



Pioneer Energy Services



**RADIAL BOND LOG
WITH GAMMA RAY**

Comp. **KERR-MCGEE OIL & GAS ONSHORE**
 Well **HORSE IRON P 22-31D**
 Field **WATTENBERG**
 Co. **WELD**
 State **CO**

Company **KERR-MCGEE OIL & GAS ONSHORE**
 Well **HORSE IRON P 22-31D**
 Field **WATTENBERG**
 County **WELD** State **CO**

Location: **API # : 0612330948** Other Services
SHL: 2426' FNL 975' FEL
SENE
SEC 21 TWP 3N RGE 67W
 Permanent Datum **GL** Elevation **4798'**
 Log Measured From **GL** Above Perm. Datum
 Drilling Measured From **KB** K.B. **4802'**
 D.F. **4801'**
 G.L. **4789'**

Date of Service	27 DEC 2016
Run Number	1
Depth Driller or PBTID	7935'
Depth Logger	2800'
Bottom Log Interval	2800'
Top Log Interval	SURFACE
Open Hole Size	7 7/8"
Type Fluid	WBM
Fluid Level	SURFACE
Fluid Density	N/A
Max. Recorded Temperature	108 F
Max. Wellhead Pressure	0 PSI
Wellhead Connection	N/A
Estimated Cement Top	410'
Unit Number	P-01
Wireline Size	9/32"
Location	FT. MORGAN, CO
Recorded By	S. STUMP
Witnessed By	E. CHAVEZ

Tubing Record	Size	Wt/Ft	Top	Bottom
Surface Casing				
Production Casing	4.5"	11.6#	SURFACE	7929'
Liner Record				

<<< Fold Here >>>

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.
 0 PSI ON WELL WHILE LOGGING
 S.O. # 2-260268
 WELL LOGGED FROM 2800' TO 0'


THANK YOU FOR USING PIONEER ENERGY SERVICES!

Your Pioneer Energy Services Crew	Tool Data - Services	Serial Number
Engineer: S. STUMP	SCBL	141168
Operator: Z. MCVAY	GR/CCL	070238
Operator: K. HARRYMAN		
Operator:		

Top - Bottom

BHTEMP_Src TEMP	PPT usec 0	CASEWGHT lb/ft 11.6	MAXAMPL mV 0	MINAMPL mV 1.5	MINATTN db/ft 0.08	SRFTEMP degF 0
CASETHCK in 0	CASEOD in 4.5	PERFS 0	TDEPTH ft 0	BOTTEMP degF 163	BOREID in 7.875	

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)	
			Cable Head-Titan 143 1 7/16" Titan Cable Head	1.03	1.43	2.00	
			Centralizer-275 Probe 2 3/4" Probe Adjustable Spring Centralizer	2.88	2.75	15.00	
TEMP	14.17						
WVFS8	11.94			SCBL-275 Probe w Temp New Mod (141119.17) Probe Radii Bond Tool with Temperature	119.17	2.75	95.00
WVFS7	11.94						
WVFS6	11.94						
WVFS5	11.94						
WVFS4	11.94						
WVFS3	11.94						
WVFS2	11.94						
WVFS1	11.94						
WVFCAL	11.94						
WVF3FT	11.94						
WVF5FT	10.94						
			Centralizer-275 Probe 2 3/4" Probe Adjustable Spring Centralizer	2.88	2.75	15.00	
CCL	3.91						

GR	1.17		GR_CCL-275 Probe GR-CCL (070238) Probe 2 3/4" Gamma Ray / CCL Analog - Neg Pulse	4.54	2.75	60.00
			Bullnose-Titan GO Pin Pressure Cap	0.27	1.38	1.00
Dataset:			2-260268.db: field/well/run1/MAIN			
Total length:			20.76 ft			
Total weight:			188.00 lb			
O.D.:			2.75 in			




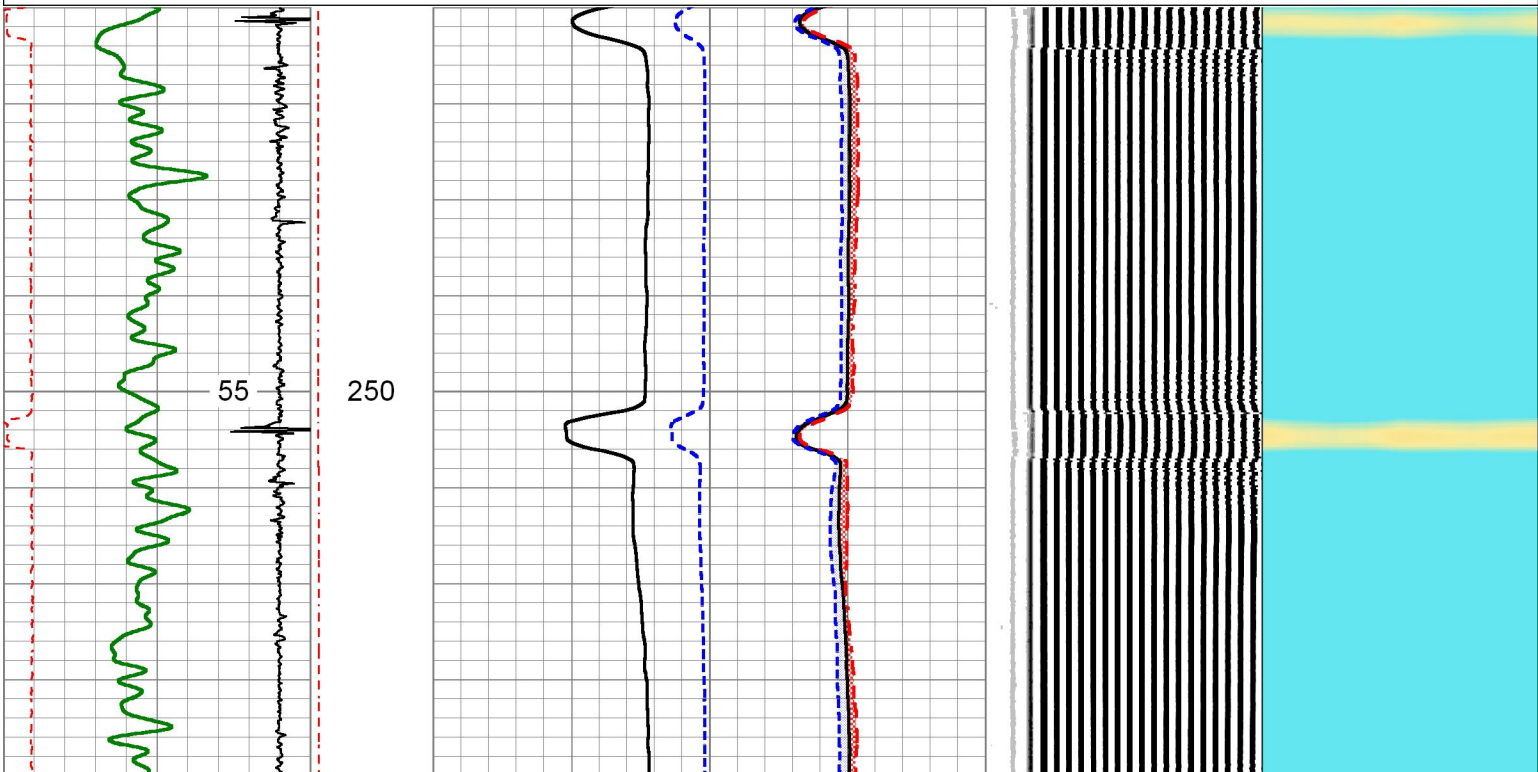
PIONEER
Pioneer Energy Services

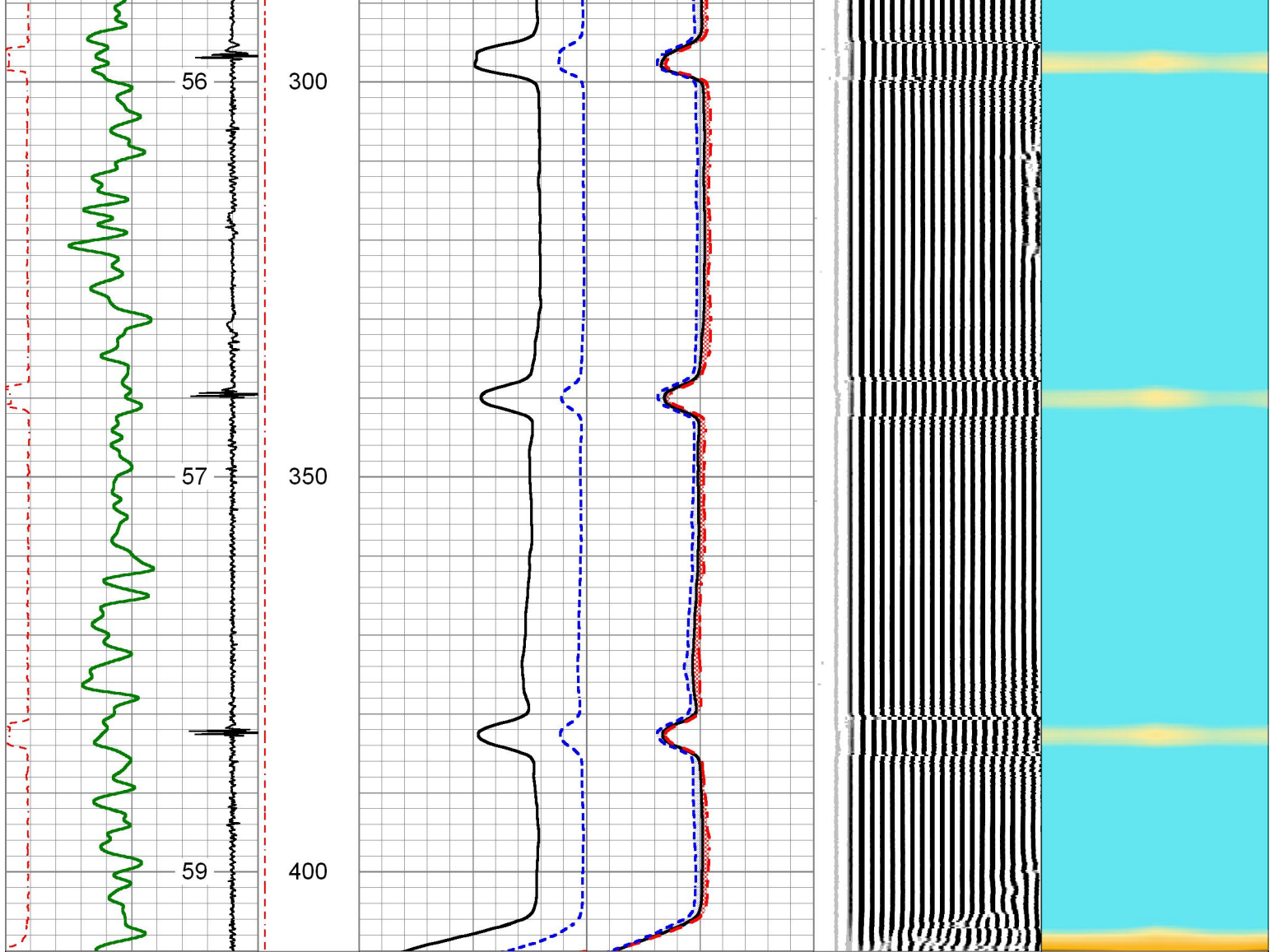
FREE PIPE PASS

0 PSI ON WELL WHILE LOGGING

Database File	2-260268.db
Dataset Pathname	FREE PIPE
Presentation Format	pinr_scbl
Dataset Creation	Tue Dec 27 08:47:55 2016
Charted by	Depth in Feet scaled 1:240

3' Travel Time (usec)	Line Tension (lb)	3' Amplitude (mV)	Sector Amplitude Average	200	VDL	1200	1	Sector Map	8
250	0	0	0				10		60
-9 Collar Locator	1	3' Amplified Amplitude X 5 (mV)	Sector Amplitude Maximum	0			0		150
Gamma Ray (GAPI)	150	0	Sector Amplitude Minimum	0			0		150
Temp (degF)		1 Bond Index		0			0		150





3' Travel Time 250 (usec) 150	Line Tension 0 (3000)	3' Amplitude (mV) 0 100	Sector Amplitude Average 0 150	200 VDL 1200	1 Sector Map 8 10 60
-9 Collar Locator 1		3' Amplified Amplitude X 5 (mV) 0 20	Sector Amplitude Maximum 0 150		
Gamma Ray (GAPI) 150		1 Bond Index 0	Sector Amplitude Minimum 0 150		
Temp (degF)					



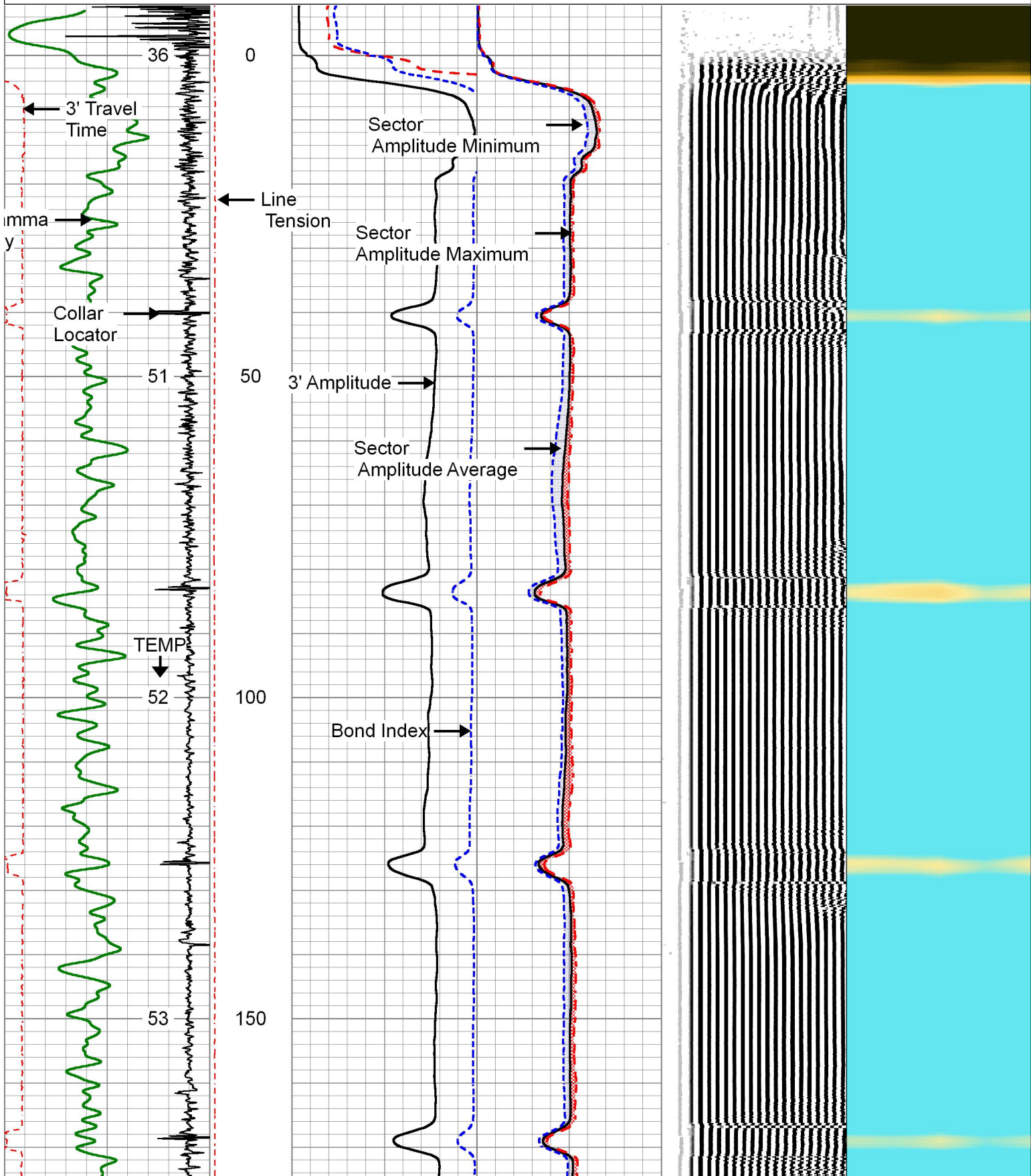
MAIN PASS

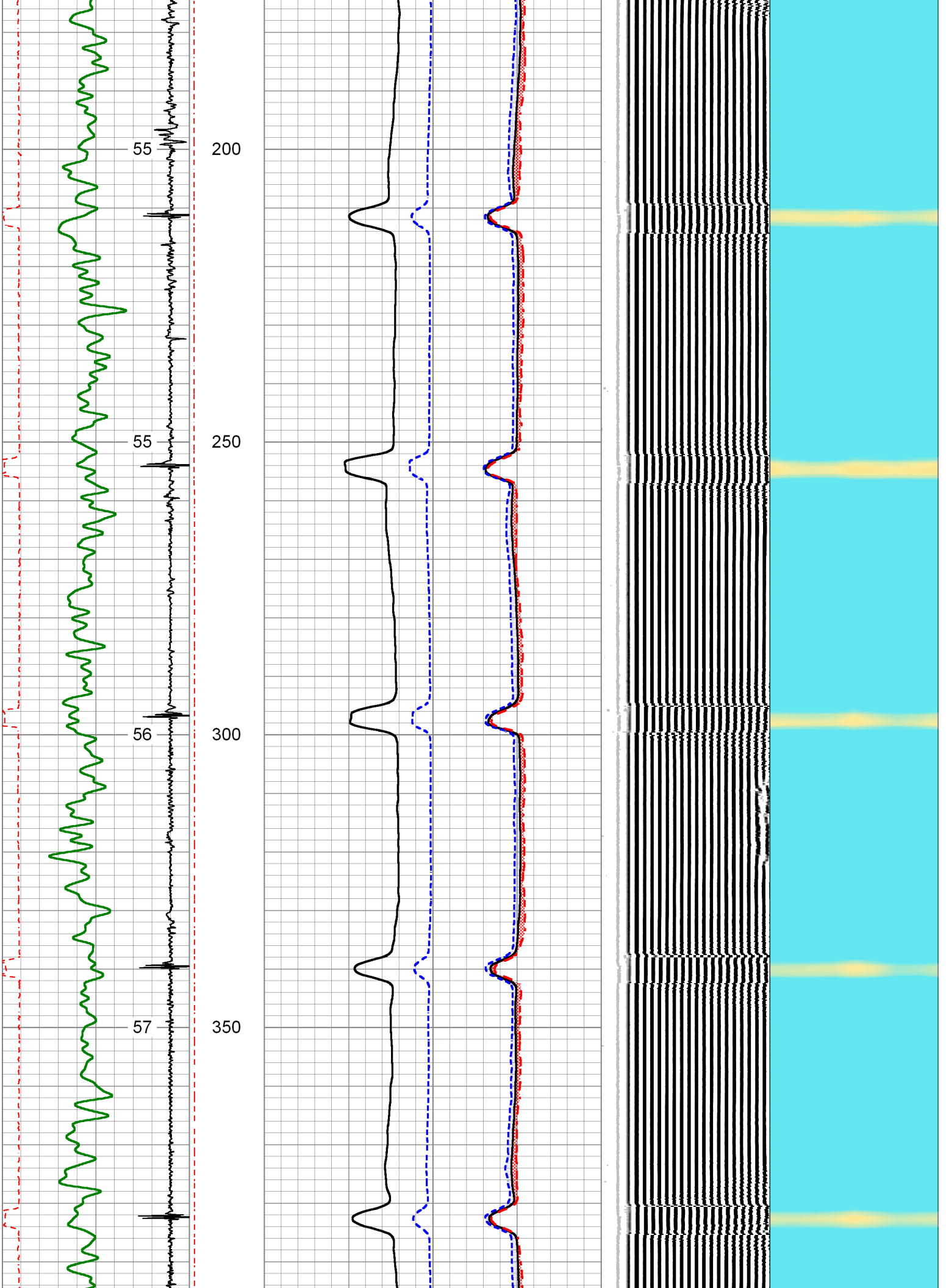
0 PSI ON WELL WHILE LOGGING

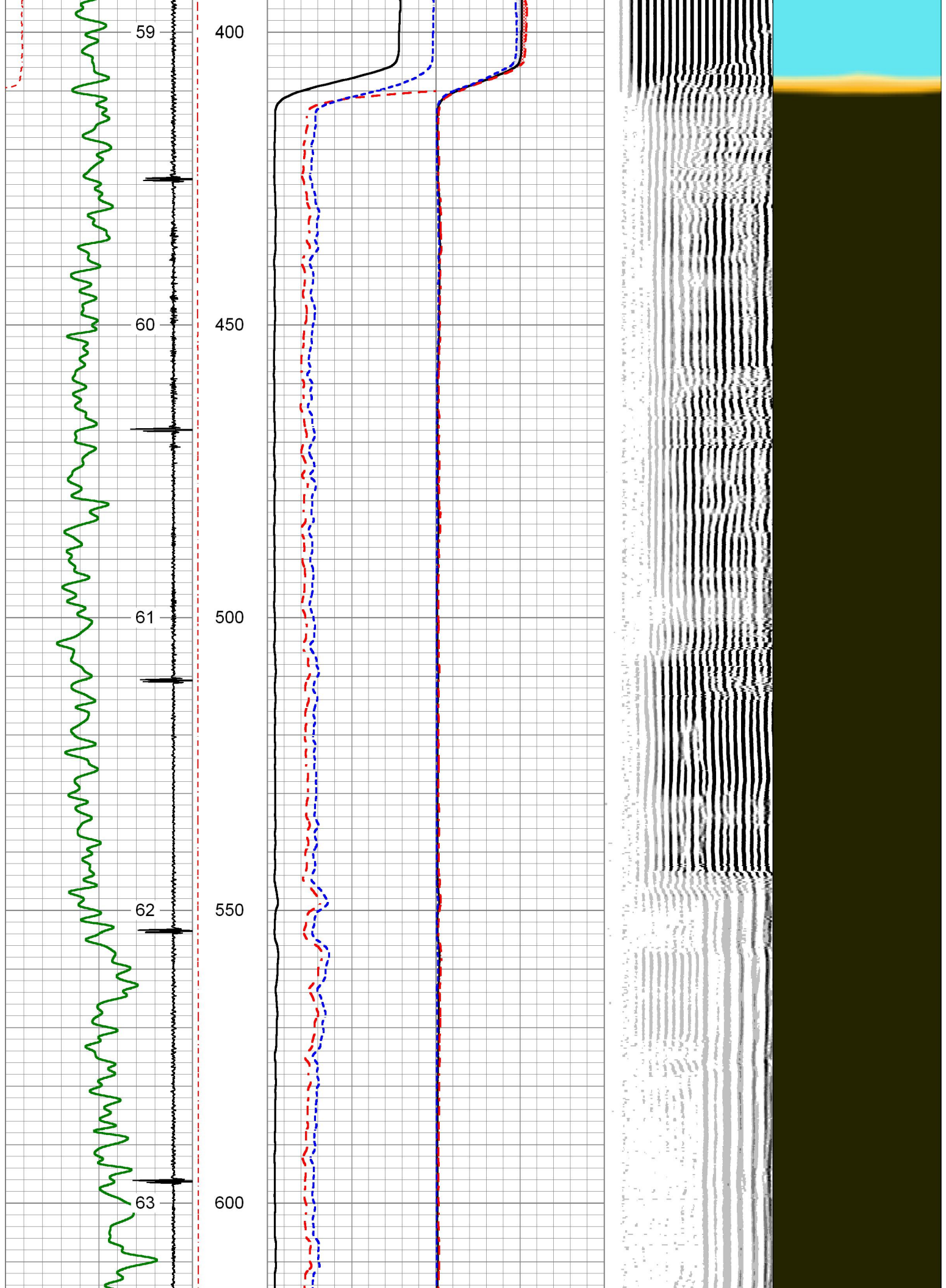
Database File 2-260268.db
 Dataset Pathname MAIN
 Presentation Format pinr_scb1
 Dataset Creation Tue Dec 27 08:44:23 2016
 Charted by Depth in Feet scaled 1:240

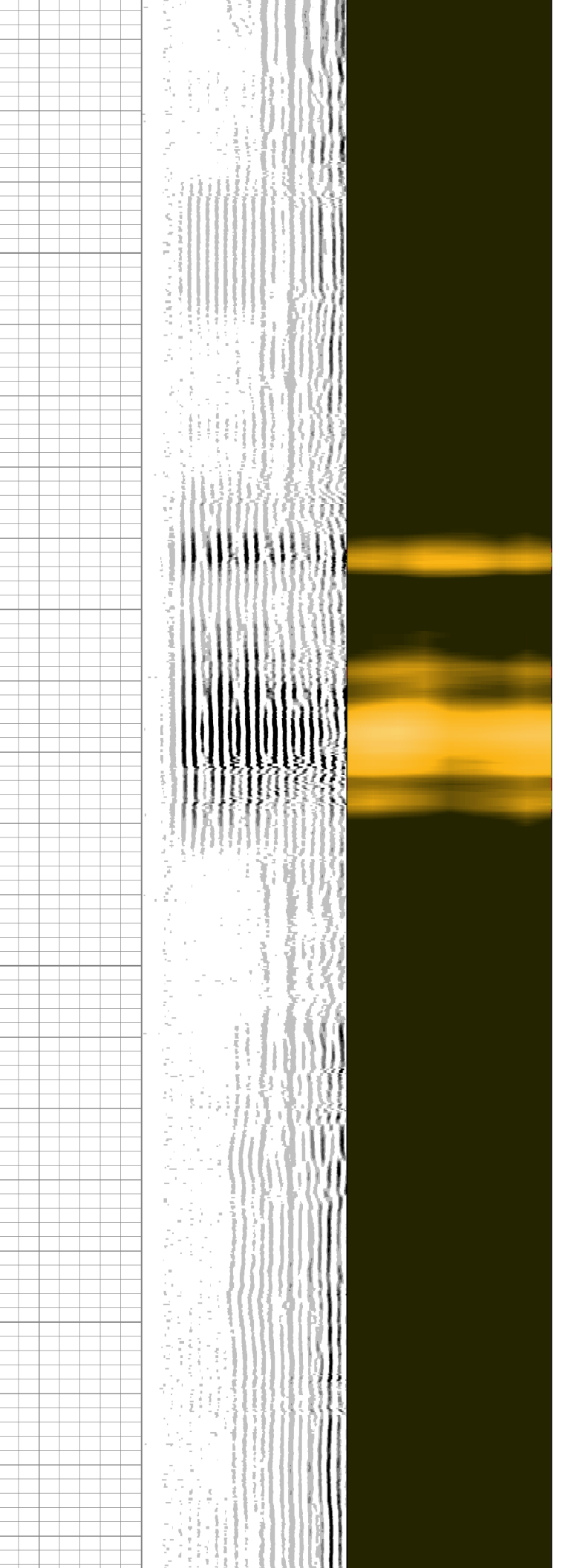
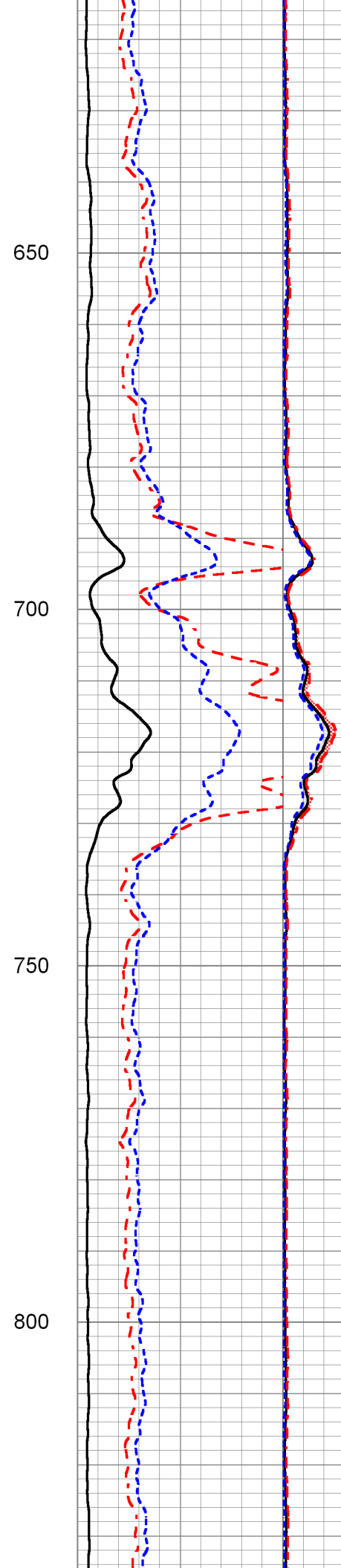
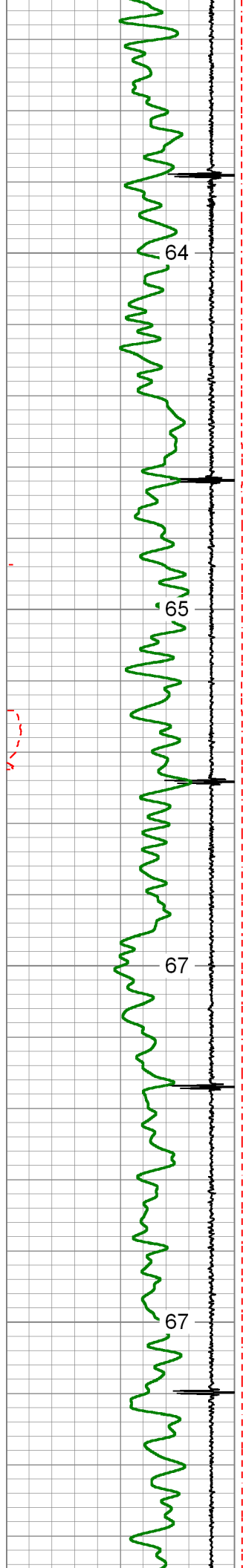
3' Travel Time	Line Tension	3' Amplitude (mV)	Sector Amplitude Average	200 VDL 1200	1 Sector Map 8 10 60
----------------	--------------	-------------------	--------------------------	--------------	-------------------------

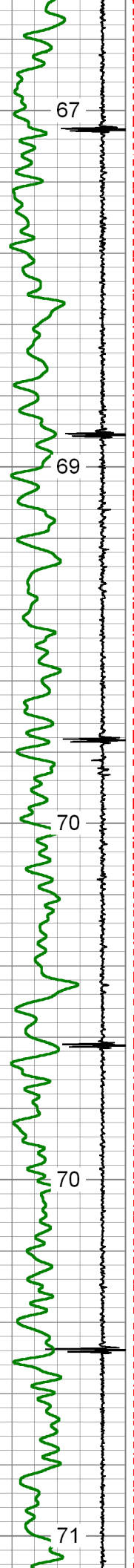
250 (usec)	150	0 (3000)	3' Amplified Amplitude X 5	0	150
-9 Collar Locator	1			Sector Amplitude Maximum	
Gamma Ray (GAPI)		0 (mV)	20	Sector Amplitude Minimum	
0	150	1 Bond Index	0	0	150
Temp (degF)					
		Sector Amplitude Minimum			
		0 150			











67

69

70

70

71

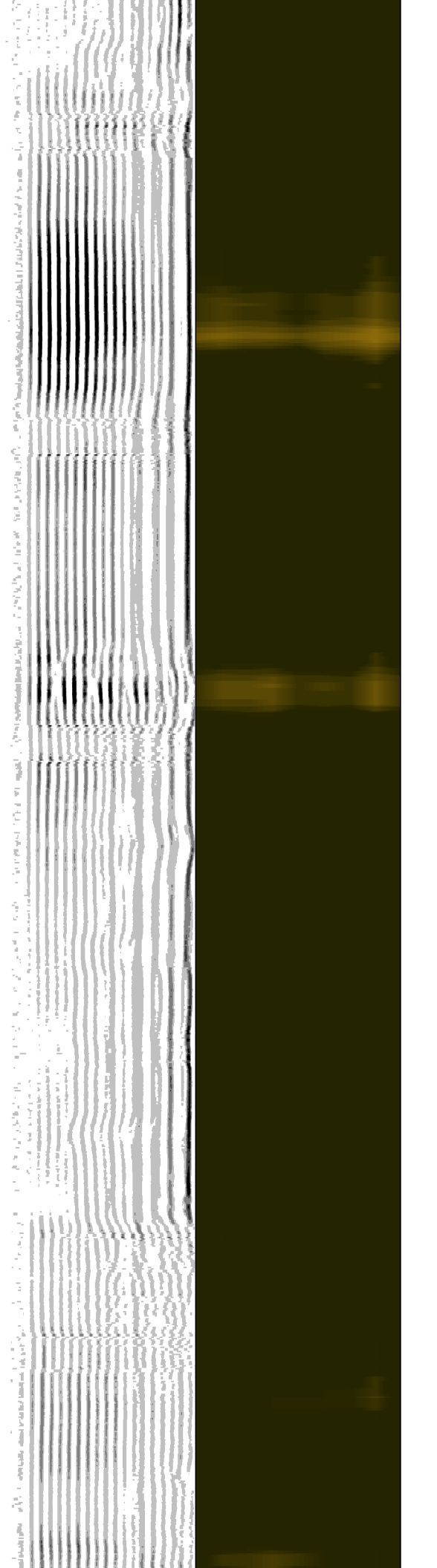
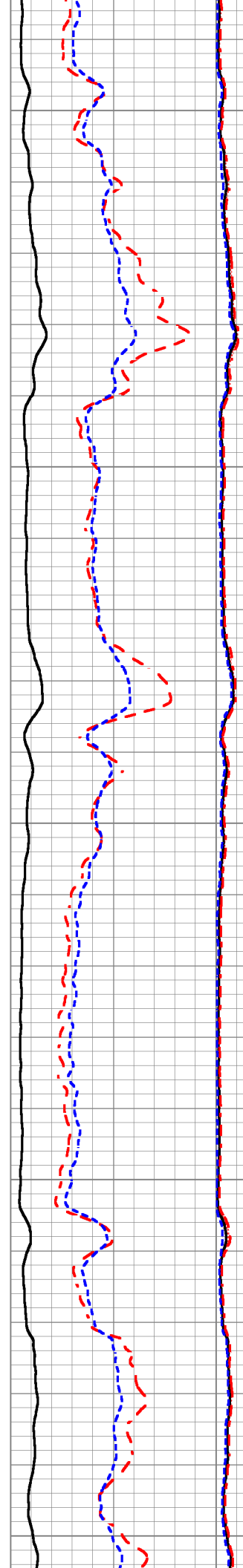
850

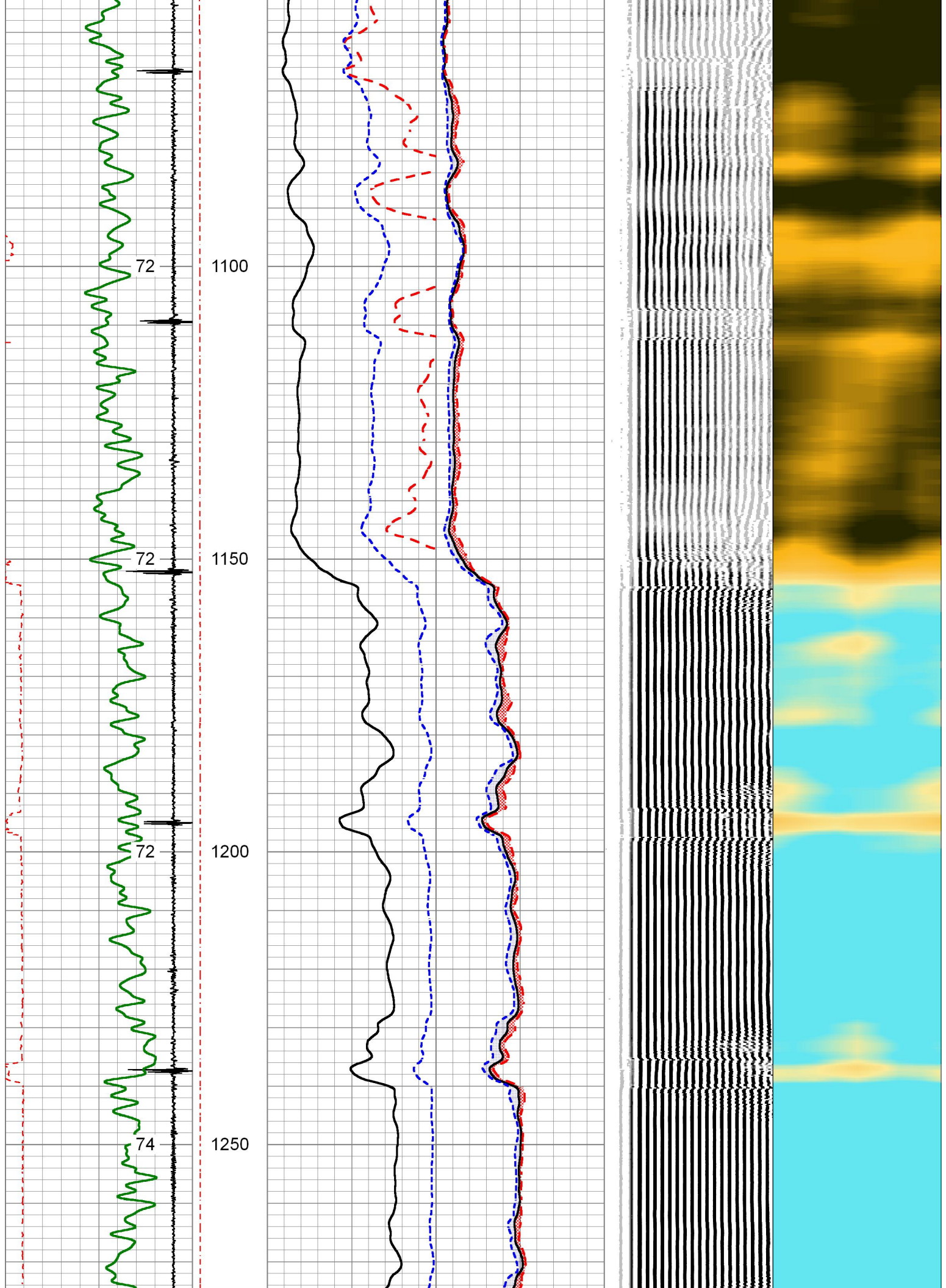
900

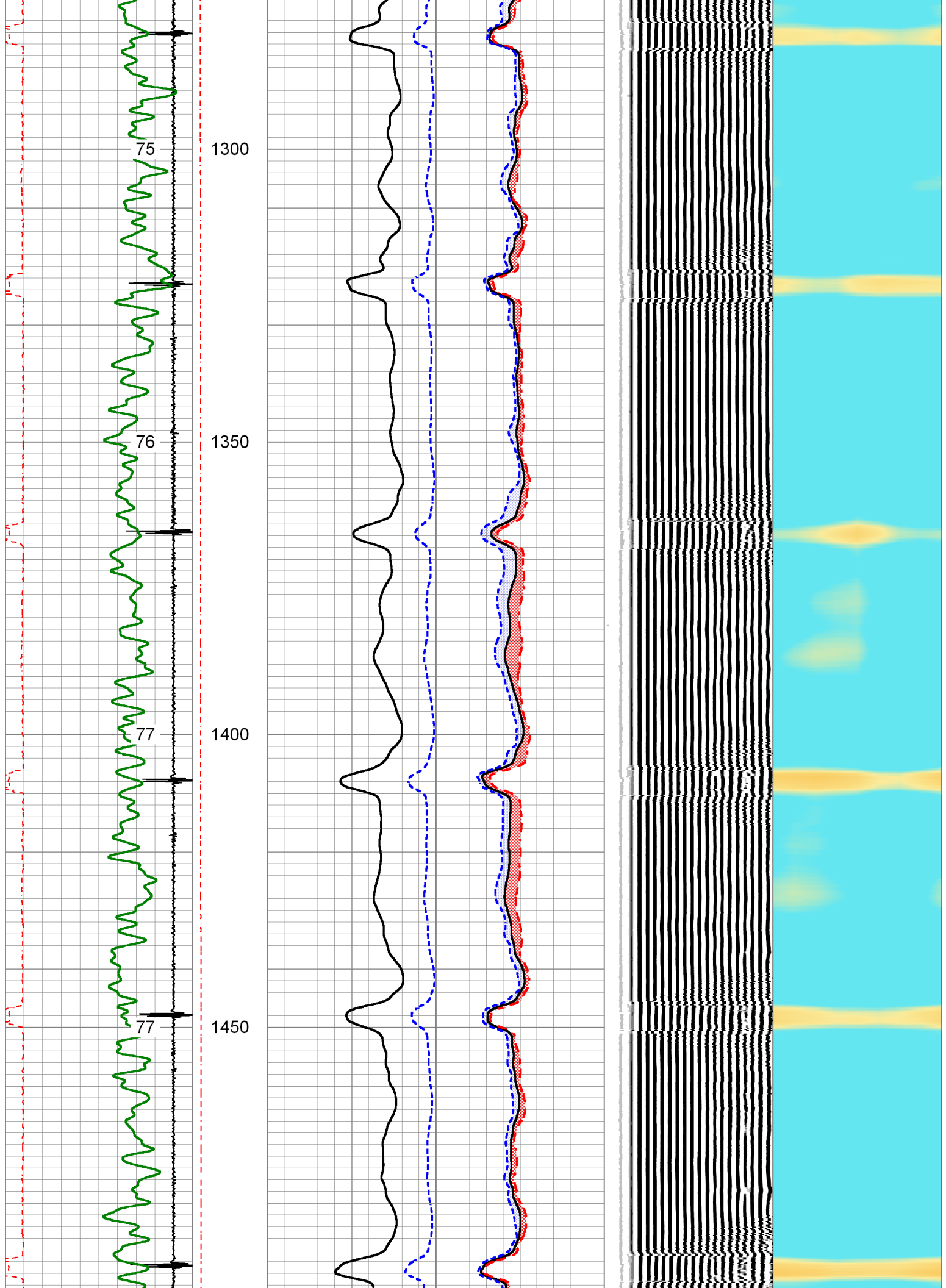
950

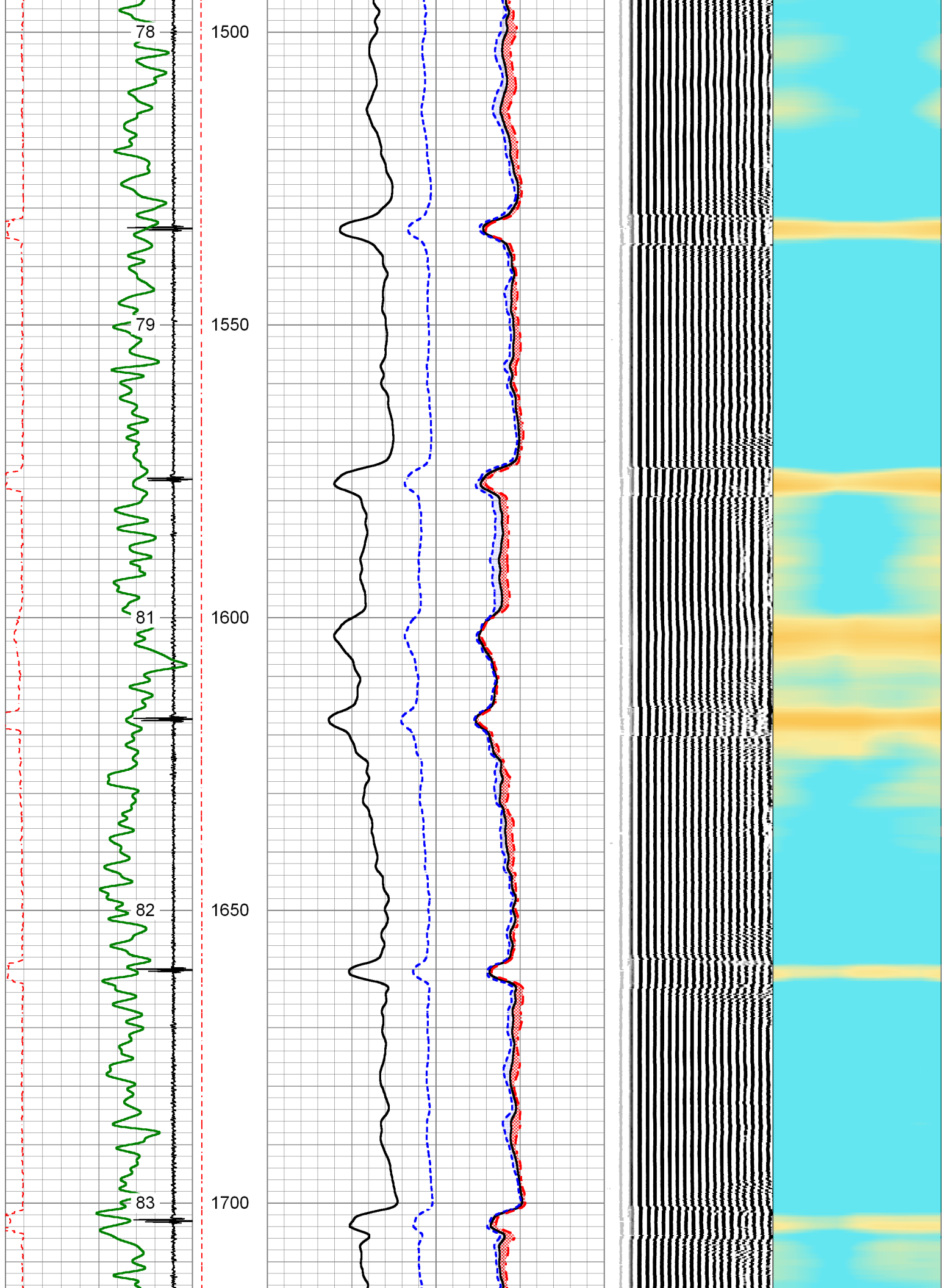
1000

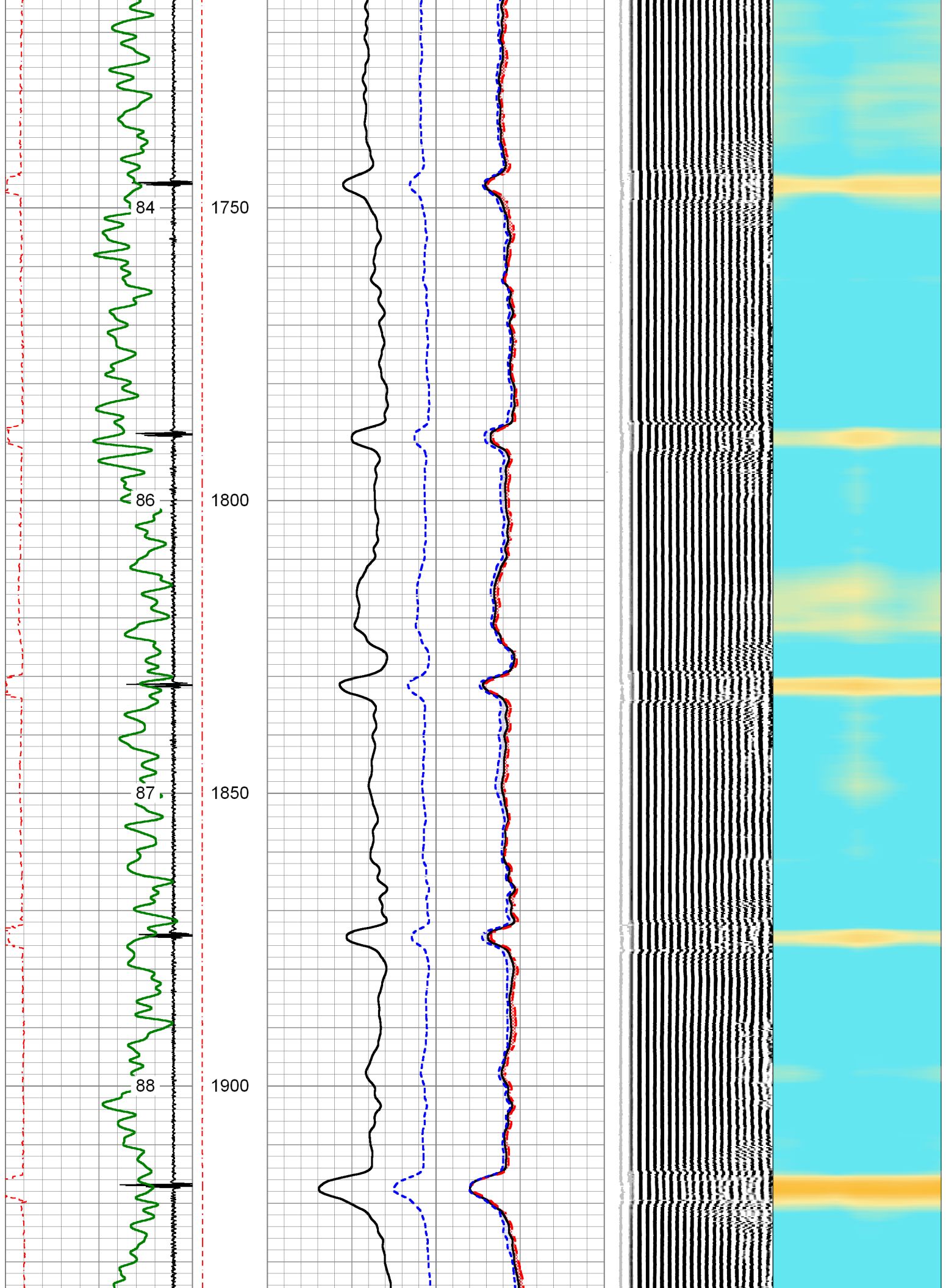
1050

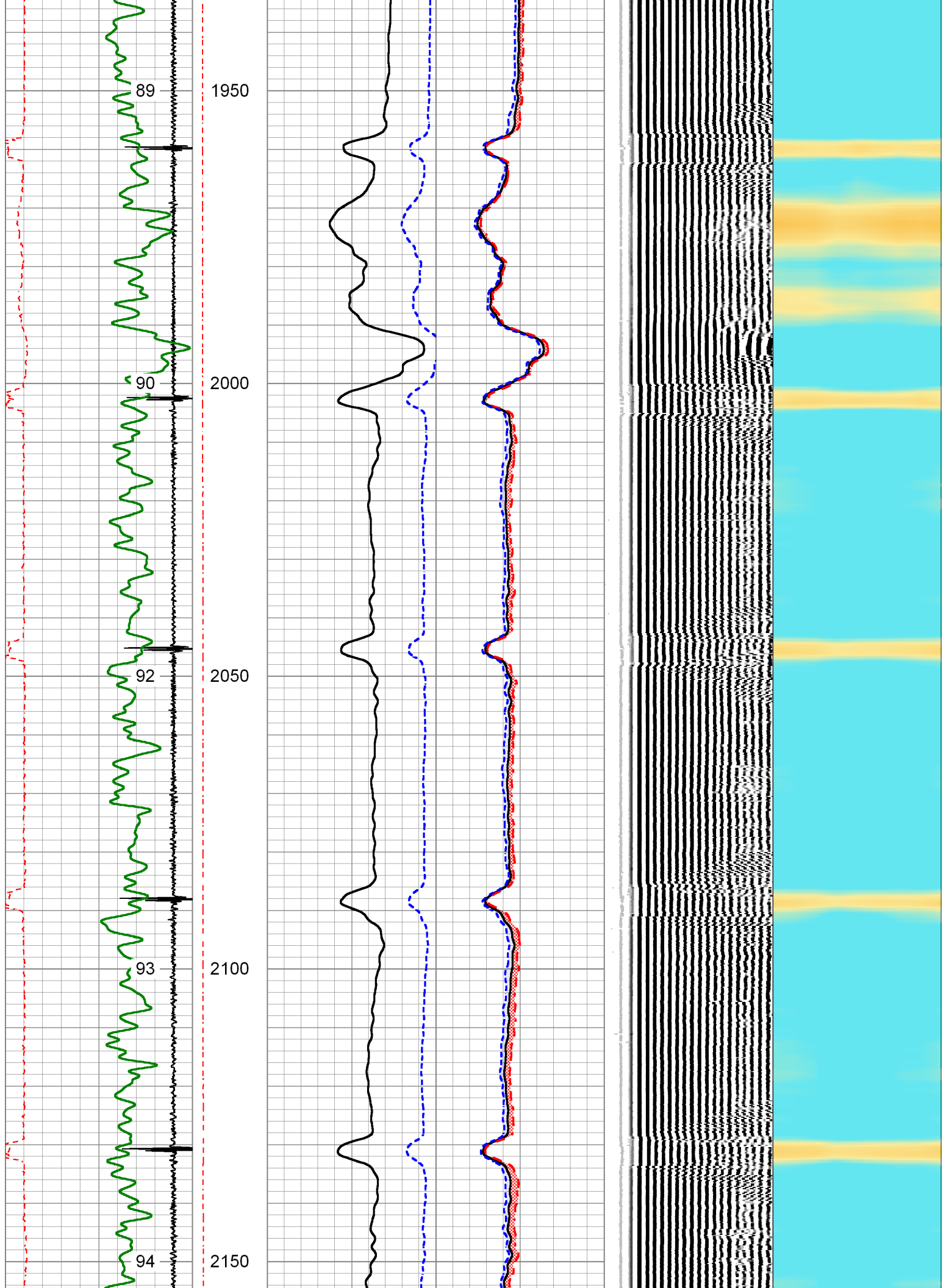


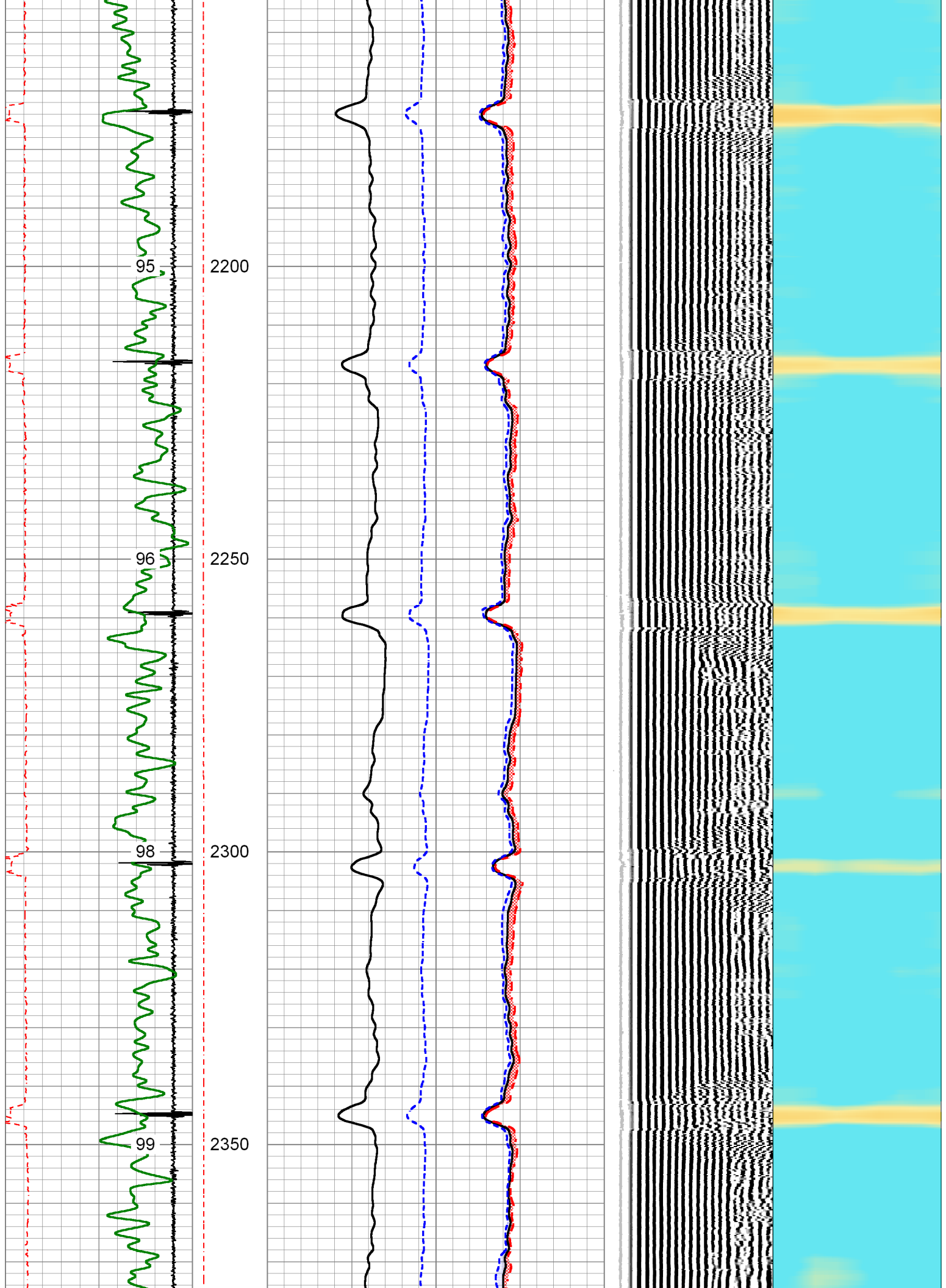


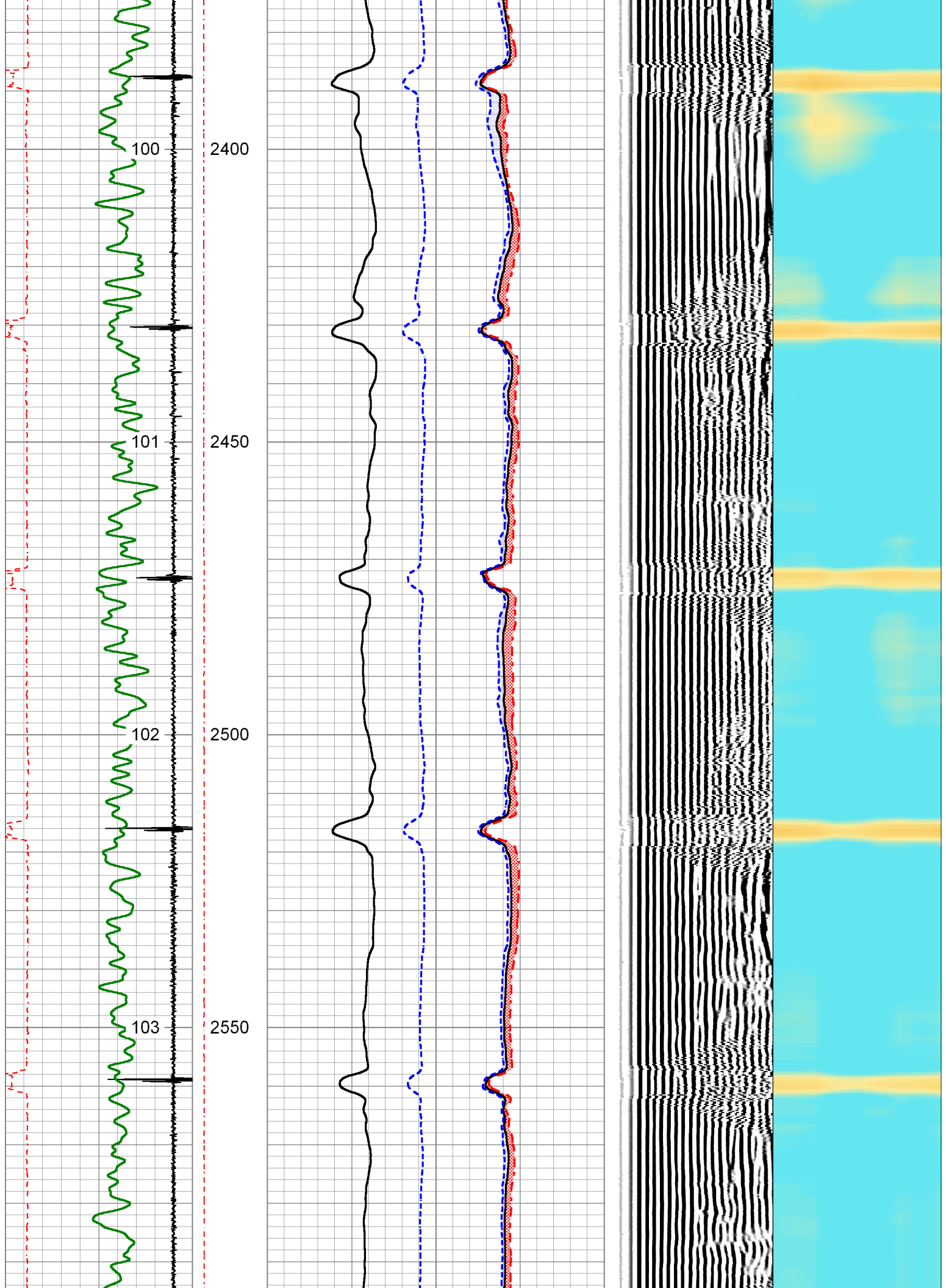


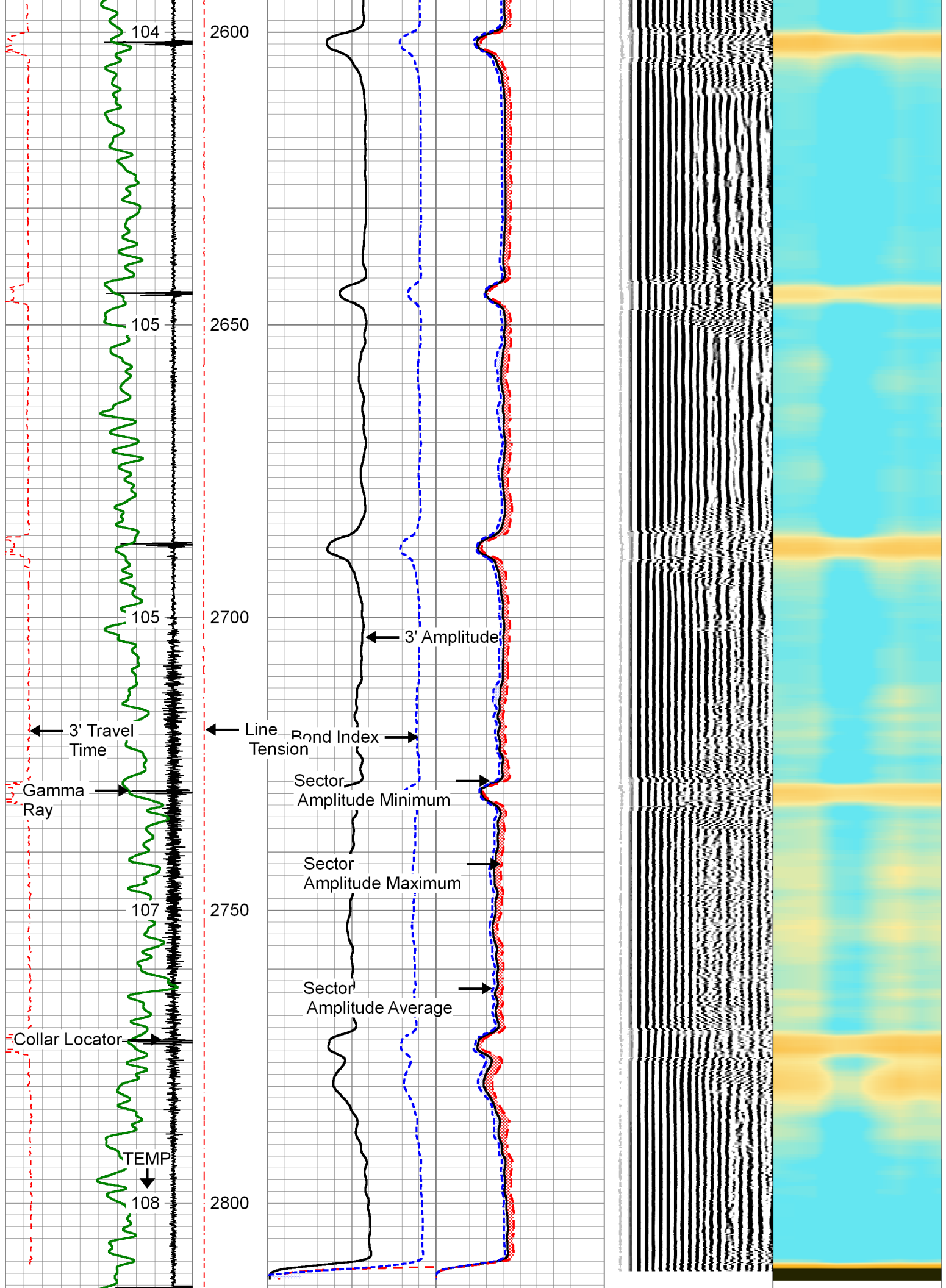


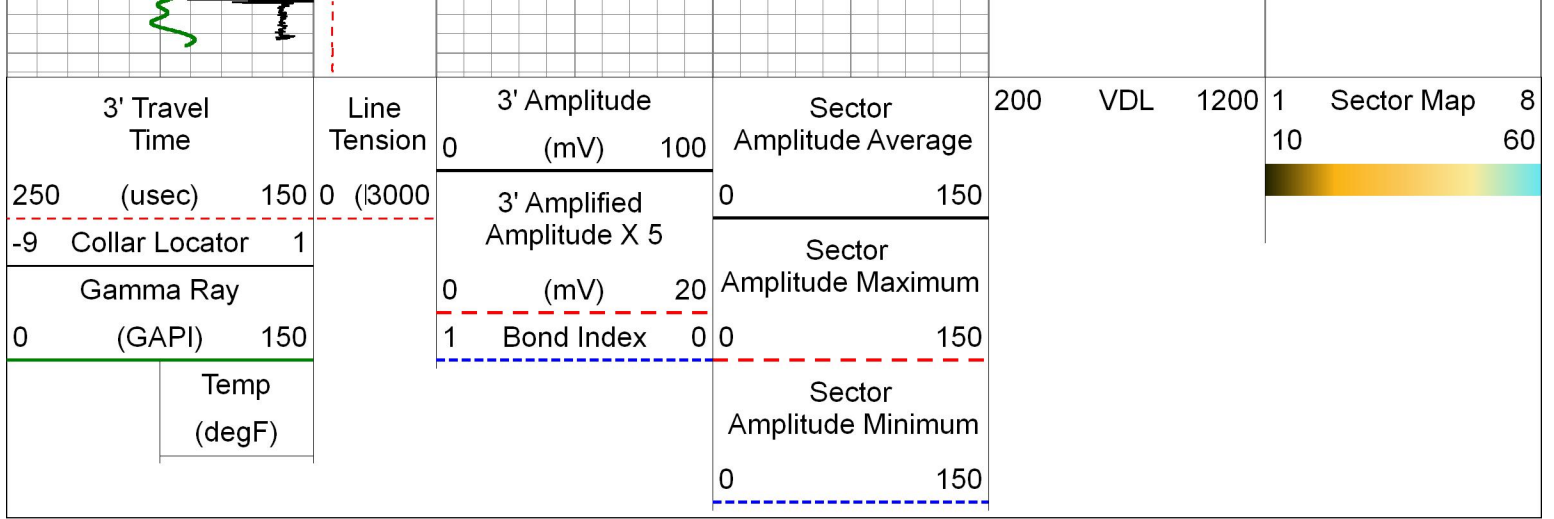











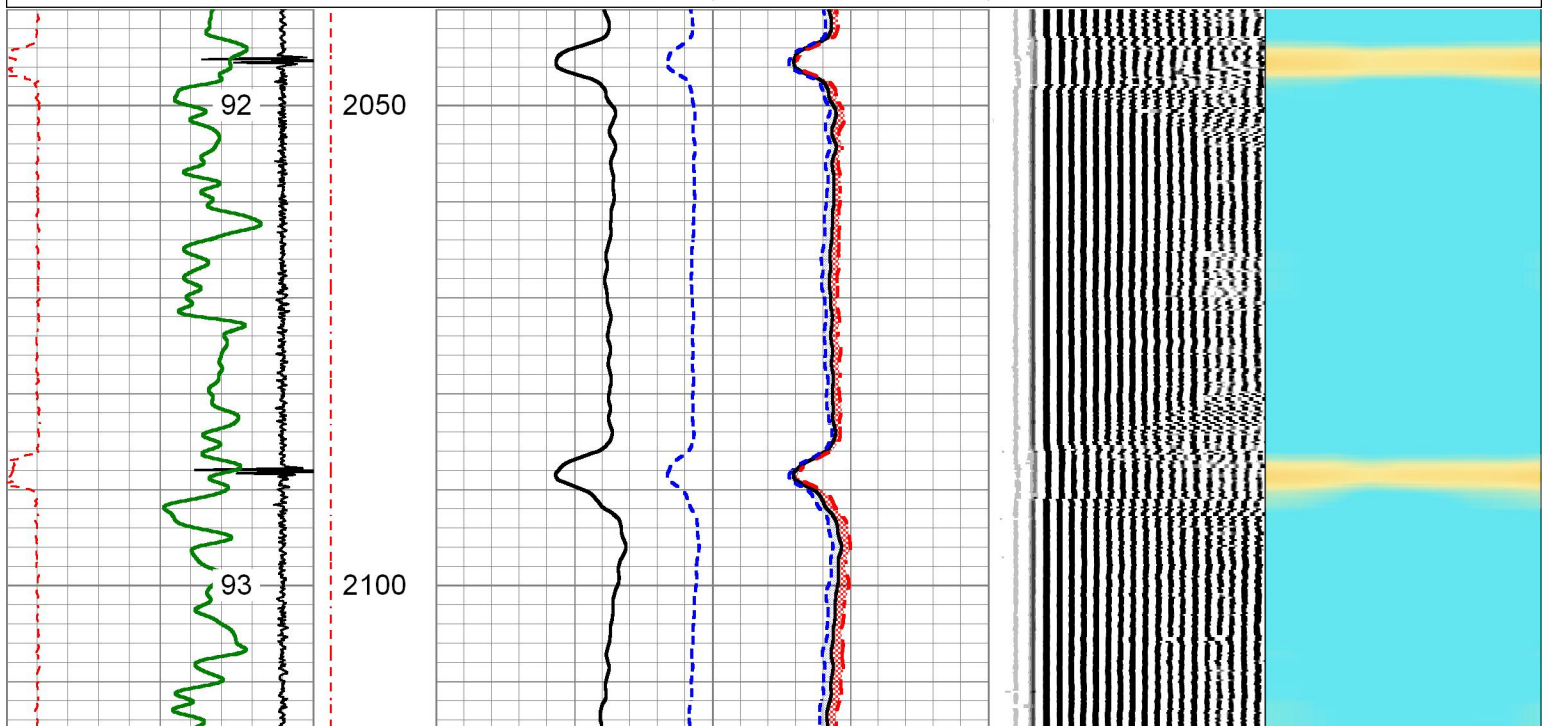
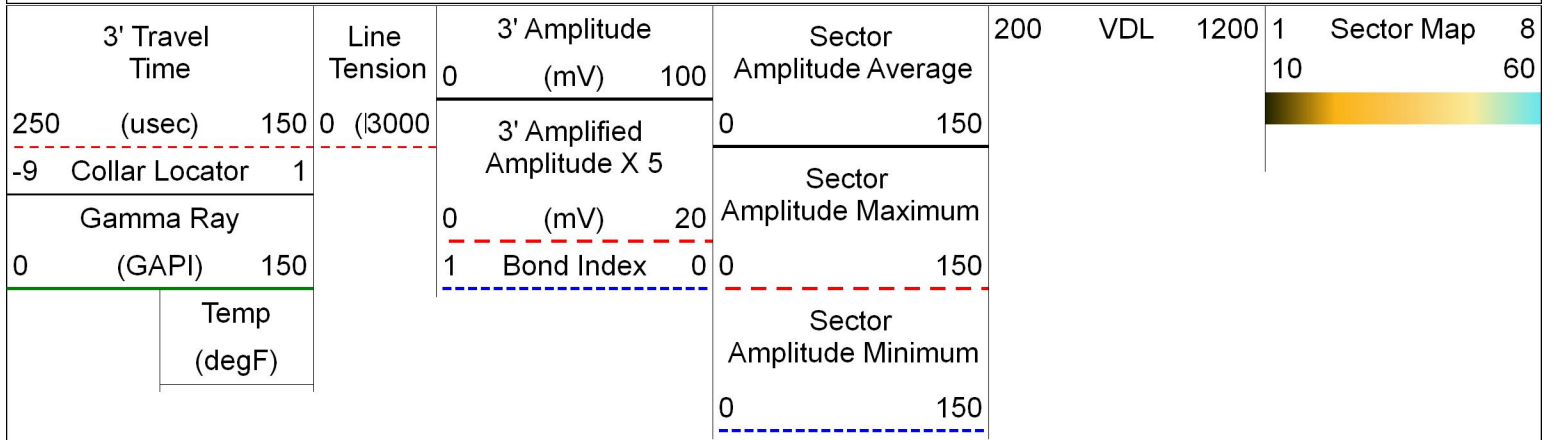


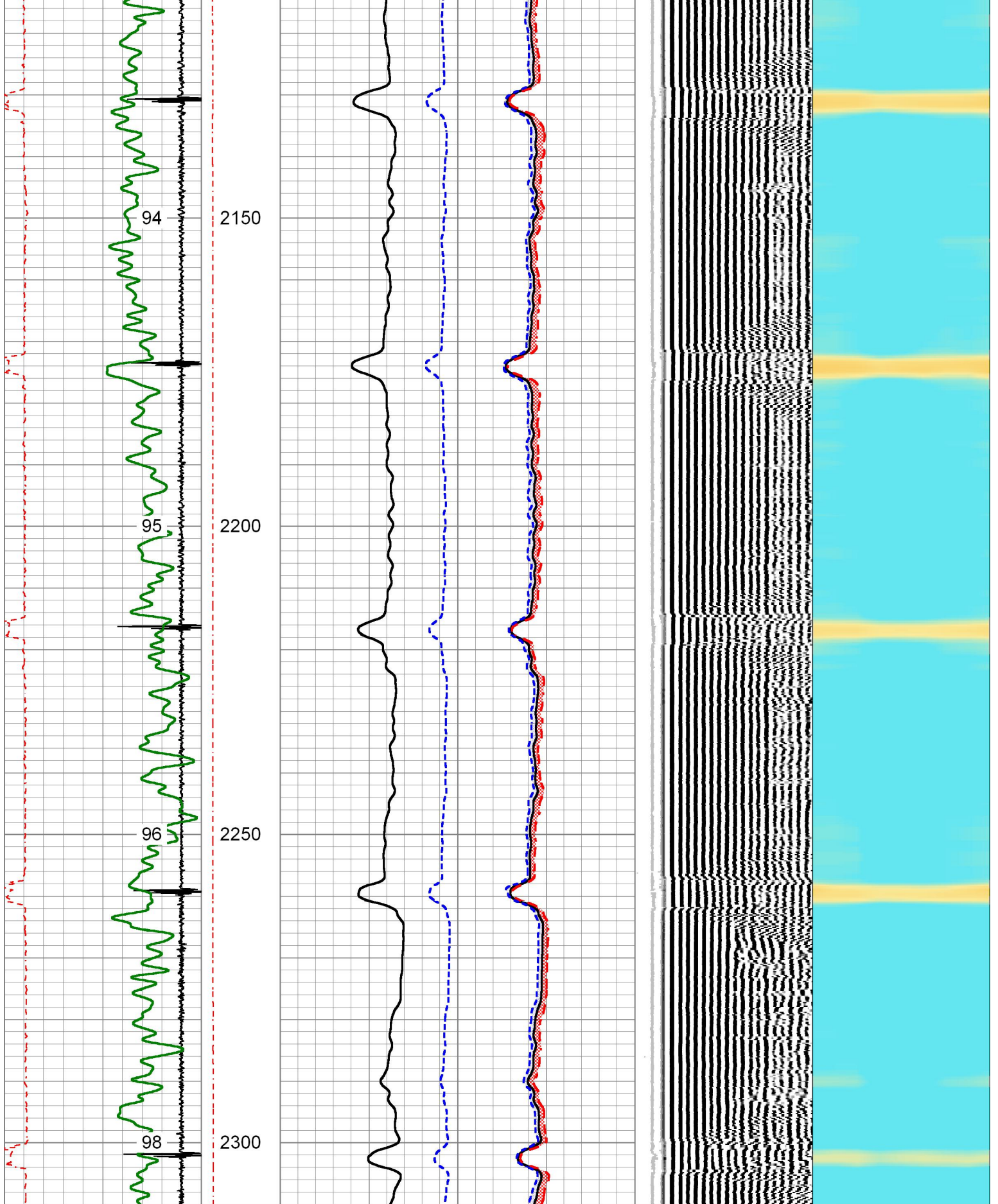


REPEAT SECTION

0 PSI ON WELL WHILE LOGGING

Database File 2-260268.db
 Dataset Pathname REPEAT2
 Presentation Format pinr_scb1
 Dataset Creation Tue Dec 27 08:41:23 2016
 Charted by Depth in Feet scaled 1:240





3' Travel Time	Line Tension	3' Amplitude (mV)	Sector Amplitude Average	200 VDL 1200	Sector Map
250 (usec) 150	0 (3000)	0 100	0 150		1 8
-9 Collar Locator 1		3' Amplified Amplitude X 5			10 60
Gamma Ray		0 (mV) 20	Sector Amplitude Maximum		

High Reference: 1.00 degF 1.00 degF
Gain: 0.78
Offset: 8.00
Delta Spacing 1



PIONEER
Pioneer Energy Services

Company	KERR-MCGEE OIL & GAS ONSHORE
Well	HORSE IRON P 22-31D
Field	WATTENBERG
County	WELD
State	CO
Country	USA