RELIANCE
OILFIELD SERVICES

Radial Cement Bond
Gamma Ray
Casing Collar Log

Company	TEP Rocky Mountain LLC
Well	Federal RWF 443-7
Field	Rulison
County	Garfield
State	Colorado

Company TEP Rocky Mountain LLC
Well Federal RWF 443-7
Field Rulison
County Garfield State Colorado
Location: API # : 05-045-24036
SEC 17 TWP 6S RGE 94W
Other Services
--
Permanent Datum Ground Level Elevation 6175'
Log Measured From Kelly Bushing 24 FT
Drilling Measured From Kelly Bushing
Elevation
K.B. 6199'
D.F. ---
G.L. 6175'

Date	13-AUG-2019
Run Number	One
Depth Driller	9697 FT
Depth Logger	9637 FT
Bottom Logged Interval	9623 FT
Top Log Interval	Surface
Open Hole Size	8.750"
Type Fluid	Fresh Water
Density / Viscosity	8.34 lb/gal
Max. Recorded Temp.	257°F
Estimated Cement Top	See Log
Time Well Ready	ROA
Time Logger on Bottom	1550
Equipment Number	HD-0331
Location	Grand Junction, CO
Recorded By	Z. Fisher
Witnessed By	Dustin 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	36	J-55	Surface	1104 FT
Intermediate #1	4 1/2	11.6	P-110	Surface	9657 FT
Intermediate #2					
Liner					

<<< Fold Here >>>

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 from 5620-5641 FT
Log ran with 0 PSI Surface Induced Pressure

Thank you for choosing Reliance Oilfield Services, LLC!!

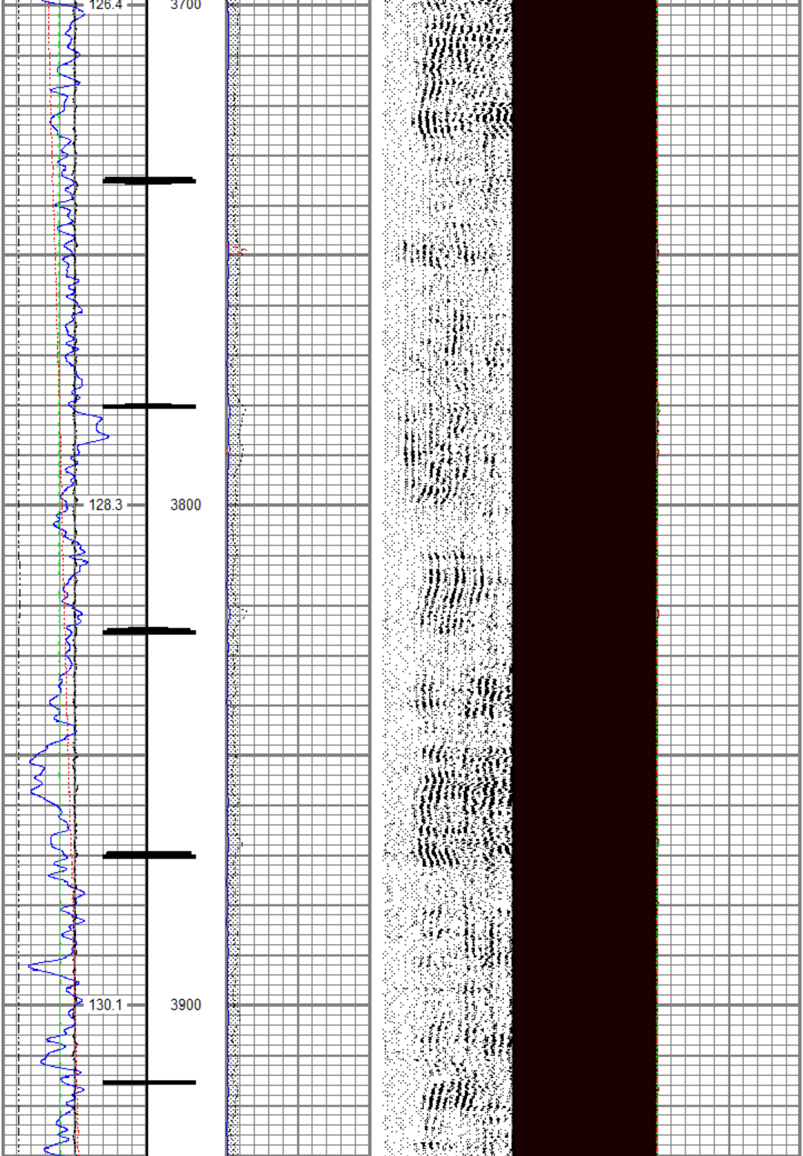
RELIANCE
OILFIELD SERVICES

Main Pass

Recorded With 0 PSI Surface Induced Pressure

Database File	tep_federal rwf 443-7_rbl_08-13-19\tep_federal rwf 443-7_rbl_08-13-19.db
Dataset Pathname	main
Presentation Format	ros_rbt004_tep
Dataset Creation	Tue Aug 13 15:48:13 2019
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
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				
Differential Temperature				
-2 (degF) 2				
Temperature				
0 (degF) 20				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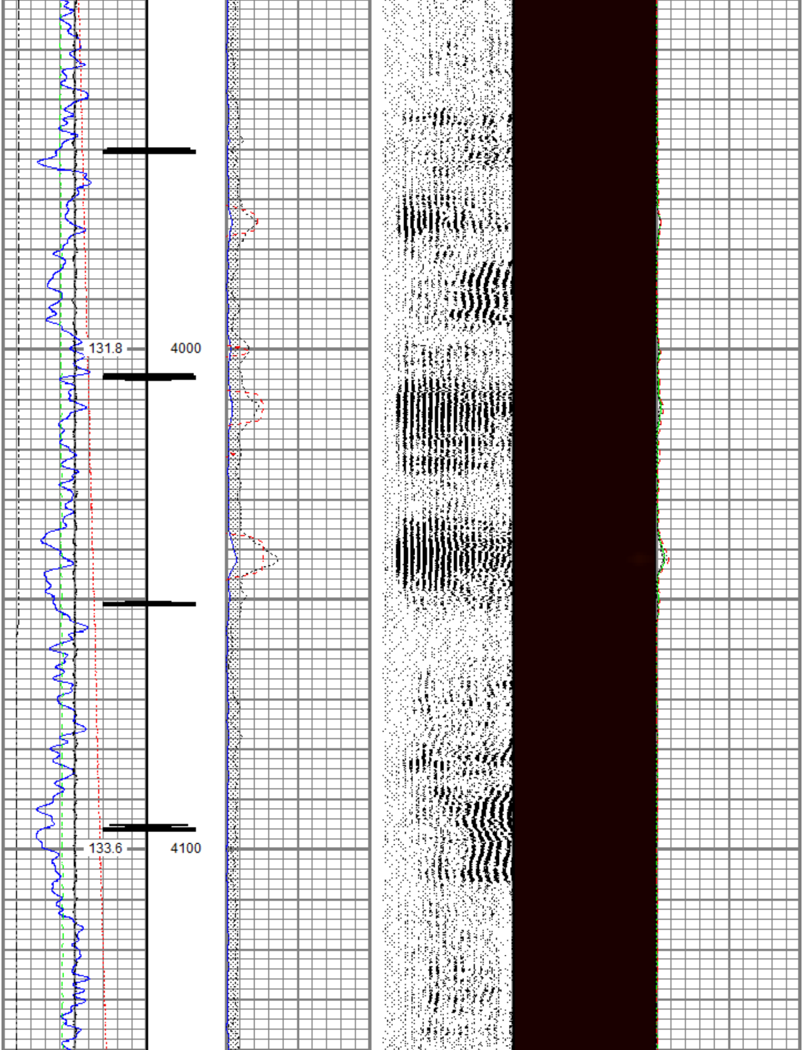
3700
128.3
3800
130.1
3900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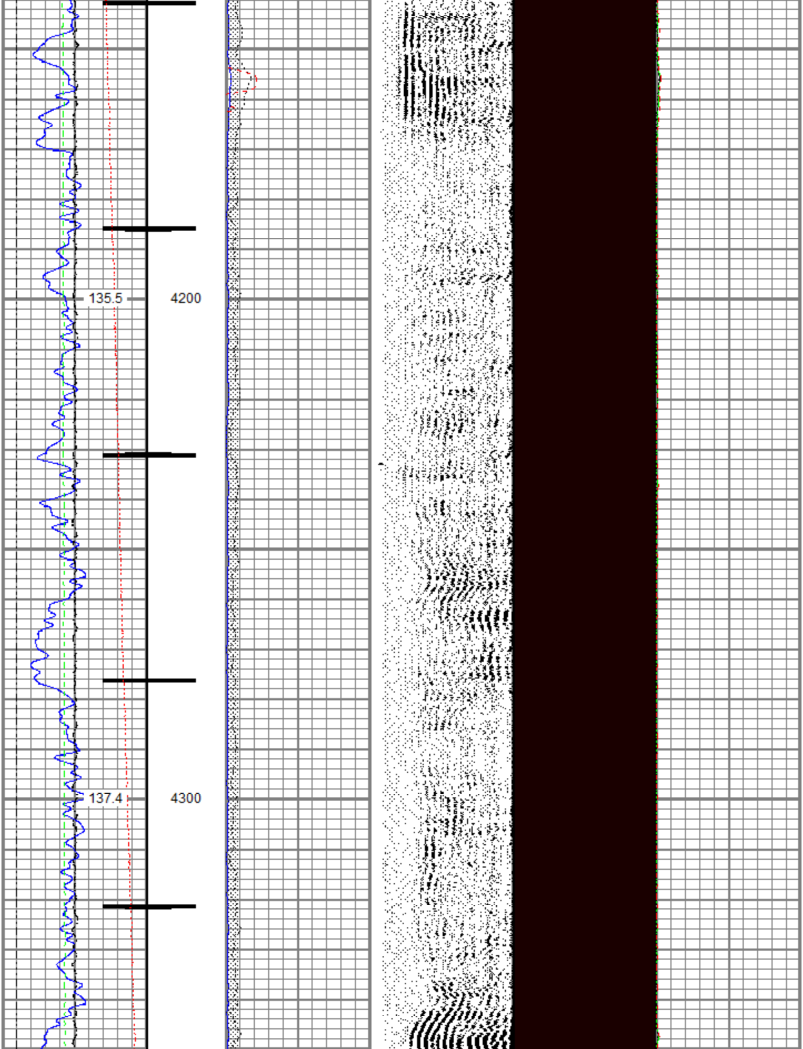
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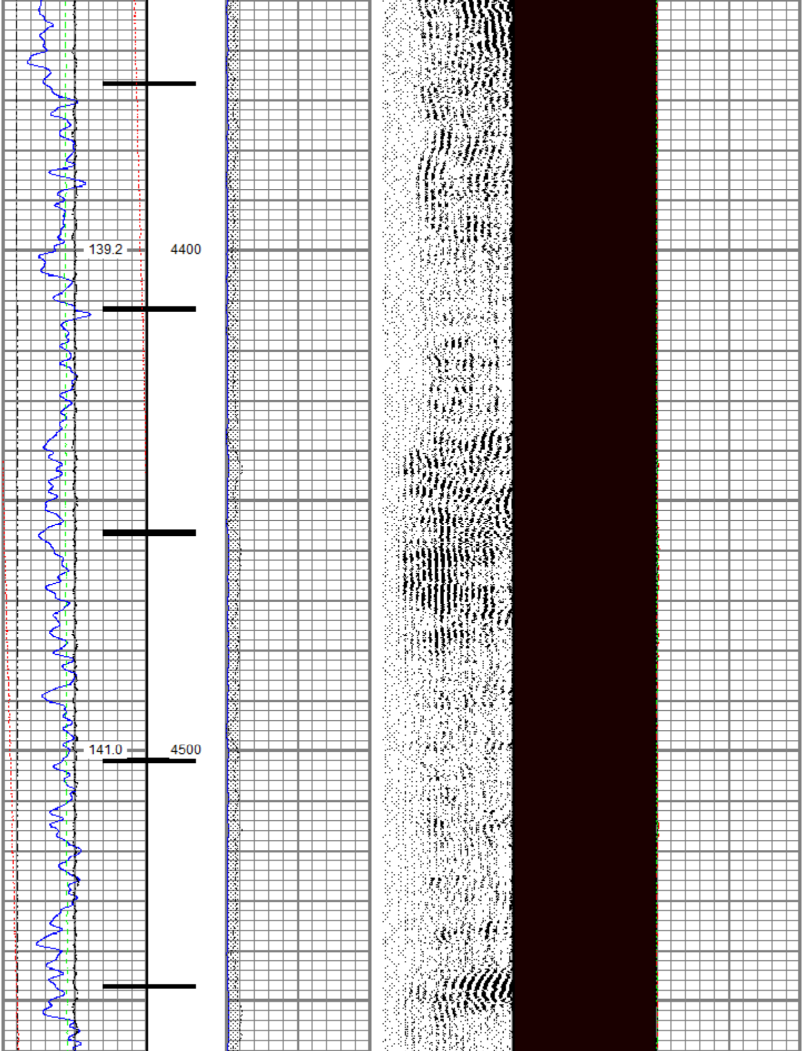
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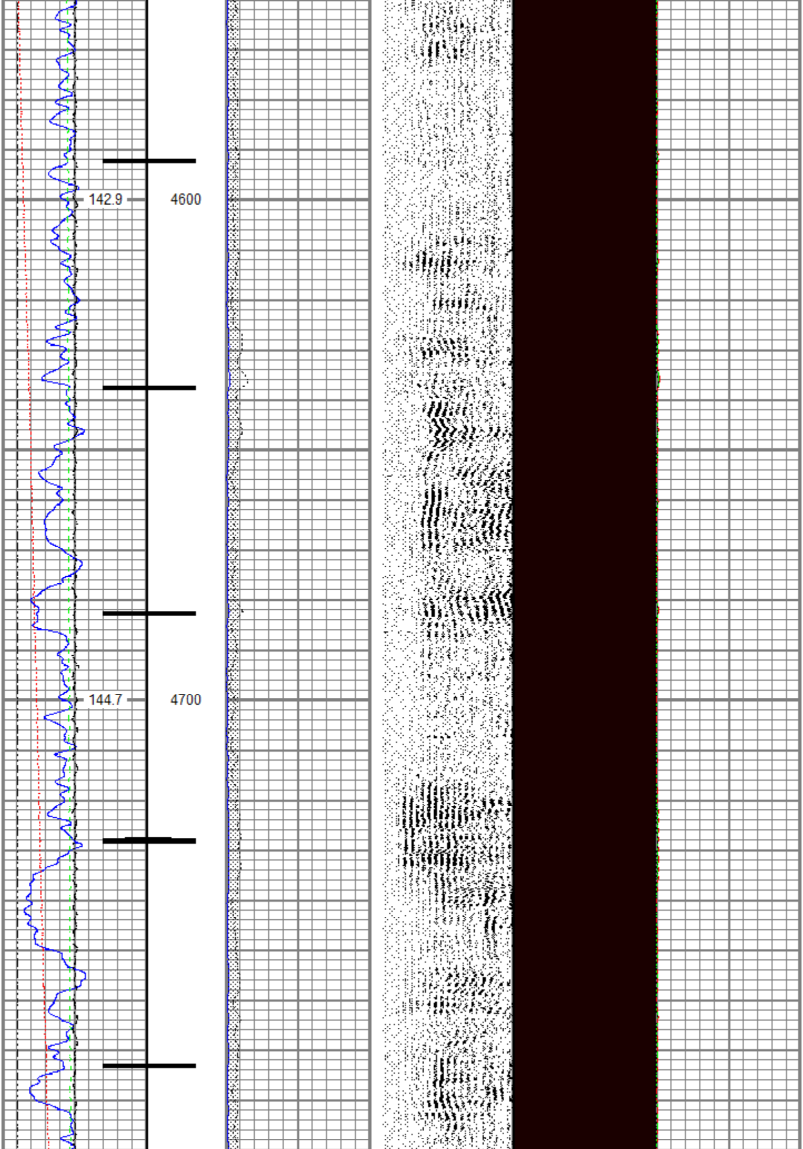
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4600
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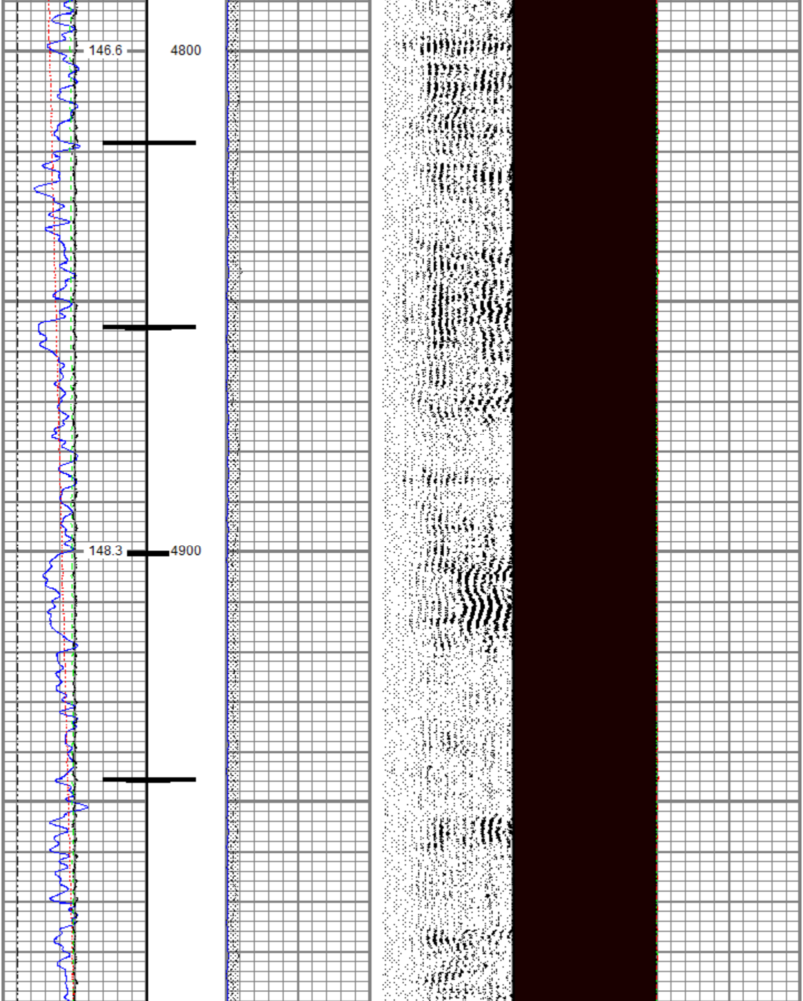
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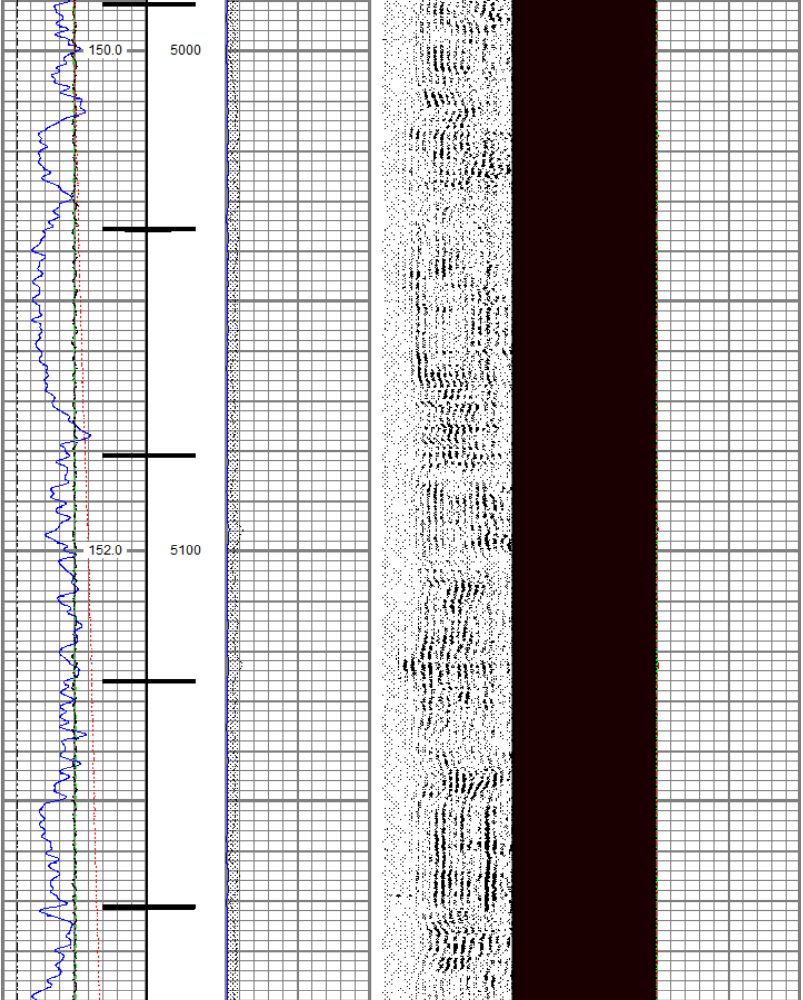
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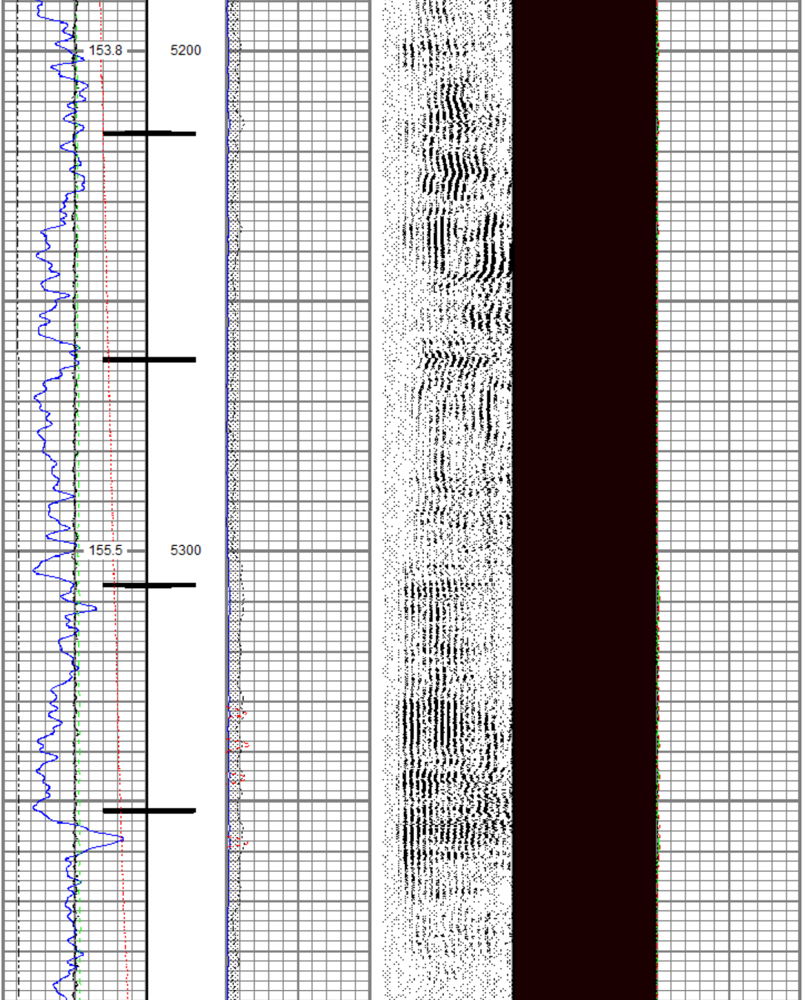
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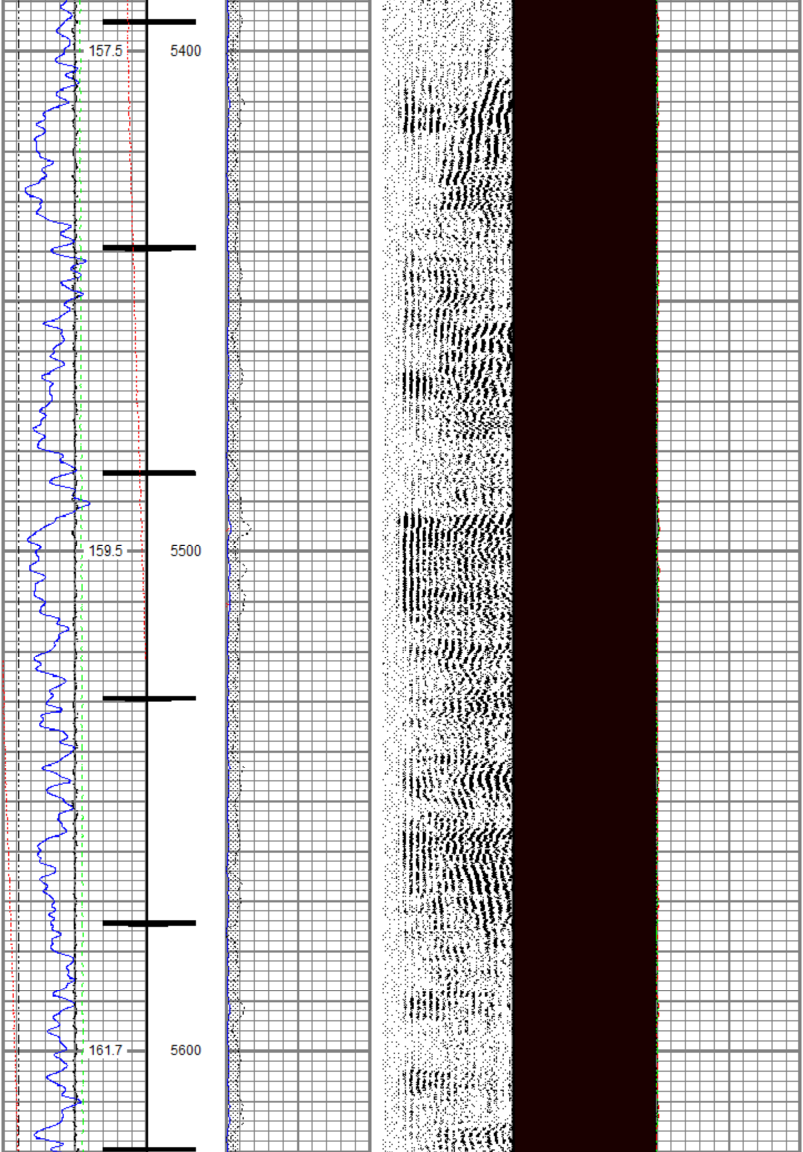
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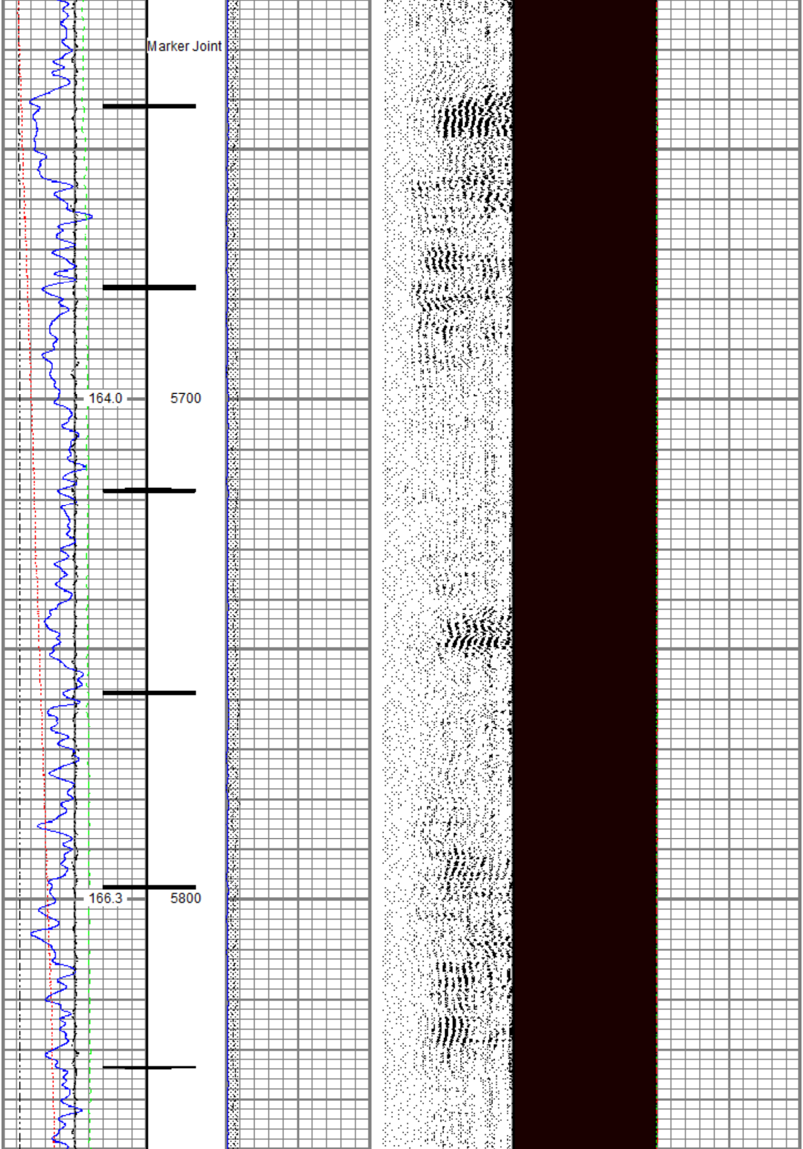
5500
161.7
5600


Marker Joint
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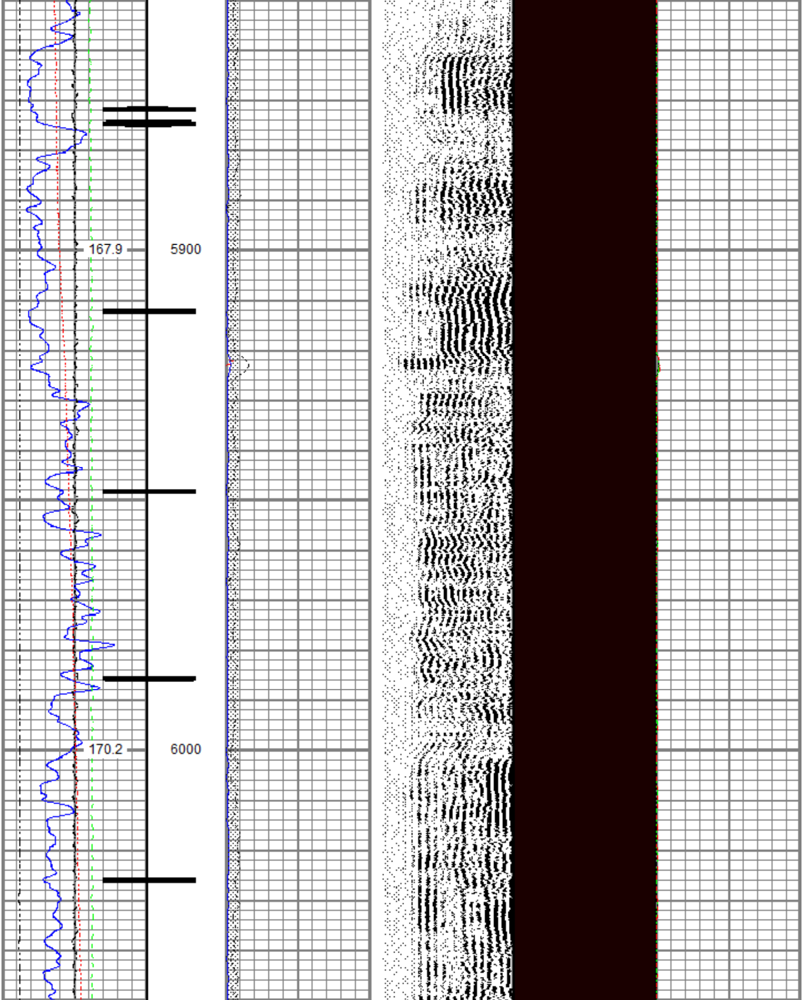
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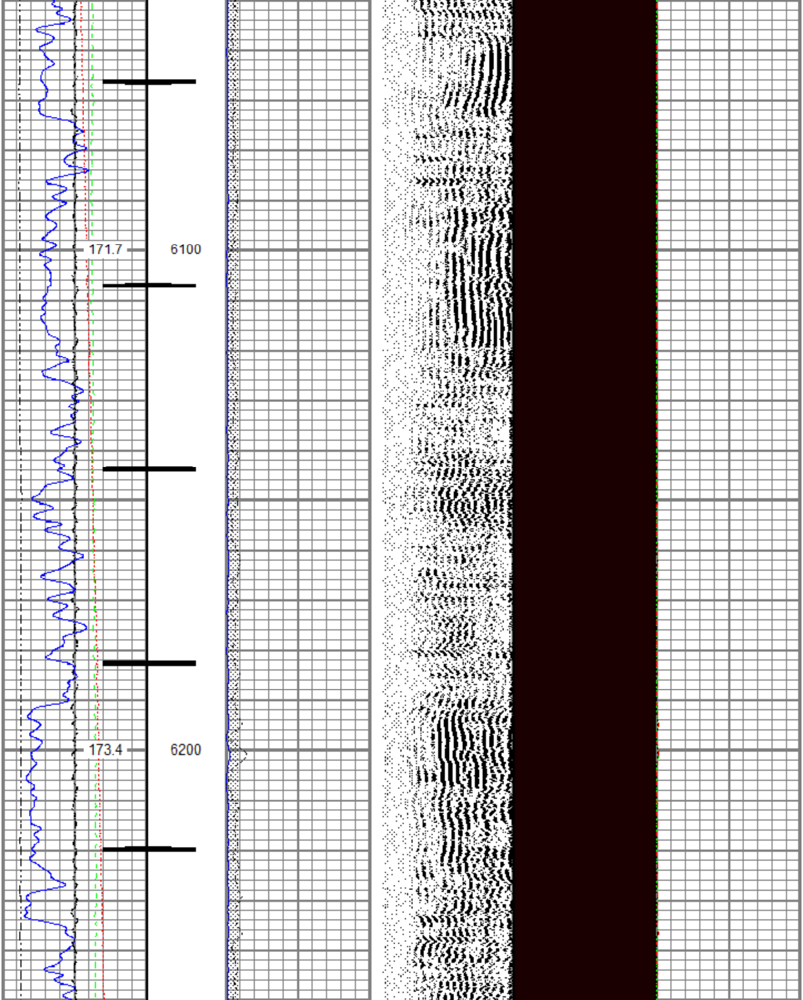
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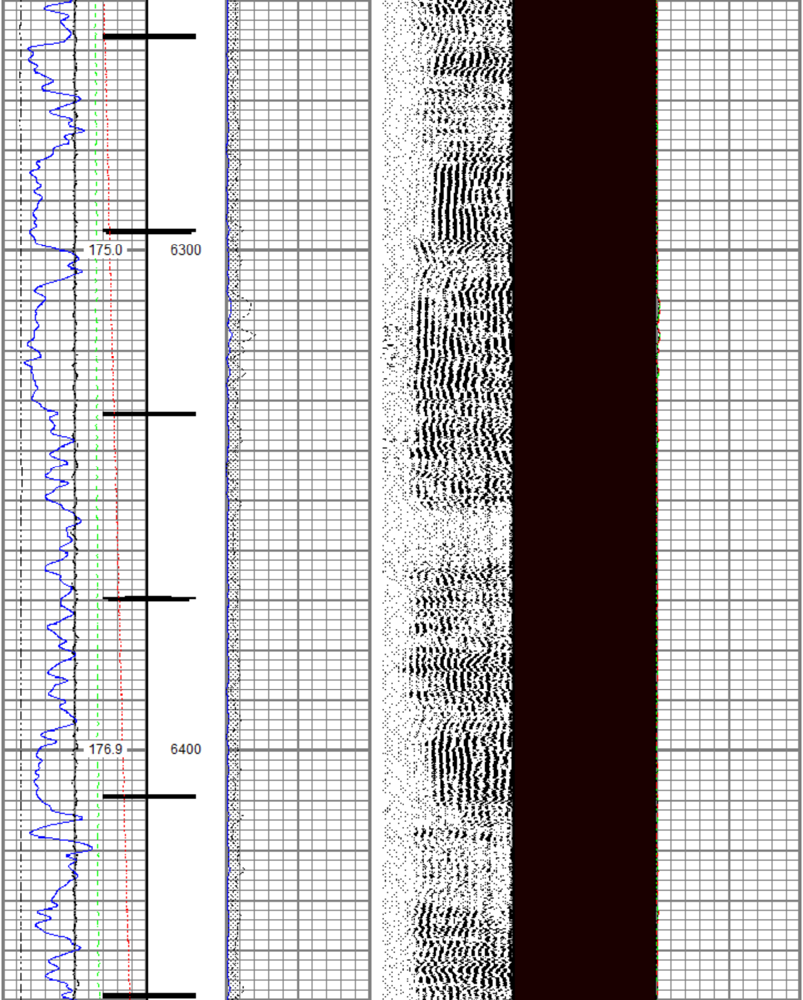
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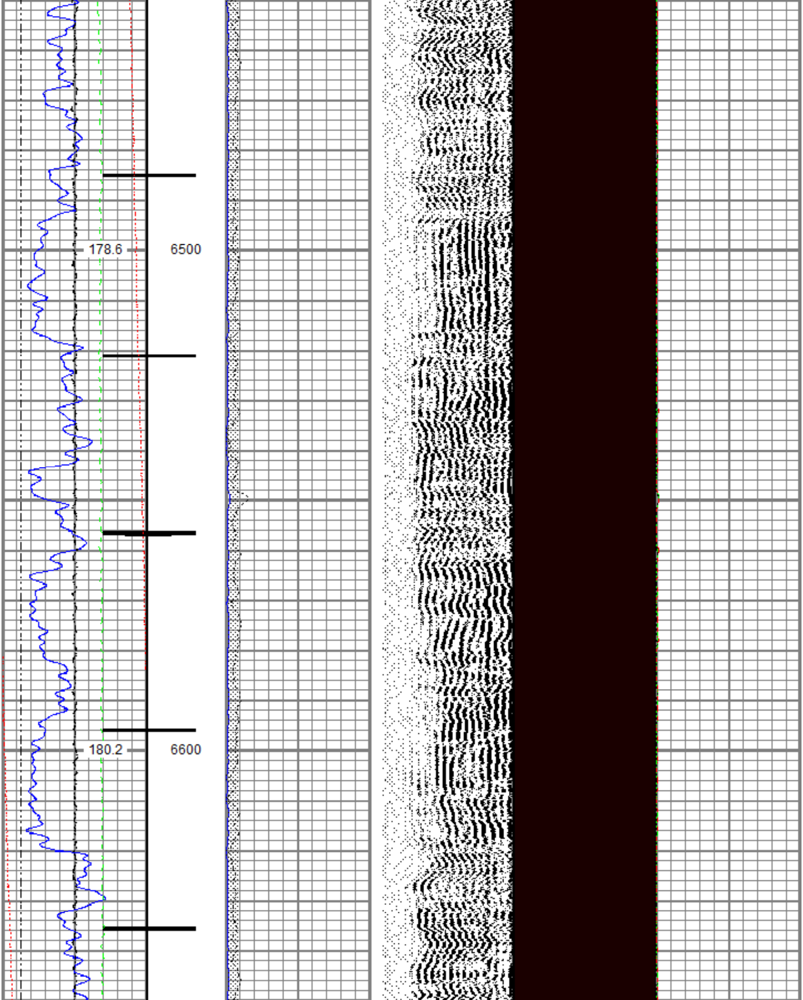
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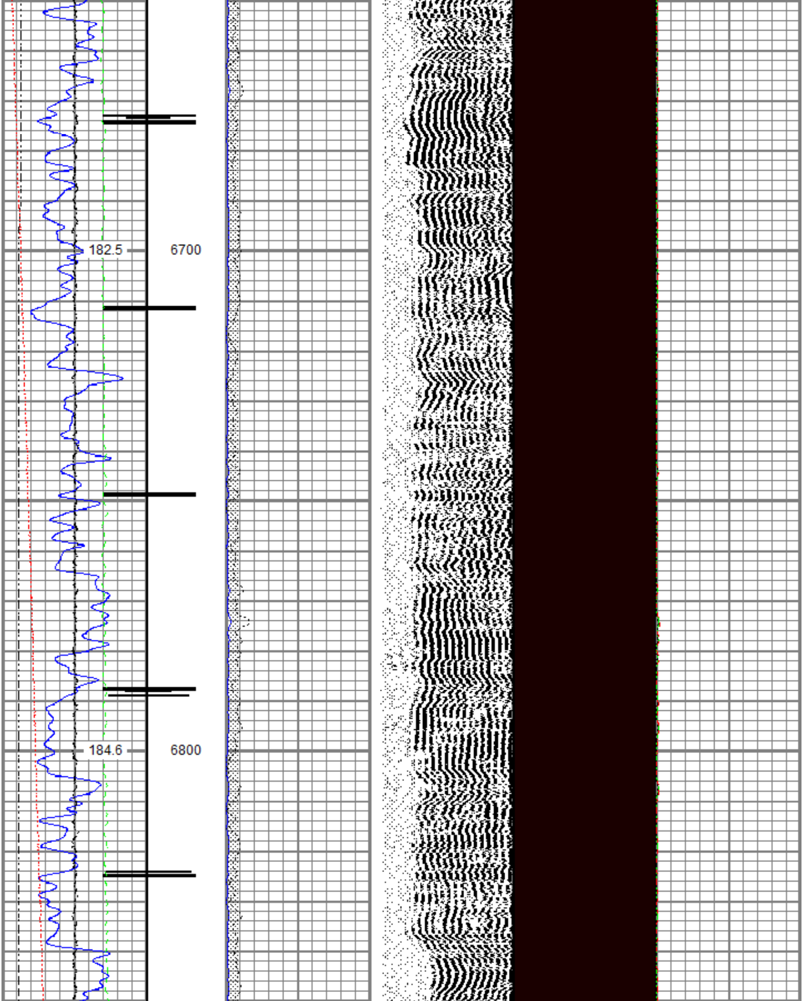
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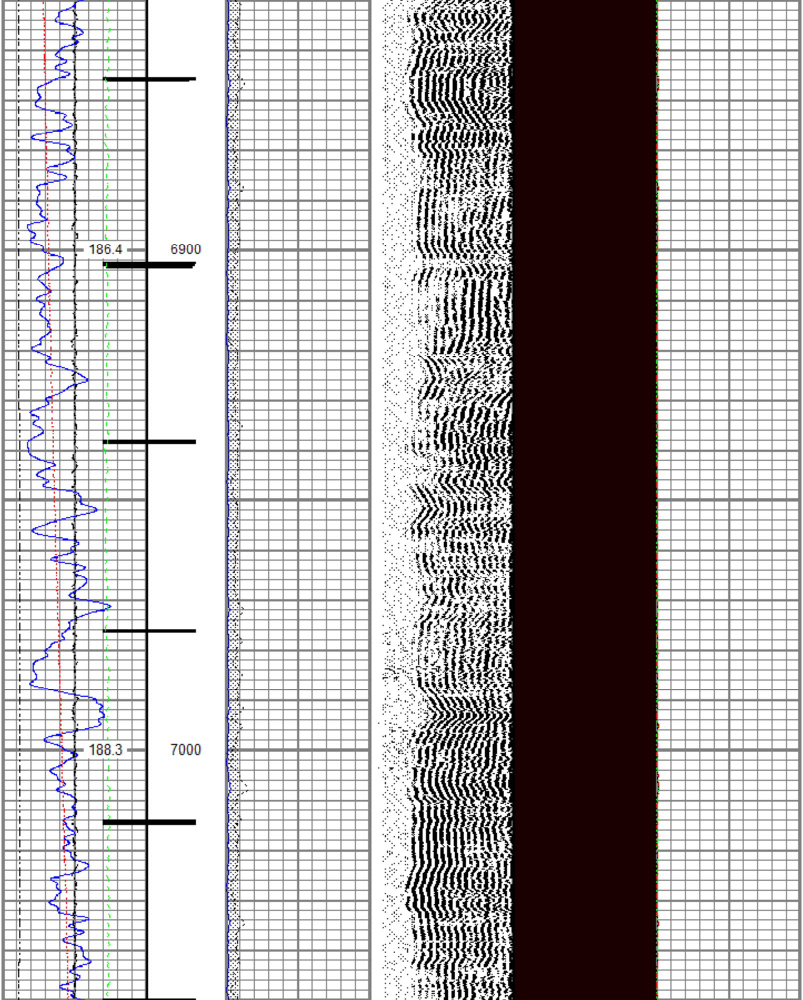
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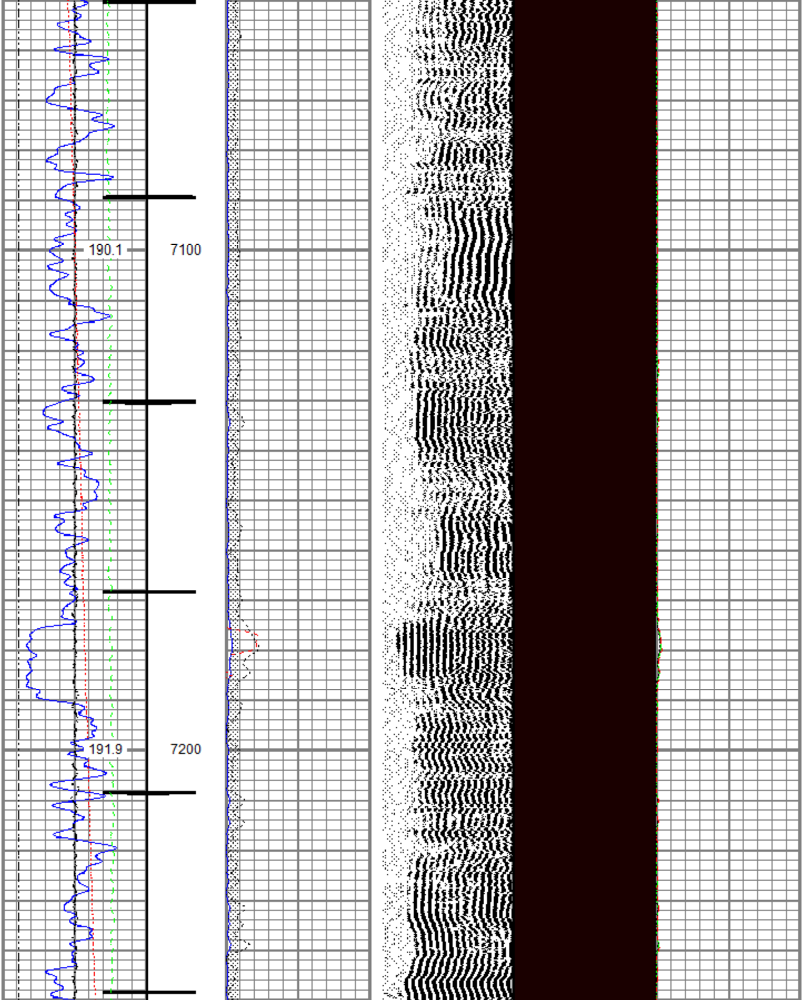
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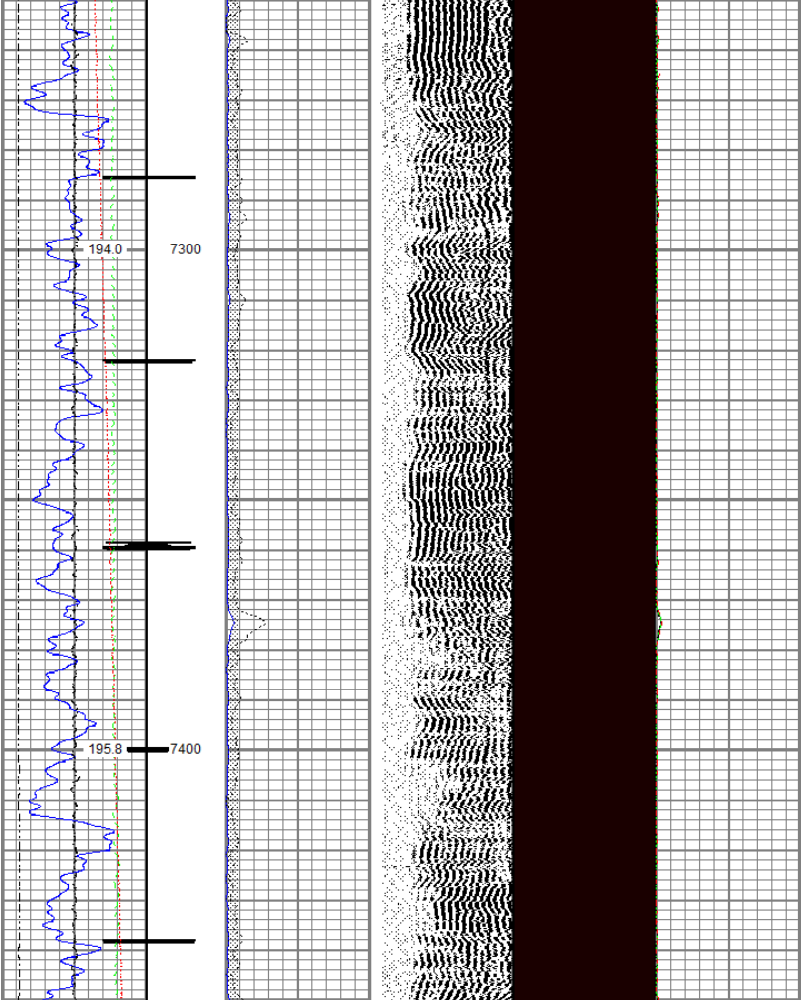
191.9
7200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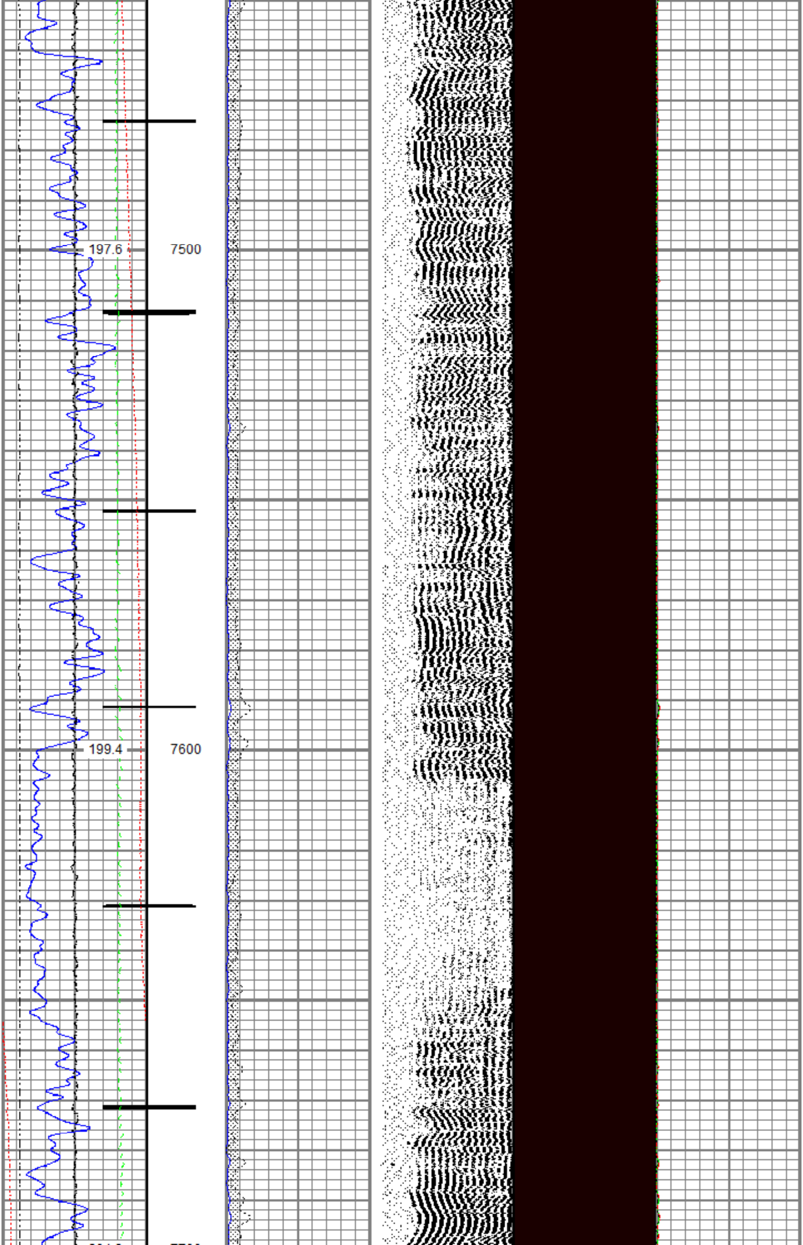
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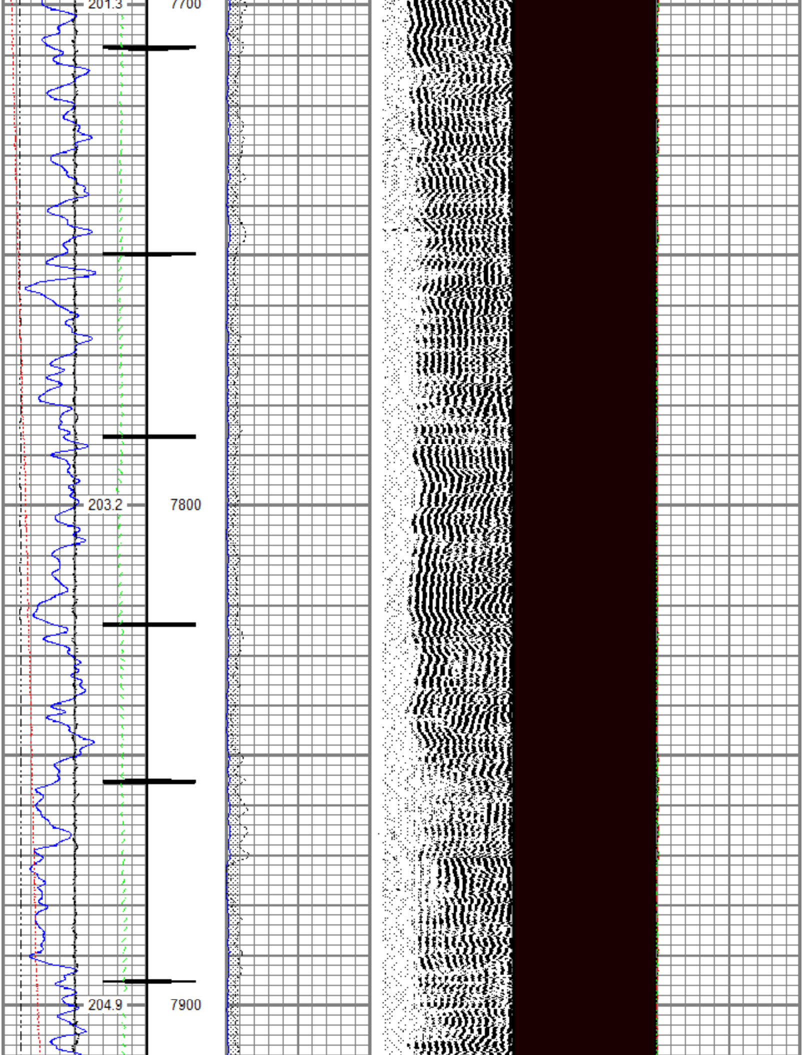

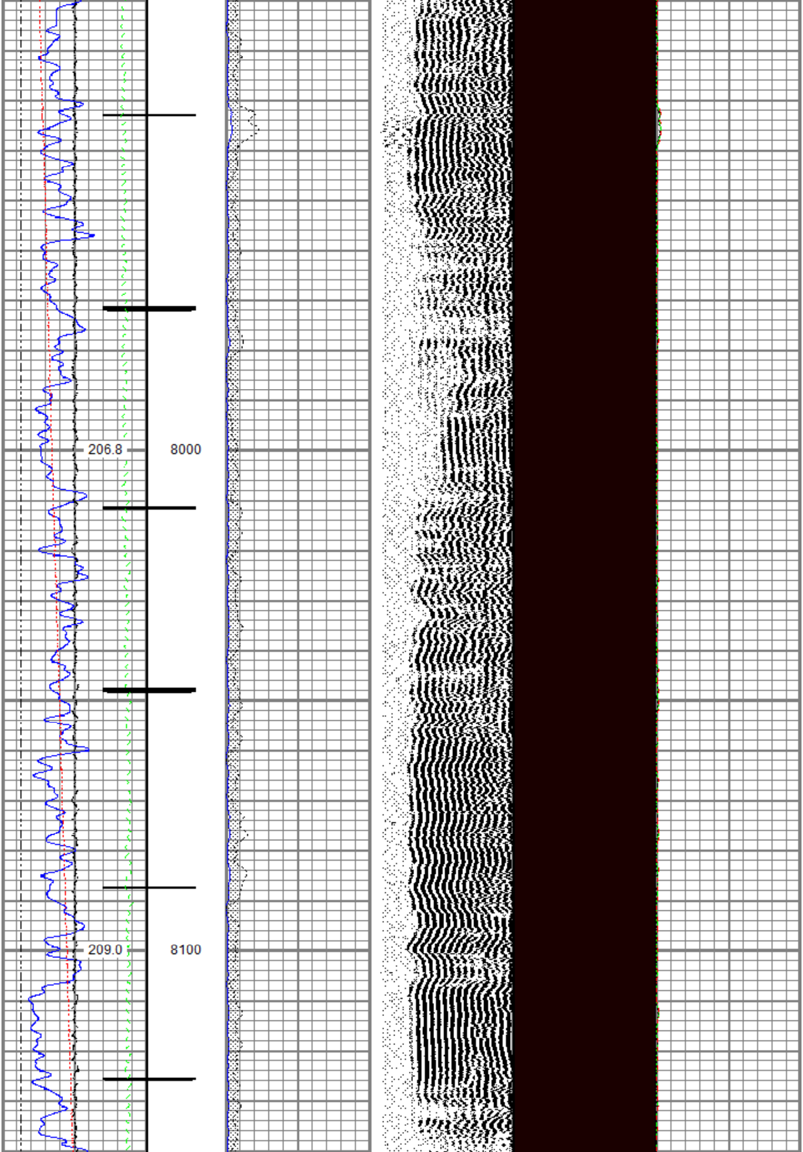

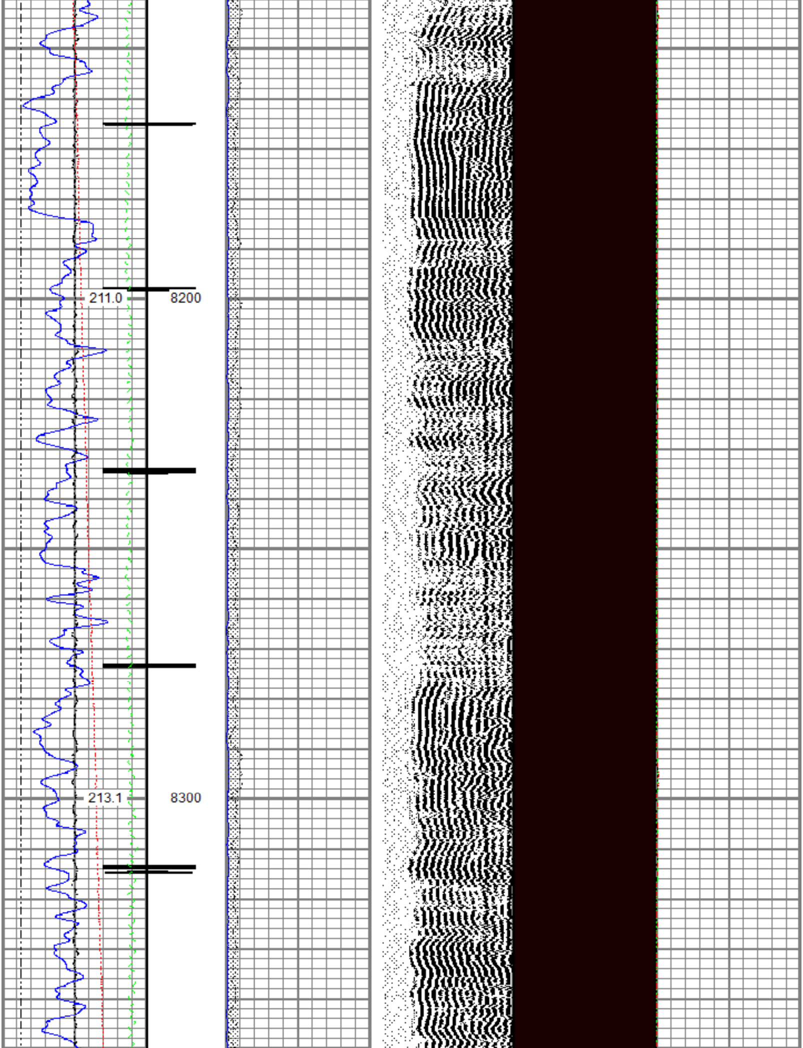

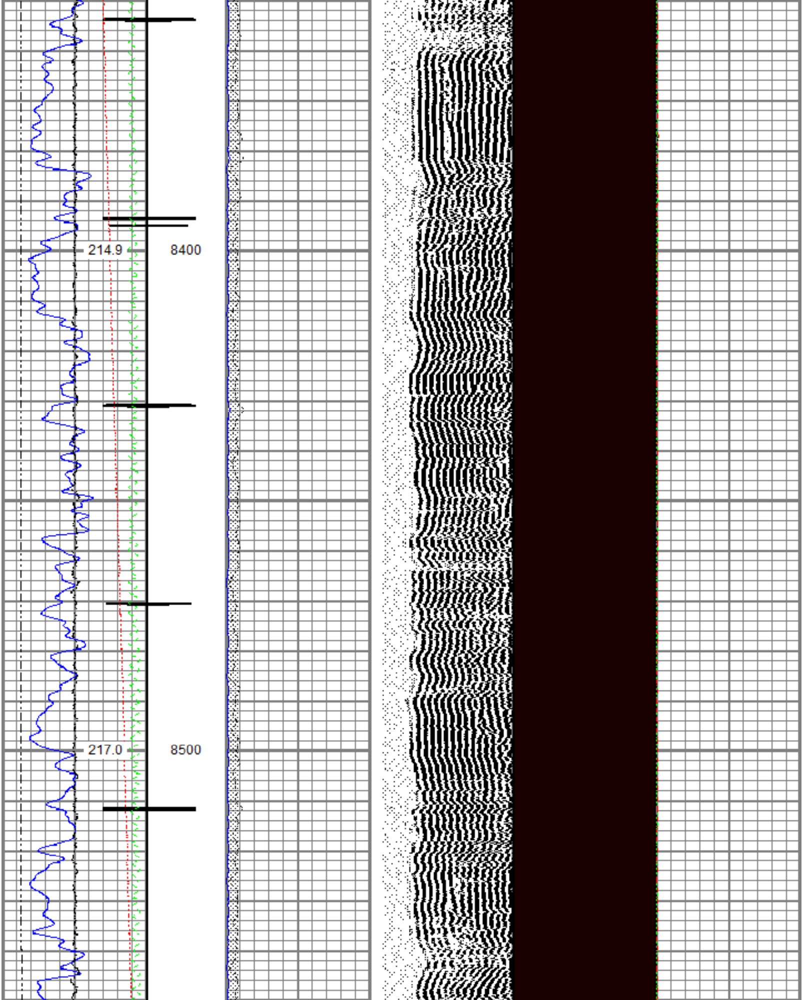

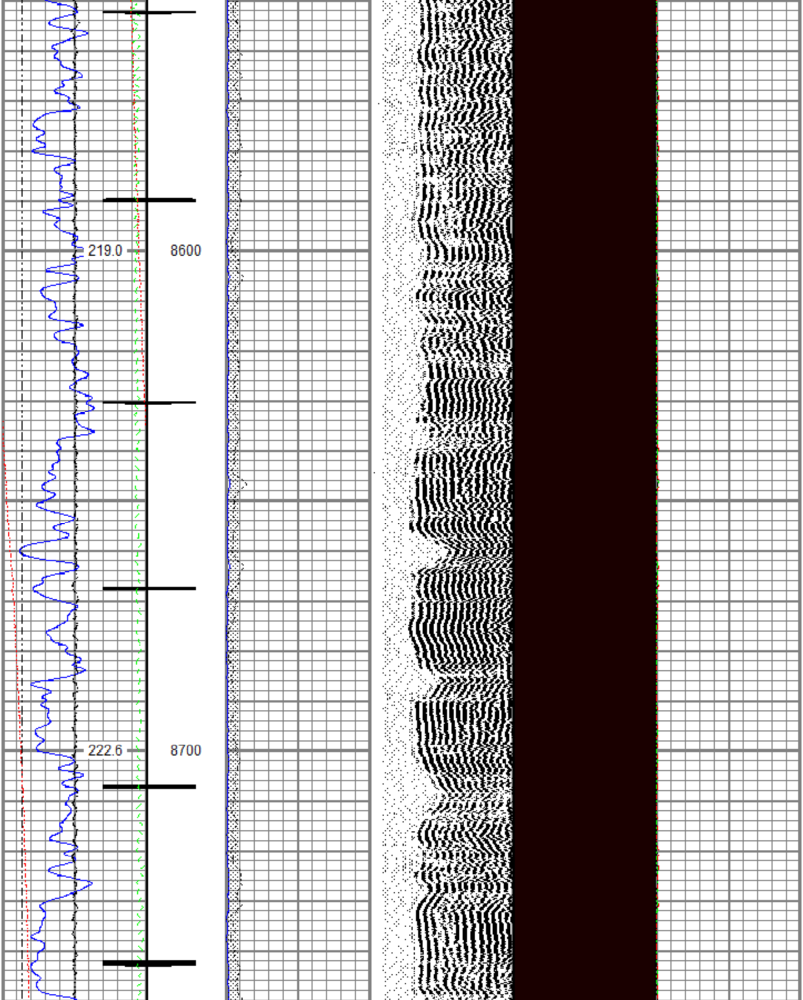

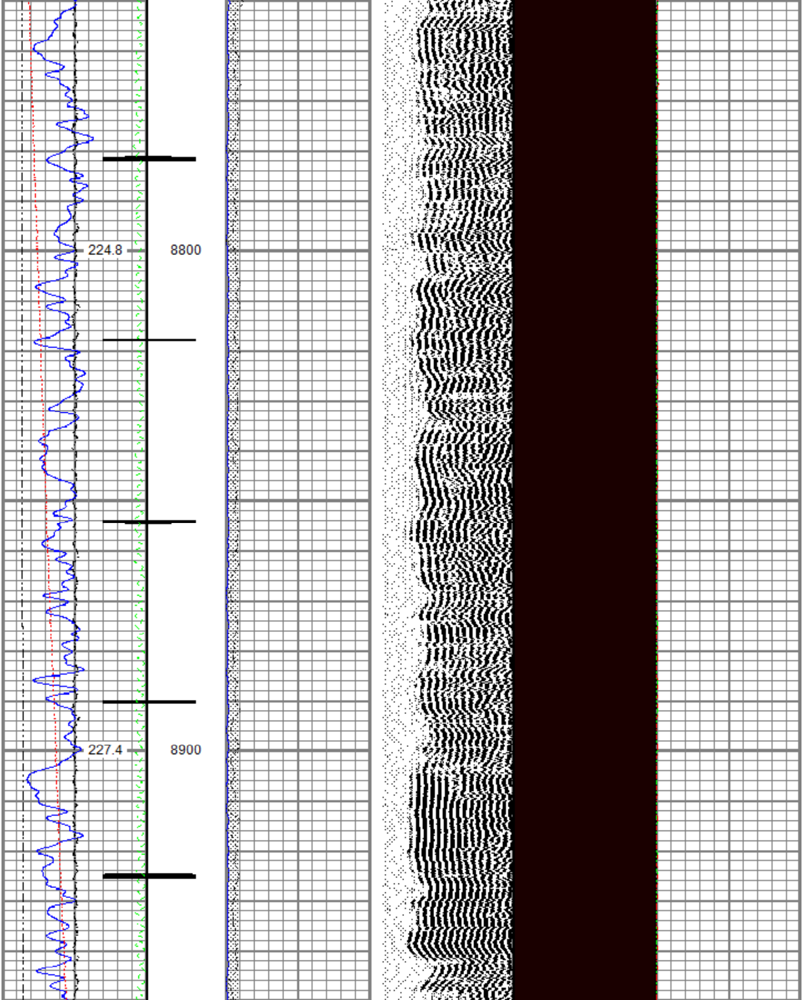

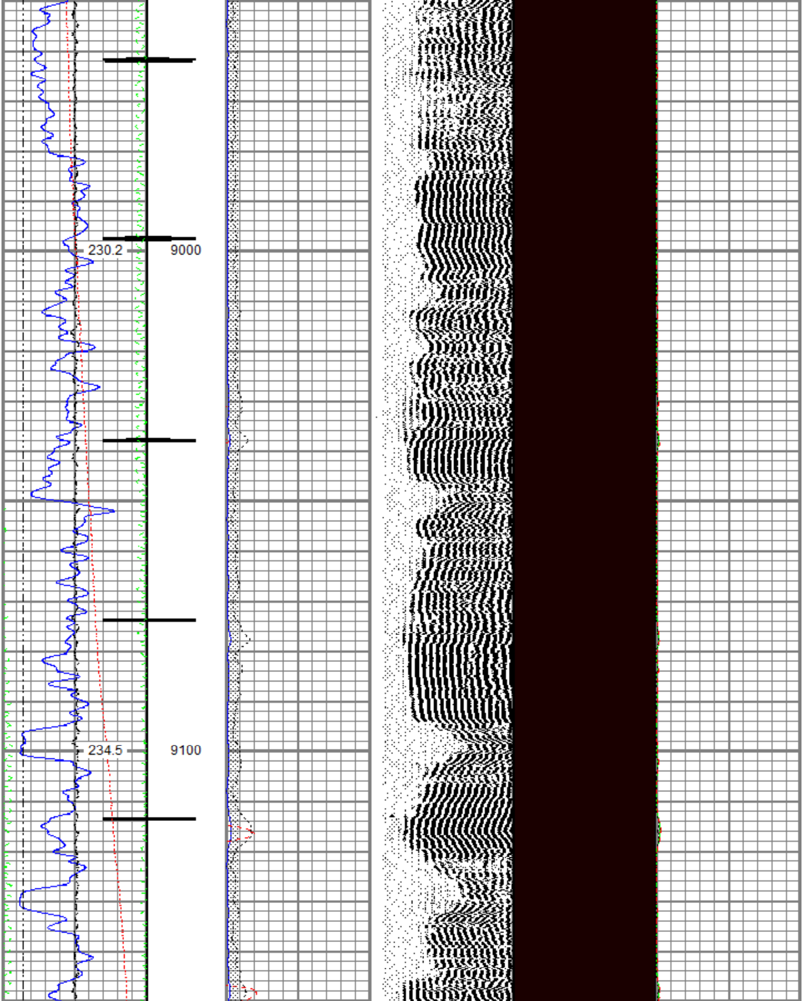

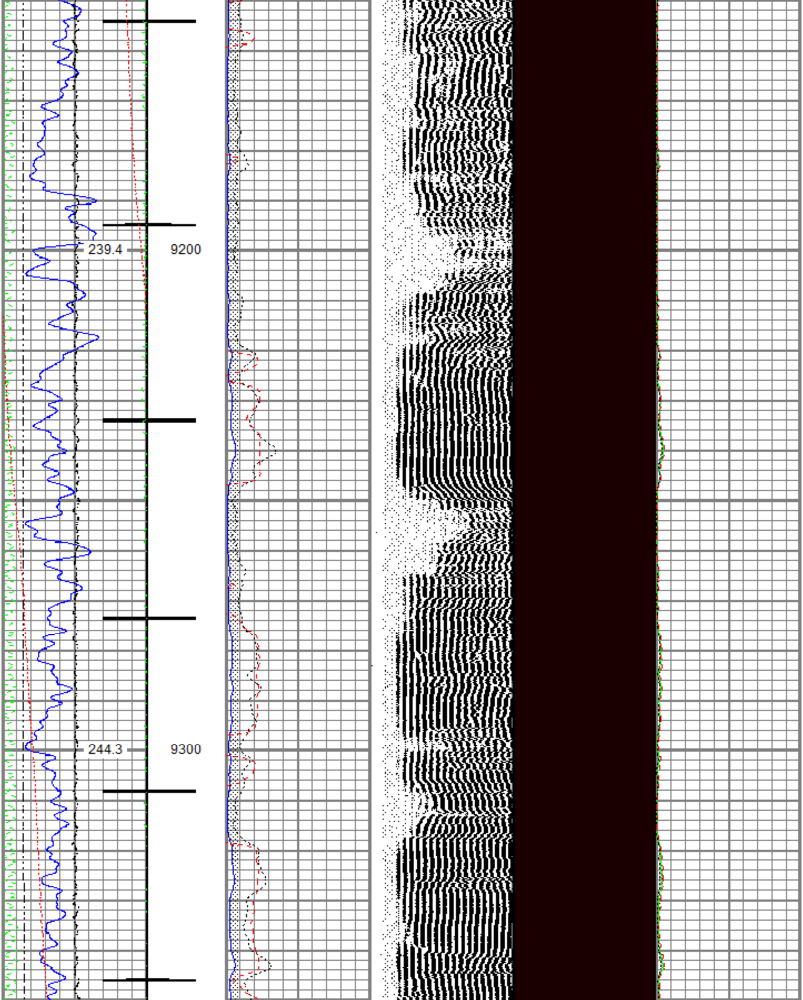

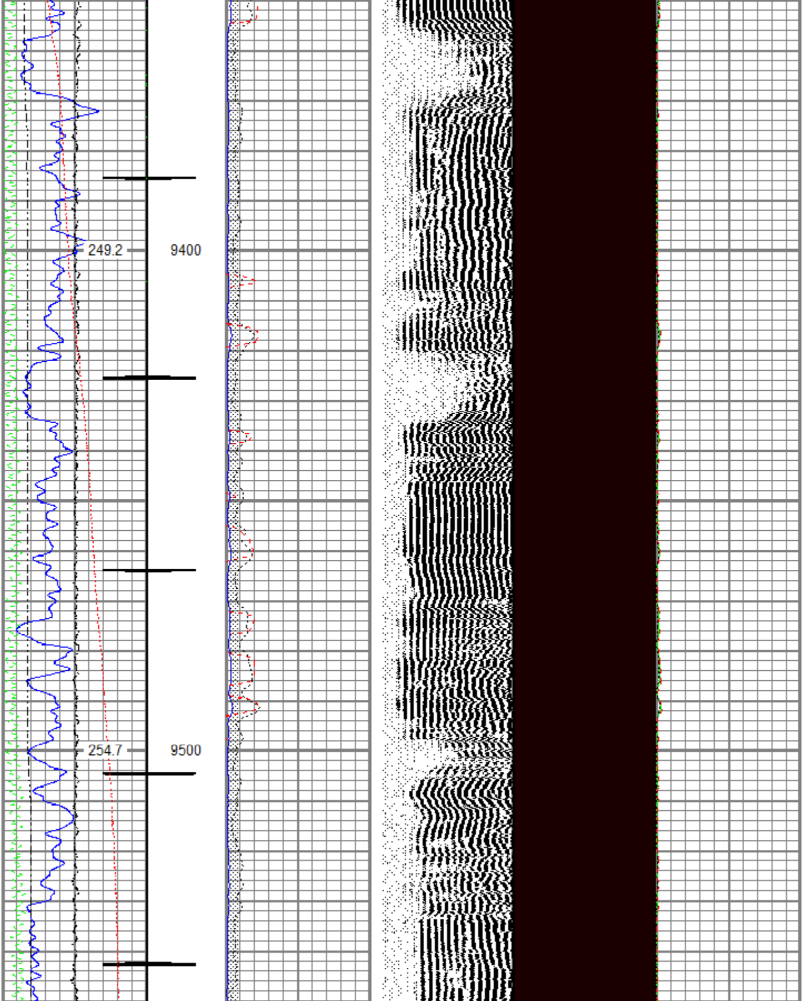

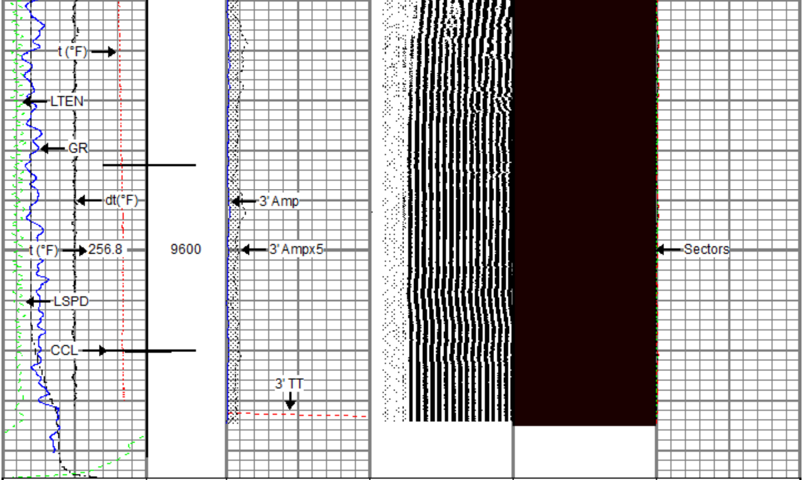

Gamma Ray 0 (GAPI) 200		3' Amplitude 0 (mV) 100	5' Variable Density Log 200 (usec) 1200	Sector Map	Average Amplitude 0 150
Casing Collar Locator		3' Amplitude x 5 0 (mV) 20			Mimimum Amplitude 0 150
Line Speed -150 (ft/min) 150		3' Travel Time 300 (usec) 200			Maximum Amplitude 0 150
Line Tension 0 (lb)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

RELIANCE
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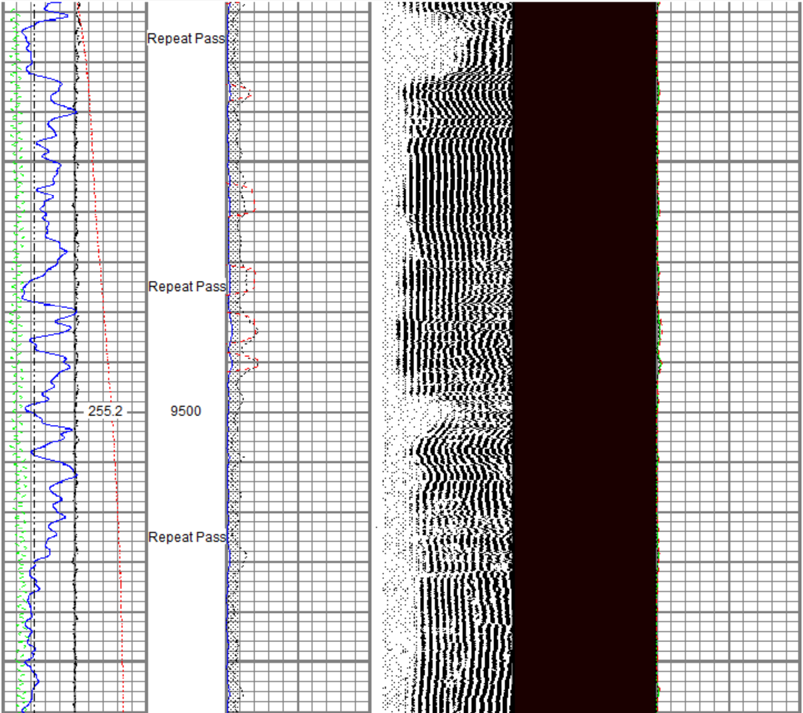
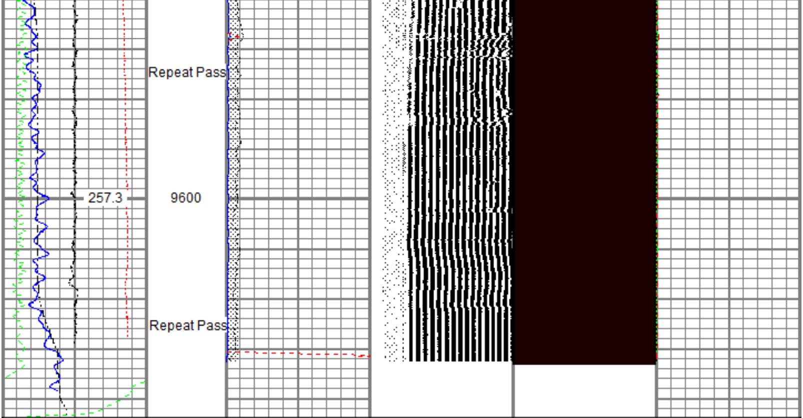
Repeat Pass

Recorded With 0 PSI Surface Induced Pressure

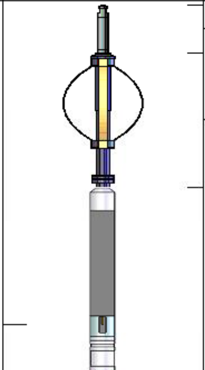
Database File	tep_federal rwf 443-7_rbl_08-13-19\tep_federal rwf 443-7_rbl_08-13-19.db
Dataset Pathname	repeat1
Presentation Format	ros_rbt004_tep
Dataset Creation	Tue Aug 13 15:43:05 2019
Charted by	Depth in Feet scaled 1:240

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

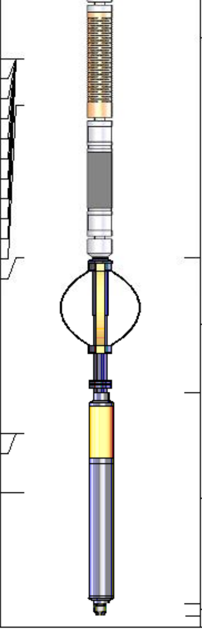




Gamma Ray		3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 200		0 (mV) 100	200 (usec) 1200		0 150
Line Speed -150 (ft/min) 150		3' Amplitude x 5 0 (mV) 20			Mimimum Amplitude 0 150
Line Tension 0 (lb) 2000		3' Travel Time 300 (usec) 200			Maximum Amplitude 0 150
Differential 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 with 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	14.12					

WVFS8	11.89
WVFS7	11.89
WVFS6	11.89
WVFS5	11.89
WVFS4	11.89
WVFS3	11.89
WVFS2	11.89
WVFS1	11.89
WVFCAL	11.89
WVF3FT	11.89
WVF5FT	10.89
HEADVOLT	7.64
CCL$2	3.88
CCL$1	3.88
GR	2.63



Probe Radii-2750 RBT (120855) Probe 2-3/4" Radial Cement Bond Tool with Integral Temperature Sub	9.39	2.75	105.00
Probe CENT-2750 Probe 2-3/4" Electric Inline Bowspring Centralizer	2.88	2.75	20.00
Probe GR-CCL-2750 GOB (FW1211-081) Probe 2-3/4" rev.2 Digital Scintillation Gamma Ray/CCL Combined with GO Bottom	4.51	2.75	55.00
GO BN-14375 GO 1-7/16" Bull Nose with Go Box Top	0.25	1.44	1.00

Dataset: TEP_Federal RWF 443-7_RBL_08-13-19.db: field/well/run1/main
Total length: 20.94 ft
Total weight: 204.60 lb
O.D.: 2.75 in

Calibration Report

Database File C:\ProgramData\Warrior\Data\TEP_Federal RWF 443-7_RBL_08-13-19\TEP_Federal RWF 443-7_RBL_08-
Dataset Pathname main
Dataset Creation Tue Aug 13 15:48:13 2019

Gamma Ray Calibration Report

Serial Number:	FW1211-081	
Tool Model:	2750 GOB	
Performed:	Mon Oct 01 11:32:39 2018	
Calibrator Value:	637.0	GAPI
Background Reading:	112.4	cps
Calibrator Reading:	1008.7	cps
Sensitivity:	0.7107	GAPI/cps

Segmented Cement Bond Log Calibration Report

Serial Number:	120855	
Tool Model:	2750 RBT	
Calibration Casing Diameter:	4.500	in
Calibration Depth:	30.544	ft

Master Calibration, performed Tue Aug 13 10:42:22 2019:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.004	0.733	0.800	81.196	110.336	0.346
CAL	0.003	0.746				
5'	0.005	0.603	0.800	81.196	134.409	0.121
SUM						
S1	0.005	0.740	0.000	100.000	136.154	-0.735
S2	0.004	0.722	0.000	100.000	139.367	-0.570
S3	0.003	0.692	0.000	100.000	145.184	-0.493
S4	0.005	0.757	0.000	100.000	133.047	-0.651
S5	0.005	0.761	0.000	100.000	132.310	-0.722
S6	0.005	0.722	0.000	100.000	139.476	-0.678
S7	0.004	0.687	0.000	100.000	146.260	-0.520
S8	0.005	0.727	0.000	100.000	138.505	-0.724

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.003	0.746	1.000	0.000

Air Zero Calibration, performed Tue Aug 13 10:41:17 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: 120855
Tool Model: 2750 RBT
Performed: Mon Oct 01 11:32:15 2018

	Reference	Reading
Low Reference:	100.00 degF	112.30 degF
High Reference:	350.00 degF	394.75 degF

Gain: 0.89
Offset: 0.60
Delta Spacing 1

RELIANCE
OILFIELD SERVICES

Company	TEP Rocky Mountain LLC
Well	Federal RWF 443-7
Field	Rulison
County	Garfield
State	Colorado