WIRELINE LOGGING SOLUTIONS

Compensated Neutron Litho Density Micro Electric Log

Company Black Oak Exploration, LLC.
Well Taylor Trust 1-17
Field Mellard East
County Russell State Kansas

Location: 660' FSL & 1320' FEL S2 SE
API # : 15-167-24106
SEC 17 TWP 12 RGE 14W

Permanent Datum G.L. Elevation 1609 ft.
Log Measured From K.B. , 8 ft. above perm. datum
Drilling Measured From K.B.

Other Services: MAS, IAT

Elevation
K.B. 1617 ft.
D.F. 1616 ft.
G.L. 1609 ft.

Date	18-May-2021		
Run Number	One		
Depth Driller	3070'		
Depth Logger	3070'		
Bottom Logged Interval	3035'		
Top Log Interval	660'		
Casing Driller	8.625 @ 671'	@	
Casing Logger	662'		
Bit Size	7.875"	@	
Type Fluid in Hole	WBM		
Density / Viscosity	9.2 / 48		
pH / Fluid Loss	10 / 5.3		
Source of Sample	Flowline		
Rm @ Meas. Temp	0.4 @ 80ºF	@	
Rmf @ Meas. Temp	0.3 @ 80ºF	@	
Rmc @ Meas. Temp	0.5 @ 80ºF	@	
Source of Rmf / Rmc	Calculated		
Rm @ BHT	0.34 @ 94ºF	@	
Time Circulation Stopped	18:30		
Time Logger on Bottom	20:00		
Maximum Recorded Temperature	94ºF		
Equipment Number	11008		
Location	OKC., OK.		
Recorded By	B. Oetting / M. Johnson		
Witnessed By	R. Campbell		

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Equipment and Log Data

Service Order: T8-210518

Gamma		Density		Neutron		Sonic		IAT	
Run No.	One	Run No.	One	Run No.	One	Run No.	One	Run No.	One
Serial No.	SGR 365	Serial No.	110	Serial No.	071	Serial No.	NA	Serial No.	110
O.D.	3.375 in.	Source No.	50129B	Source No.	1414NC	Centralizers	NA	Standoffs	2 @ 0.5"
		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	Matrix	Left	Right
One	SCG	TD	0	150	0.3	-0.1	2.71 g/cc	0.3	-0.1	Lime	0.3	-0.1	47.6 usec/ft	72	2000

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

Toolstring ran as per diagram due to hole conditons
Density is presented on a 2.71 g/cc Matrix, Neutron is presented on a Limestone Matrix, Sonc is presented on a 47.6 usec/ft Matrix
Chlorides: 9200 mg/L
LCM: 0 lb/bbl
Annular volume calculated using 5.5" casing.

Washouts and borehole rugosity affect data quality repeatability.
Discovery Drilling #4
Closed caliper from 1660'-1629' due to pulling tight
SP is eratic but was still presented

YOUR CREW TODAY: J. Wood / J. Willis
THANK YOU FOR CHOOSING WIRELINE LOGGING SOLUTIONS. OKLAHOMA CITY, OK. (405) 445-7135.

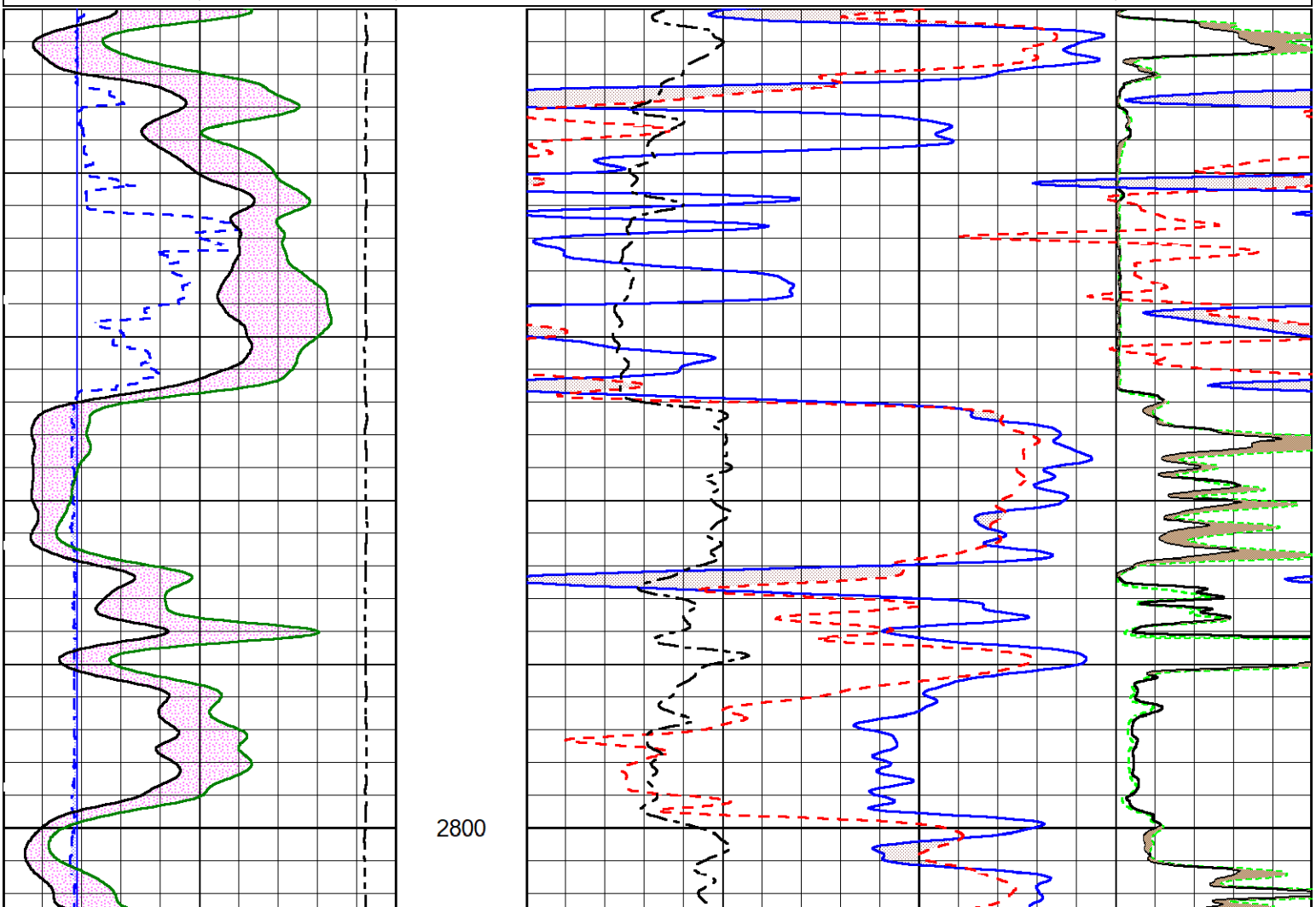
WIRELINE LOGGING SOLUTIONS

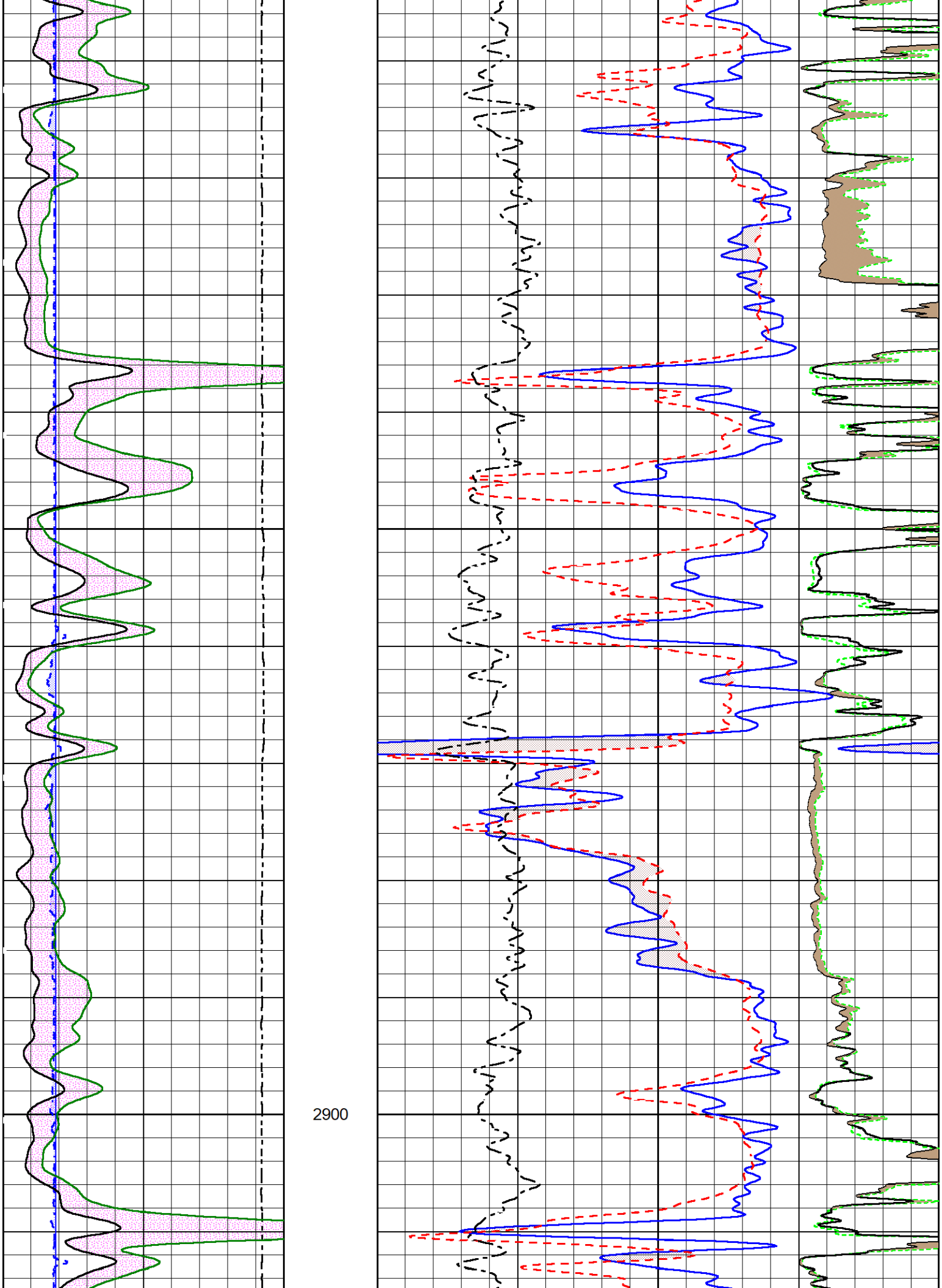
High Resolution Pass

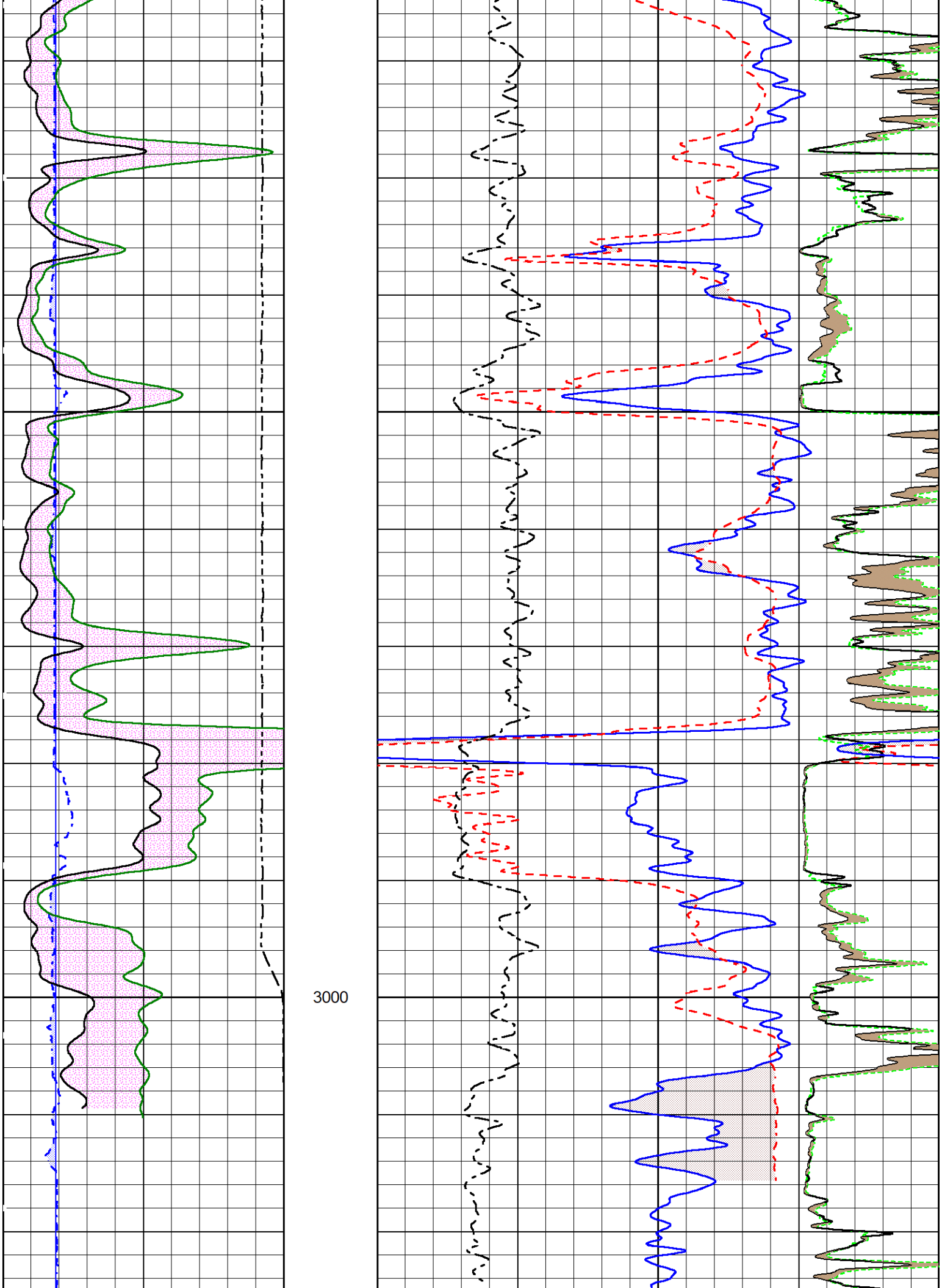
Database File	black oak-taylor trust 1-17_2.db
Dataset Pathname	pass4.1
Presentation Format	OK4BE4~1
Dataset Creation	Wed May 19 02:15:17 2021 by Calc Sondex
Charted by	Depth in Feet scaled 1:120

6	Caliper (in)	16
6	Bitsize (in)	16
0	Total Gamma Ray (GAPI)	150
0	Uranium Free Gamma (GAPI)	150
	Head Tension	
10000	(lb)	0

0.3	Density Porosity (2.71 Matrix)	-0.1
0.3	Neutron Porosity (Lime Matrix)	-0.1
0	PE	10
	Micro Normal	
0	(Ohm-m)	40
	Micro Inverse	
0	(Ohm-m)	40




2900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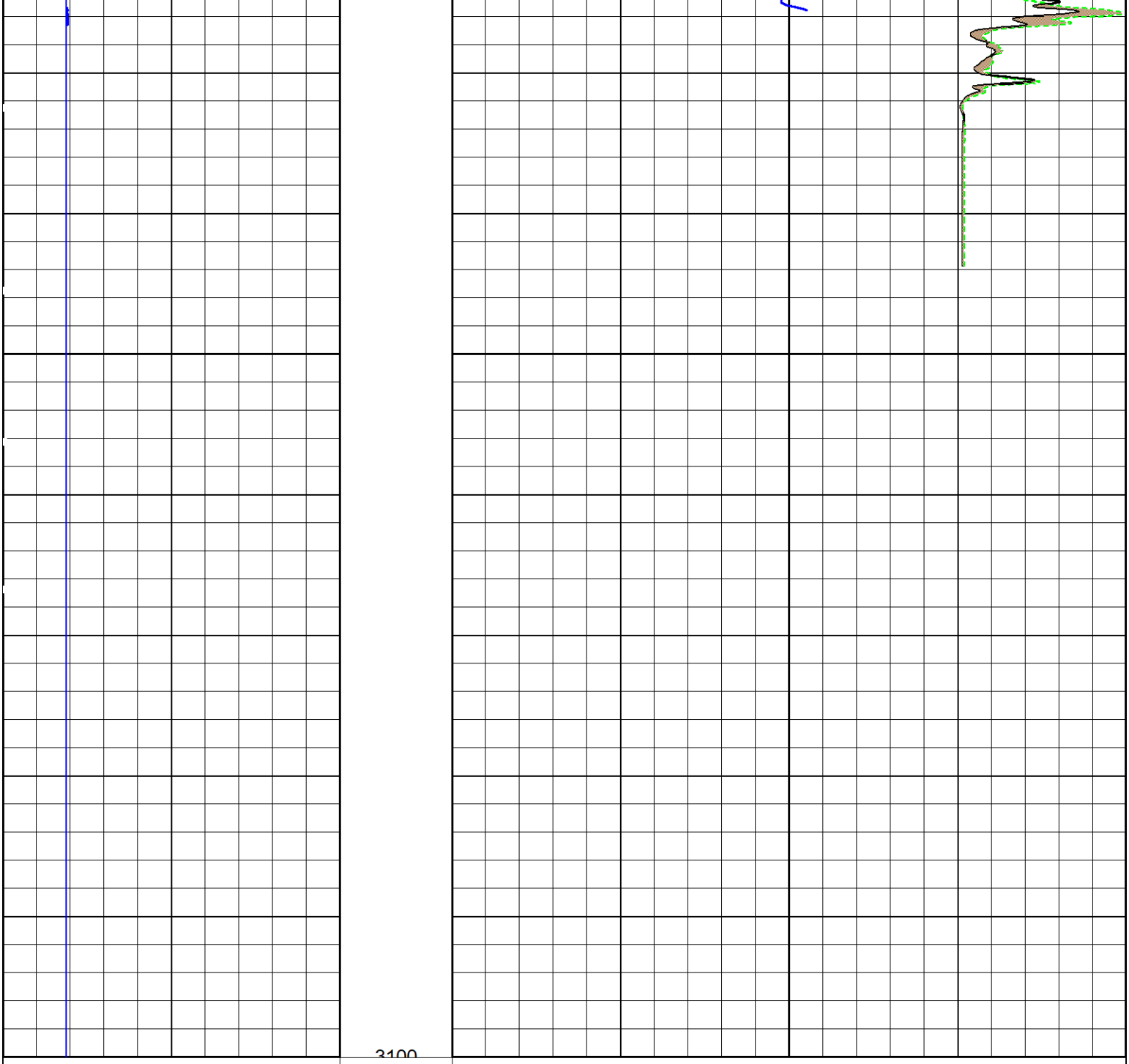


6	Caliper (in)	16
6	Bitsize (in)	16
0	Total Gamma Ray (GAPI)	150
0	Uranium Free Gamma (GAPI)	150
	Head Tension	
10000	(lb)	0

0.3	Density Porosity (2.71 Matrix)	-0.1
0.3	Neutron Porosity (Lime Matrix)	-0.1
0	PE	10

	Micro Normal	
0	(Ohm-m)	40
	Micro Inverse	
0	(Ohm-m)	40

WIRELINE LOGGING SOLUTIONS

High Resolution Pass

WIRELINE LOGGING

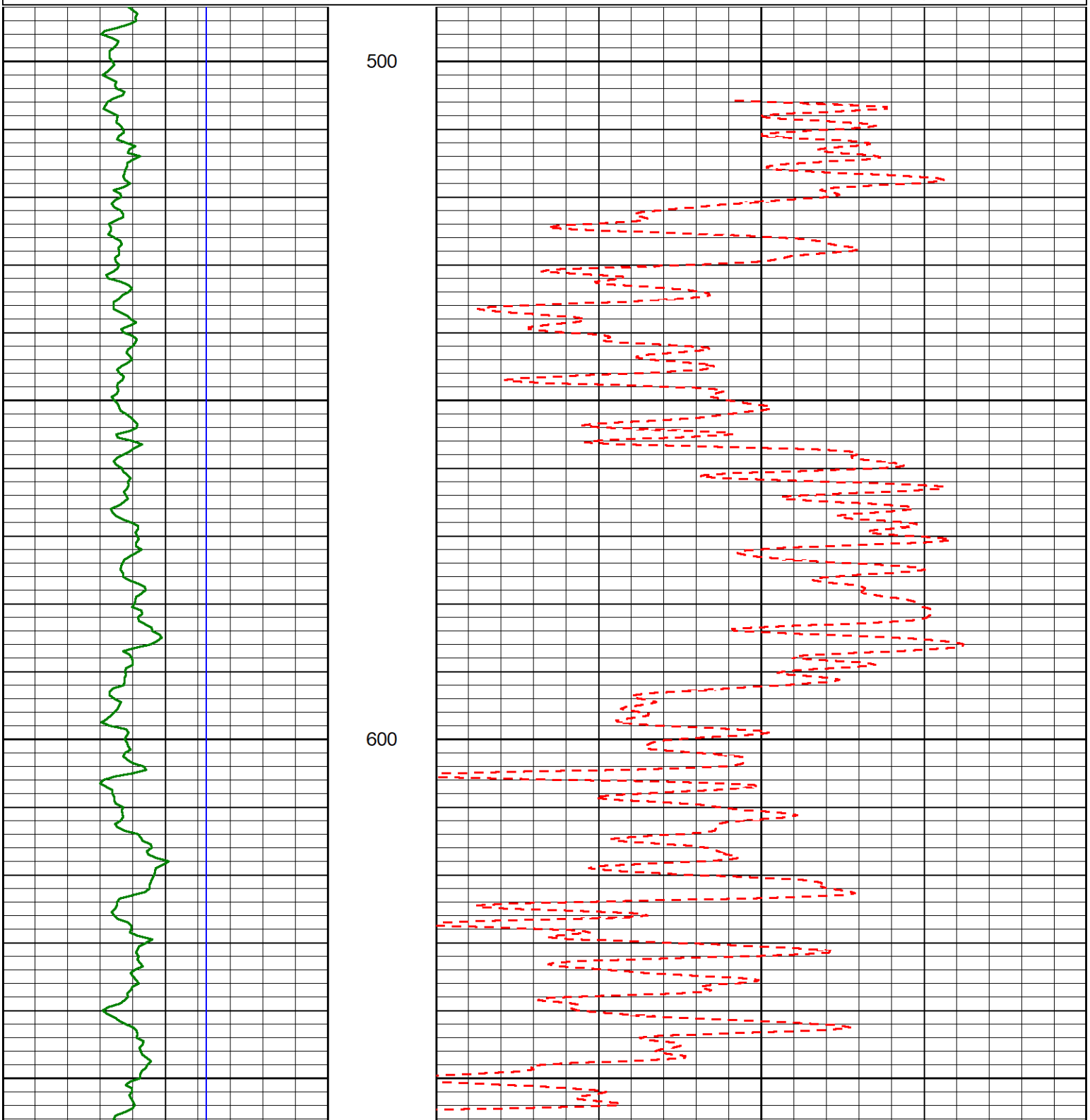
Main Pass

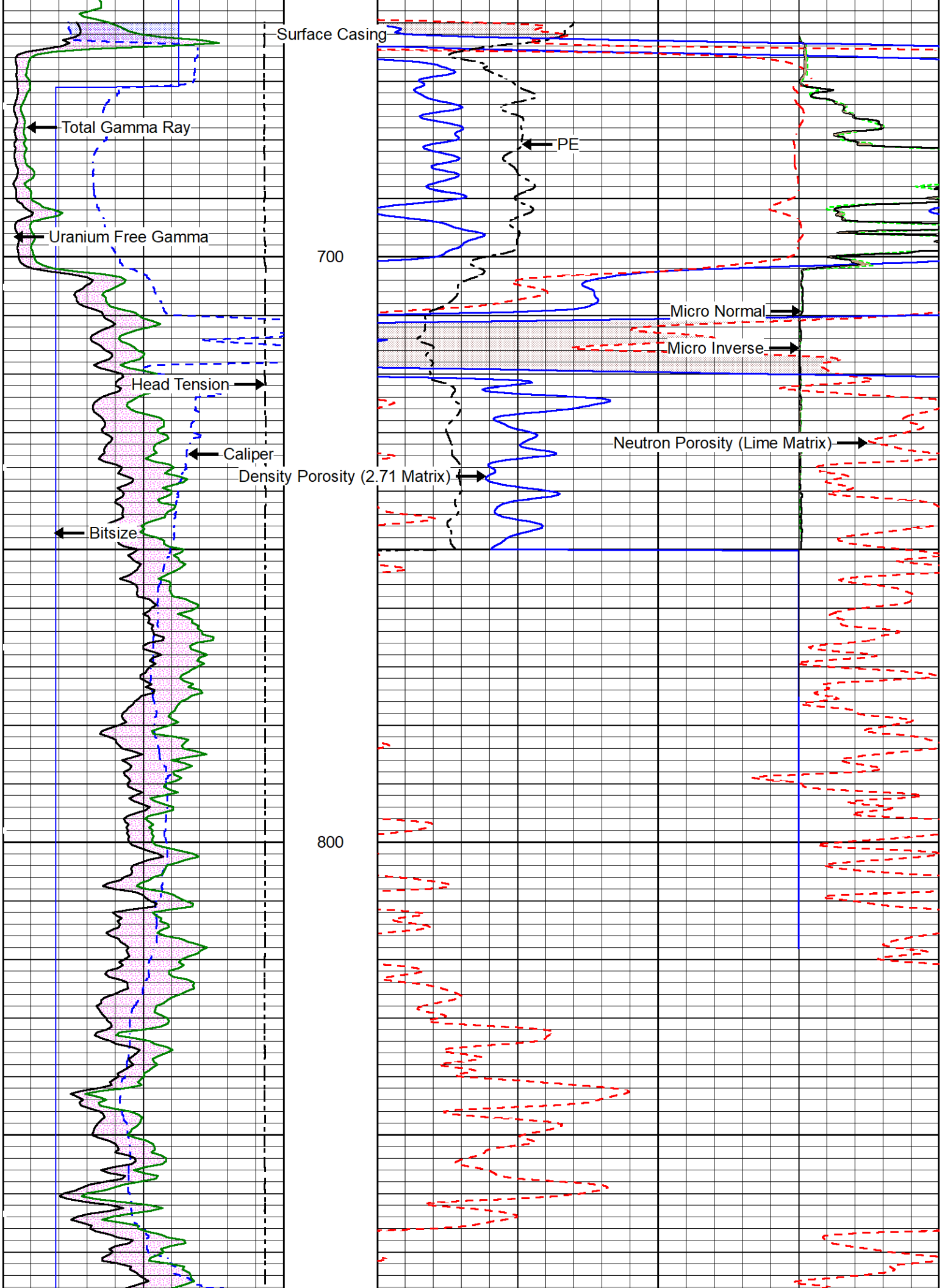
SOLUTIONS

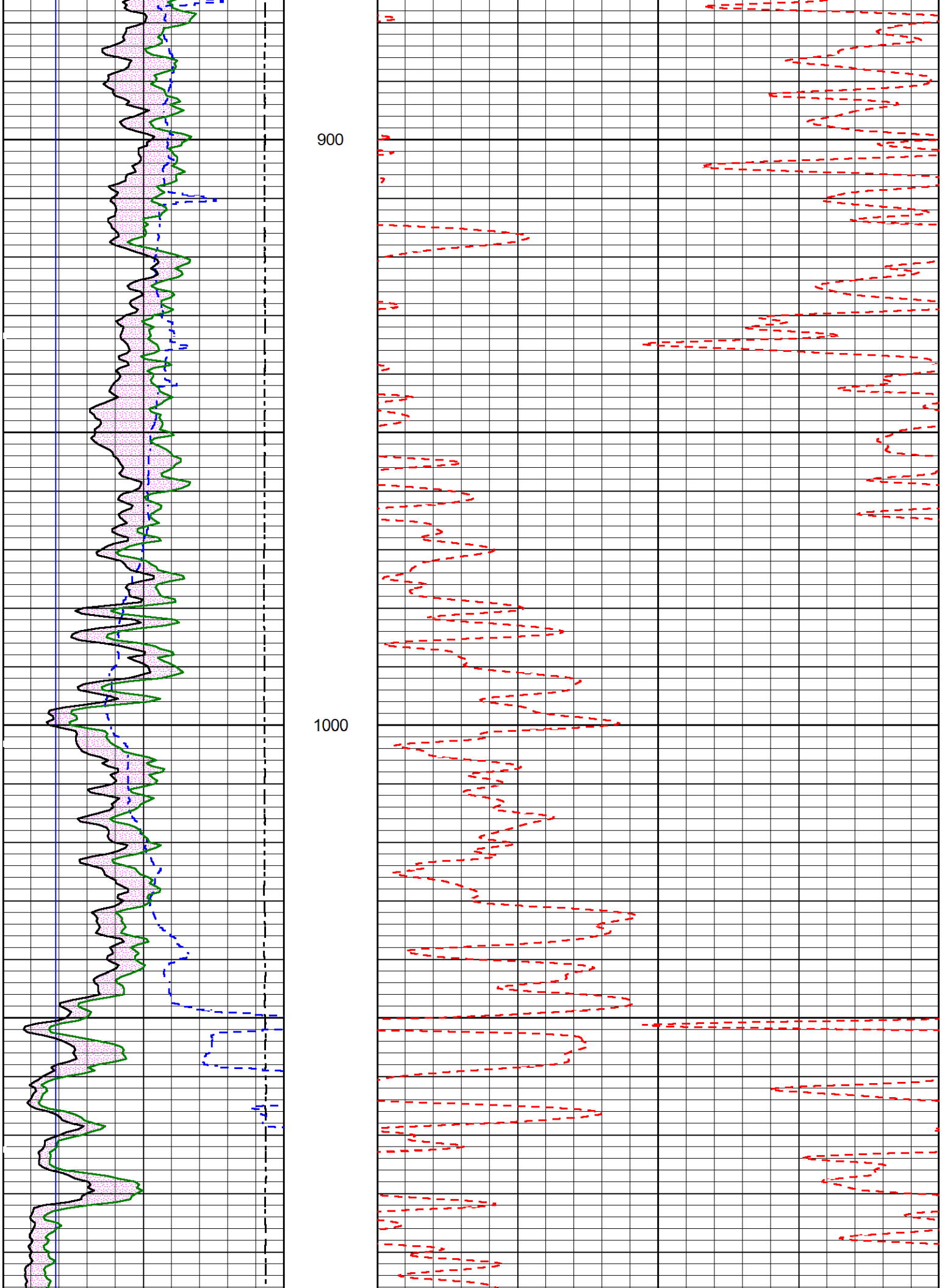
Database File	black oak-taylor trust 1-17_2.db
Dataset Pathname	pass7
Presentation Format	OK4BE4~1
Dataset Creation	Wed May 19 10:18:36 2021
Charted by	Depth in Feet scaled 1:240

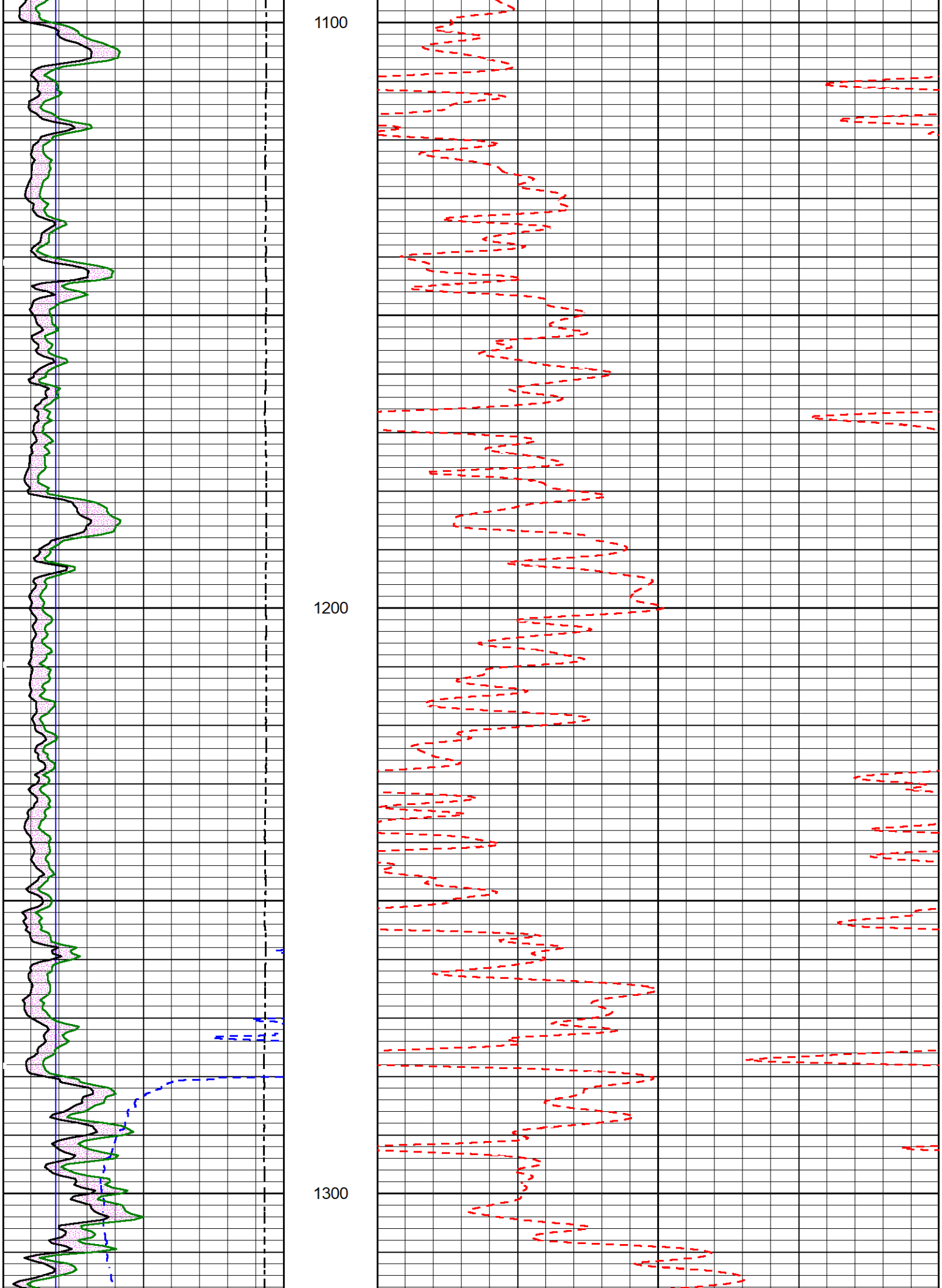
6	Caliper (in)	16
6	Bitsize (in)	16
0	Total Gamma Ray (GAPI)	150
0	Uranium Free Gamma (GAPI)	150
	Head Tension	
10000 (lb)		0

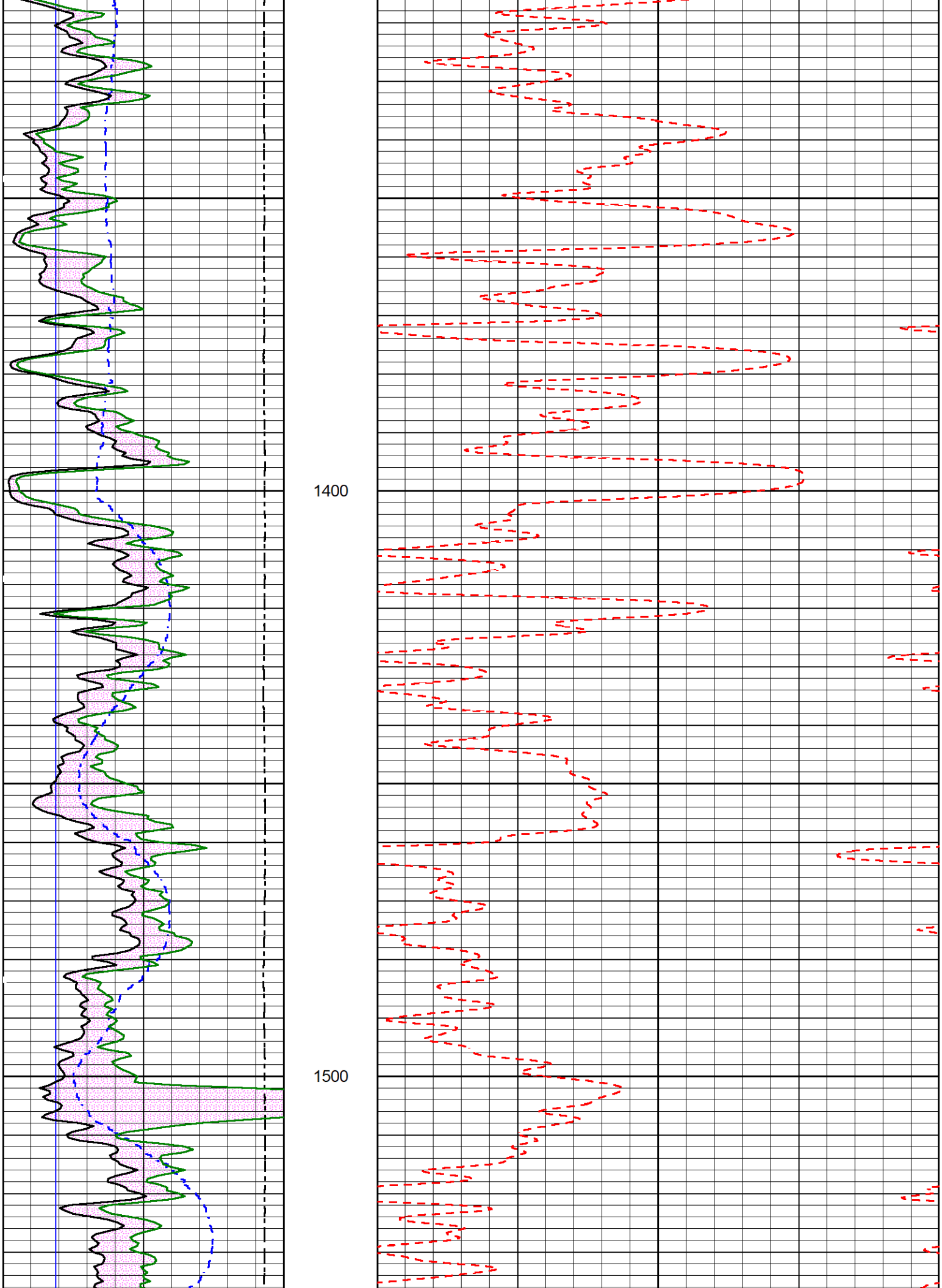
0.3	Density Porosity (2.71 Matrix)	-0.1
0.3	Neutron Porosity (Lime Matrix)	-0.1
0	PE	10
	Micro Normal	
0	(Ohm-m)	40
	Micro Inverse	
0	(Ohm-m)	40




Surface Casing
Total Gamma Ray
Uranium Free Gamma
700
PE
Micro Normal
Micro Inverse
Head Tension
Caliper
Neutron Porosity (Lime Matrix)
Density Porosity (2.71 Matrix)
Bitsize
800


900
1000


1100
1200
1300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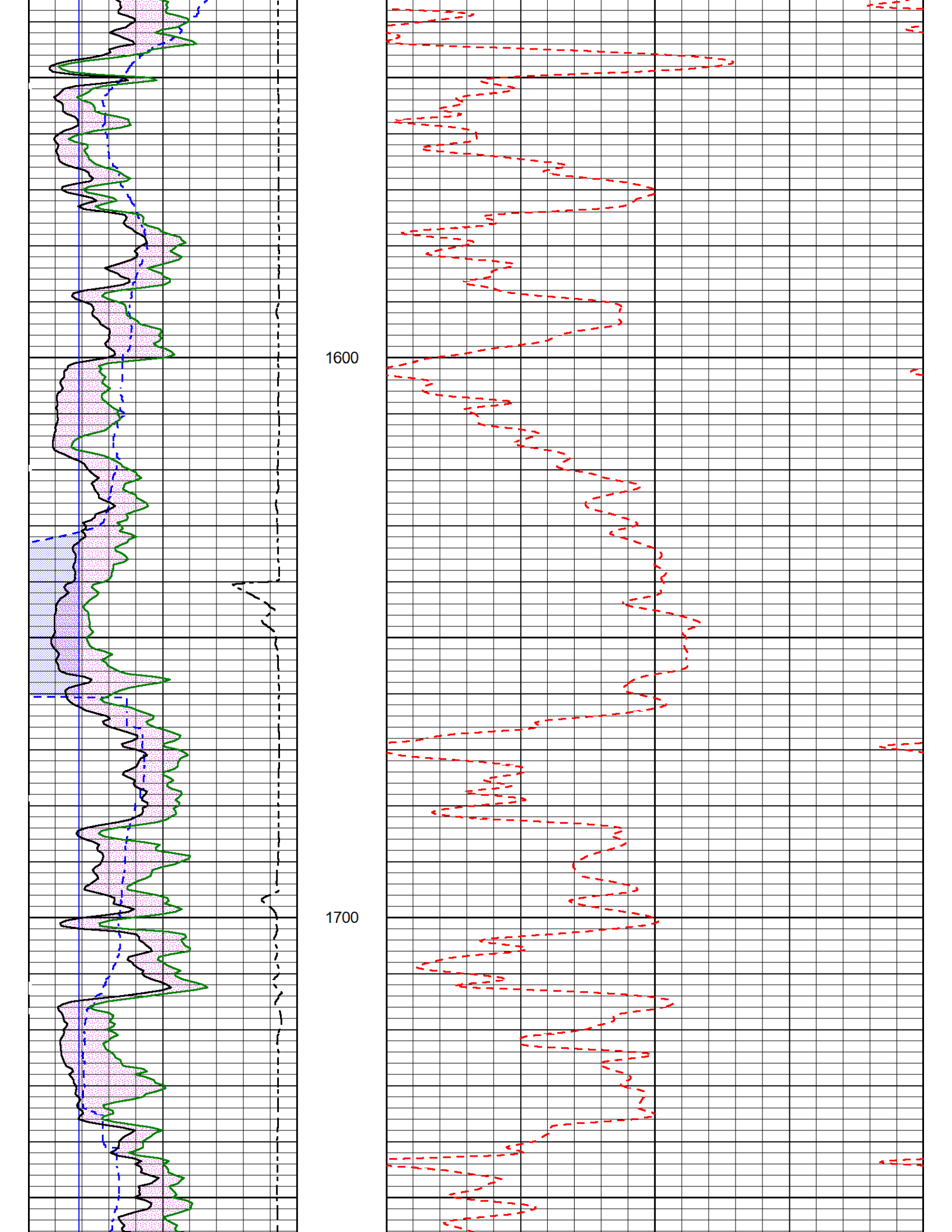
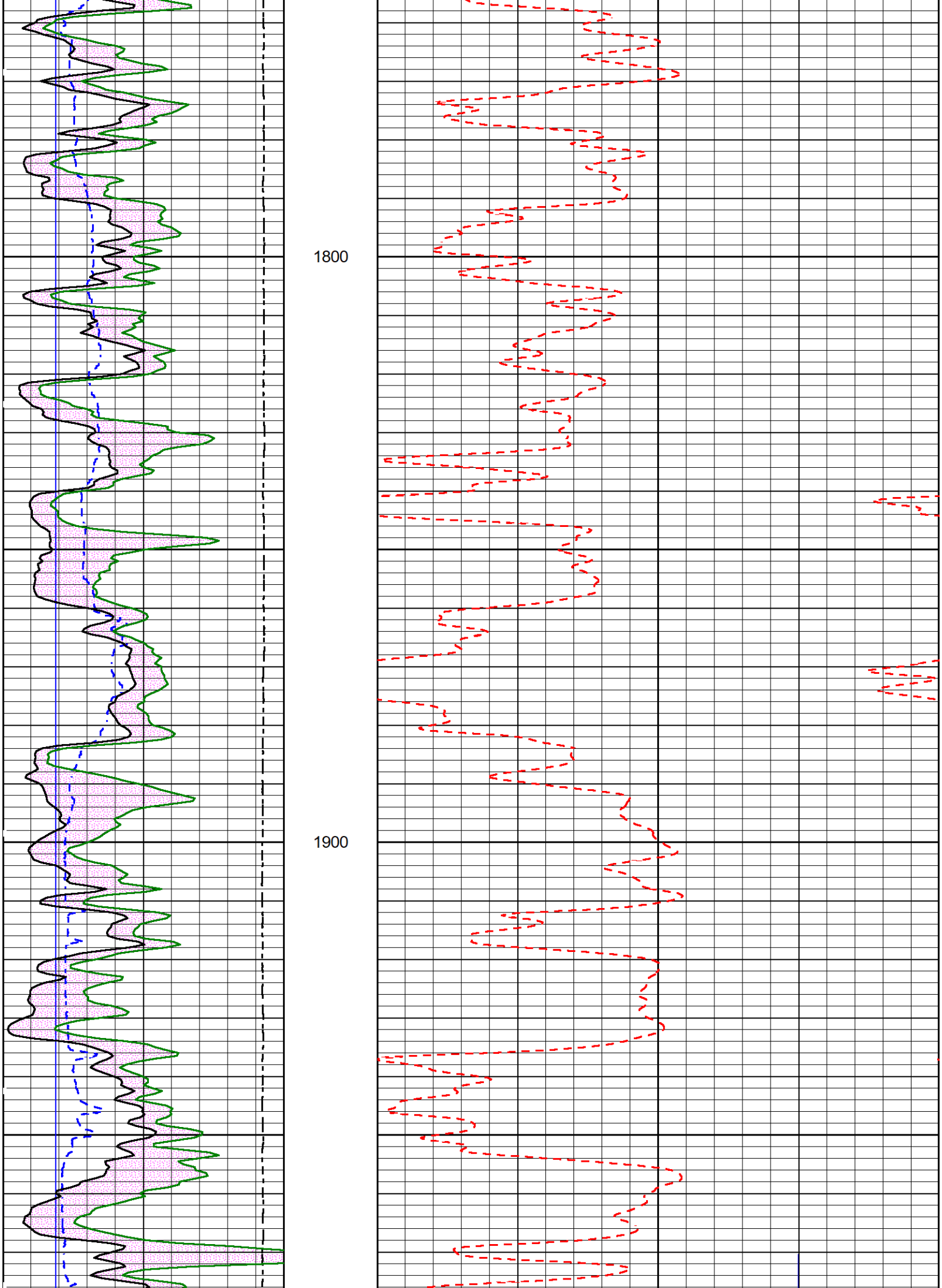

1600
1700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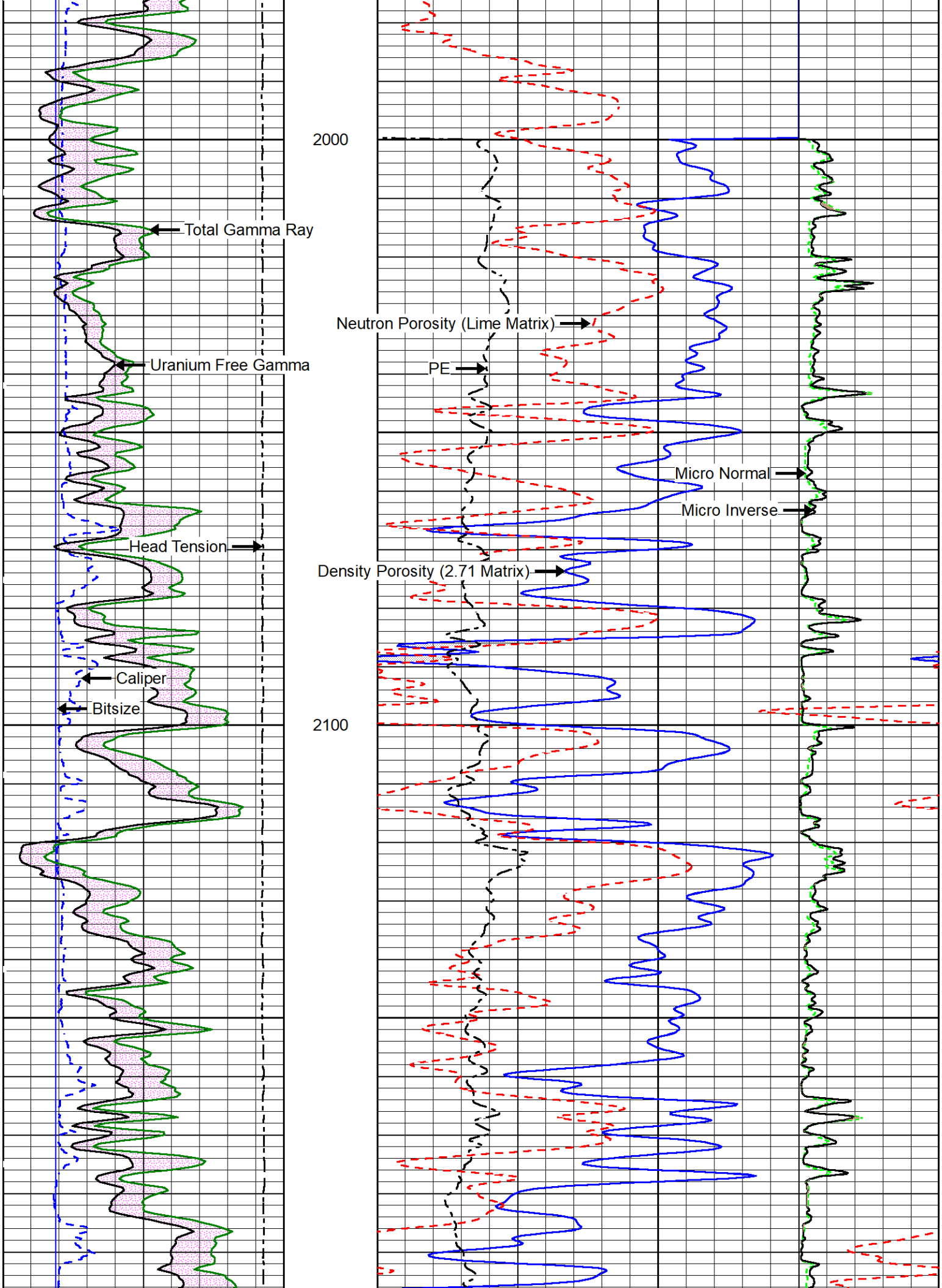
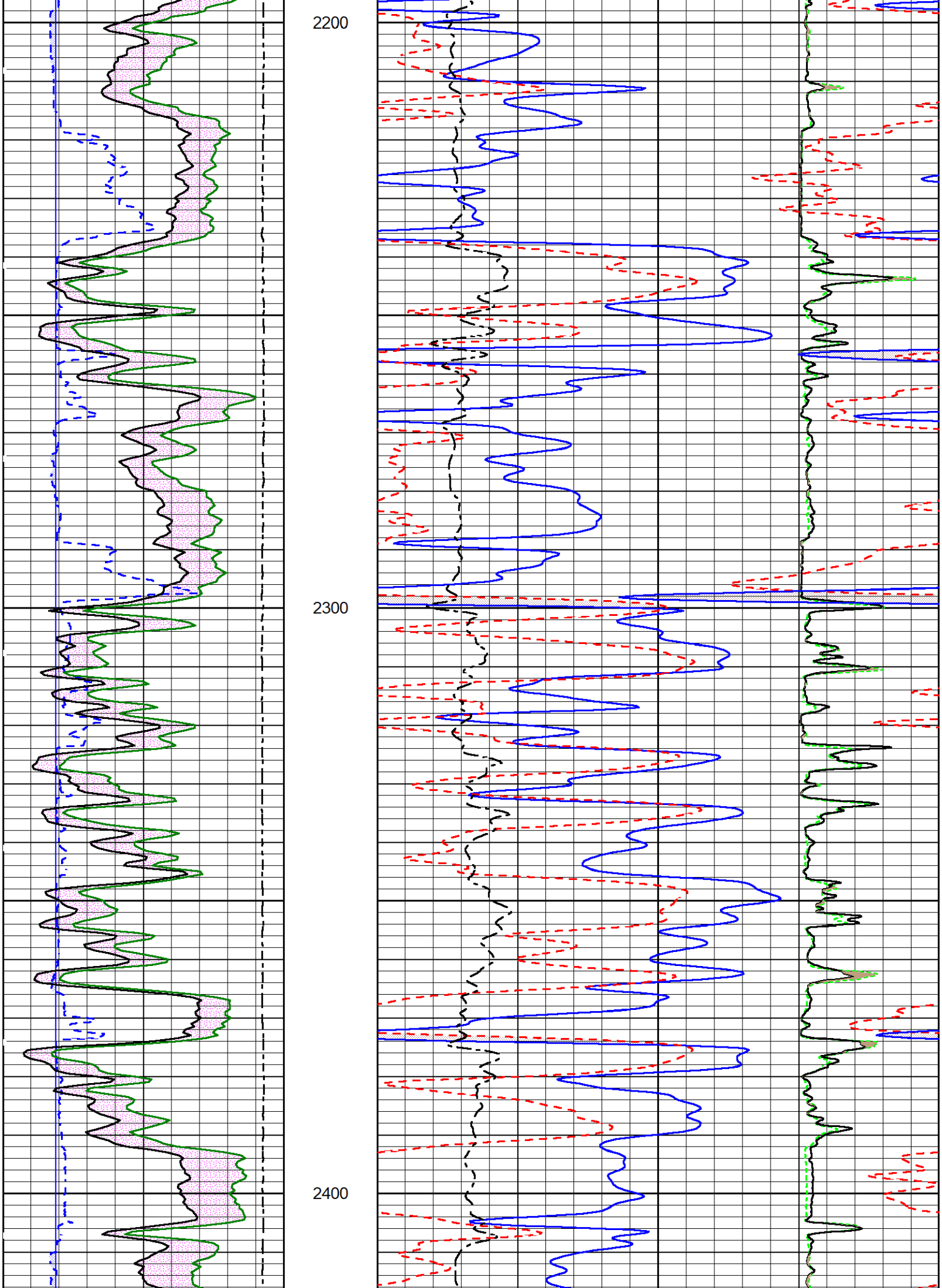
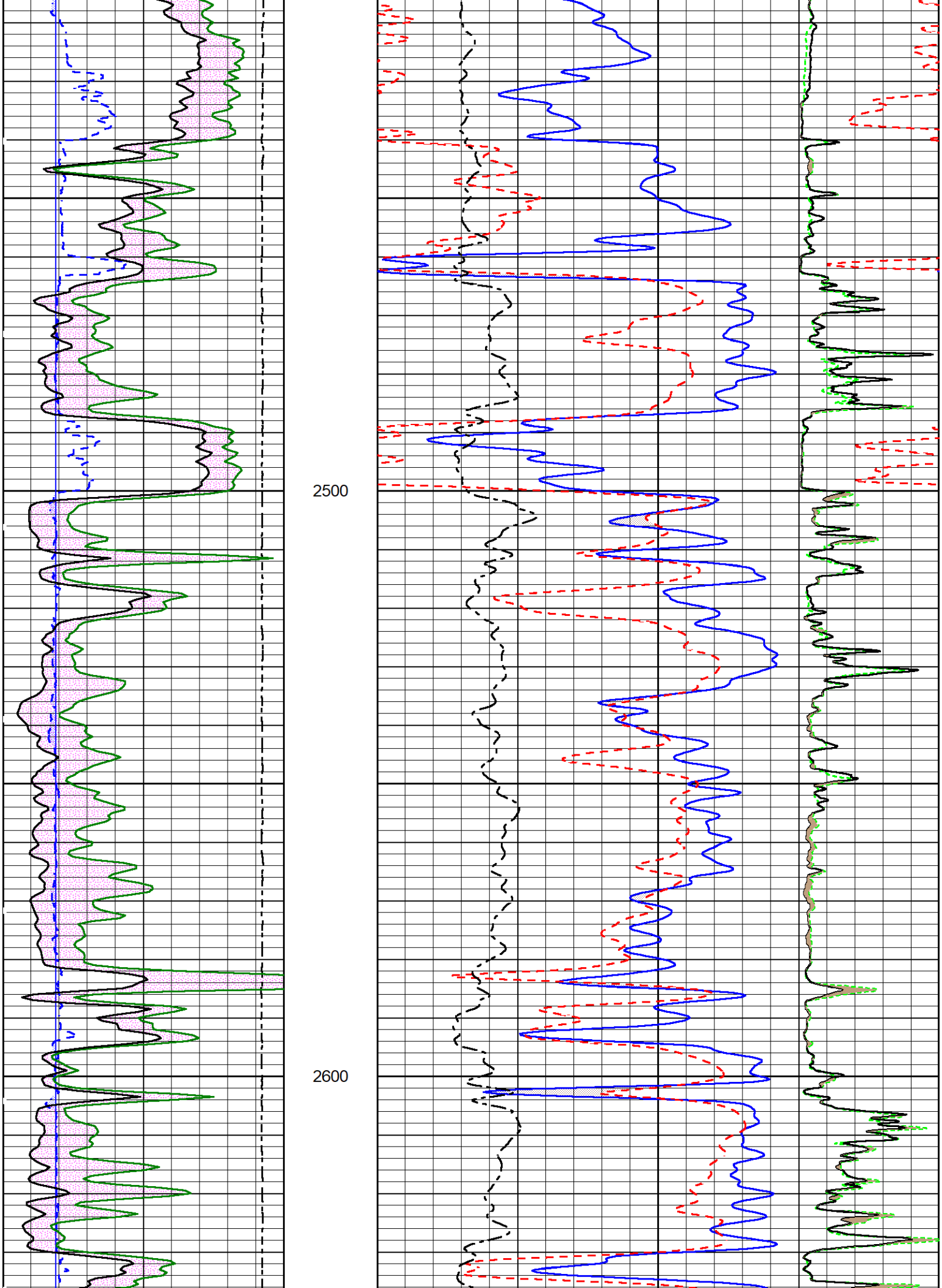
1900


2000
Total Gamma Ray
Neutron Porosity (Lime Matrix)
Uranium Free Gamma
PE
Micro Normal
Micro Inverse
Head Tension
Density Porosity (2.71 Matrix)
Caliper
Bitsize
2100


2200
2300
2400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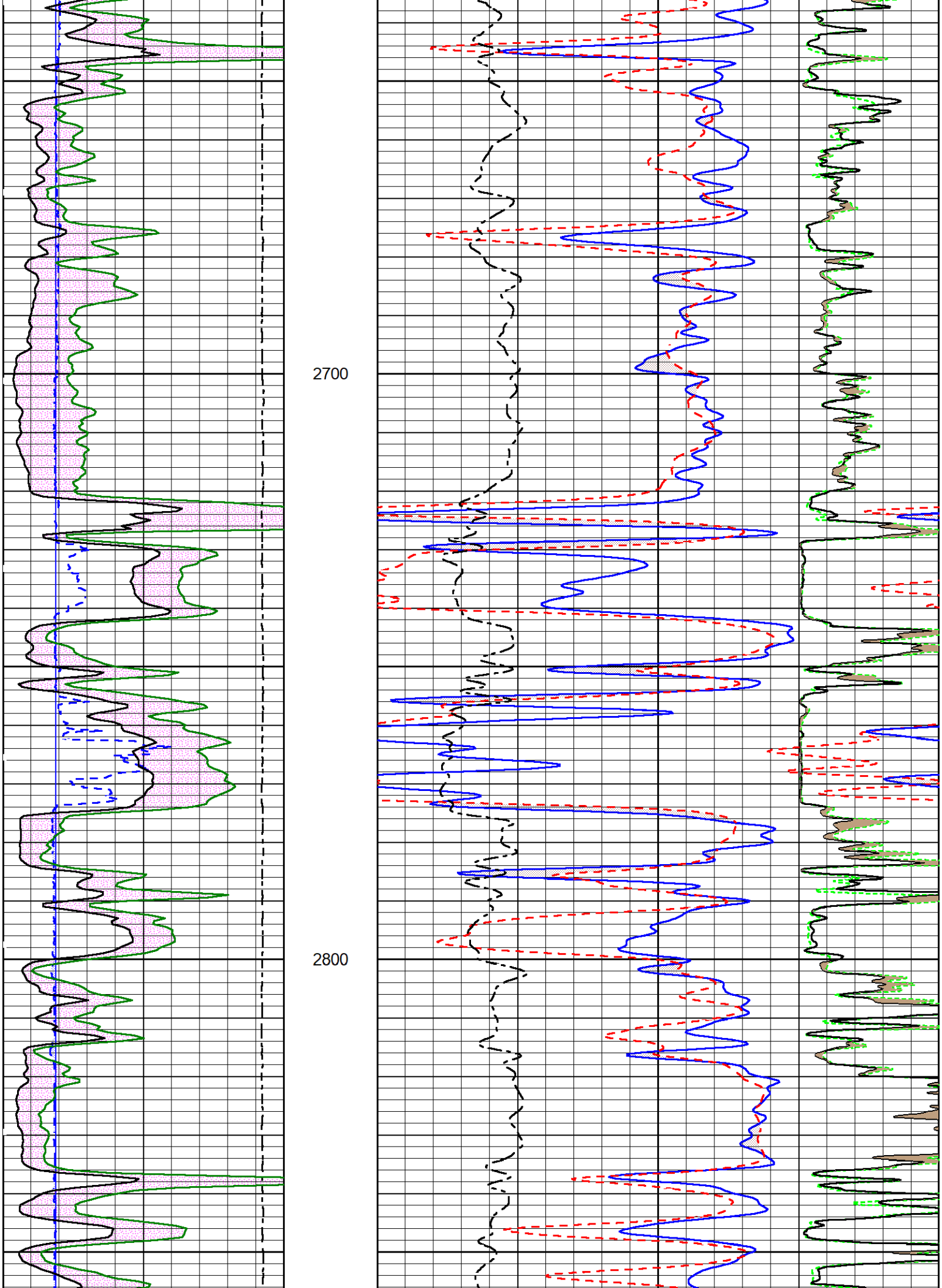
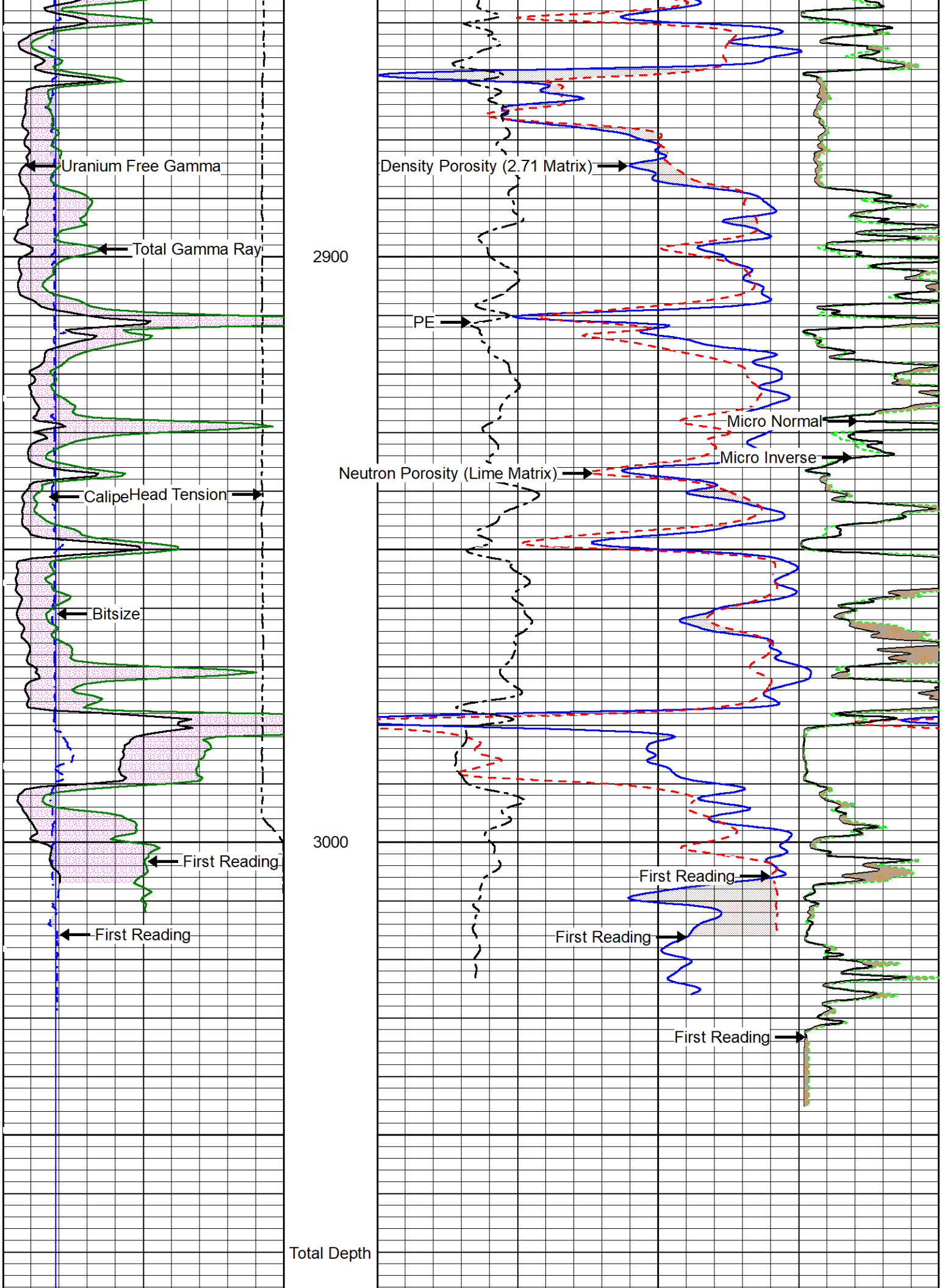
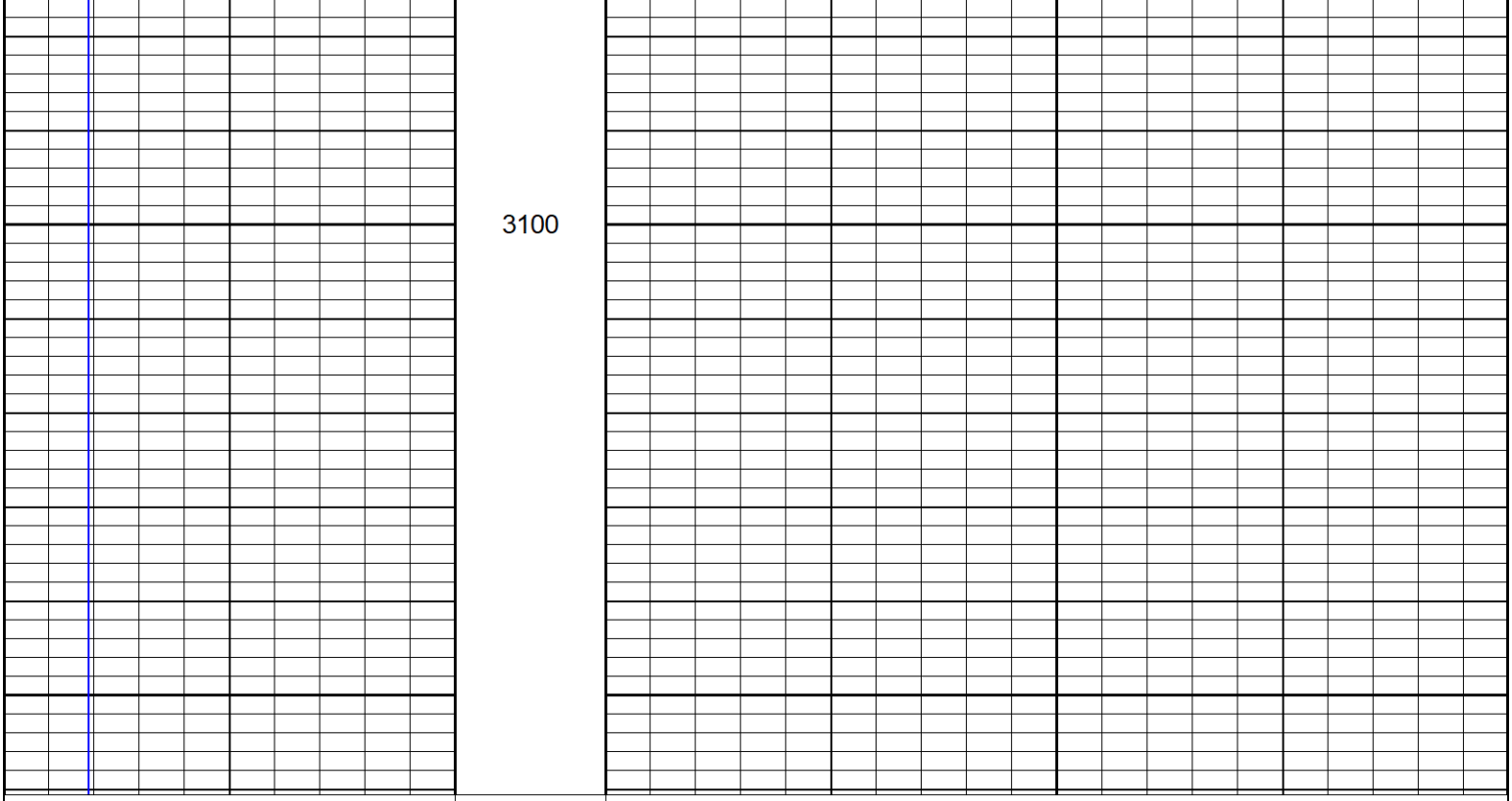

2700
2800


Uranium Free Gamma
Total Gamma Ray
Calipe
Head Tension
Bitsize
First Reading
First Reading
2900
3000
Total Depth
Density Porosity (2.71 Matrix)
PE
Micro Normal
Micro Inverse
Neutron Porosity (Lime Matrix)
First Reading
First Reading
First Reading



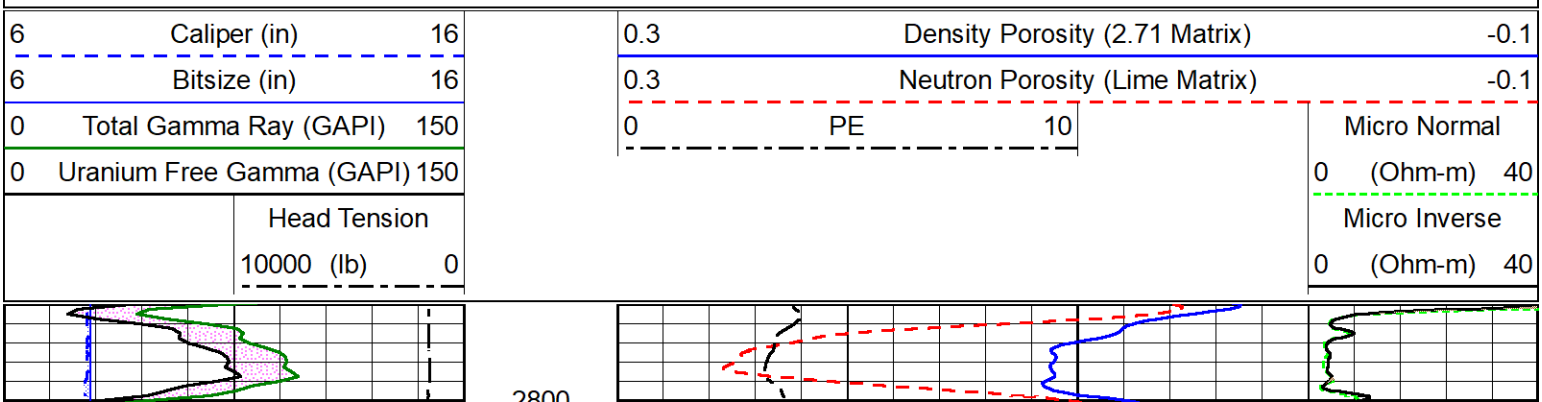
WIRELINE LOGGING SOLUTIONS

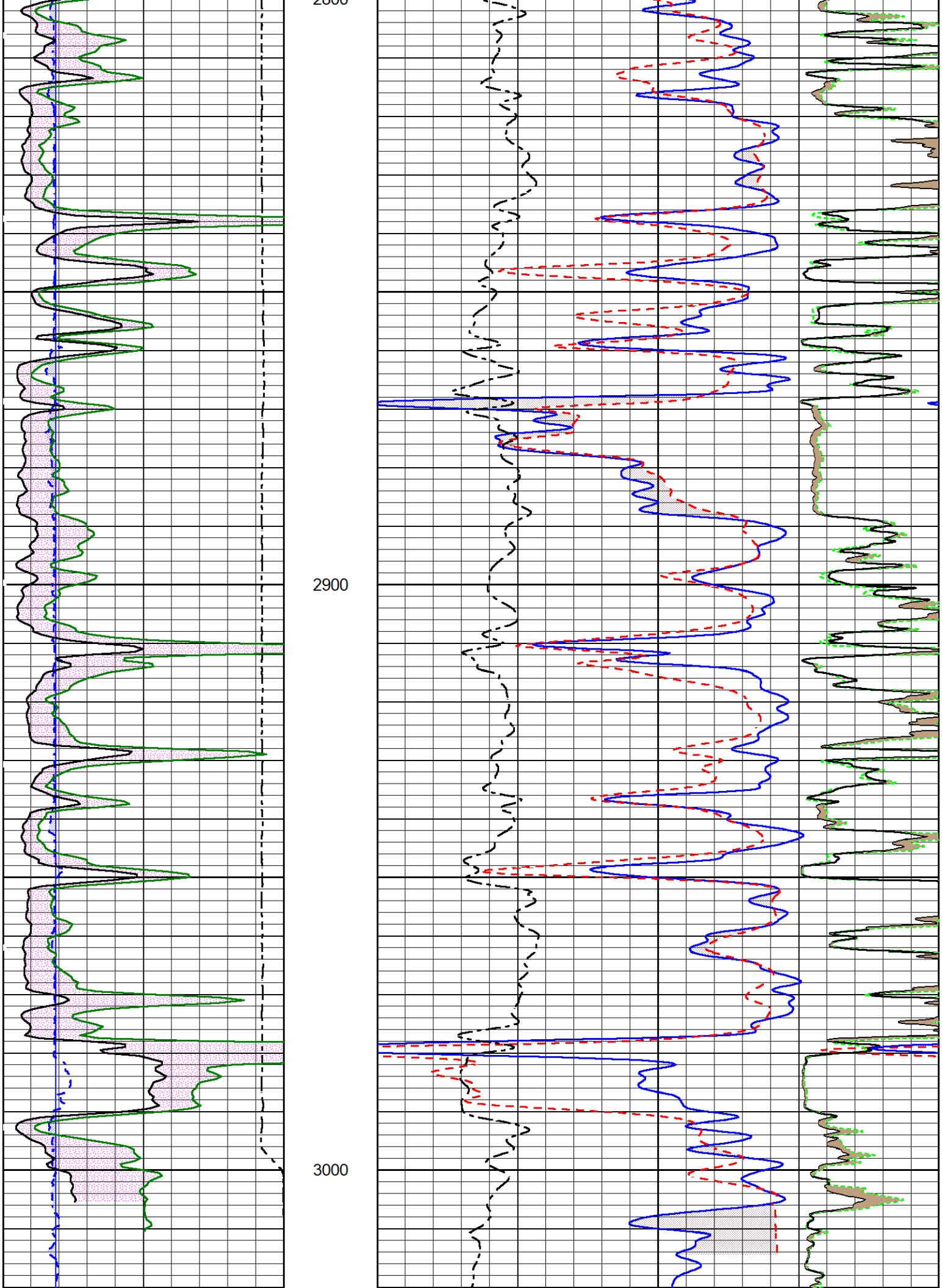
Main Pass

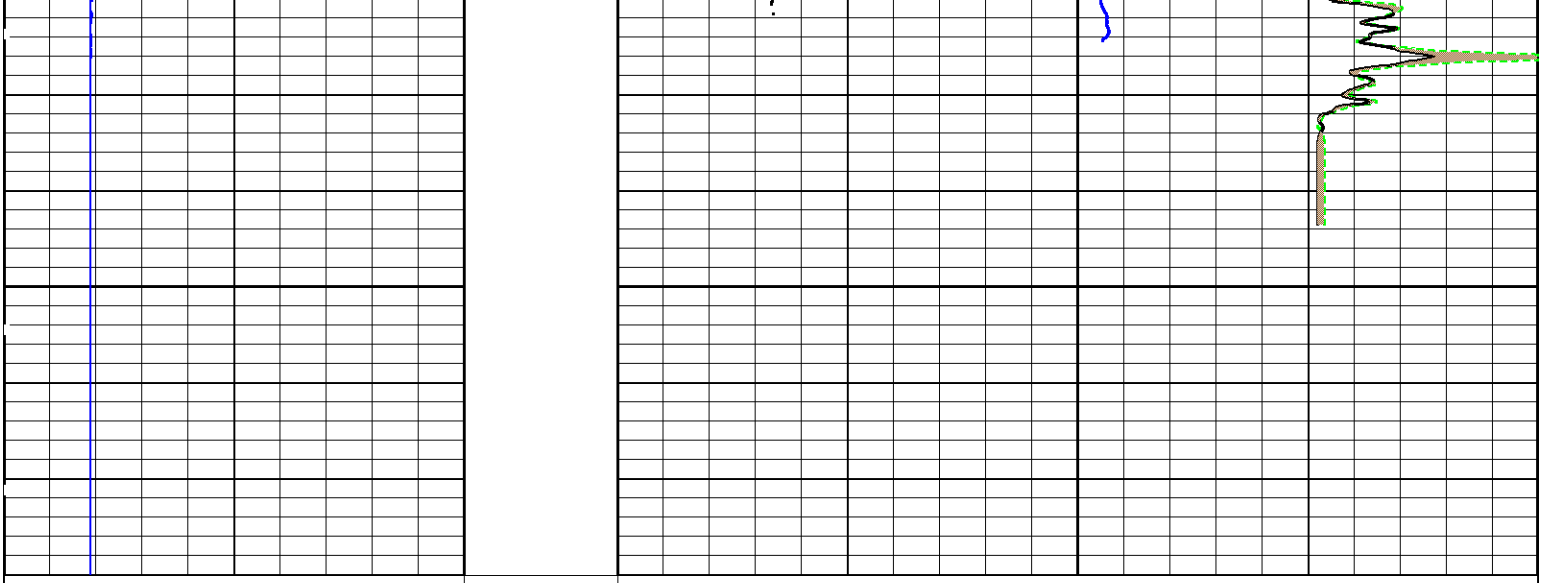
WIRELINE LOGGING SOLUTIONS

Repeat Pass

Database File	black oak-taylor trust 1-17_2.db
Dataset Pathname	pass3.2
Presentation Format	OK4BE4~1
Dataset Creation	Wed May 19 02:06:26 2021 by Calc Sondex
Charted by	Depth in Feet scaled 1:240




2800
2900
3000



6	Caliper (in)	16
6	Bitsize (in)	16
0	Total Gamma Ray (GAPI)	150
0	Uranium Free Gamma (GAPI)	150
	Head Tension	
10000	(lb)	0

0.3	Density Porosity (2.71 Matrix)	-0.1
0.3	Neutron Porosity (Lime Matrix)	-0.1
0	PE	10

	Micro Normal	
0	(Ohm-m)	40
	Micro Inverse	
0	(Ohm-m)	40

WIRELINE LOGGING SOLUTIONS

Repeat Pass

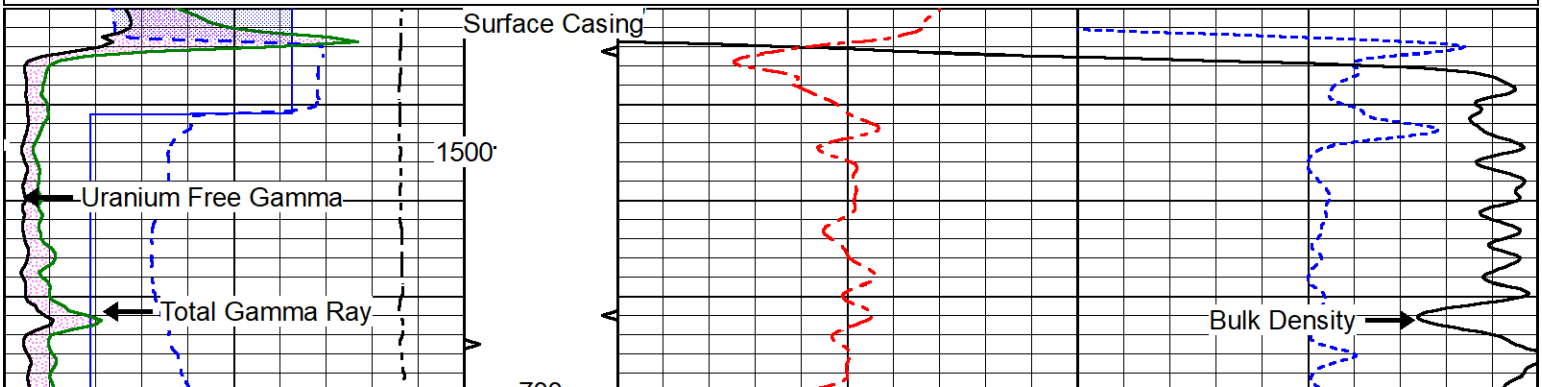
WIRELINE LOGGING SOLUTIONS

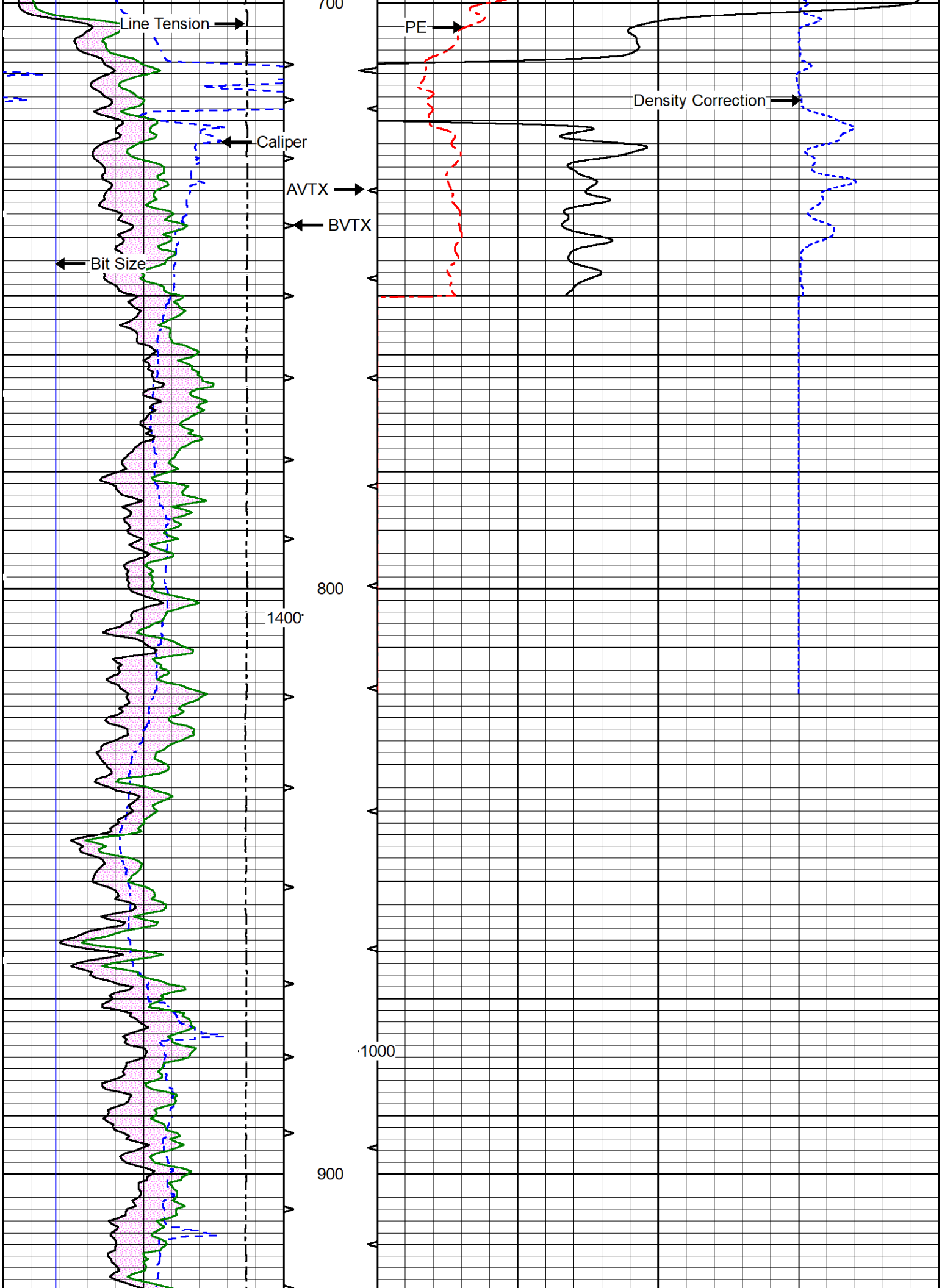
Main Pass

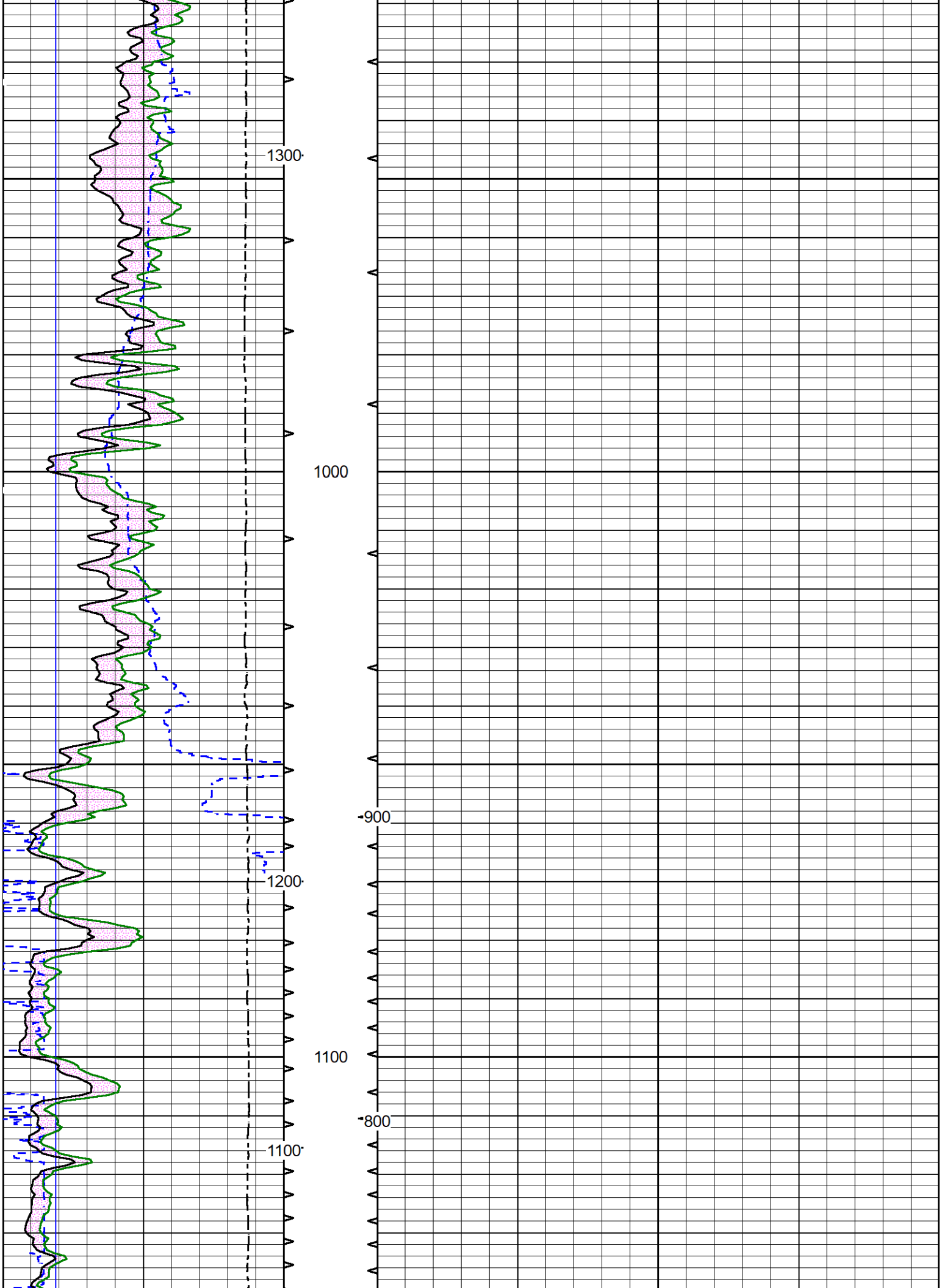
Database File	black oak-taylor trust 1-17_2.db
Dataset Pathname	pass7
Presentation Format	OKC-BU~1
Dataset Creation	Wed May 19 10:18:36 2021
Charted by	Depth in Feet scaled 1:240

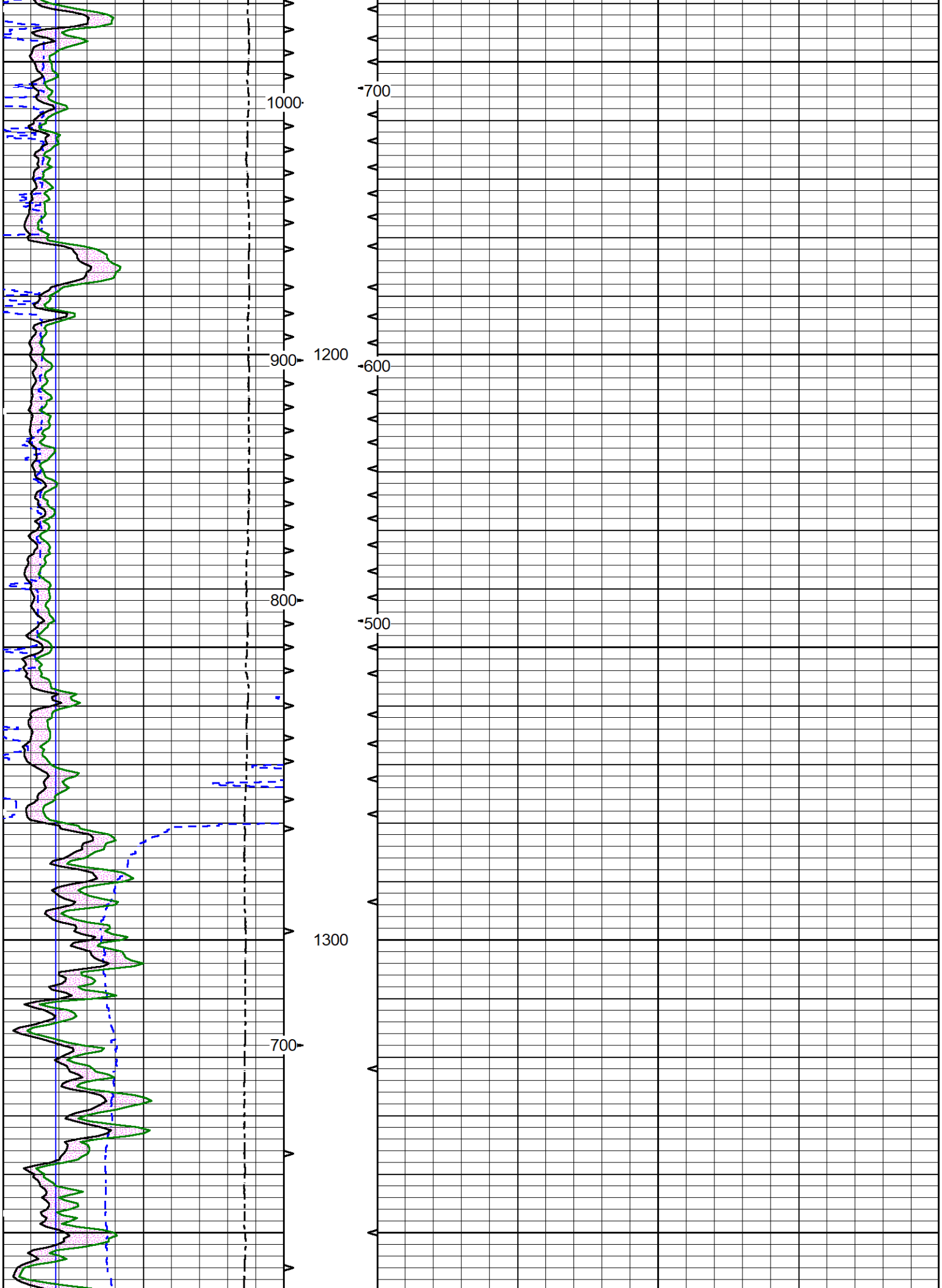
6	Caliper (in)	16
10000	Head Tension (lb)	0
6	Bit Size (in)	16
0	Total Gamma Ray (GAPI)	150
0	Uranium Free Gamma (GAPI)	150

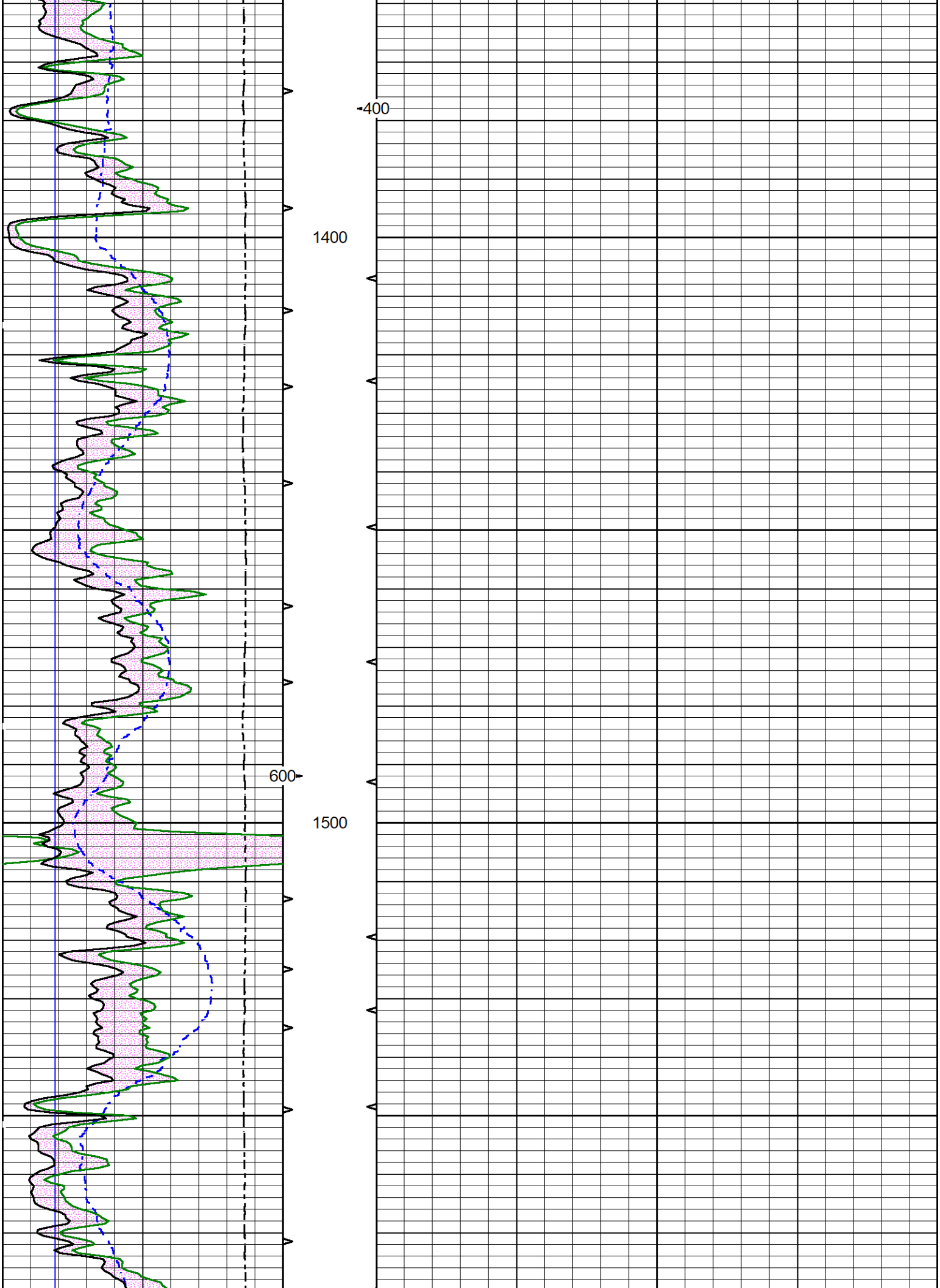
2	Bulk Density (g/cc)	3		
0	PE	10	-0.25	Density Correction (g/cc) 0.25

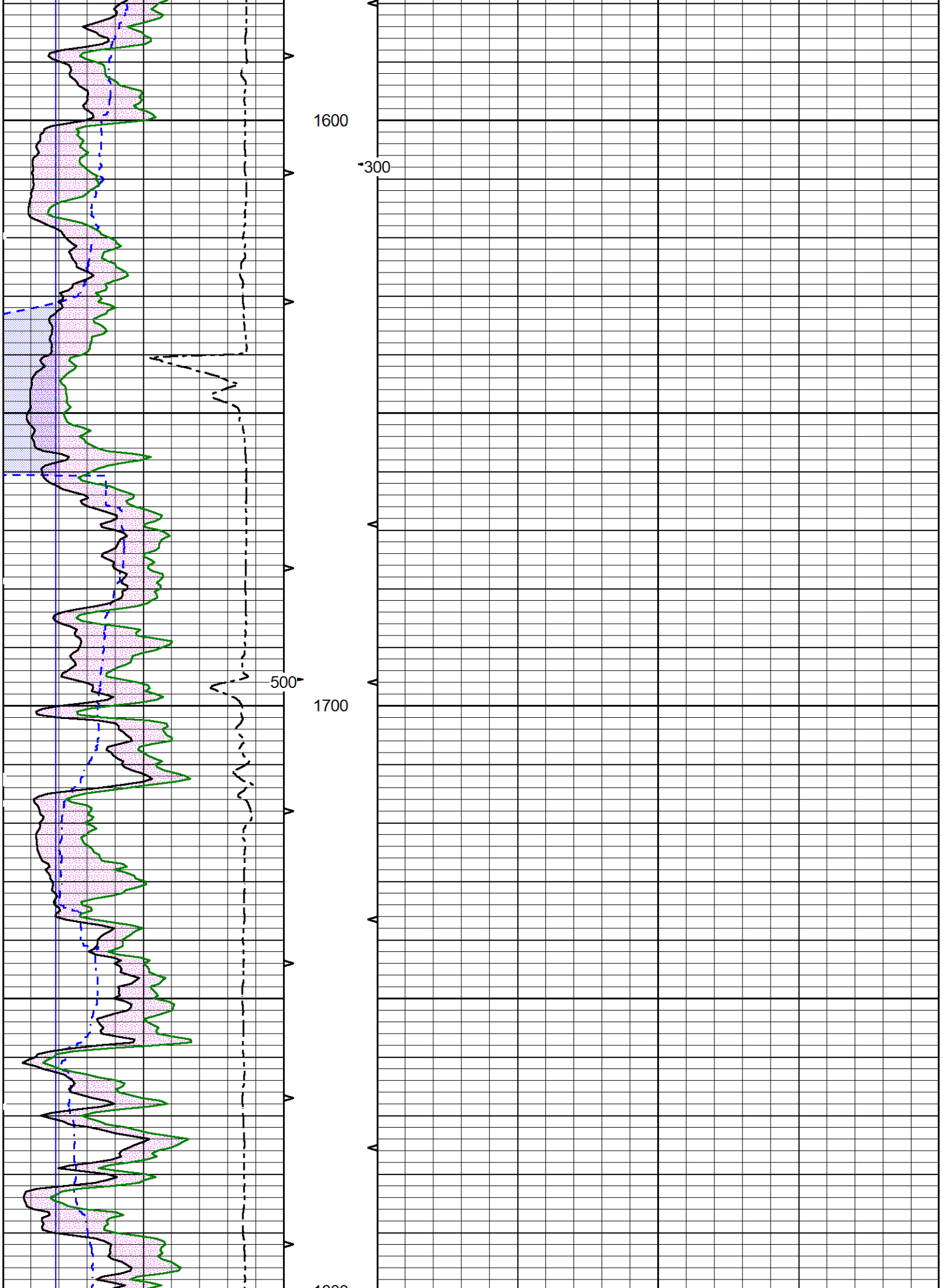


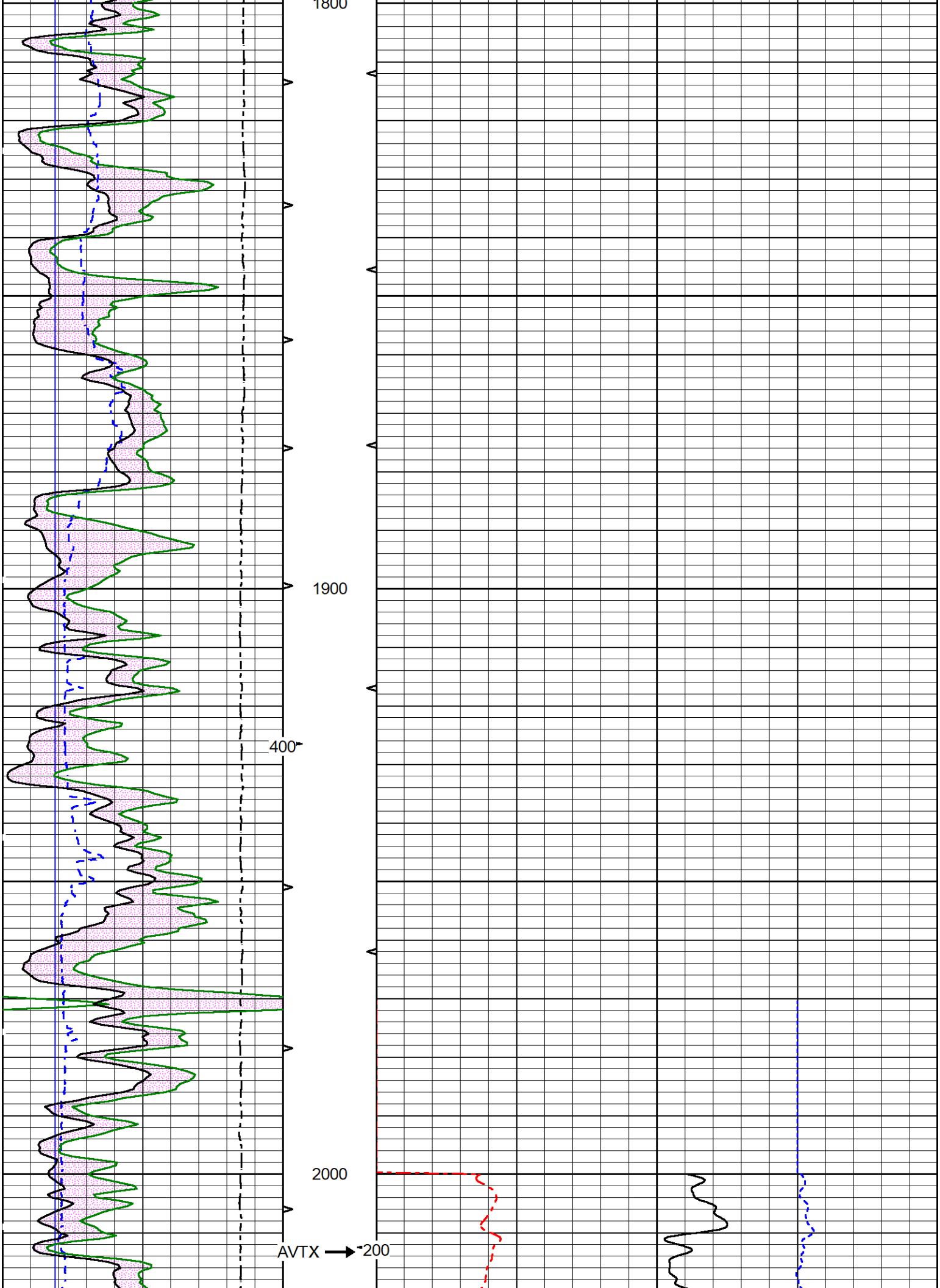

700
Line Tension
PE
Density Correction
Caliper
AVTX
BVTX
Bit Size
800
1400
1000
900

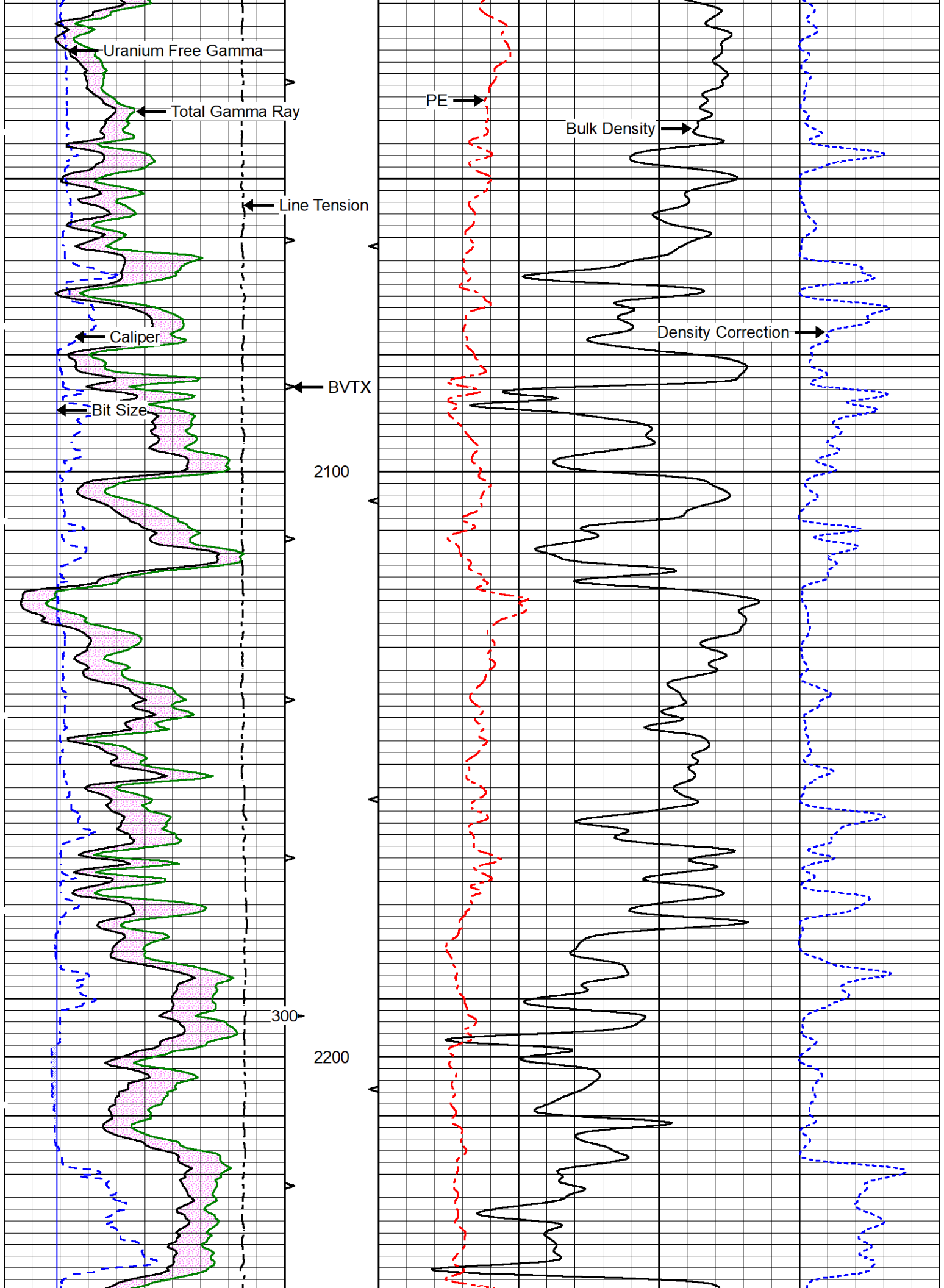

1300
1000
900
1200
1100
800
1100

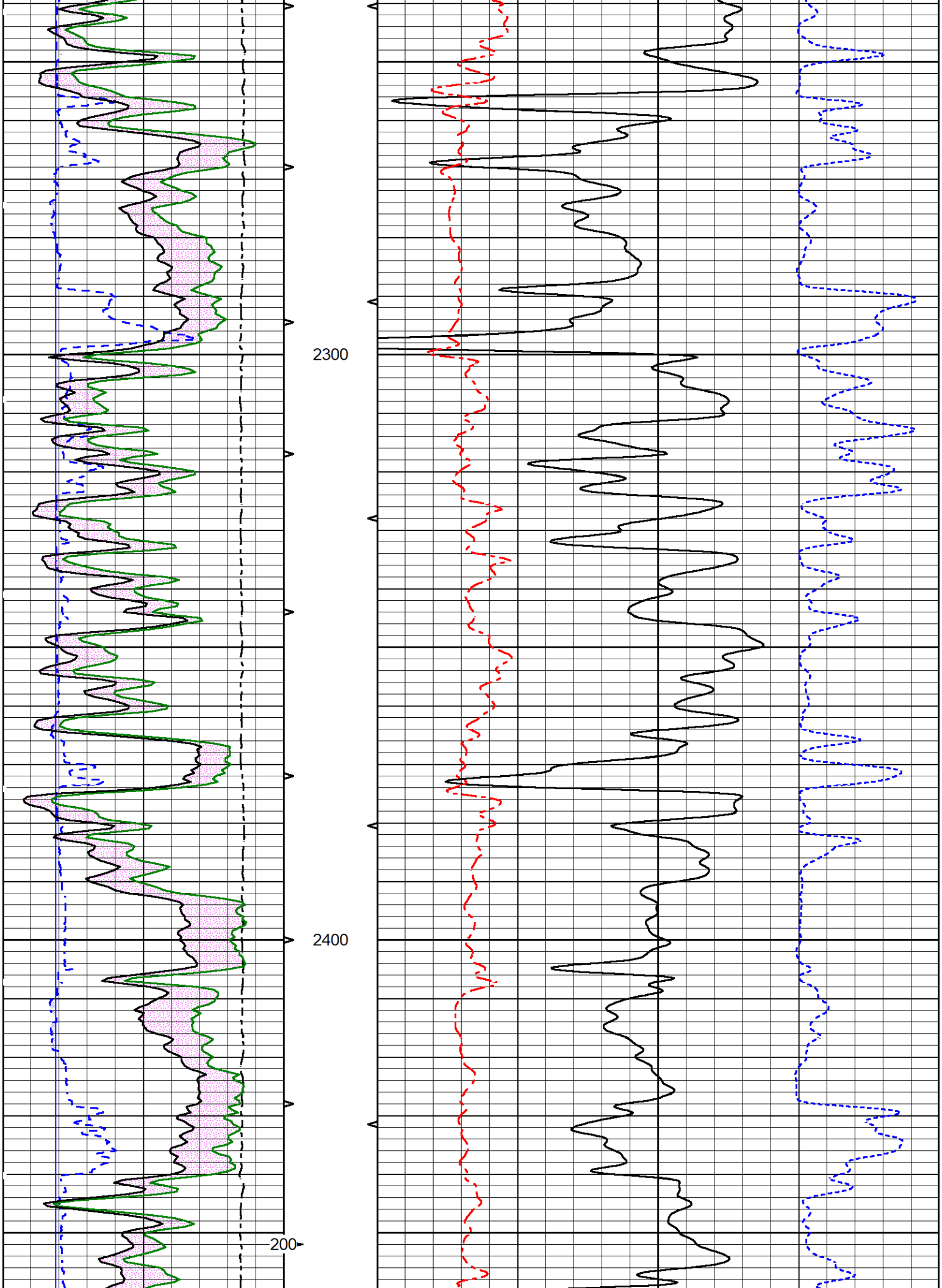

1000
900
800
700
700
600
500
1200
1300

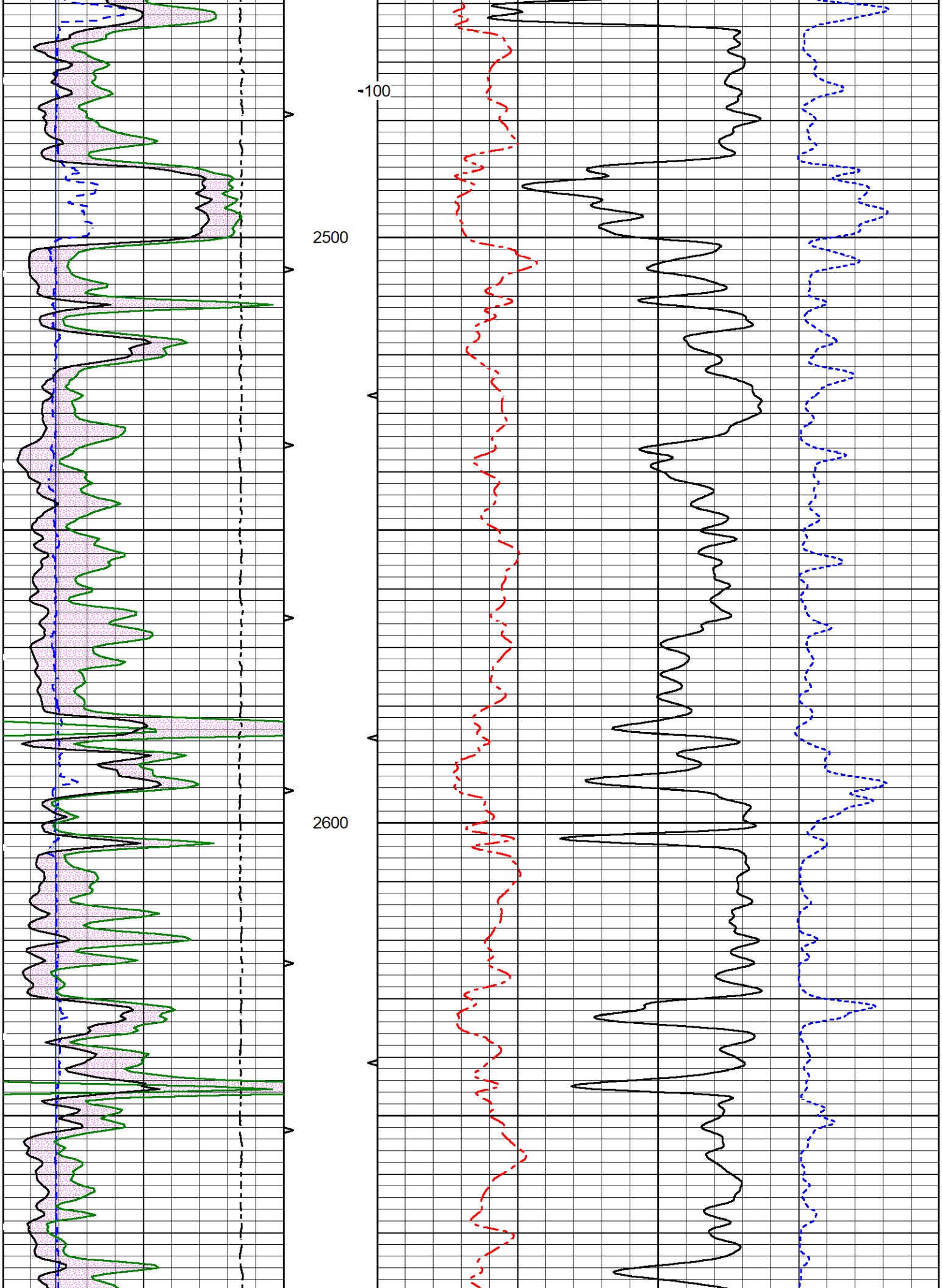

400
1400
600
1500


1600
300
500
1700


1800
1900
400
2000
AVTX
200


Uranium Free Gamma
Total Gamma Ray
Line Tension
Caliper
BVTX
Bit Size
2100
300
2200
PE
Bulk Density
Density Correction


2300
2400
200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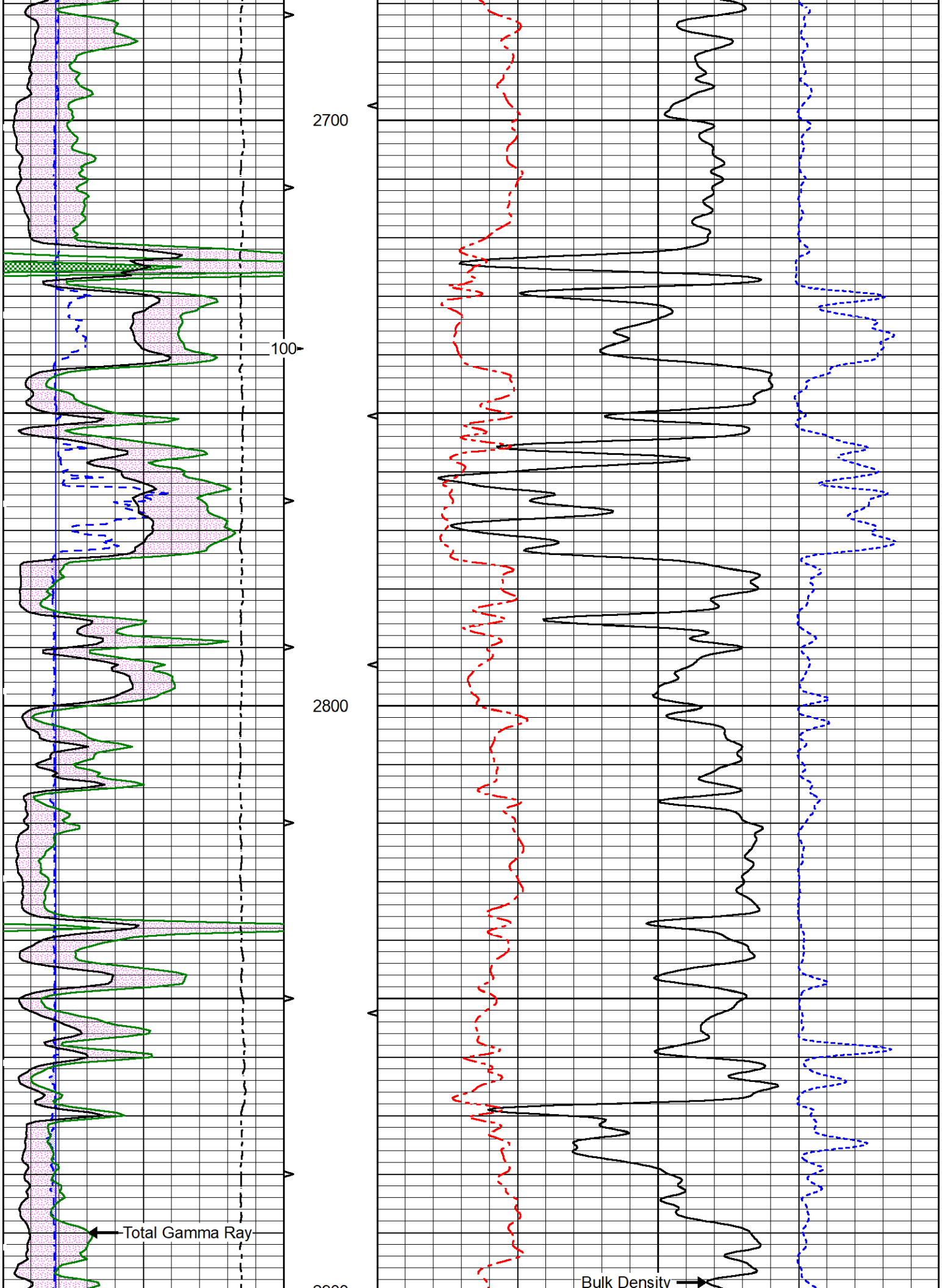
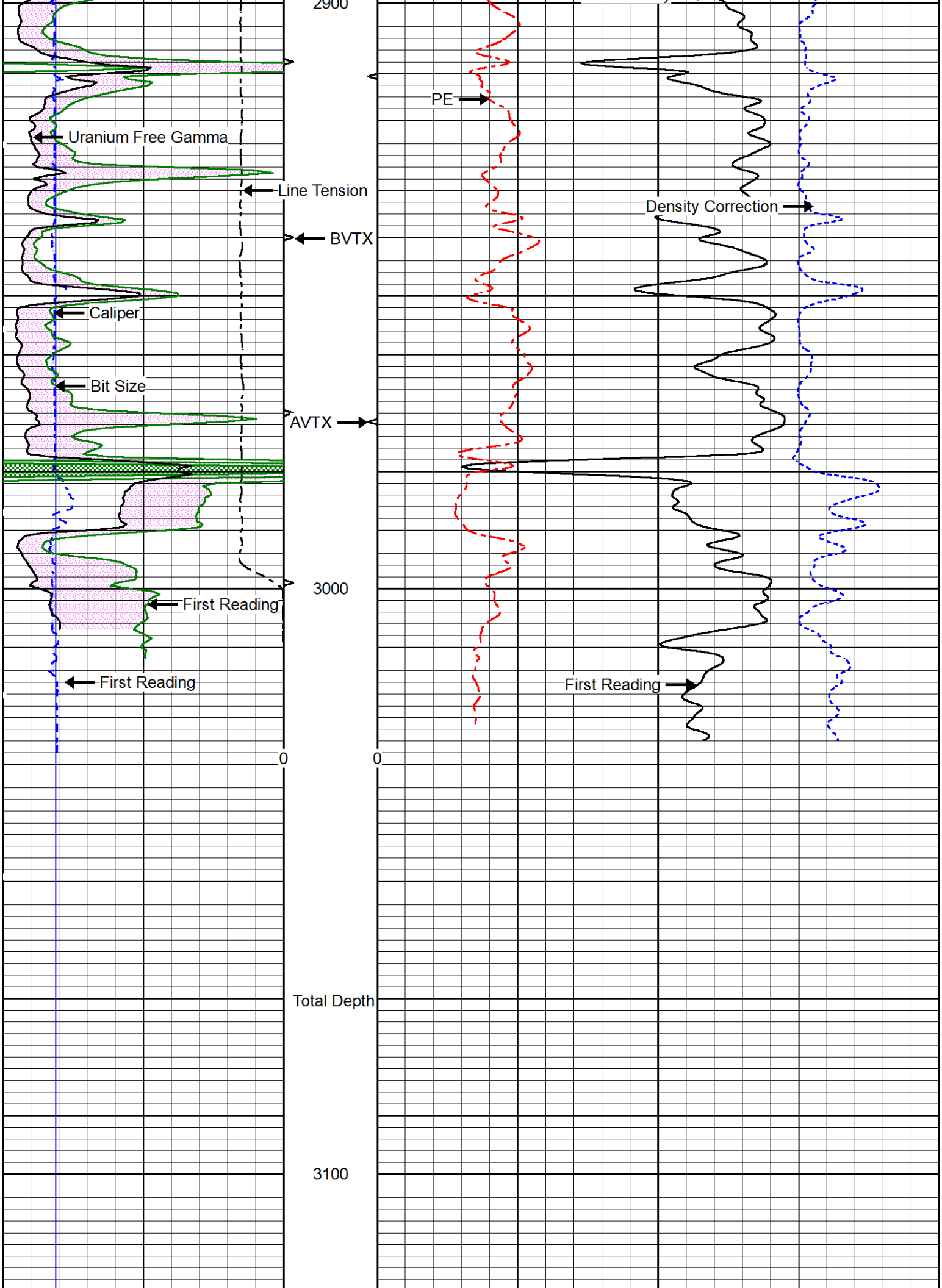
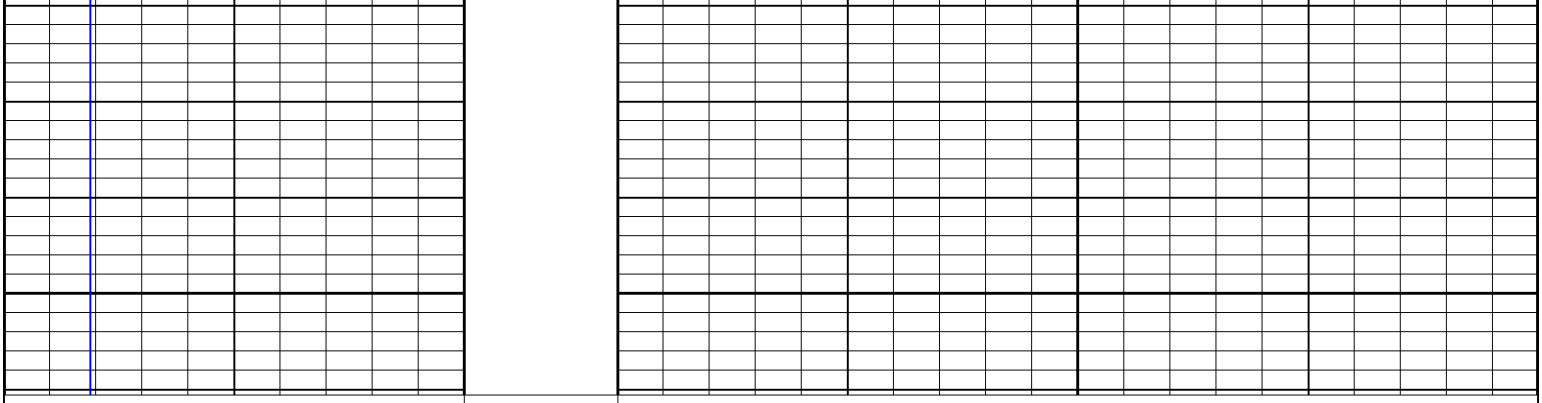
2500
2600


2700
100
2800
Total Gamma Ray
Bulk Density


2900
PE
Uranium Free Gamma
Line Tension
Density Correction
BVTX
Caliper
Bit Size
AVTX
3000
First Reading
First Reading
First Reading
0
0
Total Depth
3100



6	Caliper (in)	16	2	Bulk Density (g/cc)	3
10000	Head Tension (lb)	0	0	PE 10	-0.25 Density Correction (g/cc) 0.25
6	Bit Size (in)	16			
0	Total Gamma Ray (GAPI)	150			
0	Uranium Free Gamma (GAPI)	150			

WIRELINE LOGGING SOLUTIONS

Main Pass

Log Variables

DatabaseC:\Sondex\Sondex Warrior\Data\black oak-taylor trust 1-17_2.db
Dataset field/well/run1/pass5/_vars_

Top - 671.00 ft

AIR_HOLE?	BOREID in	BOTTEMP degF	CASED?	CASEOD in	CASETHCK in	CASEWGHT lb/ft	COMPACT
No	12.25	100	Yes	8.625	0	24	1

DE-CENT	DEVI deg	FLUIDDEN g/cc	FRMSALIN kppm	MATRXDEN g/cc	MAXAMPL mV	MINAMPL mV	MINATTN db/ft
Yes	0	1	75	2.71	0	1	0.8

MUDSALIN kppm	MudWgt lb/gal	NPORSEL	PERFS	SO in	SPSHIFT mV	SRFTEMP degF	SVFLUID usec/ft
0	9.2	Limestone	0	0.5	0	68	189

SVMATRIX usec/ft	TDEPTH ft
47.6	3070

671.00 ft - Bottom

BOREID in	CASED?	CASEOD in	CASEWGHT lb/ft
7.875	No	5.5	15.5

Variable Description

AIR_HOLE? : Air Filled?
BOREID : Borehole I.D.
BOTTEMP : Bottom Hole Temperature
CASED? : Cased hole ?
CASEOD : Casing O.D.
CASETHCK : Casing Thickness
CASEWGHT : Casing Weight
COMPACT : Compaction Factor
MAXAMPL : Maximum Amplitude
MINAMPL : Minimum Amplitude
MINATTN : Minimum Attenuation
MUDSALIN : Mud Salinity
MudWgt : Mud Weight
NPORSEL : Neutron Porosity Curve Select
PERFS : Perforation Flag
SO : Stand Off

DE-CENT : Decentralization Flag
DEVI : Inclination
FLUIDDEN : Fluid Density
FRMSALIN : Formation Salinity
MATRXDEN : Matrix Density
SPSHIFT : S.P. Baseline Offset
SRFTEMP : Surface Temperature
SVFLUID : Fluid Velocity
SVMATRIX : Matrix Velocity
TDEPTH : Total Depth

Calibration Report

Database File	black oak-taylor trust 1-17_2.db
Dataset Pathname	pass5
Dataset Creation	Wed May 19 00:48:45 2021

Induction Array Tool Calibration Report

Serial Number:	B10110
Tool Model:	002

Master Calibration Performed:	Fri Mar 08 09:16:00 2019
Temperature:	51.2 degF

Sonde Error:

Array	1	2	3	4	5	6	7	
Real	188.1	-11.7	-39.0	-14.9	-1.9	2.0	3.2	mmho/m
Imaginary	-13.9	8.5	-5.4	-11.7	-20.7	-2.4	5.6	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	758.2	735.6	1253.6	1381.7	1164.3	742.4	424.4	mmho/m
Imaginary	60.0	109.2	384.4	412.6	330.6	220.8	134.7	mmho/m
Gain (real)	0.943	0.908	1.002	0.998	0.982	0.963	0.961	
Gain (imaginary)	0.992	0.918	1.000	0.989	0.981	0.961	0.943	

Before Survey Verification Performed:	Wed May 01 12:44:49 2019
Sonde 1 Temperature:	77.2 degF
Sonde 2 Temperature:	78.2 degF
Array 1 Temperature:	78.3 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	105.5	108.5	133.4	132.5	135.0	100.3	144.2
RxCR	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
RxCX	0.1	0.1	0.2	0.2	0.3	0.1	0.0
RxC Magnitude	0.1	0.1	0.2	0.2	0.3	0.1	0.0

Tool Module Parameters

Software Version:	8.0.0.5
Borehole Size Source:	CALI
Mud Resistivity Source:	Hilchie
Mud Resistivity At Surface:	0.40 Ohm-m
Mud Resistivity Surface Temperature:	80.0 degF
Borehole Corrections:	Centralized Lookup Table
Minimum Standoff:	N/A

Multi Array Sonic Calibration Report

Serial Number:	C10034LS
Tool Model:	001LS

Tool Module Parameters

Software Version:	8.0.0.5

Integrated Transit Time Source:	DT100120
Porosity Source:	DT100120
Porosity Method:	Wyllie
Raymer Hunt Constant:	N/A

Micro Electric Log Calibration Report

Serial Number:	10020666
Tool Model:	001

Caliper Calibration Performed: Wed Mar 27 13:54:25 2019

	Pad Arm			Backup Arm		
	Radius		Reading	Radius		Reading
Small Jig:	4.000	in	1079.500	4.000	in	1216.600
Large Jig:	6.000	in	1483.400	6.000	in	1590.500
Gain:			0.0050			0.0053
Offset:			-1.3454			-2.5076

Pad Calibration

	Inverse	Normal
Gain:	1.0000	1.0000
Offset:	0.0000	0.0000

Tool Module Parameters

Software Version:	8.0.0.6

Litho Density Tool Calibration Report

Serial Number:	B10110S70997B
Tool Model:	B10110

Caliper Calibration Performed: Mon Apr 12 10:43:16 2021

	Diameter		Reading	
Small Ring:	9.000	in	1745.500	cps
Large Ring:	13.000	in	2090.600	cps
Gain:	0.0116			
Offset:	-11.2318			

Master Calibration Performed: Mon Apr 12 10:03:46 2021

Source Number:	S70997B
Medium:	Water
Al Block Density:	2.6018 g/cc

	Background	Al Block	Al Block + Fe	
SS1	704.6	4177.6	3606.5	cps
SS2	1986.7	28467.4	24577.7	cps
SSTOTAL	4654.7	45568.2	39008.7	cps
LITH	88.3	486.4	298.1	cps
LL	175.8	806.8	724.2	cps
LU	496.0	1036.1	973.2	cps
LS	671.8	1842.9	1697.4	cps
LSTOTAL	1263.5	4518.5	3736.7	cps
SSHV	1464.1	1466.3	1468.1	V
LSHV	1311.8	1313.9	1314.8	V
SSFF	-0.001	0.009	0.003	
LSFF	0.004	-0.002	0.005	

Before Survey Verification Performed: Mon Apr 12 10:20:57 2021

After Survey Verification Performed: Mon Apr 12 10:27:19 2021

	Master Background	Before Survey Background	After Survey Background	
SS1	704.6	706.3	700.5	cps
SS2	1986.7	1986.9	1985.8	cps
SSTOTAL	4654.7	4662.7	4651.8	cps
LITH	88.3	87.7	86.1	cps
LL	175.8	173.3	174.9	cps
LU	496.0	497.0	491.0	cps
LS	671.8	670.3	665.9	cps
LSTOTAL	1263.5	1259.3	1254.1	cps
SSHV	1464.1	1470.0	1469.7	V
LSHV	1311.8	1315.8	1315.8	V
SSFF	-0.001	-0.006	-0.007	
LSFF	0.004	0.003	-0.006	

Tool Module Parameters

Software Version:	8.0.0.8
Borehole Size Source:	CALI
Pad Type:	2

Compensated Neutron Tool Calibration Report

Serial Number:	C10071S1414NC
Tool Model:	009

Master Calibration Performed:	Mon Apr 12 11:06:22 2021	
Source Number:	1414NC	
Short Spacing Counts:	5574.20	cps
Long Spacing Counts:	200.36	cps
High Voltage:	1363.95	V
Target Ratio:	27.2000	
Ratio:	27.8204	
K-Factor:	0.9777	

Before Survey Verification Performed:	Mon Apr 12 11:24:08 2021
After Survey Verification Performed:	Mon Apr 12 11:25:20 2021
Verifier Number:	6489

Verifier Values	Master Cal	Before Survey	After Survey	
Short Spacing Counts:	251.96	249.10	251.53	cps
Long Spacing Counts:	238.16	236.70	236.61	cps
High Voltage:	1363.94	1363.94	1363.94	V
Ratio:	1.0579	1.0524	1.0631	

Tool Module Parameters

Software Version:	8.0.0.6			
Borehole Size Source:	CALI			
Clip Crossplot Porosity:	YES			
Lithology Identification Parameters:				
	Calcite	Quartz	Dolomite	
Uma:	13.77	4.79	9.03	barns/cc
RHOma:	2.71	2.65	2.88	g/cc

Spectral Gamma Ray Calibration Report

Serial Number:	220365
Tool Model:	004

Performed:	Wed Dec 04 13:01:45 2013	
Source Number:	JL0101912-05	
Calibrator Value:	207.0	API
Background Reading:	132.5	cps
Calibrator Reading:	1445.8	cps
Sensitivity:	0.158	API / cps

Perfomed:	Wed Dec 04 12:50:15 2013		
Verifier Number:	571		
	K %	U ppm	T ppm
Concentrations	5.4	11.4	29.3
K Peak:	Passed		
U Peak:	Passed		
T Peak:	Passed		

Before Survey Verification Performed:	Mon Apr 08 16:13:39 2013		
After Survey Verification Performed:	Fri Aug 23 11:55:10 2013		
	Before Survey	After Survey	
Background Reading:	140.7	141.7	cps
Verifier Reading:	1037.0	1689.1	cps
K Peak:	Passed	Passed	
U Peak:	Passed	Passed	
T Peak:	Passed	Passed	

Tool Module Parameters

Software Version:	8.0.0.6
Borehole Correction:	No
Stand Off:	N/A
Mud Type:	N/A
Borehole Size Source:	N/A

Head Tension Unit Calibration Report

Serial Number:	10011393
Tool Model:	011

Performed: Mon Apr 08 15:42:31 2019

Point #	Reference		Reading	
1	-20000.000	lb	7165.060	cps
2	-15000.000	lb	12293.900	cps
3	-10000.000	lb	17436.600	cps
4	-5000.000	lb	22464.900	cps
5	0.000	lb	27561.700	cps
6	0.100	lb	27597.900	cps
7	5000.000	lb	32803.200	cps
8	10000.000	lb	38009.700	cps
9	15000.000	lb	43203.900	cps
10	20000.000	lb	48441.900	cps

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb
			CHD-WFT (WFT01) Weatherford Cable Head	2.67	2.25	15.00
			X-Over-WFT (0001) Weatherford X-Over	1.13	3.38	5.00
HTEN	72.11		XTU-008 (10001399) Crossover Ultrawire Toolbus to Ultralink	2.08	3.38	47.00

			HTU-011 (10011393) Head Tension Unit	2.18	3.38	55.00
SGR	67.62		SGR-004 (220365) Spectral Gamma Ray Tool	4.94	3.88	120.00
CNLSC	62.72		CNL-009 (C10071S1414NC) Compensated Neutron Logging Tool	5.28	3.38	100.00
CNSSC	62.22					
			LDT-B10110 (B10110S70997B) Litho Density Tool	9.75	4.50	310.00
LDT	52.56					
			KJT-001 (10010515) Knuckle Joint	2.86	3.38	72.00
			OJT-001 (000001) OH Offset Joint	1.00	3.38	56.00
			CEN-001 (C10025) Inline OH Springbow Centraliser	4.27	3.38	66.00
			MEL-001 (10020666) Micro Electric Log	9.17	3.38	190.00
MEL	35.21					
WVFATR8	23.92		MAS-001LS (C10034LS) Multi Array Sonic Tool (LS)	19.83	3.38	340.00
WVFATR7	23.67					
WVFATR6	23.42					
WVFATR5	23.17					
WVFATR4	22.92					
WVFATR3	22.67		Overbody-Over-cen Overbody Centralizer	3.00	3.38	10.00
WVFATR2	22.42					
WVFATR1	22.17		Overbody-Standoff Standoff (Rubber)	1.00	4.50	4.00
WVF5FT	21.67					
WVF3FT	20.67					
IAT	8.44		IAT-002 (B10110) Induction Array Tool	13.22	3.88	196.00
SP	0.43		Shorty-Short Short Hole Finder	0.38	3.88	6.00

Dataset: black oak-taylor trust 1-17_2.db: field/well/run1/pass5
Total length: 78.75 ft
Total weight: 1592.00 lb
O.D.: 4.50 in

WIRELINE LOGGING

Company Black Oak Exploration, LLC.
Well Taylor Trust 1-17
Field Mellard East

County	Russell
State	Kansas