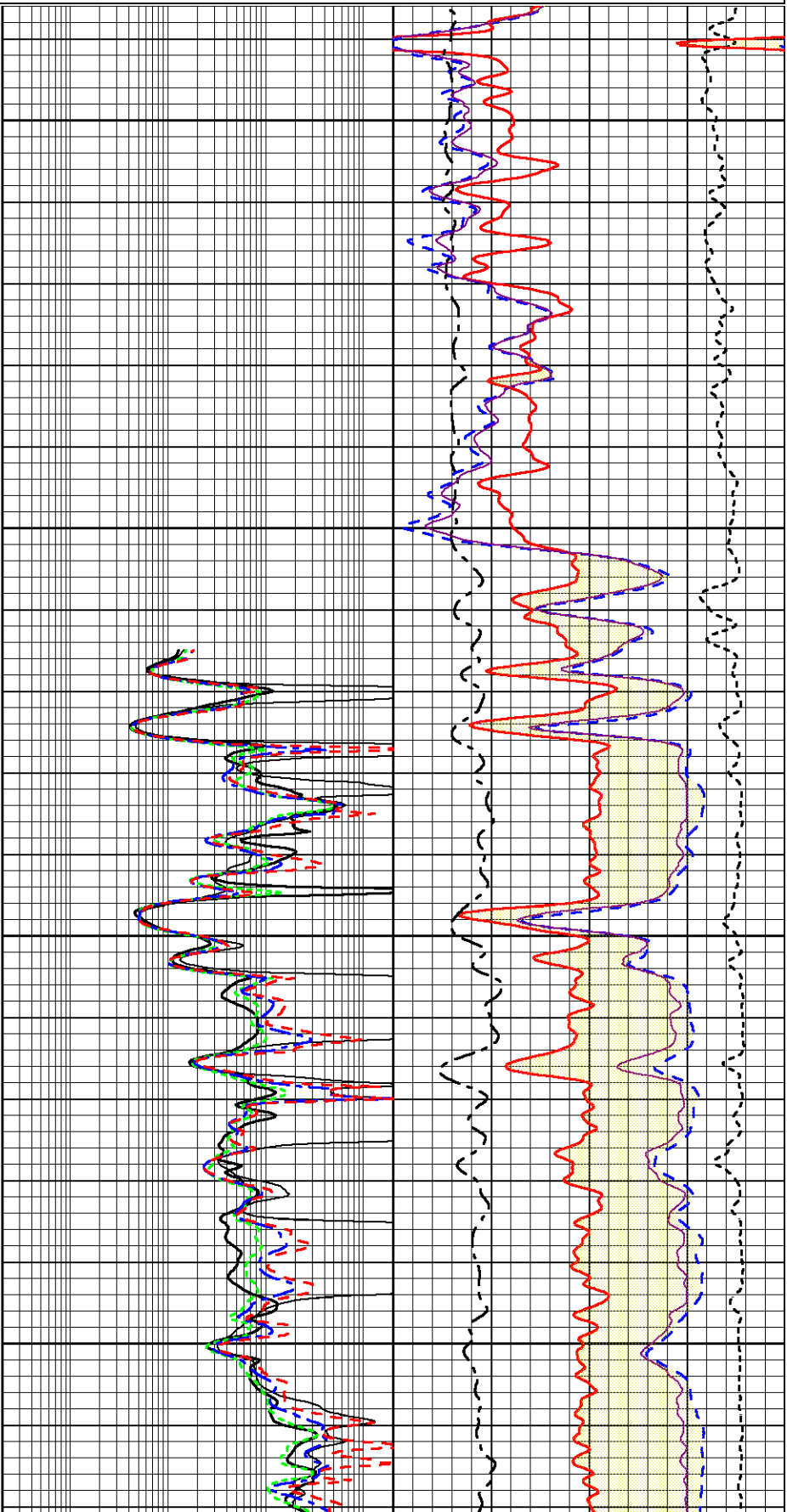
0.2	10in Resistivity (Ohm-m)	2000
0.2	20in Resistivity (Ohm-m)	2000
0.2	30in Resistivity (Ohm-m)	2000
0.2	60in Resistivity (Ohm-m)	2000
0.2	90in Resistivity (Ohm-m)	2000

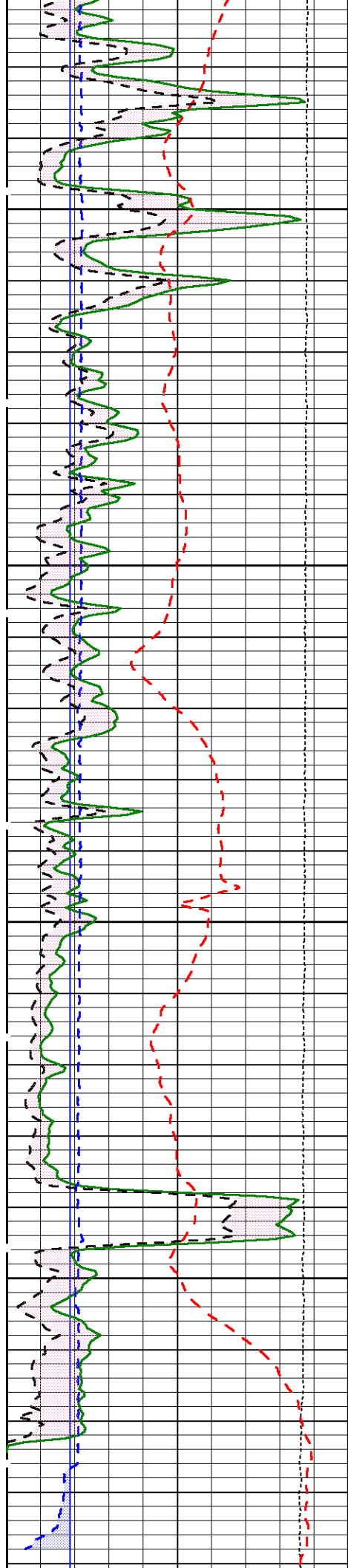
0.3	Neutron Porosity (Dolo)	-0.1
0.3	Density Porosity (2.86 g/cc)	-0.1
0	PE	10
Density Correction		
	0.8 (g/cc)	-0.2
0.3	Cross Plot Porosity	-0.1



5200

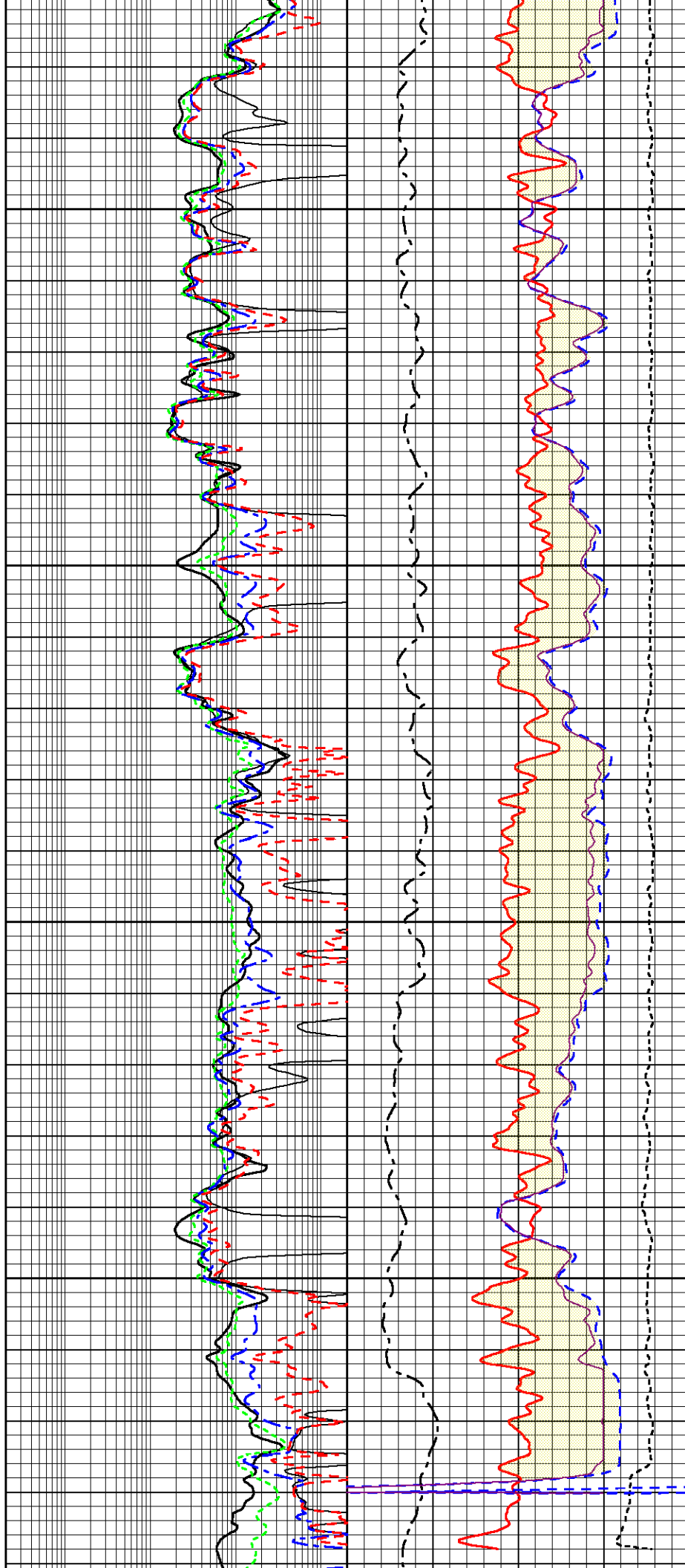
5300

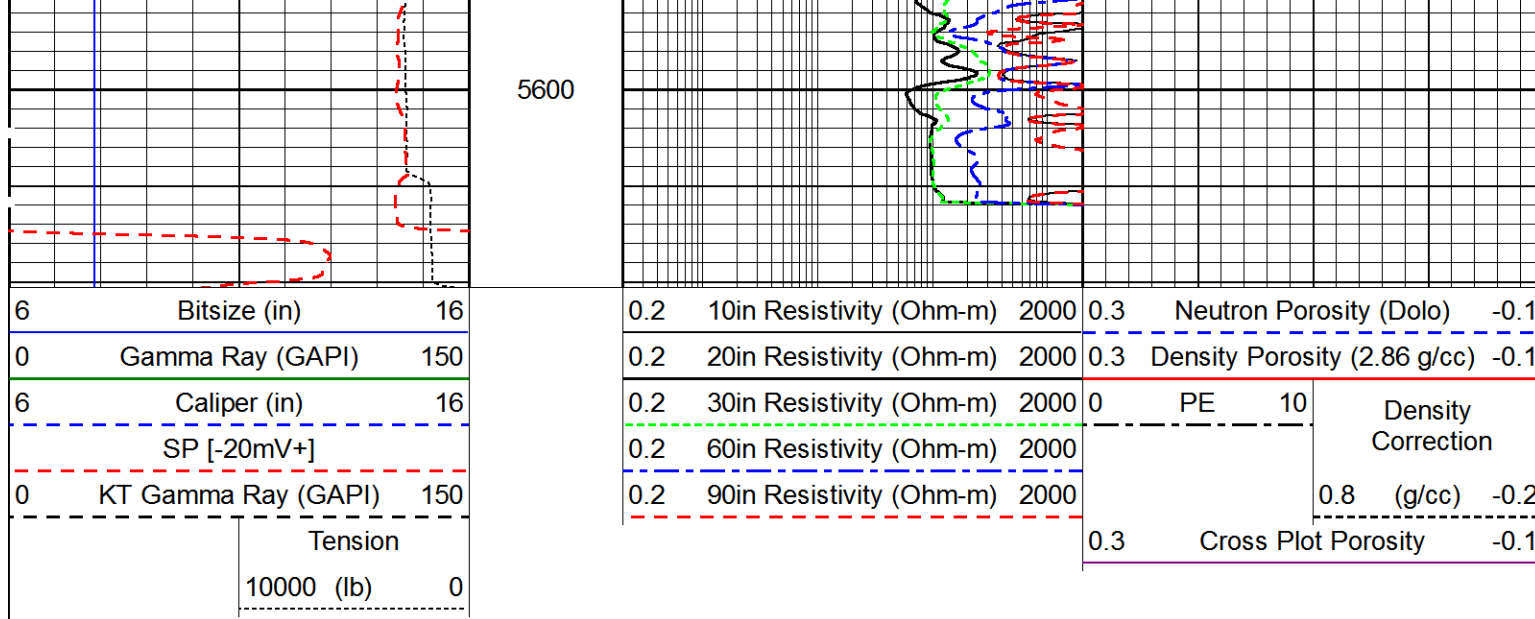




5400

5500





Log Variables

Database: C:\Warrior\Data\pronghorn_evan_2.db
Dataset: field/well/run1/pass4.4

Top - 1619.00 ft

MAXAMPL mV 0	MINAMPL mV 1	MINATTN db/ft 0.8	COMPACT 1	SVFLUID usec/ft 189	SVMATRIX usec/ft 47.6	FRMSALIN kppm 0	MUDSALIN kppm 0
DEVI ° 0	SRFTEMP degF 68	SO in 1.5	DE-CENT Yes	CASED? Yes	CASEWGHT lb/ft 24	NPORSEL Limestone	AIR_HOLE? No
MudWgt lb/gal 9.2	FLUIDDEN g/cc 1	MATRXDEN g/cc 2.71	SPSHIFT mV 80	CASEOD in 8.625	PERFS 0	TDEPTH ft 5608	BOTTEMP degF 130
BOREID in 12.25							

1619.00 ft - Bottom

MAXAMPL mV 0	MINAMPL mV 1	MINATTN db/ft 0.8	COMPACT 1	SVFLUID usec/ft 189	SVMATRIX usec/ft 47.6	FRMSALIN kppm 0	MUDSALIN kppm 0
DEVI ° 0	SRFTEMP degF 68	SO in 1.5	DE-CENT Yes	CASED? No	CASEWGHT lb/ft 11.5	NPORSEL Limestone	AIR_HOLE? No
MudWgt lb/gal 9.2	FLUIDDEN g/cc 1	MATRXDEN g/cc 2.71	SPSHIFT mV 80	CASEOD in 5.5	PERFS 0	TDEPTH ft 5608	BOTTEMP degF 130
BOREID in 7.875							

Database File: pronghorn_evan_2.db
Dataset Pathname: pass4.4
Dataset Creation: Fri Sep 13 13:14:08 2013 by Calc Sondex V7.03

Induction Array Tool Calibration Report

Serial Number: B10110
Tool Model: 002

Master Calibration Performed: Wed Aug 24 08:34:17 2011
Temperature: 74.0 degF

Sonde Error:

Array	1	2	3	4	5	6	7	
Real	191.9	-13.8	-40.9	-15.9	-3.1	0.7	3.4	mmho/m
Imaginary	33.1	-17.8	-19.8	-16.7	-24.3	-1.9	5.8	mmho/m

Loop Gain:

Array	1	2	3	4	5	6	7	
Loop (real)	537.7	678.5	1295.3	1394.1	1144.8	712.8	404.8	mmho/m
Loop (imaginary)	73.3	92.5	389.8	419.5	344.5	214.5	121.8	mmho/m
Real	762.6	736.2	1247.9	1380.3	1164.3	741.8	425.4	mmho/m
Imaginary	109.3	84.7	369.6	408.4	328.0	221.5	135.1	mmho/m
Gain (real)	0.942	0.905	1.005	0.999	0.981	0.962	0.959	
Gain (imaginary)	0.961	0.902	1.001	0.987	0.978	0.960	0.942	

Before Survey Verification Performed: Thu Oct 04 13:29:32 2012
Sonde 1 Temperature: 83.1 degF
Sonde 2 Temperature: 86.7 degF
Array 1 Temperature: 83.1 degF

Array	1	2	3	4	5	6	7
TxIR	-0.0	-0.0	0.1	0.1	0.1	0.1	0.1
TxIX	-0.0	-0.0	-0.2	-0.2	-0.2	-0.2	-0.2
Tx Magnitude	0.0	0.0	0.2	0.2	0.2	0.2	0.2
Gain	121.5	180.0	190.0	190.0	190.0	190.0	190.0
RxCR	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
RxCX	0.2	0.2	0.2	0.2	0.2	0.2	0.2
RxC Magnitude	0.2	0.2	0.2	0.2	0.2	0.2	0.2

Tool Module Parameters

Software Version: 1.9.3.0
Borehole Size Source: CALI
Mud Resistivity Source: External
Mud Resistivity At Surface: N/A
Mud Resistivity Surface Temperature: N/A
Borehole Corrections: Automatic
Minimum Standoff: 0.4 in

Litho Density Tool Calibration Report

Serial Number: B0872S50130B
Tool Model: 002

Caliper Calibration Performed: Sun Jul 28 15:34:01 2013

	Diameter		Reading	
Small Ring:	6.000	in	1355.300	cps
Large Ring:	13.000	in	2004.700	cps
Gain:	0.0108			
Offset:	-9.1090			

Master Calibration Performed: Wed Jun 26 11:01:57 2013

Source Number:
Medium:
Al Block Density:

50103
Water
2.5982 g/cc

	Background	Al Block	Al Block + Fe	
SS1	822.8	4393.2	3697.5	cps
SS2	2307.7	29712.2	25027.5	cps
SSTOTAL	5405.6	47464.6	39740.1	cps
LITH	95.7	489.9	293.8	cps
LL	188.5	811.2	710.8	cps
LU	538.1	1063.3	983.9	cps
LS	726.6	1874.5	1694.7	cps
LSTOTAL	1375.4	4558.6	3691.5	cps
SSHV	1470.6	1473.6	1474.1	V
LSHV	1403.7	1405.6	1406.1	V
SSFF	0.010	0.007	0.002	
LSFF	0.010	0.002	-0.002	

Before Survey Verification Performed:
After Survey Verification Performed:

	Master Background	Before Survey Background	After Survey Background	
SS1	822.8			cps
SS2	2307.7			cps
SSTOTAL	5405.6			cps
LITH	95.7			cps
LL	188.5			cps
LU	538.1			cps
LS	726.6			cps
LSTOTAL	1375.4			cps
SSHV	1470.6			V
LSHV	1403.7			V
SSFF	0.010			
LSFF	0.010			

Tool Module Parameters

Software Version: 2.5.1.0
Borehole Size Source: CALI
Pad Type: 2

Compensated Neutron Tool Calibration Report

Serial Number: C7939S66010B
Tool Model: 009

Master Calibration Performed: Wed Jun 26 13:44:35 2013

Source Number: 66010B

Short Spacing Counts: 6788.82 cps
Long Spacing Counts: 267.57 cps
High Voltage: 1336.27 V

Target Ratio: 23.9200
Ratio: 25.3720
K-Factor: 0.9428

Before Survey Verification Performed:
After Survey Verification Performed:

Verifier Values	Master Cal	Before Survey	After Survey
Short Spacing Counts:	257.10		cps
Long Spacing Counts:	258.50		cps
High Voltage:	1336.30		V
Ratio:	0.9946		

Tool Module Parameters			
Software Version:		1.5.0.0	
Borehole Size Source:		CALI	
Clip Crossplot Porosity:		YES	

Spectral Gamma Ray Tool Calibration Report

Serial Number:	220344
Tool Model:	002

Performed:	Wed Jun 26 13:25:33 2013		
Source Number:	Th Blanket #12		
Calibrator Value:	217.0	API	
Background Reading:	477.0	cps	
Calibrator Reading:	2090.4	cps	
Sensitivity:	0.135	API / cps	

Perfomed:			
Verifier Number:			
	K %	U ppm	T ppm
Concentrations			
K Peak:			
U Peak:			
T Peak:			


Before Survey Verification Performed:			
After Survey Verification Performed:			
	Before Survey	After Survey	
Background Reading:		cps	
Verifier Reading:		cps	
K Peak:			
U Peak:			
T Peak:			

Tool Module Parameters	
Software Version:	1.8.9.5

Gamma Ray Calibration Report

Serial Number:	10009990
Tool Model:	001

Performed:	Wed Mar 27 09:56:46 2013		
Calibrator Value:	236.0	GAPI	
Background Reading:	205.7	cps	
Calibrator Reading:	961.5	cps	

Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
CHD	67.36		CHD-001 (000004) Cable Head	2.19	3.38	35.00
GR	62.48		XTU-008 (10007730) Crossover Ultrawire Toolbus to Ultralink	2.08	3.38	47.00
			GRT-001 (10009990) Gamma Ray Tool	3.22	3.38	69.00
MEL	52.49		MEL-001 (002220330) Micro Electric Log	9.17	3.38	190.00
SGR	47.63		SGR-002 (220344) Spectral Gamma Ray Tool	4.94	3.88	120.00
CNLSC CNSSC	42.74		CNL-009 (C7939S66010B) Compensated Neutron Logging Tool	5.27	3.38	125.00
	42.24					
LDT KJT	32.58		LDT-002 (B0872S50130B) Litho Density Tool	9.75	4.50	310.00
	30.74		KJT-001 (000002) Knuckle Joint	2.86	3.38	72.00
WVFUTRF WVFUTRN WVFLTRF WVFLTRN	21.68 20.68 20.68 19.68		MAS-001SS (10010072SS) Multi Array Sonic Tool (SS)	14.28	3.38	242.00
IAT	8.44		IAT-002 (B10110) Induction Array Tool	13.22	3.88	196.00
SP BN	0.42 0.38		BN-SOFF (000001) Bottom Nose Standoff	0.38	6.88	6.00

Total Length:	67.36 ft
Total Weight:	1412.00 lb
O.D.	6.88 in