RELIANCE
OILFIELD SERVICES

Radial Cement Bond Gamma Ray Casing Collar Log

Company	TEP Rocky Mountain LLC
Well	Ware SR 433-12
Field	Rulison
County	Garfield
State	Colorado

Company TEP Rocky Mountain LLC
Well Ware SR 433-12
Field Rulison
County Garfield State Colorado
Location: API # : 05-045-23456
1794' FSL & 2305' FWL NESW
SEC 12 TWP 7S RGE 94W
Other Services
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Permanent Datum	Ground Level	Elevation	7479'	Elevation
Log Measured From	Kelly Bushing	24 FT		K.B. 7503'
Drilling Measured From	Kelly Bushing			D.F. 7502'
				G.L. 7479'

Date	31-DEC-2017
Run Number	One
Depth Driller	9596 FT
Depth Logger	9548 FT
Bottom Logged Interval	9548 FT
Top Log Interval	Surface
Open Hole Size	8.750"
Type Fluid	Fresh Water
Density / Viscosity	8.34 lb/gal
Max. Recorded Temp.	247°F
Estimated Cement Top	See Log
Time Well Ready	ROA
Time Logger on Bottom	19:30
Equipment Number	HD-359
Location	Grand Junction, CO
Recorded By	J.Donnelly
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	1118 FT
Intermediate #1	4 1/2	11.6	P-110	Surface	9554 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 5712 FT - 5734 FT
Log ran from 9548 FT to Surface
Recorded with 0 PSI Surface Induced Pressure

Thank you for choosing Reliance Oilfield Services, LLC!!

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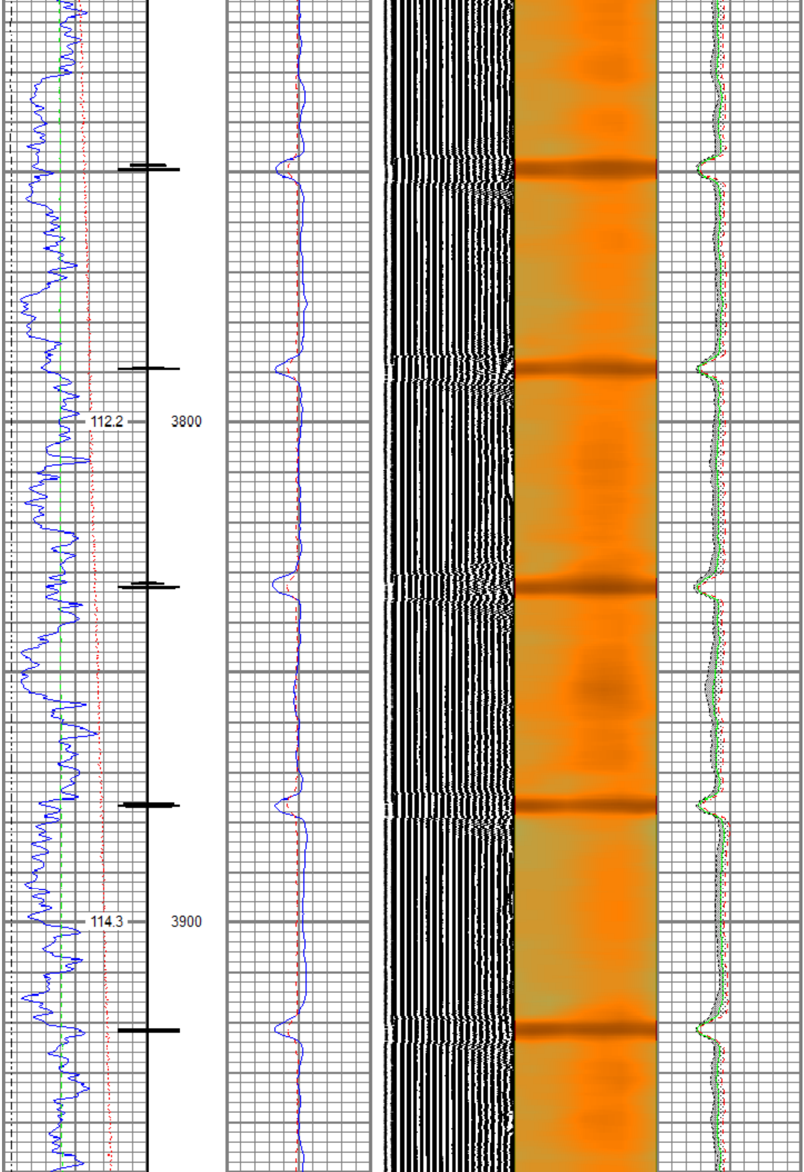
Main Pass

Recorded with 0 PSI Surface Induced Pressure

Database File	tep_ware sr 433-12_rbl_12-31-17\tep_ware sr 433-12_rbl_12-31-17.db
Dataset Pathname	main.3
Presentation Format	ros_rbt004_tep
Dataset Creation	Mon Jan 01 16:00:34 2018
Charted by	Depth in Feet scaled 1:240

Track 1	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
Gamma Ray 0 (GAPI) 200	3' Amplitude 0 (mV) 100	5' Variable Density Log 200 1200	Sector Map 10 110	Average Amplitude 0 150
Casing Collar Locator	3' Amplitude x 5 0 (mV) 20			MimimumAmplitude 0 150
Line Speed -150 (ft/min) 150	3' Travel Time 300 (usec) 200			MaximumAmplitude 0 150
Line Tension 0 (lb) 2000				
Temperature 0 (degF) 20				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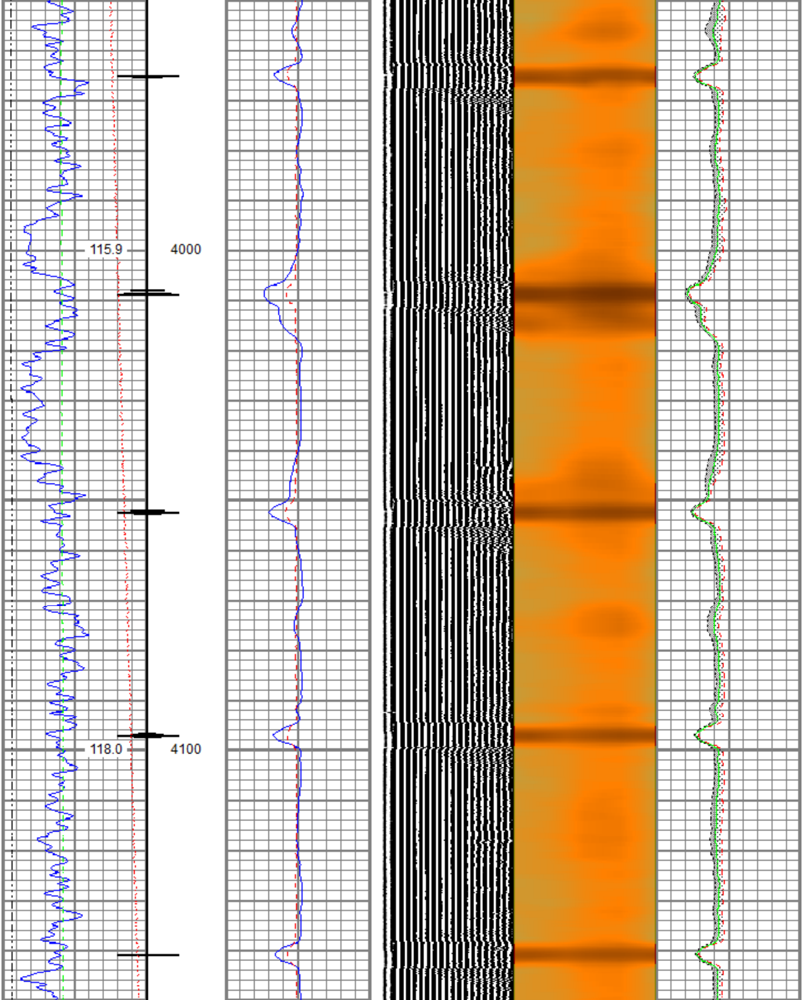
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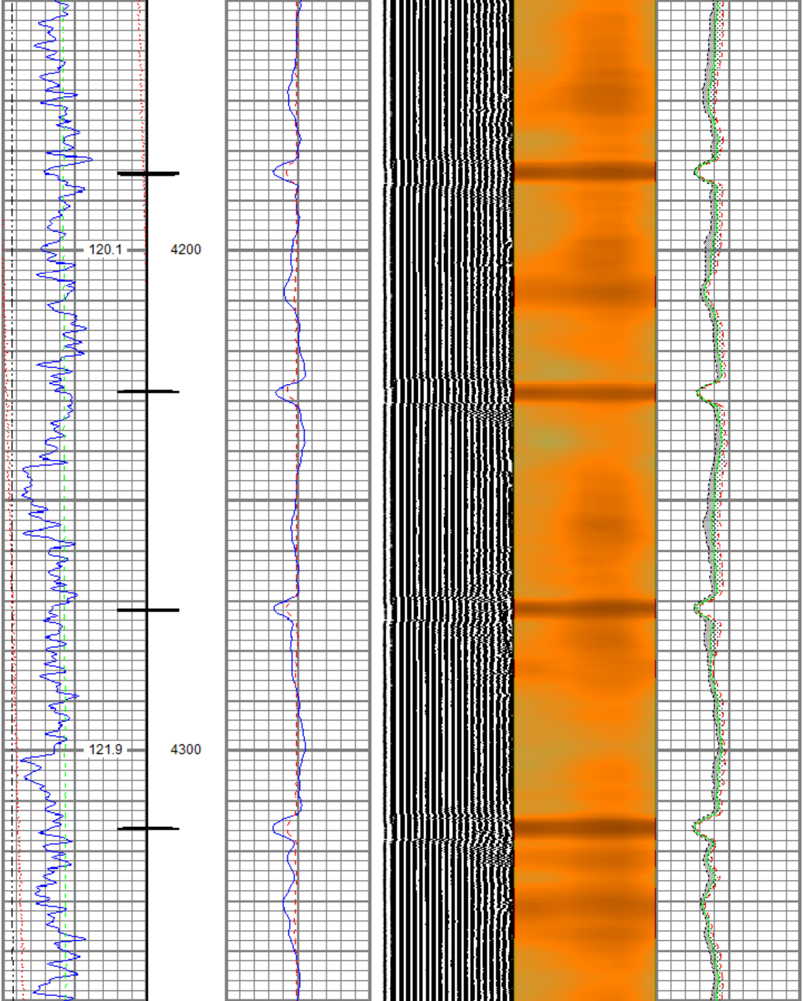
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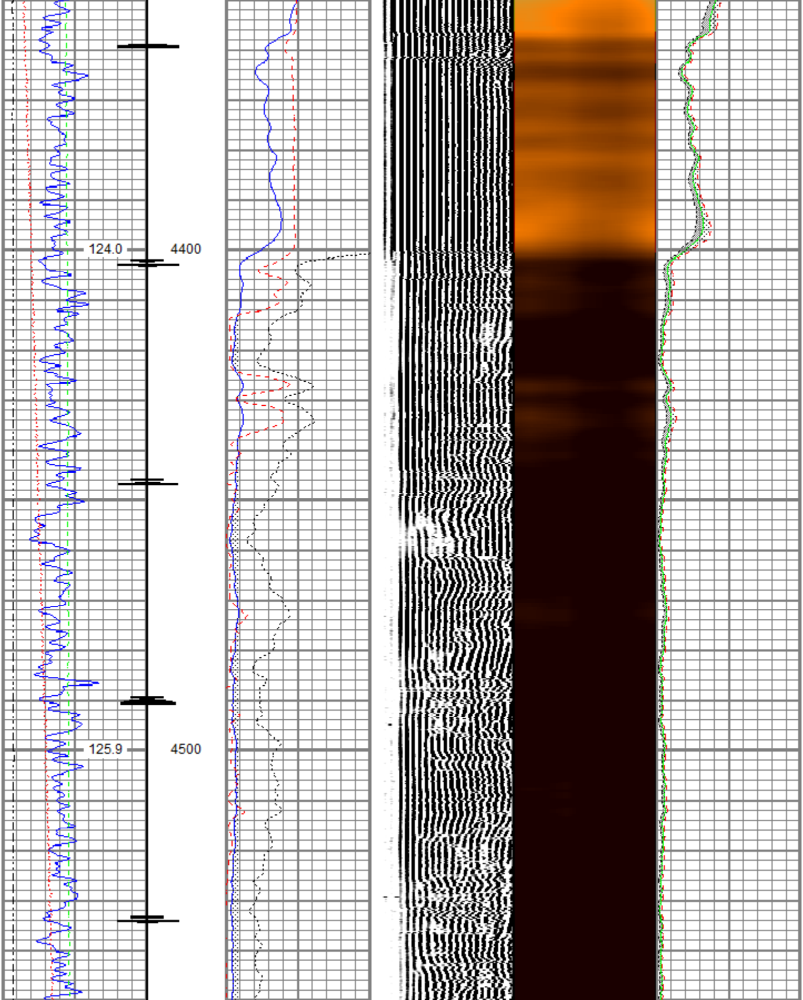
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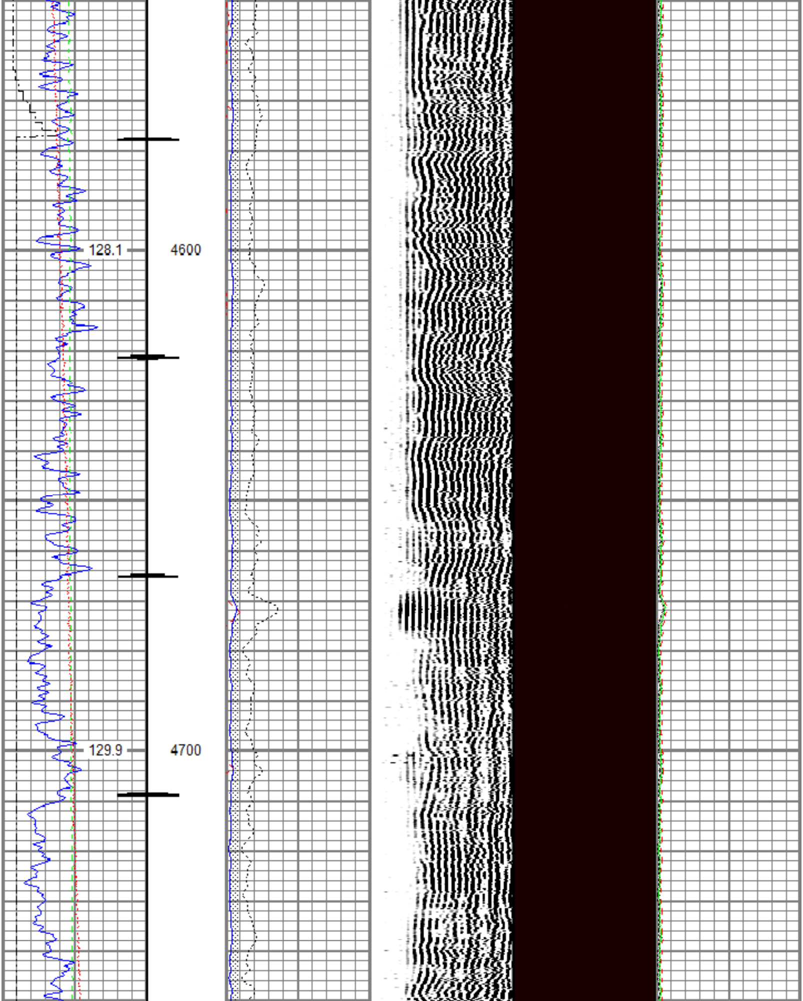
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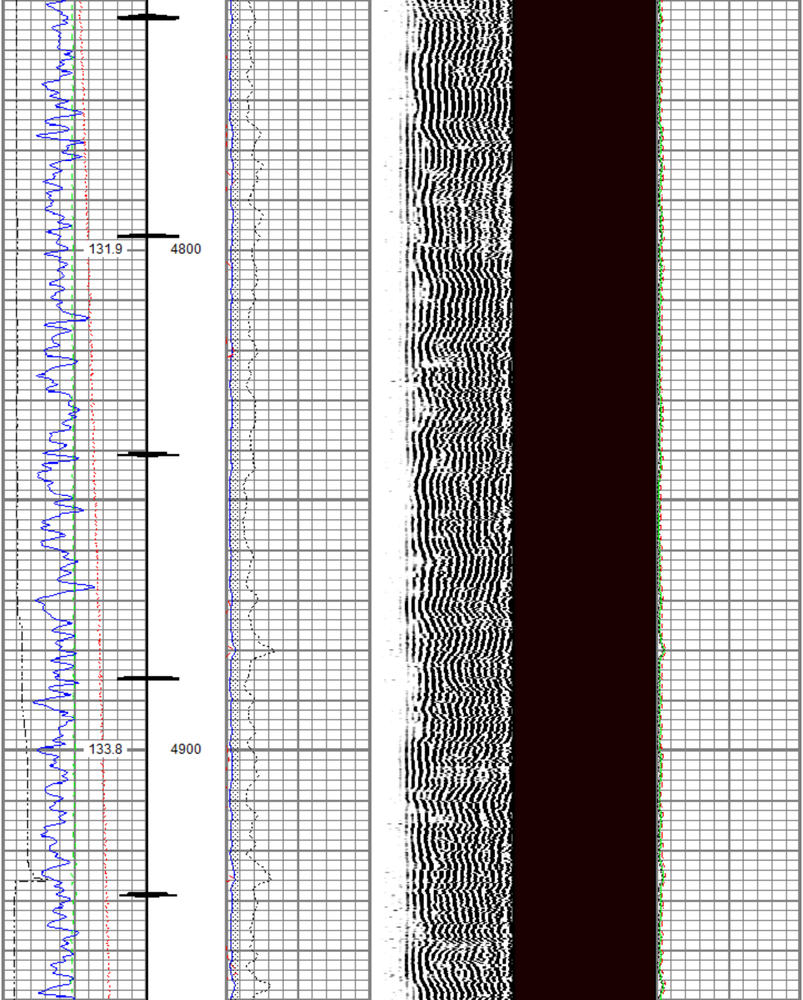
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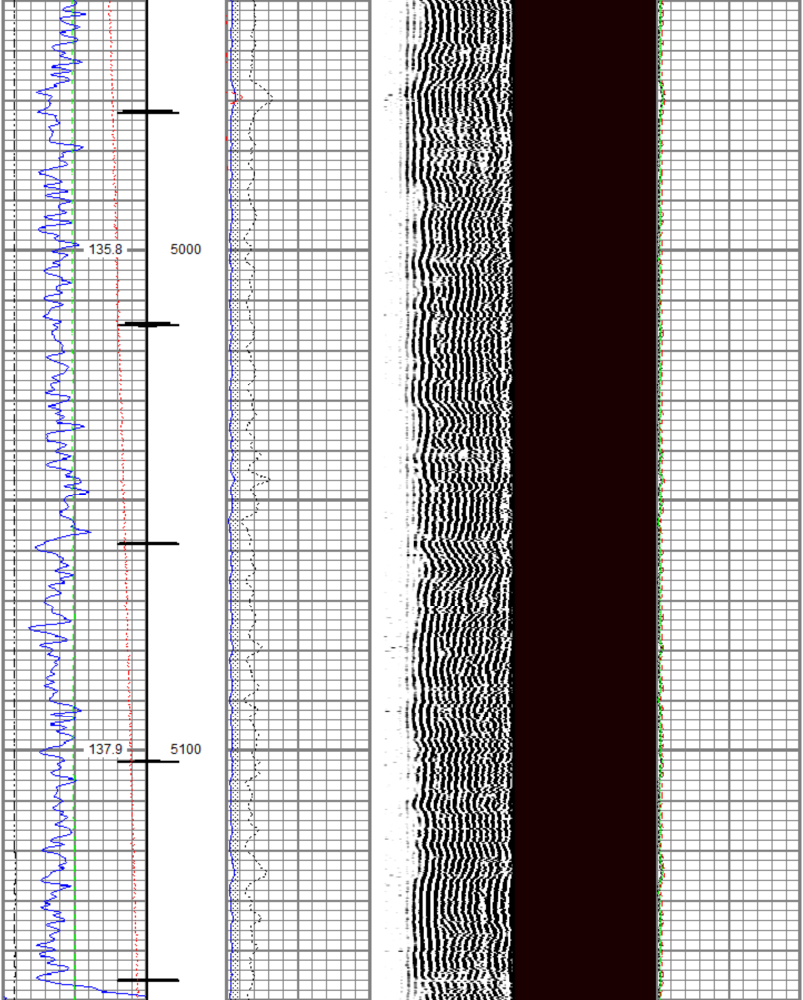
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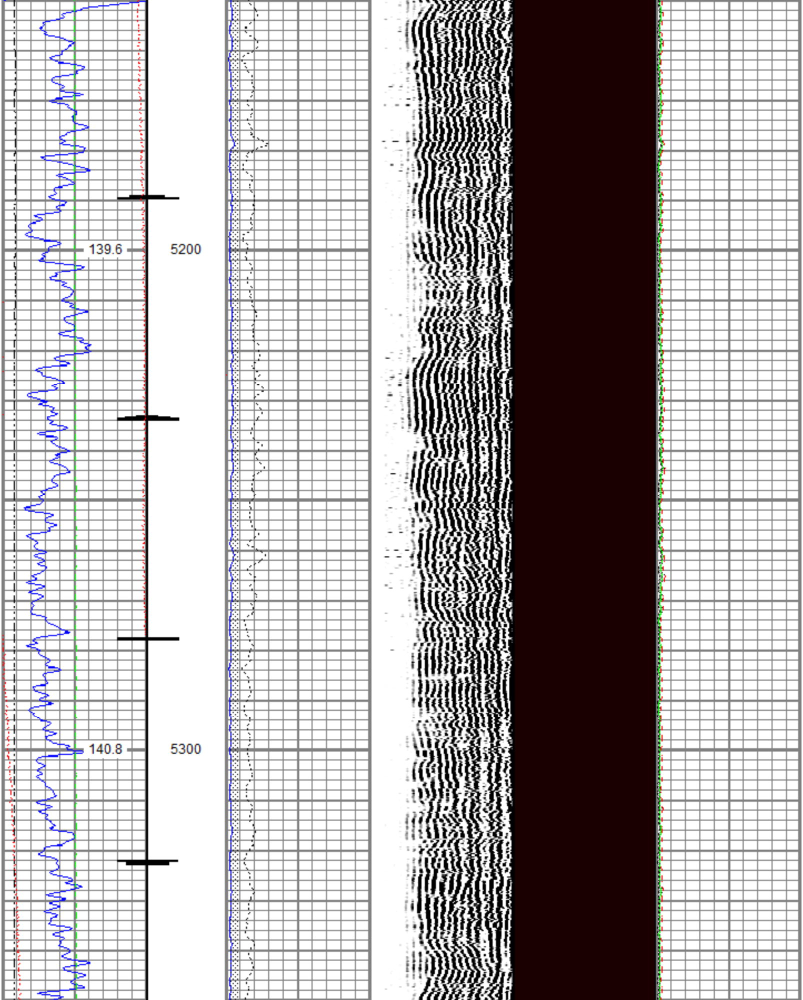
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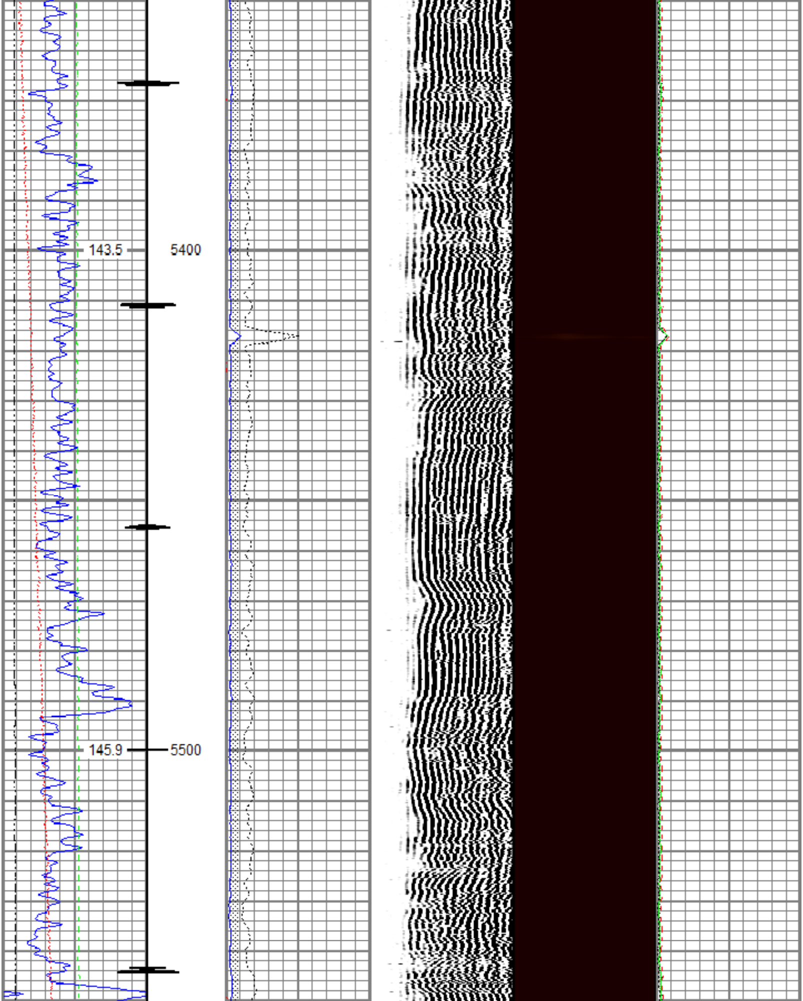
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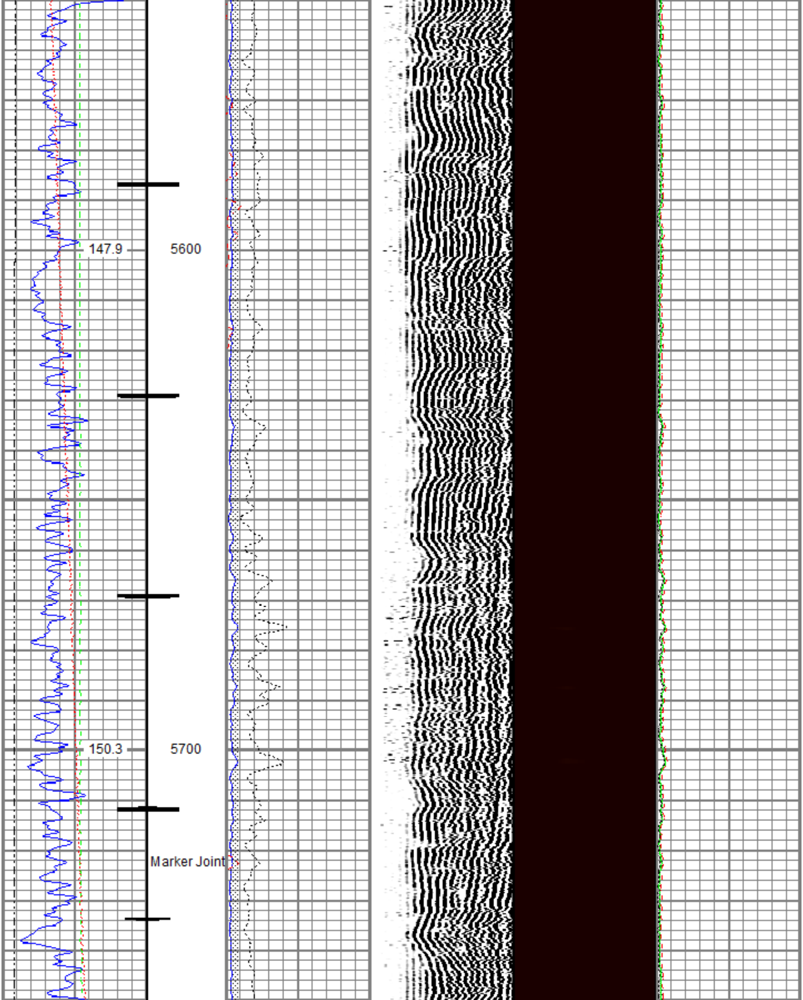
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150.3
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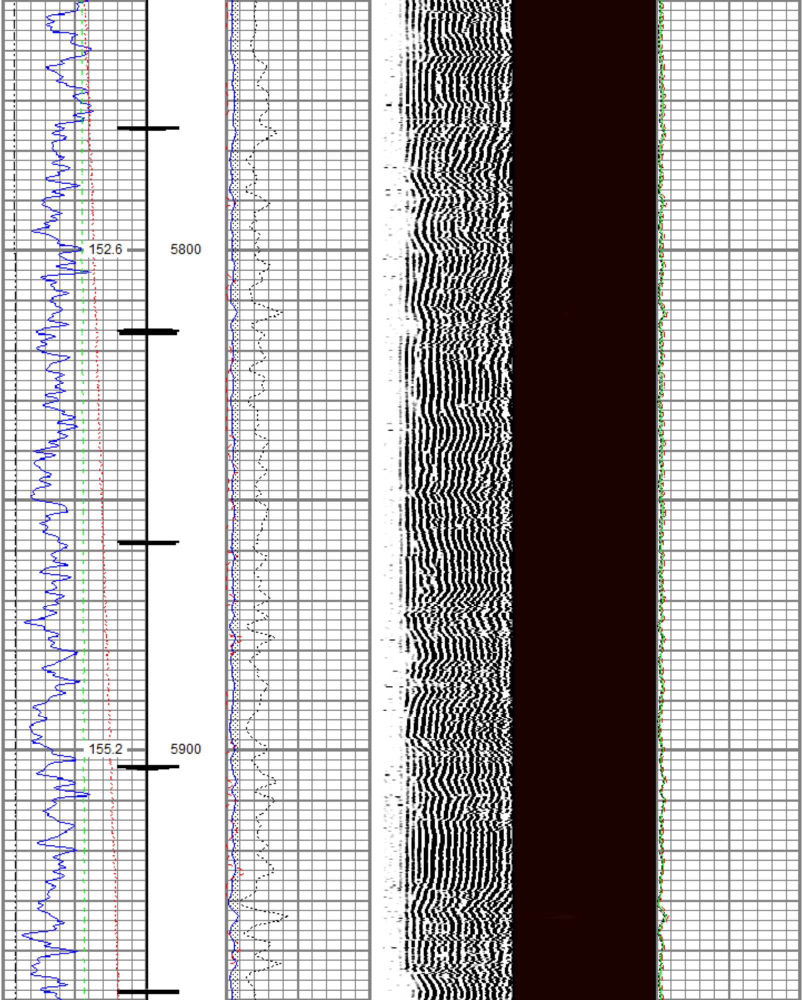
Marker Joint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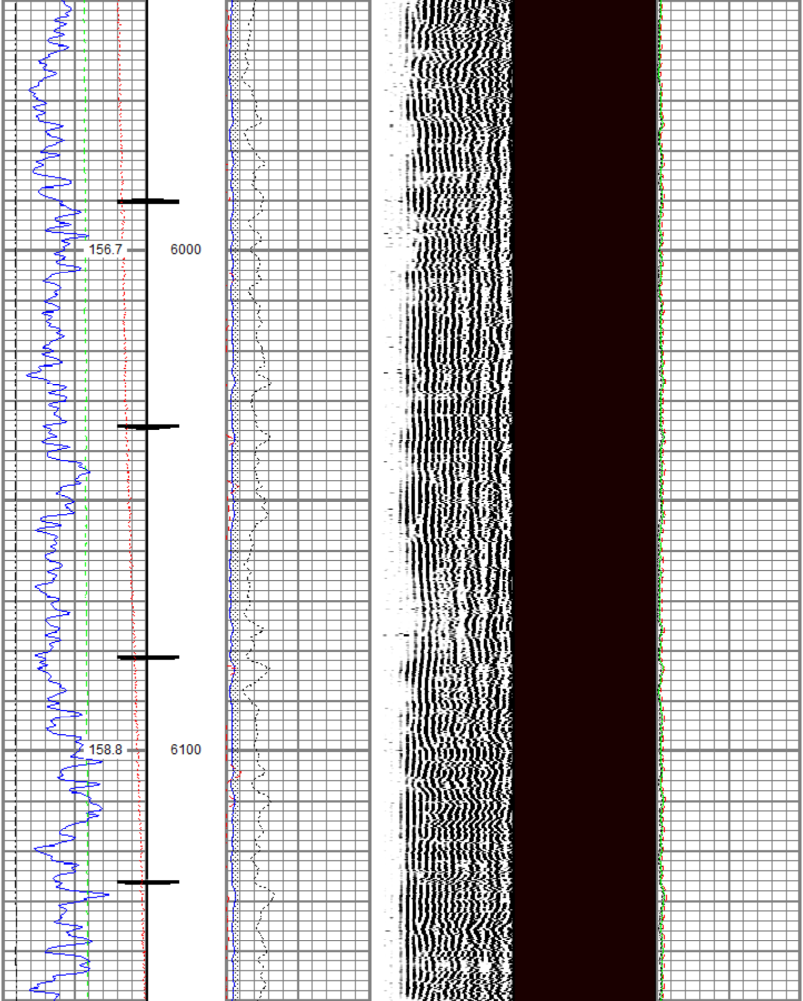
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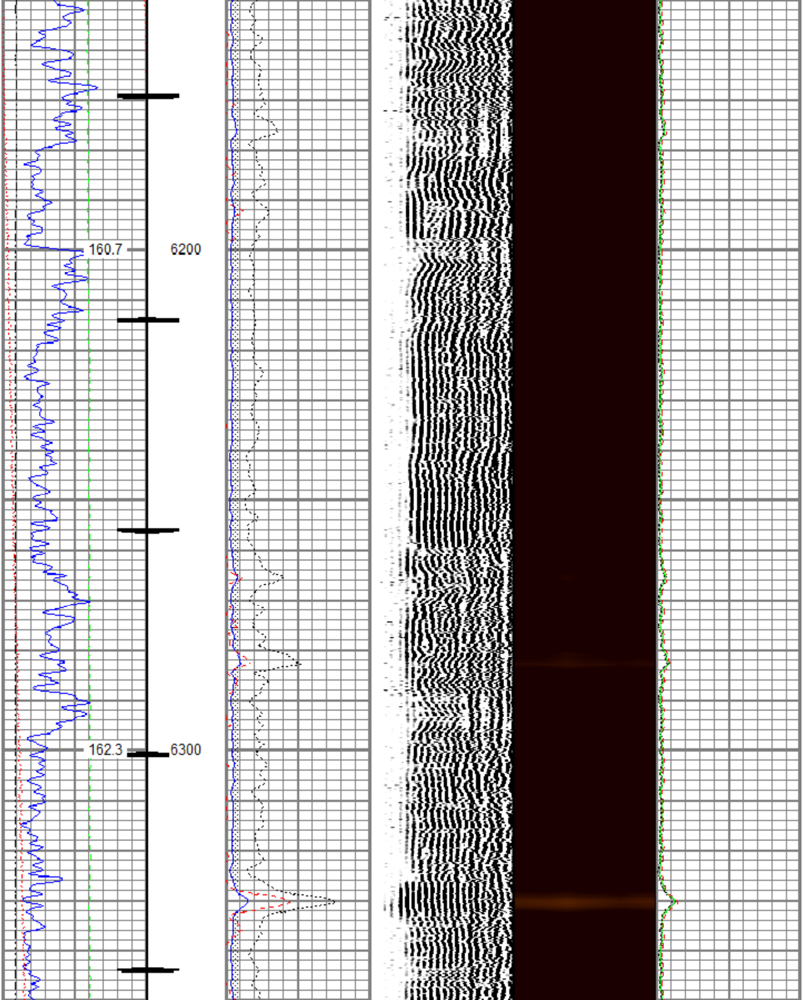
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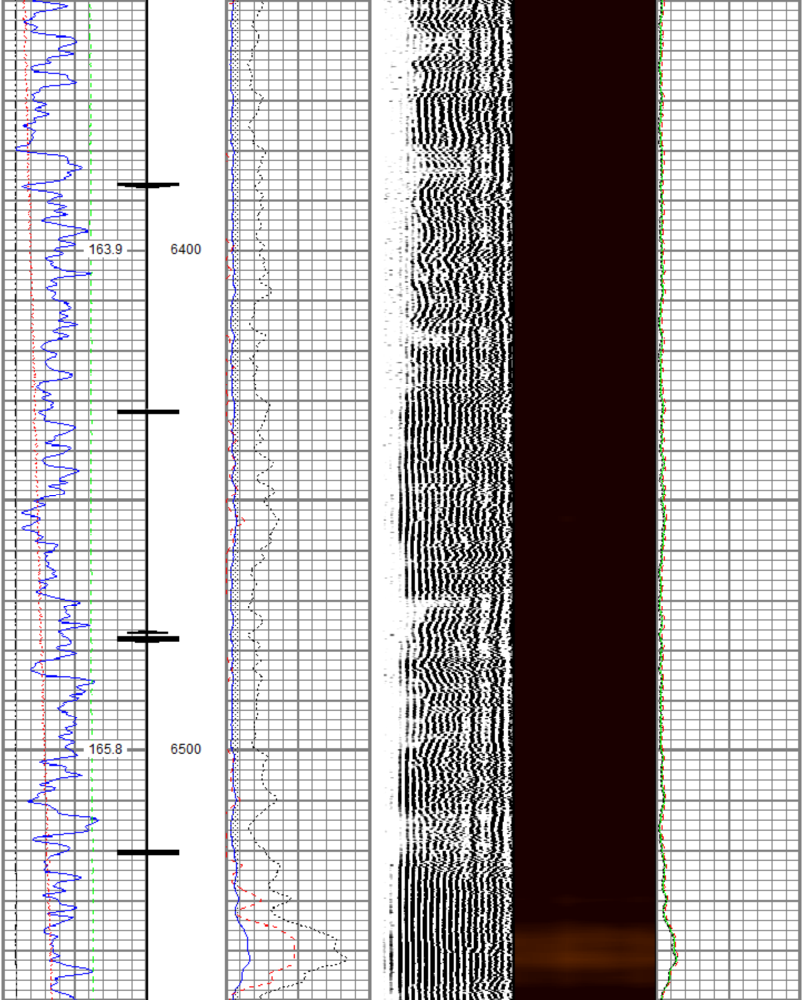
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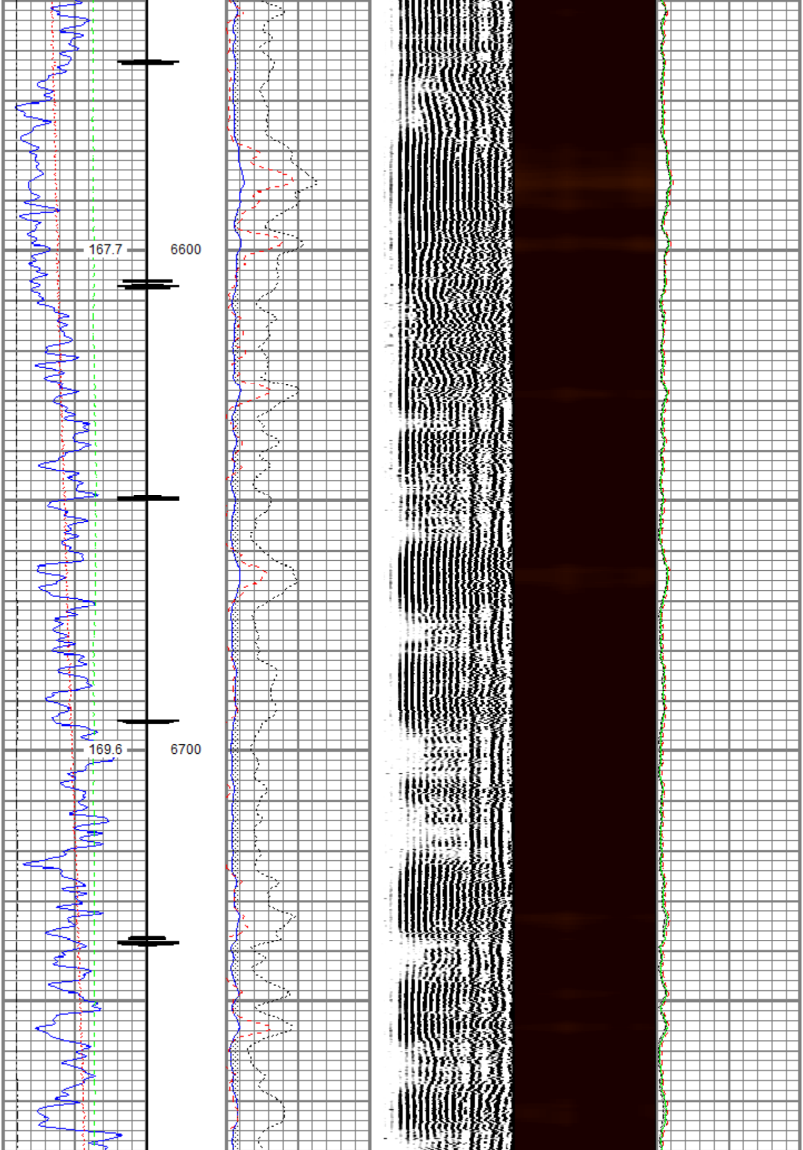
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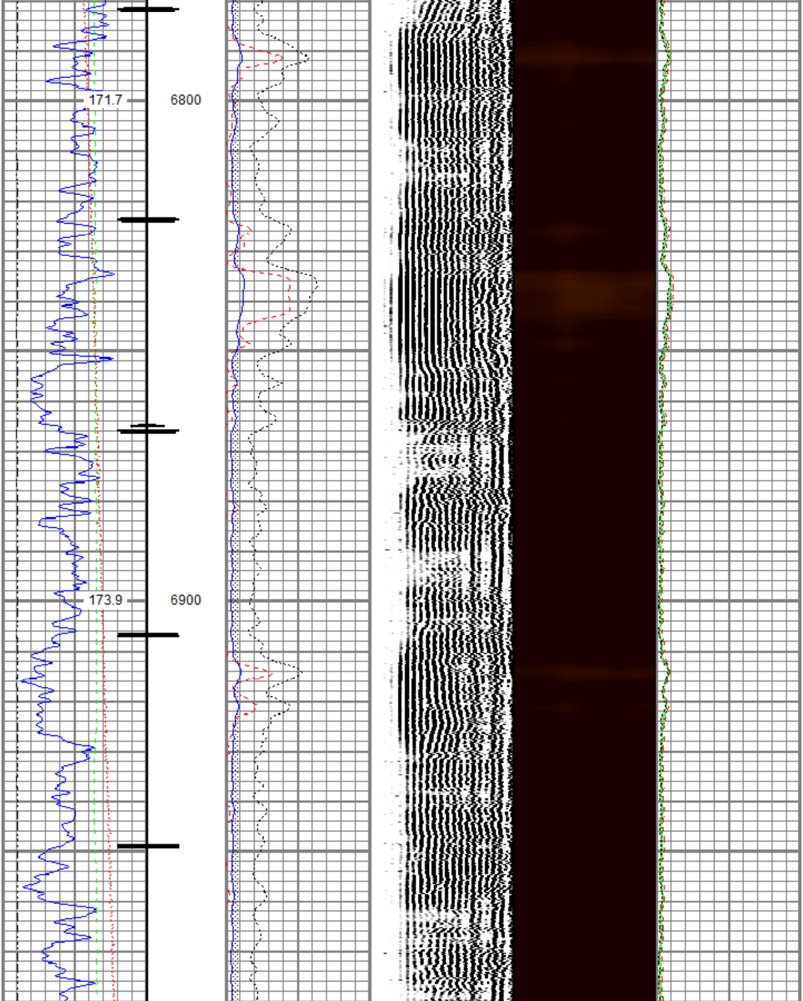
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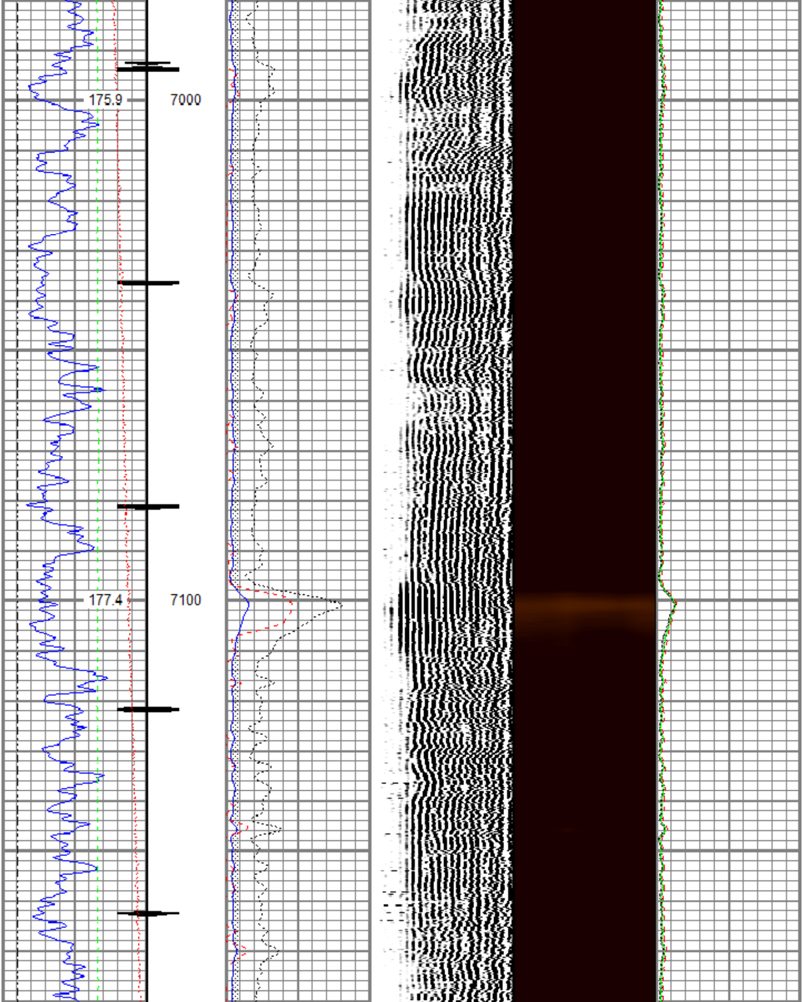
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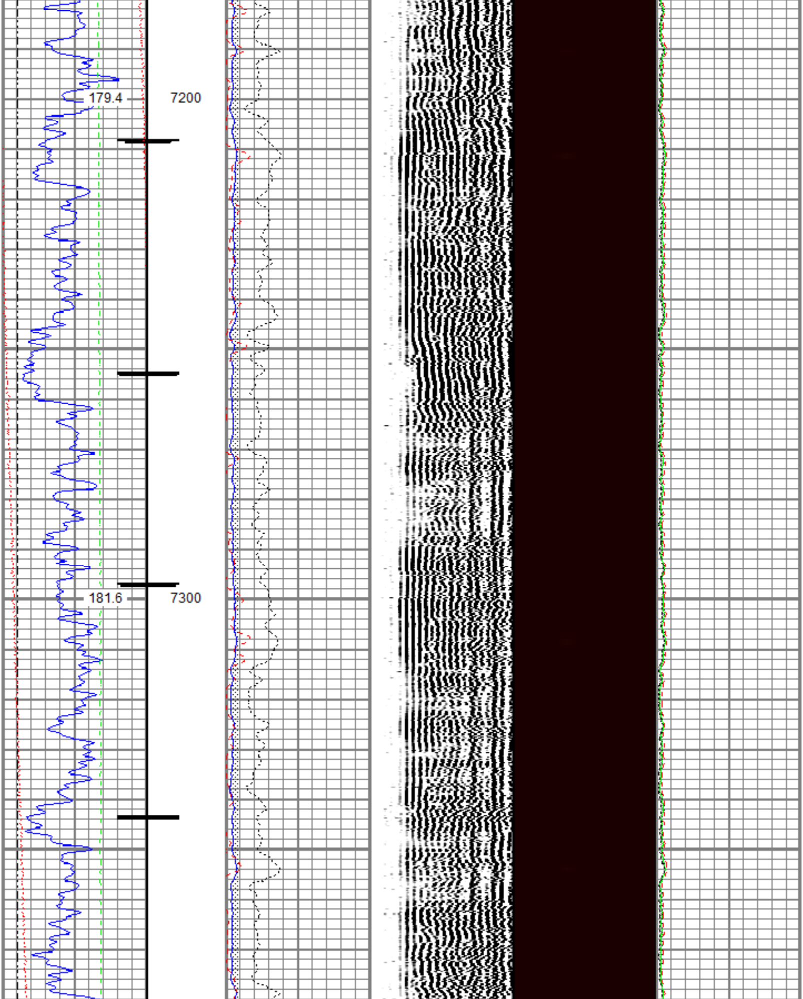
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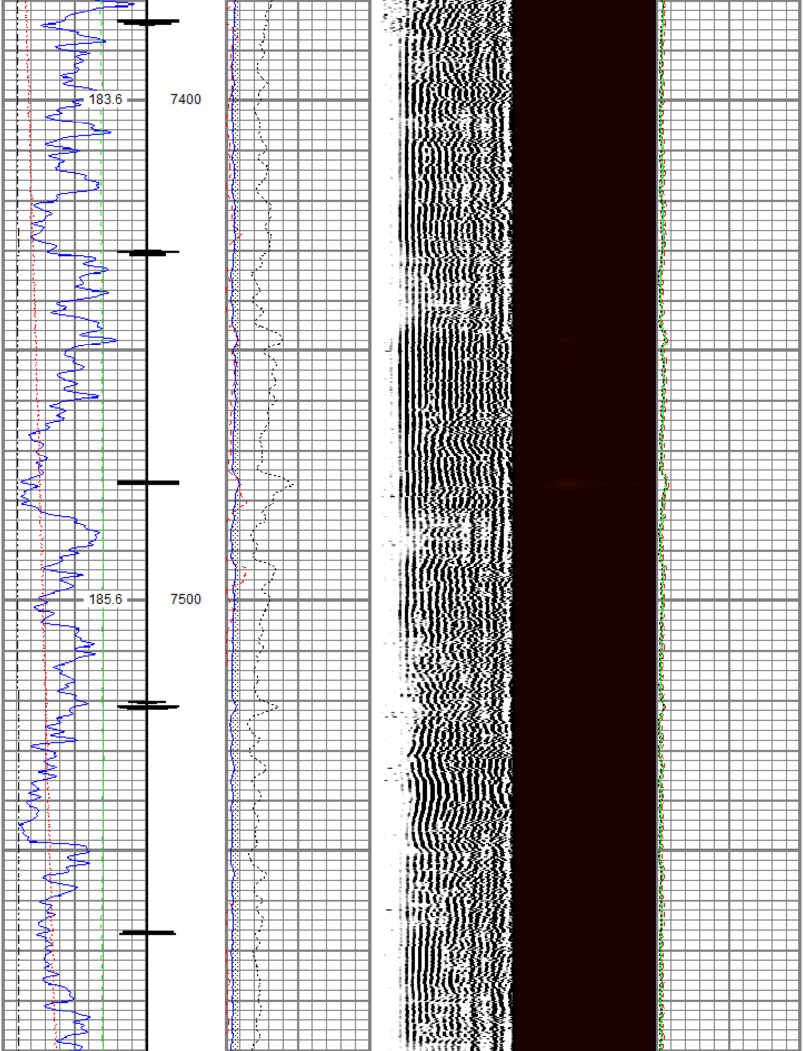
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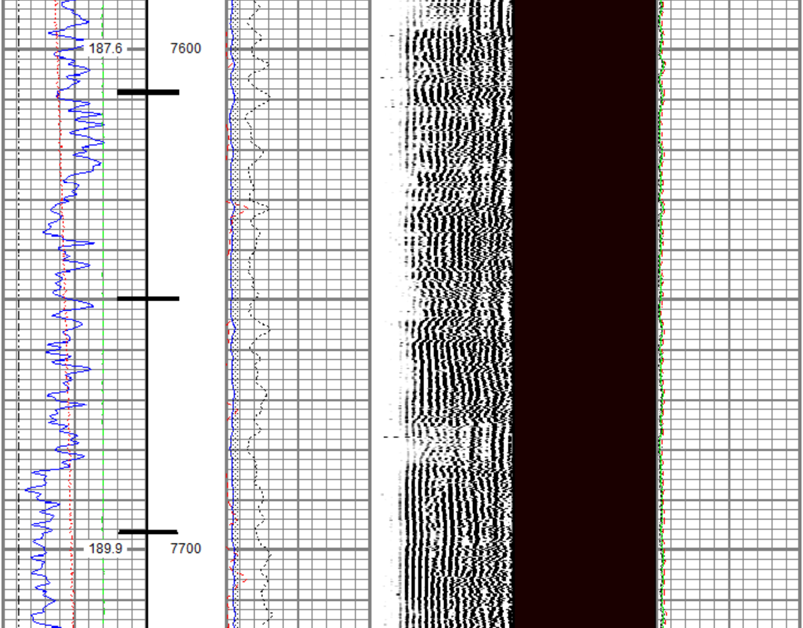
187.6
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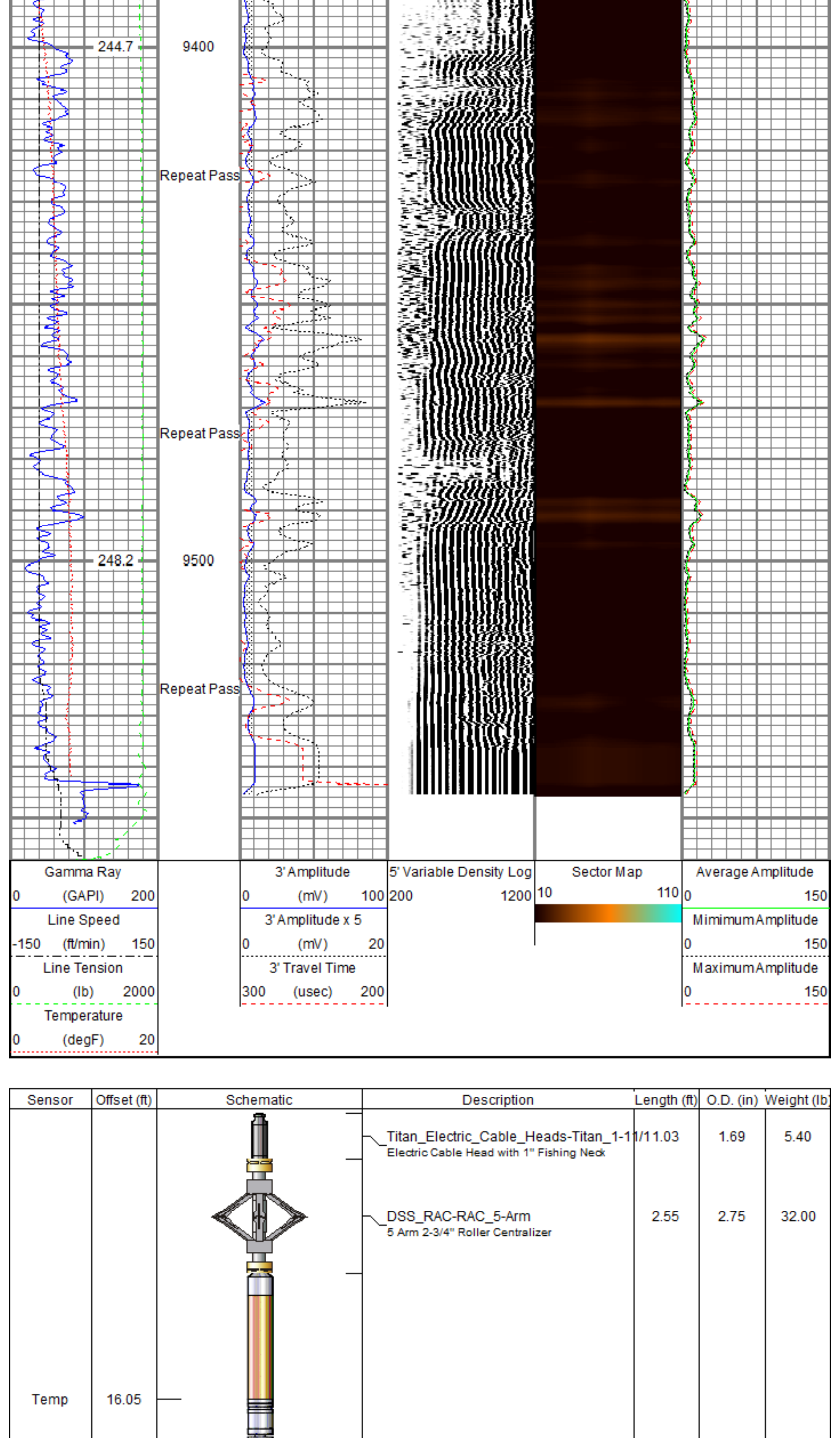
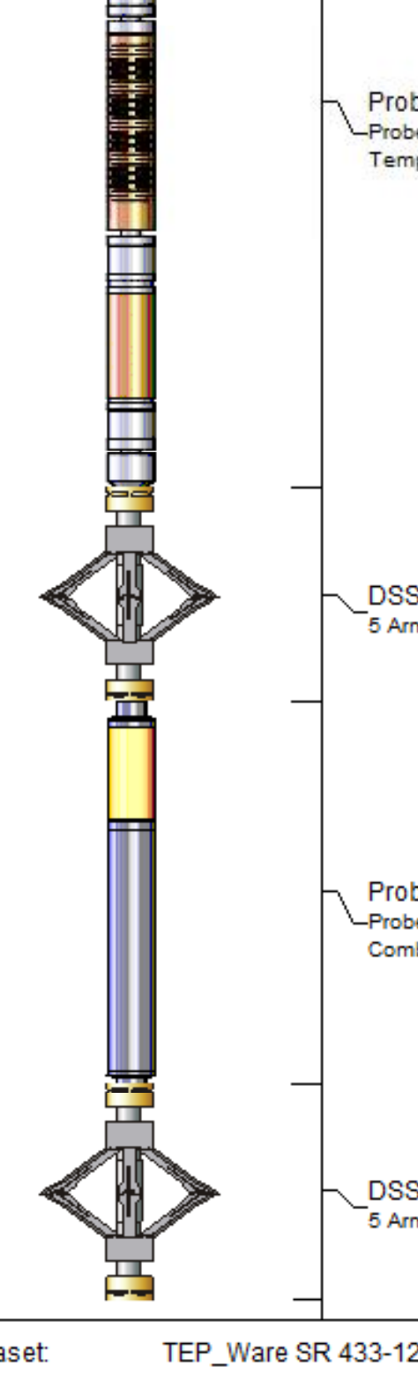
Repeat Pass

Recorded with 0 PSI Surface Induced Pressure

Database File	tep_ware sr 433-12_rbl_12-31-17\tep_ware sr 433-12_rbl_12-31-17.db
Dataset Pathname	repeat.3
Presentation Format	ros_rbt004_tep
Dataset Creation	Wed Jan 03 09:19:23 2018
Charted by	Depth in Feet scaled 1:240



Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb
			Titan_Electric_Cable_Heads-Titan_1-11/11.03 Electric Cable Head with 1" Fishing Neck		1.69	5.40
			DSS_RAC-RAC_5-Arm 5 Arm 2-3/4" Roller Centralizer	2.55	2.75	32.00
Temp WVFS8 WVFS7 WVFS6 WVFS5 WVFS4 WVFS3 WVFS2 WVFS1 WVFCAL WVF3FT WVF5FT HeadVolt	16.05 13.88 13.88 13.88 13.88 13.88 13.88 13.88 13.88 13.88 13.88 12.88 9.63		Probe_RADII-C-P_RBT_2750 (FW1305-09.19 Probe 2-3/4" Sector Cement Bond Tool with Temperature Probe		2.75	105.00
			DSS_RAC-RAC_5-Arm 5 Arm 2-3/4" Roller Centralizer	2.55	2.75	32.00
DCCL CCL GR	6.18 6.18 4.96		Probe_GR_CCL-P_CGR_2750_S (FW1304.548) Probe 2-3/4" Digital CCL / Gamma Ray Combined		2.75	55.00
			DSS_RAC-RAC_5-Arm 5 Arm 2-3/4" Roller Centralizer	2.55	2.75	32.00

Dataset: TEP_Ware SR 433-12_RBL_12-31-17.db: field/well/run1/main.3
Total length: 22.40 ft
Total weight: 261.40 lb
O.D.: 2.75 in

Calibration Report

Database File C:\ProgramData\Warrior\Data\TEP_Ware SR 433-12_RBL_12-31-17\TEP_Ware SR 433-12_RBL_12-31-17.
Dataset Pathname main.3
Dataset Creation Mon Jan 01 16:00:34 2018

Gamma Ray Calibration Report

Serial Number:	FW1307-038	
Tool Model:	P_CGR_2750_S	
Performed:	Sat Feb 06 11:43:09 2016	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.6	cps
Sensitivity:	0.6061	GAPI/cps

Segmented Cement Bond Log Calibration Report

Serial Number:	FW1305-098	
Tool Model:	P_RBT_2750	
Calibration Casing Diameter:	4.500	in
Calibration Depth:	-1916.277	ft

Master Calibration, performed (Derived):

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.015	0.917	0.800	81.196	86.302	2.092
CAL	0.717	0.719				
5'	-0.201	0.822	0.800	81.196	78.610	16.596
SUM						
S1	-0.024	0.873	0.000	100.000	111.440	2.674
S2	-0.029	0.945	0.000	100.000	102.738	2.936
S3	-0.030	0.977	0.000	100.000	99.302	3.013
S4	-0.051	1.036	0.000	100.000	91.992	4.698
S5	-0.033	1.045	0.000	100.000	92.729	3.084
S6	-0.022	0.986	0.000	100.000	99.174	2.204
S7	-0.017	0.926	0.000	100.000	106.097	1.766
S8	-0.019	0.896	0.000	100.000	109.277	2.102

Internal Reference Calibration, performed Tue Nov 07 10:59:54 2017:

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.717	0.719	1.000	0.000

Air Zero Calibration, performed Sun Dec 31 18:50:16 2017:

	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

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Company	TEP Rocky Mountain LLC
Well	Ware SR 433-12
Field	Rulison
County	Garfield
State	Colorado