



**Radial Cement Bond
Gamma Ray
Casing Collar Log**

Company Kerr-McGee Oil & Gas Onshore, L.P.
Well Vogl 23-36
Field Wattenberg
County Weld **State** Colorado

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Location: SEC 36 TWP 3N RGE 68W
 API #: 05-123-31106
 Permanent Datum Ground Level Elevation 4817'
 Log Measured From Ground Level 0 FT
 Drilling Measured From Kelly Bushing
 Other Services: ---
 Elevation: K.B: 4832', D.F.: ---, G.L.: 4817'

Date	26-MAR-2019						
Run Number	One						
Depth Driller	8240 FT						
Depth Logger	1404 FT						
Bottom Logged Interval	1390 FT						
Top Log Interval	Surface						
Open Hole Size	---						
Type Fluid	Water						
Density / Viscosity	8.34 lb/gal						
Max. Recorded Temp.	77°F						
E. estimated Cement Top	See Log						
Time Well Ready	ROA						
Time Logger on Bottom	09:30						
E. equipment Number	HD-325						
Location	Platteville, CO						
Recorded By	M. Hayes						
Witnessed By	Demesio Gomez						
Borehole Record		Tubing Record					
Run Number	Bit	From	To	Size	Weight	From	To
Casing Record	Size (in)	Wgt (lbs/ft)	Grade	Top	Bottom		
Surface Casing	8 5/8	24	---	Surface	730 FT		
Intermediate #1	4 1/2	11.60	---	Surface	8187 FT		
Intermediate #2							
Liner							

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All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, 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. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

Comments

Log ran as per customer request
Depth referenced to Kelly Bushing at 15 FT
Log ran with 500 PSI Surface Induced Pressure
Logging tools were clean and free of debris upon completion of operations

Thank you for choosing Reliance Oilfield Services, LLC!!

Main Pass

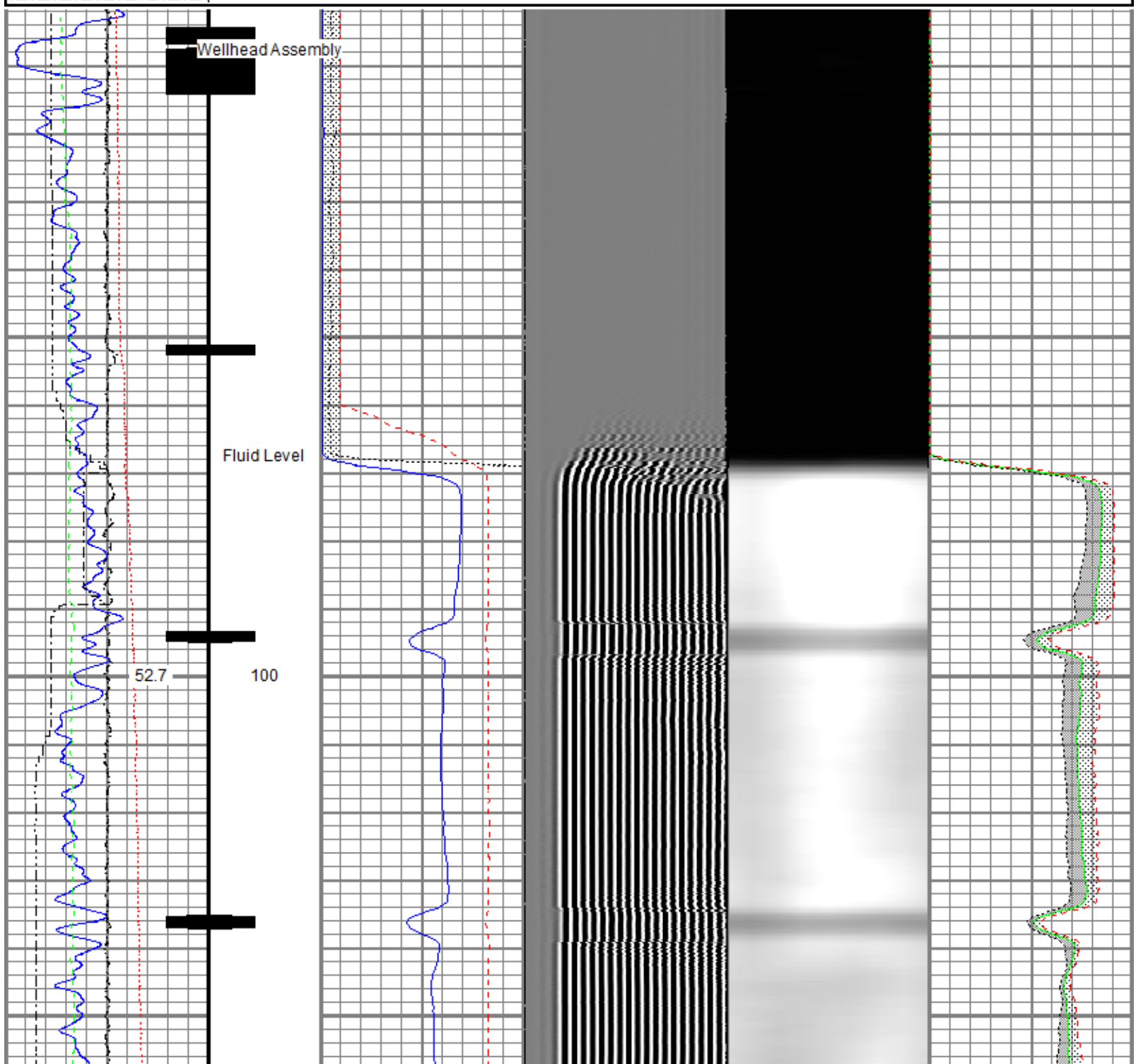


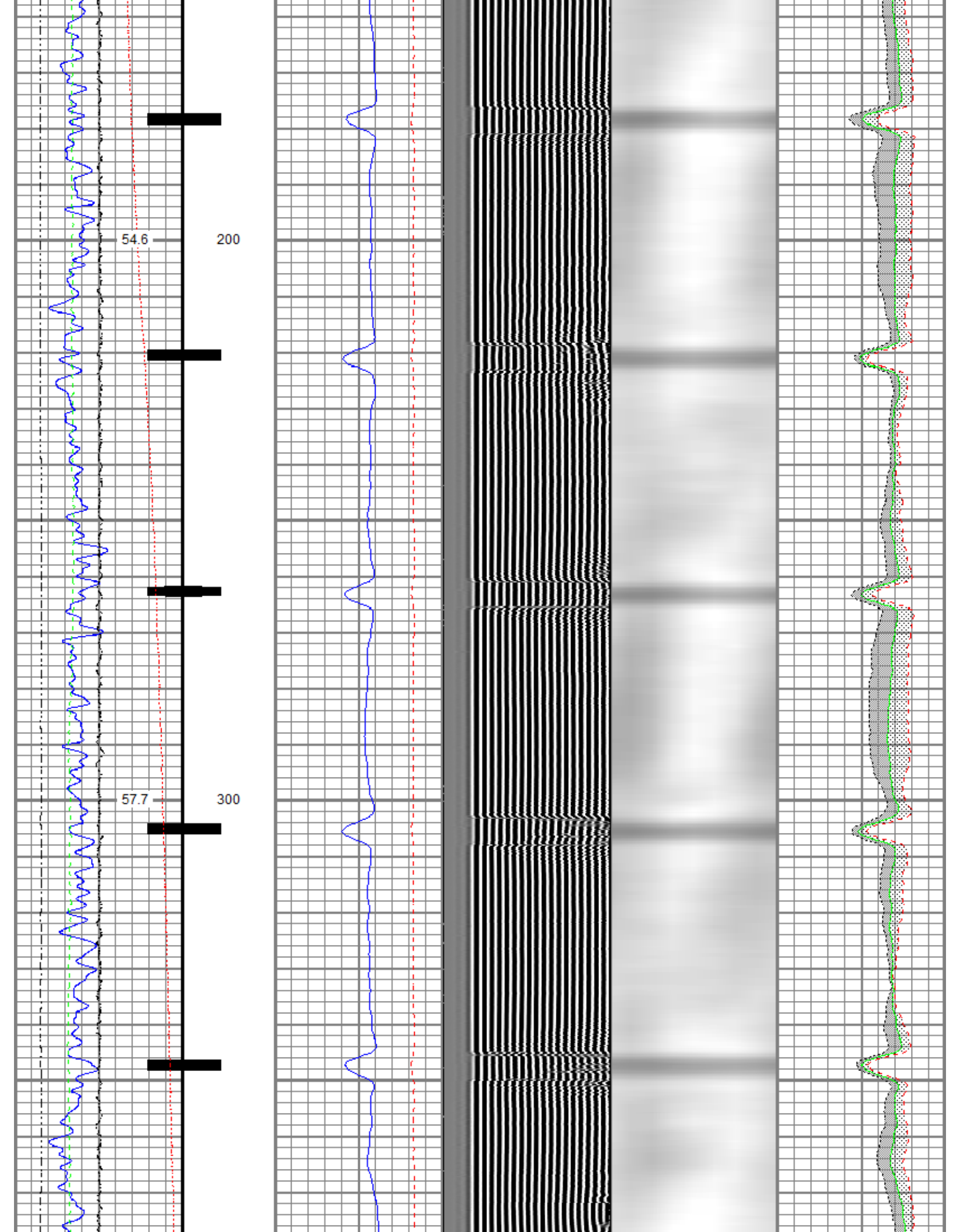
Recorded With 500 PSI Surface Induced Pressure

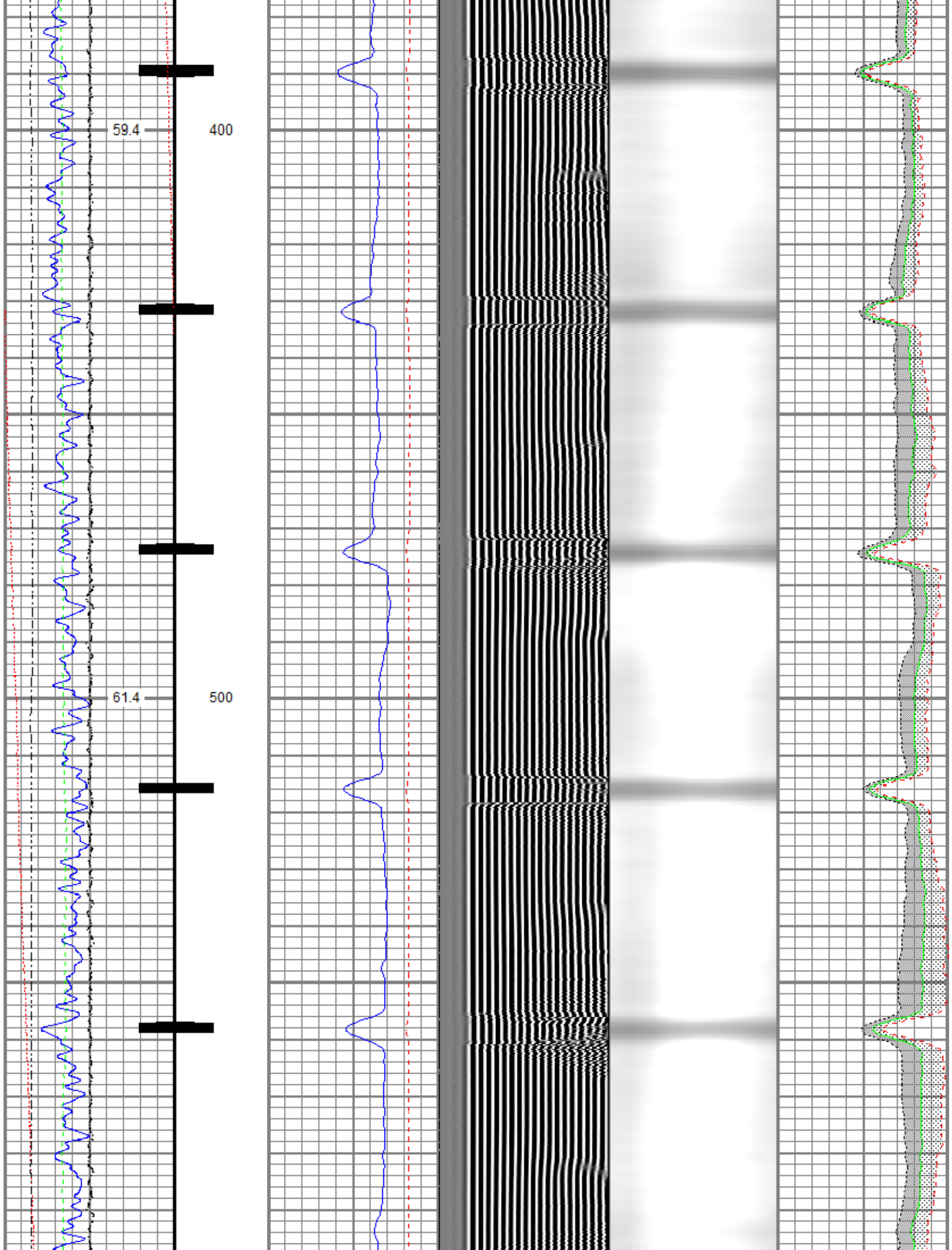
Recorded With 500 PSI Surface Induced Pressure

Database File anadarko\0512331106_anadarko_vogl 23-36_rbl_03-26-19\processed_0512331106_anadarko_vogl 23-36_rbl_03-26-19.db
 Dataset Pathname pass1.8.2
 Presentation Format ros_radrii
 Dataset Creation Wed Mar 27 15:50:13 2019
 Charted by Depth in Feet scaled 1:240

Gamma Ray	0	3' Amplitude (mV)	100	5' Variable Density Log	Sector Map	0	Average Amplitude	100
(GAPI)	120	3' Amplitude x 5	200	1200			Minimum Amplitude	
Casing Collar Locator		(mV)	20				Maximum Amplitude	
Temperature (degF)	20	3' Travel Time						
Line Speed		(usec)	150					
(ft/min)	150							
Line Tension (lb)	2000							
Differential Temperature								
(degF)	2							







63.4 600

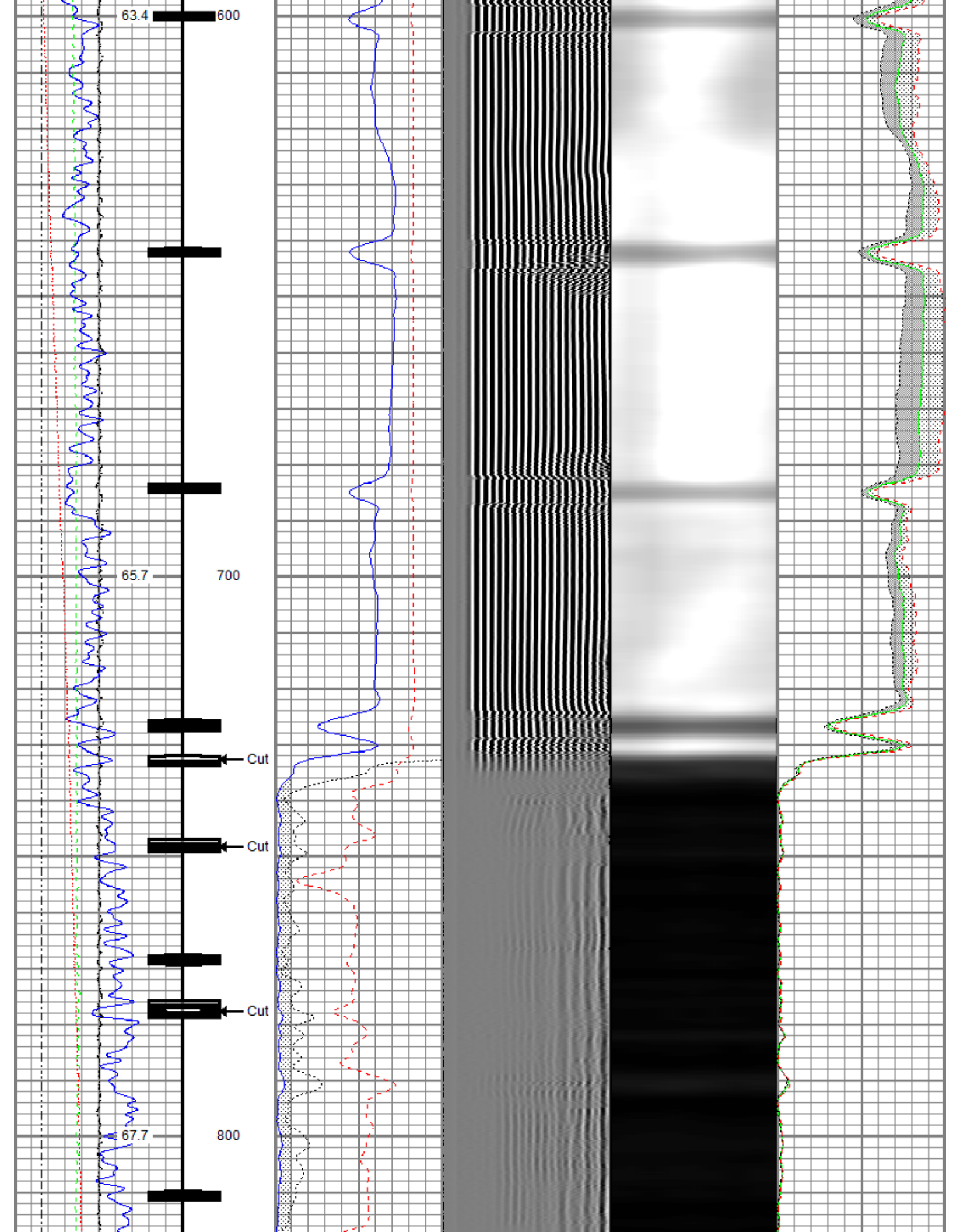
65.7 700

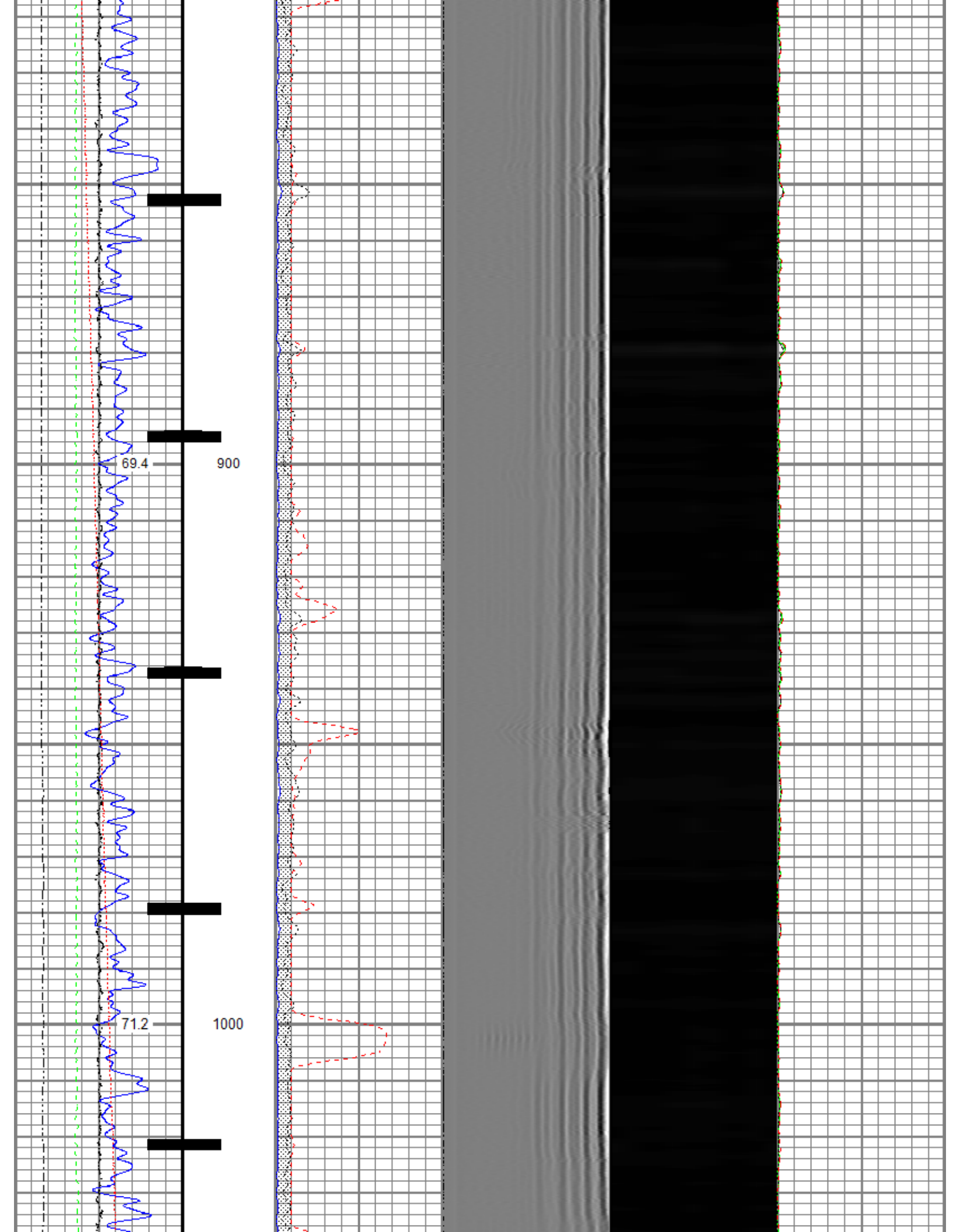
67.7 800

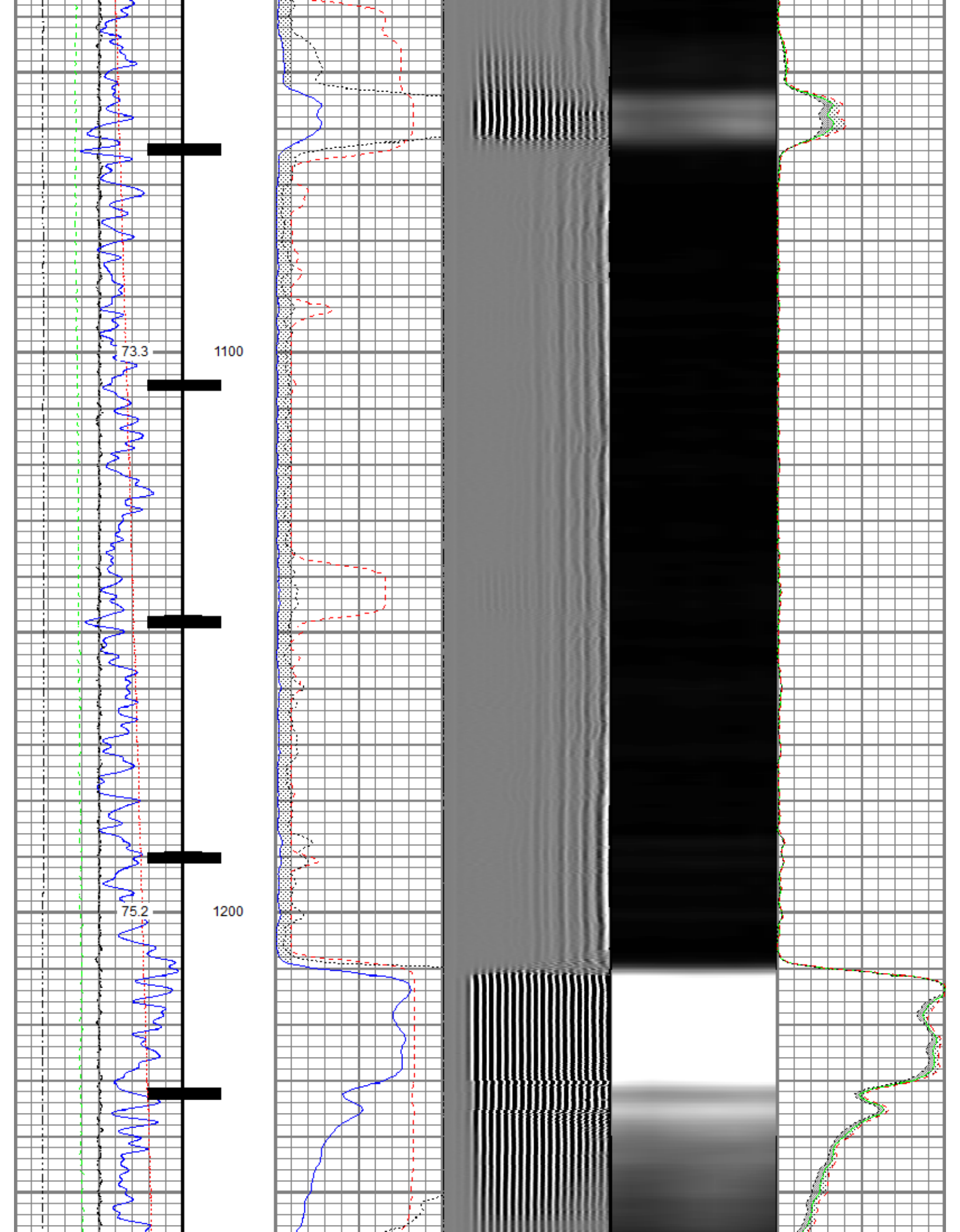
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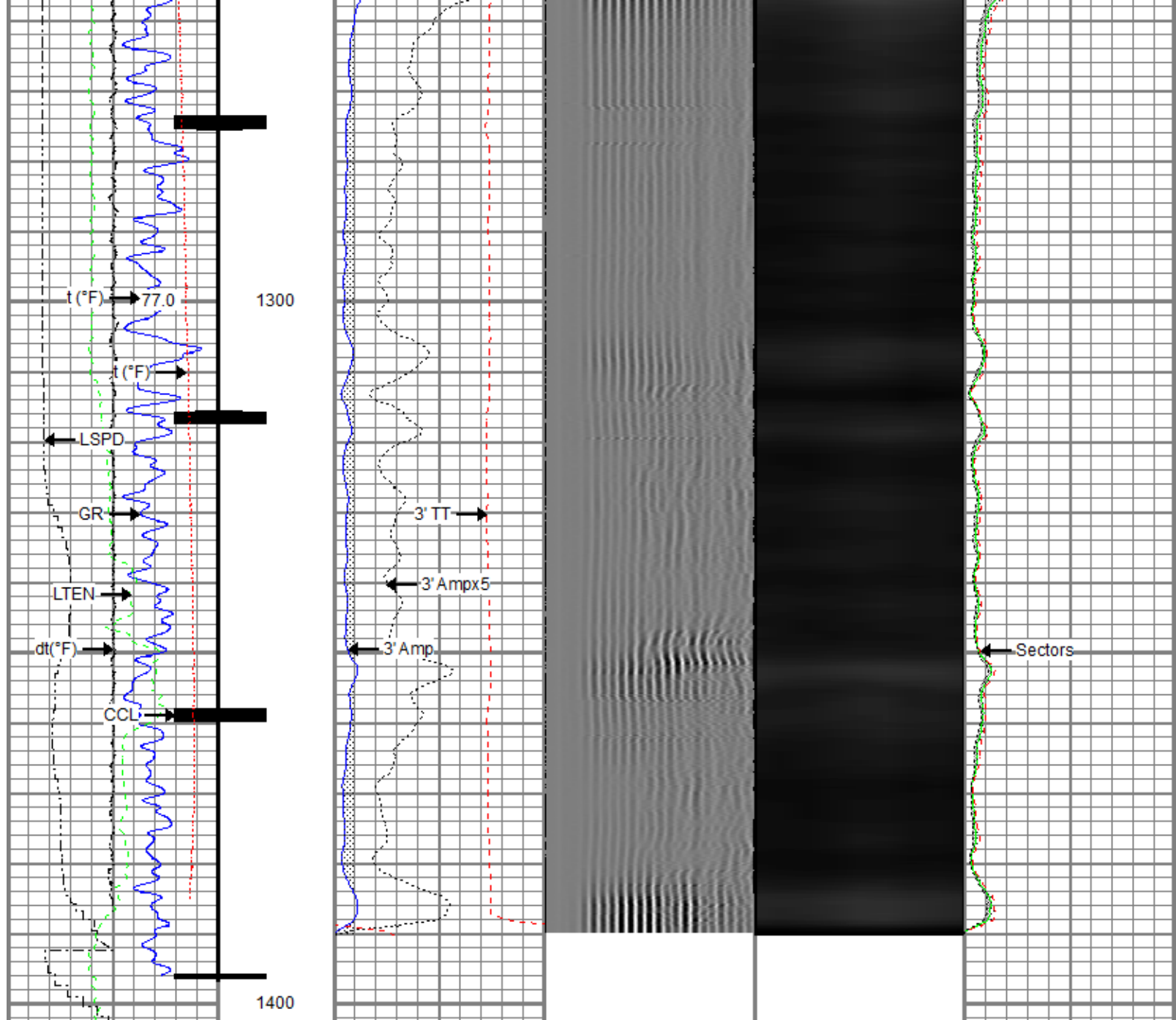
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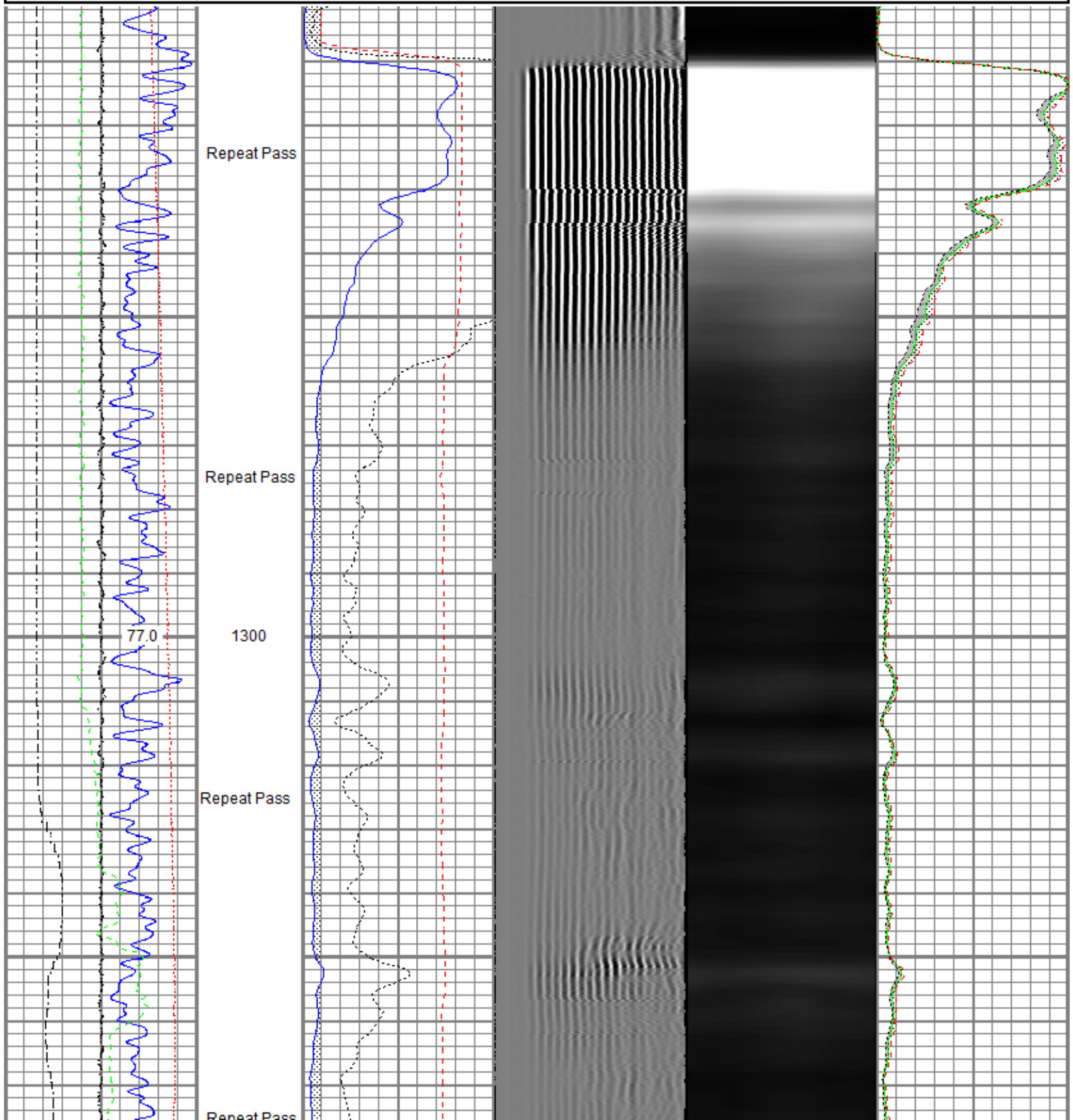
Gamma Ray (GAPI)	0	120	3' Amplitude (mV)	0	100	5' Variable Density Log	Sector Map	Average Amplitude	0	100
Casing Collar Locator			3' Amplitude x 5 (mV)	0	20			Minimum Amplitude	0	100
Temperature (degF)	0	20	3' Travel Time (usec)	650	150			Maximum Amplitude	0	100
Line Speed (ft/min)	-150	150								
Line Tension (lb)	0	2000								
Differential Temperature (degF)	-2	2								

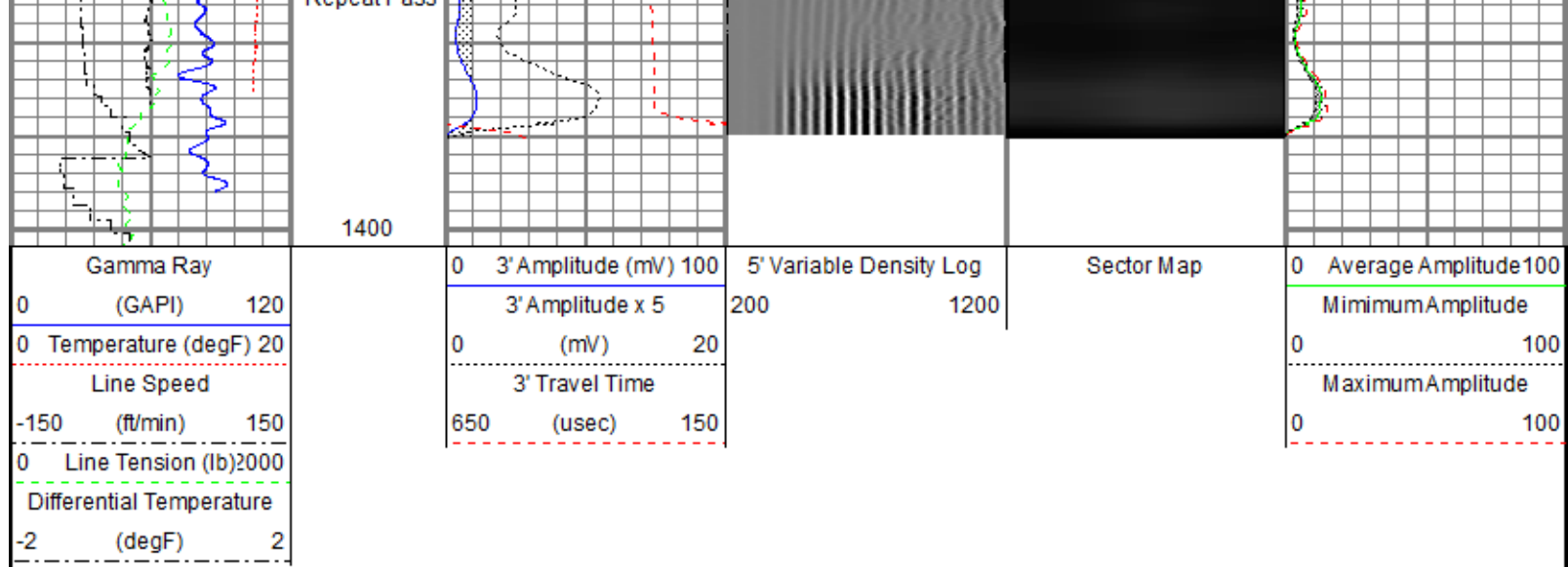


Repeat Pass

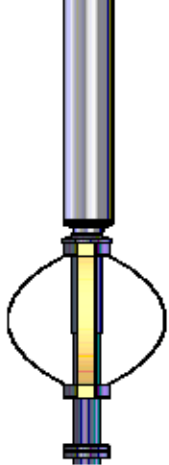
Recorded With 500 PSI Surface Induced Pressure

Gamma Ray (GAPI) 120	0 3' Amplitude (mV) 100	5' Variable Density Log 200 1200	Sector Map	0 Average Amplitude 100
0 Temperature (degF) 20	3' Amplitude x 5 (mV) 20			Minimum Amplitude 0 100
Line Speed (ft/min) 150	3' Travel Time (usec) 150			Maximum Amplitude 0 100
0 Line Tension (lb) 2000				
Differential Temperature (degF) 2				





Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)	
			Titan CHD-14375 GO Titan 1-7/16" Assembled Electric Cable Head w/ 1" Fishing Neck	1.03	1.44	3.60	
			Probe CENT-2750 Probe 2-3/4" Electric Inline Bowspring Centralizer	2.88	2.75	20.00	
TEMP	16.75						
WVFS8	14.52			Probe Radii-2750 RBT (FW1302-001) Probe 2-3/4" Radial Cement Bond Tool with Integral Temperature Sub	9.39	2.75	105.00
WVFS7	14.52						
WVFS6	14.52						
WVFS5	14.52						
WVFS4	14.52						
WVFS3	14.52						
WVFS2	14.52						
WVFS1	14.52						
WVFCAL	14.52						
WVF3FT	14.52						
WVF5FT	13.52						
			Probe CENT-2750 Probe 2-3/4" Electric Inline Bowspring Centralizer	2.88	2.75	20.00	
CCL\$2	6.51						
CCL\$1	6.51						

GR	5.26		Probe GR-CCL-2750 GOB (FW1212-026) Probe 2-3/4" rev.2 Digital Scintillation Gamma Ray/CCL Combined with GO Bottom	4.51	2.75	55.00
			Probe CENT-2750 Probe 2-3/4" Electric Inline Bowspring Centralizer	2.88	2.75	20.00
Dataset: processed_0512331106_anadarko_vogl 23-36_rbl_03-26-19.db: field/well/run1/pass1.8.2 Total length: 23.57 ft Total weight: 223.60 lb O.D.: 2.75 in						

Calibration Report	
Database File	c:\programdata\warrior\data\anadarko\0512331106_anadarko_vogl 23-36_rbl_03-26-19\processed_0512331106_anadarko_vogl
Dataset Pathname	pass1.8.2
Dataset Creation	Wed Mar 27 15:50:13 2019

Gamma Ray Calibration Report		
Serial Number:	FW1212-026	
Tool Model:	2750 GOB	
Performed:	Mon Oct 01 11:32:38 2018	
Calibrator Value:	637.0	GAPI
Background Reading:	113.7	cps
Calibrator Reading:	1029.1	cps
Sensitivity:	0.6959	GAPI/cps

Segmented Cement Bond Log Calibration Report		
Serial Number:	FW1302-001	
Tool Model:	2750 RBT	
Calibration Casing Diameter:	4.500	in
Calibration Depth:	683.239	ft

Master Calibration, performed (Derived):						
	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.007	0.628	0.800	81.196	129.465	-0.151
CAL	0.006	0.746				
5'	0.013	0.567	0.800	81.196	145.159	-1.062
SUM						
S1	0.008	0.642	0.000	100.000	157.662	-1.284
S2	0.007	0.655	0.000	100.000	154.234	-1.064
S3	0.007	0.656	0.000	100.000	154.079	-1.098
S4	0.007	0.645	0.000	100.000	156.544	-1.022
S5	0.007	0.664	0.000	100.000	151.985	-0.988
S6	0.006	0.662	0.000	100.000	152.592	-0.981
S7	0.007	0.639	0.000	100.000	158.159	-1.052
S8	0.008	0.629	0.000	100.000	161.007	-1.272

Internal Reference Calibration, performed (Not Performed):						
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	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.006	0.746	1.000	0.000

Air Zero Calibration, performed Tue Mar 26 08:59:00 2019:

	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	

Temperature Calibration Report

Serial Number: FW1302-001
Tool Model: 2750 RBT
Performed: Mon Oct 01 11:32:14 2018

	Reference	Reading
Low Reference:	100.00 degF	107.47 degF
High Reference:	350.00 degF	404.08 degF

Gain: 0.84
Offset: 9.42
Delta Spacing: 1



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State Colorado