ALLIED HORIZONTAL WIRELINE SERVICES

Composite Log

Company Taos Resources Operating Company
Well Well 16-1
Field Tisdale Gas Area
County Cowley State Kansas

Company	Taos Resources Operating Company
Well	Well 16-1
Field	Tisdale Gas Area
County	Cowley
State	Kansas

Location: API # : 15-035-24593
2310' FNL & 2475' FEL
W2 SW SW NE
SEC 16 TWP 33S RGE 5E

Permanent Datum G.L. Elevation 1307 ft.
Log Measured From K.B. , 10 ft. above perm. datum
Drilling Measured From K.B.

Other Services
MAS, SGR,

Elevation
K.B. 1317 ft.
D.F. 1316 ft.
G.L. 1307 ft.

Date	16-Sept-2014		
Run Number	One		
Depth Driller	3720'		
Depth Logger	3716'		
Bottom Logged Interval	3715'		
Top Log Interval	250'		
Casing Driller	8.625" @ 266'	@	
Casing Logger	266'		
Bit Size	7.875"	@	
Type Fluid in Hole	WBM		
Density / Viscosity	9.3 / 48		
pH / Fluid Loss	9.5 / 8.4		
Source of Sample	Mud Pit		
Rm @ Meas. Temp	2.18 @ 75 °F	@	
Rmf @ Meas. Temp	1.63 @ 75 °F	@	
Rmc @ Meas. Temp	3.26 @ 75 °F	@	
Source of Rmf / Rmc	Calculated		
Rm @ BHT	1.32 @ 124 °F	@	
Time Circulation Stopped	11:00		
Time Logger on Bottom	14:30		
Maximum Recorded Temperature	124 °F		
Equipment Number	10001		
Location	OKC		
Recorded By	B. Oetting		
Witnessed By	D. Griffith		

<<< Fold Here >>>

Equipment and Log Data

Service Order: 23309

Gamma		Density		Neutron		Sonic		IAT	
Run No.	One	Run No.	One	Run No.	One	Run No.	One	Run No.	One
Serial No.	47	Serial No.	112	Serial No.	71	Serial No.	38SS	Serial No.	106
O.D.	3.375 in.	Source No.	50129B	Source No.	80244B	Centralizers	2	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	TD	CSG	0	150	0.3	-0.1	2.71 g/cc	0.3	-0.1	Lime	0.3	-0.1	47.6 usec/ft	712	2000

Comments

First Run in hole.
Toolstring ran as per tool diagram.
2.71 gm/cc Matrix Density used to calculate LDT porosity.
Limestone Matrix used to calculate Neutron porosity.
47.6 usec/ft Matrix used to calculate Sonic porosity.

5.5" production casing used calculate annular hole volume.
Chlorides reported at: 1200 mg/l.
LCM reported at: 6 lb/ bbl

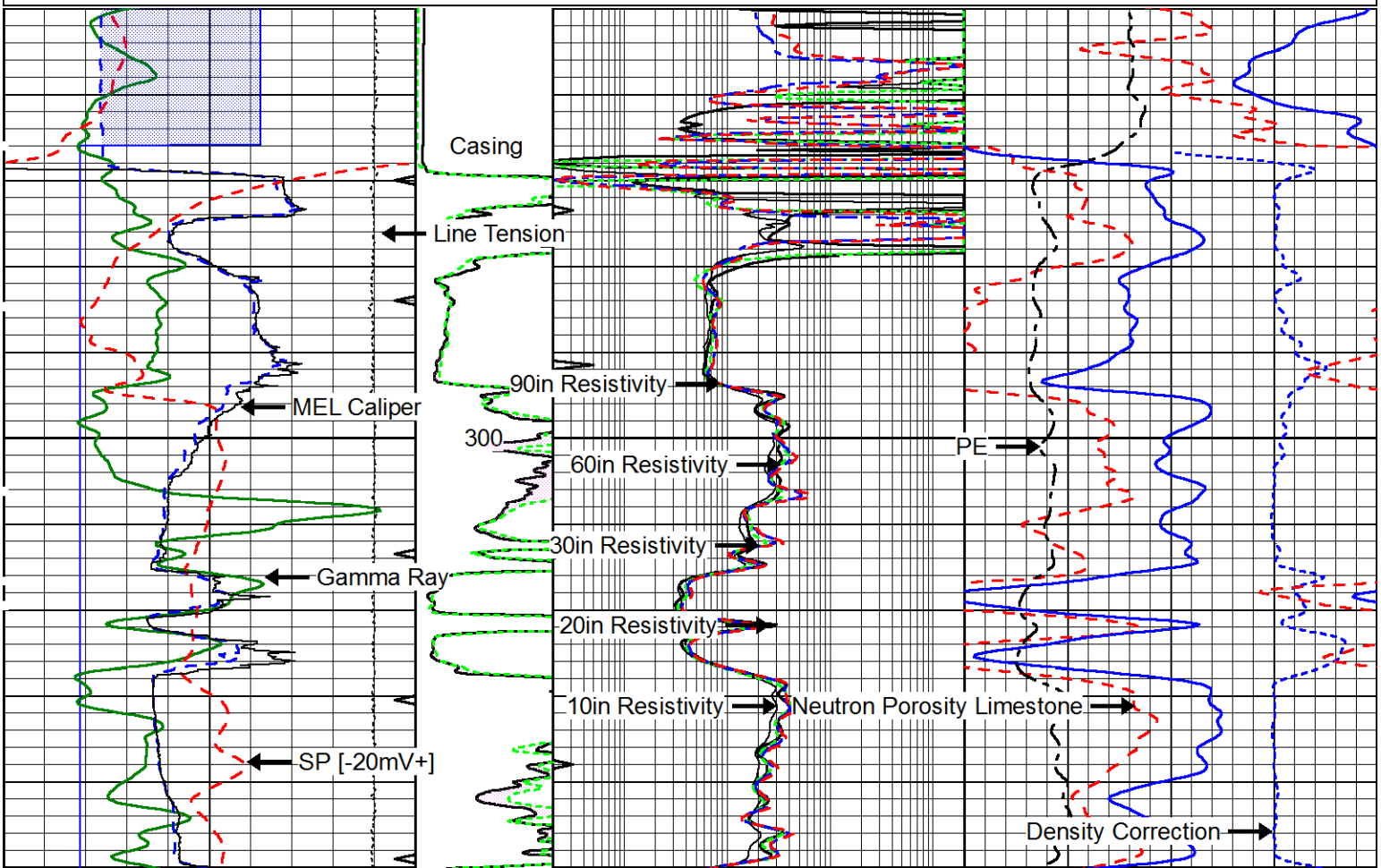
YOUR CREW TODAY: D. Eastep, C.Ross
THANK YOU FOR CHOOSING ALLIED WIRELINE. OKLAHOMA CITY, OK. (405) 445-7135.

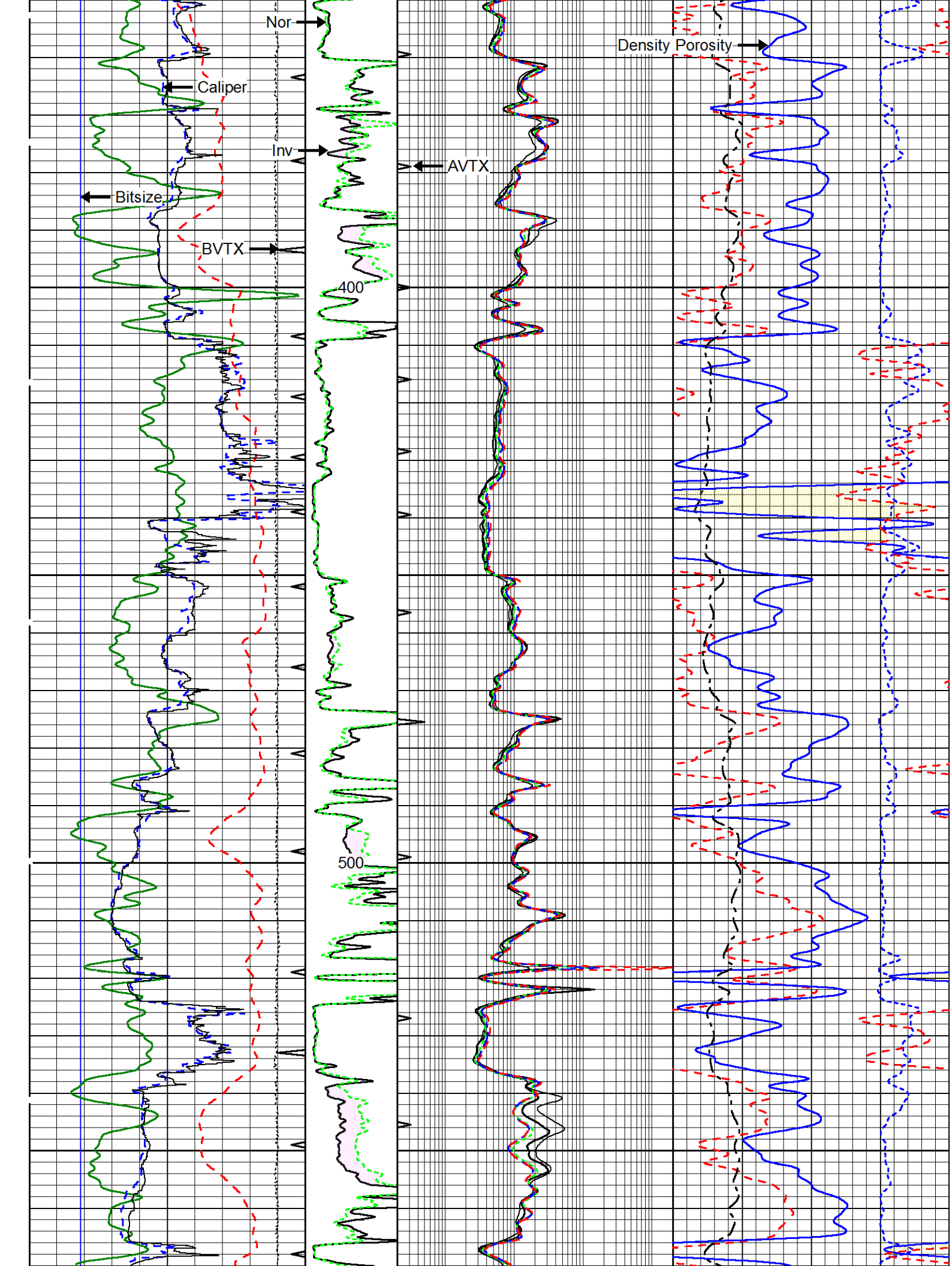
ALLIED HORIZONTAL WIRELINE SERVICES

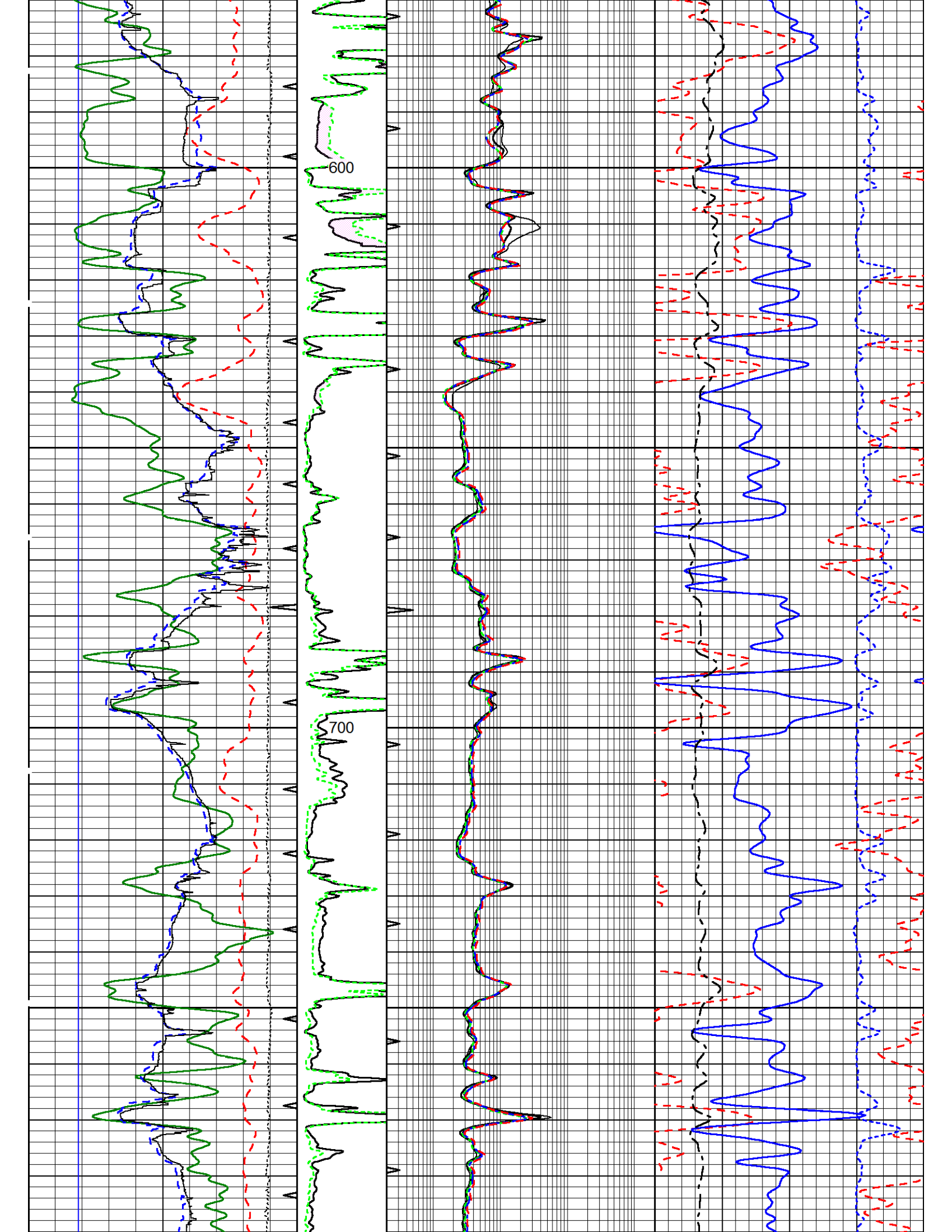
Main Pass

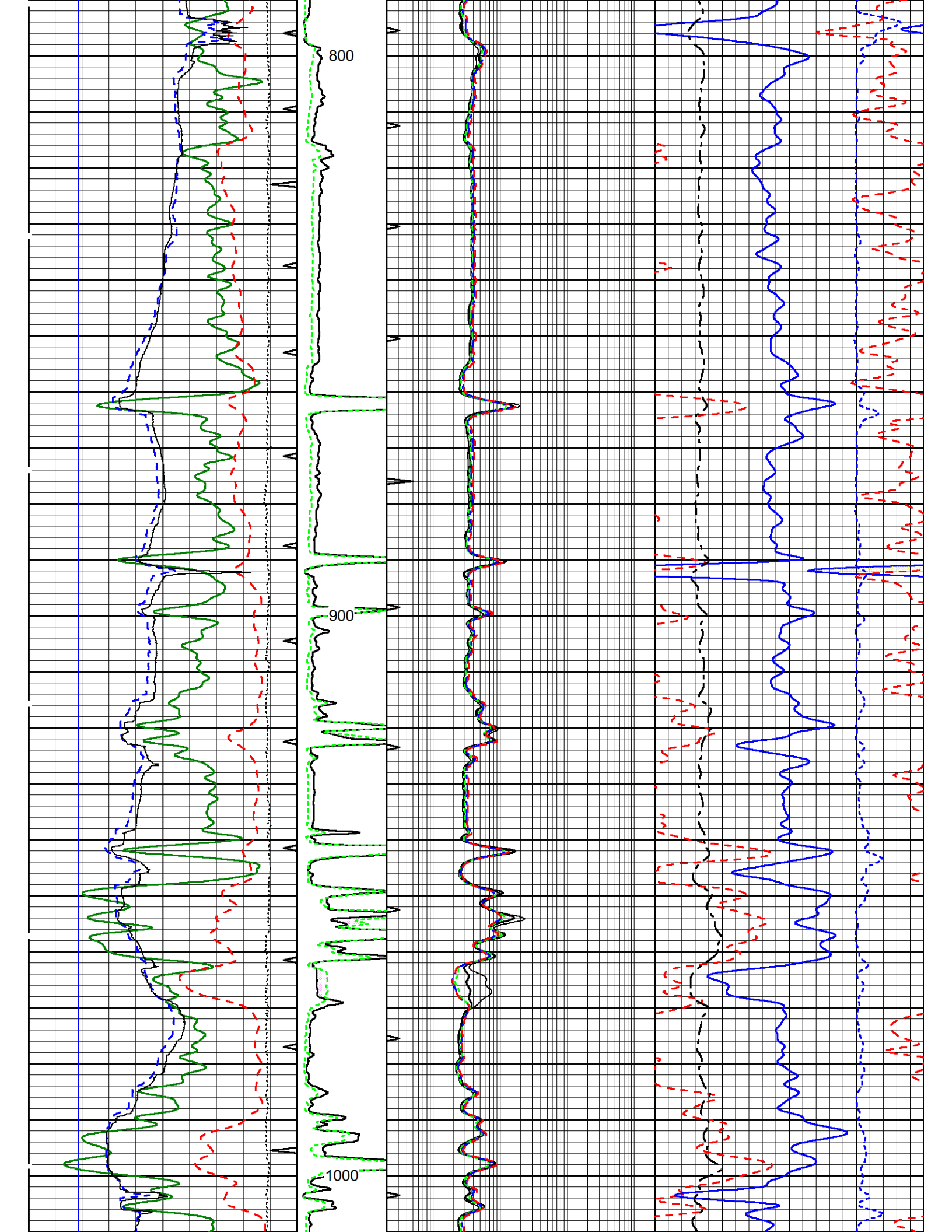
Database File: taos_well_16-1.db
Dataset Pathname: pass6.4
Presentation Format: taos
Dataset Creation: Tue Sep 16 17:46:24 2014 by Calc Sondex V7.03
Charted by: Depth in Feet scaled 1:240

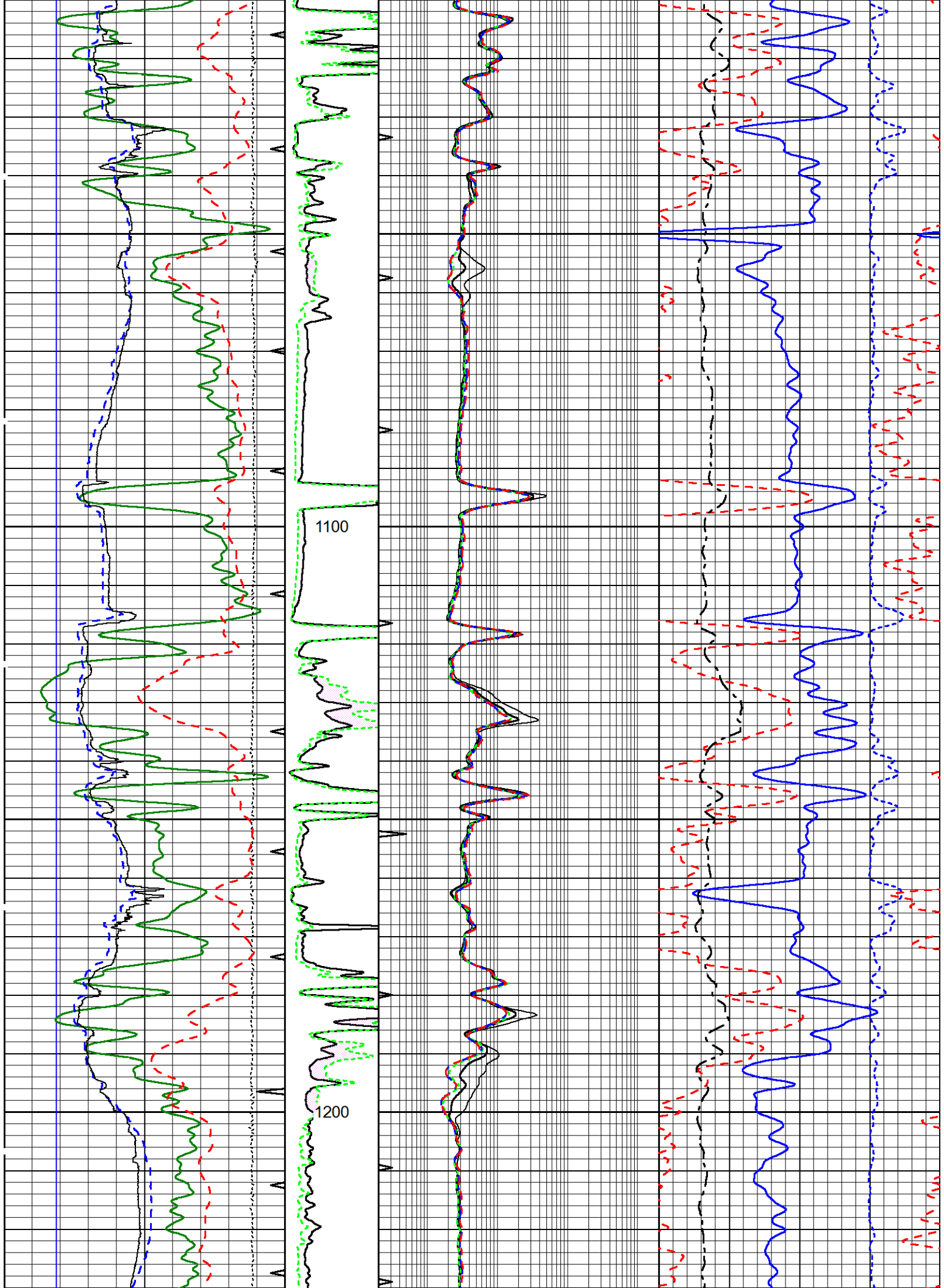
6 Bitsize (in) 16		Inv (Ohm-m) 0 20	0.2 10in Resistivity (Ohm-m) 2000		Neutron Porosity Limestone 0.3 -0.1		
0 Gamma Ray (GAPI) 150			0.2 20in Resistivity (Ohm-m) 2000				
6 Caliper (in) 16			0.2 30in Resistivity (Ohm-m) 2000				
SP [-20mV+]		Nor (Ohm-m) 0 20	0.2 60in Resistivity (Ohm-m) 2000		Density Porosity Limestone 0.3 -0.1		
6 MEL Caliper (in) 16			0.2 90in Resistivity (Ohm-m) 2000				
	Line Tension 10000 (lb) 0				0 PE 10		Density Correction -0.25 (g/cc) 0.25

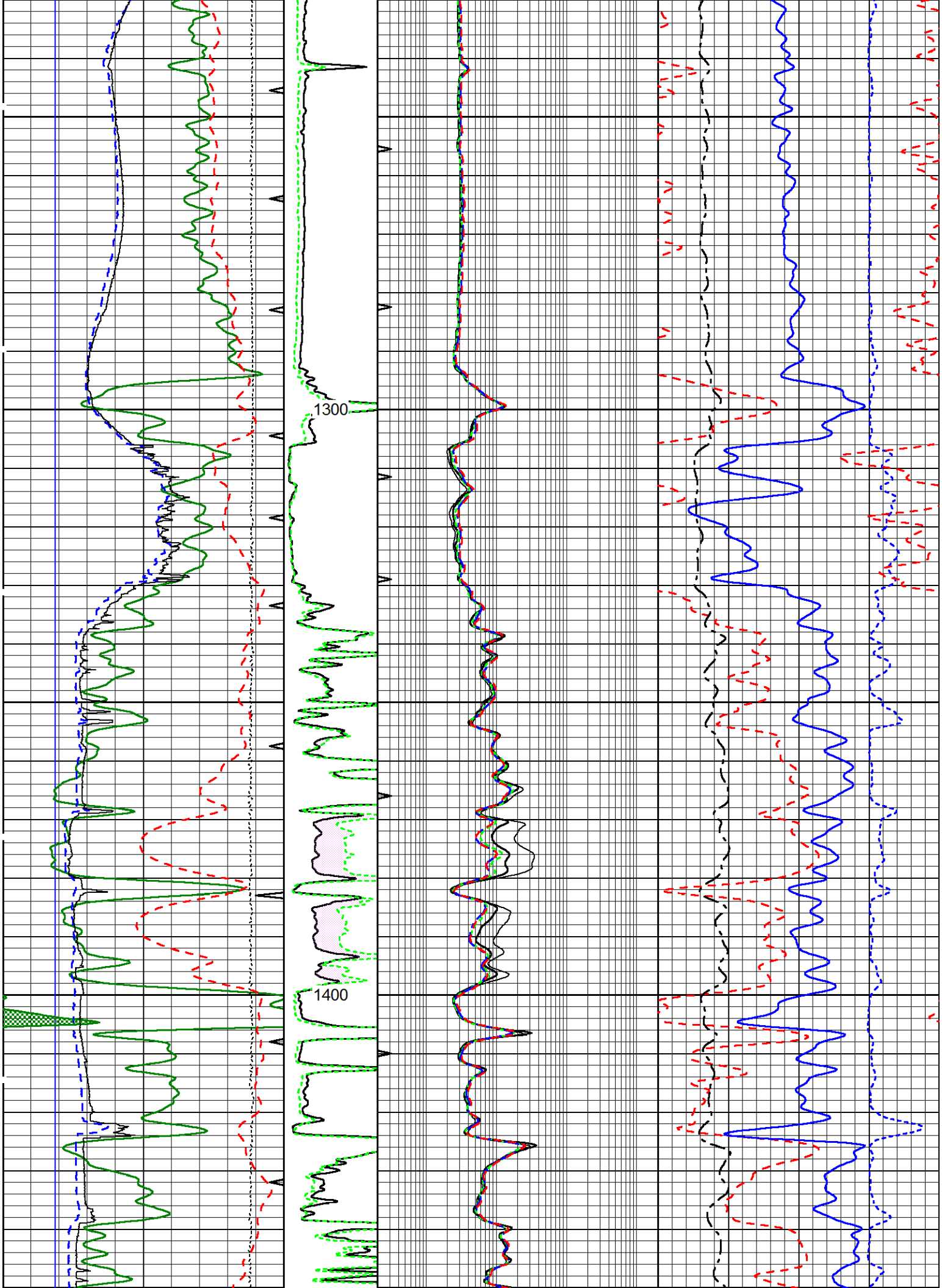


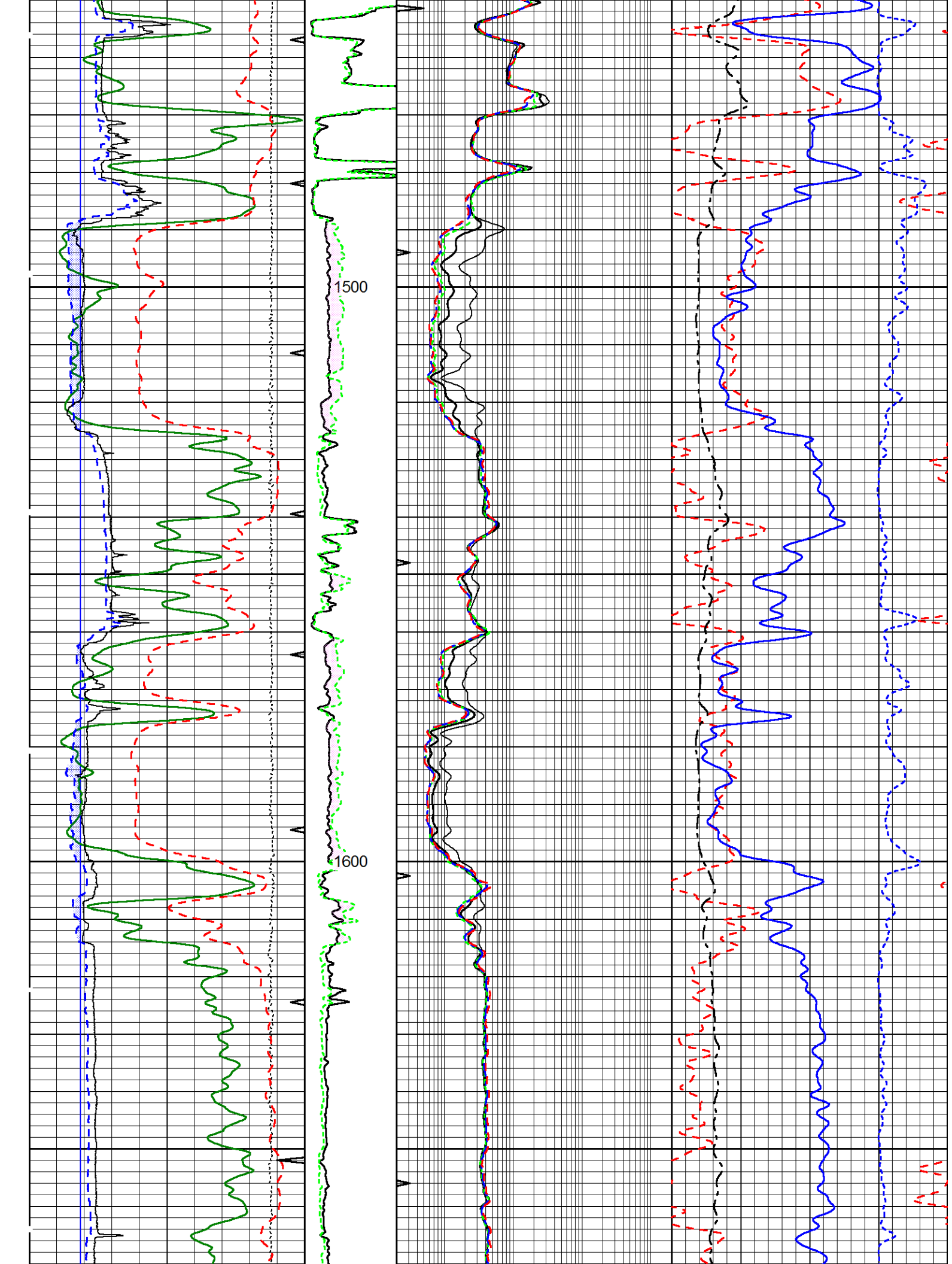

Nor
Caliper
Inv
Bitsize
BVTX
400
AVTX
Density Porosity
500

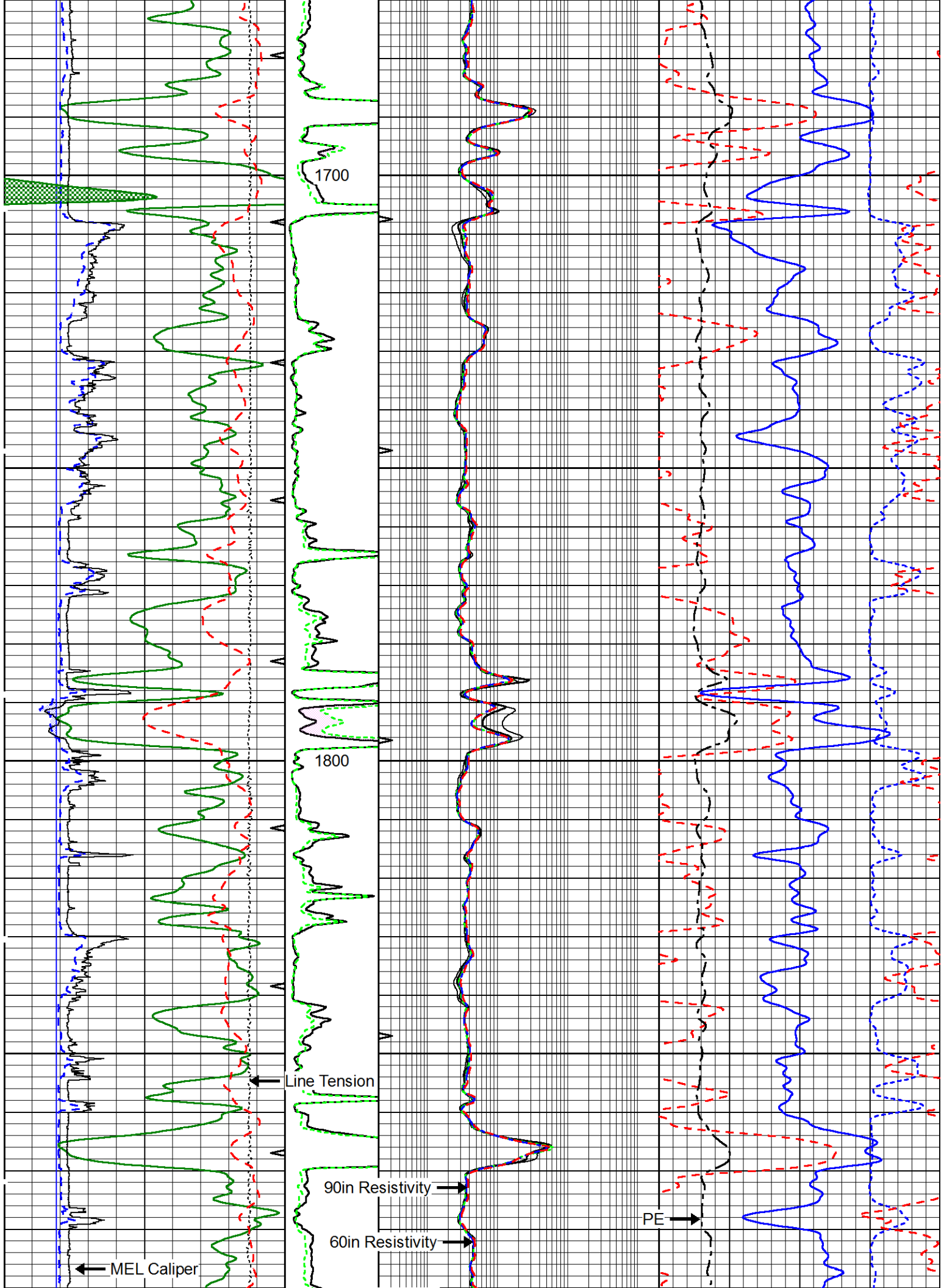

600
700

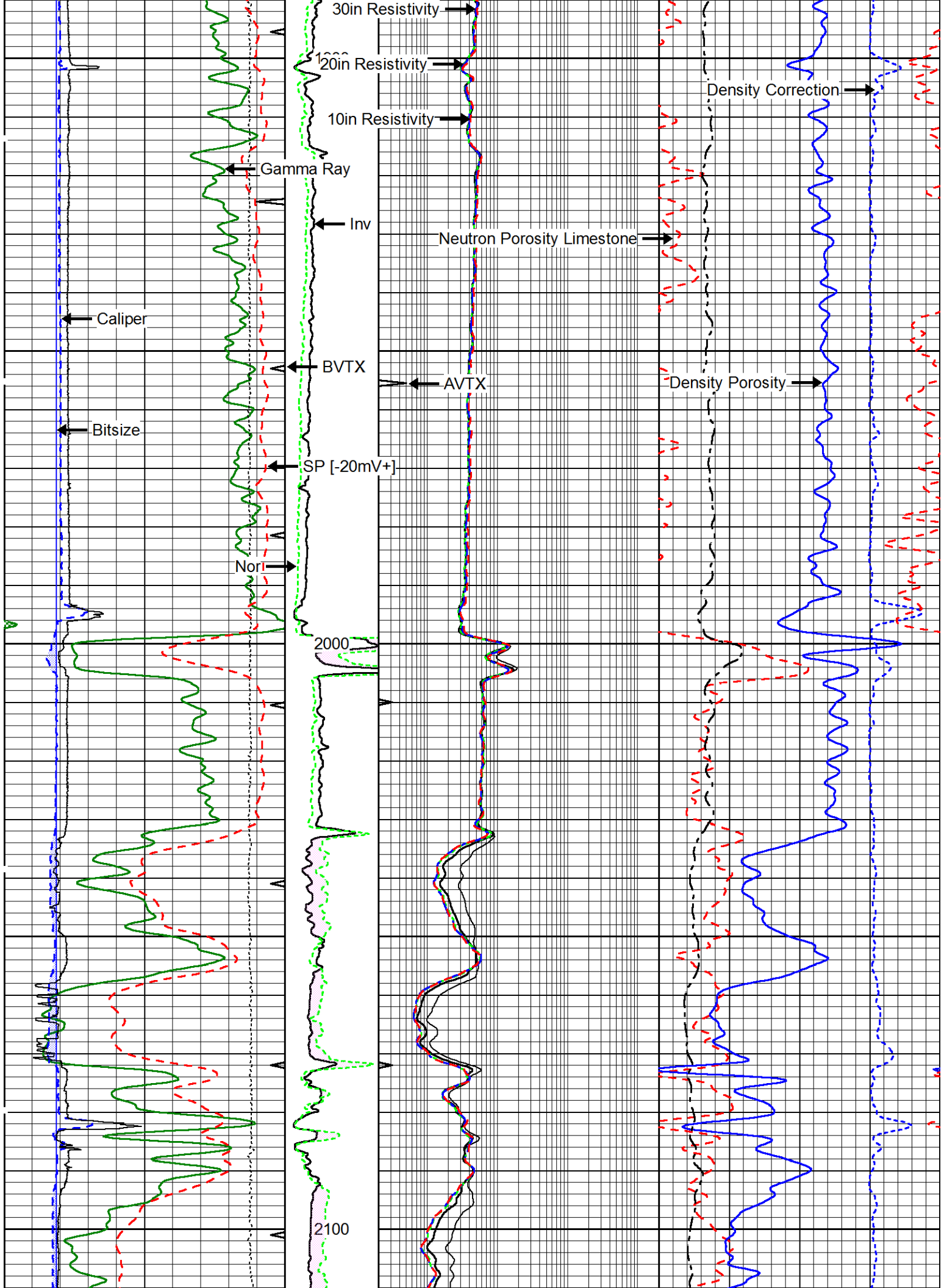

800
900
1000

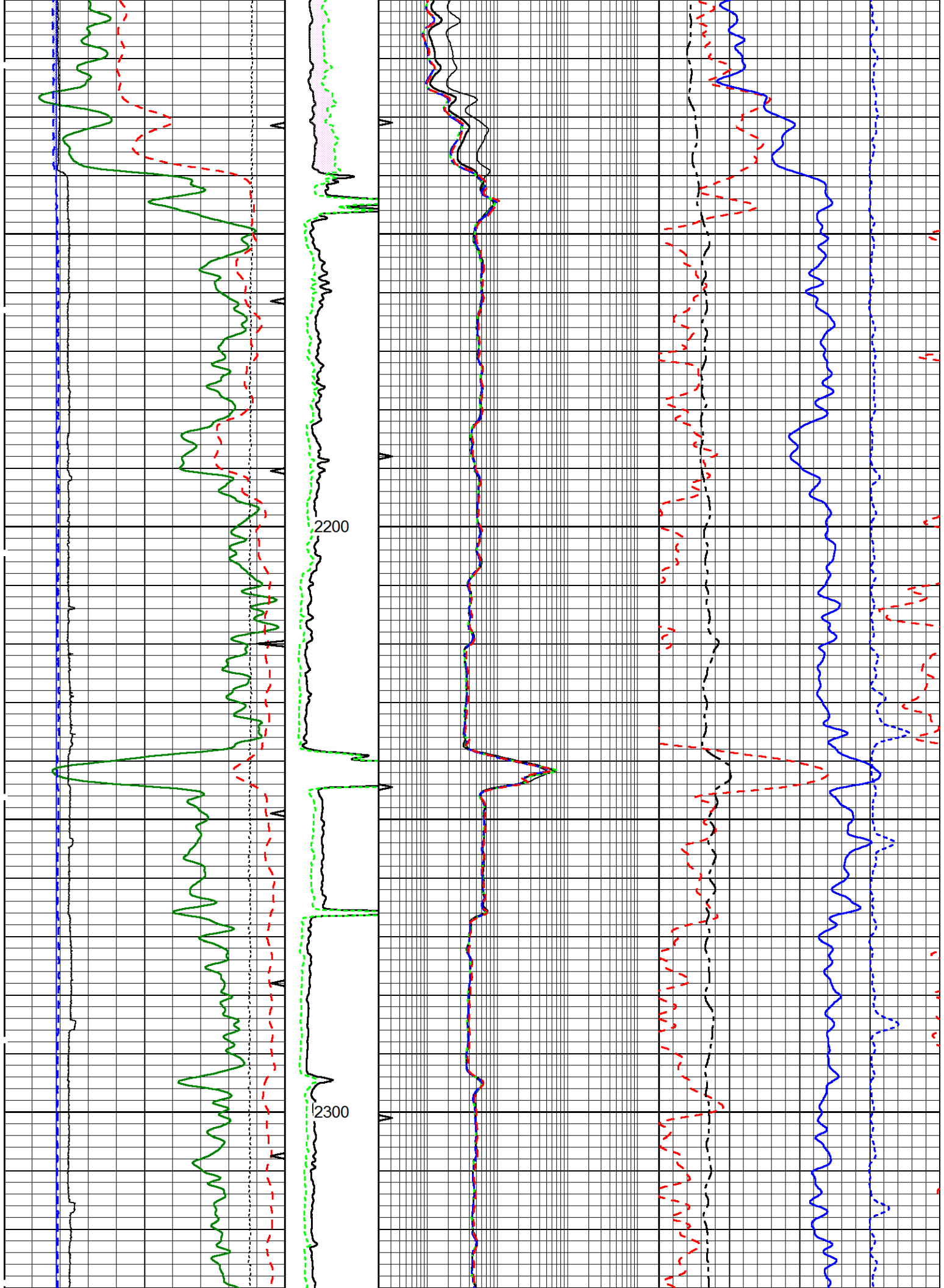

1100
1200

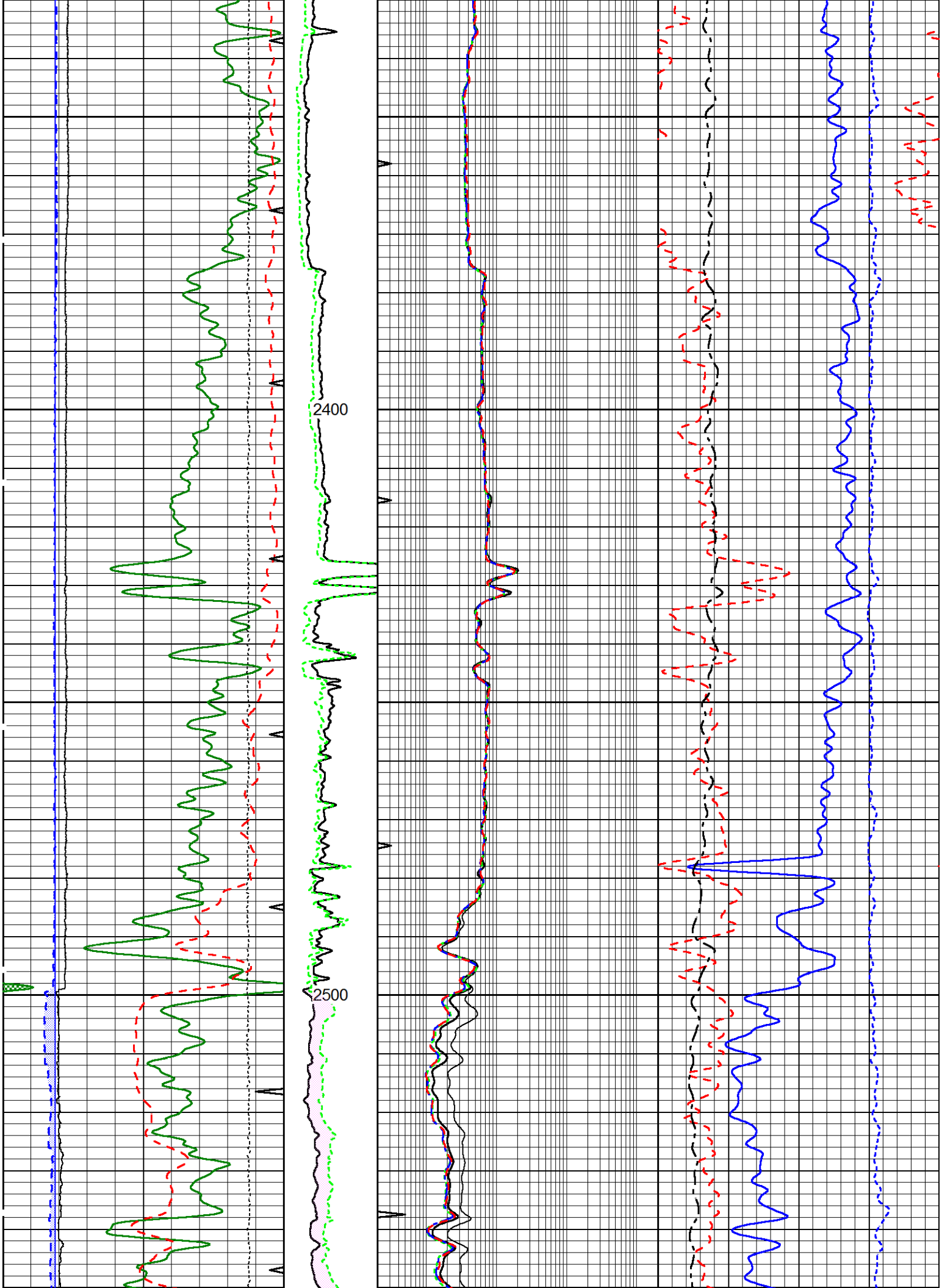

1300
1400

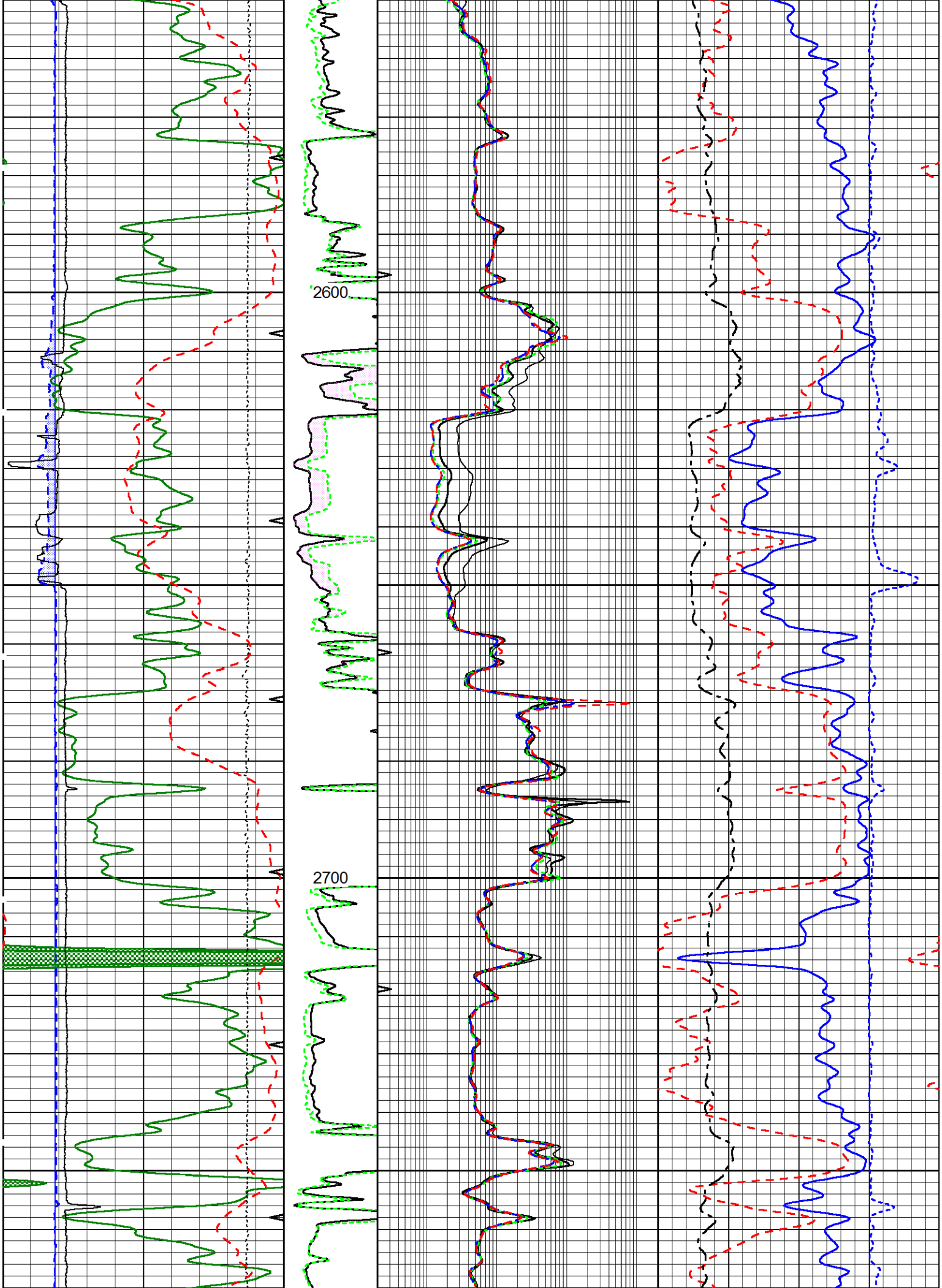

1500
1600

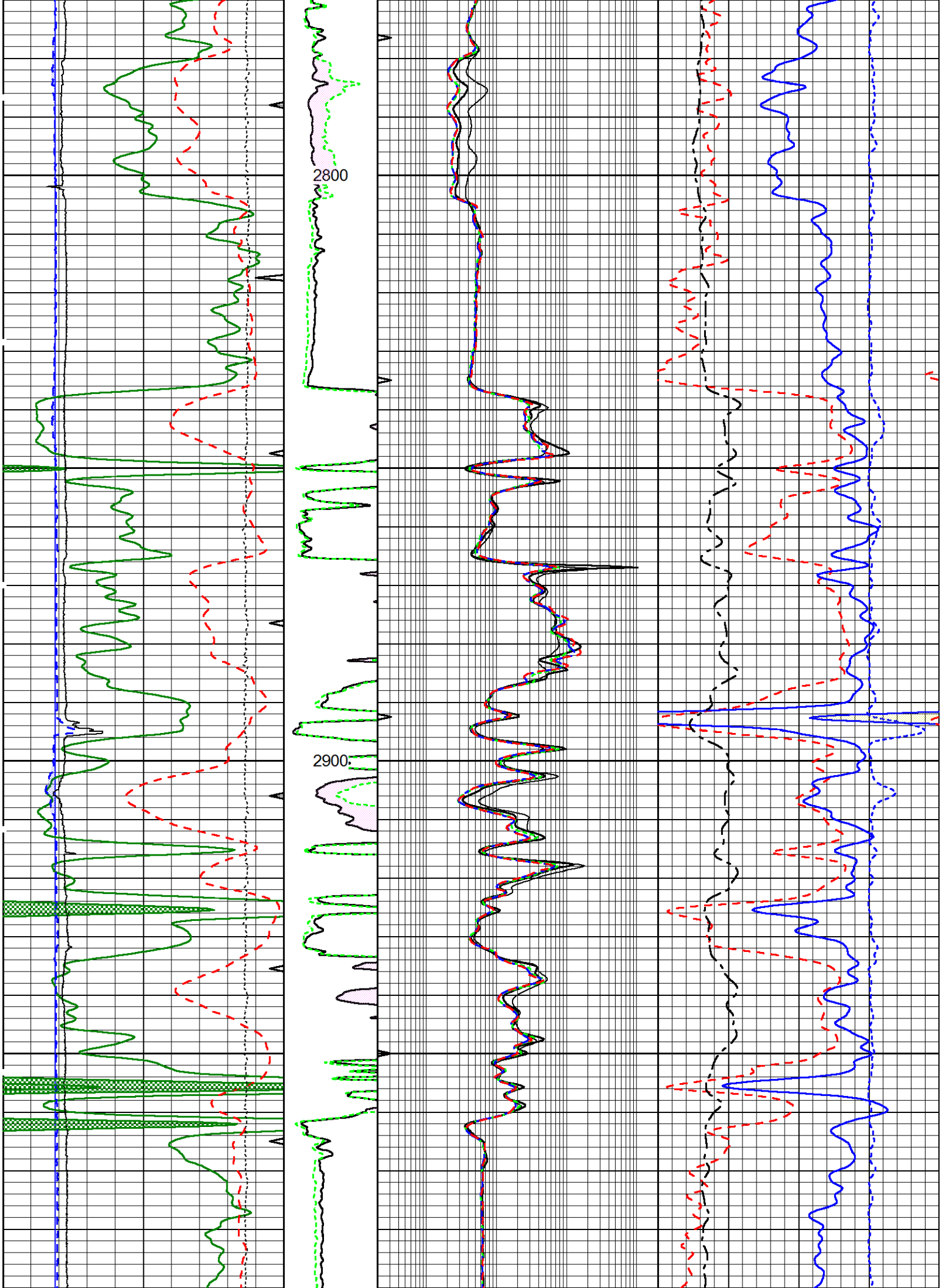

1700
1800
Line Tension
90in Resistivity
60in Resistivity
PE
MEL Caliper

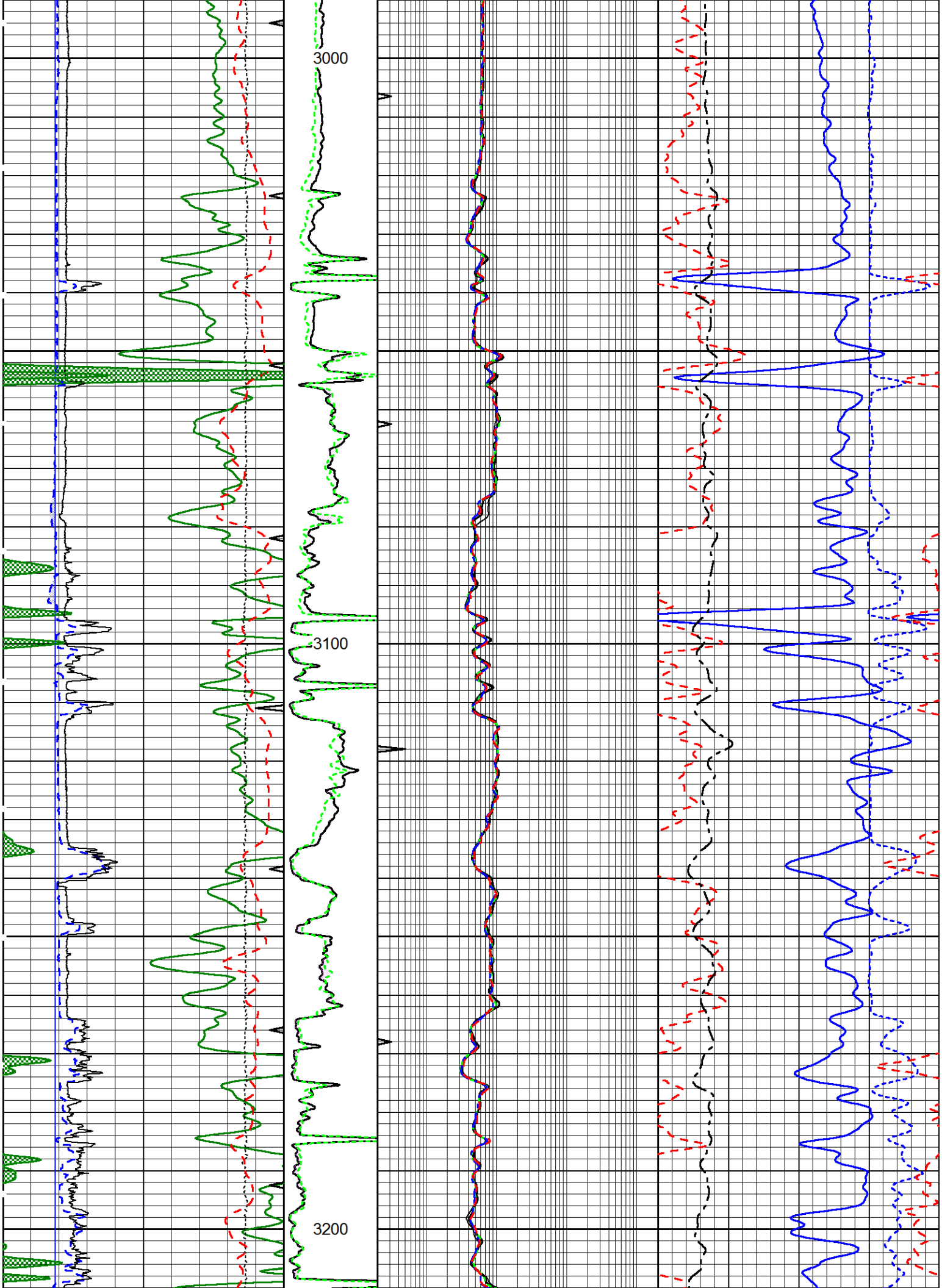

30in Resistivity
20in Resistivity
10in Resistivity
Gamma Ray
Inv
Caliper
BVTX
AVTX
Bitsize
SP [-20mV+]
Nori
2000
2100
Neutron Porosity Limestone
Density Correction
Density Porosity

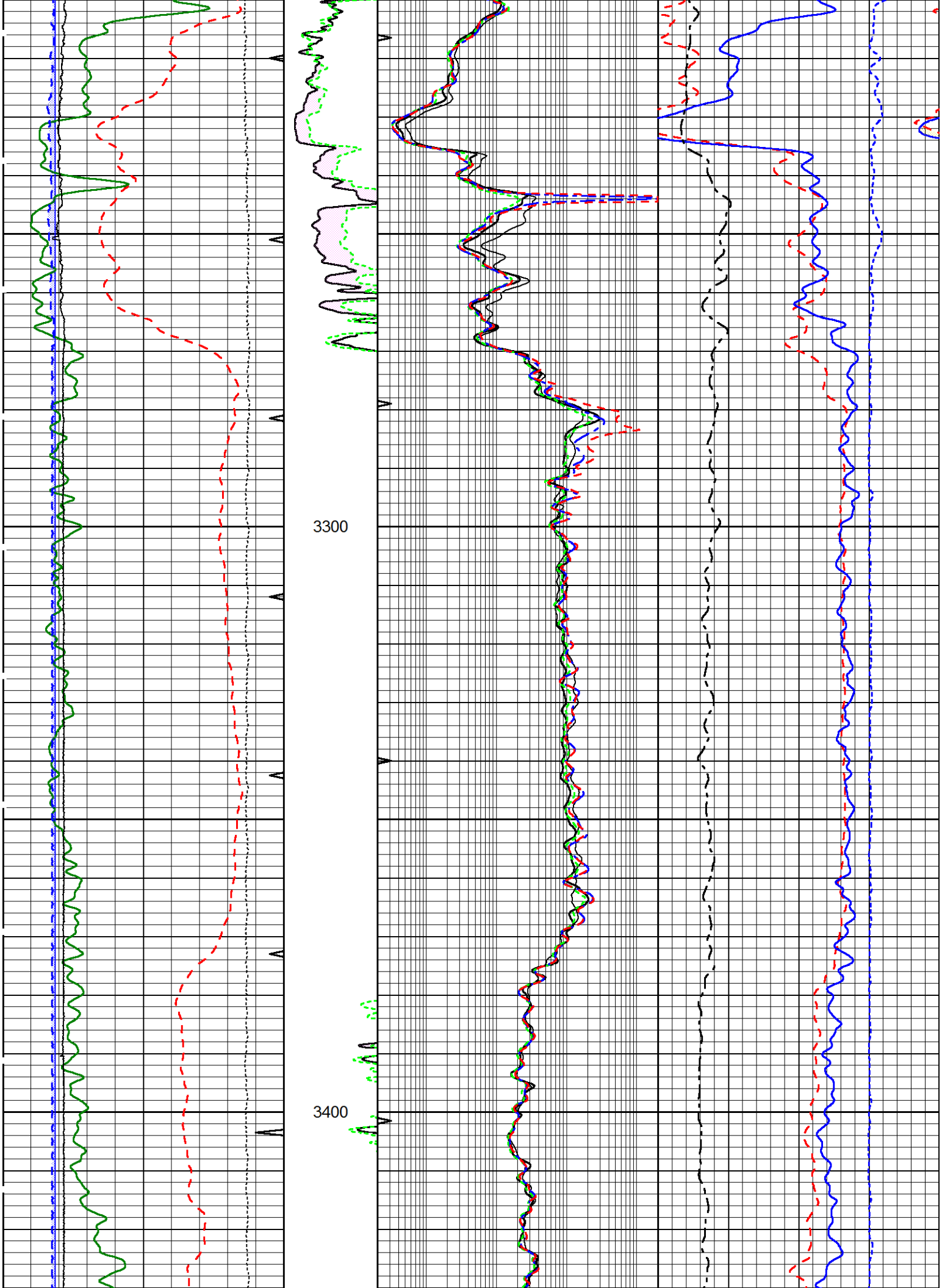

2200
2300

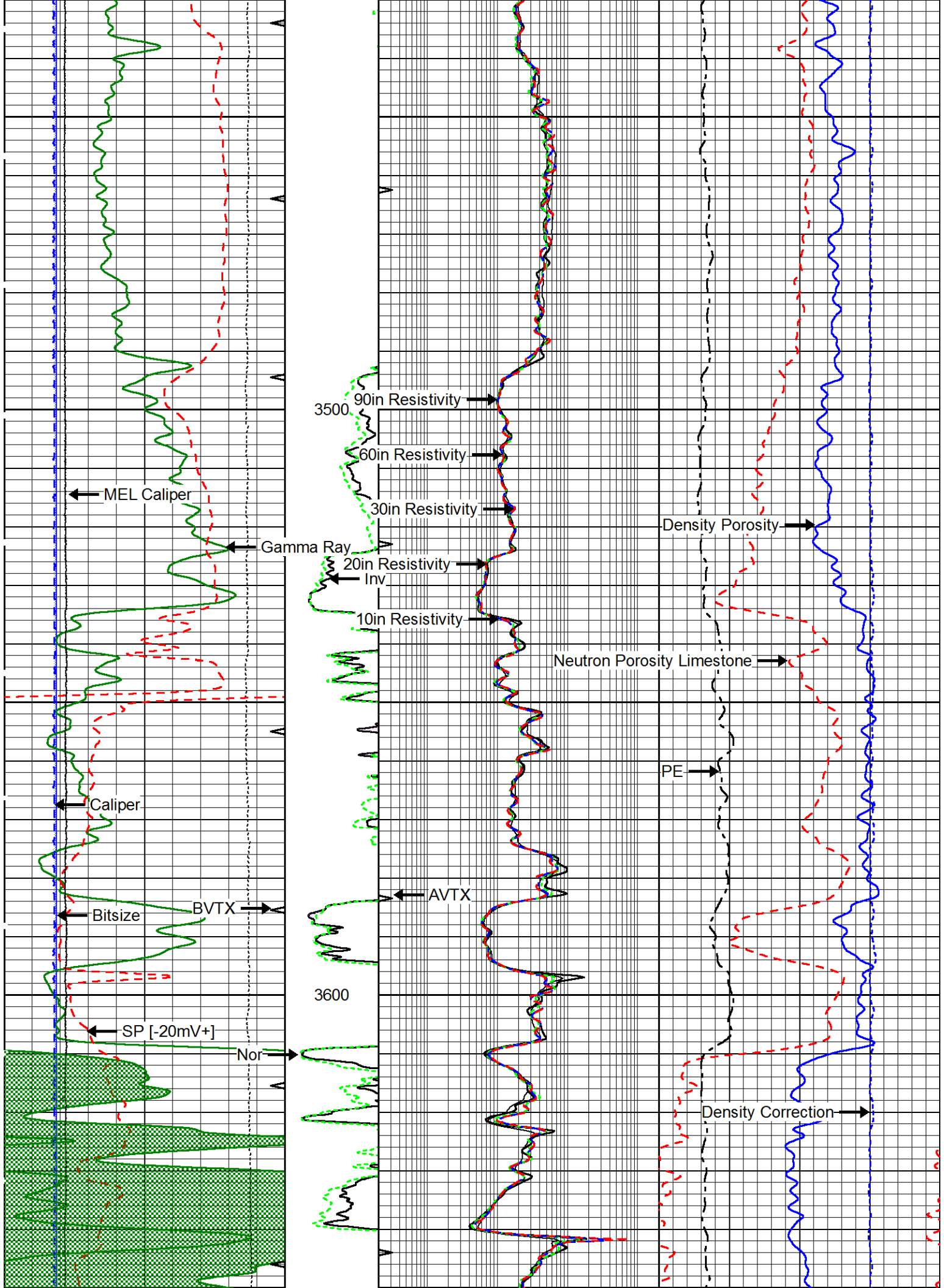

2400
2500

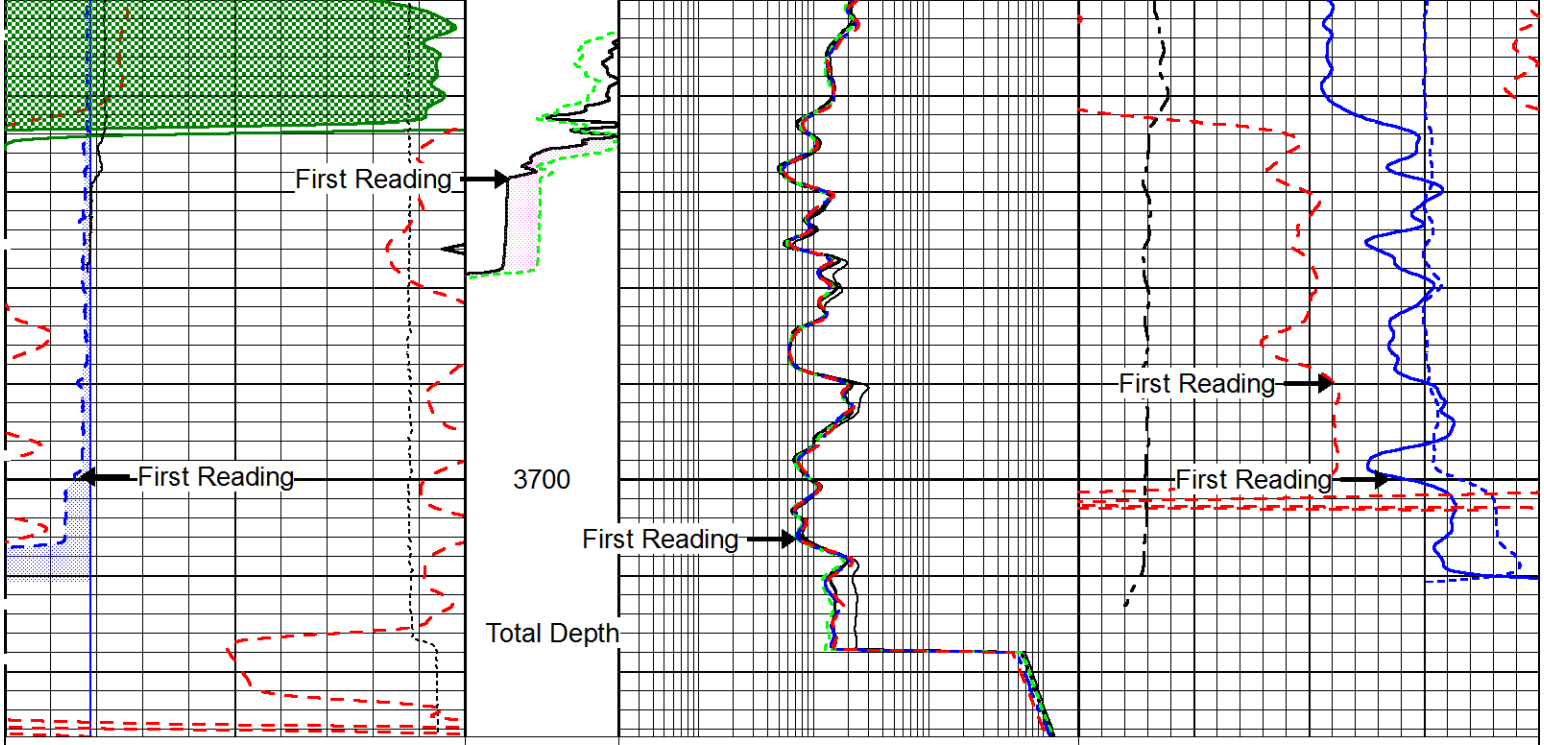

2600
2700


2800
2900


3000
3100
3200


3300
3400


90in Resistivity
3500
60in Resistivity
MEL Caliper
30in Resistivity
Density Porosity
Gamma Ray
20in Resistivity
Inv
10in Resistivity
Neutron Porosity Limestone
PE
Caliper
AVTX
BVTX
Bitsize
3600
SP [-20mV+]
Nor
Density Correction

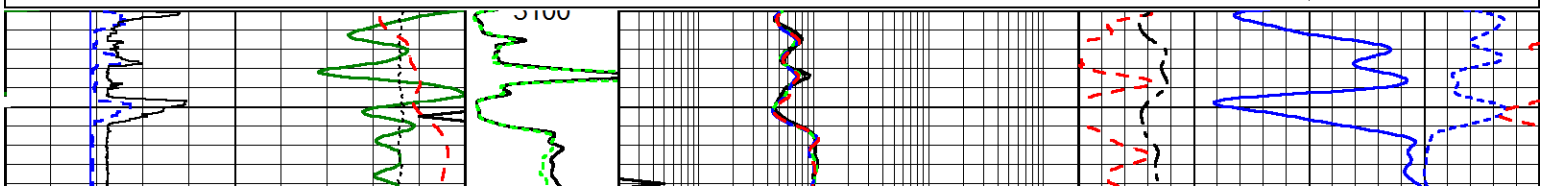


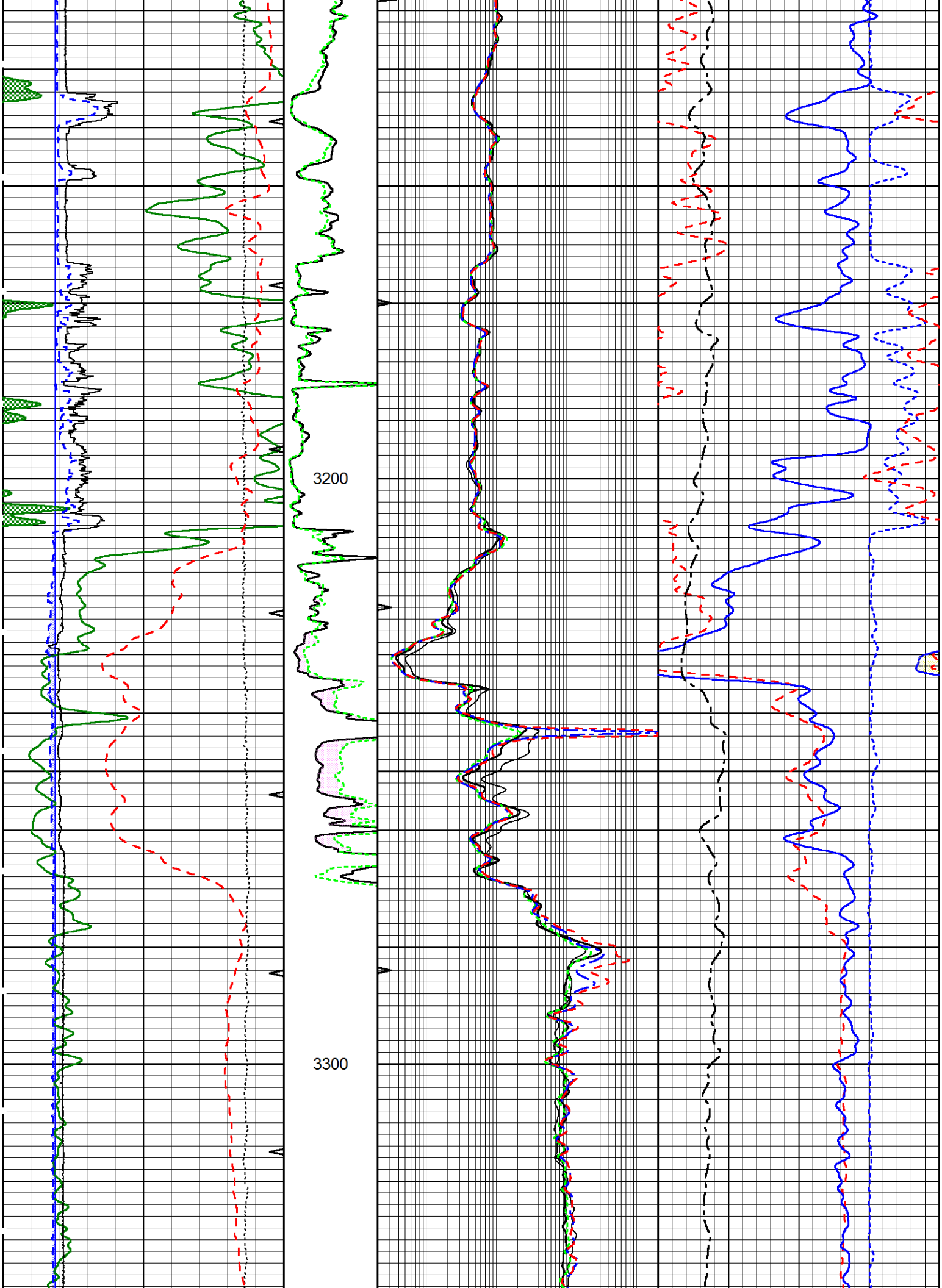
6	Bitsize (in)	16	Inv (Ohm-m) 0 20	0.2	10in Resistivity (Ohm-m)	2000	Neutron Porosity Limestone 0.3 -0.1
0	Gamma Ray (GAPI)	150		0.2	20in Resistivity (Ohm-m)	2000	
6	Caliper (in)	16		0.2	30in Resistivity (Ohm-m)	2000	
	SP [-20mV+]		Nor (Ohm-m) 0 20	0.2	60in Resistivity (Ohm-m)	2000	Density Porosity Limestone 0.3 -0.1
6	MEL Caliper (in)	16		0.2	90in Resistivity (Ohm-m)	2000	
	Line Tension 10000 (lb) 0						0 PE 10 Density Correction -0.25 (g/cc) 0.25

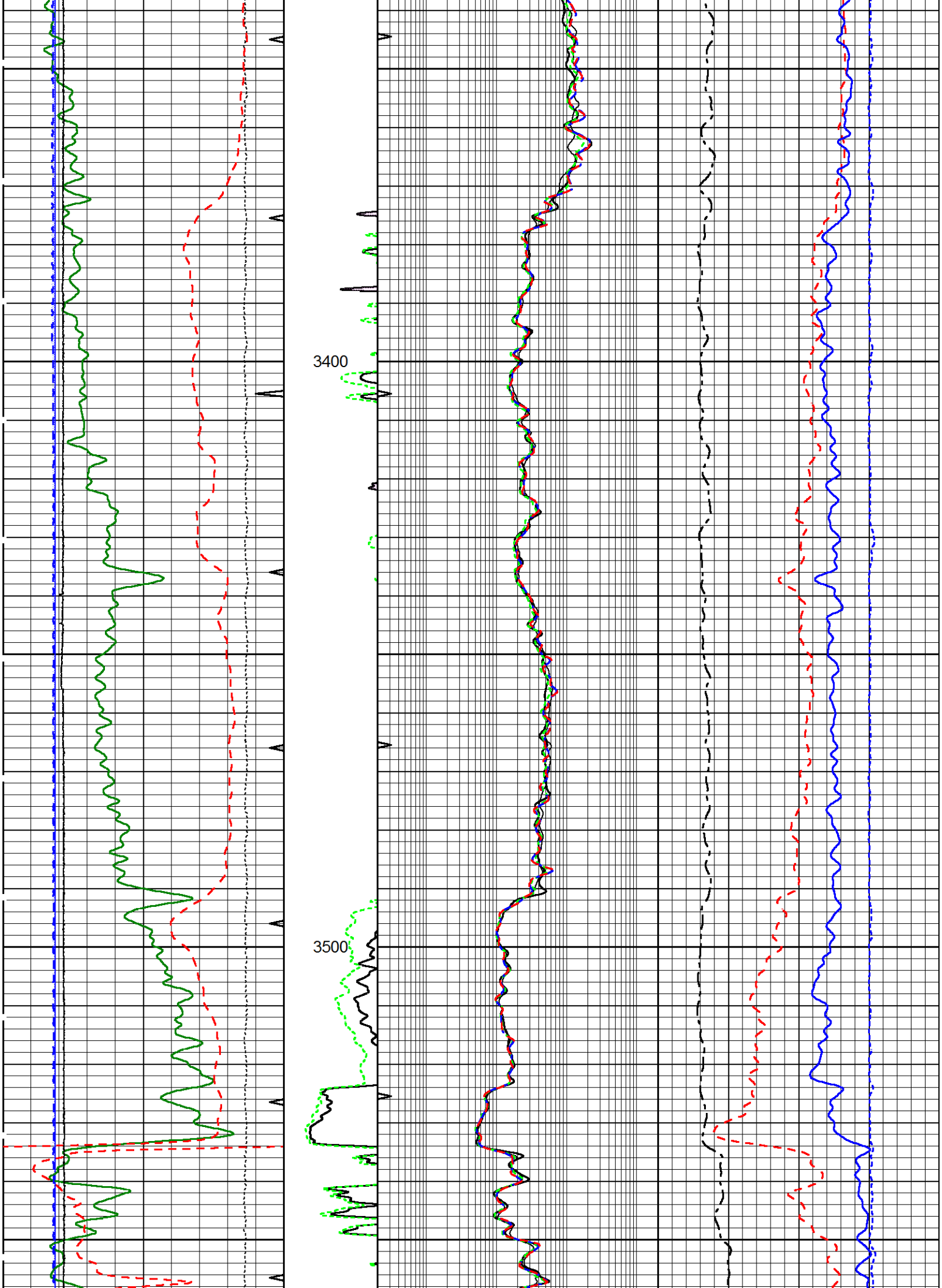
Repeat Pass

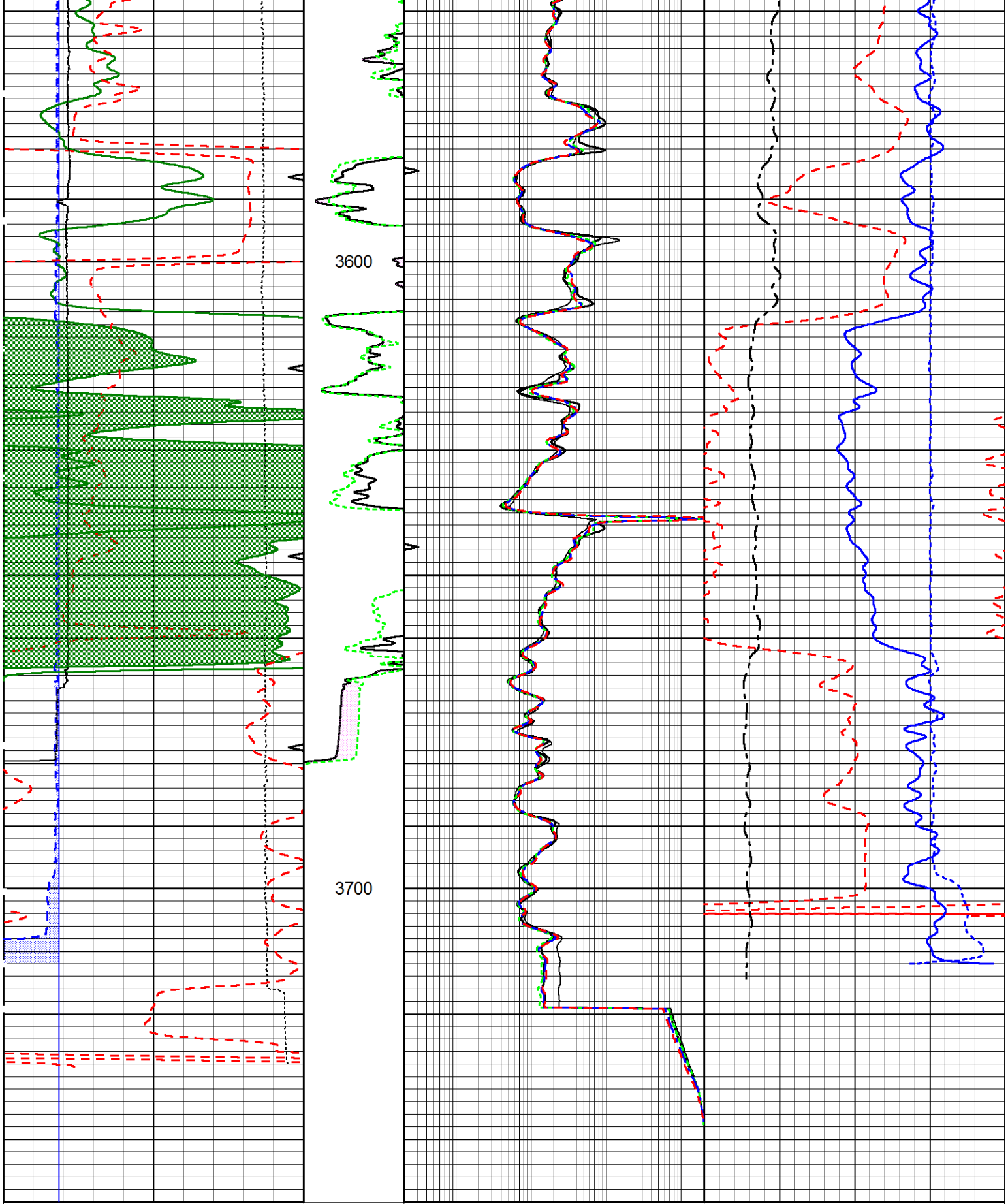
Database File: taos_well_16-1.db
Dataset Pathname: pass5.2
Presentation Format: taos
Dataset Creation: Tue Sep 16 15:51:08 2014 by Calc Sondex V7.03
Charted by: Depth in Feet scaled 1:240

6	Bitsize (in)	16	Inv (Ohm-m) 0 20	0.2	10in Resistivity (Ohm-m)	2000	Neutron Porosity Limestone 0.3 -0.1
0	Gamma Ray (GAPI)	150		0.2	20in Resistivity (Ohm-m)	2000	
6	Caliper (in)	16		0.2	30in Resistivity (Ohm-m)	2000	
	SP [-20mV+]		Nor (Ohm-m) 0 20	0.2	60in Resistivity (Ohm-m)	2000	Density Porosity Limestone 0.3 -0.1
6	MEL Caliper (in)	16		0.2	90in Resistivity (Ohm-m)	2000	
	Line Tension 10000 (lb) 0						0 PE 10 Density Correction -0.25 (g/cc) 0.25




3200
3300


3400
3500



6	Bitsize (in)	16	Inv (Ohm-m)	0.2	10in Resistivity (Ohm-m)	2000	Neutron Porosity Limestone
0	Gamma Ray (GAPI)	150		0.2	20in Resistivity (Ohm-m)	2000	
6	Caliper (in)	16	0 20	0.2	30in Resistivity (Ohm-m)	2000	0.3 -0.1
	SP [-20mV+]		Nor (Ohm-m)	0.2	60in Resistivity (Ohm-m)	2000	Density Porosity Limestone
6	MEL Caliper (in)	16		0.2	90in Resistivity (Ohm-m)	2000	
	Line Tension		0 20				0.3 -0.1

10000 (lb) 0

0 PE 10 | Density Correction -0.25 (g/cc) 0.25

Hi Resolution Pass

Database File:	taos_well_16-1.db
Dataset Pathname:	HiRes
Presentation Format:	taos
Dataset Creation:	Tue Sep 16 16:56:09 2014 by Calc Sondex V7.03
Charted by:	Depth in Feet scaled 1:120

6 Bitsize (in) 16

0 Gamma Ray (GAPI) 150

6 Caliper (in) 16

SP [-20mV+]

6 MEL Caliper (in) 16

Line Tension
10000 (lb) 0

Inv (Ohm-m)
0 20

Nor (Ohm-m)
0 20

0.2 10in Resistivity (Ohm-m) 2000

0.2 20in Resistivity (Ohm-m) 2000

0.2 30in Resistivity (Ohm-m) 2000

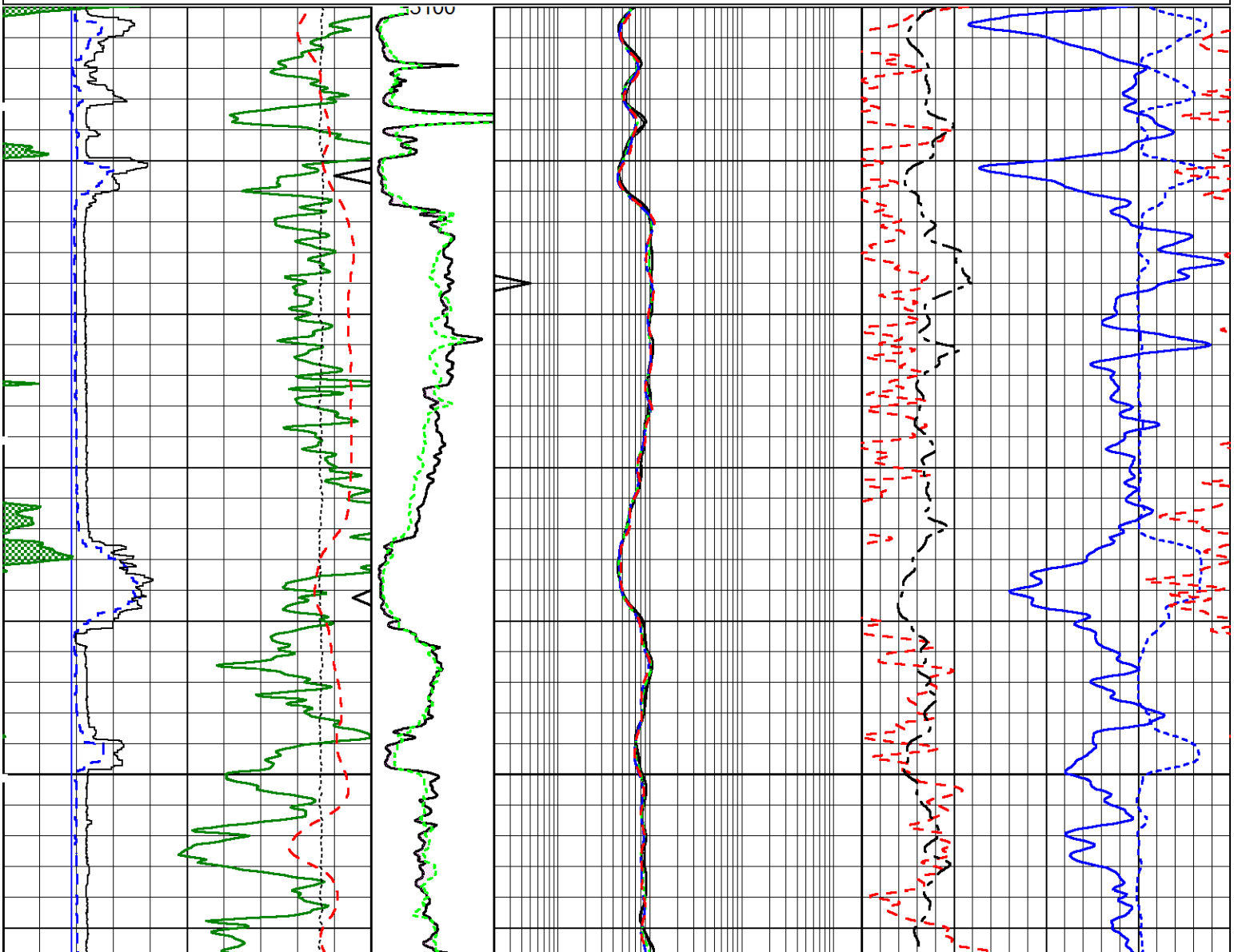
0.2 60in Resistivity (Ohm-m) 2000

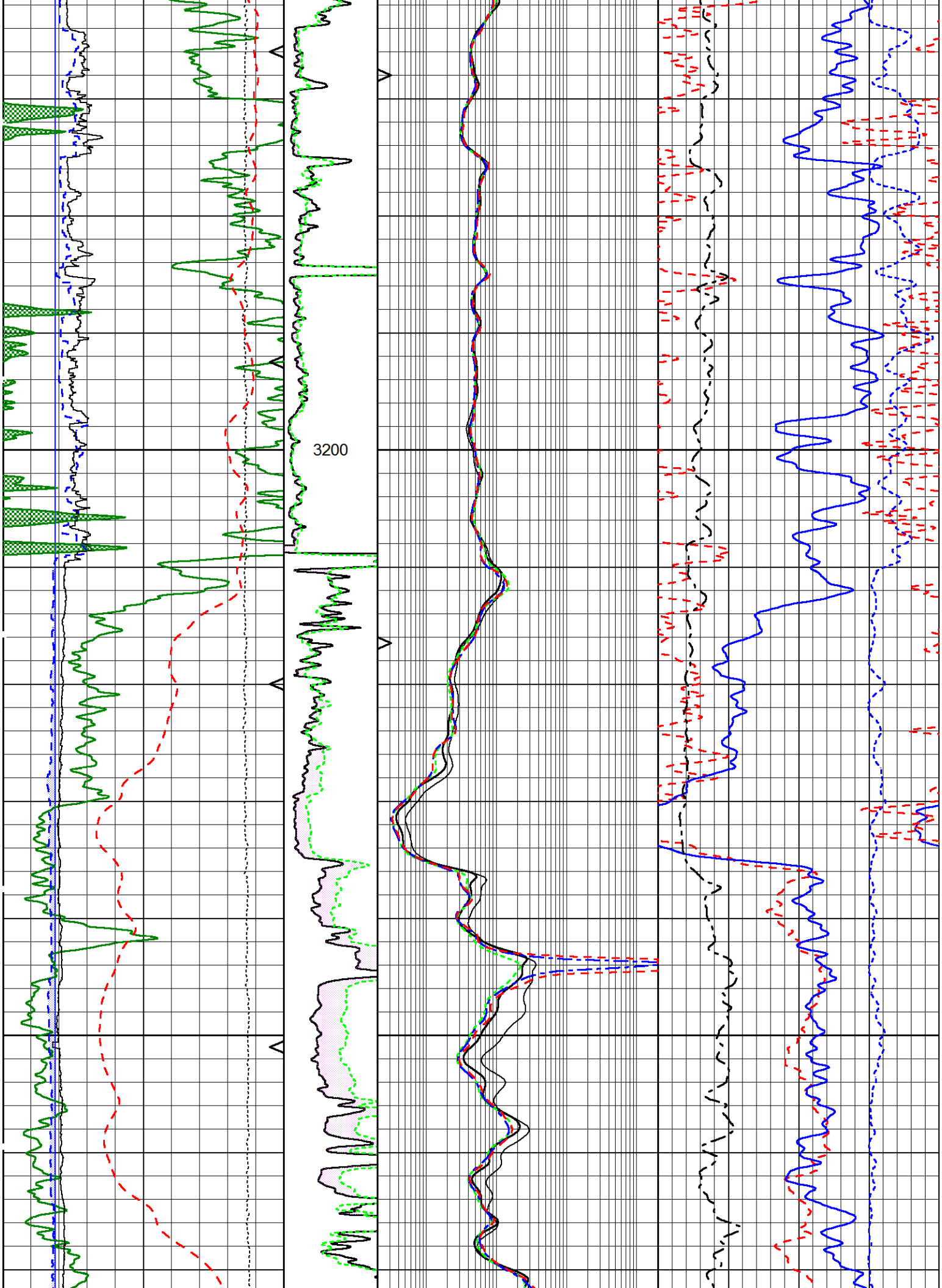
0.2 90in Resistivity (Ohm-m) 2000

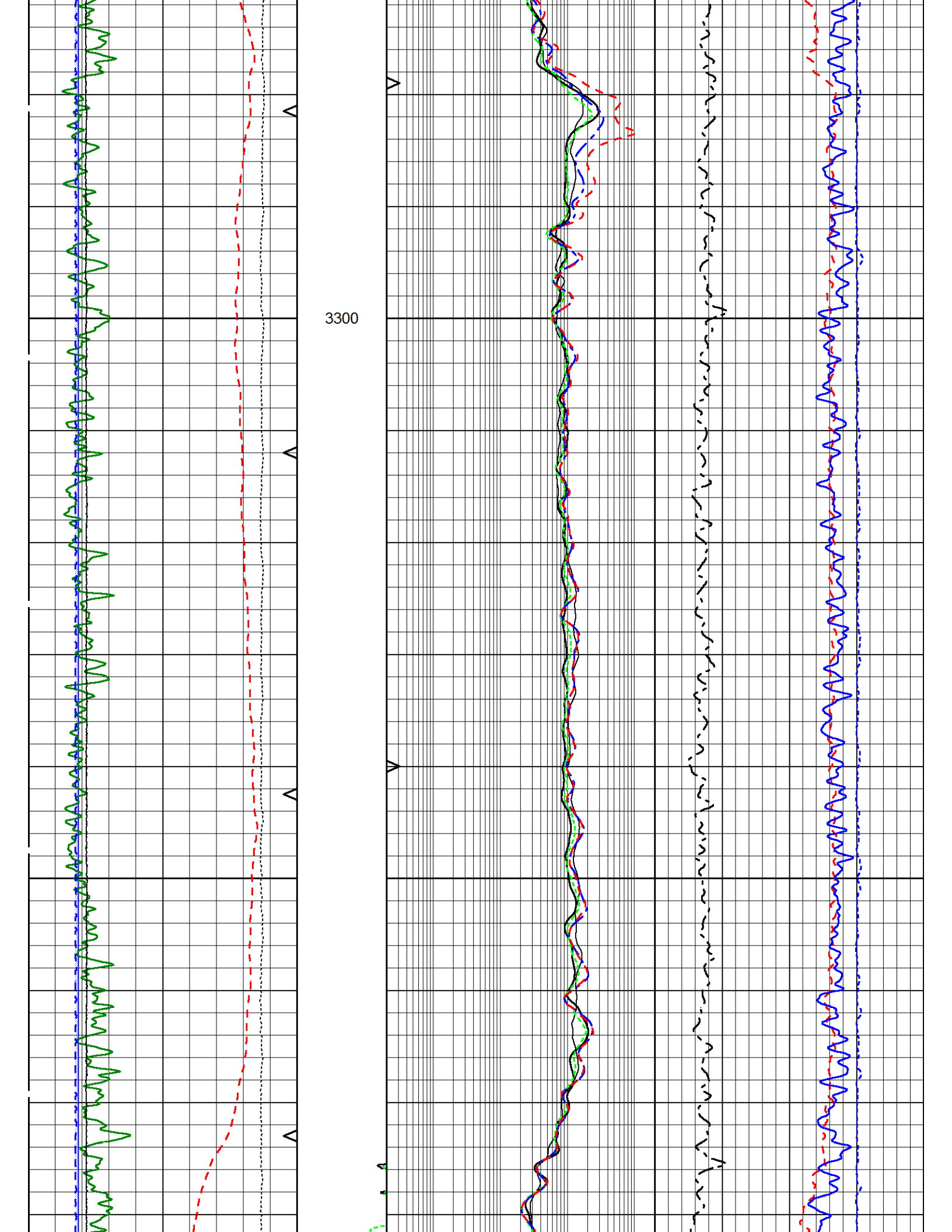
Neutron Porosity Limestone
0.3 -0.1

Density Porosity Limestone
0.3 -0.1

0 PE 10 | Density Correction -0.25 (g/cc) 0.25




3200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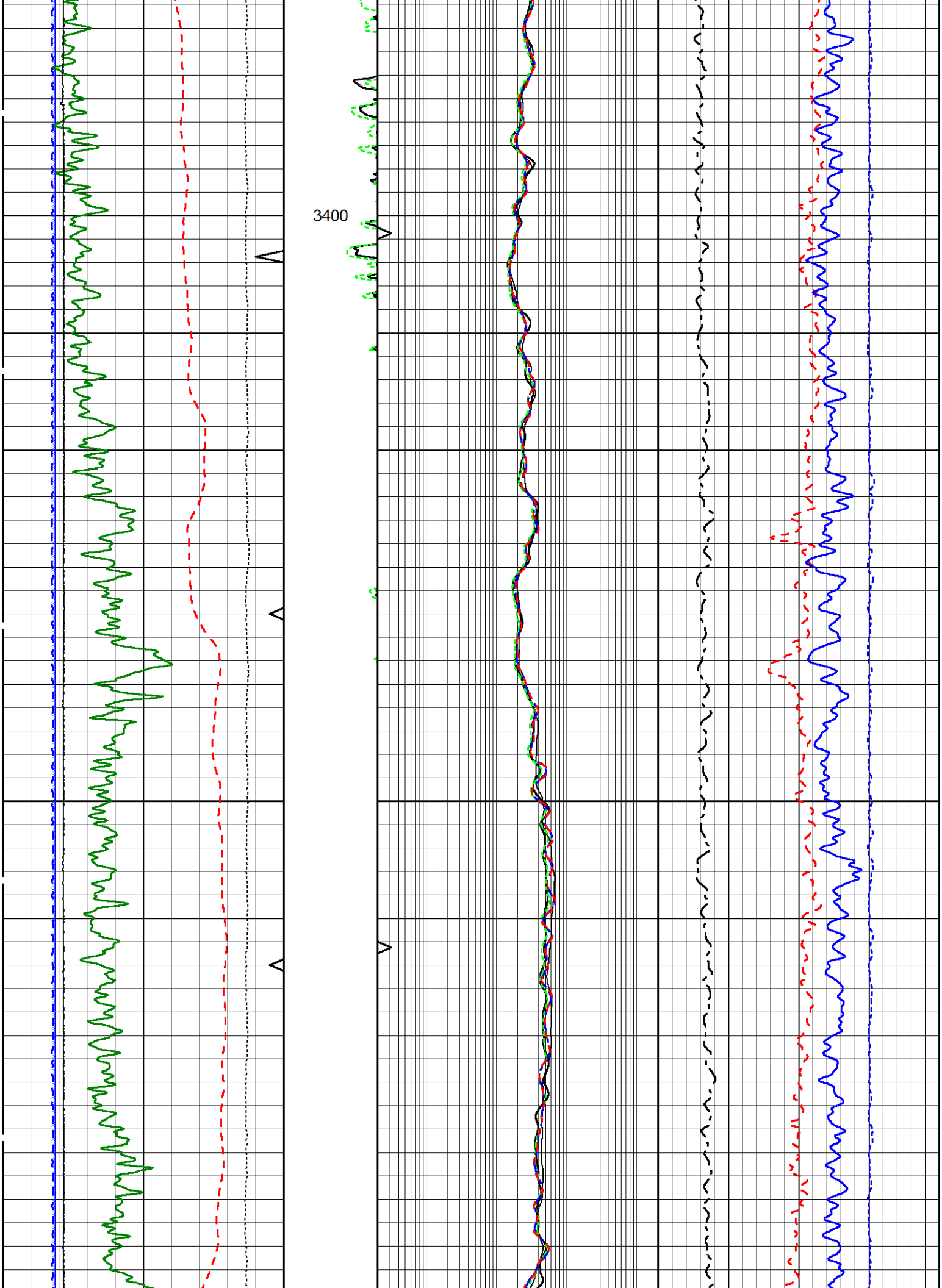
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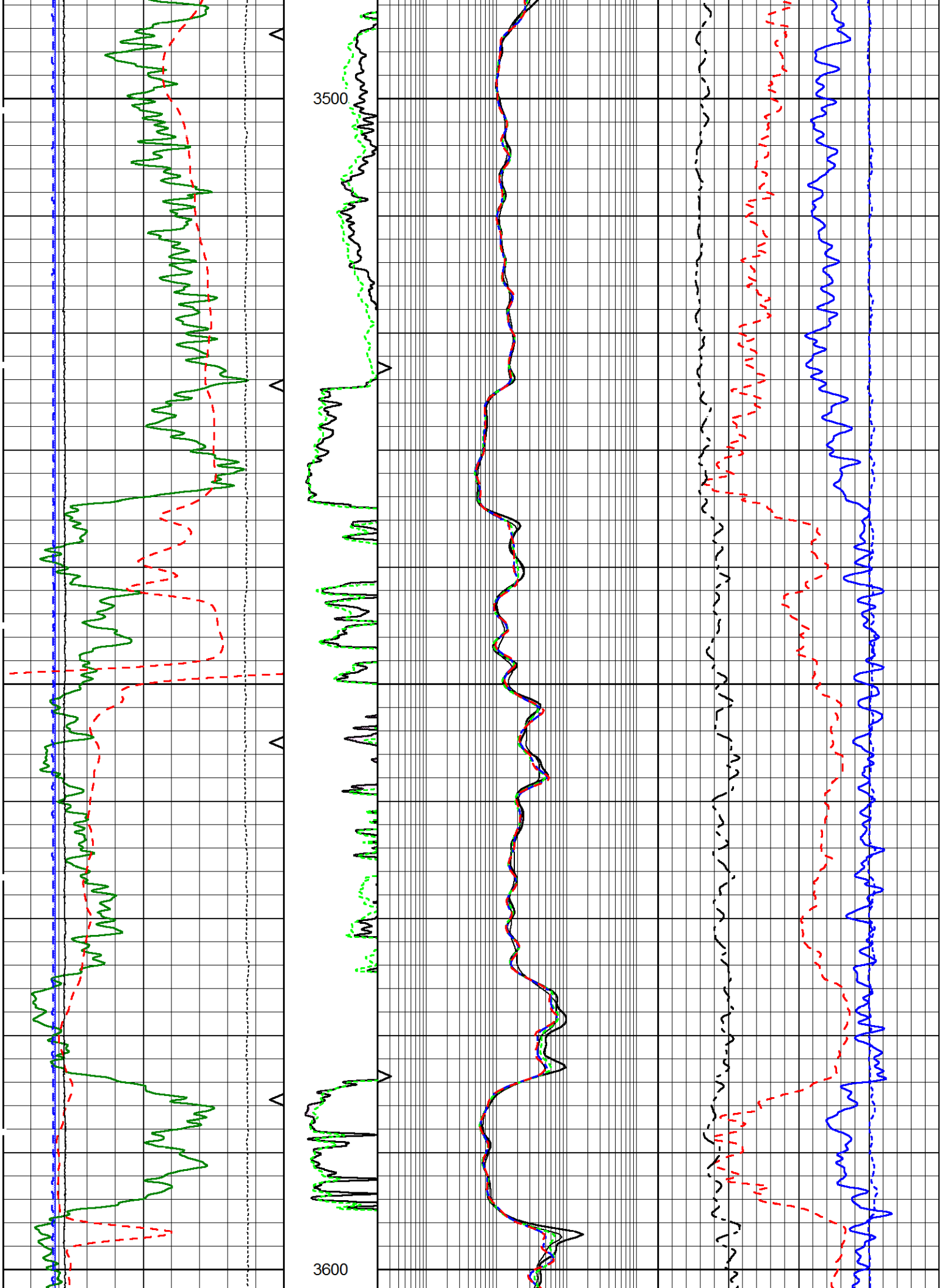
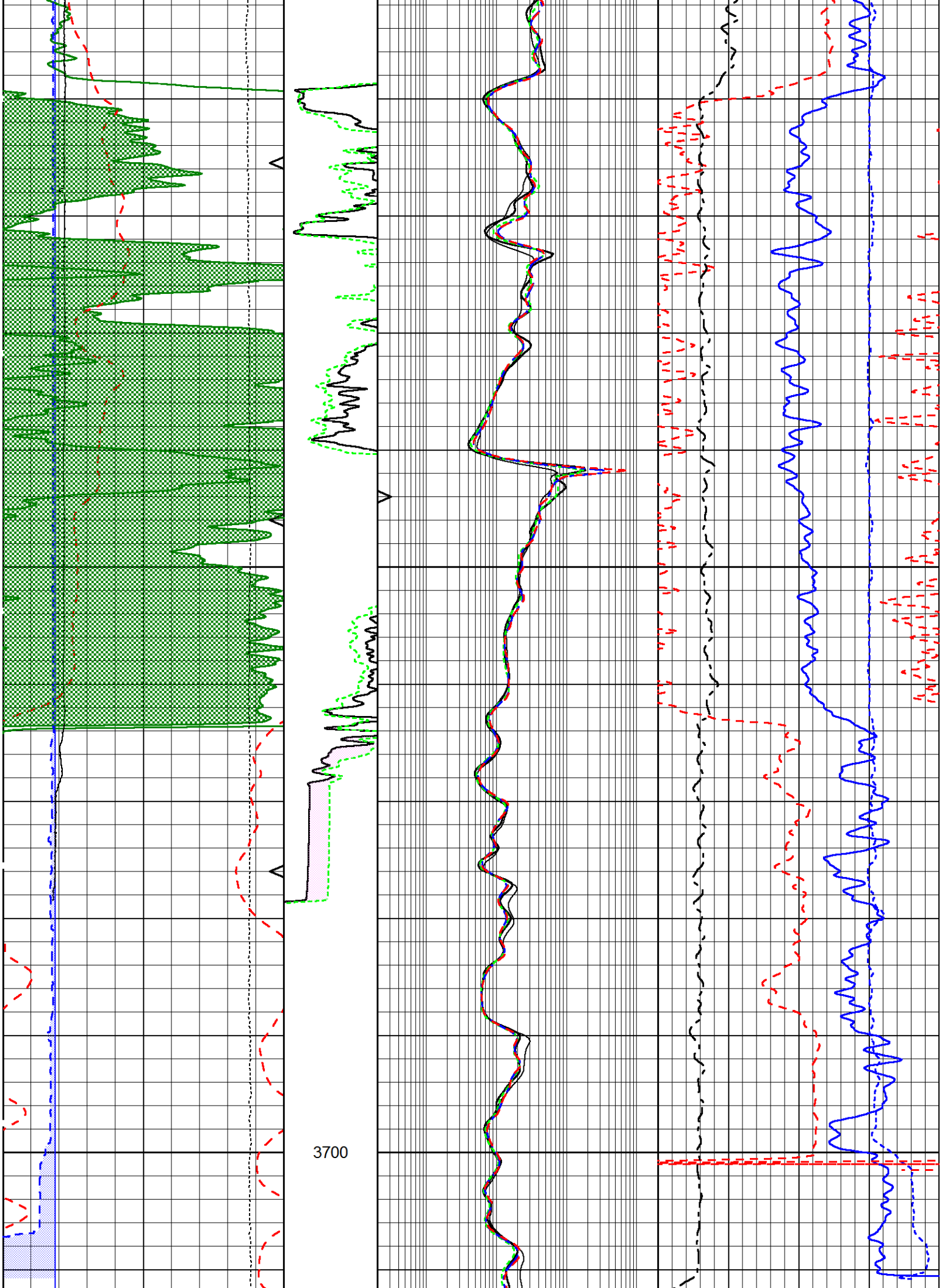
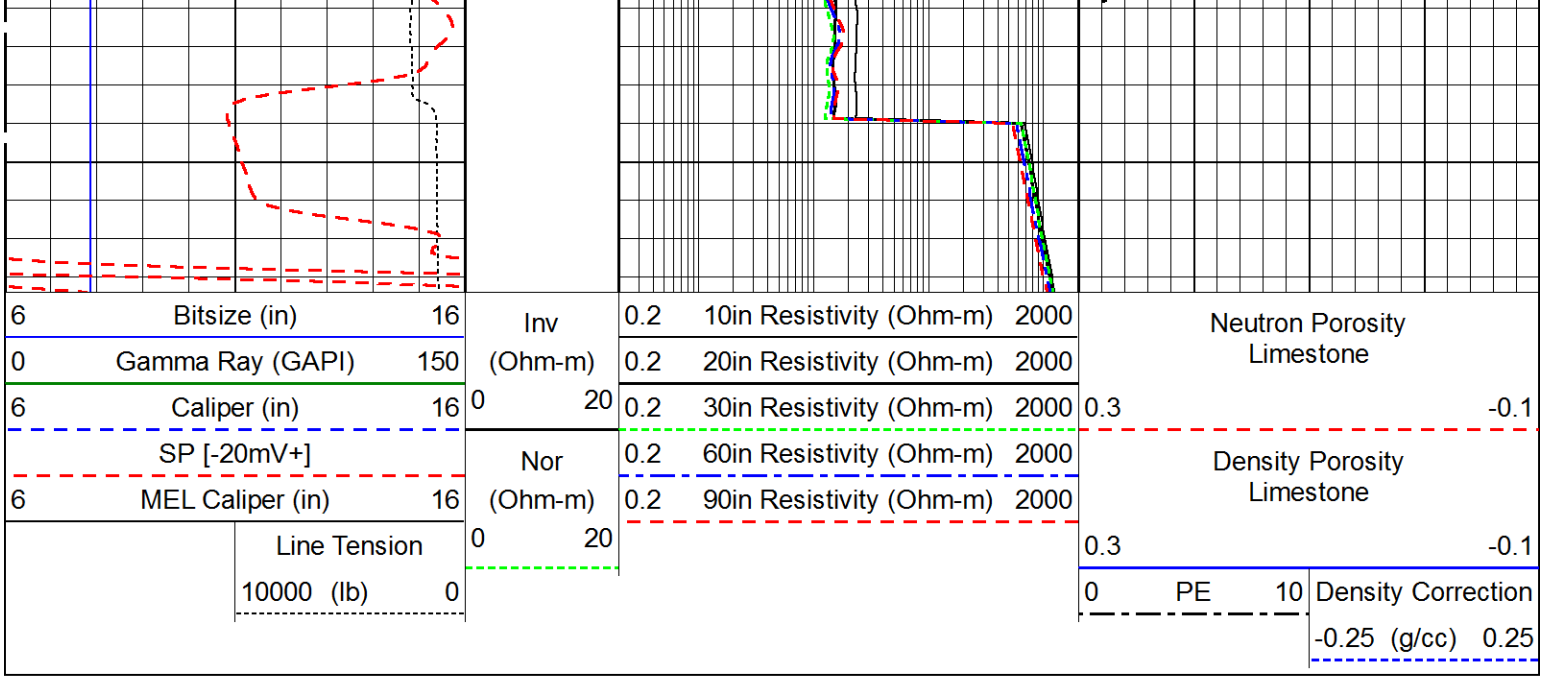

3500
3600


3700



Log Variables

Database:C:\Warrior\Data\taos_well_16-1.db
Dataset: field/well/run1/pass6.4

Top - 266.00 ft

MAXAMPL mV	MINAMPL mV	MINATTN db/ft	COMPACT	SVFLUID usec/ft	SVMATRIX usec/ft	FRMSALIN kppm	MUDSALIN kppm
0	1	0.8	1	189	47.6	0	0
DEVI °	SRFTEMP degF	SO in	DE-CENT	**CASED?**	**CASEWGHT lb/ft**	NPORSEL	AIR_HOLE?
0	68	0.25	Yes	**Yes**	**24**	Limestone	No
MudWgt lb/gal	FLUIDDEN g/cc	MATRXDEN g/cc	SPSHIFT mV	**CASEOD in**	PERFS	TDEPTH ft	BOTTEMP degF
9.3	1	2.71	0	**8.625**	0	3720	109
BOREID in							
12.25							

266.00 ft - Bottom

MAXAMPL mV	MINAMPL mV	MINATTN db/ft	COMPACT	SVFLUID usec/ft	SVMATRIX usec/ft	FRMSALIN kppm	MUDSALIN kppm
0	1	0.8	1	189	47.6	0	0
DEVI °	SRFTEMP degF	SO in	DE-CENT	CASED?	CASEWGHT lb/ft	NPORSEL	AIR_HOLE?
0	68	0.25	Yes	No	11.5	Limestone	No
MudWgt lb/gal	FLUIDDEN g/cc	MATRXDEN g/cc	SPSHIFT mV	CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF
9.3	1	2.71	0	5.5	0	3720	109
BOREID in							
7.875							

Calibration Report

Database File: taos_well_16-1.db
Dataset Pathname: pass6.4
Dataset Creation: Tue Sep 16 17:46:24 2014 by Calc Sondex V7.03

Induction Array Tool Calibration Report

Serial Number: B10106
Tool Model: 002

Master Calibration Performed: Tue Mar 25 15:37:18 2014
Temperature: 66.8 degF

Sonde Error:

Array	1	2	3	4	5	6	7	
Real	191.9	-12.8	-38.8	-13.5	-2.5	0.9	4.2	mmho/m
Imaginary	-65.9	-109.7	-26.2	2.8	-7.8	-21.0	-2.1	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	750.8	713.1	1269.1	1383.0	1169.9	743.9	430.1	mmho/m
Imaginary	6.6	-16.1	356.1	416.4	341.9	200.7	126.2	mmho/m
Gain (real)	0.962	0.935	0.990	0.998	0.976	0.959	0.950	
Gain (imaginary)	1.011	0.988	1.020	1.014	0.985	0.967	0.949	

Before Survey Verification Performed: Thu Sep 11 23:37:05 2014
Sonde 1 Temperature: 92.1 degF
Sonde 2 Temperature: 93.7 degF
Array 1 Temperature: 101.6 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	27.6	46.8	41.8	71.1	120.9	184.6	186.3
RxCR	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
RxCX	0.0	0.0	0.0	0.1	0.1	0.2	0.2
RxC Magnitude	0.0	0.0	0.0	0.1	0.1	0.2	0.2

Tool Module Parameters

Software Version: 1.9.6.0
Borehole Size Source: CALI
Mud Resistivity Source: MUDRES
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: B10112S50129B
Tool Model: 002

Caliper Calibration Performed: Thu Sep 04 13:33:37 2014

	Diameter		Reading	
Small Ring:	6.000	in	1391.200	cps
Large Ring:	13.000	in	2084.400	cps

Gain: 0.0101
Offset: -8.0485

Master Calibration Performed: Thu Sep 04 13:10:05 2014

Source Number: 50129B
Medium: Water
Al Block Density: 2.5997 g/cc

	Background	Al Block	Al Block + Fe	
SS1	755.8	4600.1	4125.0	cps
SS2	2155.8	31926.7	28580.9	cps
SSTOTAL	5041.8	51012.5	45217.9	cps
LITH	105.9	556.4	351.8	cps
LL	209.9	908.1	840.0	cps
LU	602.4	1194.1	1149.2	cps
LS	812.4	2102.2	1989.2	cps
LSTOTAL	1530.6	5132.5	4371.8	cps
SSHV	1463.5	1466.2	1466.5	V
LSHV	1405.0	1406.9	1407.3	V
SSFF	0.002	0.009	0.004	
LSFF	0.007	0.005	-0.003	

Before Survey Verification Performed: Thu Sep 04 13:36:10 2014
After Survey Verification Performed: Thu Sep 04 13:38:54 2014

	Master Background	Before Survey Background	After Survey Background	
SS1	755.8	755.2	751.9	cps
SS2	2155.8	2145.0	2138.9	cps
SSTOTAL	5041.8	5008.9	5015.4	cps
LITH	105.9	107.1	105.4	cps
LL	209.9	206.8	210.8	cps
LU	602.4	601.0	602.2	cps
LS	812.4	807.9	813.0	cps
LSTOTAL	1530.6	1525.3	1531.7	cps
SSHV	1463.5	1465.4	1465.7	V
LSHV	1405.0	1405.6	1406.0	V
SSFF	0.002	0.002	0.006	
LSFF	0.007	0.005	-0.009	

Tool Module Parameters

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

Compensated Neutron Tool Calibration Report

Serial Number: C10071
Tool Model: 009

Master Calibration Performed: Thu Sep 04 11:02:34 2014

Source Number: 80244B

Short Spacing Counts:	5448.36	cps
Long Spacing Counts:	193.92	cps
High Voltage:	1363.95	V
Target Ratio:	27.2000	
Ratio:	28.0958	
K-Factor:	0.9681	

Before Survey Verification Performed: Mon Sep 15 10:58:21 2014
After Survey Verification Performed:

Verifier Number: 6489

Verifier Values	Master Cal	Before Survey	After Survey	
Short Spacing Counts:	273.24	265.24		cps
Long Spacing Counts:	230.91	228.08		cps
High Voltage:	1363.93	1364.13		V
Ratio:	1.1833	1.1629		

Tool Module Parameters

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

Micro Electric Log Calibration Report

Serial Number:	10022649
Tool Model:	003

Caliper Calibration Performed: Thu Sep 04 11:58:21 2014

	Pad Arm			Backup Arm		
	Radius		Reading	Radius		Reading
Small Jig:	4.000	in	1145.400	4.000	in	1278.500
Large Jig:	8.000	in	1988.900	8.000	in	2033.200
Gain:			0.0047			0.0053
Offset:			-1.4317			-2.7762

Pad Calibration

	Inverse	Normal
Gain:	1.0000	1.0000
Offset:	0.0000	0.0000

Tool Module Parameters

Software Version:	1.1.0.0

Spectral Gamma Ray Tool Calibration Report

Serial Number:	220365
Tool Model:	004

Performed: Mon Sep 15 10:45:16 2014

Source Number:	JL011008-16	
Calibrator Value:	136.0	API
Background Reading:	139.3	cps
Calibrator Reading:	954.6	cps
Sensitivity:	0.167	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: 1.9.1.0

Gamma Ray Calibration Report

Serial Number: C10047
Tool Model: 001

Performed: Thu Sep 04 12:02:15 2014

Calibrator Value:	156.0	GAPI
Background Reading:	391.3	cps
Calibrator Reading:	833.5	cps
Sensitivity:	0.3528	GAPI/cps

Head Tension Unit Calibration Report

Serial Number: 00001
Tool Model: 011

Performed: Mon Mar 04 10:52:43 2013

Point #	Reference		Reading	
1	-19894.000	lb	8957.860	cps
2	-15010.000	lb	13965.100	cps
3	-9998.000	lb	19079.100	cps
4	-5007.000	lb	24133.000	cps
5	-1009.000	lb	28232.100	cps
6	1017.000	lb	30185.400	cps
7	5040.000	lb	34439.700	cps
8	9970.000	lb	39346.900	cps
9	14955.000	lb	44466.000	cps
10	19770.000	lb	49397.800	cps

Borehole Fluid Resistivity Calibration Report

Serial Number: P003
Tool Model: 002

Master Calibration Performed: Mon Sep 19 10:59:23 2011

Resistivity Polynomial Equation:

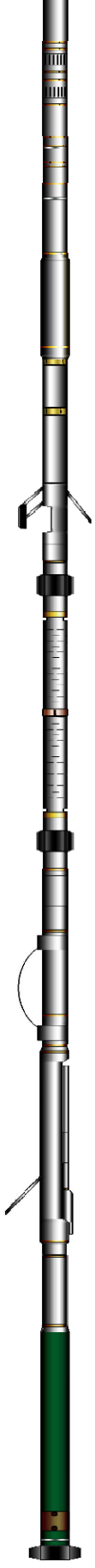
$$0.0136x^3 - 0.0315x^2 + 0.6797x - 0.0602$$

Temperature Calibration:

Reference		Reading	
78.80	degF	558.20	bits
212.00	degF	700.00	bits

Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
			CHD-001 (000004) Cable Head	2.19	3.38	35.00

		XTU-008 (C10067) Crossover Ultrawire Toolbus to Ultralink	2.08	3.38	47.00
BFR	68.02	BFR-002 (P003)	4.39	3.38	94.00
HTEN	65.10	HTU-011 (00001) Head Tension Unit	2.18	3.38	55.00
GR	63.07	GRT-001 (C10047) Gamma Ray Tool	3.22	3.38	69.00
SGR	57.39	SGR-004 (220365) Spectral Gamma Ray Tool	4.94	3.88	120.00
MEL	48.16	MEL-003 (10022649) Micro Electric Log	9.27	3.38	209.00
WVFUTRF	40.05	MAS-001SS (C10038SS) Multi Array Sonic Tool (SS)	14.28	3.38	242.00
WVFUTRN	39.05				
WVFLTRF	39.05				
WVFLTRN	38.05				
		KJT-001 (000001) Knuckle Joint	2.86	3.38	72.00
CNLSC	26.08	CNL-009 (C10071) Compensated Neutron Logging Tool	5.27	3.38	125.00
CNSSC	25.58				
LDT	15.92	LDT-002 (B10112S50129B) Litho Density Tool	9.75	4.50	310.00
IAT	8.74	IAT-002 (B10106) Induction Array Tool	13.42	3.88	200.00
SP	0.93	BN-SOFF (000001) Bottom Nose Standoff	0.67	6.88	6.00



Dataset:	taos_well_16-1.db: field/well/run1/pass6.4
Total Length:	74.52 ft
Total Weight:	1584.00 lb
O.D.	6.88 in