



**PIONEER**

Pioneer Energy Services

**RADIAL BOND LOG  
WITH GAMMA RAY**

Comp. ANADARKO PETROLEUM CORP.  
Well WARDELL H 18-10  
Field WATTENBERG  
Co. WELD  
State COLORADO

Company **ANADARKO PETROLEUM CORP.**  
Well **WARDELL H 18-10**  
Field **WATTENBERG**  
County **WELD** State **COLORADO**

Location: NW SE API #: 05-123-15859 Other Services  
SEC 18 TWP 3N RGE 65W  
Permanent Datum GL Elevation 4975'  
Log Measured From KB 12' Above Perm. Datum  
Drilling Measured From KB  
K.B. 4987'  
D.F. N/A  
G.L. 4975'

Date of Service	05 MARCH 2020		
Run Number	ONE		
Depth Driller or PBTD	3130'		
Depth Logger	N/A		
Bottom Log Interval	1400'		
Top Log Interval	SURFACE		
Open Hole Size	7.875"		
Type Fluid	WATER		
Fluid Level	90'		
Fluid Density	N/A		
Max. Recorded Temperature	N/A		
Max. Wellhead Pressure	ZERO		
Wellhead Connection	OPEN		
Estimated Cement Top	N/A		
Unit Number	P-133		
Wireline Size	9/32"		
Location	FORT MORGAN CO.		
Recorded By	SCHOENROGGE		
Witnessed By	MR. EDGAR		
	</		

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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.

DEPTHS ARE WIRELINE

THANK YOU FOR USING PIONEER ENERGY SERVICES!

Your Pioneer Energy Services Crew	Tool Data - Services	Serial Number
Engineer: SCHOENROGGE / P LOPEZ Operator: G SOTO Operator: C COBIAN Operator:	SEE DIAGRAM	

Top - Bottom

BHTEMP_Src	BOREID	BOTTEMP	CASEOD	CASETHCK	CASEWGHT	MAXAMPL
TEMP	in 7.875	degF 100	in 2.875	in 0.308	lb/ft 8.7	mV 96.2
MINAMPL	MINATTN	PERFS	PPT	SRFTEMP	TDEPTH	
mV 1.5	db/ft 0.8	No	usec 196.4	degF 50	ft 0	


Variable Description

BHTEMP\_Src : BHTEMP Input Source Selector  
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_169 1 11/16" Titan Cable Head	1.03	1.69	2.00
			Centralizer-169 Titan ADJ Titan 1 11/16" Adjustable Centralizer	3.00	1.69	22.00
TEMP	17.80					
WVFCAL	17.13					
WVFS6	16.38					
WVFS5	16.38		TekCo-SCBL-169-169 TekCo w Temp (IUZE1-01) 1 11/16" RIB w/ Temp 400 Deg. F	9.75	1.69	63.00
WVFS4	16.38					
WVFS3	16.38					
WVFS2	16.38					
WVFS1	16.38					
WVF3FT	15.63					
WVF5FT	14.63					
WVFTEMP	11.30		Centralizer-169 Hotwell 1 11/16" Hotwell Centralizer	3.00	1.69	11.02

CCL	7.58		CCL Logging-169 TekCo (TekCo-169) TekCo 1 11/16" Rare Earth	1.33	1.69	5.00
GR	4.15		GR-169 TekCo (TekCo-169) TEKCO 1 11/16" 400 Deg. F Logging Gamma Ray	3.82	1.68	40.00
			Centralizer-169 Titan ADJ Titan 1 11/16" Adjustable Centralizer	2.88	1.69	22.00
			Bullnose-Titan GO Pin Pressure Cap	0.27	1.38	1.00
Dataset: anadarko_wardell h 18-10_0512315859_20200305_scbl.db: field/well/run1/pass7 Total length: 25.08 ft Total weight: 166.02 lb O.D.: 1.69 in						

  
**PIONEER**

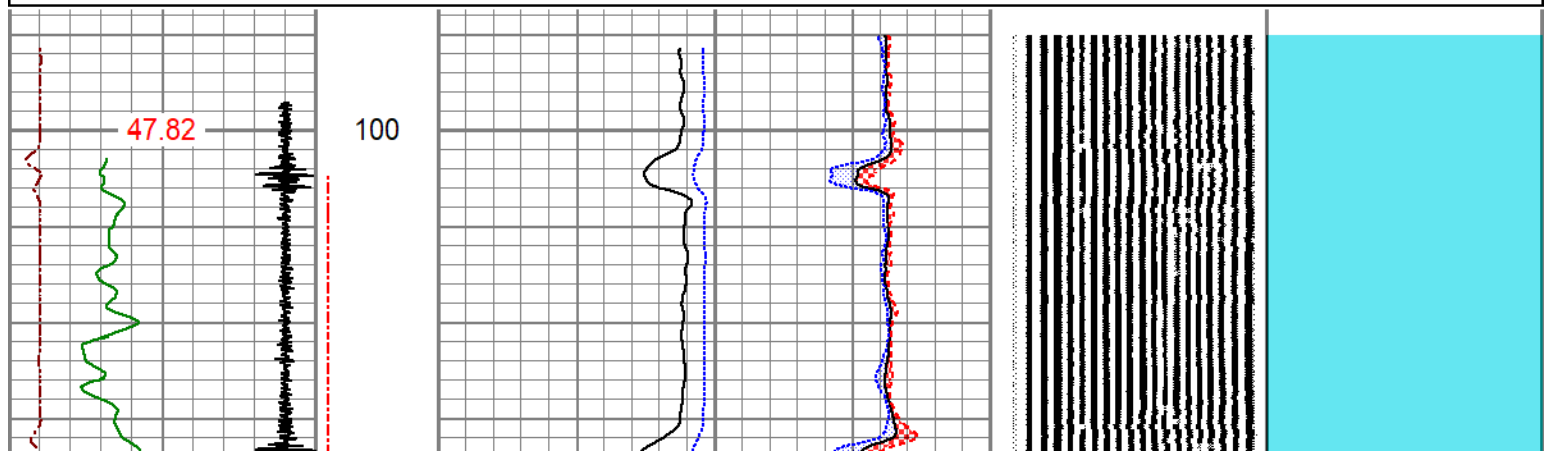
Pioneer Energy Services

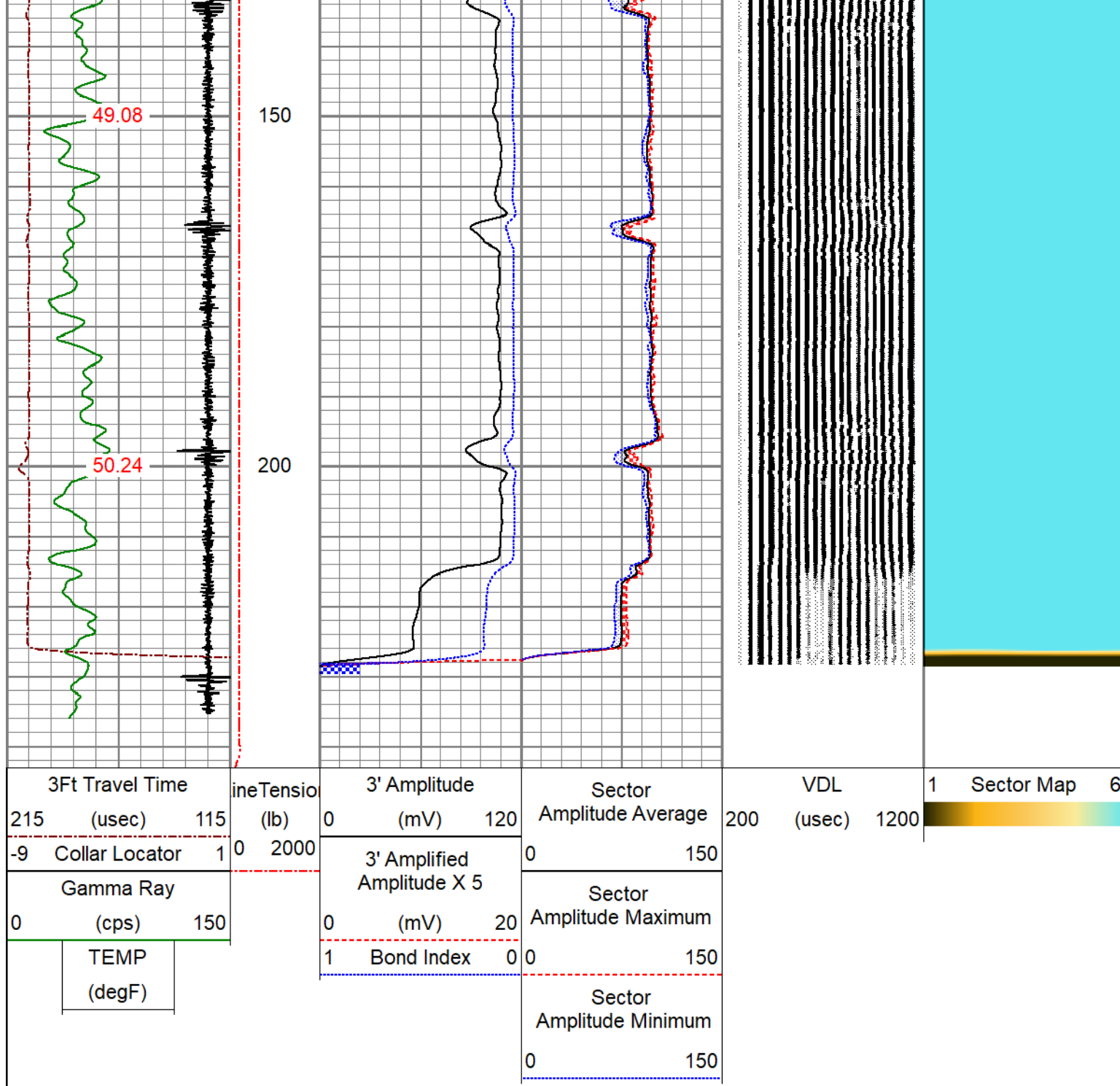
FREE PIPE SECTION


ZERO PSI APPLIED AT SURFACE

Database File      anadarko\_wardell h 18-10\_0512315859\_20200305\_scbl.db  
Dataset Pathname      pass4  
Presentation Format      pinr\_scbl  
Dataset Creation      Thu Mar 05 09:17:50 2020  
Charted by      Depth in Feet scaled 1:240

3Ft Travel Time	ineTensio	3' Amplitude	Sector	VDL	1	Sector Map	6
215 (usec) 115	(lb)	0 (mV) 120	Amplitude Average	200 (usec) 1200			
-9 Collar Locator 1	0 2000	3' Amplified Amplitude X 5	0 150				
Gamma Ray		0 (mV) 20	Sector Amplitude Maximum				
0 (cps) 150		1 Bond Index 0	0 150				
TEMP			Sector Amplitude Minimum				
(degF)			0 150				



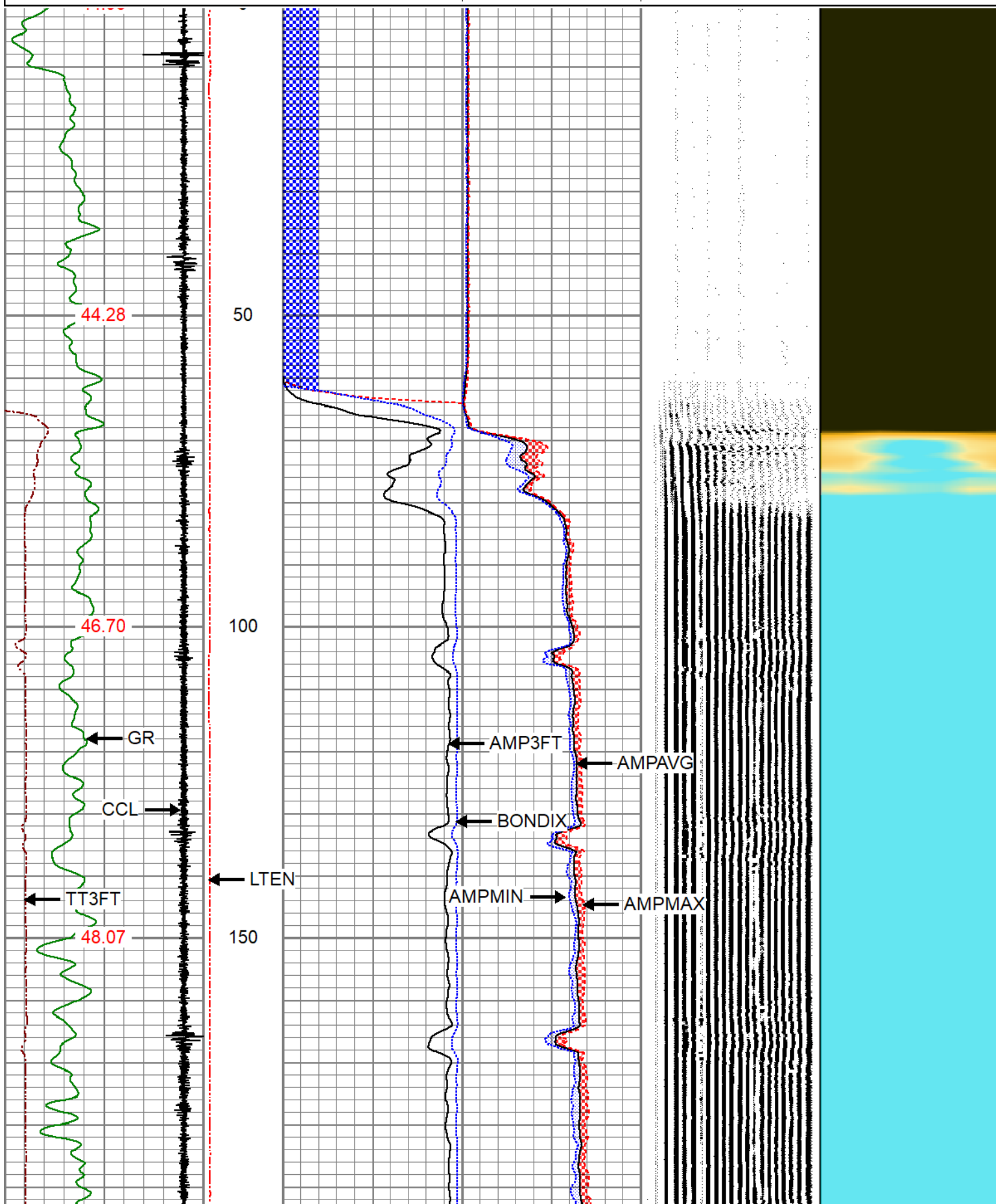


<div> <b>PIONEER</b> Pioneer Energy Services</div>		<div>MAIN LOG</div> <div>ZERO PSI APPLIED AT SURFACE</div>	
Database File	anadarko_wardell h 18-10_0512315859_20200305_scbl.db		
Dataset Pathname	pass7.1		
Presentation Format	pinr_scbl		
Dataset Creation	Thu Mar 05 10:10:10 2020		
Charted by	Depth in Feet scaled 1:240		

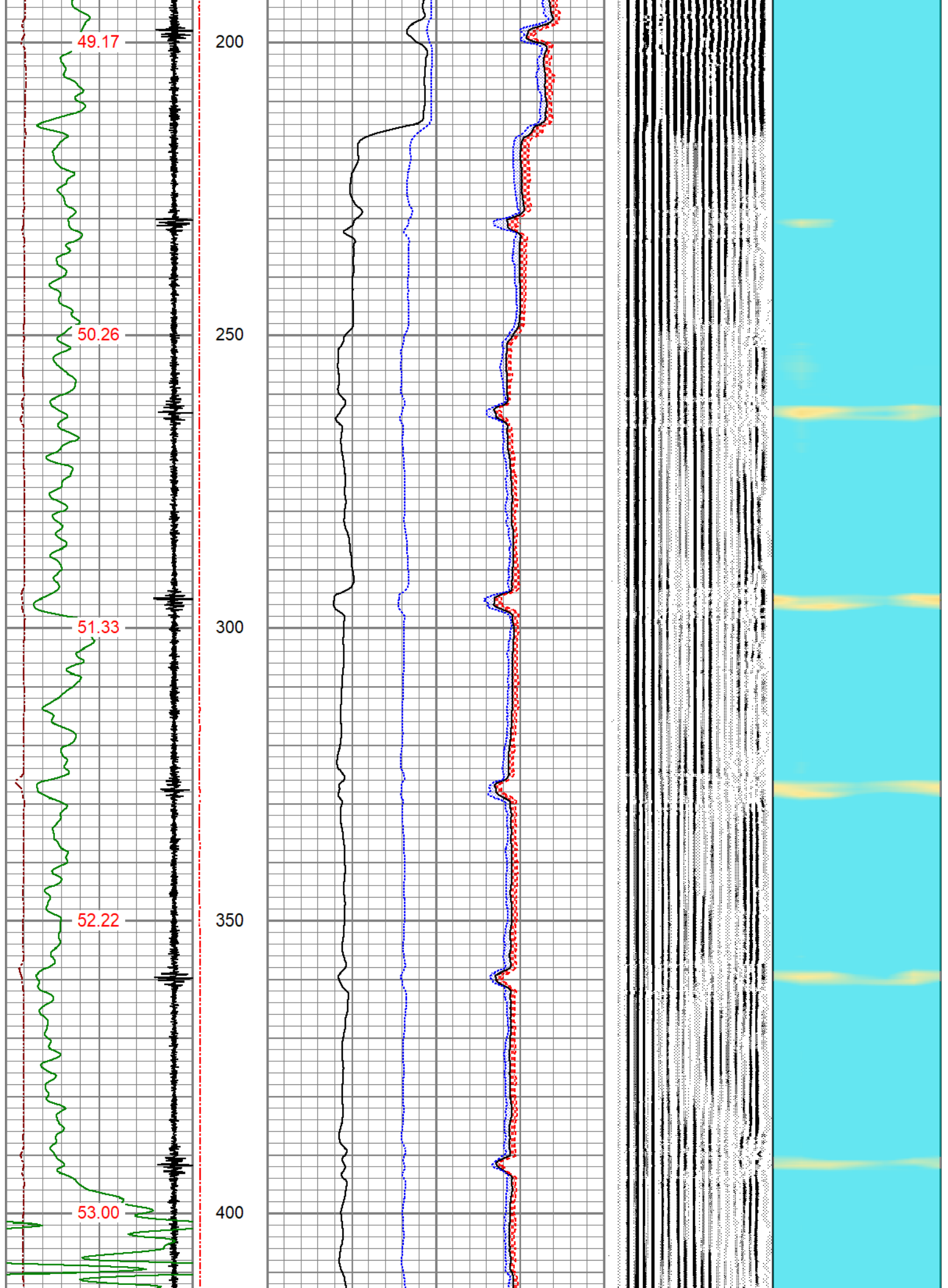
3Ft Travel Time 215 (usec) 115 -9 Collar Locator 1	ineTensio (lb) 0 2000	3' Amplitude (mV) 0 120 3' Amplified Amplitude X 5 (mV) 0 20 1 Bond Index 0	Sector Amplitude Average 0 150 Sector Amplitude Maximum 0 150 Sector Amplitude Minimum 0 150	VDL (usec) 200 1200	1 Sector Map 6
Gamma Ray 0 (cps) 150 TEMP (degF)					

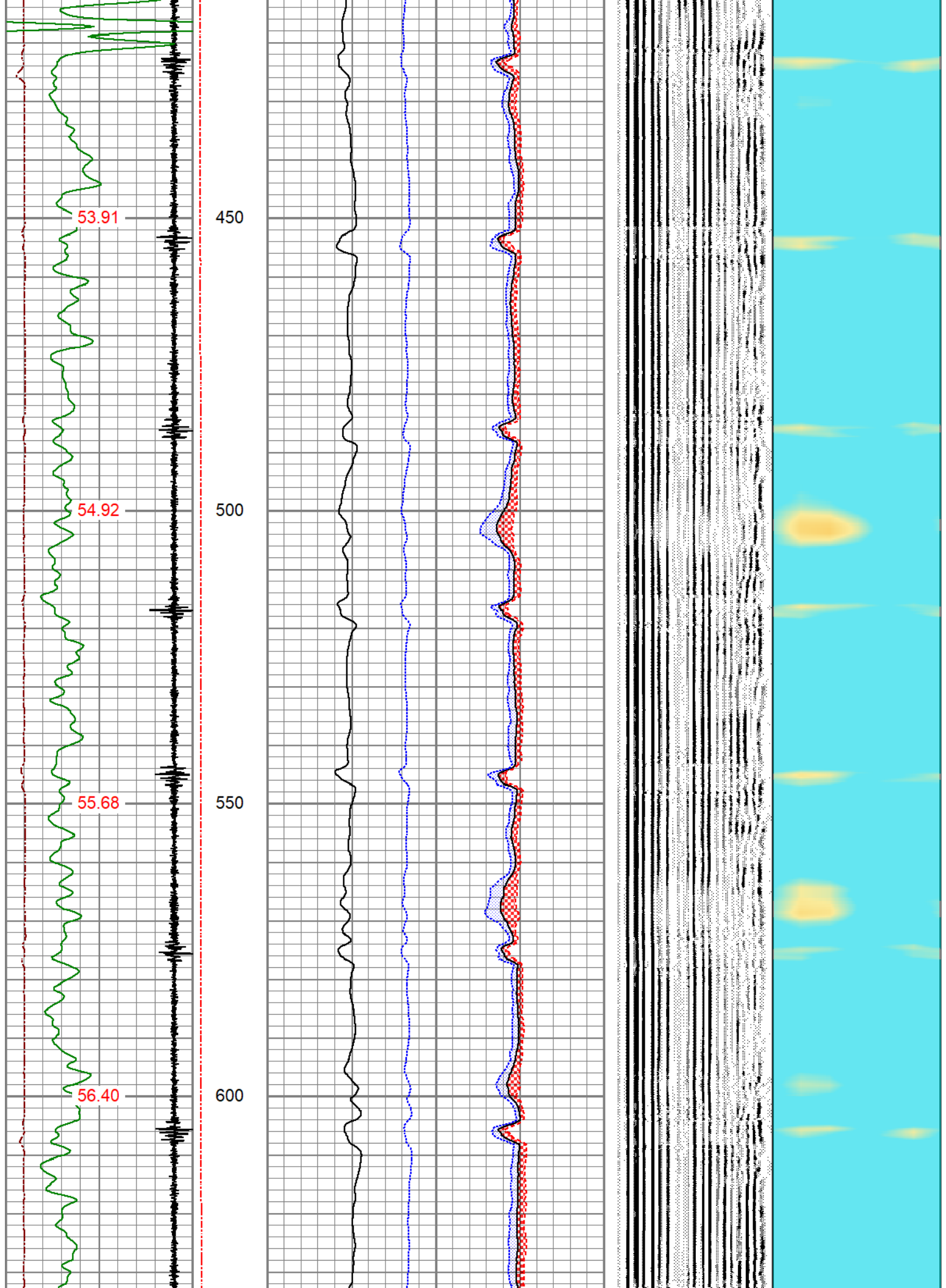
0	(cps)	150
	TEMP	
	(degF)	

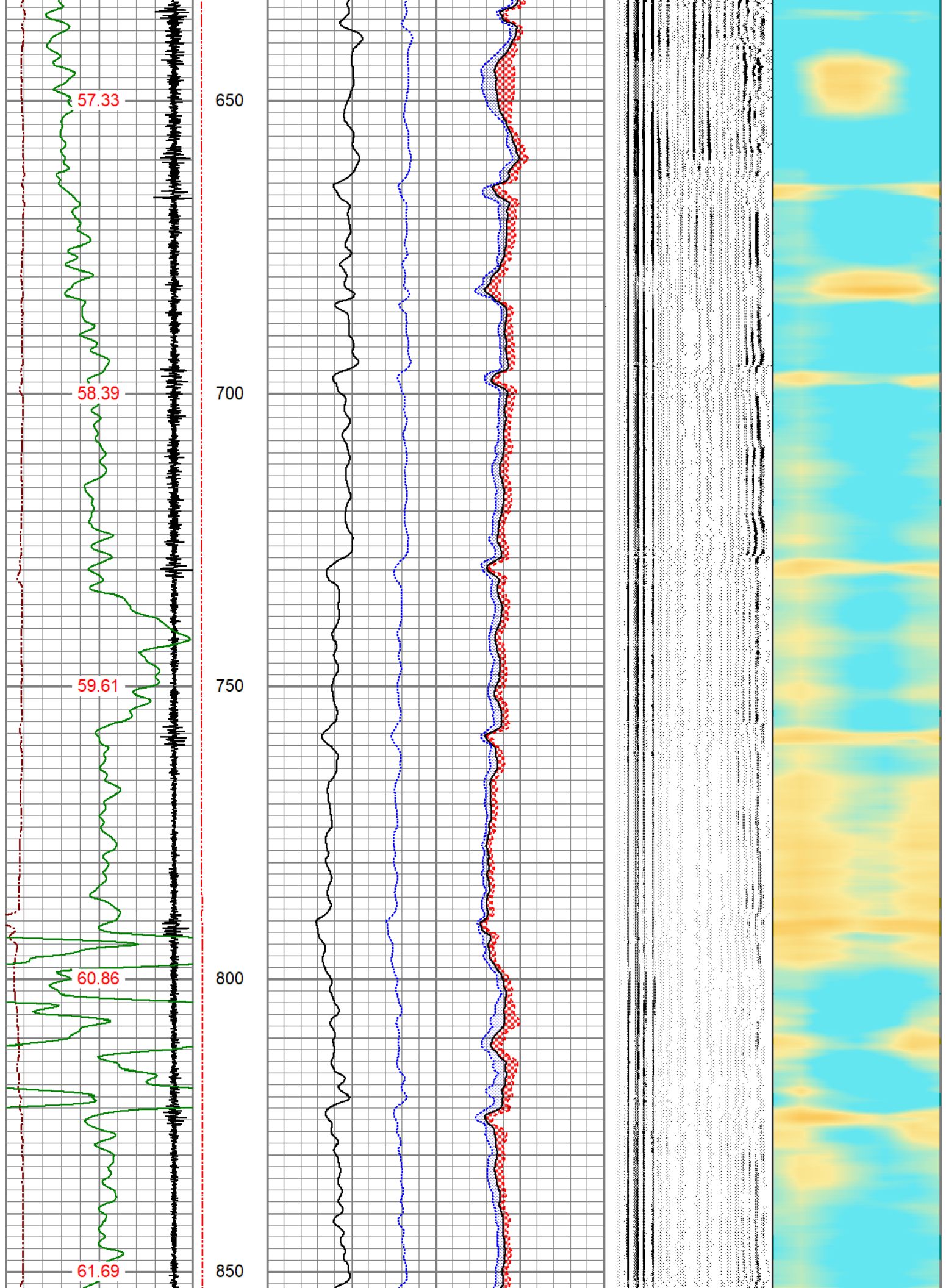
0	(mV)	20	Sector	Amplitude Maximum
1	Bond Index	0	0	150
				Sector
				Amplitude Minimum
			0	150



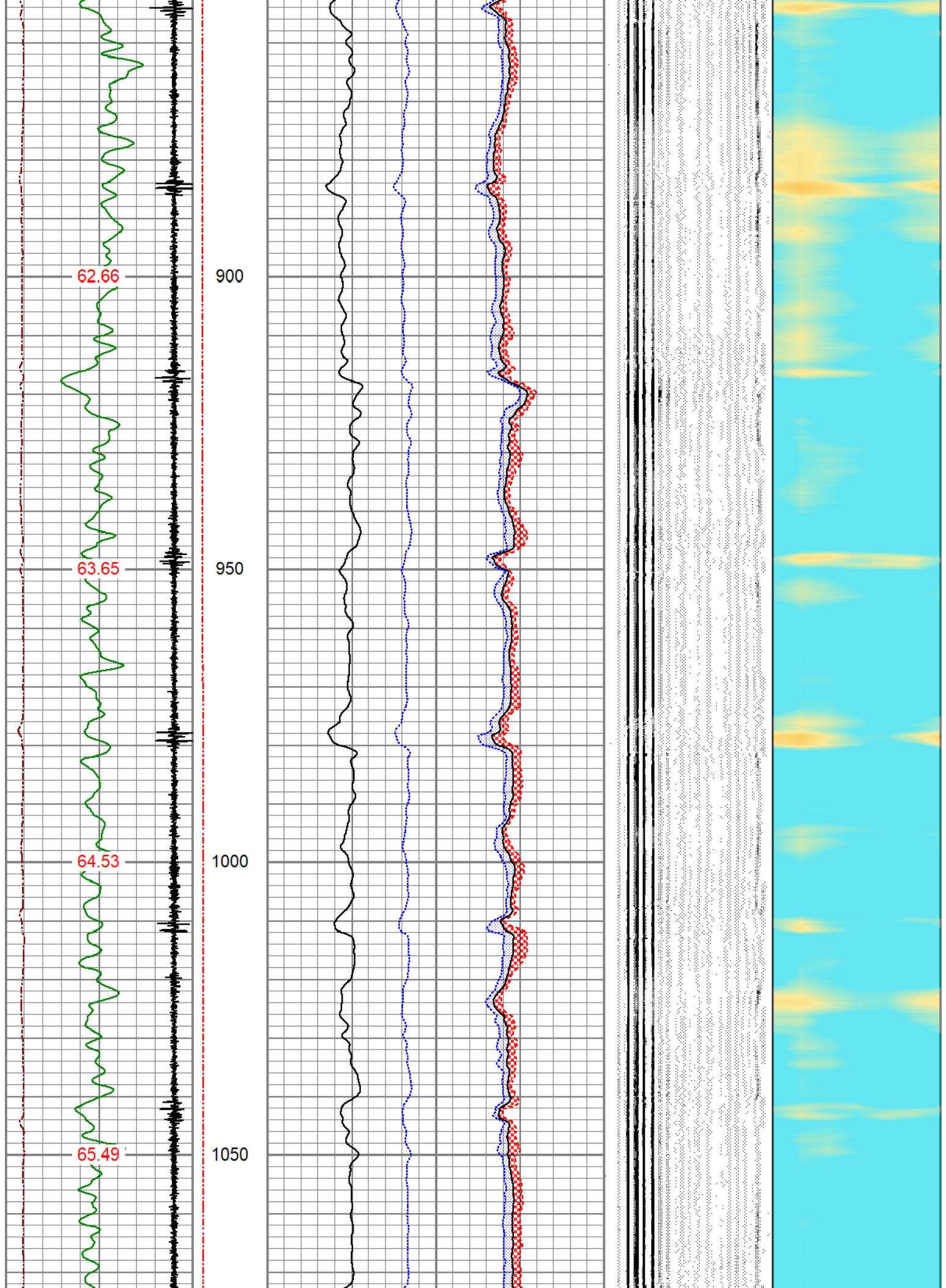


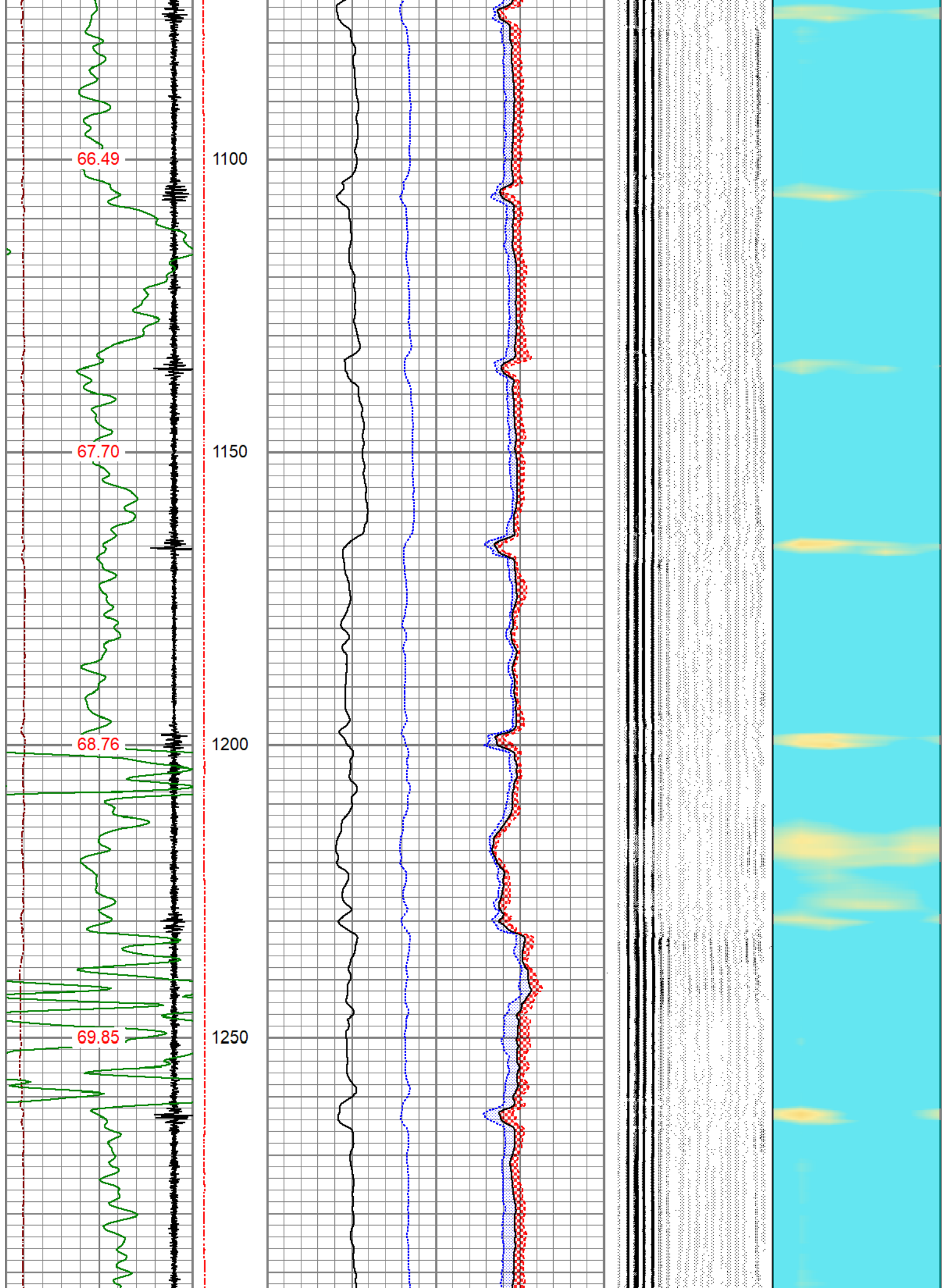


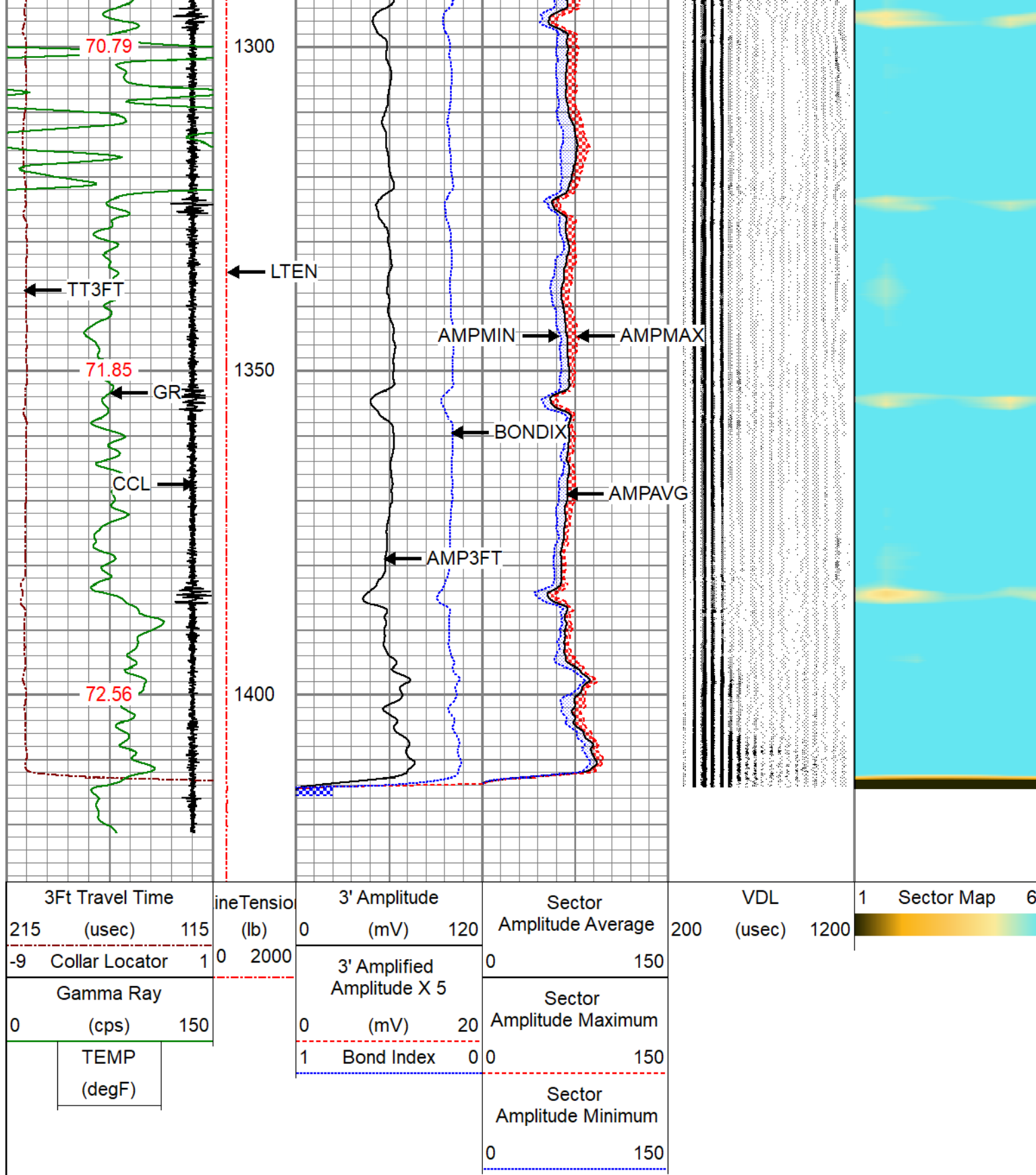











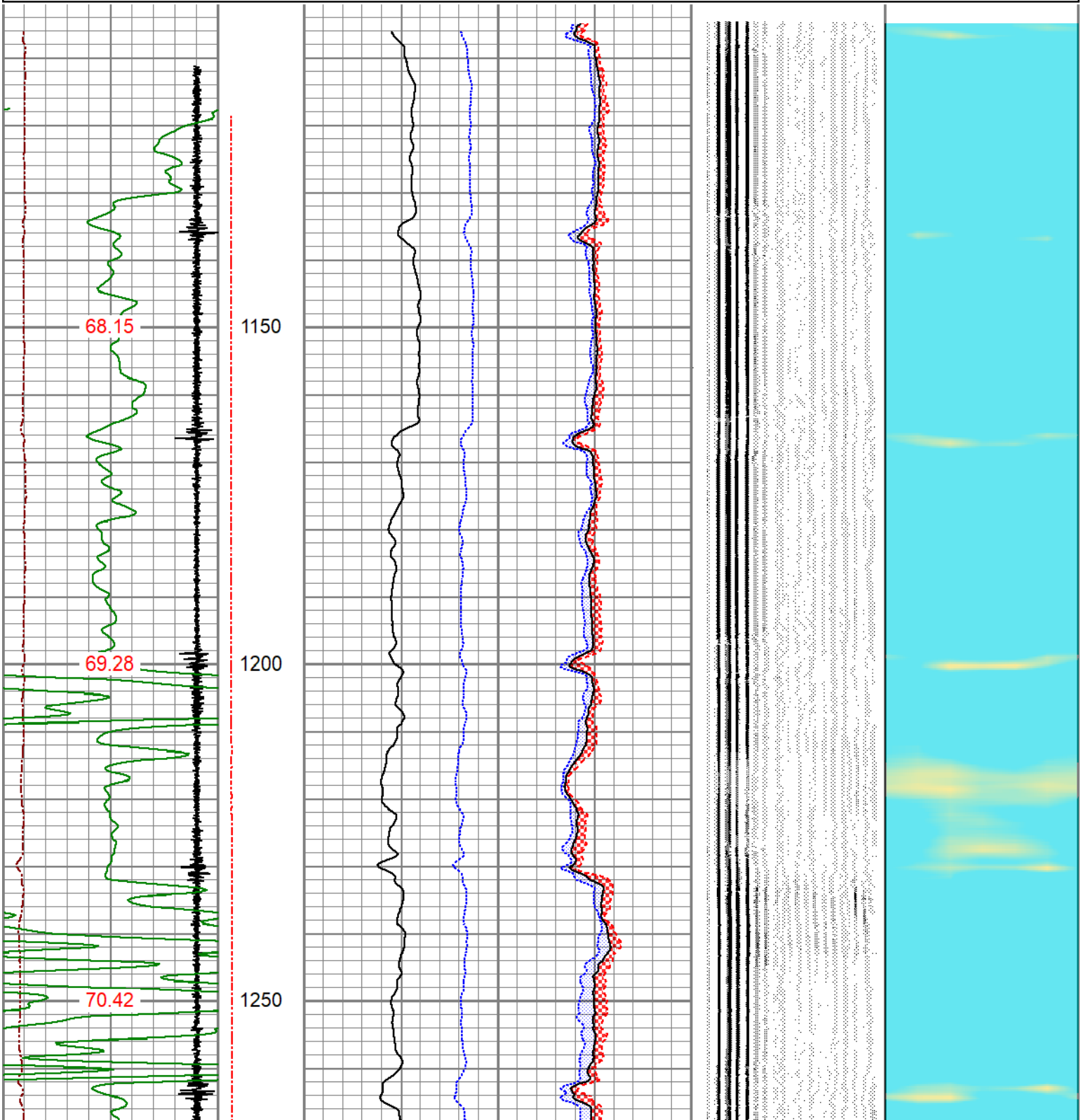


REPEAT SECTION

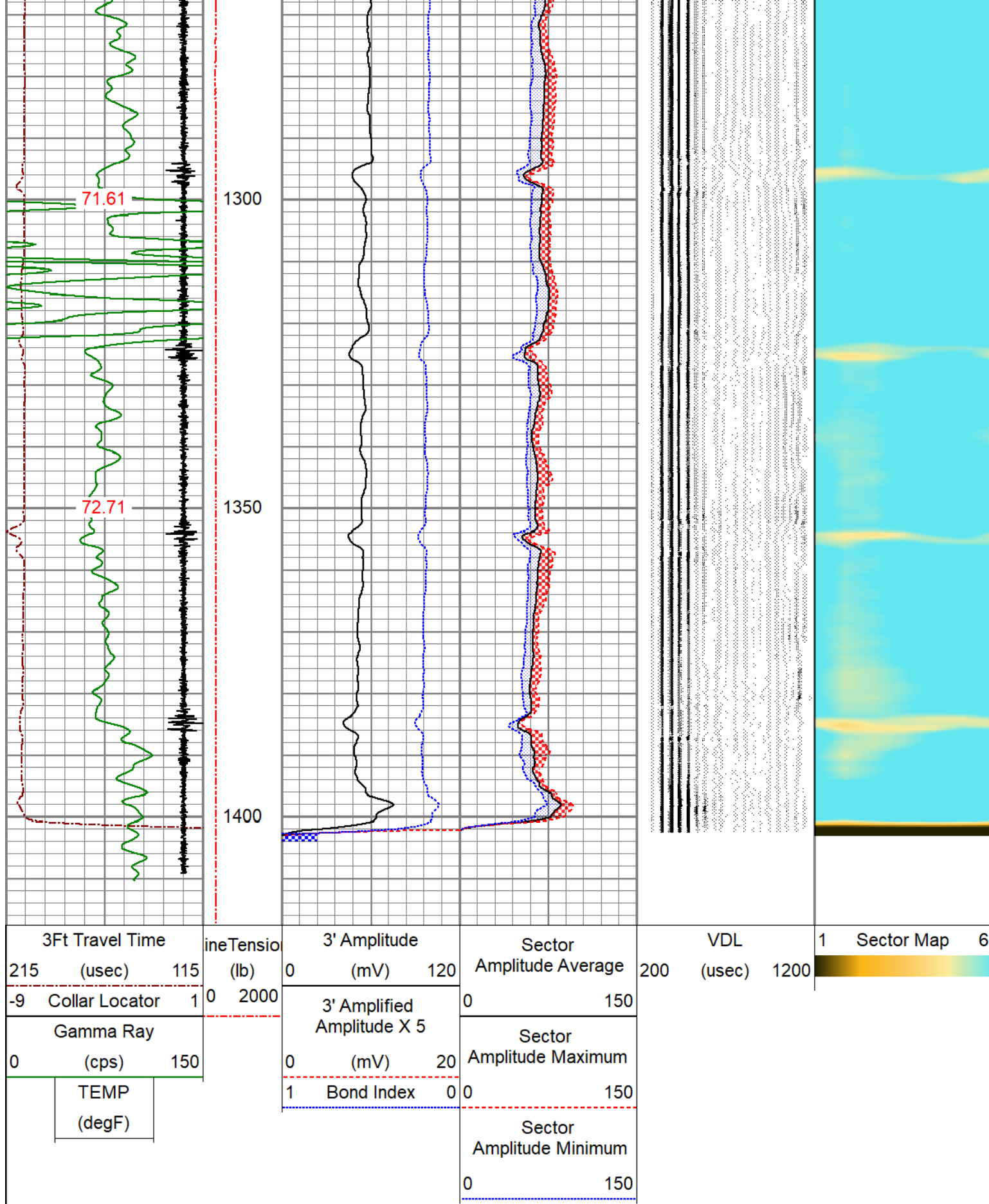
ZERO PSI APPLIED AT SURFACE

Database File anadarko\_wardell h 18-10\_0512315859\_20200305\_scbl.db  
 Dataset Pathname pass6  
 Presentation Format pinr\_scbl  
 Date 05-03-2020

Dataset Creation			Thu Mar 05 09:27:01 2020											
Charted by			Depth in Feet scaled 1:240											
3Ft Travel Time			ineTensio (lb)	3' Amplitude			Sector			VDL		1	Sector Map	6
215	(usec)	115		0 (mV) 120			Amplitude Average			200	(usec)	1200		
-9 Collar Locator 1				0 2000			0 150							
Gamma Ray				3' Amplified Amplitude X 5			Sector							
0	(cps)	150	0 (mV) 20			Amplitude Maximum								
TEMP			1 Bond Index 0			0 150								
(degF)						Sector Amplitude Minimum								
						0 150								







### Calibration Report

Database File anadarko\_wardell h 18-10\_0512315859\_20200305\_scbl.db  
 Dataset Pathname pass7  
 Dataset Creation Thu Mar 05 09:32:37 2020



## Gamma Ray Calibration Report

Serial Number:	TekCo-169	
Tool Model:	169 TekCo	
Performed:	Thu Feb 20 08:18:59 2020	
Calibrator Value:	1.0	cps
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.7000	cps/cps

## Segmented Cement Bond Log Calibration Report

Serial Number:	IUZE1-01	
Tool Model:	169 TekCo w Temp	
Calibration Casing Diameter:	2.875	in
Calibration Depth:	198.331	ft

Master Calibration, performed Thu Mar 05 09:17:12 2020:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.057	1.970	1.000	106.451	55.125	-2.160
CAL	0.007	0.946				
5'	0.019	2.027	1.000	106.451	52.510	-0.007
SUM						
S1	0.010	1.136	0.000	100.000	88.840	-0.906
S2	0.014	1.041	0.000	100.000	97.363	-1.325
S3	0.013	0.914	0.000	100.000	110.929	-1.416
S4	0.016	0.893	0.000	100.000	113.982	-1.793
S5	0.016	0.918	0.000	100.000	110.842	-1.766
S6	0.015	1.035	0.000	100.000	98.084	-1.500
S7						
S8						

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.007	0.946	1.000	0.000

Air Zero Calibration, performed (Not Performed):

	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  
S8

### Temperature Calibration Report

Serial Number: IUZE1-01  
Tool Model: 169 TekCo w Temp  
Performed: Thu Feb 20 11:10:17 2020

	Reference	Reading
Low Reference:	0.00 degF	0.00 usec
High Reference:	1.00 degF	1.00 usec
Gain:	0.28	
Offset:	0.00	
Delta Spacing	1	



Company	ANADARKO PETROLEUM CORP.
Well	WARDELL H 18-10
Field	WATTENBERG
County	WELD
State	COLORADO