RELIANCE
OILFIELD SERVICES

Radial Cement Bond
Gamma Ray
Casing Collar Log

Company TEP Rocky Mountain LLC
Well Ware SR 423-12
Field Rulison
County Garfield
State Colorado

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Well Ware SR 423-12
Field Rulison
County Garfield State Colorado
Location: API # : 05-045-23440
1797' FSL & 2293' FWL NESW
SEC 12 TWP 7S RGE 94W

Other Services
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			Elevation
Permanent Datum	Ground Level	Elevation 7479'	K.B. 7503'
Log Measured From	Kelly Bushing	24 FT	D.F. 7502'
Drilling Measured From	Kelly Bushing		G.L. 7479'

Date	18-DEC-2017
Run Number	One
Depth Driller	9484 FT
Depth Logger	9439 FT
Bottom Logged Interval	9434 FT
Top Log Interval	Surface
Open Hole Size	8.750"
Type Fluid	Fresh Water
Density / Viscosity	8.34 lb/gal
Max. Recorded Temp.	250°F
Estimated Cement Top	See Log
Time Well Ready	ROA
Time Logger on Bottom	12:15
Equipment Number	HD-359
Location	Grand Junction, CO
Recorded By	Z. Fisher
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	1105 FT
Intermediate #1	4 1/2	11.6	P-110	Surface	9443 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 5455-5476 FT
Log ran from 9439 FT to Surface
Recorded with 0 PSI Surface Induced Pressure

Thank you for choosing Reliance Oilfield Services, LLC!!

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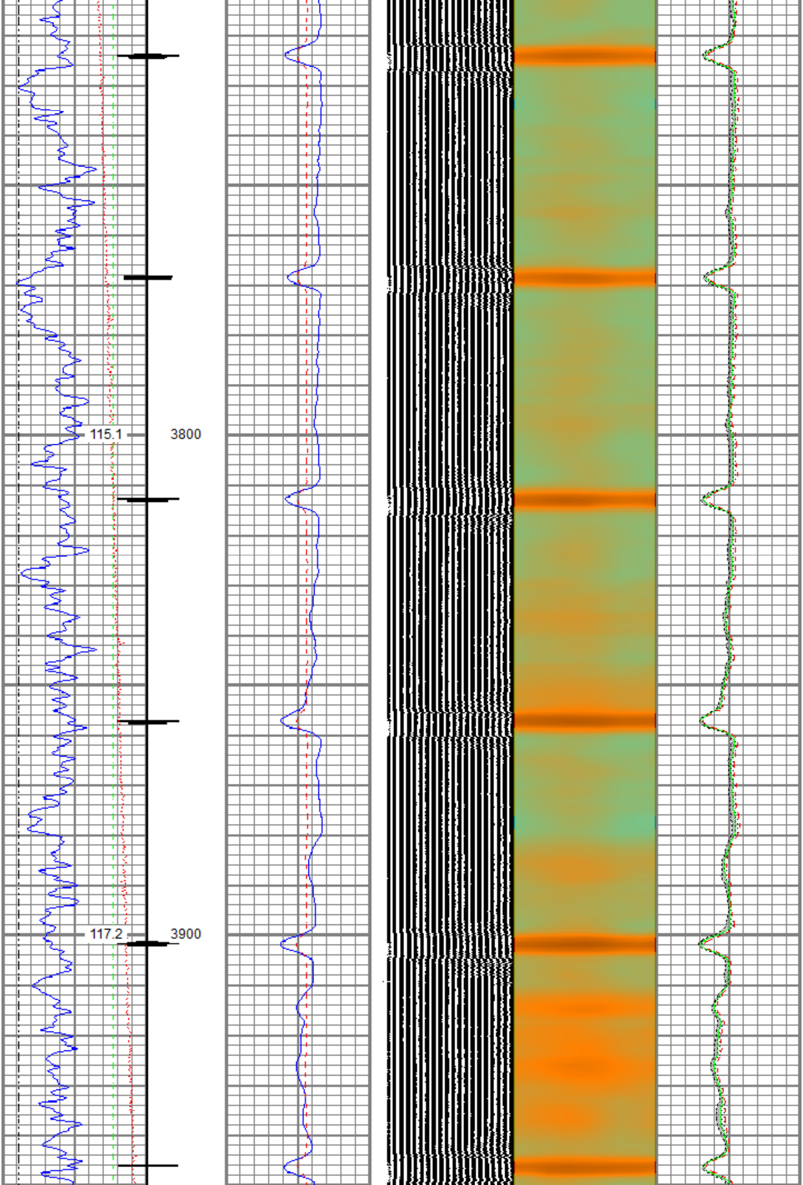
Main Pass

Recorded with 0 PSI Surface Induced Pressure

Database File	tep_ware sr 423-12_rbl_12-18-17\processed_tep_ware sr 423-12_rbl_12-18-17.db
Dataset Pathname	main
Presentation Format	ros_rbt004_tep
Dataset Creation	Mon Dec 18 12:18:29 2017
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 1200	10 110	0 150
Casing Collar Locator		3' Amplitude x 5			Mimimum Amplitude
Line Speed		0 (mV) 20			0 150
-150 (ft/min) 150		3' Travel Time			Maximum Amplitude
Line Tension		300 (usec) 200			0 150
0 (lb) 2000					
Temperature					
(degF) 0 20					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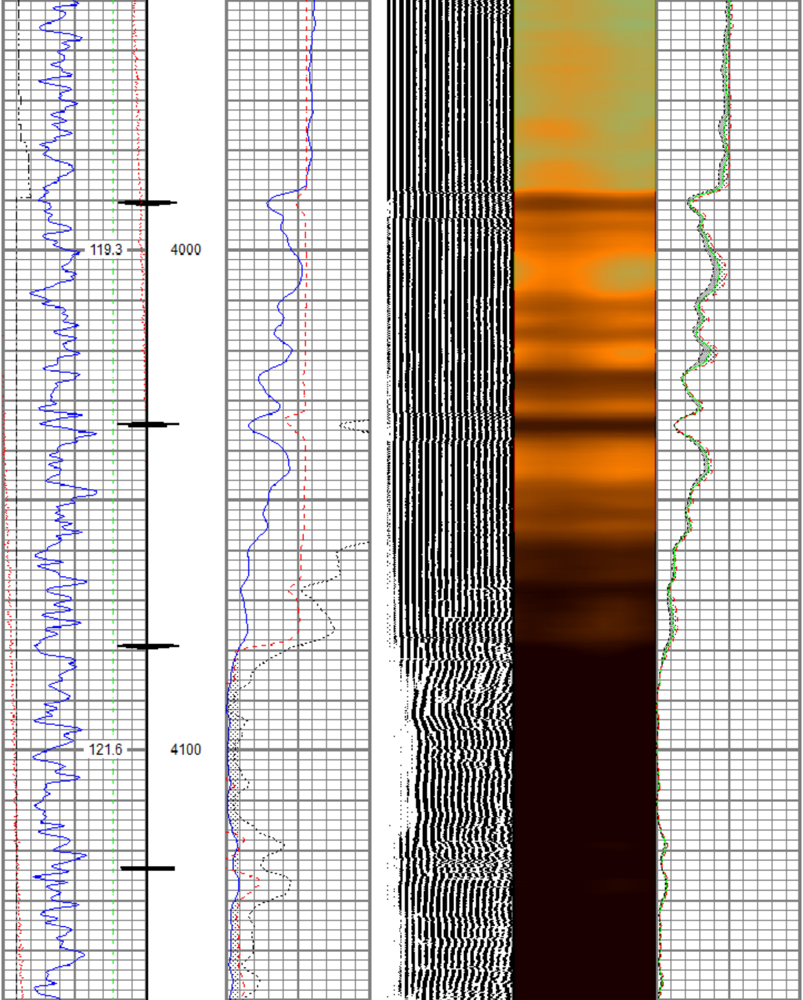
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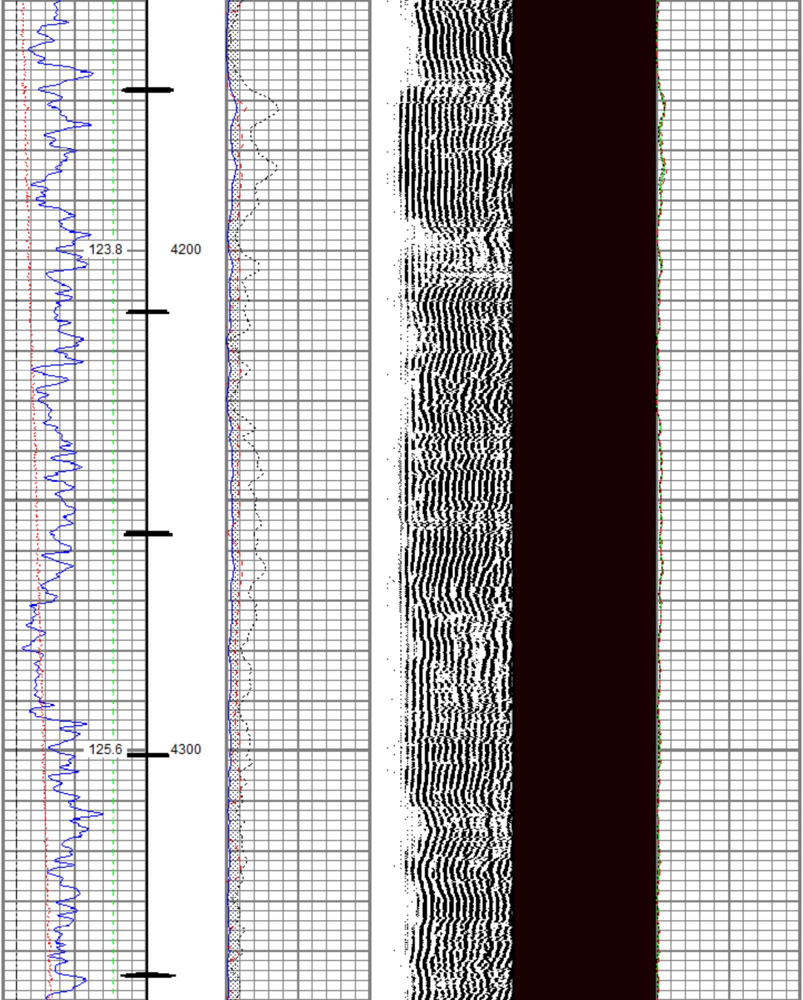
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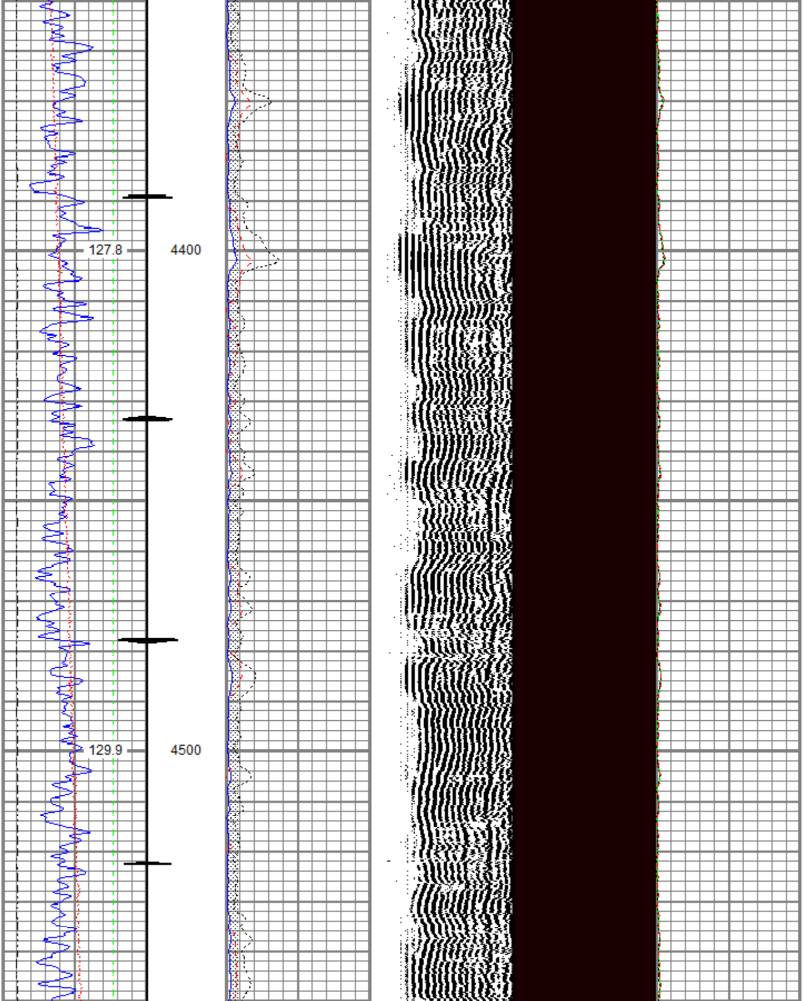
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4400
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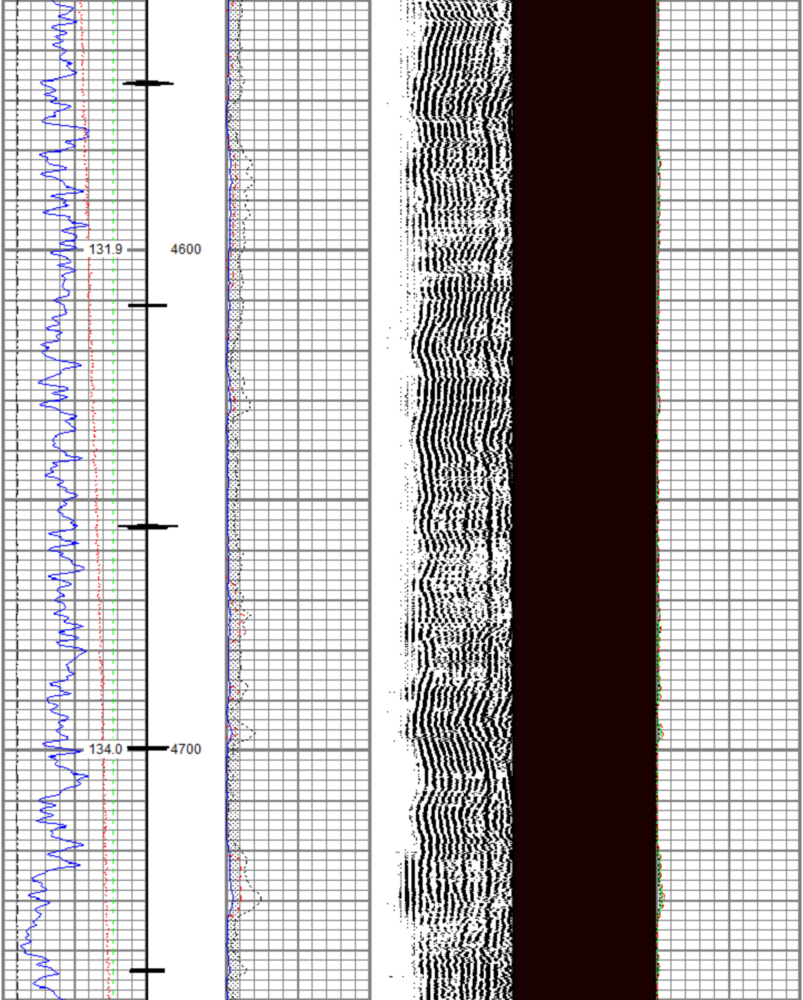
4500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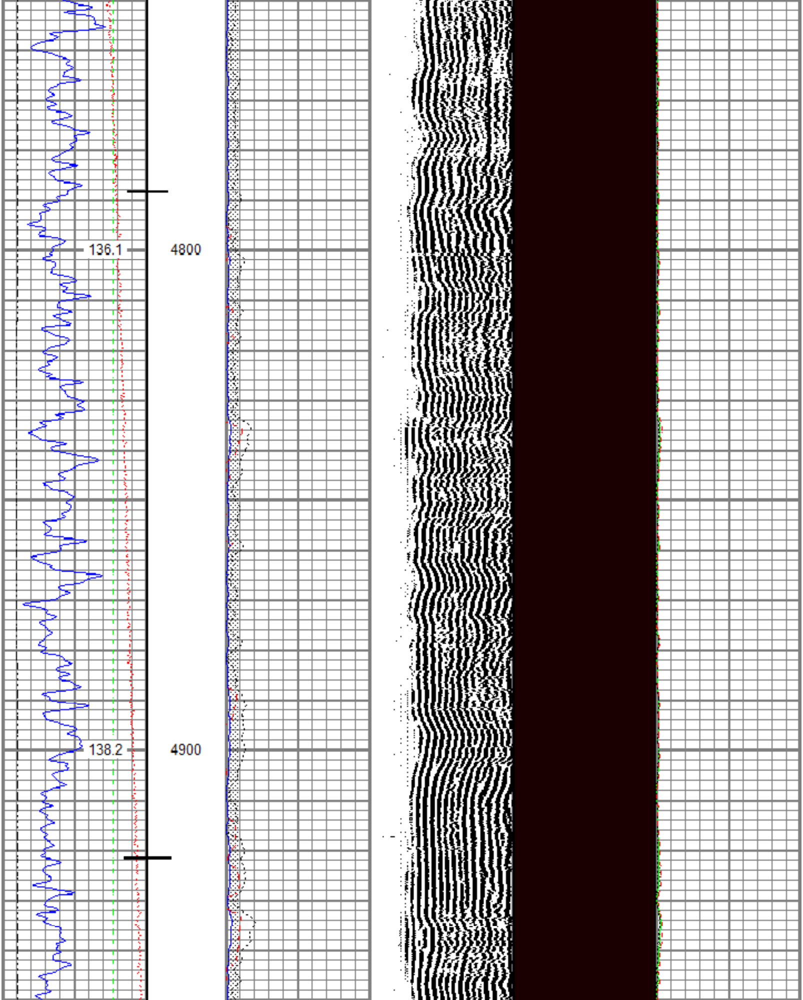
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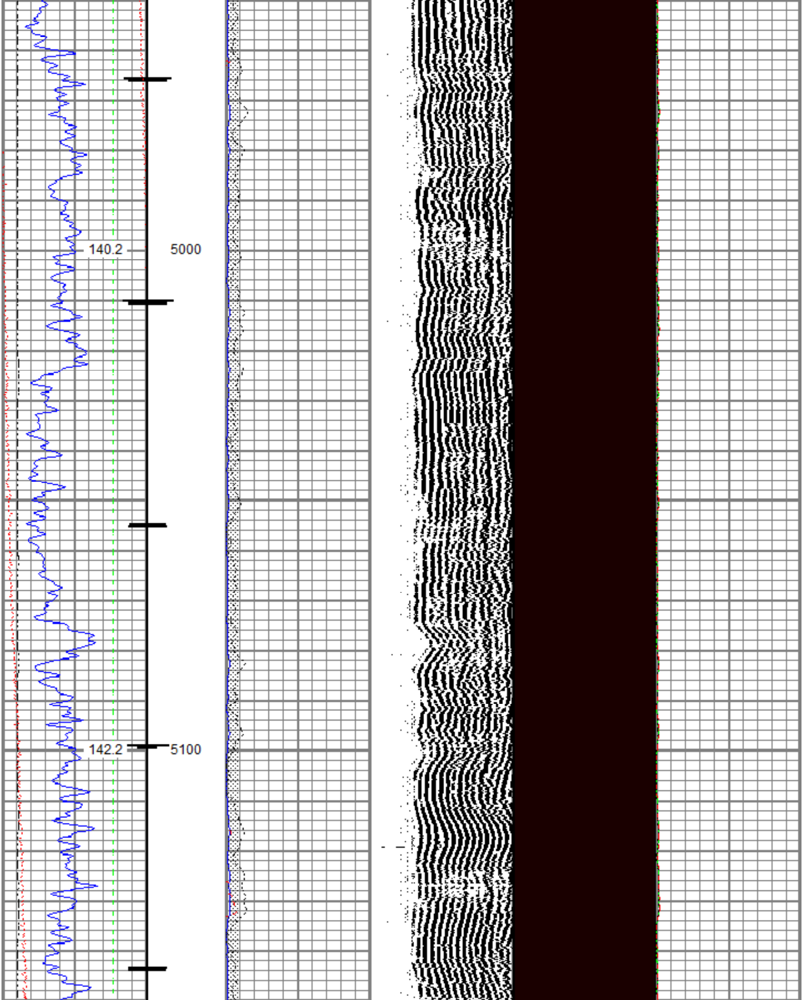
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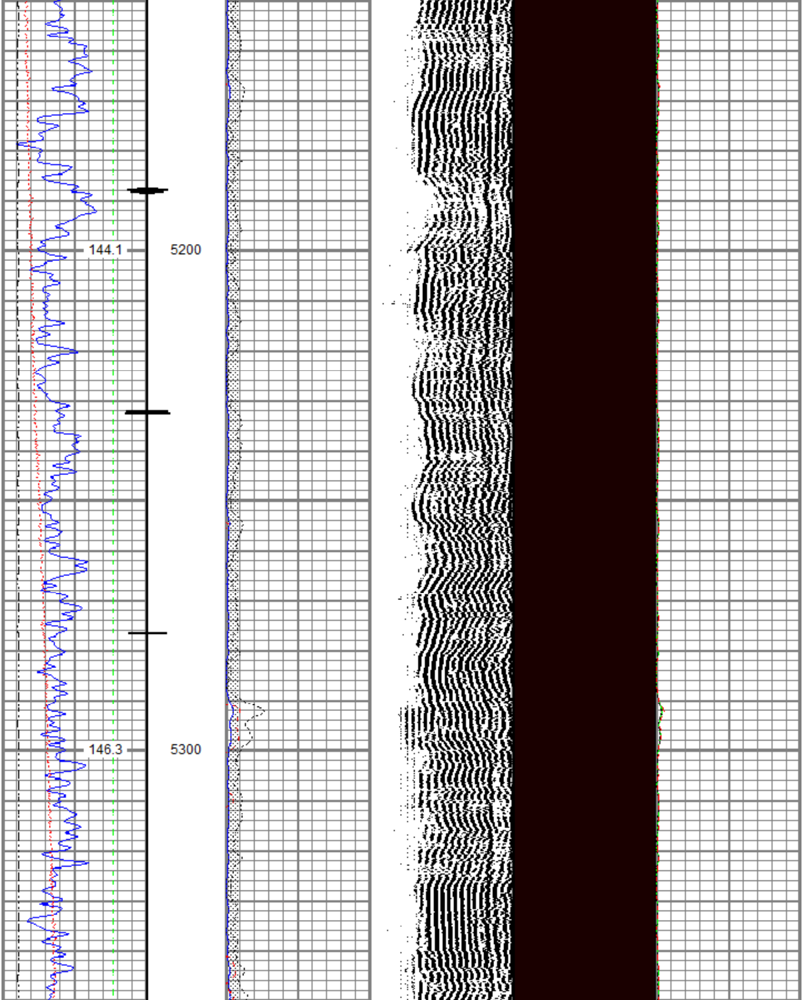
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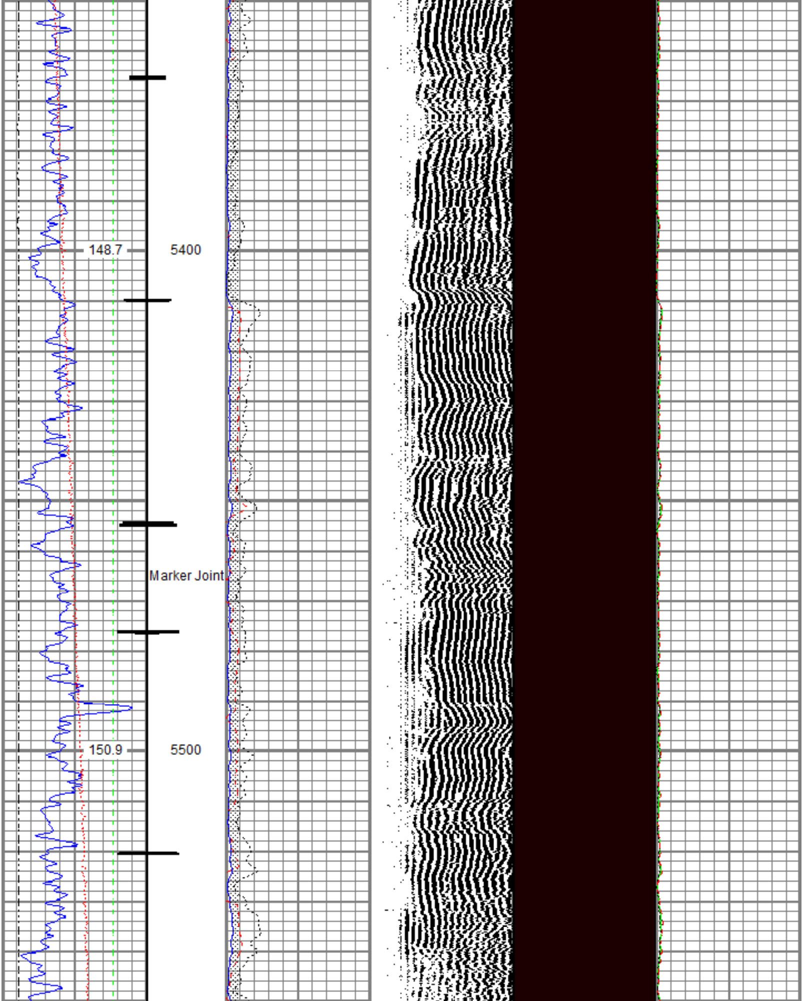
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Marker Joint
150.9
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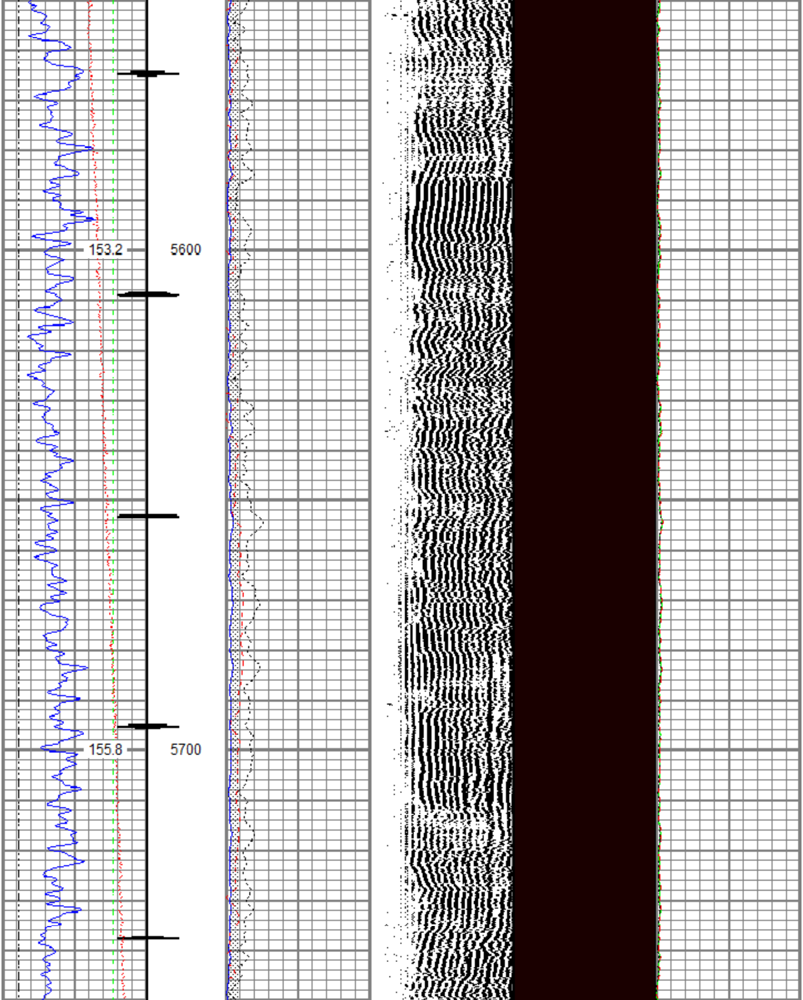
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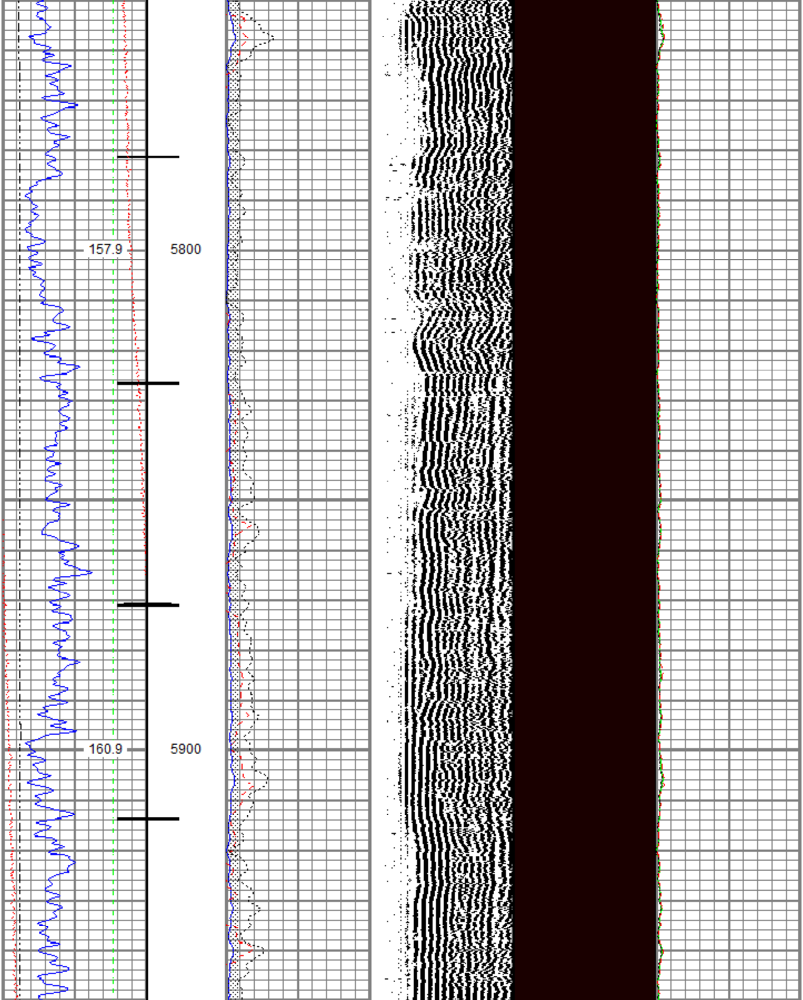

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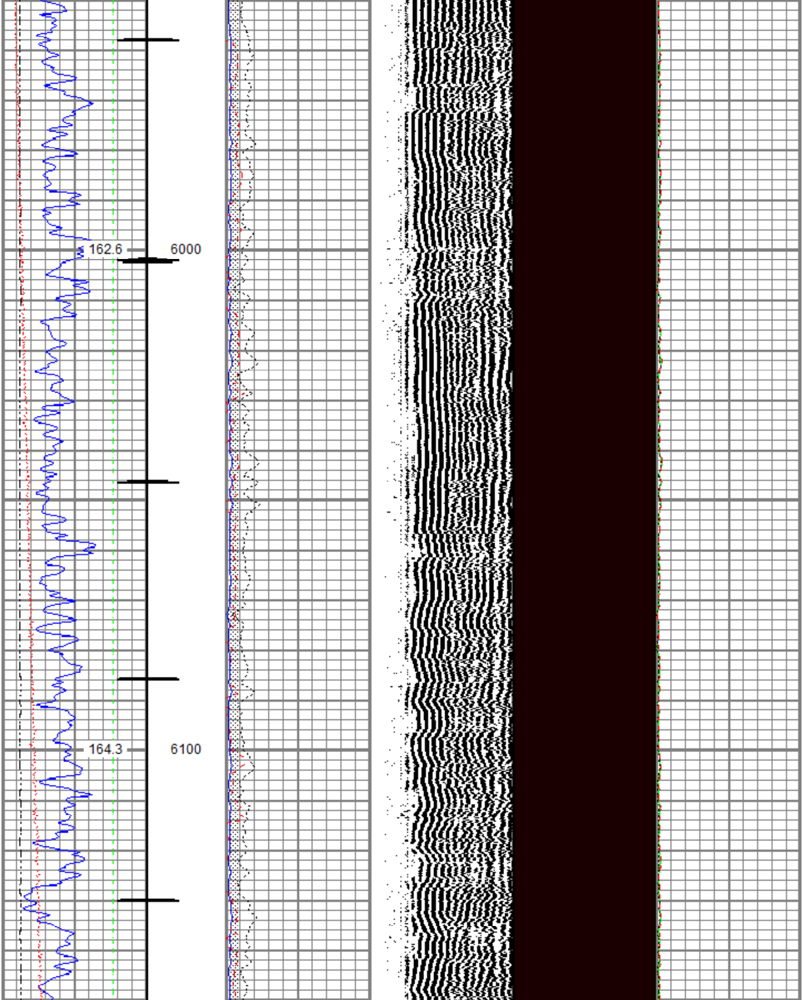
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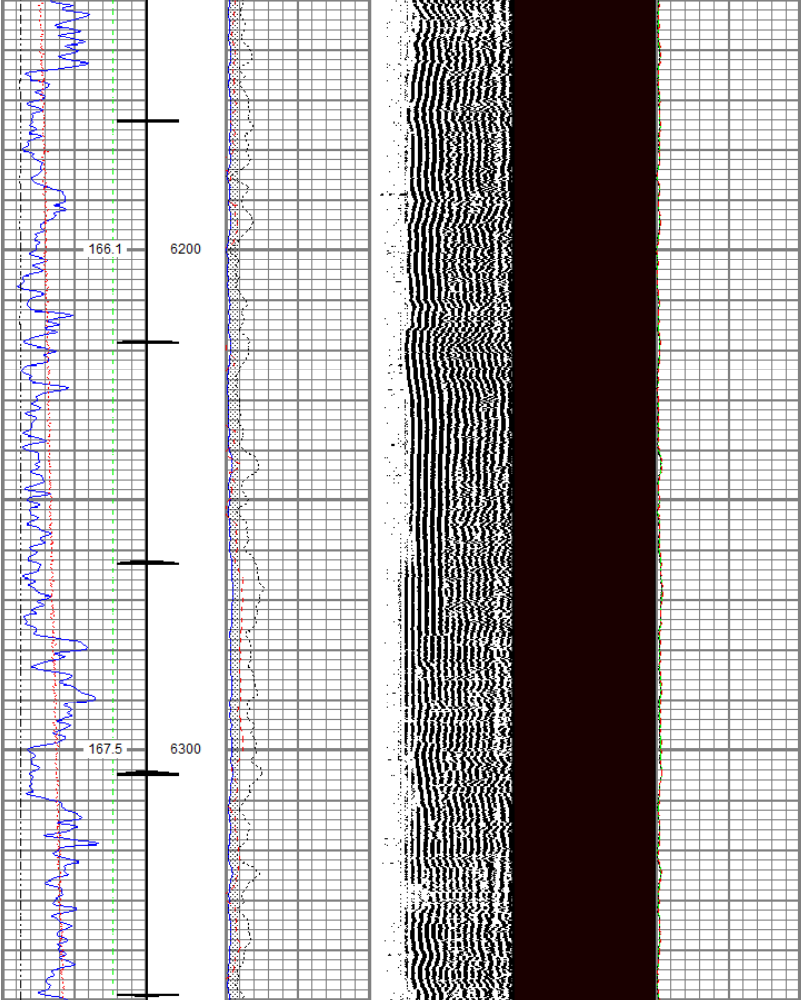
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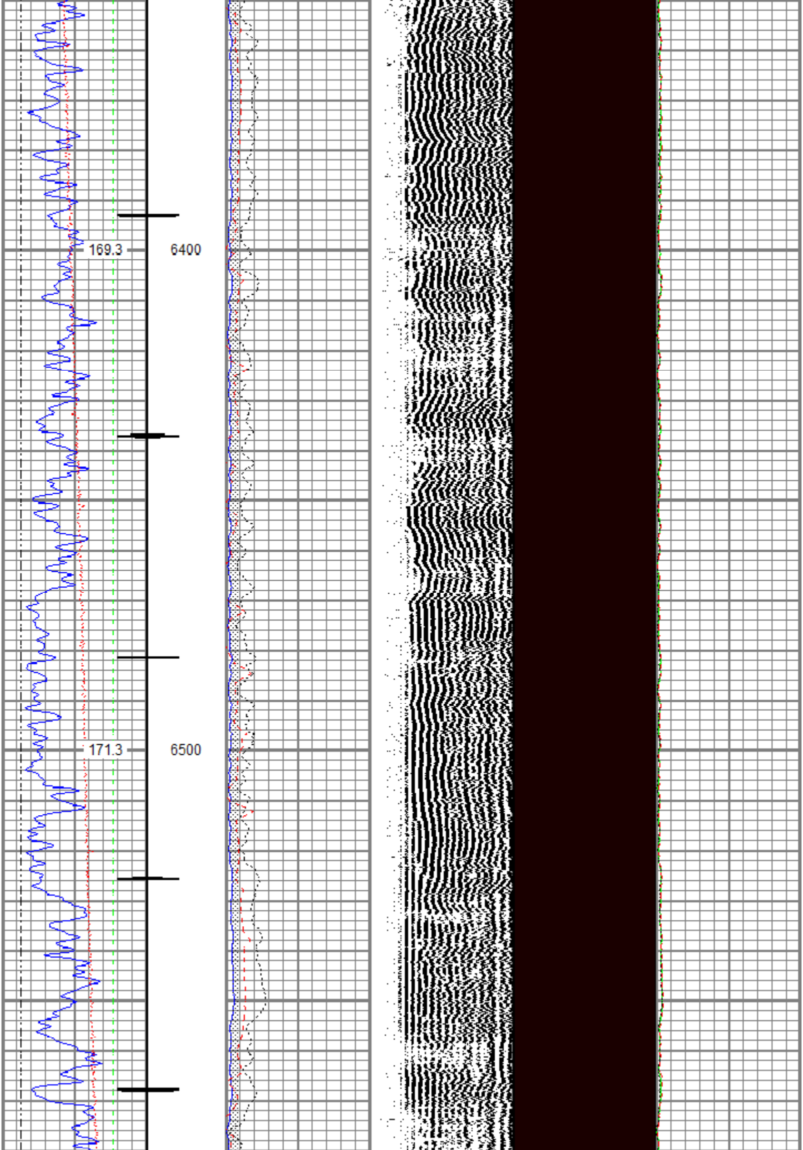
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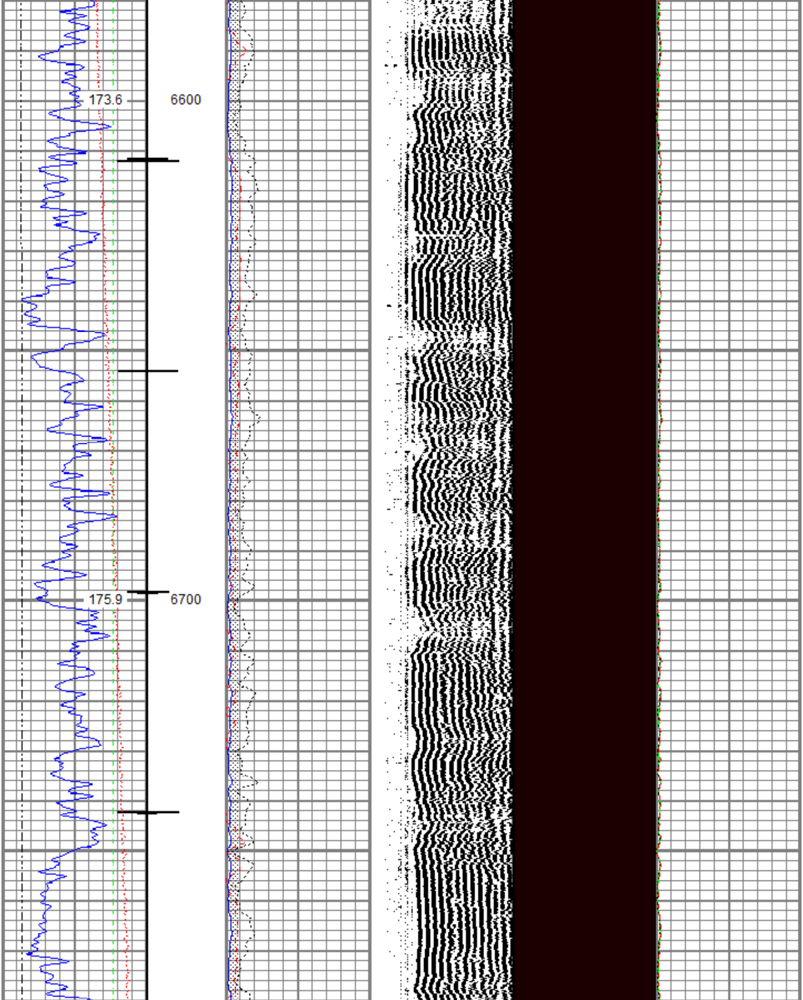
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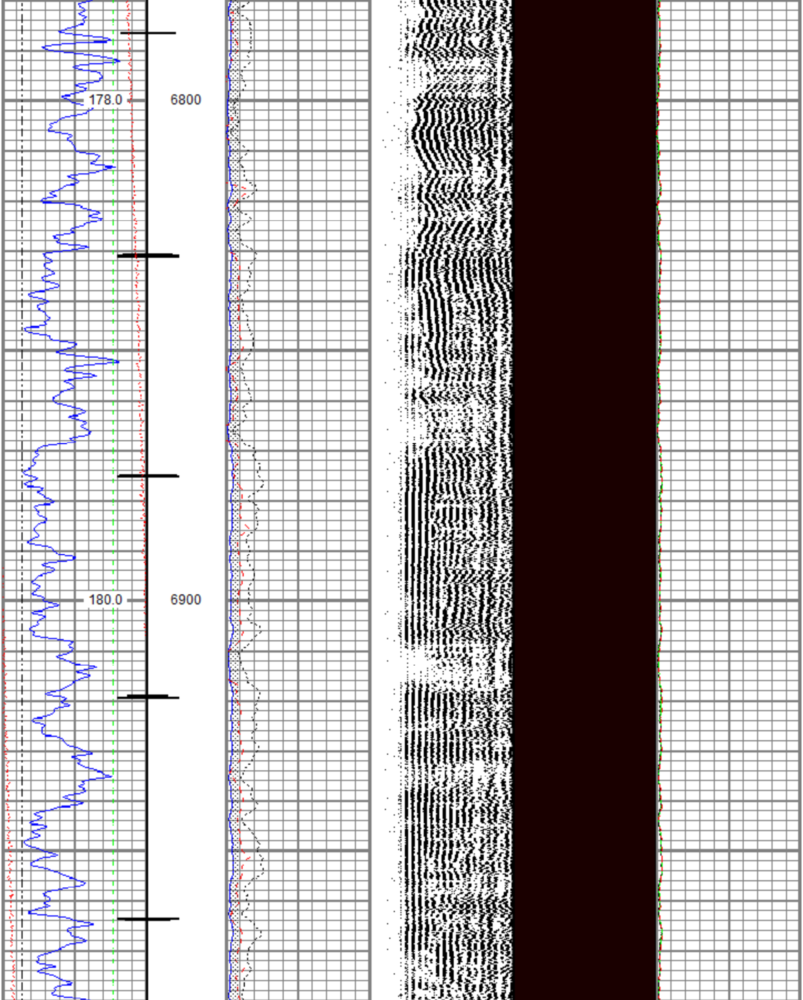
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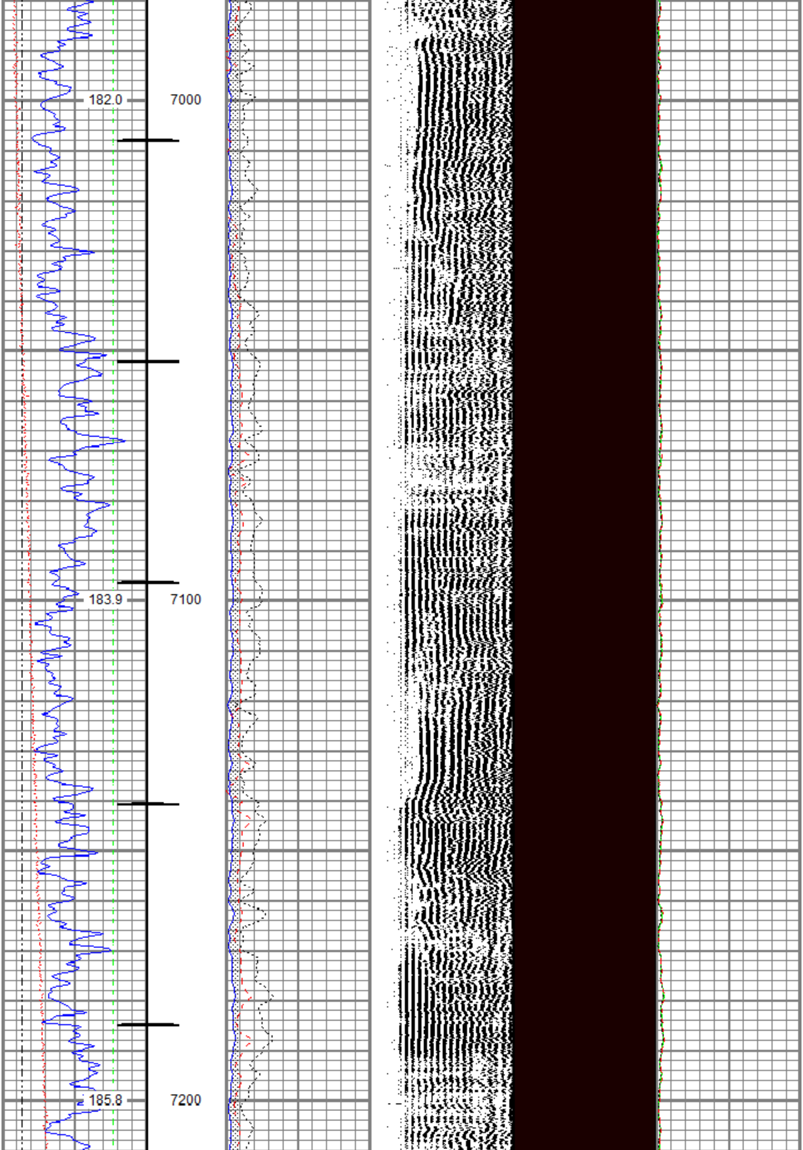
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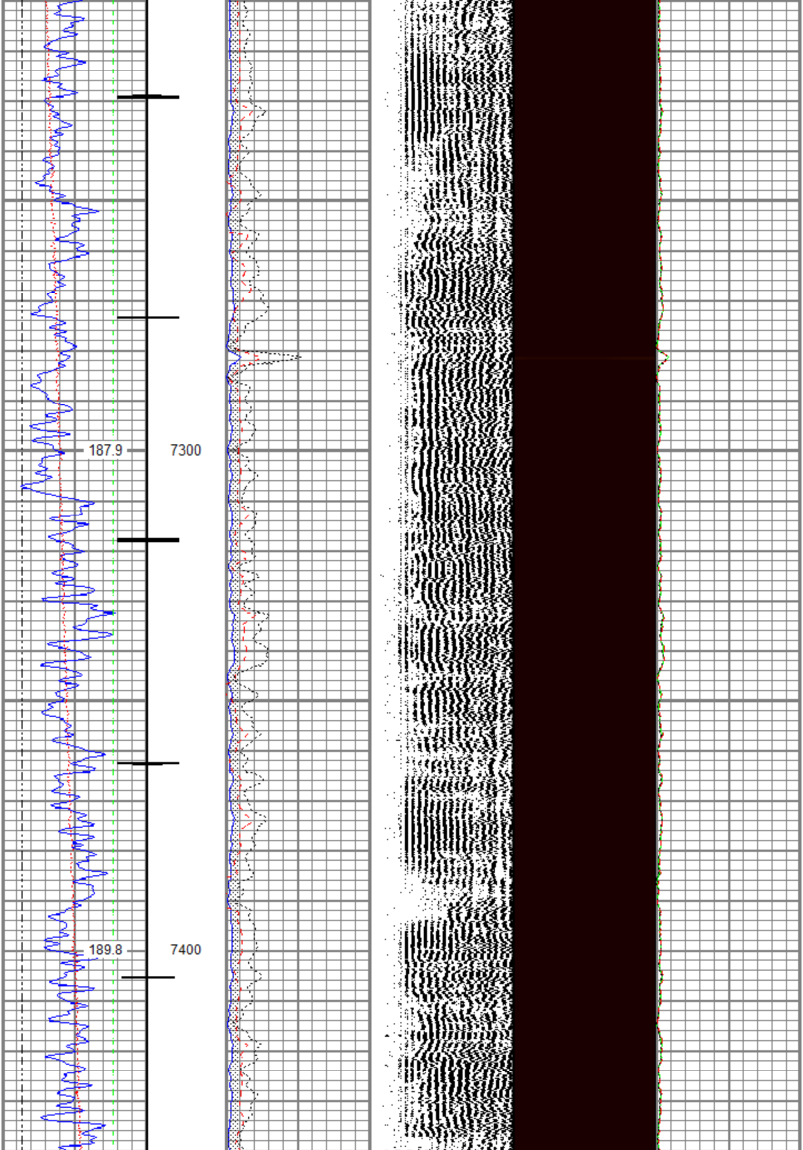
7200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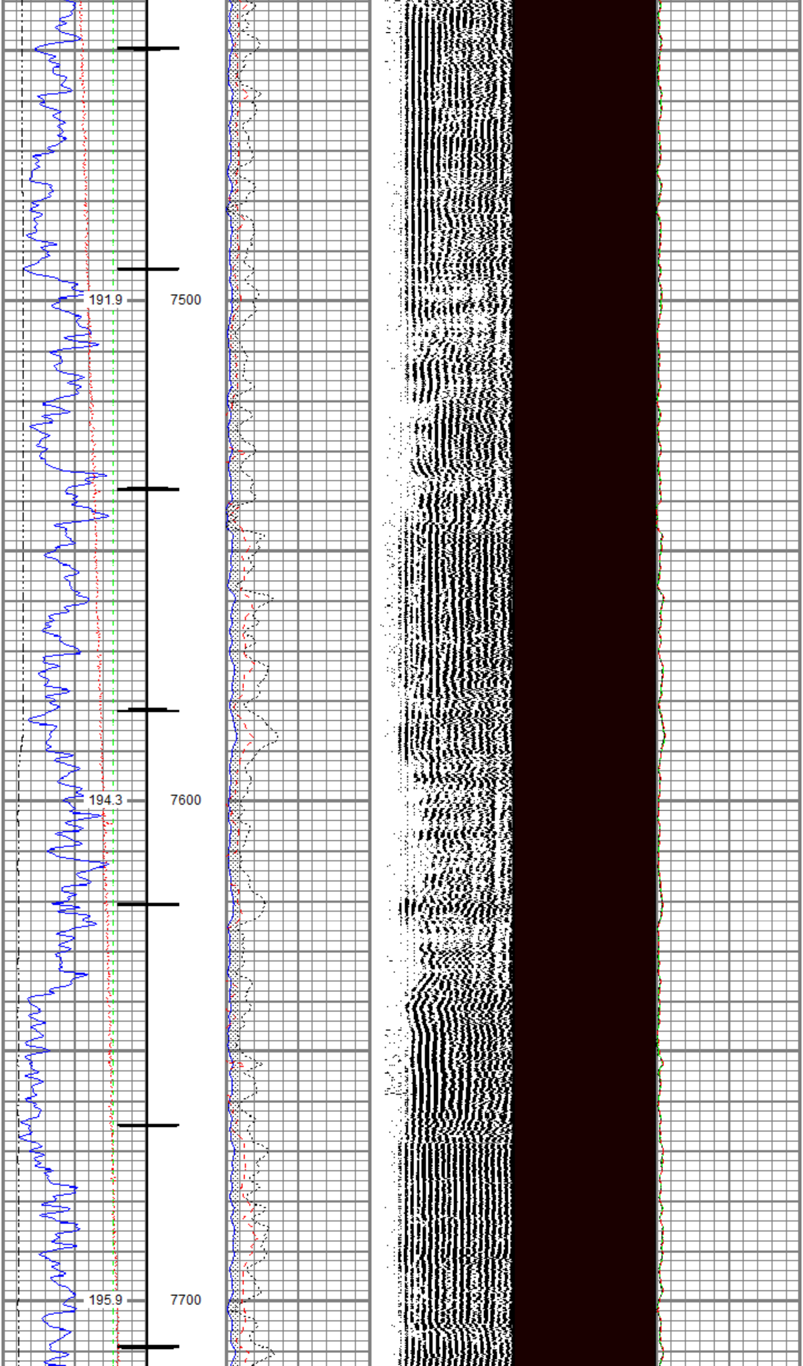
191.9
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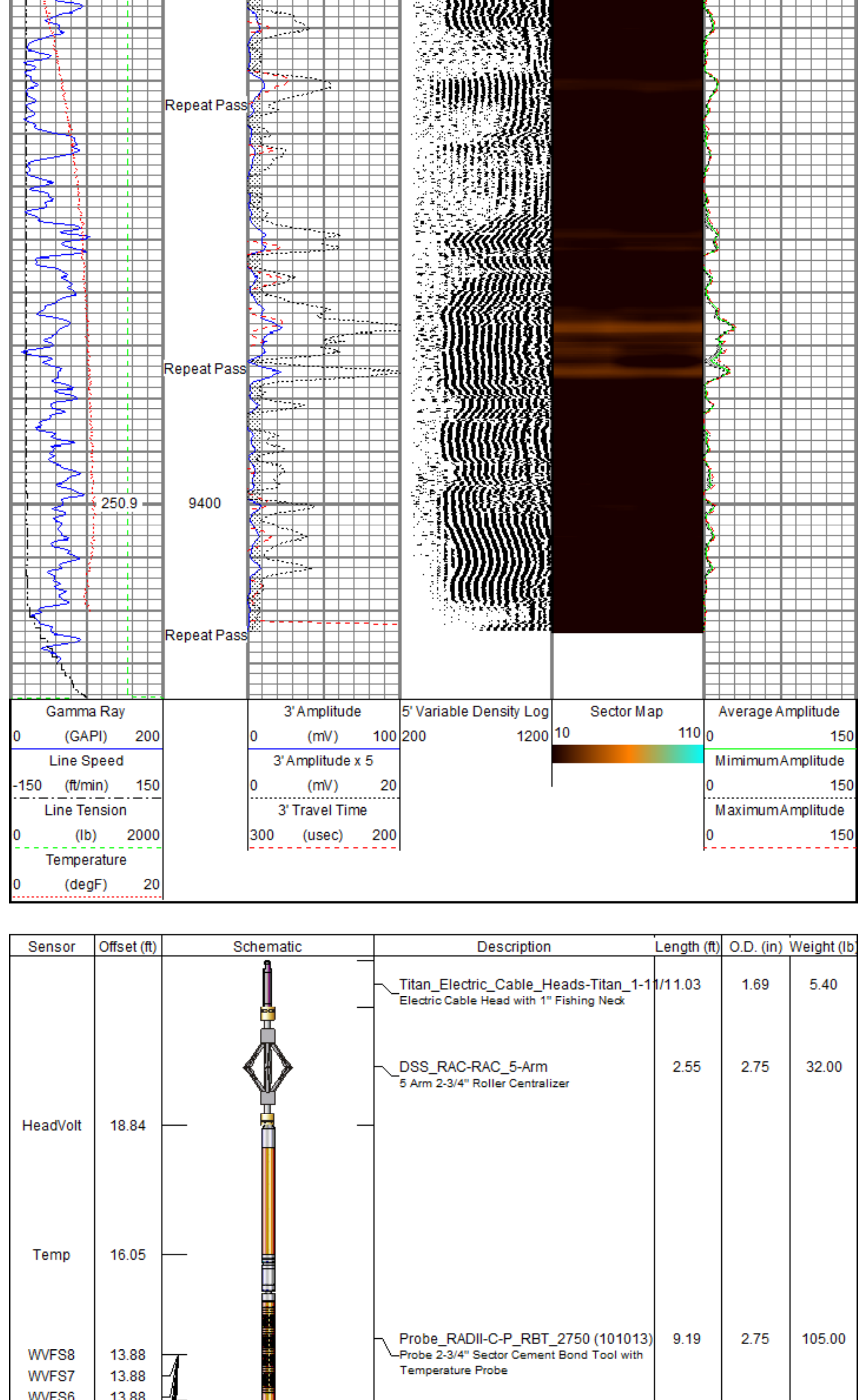
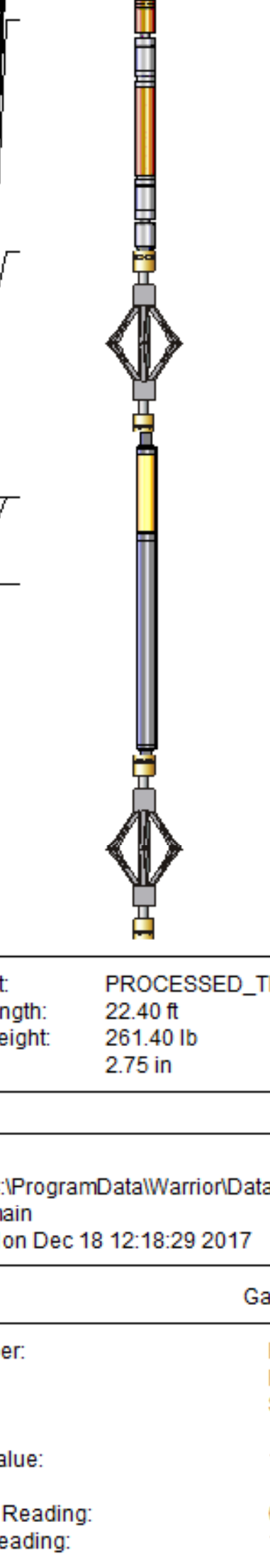
Repeat Pass

Recorded with 0 PSI Surface Induced Pressure

Database File	tep_ware sr 423-12_rbl_12-18-17\processed_tep_ware sr 423-12_rbl_12-18-17.db
Dataset Pathname	repeat
Presentation Format	ros_rbt004_tep
Dataset Creation	Mon Dec 18 12:15:20 2017
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
HeadVolt	18.84					
Temp	16.05					
WVFS8	13.88		Probe_RADII-C-P_RBT_2750 (101013) Probe 2-3/4" Sector Cement Bond Tool with Temperature Probe	9.19	2.75	105.00
WVFS7	13.88					
WVFS6	13.88					
WVFS5	13.88					
WVFS4	13.88					
WVFS3	13.88					
WVFS2	13.88					
WVFS1	13.88					
WVFCAL	13.88					
WVF3FT	13.88					
WVF5FT	12.88					
HEADVOLT	9.63					
			DSS_RAC-RAC_5-Arm 5 Arm 2-3/4" Roller Centralizer	2.55	2.75	32.00
DCCL	6.18					
CCL	6.18					
GR	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:	PROCESSED_TEP_Ware SR 423-12_RBL_12-18-17.db: field/well/run1/main
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 423-12_RBL_12-18-17\PROCESSED_TEP_Ware SR 423-12_
Dataset Pathname	main
Dataset Creation	Mon Dec 18 12:18:29 2017

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:	101013	
Tool Model:	P_RBT_2750	
Calibration Casing Diameter:	4.500	in
Calibration Depth:	32.821	ft

Master Calibration, performed Mon Dec 18 11:45:06 2017:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.005	0.765	0.000	81.196	105.432	0.492
CAL	0.755	0.751				
5'	-0.002	0.689	0.000	81.196	117.492	0.250
SUM						
S1	-0.004	0.753	0.000	100.000	132.042	0.514
S2	-0.004	0.756	0.000	100.000	131.491	0.533
S3	-0.006	0.744	0.000	100.000	133.435	0.788
S4	-0.004	0.760	0.000	100.000	130.835	0.537
S5	-0.004	0.755	0.000	100.000	131.793	0.520
S6	-0.004	0.759	0.000	100.000	130.942	0.577
S7	-0.006	0.751	0.000	100.000	132.080	0.766
S8	-0.004	0.770	0.000	100.000	129.297	0.503

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.755	0.751	1.000	0.000

Air Zero Calibration, performed Mon Dec 18 11:45:24 2017:

	Raw (v)	Calibrated (v)	Results
	Zero	Zero	Offset
3'	-0.005	0.000	0.001
5'	-0.002	0.000	0.000
SUM			
S1	-0.004	0.000	0.000
S2	-0.005	0.000	0.001
S3	-0.006	0.000	0.000
S4	-0.005	0.000	0.001
S5	-0.005	0.000	0.001
S6	-0.005	0.000	0.001
S7	-0.006	0.000	0.001
S8	-0.004	0.000	0.001

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Company	TEP Rocky Mountain LLC
Well	Ware SR 423-12
Field	Rulison
County	Garfield
State	Colorado