



**PIONEER**  
Pioneer Energy Services

## RADIAL BOND LOG WITH GAMMA RAY

Comp. EAST CHEYENNE GAS STORAGE, LLC  
Well ECGS 6-18 WP-D011-2  
Field WEST PEETZ  
Co. LOGAN  
State CO

Company **EAST CHEYENNE GAS STORAGE, LLC**  
Well **ECGS 6-18 WP-D011-2**  
Field **WEST PEETZ**  
County **LOGAN** State **CO**

Location: API #: 05075094060000 Other Services  
2320' FSL & 1566' FEL  
NESE  
SEC 6 TWP 11N RGE 52W  
Permanent Datum GL Elevation 4550'  
Log Measured From KB 14' Above Perm. Datum  
Drilling Measured From KB G.L. 4550'

Date of Service	JULY 14, 2016		
Run Number	ONE		
Depth Driller or PBTD	5260'		
Depth Logger	1885'		
Bottom Log Interval	1883'		
Top Log Interval	SURFACE		
Open Hole Size	8.75"		
Type Fluid	WATER		
Fluid Level	SURFACE		
Fluid Density	8.33 PPG		
Max. Recorded Temperature	89 F		
Max. Wellhead Pressure	500 PSI		
Wellhead Connection	PACKOFF		
Estimated Cement Top	1785'		
Unit Number	P1		
Wireline Size	9/32"		
Location	FT MORGAN, CO		
Recorded By	SCHUMAN		
Witnessed By	MR G OHLMAN		
	Size	Wt/Ft	Top
Tubing Record			Bottom
Surface Casing	9.625"	36#	SURFACE 1222'
Production Casing	7"	26#	SURFACE 5247'
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

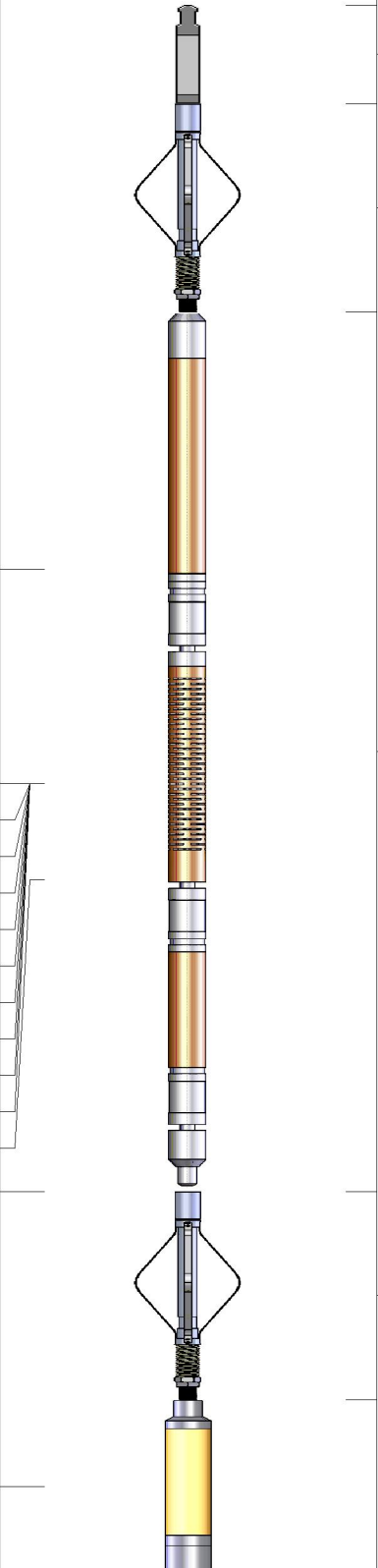
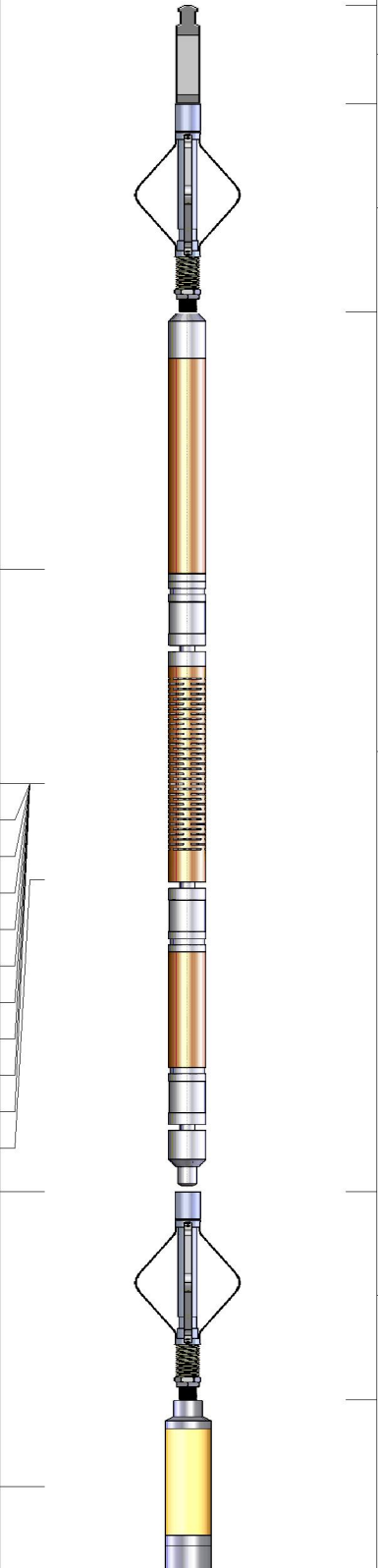
N/A DENOTES NOT AVAILABLE OR NON-APPLICABLE.  
LOG CORRELATED TO KB.  
NO FREE PIPE PASS BECAUSE NO CLEAN FREE PIPE PRESENT OUTSIDE OF SURFACE CSG

THANK YOU FOR USING PIONEER ENERGY SERVICES!

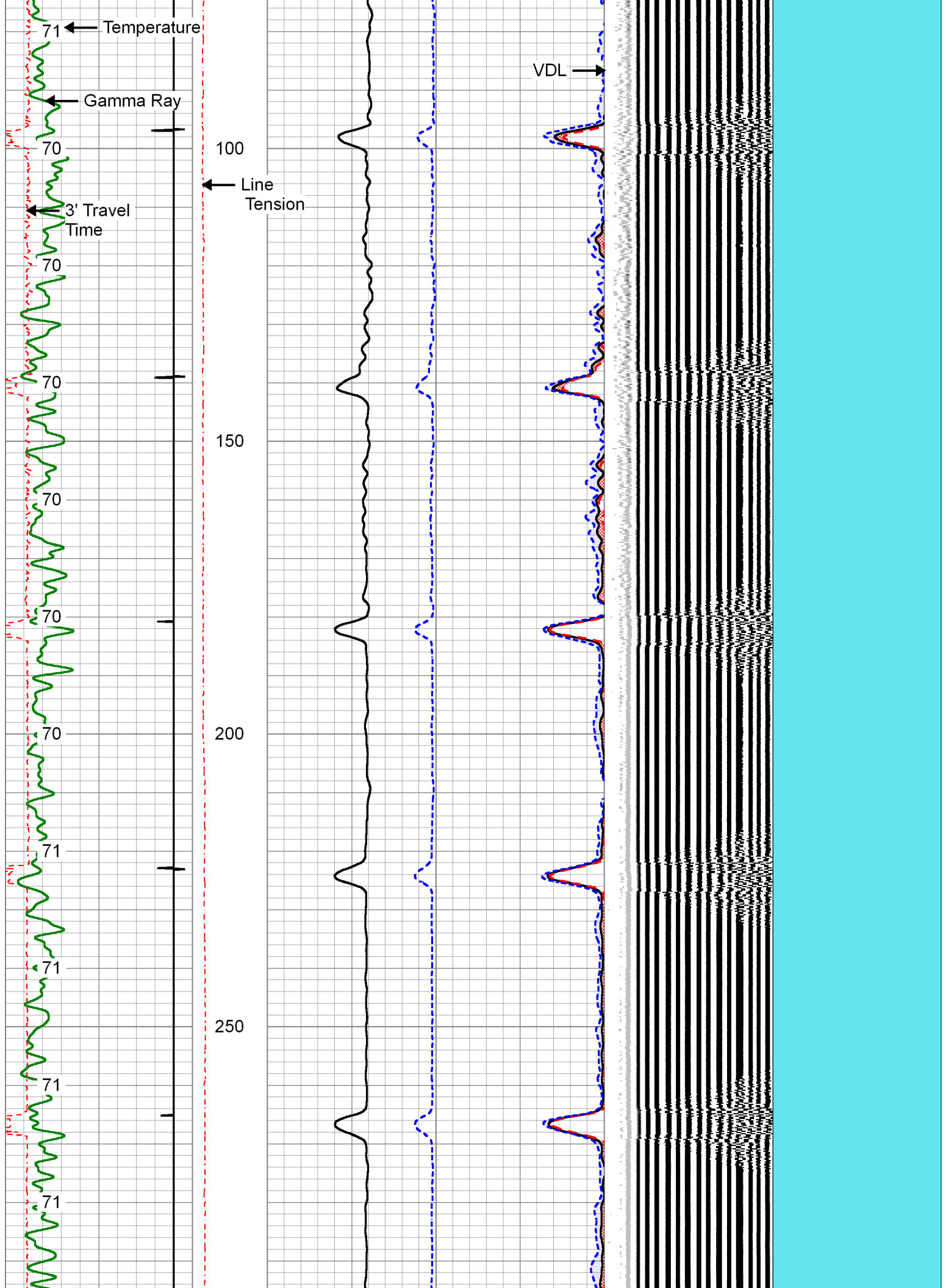
Your Pioneer Energy Services Crew	Tool Data - Services	Serial Number
Engineer: SCHUMAN	SCBL	141167
Operator: GARCIA	GR	111211
Operator:		
Operator:		

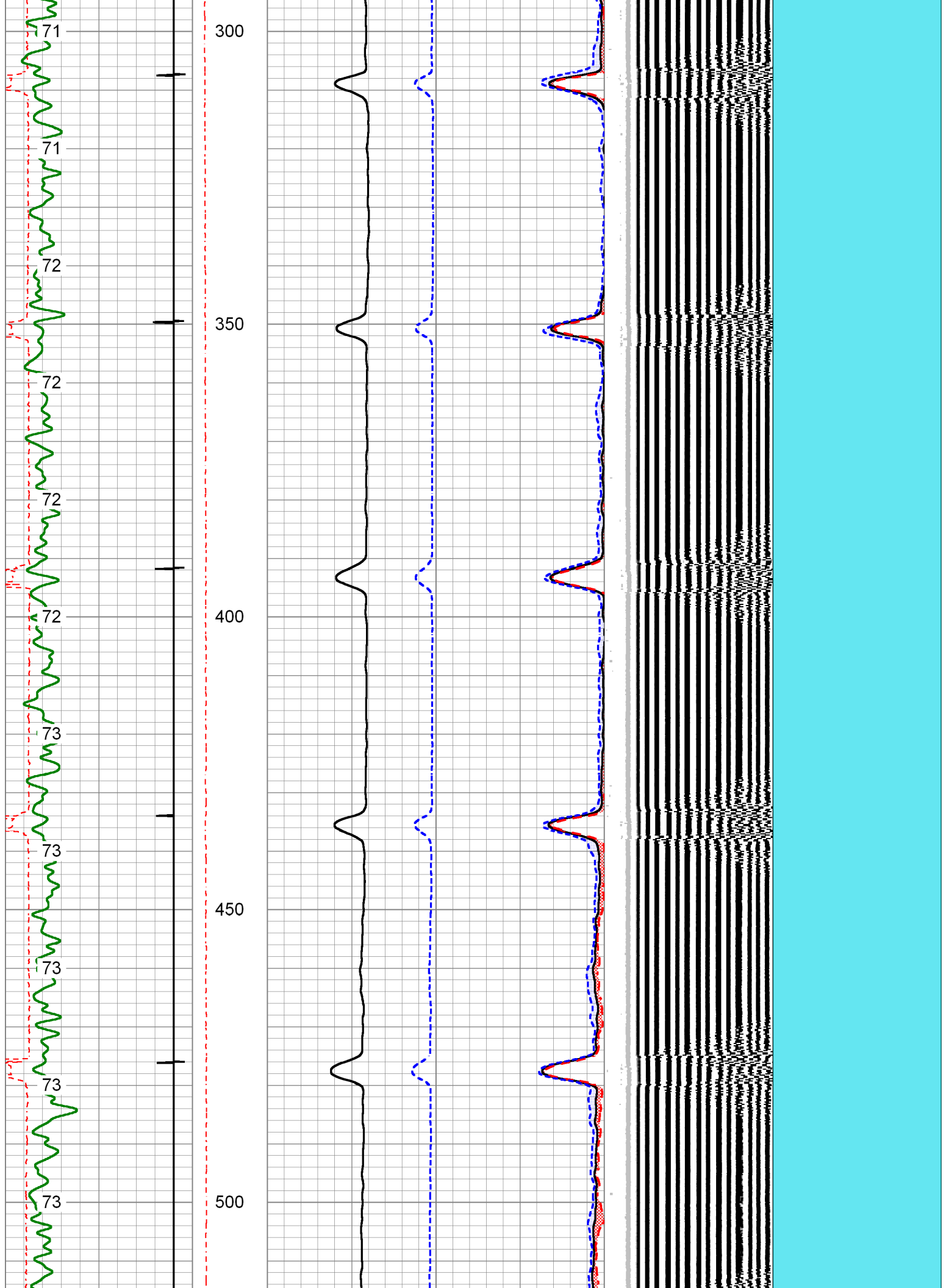
Top - Bottom

BHTEMP_Src	PPT usec	CASEWGHT lb/ft	MAXAMPL mV	MINAMPL mV	MINATTN db/ft	SRFTEMP degF
TEMP	0	26	0	1.5	0.08	0
CASETHCK in	CASEOD in	PERFS	TDEPTH ft	BOTTEMP degF	BOREID in	
0.362	7	0	0	100	8.75	

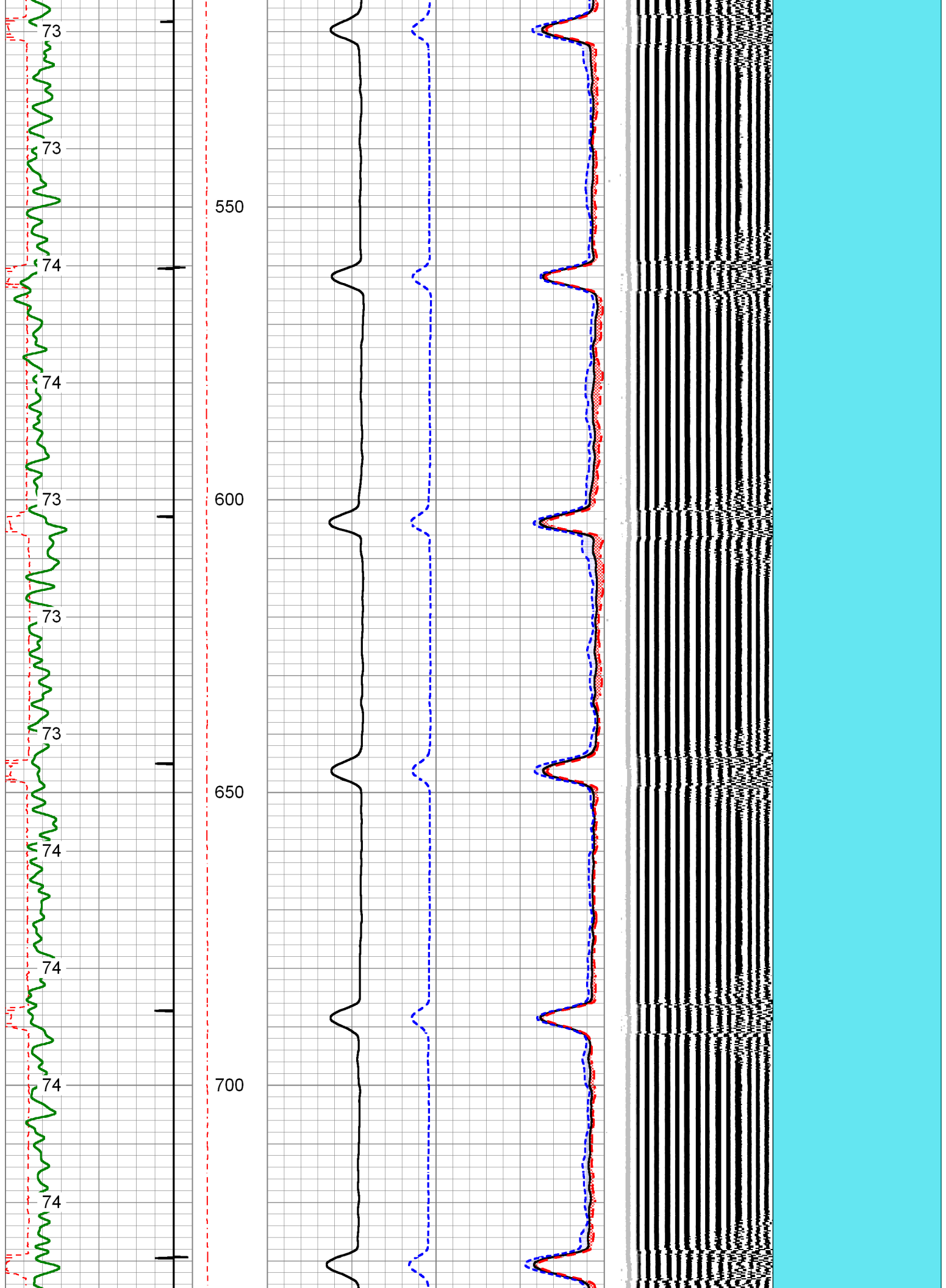
Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
TEMP	13.46		Cable Head-Titan 143 1 7/16" Titan Cable Head	1.03	1.43	2.00
			Centralizer-169 Titan Non-ADJ Titan 1 11/16" Non Adjustable Centralizer	2.17	2.88	22.00
WVFS8	11.23		SCBL-275 Probe w Temp New Mod (141119.17) Probe Radii Bond Tool with Temperature	11.19	2.75	95.00
WVFS7	11.23					
WVFS6	11.23					
WVFS5	11.23					
WVFS4	11.23					
WVFS3	11.23					
WVFS2	11.23					
WVFS1	11.23					
WVFCAL	11.23					
WVF3FT	11.23					
WVF5FT	10.23					
HEADVOLT	6.98					
CCL	3.91		Centralizer-169 Titan Non-ADJ Titan 1 11/16" Non Adjustable Centralizer	2.17	2.88	22.00

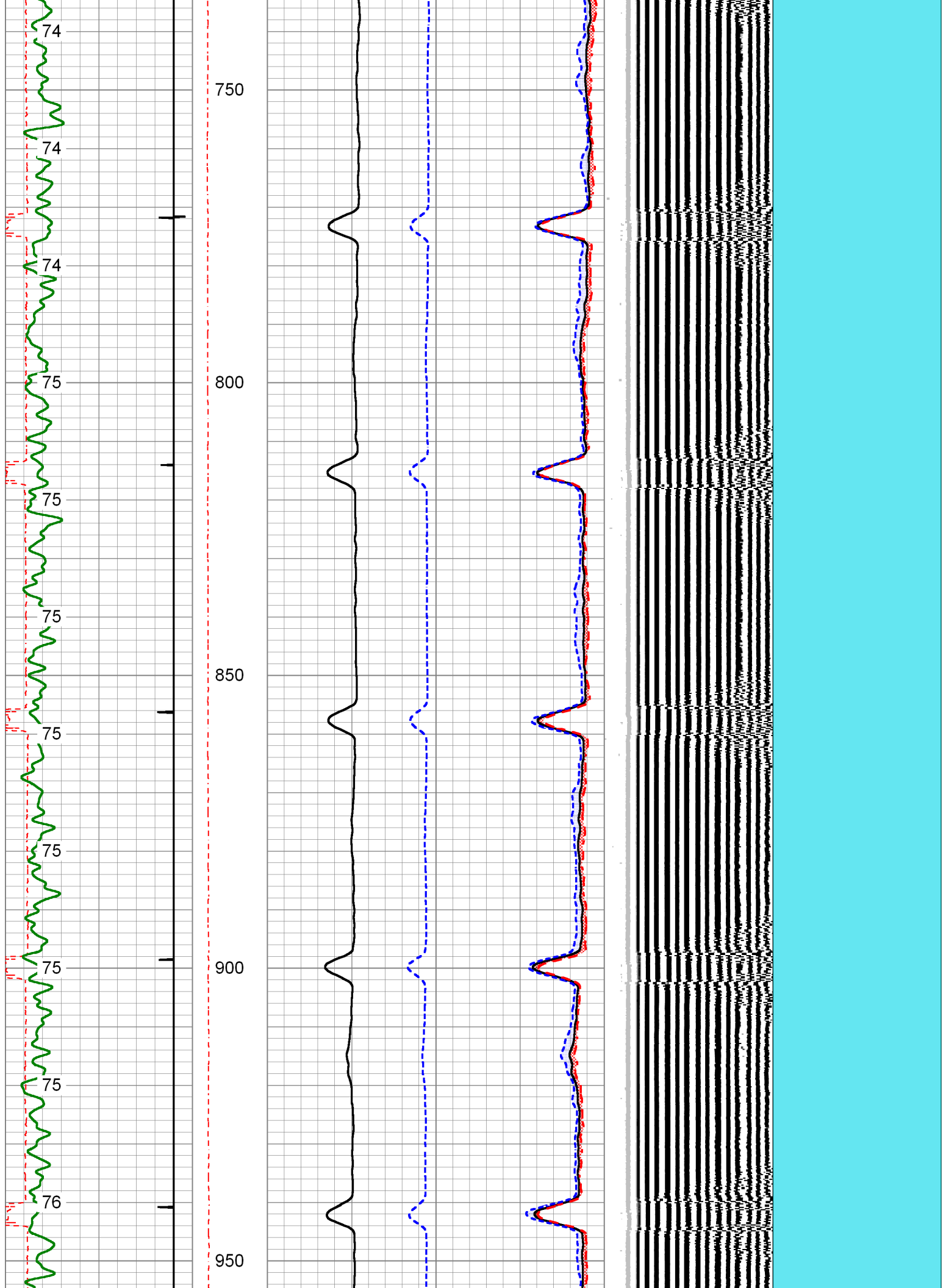


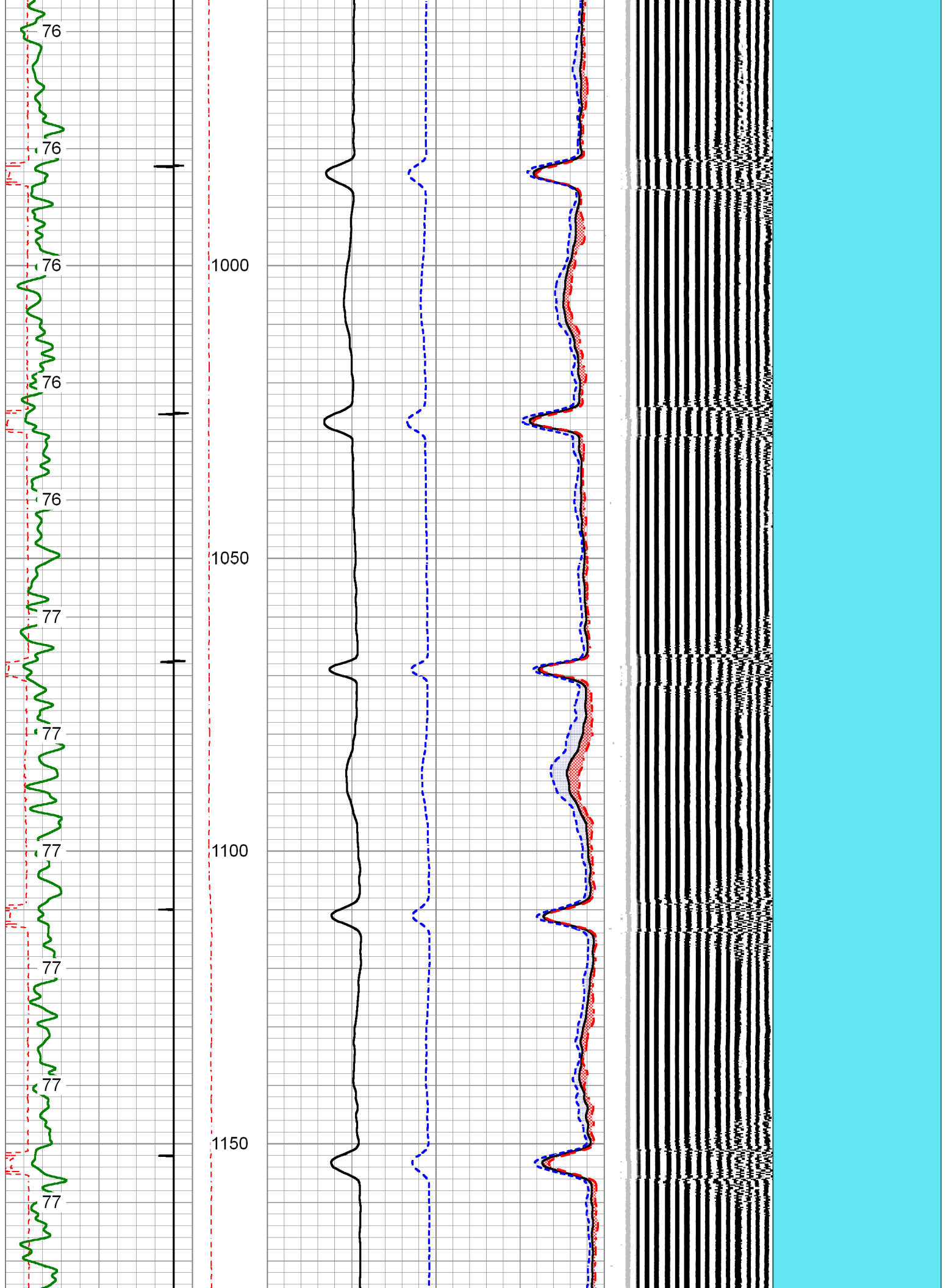




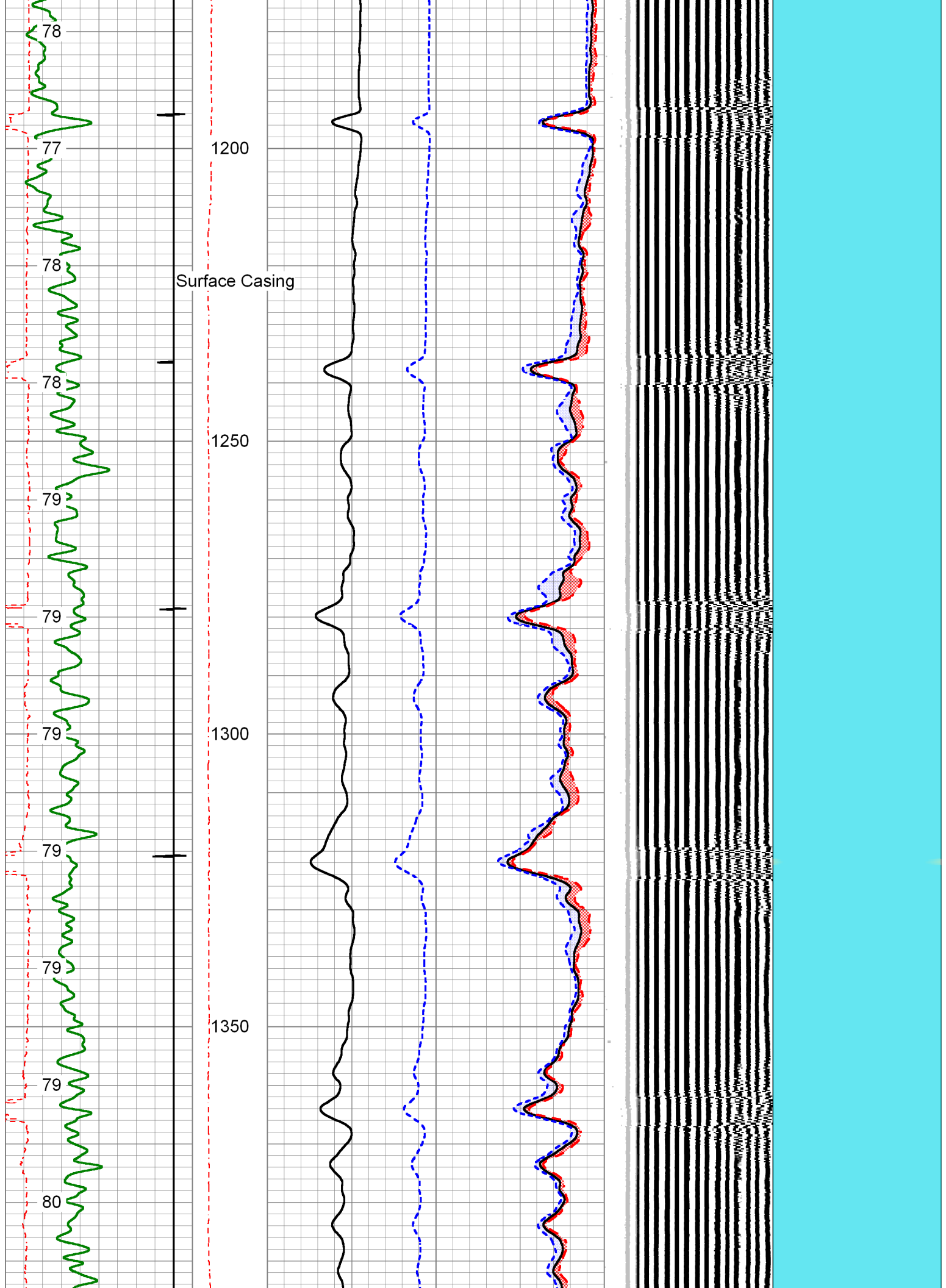


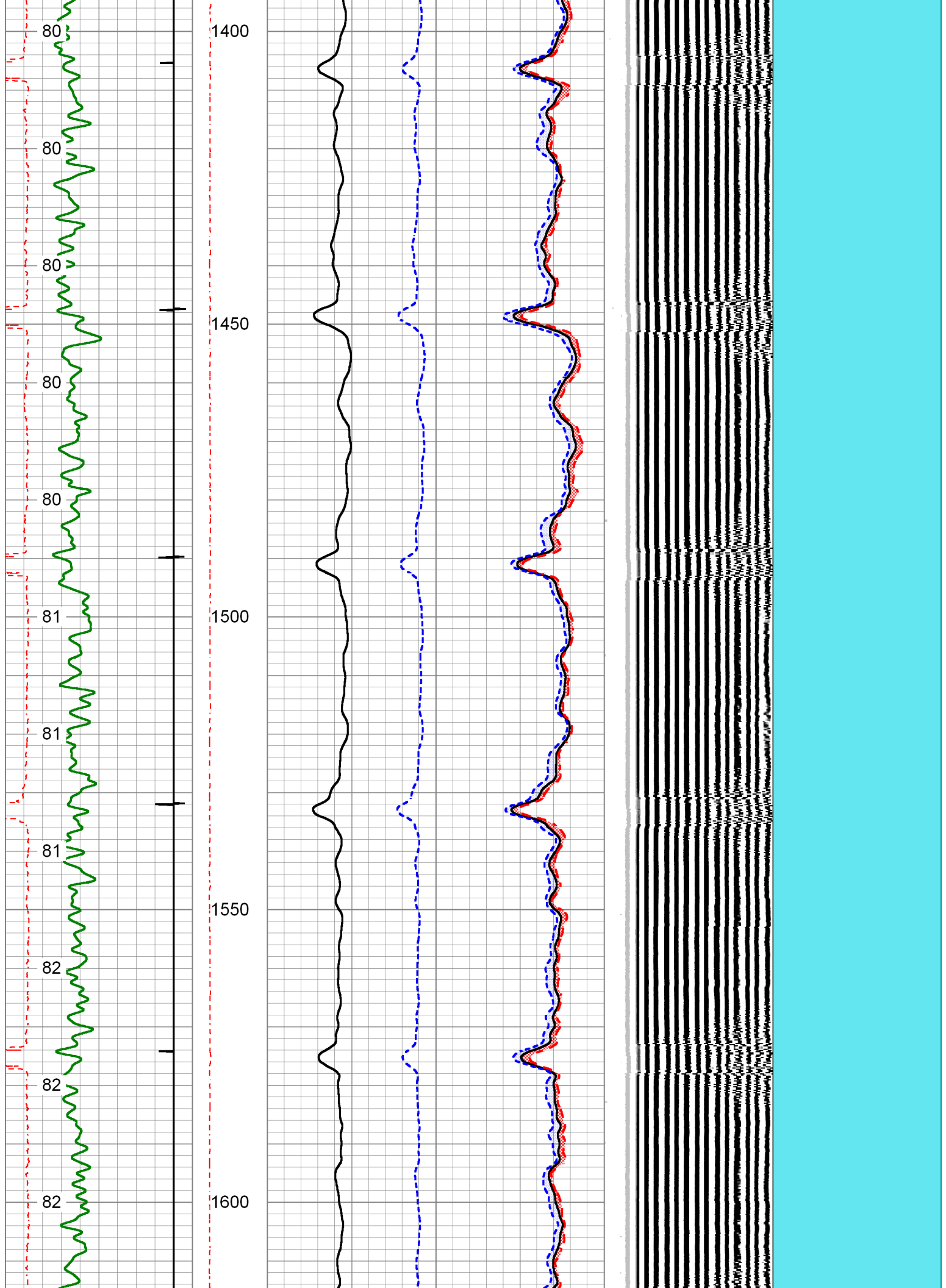


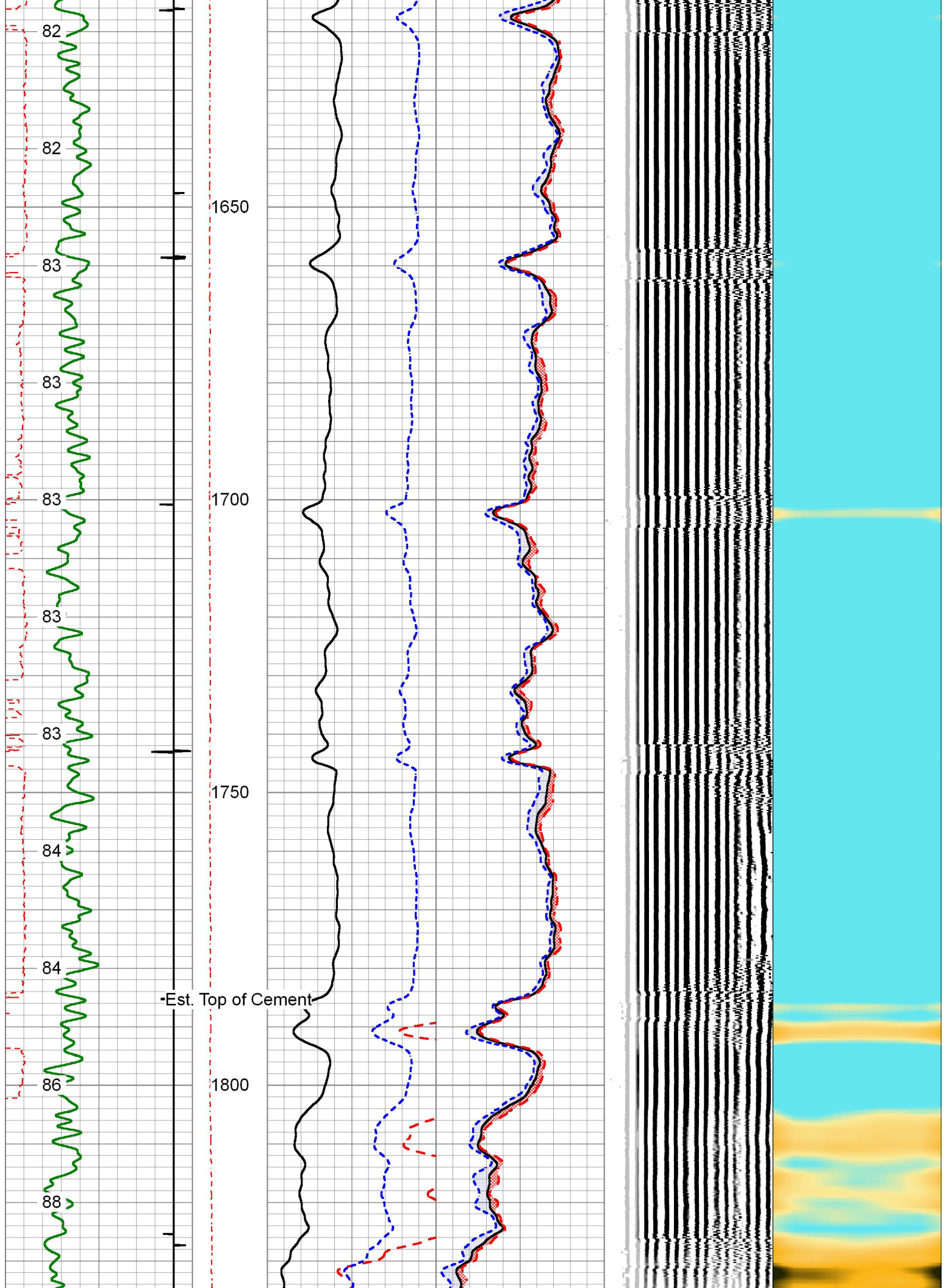


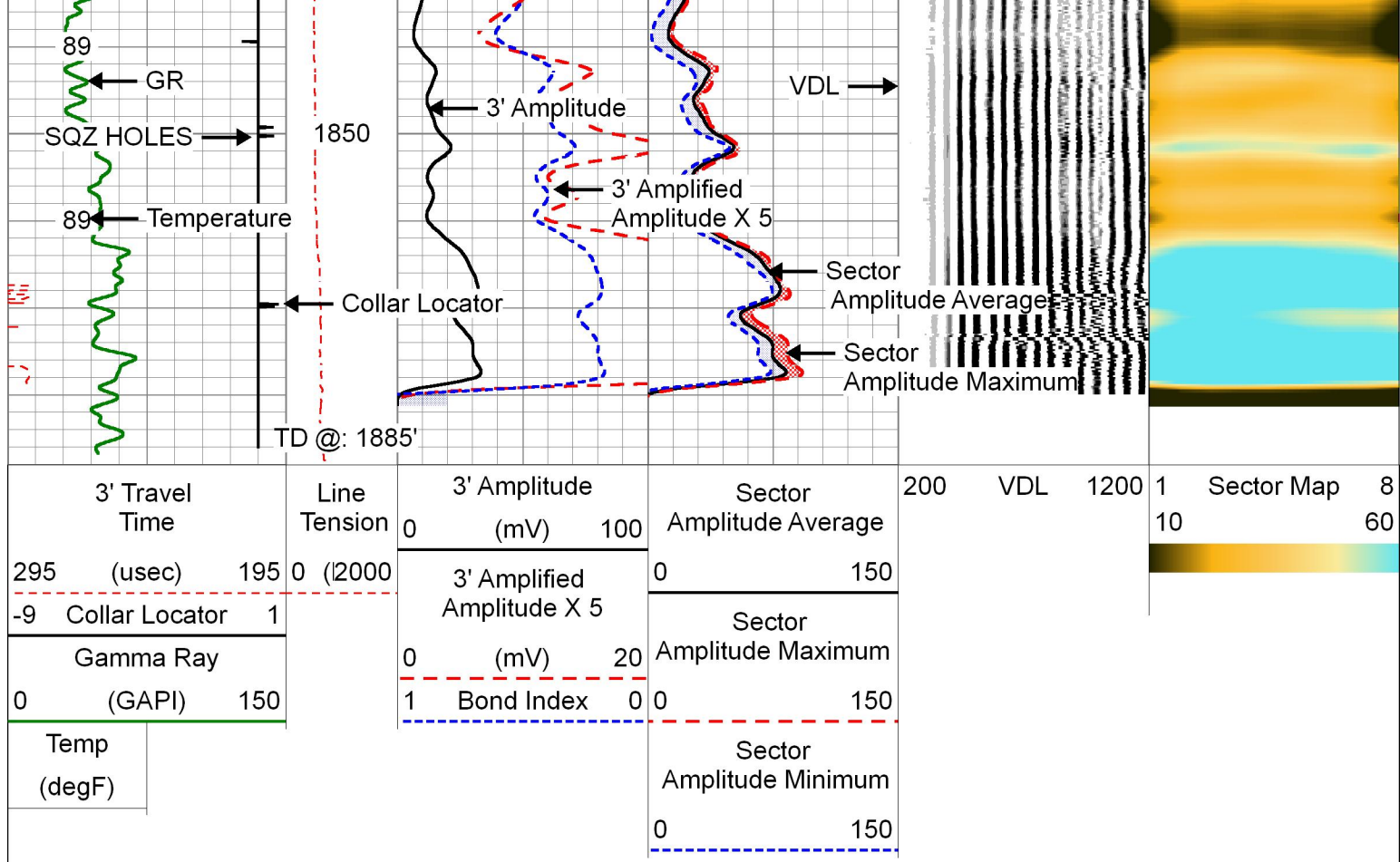













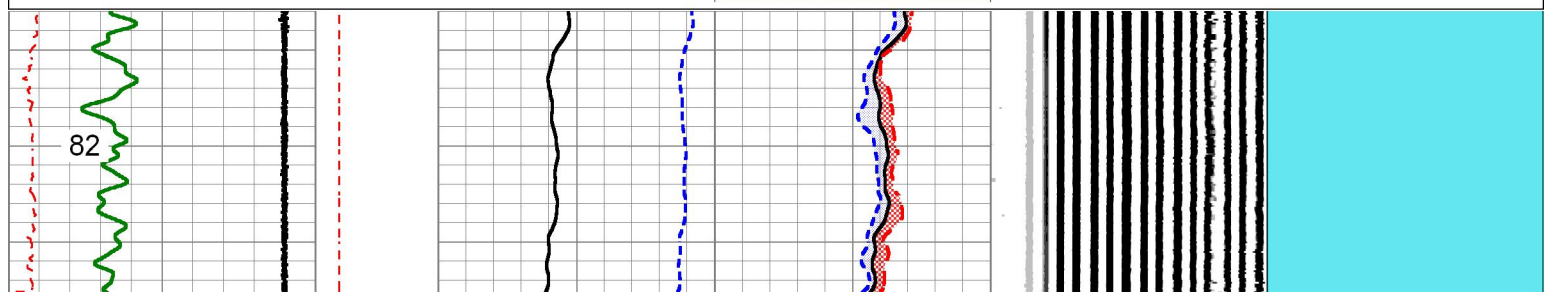
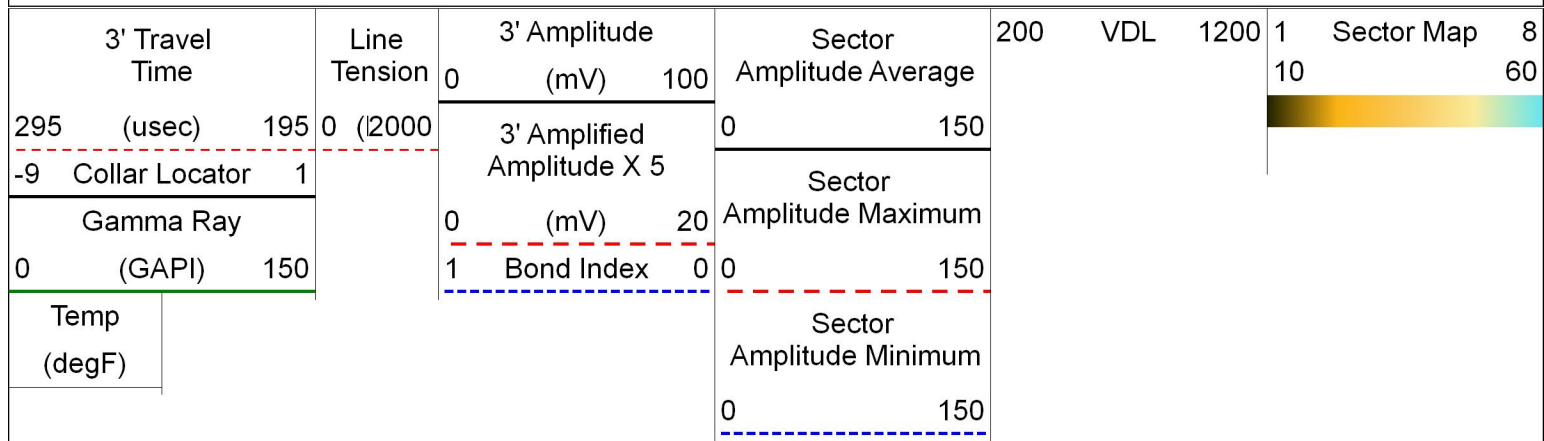


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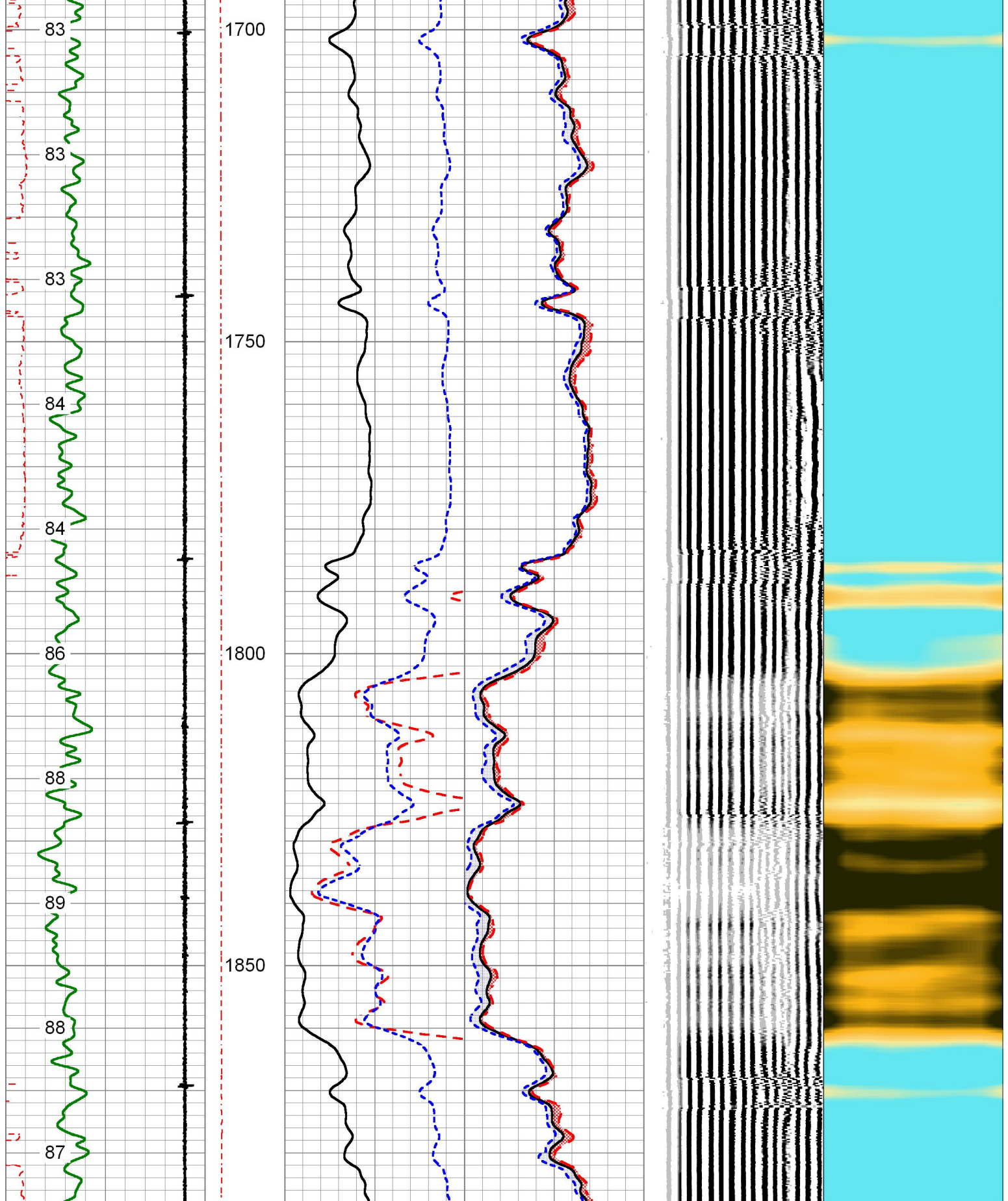
## REPEAT SECTION

### ZERO PSI APPLIED AT SURFACE

Database File	ecgs-rbl.db
Dataset Pathname	pass2.4
Presentation Format	PINR_S~1
Dataset Creation	Thu Jul 14 11:48:49 2016
Charted by	Depth in Feet scaled 1:240







3' Travel Time			Line Tension	3' Amplitude (mV)		Sector Amplitude Average		VDL	Sector Map	
295 (usec)	195			0	100	0	150		1	8
-9	Collar Locator	1	0 (2000	3' Amplified Amplitude X 5		Sector Amplitude Maximum			10	60
Gamma Ray				0 (mV)	20					
0 (GAPI)	150			1	Band Index	0	150			

0	(GAPI)	150	0	Bond Index	0	0	150
Temp (degF)					Sector Amplitude Minimum		
					0		150

Calibration Report	
Database File	ecgs-rbl.db
Dataset Pathname	pass1
Dataset Creation	Thu Jul 14 10:49:56 2016

Gamma Ray Calibration Report		
Serial Number:	111211	
Tool Model:	275 Probe GR-CCL Dig	
Performed:	Thu Jul 07 09:33:43 2016	
Calibrator Value:	320.0	GAPI
Background Reading:	0.1	cps
Calibrator Reading:	0.9	cps
Sensitivity:	1.0000	GAPI/cps

Segmented Cement Bond Log Calibration Report		
Serial Number:	141167	
Tool Model:	275 Probe w Temp New Mod	
Calibration Casing Diameter:	7.000	in
Calibration Depth:	1698.258	ft

Master Calibration, performed Thu Jul 07 11:01:13 2016:						
	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.008	1.074	0.700	62.200	61.000	0.069
CAL	0.011	1.747				
5'	0.014	1.016	0.700	62.200	80.326	-0.388
SUM						
S1	0.088	1.057	0.000	100.000	103.191	-9.068
S2	0.022	1.069	0.000	100.000	95.497	-2.116
S3	0.014	1.053	0.000	100.000	96.313	-1.380
S4	0.020	1.118	0.000	100.000	91.065	-1.816
S5	0.020	1.176	0.000	100.000	86.492	-1.697
S6	0.022	1.161	0.000	100.000	87.745	-1.887
S7	0.023	1.130	0.000	100.000	90.286	-2.037
S8	0.021	1.088	0.000	100.000	93.759	-1.990

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Temperature Calibration Report	
Serial Number:	141167
Tool Model:	275 Probe w Temp New Mod
Performed:	Wed Jul 13 12:33:32 2016
	Reference      Reading
Low Reference:	35.00 degF      0.09 degF
High Reference:	212.00 degF      1.22 degF



Gain:	0.78
Offset:	10.00
Delta Spacing	1



Company	EAST CHEYENNE GAS STORAGE, LLC
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Field	WEST PEETZ
County	LOGAN
State	CO