RELIANCE
OILFIELD SERVICES

Radial Cement Bond
Gamma Ray
Casing Collar Log

Company TEP Rocky Mountain LLC
Well Federal PA 32-26
Field Parachute
County Garfield
State Colorado

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Well Federal PA 32-26
Field Parachute
County Garfield State Colorado
Location: API # : 05-045-23728
2130' FSL & 2476' FWL NESW
SEC 26 TWP 6S RGE 95W

Other Services

		Elevation	Elevation
Permanent Datum	Ground Level	5636.9'	K.B. 5660.9'
Log Measured From	Kelly Bushing	24 FT	D.F. 5659.9'
Drilling Measured From	Kelly Bushing		G.L. 5636.9'

Date	22-MAY-2018
Run Number	One
Depth Driller	8782 FT
Depth Logger	8728 FT
Bottom Logged Interval	8714 FT
Top Log Interval	Surface
Open Hole Size	8.750"
Type Fluid	Fresh Water
Density / Viscosity	8.34 lb/gal
Max. Recorded Temp.	234°F
Estimated Cement Top	See Log
Time Well Ready	ROA
Time Logger on Bottom	17:05
Equipment Number	HD-359
Location	Grand Junction, CO
Recorded By	A. Ellsworth
Witnessed By	D. Welsh

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	9 5/8	32.3	H-40	Surface	1124 FT
Intermediate #1	4 1/2	11.6	P-110	Surface	8739 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 24 FT
Marker Joint logged at 4726 FT - 4748 FT
Log ran from 8714 FT to Surface
Recorded with 0 PSI Surface Induced Pressure

Thank you for choosing Reliance Oilfield Services, LLC!!

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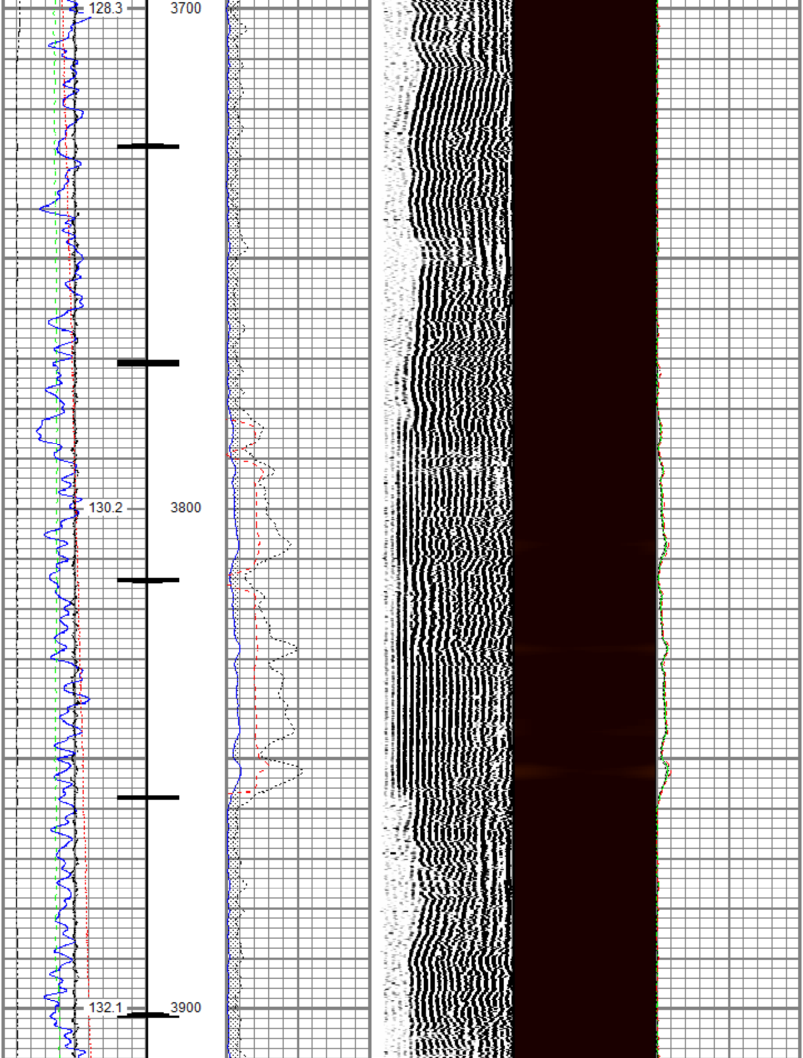
Main Pass

Recorded with 0 PSI Surface Induced Pressure

Database File tep_federal pa 32-26_rbl_05-22-18\processed_tep_federal pa 32-26_rbl_05-22-18.db
Dataset Pathname main2
Presentation Format ros_rbt004_tep
Dataset Creation Tue May 22 18:03:28 2018
Charted by Depth in Feet scaled 1:240

Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 200	0 (mV) 100	200 (usec) 1200		0 150
Line Speed	3' Amplitude x 5			Mimimum Amplitude
-150 (ft/min) 150	0 (mV) 20			0 150
Line Tension	3' Travel Time			Maximum Amplitude
0 (lb) 2000	300 (usec) 200			0 150
Differential Temperature				
-2 (degF) 2				
Temperature				
0 (degF) 20				
10 CCL 0				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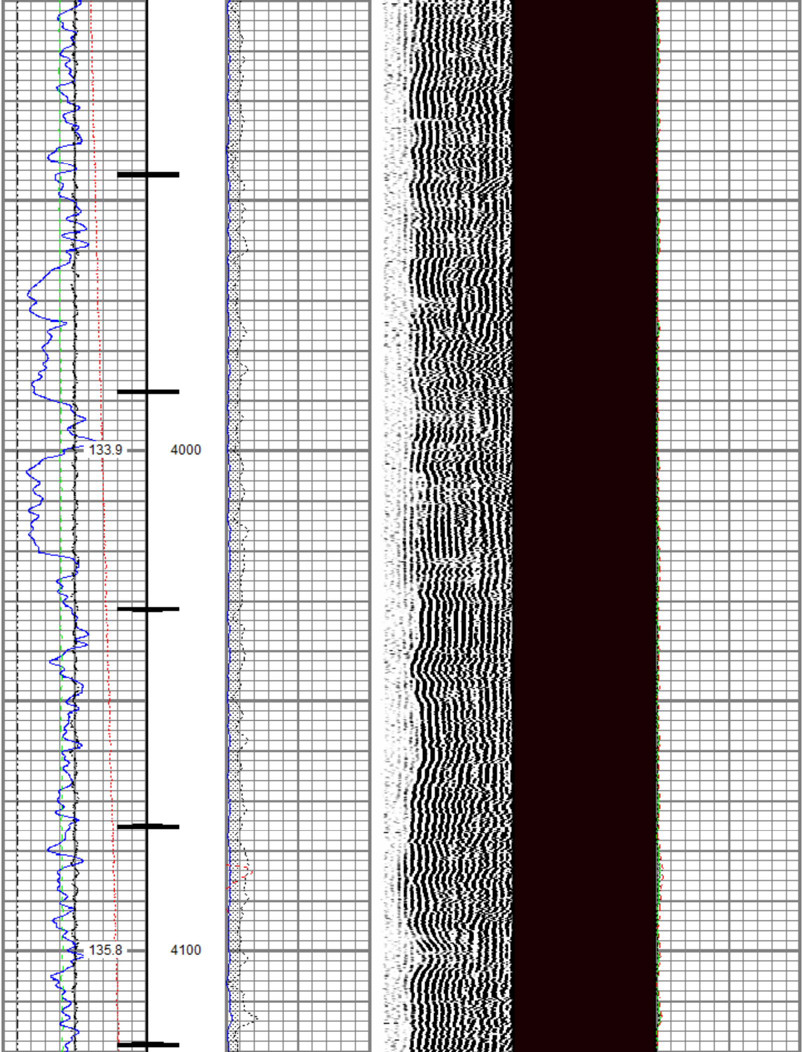
3800
132.1
3900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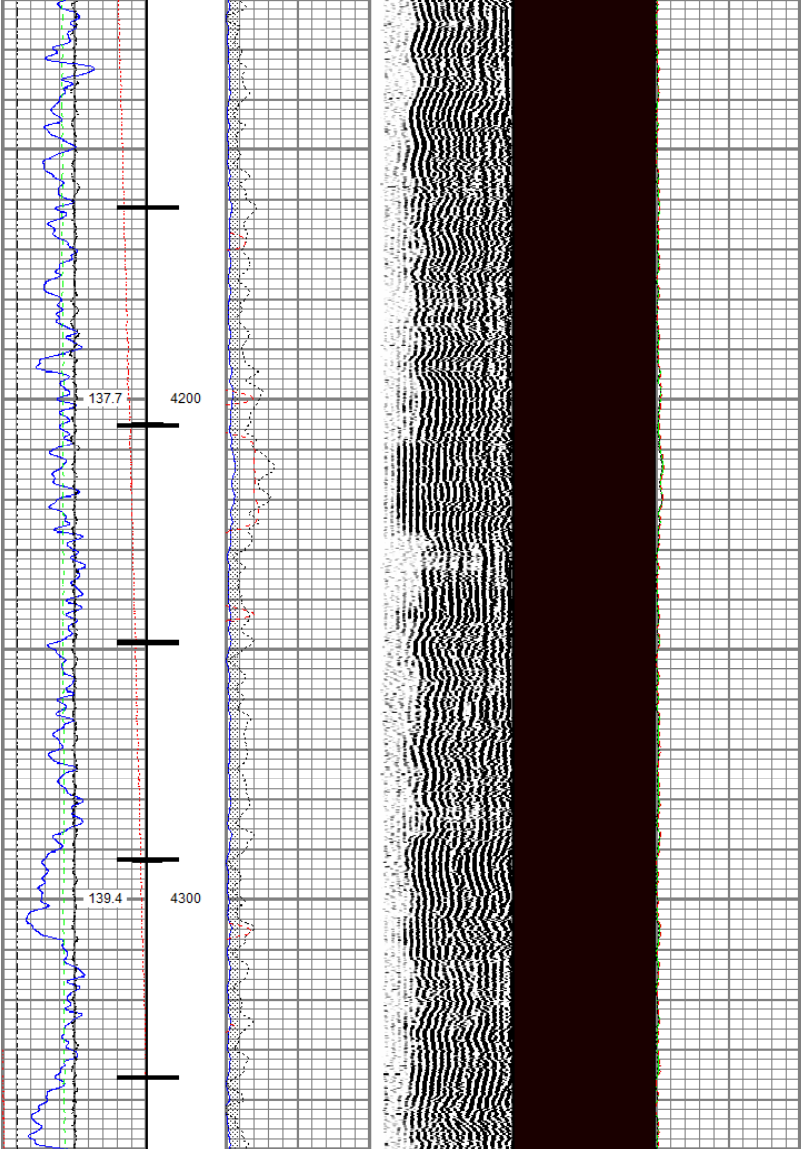
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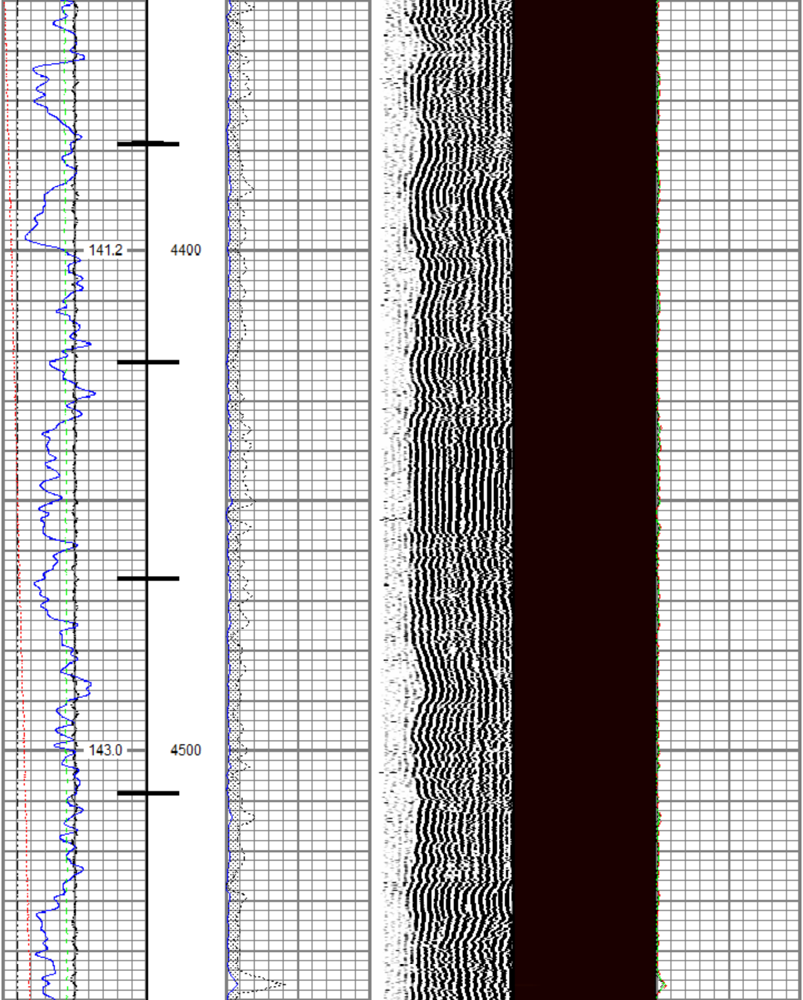
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143.0
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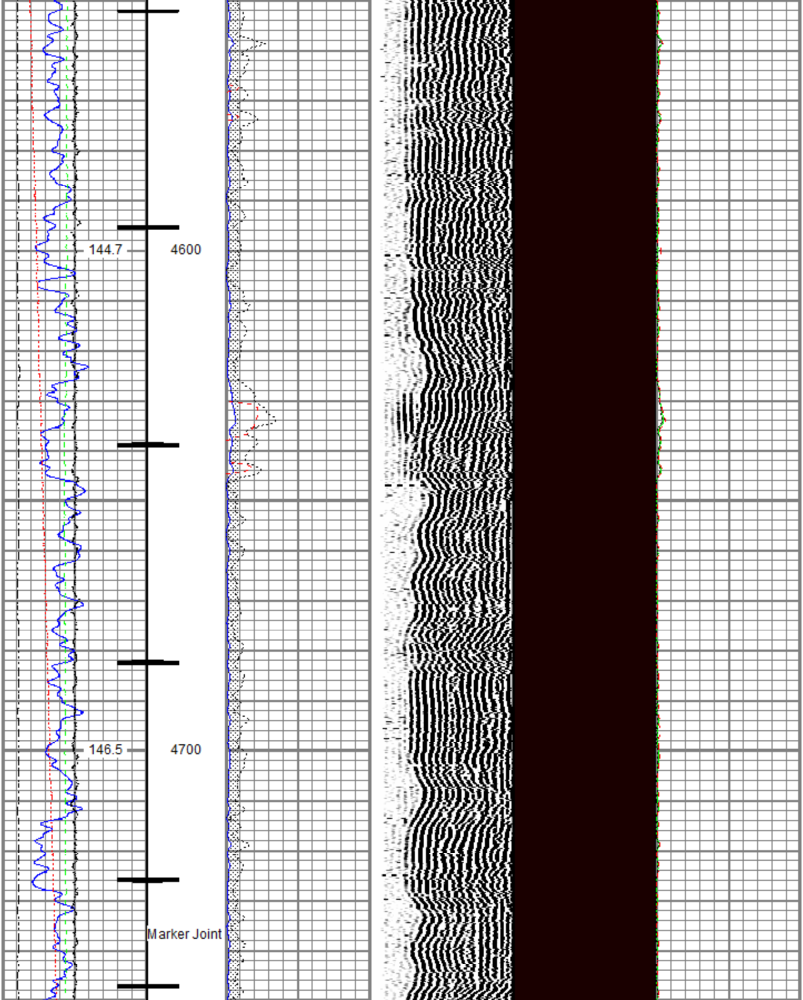
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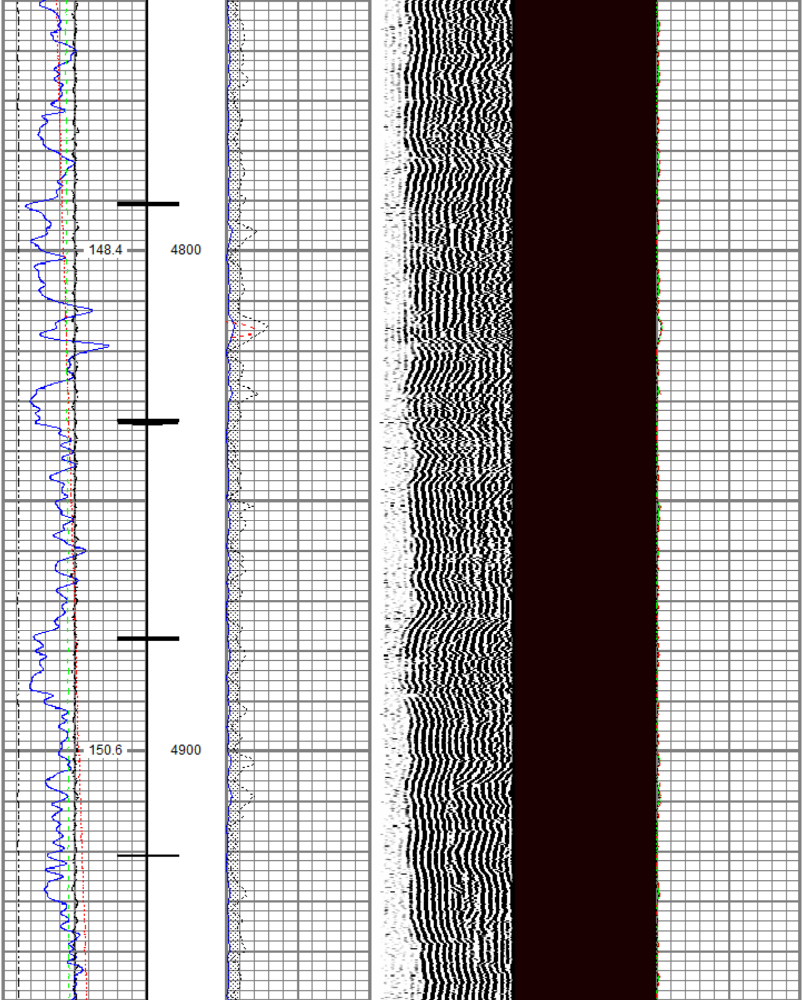
Marker Joint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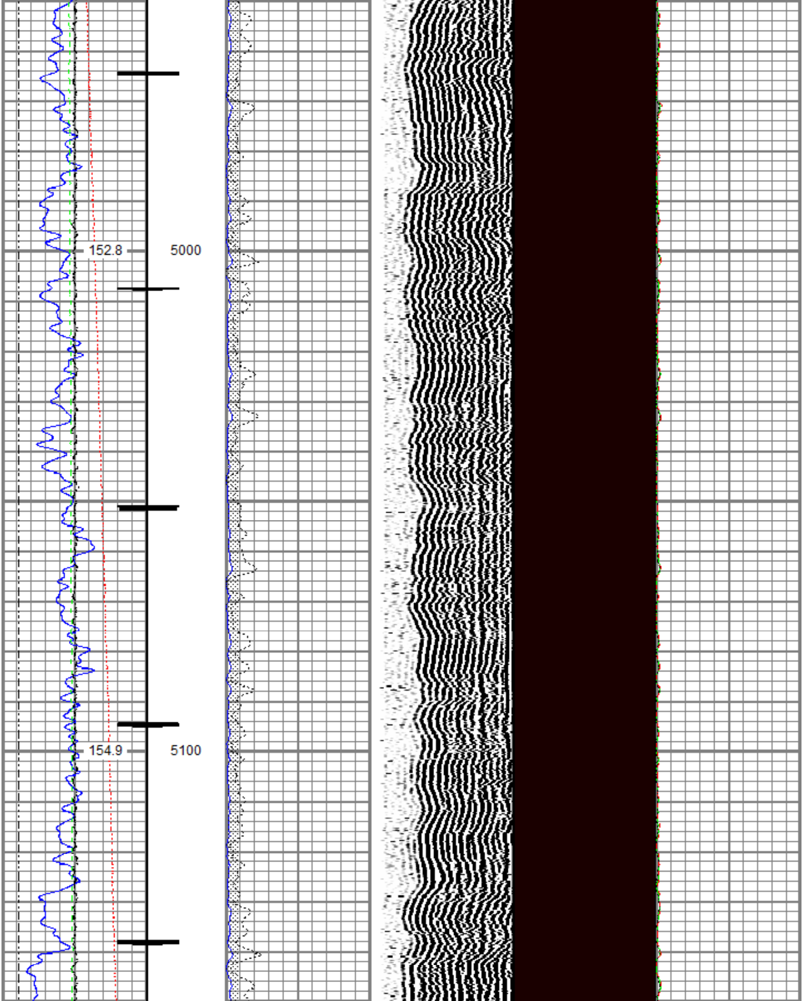
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154.9
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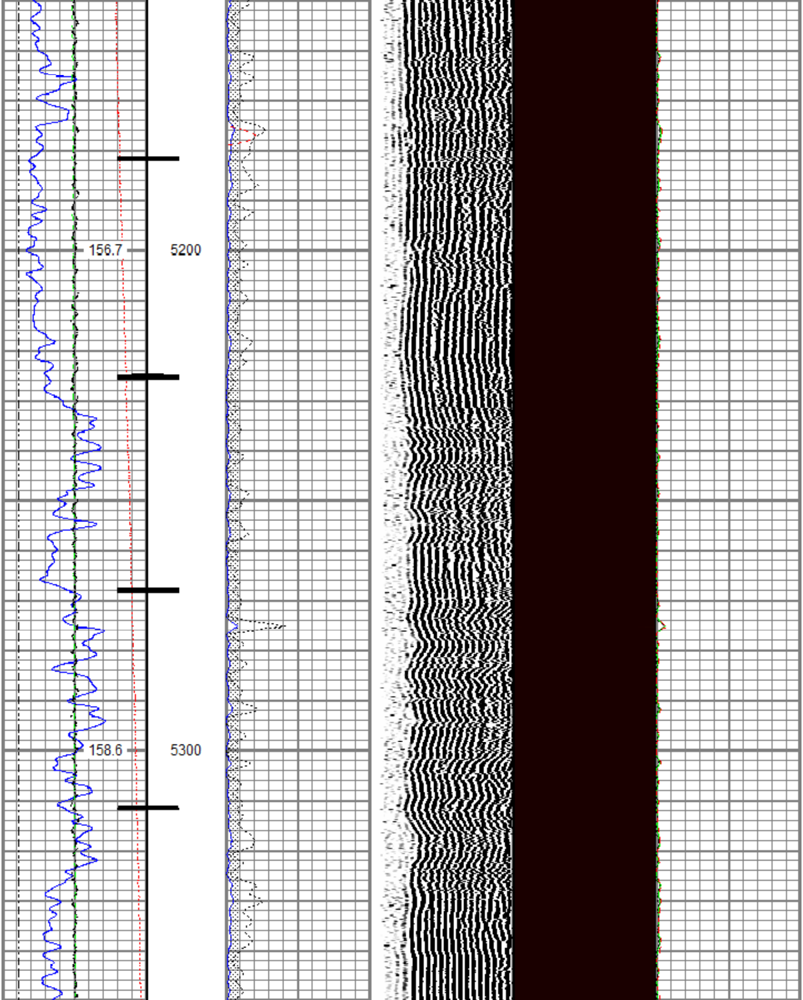
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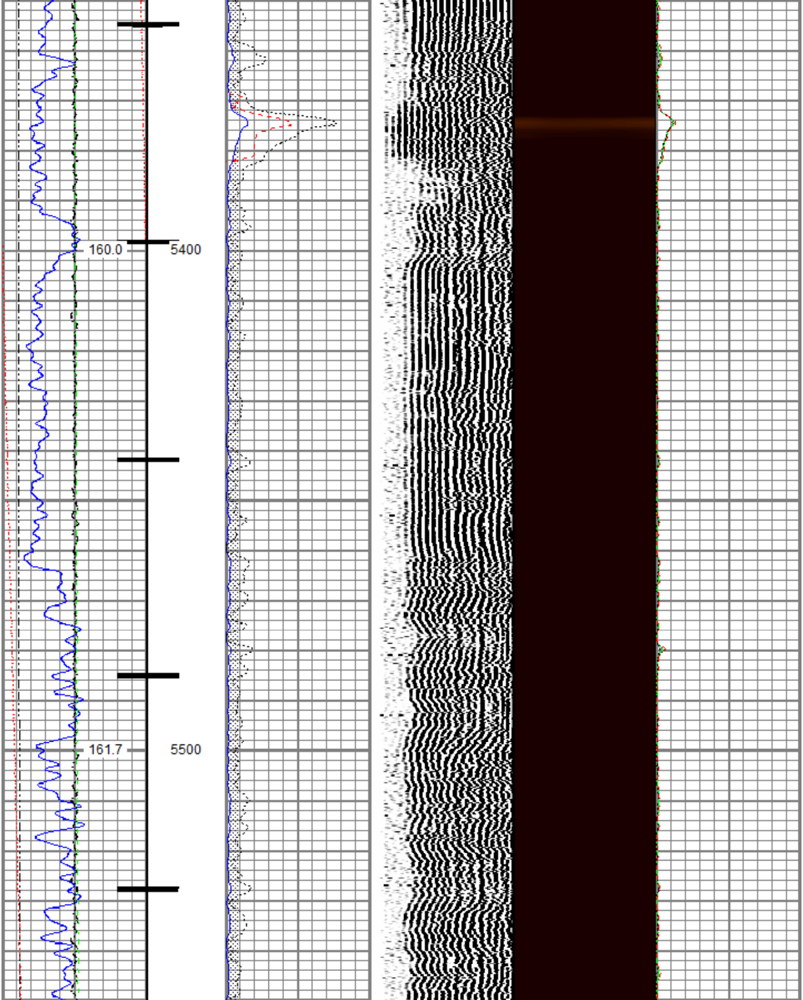
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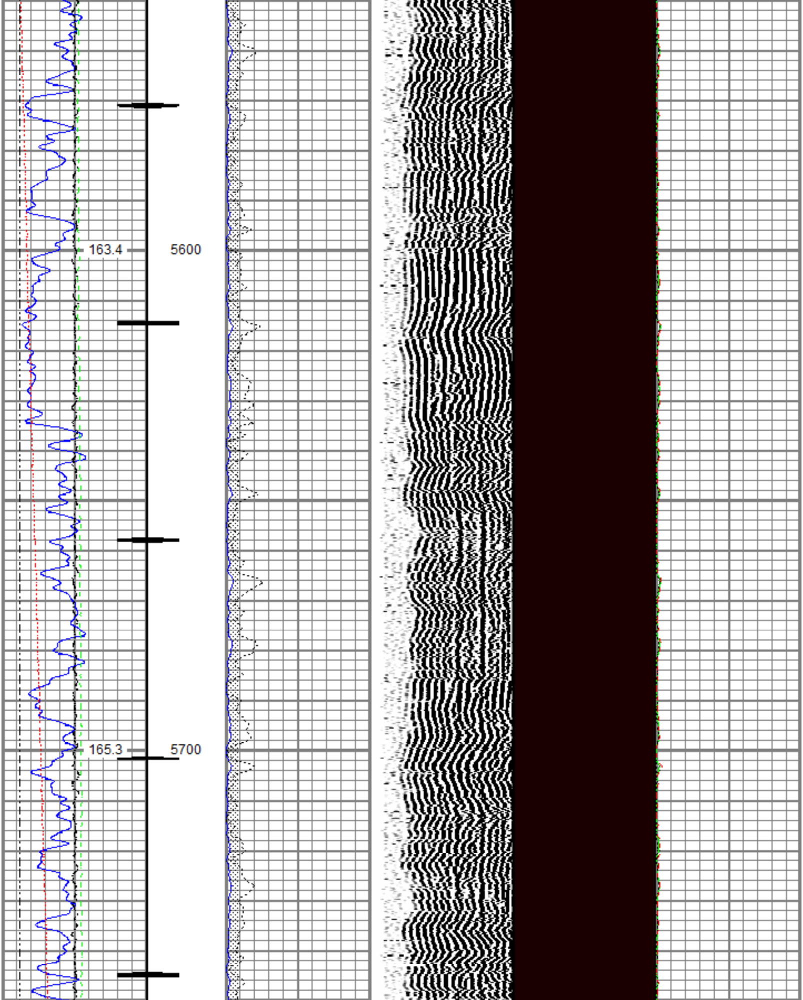
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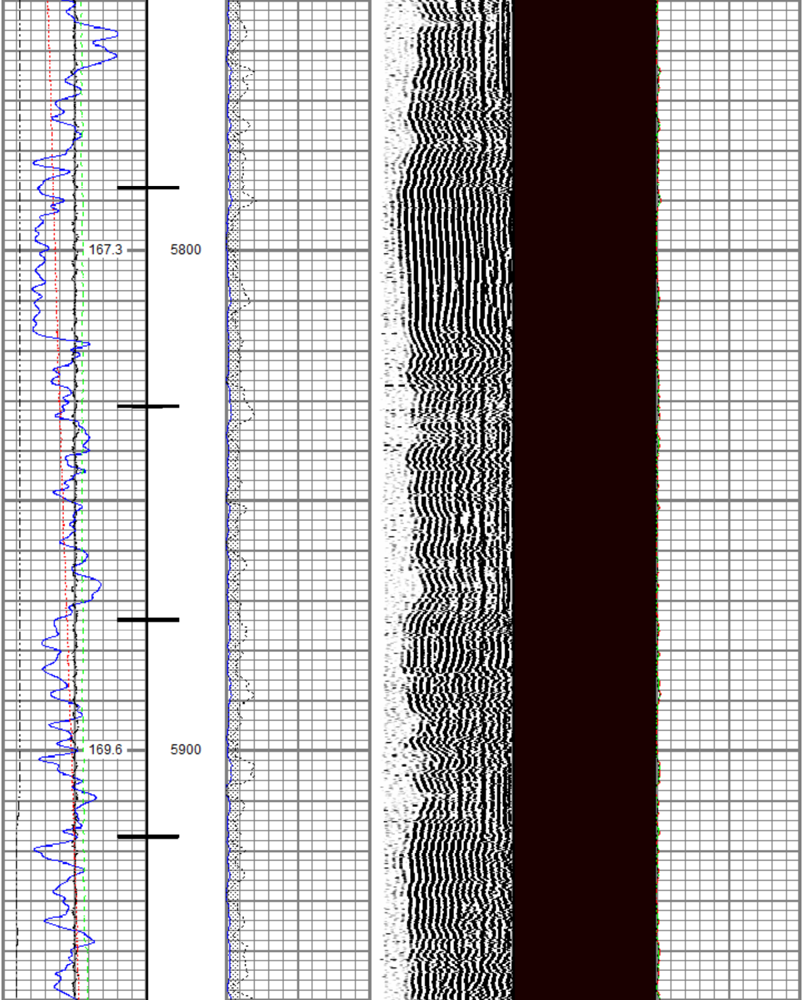
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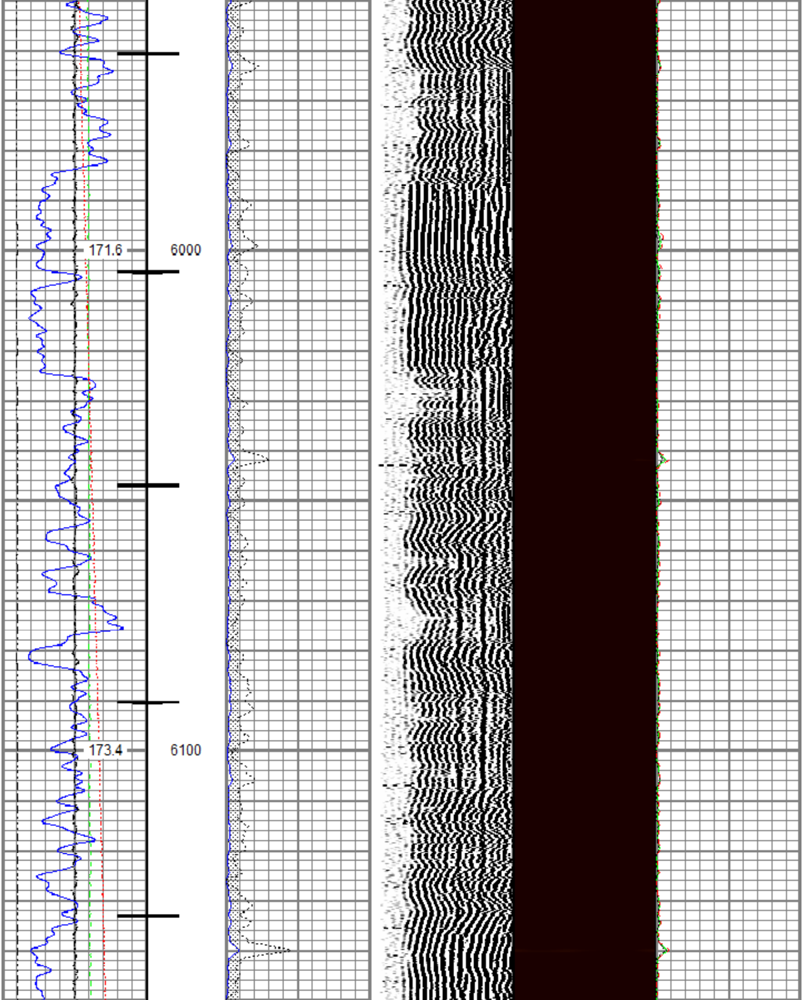
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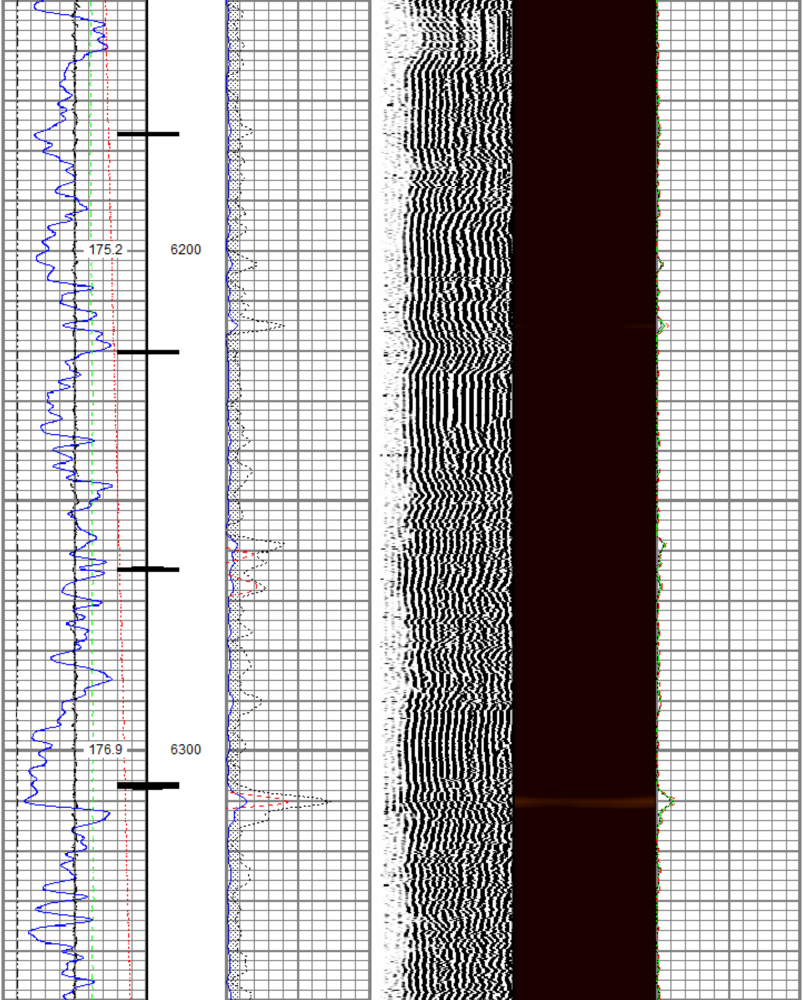
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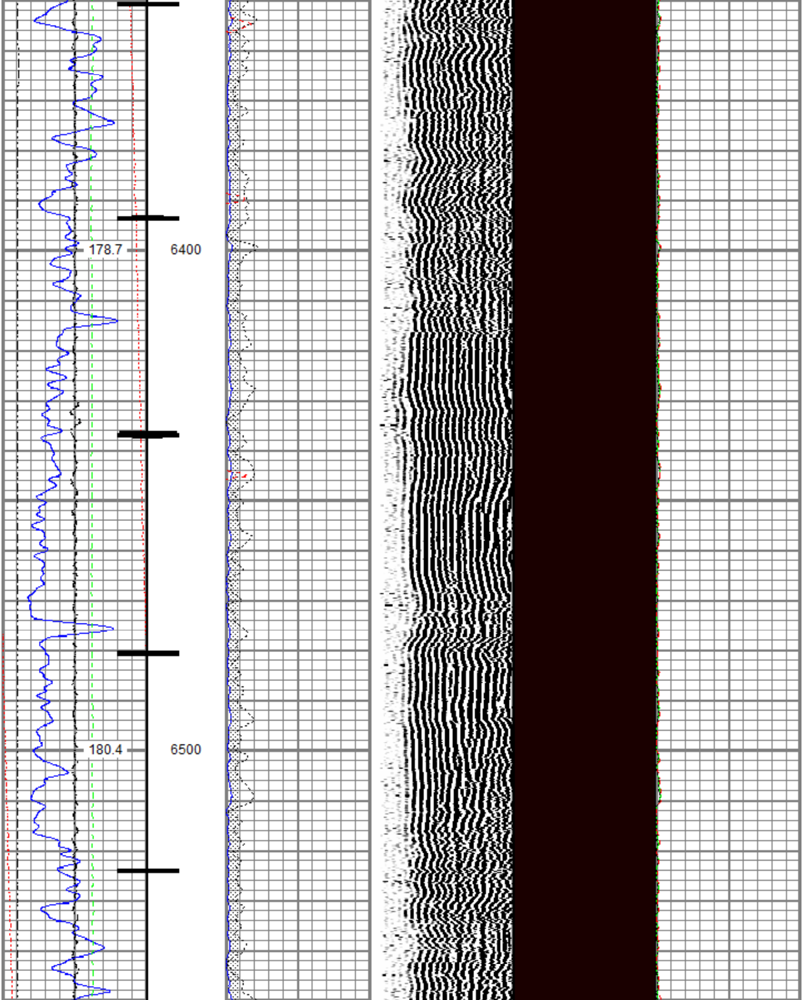
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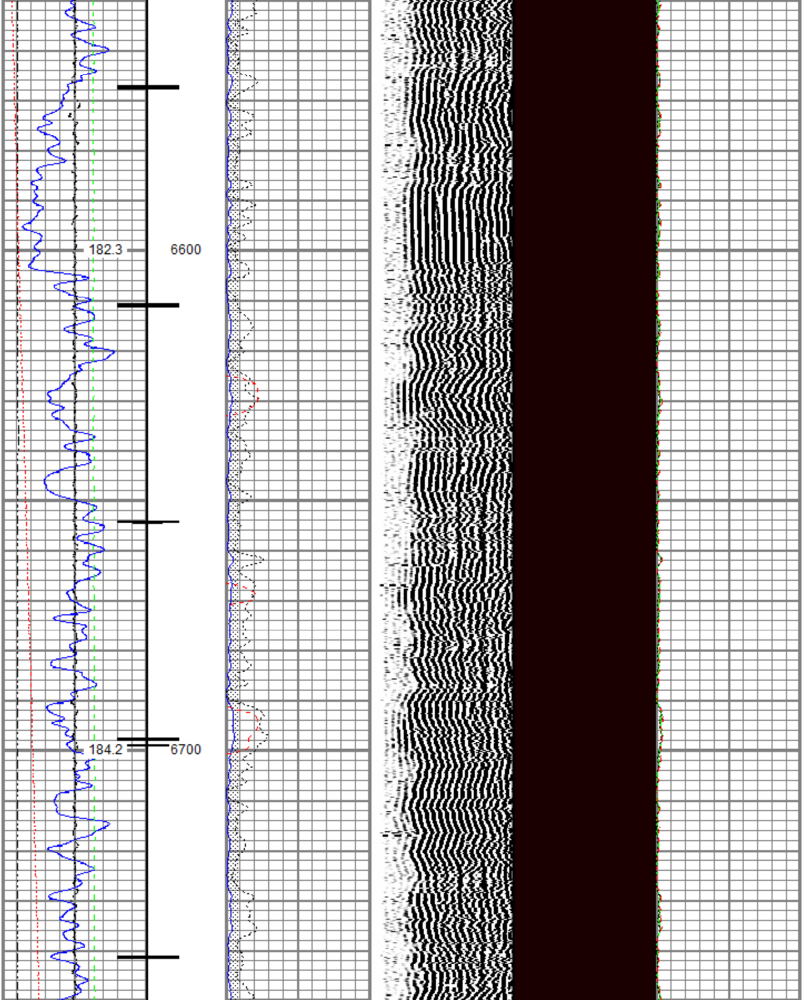
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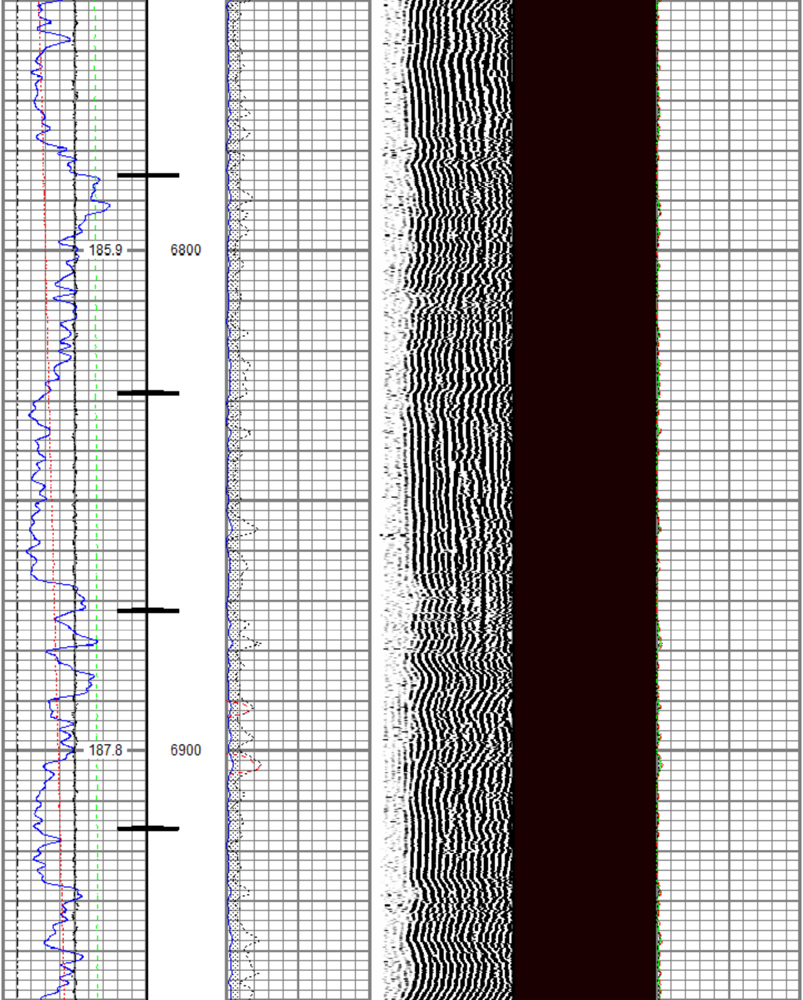
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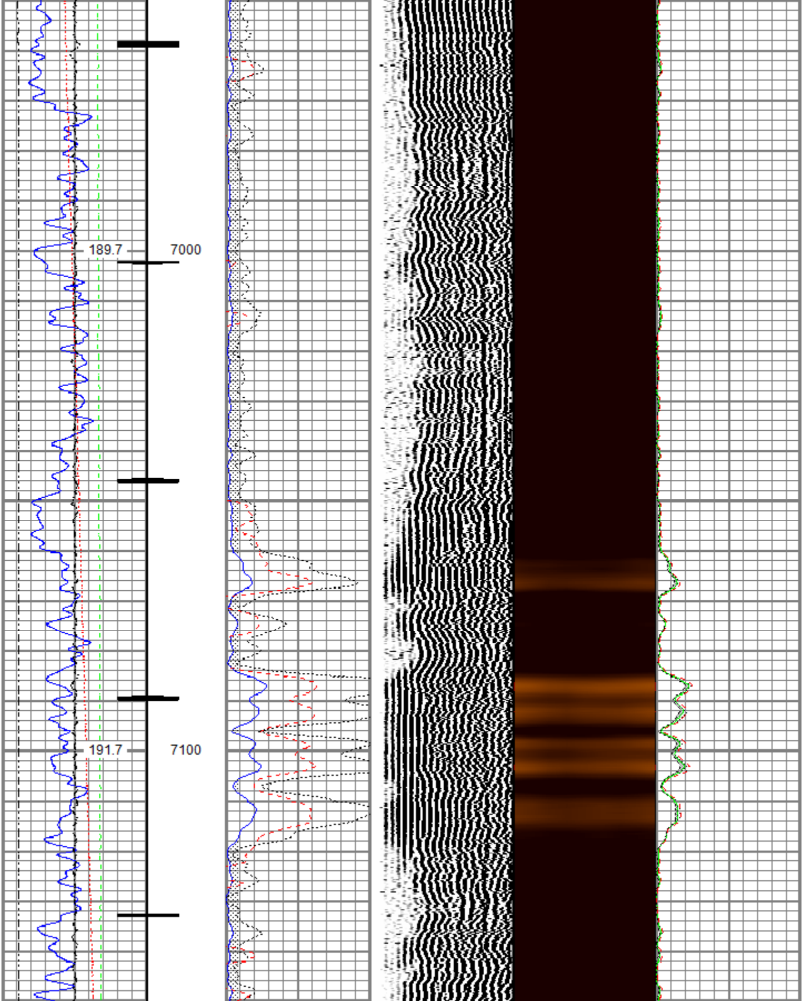
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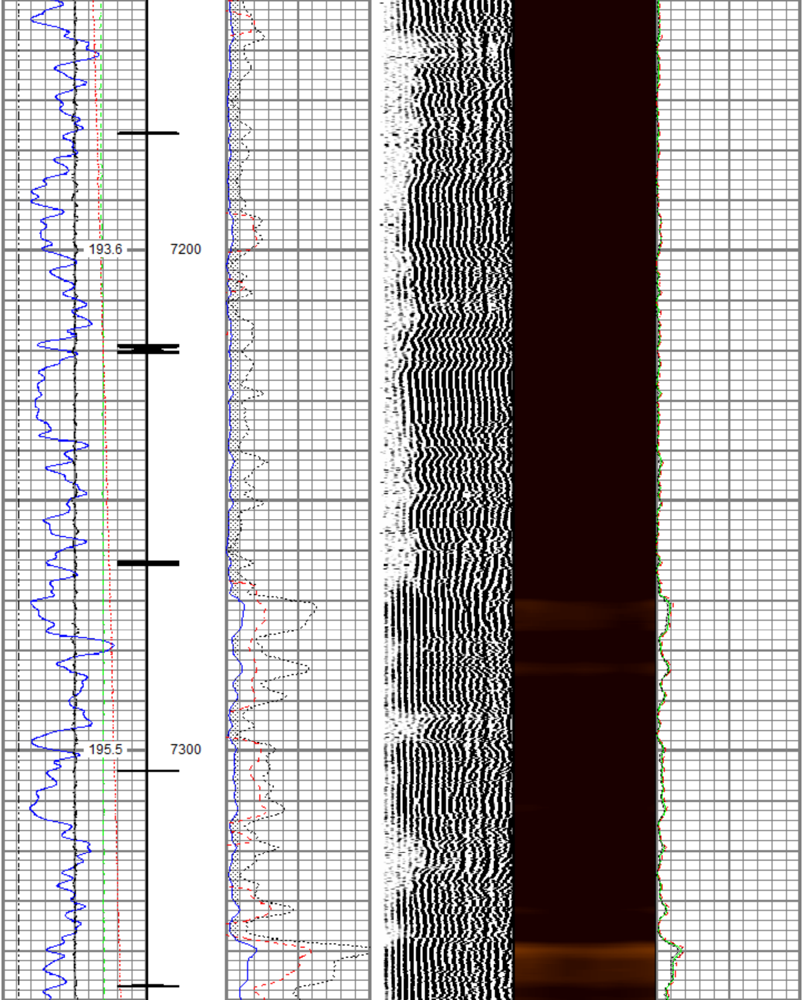
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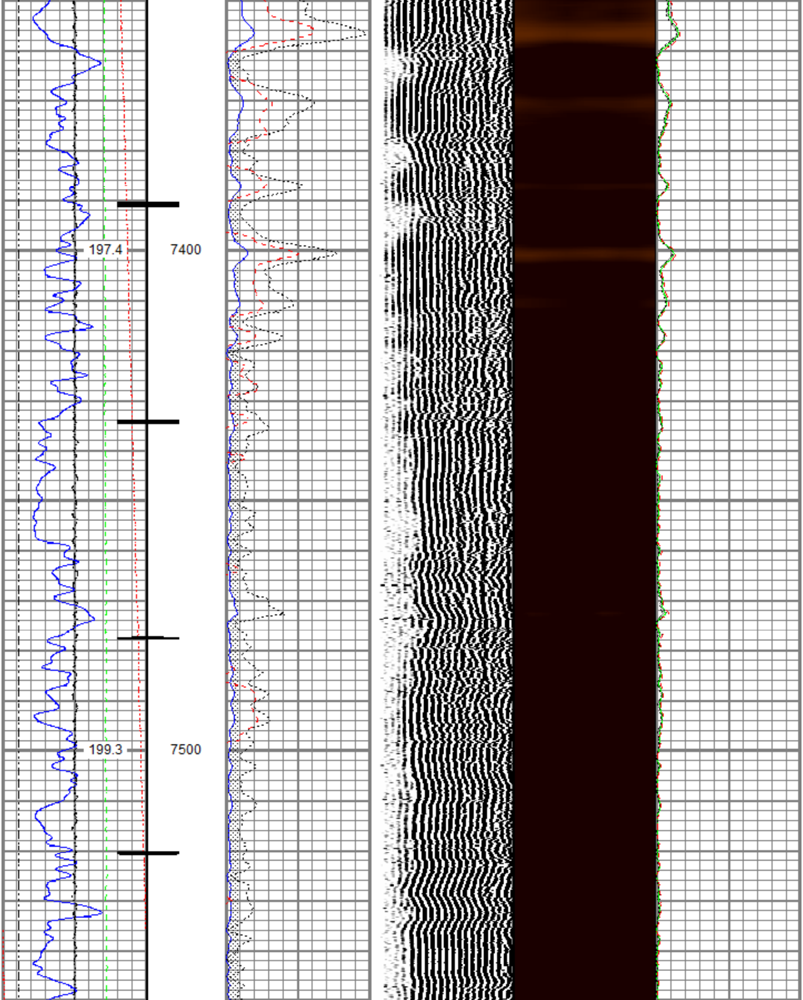
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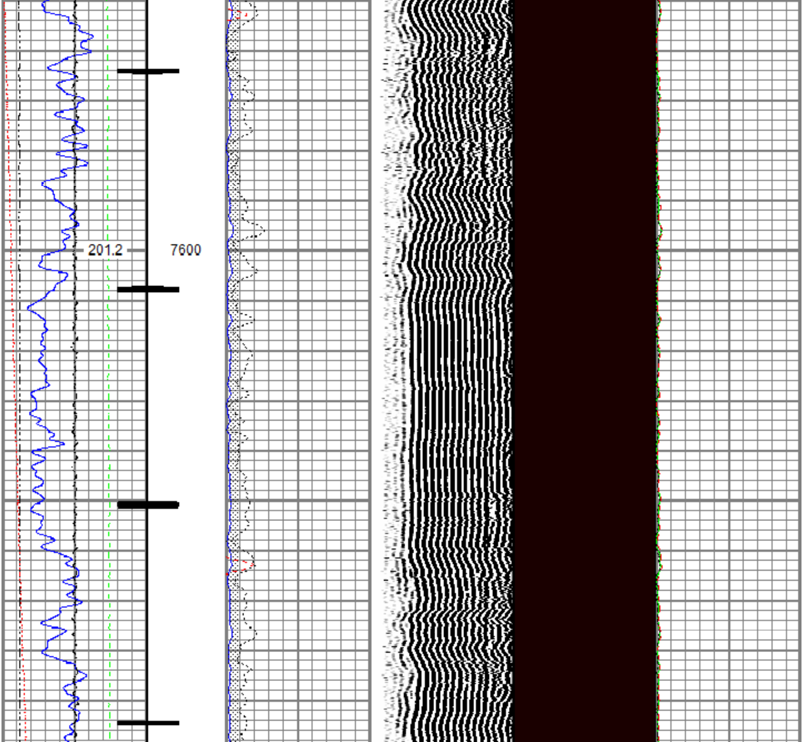
201.2
7600

Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 200	0 (mV) 100	200 (usec) 1200		0 150
Line Speed	3' Amplitude x 5			Mimimum Amplitude
-150 (ft/min) 150	0 (mV) 20			0 150
Line Tension	3' Travel Time			Maximum Amplitude
0 (lb) 2000	300 (usec) 200			0 150
Differential Temperature				
-2 (degF) 2				
Temperature				
0 (degF) 20				
10 CCL 0				

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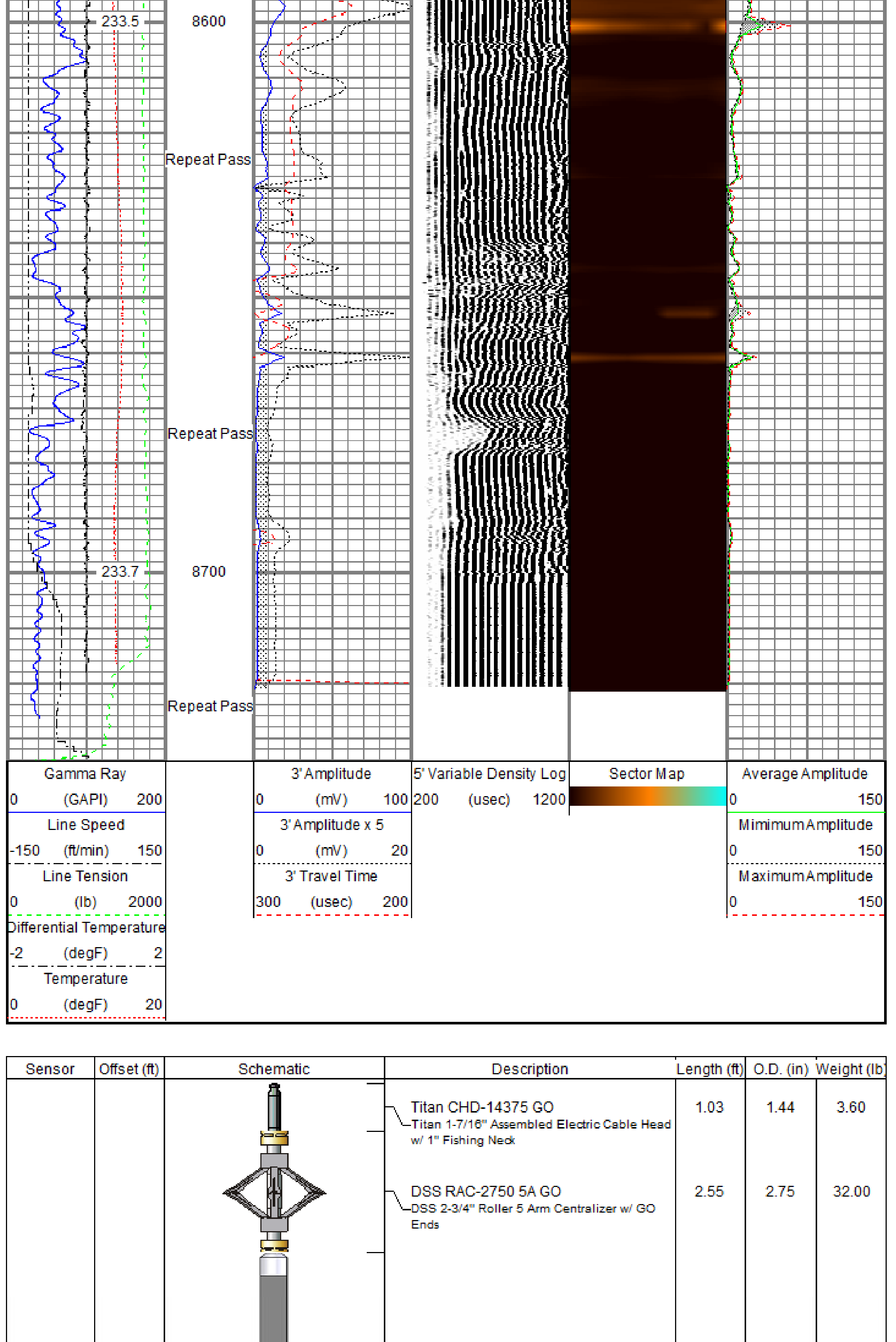
Repeat Pass

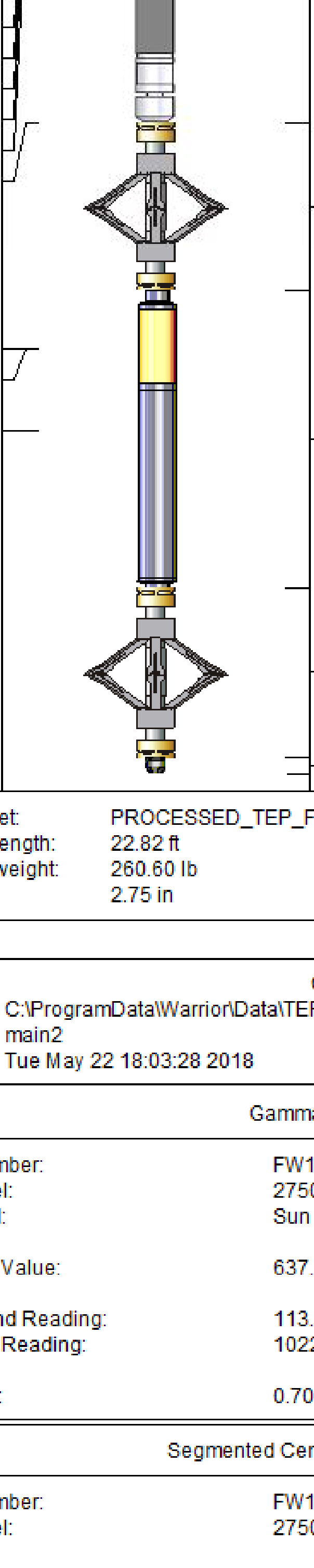
Recorded with 0 PSI Surface Induced Pressure

Database File	tep_federal pa 32-26_rbl_05-22-18\processed_tep_federal pa 32-26_rbl_05-22-18.db
Dataset Pathname	repeat
Presentation Format	ros_rbt004_tep
Dataset Creation	Tue May 22 17:58:33 2018
Charted by	Depth in Feet scaled 1:240

Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 200	0 (mV) 100	200 (usec) 1200		0 150
Line Speed	3' Amplitude x 5			Mimimum Amplitude
-150 (ft/min) 150	0 (mV) 20			0 150
Line Tension	3' Travel Time			Maximum Amplitude
0 (lb) 2000	300 (usec) 200			0 150
Differential Temperature				
-2 (degF) 2				
Temperature				
0 (degF) 20				



Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 200	0 (mV) 100	200 (usec) 1200		0 150
Line Speed	3' Amplitude x 5			Mimimum Amplitude
-150 (ft/min) 150	0 (mV) 20			0 150
Line Tension	3' Travel Time			Maximum Amplitude
0 (lb) 2000	300 (usec) 200			0 150
Differential Temperature				
-2 (degF) 2				
Temperature				
0 (degF) 20				

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
			DSS RAC-2750 5A GO DSS 2-3/4" Roller 5 Arm Centralizer w/ GO Ends	2.55	2.75	32.00
TEMP	16.33					
			Probe Radii-2750 RBT (FW1302-001) Probe 2-3/4" Radial Cement Bond Tool with Integral Temperature Sub	9.39	2.75	105.00
WVFS8	14.10					
WVFS7	14.10					
WVFS6	14.10					
WVFS5	14.10					
WVFS4	14.10					
WVFS3	14.10					
WVFS2	14.10					
WVFS1	14.10					
WVFCAL	14.10					
WVF3FT	14.10					
WVF5FT	13.10					
HEADVOLT	9.85					
			DSS RAC-2750 5A GO DSS 2-3/4" Roller 5 Arm Centralizer w/ GO Ends	2.55	2.75	32.00
CCL$2	6.42					
CCL$1	6.42					
GR	5.18		Probe GR-CCL-2750 GOB (FW1307-038) Probe 2-3/4" rev.2 Digital Scintillation Gamma Ray/CCL Combined	4.51	2.75	55.00
			DSS RAC-2750 5A GO DSS 2-3/4" Roller 5 Arm Centralizer w/ GO Ends	2.55	2.75	32.00
			GO BN-14375 GO 1-7/16" Bull Nose with Go Box Top	0.25	1.44	1.00

Dataset: PROCESSED_TEP_Federal PA 32-26_RBL_05-22-18.db: field/well/run1/main2
Total length: 22.82 ft
Total weight: 260.60 lb
O.D.: 2.75 in

Calibration Report

Database File	C:\ProgramData\Warrior\Data\TEP_Federal PA 32-26_RBL_05-22-18\PROCESSED_TEP_Federal PA 32-26
Dataset Pathname	main2
Dataset Creation	Tue May 22 18:03:28 2018

Gamma Ray Calibration Report

Serial Number:	FW1307-038	
Tool Model:	2750 GOB	
Performed:	Sun Nov 12 11:44:12 2017	
Calibrator Value:	637.0	GAPI
Background Reading:	113.2	cps
Calibrator Reading:	1022.4	cps
Sensitivity:	0.7007	GAPI/cps

Segmented Cement Bond Log Calibration Report

Serial Number:	FW1302-001	
Tool Model:	2750 RBT	
Calibration Casing Diameter:	4.500	in
Calibration Depth:	33.469	ft

Master Calibration, performed Tue May 22 12:59:42 2018:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.003	0.730	0.800	81.196	109.742	1.100
CAL	-0.005	0.742				
5'	0.006	0.596	0.800	81.196	136.247	0.043
SUM						
S1	-0.000	0.741	0.000	100.000	134.974	0.016
S2	-0.001	0.751	0.000	100.000	132.948	0.093
S3	-0.002	0.749	0.000	100.000	133.203	0.247
S4	-0.003	0.727	0.000	100.000	137.082	0.368
S5	-0.003	0.688	0.000	100.000	144.574	0.477
S6	-0.002	0.671	0.000	100.000	148.419	0.368
S7	-0.001	0.702	0.000	100.000	142.267	0.191
S8	-0.001	0.732	0.000	100.000	136.408	0.188

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	-0.005	0.742	1.000	0.000

Air Zero Calibration, performed Tue May 22 13:00:06 2018:

	Raw (v)	Calibrated (v)	Results
	Zero	Zero	Offset
3'	-0.003	0.000	-0.000
5'	0.005	0.000	0.000
SUM			
S1	-0.001	0.000	0.001
S2	-0.001	0.000	0.001
S3	-0.002	0.000	0.001
S4	-0.003	0.000	0.001
S5	-0.003	0.000	0.000
S6	-0.003	0.000	0.000
S7	-0.001	0.000	-0.000
S8	-0.002	0.000	0.000

Temperature Calibration Report

Serial Number:	FW1302-001	
Tool Model:	2750 RBT	
Performed:	Sun Nov 12 12:24:58 2017	
	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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Company	TEP Rocky Mountain LLC
Well	Federal PA 32-26
Field	Parachute
County	Garfield
State	Colorado