



Radial Cement Bond
Gamma Ray
Casing Collar Log

Company	Kerr-McGee Oil & Gas Onshore, L.P.			Company	Kerr-McGee Oil & Gas Onshore, L.P.		
Well	D K Norgren Unit C True 1			Well	D K Norgren Unit C True 1		
Field	Wattenberg			Field	Wattenberg		
County	Weld			County	Weld		
State	Colorado			State	Colorado		
Location:				API # : 05-123-11638			
SEC 14 TWP 3N RGE 67W				Other Services			

Permanent Datum	Ground Level	Elevation	4780'	Elevation			
Log Measured From	Kelly Bushing	13 FT		K.B. 4793'			
Drilling Measured From	Kelly Bushing			D.F. 4792'			
				G.L. 4780'			

Date	18-Feb-2016						
Run Number	One						
Depth Driller	7917 FT						
Depth Logger	1570 FT						
Bottom Logged Interval	1565 FT						
Top Log Interval	Surface						
Open Hole Size	7.875"						
Type Fluid	Water						
Density / Viscosity	8.34 lbm/gal						
Max. Recorded Temp.	82°F						
Estimated Cement Top	Surface						
Time Well Ready	ROA						
Time Logger on Bottom	07:50						
Equipment Number	HD-0324						
Location	Fort Lupton, CO						
Recorded By	W.Wacker						
Witnessed By	Mark Vandagriff						
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	K-55	Surface	745 FT		
Intermediate #1	5 1/2	17	J-55	Surface	92 FT		
Intermediate #2	5 1/2	15 1/2	J-55	92 FT	5732 FT		
Liner	5 1/2	17	J-55	5732 FT	7227 FT		
	5 1/2	17	N-80	7227 FT	7270 FT		

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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 FMC Bond Log dated Feb-10-2016
Log ran from 1570 FT to surface
Recorded with 0 PSI surface induced pressure

Thank you for choosing FMC Technologies Surface Integrated Services.



Main Pass

Recorded with 0 PSI Surface Induced Pressure

Database File: c:\warrior\data\0512311638_anadarko_d k norgren unit c true 1_02-18-16_rb\0512311638_anadarko

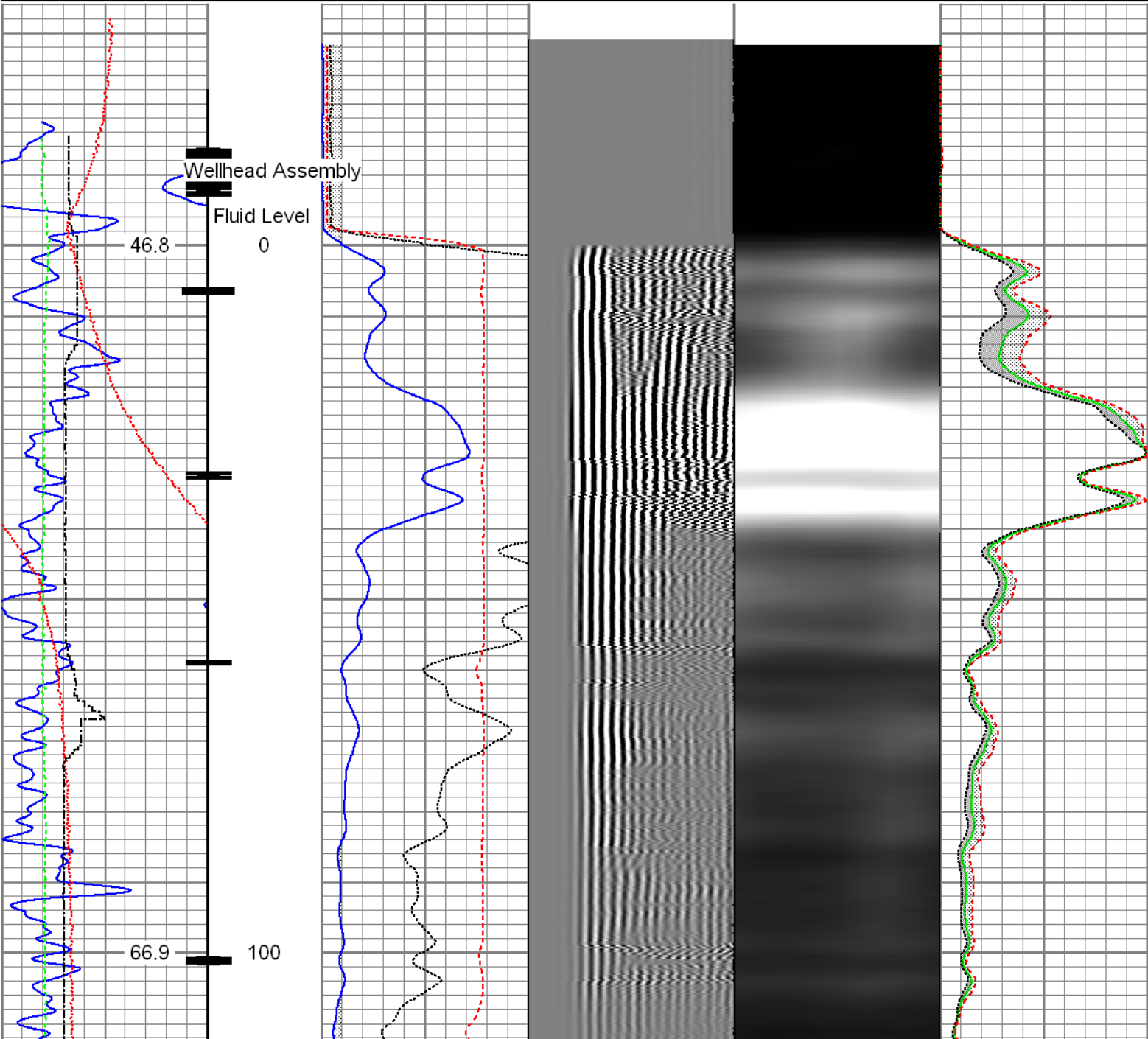
Dataset Pathname: pass10.1

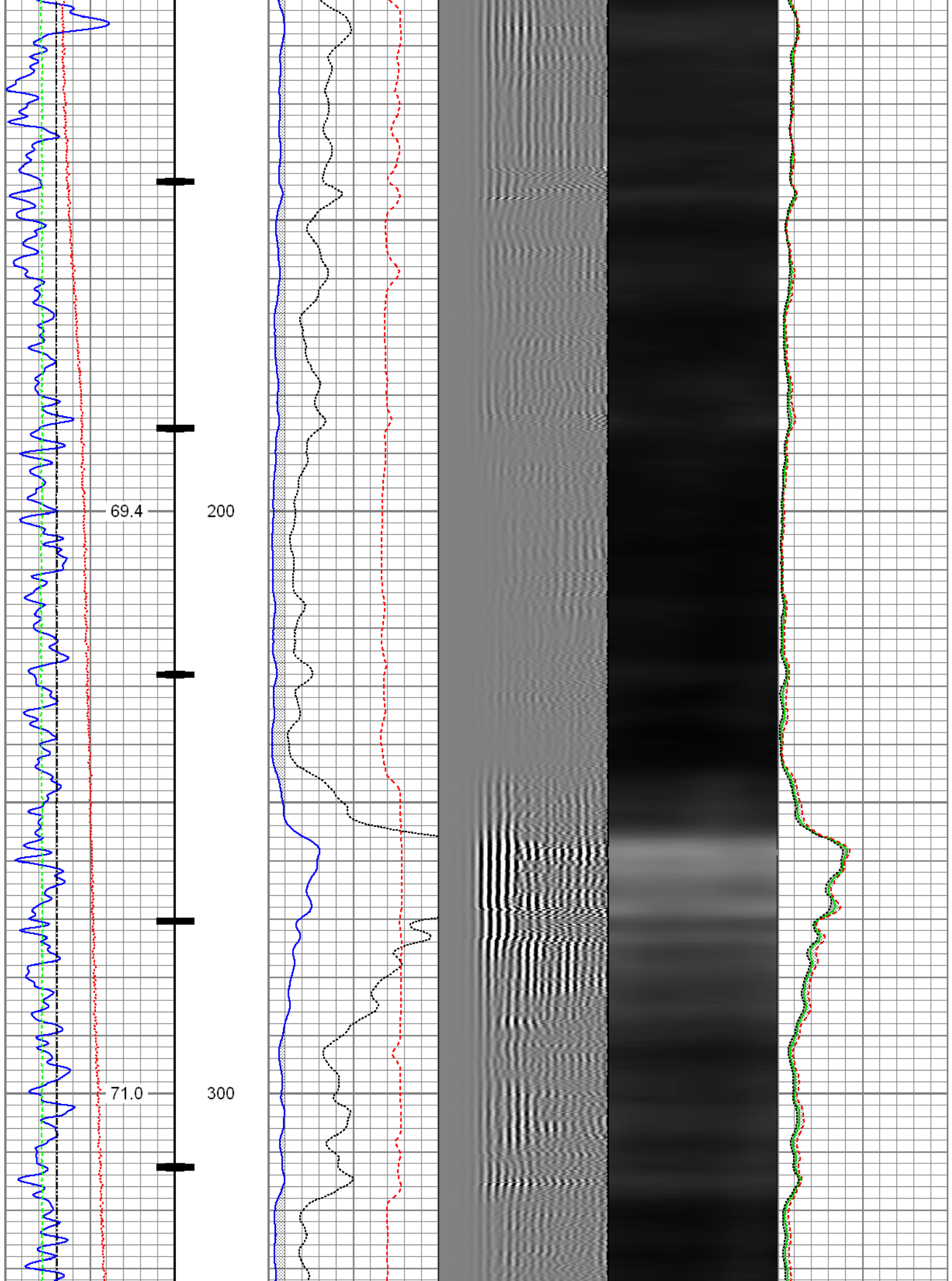
Presentation Format: radii

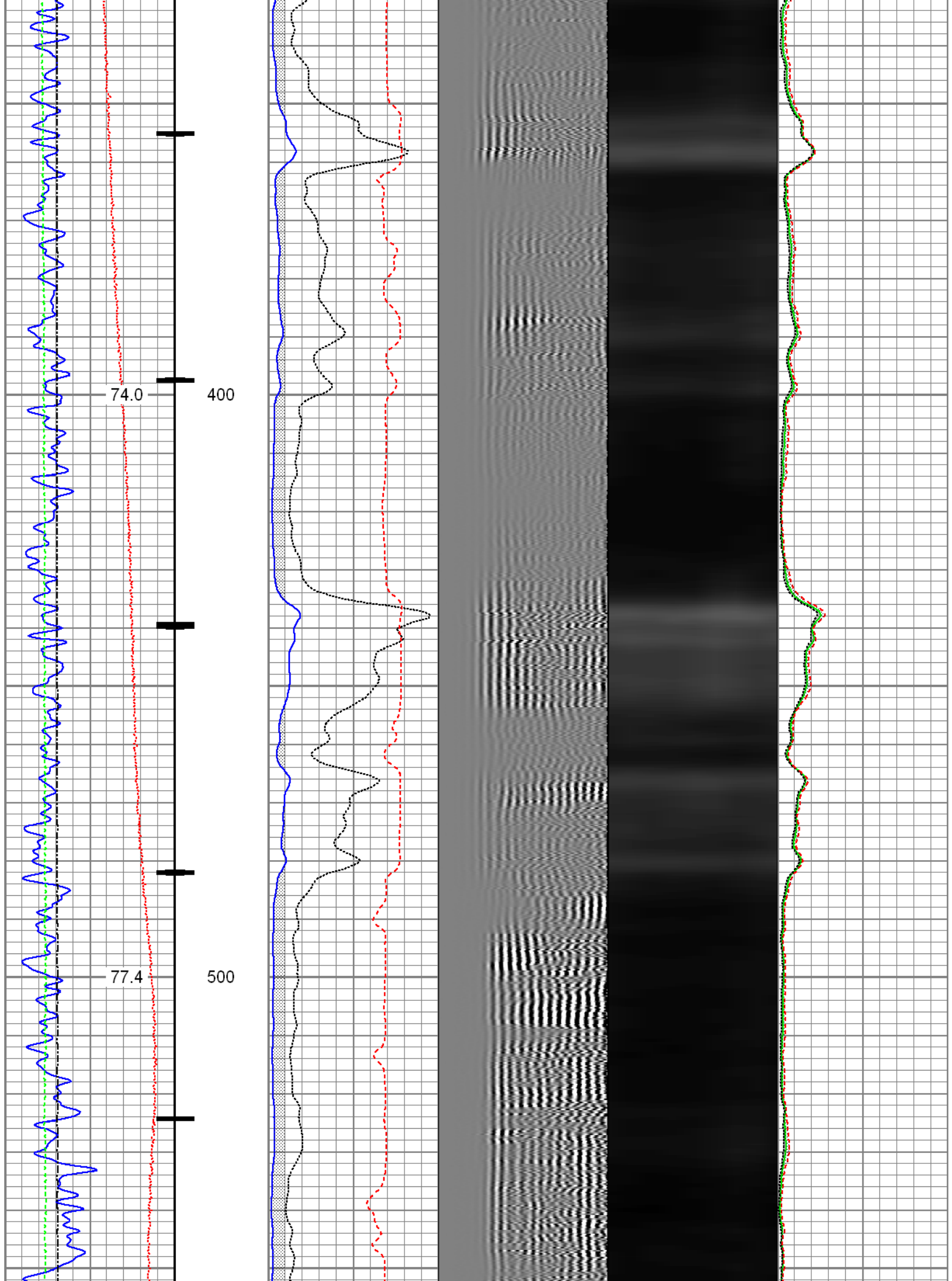
Dataset Creation: Thu Feb 18 08:21:11 2016 by Calc 7.0 B1

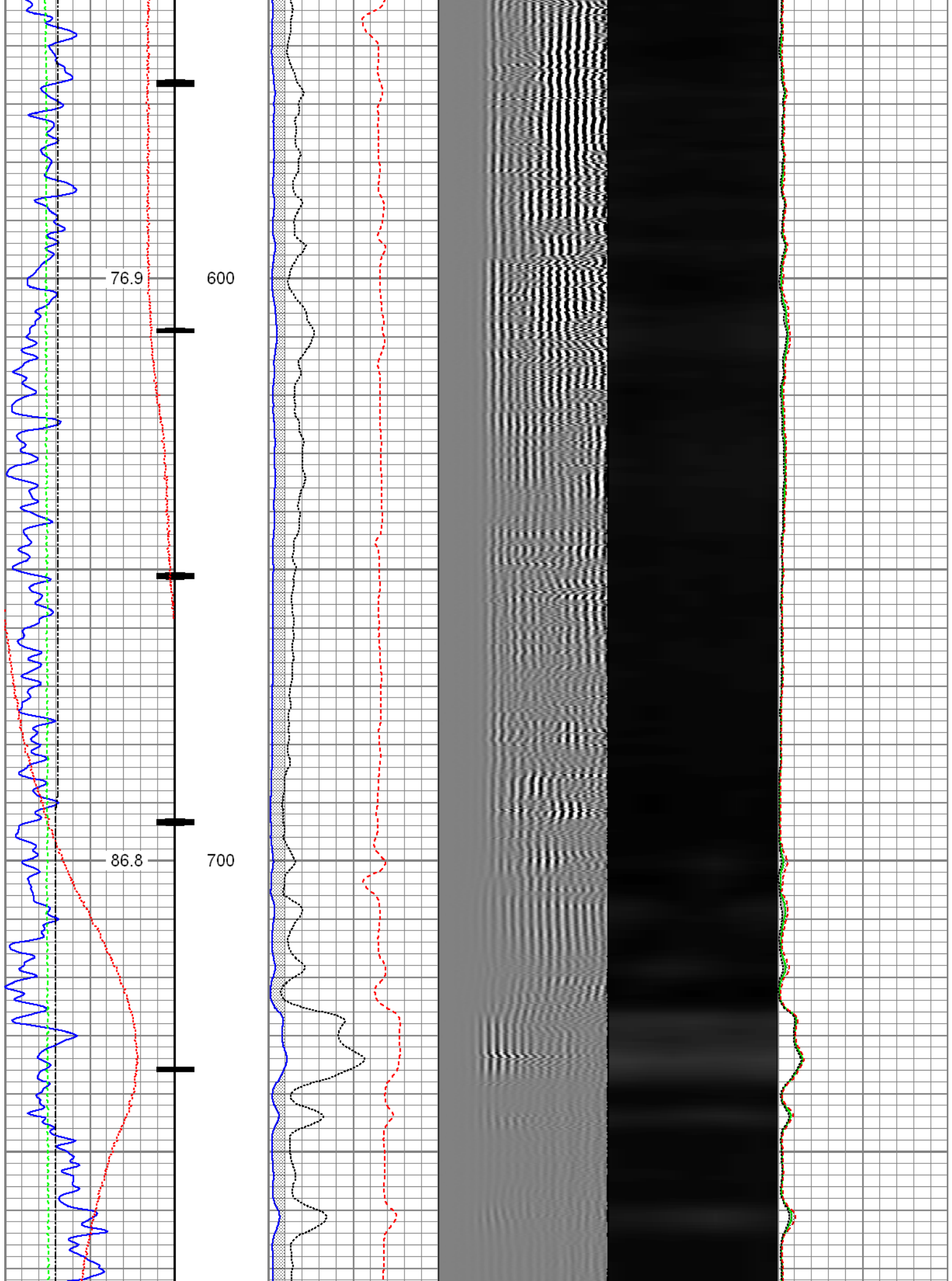
Charted by: Depth in Feet scaled 1:240

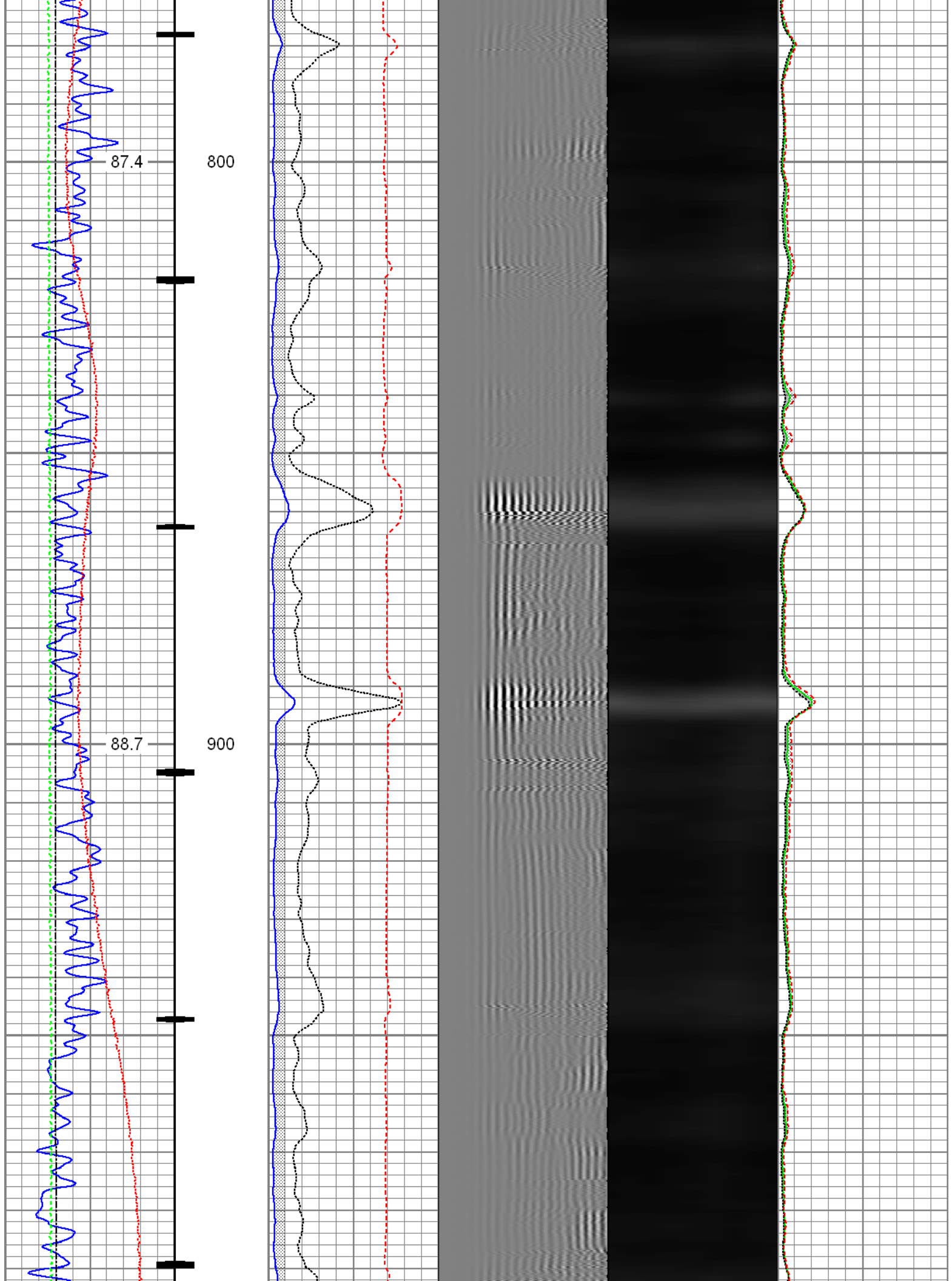
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
30 (GAPI) 130	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Minimum Amplitude
Temperature	0 (mV) 20			0 100
0 (degF) 20	3' Travel Time			Maximum Amplitude
Line Speed	650 (usec) 150			0 100
-150 (ft/min) 150				
Line Tension				
0 (lb) 2000				

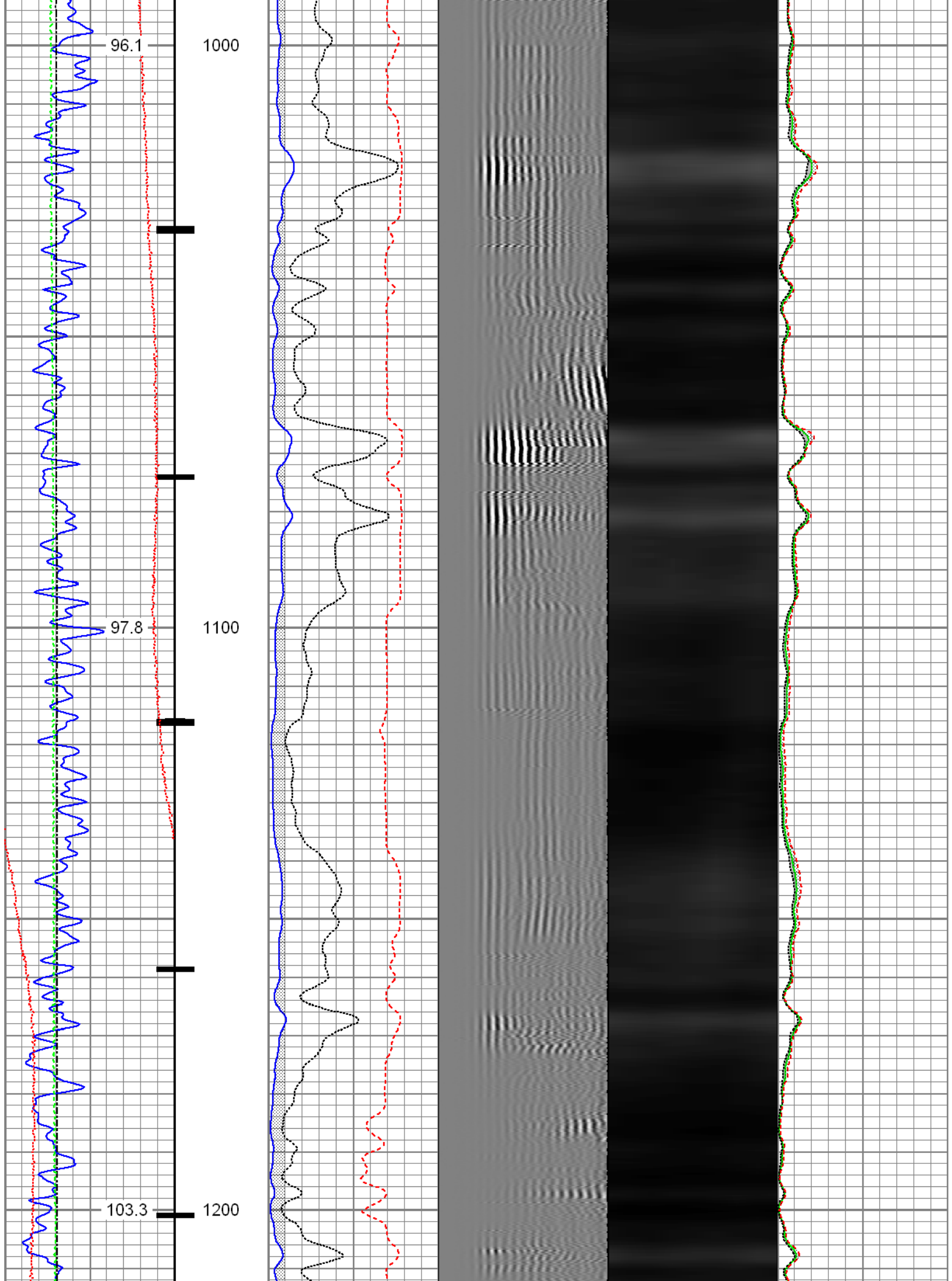


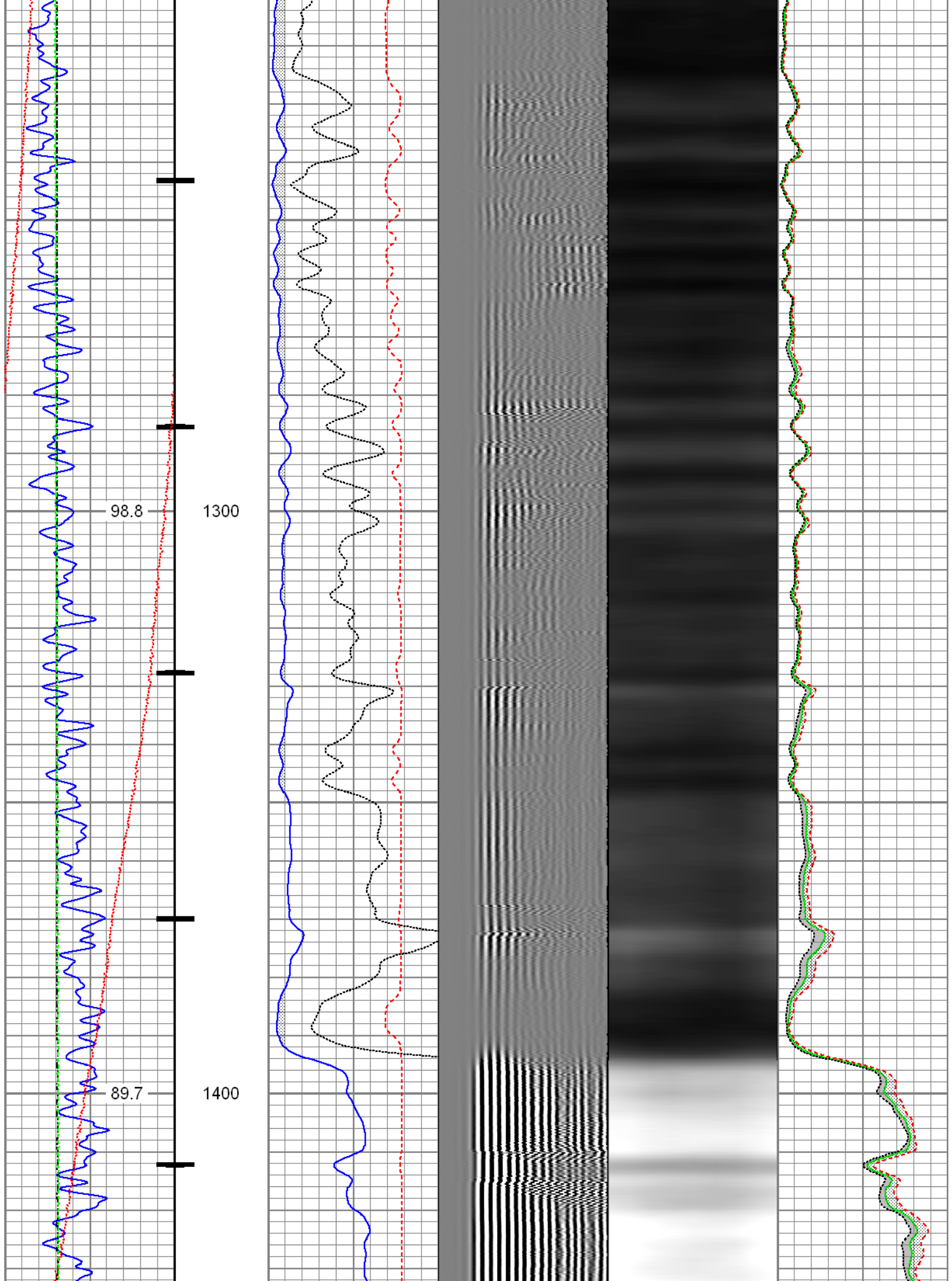


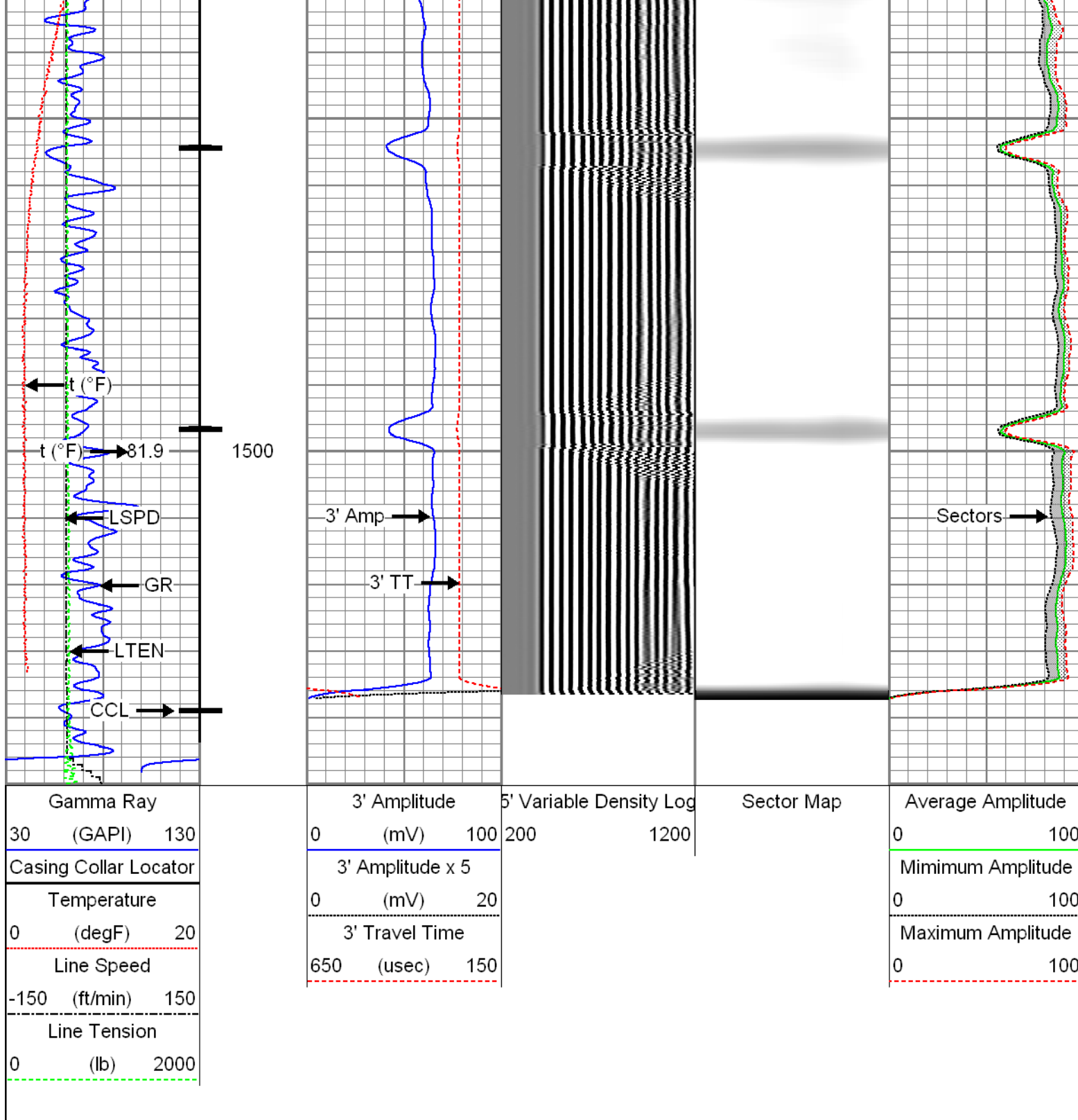













		Repeat Pass		
		Recorded with 0 PSI Surface Induced Pressure		
Database File:	c:\warrior\data\0512311638_anadarko_d k norgren unit c true 1_02-18-16_rb\0512311638_anadarko			
Dataset Pathname:	pass8.1			
Presentation Format:	radii			
Dataset Creation:	Tue Feb 23 16:14:34 2016 by Calc SCH 120430			
Charted by:	Depth in Feet scaled 1:240			

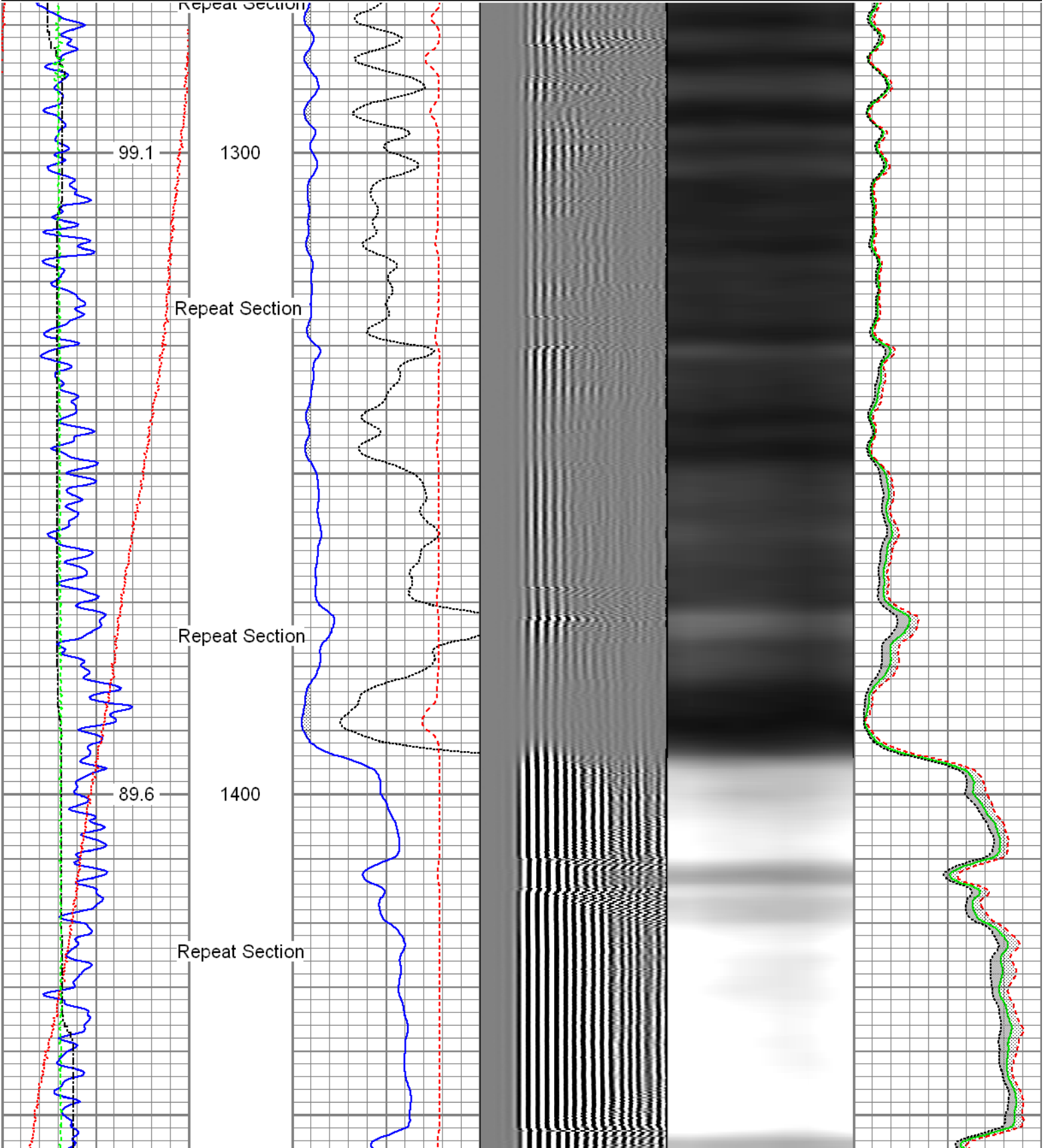
Gamma Ray		3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
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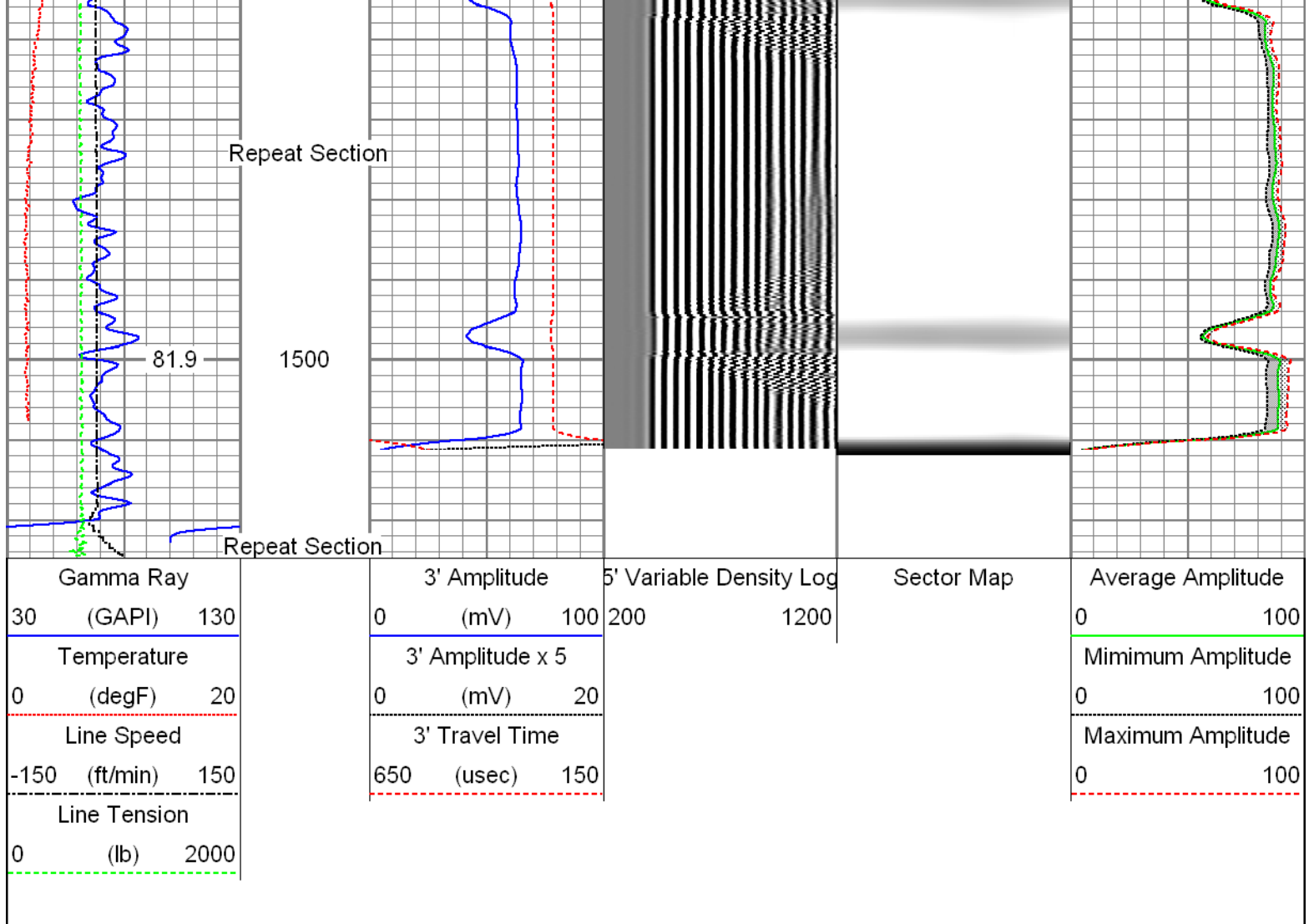
30	(GAPI)	130
Temperature		
0	(degF)	20
Line Speed		
-150	(ft/min)	150
Line Tension		
0	(lb)	2000

0	(mV)	100
3' Amplitude x 5		
0	(mV)	20
3' Travel Time		
650	(usec)	150

200 1200

0	100
Minimum Amplitude	
0	100
Maximum Amplitude	
0	100





Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
			T_CH14375_1_GO Titan 1-7/16" Assembled Electric Cable Head with 1" Fishing Neck	1.03	1.44	4.00
			Probe_IL_BS_Cent Probe 2-3/4" Inline Electrical Inline Bowspring Centralizer	2.88	2.75	10.00
HeadVolt	19.49					
Temp	16.72					
WVF3FT WVFCAL WVFS1 WVFS2 WVFS3 WVFS4	14.55 14.55 14.55 14.55 14.55 14.55		Probe_RADII-C-2-3/4" (FW1302-002) Probe 2-3/4" Sector Cement Bond Tool with Temperature Probe	9.19	2.75	105.00

Tool Joint	Length	Weight	Diagram	Probe IL_BS_Cent	Probe IL_BS_Cent	Probe IL_BS_Cent	
WVFS5	14.55						
WVFS6	14.55						
WVFS7	14.55						
WVFS8	14.55						
WVF5FT	13.55						
				Probe_IL_BS_Cent	2.88	2.75	10.00
				Probe 2-3/4" Inline Electrical Inline Bowspring Centralizer			
CCL	6.51						
DCCL	6.51						
				Probe_CCL_GR-2.75"Digital (FW1212-026)	4.54	2.75	55.00
				Probe 2-3/4" Digital CCL / Gamma Ray Combined			
GR	3.77						
				Probe_IL_BS_Cent	2.88	2.75	10.00
				Probe 2-3/4" Inline Electrical Inline Bowspring Centralizer			

Dataset: 0512311638_Anadarko_D K Norgren Unit C True 1_02-18-16_RBL.db: field/well/run1/pass10

Total Length: 23.40 ft

Total Weight: 194.00 lb

O.D. 2.75 in

Master Calibration, performed Thu Feb 18 00:20:40 2016:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.007	0.476	0.800	71.921	151.652	-0.326
CAL	0.007	0.790				
5'	0.007	0.448	0.800	71.921	161.455	-0.391
SUM						
S1	0.004	0.473	0.000	100.000	213.231	-0.781
S2	0.008	0.445	0.000	100.000	228.722	-1.801
S3	0.007	0.448	0.000	100.000	227.169	-1.686
S4	0.008	0.461	0.000	100.000	220.748	-1.705
S5	0.009	0.489	0.000	100.000	208.394	-1.801
S6	0.008	0.526	0.000	100.000	193.040	-1.568
S7	0.008	0.555	0.000	100.000	182.674	-1.374
S8	0.007	0.538	0.000	100.000	188.446	-1.380

Internal Reference Calibration, performed Wed Dec 31 17:00:00 1969:

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.007	0.790	1.000	0.000

Air Zero Calibration, performed Thu Feb 18 07:37:50 2016:

	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	



Company Kerr-McGee Oil & Gas Onshore, L.P.
 Well D K Norgren Unit C True 1
 Field Wattenberg
 County Weld
 State Colorado