PIONEER
Pioneer Energy Services

RADIAL BOND LOG
WITH GAMMA RAY

Comp. ANADARKO PETROLEUM CORP.
Well VONDERLAGE 22-31
Field WATTENBERG
Co. WELD
State COLORADO

Company **ANADARKO PETROLEUM CORP.**
Well **VONDERLAGE 22-31**
Field **WATTENBERG**
County **WELD** State **COLORADO**

Location: API # : 05-123-26765
SW SW
565' FSL & 475' FWL
SEC 31 TWP 3N RGE 66W

Other Services

Elevation
K.B. 4833'
D.F. N/A
G.L. 4821'

Permanent Datum GL Elevation 4821'
Log Measured From KB 12' Above Perm. Datum
Drilling Measured From KB

Date of Service	10 MARCH 2020
Run Number	ONE
Depth Driller or PBTD	7390'
Depth Logger	3500'
Bottom Log Interval	3500'
Top Log Interval	SURFACE
Open Hole Size	7.875"
Type Fluid	WATER
Fluid Level	6'
Fluid Density	N/A
Max. Recorded Temperature	N/A
Max. Wellhead Pressure	ZERO
Wellhead Connection	OPEN
Estimated Cement Top	760'
Unit Number	P-133
Wireline Size	9/32"
Location	FORT MORGAN CO.
Recorded By	P LOPEZ
Witnessed By	MR. JEREMY DUTY

	Size	Wt/Ft	Top	Bottom
Tubing Record				
Surface Casing	8.63"	24#	SURFACE	680'
Production Casing	4.50"	11.60#	SURFACE	8298'
Liner Record				

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All interpretations are opinions based on inferences from electrical or other measurements and Pioneer Wireline Services, LLC cannot and does not guarantee the accuracy or correctness of any interpretation, and Pioneer Wireline Services, LLC will not 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.

Comments

N/A DENOTES NOT AVAILABLE OR NON-APPLICABLE.
DEPTH REFERENCE TO J-W WIRELINE COMPANY CBL DATED APRIL-29-13

THANK YOU FOR USING PIONEER ENERGY SERVICES!

Your Pioneer Energy Services Crew	Tool Data - Services	Serial Number
Engineer: P LOPEZ	RBL-DC	140141
Operator: G SOTO	GR CCL	110246
Operator: C COBAIN		
Operator:		

Log Variables

DatabaseC:\ProgramData\Warrior\Data\anadarko_vonderlage 22-31_0512326765_20200310_
Dataset field/well/run1/pass10/_vars_

Top - Bottom

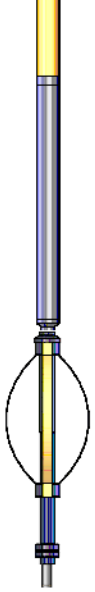
BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	CASEWGHT lb/ft	MAXAMPL mV	MINAMPL mV
7.875	180	4.5	0.25	11.6	81.2	0.7

MINATTN db/ft	PERFS	PPT usec	SRFTEMP degF	TDEPTH ft
0.8	No	0	50	3500

Variable Description

BOREID : Borehole I.D.
BOTTEMP : Bottom Hole Temperature
CASEOD : Casing O.D.
CASETHCK : Casing Thickness
CASEWGHT : Casing Weight
MAXAMPL : Maximum Amplitude
MINAMPL : Minimum Amplitude
MINATTN : Minimum Attenuation
PERFS : Perforation Flag
PPT : Predicted Pipe Time
SRFTEMP : Surface Temperature
TDEPTH : Total Depth

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
			Cable Head-Titan_144 1 7/16" Titan Cable Head	1.03	1.44	2.00
			Centralizer-275 Probe 2 3/4" Probe Adjustable Spring Centralizer	2.88	2.75	15.00
			PROBE-RBT-DIGITAL-RBL-DC (FW1401-41-T) Probe 2 3/4" Radii Bond-Corrosion Package	8.75	2.75	100.00
WVFS8	14.76					
WVFS7	14.76					
WVFS6	14.76					
WVFS5	14.76					
WVFS4	14.76					
WVFS3	14.76					
WVFS2	14.76					
WVFS1	14.76					
WVFCAL	14.76					
WVF3FT	14.76					
WVF5FT	13.76					
HEADVOLT	10.57					
			Centralizer-275 Probe 2 3/4" Probe Adjustable Spring Centralizer	2.88	2.75	15.00

CCL	6.78					
			PROBE-GR/CCL-ANALOG-GR/CCL-A (110246) 2 3/4" Gamma with CCL-Analog	4.54	2.75	60.00
GR	4.05					
			Centralizer-275 Probe 2 3/4" Probe Adjustable Spring Centralizer	2.88	2.75	15.00
			Bullnose-Titan GO Pin Pressure Cap	0.27	1.38	1.00

Dataset: anadarko_vonderlage 22-31_0512326765_20200310_scbl.db: field/well/run1/pass10
Total length: 23.23 ft
Total weight: 208.00 lb
O.D.: 2.75 in

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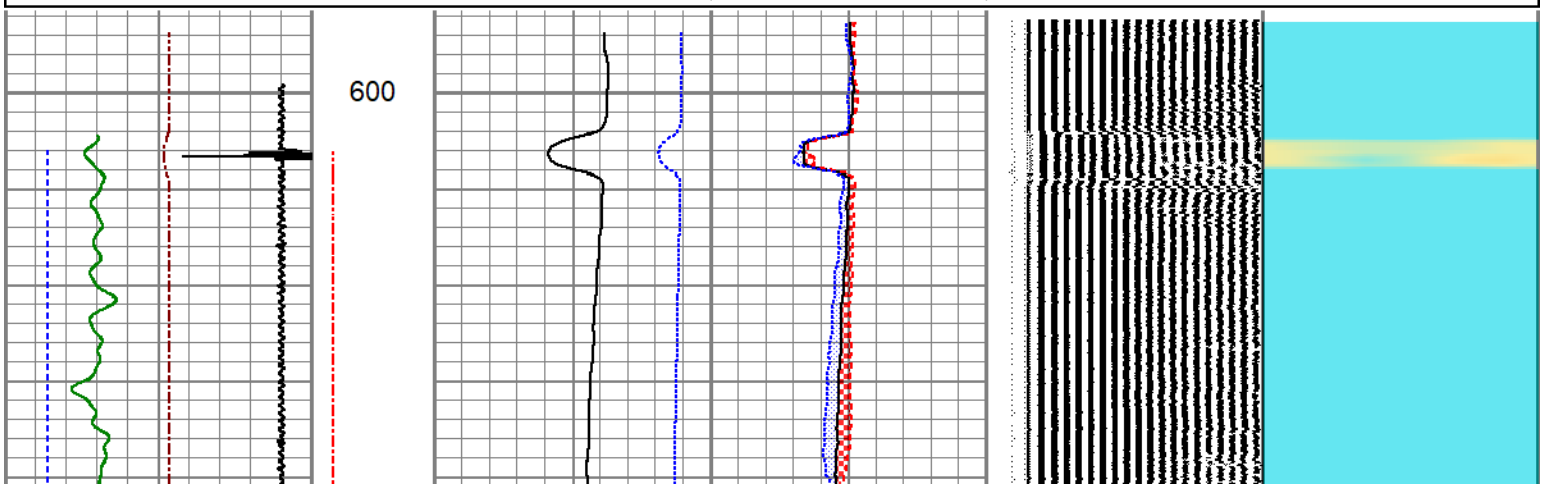
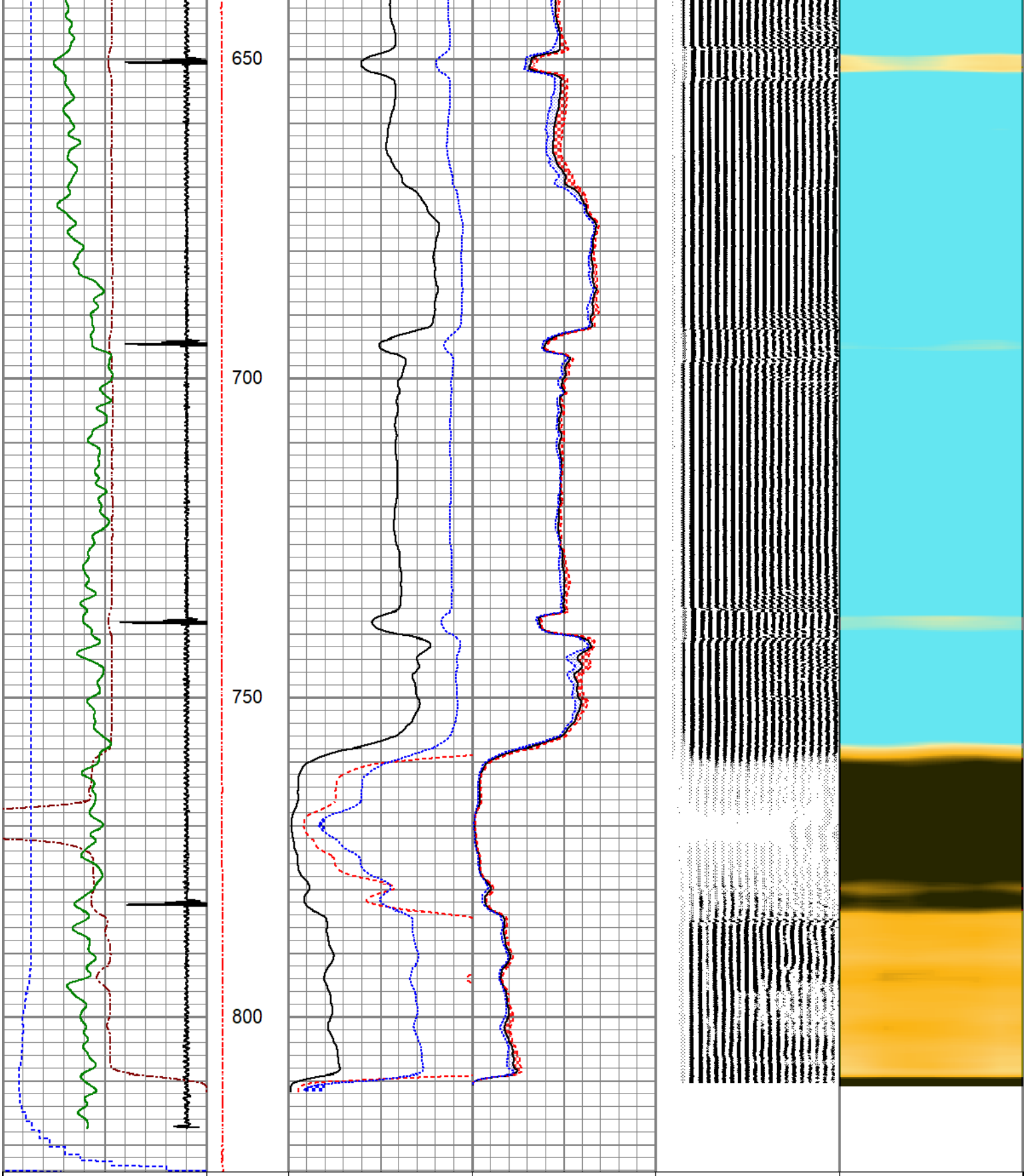
FREE PIPE SECTION

ZERO PSI APPLIED AT SURFACE

Database File	anadarko_vonderlage 22-31_0512326765_20200310_scbl.db
Dataset Pathname	pass4
Presentation Format	pinr_scbl
Dataset Creation	Tue Mar 10 09:56:18 2020
Charted by	Depth in Feet scaled 1:240

3Ft Travel Time	ineTensio	3' Amplitude	Sector Amplitude Average	VDL	1 Sector Map 8
500 (usec) 0	(lb)	0 (mV) 100	0 150	200 (usec) 1200	
-9 Collar Locator 1	0 2000	3' Amplified Amplitude X 5	Sector Amplitude Maximum		
Gamma Ray		0 (mV) 20	0 150		
0 (GAPI) 150		1 Bond Index 0	Sector Amplitude Minimum		
-100 LSPD (ft/min) 100			0 150		





3Ft Travel Time	ineTensio	3' Amplitude	Sector Amplitude Average	VDL	1 Sector Map 8
500 (usec) 0	(lb)	0 (mV) 100	0 150	200 (usec) 1200	
-9 Collar Locator 1	0 2000	3' Amplified Amplitude X 5	Sector Amplitude Maximum		
Gamma Ray		0 (mV) 20	0 150		
0 (GAPI) 150		1 Bond Index 0	Sector Amplitude Minimum		
-100 LSPD (ft/min) 100					

Amplitude Minimum
0 150

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MAIN LOG

ZERO PSI APPLIED AT SURFACE

Database File	anadarko_vonderlage 22-31_0512326765_20200310_scbl.db
Dataset Pathname	pass10
Presentation Format	pinr_scbl
Dataset Creation	Tue Mar 10 10:14:15 2020
Charted by	Depth in Feet scaled 1:240

3Ft Travel Time
500 (usec) 0
-9 Collar Locator 1
Gamma Ray
0 (GAPI) 150
-100 LSPD (ft/min) 100

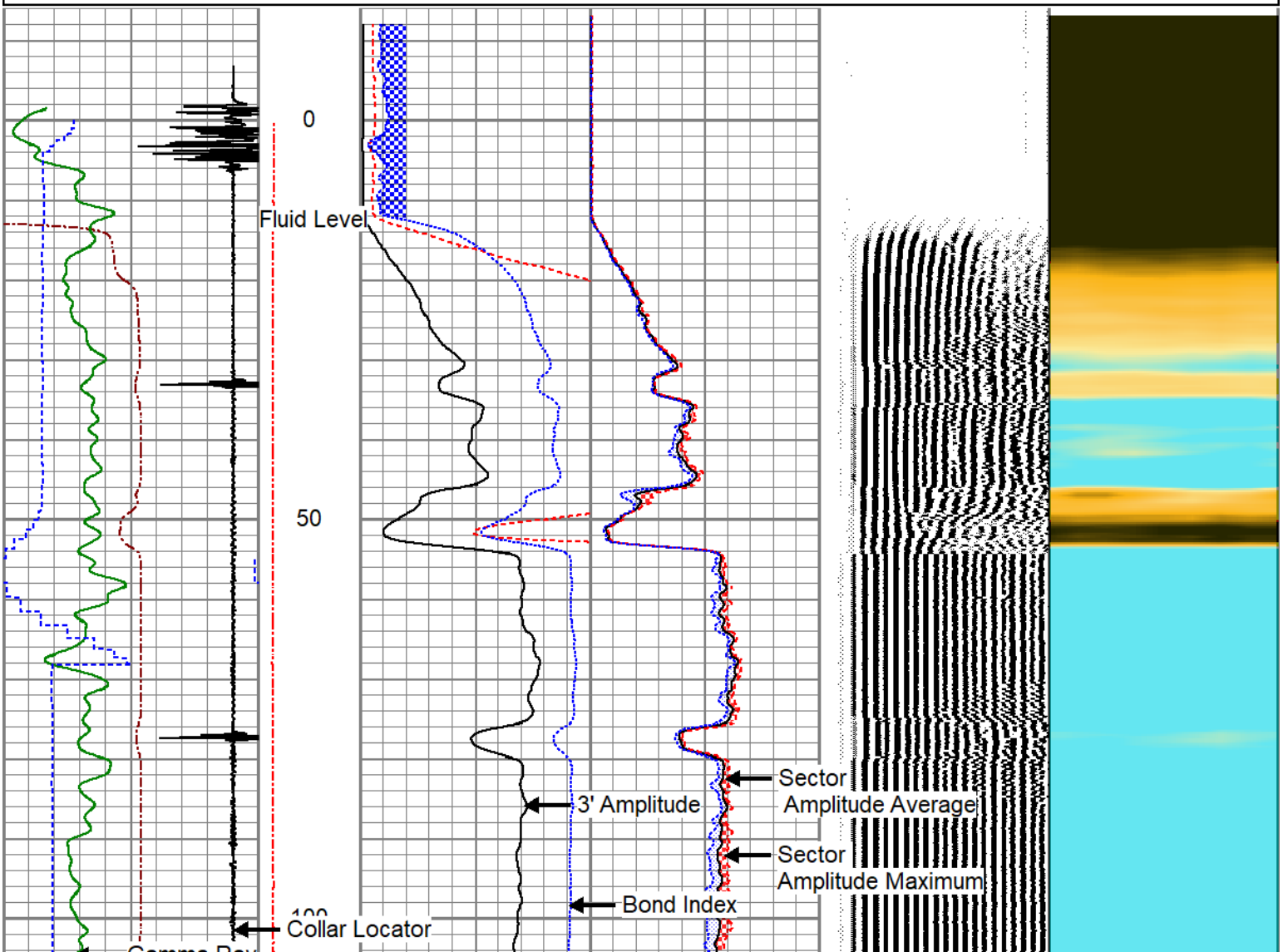
ineTensio
(lb)
0 2000

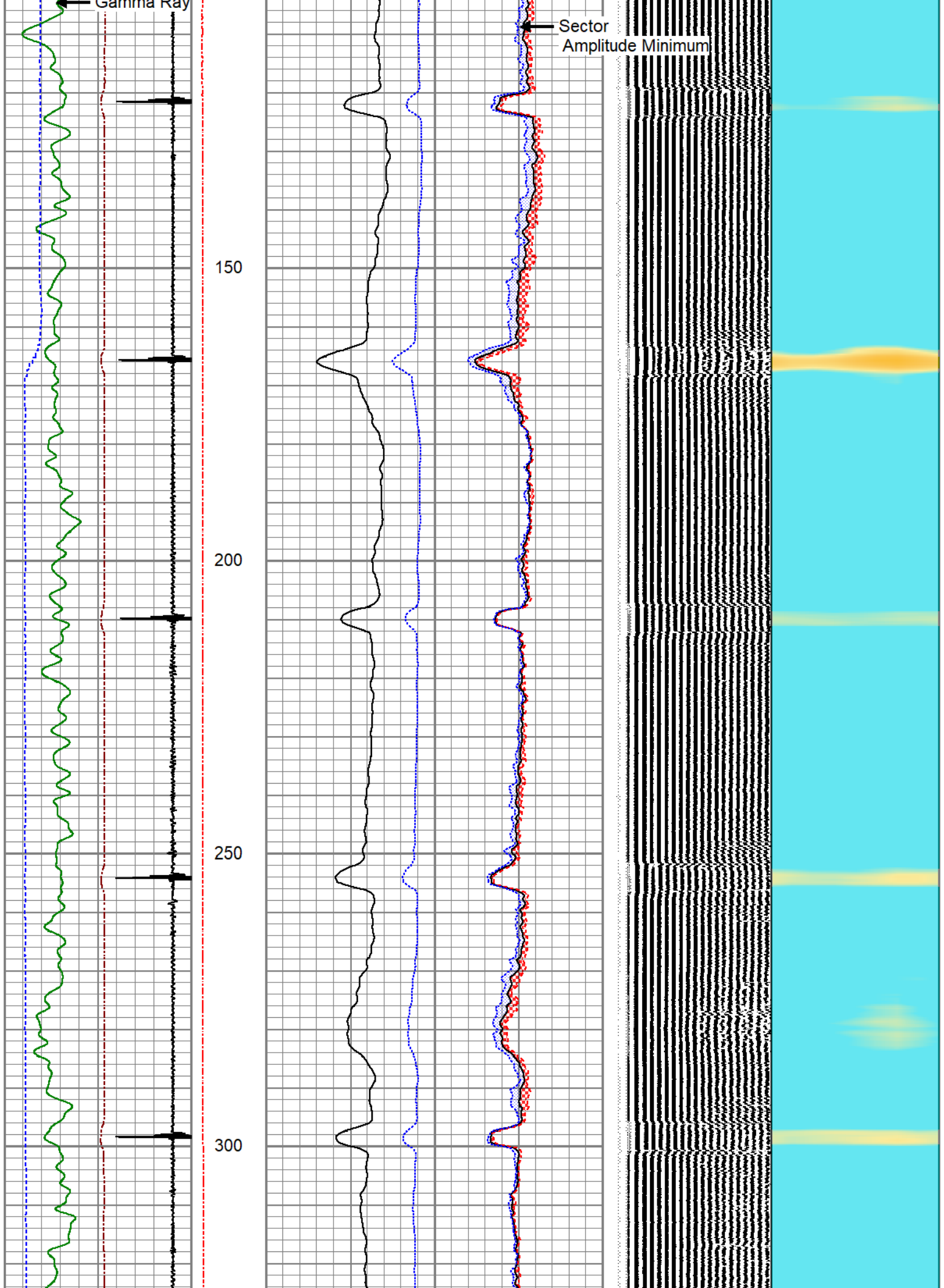
3' Amplitude
0 (mV) 100
3' Amplified Amplitude X 5
0 (mV) 20
1 Bond Index 0

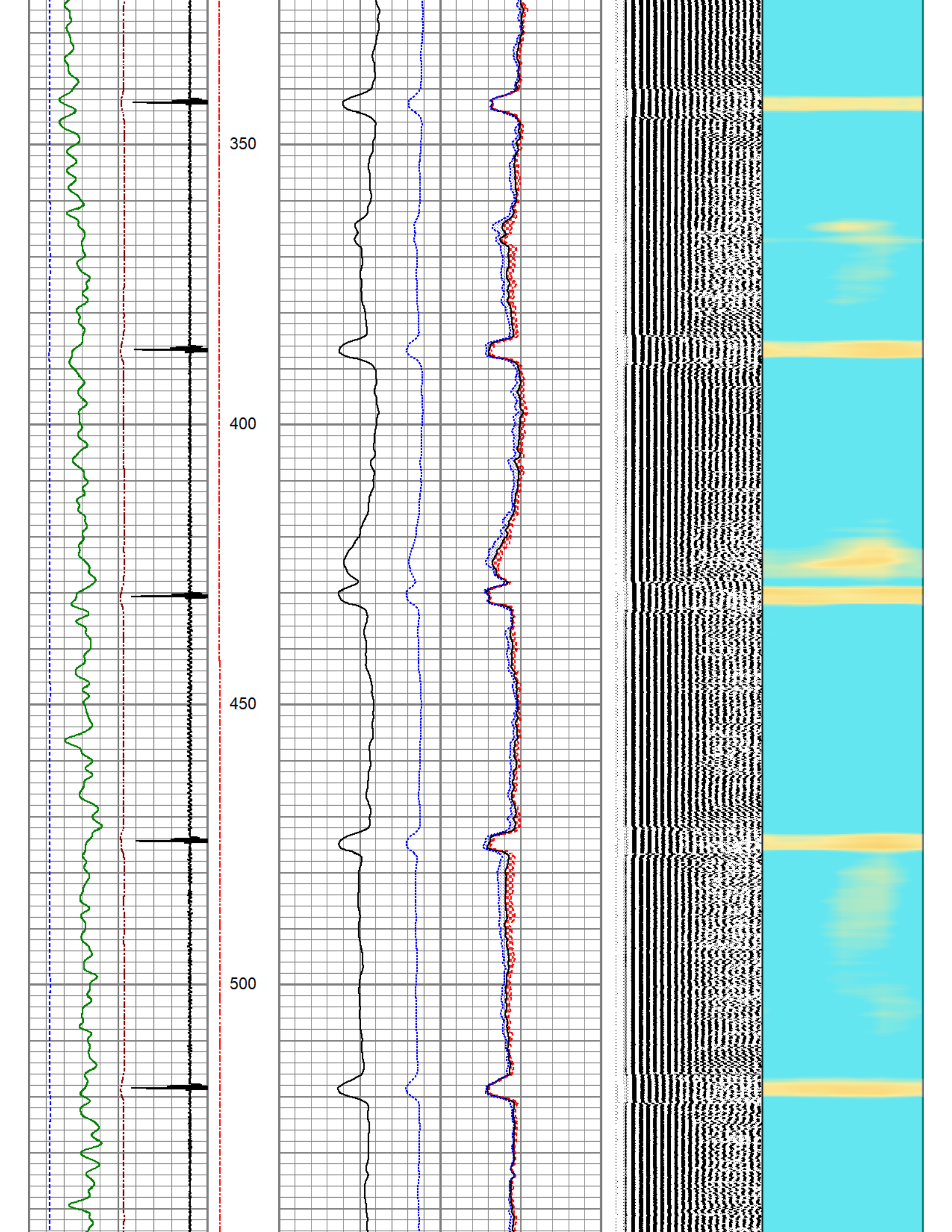
Sector Amplitude Average
0 150
Sector Amplitude Maximum
0 150
Sector Amplitude Minimum
0 150

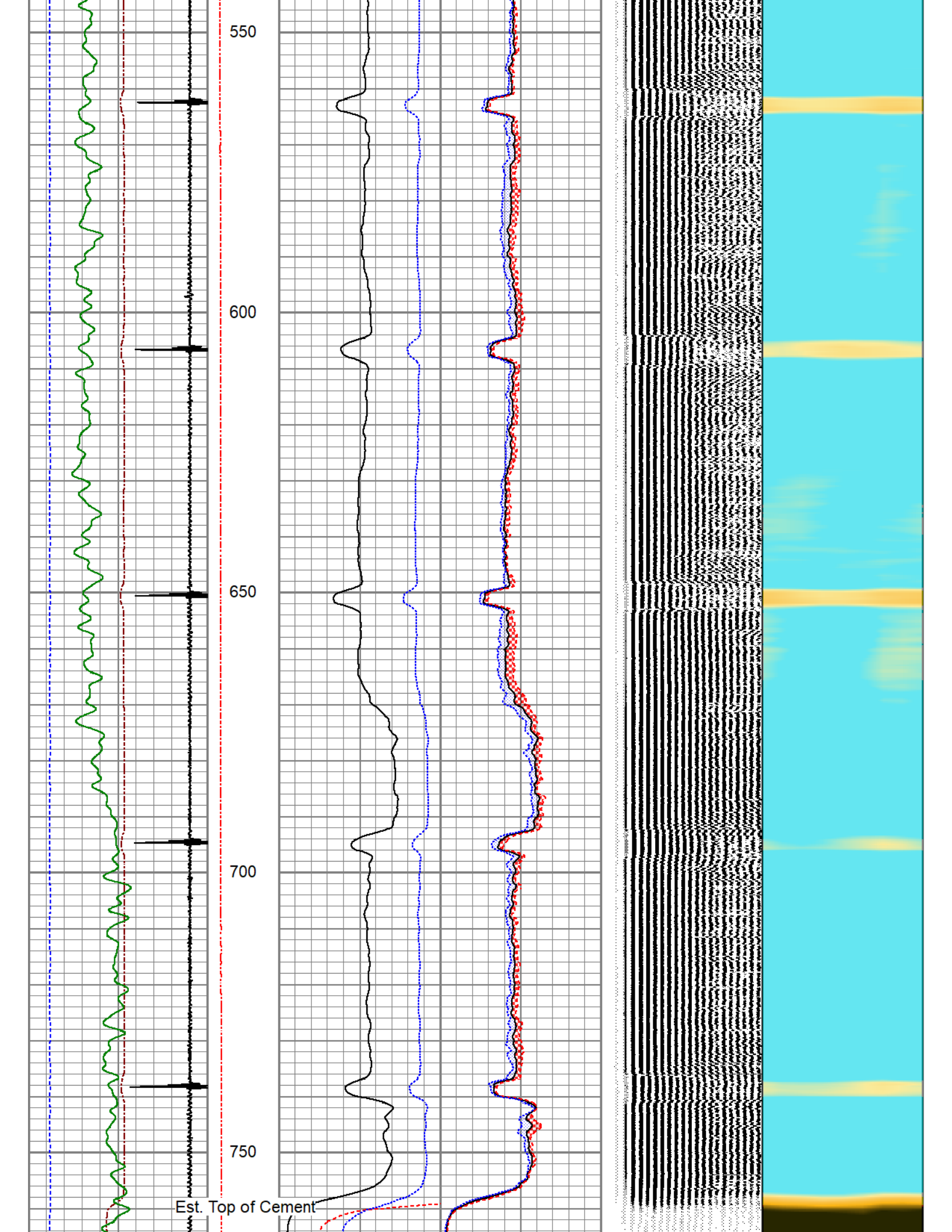
VDL
200 (usec) 1200

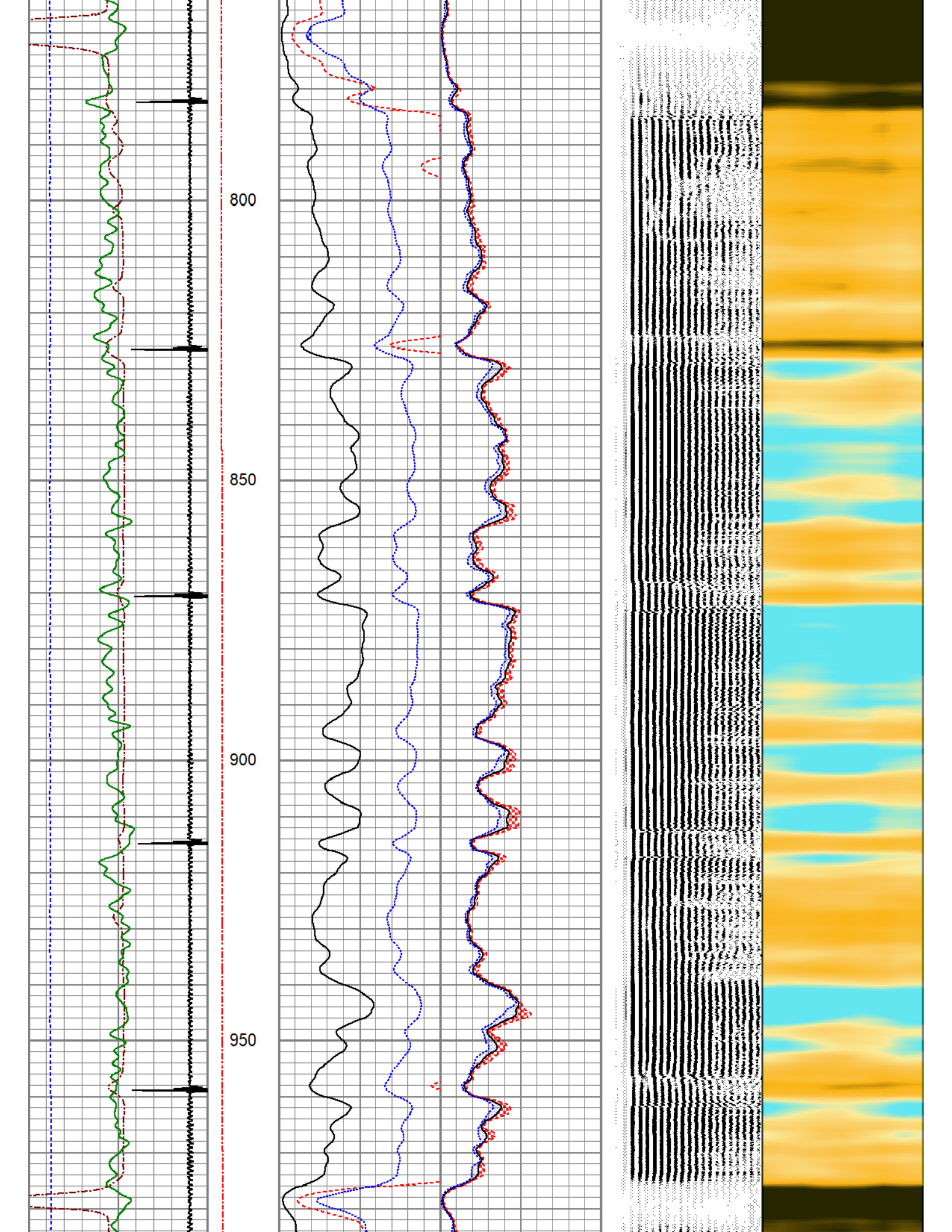
1 Sector Map 8

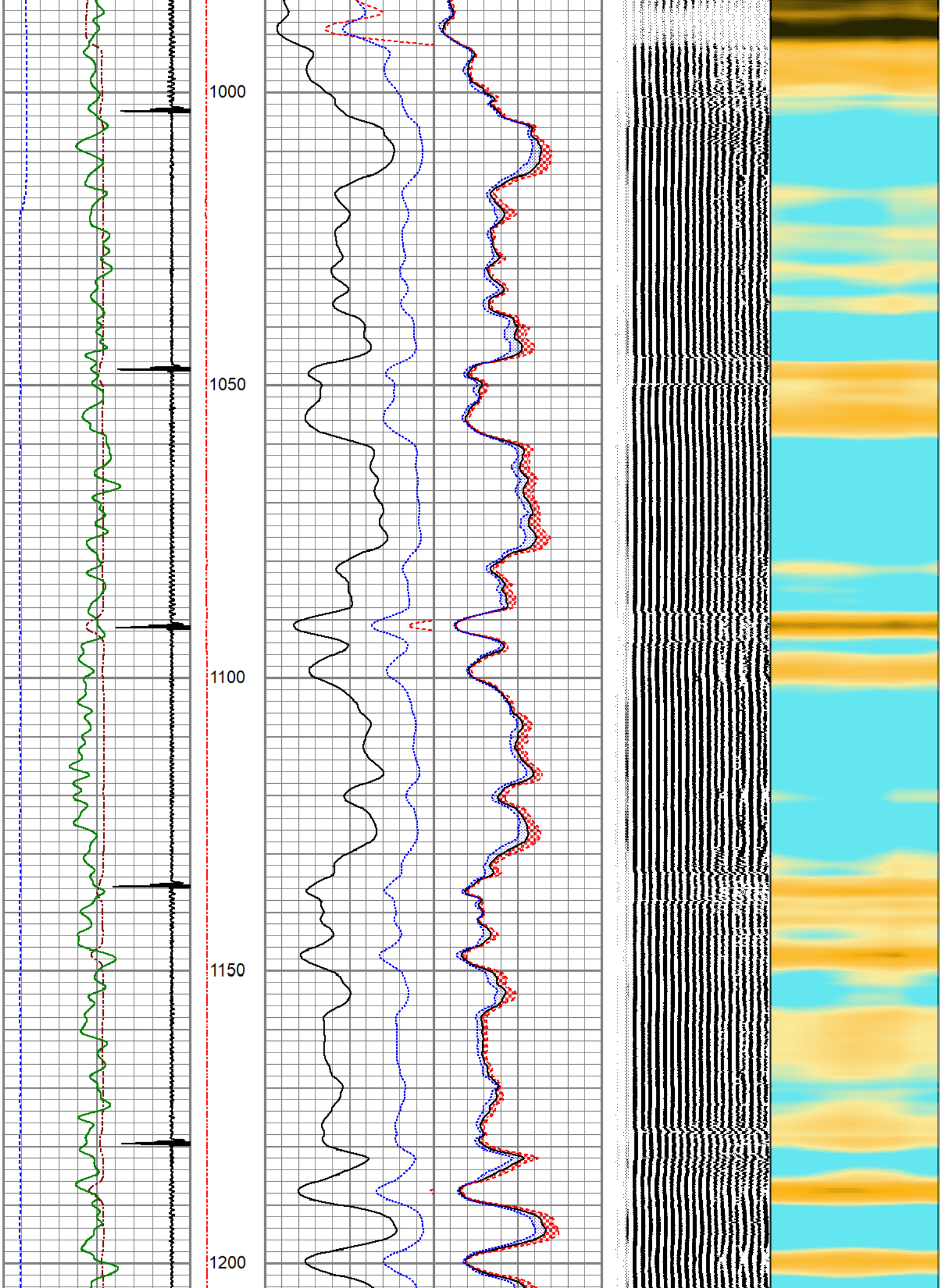


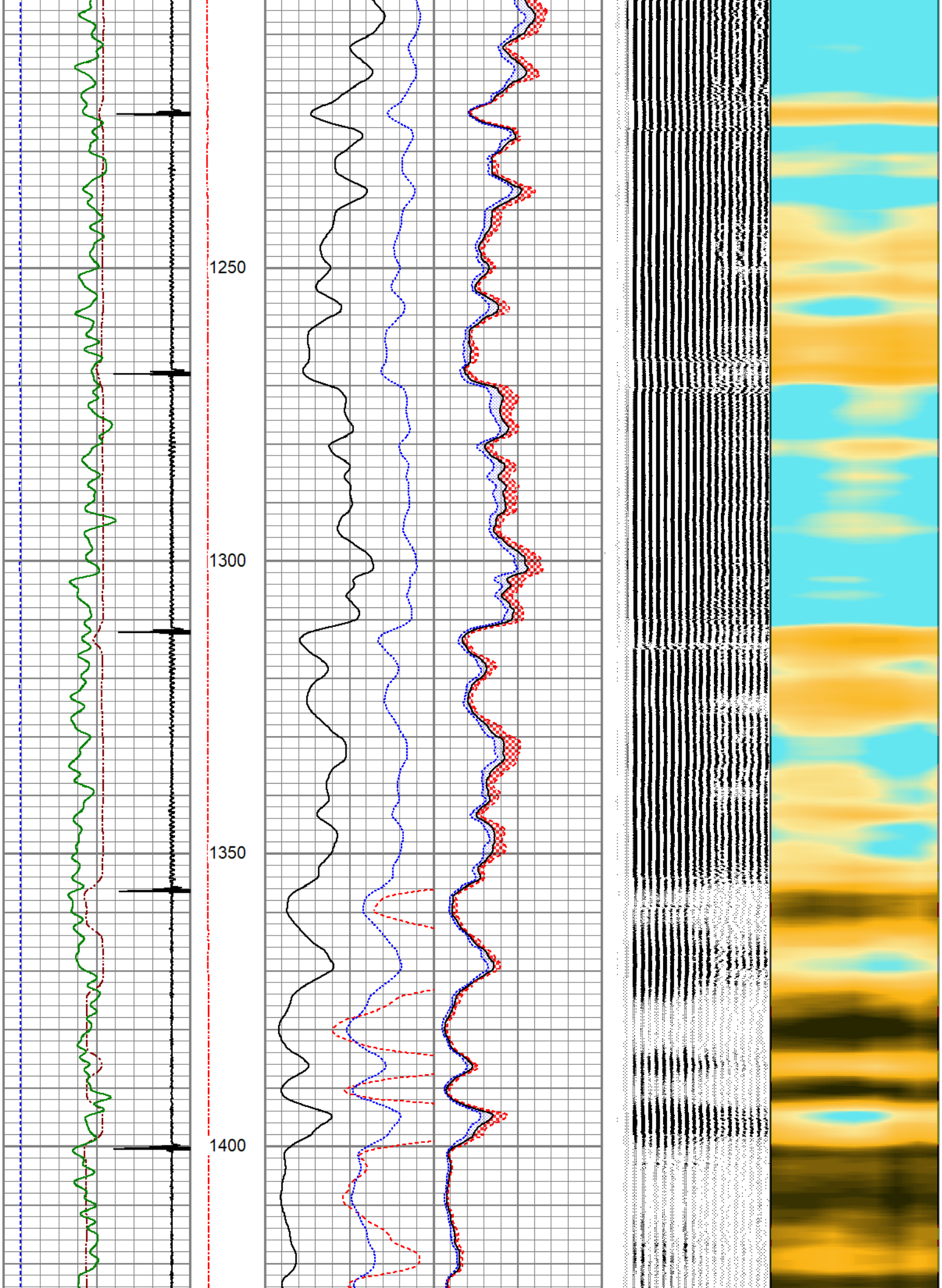

Gamma Ray
Sector
Amplitude Minimum
150
200
250
300

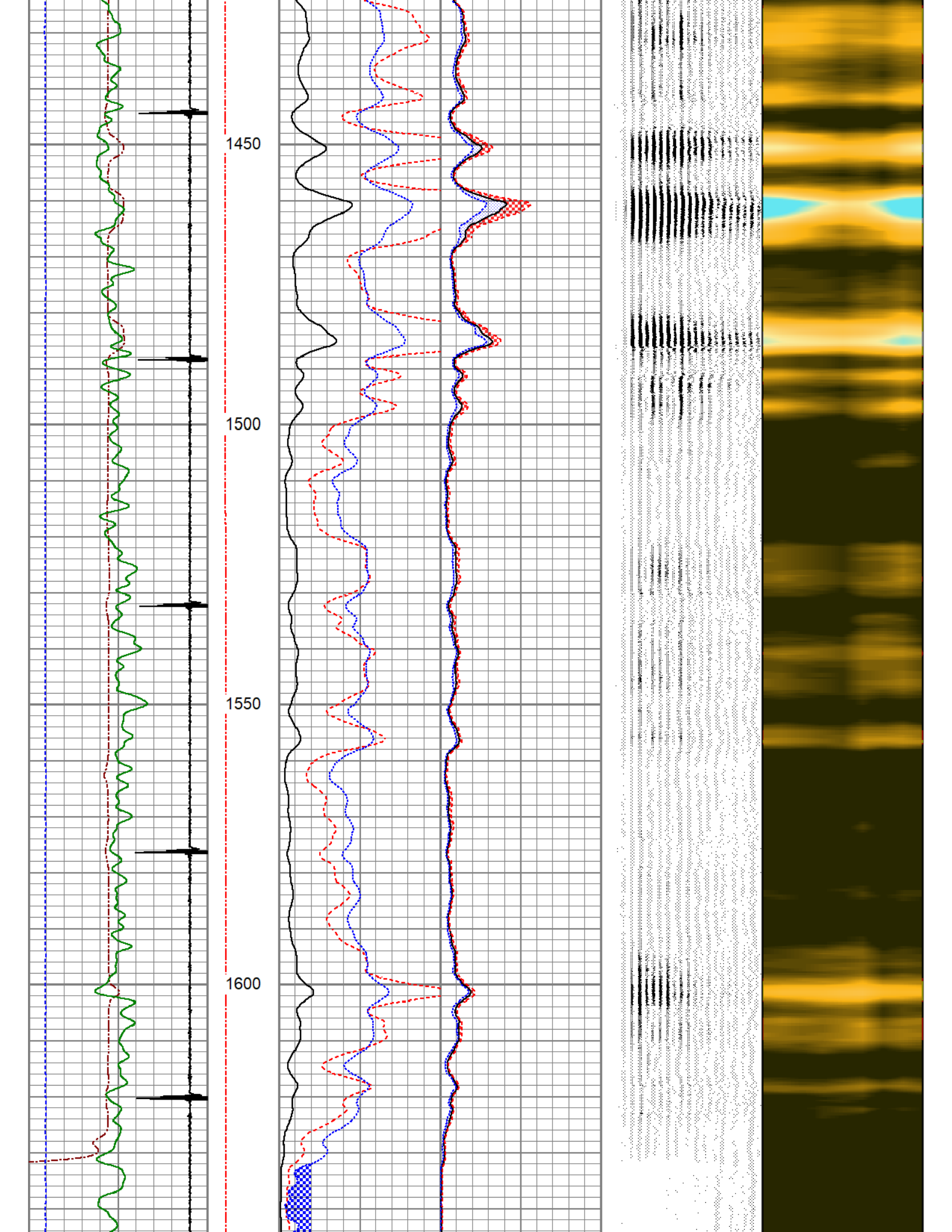

350
400
450
500

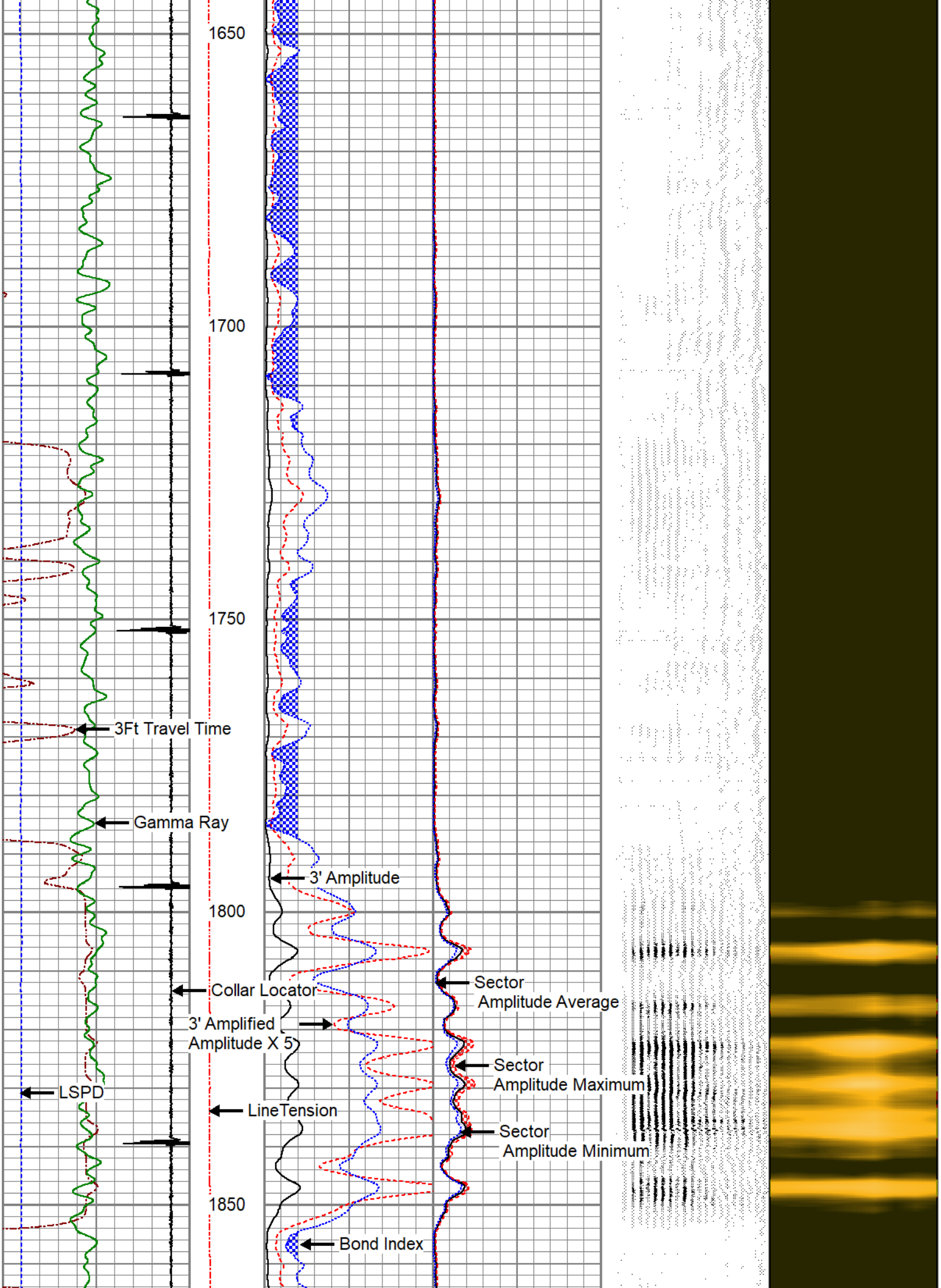

550
600
650
700
750
Est. Top of Cement

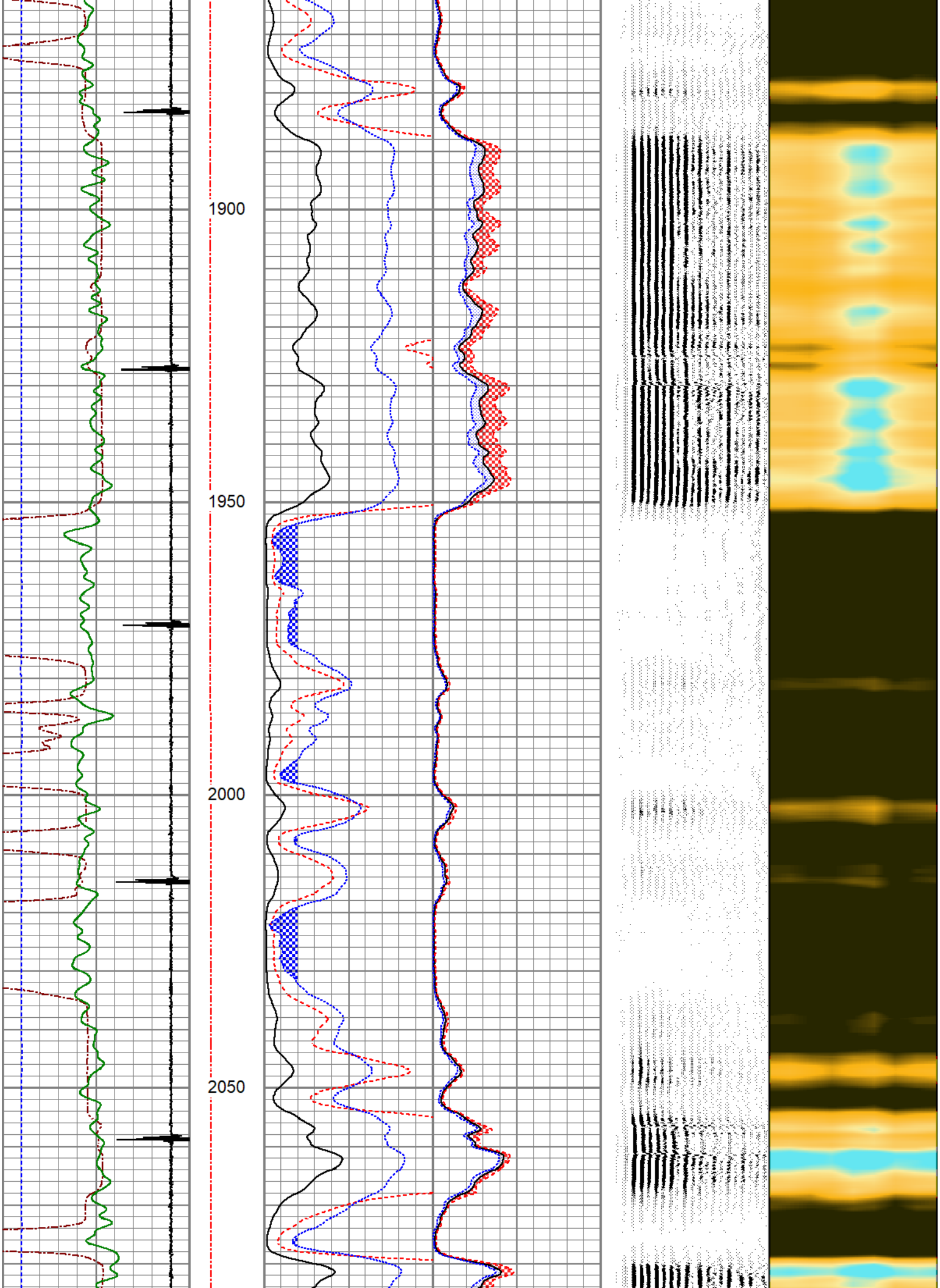

800
850
900
950

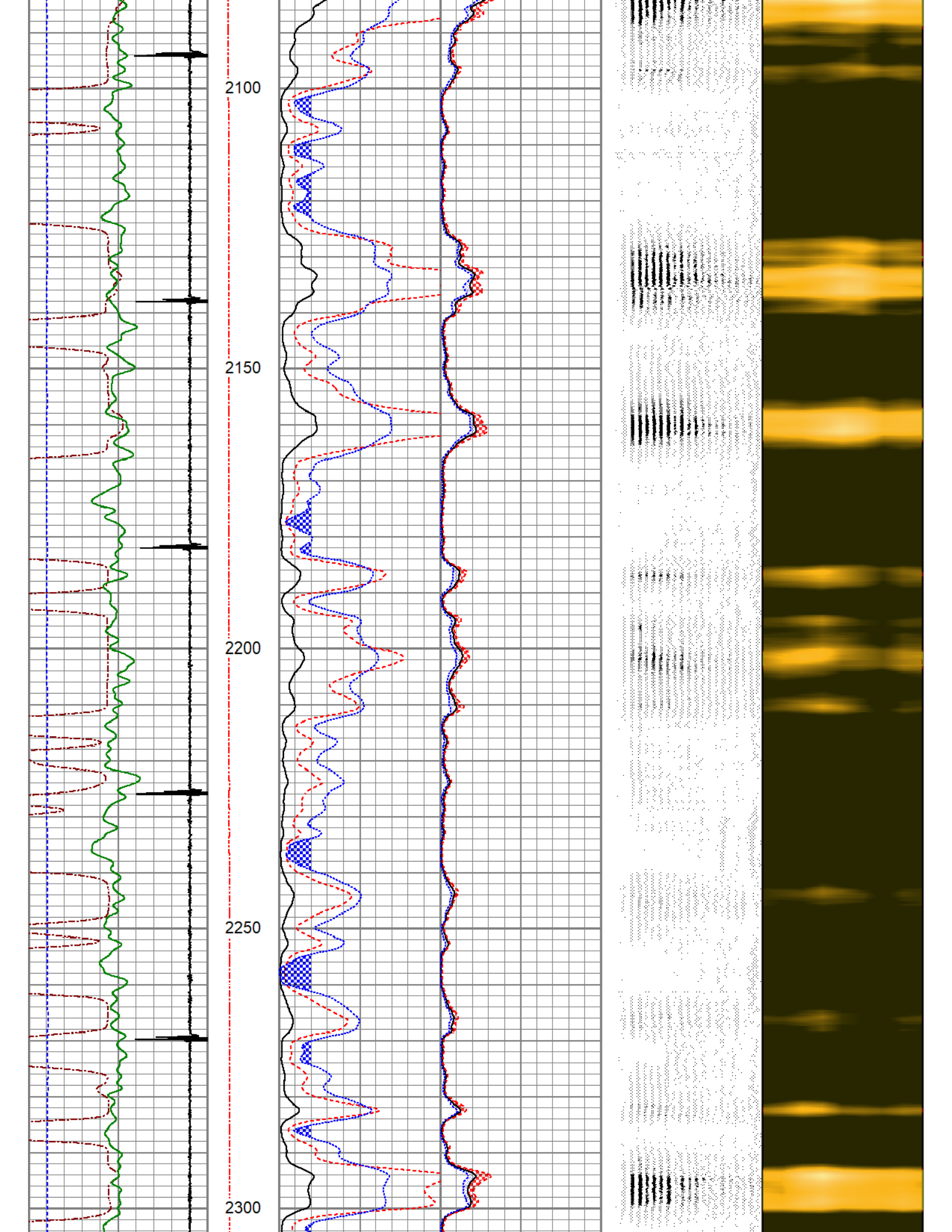

1000
1050
1100
1150
1200

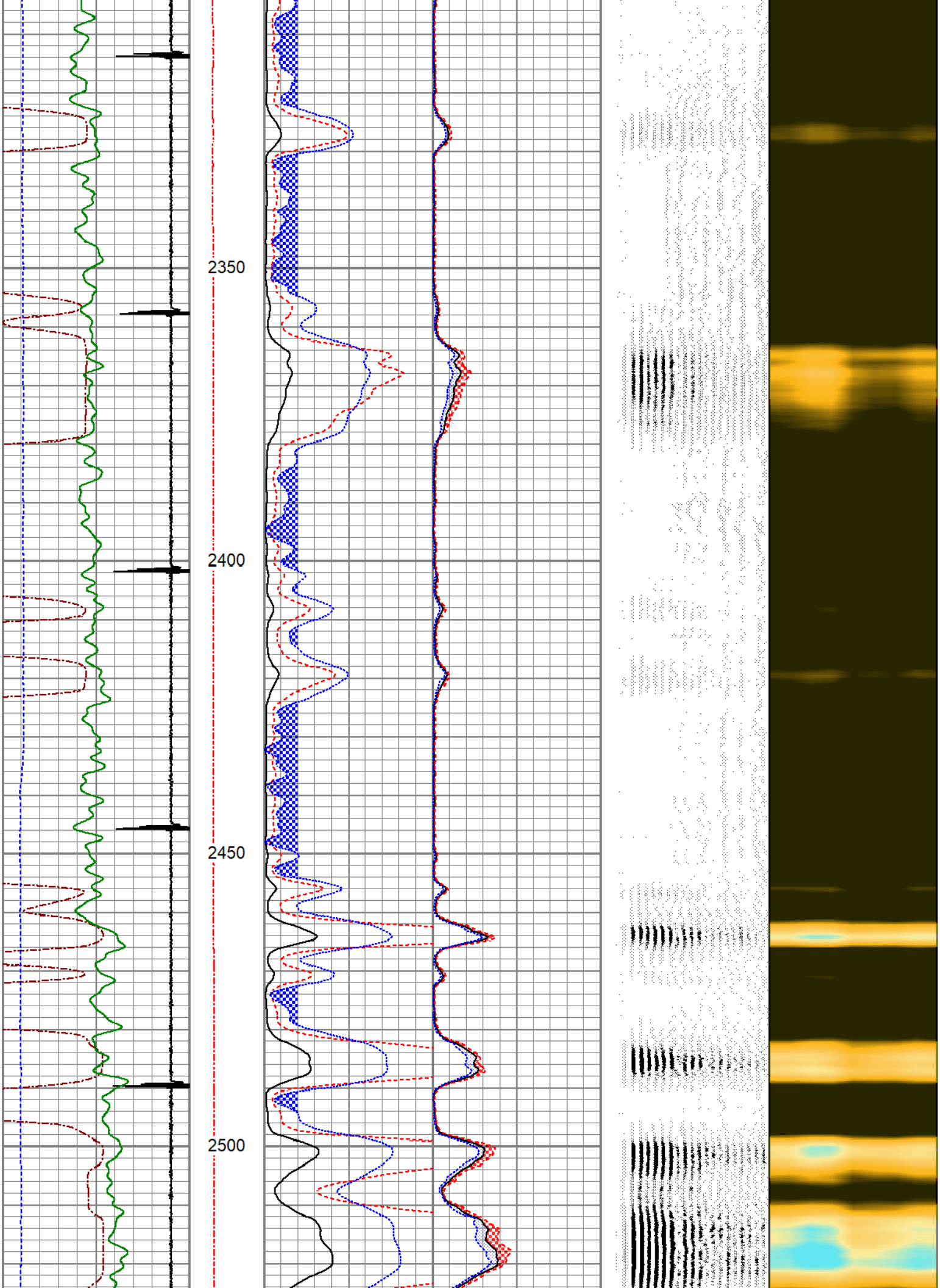

1250
1300
1350
1400

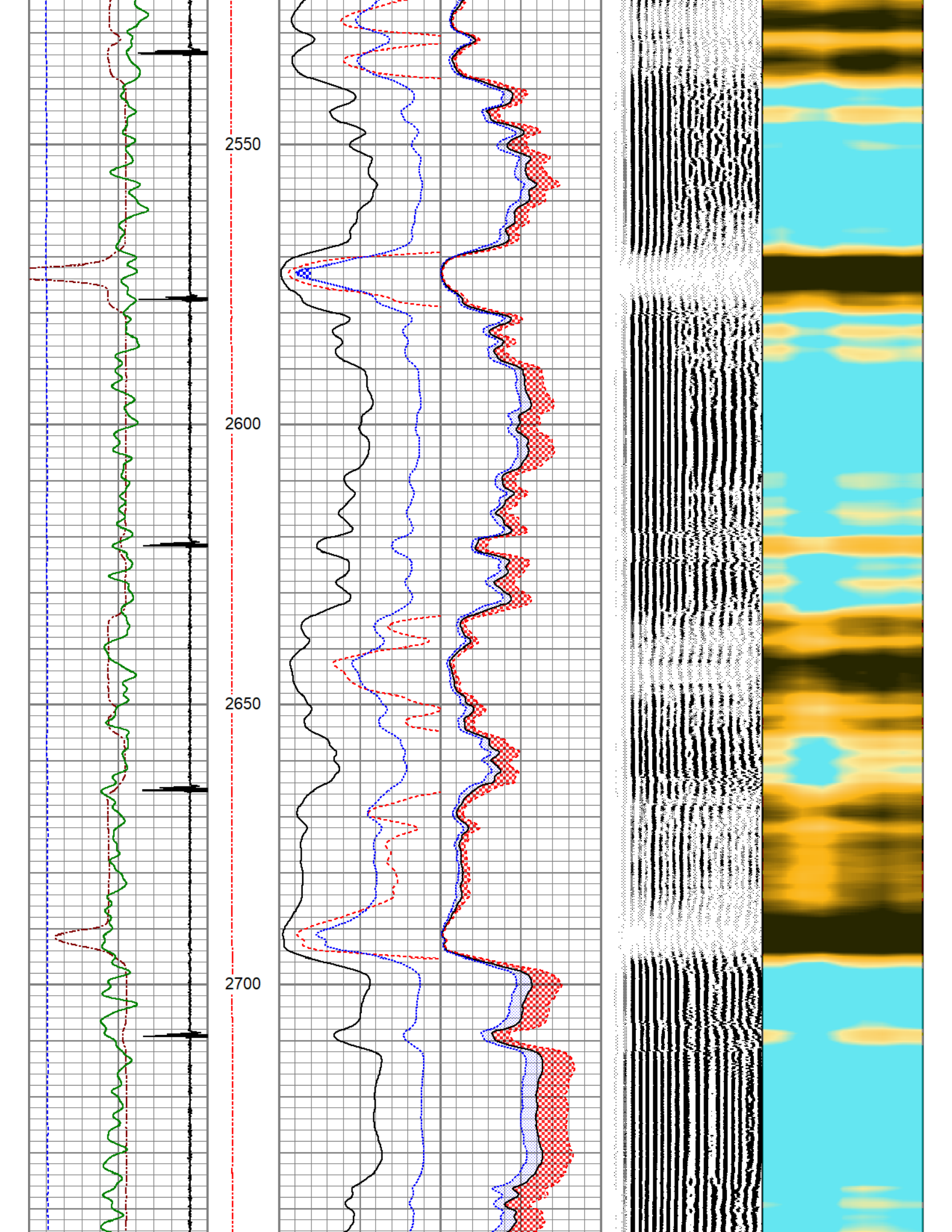

1450
1500
1550
1600

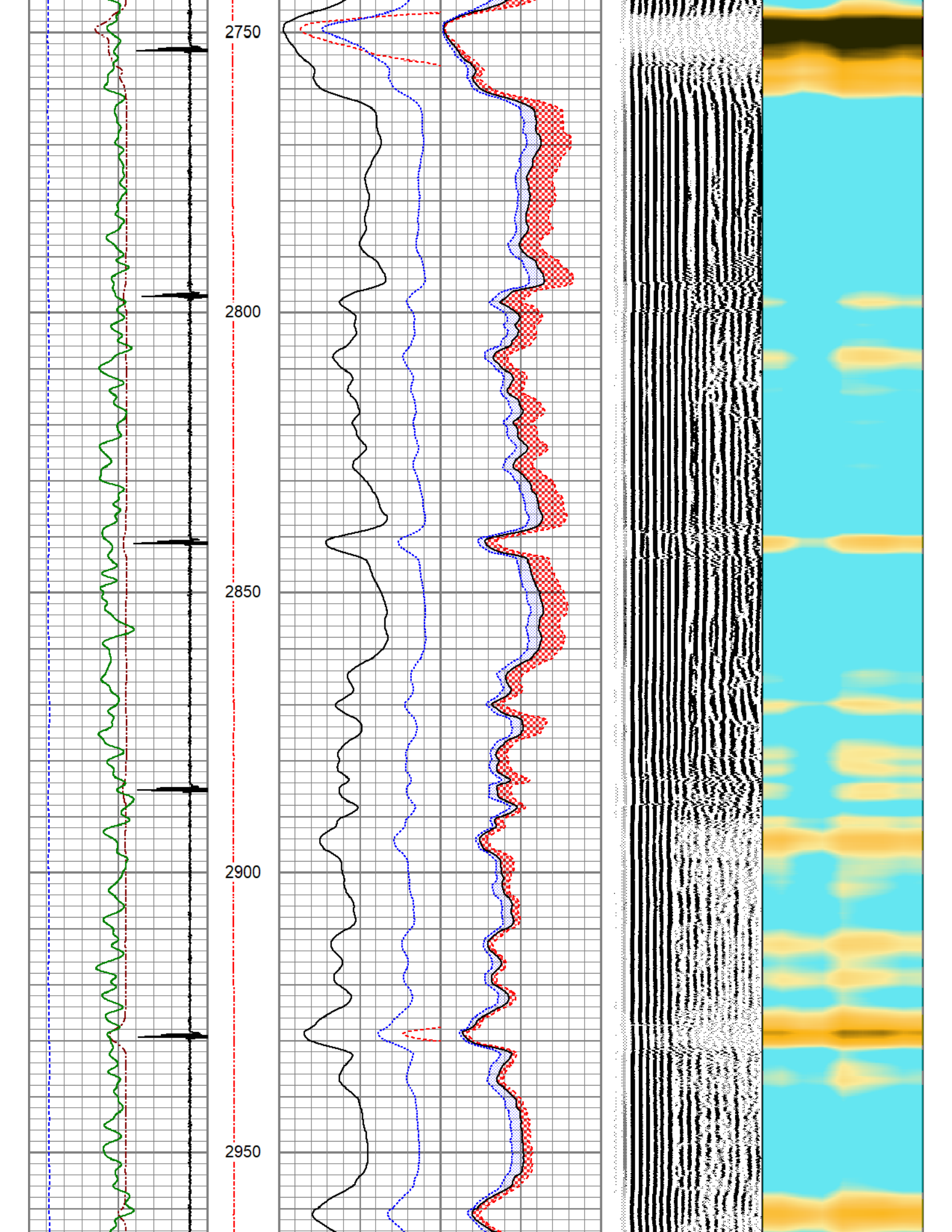

1650
1700
1750
1800
1850
3Ft Travel Time
Gamma Ray
3' Amplitude
Collar Locator
3' Amplified
Amplitude X 5
LSPD
LineTension
Bond Index
Sector
Amplitude Average
Sector
Amplitude Maximum
Sector
Amplitude Minimum

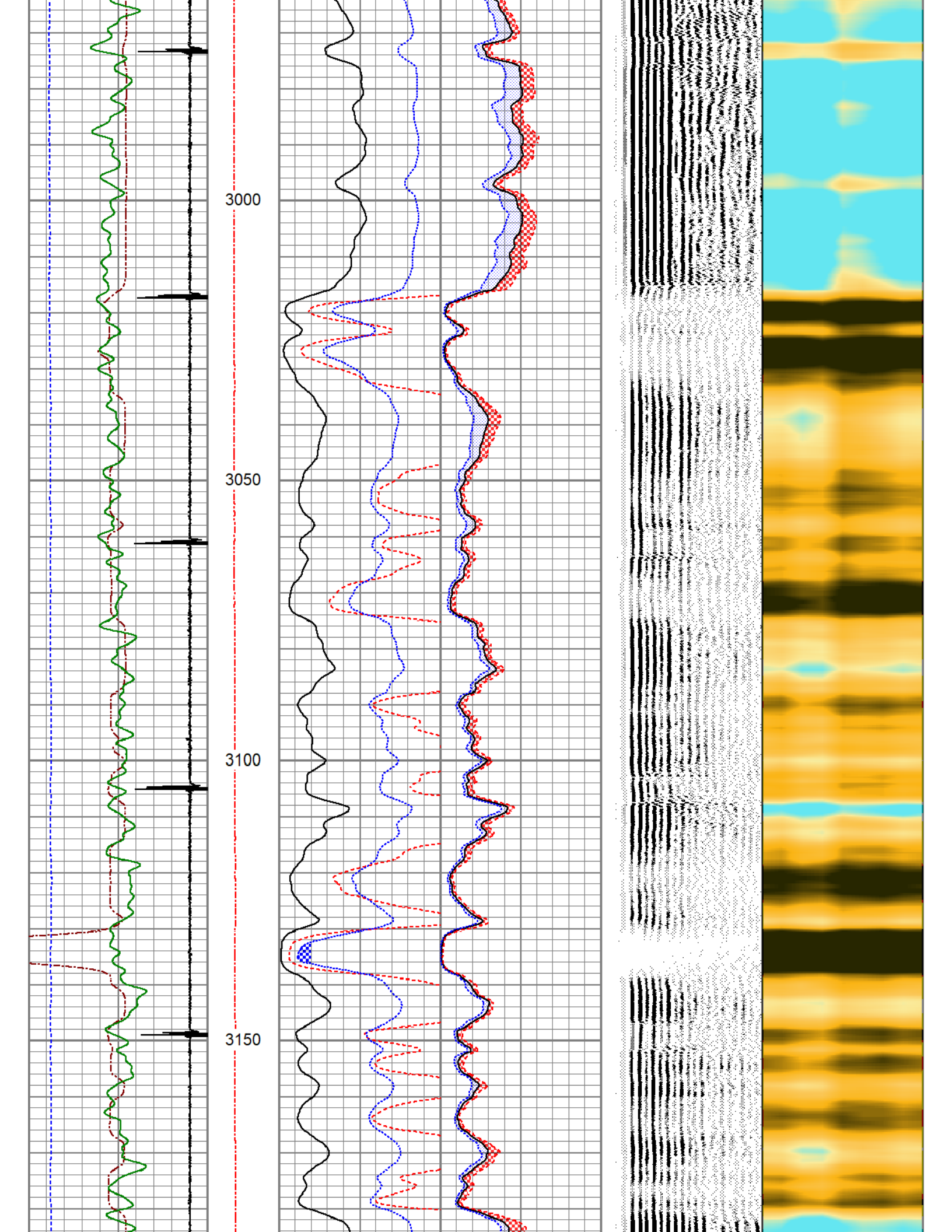

1900
1950
2000
2050

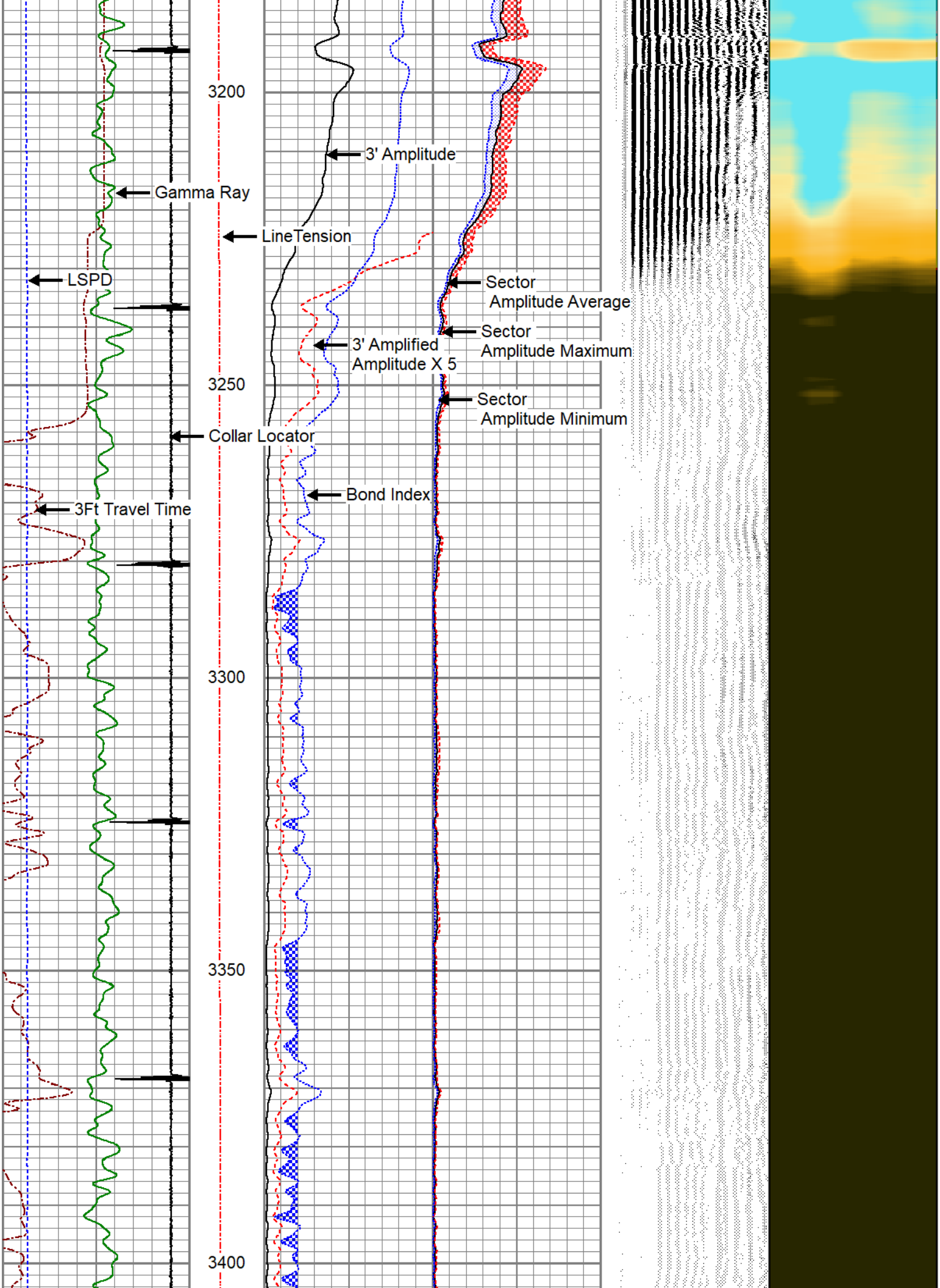

2100
2150
2200
2250
2300

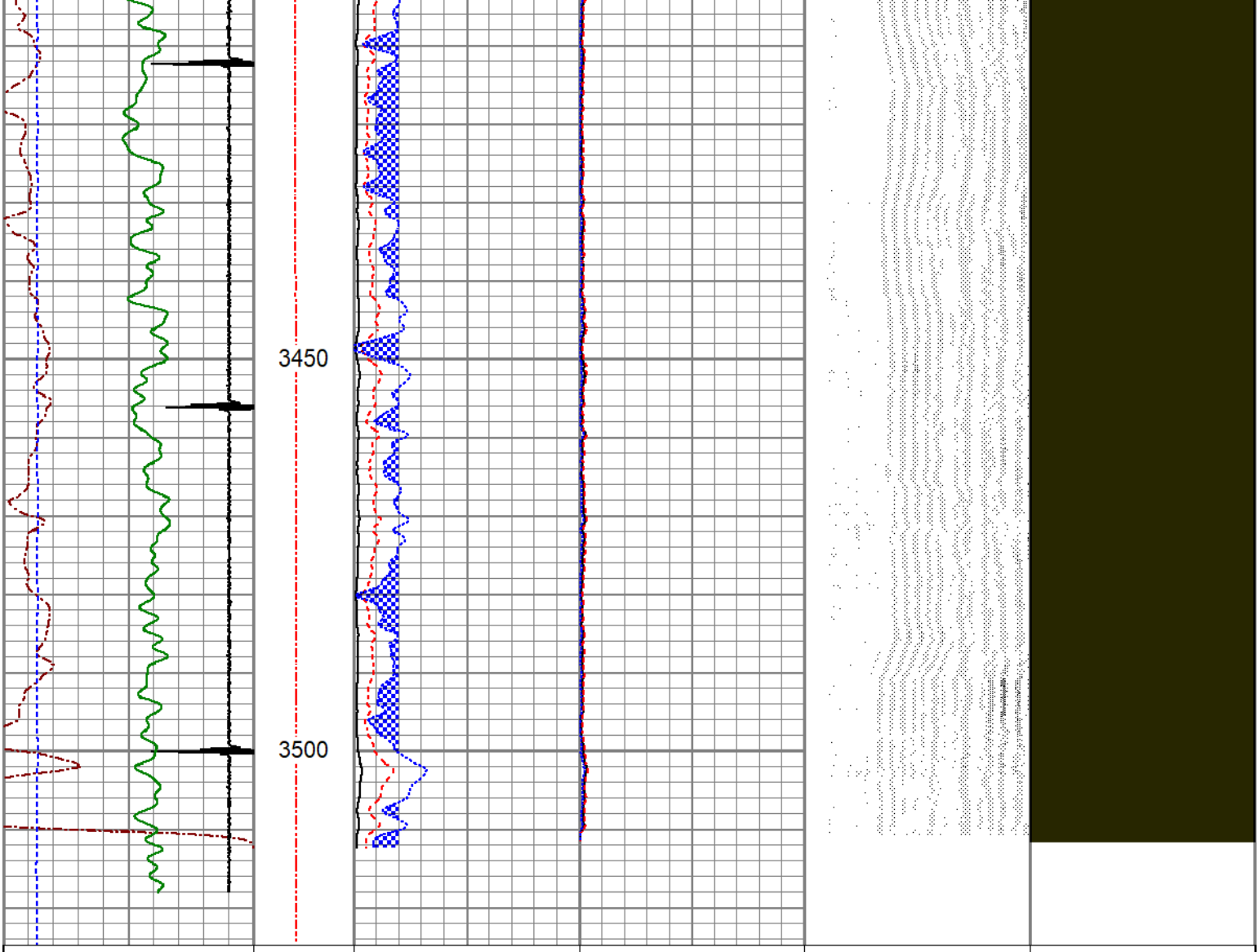

2350
2400
2450
2500


2550
2600
2650
2700


2750
2800
2850
2900
2950


3000
3050
3100
3150


3200
3250
3300
3350
3400
3' Amplitude
Gamma Ray
LineTension
LSPD
Sector
Amplitude Average
Sector
Amplitude Maximum
3' Amplified
Amplitude X 5
Sector
Amplitude Minimum
Collar Locator
Bond Index
3Ft Travel Time



3Ft Travel Time	ineTensio	3' Amplitude	Sector Amplitude Average	VDL	1 Sector Map 8
500 (usec) 0	(lb)	0 (mV) 100	0 150	200 (usec) 1200	
-9 Collar Locator 1	0 2000	3' Amplified Amplitude X 5	Sector Amplitude Maximum		
Gamma Ray		0 (mV) 20	0 150		
0 (GAPI) 150		1 Bond Index 0	Sector Amplitude Minimum		
-100 LSPD (ft/min) 100			0 150		

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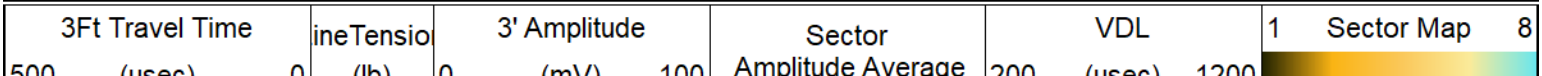
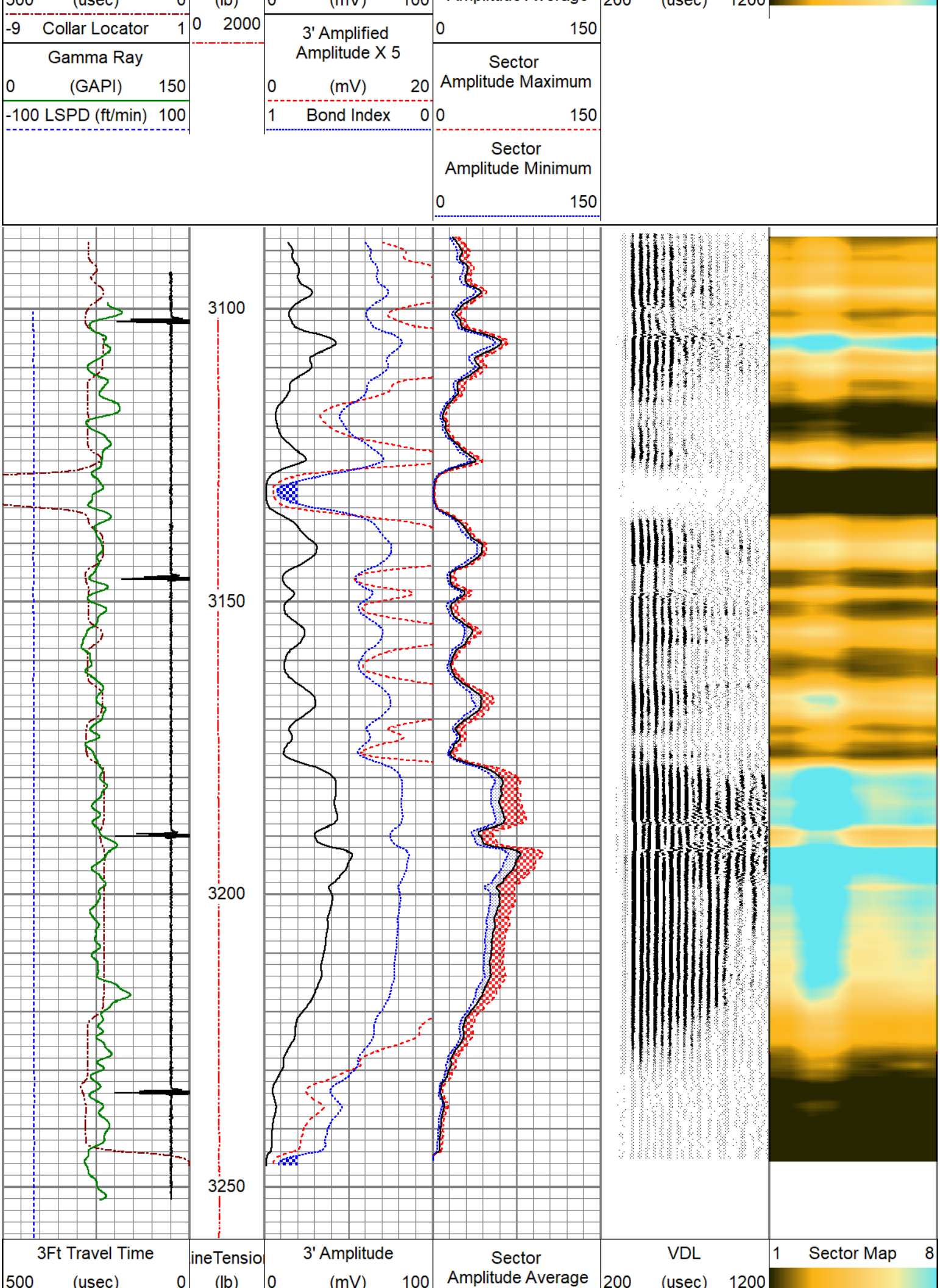
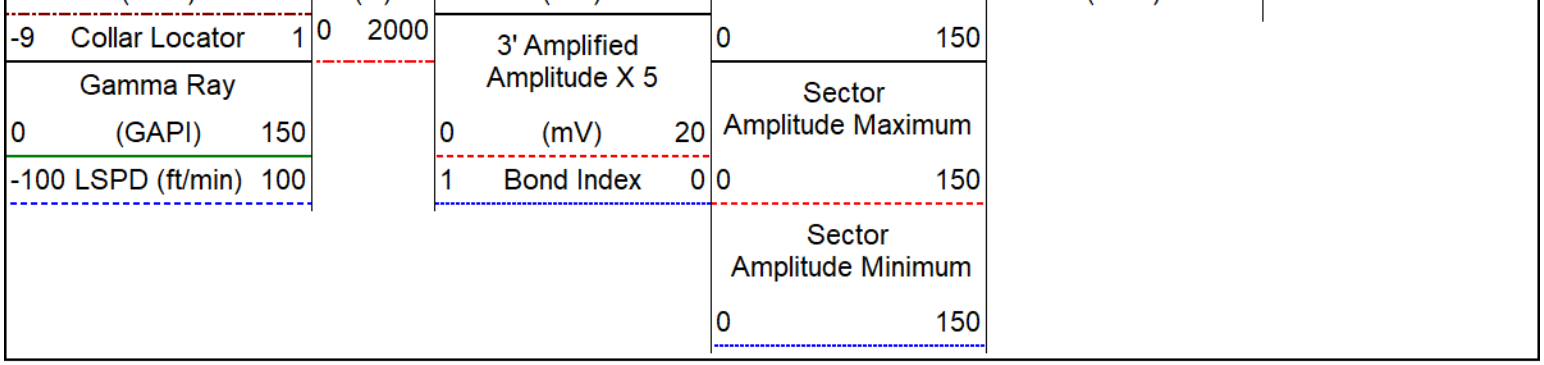
REPEAT SECTION

ZERO PSI APPLIED AT SURFACE

Database File	anadarko_vonderlage 22-31_0512326765_20200310_scbl.db
Dataset Pathname	pass7
Presentation Format	pinr_scbl
Dataset Creation	Tue Mar 10 10:09:40 2020
Charted by	Depth in Feet scaled 1:240




500 (usec) 0
-9 Collar Locator 1
Gamma Ray
0 (GAPI) 150
-100 LSPD (ft/min) 100
0 2000
(lb)
0 (mV) 100
3' Amplified Amplitude X 5
0 (mV) 20
1 Bond Index 0
0 150
Sector Amplitude Maximum
0 150
Sector Amplitude Minimum
0 150
200 (usec) 1200
3100
3150
3200
3250
3Ft Travel Time
500 (usec) 0
ineTensio
(lb)
3' Amplitude
0 (mV) 100
Sector Amplitude Average
VDL
200 (usec) 1200
1 Sector Map 8



Calibration Report

Database File	anadarko_vonderlage 22-31_0512326765_20200310_scbl.db
Dataset Pathname	pass10
Dataset Creation	Tue Mar 10 10:14:15 2020

Gamma Ray Calibration Report

Serial Number:	110246	
Tool Model:	GR/CCL-A	
Performed:	Mon Sep 09 12:21:39 2019	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.6660	GAPI/cps

Segmented Cement Bond Log Calibration Report

Serial Number:	FW1401-41-T	
Tool Model:	RBL-DC	
Calibration Casing Diameter:	4.500	in
Calibration Depth:	686.265	ft

Master Calibration, performed Tue Mar 10 09:55:14 2020:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.001	1.128	1.000	81.196	71.027	1.070
CAL	-0.001	1.498				
5'	-0.001	1.117	1.000	81.196	71.728	1.064
SUM						
S1	-0.001	1.112	0.000	100.000	89.811	0.089
S2	-0.001	1.112	0.000	100.000	89.886	0.089
S3	-0.001	1.113	0.000	100.000	89.744	0.101
S4	-0.001	1.140	0.000	100.000	87.627	0.089
S5	-0.001	1.166	0.000	100.000	85.708	0.089
S6	-0.001	1.188	0.000	100.000	84.110	0.088
S7	-0.001	1.177	0.000	100.000	84.901	0.076
S8	-0.001	1.157	0.000	100.000	86.382	0.089

Air Zero Calibration, performed Thu Nov 29 15:24:07 2018:

	Raw (v)	Calibrated (v)	Results
	Zero	Zero	Offset

3'	0.000	0.000	0.000
5'	0.000	0.000	0.000
SUM			
S1	0.000	0.000	0.000
S2	0.000	0.000	0.000
S3	0.000	0.000	0.000
S4	0.000	0.000	0.000
S5	0.000	0.000	0.000
S6	0.000	0.000	0.000
S7	0.000	0.000	0.000
S8	0.000	0.000	0.000

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Company	ANADARKO PETROLEUM CORP.
Well	VONDERLAGE 22-31
Field	WATTENBERG
County	WELD
State	COLORADO